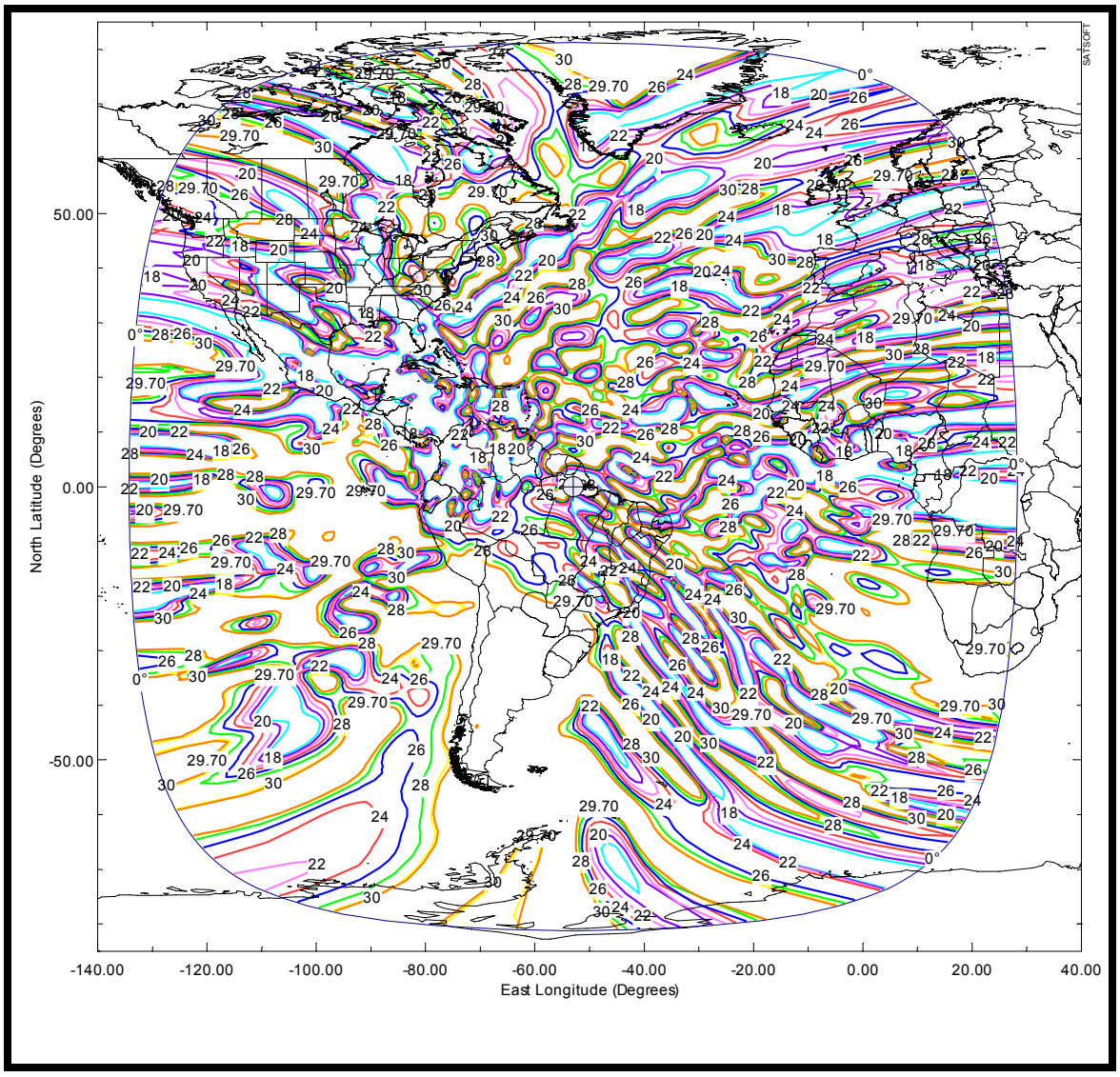
EXHIBIT 5D-4: Ku-BAND ARGENTINA TRANSMIT BEAM
(cross polarization isolation contours)
(Schedule S Beam ID: MHDX)

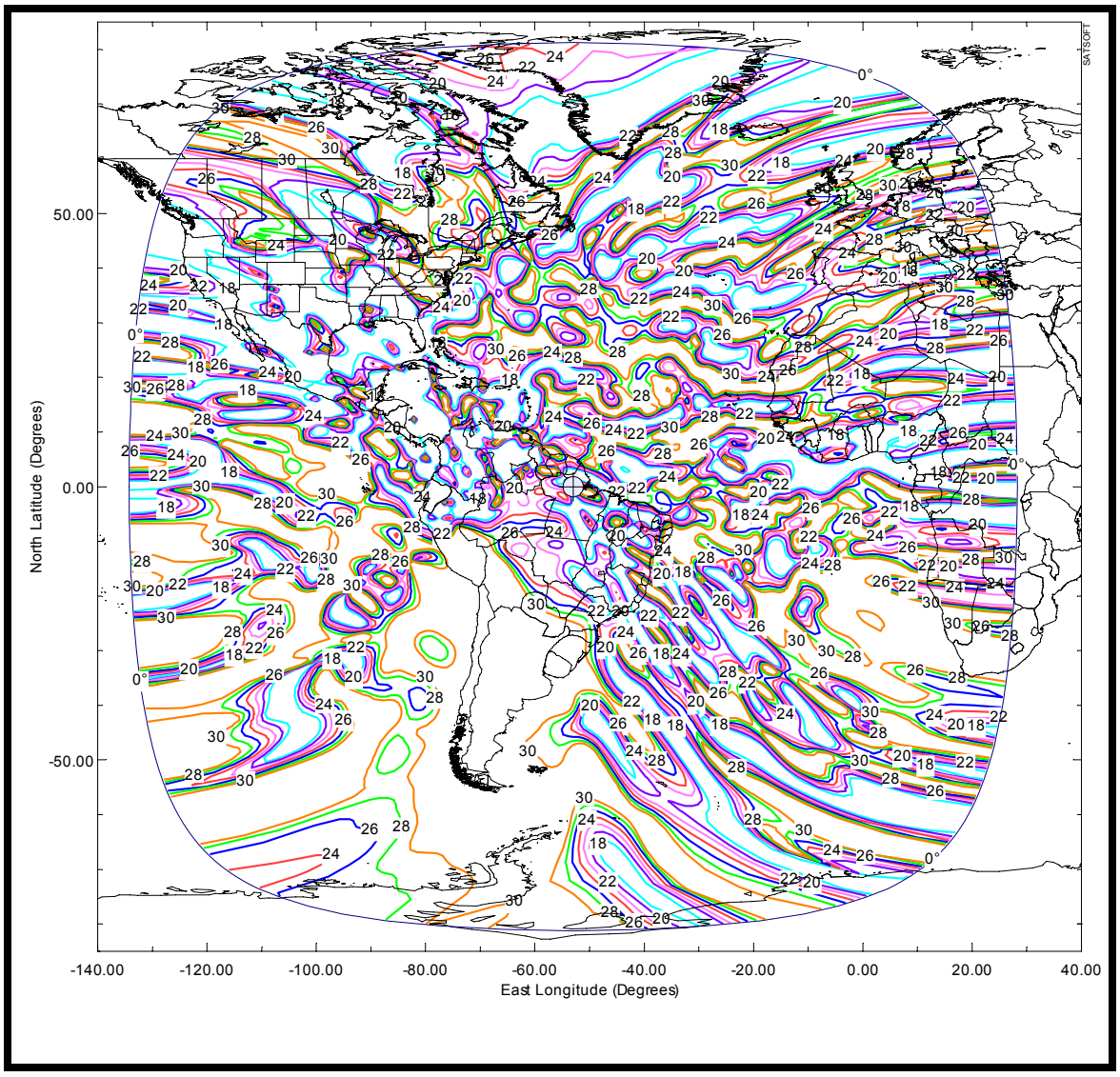
Beam Polarization: Horizontal



Absolute cross-polarization isolation contours shown: 30, 29.7, 28, 26, 24, 22, 20, 18 dB.

EXHIBIT 5D-5: Ku-BAND ARGENTINA TRANSMIT BEAM
(cross polarization isolation contours)
(Schedule S Beam ID: MHDX)

Beam Polarization: Vertical



Absolute cross-polarization isolation contours shown: 30, 28, 26, 24, 22, 20, 18 dB.

EXHIBIT 6: COMMUNICATION SUBSYSTEM
EIRP AND G/T BUDGETS

Beam Name	West Hemi	West Hemi	East Hemi	East Hemi
Frequency Band (MHz)	5925 – 6425	5925 - 6425	5925 - 6425	5925 – 6425
Polarization	Left Hand Circular	Right Hand Circular	Left Hand Circular	Right Hand Circular
Channel Bandwidth (MHz)	72 / 77	72 / 77	72 / 77	72 / 77
Antenna Noise Temperature (°Kelvin)	150	150	85	85
Receiver Noise Temperature (°Kelvin)	248	248	313	313
Total System Noise Temperature (°Kelvin)	398	398	398	398
Total System Noise Temperature (dB/K)	26.0	26.0	26.0	26.0
Peak Gain of Satellite Receive Antenna (dBi)	27.8	27.7	28.8	28.8
Peak G/T (dB/K)	1.8	1.7	2.8	2.8
Minimum SFD [G/T: Peak, Attn: 0 dB] -- (dBW/m^2)	-106.0	-106.0	-107.1	-107.1
Beam Name	Global	Global		
Frequency Band (MHz)	6260 – 6425	6340 - 6425		
Polarization	Left Hand Circular	Right Hand Circular		
Channel Bandwidth (MHz)	36 / 41	36 / 41		
Antenna Noise Temperature (°Kelvin)	93	93		
Receiver Noise Temperature (°Kelvin)	305	305		
Total System Noise Temperature (°Kelvin)	398	398		
Total System Noise Temperature (dB/K)	26.0	26.0		
Peak Gain of Satellite Receive Antenna (dBi)	20.9	21.0		
Peak G/T (dB/K)	-5.1	-5.0		
Minimum SFD [G/T: Peak, Attn: 0 dB] -- (dBW/m^2)	-103.9	-103.9		
Beam Name	Mexico	Mexico	Argentina	Argentina
Frequency Band (MHz)	14000 – 14500	14000 - 14500	14000 - 14500	14000 - 14500
Polarization	Horizontal	Vertical	Horizontal	Vertical
Channel Bandwidth (MHz)	72 / 77	72 / 77 / 112	72 / 77 / 112	72 / 77 / 112
Antenna Noise Temperature (°Kelvin)	190	190	190	190
Receiver Noise Temperature (°Kelvin)	311	311	311	311
Total System Noise Temperature (°Kelvin)	501	501	501	501
Total System Noise Temperature (dB/K)	27.0	27.0	27.0	27.0
Peak Gain of Satellite Receive Antenna (dBi)	34.1	34.1	35.2	35.2
Peak G/T (dB/K)	7.1	7.1	8.2	8.2
Minimum SFD [G/T: Peak, Attn: 0 dB] -- (dBW/m^2)	-106.1	-106.1	-105.7	-105.7

