

# Aruba 3.0

- AA5B
- AA7V
- N3DXX
- K9RS
- K2LE



**Delaware  
Connection**

Back to P49V station. This time for ARRL CW DX 2018.



P

4

9

V



**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

Google Earth

Image © 2018 CNES / Airbus  
© 2018 Google



100 ft



**P49V**

Feed

US

**Legend**

Beverage RX antenna  
Reversible, used only in reverse

Term

Google Earth

Image © 2018 CNES / Airbus  
© 2018 Google

200 ft



















# 2 elements on 80M ?

- Front tower is about 50 ft in front of 40M tower
- And right towards the US
- Only 65 ft high at the center

Could I add a director? and Would it matter?

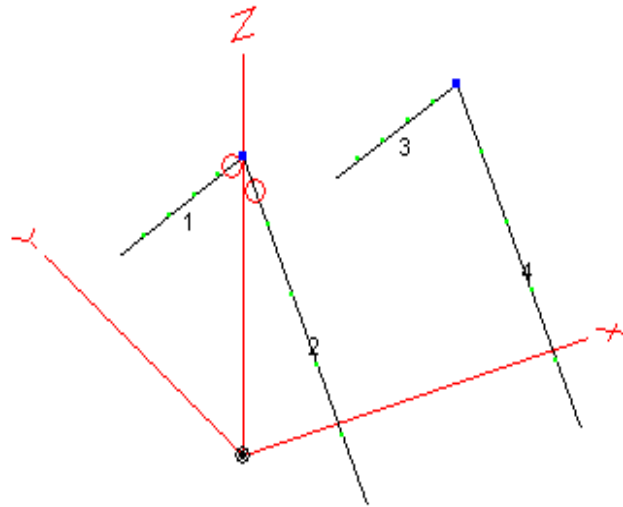
## Yes and Yes



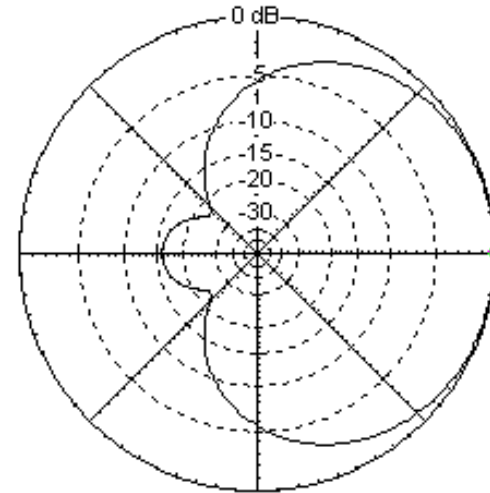


# Modeled using EZNEC6

EZNEC+



Total Field



EZNEC+

3.55 MHz

Azimuth Plot  
Elevation Angle 20.0 deg.  
Outer Ring 3.31 dBi

Cursor Az 0.0 deg.  
Gain 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



EZNEC+ v. 6.0

File Edit Options Outputs Setups View Utilities Help

**Back yard inverted vee**

- > File 2el80invVP49V+.ez
- > Frequency 3.55 MHz
- > Wavelength 277.062 ft
- > Wires 4 Wires, 20 segments
- > Sources 1 Source
- > Loads 0 Loads
- > Trans Lines 0 Transmission Lines
- > Transformers 0 Transformers
- > L Networks 0 L Networks
- > Ground Type Real/High Accuracy
- > Ground Descrip 1 Medium (0.0303, 20)
- > Wire Loss Zero
- > Units Feet
- > Plot Type Azimuth
- > Elevation Angle 20 Deg.
- > Step Size 1 Deg.
- > Ref Level 0 dBi
- > Alt SWR Z0 75 ohms
- > Desc Options

