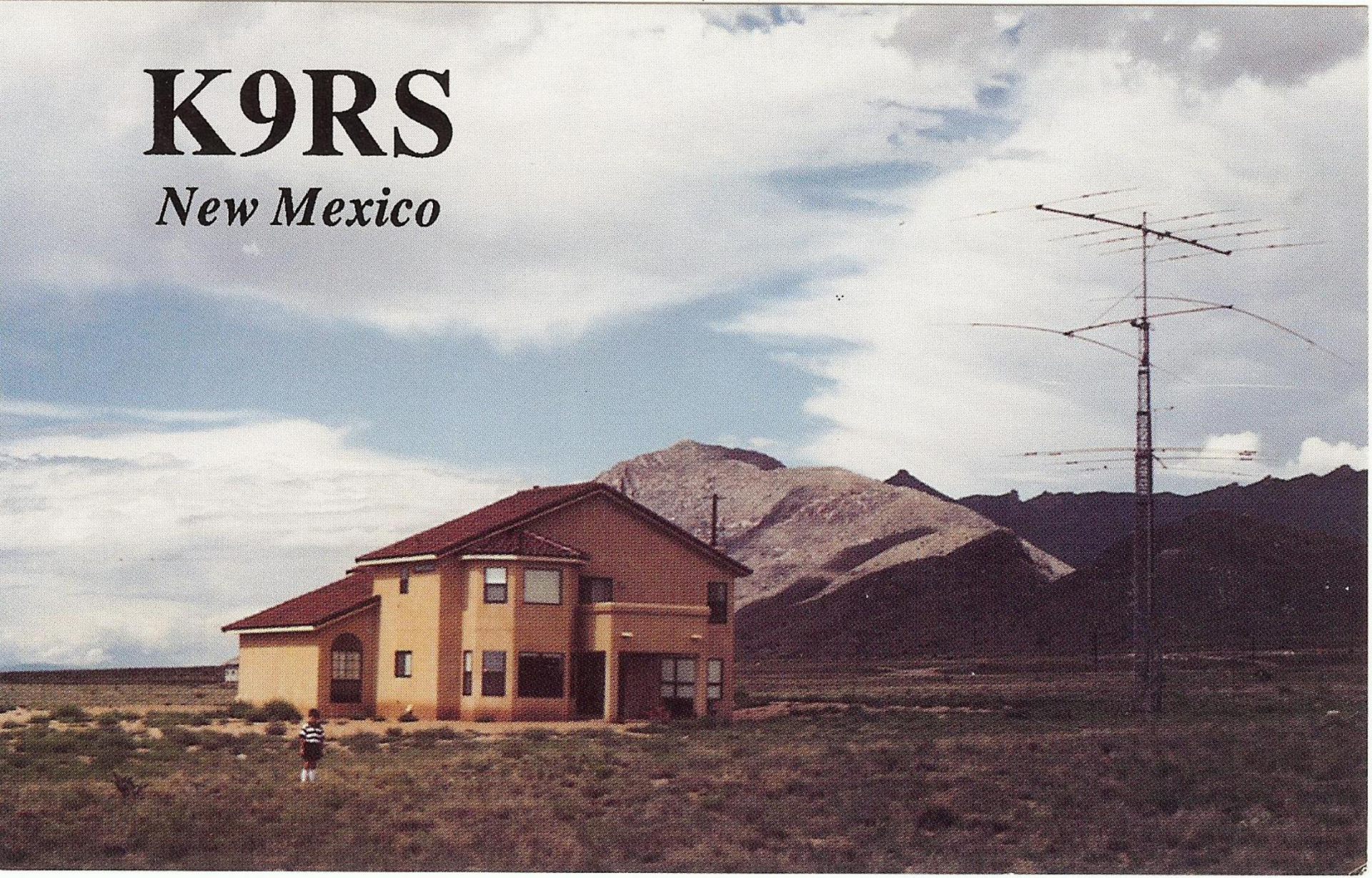
Adventures in the Caribbean and other stuff,
like what is *good enough* to have fun with?
de K9RS

FRC 12 Mar 2019

Some history

- ***Born and grew up in Delaware***
- ***WN3KFR then WA3KFR***
- ***University of Delaware EE grad***
- ***Left East Coast for 32 years – K9RS***
- ***Returned 13 years ago***
- ***While away, I had stations in:***
  - ***Illinois (twice)***
  - ***Indiana***
  - ***New Mexico***

Speaking of New Mexico…



K9RS QTH 1990-1997 Albuquerque, New Mexico

A Great US Contest location!

Those antennas (and QTH) were good enough to win US Contests:

CW SS - 3 times
Phone SS - 4 times
ARRL RTTY Roundup *
NAQP CW
NAQP SSB
10 M Contest *

