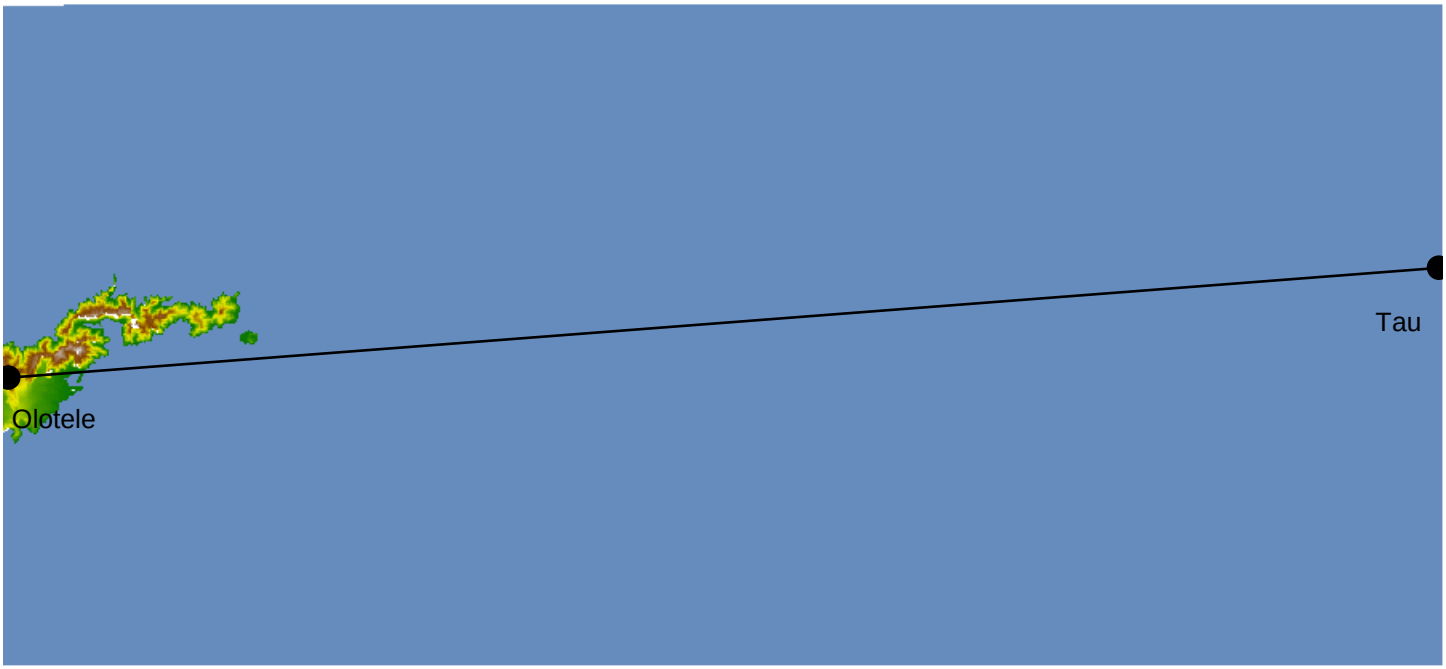
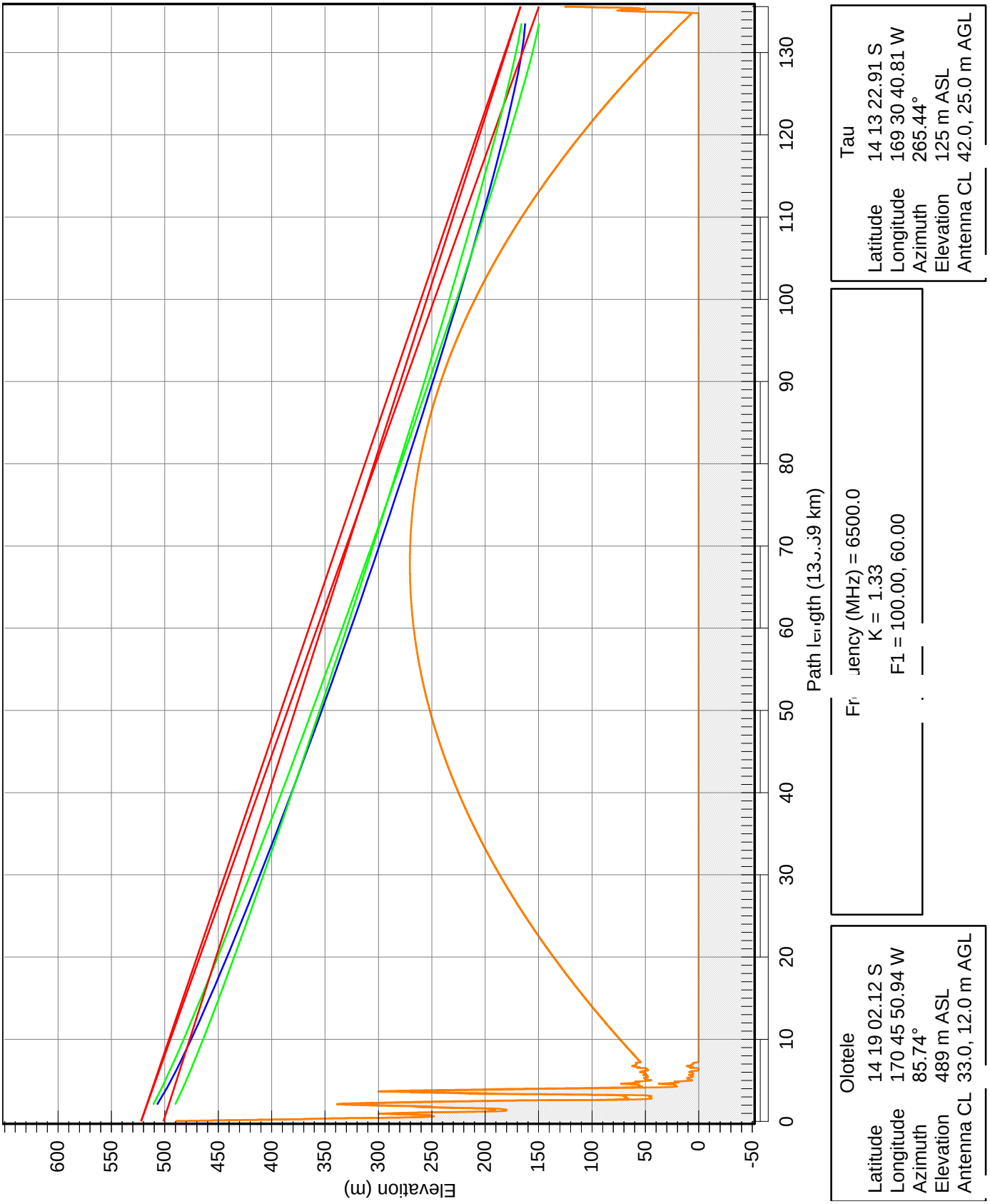
Path analysis for Link in American Samoa Utilizing 16QAM Modulation




