

Table 1: AfriStar-2 Reference Link Budget

	UNITS	
Satellite		AfriStar-2
Uplink Beam		Global (AU)
Downlink Beam		Spot (SD1R)
Uplink Frequency	GHz	7.05
Downlink Frequency	GHz	1.4795
Transponder Bandwidth	MHz	2.50
Carrier		
Aggregate Carrier Information Rate	Mbit/s	1.586
FEC Inner Coding Rate		1/2
FEC Outer Coding Rate		223/255
Modulation Scheme		QPSK
Required Eb/No @ 10exp-4	dB	2.7
Implementation Margin	dB	2.5
UPLINK		
Ground Segment		
Antenna Diameter	m	4.6
Transmit eirp	dBW	65.6
Space Segment		
Uplink Path Loss (incl. Atmospheric Losses)	dB	201.8
Spacecraft G/T	dB/K	-10.8
G/T Degradations		2.3
Spacecraft G/T	dB/K	-13.1
Input Back-off (Total)	dB	0.0
Operating Flux Density	dBW/m ²	-97.8
C/No thermal up	dBHz	79.2
DOWNLINK		
Space Segment		
Output Back-off (Per Carrier)	dB	0.0
Saturated eirp	dBW	53.6
Downlink Path loss	dB	187.4
Receiver		
Receiver G/T	dB/K	-19.9
C/No Thermal down	dBHz	74.9
C/(No+Io) Required	dBHz	67.2
Available Downlink Margin		7.4