

Engineering Statement

Intelsat North America LLC (“Intelsat”) proposes to relocate its Intelsat 706 (“IS 706”) spacecraft to operate from 72.1° E.L. The spacecraft will utilize the frequency bands 5925 – 6425 MHz, 14000 – 14500 MHz, 3700 – 4200 MHz, 10950 – 11200 MHz, 11450 – 11700 MHz and 12500 – 12750 MHz to provide service to Europe, Africa, Asia and Australia.¹ Intelsat 4 operated from 72° E.L. and was licensed to PanAmSat Licensee Corp., a sister company of Intelsat.² This Engineering Statement also corrects the maximum antenna gain of the Intelsat 706 southwest zone uplink beam, and updates the associated maximum transponder gain for those Intelsat 706 beam configurations where the southwest zone uplink beam is utilized. Additionally, this Engineering Statement makes a correction to the beam polarization associated with Spot 3 downlink beam.

Intelsat also requests that the Part 25 waivers originally granted to the Intelsat 706 spacecraft continue to apply at the 72.1° E.L. location, namely, the waivers of Sections 25.202(g), 25.210(a)(1), 25.210(a)(3), 25.210(i) and 25.211(a) of the Commission’s rules.³

In March 2009, the Commission granted Intelsat authorization to operate Intelsat 706 from 54.85° E.L. (FCC File Nos.: SAT-MOD-20081124-00218). As part of its overall satellite fleet management, Intelsat now proposes to relocate Intelsat 706 from 54.85° E.L. to 72.1° E.L. As noted above, Intelsat had been operating Intelsat 4 at the nominal orbital location 72° E.L.

This engineering statement provides the following technical information for Intelsat 706: (1) frequency plan; (2) gain contours; (3) emissions 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 IS 706 are the same as those described in SAT-MOD-20081124-00218.

¹ Intelsat 706 also has the capability to transmit in the 11700 – 11950 MHz frequency band; however, this capability will not be utilized from the proposed orbital location.

² As the Commission is aware, the Intelsat 4 spacecraft recently malfunctioned at its authorized orbital location of 72° E.L. and was deorbited.

³ See Applications of Intelsat LLC for Authority to Operate and Further Construct, Launch, and Operate C-Band and Ku-Band Satellites that Form a Global Communications System in Geostationary Orbit, 15 FCC Rcd 15460, 15529 (Appendix C) (2000) (Memorandum Opinion and Order and Authorization), *recon. denied*, 15 FCC Rcd 25234 (2000) (Order on Reconsideration).

Frequency Plan

The Intelsat 706 frequency and polarization plan is provided in Exhibit 1. During the preparation of this application, it was discovered that the peak beam gain of the southwest zone uplink beam as specified in SAT-MOD-20081124-00218 was incorrect. Specifically, SAT-MOD-20081124-0028 lists the peak gain of this beam as 27 dBi, whereas it should have specified a value of 28 dBi. The correction in the gain of the southwest beam in turn requires correction of the maximum transponder gain value for those uplink/downlink beam configurations where the southwest uplink beam is utilized. These corrected maximum transponder gain values are provided in Exhibit 1.

Gain Contours

The co-polarized coverage patterns of Intelsat 706 operating from 72.1° EL are shown in Exhibits 2-1 through 2-47. 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.

Given that the cross-polarization isolation performance of Intelsat 706 with respect to the axis of each satellite beam will not change as a result of the proposed relocation of Intelsat 706 from 54.85° E.L. to 72.1° E.L., no cross-polarization patterns are provided herein.

During the course of preparation of this application, it was discovered that the polarization of the Spot 3 downlink beam, as specified in Exhibit 2-35 of the SAT-MOD-20081124-0028, was incorrectly transcribed as horizontal, whereas it should have specified vertical. This error only occurred in Exhibit 2-35 of SAT-MOD-20081124-0028 and nowhere else. With this application, the beam polarization of the Spot 3 downlink beam has been correctly specified in Exhibit 2-35.

Emission Designators

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

Power Flux Density Levels

The power flux density (“PFD”) limits for space stations are found in section 25.208 of the Commission’s rules. Section 25.208 specifies PFD limits for the 3700 – 4200 MHz, 10950 – 11200 MHz and 11450 – 11700 MHz bands. With respect to the 12500 – 12750 MHz band, section 25.208 of the rules does not

specify any PFD limits for geo-stationary FSS satellites. However, No. 21.16 of the ITU Radio Regulations does specify PFD limits for this frequency band.

The maximum PFD levels for the Intelsat 706 transmissions were calculated for a number of TV/FM and/or digital carriers listed in Exhibit 3 operating in the 3700 – 4200 MHz, 10950 – 11200 MHz, 11450 – 11700 MHz and 12500 – 12750 MHz bands. These carriers were chosen because they generally produce high PFD levels on the Earth's surface. The results are provided in Exhibit 4 and show that the downlink power flux density levels of the Intelsat 706 carriers do not exceed limits specified in section 25.208 of the Commission's rules and No. 21.16 of the ITU Radio Regulations.

Link Budgets and Interference Analysis

Link analysis for Intelsat 706 was conducted for a number of representative carriers. For the analyses, it was assumed that the nearest satellites to Intelsat 706 were a hypothetical satellite operating from 70.1° E.L. and a hypothetical satellite operating from 74.1° E.L. The hypothetical satellites were assumed to have the same operational parameters as Intelsat 706.

At C-band, the uplink power density of the emissions at the input of the earth station antenna transmitting to each of the hypothetical satellites was assumed to be -38.7 dBW/Hz, the maximum level specified in section 25.212(d) of the Commission's rules for digital C-band carriers. At Ku-band, the uplink power density of the emissions at the input of the earth station antenna transmitting to each of the hypothetical satellites was assumed to be -50 dBW/Hz, and the downlink EIRP density was assumed to be -26 dBW/Hz, the maximum levels specified in section 25.212(c) of the Commission's rules for digital Ku-band carriers.

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 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 was 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 70.1° E.L. and 74.1° E.L on the transmissions of Intelsat 706 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.

As shown in Exhibit 1, the Intelsat 706 beam connectivity is extensive. In order to keep the number the Intelsat 706 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 IS 706 uplink and downlink beam combinations. The worst-case beam performance for each IS 706 beam type is provided below:

Beam Name	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)
Global A	Global	-7.5	-91.1 to -77.1	33.5
Global B				
East Hemi	Hemi	-1.5	-91.5 to -77.5	36.6
West Hemi				
Northwest Zone	Zone	1.0	-92.2 to -78.2	37.3
Northeast Zone				
Southwest Zone				
Southeast Zone				
Combined Northwest and Southeast Zone				
Combined Northeast and Southwest Zone				
C-Spot A	C-Spot	3.0	-93.1 to -79.1	40.6
C-Spot B				
Spot 1	Ku-Spot	9.5	-95.5 to -81.5	47.5
Spot 1X				
Spot 2				
Spot 2X				
Spot 2A				
Spot 3				
Spot 3X				

As shown in Exhibit 1, Intelsat 706 employs with each beam channels having varying bandwidths. In an effort to keep the number of link calculations to a manageable level, link calculations were not performed for each channel size, but rather for only one channel size. The channel size chosen for each beam was based upon the level of adjacent satellite downlink interference. As an example, if a channel having a bandwidth of 77 MHz and a channel having a bandwidth of 34 MHz have the same associated adjacent satellite downlink interference, then link

budgets were performed only for emissions that were transmitted through the 77 MHz channel, since the carrier level would typically have less (uplink and downlink) power in comparison to those which would be transmitted through the 34 MHz channel: thus the impact of the adjacent satellite interference would be greater on the former. As a second example, if the level of downlink interference to which the 34 MHz channel was subjected to was larger than that for the 77 MHz channel, and if this additional level of interference was larger than the logarithmic ratio of the two channel bandwidths (i.e. $\log[77/34]$), then link calculations were performed only for the emissions of the 34 MHz channel, since the impact of adjacent satellite interference is greater on emissions of this channel (in comparison to those being transmitted through the 77 MHz channel).

As previously mentioned, at Ku-band, Intelsat 706 can utilize the downlink frequency bands 10950 – 11200 MHz, 11450 – 11700 MHz and 12500 – 12750 MHz. In order to keep the number the Intelsat 706 link calculations to a manageable number, all Ku-band link calculations were conducted at a single representative frequency that is approximately midway between 10950 MHz and 12750 MHz.

The results of the C-band and Ku-band analyses are shown in Exhibit 5 and demonstrate that operation of the Intelsat 706 satellite from 72.1° E.L. would permit the intended services to achieve their respective performance objectives while maintaining sufficient link margin. Additionally, the EIRP density levels of the Ku-band carriers listed in Exhibit 5 comply with the limits contained in section 25.212(c) of the Commission's rules.

Adjacent Satellite Link Analysis

The impact of the Intelsat 706 emissions on the transmissions of adjacent satellites was not analyzed because the power levels of IS 706 transmissions will be limited to those levels contained in section 25.212(c) and (d) of the FCC rules. In those cases where Intelsat may need to transmit carriers with power levels in excess of those in 25.212(c) or (d), it will coordinate with the affected adjacent satellite operators as part of the normal coordination process.

Schedule S Submission

Intelsat is providing with its application a Schedule S for the operations of Intelsat 706 from 72.1° E.L. The Schedule S contains only those Intelsat 706 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 Schedule S, a link budget file has been included for the first link (i.e. the first row of data) contained in that section. This link budget file is applicable to all 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).

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.

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.

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.

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 706 will not be located at the same orbital location as another satellite or at an orbital location that has an overlapping stationkeeping volume with another satellite.

The proposed orbital location of Intelsat 706 is 72.1° E.L. 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 stationkeeping volume with Intelsat 706. Intelsat is also not aware of any non-Intelsat system with an overlapping stationkeeping volume with Intelsat 706 that is the subject of an ITU filing and that is either in orbit or progressing towards launch.

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.⁴ 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 706, would be designated as grandfathered satellites not subject to a specific disposal altitude. Therefore, the Intelsat 706 planned disposal orbit complies with the FCC's rules.

In addition, Intelsat provides the following information:

- 1) Planned orbital eccentricity: 0.00042643 (This is a best estimate of optimal eccentricity to match the natural eccentricity circle due to Sun and Moon perturbations after decommission)⁵
- 2) Planned apogee altitude: 186 km⁶
- 3) Information concerning the methods that will be used to assess and provide adequate margins concerning fuel gauging uncertainty: For the Intelsat 706 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

⁴ Intelsat has reserved 32.97 kilograms of fuel for this purpose. The fuel gauging uncertainty has been taken into account in these calculations.

⁵ 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.

⁶ See n.5.

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.

Certification Statement

I hereby certify that I am a technically qualified person and am familiar with Part 25 of the Commission's rules. 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 Engineering

May 10, 2010

Date

Exhibit 1: Frequency and Beam 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)
AUA	Global A	LHCP	6280	ADA	Global A	RHCP	4055	36	120.5
AUB	Global A	LHCP	6320	ADB	Global A	RHCP	4095	36	120.5
AUC	Global A	LHCP	6360	ADC	Global A	RHCP	4135	36	120.5
AUD	Global A	LHCP	6402.5	ADD	Global A	RHCP	4177.5	41	120.5
AUA	Global A	LHCP	6280	CDA	C-Spot A	RHCP	4055	36	120.3
AUB	Global A	LHCP	6320	CDB	C-Spot A	RHCP	4095	36	120.3
AUC	Global A	LHCP	6360	CDC	C-Spot A	RHCP	4135	36	120.3
AUD	Global A	LHCP	6402.5	CDD	C-Spot A	RHCP	4177.5	41	120.3
AUA	Global A	LHCP	6280	EDA	West Hemi	RHCP	4055	36	120.2
BUA	Global B	RHCP	6280	BDA	Global B	LHCP	4055	36	121.2
BUB	Global B	RHCP	6320	BDB	Global B	LHCP	4095	36	121.2
BUC	Global B	RHCP	6360	BDC	Global B	LHCP	4135	36	121.2
BUD	Global B	RHCP	6402.5	BDD	Global B	LHCP	4177.5	41	121.2
BUA	Global B	RHCP	6280	DDA	C-Spot B	LHCP	4055	36	121.2
BUB	Global B	RHCP	6320	DDB	C-Spot B	LHCP	4095	36	121.2
BUC	Global B	RHCP	6360	DDC	C-Spot B	LHCP	4135	36	121.2
BUD	Global B	RHCP	6402.5	DDD	C-Spot B	LHCP	4177.5	41	121.2
BUA	Global B	LHCP	6280	FDA	East Hemi	RHCP	4055	36	118.9
CUA	C-Spot A	LHCP	6280	CDA	C-Spot A	RHCP	4055	36	113.0
CUB	C-Spot A	LHCP	6320	CDB	C-Spot A	RHCP	4095	36	113.0
CUC	C-Spot A	LHCP	6360	CDC	C-Spot A	RHCP	4135	36	113.0
CUD	C-Spot A	LHCP	6402.5	CDD	C-Spot A	RHCP	4177.5	41	113.0
CUA	C-Spot A	LHCP	6280	ADA	Global A	RHCP	4055	36	113.2
CUB	C-Spot A	LHCP	6320	ADB	Global A	RHCP	4095	36	113.2
CUC	C-Spot A	LHCP	6360	ADC	Global A	RHCP	4135	36	113.2
CUD	C-Spot A	LHCP	6402.5	ADD	Global A	RHCP	4177.5	41	113.2
CUA	C-Spot A	LHCP	6280	EDA	West Hemi	RHCP	4055	36	112.9
DUA	C-Spot B	RHCP	6280	DDA	C-Spot B	LHCP	4055	36	112.8
DUB	C-Spot B	RHCP	6320	DDB	C-Spot B	LHCP	4095	36	112.8
DUC	C-Spot B	RHCP	6360	DDC	C-Spot B	LHCP	4135	36	112.8
DUD	C-Spot B	RHCP	6402.5	DDD	C-Spot B	LHCP	4177.5	41	112.8
DUA	C-Spot B	RHCP	6280	ADA	Global B	LHCP	4055	36	112.8
DUB	C-Spot B	RHCP	6320	ADB	Global B	LHCP	4095	36	112.8
DUC	C-Spot B	RHCP	6360	ADC	Global B	LHCP	4135	36	112.8
DUD	C-Spot B	RHCP	6402.5	ADD	Global B	LHCP	4177.5	41	112.8
DUA	C-Spot B	RHCP	6280	EDA	East Hemi	RHCP	4055	36	110.5
EU1	West Hemi	LHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	117.5
EU2	West Hemi	LHCP	6050	ED2	West Hemi	RHCP	3825	72	117.5
EU3	West Hemi	LHCP	6111	ED3	West Hemi	RHCP	3886	34	117.5
EU4	West Hemi	LHCP	6149	ED4	West Hemi	RHCP	3924	34	117.5
EU5	West Hemi	LHCP	6130	ED5	West Hemi	RHCP	3905	72	117.5
EU6	West Hemi	LHCP	6220	ED6	West Hemi	RHCP	3995	72	117.5
EUA	West Hemi	LHCP	6280	EDA	West Hemi	RHCP	4055	36	117.5
EU1	West Hemi	LHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	115.5
EU2	West Hemi	LHCP	6050	FD2	East Hemi	RHCP	3825	72	115.5

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)
EU3	West Hemi	LHCP	6111	FD3	East Hemi	RHCP	3886	34	115.5
EU4	West Hemi	LHCP	6149	FD4	East Hemi	RHCP	3924	34	115.5
EU5	West Hemi	LHCP	6130	FD5	East Hemi	RHCP	3905	72	115.5
EU6	West Hemi	LHCP	6220	FD6	East Hemi	RHCP	3995	72	115.5
EUA	West Hemi	LHCP	6280	FDA	East Hemi	RHCP	4055	36	115.5
EU1	West Hemi	LHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	114.2
EU2	West Hemi	LHCP	6050	GD2	NW Zone	LHCP	3825	72	114.2
EU3	West Hemi	LHCP	6111	GD3	NW Zone	LHCP	3886	34	114.2
EU4	West Hemi	LHCP	6149	GD4	NW Zone	LHCP	3924	34	114.2
EU5	West Hemi	LHCP	6130	GD5	NW Zone	LHCP	3905	72	114.2
EU6	West Hemi	LHCP	6220	GD6	NW Zone	LHCP	3995	72	114.2
EUA	West Hemi	LHCP	6280	GDA	NW Zone	LHCP	4055	36	114.2
EU1	West Hemi	LHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	115.1
EU2	West Hemi	LHCP	6050	JD2	SE Zone	LHCP	3825	72	115.1
EU3	West Hemi	LHCP	6111	JD3	SE Zone	LHCP	3886	34	115.1
EU4	West Hemi	LHCP	6149	JD4	SE Zone	LHCP	3924	34	115.1
EU5	West Hemi	LHCP	6130	JD5	SE Zone	LHCP	3905	72	115.1
EU6	West Hemi	LHCP	6220	JD6	SE Zone	LHCP	3995	72	115.1
EUA	West Hemi	LHCP	6280	JDA	SE Zone	LHCP	4055	36	115.1
EU1	West Hemi	LHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	112.8
EU2	West Hemi	LHCP	6050	HD2	NE Zone	LHCP	3825	72	112.8
EU3	West Hemi	LHCP	6111	HD3	NE Zone	LHCP	3886	34	112.8
EU4	West Hemi	LHCP	6149	HD4	NE Zone	LHCP	3924	34	112.8
EU5	West Hemi	LHCP	6130	HD5	NE Zone	LHCP	3905	72	112.8
EU6	West Hemi	LHCP	6220	HD6	NE Zone	LHCP	3995	72	112.8
EUA	West Hemi	LHCP	6280	HDA	NE Zone	LHCP	4055	36	112.8
EU1	West Hemi	LHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	113.5
EU2	West Hemi	LHCP	6050	ID2	SW Zone	LHCP	3825	72	113.5
EU3	West Hemi	LHCP	6111	ID3	SW Zone	LHCP	3886	34	113.5
EU4	West Hemi	LHCP	6149	ID4	SW Zone	LHCP	3924	34	113.5
EU5	West Hemi	LHCP	6130	ID5	SW Zone	LHCP	3905	72	113.5
EU6	West Hemi	LHCP	6220	ID6	SW Zone	LHCP	3995	72	113.5
EUA	West Hemi	LHCP	6280	IDA	SW Zone	LHCP	4055	36	113.5
EUA	West Hemi	LHCP	6280	ADA	Global A	RHCP	4055	36	117.8
EUA	West Hemi	LHCP	6280	CDA	C-Spot A	RHCP	4055	36	117.6
FU1	East Hemi	LHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	113.9
FU2	East Hemi	LHCP	6050	FD2	East Hemi	RHCP	3825	72	113.9
FU3	East Hemi	LHCP	6111	FD3	East Hemi	RHCP	3886	34	113.9
FU4	East Hemi	LHCP	6149	FD4	East Hemi	RHCP	3924	34	113.9
FU5	East Hemi	LHCP	6130	FD5	East Hemi	RHCP	3905	72	113.9
FU6	East Hemi	LHCP	6220	FD6	East Hemi	RHCP	3995	72	113.9
FUA	East Hemi	LHCP	6280	FDA	East Hemi	RHCP	4055	36	113.9
FU1	East Hemi	LHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	115.9
FU2	East Hemi	LHCP	6050	ED2	West Hemi	RHCP	3825	72	115.9
FU3	East Hemi	LHCP	6111	ED3	West Hemi	RHCP	3886	34	115.9
FU4	East Hemi	LHCP	6149	ED4	West Hemi	RHCP	3924	34	115.9
FU5	East Hemi	LHCP	6130	ED5	West Hemi	RHCP	3905	72	115.9
FU6	East Hemi	LHCP	6220	ED6	West Hemi	RHCP	3995	72	115.9
FUA	East Hemi	LHCP	6280	EDA	West Hemi	RHCP	4055	36	115.9
FU1	East Hemi	LHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	112.6
FU2	East Hemi	LHCP	6050	GD2	NW Zone	LHCP	3825	72	112.6
FU3	East Hemi	LHCP	6111	GD3	NW Zone	LHCP	3886	34	112.6

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)
FU4	East Hemi	LHCP	6149	GD4	NW Zone	LHCP	3924	34	112.6
FU5	East Hemi	LHCP	6130	GD5	NW Zone	LHCP	3905	72	112.6
FU6	East Hemi	LHCP	6220	GD6	NW Zone	LHCP	3995	72	112.6
FUA	East Hemi	LHCP	6280	GDA	NW Zone	LHCP	4055	36	112.6
FU1	East Hemi	LHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	113.5
FU2	East Hemi	LHCP	6050	JD2	SE Zone	LHCP	3825	72	113.5
FU3	East Hemi	LHCP	6111	JD3	SE Zone	LHCP	3886	34	113.5
FU4	East Hemi	LHCP	6149	JD4	SE Zone	LHCP	3924	34	113.5
FU5	East Hemi	LHCP	6130	JD5	SE Zone	LHCP	3905	72	113.5
FU6	East Hemi	LHCP	6220	JD6	SE Zone	LHCP	3995	72	113.5
FUA	East Hemi	LHCP	6280	JDA	SE Zone	LHCP	4055	36	113.5
FU1	East Hemi	LHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	111.2
FU2	East Hemi	LHCP	6050	HD2	NE Zone	LHCP	3825	72	111.2
FU3	East Hemi	LHCP	6111	HD3	NE Zone	LHCP	3886	34	111.2
FU4	East Hemi	LHCP	6149	HD4	NE Zone	LHCP	3924	34	111.2
FU5	East Hemi	LHCP	6130	HD5	NE Zone	LHCP	3905	72	111.2
FU6	East Hemi	LHCP	6220	HD6	NE Zone	LHCP	3995	72	111.2
FUA	East Hemi	LHCP	6280	HDA	NE Zone	LHCP	4055	36	111.2
FU1	East Hemi	LHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	111.9
FU2	East Hemi	LHCP	6050	ID2	SW Zone	LHCP	3825	72	111.9
FU3	East Hemi	LHCP	6111	ID3	SW Zone	LHCP	3886	34	111.9
FU4	East Hemi	LHCP	6149	ID4	SW Zone	LHCP	3924	34	111.9
FU5	East Hemi	LHCP	6130	ID5	SW Zone	LHCP	3905	72	111.9
FU6	East Hemi	LHCP	6220	ID6	SW Zone	LHCP	3995	72	111.9
FUA	East Hemi	LHCP	6280	IDA	SW Zone	LHCP	4055	36	111.9
FUA	East Hemi	LHCP	6280	BDA	Global B	LHCP	4055	36	116.2
FUA	East Hemi	LHCP	6280	DDA	C-Spot B	LHCP	4055	36	116.2
GU1	NW Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	111.9
GU2	NW Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	111.9
GU3	NW Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	111.9
GU4	NW Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	111.9
GU5	NW Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	111.9
GU6	NW Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	111.9
GUA	NW Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	111.9
GU1	NW Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	112.8
GU2	NW Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	112.8
GU3	NW Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	112.8
GU4	NW Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	112.8
GU5	NW Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	112.8
GU6	NW Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	112.8
GUA	NW Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	112.8
GU1	NW Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	110.5
GU2	NW Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	110.5
GU3	NW Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	110.5
GU4	NW Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	110.5
GU5	NW Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	110.5
GU6	NW Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	110.5
GUA	NW Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	110.5
GU1	NW Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	111.2
GU2	NW Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	111.2
GU3	NW Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	111.2
GU4	NW Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	111.2

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)
GU5	NW Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	111.2
GU6	NW Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	111.2
GUA	NW Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	111.2
GU1	NW Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	115.2
GU2	NW Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	115.2
GU3	NW Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	115.2
GU4	NW Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	115.2
GU5	NW Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	115.2
GU6	NW Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	115.2
GUA	NW Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	115.2
GU1	NW Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	113.2
GU2	NW Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	113.2
GU3	NW Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	113.2
GU4	NW Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	113.2
GU5	NW Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	113.2
GU6	NW Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	113.2
GUA	NW Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	113.2
JU1	SE Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	109.7
JU2	SE Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	109.7
JU3	SE Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	109.7
JU4	SE Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	109.7
JU5	SE Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	109.7
JU6	SE Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	109.7
JUA	SE Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	109.7
JU1	SE Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	110.6
JU2	SE Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	110.6
JU3	SE Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	110.6
JU4	SE Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	110.6
JU5	SE Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	110.6
JU6	SE Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	110.6
JUA	SE Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	110.6
JU1	SE Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	108.3
JU2	SE Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	108.3
JU3	SE Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	108.3
JU4	SE Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	108.3
JU5	SE Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	108.3
JU6	SE Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	108.3
JUA	SE Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	108.3
JU1	SE Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	109.0
JU2	SE Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	109.0
JU3	SE Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	109.0
JU4	SE Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	109.0
JU5	SE Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	109.0
JU6	SE Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	109.0
JUA	SE Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	109.0
JU1	SE Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	113.0
JU2	SE Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	113.0
JU3	SE Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	113.0
JU4	SE Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	113.0
JU5	SE Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	113.0
JU6	SE Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	113.0
JUA	SE Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	113.0
JU1	SE Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	111.0

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)
JU2	SE Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	111.0
JU3	SE Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	111.0
JU4	SE Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	111.0
JU5	SE Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	111.0
JU6	SE Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	111.0
JUA	SE Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	111.0
HU1	NE Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	110.7
HU2	NE Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	110.7
HU3	NE Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	110.7
HU4	NE Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	110.7
HU5	NE Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	110.7
HU6	NE Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	110.7
HUA	NE Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	110.7
HU1	NE Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	111.6
HU2	NE Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	111.6
HU3	NE Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	111.6
HU4	NE Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	111.6
HU5	NE Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	111.6
HU6	NE Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	111.6
HUA	NE Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	111.6
HU1	NE Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	109.3
HU2	NE Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	109.3
HU3	NE Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	109.3
HU4	NE Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	109.3
HU5	NE Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	109.3
HU6	NE Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	109.3
HUA	NE Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	109.3
HU1	NE Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	110.0
HU2	NE Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	110.0
HU3	NE Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	110.0
HU4	NE Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	110.0
HU5	NE Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	110.0
HU6	NE Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	110.0
HUA	NE Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	110.0
HU1	NE Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	110.7
HU2	NE Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	110.7
HU3	NE Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	110.7
HU4	NE Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	110.7
HU5	NE Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	110.7
HU6	NE Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	110.7
HUA	NE Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	110.7
HU1	NE Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	112.0
HU2	NE Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	112.0
HU3	NE Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	112.0
HU4	NE Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	112.0
HU5	NE Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	112.0
HU6	NE Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	112.0
HUA	NE Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	112.0
IU1	SW Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	110.8
IU2	SW Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	110.8
IU3	SW Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	110.8
IU4	SW Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	110.8
IU5	SW Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	110.8
IU6	SW Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	110.8

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)
IUA	SW Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	110.8
IU1	SW Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	111.7
IU2	SW Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	111.7
IU3	SW Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	111.7
IU4	SW Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	111.7
IU5	SW Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	111.7
IU6	SW Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	111.7
IUA	SW Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	111.7
IU1	SW Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	109.4
IU2	SW Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	109.4
IU3	SW Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	109.4
IU4	SW Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	109.4
IU5	SW Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	109.4
IU6	SW Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	109.4
IUA	SW Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	109.4
IU1	SW Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	110.1
IU2	SW Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	110.1
IU3	SW Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	110.1
IU4	SW Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	110.1
IU5	SW Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	110.1
IU6	SW Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	110.1
IUA	SW Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	110.1
IU1	SW Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	114.1
IU2	SW Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	114.1
IU3	SW Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	114.1
IU4	SW Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	114.1
IU5	SW Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	114.1
IU6	SW Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	114.1
IUA	SW Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	114.1
IU1	SW Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	112.1
IU2	SW Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	112.1
IU3	SW Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	112.1
IU4	SW Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	112.1
IU5	SW Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	112.1
IU6	SW Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	112.1
IUA	SW Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	112.1
KU1	Combined NW+SE Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	114.5
KU2	Combined NW+SE Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	114.5
KU3	Combined NW+SE Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	114.5
KU4	Combined NW+SE Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	114.5
KU5	Combined NW+SE Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	114.5
KU6	Combined NW+SE Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	114.5
KUA	Combined NW+SE Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	114.5
KU1	Combined NW+SE Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	115.4
KU2	Combined NW+SE Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	115.4
KU3	Combined NW+SE Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	115.4
KU4	Combined NW+SE Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	115.4
KU5	Combined NW+SE Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	115.4
KU6	Combined NW+SE Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	115.4
KUA	Combined NW+SE Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	115.4
KU1	Combined NW+SE Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	113.1
KU2	Combined NW+SE Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	113.1
KU3	Combined NW+SE Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	113.1

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)
KU4	Combined NW+SE Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	113.1
KU5	Combined NW+SE Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	113.1
KU6	Combined NW+SE Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	113.1
KUA	Combined NW+SE Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	113.1
KU1	Combined NW+SE Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	113.8
KU2	Combined NW+SE Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	113.8
KU3	Combined NW+SE Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	113.8
KU4	Combined NW+SE Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	113.8
KU5	Combined NW+SE Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	113.8
KU6	Combined NW+SE Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	113.8
KUA	Combined NW+SE Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	113.8
KU1	Combined NW+SE Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	117.8
KU2	Combined NW+SE Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	117.8
KU3	Combined NW+SE Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	117.8
KU4	Combined NW+SE Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	117.8
KU5	Combined NW+SE Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	117.8
KU6	Combined NW+SE Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	117.8
KUA	Combined NW+SE Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	117.8
KU1	Combined NW+SE Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	115.8
KU2	Combined NW+SE Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	115.8
KU3	Combined NW+SE Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	115.8
KU4	Combined NW+SE Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	115.8
KU5	Combined NW+SE Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	115.8
KU6	Combined NW+SE Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	115.8
KUA	Combined NW+SE Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	115.8
LU1	Combined NE+SW Zone	RHCP	5967.5	GD1	NW Zone	LHCP	3742.5	77	113.1
LU2	Combined NE+SW Zone	RHCP	6050	GD2	NW Zone	LHCP	3825	72	113.1
LU3	Combined NE+SW Zone	RHCP	6111	GD3	NW Zone	LHCP	3886	34	113.1
LU4	Combined NE+SW Zone	RHCP	6149	GD4	NW Zone	LHCP	3924	34	113.1
LU5	Combined NE+SW Zone	RHCP	6130	GD5	NW Zone	LHCP	3905	72	113.1
LU6	Combined NE+SW Zone	RHCP	6220	GD6	NW Zone	LHCP	3995	72	113.1
LUA	Combined NE+SW Zone	RHCP	6280	GDA	NW Zone	LHCP	4055	36	113.1
LU1	Combined NE+SW Zone	RHCP	5967.5	JD1	SE Zone	LHCP	3742.5	77	114.0
LU2	Combined NE+SW Zone	RHCP	6050	JD2	SE Zone	LHCP	3825	72	114.0
LU3	Combined NE+SW Zone	RHCP	6111	JD3	SE Zone	LHCP	3886	34	114.0
LU4	Combined NE+SW Zone	RHCP	6149	JD4	SE Zone	LHCP	3924	34	114.0
LU5	Combined NE+SW Zone	RHCP	6130	JD5	SE Zone	LHCP	3905	72	114.0
LU6	Combined NE+SW Zone	RHCP	6220	JD6	SE Zone	LHCP	3995	72	114.0
LUA	Combined NE+SW Zone	RHCP	6280	JDA	SE Zone	LHCP	4055	36	114.0
LU1	Combined NE+SW Zone	RHCP	5967.5	HD1	NE Zone	LHCP	3742.5	77	111.7
LU2	Combined NE+SW Zone	RHCP	6050	HD2	NE Zone	LHCP	3825	72	111.7
LU3	Combined NE+SW Zone	RHCP	6111	HD3	NE Zone	LHCP	3886	34	111.7
LU4	Combined NE+SW Zone	RHCP	6149	HD4	NE Zone	LHCP	3924	34	111.7
LU5	Combined NE+SW Zone	RHCP	6130	HD5	NE Zone	LHCP	3905	72	111.7
LU6	Combined NE+SW Zone	RHCP	6220	HD6	NE Zone	LHCP	3995	72	111.7
LUA	Combined NE+SW Zone	RHCP	6280	HDA	NE Zone	LHCP	4055	36	111.7
LU1	Combined NE+SW Zone	RHCP	5967.5	ID1	SW Zone	LHCP	3742.5	77	112.4
LU2	Combined NE+SW Zone	RHCP	6050	ID2	SW Zone	LHCP	3825	72	112.4
LU3	Combined NE+SW Zone	RHCP	6111	ID3	SW Zone	LHCP	3886	34	112.4
LU4	Combined NE+SW Zone	RHCP	6149	ID4	SW Zone	LHCP	3924	34	112.4
LU5	Combined NE+SW Zone	RHCP	6130	ID5	SW Zone	LHCP	3905	72	112.4
LU6	Combined NE+SW Zone	RHCP	6220	ID6	SW Zone	LHCP	3995	72	112.4
LUA	Combined NE+SW Zone	RHCP	6280	IDA	SW Zone	LHCP	4055	36	112.4

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)
LU1	Combined NE+SW Zone	RHCP	5967.5	ED1	West Hemi	RHCP	3742.5	77	116.4
LU2	Combined NE+SW Zone	RHCP	6050	ED2	West Hemi	RHCP	3825	72	116.4
LU3	Combined NE+SW Zone	RHCP	6111	ED3	West Hemi	RHCP	3886	34	116.4
LU4	Combined NE+SW Zone	RHCP	6149	ED4	West Hemi	RHCP	3924	34	116.4
LU5	Combined NE+SW Zone	RHCP	6130	ED5	West Hemi	RHCP	3905	72	116.4
LU6	Combined NE+SW Zone	RHCP	6220	ED6	West Hemi	RHCP	3995	72	116.4
LUA	Combined NE+SW Zone	RHCP	6280	EDA	West Hemi	RHCP	4055	36	116.4
LU1	Combined NE+SW Zone	RHCP	5967.5	FD1	East Hemi	RHCP	3742.5	77	114.4
LU2	Combined NE+SW Zone	RHCP	6050	FD2	East Hemi	RHCP	3825	72	114.4
LU3	Combined NE+SW Zone	RHCP	6111	FD3	East Hemi	RHCP	3886	34	114.4
LU4	Combined NE+SW Zone	RHCP	6149	FD4	East Hemi	RHCP	3924	34	114.4
LU5	Combined NE+SW Zone	RHCP	6130	FD5	East Hemi	RHCP	3905	72	114.4
LU6	Combined NE+SW Zone	RHCP	6220	FD6	East Hemi	RHCP	3995	72	114.4
LUA	Combined NE+SW Zone	RHCP	6280	FDA	East Hemi	RHCP	4055	36	114.4
SU1	Spot 1	H	14042.5	S1D1	Spot 1	V	10992.5	77	119.0
SU2	Spot 1	H	14125	S1D2	Spot 1	V	11075	72	119.0
SU3	Spot 1	H	14186	S1D3	Spot 1	V	11136	34	119.0
SU4	Spot 1	H	14224	S1D4	Spot 1	V	11174	34	119.0
SU5	Spot 1	H	14205	S1D5	Spot 1	V	11155	72	119.0
SU6	Spot 1	H	14314	S1D6	Spot 1	V	11514	112	119.0
SU7	Spot 1	H	14438	S1D7	Spot 1	V	11638	112	119.0
SU1	Spot 1	H	14042.5	U1D1	Spot 2	H	10992.5	77	120.5
SU2	Spot 1	H	14125	U1D2	Spot 2	H	11075	72	120.5
SU3	Spot 1	H	14186	U1D3	Spot 2	H	11136	34	120.5
SU4	Spot 1	H	14224	U1D4	Spot 2	H	11174	34	120.5
SU5	Spot 1	H	14205	U1D5	Spot 2	H	11155	72	120.5
SU6	Spot 1	H	14314	U1D6	Spot 2	H	11514	112	120.5
SU7	Spot 1	H	14438	U1D7	Spot 2	H	11638	112	120.5
SU1	Spot 1	H	14042.5	Y1D1	Spot 2A	H	10992.5	77	120.3
SU2	Spot 1	H	14125	Y1D2	Spot 2A	H	11075	72	120.3
SU3	Spot 1	H	14186	Y1D3	Spot 2A	H	11136	34	120.3
SU4	Spot 1	H	14224	Y1D4	Spot 2A	H	11174	34	120.3
SU5	Spot 1	H	14205	Y1D5	Spot 2A	H	11155	72	120.3
SU6	Spot 1	H	14314	Y1D6	Spot 2A	H	11514	112	120.3
SU7	Spot 1	H	14438	Y1D7	Spot 2A	H	11638	112	120.3
SU1	Spot 1	H	14042.5	W1D1	Spot 3	V	10992.5	77	117.4
SU2	Spot 1	H	14125	W1D2	Spot 3	V	11075	72	117.4
SU3	Spot 1	H	14186	W1D3	Spot 3	V	11136	34	117.4
SU4	Spot 1	H	14224	W1D4	Spot 3	V	11174	34	117.4
SU5	Spot 1	H	14205	W1D5	Spot 3	V	11155	72	117.4
SU6	Spot 1	H	14314	W1D6	Spot 3	V	11514	112	117.4
SU7	Spot 1	H	14438	W1D7	Spot 3	V	11638	112	117.4
SU1	Spot 1	H	14042.5	X1D1	Spot 3X	H	10992.5	77	117.4
SU2	Spot 1	H	14125	X1D2	Spot 3X	H	11075	72	117.4
SU3	Spot 1	H	14186	X1D3	Spot 3X	H	11136	34	117.4
SU4	Spot 1	H	14224	X1D4	Spot 3X	H	11174	34	117.4
SU5	Spot 1	H	14205	X1D5	Spot 3X	H	11155	72	117.4
SU6	Spot 1	H	14314	X1D6	Spot 3X	H	11514	112	117.4
SU7	Spot 1	H	14438	X1D7	Spot 3X	H	11638	112	117.4
TUA	Spot 1X	V	14060	T1DA	Spot 1X	H	11010	112	118.8
TUB	Spot 1X	V	14185	T1DB	Spot 1X	H	11135	112	118.8
SU6	Spot 1X	V	14314	T1D6	Spot 1X	H	11514	112	118.8
SU7	Spot 1X	V	14438	T1D7	Spot 1X	H	11638	112	118.8

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)
TUA	Spot 1X	V	14060	V1DA	Spot 2X	V	11010	112	120.2
TUB	Spot 1X	V	14185	V1DB	Spot 2X	V	11135	112	120.2
SU6	Spot 1X	V	14314	V1D6	Spot 2X	V	11514	112	120.2
SU7	Spot 1X	V	14438	V1D7	Spot 2X	V	11638	112	120.2
TUA	Spot 1X	V	14060	W1DE	Spot 3	V	10992.5	72	117.7
TUB	Spot 1X	V	14185	W1DC	Spot 3	V	11155	72	117.7
SU6	Spot 1X	V	14314	W1D6	Spot 3	V	11514	112	117.7
SU7	Spot 1X	V	14438	W1D7	Spot 3	V	11638	112	117.7
TUA	Spot 1X	V	14060	X1DE	Spot 3X	H	10992.5	72	117.7
TUB	Spot 1X	V	14185	X1DC	Spot 3X	H	11155	72	117.7
SU6	Spot 1X	V	14314	X1D6	Spot 3X	H	11514	112	117.7
SU7	Spot 1X	V	14438	X1D7	Spot 3X	H	11638	112	117.7
UU1	Spot 2	V	14042.5	S1D1	Spot 1	V	10992.5	77	121.7
UU2	Spot 2	V	14125	S1D2	Spot 1	V	11075	72	121.7
UU3	Spot 2	V	14186	S1D3	Spot 1	V	11136	34	121.7
UU4	Spot 2	V	14224	S1D4	Spot 1	V	11174	34	121.7
UU5	Spot 2	V	14205	S1D5	Spot 1	V	11155	72	121.7
UU6	Spot 2	V	14314	S1D6	Spot 1	V	11514	112	121.7
UU7	Spot 2	V	14438	S1D7	Spot 1	V	11638	112	121.7
UU1	Spot 2	V	14042.5	U1D1	Spot 2	H	10992.5	77	123.2
UU2	Spot 2	V	14125	U1D2	Spot 2	H	11075	72	123.2
UU3	Spot 2	V	14186	U1D3	Spot 2	H	11136	34	123.2
UU4	Spot 2	V	14224	U1D4	Spot 2	H	11174	34	123.2
UU5	Spot 2	V	14205	U1D5	Spot 2	H	11155	72	123.2
UU6	Spot 2	V	14314	U1D6	Spot 2	H	11514	112	123.2
UU7	Spot 2	V	14438	U1D7	Spot 2	H	11638	112	123.2
UU1	Spot 2	V	14042.5	W1D1	Spot 3	V	10992.5	77	120.1
UU2	Spot 2	V	14125	W1D2	Spot 3	V	11075	72	120.1
UU3	Spot 2	V	14186	W1D3	Spot 3	V	11136	34	120.1
UU4	Spot 2	V	14224	W1D4	Spot 3	V	11174	34	120.1
UU5	Spot 2	V	14205	W1D5	Spot 3	V	11155	72	120.1
UU6	Spot 2	V	14314	W1D6	Spot 3	V	11514	112	120.1
UU7	Spot 2	V	14438	W1D7	Spot 3	V	11638	112	120.1
UU1	Spot 2	V	14042.5	X1D1	Spot 3X	H	10992.5	77	120.1
UU2	Spot 2	V	14125	X1D2	Spot 3X	H	11075	72	120.1
UU3	Spot 2	V	14186	X1D3	Spot 3X	H	11136	34	120.1
UU4	Spot 2	V	14224	X1D4	Spot 3X	H	11174	34	120.1
UU5	Spot 2	V	14205	X1D5	Spot 3X	H	11155	72	120.1
UU6	Spot 2	V	14314	X1D6	Spot 3X	H	11514	112	120.1
UU7	Spot 2	V	14438	X1D7	Spot 3X	H	11638	112	120.1
VUA	Spot 2X	H	14060	T1DA	Spot 1X	H	11010	112	122.2
VUB	Spot 2X	H	14185	T1DB	Spot 1X	H	11135	112	122.2
TU6	Spot 2X	H	14314	T1D6	Spot 1X	H	11514	112	122.2
TU7	Spot 2X	H	14438	T1D7	Spot 1X	H	11638	112	122.2
VUA	Spot 2X	H	14060	V1DA	Spot 2X	V	11010	112	123.6
VUB	Spot 2X	H	14185	V1DB	Spot 2X	V	11135	112	123.6
TU6	Spot 2X	H	14314	V1D6	Spot 2X	V	11514	112	123.6
TU7	Spot 2X	H	14438	V1D7	Spot 2X	V	11638	112	123.6
VUA	Spot 2X	H	14060	W1DE	Spot 3	V	10992.5	72	121.1
VUB	Spot 2X	H	14185	W1DC	Spot 3	V	11155	72	121.1
TU6	Spot 2X	H	14314	W1D6	Spot 3	V	11514	112	121.1
TU7	Spot 2X	H	14438	W1D7	Spot 3	V	11638	112	121.1

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)
VUA	Spot 2X	H	14060	X1DA	Spot 3X	H	10992.5	72	121.1
VUB	Spot 2X	H	14185	X1DB	Spot 3X	H	11155	72	121.1
TU6	Spot 2X	H	14314	X1D6	Spot 3X	H	11514	112	121.1
TU7	Spot 2X	H	14438	X1D7	Spot 3X	H	11638	112	121.1
YU1	Spot 2A	V	14042.5	S1D1	Spot 1	V	10992.5	77	123.7
YU2	Spot 2A	V	14125	S1D2	Spot 1	V	11075	72	123.7
YU3	Spot 2A	V	14186	S1D3	Spot 1	V	11136	34	123.7
YU4	Spot 2A	V	14224	S1D4	Spot 1	V	11174	34	123.7
YU5	Spot 2A	V	14205	S1D5	Spot 1	V	11155	72	123.7
YU6	Spot 2A	V	14314	S1D6	Spot 1	V	11514	112	123.7
YU7	Spot 2A	V	14438	S1D7	Spot 1	V	11638	112	123.7
YU1	Spot 2A	V	14042.5	Y1D1	Spot 2A	H	10992.5	77	125.0
YU2	Spot 2A	V	14125	Y1D2	Spot 2A	H	11075	72	125.0
YU3	Spot 2A	V	14186	Y1D3	Spot 2A	H	11136	34	125.0
YU4	Spot 2A	V	14224	Y1D4	Spot 2A	H	11174	34	125.0
YU5	Spot 2A	V	14205	Y1D5	Spot 2A	H	11155	72	125.0
YU6	Spot 2A	V	14314	Y1D6	Spot 2A	H	11514	112	125.0
YU7	Spot 2A	V	14438	Y1D7	Spot 2A	H	11638	112	125.0
YU1	Spot 2A	V	14042.5	W1D1	Spot 3	V	10992.5	77	122.1
YU2	Spot 2A	V	14125	W1D2	Spot 3	V	11075	72	122.1
YU3	Spot 2A	V	14186	W1D3	Spot 3	V	11136	34	122.1
YU4	Spot 2A	V	14224	W1D4	Spot 3	V	11174	34	122.1
YU5	Spot 2A	V	14205	W1D5	Spot 3	V	11155	72	122.1
YU6	Spot 2A	V	14314	W1D6	Spot 3	V	11514	112	122.1
YU7	Spot 2A	V	14438	W1D7	Spot 3	V	11638	112	122.1
YU1	Spot 2A	V	14042.5	X1D1	Spot 3X	H	10992.5	77	122.1
YU2	Spot 2A	V	14125	X1D2	Spot 3X	H	11075	72	122.1
YU3	Spot 2A	V	14186	X1D3	Spot 3X	H	11136	34	122.1
YU4	Spot 2A	V	14224	X1D4	Spot 3X	H	11174	34	122.1
YU5	Spot 2A	V	14205	X1D5	Spot 3X	H	11155	72	122.1
YU6	Spot 2A	V	14314	X1D6	Spot 3X	H	11514	112	122.1
YU7	Spot 2A	V	14438	X1D7	Spot 3X	H	11638	112	122.1
WU1	Spot 3	H	14042.5	S1D1	Spot 1	V	10992.5	77	122.2
WU2	Spot 3	H	14125	S1D2	Spot 1	V	11075	72	122.2
WU3	Spot 3	H	14186	S1D3	Spot 1	V	11136	34	122.2
WU4	Spot 3	H	14224	S1D4	Spot 1	V	11174	34	122.2
WU5	Spot 3	H	14205	S1D5	Spot 1	V	11155	72	122.2
WU6	Spot 3	H	14314	S1D6	Spot 1	V	11514	112	122.2
WU7	Spot 3	H	14438	S1D7	Spot 1	V	11638	112	122.2
WU1	Spot 3	H	14042.5	U1D1	Spot 2	H	10992.5	77	123.7
WU2	Spot 3	H	14125	U1D2	Spot 2	H	11075	72	123.7
WU3	Spot 3	H	14186	U1D3	Spot 2	H	11136	34	123.7
WU4	Spot 3	H	14224	U1D4	Spot 2	H	11174	34	123.7
WU5	Spot 3	H	14205	U1D5	Spot 2	H	11155	72	123.7
WU6	Spot 3	H	14314	U1D6	Spot 2	H	11514	112	123.7
WU7	Spot 3	H	14438	U1D7	Spot 2	H	11638	112	123.7
WU1	Spot 3	H	14042.5	Y1D1	Spot 2A	H	10992.5	77	123.5
WU2	Spot 3	H	14125	Y1D2	Spot 2A	H	11075	72	123.5
WU3	Spot 3	H	14186	Y1D3	Spot 2A	H	11136	34	123.5
WU4	Spot 3	H	14224	Y1D4	Spot 2A	H	11174	34	123.5
WU5	Spot 3	H	14205	Y1D5	Spot 2A	H	11155	72	123.5
WU6	Spot 3	H	14314	Y1D6	Spot 2A	H	11514	112	123.5
WU7	Spot 3	H	14438	Y1D7	Spot 2A	H	11638	112	123.5

