

# LINK BUDGETS

<b>UPLINK BEAM INFORMATION</b>						
Uplink Beam Name	KHUL	KHUL	KHUL	KHUL	KHUL	KHUL
Uplink Frequency (GHz)	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Uplink Relative Contour Level (dB)	-6.3	-6.3	-6.3	-6.3	-6.3	-6.3
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink Contour SFD (dBW/m2)	-78.5	-78.5	-80.5	-80.5	-80.5	-80.5
<b>DOWNLINK BEAM INFORMATION</b>						
Downlink Beam Name	KVDL	KVDL	KVDL	KVDL	KVDL	KVDL
Downlink Frequency (GHz)	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-6.4	-6.4	-6.4	-6.4	-6.4	-6.4
Downlink Contour EIRP (dBW)	43.3	43.3	43.3	43.3	43.3	43.3
<b>ADJACENT SATELLITE 1</b>						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.4	-26.4	-26.4	-26.4	-26.4	-26.4
<b>ADJACENT SATELLITE 2</b>						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.4	-26.4	-26.4	-26.4	-26.4	-26.4
<b>CARRIER INFORMATION</b>						
Carrier ID	36M0F3F	36M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	36860	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	32400	26664.7	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	36000	35997.5	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
<b>UPLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	6.5	4.0	4.0	4.0	2.4
Earth Station Gain (dBi)	57.4	57.4	53.1	53.1	53.1	48.7
Earth Station Elevation Angle	10.1	10.1	10.1	10.1	10.1	10.1
Rain Rate (mm/yr)	394	394	394	394	394	394
<b>DOWNLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	2.4	4.0	1.8	1.8	4.0
Earth Station Gain (dBi)	55.6	47.0	51.4	44.5	44.5	51.4
Earth Station G/T (dB/K)	34.0	25.0	29.0	23.3	23.3	29.0
Earth Station Elevation Angle	10.0	10.0	10.0	10.0	10.0	10.0
Rain Rate (mm/yr)	214	214	214	214	214	214
<b>LINK FADE TYPE</b>						
Link Fade Type	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
<b>UPLINK PERFORMANCE</b>						
Uplink Earth Station EIRP (dBW)	80.9	79.7	67.5	59.1	56.2	48.0
Uplink Path Loss, Clear Sky (dB)	-208.1	-208.1	-208.1	-208.1	-208.1	-208.1
Satellite G/T(dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	32.4	26.7	6.1	1.0	0.5	0.1
Uplink C/N(dB)	26.3	25.9	20.1	19.5	19.6	19.2
<b>DOWNLINK PERFORMANCE</b>						
Downlink EIRP per Carrier (dBW)	42.5	41.9	32.3	23.8	20.8	12.6
Downlink Path Loss, Clear Sky (dB)	-206.5	-206.5	-206.5	-206.5	-206.5	-206.5
Downlink Earth Station G/T (dB/K)	34.0	25.0	29.0	23.3	23.3	29.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	32.4	26.7	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.3	0.0	0.0	0.0	0.0
Downlink C / N(dB)	23.5	15.0	15.5	9.1	9.1	14.4
<b>COMPOSITE LINK PERFORMANCE</b>						
Uplink Earth Station HPA Intermodulation C/N (dB)	35.7	35.4	29.6	29.0	29.0	28.6
C/N Uplink (dB)	26.3	25.9	20.1	19.5	19.6	19.2
Uplink Interference C/I (dB)	48.1	38.7	31.7	38.4	31.0	31.5
Uplink Adjacent Satellite C/I (dB)	26.7	26.4	20.6	20.0	20.1	19.7
Intermodulation C/IM (dB)	124.9	200.0	21.0	18.6	18.2	17.7
Downlink C/N (dB)	23.5	15.0	15.5	9.1	9.1	14.4
Downlink Interference C/I (dB)	46.9	35.4	29.2	23.4	22.1	21.6
Downlink Adjacent Satellite C/I (dB)	18.7	10.2	11.5	3.7	3.7	10.3
Subtotal C/N (dB)	16.5	8.8	9.0	2.3	2.3	7.5
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	16.5	7.3	7.5	0.8	0.8	6.0
Minimum Required C/N (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	4	25	50	324
<b>CARRIER DENSITY LEVELS</b>						
Uplink Power Density (dBW/Hz)	-42.5	-52.0	-53.5	-54.1	-54.0	-50.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.1	-26.0	-29.2	-29.9	-29.9	-30.3

<b>UPLINK BEAM INFORMATION</b>						
Uplink Beam Name	EHUL	EHUL	EHUL	EHUL	EHUL	EHUL
Uplink Frequency (GHz)	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Uplink Contour SFD (dBW/m2)	-82.3	-83.3	-80.3	-80.3	-80.3	-80.3
