

	Units	Fwd Pipe		Alt Pipe	
		Clear	Clear	Clear	Clear
Frequency	GHz	19.70	19.70	19.70	19.70
Elevation Angle	deg.	43.61	43.61	43.61	43.61
Slant Range	km	37511	37511	37511	37511
Downlink Availability	%	99.96		99.96	
RF power (peak CW)	W	15	15	15	15
Xmtr Power (peak CW)	dBW	11.76	11.76	11.76	11.76
2 Carrier Output Back-off	dBW				
Output Loss	dB	-7.47	-7.47	-8.85	-8.85
S/C TLM Ant Directivity	dB	5.00	5.00	5.00	5.00
S/C EIRP (dBW)	dBW	9.29	9.29	7.91	7.91
Required EIRP (dBW)	dBW	8.80	8.80	7.40	7.40
Margin (dBW)	dBW	0.49	0.49	0.51	0.51
Free Space loss	dB	-209.51	-209.51	-209.51	-209.51
Gaseous Att	dB	-0.46	-0.37	-0.46	-0.37
Cloud Att	dB	-0.36		-0.36	
Rain Fade	dB	-2.57		-2.57	
Total Atmospheric loss	dB	-3.39	-0.37	-3.39	-0.37
Rain fade		-3.02		-3.02	
Min Rx Isotropic Power (RIP)	dBW	-204.40	-201.39	-205.80	-202.79
Polarization Loss	dB	-0.22	-0.22	-0.22	-0.22
Pointing Loss	dB	0.00	0.00	0.00	0.00
Ground Station G/T	dB/K	38.00	38.00	38.00	38.00
Receiver Temperature	K	225	225	225	225
Background Temperature	K	152	23	152	23
G/T Degradation	dB	-1.81	0.00	-1.81	0.00
Boltzmann's Constant	dBW/Hz	-228.60	-228.60	-228.60	-228.60
C/No Received	dB-Hz	60.16	64.99	58.76	63.59
Data demodulation at BER=1E-6					
PCM Data Rate	kbps	4	4	4	4
Required C/No (single mode)	dB-Hz	50.93	50.93	50.93	50.93
Required C/No (SIMO mode)	dB-Hz	56.62	56.62	56.62	56.62
Margin* (single mode)	dB	9.23	14.06	7.83	12.66
Margin* (SIMO mode)	dB	3.54	8.37	2.14	6.97
With interference					
C/I _o	dB-Hz	38.72	38.72		
Total C/(No+I _o)	dB-Hz	38.69	38.71		
Data demodulation at BER=1E-6					
PCM Data Rate	kbps	4	4		
Required C/No (single mode)	dB-Hz	50.93	50.93		
Required C/No (SIMO mode)	dB-Hz	56.62	56.62		
Margin* (single mode)	dB	-12.24	-12.22		
Margin* (SIMO mode)	dB	-17.93	-17.91		