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)
WU1	Spot 3	H	14042.5	W1D1	Spot 3	V	10992.5	77	120.6
WU2	Spot 3	H	14125	W1D2	Spot 3	V	11075	72	120.6
WU3	Spot 3	H	14186	W1D3	Spot 3	V	11136	34	120.6
WU4	Spot 3	H	14224	W1D4	Spot 3	V	11174	34	120.6
WU5	Spot 3	H	14205	W1D5	Spot 3	V	11155	72	120.6
WU6	Spot 3	H	14314	W1D6	Spot 3	V	11514	112	120.6
WU7	Spot 3	H	14438	W1D7	Spot 3	V	11638	112	120.6
XU1	Spot 3X	V	14042.5	S1D1	Spot 1	V	10992.5	77	122.2
XU2	Spot 3X	V	14125	S1D2	Spot 1	V	11075	72	122.2
XU3	Spot 3X	V	14186	S1D3	Spot 1	V	11136	34	122.2
XU4	Spot 3X	V	14224	S1D4	Spot 1	V	11174	34	122.2
XU5	Spot 3X	V	14205	S1D5	Spot 1	V	11155	72	122.2
XU6	Spot 3X	V	14314	S1D6	Spot 1	V	11514	112	122.2
XU7	Spot 3X	V	14438	S1D7	Spot 1	V	11638	112	122.2
XU1	Spot 3X	V	14042.5	U1D1	Spot 2	H	10992.5	77	123.7
XU2	Spot 3X	V	14125	U1D2	Spot 2	H	11075	72	123.7
XU3	Spot 3X	V	14186	U1D3	Spot 2	H	11136	34	123.7
XU4	Spot 3X	V	14224	U1D4	Spot 2	H	11174	34	123.7
XU5	Spot 3X	V	14205	U1D5	Spot 2	H	11155	72	123.7
XU6	Spot 3X	V	14314	U1D6	Spot 2	H	11514	112	123.7
XU7	Spot 3X	V	14438	U1D7	Spot 2	H	11638	112	123.7
XU1	Spot 3X	V	14042.5	Y1D1	Spot 2A	H	10992.5	77	123.5
XU2	Spot 3X	V	14125	Y1D2	Spot 2A	H	11075	72	123.5
XU3	Spot 3X	V	14186	Y1D3	Spot 2A	H	11136	34	123.5
XU4	Spot 3X	V	14224	Y1D4	Spot 2A	H	11174	34	123.5
XU5	Spot 3X	V	14205	Y1D5	Spot 2A	H	11155	72	123.5
XU6	Spot 3X	V	14314	Y1D6	Spot 2A	H	11514	112	123.5
XU7	Spot 3X	V	14438	Y1D7	Spot 2A	H	11638	112	123.5
XU1	Spot 3X	V	14042.5	X1D1	Spot 3X	H	10992.5	77	120.6
XU2	Spot 3X	V	14125	X1D2	Spot 3X	H	11075	72	120.6
XU3	Spot 3X	V	14186	X1D3	Spot 3X	H	11136	34	120.6
XU4	Spot 3X	V	14224	X1D4	Spot 3X	H	11174	34	120.6
XU5	Spot 3X	V	14205	X1D5	Spot 3X	H	11155	72	120.6
XU6	Spot 3X	V	14314	X1D6	Spot 3X	H	11514	112	120.6
XU7	Spot 3X	V	14438	X1D7	Spot 3X	H	11638	112	120.6
WU1	Spot 3	H	14042.5	T1DA	Spot 1X	H	10992.5	77	121.7
WU5	Spot 3	H	14205	T1DB	Spot 1X	H	11155	72	121.7
WU6	Spot 3	H	14314	T1D6	Spot 1X	H	11514	112	121.7
WU7	Spot 3	H	14438	T1D7	Spot 1X	H	11638	112	121.7
WU1	Spot 3	H	14042.5	V1DA	Spot 2X	V	10992.5	77	123.1
WU5	Spot 3	H	14205	V1DB	Spot 2X	V	11155	72	123.1
WU6	Spot 3	H	14314	V1D6	Spot 2X	V	11514	112	123.1
WU7	Spot 3	H	14438	V1D7	Spot 2X	V	11638	112	123.1
XU1	Spot 3X	V	14042.5	T1DA	Spot 1X	H	10992.5	77	121.7
XU5	Spot 3X	V	14205	T1DB	Spot 1X	H	11155	72	121.7
XU6	Spot 3X	V	14314	T1D6	Spot 1X	H	11514	112	121.7
XU7	Spot 3X	V	14438	T1D7	Spot 1X	H	11638	112	121.7
XU1	Spot 3X	V	14042.5	V1DA	Spot 2X	V	10992.5	77	123.1
XU5	Spot 3X	V	14205	V1DB	Spot 2X	V	11155	72	123.1
XU6	Spot 3X	V	14314	V1D6	Spot 2X	V	11514	112	123.1
XU7	Spot 3X	V	14438	V1D7	Spot 2X	V	11638	112	123.1

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)
SU1	Spot 1	H	14042.5	S2D1	Spot 1	V	12547.5	77	119.0
SU2	Spot 1	H	14125	S2D2	Spot 1	V	12630	72	119.0
SU3	Spot 1	H	14186	S2D3	Spot 1	V	12691	34	119.0
SU4	Spot 1	H	14224	S2D4	Spot 1	V	12729	34	119.0
SU5	Spot 1	H	14205	S2D5	Spot 1	V	12710	72	119.0
SU6	Spot 1	H	14314	S2D6	Spot 1	V	11514	112	119.0
SU7	Spot 1	H	14438	S2D7	Spot 1	V	11638	112	119.0
SU1	Spot 1	H	14042.5	U2D1	Spot 2	H	12547.5	77	120.5
SU2	Spot 1	H	14125	U2D2	Spot 2	H	12630	72	120.5
SU3	Spot 1	H	14186	U2D3	Spot 2	H	12691	34	120.5
SU4	Spot 1	H	14224	U2D4	Spot 2	H	12729	34	120.5
SU5	Spot 1	H	14205	U2D5	Spot 2	H	12710	72	120.5
SU6	Spot 1	H	14314	U2D6	Spot 2	H	11514	112	120.5
SU7	Spot 1	H	14438	U2D7	Spot 2	H	11638	112	120.5
SU1	Spot 1	H	14042.5	Y2D1	Spot 2A	H	12547.5	77	120.3
SU2	Spot 1	H	14125	Y2D2	Spot 2A	H	12630	72	120.3
SU3	Spot 1	H	14186	Y2D3	Spot 2A	H	12691	34	120.3
SU4	Spot 1	H	14224	Y2D4	Spot 2A	H	12729	34	120.3
SU5	Spot 1	H	14205	Y2D5	Spot 2A	H	12710	72	120.3
SU6	Spot 1	H	14314	Y2D6	Spot 2A	H	11514	112	120.3
SU7	Spot 1	H	14438	Y2D7	Spot 2A	H	11638	112	120.3
SU1	Spot 1	H	14042.5	W2DA	Spot 3	V	12547.5	77	117.4
SU2	Spot 1	H	14125	W2D2	Spot 3	V	12630	72	117.4
SU3	Spot 1	H	14186	W2D3	Spot 3	V	12691	34	117.4
SU4	Spot 1	H	14224	W2D4	Spot 3	V	12729	34	117.4
SU5	Spot 1	H	14205	W2D5	Spot 3	V	12710	72	117.4
SU6	Spot 1	H	14314	W2D6	Spot 3	V	11514	112	117.4
SU7	Spot 1	H	14438	W2D7	Spot 3	V	11638	112	117.4
SU1	Spot 1	H	14042.5	X2DA	Spot 3X	H	12547.5	77	117.4
SU2	Spot 1	H	14125	X2D2	Spot 3X	H	12630	72	117.4
SU3	Spot 1	H	14186	X2D3	Spot 3X	H	12691	34	117.4
SU4	Spot 1	H	14224	X2D4	Spot 3X	H	12729	34	117.4
SU5	Spot 1	H	14205	X2D5	Spot 3X	H	12710	72	117.4
SU6	Spot 1	H	14314	X2D6	Spot 3X	H	11514	112	117.4
SU7	Spot 1	H	14438	X2D7	Spot 3X	H	11638	112	117.4
TUA	Spot 1X	V	14060	T2DA	Spot 1X	H	12634	112	118.8
TUB	Spot 1X	V	14185	T2DB	Spot 1X	H	12690	112	118.8
SU6	Spot 1X	V	14314	T2D6	Spot 1X	H	11514	112	118.8
SU7	Spot 1X	V	14438	T2D7	Spot 1X	H	11638	112	118.8
TUA	Spot 1X	V	14060	V2DA	Spot 2X	V	12634	112	120.2
TUB	Spot 1X	V	14185	V2DB	Spot 2X	V	12690	112	120.2
SU6	Spot 1X	V	14314	V2D6	Spot 2X	V	11514	112	120.2
SU7	Spot 1X	V	14438	V2D7	Spot 2X	V	11638	112	120.2
TUA	Spot 1X	V	14060	W2DE	Spot 3	V	12616.5	72	117.7
TUB	Spot 1X	V	14185	W2DC	Spot 3	V	12710	72	117.7
SU6	Spot 1X	V	14314	W2D6	Spot 3	V	11514	112	117.7
SU7	Spot 1X	V	14438	W2D7	Spot 3	V	11638	112	117.7
TUA	Spot 1X	V	14060	X2DE	Spot 3X	H	12616.5	72	117.7
TUB	Spot 1X	V	14185	X2DC	Spot 3X	H	12710	72	117.7
SU6	Spot 1X	V	14314	X2D6	Spot 3X	H	11514	112	117.7
SU7	Spot 1X	V	14438	X2D7	Spot 3X	H	11638	112	117.7
UU1	Spot 2	V	14042.5	S2D1	Spot 1	V	12547.5	77	121.7

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)
UU2	Spot 2	V	14125	S2D2	Spot 1	V	12630	72	121.7
UU3	Spot 2	V	14186	S2D3	Spot 1	V	12691	34	121.7
UU4	Spot 2	V	14224	S2D4	Spot 1	V	12729	34	121.7
UU5	Spot 2	V	14205	S2D5	Spot 1	V	12710	72	121.7
UU6	Spot 2	V	14314	S2D6	Spot 1	V	11514	112	121.7
UU7	Spot 2	V	14438	S2D7	Spot 1	V	11638	112	121.7
UU1	Spot 2	V	14042.5	U2D1	Spot 2	H	12547.5	77	123.2
UU2	Spot 2	V	14125	U2D2	Spot 2	H	12630	72	123.2
UU3	Spot 2	V	14186	U2D3	Spot 2	H	12691	34	123.2
UU4	Spot 2	V	14224	U2D4	Spot 2	H	12729	34	123.2
UU5	Spot 2	V	14205	U2D5	Spot 2	H	12710	72	123.2
UU6	Spot 2	V	14314	U2D6	Spot 2	H	11514	112	123.2
UU7	Spot 2	V	14438	U2D7	Spot 2	H	11638	112	123.2
UU1	Spot 2	V	14042.5	W2D1	Spot 3	V	12547.5	77	120.1
UU2	Spot 2	V	14125	W2D2	Spot 3	V	12630	72	120.1
UU3	Spot 2	V	14186	W2D3	Spot 3	V	12691	34	120.1
UU4	Spot 2	V	14224	W2D4	Spot 3	V	12729	34	120.1
UU5	Spot 2	V	14205	W2D5	Spot 3	V	12710	72	120.1
UU6	Spot 2	V	14314	W2D6	Spot 3	V	11514	112	120.1
UU7	Spot 2	V	14438	W2D7	Spot 3	V	11638	112	120.1
UU1	Spot 2	V	14042.5	X2D1	Spot 3X	H	12547.5	77	120.1
UU2	Spot 2	V	14125	X2D2	Spot 3X	H	12630	72	120.1
UU3	Spot 2	V	14186	X2D3	Spot 3X	H	12691	34	120.1
UU4	Spot 2	V	14224	X2D4	Spot 3X	H	12729	34	120.1
UU5	Spot 2	V	14205	X2D5	Spot 3X	H	12710	72	120.1
UU6	Spot 2	V	14314	X2D6	Spot 3X	H	11514	112	120.1
UU7	Spot 2	V	14438	X2D7	Spot 3X	H	11638	112	120.1
VUA	Spot 2X	H	14060	T2DA	Spot 1X	H	12634	112	122.2
VUB	Spot 2X	H	14185	T2DB	Spot 1X	H	12690	112	122.2
TU6	Spot 2X	H	14314	T2D6	Spot 1X	H	11514	112	122.2
TU7	Spot 2X	H	14438	T2D7	Spot 1X	H	11638	112	122.2
VUA	Spot 2X	H	14060	V2DA	Spot 2X	V	12634	112	123.6
VUB	Spot 2X	H	14185	V2DB	Spot 2X	V	12690	112	123.6
TU6	Spot 2X	H	14314	V2D6	Spot 2X	V	11514	112	123.6
TU7	Spot 2X	H	14438	V2D7	Spot 2X	V	11638	112	123.6
VUA	Spot 2X	H	14060	W2DE	Spot 3	V	12616.5	72	121.1
VUB	Spot 2X	H	14185	W2DC	Spot 3	V	12710	72	121.1
TU6	Spot 2X	H	14314	W2D6	Spot 3	V	11514	112	121.1
TU7	Spot 2X	H	14438	W2D7	Spot 3	V	11638	112	121.1
VUA	Spot 2X	H	14060	X2DE	Spot 3X	H	12616.5	72	121.1
VUB	Spot 2X	H	14185	X2DC	Spot 3X	H	12710	72	121.1
TU6	Spot 2X	H	14314	X2D6	Spot 3X	H	11514	112	121.1
TU7	Spot 2X	H	14438	X2D7	Spot 3X	H	11638	112	121.1
YU1	Spot 2A	V	14042.5	S2D1	Spot 1	V	12547.5	77	123.7
YU2	Spot 2A	V	14125	S2D2	Spot 1	V	12630	72	123.7
YU3	Spot 2A	V	14186	S2D3	Spot 1	V	12691	34	123.7
YU4	Spot 2A	V	14224	S2D4	Spot 1	V	12729	34	123.7
YU5	Spot 2A	V	14205	S2D5	Spot 1	V	12710	72	123.7
YU6	Spot 2A	V	14314	S2D6	Spot 1	V	11514	112	123.7
YU7	Spot 2A	V	14438	S2D7	Spot 1	V	11638	112	123.7
YU1	Spot 2A	V	14042.5	Y2D1	Spot 2A	H	12547.5	77	125.0
YU2	Spot 2A	V	14125	Y2D2	Spot 2A	H	12630	72	125.0

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)
YU3	Spot 2A	V	14186	Y2D3	Spot 2A	H	12691	34	125.0
YU4	Spot 2A	V	14224	Y2D4	Spot 2A	H	12729	34	125.0
YU5	Spot 2A	V	14205	Y2D5	Spot 2A	H	12710	72	125.0
YU6	Spot 2A	V	14314	Y2D6	Spot 2A	H	11514	112	125.0
YU7	Spot 2A	V	14438	Y2D7	Spot 2A	H	11638	112	125.0
YU1	Spot 2A	V	14042.5	W2D1	Spot 3	V	12547.5	77	122.1
YU2	Spot 2A	V	14125	W2D2	Spot 3	V	12630	72	122.1
YU3	Spot 2A	V	14186	W2D3	Spot 3	V	12691	34	122.1
YU4	Spot 2A	V	14224	W2D4	Spot 3	V	12729	34	122.1
YU5	Spot 2A	V	14205	W2D5	Spot 3	V	12710	72	122.1
YU6	Spot 2A	V	14314	W2D6	Spot 3	V	11514	112	122.1
YU7	Spot 2A	V	14438	W2D7	Spot 3	V	11638	112	122.1
YU1	Spot 2A	V	14042.5	X2D1	Spot 3X	H	12547.5	77	122.1
YU2	Spot 2A	V	14125	X2D2	Spot 3X	H	12630	72	122.1
YU3	Spot 2A	V	14186	X2D3	Spot 3X	H	12691	34	122.1
YU4	Spot 2A	V	14224	X2D4	Spot 3X	H	12729	34	122.1
YU5	Spot 2A	V	14205	X2D5	Spot 3X	H	12710	72	122.1
YU6	Spot 2A	V	14314	X2D6	Spot 3X	H	11514	112	122.1
YU7	Spot 2A	V	14438	X2D7	Spot 3X	H	11638	112	122.1
WU1	Spot 3	H	14042.5	S2D1	Spot 1	V	12547.5	77	122.2
WU2	Spot 3	H	14125	S2D2	Spot 1	V	12630	72	122.2
WU3	Spot 3	H	14186	S2D3	Spot 1	V	12691	34	122.2
WU4	Spot 3	H	14224	S2D4	Spot 1	V	12729	34	122.2
WU5	Spot 3	H	14205	S2D5	Spot 1	V	12710	72	122.2
WU6	Spot 3	H	14314	S2D6	Spot 1	V	11514	112	122.2
WU7	Spot 3	H	14438	S2D7	Spot 1	V	11638	112	122.2
WU1	Spot 3	H	14042.5	U2D1	Spot 2	H	12547.5	77	123.7
WU2	Spot 3	H	14125	U2D2	Spot 2	H	12630	72	123.7
WU3	Spot 3	H	14186	U2D3	Spot 2	H	12691	34	123.7
WU4	Spot 3	H	14224	U2D4	Spot 2	H	12729	34	123.7
WU5	Spot 3	H	14205	U2D5	Spot 2	H	12710	72	123.7
WU6	Spot 3	H	14314	U2D6	Spot 2	H	11514	112	123.7
WU7	Spot 3	H	14438	U2D7	Spot 2	H	11638	112	123.7
WU1	Spot 3	H	14042.5	Y2D1	Spot 2A	H	12547.5	77	123.5
WU2	Spot 3	H	14125	Y2D2	Spot 2A	H	12630	72	123.5
WU3	Spot 3	H	14186	Y2D3	Spot 2A	H	12691	34	123.5
WU4	Spot 3	H	14224	Y2D4	Spot 2A	H	12729	34	123.5
WU5	Spot 3	H	14205	Y2D5	Spot 2A	H	12710	72	123.5
WU6	Spot 3	H	14314	Y2D6	Spot 2A	H	11514	112	123.5
WU7	Spot 3	H	14438	Y2D7	Spot 2A	H	11638	112	123.5
WU1	Spot 3	H	14042.5	W2D1	Spot 3	V	12547.5	77	120.6
WU2	Spot 3	H	14125	W2D2	Spot 3	V	12630	72	120.6
WU3	Spot 3	H	14186	W2D3	Spot 3	V	12691	34	120.6
WU4	Spot 3	H	14224	W2D4	Spot 3	V	12729	34	120.6
WU5	Spot 3	H	14205	W2D5	Spot 3	V	12710	72	120.6
WU6	Spot 3	H	14314	W2D6	Spot 3	V	11514	112	120.6
WU7	Spot 3	H	14438	W2D7	Spot 3	V	11638	112	120.6
XU1	Spot 3X	V	14042.5	S2D1	Spot 1	V	12547.5	77	122.2
XU2	Spot 3X	V	14125	S2D2	Spot 1	V	12630	72	122.2
XU3	Spot 3X	V	14186	S2D3	Spot 1	V	12691	34	122.2
XU4	Spot 3X	V	14224	S2D4	Spot 1	V	12729	34	122.2
XU5	Spot 3X	V	14205	S2D5	Spot 1	V	12710	72	122.2
XU6	Spot 3X	V	14314	S2D6	Spot 1	V	11514	112	122.2
XU7	Spot 3X	V	14438	S2D7	Spot 1	V	11638	112	122.2

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)
XU1	Spot 3X	V	14042.5	U2D1	Spot 2	H	12547.5	77	123.7
XU2	Spot 3X	V	14125	U2D2	Spot 2	H	12630	72	123.7
XU3	Spot 3X	V	14186	U2D3	Spot 2	H	12691	34	123.7
XU4	Spot 3X	V	14224	U2D4	Spot 2	H	12729	34	123.7
XU5	Spot 3X	V	14205	U2D5	Spot 2	H	12710	72	123.7
XU6	Spot 3X	V	14314	U2D6	Spot 2	H	11514	112	123.7
XU7	Spot 3X	V	14438	U2D7	Spot 2	H	11638	112	123.7
XU1	Spot 3X	V	14042.5	Y2D1	Spot 2A	H	12547.5	77	123.5
XU2	Spot 3X	V	14125	Y2D2	Spot 2A	H	12630	72	123.5
XU3	Spot 3X	V	14186	Y2D3	Spot 2A	H	12691	34	123.5
XU4	Spot 3X	V	14224	Y2D4	Spot 2A	H	12729	34	123.5
XU5	Spot 3X	V	14205	Y2D5	Spot 2A	H	12710	72	123.5
XU6	Spot 3X	V	14314	Y2D6	Spot 2A	H	11514	112	123.5
XU7	Spot 3X	V	14438	Y2D7	Spot 2A	H	11638	112	123.5
XU1	Spot 3X	V	14042.5	X2D1	Spot 3X	H	12547.5	77	120.6
XU2	Spot 3X	V	14125	X2D2	Spot 3X	H	12630	72	120.6
XU3	Spot 3X	V	14186	X2D3	Spot 3X	H	12691	34	120.6
XU4	Spot 3X	V	14224	X2D4	Spot 3X	H	12729	34	120.6
XU5	Spot 3X	V	14205	X2D5	Spot 3X	H	12710	72	120.6
XU6	Spot 3X	V	14314	X2D6	Spot 3X	H	11514	112	120.6
XU7	Spot 3X	V	14438	X2D7	Spot 3X	H	11638	112	120.6
WU1	Spot 3	H	14042.5	T2DA	Spot 1X	H	12547.5	77	121.7
WU5	Spot 3	H	14205	T2DB	Spot 1X	H	12710	72	121.7
WU6	Spot 3	H	14314	T2D6	Spot 1X	H	11514	112	121.7
WU7	Spot 3	H	14438	T2D7	Spot 1X	H	11638	112	121.7
WU1	Spot 3	H	14042.5	V2DA	Spot 2X	V	12547.5	77	123.1
WU5	Spot 3	H	14205	V2DB	Spot 2X	V	12710	72	123.1
WU6	Spot 3	H	14314	V2D6	Spot 2X	V	11514	112	123.1
WU7	Spot 3	H	14438	V2D7	Spot 2X	V	11638	112	123.1
XU1	Spot 3X	V	14042.5	T2DA	Spot 1X	H	12547.5	77	121.7
XU5	Spot 3X	V	14205	T2DB	Spot 1X	H	12710	72	121.7
XU6	Spot 3X	V	14314	T2D6	Spot 1X	H	11514	112	121.7
XU7	Spot 3X	V	14438	T2D7	Spot 1X	H	11638	112	121.7
XU1	Spot 3X	V	14042.5	V2DA	Spot 2X	V	12547.5	77	123.1
XU5	Spot 3X	V	14205	V2DB	Spot 2X	V	12710	72	123.1
XU6	Spot 3X	V	14314	V2D6	Spot 2X	V	11514	112	123.1
XU7	Spot 3X	V	14438	V2D7	Spot 2X	V	11638	112	123.1
SU1	Spot 1	H	14042.5	S3D1	Spot 1	V	11747.5	77	119.0
SU2	Spot 1	H	14125	S3D2	Spot 1	V	11830	72	119.0
SU3	Spot 1	H	14186	S3D3	Spot 1	V	11891	34	119.0
SU4	Spot 1	H	14224	S3D4	Spot 1	V	11929	34	119.0
SU5	Spot 1	H	14205	S3D5	Spot 1	V	11910	72	119.0
SU6	Spot 1	H	14314	S3D6	Spot 1	V	11514	112	119.0
SU7	Spot 1	H	14438	S3D7	Spot 1	V	11638	112	119.0
SU1	Spot 1	H	14042.5	U3D1	Spot 2	H	11747.5	77	120.5
SU2	Spot 1	H	14125	U3D2	Spot 2	H	11830	72	120.5
SU3	Spot 1	H	14186	U3D3	Spot 2	H	11891	34	120.5
SU4	Spot 1	H	14224	U3D4	Spot 2	H	11929	34	120.5
SU5	Spot 1	H	14205	U3D5	Spot 2	H	11910	72	120.5
SU6	Spot 1	H	14314	U3D6	Spot 2	H	11514	112	120.5
SU7	Spot 1	H	14438	U3D7	Spot 2	H	11638	112	120.5

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)
SU1	Spot 1	H	14042.5	Y3D1	Spot 2A	H	11747.5	77	120.3
SU2	Spot 1	H	14125	Y3D2	Spot 2A	H	11830	72	120.3
SU3	Spot 1	H	14186	Y3D3	Spot 2A	H	11891	34	120.3
SU4	Spot 1	H	14224	Y3D4	Spot 2A	H	11929	34	120.3
SU5	Spot 1	H	14205	Y3D5	Spot 2A	H	11910	72	120.3
SU6	Spot 1	H	14314	Y3D6	Spot 2A	H	11514	112	120.3
SU7	Spot 1	H	14438	Y3D7	Spot 2A	H	11638	112	120.3
SU1	Spot 1	H	14042.5	W3DA	Spot 3	V	11747.5	77	117.4
SU2	Spot 1	H	14125	W3D2	Spot 3	V	11830	72	117.4
SU3	Spot 1	H	14186	W3D3	Spot 3	V	11891	34	117.4
SU4	Spot 1	H	14224	W3D4	Spot 3	V	11929	34	117.4
SU5	Spot 1	H	14205	W3D5	Spot 3	V	11910	72	117.4
SU6	Spot 1	H	14314	W3D6	Spot 3	V	11514	112	117.4
SU7	Spot 1	H	14438	W3D7	Spot 3	V	11638	112	117.4
SU1	Spot 1	H	14042.5	X3DA	Spot 3X	H	11747.5	77	117.4
SU2	Spot 1	H	14125	X3D2	Spot 3X	H	11830	72	117.4
SU3	Spot 1	H	14186	X3D3	Spot 3X	H	11891	34	117.4
SU4	Spot 1	H	14224	X3D4	Spot 3X	H	11929	34	117.4
SU5	Spot 1	H	14205	X3D5	Spot 3X	H	11910	72	117.4
SU6	Spot 1	H	14314	X3D6	Spot 3X	H	11514	112	117.4
SU7	Spot 1	H	14438	X3D7	Spot 3X	H	11638	112	117.4
TUA	Spot 1X	V	14060	T3DA	Spot 1X	H	11765	112	118.8
TUB	Spot 1X	V	14185	T3DB	Spot 1X	H	11890	112	118.8
SU6	Spot 1X	V	14314	T3D6	Spot 1X	H	11514	112	118.8
SU7	Spot 1X	V	14438	T3D7	Spot 1X	H	11638	112	118.8
TUA	Spot 1X	V	14060	V3DA	Spot 2X	V	11765	112	120.2
TUB	Spot 1X	V	14185	V3DB	Spot 2X	V	11890	112	120.2
SU6	Spot 1X	V	14314	V3D6	Spot 2X	V	11514	112	120.2
SU7	Spot 1X	V	14438	V3D7	Spot 2X	V	11638	112	120.2
TUA	Spot 1X	V	14060	W3DE	Spot 3	V	11747.5	72	117.7
TUB	Spot 1X	V	14185	W3DC	Spot 3	V	11910	72	117.7
SU6	Spot 1X	V	14314	W3D6	Spot 3	V	11514	112	117.7
SU7	Spot 1X	V	14438	W3D7	Spot 3	V	11638	112	117.7
TUA	Spot 1X	V	14060	X3DE	Spot 3X	H	11747.5	72	117.7
TUB	Spot 1X	V	14185	X3DC	Spot 3X	H	11910	72	117.7
SU6	Spot 1X	V	14314	X3D6	Spot 3X	H	11514	112	117.7
SU7	Spot 1X	V	14438	X3D7	Spot 3X	H	11638	112	117.7
UU1	Spot 2	V	14042.5	S3D1	Spot 1	V	11747.5	77	121.7
UU2	Spot 2	V	14125	S3D2	Spot 1	V	11830	72	121.7
UU3	Spot 2	V	14186	S3D3	Spot 1	V	11891	34	121.7
UU4	Spot 2	V	14224	S3D4	Spot 1	V	11929	34	121.7
UU5	Spot 2	V	14205	S3D5	Spot 1	V	11910	72	121.7
UU6	Spot 2	V	14314	S3D6	Spot 1	V	11514	112	121.7
UU7	Spot 2	V	14438	S3D7	Spot 1	V	11638	112	121.7
UU1	Spot 2	V	14042.5	U3D1	Spot 2	H	11747.5	77	123.2
UU2	Spot 2	V	14125	U3D2	Spot 2	H	11830	72	123.2
UU3	Spot 2	V	14186	U3D3	Spot 2	H	11891	34	123.2
UU4	Spot 2	V	14224	U3D4	Spot 2	H	11929	34	123.2
UU5	Spot 2	V	14205	U3D5	Spot 2	H	11910	72	123.2
UU6	Spot 2	V	14314	U3D6	Spot 2	H	11514	112	123.2
UU7	Spot 2	V	14438	U3D7	Spot 2	H	11638	112	123.2
UU1	Spot 2	V	14042.5	W3D1	Spot 3	V	11747.5	77	120.1

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)
UU2	Spot 2	V	14125	W3D2	Spot 3	V	11830	72	120.1
UU3	Spot 2	V	14186	W3D3	Spot 3	V	11891	34	120.1
UU4	Spot 2	V	14224	W3D4	Spot 3	V	11929	34	120.1
UU5	Spot 2	V	14205	W3D5	Spot 3	V	11910	72	120.1
UU6	Spot 2	V	14314	W3D6	Spot 3	V	11514	112	120.1
UU7	Spot 2	V	14438	W3D7	Spot 3	V	11638	112	120.1
UU1	Spot 2	V	14042.5	X3D1	Spot 3X	H	11747.5	77	120.1
UU2	Spot 2	V	14125	X3D2	Spot 3X	H	11830	72	120.1
UU3	Spot 2	V	14186	X3D3	Spot 3X	H	11891	34	120.1
UU4	Spot 2	V	14224	X3D4	Spot 3X	H	11929	34	120.1
UU5	Spot 2	V	14205	X3D5	Spot 3X	H	11910	72	120.1
UU6	Spot 2	V	14314	X3D6	Spot 3X	H	11514	112	120.1
UU7	Spot 2	V	14438	X3D7	Spot 3X	H	11638	112	120.1
VUA	Spot 2X	H	14060	T3DA	Spot 1X	H	11765	112	122.2
VUB	Spot 2X	H	14185	T3DB	Spot 1X	H	11890	112	122.2
TU6	Spot 2X	H	14314	T3D6	Spot 1X	H	11514	112	122.2
TU7	Spot 2X	H	14438	T3D7	Spot 1X	H	11638	112	122.2
VUA	Spot 2X	H	14060	V3DA	Spot 2X	V	11765	112	123.6
VUB	Spot 2X	H	14185	V3DB	Spot 2X	V	11890	112	123.6
TU6	Spot 2X	H	14314	V3D6	Spot 2X	V	11514	112	123.6
TU7	Spot 2X	H	14438	V3D7	Spot 2X	V	11638	112	123.6
VUA	Spot 2X	H	14060	W3DE	Spot 3	V	11747.5	72	121.1
VUB	Spot 2X	H	14185	W3DC	Spot 3	V	11910	72	121.1
TU6	Spot 2X	H	14314	W3D6	Spot 3	V	11514	112	121.1
TU7	Spot 2X	H	14438	W3D7	Spot 3	V	11638	112	121.1
VUA	Spot 2X	H	14060	X3DE	Spot 3X	H	11747.5	72	121.1
VUB	Spot 2X	H	14185	X3DC	Spot 3X	H	11910	72	121.1
TU6	Spot 2X	H	14314	X3D6	Spot 3X	H	11514	112	121.1
TU7	Spot 2X	H	14438	X3D7	Spot 3X	H	11638	112	121.1
YU1	Spot 2A	V	14042.5	S3D1	Spot 1	V	11747.5	77	123.7
YU2	Spot 2A	V	14125	S3D2	Spot 1	V	11830	72	123.7
YU3	Spot 2A	V	14186	S3D3	Spot 1	V	11891	34	123.7
YU4	Spot 2A	V	14224	S3D4	Spot 1	V	11929	34	123.7
YU5	Spot 2A	V	14205	S3D5	Spot 1	V	11910	72	123.7
YU6	Spot 2A	V	14314	S3D6	Spot 1	V	11514	112	123.7
YU7	Spot 2A	V	14438	S3D7	Spot 1	V	11638	112	123.7
YU1	Spot 2A	V	14042.5	U3D1	Spot 2	H	11747.5	77	125.0
YU2	Spot 2A	V	14125	U3D2	Spot 2	H	11830	72	125.0
YU3	Spot 2A	V	14186	U3D3	Spot 2	H	11891	34	125.0
YU4	Spot 2A	V	14224	U3D4	Spot 2	H	11929	34	125.0
YU5	Spot 2A	V	14205	U3D5	Spot 2	H	11910	72	125.0
YU6	Spot 2A	V	14314	U3D6	Spot 2	H	11514	112	125.0
YU7	Spot 2A	V	14438	U3D7	Spot 2	H	11638	112	125.0
YU1	Spot 2A	V	14042.5	W3D1	Spot 3	V	11747.5	77	122.1
YU2	Spot 2A	V	14125	W3D2	Spot 3	V	11830	72	122.1
YU3	Spot 2A	V	14186	W3D3	Spot 3	V	11891	34	122.1
YU4	Spot 2A	V	14224	W3D4	Spot 3	V	11929	34	122.1
YU5	Spot 2A	V	14205	W3D5	Spot 3	V	11910	72	122.1
YU6	Spot 2A	V	14314	W3D6	Spot 3	V	11514	112	122.1
YU7	Spot 2A	V	14438	W3D7	Spot 3	V	11638	112	122.1
YU1	Spot 2A	V	14042.5	X3D1	Spot 3X	H	11747.5	77	122.1
YU2	Spot 2A	V	14125	X3D2	Spot 3X	H	11830	72	122.1

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)
YU3	Spot 2A	V	14186	X3D3	Spot 3X	H	11891	34	122.1
YU4	Spot 2A	V	14224	X3D4	Spot 3X	H	11929	34	122.1
YU5	Spot 2A	V	14205	X3D5	Spot 3X	H	11910	72	122.1
YU6	Spot 2A	V	14314	X3D6	Spot 3X	H	11514	112	122.1
YU7	Spot 2A	V	14438	X3D7	Spot 3X	H	11638	112	122.1
WU1	Spot 3	H	14042.5	S3D1	Spot 1	V	11747.5	77	122.2
WU2	Spot 3	H	14125	S3D2	Spot 1	V	11830	72	122.2
WU3	Spot 3	H	14186	S3D3	Spot 1	V	11891	34	122.2
WU4	Spot 3	H	14224	S3D4	Spot 1	V	11929	34	122.2
WU5	Spot 3	H	14205	S3D5	Spot 1	V	11910	72	122.2
WU6	Spot 3	H	14314	S3D6	Spot 1	V	11514	112	122.2
WU7	Spot 3	H	14438	S3D7	Spot 1	V	11638	112	122.2
WU1	Spot 3	H	14042.5	U3D1	Spot 2	H	11747.5	77	123.7
WU2	Spot 3	H	14125	U3D2	Spot 2	H	11830	72	123.7
WU3	Spot 3	H	14186	U3D3	Spot 2	H	11891	34	123.7
WU4	Spot 3	H	14224	U3D4	Spot 2	H	11929	34	123.7
WU5	Spot 3	H	14205	U3D5	Spot 2	H	11910	72	123.7
WU6	Spot 3	H	14314	U3D6	Spot 2	H	11514	112	123.7
WU7	Spot 3	H	14438	U3D7	Spot 2	H	11638	112	123.7
WU1	Spot 3	H	14042.5	Y3D1	Spot 2A	H	11747.5	77	123.5
WU2	Spot 3	H	14125	Y3D2	Spot 2A	H	11830	72	123.5
WU3	Spot 3	H	14186	Y3D3	Spot 2A	H	11891	34	123.5
WU4	Spot 3	H	14224	Y3D4	Spot 2A	H	11929	34	123.5
WU5	Spot 3	H	14205	Y3D5	Spot 2A	H	11910	72	123.5
WU6	Spot 3	H	14314	Y3D6	Spot 2A	H	11514	112	123.5
WU7	Spot 3	H	14438	Y3D7	Spot 2A	H	11638	112	123.5
WU1	Spot 3	H	14042.5	W3D1	Spot 3	V	11747.5	77	120.6
WU2	Spot 3	H	14125	W3D2	Spot 3	V	11830	72	120.6
WU3	Spot 3	H	14186	W3D3	Spot 3	V	11891	34	120.6
WU4	Spot 3	H	14224	W3D4	Spot 3	V	11929	34	120.6
WU5	Spot 3	H	14205	W3D5	Spot 3	V	11910	72	120.6
WU6	Spot 3	H	14314	W3D6	Spot 3	V	11514	112	120.6
WU7	Spot 3	H	14438	W3D7	Spot 3	V	11638	112	120.6
XU1	Spot 3X	V	14042.5	S3D1	Spot 1	V	11747.5	77	122.2
XU2	Spot 3X	V	14125	S3D2	Spot 1	V	11830	72	122.2
XU3	Spot 3X	V	14186	S3D3	Spot 1	V	11891	34	122.2
XU4	Spot 3X	V	14224	S3D4	Spot 1	V	11929	34	122.2
XU5	Spot 3X	V	14205	S3D5	Spot 1	V	11910	72	122.2
XU6	Spot 3X	V	14314	S3D6	Spot 1	V	11514	112	122.2
XU7	Spot 3X	V	14438	S3D7	Spot 1	V	11638	112	122.2
XU1	Spot 3X	V	14042.5	U3D1	Spot 2	H	11747.5	77	123.7
XU2	Spot 3X	V	14125	U3D2	Spot 2	H	11830	72	123.7
XU3	Spot 3X	V	14186	U3D3	Spot 2	H	11891	34	123.7
XU4	Spot 3X	V	14224	U3D4	Spot 2	H	11929	34	123.7
XU5	Spot 3X	V	14205	U3D5	Spot 2	H	11910	72	123.7
XU6	Spot 3X	V	14314	U3D6	Spot 2	H	11514	112	123.7
XU7	Spot 3X	V	14438	U3D7	Spot 2	H	11638	112	123.7
XU1	Spot 3X	V	14042.5	Y3D1	Spot 2A	H	11747.5	77	123.5
XU2	Spot 3X	V	14125	Y3D2	Spot 2A	H	11830	72	123.5
XU3	Spot 3X	V	14186	Y3D3	Spot 2A	H	11891	34	123.5
XU4	Spot 3X	V	14224	Y3D4	Spot 2A	H	11929	34	123.5
XU5	Spot 3X	V	14205	Y3D5	Spot 2A	H	11910	72	123.5
XU6	Spot 3X	V	14314	Y3D6	Spot 2A	H	11514	112	123.5
XU7	Spot 3X	V	14438	Y3D7	Spot 2A	H	11638	112	123.5

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)
XU1	Spot 3X	V	14042.5	X3D1	Spot 3X	H	11747.5	77	120.6
XU2	Spot 3X	V	14125	X3D2	Spot 3X	H	11830	72	120.6
XU3	Spot 3X	V	14186	X3D3	Spot 3X	H	11891	34	120.6
XU4	Spot 3X	V	14224	X3D4	Spot 3X	H	11929	34	120.6
XU5	Spot 3X	V	14205	X3D5	Spot 3X	H	11910	72	120.6
XU6	Spot 3X	V	14314	X3D6	Spot 3X	H	11514	112	120.6
XU7	Spot 3X	V	14438	X3D7	Spot 3X	H	11638	112	120.6
WU1	Spot 3	H	14042.5	T3DA	Spot 1X	H	11747.5	77	121.7
WU5	Spot 3	H	14205	T3DB	Spot 1X	H	11910	72	121.7
WU6	Spot 3	H	14314	T3D6	Spot 1X	H	11514	112	121.7
WU7	Spot 3	H	14438	T3D7	Spot 1X	H	11638	112	121.7
WU1	Spot 3	H	14042.5	V3DA	Spot 2X	V	11747.5	77	123.1
WU5	Spot 3	H	14205	V3DB	Spot 2X	V	11910	72	123.1
WU6	Spot 3	H	14314	V3D6	Spot 2X	V	11514	112	123.1
WU7	Spot 3	H	14438	V3D7	Spot 2X	V	11638	112	123.1
XU1	Spot 3X	V	14042.5	T3DA	Spot 1X	H	11747.5	77	121.7
XU5	Spot 3X	V	14205	T3DB	Spot 1X	H	11910	72	121.7
XU6	Spot 3X	V	14314	T3D6	Spot 1X	H	11514	112	121.7
XU7	Spot 3X	V	14438	T3D7	Spot 1X	H	11638	112	121.7
XU1	Spot 3X	V	14042.5	V3DA	Spot 2X	V	11747.5	77	123.1
XU5	Spot 3X	V	14205	V3DB	Spot 2X	V	11910	72	123.1
XU6	Spot 3X	V	14314	V3D6	Spot 2X	V	11514	112	123.1
XU7	Spot 3X	V	14438	V3D7	Spot 2X	V	11638	112	123.1
EU1	West Hemi	LHCP	5967.5	S1D1	Spot 1	V	10992.5	77	122.7
EU2	West Hemi	LHCP	6050	S1D2	Spot 1	V	11075	72	122.7
EU3	West Hemi	LHCP	6111	S1D3	Spot 1	V	11136	34	122.7
EU4	West Hemi	LHCP	6149	S1D4	Spot 1	V	11174	34	122.7
EU5	West Hemi	LHCP	6130	S1D5	Spot 1	V	11155	72	122.7
EU6	West Hemi	LHCP	6220	S1DC	Spot 1	V	11495	72	122.7
EU1	West Hemi	LHCP	5967.5	U1D1	Spot 2	H	10992.5	77	124.2
EU2	West Hemi	LHCP	6050	U1D2	Spot 2	H	11075	72	124.2
EU3	West Hemi	LHCP	6111	U1D3	Spot 2	H	11136	34	124.2
EU4	West Hemi	LHCP	6149	U1D4	Spot 2	H	11174	34	124.2
EU5	West Hemi	LHCP	6130	U1D5	Spot 2	H	11155	72	124.2
EU6	West Hemi	LHCP	6220	U1DC	Spot 2	H	11495	72	124.2
EU1	West Hemi	LHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	124.0
EU2	West Hemi	LHCP	6050	Y1D2	Spot 2A	H	11075	72	124.0
EU3	West Hemi	LHCP	6111	Y1D3	Spot 2A	H	11136	34	124.0
EU4	West Hemi	LHCP	6149	Y1D4	Spot 2A	H	11174	34	124.0
EU5	West Hemi	LHCP	6130	Y1D5	Spot 2A	H	11155	72	124.0
EU6	West Hemi	LHCP	6220	Y1DC	Spot 2A	H	11495	72	124.0
EU1	West Hemi	LHCP	5967.5	W1D1	Spot 3	V	10992.5	77	121.1
EU2	West Hemi	LHCP	6050	W1D2	Spot 3	V	11075	72	121.1
EU3	West Hemi	LHCP	6111	W1D3	Spot 3	V	11136	34	121.1
EU4	West Hemi	LHCP	6149	W1D4	Spot 3	V	11174	34	121.1
EU5	West Hemi	LHCP	6130	W1D5	Spot 3	V	11155	72	121.1
EU6	West Hemi	LHCP	6220	W1DC	Spot 3	V	11495	72	121.1
EU1	West Hemi	LHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	121.1
EU2	West Hemi	LHCP	6050	X1D2	Spot 3X	H	11075	72	121.1
EU3	West Hemi	LHCP	6111	X1D3	Spot 3X	H	11136	34	121.1
EU4	West Hemi	LHCP	6149	X1D4	Spot 3X	H	11174	34	121.1

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)
EU5	West Hemi	LHCP	6130	X1D5	Spot 3X	H	11155	72	121.1
EU6	West Hemi	LHCP	6220	X1DC	Spot 3X	H	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	S1D1	Spot 1	V	10992.5	77	121.1
FU2	East Hemi	LHCP	6050	S1D2	Spot 1	V	11075	72	121.1
FU3	East Hemi	LHCP	6111	S1D3	Spot 1	V	11136	34	121.1
FU4	East Hemi	LHCP	6149	S1D4	Spot 1	V	11174	34	121.1
FU5	East Hemi	LHCP	6130	S1D5	Spot 1	V	11155	72	121.1
FU6	East Hemi	LHCP	6220	S1DC	Spot 1	V	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	U1D1	Spot 2	H	10992.5	77	122.6
FU2	East Hemi	LHCP	6050	U1D2	Spot 2	H	11075	72	122.6
FU3	East Hemi	LHCP	6111	U1D3	Spot 2	H	11136	34	122.6
FU4	East Hemi	LHCP	6149	U1D4	Spot 2	H	11174	34	122.6
FU5	East Hemi	LHCP	6130	U1D5	Spot 2	H	11155	72	122.6
FU6	East Hemi	LHCP	6220	U1DC	Spot 2	H	11495	72	122.6
FU1	East Hemi	LHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	122.4
FU2	East Hemi	LHCP	6050	Y1D2	Spot 2A	H	11075	72	122.4
FU3	East Hemi	LHCP	6111	Y1D3	Spot 2A	H	11136	34	122.4
FU4	East Hemi	LHCP	6149	Y1D4	Spot 2A	H	11174	34	122.4
FU5	East Hemi	LHCP	6130	Y1D5	Spot 2A	H	11155	72	122.4
FU6	East Hemi	LHCP	6220	Y1DC	Spot 2A	H	11495	72	122.4
FU1	East Hemi	LHCP	5967.5	W1D1	Spot 3	V	10992.5	77	119.5
FU2	East Hemi	LHCP	6050	W1D2	Spot 3	V	11075	72	119.5
FU3	East Hemi	LHCP	6111	W1D3	Spot 3	V	11136	34	119.5
FU4	East Hemi	LHCP	6149	W1D4	Spot 3	V	11174	34	119.5
FU5	East Hemi	LHCP	6130	W1D5	Spot 3	V	11155	72	119.5
FU6	East Hemi	LHCP	6220	W1DC	Spot 3	V	11495	72	119.5
FU1	East Hemi	LHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	119.5
FU2	East Hemi	LHCP	6050	X1D2	Spot 3X	H	11075	72	119.5
FU3	East Hemi	LHCP	6111	X1D3	Spot 3X	H	11136	34	119.5
FU4	East Hemi	LHCP	6149	X1D4	Spot 3X	H	11174	34	119.5
FU5	East Hemi	LHCP	6130	X1D5	Spot 3X	H	11155	72	119.5
FU6	East Hemi	LHCP	6220	X1DC	Spot 3X	H	11495	72	119.5
GU1	NW Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	120.4
GU2	NW Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	120.4
GU3	NW Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	120.4
GU4	NW Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	120.4
GU5	NW Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	120.4
GU6	NW Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	120.4
GU1	NW Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	121.9
GU2	NW Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	121.9
GU3	NW Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	121.9
GU4	NW Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	121.9
GU5	NW Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	121.9
GU6	NW Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	121.9
GU1	NW Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	121.7
GU2	NW Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	121.7
GU3	NW Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	121.7
GU4	NW Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	121.7
GU5	NW Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	121.7
GU6	NW Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	121.7
GU1	NW Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	118.8
GU2	NW Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	118.8