Elevation (m)
600
550
500
450
400
350
300
250
200
150
100
50
0
-50
0
10
20
30
40
50
60
70
80
90
100
110
120
130
Path Length (13[illegible].9 km)
Olotele
Latitude 14 19 02.12 S
Longitude 170 45 50.94 W
Azimuth 85.74°
Elevation 489 m ASL
Antenna CL 33.0, 12.0 m AGL
Frequency (MHz) = 6500.0
K = 1.33
F1 = 100.00, 60.00
Tau
Latitude 14 13 22.91 S
Longitude 169 30 40.81 W
Azimuth 265.44°
Elevation 125 m ASL
Antenna CL 42.0, 25.0 m AGL

Transmission details (Olotele-Tau-6500-2014-09-16-0900.pl5)

	Olotele		Tau
Latitude	14 19 02.12 S		14 13 22.91 S
Longitude	170 45 50.94 W		169 30 40.81 W
True azimuth (°)	85.74		265.44
Vertical angle (°)	-0.61		-0.31
Elevation (m)	489.10		124.68
Tower height (m)	35.00		35.00
Antenna model	HSX12-64 (TR)		HSX12-64 (TR)
Antenna file name	2471b		2471b
Antenna gain (dBi)	45.70		45.70
Antenna height (m)	33.00		42.00
TX line model	EWP64		EWP64
TX line unit loss (dB/100 m)	5.22		5.22
TX line length (m)	40.00		40.00
TX line loss (dB)	2.09		2.09
Connector loss (dB)	1.00		1.00
Circulator branching loss (dB)	0.50		0.50
TX switch loss (dB)	0.50		0.50
TX filter loss (dB)	1.50		1.50
Other TX loss (dB)	0.50		0.50
RX filter loss (dB)	1.50		1.50
Antenna model	HSX12-64 (DR)		HSX12-64 (DR)
Antenna file name	2471b		2471b
Antenna gain (dBi)	45.70		45.70
Antenna height (m)	12.00		25.00
TX line model	EWP64-71		EWP64-71
TX line unit loss (dB/100 m)	5.47		5.47
TX line length (m)	30.00		30.00
TX line loss (dB)	1.64		1.64
Connector loss (dB)	1.00		1.00
RX filter loss (dB)	1.50		1.50
Frequency (MHz)		6500.00	
Polarization		Vertical	
Path length (km)		135.59	
Free space loss (dB)		151.37	
Atmospheric absorption loss (dB)		1.21	
Diffraction loss (dB)		0.00	
Main net path loss (dB)	72.36		72.36
Diversity net path loss (dB)	71.41		71.41
Radio model	NX-GEN-S L6		NX-GEN-S L6
Radio file name	nx-gen-s-l6-32Q-30m		nx-gen-s-l6-32Q-30m
TX power (dBm)	37.00		37.00
EIRP (dBm)	76.61		76.61
RX threshold criteria	1E-3 BER		1E-3 BER
RX threshold level (dBm)	-82.00		-82.00
Main receive signal (dBm)	-35.36		-35.36
Diversity receive signal (dBm)	-34.41		-34.41
Thermal fade margin (dB)	47.59		47.59
Dispersive fade margin (dB)	70.00		70.00
Dispersive fade occurrence factor		1.00	
Effective fade margin (dB)	47.56		47.56
Climatic factor		1.00	

Terrain roughness (m)		6.10	
C factor		3.29	
Average annual temperature (°C)		26.95	
Fade occurrence factor (Po)		3.199E+001	
SD improvement factor	200.00		200.00
Worst month multipath availability (%)	99.99972		99.99972
Worst month multipath unavailability (sec)	7.36		7.36
Annual multipath availability (%)	99.99989		99.99989
Annual multipath unavailability (sec)	33.14		33.14
Annual 2 way multipath availability (%)		99.99979	
Annual 2 way multipath unavailability (sec)		66.28	
Polarization		Vertical	
0.01% rain rate (mm/hr)		98.27	
Flat fade margin - rain (dB)		47.59	
Rain attenuation (dB)		47.59	
Annual rain availability (%)		100.00000	
Annual rain unavailability (min)		0.00	
Annual rain + multipath availability (%)		99.99979	
Annual rain + multipath unavailability (min)		1.10	