EXHIBIT 6: COMMUNICATION SUBSYSTEM
EIRP AND G/T BUDGETS (continued)

Beam Name	West Hemi	West Hemi	East Hemi	East Hemi
Frequency Band (MHz)	3700 - 4200	3700 - 4200	3700 - 4200	3700 - 4200
Polarization	Left Hand Circular	Right Hand Circular	Left Hand Circular	Right Hand Circular
Channel Bandwidth (MHz)	72 / 77	72 / 77	72 / 77	72 / 77
Maximum Power At The Output of Last Stage Amplifier (dBW)	17.3*	17.3*	17.3*	17.3*
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	0.8	0.8	0.8	0.8
Power Into Transmit Antenna (dBW)	16.5	16.5	16.5	16.5
Power Into Transmit Antenna (Watts)	44.7	44.7	44.7	44.7
Peak Gain of Satellite Transmit Antenna (dBi)	26.8	26.6	28.5	28.5
Maximum Downlink EIRP (dBW)	43.3	43.1	45.0	45.0
Beam Name	Global	Global		
Frequency Band (MHz)	4115 – 4200	4035 - 4200		
Polarization	Left Hand Circular	Right Hand Circular		
Channel Bandwidth (MHz)	36 / 41	36 / 41		
Maximum Power At The Output of Last Stage Amplifier (dBW)	17.3*	17.3*		
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	0.8	0.8		
Power Into Transmit Antenna (dBW)	16.5	16.5		
Power Into Transmit Antenna (Watts)	44.7	44.7		
Peak Gain of Satellite Transmit Antenna (dBi)	20.6	20.6		
Maximum Downlink EIRP (dBW)	37.1	37.1		
Beam Name	Mexico	Mexico	Argentina	Argentina
Frequency Band (MHz)	11700 - 12200	11700 - 12200	11700 - 12080	11450 - 11950
Polarization	Horizontal	Vertical	Horizontal	Vertical
Channel Bandwidth (MHz)	72 / 77 / 112	72 / 77	72 / 77 / 112	72 / 77 / 112
Maximum Power At The Output of Last Stage Amplifier (dBW)	22.1*	22.1*	22.1*	21.6*
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	1.6	1.6	1.6	1.1
Power Into Transmit Antenna (dBW)	20.5	20.5	20.5	20.5
Power Into Transmit Antenna (Watts)	112.2	112.2	112.2	112.2
Peak Gain of Satellite Transmit Antenna (dBi)	32.5	32.5	33.1	33.1
Maximum Downlink EIRP (dBW)	53.0	53.0	53.6	53.6
Beam Name	C-Band ULPC	Ku-Band ULPC		
Frequency Band (MHz)	3950	11700		
Polarization	Vertical	Right Hand Circular		
Channel Bandwidth (MHz)	0.025	0.025		
Maximum Power At The Output of Last Stage Amplifier (dBW)	1.5	-2.0		
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	1.2	2.6		
Power Into Transmit Antenna (dBW)	0.3	-4.6		
Power Into Transmit Antenna (Watts)	1.1	0.3		
Peak Gain of Satellite Transmit Antenna (dBi)	13.0	21.2		
Maximum Downlink EIRP (dBW)	13.3	16.6		

*The power level listed in the table is greater than the nominal output power of the last stage amplifier and represents the power level that the amplifier may potentially reach, depending on the operating condition.

EXHIBIT 7: TC&R SUBSYSTEM CHARACTERISTICS

	Spacecraft Antenna		
	Global	**Omni**	**WCAs**
Command Frequency (MHz) / Polarization (see note)			
Transfer Orbit / Emergency	n/a	6173.7 (LHCP) 6176.3 (LHCP)	6173.7 (LHCP) 6176.3 (LHCP)
On-Station	6173.7 (LHCP) 6176.3 (LHCP)	n/a	n/a
Command Modulation	FM	FM	FM
Bandwidth of Command Carrier (kHz)			
Occupied Bandwidth	856	856	856
Allocated Bandwidth	1000	1000	1000
Command Threshold (dBW/m^2)			
Beam Peak	-110.9	-95.6	-105.0
Edge of Coverage	-107.9	-92.6	-102.0
Command G/T (dB/K)			
Beam Peak	-16.1	-33.9	-22.9
Edge of Coverage	-19.1	-36.9	-25.9
Telemetry Frequency (MHz) / Polarization (see note)			
Transfer Orbit / Emergency	n/a	3947.5 (RHCP) 3948.0 (RHCP) 3952.0 (RHCP) 3952.5 (RHCP)	3947.5 (RHCP) 3948.0 (RHCP) 3952.0 (RHCP) 3952.5 (RHCP)
On-Station	3947.5 (RHCP) 3948.0 (RHCP) 3952.0 (RHCP) 3952.5 (RHCP)	n/a	n/a
Telemetry Modulation	PM	PM	PM
Bandwidth of Telemetry Carrier (kHz)			
Occupied	300	300	300
Allocated	500	500	500
Telemetry EIRP			
Beam Peak	13.4	7.4	16.1
Edge of Coverage	10.4	4.4	13.1
On-Station Ranging Accuracy (meters)	≤ 10	≤ 10	≤ 10

Note:
RHCP: Right Hand Circular Polarization
LHCP: Left Hand Circular Polarization

EXHIBIT 8: TC&R SUBSYSTEM EIRP and G/T BUDGETS

Operating Mode	On-Station	Back-up	Back-up
Antenna Type	Global Horn	Omni	WCA
Frequency (MHz)	6173.7 / 6176.3	6173.7 / 6176.3	6173.7 / 6176.3
Polarization	Left Hand Circular	Left Hand Circular	Left Hand Circular
Antenna Noise Temperature (°Kelvin)	93	290	290
Receiver Noise Temperature (°Kelvin)	4927	3577	3622
Total System Noise Temperature (°Kelvin)	5020	3867	3912
Total System Noise Temperature (dB/K)	37.0	35.9	35.9
Peak Gain of Satellite Receive Antenna (dBi)	20.9	2.0	13.0
Peak G/T (dB/K) (see Note 1)	-16.1	-33.9	-22.9
SFD Threshold at Peak G/T (dBW/m^2) (see Note 2)	-110.9	-95.6	-105.0
Operating Mode	On-Station	Back-up	Back-up
Antenna Type	Global Horn	Omni	WCA
Frequency (MHz)	3947.5 3948.0 3952.0 3952.5	3947.5 3948.0 3952.0 3952.5	3947.5 3948.0 3952.0 3952.5
Polarization	Right Hand Circular	Right Hand Circular	Right Hand Circular
Maximum Power At The Output of Last Stage Amplifier (dBW)	-2.4	10.0	10.0
Loss From Last Stage Amplifier To Transmit Antenna Interface (dB)	4.8	4.6	6.9
Power Into The Transmit Antenna (dBW)	-7.2	5.4	3.1
Power Into The Transmit Antenna (Watts)	0.2	3.5	2.0
Peak Gain of Satellite Transmit Antenna (dBi)	20.6	2.0	13.0
Maximum Downlink EIRP (dBW)	13.4	7.4	16.1

Notes:
1) Does not include multipath losses.
2) Includes multipath losses.

EXHIBIT 9: EMISSION DESIGNATORS

Signal Type	Emission Designator	Allocated Bandwidth (kHz)
Analog TV/FM Carrier	36M0F3F	36000
Analog TV/FM Carrier	30M0F3F	30000
64 kbps Carrier	100KG7W	100
128 kbps Carrier	400KG7W	400
512 kbps Carrier	1M45G7W	1450
6000 kbps carrier	10M3G7W	10300
23210 kbps carrier	34M0G7W	34000
27988 kbps Carrier	41M0G7W	41000
49150 kbps Carrier	72M0G7W	72000
52563 kbps Carrier	77M0G7W	77000
76455 kbps Carrier	112MG7W	112000

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS

FREQUENCY BAND : 3700 - 4200 MHz							
West Hemi Beam (LHCP.) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	43.3	43.3	43.3	43.3	43.3
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-152.0	-152.0	-149.9	-149.7	-149.6	-149.5	-148.8
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	0.4	2.7	5.1	7.5	6.8
West Hemi Beam (LHCP) - 72M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	43.3	43.3	43.3	43.3	43.3	43.3	43.3
Carrier Occupied Bandwidth (kHz)	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-161.9	-161.8	-161.6	-161.5	-161.4	-161.3	-160.5
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	9.9	9.8	12.1	14.5	16.9	19.3	18.5

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
West Hemi Beam (RHCP) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	43.1	43.1	43.1	43.1	43.1
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-152.0	-152.0	-150.1	-149.9	-149.8	-149.7	-149.0
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	0.6	2.9	5.3	7.7	7.0
West Hemi Beam (RHCP) - 72M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	43.1	43.1	43.1	43.1	43.1	43.1	43.1
Carrier Occupied Bandwidth (kHz)	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-162.1	-162.0	-161.8	-161.7	-161.6	-161.5	-160.7
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	10.1	10.0	12.3	14.7	17.1	19.5	18.7

