



Link Design

Radio Link Design

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Performance Calculations

Link budget calculations were performed according to the ITU-R P 530-14 recommendation using parameters typical for the region. The effect of rain fall has been calculated using ITU-R P 530-14 with a rain rate (specified in the tables) for 0.01% of time determined using the ITU-R P 838-1 recommendation.

SIAE decline all responsibility for link performance degradations due to ducting and other anomalous propagation phenomena. The calculations have performed assuming:

- Clear visibility between the sites
- Lack of interference from other MW links

In order to confirm the above assumptions, a site survey is recommended.

Link 1

HOP 1 - 6GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	Pioneer Sub-Station	Lat St.A: 37.39752° 0' 0" N - Lon St.A: 120.72746° 0' 0" W				43m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
41.71	AGS20	ASNK	6175.0000	59.3MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 38.22 dB		1.8 m / 38.22 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	29.0	36.71	45.29	54	99.9979	3.4	3.4	99.9994	99.9994
16QAM	332Mbit/s	26.0	39.71	36.79	120	99.9954	7.6	7.6	99.9986	99.9986
32QAM	414Mbit/s	26.0	39.71	33.79	183	99.9930	12.2	12.2	99.9977	99.9977
64QAM	524Mbit/s	25.0	40.71	29.79	329	99.9874	22.7	22.7	99.9957	99.9957
128QAM	622Mbit/s	25.0	40.71	26.79	553	99.9787	41.9	41.9	99.9920	99.9920
256QAM	718Mbit/s	24.0	41.71	22.79	1220	99.9531	101.8	101.8	99.9806	99.9806
512QAM	800Mbit/s	24.0	41.71	19.79	2273	99.9126	210.0	210.0	99.9601	99.9601
1024QAM	892Mbit/s	23.0	42.71	15.29	6000	99.7692	634.8	634.8	99.8792	99.8792
dN1		-365.7 [NU/km]								
K - Geoclimatic factor		7.25E-04								
Po - (Rec. ITU-R P. 530-14)		7.49E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		26.2 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								
FEEDER ATTENUATION - A end						0.5dB				
FEEDER ATTENUATION - B end						0.5dB				

HOP 1 - 11GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	Pioneer Sub-Station	Lat St.A: 37.39752° 0' 0" N - Lon St.A: 120.72746° 0' 0" W				43m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
41.71	AGS20	ASNK	11200.0000	56MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 43.61 dB		1.8 m / 43.61 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	28.0	31.71	50.29	72	99.9972	4.3	4.3	99.9992	99.9992
16QAM	332Mbit/s	25.0	34.71	41.79	134	99.9948	8.9	8.7	99.9983	99.9984
32QAM	414Mbit/s	25.0	34.71	38.79	186	99.9929	13.0	12.4	99.9975	99.9976
64QAM	524Mbit/s	24.0	35.71	34.79	281	99.9892	20.9	19.6	99.9960	99.9962
128QAM	622Mbit/s	24.0	35.71	31.79	414	99.9841	31.0	29.4	99.9941	99.9944
256QAM	718Mbit/s	23.0	36.71	27.79	799	99.9693	68.9	66.3	99.9869	99.9874
512QAM	800Mbit/s	23.0	36.71	24.79	1367	99.9474	125.6	121.9	99.9761	99.9768
1024QAM	892Mbit/s	22.0	37.71	20.29	3275	99.8740	328.5	321.7	99.9375	99.9388
dN1		-365.7 [NU/km]								
K - Geoclimatic factor		7.25E-04								
Po - (Rec. ITU-R P. 530-14)		1.21E-01								
RAIN INTENSITY Rec. ITU-R P. 837-3		26.2 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								

