

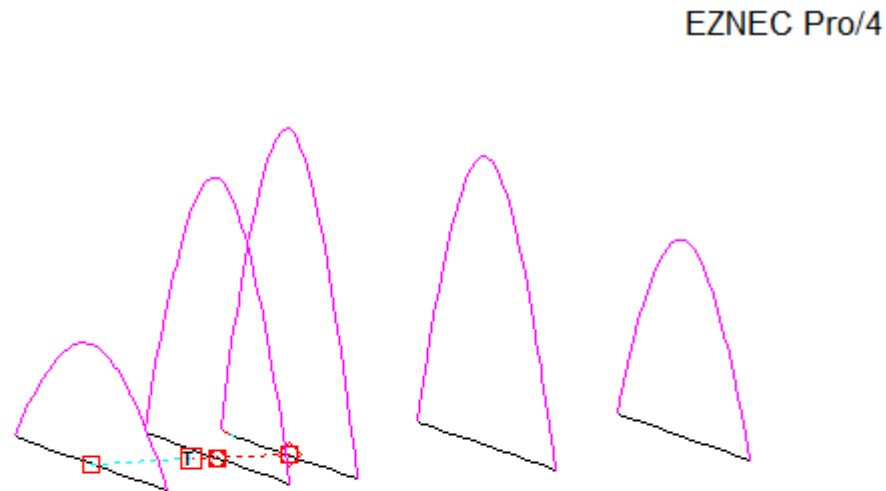
5-el 20m Yagi Model 15PT-20m

The antenna was installed at OH1AJ, September 2018

15PT-20m specification

- Monoband yagi, 5 elements, with Power Transfer, for 20m
 - PT from first director to reflector
 - Frequency range 14.0-14.35MHz
- Boom length 16m
- Gain 10.3-10.7dBi
- Good matching, feedpoint impedance 50ohm, SWR < 1.2
- Excellent F/B > 25dB

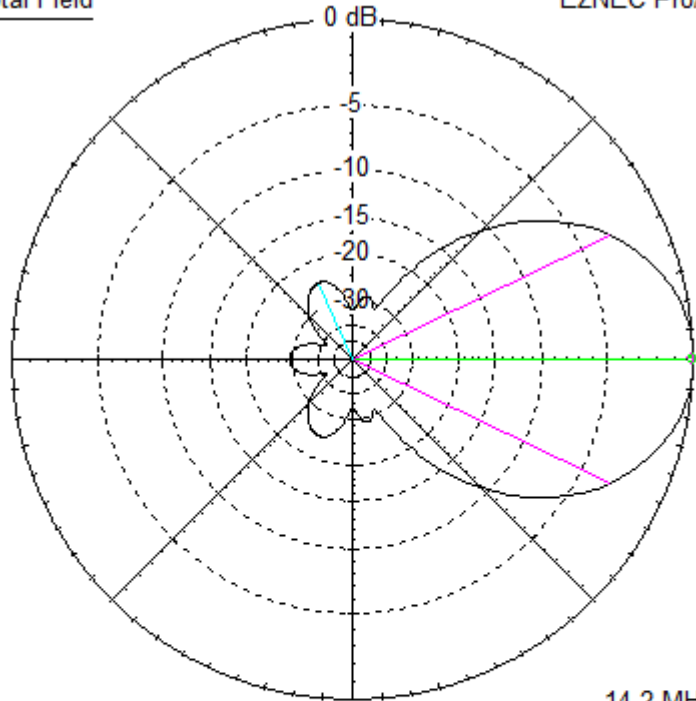
Current distribution, height 24m, 14200kHz



Height 24m, 14200kHz

Total Field

EZNEC Pro/4



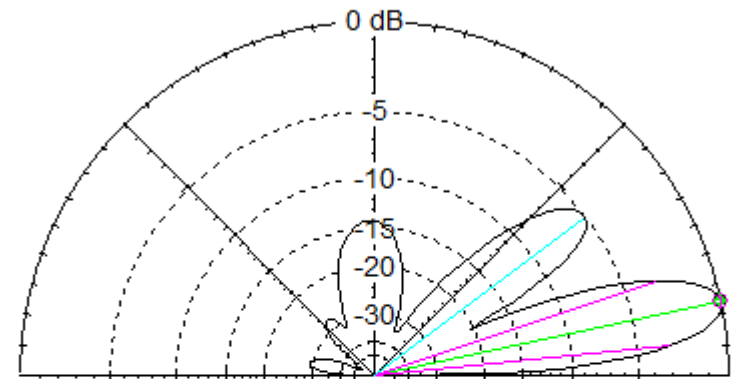
14.2 MHz

Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	12.0 deg.	Gain	15.84 dBi
Outer Ring	15.84 dBi		0.0 dBmax

