Forward Link Budget GEN2 High Speed Data AFixed 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	48.2		44.9		45.3		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	-121.6		-124.9		-124.6		dBW
Average user data rate	256000		256000		256000		bps
System noise temperature	550		550		550		K
Thermal noise density, No	-201.2		-201.2		-201.2		dBW/Hz
Interference density, Io	-192.32		-195.54		-194.72		dBW/Hz
Uplink Eb/(No+Io)	16.1		15.5		15.2		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	5.8		2.5		2.8		dBW
Line loss	-2.1		-2.1		-2.1		
Satellite antenna gain	12.69		15.51		17.20		dBi
EIRP per user	16.4		15.9		17.9		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	-148.5		-150.3		-151.5		dBW
User antenna gain	0.33		2.26		2.48		dBi
RX signal at antenna output	-148.1		-148.0		-149.1		dBW
System noise temperature	160.5		160.5		160.5		K
Thermal noise density, No	-206.5		-206.5		-206.5		dBW/Hz
Average data rate	256000		256000		256000		bps
Downlink Eb/No	4.3		4.3		4.3		dB
Interference per channel	-147.31		-147.15		-150.22		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	-208.2		-208.0		-211.1		dBW/Hz
Downlink Eb/(No+Io)	2.1		2.1		2.1		dB
Overall (up&down) Eb/(No+Io)	1.9		1.9		1.9		dB
Required Eb/No w/ power control margin	1.9		1.9		1.9		dB
Available margin for propagation effects	16		16		16		dB