<b>DOWNLINK BEAM INFORMATION</b>						
Downlink Beam Name	EVDL	EVDL	EVDL	EVDL	EVDL	EVDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	45.2	45.2	45.2	45.2	45.2	45.2
<b>ADJACENT SATELLITE 1</b>						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
<b>ADJACENT SATELLITE 2</b>						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
<b>CARRIER INFORMATION</b>						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
<b>UPLINK EARTH STATION</b>						
Earth Station Diameter (meters)	4.0	2.4	4.0	2.4	2.4	4.0
Earth Station Gain (dBi)	53.1	48.7	53.1	48.7	48.7	53.1
Earth Station Elevation Angle	10.1	10.1	10.1	10.1	10.1	10.1
Rain Rate (mm/yr)	3479	3479	3479	3479	3479	3479
<b>DOWNLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.8	1.8	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	44.5	44.5	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Earth Station Elevation Angle	10.2	10.2	10.2	10.2	10.2	10.2
Rain Rate (mm/yr)	2098	2098	2098	2098	2098	2098
<b>LINK FADE TYPE</b>						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
<b>UPLINK PERFORMANCE</b>						
Uplink Earth Station EIRP (dBW)	72.3	71.2	68.8	57.0	53.9	49.2
Uplink Path Loss, Clear Sky (dB)	-208.3	-208.3	-208.3	-208.3	-208.3	-208.3
Satellite G/T(dB/K)	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	18.6	17.7	20.4	16.4	16.3	19.4
<b>DOWNLINK PERFORMANCE</b>						
Downlink EIRP per Carrier (dBW)	50.0	40.8	35.4	23.4	20.3	15.6
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.6	0.0	0.0	0.0	0.0
Downlink C / N(dB)	33.4	16.0	15.1	9.2	9.1	13.9
<b>COMPOSITE LINK PERFORMANCE</b>						
Uplink Earth Station HPA Intermodulation C/N (dB)	34.3	33.3	36.1	32.1	32.0	35.1
C/N Uplink (dB)	18.6	17.7	20.4	16.4	16.3	19.4
Uplink Interference C/I (dB)	32.6	30.9	200.0	200.0	96.4	85.5
Uplink Adjacent Satellite C/I (dB)	20.1	19.2	22.0	17.9	17.8	20.9
Intermodulation C/IM (dB)	126.8	200.0	25.7	19.2	18.7	21.7
Downlink C/N (dB)	33.4	16.0	15.1	9.2	9.1	13.9
Downlink Interference C/I (dB)	42.4	30.6	31.7	19.6	21.8	24.7
Downlink Adjacent Satellite C/I (dB)	19.8	11.2	10.9	4.0	3.9	9.6
Subtotal C/N (dB)	14.6	8.8	8.8	2.4	2.3	7.4
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.6	7.3	7.3	0.9	0.8	5.9
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
<b>CARRIER DENSITY LEVELS</b>						
Uplink Power Density (dBW/Hz)	-46.8	-50.5	-52.2	-51.8	-51.9	-53.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-10.0	-26.2	-26.5	-30.7	-30.8	-27.7

<b>UPLINK BEAM INFORMATION</b>						
Uplink Beam Name	KVUL	KVUL	KVUL	KVUL	KVUL	KVUL
Uplink Frequency (GHz)	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5	14.0-14.5
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	-6.3	-6.3	-6.3	-6.3	-6.3	-6.3
Uplink Contour G/T (dB/K)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Uplink Contour SFD (dBW/m2)	-79.0	-81.0	-81.0	-81.0	-81.0	-81.0
<b>DOWNLINK BEAM INFORMATION</b>						
Downlink Beam Name	KHDL	KHDL	KHDL	KHDL	KHDL	KHDL
Downlink Frequency (GHz)	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2	11.7-12.2
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-6.2	-6.2	-6.2	-6.2	-6.2	-6.2
Downlink Contour EIRP (dBW)	43.5	43.5	43.5	43.5	43.5	43.5
<b>ADJACENT SATELLITE 1</b>						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.2	-26.2	-26.2	-26.2	-26.2	-26.2
<b>ADJACENT SATELLITE 2</b>						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.2	-26.2	-26.2	-26.2	-26.2	-26.2
<b>CARRIER INFORMATION</b>						
Carrier ID	36M0F3F	36M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	36860	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	32400	26664.7	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	36000	35997.5	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