Open Save As Ant Notes

Currents Src Dat Load Dat FF Tab NF Tab SWR View Ant

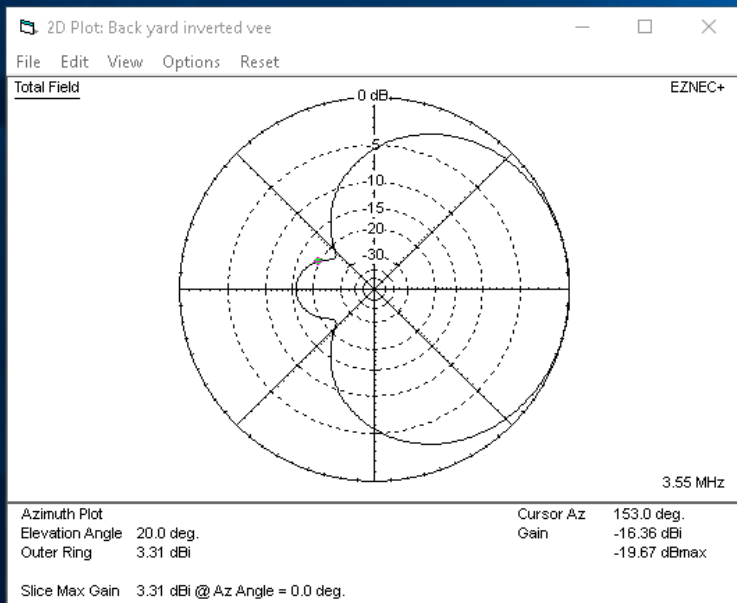
NEC-2D FF Plot

Wires

Wire Create Edit Other

Coord Entry Mode  Preserve Connections  Show Wire Insulation

No.	End 1				End 2				Diameter (in)	Segs
	X (ft)	Y (ft)	Z (ft)	Conn	X (ft)	Y (ft)	Z (ft)	Conn		
1	0	0	60	W2E1	0	50	15		#12	5
2	0	0	60	W1E1	0	-50	15		#12	5
3	50	0	60	W4E1	50	50	16		#12	5
4	50	0	60	W3E1	50	-50	16		#12	5



