ASSOCIAZIONE RADIOAMATORI ITALIANI

ERETTA AD ENTE MORALE IL 10/01/1950 DPR N. 368

SEZIONE DI UDINE ODV

"Sergio Casco IV3SGH"

51° Meeting Alpe Adria

" Nuova antenna verticale UHF fai da te
di lunghezza pari a 1ʎ con geometria innovativa,
ad alto rendimento e di costo inferiore ai 10€ "

Obiettivi:

Guadagno almeno 3dB oltre verticale ¼ ʎ

Alimentazione diretta a 50 ohm

Leggermente direttiva

Fascio maggiore di 120°

Semplice da costruire

Materiali facilmente reperibili

Basso costo

Ingombro contenuto

Wires

Wire Create Edit Other

Coord Entry Mode | Preserve Connections | Show Wire Insulation | Show Loss

Wires

No.	End 1				End 2				Diameter	Segs	Insulation			Wire Loss		
	X (m)	Y (m)	Z (m)	Conn	X (m)	Y (m)	Z (m)	Conn	(mm)		Diel C	Thk (mm)	Loss Tan	R (ohm-m)	Perm	Type
1	0	0	3.11491		0	0	2.9568	W2E1	4.9536	7	1	0	0	4E-08	1	AI6061T6
2	0	0	2.9568	W1E2	0	0	2.94926	W3E1	4.9536	1	1	0	0	4E-08	1	AI6061T6
3	0	0	2.94926	W4E1	-0.0686575	0.118918	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
4	0	0	2.94926	W5E1	-0.118918	-0.0686575	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
5	0	0	2.94926	W6E1	0.0686575	-0.118918	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
6	0	0	2.94926	W2E2	0.118918	0.0686574	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6

File Edit View Options

Z0: 50 ohms / Alt (75 ohms)

Source # 1

EZNEC Pro/2+

SWR: INF, 10, 5, 3, 2, 1.5, 1.1

430 Freq MHz 435

Freq	430 MHz	Source #	1
SWR	**1.38**	Z0	50 ohms
Z	37.38 at 7.8 deg.		
	= 37.04 + j 5.075 ohms		
Refl Coeff	0.1597 at 155.28 deg.		
	= -0.1451 + j 0.06677		
Ret Loss	15.9 dB		

3D Plot: IV3GKE

File Edit View Options Reset

Highlight: Off / Azimuth Slice / Elev Slice

0 360 — 24 Slice Azimuth

180 — 3 — 0 Cursor Elev

Show 2D Plot

EZNEC Pro/2+

431 MHz

2D Plot: IV3GKE

File Edit View Options Reset

Highlight: Off / Azimuth Slice / Elev Slice

0 360 — 24 Slice Azimuth

180 — 3 — 0 Cursor Elev

Total Field

EZNEC Pro/2+

0 dB, -5, -10, -15, -20, -30

431 MHz

Elevation Plot		Cursor Elev	3.0 deg.
Azimuth Angle	24.0 deg.	Gain	6.89 dBi
Outer Ring	6.89 dBi		0.0 dBmax
			0.0 dBmax3D
3D Max Gain	6.89 dBi		
Slice Max Gain	6.89 dBi @ Elev Angle = 3.0 deg.		
Beamwidth	3.2 deg.; -3dB @ 1.6, 4.8 deg.		
Sidelobe Gain	6.89 dBi @ Elev Angle = 177.0 deg.		
Front/Sidelobe	0.0 dB		

View Antenna: IV3GKE

File Edit View Options Reset

Zoom: Display / Current — Reset

Move Image: X Y Z — Reset

Center Ant Image

Mouse Operation: Normal Viewing / Add Conn Wires / Move Wire Ends

EZNEC Pro/2+

verticale ¼ λ

Wires

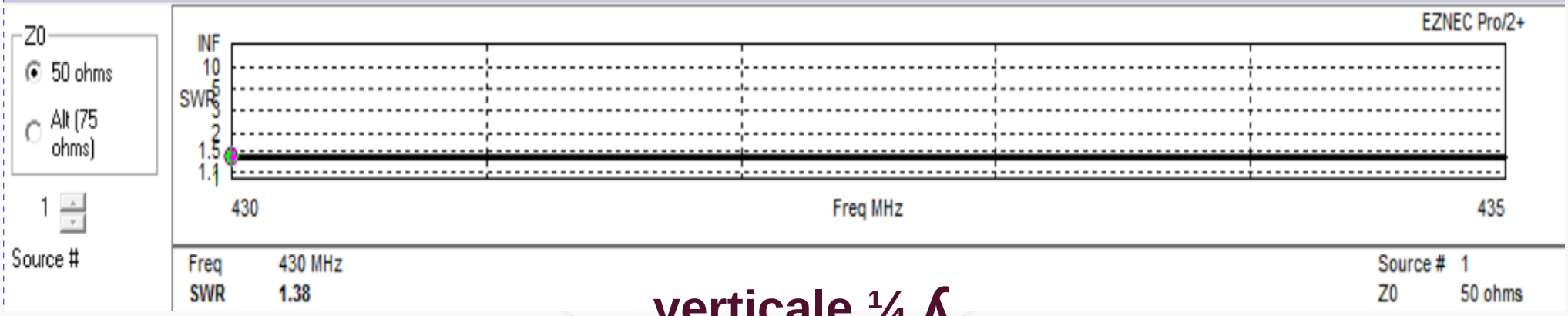
Wire Create Edit Other

☐ Coord Entry Mode ☐ Preserve Connections ☑ Show Wire Insulation ☑ Show Loss

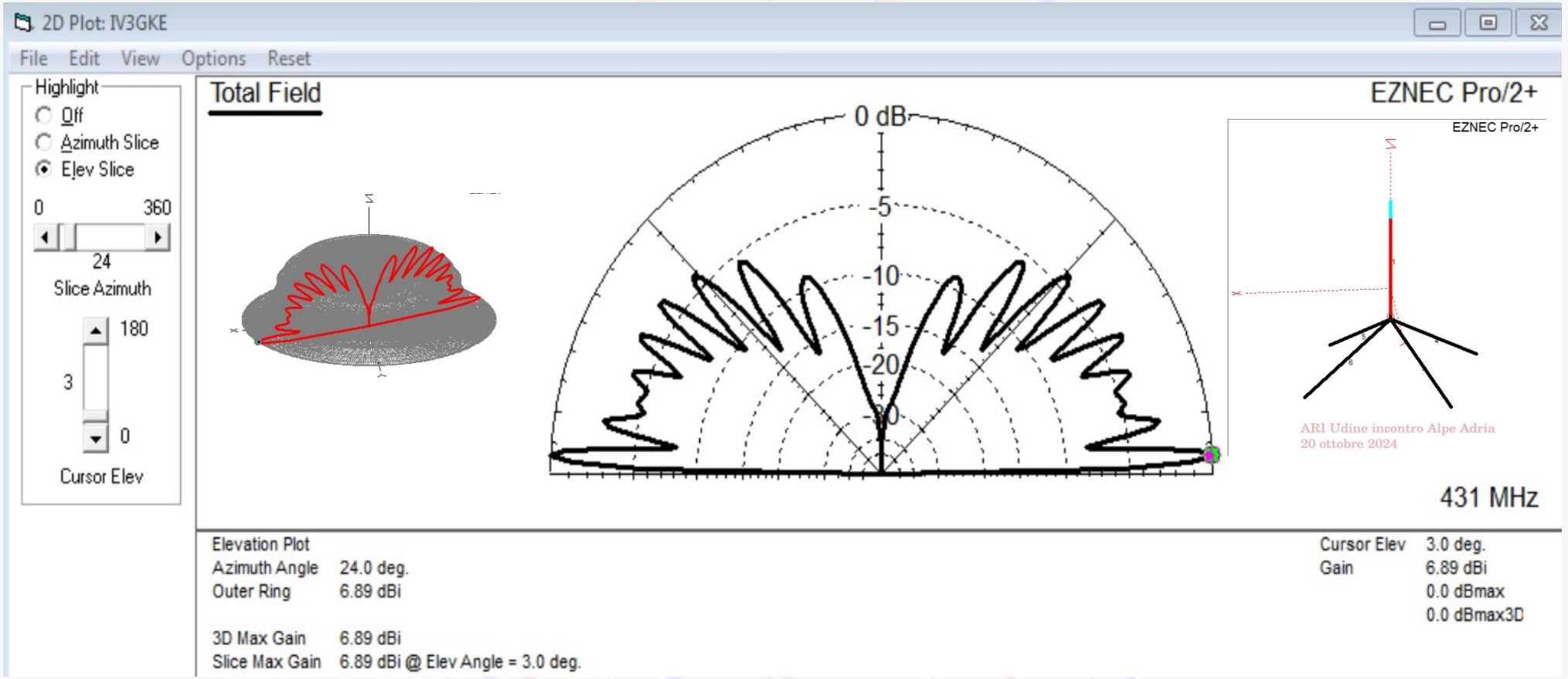
Wires

	No.	End 1				End 2				Diameter	Segs	Insulation			Wire Loss		
		X (m)	Y (m)	Z (m)	Conn	X (m)	Y (m)	Z (m)	Conn	(mm)		Diel C	Thk (mm)	Loss Tan	R (ohm-m)	Perm	Type
▶	1	0	0	3.11491		0	0	2.9568	W2E1	4.9536	7	1	0	0	4E-08	1	AI6061T6
	2	0	0	2.9568	W1E2	0	0	2.94926	W3E1	4.9536	1	1	0	0	4E-08	1	AI6061T6
	3	0	0	2.94926	W4E1	-0.0686575	0.118918	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
	4	0	0	2.94926	W5E1	-0.118918	-0.0686575	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
	5	0	0	2.94926	W6E1	0.0686575	-0.118918	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
	6	0	0	2.94926	W2E2	0.118918	0.0686574	2.87006		4.9536	17	1	0	0	4E-08	1	AI6061T6
*																	

