

Engineering Statement

Intelsat License LLC (“Intelsat”) proposes to modify the existing license of its Intelsat 9 spacecraft to specify operation from 43.1° W.L. The spacecraft utilizes the frequency bands 5925 – 6425 MHz, 14000 – 14500 MHz, 3700 – 4200 MHz, 11450 – 11700 MHz and 11700 - 12200 MHz to provide service to North and South America and Europe.

In July 2000, the Commission granted Intelsat authorization to operate Intelsat 9 at 58° W.L. (*see* FCC File No.: SAT-LOA-19990812-00081). Intelsat now proposes to modify its existing license to specify operation of Intelsat 9 at 43.1° W.L.

This engineering statement updates the following technical information for Intelsat 9: (1) frequency plan; (2) beam performance and gain contours; (3) emission designators; (4) power flux density calculations; (5) link budget analysis; (6) adjacent satellite link analysis; (7) Schedule S information; and (8) orbital debris mitigation plan. In all other respects, the characteristics of Intelsat 9 are the same as those described in SAT-LOA-19990812-00081.

1.0) Frequency Plan

The Intelsat 9 frequency and polarization plan is provided in Exhibit 1. With respect to the use of the 11450 – 11700 MHz band, Intelsat requests that the Part 2 and Part 25 waivers of the Commission’s rules originally granted to the Intelsat 9 spacecraft continue to apply at the 43.1° W.L. location; namely, the waivers of footnote NG 104 of the United States Table of Frequency Allocation, as contained in Section 2.106, and footnote 2 of Section 25.202(a)(1). The rational and conditions under which the Commission granted these waivers for operation of Intelsat 9 at 58° W.L. are also applicable to the 43.1° W.L.

2.0) Gain Contours

The co-polarized coverage patterns of Intelsat 9 operating from 43.1° W.L. are shown in Exhibits 2-1 through 2-20. The peak antenna gain, G/T, SFD (“Saturated Flux Density”) and EIRP levels for each uplink and downlink beam, as appropriate, are also provided in these exhibits. It is also noted that with respect to the receive communication beams, the saturated flux density of the beam may be adjusted in 1 dB increments rather than the 2 dB increments specified in SAT-LOA-19990812-00081.

3.0) Emission Designators

Emission designators and allocated bandwidths for representative communication carriers are provided in Exhibit 3.

4.0 Power Flux Density Levels

The power flux density (“PFD”) limits for space stations operating in the 3700 – 4200 MHz and 11450 – 11700 MHz bands are contained in section 25.208 of the Commission’s rules. With respect to the 11700 – 12200 MHz band, no PFD limits are specified in Section 25.208 of the Commission’s rules or in No. 21.16 of the ITU Radio Regulations pertaining to geostationary satellites.

The maximum PFD levels for the Intelsat 9 transmissions were calculated for a number of TV/FM and/or digital carriers listed in Exhibit 3 operating in the 3700 – 4200 MHz and 11450 – 11700 MHz bands. These carriers were chosen because they generally produce high PFD levels on the Earth’s surface. The maximum PFD levels for the Intelsat 9 uplink power control beacon that operates in the 11450 – 11700 MHz band was also calculated. The results are provided in Exhibit 4 and show that the downlink power flux density levels of the Intelsat 9 carriers do not exceed the limits specified in section 25.208 of the Commission’s rules.

5.0) Link Budgets and Interference Analysis

Link analysis for Intelsat 9 was conducted for a number of representative carriers at C- and Ku-band frequencies. With the exception of the 11940 – 12200 MHz band through the Intelsat 9 Mexico beam, it was assumed that at C- and Ku-bands the nearest satellites to Intelsat 9 were Intelsat 14 operating at 45° W.L and a hypothetical satellite operating at 41.1° W.L. The hypothetical satellite was assumed to have the same operational parameters as Intelsat 9. The operating characteristics of Intelsat 14 are contained in FCC File number SAT-RPL-20090123-00007.

In determining the impact of interference into communications links that utilize the Intelsat 9 Mexico beams in the 11940 – 12200 MHz band, it was assumed the nearest adjacent satellites were a hypothetical satellite located at 41.1° W.L. and a hypothetical satellite located at 45° W.L. The hypothetical satellites were assumed to have the same operational parameters as Intelsat 9.

Other assumptions made for the link budget analysis were as follows:

- a) In the plane of the geostationary satellite orbit, all transmitting and receiving earth station antennas have off-axis co-polar gains that are compliant with the limits specified in section 25.209(a)(1) of the FCC's rules.
- b) All transmitting and receiving earth stations have a cross-polarization isolation value of at least 30 dB within their main beam lobe.
- c) At C-band frequencies, degradation due to rain is not considered, given that rain (attenuation) effects are insignificant at C-band.
- d) At Ku-band frequencies rain attenuation predictions are derived using Recommendation ITU-R P.618.
- e) At Ku-band frequencies, increase in noise temperature of the receiving earth station due to rain is taken into account.
- f) For the cases where the transponder operates in a multi-carrier mode, the effects due to intermodulation interference are taken into account.

The impact of the TV/FM carriers from the adjacent satellites at 41.1° W.L and 45° W.L on the transmissions of Intelsat 9 was not considered due to the fact that TV/FM carriers are known to be high-density carriers with most of the energy contained within the near vicinity of the carrier center frequency. Operation of sensitive narrow-band carriers is typically precluded within these high power density areas of the TV/FM carrier. Accordingly, placement and operation of TV/FM carriers are normally achieved through internal coordination and/or coordination discussions with the adjacent satellite operator, whichever may be the case, rather than through C/I calculations – since the results of such calculations would show that narrow-band carriers typically could not operate on a co-frequency basis with TV/FM carriers.

In order to keep the number the Intelsat 9 link calculations to a manageable number, worst-case performance values were assumed for each beam type. The worst-case beam parameters were derived from the beam parameters listed in Exhibit 2 and chosen in such a manner that would make carrier links utilizing any specific uplink / downlink beam combination as sensitive to adjacent satellite interference as possible. This would ensure that the link performance objectives would be achieved for all possible Intelsat 9 uplink and downlink beam combinations. The worst-case beam performance for each Intelsat 9 beam type is provided below:

Aggregate Beam Designation	Worst- Case Beam Peak G/T (dB/K)	Worst-Case Beam SFD Range @ Peak G/T (dBW/m ²)	Worst-Case Beam EIRP (dBW)
Americas	-0.2	-94.8 to -78.8	42.7
Americas - Europe	0	-93.1 to -77.1	49.6
Brazil	3.3	-96.8 to -80.8	48.1
Mexico	8.6	-102.2 to -86.2	54.2

The results of the C-band and Ku-band analyses are shown in Exhibit 5 and demonstrate that operation of the Intelsat 9 satellite from 43.1° W.L. would permit the intended services to achieve their respective performance objectives while maintaining sufficient link margin. Additionally, the downlink EIRP density and uplink power density levels of the carriers listed in Exhibit 5 comply with the FCC limits contained in section 25.212(c) and 25.212(d) of the Commission’s rules.

6.0) Adjacent Satellite Link Analysis

At C-band and Ku-band, the impact of the Intelsat 9 emissions on a hypothetical satellite located at 41.1° W.L and Intelsat 14 located at 45° W.L was analyzed. The hypothetical satellite was assumed to have the same operating characteristics as Intelsat 9.

For the hypothetical satellite located at 41.1° W.L, it was assumed that the nearest co-frequency satellites were a hypothetical satellite operating at 39.1° W.L and Intelsat 9 operating at 43.1° W.L. The hypothetical satellite at 39.1° W.L. was assumed to have the same operational parameters as Intelsat 9.

For Intelsat 14, it was assumed that the nearest co-frequency satellites were a Intelsat 9 at 43.1° W.L and NSS-703 operating at 47° W.L. NSS-703 is licensed to SES World Skies, and its operating characteristics are contained in FCC filing SAT-PPL-20101103-00230.

In order to reduce the number of links to be considered for Intelsat 14, the operating parameters of a number of the Intelsat 14 beams were combined, with the worst case operating parameters associated with the combined beam. Specifically, the worst-case beam parameters were chosen in such a manner that would make carrier links utilizing any specific uplink / downlink beam combination as sensitive to adjacent satellite interference as possible. This would ensure that the link performance objectives would be achieved for all possible

Intelsat 14 uplink and downlink beam combinations. The worst-case beam performance for each Intelsat 14 beam type is provided below:

Intelsat 14 Beam Parameters From FCC Filing SAT-PPL-20101103-00230				Assumed Intelsat 14 Beam Parameters			
Beam Name (Polarization)	Beam Peak G/T (dB/K)	Beam Peak SFD (dBW/m ²)	Beam Peak EIRP (dBW)	Beam Name (Polarization)	Beam Peak G/T (dB/K)	Beam Peak SFD (dBW/m ²)	Beam Peak EIRP (dBW)
C-Band							
Europe / Africa (Horizontal)	3.5	-102.8 To -81.8	45.1	Europe / Africa (Linear and Circular)	4.5	-104.4 To -83.4	45.1
Europe / Africa (Vertical)	3.5	-102.8 To -81.8	45.1				
Europe / Africa (Right Hand Circular)	4.5	-104.4 To -83.4	45.2				
Europe / Africa (Left Hand Circular)	4.5	-104.4 To -83.4	45.2				
Americas (Horizontal)	0.6	-100.1 To -79.1	43.3	Americas (Linear)	0.6	-100.1 To -79.1	43.3
Americas (Vertical)	0.6	-100.1 To -79.1	43.5				
Ku-Band							
Europe / Africa (Horizontal)	7.6	-103 To -82	53.9	Europe / Africa (Linear)	7.6	-103 To -82	53.9
Europe / Africa (Vertical)	7.6	-103 To -82	53.9				
Americas (Horizontal)	2.8	-101.2 To -80.2	49.4		2.8	-101.2 To -80.2	49.3
Americas (Vertical)	2.8	-101.2 To -80.2	49.3				

At C-band, Intelsat 14 and NSS-703 utilize linear and/or circular polarization, whereas Intelsat 9 utilizes only linear polarization. However, for the Intelsat 14 analysis, no polarization discrimination was assumed with respect to Intelsat 9 or NSS-703. Additionally, when applicable, appropriate contour isolation advantage

was applied with respect to Intelsat 9 and/or NSS-703.

The assumptions made in section 5.0 pertaining to earth station off-axis gain performance, earth station cross-polarization performance and rain attenuation were also applied in the C- and Ku-band analysis.

The results of the analysis are given in Exhibits 6 and 7. The Intelsat 9 transmissions will be limited to those levels contained in Sections 25.212(c) and (d), as applicable, unless higher levels are coordinated with affected adjacent satellite operators. In any case, pursuant to the results in Exhibits 6 and 7, the uplink power density of the Intelsat 9 digital carriers operating in the 5925 – 6425 MHz and 14000 – 14500 MHz band will not exceed -38.7 dBW/Hz and -45 dBW/Hz, respectively; and within the 3700 – 4200 MHz band the downlink EIRP density of the Intelsat 9 digital carriers will not exceed -32 dBW/Hz; and within the 11450 – 12200 MHz band the downlink EIRP density of the Intelsat 9 digital carriers will not exceed -20.0 dBW/Hz.

7.0) Schedule S Submission

Intelsat is providing with its application a Schedule S for the operations of Intelsat 9 from 43.1° W.L. The Schedule S contains only those Intelsat 9 data items that have changed as a result of the proposed modification and data items whose inclusion was required in order for the software application to function properly.

In column “g” of section S13 of the Schedule S, a link budget file has been included for the first link (i.e., the first of row of data) contained in that section. This link budget file is applicable to all of the links listed in section S13 and should have been included with each row of data in that section of the Schedule S. However, given that the link budget file is rather large and its inclusion with each link (or data row) would lead to the Schedule S file having an unmanageable size, all other links (or rows of data) contain a small ASCII file that references the link budget file that is attached to the first link (i.e., the link budget file attached to the first row of data).

8.0) Orbital Debris Mitigation Plan

Intelsat is proactive in ensuring safe operation and disposal of this and all spacecraft under its control. The four elements of debris mitigation are addressed below.

8.1) Spacecraft Hardware Design: The spacecraft is designed such that no debris will be released during normal operations. Intelsat has assessed the probability of collision with meteoroids and other small debris (<1 cm diameter) and has taken the following steps to limit the effects of such collisions: (1) critical spacecraft components are located inside the protective body of the spacecraft and properly shielded; and (2) all spacecraft subsystems have redundant components to ensure no single-point failures. The spacecraft does not use any subsystems for end-of-life disposal that are not used for normal operations.

8.2) Minimizing Accidental Explosions: Intelsat has assessed the probability of accidental explosions during and after completion of mission operations. The spacecraft is designed in a manner to minimize the potential for such explosions. Propellant tanks and thrusters are isolated using redundant valves and electrical power systems are shielded in accordance with standard industry practices. At the completion of the mission, and upon disposal of the spacecraft, Intelsat will ensure the removal of all stored energy on the spacecraft by depleting all propellant tanks, venting all pressurized systems, and turning off all active units.

8.3) Safe Flight Profiles: Intelsat has assessed and limited the probability of the space station becoming a source of debris as a result of collisions with large debris or other operational space stations. Intelsat is not aware of any other FCC licensed system, or any other system applied for and under consideration by the FCC, having an overlapping station-keeping volume with Intelsat 9. Intelsat is also not aware of any non-Intelsat system with an overlapping station-keeping volume with Intelsat 9 that is the subject of an ITU filing and that is either in orbit or progressing towards launch.

8.4) Post Mission Disposal: At the end of the mission, Intelsat expects to dispose of the spacecraft by moving it to a planned minimum altitude of 150 kilometers (perigee) above the geostationary arc.¹ Nevertheless, as the Commission is aware, because there is no mechanism for precisely calculating the amount of fuel left on the spacecraft once it is in orbit, it is possible that the spacecraft will not meet the planned minimum de-orbit altitude.

In its Second Report and Order in IB Docket 02-54 (FCC Document Number: 04-130), the FCC declared that satellites launched prior to March 18, 2002, such as Intelsat 9, would be designated as grandfathered satellites not subject to a specific

¹ Intelsat has reserved 39.7 kilograms of fuel for this purpose. The fuel gauging uncertainty has been taken into account in these calculations.

disposal altitude. Therefore, the Intelsat 9 planned disposal orbit complies with the FCC's rules.

In addition, Intelsat provides the following information:

- 1) Planned orbital eccentricity: 0.0000563 (This is a best estimate of optimal eccentricity to match the natural eccentricity circle due to Sun and Moon perturbations after decommission.²)
- 2) Planned apogee altitude: 154.6 km³
- 3) Information concerning the methods that will be used to assess and provide adequate margins concerning fuel gauging uncertainty: For the Intelsat 9 spacecraft, in addition to the nominal hold-back and reserves provided to us by the manufacturer, Intelsat propulsion engineers review the current propellant usage – particularly the mixing ratio – to properly allocate sufficient margin to account for unavailable propellant that may result from a non-optimal mixing ratio. In addition, Intelsat performs thermal gauging near the spacecraft's end of life by inferring the remaining propellant from the thermal signature when Intelsat applies heat to different parts of the propellant tank system. This information is considered when determining the additional hold-back and adjustments to book values to attempt to ensure sufficient propellant to achieve the planned minimum altitude. There are, however, many uncertainties to both methods that could lead to incorrect conclusions regarding remaining fuel.

9.0) Arrangement For Telemetry, Tracking and Control

Intelsat will conduct TC&R operations through its Earth stations in Atlanta, Georgia; Mountainside, Maryland; and Castle Rock, Colorado. Additionally, Intelsat is capable of remotely controlling Intelsat 9 from its facility in Washington D.C

² Because it is extremely difficult to anticipate end-of-life thruster performance and operational conditions, it is extremely difficult to achieve the planned eccentricity. Intelsat's priority is to achieve the planned minimum perigee of 150 kilometers. In order to achieve the planned eccentricity, not only must there be sufficient propellant reserved but, in addition, individual thrusters must be fired at specific times during satellite decommissioning because the timing of thruster firing will affect eccentricity. Due to difficulties in predicting the thruster end-of-life performance, as well as earth station availability and visibility as the satellite drifts, it may not be possible to fire the right thrusters at the optimal times. Thus, optimal eccentricity may not be achieved, which, in turn, will affect the apogee altitude.

