

Link Parameters		Riverside, CA Gateway (clear-sky)	Riverside, CA Gateway (faded downlink)
<b>Modulation Parameters:</b>			
Information Bit Rate	(kbps)	6,666	6,666
FEC Rate		0.7470	0.7470
Modulation Type (BPSK/QPSK/8PSK/16APSK)		8PSK	8PSK
<b>Link Geometry:</b>			
Satellite Longitude	("East)	-65.0	-65.0
Tx E/S City Location	(name)	Rio de Janeiro	Rio de Janeiro
Tx E/S Longitude	("East)	-43.3	-43.3
Tx E/S Latitude	("North)	-22.9	-22.9
Tx E/S Range to Satellite	(km)	36,853	36,853
Tx E/S Elevation to Satellite	(")	53.7	53.7
Rx E/S City Location	(name)	Riverside	Riverside
Rx E/S Longitude	("East)	-117.4	-117.4
Rx E/S Latitude	("North)	34.0	34.0
Rx E/S Range to Satellite	(km)	39,321	39,321
Rx E/S Elevation to Satellite	(")	22.4	22.4
<b>Uplink (per carrier):</b>			
Carrier Frequency	(MHz)	29,000	29,000
HPA Power Level	(W)	2.00	2.00
HPA Power in dBW	(dBW)	3.0	3.0
Post-HPA Losses	(dB)	0.2	0.2
Tx E/S Power to Antenna in dBW	(dBW)	2.8	2.8
PSD into Tx E/S Antenna	(dBW/Hz)	-62.8	-62.8
Tx E/S Antenna Diameter	(m)	0.74	0.74
Tx E/S Antenna Gain	(dB)	44.8	44.8
Tx E/S EIRP per Carrier	(dBW)	47.6	47.6
E/S Pointing Loss	(dB)	0.25	0.25
Atmospheric Loss	(dB)	0.58	0.58
Availability up	(%)	95.00	95.00
Rain attenuation	(dB)	3.3	3.3
Free Space Loss	(dB)	213.0	213.0
<b>Satellite:</b>			
G/T towards Tx E/S	(dB/K)	20.7	20.7
Output Back-Off (Aggregate across txpdr)	(dB)	-4.7	-4.7
EIRP per Carrier towards Rx E/S	(dBW)	30.9	30.9
EIRP SD	(dBW/Hz)	-34.7	-34.7
<b>Downlink:</b>			
Carrier Frequency	(MHz)	18,300	18,300
Atmospheric Loss	(dB)	0.78	0.78
Availability down	(%)	50.00	99.89
Rain attenuation	(dB)	0.4	14.6
E/S Pointing Loss	(dB)	0.25	0.25
Free Space Loss	(dB)	209.6	209.6
Spreading Loss	(dB)	162.9	162.9
PFD		-137.6	
Rx E/S Antenna Diameter	(m)	13.2	13.2
Rx E/S Antenna Gain	(dB)	65.8	65.8
Rx E/S G/T (clear-sky)	(dB/K)	41.9	41.9
System (LNA+Sky) Noise Temp.	(K)	250	250
Increase in Noise Temp due to rain	(K)	72	316
<b>Total Link:</b>			
Carrier Noise Bandwidth	(kHz)	3,668	3,668
(C/N) - Thermal Uplink	(dB)	14.1	14.1
(C/N) - Thermal Downlink	(dB)	24.7	10.5
(C/I) - Other Link Degradations	(dB)	18.0	18.0
(C/N) - Total Actual	(dB)	12.4	8.4
(C/N) - Total Required	(dB)	8.2	8.2
Excess Margin	(dB)	4.2	0.2