

INM-KA TEST RETURN LINK BUDGET (SIGNALLING)

FADED
A.XX-2

Table no.

General	Unit	
User terminal type	-	Test return signalling carrier GW-GW (EC)
Carrier designator	-	5M00G1W (TEST-R8)
Data rate (kbps)	(kbps)	9.6
Coding rate	-	1/2
Modulation	-	BPSK
Occupied bandwidth	(kHz)	5000
Allocated bandwidth	(kHz)	5000
Uplink		
Beam		EC
Frequency	(GHz)	29.507
EIRP	(dBW)	52.5
Antenna tx gain	dBi	69.2
Uplink power	(dBW)	-16.7
<i>Uplink p.s.d.</i>	<i>(dBW/Hz)</i>	-83.7
Path loss	(dB)	213.5
Rain loss	(dB)	4.0
Mean Atmospheric loss	(dB)	0.4
Satellite G/T (EOC)	(dB/K)	-11.0
Up-path C/No	(dBHz)	52.2
Up-path C/N	(dB)	-14.8
Downlink		
Beam		Feeder
Frequency	(GHz)	18.207
<i>Max pfd per crx @ earth surface (beam peak)</i>	<i>(dBW/m2/1MHz)</i>	-138.9
Beam Peak to Edge of Coverage	(dB)	3.0
<i>Max pfd per crx @ earth surface (EOC)</i>	<i>(dBW/m2/1MHz)</i>	-141.9
Satellite EIRP (EOC)	(dBW)	27.2
Path loss	(dB)	209.4
Rain loss	(dB)	5.6
Mean Atmospheric loss	(dB)	0.4
Earth Station G/T	(dB/K)	42.0
G/T degradation due to rain	(dB)	2.5
Rx terminal Pointing loss	(dB)	0.1
Co-Channel / adj . beam interf. (dn)	(dBHz)	90.0
Down-path C/No	(dBHz)	79.4
Down-path C/N	(dB)	12.4
Total		
Mean satellite C/Imo	(dBHz)	84.1
Mean Overall C/No	(dBHz)	52.1
Total C/I (adjacent satellite interference)	(dB)	16.3

Mean Overall C/N (incl. a.s.i)	(dB)	-14.9
Margin		
C/N required	(dB)	-22.0
C/N margin	(dB)	7.1

C/I calculations

Orbital separation (interferor 1)	degree	2.0
Worst case topocentric angle (1)	degree	2.09

Uplink C/I

Interferor 1		
Max. uplink p.s.d	(dBW/Hz)	-56.0
Other's sidelobe at 2 deg. sep X-25log(t)		29.0
Tx Sidelobe gain at 2 deg sep	dBi	21.0
<i>Inm-Ka C/I up1</i>	<i>dB</i>	<i>16.5</i>

Downlink C/I

Interferor 1		
Max. ground PFD	(dBW/m2/MHz)	-126.9
Max. downlink EIRP s.d	(dBW/Hz)	-24.8
Inm Rx sidelobe gain at 2 deg sep	dBi	21.0
Inm-Ka C/I dn1	dB	29.8
Total C/I (adjacent satellite interference)	dB	16.3