
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-Q

(Mark One):

QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the quarterly period ended March 31, 2017

OR

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934.

For the transition period from _____ to _____

Commission File Number: 001-35975



Gogo Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
Incorporation or Organization)

27-1650905
(I.R.S. Employer
Identification No.)

111 North Canal St., Suite 1500
Chicago, IL 60606
(Address of principal executive offices)

Telephone Number (312) 517-5000
(Registrant's telephone number, including area code)

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input type="checkbox"/>
Non-accelerated filer	<input checked="" type="checkbox"/> (Do not check if smaller reporting company)	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes No

As of April 28, 2017, 86,411,968 shares of \$0.0001 par value common stock were outstanding.

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Gogo Inc.

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Gogo Inc. and Subsidiaries
Unaudited Condensed Consolidated Balance Sheets
(in thousands, except share and per share data)

	March 31, 2017	December 31, 2016
Assets		
Current assets:		
Cash and cash equivalents	\$ 105,929	\$ 117,302
Short-term investments	333,275	338,477
Total cash, cash equivalents and short-term investments	439,204	455,779
Accounts receivable, net of allowances of \$538 and \$499, respectively	76,665	73,743
Inventories	51,235	50,266
Prepaid expenses and other current assets	17,152	24,942
Total current assets	<u>584,256</u>	<u>604,730</u>
Non-current assets:		
Property and equipment, net	542,438	519,810
Intangible assets, net	87,192	85,175
Goodwill	620	620
Long-term restricted cash	7,273	7,773
Other non-current assets	48,291	28,088
Total non-current assets	<u>685,814</u>	<u>641,466</u>
Total assets	<u>\$1,270,070</u>	<u>\$1,246,196</u>
Liabilities and Stockholders' deficit		
Current liabilities:		
Accounts payable	\$ 37,890	\$ 31,689
Accrued liabilities	110,880	132,055
Accrued airline revenue share	14,606	15,521
Deferred revenue	36,052	32,722
Deferred airborne lease incentives	33,136	36,277
Current portion of long-term debt and capital leases	2,961	2,799
Total current liabilities	<u>235,525</u>	<u>251,063</u>
Non-current liabilities:		
Long-term debt	875,199	800,715
Deferred airborne lease incentives	114,115	135,879
Deferred tax liabilities	8,581	8,264
Other non-current liabilities	113,299	90,668
Total non-current liabilities	<u>1,111,194</u>	<u>1,035,526</u>
Total liabilities	<u>1,346,719</u>	<u>1,286,589</u>
Commitments and contingencies (Note 11)		
Stockholders' deficit		
Common stock, par value \$0.0001 per share; 500,000,000 shares authorized at March 31, 2017 and December 31, 2016; 86,683,161 and 86,529,907 shares issued at March 31, 2017 and December 31, 2016, respectively; and 86,411,968 and 86,295,870 shares outstanding at March 31, 2017 and December 31, 2016, respectively	9	9
Additional paid-in-capital	884,020	879,135
Accumulated other comprehensive loss	(1,937)	(2,163)
Accumulated deficit	(958,741)	(917,374)
Total stockholders' deficit	<u>(76,649)</u>	<u>(40,393)</u>
Total liabilities and stockholders' deficit	<u>\$1,270,070</u>	<u>\$1,246,196</u>

See the Notes to Unaudited Condensed Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Unaudited Condensed Consolidated Statements of Operations
(in thousands, except per share amounts)

	For the Three Months Ended March 31,	
	2017	2016
Revenue:		
Service revenue	\$146,495	\$118,720
Equipment revenue	18,911	23,026
Total revenue	<u>165,406</u>	<u>141,746</u>
Operating expenses:		
Cost of service revenue (exclusive of items shown below)	64,813	54,854
Cost of equipment revenue (exclusive of items shown below)	11,648	13,748
Engineering, design and development	36,264	21,648
Sales and marketing	14,395	14,742
General and administrative	22,549	20,989
Depreciation and amortization	30,435	24,357
Total operating expenses	<u>180,104</u>	<u>150,338</u>
Operating loss	<u>(14,698)</u>	<u>(8,592)</u>
Other (income) expense:		
Interest income	(545)	(46)
Interest expense	26,943	16,296
Adjustment of deferred financing costs	—	(869)
Other (income) expense	38	(174)
Total other expense	<u>26,436</u>	<u>15,207</u>
Loss before income taxes	(41,134)	(23,799)
Income tax provision	233	307
Net loss	<u>\$ (41,367)</u>	<u>\$ (24,106)</u>
Net loss attributable to common stock per share—basic and diluted	<u>\$ (0.52)</u>	<u>\$ (0.31)</u>
Weighted average number of shares—basic and diluted	<u>79,139</u>	<u>78,738</u>

See the Notes to Unaudited Condensed Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Unaudited Condensed Consolidated Statements of Comprehensive Loss
(in thousands)

	For the Three Months Ended March 31,	
	<u>2017</u>	<u>2016</u>
Net loss	\$(41,367)	\$(24,106)
Currency translation adjustments	226	412
Comprehensive loss	<u>\$(41,141)</u>	<u>\$(23,694)</u>

See the Notes to Unaudited Condensed Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Unaudited Condensed Consolidated Statements of Cash Flows
(in thousands)

	For the Three Months Ended March 31,	
	2017	2016
Operating activities:		
Net loss	\$ (41,367)	\$ (24,106)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization	30,435	24,357
Loss on asset disposals/abandonments	2,165	277
Deferred income taxes	317	210
Stock-based compensation expense	4,330	4,198
Amortization of deferred financing costs	896	1,168
Accretion and amortization of debt discount and premium	4,508	4,196
Changes in operating assets and liabilities:		
Accounts receivable	(2,872)	(1,491)
Inventories	(969)	(1,033)
Prepaid expenses and other current assets	8,296	(9,826)
Accounts payable	1,094	(18)
Accrued liabilities	(4,697)	(6,333)
Deferred airborne lease incentives	3,559	7,606
Deferred revenue	2,586	5,222
Deferred rent	(370)	517
Accrued airline revenue share	(918)	181
Accrued interest	(20,867)	(3,397)
Other non-current assets and liabilities	(173)	(4,136)
Net cash used in operating activities	<u>(14,047)</u>	<u>(2,408)</u>
Investing activities:		
Proceeds from the sale of property and equipment	—	1
Purchases of property and equipment	(63,655)	(31,015)
Acquisition of intangible assets—capitalized software	(7,953)	(6,411)
Purchases of short-term investments	(109,439)	—
Redemptions of short-term investments	114,641	19,985
Increase in restricted cash	—	(14)
Net cash used in investing activities	<u>(66,406)</u>	<u>(17,454)</u>
Financing activities:		
Proceeds from the issuance of senior secured notes	70,200	—
Payment of issuance costs	(1,120)	—
Payments on capital leases	(697)	(585)
Payments on amended and restated credit agreement	—	(13,846)
Stock-based compensation activity	555	296
Net cash provided by (used in) financing activities	<u>68,938</u>	<u>(14,135)</u>
Effect of exchange rate changes on cash	142	(180)
Decrease in cash and cash equivalents	<u>(11,373)</u>	<u>(34,177)</u>
Cash and cash equivalents at beginning of period	117,302	147,342
Cash and cash equivalents at end of period	<u>\$ 105,929</u>	<u>\$ 113,165</u>
Supplemental Cash Flow Information:		
Cash paid for interest	\$ 42,698	\$ 14,557
Cash paid for taxes	9	14
Noncash Investing and Financing Activities:		
Purchases of property and equipment in current liabilities	\$ 49,043	\$ 29,747
Purchases of property and equipment paid by commercial airlines	3,408	4,162
Purchases of property and equipment under capital leases	1,155	79
Acquisition of intangible assets in current liabilities	1,534	1,698
Asset retirement obligation incurred and adjustments	425	294

See the Notes to Unaudited Condensed Consolidated Financial Statements

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements

1. Basis of Presentation

The Business - Gogo Inc. (“we”, “us”, “our”) is a holding company, which through its operating subsidiaries is a provider of in-flight connectivity and wireless in-cabin digital entertainment solutions. We operate through the following three segments: Commercial Aviation North America or “CA-NA”, Commercial Aviation Rest of World or “CA-ROW” and Business Aviation or “BA”. Services provided by our CA-NA and CA-ROW businesses include Passenger Connectivity, which allows passengers to connect to the Internet from their personal Wi-Fi-enabled devices; Passenger Entertainment, which offers passengers the opportunity to enjoy a broad selection of in-flight entertainment options on their personal Wi-Fi-enabled devices; and Connected Aircraft Services (“CAS”), which offer airlines connectivity for various operations and currently include, among others, real-time credit card transaction processing, electronic flight bags and real-time weather information. Services are provided by CA-NA on commercial aircraft flying routes that generally begin and end within North America, which for this purpose includes the United States, Canada and Mexico. CA-ROW provides service on commercial aircraft operated by foreign-based commercial airlines and flights outside of North America for North American-based commercial airlines. The routes included in our CA-ROW segment are those that begin and/or end outside of North America (as defined above) on which our international service is provided. BA provides in-flight Internet connectivity and other voice and data communications products and services and sells equipment for in-flight telecommunications to the business aviation market. BA services include Gogo Biz, our in-flight broadband service, Passenger Entertainment, our in-flight entertainment service, and satellite-based voice and data services through our strategic alliances with satellite companies.

Basis of Presentation - The accompanying unaudited condensed consolidated financial statements and notes have been prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”) and in conformity with Article 10 of Regulation S-X promulgated under the Securities Act of 1933, as amended (the “Securities Act”). Accordingly, they do not include all of the information and notes required by GAAP for complete financial statements and should be read in conjunction with our annual audited consolidated financial statements and the notes thereto included in our Annual Report on Form 10-K for the year ended December 31, 2016 as filed with the Securities and Exchange Commission (“SEC”) on February 27, 2017 (the “2016 10-K”). These unaudited condensed consolidated financial statements reflect, in the opinion of management, all material adjustments (which include normal recurring adjustments) necessary to fairly state, in all material respects, our financial position, results of operations and cash flows for the periods presented.

The results of operations and cash flows for the three month period ended March 31, 2017 are not necessarily indicative of the results that may be expected for the fiscal year ending December 31, 2017.

We have one class of common stock outstanding as of March 31, 2017 and December 31, 2016.

Use of Estimates - The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenue and expenses during the reporting period. On an ongoing basis, management evaluates the significant estimates and bases such estimates on historical experience and on various other assumptions believed to be reasonable under the circumstances. However, actual results could differ materially from those estimates.

2. Recent Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) 2014-09, *Revenue From Contracts With Customers* (“ASU 2014-09”). This pronouncement outlines a single comprehensive model to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance. The core principle of ASU 2014-09 is that an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. Additionally, the FASB issued several amendments to the standard, including clarification on accounting for licenses of intellectual property and identifying performance obligations. This guidance is effective for annual reporting periods beginning after December 15, 2017, including interim periods within the annual reporting periods. We will adopt this guidance as of January 1, 2018 and we expect to apply this standard using the full retrospective method. During 2016, we established a project team responsible for assessment and implementation of this guidance. While we are continuing to evaluate the impact of the adoption of this guidance on our consolidated financial statements, based on our analysis to date we currently believe that the measurement and timing of recognition of revenue from certain of our

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

commercial aviation and business aviation customers will be impacted. Certain of our commercial airline and business aviation contracts provide service revenue that varies based on usage by passengers and our airline partners. The adoption of this guidance will require consideration as to whether service revenue under such contracts is considered an optional purchase of goods or services, or is considered variable consideration. We are continuing to assess the treatment of costs to obtain or fulfill a contract with a customer, including costs to obtain Supplemental Type Certificates issued by the FAA that are required to install our equipment on aircraft (“STCs”), which may require capitalization and amortization over the anticipated service period. Recognition of our up-front activation fees may be accelerated as the incurrence of such fees does not contain a future material right or otherwise significantly influence whether a customer would renew its service contract. In addition, penalties will be accounted for as a reduction of revenue that will be recognized at the time the related performance obligation is satisfied. We are still assessing the impact of these changes to our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-02, *Leases* (“ASU 2016-02”), which introduces a lessee model that records most leases on the balance sheet. ASU 2016-02 also aligns certain underlying principles of the new lessor model with those in Accounting Standards Codification (“ASC”) 606, *Revenue from Contracts with Customers* (“ASC 606”), the FASB’s new revenue recognition standard. Furthermore, ASU 2016-02 eliminates the required use of bright-line tests used in current GAAP for determining lease classification. It also requires lessors to provide additional transparency into their exposure to the changes in value of their residual assets and how they manage that exposure. ASU 2016-02 is effective for annual reporting periods beginning after December 15, 2018, including interim periods within those annual reporting periods. We will adopt this as guidance as of January 1, 2019 and we are currently evaluating the impact of the adoption of this guidance on our consolidated financial statements.

In March 2016, the FASB issued ASU 2016-04, *Recognition of Breakage for Certain Prepaid Stored-Value Products* (“ASU 2016-04”), which amends the guidance on extinguishing financial liabilities for certain prepaid stored-value products by requiring that entities that sell prepaid stored-value products recognize breakage proportionally as the prepaid stored-value product is being redeemed rather than immediately upon sale of the product. If an entity is unable to estimate breakage, the amount would be recognized when the likelihood becomes remote that the holder will exercise the remaining rights. Entities are required to reassess their estimates of breakage each reporting period. Any change in this estimate would be accounted for as a change in an accounting estimate. An entity that recognizes breakage is required to disclose the methodology used to recognize breakage and significant judgments made in applying the breakage methodology. ASU 2016-04 is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years, and early adoption is permitted. We can apply ASU 2016-04 by using either a modified retrospective transition approach or a full retrospective transition approach. We will adopt this as guidance as of January 1, 2018 and we are currently evaluating the impact of the adoption of this guidance on our consolidated financial statements.

In August 2016, the FASB issued ASU 2016-15, *Classification of Certain Cash Receipts and Cash Payments* (“ASU 2016-15”), which amends ASC 230, *Statement of Cash Flows*, the FASB’s standards for reporting cash flows in general-purpose financial statements. The amendments address the diversity in practice related to the classification of certain cash receipts and payments including debt prepayment or debt extinguishment costs. ASU 2016-15 is effective for fiscal years beginning after December 15, 2017, including interim periods within those fiscal years, and early adoption is permitted. We will adopt this guidance as of January 1, 2018 and we expect to apply this standard using the full retrospective method. We do not believe adoption of this guidance will have a material effect on our cash flows as we have historically reported debt prepayment and debt extinguishment costs in a manner consistent with ASU 2016-15.

In October 2016, the FASB issued ASU 2016-16, *Intra-Entity Transfers of Assets Other Than Inventory* (“ASU 2016-16”), which removes the prohibition in ASC 740, *Income Taxes*, against the immediate recognition of the current and deferred income tax effects of intra-entity transfers of assets other than inventory. This is intended to reduce the complexity of GAAP and diversity in practice related to the tax consequences of certain types of intra-entity asset transfers, particularly those involving intellectual property. ASU 2016-16 is effective for annual reporting periods beginning after December 15, 2017, including interim periods within those annual reporting periods. We will adopt this guidance as of January 1, 2018 and we are currently evaluating the impact of the adoption of this guidance on our consolidated financial statements.

In November 2016, the FASB issued ASU 2016-18, *Restricted Cash – A Consensus of the FASB Emerging Issues Task Force*, (“ASU 2016-18”), which amends ASC 230, *Statement of Cash Flows*, to clarify guidance on the classification and presentation of restricted cash in the statement of cash flows. ASU 2016-18 is effective for annual

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

reporting periods beginning after December 15, 2017, including interim periods within those annual reporting periods. We will adopt this guidance as of January 1, 2018 and do not believe the adoption of this guidance will have a material impact on our consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, *Simplifying the Test for Goodwill Impairment* (“ASU 2017-04”), which simplifies the accounting for goodwill impairments by eliminating Step-2 from the goodwill impairment test. ASU 2017-04 is effective for annual reporting periods beginning after December 15, 2019 and early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. We will adopt this guidance as of our annual goodwill impairment test in October 2017 and do not believe the adoption of this guidance will have a material impact on our consolidated financial statements.

3. Net Loss Per Share

Basic and diluted net loss per share have been calculated using the weighted average number of common shares outstanding for the period. The shares of common stock effectively repurchased in connection with the Forward Transactions (as defined and described in Note 8, “Long-Term Debt and Other Liabilities”) are considered participating securities requiring the two-class method to calculate basic and diluted earnings per share. Net earnings in future periods will be allocated between common shares and participating securities. In periods of a net loss, the shares associated with the Forward Transactions will not receive an allocation of losses, as the counterparties to the Forward Transactions are not required to fund losses. Accordingly, the calculation of weighted average shares outstanding as of March 31, 2017 and 2016 excludes approximately 7.2 million shares that will be repurchased as a result of the Forward Transactions.

As a result of the net loss for the three month periods ended March 31, 2017 and 2016, all of the outstanding shares of common stock underlying stock options, deferred stock units and restricted stock units were excluded from the computation of diluted shares outstanding because they were anti-dilutive.

The following table sets forth the computation of basic and diluted earnings per share for the three month periods ended March 31, 2017 and 2016; however, because of the undistributed losses, the shares of common stock associated with the Forward Transactions are excluded from the computation of basic earnings per share in 2017 and 2016 as undistributed losses are not allocated to these shares (*in thousands, except per share amounts*):

	For the Three Months Ended March 31,	
	2017	2016
Net loss	\$(41,367)	\$(24,106)
Less: Participation rights of the Forward Transactions	—	—
Undistributed losses	\$(41,367)	\$(24,106)
Weighted-average common shares outstanding-basic and diluted	79,139	78,738
Net loss attributable to common stock per share-basic and diluted	\$ (0.52)	\$ (0.31)

4. Inventories

Inventories consist primarily of telecommunications systems and parts, and are recorded at the lower of cost (average cost) or market. We evaluate the need for write-downs associated with obsolete, slow-moving, and nonsalable inventory by reviewing net realizable inventory values on a periodic basis.

Inventories as of March 31, 2017 and December 31, 2016, all of which were included within the BA segment, were as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Work-in-process component parts	\$ 39,162	\$ 39,150
Finished goods	12,073	11,116
Total inventory	\$ 51,235	\$ 50,266

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

5. Composition of Certain Balance Sheet Accounts

Property and equipment as of March 31, 2017 and December 31, 2016 were as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Office equipment, furniture, fixtures and other	\$ 51,699	\$ 49,529
Leasehold improvements	42,173	42,143
Airborne equipment	585,675	557,196
Network equipment	175,329	168,121
	<u>854,876</u>	<u>816,989</u>
Accumulated depreciation	(312,438)	(297,179)
Property and equipment, net	<u>\$ 542,438</u>	<u>\$ 519,810</u>

Other non-current assets as of March 31, 2017 and December 31, 2016 were as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Deferred cost of equipment revenue	\$ 32,456	\$ 14,159
Deposits on satellite and airborne equipment	12,694	10,800
Other	3,141	3,129
Total other non-current assets	<u>\$ 48,291</u>	<u>\$ 28,088</u>

Accrued liabilities as of March 31, 2017 and December 31, 2016 were as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Employee compensation and benefits	\$ 13,696	\$ 21,008
Airborne equipment and installation costs	27,476	22,442
Airborne partner related accrued liabilities	17,809	14,307
Accrued interest	19,569	40,436
Other	32,330	33,862
Total accrued liabilities	<u>\$ 110,880</u>	<u>\$ 132,055</u>

Other non-current liabilities as of March 31, 2017 and December 31, 2016 were as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Deferred revenue	\$ 61,183	\$ 38,976
Deferred rent	36,182	36,538
Asset retirement obligations	9,126	8,527
Other	6,808	6,627
Total other non-current liabilities	<u>\$ 113,299</u>	<u>\$ 90,668</u>

6. Intangible Assets

Our intangible assets are comprised of both indefinite-lived and finite-lived intangible assets. Intangible assets with indefinite lives and goodwill are not amortized, but are reviewed for impairment at least annually or whenever events or circumstances indicate the carrying value of the asset may not be recoverable. We perform our annual impairment tests of our indefinite-lived intangible assets and goodwill during the fourth quarter of each fiscal year. We also reevaluate the useful life of the indefinite-lived intangible assets each reporting period to determine whether events and circumstances continue to support an indefinite useful life. The results of our annual indefinite-lived intangible assets and goodwill impairment assessments in the fourth quarter of 2016 indicated no impairment.

As of March 31, 2017 and December 31, 2016, our goodwill balance, all of which related to our BA segment, was \$0.6 million.

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

Our intangible assets, other than goodwill, as of March 31, 2017 and December 31, 2016 were as follows (*in thousands, except for weighted average remaining useful life*):

	Weighted Average Remaining Useful Life (in years)	As of March 31, 2017			As of December 31, 2016		
		Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Amortized intangible assets:							
Software	2.4	\$126,700	\$ (75,559)	\$51,141	\$118,836	\$ (70,127)	\$48,709
Service customer relationship	3.0	8,081	(5,026)	3,055	8,081	(4,773)	3,308
Other intangible assets	1.7	1,500	(787)	713	1,500	(682)	818
OEM and dealer relationships		6,724	(6,724)	—	6,724	(6,667)	57
Total amortized intangible assets		143,005	(88,096)	54,909	135,141	(82,249)	52,892
Unamortized intangible assets:							
FCC Licenses		32,283	—	32,283	32,283	—	32,283
Total intangible assets		\$175,288	\$ (88,096)	\$87,192	\$167,424	\$ (82,249)	\$85,175

Amortization expense was \$5.8 million and \$4.6 million, respectively, for the three month periods ended March 31, 2017 and 2016.

Amortization expense for each of the next five years and thereafter is estimated to be as follows (*in thousands*):

Years ending December 31,	Amortization Expense
2017 (period from April 1 to December 31)	\$ 17,903
2018	\$ 18,150
2019	\$ 10,008
2020	\$ 3,504
2021	\$ 1,519
Thereafter	\$ 3,825

Actual future amortization expense could differ from the estimated amount as a result of future investments and other factors.

7. Warranties

We provide warranties on parts and labor related to our products. Our warranty terms range from two to five years. Warranty reserves are established for costs that are estimated to be incurred after the sale, delivery and installation of the products under warranty. The warranty reserves are determined based on known product failures, historical experience and other available evidence, and are included in accrued liabilities in our unaudited condensed consolidated balance sheets. Our warranty reserve balance was \$2.6 million as of both March 31, 2017 and December 31, 2016.

8. Long-Term Debt and Other Liabilities

Long-term debt as of March 31, 2017 and December 31, 2016 was as follows (*in thousands*):

	March 31, 2017	December 31, 2016
Senior Secured Notes	\$595,027	\$ 525,000
Convertible Notes	296,705	292,024
Total debt	891,732	817,024
Less deferred financing costs	(16,533)	(16,309)
Total long-term debt	<u>\$875,199</u>	<u>\$ 800,715</u>

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

Senior Secured Notes – On June 14, 2016 (the “Issue Date”), Gogo Intermediate Holdings LLC (“GIH”) (a wholly owned subsidiary of Gogo Inc.) and Gogo Finance Co. Inc. (a wholly owned subsidiary of GIH) (the “Co-Issuer” and, together with GIH, the “Issuers”), issued \$525 million aggregate principal amount of 12.500% senior secured notes due 2022 (the “Original Senior Secured Notes”) under an Indenture, dated as of June 14, 2016 (the “Indenture”), among the Issuers, us, as guarantor, certain subsidiaries of GIH, as guarantors (the “Subsidiary Guarantors” and, together with us, the “Guarantors”), and U.S. Bank National Association, as trustee (in such capacity, the “Trustee”) and as collateral agent (in such capacity, the “Collateral Agent”). On January 3, 2017, the Issuers issued \$65 million aggregate principal amount of additional senior secured notes due 2022 (the “Additional Notes”). The Additional Notes were issued at a price equal to 108% of their face value resulting in gross proceeds of \$70.2 million. We refer to the Original Senior Secured Notes and the Additional Notes collectively as the “Senior Secured Notes.”

As of March 31, 2017 and December 31, 2016 the outstanding principal balance of the Senior Secured Notes was \$590.0 million and \$525.0 million, respectively. The unamortized debt premium was \$5.0 million as of March 31, 2017 and the net carrying amount was \$595.0 million as of March 31, 2017. The net carrying amount was \$525.0 million as of December 31, 2016.

Interest on the Senior Secured Notes accrues at the rate of 12.500% per annum and is payable semi-annually in arrears on July 1 and January 1, commencing on January 1, 2017 (other than the Additional Notes, for which interest payments commence on July 1, 2017). The Senior Secured Notes mature on July 1, 2022. The Additional Notes have the same terms as the Original Senior Secured Notes, except with respect to the issue date and issue price, and are treated as a single series for all purposes under the Indenture and the security documents that govern the Additional Notes and the Original Senior Secured Notes.

We paid approximately \$11.4 million and \$2.0 million, respectively, of loan origination fees and financing costs related to the issuance of the Original Senior Secured Notes and the Additional Notes, which have been accounted for as deferred financing costs. The deferred financing costs on our unaudited condensed consolidated balance sheet are being amortized over the contractual term of the Senior Secured Notes using the effective interest method. Total amortization expense was \$0.5 million for the three month period ended March 31, 2017. As of March 31, 2017 and December 31, 2016, the balance of unamortized deferred financing costs related to the Senior Secured Notes was \$11.8 million and \$11.2 million, respectively, and is included as a reduction to long-term debt in our unaudited condensed consolidated balance sheet. See Note 9, “Interest Costs” for additional information.

The Senior Secured Notes are the senior secured indebtedness of the Issuers and are:

- effectively senior to all of the Issuers’ existing and future senior unsecured indebtedness and the Issuers’ indebtedness secured on a junior priority basis by the same collateral securing the Senior Secured Notes, if any, in each case to the extent of the value of the collateral securing the Senior Secured Notes;
- effectively senior in right of payment to all of the Issuers’ future indebtedness that is subordinated in right of payment to the Senior Secured Notes;
- effectively equal in right of payment with the Issuers’ existing and future (i) unsecured indebtedness that is not subordinated in right of payment to the Senior Secured Notes and (ii) indebtedness secured on a junior priority basis by the same collateral securing the Senior Secured Notes, if any, in each case to the extent of any insufficiency in the collateral securing the Senior Secured Notes;
- structurally senior to all of our existing and future indebtedness, including our Convertible Notes (as defined below); and
- structurally subordinated to all of the indebtedness and other liabilities of any non-Guarantors (other than the Issuers).

The Senior Secured Notes are guaranteed, on a senior secured basis, by us and all of GIH’s existing and future domestic restricted subsidiaries (other than the Co-Issuer), subject to certain exceptions. The Issuers’ obligations under the Senior Secured Notes are not guaranteed by Gogo International Holdings, LLC, a subsidiary of ours that holds no material assets other than equity interests in our foreign subsidiaries. Each guarantee is a senior secured obligation of such Guarantor and is:

- effectively senior to all of such Guarantor’s existing and future senior unsecured indebtedness and such Guarantor’s indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of the value of the collateral securing such guarantee;

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- effectively senior in right of payment to all of such Guarantor’s future indebtedness that is subordinated in right of payment to such Guarantor’s guarantee;
- effectively equal in right of payment with all of such Guarantor’s existing and future (i) unsecured indebtedness that is not subordinated in right of payment to such Guarantor’s guarantee, and (ii) indebtedness secured on a junior priority basis by the same collateral, if any, securing the guarantee of such Guarantor, in each case to the extent of any insufficiency in the collateral securing such guarantee; and
- structurally subordinated to all indebtedness and other liabilities of any non-Guarantor subsidiary of such Guarantor (excluding, in the case of our guarantee, the Issuers).

The Senior Secured Notes and the related guarantees are secured by first-priority liens, subject to permitted liens, on substantially all of the Issuers’ and the Guarantors’ assets, except for certain excluded assets, including pledged equity interests of the Issuers and all of our existing and future domestic restricted subsidiaries guaranteeing the Senior Secured Notes.

The security interests in certain collateral may be released without the consent of holders of the Senior Secured Notes if such collateral is disposed of in a transaction that complies with the Indenture and related security agreements. In addition, under certain circumstances, we and the Guarantors have the right to transfer certain intellectual property assets that on the Issue Date constitute collateral securing the Senior Secured Notes or the guarantees to a restricted subsidiary organized under the laws of Switzerland, resulting in the release of such collateral without consent of the holders of the Senior Secured Notes.

On or after July 1, 2019, the Issuers may, at their option, at any time or from time to time, redeem any of the Senior Secured Notes in whole or in part. The Senior Secured Notes will be redeemable at the following redemption prices (expressed in percentages of principal amount), plus accrued and unpaid interest, if any, to (but not including) the redemption date (subject to the right of holders of record on the relevant regular record date on or prior to the redemption date to receive interest due on an interest payment date), if redeemed during the twelve-month period commencing on July 1 of the following years:

Year	Redemption Price
2019	106.250%
2020	103.125%
2021 and thereafter	100.000%

In addition, at any time prior to July 1, 2019, the Issuers may redeem up to 35% of the aggregate principal amount of the Senior Secured Notes with the proceeds of certain equity offerings at a redemption price of 112.500% of the principal amount redeemed, plus accrued and unpaid interest, if any, to (but not including) the date of redemption; provided, however, that Senior Secured Notes representing at least 65% of the principal amount of the Senior Secured Notes remain outstanding immediately after each such redemption.

The Issuers may redeem the Senior Secured Notes, in whole or in part, at any time prior to July 1, 2019, at a redemption price equal to 100% of the principal amount of the Senior Secured Notes redeemed plus the make-whole premium set forth in the Indenture as of, and accrued and unpaid interest, if any, to (but not including) the applicable redemption date.

The Indenture contains covenants that, among other things, limit the ability of the Issuers and the Subsidiary Guarantors and, in certain circumstances, our ability, to: incur additional indebtedness; pay dividends, redeem stock or make other distributions; make investments; create restrictions on the ability of our restricted subsidiaries to pay dividends to the Issuers or make other intercompany transfers; create liens; transfer or sell assets; merge or consolidate; and enter into certain transactions with the Issuers’ affiliates, including us. Most of these covenants will cease to apply if, and for as long as, the Senior Secured Notes have investment grade ratings from both Moody’s Investment Services, Inc. and Standard & Poor’s.

If we or the Issuers undergo specific types of change of control prior to July 1, 2022, GIH is required to make an offer to repurchase for cash all of the Senior Secured Notes at a repurchase price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to (but not including) the payment date.

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The Indenture provides for events of default, which, if any of them occur, would permit or require the principal, premium, if any, and interest on all of the then outstanding Senior Secured Notes issued under the Indenture to be due and payable immediately. As of March 31, 2017, no event of default had occurred.

Convertible Notes – On March 3, 2015, we issued \$340.0 million aggregate principal amount of 3.75% Convertible Senior Notes due 2020 (the “Convertible Notes”) in a private offering to qualified institutional buyers, pursuant to Rule 144A under the Securities Act. We granted an option to the initial purchasers to purchase up to an additional \$60.0 million aggregate principal amount of Convertible Notes to cover over-allotments, of which \$21.9 million was subsequently exercised during March 2015, resulting in a total issuance of \$361.9 million aggregate principal amount of Convertible Notes. The Convertible Notes mature on March 1, 2020, unless earlier repurchased or converted into shares of our common stock under certain circumstances described below. Upon maturity, we have the option to settle our obligation through cash, shares of common stock, or a combination of cash and shares of common stock. We pay interest on the Convertible Notes semi-annually in arrears on March 1 and September 1 of each year. Interest payments began on September 1, 2015.

The \$361.9 million of proceeds received from the issuance of the Convertible Notes was initially allocated between long-term debt (the liability component) at \$261.9 million and additional paid-in-capital (the equity component) at \$100.0 million, within the consolidated balance sheet. The fair value of the liability component was measured using rates determined for similar debt instruments without a conversion feature. The carrying amount of the equity component, representing the conversion option, was determined by deducting the fair value of the liability component from the aggregate face value of the Convertible Notes. If we or the note holders elect not to settle the debt through conversion, we must settle the Convertible Notes at face value. Therefore, the liability component will be accreted up to the face value of the Convertible Notes, which will result in additional non-cash interest expense being recognized in the unaudited condensed consolidated statements of operations through the Convertible Notes maturity date (see Note 9, “Interest Costs” for additional information). The effective interest rate on the Convertible Notes, including accretion of the notes to par and debt issuance cost amortization, was approximately 11.5%. The equity component will not be remeasured as long as it continues to meet the conditions for equity classification.

As of March 31, 2017 and December 31, 2016, the outstanding principal on the Convertible Notes was \$361.9 million, the unamortized debt discount was \$65.2 million and \$69.9 million, respectively, and the net carrying amount of the liability component was \$296.7 million and \$292.0 million, respectively.

We incurred approximately \$10.4 million of issuance costs related to the issuance of the Convertible Notes of which \$7.5 million and \$2.9 million were recorded to deferred financing costs and additional paid-in capital, respectively, in proportion to the allocation of the proceeds of the Convertible Notes. The \$7.5 million recorded as deferred financing costs on our unaudited condensed consolidated balance sheet is being amortized over the term of the Convertible Notes using the effective interest method. Total amortization expense of the deferred financing costs was \$0.4 million and \$0.3 million, respectively, for the three months ended March 31, 2017 and 2016. Amortization expense is included in interest expense in the unaudited condensed consolidated statements of operations. As of March 31, 2017 and December 31, 2016, the balance of unamortized deferred financing costs related to the Convertible Notes was \$4.7 million and \$5.1 million, respectively, and is included as a reduction to long-term debt in our unaudited condensed consolidated balance sheets. See Note 9, “Interest Costs” for additional information.

The Convertible Notes had an initial conversion rate of 41.9274 common shares per \$1,000 principal amount of Convertible Notes, which is equivalent to an initial conversion price of approximately \$23.85 per share of our common stock. Upon conversion, we currently expect to deliver cash up to the principal amount of the Convertible Notes then outstanding. With respect to any conversion value in excess of the principal amount, we currently expect to deliver shares of our common stock. We may elect to deliver cash in lieu of all or a portion of such shares. The shares of common stock subject to conversion are excluded from diluted earnings per share calculations under the if-converted method as their impact is anti-dilutive.

Holders may convert the Convertible Notes, at their option, in multiples of \$1,000 principal amount at any time prior to December 1, 2019, but only in the following circumstances:

- during any fiscal quarter beginning after the fiscal quarter ended June 30, 2015, if the last reported sale price of our common stock for at least 20 trading days (whether or not consecutive) during the last 30 consecutive trading days of the immediately preceding fiscal quarter is greater than or equal to 130% of the conversion price of the Convertible Notes on each applicable trading day;

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- during the five business day period following any five consecutive trading day period in which the trading price for the Convertible Notes is less than 98% of the product of the last reported sale price of our common stock and the conversion rate for the Convertible Notes on each such trading day; or
- upon the occurrence of specified corporate events.

None of the above events allowing for conversion prior to December 1, 2019 occurred during the three month period ended March 31, 2017. Regardless of whether any of the foregoing circumstances occurs, a holder may convert its Convertible Notes, in multiples of \$1,000 principal amount, at any time on or after December 1, 2019 until maturity.

In addition, if we undergo a fundamental change (as defined in the indenture governing the Convertible Notes), holders may, subject to certain conditions, require us to repurchase their Convertible Notes for cash at a price equal to 100% of the principal amount of the Convertible Notes to be purchased, plus any accrued and unpaid interest. In addition, if specific corporate events occur prior to the maturity date, we will increase the conversion rate for a holder who elects to convert its Convertible Notes in connection with such a corporate event in certain circumstances.

In connection with the issuance of the Convertible Notes, we paid approximately \$140 million to enter into prepaid forward stock repurchase transactions (the “Forward Transactions”) with certain financial institutions (the “Forward Counterparties”), pursuant to which we purchased approximately 7.2 million shares of common stock for settlement on or around the March 1, 2020 maturity date for the Convertible Notes, subject to the ability of each Forward Counterparty to elect to settle all or a portion of its Forward Transactions early. As a result of the Forward Transactions, total shareholders’ equity within our unaudited condensed consolidated balance sheet was reduced by approximately \$140 million. Approximately 7.2 million shares of common stock that will be effectively repurchased through the Forward Transactions are treated as retired shares for basic and diluted EPS purposes although they remain legally outstanding.

Amended and Restated Senior Term Facility – On July 30, 2014, GIH, Gogo Business Aviation LLC, f/k/a Aircell Business Aviation Services LLC (“GBA”), and Gogo LLC, as borrowers (collectively, the “Borrowers”), entered into an Amendment and Restatement Agreement (the “Amendment”) to the Credit Agreement dated as of June 21, 2012 and amended on April 4, 2013 (the “Amended Senior Term Facility”) among the Borrowers, the lenders named therein, and Morgan Stanley Senior Funding, Inc., as Administrative Agent and Collateral Agent. We refer to the Amendment and the Amended Senior Term Facility collectively as the “Amended and Restated Senior Term Facility.”

On June 14, 2016 the outstanding principal balance of \$287.7 million, together with accrued and unpaid interest, was paid in full, and the Amended and Restated Senior Term Facility was terminated in accordance with its terms on such date (subject to the survival of provisions expressly stated therein to survive the termination thereof). Additionally, we paid the voluntary prepayment premium of 3.0% or \$8.6 million and wrote off all of the remaining unamortized deferred financing costs of \$6.8 million. Both of these items are included in loss on extinguishment of debt in our unaudited condensed consolidated financial statements. See Note 6, “Long-Term Debt and Other Liabilities,” in our 2016 10-K for additional information on the Amended and Restated Senior Term Facility.

We paid \$22.2 million of loan origination fees and financing costs related to the Amended and Restated Senior Term Facility, all but \$4.1 million of which were accounted for as deferred financing costs. Total amortization expense of the deferred financing costs was \$0.8 million for the three month period ended March 31, 2016. Amortization expense is included in interest expense in the unaudited condensed consolidated statements of operations. As noted above, deferred financing costs related to the Amended and Restated Senior Term Facility were written off as of June 14, 2016.

Restricted Cash - Our restricted cash balances were \$7.9 million as of both March 31, 2017 and December 31, 2016 and primarily consist of letters of credit. Certain of the letters of credit require us to maintain restricted cash accounts in a similar amount, and are issued for the benefit of the landlords at our current office locations in Chicago, IL, Bensenville, IL and Broomfield, CO.

9. Interest Costs

We capitalize a portion of our interest on funds borrowed during the active construction period of major capital projects. Capitalized interest is added to the cost of the underlying assets and amortized over the useful lives of the assets.

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The following is a summary of our interest costs for the three month periods ended March 31, 2017 and 2016 (*in thousands*):

	For the Three Months Ended March 31,	
	2017	2016
Interest costs charged to expense	\$21,539	\$10,932
Amortization of deferred financing costs	896	1,168
Accretion of debt discount on Convertible Notes	4,681	4,196
Amortization of debt premium on Senior Secured Notes	(173)	—
Interest expense	26,943	16,296
Interest costs capitalized to property and equipment	4	71
Interest costs capitalized to software	358	282
Total interest costs	<u>\$27,305</u>	<u>\$16,649</u>

10. Leases

Arrangements with Commercial Airlines — Pursuant to contractual agreements with our airline partners, we place our equipment on commercial aircraft operated by the airlines for the purpose of delivering the Gogo service to passengers on the aircraft. Depending on the agreement, we may be responsible for the costs of installing and/or deinstalling the equipment. Under one type of connectivity agreement we maintain legal title to our equipment; however, under a second, more prevalent type of connectivity agreement, some of our airline partners make an upfront payment and take legal title to such equipment. The majority of the equipment transactions involve the transfer of legal title but have not met sales recognition for accounting purposes because the risks and rewards of ownership are not fully transferred due to our continuing involvement with the equipment, the length of the term of our agreements with the airlines, and restrictions in the agreements regarding the airlines' use of the equipment. We account for these equipment transactions as operating leases of space for our equipment on the aircraft. The assets are recorded as airborne equipment on our unaudited condensed consolidated balance sheets, as noted in Note 5, "Composition of Certain Balance Sheet Accounts." Any upfront equipment payments are accounted for as lease incentives and recorded as deferred airborne lease incentives on our unaudited condensed consolidated balance sheets and are recognized as a reduction of the cost of service revenue on a straight-line basis over the term of the agreement with the airline. We recognized \$9.3 million and \$5.6 million, respectively, for the three month periods ended March 31, 2017 and 2016, as a reduction to our cost of service revenue in our unaudited condensed consolidated statements of operations. As of March 31, 2017, deferred airborne lease incentives of \$33.1 million and \$114.1 million, respectively, are included in current and non-current liabilities in our unaudited condensed consolidated balance sheet. As of December 31, 2016, deferred airborne lease incentives of \$36.3 million and \$135.9 million, respectively, are included in current and non-current liabilities in our unaudited condensed consolidated balance sheet. The decrease in our deferred airborne lease incentives is due primarily to the transition in the accounting treatment for one of our airline agreements from an operating lease in the prior year period to a sale in the current quarter due to specific provisions elected by the airline.

For the airline agreements where the equipment transactions are treated as operating leases of space, the revenue share paid to our airline partners represents operating lease payments. They are deemed to be contingent rental payments, as the payments due to each airline are based on a percentage of our CA-NA and CA-ROW service revenue generated from that airline's passengers, which is unknown until realized. Therefore, we cannot estimate the lease payments due to an airline at the commencement of our contract with such airline. This rental expense is included in cost of service revenue and is offset by the amortization of the deferred airborne lease incentives discussed above. Such rental expenses totaled a net charge of \$8.9 million and \$11.4 million, respectively, for the three month periods ended March 31, 2017 and 2016.

A contract with one of our airline partners requires us to provide the airline partner with cash rebates of \$1.8 million in June 2017 and June 2018.

Leases and Cell Site Contracts — We have lease agreements relating to certain facilities and equipment, which are considered operating leases. Rent expense for such operating leases was \$3.0 million for both of the three month periods ended March 31, 2017 and 2016. Additionally, we have operating leases with wireless service

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providers for tower space and base station capacity on a volume usage basis (“cell site leases”), some of which provide for minimum annual payments. Our cell site leases generally provide for an initial noncancelable term with various renewal options. Total cell site rental expense was \$2.3 million for both of the three month periods ended March 31, 2017 and 2016.

Annual future minimum obligations for operating leases for each of the next five years and thereafter, other than the arrangements we have with our commercial airline partners, as of March 31, 2017, are as follows (*in thousands*):

Years ending December 31,	Operating Leases
2017 (period from April 1 to December 31)	<u>\$ 15,013</u>
2018	\$ 17,673
2019	\$ 16,580
2020	\$ 14,490
2021	<u>\$ 14,247</u>
Thereafter	\$ 94,973

Equipment Leases – We lease certain computer and network equipment under capital leases, for which interest has been imputed with annual interest rates in an approximate range of 8% to 14%. As of March 31, 2017 and December 31, 2016 the computer equipment leases were classified as part of office equipment, furniture, and fixtures and other in our unaudited condensed consolidated balance sheet at a gross cost of \$5.1 million and \$3.9 million, respectively. As of March 31, 2017 and December 31, 2016, the network equipment leases were classified as part of network equipment in our unaudited condensed consolidated balance sheet at a gross cost of \$7.5 million and \$7.5 million, respectively. Annual future minimum obligations under capital leases for each of the next five years and thereafter, as of March 31, 2017, are as follows (*in thousands*):

Years ending December 31,	Capital Leases
2017 (period from April 1 to December 31)	<u>\$2,801</u>
2018	2,020
2019	1,009
2020	39
Thereafter	<u>—</u>
Total minimum lease payments	5,869
Less: Amount representing interest	<u>(618)</u>
Present value of net minimum lease payments	<u>\$5,251</u>

The \$5.3 million present value of net minimum lease payments as of March 31, 2017 has a current portion of \$3.0 million included in the current portion of long-term debt and capital leases and a non-current portion of \$2.3 million included in other non-current liabilities.

11. Commitments and Contingencies

Contractual Commitments - We have agreements with vendors to provide us with transponder and teleport satellite services. These agreements vary in length and amount and as of March 31, 2017 commit us to purchase transponder and teleport satellite services totaling approximately \$55.0 million in 2017 (April 1 through December 31), \$58.6 million in 2018, \$61.2 million in 2019, \$68.2 million in 2020, \$60.2 million in 2021 and \$279.6 million thereafter.

We have agreements with various vendors under which we have remaining commitments to purchase satellite-based systems, certifications and development services. Such commitments will become payable as we receive the equipment or certifications, or as development services are provided.

Damages and Penalties - We have entered into a number of agreements with our airline partners that require us to provide a credit or pay penalties or liquidated damages to our airline partners if we are unable to install our equipment on aircraft by specified timelines or fail to comply with service level commitments. The maximum amount of future credits or payments we could be required to make under these agreements is uncertain because the amount of future credits or payments is based on certain variable inputs.

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Indemnifications and Guarantees - In accordance with Delaware law, we indemnify our officers and directors for certain events or occurrences while the officer or director is, or was, serving at our request in such capacity. The maximum potential amount of future payments we could be required to make under this indemnification is uncertain and may be unlimited, depending upon circumstances. However, our Directors' and Officers' insurance does provide coverage for certain of these losses.

In the ordinary course of business we may occasionally enter into agreements pursuant to which we may be obligated to pay for the failure of performance of others, such as the use of corporate credit cards issued to employees. Based on historical experience, we believe that the risk of sustaining any material loss related to such guarantees is remote.

We have entered into a number of agreements, including our agreements with commercial airlines, pursuant to which we indemnify the other party for losses and expenses suffered or incurred in connection with any patent, copyright, or trademark infringement or misappropriation claim asserted by a third party with respect to our equipment or services. The maximum potential amount of future payments we could be required to make under these indemnification agreements is uncertain and is typically not limited by the terms of the agreements.

12. Fair Value of Financial Assets and Liabilities

A three-tier fair value hierarchy has been established which prioritizes the inputs used in measuring fair value. These tiers include:

- *Level 1* - defined as observable inputs such as quoted prices in active markets;
- *Level 2* - defined as observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities, quoted prices in markets that are not active, or inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities; and
- *Level 3* - defined as unobservable inputs in which little or no market data exists, therefore requiring an entity to develop its own assumptions.

Long-Term Debt:

Our financial assets and liabilities that are disclosed but not measured at fair value include the Senior Secured Notes and the Convertible Notes, which are reflected on the unaudited condensed consolidated balance sheet at cost. The fair value measurements are classified as Level 2 within the fair value hierarchy since they are based on quoted market prices of our instruments in markets that are not active. We estimated the fair value of the Senior Secured Notes and Convertible Notes by calculating the upfront cash payment a market participant would require to assume these obligations. The upfront cash payment used in the calculations of fair value on our March 31, 2017 unaudited condensed consolidated balance sheet, excluding any issuance costs, is the amount that a market participant would be willing to lend at March 31, 2017 to an entity with a credit rating similar to ours and achieve sufficient cash inflows to cover the scheduled cash outflows under the Senior Secured Notes and the Convertible Notes. The calculated fair value of our Convertible Notes is highly correlated to our stock price and as a result significant changes to our stock price could have a significant impact on the calculated fair value of our Convertible Notes.

The fair value and carrying value of long-term debt as of March 31, 2017 and December 31, 2016 were as follows (*in thousands*):

	<u>March 31, 2017</u>		<u>December 31, 2016</u>	
	<u>Fair Value (1)</u>	<u>Carrying Value</u>	<u>Fair Value (1)</u>	<u>Carrying Value</u>
Senior Secured Notes	\$ 668,000	\$595,027(2)	\$ 572,000	\$525,000
Convertible Notes	301,000	296,705(3)	275,000	292,024(3)

- (1) Fair value amounts are rounded to the nearest million.
- (2) Carrying value of the Senior Secured Notes includes unamortized debt premium of \$5.0 million as of March 31, 2017. See Note 8, "Long-Term Debt and Other Liabilities," for further information.
- (3) Carrying value of the Convertible Notes excludes unamortized debt discount of \$65.2 million and \$69.9 million, respectively, as of March 31, 2017 and December 31, 2016. See Note 8, "Long-Term Debt and Other Liabilities," for further information.

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We have held-to-maturity financial instruments where carrying value approximates fair value. There were no fair value adjustments to these financial instruments during 2017 and 2016.

13. Income Tax

The effective income tax rates for the three month periods ended March 31, 2017 and 2016 were (0.6%) and (1.3%), respectively. Income tax expense recorded in each period was similar, with differences in pre-tax income causing the change in the effective tax rate. The difference between our effective tax rates and the U.S. federal statutory rate of 35% for the three month periods ended March 31, 2017 and 2016 was primarily due to the recording of a valuation allowance against our net deferred tax assets.

We are subject to income taxation in the United States, various states within the United States, Canada, Switzerland, Japan, Mexico, Brazil, Singapore, the United Kingdom, Hong Kong and Australia. With few exceptions, as of March 31, 2017, we are no longer subject to U.S. federal, state, local or foreign examinations by tax authorities for years before 2013.

We record penalties and interest relating to uncertain tax positions in the income tax provision line item in the unaudited condensed consolidated statement of operations. No penalties or interest related to uncertain tax positions were recorded for the three month periods ended March 31, 2017 and 2016. As of March 31, 2017 and December 31, 2016, we did not have a liability recorded for interest or potential penalties.

We do not expect a change in the unrecognized tax benefits within the next 12 months.

14. Business Segments and Major Customers

We operate our business through three operating segments: Commercial Aviation North America, or “CA-NA”, Commercial Aviation Rest of World, or “CA-ROW” and Business Aviation, or “BA”. See Note 1, “Basis of Presentation,” for further information regarding our segments.

The accounting policies of the operating segments are the same as those described in Note 2, “Summary of Significant Accounting Policies,” in our 2016 10-K. Intercompany transactions between segments are excluded as they are not included in management’s performance review of the segments. We currently do not generate a material amount of foreign revenue. We do not segregate assets between segments for internal reporting. Therefore, asset-related information has not been presented. We do not disclose assets outside of the United States as these assets are not material as of March 31, 2017 and December 31, 2016. For our airborne assets, we consider only those assets installed in aircraft associated with international commercial airline partners to be owned outside of the United States.

Management evaluates performance and allocates resources to each segment based on segment profit (loss), which is calculated internally as net income (loss) attributable to common stock before interest expense, interest income, income taxes, depreciation and amortization, certain non-cash charges (including amortization of deferred airborne lease incentives, stock-based compensation expense and adjustment to deferred financing costs) and other income (expense). Segment profit (loss) is a measure of performance reported to the chief operating decision maker for purposes of making decisions about allocating resources to the segments and evaluating segment performance. In addition, segment profit (loss) is included herein in conformity with ASC 280-10, *Segment Reporting*. Management believes that segment profit (loss) provides useful information for analyzing and evaluating the underlying operating results of each segment. However, segment profit (loss) should not be considered in isolation or as a substitute for net income (loss) attributable to common stock or other measures of financial performance prepared in accordance with GAAP. Additionally, our computation of segment profit (loss) may not be comparable to other similarly titled measures computed by other companies.

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Information regarding our reportable segments is as follows (*in thousands*):

	For the Three Months Ended March 31, 2017			
	CA-NA	CA-ROW	BA	Total
Service revenue	\$97,145	\$ 9,368	\$39,982	\$146,495
Equipment revenue	1,671	918	16,322	18,911
Total revenue	\$98,816	\$ 10,286	\$56,304	\$165,406
Segment profit (loss)	<u>\$11,159</u>	<u>\$(26,555)</u>	<u>\$26,115</u>	<u>\$ 10,719</u>

	For the Three Months Ended March 31, 2016			
	CA-NA	CA-ROW	BA	Total
Service revenue	\$83,409	\$ 4,602	\$30,709	\$118,720
Equipment revenue	3,638	3	19,385	23,026
Total revenue	\$87,047	\$ 4,605	\$50,094	\$141,746
Segment profit (loss)	<u>\$13,816</u>	<u>\$(19,720)</u>	<u>\$20,223</u>	<u>\$ 14,319</u>

A reconciliation of segment profit (loss) to the relevant consolidated amounts is as follows (*in thousands*):

	For the Three Months Ended March 31,	
	2017	2016
CA-NA segment profit	\$ 11,159	\$ 13,816
CA-ROW segment loss	(26,555)	(19,720)
BA segment profit	26,115	20,223
Total segment profit	10,719	14,319
Interest income	545	46
Interest expense	(26,943)	(16,296)
Depreciation and amortization	(30,435)	(24,357)
Amortization of deferred airborne lease incentives (1)	9,348	5,644
Stock-based compensation expense	(4,330)	(4,198)
Adjustment to deferred financing costs	—	869
Other income (expense)	(38)	174
Loss before income taxes	<u>\$(41,134)</u>	<u>\$(23,799)</u>

(1) Amortization of deferred airborne lease incentive relates to our CA-NA and CA-ROW segments. See Note 10, “Leases,” for further information.

Major Customers and Airline Partnerships — During the three month periods ended March 31, 2017 and 2016, no customer accounted for more than 10% of our consolidated revenue. One airline partner accounted for approximately 13% and 18%, respectively, of consolidated accounts receivable as of March 31, 2017 and December 31, 2016.

Revenue earned through Delta Air Lines and American Airlines accounted for approximately 48% and 49%, respectively, of consolidated revenue for the three month periods ended March 31, 2017 and 2016.

15. Employee Retirement and Postretirement Benefits

Stock-Based Compensation — As of March 31, 2017, we had three stock-based employee compensation plans (“Stock Plans”). See Note 11, “Stock-Based Compensation,” in our 2016 10-K for further information regarding these plans. Most of our equity grants are awarded on an annual basis. The annual grants occurred in the first quarter of 2017 whereas they had occurred in the second quarter in prior years.

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

For the three month period ended March 31, 2017, options to purchase 1,531,118 shares of common stock (of which 427,160 are options that contain a market condition, in addition to the time-based vesting requirements) were granted, options to purchase 36,587 shares of common stock were exercised, options to purchase 216,328 (of which 20,200 options contain a market condition) shares of common stock were forfeited, and options to purchase 31,017 shares of common stock expired.

For the three month period ended March 31, 2017, 785,402 Restricted Stock Units (“RSUs”) (of which 207,667 are RSUs that contain a market condition, in addition to the time-based vesting requirements) were granted, 22,965 RSUs vested and 41,991 RSUs (of which 5,400 contained a market condition) were forfeited.

For the three month period ended March 31, 2017, 52,910 shares of restricted stock were granted and 22,393 shares vested. These shares are deemed issued as of the date of grant, but not outstanding until they vest.

For the three month period ended March 31, 2017, 21,132 DSUs were granted and none were released.

The employee stock purchase plan (the “ESPP”) allows eligible employees to purchase our common stock through payroll deductions at a price equal to 85% of the lower of the fair market value of the stock as of the beginning or the end of three-month offering periods. Under the ESPP, 424,594 shares were reserved for issuance. For the three month period ended March 31, 2017, 48,657 shares of common stock were issued under the ESPP.

The following is a summary of our stock-based compensation expense by operating expense line in the unaudited condensed consolidated statements of operations (*in thousands*):

	For the Three Months Ended March 31,	
	2017	2016
Cost of service revenue	\$ 458	\$ 335
Cost of equipment revenue	37	26
Engineering, design and development	850	728
Sales and marketing	749	1,130
General and administrative	2,236	1,979
Total stock-based compensation expense	<u>\$ 4,330</u>	<u>\$ 4,198</u>

401(k) Plan — Under our 401(k) plan, all employees who are eligible to participate are entitled to make tax-deferred contributions, subject to Internal Revenue Service limitations. We match 100% of the employee’s first 4% of contributions made, subject to annual limitations. Our matching contributions were \$1.6 million and \$1.1 million, respectively, for the three month periods ended March 31, 2017 and 2016.

16. Research and Development Costs

Expenditures for research and development are charged to expense as incurred and totaled \$22.1 million and \$11.9 million, respectively, for the three month periods ended March 31, 2017 and 2016. Research and development costs are reported as a component of engineering, design and development expenses in our unaudited condensed consolidated statements of operations.

17. Canadian ATG Spectrum License

On July 17, 2012, Industry Canada issued to our Canadian subsidiary a subordinate license that allows us to use the Canadian ATG spectrum of which SkySurf Canada Communications Inc. (“SkySurf”) is the primary licensee. On July 24, 2012 we entered into a subordinate license agreement (the “License Agreement”) with SkySurf and on August 14, 2012 the agreement commenced. The License Agreement provides for our exclusive rights to use SkySurf’s ATG spectrum licenses in Canada. For additional information, see Note 16, “Canadian ATG Spectrum License,” in our 2016 10-K.