Link 2#1

HOP 2 - #1 - 6GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #1	Lat St.A: 37° 17' 16.7" N - Lon St.A: 120° 24' 23.5" W				59.45m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
29.55	AGS20	ASNK	6175.0000	59.3MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 38.22 dB		1.8 m / 38.22 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	29.0	33.57	48.43	17	99.9994	1.3	1.3	99.9998	99.9998
16QAM	332Mbit/s	26.0	36.57	39.93	26	99.9990	1.8	1.8	99.9997	99.9997
32QAM	414Mbit/s	26.0	36.57	36.93	35	99.9987	2.2	2.2	99.9996	99.9996
64QAM	524Mbit/s	25.0	37.57	32.93	55	99.9979	3.4	3.4	99.9993	99.9993
128QAM	622Mbit/s	25.0	37.57	29.93	82	99.9968	5.2	5.2	99.9990	99.9990
256QAM	718Mbit/s	24.0	38.57	25.93	163	99.9937	10.7	10.7	99.9980	99.9980
512QAM	800Mbit/s	24.0	38.57	22.93	293	99.9887	20.3	20.3	99.9961	99.9961
1024QAM	892Mbit/s	23.0	39.57	18.43	735	99.9717	55.5	55.5	99.9894	99.9894
dN1		-368.1 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		1.84E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.4 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								
FEEDER ATTENUATION - A end						0.5dB				
FEEDER ATTENUATION - B end						0.5dB				

HOP 2 - #1 - 11GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #1	Lat St.A: 37° 17' 16.7" N - Lon St.A: 120° 24' 23.5" W				59.45m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
29.55	AGS20	ASNK	11200.0000	56MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 43.61 dB		1.8 m / 43.61 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	28.0	28.40	53.60	23	99.9991	1.6	1.6	99.9997	99.9997
16QAM	332Mbit/s	25.0	31.40	45.10	33	99.9987	2.1	2.1	99.9996	99.9996
32QAM	414Mbit/s	25.0	31.40	42.10	41	99.9984	2.5	2.5	99.9995	99.9995
64QAM	524Mbit/s	24.0	32.40	38.10	55	99.9979	3.5	3.5	99.9993	99.9993
128QAM	622Mbit/s	24.0	32.40	35.10	72	99.9972	4.6	4.3	99.9991	99.9992
256QAM	718Mbit/s	23.0	33.40	31.10	118	99.9954	8.5	7.6	99.9984	99.9986
512QAM	800Mbit/s	23.0	33.40	28.10	190	99.9927	14.8	13.3	99.9972	99.9975
1024QAM	892Mbit/s	22.0	34.40	23.60	405	99.9844	32.8	30.2	99.9938	99.9943
dN1		-368.1 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		2.96E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.4 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								

Link 2#2

HOP 2 - #2 - 6GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #2	Lat St.A: 37° 16' 48.7" N - Lon St.A: 120° 24' 25" W				59.07m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
30.38	AGS20	ASNK	6175.0000	59.3MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 38.22 dB		1.8 m / 38.22 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	29.0	33.82	48.18	18	99.9993	1.3	1.3	99.9997	99.9997
16QAM	332Mbit/s	26.0	36.82	39.68	30	99.9989	1.9	1.9	99.9996	99.9996
32QAM	414Mbit/s	26.0	36.82	36.68	40	99.9985	2.4	2.4	99.9995	99.9995
64QAM	524Mbit/s	25.0	37.82	32.68	63	99.9976	3.9	3.9	99.9993	99.9993
128QAM	622Mbit/s	25.0	37.82	29.68	96	99.9963	5.9	5.9	99.9989	99.9989
256QAM	718Mbit/s	24.0	38.82	25.68	192	99.9926	12.8	12.8	99.9976	99.9976
512QAM	800Mbit/s	24.0	38.82	22.68	346	99.9867	23.8	23.8	99.9955	99.9955
1024QAM	892Mbit/s	23.0	39.82	18.18	872	99.9665	69.9	69.9	99.9867	99.9867
dN1		-368 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		2.06E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.3 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								
FEEDER ATTENUATION - A end						0.5dB				
FEEDER ATTENUATION - B end						0.5dB				