³ See n. 2.

Certification Statement

I hereby certify that I am a technically qualified person and am familiar with Part 25 of the Commission's Rules and Regulations. The contents of this engineering statement were prepared by me or under my direct supervision and to the best of my knowledge are complete and accurate.

/s/ Jose Albuquerque

Jose Albuquerque
Intelsat
Senior Director
Spectrum Strategy

June 15, 2012

Date

Exhibit 1A: Frequency Plan

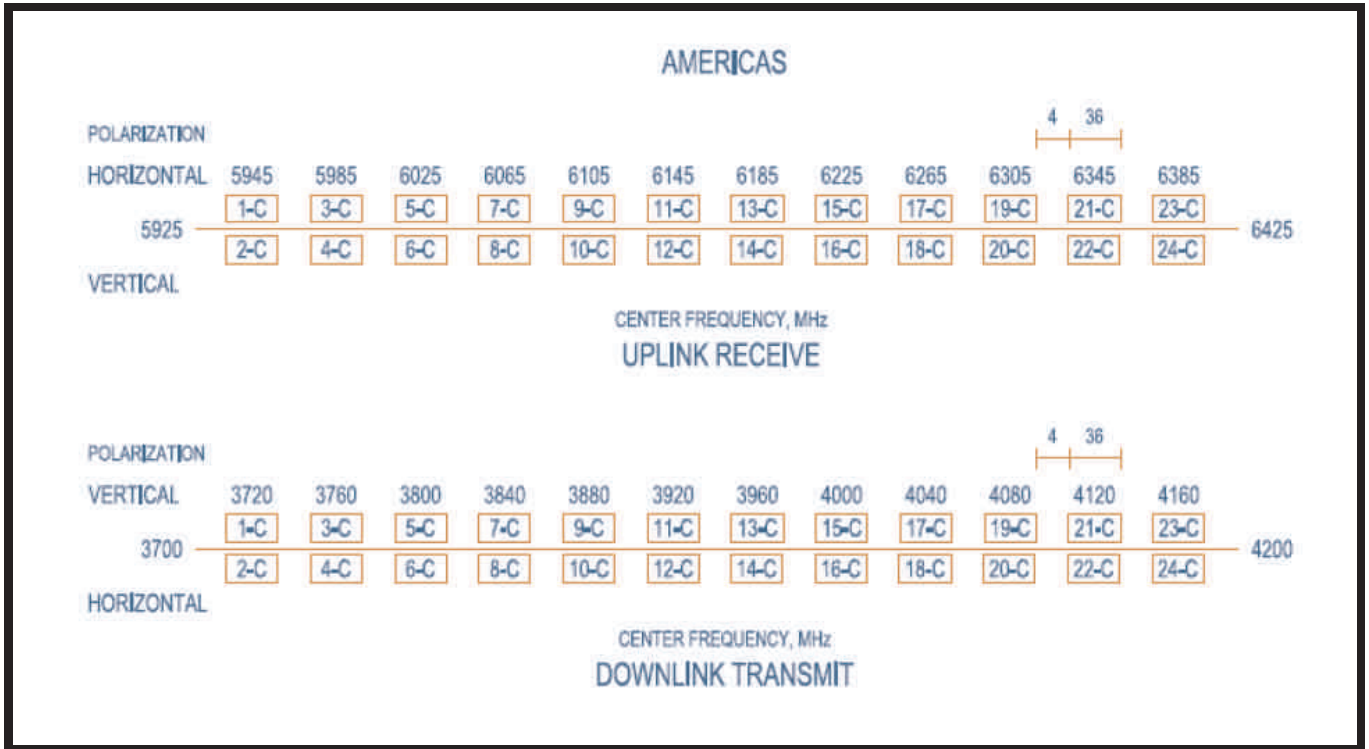


Exhibit 1A: Frequency Plan (continued)

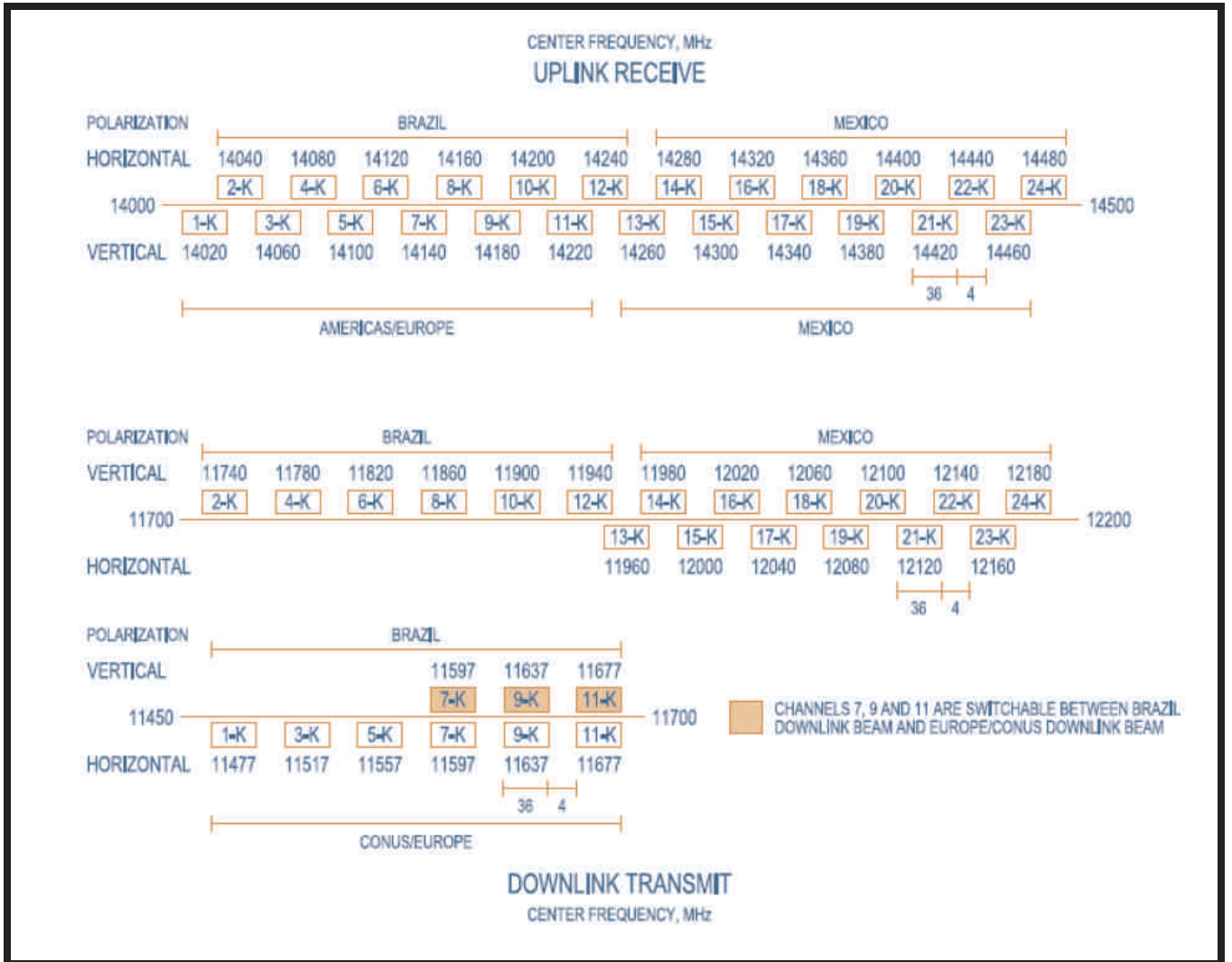


Exhibit 1B: Frequency Assignments

Uplink Transponder Designation	Uplink Beam Name	Uplink Polarization	Uplink Center Frequency (MHz)	Downlink Transponder Designation	Downlink Beam Name	Downlink Polarization	Downlink Center Frequency (MHz)	Channel Bandwidth (MHz)	Channel Gain (dB)
1C	Americas	Horizontal	5945	1C	Americas	Vertical	3720	36	120.7
3C	Americas	Horizontal	5985	3C	Americas	Vertical	3760	36	120.7
5C	Americas	Horizontal	6025	5C	Americas	Vertical	3800	36	120.7
7C	Americas	Horizontal	6065	7C	Americas	Vertical	3840	36	120.7
9C	Americas	Horizontal	6105	9C	Americas	Vertical	3880	36	120.7
11C	Americas	Horizontal	6145	11C	Americas	Vertical	3920	36	120.7
13C	Americas	Horizontal	6185	13C	Americas	Vertical	3960	36	120.7
15C	Americas	Horizontal	6225	15C	Americas	Vertical	4000	36	120.7
17C	Americas	Horizontal	6265	17C	Americas	Vertical	4040	36	120.7
19C	Americas	Horizontal	6305	19C	Americas	Vertical	4080	36	120.7
21C	Americas	Horizontal	6345	21C	Americas	Vertical	4120	36	120.7
23C	Americas	Horizontal	6385	23C	Americas	Vertical	4160	36	120.7
2C	Americas	Vertical	5945	2C	Americas	Horizontal	3720	36	119.8
4C	Americas	Vertical	5985	4C	Americas	Horizontal	3760	36	119.8
6C	Americas	Vertical	6025	6C	Americas	Horizontal	3800	36	119.8
8C	Americas	Vertical	6065	8C	Americas	Horizontal	3840	36	119.8
10C	Americas	Vertical	6105	10C	Americas	Horizontal	3880	36	119.8
12C	Americas	Vertical	6145	12C	Americas	Horizontal	3920	36	119.8
14C	Americas	Vertical	6185	14C	Americas	Horizontal	3960	36	119.8
16C	Americas	Vertical	6225	16C	Americas	Horizontal	4000	36	119.8
18C	Americas	Vertical	6265	18C	Americas	Horizontal	4040	36	119.8
20C	Americas	Vertical	6305	20C	Americas	Horizontal	4080	36	119.8
22C	Americas	Vertical	6345	22C	Americas	Horizontal	4120	36	119.8
24C	Americas	Vertical	6385	24C	Americas	Horizontal	4160	36	119.8
1K	Americas / Europe	Vertical	14020	1K	Americas / Europe	Horizontal	11477	36	128.1
3K	Americas / Europe	Vertical	14060	3K	Americas / Europe	Horizontal	11517	36	128.1
5K	Americas / Europe	Vertical	14100	5K	Americas / Europe	Horizontal	11557	36	128.1
7K	Americas / Europe	Vertical	14140	7K	Americas / Europe	Horizontal	11597	36	128.1
9K	Americas / Europe	Vertical	14180	9K	Americas / Europe	Horizontal	11637	36	128.1
11K	Americas / Europe	Vertical	14220	11K	Americas / Europe	Horizontal	11677	36	128.1
7K	Americas / Europe	Vertical	14140	7K	Brazil	Vertical	11597	36	128.2
9K	Americas / Europe	Vertical	14180	9K	Brazil	Vertical	11637	36	128.2
11K	Americas / Europe	Vertical	14220	11K	Brazil	Vertical	11677	36	128.2
13K	Mexico	Vertical	14260	13K	Mexico	Vertical	11960	36	128.6
15K	Mexico	Vertical	14300	15K	Mexico	Vertical	12000	36	128.6
17K	Mexico	Vertical	14340	17K	Mexico	Vertical	12040	36	128.6
19K	Mexico	Vertical	14380	19K	Mexico	Vertical	12080	36	128.6
21K	Mexico	Vertical	14420	21K	Mexico	Vertical	12120	36	128.6
23K	Mexico	Vertical	14460	23K	Mexico	Vertical	12160	36	128.6
2K	Brazil	Horizontal	14040	2K	Brazil	Vertical	11740	36	128.7
4K	Brazil	Horizontal	14080	4K	Brazil	Vertical	11780	36	128.7
6K	Brazil	Horizontal	14120	6K	Brazil	Vertical	11820	36	128.7
8K	Brazil	Horizontal	14160	8K	Brazil	Vertical	11860	36	128.7
10K	Brazil	Horizontal	14200	10K	Brazil	Vertical	11900	36	128.7
12K	Brazil	Horizontal	14240	12K	Brazil	Vertical	11940	36	128.7
14K	Mexico	Horizontal	14280	14K	Mexico	Vertical	11980	36	128.4
16K	Mexico	Horizontal	14320	16K	Mexico	Vertical	12020	36	128.4
18K	Mexico	Horizontal	14360	18K	Mexico	Vertical	12060	36	128.4
20K	Mexico	Horizontal	14400	20K	Mexico	Vertical	12100	36	128.4
22K	Mexico	Horizontal	14440	22K	Mexico	Vertical	12140	36	128.4
24K	Mexico	Horizontal	14480	24K	Mexico	Vertical	12180	36	128.4

Exhibit 1B: Frequency Assignments

Uplink Transponder Designation	Uplink Beam Name	Uplink Polarization	Uplink Center Frequency (MHz)	Downlink Transponder Designation	Downlink Beam Name	Downlink Polarization	Downlink Center Frequency (MHz)	Channel Bandwidth (MHz)	Channel Gain (dB)
CMD 1	Global (horn antenna)	Vertical	14494.5					1.0	
CMD 2	Global (pipe antennas)	Right Hand Circular	14000.5					1.0	
CMD 3	Global (bicone antenna)	Vertical	14494.5					1.0	
				TLM 1	Global (horn antenna)	Vertical	11700.5	0.5	
				TLM 2	Global (horn antenna)	Vertical	11702.5	0.5	
				TLM 3	Global (pipe antennas)	Right Hand Circular	11700.5	0.5	
				TLM 4	Global (pipe antennas)	Right Hand Circular	11702.5	0.5	
				TLM 5	Global (bicone antenna)	Horizontal	11700.5	0.5	
				TLM 6	Global (bicone antenna)	Horizontal	11702.5	0.5	
				ULPC 1	Global	Horizontal	11699	0.025	
				ULPC 2	Global	Vertical	11703	0.025	

Note:

H: Linear horizontal polarization

V: Linear vertical polarization

RHCP: Right hand circular polarization

LHCP: Left hand circular polarization

Exhibit 2-1: C-Band Americas Uplink Beam
[Schedule S Beam Designation: AMHU]

Beam Peak Gain: 28.3 dBi
Beam Polarization: Horizontal
Beam Peak G/T: -0.2 dB/K
Saturated Flux Density @ Beam Peak G/T: -94.8 to -78.8 dBW/m²