*** Records**


K9RS
Perkasie, PA
2006-2012

86 ft tower & 20 ft mast

2 element stack on 40M

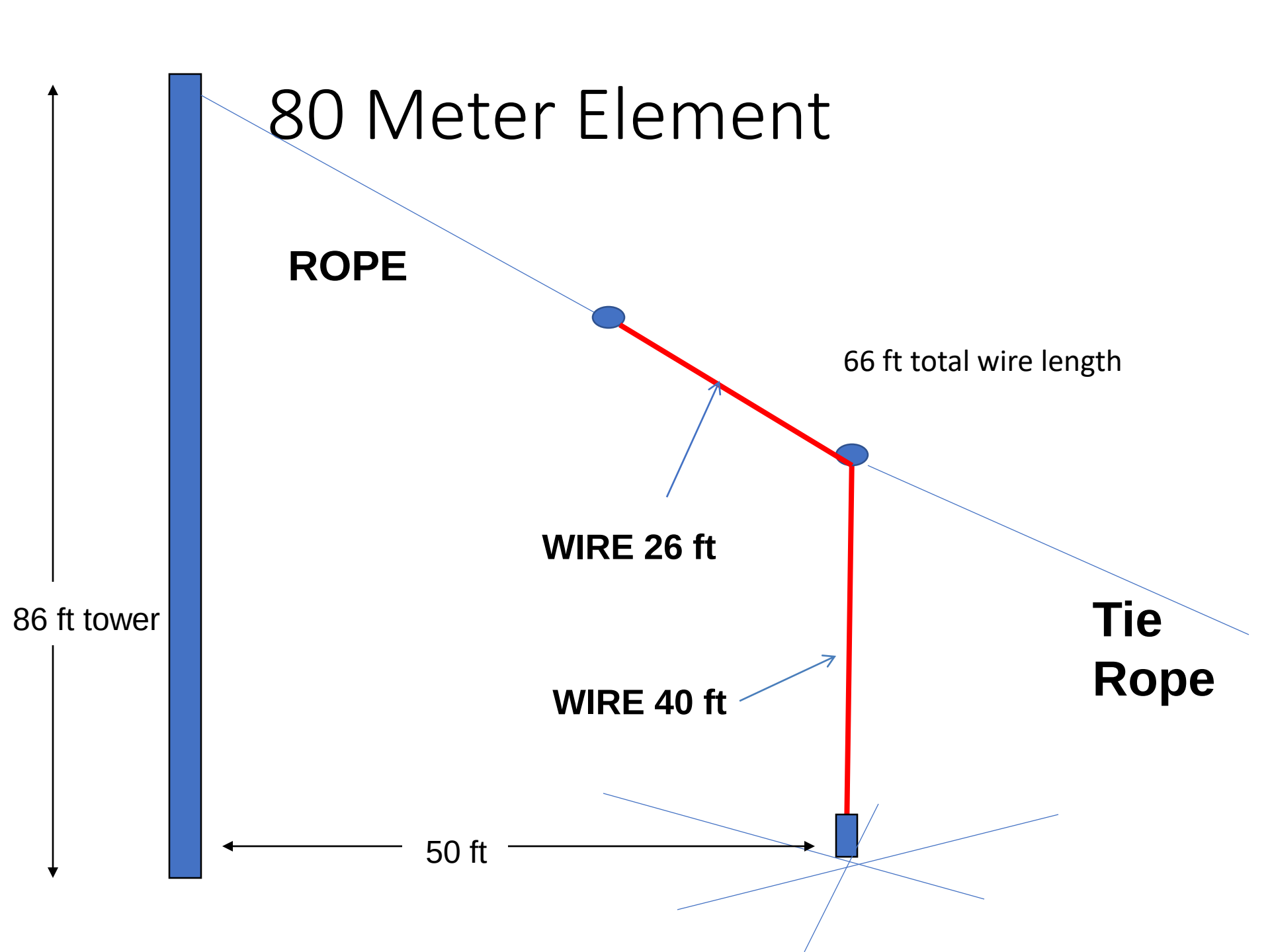
50 and 100 ft

and

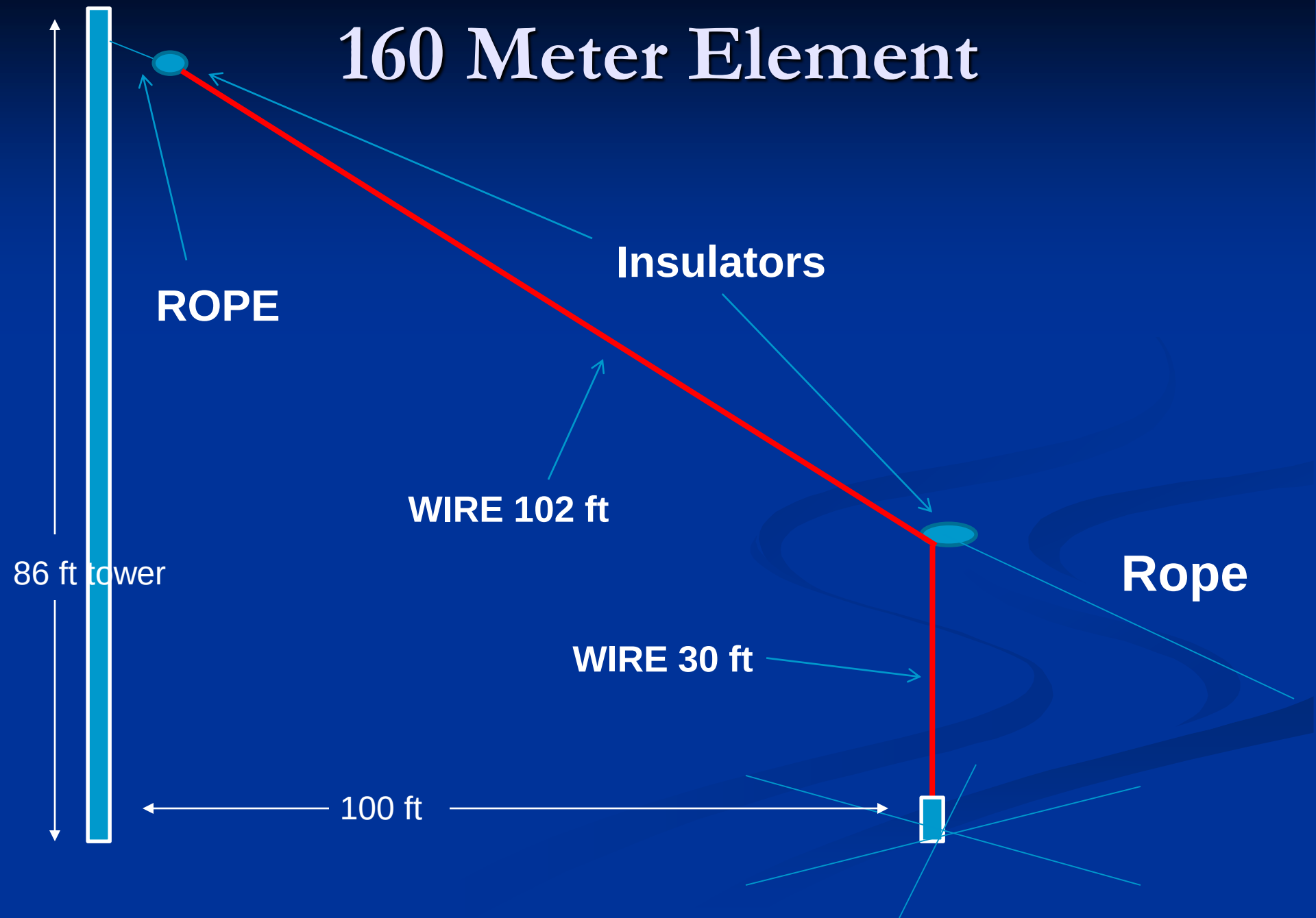
C31XR stack 20, 15, 10M

40 and 90 ft

Good start, but what about 80 & 160?


80 Meter Element
ROPE
66 ft total wire length
WIRE 26 ft
Tie Rope
WIRE 40 ft
86 ft tower
50 ft

160 Meter Element



With the bent 4 squares those antennas were good enough to win DX Contests:

ARRL DX CW - 2 times
ARRL DX SSB
CQWW CW
CQWW SSB
WAE - 2 times

multi-op single transmitter

Not the best but good enough…

Then my wife wanted to move to the beach in Delaware…

That seemed a little like the Caribbean so I was in!

So I had fun in lots of locations but, what could I do at the beach in Delaware?

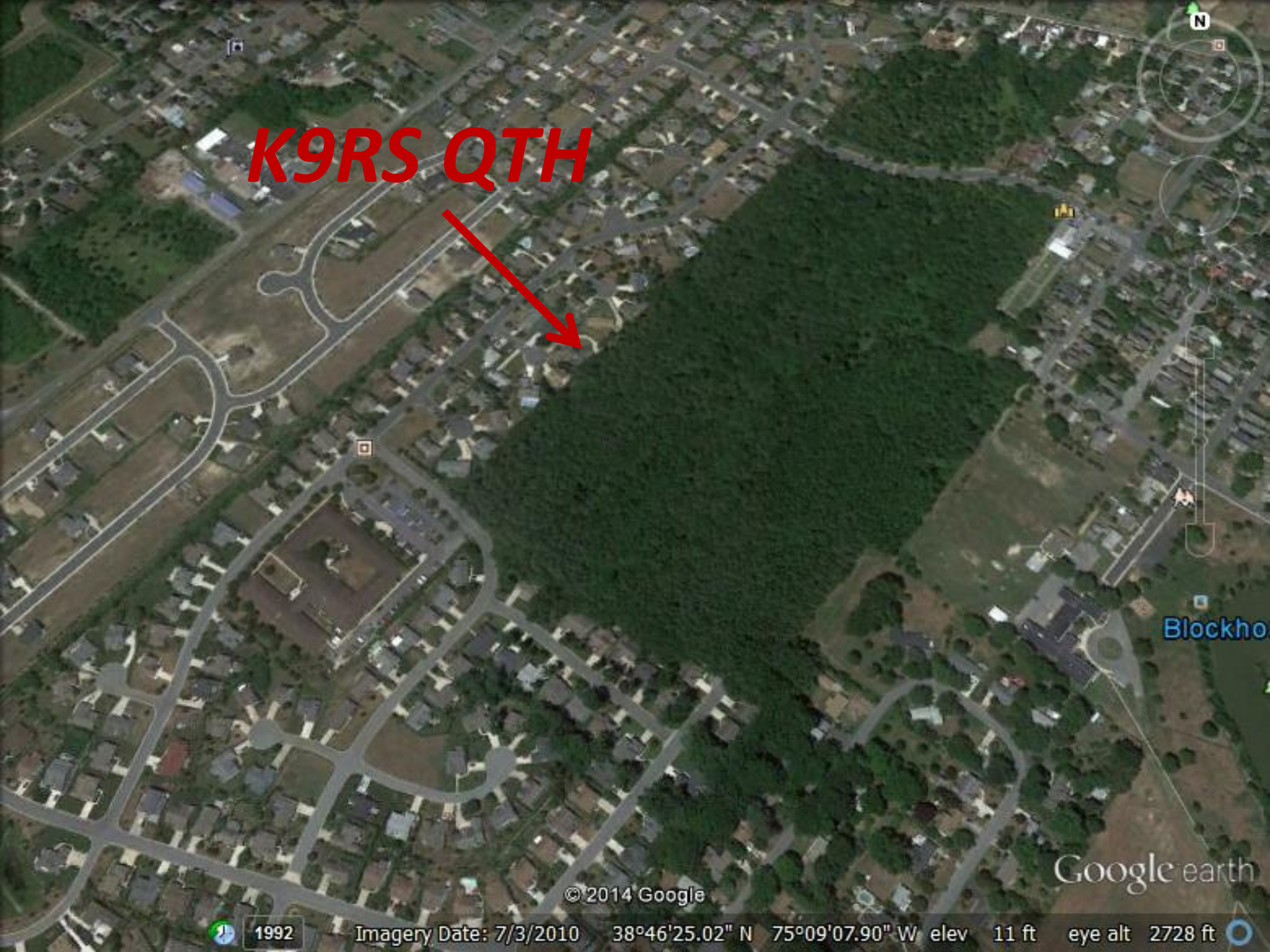
2013 Move to Lewes, DE

- ***No Antenna Location***
- ***What can I do with stealth antennas?***
- ***Can I be happy with wires in the woods?***
- ***How competitive can I be?***
- ***I like the beach but will I enjoy Ham Radio?***

Giving it a try at Lewes QTH

- ***Bought a strategically located house***
- ***Closed June 2013***
- ***A fan 40-20-10 dipole***
- ***Then put up 4 wires for 80 Meters***
- ***And an inverted L for 160 Meters***
- ***Then more…and more***
- ***All 'invisible' in the woods***

It helps to pick the right QTH!


