

## Representative Return Link Budget

UT Type Carrier Type		Handheld Terminal FDMA
<b><u>General Parameters</u></b>		
Gateway elevation angle	deg	42.0
Minimum user elevation angle	deg	20.0
Uplink frequency	GHz	2.020
Downlink frequency	GHz	19.700
Bandwidth/carrier	kHz	8.0
<b><u>Uplink</u></b>		
Uplink EIRP	dBW	0.0
Free space loss	dB	190.5
Atmospheric loss	dB	0.1
Uplink propagation margin	dB	10.1
Satellite receive antenna gain (-3 dB contour)	dBi	42.3
Satellite receive system noise temperature	dB-K	27.3
Satellite receive antenna G/T	dB/K	15.0
Uplink C/N <sub>0</sub>	dBHz	42.9
Uplink C/I <sub>0</sub> Intra-system	dBHz	48.2
Uplink C/I <sub>0</sub> External Interference	dBHz	52.9
<b><u>Downlink</u></b>		
Satellite EIRP (peak)	dBW	22.1
Free space loss	dB	209.8
Atmospheric loss	dB	0.4
Rain attenuation	dB	10.0
E/S antenna gain	dB	66.5
E/S antenna pointing error	dB	0.3
Nominal system noise temperature	dB-K	23.9
Nominal E/S G/T	dB/K	42.3
System noise temperature degradation in rain	dB	3.1
Rain-degraded system noise temperature	dB-K	27.0
Rain-degraded E/S G/T	dB/K	39.2
Downlink C/No	dBHz	69.4
Downlink C/IM <sub>0</sub>	dBHz	60.7
Downlink C/I <sub>0</sub> Intra-system	dBHz	60.5
Downlink C/I <sub>0</sub> ASI	dBHz	79.3
<b><u>End-to-End Performance</u></b>		
End-to-end C/N <sub>0</sub>	dBHz	42.9
End-to-end aggregate C/I <sub>0</sub>	dBHz	46.7
End-to-end C/IM <sub>0</sub>	dBHz	60.7
Total aggregate C/(N <sub>0</sub> +I <sub>0</sub> +IM <sub>0</sub> )	dBHz	41.3
Total aggregate C/(N+I+IM)	dB	2.3
Required C/N	dB	2.3
System Margin	dB	0.0