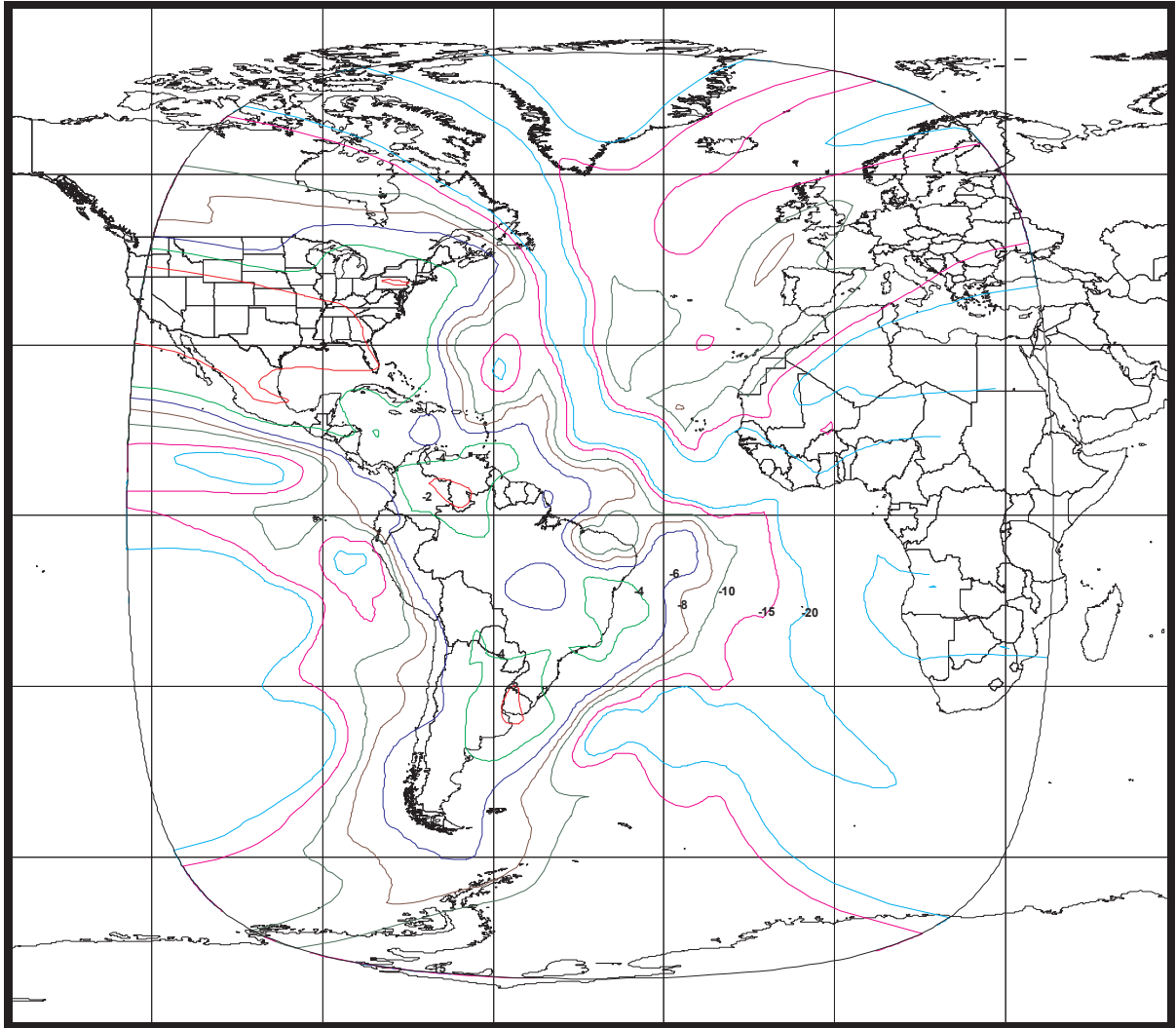


Exhibit 2-2: C-Band Americas Uplink Beam
[Schedule S Beam Designation: AMVU]

Beam Peak Gain: 28.0 dBi
Beam Polarization: Vertical
Beam Peak G/T: -0.8 dB/K
Saturated Flux Density @ Beam Peak G/T: -93.3 to -77.3 dBW/m²

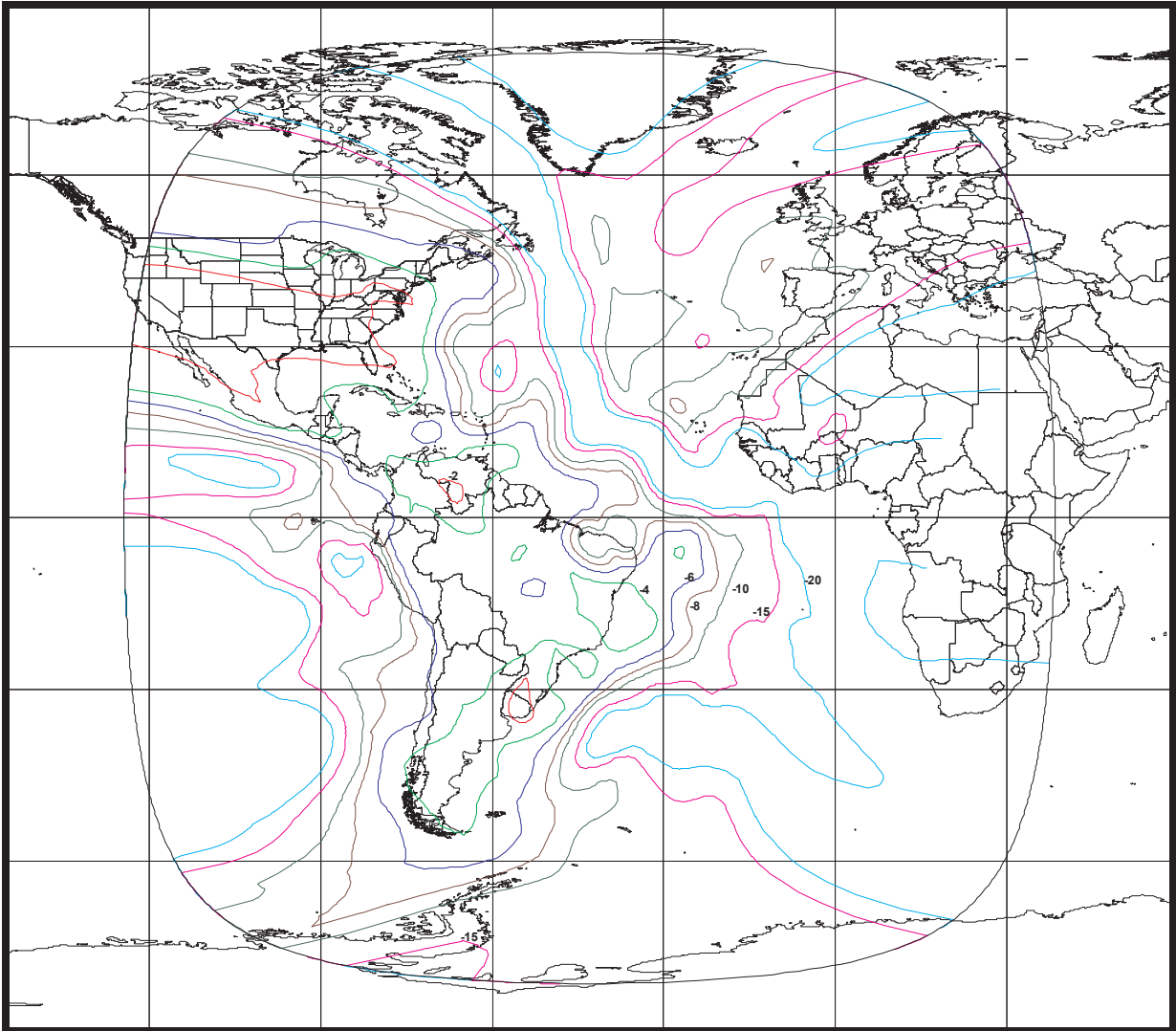


Exhibit 2-3: Ku-Band Americas/Europe Uplink Beam
[Schedule S Beam Designation: AEVU]

Beam Peak Gain: 27.4 dBi
Beam Polarization: Vertical
Beam Peak G/T: 0 dB/K
Saturated Flux Density @ Beam Peak G/T: -93.1 to -77.1 dBW/m²

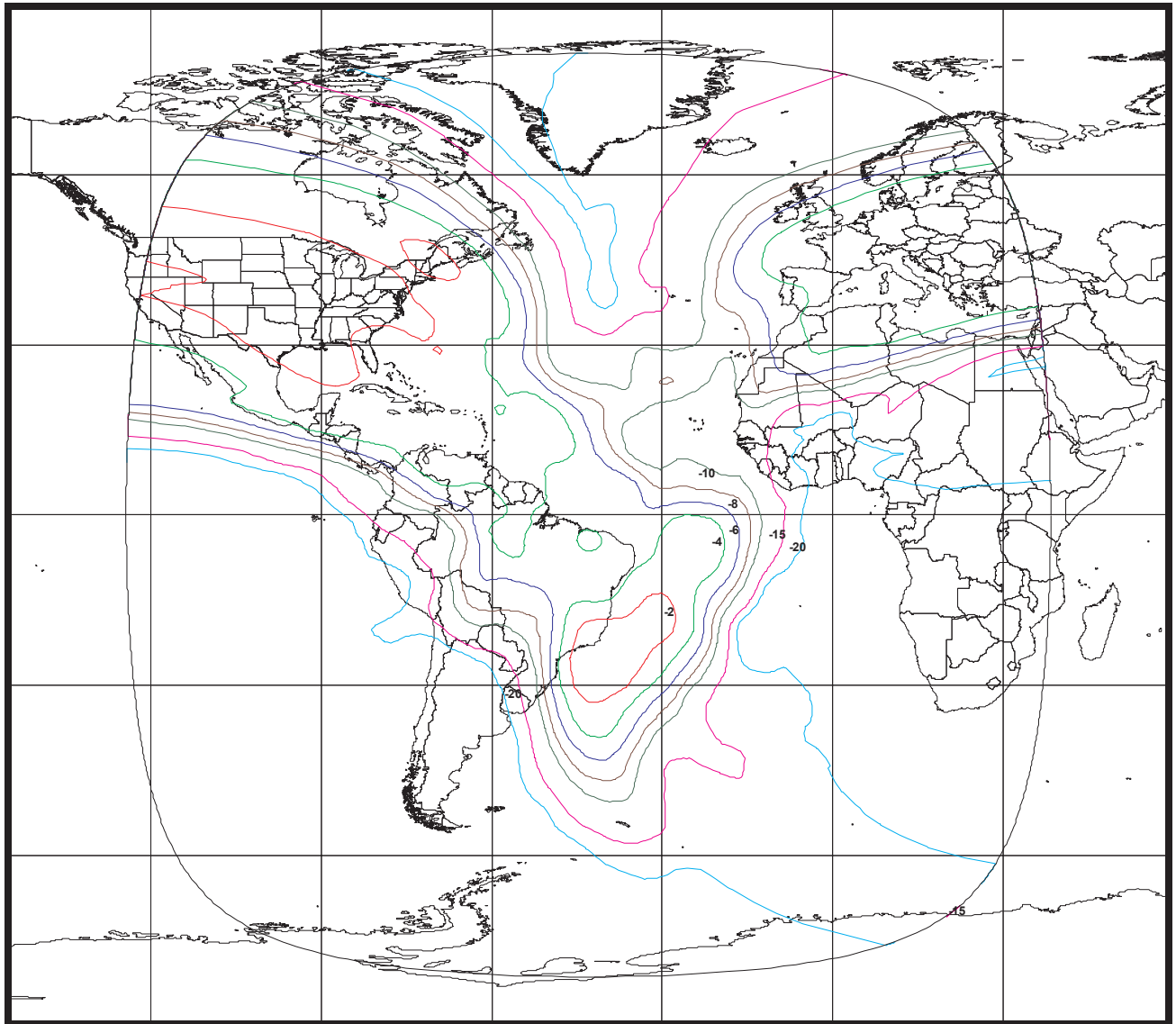


Exhibit 2-4: Ku-Band Brazil Uplink Beam
[Schedule S Beam Designation: BRHU]

Beam Peak Gain: 30.5 dBi
Beam Polarization: Horizontal
Beam Peak G/T: 3.3 dB/K
Saturated Flux Density @ Beam Peak G/T: -96.8 to -80.8 dBW/m²

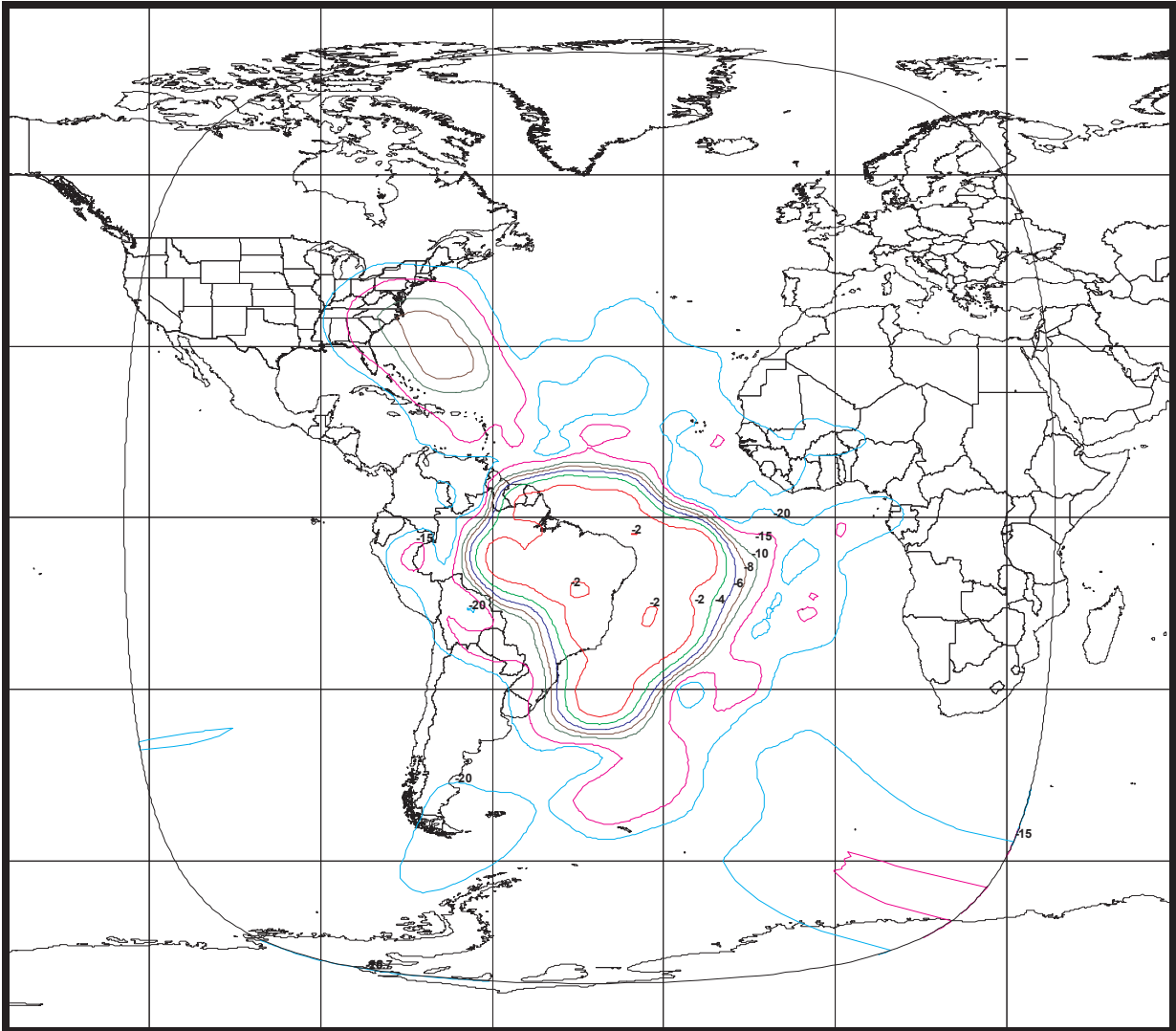


Exhibit 2-5: Ku-Band Mexico Uplink Beam
[Schedule S Beam Designation: MXHU]

Beam Peak Gain: 36.3 dBi
Beam Polarization: Horizontal
Beam Peak G/T: 8.4 dB/K
Saturated Flux Density @ Beam Peak G/T: -101.6 to -85.6 dBW/m²