File Edit View Options



verticale ¼ λ



verticale ¼ λ

Wires

Wire Create Edit Other

Coord Entry Mode | Preserve Connections | Show Wire Insulation | Show Loss

Wires

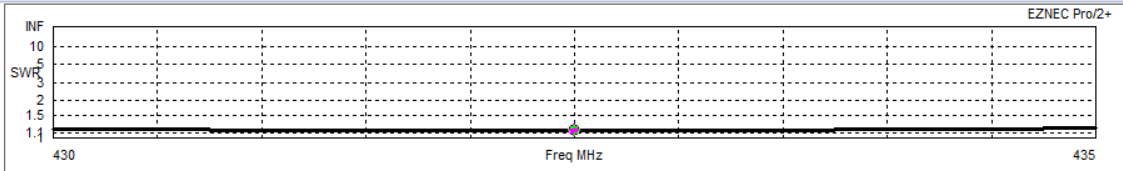
No.	End 1				End 2				Diameter	Segs	Insulation			Wire Loss		
	X (m)	Y (m)	Z (m)	Conn	X (m)	Y (m)	Z (m)	Conn	(mm)		Diel C	Thk (mm)	Loss Tan	R (ohm-m)	Perm	Type
1	0	0	3.14409		0	0	2.9845	W2E1	5	7	1	0	0	4E-08	1	Al6061T6
2	0	0	2.9845	W1E2	0	0	2.97689	W3E1	5	1	1	0	0	4E-08	1	Al6061T6
3	0	0	2.97689	W2E2	0.440573	5.51108E-8	2.72279		5	17	1	0	0	4E-08	1	Al6061T6

SWR Plot: IV3GKE

File Edit View Options

Z0: 50 ohms / Alt (75 ohms)

Source #: 1



Freq	432.5 MHz	Source #	1
SWR	**1.14**	Z0	50 ohms
Z	56.97 at -1.22 deg.		
	= 56.95 - j 1.217 ohms		
Refl Coeff	0.06599 at -9.28 deg.		
	= 0.06513 - j 0.01064		
Ret Loss	23.6 dB		

3D Plot: IV3GKE

File Edit View Options Reset

Highlight: Off / Azimuth Slice / Elev Slice

0 360

41

Slice Azimuth

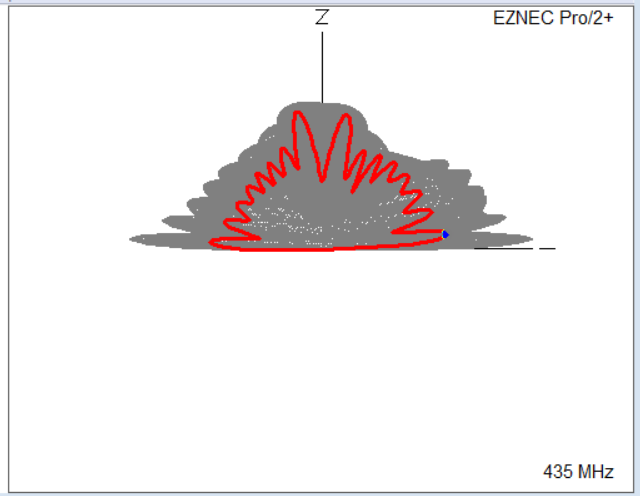
180

3

0

Cursor Elev

Show 2D Plot



2D Plot: IV3GKE

File Edit View Options Reset

Highlight: Off / Azimuth Slice / Elev Slice

0 360

41

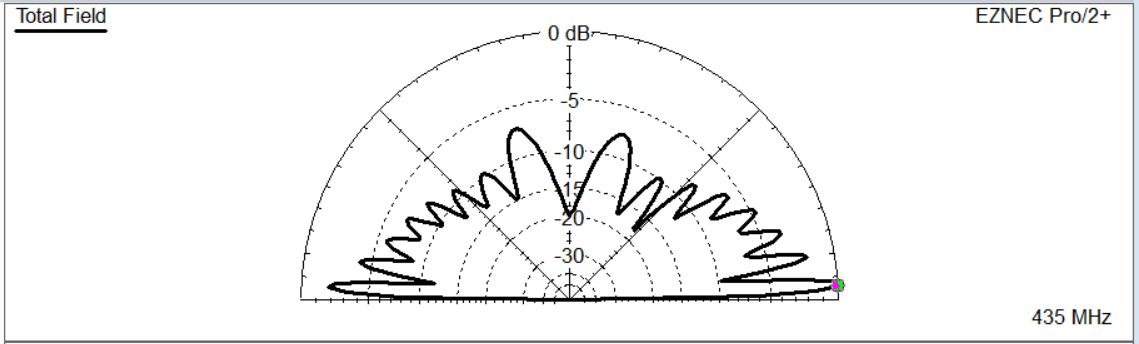
Slice Azimuth

180

3

0

Cursor Elev



Elevation Plot		Cursor Elev	3.0 deg.
Azimuth Angle	41.0 deg.	Gain	10.06 dBi
Outer Ring	10.06 dBi		0.0 dBmax
			0.0 dBmax3D
3D Max Gain	10.06 dBi		
Slice Max Gain	10.06 dBi @ Elev Angle = 3.0 deg.		
Beamwidth	3.4 deg.; -3dB @ 1.7, 5.1 deg.		
Sidelobe Gain	8.26 dBi @ Elev Angle = 177.0 deg.		
Front/Sidelobe	1.8 dB		

verticale 1 ʎ IV3GKE

View Antenna: IV3GKE

File Edit View Options Reset

Zoom

Display: Reset

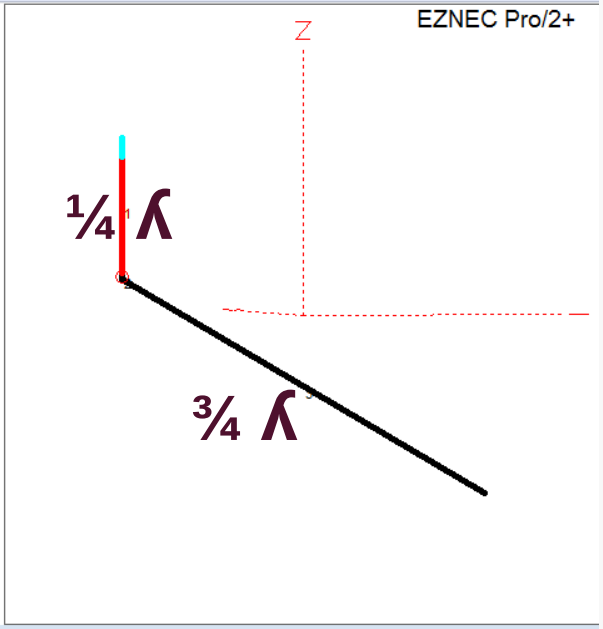
Current: Reset

Move Image: X / Y / Z

Reset

Center Ant Image

Mouse Operation: Normal Viewing / Add Conn Wires / Move Wire Ends



verticale 1 λ IV3GKE

Wires

Wire Create Edit Other

☐ Coord Entry Mode ☐ Preserve Connections ☑ Show Wire Insulation ☑ Show Loss

Wires

	No.	End 1				End 2				Diameter	Segs	Insulation			Wire Loss		
		X (m)	Y (m)	Z (m)	Conn	X (m)	Y (m)	Z (m)	Conn	(mm)		Diel C	Thk (mm)	Loss Tan	R (ohm-m)	Perm	Type
▶	1	0	0	3.14409		0	0	2.9845	W2E1	5	7	1	0	0	4E-08	1	Al6061T6
	2	0	0	2.9845	W1E2	0	0	2.97689	W3E1	5	1	1	0	0	4E-08	1	Al6061T6
	3	0	0	2.97689	W2E2	0.440573	5.51108E-8	2.72279		5	17	1	0	0	4E-08	1	Al6061T6
✳																	

SWR Plot: IV3GKE

File Edit View Options

Z0
- ◉ 50 ohms
- ○ Alt (75 ohms)