K9RS QTH
N
Blockho
© 2014 Google
Google earth
1992
Imagery Date: 7/3/2010 38°46'25.02" N 75°09'07.90" W elev 11 ft eye alt 2728 ft


N
Google earth
1992
Imagery Date: 7/3/2010
38°46'28.76" N
75°09'09.98" W
elev
13 ft
eye alt
327 ft

New Antenna Tools

Air Boss Antenna Launcher

Double braided dacron

Feed Post

The 4 square for 80M went up and seemed to work pretty well

So…

I decided to try a single band 80M effort in 2013 CQ WW CW

CQWW CW 2013

SINGLE OPERATOR ASSISTED

HIGH POWER

3.5 MHz

Top three scores

K9RS/3.....248,880

N6SS/7.....207,834

K4JPD.....126,420*

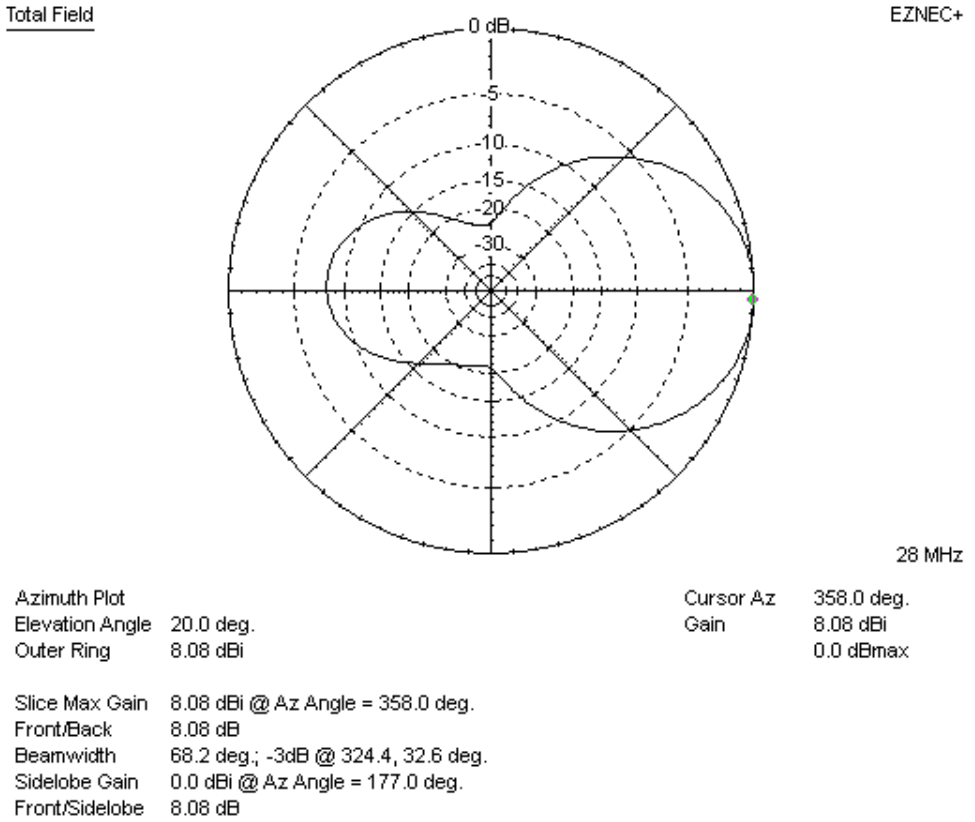
K9RS/3 681 QSO's 27 Zones 109 Countries

4 Phased wire verticals (4 Square) in the woods

****K4JPD - 3 element rotatable 80M yagi at 170 feet***

Added a 2 element wire beam for 10M

- Dacron string to hold up and as a ‘boom’
- Driven element with a coil of RG8X for ‘balun’
- Driven element 17ft
- Reflector 17.5 ft
- 4 ft boom
- About 40ft high



ARRL CW DX 2014

Band	QSOs	Mults
160:	42	40
80:	209	74
40:	440	97
20:	538	104
15:	716	110
10:	858	110
Total:	2803	535

Total Score = 4,492,395

CQWW CW 2014

Call: K9RS
Class: SOAB HP
Operating Time (hrs): 20

Summary:

Band	QSOs	Zones	Countries
160:	35	11	31
80:	226	26	97
40:	339	28	104
20:	213	38	121
15:	326	34	122
10:	419	31	120
Total:	1558	168	595

Total Score 3,396,876

Missed 5 Band DXCC in 20 hours by 3 countries On 80 Meters

ARRL 10 Meter Contest 2014

SO CW Unlimited HP

Call	QSOs	Mults	Score	Club
KP2Q(K3TEJ)	2486	165	1,640,760	FRC
N9NC	2258	170	1,535,440	YCCC
K9CT	2021	171	1,382,364	SMC
K6LL	2112	161	1,360,128	AOCC
N3RS	**1963**	**171**	**1,342,692**	**FRC**
K9RS	**1973**	**169**	**1,333,748**	**FRC**
N4BP	2150	150	1,290,000	FCG
N5FO	2026	159	1,288,536	AOCC

K9RS 6th place finish on CW

Fixed 2 element wire beam at 40 ft and a Dipole!

What I learned:

- *A dipole is a pretty good antenna*
- *Two element antennas are very good*
- *Lot's can be done with wires and trees*
- *The QTH and antennas were*
  good enough to have fun!
  even without winning much

Again…It also helps to pick the right QTH!

NCJ Article

Ray Sokola, K9RS / k9rs@yahoo.com

What It Takes to Build a Contest Station

Ham radio contests consist of signals on the air, and you can't have a signal without a station. How do contest stations get built? From an engineering or construction perspective, that's a very straightforward question that many *NCJ* articles have addressed. But, for many contesters, especially younger and newer contesters, the challenge isn't so much procuring and installing the Yagis, towers, and radios. It's also arranging your life, your relationships, and even your job in such a way that building a contest station is even possible. And, of course, finding a piece of land where you can make it happen.

Not all contesters build stations of their own; some very famous and capable contesters have spent their entire contesting careers as guest operators. My time in contesting has certainly included a lot of guest operating, but in a profession that has prompted several moves over the years, I've usually managed to put up a tower or two wherever I've landed. In Albuquerque, New Mexico and Indianapolis, Indiana, for example, I installed an 89-foot tilt-up tower with a 2 element 40 meter Yagi and a KT34XA tribander. In Chicago and a variety of towers, while in Perkasie, Pennsylvania, I had stacks on 40 thourgh 10 meters and 4 squares. In Lewes, Delaware, it is wires and whatever else I can get up in the trees.

I like to share some reflections and observations on the tradeoffs and compromises that went into making a couple stations happen. [illegible]

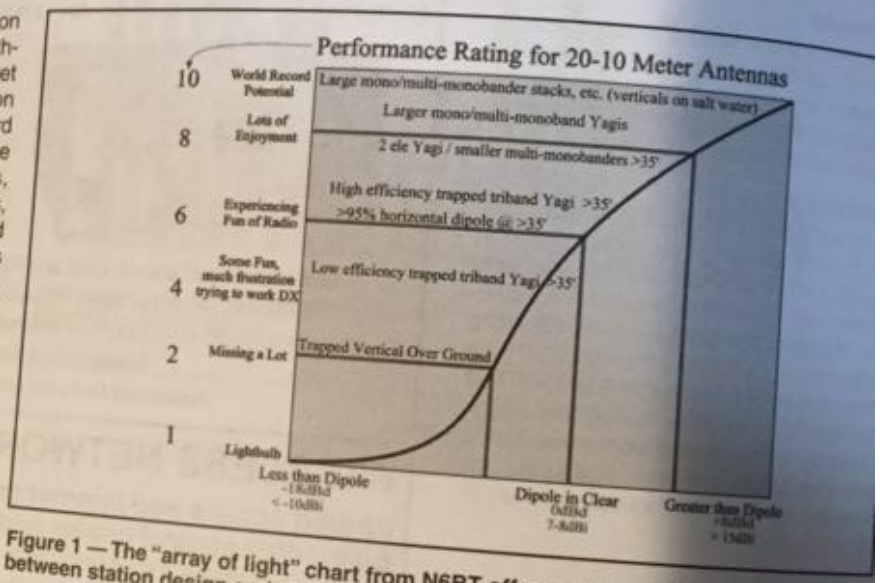


Figure 1 — The "array of light" chart from N6BT offers some insights into the tradeoffs between station design and contest performance. [Courtesy of Tom Schiller, N6BT]

patent covering cell phone duplexing. I liked thinking about the whole system and putting it together, and then never stopping the experimentation at trying to improve.

Ham radio has been a big part of my life. There were always other things, of course, such as family, school, career, and sports that fought for priority with ham radio and often won. They never totally won, though, because I always figured out [illegible]

This beat the 2 element 40 meter Yagi at 60 feet by a wide margin.