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
East Hemi Beam (LHCP) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	43.7*	45.0	45.0	45.0	45.0
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-152.0	-152.0	-149.5	-148.0	-147.9	-147.8	-147.1
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	0.0	1.0	3.4	5.8	5.1
East Hemi Beam (LHCP) - 72M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Carrier Occupied Bandwidth (kHz)	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-160.2	-160.1	-159.9	-159.8	-159.7	-159.6	-158.8
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	8.2	8.1	10.4	12.8	15.2	17.6	16.8

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
East Hemi Beam (RHCP) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	41.4*	41.3*	43.7*	45.0	45.0	45.0	45.0
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-152.0	-152.0	-149.5	-148.0	-147.9	-147.8	-147.1
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	0.0	0.0	0.0	1.0	3.4	5.8	5.1
East Hemi Beam (RHCP) - 72M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	45.0	45.0	45.0	45.0	45.0	45.0	45.0
Carrier Occupied Bandwidth (kHz)	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0	60266.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-160.2	-160.1	-159.9	-159.8	-159.7	-159.6	-158.8
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	8.2	8.1	10.4	12.8	15.2	17.6	16.8

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
Global Beam (LHCP) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-156.3	-156.2	-156.1	-155.9	-155.8	-155.7	-155.0
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	4.3	4.2	6.6	8.9	11.3	13.7	13.0
Global Beam (LHCP) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-165.1	-164.9	-164.8	-164.7	-164.6	-164.5	-163.7
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	13.1	12.9	15.3	17.7	20.1	22.5	21.7

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
Global Beam (RHCP) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-156.3	-156.2	-156.1	-155.9	-155.8	-155.7	-155.0
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	4.3	4.2	6.6	8.9	11.3	13.7	13.0
Global Beam (RHCP) - 36M0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	37.1	37.1	37.1	37.1	37.1	37.1	37.1
Carrier Occupied Bandwidth (kHz)	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0	30133.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-165.1	-164.9	-164.8	-164.7	-164.6	-164.5	-163.7
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	13.1	12.9	15.3	17.7	20.1	22.5	21.7

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
ULPC (V) - 25K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	13.3	13.3	13.3	13.3	13.3	13.3	13.3
Carrier Occupied Bandwidth (kHz)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-158.0	-157.9	-157.8	-157.7	-157.6	-157.5	-156.7
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	6.0	5.9	8.3	10.7	13.1	15.5	14.7
Telemetry (RHCP - Global Horn) - 500K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	13.4	13.4	13.4	13.4	13.4	13.4	13.4
Carrier Occupied Bandwidth (kHz)	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-168.7	-168.6	-168.5	-168.4	-168.3	-168.2	-167.4
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	16.7	16.6	19.0	21.4	23.8	26.2	25.4

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 3700 – 4200 MHz							
Telemetry (RHCP - OMNI) - 500K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	7.4	7.4	7.4	7.4	7.4	7.4	7.4
Carrier Occupied Bandwidth (kHz)	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-174.7	-174.6	-174.5	-174.4	-174.3	-174.2	-173.4
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	22.7	22.6	25.0	27.4	29.8	32.2	31.4
Telemetry (RHCP - WCA) - 500K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	16.1	16.1	16.1	16.1	16.1	16.1	16.1
Carrier Occupied Bandwidth (kHz)	300.0	300.0	300.0	300.0	300.0	300.0	300.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density (dBW/m^2/4kHz)	-166.0	-165.9	-165.8	-165.7	-165.6	-165.5	-164.7
FCC Limit (dBW/m^2/4Hz)	-152.0	-152.0	-149.5	-147.0	-144.5	-142.0	-142.0
Margin (dB)	14.0	13.9	16.3	18.7	21.1	23.5	22.7

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 11450 - 11700 MHz							
Argentina Beam (V) - 36M0F3F							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	43.4*	43.3*	45.7*	48.0*	50.4*	52.8*	52.1*
Carrier Occupied Bandwidth (kHz)	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0	4000.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density ($dBW/m^2/4kHz$)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
FCC Limit ($dBW/m^2/4Hz$)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Argentina Beam (V) - 112MG7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	53.6	53.6	53.6	53.6	53.6	53.6	53.6
Carrier Occupied Bandwidth (kHz)	93747.0	93747.0	93747.0	93747.0	93747.0	93747.0	93747.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density ($dBW/m^2/4kHz$)	-153.5	-153.4	-153.3	-153.1	-153.0	-152.9	-152.2
FCC Limit ($dBW/m^2/4Hz$)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	3.5	3.4	5.8	8.1	10.5	12.9	12.2

EXHIBIT 10: POWER FLUX DENSITY CALCULATIONS (continued)

FREQUENCY BAND : 11450 - 11700 MHz							
ULPC Beam (RHCP-Pol.) - 25K0G7W							
Elevation Angle (degrees)	0.0	5.0	10.0	15.0	20.0	25.0	90.0
Assumed EIRP	16.6	16.6	16.6	16.6	16.6	16.6	16.6
Carrier Occupied Bandwidth (kHz)	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Spreading Loss (dB/m^2)	163.4	163.3	163.2	163.0	162.9	162.8	162.1
Maximum EIRP Spectral Density ($dBW/m^2/4kHz$)	-154.7	-154.6	-154.5	-154.4	-154.3	-154.2	-153.4
FCC Limit ($dBW/m^2/4Hz$)	-150.0	-150.0	-147.5	-145.0	-142.5	-140.0	-140.0
Margin (dB)	4.7	4.6	7.0	9.4	11.8	14.2	13.4

* This is the maximum allowable EIRP level at the specified elevation angle. The actual EIRP level of the carrier 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 11: RECEIVE AND TRANSMIT SECTION FILTER RESPONSE CHARACTERISTICS

	Attenuation Relative To Peak Level (dB)		
Frequency Offset Relative to Channel Center Frequency (MHz)	Input Section	Output Section	Total
C-Band: 36 MHz Channel			
±8	0.20	0.30	0.42
±12	0.27	0.75	0.93
±14	0.39	0.91	1.19
±16	0.50	1.01	1.39
±18	0.77	1.74	2.37
C-Band: 41 MHz Channel			
±9	0.20	0.30	0.42
±14	0.28	0.71	0.89
±16	0.40	0.95	1.23
±18	0.51	1.05	1.44
±20.5	0.79	1.90	2.54
C-Band: 72 MHz Channel			
±16	0.35	0.30	0.56
±24	0.42	0.49	0.80
±28	0.49	0.80	1.15
±32	0.57	0.96	1.37
±36	0.73	1.80	2.36
C-Band: 77 MHz Channel			
±17	0.36	0.29	0.56
±26	0.44	0.49	0.80
±30	0.50	0.77	1.13
±34	0.59	0.92	1.34
±38.5	0.76	1.66	2.23

EXHIBIT 11: RECEIVE AND TRANSMIT SECTION FILTER RESPONSE CHARACTERISTICS (continued)

Frequency Offset Relative to Channel Center Frequency (MHz)	Attenuation Relative To Peak Level (dB)		
	Input Section	Output Section	Total
Ku-Band: 72 MHz Channel			
±16	0.27	0.34	0.52
±24	0.34	0.55	0.78
±28	0.45	0.86	1.19
±32	0.55	1.08	1.49
±36	0.81	2.17	2.83
Ku-Band: 77 MHz Channel			
±17	0.29	0.33	0.52
±26	0.41	0.55	0.82
±30	0.48	0.83	1.16
±34	0.58	1.02	1.44
±38.5	0.84	2.13	2.78
Ku-Band: 112 MHz Channel			
±25	0.30	0.37	0.54
±37	0.42	0.57	0.79
±44	0.47	0.79	1.03
±50	0.60	0.96	1.29
±56	0.94	2.10	2.74

EXHIBIT 12: INTELSAT 23 LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-68	-78	-77	-77
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	18.3	18.3	6.1	6.1
Earth Station Gain (dBi)	60.2	60.2	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	4.6	6.1	6.1
Earth Station Gain (dBi)	56.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	35.5	23.6	26.2	26.2
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)	83.7	84.9	70.7	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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	28.3	27.0	22.6	21.7
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	35.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.7	12.4	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.3	27.0	22.6	21.7
C/N Downlink (dB)	20.7	12.4	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 1 (dB)	17.1	7.6	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 2 (dB)	17.7	10.0	11.7	10.8
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	551.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.5	-53.4	-47.0	-47.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-35.0	-35.7	-36.6

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-76	-80	-72	-72
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	15.2	6.1	6.1
Earth Station Gain (dBi)	60.2	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.5	3.7	3.7
Earth Station Gain (dBi)	50.3	41.1	41.2	41.2
Earth Station G/T (dB/K)	29.4	21.0	20.9	20.9
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)	83.9	82.9	76.0	55.6
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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	28.5	25.3	27.9	27.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	34.8	39.0	28.8	8.4
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	20.9	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	20.4	14.0	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.5	25.3	27.9	27.0
C/N Downlink (dB)	20.4	14.0	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	24.0	24.0	25.8	25.5
C/I Uplink Adjacent Satellite 1 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 1 (dB)	16.9	7.0	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 2 (dB)	18.1	11.8	11.1	10.2
C/(N+I) Composite (dB)	11.1	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	0.0	0.0	0.0
Number of Carriers	2	1.0	4.7	513.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.3	-53.3	-41.7	-42.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-25.2	-32.8	-33.5	-34.4

