



The background image shows a large, multi-element Yagi-Uda antenna system mounted on a tall vertical mast. The antenna is angled upwards towards the right. It is set against a vibrant orange and yellow sunset sky. In the foreground, dark silhouettes of trees and bushes are visible. The overall atmosphere is peaceful and suggests a rural or semi-rural setting.

CR6K

LE DÉVELOPPEMENT D'UNE PETITE STATION DE CONCOURS HF

Avril 2023

CR6K – CONTEST STATION

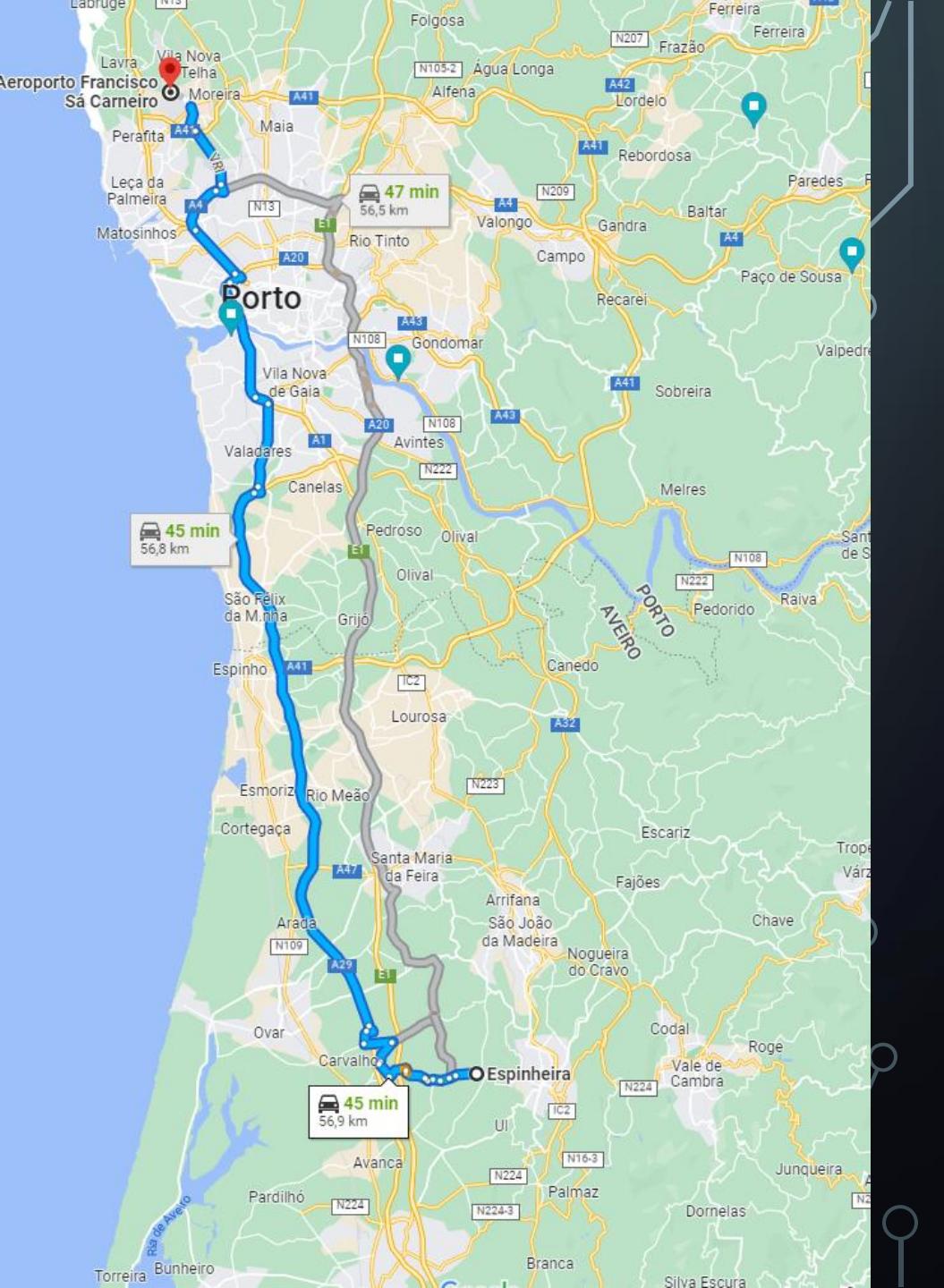
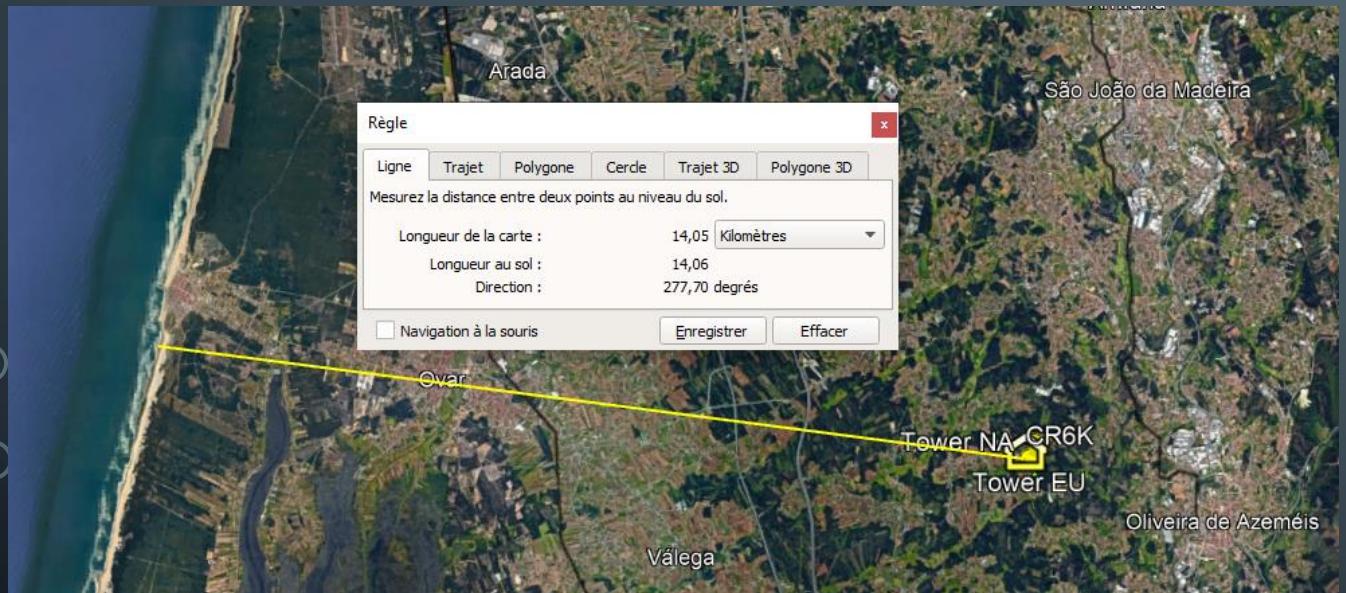
- Background
- Station de concours dans un petit terrain
 - Localisation
 - Terrain
- Evolution de la station
 - Evolution des antennes
 - Evolution du shack
 - Antennes RX
 - Antennes TX
- Utilisation de la station en remote
- 1er équipe Portugaise a participer au WRTC
- L'équipe derrière CR6K
- Contest Results
- Questions

BACKGROUND

- Filipe Lopes 37 ans
- Telecom Engineer @FREE Réseau in France
- Mon père est CT1CJJ
- Radio amateur depuis 2002
- Contester depuis 2000's comme observateur
- Mentor CT1ZW décédé 2021/01