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)
GU3	NW Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	118.8
GU4	NW Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	118.8
GU5	NW Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	118.8
GU6	NW Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	118.8
GU1	NW Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	118.8
GU2	NW Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	118.8
GU3	NW Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	118.8
GU4	NW Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	118.8
GU5	NW Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	118.8
GU6	NW Zone	RHCP	6220	X1DC	Spot 3X	H	11495	72	118.8
JU1	SE Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	118.2
JU2	SE Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	118.2
JU3	SE Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	118.2
JU4	SE Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	118.2
JU5	SE Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	118.2
JU6	SE Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	118.2
JU1	SE Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	119.7
JU2	SE Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	119.7
JU3	SE Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	119.7
JU4	SE Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	119.7
JU5	SE Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	119.7
JU6	SE Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	119.7
JU1	SE Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	119.5
JU2	SE Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	119.5
JU3	SE Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	119.5
JU4	SE Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	119.5
JU5	SE Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	119.5
JU6	SE Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	119.5
JU1	SE Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	116.6
JU2	SE Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	116.6
JU3	SE Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	116.6
JU4	SE Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	116.6
JU5	SE Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	116.6
JU6	SE Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	116.6
JU1	SE Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	116.6
JU2	SE Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	116.6
JU3	SE Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	116.6
JU4	SE Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	116.6
JU5	SE Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	116.6
JU6	SE Zone	RHCP	6220	X1DC	Spot 3X	H	11495	72	116.6
HU1	NE Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	119.2
HU2	NE Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	119.2
HU3	NE Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	119.2
HU4	NE Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	119.2
HU5	NE Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	119.2
HU6	NE Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	119.2
HU1	NE Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	120.7
HU2	NE Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	120.7
HU3	NE Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	120.7
HU4	NE Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	120.7
HU5	NE Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	120.7
HU6	NE Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	120.7

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)
HU1	NE Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	120.5
HU2	NE Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	120.5
HU3	NE Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	120.5
HU4	NE Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	120.5
HU5	NE Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	120.5
HU6	NE Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	120.5
HU1	NE Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	117.6
HU2	NE Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	117.6
HU3	NE Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	117.6
HU4	NE Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	117.6
HU5	NE Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	117.6
HU6	NE Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	117.6
HU1	NE Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	117.6
HU2	NE Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	117.6
HU3	NE Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	117.6
HU4	NE Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	117.6
HU5	NE Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	117.6
HU6	NE Zone	RHCP	6220	X1DC	Spot 3X	H	11495	72	117.6
IU1	SW Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	119.3
IU2	SW Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	119.3
IU3	SW Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	119.3
IU4	SW Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	119.3
IU5	SW Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	119.3
IU6	SW Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	119.3
IU1	SW Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	120.8
IU2	SW Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	120.8
IU3	SW Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	120.8
IU4	SW Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	120.8
IU5	SW Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	120.8
IU6	SW Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	120.8
IU1	SW Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	120.6
IU2	SW Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	120.6
IU3	SW Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	120.6
IU4	SW Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	120.6
IU5	SW Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	120.6
IU6	SW Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	120.6
IU1	SW Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	117.7
IU2	SW Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	117.7
IU3	SW Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	117.7
IU4	SW Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	117.7
IU5	SW Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	117.7
IU6	SW Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	117.7
IU1	SW Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	117.7
IU2	SW Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	117.7
IU3	SW Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	117.7
IU4	SW Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	117.7
IU5	SW Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	117.7
IU6	SW Zone	RHCP	6220	X1DC	Spot 3X	H	11495	72	117.7
KU1	Combined NW+SE Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	123.0
KU2	Combined NW+SE Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	123.0
KU3	Combined NW+SE Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	123.0
KU4	Combined NW+SE Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	123.0
KU5	Combined NW+SE Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	123.0

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)
KU6	Combined NW+SE Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	123.0
KU1	Combined NW+SE Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	124.5
KU2	Combined NW+SE Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	124.5
KU3	Combined NW+SE Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	124.5
KU4	Combined NW+SE Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	124.5
KU5	Combined NW+SE Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	124.5
KU6	Combined NW+SE Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	124.5
KU1	Combined NW+SE Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	124.3
KU2	Combined NW+SE Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	124.3
KU3	Combined NW+SE Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	124.3
KU4	Combined NW+SE Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	124.3
KU5	Combined NW+SE Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	124.3
KU6	Combined NW+SE Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	124.3
KU1	Combined NW+SE Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	121.4
KU3	Combined NW+SE Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	121.4
KU1	Combined NW+SE Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	121.4
KU3	Combined NW+SE Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	X1DC	Spot 3X	H	11494	72	121.4
LU1	Combined NE+SW Zone	RHCP	5967.5	S1D1	Spot 1	V	10992.5	77	121.6
LU2	Combined NE+SW Zone	RHCP	6050	S1D2	Spot 1	V	11075	72	121.6
LU3	Combined NE+SW Zone	RHCP	6111	S1D3	Spot 1	V	11136	34	121.6
LU4	Combined NE+SW Zone	RHCP	6149	S1D4	Spot 1	V	11174	34	121.6
LU5	Combined NE+SW Zone	RHCP	6130	S1D5	Spot 1	V	11155	72	121.6
LU6	Combined NE+SW Zone	RHCP	6220	S1DC	Spot 1	V	11495	72	121.6
LU1	Combined NE+SW Zone	RHCP	5967.5	U1D1	Spot 2	H	10992.5	77	123.1
LU2	Combined NE+SW Zone	RHCP	6050	U1D2	Spot 2	H	11075	72	123.1
LU3	Combined NE+SW Zone	RHCP	6111	U1D3	Spot 2	H	11136	34	123.1
LU4	Combined NE+SW Zone	RHCP	6149	U1D4	Spot 2	H	11174	34	123.1
LU5	Combined NE+SW Zone	RHCP	6130	U1D5	Spot 2	H	11155	72	123.1
LU6	Combined NE+SW Zone	RHCP	6220	U1DC	Spot 2	H	11495	72	123.1
LU1	Combined NE+SW Zone	RHCP	5967.5	Y1D1	Spot 2A	H	10992.5	77	122.9
LU2	Combined NE+SW Zone	RHCP	6050	Y1D2	Spot 2A	H	11075	72	122.9
LU3	Combined NE+SW Zone	RHCP	6111	Y1D3	Spot 2A	H	11136	34	122.9
LU4	Combined NE+SW Zone	RHCP	6149	Y1D4	Spot 2A	H	11174	34	122.9
LU5	Combined NE+SW Zone	RHCP	6130	Y1D5	Spot 2A	H	11155	72	122.9
LU6	Combined NE+SW Zone	RHCP	6220	Y1DC	Spot 2A	H	11495	72	122.9
LU1	Combined NE+SW Zone	RHCP	5967.5	W1D1	Spot 3	V	10992.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	W1D2	Spot 3	V	11075	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	W1D3	Spot 3	V	11136	34	120.0
LU4	Combined NE+SW Zone	RHCP	6149	W1D4	Spot 3	V	11174	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	W1D5	Spot 3	V	11155	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	W1DC	Spot 3	V	11495	72	120.0
LU1	Combined NE+SW Zone	RHCP	5967.5	X1D1	Spot 3X	H	10992.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	X1D2	Spot 3X	H	11075	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	X1D3	Spot 3X	H	11136	34	120.0

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)
LU4	Combined NE+SW Zone	RHCP	6149	X1D4	Spot 3X	H	11174	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	X1D5	Spot 3X	H	11155	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	X1DC	Spot 3X	H	11495	72	120.0
EU1	West Hemi	LHCP	5967.5	S2D1	Spot 1	V	12547.5	77	122.7
EU2	West Hemi	LHCP	6050	S2D2	Spot 1	V	12630	72	122.7
EU3	West Hemi	LHCP	6111	S2D3	Spot 1	V	12691	34	122.7
EU4	West Hemi	LHCP	6149	S2D4	Spot 1	V	12729	34	122.7
EU5	West Hemi	LHCP	6130	S2D5	Spot 1	V	12710	72	122.7
EU6	West Hemi	LHCP	6220	S2DC	Spot 1	V	11495	72	122.7
EU1	West Hemi	LHCP	5967.5	U2D1	Spot 2	H	12547.5	77	124.2
EU2	West Hemi	LHCP	6050	U2D2	Spot 2	H	12630	72	124.2
EU3	West Hemi	LHCP	6111	U2D3	Spot 2	H	12691	34	124.2
EU4	West Hemi	LHCP	6149	U2D4	Spot 2	H	12729	34	124.2
EU5	West Hemi	LHCP	6130	U2D5	Spot 2	H	12710	72	124.2
EU6	West Hemi	LHCP	6220	U2DC	Spot 2	H	11495	72	124.2
EU1	West Hemi	LHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	124.0
EU2	West Hemi	LHCP	6050	Y2D2	Spot 2A	H	12630	72	124.0
EU3	West Hemi	LHCP	6111	Y2D3	Spot 2A	H	12691	34	124.0
EU4	West Hemi	LHCP	6149	Y2D4	Spot 2A	H	12729	34	124.0
EU5	West Hemi	LHCP	6130	Y2D5	Spot 2A	H	12710	72	124.0
EU6	West Hemi	LHCP	6220	Y2DC	Spot 2A	H	11495	72	124.0
EU1	West Hemi	LHCP	5967.5	W2D1	Spot 3	V	12547.5	77	121.1
EU2	West Hemi	LHCP	6050	W2D2	Spot 3	V	12630	72	121.1
EU3	West Hemi	LHCP	6111	W2D3	Spot 3	V	12691	34	121.1
EU4	West Hemi	LHCP	6149	W2D4	Spot 3	V	12729	34	121.1
EU5	West Hemi	LHCP	6130	W2D5	Spot 3	V	12710	72	121.1
EU6	West Hemi	LHCP	6220	W2DC	Spot 3	V	11495	72	121.1
EU1	West Hemi	LHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	121.1
EU2	West Hemi	LHCP	6050	X2D2	Spot 3X	H	12630	72	121.1
EU3	West Hemi	LHCP	6111	X2D3	Spot 3X	H	12691	34	121.1
EU4	West Hemi	LHCP	6149	X2D4	Spot 3X	H	12729	34	121.1
EU5	West Hemi	LHCP	6130	X2D5	Spot 3X	H	12710	72	121.1
EU6	West Hemi	LHCP	6220	X2DC	Spot 3X	H	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	S2D1	Spot 1	V	12547.5	77	121.1
FU2	East Hemi	LHCP	6050	S2D2	Spot 1	V	12630	72	121.1
FU3	East Hemi	LHCP	6111	S2D3	Spot 1	V	12691	34	121.1
FU4	East Hemi	LHCP	6149	S2D4	Spot 1	V	12729	34	121.1
FU5	East Hemi	LHCP	6130	S2D5	Spot 1	V	12710	72	121.1
FU6	East Hemi	LHCP	6220	S2DC	Spot 1	V	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	U2D1	Spot 2	H	12547.5	77	122.6
FU2	East Hemi	LHCP	6050	U2D2	Spot 2	H	12630	72	122.6
FU3	East Hemi	LHCP	6111	U2D3	Spot 2	H	12691	34	122.6
FU4	East Hemi	LHCP	6149	U2D4	Spot 2	H	12729	34	122.6
FU5	East Hemi	LHCP	6130	U2D5	Spot 2	H	12710	72	122.6
FU6	East Hemi	LHCP	6220	U2DC	Spot 2	H	11495	72	122.6
FU1	East Hemi	LHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	122.4
FU2	East Hemi	LHCP	6050	Y2D2	Spot 2A	H	12630	72	122.4
FU3	East Hemi	LHCP	6111	Y2D3	Spot 2A	H	12691	34	122.4
FU4	East Hemi	LHCP	6149	Y2D4	Spot 2A	H	12729	34	122.4
FU5	East Hemi	LHCP	6130	Y2D5	Spot 2A	H	12710	72	122.4
FU6	East Hemi	LHCP	6220	Y2DC	Spot 2A	H	11495	72	122.4
FU1	East Hemi	LHCP	5967.5	W2D1	Spot 3	V	12547.5	77	119.5

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)
FU2	East Hemi	LHCP	6050	W2D2	Spot 3	V	12630	72	119.5
FU3	East Hemi	LHCP	6111	W2D3	Spot 3	V	12691	34	119.5
FU4	East Hemi	LHCP	6149	W2D4	Spot 3	V	12729	34	119.5
FU5	East Hemi	LHCP	6130	W2D5	Spot 3	V	12710	72	119.5
FU6	East Hemi	LHCP	6220	W2DC	Spot 3	V	11495	72	119.5
FU1	East Hemi	LHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	119.5
FU2	East Hemi	LHCP	6050	X2D2	Spot 3X	H	12630	72	119.5
FU3	East Hemi	LHCP	6111	X2D3	Spot 3X	H	12691	34	119.5
FU4	East Hemi	LHCP	6149	X2D4	Spot 3X	H	12729	34	119.5
FU5	East Hemi	LHCP	6130	X2D5	Spot 3X	H	12710	72	119.5
FU6	East Hemi	LHCP	6220	X2DC	Spot 3X	H	11495	72	119.5
GU1	NW Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	120.4
GU2	NW Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	120.4
GU3	NW Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	120.4
GU4	NW Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	120.4
GU5	NW Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	120.4
GU6	NW Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	120.4
GU1	NW Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	121.9
GU2	NW Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	121.9
GU3	NW Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	121.9
GU4	NW Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	121.9
GU5	NW Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	121.9
GU6	NW Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	121.9
GU1	NW Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	121.7
GU2	NW Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	121.7
GU3	NW Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	121.7
GU4	NW Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	121.7
GU5	NW Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	121.7
GU6	NW Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	121.7
GU1	NW Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	118.8
GU2	NW Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	118.8
GU3	NW Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	118.8
GU4	NW Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	118.8
GU5	NW Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	118.8
GU6	NW Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	118.8
GU1	NW Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	118.8
GU2	NW Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	118.8
GU3	NW Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	118.8
GU4	NW Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	118.8
GU5	NW Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	118.8
GU6	NW Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	118.8
JU1	SE Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	118.2
JU2	SE Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	118.2
JU3	SE Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	118.2
JU4	SE Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	118.2
JU5	SE Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	118.2
JU6	SE Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	118.2
JU1	SE Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	119.7
JU2	SE Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	119.7
JU3	SE Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	119.7
JU4	SE Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	119.7
JU5	SE Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	119.7
JU6	SE Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	119.7

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)
JU1	SE Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	119.5
JU2	SE Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	119.5
JU3	SE Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	119.5
JU4	SE Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	119.5
JU5	SE Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	119.5
JU6	SE Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	119.5
JU1	SE Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	116.6
JU2	SE Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	116.6
JU3	SE Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	116.6
JU4	SE Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	116.6
JU5	SE Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	116.6
JU6	SE Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	116.6
JU1	SE Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	116.6
JU2	SE Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	116.6
JU3	SE Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	116.6
JU4	SE Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	116.6
JU5	SE Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	116.6
JU6	SE Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	116.6
HU1	NE Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	119.2
HU2	NE Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	119.2
HU3	NE Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	119.2
HU4	NE Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	119.2
HU5	NE Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	119.2
HU6	NE Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	119.2
HU1	NE Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	120.7
HU2	NE Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	120.7
HU3	NE Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	120.7
HU4	NE Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	120.7
HU5	NE Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	120.7
HU6	NE Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	120.7
HU1	NE Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	120.5
HU2	NE Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	120.5
HU3	NE Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	120.5
HU4	NE Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	120.5
HU5	NE Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	120.5
HU6	NE Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	120.5
HU1	NE Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	117.6
HU2	NE Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	117.6
HU3	NE Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	117.6
HU4	NE Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	117.6
HU5	NE Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	117.6
HU6	NE Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	117.6
HU1	NE Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	117.6
HU2	NE Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	117.6
HU3	NE Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	117.6
HU4	NE Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	117.6
HU5	NE Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	117.6
HU6	NE Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	117.6
IU1	SW Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	119.3
IU2	SW Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	119.3
IU3	SW Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	119.3
IU4	SW Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	119.3

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)
IU5	SW Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	119.3
IU6	SW Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	119.3
IU1	SW Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	120.8
IU2	SW Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	120.8
IU3	SW Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	120.8
IU4	SW Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	120.8
IU5	SW Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	120.8
IU6	SW Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	120.8
IU1	SW Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	120.6
IU2	SW Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	120.6
IU3	SW Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	120.6
IU4	SW Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	120.6
IU5	SW Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	120.6
IU6	SW Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	120.6
IU1	SW Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	117.7
IU2	SW Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	117.7
IU3	SW Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	117.7
IU4	SW Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	117.7
IU5	SW Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	117.7
IU6	SW Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	117.7
IU1	SW Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	117.7
IU2	SW Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	117.7
IU3	SW Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	117.7
IU4	SW Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	117.7
IU5	SW Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	117.7
IU6	SW Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	117.7
KU1	Combined NW+SE Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	123.0
KU2	Combined NW+SE Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	123.0
KU3	Combined NW+SE Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	123.0
KU4	Combined NW+SE Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	123.0
KU5	Combined NW+SE Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	123.0
KU6	Combined NW+SE Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	123.0
KU1	Combined NW+SE Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	124.5
KU2	Combined NW+SE Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	124.5
KU3	Combined NW+SE Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	124.5
KU4	Combined NW+SE Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	124.5
KU5	Combined NW+SE Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	124.5
KU6	Combined NW+SE Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	124.5
KU1	Combined NW+SE Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	124.3
KU2	Combined NW+SE Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	124.3
KU3	Combined NW+SE Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	124.3
KU4	Combined NW+SE Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	124.3
KU5	Combined NW+SE Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	124.3
KU6	Combined NW+SE Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	124.3
KU1	Combined NW+SE Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	121.4
KU3	Combined NW+SE Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	121.4
KU1	Combined NW+SE Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	121.4

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)
KU3	Combined NW+SE Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	121.4
LU1	Combined NE+SW Zone	RHCP	5967.5	S2D1	Spot 1	V	12547.5	77	121.6
LU2	Combined NE+SW Zone	RHCP	6050	S2D2	Spot 1	V	12630	72	121.6
LU3	Combined NE+SW Zone	RHCP	6111	S2D3	Spot 1	V	12691	34	121.6
LU4	Combined NE+SW Zone	RHCP	6149	S2D4	Spot 1	V	12729	34	121.6
LU5	Combined NE+SW Zone	RHCP	6130	S2D5	Spot 1	V	12710	72	121.6
LU6	Combined NE+SW Zone	RHCP	6220	S2DC	Spot 1	V	11495	72	121.6
LU1	Combined NE+SW Zone	RHCP	5967.5	U2D1	Spot 2	H	12547.5	77	123.1
LU2	Combined NE+SW Zone	RHCP	6050	U2D2	Spot 2	H	12630	72	123.1
LU3	Combined NE+SW Zone	RHCP	6111	U2D3	Spot 2	H	12691	34	123.1
LU4	Combined NE+SW Zone	RHCP	6149	U2D4	Spot 2	H	12729	34	123.1
LU5	Combined NE+SW Zone	RHCP	6130	U2D5	Spot 2	H	12710	72	123.1
LU6	Combined NE+SW Zone	RHCP	6220	U2DC	Spot 2	H	11495	72	123.1
LU1	Combined NE+SW Zone	RHCP	5967.5	Y2D1	Spot 2A	H	12547.5	77	122.9
LU2	Combined NE+SW Zone	RHCP	6050	Y2D2	Spot 2A	H	12630	72	122.9
LU3	Combined NE+SW Zone	RHCP	6111	Y2D3	Spot 2A	H	12691	34	122.9
LU4	Combined NE+SW Zone	RHCP	6149	Y2D4	Spot 2A	H	12729	34	122.9
LU5	Combined NE+SW Zone	RHCP	6130	Y2D5	Spot 2A	H	12710	72	122.9
LU6	Combined NE+SW Zone	RHCP	6220	Y2DC	Spot 2A	H	11495	72	122.9
LU1	Combined NE+SW Zone	RHCP	5967.5	W2D1	Spot 3	V	12547.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	W2D2	Spot 3	V	12630	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	W2D3	Spot 3	V	12691	34	120.0
LU4	Combined NE+SW Zone	RHCP	6149	W2D4	Spot 3	V	12729	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	W2D5	Spot 3	V	12710	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	W2DC	Spot 3	V	11495	72	120.0
LU1	Combined NE+SW Zone	RHCP	5967.5	X2D1	Spot 3X	H	12547.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	X2D2	Spot 3X	H	12630	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	X2D3	Spot 3X	H	12691	34	120.0
LU4	Combined NE+SW Zone	RHCP	6149	X2D4	Spot 3X	H	12729	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	X2D5	Spot 3X	H	12710	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	X2DC	Spot 3X	H	11495	72	120.0
EU1	West Hemi	LHCP	5967.5	S3D1	Spot 1	V	11747.5	77	122.7
EU2	West Hemi	LHCP	6050	S3D2	Spot 1	V	11830	72	122.7
EU3	West Hemi	LHCP	6111	S3D3	Spot 1	V	11891	34	122.7
EU4	West Hemi	LHCP	6149	S3D4	Spot 1	V	11929	34	122.7
EU5	West Hemi	LHCP	6130	S3D5	Spot 1	V	11910	72	122.7
EU6	West Hemi	LHCP	6220	S3DC	Spot 1	V	11495	72	122.7
EU1	West Hemi	LHCP	5967.5	U3D1	Spot 2	H	11747.5	77	124.2
EU2	West Hemi	LHCP	6050	U3D2	Spot 2	H	11830	72	124.2
EU3	West Hemi	LHCP	6111	U3D3	Spot 2	H	11891	34	124.2
EU4	West Hemi	LHCP	6149	U3D4	Spot 2	H	11929	34	124.2
EU5	West Hemi	LHCP	6130	U3D5	Spot 2	H	11910	72	124.2
EU6	West Hemi	LHCP	6220	U3DC	Spot 2	H	11495	72	124.2
EU1	West Hemi	LHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	124.0
EU2	West Hemi	LHCP	6050	Y3D2	Spot 2A	H	11830	72	124.0
EU3	West Hemi	LHCP	6111	Y3D3	Spot 2A	H	11891	34	124.0
EU4	West Hemi	LHCP	6149	Y3D4	Spot 2A	H	11929	34	124.0
EU5	West Hemi	LHCP	6130	Y3D5	Spot 2A	H	11910	72	124.0
EU6	West Hemi	LHCP	6220	Y3DC	Spot 2A	H	11495	72	124.0

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)
EU1	West Hemi	LHCP	5967.5	W3D1	Spot 3	V	11747.5	77	121.1
EU2	West Hemi	LHCP	6050	W3D2	Spot 3	V	11830	72	121.1
EU3	West Hemi	LHCP	6111	W3D3	Spot 3	V	11891	34	121.1
EU4	West Hemi	LHCP	6149	W3D4	Spot 3	V	11929	34	121.1
EU5	West Hemi	LHCP	6130	W3D5	Spot 3	V	11910	72	121.1
EU6	West Hemi	LHCP	6220	W3DC	Spot 3	V	11495	72	121.1
EU1	West Hemi	LHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	121.1
EU2	West Hemi	LHCP	6050	X3D2	Spot 3X	H	11830	72	121.1
EU3	West Hemi	LHCP	6111	X3D3	Spot 3X	H	11891	34	121.1
EU4	West Hemi	LHCP	6149	X3D4	Spot 3X	H	11929	34	121.1
EU5	West Hemi	LHCP	6130	X3D5	Spot 3X	H	11910	72	121.1
EU6	West Hemi	LHCP	6220	X3DC	Spot 3X	H	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	S3D1	Spot 1	V	11747.5	77	121.1
FU2	East Hemi	LHCP	6050	S3D2	Spot 1	V	11830	72	121.1
FU3	East Hemi	LHCP	6111	S3D3	Spot 1	V	11891	34	121.1
FU4	East Hemi	LHCP	6149	S3D4	Spot 1	V	11929	34	121.1
FU5	East Hemi	LHCP	6130	S3D5	Spot 1	V	11910	72	121.1
FU6	East Hemi	LHCP	6220	S3DC	Spot 1	V	11495	72	121.1
FU1	East Hemi	LHCP	5967.5	U3D1	Spot 2	H	11747.5	77	122.6
FU2	East Hemi	LHCP	6050	U3D2	Spot 2	H	11830	72	122.6
FU3	East Hemi	LHCP	6111	U3D3	Spot 2	H	11891	34	122.6
FU4	East Hemi	LHCP	6149	U3D4	Spot 2	H	11929	34	122.6
FU5	East Hemi	LHCP	6130	U3D5	Spot 2	H	11910	72	122.6
FU6	East Hemi	LHCP	6220	U3DC	Spot 2	H	11495	72	122.6
FU1	East Hemi	LHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	122.4
FU2	East Hemi	LHCP	6050	Y3D2	Spot 2A	H	11830	72	122.4
FU3	East Hemi	LHCP	6111	Y3D3	Spot 2A	H	11891	34	122.4
FU4	East Hemi	LHCP	6149	Y3D4	Spot 2A	H	11929	34	122.4
FU5	East Hemi	LHCP	6130	Y3D5	Spot 2A	H	11910	72	122.4
FU6	East Hemi	LHCP	6220	Y3DC	Spot 2A	H	11495	72	122.4
FU1	East Hemi	LHCP	5967.5	W3D1	Spot 3	V	11747.5	77	119.5
FU2	East Hemi	LHCP	6050	W3D2	Spot 3	V	11830	72	119.5
FU3	East Hemi	LHCP	6111	W3D3	Spot 3	V	11891	34	119.5
FU4	East Hemi	LHCP	6149	W3D4	Spot 3	V	11929	34	119.5
FU5	East Hemi	LHCP	6130	W3D5	Spot 3	V	11910	72	119.5
FU6	East Hemi	LHCP	6220	W3DC	Spot 3	V	11495	72	119.5
FU1	East Hemi	LHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	119.5
FU2	East Hemi	LHCP	6050	X3D2	Spot 3X	H	11830	72	119.5
FU3	East Hemi	LHCP	6111	X3D3	Spot 3X	H	11891	34	119.5
FU4	East Hemi	LHCP	6149	X3D4	Spot 3X	H	11929	34	119.5
FU5	East Hemi	LHCP	6130	X3D5	Spot 3X	H	11910	72	119.5
FU6	East Hemi	LHCP	6220	X3DC	Spot 3X	H	11495	72	119.5
GU1	NW Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	120.4
GU2	NW Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	120.4
GU3	NW Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	120.4
GU4	NW Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	120.4
GU5	NW Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	120.4
GU6	NW Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	120.4
GU1	NW Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	121.9
GU2	NW Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	121.9
GU3	NW Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	121.9
GU4	NW Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	121.9
GU5	NW Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	121.9

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)
GU6	NW Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	121.9
GU1	NW Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	121.7
GU2	NW Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	121.7
GU3	NW Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	121.7
GU4	NW Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	121.7
GU5	NW Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	121.7
GU6	NW Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	121.7
GU1	NW Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	118.8
GU2	NW Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	118.8
GU3	NW Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	118.8
GU4	NW Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	118.8
GU5	NW Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	118.8
GU6	NW Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	118.8
GU1	NW Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	118.8
GU2	NW Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	118.8
GU3	NW Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	118.8
GU4	NW Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	118.8
GU5	NW Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	118.8
GU6	NW Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	118.8
JU1	SE Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	118.2
JU2	SE Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	118.2
JU3	SE Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	118.2
JU4	SE Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	118.2
JU5	SE Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	118.2
JU6	SE Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	118.2
JU1	SE Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	119.7
JU2	SE Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	119.7
JU3	SE Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	119.7
JU4	SE Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	119.7
JU5	SE Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	119.7
JU6	SE Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	119.7
JU1	SE Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	119.5
JU2	SE Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	119.5
JU3	SE Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	119.5
JU4	SE Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	119.5
JU5	SE Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	119.5
JU6	SE Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	119.5
JU1	SE Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	116.6
JU2	SE Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	116.6
JU3	SE Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	116.6
JU4	SE Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	116.6
JU5	SE Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	116.6
JU6	SE Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	116.6
JU1	SE Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	116.6
JU2	SE Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	116.6
JU3	SE Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	116.6
JU4	SE Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	116.6
JU5	SE Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	116.6
JU6	SE Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	116.6
HU1	NE Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	119.2
HU2	NE Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	119.2
HU3	NE Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	119.2

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)
HU4	NE Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	119.2
HU5	NE Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	119.2
HU6	NE Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	119.2
HU1	NE Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	120.7
HU2	NE Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	120.7
HU3	NE Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	120.7
HU4	NE Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	120.7
HU5	NE Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	120.7
HU6	NE Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	120.7
HU1	NE Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	120.5
HU2	NE Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	120.5
HU3	NE Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	120.5
HU4	NE Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	120.5
HU5	NE Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	120.5
HU6	NE Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	120.5
HU1	NE Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	117.6
HU2	NE Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	117.6
HU3	NE Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	117.6
HU4	NE Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	117.6
HU5	NE Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	117.6
HU6	NE Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	117.6
HU1	NE Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	117.6
HU2	NE Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	117.6
HU3	NE Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	117.6
HU4	NE Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	117.6
HU5	NE Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	117.6
HU6	NE Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	117.6
IU1	SW Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	119.3
IU2	SW Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	119.3
IU3	SW Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	119.3
IU4	SW Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	119.3
IU5	SW Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	119.3
IU6	SW Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	119.3
IU1	SW Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	120.8
IU2	SW Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	120.8
IU3	SW Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	120.8
IU4	SW Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	120.8
IU5	SW Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	120.8
IU6	SW Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	120.8
IU1	SW Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	120.6
IU2	SW Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	120.6
IU3	SW Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	120.6
IU4	SW Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	120.6
IU5	SW Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	120.6
IU6	SW Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	120.6
IU1	SW Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	117.7
IU2	SW Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	117.7
IU3	SW Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	117.7
IU4	SW Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	117.7
IU5	SW Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	117.7
IU6	SW Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	117.7
IU1	SW Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	117.7

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)
IU2	SW Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	117.7
IU3	SW Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	117.7
IU4	SW Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	117.7
IU5	SW Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	117.7
IU6	SW Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	117.7
KU1	Combined NW+SE Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	123.0
KU2	Combined NW+SE Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	123.0
KU3	Combined NW+SE Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	123.0
KU4	Combined NW+SE Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	123.0
KU5	Combined NW+SE Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	123.0
KU6	Combined NW+SE Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	123.0
KU1	Combined NW+SE Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	124.5
KU2	Combined NW+SE Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	124.5
KU3	Combined NW+SE Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	124.5
KU4	Combined NW+SE Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	124.5
KU5	Combined NW+SE Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	124.5
KU6	Combined NW+SE Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	124.5
KU1	Combined NW+SE Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	124.3
KU2	Combined NW+SE Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	124.3
KU3	Combined NW+SE Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	124.3
KU4	Combined NW+SE Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	124.3
KU5	Combined NW+SE Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	124.3
KU6	Combined NW+SE Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	124.3
KU1	Combined NW+SE Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	121.4
KU3	Combined NW+SE Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	121.4
KU1	Combined NW+SE Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	121.4
KU2	Combined NW+SE Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	121.4
KU3	Combined NW+SE Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	121.4
KU4	Combined NW+SE Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	121.4
KU5	Combined NW+SE Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	121.4
KU6	Combined NW+SE Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	121.4
LU1	Combined NE+SW Zone	RHCP	5967.5	S3D1	Spot 1	V	11747.5	77	121.6
LU2	Combined NE+SW Zone	RHCP	6050	S3D2	Spot 1	V	11830	72	121.6
LU3	Combined NE+SW Zone	RHCP	6111	S3D3	Spot 1	V	11891	34	121.6
LU4	Combined NE+SW Zone	RHCP	6149	S3D4	Spot 1	V	11929	34	121.6
LU5	Combined NE+SW Zone	RHCP	6130	S3D5	Spot 1	V	11910	72	121.6
LU6	Combined NE+SW Zone	RHCP	6220	S3DC	Spot 1	V	11495	72	121.6
LU1	Combined NE+SW Zone	RHCP	5967.5	U3D1	Spot 2	H	11747.5	77	123.1
LU2	Combined NE+SW Zone	RHCP	6050	U3D2	Spot 2	H	11830	72	123.1
LU3	Combined NE+SW Zone	RHCP	6111	U3D3	Spot 2	H	11891	34	123.1
LU4	Combined NE+SW Zone	RHCP	6149	U3D4	Spot 2	H	11929	34	123.1
LU5	Combined NE+SW Zone	RHCP	6130	U3D5	Spot 2	H	11910	72	123.1
LU6	Combined NE+SW Zone	RHCP	6220	U3DC	Spot 2	H	11495	72	123.1
LU1	Combined NE+SW Zone	RHCP	5967.5	Y3D1	Spot 2A	H	11747.5	77	122.9
LU2	Combined NE+SW Zone	RHCP	6050	Y3D2	Spot 2A	H	11830	72	122.9
LU3	Combined NE+SW Zone	RHCP	6111	Y3D3	Spot 2A	H	11891	34	122.9
LU4	Combined NE+SW Zone	RHCP	6149	Y3D4	Spot 2A	H	11929	34	122.9
LU5	Combined NE+SW Zone	RHCP	6130	Y3D5	Spot 2A	H	11910	72	122.9
LU6	Combined NE+SW Zone	RHCP	6220	Y3DC	Spot 2A	H	11495	72	122.9

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)
LU1	Combined NE+SW Zone	RHCP	5967.5	W3D1	Spot 3	V	11747.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	W3D2	Spot 3	V	11830	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	W3D3	Spot 3	V	11891	34	120.0
LU4	Combined NE+SW Zone	RHCP	6149	W3D4	Spot 3	V	11929	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	W3D5	Spot 3	V	11910	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	W3DC	Spot 3	V	11495	72	120.0
LU1	Combined NE+SW Zone	RHCP	5967.5	X3D1	Spot 3X	H	11747.5	77	120.0
LU2	Combined NE+SW Zone	RHCP	6050	X3D2	Spot 3X	H	11830	72	120.0
LU3	Combined NE+SW Zone	RHCP	6111	X3D3	Spot 3X	H	11891	34	120.0
LU4	Combined NE+SW Zone	RHCP	6149	X3D4	Spot 3X	H	11929	34	120.0
LU5	Combined NE+SW Zone	RHCP	6130	X3D5	Spot 3X	H	11910	72	120.0
LU6	Combined NE+SW Zone	RHCP	6220	X3DC	Spot 3X	H	11495	72	120.0
SU1	Spot 1	H	14042.5	ED1	West Hemi	RHCP	3742.5	77	113.8
SU2	Spot 1	H	14125	ED2	West Hemi	RHCP	3825	72	113.8
SU3	Spot 1	H	14186	ED3	West Hemi	RHCP	3886	34	113.8
SU4	Spot 1	H	14224	ED4	West Hemi	RHCP	3924	34	113.8
SU5	Spot 1	H	14205	ED5	West Hemi	RHCP	3905	72	113.8
SUC	Spot 1	H	14295	ED6	West Hemi	RHCP	3995	72	113.8
SU1	Spot 1	H	14042.5	FD1	East Hemi	RHCP	3742.5	77	111.8
SU2	Spot 1	H	14125	FD2	East Hemi	RHCP	3825	72	111.8
SU3	Spot 1	H	14186	FD3	East Hemi	RHCP	3886	34	111.8
SU4	Spot 1	H	14224	FD4	East Hemi	RHCP	3924	34	111.8
SU5	Spot 1	H	14205	FD5	East Hemi	RHCP	3905	72	111.8
SUC	Spot 1	H	14295	FD6	East Hemi	RHCP	3995	72	111.8
SU1	Spot 1	H	14042.5	GD1	NW Zone	LHCP	3742.5	77	110.5
SU2	Spot 1	H	14125	GD2	NW Zone	LHCP	3825	72	110.5
SU3	Spot 1	H	14186	GD3	NW Zone	LHCP	3886	34	110.5
SU4	Spot 1	H	14224	GD4	NW Zone	LHCP	3924	34	110.5
SU5	Spot 1	H	14205	GD5	NW Zone	LHCP	3905	72	110.5
SUC	Spot 1	H	14295	GD6	NW Zone	LHCP	3995	72	110.5
SU1	Spot 1	H	14042.5	JD1	SE Zone	LHCP	3742.5	77	111.4
SU2	Spot 1	H	14125	JD2	SE Zone	LHCP	3825	72	111.4
SU3	Spot 1	H	14186	JD3	SE Zone	LHCP	3886	34	111.4
SU4	Spot 1	H	14224	JD4	SE Zone	LHCP	3924	34	111.4
SU5	Spot 1	H	14205	JD5	SE Zone	LHCP	3905	72	111.4
SUC	Spot 1	H	14295	JD6	SE Zone	LHCP	3995	72	111.4
SU1	Spot 1	H	14042.5	HD1	NE Zone	LHCP	3742.5	77	109.1
SU2	Spot 1	H	14125	HD2	NE Zone	LHCP	3825	72	109.1
SU3	Spot 1	H	14186	HD3	NE Zone	LHCP	3886	34	109.1
SU4	Spot 1	H	14224	HD4	NE Zone	LHCP	3924	34	109.1
SU5	Spot 1	H	14205	HD5	NE Zone	LHCP	3905	72	109.1
SUC	Spot 1	H	14295	HD6	NE Zone	LHCP	3995	72	109.1
SU1	Spot 1	H	14042.5	ID1	SW Zone	LHCP	3742.5	77	109.8
SU2	Spot 1	H	14125	ID2	SW Zone	LHCP	3825	72	109.8
SU3	Spot 1	H	14186	ID3	SW Zone	LHCP	3886	34	109.8
SU4	Spot 1	H	14224	ID4	SW Zone	LHCP	3924	34	109.8
SU5	Spot 1	H	14205	ID5	SW Zone	LHCP	3905	72	109.8
SUC	Spot 1	H	14295	ID6	SW Zone	LHCP	3995	72	109.8
UU1	Spot 2	V	14042.5	ED1	West Hemi	RHCP	3742.5	77	116.5
UU2	Spot 2	V	14125	ED2	West Hemi	RHCP	3825	72	116.5
UU3	Spot 2	V	14186	ED3	West Hemi	RHCP	3886	34	116.5
UU4	Spot 2	V	14224	ED4	West Hemi	RHCP	3924	34	116.5

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)
UU5	Spot 2	V	14205	ED5	West Hemi	RHCP	3905	72	116.5
UUC	Spot 2	V	14295	ED6	West Hemi	RHCP	3995	72	116.5
UU1	Spot 2	V	14042.5	FD1	East Hemi	RHCP	3742.5	77	114.5
UU2	Spot 2	V	14125	FD2	East Hemi	RHCP	3825	72	114.5
UU3	Spot 2	V	14186	FD3	East Hemi	RHCP	3886	34	114.5
UU4	Spot 2	V	14224	FD4	East Hemi	RHCP	3924	34	114.5
UU5	Spot 2	V	14205	FD5	East Hemi	RHCP	3905	72	114.5
UUC	Spot 2	V	14295	FD6	East Hemi	RHCP	3995	72	114.5
UU1	Spot 2	V	14042.5	GD1	NW Zone	LHCP	3742.5	77	113.2
UU2	Spot 2	V	14125	GD2	NW Zone	LHCP	3825	72	113.2
UU3	Spot 2	V	14186	GD3	NW Zone	LHCP	3886	34	113.2
UU4	Spot 2	V	14224	GD4	NW Zone	LHCP	3924	34	113.2
UU5	Spot 2	V	14205	GD5	NW Zone	LHCP	3905	72	113.2
UUC	Spot 2	V	14295	GD6	NW Zone	LHCP	3995	72	113.2
UU1	Spot 2	V	14042.5	JD1	SE Zone	LHCP	3742.5	77	114.1
UU2	Spot 2	V	14125	JD2	SE Zone	LHCP	3825	72	114.1
UU3	Spot 2	V	14186	JD3	SE Zone	LHCP	3886	34	114.1
UU4	Spot 2	V	14224	JD4	SE Zone	LHCP	3924	34	114.1
UU5	Spot 2	V	14205	JD5	SE Zone	LHCP	3905	72	114.1
UUC	Spot 2	V	14295	JD6	SE Zone	LHCP	3995	72	114.1
UU1	Spot 2	V	14042.5	HD1	NE Zone	LHCP	3742.5	77	111.8
UU2	Spot 2	V	14125	HD2	NE Zone	LHCP	3825	72	111.8
UU3	Spot 2	V	14186	HD3	NE Zone	LHCP	3886	34	111.8
UU4	Spot 2	V	14224	HD4	NE Zone	LHCP	3924	34	111.8
UU5	Spot 2	V	14205	HD5	NE Zone	LHCP	3905	72	111.8
UUC	Spot 2	V	14295	HD6	NE Zone	LHCP	3995	72	111.8
UU1	Spot 2	V	14042.5	ID1	SW Zone	LHCP	3742.5	77	112.5
UU2	Spot 2	V	14125	ID2	SW Zone	LHCP	3825	72	112.5
UU3	Spot 2	V	14186	ID3	SW Zone	LHCP	3886	34	112.5
UU4	Spot 2	V	14224	ID4	SW Zone	LHCP	3924	34	112.5
UU5	Spot 2	V	14205	ID5	SW Zone	LHCP	3905	72	112.5
UUC	Spot 2	V	14295	ID6	SW Zone	LHCP	3995	72	112.5
YU1	Spot 2A	V	14042.5	ED1	West Hemi	RHCP	3742.5	77	118.5
YU2	Spot 2A	V	14125	ED2	West Hemi	RHCP	3825	72	118.5
YU3	Spot 2A	V	14186	ED3	West Hemi	RHCP	3886	34	118.5
YU4	Spot 2A	V	14224	ED4	West Hemi	RHCP	3924	34	118.5
YU5	Spot 2A	V	14205	ED5	West Hemi	RHCP	3905	72	118.5
YUC	Spot 2A	V	14295	ED6	West Hemi	RHCP	3995	72	118.5
YU1	Spot 2A	V	14042.5	FD1	East Hemi	RHCP	3742.5	77	116.5
YU2	Spot 2A	V	14125	FD2	East Hemi	RHCP	3825	72	116.5
YU3	Spot 2A	V	14186	FD3	East Hemi	RHCP	3886	34	116.5
YU4	Spot 2A	V	14224	FD4	East Hemi	RHCP	3924	34	116.5
YU5	Spot 2A	V	14205	FD5	East Hemi	RHCP	3905	72	116.5
YUC	Spot 2A	V	14295	FD6	East Hemi	RHCP	3995	72	116.5
YU1	Spot 2A	V	14042.5	GD1	NW Zone	LHCP	3742.5	77	115.2
YU2	Spot 2A	V	14125	GD2	NW Zone	LHCP	3825	72	115.2
YU3	Spot 2A	V	14186	GD3	NW Zone	LHCP	3886	34	115.2
YU4	Spot 2A	V	14224	GD4	NW Zone	LHCP	3924	34	115.2
YU5	Spot 2A	V	14205	GD5	NW Zone	LHCP	3905	72	115.2
YUC	Spot 2A	V	14295	GD6	NW Zone	LHCP	3995	72	115.2
YU1	Spot 2A	V	14042.5	JD1	SE Zone	LHCP	3742.5	77	116.1
YU2	Spot 2A	V	14125	JD2	SE Zone	LHCP	3825	72	116.1

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)
YU3	Spot 2A	V	14186	JD3	SE Zone	LHCP	3886	34	116.1
YU4	Spot 2A	V	14224	JD4	SE Zone	LHCP	3924	34	116.1
YU5	Spot 2A	V	14205	JD5	SE Zone	LHCP	3905	72	116.1
YUC	Spot 2A	V	14295	JD6	SE Zone	LHCP	3995	72	116.1
YU1	Spot 2A	V	14042.5	HD1	NE Zone	LHCP	3742.5	77	113.8
YU2	Spot 2A	V	14125	HD2	NE Zone	LHCP	3825	72	113.8
YU3	Spot 2A	V	14186	HD3	NE Zone	LHCP	3886	34	113.8
YU4	Spot 2A	V	14224	HD4	NE Zone	LHCP	3924	34	113.8
YU5	Spot 2A	V	14205	HD5	NE Zone	LHCP	3905	72	113.8
YUC	Spot 2A	V	14295	HD6	NE Zone	LHCP	3995	72	113.8
YU1	Spot 2A	V	14042.5	ID1	SW Zone	LHCP	3742.5	77	114.5
YU2	Spot 2A	V	14125	ID2	SW Zone	LHCP	3825	72	114.5
YU3	Spot 2A	V	14186	ID3	SW Zone	LHCP	3886	34	114.5
YU4	Spot 2A	V	14224	ID4	SW Zone	LHCP	3924	34	114.5
YU5	Spot 2A	V	14205	ID5	SW Zone	LHCP	3905	72	114.5
YUC	Spot 2A	V	14295	ID6	SW Zone	LHCP	3995	72	114.5
WU1	Spot 3	H	14042.5	ED1	West Hemi	RHCP	3742.5	77	117.0
WU2	Spot 3	H	14125	ED2	West Hemi	RHCP	3825	72	117.0
WU3	Spot 3	H	14186	ED3	West Hemi	RHCP	3886	34	117.0
WU4	Spot 3	H	14224	ED4	West Hemi	RHCP	3924	34	117.0
WU5	Spot 3	H	14205	ED5	West Hemi	RHCP	3905	72	117.0
WUC	Spot 3	H	14295	ED6	West Hemi	RHCP	3995	72	117.0
WU1	Spot 3	H	14042.5	FD1	East Hemi	RHCP	3742.5	77	115.0
WU2	Spot 3	H	14125	FD2	East Hemi	RHCP	3825	72	115.0
WU3	Spot 3	H	14186	FD3	East Hemi	RHCP	3886	34	115.0
WU4	Spot 3	H	14224	FD4	East Hemi	RHCP	3924	34	115.0
WU5	Spot 3	H	14205	FD5	East Hemi	RHCP	3905	72	115.0
WUC	Spot 3	H	14295	FD6	East Hemi	RHCP	3995	72	115.0
WU1	Spot 3	H	14042.5	GD1	NW Zone	LHCP	3742.5	77	113.7
WU2	Spot 3	H	14125	GD2	NW Zone	LHCP	3825	72	113.7
WU3	Spot 3	H	14186	GD3	NW Zone	LHCP	3886	34	113.7
WU4	Spot 3	H	14224	GD4	NW Zone	LHCP	3924	34	113.7
WU5	Spot 3	H	14205	GD5	NW Zone	LHCP	3905	72	113.7
WUC	Spot 3	H	14295	GD6	NW Zone	LHCP	3995	72	113.7
WU1	Spot 3	H	14042.5	JD1	SE Zone	LHCP	3742.5	77	114.6
WU2	Spot 3	H	14125	JD2	SE Zone	LHCP	3825	72	114.6
WU3	Spot 3	H	14186	JD3	SE Zone	LHCP	3886	34	114.6
WU4	Spot 3	H	14224	JD4	SE Zone	LHCP	3924	34	114.6
WU5	Spot 3	H	14205	JD5	SE Zone	LHCP	3905	72	114.6
WUC	Spot 3	H	14295	JD6	SE Zone	LHCP	3995	72	114.6
WU1	Spot 3	H	14042.5	HD1	NE Zone	LHCP	3742.5	77	112.3
WU2	Spot 3	H	14125	HD2	NE Zone	LHCP	3825	72	112.3
WU3	Spot 3	H	14186	HD3	NE Zone	LHCP	3886	34	112.3
WU4	Spot 3	H	14224	HD4	NE Zone	LHCP	3924	34	112.3
WU5	Spot 3	H	14205	HD5	NE Zone	LHCP	3905	72	112.3
WUC	Spot 3	H	14295	HD6	NE Zone	LHCP	3995	72	112.3
WU1	Spot 3	H	14042.5	ID1	SW Zone	LHCP	3742.5	77	113.0
WU2	Spot 3	H	14125	ID2	SW Zone	LHCP	3825	72	113.0
WU3	Spot 3	H	14186	ID3	SW Zone	LHCP	3886	34	113.0
WU4	Spot 3	H	14224	ID4	SW Zone	LHCP	3924	34	113.0
WU5	Spot 3	H	14205	ID5	SW Zone	LHCP	3905	72	113.0
WUC	Spot 3	H	14295	ID6	SW Zone	LHCP	3995	72	113.0