Gogo Inc. and Subsidiaries
Notes to Unaudited Condensed Consolidated Financial Statements – (Continued)

Amortization expense for the one-time payment for each of the next five years and thereafter is estimated to be as follows (*in thousands*):

Years ending December 31,	Canadian ATG Spectrum Amortization
2017 (period from April 1 to December 31)	\$ 74
2018	\$ 98
2019	\$ 98
2020	\$ 98
2021	\$ 98
Thereafter	\$ 1,521

Amortization expense totaled less than \$0.1 million during both of the three month periods ended March 31, 2017 and 2016.

The monthly payments are expensed as incurred and totaled approximately \$0.3 million during both of the three month periods ended March 31, 2017 and 2016.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

Certain statements in this report may constitute “forward-looking” statements within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements include, without limitation, statements regarding our business outlook, industry, business strategy, plans, goals and expectations concerning our market position, international expansion, future technologies, future operations, margins, profitability, future efficiencies, capital expenditures, liquidity and capital resources and other financial and operating information. When used in this discussion, the words “anticipate,” “assume,” “believe,” “budget,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “will,” “future” and the negative of these or similar terms and phrases are intended to identify forward-looking statements in this Quarterly Report on Form 10-Q.

Forward-looking statements reflect our current expectations regarding future events, results or outcomes. These expectations may or may not be realized. Although we believe the expectations reflected in the forward-looking statements are reasonable, we can give you no assurance these expectations will prove to have been correct. Some of these expectations may be based upon assumptions, data or judgments that prove to be incorrect. Actual events, results and outcomes may differ materially from our expectations due to a variety of known and unknown risks, uncertainties and other factors. Although it is not possible to identify all of these risks and factors, they include, among others, the following:

- the loss of, or failure to realize benefits from, agreements with our airline partners or any failure to renew any existing agreements upon expiration or termination;
- the failure to maintain airline satisfaction with our equipment or our service;
- any inability to timely and efficiently deploy our 2Ku service or develop and deploy our next-generation ATG solution or other components of our technology roadmap for any reason, including regulatory delays or failures, or delays on the part of any of our suppliers, some of whom are single source, or the failure by our airline partners to roll out equipment upgrades, new services or adopt new technologies in order to support increased network capacity demands;
- the timing of deinstallation of our equipment from aircraft, including deinstallations resulting from aircraft retirements and other deinstallations permitted by certain airline contract provisions;
- the loss of relationships with original equipment manufacturers or dealers;
- our ability to develop or purchase ATG and satellite network capacity sufficient to accommodate current and expected growth in passenger demand in North America and internationally as we expand;
- our reliance on third-party suppliers, some of whom are single source, for satellite capacity and other services and the equipment we use to provide services to commercial airlines and their passengers and business aviation customers;
- unfavorable economic conditions in the airline industry and/or the economy as a whole;
- our ability to expand our international or domestic operations, including our ability to grow our business with current and potential future airline partners;
- an inability to compete effectively with other current or future providers of in-flight connectivity services and other products and services that we offer, including on the basis of price, service performance and line-fit availability;
- our ability to successfully develop and monetize new products and services such as Gogo Vision and Gogo TV, including those that were recently released, are currently being offered on a limited or trial basis, or are in various stages of development;
- our ability to certify and install our equipment and deliver our products and services, including newly developed products and services, on schedules consistent with our contractual commitments to customers;
- the failure of our equipment or material defects or errors in our software resulting in recalls or substantial warranty claims;

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- a revocation of, or reduction in, our right to use licensed spectrum, the availability of other air-to-ground spectrum to a competitor or the repurposing by a competitor of other spectrum for air-to-ground use;
- our use of open source software and licenses;
- the effects of service interruptions or delays, technology failures and equipment failures or malfunctions arising from defects or errors in our software or defects in or damage to our equipment;
- the limited operating history of our CA-ROW segment;
- our ability to transition from the retail model to the airline directed model in CA and changes in contracts with our airline partners may arise in connection with such transition;
- increases in our projected capital expenditures due to, among other things, unexpected costs incurred in connection with the roll-out of our technology roadmap or our international expansion;
- compliance with U.S. and foreign government regulations and standards, including those related to regulation of the Internet, including e-commerce or online video distribution changes, and the installation and operation of satellite equipment and our ability to obtain and maintain all necessary regulatory approvals to install and operate our equipment in the United States and foreign jurisdictions;
- our, or our technology suppliers', inability to effectively innovate;
- costs associated with defending pending or future intellectual property infringement and other litigation or claims;
- our ability to protect our intellectual property;
- breaches of the security of our information technology network, resulting in unauthorized access to our customers' credit card information or other personal information;
- any negative outcome or effects of future litigation;
- our substantial indebtedness;
- limitations and restrictions in the agreements governing our indebtedness and our ability to service our indebtedness;
- our ability to obtain additional financing on acceptable terms or at all;
- fluctuations in our operating results;
- our ability to attract and retain customers and to capitalize on revenue from our platform;
- the demand for and market acceptance of our products and services;
- changes or developments in the regulations that apply to us, our business and our industry, including changes or developments affecting the ability of passengers or airlines to use our in-flight connectivity services, including the recent U.S. and U.K. bans on the use of certain personal devices such as laptops and tablets on certain aircraft flying certain routes;
- a future act or threat of terrorism, cyber-security attack or other events that could result in adverse regulatory changes or developments as referenced above, or otherwise adversely affect our business and industry;
- our ability to attract and retain qualified employees, including key personnel;
- the effectiveness of our marketing and advertising and our ability to maintain and enhance our brands;
- our ability to manage our growth in a cost-effective manner and integrate and manage acquisitions;
- compliance with anti-corruption laws and regulations in the jurisdictions in which we operate, including the Foreign Corrupt Practices Act and the (U.K.) Bribery Act 2010;
- restrictions on the ability of U.S. companies to do business in foreign countries, including, among others, restrictions imposed by the U.S. Office of Foreign Assets Control;

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- difficulties in collecting accounts receivable; and
- other risks and factors listed under “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2016 as filed with the Securities Exchange Commission (“SEC”) on February 27, 2017 (the “2016 10-K”) and in Item 1A of this Quarterly Report on Form 10-Q.

Any one of these factors or a combination of these factors could materially affect our financial condition or future results of operations and could influence whether any forward-looking statements contained in this report ultimately prove to be accurate. Our forward-looking statements are not guarantees of future performance, and you should not place undue reliance on them. All forward-looking statements speak only as of the date made and we undertake no obligation to update or revise publicly any forward-looking statements, whether as a result of new information, future events or otherwise.

In addition, while we do, from time to time, communicate with securities analysts, it is against our policy to disclose to them any material non-public information or other confidential information. Accordingly, stockholders should not assume that we agree with any statement or report issued by any analyst irrespective of the content of the statement or report. Thus, to the extent that reports issued by securities analysts contain any projections, forecasts, or opinions, such reports are not our responsibility.

ITEM 2. MANAGEMENT’S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis is intended to help the reader understand our business, financial condition, results of operations, liquidity and capital resources. You should read this discussion in conjunction with our unaudited condensed consolidated interim financial statements and the related notes contained elsewhere in this Quarterly Report on Form 10-Q. Unless the context otherwise indicates or requires, the terms “we,” “our,” “us,” “Gogo,” and the “Company,” as used in this report, refer to Gogo Inc. and its directly and indirectly owned subsidiaries as a combined entity, except where otherwise stated or where it is clear that the terms refer only to Gogo Inc. exclusive of its subsidiaries.

The statements in this discussion regarding industry outlook, our expectations regarding our future performance, liquidity and capital resources and other non-historical statements in this discussion are forward-looking statements. These forward-looking statements are subject to numerous risks and uncertainties, including, but not limited to, the risks and uncertainties described under “Risk Factors” in the 2016 10-K and Item 1A in this Quarterly Report on Form 10-Q, and in “Special Note Regarding Forward-Looking Statements” in this report. Our actual results may differ materially from those contained in or implied by any forward-looking statements.

Our fiscal year ends December 31 and, unless otherwise noted, references to “years” or “fiscal” are for fiscal years ended December 31. See “— Results of Operations.”

Company Overview

Gogo (“we”, “us”, “our”) is the global leader in providing broadband connectivity solutions and wireless in-flight entertainment to the aviation industry. We operate through the following three segments: Commercial Aviation North America, or “CA-NA,” Commercial Aviation Rest of World, or “CA-ROW,” and Business Aviation, or “BA.”

Services provided by our CA-NA and CA-ROW businesses include Passenger Connectivity, which allows passengers to connect to the Internet from their personal Wi-Fi-enabled devices; Passenger Entertainment, which offers passengers the opportunity to enjoy a broad selection of in-flight entertainment options on their personal Wi-Fi enabled devices; and Connected Aircraft Services (“CAS”), which offer airlines connectivity for various operations and currently include among others, real-time credit card transaction processing, electronic flight bags and real-time weather information. Services are provided by CA-NA on commercial aircraft flying routes that generally begin and end within North America, which for this purpose includes the United States, Canada and Mexico. CA-ROW provides service on commercial aircraft operated by foreign-based commercial airlines and flights outside of North America for North American based commercial airlines. The routes included in our CA-ROW segment are those that begin and/or end outside of North America (as defined above) on which our international service is provided. BA provides in-flight Internet connectivity and other voice and data communications products and services and sells equipment for in-flight telecommunications to the business aviation market. BA services include Gogo Biz, our in-flight broadband service, Passenger Entertainment, our in-flight entertainment service, and satellite-based voice and data services through our strategic alliances with satellite companies.

Factors and Trends Affecting Our Results of Operations

We believe that our operating and business performance is driven by various factors that affect the commercial airline and business aviation industries, including trends affecting the travel industry and trends affecting the customer bases that we target, as well as factors that affect wireless Internet service providers and general macroeconomic factors. Key factors that may affect our future performance include:

- costs associated with the implementation of, and our ability to implement on a timely basis, our technology roadmap, upgrades and installation of our ATG-4, 2Ku, next generation ATG and other new technologies (including failures or delays on the part of antenna and other equipment developers and providers, some of which are single source, or delays in obtaining STCs), the roll-out of our satellite services, the potential licensing of additional spectrum, and the implementation of improvements to our network and operations as technology changes and we experience increased network capacity constraints;

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- costs associated with, and our ability to execute, our international expansion, including modifications of our network to accommodate satellite technology, development and implementation of new satellite-based technologies, the availability of satellite capacity, costs of satellite capacity to which we may have to commit well in advance, and, our ability to obtain and comply with foreign telecommunications, aviation and other licenses and approvals necessary for our international operations;
- costs associated with managing a rapidly growing company;
- costs associated with, and our ability to obtain, sufficient capacity for heavily-trafficked areas in the United States, the costs of which we may have to commit to well in advance;
- the pace and extent of adoption of our service for use on international commercial aircraft by our current North American airline partners and new international airline partners;
- the number of aircraft in service in our markets, including consolidation of the airline industry or changes in fleet size by one or more of our commercial airline partners or BA fractional ownership customers;
- the economic environment and other trends that affect both business and leisure travel;
- the extent of passengers', airline partners' and other aircraft owners' and operators' adoption of our products and services, which is affected by, among other things, willingness to pay for the services that we provide, changes in technology and competition from current competitors and new market entrants;
- our ability to enter into and maintain long-term connectivity arrangements with airline partners, which depends on numerous factors including the real or perceived availability, quality and price of our services and product offerings as compared to those offered by our competitors;
- continued demand for connectivity and proliferation of Wi-Fi enabled devices, including smartphones, tablets and laptops;
- changes in domestic or foreign laws, regulations or policies resulting from the 2016 elections that affect our business or the business of our customers and suppliers;
- changes in laws, regulations and interpretations affecting telecommunications services, including those affecting our ability to maintain our licenses for ATG spectrum in the United States, obtain sufficient rights to use additional ATG spectrum and/or other sources of broadband connectivity to deliver our services, and expand our service offerings; and
- changes in laws, regulations and interpretations affecting aviation, including, in particular, changes that impact the design of our equipment and our ability to obtain required certifications for our equipment and changes that affect the ability of passengers and airlines to utilize our in-flight connectivity services, including the recent U.S. and U.K. bans on the use of certain personal devices, such as laptops and tablets, on certain airlines flying certain routes.

Summary Financial Information

Consolidated revenue was \$165.4 million and \$141.7 million, respectively, for the three month periods ended March 31, 2017 and 2016. As of March 31, 2017, the CA-NA segment had 2,772 aircraft equivalents providing the Gogo service as compared with 2,512 as of March 31, 2016. As of March 31, 2017, the BA segment had 5,508 aircraft online with satellite systems and 4,341 ATG systems online as compared with 5,494 and 3,681, respectively, as of March 31, 2016. As of March 31, 2017, the CA-ROW segment had 207 aircraft equivalents as compared with 175 aircraft equivalents as of March 31, 2016.

Key Business Metrics

Our management regularly reviews financial and operating metrics, including the following key operating metrics for the CA-NA, CA-ROW and BA segments, to evaluate the performance of our business and our success in executing our business plan, make decisions regarding resource allocation and corporate strategies, and evaluate forward-looking projections.

Commercial Aviation North America		
	For the Three Months Ended March 31,	
	2017	2016
Aircraft online (at period end)	2,714	2,500
Aircraft equivalents (average during the period)	2,772	2,512
Average monthly service revenue per aircraft equivalent (ARPA)	\$ 11,793	\$ 11,137
Gross passenger opportunity (GPO) (in thousands)	95,608	90,003
Total average revenue per session (ARPS)	\$ 11.17	\$ 13.05
Connectivity take rate	8.3%	6.5%

Commercial Aviation Rest of World		
	For the Three Months Ended March 31,	
	2017	2016
Aircraft online (at period end)	281	237
Aircraft equivalents (average during the period)	207	175
ARPA	\$16,808	\$ 11,611

- *Aircraft online.* We define aircraft online as the total number of commercial aircraft on which our equipment is installed and service has been made commercially available as of the last day of each period presented. We assign aircraft to CA-NA or CA-ROW at the time of contract signing as follows: (i) all aircraft operated by North American airlines and under contract for ATG or ATG-4 service are assigned to CA-NA, (ii) all aircraft operated by North American airlines and under a contract for satellite service are assigned to CA-NA or CA-ROW based on whether the routes flown by such aircraft under the contract are anticipated to be predominantly within or outside of North America at the time the contract is signed, and (iii) all aircraft operated by non-North American airlines and under a contract are assigned to CA-ROW.
- *Aircraft equivalents.* We define aircraft equivalents for a segment as the total number of commercial aircraft online (as defined above) multiplied by the percentage of flights flown by such aircraft within the scope of that segment, rounded to the nearest whole aircraft and expressed as an average of the month end figures for each month in the period. This methodology takes into account the fact that during a particular period certain aircraft may fly routes outside the scope of the segment to which they are assigned for purposes of the calculation of aircraft online.
- *Average monthly service revenue per aircraft equivalent (“ARPA”).* We define ARPA for a segment as the aggregate service revenue plus monthly service fees, some of which are reported as a reduction to cost of service revenue for that segment for the period divided by the number of months in the period, and further divided by the number of aircraft equivalents (as defined above) for that segment during the period.
- *Gross passenger opportunity (“GPO”).* We define GPO as the aggregate number of passengers who board commercial aircraft on which Gogo service has been available at any time during the period presented. When actual passenger counts are available directly from our airline partners, we aggregate such counts across flights on Gogo-equipped aircraft. When not available directly from our airline partners, we estimate GPO. Estimated GPO is calculated by first estimating the number of flights occurring on each Gogo-equipped aircraft, then multiplying by the number of seats on that aircraft, and finally multiplying by a seat factor that is determined from historical information provided to us in arrears by our airline partners. The estimated number of flights is derived from real-time flight information provided to our front-end systems by Air Radio Inc. (ARINC), direct airline feeds and supplementary third-party data sources. These aircraft-level estimates are then aggregated with any available airline-provided passenger counts to obtain total GPO.

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- *Total average revenue per session* (“ARPS”). We define ARPS as revenue from Passenger Connectivity, excluding non-session related revenue, divided by the total number of sessions during the period. A session, or a “use” of Passenger Connectivity, is defined as the use by a unique passenger of Passenger Connectivity on a flight segment. Multiple logins or purchases under the same user name during one flight segment count as only one session.
- *Connectivity take rate*. We define connectivity take rate as the number of sessions during the period expressed as a percentage of GPO. Included in our connectivity take-rate calculation are sessions for which we did not receive revenue, including those provided pursuant to free promotional campaigns and, to a lesser extent, as a result of complimentary passes distributed by our customer service representatives for unforeseen technical issues. For the periods listed above, the number of sessions for which we did not receive revenue was not material.

Business Aviation		For the Three Months Ended March 31,	
		2017	2016
Aircraft online (at period end)			
Satellite		5,508	5,494
ATG		4,341	3,681
Average monthly service revenue per aircraft online			
Satellite		\$ 224	\$ 214
ATG		2,797	2,497
Units Sold			
Satellite		88	133
ATG		189	202
Average equipment revenue per unit sold (in thousands)			
Satellite		\$ 47	\$ 43
ATG		56	57

- *Satellite aircraft online*. We define satellite aircraft online as the total number of business aircraft for which we provide satellite services as of the last day of each period presented.
- *ATG aircraft online*. We define ATG aircraft online as the total number of business aircraft for which we provide ATG services as of the last day of each period presented.
- *Average monthly service revenue per satellite aircraft online*. We define average monthly service revenue per satellite aircraft online as the aggregate satellite service revenue for the period divided by the number of months in the period, divided by the number of satellite aircraft online during the period (expressed as an average of the month end figures for each month in such period).
- *Average monthly service revenue per ATG aircraft online*. We define average monthly service revenue per ATG aircraft online as the aggregate ATG service revenue for the period divided by the number of months in the period, divided by the number of ATG aircraft online during the period (expressed as an average of the month end figures for each month in such period).
- *Units sold*. We define units sold as the number of satellite or ATG units for which we recognized revenue during the period. The total number of ATG units shipped was 192 and 207, respectively, for the three month periods ended March 31, 2017 and 2016. Due to the commencement of a new sales program and resulting orders, we deferred the recognition of 3 and 5 ATG units, respectively, shipped during the three month periods ended March 31, 2017 and 2016, as not all revenue recognition criteria were met.

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- *Average equipment revenue per satellite unit sold.* We define average equipment revenue per satellite unit sold as the aggregate equipment revenue earned from all satellite units sold during the period, divided by the number of satellite units sold.
- *Average equipment revenue per ATG unit sold.* We define average equipment revenue per ATG unit sold as the aggregate equipment revenue from all ATG units sold during the period, divided by the number of ATG units sold.

Key Components of Consolidated Statements of Operations

There have been no material changes to our key components of unaudited condensed consolidated statements of operations and segment profit (loss) as described in “Management’s Discussion and Analysis of Financial Condition and Results of Operations” (“MD&A”) in our 2016 10-K.

Off-Balance Sheet Arrangements

We do not have any obligations that meet the definition of an off-balance sheet arrangement, other than operating leases, which have or are reasonably likely to have a material effect on our results of operations. See Note 10, “Leases” to our unaudited condensed consolidated financial statements for further information.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our unaudited condensed consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America (“GAAP”). The preparation of our unaudited condensed consolidated financial statements and related disclosures require us to make estimates, assumptions and judgments that affect the reported amount of assets, liabilities, revenue, costs and expenses, and related exposures. We base our estimates and assumptions on historical experience and other factors that we believe to be reasonable under the circumstances. In some instances, we could reasonably use different accounting estimates, and in some instances results could differ significantly from our estimates. We evaluate our estimates and assumptions on an ongoing basis. To the extent that there are differences between our estimates and actual results, our future financial statement presentation, financial condition, results of operations and cash flows will be affected.

We believe that the assumptions and estimates associated with long-lived assets, indefinite-lived assets and stock-based compensation have the greatest potential impact on our unaudited condensed consolidated financial statements. Therefore, we consider these to be our critical accounting policies and estimates.

There have been no material changes to our critical accounting policies and estimates as compared to the critical accounting policies and estimates described in MD&A in our 2016 10-K.

Recent Accounting Pronouncements

See Note 2, “Recent Accounting Pronouncements” in our unaudited condensed consolidated financial statements for additional information.

Results of Operations

The following table sets forth, for the periods presented, certain data from our unaudited condensed consolidated statements of operations. The information contained in the table below should be read in conjunction with our unaudited condensed consolidated financial statements and related notes.

Unaudited Condensed Consolidated Statement of Operations Data (in thousands)

	For the Three Months Ended March 31,	
	2017	2016
Revenue:		
Service revenue	\$146,495	\$118,720
Equipment revenue	18,911	23,026
Total revenue	<u>165,406</u>	<u>141,746</u>
Operating expenses:		
Cost of service revenue (exclusive of items shown below)	64,813	54,854
Cost of equipment revenue (exclusive of items shown below)	11,648	13,748
Engineering, design and development	36,264	21,648
Sales and marketing	14,395	14,742
General and administrative	22,549	20,989
Depreciation and amortization	30,435	24,357
Total operating expenses	<u>180,104</u>	<u>150,338</u>
Operating loss	<u>(14,698)</u>	<u>(8,592)</u>
Other (income) expense:		
Interest income	(545)	(46)
Interest expense	26,943	16,296
Adjustment of deferred financing costs	—	(869)
Other (income) expense	38	(174)
Total other expense	<u>26,436</u>	<u>15,207</u>
Loss before income taxes	<u>(41,134)</u>	<u>(23,799)</u>
Income tax provision	233	307
Net loss	<u>\$ (41,367)</u>	<u>\$ (24,106)</u>

Three Months Ended March 31, 2017 and 2016

Revenue:

Revenue by segment and percent change for the three month periods ended March 31, 2017 and 2016 were as follows (in thousands, except for percent change):

	For the Three Months Ended March 31,		% Change 2017 over 2016
	2017	2016	
Service Revenue:			
CA-NA	\$ 97,145	\$ 83,409	16.5%
BA	39,982	30,709	30.2%
CA-ROW	9,368	4,602	103.6%
Total Service Revenue	<u>\$146,495</u>	<u>\$118,720</u>	<u>23.4%</u>
Equipment Revenue:			
CA-NA	\$ 1,671	\$ 3,638	(54.1%)
BA	16,322	19,385	(15.8%)
CA-ROW	918	3	n/a
Total Equipment Revenue	<u>\$ 18,911</u>	<u>\$ 23,026</u>	<u>(17.9%)</u>
Total Revenue:			
CA-NA	\$ 98,816	\$ 87,047	13.5%
BA	56,304	50,094	12.4%
CA-ROW	10,286	4,605	123.4%
Total Revenue	<u>\$165,406</u>	<u>\$141,746</u>	<u>16.7%</u>

Commercial Aviation North America:

CA-NA revenue increased to \$98.8 million for the three month period ended March 31, 2017, as compared with \$87.0 million for the prior year period, primarily due to an increase in service revenue driven by increased Passenger Connectivity revenue. The increase in CA-NA Passenger Connectivity revenue for the three month period ended March 31, 2017 was primarily due to an increase in connectivity take rate and an increase in the number of aircraft equivalents, offset in part by a decrease in ARPS. GPO increased to 95.6 million for the three month period ended March 31, 2017, as compared with 90.0 million for the prior year period, driven by an increase in aircraft equivalents. The connectivity take rate increased to 8.3% for the three month period ended March 31, 2017, as compared with 6.5% for the prior year period, reflecting increased passenger adoption including the impact of third party-paid and airline-paid promotions. Passenger Connectivity sessions totaled 8.0 million for the three month period ended March 31, 2017, as compared with 5.8 million for the prior year period. ARPS decreased to \$11.17 for the three month period ended March 31, 2017, as compared with \$13.05 for the prior year period, due to shifts in product mix, third party-paid and airline-paid promotions. ARPA increased 5.9% to \$11,793 for the three month period ended March 31, 2017, as compared with \$11,137 for the prior year period.

A summary of the components of CA-NA's service revenue for the three month periods ended March 31, 2017 and 2016 is as follows (in thousands, except for percent change):

	For the Three Months Ended March 31,		% Change 2017 over 2016
	2017	2016	
Passenger Connectivity revenue ⁽¹⁾	\$91,438	\$ 80,068	14.2%
Passenger Entertainment and CAS revenue	5,707	3,341	70.8%
Total service revenue	<u>\$97,145</u>	<u>\$ 83,409</u>	<u>16.5%</u>

(1) Includes non-session related revenue of \$2.5 million and \$3.9 million, respectively, for the three month periods ended March 31, 2017 and 2016.

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CA-NA Passenger Connectivity revenue increased to \$91.4 million for the three month period ended March 31, 2017, as compared with \$80.1 million for the prior year period, due to increases in passenger-paid, third party-paid and airline-paid revenue. Passenger-paid revenue increased due to increases in both individual sessions and subscriptions. Third party-paid revenue increased primarily due to increases in sponsorship, roaming, enterprise and wholesale revenue. Our airline-paid revenue increased due to new agreements with certain airline partners under which the airlines pay us for specified data usage, including data used by passengers and by airline crew members using connectivity services while in flight.

The increase in Passenger Entertainment and CAS revenue to \$5.7 million for the three month period ended March 31, 2017, as compared with \$3.3 million for the prior year period, was driven primarily by increased usage of Passenger Entertainment services under business-to-business arrangements with our airline partners.

The increase in CA-NA service revenue was partially offset by a decrease in equipment revenue to \$1.7 million for the three month period ended March 31, 2017, as compared with \$3.6 million in the prior year period, due primarily to more equipment transactions qualifying for sales treatment in the prior year period as compared with the current year.

Business Aviation:

BA revenue increased to \$56.3 million for the three month period ended March 31, 2017, as compared with \$50.1 million for the prior year period, due to an increase in service revenue, offset in part by a decrease in equipment revenue.

BA service revenue increased to \$40.0 million for the three month period ended March 31, 2017, as compared with \$30.7 million for the prior year period, primarily due to more customers subscribing to our Gogo Biz (ATG) service and an increase in average monthly service revenue per aircraft online. The number of ATG aircraft online increased 17.9% to 4,341 as of March 31, 2017 as compared with 3,681 as of March 31, 2016.

BA equipment revenue decreased to \$16.3 million for the three month period ended March 31, 2017, as compared with \$19.4 million for the prior year period, due to decreases in both ATG and satellite equipment revenue consistent with trends in the overall business aviation market.

Under a sales program for Gogo Biz 4G equipment that started in 2016, we have deferred approximately \$5.7 million of equipment revenue in connection with a free upgrade program under which we shipped ATG and UCS equipment to customers who have a right to exchange that equipment for Gogo Biz 4G equipment. We will recognize this deferred revenue upon the earlier of the shipment of the Gogo Biz 4G equipment or the expiration of the free upgrade period, which is December 31, 2017.

Commercial Aviation Rest of World:

CA-ROW revenue increased to \$10.3 million for the three month period ended March 31, 2017, as compared with \$4.6 million for the prior year period, due to an increase in service revenue and to a lesser extent an increase in equipment revenue.

CA-ROW service revenue increased to \$9.4 million for the three month period ended March 31, 2017, as compared with \$4.6 million for the prior year period, due to an increase in ARPA and to a lesser extent an increase in aircraft equivalents. ARPA for the CA-ROW segment increased to \$16,808 for the three month period ended March 31, 2017, as compared with \$11,611 for the prior year period, due to increased airline-paid passenger usage and the transition in the accounting treatment for one of our airline agreements from an operating lease in the prior year period to a sale in the current quarter due to specific provisions elected by the airline.

CA-ROW generated equipment revenue of \$0.9 million for the three month period ended March 31, 2017 due to the transition in the accounting treatment for one of one airline agreements from an operating lease in the prior year period to a sale in the current quarter due to specific provisions elected by the airline.

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Cost of Service Revenue:

Cost of service revenue by segment and percent change for the three month periods ended March 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Three Months Ended March 31,		% Change 2017 over 2016
	2017	2016	
CA-NA	\$36,747	\$ 36,574	0.5%
BA	9,509	8,419	12.9%
CA-ROW	18,557	9,861	88.2%
Total	<u>\$64,813</u>	<u>\$ 54,854</u>	<u>18.2%</u>

CA-ROW cost of service revenue increased to \$18.6 million for the three month period ended March 31, 2017, as compared with \$9.9 million for the prior year period, primarily due to increases in network operations expenses (including satellite service fees), aircraft operations expenses, revenue share expense and billing and transaction related expenses as the business continued to grow. These increases were partially offset by the recognition of the amortization of our deferred airborne lease incentives, which reduces our cost of service. See Note 10, "Leases," in our unaudited condensed consolidated financial statements for additional information regarding our deferred airborne lease incentives.

BA cost of service revenue increased to \$9.5 million for the three month period ended March 31, 2017, as compared with \$8.4 million for the prior year period. The increase was primarily due to increased ATG units online and an increase in the average network utilization per ATG unit online which resulted in higher ATG network service costs and, to a lesser extent, an increase in satellite service fees.

CA-NA cost of service revenue increased to \$36.7 million for the three month period ended March 31, 2017, as compared with \$36.6 million for the prior year period, due to increases in revenue share earned by our airline partners, network operations expenses (including satellite service fees) and aircraft operations expenses. These increases were partially offset by increases in the amortization of our deferred airborne lease incentives, the recognition of monthly service fees and maintenance fees paid to us by certain of our airline partners, all of which reduce our cost of services. See Note 10, "Leases" in our unaudited condensed consolidated financial statements for additional information regarding our deferred airborne lease incentives.

We expect cost of service revenue for CA-NA to increase in future periods due to network-related expenses to support the projected increased use and expansion of our network. Such expenses will include additional satellite coverage to support and/or supplement geographic areas we currently serve as well as new areas. Additionally, we expect our maintenance costs to increase in future periods. Over time, we expect total cost of service revenue in CA-NA to decline as a percentage of total service revenue as we realize efficiencies inherent in the scalability of our business.

As we expand our business internationally, we also expect to incur additional cost of service revenue in CA-ROW, reflecting increased satellite usage, maintenance costs and network related expenses.

Cost of Equipment Revenue:

Cost of equipment revenue by segment and percent change for the three month periods ended March 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Three Months Ended March 31,		% Change 2017 over 2016
	2017	2016	
CA-NA	\$ 1,367	\$ 3,947	(65.4%)
BA	9,637	9,801	(1.7%)
CA-ROW	644	—	n/a
Total	<u>\$11,648</u>	<u>\$ 13,748</u>	<u>(15.3%)</u>

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Cost of equipment revenue decreased to \$11.6 million for the three month period ended March 31, 2017, as compared with \$13.7 million for the prior year period. The decrease occurred primarily within the CA-NA segment due to the timing of equipment transactions that qualify for sales treatment. We expect that our cost of equipment revenue in future periods will vary with changes in equipment revenue.

Engineering, Design and Development Expenses:

Engineering, design and development expenses increased 67.5% to \$36.3 million for the three month period ended March 31, 2017, as compared with \$21.6 million for the prior year period, due primarily to increases in the CA-NA and CA-ROW segments, offset in part by a decrease in the BA segment. The increase in the CA-NA segment was primarily due to the recognition of \$9.4 million of expenses related to the completion of the first phase of development of our next generation ATG solution. Additionally, the CA-NA and CA-ROW segments increased due to higher personnel expense and outside services in connection with the development of new products and technologies and obtaining STCs.

Excluding the \$9.4 million of expenses related to the development of our next generation ATG solution, we expect engineering, design and development expenses to increase in future periods as we continue to execute our technology roadmap, expand internationally and continue to develop new products and technologies. We expect consolidated engineering, design and development expenses to decrease as a percentage of consolidated revenue over time.

Sales and Marketing Expenses:

Sales and marketing expenses decreased 2.4% to \$14.4 million for the three month period ended March 31, 2017, as compared with \$14.7 million for the prior year period, due to a decrease in CA-NA, partially offset by increases in the BA and CA-ROW segments. Consolidated sales and marketing expenses as a percentage of total consolidated revenue decreased to 8.7% for the three month period ended March 31, 2017, as compared with 10.4% for the prior year period.

We expect our sales and marketing expenses to increase in future periods as we expand our international marketing initiatives, commence service on aircraft operated by new and existing airline partners in both CA-NA and CA-ROW, increase advertising and promotional initiatives for new product offerings and expand programs to retain and support our existing users. In addition, the commission component of sales and marketing expenses at BA will fluctuate with equipment revenue. We expect consolidated sales and marketing expenses to decrease as a percentage of consolidated revenue over time.

General and Administrative Expenses:

General and administrative expenses increased 7.4% to \$22.5 million for the three month period ended March 31, 2017, as compared with \$21.0 million for the prior year period, due to increases in the CA-NA and CA-ROW segments, partially offset by a decrease in the BA segment. Consolidated general and administrative expenses as a percentage of total consolidated revenue decreased to 13.6% for the three month period ended March 31, 2017, as compared with 14.8% for the prior year period.

The increase in the CA-NA and CA-ROW segments' general and administrative expenses for the three month period ended March 31, 2017 from the prior year period was due primarily to an increase in personnel related expenses.

The decrease in the BA segment's general and administrative expenses for the three month period ended March 31, 2017 from the prior year period was due primarily to a decrease in personnel related expense.

We expect our general and administrative expenses to increase in future periods as we expand our workforce to support the growth of our business both domestically and internationally. However, we expect general and administrative expenses to decrease as a percentage of consolidated revenue as we realize economies of scale.

Segment Profit (Loss):

CA-NA's segment profit decreased 19.2% to \$11.2 million for the three month period ended March 31, 2017, as compared with \$13.8 million for the prior year period. The decrease in CA-NA's segment profit for the three month period ended March 31, 2017 was due to increases in engineering, design and development and general and administrative expenses and a decrease in equipment revenue, offset in part by an increase in service revenue, as discussed above.

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BA's segment profit increased 29.1% to \$26.1 million for the three month period ended March 31, 2017, as compared with \$20.2 million for the prior year period. The increase in BA's segment profit for the three month period ended March 31, 2017 was due to an increase in service revenue, partially offset by an increase in operating expenses and a decrease in equipment revenue, as discussed above.

CA-ROW's segment loss increased 34.7% to \$26.6 million for the three month period ended March 31, 2017, as compared with \$19.7 million for the prior year period. The increase in CA-ROW's segment loss for the three month period ended March 31, 2017 was due to an increase in operating expenses, offset in part by an increase in service and equipment revenue, as discussed above.

Depreciation and Amortization:

Depreciation and amortization expense increased 25.0% to \$30.4 million for the three month period ended March 31, 2017, as compared with \$24.4 million for the prior year period, due to the increase in the number of aircraft outfitted with our airborne equipment by our CA-ROW and CA-NA segments.

We expect our depreciation and amortization expense to increase in future periods as we install our equipment on additional aircraft, install more expensive satellite-based equipment on aircraft and further expand our ground and satellite networks.

Other (Income) Expense:

Other (income) expense and percent change for the three month periods ended March 31, 2017 and 2016 were as follows (*in thousands, except for percent change*):

	For the Three Months Ended March 31,		% Change
	2017	2016	2017 over 2016
Interest income	\$ (545)	\$ (46)	1,084.8%
Interest expense	26,943	16,296	65.3%
Adjustment to deferred financing costs	—	(869)	n/a
Other (income) expense	38	(174)	n/a
Total	\$26,436	\$15,207	73.8%

Total other expense was \$26.4 million for the three month period ended March 31, 2017, as compared to \$15.2 million for the prior year period. The increase was primarily driven by an increase in interest expense due to higher average debt levels outstanding and higher average interest rates incurred during the current year as compared with the prior year. The increase in interest expense for the three month period ended March 31, 2017, as compared to the prior year period, was due to the issuance of the Original Senior Secured Notes (as defined below) in June 2016 and the Additional Notes (as defined below) in January 2017. The increase in interest expense associated with the Senior Secured Notes was partially offset by lower interest expense associated with the Amended and Restated Senior Term Facility, which was repaid in full in June 2016. See Note 8, "Long-Term Debt and Other Liabilities," in our unaudited condensed consolidated financial statements for additional information. See Note 9, "Interest Costs," in our unaudited condensed consolidated financial statements for additional information related to our interest expense.

We expect our interest expense to increase in 2017 as compared with 2016 due to higher average debt outstanding and higher average interest rates in 2017 as compared to 2016 because of the issuance of the Senior Secured Notes. Interest expense will also increase due to a full year of amortization of deferred financing fees associated with the Senior Secured Notes. These increases will be partially offset by the extinguishment of the Amended and Restated Senior Term Facility. See Note 8, "Long-Term Debt and Other Liabilities," in our unaudited condensed consolidated financial statements for additional information.

Income Taxes:

The effective income tax rate for the three month periods ended March 31, 2017 and 2016 was (0.6%) and (1.3%), respectively. Income tax expense recorded in each period was similar, with differences in pre-tax income causing the change in the effective tax rate. The difference between our effective tax rates and the U.S. federal statutory rate of 35% for the three month period ended March 31, 2017 and 2016 was primarily due to the recording of a valuation allowance against our net deferred tax assets.

We expect our income tax provision to increase in future periods to the extent we become profitable.

Non-GAAP Measures

In our discussion below, we discuss certain non-GAAP financial measurements, including Adjusted EBITDA and Cash CAPEX as defined below. Management uses Adjusted EBITDA and Cash CAPEX for business planning purposes, including managing our business against internally projected results of operations and measuring our performance and liquidity. These supplemental performance measures also provide another basis for comparing period to period results by excluding potential differences caused by non-operational and unusual or non-recurring items. These supplemental performance measurements may vary from and may not be comparable to similarly titled measures by other companies. Adjusted EBITDA and Cash CAPEX are not recognized measurements under accounting principles generally accepted in the United States, or GAAP, and when analyzing our performance with Adjusted EBITDA or liquidity with Cash CAPEX, as applicable, investors should (i) evaluate each adjustment in our reconciliation to net loss attributable to common stock, and the explanatory footnotes regarding those adjustments, (ii) use Adjusted EBITDA in addition to, and not as an alternative to, net loss attributable to common stock as a measure of operating results, and (iii) use Cash CAPEX in addition to, and not as an alternative to, consolidated capital expenditures when evaluating our liquidity.

Definition and Reconciliation of Non-GAAP Measures

EBITDA represents net income (loss) attributable to common stock before income taxes, interest income, interest expense, depreciation expense and amortization of other intangible assets.

Adjusted EBITDA represents EBITDA adjusted for (i) stock-based compensation expense, (ii) amortization of deferred airborne lease incentives and (iii) adjustment of deferred financing costs. Our management believes that the use of Adjusted EBITDA eliminates items that, management believes, have less bearing on our operating performance, thereby highlighting trends in our core business which may not otherwise be apparent. It also provides an assessment of controllable expenses, which are indicators management uses to determine whether current spending decisions need to be adjusted in order to meet financial goals and achieve optimal financial performance.

We believe the exclusion of stock-based compensation expense from Adjusted EBITDA is appropriate given the significant variation in expense that can result from using the Black-Scholes model to determine the fair value of such compensation. The fair value of our stock options is determined using the Black-Scholes model and varies based on fluctuations in the assumptions used in this model, including inputs that are not necessarily directly related to the performance of our business, such as the expected volatility, the risk-free interest rate and the expected life of the options. Therefore, we believe the exclusion of this cost provides a clearer view of the operating performance of our business. Further, stock option grants made at a certain price and point in time do not necessarily reflect how our business is performing at any particular time. While we believe that investors should have information about any dilutive effect of outstanding options and the cost of that compensation, we also believe that stockholders should have the ability to consider our performance using a non-GAAP financial measure that excludes these costs and that management uses to evaluate our business.

We believe the exclusion of the amortization of deferred airborne lease incentives from Adjusted EBITDA is useful as it allows an investor to view operating performance across time periods in a manner consistent with how management measures segment profit and loss (see Note 14, “Business Segments and Major Customers,” for a description of segment profit (loss) in our unaudited condensed consolidated financial statements). Management evaluates segment profit and loss in this manner, excluding the amortization of deferred airborne lease incentives, because such presentation reflects operating decisions and activities from the current period, without regard to the prior period decision or the form of connectivity agreements. See “—Key Components of Consolidated Statements of Operations—Cost of Service Revenue—Commercial Aviation North America and Rest of World” in our 2016 10-K for a discussion of the accounting treatment of deferred airborne lease incentives.

We believe it is useful to an understanding of our operating performance to exclude deferred financing costs from Adjusted EBITDA because of the non-recurring nature of these charges.

We also present Adjusted EBITDA as a supplemental performance measure because we believe that this measure provides investors, securities analysts and other users of our financial statements with important supplemental information with which to evaluate our performance and to enable them to assess our performance on the same basis as management.

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Cash CAPEX represents capital expenditures net of airborne equipment proceeds received from the airlines and incentives paid to us by landlords under certain facilities leases. We believe Cash CAPEX provides a more representative indication of our liquidity requirements with respect to capital expenditures, as under certain agreements with our airline partners we are reimbursed for all or a substantial portion of the cost of our airborne equipment, thereby reducing our cash capital requirements.

Gogo Inc. and Subsidiaries
Reconciliation of GAAP to Non-GAAP Measures
(in thousands, except per share amounts)
(unaudited)

	For the Three Months Ended March 31,	
	2017	2016
Adjusted EBITDA:		
Net loss attributable to common stock (GAAP)	\$(41,367)	\$(24,106)
Interest expense	26,943	16,296
Interest income	(545)	(46)
Income tax provision	233	307
Depreciation and amortization	30,435	24,357
EBITDA	15,699	16,808
Stock-based compensation expense	4,330	4,198
Amortization of deferred airborne lease incentives	(9,348)	(5,644)
Adjustment of deferred financing costs	—	(869)
Adjusted EBITDA	<u>\$ 10,681</u>	<u>\$ 14,493</u>
Cash CAPEX:		
Consolidated capital expenditures (GAAP) (1)	\$(71,608)	\$(37,426)
Change in deferred airborne lease incentives (2)	3,616	7,661
Amortization of deferred airborne lease incentives (2)	9,309	5,586
Cash CAPEX	<u>\$(58,683)</u>	<u>\$(24,179)</u>

(1) See unaudited condensed consolidated statements of cash flows.

(2) Excludes deferred airborne lease incentives and related amortization associated with STCs for the three month periods ended March 31, 2017 and 2016 as STC costs are expensed as incurred as part of Engineering, Design and Development.

Material limitations of Non-GAAP measures

Although EBITDA, Adjusted EBITDA and Cash CAPEX are measurements frequently used by investors and securities analysts in their evaluations of companies, EBITDA, Adjusted EBITDA and Cash CAPEX each have limitations as an analytical tool, and you should not consider them in isolation or as a substitute for, or more meaningful than, amounts determined in accordance with GAAP.

Some of these limitations include:

- EBITDA and Adjusted EBITDA do not reflect interest income or expense;
- EBITDA and Adjusted EBITDA do not reflect cash requirements for our income taxes;
- EBITDA and Adjusted EBITDA do not reflect depreciation and amortization, which are significant and unavoidable operating costs given the level of capital expenditures needed to maintain our business;
- Adjusted EBITDA does not reflect non-cash components of employee compensation;
- Cash CAPEX does not reflect the full extent of capital investments we have made in our operations; and
- since other companies in our or related industries may calculate these measures differently from the way we do, their usefulness as comparative measures may be limited.

Liquidity and Capital Resources

The following table presents a summary of our cash flow activity for the periods set forth below (*in thousands*):

	For the Three Months Ended March 31,	
	2017	2016
Net cash used in operating activities	\$ (14,047)	\$ (2,408)
Net cash used in investing activities	(66,406)	(17,454)
Net cash provided by (used in) financing activities	68,938	(14,135)
Effect of foreign exchange rate changes on cash	142	(180)
Net decrease in cash and cash equivalents	(11,373)	(34,177)
Cash and cash equivalents at the beginning of period	117,302	147,342
Cash and cash equivalents at the end of period	<u>\$105,929</u>	<u>\$ 113,165</u>
Supplemental information:		
Short-term investments	\$333,275	\$199,506

We have historically financed our growth and cash needs primarily through the issuance of common stock, non-convertible debt, senior convertible preferred stock, convertible debt, term facilities and cash from operating activities. We continually evaluate our ongoing capital needs in light of increasing demand for our services, capacity requirements, evolving technologies in our industry and related strategic, operational and technological opportunities. We actively consider opportunities to raise additional capital in the public and private markets utilizing one or more of the types of capital raising transactions through which we have historically financed our growth and cash needs, as well as other means of capital raising not previously used by us.

Liquidity:

Although we can provide no assurances, we currently believe that cash, cash equivalents and short-term investments on hand as of March 31, 2017 will be sufficient to meet our working capital and capital expenditure requirements for at least the next twelve months, including costs associated with installing our 2Ku and ATG-4 equipment on certain aircraft operated by our airline partners, continuing our international expansion and developing our next generation ATG solution. Excluding the impact of our initial public offering in June 2013, the Amended and Restated Senior Term Facility, the Convertible Notes and the Senior Secured Notes, we have not generated positive cash flows on a consolidated basis, and our ability to do so will depend in large part on our ability to increase revenue in each of our three business segments. In addition, our ability to generate positive cash flows from operating activities and the timing of certain capital and other necessary expenditures are subject to numerous variables, such as costs related to international expansion and execution of our current technology roadmap, including 2Ku, next generation ATG and other potential future technologies. We currently believe that cash on hand, comprised of cash, cash equivalents and short-term investments, and cash flows provided by operating activities and, if necessary, additional equity financings or the incurrence of additional debt, will be sufficient to meet our liquidity needs in the longer-term, including our continued international expansion and execution of our current technology roadmap. The Indenture governing our Senior Secured Notes contains covenants that limit the ability of GIH and its subsidiaries to incur additional indebtedness. Additionally, the Indenture governing the Senior Secured Notes limits the amount of cash GIH and its subsidiaries may distribute to us, including cash distributed to us to pay interest on the Convertible Notes, to pay any interest on indebtedness incurred, or pay dividends on preferred stock issued by us to refinance, replace, renew or refund the Convertible Notes. Further, market conditions and/or our financial performance may limit our access to additional sources of equity or debt financing. As a result, we may be unable to finance growth of our business to the extent that our cash on hand (including short-term investments) and cash generated through operating activities prove insufficient and we are unable to raise additional financing through the issuance of our equity or through permitted incurrences of debt by us or by GIH and its subsidiaries.

For additional information on our Senior Secured Notes, Convertible Notes, Amended and Restated Credit Agreement and Restricted Cash, please see Note 8, "Long-Term Debt and Other Liabilities."

Cash flows used in Operating Activities:

The following table presents a summary of our cash flows from operating activities for the periods set forth below (*in thousands*):

	For the Three Months Ended March 31,	
	2017	2016
Net loss	\$(41,367)	\$(24,106)
Non-cash charges and credits	42,651	34,406
Changes in operating assets and liabilities	(15,331)	(12,708)
Net cash used in operating activities	<u>\$(14,047)</u>	<u>\$ (2,408)</u>

For the three month period ended March 31, 2017, cash used in operating activities was \$14.0 million as compared with \$2.4 million for the prior year period. The principal contributors to the change in operating cash flows were:

- A \$9.0 million decrease in net loss adjusted for non-cash charges and credits and
- A \$2.6 million change in cash flows related to operating assets and liabilities resulting from:
 - A decrease in cash flows due to the following:
 - Changes in accrued interest due to the payment of interest on the Senior Secured Notes during 2017 while no such payment was made during 2016, as the Senior Secured Notes were issued in June 2016;
 - Changes in CA-NA's deferred revenue as deferred revenue balances increased during 2016 and decreased slightly during 2017;
 - Changes in CA-NA's accounts receivable due to the timing of collections; and
 - Changes in CA-ROW's deferred airborne lease incentives due to more installations during 2016 as compared with 2017;
 - Offset in part by an increase in cash flows due to the following:
 - Changes in all three segments' prepaid expenses and other current assets. The change in CA-NA was due to the recognition of development services during 2017 that were paid in 2016. The change in BA was due to deposits made on certain inventory items during the first quarter of 2016, while no such payments were made during 2017. The change in CA-ROW was due to the timing of payments on satellite services;
 - Changes in CA-ROW's and BA's accounts receivable due to the timing of collections; and
 - Changes in CA-NA's other non-current assets and liabilities due to more deferred cost of equipment activity associated with one of our airline partners during 2016 as compared with 2017.

We anticipate cash flows from changes in operating assets and liabilities to be impacted by deferred airborne lease incentives, which we estimate will range from \$60 million to \$70 million for the year ending December 31, 2017 and \$40 million to \$50 million for the year ended December 31, 2018. See "—Capital Expenditures" below for further information.

Cash flows used in Investing Activities:

Cash used in investing activities is primarily for capital expenditures related to airborne equipment, cell site construction, software development, and data center upgrades. See "—Capital Expenditures" below. Additionally, cash used in investing activities includes net changes in our short-term investments of \$5.2 million and \$20.0 million for the three month period ended March 31, 2017 and 2016, respectively.

Cash flows provided by Financing Activities:

Cash provided by financing activities for the three month period ended March 31, 2017 was \$68.9 million primarily due to the issuance of the Additional Senior Secured Notes with gross proceeds of \$70.2 million, offset in part by the payment of debt issuance costs for the Additional Senior Secured Notes of \$1.1 million and capital lease payments of \$0.7 million.

Cash used in financing activities for the three month period ended March 31, 2016 was \$14.1 million primarily due to payments on our Amended and Restated Credit Agreement of \$13.8 million (which includes the mandatory prepayment of approximately \$12.2 million) and capital leases of \$0.6 million.

Capital Expenditures

Our operations continue to require significant capital expenditures, primarily for technology development, equipment and capacity expansion. Capital expenditures for the CA-NA and CA-ROW segments include the purchase of airborne equipment, which correlates directly to the roll out and/or upgrade of service to our airline partners' fleets. Capital spending is also associated with the expansion of our ATG network and data centers and includes site acquisition, design, permitting, network equipment and construction costs. We capitalize software development costs related to network technology solutions, the Gogo platform and new product/service offerings. We also capitalized costs related to the build out of our new office locations.

Capital expenditures for the three month periods ended March 31, 2017 and 2016 were \$71.6 million and \$37.4 million, respectively. The increase in capital expenditures was primarily due to an increase in airborne equipment purchases and to a lesser extent an increase in capitalized software.

We anticipate that capital expenditures for the year ending December 31, 2017 will range from \$290 million to \$330 million as we increase purchases of airborne equipment (including 2Ku) that when sold to the airlines will qualify as an operating lease of space, and begin the buildout of our next generation ATG network. We expect our capital expenditures, net of deferred airborne lease incentives, which we estimate will range from \$60 million to \$70 million, to range from \$230 million to \$260 million for the year ending December 31, 2017. We anticipate that capital expenditures for the year ending December 31, 2018 will range from \$110 million to \$170 million. We expect our capital expenditures, net of deferred airborne lease incentives, which we estimate will range from \$40 million to \$50 million, to range from \$70 million to \$120 million for the year ending December 31, 2018. The decrease in capital expenditures and related deferred airborne lease incentives in 2018 as compared with 2016 and 2017 primarily reflects our purchases of equipment in 2018 that, when sold to airlines, will qualify as sales rather than as operating leases of space on aircraft.

Contractual Commitments:

We have agreements with vendors to provide us with transponder and teleport satellite services. These agreements vary in length and amount and as of March 31, 2017 commit us to purchase transponder and teleport satellite services totaling approximately \$55.0 million in 2017 (April 1 through December 31), \$58.6 million in 2018, \$61.2 million in 2019, \$68.2 million in 2020, \$60.2 million in 2021 and \$279.6 million thereafter.

We have agreements with various vendors under which we have remaining commitments to purchase satellite-based systems, certifications and development services. Such commitments will become payable as we receive the equipment or certifications, or as development services are provided.

Leases and Cell Site Contracts: We have lease agreements relating to certain facilities and equipment, which are considered operating leases. Additionally, we have operating leases with wireless service providers for tower space and base station capacity on a volume usage basis ("cell site leases"), some of which provide for minimum annual payments. See Note 10, "Leases," in our unaudited condensed consolidated financial statements for additional information.

For the airline agreements where the equipment transactions are accounted for as operating leases of space, the revenue share paid to our airline partners represents operating lease payments. They are deemed to be contingent rental payments, as the payments due to each airline are based on a percentage of our CA-NA and CA-ROW service revenue generated from that airline's passengers, which is unknown until realized. As such, we cannot estimate the lease payments due to an airline at the commencement of our contract with such airline. This rental expense is included in cost of service revenue and is offset by the amortization of the deferred airborne lease incentive discussed above. See Note 10, "Leases," in our unaudited condensed consolidated financial statements for additional information.

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A contract with one of our airline partners requires us to provide the airline partner with cash rebates of \$1.8 million in June 2017 and June 2018.

Indemnifications and Guarantees: In accordance with Delaware law, we indemnify our officers and directors for certain events or occurrences while the officer or director is, or was, serving at our request in such capacity. The maximum potential amount of future payments we could be required to make under this indemnification is uncertain and may be unlimited, depending upon circumstances. However, our Directors' and Officers' insurance does provide coverage for certain of these losses.

In the ordinary course of business we may occasionally enter into agreements pursuant to which we may be obligated to pay for the failure of performance of others, such as the use of corporate credit cards issued to employees. Based on historical experience, we believe that the risk of sustaining any material loss related to such guarantees is remote.

We have entered into a number of agreements, including our agreements with commercial airlines, pursuant to which we indemnify the other party for losses and expenses suffered or incurred in connection with any patent, copyright, or trademark infringement or misappropriation claim asserted by a third party with respect to our equipment or services. The maximum potential amount of future payments we could be required to make under these indemnification agreements is uncertain and is typically not limited by the terms of the agreements.

ITEM 3. Quantitative and Qualitative Disclosures About Market Risk

Our exposure to market risk is currently confined to our cash and cash equivalents, short-term investments and our debt. We have not used derivative financial instruments for speculation or trading purposes. The primary objectives of our investment activities are to preserve our capital for the purpose of funding operations while at the same time maximizing the income we receive from our investments without significantly increasing risk. To achieve these objectives, our investment policy allows us to maintain a portfolio of cash equivalents and short-term investments through a variety of securities, including U.S. Treasuries, U.S. Government Agency Securities, and Money Market Funds. Our cash and cash equivalents as of March 31, 2017 and December 31, 2016 primarily included amounts in bank checking accounts and Money Market Funds. We believe that a change in average interest rates would not materially affect our interest income and results of operations.

The risk inherent in our market risk sensitive instruments and positions is the potential loss arising from interest rates as discussed below. The sensitivity analyses presented do not consider the effects that such adverse changes may have on the overall economic activity, nor do they consider additional actions we may take to mitigate our exposure to such changes. Actual results may differ.

Interest: Our earnings are affected by changes in interest rates due to the impact those changes have on interest income generated from our cash, cash equivalents and short-term investments. Our cash and cash equivalents as of March 31, 2017 and December 31, 2016 included amounts in bank checking accounts and money market funds, and our short-term investments consist of U.S. Treasury bills. We believe we have minimal interest rate risk; a 10% change in the average interest rate on our portfolio would have reduced interest income for the three month periods ended March 31, 2017 and 2016 by an immaterial amount.

Inflation: We do not believe that inflation has had a material effect on our results of operations. However, there can be no assurance that our business will not be affected by inflation in the future.

Seasonality: Our results of operations for any interim period are not necessarily indicative of those for any other interim period for the entire year because the demand for air travel, including business travel, is subject to significant seasonal fluctuations. We generally expect overall passenger opportunity to be greater in the second and third quarters compared to the rest of the year due to an increase in leisure travel offset in part by a decrease in business travel during the summer months and holidays. We expect seasonality of the air transportation business to continue, which may affect our results of operations in any one period.

ITEM 4. Controls and Procedures

(a) Evaluation of Disclosure Controls and Procedures

Management, with the participation of our Chief Executive Officer and the Chief Financial Officer, evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as amended) as of March 31, 2017. Based upon this evaluation, our Chief Executive Officer and the Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of March 31, 2017.