Slice Max Gain	15.84 dBi @ Az Angle = 0.0 deg.
Front/Back	28.99 dB
Beamwidth	51.0 deg.; -3dB @ 334.5, 25.5 deg.
Sidelobe Gain	-8.3 dBi @ Az Angle = 114.0 deg.
Front/Sidelobe	24.14 dB

Total Field

EZNEC Pro/4



14.2 MHz

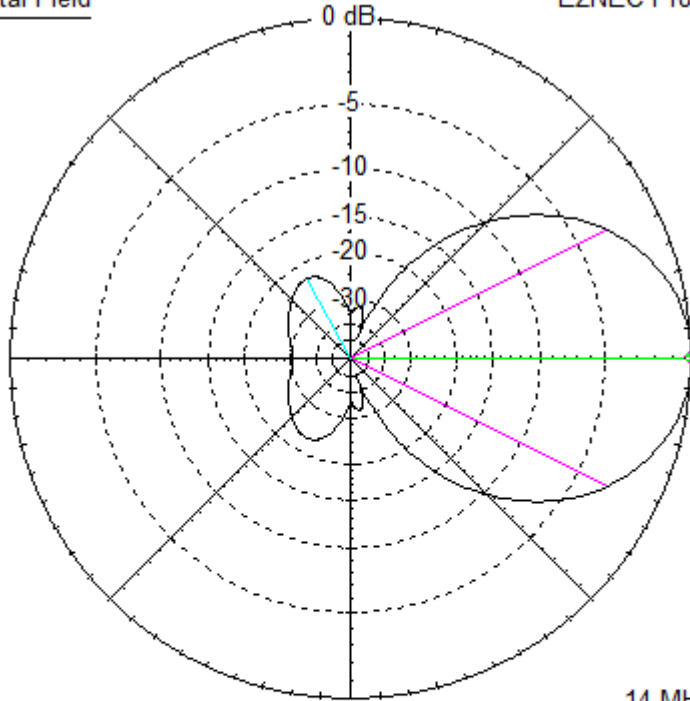
Elevation Plot		Cursor Elev	12.0 deg.
Azimuth Angle	0.0 deg.	Gain	15.84 dBi
Outer Ring	15.84 dBi		0.0 dBmax

Slice Max Gain	15.84 dBi @ Elev Angle = 12.0 deg.
Beamwidth	12.5 deg.; -3dB @ 5.8, 18.3 deg.
Sidelobe Gain	10.71 dBi @ Elev Angle = 37.0 deg.
Front/Sidelobe	5.13 dB