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)
XU1	Spot 3X	V	14042.5	ED1	West Hemi	RHCP	3742.5	77	117.0
XU2	Spot 3X	V	14125	ED2	West Hemi	RHCP	3825	72	117.0
XU3	Spot 3X	V	14186	ED3	West Hemi	RHCP	3886	34	117.0
XU4	Spot 3X	V	14224	ED4	West Hemi	RHCP	3924	34	117.0
XU5	Spot 3X	V	14205	ED5	West Hemi	RHCP	3905	72	117.0
XUC	Spot 3X	V	14295	ED6	West Hemi	RHCP	3995	72	117.0
XU1	Spot 3X	V	14042.5	FD1	East Hemi	RHCP	3742.5	77	115.0
XU2	Spot 3X	V	14125	FD2	East Hemi	RHCP	3825	72	115.0
XU3	Spot 3X	V	14186	FD3	East Hemi	RHCP	3886	34	115.0
XU4	Spot 3X	V	14224	FD4	East Hemi	RHCP	3924	34	115.0
XU5	Spot 3X	V	14205	FD5	East Hemi	RHCP	3905	72	115.0
XUC	Spot 3X	V	14295	FD6	East Hemi	RHCP	3995	72	115.0
XU1	Spot 3X	V	14042.5	GD1	NW Zone	LHCP	3742.5	77	113.7
XU2	Spot 3X	V	14125	GD2	NW Zone	LHCP	3825	72	113.7
XU3	Spot 3X	V	14186	GD3	NW Zone	LHCP	3886	34	113.7
XU4	Spot 3X	V	14224	GD4	NW Zone	LHCP	3924	34	113.7
XU5	Spot 3X	V	14205	GD5	NW Zone	LHCP	3905	72	113.7
XUC	Spot 3X	V	14295	GD6	NW Zone	LHCP	3995	72	113.7
XU1	Spot 3X	V	14042.5	JD1	SE Zone	LHCP	3742.5	77	114.6
XU2	Spot 3X	V	14125	JD2	SE Zone	LHCP	3825	72	114.6
XU3	Spot 3X	V	14186	JD3	SE Zone	LHCP	3886	34	114.6
XU4	Spot 3X	V	14224	JD4	SE Zone	LHCP	3924	34	114.6
XU5	Spot 3X	V	14205	JD5	SE Zone	LHCP	3905	72	114.6
XUC	Spot 3X	V	14295	JD6	SE Zone	LHCP	3995	72	114.6
XU1	Spot 3X	V	14042.5	HD1	NE Zone	LHCP	3742.5	77	112.3
XU2	Spot 3X	V	14125	HD2	NE Zone	LHCP	3825	72	112.3
XU3	Spot 3X	V	14186	HD3	NE Zone	LHCP	3886	34	112.3
XU4	Spot 3X	V	14224	HD4	NE Zone	LHCP	3924	34	112.3
XU5	Spot 3X	V	14205	HD5	NE Zone	LHCP	3905	72	112.3
XUC	Spot 3X	V	14295	HD6	NE Zone	LHCP	3995	72	112.3
XU1	Spot 3X	V	14042.5	ID1	SW Zone	LHCP	3742.5	77	113.0
XU2	Spot 3X	V	14125	ID2	SW Zone	LHCP	3825	72	113.0
XU3	Spot 3X	V	14186	ID3	SW Zone	LHCP	3886	34	113.0
XU4	Spot 3X	V	14224	ID4	SW Zone	LHCP	3924	34	113.0
XU5	Spot 3X	V	14205	ID5	SW Zone	LHCP	3905	72	113.0
XUC	Spot 3X	V	14295	ID6	SW Zone	LHCP	3995	72	113.0
WUD	Spot 3	H	14477.5	ADD	Global A	RHCP	4177.5	41	117.3
WUD	Spot 3	H	14477.5	BDD	Global B	LHCP	4177.5	41	117.3
WUD	Spot 3	H	14477.5	CDD	C-Spot A	RHCP	4177.5	41	117.1
WUD	Spot 3	H	14477.5	DDD	C-Spot B	LHCP	4177.5	41	117.3
XUD	Spot 3X	V	14477.5	ADD	Global A	RHCP	4177.5	41	117.3
XUD	Spot 3X	V	14477.5	BDD	Global B	LHCP	4177.5	41	117.3
XUD	Spot 3X	V	14477.5	CDD	C-Spot A	RHCP	4177.5	41	117.1
XUD	Spot 3X	V	14477.5	DDD	C-Spot B	LHCP	4177.5	41	117.3
CMD1	Global	LHCP	6173.7					1.0	
CMD2	Global	LHCP	6176.3					1.0	

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)
				TM1	Global	RHCP	3947.5	0.5	
				TM2	Global	RHCP	3952.5	0.5	
				TM3	Global	RHCP	3948	0.5	
				TM4	Global	RHCP	3952	0.5	
				BN1	Global	V	3950	0.025	
				BN2	Global	RHCP	11198	0.025	
				BN3	Global	RHCP	11452	0.025	
				BN4	Spot 1	V	11701	0.025	
				BN5	Spot 1X	H	11701	0.025	
				BN6	Spot 2	H	11701	0.025	
				BN7	Spot 2X	V	11701	0.025	
				BN8	Spot 3	V	11701	0.025	
				BN9	Spot 3X	H	11701	0.025	
				BN10	Spot 1	V	12501	0.025	
				BN11	Spot 1X	H	12501	0.025	
				BN12	Spot 2	H	12501	0.025	
				BN13	Spot 2X	V	12501	0.025	
				BN14	Spot 3	V	12501	0.025	
				BN15	Spot 3X	H	12501	0.025	

Note:
Polarization Designations
H: Linear horizontal polarization
V: Linear vertical polarization
RHCP: Right hand circular polarization
LHCP: Left hand circular polarization

Exhibit 2-1: Global A Uplink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 20.3 dBi

Peak G/T: -7.5 dB/K

Saturated Flux Density @ Peak G/T: -90.4 to -76.4 dBW/m²

[Schedule S Beam Designation: GAUL]

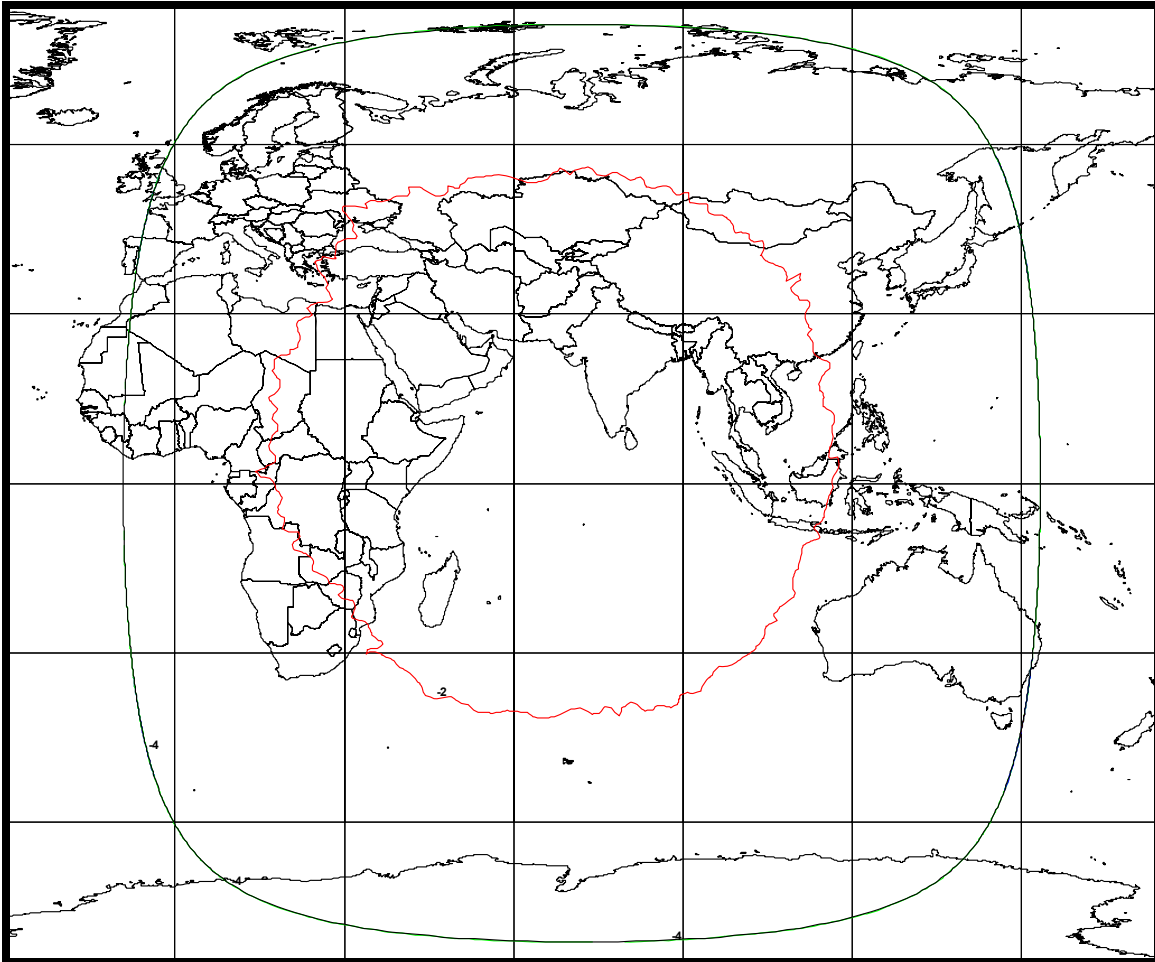


Exhibit 2-2: Global B Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 20.3 dBi

Peak G/T: -7.5 dB/K

Saturated Flux Density @ Peak G/T: -91.1 to -77.1 dBW/m²

[Schedule S Beam Designation: GBUL]

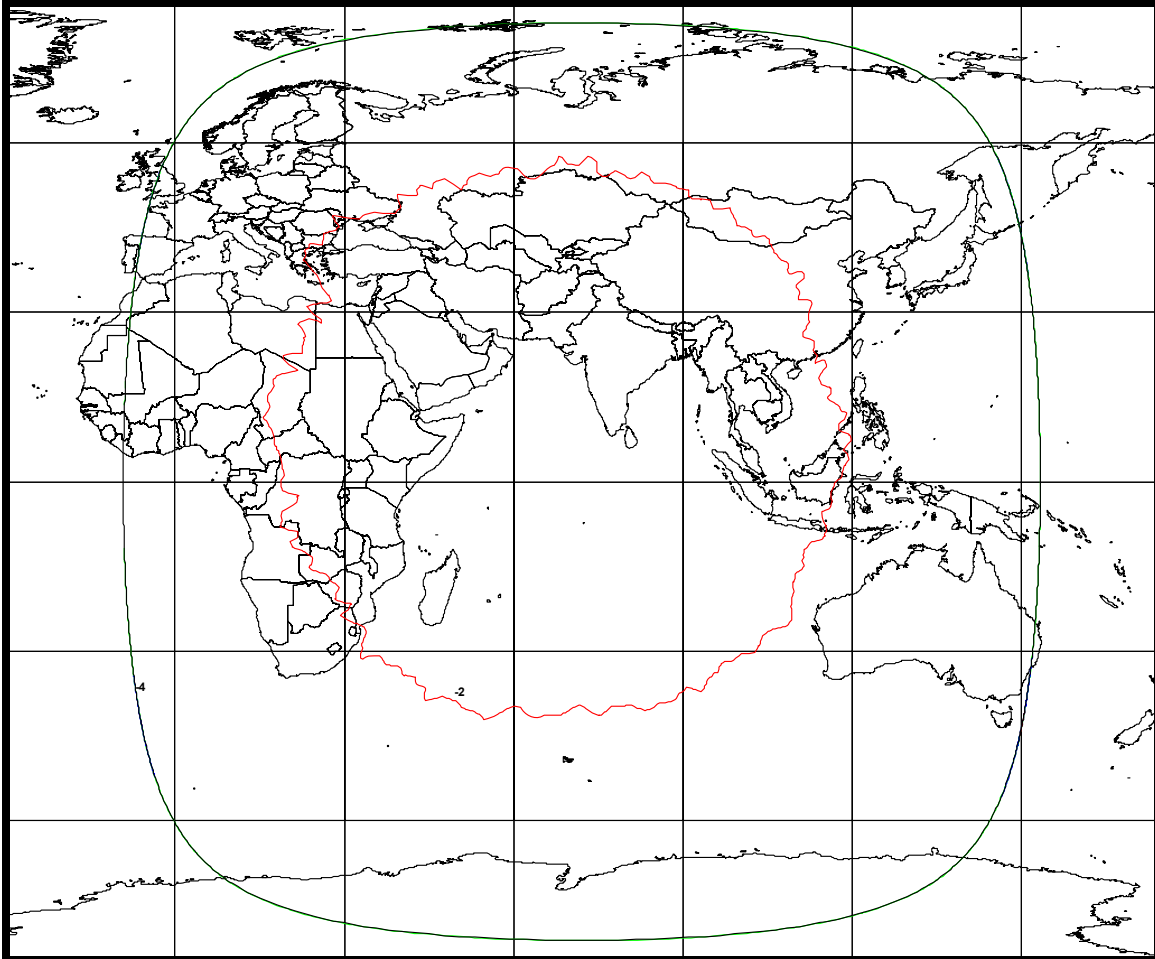


Exhibit 2-3: West Hemi Uplink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 24.1 dBi

Peak G/T: -3.5 dB/K

Saturated Flux Density @ Peak G/T: -91.5 to -77.5 dBW/m²

[Schedule S Beam Designation: WHUL]

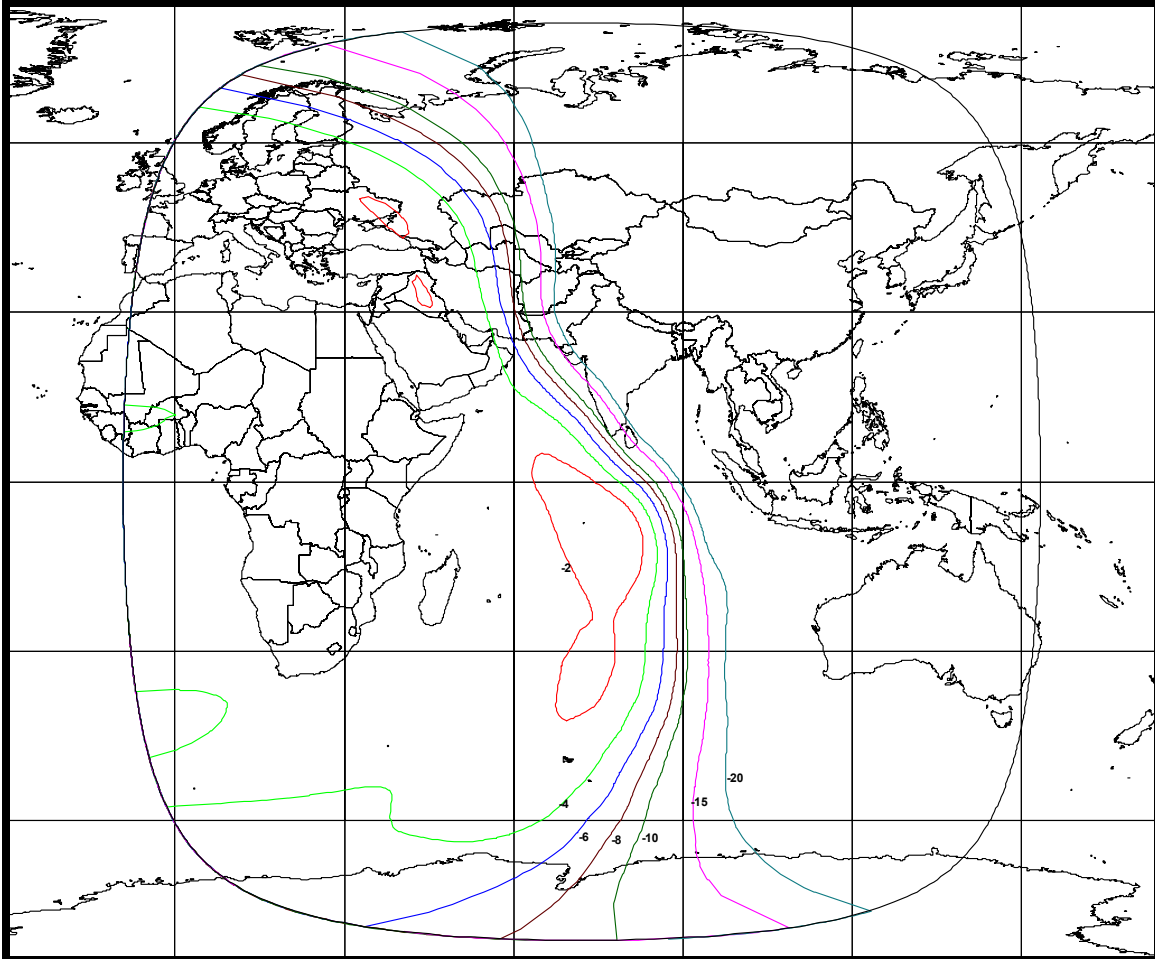


Exhibit 2-4: East Hemi Uplink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 25.6 dBi

Peak G/T: -1.5 dB/K

Saturated Flux Density @ Peak G/T: -91.4 to -77.4 dBW/m²

[Schedule S Beam Designation: EHUL]

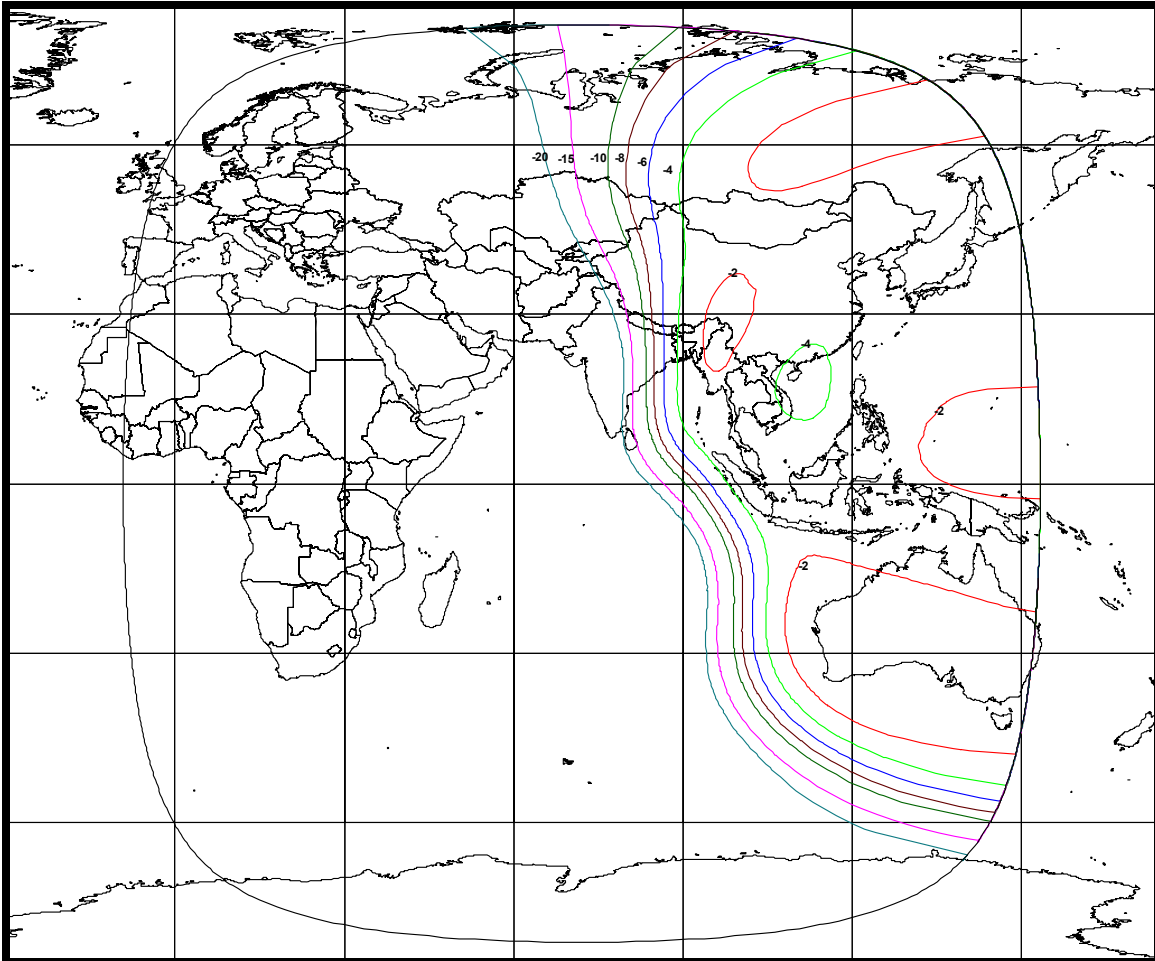


Exhibit 2-5: Northwest Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 26.8 dBi

Peak G/T: -0.5 dB/K

Saturated Flux Density @ Peak G/T: -91.9 to -77.9 dBW/m²

[Schedule S Beam Designation: NWUL]

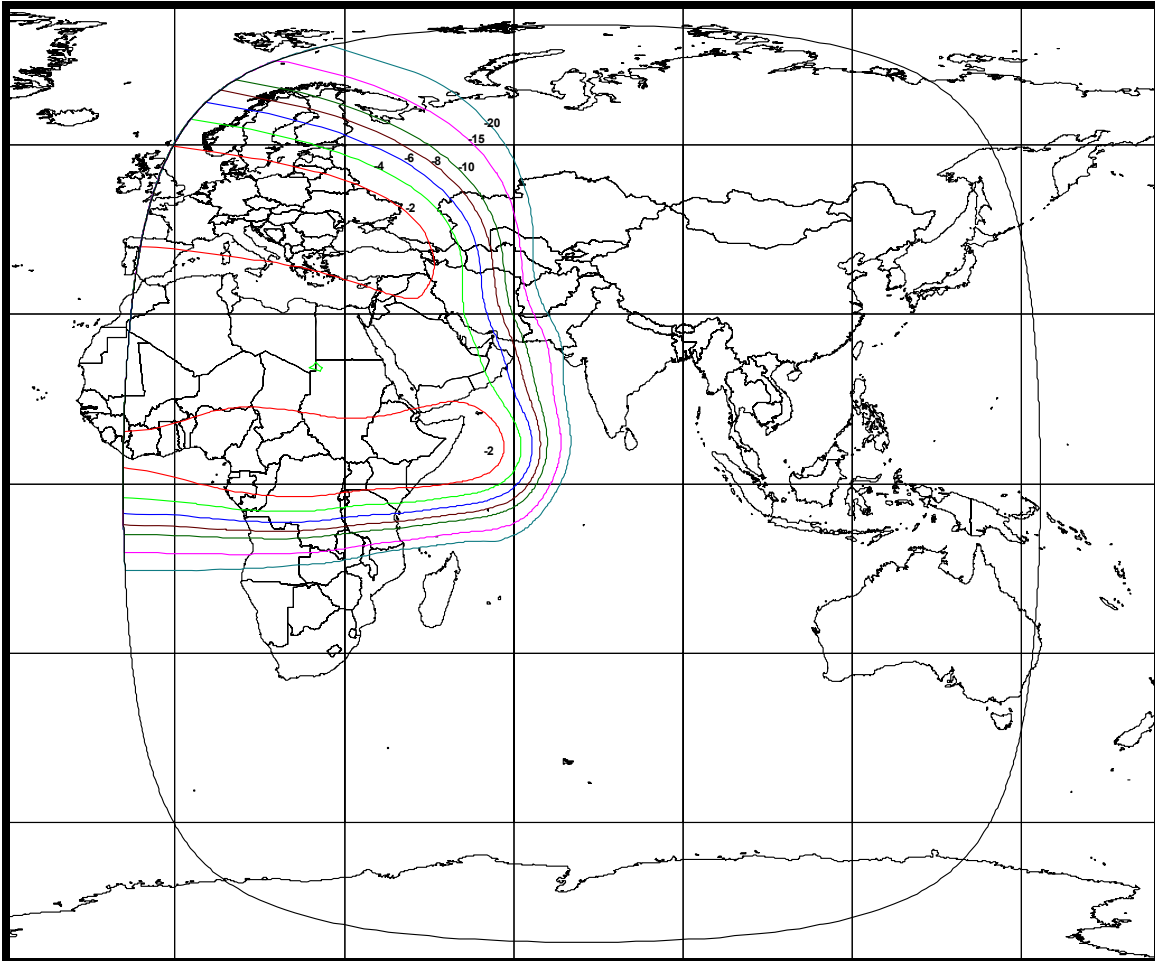


Exhibit 2-6: Northeast Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 28.3 dBi

Peak G/T: 1.0 dB/K

Saturated Flux Density @ Peak G/T: -92.2 to -78.2 dBW/m²

[Schedule S Beam Designation: NEUL]

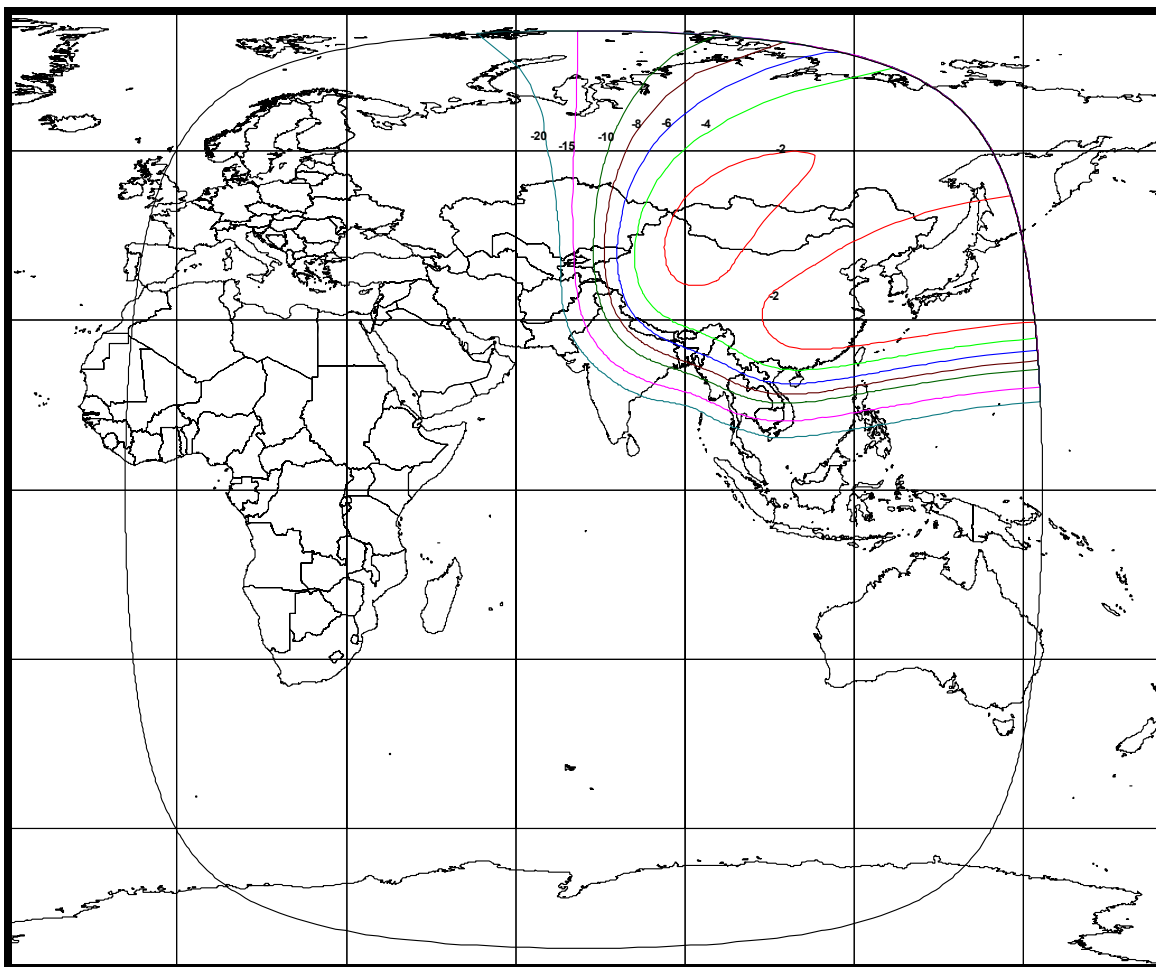


Exhibit 2-7: Southwest Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 28.0 dBi

Peak G/T: 0.5 dB/K

Saturated Flux Density @ Peak G/T: -92.0 to -78.0 dBW/m²

[Schedule S Beam Designation: SWUL]

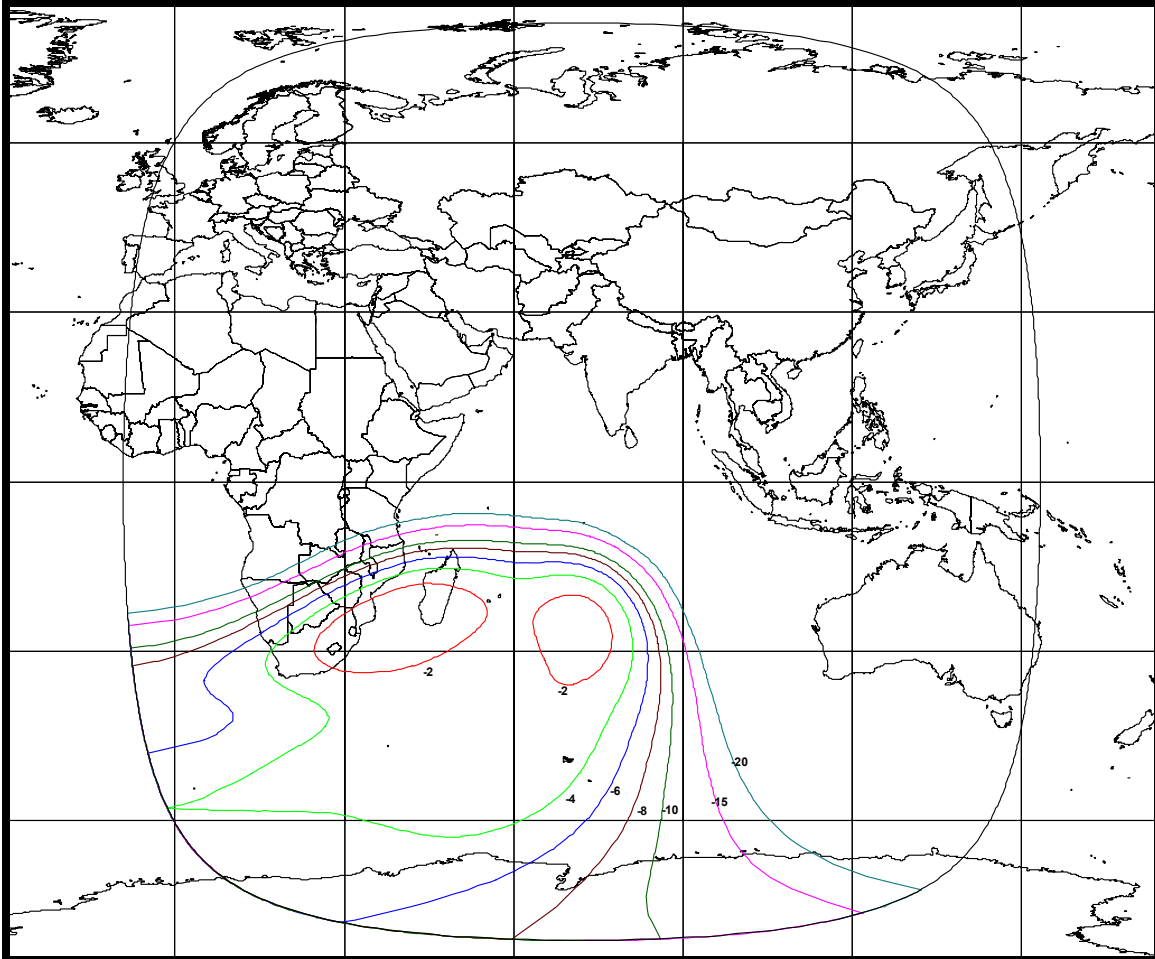


Exhibit 2-8: Southeast Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 27.0 dBi

Peak G/T: -0.5 dB/K

Saturated Flux Density @ Peak G/T: -89.9 to -75.9 dBW/m²

[Schedule S Beam Designation: SEUL]

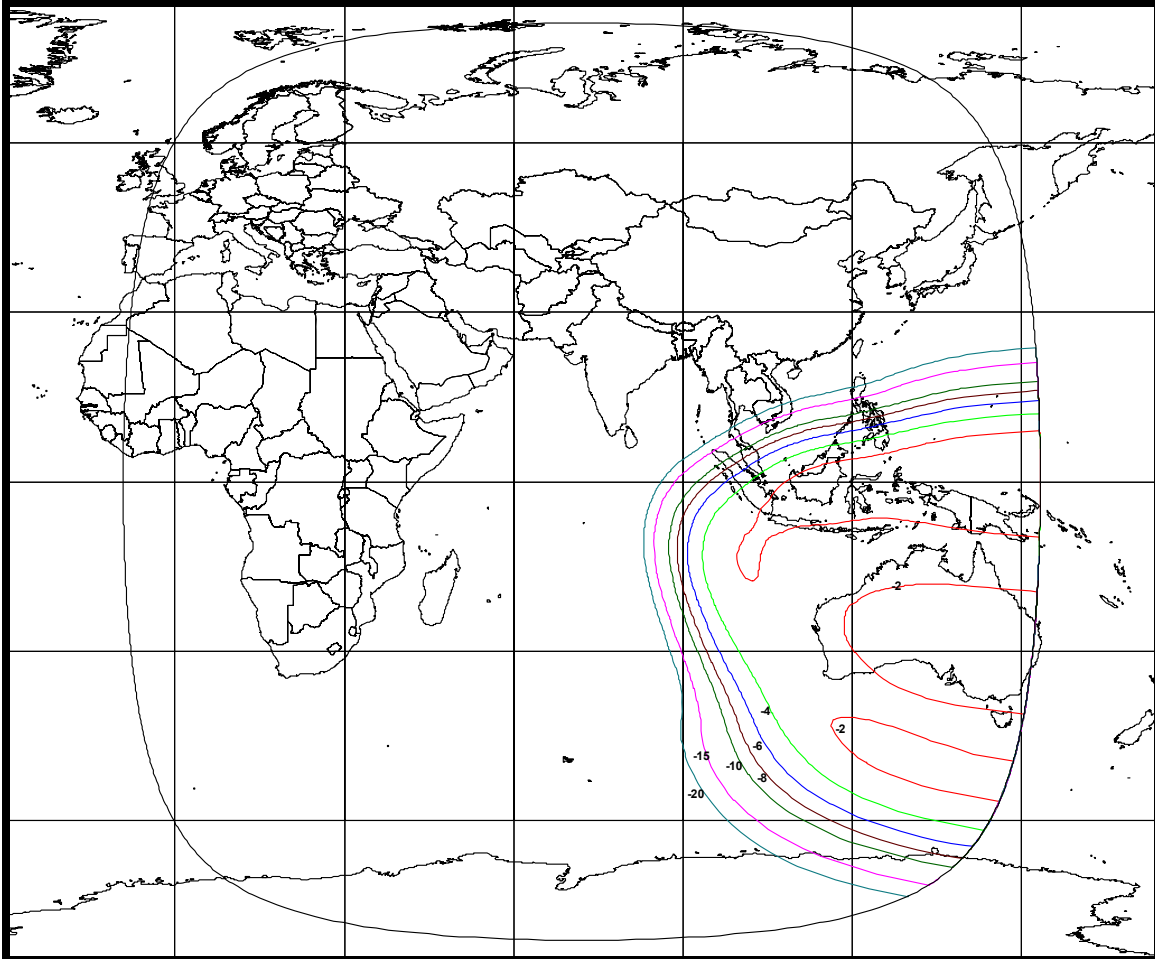


Exhibit 2-9: Combined Northwest and Southeast Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 23.9 dBi

Peak G/T: -4.0 dB/K

Saturated Flux Density @ Peak G/T: -91.6 to -77.6 dBW/m²

[Schedule S Beam Designation: X1UL]

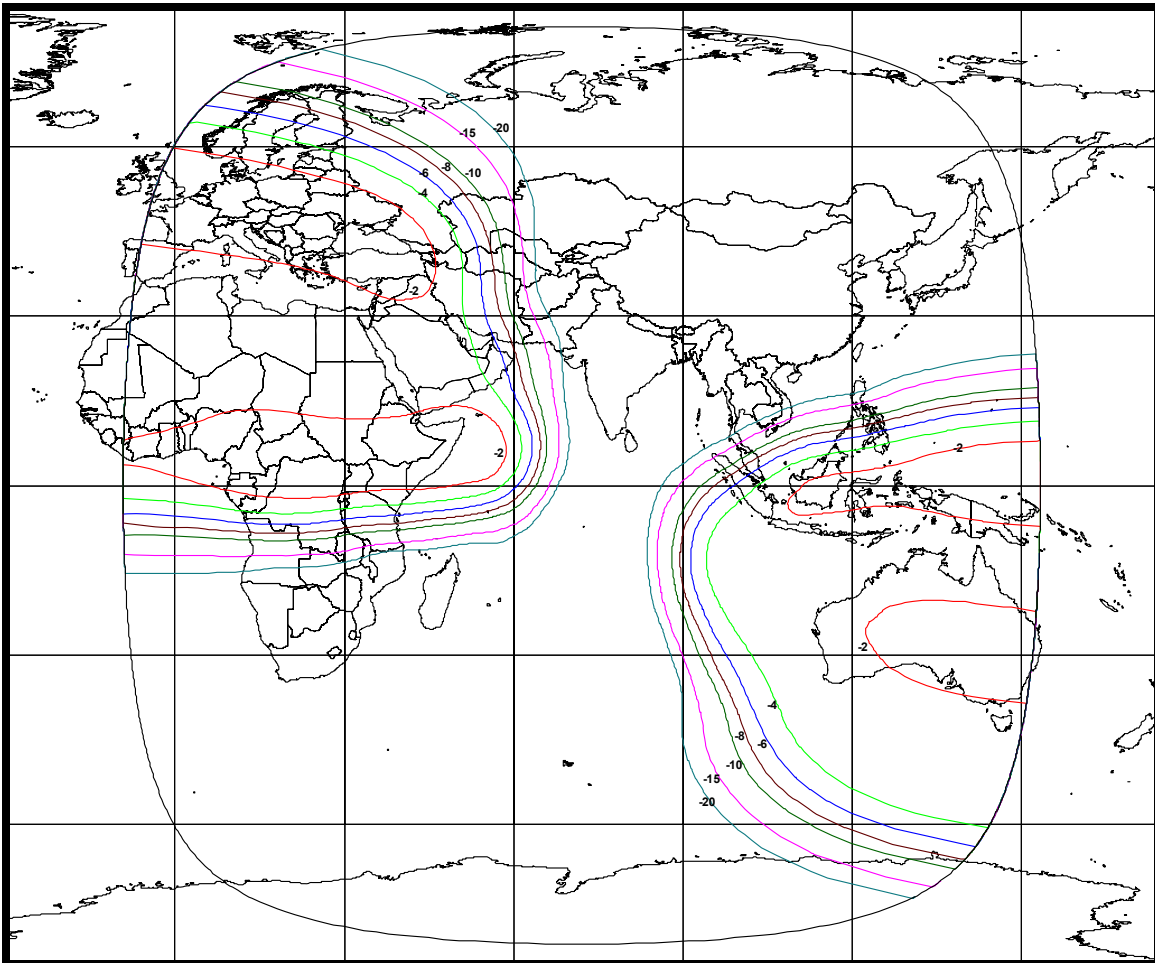


Exhibit 2-10: Combined Northeast and Southwest Zone Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 24.9 dBi

Peak G/T: -2.5 dB/K

Saturated Flux Density @ Peak G/T: -91.2 to -77.2 dBW/m²

[Schedule S Beam Designation: X2UL]

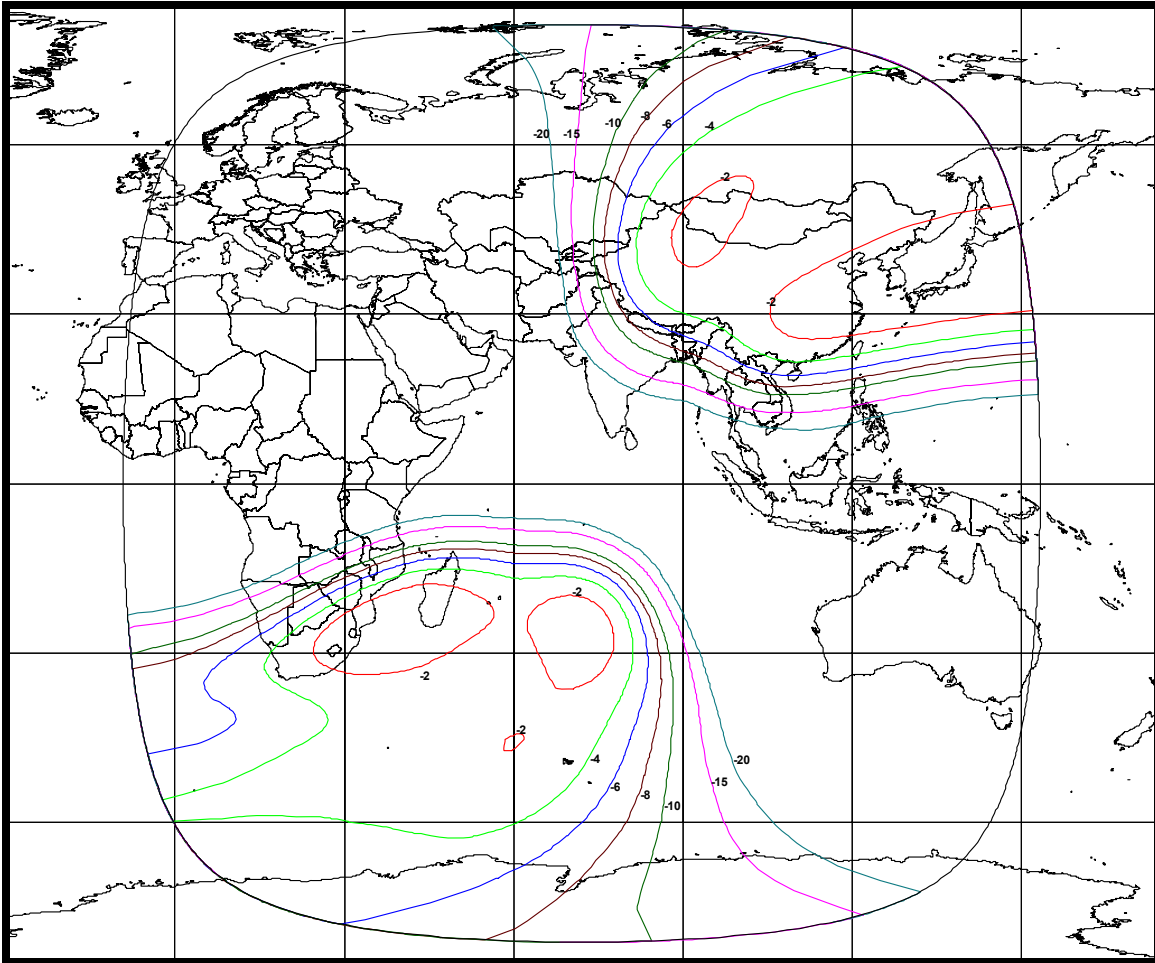


Exhibit 2-11: C-Spot A Uplink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 30.3 dBi

Peak G/T: 2.5 dB/K

Saturated Flux Density @ Peak G/T: -93.1 to -79.1 dBW/m²

[Schedule S Beam Designation: CAUL]