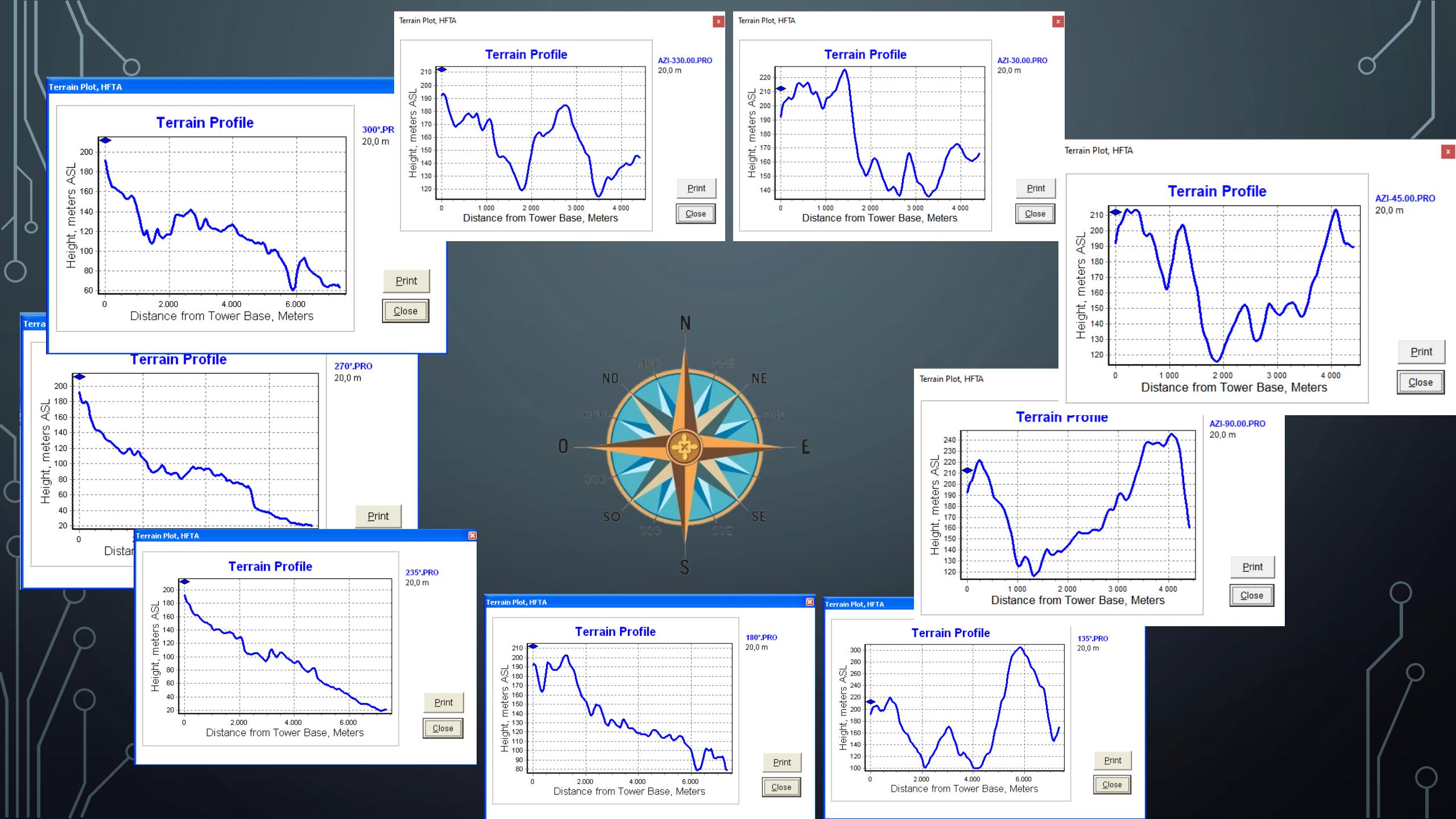
LOCALISATION



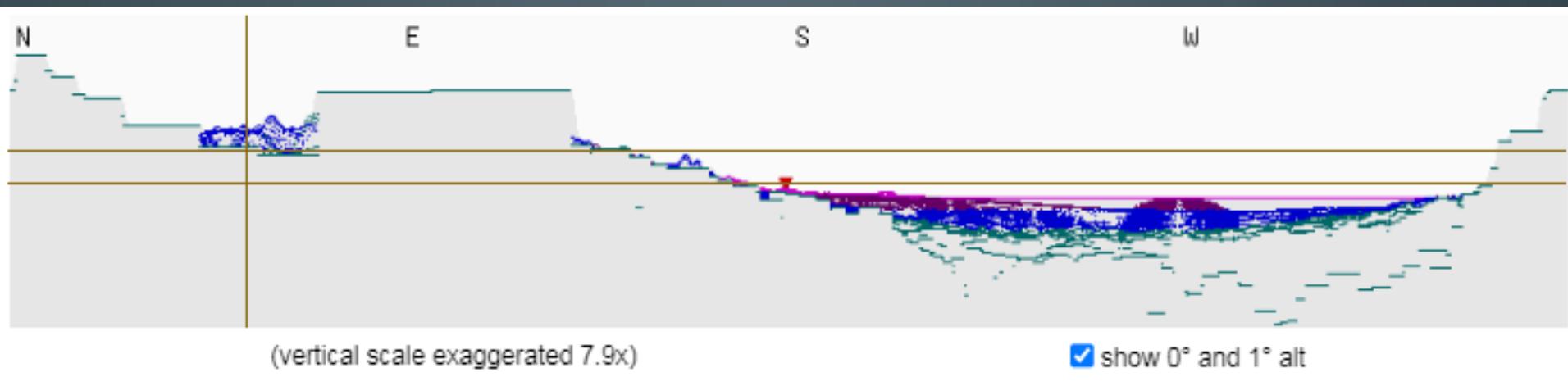
PETIT TERRAIN



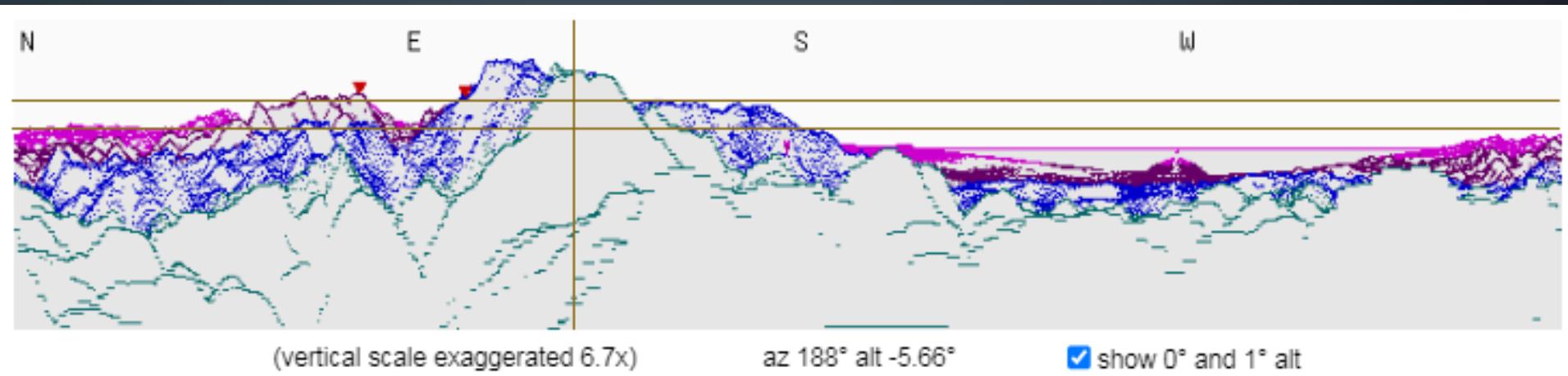
- 195m ASL
- Terrain 50X20M
- Towers 14m apart
- Gros pylone elec à 50m



360° VIEW @20M HIGH



360° VIEW @40M HIGH ☺



THE EVOLUTION/GROWTH OF THE STATION

Jusqu'a 2016

- Tribander JP2000 + JP7-2 Shorty
- 2/3 elem Quad
- Wire antennas for 40m 80m

2016

- HFTA study
- New switching system with Arduino based “brain” to use touch screens
- Tower 1 rebuilt - 3x Tribander 11 elem. + 4 elem 40m
- Tower 2 rebuilt to hold 1x Tribander 16 elem. + 40m 2 elem.
- 2 element vertical added for 80M

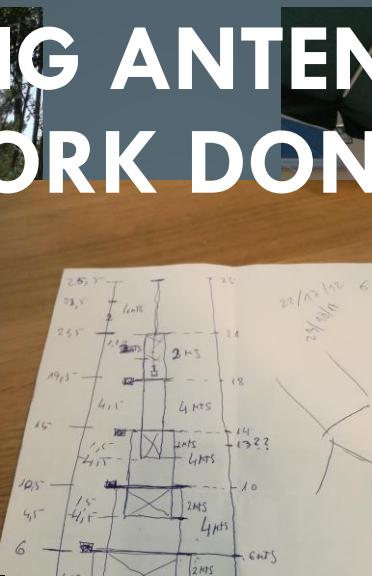
2018

- 2x tribanders only stacked to NA to be able to use 3 way Power Splitters on 10 15 and 20m
- Added 3 x triplexers
- High Power BPF (160 80 40 20 15 10 m)
- Updated the switching system
- New RX switching system