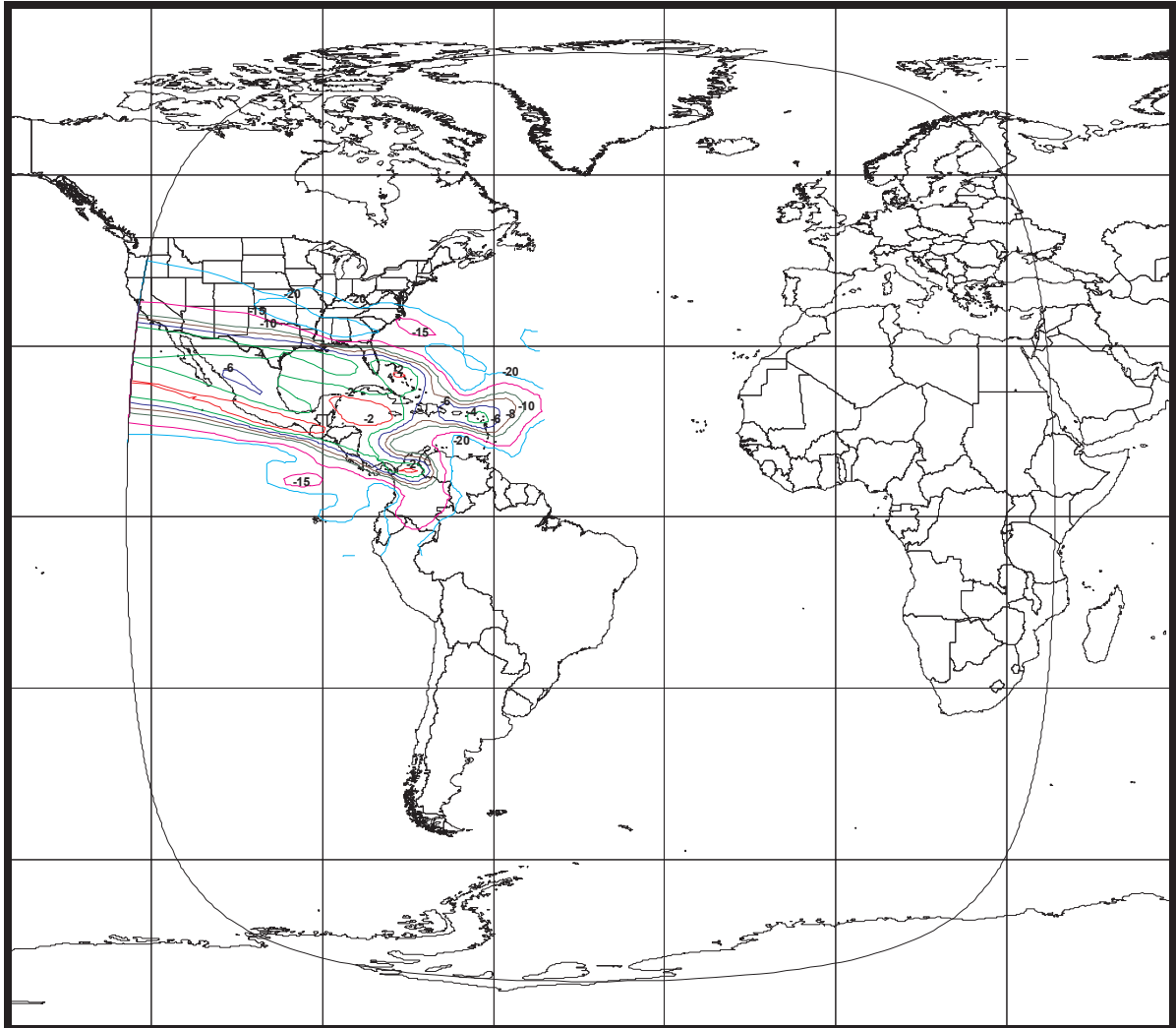


Exhibit 2-6: Ku-Band Mexico Uplink Beam
[Schedule S Beam Designation: MXVU]

Beam Peak Gain: 36.7 dBi
Beam Polarization: Vertical
Beam Peak G/T: 8.6 dB/K
Saturated Flux Density @ Beam Peak G/T: -102.2 to -86.2 dBW/m²

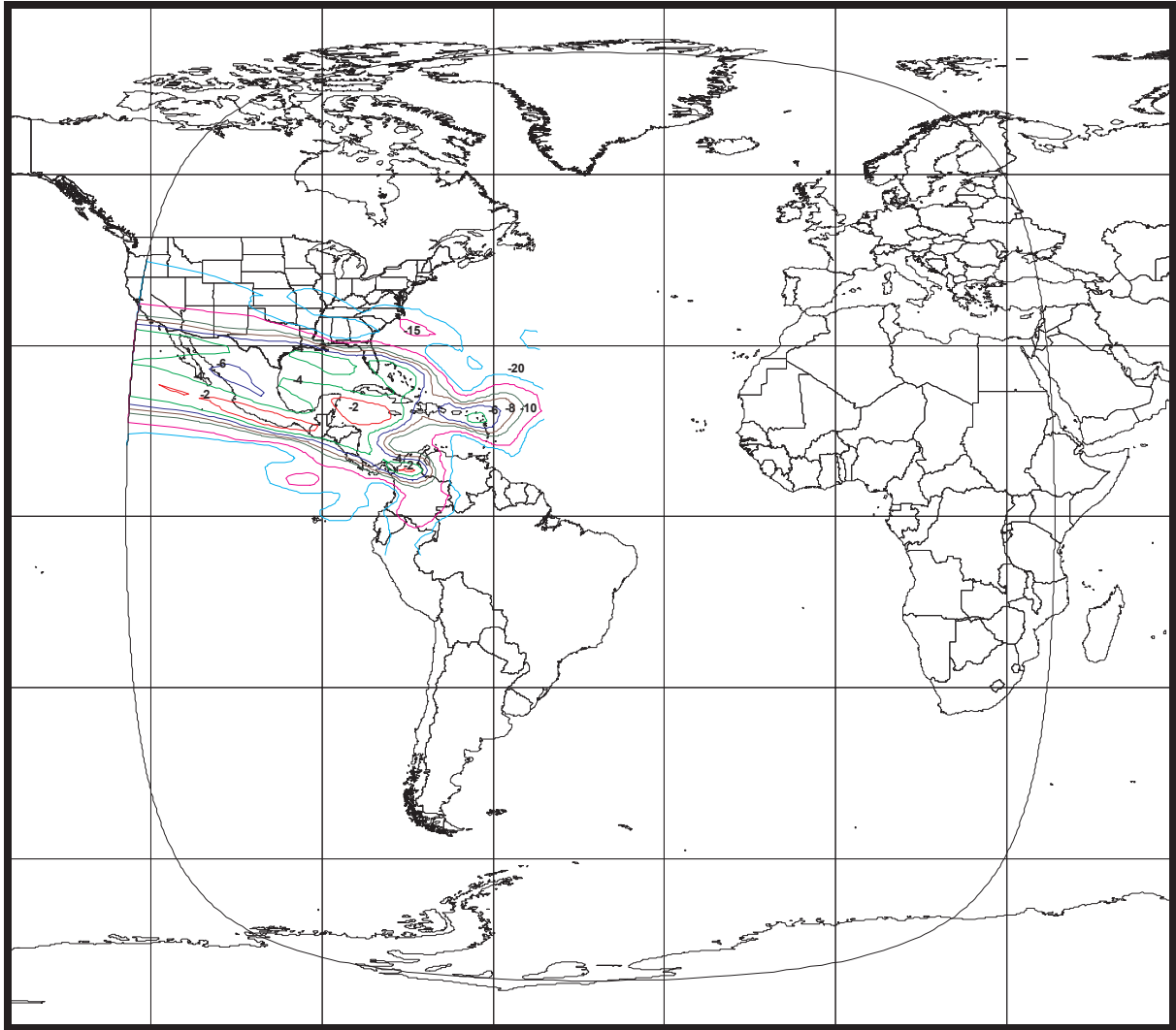


Exhibit 2-7: C-Band Americas Downlink Beam
[Schedule S Beam Designation: AMHD]

Beam Peak Gain: 25.5 dBi
Beam Polarization: Horizontal
Beam Peak EIRP: 42.7 dBW

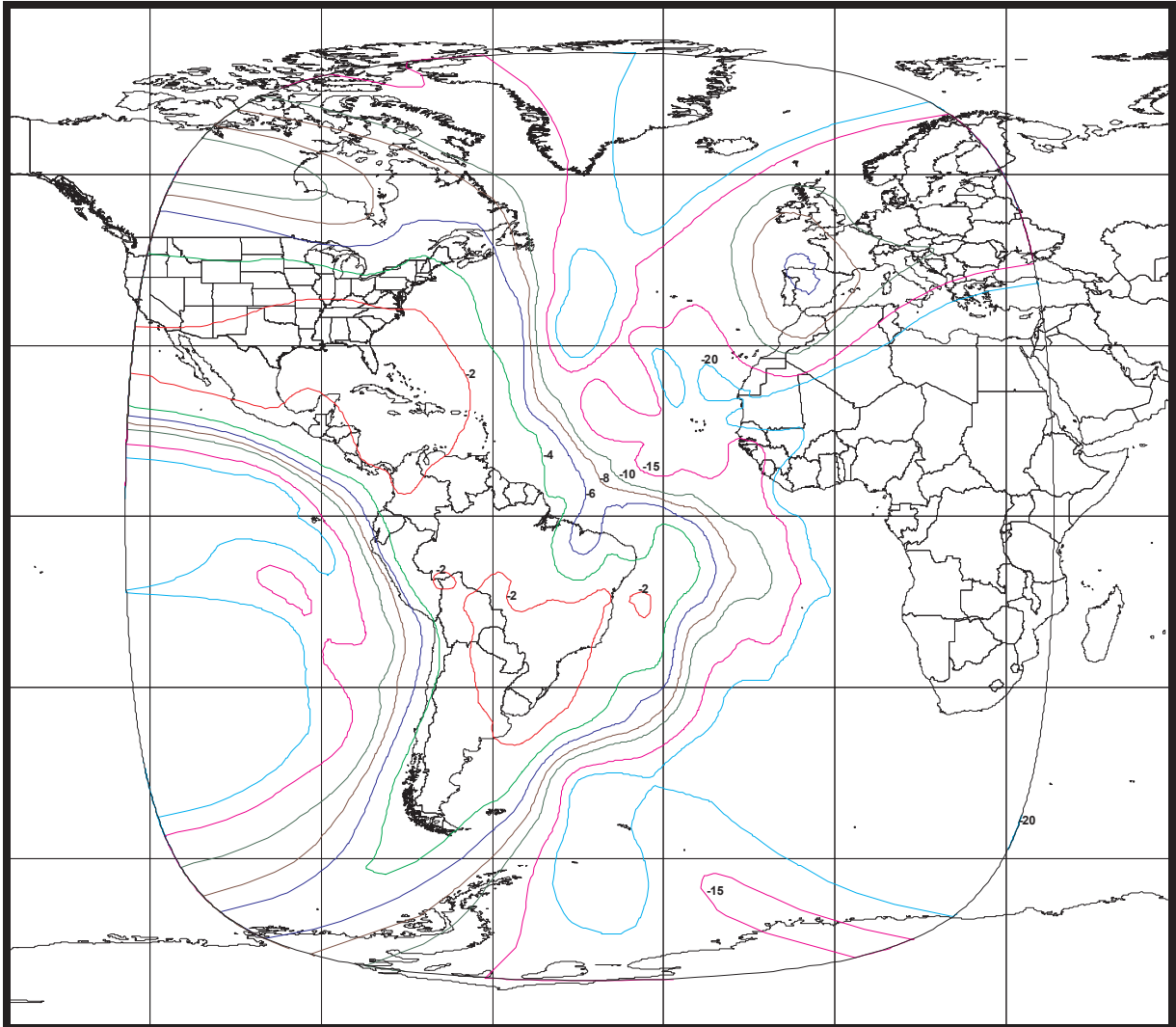


Exhibit 2-8: C-Band Americas Downlink Beam
[Schedule S Beam Designation: AMVD]

Beam Peak Gain: 25.9 dBi
Beam Polarization: Vertical
Beam Peak EIRP: 42.8 dBW

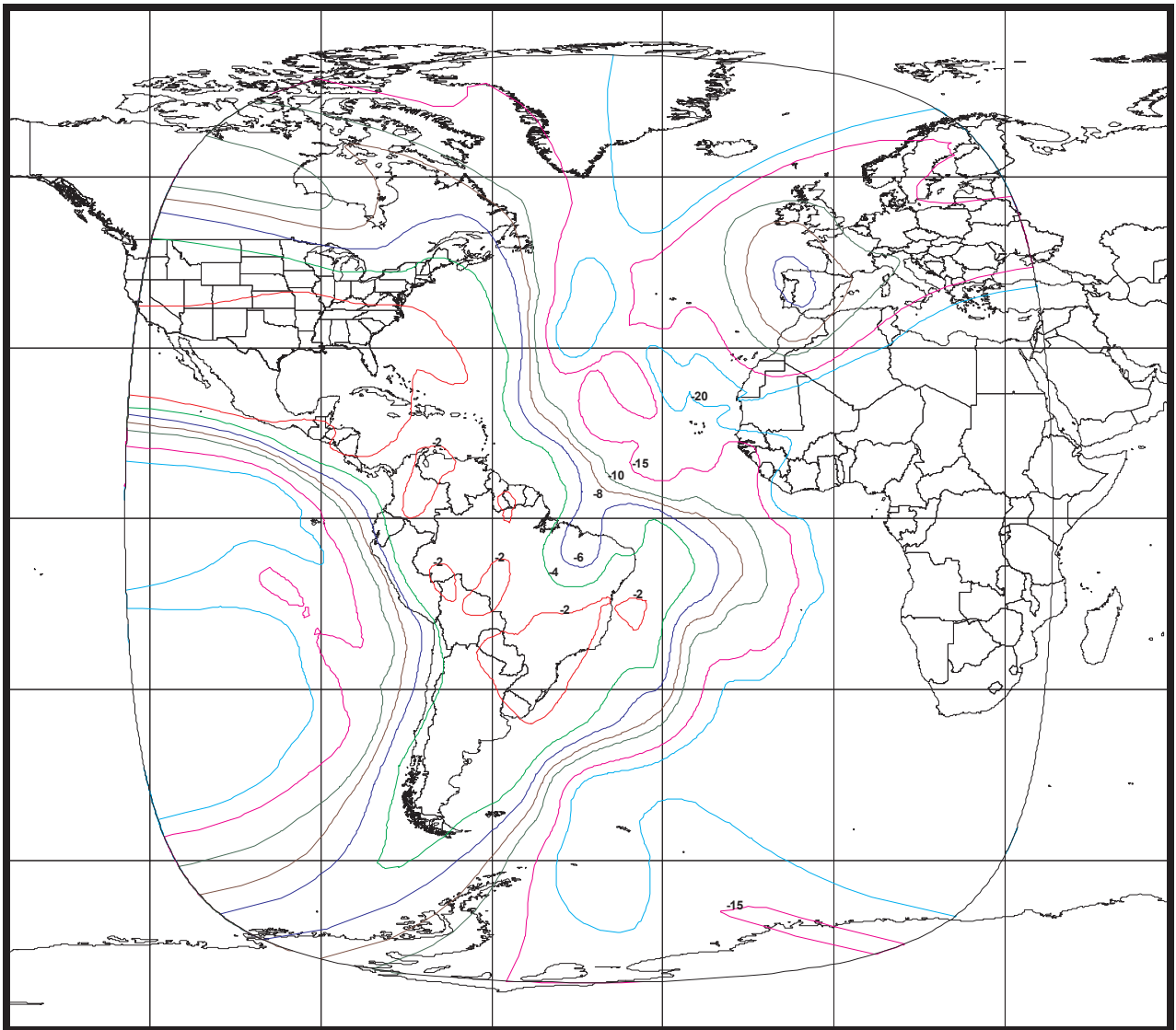


Exhibit 2-9: Ku-Band Americas/Europe Downlink Beam
[Schedule S Beam Designation: AEHD]