(b) Changes in Internal Control over Financial Reporting

There have been no changes to our internal control over financial reporting in connection with the evaluation required by Rules 13a-15(f) and 15d-15(f) under the Exchange Act during the most recent fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. Legal Proceedings

From time to time we may become involved in legal proceedings arising in the ordinary course of our business. We cannot predict with certainty the potential for or outcome of any future litigation. Regardless of the outcome of any particular litigation and the merits of any particular claim, litigation can have a material adverse impact on our company due to, among other reasons, any injunctive relief granted, which could inhibit our ability to operate our business, amounts paid as damages or in settlement of any such matter, diversion of management resources and defense costs.

ITEM 1A. Risk Factors

The following risk factors update the corresponding risk factors in our 2016 10-K. Except as set forth below, there have been no material changes to the risk factors previously disclosed in our 2016 10-K.

A future act or threat of terrorism, cyber-security attack or other events could result in a prohibition on the use of Wi-Fi enabled devices on aircraft.

A future act of terrorism or cyber-security attack on an aircraft, the threat of such acts or unrelated airline accidents could have an adverse effect on the airline industry. In the event of a terrorist attack or threat, cyber-security attack or threat or unrelated airline accident, the industry would likely experience significantly reduced passenger demand. The U.S. federal government or foreign governments could respond to such events by prohibiting the use of Wi-Fi enabled devices on aircraft, which would eliminate demand for our equipment and service. For example, the U.S. and U.K. governments, reportedly in response to terrorist threats, recently banned the use by passengers of certain personal devices, such as laptops and tablets, on certain airlines flying certain routes. While such bans do not currently impact any Gogo airline partners or Gogo-equipped aircraft, there can be no assurance that such bans will not be extended to cover additional airlines, aircraft or routes, or that additional foreign governments will not adopt similar or more extensive bans. In addition, any association or perceived association between our equipment or service and the threat of terrorism, cyber-security attacks or accidents involving aircraft on which our equipment or service operates would likely have an adverse effect on demand for our equipment and service. Reduced demand for our products and services would adversely affect our business prospects, financial condition and results of operations.

Increased costs and other demands associated with our growth could impact our ability to achieve profitability over the long term and could strain our personnel, technology and infrastructure resources.

We expect our costs to increase in future periods, which could negatively affect our future operating results. We continue to experience growth in our headcount and operations, which has placed significant demands on our management, administrative, technological, operational and financial infrastructure. Anticipated future growth, including growth related to the broadening of our service offerings, the roll-out of the technology roadmap and other network enhancements and international expansion of our CA business, will require the outlay of significant operating and capital expenditures and will continue to place strains on our personnel, technology and infrastructure. Our success will depend in part upon our ability to contain costs with respect to growth opportunities. To successfully manage the expected growth of our operations, on a timely and cost-effective basis we will need to continue to improve our operational, financial, technological and management controls and our reporting systems and procedures. We are in the process of implementing an enterprise resource planning system that will integrate many of such systems and procedures. If we do not effectively implement the system or if it does not operate as intended, it could adversely affect our business, financial condition and results of operations and the effectiveness of our internal controls over financial reporting. In addition, as we continue to grow, we must effectively integrate, develop and motivate a large number of new employees, and we must maintain the beneficial aspects of our corporate culture. If we fail to successfully manage our growth, it could adversely affect our business, financial condition and results of operations.

ITEM 2. Unregistered Sales of Equity Securities and Use of Proceeds

a) Sales of Unregistered Securities

None.

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b) Use of Proceeds from Public Offering of Common Stock

None.

ITEM 3. Defaults Upon Senior Securities

None.

ITEM 4. Mine Safety Disclosures

None.

ITEM 5. Other Information

ITEM 6. Exhibits

<u>Exhibit Number</u>	<u>Description of Exhibits</u>
10.1.43†	Letter Agreement, dated February 1, 2017, by and between Gogo LLC and American Airlines, Inc.
10.1.44†	Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement, dated as of February 1, 2017, by and between Gogo LLC and American Airlines, Inc.
10.1.45	Reaffirmation Agreement, dated as of January 3, 2017, among Gogo Intermediate Holdings LLC, Gogo Finance Co. Inc., Gogo Inc. and the Subsidiary Guarantors party thereto (incorporated by reference to Exhibit 10.1 to Form 8-K filed on January 3, 2017 (File No. 001-35975)).
10.1.46	Additional Secured Debt Designation, dated as of January 3, 2017, by and between Gogo Intermediate Holdings LLC and Gogo Finance Co. Inc. (incorporated by reference to Exhibit 10.2 to Form 8-K filed on January 3, 2017 (File No. 001-35975)).
10.2.14#	Employment Agreement, by and between Gogo LLC and Barry Rowan, effective as of April 24, 2017
10.2.15#	Change in Control Severance Agreement, dated as of April 24, 2017, by and between Gogo Inc. and Barry Rowan
31.1	Certification of Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1*	Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2*	Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.LAB	XBRL Taxonomy Extension Labels Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document

† Certain provisions of this exhibit have been omitted and separately filed with the Securities and Exchange Commission pursuant to a request for confidential treatment.

Management contract or compensatory plan or arrangement

* This certification accompanies the Form 10-Q to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of the Registrant under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities and Exchange Act of 1934, as amended, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

Date: May 4, 2017

Gogo Inc.

/s/ Michael Small

Michael Small

President and Chief Executive Officer

(Principal Executive Officer)

/s/ Norman Smagley

Norman Smagley

Executive Vice President and Chief Financial Officer

(Principal Financial Officer)



THE USE OF THE FOLLOWING NOTATION IN THIS EXHIBIT INDICATES THAT THE CONFIDENTIAL PORTION HAS BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT AND THE OMITTED MATERIAL HAS BEEN FILED SEPERATELY WITH THE SECURITIES AND EXCHANGE COMMISSION: [*]**

February 1, 2017

Gogo LLC
111 N. Canal St., Ste. 1500
Chicago, Illinois 60606

RE: Third Amended and Restated In Flight Connectivity Services Agreement (the “Pre-Apollo Agreement”) effective as of September 13, 2012, as amended; In Flight Connectivity Services Agreement (the “Apollo Agreement”) effective as of September 14, 2012, as amended; Amended and Restated In Flight Connectivity Services Agreement (the “L-US Agreement”) effective as of March 14, 2012, as amended.

Gentlemen:

Reference is hereby made to the above-referenced agreements (the “**Agreements**”). This letter agreement (“**Letter Agreement**”) will acknowledge and evidence that American Airlines, Inc. (“**American**”) and Gogo LLC (“**Gogo**”) have agreed, effective as of the date of this letter and for good and valuable consideration:

1. **Promo Codes.** Notwithstanding any provision of any of the Agreements to the contrary, until execution of the Unified Inflight Connectivity Hardware, Services and Maintenance Agreement between the parties, American may purchase from Gogo, and Gogo shall provide to American, promotional codes (each of which will enable all passengers on a charter flight to access the Connectivity Services [***]) (“**Promo Codes**”) for usage by passengers on designated charter flights (“**Charter Flights**”) operated by American at the price of [***], subject to any expedited service fee described in Section 2 below.
2. **American Obligations.** American shall be solely responsible for all charter arrangements on the Charter Flights and expenses incurred in connection therewith. American shall provide Gogo with at least [***] prior written notice for any flight it wishes to designate as a Charter Flight, which notice shall contain the departure date, departure time, city pair and flight number of the applicable Charter Flight (a “**Charter Notice**”). Gogo will make reasonable efforts to provide Promo Codes (as defined below) for a Charter Notice sent less than [***] before the applicable Charter Flight subject an additional expedited service fee of [***], and the Parties acknowledge that Gogo will not always be capable of providing Promo Codes in a timely fashion for such expedited requests. American shall be solely responsible for providing the Promo Codes to its Charter Flight passengers. American shall notify Charter Flight passengers that the Promo Codes are not to be shared with third parties other than Charter Flight passengers and are to be used only on the applicable Charter Flights. American hereby acknowledges that amounts paid for Charter Flights are not subject to any revenue sharing provisions under the Agreements.
3. **Gogo Obligations.** Gogo will ensure that the Portal on the applicable Charter Flight accepts the Promo Codes provided pursuant to this Letter Agreement, and Gogo will make reasonable efforts to supply replacement Promo Codes in the event Promo Codes do not function properly. The Promo Codes represent a limited license to access the Connectivity Services on the Charter Flight(s) covered by the applicable Charter Notice. Gogo is responsible for any and all problems that arise in connection with the use of the Portal or the Promo Codes on Charter Flights. If Connectivity Services are not available on a Charter Flight, American agrees to promptly notify Gogo, and Gogo agrees that American shall not be invoiced or charged for any such Charter Flight.

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4. **Prior and Current Scheduled Charter Flights.** The parties agree and acknowledge that Gogo may invoice American for all flights dated before the date of this Letter Agreement at any time after execution of this Letter Agreement but shall not invoice American for any flights dated after the date of this Letter Agreement until after such flights have occurred.
5. **Governing Agreement.** Except as set forth in the preceding sentence, the purchase/provision and use of any such Promo Code shall be subject to and governed by the terms of the applicable Agreement covering the aircraft used for the Charter Flight.

Except as modified by this Letter Agreement, the Agreements shall continue in full force and effect. In the event of any inconsistency between this Letter Agreement and the Agreements, this Letter Agreement shall control.

If the foregoing accurately reflects our agreement, please evidence and acknowledge such fact by signing two copies of this letter in the space provided and returning both copies to Debanjan Ghosh, who shall obtain the appropriate signature on behalf of American and return a fully signed copy to you. All capitalized terms used herein without definition shall have the respective meanings therefor specified in the applicable Agreement(s).

Very truly yours,

AMERICAN AIRLINES, INC.

By: /s/ Debanjan Ghosh
Name: Debanjan Ghosh
Title: Sr. Commodity Manager

Date:

ACCEPTED AND AGREED:

GOGO LLC

By: /s/ John Happ
Name: John Happ
Title: SVP, Regional President

Exhibit A

Prior and Scheduled Charter Flights

[***]

American Airlines

Confidential

THE USE OF THE FOLLOWING NOTATION IN THIS EXHIBIT INDICATES THAT THE CONFIDENTIAL PORTION HAS BEEN OMITTED PURSUANT TO A REQUEST FOR CONFIDENTIAL TREATMENT AND THE OMITTED MATERIAL HAS BEEN FILED SEPERATELY WITH THE SECURITIES AND EXCHANGE COMMISSION: [*]**

Unified In-Flight Connectivity Hardware,

Services and Maintenance Agreement

between

American Airlines, Inc.

and

Gogo LLC

Unified In-Flight Connectivity Hardware,
Services and Maintenance Agreement

This Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement (together with the Exhibits and the Appendix hereto, this “**Agreement**”) is made effective as of February 1, 2017, (the “**Effective Date**”), between American Airlines, Inc., a Delaware corporation with its principal place of business at 4333 Amon Carter Blvd., Fort Worth, TX 76155 (“**American**”), and Gogo LLC (f/k/a Aircell LLC), a Delaware limited liability company with offices located at 111 N. Canal St., Suite 1500, Chicago, IL 60606 (“**Gogo**”). Each of American and Gogo are referred to herein individually as a “**Party**” and collectively as the “**Parties**.”

WHEREAS, American and US Airways, Inc. (“**US**”) merged on December 30, 2015, and American and US have combined their operations and are operating as one airline under one FAA operating certificate under the name American Airlines;

WHEREAS, Gogo provides in-flight connectivity and entertainment equipment and services on certain aircraft operated or to be operated in the future by American pursuant to the following agreements (collectively, the “**Prior Agreements**”):

- Mutual Nondisclosure Agreement between US and Gogo, effective as of November 28, 2006 (the “**US NDA**”);
- Confidentiality Agreement between American and Gogo, effective as of October 15, 2007 (the “**American NDA**”);
- Amended and Restated In-Flight Connectivity Services Agreement between US and Gogo, effective as of March 14, 2012 (the “**US Agreement**”), which includes, for avoidance of doubt, the Content Filtering SOW to the US Agreement dated April 28, 2010;
- Amendment One to the US Agreement, effective as of March 14, 2012;
- Amendment Two to the US Agreement, effective as of December 18, 2012;
- Third Amended and Restated In-Flight Connectivity Services Agreement between American and Gogo, effective as of September 13, 2012 (the “**Pre-Apollo Agreement**”);
- Amendment One to Pre-Apollo Agreement, effective as of September 13, 2012;
- Amendment Two to Pre-Apollo Agreement, effective as of May 30, 2014;
- Amendment Three to Pre-Apollo Agreement, effective as of February 1, 2015;
- In-Flight Connectivity Services Agreement between American and Gogo, effective as of September 14, 2012 (the “**Apollo Agreement**”);
- Interim Agreement among American, US and Gogo, effective as of December 1, 2015;
- Letter Agreement between American and Gogo, concerning primarily 2Ku Solution terms, effective as of May 27, 2016;
- Letter Agreement between American and Gogo concerning GGV (also know as Wireless Entertainment), effective as of November 1, 2016 (the “**GGV AD Letter Agreement**”); and
- Letter Agreement between American and Gogo concerning Charter Flights, effective as of February 1, 2017.

WHEREAS, the Parties wish, for a variety of reasons, including without limitation, ease of reference and operating efficiencies, to combine the Prior Agreements and make such changes thereto as the Parties shall mutually agree upon, by executing and delivering this Agreement, which upon such execution and delivery, shall replace and supersede the Prior Agreements (with the sole exception of Section 3 of Amendment One to the Pre-Apollo Agreement, which shall survive such execution and delivery) in their entirety.

NOW, THEREFORE, in consideration of the foregoing and the mutual covenants and promises herein set forth, the Parties hereby agree as follows:

American Airlines, Inc. and Gogo LLC
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1. **DEFINITIONS**

In addition to those terms defined in the body of this Agreement or the Exhibits hereto, the definitions below shall apply to the following terms:

- 1.1 “**2Ku Fleet**” means the Airbus A319 family A/C and Airbus A320 family A/C listed in **Exhibit A-1** to be equipped with the 2Ku Solution.
- 1.2 “**2Ku Revenue Launch Date**” has the meaning set forth in Section 2(c)(ii) of **Exhibit J-1**.
- 1.3 “**2Ku Solution**” means Gogo’s 2Ku connectivity solution using two (2) Ku-band antennas, one for upload and one for download, a Next Gen Gilat satellite network modem and 802.11ac WAP on the aircraft.
- 1.4 “**757 Fleet**” means the Boeing 757 A/C listed in **Exhibit A-4a**.
- 1.5 “**A/C**” or “**Aircraft**” means an aircraft operated by American or an Operator.
- 1.6 “**AACU**” means the ABS ATG communications unit.
- 1.7 “**AACU-B**” means the ABS ATG communication unit B.
- 1.8 “**AA Subscriptions**” means monthly subscription paid by American passengers to Gogo for unlimited access to Connectivity Services as described in more detail in **Exhibit M**.
- 1.9 “**Account Manager**” has the meaning set forth in Section 11.1.3.
- 1.10 “**ACPU**” means ABS controller processor unit.
- 1.11 “**ACPU-2**” means ABS control processor unit second generation.
- 1.12 “**Active Monitoring**” has the meaning set forth in Section 5.1 of **Exhibit F**.
- 1.13 “**acWAPs**” means 802.11ac cabin wireless access points.
- 1.14 “**Additional A/C**” has the meaning set forth in Section 2.1.
- 1.15 “**Ad Revenue**” has the meaning set forth in Section 1.5.1 of **Exhibit I**.
- 1.16 “**Ad Space**” has the meaning set forth in Section 1.5.2 of **Exhibit I**.
- 1.17 “**Ad Space Value**” has the meaning set forth in Section 1.5.3 of **Exhibit I**.
- 1.18 “**Advertiser**” has the meaning set forth in Section 1.5.4 of **Exhibit I**.
- 1.19 “**Affiliate Fee**” means the percentage of revenue Gogo pays to American [***] as further described in Section 2.1.2 of **Exhibit D**.
- 1.20 “**Affiliate**” has the meaning set forth in **Exhibit V**.
- 1.21 “**Aggregate Revenues**” means all revenue that Gogo collects for or in connection with the Gogo Services.

American Airlines, Inc. and Gogo LLC
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Unified In-Flight Connectivity Hardware,
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- 1.22 “**Agreement**” has the meaning set forth in the recitals.
- 1.23 “**Air-to-Ground**” or “**ATG**” means technology that uses an air-to-ground link to communicate between a ground network of cell towers and an in-cabin Wi-Fi network.
- 1.24 [***].
- 1.25 “**AIPC**” means the aircraft illustrated parts catalog.
- 1.26 “**American**” has the meaning set forth in the recitals.
- 1.27 “**American Advertiser**” has the meaning set forth in Section 1.5.5 of **Exhibit I**.
- 1.28 “**American Copyright Works**” has the meaning set forth in **Exhibit V**.
- 1.29 “**American Data**” has the meaning set forth in **Exhibit V**.
- 1.30 “**American Identifiers**” has the meaning set forth in **Exhibit V**.
- 1.31 “**American Indemnified Parties**” has the meaning set forth in Section 21.1.
- 1.32 “**American IP**” has the meaning set forth in **Exhibit V**.
- 1.33 “**American Marks**” has the meaning set forth in **Exhibit V**.
- 1.34 “**American NDA**” has the meaning set forth in the recitals.
- 1.35 “**American Patents**” has the meaning set forth in **Exhibit V**.
- 1.36 “**American Supplier**” has the meaning set forth in Section 3.4.5.
- 1.37 “**American System**” has the meaning set forth in **Exhibit V**.
- 1.38 “**American Technology**” means American’s proprietary business and technical information concerning American’s business and operations, including without limitation, A/C and any derivatives thereof.
- 1.39 “**American Whitelisted Content**” has the meaning set forth in Section 1.1 of **Exhibit I**.
- 1.40 “**AMM**” means the aircraft maintenance manual.
- 1.41 “**Ancillary Services**” means Gogo Services except for Connectivity Services, [***] and Wireless Entertainment, and includes without limitation, Engineering Services, Maintenance Services, customer care and Portal services.
- 1.42 “**Anonymous Data**” has the meaning set forth in **Exhibit V**.
- 1.43 “**Apollo Agreement**” has the meaning set forth in the recitals.
- 1.44 “**Applicable Agreement**” has the meaning set forth in Section 5.1.2.1.
- 1.45 “**ARINC**” means Aeronautical Radio Inc.

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- 1.46 “**ARPA**” has the meaning set forth in Section 2(c)(ii) of **Exhibit J-1**.
- 1.47 “**ASA**” means above service altitude.
- 1.48 “**ATGM**” means Air-to-Ground modem.
- 1.49 “**ATG4 Mainline Fleet**” means the Boeing 737 A/C, Airbus A321 family A/C and Airbus A319 family A/C listed in **Exhibit A-3**.
- 1.50 “**ATG Solution**” means Gogo’s Air-to-Ground connectivity solution using an omni-directional antenna and one (1) ATG (EV-DO Rev A) modem on the aircraft.
- 1.51 “**ATG4 Solution**” means Gogo’s Air-to-Ground connectivity solution using a directional antenna and two (2) ATG (EV-DO Rev B) modems on the aircraft.
- 1.52 “**Base Retail Price**” means as to any flight and any passenger Wi-Fi-enabled device, the full price charged by Gogo for use of Connectivity Services on such device on such flight, not taking into account any discounts, promotions, Sponsorships or other promotional activities.
- 1.53 “**Baseline Period**” has the meaning set forth in Section 2(c)(ii) of **Exhibit J-1**.
- 1.54 “**BIA**” means the business intelligence and analytics portal.
- 1.55 “**BOM**” means bill of materials.
- 1.56 [***].
- 1.57 “**BTS**” means base transceiver stations.
- 1.58 “**CDR**” means critical design review.
- 1.59 “**CDR Gate**” has the meaning set forth in Section 1.3.1 of **Exhibit F**.
- 1.60 “**Certifications**” means such certifications and approvals as are required by applicable government bodies to provide the Gogo Services on Retrofit A/C flying in the Territory.
- 1.61 “**Change of Control of Gogo**” has the meaning set forth in Section 18.6.
- 1.62 “**Charter Flight**” has the meaning set forth in the recitals of **Exhibit S**.
- 1.63 “**Charter Notice**” has the meaning set forth in Section 1 of **Exhibit S**.
- 1.64 “**Click Through Rate**” has the meaning set forth in Section 5.2.6 of **Exhibit K**.
- 1.65 “**CMM**” means the component maintenance manual.
- 1.66 “**CMS**” means content management system.
- 1.67 “**Common Broadcast Incidents**” has the meaning set forth in **Exhibit V**.
- 1.68 “**Component**” means Equipment other than consumable and expendable parts.

American Airlines, Inc. and Gogo LLC
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Unified In-Flight Connectivity Hardware,
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- 1.69 “**Confidential Information**” has the meaning set forth in Section 20.2.
- 1.70 “**Connectivity Revenue**” [***].
- 1.71 “**Connectivity Revenue Share**” means American’s share of Connectivity Revenue as more specifically described in **Exhibit D**.
- 1.72 “**Connectivity Services**” means Gogo’s in-flight wireless Internet connectivity services for passengers’ laptop computers, tablets, smartphones and other PEDs with Wi-Fi capability, including but not limited to email, instant messaging, over-the-top messaging (e.g., iMessage, WhatsApp messaging), access to virtual private networks and Internet browsing.
- 1.73 [***].
- 1.74 “**Connectivity Take Rate**” for any applicable measurement period, means [***].
- 1.75 “**Content**” has the meaning set forth in Section 1.5.6 of **Exhibit I**.
- 1.76 “**Contracted Fleet**” means all A/C on which Equipment is installed pursuant to this Agreement (after the Effective Date), including the 2Ku Fleet, Mainline New Deliveries, Regional Jet Fleet and, to the extent the option in either Section 2.1(x) or 2.1(y) is exercised, Additional A/C.
- 1.77 “**Control**” has the meaning set forth in **Exhibit V**.
- 1.78 “**Coverage**” has the meaning set forth in Section 1 of **Exhibit Q**.
- 1.79 “**CRC**” means cyclical redundancy checks.
- 1.80 “**CSP**” means content service provider.
- 1.81 “**Current Routes**” has the meaning set forth in Section 1 of **Exhibit Q**.
- 1.82 “**CWAP**” means cabin wireless access point.
- 1.83 “**Dashboard**” has the meaning set forth in Section 2.1 of **Exhibit K**.
- 1.84 “**Data Law**” has the meaning set forth in **Exhibit V**.
- 1.85 “**Data Processor**” has the meaning set forth in **Exhibit V**.
- 1.86 “**Deinstallation**” means removal from the A/C of all Equipment listed in **Exhibit B** except the Installation Kit.
- 1.87 “**Designated Destination**” means the point of delivery specified by American.
- 1.88 “**DHCP**” means dynamic host configuration protocol.
- 1.89 “**Discloser**” has the meaning set forth in Section 20.2.
- 1.90 “**Documentation**” has the meaning set forth in Section 3.4.
- 1.91 “**Downtime**” has the meaning set forth in Section 5(a) of **Exhibit J**.

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- 1.92 “DSC” means digital switching centers.
- 1.93 “Effective Date” has the meaning set forth in the recitals.
- 1.94 “EIS” means, with respect to any Retrofit A/C, entry into service for revenue flights.
- 1.95 “Electronic Property” has the meaning set forth in Exhibit V.
- 1.96 “Engineering Liaison” has the meaning set forth in Section 11.1.2.
- 1.97 “Engineering Services” means any engineering design, drawing or certification-related activity provided by Gogo or Gogo’s subcontractors, including without limitation, the services set forth in Section 9.3.
- 1.98 “Equipment” means the LRUs and other equipment, including consumable and expendable parts, set forth in Exhibit B for each Technology Type (as such Exhibit may be amended or supplemented from time to time for Technology Types other than ATG, ATG4 and/or 2Ku) that Gogo installs, or provides for American to install, on the A/C for the provision of the Connectivity Service. Equipment also includes the accompanying Documentation.
- 1.99 “Event of Default” has the meaning set forth in Section 18.5.
- 1.100 “Excluded Claims” has the meaning set forth in Section 21.1.
- 1.101 [***].
- 1.102 “Excusable Delay” has the meaning set forth in Section 24.1.
- 1.103 “Existing Retrofit Fleet” means all A/C on which Equipment has been installed as of the Effective Date.
- 1.104 “Extended Warranty Period” has the meaning set forth in Section 9.2.
- 1.105 “FAA” means the Federal Aviation Administration.
- 1.106 “FAI” means first article inspection(s).
- 1.107 “FAM” means federal air marshal.
- 1.108 “First Installation” means each Initial Installation and each Upgrade that occurs when satellite-based Equipment is first installed.
- 1.109 “Fleet Type” means any fleet type in Exhibits A-1, A-2, A-3, A-4a and A-4b.
- 1.110 “Fly-Along Support” has the meaning set forth in Section 5.1 of Exhibit F.
- 1.111 “Future Routes” has the meaning set forth in Section 1 of Exhibit Q.
- 1.112 “Gate-to-gate” means the period of time as further described in Exhibit E.
- 1.113 “General Gogo Services Uses” has the meaning set forth in Exhibit V.
- 1.114 “Gogo” has the meaning set forth in the recitals.

- 1.115 “**Gogo Advertiser**” has the meaning set forth in Section 1.5.7 of **Exhibit I**.
- 1.116 “**Gogo Copyright Works**” has the meaning set forth in **Exhibit V**.
- 1.117 “**Gogo Customer Database**” has the meaning set forth in **Exhibit V**.
- 1.118 “**Gogo Data**” has the meaning set forth in **Exhibit V**.
- 1.119 “**Gogo Identifiers**” has the meaning set forth in **Exhibit V**.
- 1.120 “**Gogo Indemnified Parties**” has the meaning set forth in Section 21.2.
- 1.121 “**Gogo IP**” has the meaning set forth in **Exhibit V**.
- 1.122 “**Gogo Marks**” has the meaning set forth in **Exhibit V**.
- 1.123 “**Gogo Multi-Airline Pass**” has the meaning set forth in Section 2.1.2 of **Exhibit D**.
- 1.124 “**Gogo Patents**” has the meaning set forth in **Exhibit V**.
- 1.125 “**Gogo Services**” means the Connectivity Services, [***], Wireless Entertainment, Ancillary Services and any other services to be provided by Gogo pursuant to this Agreement, including without limitation, services pertaining to maintenance, support, engineering, installation and Deinstallation of the Equipment, and training in connection therewith.
- 1.126 “**Gogo System**” has the meaning set forth in **Exhibit V**.
- 1.127 “**Gogo Technology**” means Gogo’s proprietary business and technical information concerning Gogo’s business and operations, including without limitation, the Equipment, Software, system interfaces, Gogo Services and Operational Applications, and the process used in the manufacture of Equipment and any derivatives thereof.
- 1.128 “**GPS**” means global positioning satellite.
- 1.129 “**ICD**” means interface control document.
- 1.130 “**IDR**” means intermediate design review.
- 1.131 “**IFC**” means in-flight connectivity.
- 1.132 “**IFE**” means in-flight entertainment.
- 1.133 “**Indemnified Party**” means either Gogo Indemnified Parties or American Indemnified Parties.
- 1.134 “**Indemnitor**” has the meaning set forth in Section 21.3.
- 1.135 “**Initial Installation**” means an installation of Equipment and Software on a Retrofit A/C that is not an Upgrade.
- 1.136 “**Initial Warranty Period**” has the meaning set forth in Section 9.2.

- 1.137 “**Installation Guidelines**” has the meaning set forth in Section 10.2.
- 1.138 “**Installation Kit**” means hardware, cabling and any other supplemental material that is not an LRU but that is required to install Equipment on an A/C.
- 1.139 “**Internal Portal Page**” has the meaning set forth in Section 1.5.8 of Exhibit I.
- 1.140 [***].
- 1.141 “**ITCM**” means initial technical coordination meeting.
- 1.142 “**KANDU**” means the Ku-band aircraft networking data unit.
- 1.143 “**KRFU**” means Ku/Ka-band radio frequency unit.
- 1.144 “**LAN**” means local area network.
- 1.145 “**Late Delivery**” has the meaning set forth in Section 7.7.
- 1.146 “**Lead Times**” are as set forth in Exhibit B.
- 1.147 “**Leased Equipment**” has the meaning set forth in Section 5.1.
- 1.148 “**Link**” and “**Links**” have the meanings set forth in Exhibit N.
- 1.149 “**LRU**” means each line replaceable unit as listed in Exhibit B and is the basic unit of installation and/or replacement of hardware within an Aircraft.
- 1.150 “**Mainline New Deliveries**” means the A321S A/C and B737-800 A/C listed in Exhibit A-3 and indicated as new deliveries, which are expected to be delivered to American between the Effective Date [***].
- 1.151 “**Maintenance Notice**” has the meaning set forth in Section 2.4 of Exhibit G.
- 1.152 “**Maintenance Services**” means the maintenance services to be provided by Gogo, as set forth in Exhibit G.
- 1.153 “**Malfunction**” has the meaning set forth in Section 2.4 of Exhibit G.
- 1.154 “**Mandatory Change**” has the meaning set forth in Section 4.1.
- 1.155 “**Marks**” means, with respect to Gogo, the Gogo Marks that are directly applicable to the Program, and with respect to American, the American Marks that are directly applicable to the Program.
- 1.156 “**MCP**” has the meaning set forth in Section 3.3.6.
- 1.157 “**MD-80 Fleet**” means the McDonnell Douglas MD-80 A/C listed in Exhibit A-4a.
- 1.158 “**Measurement Period**” has the meaning set forth in Section 2(c)(ii) of Exhibit J-1.
- 1.159 “**Media Rate Card**” has the meaning set forth in Section 1.5.9 of Exhibit I.
- 1.160 “**Metric Aggregation**” has the meaning set forth in Section 4(b)(ii) of Exhibit J-2.

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- 1.161 “**ModMan**” means modem and manager.
- 1.162 “**MOR**” means merchant of record.
- 1.163 “**MSF**” means monthly service fees.
- 1.164 “**MTBF**” means mean time between failures.
- 1.165 “**NCPO**” means no-charge purchase order.
- 1.166 “**Non-revenue Passenger**” means any boarded passenger who has not paid American for a revenue generating ticket, including without limitation crew and other American employees.
- 1.167 “**NOC**” means network operations center.
- 1.168 “**NRE**” means non-recurring engineering.
- 1.169 “**OEM**” means original equipment manufacturer.
- 1.170 “**Operational Applications**” has the meaning set forth in Exhibit N.
- 1.171 “**Operator**” means the operator of a regional jet owned by or operated on behalf of American and specifically listed in Exhibit A-2 on which American elects to install or have installed Equipment pursuant to this Agreement.
- 1.172 “**OSR**” means on-site representative.
- 1.173 “**Other Airline Business Applications**” has the meaning set forth in Exhibit N.
- 1.174 “**Other American Data**” has the meaning set forth in Exhibit V.
- 1.175 “**Other Gogo Data**” has the meaning set forth in Exhibit V.
- 1.176 “**Other Portal Revenue**” means [***].
- 1.177 “**Overlapping Data**” has the meaning set forth in Exhibit V.
- 1.178 “**Party**” and “**Parties**” have the meanings set forth in the recitals.
- 1.179 “**Passenger Grade**” with respect to operational data means such data will have the same priority and be at least as secure as general passenger use of the Internet and will be entitled to the same network performance, use profile and reliability as such general use.
- 1.180 “**Passenger Grade Operational Data**” has the meaning set forth in Exhibit N.
- 1.181 “**Payee**” has the meaning set forth in Section 13.3.
- 1.182 “**Payor**” has the meaning set forth in Section 13.3.
- 1.183 “**PCI DSS**” has the meaning set forth in Exhibit V.
- 1.184 “**PDR**” means preliminary design review.

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- 1.185 “**Peak FL Rate**” has the meaning set forth in Section 2(c)(ii) of Exhibit J-1.
- 1.186 “**PEDs**” means personal electronic devices (e.g., laptop, mobile and crew devices).
- 1.187 “**Permitted American Data Uses**” has the meaning set forth in Exhibit V.
- 1.188 “**Permitted Gogo Data Uses**” has the meaning set forth in Exhibit V.
- 1.189 “**Person**” means any individual, partnership, corporation, limited liability company, business trust, joint stock company, trust, unincorporated association, joint venture or any government entity.
- 1.190 “**Personally Identifiable Information**” has the meaning set forth in Exhibit V.
- 1.191 “**Phase 1**” has the meaning set forth in the recitals on Exhibit I.
- 1.192 “**Phase 2**” has the meaning set forth in the recitals on Exhibit I.
- 1.193 “**Plays**” has the meaning set forth in Section 5.2.4 of Exhibit K.
- 1.194 “**PMA**” means Parts Manufacturing Authority.
- 1.195 “**Portal**” means the combination of the web pages and graphical user interface that functions as a point of access for Users as further described in Exhibit I. Portal does not include any third-party sites to which the Portal may provide links. Certain parts of the Portal will be available to all Users, including Users who have not logged in, and the rest of the Portal will be available only to those Users who have registered and logged in.
- 1.196 “**Portal Revenue**” means [***].
- 1.197 “**Portal Management Fees**” means the Portal management fees as further described in Exhibit D.
- 1.198 “**Portal UI**” has the meaning set forth in Section 1.2 of Exhibit I.
- 1.199 “**Pre-Apollo Agreement**” has the meaning set forth in the recitals.
- 1.200 “**Prior Agreements**” has the meaning set forth in the recitals.
- 1.201 “**Process**” or “**Processing**” has the meaning set forth in Exhibit V.
- 1.202 “**Program**” means the design, integration, installation, certification, maintenance and on-going support associated with the launch and provision of the Gogo Services on or with respect to Retrofit A/C.
- 1.203 “**Program Management Staff**” has the meaning set forth in Section 11.1.
- 1.204 “**Program Manager**” has the meaning set forth in Section 11.1.1.
- 1.205 “**Program Reports**” has the meaning set forth in Section 11.4.
- 1.206 “**Prohibited Material**” has the meaning set forth in Section 1.5.10 of Exhibit I.

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- 1.207 “**Promo Code**” has the meaning set forth in Section 2 of Exhibit S.
- 1.208 “**Promotional User**” means any boarded passenger who has permitted access to Connectivity Services without paying for it, including without limitation American and Gogo employees testing and auditing the service and passengers to whom American or Gogo provides promotional coupons.
- 1.209 “**Prototype**” means the first Aircraft designated for installation of the 2Ku Solution for a given Fleet Type.
- 1.210 “**PRR**” means production readiness reviews.
- 1.211 “**PSTN**” means public switch telephone network.
- 1.212 “**Purchased Equipment**” has the meaning set forth in Section 5.1.
- 1.213 “**Purchase Path Pages**” has the meaning set forth in Section 1.5.11 of Exhibit I.
- 1.214 “**QoE**” means quality of experience.
- 1.215 “**QoS**” means quality of service.
- 1.216 “**QRG**” means quick reference guide.
- 1.217 “**Recipient**” has the meaning set forth in Section 20.2.
- 1.218 “**Regional Jet Fleet**” means the regional jets that are listed in Exhibit A-2.
- 1.219 “**Remediation Efforts**” has the meaning set forth in Exhibit V.
- 1.220 “**Removal**” means [***].
- 1.221 “**Retail Value**” means Gogo’s standard retail price, as then in effect, for a Gogo session pass on any flight on any airline.
- 1.222 “**Retiring E190 Fleet**” means the Embraer E190 A/C listed in Exhibit A-4b.
- 1.223 “**Retiring Mainline Fleet**” means the Boeing 757 A/C, McDonnell Douglas MD-80 A/C and Airbus A320 family A/C listed in Exhibit A-4a.
- 1.224 “**Retrofit A/C**” means an A/C on which the Equipment has been installed under this Agreement or one of the Prior Agreements; provided that Retrofit A/C shall not include any A/C as to which this Agreement has terminated pursuant to Section 18 following such A/C’s Removal. Retrofit A/C shall be made up of Existing Retrofit Fleet and Contracted Fleet.
- 1.225 “**Revenue Share Model**” has the meaning set forth in Section 14.1.
- 1.226 “**RMA**” means return materials authorization.
- 1.227 “**RSS**” means receiving signal strength.
- 1.228 “**SAVCL**” means standalone video content loader.

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- 1.229 “**SDD**” has the meaning set forth in Section 3.3.2.
- 1.230 “**SDK**” means software development kit.
- 1.231 “**Security Incident**” has the meaning set forth in Exhibit V.
- 1.232 “**Security Policies**” has the meaning set forth in Exhibit V.
- 1.233 “**Security Procedures**” has the meaning set forth in Exhibit V.
- 1.234 “**Security Requirements**” has the meaning set forth in Exhibit V.
- 1.235 “**Security Technical Controls**” has the meaning set forth in Exhibit V.
- 1.236 “**Service Availability**” has the meaning set forth in Section 5(c) of Exhibit J.
- 1.237 “**Shipset**” means all Equipment and Software required to implement and activate the System on an Aircraft, as listed in Exhibit B.
- 1.238 “**SLA**” means the Service Level Agreement as further described in Exhibits J, J-1 and J-2.
- 1.239 “**Software**” means any operating or application software provided by or on behalf of Gogo that is part of the System whether satellite-based, ground-based or contained within the Equipment or the Portal.
- 1.240 “**SOW**” means a written document, signed by the Parties, that describes Gogo Services to be performed or Equipment or Software to be provided by Gogo under this Agreement and contains other terms and conditions agreed by the Parties.
- 1.241 “**Spares**” means any Equipment or part thereof provided to American by Gogo or on behalf of Gogo as a potential replacement for any Equipment or part thereof, that has not been installed on a Retrofit A/C. Once such Equipment or part thereof is installed on a Retrofit A/C, such Equipment or part thereof ceases to be a Spare.
- 1.242 “**Specifications**” has the meaning set forth in Section 3.3.1.
- 1.243 “**Splash Page**” has the meaning set forth in Section 1.5.12 of Exhibit I.
- 1.244 “**Sponsorship**” means an arrangement in which a third party pays a negotiated amount to Gogo or American, and Gogo, in consideration of such payment, offers free or discounted Connectivity Services to passengers on one or more Retrofit A/C and advertises such service as being sponsored by the third party.
- 1.245 “**Sponsorship Revenue**” means the amount paid by a third party to Gogo or American in connection with a Sponsorship.
- 1.246 “**SQA**” means software quality assurance.
- 1.247 [***].
- 1.248 [***].
- 1.249 “**STC**” means a Supplemental Type Certificate issued by the FAA.

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- 1.250 “**System**” means the software, equipment, other hardware and services that are integrated to provide Gogo Services and Operational Applications on the Retrofit A/C per the requirements set forth in this Agreement. The System includes but is not limited to the Equipment, Software and Engineering Services. The System may be Air-to-Ground-based or satellite-based.
- 1.251 “**Taxes**” has the meaning set forth in Section 15.1.
- 1.252 “**Technology Type**” means the types of technology (including the applicable Equipment and Software) used in the ATG Solution, the ATG4 Solution or the 2Ku Solution, in each case as further defined and set forth in **Exhibit H**.
- 1.253 “**Term**” has the meaning set forth in Section 18.1.
- 1.254 “**Territory**” means (a) with respect to the ATG/ATG4 Solution, the continental United States and any other region in which Gogo’s ATG network becomes commercially available, and (b) with respect to the 2Ku Solution, the territory described in clause (a) above, as well as the coverage area described in **Exhibit Q**.
- 1.255 “**Third Party Suppliers**” means those suppliers, other than Gogo (and its direct suppliers) or American, of hardware, software or services that are related to the Gogo Services.
- 1.256 “**TIM**” means technical interchange meetings.
- 1.257 “**TM**” means terrestrial modem.
- 1.258 “**Trigger Date**” means [***].
- 1.259 “**Upgrade**” means the upgrade of a Retrofit A/C from one Technology Type to another pursuant to Section 4.2.1.
- 1.260 “**US**” has the meaning set forth in the recitals.
- 1.261 “**Usage Reports**” has the meaning set forth in Section 11.4.
- 1.262 “**US Agreement**” has the meaning set forth in the recitals.
- 1.263 “**User**” means an individual boarded passenger who uses an electronic device to access the Connectivity Services, [***], Wireless Entertainment or Portal on a Retrofit A/C.
- 1.264 “**User Connectivity Session**” means a User’s paid use of the Connectivity Services.
- 1.265 “**User Data**” has the meaning set forth in Section 1.5.13 of **Exhibit I**.
- 1.266 “**User Fees**” has the meaning set forth in Section 9.4.2.
- 1.267 “**US NDA**” has the meaning set forth in the recitals.
- 1.268 “**VICTS**” means variable inclination continuous transverse stub (antenna).

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- 1.269 “**Video Content**” means video content, and, if agreed upon by the Parties in an SOW or amendment to this Agreement, music or games exhibited via Wireless Entertainment as further described in **Exhibit L**.
- 1.270 [***].
- 1.271 [***].
- 1.272 [***].
- 1.273 “**View**” has the meaning set forth in Section 2.2.4 of **Exhibit D**.
- 1.274 “**VLAN**” means virtual LAN.
- 1.275 “**Warranty Period**” has the meaning set forth in Section 9.2.
- 1.276 “**WDM**” means the wiring diagram manual.
- 1.277 “**Wireless Entertainment**” means Gogo’s wireless distribution of Video Content to passengers on Retrofit A/C as described in **Exhibit L**.
- 1.278 “**Wireless Entertainment Dashboard**” has the meaning set forth in Section 5 of **Exhibit K**.
- 1.279 “**Wireless Entertainment Take Rate**” has the meaning set forth in Section 2.2.4 of **Exhibit D**.
- 1.280 “**WERP-CN**” means Wireless Entertainment remedy for content notification.
- 1.281 “**xWAP**” means 802.11n cabin wireless access point.

2. **OVERVIEW OF RELATIONSHIP**

- 2.1 **Scope.** Pursuant to this Agreement, Gogo will manufacture, deliver and support the Equipment and Software, and provide the Gogo Services, on or with respect to Retrofit A/C using the Technology Types. The Equipment and Software provided pursuant to this Agreement may be used by American in connection with the Existing Retrofit Fleet and the Contracted Fleet. American commits to install or cause to be installed (a) the 2Ku Solution on the 2Ku Fleet and (b) the ATG Solution or ATG4 Solution on the Regional Jet Fleet (to the extent not within the Existing Retrofit Fleet) and Mainline New Deliveries; provided, however, that American may in its sole discretion determine that one (1) or more Mainline New Deliveries as listed in **Exhibit A-3** will not have Equipment installed thereon. American has the option, exercisable in its sole discretion and upon reasonable written notice to Gogo, to extend the scope of this Agreement to include (x) installation of the 2Ku Solution on up to [***] as American selects, on the same terms and subject to the same conditions as are applicable to the 2Ku Fleet, and (y) installation of the ATG Solution on such additional regional jet Aircraft as American selects, on the same terms and subject to the same conditions as are applicable to regional jet Aircraft within the Existing Retrofit Fleet (such A/C as to which American exercises its option under this sentence, “**Additional A/C**”). Upon the addition of any Additional A/C, the Parties will update the applicable Exhibit(s) to reflect such addition without the need for further approval by the Parties. In the event that American wishes to expand the scope of this Agreement to include any

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Aircraft other than the Existing Retrofit Fleet and the Contracted Fleet, and the Parties reach agreement on pricing and other terms, this Agreement will be amended to reflect the agreed-upon terms.

2.2 American shall not install any third-party passenger connectivity service on any Retrofit A/C while the Equipment is installed thereon. Unless otherwise agreed by the Parties, this Agreement does not extend to: (a) any Aircraft other than the Existing Retrofit Fleet and the Contracted Fleet or (b) the provision of Connectivity Services, [***] or Wireless Entertainment on flights operated outside of the applicable Territory.

2.3 **Exhibits.** This Agreement includes the following Exhibits, which are incorporated by reference herein:

Exhibit A – Fleet Types

A-1 – 2Ku Fleet

A-2 – Regional Jet Fleet

A-3 – ATG4 Mainline Fleet and Mainline New Deliveries

A-4a – Retiring Mainline Fleet

A-4b – Retiring E190 Fleet

Exhibit B – Equipment and Lead Times

Exhibit C – Specifications

C-1 – 2Ku Solution Equipment Specifications

C-2 – ATG4 Solution Equipment Specifications

C-3 – ATG Solution Equipment Specifications

Exhibit D – Commercial Pricing

Exhibit E – Gate-to-Gate Connectivity

Exhibit F – Entry Into Service (EIS) for 2Ku Fleet—Engineering, Certification, Software Development, Installation, Training and Program Management

Exhibit G – Maintenance Services

Exhibit H – Services and Systems Overview

H-1 – 2Ku System Definition Document (SDD)

H-2 – ATG System Definition Document (SDD)

H-3 – ATG4 System Definition Document (SDD)

Exhibit I – Portal, Advertising, Content Management and Marketing Activities

Exhibit J – Service Level Agreement (SLA)

J-1 – Service Level Agreement (SLA) for 2Ku Solution

J-2 – Service Level Agreement (SLA) for ATG Solution and ATG4 Solution

Exhibit K – 2Ku Usage Reports

Exhibit L – Wireless Entertainment

Exhibit M – Subscriptions [***]

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Exhibit N – Services and Pricing for American Operational Use

Exhibit O – [Reserved]

Exhibit P – Change Request Form

Exhibit Q – Coverage and Regulatory Approval for Technology Types

Exhibit R – [***]

Exhibit S – Charter Services

Exhibit T – [Reserved]

Exhibit U – [Reserved]

Exhibit V – Proprietary Rights and Data Security

Appendix 1 – Compliance Matrix

- 2.4 **Order of Precedence.** Except as otherwise set forth in **Exhibit V**, in the event and to the extent of any conflict or inconsistency between the main body of this Agreement and any of the Exhibits or Appendix 1, the main body shall control and prevail. In case of any conflict between any of the Exhibits and Appendix 1, the Exhibit(s) shall control and prevail. In the event that one or more line item(s) of Appendix 1 that should be included within the main body of this Agreement and/or any of the Exhibits is omitted, the appropriate provision(s) of the main body of this Agreement and/or the Exhibits shall be adjusted to incorporate such omission(s) as mutually agreed. In such case and prior to the adjustment to the provisions of the main body of this Agreement and/or the Exhibits, Appendix 1 will be used by the Parties to define the subject contractual requirement(s).

3. **EQUIPMENT, DOCUMENTATION AND SOFTWARE**

3.1 **Equipment and Software.**

3.1.1 The Equipment and Software (including, where applicable, part numbers and quantities per Shipset) are set forth in **Exhibit B**. After the Effective Date, Equipment may be added or deleted by mutual written agreement of the Parties and amendment of **Exhibit B**.

3.1.2 Gogo will provide the necessary Software for each Technology Type to provide its intended function(s). To the extent that American's approval or action is required in order for Gogo to provide such necessary Software, American will make commercially reasonable efforts to timely approve and deploy updates to such Software. Delivery of Software for the 2Ku Solution (including scheduling and any late delivery liquidated damages related thereto) is described in **Exhibit F**. If and at such time as American approves, Gogo will remotely upgrade the Software in accordance with its standard upgrade process, subject to Section 4.2.2 for any changes that would require changes to the applicable Specifications.

- 3.2 **Treatment.** American will be responsible for physical loss of or damage done to the Leased Equipment while in the possession or control of American, normal wear and tear and loss or damage caused by or otherwise the responsibility of Gogo or its Third Party Supplier excepted. American's liability to Gogo for physical loss or damage done to Leased Equipment shall terminate on Deinstallation, if Deinstallation is performed by Gogo, or upon return of the Leased Equipment to Gogo if Deinstallation is performed by American or its Third Party Supplier.

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American will not make any alterations to the Leased Equipment without Gogo's prior written consent; and except in the case of termination or expiration of this Agreement with respect to any Retrofit A/C or Fleet Type (including termination that results from Removal of a Retrofit A/C), or as otherwise expressly described in this Agreement for Upgrades and maintenance services performed by American, as set forth in **Exhibit G**, American will not remove any Leased Equipment from the Retrofit A/C on which it is installed without Gogo's prior written approval.

3.3 **Overall Specifications.**

- 3.3.1 **Specifications.** The Equipment and Software will be built and maintained to meet the applicable specifications and technical requirements set forth in **Exhibit C**, as may be revised from time to time in accordance with Section 3.3.6 (the "**Specifications**"). The Equipment and Software shall function as integral components of the System in accordance with the Specifications.
- 3.3.2 **System Definition Document.** A description of the System is in the System Definition Document in **Exhibit H** (the "**SDD**"). This is a description of the functionalities of the Connectivity Services as installed on the Retrofit A/C, as well as the Equipment and Software within the System. Any changes to the SDD will require mutual agreement of the Parties.
- 3.3.3 **Service Level Agreement.** Gogo will provide the Gogo Services to meet the service levels and functionalities detailed in this Agreement and the exhibits hereto, including **Exhibit J**.
- 3.3.4 **American Operational Use.** The System may be used by American for Operational Applications. The Parties' agreement regarding such applications is set forth in **Exhibit N**.
- 3.3.5 **Power and Weight.** The power and weight for each component of the Equipment are included in the Specifications set forth in **Exhibit C**. [***].
- 3.3.6 **Changes.** Any changes or deviations from the Specifications, including without limitation changes or deviations that impact delivery, price, weight, power, dimensions, cooling requirement or reliability or otherwise impact form, fit and function, must be approved by both Parties (if applicable, in accordance with the provisions of Section 4.1 or 4.2.2 of this Agreement).

In addition, changes related to the design of the hardware that goes on the A/C including those affecting the cost, weight, Certification or schedule must be submitted by Gogo to American in writing in the form of a Master Change Proposal ("**MCP**") as specified in **Exhibit P**. Such form will apply in the pre-design freeze, post-design freeze and post-delivery/installation stages of the Program; provided, however, that the Parties agree and acknowledge that an MCP shall not be required in the pre-design freeze stage for any changes that do not affect scope, schedule, cost or Certification.

For any American-requested change, American must direct Gogo, by written notice to the Program Manager, to initiate an MCP. The MCP must be completed in its entirety and submitted to the appropriate Commodity Manager at American for review and approval. If such changes are incorporated without such approval, American may reject and/or require

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modification of the Equipment, and in any event Gogo shall be liable for any resulting cost, weight, delivery, reliability, performance and schedule impacts and all costs associated therewith, including hardware design, production, weight impact recurring and non-recurring costs, and ongoing maintenance costs, including, but not limited to, Spares costs. For the avoidance of doubt, if Gogo incorporates a change in anticipation of the MCP approval, Gogo does so at its own risk. American will not accept or execute an MCP that is not signed by a Gogo officer at the level of Vice President or higher.

- 3.4 **Connectivity Service Documentation and Software.** Except as otherwise provided herein, Gogo shall provide, at no cost to American, any and all documents, manuals, guides, drawings, Specifications and other information (the “**Documentation**”) that American reasonably requires to install, operate, use, test and maintain the Equipment and Software. Such Documentation shall include, but is not limited to:
- 3.4.1 **Component Maintenance Manuals.** Gogo shall provide American with one (1) non-editable electronic copy and one (1) paper copy of a CMM for each repairable LRU delivered to American. Level Three information (sub-sub component) shall be provided in the CMMs for LRUs that are determined by Gogo to be repairable at this level. Non-repairable LRU sub-components shall be documented to Level Two. Gogo shall use the ATA-100 Specification as a guide in the preparation of the CMM.
 - 3.4.2 **Aircraft Maintenance Manual and Aircraft Illustrated Parts Catalog.** Gogo shall provide American, in a format previously provided (unless otherwise mutually agreed), with one (1) editable electronic copy in the original source format and one (1) paper copy of the following manuals for each Technology Type: the AMM, a WDM and the AIPC. Gogo shall use the ATA-100 Specification as a guide in the preparation of the AMM, the WDM and the AIPC. Gogo shall also provide American with one (1) electronic copy in the original source format and one (1) paper copy of any non-destructive test inspection requirements for Aircraft structural repairs or modifications.
 - 3.4.3 **Service Bulletins.** For so long as American has any Retrofit A/C remaining on the American Airlines Operations Specification, Gogo shall provide service bulletins to American in accordance with ATA-100 Specification. If the changes discussed in a service bulletin affect the CMM, revised pages for the CMM will be supplied by Gogo to American.
 - 3.4.4 **Copies of Manuals and Bulletins.** [***].
 - 3.4.5 **Third Party Supplier Documentation.** As soon as practical following the execution of this Agreement, Gogo shall request all necessary technical documentation from the manufacturer and/or designer of components of the Retrofit A/C with which the Equipment or Software will interface (which for clarification purposes does not include the airframe manufacturers unless they provide components apart from the airframe), including but not limited to, aircraft wiring data. In the event that Gogo is not successful in obtaining such documentation from any American Supplier and such event may adversely impact the Program schedule, Gogo shall promptly notify American and American shall use commercially reasonable efforts to obtain such documentation and provide it to Gogo; provided, however, that

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if an American Supplier requires payment as a condition of providing such documentation, the full cost of obtaining such documentation shall be shared equally by the Parties. Subject to Gogo's compliance with the provisions of this Section 3.4.5, a delay to the Program schedule to the extent directly caused by the failure to obtain the documentation from an American Supplier shall be considered an Excusable Delay. As used herein, "**American Supplier**" means a direct supplier to American other than Gogo and its direct suppliers.

3.4.6 **Delivery and Format of Documentation.** The Documentation shall be provided upon request by American and in the reasonable format and manner required by American. Documentation deemed necessary by American as of the time of execution of this Agreement will be provided at ITCM and PDR. Except as set forth in **Exhibit F** with respect to the Certification and installation program for the 2Ku Solution or unless otherwise required by American and stated at ITCM or PDR, all other installation Documentation will be provided to American by Gogo no later than [***] prior to the delivery of the first Shipset.

3.4.7 **Right to Use.** [***].

3.4.8 **Distribution List.** American's engineering department will be on Gogo's distribution list for all Documentation.

3.4.9 **On/Off Instructions.** Gogo will provide American with written instructions for how to turn the System on and off. These instructions will be provided so that American can fly the Retrofit A/C with functioning Equipment but without offering the Connectivity Services, [***] and Wireless Entertainment at any time should American's flight crew so deem necessary.

3.5 **Facilities.** Gogo will not move the final assembly of Equipment provided to American from the production facility(ies) used for such assembly as of the Effective Date without American's written consent, which shall not be unreasonably withheld; provided, however, that this requirement shall not apply to engineering and production which normally occurs at third-party facilities. Upon reasonable prior notice, Gogo agrees to give American or its designated representative direct access to the manufacturing, engineering and purchasing areas of any manufacturing facility working on this Program including its sub-suppliers. The Parties also agree that upon reasonable prior notice, Gogo will provide American's OSR office space, Internet connectivity and telephone access located at the primary manufacturing location. When requested, Gogo agrees to provide American or its OSR current information relating to the Program within a reasonable period of time but no later than [***] after the request if practicable. Such visits and monitoring by American shall not unreasonably interfere with the work being performed.

3.6 **FAA Certification.** [***].

4. **DESIGN CHANGES**

4.1 **Mandatory Changes.** In the event Gogo must change the Specifications for any Technology Type to help correct a safety or reliability problem, or to ensure conformance with any applicable law or regulation ("**Mandatory Change**"), Gogo will immediately submit an MCP to American identifying the consequences of

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implementing such Mandatory Change, including: (a) proposed changes to the Equipment and/or Software; (b) the amount of time required to implement such changes; and (c) changes in the Lead Time associated with the manufacture of Equipment. Upon receipt of American's approval of the proposal, which shall not be unreasonably withheld, and completion of any testing required, Gogo will promptly make the changes and complete all other requisite work as appropriate and in all Equipment not yet shipped to American. Following approval by American of the Mandatory Change and all pre-production testing required, the applicable Specifications shall be construed as incorporating the Mandatory Change. [***].

4.2 **Improvements.**

4.2.1 **Upgrades from One Technology Type to Another.** [***].

4.2.2 **Elective Improvements.** [***].

4.2.3 **Defects.** [***], Gogo shall make all changes to the Equipment necessary to correct manufacturing defects or design deficiencies (i.e., where such Equipment does not meet the Specifications) from the date of initial Equipment installation on each Retrofit A/C to the end of the Term. Gogo shall provide the applicable modification kits and modification instructions (in the service bulletin) to the installing Party. Gogo will design the modification so that the labor time for installation shall be minimized. There shall be no unreasonable time limitations on American's right to return Equipment to Gogo for the implementation of any service bulletin.

4.2.4 **Other Services and Products.** [***].

