

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/No) - (Adjacent satellite interference)	(dB)	16.0	16.0
(Eb/No+Io) - Total Actual	(dB)	12.8	7.9
(Eb/No+Io) - Total Required	(dB)	7.0	7.0
Excess Margin	(dB)	5.8	0.9

99.7% availability