

8 Anexo 1 – Estudio de viabilidad de enlaces EB – ES

8.1 Estación base 1 – enlaces estaciones remotas

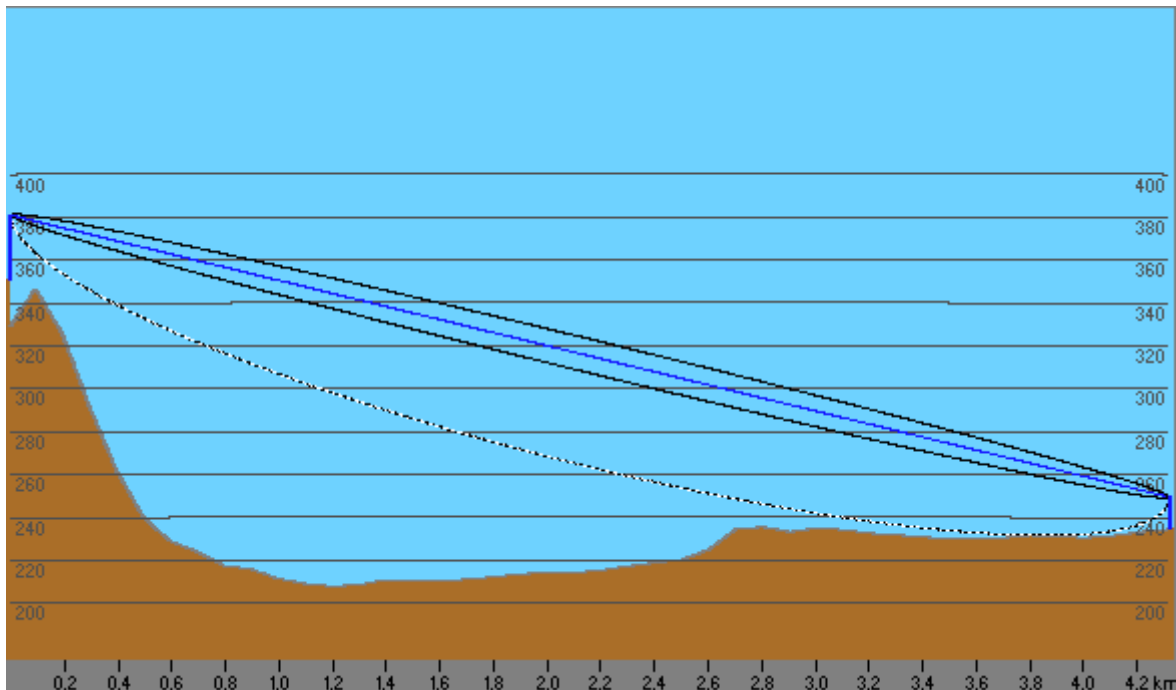
Se muestra a continuación la viabilidad de los enlaces.

Cuadro 21. Grupo Estación Base 1

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
3	760151	9053416	EB01	15 m	
2	763446	9052561	EB01	15 m	
2MOD	763668	9052525	EB01	15 m	
1F(2A)	763545	9051842	EB01	15 m	
1E	763712	9050498	EB01	15 m	
1D	763771	9050283	EB01	15 m	
B- AGONIA I	763862	9049929	EB01	15 m	
1C	763962	9048385	EB01	15 m	
B-AGONIA II	764665	9045955	EB01	15 m	
1B	764688	9045865	EB01	15 m	
1A	764745	9045794	EB01	15 m	
B- 1B	764773	9044466	EB01	15 m	
1	764420	9042592	EB01	25 m	
B- EL TUMI	765230	9041668	EB01	15 m	
0C	765461	9041410	EB01	15 m	

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
OB	765473	9041409	EB01	15 m	

- Estación Base 1 – Estación remota 2



Distance between EB01 and 2 is 4,3 km (2,7 miles)

True North Azimuth = 3,85°, Magnetic North Azimuth = 4,48°, Elevation angle = -1,6769°

Terrain elevation variation is 137,5 m

Propagation mode is line-of-sight, minimum clearance 4,8F1 at 3,8km

Average frequency is 2450,000 MHz

Free Space = 112,9 dB, Obstruction = -3,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 141,0 dB

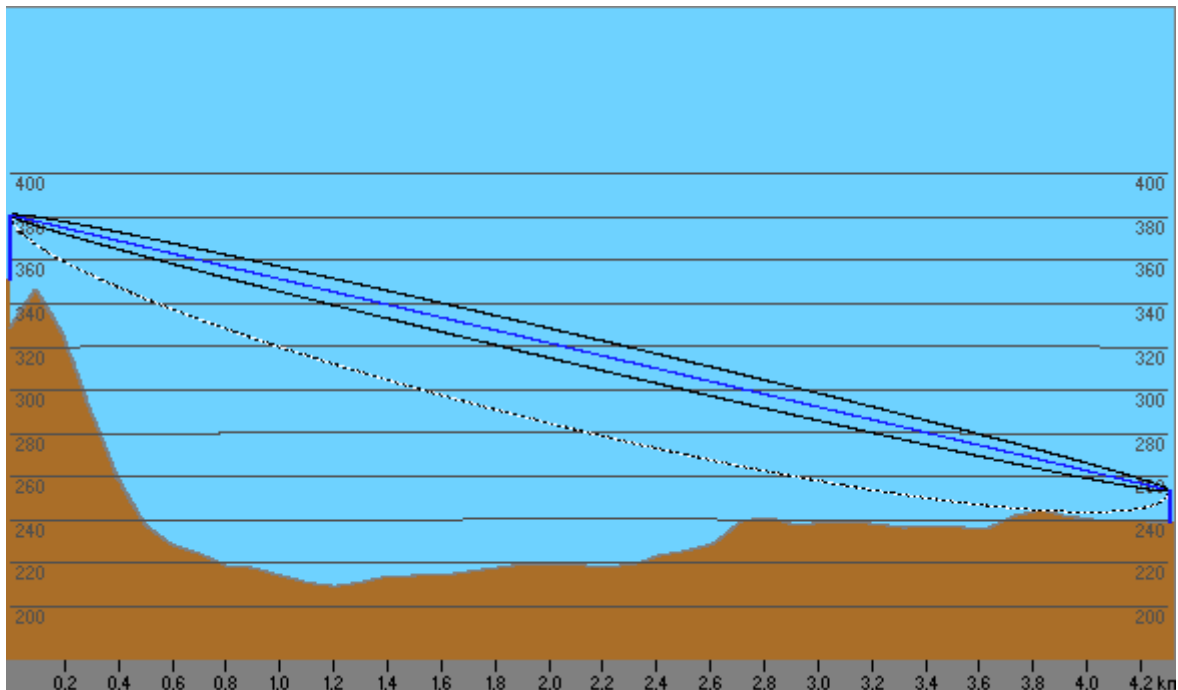
System gain from EB01 to 2 is 154,0 dB

System gain from 2 to EB01 is 154,0 dB

Worst reception is 13,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 2MOD



Distance between EB01 and 2 MOD is 4,3 km (2,7 miles)

True North Azimuth = 6,84°, Magnetic North Azimuth = 7,48°, Elevation angle = -1,6307°

Terrain elevation variation is 136,5 m

Propagation mode is line-of-sight, minimum clearance 3,6F1 at 3,8km

Average frequency is 2450,000 MHz

Free Space = 112,9 dB, Obstruction = -2,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 141,4 dB

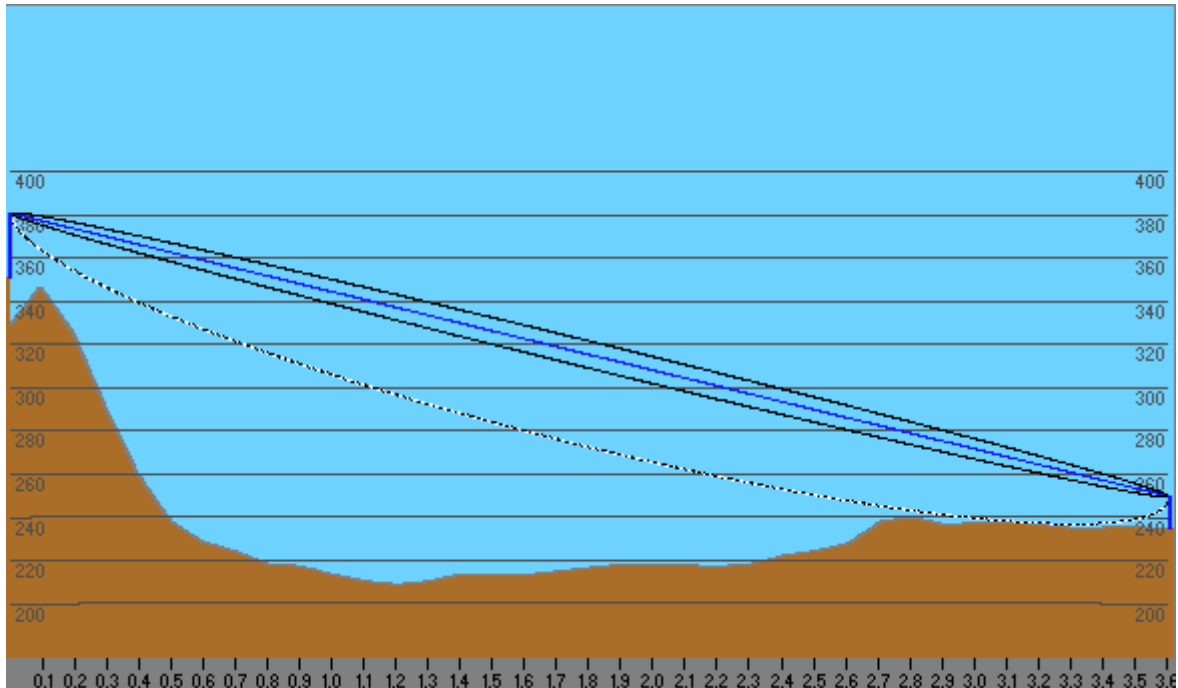
System gain from EB01 to 2 MOD is 154,0 dB

System gain from 2 MOD to EB01 is 154,0 dB

Worst reception is 12,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1F(2A)



Distance between EB01 and 1F(2A) is 3,6 km (2,2 miles)

True North Azimuth = 6,28°, Magnetic North Azimuth = 6,92°, Elevation angle = -2,0413°

Terrain elevation variation is 136,8 m

Propagation mode is line-of-sight, minimum clearance 4,1F1 at 3,1km

Average frequency is 2450,000 MHz

Free Space = 111,3 dB, Obstruction = -3,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 138,9 dB

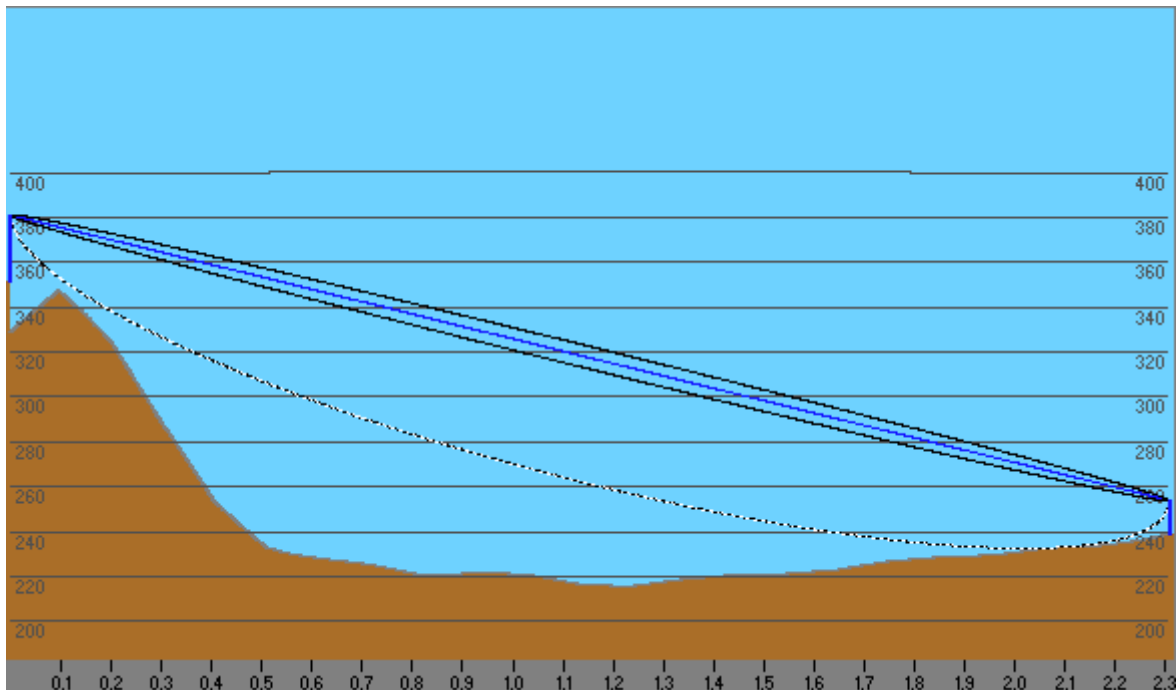
System gain from EB01 to 1F(2A) is 154,0 dB

System gain from 1F(2A) to EB01 is 154,0 dB

Worst reception is 15,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1E



Distance between EB01 and 1E is 2,3 km (1,4 miles)

True North Azimuth = 14,28°, Magnetic North Azimuth = 14,92°, Elevation angle = -2,7976°

Terrain elevation variation is 130,9 m

Propagation mode is line-of-sight, minimum clearance 8,5F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 107,4 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 138,3 dB

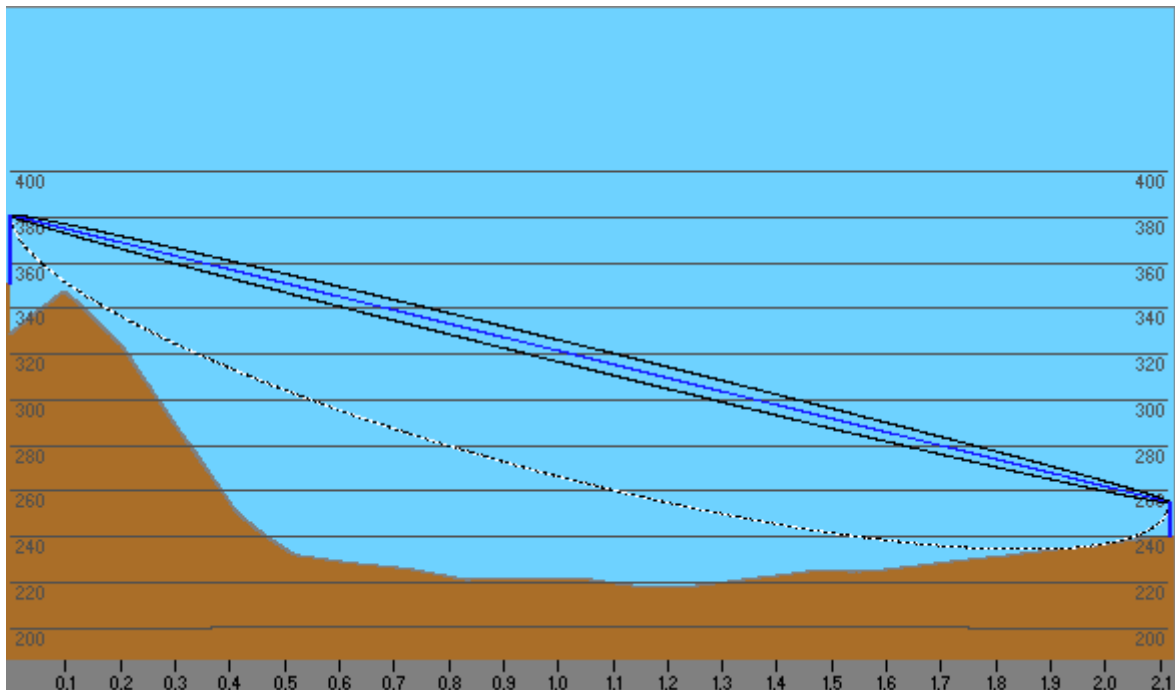
System gain from EB01 to 1E is 154,0 dB

System gain from 1E to EB01 is 154,0 dB

Worst reception is 15,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1D



Distance between EB01 and 1D is 2,1 km (1,3 miles)

True North Azimuth = 17,31°, Magnetic North Azimuth = 17,95°, Elevation angle = -3,2239°

Terrain elevation variation is 128,9 m

Propagation mode is line-of-sight, minimum clearance 7,9F1 at 1,9km

Average frequency is 2450,000 MHz

Free Space = 106,7 dB, Obstruction = 12,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 150,4 dB

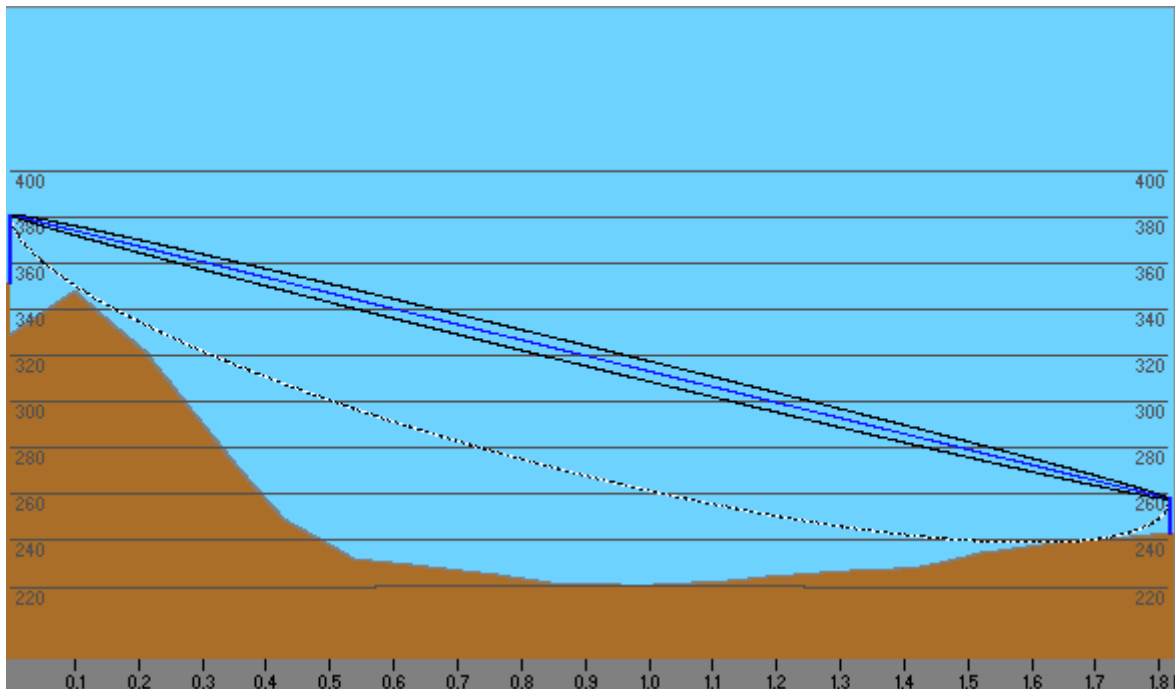
System gain from EB01 to 1D is 154,0 dB

System gain from 1D to EB01 is 154,0 dB

Worst reception is 3,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota B-AGONIA I



Distance between EB01 and B-AGONIA I is 1,8 km (1,1 miles)

True North Azimuth = 23,47°, Magnetic North Azimuth = 24,11°, Elevation angle = -3,6934°

Terrain elevation variation is 126,7 m

Propagation mode is line-of-sight, minimum clearance 7,9F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 105,4 dB, Obstruction = 0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 137,5 dB

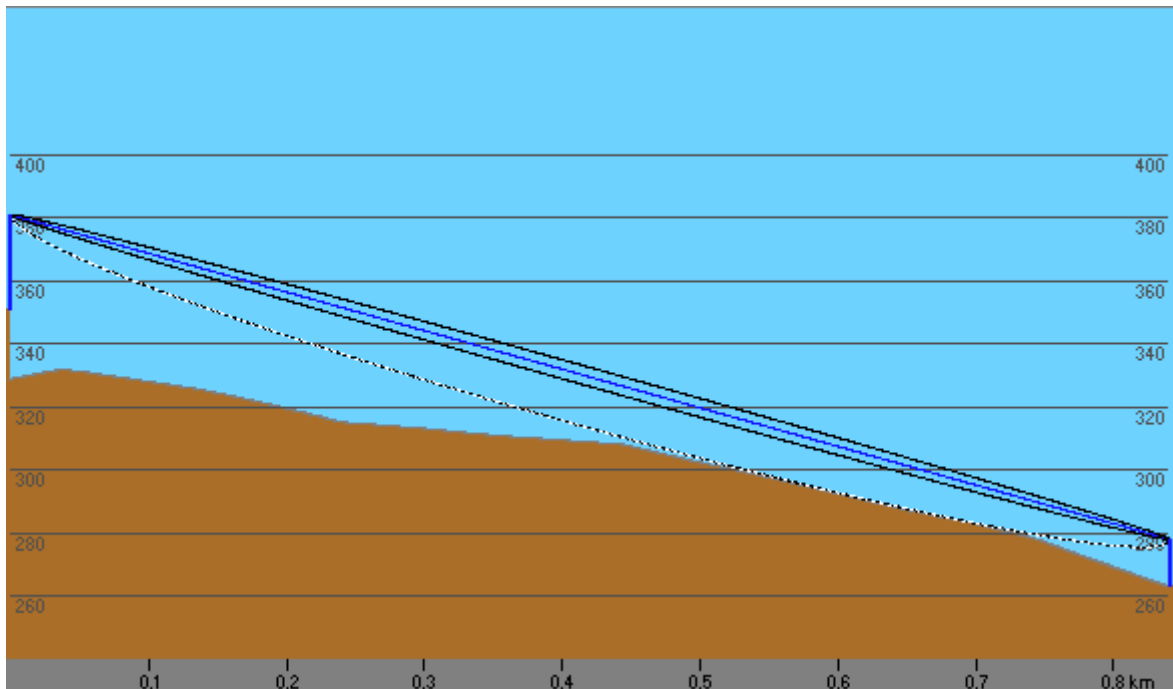
System gain from EB01 to B-AGONIA I is 154,0 dB

System gain from B-AGONIA I to EB01 is 154,0 dB

Worst reception is 16,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1C



Distance between EB01 and 1C is 0,8 km (0,5 miles)

True North Azimuth = $82,29^\circ$, Magnetic North Azimuth = $82,92^\circ$, Elevation angle = $-7,5251^\circ$

Terrain elevation variation is 65,8 m

Propagation mode is line-of-sight, minimum clearance 1,4F1 at 0,7km

Average frequency is 2450,000 MHz

Free Space = 98,7 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 130,5 dB

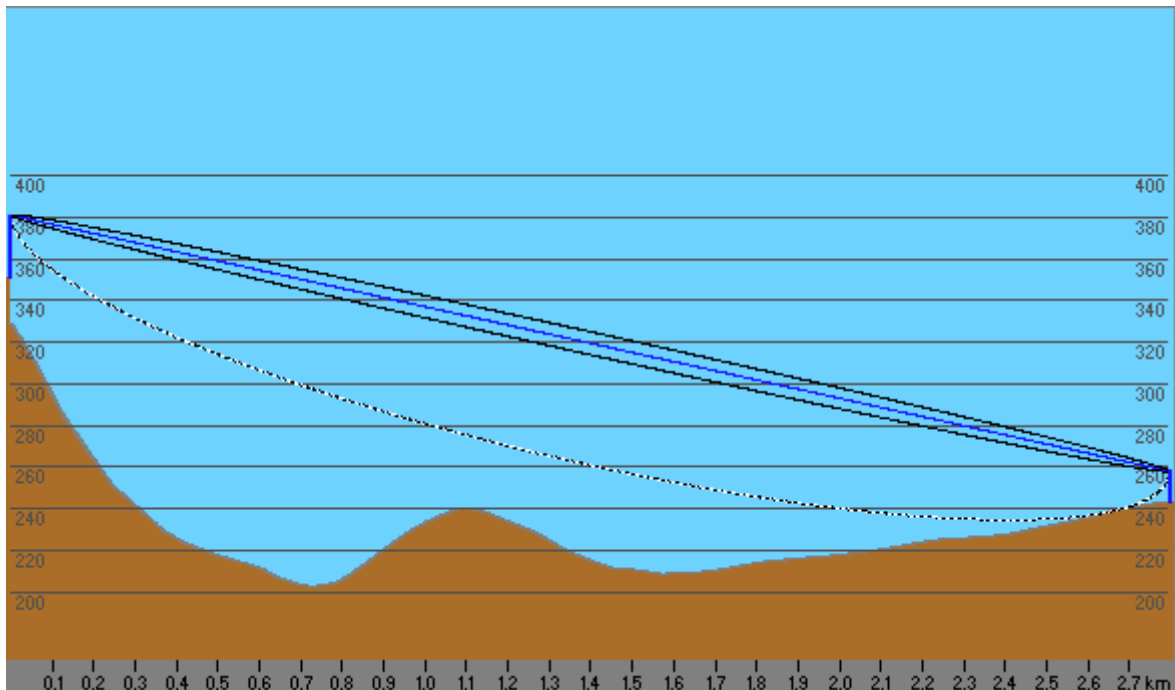
System gain from EB01 to 1C is 154,0 dB

System gain from 1C to EB01 is 154,0 dB

Worst reception is 23,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota B-AGONIA II



Distance between EB01 and B-AGONIA II is 2,8 km (1,7 miles)

True North Azimuth = 146,32°, Magnetic North Azimuth = 146,96°, Elevation angle = -2,5333°

Terrain elevation variation is 125,3 m

Propagation mode is line-of-sight, minimum clearance 7,0F1 at 2,6km

Average frequency is 2450,000 MHz

Free Space = 109,1 dB, Obstruction = -1,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 139,0 dB

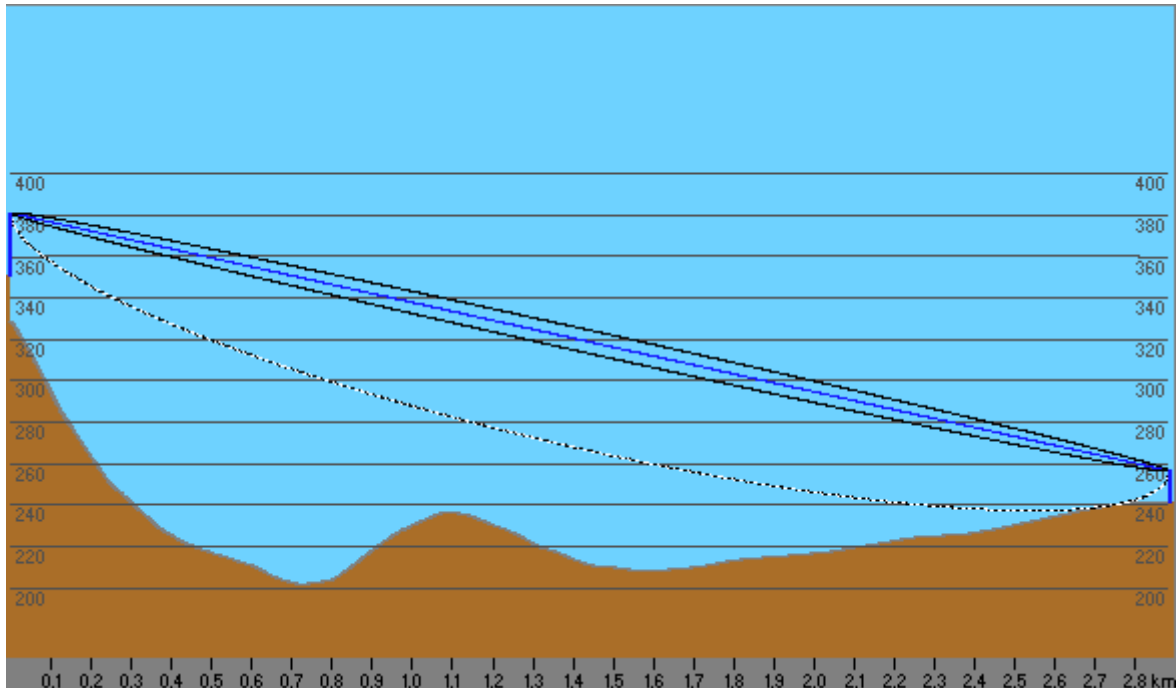
System gain from EB01 to B-AGONIA II is 154,0 dB

System gain from B-AGONIA II to EB01 is 154,0 dB

Worst reception is 15,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1B



Distance between EB01 and 1B is 2,9 km (1,8 miles)

True North Azimuth = 146,93°, Magnetic North Azimuth = 147,57°, Elevation angle = -2,3632°

Terrain elevation variation is 126,0 m

Propagation mode is line-of-sight, minimum clearance 7,4F1 at 2,7km

Average frequency is 2450,000 MHz

Free Space = 109,4 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 141,5 dB

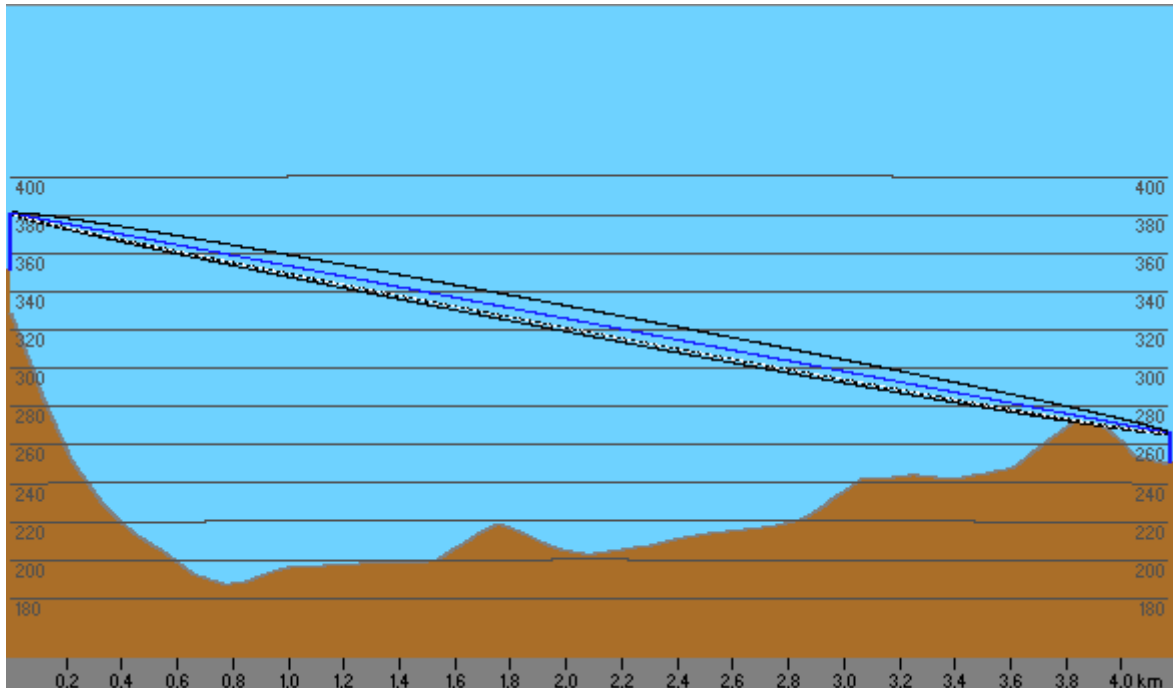
System gain from EB01 to 1B is 154,0 dB

System gain from 1B to EB01 is 154,0 dB

Worst reception is 12,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota B-1B



Distance between EB01 and B-1B is 4,2 km (2,6 miles)

True North Azimuth = 156,44°, Magnetic North Azimuth = 157,08°, Elevation angle = -1,4881°

Terrain elevation variation is 141,4 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 3,9km

Average frequency is 2450,000 MHz

Free Space = 112,6 dB, Obstruction = -0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 143,1 dB

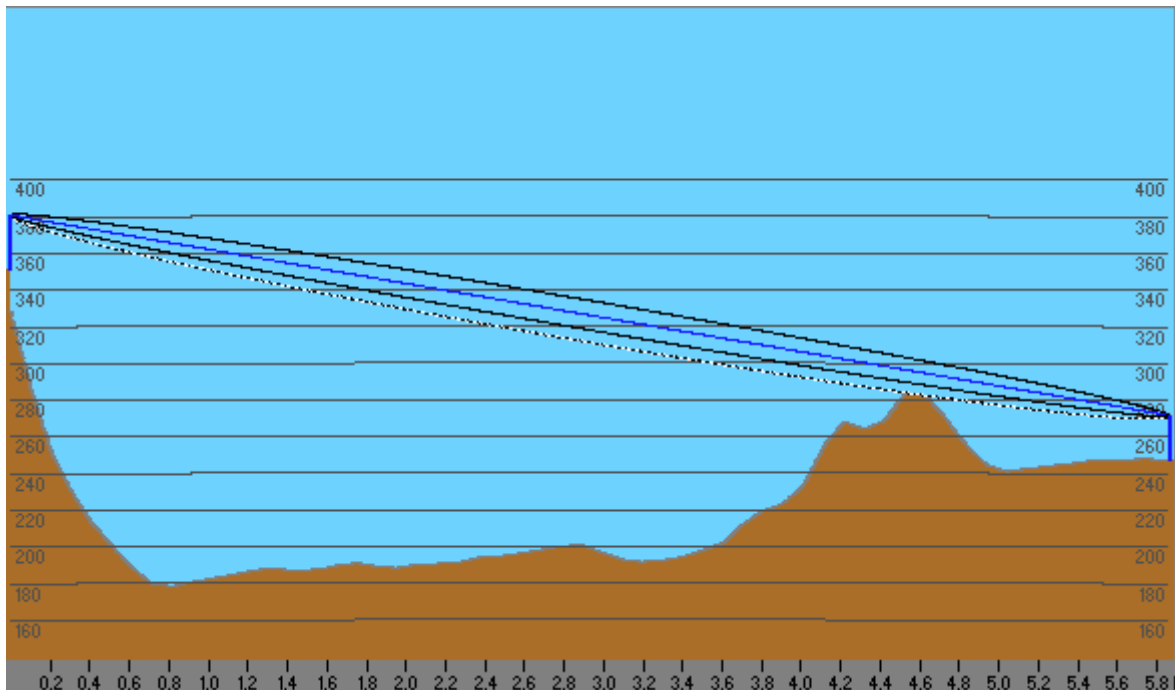
System gain from EB01 to B-1B is 154,0 dB

System gain from B-1B to EB01 is 154,0 dB

Worst reception is 10,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 1



Distance between EB01 and 1 is 5,9 km (3,6 miles)

True North Azimuth = 166,93°, Magnetic North Azimuth = 167,56°, Elevation angle = -1,1147°

Terrain elevation variation is 150,1 m

Propagation mode is line-of-sight, minimum clearance 1,4F1 at 4,6km

Average frequency is 2450,000 MHz

Free Space = 115,5 dB, Obstruction = 0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 147,4 dB

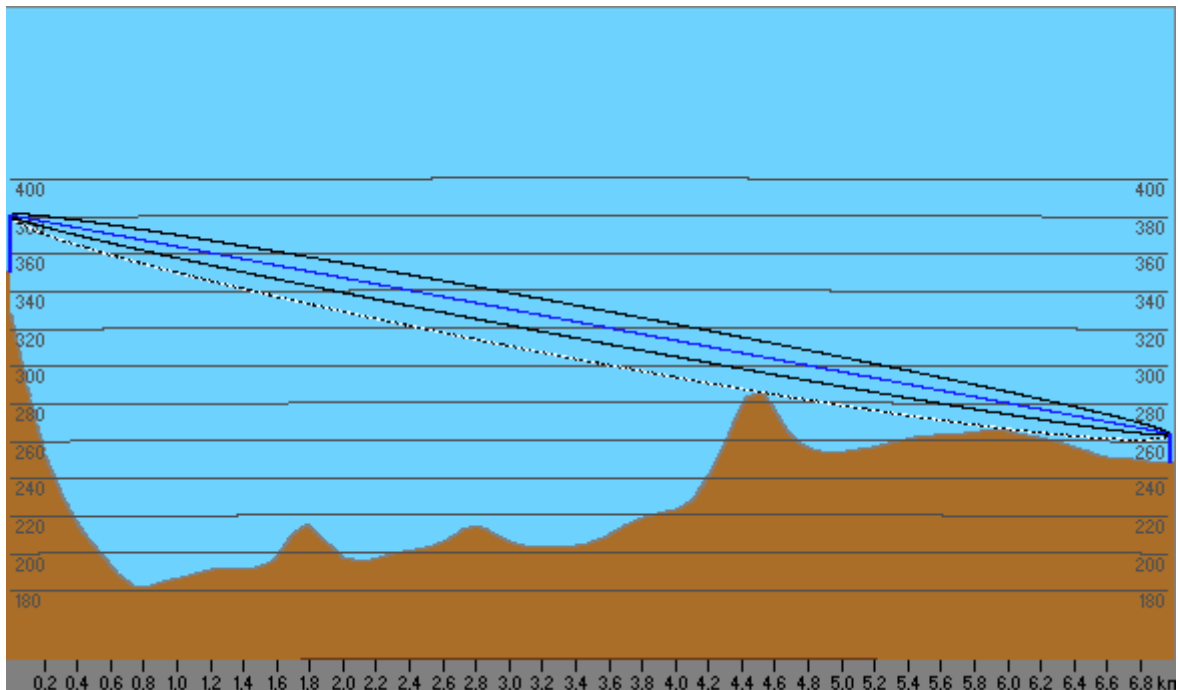
System gain from EB01 to 1 is 154,0 dB

System gain from 1 to EB01 is 154,0 dB

Worst reception is 6,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota B – EL TUMI



Distance between EB01 and B-EL TUMI is 7,0 km (4,3 miles)

True North Azimuth = 162,11°, Magnetic North Azimuth = 162,75°, Elevation angle = -1,0290°

Terrain elevation variation is 146,5 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 4,5km

Average frequency is 2450,000 MHz

Free Space = 117,0 dB, Obstruction = -0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 148,0 dB

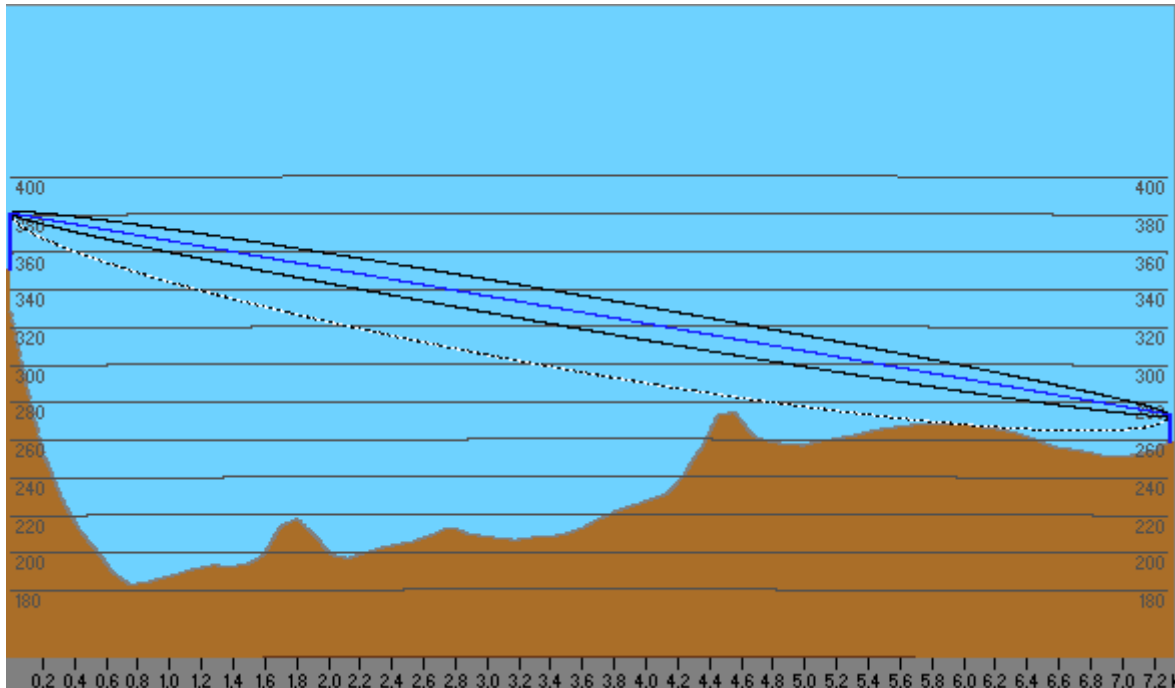
System gain from EB01 to B-EL TUMI is 154,0 dB

System gain from B-EL TUMI to EB01 is 154,0 dB

Worst reception is 6,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 0C



Distance between EB01 and 0C is 7,3 km (4,5 miles)

True North Azimuth = 160,91°, Magnetic North Azimuth = 161,55°, Elevation angle = -0,9396°

Terrain elevation variation is 145,3 m

Propagation mode is line-of-sight, minimum clearance 2,0F1 at 6,0km

Average frequency is 2450,000 MHz

Free Space = 117,4 dB, Obstruction = 0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 149,3 dB

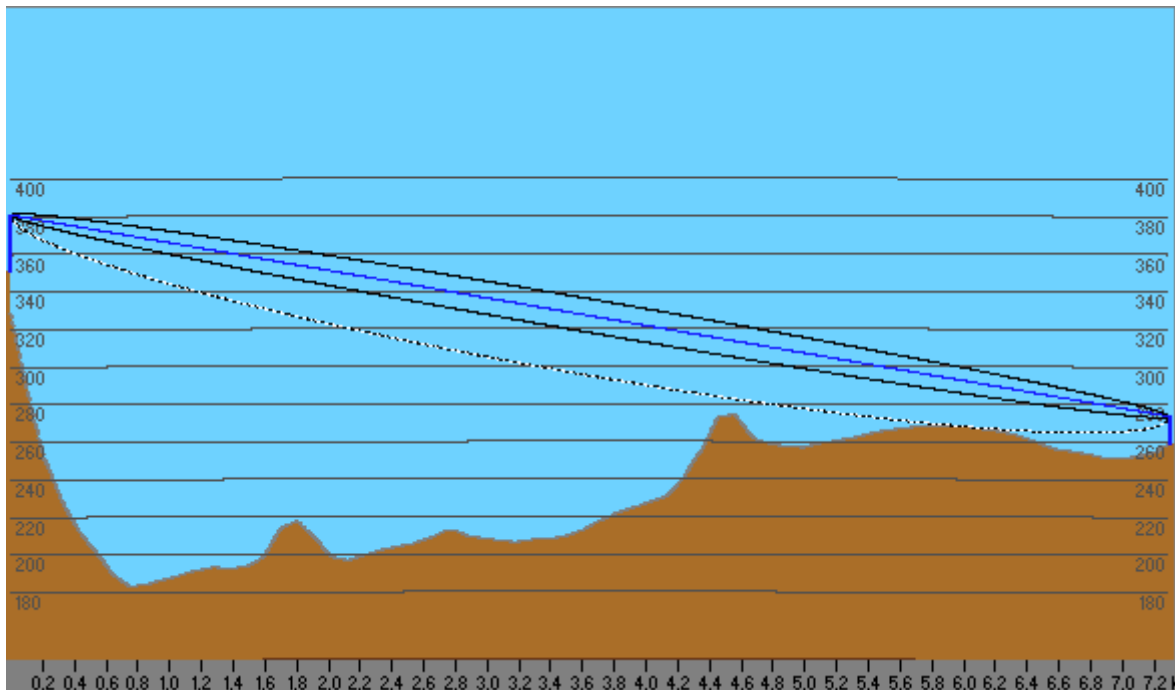
System gain from EB01 to 0C is 154,0 dB

System gain from 0C to EB01 is 154,0 dB

Worst reception is 4,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 1 – Estación remota 0B



Distance between EB01 and 0B is 7,3 km (4,5 miles)

True North Azimuth = 160,91°, Magnetic North Azimuth = 161,55°, Elevation angle = -0,9254°

Terrain elevation variation is 145,3 m

Propagation mode is line-of-sight, minimum clearance 2,2F1 at 6,0km

Average frequency is 2450,000 MHz

Free Space = 117,4 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 148,0 dB

System gain from EB01 to 0B is 154,0 dB

System gain from 0B to EB01 is 154,0 dB

Worst reception is 6,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

8.2 Estación base 2 – enlaces estaciones remotas

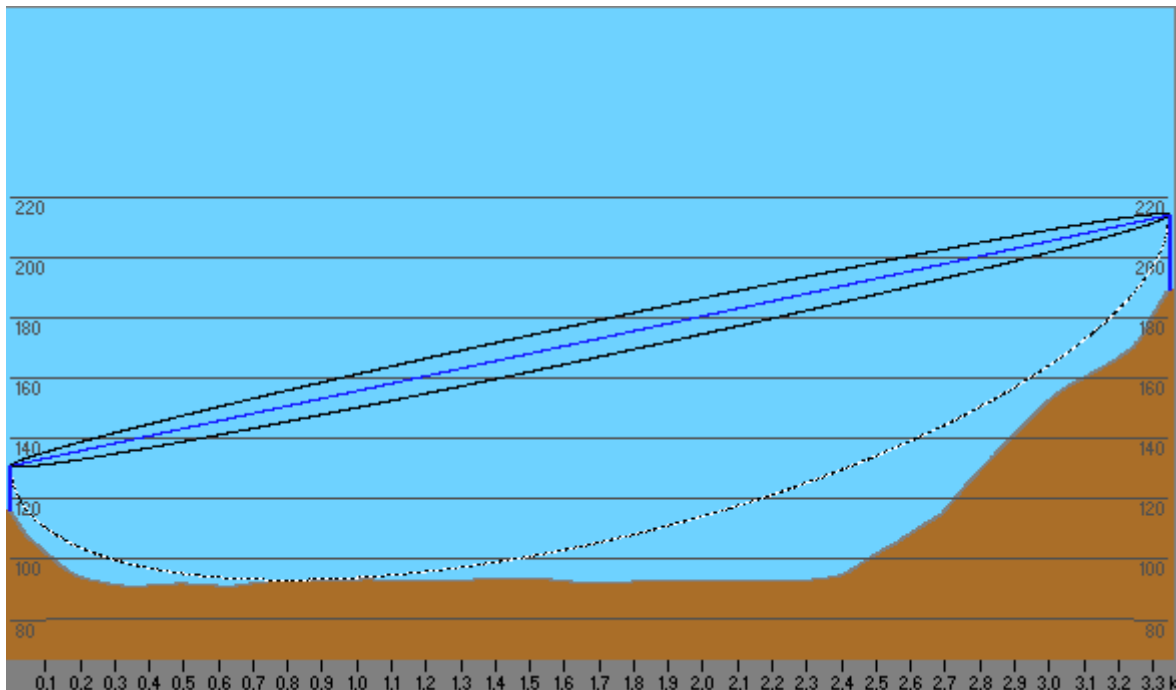
Se muestra a continuación la viabilidad de los enlaces.

Cuadro 22. Grupo Estación Base 2

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
10	748809	9071501	EB02	15 m	C.H. VIRU
C.H. VIRU	751241	9069213	EB02	25 m	
7F	751285	9069172	EB02	25 m	
7E	751313	9069162	EB02	15 m	
7D	751587	9068663	EB02	15 m	
7D-I	752525	9067898	EB02	15 m	
7D-II	752962	9067640	EB02	15 m	
B-DB-5I	754314	9067580	EB02	15 m	
SIFON-DB-5II	754536	9067462	EB02	25 m	
7C	754126	9066703	EB02	15 m	
B-DB-5III	754381	9065761	EB02	15 m	
7B	755659	9064866	EB02	15 m	
7A	755989	9064766	EB02	15 m	
7A-2	756066	9064744	EB02	15 m	
B-PORTACHUELO	756090	9064755	EB02	15 m	
7A-1	756576	9064565	EB02	15 m	

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
7	760264	9064432	EB02	15 m	
6A-PTAP CHAO	761392	9064623	EB02	15 m	
6 ^a	762016	9064934	EB02	15 m	
6	764590	9063497	EB02	15 m	
5	764866	9062802	EB02	15 m	
4	765069	9060883	EB02	15 m	
B- MONTEGRANDE	763976	9058892	EB02	15 m	
3B	763555	9058461	EB02	15 m	
B-SAN CARLOS ALTO	761976	9056909	EB02	15 m	
3 ^a	760943	9055910	EB02	15 m	
3-II	760717	9055138	EB02	15 m	

- Estación remota 10 - Estación remota C.H. VIRU



Distance between 10 and C.H. VIRU is 3,3 km (2,1 miles)

True North Azimuth = 133,11°, Magnetic North Azimuth = 133,71°, Elevation angle = 1,5707°

Terrain elevation variation is 98,0 m

Propagation mode is line-of-sight, minimum clearance 7,0F1 at 0,8km

Average frequency is 2450,000 MHz

Free Space = 110,7 dB, Obstruction = -5,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 136,0 dB

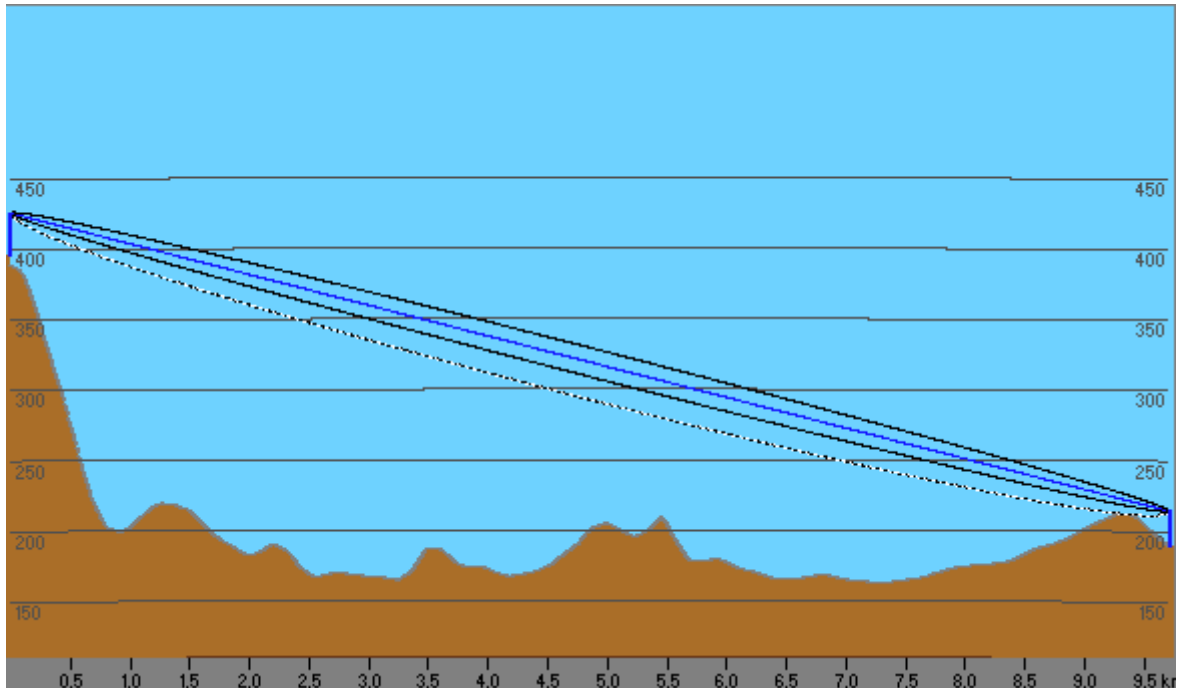
System gain from 10 to C.H. VIRU is 154,0 dB

System gain from C.H. VIRU to 10 is 154,0 dB

Worst reception is 18,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota C.H. VIRU



Distance between EB02 and C.H. VIRU is 9,7 km (6,0 miles)

True North Azimuth = 329,42°, Magnetic North Azimuth = 330,04°, Elevation angle = -1,1756°

Terrain elevation variation is 226,8 m

Propagation mode is line-of-sight, minimum clearance 3,1F1 at 9,3km

Average frequency is 2450,000 MHz

Free Space = 119,9 dB, Obstruction = 1,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 152,5 dB

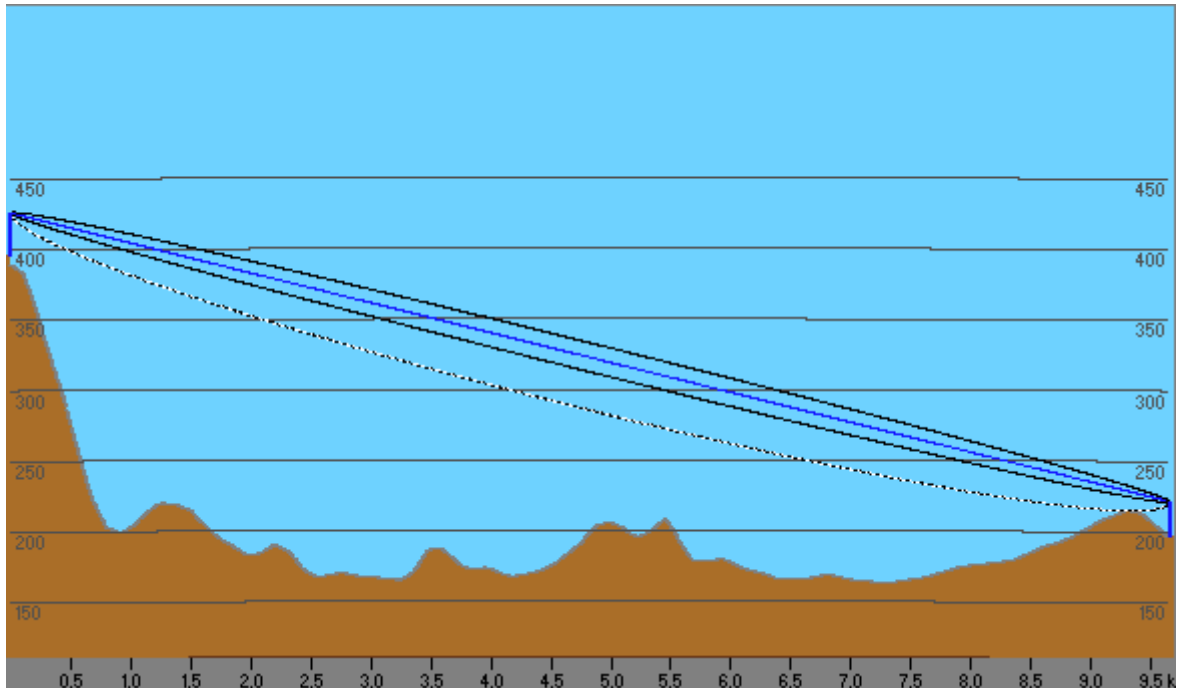
System gain from EB02 to C.H. VIRU is 154,0 dB

System gain from C.H. VIRU to EB02 is 154,0 dB

Worst reception is 1,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7F



Distance between EB02 and 7F is 9,6 km (6,0 miles)

True North Azimuth = 329,52°, Magnetic North Azimuth = 330,14°, Elevation angle = -1,1468°

Terrain elevation variation is 226,1 m

Propagation mode is line-of-sight, minimum clearance 3,9F1 at 9,2km

Average frequency is 2450,000 MHz

Free Space = 119,9 dB, Obstruction = -2,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 148,1 dB

