

First-Generation Voice Link Budget, Emulation Mode
Forward Link Budget also Applies to L-Band CW downlink

MSAT VOICE EMULATION MODE					
PARAMETER	UNITS	FORWARD		RETURN	
		(Hub to User)		(User to Hub)	
Noise Bandwidth	kHz	4	4	4	4
Boltzmann's constant	dBW/Hz·K	-228.6	-228.6	-228.6	-228.6
UPLINK					
		Clear	Faded	Clear	Faded
Frequency	GHz	13	13	1.64	1.64
Earth Station EIRP	dBW	33.7	40.7	12	12
Body Shielding Loss	dB	x	x	0	0
Polarization Loss	dB	x	x	-0.5	-0.5
Free Space Loss	dB	-206.7	-206.7	-188.8	-188.8
Uplink Fade	dB	0	7	x	x
Satellite Antenna Gain, EOC	dBi	42	42	30	30
Received Carrier Power	dBW	-131	-131	-147.3	-147.3
Satellite G/T	dB/K	11	11	5	5
Intersystem Interference Allowance	dB	0.5	0.5	1	1
C/No	dB·Hz	66.1	66.1	55.3	55.3
C/Imo	dB·Hz	58	58	60	60
Frequency Reuse Allowance	dB	1	1	1	1
Satellite C/(No+Io)	dB·Hz	56.4	56.4	53.0	53.0
DOWNLINK					
Frequency	GHz	1.55	1.55	11	11
Satellite Active Gain	dB	129	129	120	120
Satellite Antenna Gain, EOC	dBi	30	30	42	42
Power Loss and Scan Loss	dB	0	0	x	x
Satellite EOC EIRP	dBW	28	28	14.7	14.7
Free Space Loss	dB	-188.5	-188.5	-205.2	-205.2
Downlink Fade	dB	x	x	0	4
Earth Station G/T	dB/K	-16	-16	38	35.3
Interference Allowance	dB	1	1	0.5	0.5
C/No	dB·Hz	51.1	51.1	75.6	68.9
LINK					
Link C/(No+Io)	dB·Hz	50.0	50.0	53.0	52.9
Required C/No	dB·Hz	45.0	45.0	45.0	45.0
Margin	dB	5.0	5.0	8.0	7.9