1
Source #

EZNEC Pro/2+

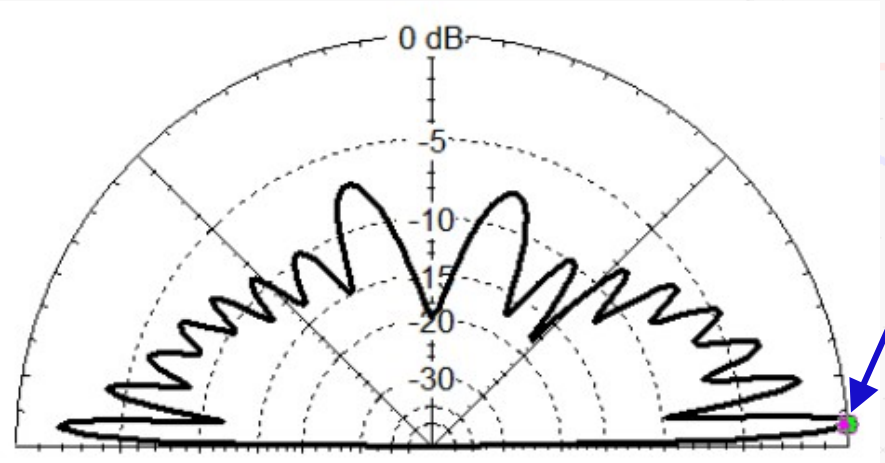
INF
10
5
SWR
3
2
1.5
1.1

430 Freq MHz 435

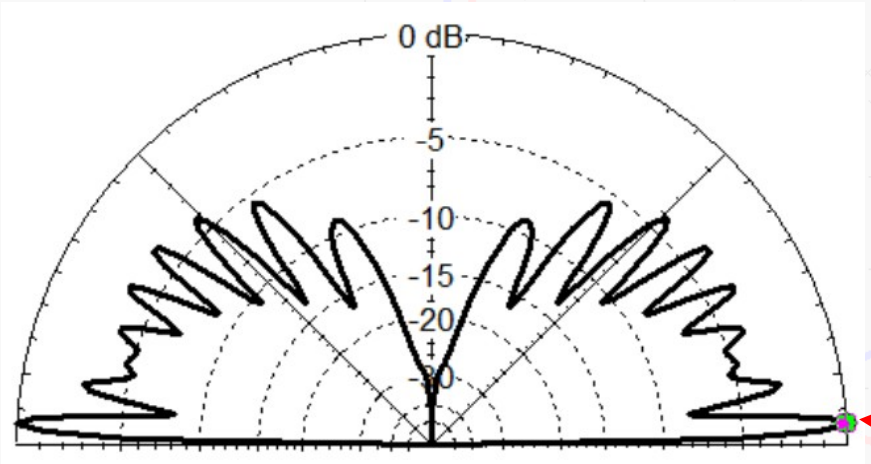
Freq 432.5 MHz
SWR **1.14**

Source # 1
Z0 50 ohms

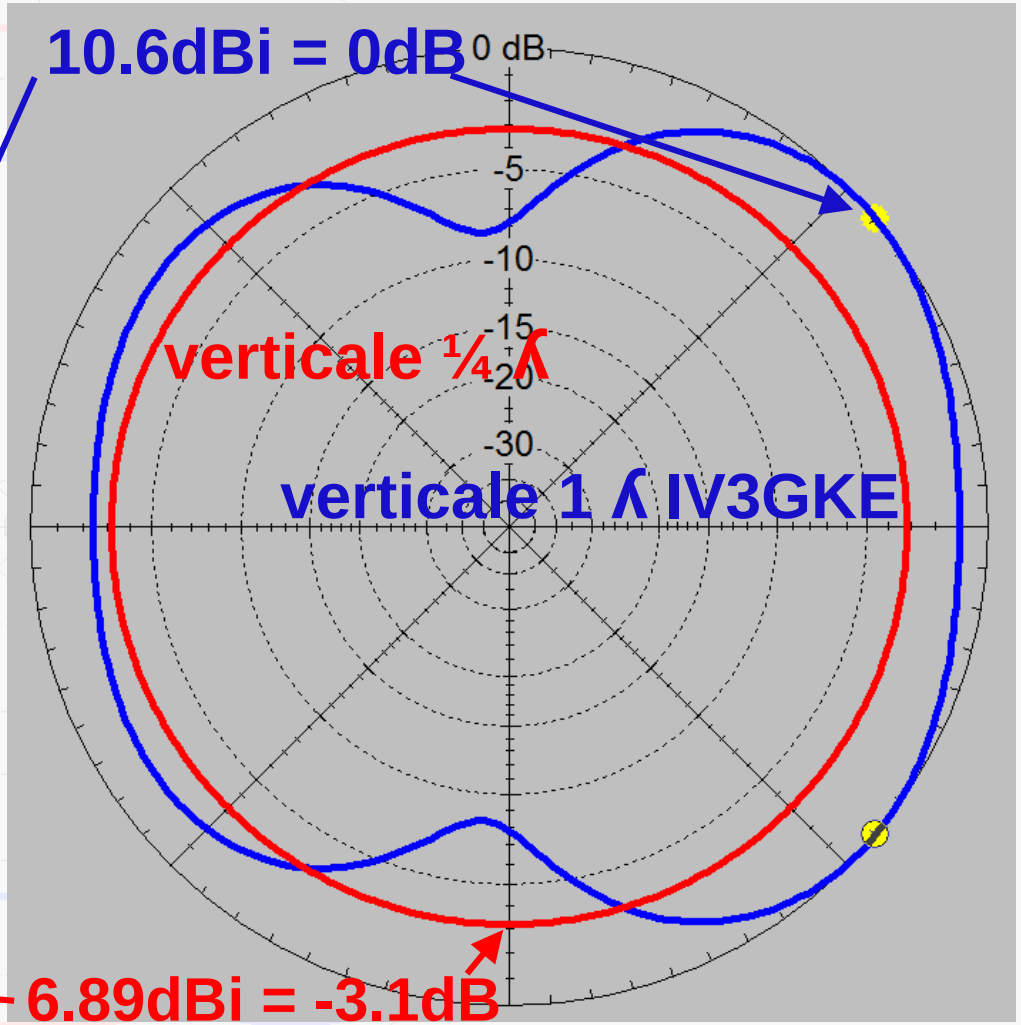
verticale 1 ʎ IV3GKE



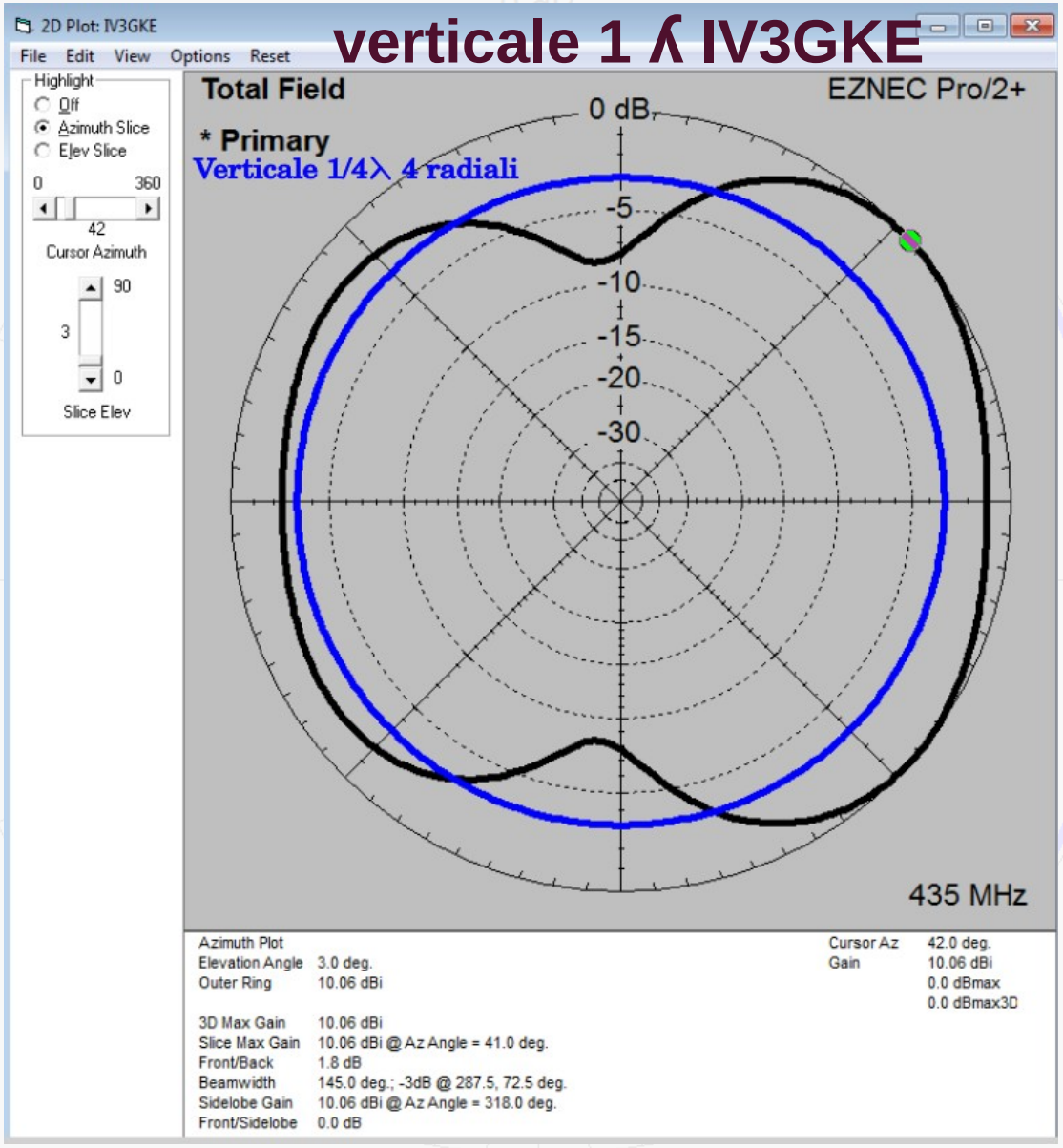
verticale ¼ ʎ



AZIMUT



verticale 1 ⅄ IV3GKE



verticale 1 ʎ IV3GKE

Wires

Wire Create Edit Other

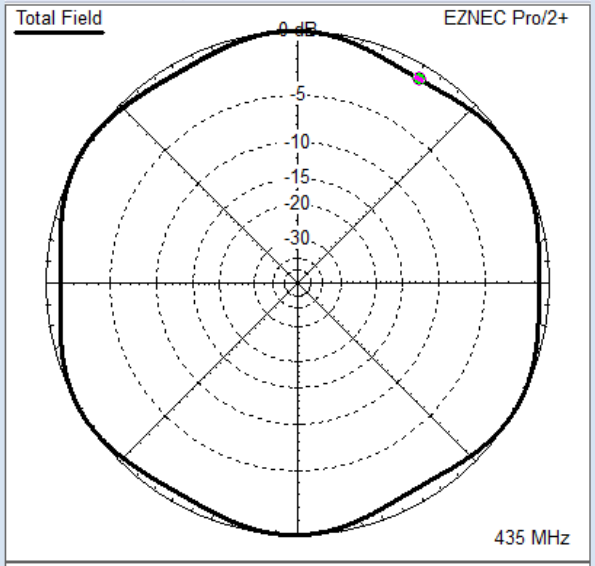
☐ Coord Entry Mode ☐ Preserve Connections ☑ Show Wire Insulation ☑ Show Loss