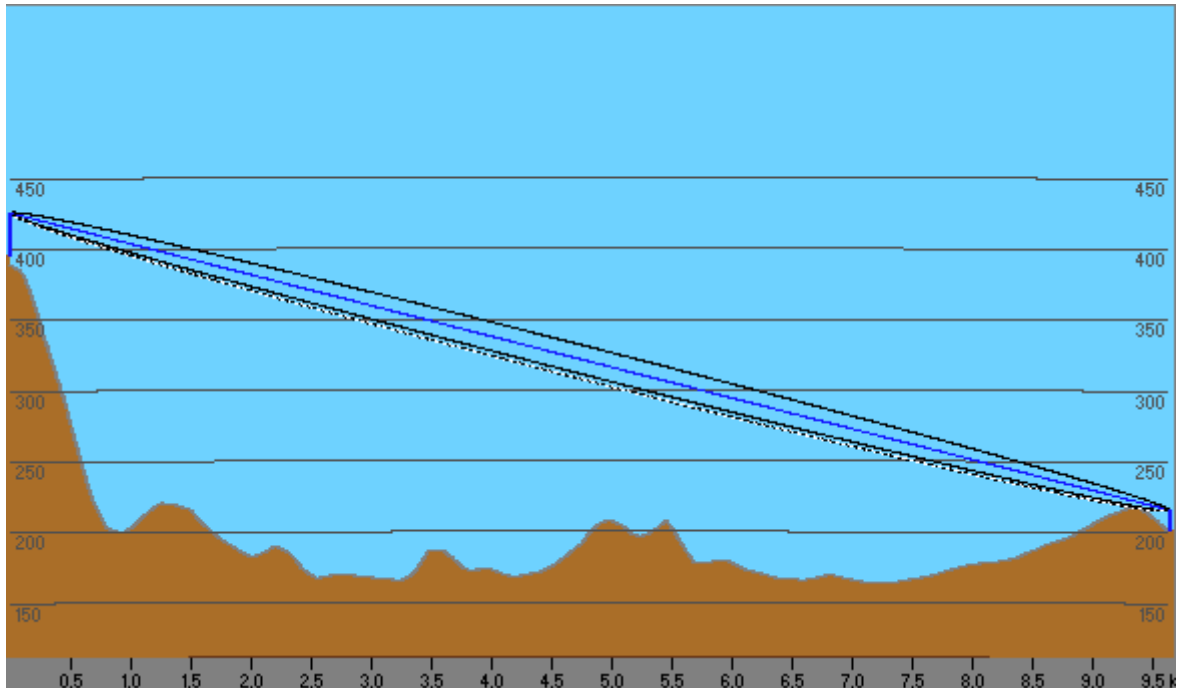
System gain from EB02 to 7F is 154,0 dB

System gain from 7F to EB02 is 154,0 dB

Worst reception is 5,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7E



Distance between EB02 and 7E is 9,6 km (6,0 miles)

True North Azimuth = 329,64°, Magnetic North Azimuth = 330,26°, Elevation angle = -1,1845°

Terrain elevation variation is 225,6 m

Propagation mode is line-of-sight, minimum clearance 2,4F1 at 9,3km

Average frequency is 2450,000 MHz

Free Space = 119,8 dB, Obstruction = 2,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 153,8 dB

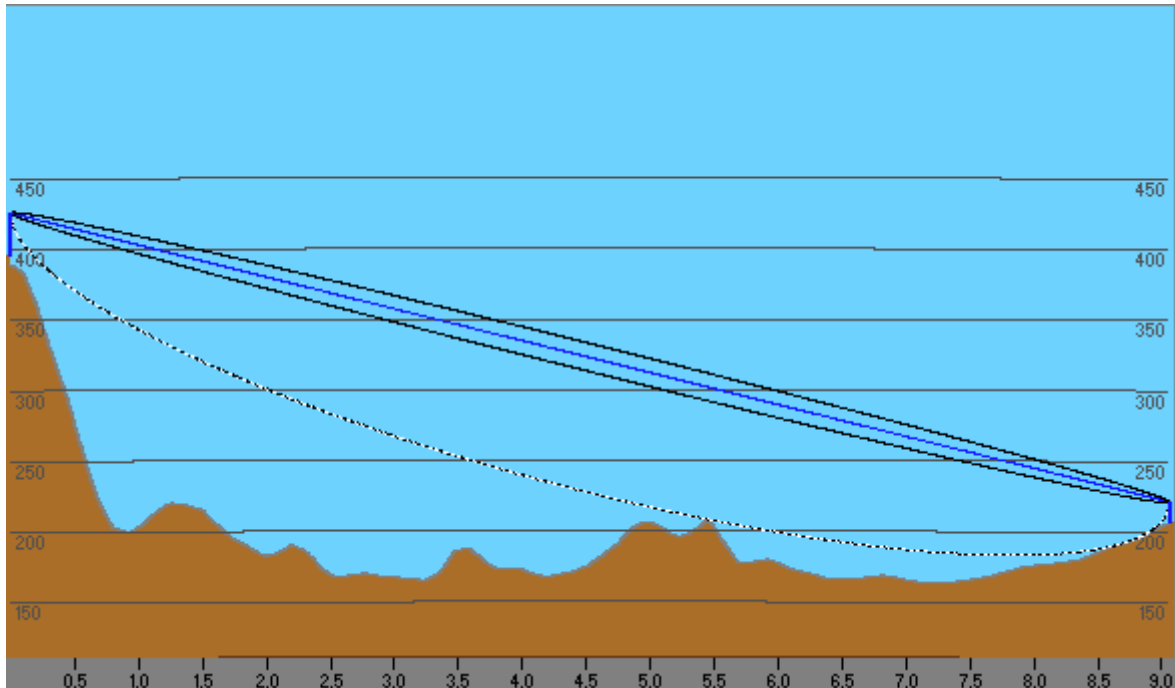
System gain from EB02 to 7E is 154,0 dB

System gain from 7E to EB02 is 154,0 dB

Worst reception corresponds to the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7D



Distance between EB02 and 7D is 9,0 km (5,6 miles)

True North Azimuth = 329,54°, Magnetic North Azimuth = 330,17°, Elevation angle = -1,2620°

Terrain elevation variation is 225,8 m

Propagation mode is line-of-sight, minimum clearance 6,0F1 at 5,4km

Average frequency is 2450,000 MHz

Free Space = 119,3 dB, Obstruction = 6,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 157,1 dB

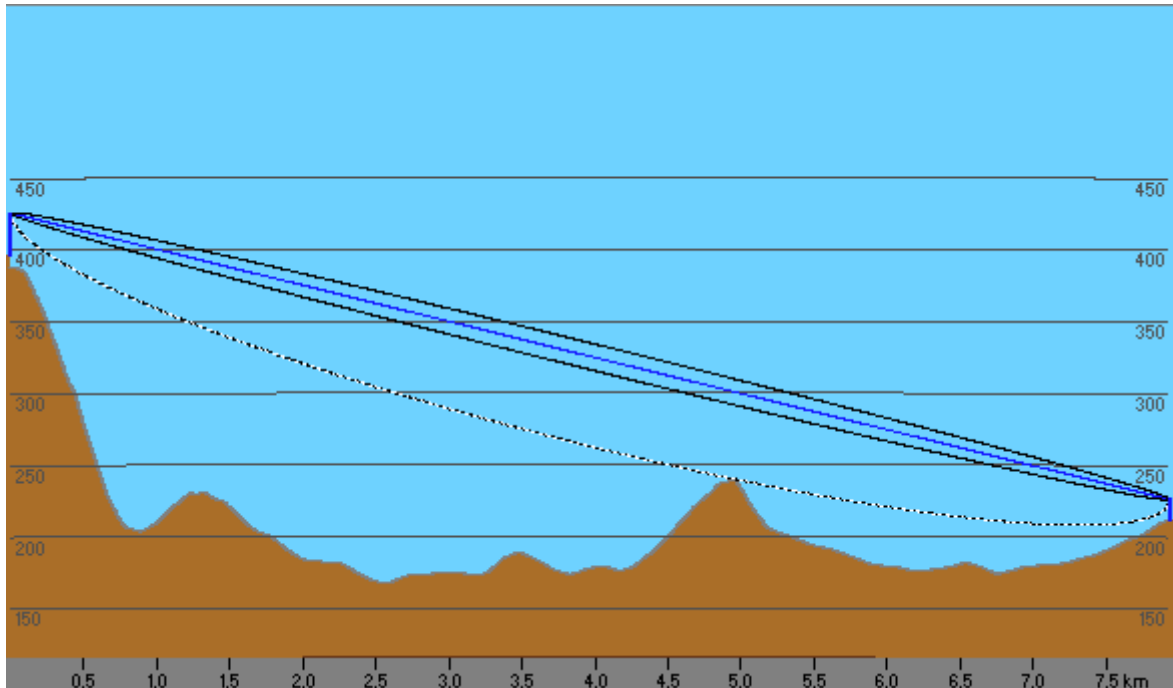
System gain from EB02 to 7D is 154,0 dB

System gain from 7D to EB02 is 154,0 dB

Worst reception is 3,1 dB below the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7D-I



Distance between EB02 and 7D-I is 7,9 km (4,9 miles)

True North Azimuth = 332,62°, Magnetic North Azimuth = 333,24°, Elevation angle = -1,4217°

Terrain elevation variation is 221,4 m

Propagation mode is line-of-sight, minimum clearance 4,2F1 at 4,9km

Average frequency is 2450,000 MHz

Free Space = 118,2 dB, Obstruction = 0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 149,4 dB

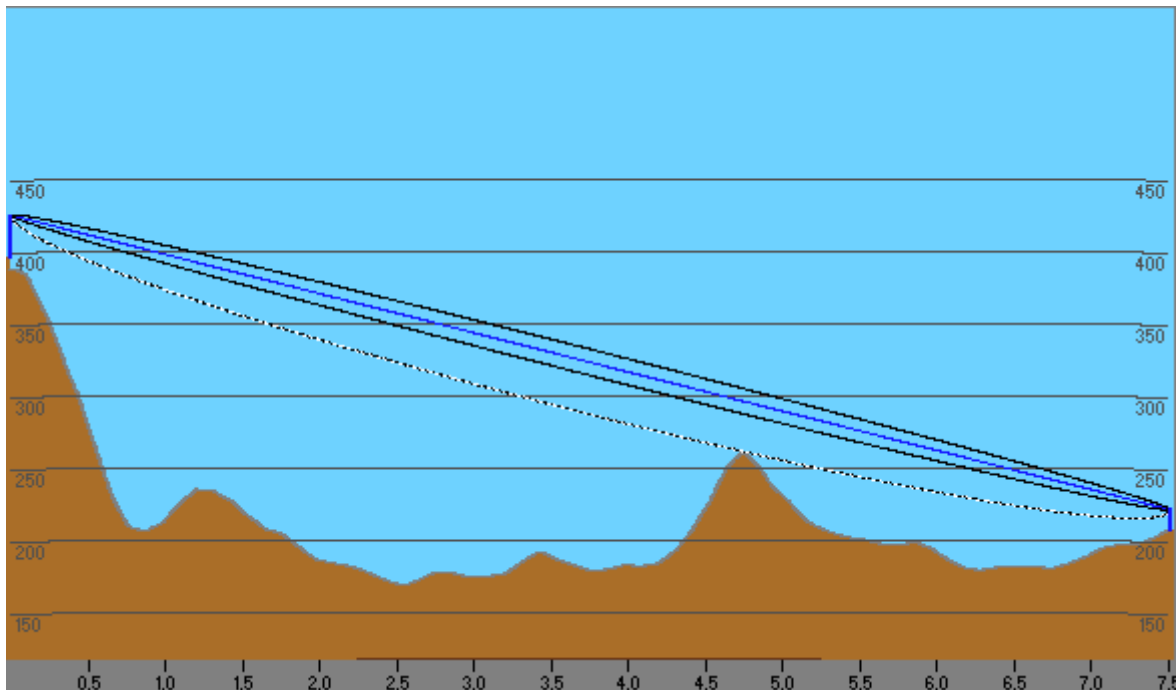
System gain from EB02 to 7D-I is 154,0 dB

System gain from 7D-I to EB02 is 154,0 dB

Worst reception is 4,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7D-II



Distance between EB02 and 7D-II is 7,5 km (4,7 miles)

True North Azimuth = 334,68°, Magnetic North Azimuth = 335,30°, Elevation angle = -1,5252°

Terrain elevation variation is 219,3 m

Propagation mode is line-of-sight, minimum clearance 2,7F1 at 4,8km

Average frequency is 2450,000 MHz

Free Space = 117,7 dB, Obstruction = -0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 148,5 dB

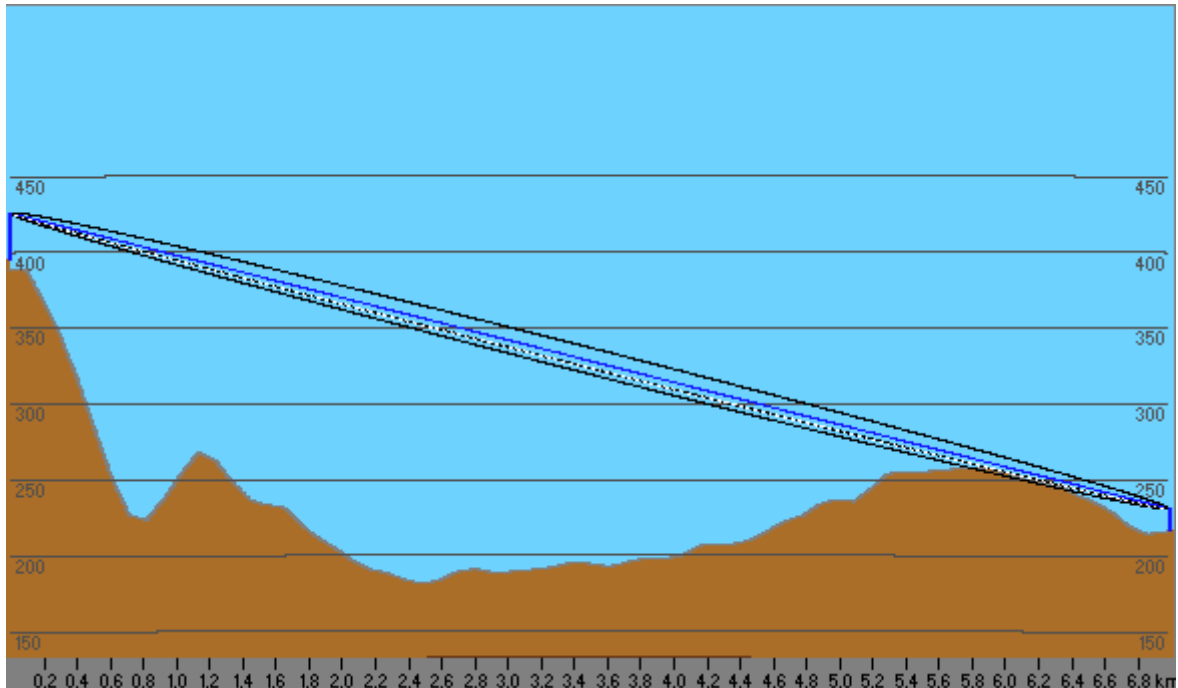
System gain from EB02 to 7D-II is 154,0 dB

System gain from 7D-II to EB02 is 154,0 dB

Worst reception is 5,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota B-DB-5I



Distance between EB02 and B-DB-5I is 7,0 km (4,3 miles)

True North Azimuth = 344,57°, Magnetic North Azimuth = 345,19°, Elevation angle = -1,5690°

Terrain elevation variation is 208,0 m

Propagation mode is line-of-sight, minimum clearance 0,4F1 at 6,0km

Average frequency is 2450,000 MHz

Free Space = 117,1 dB, Obstruction = 2,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 150,6 dB

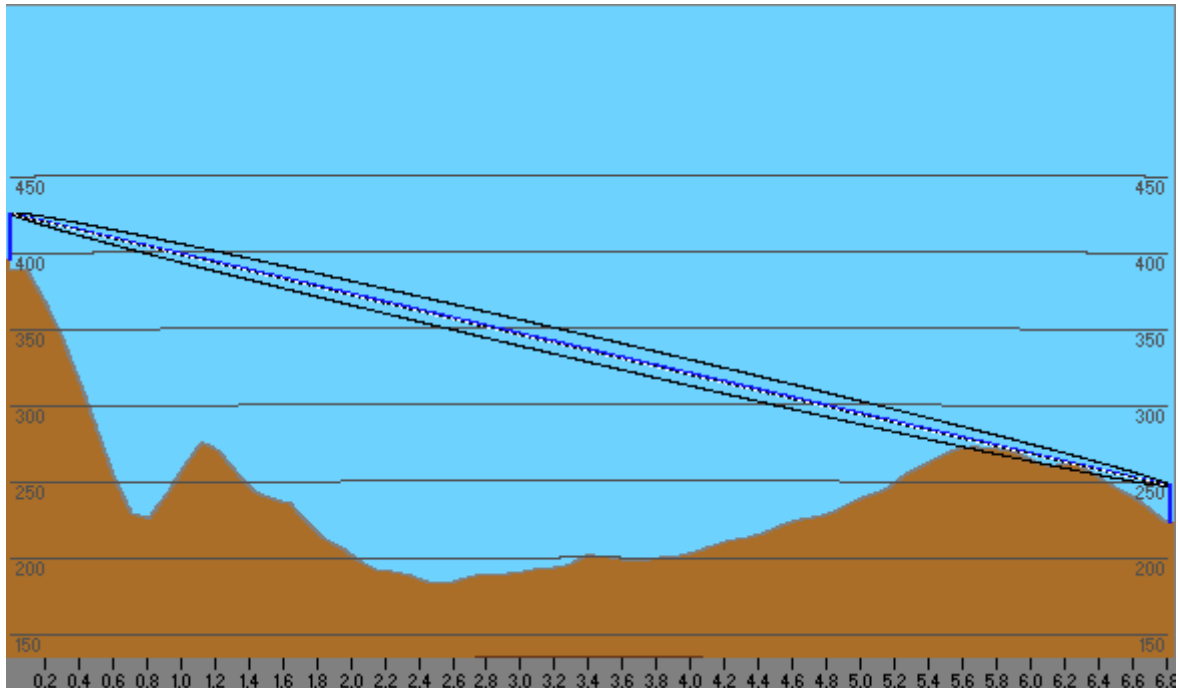
System gain from EB02 to B-DB-5I is 154,0 dB

System gain from B-DB-5I to EB02 is 154,0 dB

Worst reception is 3,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota SIFON-DB-5II



Distance between EB02 and SIFON-DB-5II is 6,8 km (4,2 miles)

True North Azimuth = 346,11°, Magnetic North Azimuth = 346,73°, Elevation angle = -1,4479°

Terrain elevation variation is 206,3 m

Propagation mode is line-of-sight, minimum clearance 0,5F1 at 5,9km

Average frequency is 2450,000 MHz

Free Space = 116,8 dB, Obstruction = 1,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 149,5 dB

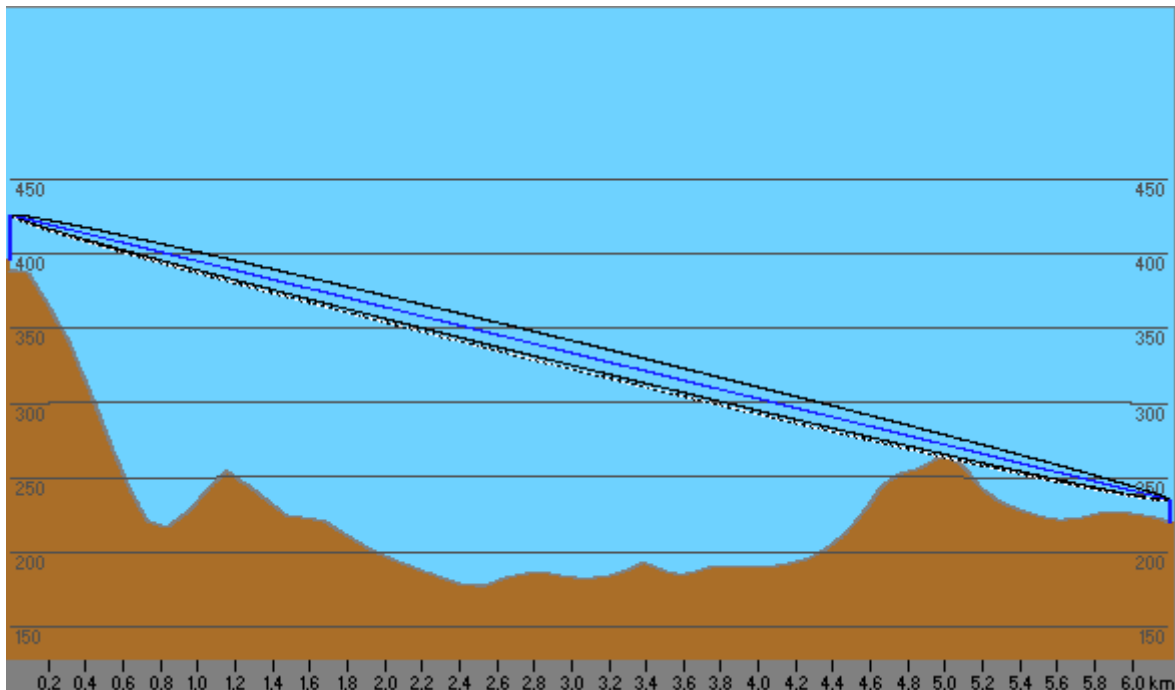
System gain from EB02 to SIFON-DB-5II is 154,0 dB

System gain from SIFON-DB-5II to EB02 is 154,0 dB

Worst reception is 4,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7C



Distance between EB02 and 7C is 6,2 km (3,8 miles)

True North Azimuth = 340,77°, Magnetic North Azimuth = 341,39°, Elevation angle = -1,6980°

Terrain elevation variation is 212,3 m

Propagation mode is line-of-sight, minimum clearance 1,1F1 at 5,0km

Average frequency is 2450,000 MHz

Free Space = 116,0 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 146,5 dB

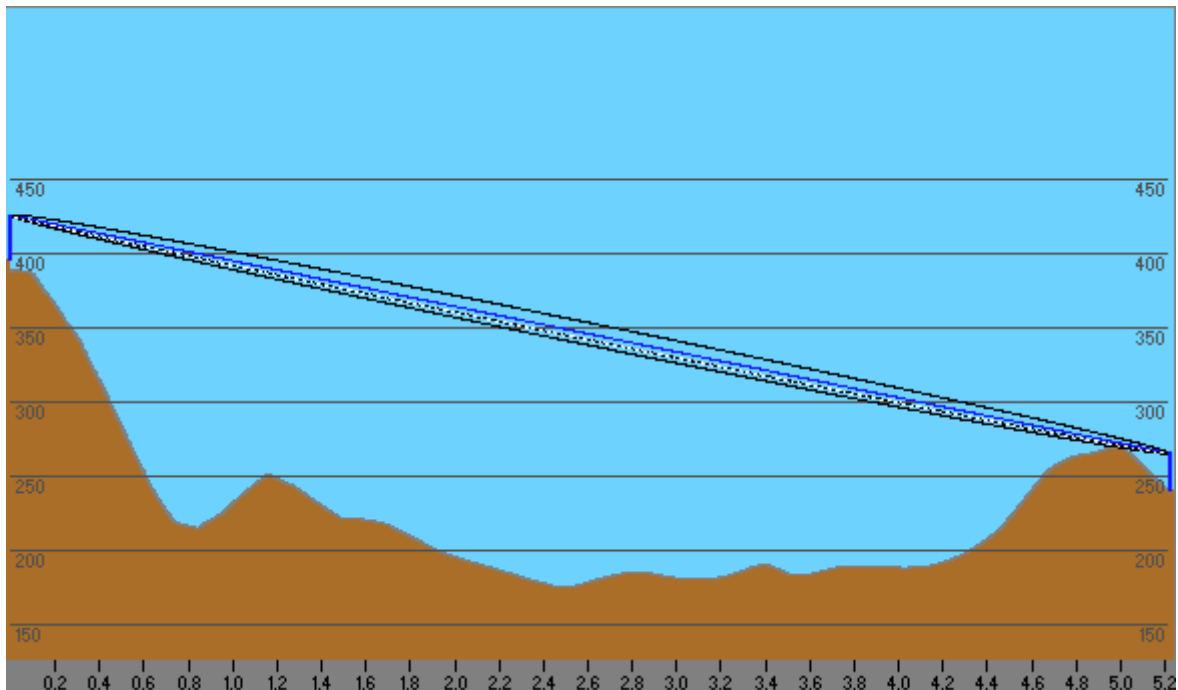
System gain from EB02 to 7C is 154,0 dB

System gain from 7C to EB02 is 154,0 dB

Worst reception is 7,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota B-DB-5III



Distance between EB02 and B-DB-5III is 5,2 km (3,2 miles)

True North Azimuth = 340,04°, Magnetic North Azimuth = 340,66°, Elevation angle = -1,6877°

Terrain elevation variation is 213,3 m

Propagation mode is line-of-sight, minimum clearance 1,3F1 at 5,0km

Average frequency is 2450,000 MHz

Free Space = 114,5 dB, Obstruction = 0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 146,2 dB

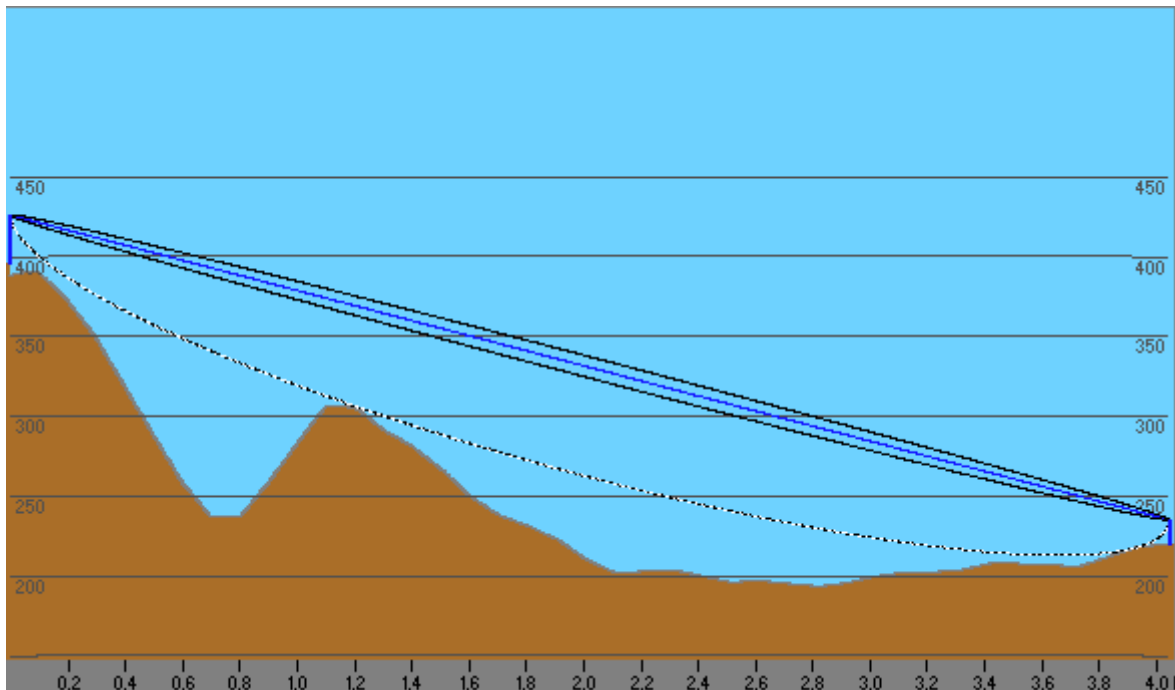
System gain from EB02 to B-DB-5III is 154,0 dB

System gain from B-DB-5III to EB02 is 154,0 dB

Worst reception is 7,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7B



Distance between EB02 and 7B is 4,0 km (2,5 miles)

True North Azimuth = 352,91°, Magnetic North Azimuth = 353,54°, Elevation angle = -2,6545°

Terrain elevation variation is 197,5 m

Propagation mode is line-of-sight, minimum clearance 6,3F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 112,3 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 144,4 dB

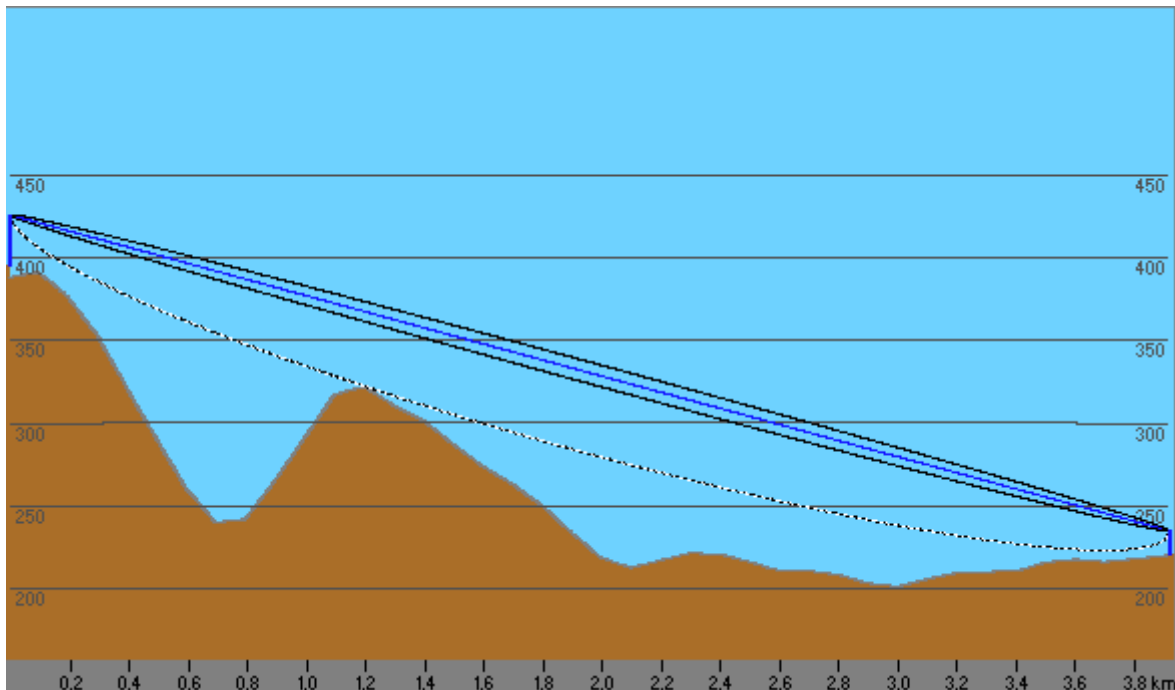
System gain from EB02 to 7B is 154,0 dB

System gain from 7B to EB02 is 154,0 dB

Worst reception is 9,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7A



Distance between EB02 and 7A is 3,9 km (2,4 miles)

True North Azimuth = 357,53°, Magnetic North Azimuth = 358,15°, Elevation angle = -2,7384°

Terrain elevation variation is 190,1 m

Propagation mode is line-of-sight, minimum clearance 4,6F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 112,0 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 142,5 dB

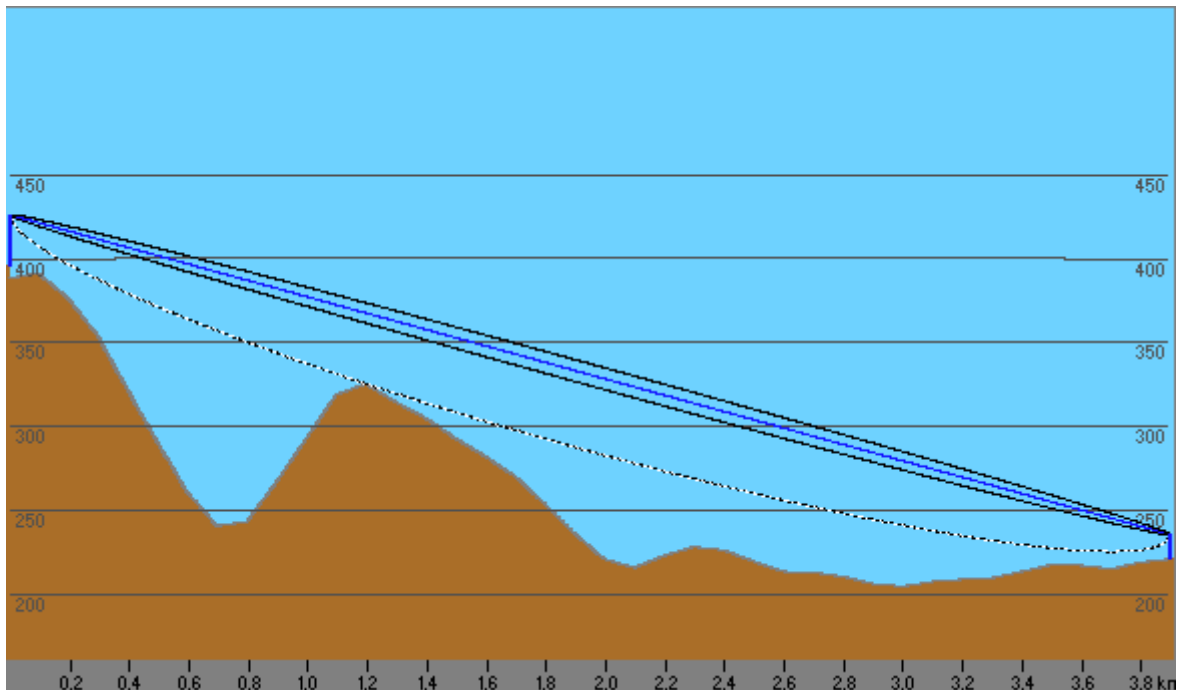
System gain from EB02 to 7A is 154,0 dB

System gain from 7A to EB02 is 154,0 dB

Worst reception is 11,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7A-2



Distance between EB02 and 7A-2 is 3,9 km (2,4 miles)

True North Azimuth = 358,65°, Magnetic North Azimuth = 359,27°, Elevation angle = -2,7555°

Terrain elevation variation is 187,0 m

Propagation mode is line-of-sight, minimum clearance 4,2F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 112,0 dB, Obstruction = 0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 143,5 dB

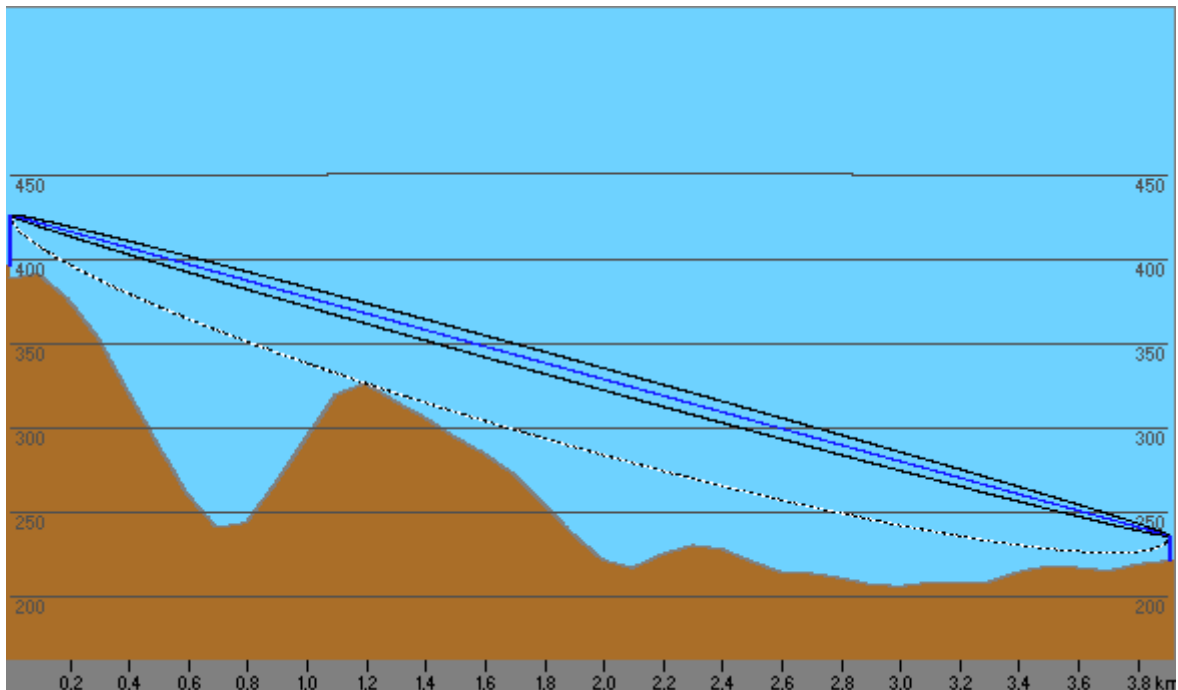
System gain from EB02 to 7A-2 is 154,0 dB

System gain from 7A-2 to EB02 is 154,0 dB

Worst reception is 10,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota B-PORTACHUELO



Distance between EB02 and B-PORTACHUELO is 3,9 km (2,4 miles)

True North Azimuth = 359,00°, Magnetic North Azimuth = 359,62°, Elevation angle = -2,7421°

Terrain elevation variation is 185,6 m

Propagation mode is line-of-sight, minimum clearance 4,2F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 112,0 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 142,5 dB

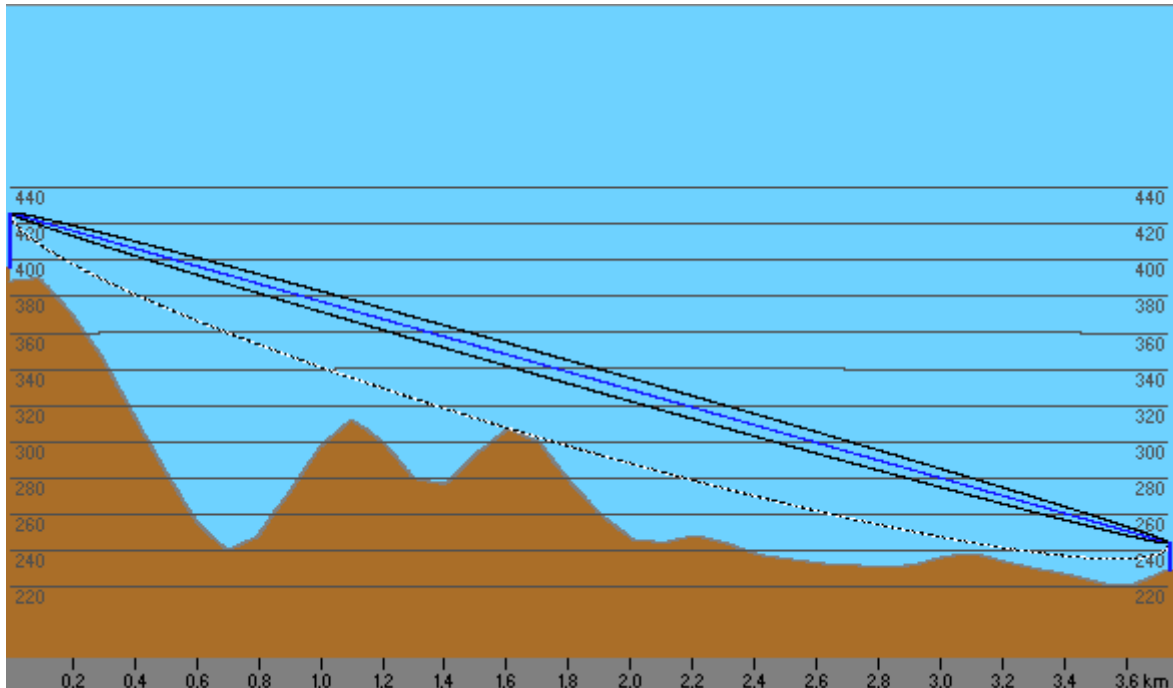
System gain from EB02 to B-PORTACHUELO is 154,0 dB

System gain from B-PORTACHUELO to EB02 is 154,0 dB

Worst reception is 11,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7A-1



Distance between EB02 and 7A-1 is 3,7 km (2,3 miles)

True North Azimuth = 6,43°, Magnetic North Azimuth = 7,06°, Elevation angle = -2,7039°

Terrain elevation variation is 168,0 m

Propagation mode is line-of-sight, minimum clearance 4,0F1 at 1,6km

Average frequency is 2450,000 MHz

Free Space = 111,6 dB, Obstruction = 0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 143,2 dB

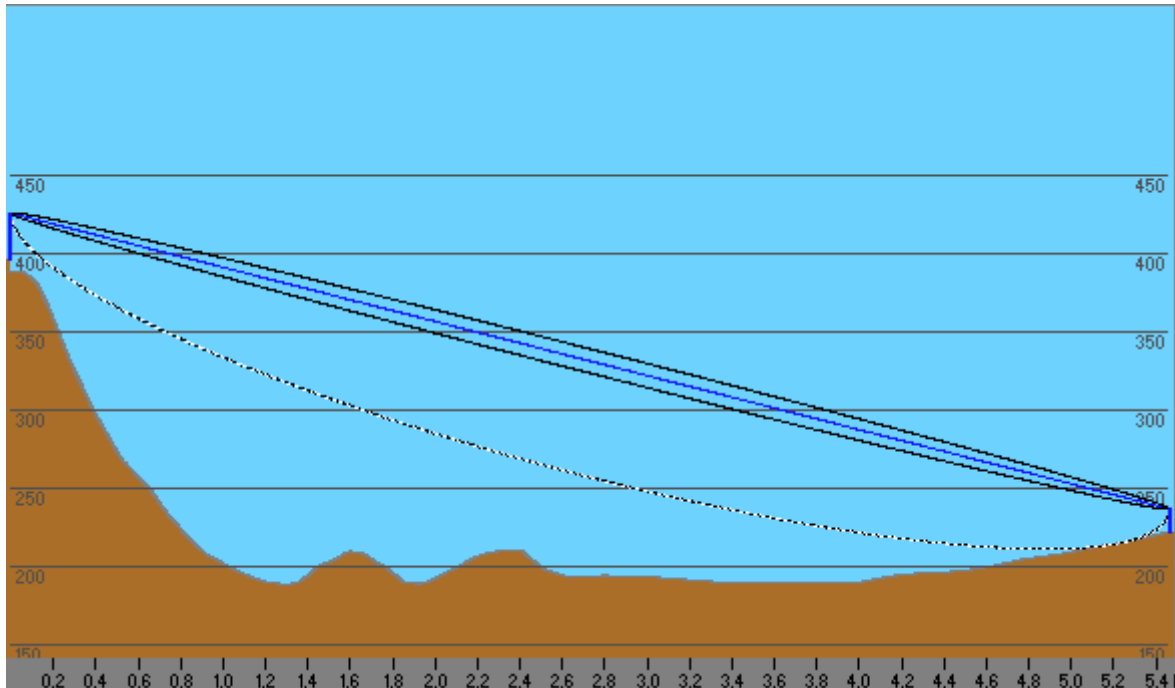
System gain from EB02 to 7A-1 is 154,0 dB

System gain from 7A-1 to EB02 is 154,0 dB

Worst reception is 10,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 7



Distance between EB02 and 7 is 5,5 km (3,4 miles)

True North Azimuth = 48,71°, Magnetic North Azimuth = 49,33°, Elevation angle = -1,9823°

Terrain elevation variation is 200,9 m

Propagation mode is line-of-sight, minimum clearance 5,5F1 at 5,3km

Average frequency is 2450,000 MHz

Free Space = 114,9 dB, Obstruction = -2,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 143,2 dB

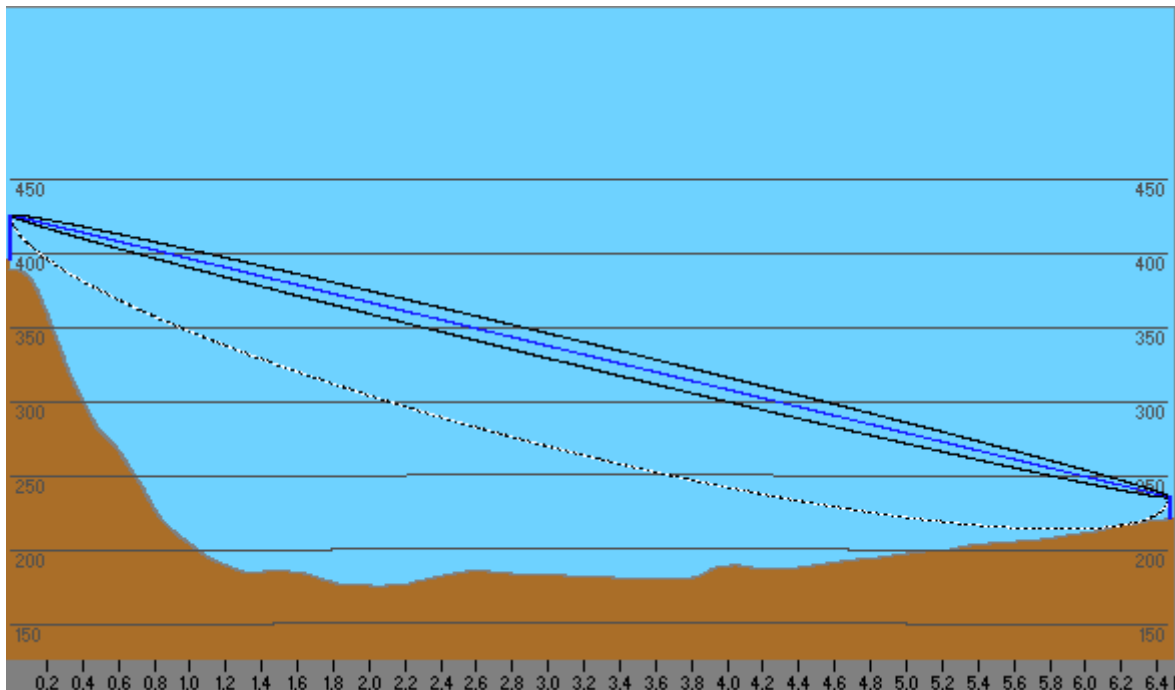
System gain from EB02 to 7 is 154,0 dB

System gain from 7 to EB02 is 154,0 dB

Worst reception is 10,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 6A-PTAP CHAO



Distance between EB02 and 6A- PTAP CHAO is 6,5 km (4,0 miles)

True North Azimuth = 53,98°, Magnetic North Azimuth = 54,60°, Elevation angle = -1,6802°

Terrain elevation variation is 214,0 m

Propagation mode is line-of-sight, minimum clearance 4,8F1 at 6,2km

Average frequency is 2450,000 MHz

Free Space = 116,4 dB, Obstruction = -3,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 144,5 dB

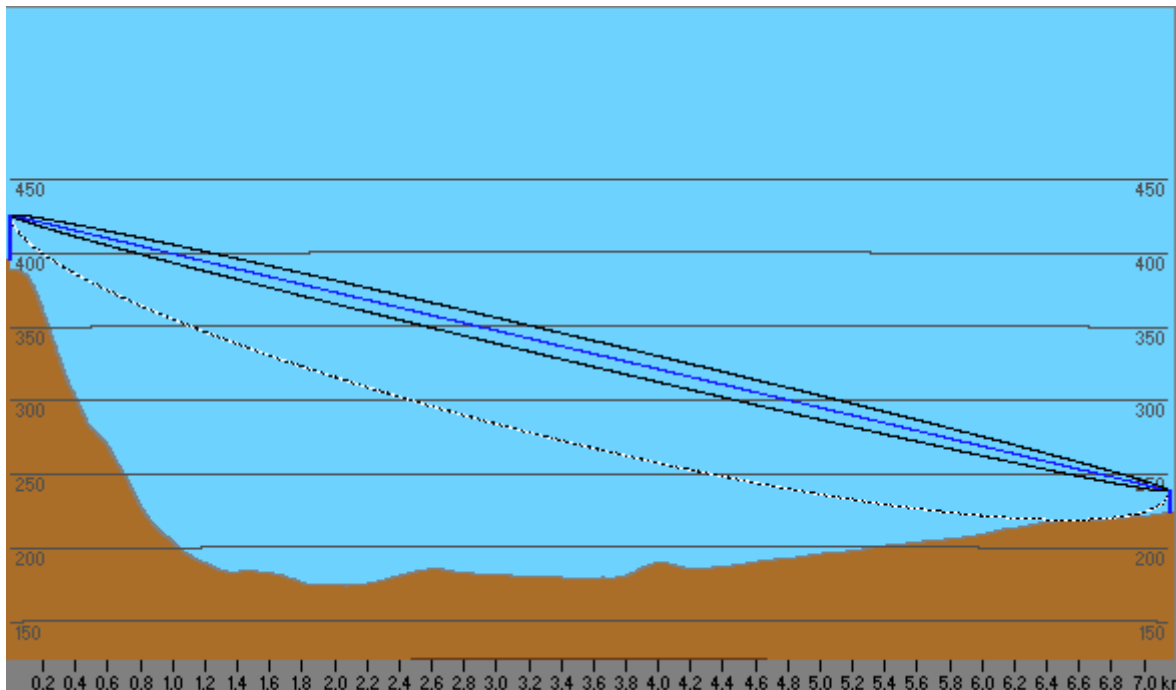
System gain from EB02 to 6A- PTAP CHAO is 154,0 dB

System gain from 6A- PTAP CHAO to EB02 is 154,0 dB

Worst reception is 9,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 6A



Distance between EB02 and 6A is 7,1 km (4,4 miles)

True North Azimuth = 54,85°, Magnetic North Azimuth = 55,47°, Elevation angle = -1,4875°

Terrain elevation variation is 215,1 m

Propagation mode is line-of-sight, minimum clearance 4,5F1 at 6,5km

Average frequency is 2450,000 MHz

Free Space = 117,3 dB, Obstruction = 3,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 152,3 dB

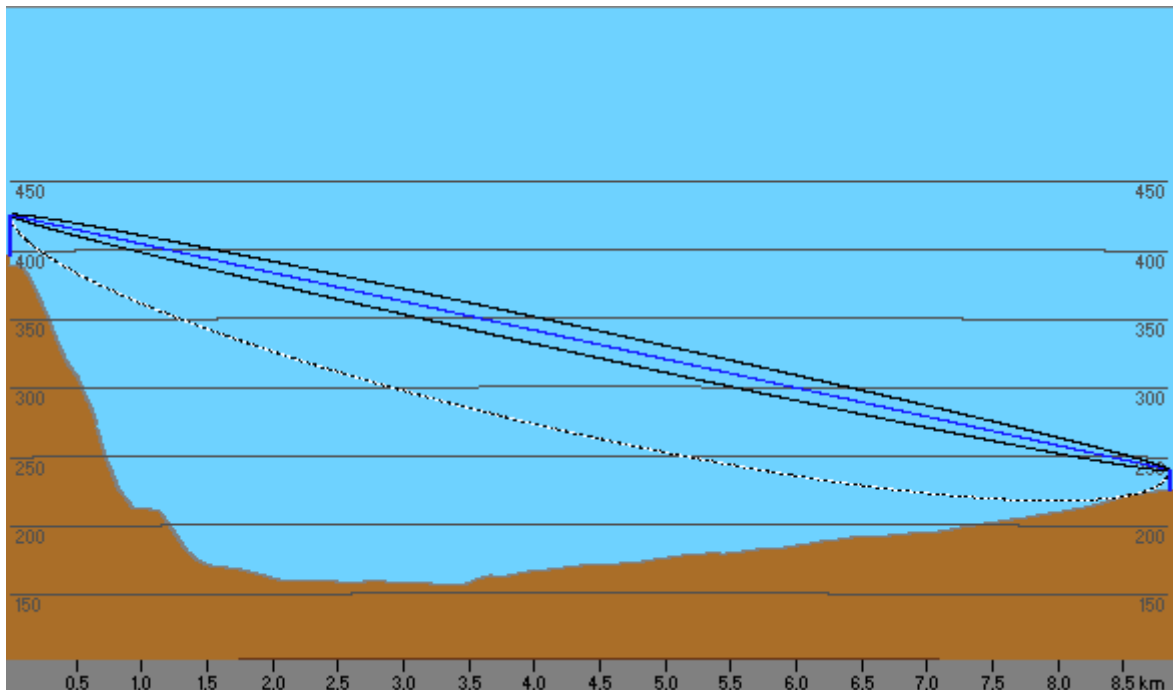
System gain from EB02 to 6A is 154,0 dB

System gain from 6A to EB02 is 154,0 dB

Worst reception is 1,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 6



Distance between EB02 and 6 is 8,8 km (5,5 miles)

True North Azimuth = 72,31°, Magnetic North Azimuth = 72,93°, Elevation angle = -1,2165°

Terrain elevation variation is 233,2 m

Propagation mode is line-of-sight, minimum clearance 4,2F1 at 8,5km

Average frequency is 2450,000 MHz

Free Space = 119,1 dB, Obstruction = 1,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 151,7 dB

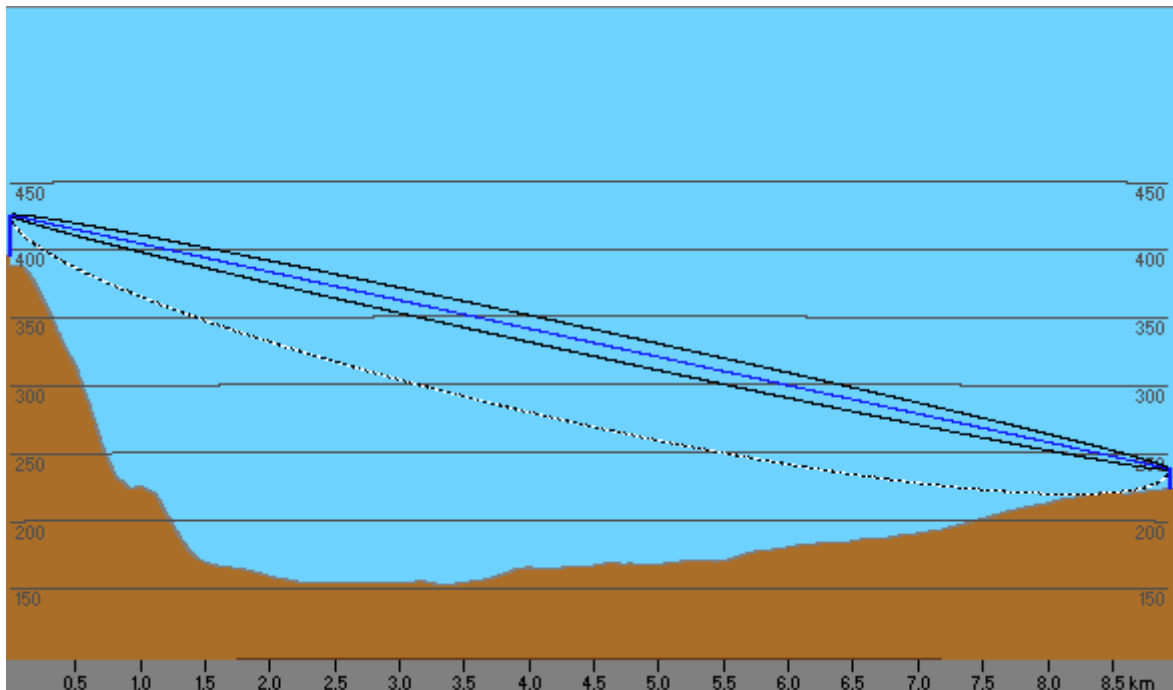
System gain from EB02 to 6 is 154,0 dB

System gain from 6 to EB02 is 154,0 dB

Worst reception is 2,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 5



Distance between EB02 and 5 is 8,9 km (5,5 miles)

True North Azimuth = 77,12°, Magnetic North Azimuth = 77,74°, Elevation angle = -1,2169°