4.3 **Parts Obsolescence.**

4.3.1 Every six (6) months during the Term, Gogo shall provide American with a list of the Components that Gogo is, or with the exercise of reasonable diligence, would be aware will become obsolete within the next twenty-four (24) months, as well as proposed replacement parts and replacement part qualification test dates. Within [***] after providing notice that a Component will become obsolete, Gogo will advise American on the quantities of such Component that Gogo believes is necessary and required to maintain and service American's Retrofit A/C for the remainder of the Term. It is Gogo's responsibility to ensure that all such Components be available at all times during the Term. In the event Components become obsolete during the Term, or if the repair of any Equipment requires replacement of an obsolete Component, Gogo agrees to provide American with either:

4.3.1.1. [***]

4.3.1.2. [***].

4.3.2 [***].

5. **LEASE OR PURCHASE OF EQUIPMENT**

- 5.1 **Existing Equipment.** With respect to any Equipment previously delivered by Gogo and installed on any aircraft under the Pre-Apollo Agreement, other than aircraft in the 757 Fleet or the McDonnell Douglas MD-80 A/C with Purchased Equipment installed thereon, the Parties acknowledge and agree that Gogo has not sold but instead has leased such Equipment to American (including, if any such aircraft has been or will be upgraded from the ATG Solution to the ATG4 Solution at no cost to American, the upgraded Equipment) (such equipment being referred to herein as the “**Leased Equipment**”), and Gogo will continue to hold title in such Leased Equipment, except as provided in Section 5.1.1. All other Equipment has been or will be sold by Gogo to American, (such equipment being referred to herein as the “**Purchased Equipment**”), and American has or will acquire title to Purchased Equipment at the time specified in Section 7.1.
- 5.1.1 **Purchase of Leased Equipment.** The Leased Equipment shall at all times remain the property of Gogo and Gogo will retain title to all the Leased Equipment; [***].
- 5.1.2 **Applicable Agreements for Leased Equipment.**
- 5.1.2.1. The Parties agree and acknowledge that certain A/C on which Leased Equipment is installed may currently be subject to leases, mortgages or other financing agreements (each, an “**Applicable Agreement**”).
- 5.1.2.2. Gogo agrees, solely vis a vis the lenders or lessors under Applicable Agreements and not in derogation of any right or remedy Gogo may have vis a vis American or any obligation American may have hereunder, that (a) it will not exercise its rights and interests in or with respect to any Leased Equipment in derogation of impairment of, or interference with, the rights, interests or remedies of the lessor or lender under any Applicable Agreement, and (b) it will not, as a result of installation of Leased Equipment on an A/C subject to an Applicable Agreement, have, claim or assert any lien, security interest, claim, encumbrance or other right on or against any such A/C.
- 5.1.2.3. Gogo further agrees, to the extent applicable under a lease with respect to a Retrofit A/C, solely vis a vis the lenders or lessors under such lease and not in derogation of any right or remedy Gogo may have vis a vis American or any obligation American may have hereunder, that (a) in the event that the lease on a Retrofit A/C terminates or the lessor or lender determines to repossess a Retrofit A/C, Gogo’s sole right with respect to the Retrofit A/C and the lender or lessor shall be to remove or cause the Leased Equipment to be removed from such Retrofit A/C not later than the earlier of the lease termination date or [***] after receipt of written notice from the lessor or lender that it has repossessed the Retrofit A/C, (b) if it fails for any reason to so remove the Equipment, the lessor or lender may remove the same and will be entitled to a lien (with power of sale) on the Leased Equipment to secure the cost of such removal and the restoration of the A/C in accordance with Section 5.1.2.3(c) below, and (c) such right of removal is subject to and conditional upon the restoration of all alterations made to the A/C in connection with the installation of the Leased Equipment to the condition prior to the installation thereof (ordinary wear and tear excepted) in accordance with an airframe manufacturer’s service bulletin.

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5.2 **Purchased Regional Jet Fleet Equipment.** [***].

5.3 **Purchased ATG4 Mainline Fleet Equipment.** [***].

5.4 **Purchased 2Ku Fleet Equipment.** [***].

5.5 **Purchase Orders.**

5.5.1 **Placement of Orders.** American will place purchase orders for the Shipsets of Equipment purchased from Gogo pursuant to this Agreement in accordance with the applicable Lead Times set forth in **Exhibit B**. In the event such purchase orders contain additional or different terms and conditions than those set forth herein, the Parties agree that the terms and conditions of this Agreement shall control and prevail. All purchase orders shall reference this Agreement. Purchase orders and any correspondence with respect thereto should be sent by American to Gogo through the Aeroxchange tool or by email to Gogo's designated personnel.

Each purchase order shall specify: [***]. If there is any information missing from the purchase order at the time of issuance, it is Gogo's responsibility to bring this to the attention of American.

5.5.2 **Order Acceptance.** Within [***] business days after Gogo's receipt of a purchase order through the Aeroxchange tool, or by email, as provided in Section 5.5.1, Gogo will acknowledge receipt, and either (a) accept it by (i) signing the purchase order in the space provided thereon and returning it to American via return mail or confirmed facsimile, or (ii) in the case of e-mail transmissions, by sending an electronic acknowledgement of acceptance, or (b) reject the purchase order in writing via the same methods permitted for acceptance and provide an explanation for why said purchase order has been rejected. Should written acceptance or rejection not be received by American for any purchase order within the time period provided above, Gogo will be deemed to have accepted such purchase order and the quantities, Designated Destination and delivery dates set forth therein. Gogo will accept all purchase orders that specify delivery dates consistent with the Lead Times for the Equipment ordered as set forth in **Exhibit B** and the other requirements set forth in Section 5.5.1.

5.5.3 **Purchase Order Changes.** [***].

6. **DEINSTALLATION**

[***].

7. **PACKING, SHIPPING AND DELIVERY, TITLE AND RISK OF LOSS**

7.1 [***].

7.2 Gogo shall affix to each item of Equipment some marking that complies with the FAA's and American's engineering department's part-marking requirements and is otherwise acceptable to American. With each shipment, Gogo will include a packing list and appropriate certification paperwork indicating the Equipment contained in such shipment by serial number (if applicable) and listing the date of shipment. Kits shall include component part numbers. Items of Equipment that are not serial number tracked shall be designated, on the packing list, by description and quantity. Unless special packaging is required, Gogo shall package all Equipment for shipment in compliance with ATA-300 Specification, Revision 17, Category III.

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- 7.3 American reserves the right to direct Gogo to use a specific carrier for any portion of the transportation for which American is responsible for the costs. In the event American requests Gogo to provide special packaging, insurance, storage or shipping, above and beyond standard shipping practices, American will be responsible for said charges.
- 7.4 [***].
- 7.5 Upon receipt of the Shipsets, whole or partial, at the Designated Destination, it is American's option to inspect the Shipsets to ensure receipt of all components with no physical damage. American shall notify Gogo of any discrepancies therein within [***] following receipt thereof, or during the actual Shipset installation, whichever being earlier, and any Shipset as to which Gogo does not receive timely notice of discrepancy will be deemed accepted. Gogo will ship replacements for any damaged, defective or missing components to American within [***] following receipt of such notice. Subject to Gogo's compliance with the preceding sentence in this Section 7.5, Gogo shall not be responsible for any delay to American's installation schedule hereunder caused by Gogo's shipment of damaged, defective or missing components if American has failed to inspect the relevant Shipset(s) and notify Gogo of any discrepancies therein within [***] following receipt thereof, where notification of such discrepancy within such timeframe would otherwise have permitted Gogo to take sufficient action to avoid such delay.
- 7.6 Unless otherwise agreed, American agrees to ship any uninstalled defective Equipment to Gogo, at Gogo's sole risk and expense, in accordance with a mutually agreed upon process. For returned Equipment, American shall include on the outside packaging a RMA number to be obtained by American from Gogo. Gogo will issue American the RMA number within [***] of the receipt of such request from American. Gogo will, [***], promptly repair the nonconformities or replace the nonconforming Equipment as expeditiously as possible but in any event within [***] following receipt of such returned Equipment.
- 7.7 [***].

8. **MARKETING AND CONNECTIVITY PORTAL**

- 8.1 **Marketing.** Throughout the Term, the Parties may agree to cooperate in developing and implementing joint initiatives to market and promote Connectivity Services, Wireless Entertainment and/or [***]. Without limiting the foregoing, the Parties agree that American will use commercially reasonable efforts to ensure that customer and employee awareness of Connectivity Services remains high. Gogo may conduct independent marketing with respect to Connectivity Services.
- 8.2 **Portal and Marketing Activities.** [***].

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9. **GOGO SERVICES**

9.1 **Equipment-Related Services.**

9.1.1 **Installation Support and Training.**

- 9.1.1.1. American or American's Third Party Supplier will perform the installation of the Equipment and Software on the Retrofit A/C unless American provides Gogo with at least [***] advance notice that Gogo is to perform some or all of the installations and identifies the installation site(s), which shall be at mutually agreed-upon location(s). [***].
- 9.1.1.2. All parts and materials required to install the Equipment and Software on the Retrofit A/C are intended to be listed in **Exhibit B**. Any additional parts or materials required to install the Equipment and Software will be provided by Gogo [***].
- 9.1.1.3. Gogo will provide Installation Kits that are kitted per American's instructions. [***], the Installation Kits may be vacuum packed and labeled according to the [***].
- 9.1.1.4. Gogo will provide to American and/or American-designated third parties all special tooling required or otherwise reasonably requested by American to perform the installation or test of any of the Equipment and/or Software. The special tooling [***] shall be provided with operating and maintenance instructions. The special tooling will be delivered to the location(s) specified by American. As of Effective Date, Gogo represents that no special tooling is required.
- 9.1.1.5. Gogo shall provide reasonable training material and support in the manner and fashion set forth in **Exhibit F** or as otherwise required by American and/or American designated third parties for the operation of Gogo's Equipment and Software, including the use of special tools or test equipment. Gogo's role within the training development process, unless otherwise required by American, will be subordinate to the direction of American and/or American designated third parties. [***].

9.1.2 **Other.** Gogo shall advise American's engineering department and Commodity Manager of any and all Equipment, Software and/or Gogo Services that interface with and could have a potential impact on other systems on Retrofit A/C at least [***] before the Prototype installation.

9.1.3 **Installation Fees.** Installation fees for the 2Ku Fleet and installation credits for the First Installation of each of the Mainline New Deliveries are set forth in **Exhibit D**.

9.1.4 **Liquidated Damages for Installations.** Liquidated damages for installations are set forth in **Exhibit F** for the 2Ku Solution, and such liquidated damages will also apply for installation by Gogo on Mainline New Deliveries.

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9.2 **Maintenance Services.**

Gogo will provide the Maintenance Services set forth in **Exhibit G** to American (a) [***] during the Initial Warranty Period, and (b) after expiration of the Initial Warranty Period, [***] (the period [***] referred to herein as the “**Extended Warranty Period**” and, together with the Initial Warranty Period, the “**Warranty Period**”). The “**Initial Warranty Period**” for a Retrofit A/C means the period beginning on the date of First Installation and ending (x) with respect to the MD-80 Fleet and Retrofit A/C with Leased Equipment, [***], (y) with respect to all other Retrofit A/C equipped with the ATG Solution or ATG4 Solution, [***], and (z) with respect to the 2Ku Fleet, [***]. During the Warranty Period, Gogo shall provide Spares, [***], in accordance with Section 1.8 of **Exhibit G**. American shall be required to purchase, at the prices set out in **Exhibit G**, (A) any Spares acquired by American during any period that is not a Warranty Period and (B) any Spares acquired by American during a Warranty Period (i) in replacement of parts for which American bears responsibility for loss or damage under Section 3.2 or (ii) in excess of the number of Spares that Gogo is required to provide from time to time under its warranty, as described in **Exhibit G**.

9.3 **Engineering Services.** Gogo shall provide the following technical support to American [***] if a Gogo-initiated change in Gogo’s products, installation procedures or STC requires a modification in the American installation or maintenance processes.

9.3.1 Gogo shall also provide such technical support [***] in the event Gogo performs the installation:

9.3.1.1. Engineering support for repairs and/or deviations encountered during installation or maintenance.

9.3.1.1.1. Engineering data to support FAA approval for static and fatigue (i.e., damage tolerance) strength.

9.3.1.1.1.1. Engineering data detailing the deviation to the STC approved engineering drawings.

9.3.1.1.1.2. Structural substantiation and analysis reports for the deviations and/or repairs.

9.3.1.1.2. 24x7x365 contact information and commitments to support timely Retrofit A/C return to service.

9.3.1.1.3. Contact information for associated structural designated engineering representative(s) (DER(s)).

9.3.2 Gogo shall provide the following technical support services to American [***]:

9.3.2.1. Engineering data to allow internal evaluation and approval of deviations.

9.3.2.1.1. Complete drawing package, including piece parts, with full materials and process specifications.

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9.3.2.1.2. Stress report(s) associated with the Certification.

9.3.2.2. Instructions for continued airworthiness.

9.3.2.2.1. List of fatigue critical alteration structure (FCAS) for the new and existing structure affected by the modification.

9.3.2.2.2. Damage tolerance inspections for the altered structure.

9.3.2.3. Allowable damage and typical repair data is preferred (SRM supplement) for oversized fasteners, short edge margin, etc.

9.4 **Passenger Services.**

9.4.1 **Business Models.** As of the Effective Date, Connectivity Services and Ancillary Services are being provided to Users under the Revenue Share Model as contemplated in **Exhibit D**; Wireless Entertainment is being provided [***] as set forth in **Exhibit L**; and [***] are not being provided. American shall have the option, in its sole discretion and with reasonable notice to Gogo, [***]. After the [***], all Connectivity Services (regardless of Technology Type), Wireless Entertainment and [***] will be provided [***].

9.4.2 **Connectivity Services.** [***].

9.4.3 **Wireless Entertainment.** The Parties' obligations with respect to Wireless Entertainment are set forth in **Exhibit L** to this Agreement, and pricing for Wireless Entertainment is set forth in **Exhibit D**. [***].

9.4.4 [***].

9.5 **Compliance with Laws and Privacy Policy; Certification.** Throughout the Term, Gogo will [***] comply with all laws, rules and regulations, including without limitation Communications Assistance for Law Enforcement Act (CALEA) and any requirements related to website accessibility or net neutrality, applicable to Gogo in connection with its performance under this Agreement, including its provision of Gogo Services, and shall obtain and maintain all required Certifications. Without limiting the foregoing, Gogo will obtain any required Certifications related to the ATG Solution and ATG4 Solution from the United States, Canada and any other country in the Territory, if any, in which the ATG network operates and Certifications related to the 2Ku Technology Type for each country in the Territory; provided, however, that (a) if Gogo fails to obtain any such Certification related to the 2Ku Solution and the affected country is not a country in which satellite-based Connectivity Services are legally provided on any Retrofit A/C, Gogo shall not be deemed to be in breach of this Agreement by reason of such failure and (b) if the Certifications obtained by Gogo in any affected country do not extend to ground-based Connectivity Service and the affected country is not a country in which ground-based Connectivity Services are legally provided on any Retrofit A/C, Gogo shall not be deemed to be in breach of this Agreement by reason of such failure. A list of the countries in which any required Certifications related to the 2Ku Solution shall be obtained by Gogo has been prepared and is attached as **Exhibit Q**. Notwithstanding anything to the contrary contained herein, if Gogo uses its best efforts to obtain Certification related to the 2Ku Solution in any country in the Territory and such country has not approved Ku band-based in-flight connectivity services offered by any provider, such failure shall not be deemed to be a breach of this Agreement. Gogo undertakes no obligation to obtain any Certifications

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unrelated to the Technology Types. Within [***] of the Effective Date, Gogo will provide American copies of a certificate from Subsentio, Gogo's third party advisor, as to Gogo's CALEA compliance as of a date during such [***]. Throughout the term, Gogo will provide to American, as received, copies of other certificates, if any, issued by Subsentio or any law enforcement agency or regulatory body regarding compliance with CALEA or other applicable laws, rules or regulations, including the Certifications, and will notify American, promptly upon receipt, of any suspensions, cancellations, revocations or withdrawals of any such Certifications. Gogo represents and warrants to American that to the best of its knowledge and belief it is in material compliance with all such laws, rules and regulations. Notwithstanding anything to the contrary set forth in Section 10.5 of this Agreement, if at any time American has reasonable grounds to believe that Gogo does not have all required Certifications or otherwise is not in material compliance with all applicable laws, rules or regulations, including without limitation CALEA and any applicable international intercept laws, American may prior to EIS for Retrofit A/C equipped with the 2Ku Solution refuse to turn on Connectivity Services (or ground-based Connectivity Services if noncompliance is limited thereto) on Retrofit A/C when operating in any affected country or after EIS for Retrofit A/C equipped with the 2Ku Solution cause Connectivity Services (or ground-based Connectivity Services if noncompliance is limited thereto) to be turned off on all Retrofit A/C when operating in any affected country until such time as Gogo can demonstrate, to American's reasonable satisfaction, that it has all such Certifications and otherwise is in material compliance. Gogo will also comply with the Privacy Policy that Gogo provides to Connectivity Services Users. Gogo will reasonably assist American with its compliance with laws and regulations applicable to American by reason of its performance hereunder and will use good faith efforts to comply with reasonable requests made by American with respect to Gogo's administration of any "bug bounty" program, as such program may relate to Retrofit A/C or the Gogo Services.

- 9.6 **Satellite Coverage.** At the time of EIS for the first Retrofit A/C equipped with the 2Ku Solution, Gogo will provide [***] 2Ku Solution satellite coverage to American in those regions shown on **Exhibit Q**. Such satellite coverage will remain available throughout the Term in such regions.
- 9.7 **Compliance Matrix.** Gogo's performance of its obligations hereunder (including provision of Gogo Services) will comply with the Compliance Matrix, which is included on the attached **Appendix 1**.
- 9.8 **Charter Services.** Gogo shall provide the charter services described on **Exhibit S** on Retrofit A/C chartered by American at the pricing set forth on **Exhibit S**.
- 9.9 **Proprietary Rights and Data Security.** Gogo shall comply with all of its obligations set forth in **Exhibit V**, including the data security obligations in Attachment A of **Exhibit V**.

10. **AMERICAN OBLIGATIONS**

- 10.1 **Fleet Availability.** American agrees to make the Retrofit A/C available for installation of the Equipment and Software, and testing and Certification by the FAA of the Equipment, Software and Connectivity Services, Wireless Entertainment and [***], in accordance with the terms set forth in the applicable exhibit to this Agreement, as such exhibit may be changed from time to time in accordance with the terms thereof or otherwise by mutual agreement.

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- 10.2 **Installation.** Whenever American elects to perform the installation of Equipment itself, American will be solely responsible for installing the Equipment on the A/C in accordance in all material respects with the installation Documentation (the “**Installation Guidelines**”). Gogo shall not be responsible for any failures to the extent such failures arise out of or relate to a failure by American to strictly follow the Installation Guidelines, nor shall such failures give rise to any American rights to termination or damages under this Agreement.
- 10.3 **Compliance with Laws and Certification.** American will comply with all laws and regulations applicable to American in connection with its performance hereunder and will reasonably assist Gogo in its compliance with all laws and regulations applicable to Gogo hereunder, including without limitation CALEA, [***]. American will provide Gogo reasonable access to the Retrofit A/C and such assistance as Gogo reasonably requests to obtain and maintain Certification by the FAA of the Equipment and Connectivity Services. American will comply with the Privacy Policy that it provides to passengers accessing the Portal. [***].
- 10.4 **Engineering.** American’s engineering department will provide assistance with respect to A/C drawings, data and information on A/C systems (that are not restricted intellectual property) and design-for-maintenance knowledge, as reasonably required by Gogo. American’s engineering department will also work with Gogo to develop, and must approve, all installation designs and systems operational characteristics, to ensure they meet all airworthiness and American operational requirements.
- 10.5 **Connectivity Service Availability.** American will make the Connectivity Service available to all passengers on board Retrofit A/C on all commercial flights during such time period as American may make the Connectivity Service available in compliance with the Certification requirements. [***].
- 10.6 **Information Sharing.** American will provide Gogo with timely access to passengers boarded data via a daily feed, including the following for each flight: origin and destination, the number of passengers on the Retrofit A/C, the time of departure and arrival, tail number and flight number, as well as such additional information as Gogo reasonably requests and American can reasonably provide (subject to third party confidentiality obligations) to improve passenger use of the Connectivity Services, revenue generation and/or reporting.
- 10.7 **Retail Promotional Offerings – Revenue Share Model.** [***]
- 10.7.1 [***].
- 10.7.2 [***].
- 10.7.3 [***].
- 10.7.4 [***].
- 10.8 **Proprietary Rights and Data Security.** American shall comply with all of its obligations set forth in **Exhibit V**, including the data security obligations in Attachment B of **Exhibit V**.

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11. **PROJECT ADMINISTRATION**

- 11.1 **Gogo Personnel.** To help ensure a successful Program, for the Retrofit A/C, Gogo agrees to provide sufficient “**Program Management Staff**” to support its contractual obligations, including a Program Manager, an Engineering Liaison and an Account Manager or equivalent position, at no additional charge to American. The Program Manager and/or Engineering Liaison must be self-sufficient and be able to act independently to review drawings, manuals, and other technical documents and initiate and manage changes to Gogo provided drawings, manuals and technical documents with minimal involvement by American’s engineering department.
- 11.1.1 **Program Management.** The “**Program Manager**” shall be responsible for Program scheduling and timeline management, serving as the liaison between American and Gogo teams, facilitating meetings (to include action item logs), acting as an initial point of contact and managing action items. In the event Gogo plans to replace the Program Manager, to the extent practicable, Gogo will provide American with [***] advance notice. The Program Manager will be solely dedicated to American through the Term of this Agreement. In addition to the Program Manager, Gogo shall, at its sole cost, provide sufficient order administration support to ensure timely communications and entry of orders, and assign a primary order administration focal and back-up personnel as required to ensure continuous coverage.
- 11.1.2 **Engineering Liaison.** The “**Engineering Liaison**” shall be responsible for the coordination of technical integration concerns between Gogo, American and American-designated third parties. The Engineering Liaison must be an engineer who is familiar with the technical aspects of the Equipment, Software and System integration requirements. The Engineering Liaison must be directly accessible to American and/or American-designated third parties.
- 11.1.3 **Account Manager.** The “**Account Manager**” or equivalent position shall be responsible for the coordination of joint marketing activities and serve as the liaison between the Gogo and American marketing teams.
- 11.2 **Meetings.** Upon American’s reasonable request, Gogo agrees to participate in those meetings with American, American Suppliers and airframe manufacturers of which Gogo is given reasonable advance notice, at no additional charge to American. Such meetings may include TIM, an ITCM, a PDR, an IDR, a CDR, PRR, FAI, Program reviews and supplier conferences, and may be conducted face-to-face at American’s headquarters or, at American’s discretion, by teleconference. Gogo will attend such meetings with the appropriate personnel. Unless otherwise required by American, Program reviews will be held every [***] during the design, development, production and installation of Equipment and Software. Appropriate Gogo and American executives will meet to review the Program on a [***] basis.
- 11.3 **Program and Usage Reports.** The Parties will provide Program reports (“**Program Reports**”) to one another on no less than [***] to keep one another informed of the status of the Program. The Parties will mutually agree upon the information to be included in, and format of, the Program Reports. After the Effective Date, Gogo will provide usage reports (“**Usage Reports**”) (a) for the ATG/ATG4 Solution, consistent in frequency, format and content with the Usage

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Reports provided prior to the Effective Date, and (b) for the 2Ku Solution, as described in **Exhibit K**. To the extent any of the Usage Reports to be provided by Gogo as described in **Exhibit K** can be provided for all Retrofit A/C, Gogo shall also provide such additional Usage Reports as the ATG Solution, ATG4 Solution and/or 2Ku Solution (as applicable) permit. American and Gogo will work together in good faith to define additional reports to be provided to one another as the business model, Portal and relationship between the Parties evolve under this Agreement and the Exhibits hereto (including **Exhibit M**). [***].

12. **RETAIL REVENUE SHARE AND PAYMENT; OTHER FEES**

- 12.1 **Revenue Share**. [***].
- 12.2 **Affiliate Fee**. [***].
- 12.3 **Usage Fees**.
 - 12.3.1 **Portal Management Fee**. [***].
 - 12.3.2 **Flight Crew Access**. [***].

13. **INVOICES AND PAYMENT**

- 13.1 **By American**. Payment by American for Equipment and/or Software shall be made net [***] from the date of American's receipt of Gogo's invoice therefor, which shall not precede shipment of the Equipment and/or Software, as applicable. Gogo's share of any applicable revenue collected by American (as and only to the extent set forth in **Exhibit D**) will be calculated on a [***] basis and paid to Gogo within [***] of the end of the [***] in which American collected such revenue. Payment by American for Wireless Entertainment, [***], User Connectivity Sessions, AA Subscriptions, Passenger Grade data and data for any Other Airline Business Application, and any Gogo Services, Portal Management Fees or other fees set forth on **Exhibit D** for which payment terms are not expressly specified elsewhere in this Agreement shall be made net [***] from the date of American's receipt of Gogo's invoice therefor, which date shall be noted thereon. In the event that American in good faith disputes any invoiced amount(s), then within [***] following American's receipt of the invoice, American will notify Gogo in writing of the disputed amount(s) and submit payment for all undisputed amounts in accordance with this Section 13.1, and American's nonpayment of such disputed amounts pending resolution will not constitute a breach by American of this Agreement. The unpaid disputed amount(s) will be resolved by mutual negotiations of the Parties. Invoices to American hereunder shall be sent by Gogo using American's electronic invoicing system. All amounts shall be payable in U.S. Dollars and paid via check to Gogo at the following address:

Gogo LLC
Attn: Accounts Receivable
111 N. Canal St., Suite 1500
Chicago, IL 60606

- 13.2 **By Gogo**. Any and all revenue from Wireless Entertainment and [***] collected by Gogo from Users will be calculated on a [***] basis and paid to American within [***] of the end of the [***] in which Gogo collected such revenue. American's share of any Portal Revenue collected by Gogo will be calculated on a [***] basis and paid to American within [***] of the end of the [***] in which Gogo collected such

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revenue. [***] the Connectivity Revenue Share and the Affiliate Fee, will be calculated and reported on a [***] basis and amounts owed thereunder will be paid to American within [***] of the end of the [***] in which Gogo collected the Connectivity Revenue and the revenue as to which the Affiliate Fee is payable. [***]. Invoices to Gogo should be sent by American to the following address:

Gogo LLC
Attn: Accounts Receivable
111 N. Canal St., Suite 1500
Chicago, IL 60606

All amounts shall be payable in U.S. Dollars and paid, either via credit or by wire transfer or electronic payment through the Automated Clearing House, to American's designated depository bank.

- 13.3 **Penalties.** Except as specifically provided herein and subject to the provisions of Section 13.1 regarding disputed invoices, any fee, penalty, reimbursement or other sum payable hereunder will be due [***] from the date the party responsible for paying (the "**Payor**") receives an invoice from the party entitled to payment (the "**Payee**") and shall be payable in U.S. Dollars and, at Payee's sole discretion, either via credit/check or wire transfer.

14. **MOST FAVORED NATION**

- 14.1 [***].
14.2 [***].
14.3 [***].

15. **TAXES**

- 15.1 **Taxes related to System Equipment and Software.** American shall pay all sales, use and personal/business property taxes, airport/concessions fees, customs taxes, customs, tariffs, or other duties and any other taxes and assessments lawfully levied against or upon the Equipment and/or Software sold by Gogo to American under this Agreement. American shall pay Gogo for any and all sales and use taxes, imposts, levies, duties, usage or other similar, transaction-based fees (including, and without limitation, value-added taxes, and stamp taxes, if any) (collectively "**Taxes**"), imposed by any governmental entity with respect to, or arising out of the sale of the Equipment and/or Software that are properly invoiced by Gogo in accordance with Section 13 of this Agreement, to the extent not inconsistent with any applicable laws or regulations, which shall control in the case of any conflict. American has the right to provide to Gogo sales/use tax or any other applicable Tax exemption certificates or direct pay permits with respect to the Equipment and/or Software sold by Gogo to American under this Agreement. A Tax exemption certificate or direct pay permit may be required for each tax jurisdiction where Gogo delivers the Equipment and/or Software to American pursuant to this Agreement. Gogo will accept any such Tax exemption certificate or direct pay permit provided by American in good faith, and Gogo will discontinue invoicing the applicable Taxes on the sales of Equipment and/or Software under this Agreement, and American shall hold Gogo harmless for any liability for such Taxes.

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- 15.2 **Taxes with Respect to Gross of Net Income.** Each Party to this Agreement shall be responsible for any taxes, imposts, levies, duties or other fees with respect to, or based upon, any measure of the respective Party's income, whether gross or net and any taxes, imposts, levies, duties or other fees with respect to, or based upon, the respective Party's assets, capital, property or payroll, however denominated, including without limitation, any doing business taxes, franchise, gross receipts, fringe benefit, social security, welfare taxes or any regulatory taxes or fees.
- 15.3 **Taxes with Respect to User Transactions.** As the MOR for User transactions, Gogo will be responsible for compliance with all sales, use, GST, value-added or any other taxes or fees with respect to, or arising out of, transaction charges to Users. Such tax compliance will include, without limitation, the establishment and maintenance of taxability rules, tax jurisdiction assignment (sourcing) rules, tax rates, billing and collection of taxes from Users, filing of applicable tax returns and remittance of such taxes and fees to the appropriate tax agencies. Pricing as noted in **Exhibit D** will either be inclusive of taxes or exclusive of taxes as defined by American. To the extent the price to the customer is stated to be inclusive of taxes and such taxes are collected, this shall reduce dollar-for-dollar any amounts that Gogo is obligated to pay to American pursuant to this Agreement, including, without limitation, Section 2 in **Exhibit D**. As the MOR, it is Gogo's responsibility to monitor tax laws applicable to Gogo Services, and to update Gogo Service taxation with any changes in such tax laws.
- 15.4 **Cooperation with Respect to Taxes.** The Parties agree to reasonably and in good faith cooperate and assist each other in evaluating and/or contesting the imposition, validity, application or amount of any amounts payable under this Section 15. Without limiting the foregoing, such cooperation shall include: (a) supplying the other Party such information or documents as are necessary or advisable to reduce the amount of any such amounts payable or to recover or seek a refund of any such amounts with respect to, or arising out of, the transactions effectuated pursuant to this Agreement; (b) permit the other Party to participate in any audit, contest, challenge, controversy or other proceeding to the extent permitted herein, at the other Party's expense; and (c) reasonably assist the other Party with the evidentiary and procedural development of any such audit, contest, challenge, controversy or other proceeding. It is agreed by the Parties that control of any such contest or controversy shall be vested in the Party ultimately liable for such amounts payable and the contesting Party shall solely bear the costs, including attorney's fees, of any such contest or controversy.
- 15.5 **Section 15 Survival.** Notwithstanding any other section of this Agreement to the contrary, this Section 15 shall survive any termination or expiration of this Agreement (a) for the period of time during which either American or Gogo may be liable for Taxes under any applicable statute of limitations, or (b) where any audit, contest, challenge, controversy or other proceeding is pending, throughout the duration of such audit, contest, challenge, controversy or other proceeding.

16. **AUDIT**

- 16.1 **By American.** Gogo shall keep full and accurate records of all orders, shipments, payments and invoices in connection with providing the Equipment, Software and Gogo Services, as well as such other documents and records as American shall reasonably require in order to audit Gogo's compliance with this Agreement, and Gogo shall make such records available for audit until [***]; provided, however, that anyone auditing Gogo's compliance with this Agreement shall not be entitled to access to any information that Gogo may not disclose pursuant to confidentiality

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obligations to any third party. The audit, for purposes of certifying Gogo's compliance with the terms of this Agreement, may be conducted no more than [***] upon reasonable advance written notice and in a manner that minimizes disruption on Gogo's business at American's expense by (a) with respect to any audit of Gogo's compliance with Section 14, a public accounting firm other than a firm that audits Gogo or American, which firm shall be appointed by American and approved by Gogo and (b) with respect to audits of other matters, American's internal audit staff or, at American's election, a public accounting firm which firm shall be appointed by American and approved by Gogo. Any such audit firm or American employee shall agree, in a writing reasonably satisfactory to Gogo, to maintain the confidentiality of all information disclosed pursuant to such audit. Notwithstanding anything to the contrary contained herein, with respect to Gogo's compliance with Section 14, American may cause an audit to be conducted if in any year Gogo fails to provide the certification required by Section 14 (in which case the expenses of such audit shall be borne by Gogo) or, if Gogo provides such certification, American has reason to doubt the accuracy of such certification (in which case the expenses will be borne by American if the audit confirms Gogo's compliance and by Gogo if Gogo is found not to be in compliance). With respect to any audit of Section 14, the auditor shall, subject to appropriate confidentiality agreements, have access to information regarding Gogo's arrangements with other airlines but the report delivered by such auditor to American shall be drafted in a way that preserves the anonymity of other Gogo airline partners.

- 16.2 **By Gogo.** American shall keep full and accurate records related to Connectivity Take Rates and installation and use of all Equipment, as well as such other documents and records as Gogo shall reasonably require in order to audit American's compliance with this Agreement, and American shall make such records available for annual audit by Gogo (at Gogo's sole cost and expense), upon reasonable prior written notice, during normal business hours at American's facility(ies) where such records are located, [***]; provided, however, that Gogo shall not be entitled to access to any information that American may not disclose pursuant to confidentiality obligations to any third party. Subject to the same conditions, restrictions and limitations as set forth in the preceding sentence, Gogo will have the right to instead appoint, at its own expense, a public accounting firm appointed by Gogo and approved by American, to conduct an annual review of the Connectivity Take Rates and installation and use of all Equipment and certify American's compliance with the terms of this Agreement. Any such auditor or accounting firm shall execute American's standard release form, shall strictly comply with American's facility and workplace safety, security and other similar rules and regulations and shall also agree, in a writing satisfactory to American, to maintain the confidentiality of all information disclosed pursuant to such audit or review, and no such audit or review shall unreasonably interfere with American's business or operations.
- 16.3 **No Deduction, Offset or Withholding.** Except as specifically contemplated under this Agreement, each Party will pay all amounts owed to the other Party without any deduction, offset or withholding of any kind or nature or for any reason whatsoever.

17. **WARRANTY**

- 17.1 **Each Party.** Each Party hereby represents and warrants to the other Party the following:
- 17.1.1 Such Party is duly organized and validly existing and has the power and authority to execute and deliver, and to perform its obligations under, this Agreement, including, with respect to Gogo, the right to perform Gogo Services hereunder.

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- 17.1.2 Such Party's execution and delivery of this Agreement and performance of its obligations hereunder have been and remain duly authorized by all necessary action and do not contravene any provision of its certificate of incorporation or by-laws (or equivalent documents) or any law, regulation or contractual restriction binding on or affecting it or its property.
- 17.1.3 This Agreement is such Party's legal, valid and binding obligation, enforceable against it in accordance with its terms, subject to applicable bankruptcy, insolvency and similar laws affecting creditors' rights generally and subject, as to enforceability, to general principles of equity (regardless of whether enforcement is sought in a proceeding in equity or at law).

17.2 **Gogo.** Gogo warrants that:

- 17.2.1 All Equipment and Software provided hereunder will, at the time of installation, comply with all applicable laws, rules and regulations, including without limitation, all FAA orders or regulations and those of any other United States regulatory agency or body having jurisdiction over the Equipment or Software.
- 17.2.2 Gogo represents and warrants that it has all rights required to use the System (including all Software) used by Gogo to provide the Gogo Services, and to grant the licenses and rights to use the System (including all Software) that are granted to American under this Agreement.
- 17.2.3 To the best of its knowledge after reasonable inquiry, the Gogo Technology, including the System, Equipment and Software, system interfaces and Gogo Service, does not infringe a valid patent, copyright, trade secret, trademark or other proprietary or intellectual property of a third party. Gogo will inform American of any new patent infringement claims brought against Gogo and respond to American's reasonable requests for information related thereto.
- 17.2.4 Equipment and Software shall comply with all test requirements required by law or as otherwise agreed upon by the Parties in accordance with the terms of this Agreement.
- 17.2.5 All Equipment and Software (including Software either embedded in Equipment or specifically designed for use in or with such Equipment) provided hereunder shall (a) be free from any liens or encumbrances arising by, through or under Gogo, and (b) be permanently marked with the manufacturing date.
- 17.2.6 The cellular and wireless functionality associated with the Equipment are not designs that originated with American.
- 17.2.7 Gogo Services will be performed in a professional and workman-like manner consistent with industry standards.

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17.2.8 Throughout the Term, the Equipment and/or Software shall be free from defects in material, workmanship and design. During the Warranty Period, the Equipment and/or Software will function substantially in accordance with the Specifications. In the event of a defect discovered during the Warranty Period with respect to (a) material or workmanship, Gogo will use commercially reasonable efforts to repair or replace the defective Equipment and/or Software so that it complies with the warranty terms as soon as practical but in no event later than [***] after receipt thereof, and (b) design, Gogo will respond in accordance with Section 4.2.3. [***]. Notwithstanding anything to the contrary contained herein, this warranty shall not apply to Equipment and/or Software that has been subject to misuse, neglect, accident or improper installation by American or an American Supplier.

17.3 **Services.** Gogo shall follow the steps outlined in the service failure chart included in **Exhibit J** which sets forth the levels of support provided to American in the event the Connectivity Service does not perform in accordance with the service levels detailed in **Exhibit J**. For all other Gogo Services, Gogo shall re-perform the Gogo Services which gave rise to the breach or, if it cannot cure the defect, refund the fees paid by American for the Gogo Services which gave rise to the breach; provided that American has notified Gogo in writing of the breach within [***] following American's discovery of the defective Gogo Services, specifying the breach in reasonable detail.

17.4 **Disclaimer.** EXCEPT AS EXPRESSLY PROVIDED IN THIS AGREEMENT, INCLUDING WITHOUT LIMITATION THE WARRANTIES SET FORTH IN SECTION 17.2, GOGO MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, TITLE OR NONINFRINGEMENT WITH REGARD TO ANY EQUIPMENT, SERVICE OR MATERIALS PROVIDED UNDER THIS AGREEMENT.

18. **TERM AND TERMINATION**

18.1 **Term.** The term of this Agreement (the "**Term**") will begin on the Effective Date and continue for each Fleet Type, unless earlier terminated in accordance with the provisions of this Section 18, until the applicable date set forth in the expiration date column on **Exhibit A**.

18.2 **Removal.** [***].

18.3 **Termination for Convenience.**

18.3.1 **2Ku Fleet.** In its sole discretion, for convenience and without cause, American may terminate this Agreement with respect to the 2Ku Solution in whole or in part at any time by [***].

18.3.2 **Regional Jet Fleet, 757 Fleet, MD-80 Fleet.** American may elect to terminate this Agreement at its sole convenience (a) with respect to the 757 Fleet and/or the MD-80 Fleet at any time after [***] and (b) with respect to the Regional Jet Fleet at any time after the [***] of the final Trigger Date for the Regional Jet Fleet, in each case by giving at least [***] written notice thereof to Gogo and [***].

18.3.3 **Other Fleet Types.** [***].

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- 18.4 **Termination for Non-Performance.** American may elect to terminate this Agreement for non-performance upon the occurrence of the following hereunder:
- 18.4.1 **2Ku Fleet.** Without limiting the provisions set forth in Section 18.3.1 above, if (a) Gogo fails to meet the fleet-wide aggregate Service Availabilities, bandwidth commitments or performance guarantees (in each case as set forth in **Exhibit J**) for the 2Ku Solution for [***] or (b) Gogo fails to meet any System delivery dates or Program milestones, such as the kit on dock, STC or Software delivery dates or such other dates set forth in Section 18.4.1.1 or Section 18.4.1.2, then such failure shall constitute a material breach by Gogo hereunder and American will have the right to terminate this Agreement with respect to any or all of the 2Ku Fleet upon [***] written notice to Gogo without payment of any termination fee or penalty to Gogo.
- 18.4.1.1. **Implementation Schedule for Airbus A320 Family A/C.** Except as otherwise agreed by the Parties, Gogo shall comply with the following dates:
- Airbus A320 family A/C Prototype installation beginning no later than [***].
 - Final drawing release and Software delivery – no later than [***].
 - Prototype kits on dock – no later than [***].
 - STC – no later than [***].
 - All Airbus A320 family A/C kits delivered by [***].
- 18.4.1.2. **Implementation Schedule for Airbus A319 Family A/C.** Except as otherwise agreed by the Parties, Gogo shall comply with the following dates:
- Airbus A319 family A/C Prototype installation beginning no later than [***].
 - Final drawing release and Software delivery – no later than [***].
 - Prototype kits on dock – no later than [***].
 - STC – no later than [***].
 - All Airbus A319 family A/C kits delivered by [***].
- 18.4.2 **Other Fleet Types.** Without limiting the provisions set forth in Sections 18.3.2 and 18.3.3 above, if Gogo fails to meet the fleet-wide aggregate service levels for the ATG Solution and/or ATG4 Solution set forth in **Exhibit J** and such failure (a) continues for more than [***] following American’s written request to Gogo to remedy such failure or (b) occurs in any [***] period following American’s written request to Gogo to remedy such failure, then such failure shall constitute a material breach by Gogo hereunder and American will have the right to terminate this Agreement upon [***] written notice to Gogo [***].
- 18.5 **Termination for Cause.** Upon the occurrence of any Event of Default, the non-defaulting Party shall be entitled to terminate this Agreement and, except as otherwise expressly provided herein, shall further be entitled to all other rights and remedies available to such Party under this Agreement or applicable laws, which rights and remedies shall be cumulative and not exclusive. The following events shall constitute an “**Event of Default**” hereunder:

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- 18.5.1 If either Party shall fail in the performance of any of its material obligations contained in this Agreement, which failure continues uncured for a period of [***] following written notice from the other Party.
- 18.5.2 If either Party shall file a voluntary petition in bankruptcy, shall be adjudicated as a bankrupt or insolvent, shall file any petition or answer seeking any reorganization, composition, readjustment, liquidation or similar relief for itself under any present or future statute, law or regulation, shall seek, consent to or acquiesce in the appointment of any trustee, receiver or liquidator for itself, shall make any general assignment for the benefit of creditors or shall admit in writing its inability to pay its debts generally as they become due.
- 18.5.3 If a petition shall be filed against either Party seeking any reorganization, composition, readjustment, liquidation or similar relief for such Party under any present or future statute, law or regulation, which petition shall remain undismissed or unstayed for an aggregate of [***] (whether or not consecutive), or if any trustee, receiver or liquidator of either Party shall be appointed, which appointment shall remain unvacated or unstayed for an aggregate of [***] (whether or not consecutive).
- 18.5.4 If any material representation or warranty made by either Party herein or in any statement or certificate furnished or required hereunder or in connection with the execution and delivery hereof proves to have been untrue in any material respect as of the date of the making thereof.
- 18.5.5 [***] the Connectivity Take Rate measured on a [***] rolling average is less than [***]; provided, American may not exercise such termination right unless American has substantially complied with the obligations set forth in **Exhibit I**.
- 18.6 **Termination upon Gogo Change in Control.** American shall have the right, exercisable in its sole discretion, to immediately terminate this Agreement upon a Change of Control of Gogo. For purposes of this Section 18.6, a “**Change of Control of Gogo**” shall include: (a) the dissolution or liquidation of Gogo; (b) any reorganization, merger or consolidation of Gogo or its parent company, or any other transaction or series of transactions with one or more Persons as a result of which ownership of [***] or more of the equity securities of Gogo or its parent company outstanding immediately prior to such transaction(s) is transferred to (i) a commercial airline other than American or (ii) an entity that generates [***] from the business of providing airline travel booking services; or (c) the sale or agreement to sell substantially all of the assets of Gogo to one or more Persons in any transaction or series of transactions as a result of which ownership of such assets is transferred to (i) a commercial airline other than American or (ii) an entity that generates [***] from the business of providing airline travel booking services. “Change of Control of Gogo” does not include an initial public offering of the securities of Gogo or its parent company.
- 18.7 **Termination upon Material Technology Improvement.** [***].
- 18.8 **Termination Following Excusable Delay.** If an Excusable Delay lasts in excess of [***], the non-delayed Party shall have the right to terminate this Agreement, as set forth in Section 24.

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18.9 **Effects of Termination.** Upon the termination of this Agreement with respect to one or more Retrofit A/C, American will cease offering the Connectivity Services, [***] and Wireless Entertainment on such Retrofit A/C. In addition, with respect to Leased Equipment, unless and to the extent American is entitled to and elects to purchase Equipment installed on any such A/C as permitted by Section 5.1.1, American will Deinstall (or elect that Gogo Deinstall, in which case Gogo will Deinstall) the Equipment from all Retrofit A/C of such Fleet Type as required by Section 6. Upon any termination, the Parties will use commercially reasonable efforts and work together in good faith to develop a reasonable plan for the wind down of the Program, the provision of the Connectivity Services, [***] and Wireless Entertainment on Retrofit A/C and the removal of the Equipment, in each case, to the extent of such termination; provided that, in no event will Gogo cease providing Gogo Services prior to the successful development of and mutual agreement regarding such wind-down plan.

19. **INTELLECTUAL PROPERTY RIGHTS**

19.1 **Ownership.** American acknowledges and agrees that, as between the Parties, Gogo is the owner of all right and title in and to the Gogo Technology and that all intellectual property rights, including copyrights, trade secrets and patent rights, embodied in the Specifications and the Equipment and Software shall be exclusively vested in Gogo. Gogo acknowledges and agrees that, as between the Parties, American is the owner of all right and title in and to the American Technology.

19.2 **Trademark License.** Each Party grants the other Party hereunder a limited, non-exclusive, non-transferable, royalty-free right and license for the Term to use that Party's Marks, solely for use by such other Party for the purpose of such other Party's authorized joint marketing efforts with respect to the Program. Each Party will comply with the other Party's trademark usage guidelines in using any Mark of the other Party. Except as expressly authorized by this Agreement, neither Party will make any use of the other Party's Marks in a manner that dilutes, tarnishes or blurs the value of the other Party's Marks.

20. **CONFIDENTIALITY**

20.1 **Prior Confidentiality Agreements.** The terms and conditions of the American NDA have governed all use and disclosure of confidential information shared by and between American and Gogo prior to the Effective Date, and the terms and conditions of the US NDA and the US Agreement have governed all use and disclosure of confidential information shared by and between US (or American, as successor-in-interest to US) and Gogo prior to the Effective Date. The disclosure periods under the American NDA and the US NDA will, unless earlier terminated, terminate on the Effective Date, and all confidential information shared by and between Gogo and American during the term of the American NDA and by and between US (or American, as successor-in-interest to US) and Gogo during the terms of the US NDA and the US Agreement that remain subject to the American NDA, the US NDA or the confidentiality provisions of the US Agreement as of the Effective Date, as well as all Confidential Information, as defined in Section 20.2, shared by and between the Parties on or after the Effective Date, shall be subject to the terms herein.

20.2 **Confidential Information.** "Confidential Information" means any information, in any form, including, without limitation, the terms of this Agreement, written documents, oral communications, recordings, videos, software, databases, business plans, and electronic/magnetic media, provided to or observed by Gogo

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or American (in such capacity, “**Recipient**”) in connection with this Agreement or any Program hereunder, including information owned or provided by or on behalf of Gogo, American or their respective Affiliates (in such capacity, “**Discloser**”), excepting (a) information that is or becomes generally available to the public through no wrongful act of or breach of this Section 20 by the Recipient, (b) information that was in Recipient’s possession free of any obligation of confidence at the time it was communicated to Recipient by Discloser, (c) information disclosed to Recipient by a third party that did not acquire the information under an obligation of confidentiality known to Recipient, (d) information that is independently developed by the Recipient without use of the Discloser’s Confidential Information and (e) information that can be shown by credible evidence to have been rightfully communicated to Recipient free of any obligation of confidence subsequent to the time it was communicated to Recipient by Discloser. Recipient agrees that it will maintain all Confidential Information in confidence and use it solely for purposes of performance under this Agreement. Such Confidential Information will be distributed within Recipient’s organization only to personnel with a need to know such information for purposes relating to this Agreement. In no event will Recipient disclose any Confidential Information to any third parties except in compliance with a court order or statutory or regulatory requirement or to subcontractors and independent consultants with a need to know such information where the subcontractor or independent consultant has agreed to be bound by confidentiality provisions at least as protective as those in this Agreement; provided, however, that such subcontractors and independent consultants will not include direct competitors of Discloser without Discloser’s written consent, which consent will not be unreasonably withheld. In the event that Recipient is required to disclose Confidential Information pursuant to the lawful demand therefor by a governmental agency or court, or disclosure is required by operation of law, Recipient will be permitted to so disclose to the extent required provided that Recipient gives prior written notice thereof to Discloser and has made a reasonable attempt to obtain a protective order or similar finding limiting disclosure and use of the information so disclosed and/or allowed Discloser to do so in its own name.

20.3 **Waiver of Confidentiality.** Gogo acknowledges and agrees that any information shared or given to American pursuant to this Agreement on a confidential basis may be shared by American on a confidential basis with American’s Affiliates and on a need-to-know basis with Operators and any other third parties with which American has or may have in the future an alliance and which own or operate aircraft on which Gogo Services are provided as of the Effective Date or may be provided in the future pursuant to this Agreement. American acknowledges and agrees that any information shared or given to Gogo pursuant to this Agreement on a confidential basis may be shared by Gogo on a confidential basis with Gogo’s Affiliates. Notwithstanding anything to the contrary herein, nor implying any duty of confidentiality otherwise, Discloser acknowledges and agrees that Recipient may share the terms of this Agreement with its directors, officers, employees, stockholders, auditors, accountants, attorneys and consultants, and as reasonably necessary in connection with the due diligence commonly associated with major transactions so long as such recipients are bound by confidentiality provisions at least as protective as those in this Agreement. Recipient shall be responsible for any breach of this Section 20 caused by any of its Affiliates or any party with which Recipient shares information pursuant to this Agreement.

20.4 **Return of Materials.** Upon request by Discloser to Recipient, Recipient will (a) at its own expense, promptly return to Discloser or destroy all documents provided by or on behalf of Discloser that contain Confidential Information and all copies of

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such documents in possession or under the control either directly or indirectly of Recipient or its agents, unless and to the extent that Recipient reasonably requires continued possession of such documents in order to fulfill its obligations hereunder and except as required by law, and provided that Recipient may maintain data or electronic records containing Confidential Information for the purpose of backup, recovery, contingency planning or business continuity planning so long as such data or records are not accessible in the ordinary course of business and are not accessed except as required for backup, recovery, contingency planning or business continuity planning purposes, and (b) cease all further use of Discloser's Confidential Information, whether in tangible or intangible form. Recipient acknowledges and agrees that Discloser will have the right to exercise this right as many times as it deems necessary throughout the Term and for a period of two (2) years after the termination of this Agreement, regardless of the cause of that termination. For the avoidance of doubt, Recipient may retain one (1) copy of Confidential Information for internal purposes, provided that such Confidential Information is held in accordance with the terms of this Section 20.

21. **INDEMNITY**

21.1 **By Gogo.** Gogo hereby indemnifies and agrees to defend and hold harmless American, its parent company, subsidiaries and affiliates and their respective officers, directors, agents, representatives, contractors and employees (collectively herein the "**American Indemnified Parties**"), and each of them, from and against any and all third-party claims, allegations, demands, actions, liabilities, damages, losses, expenses, suits, proceedings, assessments, fines, penalties and/or judgments (including without limitation all attorney's fees, costs and expenses in connection therewith) arising out of or resulting from (a) the negligence, gross negligence, recklessness, bad faith, illegal act, misrepresentation or malicious or willful misconduct of Gogo or any of its officers, directors, agents, representatives, employees or contractors in connection with Gogo's performance of or failure to perform this Agreement, (b) any, death of or injury to any Gogo employee, (c) any claim that the use by American of any Gogo Technology, the System, the Equipment or Software, system interfaces and Gogo Services pursuant to this Agreement infringes or misappropriates any patent, copyright, trade secret, trademark or other proprietary or intellectual property right, (d) any Security Incident arising from Gogo Services or Gogo Technology, however, if Gogo can reasonably demonstrate that American was a contributing cause of a Security Incident, then Gogo's liability shall be reduced proportionate to the degree of fault attributable to American, (e) Gogo's material breach of Section 9.5, 19.1, 19.2 or 20 of this Agreement, or Section 1.3 of **Exhibit I** to this Agreement, or (f) any breach of Gogo's obligations under **Exhibit V** to this Agreement. Notwithstanding anything herein to the contrary, Gogo's indemnity obligations (other than the indemnification obligation for Security Incidents in subpart (d)) shall not apply to any third party claim to the extent that the same would not have arisen but for (i) any designs, specifications or modifications, subsequent to the design and specifications provided by Gogo at the time the Equipment is installed, originating with, or performed by, American or its contractors (other than Gogo), unless such modifications are necessary to make the Equipment or Software compatible with the A/C or its systems and are approved in advance by Gogo (which approval will not be unreasonably withheld), (ii) the combination by American or an American Supplier, subsequent to the time the Equipment or Software is installed, of the Equipment or Software with other equipment or software not supplied by Gogo, except equipment or software necessary to operate the A/C or its systems and approved in advance by Gogo (which approval will not be unreasonably withheld), (iii) misuse of the Equipment, Software or Gogo Services by American or an

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American Supplier, (iv) any content provided by American on the Portal or for Wireless Entertainment or [***], or the exhibition thereof, on any Retrofit A/C infringing or misappropriating any patent, copyright, trade secret, trademark or other proprietary or intellectual property right; provided, however, that the exclusion from indemnification described in this clause (iv) shall not extend to any claim, suit or demand arising out of or caused by Gogo's actions (e.g., processing, encryption, etc.) related to content after the time that American provides such content to Gogo unless and except to the extent that such actions are taken pursuant to and in accordance with directions or instructions specified by American, (v) the negligence, gross negligence, recklessness, bad faith, illegal act, misrepresentation or malicious or willful misconduct of American or any of its officers, directors, agents, representatives, employees or contractors; provided, however, that except as set forth in clause (iv) such exclusion shall not extend to any liability to a third party alleging intellectual property infringement that results from American installing the Equipment and/or operating the System on any Retrofit A/C in accordance with the terms of this Agreement, (vi) the failure of American or an American Supplier to follow the Installation Guidelines, the AMM, the CMM or any other Documentation pursuant to which maintenance is performed, as applicable, (vii) Gogo's implementation and operation, at American's request, of a system that filters and/or blocks objectionable content (other than VoIP); provided, however, that the exclusion from indemnification described in this clause (vii) shall not extend to any claim, suit or demand arising out of Gogo's failure to implement and operate the system in accordance with agreed-upon specifications, (viii) [***]; provided, however, that the exclusion from indemnification described in this clause (viii) shall not extend to any claim, suit or demand arising out of or caused by Gogo's actions or omissions, (ix) Video Content not complying with all laws, rules and regulations requiring closed captioning or MPAA ratings disclosure, or otherwise applicable to the Video Content; provided, however, that Gogo shall be responsible to the extent of Gogo's performance or failure to perform its obligations under this Agreement related to the Video Content, or (x) American's material breach of Section 10.3, 19.1, 19.2 or 20 of this Agreement or Section 1.3 of **Exhibit I** to this Agreement ((i) – (x), collectively, the “**Excluded Claims**”).

- 21.2 **By American.** American shall indemnify and hold Gogo harmless and defend Gogo, its parent company, subsidiaries and affiliates and their respective officers, directors, agents, representatives, contractors and employees (collectively herein the “**Gogo Indemnified Parties**”), and each of them, from and against any and all claims, demands, actions, liabilities, damages, losses, expenses, suits, proceedings, assessments, fines, penalties and/or judgments (including without limitation all attorney's fees, costs and expenses in connection therewith), whether for the death of or bodily injury to any person (including without limitation Gogo's employees), for the loss of, damage to or destruction of any property and/or for any other injury, loss or damage of any kind or nature whatsoever, that may be charged to, recoverable from, suffered or incurred by or assessed or asserted against any of the Gogo Indemnified Parties by any third party, to the extent resulting from or caused by (i) the Excluded Claims, (ii) any Security Incident arising from American services or American Systems; however, if American can reasonably demonstrate that Gogo was a contributing cause of a Security Incident, then American's liability shall be reduced proportionate to the degree of fault attributable to Gogo, or (iii) due to any breach of American's obligations under **Exhibit V** to this Agreement.
- 21.3 **Procedures.** In the event a claim is made or suit is brought that is covered by either of the foregoing indemnities, the Indemnified Party shall give the Party with

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the indemnity obligation (the “**Indemnitor**”) notice thereof promptly after becoming aware thereof. The Indemnitor shall assume all responsibility for such claim or suit, and the Indemnified Party shall provide reasonable assistance and cooperation during the defense of such claim or suit or compromise or settlement thereof. Notwithstanding the foregoing, the Indemnified Party’s consent, which shall not be unreasonably withheld, shall be obtained in the event any compromise or settlement under this Section 21.3: (a) includes a finding or admission of any violation of any law by the Indemnified Party or any violation of the rights of any person by the Indemnified Party; (b) has an effect on any claim held by or against the Indemnified Party; or (c) requires the payment of any money or the taking of any action by the Indemnified Party. The Indemnified Party shall have the right, but not the duty, at its own expense, to participate in the defense and/or compromise or settlement of such claim or suit with counsel of its own choosing without relieving the Indemnitor of any obligations hereunder.

