

Downlink Budget

Spacecraft

Spacecraft Transmitted Power Output	3 dBW
Spacecraft Total Transmission Line Loss	2.2 dB
Spacecraft Antenna Gain	4.0 dBi
Spacecraft Effective Isotropic Radiated Power	4.8 dBW

Downlink Path

Path Loss	174.7 dB
Atmospheric Loss	0.3 dB
Ionospheric Loss	0.8 dB
Rain Loss	0.1 dB
Isotropic Signal Level at Ground Station	-171.1 dBW

Ground Station

Ground Station Antenna Gain	51.7 dBi
Ground Station Total Transmission Line Loss	2.0 dB
Ground Station Effective Noise Temperature	200 K
Ground Station Figure of Merit (G/T)	26.7 dB/K
Signal Power at Ground Station LNA Input	-121.3 dBW
Ground Station Receiver Bandwidth	40 MHz
Ground Station Receiver Noise Power	-129.6 dBW
Signal-to-Noise Power Ratio at Ground Station Receiver	8.2 dB
Digital System Required Signal-to-Noise Ratio	6.0 dB
System Link Margin	2.2 dB