View Antenna: Back yard inverted vee

File Edit View Options Reset

Zoom

Display Current

Reset Reset

Move Image

X Y Z

Reset

Center Ant Image

Mouse Operation

Normal Viewing

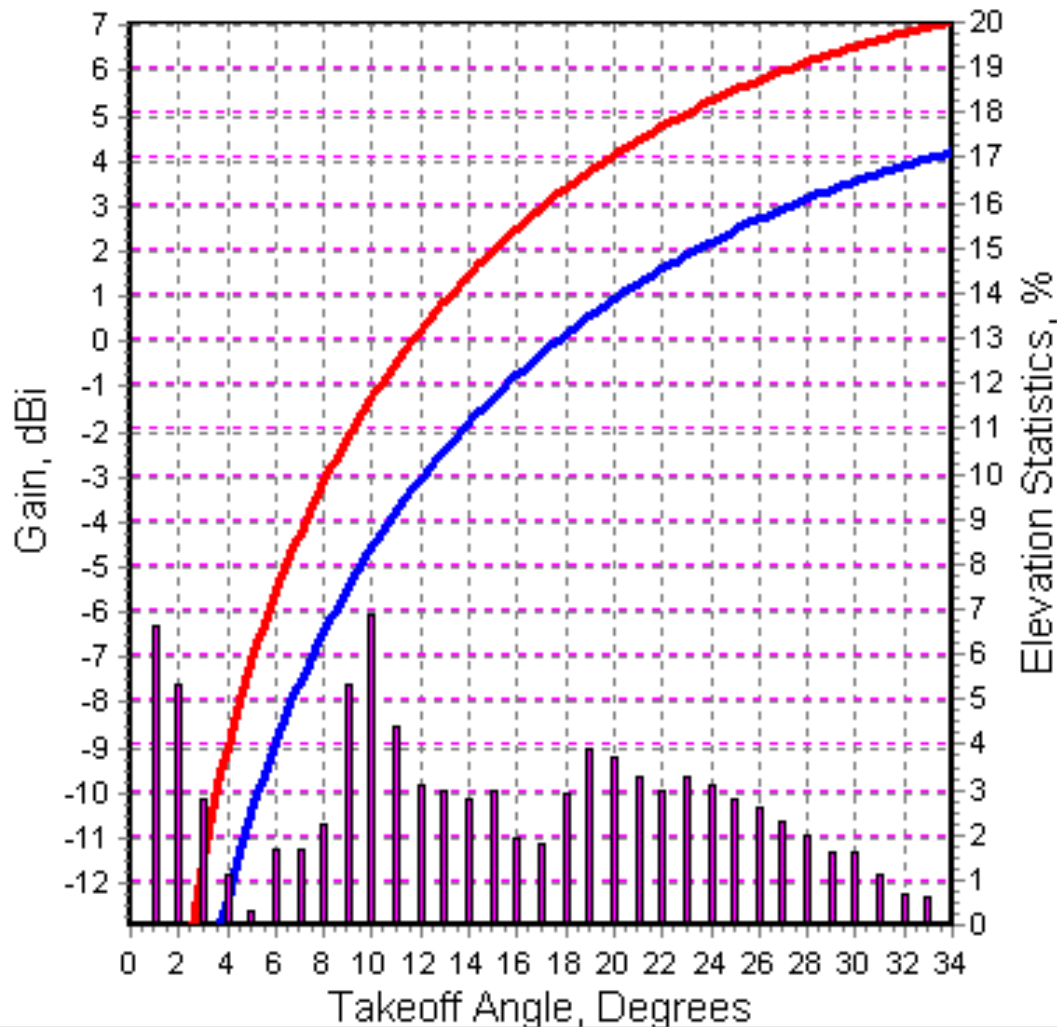
Add Conn Wires

Move Wire Ends

EZNEC+

This is what it looks like to model with EZNEC

HFTA, Copyright ARRL 2003-2004, by N6BV, Ver. 1.03



**Freq. = 3.5 MHz**  
 Max. Gain: 7.1 dBi

**FLAT.PRO**  
 65 ft  
 Dipole  
 Fig. of Merit: -.7

**FLAT.PRO**  
 65 ft  
 2-Ele.  
 Fig. of Merit: 2.4

**Elev. Statistic**  
**P4-US.PRN**

Print    Out File

Close

**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**











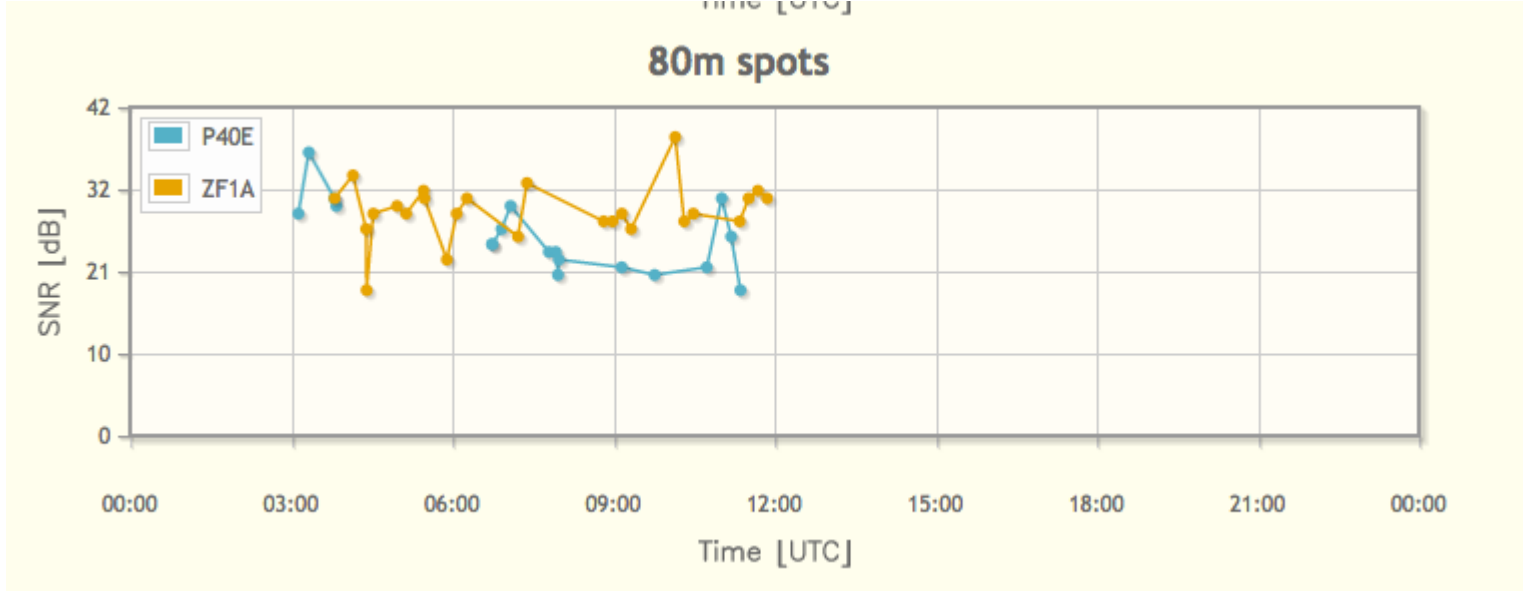
# Tested using the Reverse Beacon Network (RBN) <http://www.reversebeacon.net/>