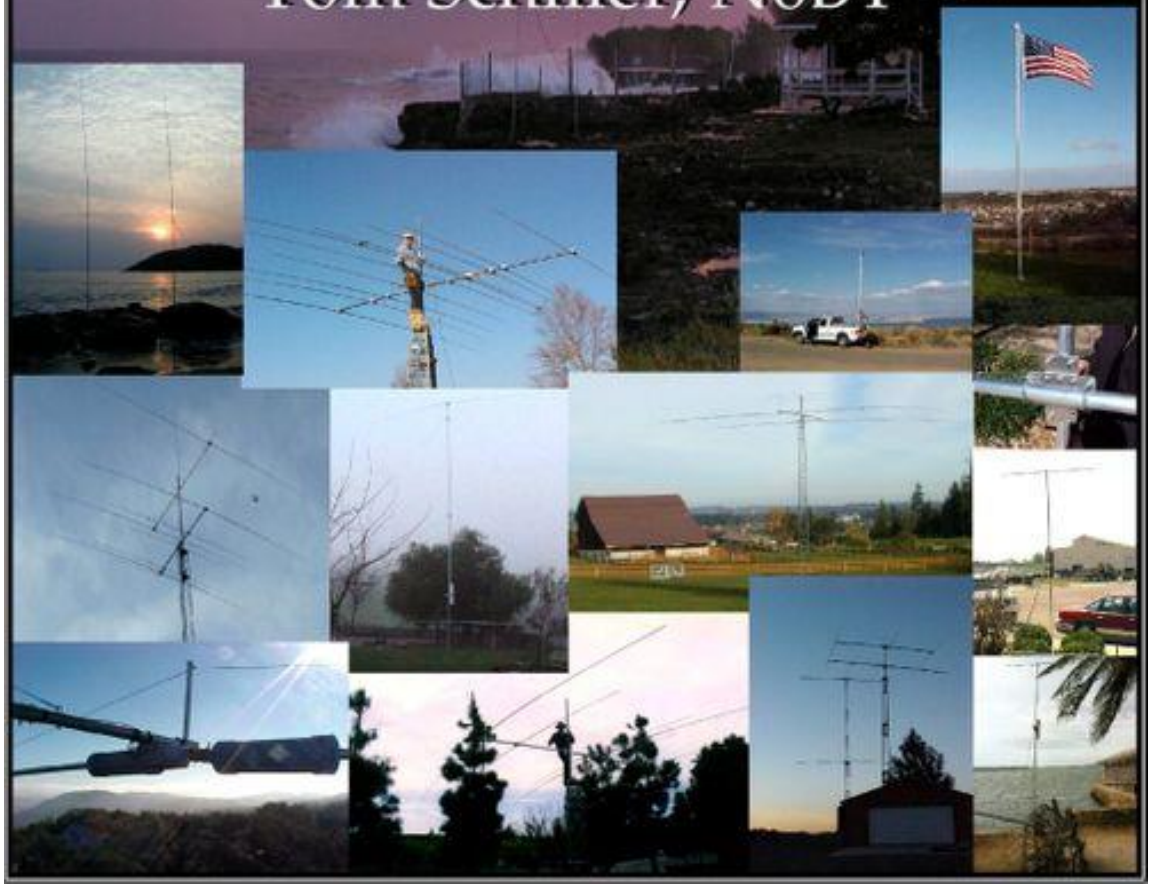
Between education, work, family, and radio there are a lot of interrelated decisions to be made and priorities to set. I grew up and was first licensed in Delaware. Since then I put together satisfactory stations in Illinois, Indiana, New Mexico, and