Terrain elevation variation is 237,0 m

Propagation mode is line-of-sight, minimum clearance 3,9F1 at 8,4km

Average frequency is 2450,000 MHz

Free Space = 119,2 dB, Obstruction = -0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 149,7 dB

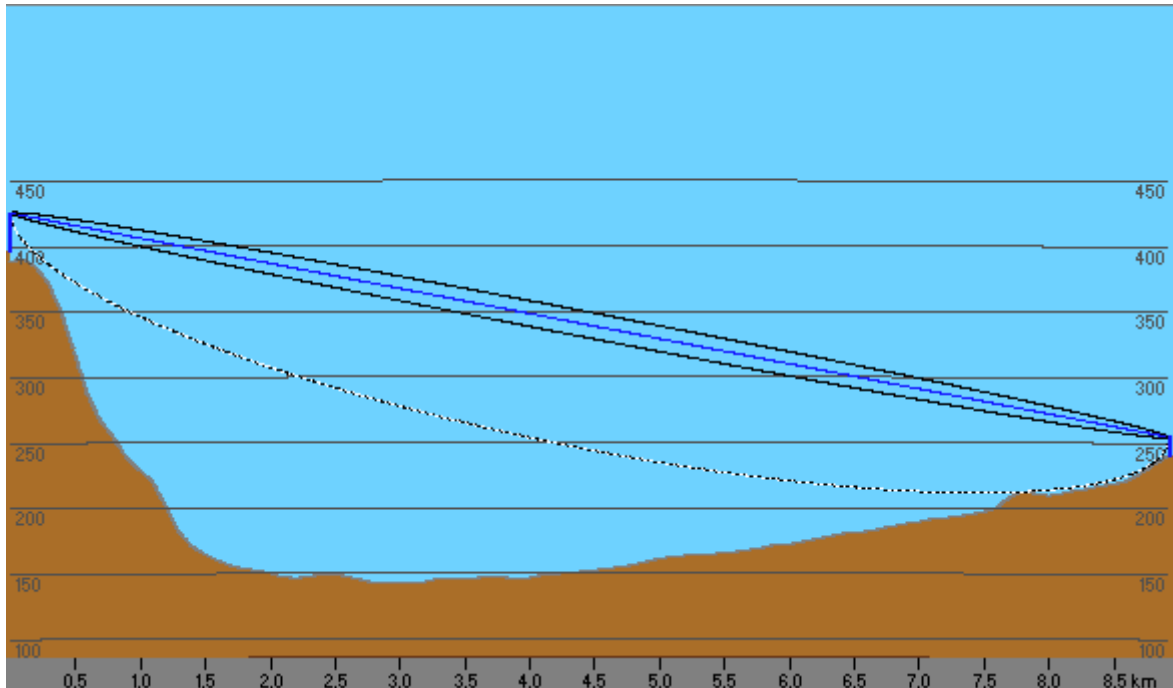
System gain from EB02 to 5 is 154,0 dB

System gain from 5 to EB02 is 154,0 dB

Worst reception is 4,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 4



Distance between EB02 and 4 is 8,9 km (5,5 miles)

True North Azimuth = 89,59°, Magnetic North Azimuth = 90,21°, Elevation angle = -1,1381°

Terrain elevation variation is 249,5 m

Propagation mode is line-of-sight, minimum clearance 5,8F1 at 7,8km

Average frequency is 2450,000 MHz

Free Space = 119,2 dB, Obstruction = -1,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 149,3 dB

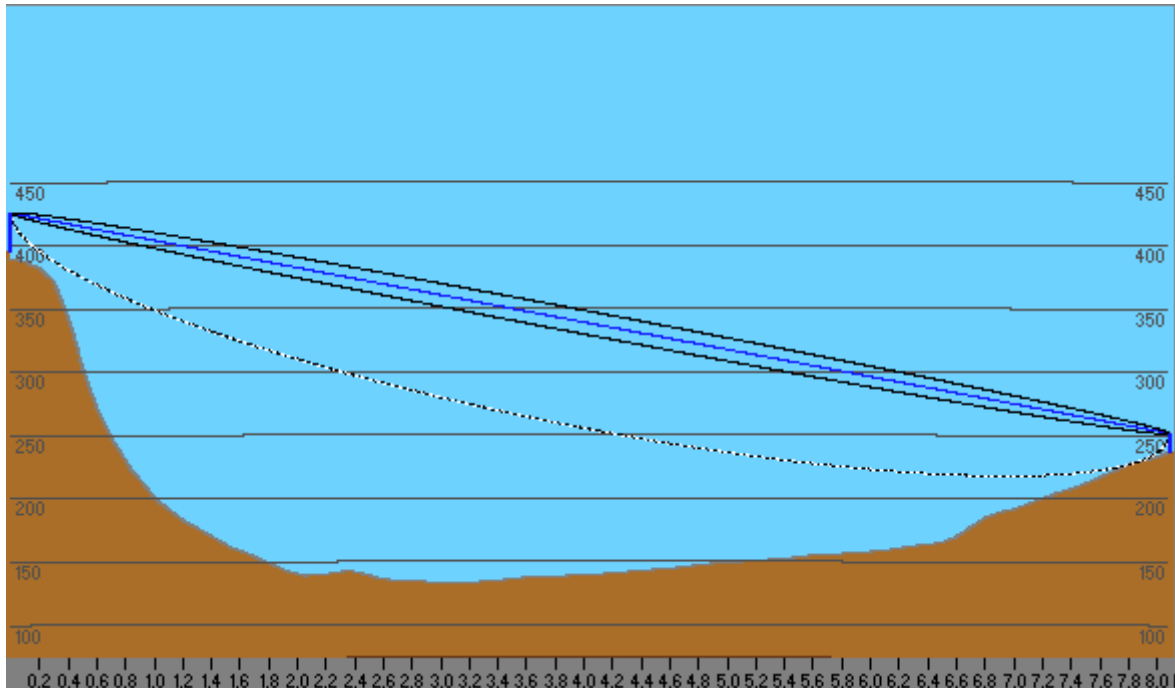
System gain from EB02 to 4 is 154,0 dB

System gain from 4 to EB02 is 154,0 dB

Worst reception is 4,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota B- MONTEGRANDE



Distance between EB02 and B-MONTEGRANDE is 8,1 km (5,0 miles)

True North Azimuth = 103,92°, Magnetic North Azimuth = 104,54°, Elevation angle = -1,2513°

Terrain elevation variation is 256,8 m

Propagation mode is line-of-sight, minimum clearance 6,1F1 at 7,8km

Average frequency is 2450,000 MHz

Free Space = 118,3 dB, Obstruction = -0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 148,8 dB

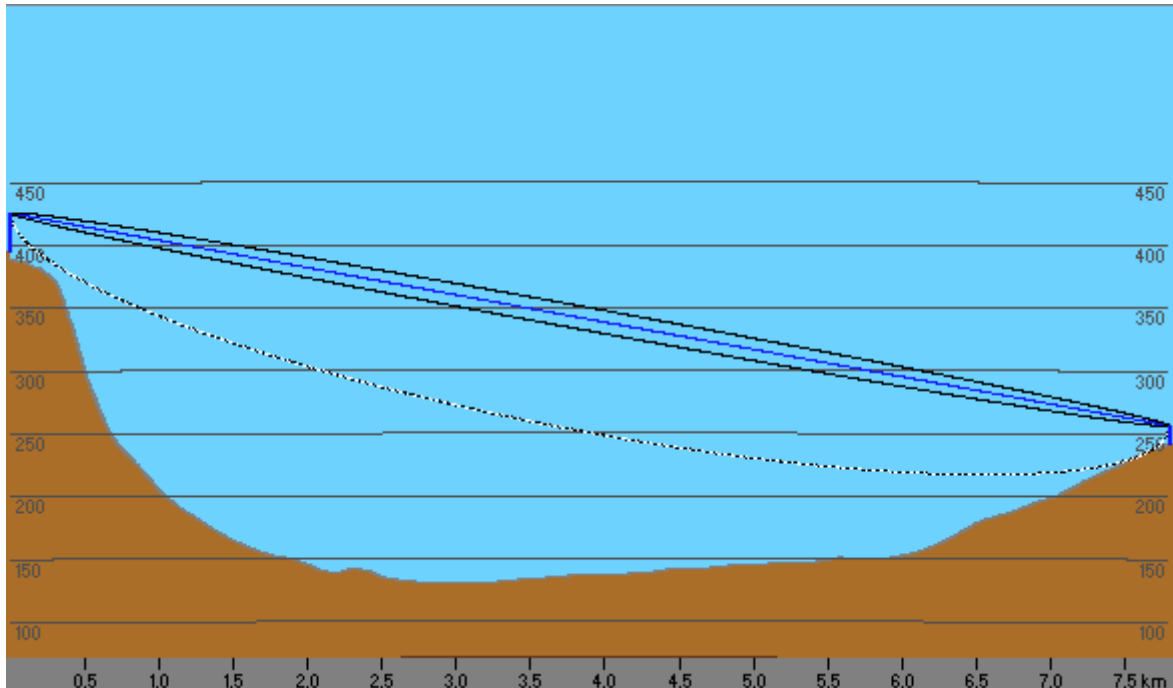
System gain from EB02 to B-MONTEGRANDE is 154,0 dB

System gain from B-MONTEGRANDE to EB02 is 154,0 dB

Worst reception is 5,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 3B



Distance between EB02 and 3B is 7,8 km (4,8 miles)

True North Azimuth = 107,77°, Magnetic North Azimuth = 108,39°, Elevation angle = -1,2761°

Terrain elevation variation is 259,0 m

Propagation mode is line-of-sight, minimum clearance 6,3F1 at 7,6km

Average frequency is 2450,000 MHz

Free Space = 118,0 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 150,1 dB

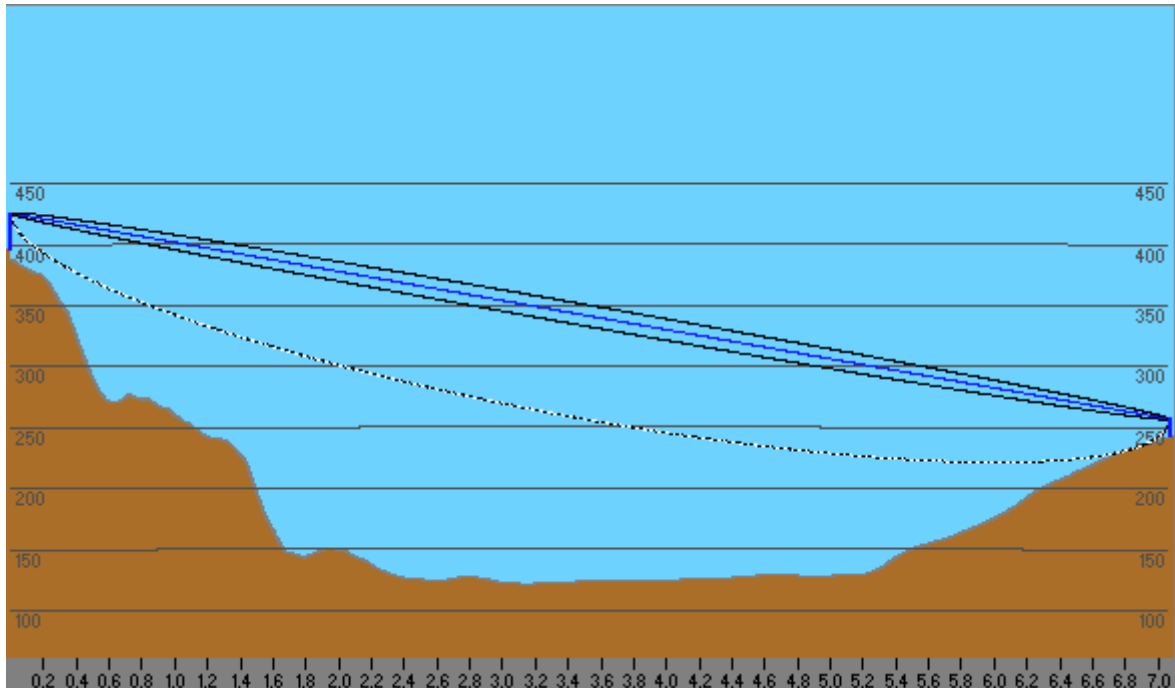
System gain from EB02 to 3B is 154,0 dB

System gain from 3B to EB02 is 154,0 dB

Worst reception is 3,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota B-SAN CARLOS ALTO



Distance between EB02 and B-SAN CARLOS ALTO is 7,1 km (4,4 miles)

True North Azimuth = 124,00°, Magnetic North Azimuth = 124,62°, Elevation angle = -1,4279°

Terrain elevation variation is 267,9 m

Propagation mode is line-of-sight, minimum clearance 5,9F1 at 6,9km

Average frequency is 2450,000 MHz

Free Space = 117,2 dB, Obstruction = 0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 149,0 dB

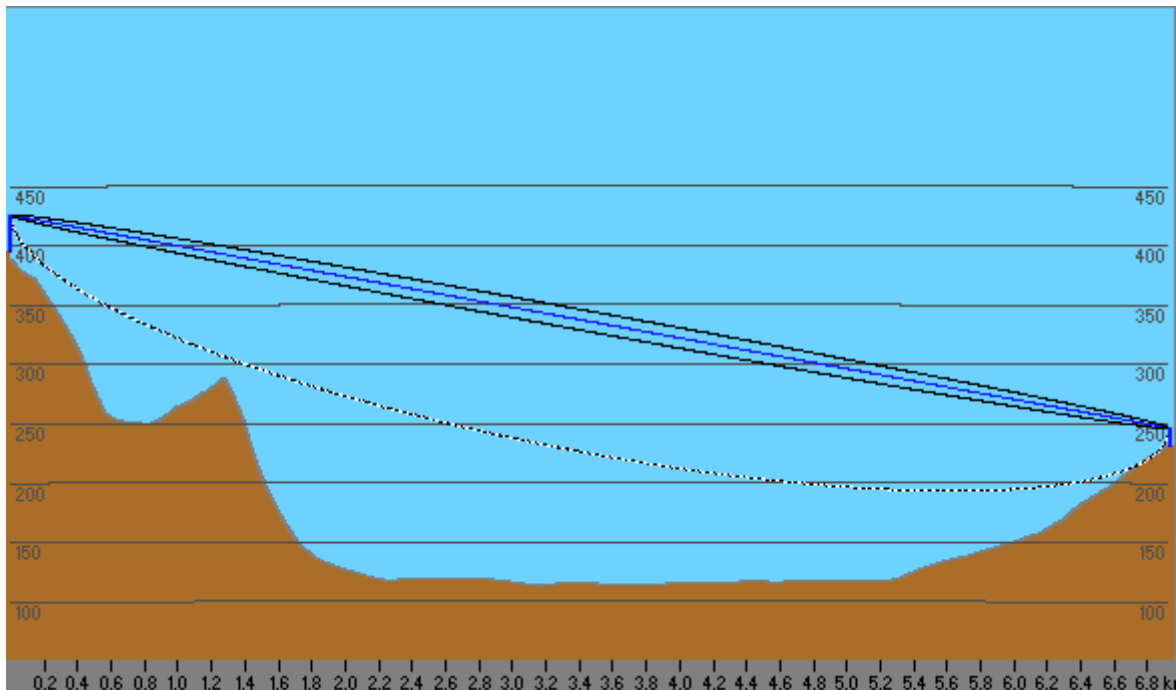
System gain from EB02 to B-SAN CARLOS ALTO is 154,0 dB

System gain from B-SAN CARLOS ALTO to EB02 is 154,0 dB

Worst reception is 5,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 3A



Distance between EB02 and 3A is 6,9 km (4,3 miles)

True North Azimuth = 135,75°, Magnetic North Azimuth = 136,37°, Elevation angle = -1,4909°

Terrain elevation variation is 276,0 m

Propagation mode is line-of-sight, minimum clearance 9,4F1 at 6,7km

Average frequency is 2450,000 MHz

Free Space = 117,0 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 149,1 dB

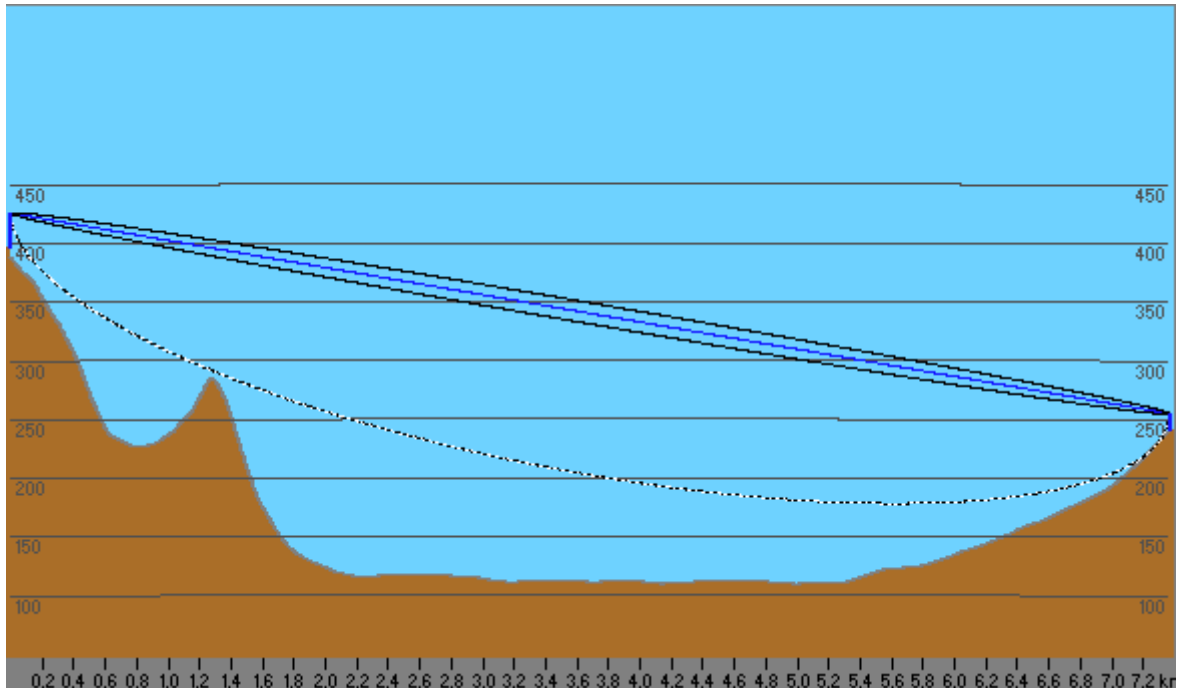
System gain from EB02 to 3A is 154,0 dB

System gain from 3A to EB02 is 154,0 dB

Worst reception is 4,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 2 – Estación remota 3-II



Distance between EB02 and 3-II is 7,4 km (4,6 miles)

True North Azimuth = 141,22°, Magnetic North Azimuth = 141,84°, Elevation angle = -1,3152°

Terrain elevation variation is 279,5 m

Propagation mode is line-of-sight, minimum clearance 9,9F1 at 1,3km

Average frequency is 2450,000 MHz

Free Space = 117,5 dB, Obstruction = 0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 149,1 dB

System gain from EB02 to 3-II is 154,0 dB

System gain from 3-II to EB02 is 154,0 dB

Worst reception is 4,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

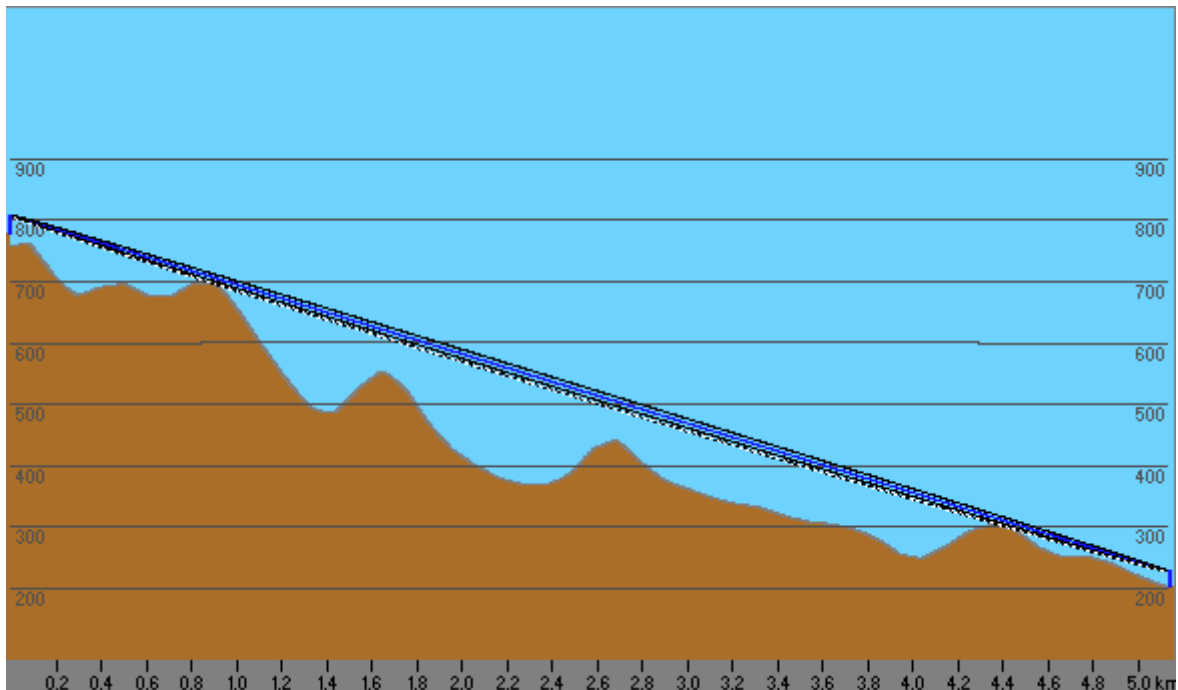
8.3 Estación base 3 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 23. Grupo Estación Base 3

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
11B	737234	9078932	EB03	25 m	
11A	739038	9076658	EB03	15 m	
11A-II	739018	9076614	EB03	15 m	
11A-I	742253	9075321	EB03	25 m	
11-II	742952	9075261	EB03	15 m	
11	743268	9075137	EB03	15 m	
10-II	743973	9073478	EB03	15 m	

- Estación Base 3 – Estación remota 11B



Distance between EB03 and 11B is 5,1 km (3,2 miles)

True North Azimuth = 285,65°, Magnetic North Azimuth = 286,22°, Elevation angle = -6,3612°

Terrain elevation variation is 556,1 m

Propagation mode is line-of-sight, minimum clearance 1,3F1 at 0,9km

Average frequency is 2450,000 MHz

Free Space = 114,4 dB, Obstruction = 0,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 145,8 dB

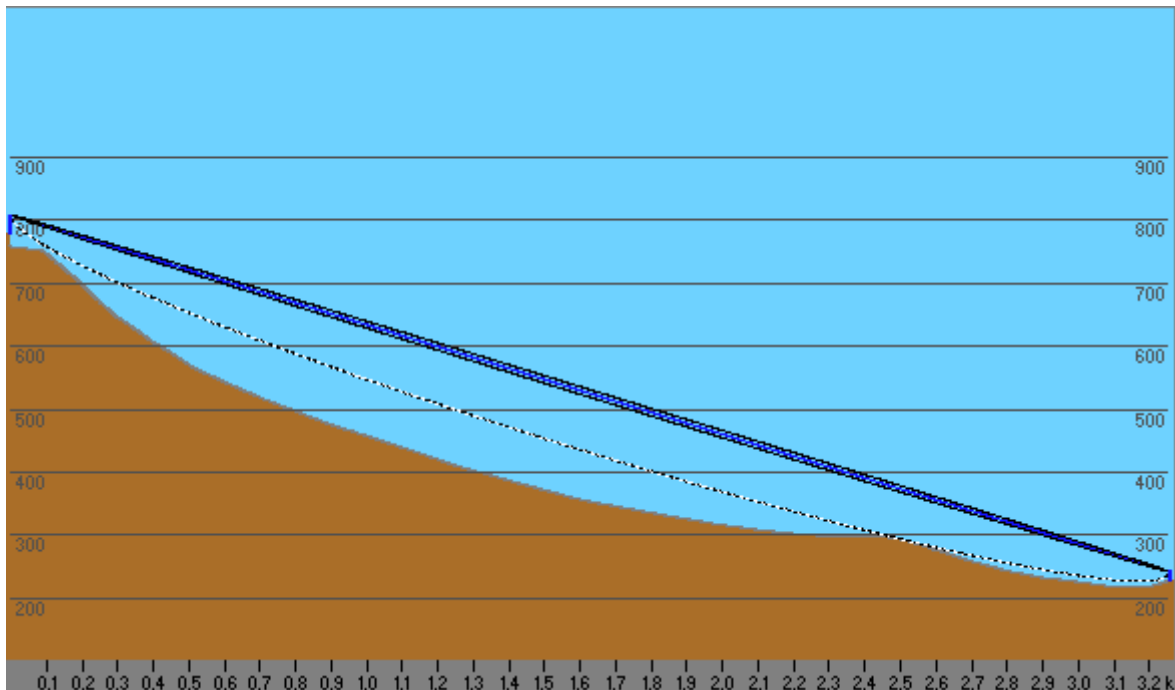
System gain from EB03 to 11B is 154,0 dB

System gain from 11B to EB03 is 154,0 dB

Worst reception is 8,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 11A



Distance between EB03 and 11A is 3,3 km (2,0 miles)

True North Azimuth = 254,10°, Magnetic North Azimuth = 254,67°, Elevation angle = -9,8382°

Terrain elevation variation is 539,9 m

Propagation mode is line-of-sight, minimum clearance 9,8F1 at 2,5km

Average frequency is 2450,000 MHz

Free Space = 110,6 dB, Obstruction = 15,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 157,5 dB

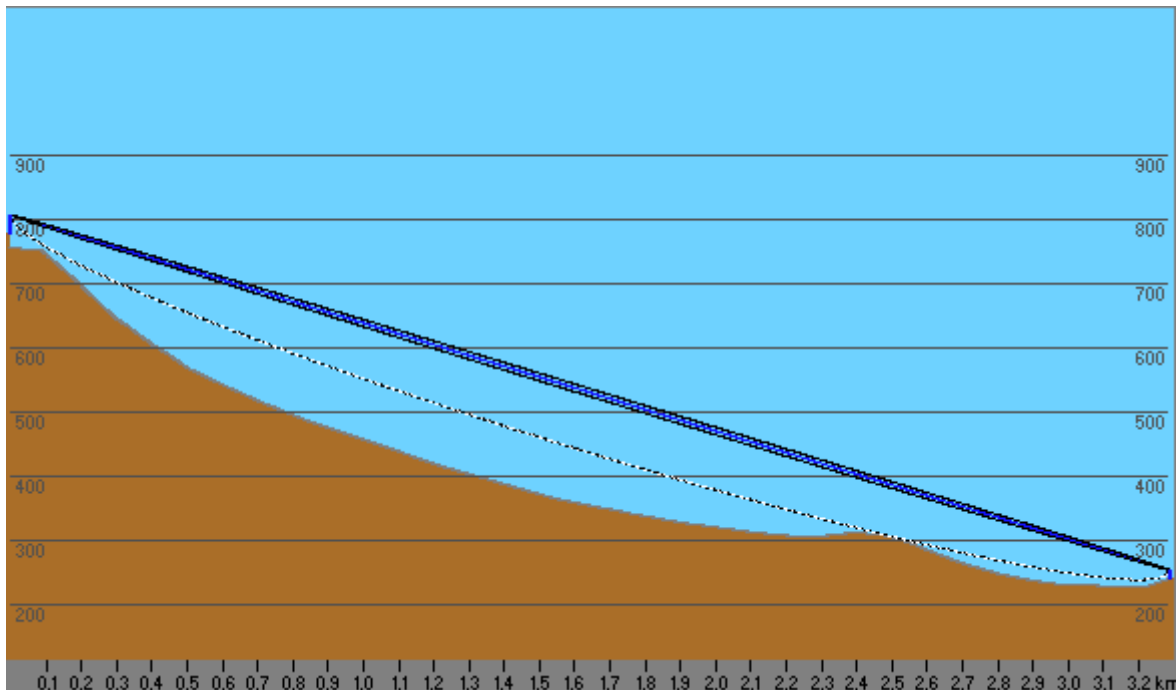
System gain from EB03 to 11A is 154,0 dB

System gain from 11A to EB03 is 154,0 dB

Worst reception is 3,5 dB below the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 11A-II



Distance between EB03 and 11A-II is 3,3 km (2,0 miles)

True North Azimuth = 253,45°, Magnetic North Azimuth = 254,02°, Elevation angle = -9,5722°

Terrain elevation variation is 531,5 m

Propagation mode is line-of-sight, minimum clearance 9,6F1 at 2,5km

Average frequency is 2450,000 MHz

Free Space = 110,6 dB, Obstruction = -3,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 138,6 dB

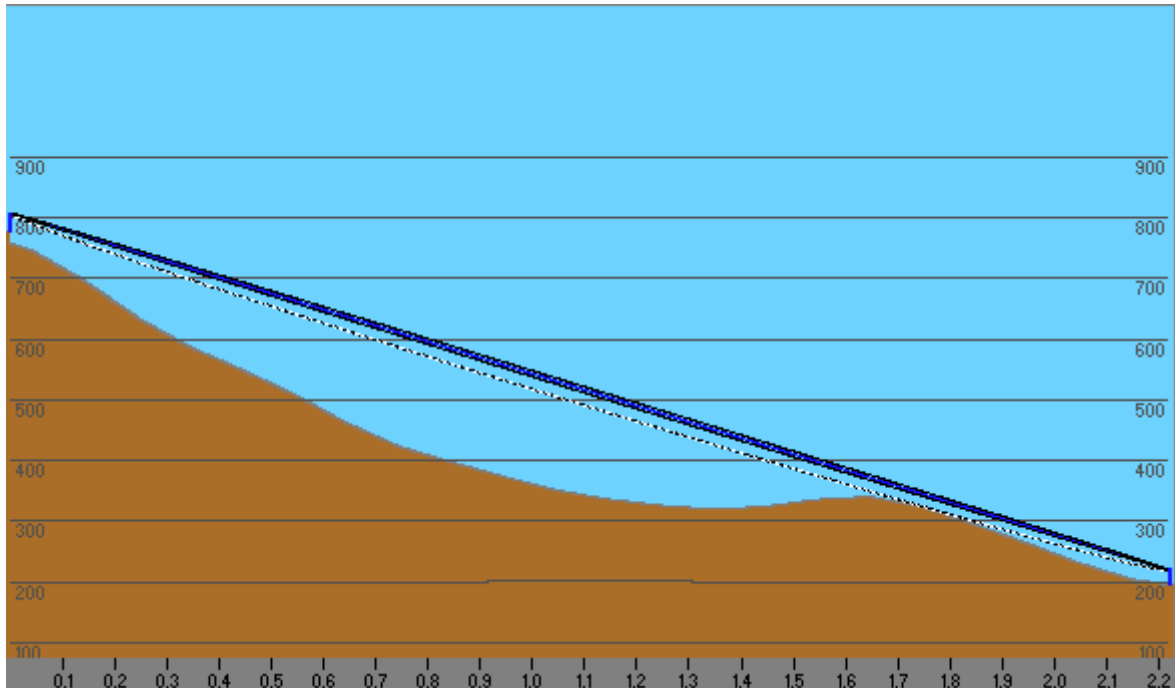
System gain from EB03 to 11A-II is 154,0 dB

System gain from 11A-II to EB03 is 154,0 dB

Worst reception is 15,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 11A-I



Distance between EB03 and 11A-I is 2,2 km (1,4 miles)

True North Azimuth = 177,68°, Magnetic North Azimuth = 178,25°, Elevation angle = -14,8941°

Terrain elevation variation is 564,4 m

Propagation mode is line-of-sight, minimum clearance 3,5F1 at 1,7km

Average frequency is 2450,000 MHz

Free Space = 107,4 dB, Obstruction = -1,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 137,0 dB

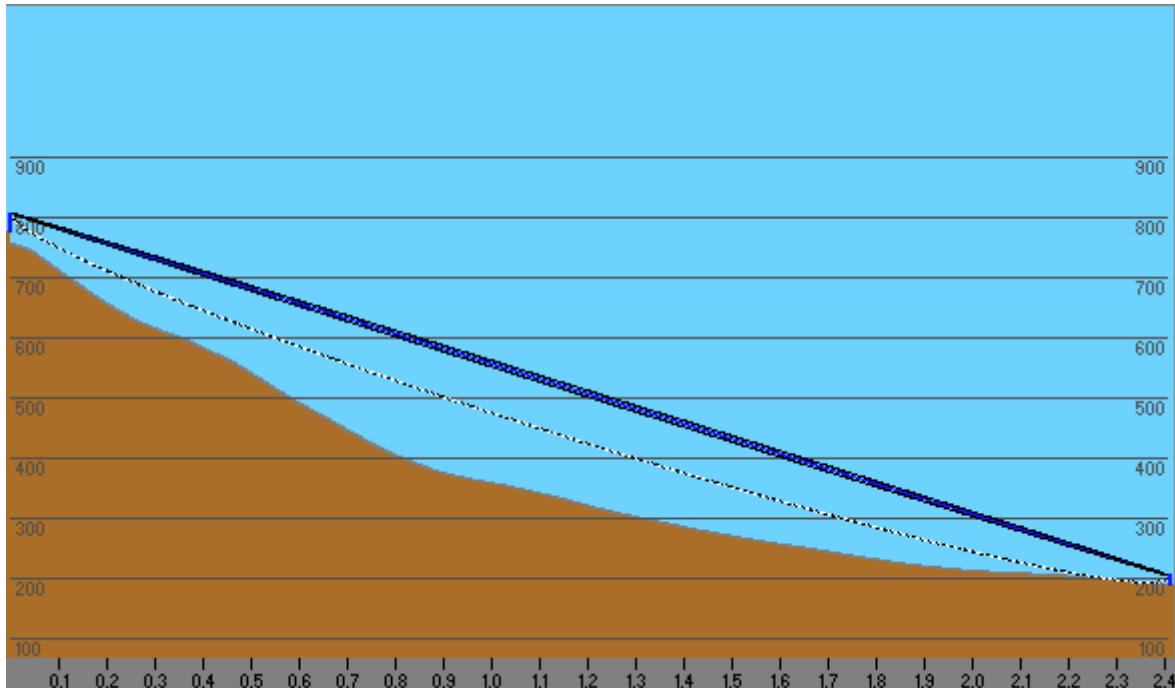
System gain from EB03 to 11A-I is 154,0 dB

System gain from 11A-I to EB03 is 154,0 dB

Worst reception is 17,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 11-II



Distance between EB03 and 11-II is 2,4 km (1,5 miles)

True North Azimuth = 160,88°, Magnetic North Azimuth = 161,45°, Elevation angle = -14,0565°

Terrain elevation variation is 568,6 m

Propagation mode is line-of-sight, minimum clearance 10,2F1 at 2,3km

Average frequency is 2450,000 MHz

Free Space = 108,1 dB, Obstruction = -5,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 133,9 dB

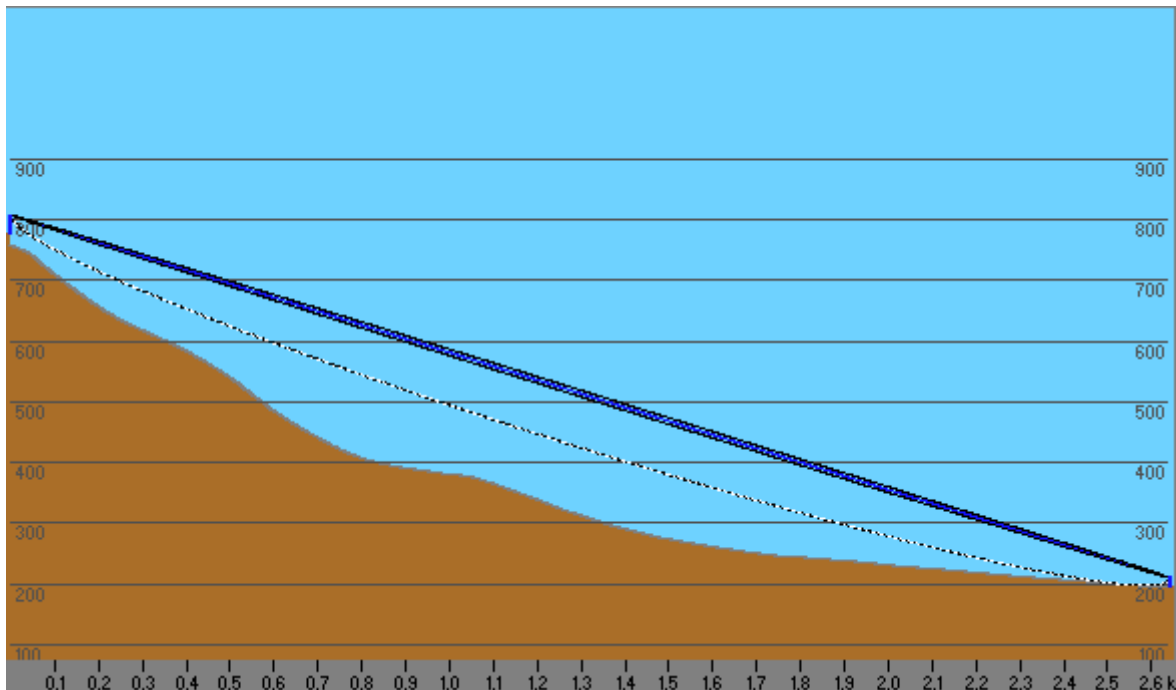
System gain from EB03 to 11-II is 154,0 dB

System gain from 11-II to EB03 is 154,0 dB

Worst reception is 20,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 11



Distance between EB03 and 11 is 2,6 km (1,6 miles)

True North Azimuth = 155,27°, Magnetic North Azimuth = 155,83°, Elevation angle = -12,6899°

Terrain elevation variation is 564,0 m

Propagation mode is line-of-sight, minimum clearance 11,7F1 at 2,5km

Average frequency is 2450,000 MHz

Free Space = 108,8 dB, Obstruction = -0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 139,3 dB

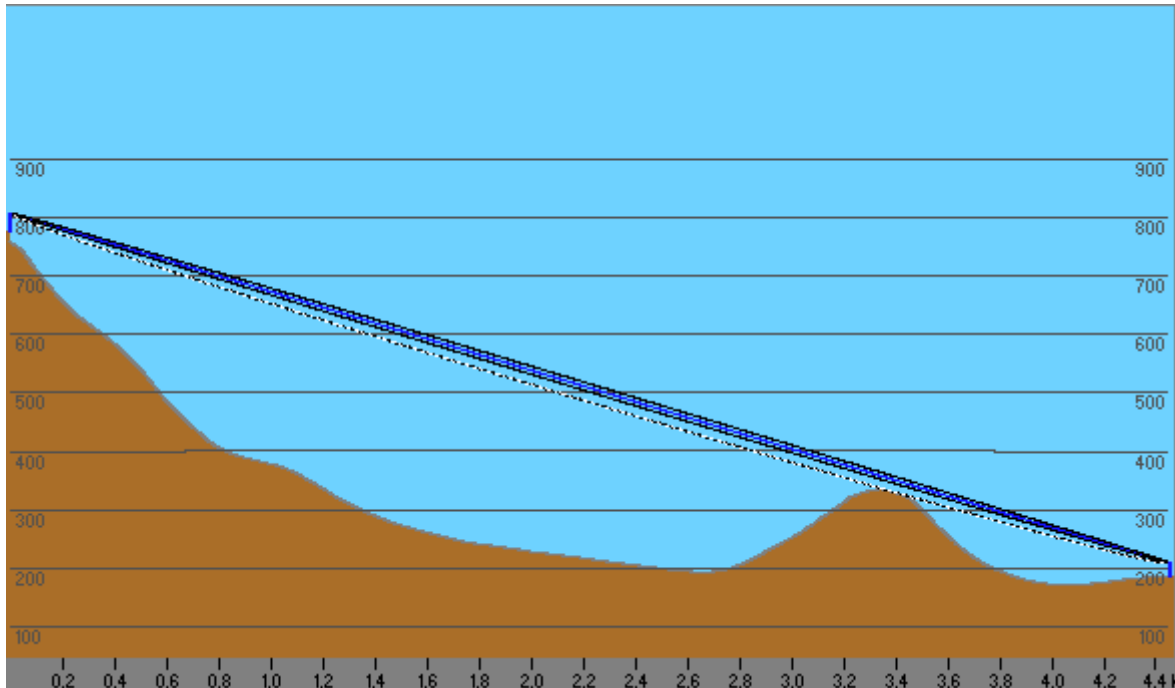
System gain from EB03 to 11 is 154,0 dB

System gain from 11 to EB03 is 154,0 dB

Worst reception is 14,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 3 – Estación remota 10-II



Distance between EB03 and 10-II is 4,4 km (2,8 miles)

True North Azimuth = 155,89°, Magnetic North Azimuth = 156,45°, Elevation angle = -7,6848°

Terrain elevation variation is 587,5 m

Propagation mode is line-of-sight, minimum clearance 2,6F1 at 3,3km

Average frequency is 2450,000 MHz

Free Space = 113,2 dB, Obstruction = -0,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 144,2 dB

System gain from EB03 to 10-II is 154,0 dB

System gain from 10-II to EB03 is 154,0 dB

Worst reception is 9,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

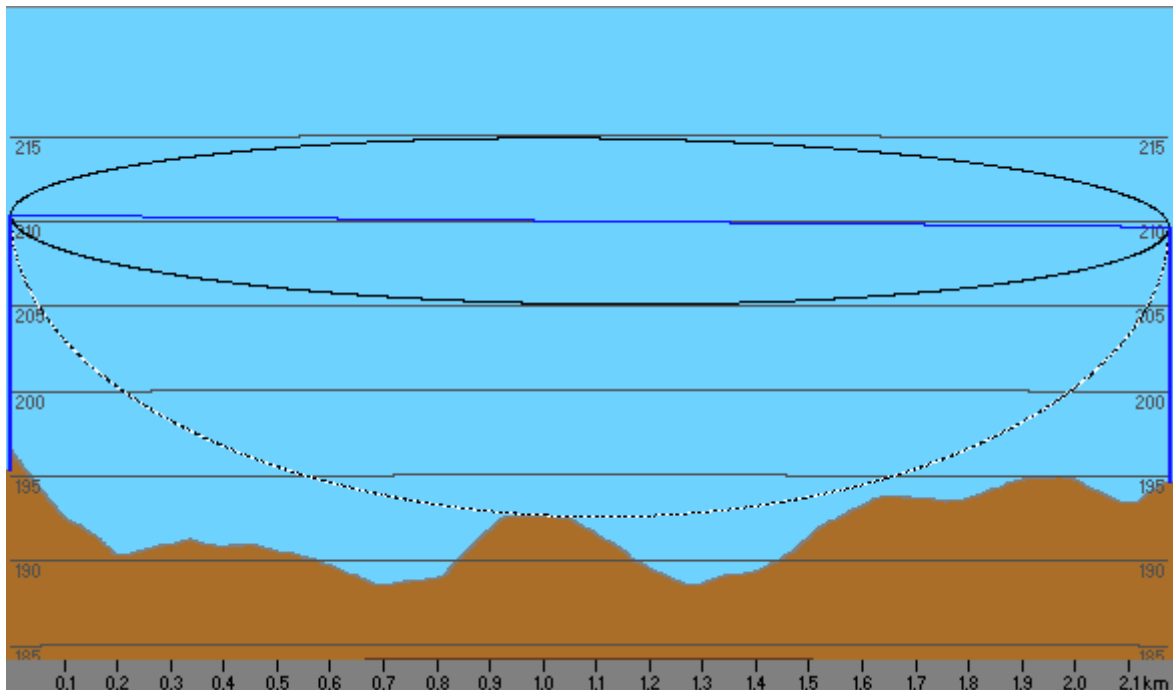
8.4 Estación base 4 - enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 24. Grupo Estación Base 4

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
11D	736613	9084973	EB04	15 m	B1
B1	737754	9083130	EB04	15 m	
B-RIO SECO	737745	9082885	EB04	15 m	
11C	737580	9082487	EB04	15 m	

- Estación remota 11D – Estación remota B1



Distance between 11D and B1 is 2,2 km (1,4 miles)

True North Azimuth = $148,10^\circ$, Magnetic North Azimuth = $148,64^\circ$, Elevation angle = $-0,0012^\circ$

Terrain elevation variation is 8,1 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 1,0km

Average frequency is 2450,000 MHz

Free Space = 106,9 dB, Obstruction = -2,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,1 dB

Total propagation loss is 134,6 dB

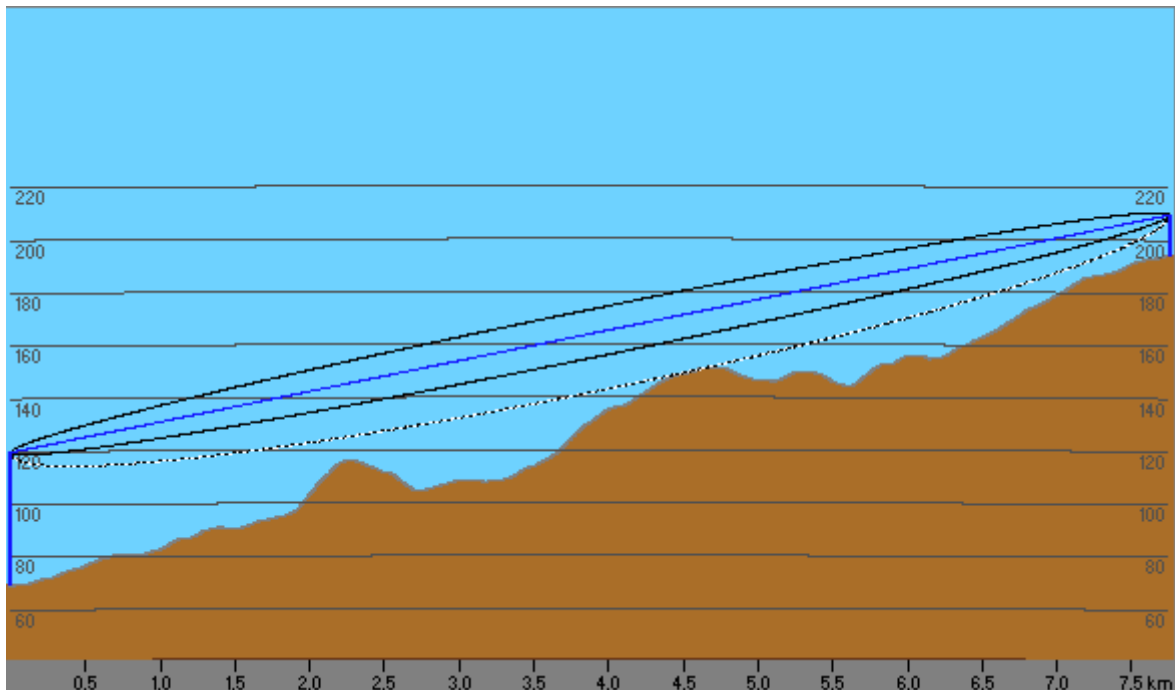
System gain from 11D to B1 is 154,0 dB

System gain from B1 to 11D is 154,0 dB

Worst reception is 19,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 4 – Estación remota B1



Distance between EB04 and B1 is 7,7 km (4,8 miles)

True North Azimuth = 38,62°, Magnetic North Azimuth = 39,12°, Elevation angle = 0,6933°

Terrain elevation variation is 125,8 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 4,6km

Average frequency is 2450,000 MHz

Free Space = 118,0 dB, Obstruction = 0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 149,2 dB

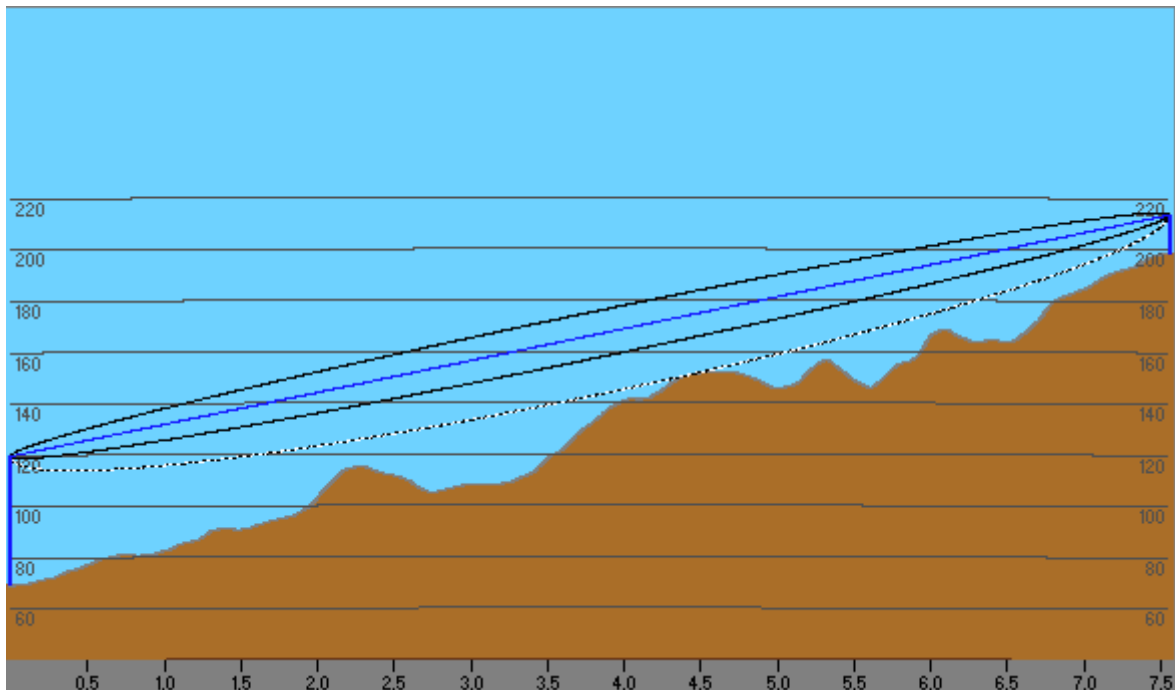
System gain from EB04 to B1 is 154,0 dB

System gain from B1 to EB04 is 154,0 dB

Worst reception is 4,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 4 – Estación remota B-RIO SECO



Distance between EB04 and B-RIO SECO is 7,5 km (4,7 miles)

True North Azimuth = 39,74°, Magnetic North Azimuth = 40,24°, Elevation angle = 0,7424°

Terrain elevation variation is 129,9 m

Propagation mode is line-of-sight, minimum clearance 1,7F1 at 4,4km

Average frequency is 2450,000 MHz

Free Space = 117,7 dB, Obstruction = -1,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 146,8 dB

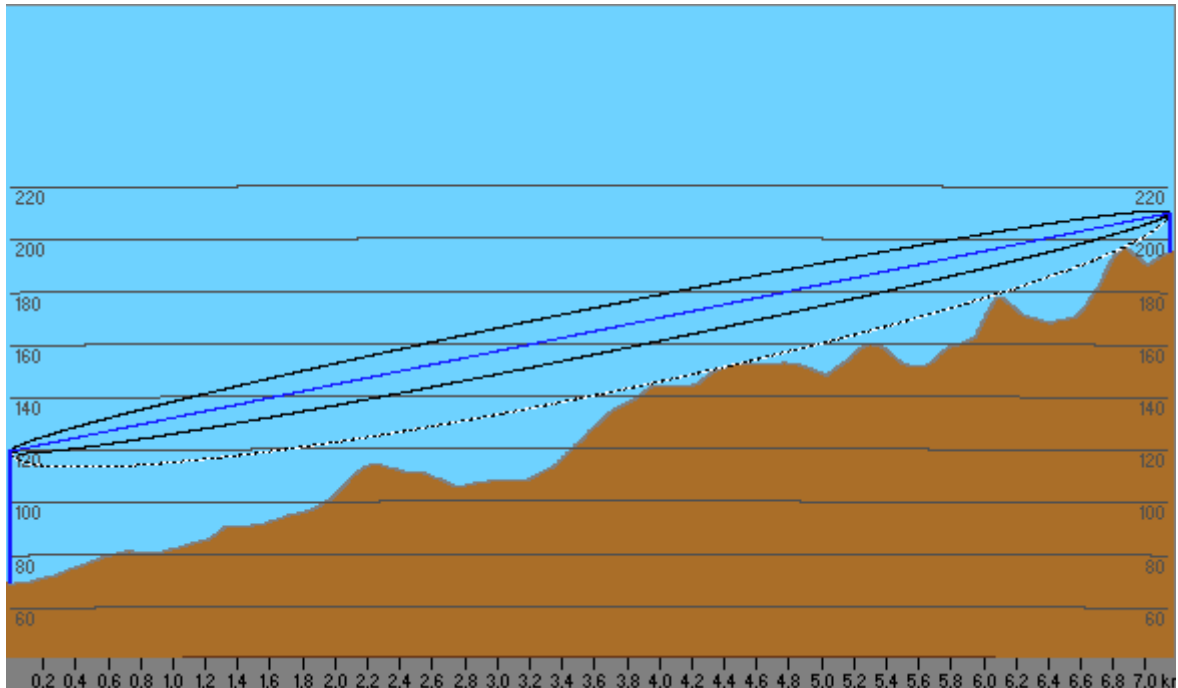
System gain from EB04 to B-RIO SECO is 154,0 dB

System gain from B-RIO SECO to EB04 is 154,0 dB

Worst reception is 7,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 4 – Estación remota 11C



Distance between EB04 and 11C is 7,1 km (4,4 miles)

True North Azimuth = 40,79°, Magnetic North Azimuth = 41,30°, Elevation angle = 0,7634°

Terrain elevation variation is 127,0 m

Propagation mode is line-of-sight, minimum clearance 1,8F1 at 4,4km

Average frequency is 2450,000 MHz

Free Space = 117,3 dB, Obstruction = -1,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 146,8 dB

System gain from EB04 to 11C is 154,0 dB

System gain from 11C to EB04 is 154,0 dB

Worst reception is 7,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

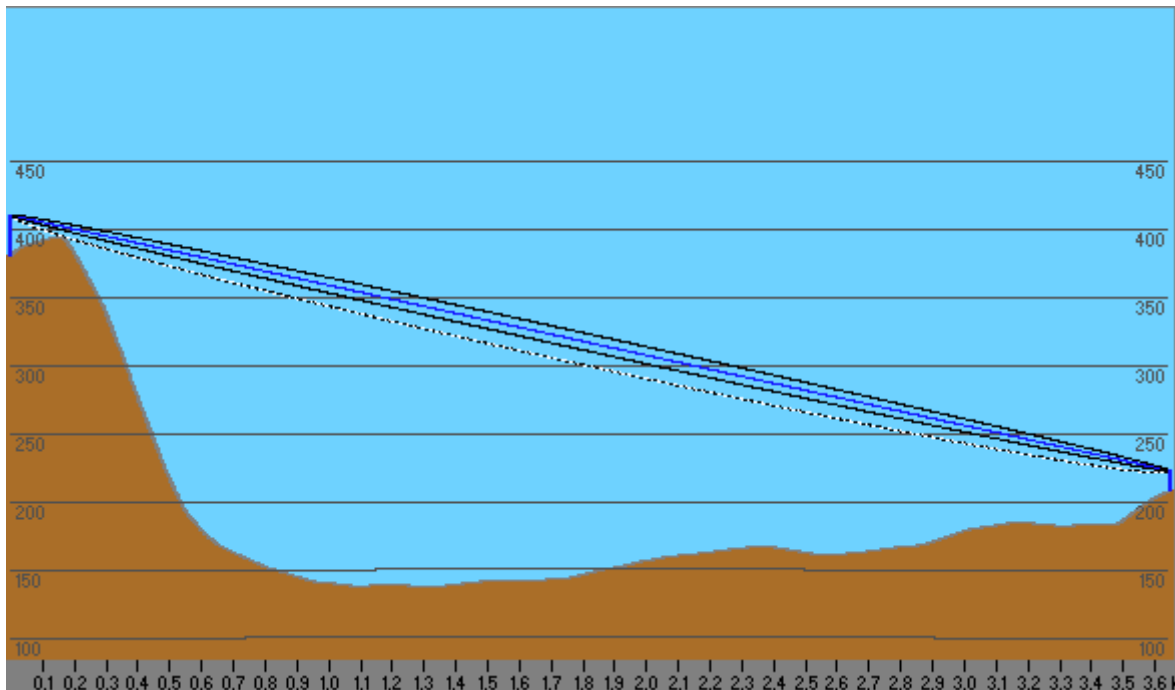
8.5 Estación base 5 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 25. Grupo Estación Base 5