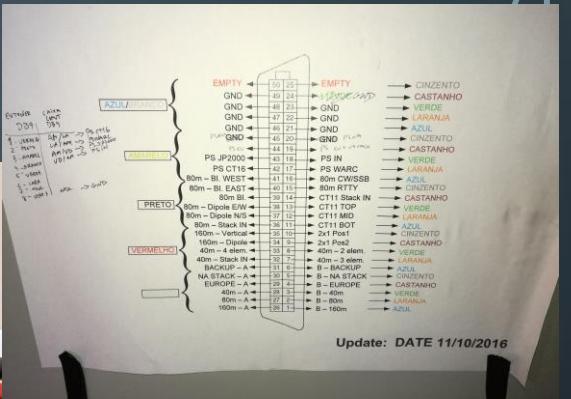
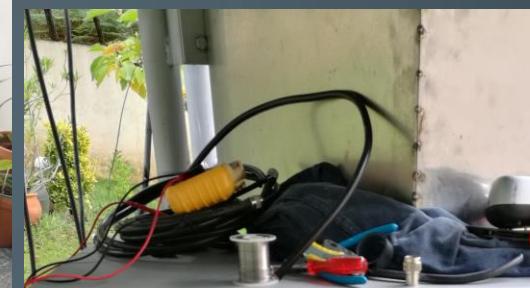
2019 until now

- Added 2x Kenwood TS890 (last one in Nov 2021)
- Automatic Amplifiers

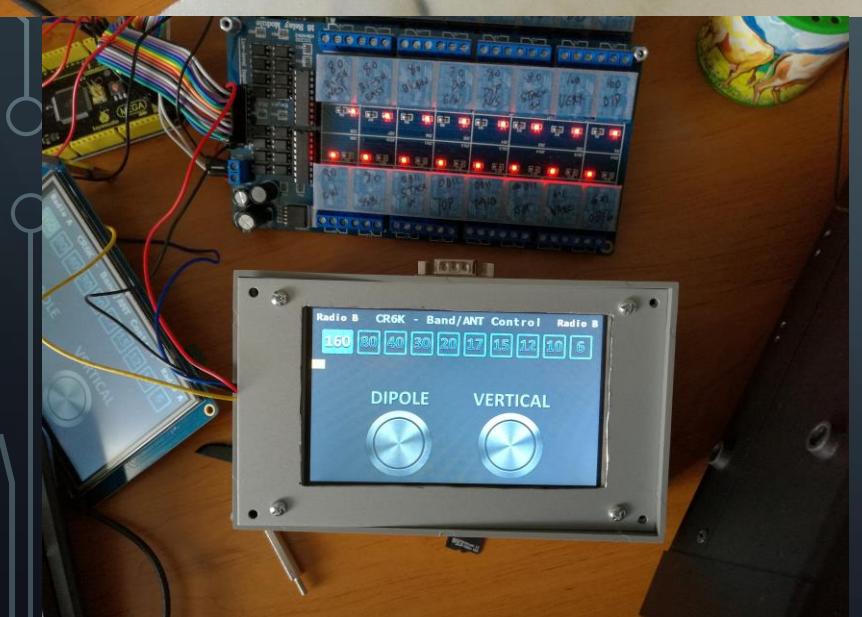
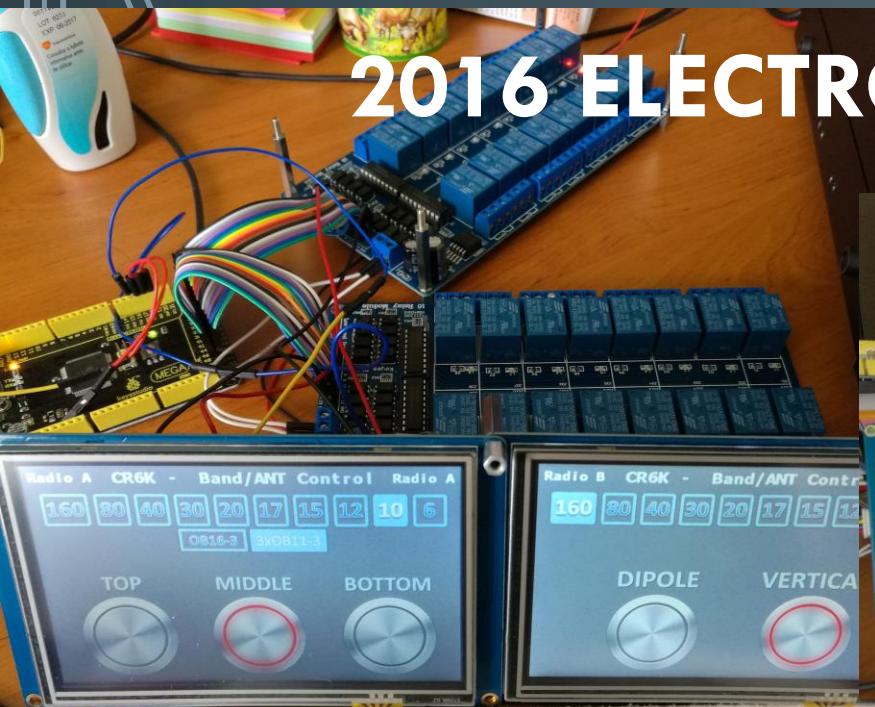
2016 BIG ANTENNA WORK MECHANIC WORK DONE BY JOSE CT1CJJ



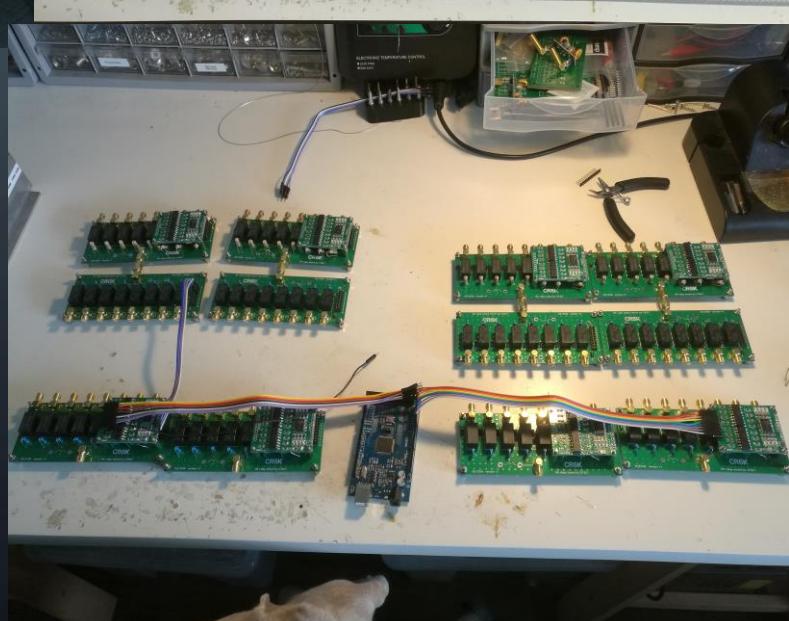
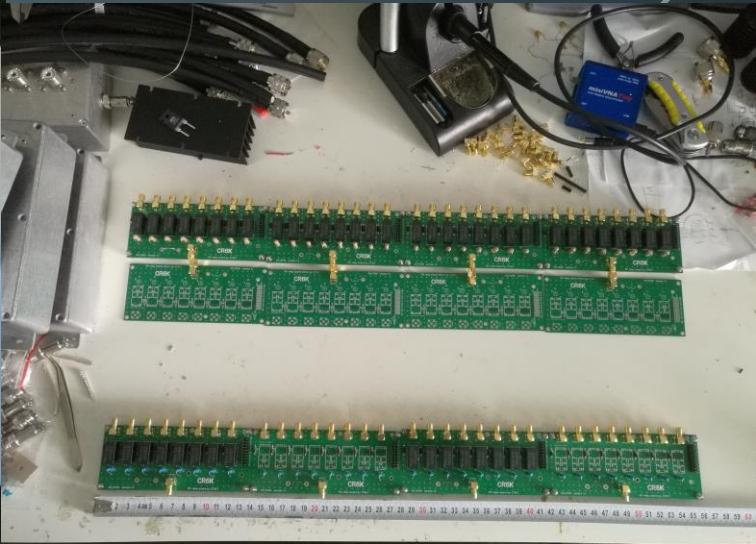