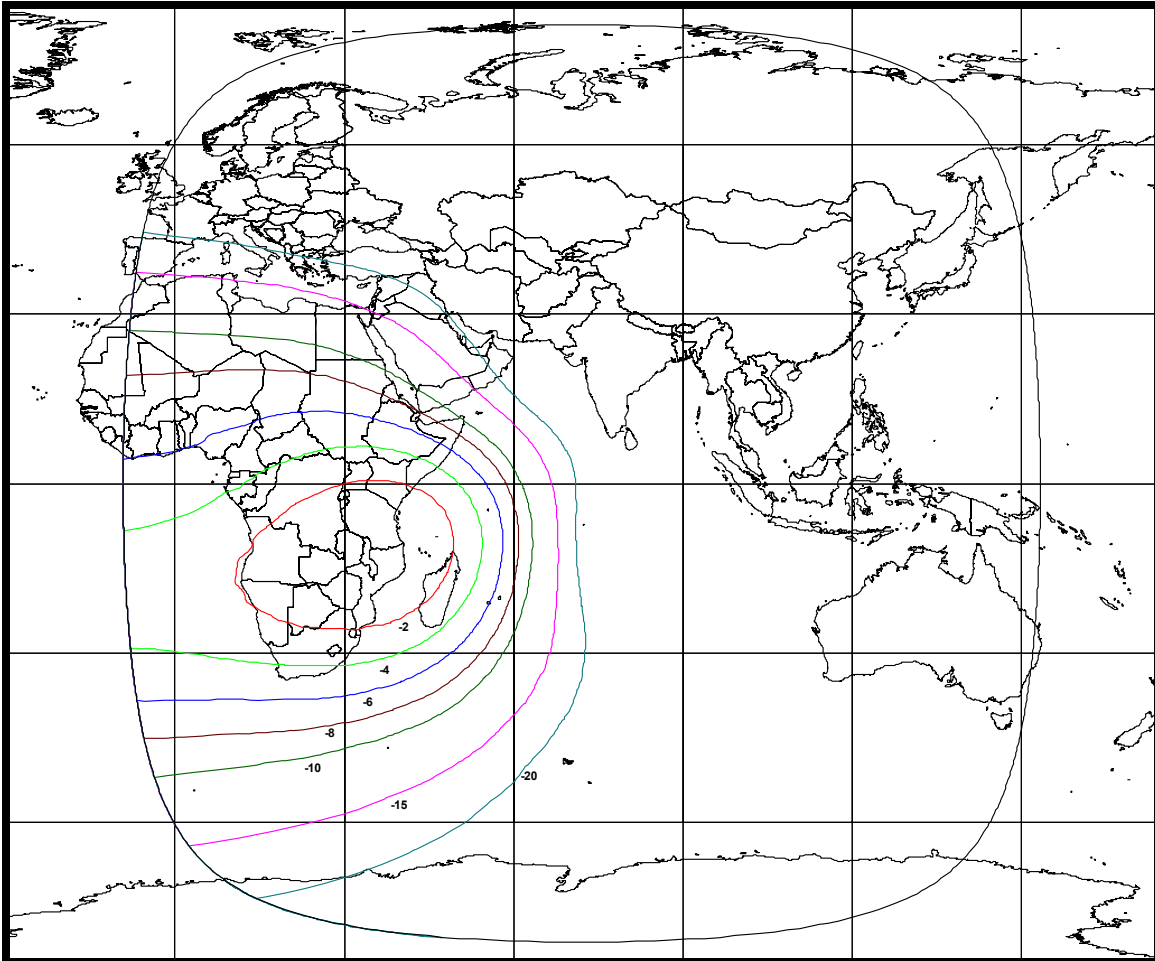


Exhibit 2-12: C-Spot B Uplink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 30.3 dBi

Peak G/T: 3.0 dB/K

Saturated Flux Density @ Peak G/T: -92.7 to -78.7 dBW/m²

[Schedule S Beam Designation: CBUL]

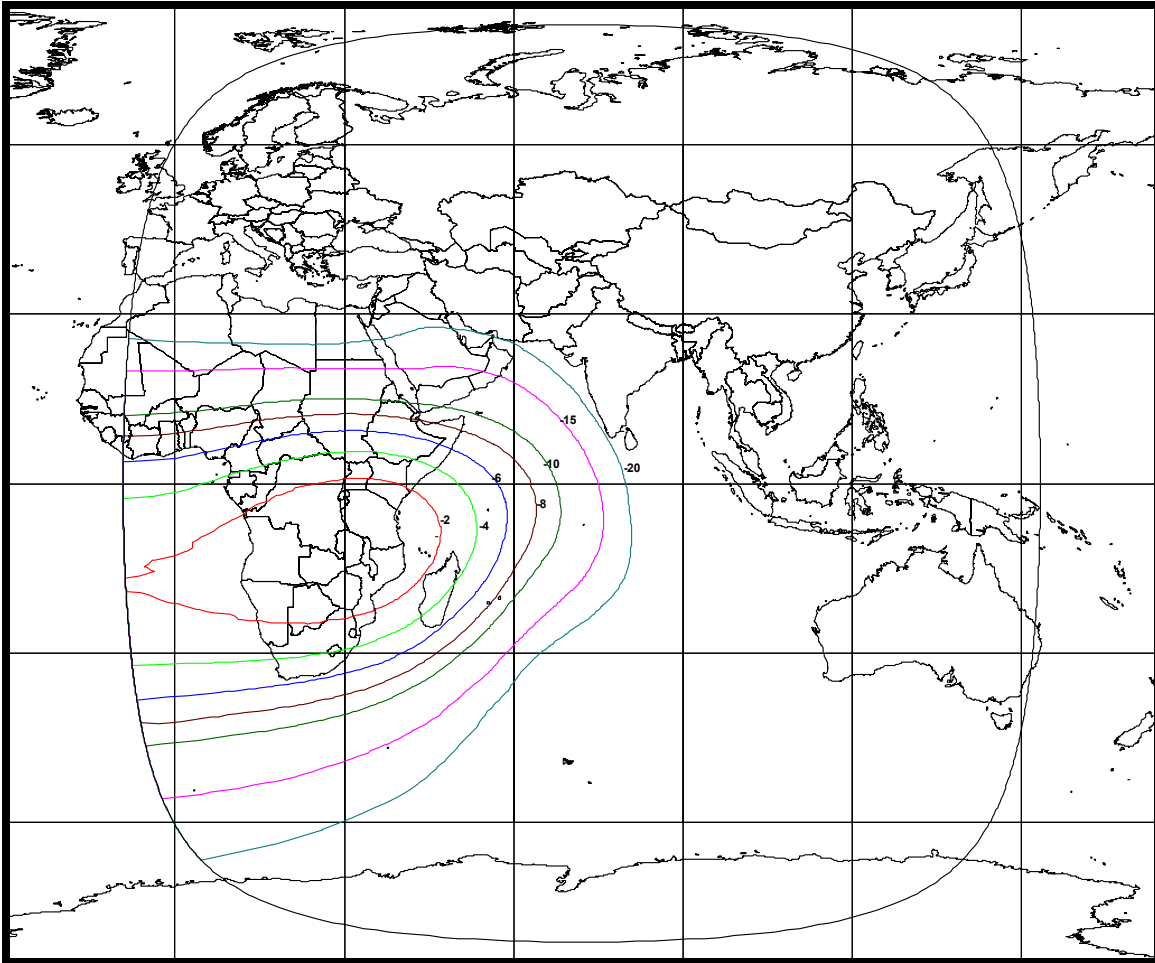


Exhibit 2-13: Spot 1 Uplink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 37.6 dBi

Peak G/T: 9.5 dB/K

Saturated Flux Density @ Peak G/T: -94.1 to -80.1 dBW/m²

[Schedule S Beam Designation: S1UL]

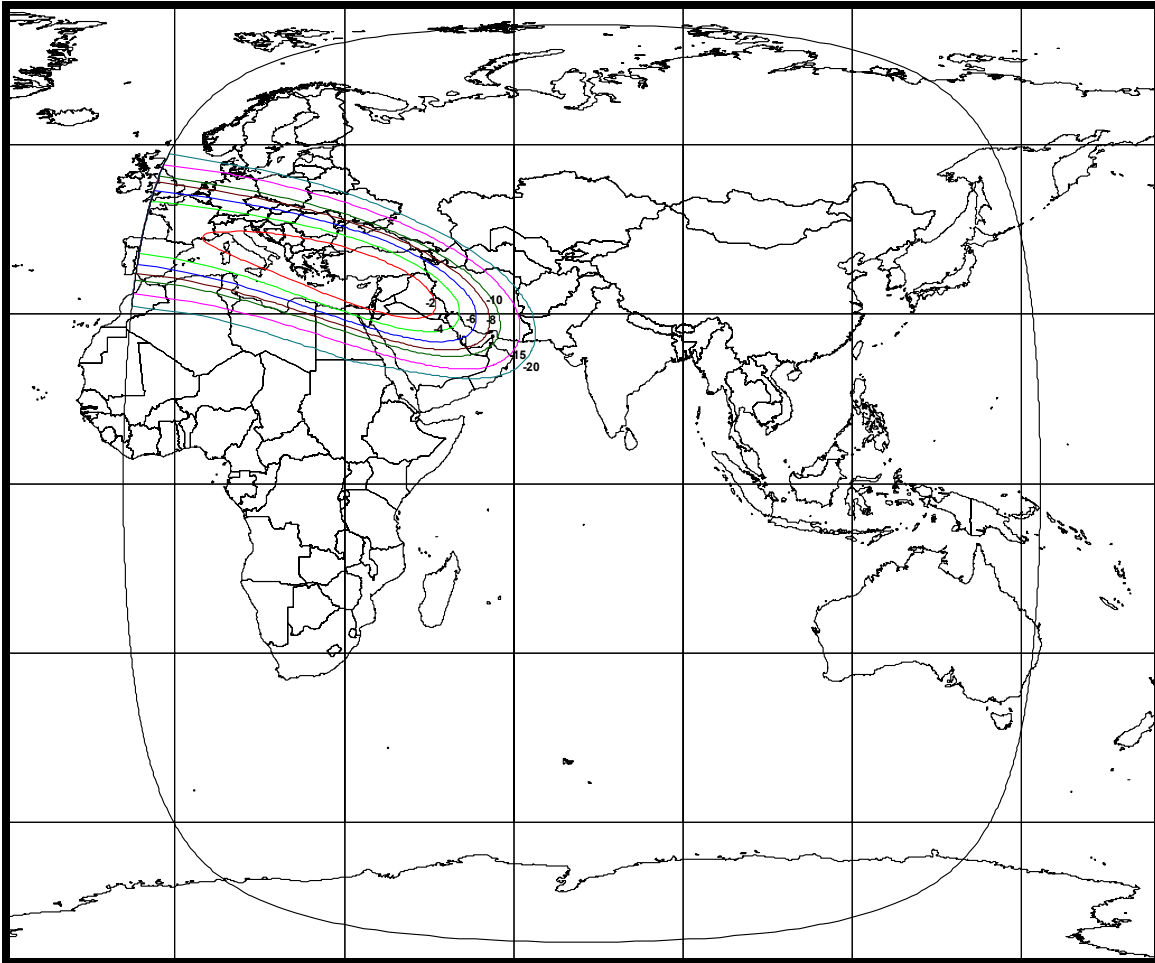


Exhibit 2-14: Spot 1X Uplink Beam

Polarization: Linear Vertical

Peak Beam Gain: 37.4 dBi

Peak G/T: 9.5 dB/K

Saturated Flux Density @ Peak G/T: -94.2 to -80.2 dBW/m²

[Schedule S Beam Designation: S1XU]

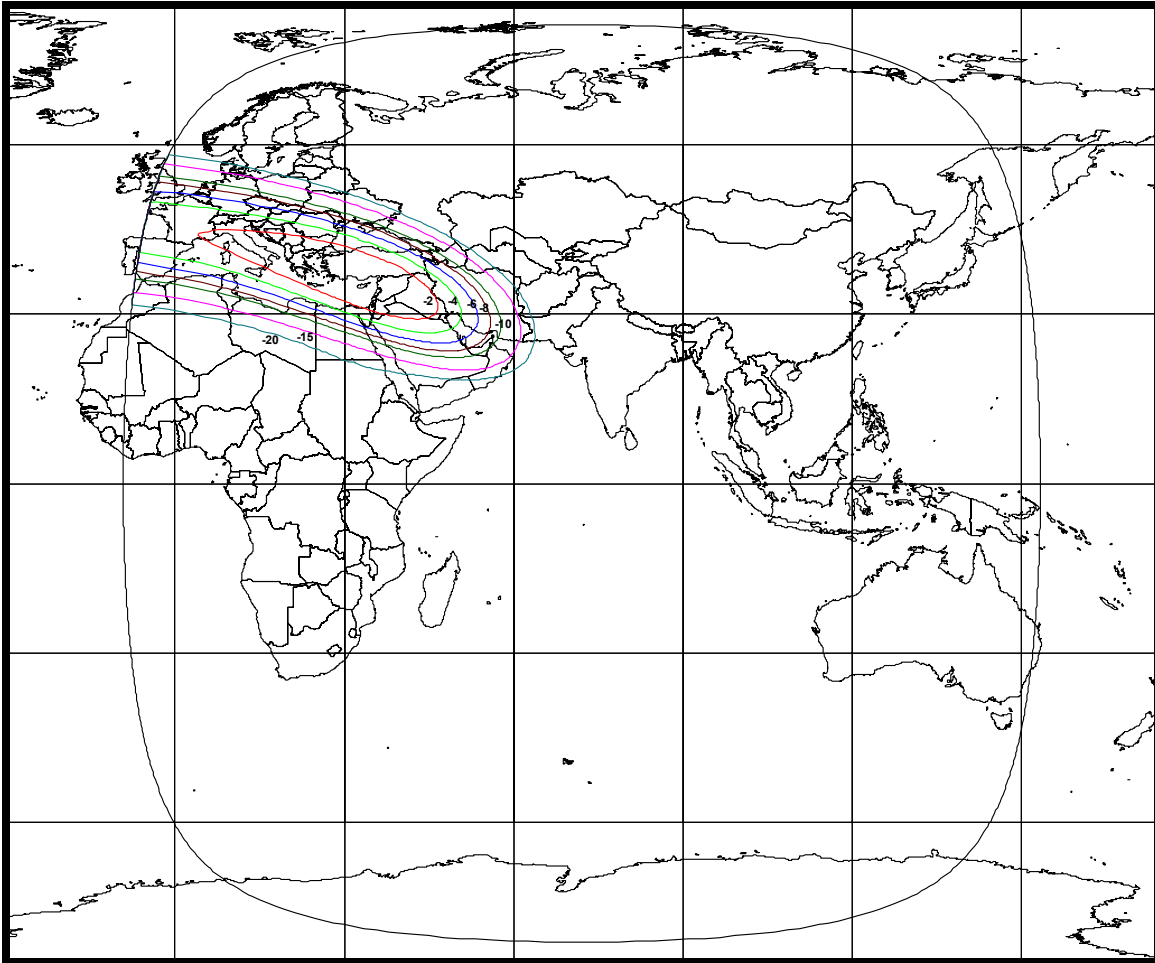


Exhibit 2-15: Spot 2 Uplink Beam

Polarization: Linear Vertical

Peak Beam Gain: 34.6 dBi

Peak G/T: 6.0 dB/K

Saturated Flux Density @ Peak G/T: -93.8 to -79.8 dBW/m²

[Schedule S Beam Designation: S2UL]

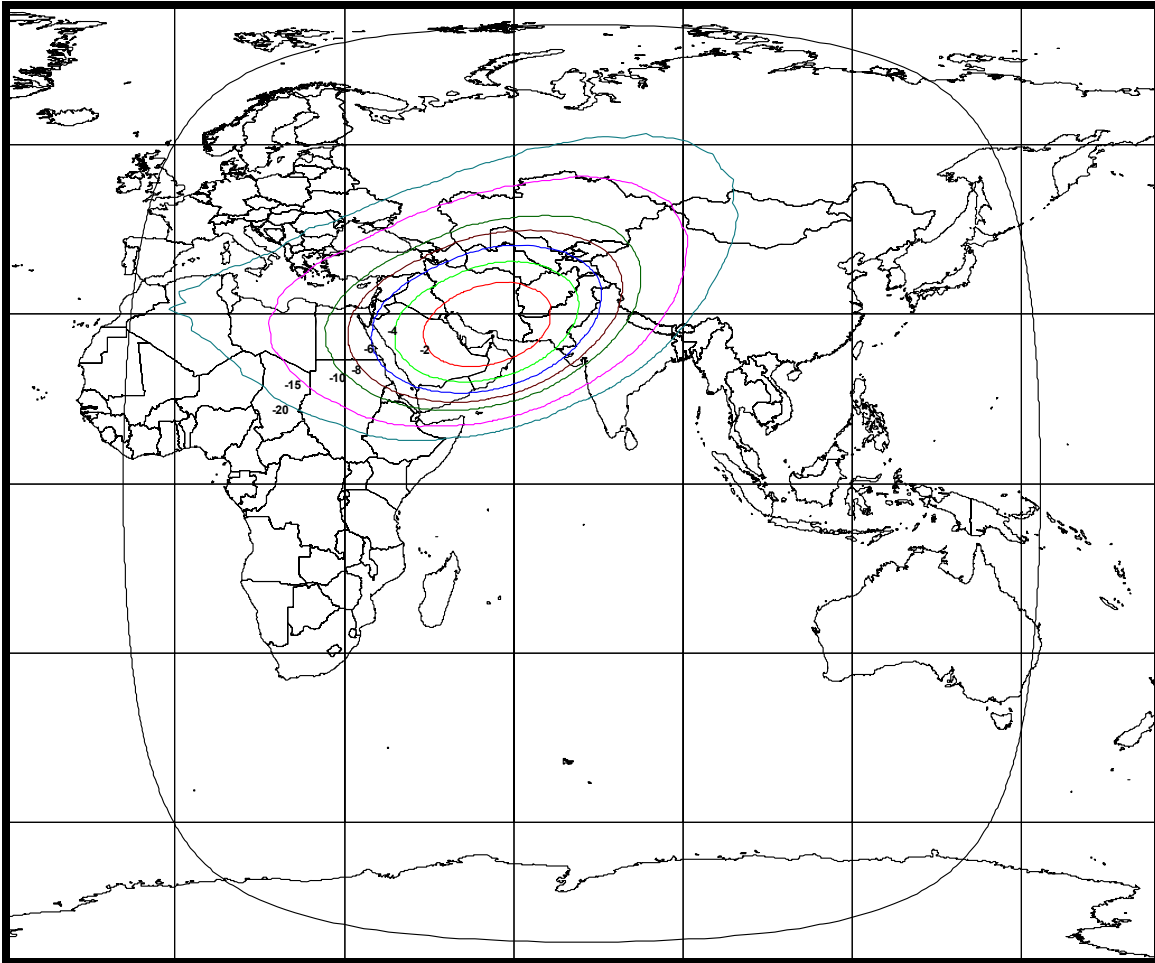


Exhibit 2-16: Spot 2X Uplink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 35.3 dBi

Peak G/T: 7.5 dB/K

Saturated Flux Density @ Peak G/T: -95.5 to -81.5 dBW/m²

[Schedule S Beam Designation: S2XU]

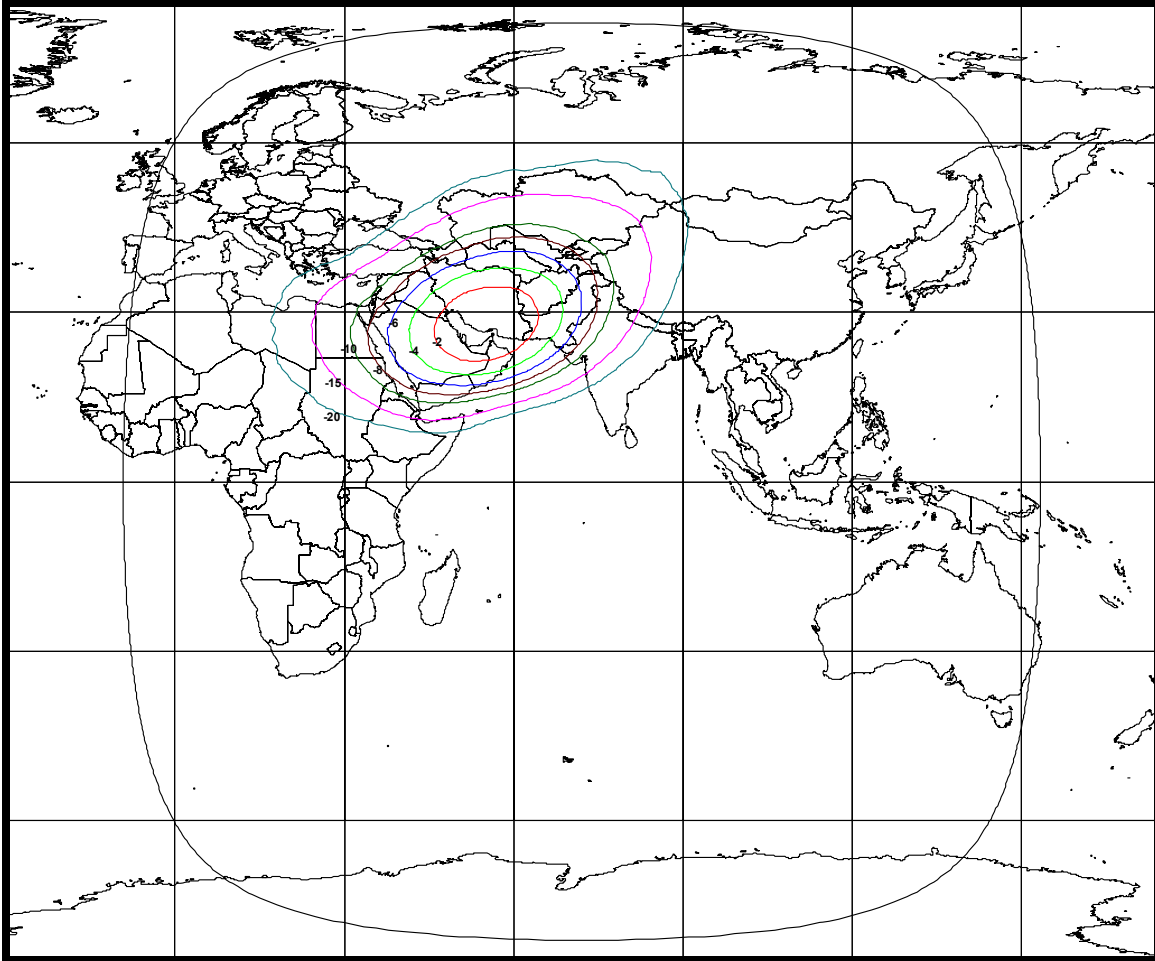


Exhibit 2-17: Spot 2A Uplink Beam

Polarization: Linear Vertical

Peak Beam Gain: 32.6 dBi

Peak G/T: 4.5 dB/K

Saturated Flux Density @ Peak G/T: -93.8 to -79.8 dBW/m²

[Schedule S Beam Designation: S2AU]

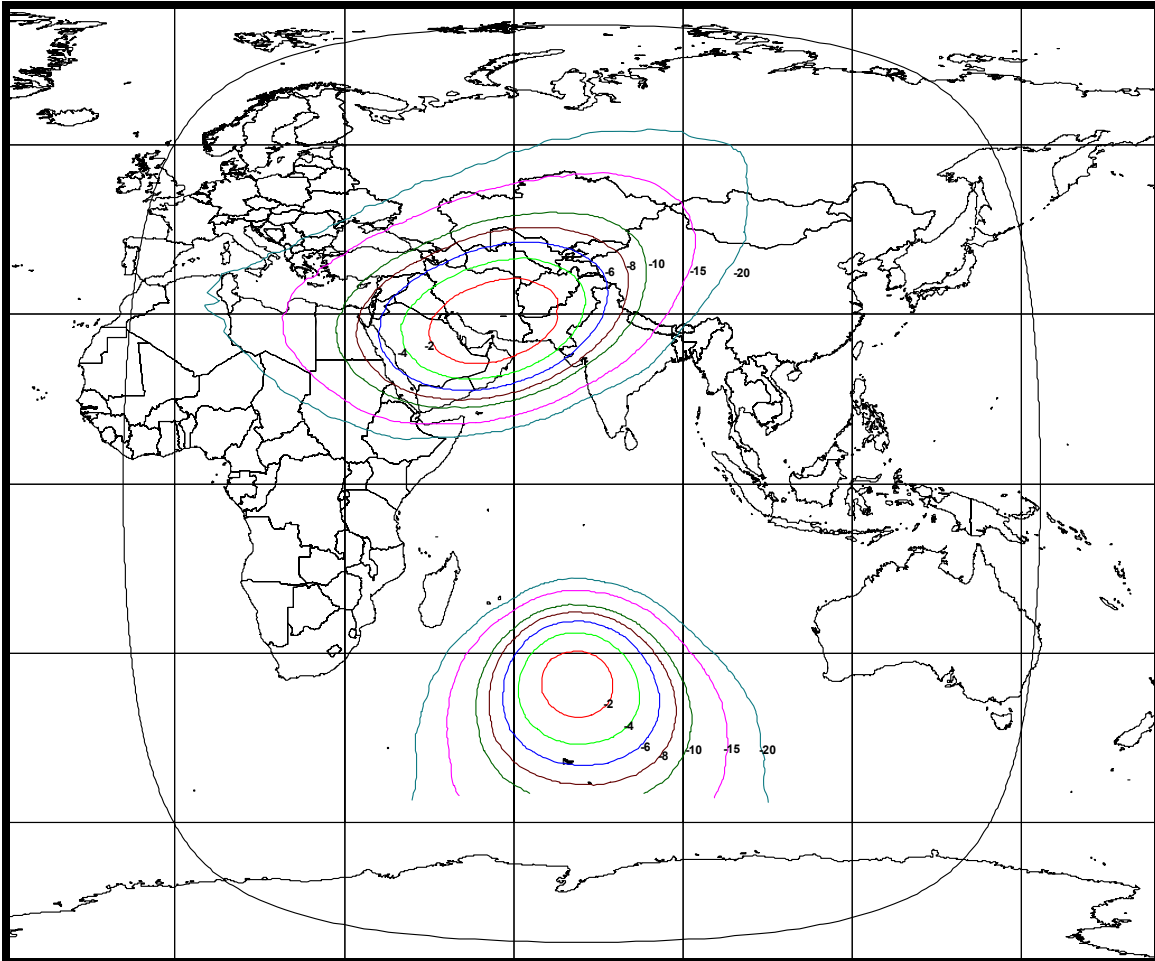


Exhibit 2-18: Spot 3 Uplink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 35.3 dBi

Peak G/T: 7.0 dB/K

Saturated Flux Density @ Peak G/T: -95.0 to -81.0 dBW/m²

[Schedule S Beam Designation: S3UL]

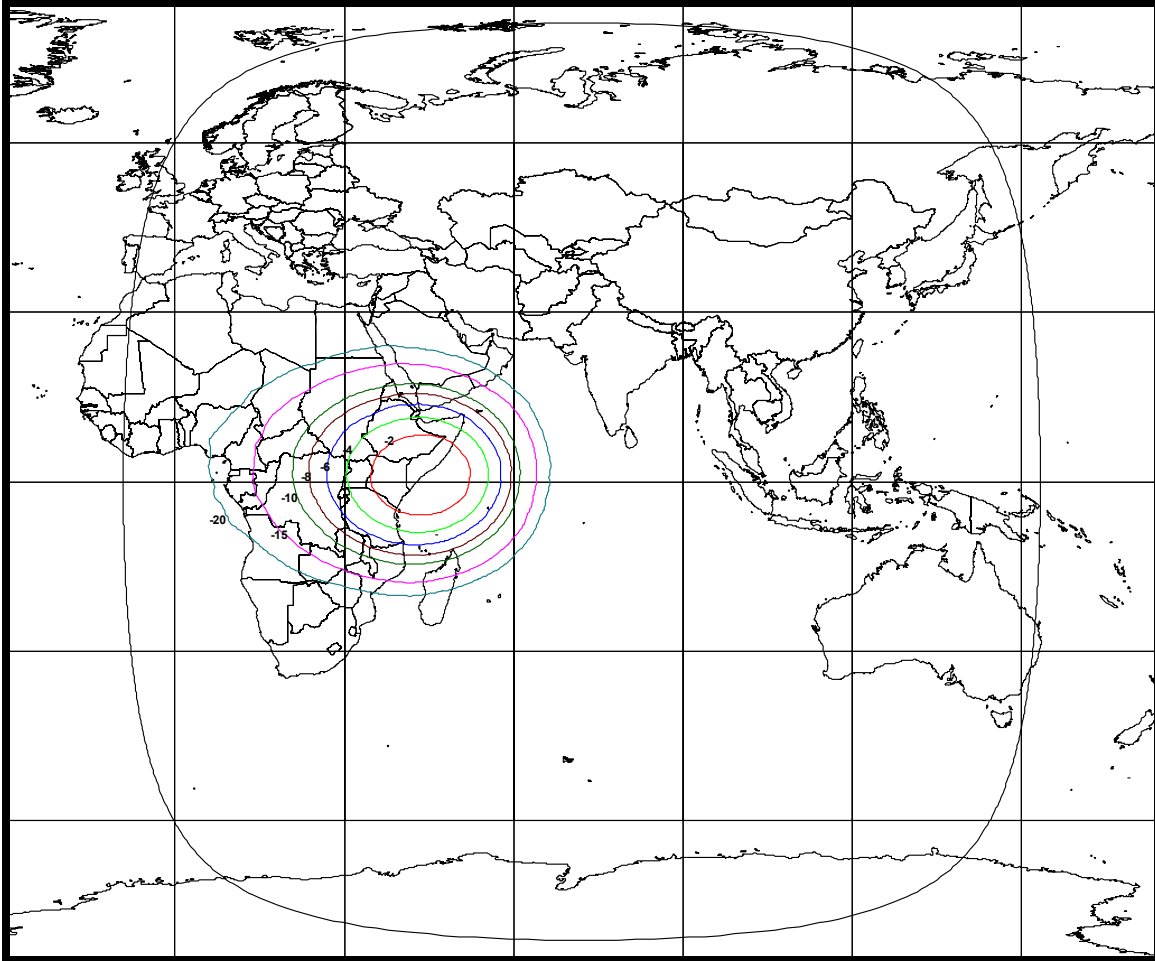


Exhibit 2-19: Spot 3X Uplink Beam

Polarization: Linear Vertical

Peak Beam Gain: 35.3 dBi

Peak G/T: 7.0 dB/K

Saturated Flux Density @ Peak G/T: -95.0 to -81.0 dBW/m²

[Schedule S Beam Designation: S3XU]

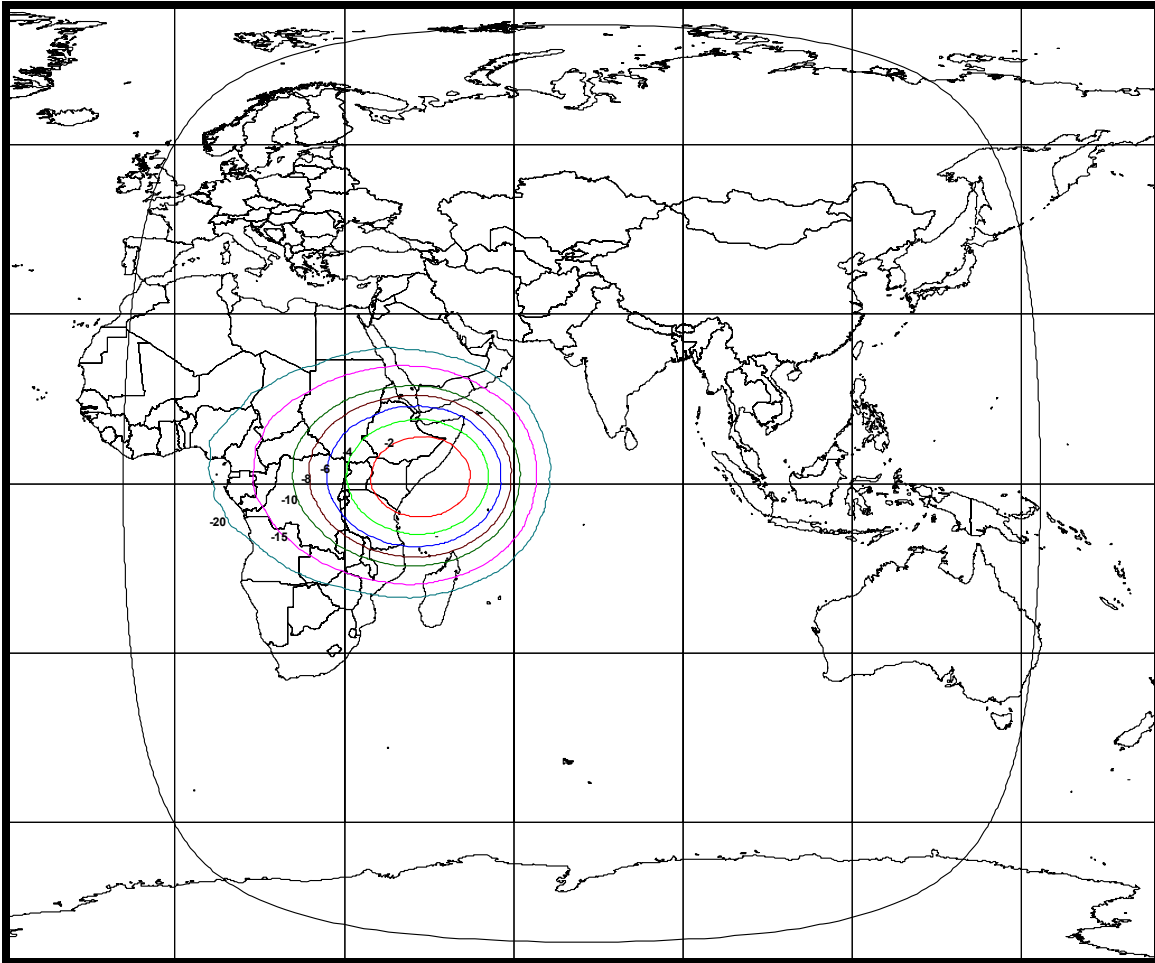


Exhibit 2-20: Global A Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 20.4 dBi

Peak EIRP: 33.5 dBW

[Schedule S Beam Designation: GADL]

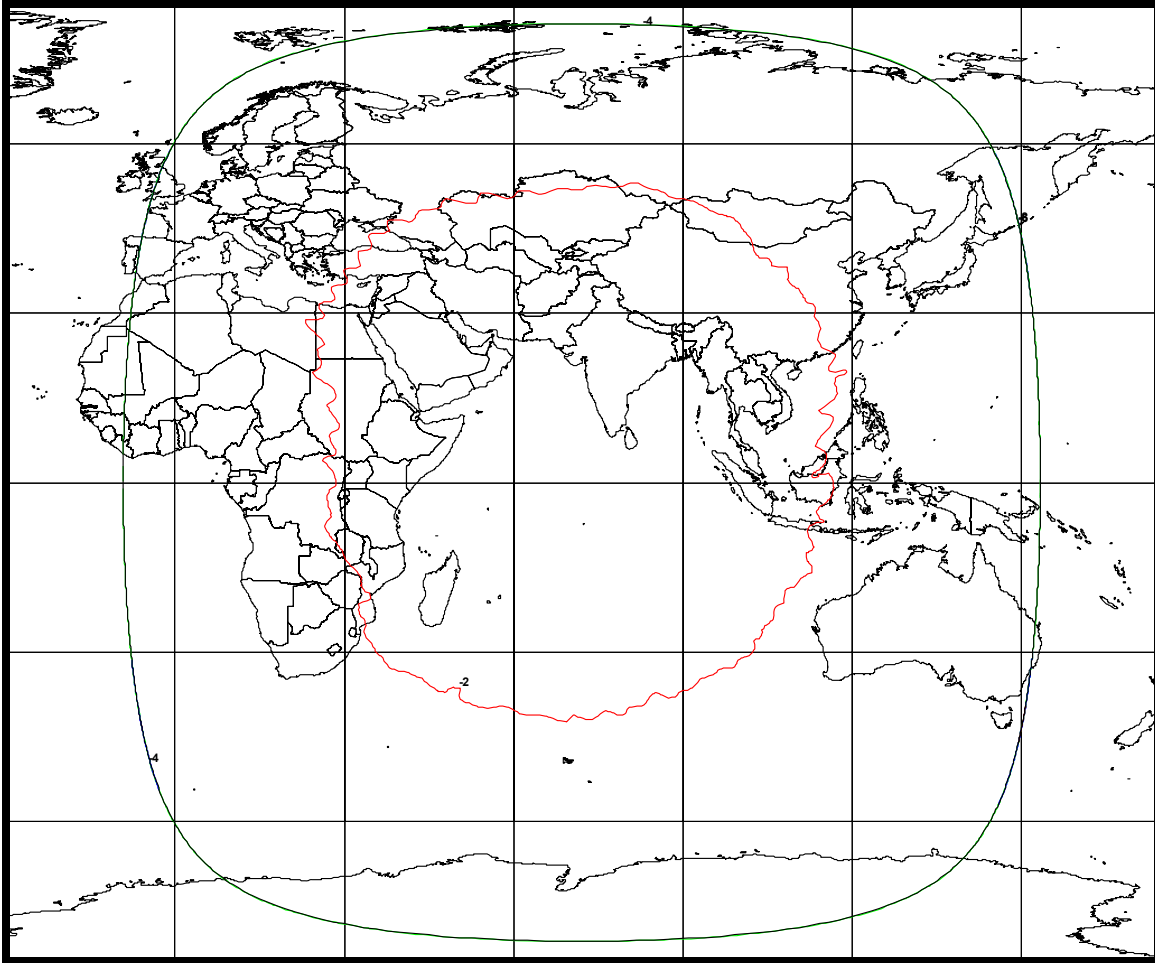


Exhibit 2-21: Global B Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 20.4 dBi

Peak EIRP: 33.5 dBW

[Schedule S Beam Designation: GBDL]

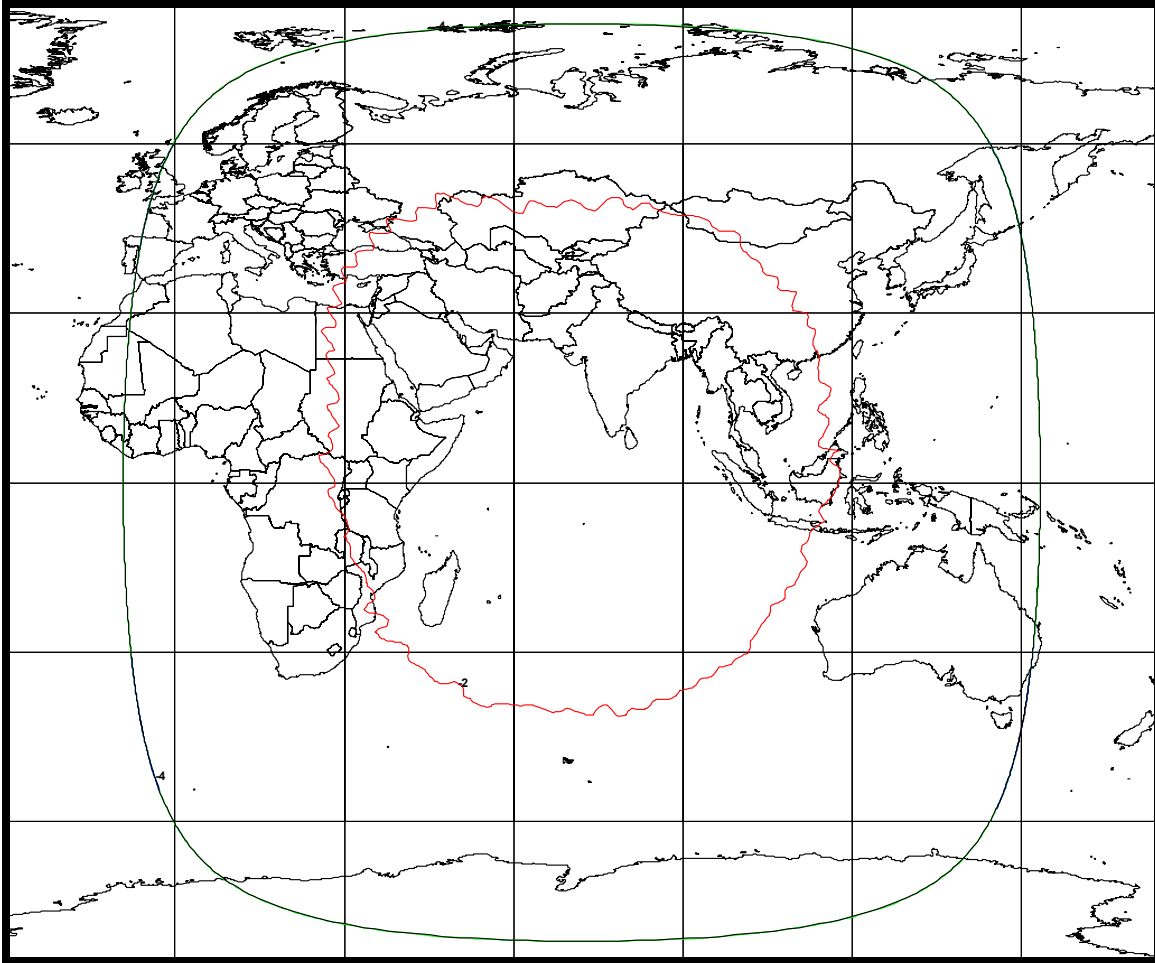


Exhibit 2-22: West Hemi Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 23.8 dBi

Peak EIRP: 36.6 dBW

[Schedule S Beam Designation: WHDL]

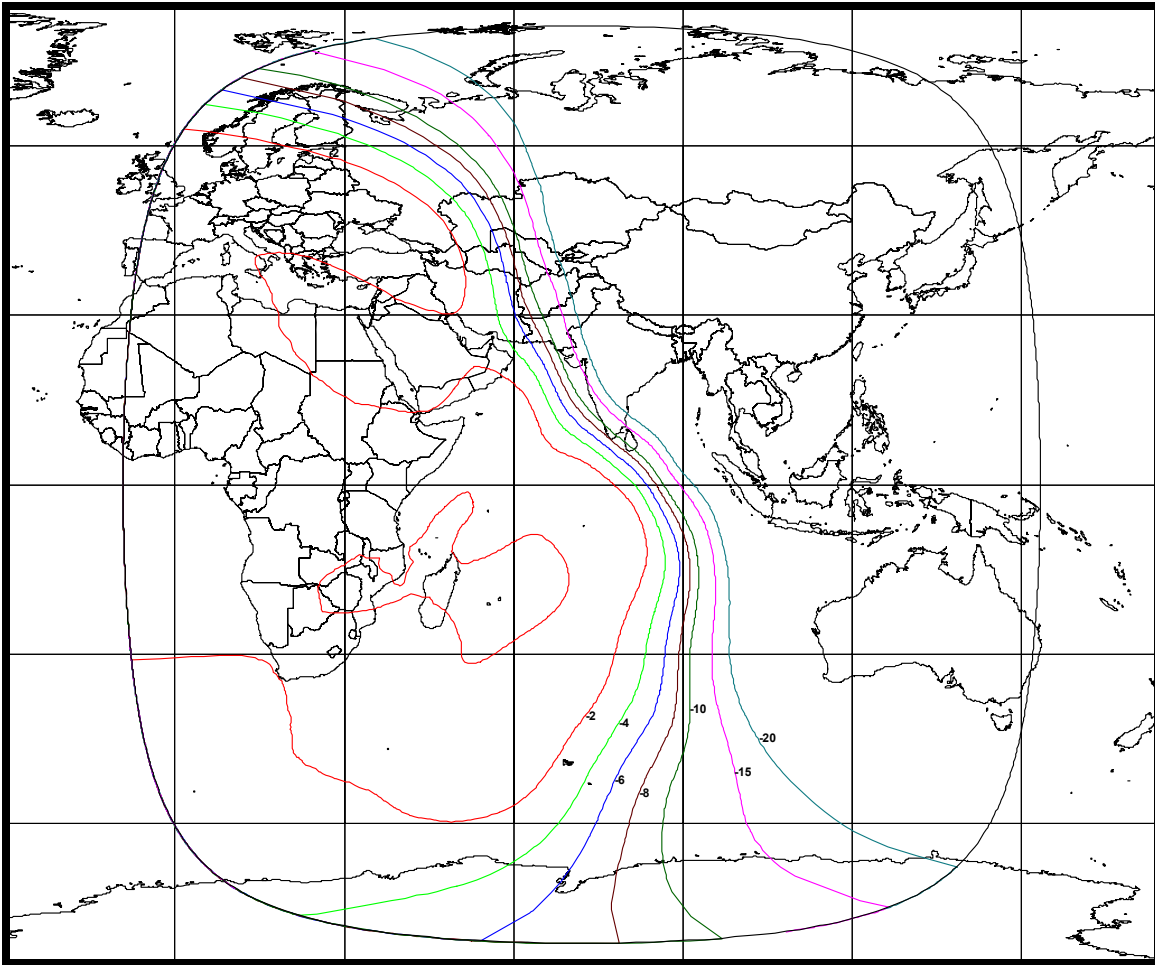


Exhibit 2-23: East Hemi Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 27.5 dBi

Peak EIRP: 38.3 dBW

[Schedule S Beam Designation: EHDL]

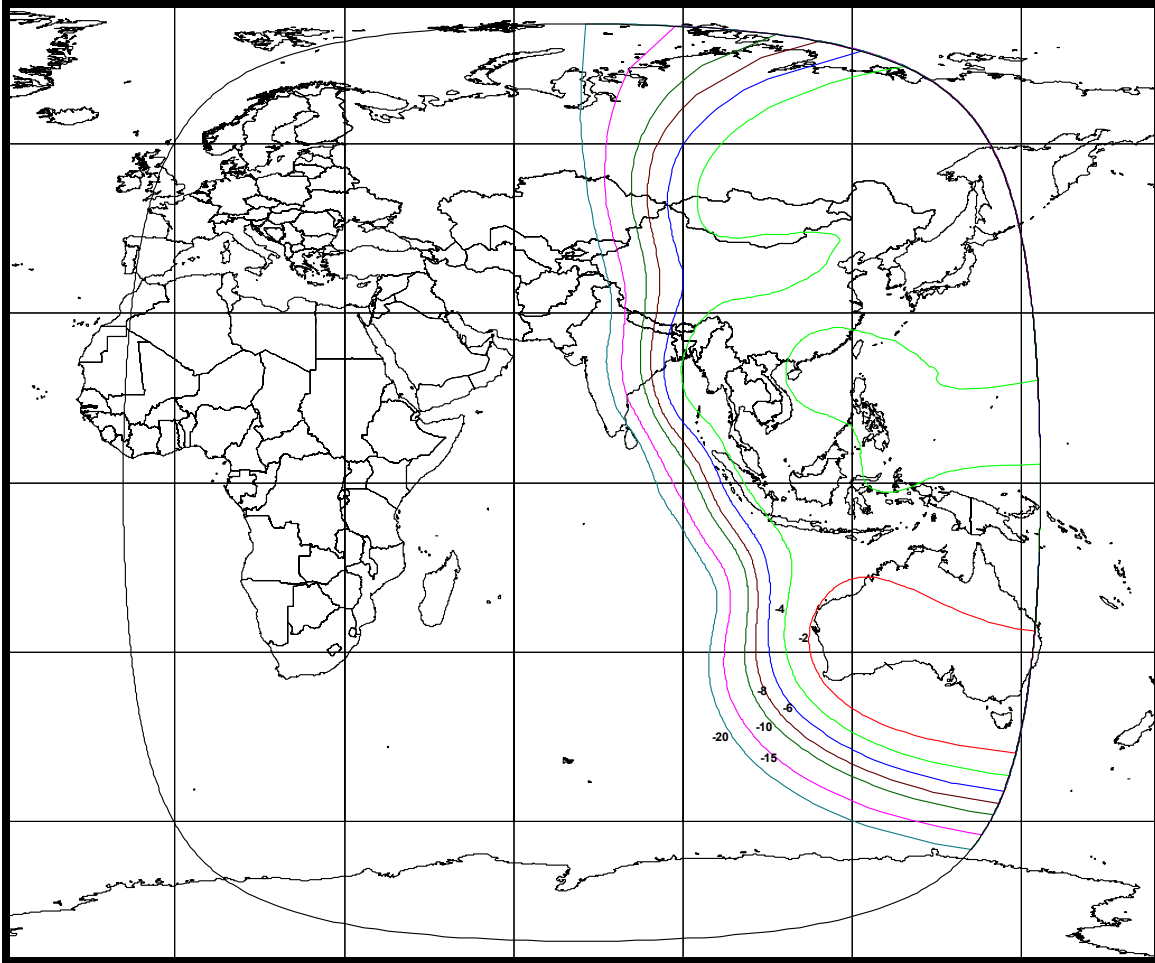


Exhibit 2-24: Northwest Zone Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 28.2 dBi

