

Table A.13-6 – Downlink Link Budget for 65 cm antenna (115MG7W)

Link Parameters	Clear Sky (- 3dB Contour)	Faded (-3 dB Contour)
Carrier:		
Uncoded Data Rate (kbps)	117,760	117,760
Modulation	QPSK	QPSK
FEC	0.69	0.69
Carrier Bandwidth (kHz)	115,000	115,000
Link Geometry:		
Elevation Angle (degrees)	30.0	30.0
Rx E/S Range to Satellite (km)	38,612	38,612
Downlink:		
Carrier Frequency (MHz)	20,000	20,000
Saturated EIRP (dBW)	64.5	64.5
EIRP per Carrier towards Rx E/S (dBW)	61.5	61.5
Atmospheric and Other Losses (dB)	0.6	5.0
Free Space Loss (dB)	210.2	210.2
Rx E/S Antenna Diameter (m)	0.65	0.65
Antenna Mis-pointing Error (dB)	0.50	0.50
Rx E/S Antenna Gain (dB)	40.5	40.5
Rx E/S G/T (dB/K)	17.5	15.0
System (LNA+Sky) Noise Temp. (K)	200	354
(Eb/No) - Thermal Downlink (dB)	15.5	8.7
(Eb/lo) - (Adjacent satellite interference) (dB)	16.0	16.0
(Eb/No+lo) - Total Actual (dB)	12.8	7.9
(Eb/No+lo) - Total Required (dB)	7.0	7.0
Excess Margin (dB)	5.8	0.9

99.7% availability