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-79	-87	-78	-78
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	8.1	6.1	6.1
Earth Station Gain (dBi)	60.5	53.1	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	83.9	75.9	73.2	52.8
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	29.1	21.3	24.8	23.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	29.1	21.3	24.8	23.9
C/N Downlink (dB)	19.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 1 (dB)	16.4	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 2 (dB)	17.6	12.0	11.2	10.3
C/(N+I) Composite (dB)	11.1	4.6	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.6	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.2	0.0	0.0
Number of Carriers	1	1.0	2.2	246.1
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-51.7	-44.8	-45.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-69.1	-80.1	-74.1	-74.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	15.2	6.1	6.1
Earth Station Gain (dBi)	58.4	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	4.5	3.7
Earth Station Gain (dBi)	51.9	41.1	43.9	41.2
Earth Station G/T (dB/K)	31.0	21.0	23.6	20.9
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)	82.6	82.8	71.6	53.5
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	30.2	27.9	26.5	27.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	32.8	39.0	26.5	8.4
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	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.1	13.7	13.6	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	30.2	27.9	26.5	27.9
C/N Downlink (dB)	20.1	13.7	13.6	12.3
C/I Intermodulation (dB)	N/A	N/A	18.2	19.6
C/I Uplink Co-Channel (dB)*	27.3	27.0	26.7	28.8
C/I Downlink Co-Channel (dB)*	24.3	24.0	23.7	25.8
C/I Uplink Adjacent Satellite 1 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 1 (dB)	16.7	6.7	8.8	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 2 (dB)	17.7	11.5	11.3	10.2
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	7.5	514.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.8	-53.7	-46.1	-44.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-27.2	-33.1	-35.8	-34.4

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-68.1	-82.1	-79.1	-79.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	13.0	6.1	6.1
Earth Station Gain (dBi)	60.2	56.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	15.2	4.5	6.1	6.1
Earth Station Gain (dBi)	55.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	34.5	23.6	26.2	26.2
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)	83.6	80.8	68.6	48.2
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	31.2	26.2	23.5	22.6
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	34.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	19.7	12.7	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.2	26.2	23.5	22.6
C/N Downlink (dB)	19.7	12.7	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	19.9	19.0
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Uplink Adjacent Satellite 1 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 1 (dB)	16.0	7.9	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 2 (dB)	16.7	10.4	11.7	10.8
C/(N+I) Composite (dB)	11.0	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	548.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-53.4	-49.1	-50.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-34.7	-35.7	-36.6

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-78.1	-89.1	-80.1	-80.1
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	6.1	6.1	6.1
Earth Station Gain (dBi)	60.5	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	8.1	4.5	4.5	4.5
Earth Station Gain (dBi)	49.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.8	73.8	71.1	50.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	33.0	22.2	25.7	24.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	33.0	22.2	25.7	24.9
C/N Downlink (dB)	18.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 1 (dB)	15.3	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 2 (dB)	16.7	12.0	11.2	10.3
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	2.2	245.6
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.4	-46.8	-47.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-80.9	-89.9	-74.9	-74.9
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	27988	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	34318	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	6.1	6.1	6.1
Earth Station Gain (dBi)	58.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	82.0	73.0	75.6	55.1
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Uplink C/N(dB)	25.6	16.8	26.4	25.5
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	25.3	4.9
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Downlink C / N(dB)	18.7	13.1	12.4	11.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.6	16.8	26.4	25.5
C/N Downlink (dB)	18.7	13.1	12.4	11.5
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Uplink Adjacent Satellite 1 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 1 (dB)	15.6	8.8	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 2 (dB)	16.8	11.2	10.5	9.6
C/(N+I) Composite (dB)	11.1	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.5	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.1	0.0	0.0
Number of Carriers	1	1.0	2.7	292.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.7	-52.0	-42.4	-43.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-38.3	-39.0	-39.9

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-81.9	-90.9	-75.9	-75.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	56.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	7.0	3.5	3.7	3.5
Earth Station Gain (dBi)	47.9	41.5	41.6	41.5
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
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)	81.0	72.0	75.4	55.0
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	25.4	16.6	26.2	25.4
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	35.1	35.1	28.1	7.8
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.7	13.3	12.5	11.8
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.4	16.6	26.2	25.4
C/N Downlink (dB)	18.7	13.3	12.5	11.8
C/I Intermodulation (dB)	N/A	N/A	20.2	19.4
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Uplink Adjacent Satellite 1 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 1 (dB)	15.4	8.4	7.9	6.9
C/I Uplink Adjacent Satellite 2 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 2 (dB)	17.0	11.5	10.8	9.9
C/(N+I) Composite (dB)	11.0	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	1	1.0	2.2	238.8
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-52.2	-42.6	-43.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-22.9	-31.4	-32.2	-33.0

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-82.9	-88.9	-87.9	-87.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	55.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	4.5	3.0	3.5	3.5
Earth Station Gain (dBi)	44.3	40.1	41.5	41.5
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
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)	80.0	74.0	63.2	42.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	24.4	18.6	14.0	13.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	39.0	39.0	31.8	11.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.6	15.4	16.3	15.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	24.4	18.6	14.0	13.1
C/N Downlink (dB)	19.6	15.4	16.3	15.4
C/I Intermodulation (dB)	N/A	N/A	20.0	19.1
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.5	28.3
C/I Downlink Co-Channel (dB)*	24.5	24.0	25.5	25.3
C/I Uplink Adjacent Satellite 1 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 1 (dB)	15.3	6.6	11.4	10.5
C/I Uplink Adjacent Satellite 2 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 2 (dB)	17.7	14.2	14.4	13.6
C/(N+I) Composite (dB)	11.0	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.5	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
Number of Carriers	1	1.0	2.3	254.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.2	-54.8	-55.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.0	-29.5	-30.5	-31.4

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-71.1	-82.1	-79.1	-79.1	-79.1	-79.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	3.7
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	52.7
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	2.4	3.7	3.7	3.7	6.1
Earth Station Gain (dBi)	59.0	47.5	51.1	51.1	51.1	55.5
Earth Station G/T (dB/K)	36.6	25.0	28.6	28.6	28.6	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.5	80.8	66.6	46.3	58.3	49.5
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)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.1	23.3	20.5	19.8	19.7	16.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	38.8	47.0	32.9	12.6	24.6	15.8
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)	36.6	25.0	28.6	28.6	28.6	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.0	14.4	15.3	14.6	14.5	16.2
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.1	23.3	20.5	19.8	19.7	16.9
C/N Downlink (dB)	22.0	14.4	15.3	14.6	14.5	16.2
C/I Intermodulation (dB)	24.9	N/A	26.3	25.6	25.4	22.7
C/I Uplink Co-Channel (dB)*	28.8	27.0	28.3	28.2	28.6	25.4
C/I Downlink Co-Channel (dB)*	26.8	25.0	26.3	26.2	26.6	23.4
C/I Uplink Adjacent Satellite 1 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 1 (dB)	20.5	12.5	13.6	12.9	12.8	14.7
C/I Uplink Adjacent Satellite 2 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 2 (dB)	20.9	14.0	14.7	14.0	13.9	15.3
C/(N+I) Composite (dB)	14.3	8.1	8.4	7.7	7.6	7.6
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.3	7.1	7.4	6.7	6.6	6.6
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.3	3.8	3.5	3.7	3.2	3.2
Number of Carriers	2.0	1.0	8.0	847.6	53.3	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.4	-55.8	-58.6	-59.4	-59.5	-58.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.2	-26.7	-29.4	-30.1	-30.3	-33.0

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Uplink Frequency (GHz)	14.375	14.375	14.375	14.375	14.375	14.375
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-69.1	-76.1	-77.1	-77.1	-77.1	-77.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Downlink Frequency (GHz)	11.825	11.825	11.825	11.825	11.825	11.825
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	58.2	57.0	57.0	57.0	57.0	49.1
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	56.9	47.4	47.4	47.4	47.4	55.4
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.6	80.0	70.2	50.1	62.1	50.5
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	29.2	24.1	24.1	23.4	23.3	17.8
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.4	46.1	35.1	15.0	27.0	15.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.6	15.1	14.0	13.3	13.2	15.8
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	29.2	24.1	24.1	23.4	23.3	17.8
C/N Downlink (dB)	22.6	15.1	14.0	13.3	13.2	15.8
C/I Intermodulation (dB)	N/A	N/A	26.3	25.7	25.5	20.0
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.8
C/I Downlink Co-Channel (dB)*	21.3	21.0	22.4	22.3	22.7	16.8
C/I Uplink Adjacent Satellite 1 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 1 (dB)	21.0	13.1	11.9	11.3	11.2	14.2
C/I Uplink Adjacent Satellite 2 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 2 (dB)	21.6	14.7	13.5	12.9	12.7	14.8
C/(N+I) Composite (dB)	14.7	8.6	7.6	7.0	6.9	7.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.7	7.6	6.6	6.0	5.9	6.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.7	4.2	2.8	3.0	2.5	2.7
Number of Carriers	2	1.0	5.4	566.3	35.8	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-41.6	-55.1	-55.0	-55.7	-55.8	-53.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.6	-26.0	-27.2	-27.8	-27.9	-33.4

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-69.7	-82.7	-76.7	-76.7	-76.7	-76.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	49.0
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	11.0	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	60.4	44.8	47.5	47.5	47.5	55.5
Earth Station G/T (dB/K)	38.0	22.3	25.0	25.0	25.0	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.2	80.2	69.1	48.8	60.8	48.7
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)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	28.0	23.8	24.1	23.4	23.3	17.2
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	39.3	47.6	33.6	13.3	25.3	13.2
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)	38.0	22.3	25.0	25.0	25.0	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	23.9	12.3	12.4	11.7	11.6	13.6
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	28.0	23.8	24.1	23.4	23.3	17.2
C/N Downlink (dB)	23.9	12.3	12.4	11.7	11.6	13.6
C/I Intermodulation (dB)	16.8	N/A	26.4	25.6	25.5	19.5
C/I Uplink Co-Channel (dB)*	27.2	27.0	28.5	28.3	28.7	22.2
C/I Downlink Co-Channel (dB)*	21.2	21.0	22.5	22.3	22.7	16.2
C/I Uplink Adjacent Satellite 1 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 1 (dB)	22.5	10.1	10.5	9.7	9.6	12.0
C/I Uplink Adjacent Satellite 2 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 2 (dB)	22.8	12.2	12.1	11.3	11.2	12.7
C/(N+I) Composite (dB)	12.8	6.1	6.3	5.6	5.5	5.4
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.8	5.1	5.3	4.6	4.5	4.4
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	1.8	1.7	1.4	1.6	1.1	1.0
Number of Carriers	3	1.0	7.8	829.0	52.1	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.7	-56.4	-56.1	-56.9	-57.0	-55.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-20.7	-26.1	-28.7	-29.5	-29.6	-35.6