HOP 2 - #2 - 11GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #2	Lat St.A: 37° 16' 48.7" N - Lon St.A: 120° 24' 25" W				59.07m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
30.38	AGS20	ASNK	11200.0000	56MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 43.61 dB		1.8 m / 43.61 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	28.0	28.66	53.34	25	99.9990	1.7	1.7	99.9997	99.9997
16QAM	332Mbit/s	25.0	31.66	44.84	37	99.9986	2.3	2.3	99.9996	99.9996
32QAM	414Mbit/s	25.0	31.66	41.84	46	99.9982	2.7	2.7	99.9995	99.9995
64QAM	524Mbit/s	24.0	32.66	37.84	63	99.9976	3.8	3.8	99.9993	99.9993
128QAM	622Mbit/s	24.0	32.66	34.84	82	99.9968	5.5	5.2	99.9990	99.9990
256QAM	718Mbit/s	23.0	33.66	30.84	137	99.9947	10.1	9.1	99.9981	99.9983
512QAM	800Mbit/s	23.0	33.66	27.84	222	99.9915	17.3	15.8	99.9967	99.9970
1024QAM	892Mbit/s	22.0	34.66	23.34	479	99.9816	38.3	35.5	99.9927	99.9933
dN1		-368 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		3.32E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.3 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								

Link 2#3

HOP 2 - #3 - 6GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #3	Lat St.A: 37° 16' 25.5" N - Lon St.A: 120° 24' 23.8" W				57.83m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
31.04	AGS20	ASNK	6175.0000	59.3MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 38.22 dB		1.8 m / 38.22 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	29.0	34.02	47.98	20	99.9992	1.4	1.4	99.9997	99.9997
16QAM	332Mbit/s	26.0	37.02	39.48	32	99.9988	2.1	2.1	99.9996	99.9996
32QAM	414Mbit/s	26.0	37.02	36.48	44	99.9983	2.6	2.6	99.9995	99.9995
64QAM	524Mbit/s	25.0	38.02	32.48	70	99.9973	4.2	4.2	99.9992	99.9992
128QAM	622Mbit/s	25.0	38.02	29.48	107	99.9959	6.8	6.8	99.9987	99.9987
256QAM	718Mbit/s	24.0	39.02	25.48	217	99.9917	14.7	14.7	99.9972	99.9972
512QAM	800Mbit/s	24.0	39.02	22.48	392	99.9849	27.0	27.0	99.9949	99.9949
1024QAM	892Mbit/s	23.0	40.02	17.98	993	99.9618	79.5	79.5	99.9849	99.9849
dN1		-368 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		2.25E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.3 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								
FEEDER ATTENUATION - A end						0.5dB				
FEEDER ATTENUATION - B end						0.5dB				

HOP 2 - #3 - 11GHz										
SITE NAME		COORDINATES				Ground Elevation / Antenna Height agl				
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W				292.42m / 30m				
B	New Sub-Station - #3	Lat St.A: 37° 16' 25.5" N - Lon St.A: 120° 24' 23.8" W				57.83m / 15m				
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish		Site B Dish		
31.04	AGS20	ASNK	11200.0000	56MHz	2+0 FREQUENCY REUSE WITH XPIC	1.8 m / 43.61 dB		1.8 m / 43.61 dB		
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]
4QAM	172Mbit/s	28.0	28.86	53.14	27	99.9990	1.8	1.8	99.9997	99.9997
16QAM	332Mbit/s	25.0	31.86	44.64	40	99.9985	2.4	2.4	99.9995	99.9995
32QAM	414Mbit/s	25.0	31.86	41.64	50	99.9981	2.9	2.9	99.9994	99.9994
64QAM	524Mbit/s	24.0	32.86	37.64	69	99.9974	4.2	4.2	99.9992	99.9992
128QAM	622Mbit/s	24.0	32.86	34.64	91	99.9965	6.1	5.7	99.9988	99.9989
256QAM	718Mbit/s	23.0	33.86	30.64	154	99.9941	11.3	10.2	99.9979	99.9981
512QAM	800Mbit/s	23.0	33.86	27.64	250	99.9904	19.7	18.1	99.9963	99.9966
1024QAM	892Mbit/s	22.0	34.86	23.14	545	99.9790	47.2	44.2	99.9910	99.9916
dN1		-368 [NU/km]								
K - Geoclimatic factor		7.37E-04								
Po - (Rec. ITU-R P. 530-14)		3.63E-02								
RAIN INTENSITY Rec. ITU-R P. 837-3		25.3 [mm/h]								
Vapour Density		15g/mc								
RAIN SPECIFIC ATTENUATION MODEL		ITU-R P.838-1								

