

Return Link Budget GEN2 High Speed Data AFixed 1.23 MHz

Return Link: 1.6 GHz up/7 GHz down				
	Inner	Outer		
Uplink Analysis				Units
Frequency	1.6	1.6		GHz
EIRP per user	4.6	4.5		dBW
Altitude	1414	1414		km
User elevation angle	70	25		deg
Slant Range	1486	2528		km
Path loss	-160.0	-164.7		dB
Polarization & Tracking loss	-1	-1		dB
S/C Rx Signal Strength	-156.4	-161.1		dB
Satellite antenna gain	13.09	17.78		dBi
Line loss	-2.00	-2.00		dB
User signal at transponder	-145.3	-145.3		dBW
System noise temperature	396.64	396.64		K
Thermal noise density, No	-202.6	-202.6		dBW/Hz
Average user data rate	256000	256000		bps
Uplink Eb/(No)	3.2	3.2		dB
Interference per channel	-149.34	-149.34		dBW
Spreading bandwidth	1.23	1.23		MHz
Interference density, Io	-210.2	-210.2		dBW/Hz
Uplink Eb/(No+Io)	2.5	2.5		dB
Nominal transponder gain	127.4	127.4		dB
Downlink Analysis				
Frequency	6.98	6.98		GHz
TX power per user	-13.8	-13.8		dBW
Transmit line loss	-2.2	-2.2		dB
Satellite antenna gain	7.10	7.10		dBi
EIRP per user	-8.8	-8.8		dBW
GW elevation angle	40	40		deg
Range	1969	1969		km
Free space loss (40 deg GW elev)	-175.2	-175.2		dB
Polarization & tracking loss	-0.1	-0.1		dB
Pointing loss	-1.0	-1.0		dB
RX signal/user/satellite	-185.1	-185.1		dBW
GW antenna gain (incl. line losses)	49.5	49.5		dBi
RX signal at antenna output/user/satellite	-135.6	-135.6		dBW
System noise temperature	127.7	127.7		K
Thermal noise density, No	-207.5	-207.5		dBW/Hz
Interference per channel	-145.05	-145.05		dBW
Spreading bandwidth	1.23	1.23		MHz
1/(10*LOG(spreading bandwidth))	-60.9	-60.9		dB/Hz
Interference Density, Io	-205.9	-205.9		dBW/Hz
Downlink Eb/(No+Io)	13.9	13.9		dB
Coherent Combining gain	1.3	1.3		dB
Overall (up&down) Eb/(No+Io)	3.5	3.5		dB
Required Eb/No w/ power control margin	3.5	3.5		dB
Available margin for propagation effects	16	16		dB