Peak EIRP: 37.7 dBW

[Schedule S Beam Designation: NWDL]

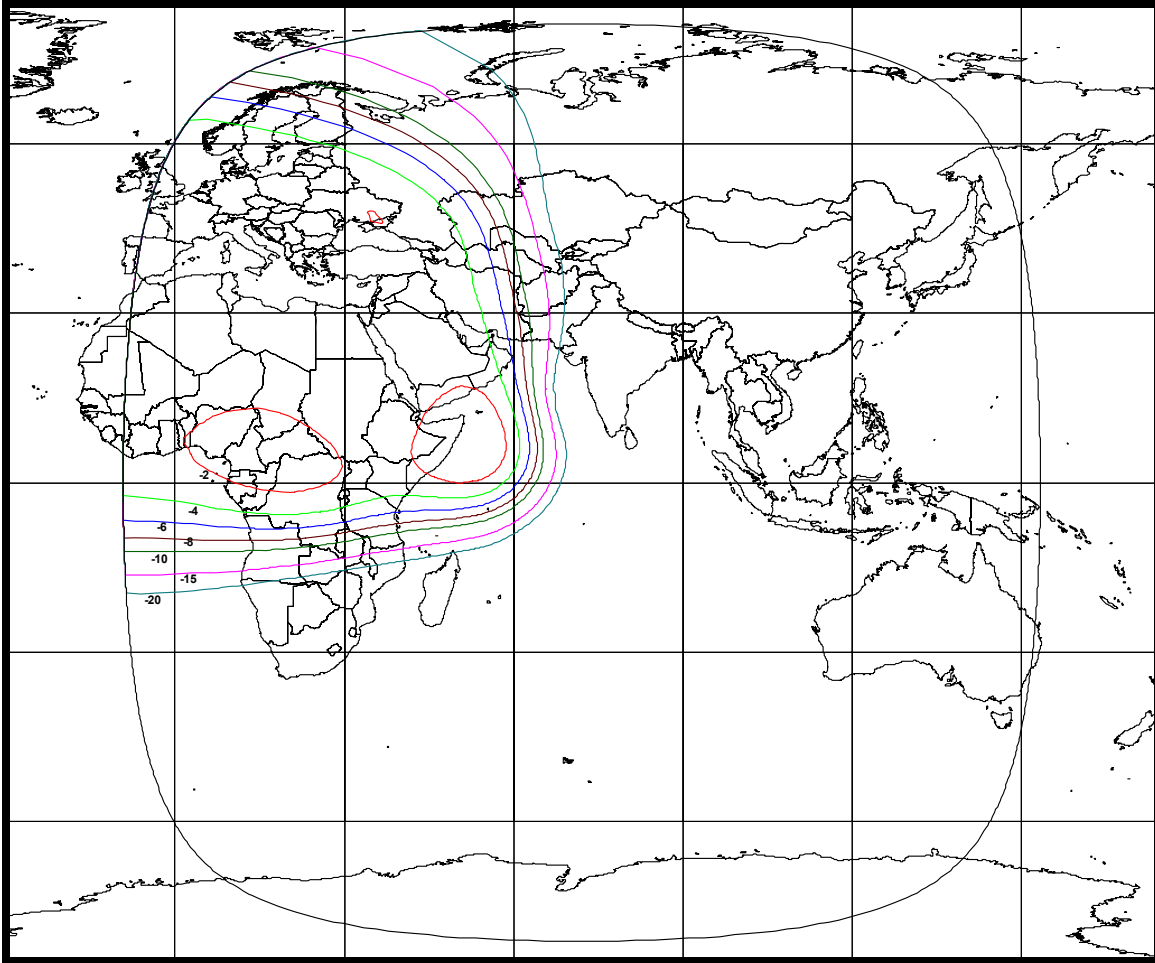


Exhibit 2-25: Northeast Zone Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 30.7 dBi

Peak EIRP: 38.8 dBW

[Schedule S Beam Designation: NEDL]

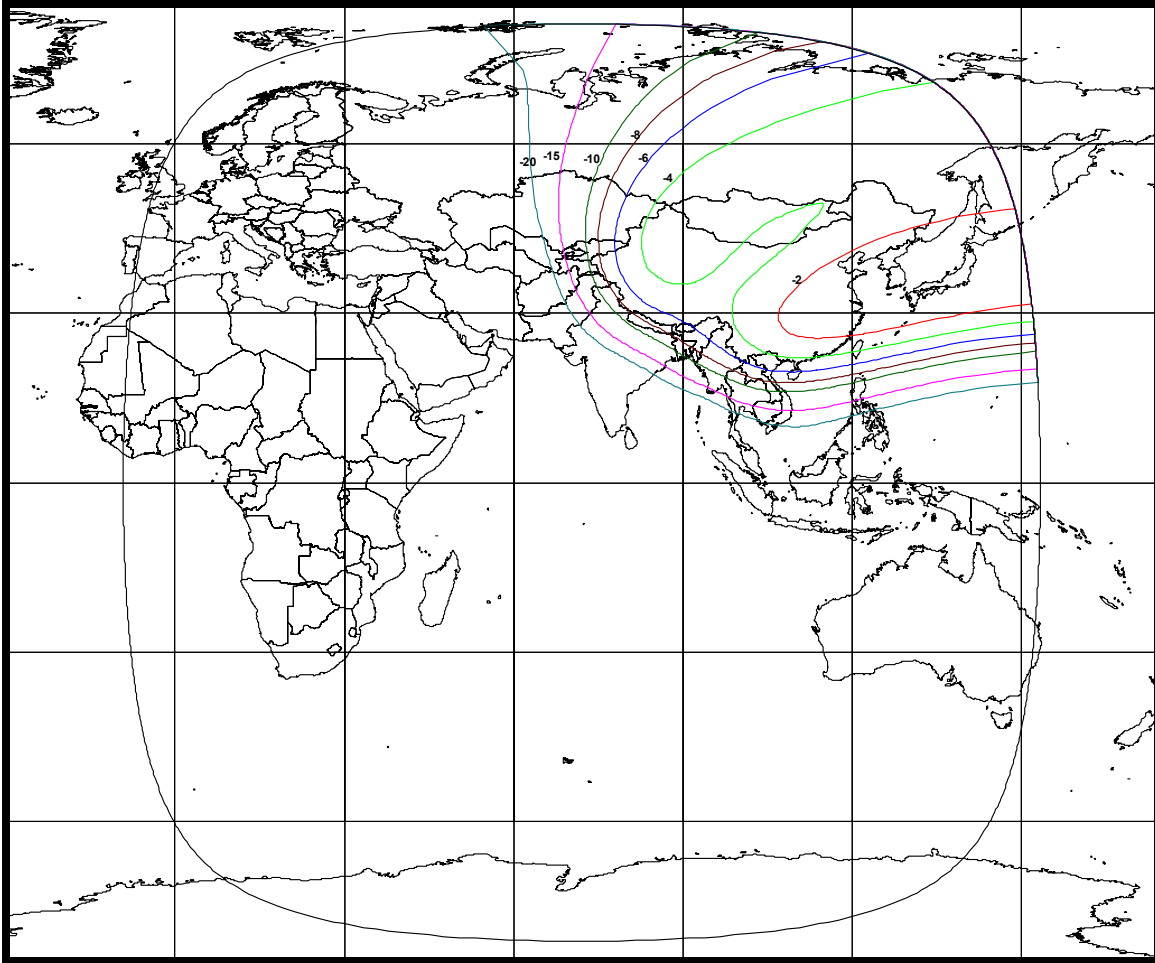


Exhibit 2-26: Southwest Zone Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 28.5 dBi

Peak EIRP: 37.3 dBW

[Schedule S Beam Designation: SWDL]

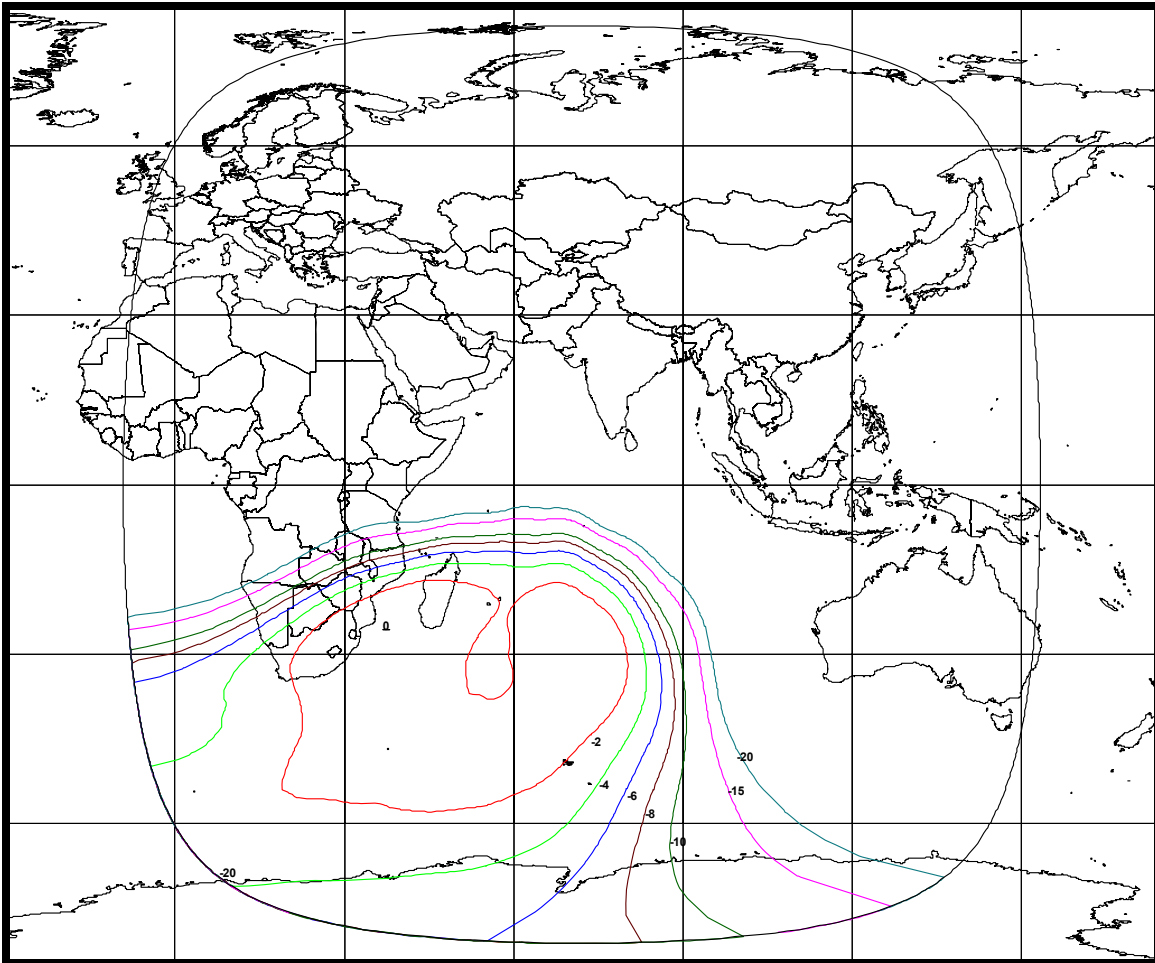


Exhibit 2-27: Southeast Zone Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 28.1 dBi

Peak EIRP: 38.5 dBW

[Schedule S Beam Designation: SEDL]

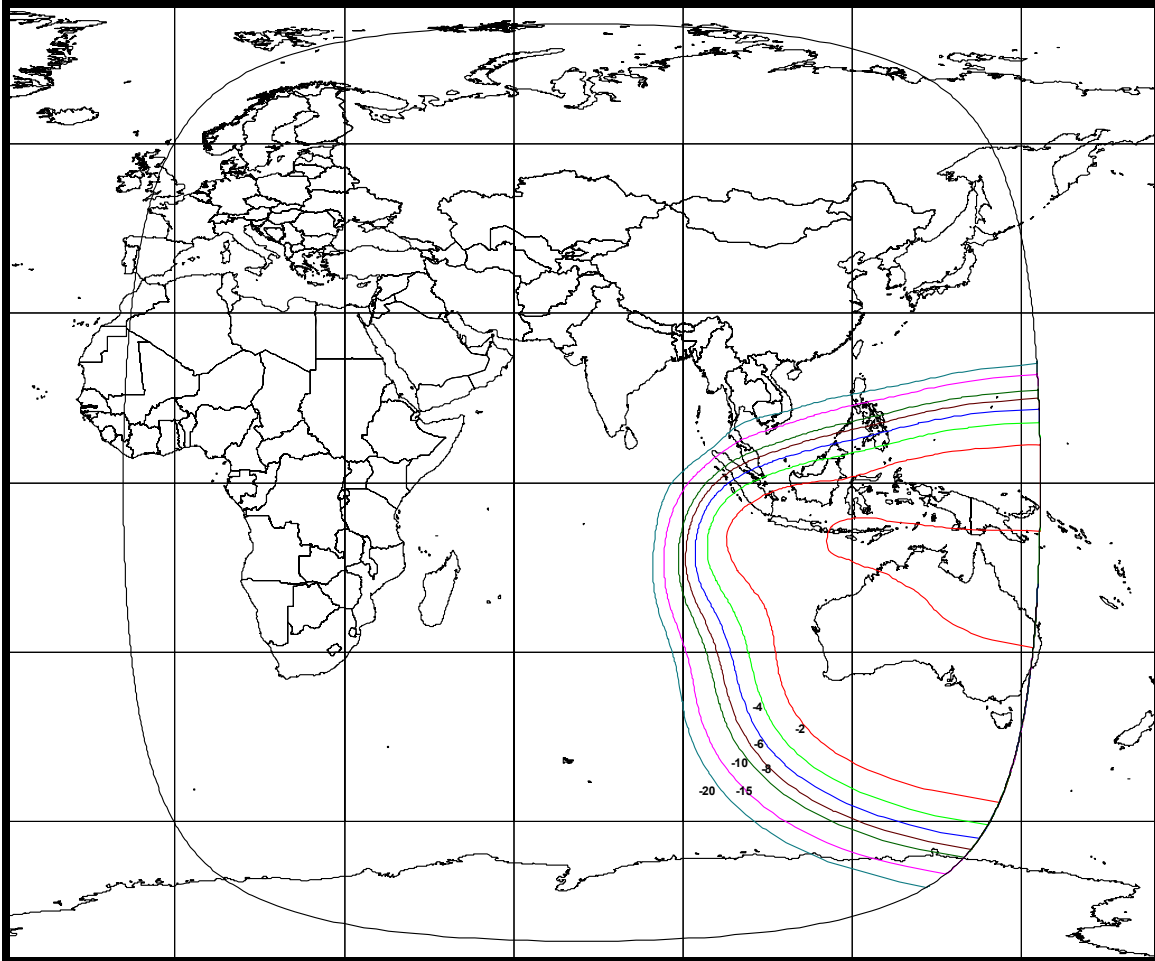


Exhibit 2-28: C-Spot A Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 27.7 dBi

Peak EIRP: 40.6 dBW

[Schedule S Beam Designation: CADL]

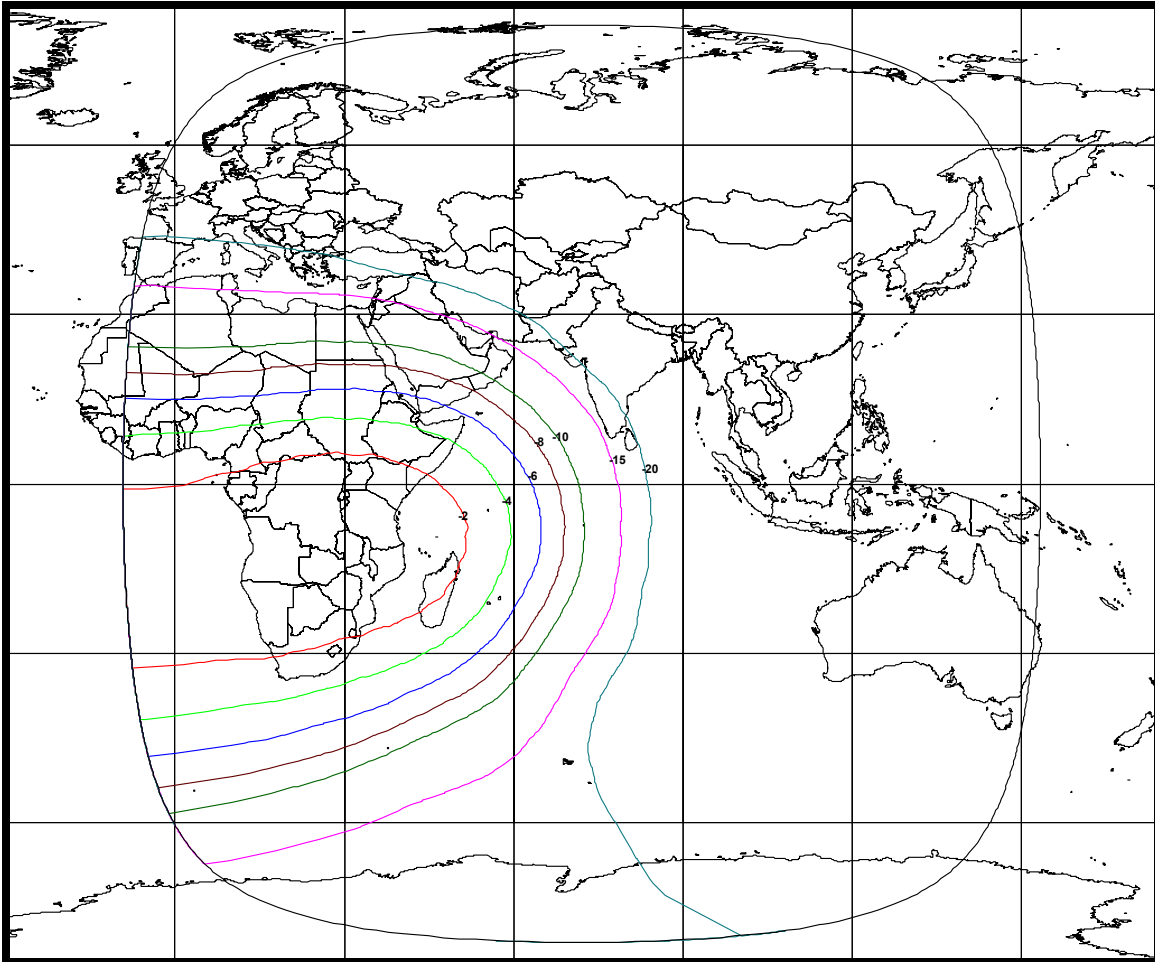


Exhibit 2-29: C-Spot B Downlink Beam

Polarization: Left Hand Circular

Peak Beam Gain: 27.5 dBi

Peak EIRP: 40.6 dBW

[Schedule S Beam Designation: CBDL]

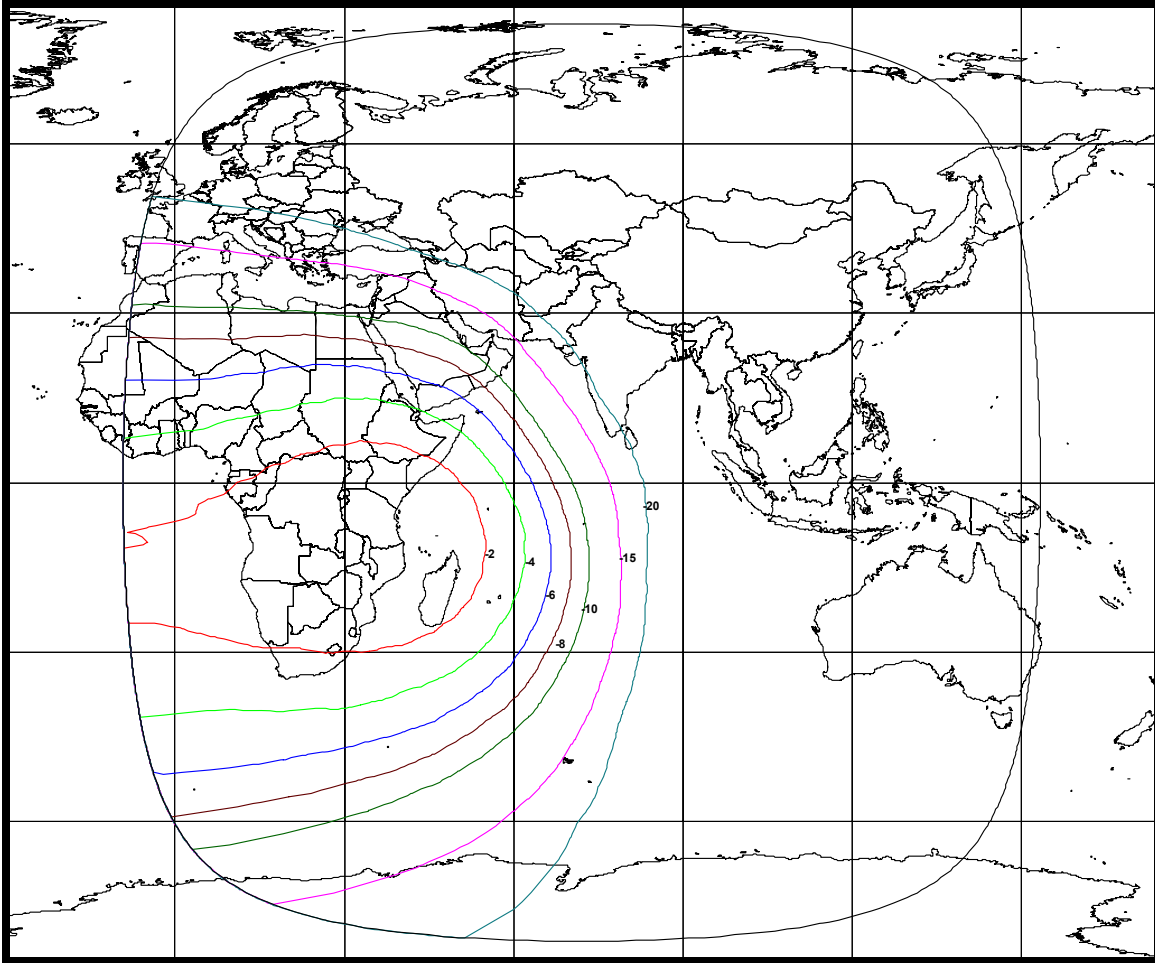


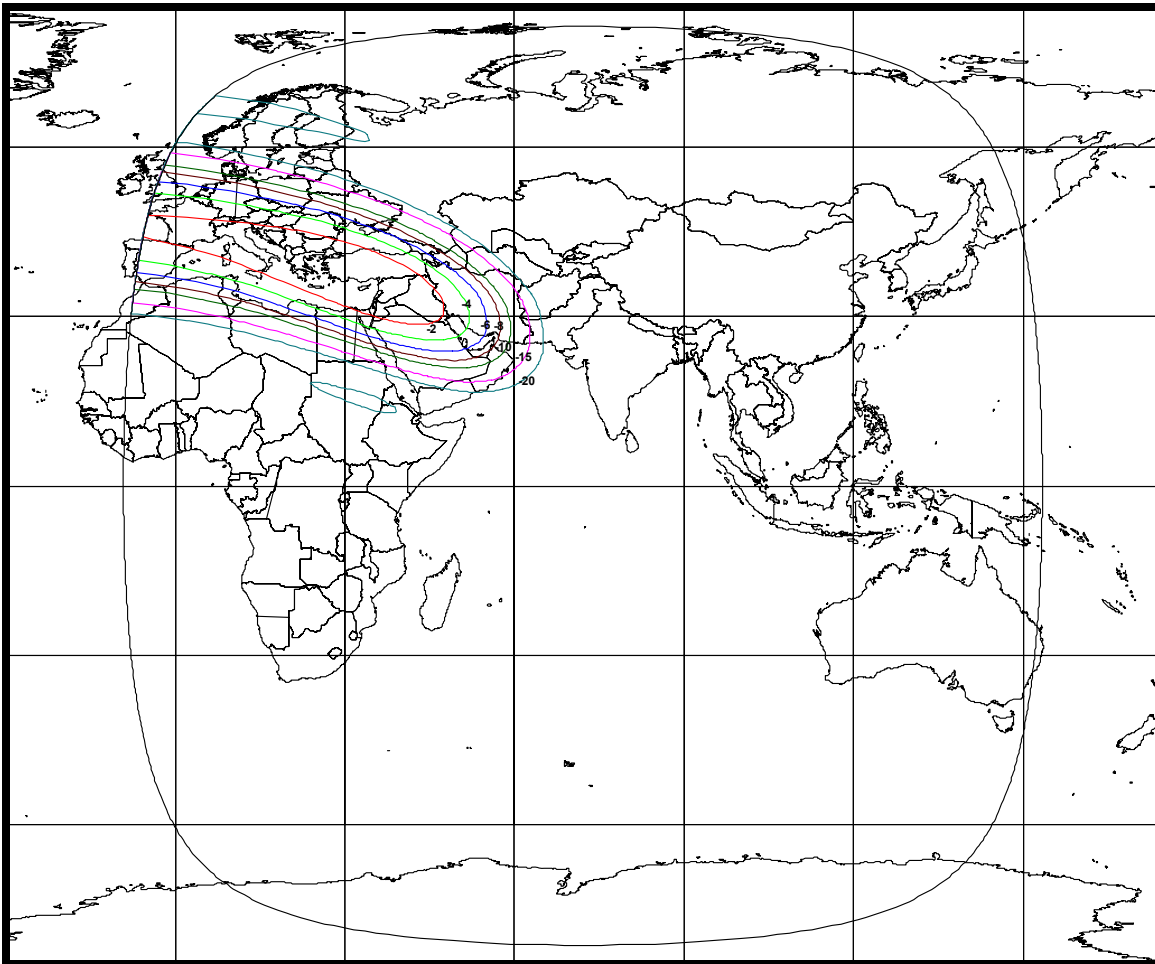
Exhibit 2-30: Spot 1 Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 35.2 dBi

Peak EIRP: 53.2 dBW

[Schedule S Beam Designation: S1DL]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 50.7 dBW.

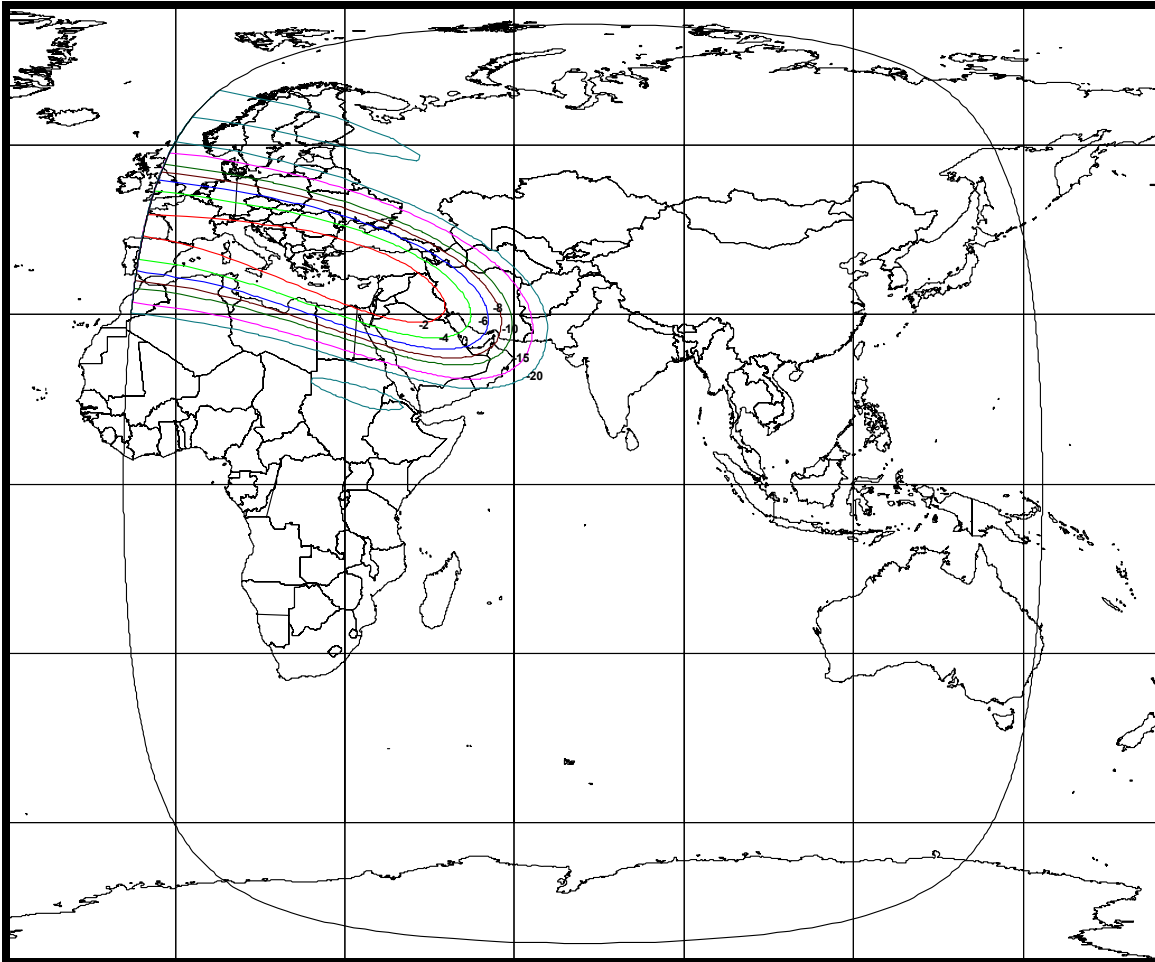
Exhibit 2-31: Spot 1X Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 35.6 dBi

Peak EIRP: 53.1 dBW

[Schedule S Beam Designation: S1XD]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 50.8 dBW.

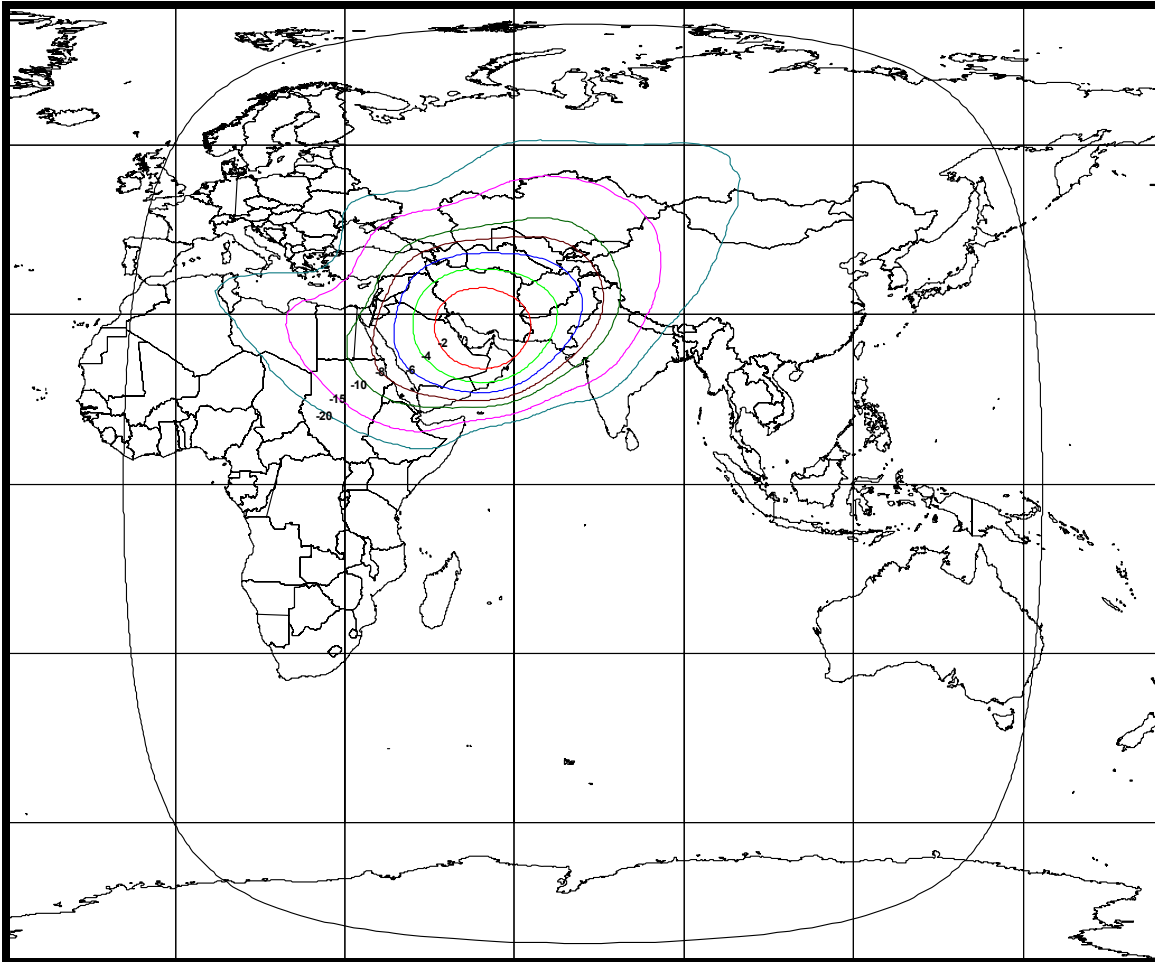
Exhibit 2-32: Spot 2 Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 34.6 dBi

Peak EIRP: 54.1 dBW

[Schedule S Beam Designation: S2DL]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 51.7 dBW.

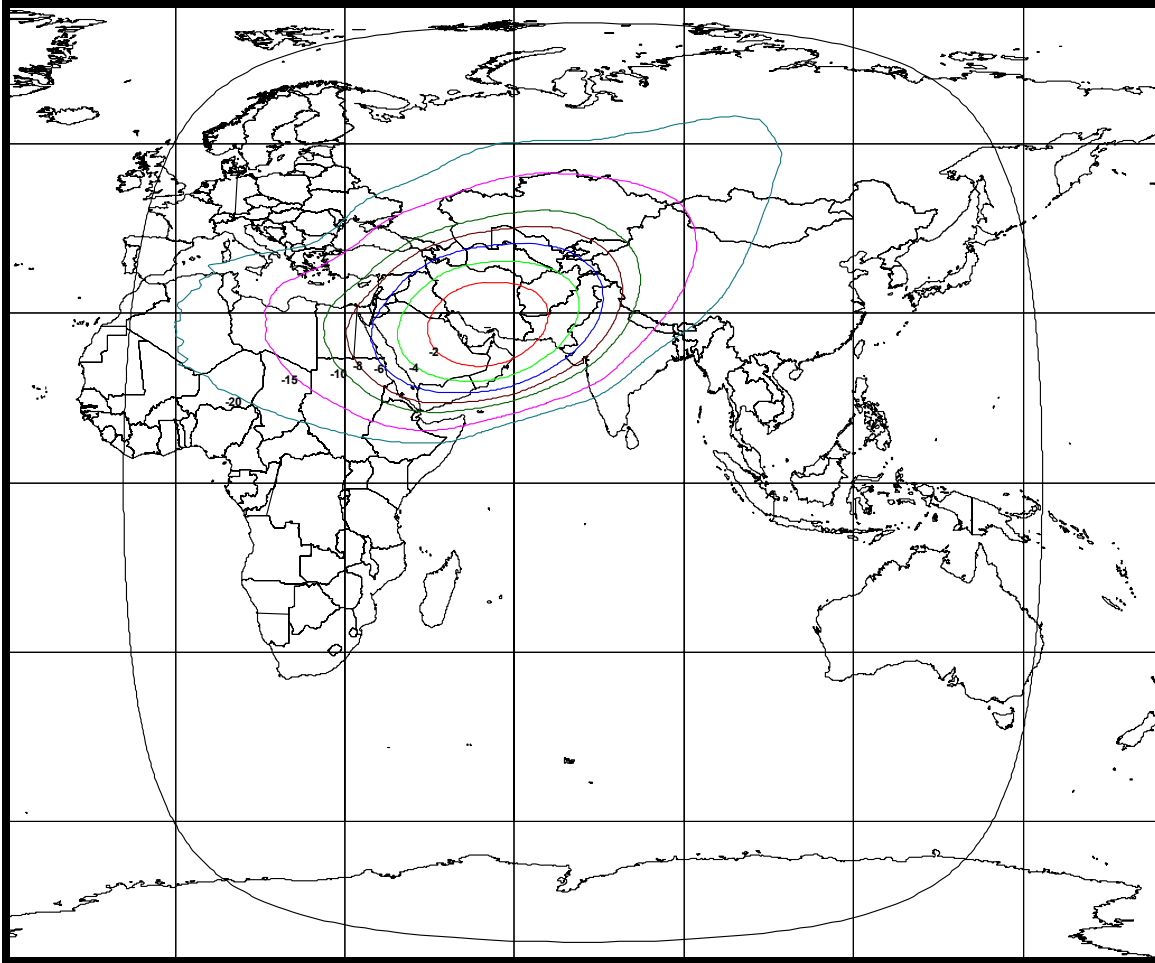
Exhibit 2-33: Spot 2X Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 34.2 dBi

Peak EIRP: 53.1 dBW

[Schedule S Beam Designation: S2XD]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 50.9 dBW.

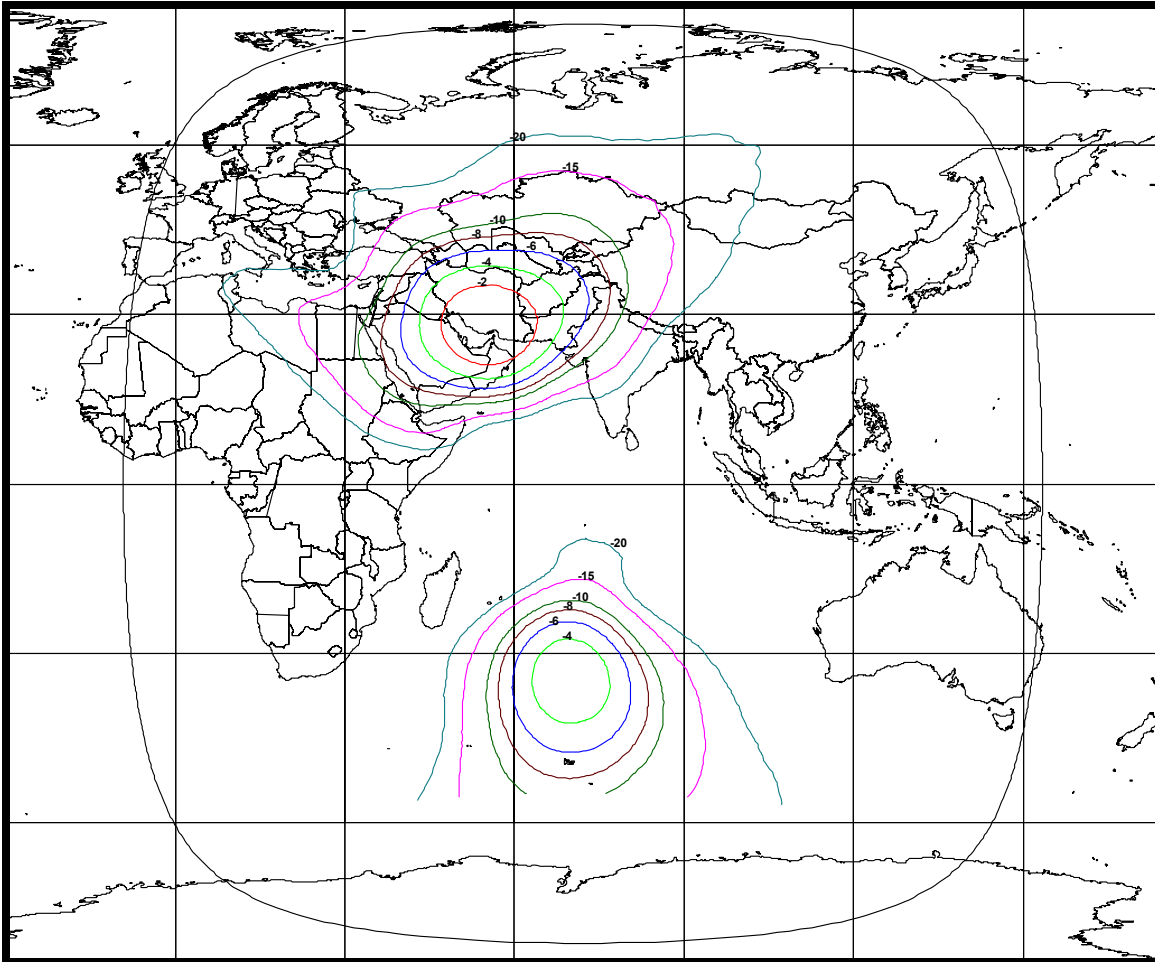
Exhibit 2-34: Spot 2A Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 32.8 dBi

Peak EIRP: 52.1 dBW

[Schedule S Beam Designation: S2AD]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 49.7 dBW.

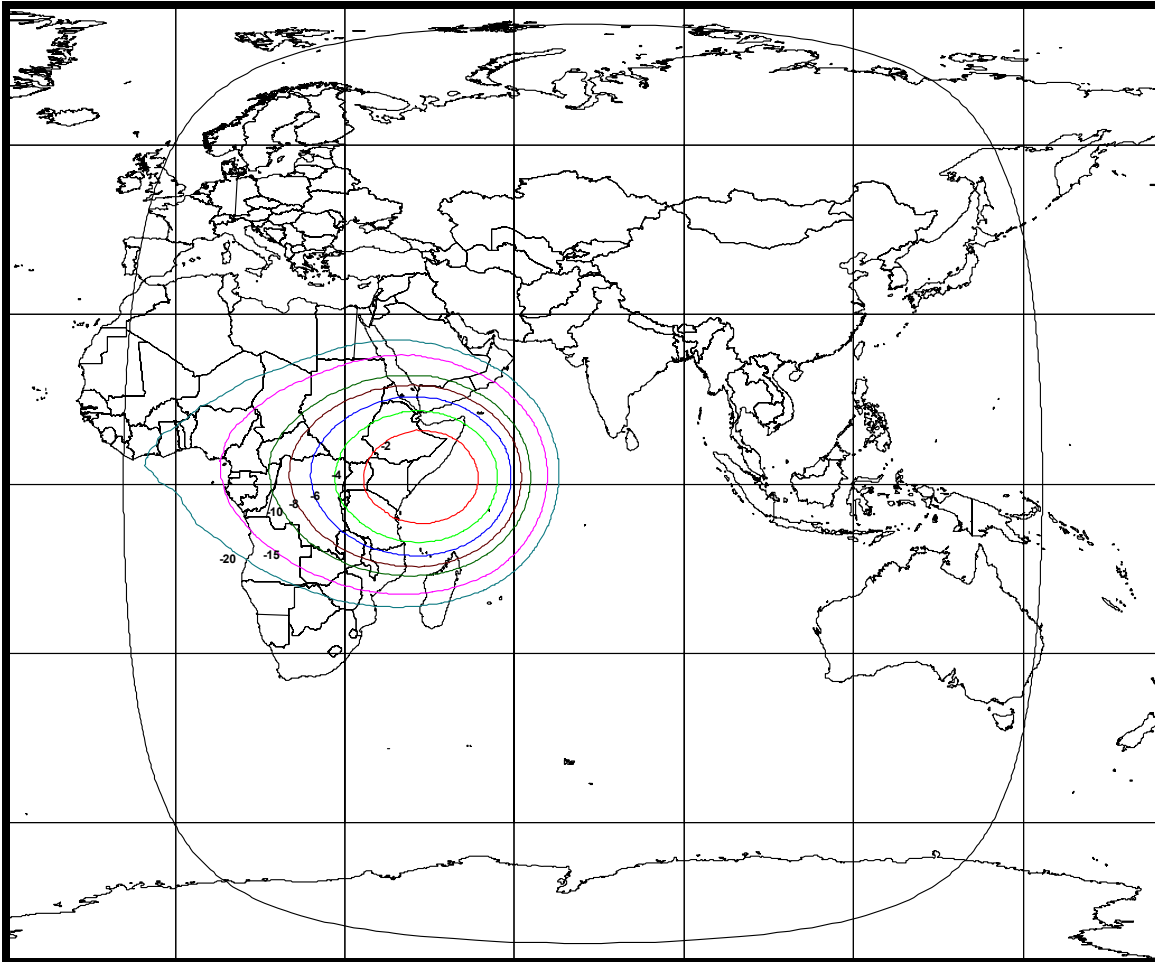
Exhibit 2-35: Spot 3 Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 33.3 dBi

Peak EIRP: 49.7 dBW

[Schedule S Beam Designation: S3DL]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 47.5 dBW.