Wires

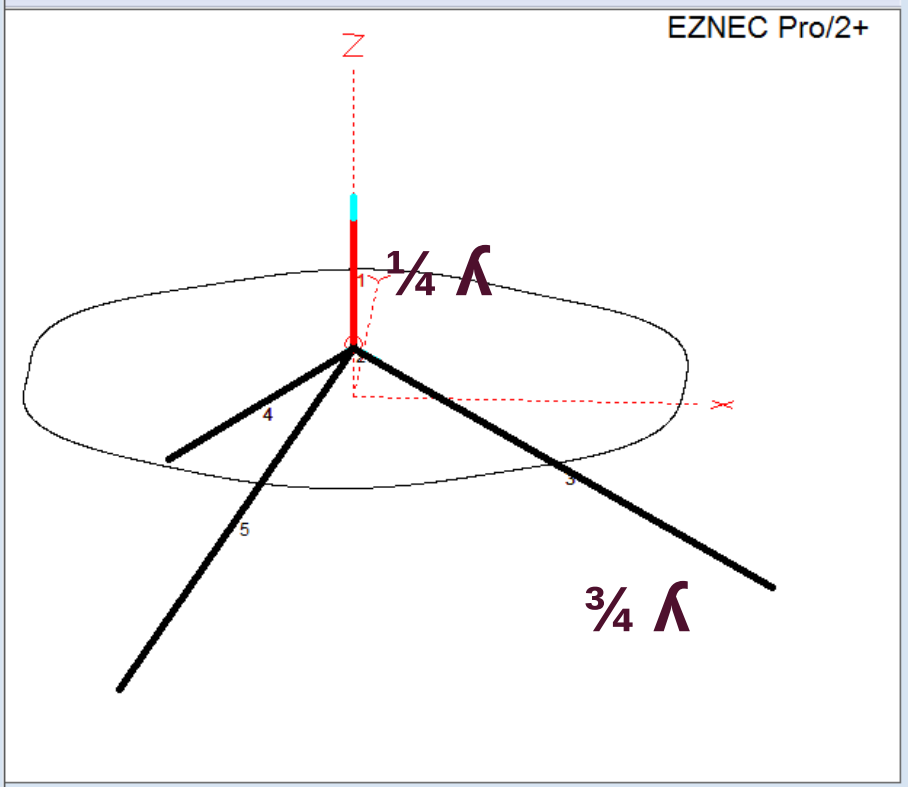
No.	End 1				End 2				Diameter	Segs	Insulation			Wire Loss		
	X (m)	Y (m)	Z (m)	Conn	X (m)	Y (m)	Z (m)	Conn	(mm)		Diel C	Thk (mm)	Loss Tan	R (ohm-m)	Perm	Type
1	0	0	3.14409		0	0	2.9845	W2E1	5	7	1	0	0	4E-08	1	Al6061T6
2	0	0	2.9845	W1E2	0	0	2.97689	W3E1	5	1	1	0	0	4E-08	1	Al6061T6
3	0	0	2.97689	W4E1	0.440573	5.51108E-8	2.72279		5	17	1	0	0	4E-08	1	Al6061T6
4	0	0	2.97689	W5E1	-0.220286	0.381547	2.72279		5	17	1	0	0	4E-08	1	Al6061T6
5	0	0	2.97689	W2E2	-0.220287	-0.381547	2.72279		5	17	1	0	0	4E-08	1	Al6061T6

2D Plot: IV3GKE

File Edit View Options Reset



Azimuth Plot		Cursor Az	59.0 deg.
Elevation Angle	3.1 deg.	Gain	7.83 dBi
Outer Ring	8.86 dBi		-1.03 dBmax
Slice Max Gain	8.86 dBi @ Az Angle = 28.7 deg.		
Front/Back	0.02 dB		
Beamwidth	?		
Sidelobe Gain	8.86 dBi @ Az Angle = 91.3 deg.		
Front/Sidelobe	0.0 dB		



J-pole free space plots

WIKIPEDIA
The Free Encyclopedia

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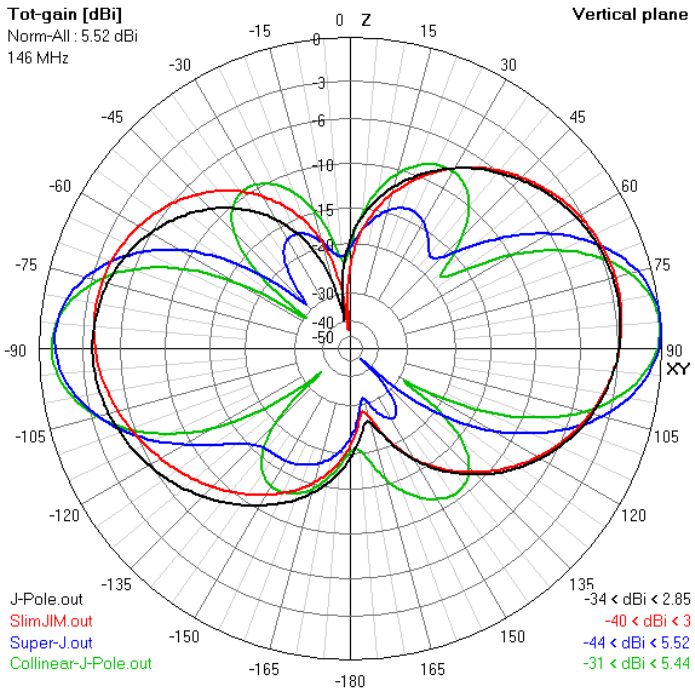
File:E-plane gain plots of J antenna variations.png

File Talk

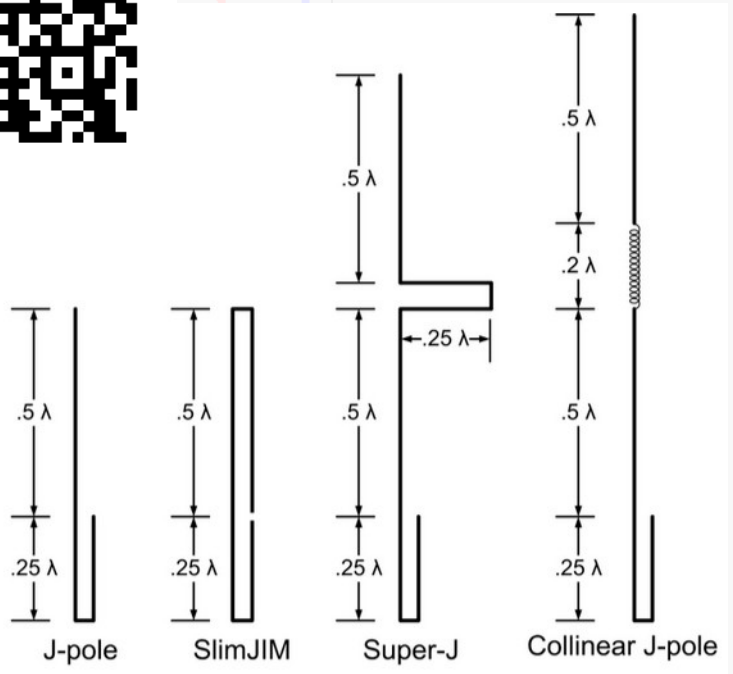
From Wikipedia, the free encyclopedia

File File history File usage Global file usage



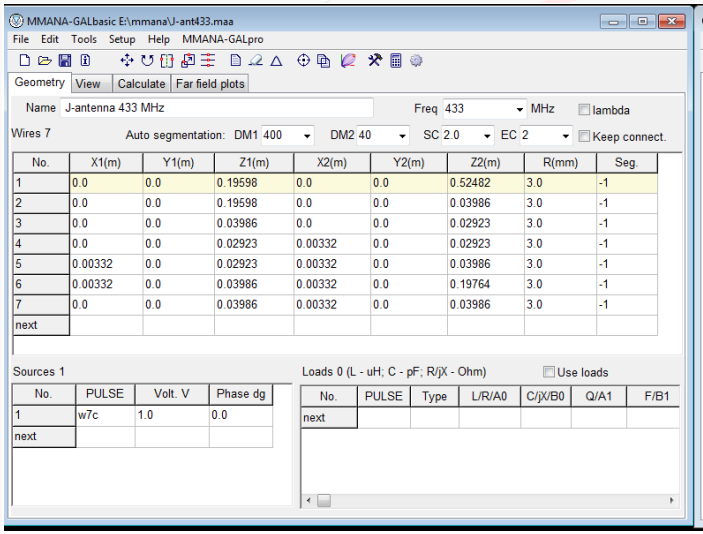
No higher resolution available.

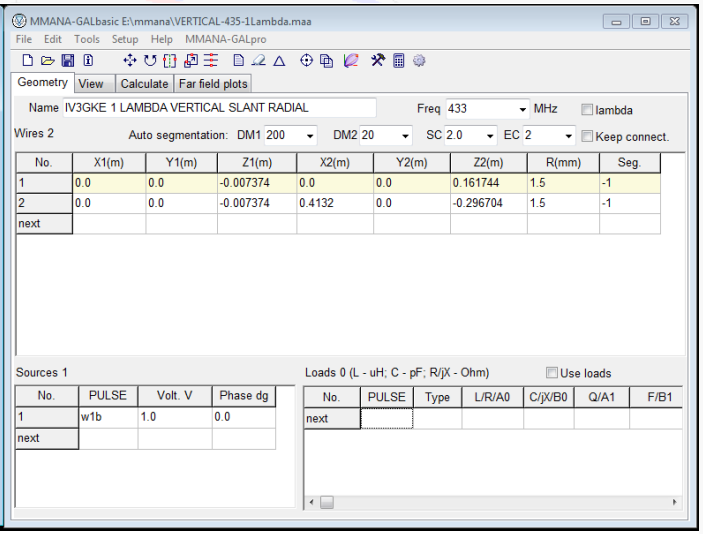
https://en.wikipedia.org/wiki/J-pole_antenna