Height 24m, band ends, TOA 11.8deg

Total Field

EZNEC Pro/4

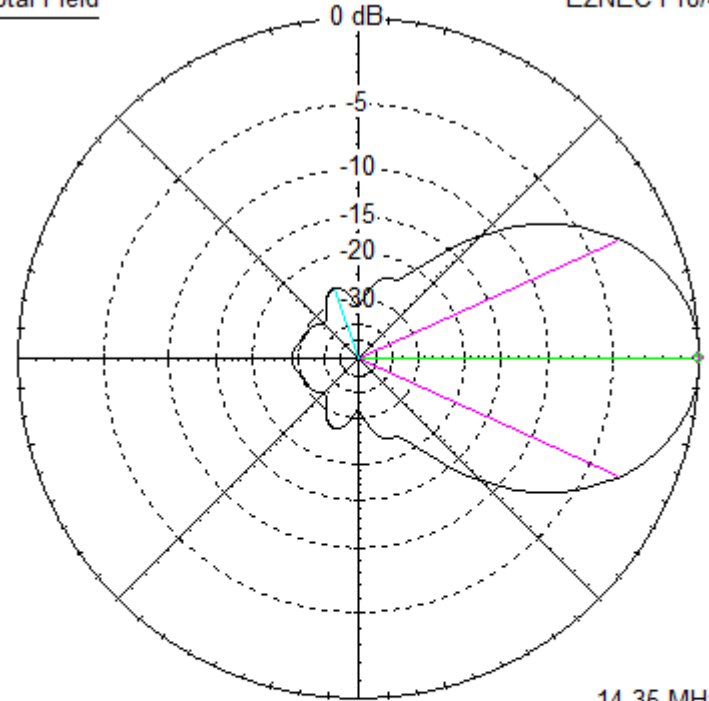


14 MHz

Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	12.0 deg.	Gain	15.53 dBi
Outer Ring	15.53 dBi		0.0 dBmax
Slice Max Gain	15.53 dBi @ Az Angle = 0.0 deg.		
Front/Back	30.57 dB		
Beamwidth	53.0 deg.; -3dB @ 333.5, 26.5 deg.		
Sidelobe Gain	-7.24 dBi @ Az Angle = 119.0 deg.		
Front/Sidelobe	22.77 dB		

Total Field

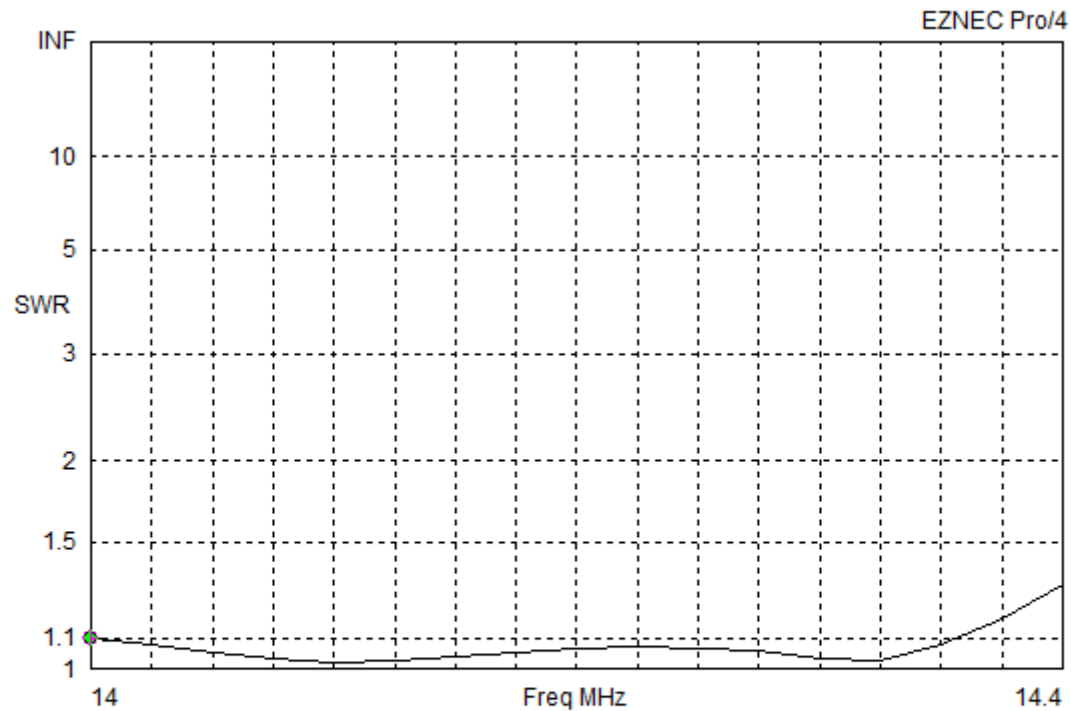
EZNEC Pro/4



14.35 MHz

Azimuth Plot		Cursor Az	0.0 deg.
Elevation Angle	12.0 deg.	Gain	15.97 dBi
Outer Ring	15.97 dBi		0.0 dBmax
Slice Max Gain	15.97 dBi @ Az Angle = 0.0 deg.		
Front/Back	28.02 dB		
Beamwidth	49.0 deg.; -3dB @ 335.5, 24.5 deg.		
Sidelobe Gain	-10.28 dBi @ Az Angle = 109.0 deg.		
Front/Sidelobe	26.25 dB		

SWR, antenna height 24m



Freq 14 MHz
SWR 1.1
Z 49.33 at -5.54 deg.
= 49.1 - j 4.767 ohms
Refl Coeff 0.04889 at -97.94 deg.
= -0.006752 - j 0.04842
Ret Loss 26.2 dB