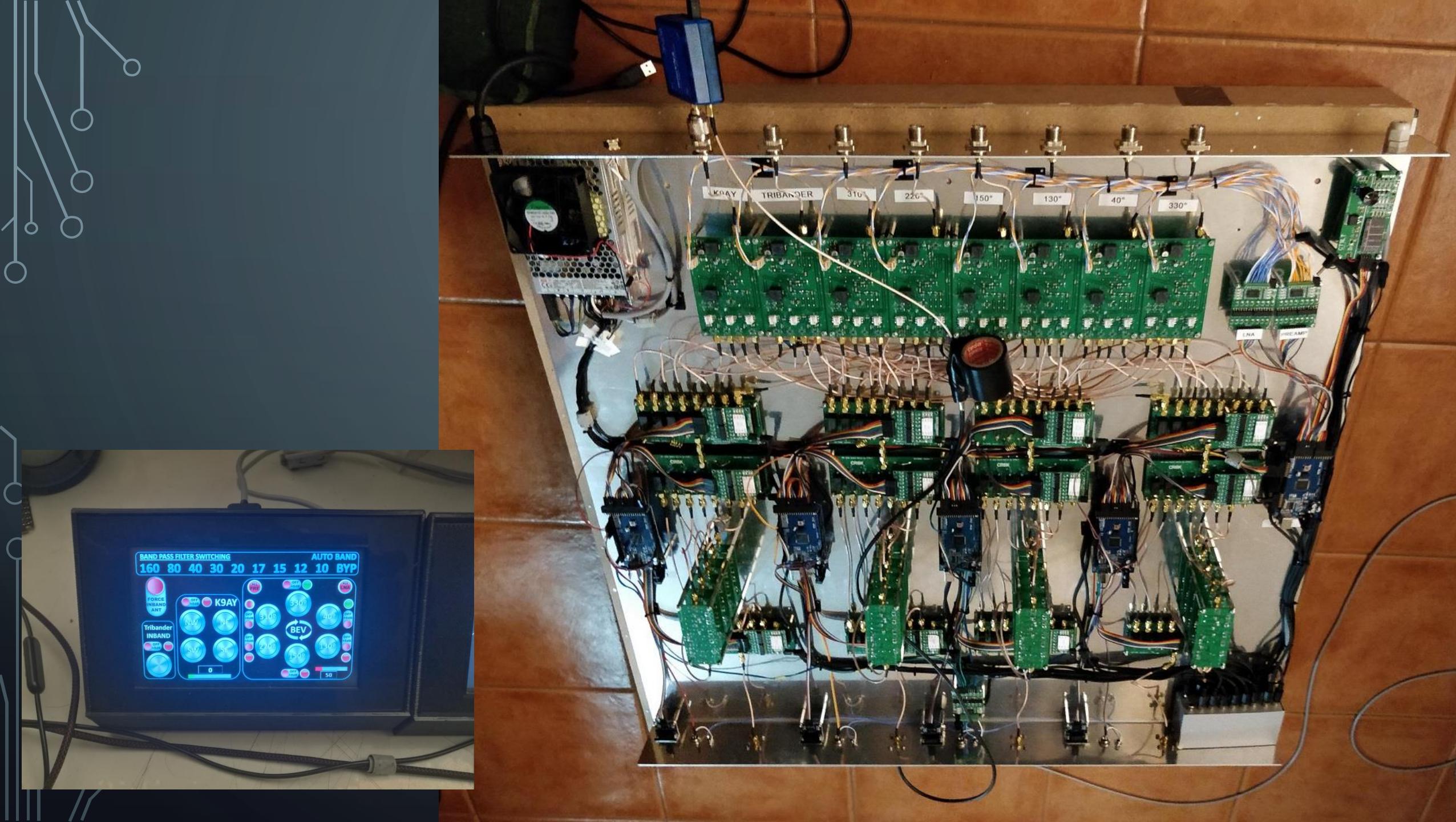
2016 ELECTRONICS



CR6K 2018

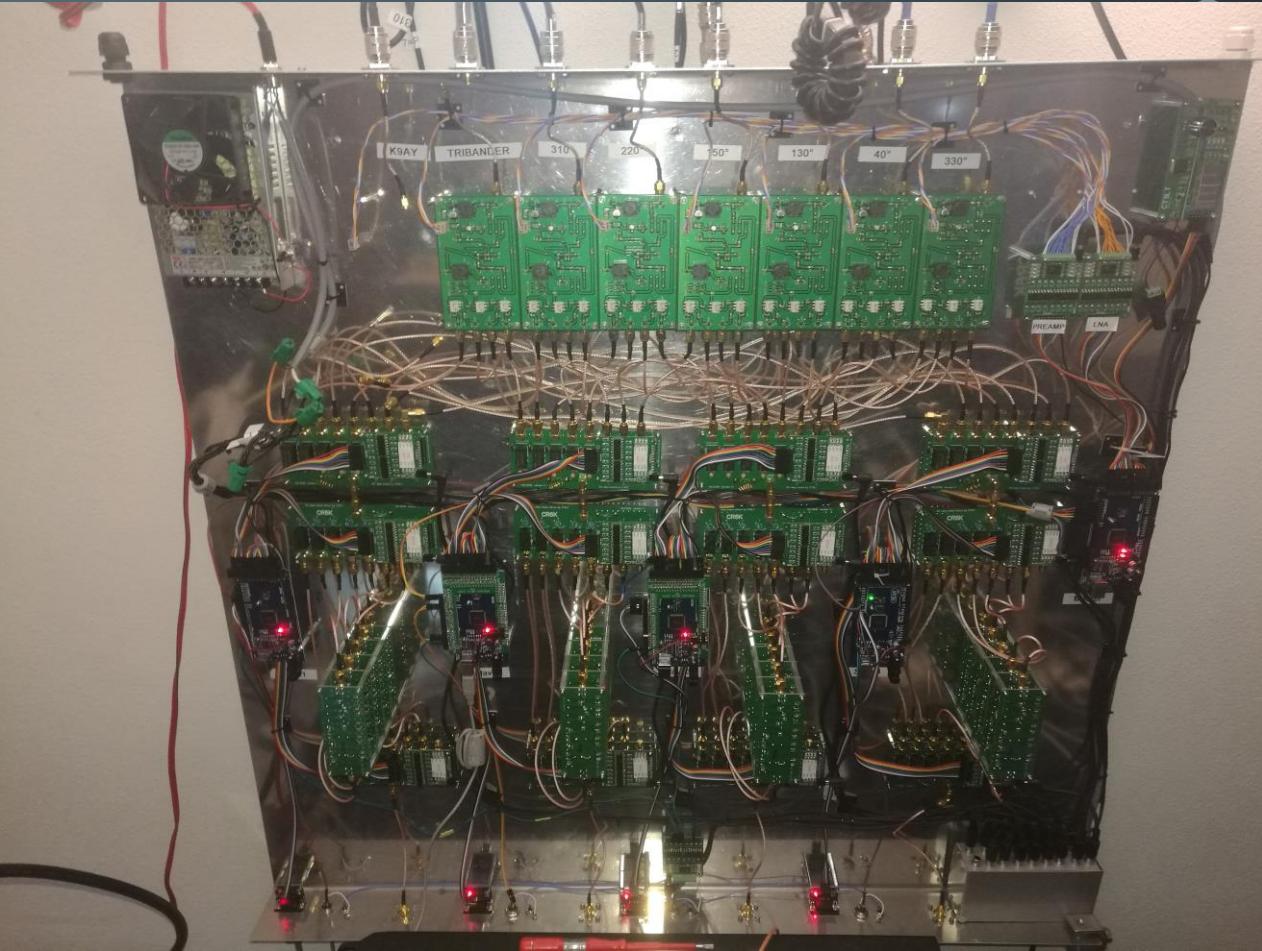
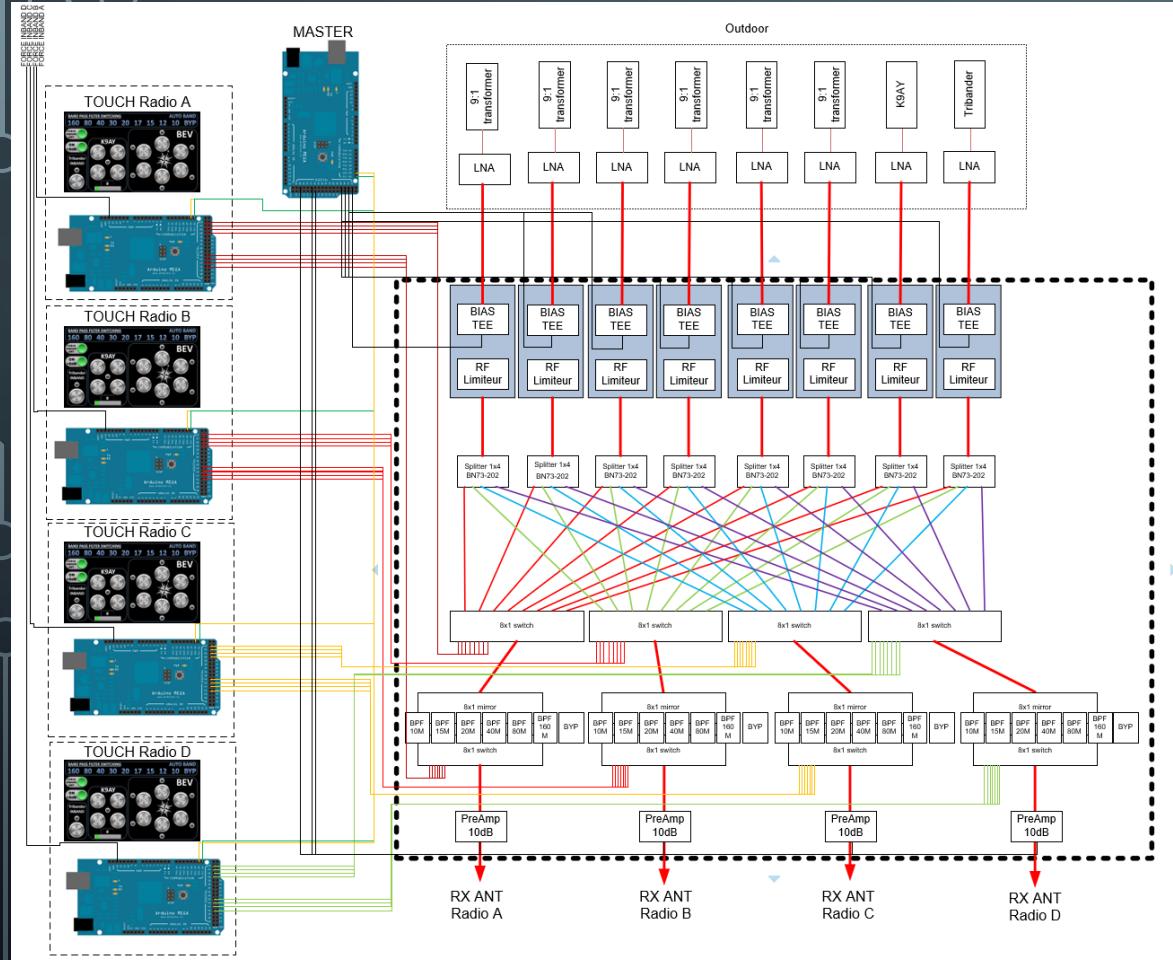