Beam Peak Gain: 31.6 dBi
Beam Polarization: Horizontal
Beam Peak EIRP: 49.6 dBW

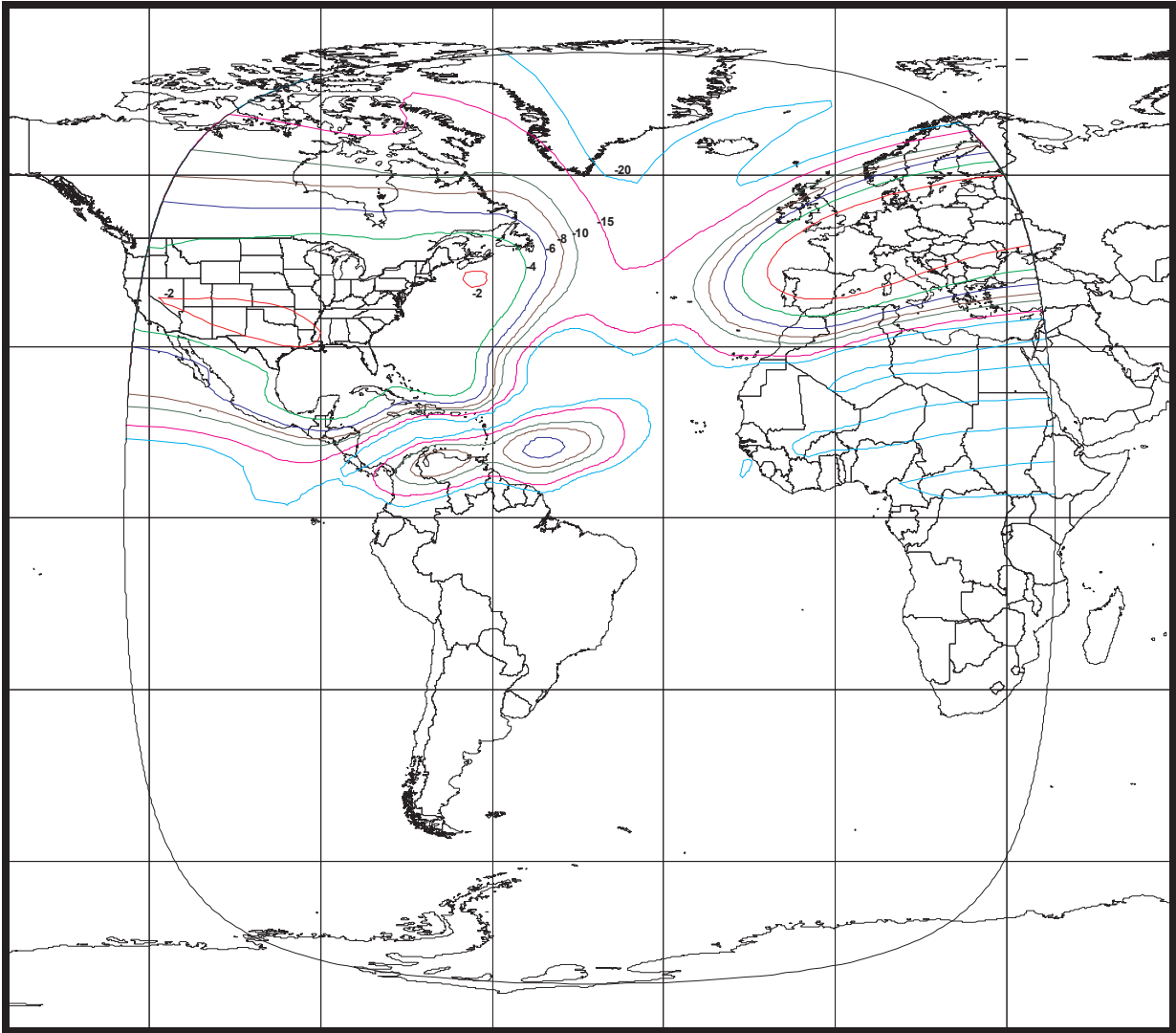


Exhibit 2-10: Ku-Band Brazil Downlink Beam
[Schedule S Beam Designation: BRVD]

Beam Peak Gain: 30.1 dBi
Beam Polarization: Vertical
Beam Peak EIRP: 48.1 dBW

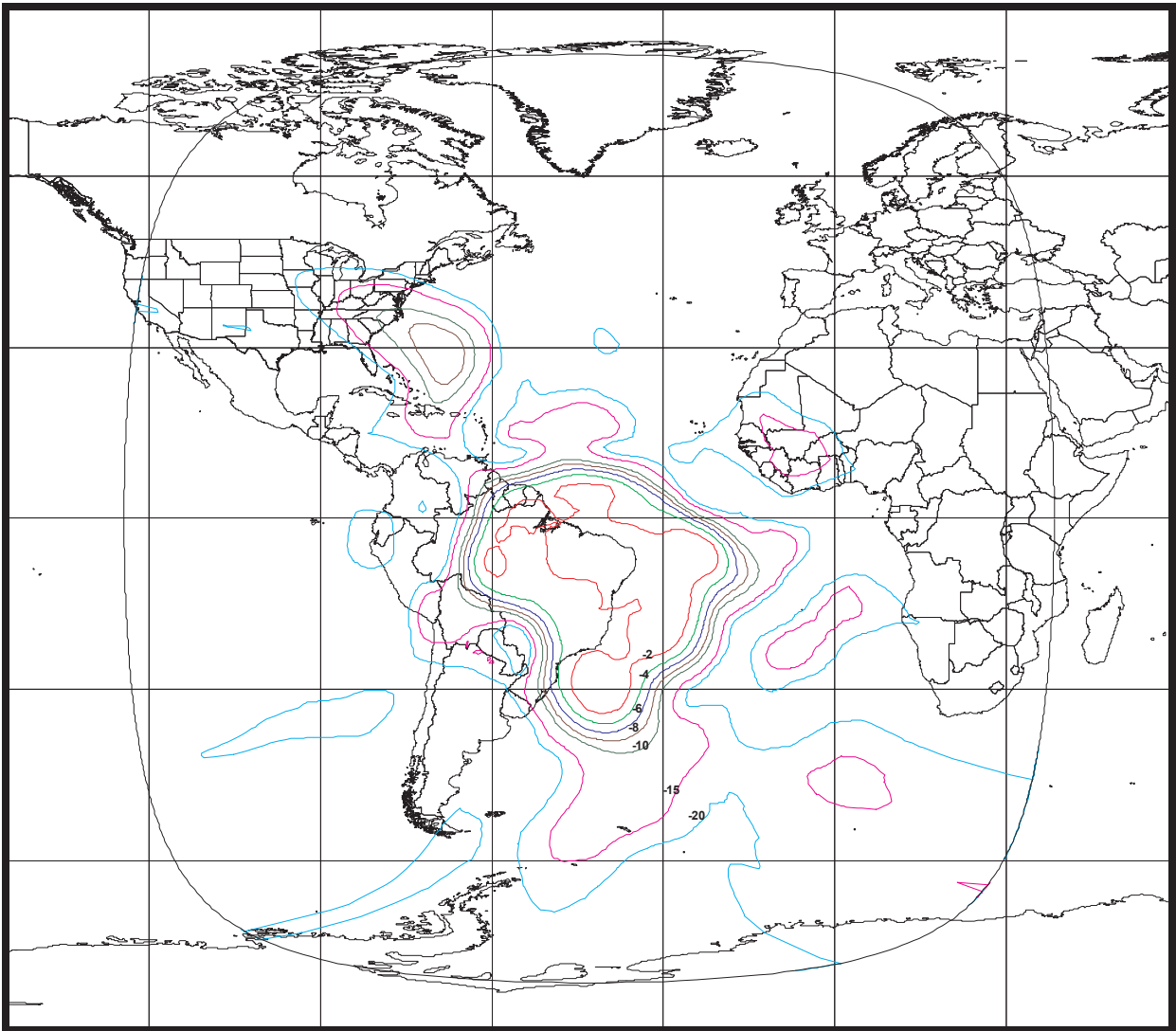


Exhibit 2-11: Ku-Band Mexico Downlink Beam
[Schedule S Beam Designation: MXHD]

Beam Peak Gain: 35.7 dBi
Beam Polarization: Horizontal
Beam Peak EIRP: 54.2 dBW

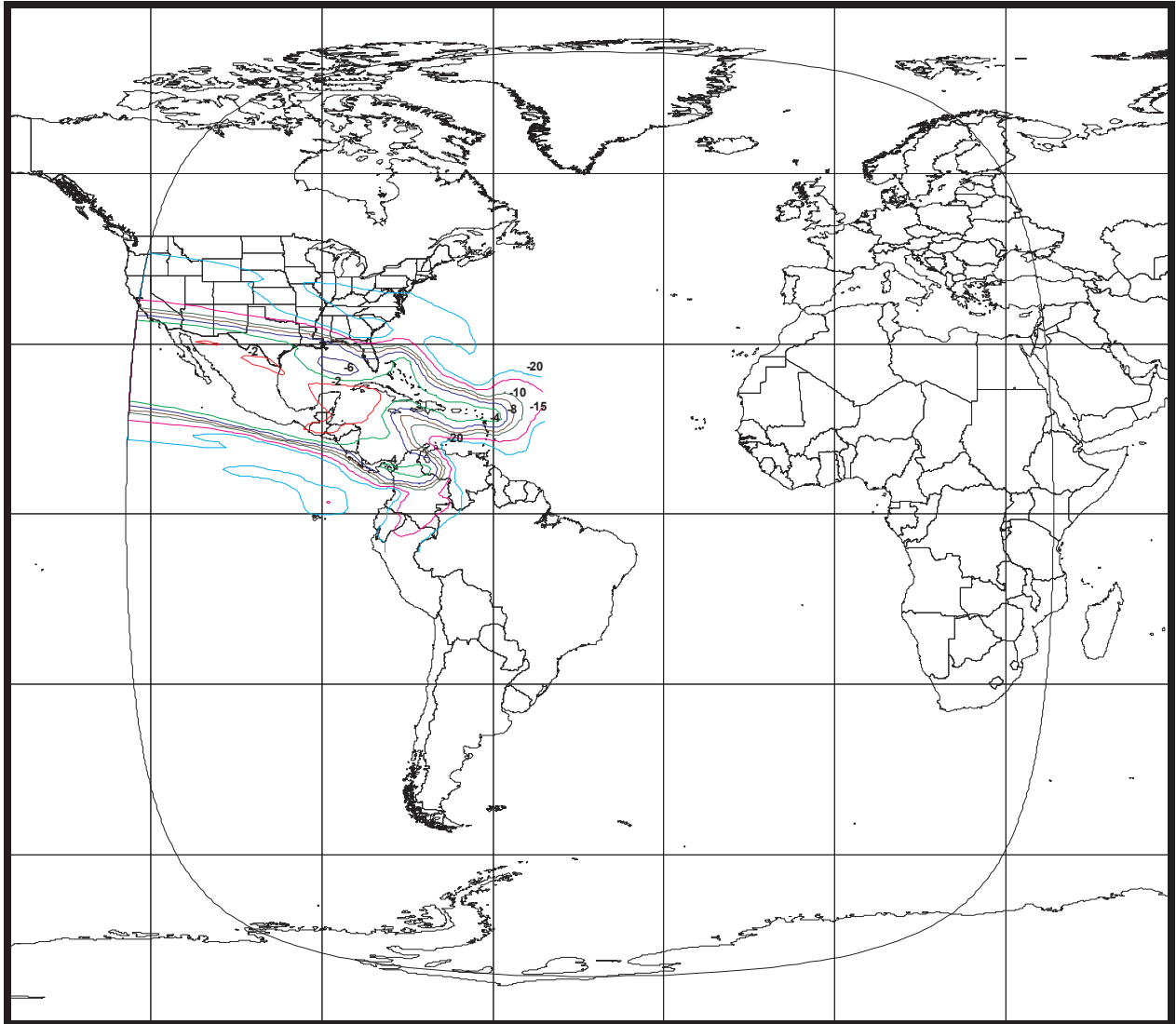


Exhibit 2-12: Ku-Band Mexico Downlink Beam
[Schedule S Beam Designation: MXVD]

Beam Peak Gain: 35.7 dBi
Beam Polarization: Vertical
Beam Peak EIRP: 54.2 dBW

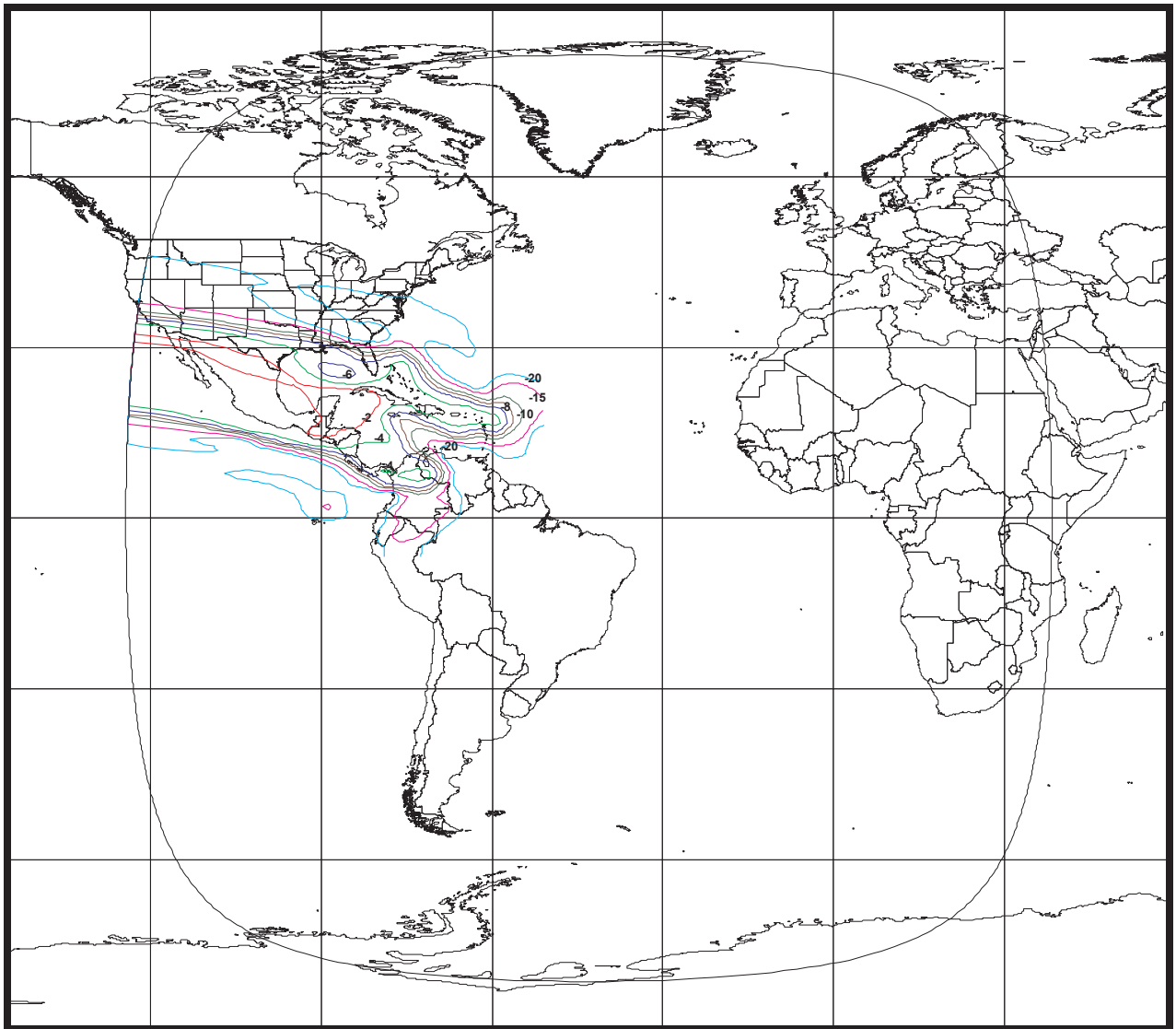
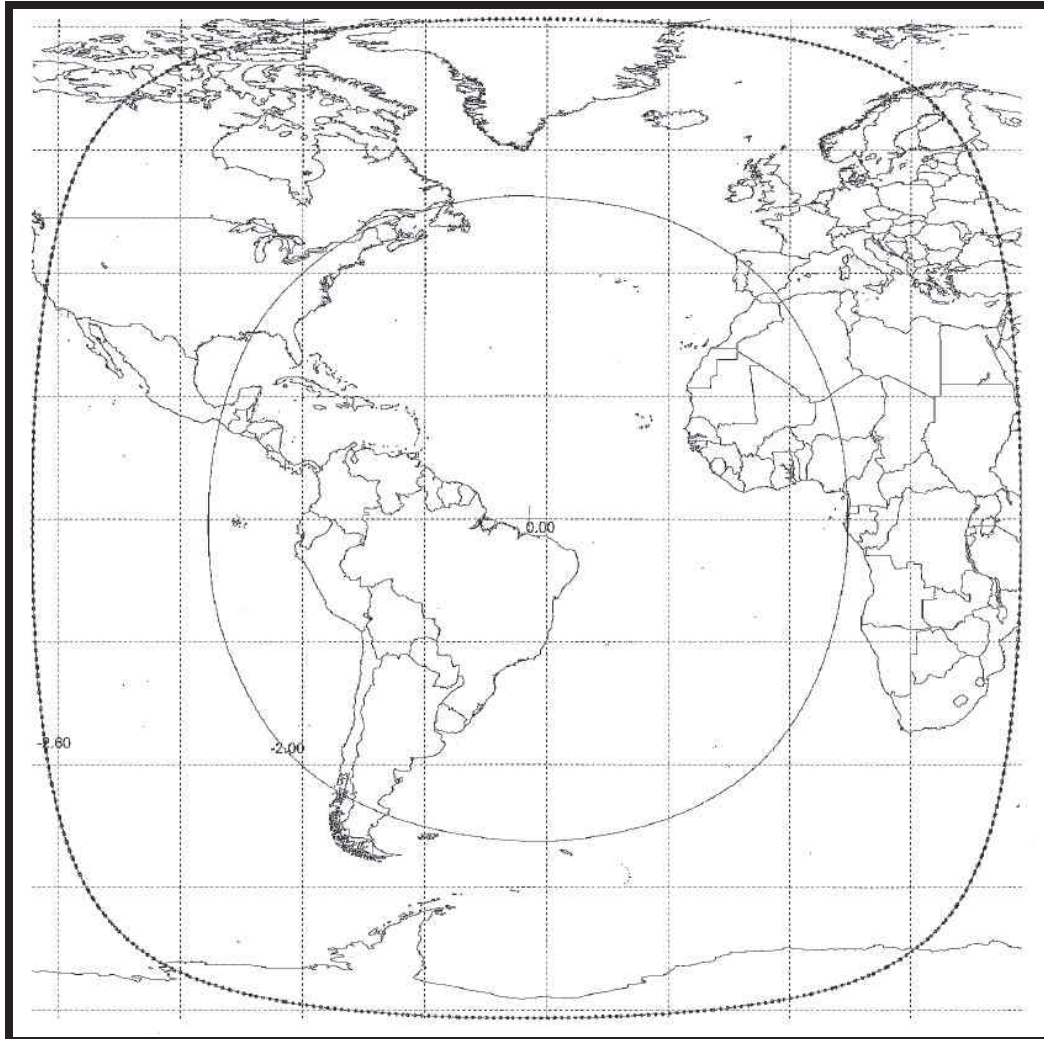