<b>UPLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	4.0	4.0	4.0	4.0	4.0
Earth Station Gain (dBi)	57.4	53.1	53.1	53.1	53.1	53.1
Earth Station Elevation Angle	10.0	10.0	10.0	10.0	10.0	10.0
Rain Rate (mm/yr)	285	285	285	285	285	285
<b>DOWNLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	2.4	4.0	1.8	1.8	4.0
Earth Station Gain (dBi)	55.6	47	51.4	44.5	44.5	51.4
Earth Station G/T (dB/K)	34.0	25.0	29.0	23.3	23.3	29.0
Earth Station Elevation Angle	10.0	10.0	10.0	10.0	10.0	10.0
Rain Rate (mm/yr)	320	320	320	320	320	320
<b>LINK FADE TYPE</b>	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
<b>UPLINK PERFORMANCE</b>						
Uplink Earth Station EIRP (dBW)	80.5	77.2	66.9	58.3	55.4	47.4
Uplink Path Loss, Clear Sky (dB)	-208.1	-208.1	-208.1	-208.1	-208.1	-208.1
Satellite G/T(dB/K)	-1.5	-1.5	-1.5	-1.5	-1.5	-1.5
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	32.4	26.7	6.1	1.0	0.5	0.1
Uplink C/N(dB)	24.4	21.9	18.0	17.2	17.3	17.1
<b>DOWNLINK PERFORMANCE</b>						
Downlink EIRP per Carrier (dBW)	42.8	42.1	32.5	23.8	20.8	12.8
Downlink Path Loss, Clear Sky (dB)	-206.5	-206.5	-206.5	-206.5	-206.5	-206.5
Downlink Earth Station G/T (dB/K)	34.0	25.0	29.0	23.3	23.3	29.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	32.4	26.7	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.3	0.0	0.0	0.0	0.0
Downlink C / N(dB)	23.8	15.2	15.7	9.1	9.1	14.6
<b>COMPOSITE LINK PERFORMANCE</b>						
Uplink Earth Station HPA Intermodulation C/N (dB)	33.9	31.4	27.5	26.8	26.8	26.6
C/N Uplink (dB)	24.4	21.9	18.0	17.2	17.3	17.1
Uplink Interference C/I (dB)	43.1	29.3	200.0	200.0	200.0	200.0
Uplink Adjacent Satellite C/I (dB)	26.4	23.9	20.0	19.2	19.3	19.1
Intermodulation C/IM (dB)	124.9	200.0	21.1	18.5	18.2	17.9
Downlink C/N (dB)	23.8	15.2	15.7	9.1	9.1	14.6
Downlink Interference C/I (dB)	44.9	33.2	36.0	23.7	23.8	22.5
Downlink Adjacent Satellite C/I (dB)	19.0	10.5	11.7	3.8	3.8	10.6
Subtotal C/N (dB)	16.4	8.8	8.9	2.3	2.3	7.6
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	16.4	7.3	7.4	0.8	0.8	6.1
Minimum Required C/N (dB)	16.4	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	4	25	50	324
<b>CARRIER DENSITY LEVELS</b>						
Uplink Power Density (dBW/Hz)	-42.9	-50.2	-54.1	-54.9	-54.8	-55.0
Downlink EIRP Density At Beam Peak (dBW/Hz)	-17.0	-26.0	-29.2	-30.1	-30.1	-30.3

UPLINK BEAM INFORMATION						
Uplink Beam Name	EVUL	EVUL	EVUL	EVUL	EVUL	EVUL
Uplink Frequency (GHz)	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	-4.4	-4.4	-4.4	-4.4	-4.4	-4.4
Uplink Contour G/T (dB/K)	0.8	0.8	0.8	0.8	0.8	0.8
Uplink Contour SFD (dBW/m2)	-74.8	-84.8	-79.8	-79.8	-79.8	-79.8
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	EHDL	EHDL	EHDL	EHDL	EHDL	EHDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-6.1	-6.1	-6.1	-6.1	-6.1	-6.1
Downlink Contour EIRP (dBW)	44.8	44.8	44.8	44.8	44.8	44.8
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	4.0	2.4	2.4	4.0
Earth Station Gain (dBi)	57.4	48.7	53.1	48.7	48.7	53.1
Earth Station Elevation Angle	21.4	21.4	21.4	21.4	21.4	21.4
Rain Rate (mm/yr)	771	771	771	771	771	771
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	4.0	2.4	2.4	1.8	1.8	2.4
Earth Station Gain (dBi)	51.4	47.0	47.0	44.5	44.5	47.0
Earth Station G/T (dB/K)	29.0	25.0	25.0	23.3	23.3	25.0
Earth Station Elevation Angle	10.2	10.2	10.2	10.2	10.2	10.2
Rain Rate (mm/yr)	3131	3131	3131	3131	3131	3131
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	79.8	69.3	68.6	56.8	53.8	49.1
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Satellite G/T(dB/K)	0.8	0.8	0.8	0.8	0.8	0.8