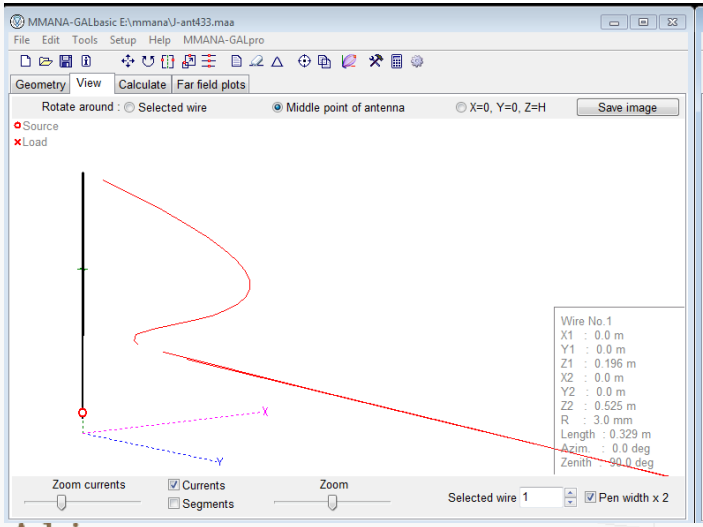


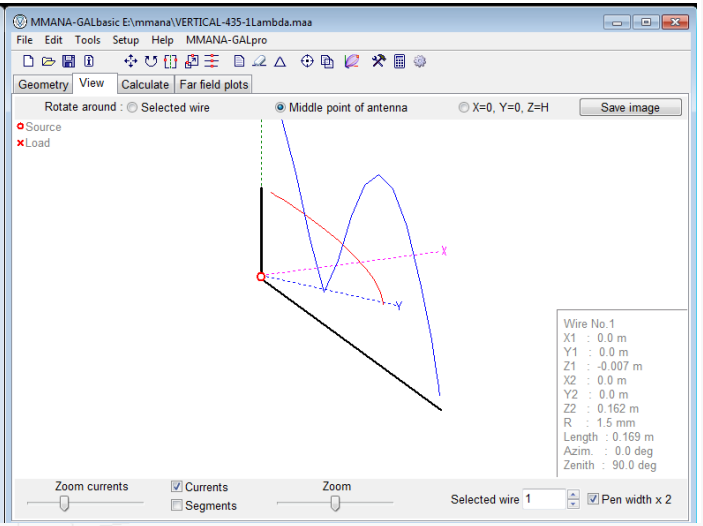
Modellato con software MMANA

J-Pole ¾λ vs verticale 1 λ IV3GKE



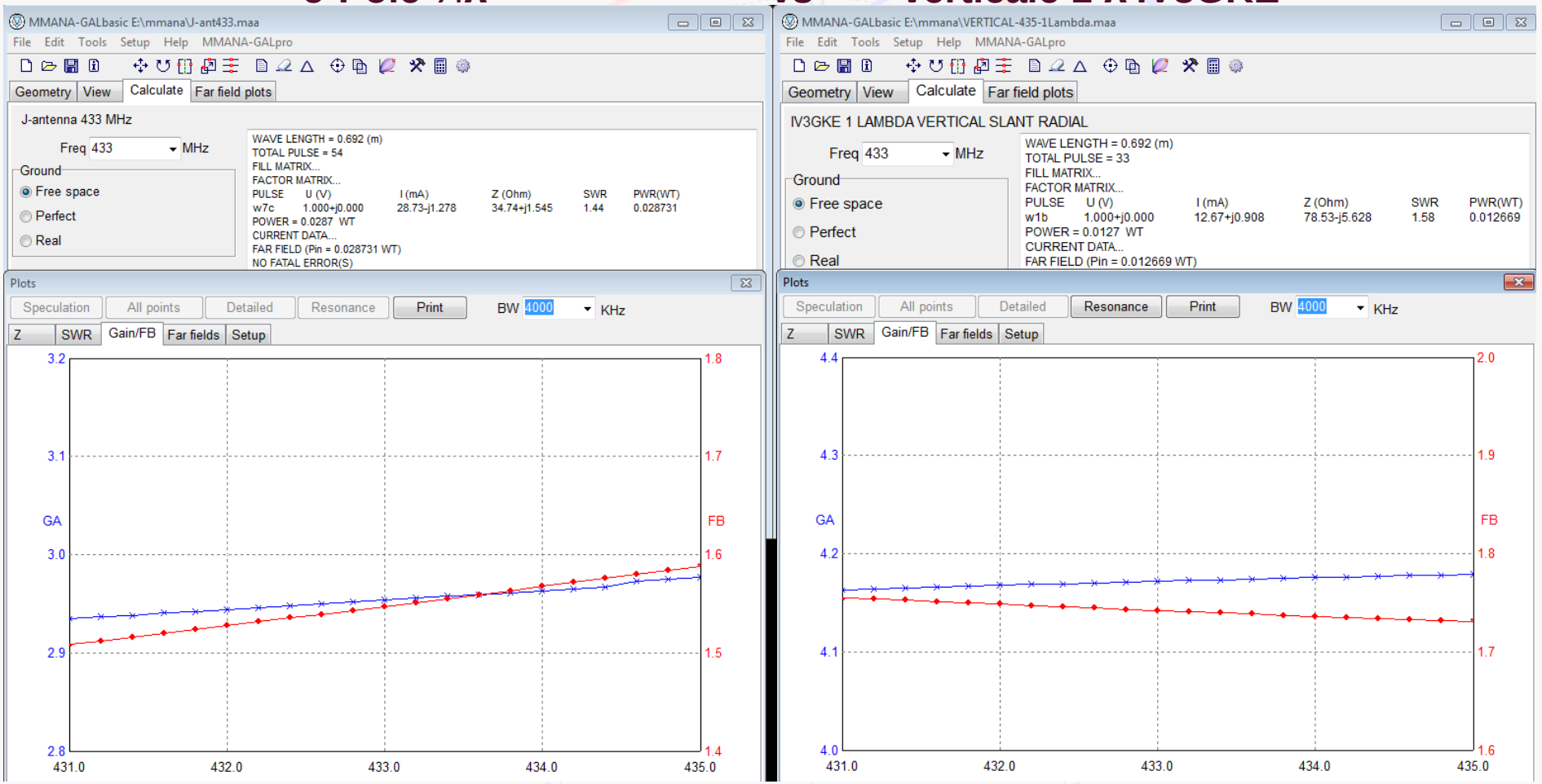




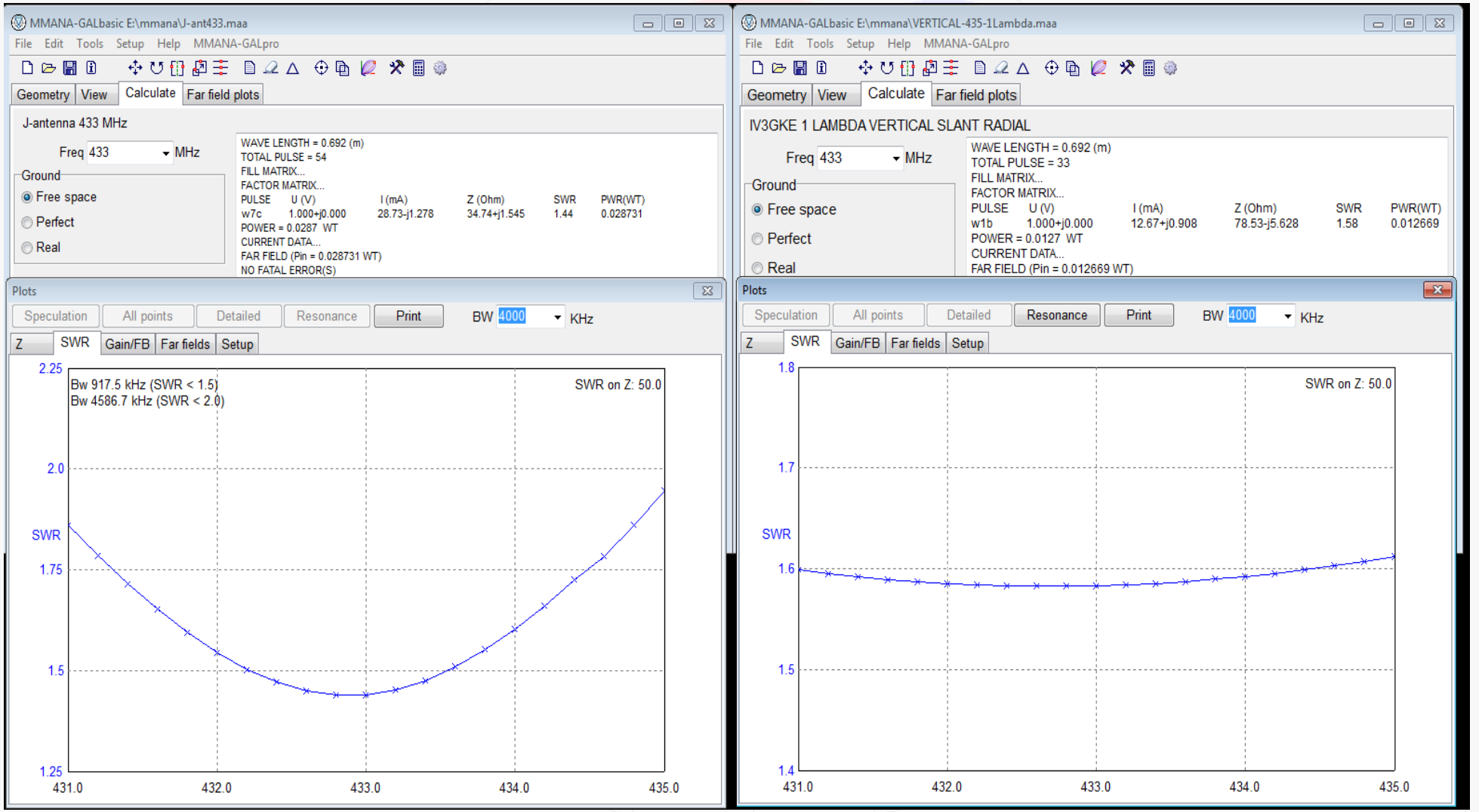