Array of Light

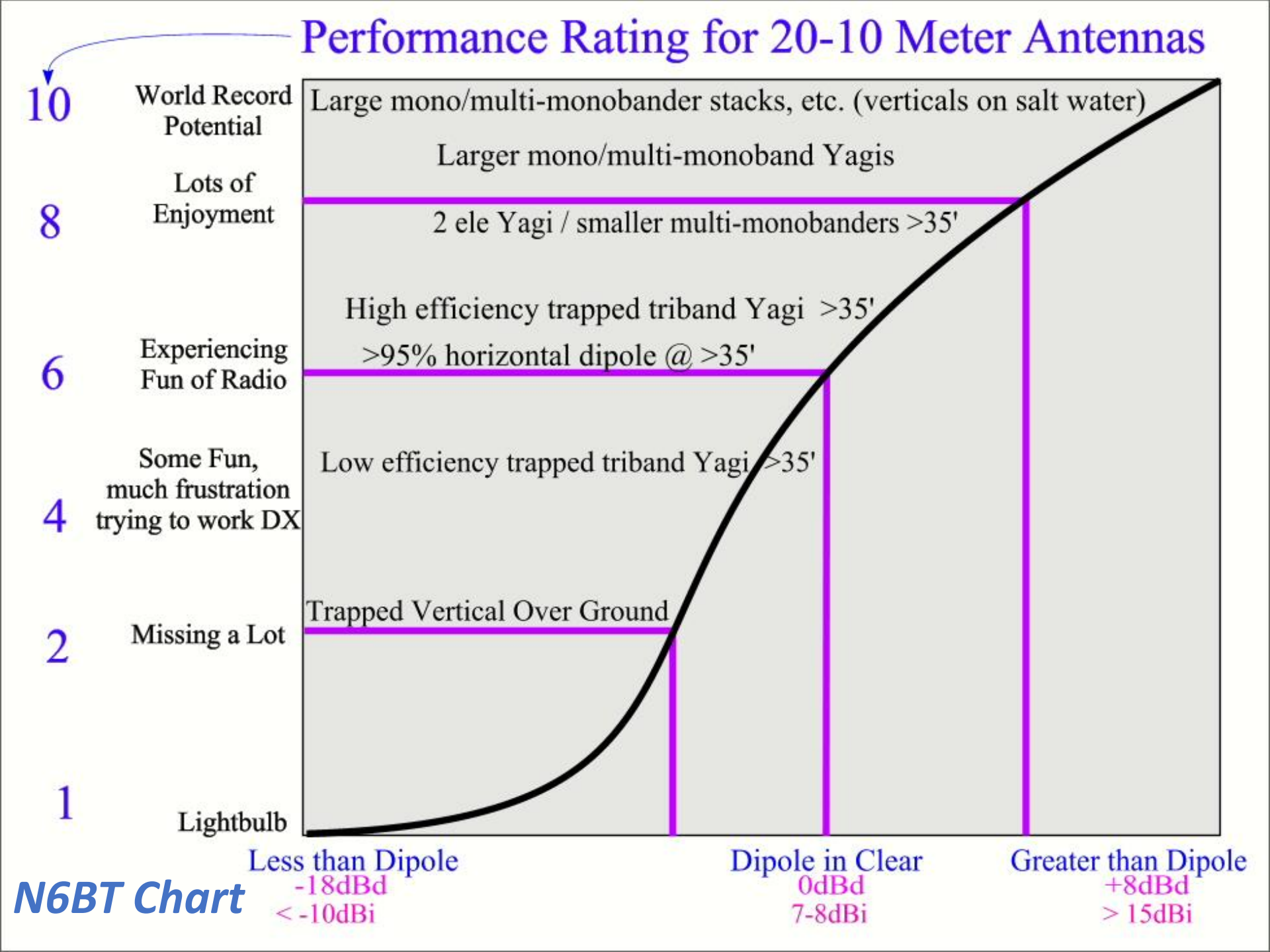
Third Edition

Straight talk about antennas and related subjects

Tom Schiller, N6BT



Performance Rating for 20-10 Meter Antennas



N6BT Chart

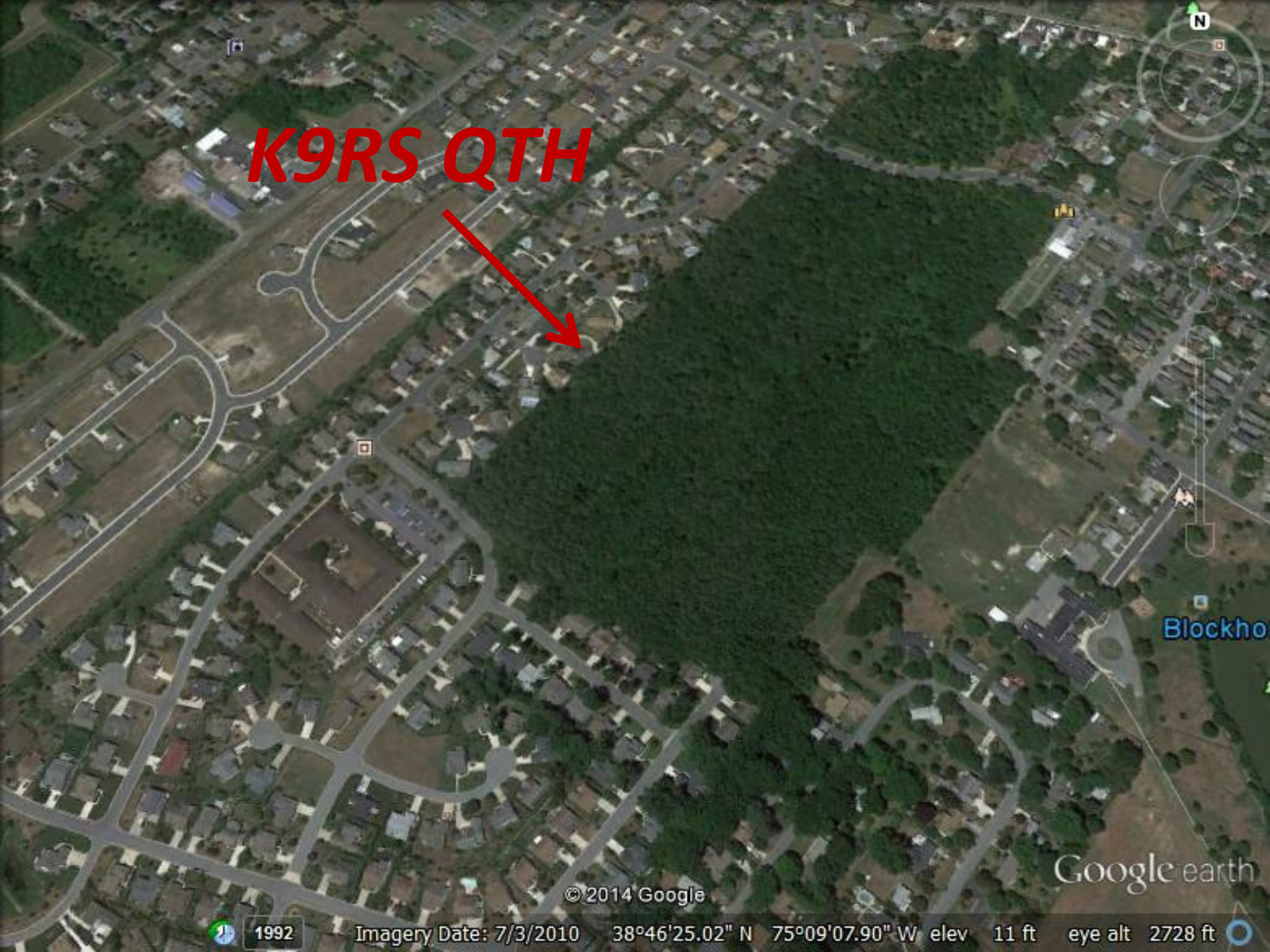
Summer of 2017

- They logged the woods behind me
- I went from lots of antennas to none in a few days
- Left 30 or 40 feet of woods behind me
- I have 15 ft of woods on my property
- Put my antennas into that space
- More planned when they stop working

Antennas

160	Inverted L
80	2 verticals phased
40	Dipole at 50 ft
20-10	2 elements to Europe and fan dipole

No longer all wires!


K9RS QTH
N
Blockho
© 2014 Google
Google earth
1992
Imagery Date: 7/3/2010 38°46'25.02" N 75°09'07.90" W elev 11 ft eye alt 2728 ft


5 Liszar Drive
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Beebe Healthca


K9RS QTH
3D

Now I am using a 2 Element Tribander to Europe

CQ Worldwide DX Contest, CW 2017 Nov 25

Call: K9RS

Class: SOAB(A) HP
QTH: DE
Operating Time (hrs): 24

Summary: Compare Scores

Band	QSOs	Zones	Countries
160:	48	13	38
80:	105	19	81
40:	366	28	115
20:	566	33	121
15:	153	27	98
10:	22	10	13
Total:	1260	130	466

Total Score 2,133,084

Club: Frankford Radio Club

CQ Worldwide DX Contest, CW 2018

Operator(s): AA5B K9RS

Station: K9RS

Class: M/S HP

Added a 2 el 40M inverted V beam at 50 ft

Summary:

Band	QSOs	Zones	Countries		
160:	74	15	58		
80:	237	25	89		
40:	1000	33	124		
20:	1049	32	128		
15:	86	21	73		
10:	2	2	2		
Total:	2448	128	474	Total Score	4,186,308

Comments:

We were going to operate M/2 at N3AD but due to family commitments we had to scrap that and then decided to put up some antennas hung in trees at the K9RS no antenna QTH at the beach for a low key M/S.

I didn't show AA5B the antennas until after!

ARRL 160-Meter Contest 2018

M/S HP

Call	QSOs	Sect	DX	Score	Club
W2GD	1669	81	62	634,349	FRC
NØNI	1630	82	47	505,938	IaDXCC
N1LN	1506	81	51	485,100	PVRC
W5MX	1398	80	45	409,750	KCG
W3UA	1232	79	53	404,844	YCCC
K9CT	1409	81	45	401,184	SMC
W4MYA(@W4DR)	1164	77	51	384,768	CenVirg CC
KC1XX	1029	80	58	381,018	YCCC
K9RS	1228	79	47	368,424	FRC
NA7TB	1264	82	39	356,708	AOCC

Inverted L and 4 Bogs

Now Back to the REAL Caribbean!

My First Caribbean Effort! 1984 ARRL DX SSB

K9RS and AA5B operated ZF2HM on phone to the tune of over 7 million points. They made 7858 QSOs.

Multi/Single Results

#1 ZF2HM 7,408,004 7858 314

ops AA5B, K9RS

#2 ZF2GW 7,292,907 8023 302

ops AE4H, KB2SG, KZ2E, N2PP, W2HPF

Trap vertical and a wire in palm trees

VP5B/VP5K QTH

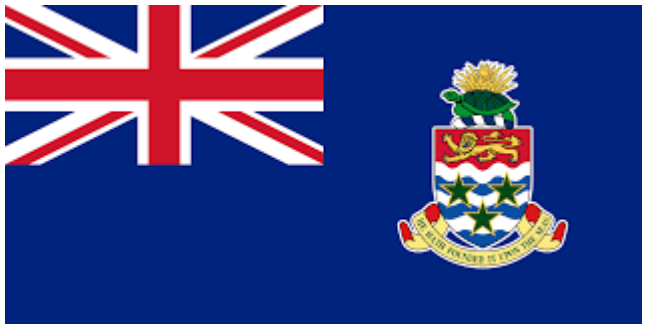
It does help to put antennas in a good location