EXHIBIT 12: INTELSAT 23 LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Uplink Frequency (GHz)	14.125	14.125	14.125	14.125	14.125	14.125
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-71.7	-76.7	-79.7	-79.7	-79.7	-79.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	12.075	12.075	12.075	12.075	12.075	12.075
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	51.0W	51.0W	51.0W	51.0W	51.0W	51.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	55.0W	55.0W	55.0W	55.0W	55.0W	55.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.8	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	55.6	47.6	47.6	47.6	47.6	55.6
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.0	80.5	67.7	47.4	59.4	47.6
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.8	25.8	22.8	22.0	21.9	16.1
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	40.8	46.1	34.6	14.3	26.3	14.5
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	20.5	15.1	13.4	12.7	12.6	14.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.8	25.8	22.8	22.0	21.9	16.1
C/N Downlink (dB)	20.5	15.1	13.4	12.7	12.6	14.9
C/I Intermodulation (dB)	N/A	N/A	26.4	25.6	25.5	19.7
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.4
C/I Downlink Co-Channel (dB)*	25.3	25.0	26.4	26.3	26.7	20.4
C/I Uplink Adjacent Satellite 1 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 1 (dB)	19.1	13.3	11.6	10.8	10.7	13.4
C/I Uplink Adjacent Satellite 2 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 2 (dB)	19.7	14.9	13.1	12.4	12.3	14.0
C/(N+I) Composite (dB)	13.5	9.0	7.1	6.4	6.3	6.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.5	8.0	6.1	5.4	5.3	5.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.5	4.6	2.3	2.4	1.9	1.6
Number of Carriers	2	1.0	5.4	573.5	36.0	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.8	-54.4	-57.4	-58.2	-58.3	-56.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.2	-26.0	-27.7	-28.5	-28.6	-34.4

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-68	-78	-77	-77
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	18.3	18.3	6.1	6.1
Earth Station Gain (dBi)	60.2	60.2	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	4.6	6.1	6.1
Earth Station Gain (dBi)	56.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	35.5	23.6	26.2	26.2
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)	83.7	84.9	70.7	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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	28.3	27.0	22.6	21.7
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	35.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.7	12.4	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.3	27.0	22.6	21.7
C/N Downlink (dB)	20.7	12.4	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 1 (dB)	17.1	7.6	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 2 (dB)	17.7	10.0	11.7	10.8
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	551.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.5	-53.4	-47.0	-47.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-35.0	-35.7	-36.6

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-76	-80	-72	-72
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	15.2	6.1	6.1
Earth Station Gain (dBi)	60.2	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.5	3.7	3.7
Earth Station Gain (dBi)	50.3	41.1	41.2	41.2
Earth Station G/T (dB/K)	29.4	21.0	20.9	20.9
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)	83.9	82.9	76.0	55.6
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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	28.5	25.3	27.9	27.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	34.8	39.0	28.8	8.4
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	20.9	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	20.4	14.0	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.5	25.3	27.9	27.0
C/N Downlink (dB)	20.4	14.0	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	24.0	24.0	25.8	25.5
C/I Uplink Adjacent Satellite 1 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 1 (dB)	16.9	7.0	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 2 (dB)	18.1	11.8	11.1	10.2
C/(N+I) Composite (dB)	11.1	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	0.0	0.0	0.0
Number of Carriers	2	1.0	4.7	513.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.3	-53.3	-41.7	-42.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-25.2	-32.8	-33.5	-34.4

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-79	-87	-78	-78
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	8.1	6.1	6.1
Earth Station Gain (dBi)	60.5	53.1	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	83.9	75.9	73.2	52.8
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	29.1	21.3	24.8	23.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	29.1	21.3	24.8	23.9
C/N Downlink (dB)	19.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 1 (dB)	16.4	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 2 (dB)	17.6	12.0	11.2	10.3
C/(N+I) Composite (dB)	11.1	4.6	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.6	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.2	0.0	0.0
Number of Carriers	1	1.0	2.2	246.1
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-51.7	-44.8	-45.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-69.1	-80.1	-74.1	-74.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	15.2	6.1	6.1
Earth Station Gain (dBi)	58.4	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	4.5	3.7
Earth Station Gain (dBi)	51.9	41.1	43.9	41.2
Earth Station G/T (dB/K)	31.0	21.0	23.6	20.9
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)	82.6	82.8	71.6	53.5
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	30.2	27.9	26.5	27.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	32.8	39.0	26.5	8.4
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	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.1	13.7	13.6	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	30.2	27.9	26.5	27.9
C/N Downlink (dB)	20.1	13.7	13.6	12.3
C/I Intermodulation (dB)	N/A	N/A	18.2	19.6
C/I Uplink Co-Channel (dB)*	27.3	27.0	26.7	28.8
C/I Downlink Co-Channel (dB)*	24.3	24.0	23.7	25.8
C/I Uplink Adjacent Satellite 1 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 1 (dB)	16.7	6.7	8.8	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 2 (dB)	17.7	11.5	11.3	10.2
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	7.5	514.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.8	-53.7	-46.1	-44.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-27.2	-33.1	-35.8	-34.4

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-68.1	-82.1	-79.1	-79.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	13.0	6.1	6.1
Earth Station Gain (dBi)	60.2	56.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	15.2	4.5	6.1	6.1
Earth Station Gain (dBi)	55.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	34.5	23.6	26.2	26.2
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)	83.6	80.8	68.6	48.2
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	31.2	26.2	23.5	22.6
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	34.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	19.7	12.7	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.2	26.2	23.5	22.6
C/N Downlink (dB)	19.7	12.7	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	19.9	19.0
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Uplink Adjacent Satellite 1 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 1 (dB)	16.0	7.9	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 2 (dB)	16.7	10.4	11.7	10.8
C/(N+I) Composite (dB)	11.0	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	548.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-53.4	-49.1	-50.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-34.7	-35.7	-36.6

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-78.1	-89.1	-80.1	-80.1
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	6.1	6.1	6.1
Earth Station Gain (dBi)	60.5	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	8.1	4.5	4.5	4.5
Earth Station Gain (dBi)	49.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.8	73.8	71.1	50.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	33.0	22.2	25.7	24.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	33.0	22.2	25.7	24.9
C/N Downlink (dB)	18.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 1 (dB)	15.3	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 2 (dB)	16.7	12.0	11.2	10.3
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	2.2	245.6
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.4	-46.8	-47.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-80.9	-89.9	-74.9	-74.9
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	27988	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	34318	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	6.1	6.1	6.1
Earth Station Gain (dBi)	58.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	82.0	73.0	75.6	55.1
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Uplink C/N(dB)	25.6	16.8	26.4	25.5
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	25.3	4.9
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Downlink C / N(dB)	18.7	13.1	12.4	11.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.6	16.8	26.4	25.5
C/N Downlink (dB)	18.7	13.1	12.4	11.5
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Uplink Adjacent Satellite 1 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 1 (dB)	15.6	8.8	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 2 (dB)	16.8	11.2	10.5	9.6
C/(N+I) Composite (dB)	11.1	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.5	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.1	0.0	0.0
Number of Carriers	1	1.0	2.7	292.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.7	-52.0	-42.4	-43.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-38.3	-39.0	-39.9

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-81.9	-90.9	-75.9	-75.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	56.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	7.0	3.5	3.7	3.5
Earth Station Gain (dBi)	47.9	41.5	41.6	41.5
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
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)	81.0	72.0	75.4	55.0
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	25.4	16.6	26.2	25.4
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	35.1	35.1	28.1	7.8
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.7	13.3	12.5	11.8
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.4	16.6	26.2	25.4
C/N Downlink (dB)	18.7	13.3	12.5	11.8
C/I Intermodulation (dB)	N/A	N/A	20.2	19.4
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Uplink Adjacent Satellite 1 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 1 (dB)	15.4	8.4	7.9	6.9
C/I Uplink Adjacent Satellite 2 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 2 (dB)	17.0	11.5	10.8	9.9
C/(N+I) Composite (dB)	11.0	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	1	1.0	2.2	238.8
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-52.2	-42.6	-43.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-22.9	-31.4	-32.2	-33.0

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-82.9	-88.9	-87.9	-87.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	55.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	4.5	3.0	3.5	3.5
Earth Station Gain (dBi)	44.3	40.1	41.5	41.5
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
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)	80.0	74.0	63.2	42.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	24.4	18.6	14.0	13.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	39.0	39.0	31.8	11.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.6	15.4	16.3	15.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	24.4	18.6	14.0	13.1
C/N Downlink (dB)	19.6	15.4	16.3	15.4
C/I Intermodulation (dB)	N/A	N/A	20.0	19.1
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.5	28.3
C/I Downlink Co-Channel (dB)*	24.5	24.0	25.5	25.3
C/I Uplink Adjacent Satellite 1 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 1 (dB)	15.3	6.6	11.4	10.5
C/I Uplink Adjacent Satellite 2 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 2 (dB)	17.7	14.2	14.4	13.6
C/(N+I) Composite (dB)	11.0	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.5	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
Number of Carriers	1	1.0	2.3	254.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.2	-54.8	-55.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.0	-29.5	-30.5	-31.4