RX ANTENNAS



Project by Jerome F4AJS & Filipe CT1ILT

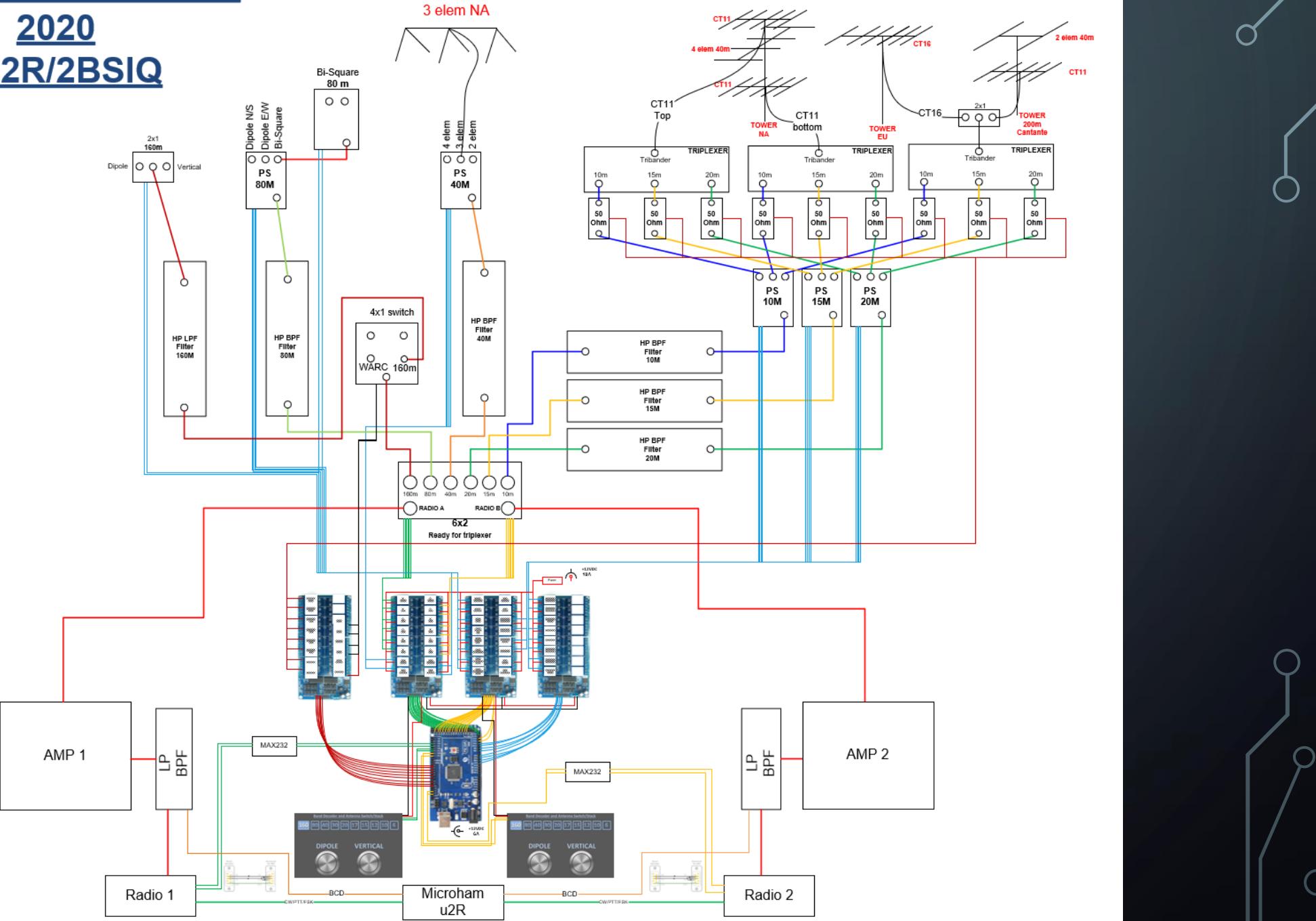
BEVERAGES



CR6K Contest Station

2020

SO2R/2BSIQ

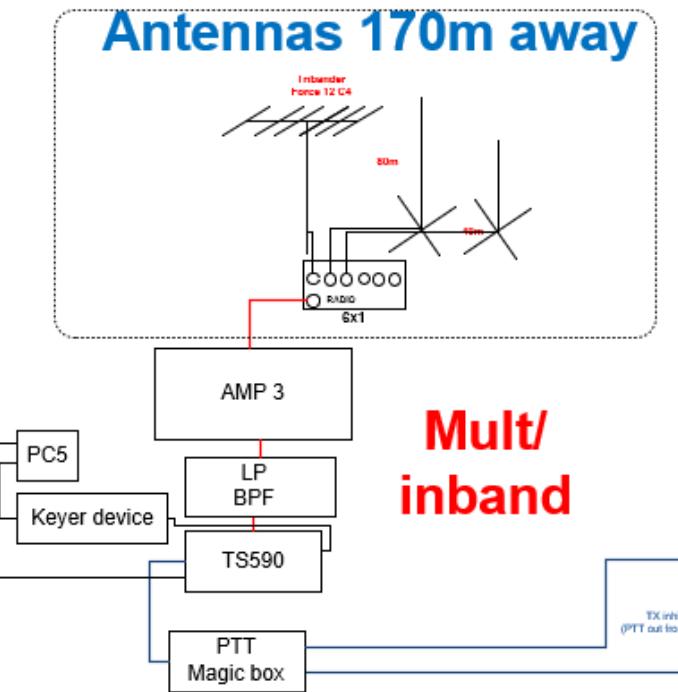




Op: CT1CJJ, CT1HXB,
CT1ILT, CT2HUU,
CT2IMG, CT7ANO,
CT7AGE, F4AJS, F4EGZ

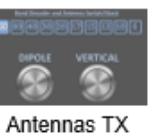
CR6K Contest Station

M/2 2022



RUN1 assist

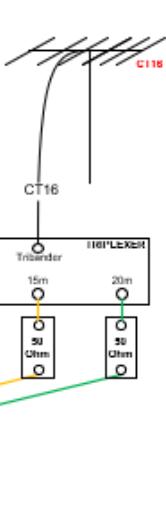
RUN1