Modellato con software MMANA

J-Pole ¾λ vs verticale 1 λ IV3GKE

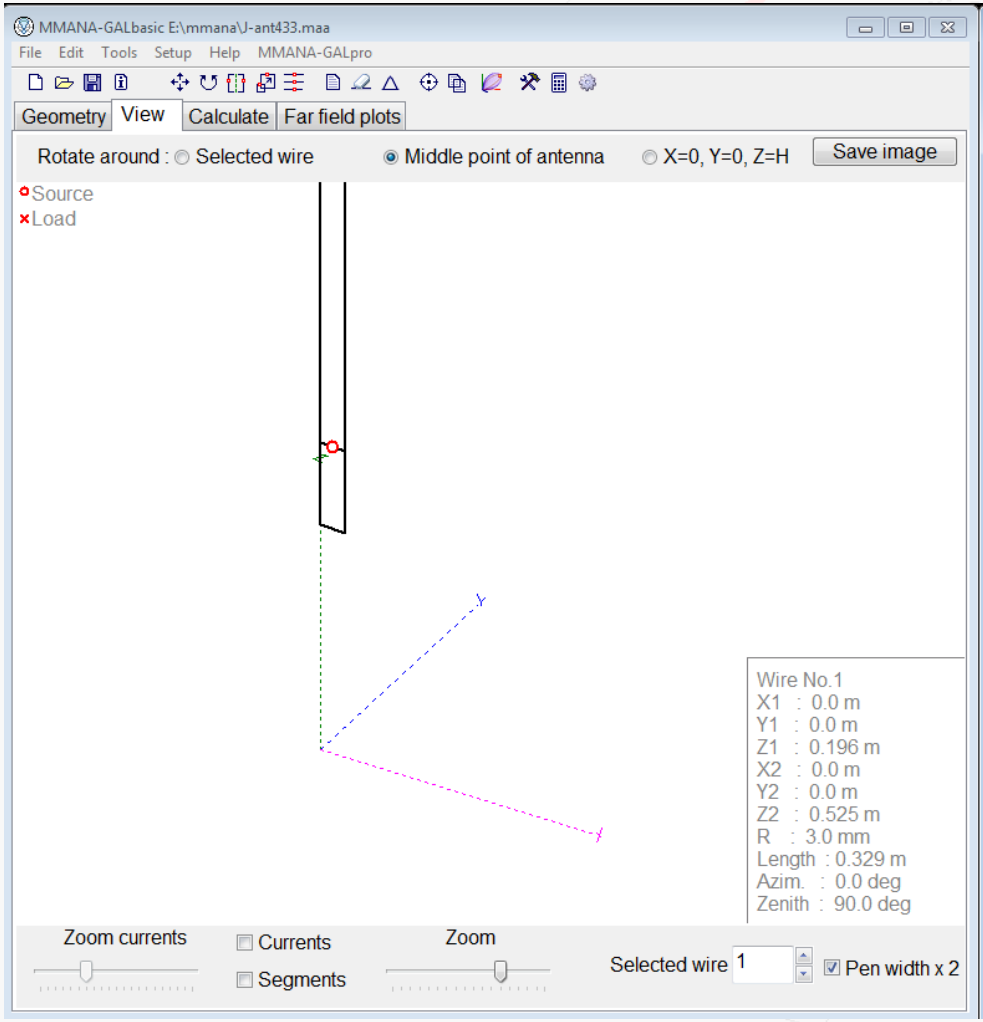


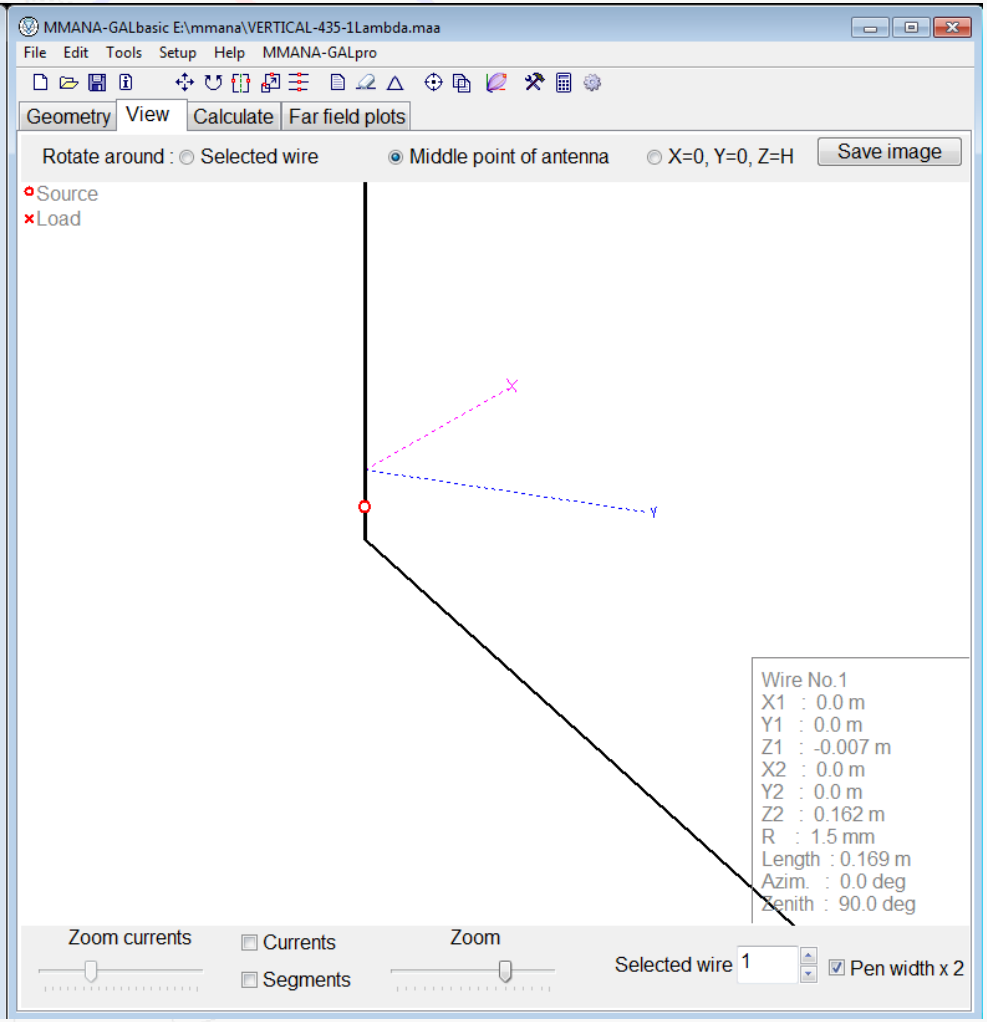
Modellato con software MMANA
J-Pole ¾λ vs verticale 1 λ IV3GKE