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	28.4	18.1	22.5	18.5	18.5	21.6
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.2	40.8	35.0	22.9	19.9	15.2
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Earth Station G/T (dB/K)	29.0	25.0	25.0	23.3	23.3	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.6	0.0	0.0	0.0	0.0
Downlink C / N(dB)	19.6	16.0	14.7	8.7	8.7	13.5
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	45.7	35.3	39.8	35.7	35.7	38.8
C/N Uplink (dB)	28.4	18.1	22.5	18.5	18.5	21.6
Uplink Interference C/I (dB)	55.2	33.5	33.1	37.0	32.6	46.2
Uplink Adjacent Satellite C/I (dB)	27.6	17.3	21.8	17.6	17.7	20.8
Intermodulation C/IM (dB)	126.8	200.0	25.8	19.1	18.8	21.8
Downlink C/N (dB)	19.6	16.0	14.7	8.7	8.7	13.5
Downlink Interference C/I (dB)	44.8	32.9	29.4	20.2	20.6	24.7
Downlink Adjacent Satellite C/I (dB)	16.2	11.5	10.9	4.0	4.0	9.6
Subtotal C/N (dB)	14.2	8.8	8.8	2.3	2.3	7.5
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.2	7.3	7.3	0.8	0.8	6.0
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.6	-52.4	-52.4	-52.0	-52.0	-53.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.7	-26.1	-26.8	-31.1	-31.1	-28.0

UPLINK BEAM INFORMATION						
Uplink Beam Name	EHUL	EHUL	EHUL	EHUL	EHUL	EHUL
Uplink Frequency (GHz)	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Uplink Contour SFD (dBW/m2)	-81.3	-82.3	-78.3	-78.3	-78.3	-78.3
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BVDL	BVDL	BVDL	BVDL	BVDL	BVDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	45.9	45.9	45.9	45.9	45.9	45.9
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	4.0	2.4	4.0	4.0	4.0	4.0
Earth Station Gain (dBi)	53.1	48.7	53.1	53.1	53.1	53.1
Earth Station Elevation Angle	10.1	10.1	10.1	10.1	10.1	10.1
Rain Rate (mm/yr)	3479	3479	3479	3479	3479	3479
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.2	1.8	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	40.9	44.5	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	23.3	25.0
Earth Station Elevation Angle	45.2	45.2	45.2	45.2	45.2	45.2
Rain Rate (mm/yr)	851	851	851	851	851	851
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	72.3	71.3	70.3	62.5	59.2	50.7
Uplink Path Loss, Clear Sky (dB)	-208.3	-208.3	-208.3	-208.3	-208.3	-208.3
Satellite G/T(dB/K)	-0.8	-0.8	-0.8	-0.8	-0.8	-0.8
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	18.6	17.8	21.9	21.9	21.6	20.9
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.1	41.0	35.6	27.6	24.3	15.8
Downlink Path Loss, Clear Sky (dB)	-204.9	-204.9	-204.9	-204.9	-204.9	-204.9
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	23.3	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.7	0.0	0.0	0.0	0.0
Downlink C / N(dB)	25.6	17.4	16.4	11.0	14.2	15.2
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	34.3	33.5	37.6	37.6	37.3	36.6
C/N Uplink (dB)	18.6	17.8	21.9	21.9	21.6	20.9
Uplink Interference C/I (dB)	34.2	27.3	31.3	32.1	105.9	91.2
Uplink Adjacent Satellite C/I (dB)	20.2	19.3	23.4	23.4	23.1	22.4
Intermodulation C/IM (dB)	126.8	200.0	21.8	20.5	20.0	19.2
Downlink C/N (dB)	25.6	17.4	16.4	11.0	14.2	15.2
Downlink Interference C/I (dB)	42.9	31.7	33.7	24.2	23.9	22.1
Downlink Adjacent Satellite C/I (dB)	19.4	10.9	10.6	3.1	2.9	9.3
Subtotal C/N (dB)	14.2	8.8	8.9	2.3	2.4	7.4
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.2	7.3	7.4	0.8	0.9	5.9
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-46.8	-50.4	-50.7	-50.7	-51.0	-51.7
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.9	-26.0	-26.3	-26.5	-26.8	-27.5

<b>UPLINK BEAM INFORMATION</b>						
Uplink Beam Name	EVUL	EVUL	EVUL	EVUL	EVUL	EVUL
Uplink Frequency (GHz)	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0	13.75-14.0