Source # 1
Z0 50 ohms

Dimensions, net lengths in mm

Element	Position	Dia 30	Dia 25	Dia 19	Dia 15	Dia 12	Total	Total corrected
Reflector	0	1000	1000	1000	1000	1590	5590	5610
Driven	3330	1000	1000	1000	1000	1340	5340	5360
1. director	5280	1000	1000	1000	1000	1030	5030	5050
2. director	10560	1000	1000	1000	1000	1025	5025	5045
3. director	15840	1000	1000	1000	1000	870	4870	4890

Total dimensions are from boom center-line

Center insulator in the first 3 elements is included in these dimensions

Positions on the boom are from the reflector

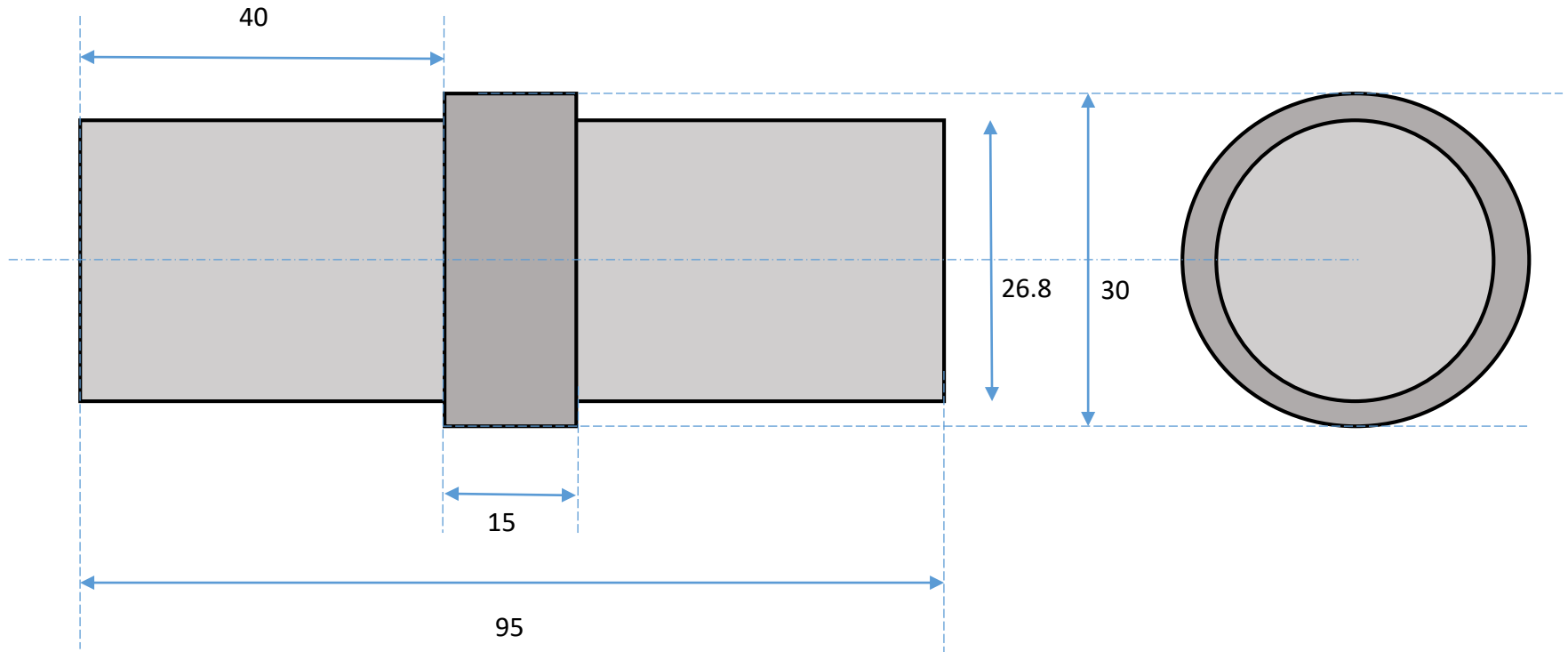
Tubes are overlapping abt 100mm, when telescoping. That dimension is not included above.

All elements are isolated, Stauff clamps are used

Because of boom influence, 20mm was added (dia 12mm tube) to the modeled dimensions.
Corrected dimension in red above.

