

INM-KA TEST FWD LINK BUDGET (COMMS. GLOBAL PAYLOAD)

General	Unit	
User terminal type	-	Test fwd carrier GW-GW(GP)
Carrier designator	-	32M0G7W (TEST-F1)
Data rate (kbps)	(kbps)	106176
Coding rate	-	8/9
Modulation	-	16-APSK
Occupied bandwidth	(kHz)	32000
Allocated bandwidth	(kHz)	32000
Uplink		
Beam		Feeder
Frequency	(GHz)	28.5
Earth Station EIRP	(dBW)	77.0
Antenna tx gain	dBi	68.9
Uplink power	(dBW)	8.1
<i>Uplink p.s.d.</i>	<i>(dBW/Hz)</i>	<i>-67.0</i>
Path loss	(dB)	213.2
Rain loss	(dB)	7.0
Mean Atmospheric loss	(dB)	1.2
Satellite G/T (EOC)	(dB/K)	8.1
Up-path C/No	(dBHz)	92.3
Up-path C/N	(dB)	17.2
Downlink		
Beam		User-Spot (GP)
Frequency	(GHz)	19.95
<i>Max pfd per crx @ earth surface (beam peak)</i>	<i>(dBW/m2/1MHz)</i>	<i>-121.1</i>
Beam Peak to Edge of Coverage	(dB)	3.0
<i>Max pfd per crx @ earth surface (EOC)</i>	<i>(dBW/m2/1MHz)</i>	<i>-124.1</i>
Satellite EIRP (EOC)	(dBW)	53.1
Path loss	(dB)	210.1
Rain loss	(dB)	5.6
Mean Atmospheric loss	(dB)	0.7
E/S G/T	(dB/K)	42.0
G/T degradation due to rain	(dB)	2.2
User terminal Pointing loss	(dB)	0.2
Co-Channel / adj . beam interf. (dn)	(dBHz)	94.1
Down-path C/No	(dBHz)	93.7
Down-path C/N	(dB)	18.7
Total		
Mean satellite C/Imo	(dBHz)	999.0
Mean Overall C/No	(dBHz)	89.9
Total C/I (adjacent satellite interference)	(dB)	36.3
Mean Overall C/N (incl. a.s.i)	(dB)	14.8
Margin		
C/N required	(dB)	13.8

C/N margin	(dB)	1.0
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C/I calculations

Orbital separation (interferor 1)	degree	2.0
<i>Worst case topocentric angle (1)</i>	<i>degree</i>	<i>2.09</i>

Uplink C/I

Interferor 1		
Max. uplink p.s.d	(dBW/Hz)	-56.5
Interferor's Tx Sidelobe gain at 2 deg sep	dBi	21.0
<i>Inm-Ka C/I up1</i>	<i>dB</i>	<i>37.5</i>

Downlink C/I

Interferor 1		
Max. ground PFD	(dBW/m2/MHz)	-121.1
Max. downlink EIRP s.d	(dBW/Hz)	-19.0
Inm Rx sidelobe gain at 2 deg sep	dBi	21.0
Inm-Ka C/I dn1	dB	42.6
Total C/I (adjacent satellite interference)	dB	36.3