It didn't take much to have fun, be competitive or even win from ZF and VP5

ZF

ARRL CW - 4 wins

ARRL SSB - 1 win



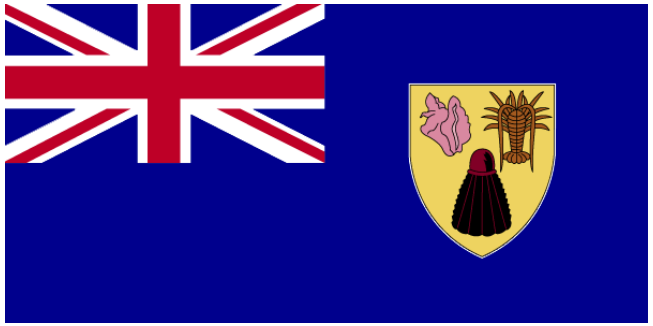
Modest Antennas

VP5

ARRL CW - 1 second

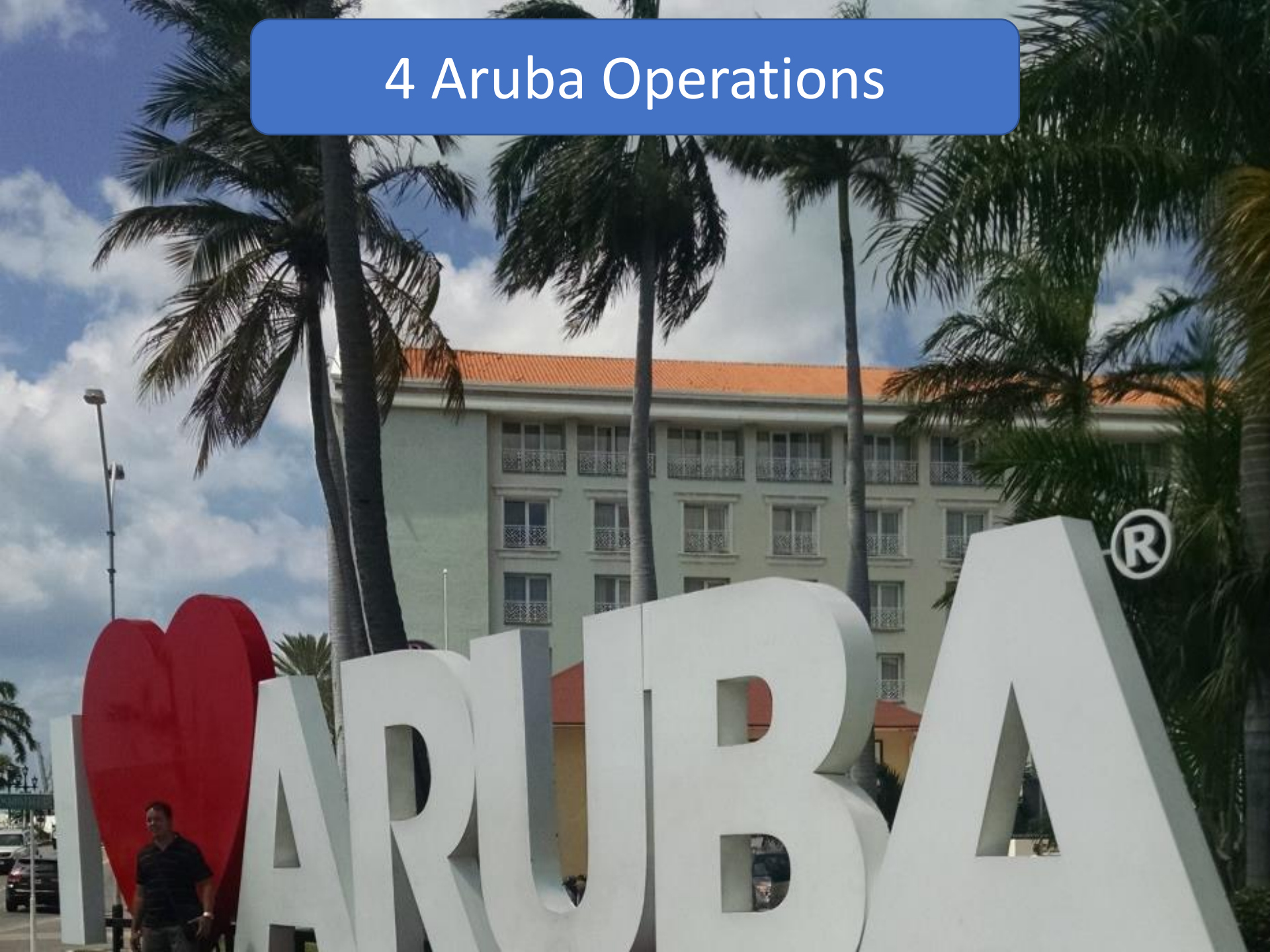
ARRL SSB - 1 win

10M - 2 wins



Better but still modest

4 Aruba Operations




P49V

2014
CQ WW SSB
P40S

N3DXX
K4ISV
K9RS

Multi-operator
Single transmitter
Cook's Radio Retreat – P49V

P49V has antennas

CQ WW DX 2014

M/S HP

Call	SO2R	Remote	QSOs	Zones	Countries	Op Time	Score	Club
CN2AA			12700	187	747	48	35,369,646	
P33W			10805	174	695	48	27,089,337	
CN2R			9818	176	681	48	25,041,540	
PJ2T			9201	163	566	48	19,741,320	
P4ØS(@P49V)			8667	165	569	48	18,741,956	FRC
4O3A			9713	184	728	48	18,182,544	SKY CC
EI7M			9000	166	660		17,100,000	
9A1P			7965	175	698	48	15,115,995	WWYC
IR4M			7430	175	690	48	14,916,060	ICC
VE3EJ			6489	176	656	48	14,645,696	CCO

Got beat up pretty good but still fun!

180.5 QSO's per hour

Back to Aruba 2.0

2015
ARRL 10M
P40S

- N3DXX
- K9RS

10 Meter Contest Records

Previously Held this record 1999 - 2013

VP5B	3,673,930	4,188	295	VP5	1999	K9DX K9RS
VP5K	4,091,778	4,655	309	VP5	2000	AA5B K9DX K9RS
ZW5B	4,159,652	3,571	371	PY	2013	(PY2YU, PY2KC, PP5XX, PY5EG

14 year record

ARRL 10 Meter Contest 2015

M/S HP

Call	SO2R	Remote	QSOs	Mults	Op Time	Score	Club
CW5W			3218	331	33	3,613,196	
PR2F(@PY2EYE)			2782	351	35	3,190,590	Araucaria DX
PJ2T			3369	274	30	2,907,688	SECC
P4ØS(@P49V)			3055	254	23	2,446,528	FRC
KC1XX			2370	306	23	2,254,608	BCC
LU5FC			2427	283	29	2,086,842	
CE3CT			1936	256	29	1,568,768	LUCG
CX4AT			1835	250	26	1,448,500	
TM6M(@F6KHM)			1492	276	22	1,380,552	
N3RR			1495	258	24	1,342,116	PVRC

- **All TH7 antennas were arcing or totally broken**
- **Used fiberglass fishing poles to make monoband driven elements**
- **Bottom two TH7 antennas replaced the bad driven elements**
- **Hoped simpler parasitic elements were still working**
- **Worked contest with 2 fixed yagis, one at Europe and one at US at 30 ft**

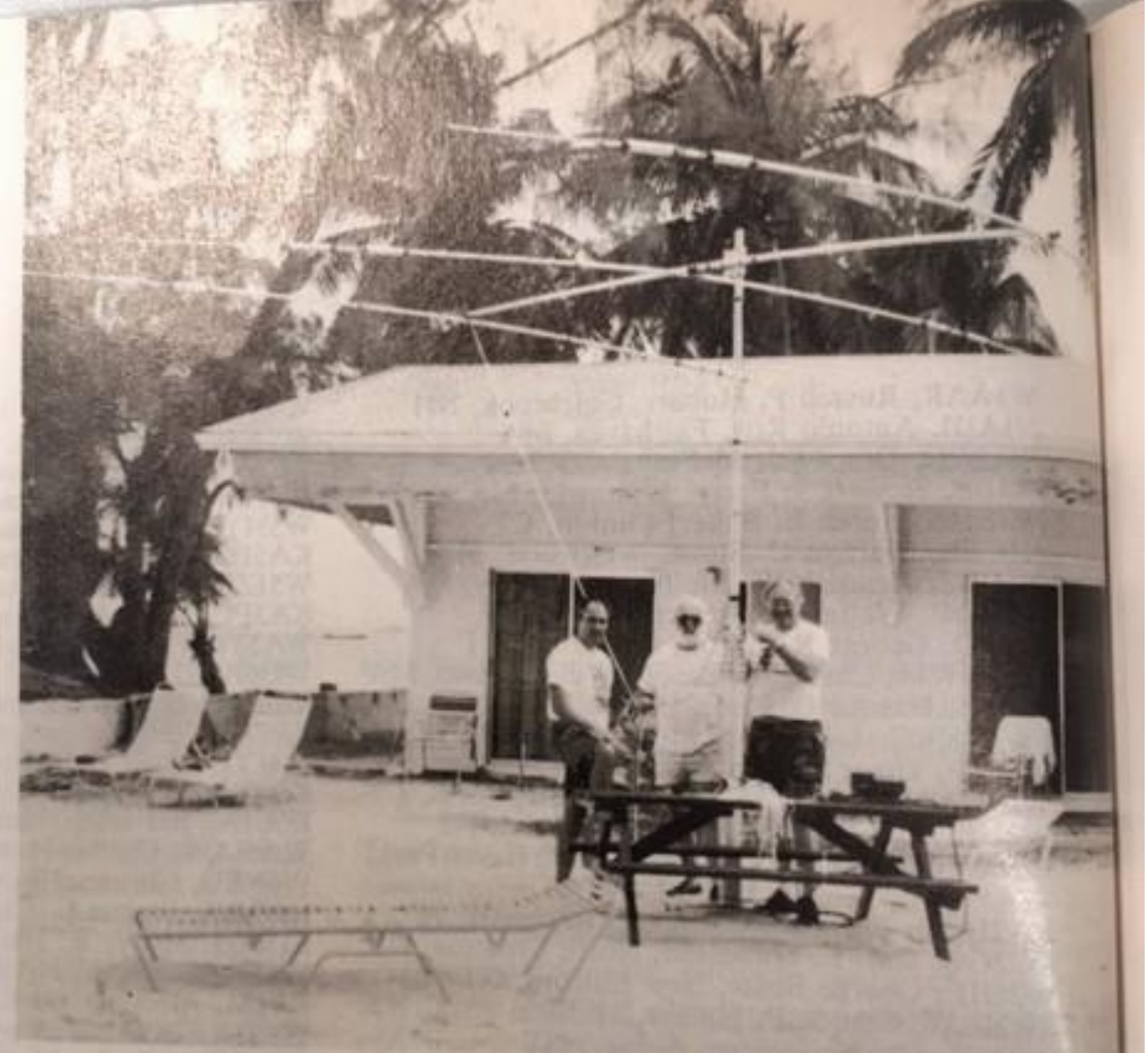
TH7's were destroyed by the salt

Back to Aruba again 3.0

2018
ARRL CW
P40E

- AA5B
- AA7V
- N3DXX
- K9RS
- K2LE

Delaware Connection



The record-setting Multi-Single team at ZF2KE raises the antenna. (l-r) Ray, K9RS; Frank, K9HMB; and John, K9DX.

1990 ARRL
DX CW

ZF2KE

K9DX
K9HMB
K9RS

ARRL DX Scores

Year	Call	Score	QSO's	Mults	OPs
1990	ZF2KE *	5,989,590	6,041	330	K9DX, K9HMB, K9RS
2004	VP5K	5,900,688	5,652	348	AG9A, K9RS
2010	P40L *	6,395,118	6,195	346	W6LD, W0YK

* **Records**

New Bencher Skyhawk Tri-banders – Much Better!

Now using K3 Radios

Much better for copying when lots are calling!

My ideas for 2 Antenna improvement projects for this trip:

- Beverage antenna
- 80 meter director


P49V
Legend
CUNUCU
Google Earth
Image © 2018 CNES / Airbus
©2018 Google
N
100 ft


P49V
Legend
US
Beverage RX antenna
Google Earth
Image © 2018 CNES / Airbus
©2018 Google
N
200 ft


P49V
Feed
US
Legend
Beverage
Termination
Google Earth
Image © 2018 CNES / Airbus
©2018 Google
N
200 ft

Terminate FWD and feed REV


Need to stay away from these !

Running the twisted pair through the cunucu is an adventure !

2 elements on 80M ?