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	-4.4	-4.4	-4.4	-4.4	-4.4	-4.4
Uplink Contour G/T (dB/K)	0.8	0.8	0.8	0.8	0.8	0.8
Uplink Contour SFD (dBW/m2)	-74.8	-83.8	-79.8	-79.8	-79.8	-79.8
<b>DOWNLINK BEAM INFORMATION</b>						
Downlink Beam Name	BHDL	BHDL	BHDL	BHDL	BHDL	BHDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Downlink Contour EIRP (dBW)	47.0	47.0	47.0	47.0	47.0	47.0
<b>ADJACENT SATELLITE 1</b>						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
<b>ADJACENT SATELLITE 2</b>						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-25.7	-25.7	-25.7	-25.7	-25.7	-25.7
<b>CARRIER INFORMATION</b>						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
<b>UPLINK EARTH STATION</b>						
Earth Station Diameter (meters)	6.5	1.8	2.4	2.4	1.8	2.4
Earth Station Gain (dBi)	57.4	46.2	48.7	48.7	46.2	48.7
Earth Station Elevation Angle	21.4	21.4	21.4	21.4	21.4	21.4
Rain Rate (mm/yr)	771	771	771	771	771	771
<b>DOWNLINK EARTH STATION</b>						
Earth Station Diameter (meters)	4.0	2.4	2.4	1.2	1.2	2.4
Earth Station Gain (dBi)	51.4	47.0	47.0	40.9	40.9	47.0
Earth Station G/T (dB/K)	29.0	25.0	25.0	19.8	19.8	25.0
Earth Station Elevation Angle	43.5	43.5	43.5	43.5	43.5	43.5
Rain Rate (mm/yr)	976	976	976	976	976	976
<b>LINK FADE TYPE</b>	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
<b>UPLINK PERFORMANCE</b>						
Uplink Earth Station EIRP (dBW)	78.2	69.0	64.4	55.9	53.0	44.8
Uplink Path Loss, Clear Sky (dB)	-207.6	-207.6	-207.6	-207.6	-207.6	-207.6
Satellite G/T(dB/K)	0.8	0.8	0.8	0.8	0.8	0.8
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	26.8	17.8	18.3	17.6	17.7	17.3
<b>DOWNLINK PERFORMANCE</b>						
Downlink EIRP per Carrier (dBW)	41.5	41.3	36.2	27.5	24.6	16.4
Downlink Path Loss, Clear Sky (dB)	-204.9	-204.9	-204.9	-204.9	-204.9	-204.9
Downlink Earth Station G/T (dB/K)	29.0	25.0	25.0	19.8	19.8	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.7	0.0	0.0	0.0	0.0
Downlink C / N(dB)	21.0	17.7	17.1	10.9	11.0	15.8
<b>COMPOSITE LINK PERFORMANCE</b>						
Uplink Earth Station HPA Intermodulation C/N (dB)	44.1	35.0	35.6	34.9	35.0	34.6
C/N Uplink (dB)	26.8	17.8	18.3	17.6	17.7	17.3
Uplink Interference C/I (dB)	53.5	34.2	27.3	32.1	26.4	36.5
Uplink Adjacent Satellite C/I (dB)	26.1	17.0	17.6	16.8	16.9	16.5
Intermodulation C/IM (dB)	126.8	200.0	22.1	19.9	19.8	19.3
Downlink C/N (dB)	21.0	17.7	17.1	10.9	11.0	15.8
Downlink Interference C/I (dB)	44.7	32.3	29.4	23.1	22.0	22.2
Downlink Adjacent Satellite C/I (dB)	16.0	11.5	11.5	3.4	3.5	10.3
Subtotal C/N (dB)	14.3	9.0	8.8	2.3	2.4	7.5
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.3	7.5	7.3	0.8	0.9	6.0
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
<b>CARRIER DENSITY LEVELS</b>						
Uplink Power Density (dBW/Hz)	-45.2	-50.2	-52.2	-52.9	-50.3	-53.2
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.8	-26.0	-25.9	-26.9	-26.8	-27.2

UPLINK BEAM INFORMATION						
Uplink Beam Name	BHUL	BHUL	BHUL	BHUL	BHUL	BHUL
Uplink Frequency (GHz)	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Uplink Relative Contour Level (dB)	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink Contour SFD (dBW/m2)	-80.6	-81.6	-80.6	-80.6	-80.6	-80.6
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BVDL	BVDL	BVDL	BVDL	BVDL	BVDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	45.9	45.9	45.9	45.9	45.9	45.9
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	4.0	2.4	4.0	4.0	4.0	2.4
Earth Station Gain (dBi)	53.1	48.7	53.1	53.1	53.1	48.7
Earth Station Elevation Angle	44.1	44.1	44.1	44.1	44.1	44.1
Rain Rate (mm/yr)	758	758	758	758	758	758