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
B-ALTO URIPE I	730015	9088577	EB05	15 m	
12B	730401	9088495	EB05	15 m	
B2	730495	9088529	EB05	15 m	
12A	733038	9087813	EB05	15 m	
11D-II	734010	9087506	EB05	15 m	
B-ALTO URIPE II	734040	9086522	EB05	15 m	

- Estación Base 5 – Estación remota B-ALTO URIPE I



Distance between EB05 and B-ALTO URIPE I is 3,6 km (2,3 miles)

True North Azimuth = 320,29°, Magnetic North Azimuth = 320,81°, Elevation angle = -3,0536°

Terrain elevation variation is 253,9 m

Propagation mode is line-of-sight, minimum clearance 3,5F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 111,4 dB, Obstruction = 0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 142,7 dB

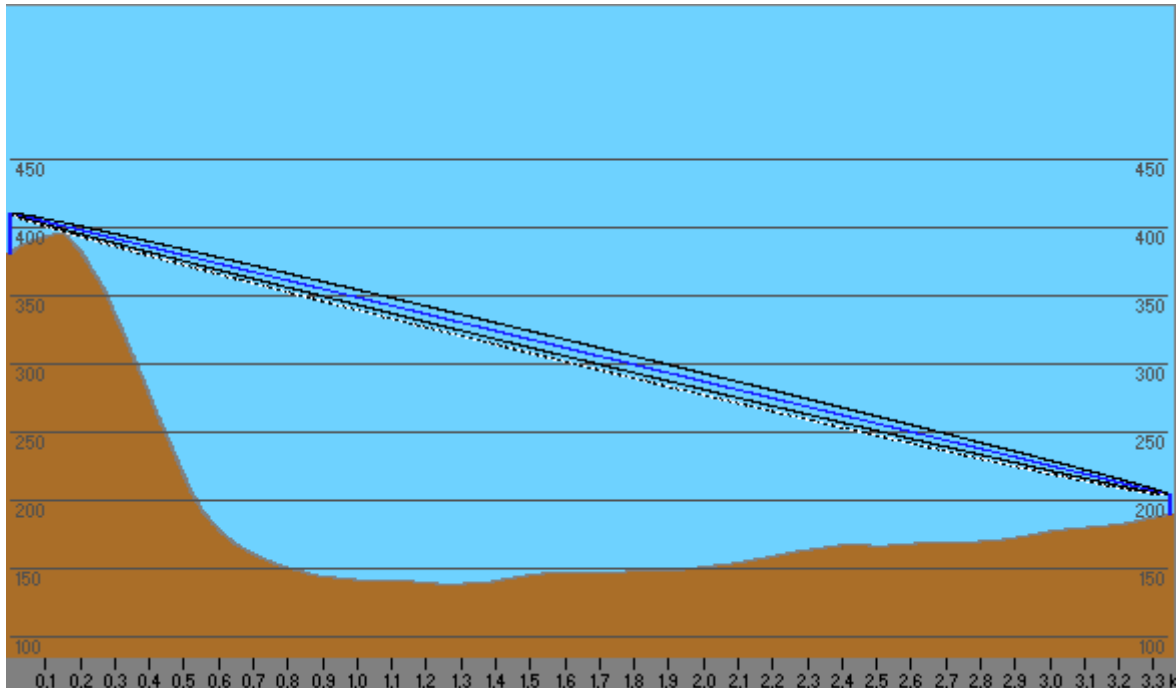
System gain from EB05 to B-ALTO URIPE I is 154,0 dB

System gain from B-ALTO URIPE I to EB05 is 154,0 dB

Worst reception is 11,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 5 – Estación remota 12B



Distance between EB05 and 12B is 3,3 km (2,1 miles)

True North Azimuth = 324,51°, Magnetic North Azimuth = 325,03°, Elevation angle = -3,5283°

Terrain elevation variation is 254,3 m

Propagation mode is line-of-sight, minimum clearance 3,2F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 110,7 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 142,8 dB

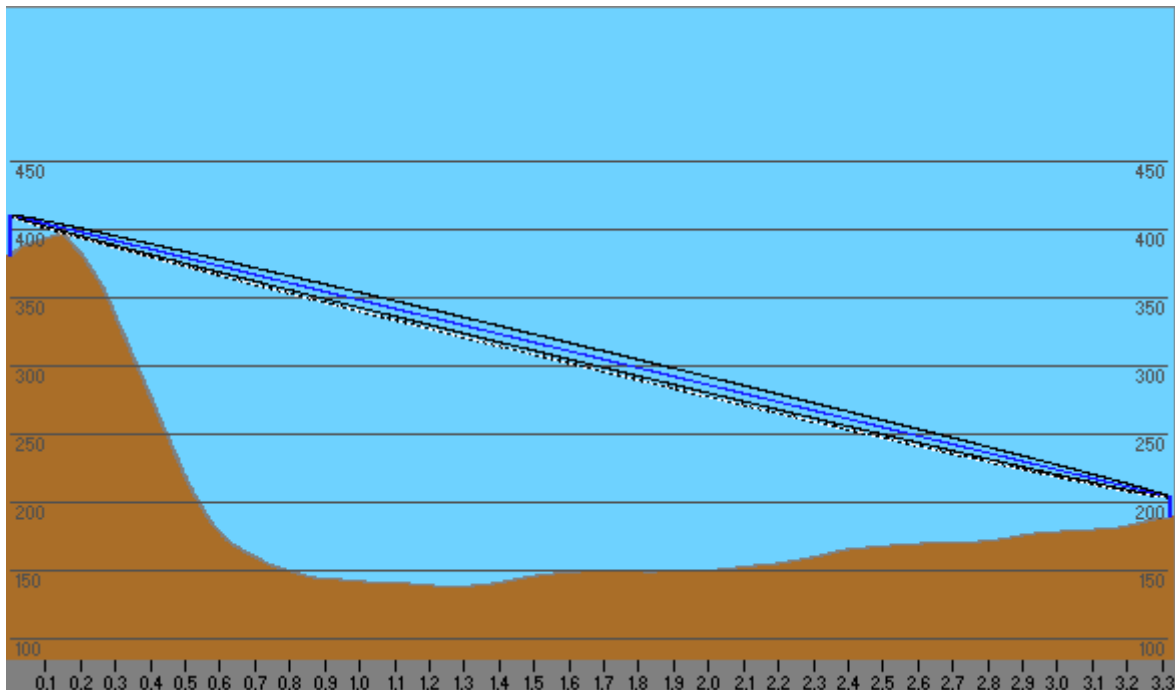
System gain from EB05 to 12B is 154,0 dB

System gain from 12B to EB05 is 154,0 dB

Worst reception is 11,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 5 – Estación remota B2



Distance between EB05 and B2 is 3,3 km (2,1 miles)

True North Azimuth = 326,16°, Magnetic North Azimuth = 326,69°, Elevation angle = -3,5466°

Terrain elevation variation is 254,8 m

Propagation mode is line-of-sight, minimum clearance 3,0F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 110,6 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 141,2 dB

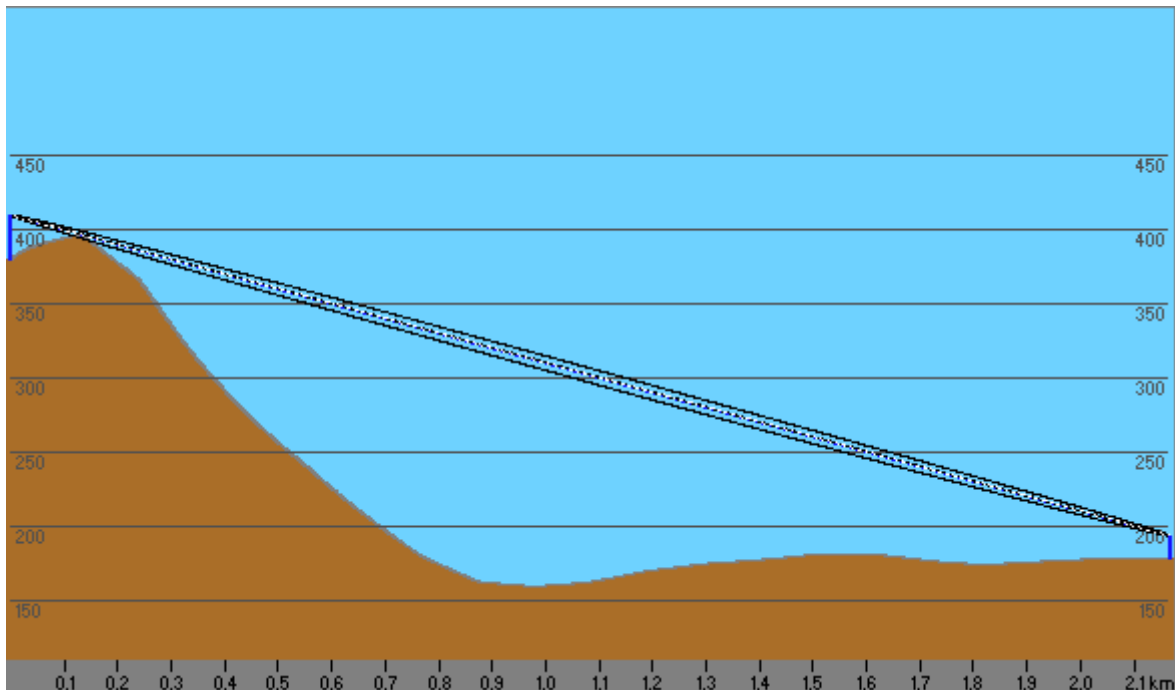
System gain from EB05 to B2 is 154,0 dB

System gain from B2 to EB05 is 154,0 dB

Worst reception is 12,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 5 – Estación remota 12A



Distance between EB05 and 12A is 2,2 km (1,3 miles)

True North Azimuth = 18,76°, Magnetic North Azimuth = 19,28°, Elevation angle = -5,5548°

Terrain elevation variation is 234,7 m

Propagation mode is line-of-sight, minimum clearance 1,8F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 106,9 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 137,5 dB

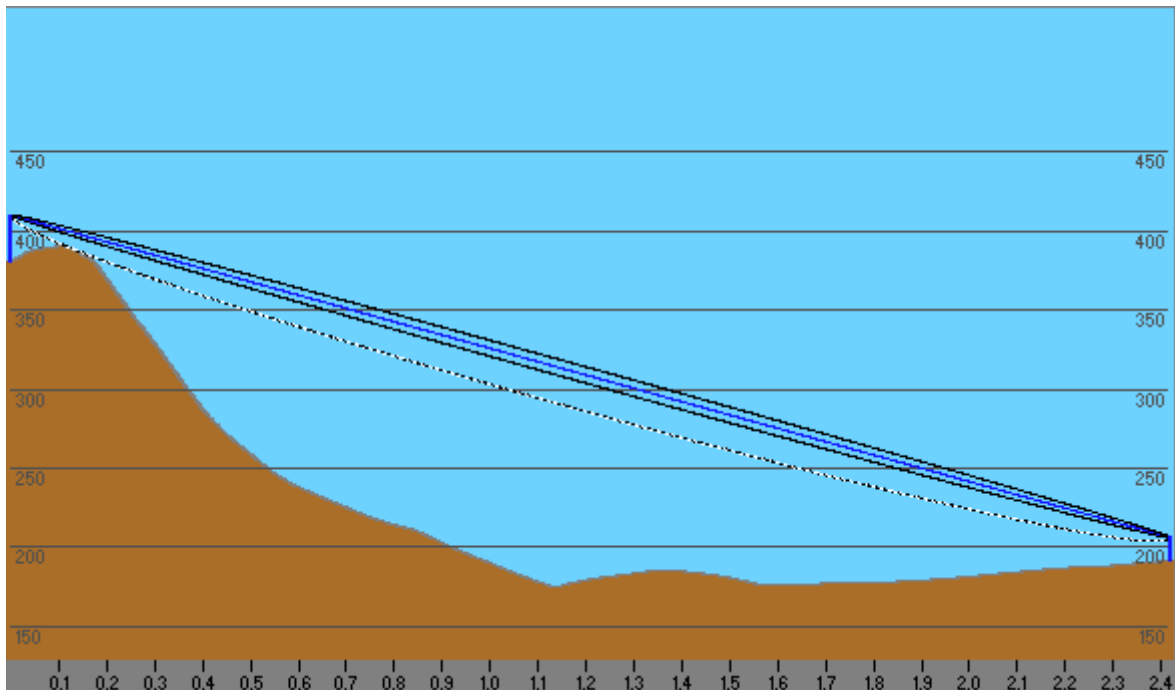
System gain from EB05 to 12A is 154,0 dB

System gain from 12A to EB05 is 154,0 dB

Worst reception is 16,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 5 – Estación remota 11D-II



Distance between EB05 and 11D-II is 2,4 km (1,5 miles)

True North Azimuth = 43,70°, Magnetic North Azimuth = 44,22°, Elevation angle = -4,7292°

Terrain elevation variation is 214,4 m

Propagation mode is line-of-sight, minimum clearance 3,4F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 107,9 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 138,5 dB

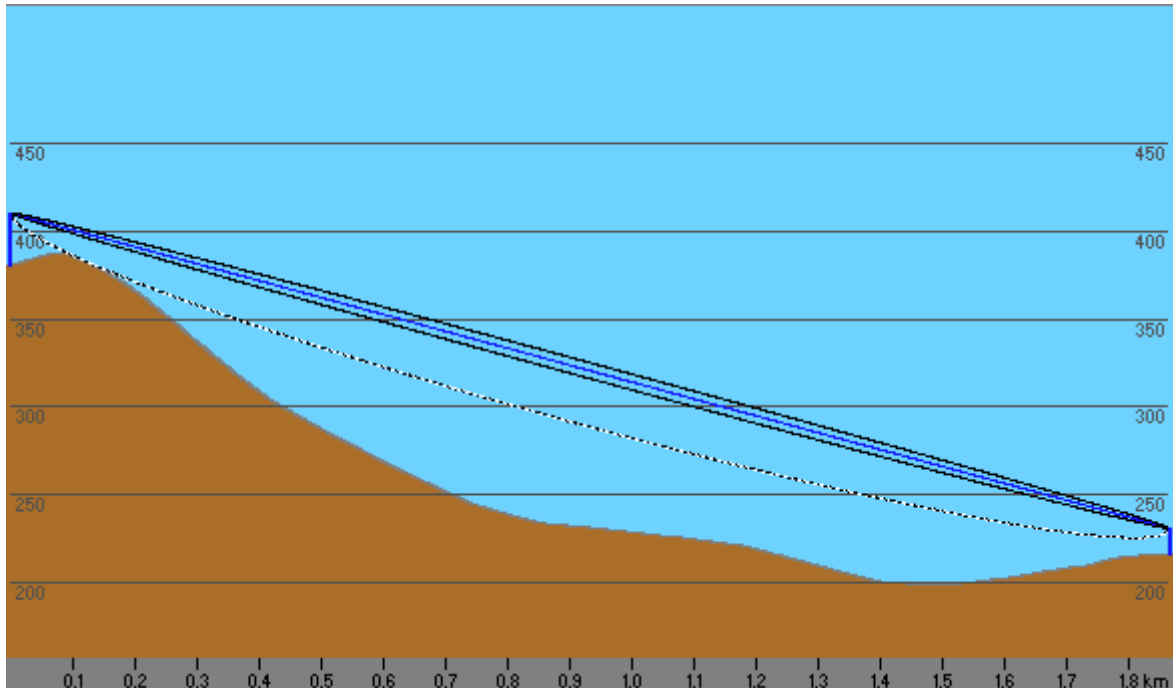
System gain from EB05 to 11D-II is 154,0 dB

System gain from 11D-II to EB05 is 154,0 dB

Worst reception is 15,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 5 – Estación remota B-ALTO URIPE II



Distance between EB05 and B-ALTO URIPE II is 1,9 km (1,2 miles)

True North Azimuth = 66,04°, Magnetic North Azimuth = 66,56°, Elevation angle = -5,3072°

Terrain elevation variation is 187,1 m

Propagation mode is line-of-sight, minimum clearance 4,4F1 at 0,1km

Average frequency is 2450,000 MHz

Free Space = 105,6 dB, Obstruction = 0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,3 dB

Total propagation loss is 137,2 dB

System gain from EB05 to B-ALTO URIPE II is 154,0 dB

System gain from B-ALTO URIPE II to EB05 is 154,0 dB

Worst reception is 16,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

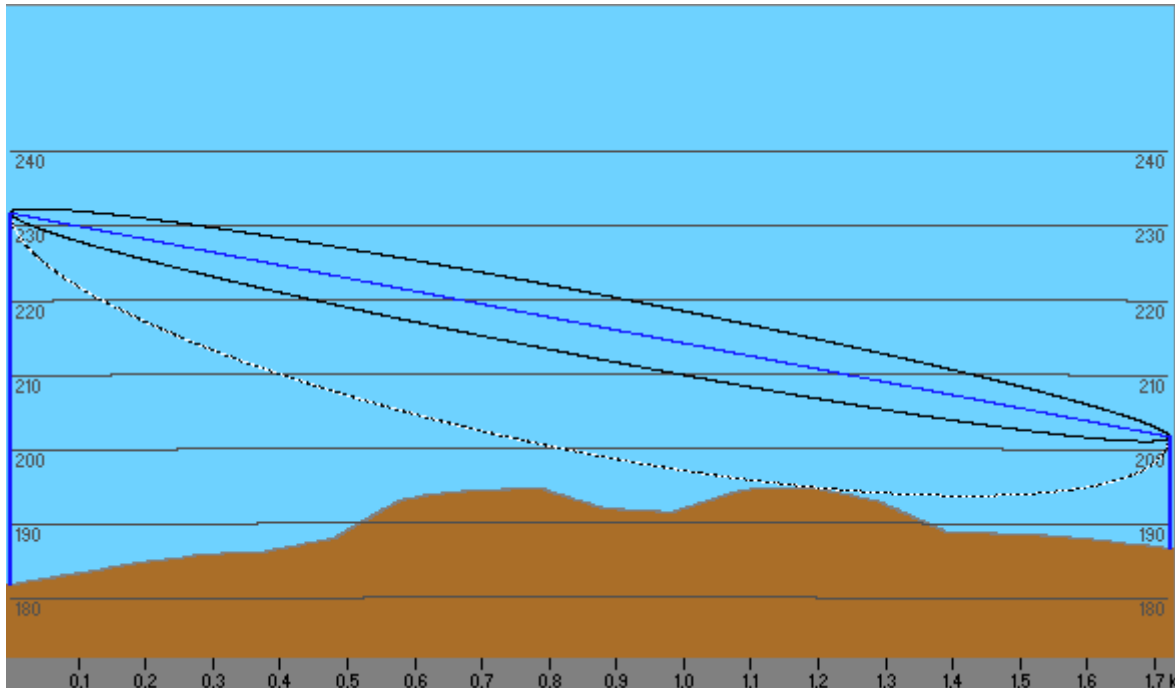
8.6 Estación base 6 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 26. Grupo Estación Base 6

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
B-ALTO SALAVERRY	724817	9091648	EB06	15 m	
B4	725090	9089895	EB06	15 m	
12D-II	725193	9089663	EB06	15 m	
12D	726584	9088377	EB06	15 m	
SIFON B3	727258	9088200	EB06	15 m	
B3	727451	9088021	EB06	15 m	
12C	728272	9087275	EB06	25 m	
12B-II	728856	9087086	EB06	15 m	12C

- Estación Base 6 – Estación remota B-ALTO SALAVERRY



Distance between EB06 and B-ALTO SALAVERRY is 1,7 km (1,1 miles)

True North Azimuth = 352,93°, Magnetic North Azimuth = 353,42°, Elevation angle = -0,8553°

Terrain elevation variation is 12,8 m

Propagation mode is line-of-sight, minimum clearance 2,8F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 104,9 dB, Obstruction = 0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 135,9 dB

System gain from EB06 to B-ALTO SALAVERRY is 154,0 dB

System gain from B-ALTO SALAVERRY to EB06 is 154,0 dB

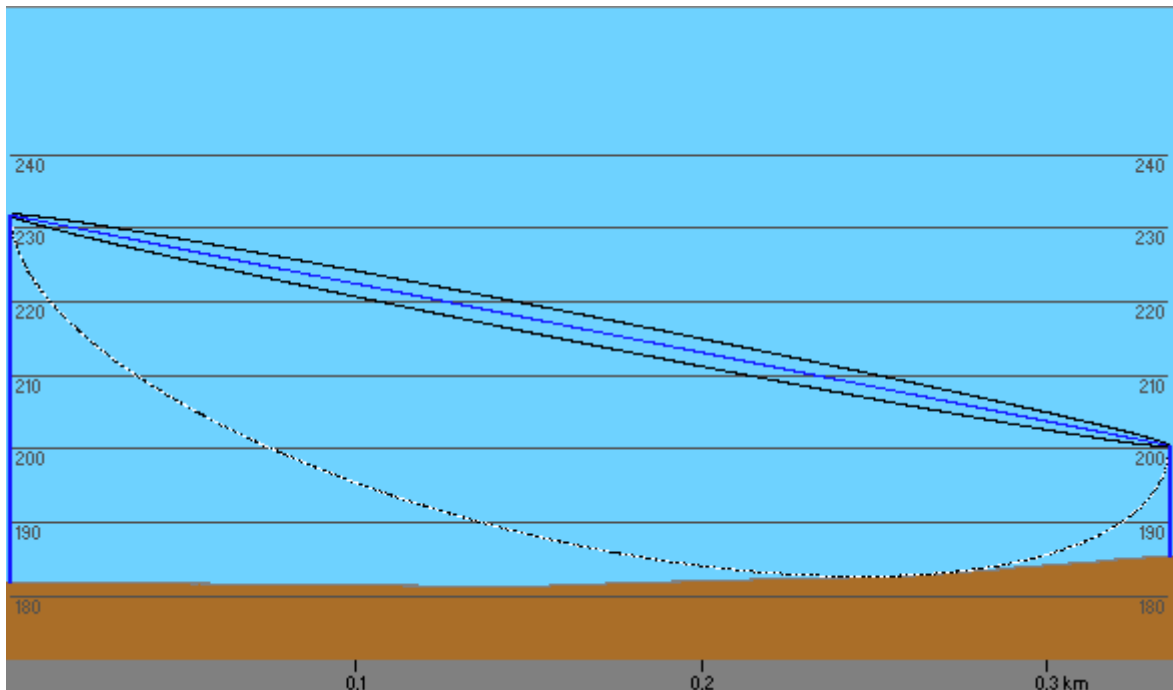
Worst reception is 18,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 6 – Estación remota B4

Estación Base 6 y Estación remota B4 separados por menos de 100m.

- Estación Base 6 – Estación remota 12D-II



Distance between EB06 and 12D-II is 0,3 km (0,2 miles)

True North Azimuth = 148,76°, Magnetic North Azimuth = 149,24°, Elevation angle = -4,9036°

Terrain elevation variation is 4,0 m

Propagation mode is line-of-sight, minimum clearance 10,1F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 90,7 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 121,5 dB

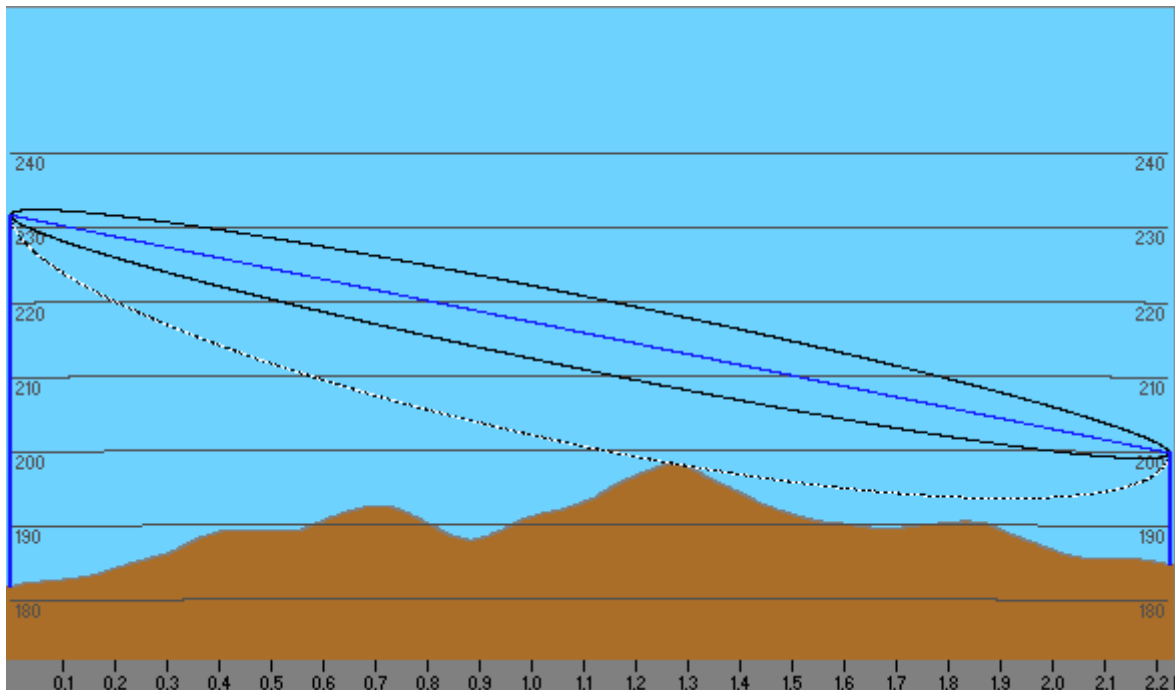
System gain from EB06 to 12D-II is 154,0 dB

System gain from 12D-II to EB06 is 154,0 dB

Worst reception is 32,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 6 – Estación remota 12D



Distance between EB06 and 12D is 2,2 km (1,4 miles)

True North Azimuth = 135,04°, Magnetic North Azimuth = 135,52°, Elevation angle = -0,8936°

Terrain elevation variation is 20,6 m

Propagation mode is line-of-sight, minimum clearance 1,8F1 at 1,3km

Average frequency is 2450,000 MHz

Free Space = 107,1 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 137,5 dB

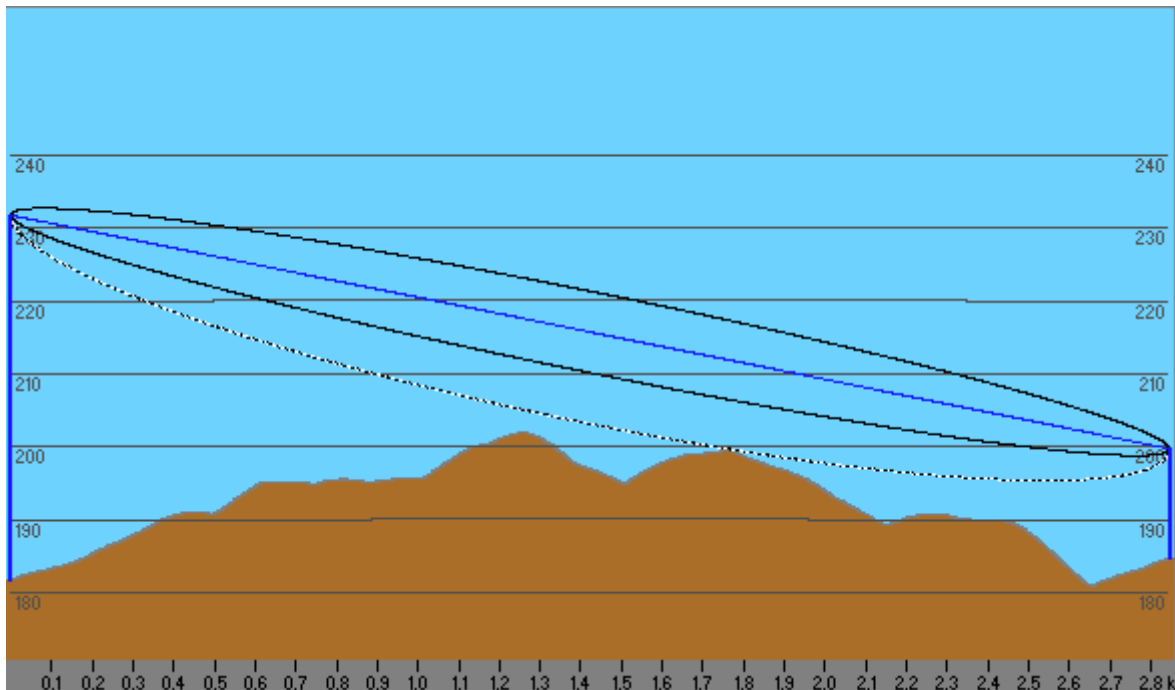
System gain from EB06 to 12D is 154,0 dB

System gain from 12D to EB06 is 154,0 dB

Worst reception is 16,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 6 – Estación remota SIFON B3



Distance between EB06 and SIFON B3 is 2,8 km (1,8 miles)

True North Azimuth = 127,90°, Magnetic North Azimuth = 128,38°, Elevation angle = -0,6725°

Terrain elevation variation is 25,1 m

Propagation mode is line-of-sight, minimum clearance 1,5F1 at 1,7km

Average frequency is 2450,000 MHz

Free Space = 109,3 dB, Obstruction = 2,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 142,4 dB

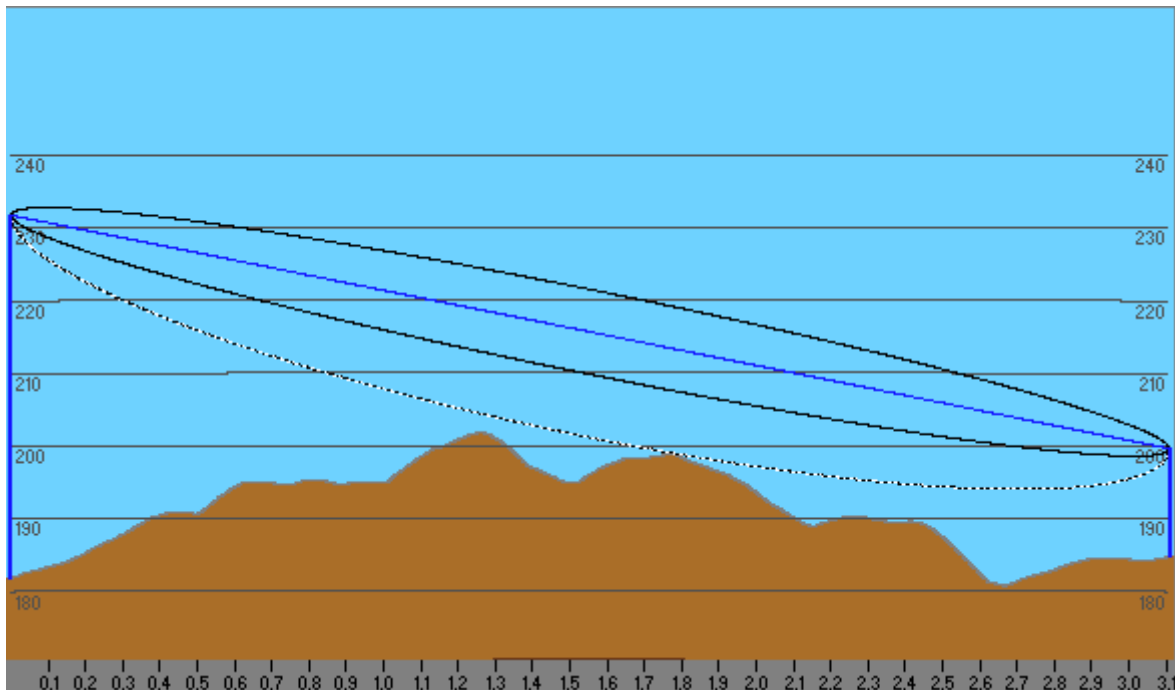
System gain from EB06 to SIFON B3 is 154,0 dB

System gain from SIFON B3 to EB06 is 154,0 dB

Worst reception is 11,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 6 – Estación remota B3



Distance between EB06 and B3 is 3,1 km (1,9 miles)

True North Azimuth = 128,31°, Magnetic North Azimuth = 128,79°, Elevation angle = -0,6117°

Terrain elevation variation is 24,4 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 1,8km

Average frequency is 2450,000 MHz

Free Space = 110,0 dB, Obstruction = -1,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 138,9 dB

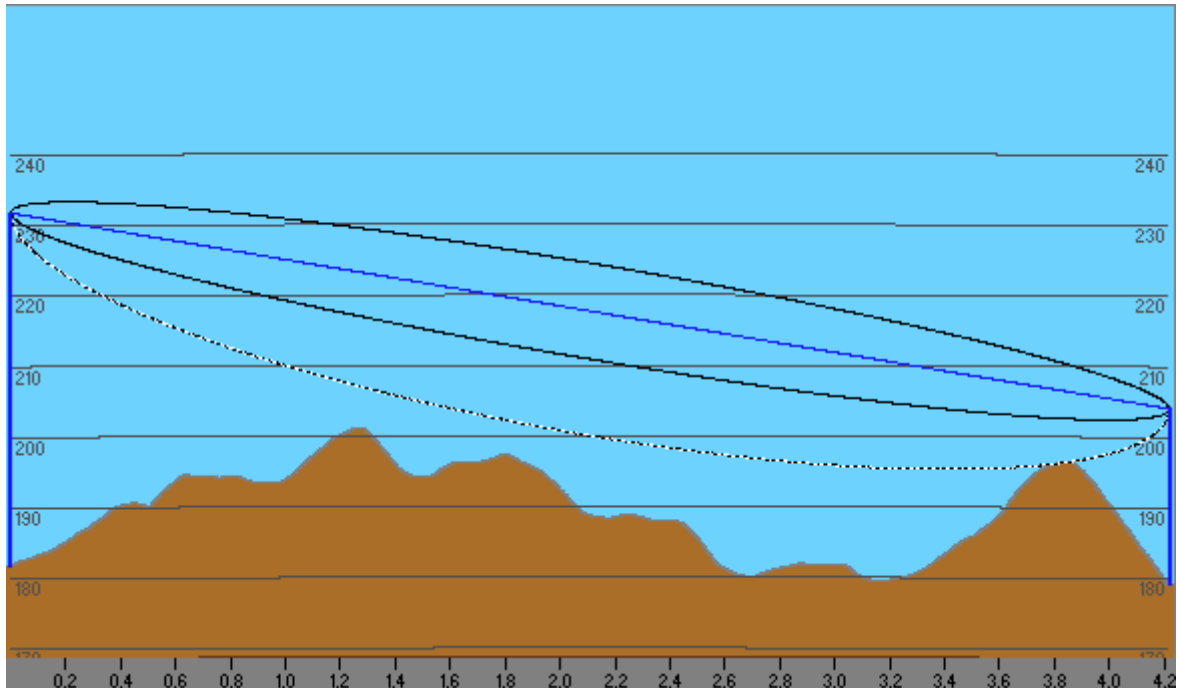
System gain from EB06 to B3 is 154,0 dB

System gain from B3 to EB06 is 154,0 dB

Worst reception is 15,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 6 – Estación remota 12C



Distance between EB06 and 12C is 4,2 km (2,6 miles)

True North Azimuth = 129,32°, Magnetic North Azimuth = 129,80°, Elevation angle = -0,4257°

Terrain elevation variation is 26,6 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 3,8km

Average frequency is 2450,000 MHz

Free Space = 112,7 dB, Obstruction = -1,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 142,0 dB

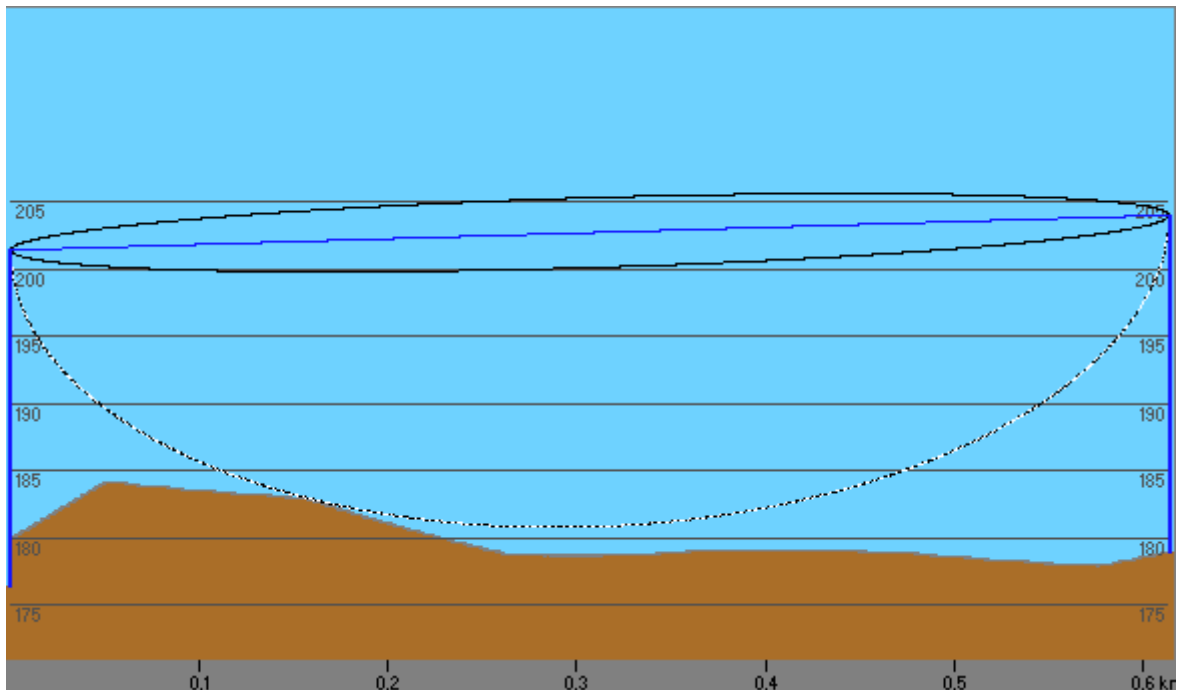
System gain from EB06 to 12C is 154,0 dB

System gain from 12C to EB06 is 154,0 dB

Worst reception is 12,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación remota 12B-II – Estación remota 12C



Distance between 12B-II and 12C is 0,6 km (0,4 miles)

True North Azimuth = 287,74°, Magnetic North Azimuth = 288,24°, Elevation angle = 0,2938°

Terrain elevation variation is 5,0 m

Propagation mode is line-of-sight, minimum clearance 5,3F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 95,9 dB, Obstruction = 0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 127,3 dB

System gain from 12B-II to 12C is 154,0 dB

System gain from 12C to 12B-II is 154,0 dB

Worst reception is 26,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

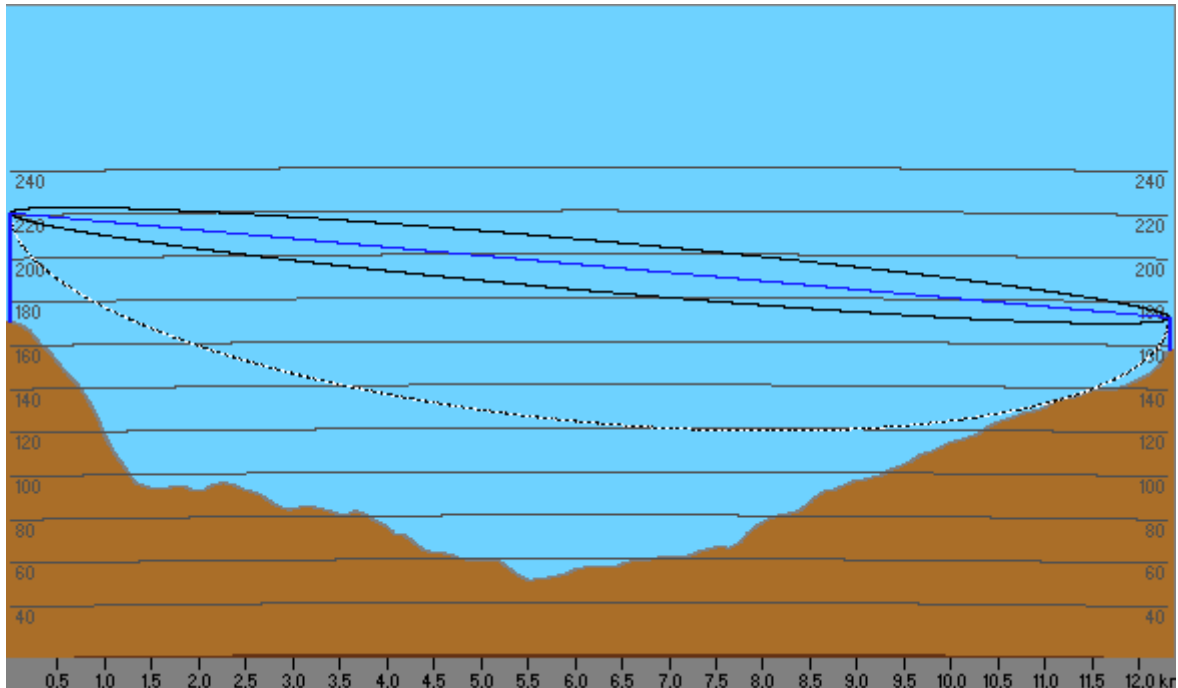
8.7 Estación base 7 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 27. Grupo Estación Base 7

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
ALTO El Moro	724581	9108430	EB07	15 m	
ALTO El Moro	725415	9108442	EB07	15 m	
13C-II	723445	9096471	EB07	15 m	
Santa Lucía	723363	9096375	EB07	15 m	
13C-PTAP TRUJ	723331	9096239	EB07	15 m	
13B	723269	9095812	EB07	15 m	
SIFON B-6	723672	9094140	EB07	15 m	
B5	724139	9093161	EB07	15 m	
13A	724269	9092788	EB07	15 m	
13D	724133	9097420	EB08	15 m	

- Estación Base 7 – Estación remota ALTO EI Moro I



Distance between EB07 and ALTO EI Moro is 12,3 km (7,6 miles)

True North Azimuth = 10,04°, Magnetic North Azimuth = 10,53°, Elevation angle = -0,2119°

Terrain elevation variation is 120,8 m

Propagation mode is line-of-sight, minimum clearance 3,9F1 at 11,1km

Average frequency is 2450,000 MHz

Free Space = 122,0 dB, Obstruction = 0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 153,1 dB

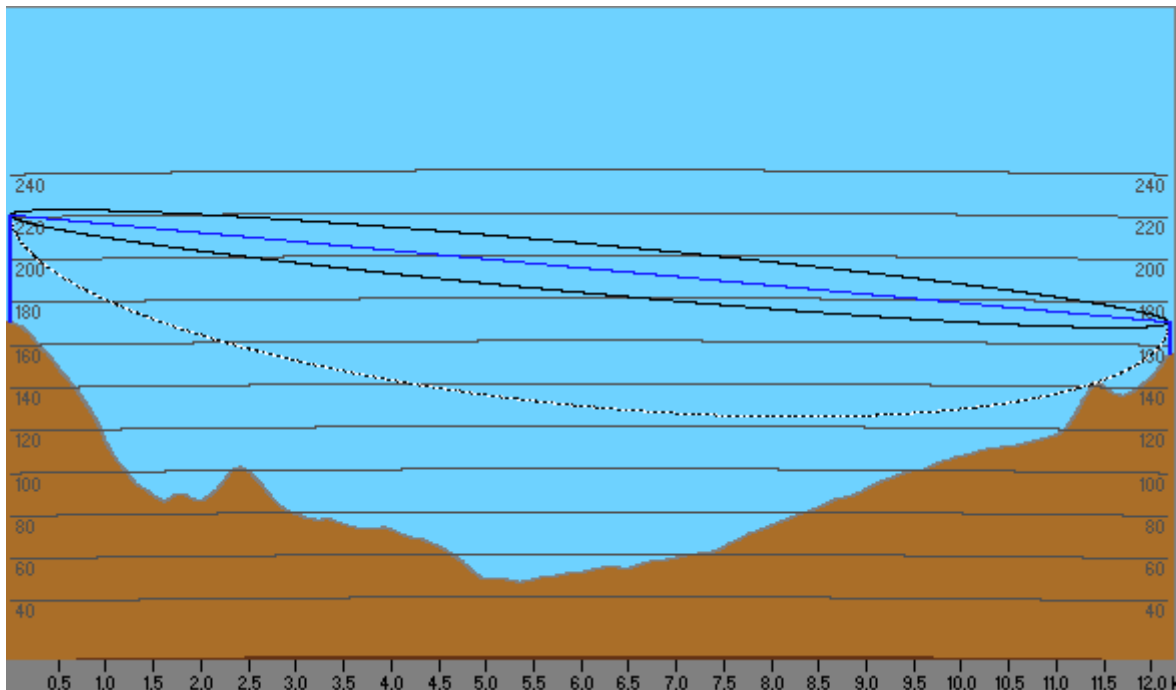
System gain from EB07 to ALTO EI Moro is 154,0 dB

System gain from ALTO EI Moro to EB07 is 154,0 dB

Worst reception is 0,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 7 – Estación remota ALTO EI Moro II



Distance between EB07 and ALTO EI Moro II is 12,2 km (7,6 miles)

True North Azimuth = 6,19°, Magnetic North Azimuth = 6,68°, Elevation angle = -0,2399°

Terrain elevation variation is 123,8 m

Propagation mode is line-of-sight, minimum clearance 3,4F1 at 11,4km

Average frequency is 2450,000 MHz

Free Space = 121,9 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 152,6 dB

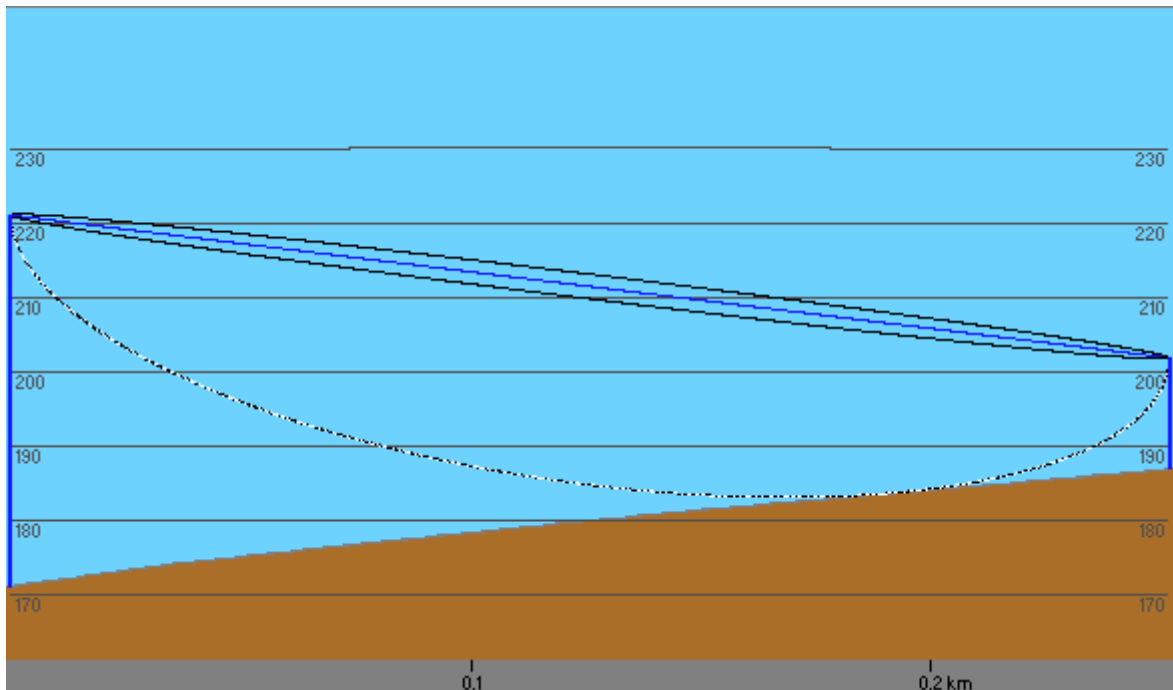
System gain from EB07 to ALTO EI Moro II is 154,0 dB

System gain from ALTO EI Moro II to EB07 is 154,0 dB

Worst reception is 1,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 7 – Estación remota 13C-II



Distance between EB07 and 13C-II is 0,3 km (0,2 miles)

True North Azimuth = 72,14°, Magnetic North Azimuth = 72,63°, Elevation angle = -3,3042°

Terrain elevation variation is 15,8 m

Propagation mode is line-of-sight, minimum clearance 11,1F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 88,2 dB, Obstruction = -0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 118,8 dB

System gain from EB07 to 13C-II is 154,0 dB

System gain from 13C-II to EB07 is 154,0 dB

Worst reception is 35,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

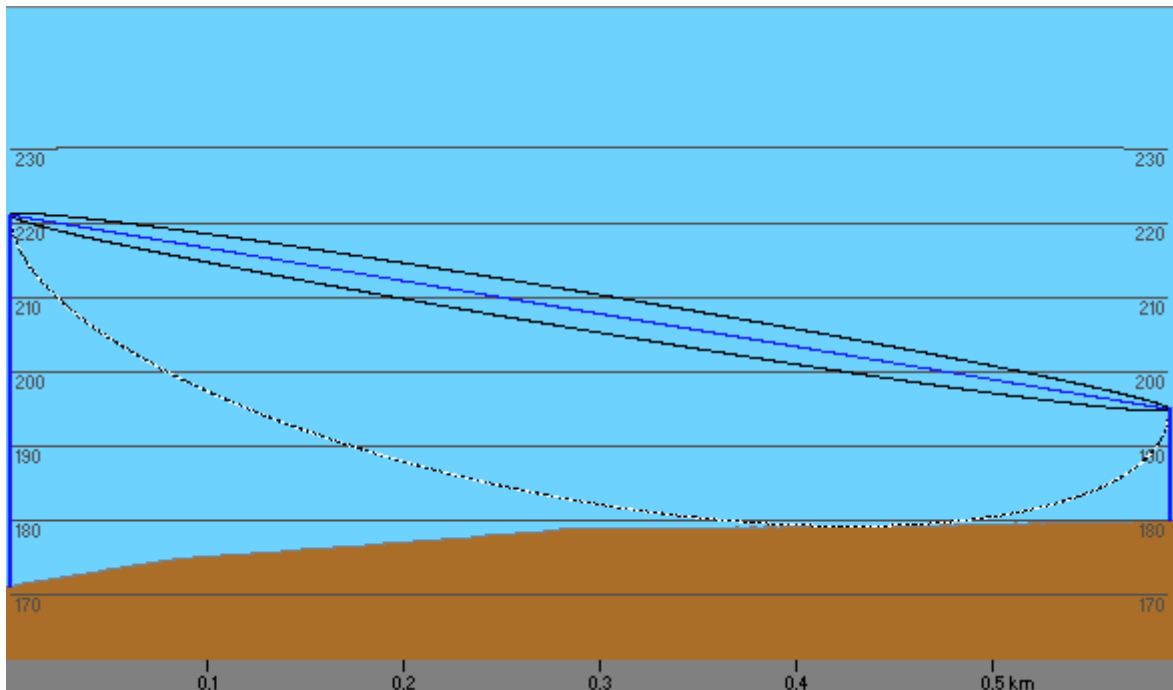
- Estación Base 7 – Estación remota Santa Lucía

Estación Base 7 y Estación remota Santa Lucía separados por menos de 160m.

- Estación Base 7 – Estación remota 13C-PTAP TRUJ

Estación Base 7 y Estación remota 13C-PTAP TRUJ separados por menos de 200m.