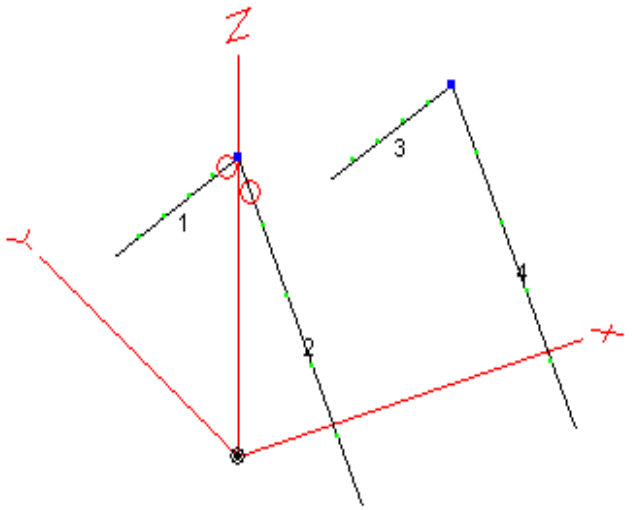
- Front tower is about 50 ft in front of 40M tower
- Directly to towards the US (340 degrees)
- Only 65 ft high

Could I add a director? and Would it matter?

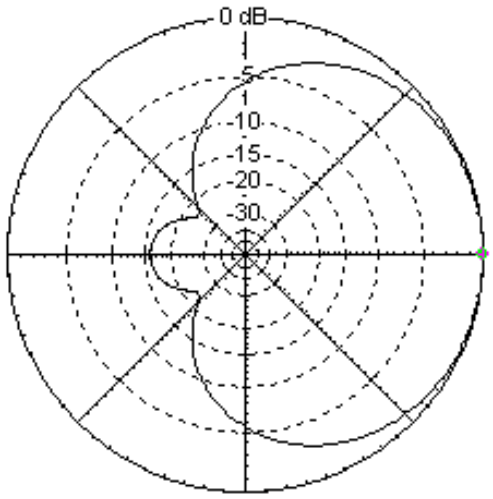
Yes and Yes

Modeled using EZNEC6

EZNEC+



Total Field



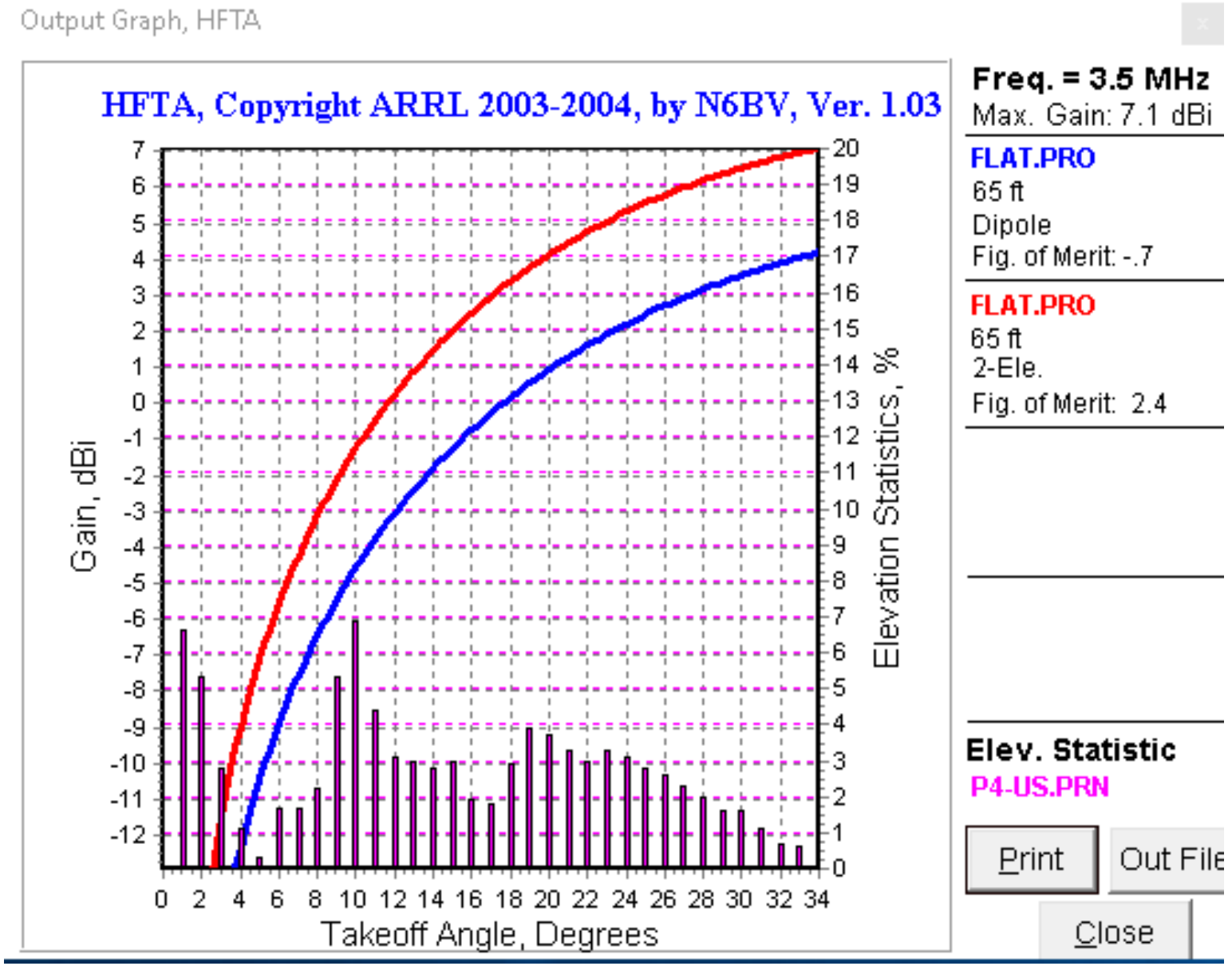
EZNEC+

3.55 MHz

Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	20.0 deg.	Gain	3.31 dBi
Outer Ring	3.31 dBi		0.0 dBmax

Slice Max Gain	3.31 dBi @ Az Angle = 0.0 deg.
Front/Back	15.73 dB
Beamwidth	145.6 deg.; -3dB @ 287.2, 72.8 deg.
Sidelobe Gain	-12.42 dBi @ Az Angle = 180.0 deg.
Front/Sidelobe	15.73 dB

Director only 2% shorter than Driven



Use HFTA to look at useful angles from P4 to US

What did it take to do it?

- Repositioned 80M inverted V broadside to US
- Climbed front tower and attached director
- Find some tie points
- Folded back 6 feet of one end as it wouldn’t fit

Antennas are forgiving, particularly at the ends

Tested using the Reverse Beacon Network (RBN) http://www.reversebeacon.net/

- Called CQ using P4/K9RS
- Lowered director
- Called CQ using P4/AA5B
- Data from the US varied from +1 to +7 dB with director vs without director
- Average +3dB with Director

Score - 5,892,498 Points

Band	QSOs	Pts	Sec
1.8	357	1071	56
3.5	687	2058	58
7	1500	4500	60
14	1456	4368	61
21	1234	3702	59
28	561	1683	45
Total	5795	17382	339

Score: 5,892,498

1 Mult = 17.1 Q's

2018 ARRL CW DX

Band	QSOs	Mults
160:	357	56
80:	687	58
40:	1500	60
20:	1456	61
15:	1234	59
10:	561	45
Total:	5795	339

Total Score 5,892,498

2018 ARRL DX CW Results

M/S HP

Call	SO2R	Remote	QSOs	Mults	Op Time	Score	Club
ZF1A			6284	333	48	6,262,731	Cayman ARS
P4ØE @P49V			**5795**	**339**	**48**	**5,892,498**	**FRC**
VP2MSS			5653	322	47	5,444,376	
KP2M(@NP2X)			5494	324	48	5,324,626	PVRC
NP2N			5199	311	48	4,849,734	WVDXC
W2FU			3497	455	48	4,747,470	NCC
VP5K			5228	292	48	4,577,976	MWA
K2QMF			3058	437	44	4,007,727	OBONY
CU4DX			4712	282	48	3,974,508	
KH7M(@KH6ZM)			4171	297	48	3,716,361	AOCC

2nd place, but a good effort and fun

over 2 QSO's per minute for entire contest

80M director and beverage were good additions

Going back in 2019 Aruba 4.0

What did I plan on doing?

- **Same 2 element 80M**
- **Same beverage but may phase 2 of them**
- **New sideway U for 160M**
- **Phase the two tribanders?**

I love to try new antennas, and stick with what works!

Aruba 4.0

What did we do?

