

**C-band command carrier threshold analysis (Table 10 of Technical Appendix)**

Flux density at satellite, dBW/m <sup>2</sup>	-80
Isotropic aperture gain, dB	-37.61
Pol. and pointing loss, dB	-0.5
Multipath loss, dB	-1.88
Receive antenna (horn) gain, dBi	6.5
Circuit losses, dB	-16.32
Receiver input power, dBW	-129.81
CMR threshold, dBW	-138
Margin, dB	8.19

**Ku-band Telemetry carrier- link budget (Table 11 of Technical Appendix)**

Ku-beacon		
EIRP	dBW	17.0
carrier bandwidth	MHz	0.5
EIRP density	dBW/4KHz	-3.99
RxES antenna gain	dB	55.0
RxES G/T	dB/K	33.2
Rain fade	dB	8.0
CNR	dB	11.1
CNR (required)	dB	9.0
Margin	dB	2.1

**C-band Telemetry carrier- link budget (Table 12 of Technical Appendix)**

C[beacon		
EIRP	dBW	12.0
carrier bandwidth	MHz	0.5
EIRP density	dBW/4KHz	-8.99
RxES antenna gain	dB	43.0
RxES G/T	dB/K	23.0
Rain fade	dB	1.0
CNR	dB	11.5
CNR (required)	dB	9.0
Margin	dB	2.5