- Estación Base 7 – Estación remota 13B



Distance between EB07 and 13B is 0,6 km (0,4 miles)

True North Azimuth = 173,54°, Magnetic North Azimuth = 174,03°, Elevation angle = -1,9283°

Terrain elevation variation is 8,9 m

Propagation mode is line-of-sight, minimum clearance 7,3F1 at 0,4km

Average frequency is 2450,000 MHz

Free Space = 95,6 dB, Obstruction = -0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 125,9 dB

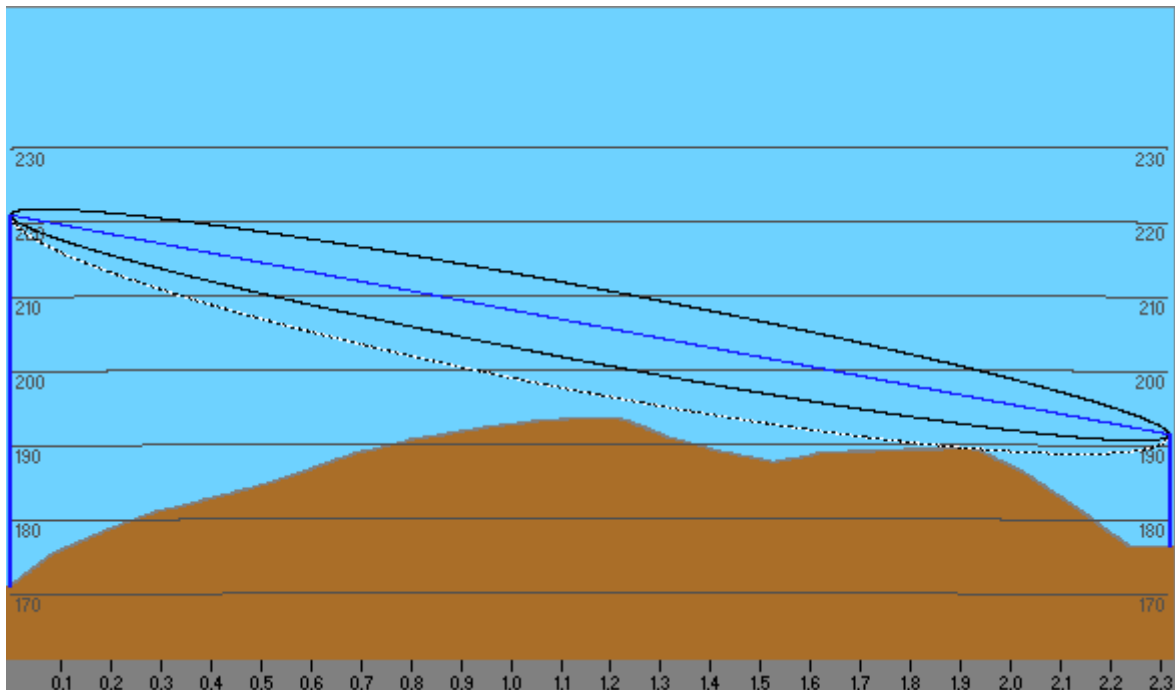
System gain from EB07 to 13B is 154,0 dB

System gain from 13B to EB07 is 154,0 dB

Worst reception is 28,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 7 – Estación remota SIFON B-6



Distance between EB07 and SIFON B-6 is 2,3 km (1,4 miles)

True North Azimuth = 168,09°, Magnetic North Azimuth = 168,57°, Elevation angle = -0,7139°

Terrain elevation variation is 22,6 m

Propagation mode is line-of-sight, minimum clearance 1,5F1 at 1,9km

Average frequency is 2450,000 MHz

Free Space = 107,5 dB, Obstruction = 1,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 139,7 dB

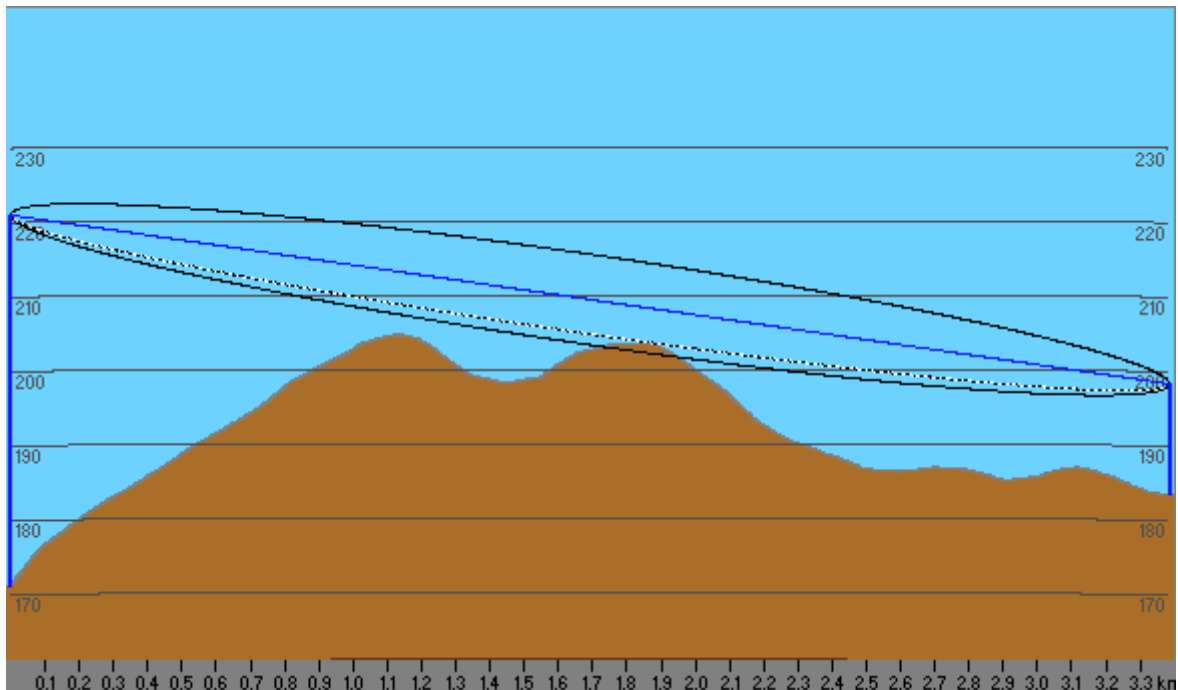
System gain from EB07 to SIFON B-6 is 154,0 dB

System gain from SIFON B-6 to EB07 is 154,0 dB

Worst reception is 14,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 7 – Estación remota B5



Distance between EB07 and B5 is 3,4 km (2,1 miles)

True North Azimuth = 163,71°, Magnetic North Azimuth = 164,19°, Elevation angle = -0,3771°

Terrain elevation variation is 33,4 m

Propagation mode is line-of-sight, minimum clearance 0,7F1 at 1,9km

Average frequency is 2450,000 MHz

Free Space = 110,8 dB, Obstruction = -0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 141,1 dB

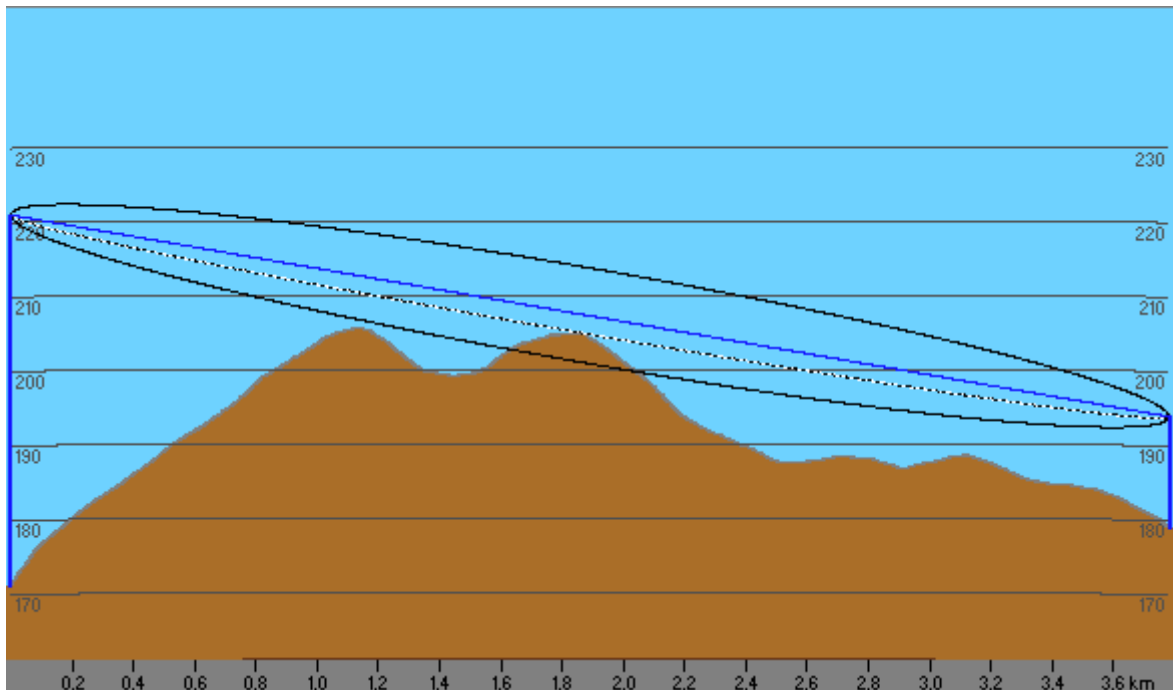
System gain from EB07 to B5 is 154,0 dB

System gain from B5 to EB07 is 154,0 dB

Worst reception is 12,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 7 – Estación remota 13A



Distance between EB07 and 13A is 3,8 km (2,3 miles)

True North Azimuth = $163,38^\circ$, Magnetic North Azimuth = $163,87^\circ$, Elevation angle = $-0,4235^\circ$

Terrain elevation variation is 34,3 m

Propagation mode is line-of-sight, minimum clearance 0,4F1 at 1,9km

Average frequency is 2450,000 MHz

Free Space = 111,7 dB, Obstruction = 2,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 144,7 dB

System gain from EB07 to 13A is 154,0 dB

System gain from 13A to EB07 is 154,0 dB

Worst reception is 9,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

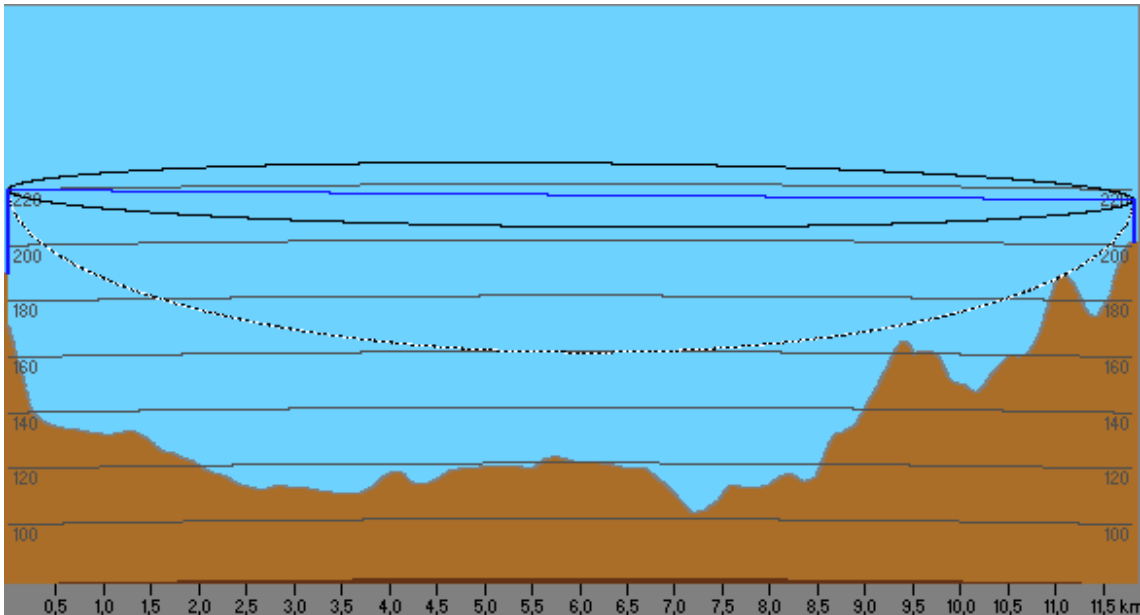
8.8 Estación base 8 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 28. Grupo Estación Base 8

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
El Moro	734027	9106084	EB08	15 m	
Mochica-Winchanzao	734033	9106071	EB08	15 m	
Huatape	734128	9105523	EB08	15 m	
Sto Domingo	732426	9104898	EB08	15 m	
14B	730523	9102939	EB08	15 m	
B-B-7	730552	9102127	EB08	15 m	
14	730398	9101975	EB08	15 m	
13E	726566	9099574	EB08	15 m	
13D-1	724770	9097826	EB08	15 m	

- Estación Base 8 – Estación remota 13D



Distance between EB08 and 13D is 11,8 km (7,3 miles)

True North Azimuth = 218,97°, Magnetic North Azimuth = 219,54°, Elevation angle = -0,1125°

Terrain elevation variation is 99,3 m

Propagation mode is line-of-sight, minimum clearance 3,1F1 at 11,1km

Average frequency is 2450,000 MHz

Free Space = 121,6 dB, Obstruction = -0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 152,4 dB

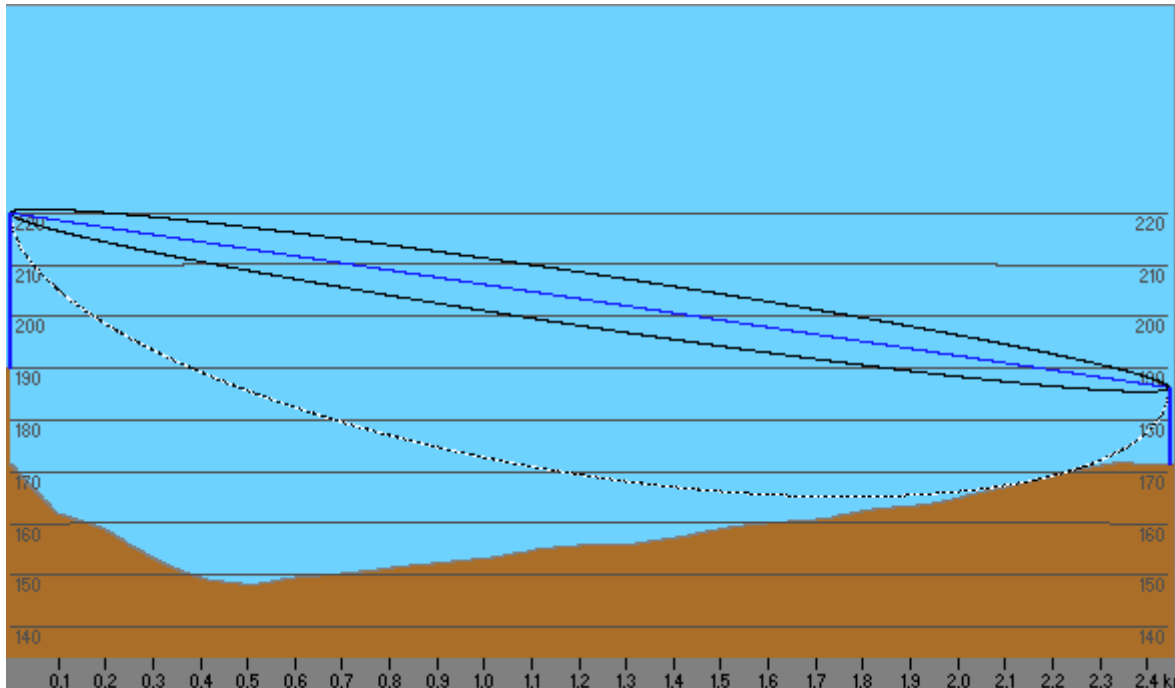
System gain from EB08 to 13D is 154,0 dB

System gain from 13D to EB08 is 154,0 dB

Worst reception is 1,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota El Moro



Distance between EB08 and El Moro is 2,4 km (1,5 miles)

True North Azimuth = 99,89°, Magnetic North Azimuth = 100,45°, Elevation angle = -0,8233°

Terrain elevation variation is 33,5 m

Propagation mode is line-of-sight, minimum clearance 3,9F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 107,9 dB, Obstruction = -1,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 137,8 dB

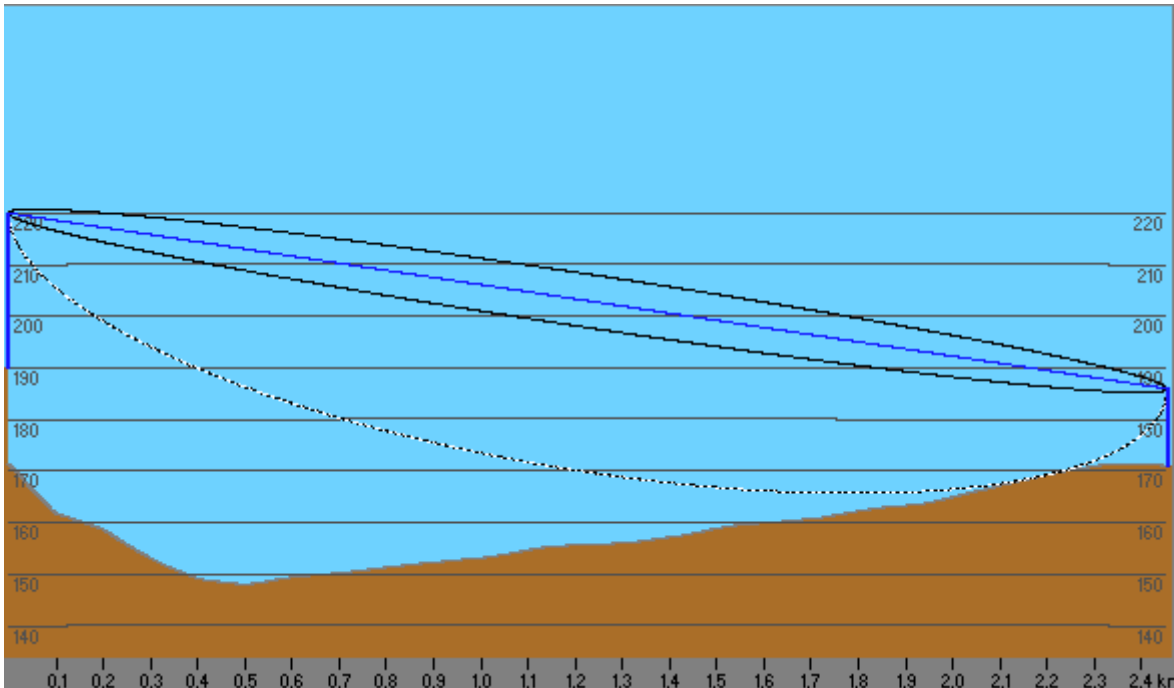
System gain from EB08 to El Moro is 154,0 dB

System gain from El Moro to EB08 is 154,0 dB

Worst reception is 16,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota Mochica-Winchanzao



Distance between EB08 and Mochica-Winchanzao is 2,4 km (1,5 miles)

True North Azimuth = 100,17°, Magnetic North Azimuth = 100,73°, Elevation angle = -0,8256°

Terrain elevation variation is 33,5 m

Propagation mode is line-of-sight, minimum clearance 3,8F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 108,0 dB, Obstruction = 0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 139,5 dB

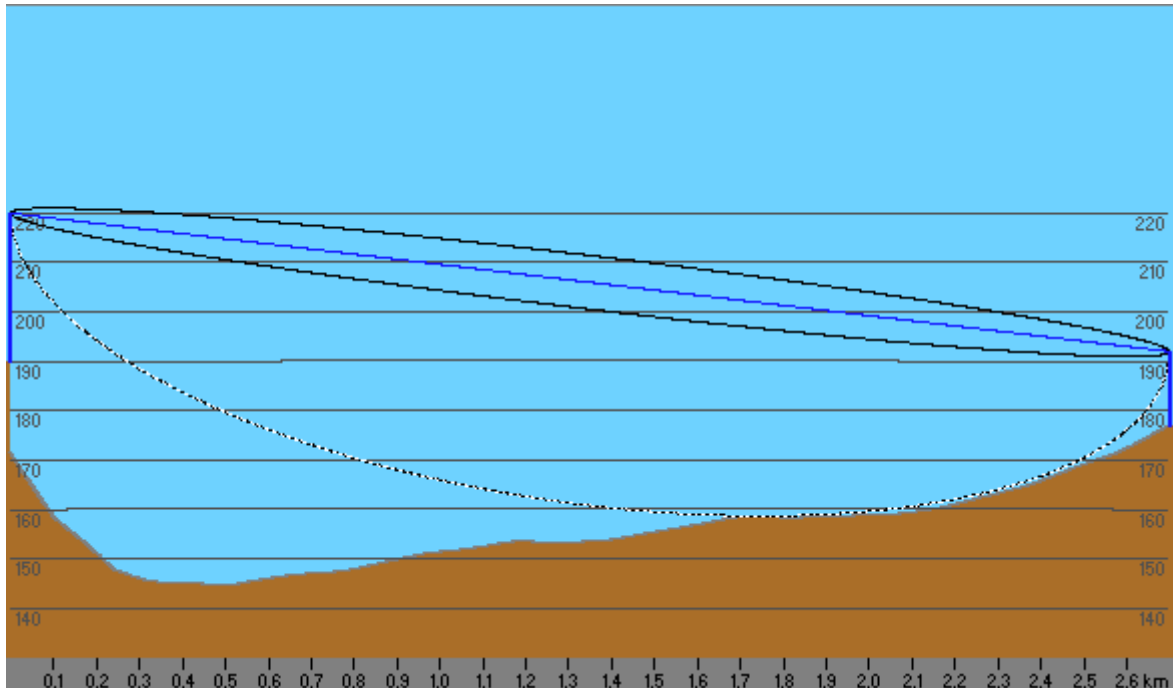
System gain from EB08 to Mochica-Winchanzao is 154,0 dB

System gain from Mochica-Winchanzao to EB08 is 154,0 dB

Worst reception is 14,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota Huatape



Distance between EB08 and Huatape is 2,7 km (1,7 miles)

True North Azimuth = 111,38°, Magnetic North Azimuth = 111,94°, Elevation angle = -0,5813°

Terrain elevation variation is 33,2 m

Propagation mode is line-of-sight, minimum clearance 5,2F1 at 1,7km

Average frequency is 2450,000 MHz

Free Space = 108,8 dB, Obstruction = -1,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 138,0 dB

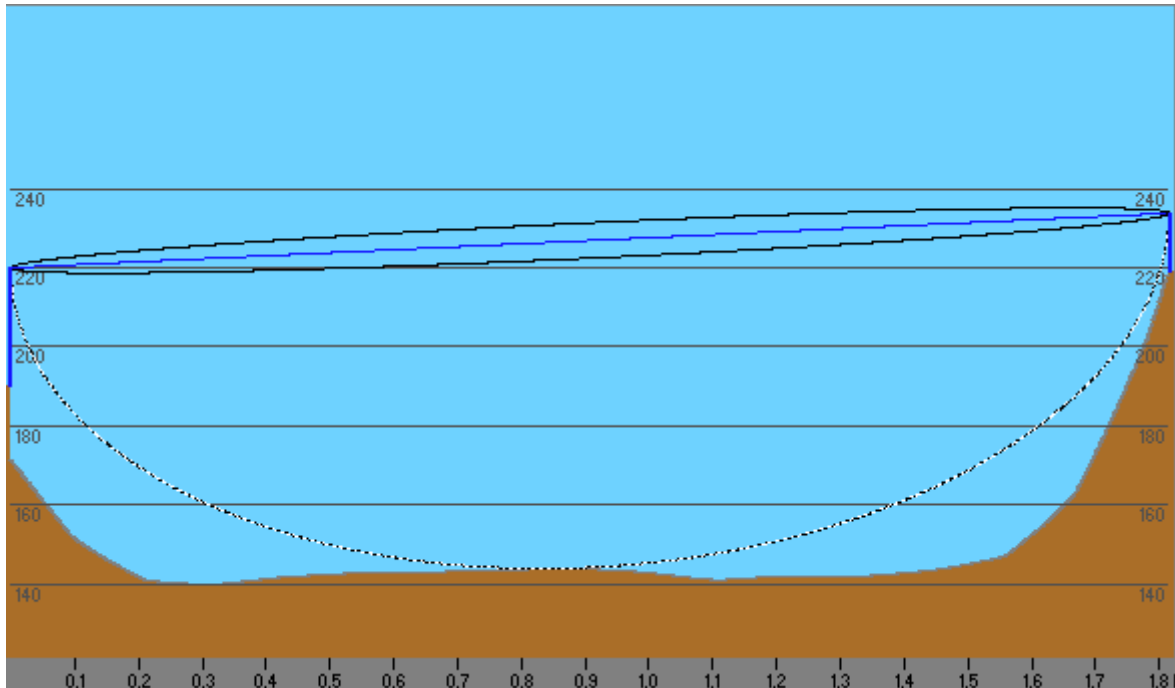
System gain from EB08 to Huatape is 154,0 dB

System gain from Huatape to EB08 is 154,0 dB

Worst reception is 16,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota Sto Domingo



Distance between EB08 and Sto Domingo is 1,8 km (1,1 miles)

True North Azimuth = 153,28°, Magnetic North Azimuth = 153,84°, Elevation angle = 0,7925°

Terrain elevation variation is 80,2 m

Propagation mode is line-of-sight, minimum clearance 11,9F1 at 0,8km

Average frequency is 2450,000 MHz

Free Space = 105,4 dB, Obstruction = 2,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,2 dB

Total propagation loss is 139,4 dB

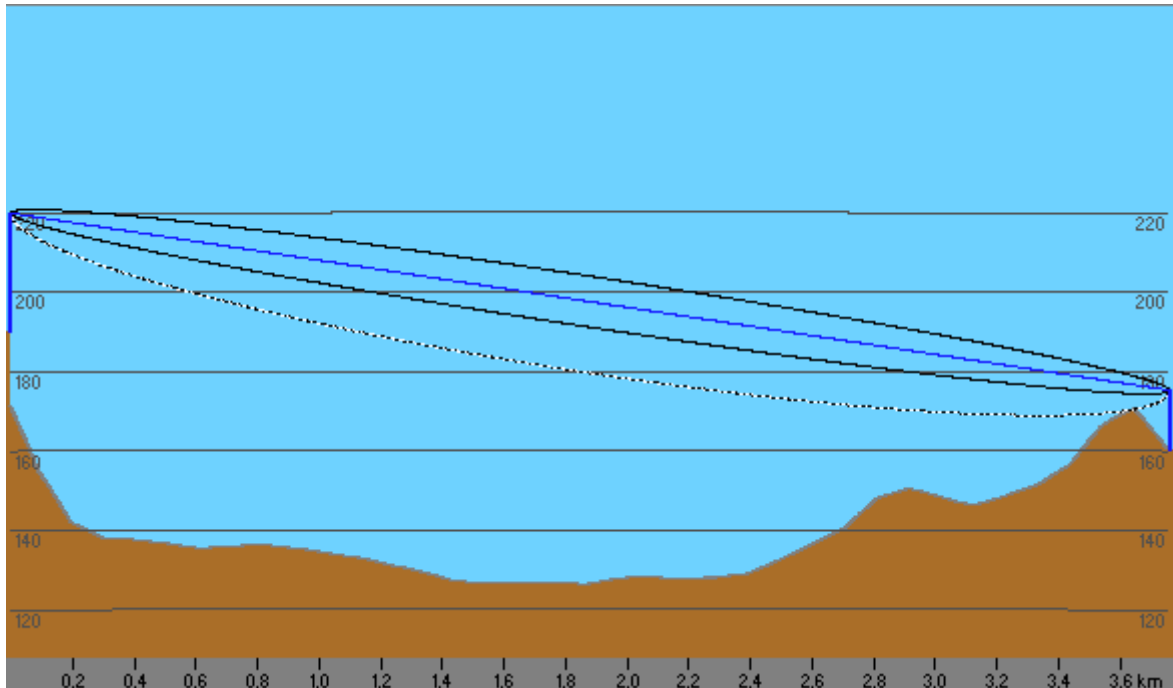
System gain from EB08 to Sto Domingo is 154,0 dB

System gain from Sto Domingo to EB08 is 154,0 dB

Worst reception is 14,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota 14B



Distance between EB08 and 14B is 3,8 km (2,3 miles)

True North Azimuth = 196,63°, Magnetic North Azimuth = 197,19°, Elevation angle = -0,6794°

Terrain elevation variation is 46,1 m

Propagation mode is line-of-sight, minimum clearance 3,1F1 at 3,6km

Average frequency is 2450,000 MHz

Free Space = 111,7 dB, Obstruction = -0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 142,4 dB

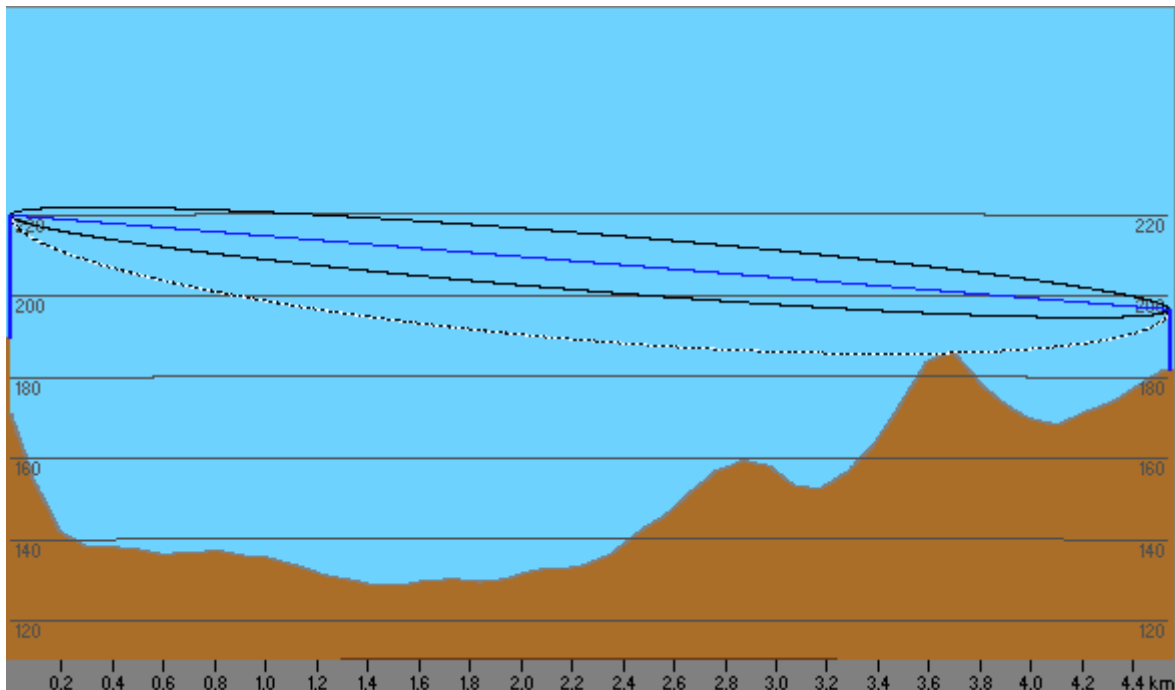
System gain from EB08 to 14B is 154,0 dB

System gain from 14B to EB08 is 154,0 dB

Worst reception is 11,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota B-B-7



Distance between EB08 and B-B-7 is 4,5 km (2,8 miles)

True North Azimuth = 193,27°, Magnetic North Azimuth = 193,83°, Elevation angle = -0,3441°

Terrain elevation variation is 57,2 m

Propagation mode is line-of-sight, minimum clearance 1,9F1 at 3,6km

Average frequency is 2450,000 MHz

Free Space = 113,3 dB, Obstruction = 0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 144,5 dB

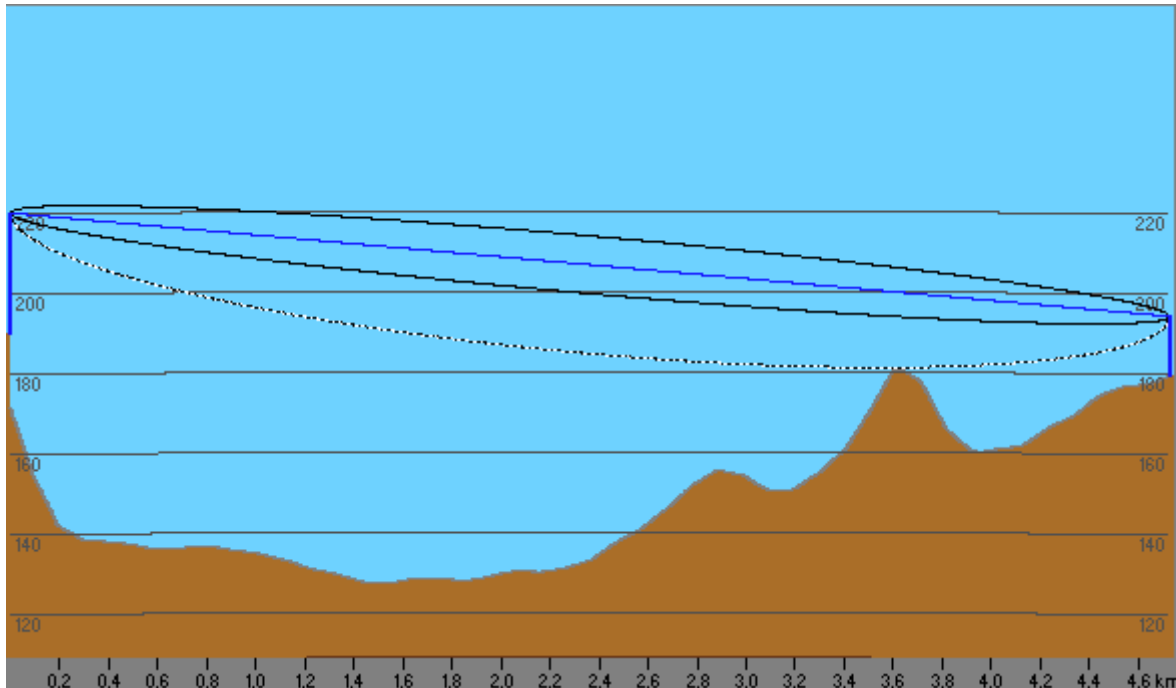
System gain from EB08 to B-B-7 is 154,0 dB

System gain from B-B-7 to EB08 is 154,0 dB

Worst reception is 9,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota 14



Distance between EB08 and 14 is 4,7 km (2,9 miles)

True North Azimuth = 194,65°, Magnetic North Azimuth = 195,21°, Elevation angle = -0,3533°

Terrain elevation variation is 54,6 m

Propagation mode is line-of-sight, minimum clearance 2,1F1 at 3,6km

Average frequency is 2450,000 MHz

Free Space = 113,7 dB, Obstruction = 0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 145,4 dB

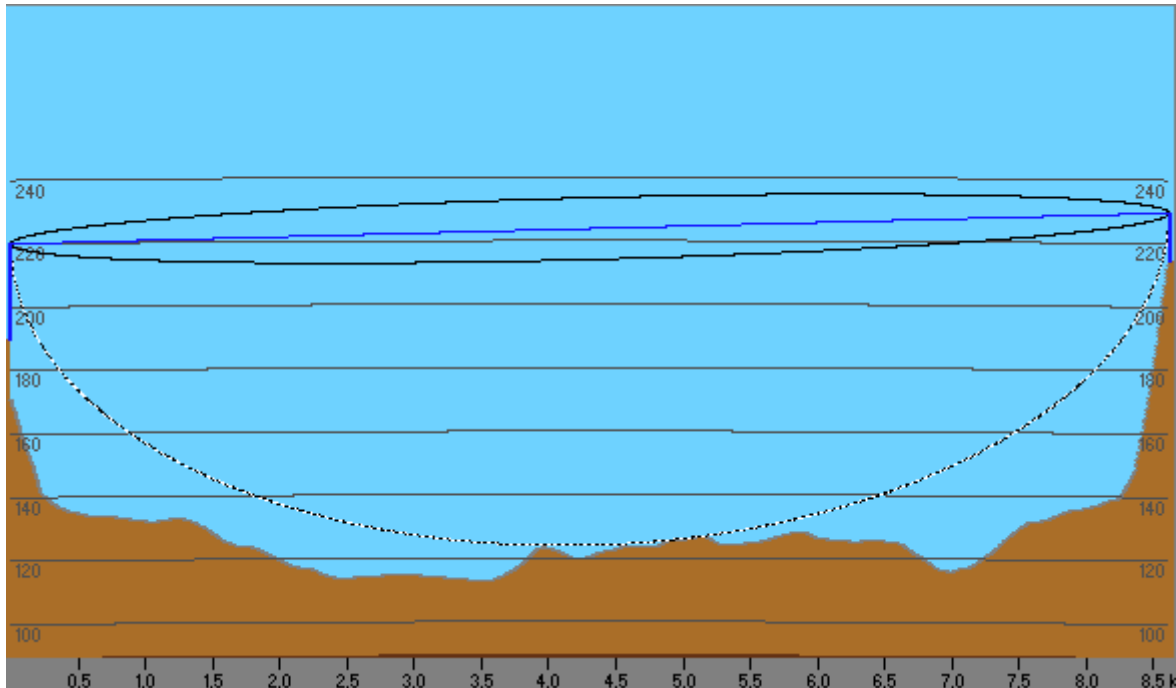
System gain from EB08 to 14 is 154,0 dB

System gain from 14 to EB08 is 154,0 dB

Worst reception is 8,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota 13E



Distance between EB08 and 13E is 8,6 km (5,3 miles)

True North Azimuth = 215,58°, Magnetic North Azimuth = 216,14°, Elevation angle = 0,0005°

Terrain elevation variation is 104,2 m

Propagation mode is line-of-sight, minimum clearance 6,3F1 at 5,1km

Average frequency is 2450,000 MHz

Free Space = 118,9 dB, Obstruction = -5,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 144,2 dB

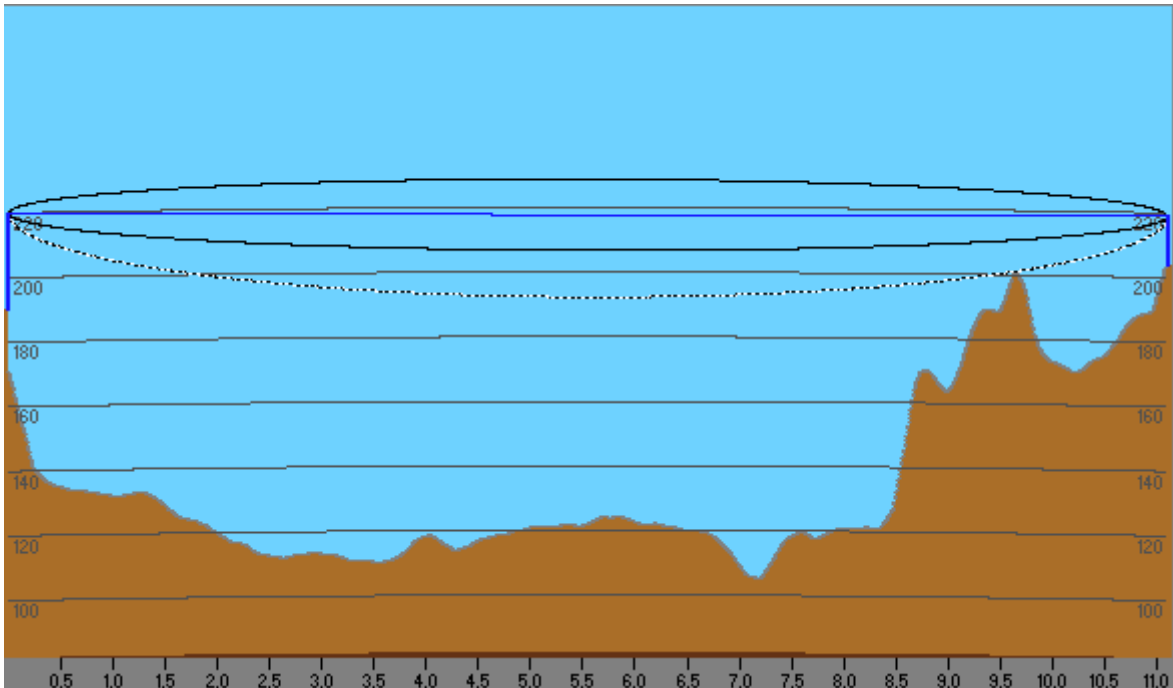
System gain from EB08 to 13E is 154,0 dB

System gain from 13E to EB08 is 154,0 dB

Worst reception is 9,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 8 – Estación remota 13D-1



Distance between EB08 and 13D-1 is 11,1 km (6,9 miles)

True North Azimuth = 217,76°, Magnetic North Azimuth = 218,33°, Elevation angle = -0,0900°

Terrain elevation variation is 99,7 m

Propagation mode is line-of-sight, minimum clearance 1,7F1 at 9,7km

Average frequency is 2450,000 MHz

Free Space = 121,1 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 151,4 dB

System gain from EB08 to 13D-1 is 154,0 dB

System gain from 13D-1 to EB08 is 154,0 dB

Worst reception is 2,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

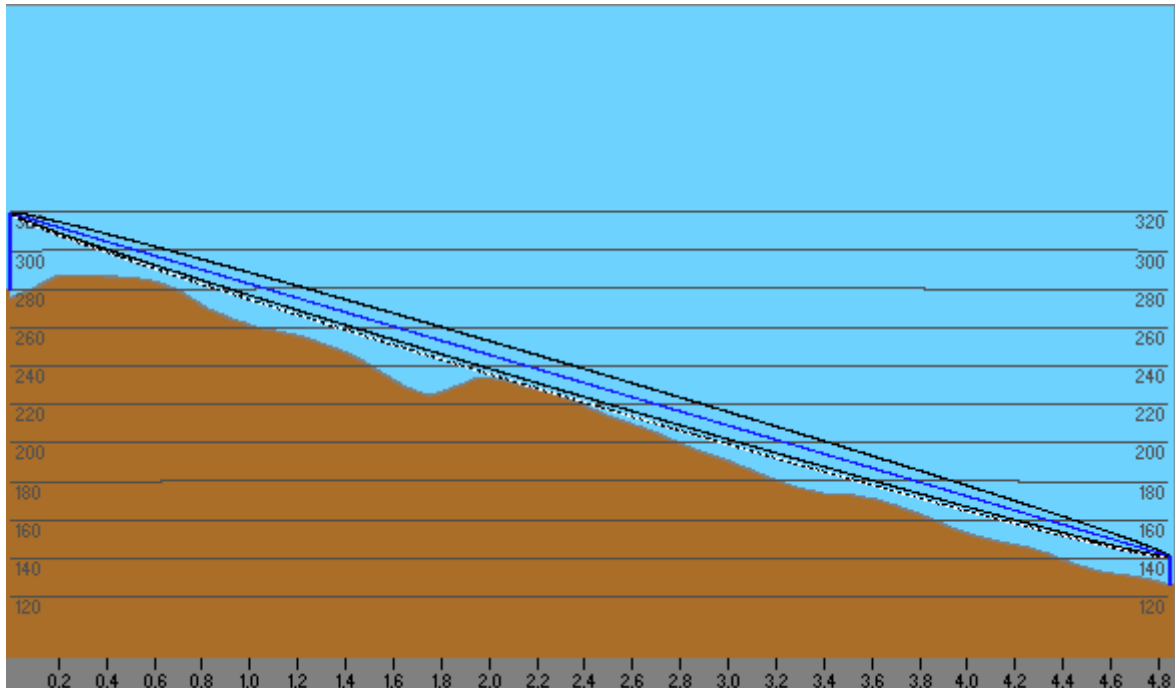
8.9 Estación base 9 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 29. Grupo Estación Base 9

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
El Tablazo III (B)-1	703996	9115551	EB09	15 m	
El Tablazo II (A)	705495	9113738	EB09	15 m	
El Tablazo II (B)	705918	9113240	EB09	15 m	
El Tablazo I (A)-2	710826	9115214	EB09	25 m	
El Tablazo I (A)-1	710660	9114840	EB09	15 m	
El Tablazo I (B)-2	710203	9113582	EB09	15 m	
El Tablazo I (B)-1	710151	9113589	EB09	15 m	
VD.230-III	708867	9112271	EB09	15 m	

- Estación Base 9 – Estación remota El Tablazo III (B)-1



Distance between EB09 and El Tablazo III (B)-1 is 4,8 km (3,0 miles)

True North Azimuth = 285,07°, Magnetic North Azimuth = 285,50°, Elevation angle = -2,1155°

Terrain elevation variation is 162,1 m

Propagation mode is line-of-sight, minimum clearance 0,8F1 at 2,2km

Average frequency is 2450,000 MHz

Free Space = 113,9 dB, Obstruction = -1,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 143,1 dB

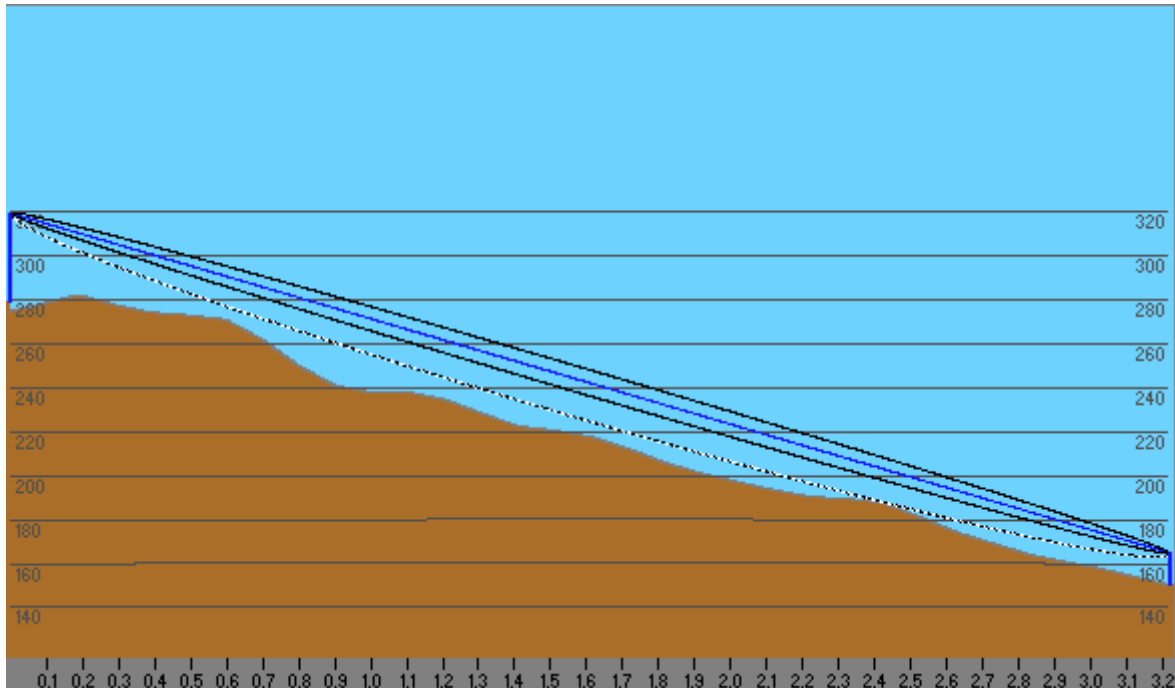
System gain from EB09 to El Tablazo III (B)-1 is 154,0 dB

System gain from El Tablazo III (B)-1 to EB09 is 154,0 dB

Worst reception is 10,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo II (A)



Distance between EB09 and El Tablazo II (A) is 3,2 km (2,0 miles)

True North Azimuth = 260,02°, Magnetic North Azimuth = 260,45°, Elevation angle = -2,7440°

Terrain elevation variation is 131,5 m

Propagation mode is line-of-sight, minimum clearance 2,0F1 at 2,4km

Average frequency is 2450,000 MHz

Free Space = 110,3 dB, Obstruction = 4,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 145,1 dB

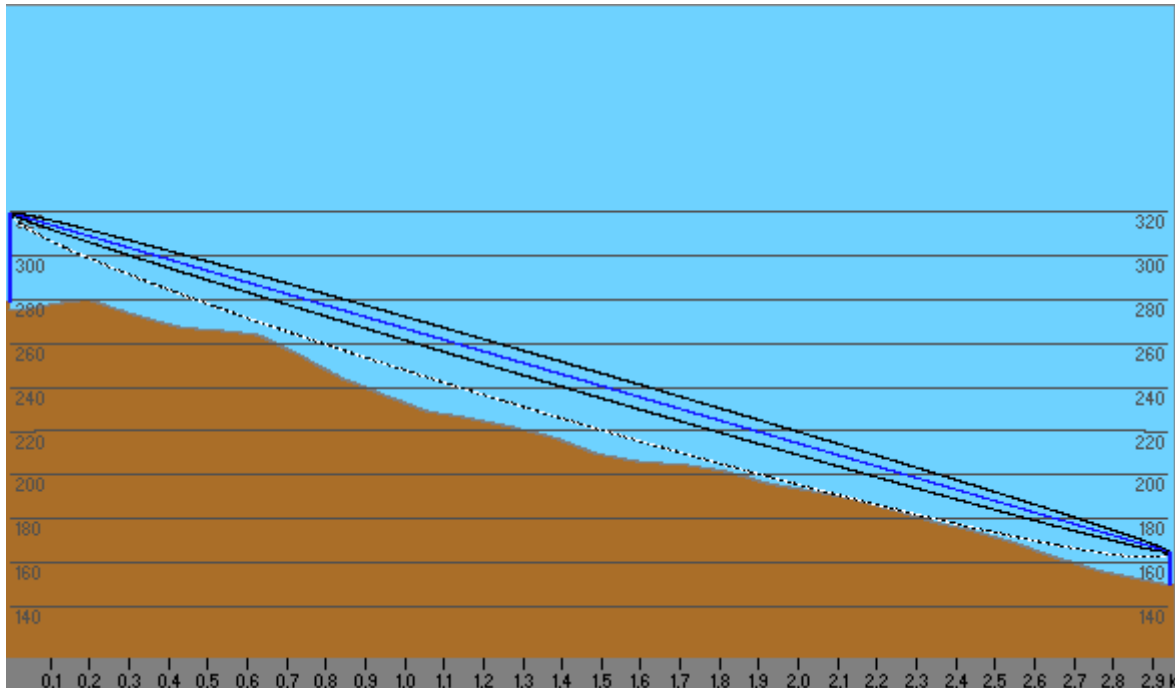
System gain from EB09 to El Tablazo II (A) is 154,0 dB

System gain from El Tablazo II (A) to EB09 is 154,0 dB

Worst reception is 8,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo II (B)



Distance between EB09 and El Tablazo II (B) is 2,9 km (1,8 miles)

True North Azimuth = 248,94°, Magnetic North Azimuth = 249,37°, Elevation angle = -3,0032°

Terrain elevation variation is 130,0 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 109,5 dB, Obstruction = -5,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 135,3 dB

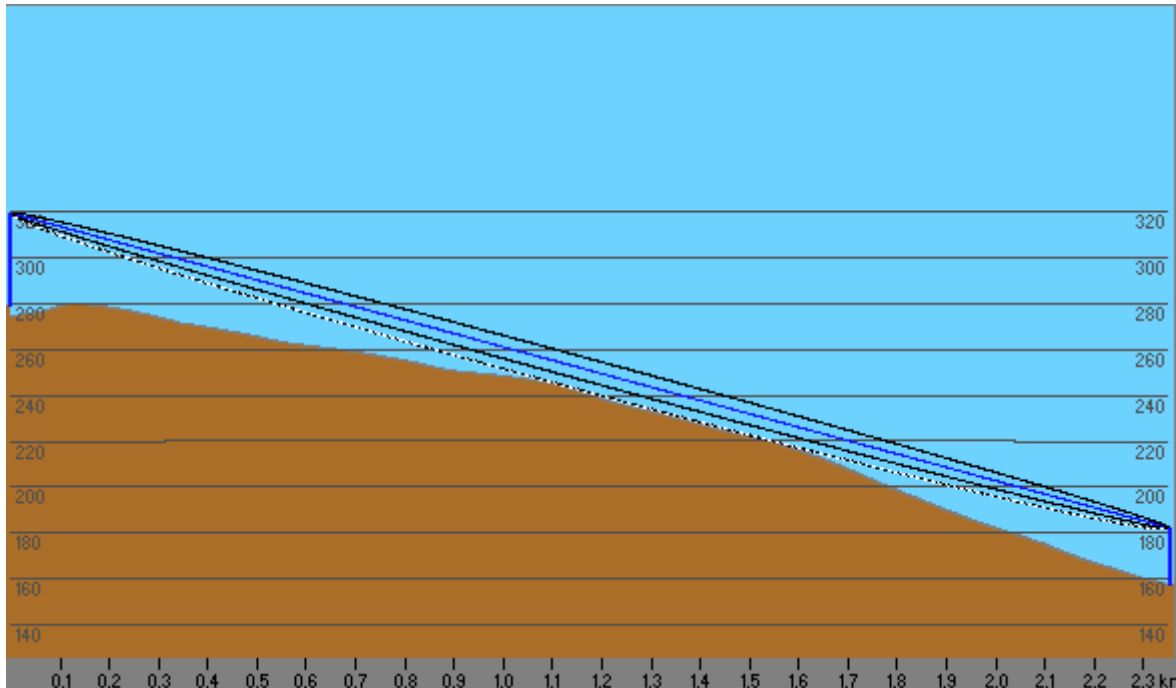
System gain from EB09 to El Tablazo II (B) is 154,0 dB

System gain from El Tablazo II (B) to EB09 is 154,0 dB

Worst reception is 18,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo I (A)-2



Distance between EB09 and El Tablazo I (A)-2 is 2,3 km (1,5 miles)

True North Azimuth = 66,13°, Magnetic North Azimuth = 66,56°, Elevation angle = -3,4992°

Terrain elevation variation is 122,6 m

Propagation mode is line-of-sight, minimum clearance 0,6F1 at 1,5km

Average frequency is 2450,000 MHz

Free Space = 107,6 dB, Obstruction = 0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 139,0 dB

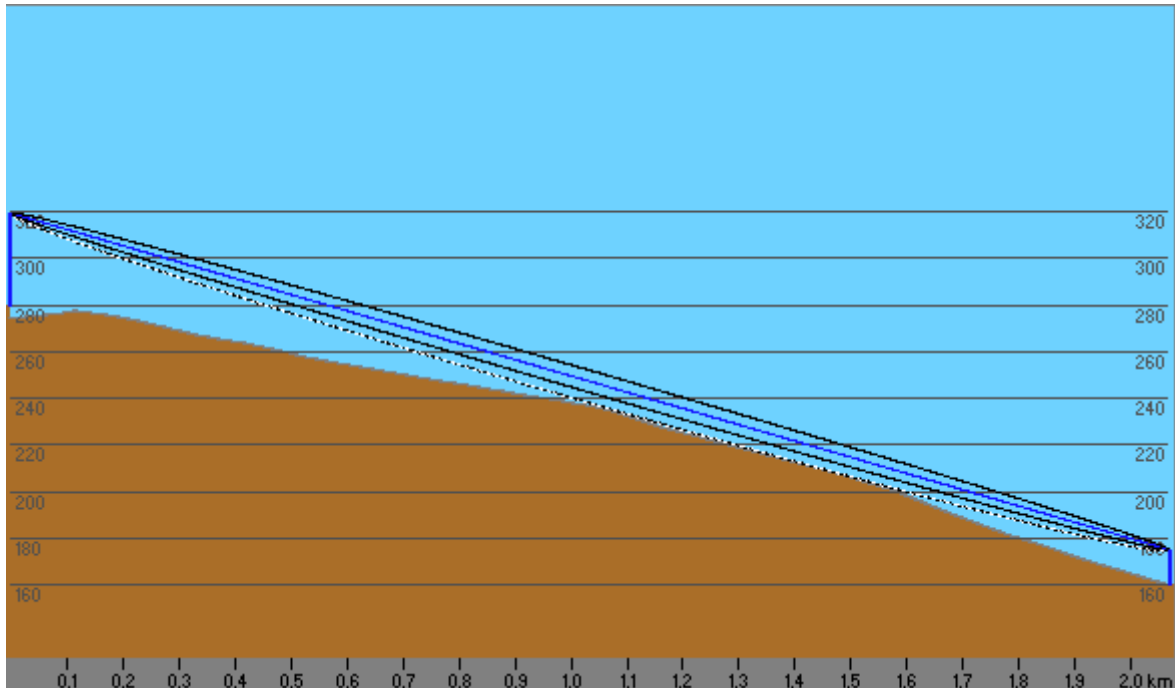
System gain from EB09 to El Tablazo I (A)-2 is 154,0 dB

System gain from El Tablazo I (A)-2 to EB09 is 154,0 dB

Worst reception is 15,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo I (A)-1



Distance between EB09 and El Tablazo I (A)-1 is 2,1 km (1,3 miles)

True North Azimuth = 73,87°, Magnetic North Azimuth = 74,30°, Elevation angle = -4,1885°

Terrain elevation variation is 116,9 m

Propagation mode is line-of-sight, minimum clearance 0,5F1 at 1,5km

Average frequency is 2450,000 MHz

Free Space = 106,5 dB, Obstruction = 3,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 140,6 dB

