

Table 2 – Link Budget for Voice-Rate Forward Link to Handheld User Terminal using CDMA

Representative Forward Link Budget		
UT Type		Handheld Terminal
Carrier Type		CDMA
<u>General Parameters</u>	Unit	
E/S elevation angle	deg	28.0
Minimum user elevation angle	deg	20.0
Uplink range	km	38792
Downlink range	km	39554
Uplink frequency	GHz	29.625
Downlink frequency	GHz	2.200
Bandwidth/carrier	kHz	1250.0
<u>Uplink</u>		
Uplink E/S antenna diameter	m	11.0
Uplink E/S antenna peak gain	dBi	68.1
E/S antenna pointing error	dB	0.5
Clear-sky uplink EIRP	dBW	39.7
Rain faded uplink EIRP	dBW	56.5
Free space loss	dB	213.7
Rain attenuation	dB	16.8
Satellite antenna pointing error	dB	0.3
Satellite antenna receive system noise temp.	dB-K	30.9
Effective satellite antenna G/T	dB/K	24.8
Uplink C/N_0	dBHz	79.0
Uplink C/IM_0	dBHz	87.2
Uplink C/I_{0AS1}	dBHz	77.7
Uplink $C/I_{0 \text{ Intra-system}}$	dBHz	69.2
Aggregate uplink C/I_0	dBHz	68.6
<u>Downlink</u>		
Satellite EIRP/carrier	dBW	43.0
Free space loss	dB	191.2
Atmospheric loss	dB	0.1
User terminal antenna gain	dB	0.0
User terminal system noise temperature	dB-K	27.0
User terminal G/T	dB/K	-27.0
Downlink propagation margin	dB	10.0
Downlink C/N_0	dBHz	43.2
Downlink C/IM_0	dBHz	64.9
Downlink $C/I_{0 \text{ Intra-system}}$	dBHz	50.0
Downlink $C/I_{0 \text{ ext}}$	dBHz	53.2
Aggregate downlink C/I_0	dBHz	48.3
<u>End-to-End Performance</u>		
End-to-end C/N_0	dBHz	43.2
End-to-end aggregate C/I_0	dBHz	48.3
End-to-end C/IM_0	dBHz	64.9
Total aggregate $C/(N_0+I_0+IM_0)$	dBHz	42.0
Total aggregate $C/(N+I+IM)$	dB	-18.9
Required C/N	dB	-18.9
System Margin	dB	0.0