- 21.4 **Remedies.** If any infringement or misappropriation action falls within the indemnifications provided by Gogo to American in Section 21.1 and (a) Gogo is enjoined, either temporarily or permanently, from providing, manufacturing or delivering to American the Gogo Technology, including the Equipment, Software or Connectivity Services, Wireless Entertainment, and [***] or (b) American is enjoined, either temporarily or permanently, from using the Gogo Technology, including Equipment, Software or Connectivity Services, Wireless Entertainment, and [***] or (c) American or Gogo is adjudged, in any final order of a court of competent jurisdiction from which no appeal is available, to have infringed upon or misappropriated any patent, copyright, trade secret, trademark or other proprietary or intellectual property right in the use of the Gogo Technology, including the Equipment, Software or Connectivity Services, Wireless Entertainment, and [***] or if Gogo settles or compromises any such action, then Gogo shall, at its expense, either (x) if not obtained as part of a settlement or compromise, obtain for American the right to continue using the Gogo Technology, including Equipment, Software and Connectivity Services, Wireless Entertainment, and [***] or (y) replace or modify the Gogo Technology, including the Equipment, Software or Connectivity Services, Wireless Entertainment and [***] to the extent necessary so that it does not infringe upon or misappropriate such proprietary or intellectual property right and is free to be delivered to and used by American (which may be a requirement of a settlement or compromise); provided that following such replacement or modification the Gogo Technology is functionally equivalent to the Gogo Technology prior thereto, in either case within [***] after the entry of such injunction or order or such settlement (subject to reasonable extension as may be reasonably required to obtain any required governmental approvals in respect of any such replacement or modification, which approvals Gogo shall pursue diligently and in good faith), failing which American may terminate this Agreement pursuant to Section 18.5.1, in which event Gogo shall be liable for all associated costs and expenses under this Agreement, including Deinstallation costs as contemplated by Section 6. SUBJECT TO SECTION 17.2.3, THIS SECTION 21 SETS FORTH THE ENTIRE OBLIGATION AND LIABILITY OF GOGO TO AMERICAN FOR INFRINGEMENT OF ANY INTELLECTUAL PROPERTY RIGHTS RELATED TO THE EQUIPMENT, SOFTWARE AND GOGO SERVICES PROVIDED UNDER THIS AGREEMENT.

22. **INSURANCE**

- 22.1 **American Requirements.** American agrees to keep in full force and effect and maintain at its sole cost and expense the following policies of insurance with the specified minimum limits of liability during the Term of this Agreement:

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- 22.1.1 Comprehensive Aviation Liability Insurance, including personal injury, products and completed operations, war risk and allied perils and contractual liability in an amount not less than [***] combined single limit per occurrence (and in the aggregate with respects to products), which insurance may be provided by a combination of primary and umbrella coverages, covering all liability arising out of any bodily injury (including death of any person) and any damage to (including destruction of) property.
- 22.1.2 Aircraft Hull Insurance covering loss or damage to Equipment once permanently installed on the A/C in an amount not less than the full replacement or repair cost of such Equipment. Such insurance shall include Gogo as loss payee solely as respects the value of the Equipment.
- 22.2 **Gogo Requirements.** Throughout the Term of this Agreement, and as otherwise specified below, Gogo shall maintain in full force, at its expense, the following insurance coverage (and the cyber insurance coverage contemplated by Section 23.1) with carriers reasonably acceptable to American:
 - 22.2.1 Aviation Products Liability/Completed Operations Liability Insurance, including contractual coverage, in an amount not less [***] which insurance shall not be required to be procured until immediately prior to the first delivery of Equipment hereunder but shall be maintained for a period of [***] following the expiration or termination of this Agreement;
 - 22.2.2 Property Insurance covering all risks and covering all property in Gogo's custody or control in an amount at least equal to the value of such property.
 - 22.2.3 Worker's Compensation Insurance in the statutory amount(s) required by the State(s) where the Equipment and/or Software are manufactured and/or installed and/or Gogo Services are performed and Employer's Liability Insurance in an amount not less than [***]. In lieu of Workers' Compensation Insurance, Gogo may satisfy the requirements of this Section 22.2.3 by being a qualified self-insurer in such State(s).
- 22.3 **Policy Requirements.** Each Party shall have its insurer(s) provide annual certificates of insurance evidencing the coverages required herein commencing upon execution of this Agreement, and such insurance certificates shall also reflect that policy(ies) include the following special provisions:
 - 22.3.1 The insurer(s) has(ve) accepted and insured the provisions of Section 21 of this Agreement.
 - 22.3.2 The insurer(s) has(ve) waived any rights of subrogation it/they may or could have against any of the Indemnified Parties.
 - 22.3.3 Each such insurance coverage is and shall be primary without right of contribution from any insurance coverage carried by the Indemnified Parties.
 - 22.3.4 The insurer(s) will give at least thirty (30) days' prior written notice to other Party before any adverse change in the coverage of the policy(ies).
 - 22.3.5 No such insurance coverage shall be invalidated with respect to any of the Indemnified Parties by any action or inaction of the insured Party.

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- 22.3.6 In the event that Gogo performs touch labor for any installations that are conducted at a location that is not a location at which American conducts acceptance checks, and if American so requests, Gogo will use commercially reasonable efforts to obtain hanger keeper's insurance on such terms and with such limits as American reasonably requests.

23. **LIMITATION OF LIABILITY**

23.1 **Limitation.** WITHOUT LIMITING OR OTHERWISE IMPAIRING ANY SPECIFIC RIGHT OR REMEDY EXPRESSLY GRANTED OR RESERVED TO EITHER PARTY HEREIN, INCLUDING WITHOUT LIMITATION GOGO'S OBLIGATIONS UNDER SECTIONS 3.3.5, 6, 7.7 AND 21.1 OF THIS AGREEMENT AND ITS OBLIGATION TO PAY LIQUIDATED DAMAGES UNDER SECTION 9.1.4 AND **EXHIBIT F** AND AMERICAN'S OBLIGATIONS UNDER SECTIONS 6, 18.3 AND 21.2 OF THIS AGREEMENT AND **EXHIBIT R**, IN NO EVENT SHALL GOGO OR AMERICAN BE LIABLE TO THE OTHER FOR ANY SPECIAL, INCIDENTAL, INDIRECT, CONSEQUENTIAL, PUNITIVE OR OTHER SIMILAR DAMAGES OF ANY KIND OR NATURE WHATSOEVER (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS OR BUSINESS INTERRUPTION ARISING OUT OF THE USE OF OR INABILITY TO USE ANY EQUIPMENT OR SOFTWARE DESCRIBED HEREIN EITHER SEPARATELY OR IN COMBINATION WITH ANY OTHER EQUIPMENT, SOFTWARE OR OTHER MATERIALS) SUFFERED OR INCURRED BY THE OTHER IN CONNECTION WITH THIS AGREEMENT, EVEN IF GOGO OR AMERICAN HAS BEEN ADVISED OF THE POSSIBILITY OR CERTAINTY OF SUCH DAMAGES. FOR THE AVOIDANCE OF DOUBT, AND WITHOUT LIMITING THE FOREGOING, NEITHER PARTY WILL BE LIABLE TO THE OTHER PARTY FOR THE OTHER PARTY'S LOSS OF REPUTATION AS A RESULT OF A SECURITY INCIDENT.

FOR PURPOSES OF THIS AGREEMENT, IF AND TO THE EXTENT THAT GOGO AGREES (OR AMERICAN OBTAINS A FINAL, NON-APPEALABLE JUDGMENT FROM A COURT OR ARBITRATOR OF PROPER JURISDICTION) THAT PHYSICAL DAMAGE TO AN AIRCRAFT RESULTED OR AROSE FROM (a) GOGO'S NEGLIGENCE, (b) WITH RESPECT TO ANY RETROFIT A/C ON WHICH GOGO'S SUBCONTRACTOR INSTALLS OR MAINTAINS THE EQUIPMENT, THE NEGLIGENCE OF SUCH CONTRACTOR OR (c) A DEFECT IN THE SYSTEM CAUSED BY GOGO OR ITS SUPPLIERS OTHER THAN AMERICAN, SUCH DAMAGE SHALL BE CONSIDERED ACTUAL (AS OPPOSED TO SPECIAL, INCIDENTAL, INDIRECT OR CONSEQUENTIAL) DAMAGE, AND GOGO SHALL BE RESPONSIBLE FOR SUCH DAMAGE TO SUCH EXTENT (SUBJECT TO THE LIMITATION SET FORTH IN THE NEXT PARAGRAPH OF THIS SECTION 23.1).

IN NO EVENT SHALL GOGO'S PER OCCURRENCE LIABILITY FOR PHYSICAL DAMAGE TO AN AIRCRAFT AS DESCRIBED ABOVE EXCEED THE LESSER OF (x) [***] AND (y) THE SUM OF (i) (A) FOR ANY AIRCRAFT THAT IS NOT IN THE EXISTING RETROFIT FLEET, [***] AND (B) FOR ANY AIRCRAFT IN THE EXISTING RETROFIT FLEET, [***] FOR THE AIRCRAFT IN QUESTION, (ii) [***] AND (iii) THE AMOUNT OF [***].

SUBJECT TO THE NEXT SENTENCE, NEITHER PARTY'S AGGREGATE LIABILITY TO THE OTHER FOR ACTUAL DAMAGES, OTHER THAN PHYSICAL DAMAGE TO AN AIRCRAFT, SUFFERED BY THE OTHER ARISING OUT OF

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OR RELATED TO ANY BREACHES OR DEFAULTS OF THIS AGREEMENT SHALL EXCEED THE GREATER OF (I) [***] AND (II) THE AMOUNT OF AVAILABLE INSURANCE PROCEEDS WITH RESPECT TO SUCH BREACHES OR DEFAULTS. NOTWITHSTANDING THE FOREGOING, NEITHER PARTY'S AGGREGATE PER OCCURRENCE LIABILITY TO THE OTHER FOR DAMAGES (ACTUAL AND/OR CONSEQUENTIAL), OTHER THAN PHYSICAL DAMAGE TO AN AIRCRAFT, SUFFERED BY THE OTHER ARISING OUT OF OR RELATED TO ANY SECURITY INCIDENT OR BREACH OF **EXHIBIT V** SHALL EXCEED THE SUM OF (X) [***], PLUS (Y) AN AMOUNT EQUAL TO [***].

TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE LIMITATIONS AND EXCLUSIONS SET FORTH IN THIS SECTION 23.1 WILL APPLY REGARDLESS OF WHETHER LIABILITY ARISES FROM BREACH OF CONTRACT, WARRANTY, TORT (EXCEPT TO THE EXTENT SUCH LIABILITY ARISES FROM BAD FAITH OR WILLFUL MISCONDUCT), BY OPERATION OF LAW OR OTHERWISE.

- 23.2 **Exclusions.** The limitations of liability in Section 23.1 shall not apply with respect to: (a) any claims arising out of breaches of Section 9.5, 10.3, 19.1, 19.2 or 20 or of Section 1.3 of **Exhibit I**; or (b) any indemnification claims arising under Section 21. In addition, except as set forth in the last sentence of the first paragraph of Section 23.1 and subject to the cap set forth in the last sentence of the penultimate paragraph of Section 23.1, the limitation of liability in the first paragraph of Section 23.1 shall not apply with respect to any claims arising out of breaches of **Exhibit V**. Moreover, the limitation of liability in the first sentence of the next to the last paragraph of Section 23.1 shall not apply with respect to claims arising out of breaches of Section 6. The Parties are informed and sophisticated entities and have negotiated this Section 23 in consultation with their respective legal counsel, including litigation counsel. The Parties believe and expect that this Section 23 is enforceable in all respects. Nothing in this Agreement or its Exhibits, including the monetary limitations on liability set forth therein, shall (c) prejudice either Party's right or ability to seek injunctive or other equitable relief in connection with breach or violation by the other Party of any of the terms, conditions or obligations set forth in this Agreement or in any Exhibit, or (d) be construed to impact the determination of whether injunctive or other equitable relief is an appropriate remedy in connection with any such breach or violation.

24. **EXCUSABLE DELAYS**

- 24.1 **Definition.** Either Party shall be excused from performance of its obligations hereunder, and shall not be liable to the other Party for any direct, indirect, special, incidental, consequential or punitive damages suffered or incurred by the other Party arising out of a total or partial failure to perform hereunder or delay in such performance, to the extent resulting directly from any event or occurrence beyond the reasonable control of the delayed Party (collectively, "**Excusable Delay**"), including, without limitation, (a) acts of God, (b) wars or acts of a public enemy, (c) acts, failures to act or delays of the Governments of any state or political subdivision or any department or regulatory agency thereof or entity created thereby, including, without limitation, national aviation authorities, (d) quotas or embargoes, (e) acts of sabotage, (f) fires, floods or other natural catastrophes, (g) shortages or inability to obtain materials or components, or (h) strikes, lockouts or other labor stoppages, slowdowns or disputes; provided, however, that such delay is not occasioned by the fault or negligence of the delayed Party. Any Excusable Delay shall last only as long as the event remains beyond the control of the delayed Party and only to the extent that it is the direct cause of the delay. By way

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Or to such other address as either Party shall designate for itself by notice given to the other Party as aforesaid. Any such notice, demand or document shall be deemed to be effective upon receipt of the same by the Party to whom the same is addressed.

- 25.4 **Assignment.** This Agreement shall inure to the benefit of and be binding upon each of the Parties and their respective successors and assigns, but neither the rights nor the duties of either Party under this Agreement may be voluntarily or involuntarily assigned or delegated, in whole or part, without the prior written consent of the other Party, such consent not to be unreasonably withheld.
- 25.5 **Governing Law; Dispute Resolution.** This Agreement shall be governed by and construed according to the internal laws of the State of New York without regard to conflicts of laws principles. Each Party agrees to negotiate in good faith to resolve any dispute, claim or controversy arising out of or related to this Agreement prior to filing any suit, action or proceeding. In the event the Parties are unable to resolve the dispute within [***] following the commencement of negotiations, each Party shall escalate the dispute through the appropriate levels of management, up to and including the level of Chief Executive Officer at Gogo and Vice President-Procurement and Supply Chain or higher at American, until the resolution of the issue is achieved or the respective executives cannot agree to a resolution of the dispute. Unless otherwise agreed to by both Parties, in no event shall the escalation process exceed [***]. Any suit, action or proceeding filed by either Party under this Agreement shall be brought in the state courts of Tarrant County, Texas, and each Party irrevocably submits to the exclusive personal jurisdiction and venue of such courts for the purpose of any such suit, action or proceeding and hereby irrevocably waives any claim that any such suit, action or proceeding in such courts has been brought in an inconvenient forum.
- 25.6 **Press Release/Publicity.** Neither Party hereto shall use the name or any trade name of or otherwise refer to the other Party or any of its Affiliates, directly or indirectly, in any advertisement, news release or professional or trade publication without receiving prior written approval from such other Party.
- 25.7 **Remedies.** Except as expressly set forth herein, no remedy conferred upon or reserved to a Party herein is intended to be exclusive of any other available remedy or remedies, but each and every such remedy shall be cumulative and in addition to every other remedy given under this Agreement or now or hereafter existing at law, in equity or otherwise. Except as expressly set forth herein, no delay or omission to exercise any right or power accruing upon any default shall impair any such right or power or be construed to be a waiver thereof, but any such right and power may be exercised from time to time and as often as may be deemed expedient. In order to entitle a Party to exercise any remedy reserved to it in this Agreement, it shall not be necessary to give any notice other than such notice as may be herein expressly required.
- 25.8 **Savings Clause.** If any provision of this Agreement is declared unlawful or unenforceable as a result of final administrative, legislative or judicial action, this Agreement shall be deemed to be amended to conform with the requirements of such action and all other provisions hereof shall remain in full force and effect.
- 25.9 **Waiver.** No failure or delay by either Party in requiring strict performance of any provision of this Agreement, no previous waiver or forbearance of any provision of this Agreement by either Party and no course of dealing between the Parties shall in any way be construed as a waiver or continuing waiver of any provision of this Agreement.

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- 25.10 **Final Agreement.** With the sole exception of Section 3 of Amendment One to the Pre-Apollo Agreement, which shall survive execution and delivery hereof, this Agreement replaces and supersedes the Prior Agreements in their entirety, constitutes and represents the final agreement between the Parties as to the subject matter hereof and may not be contradicted by evidence of prior, contemporaneous or subsequent oral agreements of the Parties. There are no oral agreements between the Parties. This Agreement may be amended in whole or in part only in a writing signed by both Parties. Notwithstanding the foregoing, the Parties agree that, to the extent one or more of the Prior Agreements includes a subject or concept that is neither implicitly nor explicitly addressed herein and also had not been determined to be unnecessary to include herein within the context of negotiations, the Parties will use commercially reasonable efforts to handle, to the extent necessary, such subject or concept consistent with the Prior Agreements.
- 25.11 **Interpretation.** The section headings herein are for convenience of reference only and are not intended to define or aid interpretation of the text hereof. The words “include,” “includes” or “including” (or similar terms) are deemed to be followed by the words “without limitation.” The words “hereof,” “herein” and “hereunder” and words of similar import, when used in this Agreement, refer to this Agreement as a whole and not to any particular provision of this Agreement. The definitions contained in this Agreement are applicable to the other grammatical forms of such terms.
- 25.12 **Counterparts.** This Agreement may be executed in counterparts, each of which shall constitute an original but all of which together shall constitute one and the same instrument, and if so executed in counterparts will be enforceable and effective upon the exchange of executed counterparts or the exchange of facsimile transmissions of executed counterparts.
- 25.13 **Survival.** Notwithstanding anything herein to the contrary, any sections or portions of any sections of this Agreement (including the Exhibits hereto) that by their express terms survive, or by their nature should survive, expiration or termination of this Agreement shall survive such expiration or termination.
- 25.14 **[***].**
- 25.15 **Additional Releases.** The Parties agree that the inclusion of the [***] Section 1.1 of **Exhibit D** shall be in full satisfaction of any and all claims or remedies, existing as of the Effective Date, that:
- 25.15.1 American may have against Gogo under Section 5.1.2 of the Apollo Agreement, and upon execution of this Agreement, American shall be deemed to have irrevocably released Gogo from any and all such claims and remedies under Section 5.1.2 of the Apollo Agreement, whether known or unknown, at law or in equity; and
- 25.15.2 Gogo may have against American under Section 20.17 of the Apollo Agreement, and upon execution of this Agreement, Gogo shall be deemed to have irrevocably released American from any and all such claims and remedies under Section 20.17 of the Apollo Agreement, whether known or unknown, at law or in equity.

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Neither this Section 25.15 or anything else contained in this Agreement, nor any action taken by either Party in performance of its obligations hereunder, shall be construed either as evidence of the validity of any claims or remedies by either Party against the other in connection with Section 5.1.2 or 20.17 of the Apollo Agreement or as an admission of the same by either Party.

[Signature page follows]

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IN WITNESS WHEREOF, the Parties have executed and delivered this Agreement as of the Effective Date.

GOGO LLC

AMERICAN AIRLINES, INC.

By: /s/ Michael J. Small

By: /s/ Robert Isom

Name: Michael J. Small

Name: Robert Isom

Title: President and CEO

Title: President

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[Signature Page to the Unified In-Flight Connectivity Hardware, Services and Maintenance Agreement]

**Exhibit A:
Fleet Types**

[***].

**Exhibit B:
Equipment and Lead Times**

1. ATG4 Solution: ATG4 Mainline Fleet

[***].

[***].

[***].

[***].

[***].

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[***].

[***].

[***].

[***].

2. ATG Solution: Retiring Mainline Fleet

[***].

[***].

[***].

[***].

[***].

3. ATG Solution: Regional Jet Fleet and Retiring E190 Fleet

All regional jets:

[***].

4. 2Ku Solution: 2Ku Fleet

[***].

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**Exhibit C:
Specifications**

This **Exhibit C** describes the Specifications related to the Equipment and Software included in the ATG Solution, ATG4 Solution and the 2Ku Solution to be provided by Gogo.

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C-1

**Exhibit C-1:
2Ku Solution Equipment Specifications**

The 2Ku Solution is comprised of the in-cabin network, which includes the ACPU-2 Server and acWAP access points, and the SATCOM system, which includes the radome, adapter plate, fairing, Tx antenna, Rx antenna, KANDU, KRFU and ModMan.

1. ACPU-2 Server

Table C-1. ACPU-2 Specifications

[***].

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Table C-2. acWAP Specifications

[***].

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Table C-3. In-Cabin Network DO-160 Qualification Categories

[***].

Table C-4. acWAP DO-160G, Section 4.5.3, Cat. A4 Exceptions

3. Wi-Fi Antennas

Table C-5. Wi-Fi Antenna Specifications

[***].

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4. PCS Antenna

Table C-6. PCS Antenna Specification

[***].

5. SAVCL

Table C-7. SAVCL Specification

[***].

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Table C-8. 2Ku Solution Characteristics

[***].

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7. 2Ku Solution: SATCOM Size, Weight and Power
LRU size, weight and power are tabulated below.

Table C-9. 2Ku Size, Weight and Power (Twin-Aisle)

[***].

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Table C-10. 2Ku Size, Weight and Power (Single-Aisle)

[***].

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**Exhibit C-2:
ATG4 Solution Equipment Specifications**

Table C-11. ATG4 Solution LRU Specifications

[***].

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**Exhibit C-3:
ATG Solution Equipment Specifications**

Table C-12. ATG Solution LRU Specifications

[***].

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**Exhibit D:
Commercial Pricing**

1. Equipment, Certification and NRE

1.1. Shipset Pricing – 2Ku Solution

[***].

1.2. Shipset Pricing – ATG Solution/ATG4 Solution

[***].

1.3. Shipset Pricing by LRU – Regional Jet Fleet and Retiring E190 Fleet

[***].

1.4. Certification

[***].

1.5. Installation

1.5.1. Installation of 2Ku Solution if performed by Gogo during the term applicable to the 2Ku Fleet:

[***].

1.5.2. Installation of ATG4 Solution

[***].

1.5.3. Additional Installation Site Support

If American requests additional support beyond the number of installations as set forth in Section 6.4 of **Exhibit E**, the following prices shall apply. [***].

Inside United States: \$[***].

Outside United States: \$[***].

1.6. Warranty, Maintenance and Spares

[***].

[***].

1.7. Other NRE

1.7.1. Additional engineering services available upon completion of an SOW.

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Unless otherwise stated, the base hourly rate for NRE shall be [***].

2. Passenger Services

2.1. Passenger Connectivity Services

2.1.1. Revenue Share Model

[***].

2.1.2. Affiliate Fee

[***].

2.1.3. [***]

2.1.3.1. Connectivity Services – 2Ku Solution:

[***].

[***]. Reasonable changes required to the Portal to accommodate such a promotion will be performed by Gogo[***].

2.1.3.2. Next Generation ATG Connectivity Services:

The table in Section 2.1.3.1 of this **Exhibit D** outlines “not to exceed” single segment session-based pricing from Gogo to American for Next Generation ATG Retrofit A/C. American shall retain [***] of User session revenue, net of any taxes collected on the sale of sessions pursuant to Section 15 of the Agreement.

2.1.3.3. Connectivity Services – ATG Solution/ATG4 Solution:

[***], session-based pricing from Gogo to American shall be as shown in the table below. American shall retain [***] of User session revenue, net of any taxes collected on the sale of sessions pursuant to Section 15 of the Agreement. [***].

2.1.4. Non-session-based passenger MB usage (assumes Passenger Grade):

2.1.4.1. Retrofit A/C equipped with 2Ku Solution: \$[***]

2.1.4.2. Retrofit A/C equipped with ATG Solution or ATG4 Solution: \$[***]

2.2. Wireless Entertainment

The following sets forth the pricing for Wireless Entertainment as described in **Exhibit L**.

2.2.1. Wireless Entertainment hardware consists of a SAVCL.

- SAVCL for the Regional Jet Fleet: \$[***]
- SAVCL for Retiring E190 Fleet: \$[***]

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- Initial USB sticks: \$[***]
- Fees for lost USB sticks are described in Section 2.2.5 of this **Exhibit D**.

2.2.2. Activation Fees:

Upon activation of Wireless Entertainment on the Regional Jet Fleet and Retiring E190 Fleet: \$[***]

2.2.3. Monthly Service Fee (MSF)

[***]

Note: MSF includes Video Content processing and DRM, storage and management of the video library and masters, quality assurance, batching, replicating media onto USB sticks and shipping.

2.2.4. Transaction Fees

[***].

There is a monthly minimum requirement of [***]. In the event a particular tail does not reach the [***] View minimum, Gogo will charge American at a rate of \$[***] for each movie View short of the minimum, and such Views will be included in the Wireless Entertainment Take Rate in clause (i) of the paragraph below.

[***].

2.2.5. Other/Miscellaneous

At any time after [***], American may opt to move to a [***] content cycle. The cost of moving to a [***] content cycle will be a [***] increase in the per tail MSF.

Lost USB sticks not returned to Gogo by AA:

First 10%: \$[***]

Above 10%: \$[***]

Sticks are counted on a per-cycle basis. In a [***] cycle, Gogo will count the returned sticks from a content batch [***] after such batch of sticks were sent out. By way of example, if a [***] batch contains five hundred (500) USB sticks, and if only four hundred forty (440) of these sticks are returned as of [***], then Gogo will [***]. In the event that American migrates to a [***] content cycle, the returned sticks would be counted [***] after the batch was sent out.

2.2.6. November and December 2016 Content Licensing Reimbursement

With respect to the period between November 1, 2016 and December 31, 2016, [***].

2.3. [***]

2.3.1. One-time setup fees per channel \$[***]

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2.3.2. Channel transport [***]

2.3.3. [***]:

3. Miscellaneous Services

3.1. Operational Applications and Data Rates

3.1.1. Passenger Grade Operational Data:

- Retrofit A/C equipped with 2Ku Solution: \$[***]
- Retrofit A/C equipped with ATG Solution or ATG4 Solution: \$[***]

3.1.2. Non-Passenger Grade data (Subject to SOW)

3.1.3. Other (SSID creation, platform or application management) (Subject to SOW)

3.2. Customer Care and Passenger Account Management

Multi-language customer care services shall be available 24x7x365 to passengers in need of assistance related to Connectivity Services, Wireless Entertainment and [***] offered by Gogo via email, phone and real-time chat.

Passenger account management includes: (i) setting up and maintaining User accounts, (ii) billing Users for services rendered, (iii) processing of credit cards and other forms of payment, (iv) subscription billing, (v) User invoicing, and (vi) security associated with User billing data. Passenger account management is required for real-time chat.

[***]

3.3. Portal Management — Advertising, Ad-Serving, Sponsorships and Whitelisting

[***]

3.4. Portal Customization

[***] Portal customization and associated pricing will be set forth in an SOW, inclusive of the description in Section 1.4 of **Exhibit M**.

3.5.

[***].

3.6. Subscriptions

[***].

3.7. Roaming and Other Partner Relationships

3.8. [***]Promotional Offerings

[***]

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**Exhibit E:
Gate-to-Gate Connectivity**

Gate-to-Gate Services

1. General

- 1.1. Connectivity Services, Wireless Entertainment and [***] shall be available “Gate-to-gate” for the 2Ku Fleet. Connectivity Services shall also be operational during maintenance activities when the Retrofit A/C is powered on, subject to the Gate-to-gate Exclusions in **Exhibit J**.
- 1.2. The 2Ku SLA metrics will start and stop upon the Equipment receiving uniquely identifiable triggers. The 2Ku Solution is designed to utilize the anti-collision beacon discrete as the uniquely identifiable trigger, or alternatively the door discrete may be utilized. American may select an alternative option as provided in the diagram in this **Exhibit E** at a not-to-exceed cost of [***], which shall be delivered by the later [***] after American’s request in writing to proceed with such alternative option. The not-to-exceed price and aforementioned timeline are confined to the following areas of development: (i) customize Gate-to-gate software to utilize FMC data event to indicate start of flight, (ii) customize Gate-to-gate software to minimize customer impact (i.e., auto-resume of session) during foreseen “return to gate” scenarios, and (iii) customize Gate-to-gate software to utilize a door open discrete plus a configurable timer to indicate end of flight.
- 1.3. The System shall be configured such that the ground period (i.e., gate and taxi) can be differentiated from the en route period, including for purposes such as reporting and collecting applicable taxes.
- 1.4. Subject to the applicable Exclusions in Section 4 of **Exhibit J-1**, operational SSIDs will be broadcasting, and Connectivity Services to such operational SSIDs will be available at all times “without user intervention” as long as power is supplied to the Equipment, flight deck switches are in the “on position,” and the Equipment and Software are receiving IRU data.
- 1.5. American and Gogo agree that the Gate-to-gate service scenario may need to be adjusted if the aircraft OEM imposes additional constraints on Equipment operations or if laws or regulations impact the provision of such Gate-to-gate services.

[***]

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Exhibit F:
**Entry into Service (EIS) for 2Ku Fleet - Engineering, Certification, Software Development,
Installation, Training and Program Management**

1. Prototype Installation and Certification for the 2Ku Fleet

- 1.1. [***].
- 1.2. Gogo will provide to American, at ITCM, a detailed plan and schedule for installing and [***] for the System aboard each Prototype. American's project manager and the Program Manager shall develop the full ITCM agenda.
- 1.3. Critical Design Review (CDR)

In addition to other CDR requirements and outcomes, Gogo shall have released all installation Documentation by CDR. CDR is face-to-face. Relevant Gogo and American engineering representatives must be on-site.

1.3.1. CDR Gate

The purpose of the CDR Gate is to review that the installation data that is due at the CDR will in fact be ready for the CDR. The CDR will not be held unless American's engineering department determines at the CDR Gate that the data will be ready. CDR Gate is CDR [***]. All installation data is released.

American's engineering department shall have [***] after receipt of the installation data (the "CDR Gate") to review such installation data and determine if such installation data is acceptable. The CDR will not be held unless American's engineering department finds such installation data acceptable, and American's acceptance shall not be unreasonably withheld. American agrees that any installation data submitted by Gogo, which is a part of a previously approved STC for the same Fleet Type, shall be deemed acceptable unless American can substantiate a reasonable technical basis for change(s).

1.3.2. Post-CDR Documentation Review

American's engineering department has [***] after the CDR completion to complete the installation data package review and provide reasonable findings to Gogo. Gogo shall remedy mutually agreed findings within [***] after receipt of American's findings. The Parties agree that reasonable findings shall be corrected unless Gogo can substantiate to American's satisfaction a reason to not incorporate specific remedies, and American's engineering department agrees with the substantiation. American's engineering department shall provide acceptance in writing of installation data package to Gogo within [***] of submittal by Gogo of Gogo's response.

- 1.4. If Gogo performs the touch labor, Gogo anticipates the Prototype installation to span [***] for each Fleet Type to be equipped with the 2Ku Solution; provided that Gogo has adequate access to the applicable Aircraft throughout such period.
- 1.5. If Gogo performs the touch labor and Gogo is responsible for a delay that extends the Prototype downtime beyond what was originally planned, [***].
- 1.6. [***].

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- 1.7. Gogo will obtain and provide to American [***] as expeditiously as possible. If Gogo contracts with a third-party supplier for the retrofit design, Gogo shall ensure that the third-party supplier meets American's requirements for design, drawings, modifications, deliverables and response time to American. Excluding [***] delays beyond Gogo's control, Gogo shall make commercially reasonable efforts to meet or beat the following response times:
 - 1.7.1. [***].
 - 1.7.2. [***].
- 1.8. Subject to the agreement of the ODA, Gogo's selected ODA will provide to American a draft of the Certification plan(s). The delivery of the draft plan to American needs to be such that American has [***] to review the Certification plan, Gogo has time to incorporate American's findings and the Certification plan can be submitted to the FAA with sufficient lead time to Prototype induction. Subject to the previous sentence, American shall complete such review within [***] and return comments to Gogo.
- 1.9. Gogo shall provide all instructions for continued airworthiness, including EWIS program changes, to American no later than [***] before planned Prototype induction. Such documents will remain in draft form until such time the STC is issued and shall be accompanied by a letter that describes the proposed changes from draft form to final form.
- 1.10. American may have installation of the System performed by Third Party Suppliers. In any event, and in addition to Gogo's other obligations under this **Exhibit F** and the Agreement, Gogo agrees to provide reasonable installation, design and/or certification support to American and/or any such Third Party Suppliers, including on-site engineering support at the installation site. Such support will be provided [***] and shall include, but not be limited to, such support as is required under the terms of this Agreement and/or as is further set forth at design reviews.
- 1.11. Gogo shall advise American of any and all potential impacts on other systems on Retrofit A/C as set forth in Section 9.1.2 of the Agreement.

2. **Production Aircraft (second Aircraft of each Fleet Type onwards)**

- 2.1. [***].
- 2.2. [***].
- 2.3. During the installation, should Gogo be responsible for a delay that extends the Aircraft downtime beyond what was originally planned based on a schedule provided by American, Gogo agrees to compensate American [***]. If the delay is projected to be more than [***], American may elect to return the Aircraft to service and reschedule the System installation subject to Aircraft availability from American. In such event, the downtime for the initial attempted installation for the subject Aircraft shall be added to the downtime for the rescheduled installation for purposes of applying the first sentence of this Section 2.3 of **Exhibit F** to the rescheduled installation, such that the initial attempted installation and the rescheduled installation are treated as a single installation. For the avoidance of doubt, American's rights and Gogo's obligations under this Section 2.3 of **Exhibit F** are in addition and without prejudice to American's rights and Gogo's

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obligations under Sections 4.2.3, 7.5 and 17.2.8 of this Agreement. With respect to American's general obligation to mitigate damages under this Agreement, to the extent any delay under this Section 2.3 of **Exhibit F** could result from a failed piece of Equipment, American shall attempt to mitigate such delay by taking an equivalent piece of Equipment from another available Shipset. In the event American takes an equivalent piece of Equipment from another available Shipset pursuant to the previous sentence, American shall give Gogo written notice of such event as soon as reasonably practicable, so that Gogo can replace the missing piece of Equipment from the relevant Shipset. To the extent American had a reasonable opportunity to mitigate and/or notify Gogo pursuant to the preceding two (2) sentences of this Section 2.3 of **Exhibit F** and failed to do so, Gogo shall be exempted from any liquidated damages hereunder which could have been avoided if not for such failure.

3. Software

This Section 3 of **Exhibit F** describes the base Software for the System. For further details regarding Content- and Portal-related Software, see **Exhibit I**.

3.1. Software Development and Quality/Testing Cycle

Gogo's Software development cycle is governed by a five (5)-stage PMO process:

P0 – Pre-Initiation (program initiated through Jira PR request)

P1 – Initiation (program business requirements document completed)

P2 – Set-Up (system design and technical requirements complete)

P3 – Development, test and alpha/beta (during testing, System test/acceptance test and airline end-to-end testing included)

P4 – Closure

3.2. Quality and Process Documentation

The following documents are version-controlled and stored in Gogo's Agile document retention database. The most recent versions are available to American for reference when needed via request to the Program Manager.

3.2.1. Gogo maintains a quality manual which outlines the policies, procedures and requirements of the quality management system, which meets appropriate ISO 9001:2008 and AS9115 standards.

3.2.2. Gogo's SQA plan highlights specifics about delivering quality software products and services. The role of the SQA plan is to assist the Program team to continually improve the quality of work products and services. The SQA plan is responsible for establishing processes and procedures that accurately verify and validate the adherence of assigned tasking and related activities to applicable standards, guidelines and procedures. The SQA process is aligned with the internal audit and supplier management processes to ensure coverage of Gogo's quality guidelines from both a Program and process perspective.

3.2.3. Gogo's configuration management plan is a document intended to provide guidelines to successfully implement configuration management policy at Gogo. It describes the activities to be performed to control and maintain design and

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certification documents in support of Aircraft configuration projects. Gogo maintains configuration management to the standards and according to the definitions contained in the Project Management Institute and the American National Standards Institute.

3.3. Testing Facilities

Gogo shall provide one (1) test rack for each unique Retrofit A/C configuration. The test rack(s) shall be located at Gogo's location acceptable to American for the Term. If American expands the scope of this Agreement with additional fleet types that introduce different Gogo hardware configurations, Gogo shall expand test equipment to address these additional hardware configurations. Gogo shall modify the test rack(s) due to System requirements or design changes at no cost to American. Gogo will provide the space, racks and wiring for the test rack for the Term.

- 3.3.1. Gogo will provide a report [***] before Prototype installation that compares the Aircraft BOM and the test rack BOM, and include a technical explanation why differences between the two (2) have no impact on the integrity of testing conducting on the test rack.
- 3.3.2. Gogo will provide descriptions of how Aircraft data sources are simulated.
- 3.3.3. Gogo will perform an internal review of the parts for the test rack to verify that the test rack components, part numbers, quantities and system wiring are accounted for in such rack. Gogo will perform such review on a quarterly basis or as necessary and report its findings to American. Any changes to the System as a result of an MCP that affect the test racks will be incorporated therein. In anticipation of EIS, if any part listed in the pull forward rack identified below is nonfunctional during the pre-ATP, Gogo agrees to resolve by the ATP. If any part listed in the Pull Forward Rack identified below is nonfunctional during the ATP, Gogo agrees to resolve such issue as soon as possible.

3.4. Liquidated Damages For Delinquent or Defective Software

3.4.1. The purpose of this Section 3.4 of **Exhibit F** is to ensure that Software embedded in Equipment is delivered on dock on-time, based on agreed upon schedules and free of defects. Liquidated damages are applied when those conditions are not met based on the terms in this Section 3.4 of **Exhibit F**.

3.4.1.1. [***].

3.4.1.2. [***].

3.4.1.3. [***].

3.4.2. Defect Severity Classification Table

[***]

3.4.3. Occurrence Classification Table

[***]

3.4.4. Software Priority

3.4.4.1. Priority is then defined as a combination of severity and occurrence. For avoidance of doubt, [***].

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3.4.4.2. Once the Software is prioritized, Software release classifications shall be mutually agreed upon between American and Gogo.

3.4.5. Software Release Definitions

3.4.5.1. [***].

3.4.5.2. [***].

3.4.5.3. [***].

3.4.5.4. [***].

3.4.6. Remedies for Initial Software Load Supporting EIS

It is Gogo's responsibility to ensure that the initial mutually agreed Software on-dock date is met by delivery of conforming Software. In the event that the initial Software on-dock date is not met, whether or not as a result of Gogo not timely resolving defects, Gogo shall be responsible for defining a new Software on-dock date and shall further be responsible for the following liquidated damages from the initial Software on-dock date until the date that the conforming Software is on-dock.

- a. Delay of [***] or less: \$[***]
- b. Delay of [***] or less: \$[***]
- c. More than [***]: \$[***]

4. Technical Publications

Gogo will provide technical and maintenance documentation as mutually agreed by the Parties.

5. EIS and Gogo Support

5.1. Gogo will validate System functionality during the support period as described in the table below using two methods of validation: (i) Active Monitoring and (ii) Fly-Along Support. "**Active Monitoring**" means both standard NOC monitoring/alarming and enhanced, proactive, tail-specific and flight-specific analysis performed by Gogo. "**Fly-Along Support**" means support provided by a Gogo technician on-board a Retrofit A/C that is focused on Gogo Service monitoring, System performance and User experience. Both Parties will jointly work to minimize flight testing support requirements.

[***]

5.2. American will assist Gogo to get accommodations on the flights that require Fly-Along Support and use reasonable efforts to minimize the cost to Gogo of such support.

5.3. In fulfillment of Gogo's support commitments set forth in the table in Section 5.1 of this **Exhibit E**, Gogo will provide technicians trained and qualified on American's configuration of the System.

5.4. Gogo will continue its support as set forth in the table in Section 5.1 of this **Exhibit F** until Gogo's performance of applicable Gogo Services meets the resolution/cessation criteria noted for each support type. Gogo and American can mutually agree to stop or extend such support for any support type at any time.

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6. Program Management for EIS

6.1. Dedicated Program Management

- 6.1.1. Gogo will provide, [***], sufficient Program Management Staff to support the contractual obligations outlined in and awarded under this Agreement. During all phases (e.g., service configuration, early deployment and sustaining operations), Gogo will assign [***] dedicated Program Manager for the overall account and also assign functional leads for each major project area of each phase. Gogo shall provide the program management structure, roles and responsibilities during ITCM.
- 6.1.2. The Program Manager's responsibilities are set forth in Section 11.1.1 of the Agreement.
- 6.1.3. Order administration support is set forth in Section 11.1.1 of the Agreement.

6.2. Meetings

- 6.2.1. All major meetings, including but not limited to ITCM, PDR and CDR, shall be held at American's headquarters unless mutually agreed.
- 6.2.2. Gogo should plan to attend meetings, [***], upon American's and/or American's designated third party's request and shall facilitate the participation of all appropriate personnel.
- 6.2.3. Meetings requested where support is required shall include face-to-face meetings, teleconferences and conferences in addition to the ITCM, design reviews, Program reviews and FAIs.
- 6.2.4. Gogo shall be expected to attend these meetings during all stages of the Agreement, at any time from the award of the contract through the Term. Gogo agrees to send relevant subject matter experts to all the meetings.

6.3. Development Program

American and Gogo shall participate in building the overall project schedule and agreeing to the schedule. Gogo shall provide American with the draft of the STC project plan before it is submitted to the FAA, and with sufficient time for American to review, provide feedback to Gogo and for Gogo to make revisions to the STC project plan as appropriate. Gogo's process for developing a certification design will include, but not be limited to, the following activities:

- 6.3.1. ITCM: ITCM between commercial, technical, marketing and aviation authority representatives intended to fine tune requirements as necessary.
- 6.3.2. Portal TIM: TIM focusing on Portal requirements and designs.
- 6.3.3. SRR/SDR: Commercial, technical and marketing review of System requirements and proposed System architecture.
- 6.3.4. ICD TIM: Technical team ICD initial review.
- 6.3.5. Services TIM: Initial commercial, technical, marketing team meeting focusing on satellite service provision, marketing planning and customer support.

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- 6.3.6. Aircraft survey: Technical team inspection of Aircraft to be modified and meeting to discuss modification details.
- 6.3.7. PDR: Technical team review of design implementation at a preliminary stage.
- 6.3.8. ICD TIM: Technical team ICD follow-on review.
- 6.3.9. Services TIM: Follow-on commercial, technical and marketing team meeting focusing on satellite service provision, marketing planning and customer support.
- 6.3.10. IPC: Initial provisioning conference to discuss maintenance, overhaul, operation, tooling, spares provisioning and training.
- 6.3.11. CDR: Technical team review of design implementation at a critical stage.
- 6.3.12. FDR: Technical team final review of design implementation and agreement on design data release.
- 6.3.13. TRR: Technical team review of qualification test results, and plans and readiness for acceptance testing and STC.
- 6.3.14. STC: Civil aviation authority presentation of STC.
- 6.4. Installation Site Support (Post-Prototype)
 - 6.4.1. Gogo shall provide .[***].
 - 6.4.2. American and Gogo may mutually agree to cease such Gogo on-site support if American installation teams are trained ahead of [***].
- 6.5. American OSR
 - 6.5.1. [***].
 - 6.5.2. [***].
 - 6.5.3. [***].
 - 6.5.4. [***].

7. Training

- 7.1. Flight Attendant Training:
 - 7.1.1. An interactive computer-based flight attendant training application will be built to support online training sessions, and such application will be compatible with Android operating systems, iMac, iPad, Internet Explorer and Google Chrome. Gogo will complete edits of the interactive application to ensure it matches all new major functionality of the Portal. The Parties will negotiate in good faith to develop an application that is compatible with American's learning management system [***]. A web-based tutorial (i.e., curriculum and lesson) of the same training content as the application shall also be made available by Gogo to American [***].
 - 7.1.2. Flight attendant training: for Purser "train-the-trainer" training, each class will consist of [***]. American may request and purchase additional training based on Gogo's quotes.

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- 7.1.3. Training documents:
 - 7.1.3.1. Operations manual: included in curriculum development
 - 7.1.3.2. Soft copy of the QRG
- 7.1.4. Format of training documents: all training documents are to be provided in print-ready, soft-copy format.
- 7.1.5. Location of training courses: all training courses are to be conducted at a mutually agreed U.S. location unless otherwise stated.
- 7.1.6. Timing of deliverables: so long as American does not make changes to the Software driving delay:
 - 7.1.6.1. All initial training modules shall be delivered to American in their complete form no later than [***] prior to EIS of the applicable Fleet Type.
 - 7.1.6.2. All initial training courses shall be made available to American personnel no later than [***] prior to EIS of the applicable Fleet Type.
 - 7.1.6.3. All initial training documents shall be delivered to American in their complete form no later than [***] prior to EIS of the applicable Fleet Type.
- 7.2. Line maintenance training:
 - 7.2.1. An interactive computer-based line maintenance training application will be used to create online sessions, and such application will be compatible with Android operating systems, iMac, iPad, Internet Explorer and Google Chrome. A web-based tutorial (i.e., curriculum and lesson) of the same training content as the application shall also be made available by Gogo to American [***].
 - 7.2.2. Line maintenance instructor-led training: for American’s “train-the-trainer” training, each class will consist of [***]. American may request and purchase additional training based on Gogo’s quotes.
 - 7.2.3. Training documents:
 - 7.2.3.1. Operations manual: included in curriculum development
 - 7.2.3.2. Soft copy of the QRG
 - 7.2.4. Format of training documents: all training documents are to be provided in print-ready, soft-copy format.
 - 7.2.5. Location of training courses: all training courses are to be conducted at a mutually agreed U.S. location unless otherwise stated.
 - 7.2.6. Timing of deliverables: so long as American does not make changes to the Software driving delay:
 - 7.2.6.1. All initial training modules shall be delivered to American in their complete form no later than [***] prior to Entry-Into-Service.

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- 7.2.6.2. All initial training courses shall be made available to American personnel no later than [***] prior to Entry-Into-Service.
- 7.2.6.3. All initial training documents shall be delivered to American in their complete form no later than [***] prior to Entry-Into-Service.
- 7.3. Engineering training:
 - 7.3.1. An interactive computer-based engineering application will be used to create online sessions, and such application will be compatible with Android operating systems, iMac, iPad, Internet Explorer and Google Chrome. A web-based tutorial (i.e., curriculum and lesson) of the same training content as the application shall also be made available by Gogo to American [***].
 - 7.3.2. Engineering instructor-led training: for “train-the-trainer” training, each class will consist of [***]. American may request and purchase additional training based on Gogo’s quotes.
 - 7.3.3. Training Documents
 - 7.3.3.1. Operations manual: included in curriculum development
 - 7.3.3.2. System architecture
 - 7.3.3.3. System operation (from power-on through shutdown)
 - 7.3.3.4. RF operating parameters
 - 7.3.3.5. BITE tool usage
 - 7.3.3.6. Fault isolation manual and tools
 - 7.3.3.7. Unique LRU remove and replace methods
 - 7.3.4. Format of training documents: all training documents are to be provided in print-ready, soft-copy format.
 - 7.3.5. Timing of deliverables: so long as American does not make changes to the Software driving delay:
 - 7.3.5.1. All initial training modules shall be delivered to American in their complete form no later than [***] prior to EIS of the applicable Fleet Type.
 - 7.3.5.2. All initial training courses shall be made available to American personnel no later than [***] prior to EIS of the applicable Fleet Type.
 - 7.3.5.3. All initial training documents shall be delivered to American in their complete form no later than [***] prior to EIS of the applicable Fleet Type.

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**Exhibit G:
Maintenance Services**

During the Warranty Period, the Parties will provide maintenance services as set forth herein. For avoidance of doubt, Gogo will not perform any maintenance on or inside a Retrofit A/C that involves touch labor except as set forth below.

1. Gogo Responsibilities:

- 1.1. [***].
- 1.2. [***].
- 1.3. [***].
- 1.4. [***].
- 1.5. [***].
- 1.6. [***].
- 1.7. [***].
- 1.8. [***].
- 1.9. [***].
- 1.10. [***].
- 1.11. [***].
- 1.12. [***].
- 1.13. [***].
- 1.14. [***].
- 1.15. [***]
 - 1.15.1. [***].
 - 1.15.2. [***].
 - 1.15.3. [***].
 - 1.15.4. [***].

2. American Responsibilities:

- 2.1. [***].
- 2.2. [***].
- 2.3. [***].
- 2.4. [***].
- 2.5. [***].
- 2.6. [***].
- 2.7. [***].
- 2.8. [***].
- 2.9. [***].
- 2.10. [***].
- 2.11. [***].

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2.12. [***].

2.13. [***].

3. **Joint Responsibility:**

[***].

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Attachment 1 to Exhibit G
Gogo Spares for the Retiring Mainline Fleet and ATG4 Mainline Fleet

[***]

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Attachment 2 to Exhibit G
Gogo Spares for the Regional Jet Fleet and Retiring E190 Fleet

[***]

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**Attachment 3 to Exhibit G
Gogo Spares for the 2Ku Fleet**

[***]

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G-5

**Exhibit H:
Services and Systems Overview**

1. List of Services

- 1.1. Gogo maintains a ground network and procures satellite capacity to provide the Gogo Services.
- 1.2. Gogo employs a number of techniques to improve network efficiency that include, but are not limited to techniques outlined below.
 - 1.2.1. [***].
 - 1.2.2. [***].
 - 1.2.3. [***].
 - 1.2.4. [***].
- 1.3. Gogo shall implement and manage a Portal consistent with the requirements and timelines set forth in **Exhibit I**.
- 1.4. [***].
- 1.5. [***].
- 1.6. [***].
- 1.7. [***].
- 1.8. [***].
- 1.9. [***].
- 1.10. [***].

2. Architecture Standards and Descriptors

- 2.1. [***].
- 2.2. [***].

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**Exhibit H-1:
2Ku System Definition Document (SDD)**

1. Scope.

This **Exhibit H-1** shall provide a high-level overview of the System functions for the airborne and terrestrial systems. If more detail is needed, please refer to Section 2 of this **Exhibit H-1**. The goal of the **Exhibit H-1** is to inform a technical audience of primary functions and their relative locations within the System.

2. Applicable Documents.

The documents in this **Exhibit H-1** form a part of this specification to the extent specified herein. Unless a specific issue or revision is listed, the referenced documents shall be of that issue or revision in effect on the date of this specification. Except for mandatory changes required by applicable law, in the event of a conflict between the documents referenced and the contents of this specification, the contents of this specification shall apply.

3. Government Documents.

Gogo shall follow all applicable regulations necessary for STC approval, and shall provide all documentation necessary for the approval of the STC, including approvals to be granted by the FAA, ANAC, ANATEL, INFRAERO and any other government and non-government authorities as necessary. Gogo shall also obtain the necessary approvals from the FCC and other telecommunications authorities, as required and applicable.

4. Acronyms, Conventions and Glossary.

AAA	Authentication, Authorization, and Accounting
ABS	Aircell Broadband Services
AC	Advisory Circular
ACPU-2	ABS Control Processor Unit 2 nd Generation
ANSI	American National Standards Institute
ARINC	Aeronautical Radio Inc.
BTS	Base Transceiver Station
BUC	Block Up Converter
CALEA	Communications Assistance for Law Enforcement Act
CFR	Code of Federal Regulations
CLI	Command Line Interface
CSMA/CD	Carrier sense multiple access with collision detection
CWAP	Cabin Wireless Access Point
DHCP	Dynamic Host Configuration Protocol
ESD	Electrostatic Discharge
FAA	Federal Aviation Administration
FAR	Federal Aviation Regulations
FMU	Fuselage Mounted Unit
GB	Giga Byte
GHz	Giga Hertz
HALT	Highly Accelerated Life Testing
HTTP	Hyper Text Transfer Protocol
HPA	High Power Amplifier
Hz	Hertz
IEEE	Institute of Electrical and Electronics Engineers
IPC	The Institute for Interconnecting and Packaging Electronic Circuits
IPv4	Internet Protocol version 4

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IPv6	Internet Protocol version 6
KANDU	Ku-band Aircraft Networking Data Unit
KRFU	Ku-band Radio Frequency Unit
Ku	Band is primarily used for satellite communications (12-18 Ghz)
LED	Light Emitting Diode
LRU	Line Replaceable Unit
MAC	Media Access Control
ModMan	Modem and Manager
MS	Media Server
LAN	Local Area Network
MCU	Modular Concept Unit
MIB	Management Information Base
MIL	Military
MTBF	Mean Time Between Failures
NOC	Network Operations Center
NWAP	802.11n Cabin Wireless Access Point
OAE	Outside Antenna Equipment
PPP	Point to Point Protocol
PSD	Power Spectral Density
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RFC	Request For Comment
RH	Relative Humidity
RMS	Root Mean Squared
RTCA	Radio Technical Commission for Aeronautics
SNMP	Simple Network Management Protocol
SSPA	Solid State Power Amplifier
TBD	To Be Determined
TFTP	Trivial File Transfer Protocol
TPED	Transmitting Personal Electronic Device
USB	Universal Serial Bus
VAC	Volts Alternating Current
VDC	Volts Direct Current
VGA	Video Graphics Array
VICTS	Variable Inclination Continuous Transverse Stub (antenna)
VLAN	Virtual LAN
WAP	Wireless Access Point

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Network Architecture

[***].

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Network Overview

[***].Aircraft Architecture Overview

[***].**ACPU-2**

[***].

Cockpit Switch

[***].

acWAP

[***].

802.11 and PCS Antennas

[***].

KANDU

[***].

ModMan

[***].

KRFU

[***].

Rx Antenna / Tx Antenna

[***].

Radome

[***].

SAVCL:

[***].

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[***].ACPU

[***].

AACU

[***].

CWAP (or WAP)

[***].

Cabin 802.11 and Flight Deck Handsets (where applicable)

[***].

ATG EV-DO Antennas

[***].

Terrestrial EV-DO and GPS Antenna

[***].

802.11 Antenna

[*]Exhibit H-3:
ATG4 System Definition Document (SDD)**

Introduction

[***].

Gogo Terrestrial Network Overview

1. [***].

Gogo Airborne Subsystem Overview

[***].

ACPU

[***].

AACU

[***].

ATG4000

[***].

CWAP (or WAP)

[***].

Cabin and Flight Deck Handsets (where applicable)

[***].

ATG EV-DO Antennas (ATG Antennas)

[***].

Terrestrial EV-DO Antenna (TM Antenna)

[***].

802.11 Antenna

[***].

Aircraft IP Network Design

[***].

WAP Radio and Antenna Design Principles

[***].

Gogo Airborne Subsystem Flight Cycle

[***].

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**Exhibit I:
Portal, Advertising, Content Management and Marketing Activities**

This **Exhibit I** describes the Portal guidelines and the Portal-related operational responsibilities of both American and Gogo. [***].

1. PORTAL REQUIREMENTS UNDER ALL MODELS

1.1. WHITELISTED SITES

[***].

Table I-1

[***]

1.2. PORTAL CONTENT MANAGEMENT:

[***].

The Portal management changes set forth in this Section 1.2 of **Exhibit I** will be consolidated together and carried out per the change frequency noted in the table. [***].

[***].

1.3. AMERICAN AND GOGO MARKS

Rights in Marks. Gogo acknowledges that the American Marks shown on brand.aa.com are the property of American and the only Marks owned by American that may be used by Gogo in marketing and promoting, and that upon expiration or termination of this Agreement, Gogo will immediately cease use of such Marks. American acknowledges that the Gogo Marks to be provided to American from time to time are the property of Gogo and the only Marks owned by Gogo that may be used by American in marketing and promoting Gogo Services and that upon expiration or termination of this Agreement, American will immediately cease use of such Marks. From time to time, American will provide Gogo with limited access to the American's Brand.aa.com web site to obtain digital renditions of the American Marks. Except as expressly set forth in the Agreement, no right, property, license, permission or interest of any kind in or to the Marks owned by either Party is or is intended to be given or transferred to or acquired by the other Party by the execution, performance or non-performance of this Agreement or any part hereof.