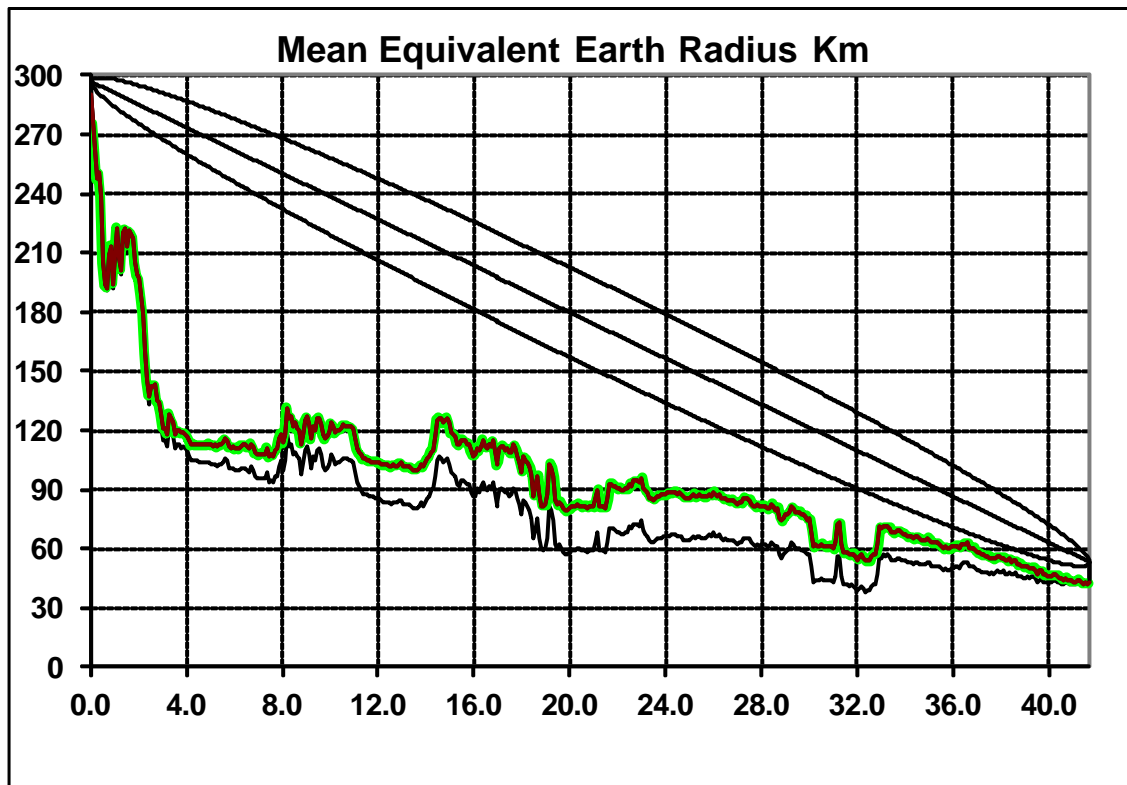
Link 3

HOP		3 - 18GHz									
SITE NAME		COORDINATES		Ground Elevation / Antenna Height agl							
A	Padilla Hill	Lat St.A: 37.537527° 0' 0" N - Lon St.A: 120.28978° 0' 0" W		292.42m / 30m							
B	TV Hill (Merced Irrigation District	Lat St.A: 37° 35' 12.18" N - Lon St.A: 120° 16' 23.81" W		317m / 30m							
Lenght [Km]	IDU	ODU	Freq [MHz]	BW	CONFIG	Site A Dish	Site B Dish				
5.65	AGS20	ASNK	18700.0000	55MHz	2+0 FREQUENCY REUSE WITH XPIC	0.6 m / 39 dB	0.6 m / 39 dB				
Fixed Mod.	Capacity	Tx Power [dBm]	RSL [-dBm]	FM [dB]	OUTAGE [s/month]	OUTAGE [%]	Tot. Avail. H [min/year]	Tot. Avail. V [min/year]	Tot. Avail. H [%]	Tot. Avail. V [%]	
4QAM	172Mbit/s	23.0	32.71	48.79	1	100.0000	1.0	1.0	99.9999	99.9999	
16QAM	332Mbit/s	21.0	34.71	41.29	1	100.0000	1.0	1.0	99.9999	99.9999	
32QAM	414Mbit/s	21.0	34.71	38.29	1	100.0000	1.0	1.0	99.9999	99.9999	
64QAM	524Mbit/s	19.0	36.71	33.29	1	99.9999	1.0	1.0	99.9999	99.9999	
128QAM	622Mbit/s	19.0	36.71	30.29	2	99.9999	1.0	1.0	99.9999	99.9999	
256QAM	718Mbit/s	18.0	37.71	26.29	3	99.9999	1.1	1.0	99.9998	99.9999	
512QAM	800Mbit/s	18.0	37.71	23.29	5	99.9998	2.4	1.0	99.9995	99.9998	
1024QAM	892Mbit/s	17.0	38.71	18.79	13	99.9995	6.5	3.2	99.9988	99.9994	
dN1				-369.3 [NU/km]							
K - Geoclimatic factor				7.43E-04							
Po - (Rec. ITU-R P. 530-14)				3.31E-04							
RAIN INTENSITY Rec. ITU-R P. 837-3				25.4 [mm/h]							
Vapour Density				15g/mc							
RAIN SPECIFIC ATTENUATION MODEL				ITU-R P.838-1							