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-71.1	-82.1	-79.1	-79.1	-79.1	-79.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	3.7
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	52.7
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	2.4	3.7	3.7	3.7	6.1
Earth Station Gain (dBi)	59.0	47.5	51.1	51.1	51.1	55.5
Earth Station G/T (dB/K)	36.6	25.0	28.6	28.6	28.6	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.5	80.8	66.6	46.3	58.3	49.5
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)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.1	23.3	20.5	19.8	19.7	16.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	38.8	47.0	32.9	12.6	24.6	15.8
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)	36.6	25.0	28.6	28.6	28.6	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.0	14.4	15.3	14.6	14.5	16.2
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.1	23.3	20.5	19.8	19.7	16.9
C/N Downlink (dB)	22.0	14.4	15.3	14.6	14.5	16.2
C/I Intermodulation (dB)	24.9	N/A	26.3	25.6	25.4	22.7
C/I Uplink Co-Channel (dB)*	28.8	27.0	28.3	28.2	28.6	25.4
C/I Downlink Co-Channel (dB)*	26.8	25.0	26.3	26.2	26.6	23.4
C/I Uplink Adjacent Satellite 1 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 1 (dB)	20.5	12.5	13.6	12.9	12.8	14.7
C/I Uplink Adjacent Satellite 2 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 2 (dB)	20.9	14.0	14.7	14.0	13.9	15.3
C/(N+I) Composite (dB)	14.3	8.1	8.4	7.7	7.6	7.6
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.3	7.1	7.4	6.7	6.6	6.6
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.3	3.8	3.5	3.7	3.2	3.2
Number of Carriers	2.0	1.0	8.0	847.6	53.3	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.4	-55.8	-58.6	-59.4	-59.5	-58.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.2	-26.7	-29.4	-30.1	-30.3	-33.0

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Uplink Frequency (GHz)	14.375	14.375	14.375	14.375	14.375	14.375
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-69.1	-76.1	-77.1	-77.1	-77.1	-77.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Downlink Frequency (GHz)	11.825	11.825	11.825	11.825	11.825	11.825
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	58.2	57.0	57.0	57.0	57.0	49.1
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	56.9	47.4	47.4	47.4	47.4	55.4
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.6	80.0	70.2	50.1	62.1	50.5
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	29.2	24.1	24.1	23.4	23.3	17.8
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.4	46.1	35.1	15.0	27.0	15.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.6	15.1	14.0	13.3	13.2	15.8
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	29.2	24.1	24.1	23.4	23.3	17.8
C/N Downlink (dB)	22.6	15.1	14.0	13.3	13.2	15.8
C/I Intermodulation (dB)	N/A	N/A	26.3	25.7	25.5	20.0
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.8
C/I Downlink Co-Channel (dB)*	21.3	21.0	22.4	22.3	22.7	16.8
C/I Uplink Adjacent Satellite 1 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 1 (dB)	21.0	13.1	11.9	11.3	11.2	14.2
C/I Uplink Adjacent Satellite 2 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 2 (dB)	21.6	14.7	13.5	12.9	12.7	14.8
C/(N+I) Composite (dB)	14.7	8.6	7.6	7.0	6.9	7.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.7	7.6	6.6	6.0	5.9	6.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.7	4.2	2.8	3.0	2.5	2.7
Number of Carriers	2	1.0	5.4	566.3	35.8	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-41.6	-55.1	-55.0	-55.7	-55.8	-53.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.6	-26.0	-27.2	-27.8	-27.9	-33.4

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-69.7	-82.7	-76.7	-76.7	-76.7	-76.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	49.0
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	11.0	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	60.4	44.8	47.5	47.5	47.5	55.5
Earth Station G/T (dB/K)	38.0	22.3	25.0	25.0	25.0	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.2	80.2	69.1	48.8	60.8	48.7
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)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	28.0	23.8	24.1	23.4	23.3	17.2
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	39.3	47.6	33.6	13.3	25.3	13.2
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)	38.0	22.3	25.0	25.0	25.0	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	23.9	12.3	12.4	11.7	11.6	13.6
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	28.0	23.8	24.1	23.4	23.3	17.2
C/N Downlink (dB)	23.9	12.3	12.4	11.7	11.6	13.6
C/I Intermodulation (dB)	16.8	N/A	26.4	25.6	25.5	19.5
C/I Uplink Co-Channel (dB)*	27.2	27.0	28.5	28.3	28.7	22.2
C/I Downlink Co-Channel (dB)*	21.2	21.0	22.5	22.3	22.7	16.2
C/I Uplink Adjacent Satellite 1 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 1 (dB)	22.5	10.1	10.5	9.7	9.6	12.0
C/I Uplink Adjacent Satellite 2 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 2 (dB)	22.8	12.2	12.1	11.3	11.2	12.7
C/(N+I) Composite (dB)	12.8	6.1	6.3	5.6	5.5	5.4
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.8	5.1	5.3	4.6	4.5	4.4
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	1.8	1.7	1.4	1.6	1.1	1.0
Number of Carriers	3	1.0	7.8	829.0	52.1	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.7	-56.4	-56.1	-56.9	-57.0	-55.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-20.7	-26.1	-28.7	-29.5	-29.6	-35.6

EXHIBIT 13: ADJACENT SATELLITE (51º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Uplink Frequency (GHz)	14.125	14.125	14.125	14.125	14.125	14.125
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-71.7	-76.7	-79.7	-79.7	-79.7	-79.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	12.075	12.075	12.075	12.075	12.075	12.075
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	49.0W	49.0W	49.0W	49.0W	49.0W	49.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.8	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	55.6	47.6	47.6	47.6	47.6	55.6
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.0	80.5	67.7	47.4	59.4	47.6
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.8	25.8	22.8	22.0	21.9	16.1
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	40.8	46.1	34.6	14.3	26.3	14.5
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	20.5	15.1	13.4	12.7	12.6	14.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.8	25.8	22.8	22.0	21.9	16.1
C/N Downlink (dB)	20.5	15.1	13.4	12.7	12.6	14.9
C/I Intermodulation (dB)	N/A	N/A	26.4	25.6	25.5	19.7
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.4
C/I Downlink Co-Channel (dB)*	25.3	25.0	26.4	26.3	26.7	20.4
C/I Uplink Adjacent Satellite 1 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 1 (dB)	19.1	13.3	11.6	10.8	10.7	13.4
C/I Uplink Adjacent Satellite 2 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 2 (dB)	19.7	14.9	13.1	12.4	12.3	14.0
C/(N+I) Composite (dB)	13.5	9.0	7.1	6.4	6.3	6.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.5	8.0	6.1	5.4	5.3	5.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.5	4.6	2.3	2.4	1.9	1.6
Number of Carriers	2	1.0	5.4	573.5	36.0	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.8	-54.4	-57.4	-58.2	-58.3	-56.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.2	-26.0	-27.7	-28.5	-28.6	-34.4

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-68	-78	-77	-77
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	18.3	18.3	6.1	6.1
Earth Station Gain (dBi)	60.2	60.2	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	4.6	6.1	6.1
Earth Station Gain (dBi)	56.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	35.5	23.6	26.2	26.2
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)	83.7	84.9	70.7	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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	28.3	27.0	22.6	21.7
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	35.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.7	12.4	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.3	27.0	22.6	21.7
C/N Downlink (dB)	20.7	12.4	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.3	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 1 (dB)	17.1	7.6	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	18.8	17.5	13.1	12.2
C/I Downlink Adjacent Satellite 2 (dB)	17.7	10.0	11.7	10.8
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	551.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.5	-53.4	-47.0	-47.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-35.0	-35.7	-36.6

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-76	-80	-72	-72
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	15.2	6.1	6.1
Earth Station Gain (dBi)	60.2	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	3.5	3.7	3.7
Earth Station Gain (dBi)	50.3	41.1	41.2	41.2
Earth Station G/T (dB/K)	29.4	21.0	20.9	20.9
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)	83.9	82.9	76.0	55.6
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)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	28.5	25.3	27.9	27.0
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	34.8	39.0	28.8	8.4
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	20.9	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	20.4	14.0	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	28.5	25.3	27.9	27.0
C/N Downlink (dB)	20.4	14.0	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	24.0	24.0	25.8	25.5
C/I Uplink Adjacent Satellite 1 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 1 (dB)	16.9	7.0	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.0	15.8	18.4	17.5
C/I Downlink Adjacent Satellite 2 (dB)	18.1	11.8	11.1	10.2
C/(N+I) Composite (dB)	11.1	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	0.0	0.0	0.0
Number of Carriers	2	1.0	4.7	513.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.3	-53.3	-41.7	-42.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-25.2	-32.8	-33.5	-34.4

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-10.0	-10.0	-10.0	-10.0
Uplink Contour G/T (dB/K)	-8.2	-8.2	-8.2	-8.2
Uplink SFD (dBW/m2)	-79	-87	-78	-78
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	8.1	6.1	6.1
Earth Station Gain (dBi)	60.5	53.1	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	83.9	75.9	73.2	52.8
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-8.2	-8.2	-8.2	-8.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	29.1	21.3	24.8	23.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	29.1	21.3	24.8	23.9
C/N Downlink (dB)	19.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 1 (dB)	16.4	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	19.8	12.1	15.6	14.7
C/I Downlink Adjacent Satellite 2 (dB)	17.6	12.0	11.2	10.3
C/(N+I) Composite (dB)	11.1	4.6	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.6	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.2	0.0	0.0
Number of Carriers	1	1.0	2.2	246.1
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-51.7	-44.8	-45.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-69.1	-80.1	-74.1	-74.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	52563	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	15.2	6.1	6.1
Earth Station Gain (dBi)	58.4	58.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	11.0	3.5	4.5	3.7
Earth Station Gain (dBi)	51.9	41.1	43.9	41.2
Earth Station G/T (dB/K)	31.0	21.0	23.6	20.9
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)	82.6	82.8	71.6	53.5
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Uplink C/N(dB)	30.2	27.9	26.5	27.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	32.8	39.0	26.5	8.4
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	20.9
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8
Downlink C / N(dB)	20.1	13.7	13.6	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	30.2	27.9	26.5	27.9
C/N Downlink (dB)	20.1	13.7	13.6	12.3
C/I Intermodulation (dB)	N/A	N/A	18.2	19.6
C/I Uplink Co-Channel (dB)*	27.3	27.0	26.7	28.8
C/I Downlink Co-Channel (dB)*	24.3	24.0	23.7	25.8
C/I Uplink Adjacent Satellite 1 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 1 (dB)	16.7	6.7	8.8	7.2
C/I Uplink Adjacent Satellite 2 (dB)	19.7	17.4	16.0	17.4
C/I Downlink Adjacent Satellite 2 (dB)	17.7	11.5	11.3	10.2
C/(N+I) Composite (dB)	11.2	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.2	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.2	0.0	0.0	0.0
Number of Carriers	2	1.0	7.5	514.2
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.8	-53.7	-46.1	-44.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-27.2	-33.1	-35.8	-34.4