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.2	1.2	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	40.9	40.9	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	19.8	25.0
Earth Station Elevation Angle	45.2	45.2	45.2	45.2	45.2	45.2
Rain Rate (mm/yr)	851	851	851	851	851	851
LINK FADE TYPE						
	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	71.4	70.5	66.9	58.9	55.9	47.4
Uplink Path Loss, Clear Sky (dB)	-207.1	-207.1	-207.1	-207.1	-207.1	-207.1
Satellite G/T(dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	19.7	19.0	20.5	20.3	20.3	19.6
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.0	41.0	35.9	27.7	24.7	16.2
Downlink Path Loss, Clear Sky (dB)	-204.9	-204.9	-204.9	-204.9	-204.9	-204.9
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	19.8	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.6	0.0	0.0	0.0	0.0
Downlink C / N(dB)	25.5	17.3	16.7	11.1	11.1	15.6
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	32.9	32.2	33.7	33.5	33.5	32.8
C/N Uplink (dB)	19.7	19.0	20.5	20.3	20.3	19.6
Uplink Interference C/I (dB)	43.1	31.6	200.0	200.0	102.7	88.1
Uplink Adjacent Satellite C/I (dB)	19.2	18.5	20.0	19.8	19.8	19.1
Intermodulation C/IM (dB)	126.8	200.0	21.5	20.0	19.8	19.0
Downlink C/N (dB)	25.5	17.3	16.7	11.1	11.1	15.6
Downlink Interference C/I (dB)	43.3	31.0	29.4	23.1	24.0	22.1
Downlink Adjacent Satellite C/I (dB)	19.2	10.8	10.8	3.2	3.2	9.6
Subtotal C/N (dB)	14.3	8.9	8.8	2.3	2.3	7.5
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.3	7.4	7.3	0.8	0.8	6.0
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-47.7	-51.2	-54.1	-54.3	-54.3	-50.6
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.0	-26.0	-26.0	-26.4	-26.4	-27.1

UPLINK BEAM INFORMATION						
Uplink Beam Name	BVUL	BVUL	BVUL	BVUL	BVUL	BVUL
Uplink Frequency (GHz)	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Uplink Contour G/T (dB/K)	0.3	0.3	0.3	0.3	0.3	0.3
Uplink Contour SFD (dBW/m2)	-80.9	-80.9	-79.9	-79.9	-79.9	-79.9
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	BHDL	BHDL	BHDL	BHDL	BHDL	BHDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-5.8	-5.8	-5.8	-5.8	-5.8	-5.8
Downlink Contour EIRP (dBW)	46.9	46.9	46.9	46.9	46.9	46.9
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-25.8	-25.8	-25.8	-25.8	-25.8	-25.8
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	2.4	2.4	4.0	2.4	2.4	2.4
Earth Station Gain (dBi)	48.7	48.7	53.1	48.7	48.7	48.7
Earth Station Elevation Angle	46.5	46.5	46.5	46.4	46.5	46.5
Rain Rate (mm/yr)	1007	1007	1007	1090	1007	1007
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.2	1.2	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	40.9	40.9	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	19.8	25.0
Earth Station Elevation Angle	43.5	43.5	43.5	43.5	43.5	43.5
Rain Rate (mm/yr)	976	976	976	976	976	976
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	71.7	70.4	66.7	58.8	55.7	47.1
Uplink Path Loss, Clear Sky (dB)	-207.1	-207.1	-207.1	-207.1	-207.1	-207.1
Satellite G/T(dB/K)	0.3	0.3	0.3	0.3	0.3	0.3
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	20.3	19.2	20.6	20.5	20.4	19.6
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	40.5	41.1	36.0	27.8	24.8	16.2
Downlink Path Loss, Clear Sky (dB)	-205.0	-205.0	-205.0	-205.0	-205.0	-205.0
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	19.8	19.8	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.8	0.0	0.0	0.0	0.0
Downlink C / N(dB)	24.9	17.5	16.8	11.0	11.1	15.5
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	33.6	32.5	34.0	33.6	33.7	32.9
C/N Uplink (dB)	20.3	19.2	20.6	20.5	20.4	19.6
Uplink Interference C/I (dB)	45.2	33.7	30.4	35.7	30.0	39.7