- 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
- Data from Europe was the same with or without

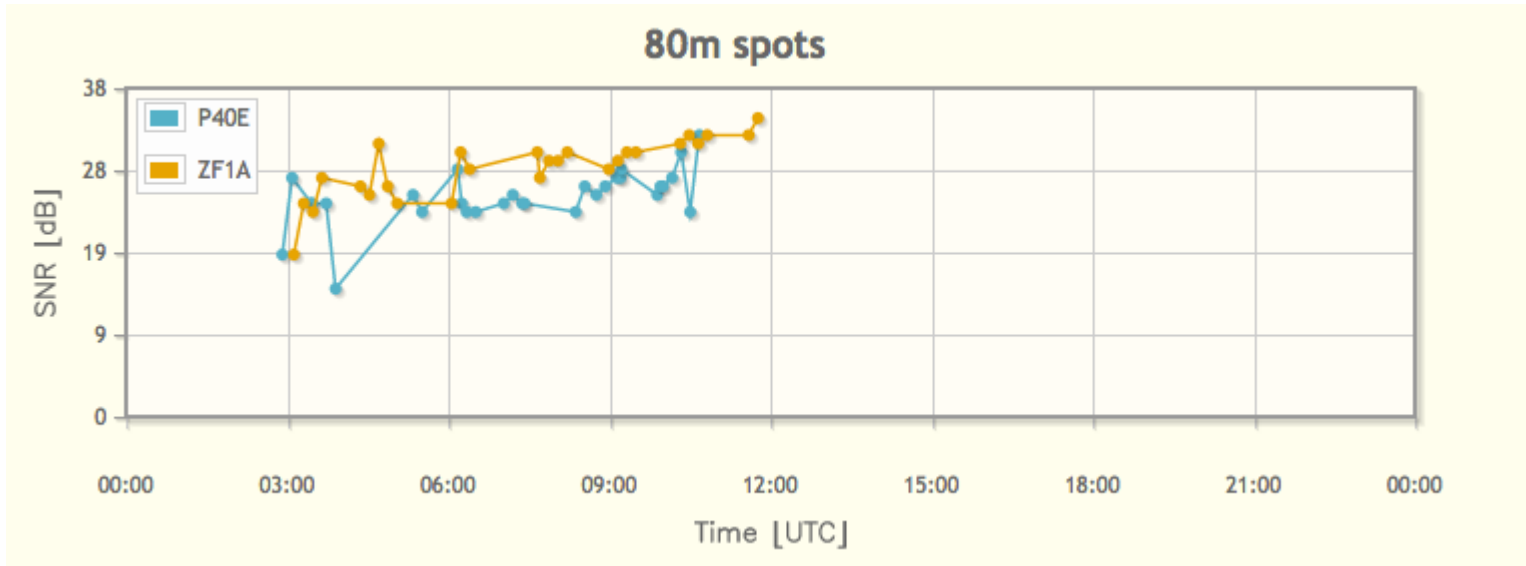


# Also used RBN to compare to ZF1A

1<sup>st</sup> night



2<sup>nd</sup> night  
After changing  
director





# 2018 ARRL CW DX

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

**2<sup>nd</sup> place, but a good effort  
over 2 QSO's per minute for entire contest**