- **Same 2 element 80M**
- **Same beverage**
- **Added N3RD, lost N3DXX and AA7V**
- **Switched to multi 2**

- **Sideway l**
- **Pha in the tribanders**

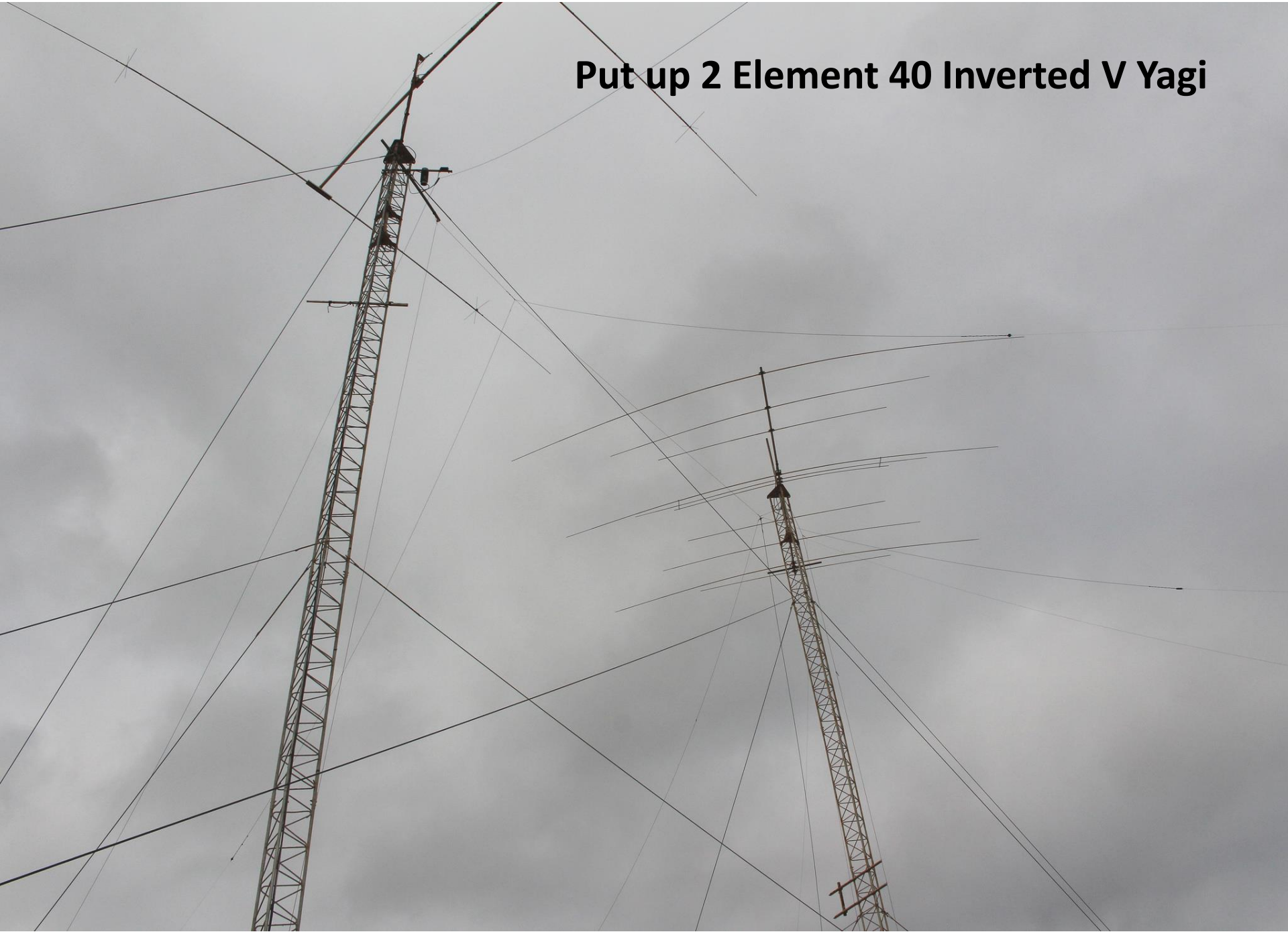
More fixing than adding !


K9RS fixing the beverage

OH NO
40 M Yagi & 80 inv V DEAD !

Sent W2GD to the top of the tower to eliminate bad cable!

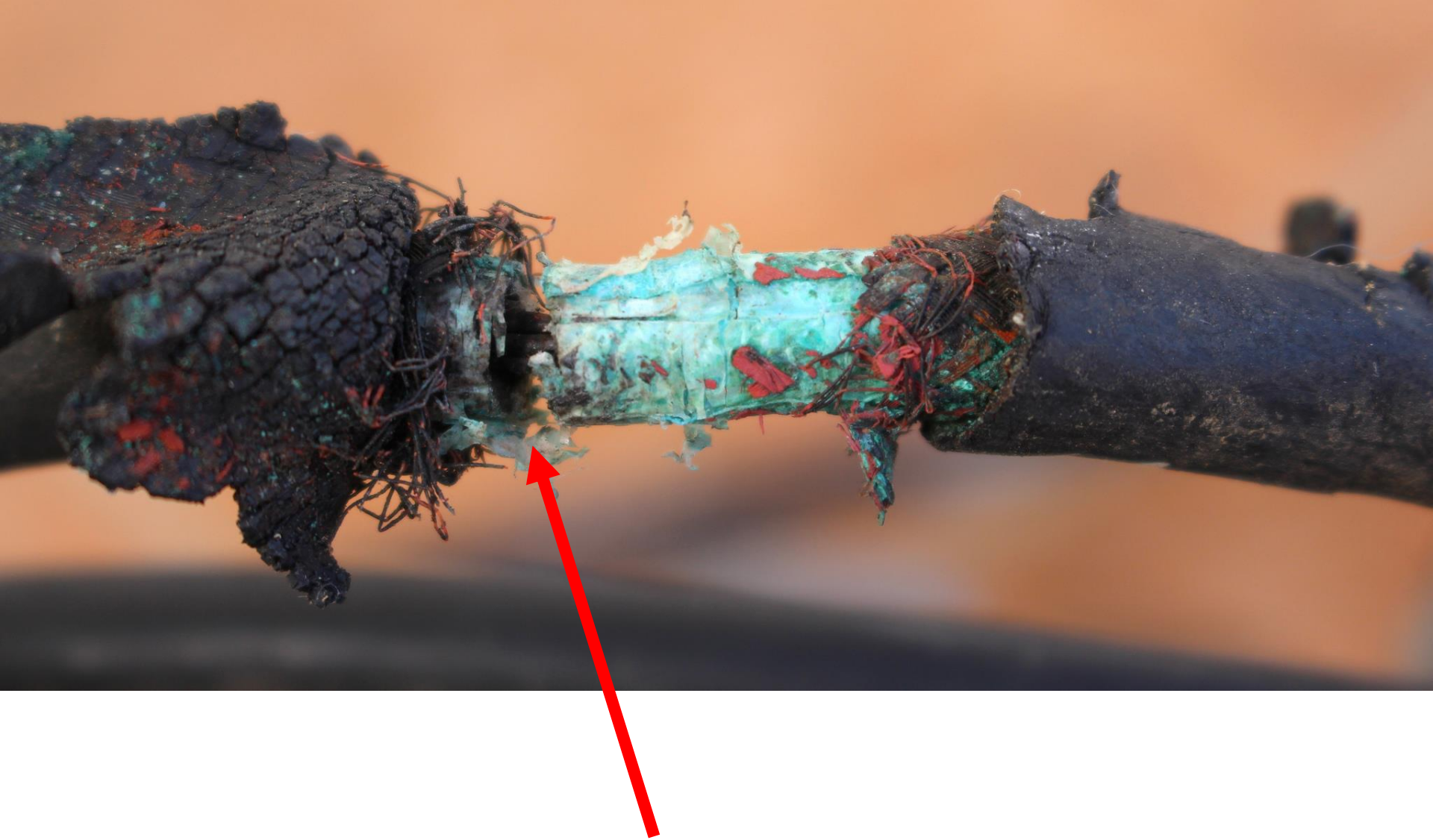
Replaced 80 & 40 cable to tower top 80 fixed but no luck fixing 40


Put up 2 Element 40 Inverted V Yagi

Then Decided to Try again to fix 40M Yagi

How?

Send W2GD back up to replace the cable to feedpoint



Once we eliminated this the 40M Yagi Worked!

Now it's time to operate…

K9RS trying to pick calls out of the noise


N3RD: I really think 10 should be open

57 W2OL 3535.50

57 K1HTV 3535.50

5 .50

5 .40

5 .50

Score - 6,197,208 Points

Band	QSOs	Pts	Sec	Pt/Q
1.8	545	1635	56	3.0
3.5	1161	3483	60	3.0
7	1718	5154	61	3.0
14	2000	6000	61	3.0
21	1508	4524	60	3.0
Total	6932	20796	298	3.0

Score: 6,197,208

1 Mult = 23.3 Q's

2019 ARRL DX CW M/2 HP DX

Call	QSOs	Mults	Score	Club
PJ4A(@PJ4G)	7781	297	6,878,520	FRC
VP2MSS	7002	298	6,252,636	
P4ØE(@P49V)	6931	298	6,196,314	FRC
6Y3M(@6Y5WJ)	6344	310	5,897,130	HADXC
CR3DX	6636	297	5,886,837	

- Worse conditions
- Overcame lots of failures
- RX Noise holding us back?
- Still had fun!

Call: P4ØE
Operator(s): AA5B K2LE K9RS N3RD
Station: P49V

Class: M/2 HP
QTH: Aruba
Operating Time (hrs): 48
Location: South America

Summary:

Band	QSOs	Mults
160:	544	56
80:	1161	60
40:	1718	61
20:	2000	61
15:	1508	60
10:		
Total:	6931	298

Total Score 6,196,314

Club: Frankford Radio Club

3 P4 stations… 10M made us sad in spite of good food & company!

I am
0 for 4 from Aruba

Do I need to keep
trying till I get it right?

Aruba 5.0?

Questions?