

Representative Link Budgets

Link Parameters		Clear Sky (New York)	Faded D/L (New York)	Faded D/L (Los Angeles)
Link Geometry:				
Tx E/S Range to Satellite (Cheyenne)	(km)	37,754	37,754	37,754
Rx E/S Range to Satellite	(km)	39,094	39,094	37,042
Uplink (per carrier):				
Carrier Frequency	(MHz)	14,250	14,250	14,250
Tx E/S Antenna Diameter	(m)	13.2	13.2	13.2
Tx E/S Power to Antenna	(dBW)	18.2	18.2	18.2
Tx E/S Antenna Gain	(dB)	63.2	63.2	63.2
Tx E/S EIRP per Carrier	(dBW)	81.4	81.4	81.4
Atmospheric and Other Losses	(dB)	0.2	0.2	0.2
Free Space Loss	(dB)	207.1	207.1	207.1
Satellite:				
G/T towards Tx E/S	(dB/K)	2.7	2.7	2.7
EIRP towards Rx E/S	(dBW)	51.1	51.1	50.5
Downlink (per carrier):				
Carrier Frequency	(MHz)	11,950	11,950	11,950
Atmospheric and Rain Losses	(dB)	0.1	2.2	1.9
Free Space Loss	(dB)	205.8	205.8	205.4
Rx E/S Antenna Diameter	(m)	0.66	0.66	0.66
Antenna Mis-pointing Error	(dB)	0.30	0.30	0.30
Rx E/S Antenna Gain	(dB)	36.3	36.3	36.3
Rx E/S G/T	(dB/K)	15.1	12.6	12.9
System (LNA+Sky) Noise Temp.	(K)	133	232	219
Total Link:				
Bandwidth	(dB-Hz)	74.4	74.4	74.4
(C/N) - Thermal Uplink	(dB)	31.1	31.1	31.1
(C/N) - Thermal Downlink	(dB)	14.2	9.7	10.1
(C/I) up - Adjacent Satellite Interference	(dB)	33.2	33.2	33.2
(C/I) dn - Adjacent Satellite Interference	(dB)	8.7	8.7	8.6
(C/N) - Total Actual	(dB)	7.6	6.1	6.2
(C/N) - Total Required	(dB)	6.1	6.1	6.1
Excess Margin	(dB)	1.5	0.0	0.1
Availability	(%)	N/A	99.81	99.98