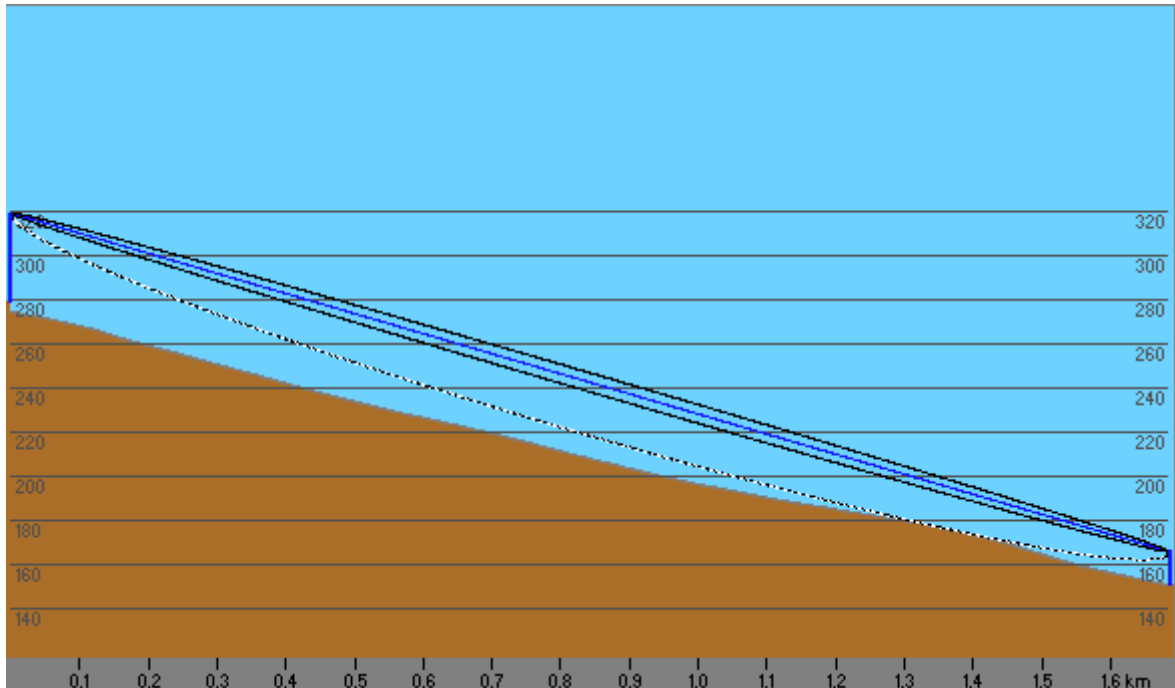
System gain from EB09 to El Tablazo I (A)-1 is 154,0 dB

System gain from El Tablazo I (A)-1 to EB09 is 154,0 dB

Worst reception is 13,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo I (B)-2



Distance between EB09 and El Tablazo I (B)-2 is 1,7 km (1,0 miles)

True North Azimuth = 114,29°, Magnetic North Azimuth = 114,72°, Elevation angle = -5,3605°

Terrain elevation variation is 123,8 m

Propagation mode is line-of-sight, minimum clearance 2,8F1 at 1,4km

Average frequency is 2450,000 MHz

Free Space = 104,7 dB, Obstruction = 6,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 142,3 dB

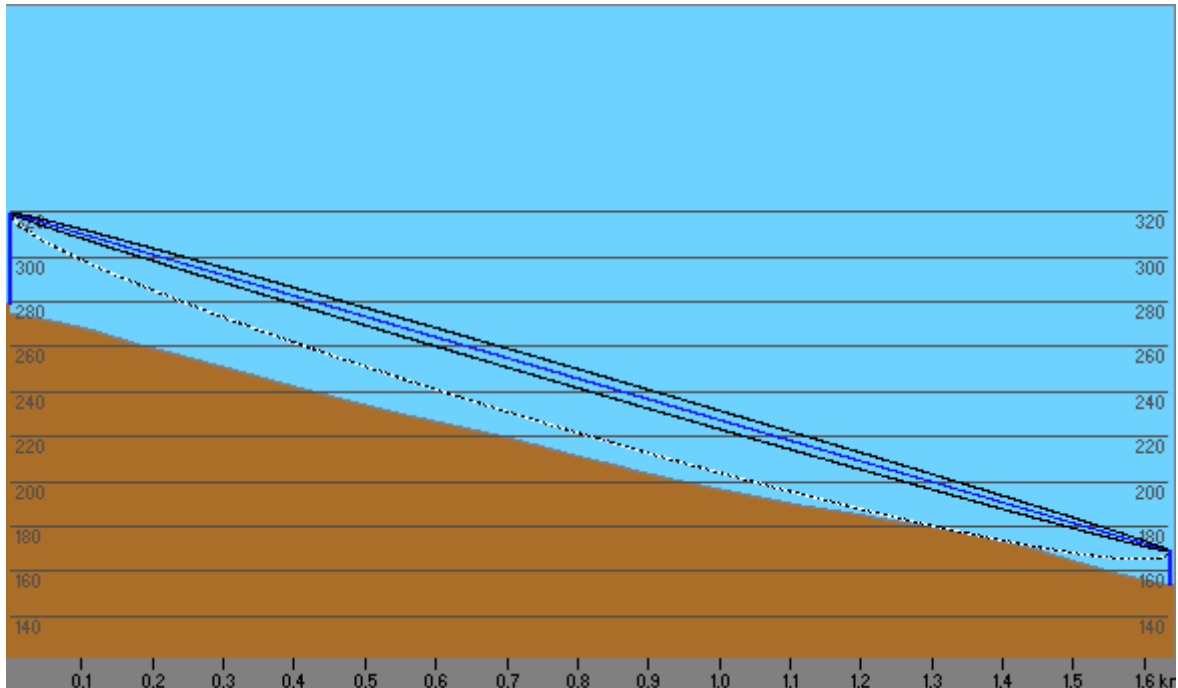
System gain from EB09 to El Tablazo I (B)-2 is 154,0 dB

System gain from El Tablazo I (B)-2 to EB09 is 154,0 dB

Worst reception is 11,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota El Tablazo I (B)-1



Distance between EB09 and El Tablazo I (B)-1 is 1,6 km (1,0 miles)

True North Azimuth = 114,82°, Magnetic North Azimuth = 115,25°, Elevation angle = -5,4195°

Terrain elevation variation is 121,0 m

Propagation mode is line-of-sight, minimum clearance 2,9F1 at 1,4km

Average frequency is 2450,000 MHz

Free Space = 104,5 dB, Obstruction = 0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 136,0 dB

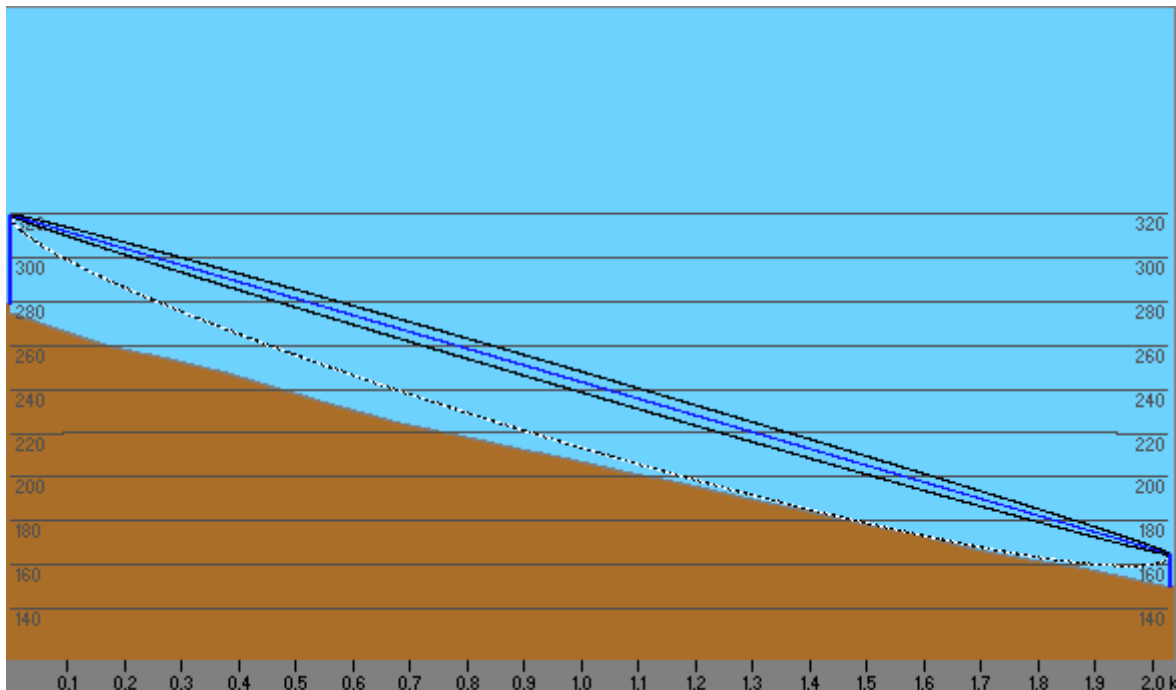
System gain from EB09 to El Tablazo I (B)-1 is 154,0 dB

System gain from El Tablazo I (B)-1 to EB09 is 154,0 dB

Worst reception is 18,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 9 – Estación remota VD.230-III



Distance between EB09 and VD.230-III is 2,0 km (1,3 miles)

True North Azimuth = 174,15°, Magnetic North Azimuth = 174,58°, Elevation angle = -4,4407°

Terrain elevation variation is 125,1 m

Propagation mode is line-of-sight, minimum clearance 3,8F1 at 1,5km

Average frequency is 2450,000 MHz

Free Space = 106,3 dB, Obstruction = 4,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 141,3 dB

System gain from EB09 to VD.230-III is 154,0 dB

System gain from VD.230-III to EB09 is 154,0 dB

Worst reception is 12,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

8.10 Estación base 10 – enlaces estaciones remotas

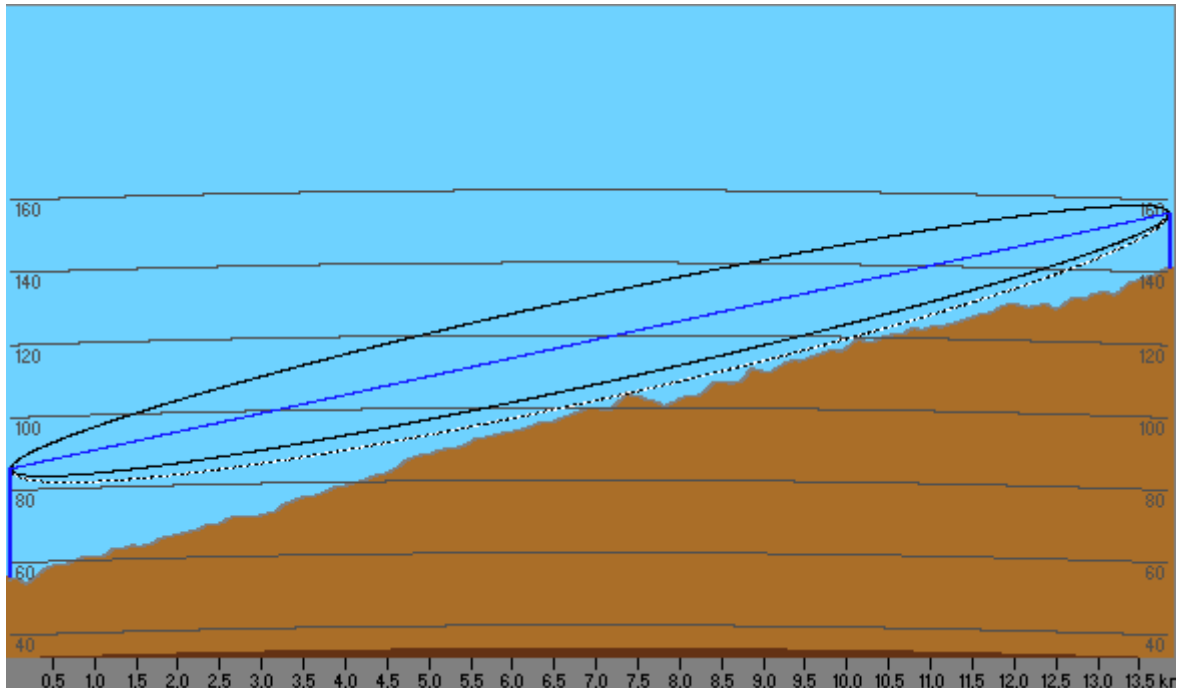
Se muestra a continuación la viabilidad de los enlaces.

Cuadro 30. Grupo Estación Base 10

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
Toma LA GLORIA-CAO	703048	9138806	EB10	15 m	
Toma ALTO CHICLIN	703783	9138140	EB10	15 m	
Toma CARTAVIO-CHIQUITOY	704280	9137715	EB10	15 m	
Toma CHICLIN	704304	9137693	EB10	15 m	
Toma CHICAMITA	704893	9134061	EB10	15 m	
La Pascona Alta	705314	9132993	EB10	15 m	
La Pascona IV	706105	9128678	EB10	15 m	
La Pascona III (A)/(B)	705513	9126543	EB10	15 m	
La Pascona III (C)	705185	9125305	EB10	15 m	
La Pascona II	704919	9124479	EB10	15 m	
El Tablazo V (A)/(B)	704924	9124200	EB10	15 m	
El Tablazo IV (A)	704322	9119587	EB10	15 m	El Tablazo III (A)-1
El Tablazo IV (B)	702376	9118923	EB10	15 m	
El Tablazo IV (C)-1/2	701647	9118291	EB10	15 m	
El Tablazo III (A)-1	704772	9117483	EB10	15 m	

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
El Tablazo III (A)-2/3	704689	9116948	EB10	15 m	

- Estación Base 10 – Estación remota Toma LA GLORIA-CAO



Distance between EB10 and Toma LA GLORIA-CAO is 13,8 km (8,6 miles)

True North Azimuth = 28,49°, Magnetic North Azimuth = 28,87°, Elevation angle = 0,2706°

Terrain elevation variation is 94,1 m

Propagation mode is line-of-sight, minimum clearance 0,8F1 at 7,4km

Average frequency is 2450,000 MHz

Free Space = 123,0 dB, Obstruction = -4,3 dB, Urban = 0,0 dB, Forest = 1,0 dB, Statistics = 30,0 dB

Total propagation loss is 149,7 dB

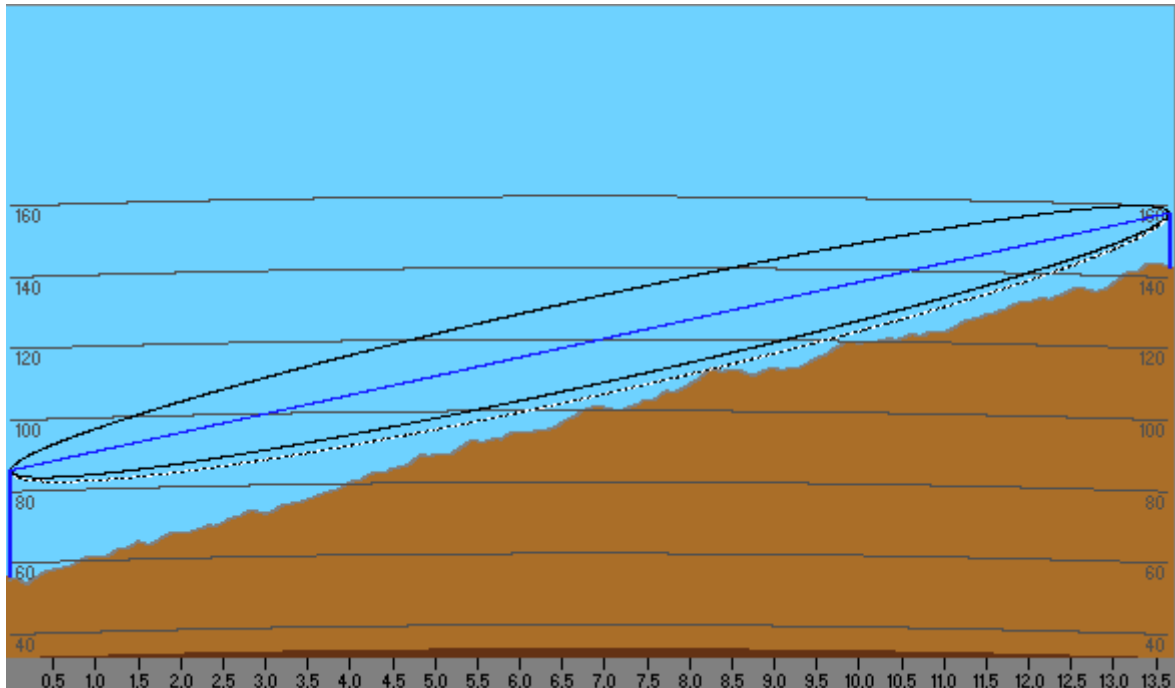
System gain from EB10 to Toma LA GLORIA-CAO is 154,0 dB

System gain from Toma LA GLORIA-CAO to EB10 is 154,0 dB

Worst reception is 4,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota Toma ALTO CHICLIN



Distance between EB10 and Toma ALTO CHICLIN is 13,6 km (8,5 miles)

True North Azimuth = 32,55°, Magnetic North Azimuth = 32,93°, Elevation angle = 0,2914°

Terrain elevation variation is 90,6 m

Propagation mode is line-of-sight, minimum clearance 0,8F1 at 8,2km

Average frequency is 2450,000 MHz

Free Space = 122,9 dB, Obstruction = -3,4 dB, Urban = 0,0 dB, Forest = 1,0 dB, Statistics = 29,8 dB

Total propagation loss is 150,4 dB

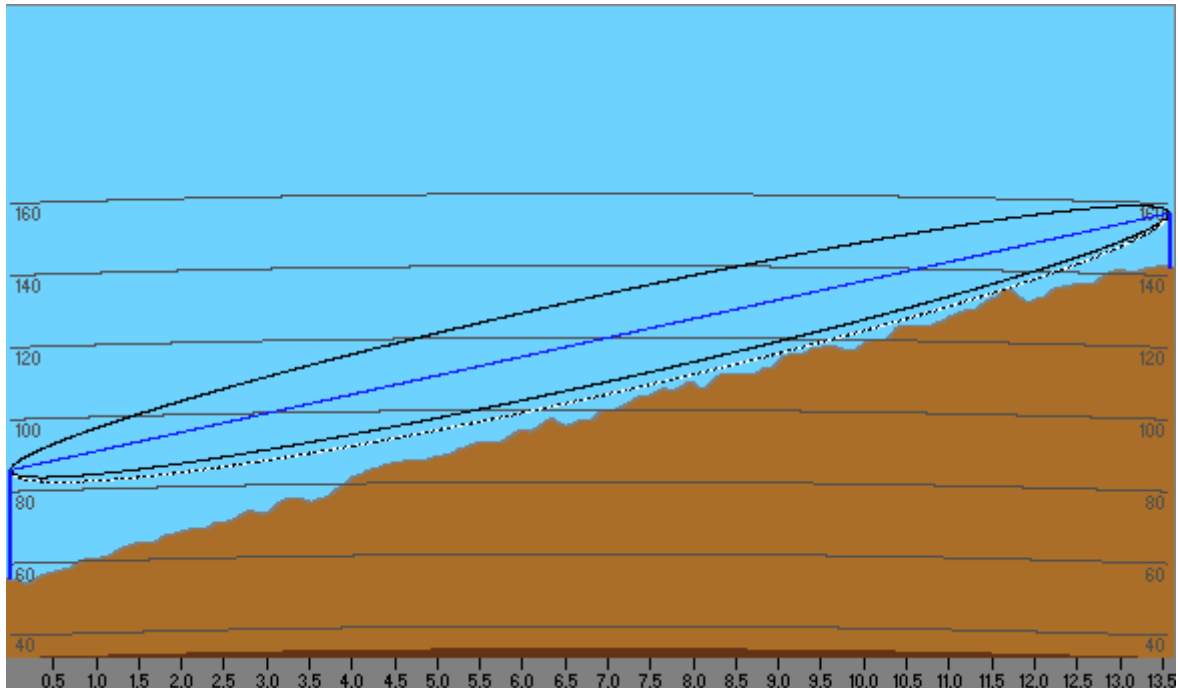
System gain from EB10 to Toma ALTO CHICLIN is 154,0 dB

System gain from Toma ALTO CHICLIN to EB10 is 154,0 dB

Worst reception is 3,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota Toma CARTAVIO-CHIQUITOY



Distance between EB10 and Toma CARTAVIO-CHIQUI is 13,6 km (8,4 miles)

True North Azimuth = 35,29°, Magnetic North Azimuth = 35,67°, Elevation angle = 0,2891°

Terrain elevation variation is 89,3 m

Propagation mode is line-of-sight, minimum clearance 0,9F1 at 11,6km

Average frequency is 2450,000 MHz

Free Space = 122,8 dB, Obstruction = -1,2 dB, Urban = 0,0 dB, Forest = 1,0 dB, Statistics = 29,5 dB

Total propagation loss is 152,1 dB

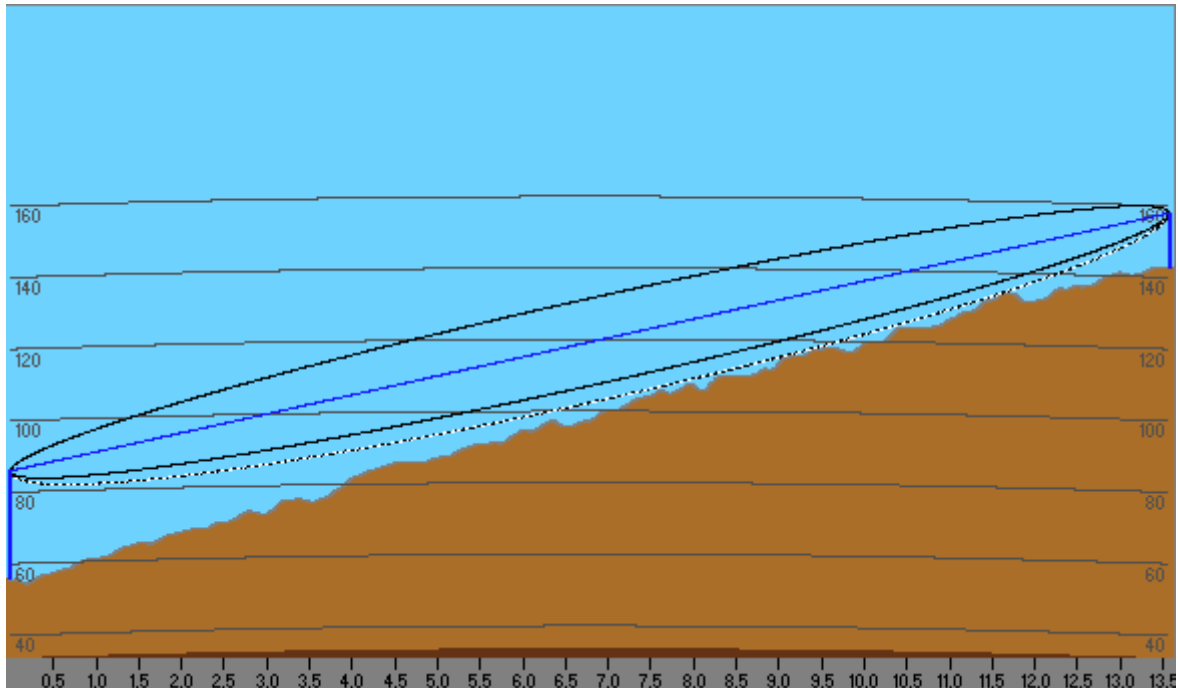
System gain from EB10 to Toma CARTAVIO-CHIQUI is 154,0 dB

System gain from Toma CARTAVIO-CHIQUI to EB10 is 154,0 dB

Worst reception is 1,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota Toma CHICLIN



Distance between EB10 and Toma CHICLIN is 13,5 km (8,4 miles)

True North Azimuth = 35,43°, Magnetic North Azimuth = 35,81°, Elevation angle = 0,2884°

Terrain elevation variation is 89,8 m

Propagation mode is line-of-sight, minimum clearance 0,9F1 at 9,1km

Average frequency is 2450,000 MHz

Free Space = 122,8 dB, Obstruction = -3,7 dB, Urban = 0,0 dB, Forest = 1,0 dB, Statistics = 29,3 dB

Total propagation loss is 149,5 dB

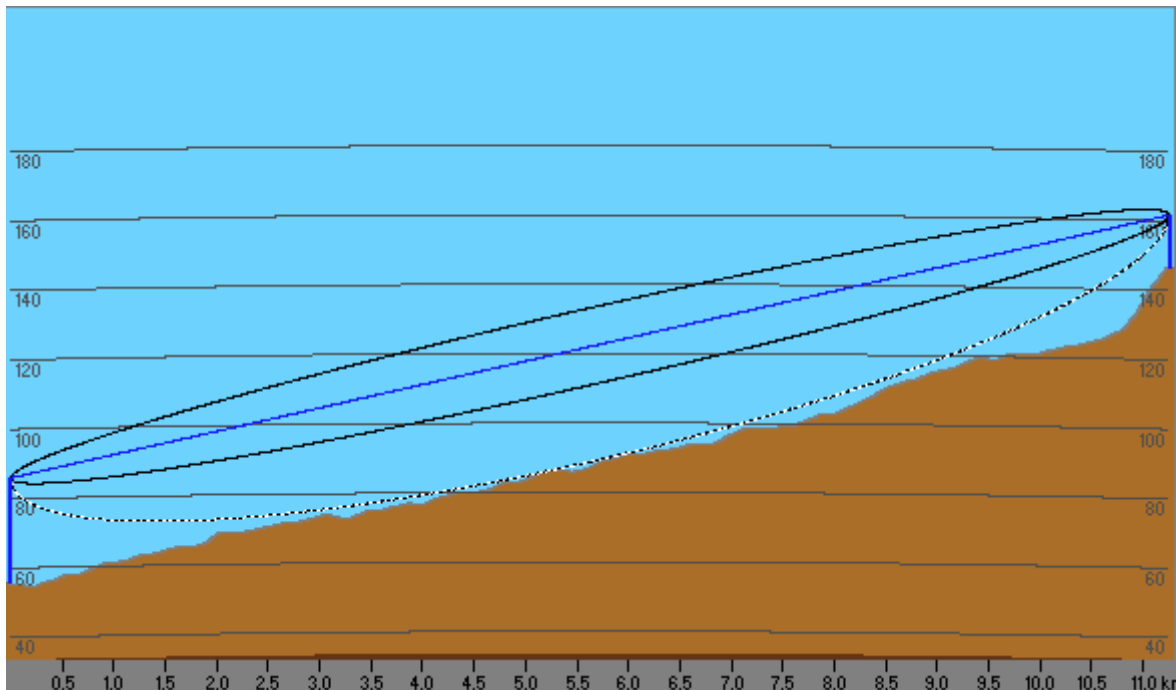
System gain from EB10 to Toma CHICLIN is 154,0 dB

System gain from Toma CHICLIN to EB10 is 154,0 dB

Worst reception is 4,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota Toma CHICAMITA



Distance between EB10 and Toma CHICAMITA is 11,2 km (7,0 miles)

True North Azimuth = 48,83°, Magnetic North Azimuth = 49,21°, Elevation angle = 0,3915°

Terrain elevation variation is 98,5 m

Propagation mode is line-of-sight, minimum clearance 1,9F1 at 5,2km

Average frequency is 2450,000 MHz

Free Space = 121,2 dB, Obstruction = -0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,4 dB

Total propagation loss is 150,7 dB

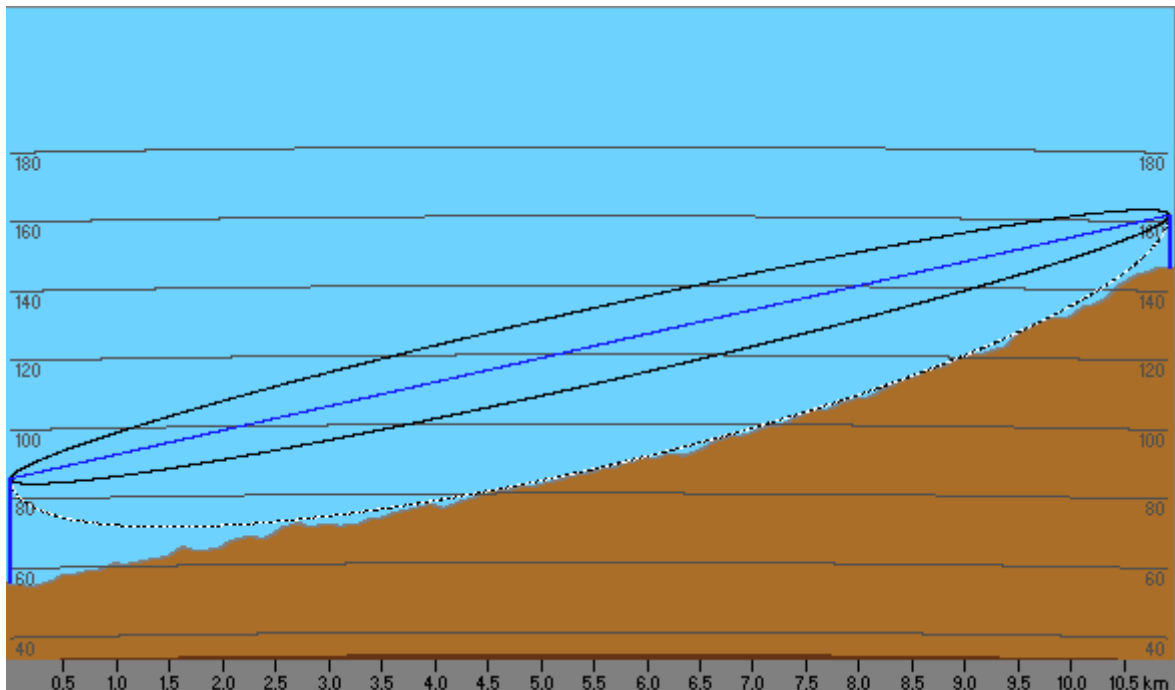
System gain from EB10 to Toma CHICAMITA is 154,0 dB

System gain from Toma CHICAMITA to EB10 is 154,0 dB

Worst reception is 3,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota La Pascona Alta



Distance between EB10 and La Pascona Alta is 10,9 km (6,8 miles)

True North Azimuth = 54,54°, Magnetic North Azimuth = 54,92°, Elevation angle = 0,3840°

Terrain elevation variation is 92,2 m

Propagation mode is line-of-sight, minimum clearance 2,0F1 at 5,9km

Average frequency is 2450,000 MHz

Free Space = 120,9 dB, Obstruction = 9,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 161,4 dB

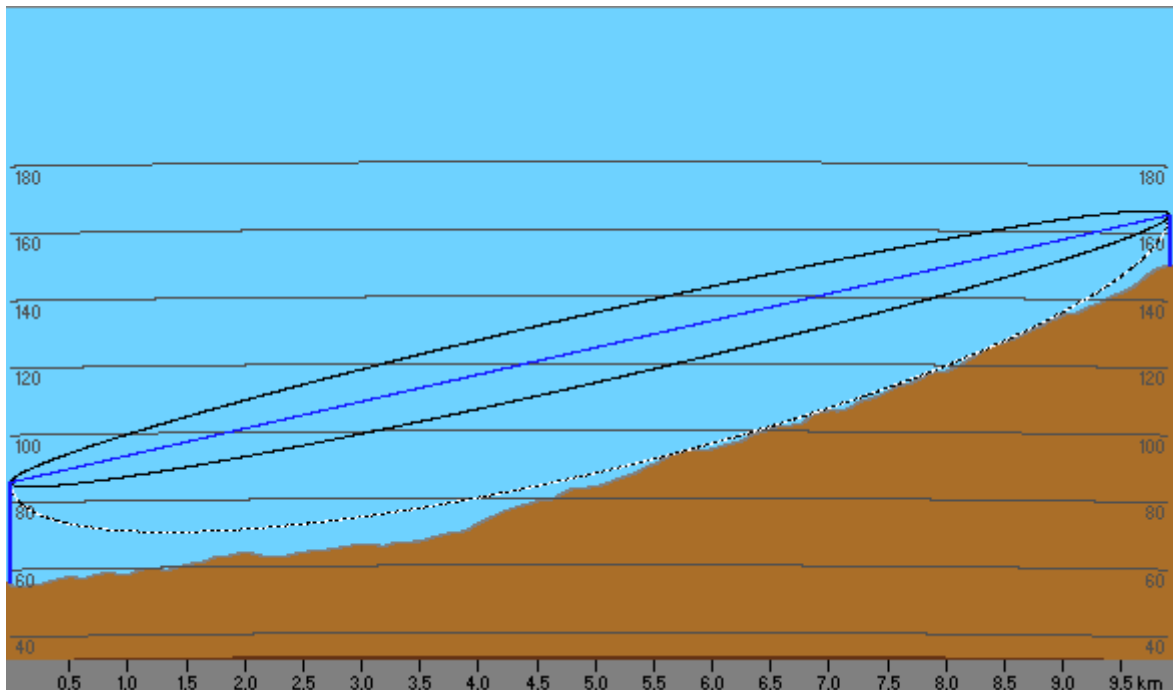
System gain from EB10 to La Pascona Alta is 154,0 dB

System gain from La Pascona Alta to EB10 is 154,0 dB

Worst reception is 7,4 dB below the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota La Pascona IV



Distance between EB10 and La Pascona IV is 9,9 km (6,1 miles)

True North Azimuth = 78,36°, Magnetic North Azimuth = 78,74°, Elevation angle = 0,4296°

Terrain elevation variation is 96,5 m

Propagation mode is line-of-sight, minimum clearance 2,2F1 at 5,7km

Average frequency is 2450,000 MHz

Free Space = 120,1 dB, Obstruction = -4,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 146,2 dB

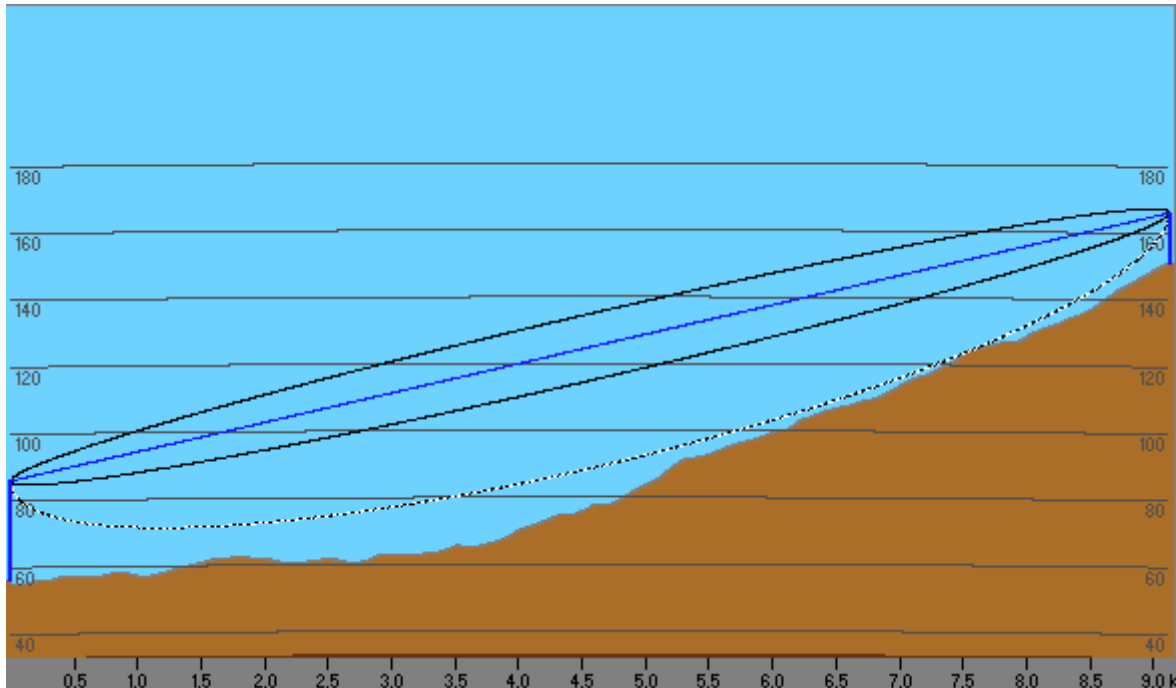
System gain from EB10 to La Pascona IV is 154,0 dB

System gain from La Pascona IV to EB10 is 154,0 dB

Worst reception is 7,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota La Pascona III (A)/(B)



Distance between EB10 and LaPascona III(A)/(B) is 9,1 km (5,7 miles)

True North Azimuth = 90,95°, Magnetic North Azimuth = 91,33°, Elevation angle = 0,4835°

Terrain elevation variation is 96,3 m

Propagation mode is line-of-sight, minimum clearance 2,4F1 at 7,5km

Average frequency is 2450,000 MHz

Free Space = 119,4 dB, Obstruction = 0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 151,0 dB

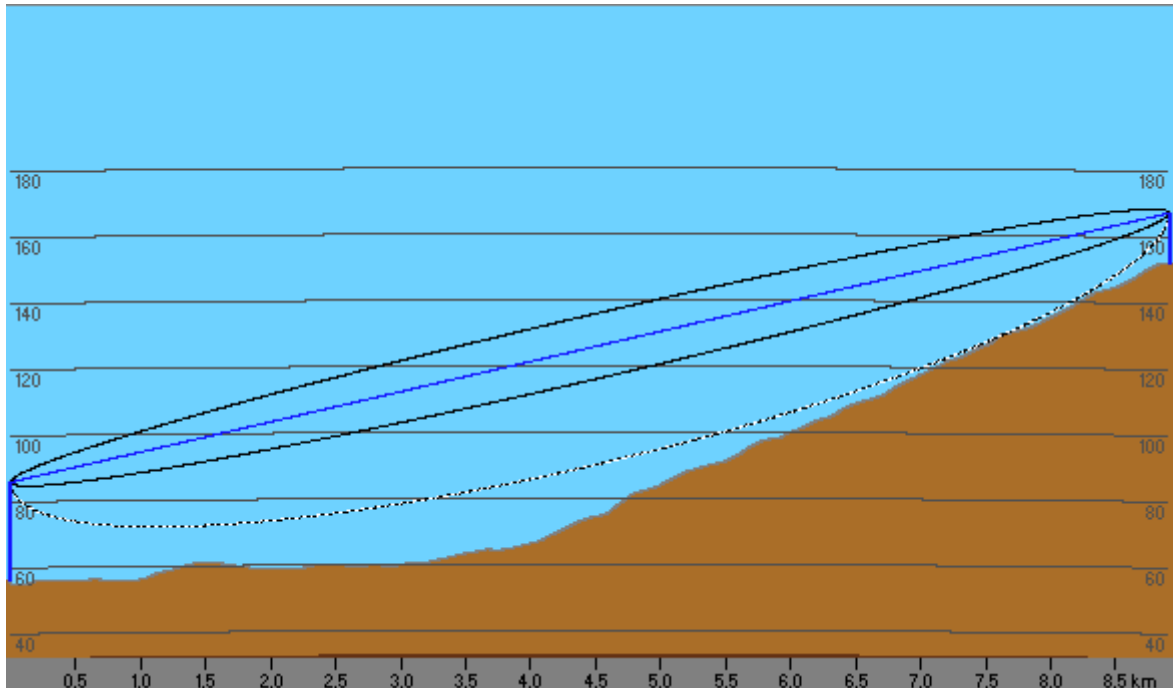
System gain from EB10 to LaPascona III(A)/(B) is 154,0 dB

System gain from LaPascona III(A)/(B) to EB10 is 154,0 dB

Worst reception is 3,0 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota La Pascona III (C)



Distance between EB10 and La Pascona III (C) is 8,9 km (5,5 miles)

True North Azimuth = 99,03°, Magnetic North Azimuth = 99,41°, Elevation angle = 0,4871°

Terrain elevation variation is 97,4 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 7,6km

Average frequency is 2450,000 MHz

Free Space = 119,2 dB, Obstruction = -0,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 149,8 dB

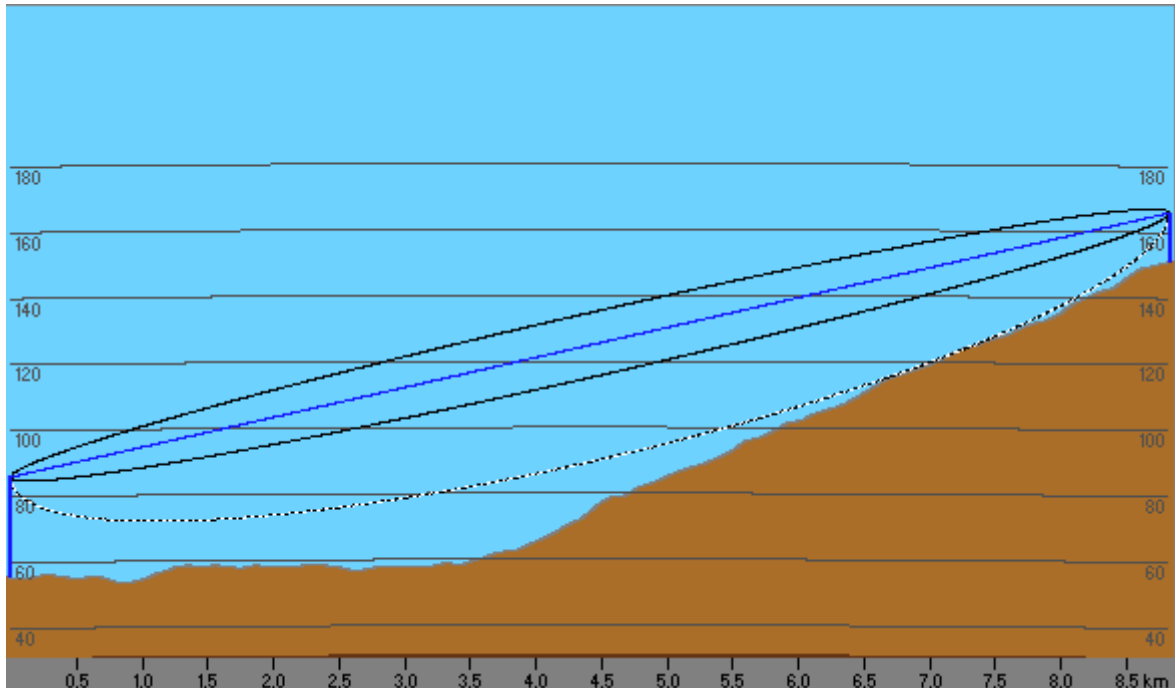
System gain from EB10 to La Pascona III (C) is 154,0 dB

System gain from La Pascona III (C) to EB10 is 154,0 dB

Worst reception is 4,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota La Pascona II



Distance between EB10 and La Pascona II is 8,8 km (5,5 miles)

True North Azimuth = 104,64°, Magnetic North Azimuth = 105,02°, Elevation angle = 0,4825°

Terrain elevation variation is 97,5 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 7,2km

Average frequency is 2450,000 MHz

Free Space = 119,1 dB, Obstruction = -0,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 149,6 dB

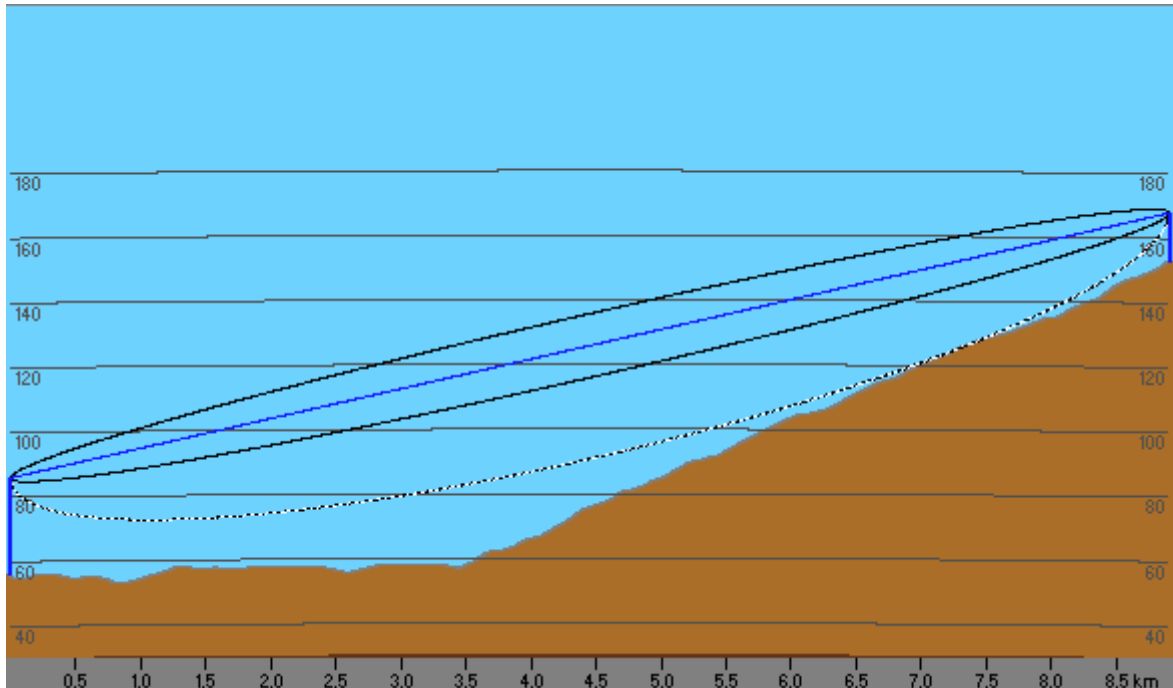
System gain from EB10 to La Pascona II is 154,0 dB

System gain from La Pascona II to EB10 is 154,0 dB

Worst reception is 4,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota El Tablazo V (A)/(B)



Distance between EB10 and El Tablazo V (A)/(B) is 8,9 km (5,5 miles)

True North Azimuth = 106,38°, Magnetic North Azimuth = 106,76°, Elevation angle = 0,4860°

Terrain elevation variation is 99,6 m

Propagation mode is line-of-sight, minimum clearance 2,3F1 at 7,3km

Average frequency is 2450,000 MHz

Free Space = 119,2 dB, Obstruction = -0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 149,3 dB

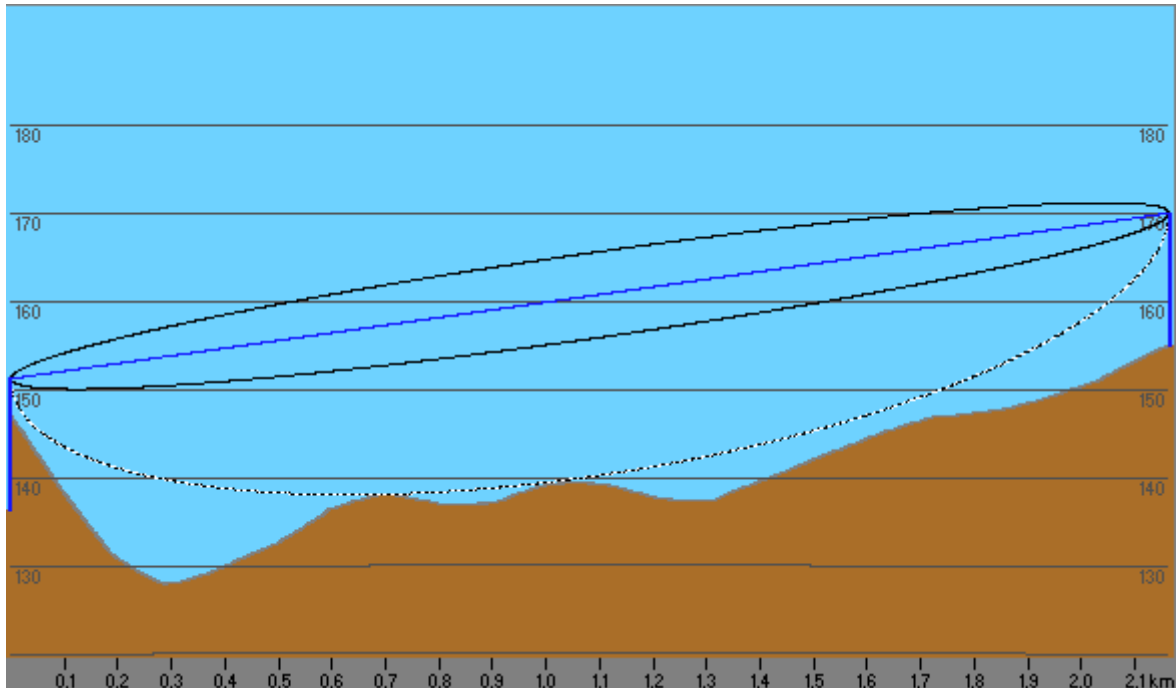
System gain from EB10 to El Tablazo V (A)/(B) is 154,0 dB

System gain from El Tablazo V (A)/(B) to EB10 is 154,0 dB

Worst reception is 4,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación remota El Tablazo IV (A) – El Tablazo III (A) -1



Distance between El Tablazo IV (A) and El Tablazo III (A)-1 is 2,2 km (1,3 miles)

True North Azimuth = 167,73°, Magnetic North Azimuth = 168,15°, Elevation angle = 0,5551°

Terrain elevation variation is 27,1 m

Propagation mode is line-of-sight, minimum clearance 2,7F1 at 0,7km

Average frequency is 2450,000 MHz

Free Space = 106,9 dB, Obstruction = -2,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 134,8 dB

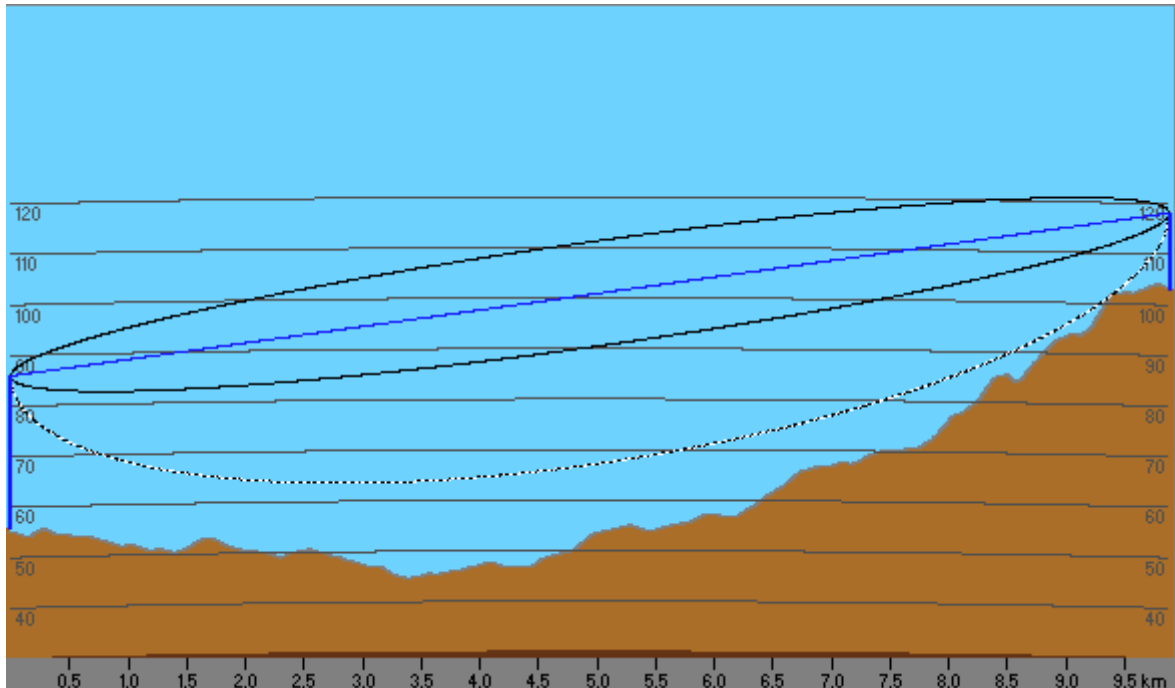
System gain from El Tablazo IV (A) to El Tablazo III (A)-1 is 154,0 dB

System gain from El Tablazo III (A)-1 to El Tablazo IV (A) is 154,0 dB

Worst reception is 19,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota El Tablazo IV (B)



Distance between EB10 and El Tablazo IV (B) is 9,9 km (6,1 miles)

True North Azimuth = 142,45°, Magnetic North Azimuth = 142,83°, Elevation angle = 0,0616°

Terrain elevation variation is 59,3 m

Propagation mode is line-of-sight, minimum clearance 1,1F1 at 9,4km

Average frequency is 2450,000 MHz

Free Space = 120,1 dB, Obstruction = -0,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 150,4 dB

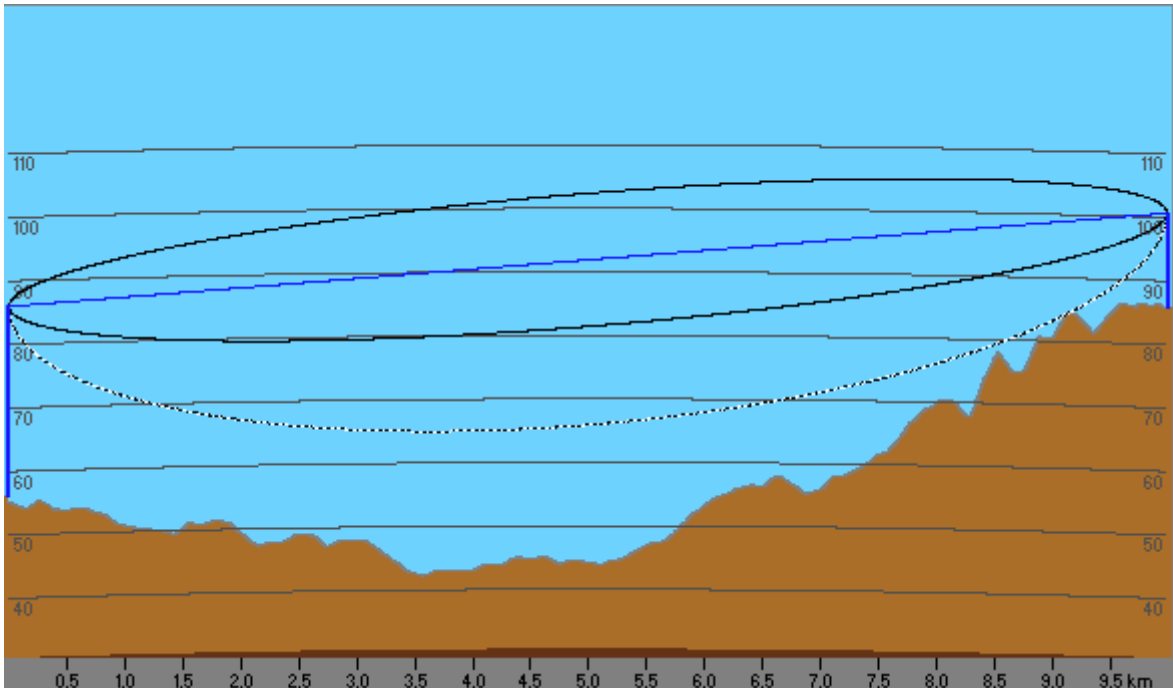
System gain from EB10 to El Tablazo IV (B) is 154,0 dB

System gain from El Tablazo IV (B) to EB10 is 154,0 dB

Worst reception is 3,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota El Tablazo IV (C)-1/2



Distance between EB10 and EITablazo IV(C)-1/2 is 10,0 km (6,2 miles)

True North Azimuth = 147,99°, Magnetic North Azimuth = 148,37°, Elevation angle = 0,0055°

Terrain elevation variation is 44,1 m

Propagation mode is line-of-sight, minimum clearance 1,7F1 at 9,2km

Average frequency is 2450,000 MHz

Free Space = 120,2 dB, Obstruction = -2,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,9 dB

