

WildBlue Link Budget

(Gateway-to-Subscriber Links)

Link Parameters	Clear Sky (New York)	Faded D/L (New York)
Link Geometry:		
Tx E/S Range to Satellite (km)	38,588	38,588
Rx E/S Range to Satellite (km)	39,300	39,300
Uplink (per carrier):		
Carrier Frequency (MHz)	28,350	28,350
Tx E/S Antenna Diameter (m)	8.1	8.1
Tx E/S Power to Antenna per Carrier (W)	2.9	2.9
Tx E/S Antenna Gain (dB)	65.4	65.4
Tx E/S EIRP per Carrier (dBW)	70.0	70.0
Atmospheric and Other Losses (dB)	1.2	1.2
Free Space Loss (dB)	213.2	213.2
Satellite:		
G/T towards Tx E/S (dB/K)	11.5	11.5
Linear EIRP towards beam peak with OPBO (dBW)	62.6	62.6
EIRP per Carrier towards Rx E/S (dBW)	52.9	52.9
Downlink (per carrier):		
Carrier Frequency (MHz)	19,950	19,950
Atmospheric and Other Losses (dB)	0.8	6.9
Free Space Loss (dB)	210.3	210.3
Rx E/S Antenna Diameter (m)	0.66	0.66
Antenna Mis-pointing Loss (dB)	0.10	0.10
Rx E/S Antenna Gain (incl. feed losses) (dBi)	39.8	39.8
Rx E/S G/T (dB/K)	16.8	13.7
System (LNA+Sky) Noise Temp. (K)	200	407
Total Link:		
Carrier Noise Bandwidth (kHz)	27,000	27,000
(C/N) - Thermal Uplink (dB)	21.4	21.4
(C/I) - Adjacent Satellite Uplink Interference (dB)	27.8	27.8
(C/N) - Thermal Downlink (dB)	12.7	3.6
(C/I) - Adjacent Satellite Downlink Interference (dB)	13.6	13.6
(C/I) - Other Link Degradations (dB)	14.0	14.0
(C/N) - Total Actual (dB)	8.4	3.1
(C/N) - Total Required (dB)	8.3	2.9
Excess Margin (dB)	0.1	0.2