Modellato con software MMANA

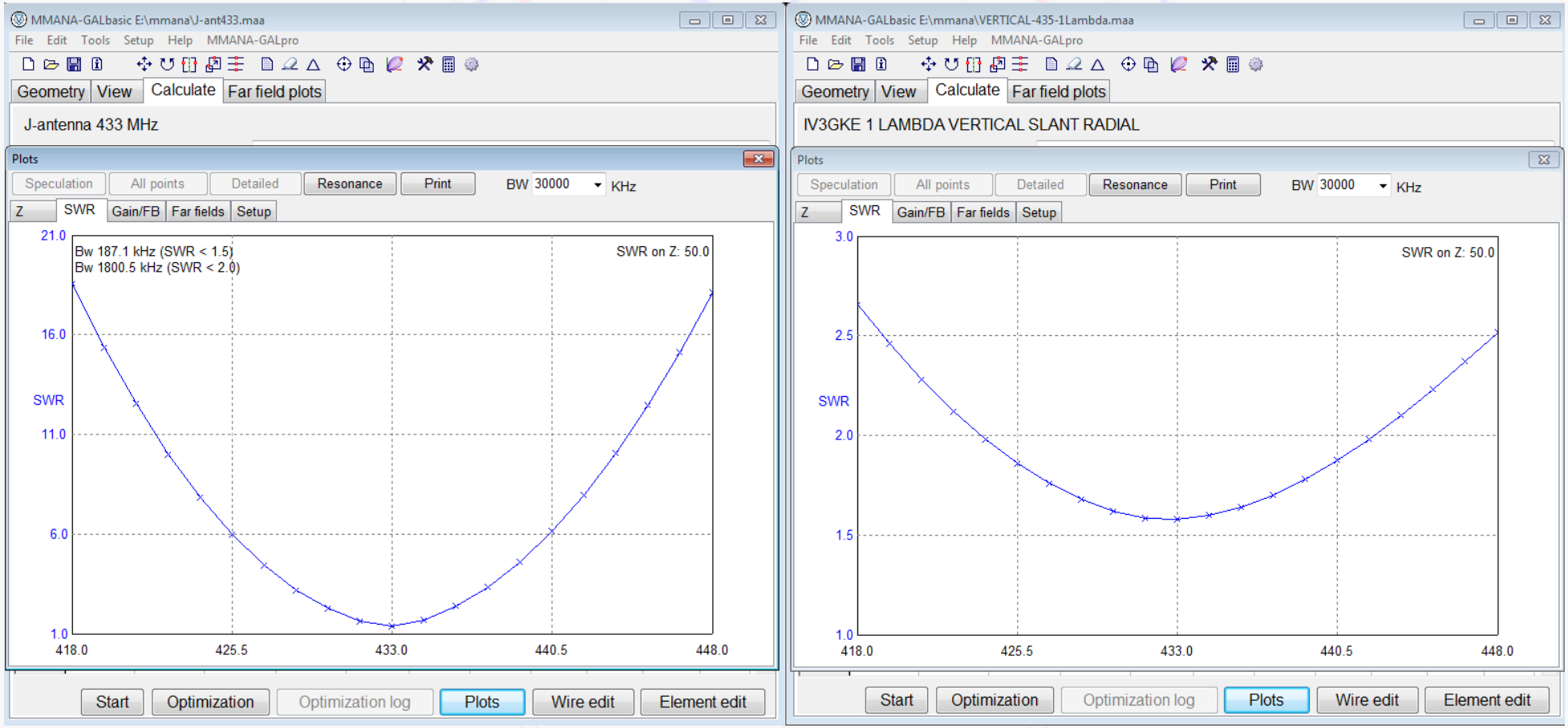
J-Pole ¾λ vs verticale 1 λ IV3GKE



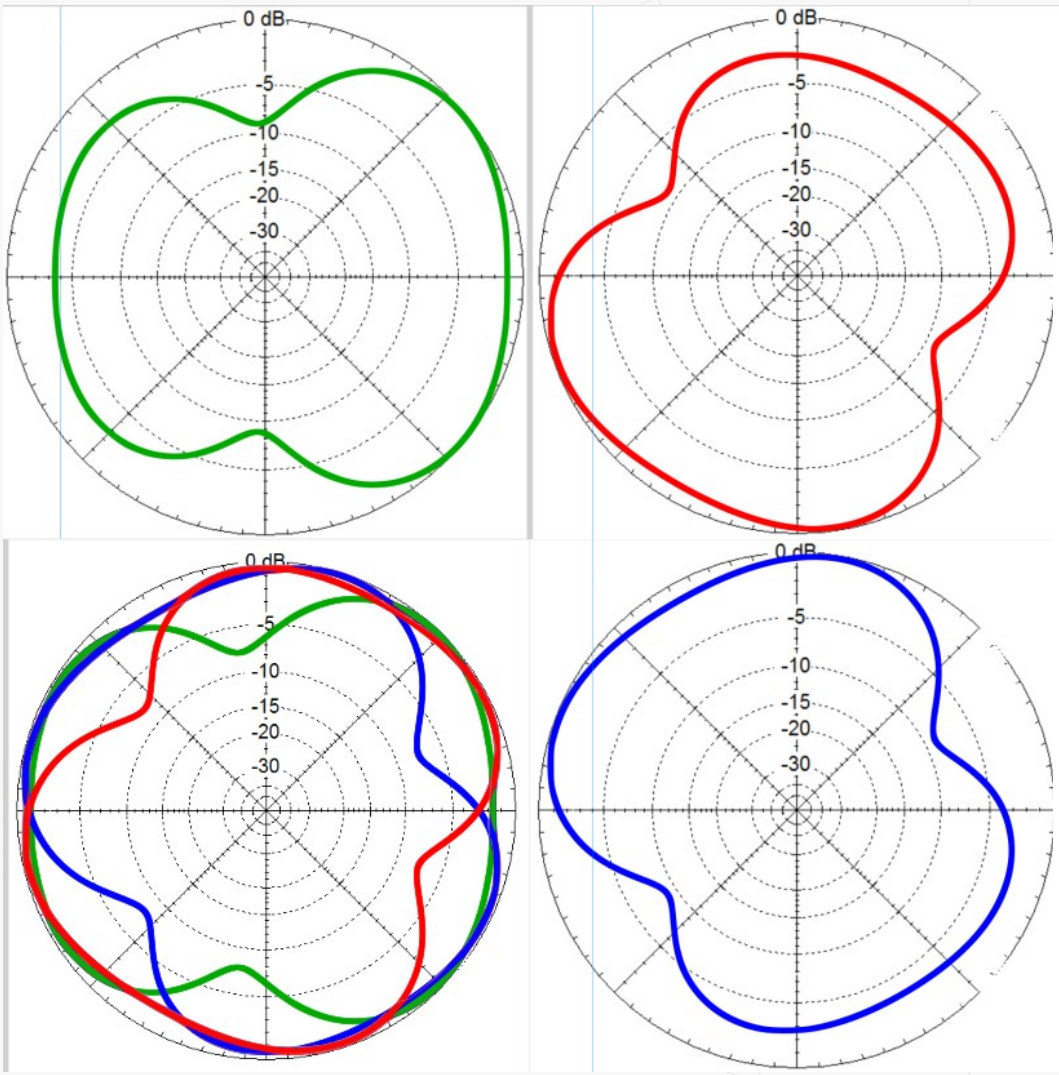


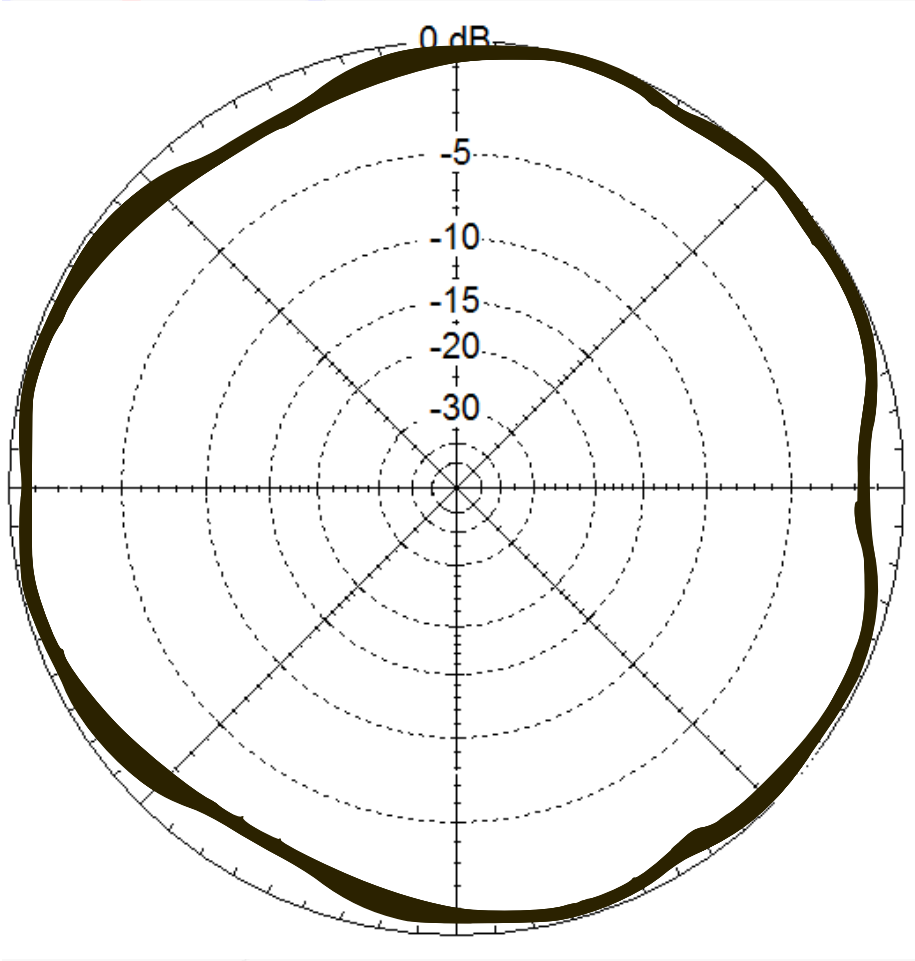
Modellato con software MMANA

J-Pole ¾ʎ vs verticale 1 ʎ IV3GKE

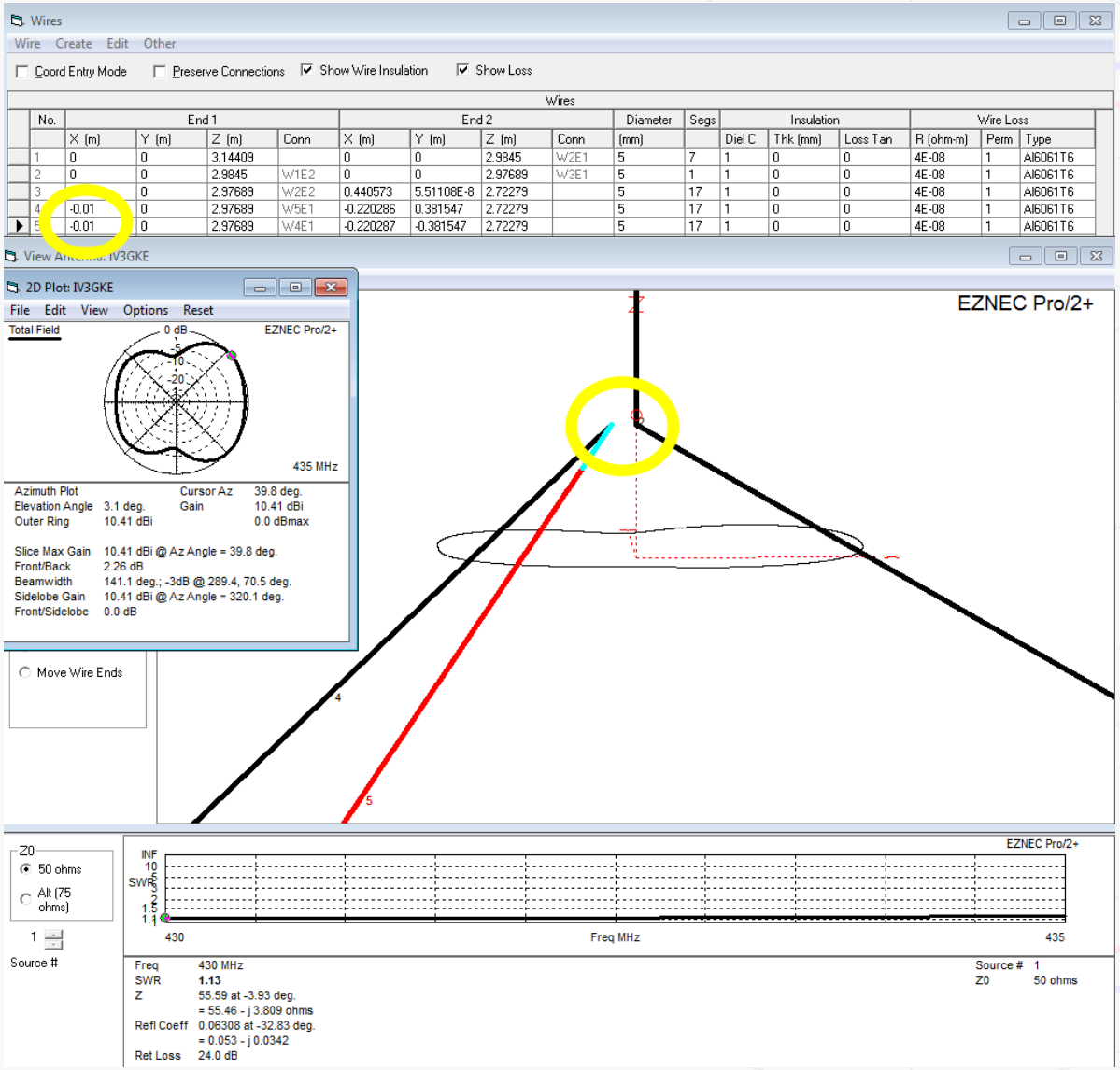


verticale 1 ʎ IV3GKE tre posizioni azimutali a 90° , +120° , -120°



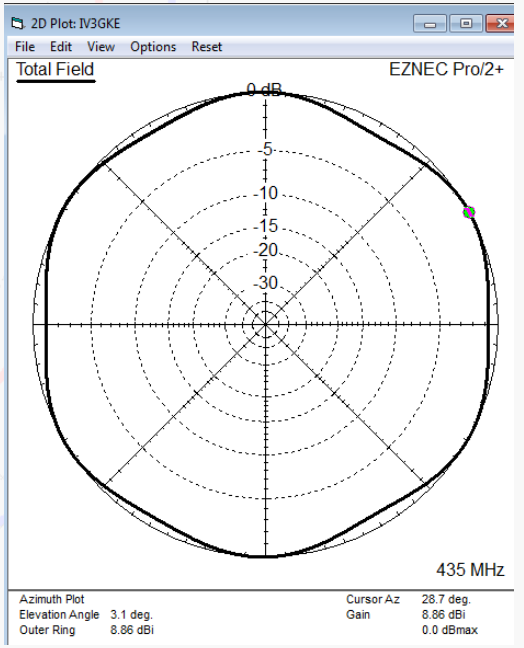


verticale 1 λ IV3GKE tre posizioni azimutali a 90° , +120° , -120°



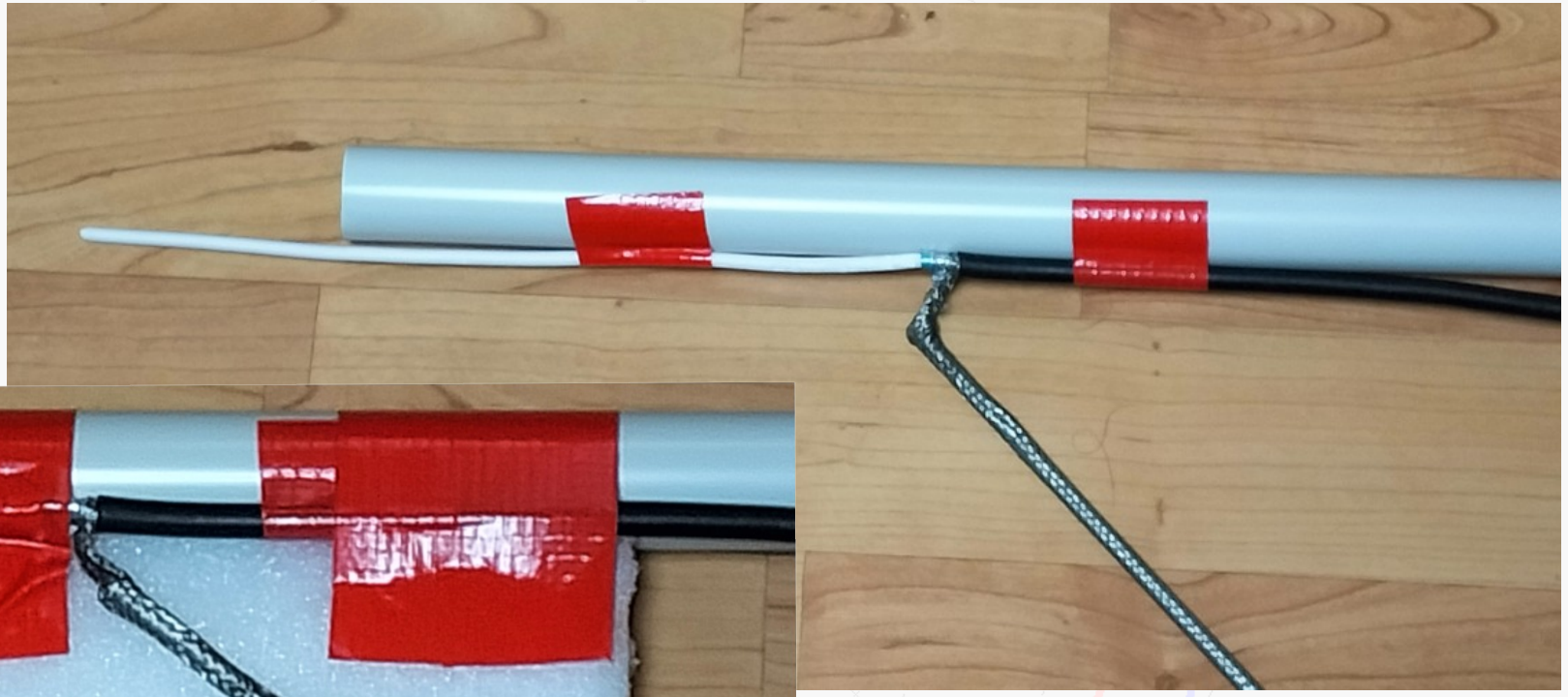