Each Party agrees that it shall in no way contest or deny the validity of, or the right or title of the other Party in or to its Marks, and shall not encourage or assist others, directly or indirectly, to do so during the Term and thereafter. Neither Party will take actions that are adverse to the other Party's ownership rights in or to its Marks, nor shall either Party intentionally utilize the other Party's Marks in any manner that would diminish their value or harm the reputation of the other Party. Neither Party shall use or register any domain name that is identical to or confusingly similar to any of the other Party's Marks.

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In addition, each Party agrees that it shall not intentionally, without the other Party's prior written approval: (i) alter the other Party's Marks in any way; (ii) use any partial Marks of the other Party or fragments thereof; (iii) display the other Party's Marks without the appropriate trademark designation, as specified by the other Party; (iv) superimpose any image or content upon the other Party's Marks; or (v) purchase, use or register any domain names or keywords or search terms that are identical or similar to, or contain (in whole or in part), any of the other Party's Marks.

- 1.4. **Approval of Promotional Materials; Graphics Standards.** Each Party shall submit to the other Party for review and approval, at least [***] prior to publication or use, the portion of any and all artwork, scripts, copy, advertising, promotional materials, direct mail, press releases, newsletters or other communications or any other publicity published or distributed by the first Party (or at its direction or authorization) that uses any trademark, service mark, logo or trade name of the other Party or any of its Affiliates (other than any text-only non-stylized names). All such promotional materials shall follow the style guidelines of the applicable Party, including any requirements for disclaimers or tag lines indicating registered trademarks, and each Party may modify its style guidelines from time to time in its sole discretion. The Party from whom approval is requested will respond to the requesting Party within [***] days of the request, and approval with respect to uses of American Marks may be withheld in the sole discretion of American.

1.5. **DEFINITIONS**

- 1.5.1. [***].
- 1.5.2. [***].
- 1.5.3. [***].
- 1.5.4. [***].
- 1.5.5. [***].
- 1.5.6. [***].
- 1.5.7. [***].
- 1.5.8. **"Internal Portal Page"** means any Portal page excluding the Splash Page[***].
- 1.5.9. **"Media Rate Card"** is a [***].
- 1.5.10. [***].
- 1.5.11. [***].
- 1.5.12. **"Splash Page"**: the initial Internet user page which is displayed when a passenger's PED senses the availability of Internet connectivity on a Retrofit A/C. This page contains advertising and general airline information and provides a link to the Purchase Path Page. The Splash Pages will indicate the service provider. [***].
- 1.5.13. [***].

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2. **Phase 1: PORTAL REQUIREMENTS [***]**

2.1. **GENERAL**

This Section 2 of **Exhibit I** sets forth the agreement of the Parties with respect to the Portal and related operational activities [***].

2.2. **CERTAIN GOGO OBLIGATIONS.**

- 2.2.1. **Advertising.** Gogo will seek and establish relationships with Gogo Advertisers and Content providers, negotiate fees and Content, collect and analyze User activity related to ads, and collect revenues for Gogo Advertiser ads.
- 2.2.2. **Format and Management of Content and Ads.** Gogo will format ads for display on the Portal and manage the Content in cooperation with American.
- 2.2.3. **Hosting and Infrastructure.** Gogo will be solely responsible for hosting the database used to store, deliver and track impressions and click-throughs of ads and other Content. Gogo will have the right to outsource such services to a service provider. [***].
- 2.2.4. **Reporting.** At the conclusion of the ad campaign, Gogo will provide a report to American containing statistics reasonably relevant to establishing: ([***]).
- 2.2.5. **Approvals.** Gogo will use reasonable efforts to promptly review any matters submitted to it for approval. Gogo's approval will not be unreasonably withheld, delayed or conditioned. Except as otherwise provided herein, [***]. Gogo will work with American to seek approval for ads it negotiates for the Portal. With respect to advertising on the Portal, Gogo will notify American prior to engaging advertisers listed in the American preferred partners list, which has been provided to Gogo prior to the Effective Date and will be updated in writing from time to time.

2.3. **CERTAIN AMERICAN OBLIGATIONS.**

- 2.3.1. **Advertiser and Content Provider Relations.** American will seek and establish relationships with American Advertisers and Content providers, negotiate fees and Content, and collect revenues for American Advertiser ads.
- 2.3.2. **Technical Support.** American will [***] make available to Gogo reasonable and appropriate resources of American (or its Affiliates) or its contractors for consultation and design and integration of Content and ads into the Portal. American will deliver any Content and ads sourced by American to Gogo in the formats reasonably designated by Gogo.
- 2.3.3. **Reporting.** At the conclusion of the ad campaign, American will provide a report to Gogo containing information reasonably relevant to [***].
- 2.3.4. **Approvals.** American will work with Gogo to seek approval for ads it negotiates for the Portal. American will use reasonable efforts to promptly review any matters submitted to it for approval. Except as otherwise expressly provided herein, any American approval will not be unreasonably withheld, delayed or conditioned.

2.4. **DISPLAY OF CONTENT AND ADS.**

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- 2.4.1. **Splash Page.** This Section applies to the Splash Page only.
- 2.4.2. **American Sections.** Subject to the terms of this Exhibit I and the Agreement, American will have the right to designate the Content or ads that appear in the American sections of the Splash Page. In the event that American wishes to refresh or change any such Content or ads, American will provide [***] advance notice to Gogo. American will not include any high-bandwidth ads or Content (e.g., audio streaming, video streaming, flash-based ads or Content, or Java-based ads or Content) in the American sections without Gogo's prior written consent. Additionally, American will have the right to designate the Content or ads that appear in the American sections of the Internal Portal Pages.
- 2.4.3. **Style Guidelines.** Each of American and Gogo will adhere to the style guidelines for the other Party's Marks as described in Section 1.4 of this Exhibit I.
- 2.4.4. **Prohibited Material.** Each of American and Gogo will not knowingly provide or display any ads that include any Prohibited Material, and will take reasonable efforts to not include on the Portal any Content that contains Prohibited Material. American and Gogo will have the right to propose reasonable additions to the Prohibited Materials description, by providing written notice of such proposed additions to the other Party; the other Party will have the right to approve such proposed additions (provided that approval will not be unreasonably withheld), and the other Party will use reasonable efforts to comply (as described in this Section 2.4.4 of Exhibit I) with the newly approved description as soon as reasonably possible, but in no case in more than [***].
- 2.4.5. **Content Partners.** Gogo will not include Content on the Portal from a Content partner without American's prior approval of the partner. Gogo will request American's approval of a proposed new Content partner to American no less than [***] prior to proposed date of inclusion of such Content. No later than [***] following its receipt of such request, American will notify Gogo whether the proposed Content partner is acceptable.
- 2.4.6. **Remedies.** If there is Prohibited Material in an ad or Content on the Portal, American may notify Gogo of same. To the extent Gogo discovers or is notified of any Prohibited Material appearing on the Portal, Gogo will, subject to the last sentence of Section 2.4.4 of this Exhibit I, expeditiously remove or block such Prohibited Material.

2.5. **PORTAL ADVERTISING.**

- 2.5.1. [***].
- 2.5.2. [***].
- 2.5.3. [***].
- 2.5.4. [***].

2.6. **MARKETING/PUBLIC RELATIONS ACTIVITIES.**

- 2.6.1. **Independent Activities.** In addition to the joint activities described in Section 8.1 of the Agreement, American or Gogo may conduct such independent marketing activities as it elects in its sole discretion; provided, however, that (i)

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such Party's marketing materials do not contain Prohibited Material, (ii) such Party complies with Section 8 of the Agreement and this **Exhibit I**, and (iii) in the event that Gogo obtains information about a User from such User's registration on a Retrofit A/C and such User has not logged in on another airline or provided information to Gogo through another source, Gogo will not, without the express written approval of American, use such information for any solicitation that refers to any airline other than American by name. The Parties will exchange reports regarding their independent marketing activities at such times and in such formats as they agree upon.

- 2.6.2. **Notice.** For any promotion that expressly references the other Party, or may otherwise impact the other Party, the promoting Party shall provide sufficient notice in writing to the other Party.
- 2.7. **AMERICAN'S MARKETING CHANNELS.**
- 2.7.1. **Other Marketing. [***].**
- 2.7.2. **American's Promotion of Gogo.** American will provide, [***], marketing support as American may so deem necessary to promote Gogo Services on Retrofit A/C, which shall be solely through American's advertising channels and subject to American's terms and conditions.
- 2.8. **DISPUTE RESOLUTION UNDER THIS EXHIBIT.** If a provision in this **Exhibit I** provides that the Parties will work together or will agree on a certain question, the Parties will negotiate in good faith to resolve any disputes. If the Parties cannot come to agreement regarding any disputes under this **Exhibit I**, the dispute will be resolved in accordance with the dispute resolution provisions in Section 25.5 of the Agreement.

3. PHASE 2: PORTAL REQUIREMENTS [***]

3.1. General

This Section 3 of **Exhibit I** sets forth the agreement of the Parties with respect to the Portal and related operational activities [***]. The Parties agree that success of the Connectivity Services will be dependent on creating passenger awareness of the Connectivity Services on Retrofit A/C. [***]. The specific roles and responsibilities related to each marketing function are set forth in this Section 3 of **Exhibit I**.

3.2. Advertisements

3.2.1. [***].

3.2.2. Gogo shall be responsible for the technical integration of advertisements into the Portal and Splash Page. If American sells advertisements, [***]. If Gogo sells advertisements, [***]. Any other advertising services beyond technical integration provided by Gogo and not included in Section 2.5.3 of this **Exhibit I** will be quoted separately and mutually agreed upon by the Parties. On Retrofit A/C equipped with the ATG Solution or ATG4 Solution, whitelisted sites may be limited if the Parties reasonably believe that such sites may adversely impact the network and the customer experience. [***]. The Purchase Path Pages will not contain any Gogo advertisements, opt-in links (except as required by applicable law or as otherwise necessary to fulfill Gogo's obligations under this Agreement) or customer solicitations. For the avoidance of doubt, Gogo shall notify American if Gogo believes any opt-in links are necessary and shall obtain American's

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consent prior to placing any such links on the Portal or Purchase Path Pages, which consent shall not be unreasonably withheld. American reserves the right to place advertisements, opt-in links or customer solicitations on the Purchase Path Pages, Splash Pages and Portal pages. Notwithstanding the previous sentence, if Gogo reasonably believes that advertisements or other such solicitations on the Purchase Path Pages are creating a barrier to Users in purchasing a session, then the Parties will meet to discuss and work together in good faith to find a way to remedy such barrier.

3.3. **Promotions/Sponsorship**

Promotions and Sponsorships are limited duration offers such as free or reduced rate Internet access. American may offer promotions based on time period, routes, specific audiences, flight segments, applications or other factors. Joint Sponsorships suggested by either Party will be considered by American and subject to regulatory requirements. Promotional price changes may be addressed via vouchers/promotion codes, Portal changes or any other methods as the Parties agree. When applicable, Gogo will provide American with a range of voucher/promotion codes/numbers. American can then utilize such vouchers/promotion codes/numbers for offering its promotions or discounts to its passengers over a specified period of time. American reserves all rights to change and/or modify the elements regarding promotions and Sponsorships.

3.4. **Branding, Splash Page and Purchase Path Pages**

Branding, including formatting, design, content, logos and product name are the responsibility of American. Terms and conditions related to rights in trademarks, logos and Content are described more fully in Sections 1.3, 2.2, 2.3 and 2.4 of this **Exhibit I**. The Splash Page design will be at the discretion of American. Subject to the following, the design of the Purchase Path Page will be branded for American. The goal is to provide American maximum area for its branding. Gogo shall adhere to American branding guidelines in design and implementation of Portal pages, based on commercially and technically reasonable terms. In the event American requests changes to the Splash Page or Purchase Path Pages that require material development or resources, then such terms will be outlined and agreed in detail in an SOW.

3.5. **Bundling and Merchandising**

Bundling and merchandising refers to the combining and advertising of multiple American products as defined by American including, but not limited to, the purchase of Gogo provided in-flight Internet access, early boarding passes, upgrades and similar products at aa.com (i.e., pre-sale transactions). Gogo will work collaboratively with American to establish and improve processes related to electronic sales of Internet access. In the event supporting American's processes require material development or resources, such terms will be outlined and agreed in detail in an SOW.

3.6. **Pricing Control**

[***]. If requested by American, Gogo will make a good faith, reasonable effort to develop and implement additional and/or different pricing structures above and beyond price and rule changes, as outlined and agreed in detail in an SOW.

3.7. [***]

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The Parties will determine whether to [***] and if so, will work in good faith to implement such agreed solutions. The rules for the expiration of the [***] will be mutually agreed by the Parties.

3.8. **Roaming Partnership**

Gogo will continue to work directly with roaming partners on pricing and roaming agreements. Gogo will be responsible for negotiations with the roaming partner, and Gogo will manage the relationships, activity and invoicing as well as remitting the applicable payments to American as noted in Section 3.7 of **Exhibit D**. American may suggest additional potential roaming partners to be enabled, in which case Gogo shall make commercially reasonable efforts to enter into roaming agreements with such potential roaming partners. In the event such additional relationships are enabled, then as between Gogo and American, such relationships will fall under the same business model as the existing relationships.

In the event American requests to take responsibility for the integration and maintenance of the roaming relationships, American shall provide at least [***] written notice of such decision prior to the cutover. Gogo will provide reasonable assistance in facilitating the cutover.

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**Exhibit J:
Service Level Agreement (SLA)**

This **Exhibit J** represents service levels for all Technology Types, while specific service levels are set forth in **Exhibit J-1** for the 2Ku Solution and **Exhibit J-2** for the ATG Solution and the ATG4 Solution. As improvements are made to the ATG Solution and ATG4 Solution architecture (i.e., Next Gen ATG), Gogo shall improve the SLA metrics and reporting requirements associated with such improved architecture.

1. General Requirements:

- a. **Exhibits J, J-1** and **J-2** set forth the service levels and other related obligations for the Connectivity Services, Wireless Entertainment and [***] for each Technology Type.
- b. Gogo will make adjustments to the System, including bandwidth/capacity, as necessary, to meet and/or exceed the SLA metrics set forth in this **Exhibit J**.

2. Service Availability Process

- a. In the event there are new protocols to measure network availability, Gogo and/or American shall propose those methods for consideration.
- b. [***].
- c. [***].
- d. [***].

3. Interruption of Service

- a. Change Management
 - i. [***]
 - ii. Gogo agrees to provide a change management notification process that includes the following fields:
 - 1. [***]
 - a. [***]
 - i. [***]
 - ii. [***]
 - b. [***]
 - c. [***]
 - 2. [***]
 - a. [***]
 - b. [***]
 - c. [***]

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- d. [***]
 - e. [***]
 - f. [***]
 - g. [***]
- b. Satellite Out of Service
- i. [***].

4. Customer Care

During the Term, Gogo shall provide problem management and customer care services to American as set forth in this Section 4 of **Exhibit J**:

- a. Problem Management Definitions

[***]

- b. American Customer Care
 - i. [***].
 - ii. [***]
 - 1. [***].
 - iii. [***].
 - iv. [***].

- c. Problem Definition and Resolution

- i. [***].
- ii. [***]

Note: Response times are calculated from the time of notification.

- d. [***]
 - i. [***].
 - ii. [***].
 - iii. [***]:
 - 1. [***].
 - 2. [***].
- e. User Care

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- i. The goal of good customer care is to ensure customer goodwill and repeated use of the Connectivity Services, Wireless Entertainment and [***].
- ii. From the Purchase Path Page, Users will also have access to the following information:
 - 1. [***]
 - 2. [***]
 - 3. [***]
 - 4. [***]
- f. Service Levels to Customer Requests
[***]

5. **Definitions**

- a. **“Downtime”** is defined as unexpected, or unscheduled, downtime or times when the service is expected to be available and is not.
- b. [***].
- c. **“Service Availability”** is defined as the time that the network and system(s) are expected to be operational and available, taking into consideration the applicable Exclusions for each Technology Type.
- d. [***].
- e. [***].
- f. [***].

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**Exhibit J-1:
Service Level Agreement (SLA) for 2Ku Solution**

This **Exhibit J-1** sets forth the capacity modeling and planning, service levels and Exclusions for the 2Ku Solution.

1. Capacity Modeling and Planning

Gogo shall monitor the network in order to ensure that SLA metrics are achieved. Gogo shall utilize a number of processes that are intended to deliver a high level of customer satisfaction.

a. Capacity and Utilization: Satellite and Ground Infrastructure

[***].

b. Network Capacity Measurement and Reporting

i. [***].

ii. [***].

iii. [***].

iv. [***]

1. [***];

2. [***]; and

3. [***].

c. User Bandwidth Consumption Measurement

i. [***].

ii. [***]

1. [***];

2. [***]; and

3. [***].

iii. [***].

d. [***]

i. [***];

ii. [***]; and

iii. [***]

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- e. Network Capacity Evaluation, Satellite and Ground Network
 - i. [***].
- f. Capacity Planning
 - i. [***]
 - 1. [***]
 - 2. [***]
 - 3. [***]
 - 4. [***]
 - 5. [***]
 - 6. [***]
 - 7. [***]

2. **Service Levels**

- a. Availability
 - i. [***].
 - ii. [***].
 - iii. [***].
 - iv. [***]
- b. Associated Remedies
 - i. [***].
 - ii. [***].
- c. Data Rate Guarantees
 - i. [***]
 - 1. [***]
 - a. [***]
 - b. [***]
 - 2. [***]
 - a. [***]

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- b. [***]
- ii. [***]
 - 1. [***]
 - 2. “**ARPA**” means average revenue per aircraft and, for any Measurement Period, is calculated solely with respect to the 2Ku Fleet and equals: (A) the sum of (i) Connectivity Revenue generated during such period net of Connectivity Revenue Share and Affiliate Fees paid or payable by Gogo to American during such period and (ii) per-session fees paid or payable by American to Gogo for Connectivity Services during such period, *divided by* (B) the average number of Retrofit A/C in the 2Ku Fleet on which Connectivity Service is provided during such period (expressed as an average of the month-end Retrofit A/C online count for each month in such period).
 - 3. “**Baseline Period**” means [***]
 - 4. “**Measurement Period**” means [***]
 - 5. [***].
- iii. [***].
- iv. [***].
- v. [***].
- vi. [***].
- vii. [***].
- d. Associated Remedies
 - i. [***]
 - ii. [***]
- e. [***]
 - i. [***]
 - ii. [***]

3. **Wireless Entertainment SLA for the 2Ku Solution**

Wireless Entertainment includes all components required to allow a User to stream video media contained on the server. This includes the server, all video-specific processes running on the server and the CWAPs. [***].

- a. Wireless Entertainment Availability Metrics
 - i. [***].

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ii. [***]

iii. [***].

iv. [***].

b. Wireless Entertainment Service Availability Remedies: [***]

i. [***]

1. [***]

2. [***]

c. Video Content

[***].

i. [***].

1. [***].

2. [***].

ii. [***].

iii. [***].

1. [***].

2. [***].

d. Wireless Entertainment Server Health

[***].

i. [***].

ii. [***]

iii. [***]

4. Exclusions for the 2Ku Solution

[***].

i. [***].

ii. [***].

iii. [***].

iv. [***].

v. [***].

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vi. [***].

5. **SLA for [***]**

[***]

[***]

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**Exhibit J-2:
Service Level Agreement (SLA) for ATG Solution and ATG4 Solution**

This **Exhibit J-2** sets forth the Service Availability, System performance guarantee, background and excess capacity capability, bandwidth and performance guarantees, network latency and metric, packet loss and metric and Exclusions for the ATG Solution and ATG4 Solution.

1. Service Availability Commitment

Gogo shall ensure that the service, network and systems are up and available as set forth in this **Exhibit J-2**.

Service Availability includes the end-to-end network and system(s) that support data communications to and from the Retrofit A/C, which includes, but are not limited to: a) the WAPs on the Retrofit A/C, b) the ATG Solution and ATG4 Solution base-stations, towers and antennas, c) the terrestrial backbone and ground-based infrastructure, and e) Gogo's NOC, up to the ingress/egress gateway(s) to the Internet. Service Availability does not include the Internet or PSTN.

- a. Service Availability is measured using a hybrid model that consists of a "Fleet Model" and an "Aircraft Model."
 - i. [***]
 - [***]
 - ii. [***]
 - 1. [***].
 - 2. [***].
 - 3. [***].
 - 4. [***].
 - 5. [***].
 - 6. [***].
 - 7. [***].
 - 8. [***].
 - iii. [***].
 - iv. [***]
[***].
 - v. [***]

[*].Table J-1**

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[***]

vi. [***]

1. [***]

2. [***].

3. [***].

4. [***].

2. **System Performance Guarantee**

a. [***]

b. [***]

c. [***]

3. **Background and Excess Capacity Capability**

a. [***]

b. [***]

4. **Bandwidth and Performance**

Bandwidth and performance guarantees ensure that Gogo is meeting commitments related to system performance and customer experience. The following parameters are measured and reported per Retrofit A/C/tail number:

a. Measureable parameters for Internet access

i. [***]

ii. [***]

iii. [***]

b. Process

5. **[***]Network Latency and Metric**

[***]

a.

Table J-2

[***]

6. **Packet Loss and Metric**

a. [***]

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b. [***]

Table J-3

[***]

c. Packet Loss Performance Remedy

Table J-4 of this **Exhibit J-2** provides the amount due to American in the event system performance guarantee service levels are not met.

[***]

d. Remedy Payments for Missed Performance Guarantees Service Availability

In the event that the performance guarantees are not maintained based on the metrics set forth in Section 4 of this **Exhibit J-2**, remedies shall be provided or settled between American and Gogo as agreed to in the Agreement.

7. **Wireless Entertainment SLA for the ATG Solution and ATG4 Solution**

Wireless Entertainment includes all components required to allow a User to stream video media contained on the server. This includes the server, all video-specific processes running on the server and the CWAPs.

a. [***]

i. [***].

b. [***]

c. [***].

d. The number of functional CWAPs required depends upon the number of CWAPs equipped on the A/C as shown below.

[***]

e. [***].

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- i. [***]
 - 1. [***]
 - 2. Wireless Entertainment MSF is as set forth in Section 2.2.3 of **Exhibit D**.

[***]

f. Video Content

The metrics in this Section 7(f) of **Exhibit J-2** pertain to the timeliness of updates and completeness of the media files contained on the Wireless Entertainment server.

- i. [***].
 - 1. [***].
 - 2. [***].
- ii. Wireless Entertainment library content means the total number of titles per tail. [***].
- iii. [***].
 - 1. [***].
 - 2. [***].

g. Wireless Entertainment Server Health

The Wireless Entertainment server holds all Video Content and the processes which run on the server used to serve up the Video Content.

- i. [***].
- ii. [***]
- iii. [***].

8. **Exclusions for the ATG Solution and ATG4 Solution**

[***].

9. **[***]Exclusions for Wireless Entertainment**

- a. [***].

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**Exhibit K:
2Ku Usage Reports¹**

1. General:

- 1.1. All reporting shall be subject to any restrictions imposed by applicable law and the Parties' customer privacy policies, as applicable.
- 1.2. Gogo shall provide American visibility into the status and performance of Gogo Services using Dashboards supported by live, near real-time and periodic reports. For the avoidance of doubt, some or all of the reports to be provided by Gogo described herein require information to be provided by American pursuant to Section 10.6 of the Agreement. Gogo's standard Dashboards and reports include the following categories of information:

[***]

2. Definitions

- 2.1. **Dashboard:** A "**Dashboard**" is a data visualization tool that displays the current status of key Gogo Service performance indicators. Dashboards shall include map-based, graphical or tabulated information. Reports shall be delivered through the Dashboard or via file share for less-frequently delivered data.
- 2.2. **Periodic Report:** Periodic reports shall include tabulated or graphical information related to the Gogo Services. Each report will pertain to a specific period of performance. Reports shall be made available to authorized American users online through Gogo's online portal or via email.

3. Connectivity Reporting

- 3.1. Connectivity: Gogo shall provide American access to mutually agreed ad-hoc reports related to Connectivity Services and other operational services including categories marked "Comply" in the Appendix D of the Compliance Matrix and other reports as agreed.
 - 3.1.1. Exclusions: [***].
 - 3.1.2. Maintenance: [***].
- 3.2. Service Availability reporting via the Service Availability and performance analytics tool:
 - 3.2.1. [***].
 - 3.2.2. [***].
 - 3.2.3. [***].

4. Reporting Requirements

- 4.1. Online reports and Dashboards will be browser based. These will primarily be designed for consumption on desktops/laptops, but may be accessed from Internet-enabled smaller/handheld devices.

¹ Usage Reports for ATG and ATG4 aircraft and flights will be delivered as are currently delivered prior to execution of this Agreement as referenced in Section 11.3 of the Agreement.

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- 4.2. Online reports and Dashboards shall be available to American's authorized users only. Gogo will implement reasonable security/access control mechanisms including sign-in with a username/password, periodic reset of password, etc.
- 4.3. Online reports and Dashboards shall provide drill-down capability as needed.
- 4.4. Reports shall be auditable and exportable in various industry standard formats, including, PDF, CSV, Excel, etc.
- 4.5. Any changes requested to Dashboards or reports will follow the MCP process outlined in Section 3.3.6 of the Agreement.

5. **Wireless Entertainment Dashboard**

General. Wireless Entertainment Dashboard: [***]

- 5.1. [***].
- 5.2. [***]
 - 5.2.1. [***]
 - 5.2.2. [***]
 - 5.2.3. [***]
 - 5.2.4. [***]
 - 5.2.5. [***]
 - 5.2.6. [***]
 - 5.2.7. [***]
 - 5.2.8. [***]

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**Exhibit L:
Wireless Entertainment**

This **Exhibit L** is intended to set forth the Parties' respective rights and obligations with respect to Wireless Entertainment. For the avoidance of doubt, except where the context of the Agreement otherwise requires, the equipment, software and services described herein shall constitute Equipment, Software and Wireless Entertainment, respectively, as such terms are defined in the Agreement.

1. Scope

Wireless Entertainment shall provide wireless access to American's onboard Video Content library enabling wireless streaming entertainment services on passenger devices on Retrofit A/C. Wireless Entertainment consists of [***].

2. Features and Functionalities

- [***].
- [***].
- [***].
- [***].
- [***].
- [***].
- [***].
- [***].
- [***].

3. Content Ingestion and DRM Service

Gogo will provide the following services to support Video Content ingestion and DRM services:

Content Ingestion:

- [***].

4. American's Content Responsibilities:

- [***].
- [***].
- [***].
- [***].
- [***].
- [***].

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5. **Gogo's Content Responsibilities**

[***].

[***].

6. **[***]**

[***].

[***].

Figure L-1.

[***]

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**Exhibit M:
Subscriptions and Single Sign-on Common Portal**

1. Subscriptions

- 1.1. [***].
- 1.2. [***].
- 1.3. [***].
- 1.4. [***].
- 1.5. [***].
- 1.6. Pricing as it relates to this Section 1 is outlined in Section 3.6 of **Exhibit D**.

2. [*]**

- 2.1. [***].
- 2.2. [***]
 - 2.2.1. [***].
 - 2.2.2. [***].
 - 2.2.3. [***].
- 2.3. [***]
 - 2.3.1. [***].
 - 2.3.2. [***].
 - 2.3.3. [***].
 - 2.3.4. [***].
 - 2.3.5. [***].
 - 2.3.6. [***].
- 2.4. [***].

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**Exhibit N:
Services and Pricing for American Operational Use**

Gogo has granted American access to Gogo's Air-to-Ground link and the satellite link (individually, a "**Link**" and collectively, the "**Links**") for the purposes of enabling airline business applications. Gogo will work with American to define and implement such airline business applications as American desires to enable over either or both Links, and to designate whether such applications will be deemed Operational Applications or Other Airline Business Applications (as each term is defined in this **Exhibit N**). (a) "**Operational Applications**" means applications that use Passenger Grade Operational Data; (b) "**Passenger Grade Operational Data**" means operational data, originating from application on an American-owned or issued device, which is integrated by American, and will have the same priority and be at least as secure as general passenger use of the Internet and will be entitled to the same network performance, use profile and reliability as such general use; and (c) "**Other Airline Business Applications**" means applications that may require increased levels of security, reliability, priority, integration, hosting, support, performance or use profile beyond Passenger Grade Operational Data, including any machine-to-machine transmissions.

Operational Applications are subject to the associated [***] charge set forth in Section 3.1 of **Exhibit D**. In the event any additional work is required to develop and implement an Operational Application, the Parties will negotiate in good faith and develop an SOW, if necessary. [***].

[***]

In the event that American notifies Gogo that it wishes to use either Link for additional Other Airline Business Applications, American and Gogo will negotiate in good faith and reflect in an SOW: (i) the desired operating and performance characteristics of the application, (ii) the integration services to be provided by Gogo in connection with such application, (iii) the price to be charged by Gogo for such integration service, and (iv) such other terms specific to such applications as the Parties agree upon.

Gogo will work with American and/or third-party providers in good faith to integrate and test, to the extent necessary, Other Airline Business Applications on a timely basis. For the avoidance of doubt, Gogo will not be obligated to increase the certification level of the System. If the normal operation of the System would be negatively affected by the integration of any airline business application under this Agreement, American and Gogo will work together in good faith to ensure that such conflicts are resolved.

In addition to the integration and testing described above, either Gogo or American may develop, independently, jointly or with third parties, airline business applications that may be enabled over the Link(s), although neither Party has any obligation to do so. [***].

Gogo represents and warrants that the Links will have the ability to prioritize data transfer. American and Gogo will work together in good faith to assign priorities that meet American's business requirements without (except as required for safety or medical emergencies) negatively impacting the passenger connectivity experience or Gogo's ability to meet its service level obligations set forth in any applicable SLA described in **Exhibit J**. Gogo will use commercially reasonable efforts to ensure that the delivery of data over the Links is consistent with the agreed-upon priority levels. If the priorities requested by American could impair Gogo's ability to meet its obligations under the applicable SLA, Gogo will, upon American's request, work in good faith with American to revise the applicable SLA; provided, however, that nothing in this **Exhibit N** or the Agreement will require Gogo to agree to or implement any prioritization of airline business applications that, in Gogo's reasonable judgment, could negatively impact the reputation of the Gogo brand or Gogo's ability to meet its obligations under service level agreements with other airlines.

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In the event that Gogo or American enters into a contract with a third party for airline business applications, the contracting Party will ensure the third party is in compliance with all applicable laws, rules, regulations and certifications. Gogo's and American's obligations with regard to compliance are outlined in Sections 9.5 and 10.3, respectively, of the Agreement.

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Exhibit O

[RESERVED]

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**Exhibit P:
Change Request Form**

Master Change Proposal (MCP)

No. _____

Project

Project Stage

Subject of this MCP

This MCP is initiated by:

Reference Document(s)

Scope:

Assumption:

Work covered by this MCP:

Implementation Plan:

MCP Validation

Non-recurring Costs

Labor Rate Used: []			
[Work Type]	X [Labor Hours]	=	\$ _____
[Work Type]	X [Labor Hours]	=	\$ _____
[Work Type]	X [Labor Hours]	=	\$ _____
NRE Total			\$ _____

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Recurring Costs

Per Shipset	\$
Total Shipsets	\$
Total Recurring	\$

Responsibility (%)

Supplier	%
American	%

Weight Impact

Per Shipset	
-------------	--

Schedule Impact

If approved MCP is received by [date], the following schedule will apply.

Work Type	
Work Type	
Time to Perform Change	
Impact to delivery	

Service Bulletin:

Will a service bulletin be required?
(If yes) Completion Date

Yes	No

Change on new deliveries?

--	--

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Approved by **Gogo (Vice President)**

Accepted by **American:**

Gogo Signature:

American Signature:

Date: _____

Date: _____

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Exhibit Q:
Coverage and Regulatory Approval for Technology Types

1. Coverage

General coverage is set forth below:

ATG Solution/ATG4 Solution:

[***].

2Ku Solution:

[***].

Gogo is regularly adding new coverage to its 2Ku network. As new satellites are launched and new agreements executed, the map in Section 1.2 of this **Exhibit Q** will be maintained by Gogo as a representation of its 2Ku coverage and updates will be available to American throughout the Term upon request and with reasonable notice.

1.1. ATG Solution and ATG4 Solution Coverage Area

[***]

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1.2. **2Ku Solution Coverage Area**

[***]

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2. **Regulatory Approval**

As of the Effective Date, regulatory approval has been obtained according to the maps below for each Technology Type.

2.1. **ATG Solution and ATG4 Solution Regulatory Approval**

[***]

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[***]

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Q-4

Exhibit R:
[***]

[***].

Gogo Obligations:

[***]

American Obligations:

[***]

Changes in Scope:

[***]

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**Exhibit S:
Charter Services**

This **Exhibit S** addresses certain flight segments on Retrofit A/C on which American provides charter services for certain professional sports teams, personnel, staff and guests, and other organizations, and wishes to provide the Connectivity Services on the terms described below (each, a “**Charter Flight**”).

1. American Obligations. [***].
2. Gogo Obligations. [***].
3. Pricing and Invoices. [***].
4. Taxes. [***].

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Exhibit T

[RESERVED]

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Exhibit U

[RESERVED]

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Exhibit V:
Proprietary Rights and Data Security Exhibit

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[***].

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Appendix 1

[Attached]

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Appendix 1-1



Requirements Document Summary

Scope Sections	Owners	Requirement Specifications Description
Summary	[***]	RFP Summary
Appendix A1B	[***]	Usage Data Elements
Appendix A1C	[***]	Cabin Crew Requirements
Appendix A2A	[***]	Marketing Connectivity Functional Requirements
Appendix A2B	[***]	Connectivity Graphics
Appendix A2C	[***]	A319 & A320 Bandwidth Allocation
Appendix A2D	[***]	B737 Bandwidth Allocation
Appendix A2E	[***]	A321H & A321S Bandwidth Allocation
Appendix A2F	[***]	Wireless Entertainment Content Sizing
Appendix A3	[***]	WISP Requirements
Appendix B2	[***]	Engineering Technical Connectivity Specifications
Appendix B3	[***]	BITE Data
Appendix B4	[***]	Certification
Appendix C	[***]	Program Management
Appendix D	[***]	SLA and Reporting
Appendix E1	[***]	Core Software Requirements
Appendix E2	[***]	IT Connectivity Requirements
Appendix E3	[***]	Rack Support
Appendix E4	[***]	IT PCI Security
Appendix F1	[***]	Training – Flight Services
Appendix F2	[***]	Maintenance – Training and Spares
Appendix G	[***]	On-Site Representative
Appendix J	[***]	Bidder Capacity Worksheet
Appendix K	[***]	Glossary/Acronyms
Appendix L2D	[***]	A320F Connectivity & Wireless Ent. Antenna Drag and Fuel Burn
Appendix M1	[***]	Connectivity & Wireless Ent. Service Level Availability
Appendix M2	[***]	[***]
Appendix N	[***]	Details of Product Offering
Appendix O	[***]	Technology Roadmap
Appendix P	[***]	Connectivity Coverage & Future Expansion
Appendix R1	[***]	Supported Services
Appendix R2	[***]	Server Specifications (Updated Specs)
Appendix S	[***]	SATCOM Antenna & Radome
Appendix T	[***]	Additional Warranty Details for each product and fleet
Appendix U	[***]	Additional Certification and Design Information
Appendix V	[***]	Additional Reliability Information
Appendix W	[***]	Additional Wireless Entertainment Information

[***]

[***]

[***]



[***]

[***]

[***]

[***]

[***]

[***]

[***]

[***]

[***]

[***]



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1	Acronyms	
2	A/C	Aircraft
3	A/D	Analog-to-digital
4	AA	American Airlines, Inc.
5	AAC	airline administrative communications
6	ABM	Apogee Booster Motor
7	AC	Advisory Circular (FAA publication)
8	AC	Alternating Current
9	ACARS	Aircraft Communications Addressing and Reporting Systems
10	ACARS	airplane communications addressing and reporting system
11	ACARS	ARINC Communication Addressing Reporting System
12	ACAST	Advisory Committee on the Application of Science and Technology to Development (United States)
13	ACC	Antenna Control Console
14	ACD	Automatic Call Distribution
15	ACE	actuator control electronics
16	ACE	Audio Connecting Equipment
17	ACI	Adjacent Channel Interference
18	ACMF	airplane condition monitoring function
19	ACMP	AC-powered electric motor pump
20	ACMS	airplane condition monitoring system
21	ACOS	Attitude and Orbit Control System
22	ACS	Attitude Channel Interference
23	ACTS	Advanced Communication Technology Satellite (USA)
24	ACU	Antenna Control Unit
25	AD	Airworthiness Directive
26	AD	Airworthiness Directive
27	ADA	American Disabilities Act
28	ADA	American Disabilities Act
29	ADACS	Attitude Determination and Control System
30	ADB	Area Distribution Box
31	ADCE	Attitude Determination and Control Electronics
32	ADCN	Advanced Drawing Change Notice
33	ADCN	Advanced Drawing Change Notice
34	ADCS	Attitude Determination and Control Subsystem
35	ADF	automatic direction finder
36	ADI	attitude direction indicator
37	ADK	application development kit
38	ADM	air data module
39	ADM	Adaptive Delta Modulation
40	ADPM	Adaptive Differential Pulse Code Modulation
41	ADS	automatic dependent surveillance
42	ADS-B	Automatic Dependent Surveillance – Broadcast
43	AE	American Eagle Airlines
44	AEEC	American Environmental and Engineering Consultants
45	AEG	Aircraft Evaluation Group
46	AF	Audio Frequency
47	AFC	Automatic Frequency Control
48	AFDC	autopilot flight director computer
49	AFDF	autopilot flight director function
50	AFDS	autopilot flight director system
51	AFETR	Air Force Eastern Test Ranges



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
52	AFF	auto flight function
53	AFM	airplane flight manual
54	AFN	ATS facilities notification
55	AGC	Automatic Gain Control
56	AGL	above ground level
57	A-H	Amp-House; Ampere Hour
58	AHM	Airplane Health Management
59	AHRU	attitude heading reference units
60	AIAA	American Institute of Aeronautics and Astronautics (USA)
61	AIM	Aeronautical Information Manual
62	AKM	Apogee Kick Motor
63	ALT	Altitude
64	AM	Amplitude Modulation
65	AM	Apogee Motor
66	A-MAC	Type A Multiplexed Analog Components
67	AMF	Apogee Motor Firing
68	AMI	airline-modifiable information
69	AMM	Aircraft Maintenance Manual
70	AMM	Airport Moving Map
71	AMR	AMR Corporation, parent company of American Airlines, Inc.
72	AMS	Attitude Measurements Sensor
73	AMSS	Aeronautical Mobile Satellite Service
74	AMT	Aviation Maintenance Technician
75	ANC	Automatic Nutation Control
76	ANP	actual navigation Path
77	ANSI	American National Standards Institute
78	ANTEL	Administración Nacional de Telecomunicaciones
79	AOA	ACARS over avionics / angle of attack
80	AOC	Airline Operational Control
81	AOC	airline operational communications / airline operational control
82	AOD	Audio On Demand
83	AOD	Audio on Demand
84	AOR	Atlantic Ocean Region
85	AOS	Attitude and Orbit Control Subsystem
86	AOTS	Advanced Orbital Test Satellite (ESA)
87	APC	Autonomous Payload Controller
88	APC	Adaptive Predictive Coding
89	APCS	Autonomous Payload Control System
90	APD	Avalanche Photodiode Detector
91	APE	Antenna Positioning Electronics
92	APEX	Satellite Network (France)
93	APKS	Amplitude-Phrase- Keyed System
94	APM	aircraft performance monitoring
95	APM	Antenna Positioning Mechanism
96	APS	auxiliary power system
97	APS	Auxiliary Power Supply
98	APU	Auxiliary Power Unit
99	APU	auxiliary power unit
100	ARA	Angular Rate Assembly
101	ARC	Administrative Radio Conference (ITU)
102	ARENTO	Telecommunications Organization (Arab Republic of Egypt)



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
103	ARINC	Aeronautical Radio Incorporated
104	ARINC	aeronautical radio Inc.
105	ARINC	Aeronautical Radio Incorporated
106	ARINC	Aeronautical Radio Inc.
107	ARINC	Aeronautical Radio Inc.- Advance Research Projects Agency (USA)
108	ARM	Aircraft Reporting Malfunction
109	ARMS Form	ACARS Reported Maintenance System
110	ARMS form	ACARS Reported Maintenance System
111	ARPA	Advanced Research Projects Agency (USA)
112	ARQ	Automatic Repeat Request
113	ARTI	Arab Regional Telecommunications Institute
114	ASA	airline service agreement
115	ASA	American Standards Association
116	ASBU	Arab States Broadcasting Union
117	ASCIL	American Standard Code for Information Interchange
118	ASCO	Arab Satellite Communications Organization
119	ASEAN	Association of South East Asian Nations
120	ASI	Italian Space Agency
121	ASIN	Action of National Information Systems
122	ASM	application specific module
123	ASO	airline selectable options
124	ASOT	airline selectable options tool
125	ASP	attendant switch panel
126	ASR	Automatic Send and Receive
127	ASTM	American Society of Testing and Materials
128	ASU	Acquisition and Synchronization Unit
129	AT	Acceptance Test
130	ATA	Air Transport Association
131	ATA	Air Transport Association
132	ATB	All Trucks Busy
133	ATC	Air Traffic Control
134	ATC	air traffic control
135	ATC	Adaptive Transform Coding
136	ATDA	Augmented Target Docking Adaptor
137	ATG	Air to Ground
138	ATME	Automatic Transmission Measuring Equipment
139	ATN	Aeronautical Telecommunications Network
140	ATN	aeronautical telecommunication network
141	ATOS	Air Transport Oversight System
142	ATP	alerting and transponder control panel
143	ATS	air traffic services
144	ATU	Arab Telecommunications Union
145	AU	Astronomical Unit
146	AVC-D	audio/video controller—digital
147	AVD	Alternate Voice/Data
148	AVOD	Audio and Video On Demand
149	AZ	Azimuth
150	B	Magnetic Field Strength
151	B	Byte (8 bits)
152	B/C	Business Class
153	B/C	Business Class



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
154	BAI	Balkonur Launch Complex (Russia)
155	BAPTA	Bearing and Power Transfer Assembly
156	BB	Baseband
157	BBC	British Broadcasting Corporation
158	BBC	Block check character
159	BBTM	Beam-to-beam Traffic Matrix
160	BBU	Baseband Unit
161	BC	battery charger
162	BCD	Binary Coded Decimal
163	BCW	Burst Codewords
164	BDE	Baseband Distribution Equipment
165	BDF	Baseband Distribution Frame
166	BDLC	Bisync Data Link Control
167	BDU	Baseband Distribution Unit
168	BEF	Band Elimination Filter
169	BEGSS	Boeing ePlane Ground Support System
170	BER CONT	Bit Error Rate Continuous
171	BET	Boeing equivalent thrust
172	BEX	Broadband Exchange
173	BEZEK	The Israel Telecom Corporation Ltd.
174	BFE	buyer-furnished equipment
175	BFO	Beat Frequency Oscillator
176	BFSK	Binary Frequency Shift Keying
177	BIH	Bureau Internatioanle de l'heure (International Time Bureau)
178	BINR	Basic Intrinsic Noise Ratio
179	BIPM	Bureau International de Poldes et Meaures (International Bureau of Weights and Measures)
180	BIT	Built In Test
181	BIT	Built In Test
182	BITE	built-in test equipment
183	BLD	Binary Load Dump (Spade)
184	BLK	Block
185	B-MAC	Type B Multiplexed Analog Components
186	BO	Backoff
187	BOB	Buy-On-Board
188	BOD	Beneficial Occupancy Date
189	BOL	Beginning of Life
190	BONAC	Broadcasting Organization of the Non-Aligned Countries
191	BOS	Back Office System
192	BP	Bandpass
193	BPCU	bus power control units
194	BPF	Bandpass Filter
195	BPI	Bits Per Inch
196	BPS OR BIT/S	Bit Per Second
197	BPSK	Bi-Phrase Shift Keyed
198	BSBD	Baseband
199	BSC	Binary Synchronous Protocol
200	BSFX	Burst Sync Failure (SPADE)
201	BSI	British Standards Institution (UK)
202	BSM	Baseband Switch Matrix
203	BSS	Broadcasting Satellite Service
204	BST	Block the Spade Terminal Command



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
205	BSU	Baseband Switching Unit
206	BT	British Telecom
207	BTE	Bench Test Equipment
208	BTI	British Telecommunications International (UK)
209	BTR	Bit Time Recovery
210	BTU	British thermal Unit
211	BU	Baseband Unit
212	BUC	Block Up Converter
213	BUV	Backscatter Ultraviolet
214	BVU	Brightness Value Unit
215	BW	Bandwidth
216	BWR	Bandwidth Radio
217	C	Celsius; Centigrade, Coulomb
218	C AND DH	Control and Data Handling
219	C/I	Carrier-to-Interference Ratio
220	C/I	Carrier/Interference Ratio
221	C/N	Carrier -to-Noise Ratio
222	C/N	Carrier/Noise Ratio
223	C/NO	Carrier-to-Noise Density
224	C/T	Carrier-to-Temperature Ratio
225	C/T	Carrier/Noise Temperature Ratio
226	CA	Captain
227	CAH	cabin attendant handset
228	CALEA	Commission on Accreditation for Law Enforcement Agencies
229	CAN	controller area network
230	CANTO	Caribbean Association of National Telecommunications Operators
231	CAP	cabin attendant panel
232	CAR	Channel Assignments Record
233	CASSA	Coarse Analog Sum Sensor Assembly
234	CATV	Community Antenna Television
235	CBIC	circuit breaker indication and control
236	CC	Common Carrier
237	CCC	Customer Care Center
238	CCD	cursor control device
239	CCFK	Continuity Check Failute (SPADE)
240	CCFL	Cold Cathode Fluorescent Lamp
241	CCI	Comite Consultatif International (International Consultative Committee)
242	CCIR	Comite Consultatif International de Radio (International Radio Consultative Committee) (ITU)
243	CCIS	US/ATT, Common Channel Interoffice Signaling (USA)
244	CCITT	Comite Consultatif International des Telephones et Telegraphes (International Telephone and Telegraph Consultive Committee (ITU)
245	CCR	common computing resource
246	CCS	common core system
247	CCT	Cabin Control Terminal
248	CCT	Cabin Control Terminal
249	CCT	Continuity Check Transceiver
250	CCTS	Coordinating Committee on Satellite Communications
251	CD	Crystal Detector
252	CDA	Command and Data Acquisition (Station)
253	CDE	Control and Display Equipment
254	CDF	Carrier Distribution Frame
255	CDHP	Command and Data Handling Package



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
256	CDL	Configuration Deviation List
257	CDMA	Code Division Multiple Access
258	CDN	common data network
259	CDR	Critical Design Review
260	CDR	Critical Design Review
261	CDU	control display unit
262	CEC	cabin equipment center
263	CEE	Communaute Europeenne Economique (European Economic Community)
264	CENTO	Central Treaty Organization
265	CEPT	European Conference on Postal and Telecommunications Administrations
266	CES	Coast Earth Station (Inamoratas)
267	CETS	European Conference on Satellite Communications
268	CETTEM	Center of Telecommunications for the Third World
269	CFM	Companded FM
270	CFR	Code of Federal Regulations
271	CFR	Code of Federal Regulations
272	CFRP	carbon fiber reinforced plastic
273	CG	center of gravity
274	CG/MOI	Center of Gravity/Moment of Inertia
275	CGMS	Coordination of Geostationary Meteorological Satellites
276	CGPM	General Conference of Weights and Measures
277	CH	Channel
278	CHU	Channel Unit (Spade)
279	CIC	Common Interface Circuit
280	CIC	Cover Integrated Cell
281	CICT	Centre International de Control Technique (International Technical Control Center) (ITCC)
282	CID	Cathode Imaging Detector
283	CIS	crew information system
284	CISPR	International Special Committee on Radio Interference
285	CITE	Cargo Integrated Test Equipment
286	CKR	Receive Bit Clock
287	CKT	Circuit
288	CKT	Transmit Bit Clock
289	CL	cabin lighting
290	CLI	Command-line interface
291	CLK	Clock
292	CLR	Clear
293	C-MAC	Type C Multiplexed Analog Components
294	CMBD	Joint Committee on Circuit Noise and Availability
295	CMCF	central maintenance computing function
296	CMCS	central maintenance computing system
297	CMD	Command
298	CME	Circuit Multiplication Equipment
299	CMEA	Council on Mutual Economic Assistance
300	CMI	Joint International Committee for Tests Relating to the Protection of Telecommunication Lines and Underground Ducts
301	CMI	Crew Management Interface
302	CMO	Certificate Management Office
303	CMOS	Complementary Metal Oxide Semiconductor
304	CMR	Cellular Mobile Radio
305	CMS	central maintenance system
306	CNES	Centre National d'Etudes des Spatiales (France)



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
307	CNES	Center National d-Etudes Spatiales (French NASA)
308	CNET	Centre National d'Etudes des Telecommunications (France)
309	CNR	Consiglio Nazionale Delle Ricerche (Italy)
310	CNR	Carrier/Thermal Noise Ratio
311	CNSS	Center for National Space Study
312	CO	Circuit Order
313	COAX	Coaxial Cable
314	CODEC	Coder-Decoder
315	CODEC	Coder-Decoder
316	COM	Computer Output Microfilm Companding Compression and Expansion
317	CONG	Congestion Error Control
318	CONUS	Continental United States (Coverage)
319	CO-ORD	Coordination Channel
320	COP	Communications Operations Plan
321	CO-POL	Co-Polarization
322	COPS	Command Operations
323	CoS	Class of Service
324	COSMOS	European Multinational Industrial Consortium
325	COSPAR	Comite Mondial de la Recherche Spatiale (World Committee on Space Research) (ICSU-UN)
326	COSTED	Committee on Science and Technology in Developing Countries (ICSU-UN)
327	COTS	Commercial Off The Shelf Solution
328	COTS	Commercial Off The Shelf
329	CP	Circular Polarization
330	CPC	Committee for Programs and Coordination of ECOSOC
331	CPCS	cabin pressure control system
332	CPDLC	controller/pilot data link communication
333	CPE	Customer Premises Equipment
334	CPES	Customer Premises Earth Station
335	CPFSK	Continuous Phase Frequency Shift Keying
336	CPS	Cycles per Second
337	CPSK	Coherent Phase Shift Keying
338	CPU	Central Processing Unit
339	CPU	Central Processing Unit
340	CR	Carrier Recovery
341	CR AND T	Command, Ranging, and Telemetry
342	CRAN	Command Receive Antenna
343	CRBW	Carson Rule Bandwidth
344	CRC	Cyclic Redundancy Code
345	CRD	Critical Review Design
346	CRD	Customer Requirements Document
347	CRES	corrosion resistant steel
348	CRPL	Central Radio Propagation Laboratory
349	CRT	Cathode Ray Tube
350	CRTO	Centre Rigionali (Italy)
351	CRTS	Cellular Radio Telephone Service
352	CRYO	Cryogenic
353	CSC	Common Signaling Channel Demodulator
354	CSCE	Communications Subsystem Checkout Equipment
355	CSCM	Common Signaling Channel Modem
356	CSE	customer-selected equipment
357	CSG	Guiana Space Center (Center Spatial de Guyanne)



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
358	CSM	Communications Systems Monitoring
359	CSM	Commission for Synoptic Meteorology
360	CSME	Communications Systems Monitoring Equipment
361	CSOC	Consolidated Space Operations Center
362	CSP	Content service provider
363	CSS	Cabin Service System
364	CSS	cabin services system
365	CSSB	Companded Sigle-Sideband
366	CSU	Constant Speed Unit
367	CSU	Channel Service Unit
368	CT	Transit Center
369	CTB	Commonwealth Overseas Telecommunications Council
370	CTE	Channel Translating Equipment
371	CTNE	Compania Telefonica National de Espana
372	CVR	cockpit voice recorder
373	CW	Carrier Wave
374	CW	Continuous Wave
375	CWAP	Cabin Wireless Access Point
376	CXR	Carrier
377	D/C	Downconverter
378	D2-MAC	Type D2 multiplexed analog components
379	DA	Demand Assignment
380	DAA	Data Access Arrangement
381	DAB	Digital Audio Broadcasting
382	DAIT	Demand Assigned International Terminal
383	DAMA	Demand Assignment Multiple Access
384	DARA	German Space Agency
385	DASS	Demand Assignments Signaling and Switching Unit
386	D-ATIS	digital automatic terminal information service
387	DB	Decibel
388	DB/K	Decibels Per Degree Kelvin
389	DBH	Diameter at Breast Height
390	DBM	Decibels relative to one Milliwatt
391	DBMO	dBm referred to or measured at a point of zero
392	DBS	Direct Broadcast Satellite
393	DBS-SC-AMW/QM	Double Sideband-Suppressed Carrier-Amplitude Shift Keyed
394	DBTR	Digital Bit Timing Recovery
395	DBW	Decibels relative to one watt
396	DC	direct current
397	DC	Direct Current
398	DC	Downconverter
399	DCA	Defense Communications Agency
400	DCE	Data Communications Equipment
401	DCE	Despun Control Electronics
402	DCP	Data Collection Platforms
403	DCPM	Differential Pulse Code Modulation
404	DCPSK	Differentially Coherent Phase Shift Keying
405	DCRT	Data Collection Receive Terminal
406	DCS	Direct Couple System; Data Collection System
407	DCU	Display and Control Unit
408	DD/C	Dual Downconverter



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
409	DDI	Direct Digital Interface
410	DDM	Data Distribution Manager
411	DDS	Digital Data System
412	DDS	Dataphone Digital Service
413	DEC	Declination
414	DEMODO	Demodulator
415	DEMUX	Demultiplexer
416	DES	Digital Encryption Standard
417	DET	Detector
418	DEV	Deviation
419	DGT	Directorate General of Telecommunications (France)
420	DHCP	Dynamic Host Configuration Protocol
421	DIOS	Digital In-Band Open-Loop Synchronization
422	DITEC	Digital Television Communication System
423	DL or D/L	Downlink
424	DLF	Direct Through-Connection Filter
425	DLR	German Aerospace Research Establishment
426	DM	Delta Modulation
427	DM/PSK	Delta Modulation/Phase Shift Keyed
428	DMA	Direct Memory Access
429	D-MAC	Type D multiplexed analog components
430	DME	distance measuring equipment
431	DNI	Digital Non-Interpolated
432	DNS	Domain Name System
433	DOD	Department of Defense (USA)
434	DOMSAT	Domestic Satellite System
435	DOT	Department of Transportation
436	DPA	Destructive Physical Analysis
437	DPSK	Differential Phase Shifting Keyed
438	DPU	Data Processing Unit
439	DQPSK	Differential Quadrature PSK
440	DR	Disaster Recovery
441	DR	Dynamite Range
442	DRT	Data Recording Terminal
443	DS1, DS2, ETC.	Digital Service Hierarchy
444	DSB	Double Sideband
445	DSB-SC-AM	Double Sideband-Suppressed Carrier-Amplitude Modulation
446	DSB-SC-AM W/QM	Double Sideband-Suppressed Carrier-Amplitude with Quadrature Multiplexing
447	DSB-SC-ASK	Double Sideband-Suppressed Carrier-Shift Keyed
448	DSI	Digital Speech Interpolation
449	DSIF	Deep Space Instrumentation Facility
450	DSIR	Department of Scientific and Industrial Research (UK)
451	DSN	Deep Space Network
452	DSNG	Digital Satellite Newsgathering
453	DST	Direct Sounding Transmission
454	DTE	Data Terminating Equipment
455	DTH	Direct-to-home Broadcast
456	DTI	Data Transfer Interface
457	DTMF	Dual Tone Multi-Frequency
458	DTS	data transfer services
459	DU	Display Unit



