

HNS License Sub, LLC
Attachment C
Application for Modification of
Experimental STA
Call Sign: WC9XET
Date: 23 September 2005

Link Budget

VALUES TO ENTER

Earth Station	Units	Hub	Remote
Name			
Antenna Diameter	(m)	3.5	0.6
Latitude	(degree)	39.2	45.0
Longitude (degrees west only)	(degree)	77.2	100.0
Tx Gain	(dB)	59.2	41.8
Rx Gain	(dB)	55.5	38.2
LNA Temperature	(degree K)	240.0	240.0
Antenna Temperature	(degree K)	35.0	44.0
EIRP	(dBW)	52.0	48.8
Modulation		QPSK	QPSK
Coding		1/2+RS	1/2+RS
Eb/No	(dB)	3.0	3.0
Data Rate	(kbps)	512.0	512.0
Noise Bandwidth	(kHz)	512.0	512.0
Occupied Bandwidth	(kHz)	800.0	800.0
IFL Loss	(dB)	4.0	1.0
Amplifier OPBO	(dB)	4.0	1.0

Pt Err Up	(dB)	0.2	0.5
Pt Err Dn	(dB)	0.2	0.5
INTERFERENCE		UP	DN
ADJ Transponder	(dB)	27.0	28.2
INTMD	(dB)	28.0	23.0
ASI	(dB)	15.0	11.8
PROPAGATION			
Atm Fade Up	(dB)	1.0	1.0
Atm Fade Dn	(dB)	1.0	1.0
Rain Fade Up	(dB)	0.0	0.0
Rain Fade Dn	(dB)	0.0	0.0

LINK CALCULATIONS			
UPLINK		Hub	Remote
Azimuth		219.8	187.1
Elevation		36.3	37.9
FSL up		213.6	213.6
Pwr density in 40 kHz @ flange		-20.2	-22.0
ES EIRP	(dB)	52.0	48.8
ES PFD	(dB)	-111.9	-115.4
Satellite IPBO	(dB)	18.5	22.0
C/N Thermal UP	(dB)	16.7	13.2
C/I Intermod UP	(dB)	28.0	28.0
C/I ASI UP	(dB)	15.0	15.0
C/I ADJ Trans Up	(dB)	27.0	27.0
C/N UP	(dB)	12.5	10.8
DOWNLINK		Remote	Hub

C/N DN	(dB)	9.0	11.3
C/N Calculated	(dB)	7.4	8.0
C/N Threshold	(dB)	3.0	3.0
Margin	(dB)	4.4	5.0
Percentage Bandwidth	(%)	1.8	1.8
Percent Power	(%)	6.3	2.8