Exhibit 2-13: Command Uplink Beam
[Schedule S Beam Designation: CMD]

Peak Beam Gain: 22 dBi
Polarization: Vertical
Peak G/T: 2.4 dB/K
Command Threshold Flux Density @ Peak G/T: -103.0 dBW/m^2



Relative Gain Contours Shown: -2.0, -2.6 dB

Exhibit 2-14: Command Uplink Beam – Pipe Antenna
[Schedule S Beam Designation: CMDP]

Peak Beam Gain: 7.6 dBi
Polarization: Right Hand Circular
Peak G/T: -25.2 dB/K
Command Threshold Flux Density @ Peak G/T: -102.2 dBW/m²



Relative Gain Contours Shown: -1 dB

Exhibit 2-15: Command Uplink Beam – Bicone Antenna

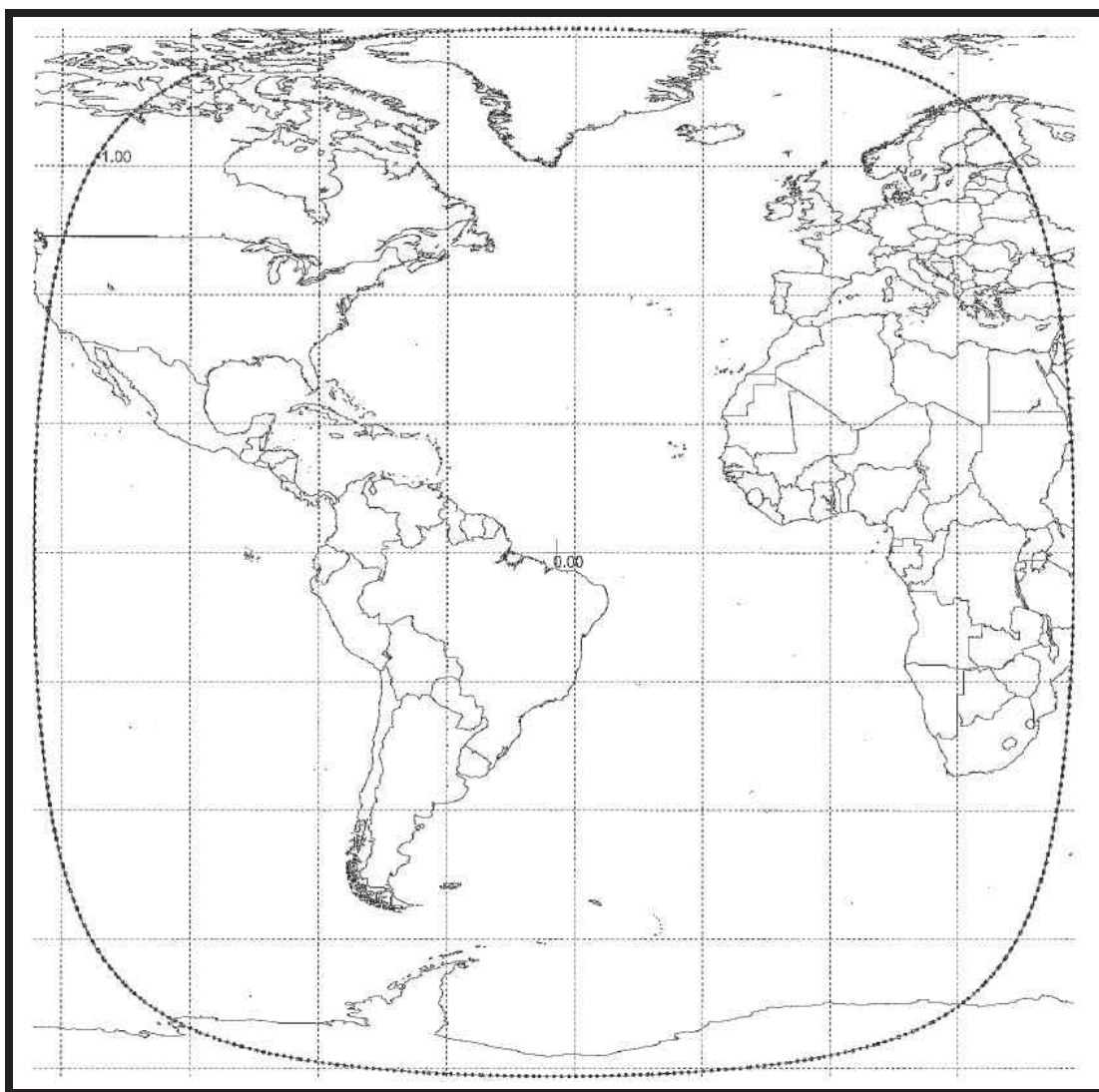
[Schedule S Beam Designation: CMDDB]

Peak Beam Gain: 2.9 dBi

Polarization: Vertical

Peak G/T: -29.5 dB/K

Command Threshold Flux Density @ Peak G/T: -96.6 dBW/m²



Relative Gain Contours Shown: -1 dB

Exhibit 2-16: On-Station Telemetry Downlink Beam
[Schedule S Beam Designation: TLM]

Peak Beam Gain: 22 dBi
Polarization: Vertical
Peak EIRP: 9.2 dBW



Relative Gain Contours Shown: -2.0, -2.6 dB

Exhibit 2-17: On-Station Telemetry Downlink Beam – Pipe Antenna
[Schedule S Beam Designation: TLMP]

Peak Beam Gain: 7.6 dBi
Polarization: Right Hand Circular
Peak EIRP: 14.8 dBW



Relative Gain Contours Shown: -1 dB

Exhibit 2-18: On-Station Telemetry Downlink Beam – Bicone Antenna
[Schedule S Beam Designation: TLMB]

Peak Beam Gain: 2.9 dBi
Polarization: Horizontal
Peak EIRP: 10.7 dBW



Relative Gain Contours Shown: -1 dB

Exhibit 2-19: ULPC Downlink Beam
[Schedule S Beam Designation: UPCH]

Peak Beam Gain: 22 dBi
Polarization: Horizontal
Peak EIRP: 13.2 dBW



Relative Gain Contours Shown: -2.0, -2.6 dB

Exhibit 2-20: ULPC Downlink Beam
[Schedule S Beam Designation: UPCV]

Peak Beam Gain: 22 dBi
Polarization: Vertical
Peak EIRP: 12.3 dBW



Relative Gain Contours Shown: -2.0, -2.6 dB

EXHIBIT 3: EMISSION DESIGNATORS

Signal Type	Emission Designator	Allocated Bandwidth (kHz)
Analog TV/FM Carrier	36M0F3F	36000
24575 kbps Carrier	36M0G7W	36000
6000 kbps carrier	10M3G7W	10300
64 kbps Carrier	100KG7W	100
512 kbps Carrier	1M45G7W	1450
128 kbps Carrier	400KG7W	400

EXHIBIT 4: POWER FLUX DENSITY CALCULATIONS

FREQUENCY BAND : 3700 - 4200 MHz							
Americas Beam (H) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	42.7	42.7	42.7	42.7	42.7
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-152.0	-152.0	-150.5	-150.3	-150.2	-150.1	-149.4
FCC Limit (dBW/m ² /4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	1.0	3.3	5.7	8.1	7.4
Americas Beam (H) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	42.7	42.7	42.7	42.7	42.7	42.7	42.7
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-159.5	-159.3	-159.2	-159.1	-159.0	-158.9	-158.1
FCC Limit (dBW/m ² /4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	7.5	7.3	9.7	12.1	14.5	16.9	16.1

EXHIBIT 4: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 - 4200 MHz							
Americas Beam (V) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	42.8	42.8	42.8	42.8	42.8
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-152.0	-152.0	-150.4	-150.2	-150.1	-150.0	-149.3
FCC Limit (dBW/m ² /4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	0.9	3.2	5.6	8.0	7.3
Americas Beam (V) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	42.8	42.8	42.8	42.8	42.8	42.8	42.8
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-159.4	-159.2	-159.1	-159.0	-158.9	-158.8	-158.0
FCC Limit (dBW/m ² /4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	7.4	7.2	9.6	12.0	14.4	16.8	16.0

EXHIBIT 4: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 11450 - 11700 MHz							
Brazil (V) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	43.4*	43.3*	45.7*	48.0*	48.1	48.1	48.1
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-144.8	-144.7	-144.0
FCC Limit (dBW/m ² /4Hz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	2.3	4.7	4.0
Brazil (V) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	48.1	48.1	48.1	48.1	48.1	48.1	48.1
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-154.1	-153.9	-153.8	-153.7	-153.6	-153.5	-152.7
FCC Limit (dBW/m ² /4Hz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	4.1	3.9	6.3	8.7	11.1	13.5	12.7

EXHIBIT 4: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 11450 - 11700 MHz							
Americas/Europe (H) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	43.4*	43.3*	45.7*	48.0*	49.6	49.6	49.6
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-143.3	-143.2	-142.5
FCC Limit (dBW/m ² /4Hz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.8	3.2	2.5
Americas/Europe (H) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	49.6	49.6	49.6	49.6	49.6	49.6	49.6
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-152.6	-152.4	-152.3	-152.2	-152.1	-152.0	-151.2
FCC Limit (dBW/m ² /4Hz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	2.6	2.4	4.8	7.2	9.6	12.0	11.2

EXHIBIT 4: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 11450 - 11700 MHz							
ULPC Beam (H) - 25K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	13.2	13.2	13.2	13.2	13.2	13.2	13.2
Carrier Occupied Bandwidth (kHz)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m ² /4kHz)	-158.1	-158.0	-157.9	-157.8	-157.7	-157.6	-156.8
FCC Limit (dBW/m ² /4Hz)	-148.0	-148.0	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	10.1	10.0	12.4	14.8	17.2	19.6	18.8

* This is the maximum allowable EIRP level at the specified elevation angle. The actual EIRP level of the beam at this particular elevation angle will be made to be equal to or lower than the value listed in the table through reduction in the output power of the channel and/or restriction on the movement/placement of the beam.

Exhibit 5: Intelsat 9 (43.1° W.L.) Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-10.2	-10.2	-10.2	-10.2
Uplink SFD (dBW/m2)	-78.8	-84.8	-80.8	-80.8
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	34.7	34.7	34.7	34.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	41.1W	41.1W	41.1W	41.1W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-40.0	-40.0	-40.0	-40.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	45.0W	45.0W	45.0W	45.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.6	-29.6	-29.6	-29.6
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	36000	36000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	10.0	6.1	6.1
Earth Station Gain (dBi)	60.2	54.1	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	7.0	3.0	3.5	3.5
Earth Station Gain (dBi)	47.5	39.7	41.1	41.1
Earth Station G/T (dB/K)	26.6	19.2	21.0	21.0
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE				
	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.1	78.1	70.2	49.8
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-10.2	-10.2	-10.2	-10.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Uplink C/N(dB)	26.7	21.5	20.1	19.2
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	34.7	34.7	27.5	7.1
Antenna Pointing Error (dB)	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	26.6	19.2	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Downlink C / N(dB)	17.5	10.9	12.0	11.1
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.7	21.5	20.1	19.2
C/N Downlink (dB)	17.5	10.9	12.0	11.1
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.7	28.5
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.7	28.5
C/I Uplink Adjacent Satellite 1 (dB)	19.2	14.0	12.6	11.7
C/I Downlink Adjacent Satellite 1 (dB)	24.3	11.1	15.5	14.6
C/I Uplink Adjacent Satellite 2 (dB)	19.2	14.0	12.6	11.7
C/I Downlink Adjacent Satellite 2 (dB)	15.5	9.4	9.9	9.0
C/(N+I) Composite (dB)	11.0	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	1	1.0	2.3	257.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.1	-50.8	-47.5	-48.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-23.3	-32.1	-32.8	-33.7

