

Link Budget Creator - Rev 1.1: July 16, 2010		Tier 1	Tier 1
Ground Parameter		Teleport	Telco
Location		Sunset Beach RHCP, United States	Suva
Latitude	(°)	21.3	-18.1
Longitude (East)	(°)	201.9	178.4
E/S Range to SV	(km)	10266.0	8751.7
E/S Elevation to SV	(°)	28.5	54.8
E/S Altitude	(m)	0.0	0.0
SV Beam Identifier	(#)	12	
Minutes Into Pass (Sample #25)	(Min)	11.6	
Telco Spot Beam Off-Angle	(°)	0.2	
Telco Spot Beam Diameter	(km)	60.1	
Maximum Roundtrip Latency	(msec)	126.9	
Modulation Parameters		Forward	Return
Enter Receiver	Type	DVB-S2	
Available Bandwidth	(Hz)	40,003,200	
Channel Symbol Rate	(sps)	33,336,000	
Channel Modulation Type		QPSK	
Channel FEC Rate		0.25	
Channel Spectral Efficiency	(bits/Hz)	0.50	
Channel Throughput	(bps)	15,953,843.16	
Uplink		Forward	Return
E/S Tx Channels per HPA	(#)	5	
E/S Tx Carrier Frequency	(MHz)	28020.00	
E/S Tx HPA Power Level	(W)	500.00	
E/S Tx OBO	(dB)	-3.00	
E/S Tx Post-HPA Losses	(dB)	-1.50	
E/S Tx Antenna Gain (7.3 meter)	(dB)	64.82	
E/S Tx EIRP Per Channel	(dBW)	80.32	
E/S Tx Pointing Loss	(dB)	-0.50	
E/S Tx RF Link Availability	(%)	99.900	
E/S Tx Atmospheric Losses	(dB)	-32.05	
E/S Tx Spreading Loss	(dB)	-151.22	
Satellite		Forward	Return
SV Number of Channels per HPA	(#)	1	
SV Rx G/T	(dB/K)	4.21	
SV Rx Power Per Tier	(dBW)	-149.65	
SV Rx Flux Density Per Tier	(dBW/m <sup>2</sup> )	-103.45	
SV Tx OBO	(dB)	-4.00	
SV Tx Post-TWTA Losses	(dB)	-1.50	
SV Tx Antenna Gain	(dBi)	30.69	
SV Tx EIRP Per Channel/Carrier	(dBW)	43.32	
SV Tx Pointing Loss	(dB)	0.00	
Downlink		Forward	Return
E/S Rx Carrier Frequency	(MHz)	18220.00	
E/S Rx Spreading Loss	(dB)	-149.83	
E/S Rx RF Link Availability	(%)	99.900	
E/S Rx Atmospheric Losses	(dB)	-16.12	
E/S Rx Pointing Loss	(dB)	-0.50	
E/S Rx Antenna Gain (1.5 meter)	(dBi)	47.27	
E/S Rx Effective G/T	(dB/K)	20.33	
E/S Rx Power Per Channel	(dBW)	-122.53	
E/S Rx Flux Density Per Channel	(dBW/m <sup>2</sup> )	-123.13	
Total Link		Forward	Return
Carrier / Noise Bandwidth	(dB)	75.23	
Carrier / Noise Uplink	(dB)	3.72	
Carrier / Noise Downlink	(dB)	3.90	
Carrier / Intermodulation Im (C/Im)	(dB)	20.28	
(C/N) - Total Actual	(dB)	0.74	
(C/N) - Total Required	(dB)	-1.15	
(E <sub>b</sub> /N <sub>0</sub> ) - Total Actual	(dB)	3.75	
(E <sub>b</sub> /N <sub>0</sub> ) - Total Required	(dB)	1.86	
<b>Excess Margin</b>	<b>(dB)</b>	<b>1.89</b>	
<b>Fade Margin (to loss of link)</b>	<b>(dB)</b>	<b>1.89</b>	