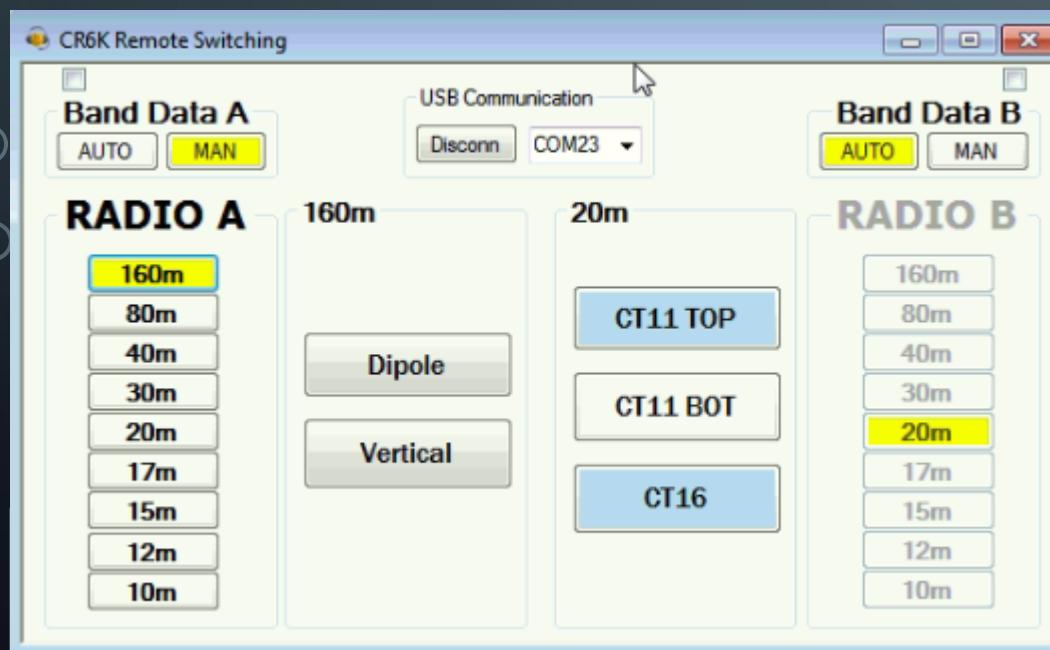
RUN2

RUN2 assist

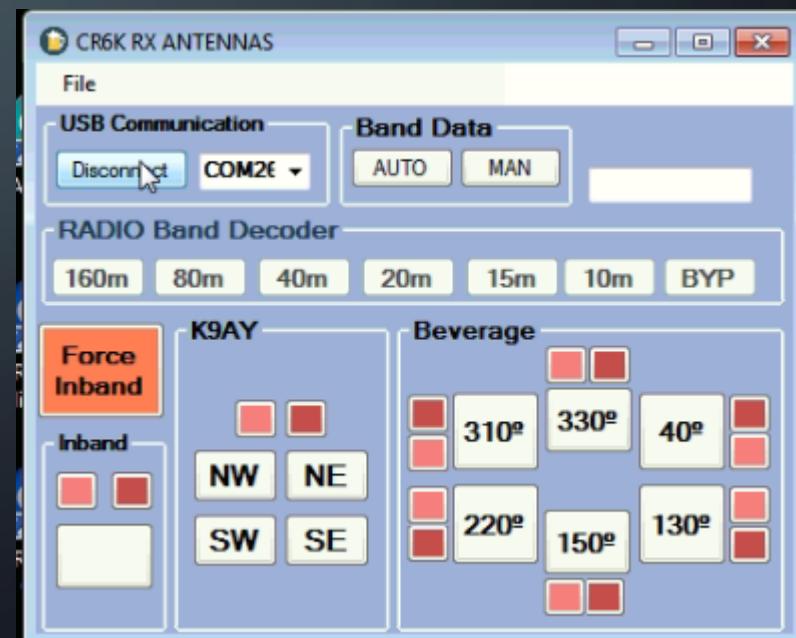
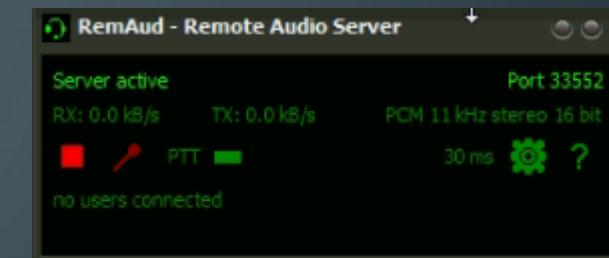
Antennas TX Control #2

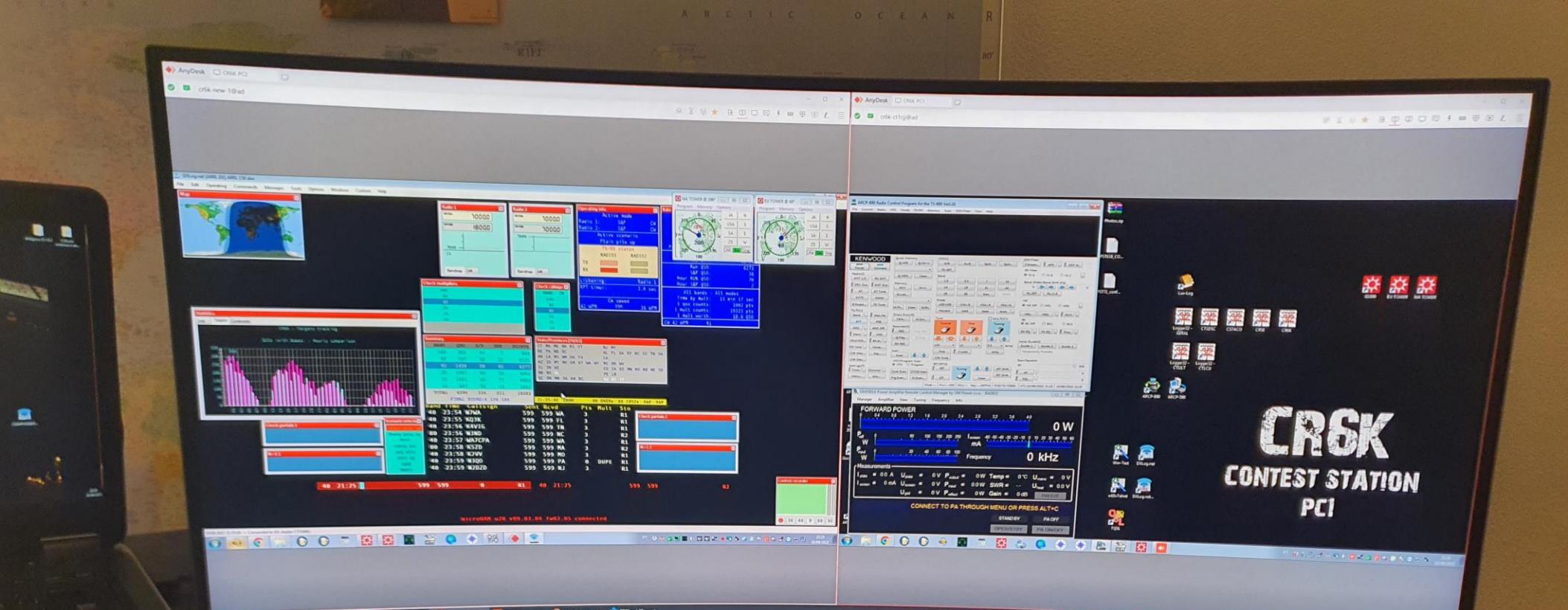


REMOTE OPERATION



- C# soft dev by CT1ILT
 - TX antennas
 - RX antennas
- EA4TX ARS USB for rotators
- RemAud for Audio
- Anydesk
- Microham u2R for audio
- Good Fiber connection
- Camera to watch AMPs and antennas