Con tre radiali commutabili a 120° possiamo coprire i 360° con variazione di circa 1 dB dalla direzione ottimale !!!!!

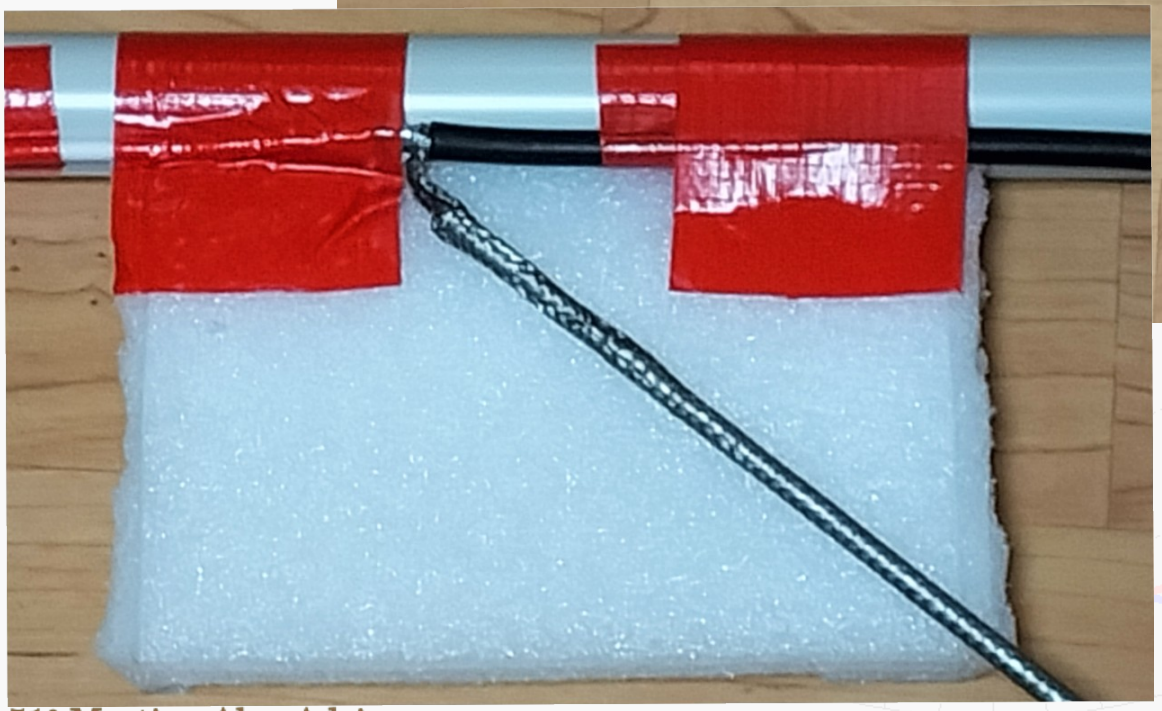
Con tre radiali fissi invece otteniamo il grafico sotto:



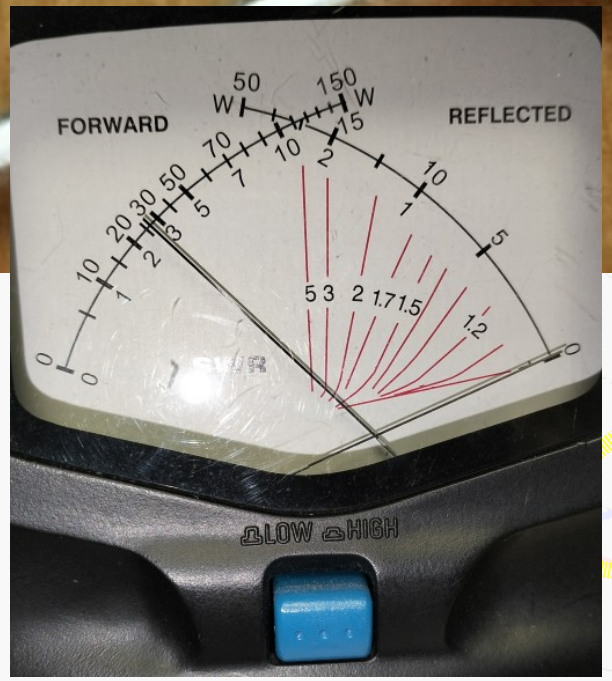
verticale 1 ʎ IV3GKE costruzione!

verticale 1 ʎ IV3GKE costruzione!





verticale 1 ʎ IV3GKE costruzione!



W4BFL Gennaro in Florida
Costruita per i 2 metri

https://www.w4bfl.com/Projects/Antennas/IMGP2943.html


Buon divertimento!
2001. 1. 6 06:18