Exhibit 5: Intelsat 9 (43.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Uplink Frequency (GHz)	14.130	14.130	14.130	14.130	14.130	14.130
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Uplink SFD (dBW/m2)	-82.8	-82.8	-79.8	-79.8	-79.8	-79.8
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Downlink Frequency (GHz)	11.830	11.830	11.830	11.830	11.830	11.830
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	42.1	42.1	42.1	42.1	42.1	42.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	41.1W	41.1W	41.1W	41.1W	41.1W	41.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	45.0W	45.0W	45.0W	45.0W	45.0W	45.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-25.4	-25.4	-25.4	-25.4	-25.4	-25.4
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100K.G7W	1M45G7W	400K.G7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	3.0
Earth Station Gain (dBi)	56.8	56.8	56.8	56.8	56.8	49.6
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.6	1.8	2.4	2.4	3.0	6.1
Earth Station Gain (dBi)	53.4	44.7	47.4	47.4	49.1	55.4
Earth Station G/T (dB/K)	30.9	22.2	24.9	24.9	26.6	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.1	80.1	71.2	51.1	61.6	51.3
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	23.0	23.8	21.4	20.8	19.2	14.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	42.1	42.1	33.3	13.2	23.8	13.4
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	30.9	22.2	24.9	24.9	26.6	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	19.7	11.7	12.2	11.6	11.7	13.8
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	23.0	23.8	21.4	20.8	19.2	14.9
C/N Downlink (dB)	19.7	11.7	12.2	11.6	11.7	13.8
C/I Intermodulation (dB)	N/A	N/A	26.7	26.1	24.5	20.2
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.8	28.8	27.7	22.9
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.8	28.8	27.7	22.9
C/I Uplink Adjacent Satellite 1 (dB)	25.5	26.3	23.9	23.3	21.8	17.4
C/I Downlink Adjacent Satellite 1 (dB)	24.0	15.4	16.1	15.5	15.8	18.1
C/I Uplink Adjacent Satellite 2 (dB)	25.5	26.3	23.9	23.3	21.8	17.4
C/I Downlink Adjacent Satellite 2 (dB)	24.3	16.9	17.1	16.5	16.5	18.1
C/(N+I) Composite (dB)	14.8	8.9	9.0	8.5	8.3	7.9
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.8	7.9	8.0	7.5	7.3	6.9
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.8	4.5	4.2	4.5	3.9	3.5
Number of Carriers	1	1.0	2.3	240.0	21.1	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.7	-51.5	-53.9	-54.5	-56.1	-53.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.9	-26.7	-29.0	-29.6	-31.1	-35.5

Exhibit 5: Intelsat 9 (43.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Uplink Frequency (GHz)	14.120	14.120	14.120	14.120	14.120	14.120
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink SFD (dBW/m2)	-80.1	-80.1	-83.1	-83.1	-83.1	-83.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Downlink Frequency (GHz)	11.575	11.575	11.575	11.575	11.575	11.575
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	41.6	41.6	41.6	41.6	41.6	41.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	41.1W	41.1W	41.1W	41.1W	41.1W	41.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-28.0	-28.0	-28.0	-28.0	-28.0	-28.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	45.0W	45.0W	45.0W	45.0W	45.0W	45.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-24.9	-24.9	-24.9	-24.9	-24.9	-24.9
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	60.1	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	3.7	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	50.8	44.5	47.2	47.2	47.2	55.2
Earth Station G/T (dB/K)	28.3	22.0	24.7	24.7	24.7	32.8
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
Uplink Earth Station EIRP (dBW)	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.8	77.3	67.5	47.3	59.3	50.4
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	20.4	15.7	12.4	11.7	11.6	8.7
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.6	40.8	32.5	12.2	24.2	15.3
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.7	-205.7	-205.7	-205.7	-205.7	-205.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.3	22.0	24.7	24.7	24.7	32.8
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	16.8	10.4	11.3	10.6	10.5	15.7
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	20.4	15.7	12.4	11.7	11.6	8.7
C/N Downlink (dB)	16.8	10.4	11.3	10.6	10.5	15.7
C/I Intermodulation (dB)	N/A	N/A	26.3	25.6	25.5	22.6
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.4	28.3	28.7	25.3
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.4	28.3	28.7	25.3
C/I Uplink Adjacent Satellite 1 (dB)	26.2	21.5	18.2	17.5	17.4	14.5
C/I Downlink Adjacent Satellite 1 (dB)	22.8	15.9	17.1	16.4	16.3	21.8
C/I Uplink Adjacent Satellite 2 (dB)	26.2	21.5	18.2	17.5	17.4	14.5
C/I Downlink Adjacent Satellite 2 (dB)	20.8	14.9	15.5	14.8	14.7	19.3
C/(N+I) Composite (dB)	12.8	7.1	6.7	6.0	5.9	5.8
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.8	6.1	5.7	5.0	4.9	4.8
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	1.8	2.8	1.8	2.0	1.5	1.4
Number of Carriers	1	1.0	2.5	268.0	16.9	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.3	-54.3	-57.6	-58.3	-58.4	-53.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-16.4	-26.0	-27.9	-28.5	-28.7	-31.6

Exhibit 5: Intelsat 9 (43.1° W.L.) Link Budgets (continued)

PLINK BEAM INFORMATION						
Uplink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Uplink Frequency (GHz)	14.180	14.180	14.180	14.180	14.180	14.180
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink SFD (dBW/m2)	-77.1	-82.1	-81.1	-81.1	-81.1	-81.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Downlink Frequency (GHz)	11.637	11.637	11.637	11.637	11.637	11.637
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	42.1	42.1	42.1	42.1	42.1	42.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	41.1W	41.1W	41.1W	41.1W	41.1W	41.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	45.0W	45.0W	45.0W	45.0W	45.0W	45.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-35.9	-35.9	-35.9	-35.9	-35.9	-35.9
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	11.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	61.7	56.9	56.9	56.9	56.9	49.0
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	3.7	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	50.9	44.6	47.3	47.3	47.3	55.3
Earth Station G/T (dB/K)	28.3	22.0	24.7	24.7	24.7	32.9
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	85.8	80.8	69.4	49.2	61.2	51.1
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	23.4	19.2	14.3	13.6	13.5	9.4
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	42.1	42.1	32.8	12.6	24.6	14.5
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.7	-205.7	-205.7	-205.7	-205.7	-205.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.3	22.0	24.7	24.7	24.7	32.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	17.3	11.7	11.7	11.0	10.9	14.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	23.4	19.2	14.3	13.6	13.5	9.4
C/N Downlink (dB)	17.3	11.7	11.7	11.0	10.9	14.9
C/I Intermodulation (dB)	N/A	N/A	26.2	25.5	25.4	21.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.3	28.2	28.6	24.0
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.3	28.2	28.6	24.0
C/I Uplink Adjacent Satellite 1 (dB)	29.2	25.0	20.1	19.4	19.3	15.2
C/I Downlink Adjacent Satellite 1 (dB)	21.4	15.3	15.5	14.8	14.7	19.1
C/I Uplink Adjacent Satellite 2 (dB)	29.2	25.0	20.1	19.4	19.3	15.2
C/I Downlink Adjacent Satellite 2 (dB)	32.3	27.3	27.0	26.3	26.1	29.6
C/(N+I) Composite (dB)	14.3	9.2	7.9	7.3	7.2	6.2
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.3	8.2	6.9	6.3	6.2	5.2
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.3	4.8	3.1	3.3	2.8	1.8
Number of Carriers	1	1.0	2.6	276.0	17.4	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-41.9	-50.8	-55.7	-56.4	-56.5	-52.8
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.9	-26.7	-29.5	-30.2	-30.3	-34.4

Exhibit 5: Intelsat 9 (43.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO
Uplink Frequency (GHz)	14.370	14.370	14.370	14.370	14.370	14.370
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	0.6	0.6	0.6	0.6	0.6	0.6
Uplink SFD (dBW/m2)	-82.2	-78.2	-80.2	-80.2	-80.2	-80.2
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO
Downlink Frequency (GHz)	12.070	12.070	12.070	12.070	12.070	12.070
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	48.2	48.2	48.2	48.2	48.2	48.2
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	41.1W	41.1W	41.1W	41.1W	41.1W	41.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	45.0W	45.0W	45.0W	45.0W	45.0W	45.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	1.8
Earth Station Gain (dBi)	57.0	57.0	57.0	57.0	57.0	46.5
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	2.4	2.4	2.4	1.8	1.8	6.1
Earth Station Gain (dBi)	47.6	47.6	47.6	44.9	44.9	55.6
Earth Station G/T (dB/K)	25.1	25.1	25.1	22.4	22.4	33.2
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.7	73.4	66.6	48.2	60.2	49.4
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	0.6	0.6	0.6	0.6	0.6	0.6
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	26.8	20.3	20.0	21.1	20.9	16.2
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	48.2	42.8	35.2	16.8	28.8	18.1
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	25.1	25.1	25.1	22.4	22.4	33.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	19.8	15.1	14.1	12.5	12.3	18.4
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	26.8	20.3	20.0	21.1	20.9	16.2
C/N Downlink (dB)	19.8	15.1	14.1	12.5	12.3	18.4
C/I Intermodulation (dB)	N/A	N/A	22.5	23.6	23.5	18.8
C/I Uplink Co-Channel (dB)*	27.0	27.0	24.6	26.2	26.6	21.5
C/I Downlink Co-Channel (dB)*	27.0	27.0	24.6	26.2	26.6	21.5
C/I Uplink Adjacent Satellite 1 (dB)	24.1	17.6	17.3	18.4	18.3	13.6
C/I Downlink Adjacent Satellite 1 (dB)	23.9	19.3	18.2	16.3	16.2	23.0
C/I Uplink Adjacent Satellite 2 (dB)	24.1	17.6	17.3	18.4	18.3	13.6
C/I Downlink Adjacent Satellite 2 (dB)	25.5	20.8	19.8	18.4	18.3	23.6
C/(N+I) Composite (dB)	15.1	10.1	9.0	8.5	8.4	7.9
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	14.1	9.1	8.0	7.5	7.4	6.9
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	4.1	5.7	4.2	4.5	4.0	3.5
Number of Carriers	1	1.0	3.5	360.0	24.8	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.3	-58.4	-58.7	-57.6	-57.7	-51.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-11.8	-26.0	-27.1	-26.0	-26.1	-30.8

Exhibit 6: Adjacent Satellite (41.1° W.L.) Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-10.2	-10.2	-10.2	-10.2
Uplink SFD (dBW/m2)	-78.8	-84.8	-79.8	-79.8
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	34.7	34.7	34.7	34.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	39.1W	39.1W	39.1W	39.1W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-40.0	-40.0	-40.0	-40.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-40.0	-40.0	-40.0	-40.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	36000	36000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	9.2	6.1	6.1
Earth Station Gain (dBi)	60.2	53.5	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	4.6	3.0	3.0	3.0
Earth Station Gain (dBi)	43.9	39.7	39.7	39.7
Earth Station G/T (dB/K)	23.6	19.2	19.2	19.2
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.1	78.1	71.1	50.8
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-10.2	-10.2	-10.2	-10.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Uplink C/N(dB)	26.7	21.5	21.0	20.3
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	34.7	34.7	27.4	7.1
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	23.6	19.2	19.2	19.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Downlink C / N(dB)	14.5	10.9	10.0	9.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.7	21.5	21.0	20.3
C/N Downlink (dB)	14.5	10.9	10.0	9.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.4
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.6	28.5
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.6	28.5
C/I Uplink Adjacent Satellite 1 (dB)	19.2	14.0	13.5	12.8
C/I Downlink Adjacent Satellite 1 (dB)	22.7	19.8	19.0	18.3
C/I Uplink Adjacent Satellite 2 (dB)	19.2	14.0	13.5	12.8
C/I Downlink Adjacent Satellite 2 (dB)	20.3	11.1	10.3	9.5
C/(N+I) Composite (dB)	11.0	5.8	5.0	4.3
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.8	4.0	3.3
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	1.5	.1	.3
Number of Carriers	1	1.0	2.4	254.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.1	-50.2	-46.6	-47.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-23.3	-32.1	-32.9	-33.6

Exhibit 6: Adjacent Satellite (41.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Uplink Frequency (GHz)	14.130	14.130	14.130	14.130	14.130	14.130
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Uplink SFD (dBW/m2)	-82.8	-82.8	-79.8	-79.8	-79.8	-79.8
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Downlink Frequency (GHz)	11.830	11.830	11.830	11.830	11.830	11.830
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	42.1	42.1	42.1	42.1	42.1	42.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	39.1W	39.1W	39.1W	39.1W	39.1W	39.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26	-26	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.8	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.6	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	53.4	44.7	47.4	47.4	47.4	55.4
Earth Station G/T (dB/K)	30.9	22.2	24.9	24.9	24.9	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.1	80.1	70.6	50.6	62.6	51.8
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-2.7	-2.7	-2.7	-2.7	-2.7	-2.7
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	23.0	23.8	20.8	20.4	20.2	15.5
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	42.1	42.1	34.3	14.3	26.3	15.5
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	30.9	22.2	24.9	24.9	24.9	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	19.7	11.7	13.1	12.7	12.5	15.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	23.0	23.8	20.8	20.4	20.2	15.5
C/N Downlink (dB)	19.7	11.7	13.1	12.7	12.5	15.9
C/I Intermodulation (dB)	N/A	N/A	19.6	19.2	19.0	14.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.1	28.3	28.7	23.5
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.1	28.3	28.7	23.5
C/I Uplink Adjacent Satellite 1 (dB)	25.5	26.3	23.3	22.9	22.7	18.0
C/I Downlink Adjacent Satellite 1 (dB)	24.9	17.5	18.6	18.2	18.1	20.9
C/I Uplink Adjacent Satellite 2 (dB)	25.5	26.3	23.3	22.9	22.7	18.0
C/I Downlink Adjacent Satellite 2 (dB)	24.0	15.4	17.1	16.7	16.5	20.3
C/(N+I) Composite (dB)	14.9	9.0	9.4	9.0	8.9	8.2
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.9	8.0	8.4	8.0	7.9	7.2
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.9	4.6	4.5	5.0	4.5	3.8
Number of Carriers	1	1.0	2.7	266.5	17.0	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.7	-51.5	-54.6	-55.0	-55.1	-52.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.9	-26.7	-28.1	-28.5	-28.6	-33.3

Exhibit 6: Adjacent Satellite (41.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Uplink Frequency (GHz)	14.120	14.120	14.120	14.120	14.120	14.120
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink SFD (dBW/m2)	-80.1	-80.1	-80.1	-80.1	-80.1	-80.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Downlink Frequency (GHz)	11.575	11.575	11.575	11.575	11.575	11.575
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	41.6	41.6	41.6	41.6	41.6	41.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	39.1W	39.1W	39.1W	39.1W	39.1W	39.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-28.0	-28.0	-28.0	-28.0	-28.0	-28.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-28.0	-28.0	-28.0	-28.0	-28.0	-28.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	60.1	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	3.7	1.8	1.8	1.8	2.4	6.1
Earth Station Gain (dBi)	50.8	44.5	44.5	44.5	47.2	55.2
Earth Station G/T (dB/K)	28.3	22.0	22.0	22.0	24.7	32.8
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
Link Fade Type	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.8	77.2	70.8	50.7	60.8	51.5
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	20.4	15.6	15.7	15.2	13.1	9.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.6	40.8	34.3	14.2	24.3	15.0
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.7	-205.7	-205.7	-205.7	-205.7	-205.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.3	22.0	22.0	22.0	24.7	32.8
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	16.8	10.4	10.4	9.9	10.5	15.4
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	20.4	15.6	15.7	15.2	13.1	9.9
C/N Downlink (dB)	16.8	10.4	10.4	9.9	10.5	15.4
C/I Intermodulation (dB)	N/A	N/A	20.1	19.6	17.5	14.2
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.7	28.7	27.2	23.5
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.7	28.7	27.2	23.5
C/I Uplink Adjacent Satellite 1 (dB)	26.2	21.4	21.5	21.0	18.9	15.7
C/I Downlink Adjacent Satellite 1 (dB)	23.9	18.0	18.0	17.5	17.9	22.2
C/I Uplink Adjacent Satellite 2 (dB)	26.2	21.4	21.5	21.0	18.9	15.7
C/I Downlink Adjacent Satellite 2 (dB)	22.8	15.9	15.9	15.4	16.3	21.5
C/(N+I) Composite (dB)	13.2	7.5	7.3	6.8	6.5	6.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.2	6.5	6.3	5.8	5.5	5.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.2	3.1	2.5	2.8	2.1	1.7
Number of Carriers	1	1.0	2.4	243.2	23.8	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.3	-54.4	-54.3	-54.9	-56.9	-52.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-16.4	-26.0	-26.0	-26.6	-28.6	-31.9