Total propagation loss is 149,1 dB

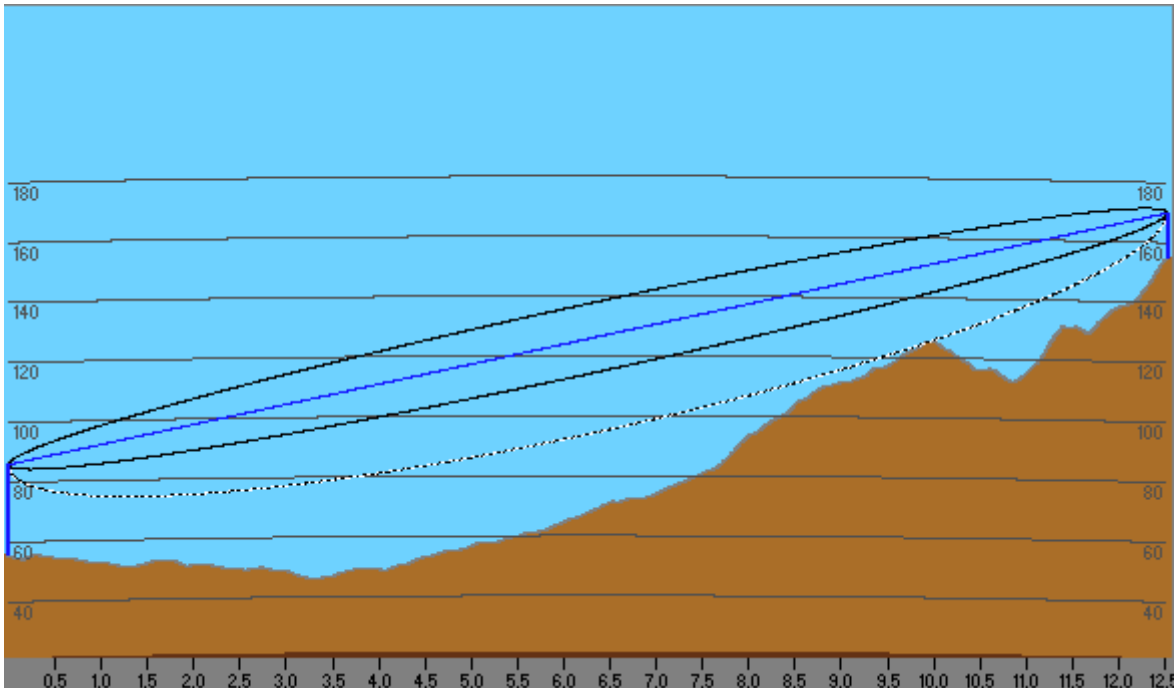
System gain from EB10 to EITablazo IV(C)-1/2 is 154,0 dB

System gain from EITablazo IV(C)-1/2 to EB10 is 154,0 dB

Worst reception is 4,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota El Tablazo III (A)-1



Distance between EB10 and El Tablazo III (A)-1 is 12,5 km (7,8 miles)

True North Azimuth = 137,74°, Magnetic North Azimuth = 138,12°, Elevation angle = 0,3098°

Terrain elevation variation is 109,2 m

Propagation mode is line-of-sight, minimum clearance 1,9F1 at 9,9km

Average frequency is 2450,000 MHz

Free Space = 122,1 dB, Obstruction = -0,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 152,9 dB

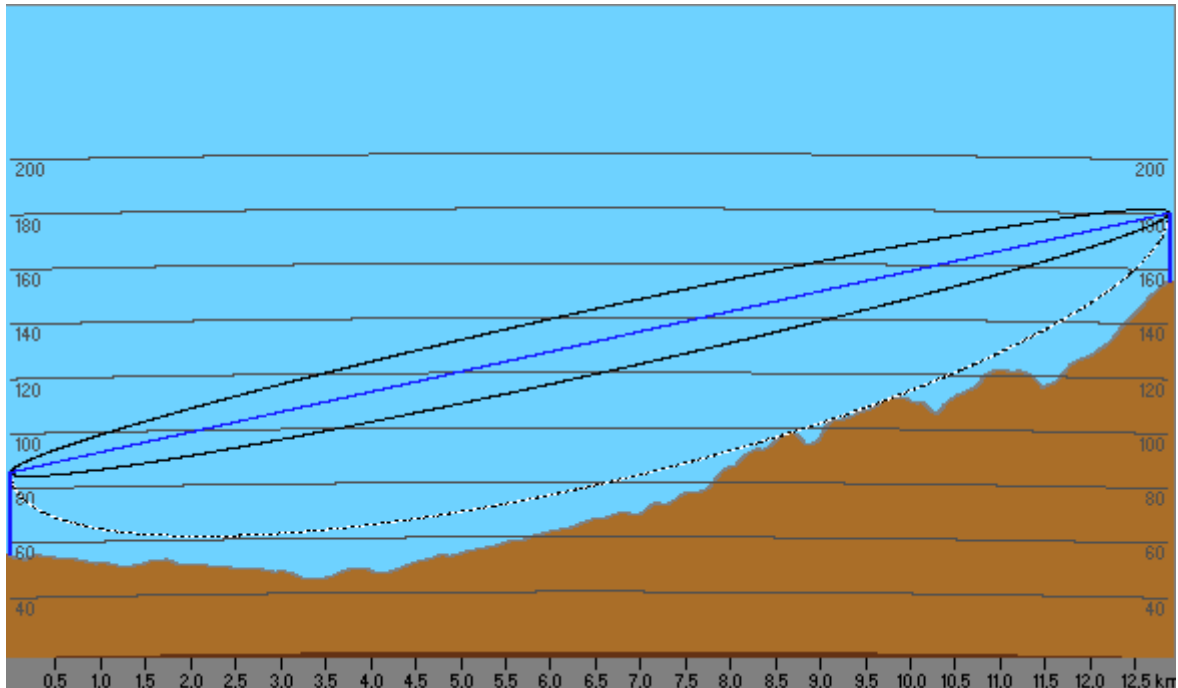
System gain from EB10 to El Tablazo III (A)-1 is 154,0 dB

System gain from El Tablazo III (A)-1 to EB10 is 154,0 dB

Worst reception is 1,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 10 – Estación remota El Tablazo III (A)-2/3



Distance between EB10 and EITablazo III(A)-2/3 is 12,9 km (8,0 miles)

True North Azimuth = 139,62°, Magnetic North Azimuth = 140,00°, Elevation angle = 0,3365°

Terrain elevation variation is 110,7 m

Propagation mode is line-of-sight, minimum clearance 2,8F1 at 8,6km

Average frequency is 2450,000 MHz

Free Space = 122,4 dB, Obstruction = -0,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,0 dB

Total propagation loss is 153,3 dB

System gain from EB10 to EITablazo III(A)-2/3 is 154,0 dB

System gain from EITablazo III(A)-2/3 to EB10 is 154,0 dB

Worst reception is 0,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

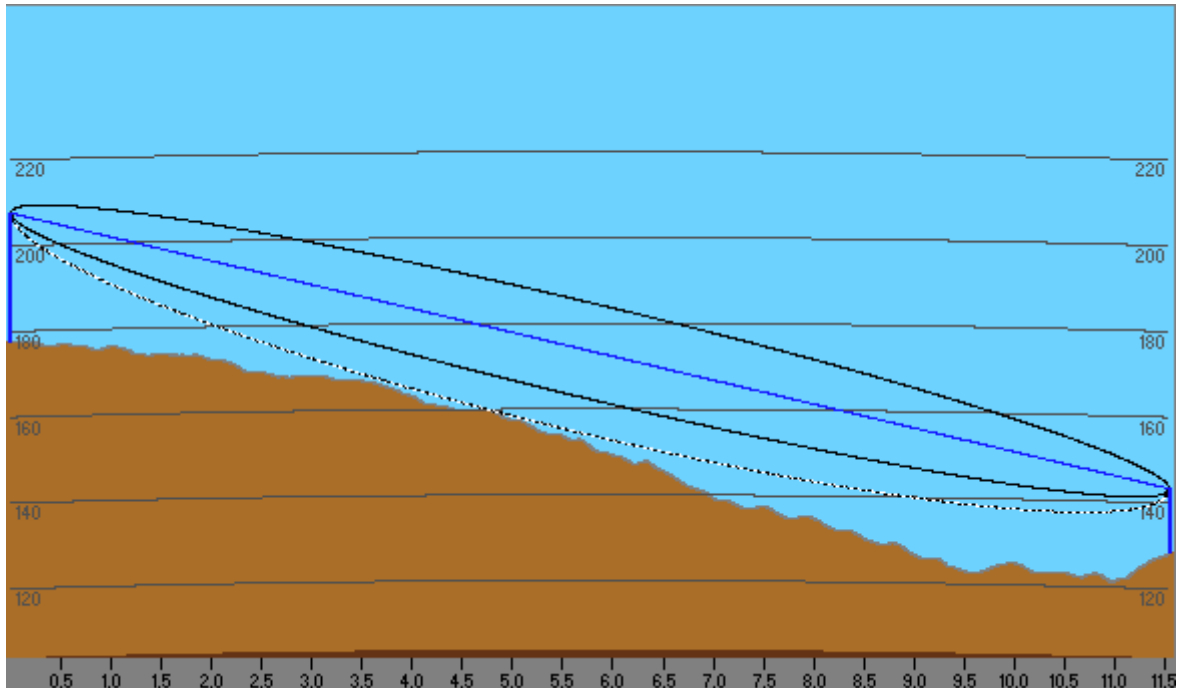
8.11 Estación base 11 - enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 31. Grupo Estación Base 11

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
Yugo-2	690381	9157189	EB11	15 m	
Mocan III	690431	9157268	EB11	15 m	
Mocan II	690713	9157398	EB11	15 m	
Mocan I	690958	9157781	EB11	15 m	
Toma ESPINAL	692879	9155127	EB11	15 m	
Toma POTRERO	693214	9153380	EB11	15 m	
Toma QUINTA LA GLORIA	693658	9150858	EB11	15 m	
Toma PAIJAN	695517	9147618	EB11	15 m	
Toma CAVERO	696962	9145835	EB11	15 m	
Toma TALAMBO	699349	9142572	EB11	15 m	

- Estación Base 11 – Estación remota Yugo-2



Distance between EB11 and Yugo-2 is 11,5 km (7,2 miles)

True North Azimuth = 312,50°, Magnetic North Azimuth = 312,94°, Elevation angle = -0,3414°

Terrain elevation variation is 59,4 m

Propagation mode is line-of-sight, minimum clearance 1,0F1 at 4,8km

Average frequency is 2450,000 MHz

Free Space = 121,4 dB, Obstruction = -4,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 147,2 dB

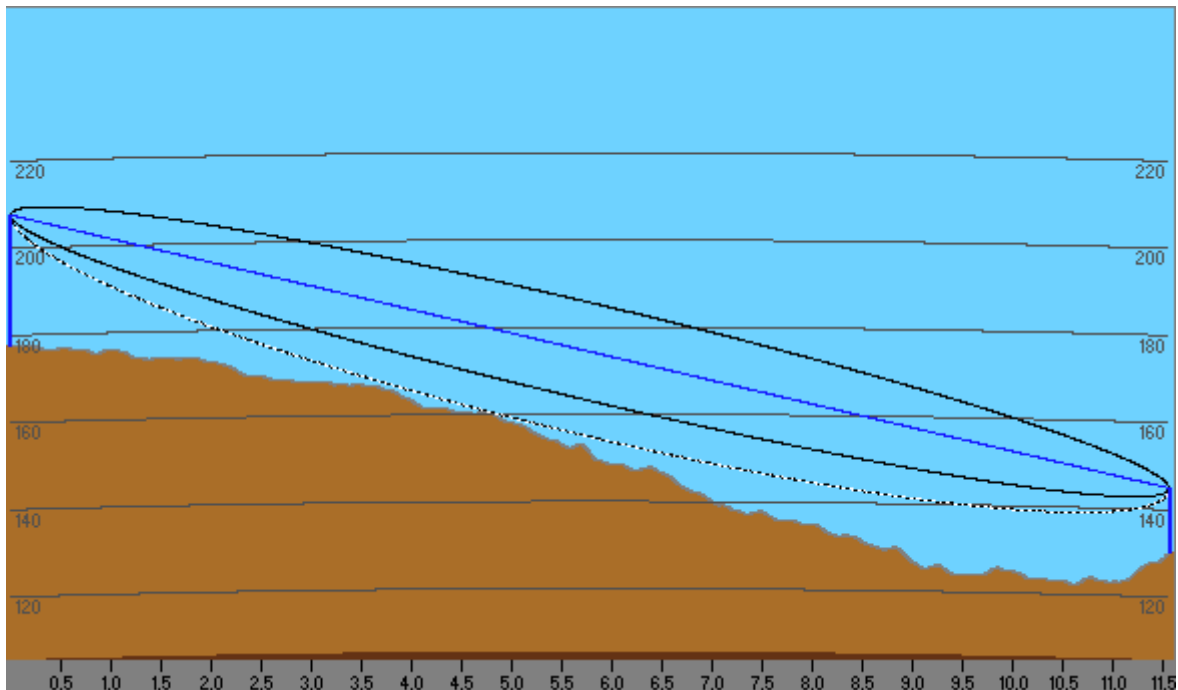
System gain from EB11 to Yugo-2 is 154,0 dB

System gain from Yugo-2 to EB11 is 154,0 dB

Worst reception is 6,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Mocan III



Distance between EB11 and Mocan III is 11,5 km (7,2 miles)

True North Azimuth = 312,95°, Magnetic North Azimuth = 313,40°, Elevation angle = -0,3367°

Terrain elevation variation is 58,7 m

Propagation mode is line-of-sight, minimum clearance 1,0F1 at 4,8km

Average frequency is 2450,000 MHz

Free Space = 121,4 dB, Obstruction = -4,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 147,3 dB

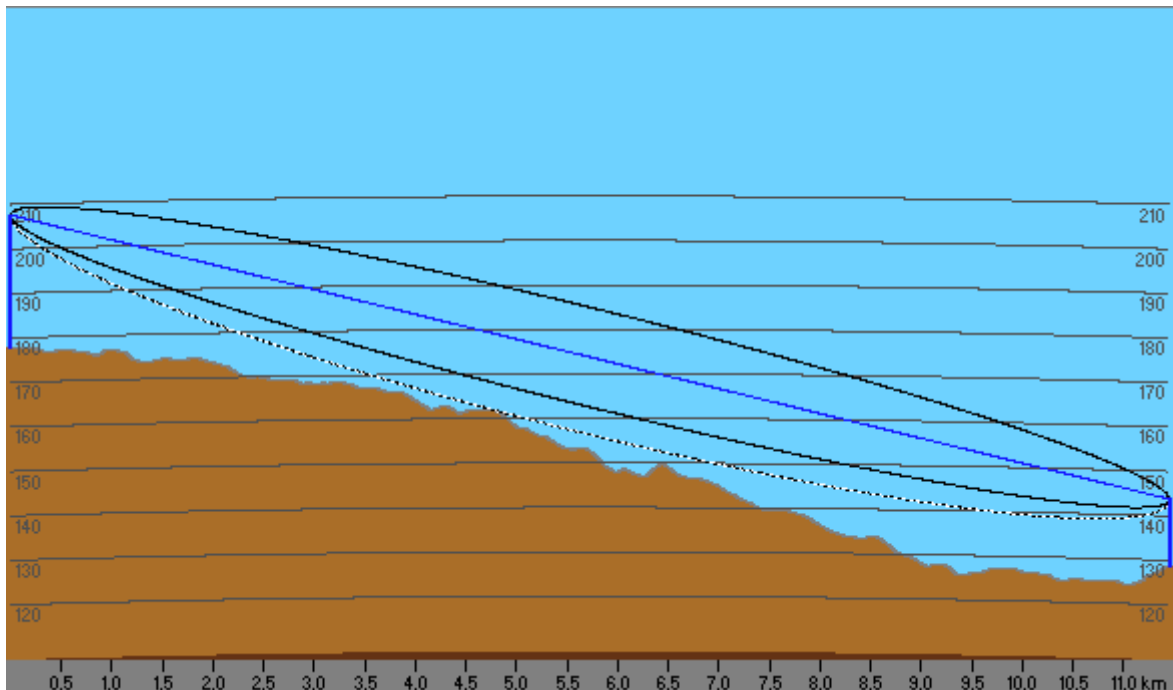
System gain from EB11 to Mocan III is 154,0 dB

System gain from Mocan III to EB11 is 154,0 dB

Worst reception is 6,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Mocan II



Distance between EB11 and Mocan II is 11,4 km (7,1 miles)

True North Azimuth = 314,40°, Magnetic North Azimuth = 314,84°, Elevation angle = -0,3384°

Terrain elevation variation is 57,9 m

Propagation mode is line-of-sight, minimum clearance 0,9F1 at 4,8km

Average frequency is 2450,000 MHz

Free Space = 121,3 dB, Obstruction = -4,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 147,4 dB

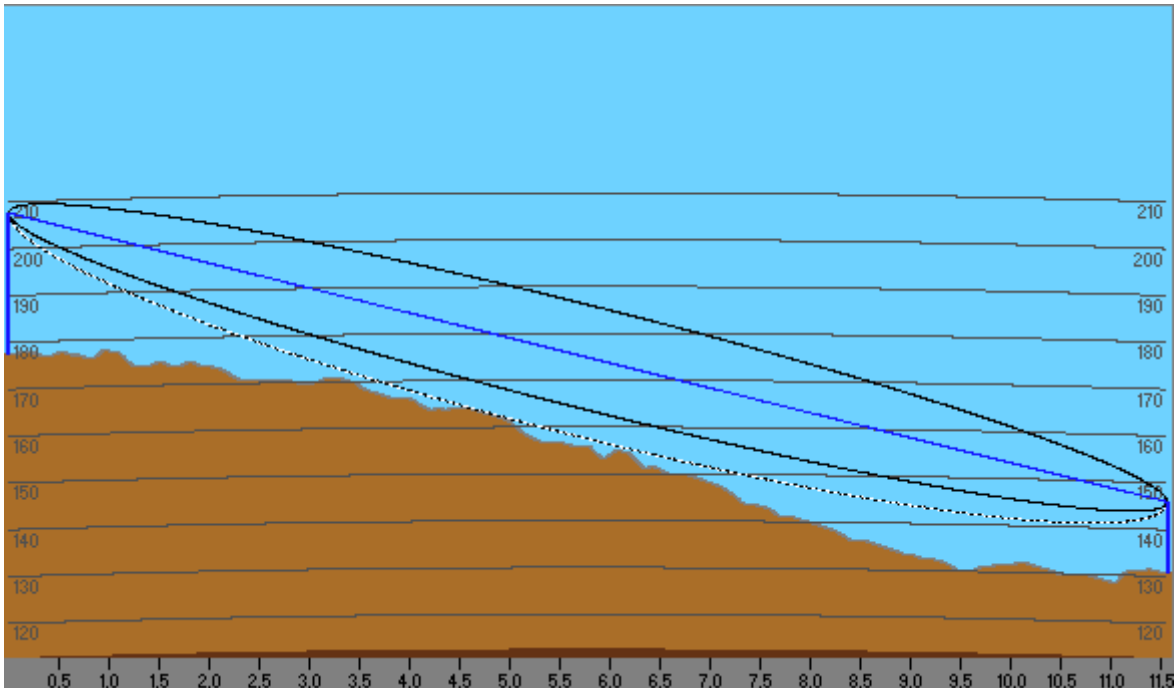
System gain from EB11 to Mocan II is 154,0 dB

System gain from Mocan II to EB11 is 154,0 dB

Worst reception is 6,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Mocan I



Distance between EB11 and Mocan I is 11,5 km (7,2 miles)

True North Azimuth = 316,61°, Magnetic North Azimuth = 317,05°, Elevation angle = -0,3217°

Terrain elevation variation is 54,1 m

Propagation mode is line-of-sight, minimum clearance 0,9F1 at 4,6km

Average frequency is 2450,000 MHz

Free Space = 121,4 dB, Obstruction = -4,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 147,6 dB

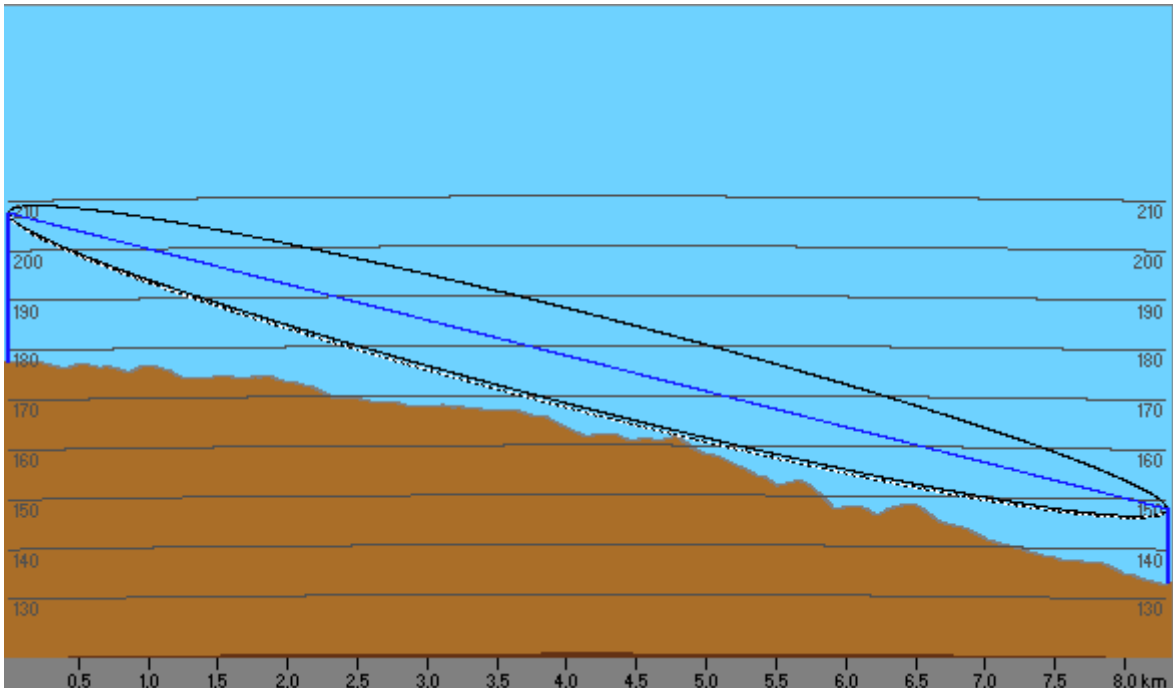
System gain from EB11 to Mocan I is 154,0 dB

System gain from Mocan I to EB11 is 154,0 dB

Worst reception is 6,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma ESPINAL



Distance between EB11 and Toma ESPINAL is 8,3 km (5,1 miles)

True North Azimuth = 313,67°, Magnetic North Azimuth = 314,12°, Elevation angle = -0,4069°

Terrain elevation variation is 48,4 m

Propagation mode is line-of-sight, minimum clearance 0,7F1 at 4,8km

Average frequency is 2450,000 MHz

Free Space = 118,6 dB, Obstruction = -2,1 dB, Urban = 0,0 dB, Forest = 1,0 dB, Statistics = 30,4 dB

Total propagation loss is 147,9 dB

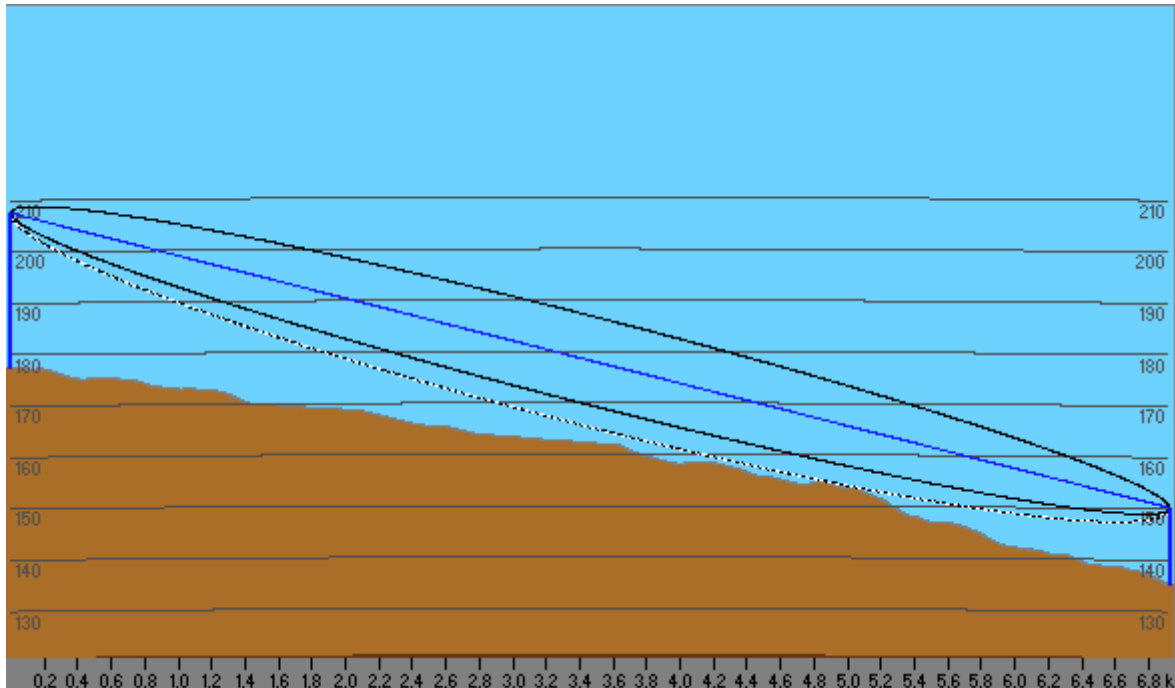
System gain from EB11 to Toma ESPINAL is 154,0 dB

System gain from Toma ESPINAL to EB11 is 154,0 dB

Worst reception is 6,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma POTRERO



Distance between EB11 and Toma POTRERO is 6,9 km (4,3 miles)

True North Azimuth = 305,08°, Magnetic North Azimuth = 305,53°, Elevation angle = -0,4626°

Terrain elevation variation is 44,7 m

Propagation mode is line-of-sight, minimum clearance 1,0F1 at 4,9km

Average frequency is 2450,000 MHz

Free Space = 117,0 dB, Obstruction = -6,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,2 dB

Total propagation loss is 141,1 dB

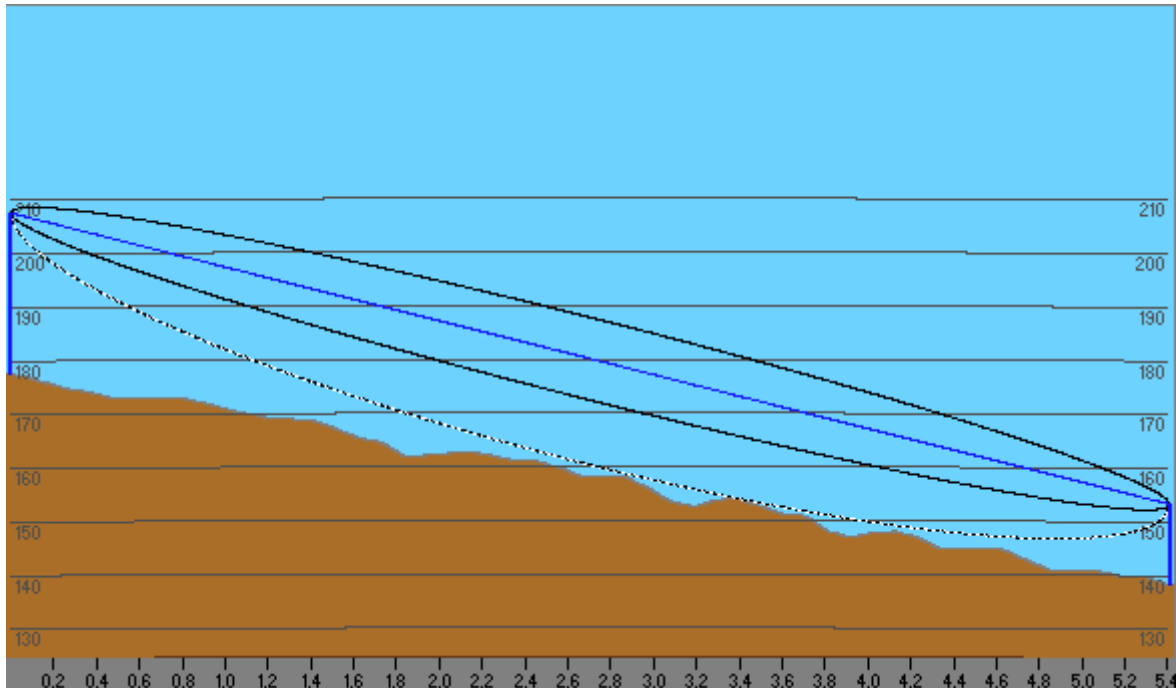
System gain from EB11 to Toma POTRERO is 154,0 dB

System gain from Toma POTRERO to EB11 is 154,0 dB

Worst reception is 12,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma QUINTA LA GLORIA



Distance between EB11 and Toma QUINTA LA GLORI is 5,4 km (3,3 miles)

True North Azimuth = 285,48°, Magnetic North Azimuth = 285,92°, Elevation angle = -0,5743°

Terrain elevation variation is 40,3 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 3,4km

Average frequency is 2450,000 MHz

Free Space = 114,8 dB, Obstruction = -3,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,3 dB

Total propagation loss is 140,5 dB

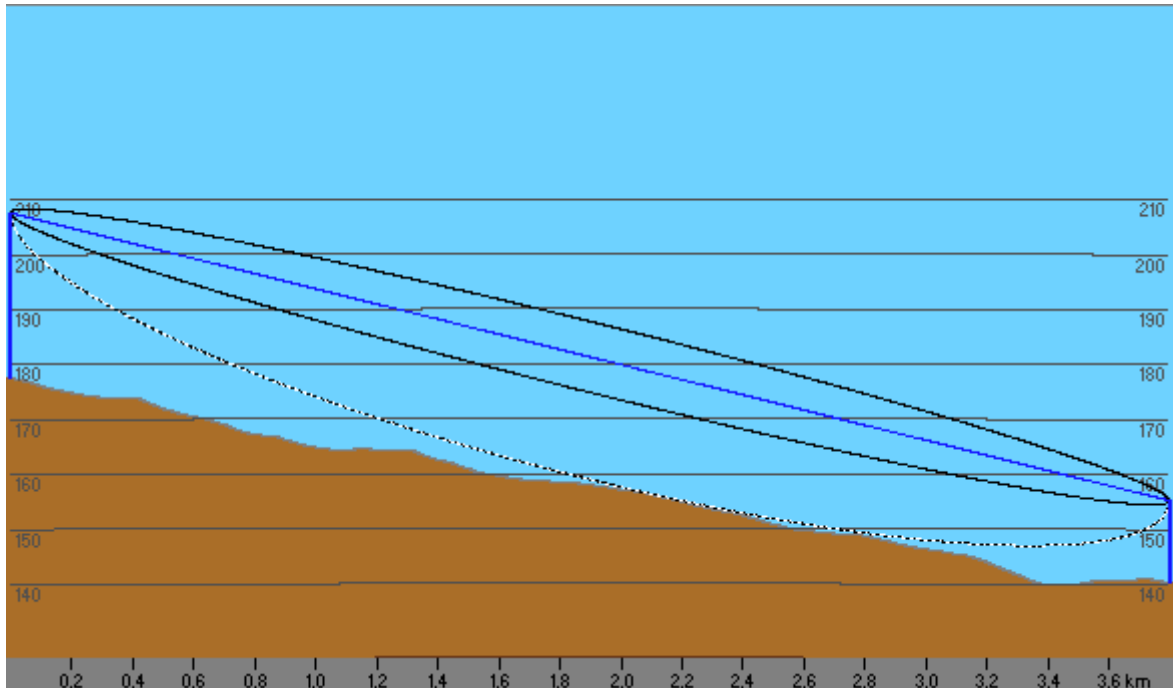
System gain from EB11 to Toma QUINTA LA GLORI is 154,0 dB

System gain from Toma QUINTA LA GLORI to EB11 is 154,0 dB

Worst reception is 13,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma PAIJAN



Distance between EB11 and Toma PAIJAN is 3,8 km (2,4 miles)

True North Azimuth = 241,55°, Magnetic North Azimuth = 241,99°, Elevation angle = -0,8485°

Terrain elevation variation is 38,6 m

Propagation mode is line-of-sight, minimum clearance 2,0F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 111,8 dB, Obstruction = 15,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,2 dB

Total propagation loss is 156,0 dB

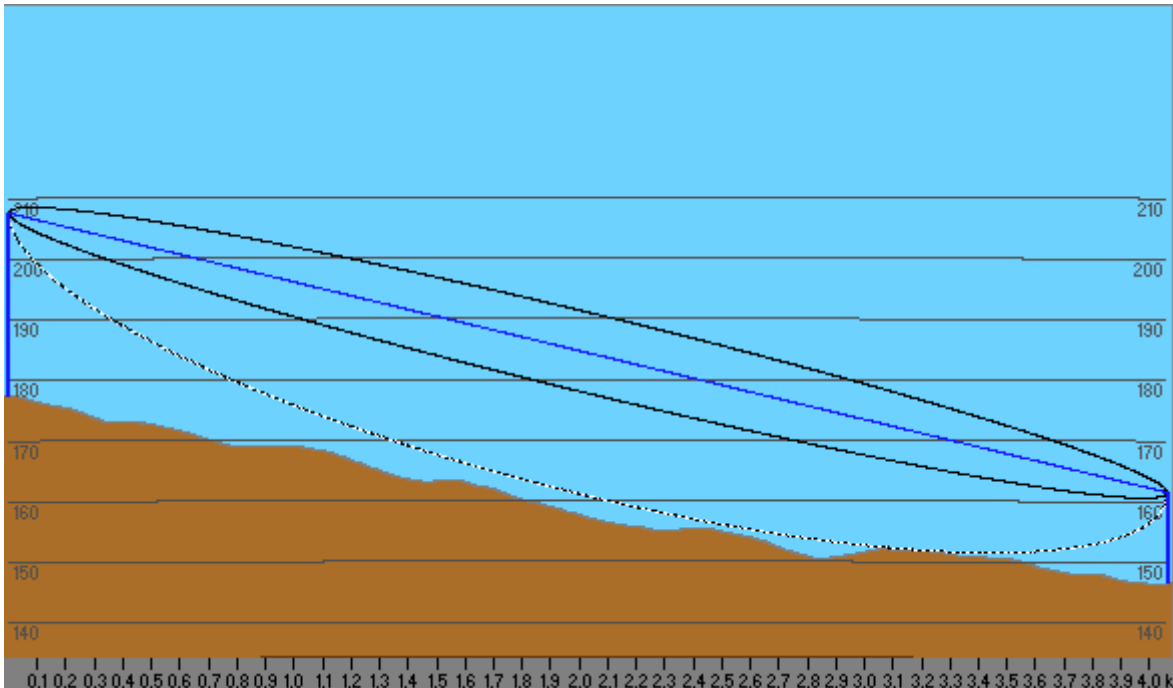
System gain from EB11 to Toma PAIJAN is 154,0 dB

System gain from Toma PAIJAN to EB11 is 154,0 dB

Worst reception is 2,0 dB below the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma CAVERO



Distance between EB11 and Toma CAVERO is 4,1 km (2,5 miles)

True North Azimuth = 207,67°, Magnetic North Azimuth = 208,12°, Elevation angle = -0,7321°

Terrain elevation variation is 32,0 m

Propagation mode is line-of-sight, minimum clearance 2,0F1 at 3,2km

Average frequency is 2450,000 MHz

Free Space = 112,3 dB, Obstruction = 30,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,2 dB

Total propagation loss is 172,5 dB

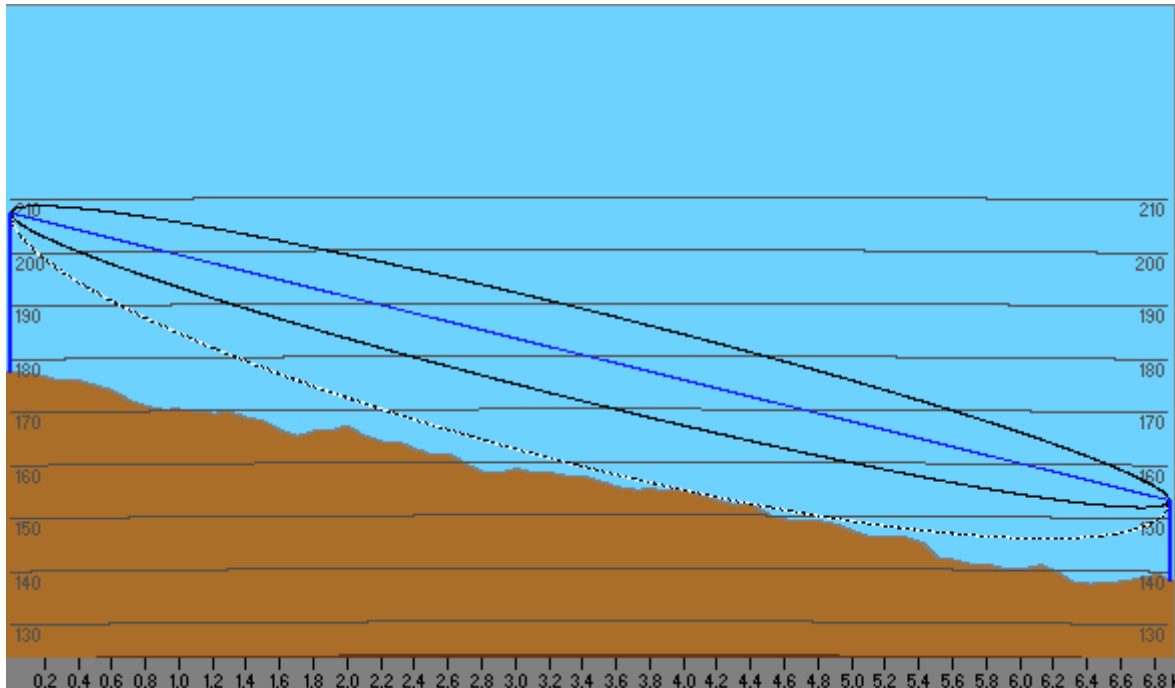
System gain from EB11 to Toma CAVERO is 154,0 dB

System gain from Toma CAVERO to EB11 is 154,0 dB

Worst reception is 18,5 dB below the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 11 – Estación remota Toma TALAMBO



Distance between EB11 and Toma TALAMBO is 6,9 km (4,3 miles)

True North Azimuth = 175,73°, Magnetic North Azimuth = 176,17°, Elevation angle = -0,5320°

Terrain elevation variation is 42,4 m

Propagation mode is line-of-sight, minimum clearance 1,5F1 at 4,0km

Average frequency is 2450,000 MHz

Free Space = 116,9 dB, Obstruction = 7,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,3 dB

Total propagation loss is 153,5 dB

System gain from EB11 to Toma TALAMBO is 154,0 dB

System gain from Toma TALAMBO to EB11 is 154,0 dB

Worst reception corresponds to the required signal to meet

99,000% of time, 99,000% of situations

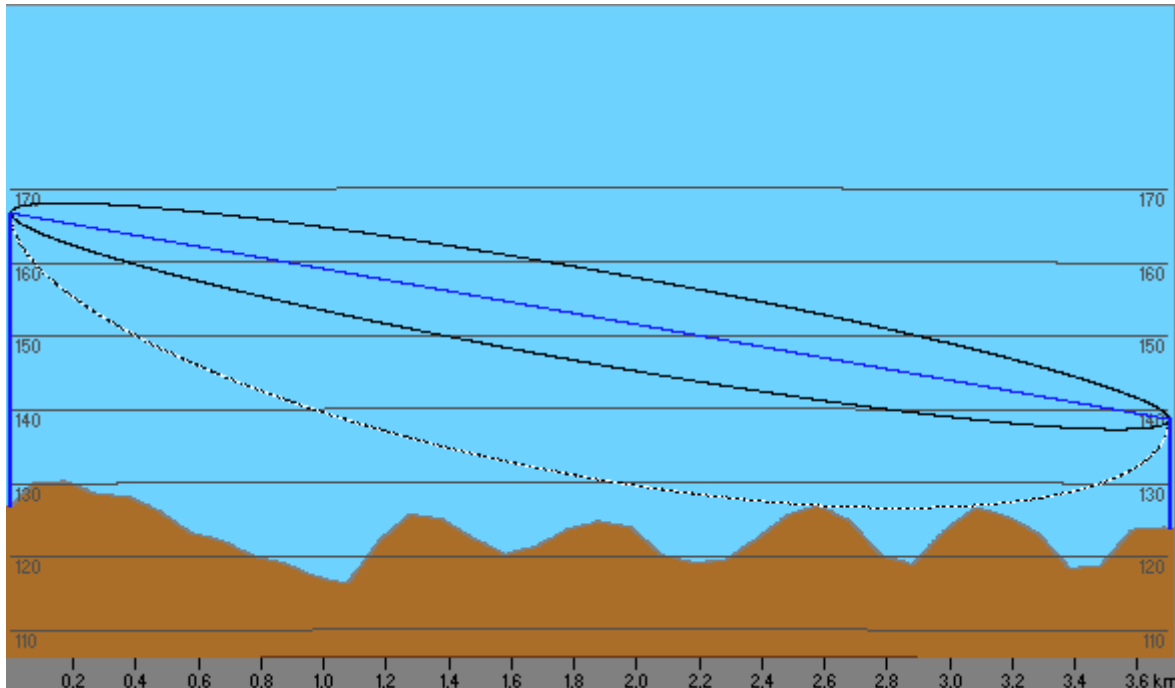
8.12 Estación base 12 - enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 32. Grupo Estación Base 12

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
Paijan II(B)	680893	9161639	EB12	15 m	
Paijan II(A)	680831	9160951	EB12	15 m	
Paijan II(B)	681085	9159978	EB12	15 m	
Paijan I(C)	681040	9157679	EB12	15 m	
Paijan I(C)	681956	9156383	EB12	15 m	
Paijan I(A)	682414	9155929	EB12	15 m	
Paijan I(D)	683029	9155624	EB12	15 m	
Paijan I(B)	683064	9155591	EB12	15 m	
Comunidad Campesina Paiján 1	683088	9155578	EB12	15 m	
Yugo-1	685423	9154570	EB12	20 m	
URRICAPE 1	680989	9157963	EB12	15 m	

- Estación Base 12 – Estación remota Paijan II(B)



Distance between EB12 and Paijan II(B) is 3,7 km (2,3 miles)

True North Azimuth = 358,31°, Magnetic North Azimuth = 358,66°, Elevation angle = -0,3917°

Terrain elevation variation is 13,3 m

Propagation mode is line-of-sight, minimum clearance 2,1F1 at 2,6km

Average frequency is 2450,000 MHz

Free Space = 111,5 dB, Obstruction = -2,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 139,5 dB

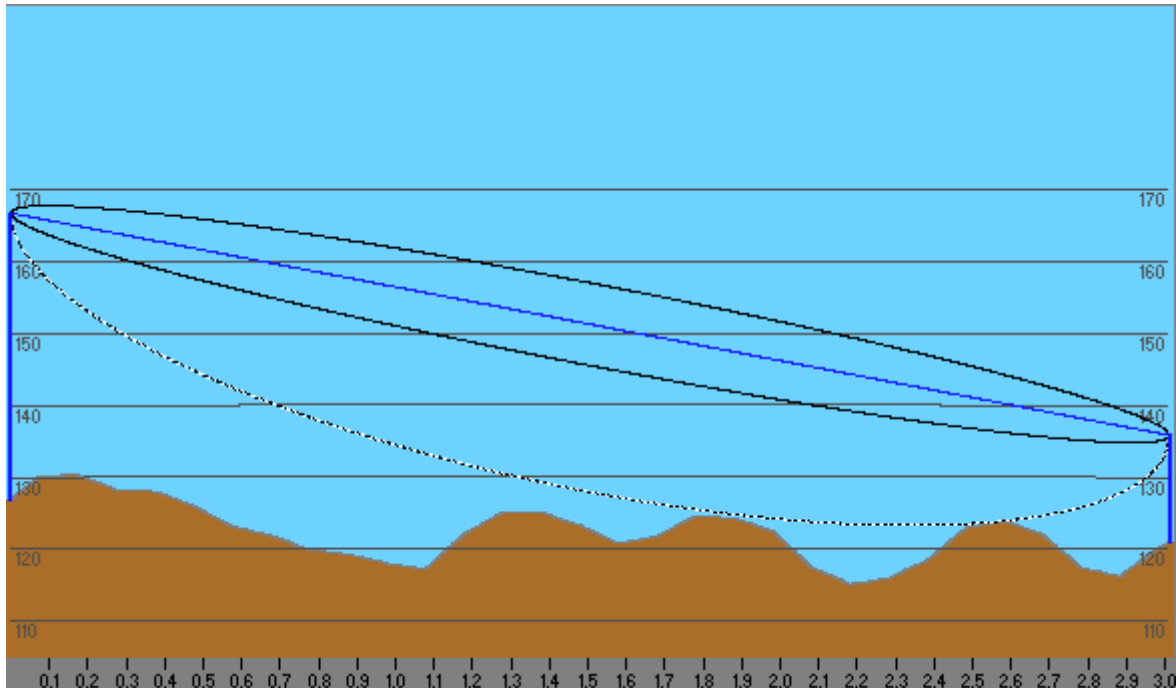
System gain from EB12 to Paijan II(B) is 154,0 dB

System gain from Paijan II(B) to EB12 is 154,0 dB

Worst reception is 14,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan II(A)



Distance between EB12 and Paijan II(A) is 3,0 km (1,9 miles)

True North Azimuth = 356,78°, Magnetic North Azimuth = 357,13°, Elevation angle = -0,5756°

Terrain elevation variation is 15,0 m

Propagation mode is line-of-sight, minimum clearance 2,4F1 at 2,5km

Average frequency is 2450,000 MHz

Free Space = 109,7 dB, Obstruction = -1,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 138,7 dB

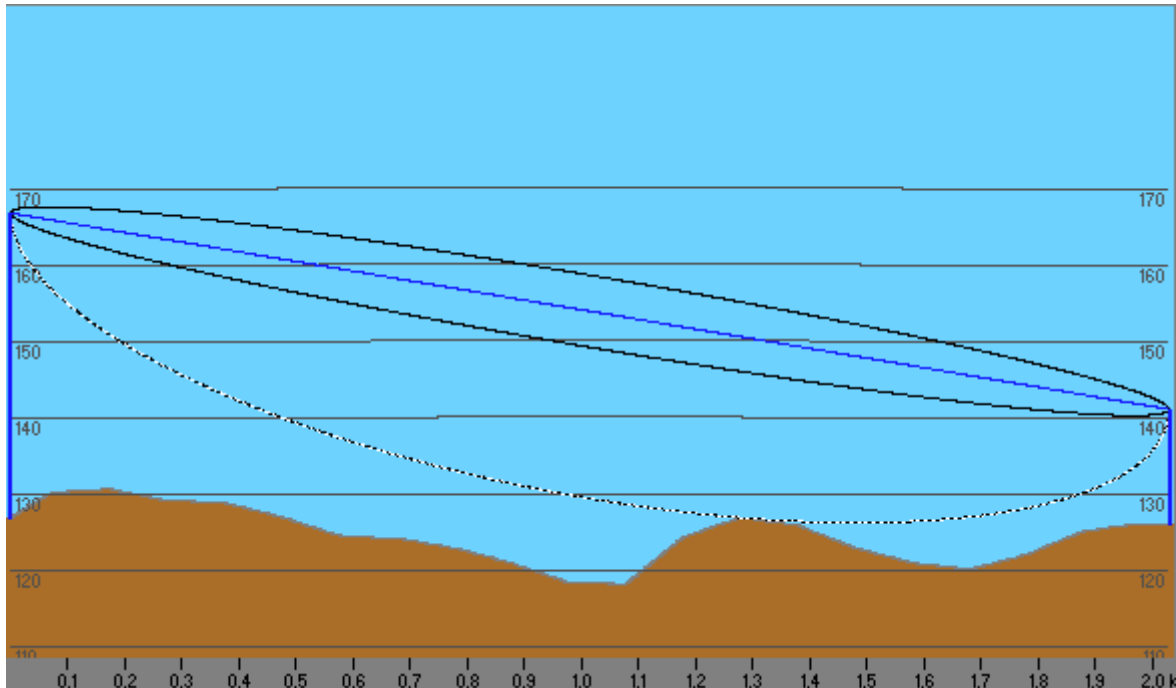
System gain from EB12 to Paijan II(A) is 154,0 dB

System gain from Paijan II(A) to EB12 is 154,0 dB

Worst reception is 15,3 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan II(B)



Distance between EB12 and Paijan II(B) is 2,0 km (1,3 miles)

True North Azimuth = 2,50°, Magnetic North Azimuth = 2,84°, Elevation angle = -0,6499°

Terrain elevation variation is 12,1 m

Propagation mode is line-of-sight, minimum clearance 3,3F1 at 1,3km

Average frequency is 2450,000 MHz

Free Space = 106,3 dB, Obstruction = -1,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 135,5 dB

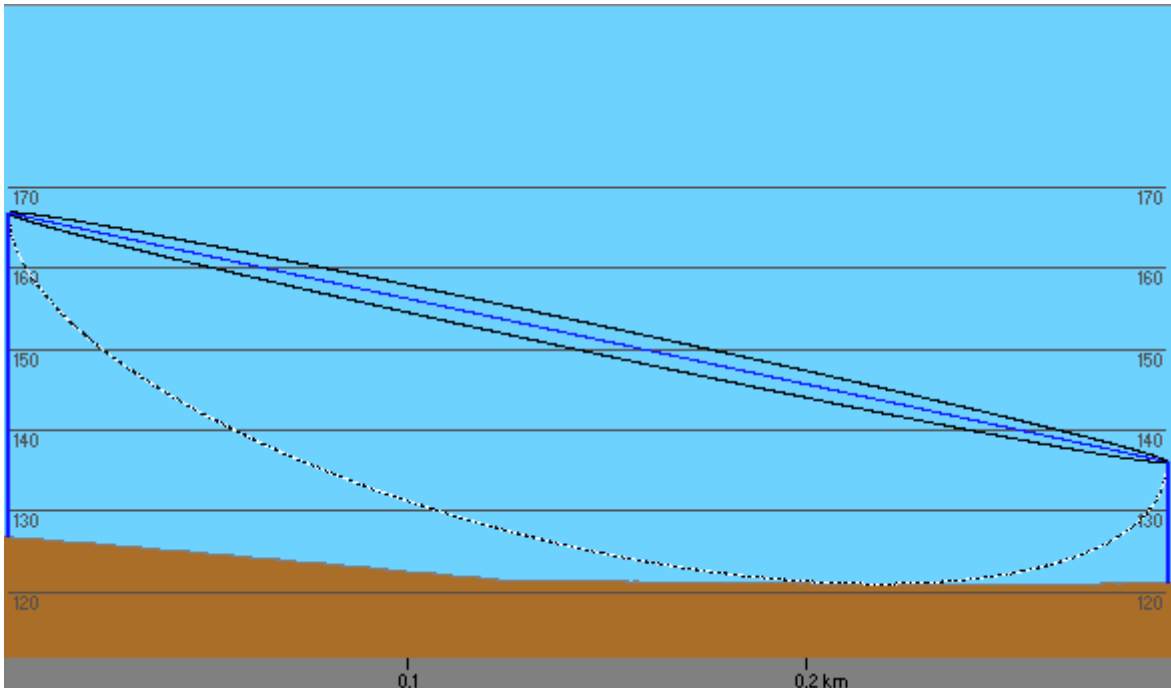
System gain from EB12 to Paijan II(B) is 154,0 dB

System gain from Paijan II(B) to EB12 is 154,0 dB

Worst reception is 18,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan I(C)



Distance between EB12 and Paijan I(C) is 0,3 km (0,2 miles)

True North Azimuth = 169,65°, Magnetic North Azimuth = 170,00°, Elevation angle = -5,2843°

Terrain elevation variation is 5,7 m

Propagation mode is line-of-sight, minimum clearance 10,0F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 89,5 dB, Obstruction = -0,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 31,1 dB

Total propagation loss is 119,8 dB

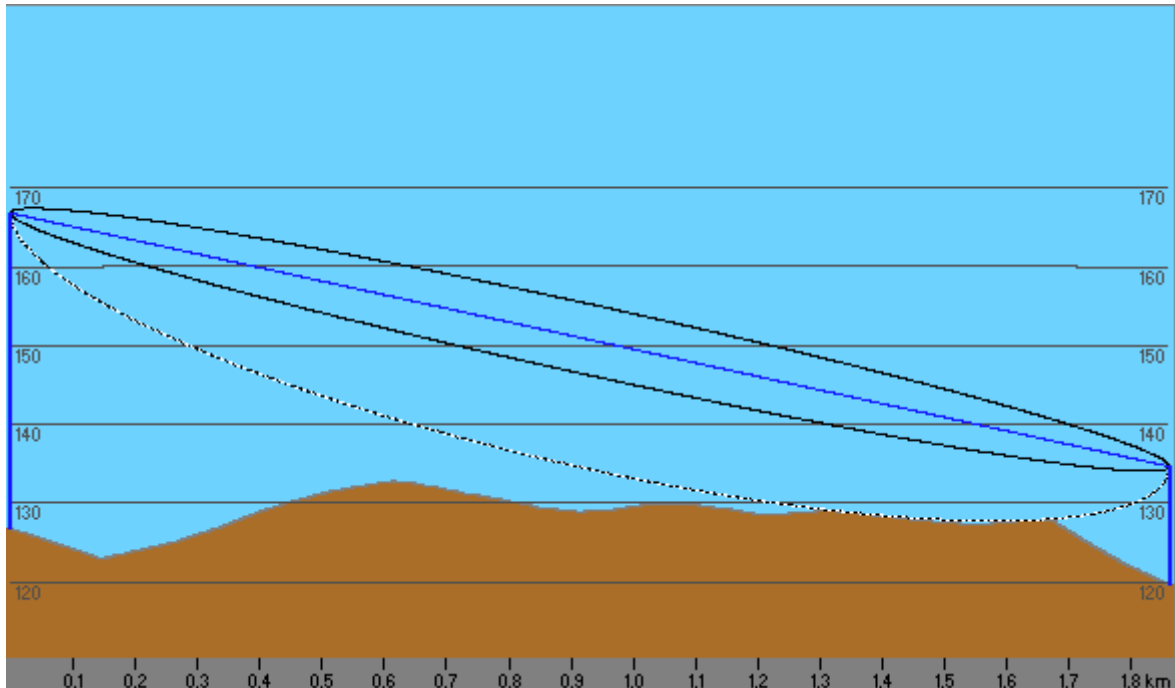
System gain from EB12 to Paijan I(C) is 154,0 dB

System gain from Paijan I(C) to EB12 is 154,0 dB

Worst reception is 34,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan I(C)



Distance between EB12 and Paijan I(C) is 1,9 km (1,2 miles)

True North Azimuth = 148,48°, Magnetic North Azimuth = 148,83°, Elevation angle = -1,0889°

Terrain elevation variation is 12,8 m

Propagation mode is line-of-sight, minimum clearance 1,9F1 at 1,7km

Average frequency is 2450,000 MHz

Free Space = 105,6 dB, Obstruction = -0,7 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 135,4 dB