THE TEAM BEHIND CR6K



My mother Celeste



My Dad Jose CT1CJJ



Jerome F4AJS

Cedric F4EGZ

Jorge CT1FJV



Solange CT1ILT2



Joel CT1HXB



Bruno CT2HUU



Imanol EC2DX



João CT2IMG



CONTESTS/RESULTS

- CQ WW
 - CW - since Sept 2002 until 2021 -> 19 contests (missed only 2011)
 - SSB – MULTI SINGLE ou MULTI 2
 - Equipe: CT1CJJ CT1ILT CT1HXB CT2HUU CT2IMG CT7AGE F4EGZ F4AJS
- CQ WPX
 - CW – since 2003 until 2021 -> 16 contests
 - SSB – CT1CJJ fait la plus part des concours SSB
- ARRL
 - CW – since 2004
 - SSB - CT1CJJ fait la plus part des concours SSB

CQ WW SSB 2021 MULTI-2



CT1CJJ



F4EGZ



EA5KA



W2MF

CT2HUU



EC2DX



CT2IMG

CT2HUU



F4AJS



CT2HUU

W2MF

F4EGZ
EIDER

CELESTE

CT1ILT

F4AJS

CT1HXB

EA5KA

EC2DX

CT1CJJ

CT2IMG

RESULT CQWWSSB 2021

Operator(s): CT1CJJ CT1FPQ CT1HXB CT1ILT
CT2HUU CT2IMG EA5KA EC2DX F4AJS F4EGZ

Summary: Compare Scores			
Band	QSOs	Zones	Countries
160:	309	11	55
80:	1086	20	91
40:	2246	32	113
20:	2768	38	138
15:	3046	37	130
10:	1834	30	115
Total:	11289	168	642 Total Score 19,590,660

Rank	Call	QTH	Year	Category	Score	QSOs	Zn	Cty	Hours	Operator(s)
1	ES9C	ES	2021	MULTI-TWO	18,602,780	11,827	187	703	48.0	ES1BVG ES2ADO ES2GW ES2MC ES4BO ...
2	EI7M	EI	2021	MULTI-TWO	18,472,050	11,260	174	636	48.0	EI3KD G4CLA EI3JE EI3JZ EI8IR EI7IG ...
3	CR6K	CT	2021	MULTI-TWO	17,546,958	10,841	167	635	48.0	CT1CJJ CT1FPQ CT1HXB CT1ILT CT2HUU ...
4	II2S	I	2021	MULTI-TWO	14,661,120	8,613	179	651	48.0	IK2QEI IZ2KXC IZ2FOS IK2TDM IU2IBU ...
5	ED1R	EA	2021	MULTI-TWO	14,299,362	9,405	175	623	48.0	DH1TW EA1CJ EA1TL EC1KR EB1RL EA4AOC ...

CQ WW SSB 2022

M2 – OPERATOR(S): CT1CJJ CT1HXB CT1ILT

CT2HUU CT2IMG CT7AGE CT7ANO F4AJS F4EGZ

VIDEO

CQ WW SSB 2022

M2 – Operator(s): CT1CJJ CT1HXB
CT1ILT CT2HUU CT2IMG CT7AGE
CT7ANO F4AJS F4EGZ

Class: **M/2 HP**

QTH:

Operating Time (hrs): 48

Location: Southern Europe

Summary: [Compare Scores](#)

[Band](#) [QSOs](#) [Zones](#) [Countries](#)

160:	216	12	49
80:	1126	20	86
40:	1777	32	113
20:	2237	37	133
15:	3566	37	132
10:	3080	38	137

Total: **12002** **176** **650** Total Score **21,643,678**

MULTI-OP TWO-TRANSMITTER	
EA8RM	38,749,256
P4ØL.....	24,628,032
ZF1A.....	24,295,992
CR6K	19,736,855
EI7M	18,787,860
PX2A.....	17,619,751
W3LPL	16,260,048
ES9UKR	16,250,324
9A1P	15,959,447
ED1R	15,804,510



EUROPE MULTI-OPERATOR TWO TRANSMITTER

CR6K	209/12/48	1098/20/84	1718/31/112	2177/37/133	3457/36/128	2978/38/136
EI7M	173/11/46	1196/16/80	1647/34/119	2257/40/123	3358/38/136	2530/36/127
ES9UKR	364/10/54	1172/23/90	1997/34/124	2652/40/157	2830/38/148	1570/37/144
9A1P	221/8/45	1178/20/81	1599/34/118	2629/40/129	2015/38/136	2044/39/145
ED1R	137/10/46	969/18/76	1792/31/110	1790/38/128	2575/37/134	2598/37/132

ANALYSE APRES CONTEST

Operators	Nombre de IDQSO	Nombre de DXCC-M	Nombre de Zone-M	Somme de ToTal Mults
CT1ILT	1004	106	25	131
CT1CJJ	2015	96	26	122
CT7AGE	296	78	28	106
F4EGZ	2485	84	20	104
CT2IMG	1323	72	28	100
CT2HUU	881	66	9	75
CT7ANO	1901	56	18	74
F4AJS	671	57	9	66
CT1HXB	1650	35	13	48
Total général	12226	650	176	826

Station Type	Nombre de IDQSO
MULT	294
RUN1	5587
RUN1ASSIST	520
RUN2	5220
RUN2ASSIST	605
Total général	12226

Nombre de IDQSO						
Operators	MULT	RUN1	RUN1ASS	RUN2	RUN2ASS	Total général
29/10/2022	173	3508	322	3285	439	7727
30/10/2022	121	2079	198	1935	166	4499
Total général	294	5587	520	5220	605	12226

Nombre de IDQSO			
	29/10/2022	30/10/2022	Total général
CT1CJJ	1092	923	2015
CT1HXB	825	825	1650
CT1ILT	503	501	1004
CT2HUU	635	246	881
CT2IMG	968	355	1323
CT7AGE	169	127	296
CT7ANO	1421	480	1901
F4AJS	620	51	671
F4EGZ	1494	991	2485
Total général	7727	4499	12226

Somme de ToTal Mults			
	29/10/2022	30/10/2022	Total général
CT1CJJ	114	8	122
CT1HXB	41	7	48
CT1ILT	106	25	131
CT2HUU	66	9	75
CT2IMG	90	10	100
CT7AGE	89	17	106
CT7ANO	67	7	74
F4AJS	65	1	66
F4EGZ	92	12	104
Total général	730	96	826

ANALYSE APRES CONTEST - UBN

Nombre de IDQSO	29/10/2022	30/10/2022	Total général	Errors per QSOs
CT1CJJ	1092	923	2015	2,8%
CT1HXB	825	825	1650	1,3%
CT1ILT	503	501	1004	0,8%
CT2HUU	635	246	881	0,3%
CT2IMG	968	355	1323	2,5%
CT7AGE	169	127	296	1,7%
CT7ANO	1421	480	1901	1,4%
F4AJS	620	51	671	1,8%
F4EGZ	1494	991	2485	2,3%
Total général	7727	4499	12226	

Station Type	Nombre de IDQSO	
MULT	294	1,7%
RUN1	5587	1,8%
RUN1ASSIST	520	1,0%
RUN2	5220	1,6%
RUN2ASSIST	605	1,5%
Total général	12226	