Exhibit 6: Adjacent Satellite (41.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR	AM EUR
Uplink Frequency (GHz)	14.180	14.180	14.180	14.180	14.180	14.180
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink SFD (dBW/m ²)	-82.1	-82.1	-82.1	-82.1	-82.1	-82.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL	BRAZIL
Downlink Frequency (GHz)	11.637	11.637	11.637	11.637	11.637	11.637
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	42.1	42.1	42.1	42.1	42.1	42.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	39.1W	39.1W	39.1W	39.1W	39.1W	39.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26	-26	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	49.0
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.6	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	53.3	44.6	47.3	47.3	47.3	55.3
Earth Station G/T (dB/K)	30.7	22.0	24.7	24.7	24.7	32.9
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.8	80.8	68.3	48.2	60.2	51.1
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	18.4	19.2	13.2	12.6	12.4	9.4
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	42.1	42.1	34.3	14.2	26.2	17.1
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.7	-205.7	-205.7	-205.7	-205.7	-205.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	30.7	22.0	24.7	24.7	24.7	32.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	19.7	11.7	13.1	12.5	12.4	17.5
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	18.4	19.2	13.2	12.6	12.4	9.4
C/N Downlink (dB)	19.7	11.7	13.1	12.5	12.4	17.5
C/I Intermodulation (dB)	N/A	N/A	19.6	19.0	18.9	15.8
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.2	28.1	28.5	25.1
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.2	28.1	28.5	25.1
C/I Uplink Adjacent Satellite 1 (dB)	24.2	25.0	19.0	18.4	18.3	15.2
C/I Downlink Adjacent Satellite 1 (dB)	24.7	17.4	18.5	17.9	17.8	22.3
C/I Uplink Adjacent Satellite 2 (dB)	24.2	25.0	19.0	18.4	18.3	15.2
C/I Downlink Adjacent Satellite 2 (dB)	23.9	15.3	17.0	16.3	16.2	21.7
C/(N+I) Composite (dB)	13.5	8.6	7.7	7.1	7.0	6.2
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.5	7.6	6.7	6.1	6.0	5.2
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.5	4.3	2.8	3.1	2.6	1.8
Number of Carriers	1	1.0	2.7	277.3	17.5	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.1	-50.8	-56.8	-57.5	-57.6	-52.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.9	-26.7	-28.0	-28.6	-28.7	-31.8

Exhibit 6: Adjacent Satellite (41.1° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO
Uplink Frequency (GHz)	14.370	14.370	14.370	14.370	14.370	14.370
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	0.6	0.6	0.6	0.6	0.6	0.6
Uplink SFD (dBW/m2)	-82.2	-78.2	-80.2	-80.2	-80.2	-80.2
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO	MEXICO
Downlink Frequency (GHz)	12.070	12.070	12.070	12.070	12.070	12.070
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	48.2	48.2	48.2	48.2	48.2	48.2
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	39.1W	39.1W	39.1W	39.1W	39.1W	39.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	3.0
Earth Station Gain (dBi)	57.0	57.0	57.0	57.0	57.0	49.8
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	2.4	2.4	3.0	3.0	3.0	6.1
Earth Station Gain (dBi)	47.6	47.6	49.3	49.3	49.3	55.6
Earth Station G/T (dB/K)	25.1	25.1	26.8	26.8	26.8	33.2
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.7	73.4	66.1	46.0	57.9	50.6
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5	-207.5	-207.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	0.6	0.6	0.6	0.6	0.6	0.6
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	26.8	20.3	19.4	18.9	18.7	17.4
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	48.2	42.8	36.3	16.2	28.1	20.8
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	25.1	25.1	26.8	26.8	26.8	33.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	19.8	15.1	16.8	16.2	16.1	21.1
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	26.8	20.3	19.4	18.9	18.7	17.4
C/N Downlink (dB)	19.8	15.1	16.8	16.2	16.1	21.1
C/I Intermodulation (dB)	N/A	N/A	15.5	14.9	14.7	13.4
C/I Uplink Co-Channel (dB)*	27.0	27.0	24.0	24.0	24.4	22.6
C/I Downlink Co-Channel (dB)*	27.0	27.0	24.0	24.0	24.4	22.6
C/I Uplink Adjacent Satellite 1 (dB)	24.1	17.6	16.8	16.2	16.1	14.7
C/I Downlink Adjacent Satellite 1 (dB)	25.5	20.8	22.3	21.8	21.6	26.3
C/I Uplink Adjacent Satellite 2 (dB)	24.1	17.6	16.8	16.2	16.1	14.7
C/I Downlink Adjacent Satellite 2 (dB)	23.9	19.3	21.1	20.5	20.4	25.7
C/(N+I) Composite (dB)	15.1	10.1	9.0	8.5	8.4	8.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	14.1	9.1	8.0	7.5	7.4	7.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	4.1	5.7	4.2	4.5	4.0	3.7
Number of Carriers	1	1.0	3.5	360.0	24.8	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.3	-58.4	-59.2	-59.8	-59.9	-54.1
Downlink EIRP Density At Beam Peak (dBW/Hz)	-11.8	-26.0	-26.1	-26.6	-26.8	-28.1

Exhibit 7: Adjacent Satellite (45° W.L.) Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	EUR_AFR	EUR_AFR	EUR_AFR	EUR_AFR
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	LIN. & CIR.	LIN. & CIR.	LIN. & CIR.	LIN. & CIR.
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-78.4	-81.4	-77.4	-77.4
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	EUR_AFR	EUR_AFR	EUR_AFR	EUR_AFR
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	LIN. & CIR.	LIN. & CIR.	LIN. & CIR.	LIN. & CIR.
Downlink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-36.0	-36.0	-36.0	-36.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	47.0W	47.0W	47.0W	47.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-36.1	-36.1	-36.1	-36.1
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	36M0F3F	36M0F3F	10M3G7W	100KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	36000	36000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	6.1	6.1	6.1
Earth Station Gain (dBi)	60.2	49.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	6.1	4.5	3.5	3.5
Earth Station Gain (dBi)	46.5	43.9	41.1	41.1
Earth Station G/T (dB/K)	26.2	23.6	21.0	21.0
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE				
	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.5	73.5	71.9	51.4
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-5.5	-5.5	-5.5	-5.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Uplink C/N(dB)	31.8	21.6	26.4	25.5
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	35.1	32.8	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	26.2	23.6	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8
Downlink C / N(dB)	17.5	13.3	10.6	9.7
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.8	21.6	26.4	25.5
C/N Downlink (dB)	17.5	13.3	10.6	9.7
C/I Intermodulation (dB)	N/A	N/A	18.4	17.5
C/I Uplink Co-Channel (dB)*	20.0	20.0	20.0	19.7
C/I Downlink Co-Channel (dB)*	20.0	20.0	20.0	19.7
C/I Uplink Adjacent Satellite 1 (dB)	19.6	9.4	14.3	13.3
C/I Downlink Adjacent Satellite 1 (dB)	19.6	15.0	10.2	9.3
C/I Uplink Adjacent Satellite 2 (dB)	19.6	9.4	14.3	13.3
C/I Downlink Adjacent Satellite 2 (dB)	21.5	17.6	15.0	14.1
C/(N+I) Composite (dB)	11.1	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.5	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.2	0.0	0.0
Number of Carriers	1	1.0	3.5	360.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.7	-45.8	-46.8
Downlink EIRP Density At Beam Peak (dBW/Hz)	-20.9	-32.0	-32.2	-33.1

Exhibit 7: Adjacent Satellite (45° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-9.4	-9.4	-9.4	-9.4
Uplink SFD (dBW/m2)	-76.1	-82.1	-73.1	-73.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Downlink Contour EIRP (dBW)	33.3	33.3	33.3	33.3
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-32.0	-32.0	-32.0	-32.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	47.0W	47.0W	47.0W	47.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-36.1	-36.1	-36.1	-36.1
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	36M0F3F	72M0G7W	10M3G7W	100KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A
Information Rate(kbps)	N/A	55539.3	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	13.0	6.1	6.1
Earth Station Gain (dBi)	60.2	56.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	15.2	4.5	6.1	4.5
Earth Station Gain (dBi)	55.0	43.9	46.5	43.9
Earth Station G/T (dB/K)	34.5	23.6	26.2	23.6
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE				
Link Fade Type	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	83.8	80.8	73.2	54.9
Uplink Path Loss, Clear Sky (dB)	-200.2	-200.2	-200.2	-200.2
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.4	-9.4	-9.4	-9.4
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	27.2	22.0	23.9	25.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	29.1	33.3	21.4	3.1
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.3	-196.3	-196.3	-196.3
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	34.5	23.6	26.2	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	19.8	10.9	11.1	9.7
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	27.2	22.0	23.9	25.1
C/N Downlink (dB)	19.8	10.9	11.1	9.7
C/I Intermodulation (dB)	N/A	N/A	18.5	19.7
C/I Uplink Co-Channel (dB)*	20.0	20.0	20.0	21.9
C/I Downlink Co-Channel (dB)*	20.0	20.0	20.0	21.9
C/I Uplink Adjacent Satellite 1 (dB)	18.9	13.7	15.6	16.8
C/I Downlink Adjacent Satellite 1 (dB)	18.7	8.6	9.1	7.4
C/I Uplink Adjacent Satellite 2 (dB)	18.9	13.7	15.6	16.8
C/I Downlink Adjacent Satellite 2 (dB)	23.5	15.2	15.1	14.0
C/(N+I) Composite (dB)	11.2	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	.1	0.0	0.0
Number of Carriers	2	1.0	6.9	468.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.4	-53.4	-44.5	-43.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-26.9	-34.5	-36.9	-35.7

Exhibit 7: Adjacent Satellite (45° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	EUR AFR	EUR AFR	EUR AFR	EUR AFR	EUR AFR	EUR AFR
Uplink Frequency (GHz)	14.125	14.125	14.125	14.125	14.125	14.125
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4
Uplink SFD (dBW/m ²)	-77.0	-74.0	-77	-77	-77	-77
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	EUR AFR	EUR AFR	EUR AFR	EUR AFR	EUR AFR	EUR AFR
Downlink Frequency (GHz)	11.575	11.575	11.575	11.575	11.575	11.575
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	45.9	45.9	45.9	45.9	45.9	45.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	47.0W	47.0W	47.0W	47.0W	47.0W	47.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	72M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	55539.3	64	6000	512	128
Code Rate	N/A	1/2x188/204	1/2x239/256	1/2x188/204	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	60266	75.4	6771.1	1229.0	307.0
Allocated Bandwidth(kHz)	36000	72000	100	10300	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	2.99	3.87	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	2.79	3.57	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	6.1	6.1	6.1	6.1	1.8
Earth Station Gain (dBi)	60.1	56.8	56.8	56.8	56.8	46.3
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.6	1.8	1.8	2.4	1.8	6.1
Earth Station Gain (dBi)	53.2	44.5	44.5	47.2	44.5	55.2
Earth Station G/T (dB/K)	30.7	22.0	22.0	24.7	22.0	32.8
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.9	81.2	50.1	68.7	62.2	51.2
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-2.4	-2.4	-2.4	-2.4	-2.4	-2.4
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-48.8	-68.3	-60.9	-54.9
Uplink C/N(dB)	26.1	22.2	20.2	19.2	20.1	15.2
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.7	43.8	14.8	33.4	26.9	15.9
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.7	-205.7	-205.7	-205.7	-205.7	-205.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	30.7	22.0	22.0	24.7	22.0	32.8
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-48.8	-68.3	-60.9	-54.9
Downlink C / N(dB)	19.3	10.4	10.5	12.2	10.4	16.3
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	26.1	22.2	20.2	19.2	20.1	15.2
C/N Downlink (dB)	19.3	10.4	10.5	12.2	10.4	16.3
C/I Intermodulation (dB)	N/A	N/A	18.9	17.9	18.8	13.8
C/I Uplink Co-Channel (dB)*	20.0	20.0	21.0	19.4	21.5	16.1
C/I Downlink Co-Channel (dB)*	20.0	20.0	21.0	19.4	21.5	16.1
C/I Uplink Adjacent Satellite 1 (dB)	24.3	20.4	18.4	17.4	18.3	13.4
C/I Downlink Adjacent Satellite 1 (dB)	23.4	13.9	14.0	16.0	13.9	20.4
C/I Uplink Adjacent Satellite 2 (dB)	24.3	20.4	18.4	17.4	18.3	13.4
C/I Downlink Adjacent Satellite 2 (dB)	24.4	16.1	16.2	17.6	16.1	21.2
C/(N+I) Composite (dB)	13.0	7.0	6.5	7.2	6.5	6.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.0	6.0	5.5	6.2	5.5	5.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.0	-3.9	-3.4	-3.4
Excess Link Margin (dB)	2.0	2.6	2.6	2.3	2.1	1.6
Number of Carriers	2	1.0	570.9	7.0	35.3	180.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.2	-53.4	-55.5	-56.4	-55.5	-50.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-16.3	-26.0	-26.0	-26.9	-26.0	-31.0

Exhibit 7: Adjacent Satellite (45° W.L.) Link Budgets (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Uplink Frequency (GHz)	14.375	14.375	14.375	14.375	14.375	14.375
Uplink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-77.2	-78.2	-78.2	-78.2	-78.2	-78.2
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	AMERICAS	AMERICAS	AMERICAS	AMERICAS	AMERICAS	AMERICAS
Downlink Frequency (GHz)	11.825	11.825	11.825	11.825	11.825	11.825
Downlink Beam Polarization	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR	LINEAR
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	43.3	43.3	43.3	43.3	43.3	43.3
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	43.1W	43.1W	43.1W	43.1W	43.1W	43.1W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-22.0	-22.0	-22.0	-22.0	-22.0	-22.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	47.0W	47.0W	47.0W	47.0W	47.0W	47.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID	36M0F3F	36M0G7W	10M3G7W	100KG7W	1M45G7W	400KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	24575	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	30133	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	36000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	11.0	6.1	6.1	6.1	6.1	3.0
Earth Station Gain (dBi)	61.8	57.0	57.0	57.0	57.0	49.8
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.6	2.4	2.4	2.4	3.0	6.1
Earth Station Gain (dBi)	53.4	47.4	47.4	47.4	49.1	55.4
Earth Station G/T (dB/K)	30.9	24.9	24.9	24.9	26.6	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE						
Link Fade Type	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	85.7	79.8	72.5	52.6	63.3	54.6
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-5.2	-5.2	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	26.0	20.9	20.1	19.7	18.3	15.6
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	43.3	42.8	35.8	15.9	26.6	17.9
Antenna Pointing Error (dB)	-5	-5	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	30.9	24.9	24.9	24.9	26.6	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-74.8	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	20.9	15.1	14.6	14.2	14.6	18.3
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	26.0	20.9	20.1	19.7	18.3	15.6
C/N Downlink (dB)	20.9	15.1	14.6	14.2	14.6	18.3
C/I Intermodulation (dB)	N/A	N/A	19.9	19.5	18.1	15.4
C/I Uplink Co-Channel (dB)*	20.0	20.0	21.5	21.7	20.8	17.6
C/I Downlink Co-Channel (dB)*	20.0	20.0	21.5	21.7	20.8	17.6
C/I Uplink Adjacent Satellite 1 (dB)	29.1	24.0	23.2	22.8	21.5	18.7
C/I Downlink Adjacent Satellite 1 (dB)	21.2	15.1	14.6	14.2	14.7	18.6
C/I Uplink Adjacent Satellite 2 (dB)	29.1	24.0	23.2	22.8	21.5	18.7
C/I Downlink Adjacent Satellite 2 (dB)	26.2	20.7	20.3	19.9	20.1	23.3
C/(N+I) Composite (dB)	13.7	9.7	9.1	8.8	8.5	8.2
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.7	8.7	8.1	7.8	7.5	7.2
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.7	5.4	4.3	4.8	4.1	3.8
Number of Carriers	1	1.0	2.5	245.7	20.7	90.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.1	-52.0	-52.7	-53.2	-54.5	-50.1
Downlink EIRP Density At Beam Peak (dBW/Hz)	-16.7	-26.0	-26.5	-26.9	-28.3	-31.0