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.175	6.175	6.175	6.175
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-68.1	-82.1	-79.1	-79.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	3.950	3.950	3.950	3.950
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	49150	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	60266	6771.1	75.4
Allocated Bandwidth(kHz)	36000	72000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	13.0	6.1	6.1
Earth Station Gain (dBi)	60.2	56.4	49.4	49.4
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	15.2	4.5	6.1	6.1
Earth Station Gain (dBi)	55.0	43.9	46.5	46.5
Earth Station G/T (dB/K)	34.5	23.6	26.2	26.2
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)	83.6	80.8	68.6	48.2
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)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Uplink C/N(dB)	31.2	26.2	23.5	22.6
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	28.9	35.1	24.6	4.2
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)	34.5	23.6	26.2	26.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-77.8	-68.3	-48.8
Downlink C / N(dB)	19.7	12.7	14.3	13.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	31.2	26.2	23.5	22.6
C/N Downlink (dB)	19.7	12.7	14.3	13.4
C/I Intermodulation (dB)	N/A	N/A	19.9	19.0
C/I Uplink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Downlink Co-Channel (dB)*	27.0	27.0	28.5	28.2
C/I Uplink Adjacent Satellite 1 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 1 (dB)	16.0	7.9	9.8	8.9
C/I Uplink Adjacent Satellite 2 (dB)	20.7	15.7	13.0	12.1
C/I Downlink Adjacent Satellite 2 (dB)	16.7	10.4	11.7	10.8
C/(N+I) Composite (dB)	11.0	4.3	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.3	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	2	1.0	5.0	548.0
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.6	-53.4	-49.1	-50.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-29.1	-34.7	-35.7	-36.6

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
Uplink Beam Polarization	Circular	Circular	Circular	Circular
Uplink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Uplink Contour G/T (dB/K)	-5.2	-5.2	-5.2	-5.2
Uplink SFD (dBW/m2)	-78.1	-89.1	-80.1	-80.1
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	10300	100
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79
UPLINK EARTH STATION				
Earth Station Diameter (meters)	18.3	6.1	6.1	6.1
Earth Station Gain (dBi)	60.5	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	8.1	4.5	4.5	4.5
Earth Station Gain (dBi)	49.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Earth Station Elevation Angle	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE				
Uplink Earth Station EIRP (dBW)	84.8	73.8	71.1	50.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-5.2	-5.2	-5.2	-5.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	33.0	22.2	25.7	24.9
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	26.1	5.7
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	28.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.5	13.9	13.2	12.3
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	33.0	22.2	25.7	24.9
C/N Downlink (dB)	18.5	13.9	13.2	12.3
C/I Intermodulation (dB)	N/A	N/A	20.1	19.3
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.4
C/I Uplink Adjacent Satellite 1 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 1 (dB)	15.3	9.6	8.8	7.9
C/I Uplink Adjacent Satellite 2 (dB)	22.7	12.0	15.5	14.6
C/I Downlink Adjacent Satellite 2 (dB)	16.7	12.0	11.2	10.3
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	2.2	245.6
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.4	-46.8	-47.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-37.4	-38.2	-39.1

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-80.9	-89.9	-74.9	-74.9
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)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-4.0	-4.0	-4.0	-4.0
Downlink Contour EIRP (dBW)	33.1	33.1	33.1	33.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	27988	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	36000	34318	6771.1	75.4
Allocated Bandwidth(kHz)	36000	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)	15.2	6.1	6.1	6.1
Earth Station Gain (dBi)	58.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	9.2	4.5	4.5	4.5
Earth Station Gain (dBi)	50.7	44.3	44.3	44.3
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
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)	82.0	73.0	75.6	55.1
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Uplink C/N(dB)	25.6	16.8	26.4	25.5
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	33.1	33.1	25.3	4.9
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	29.8	24.0	24.0	24.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-75.4	-68.3	-48.8
Downlink C / N(dB)	18.7	13.1	12.4	11.5
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.6	16.8	26.4	25.5
C/N Downlink (dB)	18.7	13.1	12.4	11.5
C/I Intermodulation (dB)	N/A	N/A	20.2	19.3
C/I Uplink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Downlink Co-Channel (dB)*	27.6	27.0	28.8	28.5
C/I Uplink Adjacent Satellite 1 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 1 (dB)	15.6	8.8	8.1	7.2
C/I Uplink Adjacent Satellite 2 (dB)	23.1	14.3	24.0	23.1
C/I Downlink Adjacent Satellite 2 (dB)	16.8	11.2	10.5	9.6
C/(N+I) Composite (dB)	11.1	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.1	3.5	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	.1	.1	0.0	0.0
Number of Carriers	1	1.0	2.7	292.5
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-42.7	-52.0	-42.4	-43.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-28.9	-38.3	-39.0	-39.9

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-81.9	-90.9	-75.9	-75.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	West Hemi	West Hemi	West Hemi	West Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-8.0	-8.0	-8.0	-8.0
Downlink Contour EIRP (dBW)	35.1	35.1	35.1	35.1
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	56.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	7.0	3.5	3.7	3.5
Earth Station Gain (dBi)	47.9	41.5	41.6	41.5
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
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)	81.0	72.0	75.4	55.0
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	25.4	16.6	26.2	25.4
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	35.1	35.1	28.1	7.8
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	27.0	21.4	21.3	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	18.7	13.3	12.5	11.8
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	25.4	16.6	26.2	25.4
C/N Downlink (dB)	18.7	13.3	12.5	11.8
C/I Intermodulation (dB)	N/A	N/A	20.2	19.4
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Downlink Co-Channel (dB)*	27.5	27.0	28.7	28.5
C/I Uplink Adjacent Satellite 1 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 1 (dB)	15.4	8.4	7.9	6.9
C/I Uplink Adjacent Satellite 2 (dB)	22.9	14.2	23.7	22.9
C/I Downlink Adjacent Satellite 2 (dB)	17.0	11.5	10.8	9.9
C/(N+I) Composite (dB)	11.0	4.4	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.4	3.9	3.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0
Excess Link Margin (dB)	0.0	0.0	0.0	0.0
Number of Carriers	1	1.0	2.2	238.8
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-52.2	-42.6	-43.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-22.9	-31.4	-32.2	-33.0

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION				
Uplink Beam Name	Global	Global	Global	Global
Uplink Frequency (GHz)	6.360	6.360	6.360	6.360
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)	-9.0	-9.0	-9.0	-9.0
Uplink SFD (dBW/m2)	-82.9	-88.9	-87.9	-87.9
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION				
Downlink Beam Name	East Hemi	East Hemi	East Hemi	East Hemi
Downlink Frequency (GHz)	4.135	4.135	4.135	4.135
Downlink Beam Polarization	Circular	Circular	Circular	Circular
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	39.0	39.0	39.0	39.0
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1				
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2				
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-38.7	-38.7	-38.7	-38.7
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-29.5	-29.5	-29.5	-29.5
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0
CARRIER INFORMATION				
Carrier ID				
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	23210	6000	64
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256
Occupied Bandwidth(kHz)	30000	28459	6771.1	75.4
Allocated Bandwidth(kHz)	30000	34000	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	6.1	6.1	6.1
Earth Station Gain (dBi)	55.7	49.7	49.7	49.7
Earth Station Elevation Angle	20	20	20	20
DOWNLINK EARTH STATION				
Earth Station Diameter (meters)	4.5	3.0	3.5	3.5
Earth Station Gain (dBi)	44.3	40.1	41.5	41.5
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
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)	80.0	74.0	63.2	42.7
Uplink Path Loss, Clear Sky (dB)	-200.5	-200.5	-200.5	-200.5
Uplink Rain Attenuation	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	-9.0	-9.0	-9.0	-9.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Uplink C/N(dB)	24.4	18.6	14.0	13.1
DOWNLINK PERFORMANCE				
Downlink EIRP per Carrier (dBW)	39.0	39.0	31.8	11.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-196.7	-196.7	-196.7	-196.7
Downlink Rain Attenuation	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	24.0	19.6	21.4	21.4
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-74.8	-74.5	-68.3	-48.8
Downlink C / N(dB)	19.6	15.4	16.3	15.4
COMPOSITE LINK PERFORMANCE				
C/N Uplink (dB)	24.4	18.6	14.0	13.1
C/N Downlink (dB)	19.6	15.4	16.3	15.4
C/I Intermodulation (dB)	N/A	N/A	20.0	19.1
C/I Uplink Co-Channel (dB)*	27.5	27.0	28.5	28.3
C/I Downlink Co-Channel (dB)*	24.5	24.0	25.5	25.3
C/I Uplink Adjacent Satellite 1 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 1 (dB)	15.3	6.6	11.4	10.5
C/I Uplink Adjacent Satellite 2 (dB)	21.9	16.2	11.6	10.7
C/I Downlink Adjacent Satellite 2 (dB)	17.7	14.2	14.4	13.6
C/(N+I) Composite (dB)	11.0	4.5	4.9	4.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	10.0	3.5	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
Number of Carriers	1	1.0	2.3	254.9
CARRIER DENSITY LEVELS				
Uplink Power Density (dBW/Hz)	-41.7	-50.2	-54.8	-55.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.0	-29.5	-30.5	-31.4