CQ World Wide DX Contest

CQ WW Scores CW

Rank	Call	QTH	Year	Category	Score	QSOs	Zn	Cty	Hours	Operator(s)
1	CR6K	CT	2021	SO HIGH ALL	12,055,652	9,689	155	491	45.4	CT1ILT #1EU #2World
2	CR6K	CT	2020	SO HIGH ALL	10,217,200	9,474	140	420	45.6	CT1ILT #1EU #5World
3	CR5E	CT	2019	SO HIGH ALL	8,827,785	7,179	147	492	44.1	CT1ILT #1EU #9World
4	CR5E	CT	2018	SO HIGH ALL	7,879,846	7,137	138	460	44.0	CT1ILT #1EU #10World
5	CR6K	CT	2017	SO HIGH ALL	8,453,131	7,328	143	486	43.9	CT1ILT #1EU #4World
6	CR6K	CT	2016	SO HIGH ALL	8,278,452	6,555	155	529	48.0	CT1ILT #1EU #9World
7	CR6K	CT	2015	SO HIGH ALL	8,289,195	5,741	165	558	44.4	CT1ILT #2EU #15World
8	CR6K	CT	2014	SA HIGH ALL	8,939,502	5,054	184	674	46.0	CT1ILT #4EU #11World
9	F4VPX	F	2013	SA LOW ALL	1,247,688	1,159	114	402	36.1	CT1ILT
10	CR6K	CT	2012	SO HIGH ALL	9,858,906	6,241	168	579	46.5	CT1ILT #2EU #11World
11	CR6K	CT	2010	SO HIGH ALL	8,691,975	6,157	155	556	47.4	CT1ILT #2EU #13World
12	K1LZ	W1	2009	MULTI-MULTI	15,645,202	7,024	178	664	48.0	CT1ILT K1LZ K1VR W1UE KB1RDZ KB1TKJ ...
13	CS2T	CT	2008	SO LOW ALL	4,579,659	4,194	117	450	43.8	CT1ILT
14	CT6A	CT	2007	SO LOW ALL	4,987,632	4,205	128	496	40.1	CT1ILT
15	CT6A	CT	2006	SA HIGH ALL	5,894,230	4,409	142	549	46.9	CT1ILT
16	CT6A	CT	2005	SO LOW ALL	4,730,157	3,960	131	490	-	CT1ILT
17	CT7B	CT	2004	SO LOW ALL	4,741,380	3,966	137	502	-	CT1ILT
18	CQ0T	CT	2003	SO LOW ALL	5,174,184	4,189	139	493	-	CT1ILT
19	CT1ILT	CT	2002	SO LOW ALL	1,667,442	1,628	106	412	-	



CQ World Wide WPX Contest

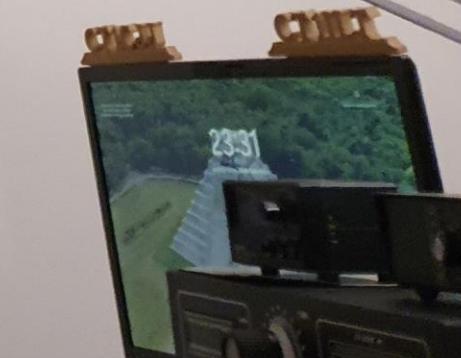
CQ WPX Scores CW

Rank	Call	Loc	Year	Category	Score	QSOs	WPX	Hours	Operator(s)
1	CR6K	CT	2021	SO HIGH ALL	5,653,872	2,291	948	15.3	CT1ILT
2	CR6K	CT	2020	SO HIGH ALL	12,526,650	4,236	1,215	36.0	CT1ILT
3	CR6K	CT	2019	SO LOW ALL	5,820,416	2,689	896	33.8	CT1ILT
4	CR6K	CT	2017	SO HIGH ALL	8,554,995	3,436	1,055	35.9	CT1ILT
5	CR6K	CT	2016	SO HIGH ALL	8,600,578	3,159	1,043	35.9	CT1ILT
6	CR6K	CT	2015	SO HIGH ALL	9,948,634	3,477	1,154	35.9	CT1ILT
7	CR6K	CT	2012	SO HIGH ALL	10,138,480	3,549	1,124	35.9	CT1ILT
8	CR6K	CT	2011	SO HIGH ALL	2,369,298	1,564	662	15.3	CT1ILT
9	CR6K	CT	2010	SO HIGH ALL	6,922,045	3,191	977	35.9	CT1ILT
10	CT8K	CT	2009	SO HIGH ALL	192,150	372	210	3.2	CT1ILT
11	CS2T	CT	2008	SO HIGH ALL	1,196,576	946	488	10.8	CT1ILT
12	CT6A	CT	2007	SO LOW ALL	4,562,776	2,459	808	36.0	CT1ILT
13	CT6A	CT	2006	SO LOW ALL	1,758,652	1,263	587	14.2	CT1ILT
14	CT7B	CT	2005	SO LOW ALL	3,393,885	2,207	737	33.9	CT1ILT
15	CS6T	CT	2004	SO HIGH 40M (R)	1,778,007	1,022	537	18.7	CT1ILT
16	CT1ILT	CT	2003	SO LOW ALL (R)	3,697,200	2,217	720	36.0	



Contests - ARRL International DX CW Contest - Scores

Category	CALL	Colonne1	Year	Score	QSOs	Mults	Hours	OP	Comment
SOHP	CR6K	CT	2022	5,982,972	6,048	332	39.0	CT1ILT	#1 EU #2 WORLD
SOHP	CR6K	CT	2021	4,030,560	4,703	288	37.4	CT1ILT	#1 EU #5 WORLD
SOHP	CR5E	CT	2020	3,810,384	4,55	282	38.5	CT1ILT	#1 EU #5 WORLD
SOHP	CR5E	CT	2019	852,159	1,539	187	16.3	CT1ILT	Contest done after surgery in remote
SOHP	CR6K	CT	2018	3,242,430	4,038	270		CT1ILT	#1 EU #7 WORLD
SOHP	CR6K	CT	2016	3,858,990	4,242	307		CT1ILT	#2 EU #7 WORLD
SOHP	CR6K	CT	2015	4,514,940	4,671	324		CT1ILT	#1 EU #4 WORLD
SOHP	TI5W	TI	2014	5,909,760	5,801	342		CT1ILT	#2 NA #2 WORLD - SO1R



WRTC 2022

EU5

CT CU EA EA6 ZB

Total Points: 314594

Operators: 949

Total Entries: 2728

Area Rank	CallSign	Points (with claimed)	Total entries	Country Rank	Country	Class
1	EC2DX	10810	12	1	EA	Eligible Team Leader
2	EA2W	9904	12	2	EA	Eligible Team Mate
3	CT1ILT	8749	11	1	CT	Eligible Team Mate
4	CT7AJL	8576	12	2	CT	Eligible Team Mate
5	EB5A	8286	12	3	EA	Eligible Team Mate
6	CT1CJJ	5346	7	3	CT	Eligible Team Mate
7	EA4AOC	5184	12	4	EA	Eligible Team Mate
8	EA7X	4738	9	5	EA	Eligible Team Mate
9	EB7A	3718	7	6	EA	
10	EA5DFV	3528	12	7	EA	

Team Leaders and Team Mates

	TL		TM	Sponsored by
AF1	EA8RM	Juan Jesus	EA2W	Jon
AF2	5T5PA	Johannes	KF5EYY	Ashraf
AF3	ZR2A	Ulrich	DL9EE	Holger
AS1	R8CT	Oleg	UA4FER	Igor
AS2	RM9I	Oleg	RU9I	Sergey
AS3	4X6FR	Zvi	4X1DX	Seth
AS4	BA1RB	Bin	BA4TB	Disong
AS5	VR2XAN	Alberto	IK2PFL	Luca
AS6	E2IEIC	Champ	E29TGW	Mew
AS7	JA1BJI	Taro	JR2GRX	Hajime
AS7	JH5GHM	Katsuhiro	WA1Z	Bob
CA1	NP4Z	Felipe	N2NT	Andrew
EU1	ES2RR	Toivo	ES5TV	Tönno
EU1	LY7Z	Andrius	LY9Y	Jurgis
EU10	IZ8JAI	Domenico	IZ8FWN	Pietro
EU2	GD4XUM	Martin	G3NKC	Dave
EU2	RL5D	Oleg	OR2F	Lyubomir
EU3	DJ5MW	Manfred	DL1IAO	Stefan
EU3	DL5AXX	Ulf	DL7FER	Felix
EU3	SP7GIQ	Krzysztof	SP7IVO	Boguslaw
EU4	R2AA	Evgenii	RN3QO	Sergey
EU4	RA3CO	Dmitry	RL3FT	Yury
EU5	EC2DX	Imanol	CTIILT	Filipe
EU6	F8DBF	Sebastien	F1AKK	Olivier
EU7	9A7DX	VEDRAN	9A3LG	Zvonimir
EU7	IZ1LBG	Filippo	IK3QAR	Paolo
EU7	S53MM	Matija	S57K	Sandi
EU8	UB7K	Andy	RW7K	Andy
EU8	UR0MC	Roman	US2YW	Vyacheslav
EU9	E77DX	Emir	E70T	Vlado



QUESTIONS?