Uplink Adjacent Satellite C/I (dB)	19.5	18.4	19.9	19.6	19.6	18.8
Intermodulation C/IM (dB)	126.8	200.0	22.7	21.1	21.0	20.1
Downlink C/N (dB)	24.9	17.5	16.8	11.0	11.1	15.5
Downlink Interference C/I (dB)	43.8	33.2	28.9	23.4	22.2	21.9
Downlink Adjacent Satellite C/I (dB)	18.6	10.7	10.7	3.1	3.2	9.4
Subtotal C/N (dB)	14.3	8.8	8.8	2.2	2.3	7.4
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.3	7.3	7.3	0.7	0.8	5.9
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.0	-51.3	-54.3	-50.0	-50.1	-50.9
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.7	-26.1	-26.0	-26.6	-26.5	-27.3



UPLINK BEAM INFORMATION						
Uplink Beam Name	BHUL	BHUL	BHUL	BHUL	BHUL	BHUL
Uplink Frequency (GHz)	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25
Uplink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Uplink Relative Contour Level (dB)	-5.7	-5.7	-5.7	-5.7	-5.7	-5.7
Uplink Contour G/T (dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Uplink Contour SFD (dBW/m2)	-81.6	-82.6	-80.6	-80.6	-80.6	-80.6
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	EVDL	EVDL	EVDL	EVDL	EVDL	EVDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Downlink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0
Downlink Contour EIRP (dBW)	45.2	45.2	45.2	45.2	45.2	45.2
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.0	-26.0	-26.0	-26.0	-26.0	-26.0
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	4.0	2.4	4.0	1.8	1.8	2.4
Earth Station Gain (dBi)	53.1	48.7	53.1	46.2	46.2	48.7
Earth Station Elevation Angle	44.1	44.1	44.1	44.1	44.1	44.1
Rain Rate (mm/yr)	758	758	758	758	758	758
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.8	1.8	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	44.5	44.5	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Earth Station Elevation Angle	10.2	10.2	10.2	10.2	10.2	10.2
Rain Rate (mm/yr)	2098	2098	2098	2098	2098	2098
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	71.3	70.5	67.2	55.4	52.4	47.7
Uplink Path Loss, Clear Sky (dB)	-207.0	-207.0	-207.0	-207.0	-207.0	-207.0
Satellite G/T(dB/K)	0.0	0.0	0.0	0.0	0.0	0.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	19.7	19.1	20.9	16.9	16.9	20.0
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	40.7	40.8	35.4	23.4	20.4	15.7
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.6	0.0	0.0	0.0	0.0
Downlink C / N(dB)	24.1	16.0	15.1	9.2	9.2	14.0
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	32.8	32.2	34.0	29.9	30.0	33.1
C/N Uplink (dB)	19.7	19.1	20.9	16.9	16.9	20.0
Uplink Interference C/I (dB)	43.0	32.5	200.0	200.0	97.1	86.3
Uplink Adjacent Satellite C/I (dB)	19.1	18.5	20.3	16.2	16.3	19.4
Intermodulation C/IM (dB)	126.8	200.0	25.7	19.1	18.7	21.7
Downlink C/N (dB)	24.1	16.0	15.1	9.2	9.2	14.0
Downlink Interference C/I (dB)	42.3	31.6	39.4	20.7	21.9	24.7
Downlink Adjacent Satellite C/I (dB)	19.6	11.2	10.9	4.0	4.0	9.7
Subtotal C/N (dB)	14.2	8.9	8.8	2.3	2.3	7.5
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.2	7.4	7.3	0.8	0.8	6.0
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-47.8	-51.2	-53.8	-50.9	-50.9	-50.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-19.3	-26.2	-26.5	-30.7	-30.7	-27.6

UPLINK BEAM INFORMATION						
Uplink Beam Name	BVUL	BVUL	BVUL	BVUL	BVUL	BVUL
Uplink Frequency (GHz)	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25	14.0-14.25
Uplink Beam Polarization	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
Uplink Relative Contour Level (dB)	-6.0	-6.0	-6.0	-6.1	-6.0	-6.0
Uplink Contour G/T (dB/K)	0.3	0.3	0.3	0.2	0.3	0.3
Uplink Contour SFD (dBW/m2)	-82.9	-83.9	-78.9	-78.8	-78.9	-78.9
DOWNLINK BEAM INFORMATION						
Downlink Beam Name	EHDL	EHDL	EHDL	EHDL	EHDL	EHDL
