

Forward Link Budget GEN2 Data Handheld 1.23 MHz

Forward Link: 5 GHz up/2.5 GHz down						
User Beam	Inner	Middle	Outer			Units
Uplink Analysis						
Frequency	5.125	5.125	5.125			GHz
Satellite altitude	1414	1414	1414			km
GW Elevation	40	40	40			deg
Slant Range	1969	1969	1969			km
EIRP per user	39.0	37.8	39.7			dBW
Path loss	-172.5	-172.5	-172.5			dB
Polarization loss	-0.1	-0.1	-0.1			dB
Pointing loss	-1.0	-1.0	-1.0			dB
Satellite antenna gain	6.37	6.37	6.37			dBi
Line loss	-2.60	-2.60	-2.60			dB
RX power/user @LNA	-130.8	-132.1	-130.2			dBW
Average user data rate	20000	20000	20000			bps
System noise temperature	550	550	550			K
Thermal noise density, No	-201.2	-201.2	-201.2			dBW/Hz
Interference density, Io	-194.27	-195.55	-191.18			dBW/Hz
Uplink Eb/(No+Io)	19.6	19.4	17.6			dB
Nominal transponder gain	122.7	122.7	122.7			dB
Downlink Analysis						
Frequency	2.50	2.50	2.50			GHz
TX power per user	-3.4	-4.7	-2.8			dBW
Line loss	-2.1	-2.1	-2.1			dB
Satellite antenna gain	12.69	15.51	17.20			dBi
EIRP per user	7.2	8.7	12.3			dBW
Satellite altitude	1414	1414	1414			km
User elevation angle	70	50	25			deg
Range	1486	1739	2528			km
Free space loss	-163.8	-165.2	-168.4			dB
Polarization & tracking loss	-1.0	-1.0	-1.0			dB
RX signal/user/satellite	-157.7	-157.5	-157.1			dBW
User antenna gain	0.51	0.33	0.00			dBi
RX signal at antenna output	-157.1	-157.1	-157.1			dBW
System noise temperature	293.7	293.7	293.7			K
Thermal noise density, No	-203.9	-203.9	-203.9			dBW/Hz
Average data rate	20000	20000	20000			bps
Downlink Eb/No	3.8	3.8	3.8			dB
Interference per channel	-149.00	-149.00	-149.00			dBW
Spreading bandwidth	1.23	1.23	1.23			MHz
1/(10*LOG(spreading bandwidth))	-60.9	-60.9	-60.9			dB/Hz
Interference Density, Io	-209.9	-209.9	-209.9			dBW/Hz
Downlink Eb/(No+Io)	2.8	2.8	2.8			dB
Overall (up&down) Eb/(No+Io)	2.7	2.7	2.7			dB
Required Eb/No w/ power control margin	2.7	2.7	2.7			dB
Available margin for propagation effects	16	16	16			dB