LOS Profile

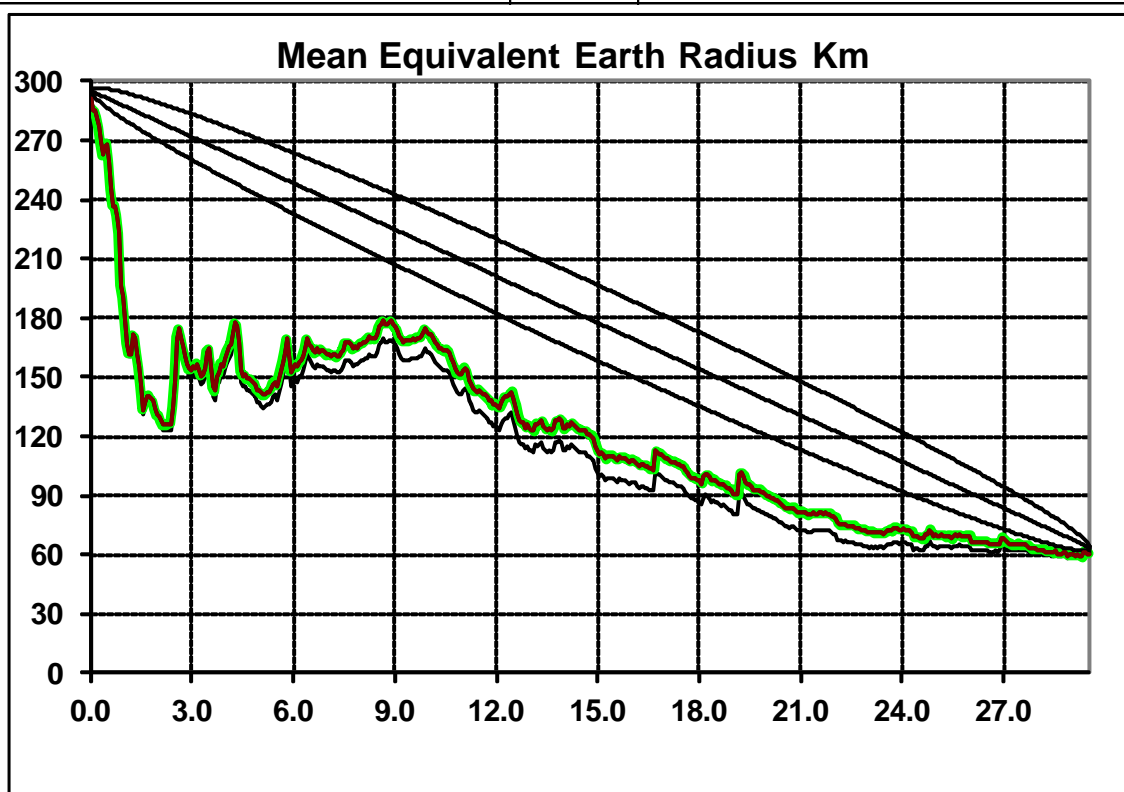
Link 1

site A	Padilla Hill	
site B	Pioneer Sub-Station	
Lat St.A: 37.537527° N - Lon St.A: 120.28978° W		
Lat St.B: 37.39752° N - Lon St.B: 120.72746° W		
Operating frequency	[MHz]	6000
wavelength	[m]	0.050
site A height	[m]	291
antenna A height	[m]	6
site B height	[m]	43
antenna B height	[m]	11
hop length	[km]	41.71
A to B Azimuth Angle	[°]	248.18
B to A Azimuth Angle	[°]	68.18
Equivalent Earth Radius	Km	1.53
	Ke	0.70
CLEARANCE FOR Km(50% of time)	[%]	135.12%
CLEARANCE FOR Ke(0.1% of time)	[%]	60.37%