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
460	DU	display unit
461	DUS	Data Utilization Stations
462	DVI	Digital Visual Interface
463	DVT	Design Verification Test
464	DX	Duplex
465	E/E	electric/electronic
466	E1, E2, ETC	European Digitized Telephone Hierarchy
467	EAFR	enhanced airborne flight recorders
468	EAGE	Electrical Aerospace Ground Equipment
469	EAP	Extensible Authentication Protocol
470	EASA	European Aviation Safety Agency
471	EB/NO	Energy-per-bit to Noise-Density Ratio
472	EBCDIC	Extended Binary Coded Decimal Interchange Code
473	EBR	Electronic Beam Record
474	EBU	European Broadcasting Union
475	ECC	Eccentricity
476	ECE	Economic Commission Manufactures Association
477	ECH	Earth Converge Horn
478	ECL	electronic checklist
479	ECM	engine condition monitoring
480	ECMA	European Computer Manufactures Association
481	ECOM	Electronic Computer-Originated Mail
482	ECS	environmental control system
483	ECS	European Communications Satellite System (Eutelsat)
484	ECWA	Economic Commission for Western Asia
485	EDA	Electronic Despun Antenna
486	EDP	engine-driven pump
487	EDP	Electronic Data Processing
488	EDPS	Experiment Data and Power System
489	EDTV	Enhanced Definition Television
490	EEA	Electrostatic Energy
491	EFB	Electronic Flight Bag
492	EFB	electronic flight bag
493	EFI	Error-Free Intervals
494	EFT	Electronic Fund Transfer
495	EFTA	European Free Trade Association
496	EHF	Extremely High Frequency (Miriametric waves)
497	EHT	Electrothermal Hydrazine Thrusters
498	EICAS	engine indication and crew alerting system
499	EIRP	Effective Isotropically Radiated Power
500	EISCAT	European Institute Scatter Facility
501	EL	Elevation
502	ELB	Electronic Log Book
503	ELF	Extremely Low Frequency
504	ELPT	e-Logbook Project Team (ATA)
505	ELT	emergency locator transmitter
506	ELT	Emergency Locating Transmitters
507	ELU	Existing Carrier Line-Up
508	ELV	Expanded Launch Vehicles
509	EM	Engineering Model
510	EMA	electro-mechanical actuators



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
511	EMF	Electromotive Force
512	EMI	Electro Magnetic Interference
513	e-MLB	Electronic Maintenance Log Book
514	EMP	electric motor pump
515	EMS	Electronic Message Service
516	EOC	End of Coverage
517	EOL	End of Life
518	EOS	Earth Observation Satellite
519	EOW	Engineering Order Wire
520	EP	external power
521	EPC	Electronic Power Conditioner
522	EPDS	Experiment Power and Data Systems
523	EPIRB	Emergency Position Indicating Radio Beacon
524	EPTA	Expanded Program of Technical Assistance (UN)
525	EQ	Energy per Unit Charge
526	ER AND S	Exploratory Research and Studies
527	ERP	Enterprise Resource Planning
528	ERS	earth reference system
529	ES	Echo Suppressor
530	ES	Earth Station
531	ESA	European Space Agency
532	ESC	European Space Conference
533	ESC	Engineering Service Circuit
534	ESE	Engineering Specification Equipment
535	ESE	Engineering Specification Equipment
536	ESOC	European Space Operations Center
537	ESRANGE	European Space Sounding Rocket Landing Range (ESA)
538	ESTEC	European Space Research and Technology Center
539	ESTL	European Space Tribology Centre (UK Atomic Energy Authority)
540	ESU-G	Ethernet switch unit—gigabit
541	ETOPS	Extended Twin Operations
542	ETOPS	extended-operations
543	ETR	Eastern Test Range (NASA's Cape Canaveral, USA)
544	ETS	Engineering Test Satellite
545	ETSI	European Telecommunications Standards Institute
546	ETT	Electrothermal Thruster
547	EURONET	European Public Network (Data)
548	EUROSPACE	European industry space study group
549	EUTESLAT	European Telecommunications Satellite Organization
550	EUV	Extreme Ultraviolet
551	EV	Electron Volt
552	EVA	Extravehicular Activity
553	EVDO	Cellular Data Network Standard
554	EWIS	Electrical Wiring Interconnection System
555	EWIS	Electrical Wiring Interconnection System
556	F/C	First Class
557	FAA	Federal Aviation Administration
558	FACS	Flight Attendant Control Station
559	FADEC	full-authority digital engine-control
560	FAI	First Article Inspection
561	FAI	First Article Inspection



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
562	FANS	future air navigation system
563	FAR	Federal Aviation Regulations
564	FAR	Federal Aviation Regulations
565	FBW	fly-by-wire
566	FC	Sampling Frequency
567	FCAC	forward cargo air-conditioning
568	FCC	Federal Communications Commission (USA)
569	FCE	flight control electronics
570	FCF	Functional Check Flight
571	FCM	flight control modules
572	FD	flight deck
573	FD	Focal Length to Diameter Ratio
574	FDA	Food and Drug Administration
575	FDEVSS	flight deck entry video surveillance system
576	FDFM	Frequency Division/Frequency Modulation
577	FDM	Frequency Division Multiplex
578	FDM/CFM	Frequency Division Multiplex/Companded FM
579	FDM/FM	Frequency Division Multiplexed/Frequency Modulated
580	FDMA	Frequency Division Multiple Access
581	FDR	Final Design Review
582	FDSS	Fine Digital Sun Sensor
583	FDSSA	Fine Digital Sun Sensor Assembly
584	FDX	Full Duplex
585	FEC	Forward Error Correction
586	FET	Field Effect Transistor
587	FF	Fast Forward
588	FFP	Fixed Fee Procurement
589	FFT	Fast Fourier Transform
590	FIS	flight information services
591	FLTR	Filter
592	FLTSATCOM	US Navy Communications System (USA)
593	FLU	Full Line-Up
594	FM	Frequency Modulation
595	FMC	Flight Management Computer
596	FMCF	flight management computing function
597	FMCS	flight management computing system
598	FMEA	Failure Modes and Effects Analysis
599	FMF	flight management function
600	FMFB	Frequency Modulation Feedback
601	FMR	Field Maintenance Record
602	FMS	Flight Management System
603	FMS	flight management system
604	FMWA	Fixed Momentum Wheel Assembly
605	FO	First Officer
606	FOQA	Flight Operational Quality Assurance
607	FOS	Follow-On Satellites
608	FP	Full Period
609	FPA	Final Power
610	FQIS	fuel quantity indicating system
611	FRC	Federal Radio Commission
612	FSB	Flight Standardization Board



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
613	FSB	Front-Side Bus
614	FSB	fasten seat belt
615	FSK	Frequency-Shift Keyed
616	FSM	flight server module
617	FSS	Fixed Satellite Service
618	FT	Full Time
619	FTD	Flight Training Device
620	FTE	fixed trailing edge
621	FTP	File Transfer Protocol
622	G	Gain/Gravity
623	G	Giga (1,000,000,000)
624	G/T	Gain-to-Noise Temperature Ratio
625	GAAS	Gallium Arsenide
626	GAASFET	Gallium Arsenide Field Effect Transistor
627	GAC	Global Area Coverage
628	GAGR	Group Automatic Gain Regulator
629	galley	cooling unit
630	GARP	Global Atmospheric Research Program
631	GARS	Geological Applications for Remote Sensing
632	GATT	General Agreement on Tariffs and Trade
633	GB	Gigabyte
634	GBAS	ground-based augmentation system
635	GBST	ground-based software tool
636	GC	Gigacycles
637	GCE	Ground Control Equipment
638	GCS	Ground Control System
639	GCU	generator control unit
640	GDF	Group Distribution Frame
641	GDPS	Global Data Processing System
642	GEMS	Global Environment Monitoring System (UN)
643	GEO	Geostationary Equatorial Orbit
644	GEO-IRS	Geostationary-Infrared Sensor
645	GG	Graphic generators
646	GHA	Greenwich Hour Angle
647	GHZ	Gigahertz
648	GIP	Group Interface Processor
649	GLS	GPS landing system
650	GMDSS	Global Maritime Distress and Safety System
651	GME	Group Modulating Equipment
652	GMT	Greenwich Mean Time
653	GND	Ground
654	GPM	General Procedures Manual
655	GPMs	general processing modules
656	GPRS	General packet radio service
657	GPS	Global Positioning System
658	GPWS	ground proximity warning system
659	GRD	Graphics Design Review
660	GRD	Ground Resolved Distance
661	GRID	Global Resource Information Database
662	GRP	Group Reference Point
663	GSFC	Goddard Space Flight Center (USA)



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
664	GSM	Global System for Mobile Communications
665	GSO	Geosynchronous Earth Orbit
666	GSS	Ground Support System
667	GSSI	Ground Support System Infrastructure
668	GTE	Group Translating Equipment
669	GTS	Global Telecommunications System
670	GUI	Graphical User Interface
671	HAT	height above threshold
672	HCE	Heater Control Electronics
673	HDD	head-down display
674	HDLC	High-Level Data Link Control
675	HDMI	High Definition Modular Input
676	HDTV	High Definition Television
677	HDX	Half Duplex
678	HE	Heat Exchanger
679	HEAO	High-Energy Astronomy Observatory
680	HEOS	Highly Eccentric Orbit Satellite
681	HEPA	high-efficiency particulate air
682	HF	high frequency
683	HF	High Frequency (3,000-30,000 kHz)
684	HLF	high lift function
685	HLLV	Heavy Lift Launch Vehicle
686	HM	Hybrid Modulation
687	HP	Horsepower
688	HPA	High Power
689	HPF	High Pass Filter
690	HPM	Hybrid Phase Modulation
691	HTML	HyperText Mark-up Language
692	HU	High Usage Circuit
693	HUD	head-up display
694	HVCS	Half Voice Circuits
695	HYPACE	Hybrid Programmable Attitude Control Electronics
696	HZ	Hertz
697	HZ	Hertz
698	HZ	Hertz (Cycles per Second)
699	IA2, IA5, ETC.	International Alphabet Number 2, Number 5 etc.
700	IAF	International Astronautical Federation
701	IAGA	International Association of Geomagnetism & Astronomy
702	IAM	International Address Message
703	IAMAP	International Association of Meteorology and Atmospheric Physics
704	IAN	integrated approach navigation
705	IAS	indicated airspeed
706	IATA	International Air Transport Association
707	IBC	Independent Broadcasting Commission
708	IBI	Intergovernmental Bureau for Infomatics
709	IBTO	International Broadcasting & Television Organization
710	IC	Integrated Circuit
711	ICAO	International Civil Aviation Organization
712	ICAO	International Civil Aviation Organization
713	ICAO	International Civil Aviation Organization
714	ICC	International Chamber of Commerce



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
715	ICMT	interactive cabin management terminal
716	ICN	Idle Channel Noise
717	ICO	Interior Color Offering
718	ICRP	International Commission Radiological Protection
719	ICS	integrated cooling system
720	ICSC	Interim Communications Satellite Committee
721	ICSU	International Council of Scientific Unions
722	IDA	International Development Association
723	IDCC	International Data Coordinating Centers
724	IDE	Integrated Development Environment
725	IDE	Integrated Development Environment.
726	IDF	Intermediate Distribution Frame
727	IDR	Intermediate Data Rate
728	IE	Index Error
729	IEE	Institute of Electrical Engineers (UK)
730	IEEE	Institute of Electrical and Electronics Engineers
731	IERE	Institution of Electronics and Radio Engineers
732	IESS	Intelsat Earth Station Standard
733	IETF	Internet Engineering Task Force
734	IF	Intermediate Frequency
735	IFCS	integrated flight control system
736	IFE	In-Flight Entertainment System
737	IFE	InFlight Entertainment
738	IFEC	In-Flight Entertainment and Connectivity
739	IFEE	Institute of Electrical and Electronics Engineers
740	IFL	Inter-Facility Link
741	IFRB	International Frequency Registration Board (ITU)
742	IFTC	International Film and Television Council
743	IGMP	Internet Group Management Protocol
744	IISL	International Institute of Space Law
745	ILD	Injection Laser Diode
746	ILS	instrument landing system
747	IM	Intermodulation
748	IMPD	Impedance
749	INC	Inclination
750	INMARSAT	International Maritime Satellite Organization
751	INR	integrated navigation radios
752	INTELNET	Data Distribution and Gathering Network
753	INTELSAT	International Telecommunications Satellite Organization
754	INTERCOSMOS	Council on International Cooperation in the Study and Utilization of Outer Space
755	INTERSPUTNIK	International Space Telecommunications Organization (Russia)
756	IOB	Inter-Organization Board for Information Systems and Related Activities
757	IOCTF- IOC TDMA	Facility
758	IOR	Indian Ocean Region
759	IOT	In-Orbit Test Antenna
760	IPA	Intermediate Power Amplifier
761	IPDC	International Program for Development of Communications
762	IPS	Instrument Pointing System
763	IPTS	International Press Telecommunications Council
***]		
765	IPU	Information Processing Ability



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
766	IR	Power Loss from Resistive Dissipation
767	IR	Infrared
768	IRD	Interactive Review Design
769	IRD	Integrated Receiver-Decoder
770	IRE	Institute of Radio Engineers
771	IRU	Inertial reference system
772	IRU	Indefeasible Right of Use
773	ISB	Independent Sideband
774	ISC	Interdisciplinary Scientific Commission (COSPAR)
775	ISCC	International Service Coordinating Center
776	ISD	International Subscriber Dialing
777	ISDN	Integrated Services Digital Networks
778	ISFD	integrated standby flight display
779	ISL	Intersatellite Link
780	ISMC	International Switching Maintenance Center
781	ISO	International Organization of Standardization
782	ISP	Specific Impulse
783	ISPRS	International Society for Photogrammetry and Remote Sensing
784	ISS	integrated surveillance system
785	ISS	Interrupt Safety Systems
786	ISSPUs	integrated surveillance system processor units
787	ISTC	Integrated System Test
788	ITC	International Television Center
789	ITC	Inter-American Telecommunications Network
790	ITC	International Teletraffic Congress
791	ITC	International Institute for Aerial Survey and Earth Sciences (Netherlands)
792	ITCM	Internal Technical Coordination Meeting
793	ITCM	Initial Technical Coordination Meeting
794	ITFC	Instructional Television Service (USA)
795	ITMC	International Transmission Maintenance Centers
796	ITS	Institute of Telecommunications Sciences (USA)
797	ITU	International Telecommunications Union
798	IUCAF	Inter-Union Commission of Allocation of Frequencies for Radio
799	IUGG	International Union of Geodesy and Geophysics
800	IUS	Interim Upper Stage
801	IXC	Interchange Channel
802	JAA	Joint Aviations Authority
803	JAR OPS	Joint Aviation Requirement Operation Procedure Standard
804	JCAB	Japan Civil Aviation Bureau
805	JFET	Junction Field Effect Transistor
806	JSC	Johnson Space Center (USA)
807	K	Kelvin, a scale of (noise) temperature based on Celsius scale
808	K	Boltzmann's Constant
809	KAG	Kagoshima Space Center (Japan)
810	KB	Kilobyte
811	KB/S or K BIT/S	Kilobits per Second
812	KEV	Kiloelectron Volt
813	KHZ	Kilohertz
814	KP	Start of Pulsing
815	KSC	Kennedy Space Center (USA)
816	kVA	kilovolt ampere



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
817	KW	Kilowatt
818	LAC	Local Area Coverage
819	LAMAR	Large area Modular Array of Reflectors
820	LAMMR	Large Antenna Multifrequency MW Radiometer
821	LAN	Local Area Network
822	LAN	Local Area Network
823	LAN	Local Area Network
824	LAT	Latitude
825	LATA	Local Access and Transport Area
826	L2C	Layer 2 control
827	LC	Conductance and Capacitance
828	LCC	Launch Control Center
829	LCD	liquid crystal display
830	LCT	Laboratoire Central des Telecommunications (Central Telecommunications Laboratories) France
831	LDAP	Light Weight Directory Access Protocol
832	LDM	Linear-Delta Modulation
833	LDS	Low Density Telephony Service
834	LEASAT	US Military Satellite Network (USA)
835	LEC	Lockheed Electronic Company (USA)
836	LED	Light-Emitting Diode
837	LED	light-emitting diode
838	LED	Light Emitting Diode
839	LEO	Low Earth Orbit
840	LF	Line-Feed
841	LFA	Local Hour Angle
842	LGP	local galley panel
843	LHCP	Left-Hand Circular Polarization
844	LMA	Limited Motion Antenna
845	LMP	Lower Minimum Program
846	LMSS	Land Mobile Satellite Service
847	LMT	Local Mean Time
848	LNA	Low Noise Amplifier
849	LNB	Low-Noise Block Converter
850	LNC	Low-Noise Converter
851	LNR	Low-Noise Receiver
852	LO	Local Oscillator
853	LON	Longitude
854	LOPA	Layout of Passenger Accommodations
855	LOR	Loran
856	LOS	Loss of Signal
857	LOX	Liquid Oxygen
858	LPC	Linear Predictive Coding
859	LPF	Low Pass Filter
860	LPS	Launch Process System
861	LRE	Low Rate Encoding
862	LRM	line replaceable module
863	LRRA	low range radio altimeter
864	LRU	Line Replaceable Unit
865	LS	Link Switch
866	LSAP	Loadable Software Airplane Part
867	LSAPL	Loadable Software Airplane Part Librarian



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
868	LSE	Line Signaling Equipment
869	LSI	Large Scale Integration
870	LSM	Line Switch Marker
871	LSO	Line Signaling Oscillator
872	LSS	line support services
873	LTE	Long Term Evolution
874	LTOM	Less than one minute
875	LTOS	Less than one second
876	LVDS	Low Voltage Differential Signal
877	M	Mega-Million
878	M&E	American Airlines Maintenance & Engineering
879	MAC	Multiplexed Analog Components
880	MAN	Metropolitan Area Network
881	MAP	Middle Atmosphere Component
882	MARISAT	Maritime Satellite System (USA/Inmarsat)
883	MASER	Microwave Amplification by Simulated Emission of Radiation
884	MB	Megabyte
885	MB/S	MBPS or M BIT/S—Megabits per second
886	MBA	Multiple Beam Antenna
887	MBTA	Multiple Tours Antenna
888	MC	Main Cabin
889	MC	monitor and control
890	MC	Maintenance Center
891	MCC	Master Control Console
892	MCE	Main Cabin Extra
893	MCF	monitor and control function
894	MCLF	Multichannel Loading Factor
895	MCP	mode control panel
896	MCS	Maritime Communications System
897	MCU	Monitor and Control Unit
898	MCW	Modulated Continuous Wave
899	MDA	Mechanically Despined Antenna
900	MDF	Main Distribution Frame
901	MDFD	Multi-Destination Full Duplex
902	MDHD	Multi-Destination Half Duplex
903	MDS	Multipoint Distribution Service
904	MDS	Minimum Discernible Signal
905	MDTA	Modulator-Demodulator-Translator Assemble
906	MDUS	Medium Data Utilization Station (Australia)
907	MECO	Main Engine Cut-Off
908	MEGA	Million
909	MEL	Minimum Equipment List
910	MEL	minimum equipment list
911	MELCO	Mitsubishi Electric Corporation (Japan)
912	MERS	Most Economical Routing Scheme
913	MET	Mission Elapsed Time
914	MEW	manufacturer's empty weight
915	MF	Multifrequency
916	MF	Medium Frequency
917	MFD	multifunction display
918	MFR	Multifrequency Register



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
919	MFS	Multifrequency Sender
920	MFTDMA	Multiple Frequency Time Division Multiple Access
921	MG	Motor Generator
922	MGC	Multigroup Controller
923	MHZ	Megahertz
924	MIC	Maintenance Item Control
925	MIFR	Master International Frequency Register
926	MIP	Multigroup Interference Processor
927	MLW	maximum landing weight
928	MM	Maintenance Manual
929	MMDS	Microwave Multipoint Distribution System
930	MMEL	master minimum equipment list
931	MMIC	Monolithic Microwave Integrated Circuit
932	MMO	maximum operating speed (Mach number)
933	MMS	Multimission Modular Spacecraft
934	MMSS	Maritime Mobile Satellite Service
935	MMV	Multimission Modular Vehicle
936	MOC	Maintenance Operations Center
937	MOD	Modulator
938	MOI	Moments of Inertia
939	MOL	Mole (Amount of Substance)
940	MON	Monitoring Station
941	MoR	Merchant of Record
942	MOS	Metal-Oxide Semiconductor
943	MOS	Mean Opinion Score
944	MPAA	Motion Picture Association of America
945	MPEG	Motion Picture Experts Group
946	MPLS	Multiple Protocol Label Switching
947	MS	Meeting of Signatories (Intelsat)
948	MS	Millisecond
949	MSC	Management Services Contract(or)
950	MSD	Most Significant Digit
951	MSK	Minimum Shift Keying
952	MSM	Microwave Switch Matrix
953	MSS	Multi-Spectral Scanner
954	MSSF	Mate Scanner Stop Failure
955	MSU	Microwave Sounding Unit
956	MTBF	Mean Time Between Failures
957	MTBF	Mean Time Between Failure
958	MTBF	Mean Time Before/Between Failures
959	MTOW	maximum takeoff weight
960	MTTF	Mean Time to Failure
961	MTTR	Mean Time to Repair
962	MTU	Magnetic Tape Unit
963	MTW	maximum taxi weight
964	MU	Multi-Destination Unidirectional
965	MUF	Maximum Usable Frequency
966	MUX	Multiplex
967	MW	Microwave
968	MZFW	maximum zero fuel weight
969	N	Nano (one-billionth)



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
970	NASA	National Aeronautics and Space Administration (USA)
971	NASC	National Aeronomics and Space Council (USA)
972	NASCOM	NASA Communications Network (USA)
973	NASDA	National Space Development Agency (Japan)
974	NAT/TFG	North Atlantic Traffic Forecasting Group
975	NB	Narrow Band
976	NC	No Charge
977	NCC	Network Control Center
978	NCR	National Research Council (Canada)
979	ND	navigation display
980	NDT	Non-Destructive Testing
981	NDT	Non Destructive Testing
982	NEF	Noise Exposure Forecast
983	NEXRAD	NEXt-Generation RADar
984	NF	Noise Figure
985	NGS	nitrogen generating system
986	NHK	Japan Broadcasting Corporation (Japan)
987	NIC	Nearly Instantaneous Companding
988	NICD	Nickel-cadmium (battery)
989	NIH	Nickel Hydrogen (battery)
990	NITS	Luminance / Measurement of light in candelas per meter square
991	NOC	Network Operations Center
992	NOI	Notice of Inquire (FCC)
993	NORAD	North American Aerospace Defense Command
994	NORAD	North American Air Defense Command (USA)
995	NOTAM	Notice To AirMen
996	NPL	National Physical Laboratory (UK)
997	NPR	Noise Power Ratio
998	NPS	navigation performance scales
999	NRL	Naval Research Laboratory (USA)
1000	NRMS	Network Reference & Monitor Station
1001	NRSC	National Remote Sensing Center (PRC, UK)
1002	NRZ	Non Return-to-Zero
1003	NS	Nanosecond
1004	NTC	Network Transmission Committee (VITEAC)
1005	NTIA	National Telecommunications Information Administrations (USA)
1006	NTSC	Never The Same Color
1007	NTSC	National Television System Committee (USA) (Committee of representatives of the television industry in the U.S. on whose findings and recommendations television standards are established.
1008	NTSC	System of color television based on the recommendation of the NTSC using 525 lines and 60 fields with a video bandwidth of 4.2 MHz (US, Canada, Japan)
1009	NTT	Nippon Telegraph & Telephone Public Corporation (Japan)
1010	NWAP	802.11N Wireless Access Point
1011	NWS	nose wheel steering
1012	O AND M	Operation and Maintenance
1013	OACI	Organization de Aviacion Civil International (International Civil Aviation Organization (ICAO)
1014	OAO	Orbiting Astronomical Observatory
1015	OAS	Orbit Adjust Subsystem
1016	OBE	Out-of-Band Emission
1017	OBN	Out-of-Band Noise
1018	OCC	Operation Control Center



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1019	OCMF	onboard configuration management function
1020	ODA	Organization Designation Authorization
1021	ODA	Organization Designation Authorization
1022	ODLF	onboard data load function
1023	OEM	Original Equipment Manufacturer
1024	OEM	Original Equipment Manufacturer
1025	OEW	operating empty weight
1026	OFHC	Oxygen-Free High Conductivity Copper
1027	OFT	Orbital Flight Test
1028	OGO	Orbiting Geophysical Observatory
1029	OHMF	onboard health management function
1030	OIRT	International Radio & Television Organization
1031	OMS	Orbital Maneuvering System
1032	OMT	Orthomode Transducer
1033	ONERA	Office Nationale d'Etudes et de Recherches Aerospatiales (National Bureau for Aerospace Studies and Research) (France)
1034	OPC	operational program configuration
1035	OPSK	Octal Phase Shift Keying
1036	OPT	onboard performance tool
1037	ORBIS	Orbiting Radio Beacon Ionospheric Satellite
1038	OSC	Oscillator
1039	OSM	Miniaturized Rigid Coaxial Cable
1040	OSO	Off Schedule Operation
1041	OSPF	Open Shortest Path First
1042	OSPK	Off-Set Keyed Quadrature Phase Shift Keying
1043	OSR	Orbital Solar Reflector
1044	OTC	Overseas Telecommunications Commission (Australia)
1045	OTE	Hellenic Telecommunications Organization (Greece)
1046	OTS	Orbital Test Satellite
1047	OTV	Orbital Transfer Vehicle
1048	OUB	Occasional Use Bands
1049	OW	Orderwire
1050	P	Private or Special Telephone Circuit (CCITT)
1051	P	Pico (One Trillionth)
1052	PA	passenger address
1053	PA	Public Address
1054	PA	Power
1055	PA	Preassigned
1056	PABX	Private Automatic Branch Exchange
1057	PAD	Packet Assembly and Disassembly
1058	PAL	Phase Alternative Line (a television standard) Phase Attenuation by Line
1059	PAL COLOR	A color television system developed in Germany using 625 lines and 50 fields with a video bandwidth of 5 MHz (Western Europe)
1060	PAL-M	PAL System using NTSC Parameters
1061	PAM	Pulse Amplitude Modulation
1062	PAM	Payload Assist Module
1063	PAMA	Pre-assigned Multiple Access
1064	PAM-D	Payload Assist Module D
1065	PAML	Program Authorized Materials List
1066	PAO	personal air outlet
1067	PAPM	Pulse Amplitude Phase Modulation
1068	PAR	Parity
1069	PARAM	Parametric Low-Noise



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1070	PBE	protective breathing equipment
1071	PBX	Private Branch Exchange
1072	PC	personal computer
1073	PC	Printed Circuit
1074	PCE	Power Conditioning Electronics
1075	PCI	Payment Card Industry
1076	PCM	power control modules & power conditioning modules
1077	PCM	Pulse Code Modulation
1078	PCU	Passenger Control Unit
1079	PCU	Power Control Unit
1080	PDA	Personal Digital Assistant
1081	PDF	Portable Document Format
1082	PDIP	Passenger Data Integration Personalization
1083	PDL	Page Description Language
1084	PDM	Pulse Duration Modulation
1085	PDR	Preliminary Design Review
1086	PDR	Preliminary Design Review
1087	PDR	Preliminary Design Review
1088	PDU	power drive unit
1089	PEAP	Protected Extensible Authentication Protocol
1090	PED	Personal Electronic Device
1091	PESC	Telephone Engineering Service Circuit
1092	PF	Picofarad (Unit of electrical capacitance)
1093	PF	Power Factor
1094	PFCF	primary flight control function
1095	PFD	primary flight display
1096	PFD	Power Flux Density
1097	PFIS	passenger flight information system
1098	PFIX	Power Failure Interrupt
1099	PFM	Pulse Frequency Modulation
1100	PFO	Pilot Frequency Oscillator
1101	PGM	Program
1102	PH	Phase
1103	PICO	A Trillionth
1104	PIN	Personal Identification Number
1105	PIP	Payload Integration Plan
1106	PKI	Public Key Infrastructure
1107	PKM	Perigee Kick Motor
1108	PL	Parts List
1109	PL	Path Loss
1110	PLE	Plesetsk Launch Complex (USSR)
1111	PM	Phase Modulation
1112	PMA	Parts Manufacturer Approval
1113	PMA	Parts Manufacturer Approval
1114	PMA	Permanent Management Arrangements
1115	PMB	Proto Main Body
1116	PMG	permanent magnet generators
1117	PMS	Picturephone Meeting Service
1118	PN	Pseudo-Noise
1119	POC	Physician on Call
1120	POL	Polarization



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1121	POLANG	Polarization Angle
1122	POR	Pacific Ocean Region
1123	P-P	Peak-to-Peak
1124	PPF	Payload Processing Facility (USAF)
1125	PPM	Pulse Position Modulation
1126	PPS	Pulse Per Second
1127	PPV	Pay-per-view
1128	PQM	Proto Qualification Model
1129	PR	Private Renter
1130	PRAM	Pre-Recorded Announcement Message
1131	PRAM	pre-recorded announcement music
1132	PREAMP	Preamplifier
1133	PRN	Pseudo-Random Noise
1134	PROC	Processor
1135	PRPM	Primary Power Monitor
1136	PS	Power Supply
1137	PSD	Performance Start Date
1138	psi	pounds per square inch
1139	PSI	Pounds per square inch
1140	PSK	Pounds Shift Keying
1141	PSN	Packet Switching Network
1142	PSN	Private Satellite Network
1143	PSS	Passenger Service System
1144	PSSA	product support and assurance agreement
1145	PSSC	Public Service Satellite Consortium
1146	PSTN	Public Switched Telephone Network
1147	PSU	passenger service units
1148	PTC	Pacific Telecommunications Council
1149	PTLU	Pre-Transmission Line-Up
1150	PTM	Pulse Time Modulation
1151	PTT	Post Telegraph Telephone
1152	PULSAR	Pulsed Sequential Access Relay
1153	PV	Present Value
1154	PW	Picowatt
1155	PWM	Pulse Width Modulation
1156	PWP	Picowatt psophometrically weighted
1157	PWPO	Picowatt Psophometrically weighted measured at a point of zero reference level
1158	PWR	Power
1159	PWS	predictive windshear
1160	QA	Quality Assurance
1161	QAM-PAM	Quadrature Amplitude Modulation-Pulse Amplitude Modulation
1162	QAR	quick-access recorder
1163	QC	Quality Control
1164	QM	Qualification Model
1165	QOS	Quality of Service
1166	QPSK	Quadra-Phase Shift Keyed
1167	QWERTY	Most Common Keyboard Layout (1st 6 letters on top letter row of keyboard)
1168	R	Degree Rankin (absolute scale based on Fahrenheit)
1169	RA	radio altimeter
1170	RA	Right Ascension
1171	RAD	Radian



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1172	RAF	Rate Adjusted Factor
1173	RAM	Random Access Memory
1174	RARC	Regional Administrative Radio Conference
1175	RAS	Remote Analysis System
1176	RAT	ram air turbine
1177	RBOC	Regional Bell Operating Company
1178	RBV	Return Beam Vidicon
1179	RC	Resistance-Capacitance
1180	RCC	Radio Common Carrier
1181	RCO	Restoration Control Office
1182	RCS	Reaction Control Subsystem
1183	RCVR	Receiver
1184	RDC	remote data concentrator
1185	RDF	Repeater Distribution Frame
1186	RDG	Receive Data Gate
1187	RDPU	remote power distribution unit
1188	RDT&E	Research, Development, Testing & Evaluation
1189	REF	Reference
1190	REL	Release
1191	RESTEC	Remote Sensing Technology Center (Japan)
1192	RET	Reliable Earth Terminal
1193	REU	remote electronic units
1194	REV	Revolution
1195	RF	Radio Frequency
1196	RF	Radio Frequency
1197	RF	Radio Frequency
1198	RFI	Request for Information
1199	RFP	Request For Proposal
1200	RFP	Request For Pricing
1201	RFQ	Request For Quote
1202	RFS	Request For Service
1203	RFT	Radiotelephony
1204	RGM	Release Guard Message
1205	RHCP	Right-Hand Circular Polarization
1206	RHDD	Removable Hard Disk Drive
1207	RII	Required Inspection Item
1208	RIP	Routing Information Protocol
1209	RIS	Retransmission Indication Signal
1210	RLO	Restoration Liaison Officer
1211	RMBAFN	Reconfigurable Multibeam Antenna Feed Network
1212	RMS	Root Mean Square
1213	RMS	Remote Manipulator System
1214	RN	Reference Noise
1215	RNP	required navigation performance
1216	RO	Receive Only
1217	RPDU	remote power distribution unit
1218	RPM	Revolutions per Minute
1219	RPS	Revolutions per Second
1220	RQ	Repetition of Information
1221	RR/U	Revenue Requirements per Unit
1222	RSE	Register Signaling Equipment



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1223	RSP	Receive Shift Pulse
1224	RTCA	Radio Technical Commission for Aeronautics
1225	RTCA DO-#	RTCA Numbered Documents
1226	RTE/TSM	TDMA Reference and Monitor Station Equipment
1227	RTG	Radiotelegraphy
1228	RTG	Radio-isotope Thermoelectric Generator
1229	RTMs	receivers/transmitters
1230	RTS	Request to Send
1231	RTT	Regie des Telegraphes et des Telephones (Belgium)
1232	RVR	runway visual range
1233	RVSM	Reversed Vertical Separation Minima
1234	RW	Rewind
1235	RWS	reactive windshear
1236	RX	Receive
1237	RZ	Return to Zero
1238	S	Second
1239	S/C	Spacecraft
1240	S/C	Suppressed Carrier
1241	S/N	Signal-to-Noise Ratio
1242	S/N	Signal-to-Noise Ratio
1243	S+DX	Speech Plus Duplex
1244	S+DX	Speech+Duplex (Simultaneous Speech & Telephony in a Voice Channel)
1245	SAC	Strategic Air Command (USAF)
1246	SADA	Solar Array Drive Assembly
1247	SADE	Solar Array Drive Electronics
1248	SAE	Society of Automotive Engineers
1249	SAGR	Supergroup Automatic Gain Regulator
1250	SARPS	standard and recommended practices
1251	SATCOM	Satellite Communication
1252	SATCOM	satellite communication
1253	SATCOM	Satellite Communication
1254	SCC	Satellite Control Center
1255	SCF	Satellite Control Facility
1256	SCPC	Single Channel Per Carrier PCM/PSK Telecommunications Equipment
1257	SCPDM	Suppressed Clock Pulse Duration Modulation
1258	SCR	Silicon Controlled Rectifier
1259	SCTO	Stalled Call Timed Out
1260	SCU	System Control Signal Unit
1261	SD	Speech Detector
1262	SDCU	Satellite Delay Compensation Unit
1263	SDF	Supergroup Distribution Frame
1264	SDK	software development kit
1265	SDLC	Synchronous Data Link Control
1266	SDMA	Space Division Multiple Access
1267	SECAM	Sequential Color with Memory – A color television system developed in France using 625 lines and 50 fields with a bandwidth of 6 MHz
1268	SELCAL	selective calling system
1269	SEM	Space Environment Monitor
1270	SEN	SENSE command
1271	SENEL	single event noise exposure level
1272	SES	Ship Earth Station (Inmarsat)
1273	SES	Standard Earth Station



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1274	SET	European Telecommunications Working Group of the CEPT
1275	SFE	seller furnished equipment
1276	SG	Secretary General
1277	SGDF	Supergroup Distribution Frame
1278	SHA	Sidereal Hour Angle
1279	SHE	Spacecraft Handling Equipment
1280	SHF	Super High Frequency
1281	SHF	Super High Frequency 3,000 – 30,000 MHz
1282	SI	Speech Interpolation
1283	SIMP	Satellite Interface Message Processor
1284	SITA	Service Information Technology Architecture
1285	SITA	Societe Internationale des Telecommunications Aeronautiques (International Society of Aeronautical Telecommunications)
1286	SIV	Solar and Interplanetary Variability
1287	SLA	Service Level Agreement
1288	SLL	Satellite Line Link
1289	SLS	Side Lobe Suppression
1290	SMA	Semi-Major Access
1291	SMATV	Satellite Master Antenna Television
1292	SMMR	Special Maintenance Manual Revision
1293	SMS	Short Message Service
1294	SMTP	Simple Mail Transfer Protocol
1295	SMY	Solar Maximum Year
1296	SNA	System Network Architecture
1297	SNF	System Noise Figure
1298	SNG	Satellite News Gathering
1299	SNIAS	Societe Nationale Aeronautique
1300	SNMP	Simple Network Management Protocol
1301	SNR	Signal-to-Noise Ratio
1302	SNT	System Noise Temperature
1303	SOC	System Operation Control
1304	SOC	Satellite Operation Complex
1305	SOCC	Satellite Operations Control Center
1306	SOM	Start of Message
1307	SOM	Space Oblique Mercator
1308	SPACEWARN	World Warning Agency for Rockets and Satellites (UN)
1309	SPADE	SCPC PCM Multiple Access Demand Assigned Equipment
1310	SPARRSO	Space Research and Remote Sensing Organization (Bangladesh)
1311	SPC	Stored Program Control
1312	SPDT	Single Pole Double Throw
1313	SPELDA	Structure Porteuse Extreme Lancement Double Ariane (allows 2 payloads)
1314	SPI	Special Position Identification (Pulse)
1315	SPL	Sound Pressure Level
1316	SPM	Signal Processing Modem
1317	SRARQ	Selective Repeat-Automatic Repeat Request
1318	SRB	Solid Rocket Booster
1319	SRD	Software Requirements Document (Could be System Reference Document)
1320	SRE	Speech Recognition Equipment (or VRE)
1321	SREU	spoiler remote electronic units
1322	SRF	Service Request Flag
1323	SRP	Signal Reference Point
1324	SRRM	Software Requirements Review Meeting



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1325	SRTS	Supporting RTE/TSM System
1326	SS	Satellite Switching
1327	SS	Speed Spectrum
1328	SSB-SC-AM	Single Sideband Suppressed Carrier Amplitude
1329	SSB-SC-ASK	Single Sideband Suppressed Carrier Amplitude Shift Keyed
1330	SSB-SC-PAM	Single Sideband Suppressed Carrier Pulse Amplitude Modulation
1331	SSC	Satellite Switching Center
1332	SSC	Satellite Situation Center
1333	SSD	Solid State Drive
1334	SSFC	Sequential Single Frequency Code
1335	SSH	Secure Shell
1336	SSID	Service Set Identification
1337	SSLO	Solid State Local Oscillator
1338	SSM	Satellite System Monitor
1339	SSO	Single Sign On
1340	SSP	Signaling and Switching Processor
1341	SSPA	Solid State Power
1342	SSPC	solid-state power controller
1343	SSRA	Spread Spectrum Random Access
1344	SSSF	Self-Scanner Stop Failure
1345	SST	Satellite-to-Satellite Tracking
1346	SS-TDMA	Satellite-Switched Time Division Multiple Access
1347	SS-TDMA	Satellite-Switched TDMA
1348	SSTM	Station-to-Station Traffic Matrix
1349	SSU	Stratospheric Sounding Unit
1350	SSU	Sequential Shunt Unit
1351	SSU	Secondary Sampling Unit
1352	SSUS	Solid Spinning Upper Stage
1353	ST	“End Pulsing” Command (CCITT format)
1354	ST	Standard Time
1355	STA	Structural Test Article
1356	STAR	Satellite Telecommunications with Automatic Routing (Simple form of SPADE system)
1357	STBY	Standby
1358	STC	Supplemental Type Certificate
1359	STCC	Spacecraft Technical Control Center
1360	STDN	Space Tracking and Data Network
1361	STE	Supergroup Translating Equipment
1362	STE	Spacecraft Test Equipment
1363	STELLA	Satellite Transmission Experiment Linking Laboratories (CNES)
1364	STETS	Solar Terrestrial Energy Transfer Studies
1365	STM	Structural Therman Model
1366	STP	Space Test Program (USAF)
1367	STR	Symbol Timing Recovery
1368	STRIP	Satellite Transmission impairment Program
1369	STS	Space Transportation System (operated by NASA USA)
1370	STSK	Scandinavian Committee for Satellite Telecommunications
1371	SURVSATCOM	Survivable Communications Satellite
1372	SVC	Secure Voice Communications Service
1373	SVDU	Seatback Video Display Unit
1374	SVDU	smart video display unit
1375	SW	Switch



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1376	SWIFT	Society for Worldwide Interband Financial Telecommunicaiton
1377	SWOF	Switchover Operation Failure
1378	SWR	Standing Wave Radio
1379	SYLDA	System de Lancement Double Ariane (allows 2 payloads)
1380	SYN	Synthesizer
1381	T	Tera (1,000,000,000)
1382	T CARRIER	A hierarchy of Bell digital systems (T1 T2 etc.)
1383	T/R	Transmit/Receiver
1384	T/V	Thermal Vacuum
1385	TA	Transistor
1386	TAC	thrust asymmetry compensation
1387	TASI	Time Assignment Speech Interpolation
1388	TASO	Television Allocations Study
1389	TAT	total air temperature
1390	TAT	Transatlantic Telephone (USA/Europe) Cable
1391	TAWS	terrain awareness and warning system
1392	TB	Terabyte
1393	TB	Trunk Buffer
1394	TBBF	Top Baseband Frequency
1395	TBD	To Be Determined
1396	TBD	to be determined
1397	TBD	To Be Determined
1398	TBU	Transmit Baseband Unit
1399	TC	Type Certificate
1400	TC	Type Certificate
1401	TC	Trunk Circuit
1402	TC	Telecommand
1403	TC AND R	Telemetry Command and Ranging
1404	TCAS	traffic alert and collision avoidance system
1405	TCC	Telephone Coordinating Circuit
1406	TCD	Department of Technical Cooperation for Development (UN)
1407	TCE	Telemetry and Command Equipment
1408	TCM	Trajectory Correction Maneuvers
1409	TCPs	tuning and control panels
1410	TCS	Thermal Control Subsystem
1411	TCXO	Temperature-Compensated Crystal Oscillator
1412	TDA	Terminal Diode Amplifier
1413	TDB	Traffic Data Base
1414	TDF	Telediffusion de France
1415	TDG	Transmit Data Gate
1416	TDL	Terminal Data Loader
1417	TDL	Terminal Data Loader
1418	TDM	Time Division Multiplex
1419	TDMA	Time Division Multiple Access
1420	TDRSS	Tracking and Data Relay Satellite System
1421	TE	Threshold Extension
1422	TED	Threshold Extension Demodulator
1423	TEL	Telephone
1424	TEM	Traverse Electromagnetic
1425	TERA	A trillion
1426	TERM	Termination



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1427	TES	Transportable Earth Station
1428	TETTO	Toroidal Beam Telemetry Antenna
1429	TFC	Traffic
1430	TFT	Thin Film Transistor
1431	TFU	Timing and Frequency Unit
1432	TG	Telegraph
1433	TGF	Through Group Filter
1434	TH	Telemetry
1435	TIROS	Meteorological Satellite (USA)
1436	TIRS	Thermal Infrared Scanner
1437	TIU	Terrestrial Interface Unit
1438	TIUPIL	Typical Information Use Per Individual
1439	TLP	Transmission Level Point
1440	TM	Telemetry
1441	TNIP	Terrestrial Network Interface Processor
1442	TOC	Television Operating Center
1443	TOCC	Technical and Operational Control Center
1444	TOIRS	Transfer Orbit Infrared Earth Sensor
1445	TOPS	Telemetry Operations
1446	TOS	Transfer Orbit Stage
1447	ToS	Type of Service
1448	TOSSA	Transfer Orbit Sun Sensor Assembly
1449	TOT	Time of Transmission
1450	TP	Test to Point
1451	TP	Transmission Point Level
1452	TPCU	tethered passenger control unit
1453	TPD	Time Pulse Delay
1454	TPMU	touch passenger media unit
1455	TPP	Telecommunications Preparatory Programme
1456	TPS	Takeoff Performance System
1457	TPS	Therman Protection System
1458	TPT	Transmission Path Translator
1459	TRAD	Directional Telemetry Antenna
1460	TRANSIT	Navy Navigational Satellite (USA)
1461	TRM	Transmit-Receive Module
1462	TRMA	Time Random Multiple Access
1463	TRMS	TDMA Reference and Monitor Station Services
1464	TRU	transformer rectifier unit
1465	TRU	Transponder Right of Use
1466	TS	Telegraph Service Circuit (CCITT)
1467	TSC	Technical Services Contractor
1468	TSESC	Telegraph Engineering Service Circuit
1469	TSF	Through Supergroup Filter
1470	TSM	Telephony Signaling Module
1471	TSO	Technical Service Order
1472	TSO	technical standard order
1473	TSO	Technical Standard Order
1474	TSP	tail strike protection
1475	TSP	Transmit Shift Pulse
1476	TSS	Tethered Satellite System
1477	TSU	Terminating Signal Unit



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1478	TT AND C	Tracking Telemetry and Command
1479	TTB	Trunk Test Buffer
1480	TTC AND M	Tracking Telemetry Command and Monitoring Station
1481	TTL	Transistor—Transistor Logic
1482	TTP	Trunk Test Panel
1483	TTPB	Trunk Test Panel Buffer
1484	TTS	TDMA Terminal Simulation
1485	TULE	Tulsa Maintenance Base/Station
1486	TV	Television (video and assigned audio)
1487	TVC	Thrust Vector Control
1488	TVEC	Total Vertical Electron Content
1489	TVRO	TV Receive Only
1490	TWLU	terminal wireless LAN unit
1491	TWT	Traveling Wave Tube
1492	TWTA	Traveling Wave Tube Amplifier
1493	TX	Transmit
1494	U	Unidirectional
1495	U/C	Up-converter
1496	UARTO	United Arab Republic Telecommunication Organization
1497	UBK	Unblock
1498	UDC	Universal Data Classification
1499	UDTS	Universal Data Transfer Service
1500	UER	Union Europeene Radiodiffusion (European Broadcasting Union)
1501	UFB	Unfit for Broadcast
1502	UHF	Ultra-High Frequency 300-3000 MHz
1503	UIT	Union Internacional de Telcommunicaiones (ITU)
1504	UITP	International Union of Public Transport
1505	UL OR U/L	Uplink
1506	ULD	unit load device
1507	UMS	user-modifiable software
1508	UNCTAD	Conference on Trade and Development (UN)
1509	UNEP	Environment Programme (UN)
1510	UNESCO	Educational Scientific and Cultural Organization (UN)
1511	UNICODEC	Universal Code/Decoder (TV Service)
1512	UNIPEDE	International Union of Producers and Distribution of Electrical Energy
1513	UPS	Uninterrupted Power Supply
1514	URSI	International Union of Radio Science
1515	USB	Universal Serial Bus
1516	USB	United S-Band
1517	USISC	International Service Carriers (USA)
1518	USPHS	United States Public Health Service
1519	UTC	Universal Time Clock
1520	V	volt
1521	V	Volt
1522	VA	Volt Ampere
1523	VAC	volts alternating current
1524	VAN	Value Added Network
1525	VAR	Variation (Magnetic)
1526	VAS	Value Added Service (or VAN)
1527	VAS II	VideoCipher II
1528	VCC	Video Control Center



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1529	VCO	Voltage Controlled Oscillator
1530	VCS	video control station
1531	VCTU	variable camber trim units
1532	VDA	Volume Discount Agreement
1533	VDC	Valve Coil Driver
1534	VDDA	Variable Destination Demand Assignment
1535	VDL	VHF data Link
1536	VDU	Visual Data Unit
1537	VELCOR	Velocity Correction
1538	VF	Voice Frequency
1539	VFO	Variable Frequency Oscillator
1540	VFT	Voice Frequency Telegraph
1541	VHF	very high frequency
1542	VHF	Very High Frequency
1543	VHRR	Very High Resolution Radiometer
1544	VIEWDATA	Generic name for a home information system
1545	VISSR	Visible-Infrared Spin Scan Radiometer
1546	VITEAC	Video Transmission Engineering Advisory Committee (USA)
1547	VITS	Verification International Test Signal
1548	VLAN	Virtual Local Area Network
1549	VLf	Very Low Frequency
1550	VLR	Very Low Range
1551	VLsL	Very Large Scale Integrations
1552	VMO	maximum operating velocity
1553	VOD	Video On Demand
1554	VOIP	Voice Over Internet Protocol
1555	VOR	VHF omni directional range
1556	VOR	VLF Omnidirectional Radio Range
1557	VOW	Voice Order Wire
1558	VOX	Intersyllabic Voice Activated Carrier
1559	VPA	Video Public Address/ Video Passenger Announcement
1560	VPA	Video Public Address
1561	VPD	Variable Power Divider
1562	VPF	Vertical Processing Facility (KSC)
1563	VPN	Virtual Private Network
1564	VPN	virtual private network
1565	VRE	Voice Recognition Equipment
1566	VSb	Vestigial Sideband
1567	VSD	vertical situation display
1568	VSDM	Variable Slope Delta Encoding
1569	VSM	Vestigial Sideband Modulation
1570	VSWR	Voltage Standing-Wave Ratio
1571	VTF	Via Terrestrial Facilities
1572	VTR	Video Tape Recording
1573	VU	Volume Unit
1574	W	Watt
1575	W/G	Waveguide
1576	WAN	Wide Area Network
1577	WAN	Wide Area Network
1578	WAN	Wide area Network
1579	WAP	Wireless Application Protocol



Master Technical Compliance Matrix Form

Glossary/Acronyms

All AA Requirements below should be available by EIS

Item	Definitions	Description
1580	WARC/MR	World Administrative Radio Conference on Maritime Mobile Telecommunications
1581	WARC/ST	World Administrative Radio Conference on Space Telecommunications
1582	WATS	Wide Area Telephone Service
1583	WB	Wideband
1584	WBD	Wide Band Data (Channel)
1585	WBEAF	Wide Band Earth Station Antenna Feed
1586	WBPA	Wideband Power Amplifier
1587	WDC	World Data Center (Rockets and Satellites)
1588	WF	Weighting Function
1589	WG	Waveguide
1590	WGS	world geodetic system
1591	Wi-Fi	Wireless Technology
1592	WiMAX	Worldwide Interoperability for Microwave Access
1593	WISI	World Index of Space Imagery
1594	WMO	World Meteorological Organization (UN)
1595	WMS	World Magnetic Survey
1596	WPA	Wi-Fi Protected Access
1597	WRAU	weather radar antenna unit
1598	WSI	WSI Corporation – Weather Service
1599	WT	Wireless Telegraphy
1600	WWW	World Weather Watch
1601	WXR	weather radar
1602	X	Combined Services (CCITT)
1603	X-BAND	Used loosely to refer to satellites operating in the 8/7 GHz range
1604	XM	Satellite Radio
1605	XMIT	Transmit
1606	XML	Extensible Markup Language
1607	XPD	Cross-polarization Discrimination
1608	XPI	Cross Polar Interference
1609	XPNDR	Transponder
1610	X-POL	Cross-Polarized
1611	XSSF	Scanner Sync Failure
1612	Y/C	Coach or Economy Class
1613	Y/C	Coach Class
1614	ZT	Zone Time

[***]

**Connectivity & Wireless Ent. Service Level Availability**

Supplier's Response: Bidder should utilize as much of this worksheet as needed to provide detailed answers to the requirements shown below. Supplier is encouraged to utilize text, illustrations, architectural documents/diagrams, charts, and tables if necessary insuring that the response is detailed and without ambiguity.

Requirements: Bidder shall provide the proposed service level(s) availability (SLA). Service availability refers to network and system availability and uptime. The availability service level should coincide with the Service Level Agreement that your organization is proposing

- a. Provide the proposed percentage of system availability and uptime
- b. Show how the service availability percentage was calculated
- c. Does the proposed percentage adhere to industry standard system availability using the "nines calculation" vs. a proprietary calculation? If the proposed percentage is not a standard calculation, explain why and provide the equation
- d. Provide your service availability per fleet and per aircraft
- e. Provide what is covered by the SLA
- f. Provide what is not covered by the SLA (i.e. provide all associated exclusions)

[***]

[***]

[***]



Connectivity Coverage & Future Expansion

Supplier's Response: Bidder should utilize as much of this worksheet as needed to provide detailed answers to the requirements shown below. Supplier is encouraged to utilize text, illustrations, architectural documents/diagrams, charts, and tables if necessary insuring that the response is detailed and without ambiguity.

Requirements: Bidder shall describe, in detail, proposed coverage areas for EIS and proposed future expansion.

- a. Note any American Airlines routes that will not have coverage for entry into service
- b. Describe specific plans and a timeline to close the coverage gaps
- c. Describe the technology used (i.e. Ku, Ka, hybrid, etc)
- d. Provide all specific satcom providers that comprise the solution and the coverage area supported by the specific provider
- e. Provide all specific satcom regulatory status that comprise the solution and the coverage area supported by the specific supplier:
 1. routes and regions with approvals
 2. routes and regions where approvals are actively being pursued
 3. routes and regions where the supplier is without regulatory approval and reasons and steps being pursued to remedy

[***]



Supported Services

Supplier's Response: Bidder should utilize as much of this worksheet as needed to provide detailed answers to the requirements shown below. Supplier is encouraged to utilize text, illustrations, architectural documents/diagrams, charts, and tables if necessary insuring that the response is detailed and without ambiguity.

Requirements: Bidder shall describe all supported services that are proposed. At a minimum, but not limited to, the following services should be defined and/or described:

- a. Customized Customer Information
- b. Live Television
- c. Gaming
- d. Portal Advertising and Promotions
- e. Portal and Portal Applications such as flight information, catalog sales, Live Text news (LTN), food and beverages etc.
- g. System and/or Flight Information
- f. AA Operational Support and Applications (i.e. support for Onboard Sales Recorder)i. Whitelisted websites (i.e. AA.com)
- g. Customer Care (including live chat)
- h. ISP
- i. Ground Based (terrestrial based solution)—Describe your solution for the uploading and offloading of data to the aircraft including the topics:
 1. Manufacture(s)
 2. Technology(s) including anticipated data rates
 - a. Cellular (CDMA, GSM, 2G, 3G, 4G, HSPA+, LTE)
 1. Radio Qty
 2. SIM Qty
 - b. WiFi—802.11 a/g/n/ac ?
 - c. SATCOM etc.
 3. Global capabilities
 - a. Coverage per airport location servicing AAL
 - b. Ability to automatically enable/disable based on geographical or pre-programmed location
- j. Describe On-Board Wireless Access Point (WAP) specifications and capabilities:
 1. User Capacity
 2. Bandwidth/Throughput capabilities
 - a. Per User
 - b. Per Application (IPTV, Wireless Internet, Web-Browsing)
 - c. Performance Monitoring and Reporting—supplier shall identify what SNMP data or similar industry standard based information that is being captured, reviewed and trended to monitor the In-Cabin/On-board Wi-Fi network customer experience.
- k. Supplier shall describe how their WAPs and/or system handles load balancing of Wi-Fi users over each WAP and each WAP radio
- l. Utilize Appendix O to detail any new LRU's such as WAPs, Servers, Controllers etc.
- n. Supplier shall identify if their system utilizes Admission Control policies for their IPTV, Wireless Entertainment, and Web-Browsing user's. If the supplier's system utilizes Admission Control Policies, please describe in detail how it is implemented.
- m. Crew panel / maintenance application via Android, iOS, and or Microsoft platform
- n. Text and Talk crew app
- o. Reporting capabilities (real time & monthly reports)—timelines for development
- p. Other TBD applications or services

[***]

Operating System:

Windows Server 2008
 Linux Suse
 Linux Redhat
 Debian Linux
 Other (please specify)

Server Platform

64Bit
 Other (please specify)

Location:

Rack, or
 Blade mountable

MCU:

6MCU
 Other (please specify)

Processor:

1) Dual Intel® Quad-Core mobile Intel® Core-I7 processors
 2) Single Intel® Quad-Core mobile Intel® Core-I7 processor
 3) Dual Intel® Core-I5 processorS
 2) Single Intel® Core-I5 processor
 3) Quad-core Intel® Xeon® processor
 Other (please specify)

Memory:

32 Gigabyte
 Bus Speed: 1333MHz
 Bus Speed: 1600MHz
 Speed: DDR2
 Speed: DDR3
 Other (please specify)

Connectivity:

Wireless (Wi-Fi)
 802.11a/g
 802.11a/g/n
 802.11a/g/n/ac

Cellular

GSM (3g)
 GSM (HSPA+) w/USIM
 LTE
 LTE Advanced

Network:

100BASE-T Ethernet ports (specify quantity)
 1000BASE-T Ethernet ports (specify quantity)
 10GbE Ethernet ports (specify quantity)
 Other (please specify)

Storage:

SSD Internal Storage: 300 GB
 Solid State Drives - 3 x SATA Hot Swappable solid state drives: 2 Terabytes

PCIe Slots: Vendor to specify number of slots

Other (please specify)

Raid Architecture:

0 to 5 capable

Other (please specify)

Drives:

Compact Flash: Expandable to 128GB

USB 2.0 or better: Minimum of four ports front and rear

DVD / Blu-ray

Floppy

Other (please specify)

Fans and Power supplies:

Dual-redundant fans

Dual-Hot swappable power supplies

Other (please specify)

Ports:

VGA (minimum)

RS-232 serial port(s)

PS2 Mouse

PS2 Keyboard

Other (please specify)

IFE: Please repeat above specifications for IFE related servers.

