

WildBlue Link Budget

(Subscriber-to-Gateway Links)

Link Parameters	Clear Sky (Missoula, MT)	Faded U/L (Missoula, MT)
Link Geometry:		
Tx E/S Range to Satellite (km)	39,300	39,300
Rx E/S Range to Satellite (km)	38,588	38,588
Uplink (per carrier):		
Carrier Frequency (MHz)	29,750	29,750
Tx E/S Antenna Diameter (m)	0.66	0.66
Tx E/S Power to Antenna per Carrier (W)	1.0	1.8
Tx E/S Antenna Gain (dB)	44.0	44.0
Tx E/S EIRP per Carrier (dBW)	43.8	46.6
Tx E/S Off-Axis EIRP Density (dBW/40kHz)	15.8	18.5
Atmospheric and Other Losses (dB)	1.2	3.8
Free Space Loss (dB)	213.8	213.8
Satellite:		
G/T towards Tx E/S (dB/K)	9.3	9.3
Linear EIRP towards beam peak with OPBO (dBW)	57.3	57.3
EIRP per Carrier towards Rx E/S (dBW)	35.8	35.8
Downlink (per carrier):		
Carrier Frequency (MHz)	18,550	18,550
Atmospheric and Other Losses (dB)	0.7	0.7
Free Space Loss (dB)	209.5	209.5
Rx E/S Antenna Diameter (m)	8.1	8.1
Antenna Mis-pointing Loss (dB)	0.10	0.10
Rx E/S Antenna Gain (incl. feed losses) (dBi)	60.9	60.9
Rx E/S G/T (dB/K)	36.9	36.9
System (LNA+Sky) Noise Temp. (K)	250	250
Total Link:		
Carrier Noise Bandwidth (kHz)	800	800
(C/N) - Thermal Uplink (dB)	7.7	7.9
(C/I) - Adjacent Satellite Uplink Interference (dB)	16.9	19.7
(C/N) - Thermal Downlink (dB)	32.0	32.0
(C/I) - Adjacent Satellite Downlink Interference (dB)	31.3	31.3
(C/I) - Other Link Degradations (dB)	16.0	16.0
(C/N) - Total Actual (dB)	6.6	7.2
(C/N) - Total Required (dB)	6.5	6.5
Excess Margin (dB)	0.1	0.7