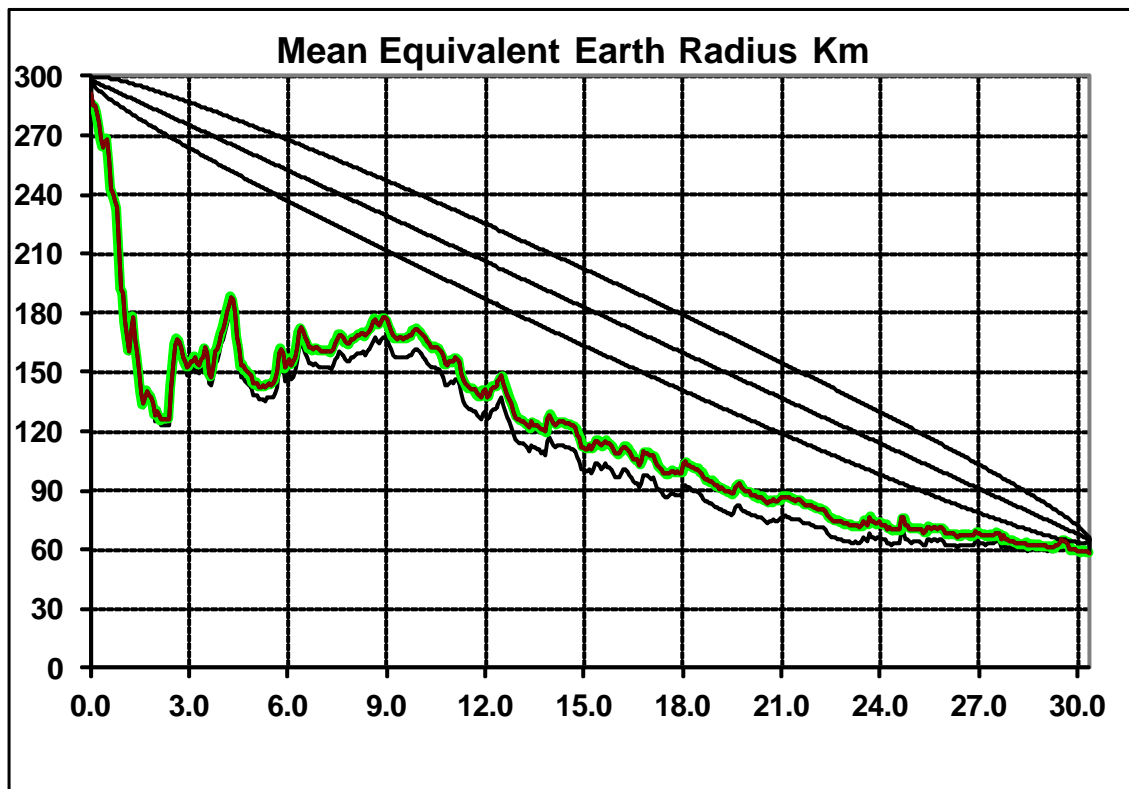
Link 2#1

site A	Padilla Hill	
site B	New Sub-Station - #1	
Lat St.A: 37.537527° N - Lon St.A: 120.28978° W		
Lat St.B: 37° 17' 16.7" N - Lon St.B: 120° 24' 23.5" W		
Operating frequency	[MHz]	6000
wavelength	[m]	0.050
site A height	[m]	291
antenna A height	[m]	4
site B height	[m]	60
antenna B height	[m]	4
hop length	[km]	29.55
A to B Azimuth Angle	[°]	200.42
B to A Azimuth Angle	[°]	20.42
Equivalent Earth Radius	Km	1.53
	Ke	0.64
CLEARANCE FOR Km(50% of time)	[%]	124.53%
CLEARANCE FOR Ke(0.1% of time)	[%]	98.85%