Downlink Frequency (GHz)	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2	10.95-11.2
Downlink Beam Polarization	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal	Horizontal
Downlink Relative Contour Level (dB)	-6.1	-6.1	-6.1	-6.1	-6.1	-6.1
Downlink Contour EIRP (dBW)	44.8	44.8	44.8	44.8	44.8	44.8
ADJACENT SATELLITE 1						
Satellite 1 Orbital Location	53.6W	53.6W	53.6W	53.6W	53.6W	53.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
ADJACENT SATELLITE 2						
Satellite 1 Orbital Location	57.6W	57.6W	57.6W	57.6W	57.6W	57.6W
Uplink Power Density (dBW/Hz)	-45.0	-45.0	-45.0	-45.0	-45.0	-45.0
Beam Peak Downlink EIRP Density (dBW/Hz)	-20.0	-20.0	-20.0	-20.0	-20.0	-20.0
Downlink EIRP Density at ES (dBW/Hz)	-26.1	-26.1	-26.1	-26.1	-26.1	-26.1
CARRIER INFORMATION						
Carrier ID	25M0F3F	27M0G7W	8M25G7W	1M43G7W	717KG7W	111KG7W
Carrier Modulation	TV/FM	QPSK	QPSK	BPSK	BPSK	QPSK
Peak to Peak Bandwidth of EDS (MHz)	4	N/A	N/A	N/A	N/A	N/A
Information Rate(kbps)	N/A	27650	8448	512	256	128
Code Rate	N/A	3/4x188/204	3/4x188/204	1/2	1/2	3/4
Occupied Bandwidth(kHz)	20700	20002.1	6111.3	1024.0	512.0	85.3
Allocated Bandwidth(kHz)	25000	27003	8250.5	1434.0	717.0	111.0
Minimum C/N, Clear Sky (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Minimum C/N, Rain (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
UPLINK EARTH STATION						
Earth Station Diameter (meters)	2.4	2.4	4.0	2.4	2.4	4.0
Earth Station Gain (dBi)	48.7	48.7	53.1	48.7	48.7	53.1
Earth Station Elevation Angle	46.5	46.5	46.5	46.4	46.5	46.5
Rain Rate (mm/yr)	1007	1007	1007	1090	1007	1007
DOWNLINK EARTH STATION						
Earth Station Diameter (meters)	6.5	2.4	2.4	1.8	1.8	2.4
Earth Station Gain (dBi)	55.6	47.0	47.0	44.5	44.5	47.0
Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Earth Station Elevation Angle	10.2	10.2	10.2	10.2	10.2	10.2
Rain Rate (mm/yr)	3131	3131	3131	3131	3131	3131
LINK FADE TYPE	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky	Clear Sky
UPLINK PERFORMANCE						
Uplink Earth Station EIRP (dBW)	70.9	69.5	68.8	56.9	53.9	49.1
Uplink Path Loss, Clear Sky (dB)	-207.0	-207.0	-207.0	-207.0	-207.0	-207.0
Satellite G/T(dB/K)	0.3	0.3	0.3	0.2	0.3	0.3
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Uplink C/N(dB)	19.6	18.4	22.8	18.6	18.7	21.7
DOWNLINK PERFORMANCE						
Downlink EIRP per Carrier (dBW)	41.1	40.8	35.0	22.9	19.9	15.1
Downlink Path Loss, Clear Sky (dB)	-206.0	-206.0	-206.0	-206.0	-206.0	-206.0
Downlink Earth Station G/T (dB/K)	34.0	25.0	25.0	23.3	23.3	25.0
Boltzman Constant(dBW/K-Hz)	228.6	228.6	228.6	228.6	228.6	228.6
Carrier Noise Bandwidth (MHz)	20.7	20.0	6.1	1.0	0.5	0.1
Transponder Correction Factor	0.0	0.6	0.0	0.0	0.0	0.0
Downlink C / N(dB)	24.5	16.0	14.7	8.7	8.7	13.4
COMPOSITE LINK PERFORMANCE						
Uplink Earth Station HPA Intermodulation C/N (dB)	32.8	31.6	36.0	31.9	31.9	34.9
C/N Uplink (dB)	19.6	18.4	22.8	18.6	18.7	21.7
Uplink Interference C/I (dB)	44.5	32.8	32.2	34.3	28.8	42.4
Uplink Adjacent Satellite C/I (dB)	18.7	17.5	21.9	17.8	17.8	20.8
Intermodulation C/IM (dB)	126.8	200.0	25.8	19.1	18.8	21.7
Downlink C/N (dB)	24.5	16.0	14.7	8.7	8.7	13.4
Downlink Interference C/I (dB)	45.0	32.4	29.4	20.2	20.6	24.6
Downlink Adjacent Satellite C/I (dB)	20.4	11.5	10.9	4.0	4.0	9.5
Subtotal C/N (dB)	14.3	8.9	8.8	2.3	2.3	7.4
Margin - Other Losses (dB)	0	1.5	1.5	1.5	1.5	1.5
Total C/N (dB)	14.3	7.4	7.3	0.8	0.8	5.9
Minimum Required C/N (dB)	14.2	7.3	7.3	-0.2	-0.2	5.9
Number of Carriers	1	1	3	19	38	243
CARRIER DENSITY LEVELS						
Uplink Power Density (dBW/Hz)	-43.8	-52.2	-52.2	-51.9	-51.9	-53.3
Downlink EIRP Density At Beam Peak (dBW/Hz)	-18.8	-26.1	-26.8	-31.1	-31.1	-28.1