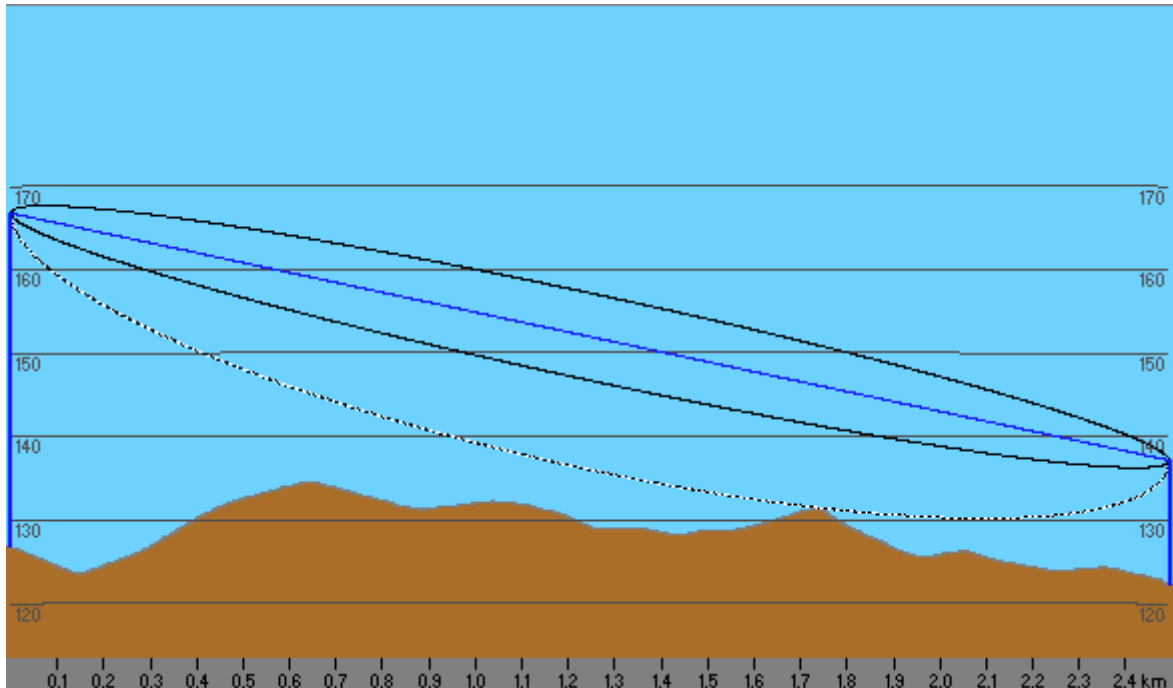
System gain from EB12 to Paijan I(C) is 154,0 dB

System gain from Paijan I(C) to EB12 is 154,0 dB

Worst reception is 18,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan I(A)



Distance between EB12 and Paijan I(A) is 2,5 km (1,5 miles)

True North Azimuth = 144,94°, Magnetic North Azimuth = 145,29°, Elevation angle = -0,7947°

Terrain elevation variation is 11,8 m

Propagation mode is line-of-sight, minimum clearance 1,7F1 at 1,7km

Average frequency is 2450,000 MHz

Free Space = 108,1 dB, Obstruction = -4,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,6 dB

Total propagation loss is 134,5 dB

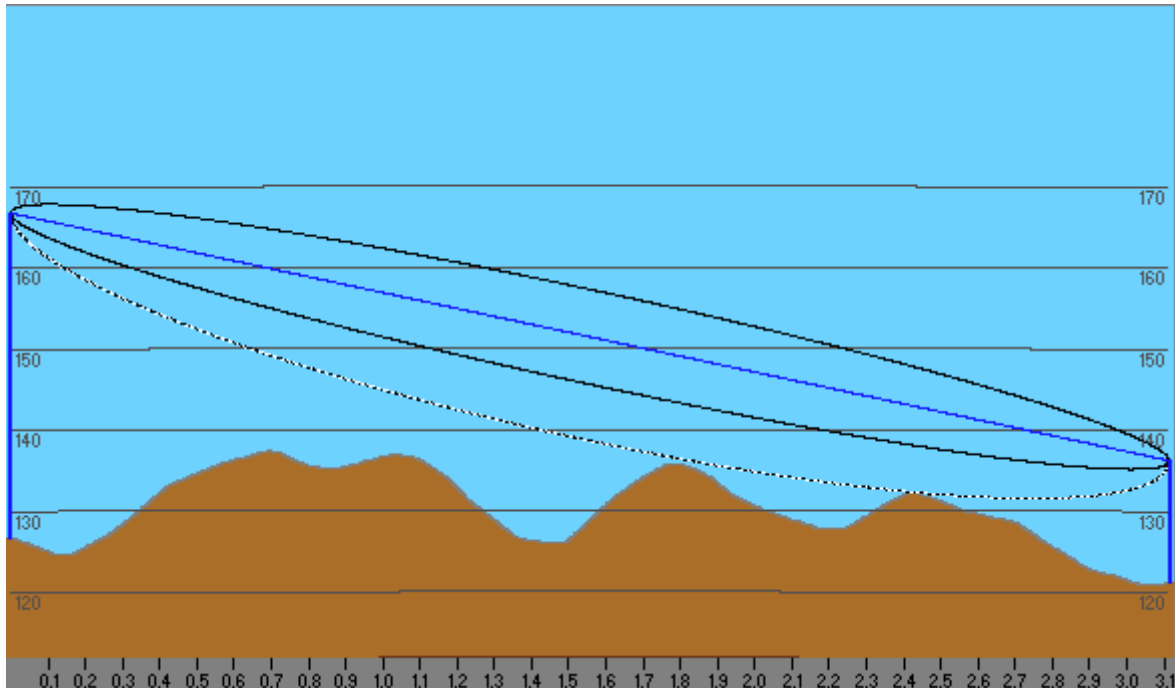
System gain from EB12 to Paijan I(A) is 154,0 dB

System gain from Paijan I(A) to EB12 is 154,0 dB

Worst reception is 19,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan I(D)



Distance between EB12 and Paijan I(D) is 3,1 km (1,9 miles)

True North Azimuth = 138,87°, Magnetic North Azimuth = 139,22°, Elevation angle = -0,5912°

Terrain elevation variation is 16,0 m

Propagation mode is line-of-sight, minimum clearance 1,5F1 at 1,8km

Average frequency is 2450,000 MHz

Free Space = 110,0 dB, Obstruction = 5,6 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 146,3 dB

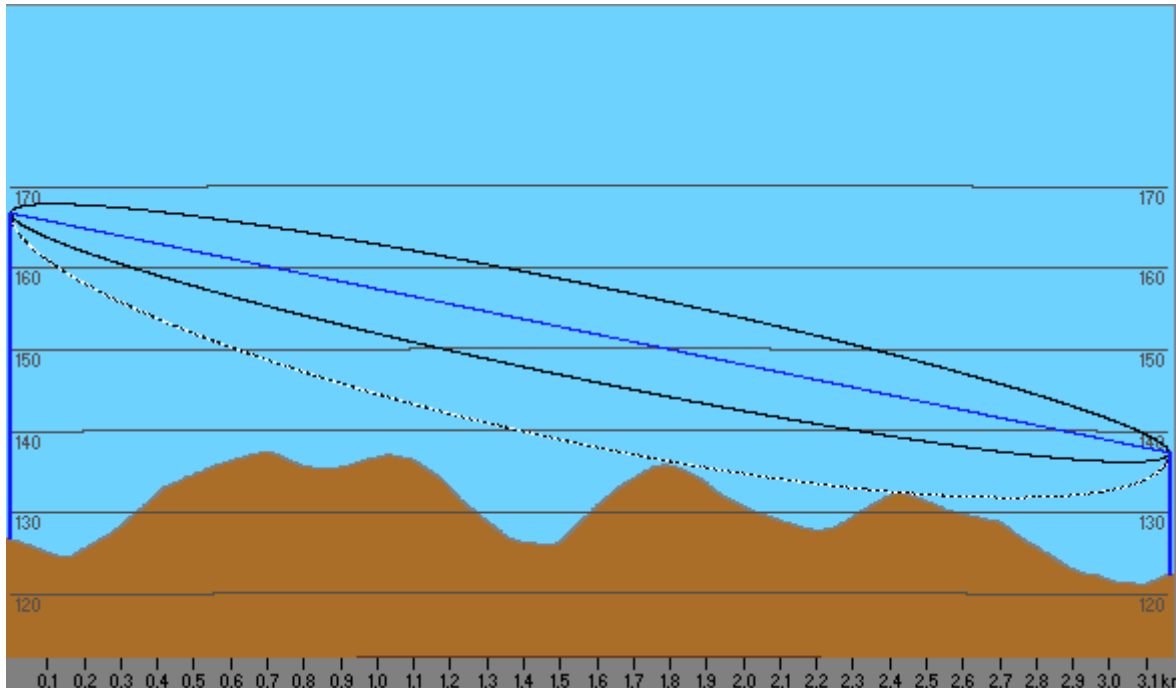
System gain from EB12 to Paijan I(D) is 154,0 dB

System gain from Paijan I(D) to EB12 is 154,0 dB

Worst reception is 7,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Paijan I(B)



Distance between EB12 and Paijan I(B) is 3,2 km (2,0 miles)

True North Azimuth = 138,79°, Magnetic North Azimuth = 139,14°, Elevation angle = -0,5614°

Terrain elevation variation is 16,1 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 1,8km

Average frequency is 2450,000 MHz

Free Space = 110,2 dB, Obstruction = -0,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 140,8 dB

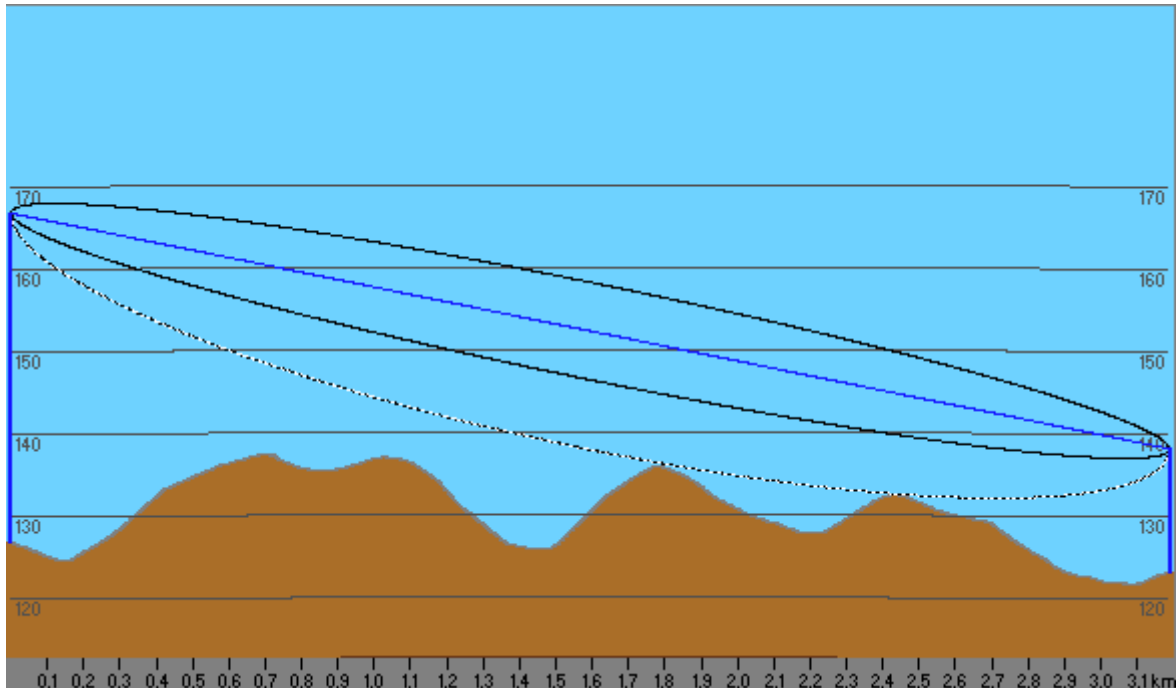
System gain from EB12 to Paijan I(B) is 154,0 dB

System gain from Paijan I(B) to EB12 is 154,0 dB

Worst reception is 13,2 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Comunidad Campesina Paijàn 1



Distance between EB12 and Com. Campes Paijàn 1 is 3,2 km (2,0 miles)

True North Azimuth = $138,61^\circ$, Magnetic North Azimuth = $138,96^\circ$, Elevation angle = $-0,5662^\circ$

Terrain elevation variation is 15,8 m

Propagation mode is line-of-sight, minimum clearance 1,5F1 at 1,8km

Average frequency is 2450,000 MHz

Free Space = 110,2 dB, Obstruction = 2,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,7 dB

Total propagation loss is 143,3 dB

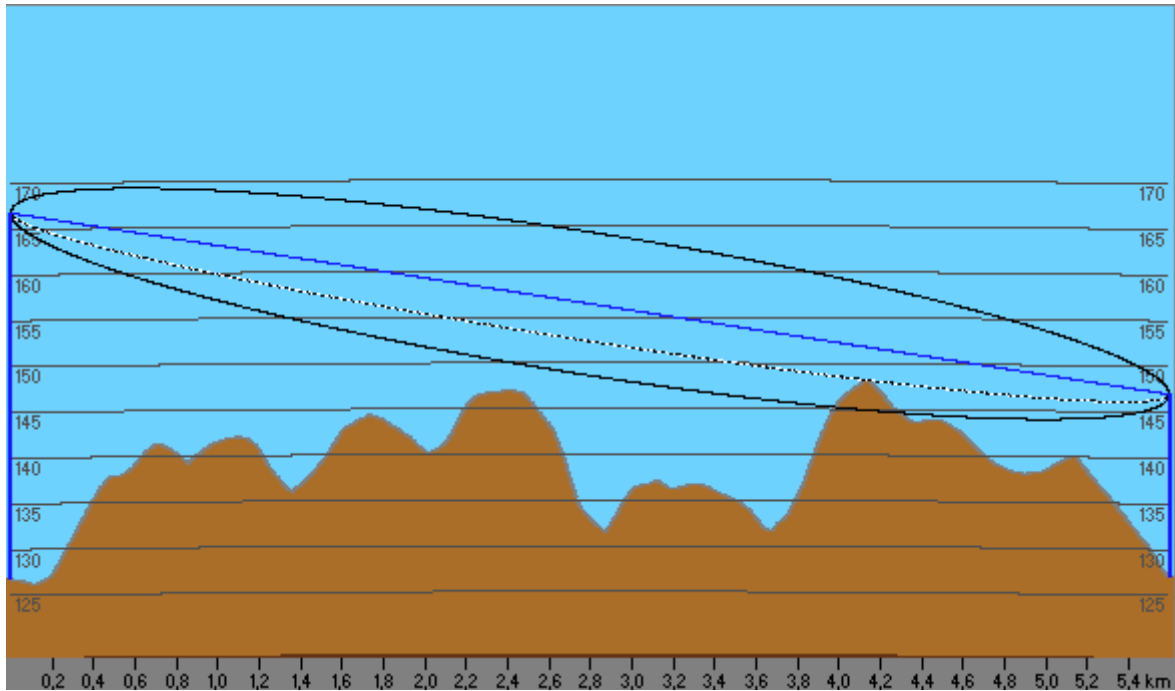
System gain from EB12 to Com. Campes Paijàn 1 is 154,0 dB

System gain from Com. Campes Paijàn 1 to EB12 is 154,0 dB

Worst reception is 10,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota Yugo-1



Distance between EB12 and Yugo-1 is 5,6 km (3,5 miles)

True North Azimuth = 127,39°, Magnetic North Azimuth = 127,74°, Elevation angle = -0,2720°

Terrain elevation variation is 21,3 m

Propagation mode is line-of-sight, minimum clearance 0,3F1 at 4,1km

Average frequency is 2450,000 MHz

Free Space = 115,1 dB, Obstruction = 5,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 151,2 dB

System gain from EB12 to Yugo-1 is 154,0 dB

System gain from Yugo-1 to EB12 is 154,0 dB

Worst reception is 2,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 12 – Estación remota URRICAPE 1

La Estación Base 12 y la Estación remota URRICAPE 1 comparten el mismo emplazamiento.

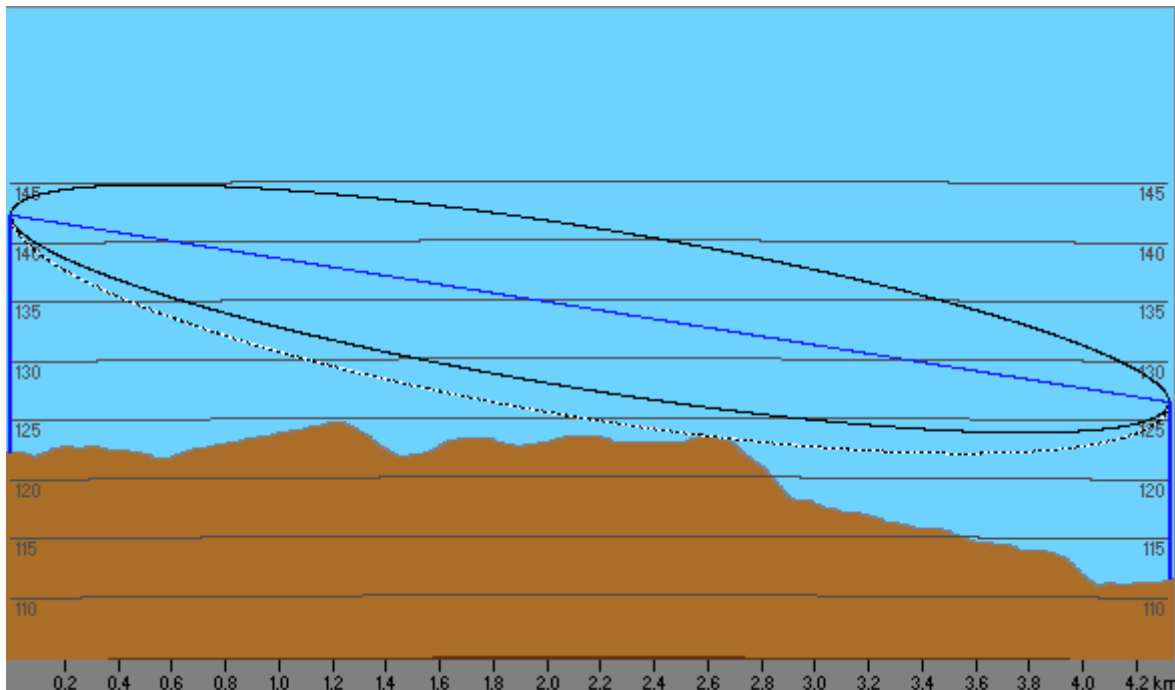
8.13 Estación base 13 – enlaces estaciones remotas

Se muestra a continuación la viabilidad de los enlaces.

Cuadro 33. Grupo Estación Base 13

ESTACIÓN REMOTA	UTM WGS84		Enlace EB	Altura torre	Enlace con otra remota
	ESTE	NORTE			
Final	674538	9172635	EB13	15 m	
Paijan IV(C)-2	675136	9171373	EB13	15 m	
Paijan IV(B)-4/IV(C)-1	675713	9170160	EB13	15 m	
Paijan IV(B)-3	676633	9168470	EB13	15 m	
Comunidad Campesina Paijan 2	677090	9167616	EB13	15 m	
Paijan IV(B)-2	677895	9166955	EB13	15 m	
Paijan IV(B)-1/III(C)-2-4	678722	9166309	EB13	15 m	
Paijan III(B)/IV(A)	679106	9166017	EB13	15 m	
Paijan IV(B)-1/III(C)-2-3	680212	9164977	EB13	15 m	
Paijan IV(B)-1/III(C)-2-2	680712	9164835	EB13	15 m	
Paijan II(A)-2/III(A)-1	680716	9164218	EB13	15 m	
Paijan III(C)-1/2-1	681040	9163903	EB13	15 m	
URRICAPE 2	676525	9168821	EB13	15 m	
Botadero Terminal	674487	9172805	EB13	15 m	

- Estación Base 13 – Estación remota Final



Distance between EB13 and FINAL is 4,3 km (2,7 miles)

True North Azimuth = 332,40°, Magnetic North Azimuth = 332,75°, Elevation angle = -0,1819°

Terrain elevation variation is 13,4 m

Propagation mode is line-of-sight, minimum clearance 0,8F1 at 2,6km

Average frequency is 2450,000 MHz

Free Space = 112,9 dB, Obstruction = -3,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,4 dB

Total propagation loss is 139,4 dB

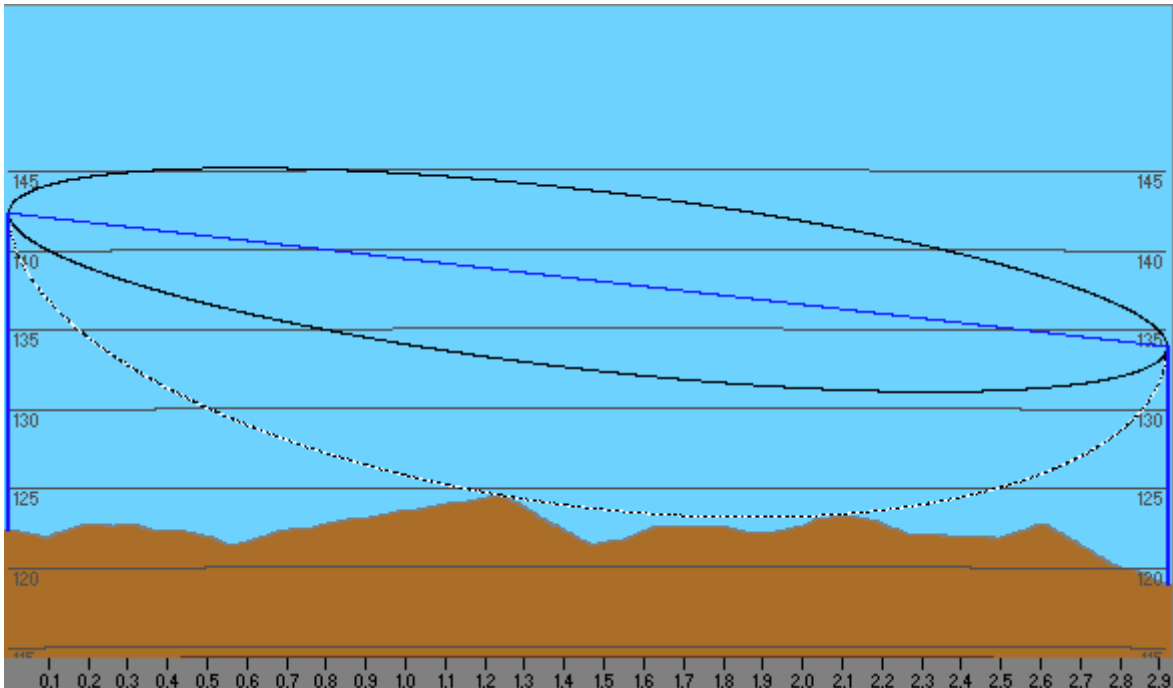
System gain from EB13 to FINAL is 154,0 dB

System gain from FINAL to EB13 is 154,0 dB

Worst reception is 14,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(C)-2



Distance between EB13 and Paijan IV(C)-2 is 2,9 km (1,8 miles)

True North Azimuth = 331,36°, Magnetic North Azimuth = 331,71°, Elevation angle = -0,1321°

Terrain elevation variation is 5,3 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 109,5 dB, Obstruction = -0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,3 dB

Total propagation loss is 138,3 dB

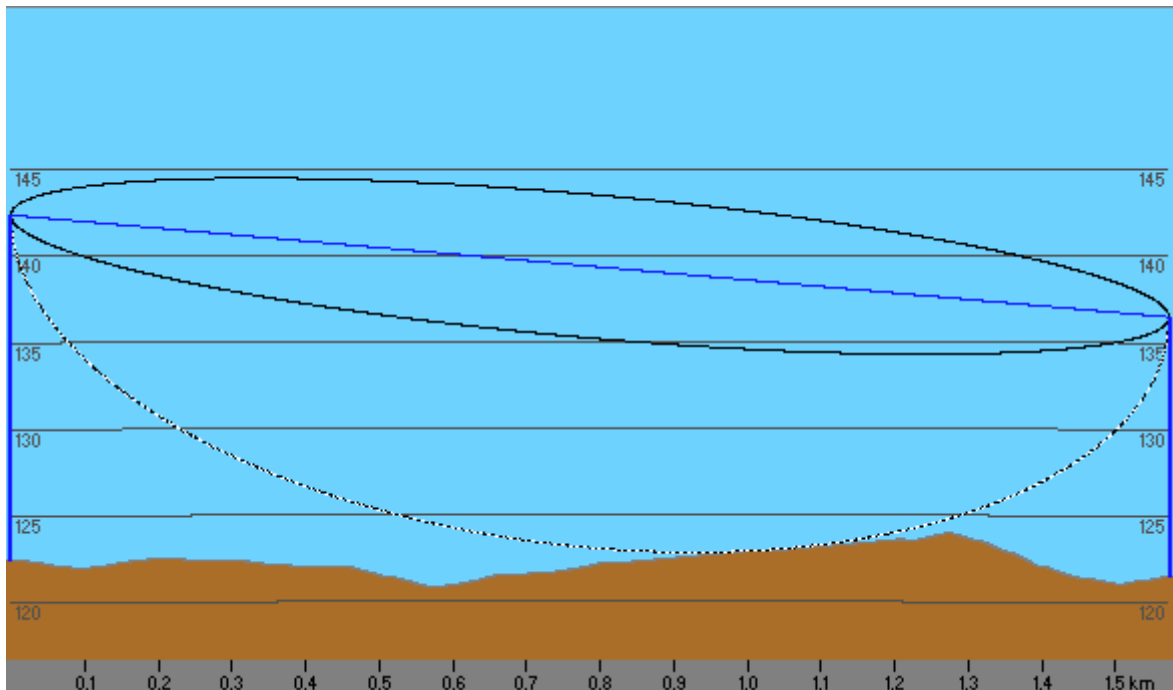
System gain from EB13 to Paijan IV(C)-2 is 154,0 dB

System gain from Paijan IV(C)-2 to EB13 is 154,0 dB

Worst reception is 15,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(B)-4/IV(C)-1



Distance between EB13 and Paijan IV(B)-4/IV(C) is 1,6 km (1,0 miles)

True North Azimuth = 328,66°, Magnetic North Azimuth = 329,00°, Elevation angle = -0,1464°

Terrain elevation variation is 3,1 m

Propagation mode is line-of-sight, minimum clearance 2,5F1 at 1,0km

Average frequency is 2450,000 MHz

Free Space = 104,1 dB, Obstruction = 5,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,8 dB

Total propagation loss is 139,4 dB

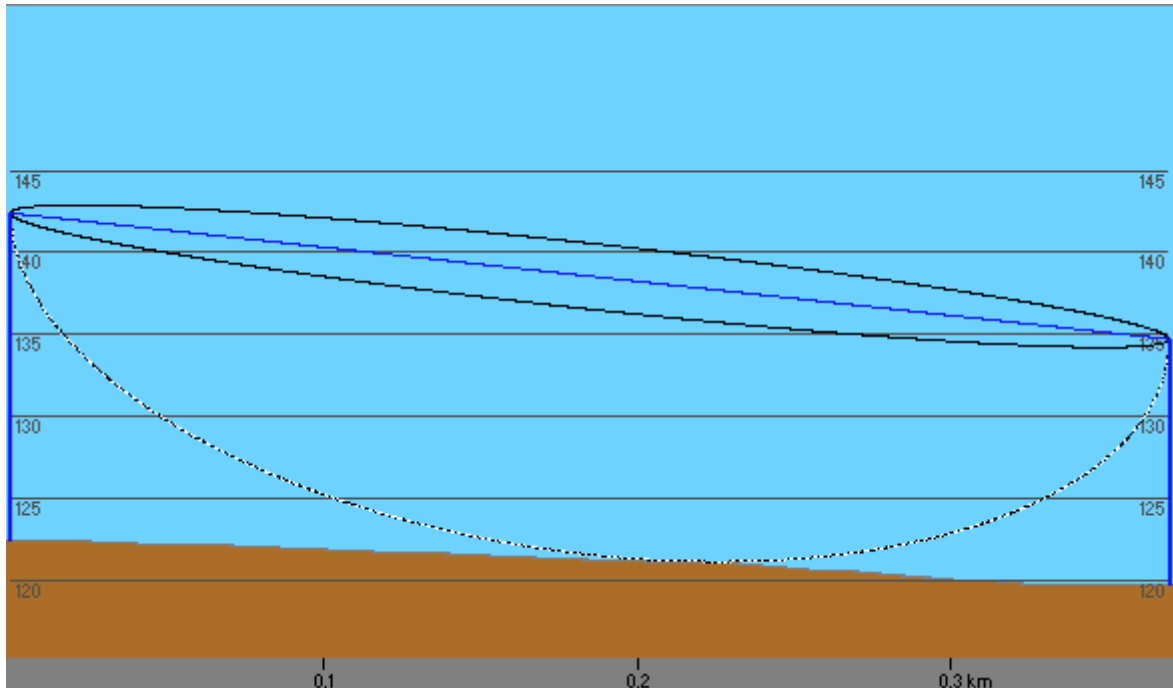
System gain from EB13 to Paijan IV(B)-4/IV(C) is 154,0 dB

System gain from Paijan IV(B)-4/IV(C) to EB13 is 154,0 dB

Worst reception is 14,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(B)-3



Distance between EB13 and Paijan IV(B)-3 is 0,4 km (0,2 miles)

True North Azimuth = 163,06°, Magnetic North Azimuth = 163,41°, Elevation angle = -1,1025°

Terrain elevation variation is 2,7 m

Propagation mode is line-of-sight, minimum clearance 5,3F1 at 0,2km

Average frequency is 2450,000 MHz

Free Space = 91,5 dB, Obstruction = 0,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,8 dB

Total propagation loss is 123,3 dB

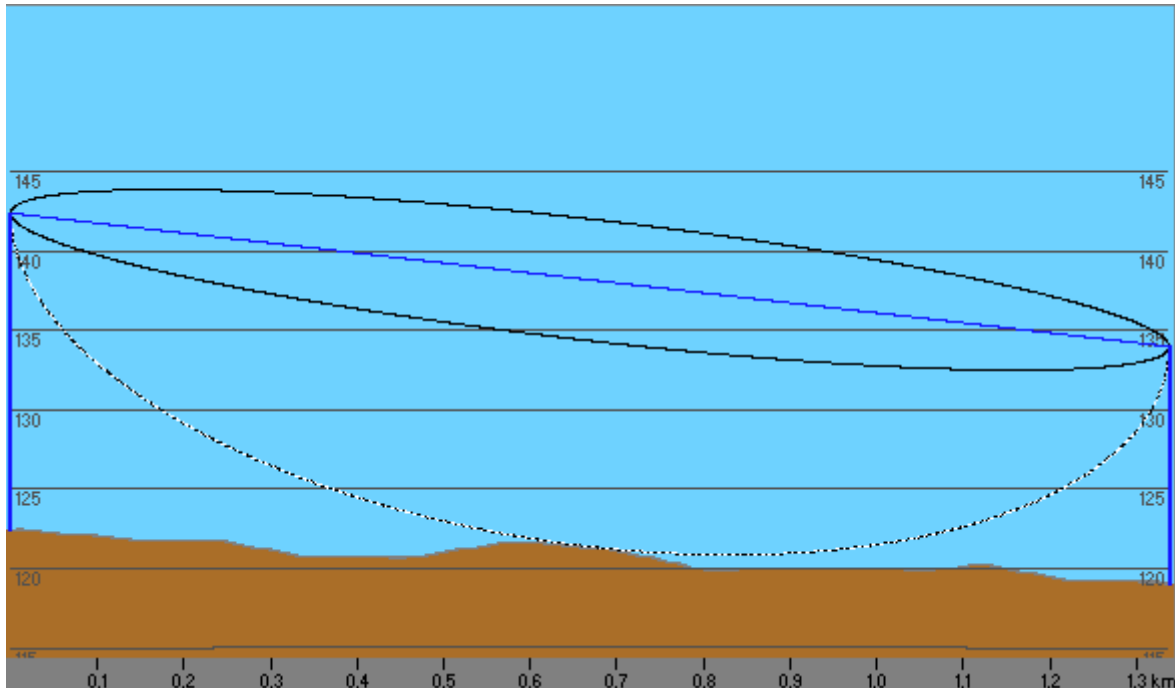
System gain from EB13 to Paijan IV(B)-3 is 154,0 dB

System gain from Paijan IV(B)-3 to EB13 is 154,0 dB

Worst reception is 30,7 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Comunidad Campesina Paijan 2



Distance between EB13 and Com. Campes Paijàn 2 is 1,3 km (0,8 miles)

True North Azimuth = 154,87°, Magnetic North Azimuth = 155,22°, Elevation angle = -0,4110°

Terrain elevation variation is 3,4 m

Propagation mode is line-of-sight, minimum clearance 2,7F1 at 0,6km

Average frequency is 2450,000 MHz

Free Space = 102,7 dB, Obstruction = -2,2 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,4 dB

Total propagation loss is 130,9 dB

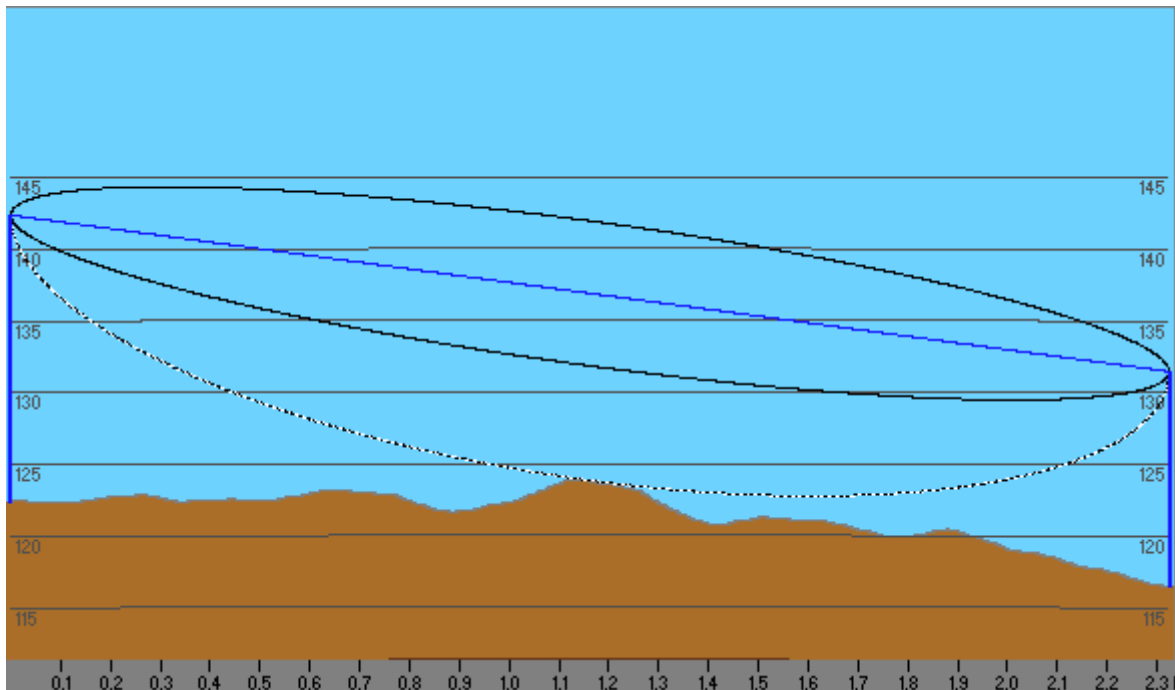
System gain from EB13 to Com. Campes Paijàn 2 is 154,0 dB

System gain from Com. Campes Paijàn 2 to EB13 is 154,0 dB

Worst reception is 23,1 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(B)-2



Distance between EB13 and Paijan IV(B)-2 is 2,3 km (1,4 miles)

True North Azimuth = $143,72^\circ$, Magnetic North Azimuth = $144,06^\circ$, Elevation angle = $-0,3195^\circ$

Terrain elevation variation is 7,3 m

Propagation mode is line-of-sight, minimum clearance 1,6F1 at 1,2km

Average frequency is 2450,000 MHz

Free Space = 107,5 dB, Obstruction = -0,5 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,6 dB

Total propagation loss is 136,6 dB

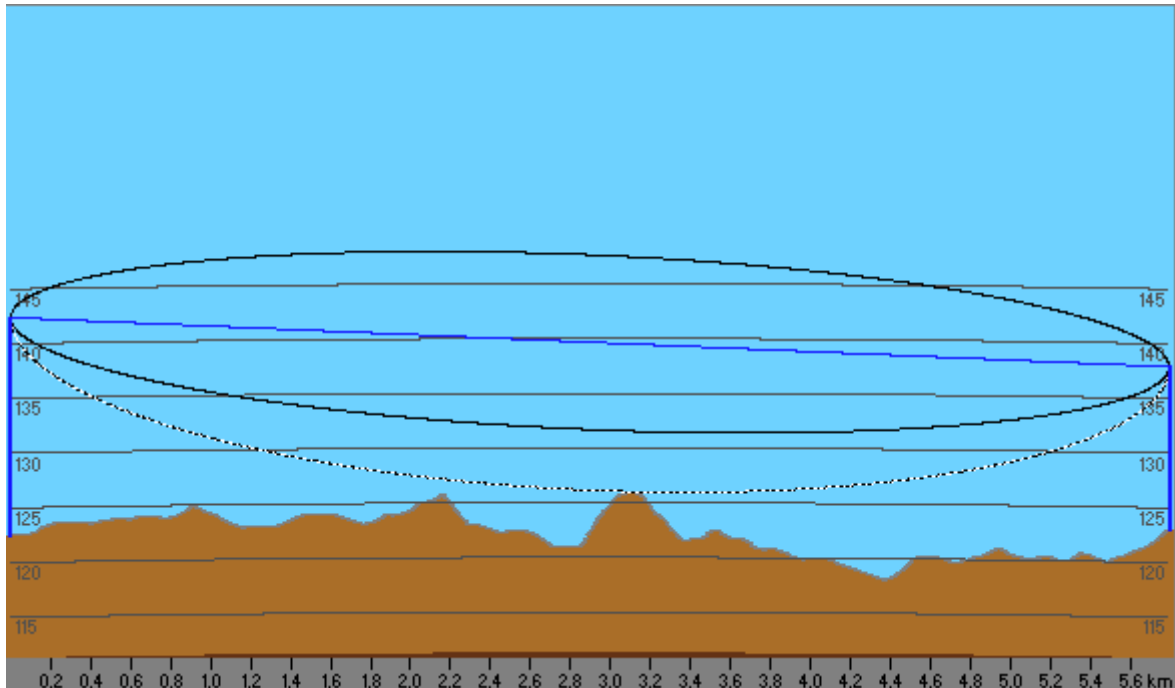
System gain from EB13 to Paijan IV(B)-2 is 154,0 dB

System gain from Paijan IV(B)-2 to EB13 is 154,0 dB

Worst reception is 17,4 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(B)-1/III(C)-2-4



Distance between EB13 and Paijan IV(B)-1/III(C) is 5,8 km (3,6 miles)

True North Azimuth = 133,58°, Magnetic North Azimuth = 133,93°, Elevation angle = -0,1209°

Terrain elevation variation is 7,9 m

Propagation mode is line-of-sight, minimum clearance 1,0F1 at 3,1km

Average frequency is 2450,000 MHz

Free Space = 115,4 dB, Obstruction = -5,0 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,8 dB

Total propagation loss is 140,2 dB

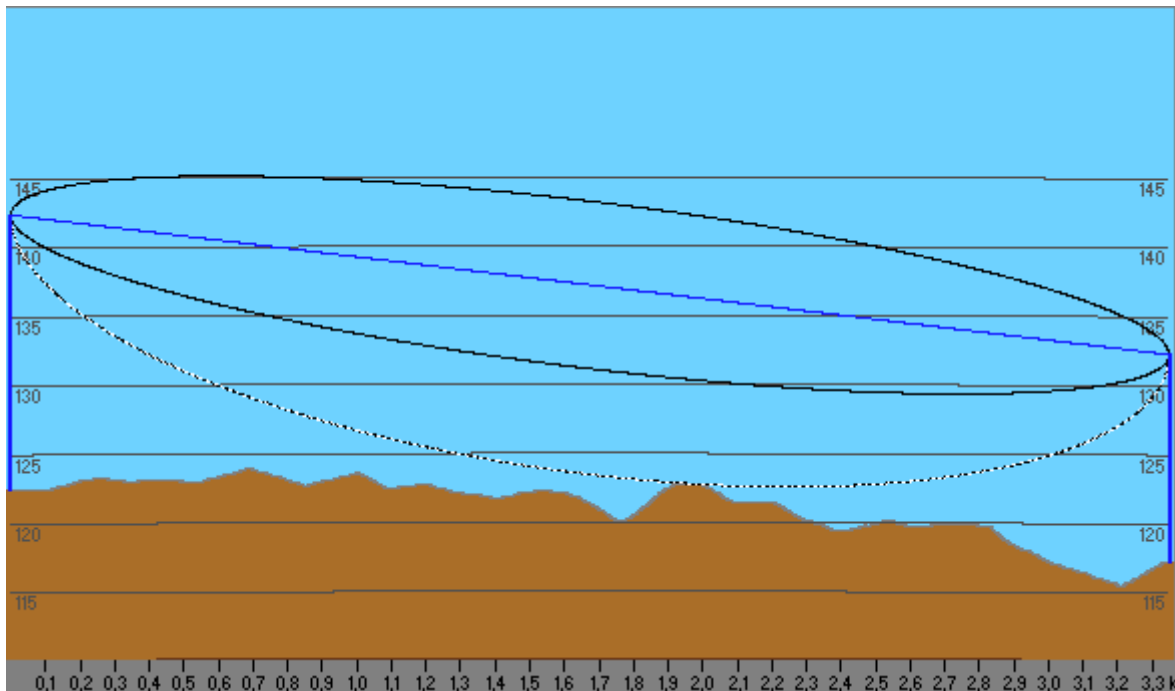
System gain from EB13 to Paijan IV(B)-1/III(C) is 154,0 dB

System gain from Paijan IV(B)-1/III(C) to EB13 is 154,0 dB

Worst reception is 13,8 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan III(B)/IV(A)
- Estación Base 13 – Estación remota Paijan IV(B)-1/III(C)-2-3



Distance between EB13 and Paijan IV(B)-1/III(C is 3,3 km (2,1 miles)

True North Azimuth = 138,83°, Magnetic North Azimuth = 139,17°, Elevation angle = -0,2136°

Terrain elevation variation is 7,9 m

Propagation mode is line-of-sight, minimum clearance 1,4F1 at 1,9km

Average frequency is 2450,000 MHz

Free Space = 110,7 dB, Obstruction = 12,8 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,6 dB

Total propagation loss is 153,1 dB

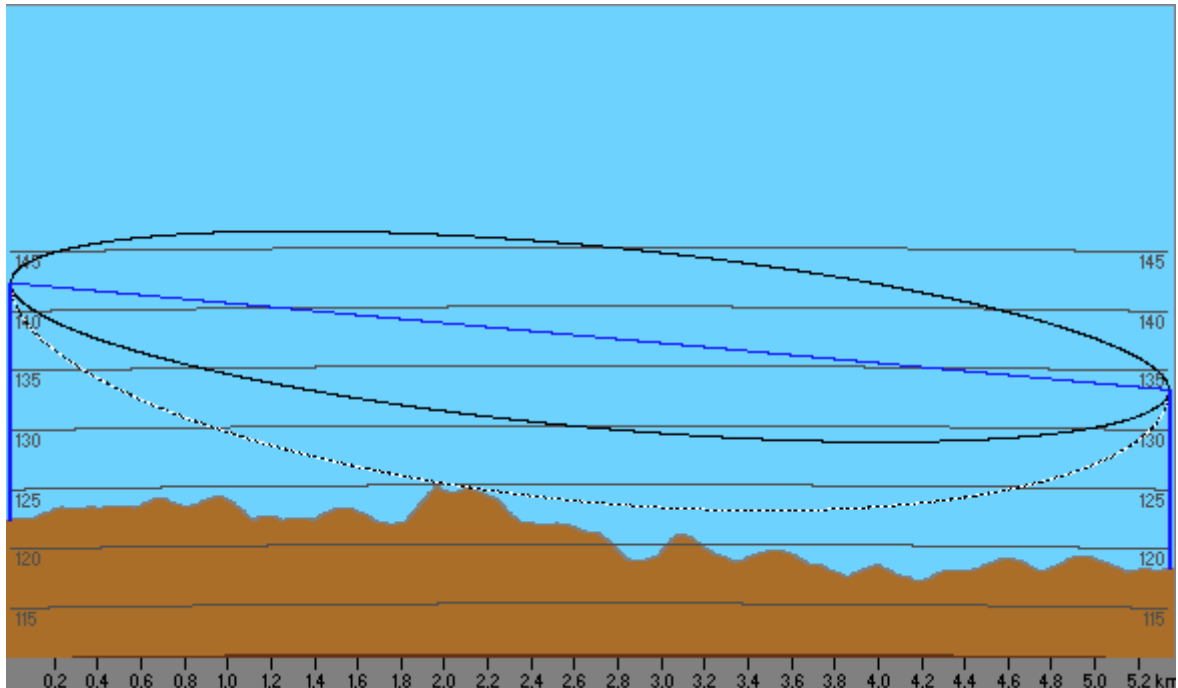
System gain from EB13 to Paijan IV(B)-1/III(C is 154,0 dB

System gain from Paijan IV(B)-1/III(C to EB13 is 154,0 dB

Worst reception is 0,9 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan IV(B)-1/III(C)-2-2



Distance between EB13 and Paijan IV(B)-1/III(C) is 5,3 km (3,3 miles)

True North Azimuth = 136,19°, Magnetic North Azimuth = 136,54°, Elevation angle = -0,1696°

Terrain elevation variation is 7,5 m

Propagation mode is line-of-sight, minimum clearance 1,1F1 at 2,1km

Average frequency is 2450,000 MHz

Free Space = 114,7 dB, Obstruction = -4,9 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,5 dB

Total propagation loss is 139,4 dB

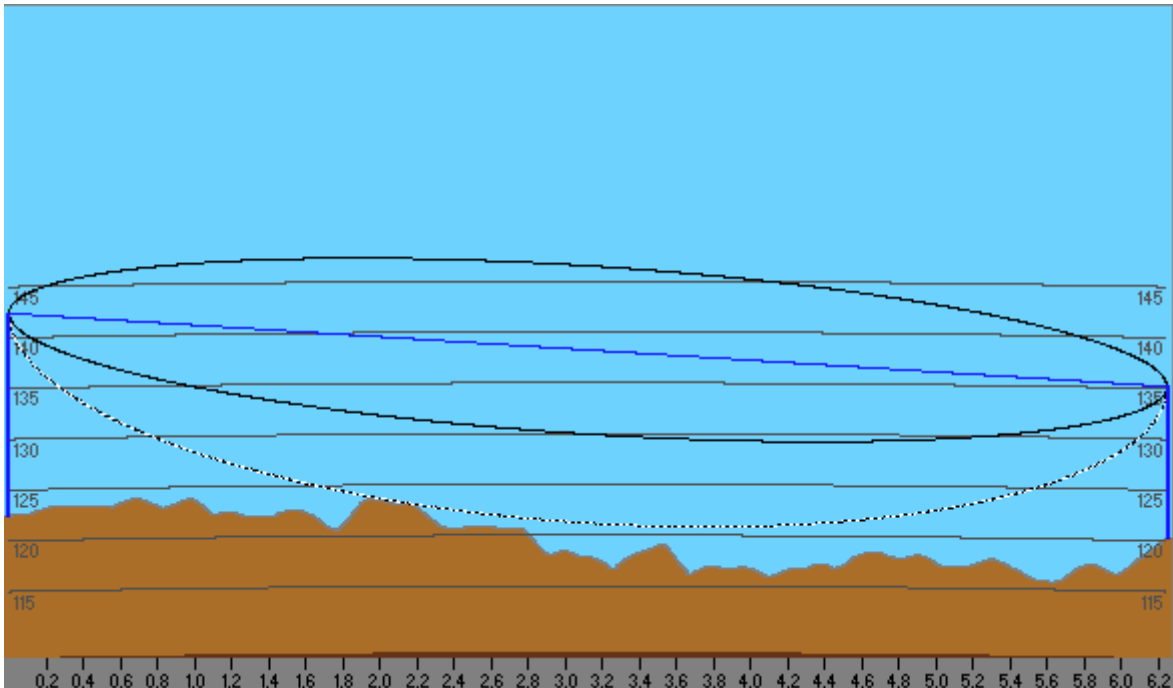
System gain from EB13 to Paijan IV(B)-1/III(C) is 154,0 dB

System gain from Paijan IV(B)-1/III(C) to EB13 is 154,0 dB

Worst reception is 14,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan II(A)-2/III(A)-1



Distance between EB13 and PaijanII(A)-2/III(A) is 6,2 km (3,9 miles)

True North Azimuth = 137,68°, Magnetic North Azimuth = 138,02°, Elevation angle = -0,1331°

Terrain elevation variation is 8,2 m

Propagation mode is line-of-sight, minimum clearance 1,2F1 at 2,0km

Average frequency is 2450,000 MHz

Free Space = 116,1 dB, Obstruction = -1,4 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 29,8 dB

Total propagation loss is 144,5 dB

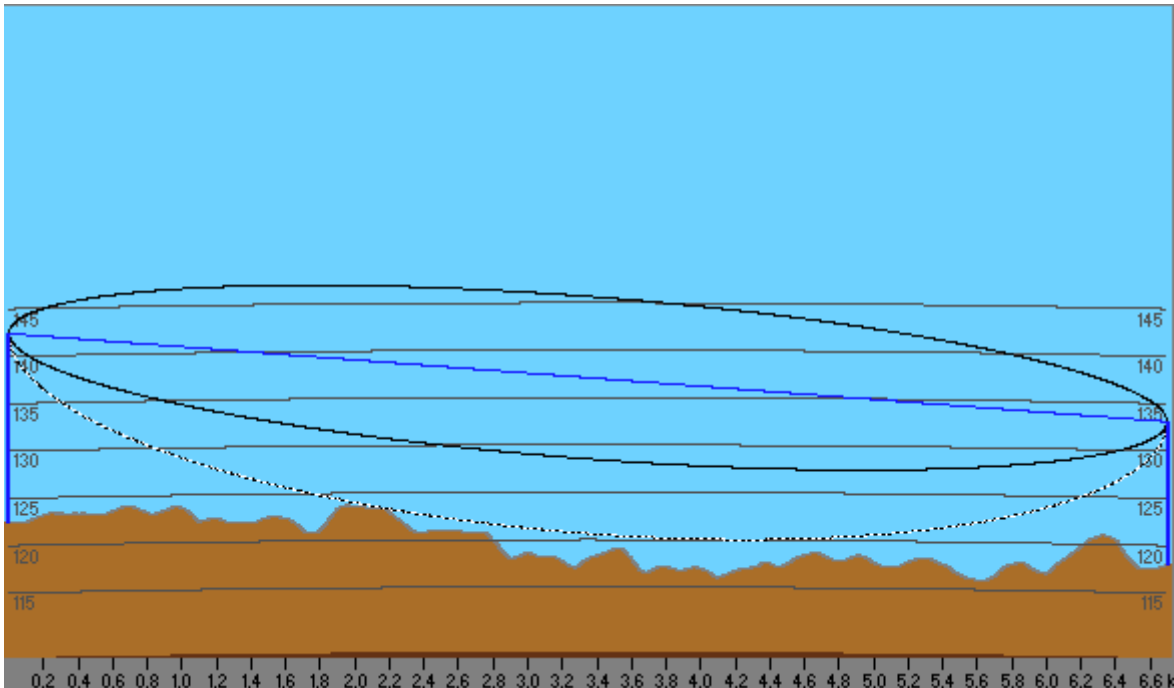
System gain from EB13 to PaijanII(A)-2/III(A) is 154,0 dB

System gain from PaijanII(A)-2/III(A) to EB13 is 154,0 dB

Worst reception is 9,5 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota Paijan III(C)-1/2-1



Distance between EB13 and Paijan III(C)-1/2-1 is 6,7 km (4,2 miles)

True North Azimuth = 137,44°, Magnetic North Azimuth = 137,79°, Elevation angle = -0,1167°

Terrain elevation variation is 8,0 m

Propagation mode is line-of-sight, minimum clearance 1,3F1 at 2,2km

Average frequency is 2450,000 MHz

Free Space = 116,7 dB, Obstruction = -1,3 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,0 dB

Total propagation loss is 145,4 dB

System gain from EB13 to Paijan III(C)-1/2-1 is 154,0 dB

System gain from Paijan III(C)-1/2-1 to EB13 is 154,0 dB

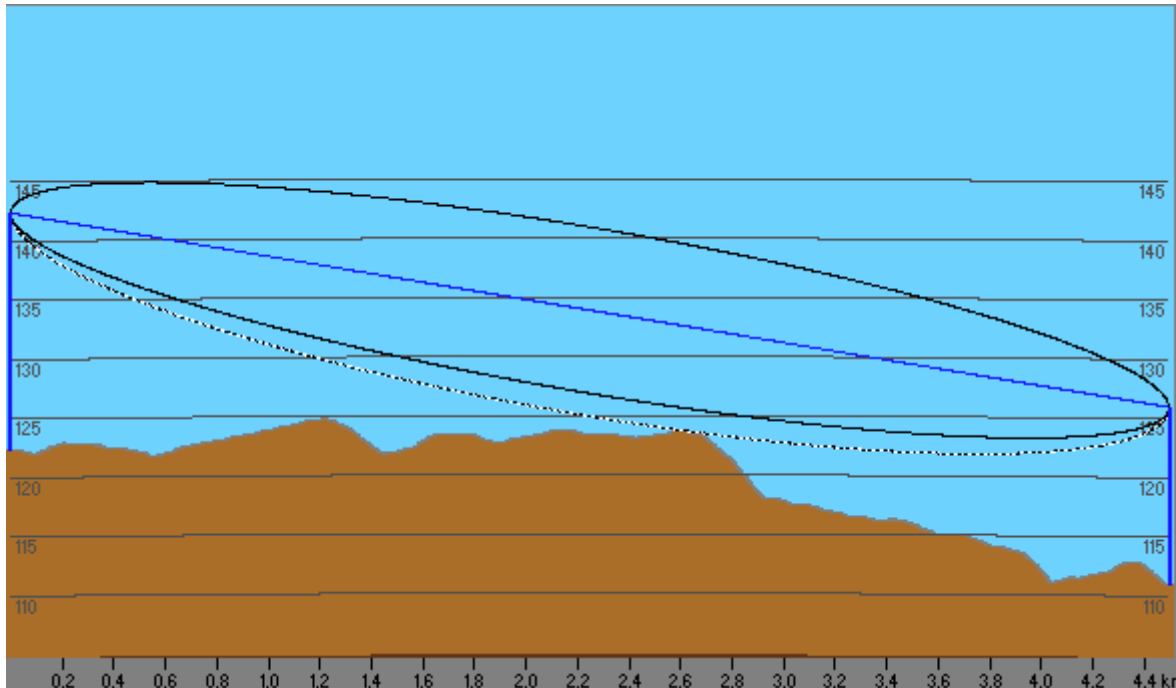
Worst reception is 8,6 dB over the required signal to meet

99,000% of time, 99,000% of situations

- Estación Base 13 – Estación remota URRICAPE 2

La Estación Base 13 y la Estación remota URRICAPE 2 comparten el mismo emplazamiento.

- Estación Base 13 – Estación remota Botadero Terminal



Distance between EB13 and BOTADERO TERMINAL is 4,5 km (2,8 miles)

True North Azimuth = 332,83°, Magnetic North Azimuth = 333,18°, Elevation angle = -0,1834°

Terrain elevation variation is 13,6 m

Propagation mode is line-of-sight, minimum clearance 0,8F1 at 2,6km

Average frequency is 2450,000 MHz

Free Space = 113,2 dB, Obstruction = -3,1 dB, Urban = 0,0 dB, Forest = 0,0 dB, Statistics = 30,4 dB

Total propagation loss is 140,5 dB

System gain from EB13 to BOTADERO TERMINAL is 154,0 dB

System gain from BOTADERO TERMINAL to EB13 is 154,0 dB

Worst reception is 13,5 dB over the required signal to meet

99,000% of time, 99,000% of situations