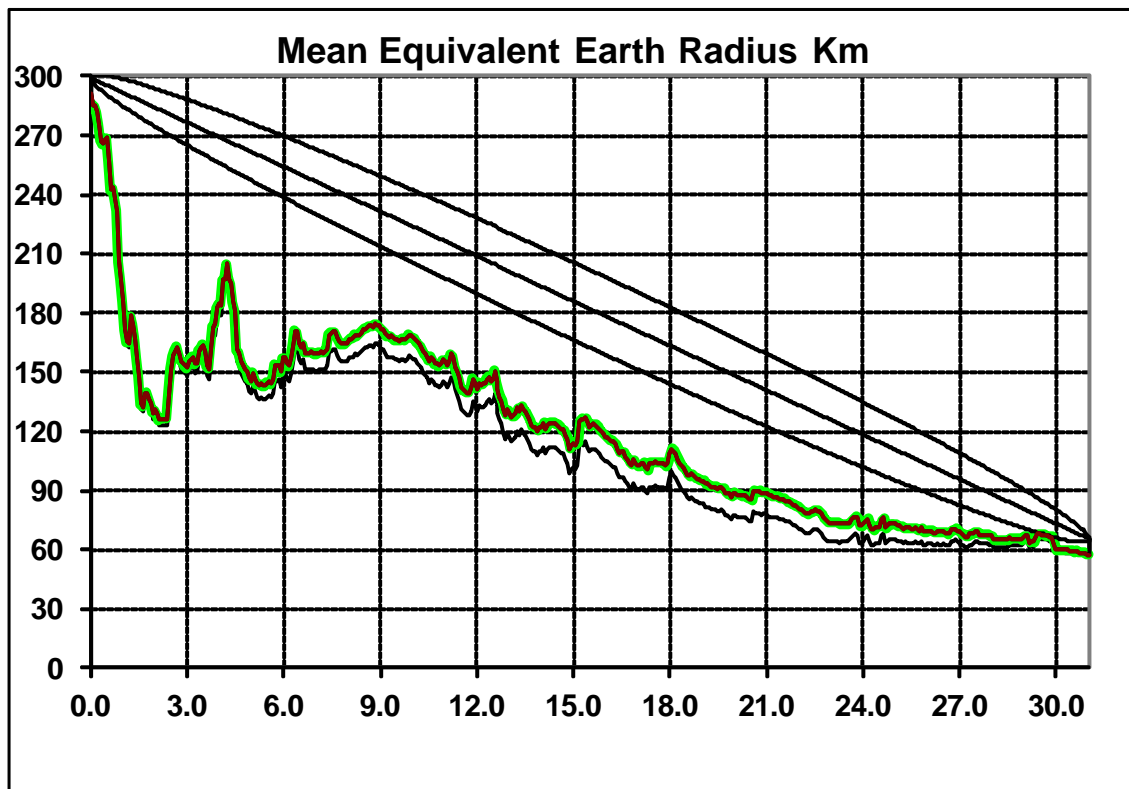
Link 2#2

site A	Padilla Hill	
site B	New Sub-Station - #2	
Lat St.A: 37.537527° N - Lon St.A: 120.28978° W		
Lat St.B: 37° 16' 48.7" N - Lon St.B: 120° 24' 25" W		
Operating frequency	[MHz]	6000
wavelength	[m]	0.050
site A height	[m]	291
antenna A height	[m]	7
site B height	[m]	58
antenna B height	[m]	7
hop length	[km]	30.38
A to B Azimuth Angle	[°]	199.92
B to A Azimuth Angle	[°]	19.92
Equivalent Earth Radius	Km	1.53
	Ke	0.66
CLEARANCE FOR Km(50% of time)	[%]	103.21%
CLEARANCE FOR Ke(0.1% of time)	[%]	76.87%



Link 2#3

site A	Padilla Hill	
site B	New Sub-Station - #3	
Lat St.A: 37.537527° N - Lon St.A: 120.28978° W		
Lat St.B: 37° 16' 25.5" N - Lon St.B: 120° 24' 23.8" W		
Operating frequency	[MHz]	6000
wavelength	[m]	0.050
site A height	[m]	291
antenna A height	[m]	8
site B height	[m]	57
antenna B height	[m]	8
hop length	[km]	31.04
A to B Azimuth Angle	[°]	199.42
B to A Azimuth Angle	[°]	19.42
Equivalent Earth Radius	Km	1.53
	Ke	0.66
CLEARANCE FOR Km(50% of time)	[%]	103.09%
CLEARANCE FOR Ke(0.1% of time)	[%]	68.42%



Link 3

site A	Padilla Hill	
site B	TV Hill (Merced Irrigation District Tower)	
Lat St.A: 37.537527° N - Lon St.A: 120.28978° W		
Lat St.B: 37° 35' 12.18" N - Lon St.B: 120° 16' 23.81" W		
Operating frequency	[MHz]	6000
wavelength	[m]	0.050
site A height	[m]	291
antenna A height	[m]	5
site B height	[m]	316
antenna B height	[m]	5
hop length	[km]	5.65
A to B Azimuth Angle	[°]	14.88
B to A Azimuth Angle	[°]	194.88
Equivalent Earth Radius	Km	1.53
	Ke	0.50
CLEARANCE FOR Km(50% of time)	[%]	104.72%
CLEARANCE FOR Ke(0.1% of time)	[%]	97.16%