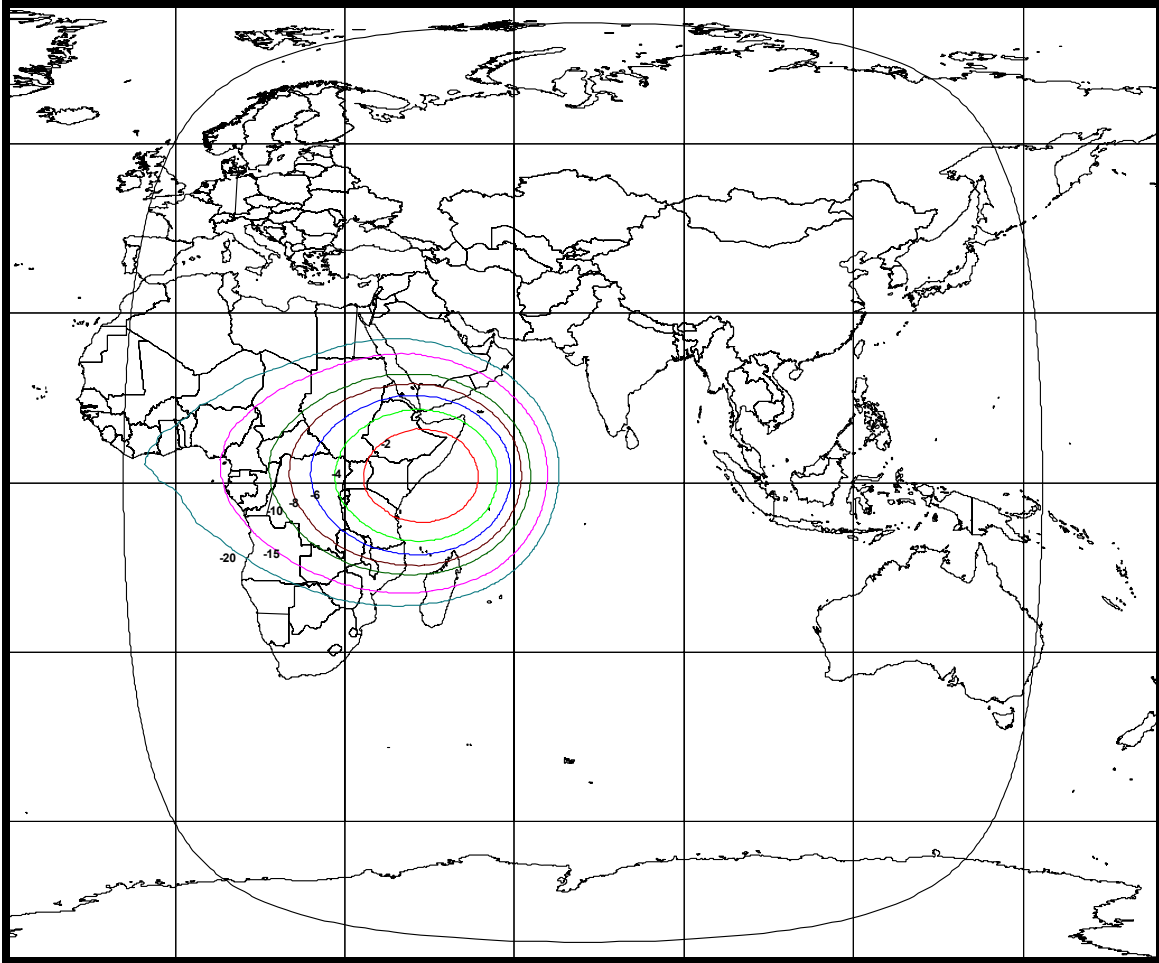
Exhibit 2-36: Spot 3X Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 33.3 dBi

Peak EIRP: 49.7 dBW

[Schedule S Beam Designation: S3XD]



Note: This beam can be operated in either a high power mode or a low power mode. The maximum EIRP listed above corresponds to the operation of the beam in the high power mode. When operating in the low power mode, the beam peak EIRP is 47.5 dBW.

Exhibit 2-37: Command Uplink Beam

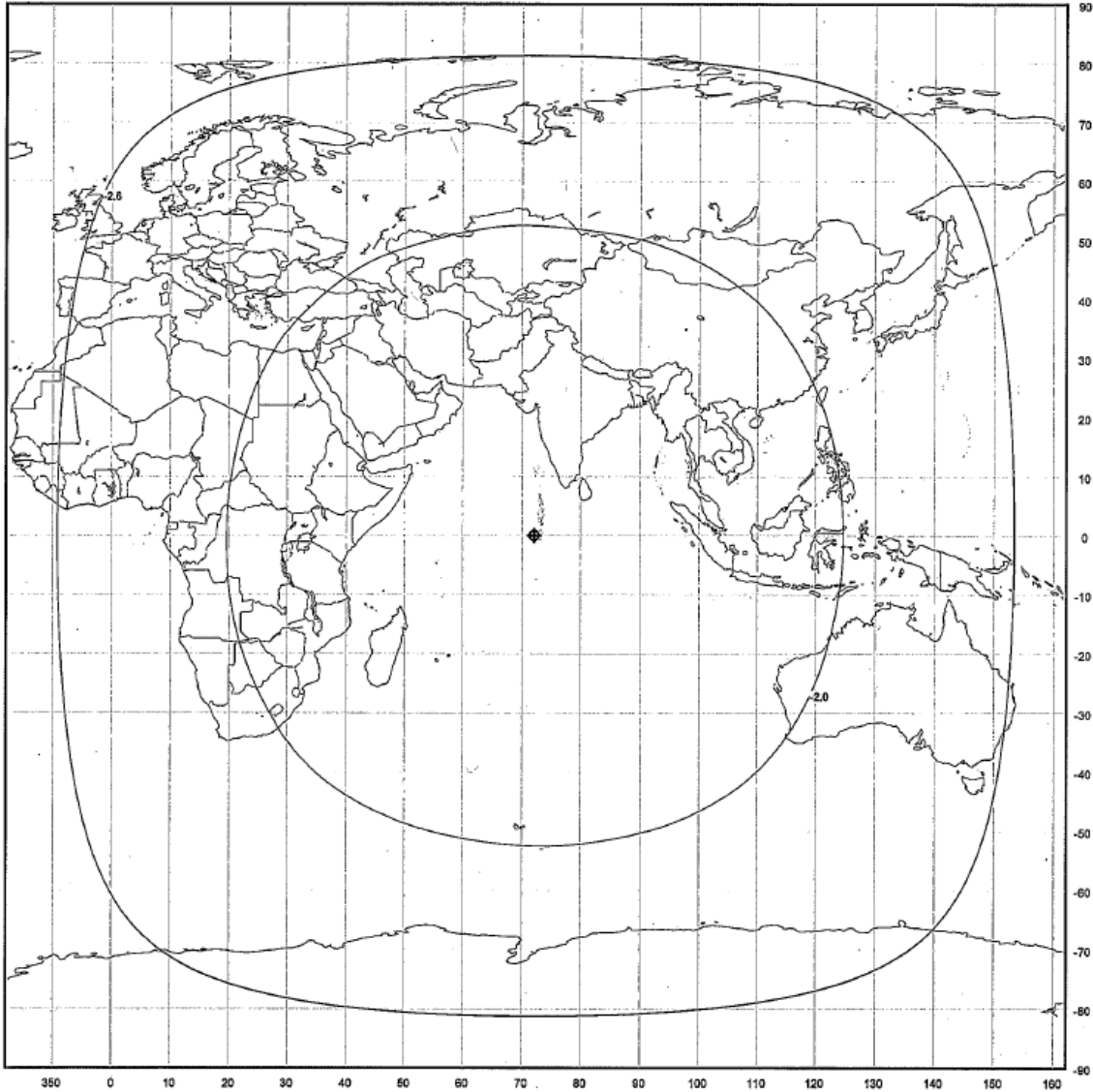
Polarization: Left Hand Circular

Peak Beam Gain: 8.3 dBi

Peak G/T: -28.5 dB/K

Command Threshold Flux Density @ Peak G/T: -107.4 dBW/m²

[Schedule S Beam Designation: CMD]



Relative Gain Contours Shown: -2.0, -2.6 dB

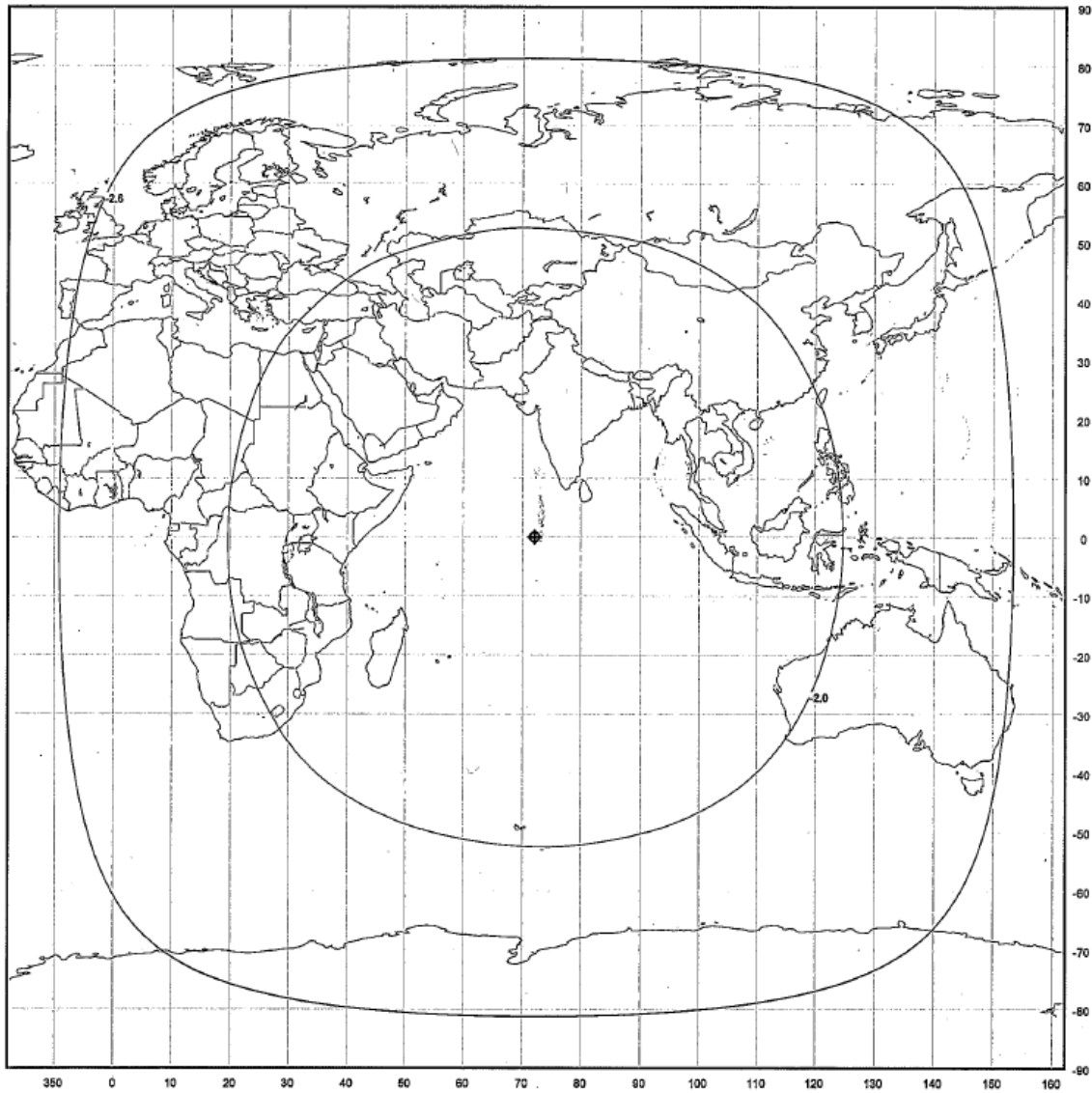
Exhibit 2-38: On-Station Telemetry Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 16.5 dBi

Peak EIRP: 8.2 dBW

[Schedule S Beam Designation: TLMO]



Relative Gain Contours Shown: -2.0, -2.6 dB

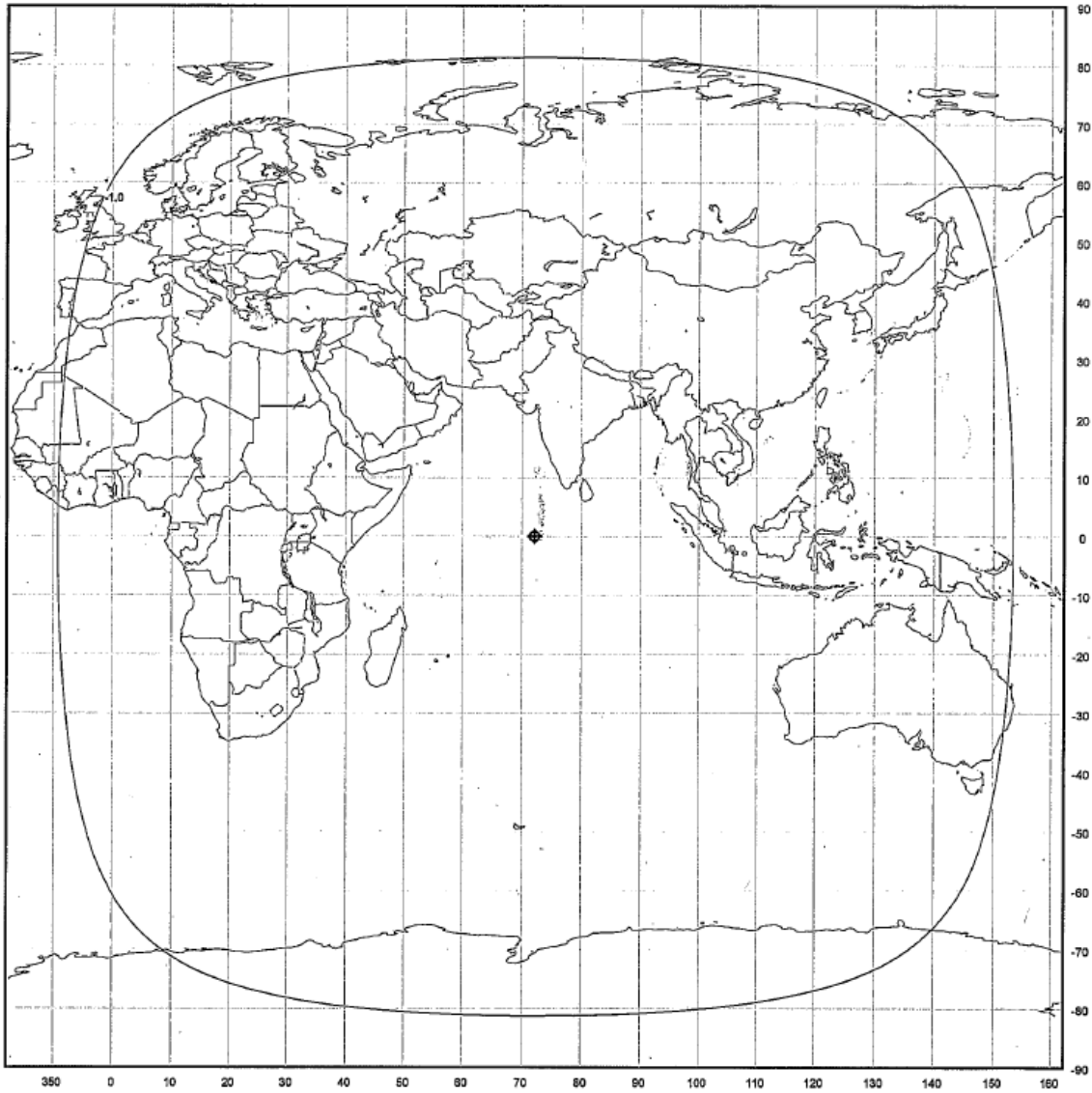
Exhibit 2-39: Back-up Telemetry Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: -5.3 dBi

Peak EIRP: 0.7 dBW

[Schedule S Beam Designation: TLMB]



Relative Gain Contour Shown: -1 dB

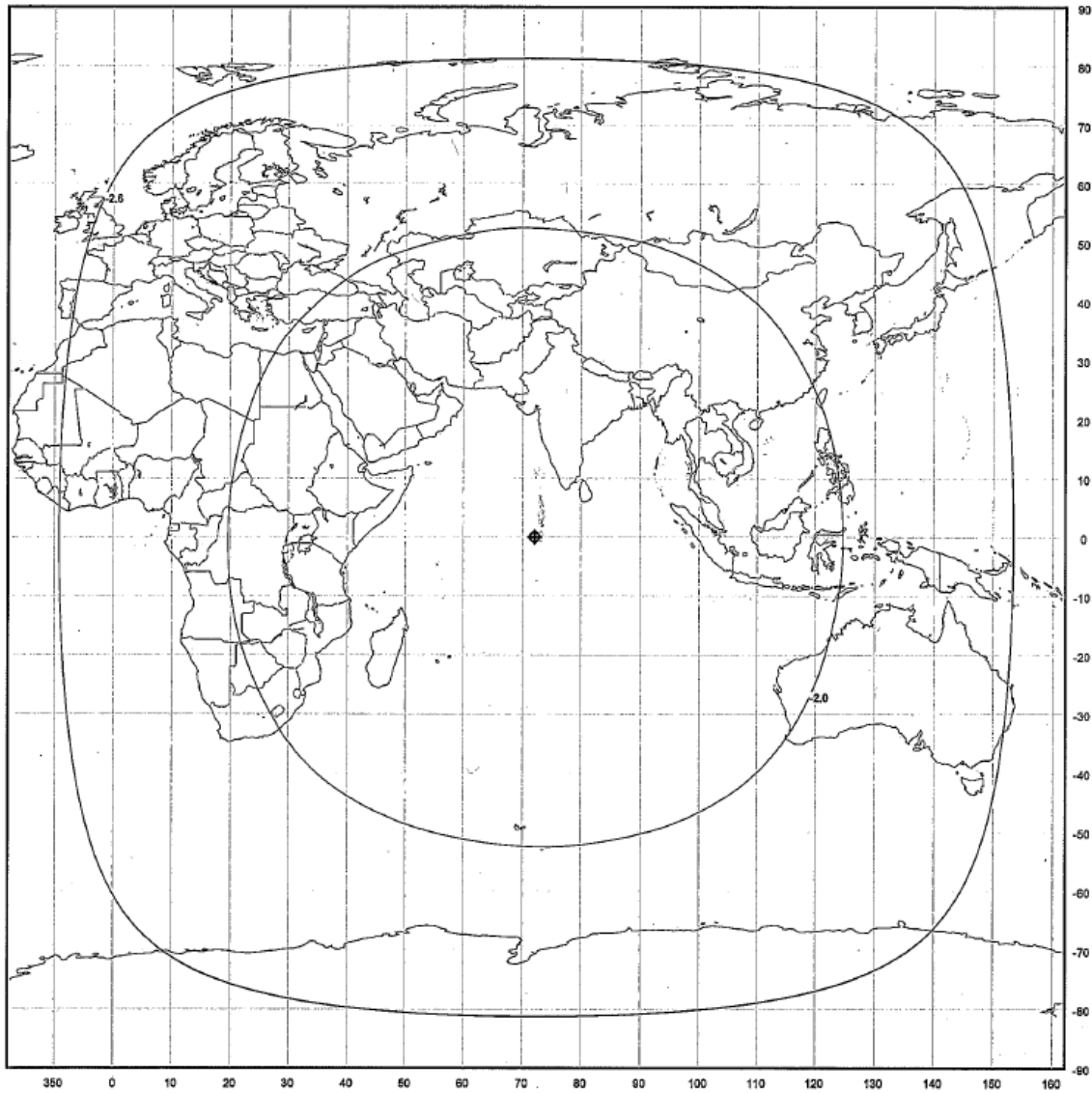
Exhibit 2-40: C-Band Uplink Power Control Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 10.7 dBi

Peak EIRP: 11.7 dBW

[Schedule S Beam Designation: BNC]



Relative Gain Contours Shown: -2.0, -2.6 dB

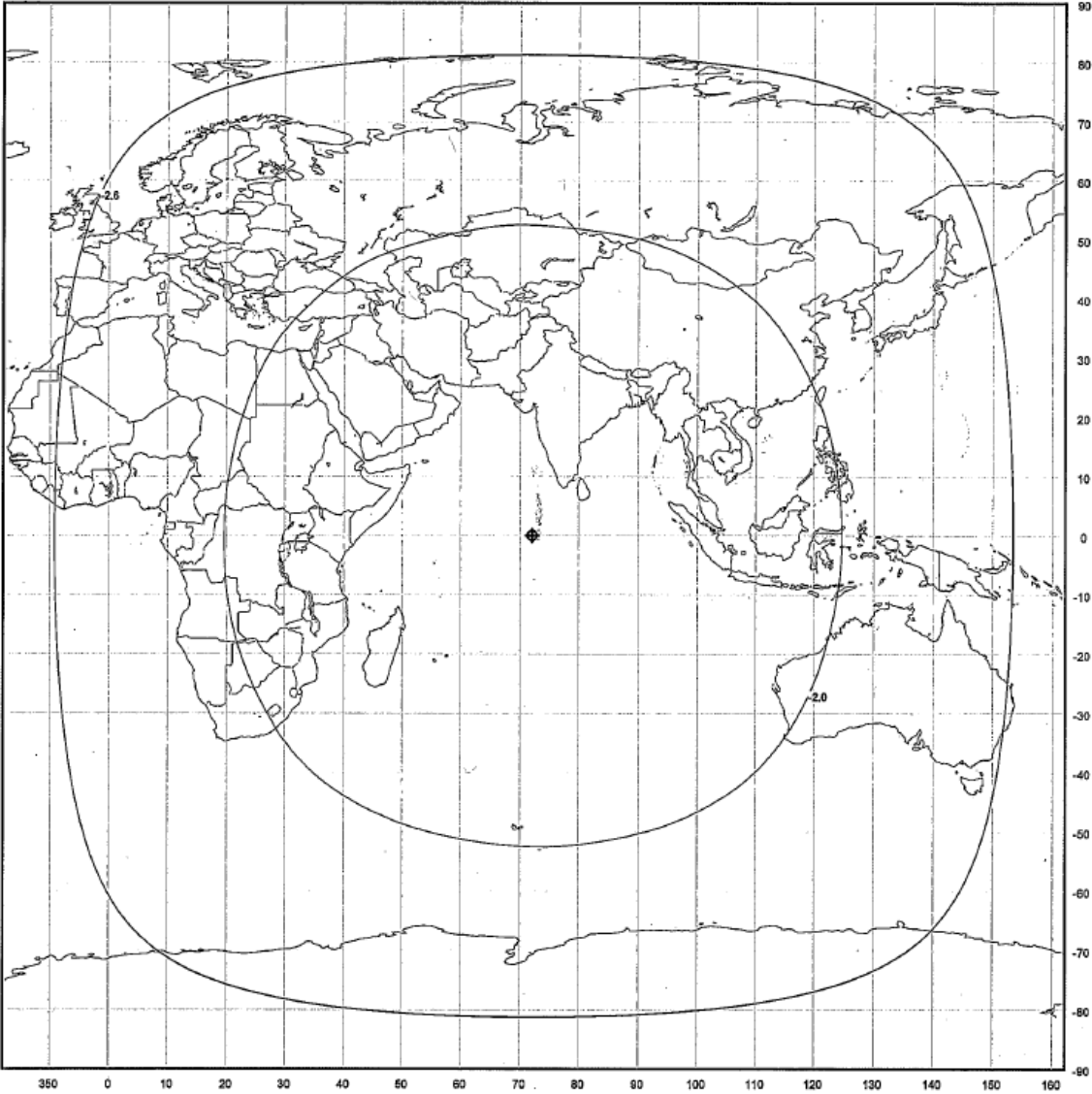
Exhibit 2-41: Ku-Band Uplink Power Control Downlink Beam

Polarization: Right Hand Circular

Peak Beam Gain: 16.7 dBi

Peak EIRP: 8.0 dBW

[Schedule S Beam Designation: BNK1]



Relative Gain Contours Shown: -2.0, -2.6 dB

Exhibit 2-42: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 35.2 dBi

Peak EIRP: 11.7 dBW

[Schedule S Beam Designation: BNK2]

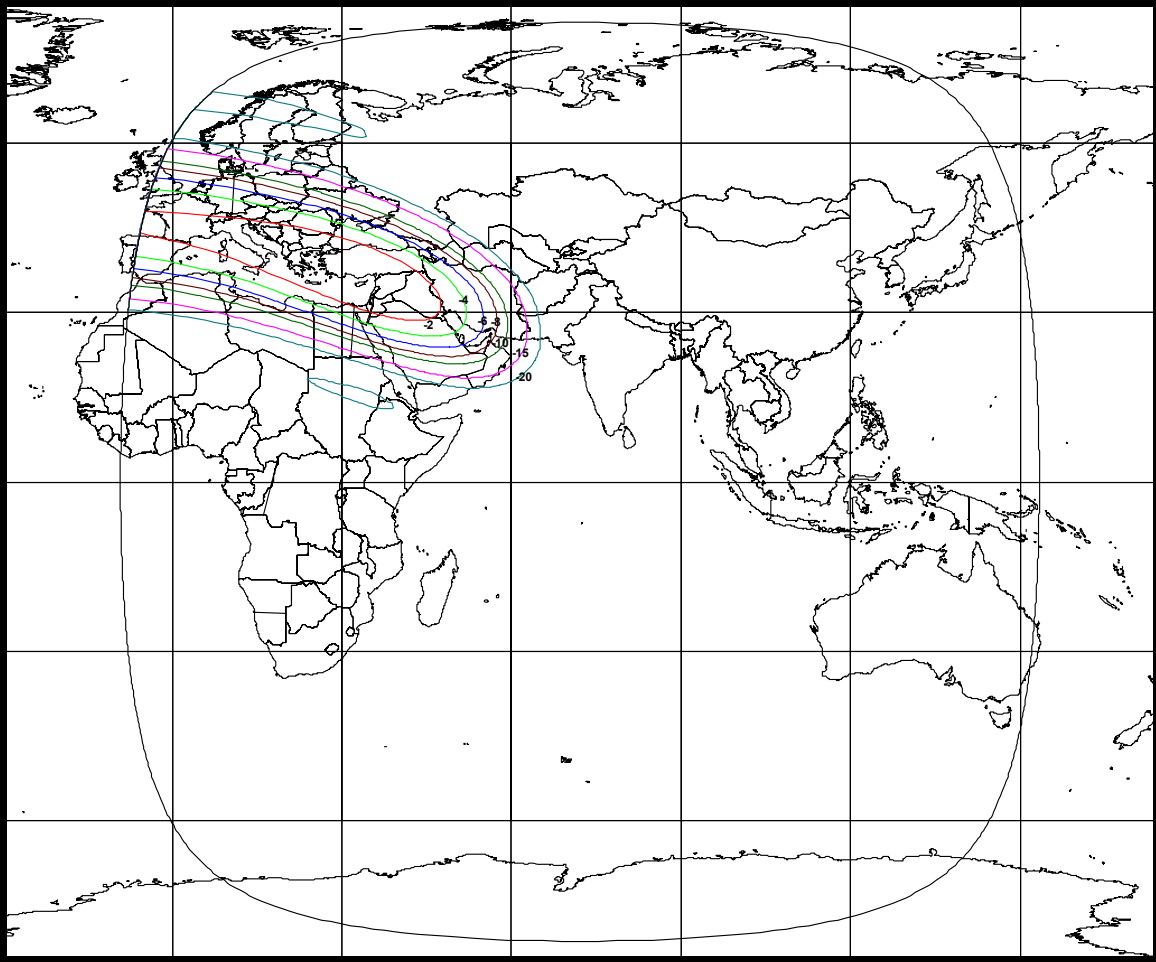


Exhibit 2-43: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 35.6 dBi

Peak EIRP: 11.7 dBW

[Schedule S Beam Designation: BNK3]

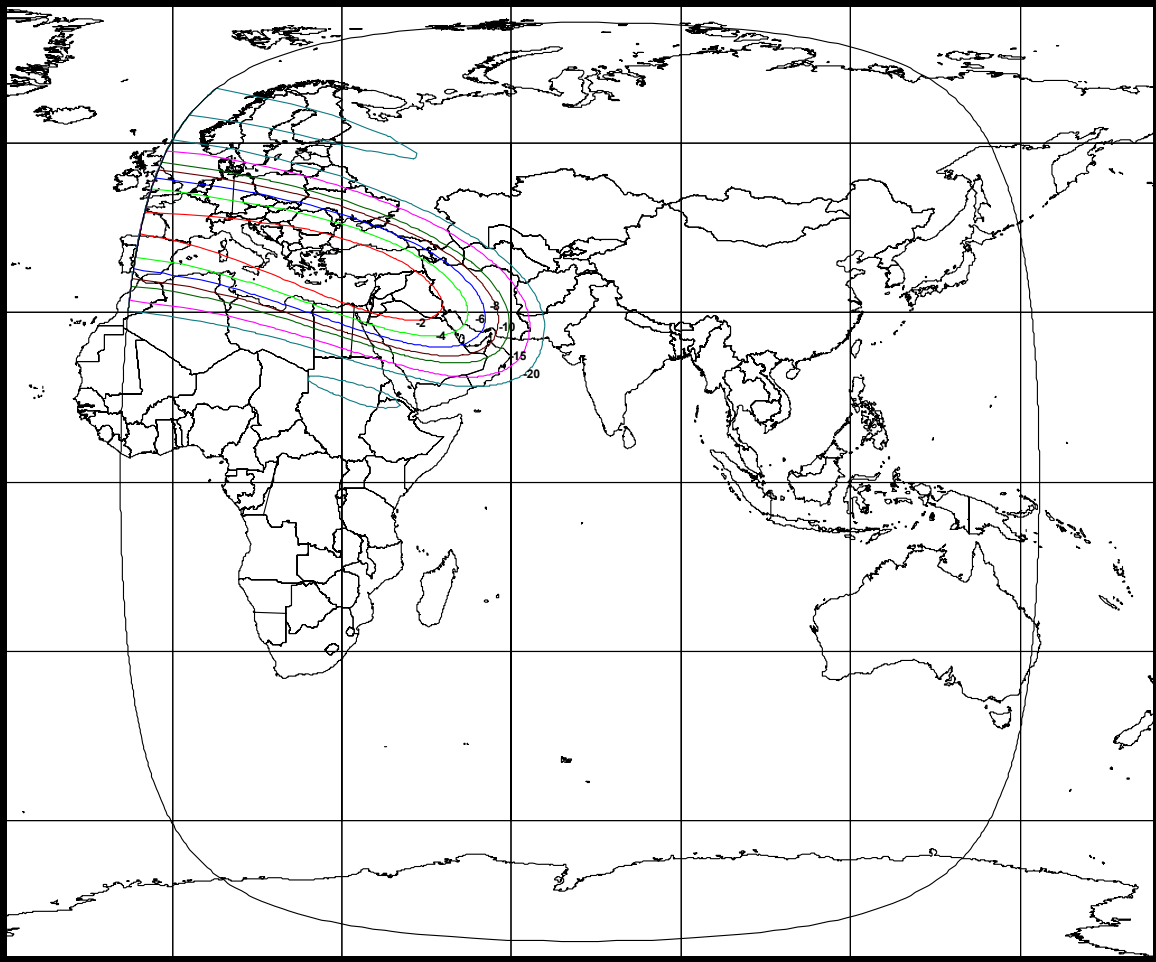


Exhibit 2-44: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 34.6 dBi

Peak EIRP: 10.3 dBW

[Schedule S Beam Designation: BNK4]

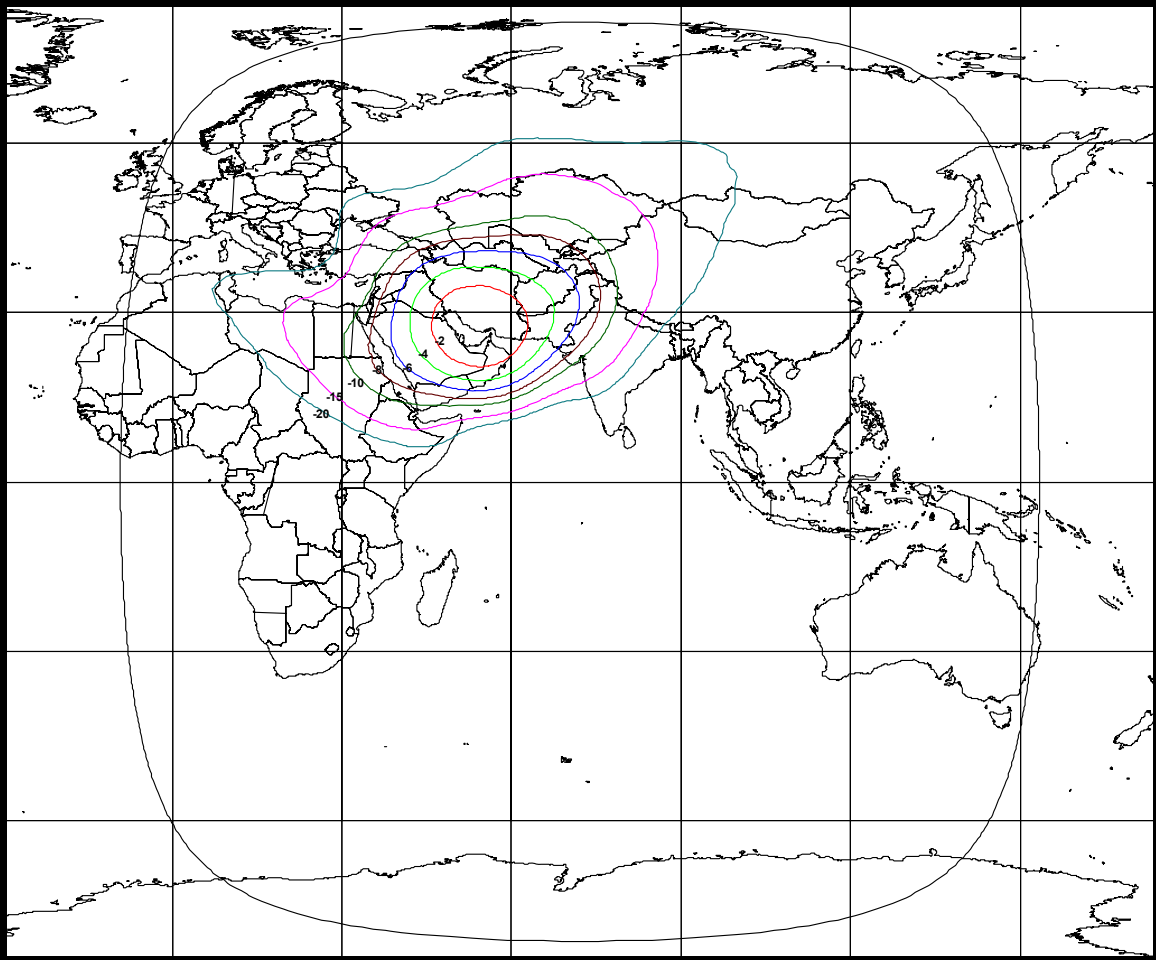


Exhibit 2-45: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 34.2 dBi

Peak EIRP: 10.3 dBW

[Schedule S Beam Designation: BNK5]

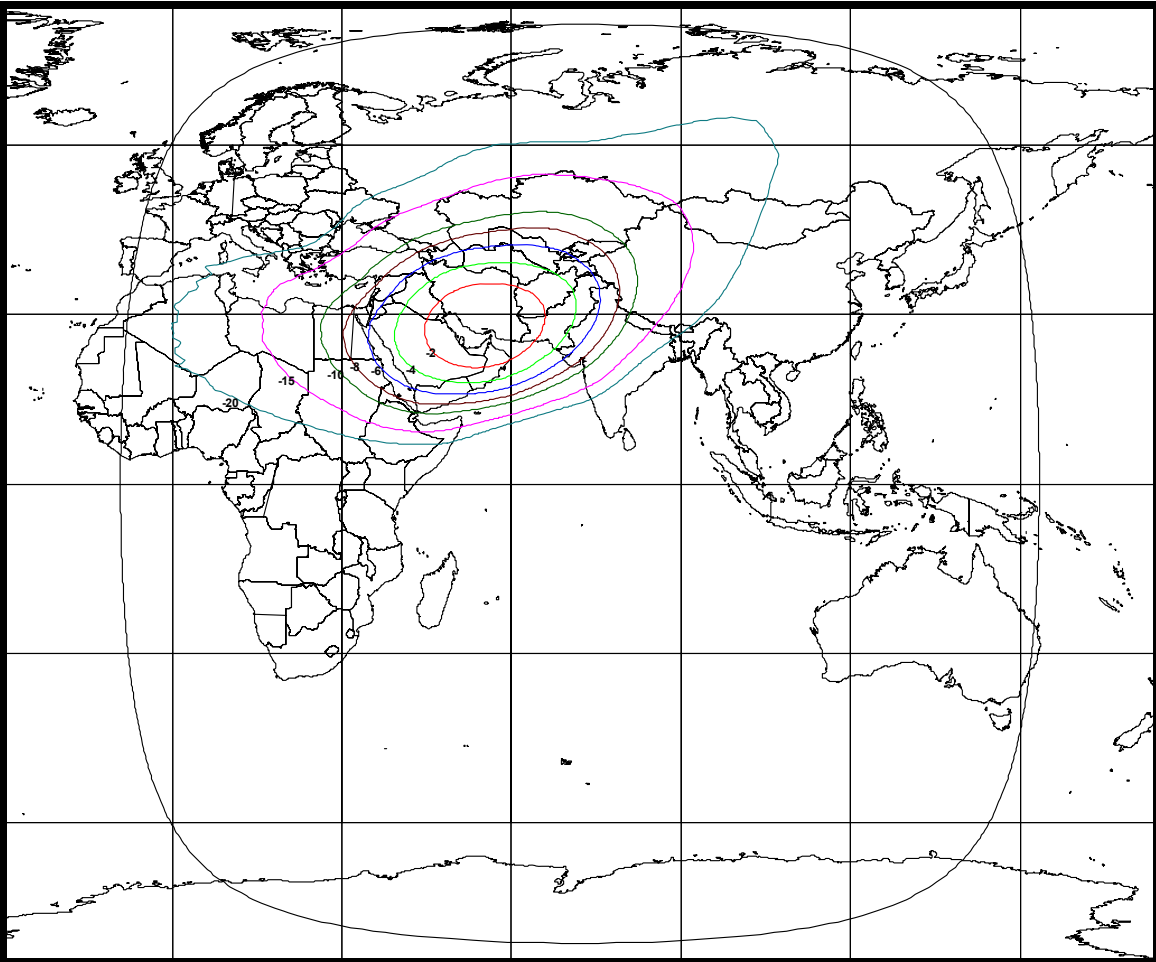


Exhibit 2-46: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Vertical

Peak Beam Gain: 33.3 dBi

Peak EIRP: 12.3 dBW

[Schedule S Beam Designation: BNK6]

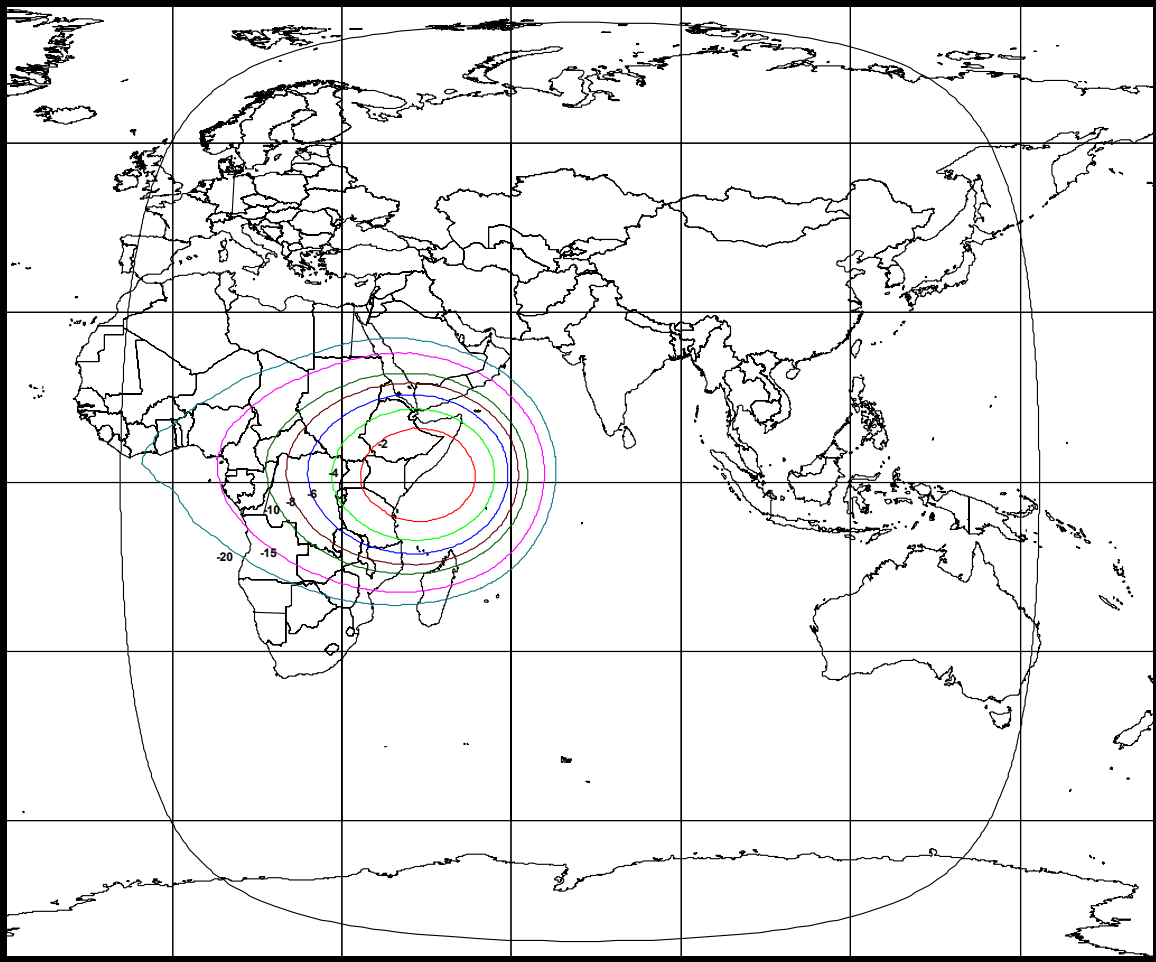


Exhibit 2-47: Ku-Band Uplink Power Control Downlink Beam

Polarization: Linear Horizontal

Peak Beam Gain: 33.3 dBi

Peak EIRP: 12.3 dBW

[Schedule S Beam Designation: BNK7]

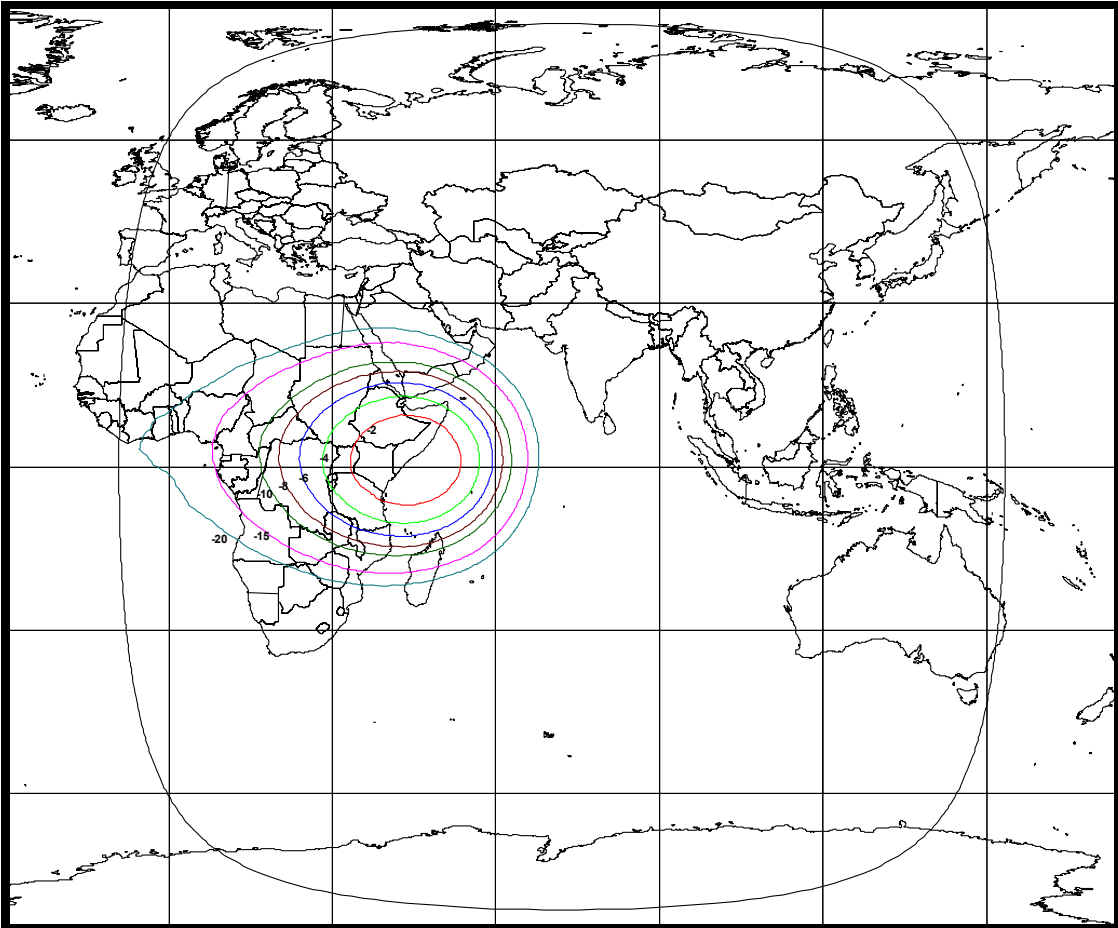


EXHIBIT 3: EMISSION DESIGNATORS

Signal Type	Emission Designator	Allocated Bandwidth (kHz)
Analog TV/FM Carrier	30M0F3F	30000
76436 kbps Carrier	112MG7W	112000
52550 kbps Carrier	77M0G7W	77000
49138 kbps Carrier	72M0G7W	72000
27981 kbps Carrier	41M0G7W	41000
24575 kbps Carrier	36M0G7W	36000
23204 kbps Carrier	34M0G7W	34000
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 : 3.7 - 4.2 GHz							
Global A Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-159.9	-159.8	-159.7	-159.5	-159.4	-159.3	-158.6
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	7.9	7.8	10.2	12.5	14.9	17.3	16.6
Global A Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-168.4	-168.3	-168.2	-168.1	-168.0	-167.8	-167.1
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	16.4	16.3	18.7	21.1	23.5	25.8	25.1
Global B Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-159.9	-159.8	-159.7	-159.5	-159.4	-159.3	-158.6
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	7.9	7.8	10.2	12.5	14.9	17.3	16.6
Global B Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	33.5	33.5	33.5	33.5	33.5	33.5	33.5
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-168.4	-168.3	-168.2	-168.1	-168.0	-167.8	-167.1

PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	16.4	16.3	18.7	21.1	23.5	25.8	25.1
West Hemi Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-156.8	-156.7	-156.6	-156.4	-156.3	-156.2	-155.5
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	4.8	4.7	7.1	9.4	11.8	14.2	13.5
West Hemi Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	36.6	36.6	36.6	36.6	36.6	36.6	36.6
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-165.3	-165.2	-165.1	-165.0	-164.9	-164.7	-164.0
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	13.3	13.2	15.6	18.0	20.4	22.7	22.0
East Hemi Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.3	38.3	38.3	38.3	38.3	38.3	38.3
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-155.1	-155.0	-154.9	-154.7	-154.6	-154.5	-153.8
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	3.1	3.0	5.4	7.7	10.1	12.5	11.8
East Hemi Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.3	38.3	38.3	38.3	38.3	38.3	38.3
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-163.6	-163.5	-163.4	-163.3	-163.2	-163.0	-162.3
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0