ROADMAP: Please conclude with server Roadmap

[***]

[***]

SATCOM Antenna & Radome

[***]

Requirement 1:

Describe, in detail, the antenna system that will be implemented with your solution including, but not limited to the following:

- a. Describe the current status of radome/antenna development and certification, including timelines of certification processes, qual testing, first-of-type installations (prototypes), and start of revenue service.
- b. Describe, in detail, the process to install your antenna.
- c. If the Antenna is Ku band only describe, in detail, plans if any to upgrade to Ka band.
- d. Describe the proposed design and installation mounting locations.
- e. Describe any constraints of antenna installation in proximity to any other aircraft system antennas.

Requirement 2:

ARINC 791 is intended to provide guidance on the interfaces, form, fit and function for a Ku-Band or Ka-band Satellite Communication System. Will your proposed Radome solution be deployed and certified according to ARINC 791?

- a. Is the SATCOM Antenna and Radome design ARINC 791 compliant?
- b. If not, describe deviations to ARINC 791.

Requirement 3:

b. For in-service aircraft maintenance;

- > Define elapsed time to remove, replace, and perform RTS (R&R) on the Supplier's SATCOM antenna.
- > Define required tooling, equipment, safety equipment, and test equipment, to accomplish the (R&R), of the supplier's SATCOM antenna.
- > Define the training necessary for maintenance personnel to accomplish the R&R of the Suppliers SATCOM antenna.

a. Describe, in detail, the lead time and time required for installation.

b. Describe any requirements on aircraft position, fuselage stability, required during installation. For example- can other airframe modification work or repair work be taking place simultaneously? Does the aircraft have to be totally parked inside a hanger?

c. For in-service aircraft (i.e. maintenance tasks);

> Define elapsed time to remove, replace, and perform Return To Service testing (R&R) on the Supplier's SATCOM antenna.

> Define required tooling, equipment, safety equipment, and test equipment, to accomplish the (R&R), of the supplier's SATCOM antenna.

> Define the training necessary for maintenance personnel to accomplish the R&R of the Suppliers SATCOM antenna.

[***]

[***]

Additional Warranty Details for each product and fleet



[***]
Requirement: Bidders shall describe in detail any additional information pertaining to warranties for the various product offerings outlined in Appendix A through Appendix G.
[***]

Additional Certification and Design Information



[***]

Requirement: Bidders shall describe in detail any special certification and design requirement not captured in American Airlines’s requirements outlined in Appendix A through Appendix G.

[***]

Additional Reliability Information



[***]

Requirement: Bidders shall describe in detail any know reliability issues and future plans to resolve those issues.

[***]

Additional Wireless Entertainment Information

[***]

Requirement: Bidders shall describe in detail any know limitation of the streaming product. Please document the max number of users and define the assumptions used to generate those numbers. What are your future plans for this product? How will bandwidth be allocated between the Wi-Fi system and the streaming product?

[***]

EMPLOYMENT AGREEMENT

This Employment Agreement (this “**Agreement**”) is entered into effective April 24, 2017 (the “**Effective Date**”) by and between **Gogo LLC**, 111 N. Canal Street, Suite 1500, Chicago, IL 60606 (the “**Company**”), and Barry Rowan (“**Executive**”). This Agreement supersedes and replaces all other agreements, whether oral or written, related to the terms of Executive’s employment with the Company. Certain capitalized terms used herein have the meanings given to them in Section 20 hereof.

AGREEMENT:

In consideration of the mutual covenants contained herein, the parties agree as follows:

1. Employment. The Company hereby agrees to employ Executive, and Executive hereby accepts such employment upon the terms and conditions set forth herein.

2. Capacity and Duties. As of the Effective Date, Executive shall be employed by the Company as its Executive Vice President, Finance. Promptly following the Company’s filing with the Securities and Exchange Commission of its Quarterly Report on Form 10-Q for the quarter ending March 31, 2017, which is scheduled to occur on May 4, 2017, the Company’s current Chief Financial Officer will resign from, and Executive will assume, the position of Executive Vice President and Chief Financial Officer. During Executive’s employment with the Company, Executive shall perform the duties and bear the responsibilities commensurate with Executive’s position, and shall serve the Company faithfully and to the best of Executive’s ability, under the direction of the Company’s Chief Executive Officer. Executive shall also perform such other duties as may be reasonably requested from time to time by the Company’s Chief Executive Officer or Board of Directors of Gogo, Inc., of which the Company is a wholly owned subsidiary (“**Parent**”). Executive’s actions shall at all times be such that they do not discredit the Company or its products and services, and Executive shall not engage in any business activity or activities that require significant personal services by Executive or that, in the sole judgment of the Company, may conflict with the proper performance of Executive’s duties hereunder. Provided that Executive is at all times in compliance with the requirements of the previous sentence, the Executive may participate as a member of the board of directors of one company. Executive shall devote all Executive’s working time, working attention, and working energies to the business of the Company.

3. Compensation.

(a) Starting Bonus. The Company shall pay to Executive a starting bonus of \$100,000. Such bonus shall be paid on the date of the first regular payroll on or after June 9, 2017, , and is intended to assist in paying his commuting expenses prior to the relocation contemplated by Section 3(h) below, as well as miscellaneous costs incurred by Executive in connection with such relocation. In the event that Executive’s employment terminates for Cause or without Good Reason] prior to the first anniversary of the Effective Date, Executive will promptly repay such bonus to the Company.

(b) Base Salary. The Company shall pay to Executive as base compensation for all of the services to be rendered by Executive under this Agreement a salary at the rate of \$450,000 per annum (the “**Base Salary**”), payable in accordance with such normal payroll practices as are adopted by the Company from time to time, subject to withholdings for federal, state and local taxes, FICA and other withholding required by applicable law, regulation or ruling. The Base Salary shall be reviewed at least annually. Unless the Company and Executive mutually agree otherwise, Executive’s annual salary shall not be reduced other than as part of an overall compensation reduction at the Company that impacts salaries of all executives of the Company and in such event shall not be reduced by more than 10% of Executive’s then-current Base Salary. In addition, Executive shall be eligible for an annual discretionary bonus with a target of seventy five percent (75%) of Base Salary. The amount of such annual discretionary bonus, if any, shall be decided by the Compensation Committee of the Board of Directors of Parent, and shall be based upon achievement of objectives established by the Compensation Committee, all as determined in the reasonable discretion of the Compensation Committee. Any bonus payable to Executive for 2017 shall be prorated based upon his start date.

(c) Reimbursement of Expenses, Company Facilities. The Company shall pay or reimburse Executive for all reasonable, ordinary and necessary travel and other expenses incurred by Executive in the performance of Executive’s obligations under this Agreement, in accordance with the Company’s travel and expense reimbursement policies for management employees. The Company shall provide to Executive, at the Company’s principal place of business, the necessary office facilities and equipment to perform Executive’s obligations under this Agreement. In addition, the Company shall provide to Executive, for use at Executive’s home office, two computer monitors, a docking station and a printer, and the Company shall reimburse Executive for costs incurred in setting up connectivity between such home office and the Company’s principal place of business. The Company will reimburse Executive for up to \$15,000 of attorney’s fees incurred in connection with the review and negotiation of the terms and conditions of employment.

(d) Discretionary Time Off. The Company has no formal vacation or time off policy with set time off amounts and accruals. Instead, Executive will have the flexibility to take time off as determined by Executive subject to approval of the CEO.

(e) Benefits. Subject to applicable eligibility requirements, Executive shall be eligible to participate in all normal company benefits available to the Company’s Chief Executive Officer and other executives including the Company’s 401(k), retirement, medical, dental and life and disability insurance plans and programs in accordance with the terms thereof. Any such benefits, plans and/or programs shall be subject to change or termination from time to time, as determined by the Company.

(f) Directors and Officers Insurance. Officers and directors liability insurance shall be obtained and maintained by the Company for reasonable and customary coverage of the Company, other executives of the Company and Executive, at no cost to Executive.

(g) Equity. Subject to approval by the Compensation Committee of the Board of Directors of Parent, Executive shall be entitled to receive the following awards, with a grant date of April 24, 2017: (i) 200,000 options to purchase common stock in Parent and 40,000 restricted stock awards in Parent, in each case vesting in four equal annual increments

beginning on the first anniversary of the grant date; and (ii) 20,000 performance stock units and 100,000 performance options in Parent, in each case vesting in four equal annual increments beginning on the first anniversary of the grant date but subject to the additional vesting condition that the closing price of Parent's common stock equal or exceed \$25 per share for 30 consecutive trading days at some time during the four years following the date of grant. Such equity will be issued pursuant to the Company's standard terms and conditions as set forth in the option, restricted stock award, performance stock unit and performance option agreements and The 2013 Gogo Omnibus Stock Incentive Plan or The 2016 Gogo Omnibus Stock Incentive Plan (the "**Plans**"), and the vesting thereof shall be subject, in addition to the vesting conditions described above, to Executive's continued employment hereunder and the terms of the applicable Plan. Additionally, Executive shall be eligible to participate in an annual equity award program, as approved by the Compensation Committee of the Board of Directors of Parent.

(h) Relocation Benefits. Executive's principal office will be in Chicago, IL. The Company will provide relocation benefits as and to the extent set forth in Exhibit A hereto; provided, however, that such benefits shall expire at such times as are specified in Exhibit A. The Company makes no representation as to the proper tax treatment of reimbursed relocation benefits on Executive's federal or state income tax returns and Executive is responsible for obtaining independent advice from his personal tax advisor.

4. Confidentiality; Ownership of Confidential Information and Inventions.

(a) Receipt of Confidential Information. Executive's employment by the Company creates a relationship of confidence and trust between Executive and the Company with respect to certain information applicable to the business of the Company and its clients or customers. Executive acknowledges that during Executive's employment by the Company and as a result of the confidential relationship with the Company established thereby, Executive shall be receiving Confidential Information and that the Confidential Information is a highly valuable asset of the Company.

(b) Nondisclosure. During Executive's employment with the Company and at all times thereafter, regardless of the reason for the termination of such employment, Executive shall retain in strict confidence and shall not use for any purpose whatsoever or divulge, disseminate, or disclose to any third party (other than in the furtherance of the business purposes of the Company and with the Company's prior written consent) all Confidential Information, all of which is deemed confidential and proprietary. Notwithstanding anything in this Agreement to the contrary, nothing contained in this Agreement limits the Employee's ability to communicate with or participate in any investigation or proceeding regarding possible violations of U.S. Federal securities laws that may be conducted by the U.S. Securities and Exchange Commission, the U.S. Department of Justice, the U.S. Consumer Financial Protection Bureau or the U.S. Commodity Futures Trading Commission.

(c) Disclosure. Executive shall inform the Company promptly and fully of all Inventions by a written report, setting forth in detail a description of the Invention, the procedures used and the results achieved. Executive shall submit a report upon completing any studies or research projects undertaken on the Company's behalf, whether or not Executive believes that project has resulted in an Invention. Executive agrees to keep and maintain adequate and current records (in the form of notes, sketches, drawings and in any other form that may be required by the Company) of all Inventions, which records shall be available to and remain the sole property of the Company at all times.

(d) Ownership; Cooperation. All Confidential Information and Inventions shall be and remain the sole property of the Company. Executive promptly shall execute and deliver to the Company any instruments deemed necessary by it to effect disclosure and assignment of all Inventions to the Company including, without limitation, assignment agreements satisfactory to the Company. Upon request of the Company, during and after Executive's employment with the Company, Executive shall execute patent, copyright, trademark, mask work or other applications and any other instruments deemed necessary by the Company for the prosecution of such patent applications or the acquisition of letters patent or registration of copyrights, trademarks or mask works in the United States and foreign countries based on such Inventions; *provided, however*, that if Executive incurs any expenses in connection with the foregoing obligation after Executive's employment with the Company is terminated, the Company shall compensate Executive at a reasonable rate for the time actually spent by Executive at the Company's request in satisfying such obligation.

(e) Works for Hire. To the extent the Inventions consist of original works of authorship which are made by Executive (solely or jointly with others) within the scope of Executive's employment and which are protectable by copyright, Executive acknowledges that all such original works of authorship are "works for hire" as that term is defined in the United States Copyright Act (17 U.S.C., Section 101).

5. Covenants-Not-to-Compete. In consideration of Executive's continued employment as an executive of the Company and in consideration of the Company's obligations contained in this Agreement, including, without limitation, its agreeing to provide the equity grant specified in Section 3(g) and to pay the severance benefits in the circumstances specified in Section 9(a), and because Executive shall have access to Confidential Information, including, without limitation, Trade Secrets, Executive hereby covenants as follows (as used in this Section the term "Company" includes Gogo LLC and its Affiliates):

(a) Covenants. Without the prior written consent of the Board, (x) during Executive's employment with the Company and (y) for one (1) year after leaving the employment of the Company, whether voluntarily or involuntarily, Executive shall not directly or indirectly, personally, by agency, as an employee, consultant, officer or director, through a corporation, partnership, limited liability company, or by any other artifice or device:

(i) Own, manage, operate, control, work for, provide services to, employ, have any financial interest in, consult to, lend Executive's name to or engage in any capacity in any enterprise, business, company or other entity (whether existing or newly established) engaged in a Competitive Business, whether in anticipation of monetary compensation or otherwise;

(ii) Solicit or otherwise induce any person who is then or was employed by the Company or otherwise engaged by the Company as an independent contractor or consultant at any time during the twelve (12) month period preceding Executive's last day of employment, to terminate his employment or service with the Company to engage in any Competitive Business, or intentionally interfere with the relationship of the Company with any such employee, former employee or person, it being understood that a general advertisement of employment opportunities to which a current or former employee of the Company or any of its Affiliates responds shall not constitute solicitation or inducement for purposes of this Section 5 (a)(ii), or hire any such former employee within ninety days following his or her termination of employment with the Company or any of its Affiliates

(iii) Solicit or service in any way in connection with or relating to a Competitive Business, on behalf of Executive or on behalf of or in conjunction with others, any client or customer, or prospective client or customer of the Company, or induce any customer, client, prospective customer or client, vendor or strategic partner of the Company to terminate or negatively alter his or its relationship with the Company, who has been solicited or serviced by the Company or any of its Affiliates within the twelve (12) month period preceding Executive's last day of employment with the Company; or

(iv) Assist others in doing anything prohibited by clause (i), (ii) or (iii) above. Due to the global nature of the Company's business and its competition there is no applicable geographic restriction on the covenants set forth herein. The covenants in this Section 5(a) shall be specifically enforceable. However, the covenants in this Section 5(a) shall not be construed to prohibit the ownership of not more than one percent of the equity of any publicly-held entity engaged in direct competition with the Company, so long as Executive is not otherwise engaged with such entity in any of the other activities specified in Section 5(a)(i) through (iv) above.

(b) Reformation and/or Severability of Covenants. If a court determines that any of the foregoing covenants is an unenforceable restriction, the court is authorized and requested to revise such provision to include the maximum restriction allowed under applicable law. If any provision of this Agreement is determined to be in violation of any law, rule or regulation or otherwise unenforceable, and cannot be modified to be enforceable, such determination shall not affect the validity of any other provision of this Agreement, and such other provisions shall remain in full force and effect. Each provision, paragraph and subparagraph of this Agreement is severable from every other provision, paragraph and subparagraph and constitutes a separate and distinct covenant.

(c) Acknowledgment. Executive acknowledges that the covenants made by Executive in this Agreement are intended to protect the legitimate business interests of the Company and not to prevent or interfere with Executive's ability to earn a living. Executive further understands that the Company may, in its sole discretion, permit Executive to engage in certain work or activity described in Section 5, if and only if Executive provides the Company with written evidence satisfactory to the Company, including assurances from any new employer or entity, that the contribution of Executive's knowledge to that work or activity will not cause Executive to disclose, base judgment upon or use the Company's Confidential Information, or any other assurances as may be requested by the Company in its discretion. Executive agrees that he will not engage in such work or activity unless and until Executive receives written consent from the Company.

6. Injunctive Relief; Legal Fees. If Executive violates any of the provisions of Section 4 or 5 hereof (the “*Applicable Sections*”), the Company shall be entitled to seek and, if awarded by a court or arbitrator, obtain immediate and permanent injunctive relief in addition to all other rights and remedies it may have, it being agreed that a violation of the Applicable Sections would cause the Company irreparable harm, and the damages which the Company would sustain upon such violation are difficult or impossible to ascertain in advance. If the Company takes legal action to enforce the covenants contained in the Applicable Sections, or to enjoin Executive from violating the Applicable Sections, as part of its damages, the prevailing party shall be entitled to recover its reasonable legal costs and expenses for bringing and maintaining any such action from the losing party.

7. No Conflict. Executive represents and warrants to the Company that (a) Executive has not signed any employment agreement, confidentiality agreement, non-competition covenant or the like with any other employer and (b) Executive’s employment with the Company will not violate any other agreement or arrangement Executive has or may have had with any other former employer. Executive covenants that under no circumstances shall Executive disclose to the Company or use for the benefit of the Company any confidential or proprietary information of any former employer or other third party, and Executive shall hold all such information in confidence, and shall comply with the terms of any and all applicable agreements between Executive and the third party with respect to such information.

8. Termination. Executive and the Company each acknowledge that either party has the right to terminate Executive’s employment with the Company at any time for any reason whatsoever, with or without cause, pursuant to the following:

(a) Termination by the Company Without Cause. Upon thirty (30) days’ written notice to Executive, or at the Company’s discretion, pay in lieu of notice;

(b) Disability. Immediately upon written notice to Executive, if Executive is prevented from performing Executive’s duties, with or without reasonable accommodation, by reason of illness or incapacity for a continuous period of 180 days;

(c) Death. Immediately upon the death of Executive; or

(d) Termination by the Company for Cause. Immediately upon “Cause”, which for purposes of this Agreement shall mean Executive’s (1) willful gross misconduct or gross or persistent negligence in the discharge of his duties; (2) act of dishonesty or concealment; (3) breach of his fiduciary duty or duty of loyalty to the Company; (4) a material breach of Section 4 or 5 hereof; (5) any other material breach by Executive of this Agreement, which breach has not been cured by Executive within thirty (30) days after written notice of such breach is given to Executive by the Company; (6) commission of one or more acts of substance abuse which are materially injurious to the Company; (7) commission of a criminal offense involving money or other property of the Company (excluding traffic or other similar violations); or (8) commission of a criminal offense that would, if committed in the State of Illinois, constitute a felony under the laws of the State of Illinois or the United States of America. For purposes of this Agreement, an act or failure to act shall be considered “willful” only if done or failed to be done by Executive intentionally or in bad faith.

(e) Voluntary Resignation. Executive may terminate Executive's employment under this Agreement upon thirty (30) days' written notice to the Company. The Company, at its discretion, may waive the thirty (30) day notice requirement, and in such event shall be required to make any payments in lieu of notice.

(f) Resignation for Good Reason. Executive may terminate his employment under this Agreement immediately upon a showing of "Good Reason," which for purposes of this Agreement shall mean (1) a reduction by the Company in Executive's Base Salary beyond what is permitted by Section 3 (b); (2) a material diminution of Executive's duties or responsibilities such that such duties and responsibilities, when viewed in the aggregate, are not at least commensurate with those duties and responsibilities normally associated with and appropriate to the position of Chief Financial Officer; (3) the relocation of Executive's principal place of employment to a geographic location greater than fifty (50) miles from the Company's headquarters as of the Effective Date; or, (4) any material breach by the Company of its obligations to Executive hereunder. In the event that Executive believes that circumstances constituting "Good Reason" have occurred and Executive wishes to terminate his employment as a result of such occurrence, Executive must provide the Company written notice within 30 days from the initial existence of the occurrence. If within 30 days following the Company's receipt of such notice it corrects the circumstances constituting "Good Reason," then Executive shall not be entitled to terminate his employment under this Section 8(f) as a result of such circumstances. Furthermore, Executive shall not be entitled to terminate his employment under this Section 8(f) as a result of any circumstances constituting "Good Reason" unless his resignation occurs within 30 days following the expiration of the Company's cure period.

9. Termination Benefits.

(a) Termination by the Company Without Cause or Resignation for Good Reason . If Executive is terminated under Section 8(a) or resigns for Good Reason under Section 8(f), and following the execution (and expiration of any revocation period), not later than 45 days following the termination date, of a separation agreement containing a general release of all claims against Parent, the Company and its Affiliates, the Company shall pay Executive an amount equal to Executive's Base Salary under Section 3(b) at the time of such termination for a period of twelve (12) months (each such payment a "**Severance Payment**"). The Severance Payment shall be payable in installments, by direct deposit, in accordance with the Company's normal payroll practices. The first installment of the Severance Payments shall be made on the first payroll date after the execution (and expiration of any revocation period) of such separation agreement or, if the 45-day period following the termination date spans two calendar years and the Severance Payment is subject to Section 409A of the Internal Revenue Code, after such 45-day period, and shall include all installments of the Severance Payments that would have been paid if the general release of claims had been fully effective on the termination date. In addition, during the twelve (12) months following termination, should Executive timely elect to continue coverage pursuant to COBRA, the Company agrees to reimburse Executive for the COBRA premiums due to maintain health insurance coverage that is substantially equivalent to that which he received immediately prior to Executive's termination. The Company shall also pay Executive (i) any salary earned but unpaid prior to termination, (ii) any business expenses incurred but not reimbursed as of the date of termination, and (iii) any award under the annual bonus program referred to in Section 3(a) that has been approved by the Chief Executive Officer and Parent's Board of Directors but not paid prior to termination.

(b) Other Termination. In all other cases, the Company's obligation to make payments hereunder shall cease upon such termination, except the Company shall pay Executive (i) any salary earned but unpaid prior to termination, and (ii) any business expenses incurred but not reimbursed as of the date of termination.

(c) Survival of Obligations. Executive's obligations pursuant to Sections 4 and 5 shall survive the expiration of the term of Executive's employment under this Agreement or any early termination thereof.

(d) Returns. Upon termination of Executive's employment under this Agreement, or as otherwise requested by the Company, immediately upon the Company's request, Executive shall return to the Company all Company files, notes, business plans and forecasts, financial information, computer-recorded information, tangible property including computers, software, credit cards, entry cards, identification badges, cell phones, pager, keys, tools, equipment and any materials of any kind which contain or embody any proprietary or confidential information of the Company (and all reproductions thereof).

10. Notices. All notices, reports, records or other communications which are required or permitted to be given to the parties under this Agreement shall be sufficient in all respects if given in writing and delivered in person, by telecopy, by overnight courier, or by registered or certified mail, postage prepaid, return receipt requested, to the receiving party at the address listed on the first page of this Agreement, or to such other address as such party may have given to the other by notice pursuant to this Section 10. Notice shall be deemed given on the date of delivery, in the case of personal delivery or telecopy, or on the delivery or refusal date, as specified on the return receipt, in the case of overnight courier or registered or certified mail.

11. Further Assurances. The parties shall cooperate fully with each other and execute such further instruments, documents and agreements, and shall give such further written assurances, as may be reasonably requested by one another to better evidence and reflect the transactions described herein and contemplated hereby and to carry into effect the intent and purposes of this Agreement. Without limiting the generality of the foregoing, Executive shall cooperate fully in assisting the Company to comply with contractual obligations of the Company to third parties regarding Inventions, Trade Secrets and copyrights.

12. Waiver of Breach. A waiver by the Company of a breach of any provision of this Agreement by Executive shall not operate or be construed as a waiver of any subsequent breach by Executive.

13. Applicable Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Illinois. Any action pursuant to Section 4 or 5 above may be brought in the Courts in the State of Illinois, and by execution of this Agreement, Executive irrevocably submits to such jurisdiction.

14. Arbitration.

(a) Any dispute arising in connection with this Agreement or Executive's employment with the Company, except for equitable or injunctive actions pursuant to Section 4 or 5 above, or claims by Executive for workers' compensation, unemployment compensation or benefits under a Company benefits plan, shall be submitted to final and binding arbitration. Judgment upon any award rendered by arbitration may be entered in any court having jurisdiction thereof.

(b) The arbitrator shall be selected by the mutual agreement of the parties. Any arbitrator selected shall be a professional having at least ten years of experience in labor or employment related practice areas. If the amount in dispute exceeds \$250,000, the parties shall select, by mutual agreement, a panel of three arbitrators, rather than one arbitrator, to resolve the dispute.

(c) The arbitration shall be conducted in Chicago, Illinois (unless the corporate headquarters of the Company shall have been moved to another location, in which case the arbitration shall be conducted in such location). Reasonable discovery shall be permitted as determined by the arbitrator or arbitrators. Both parties to an arbitration shall have the right to be represented by counsel. The attorneys' fees and costs of the arbitrator and arbitration proceedings are to be shared equally between the parties, and all other costs and attorneys' fees are to be paid by the party incurring such costs and fees.

(d) Except as otherwise provided herein, this arbitration procedure is the exclusive remedy for any contractual, non-contractual or statutory claim of any kind, including claims arising under federal, state and local statutory law, including, but not limited to, the Age Discrimination in Employment Act of 1967, 29 U.S.C. § 621 *et seq.*; Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e *et seq.*; the Americans with Disabilities Act, 42 U.S.C. § 12101 *et seq.*; the Employee Retirement Income Security Act, 29 U.S.C. § 1001 *et seq.*; the Illinois Human Rights Act, 75 ILCS § 5/1-101 *et seq.*; and common law or equitable claims alleging breach of contract, defamation, fraud, outrageous conduct, promissory estoppel, violation of public policy, wrongful discharge or any other tort, contract or equitable theory. Executive agrees to exhaust any and all internal dispute resolution procedures established by the Company prior to pursuing arbitration under this Agreement.

15. Severability. If any provision of this Agreement shall be held by any Court of competent jurisdiction to be illegal, void or unenforceable, such provision shall be of no force and effect, but the enforceability of all other provisions of this Agreement shall be unimpaired.

16. Binding Agreement. Executive shall not delegate or assign any of Executive's rights or obligations under this Agreement. All of the terms and provisions of this Agreement shall be binding upon and inure to the benefit of and be enforceable by Executive, the Company and the Company's successors and assigns; *provided, however,* that the Company may not assign this Agreement to any other person or entity without the prior written consent of Executive except (a) to Parent or (b) in connection with a sale, assignment or other transfer by the Company of all or a substantial portion of its assets or business, in each of which events assignment of this Agreement is expressly permitted without the consent of Executive.

17. Merger; Amendment. This Agreement sets forth the entire understanding of the parties with respect to the subject matter hereof and no other statement, representation, warranty or covenant has been made by either party except as expressly set forth herein. This Agreement may be amended at any time, *provided* that such amendment is in writing and is signed by each of the parties.

18. Nature of Employment. EXECUTIVE IS EMPLOYED WITH THE COMPANY FOR NO SPECIFIC TERM OF EMPLOYMENT, AND IS EMPLOYED AT THE WILL OF THE COMPANY. NOTHING IN THIS AGREEMENT SHALL IN ANY WAY RESTRICT EXECUTIVE'S RIGHT OR THE RIGHT OF THE COMPANY TO TERMINATE EXECUTIVE'S EMPLOYMENT AT ANY TIME, FOR ANY REASON OR FOR NO REASON, WITH OR WITHOUT CAUSE AND WITH OR WITHOUT NOTICE.

19. Section 409A. This Agreement is intended to comply with the requirements of Section 409A of the Internal Revenue Code of 1986, as amended (the "**Code**"), and shall be interpreted and construed consistently with such intent. The payments to Executive pursuant to this Agreement are also intended to be exempt from Section 409A of the Code to the maximum extent possible, under the separation pay exemption pursuant to Treasury regulation §1.409A-1(b)(9)(iii), as short-term deferrals pursuant to Treasury regulation §1.409A-1(b)(4), or another applicable exemption under Section 409A of the Code or the Treasury regulations promulgated thereunder. In the event the terms of this Agreement would subject Executive to taxes or penalties under Section 409A of the Code ("**409A Penalties**"), the Company and Executive shall cooperate diligently to amend the terms of the Agreement to avoid such 409A Penalties, to the extent possible. To the extent any amounts under this Agreement are payable by reference to Executive's "termination of employment" or similar terms, such term and similar terms shall be deemed to refer to Executive's "separation from service," within the meaning of Section 409A of the Code. Notwithstanding any other provision in this Agreement, if Executive is a "specified employee," as defined in Section 409A of the Code, as of the date of Executive's separation from service, then to the extent any amount payable under this Agreement (i) constitutes the payment of nonqualified deferred compensation, within the meaning of Section 409A of the Code, (ii) is payable upon Executive's separation from service and (iii) under the terms of this Agreement would be payable prior to the six-month anniversary of Executive's separation from service, such payment shall be delayed until the earlier to occur of (a) the six-month anniversary of the separation from service or (b) the date of Executive's death. Any reimbursement payable to Executive pursuant to this Agreement shall be conditioned on the submission by Executive of all expense reports reasonably required by the Company under any applicable expense reimbursement policy, and shall be paid to Executive promptly following receipt of such expense reports, but in no event later than the last day of the calendar year following the calendar year in which Executive incurred the reimbursable expense. Any amount of expenses eligible for reimbursement, or in-kind benefit provided, during a calendar year shall not affect the amount of expenses eligible for reimbursement, or in-kind benefit to be provided, during any other calendar year. The right to any reimbursement or in-kind benefit pursuant to this Agreement shall not be subject to liquidation or exchange for any other benefit. Executive's right to receive any installment payments under this Agreement, including without limitation any salary continuation payments that are payable in installments in accordance with the Company's normal payroll practices, shall be treated as a right to receive a series of separate payments and, accordingly, each such installment payment shall at all times be considered a separate and distinct payment as permitted under Section 409A of the Code. Whenever a provision under this Agreement specifies a payment period with reference to a number of days, the actual date of payment within the specified period shall be within the sole discretion of the Company.

20. Definitions. In addition to terms defined above and elsewhere in this Agreement, the following terms shall have the meanings set forth below:

“Affiliate” means (i) any parent or subsidiary of the Company and (ii) any person or entity that directly or indirectly, through one or more intermediaries, controls, is controlled by or is under common control with, the Company. For purposes of this definition, the terms “controls,” “is controlled by” or “is under common control with” shall mean the possession, direct or indirect, of the power to direct or cause the direction of the management and policies of a person or entity, whether through the ownership of voting securities, by contract or otherwise.

“Air-to-Ground Communication” means (i) data and/or voice communications directly or indirectly between an aircraft and the ground, including communications between an aircraft and the ground transmitted in whole or in part by satellite, (ii) data and/or voice communications within an aircraft, including all communications to or from the cabin and/or the cockpit of an aircraft, (iii) any and all related products and services and (iv) any and all products and services directly supportive thereof. For the avoidance of doubt, Air-to-Ground Communications does not include communications by satellite that do not involve communication to or from an aircraft.

“Competitive Business” means any business engaged in (i) providing Air-to-Ground Communications, (ii) assembling, manufacturing, installing or selling equipment involved in or relating to Air-to-Ground Communications or (iii) any other business or activities that are substantially in competition with any other businesses in which the Company or any of its Affiliates materially engages in during Executive’s employment or is actively contemplating entering into during Executive’s employment. For purposes of this Agreement, in the event that a Competitive Business includes an organization with separate and distinct business units, to the extent possible, and upon the written approval of the Company, the term Competitive Business may be limited to only those business units(s) or persons of the Competitive Business that are engaged in, related to or become engaged in, or related to the business of Air-to-Ground Communications.

“Confidential Information” means all information relating to the Company, its Affiliates and their respective customers and suppliers considered by the Company or its Affiliates to be confidential and proprietary including, without limitation, (a) business plans, research, development and marketing strategies, customer names and lists, product and service prices and lines, processes, designs, formulae, methods, financial information, costs and supplies and (b) the Trade Secrets (as defined below). Confidential Information may include information which has been acquired or created by Executive or has otherwise become known to Executive through Executive’s employment with Company. Confidential Information may also include information belonging to the Company’s clients, customers or suppliers. “Confidential Information” shall not include the foregoing that is or becomes (i) in the public domain other than through acts by Executive, (ii) already lawfully in Executive’s possession at the time of disclosure by the Company as evidenced by Executive’s written records, (iii) disclosed to Executive by a third party who is not prohibited from disclosing the information pursuant to any fiduciary, contractual or other duty to any person or (iv) required by law, rule, regulation or court order to be disclosed.

“Existing Proprietary Rights” means all inventions, original works of authorship, developments, improvements and trade secrets that Executive has, alone or jointly with others, made, conceived, developed or reduced to practice or caused to be made, conceived, developed or reduced to practice prior to the Effective Date, whether or not patentable or registrable under patent, copyright or similar statutes, a list of which is attached to this Agreement as **Exhibit B**.

“Inventions” means discoveries, concepts, ideas, methods, formulae, techniques, developments, know-how, inventions and improvements, whether or not patentable or registrable under patent, copyright or similar statutes, conceived of or made by Executive at any time, whether before, during or after business hours, or with the use of the Company’s resources, facilities, materials or personnel, either solely or jointly with others after the Effective Date and during Executive’s employment by the Company, or within one (1) year of the termination of Executive’s employment with the Company. and if based on or related to the Company’s business, including, without limitation, existing and planned products and services and future products and services of the Company and its Affiliates.

“Trade Secrets” means any and all technology and information relating to the Company’s and its Affiliates’ business or their respective patents, methods, formulae, software, know-how, designs, products, processes, services, research development, inventions, systems, engineering and manufacturing which have been designated as secret or confidential or are the subject of efforts that are reasonable under the circumstances to maintain their secrecy or confidentiality and which are sufficiently secret to derive economic value, actual or potential, from not being generally known to other persons.

The parties have executed this Agreement on the date first above written, effective as of the Effective Date.

COMPANY:

GOGO LLC

Date: 4/20/17
/s/ Michael Small

Title: _____

EXECUTIVE:

Date: 4/20/17
/s/ Barry Rowan

EVP & CFO

Exhibit A

Relocation Program Summary

Summary of Benefits

- **Temporary Housing Expenses:** The Company will reimburse you for the cost of temporary housing for up to 60 days.
- **Relocation Services:** If you purchase a home within 14 months of the Effective Date, the Company will pay (or reimburse you) for all reasonable and customary moving expenses, including: (i) packing, transporting and unpacking household goods up to 16,000 lbs.; (ii) transporting one automobile; and (iii) reasonable closing costs associated with the sale and purchase of your home in line with typical executive relocation benefits.

Exhibit B

Existing Proprietary Rights

[None]

CHANGE IN CONTROL SEVERANCE AGREEMENT

This Change in Control Severance Agreement is entered into on this 24th day of April 2017 (this “**Agreement**”) by and between Gogo Inc., a Delaware corporation (“the **Company**”), and Barry Rowan (“**Executive**”). Certain capitalized terms used herein have the meanings given to them in Section 16 hereof.

RECITALS:

WHEREAS, the Board of Directors of the Company (the “**Board**”) considers the maintenance of a sound management to be essential to protecting and enhancing the best interests of the Company and its stockholders and, in this connection, recognizes that the possibility of a Change in Control may exist from time to time, and that this possibility, and the uncertainty and questions it may raise among management, may result in the departure or distraction of management personnel to the detriment of Gogo and its stockholders; and

WHEREAS, the Board has determined that appropriate steps should be taken to encourage the continued attention and dedication of members of management of the Company and its Subsidiaries to their assigned duties without the distraction which may arise from the possibility of a Change in Control.

AGREEMENT:

In consideration of the mutual covenants contained herein, the parties agree as follows:

1. At-Will Employment. The Company and Executive acknowledge that the Executive’s employment is and shall continue to be at-will, as defined under applicable law. If the Executive’s employment terminates for any reason, the Executive shall not be entitled to any payments, benefits, damages, awards or compensation other than as provided by this Agreement or the Employment Agreement, or as may otherwise be established under the then-existing employee benefit plans or policies of the Company and its Subsidiaries at the time of termination.

2. Change in Control and Severance Benefits.

(a) Severance Payments. If Executive's employment is terminated as a result of a Qualifying Termination, the Company shall pay Executive an amount equal to the sum of (i) twelve (12) months of Executive's Base Salary, pursuant to Section 9(a) of the Employment Agreement (the "**Basic Separation Payment**"), and (ii) six (6) months of Executive's Base Salary plus an amount equal to the product of (x) 1/12 of Executive's Target Bonus and (y) the number of months in the Severance Period (the, "**Additional Payment**"). Notwithstanding anything to the contrary in the Employment Agreement, the Company shall pay the Additional Payment together with the Basic Separation Payment (collectively, the "**Severance Payment**"), in cash in a single lump sum payment, within ten (10) days following the Date of Termination. In addition, during the eighteen (18) months following the Date of Termination or, if a shorter period, the maximum period permitted by law, should Executive timely elect to continue coverage pursuant to COBRA, the Company agrees to reimburse Executive for the COBRA premiums due to maintain health insurance coverage that is substantially equivalent to that which he or she received immediately prior to Executive's termination (the "**COBRA Payments**"). The Company shall also pay Executive (A) any salary earned but unpaid prior to termination and all accrued but unused paid time off or vacation, (B) any business or reimbursable relocation expenses incurred but not reimbursed as of the Date of Termination in accordance with the applicable business expense reimbursement policy of the Company, effective on the Date of Termination, and (C) any award under the Annual Bonus Plan that has been approved by the Company's Chief Executive Officer and the Compensation Committee of the Board but not paid prior to termination.

(b) Award Acceleration. If Executive's employment is terminated as a result of a Qualifying Termination, then (i) the vesting of each Award that vests based on continued service, and the exercisability of each such Award that is a stock option, shall be automatically accelerated in full as of the Date of Termination and (ii) each Award that vests based on performance shall remain outstanding through the normal performance vesting date thereof (or, in the case of each such Award that is a stock option, until the 90th day following such normal performance vesting date) and shall vest and/or be forfeited based on the satisfaction of the applicable performance goals to the same extent as if the undersigned's services to the Company had not ended (provided that, to the extent any such Award is subject to both performance and service-based vesting, the service-based vesting shall be automatically accelerated in full as of the Date

of Termination). The Award shall continue to be exercisable in accordance with the Executive's Award Agreement, and, with respect to Awards other than stock options and restricted stock awards, will be settled upon vesting to the extent such accelerated settlement is permitted by Section 409A of the Code or, if not so permitted, on the scheduled settlement date in accordance with the Executive's Award Agreement, including in each case without any limitation any provisions that provide that in connection with a Change in Control, an Award may be surrendered and cancelled in exchange for a cash payment.

(c) Other Termination. If the Executive's employment terminates other than as a result of a Qualifying Termination, the Executive shall not be entitled to receive severance or other benefits hereunder, but may be eligible for such severance and benefits (if any) as may then be available under the Employment Agreement and the then-existing severance and benefit plans and policies of the Company and its Subsidiaries.

(d) No Mitigation Requirement. The Executive shall not be required to mitigate the amount provided for in this section by seeking other employment or otherwise, nor shall the amount of any payment or benefit provided for in this section be reduced by the amount of any compensation earned by the Executive as the result of employment by another employer, or by any set-off, counterclaim, recoupment, or other claim, right or action the Company may have against the Executive.

3. Notices. All notices, reports, records or other communications which are required or permitted to be given to the parties under this Agreement shall be sufficient in all respects if given in writing and delivered in person, by telecopy, by overnight courier, or by registered or certified mail, postage prepaid, return receipt requested, to the Company at its corporate headquarters to the attention of the Corporate Secretary and to the Executive at the home address most recently provided by Executive to the Company, or, in the case of either party, to such other address as such party may have given to the other by notice pursuant to this Section 3. Notice shall be deemed given on the date of delivery, in the case of personal delivery or telecopy, or on the delivery or refusal date, as specified on the return receipt, in the case of overnight courier or registered or certified mail. Any termination by the Company or any of its Subsidiaries for Cause or by Executive for Good Reason shall be communicated by a notice of termination ("**Notice of Termination**") to the other party given in accordance with this Agreement. Such notice

shall indicate the specific termination provision in this Agreement relied upon and shall set forth in reasonable detail the facts and circumstances claimed to provide a basis for termination under the provision so indicated. The failure by the Company or Executive to include in the notice any fact or circumstance which contributes to a showing of Cause or Good Reason, respectively, shall not waive any right of the Company or the Executive, as the case may be, hereunder, or preclude the Company or the Executive, as the case may be, from asserting such fact or circumstance in enforcing its or his or her rights hereunder.

4. Limitation of Benefits.

(a) If upon a Change in Control, any of the payments and benefits provided for under this Agreement or any other agreement or arrangement between the Company or their respective affiliates and the Executive (“**Payments**”) would constitute a “parachute payment” within the meaning of section 280G of the Code (a “**Parachute Payment**”), then, if and solely to the extent that reducing the benefits payable hereunder, would result in the Executive receiving a greater amount, on an after-tax basis, taking into account any excise tax imposed pursuant to section 4999 of the Code (the “**Excise Tax**”) and all applicable income, employment and other taxes payable on such amounts, the amounts payable hereunder shall be reduced or eliminated, as the case may be, so that the total amount of Parachute Payments received by the Executive would result in no portion of the Payments being subject to the Excise Tax.

(b) Any such reduction in the amount of compensation or benefits effected pursuant to this Section 4 shall first come from the Additional Payment and then, in order and in each case, solely to the extent necessary, from the Basic Separation Payment, the COBRA Payments and the benefit of the option acceleration provided in Section 2(b).

5. Restrictive Covenants. Notwithstanding anything to the contrary in this Agreement, Sections 4, 5, 6 and 7 of the Executive’s Employment Agreement shall remain in full force and effect.

6. Further Assurances. The parties shall cooperate fully with each other and execute such further instruments, documents and agreements, and shall give such further written assurances, as may be reasonably requested by one another to better evidence and reflect the transactions described herein and contemplated hereby and to carry into effect the intent and purposes of this Agreement.

7. Applicable Law. This Agreement shall be governed by and construed in accordance with internal laws, but not the conflicts of law rules, of the State of Illinois.

8. Arbitration.

(a) Any dispute arising in connection with this Agreement shall be submitted to final and binding arbitration. Judgment upon any award rendered by arbitration may be entered in any court having jurisdiction thereof.

(b) The arbitrator shall be selected by the mutual agreement of the parties. Any arbitrator selected shall be a professional having at least ten years of experience in labor or employment related practice areas. If the amount in dispute exceeds \$250,000, the parties shall select, by mutual agreement, a panel of three arbitrators, rather than one arbitrator, to resolve the dispute.

(c) The arbitration shall be conducted in Chicago, Illinois (unless the corporate headquarters of the Company shall have been moved to another location, in which case the arbitration shall be conducted in such location). Reasonable discovery shall be permitted as determined by the arbitrator or arbitrators. Both parties to an arbitration shall have the right to be represented by counsel. The Company shall be responsible for paying all administrative fees, costs and expenses associated with the arbitration, including filing fees, the arbitrator's fees, and the expense of the arbitration proceedings, with all other costs and attorneys' fees to be paid by the party incurring such costs and fees (subject to any reimbursement pursuant to Section 9).

(d) Except as otherwise provided herein, this arbitration procedure is the exclusive remedy for any contractual, non-contractual or statutory claim of any kind, including claims arising under federal, state and local statutory law, including, but not limited to, the Age Discrimination in Employment Act of 1967, 29 U.S.C. § 621 *et seq.*; Title VII of the Civil Rights Act of 1964, 42 U.S.C. § 2000e *et seq.*; the Americans with Disabilities Act, 42 U.S.C. § 12101 *et seq.*; the Employee Retirement Income Security Act, 29 U.S.C. § 1001 *et seq.*; the Illinois Human Rights Act, 75 ILCS § 5/1-101 *et seq.*; and common law or equitable claims alleging breach of contract, defamation, fraud, outrageous conduct, promissory estoppel, violation of public policy, wrongful discharge or any other tort, contract or equitable theory. Executive agrees to exhaust any and all internal dispute resolution procedures established by the Company prior to pursuing arbitration under this Agreement.

9. Reimbursement of Legal Expenses. If any contest or dispute shall arise between the Company and the Executive regarding any provision of this Agreement, the Company shall reimburse the Executive for all legal fees and expenses reasonably incurred by the Executive in connection with such contest or dispute, but only if the Executive prevails to a substantial extent with respect to at least one of Executive's material claims brought and pursued in connection with such contest or dispute. Such reimbursement shall be made as soon as practicable following the resolution of such contest or dispute (whether or not appealed) to the extent the Company receives written evidence of such fees and expenses. Any such reimbursements or expenses shall be paid not later than as soon as practicable following the resolution of the dispute but in no event later than the end of the first taxable year of the Executive in which the Company and the Executive enter into a legally binding settlement of such dispute, the Company concedes that the amount is payable, or the Company is required to make such payment pursuant to a final and nonappealable judgment or other binding decision.

10. Severability. If any provision of this Agreement shall be held by any Court of competent jurisdiction to be illegal, void or unenforceable, such provision shall be of no force and effect, but the enforceability of all other provisions of this Agreement shall be unimpaired.

11. Binding Agreement. Executive shall not delegate or assign any of Executive's rights or obligations under this Agreement; provided, however, that the terms of this Agreement and all rights of Executive hereunder shall inure to the benefit of, and be enforceable by, Executive's personal or legal representatives, executors, administrators, successors, heirs, distributees, devisees and legatees. The Company shall cause any successor to the Company (whether direct or indirect and whether by purchase, lease, merger, consolidation, liquidation or otherwise) or to all or substantially all of the Company's business and/or assets to assume the Company's obligations under this Agreement and agree expressly to perform the Company's obligations under this Agreement in the same manner and to the same extent as the Company would be required to perform such obligations in the absence of a succession. For all purposes under this Agreement, the term "Company" shall include any successor to the Company's business

and/or assets which executes and delivers the assumption agreement described in this section or which becomes bound by the terms of the Agreement by operation of law or otherwise. This Agreement may be amended only by a written amendment executed by both parties.

12. Effect on other Agreements and Benefits. Except to the extent expressly set forth herein, any benefit or compensation to which Executive is entitled under the Employment Agreement, any other agreement between Executive and the Company or any of its Subsidiaries or any plan maintained by the Company or any of its Subsidiaries in which the Executive participates or participated shall not be modified or lessened in any way, but shall be payable according to the terms of the applicable plan or agreement. Notwithstanding the foregoing, any severance benefit received by Executive under this Agreement shall be in lieu of any severance benefits to which the Executive would otherwise be entitled under the Employment Agreement or any other severance policy or plan maintained by the Company or any of its Subsidiaries.

13. Employment Taxes. All payments made pursuant to this Agreement shall be subject to withholding of applicable income and employment taxes.

14. Section 409A. This Agreement is intended to comply with the requirements of Section 409A of the Code, and shall be interpreted and construed consistently with such intent. The payments to Executive pursuant to this Agreement are also intended to be exempt from Section 409A of the Code to the maximum extent possible. The amount referred to herein as the "Basic Separation Payment" is intended to be exempt from being treated as deferred compensation under the separation pay exemption pursuant to Treasury regulation §1.409A-1(b)(9). The change in the time and form of payment of the Separation Payment from installments as provided in the Employment Agreement to a lump sum payment as provided herein is intended to comply with Section 409A in reliance on such subsection of the regulations and, as applicable, Treasury regulation §1.409A-3(c). The amount referred to herein as the "Additional Payment" is a new legally binding right created pursuant to this Agreement and is intended to be exempt from Section 409A of the Code as short-term deferral pursuant to Treasury regulation §1.409A-1(b)(4). In the event the terms of this Agreement would subject Executive to taxes or penalties under Section 409A of the Code ("**409A Penalties**"), the Company and Executive shall cooperate diligently to amend the terms of the Agreement to avoid such 409A Penalties, to the extent possible. To the

extent any amounts under this Agreement are payable by reference to Executive's "termination of employment," such term shall be deemed to refer to Executive's "separation from service," within the meaning of Section 409A of the Code. Notwithstanding any other provision in this Agreement, if Executive is a "specified employee," as defined in Section 409A of the Code, as of the date of Executive's separation from service, then to the extent any amount payable under this Agreement (i) constitutes the payment of nonqualified deferred compensation, within the meaning of Section 409A of the Code, (ii) is payable upon Executive's separation from service and (iii) under the terms of this Agreement would be payable prior to the six-month anniversary of Executive's separation from service, such payment shall be delayed until the earlier to occur of (a) the six-month anniversary of the separation from service or (b) the date of Executive's death. Any amount of expenses eligible for reimbursement, or in-kind benefit provided, during a calendar year shall not affect the amount of expenses eligible for reimbursement, or in-kind benefit to be provided, during any other calendar year. The right to any reimbursement or in-kind benefit pursuant to this Agreement shall not be subject to liquidation or exchange for any other benefit.

15. Counterparts. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of which together will constitute one and the same instrument.

16. Definitions. In addition to terms defined above and elsewhere in this Agreement, the following terms shall have the meanings set forth below:

"Affiliate" means with respect to any Person, any other Person who directly or indirectly, through one or more intermediaries, controls, is controlled by, or is under common control with, such Person. The term "control" means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise, and the terms "controlled" and "controlling" have meanings correlative thereto.

"Annual Bonus Plan" means the annual bonus plan established by the Board in which members of management participate.

"Award" means any options or other equity incentives awarded to the Executive under the Aircell Holdings Inc. Stock Option Plan, The 2013 Gogo Equity Incentive Plan, The 2016 Gogo Equity Incentive Plan or any other plan implemented by the Company (each a "Plan" and collectively the "Plans").

“Award Agreement” means the written agreement between the Company and the Executive evidencing an Award under a Plan.

“Base Salary” means the Executive’s annual base salary paid or payable by the Company or any of its Subsidiaries at the rate in effect (or required to be in effect before any diminution that is a basis of the Executive’s termination for Good Reason) on the Date of Termination.

“Cause” shall have the meaning ascribed to it in the Employment Agreement.

“Change in Control” means:

(i) the acquisition by any person, entity or “group” (within the meaning of Section 13(d)(3) or 14(d)(2) of the Exchange Act), of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of 50% or more of either the then outstanding equity interests in the Company or the combined voting power of the Company’s then outstanding voting securities, excluding acquisitions by the Thorne Affiliates, as defined in the Stockholders’ Agreement; or

(ii) the consummation of a reorganization, merger or consolidation of the Company or the sale of all or substantially all of the assets of the Company, in each case with respect to which the Thorne Affiliates and any other persons who held equity interests in the Company immediately prior to such reorganization, merger, consolidation or sale do not immediately thereafter own, directly or indirectly, 50% or more of the combined voting power of the then outstanding securities of the surviving or resulting corporation or other entity.

“Code” means the Internal Revenue Code of 1986, as amended from time to time.

“Date of Termination” means (i) if the Executive’s employment is terminated by the Company for Cause, or by the Executive for Good Reason, the date of receipt of the Notice of Termination or such later date specified in the Notice of Termination, as the case may be, (ii) if the Executive’s employment is terminated by the Company other than for Cause or Disability, the date on which the Company notifies the Executive of such

termination, (iii) if the Executive resigns without Good Reason, the date on which the Executive notifies the Company of such termination, and (iv) if the Executive's employment is terminated by reason of death or Disability, the date of death of Executive or the 30th day after receipt of notice of Disability from Executive, as the case may be. Notwithstanding the foregoing, in no event shall the Date of Termination occur until the Executive experiences a "separation from service" within the meaning of Section 409A of the Code, and the date on which such separation from service occurs shall be the "Date of Termination."

"Disability" means a condition such that the Executive by reason of physical or mental disability becomes unable to perform his or her normal duties for more than one hundred eighty (180) days in the aggregate (excluding infrequent or temporary absence due to ordinary transitory illness) during any twelve-month period.

"Employment Agreement" means the Employment Agreement, dated April 24, 2017 between Gogo LLC and Executive, and any other written agreement between Executive and the Company or any of its Subsidiaries.

"Good Reason" means (i) a reduction by the Company or any of its Subsidiaries in Executive's Base Salary or in his or her Target Bonus; (ii) a material diminution in the Executive's position with the Company, such that the Executive is required to perform duties and responsibilities following the Change in Control which would have been assigned to a position that would have been below the level of Vice President under the title structure in effect at the Company immediately prior to the Change in Control; (iii) the relocation of Executive's principal place of employment to a geographic location greater than fifty (50) miles from the Company's headquarters immediately prior to the Change in Control, (iv) the occurrence of a Change in Control in which the acquirer does not assume the obligations of the Company or its Subsidiaries under the Employment Agreement; and (v) any material failure by the Company or any Subsidiary to pay the Executive any compensation when otherwise due under the terms of the Employment Agreement; provided, however, that Executive may resign for Good Reason only if (i) he or she has given the Company written notice of its breach within 90 days of the date that the Executive discovers such breach and (ii) the Company has not remedied such breach on or before the 30th day following the Company's receipt of such notice.

“Person” means an individual, partnership, corporation, limited liability company, joint stock company, unincorporated organization or association, trust, joint venture, association or other similar entity, whether or not a legal entity.

“Qualifying Termination” means:

(i) at any time within the period commencing on the date of the consummation of a Change in Control and ending twenty-four (24) months thereafter, the Executive’s employment is terminated (A) involuntarily for any reason other than Cause, death or Disability or (B) by the Executive for Good Reason; or

(ii) at any time following the date the Company or any of its Affiliates enters into an agreement with a third party and the consummation of the transactions contemplated by such agreement would result in a Change in Control of the Company and prior to the date of the consummation of the Change in Control pursuant to such agreement, the Executive’s employment is terminated (A) involuntarily for any reason other than Cause, death, or Disability or (B) by the Executive for Good Reason; provided, however, that in the case of each of clauses (A) and (B) the affected Executive demonstrates that such termination or circumstance leading to such termination (1) was at the request of a third party or any of their Affiliates with which the Company had entered into such agreement contemplating a Change in Control; or (2) otherwise occurred in connection with a Change in Control.

“Severance Period” shall mean eighteen (18) months.

“Stockholders’ Agreement” means the Stockholders’ Agreement, dated December 31, 2009, between the Company and the stockholders who are parties thereto, as amended.

“Subsidiary” means any corporation or limited liability company in which the Company, directly or indirectly, holds a majority of the voting power of such entity’s outstanding shares of capital stock or membership interests.

“Target Bonus” means the target bonus, determined by multiplying an agreed-upon percentage times Base Salary, for which Executive is eligible under the Annual Bonus Plan at the percentage in effect (or required to be in effect before any diminution that is a basis of the Executive’s termination for Good Reason) on the Date of Termination.

The parties have executed this Agreement on the date first above written, effective as of the Effective Date.

COMPANY:

GOGO INC.

Date: 4/20/17

Title: /s/ Michael Small

EXECUTIVE:

Date: 4/20/17

Title: /s/ Barry Rowan

Gogo Inc.

**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO RULE 13a-14(a) OF THE EXCHANGE ACT, AS AMENDED,
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael Small, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Gogo Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2017

/s/ Michael Small

Michael Small
President and Chief Executive Officer
(Principal Executive Officer)

Gogo Inc.

**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO RULE 13a-14(a) OF THE EXCHANGE ACT, AS AMENDED,
AS ADOPTED PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Norman Smagley, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Gogo Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2017

/s/ Norman Smagley

Norman Smagley
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)

Gogo Inc.**CERTIFICATION OF CHIEF EXECUTIVE OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

I, Michael Small, President and Chief Executive Officer of Gogo Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- (1) the Quarterly Report on Form 10-Q of the Company for the quarter ended March 31, 2017 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2017

/s/ Michael Small

Michael Small
President and Chief Executive Officer
(Principal Executive Officer)

Gogo Inc.**CERTIFICATION OF CHIEF FINANCIAL OFFICER
PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO SECTION 906
OF THE SARBANES-OXLEY ACT OF 2002**

I, Norman Smagley, Executive Vice President and Chief Financial Officer of Gogo Inc. (the "Company"), do hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that to the best of my knowledge:

- (1) the Quarterly Report on Form 10-Q of the Company for the quarter ended March 31, 2017 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2017

/s/ Norman Smagley

Norman Smagley
Executive Vice President and Chief Financial Officer
(Principal Financial Officer)