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-71.1	-82.1	-79.1	-79.1	-79.1	-79.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	3.7
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	52.7
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	9.0	2.4	3.7	3.7	3.7	6.1
Earth Station Gain (dBi)	59.0	47.5	51.1	51.1	51.1	55.5
Earth Station G/T (dB/K)	36.6	25.0	28.6	28.6	28.6	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.5	80.8	66.6	46.3	58.3	49.5
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)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.1	23.3	20.5	19.8	19.7	16.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	38.8	47.0	32.9	12.6	24.6	15.8
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)	36.6	25.0	28.6	28.6	28.6	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.0	14.4	15.3	14.6	14.5	16.2
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.1	23.3	20.5	19.8	19.7	16.9
C/N Downlink (dB)	22.0	14.4	15.3	14.6	14.5	16.2
C/I Intermodulation (dB)	24.9	N/A	26.3	25.6	25.4	22.7
C/I Uplink Co-Channel (dB)*	28.8	27.0	28.3	28.2	28.6	25.4
C/I Downlink Co-Channel (dB)*	26.8	25.0	26.3	26.2	26.6	23.4
C/I Uplink Adjacent Satellite 1 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 1 (dB)	20.5	12.5	13.6	12.9	12.8	14.7
C/I Uplink Adjacent Satellite 2 (dB)	25.9	22.1	19.3	18.5	18.4	15.7
C/I Downlink Adjacent Satellite 2 (dB)	20.9	14.0	14.7	14.0	13.9	15.3
C/(N+I) Composite (dB)	14.3	8.1	8.4	7.7	7.6	7.6
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.3	7.1	7.4	6.7	6.6	6.6
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.3	3.8	3.5	3.7	3.2	3.2
Number of Carriers	2.0	1.0	8.0	847.6	53.3	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.4	-55.8	-58.6	-59.4	-59.5	-58.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-21.2	-26.7	-29.4	-30.1	-30.3	-33.0

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Uplink Frequency (GHz)	14.375	14.375	14.375	14.375	14.375	14.375
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Uplink SFD (dBW/m2)	-69.1	-76.1	-77.1	-77.1	-77.1	-77.1
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Downlink Frequency (GHz)	11.825	11.825	11.825	11.825	11.825	11.825
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	58.2	57.0	57.0	57.0	57.0	49.1
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	7.0	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	56.9	47.4	47.4	47.4	47.4	55.4
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	82.6	80.0	70.2	50.1	62.1	50.5
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	1.1	1.1	1.1	1.1	1.1	1.1
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	29.2	24.1	24.1	23.4	23.3	17.8
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.4	46.1	35.1	15.0	27.0	15.4
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-205.9	-205.9	-205.9	-205.9	-205.9	-205.9
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	34.5	24.9	24.9	24.9	24.9	33.0
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	22.6	15.1	14.0	13.3	13.2	15.8
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	29.2	24.1	24.1	23.4	23.3	17.8
C/N Downlink (dB)	22.6	15.1	14.0	13.3	13.2	15.8
C/I Intermodulation (dB)	N/A	N/A	26.3	25.7	25.5	20.0
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.8
C/I Downlink Co-Channel (dB)*	21.3	21.0	22.4	22.3	22.7	16.8
C/I Uplink Adjacent Satellite 1 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 1 (dB)	21.0	13.1	11.9	11.3	11.2	14.2
C/I Uplink Adjacent Satellite 2 (dB)	28.0	22.9	22.9	22.3	22.2	16.6
C/I Downlink Adjacent Satellite 2 (dB)	21.6	14.7	13.5	12.9	12.7	14.8
C/(N+I) Composite (dB)	14.7	8.6	7.6	7.0	6.9	7.1
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	13.7	7.6	6.6	6.0	5.9	6.1
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	3.7	4.2	2.8	3.0	2.5	2.7
Number of Carriers	2	1.0	5.4	566.3	35.8	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-41.6	-55.1	-55.0	-55.7	-55.8	-53.4
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.6	-26.0	-27.2	-27.8	-27.9	-33.4

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-69.7	-82.7	-76.7	-76.7	-76.7	-76.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
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)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.6	47.6	47.6	47.6	47.6	47.6
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	76455	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	93747	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	112000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.9	56.9	56.9	56.9	56.9	49.0
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	11.0	1.8	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	60.4	44.8	47.5	47.5	47.5	55.5
Earth Station G/T (dB/K)	38.0	22.3	25.0	25.0	25.0	33.1
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.2	80.2	69.1	48.8	60.8	48.7
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)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	28.0	23.8	24.1	23.4	23.3	17.2
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	39.3	47.6	33.6	13.3	25.3	13.2
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)	38.0	22.3	25.0	25.0	25.0	33.1
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-79.7	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	23.9	12.3	12.4	11.7	11.6	13.6
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	28.0	23.8	24.1	23.4	23.3	17.2
C/N Downlink (dB)	23.9	12.3	12.4	11.7	11.6	13.6
C/I Intermodulation (dB)	16.8	N/A	26.4	25.6	25.5	19.5
C/I Uplink Co-Channel (dB)*	27.2	27.0	28.5	28.3	28.7	22.2
C/I Downlink Co-Channel (dB)*	21.2	21.0	22.5	22.3	22.7	16.2
C/I Uplink Adjacent Satellite 1 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 1 (dB)	22.5	10.1	10.5	9.7	9.6	12.0
C/I Uplink Adjacent Satellite 2 (dB)	25.7	21.5	21.8	21.0	20.9	14.9
C/I Downlink Adjacent Satellite 2 (dB)	22.8	12.2	12.1	11.3	11.2	12.7
C/(N+I) Composite (dB)	12.8	6.1	6.3	5.6	5.5	5.4
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	11.8	5.1	5.3	4.6	4.5	4.4
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	1.8	1.7	1.4	1.6	1.1	1.0
Number of Carriers	3	1.0	7.8	829.0	52.1	280.0
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.7	-56.4	-56.1	-56.9	-57.0	-55.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-20.7	-26.1	-28.7	-29.5	-29.6	-35.6

EXHIBIT 14: ADJACENT SATELLITE (55º W.L) LINK BUDGETS (continued)

UPLINK BEAM INFORMATION						
Uplink Beam Name	Argentina	Argentina	Argentina	Argentina	Argentina	Argentina
Uplink Frequency (GHz)	14.125	14.125	14.125	14.125	14.125	14.125
Uplink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Uplink SFD (dBW/m2)	-71.7	-76.7	-79.7	-79.7	-79.7	-79.7
Rain Rate (mm/hr)	42.0	42.0	42.0	42.0	42.0	42.0
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	Mexico	Mexico	Mexico	Mexico	Mexico	Mexico
Downlink Frequency (GHz)	12.075	12.075	12.075	12.075	12.075	12.075
Downlink Beam Polarization	Linear	Linear	Linear	Linear	Linear	Linear
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
Rain Rate (mm/hr)	95.0	95.0	95.0	95.0	95.0	95.0
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.0W	53.0W	53.0W	53.0W	53.0W	53.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.0W	57.0W	57.0W	57.0W	57.0W	57.0W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Uplink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink Polarization Advantage (dB)	0.0	0.0	0.0	0.0	0.0	0.0
CARRIER INFORMATION						
Carrier ID						
Carrier Modulation	TV/FM	QPSK	QPSK	QPSK	BPSK	BPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	52563	6000	64	512	128
Code Rate	N/A	1/2x188/204	1/2x188/204	1/2x239/256	R1/2	R1/2
Occupied Bandwidth(kHz)	36000	64451	6771.1	75.4	1229.0	307.0
Allocated Bandwidth(kHz)	36000	77000	10300	100	1450.0	400.0
Minimum C/N, Clear Sky (dB)	10.0	3.36	3.87	2.99	3.4	3.4
Minimum C/N, Rain (dB)	10.0	3.36	3.57	2.79	2.7	2.7
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	6.1	6.1	6.1	6.1	2.4
Earth Station Gain (dBi)	56.8	56.8	56.8	56.8	56.8	48.9
Earth Station Elevation Angle	20	20	20	20	20	20
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.1	2.4	2.4	2.4	2.4	6.1
Earth Station Gain (dBi)	55.6	47.6	47.6	47.6	47.6	55.6
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Earth Station Elevation Angle	20	20	20	20	20	20
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	80.0	80.5	67.7	47.4	59.4	47.6
Uplink Path Loss, Clear Sky (dB)	-207.4	-207.4	-207.4	-207.4	-207.4	-207.4
Uplink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Satellite G/T(dB/K)	2.2	2.2	2.2	2.2	2.2	2.2
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Uplink C/N(dB)	27.8	25.8	22.8	22.0	21.9	16.1
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	40.8	46.1	34.6	14.3	26.3	14.5
Antenna Pointing Error (dB)	-.5	-.5	-.5	-.5	-.5	-.5
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Rain Attenuation	0.0	0.0	0.0	0.0	0.0	0.0
Earth Station G/T (dB/K)	33.2	25.1	25.1	25.1	25.1	33.2
Boltzman Constant(dBW / K - Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (dB-Hz)	-75.6	-78.1	-68.3	-48.8	-60.9	-54.9
Downlink C / N(dB)	20.5	15.1	13.4	12.7	12.6	14.9
COMPOSITE LINK PERFORMANCE						
C/N Uplink (dB)	27.8	25.8	22.8	22.0	21.9	16.1
C/N Downlink (dB)	20.5	15.1	13.4	12.7	12.6	14.9
C/I Intermodulation (dB)	N/A	N/A	26.4	25.6	25.5	19.7
C/I Uplink Co-Channel (dB)*	27.3	27.0	28.4	28.3	28.7	22.4
C/I Downlink Co-Channel (dB)*	25.3	25.0	26.4	26.3	26.7	20.4
C/I Uplink Adjacent Satellite 1 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 1 (dB)	19.1	13.3	11.6	10.8	10.7	13.4
C/I Uplink Adjacent Satellite 2 (dB)	25.4	23.4	20.4	19.6	19.5	13.7
C/I Downlink Adjacent Satellite 2 (dB)	19.7	14.9	13.1	12.4	12.3	14.0
C/(N+I) Composite (dB)	13.5	9.0	7.1	6.4	6.3	6.0
Required System Margin (dB)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Net C/(N+I) Composite (dB)	12.5	8.0	6.1	5.4	5.3	5.0
Minimum Required C/N (dB)	-10.0	-3.4	-3.9	-3.0	-3.4	-3.4
Excess Link Margin (dB)	2.5	4.6	2.3	2.4	1.9	1.6
Number of Carriers	2	1.0	5.4	573.5	36.0	192.5
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-42.8	-54.4	-57.4	-58.2	-58.3	-56.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.2	-26.0	-27.7	-28.5	-28.6	-34.4