Margin (dB)	11.6	11.5	13.9	16.3	18.7	21.0	20.3
Northwest Zone Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	37.7	37.7	37.7	37.7	37.7	37.7	37.7
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-155.7	-155.6	-155.5	-155.3	-155.2	-155.1	-154.4
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	3.7	3.6	6.0	8.3	10.7	13.1	12.4
Northwest Zone Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	37.7	37.7	37.7	37.7	37.7	37.7	37.7
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-164.2	-164.1	-164.0	-163.9	-163.8	-163.6	-162.9
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	12.2	12.1	14.5	16.9	19.3	21.6	20.9
Northeast Zone Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.6	-154.5	-154.4	-154.2	-154.1	-154.0	-153.3
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	2.6	2.5	4.9	7.2	9.6	12.0	11.3
Northeast Zone Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-163.1	-163.0	-162.9	-162.8	-162.7	-162.5	-161.8
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	11.1	11.0	13.4	15.8	18.2	20.5	19.8

Southwest Zone Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	37.3	37.3	37.3	37.3	37.3	37.3	37.3
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-156.1	-156.0	-155.9	-155.7	-155.6	-155.5	-154.8
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	4.1	4.0	6.4	8.7	11.1	13.5	12.8
Southwest Zone Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	37.3	37.3	37.3	37.3	37.3	37.3	37.3
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-164.6	-164.5	-164.4	-164.3	-164.2	-164.0	-163.3
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	12.6	12.5	14.9	17.3	19.7	22.0	21.3
Southeast Zone Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.5	38.5	38.5	38.5	38.5	38.5	38.5
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.9	-154.8	-154.7	-154.5	-154.4	-154.3	-153.6
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	2.9	2.8	5.2	7.5	9.9	12.3	11.6
Southeast Zone Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	38.5	38.5	38.5	38.5	38.5	38.5	38.5
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-163.4	-163.3	-163.2	-163.1	-163.0	-162.8	-162.1
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	11.4	11.3	13.7	16.1	18.5	20.8	20.1
C-Spot A Beam: 30M0F3F							

Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.8	-152.7	-152.6	-152.4	-152.3	-152.2	-151.5
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.8	0.7	3.1	5.4	7.8	10.2	9.5
C-Spot A Beam: 36M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Carrier Occupied Bandwidth (kHz)	30133	30133	30133	30133	30133	30133	30133
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-161.6	-161.4	-161.3	-161.2	-161.1	-161.0	-160.2
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	9.6	9.4	11.8	14.2	16.6	19.0	18.2
C-Spot B Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.8	-152.7	-152.6	-152.4	-152.3	-152.2	-151.5
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.8	0.7	3.1	5.4	7.8	10.2	9.5
C-Spot B Beam: 36M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	40.6	40.6	40.6	40.6	40.6	40.6	40.6
Carrier Occupied Bandwidth (kHz)	30133	30133	30133	30133	30133	30133	30133
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-161.6	-161.4	-161.3	-161.2	-161.1	-161.0	-160.2
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	9.6	9.4	11.8	14.2	16.6	19.0	18.2
Telemetry							
Elevation Angle (degrees)	0	5	10	15	20	25	90

Assumed EIRP (dBW)	8.2	8.2	8.2	8.2	8.2	8.2	8.2
Carrier Occupied Bandwidth (kHz)	250	250	250	250	250	250	250
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-173.1	-173.0	-172.9	-172.8	-172.7	-172.6	-171.8
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	21.1	21.0	23.4	25.8	28.2	30.6	29.8
C-Band ULPC							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	11.7	11.7	11.7	11.7	11.7	11.7	11.7
Carrier Occupied Bandwidth (kHz)	25	25	25	25	25	25	25
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-159.6	-159.5	-159.4	-159.3	-159.2	-159.1	-158.3
PFD Limit (dBW/m ² /4kHz)	-152	-152	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	7.6	7.5	9.9	12.3	14.7	17.1	16.3
FREQUENCY BAND : 10.95 - 11.2 GHz & 11.45 – 11.70 GHz							
Spot 1 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	50.4*	52.8*	52.1*
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot 1 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	51.9*	51.8*	53.2	53.2	53.2	53.2	53.2
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-148.5	-148.4	-148.3	-148.1	-147.4
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	1.0	3.4	5.8	8.1	7.4
Spot 1X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	50.4*	52.8*	52.1*

Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot 1X Beam: 112MG7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.1	53.1	53.1	53.1	53.1	53.1	53.1
Carrier Occupied Bandwidth (kHz)	93724	93724	93724	93724	93724	93724	93724
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.0	-153.9	-153.8	-153.6	-153.5	-153.4	-152.7
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	4.0	3.9	6.3	8.6	11.0	13.4	12.7
Spot 2 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	50.4*	52.8*	52.1*
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot 2 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	51.9*	51.8*	54.1	54.1	54.1	54.1	54.1
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.6	-147.5	-147.4	-147.2	-146.5
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.1	2.5	4.9	7.2	6.5
Spot 2X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	50.4*	52.8*	52.1*
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000

Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Spot 2X Beam: 112MG7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.1	53.1	53.1	53.1	53.1	53.1	53.1
Carrier Occupied Bandwidth (kHz)	93724	93724	93724	93724	93724	93724	93724
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.0	-153.9	-153.8	-153.6	-153.5	-153.4	-152.7
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	4.0	3.9	6.3	8.6	11.0	13.4	12.7
Spot 2A Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	50.4*	52.1	52.1
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.7	-140.0
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Spot 2A Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	51.9*	51.8*	52.1	52.1	52.1	52.1	52.1
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-149.6	-149.5	-149.4	-149.2	-148.5
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	2.1	4.5	6.9	9.2	8.5
Spot 3 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	49.7	49.7	49.7
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1

Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-143.2	-143.1	-142.4
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.7	3.1	2.4
Spot 3 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	49.7	49.7	49.7	49.7	49.7	49.7	49.7
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.2	-152.1	-152.0	-151.9	-151.8	-151.6	-150.9
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	2.2	2.1	4.5	6.9	9.3	11.6	10.9
Spot 3X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	43.4*	43.3*	45.7*	48.0*	49.7	49.7	49.7
Carrier Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-150.0	-150.0	-147.5	-145.0	-143.2	-143.1	-142.4
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.7	3.1	2.4
Spot 3X Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	49.7	49.7	49.7	49.7	49.7	49.7	49.7
Carrier Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.2	-152.1	-152.0	-151.9	-151.8	-151.6	-150.9
PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	2.2	2.1	4.5	6.9	9.3	11.6	10.9
Ku-Band ULPC							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Carrier Occupied Bandwidth (kHz)	25	25	25	25	25	25	25
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-159.0	-158.9	-158.8	-158.7	-158.6	-158.5	-157.7

PFD Limit (dBW/m ² /4kHz)	-150	-150	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	11.0	10.9	13.3	13.7	16.1	18.5	17.7
FREQUENCY BAND : 12.50 - 12.750 GHz							
Spot 1 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	50.0*	52.4*	53.2	53.2
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.0	-140.5	-139.6	-138.9
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	1.6	0.9
Spot 1 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.2	53.2	53.2	53.2	53.2	53.2	53.2
Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.7	-148.6	-148.5	-148.4	-148.3	-148.1	-147.4
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.7	0.6	3.0	5.4	7.8	10.1	9.4
Spot 1X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	50.0*	52.4*	53.1	53.1
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.0	-140.5	-139.7	-139.0
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	1.7	1.0
Spot 1X Beam: 112MG7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.1	53.1	53.1	53.1	53.1	53.1	53.1
Occupied Bandwidth (kHz)	93724	93724	93724	93724	93724	93724	93724
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.0	-153.9	-153.8	-153.6	-153.5	-153.4	-152.7
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0

Margin (dB)	6.0	5.9	8.3	10.6	13.0	15.4	14.7
Spot 2 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	50.0*	52.4*	54.1	54.1
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.0	-140.5	-138.7	-138.0
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.7	0.0
Spot 2 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.9*	53.8*	54.1	54.1	54.1	54.1	54.1
Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-147.6	-147.5	-147.4	-147.2	-146.5
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	2.1	4.5	6.9	9.2	8.5
Spot 2X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	50.0*	52.4*	53.1	53.1
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.0	-140.5	-139.7	-139.0
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	1.7	1.0
Spot 2X Beam: 112MG7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	53.1	53.1	53.1	53.1	53.1	53.1	53.1
Occupied Bandwidth (kHz)	93724	93724	93724	93724	93724	93724	93724
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-154.0	-153.9	-153.8	-153.6	-153.5	-153.4	-152.7
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	6.0	5.9	8.3	10.6	13.0	15.4	14.7
Spot 2A Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90

Assumed EIRP (dBW)	45.4*	45.3*	47.7*	50.0*	52.1	52.1	52.1
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.0	-140.8	-140.7	-140.0
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.0	0.3	2.7	2.0
Spot 2A Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	52.1	52.1	52.1	52.1	52.1	52.1	52.1
Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-149.8	-149.7	-149.6	-149.5	-149.4	-149.2	-148.5
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	1.8	1.7	4.1	6.5	8.9	11.2	10.5
Spot 3 Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	49.7	49.7	49.7	49.7
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.3	-143.2	-143.1	-142.4
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.3	2.7	5.1	4.4
Spot 3 Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	49.7	49.7	49.7	49.7	49.7	49.7	49.7
Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.2	-152.1	-152.0	-151.9	-151.8	-151.6	-150.9
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	4.2	4.1	6.5	8.9	11.3	13.6	12.9
Spot 3X Beam: 30M0F3F							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	45.4*	45.3*	47.7*	49.7	49.7	49.7	49.7
Occupied Bandwidth (kHz)	4000	4000	4000	4000	4000	4000	4000
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1

Maximum Power Flux Density (dBW/m ² /4kHz)	-148.0	-148.0	-145.5	-143.3	-143.2	-143.1	-142.4
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	0.0	0.0	0.0	0.3	2.7	5.1	4.4
Spot 3X Beam: 34M0G7W							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	49.7	49.7	49.7	49.7	49.7	49.7	49.7
Occupied Bandwidth (kHz)	28452	28452	28452	28452	28452	28452	28452
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-152.2	-152.1	-152.0	-151.9	-151.8	-151.6	-150.9
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	4.2	4.1	6.5	8.9	11.3	13.6	12.9
Ku-Band ULPC							
Elevation Angle (degrees)	0	5	10	15	20	25	90
Assumed EIRP (dBW)	12.3	12.3	12.3	12.3	12.3	12.3	12.3
Occupied Bandwidth (kHz)	25	25	25	25	25	25	25
Spreading Loss (dB/m ²)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum Power Flux Density (dBW/m ² /4kHz)	-159.0	-158.9	-158.8	-158.7	-158.6	-158.5	-157.7
PFD Limit (dBW/m ² /4kHz)	-148	-148	-145.5	-143.0	-140.5	-138.0	-138.0
Margin (dB)	11.0	10.9	13.3	15.7	18.1	20.5	19.7

* 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: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-11.5	-11.5	-11.5	-11.5
Uplink SFD (dBW/m2)	-73.1	-87.1	-85.1	-85.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	29.5	29.5	29.5	29.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	13.0	7.0	7.0	7.0
Earth Station Gain (dBi)	56.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	13.1	4.5	6.1	6.1
Earth Station Gain (dBi)	53.5	43.9	46.5	46.5
Earth Station G/T (dB/K)	33.0	23.6	26.2	26.2
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)	80.3	75.8	65.1	44.7
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)	-11.5	-11.5	-11.5	-11.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	22.4	17.3	13.7	12.8
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	25.8	29.5	21.5	1.1
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)	33.0	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	15.9	9.5	11.2	10.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	22.4	17.3	13.7	12.8
C/N Downlink (dB)	15.9	9.5	11.2	10.3
C/I Intermodulation (dB)	N/A	N/A	20.0	19.1
C/I Uplink Co-Channel (dB)*	28.4	27.0	28.5	28.2
C/I Downlink Co-Channel (dB)*	28.4	27.0	28.5	28.2
C/I Uplink Adjacent Satellite 1 (dB)	22.2	17.1	13.5	12.6
C/I Downlink Adjacent Satellite 1 (dB)	17.3	9.9	11.9	11.1
C/I Uplink Adjacent Satellite 2 (dB)	22.2	17.1	13.5	12.6
C/I Downlink Adjacent Satellite 2 (dB)	18.2	12.4	13.8	12.9
C/(N+I) Composite (dB)	11.0	4.8	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.8	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.4	0.0	0.0
Number of Carriers	1	1.0	2.8	308.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.1	-50.6	-54.2	-55.1
Downlink EIRP Density At Beam Peak (dBW/Hz)	-36.2	-41.9	-42.8	-43.7

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-11.5	-11.5	-11.5	-11.5
Uplink SFD (dBW/m2)	-73.1	-87.1	-80.1	-80.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	HEMI	HEMI	HEMI	HEMI
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	32.6	32.6	32.6	32.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	11.0	7.0	7.0	7.0
Earth Station Gain (dBi)	55.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	3.7	3.7
Earth Station Gain (dBi)	51.9	41.1	41.2	41.2
Earth Station G/T (dB/K)	31.0	21.0	20.9	20.9
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)	79.6	75.8	70.9	50.5
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)	-11.5	-11.5	-11.5	-11.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	21.7	17.9	19.5	18.6
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.3	32.6	25.4	5.0
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)	31.0	21.0	20.9	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.3	10.6	9.8	8.9
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	21.7	17.9	19.5	18.6
C/N Downlink (dB)	16.3	10.6	9.8	8.9
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.7	28.5
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.7	28.5
C/I Uplink Adjacent Satellite 1 (dB)	21.5	17.7	19.3	18.4
C/I Downlink Adjacent Satellite 1 (dB)	17.6	8.3	9.4	8.5
C/I Uplink Adjacent Satellite 2 (dB)	21.5	17.7	19.3	18.4
C/I Downlink Adjacent Satellite 2 (dB)	18.6	13.1	12.4	11.5
C/(N+I) Composite (dB)	11.0	4.7	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.7	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	4	0.0	0.0
Number of Carriers	1	1.0	2.3	257.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.8	-50.0	-48.4	-49.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-33.7	-38.2	-38.9	-39.8

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-11.5	-11.5	-11.5	-11.5
Uplink SFD (dBW/m2)	-73.1	-87.1	-86.1	-86.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	36.6	36.6	36.6	36.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	9.2	7.0	7.0	7.0
Earth Station Gain (dBi)	53.5	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.0	3.5	3.5
Earth Station Gain (dBi)	50.3	39.7	41.1	41.1
Earth Station G/T (dB/K)	29.4	19.2	21.0	21.0
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)	77.8	75.8	64.1	43.7
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)	-11.5	-11.5	-11.5	-11.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	19.9	17.3	12.7	11.8
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	30.5	36.6	28.6	8.2
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)	29.4	19.2	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	16.9	12.2	13.1	12.2
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	19.9	17.3	12.7	11.8
C/N Downlink (dB)	16.9	12.2	13.1	12.2
C/I Intermodulation (dB)	N/A	N/A	20.0	19.1
C/I Uplink Co-Channel (dB)*	28.4	27.0	28.5	28.2
C/I Downlink Co-Channel (dB)*	28.4	27.0	28.5	28.2
C/I Uplink Adjacent Satellite 1 (dB)	19.7	17.1	12.5	11.6
C/I Downlink Adjacent Satellite 1 (dB)	18.6	7.1	11.3	10.5
C/I Uplink Adjacent Satellite 2 (dB)	19.7	17.1	12.5	11.6
C/I Downlink Adjacent Satellite 2 (dB)	19.8	15.9	16.1	15.2
C/(N+I) Composite (dB)	11.0	4.7	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.7	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.3	0.0	0.0
Number of Carriers	1	1.0	2.8	308.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.6	-55.2	-56.1
Downlink EIRP Density At Beam Peak (dBW/Hz)	-31.5	-34.8	-35.7	-36.6

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	HEMI	HEMI	HEMI	HEMI
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-73.5	-87.5	-81.5	-81.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	HEMI	HEMI	HEMI	HEMI
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	32.6	32.6	32.6	32.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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	49138	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	60251	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	10.0	7.0	7.0	7.0
Earth Station Gain (dBi)	54.1	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	15.2	4.5	4.5	4.5
Earth Station Gain (dBi)	55.0	43.9	43.9	43.9
Earth Station G/T (dB/K)	34.5	23.6	23.6	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)	78.1	75.4	66.5	46.1
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)	-74.8	-77.8	-68.3	-48.8
Uplink C/N(dB)	26.3	20.5	21.1	20.2
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	26.0	32.6	22.4	2.0
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	23.6	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-77.8	-68.3	-48.8
Downlink C / N(dB)	17.5	10.2	9.5	8.6
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.3	20.5	21.1	20.2
C/N Downlink (dB)	17.5	10.2	9.5	8.6
C/I Intermodulation (dB)	17.4	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.7	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	27.7	27.0	28.8	28.5
C/I Uplink Adjacent Satellite 1 (dB)	20.1	14.3	14.9	14.0
C/I Downlink Adjacent Satellite 1 (dB)	20.1	11.6	10.9	10.0
C/I Uplink Adjacent Satellite 2 (dB)	20.1	14.3	14.9	14.0
C/I Downlink Adjacent Satellite 2 (dB)	20.8	14.1	13.4	12.5
C/(N+I) Composite (dB)	11.0	5.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	1.0	0.0	0.0
Number of Carriers	2	1.0	4.7	514.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.0	-53.4	-52.8	-53.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-36.0	-41.2	-41.9	-42.8

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	HEMI	HEMI	HEMI	HEMI
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-73.5	-87.5	-77.5	-77.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	29.5	29.5	29.5	29.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	11.0	7.0	7.0	7.0
Earth Station Gain (dBi)	55.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	13.1	4.5	4.5	4.5
Earth Station Gain (dBi)	53.5	43.9	43.9	43.9
Earth Station G/T (dB/K)	33.0	23.6	23.6	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)	80.0	75.4	73.5	53.1
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)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	28.1	23.5	28.1	27.2
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	25.9	29.5	22.3	1.9
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)	33.0	23.6	23.6	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.0	10.1	9.4	8.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.1	23.5	28.1	27.2
C/N Downlink (dB)	16.0	10.1	9.4	8.5
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.8	28.5
C/I Uplink Adjacent Satellite 1 (dB)	21.9	17.3	21.9	21.0
C/I Downlink Adjacent Satellite 1 (dB)	16.9	10.0	9.3	8.4
C/I Uplink Adjacent Satellite 2 (dB)	21.9	17.3	21.9	21.0
C/I Downlink Adjacent Satellite 2 (dB)	17.8	12.5	11.8	10.9
C/(N+I) Composite (dB)	11.0	5.2	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.2	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.9	0.0	0.0
Number of Carriers	1	1.0	2.3	256.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.4	-50.4	-45.8	-46.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-36.1	-41.3	-42.0	-42.9

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	HEMI	HEMI	HEMI	HEMI
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-73.5	-87.5	-80.5	-80.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	ZONE	ZONE	ZONE	ZONE
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
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	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	10.0	7.0	7.0	7.0
Earth Station Gain (dBi)	54.1	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	3.5	3.5
Earth Station Gain (dBi)	51.9	41.1	41.1	41.1
Earth Station G/T (dB/K)	31.0	21.0	21.0	21.0
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)	78.4	75.4	70.5	50.1
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)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	26.5	23.5	25.1	24.2
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.2	33.3	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)	31.0	21.0	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.2	11.3	10.5	9.7
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.5	23.5	25.1	24.2
C/N Downlink (dB)	16.2	11.3	10.5	9.7
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	20.3	17.3	18.9	18.0
C/I Downlink Adjacent Satellite 1 (dB)	17.5	9.0	8.3	7.4
C/I Uplink Adjacent Satellite 2 (dB)	20.3	17.3	18.9	18.0
C/I Downlink Adjacent Satellite 2 (dB)	18.5	13.8	13.1	12.2
C/(N+I) Composite (dB)	11.0	5.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	1.1	0.0	0.0
Number of Carriers	1	1.0	2.3	257.8
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.4	-48.8	-49.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-33.8	-37.5	-38.2	-39.1

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	HEMI	HEMI	HEMI	HEMI
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-73.5	-87.5	-78.5	-78.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	36.6	36.6	36.6	36.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	9.2	7.0	7.0	7.0
Earth Station Gain (dBi)	53.5	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	8.1	3.0	3.5	3.0
Earth Station Gain (dBi)	49.3	39.7	41.1	39.7
Earth Station G/T (dB/K)	28.4	19.2	21.0	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)	77.9	75.4	69.5	52.4
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)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	26.0	23.5	24.1	26.5
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	31.0	36.6	26.4	9.3
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)	28.4	19.2	21.0	19.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.4	12.8	10.9	11.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.0	23.5	24.1	26.5
C/N Downlink (dB)	16.4	12.8	10.9	11.4
C/I Intermodulation (dB)	N/A	N/A	17.2	19.6
C/I Uplink Co-Channel (dB)*	27.8	27.0	25.7	28.7
C/I Downlink Co-Channel (dB)*	27.8	27.0	25.7	28.7
C/I Uplink Adjacent Satellite 1 (dB)	19.8	17.3	17.9	20.3
C/I Downlink Adjacent Satellite 1 (dB)	17.5	7.2	8.6	5.9
C/I Uplink Adjacent Satellite 2 (dB)	19.8	17.3	17.9	20.3
C/I Downlink Adjacent Satellite 2 (dB)	18.9	15.9	13.4	14.6
C/(N+I) Composite (dB)	11.0	5.0	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.0	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.7	0.0	0.0
Number of Carriers	1	1.0	3.5	240.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.6	-50.4	-49.8	-47.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-31.0	-34.2	-37.9	-35.5

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	HEMI	HEMI	HEMI	HEMI
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-5.5	-5.5	-5.5	-5.5
Uplink SFD (dBW/m ²)	-73.5	-87.5	-84.5	-84.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Downlink Frequency (GHz)	11.950	11.950	11.950	11.950
Downlink Beam Polarization	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	43.5	43.5	43.5	43.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	77M0G7W	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	52550	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	64435	6771.1	75.4
Allocated Bandwidth(kHz)	30000	77000	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)	9.0	7.0	7.0	7.0
Earth Station Gain (dBi)	53.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	6.1	1.8	2.4	2.4
Earth Station Gain (dBi)	55.5	44.8	47.5	47.5
Earth Station G/T (dB/K)	33.1	22.3	25.0	25.0
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)	78.2	75.4	63.2	42.9
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)	-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)	-74.8	-78.1	-68.3	-48.8
Uplink C/N(dB)	26.3	20.2	17.8	17.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	37.3	43.5	33.0	12.7
Antenna Pointing Error (dB)	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	33.1	22.3	25.0	25.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-78.1	-68.3	-48.8
Downlink C / N(dB)	17.8	9.8	11.8	11.0
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.3	20.2	17.8	17.0
C/N Downlink (dB)	17.8	9.8	11.8	11.0
C/I Intermodulation (dB)	N/A	N/A	20.2	19.4
C/I Uplink Co-Channel (dB)*	28.1	27.0	28.8	28.6
C/I Downlink Co-Channel (dB)*	28.1	27.0	28.8	28.6
C/I Uplink Adjacent Satellite 1 (dB)	20.1	14.0	11.6	10.8
C/I Downlink Adjacent Satellite 1 (dB)	22.3	13.6	15.9	15.1
C/I Uplink Adjacent Satellite 2 (dB)	20.1	14.0	11.6	10.8
C/I Downlink Adjacent Satellite 2 (dB)	22.9	15.7	17.4	16.7
C/(N+I) Composite (dB)	12.8	5.7	5.6	4.8
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.8	4.7	4.6	3.8
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	1.8	1.4	.7	.8
Number of Carriers	2	1.0	5.0	536.8
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.2	-53.7	-56.1	-56.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-24.7	-30.6	-31.3	-32.1

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	ZONE	ZONE	ZONE	ZONE
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-3.0	-3.0	-3.0	-3.0
Uplink SFD (dBW/m ²)	-74.2	-88.2	-80.2	-80.2
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	ZONE	ZONE	ZONE	ZONE
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
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	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	11.0	7.0	7.0	7.0
Earth Station Gain (dBi)	55.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.5	3.5	3.5
Earth Station Gain (dBi)	50.3	41.1	41.1	41.1
Earth Station G/T (dB/K)	29.4	21.0	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)	79.1	74.7	70.8	50.3
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)	-3.0	-3.0	-3.0	-3.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	29.7	25.3	27.8	27.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	29.5	33.3	26.0	5.6
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)	29.4	21.0	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.0	11.3	10.5	9.6
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	29.7	25.3	27.8	27.0
C/N Downlink (dB)	16.0	11.3	10.5	9.6
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	21.0	16.6	19.2	18.3
C/I Downlink Adjacent Satellite 1 (dB)	17.1	9.0	8.3	7.4
C/I Uplink Adjacent Satellite 2 (dB)	21.0	16.6	19.2	18.3
C/I Downlink Adjacent Satellite 2 (dB)	18.4	13.8	13.0	12.2
C/(N+I) Composite (dB)	11.0	5.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	4.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	1.0	0.0	0.0
Number of Carriers	1	1.0	2.4	260.4
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.3	-51.1	-48.5	-49.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-32.5	-37.5	-38.3	-39.1

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	ZONE	ZONE	ZONE	ZONE
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-3.0	-3.0	-3.0	-3.0
Uplink SFD (dBW/m2)	-74.2	-88.2	-81.2	-81.2
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	HEMI	HEMI	HEMI	HEMI
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	32.6	32.6	32.6	32.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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	49138	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	60251	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	10.0	7.0	7.0	7.0
Earth Station Gain (dBi)	54.1	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11	4.5	4.5	4.5
Earth Station Gain (dBi)	51.9	43.9	43.9	43.9
Earth Station G/T (dB/K)	31	23.6	23.6	23.6
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)	77.7	74.7	66.7	46.3
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)	-3.0	-3.0	-3.0	-3.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-77.8	-68.3	-48.8
Uplink C/N(dB)	28.3	22.3	23.8	22.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.0	32.6	22.3	1.9
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)	31.0	23.6	23.6	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-77.8	-68.3	-48.8
Downlink C / N(dB)	16.0	10.2	9.4	8.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.3	22.3	23.8	22.9
C/N Downlink (dB)	16.0	10.2	9.4	8.5
C/I Intermodulation (dB)	N/A	N/A	20.1	19.2
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.6	28.4
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.6	28.4
C/I Uplink Adjacent Satellite 1 (dB)	19.6	13.6	15.1	14.2
C/I Downlink Adjacent Satellite 1 (dB)	18.8	11.6	10.8	9.9
C/I Uplink Adjacent Satellite 2 (dB)	19.6	13.6	15.1	14.2
C/I Downlink Adjacent Satellite 2 (dB)	19.8	14.1	13.3	12.4
C/(N+I) Composite (dB)	11.2	5.2	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	4.2	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.2	.8	0.0	0.0
Number of Carriers	2.0	1.0	4.8	527.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.4	-54.1	-52.6	-53.5
Downlink EIRP Density At Beam Peak (dBW/Hz)	-34.0	-41.2	-42.0	-42.9

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	ZONE	ZONE	ZONE	ZONE
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-3.0	-3.0	-3.0	-3.0
Uplink SFD (dBW/m ²)	-74.2	-87.2	-84.2	-84.2
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Downlink Frequency (GHz)	11.950	11.950	11.950	11.950
Downlink Beam Polarization	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	43.5	43.5	43.5	43.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-26	-26	-26	-26
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	77M0G7W	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	52550	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	64435	6771.1	75.4
Allocated Bandwidth(kHz)	30000	77000	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)	9.0	7.0	7.0	7.0
Earth Station Gain (dBi)	53.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	6.1	1.8	2.4	2.4
Earth Station Gain (dBi)	55.5	44.8	47.5	47.5
Earth Station G/T (dB/K)	33.1	22.3	25.0	25.0
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)	77.5	75.6	63.3	43.0
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)	-3.0	-3.0	-3.0	-3.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-78.1	-68.3	-48.8
Uplink C/N(dB)	28.1	22.9	20.4	19.6
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	37.3	43.4	32.8	12.5
Antenna Pointing Error (dB)	-5	-5	-5	-5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	33.1	22.3	25.0	25.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-78.1	-68.3	-48.8
Downlink C / N(dB)	17.8	9.7	11.6	10.8
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.1	22.9	20.4	19.6
C/N Downlink (dB)	17.8	9.7	11.6	10.8
C/I Intermodulation (dB)	N/A	N/A	20.0	19.2
C/I Uplink Co-Channel (dB)*	28.1	26.9	28.5	28.3
C/I Downlink Co-Channel (dB)*	28.1	26.9	28.5	28.3
C/I Uplink Adjacent Satellite 1 (dB)	19.4	14.2	11.7	10.9
C/I Downlink Adjacent Satellite 1 (dB)	22.3	13.5	15.7	14.9
C/I Uplink Adjacent Satellite 2 (dB)	19.4	14.2	11.7	10.9
C/I Downlink Adjacent Satellite 2 (dB)	22.9	15.6	17.2	16.4
C/(N+I) Composite (dB)	12.6	5.8	5.6	4.9
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.6	4.8	4.6	3.9
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	1.6	1.4	.8	.9
Number of Carriers	2	1.0	5.3	565.1
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.9	-53.5	-56.0	-56.8
Downlink EIRP Density At Beam Peak (dBW/Hz)	-24.7	-30.7	-31.5	-32.3

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-1.0	-1.0	-1.0	-1.0
Uplink SFD (dBW/m2)	-75.1	-89.1	-87.1	-87.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	36.6	36.6	36.6	36.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	9.0	7.0	7.0	7.0
Earth Station Gain (dBi)	53.4	51.0	51.0	51.0
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				
Link Fade Type	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	77.8	73.8	62.9	42.4
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)	-1.0	-1.0	-1.0	-1.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	30.4	25.8	22.0	21.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	32.5	36.6	28.3	7.9
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)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	16.1	12.2	12.8	11.9
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	30.4	25.8	22.0	21.1
C/N Downlink (dB)	16.1	12.2	12.8	11.9
C/I Intermodulation (dB)	N/A	N/A	19.7	18.8
C/I Uplink Co-Channel (dB)*	28.4	27.0	28.3	28.0
C/I Downlink Co-Channel (dB)*	28.4	27.0	28.3	28.0
C/I Uplink Adjacent Satellite 1 (dB)	19.7	15.1	11.3	10.4
C/I Downlink Adjacent Satellite 1 (dB)	17.6	7.1	11.1	10.2
C/I Uplink Adjacent Satellite 2 (dB)	19.7	15.1	11.3	10.4
C/I Downlink Adjacent Satellite 2 (dB)	19.2	15.9	15.9	15.0
C/(N+I) Composite (dB)	11.0	4.6	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.6	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.2	0.0	0.0
Number of Carriers	1	1.0	3.0	327.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.6	-52.6	-56.4	-57.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.5	-34.8	-36.0	-36.8

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-1.0	-1.0	-1.0	-1.0
Uplink SFD (dBW/m2)	-75.1	-89.1	-77.1	-77.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	29.5	29.5	29.5	29.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	11.0	7.0	7.0	7.0
Earth Station Gain (dBi)	55.4	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	4.5	6.1	4.5
Earth Station Gain (dBi)	51.9	43.9	46.5	43.9
Earth Station G/T (dB/K)	31.0	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)	80.1	73.8	71.2	53.2
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)	-1.0	-1.0	-1.0	-1.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	32.7	25.8	30.3	31.8
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	27.4	29.5	19.6	1.6
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)	31.0	23.6	26.2	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	15.4	9.5	9.3	8.2
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	32.7	25.8	30.3	31.8
C/N Downlink (dB)	15.4	9.5	9.3	8.2
C/I Intermodulation (dB)	N/A	N/A	18.0	19.6
C/I Uplink Co-Channel (dB)*	28.4	27.0	26.6	28.7
C/I Downlink Co-Channel (dB)*	28.4	27.0	26.6	28.7
C/I Uplink Adjacent Satellite 1 (dB)	22.0	15.1	19.6	21.1
C/I Downlink Adjacent Satellite 1 (dB)	17.2	9.9	10.0	8.6
C/I Uplink Adjacent Satellite 2 (dB)	22.0	15.1	19.6	21.1
C/I Downlink Adjacent Satellite 2 (dB)	18.2	12.4	11.9	11.1
C/(N+I) Composite (dB)	11.0	4.7	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.7	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.4	0.0	0.0
Number of Carriers	1	1.0	4.0	276.3
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.3	-52.6	-48.1	-46.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-34.6	-41.9	-44.7	-43.2

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	-1.0	-1.0	-1.0	-1.0
Uplink SFD (dBW/m ²)	-75.1	-89.1	-84.1	-84.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	HEMI	HEMI	HEMI	HEMI
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	32.6	32.6	32.6	32.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
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)	-34.2	-34.2	-34.2	-34.2
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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)	30000	30133	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	10.0	7.0	7.0	7.0
Earth Station Gain (dBi)	54.1	51.0	51.0	51.0
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.5	4.5	3.7
Earth Station Gain (dBi)	50.3	41.1	43.9	41.2
Earth Station G/T (dB/K)	29.4	21.0	23.6	20.9
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)	79.0	73.8	65.2	46.8
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)	-1.0	-1.0	-1.0	-1.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Uplink C/N(dB)	31.6	26.4	24.3	25.4
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	29.6	32.6	23.7	5.3
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)	29.4	21.0	23.6	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.8	-68.3	-48.8
Downlink C / N(dB)	16.0	10.6	10.8	9.2
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.6	26.4	24.3	25.4
C/N Downlink (dB)	16.0	10.6	10.8	9.2
C/I Intermodulation (dB)	N/A	N/A	18.5	19.6
C/I Uplink Co-Channel (dB)*	27.8	27.0	27.1	28.8
C/I Downlink Co-Channel (dB)*	27.8	27.0	27.1	28.8
C/I Uplink Adjacent Satellite 1 (dB)	20.9	15.7	13.6	14.8
C/I Downlink Adjacent Satellite 1 (dB)	17.2	8.3	10.7	8.8
C/I Uplink Adjacent Satellite 2 (dB)	20.9	15.7	13.6	14.8
C/I Downlink Adjacent Satellite 2 (dB)	18.4	13.1	13.2	11.9
C/(N+I) Composite (dB)	11.0	4.7	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.7	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	.3	0.0	0.0
Number of Carriers	1	1.0	3.4	237.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.1	-52.0	-54.1	-52.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-32.4	-38.2	-40.6	-39.5

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION						
Uplink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT	KSPOT	KSPOT
Uplink Frequency (GHz)	14.250	14.250	14.250	14.250	14.250	14.250
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	5.5	5.5	5.5	5.5	5.5	5.5
Uplink SFD (dBW/m2)	-77.5	-81.5	-87.5	-87.5	-87.5	-87.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT	KSPOT	KSPOT
Downlink Frequency (GHz)	11.950	11.950	11.950	11.950	11.950	11.950
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	43.5	43.5	43.5	43.5	43.5	43.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E	70.1E	70.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50	-50	-50
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
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E	74.1E	74.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50	-50	-50
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	30M0F3F	112MG7W	10M3G7W	1M45G7W	400KG7W	100KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76436	6000	512	128	64
Code Rate	N/A	1/2x188/204	1/2x188/204	R1/2	R1/2	1/2x239/256
Occupied Bandwidth(kHz)	30000	93724	6771.1	1229.0	307.0	75.4
Allocated Bandwidth(kHz)	30000	112000	10300	1450.0	400.0	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	3.4	3.4	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.7	2.7	2.79
UPLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	7.0	7.0	7.0	3.0	7.0
Earth Station Gain (dBi)	58.1	58.1	58.1	58.1	49.7	58.1
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	2.4	3.0	3.0	7.0	3.0
Earth Station Gain (dBi)	57.0	47.5	49.2	49.2	57.0	49.2
Earth Station G/T (dB/K)	34.6	25.0	26.7	26.7	34.6	26.7
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)	73.6	81.4	58.3	50.1	40.3	38.1
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)	5.5	5.5	5.5	5.5	5.5	5.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-79.7	-68.3	-60.9	-54.9	-48.8
Uplink C/N(dB)	25.4	28.3	16.6	15.8	12.1	15.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	36.4	43.5	31.1	22.9	13.1	10.8
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)	34.6	25.0	26.7	26.7	34.6	26.7
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-79.7	-68.3	-60.9	-54.9	-48.8
Downlink C / N(dB)	18.3	10.9	11.6	10.8	15.0	10.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	25.4	28.3	16.6	15.8	12.1	15.9
C/N Downlink (dB)	18.3	10.9	11.6	10.8	15.0	10.9
C/I Intermodulation (dB)	18.7	N/A	19.9	19.1	15.4	19.2
C/I Uplink Co-Channel (dB)*	29.1	27.0	28.5	28.8	24.6	28.4
C/I Downlink Co-Channel (dB)*	29.1	27.0	28.5	28.8	24.6	28.4
C/I Uplink Adjacent Satellite 1 (dB)	26.8	29.7	18.0	17.2	13.5	17.3
C/I Downlink Adjacent Satellite 1 (dB)	22.8	15.0	15.8	15.0	19.5	15.1
C/I Uplink Adjacent Satellite 2 (dB)	26.8	29.7	18.0	17.2	13.5	17.3
C/I Downlink Adjacent Satellite 2 (dB)	23.3	16.5	17.1	16.3	20.0	16.4
C/(N+I) Composite (dB)	13.2	8.5	7.4	6.6	6.2	6.7
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.2	7.5	6.4	5.6	5.2	5.7
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.4	-3.4	-3.0
Excess Link Margin (dB)	2.2	4.1	2.6	2.2	1.8	2.7
Number of Carriers	2.0	1.0	7.7	51.5	280.0	819.4
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-50.5	-56.4	-68.1	-68.9	-64.2	-68.8
Downlink EIRP Density At Beam Peak (dBW/Hz)	-25.6	-32.2	-33.2	-34.0	-37.7	-33.9

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Uplink Frequency (GHz)	14.250	14.250	14.250	14.250
Uplink Beam Polarization	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	5.5	5.5	5.5	5.5
Uplink SFD (dBW/m2)	-77.5	-81.5	-90.5	-90.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	HEMI	HEMI	HEMI	HEMI
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	32.6	32.6	32.6	32.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-35.7	-35.7	-35.7	-35.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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	49138	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	60251	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	7.0	7.0	7.0	7.0
Earth Station Gain (dBi)	58.1	58.1	58.1	58.1
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	13.1	4.6	6.1	6.1
Earth Station Gain (dBi)	53.5	43.9	46.5	46.5
Earth Station G/T (dB/K)	33.0	23.6	26.2	26.2
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)	74.4	81.4	57.4	37.2
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5
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)	-74.8	-77.8	-68.3	-48.8
Uplink C/N(dB)	26.2	30.2	15.7	15.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	26.6	32.6	22.3	2.1
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)	33.0	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-77.8	-68.3	-48.8
Downlink C / N(dB)	16.6	10.2	12.0	11.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.2	30.2	15.7	15.1
C/N Downlink (dB)	16.6	10.2	12.0	11.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.4
C/I Uplink Co-Channel (dB)*	27.9	27.0	28.6	28.6
C/I Downlink Co-Channel (dB)*	27.9	27.0	28.6	28.6
C/I Uplink Adjacent Satellite 1 (dB)	27.6	31.6	17.1	16.4
C/I Downlink Adjacent Satellite 1 (dB)	19.1	11.6	13.7	13.0
C/I Uplink Adjacent Satellite 2 (dB)	27.6	31.6	17.1	16.4
C/I Downlink Adjacent Satellite 2 (dB)	20.0	14.0	15.6	14.9
C/(N+I) Composite (dB)	12.7	6.8	6.7	6.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.7	5.8	5.7	5.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	1.7	2.4	1.9	2.1
Number of Carriers	2	1.0	4.8	499.7
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-49.7	-54.5	-69.0	-69.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-35.4	-41.2	-42.0	-42.7

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Uplink Frequency (GHz)	14.250	14.250	14.250	14.250
Uplink Beam Polarization	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	5.5	5.5	5.5	5.5
Uplink SFD (dBW/m2)	-77.5	-81.5	-89.5	-89.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	ZONE	ZONE	ZONE	ZONE
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
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	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-39.7	-39.7	-39.7	-39.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-39.7	-39.7	-39.7	-39.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	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	49138	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	60251	6771.1	75.4
Allocated Bandwidth(kHz)	30000	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)	7.0	7.0	7.0	7.0
Earth Station Gain (dBi)	58.1	58.1	58.1	58.1
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	4.5	4.5
Earth Station Gain (dBi)	51.9	41.1	43.9	43.9
Earth Station G/T (dB/K)	31.0	21.0	23.6	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)	74.2	81.4	58.3	38.1
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5
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)	-74.8	-77.8	-68.3	-48.8
Uplink C/N(dB)	26.0	30.2	16.6	16.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	27.1	33.3	22.9	2.7
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)	31.0	21.0	23.6	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-77.8	-68.3	-48.8
Downlink C / N(dB)	15.2	8.3	10.0	9.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	26.0	30.2	16.6	16.0
C/N Downlink (dB)	15.2	8.3	10.0	9.3
C/I Intermodulation (dB)	N/A	N/A	20.0	19.3
C/I Uplink Co-Channel (dB)*	27.8	27.0	28.5	28.5
C/I Downlink Co-Channel (dB)*	27.8	27.0	28.5	28.5
C/I Uplink Adjacent Satellite 1 (dB)	27.4	31.6	18.0	17.3
C/I Downlink Adjacent Satellite 1 (dB)	21.9	11.5	15.4	14.7
C/I Uplink Adjacent Satellite 2 (dB)	27.4	31.6	18.0	17.3
C/I Downlink Adjacent Satellite 2 (dB)	23.0	16.3	17.9	17.2
C/(N+I) Composite (dB)	12.9	6.0	6.7	6.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.9	5.0	5.7	5.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	1.9	1.7	1.8	2.1
Number of Carriers	2	1.0	4.9	510.3
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-49.9	-54.5	-68.1	-68.8
Downlink EIRP Density At Beam Peak (dBW/Hz)	-34.9	-40.5	-41.4	-42.1

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Uplink Frequency (GHz)	14.250	14.250	14.250	14.250
Uplink Beam Polarization	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	5.5	5.5	5.5	5.5
Uplink SFD (dBW/m2)	-84.5	-81.5	-91.5	-91.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	GLOBAL	GLOBAL	GLOBAL	GLOBAL
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-0.2	-0.2	-0.2	-0.2
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	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	7.0	7.0	7.0	7.0
Earth Station Gain (dBi)	58.1	58.1	58.1	58.1
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	6.1	3.5	4.5	4.5
Earth Station Gain (dBi)	46.5	41.1	43.9	43.9
Earth Station G/T (dB/K)	26.2	21.0	23.6	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)	78.4	81.4	58.4	38.3
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5
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)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	30.3	32.7	16.7	16.2
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.3	33.3	25.0	4.9
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	21.0	23.6	23.6
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	16.5	10.7	12.0	11.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	30.3	32.7	16.7	16.2
C/N Downlink (dB)	16.5	10.7	12.0	11.5
C/I Intermodulation (dB)	N/A	N/A	19.6	19.1
C/I Uplink Co-Channel (dB)*	28.4	27.0	28.2	28.2
C/I Downlink Co-Channel (dB)*	28.4	27.0	28.2	28.2
C/I Uplink Adjacent Satellite 1 (dB)	31.6	34.0	18.1	17.5
C/I Downlink Adjacent Satellite 1 (dB)	17.3	9.0	12.4	11.9
C/I Uplink Adjacent Satellite 2 (dB)	31.6	34.0	18.1	17.5
C/I Downlink Adjacent Satellite 2 (dB)	19.1	13.8	14.9	14.4
C/(N+I) Composite (dB)	12.3	5.9	6.6	6.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.3	4.9	5.6	5.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	1.3	1.5	1.7	2.1
Number of Carriers	1	1.0	3.0	308.4
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-45.7	-52.1	-68.0	-68.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-32.5	-41.9	-43.1	-43.7

Exhibit 5: Link Budgets

UPLINK BEAM INFORMATION				
Uplink Beam Name	KSPOT	KSPOT	KSPOT	KSPOT
Uplink Frequency (GHz)	14.250	14.250	14.250	14.250
Uplink Beam Polarization	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Uplink Contour G/T (dB/K)	5.5	5.5	5.5	5.5
Uplink SFD (dBW/m2)	-82.5	-81.5	-91.5	-91.5
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	CSPOT	CSPOT	CSPOT	CSPOT
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	36.6	36.6	36.6	36.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	SAT-1	SAT-1	SAT-1	SAT-1
Satellite 1 Orbital Location	70.1E	70.1E	70.1E	70.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	SAT-2	SAT-2	SAT-2	SAT-2
Satellite 1 Orbital Location	74.1E	74.1E	74.1E	74.1E
Uplink Power Density (dBW/Hz)	-50	-50	-50	-50
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-34.7	-34.7	-34.7	-34.7
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID	30M0F3F	41M0G7W	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	27981	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	34310	6771.1	75.4
Allocated Bandwidth(kHz)	30000	41000	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)	7.0	7.0	7.0	7.0
Earth Station Gain (dBi)	58.1	58.1	58.1	58.1
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	4.5	3.7	3.5	3.5
Earth Station Gain (dBi)	43.9	41.2	41.1	41.1
Earth Station G/T (dB/K)	23.6	20.9	21.0	21.0
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)	80.0	81.4	58.5	38.5
Uplink Path Loss, Clear Sky (dB)	-207.5	-207.5	-207.5	-207.5
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)	-74.8	-75.4	-68.3	-48.8
Uplink C/N(dB)	31.9	32.7	16.8	16.3
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	36.6	36.6	28.4	8.3
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	20.9	21.0	21.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-75.4	-68.3	-48.8
Downlink C / N(dB)	17.2	13.9	12.9	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.9	32.7	16.8	16.3
C/N Downlink (dB)	17.2	13.9	12.9	12.3
C/I Intermodulation (dB)	N/A	N/A	19.8	19.2
C/I Uplink Co-Channel (dB)*	28.4	27.0	28.3	28.4
C/I Downlink Co-Channel (dB)*	28.4	27.0	28.3	28.4
C/I Uplink Adjacent Satellite 1 (dB)	33.2	34.0	18.2	17.7
C/I Downlink Adjacent Satellite 1 (dB)	17.6	14.0	11.1	10.6
C/I Uplink Adjacent Satellite 2 (dB)	33.2	34.0	18.2	17.7
C/I Downlink Adjacent Satellite 2 (dB)	20.1	17.1	15.9	15.4
C/(N+I) Composite (dB)	13.0	9.8	6.6	6.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.0	8.8	5.6	5.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	2.0	5.4	1.7	2.1
Number of Carriers	1	1.0	2.9	297.7
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-44.1	-52.1	-67.9	-68.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-25.4	-34.8	-35.9	-36.4