Element center isolator for 30mm tube

3 pcs needed

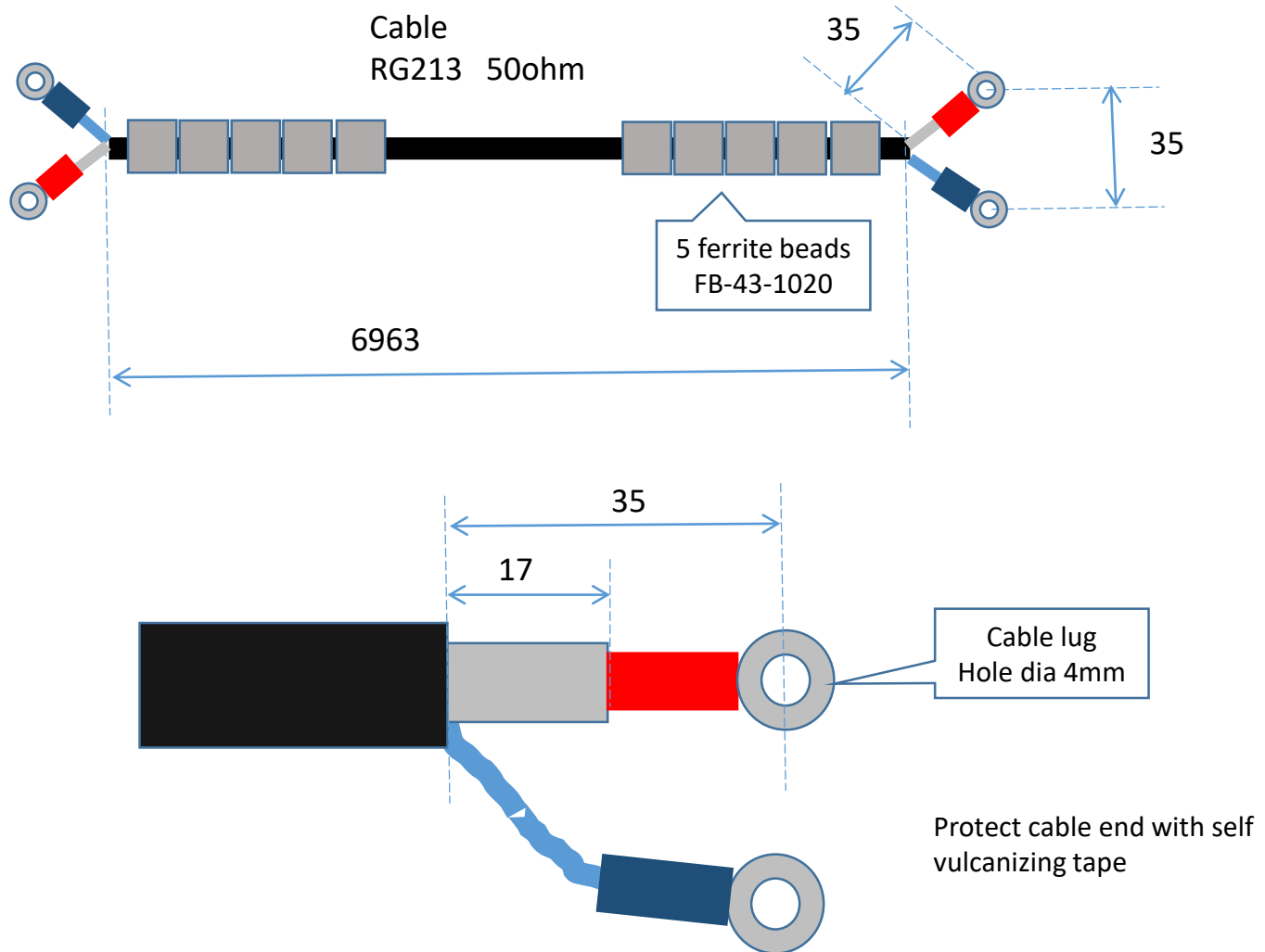


Material dia 30mm POM

Power transfer D1 -> R

- Coil at D1 feedpoint, 180nH
 - Inductance 180nH
 - Material dia 2mm copper wire
 - Cable lugs for 4mm screws to both ends
 - Distance from screw to screw center 260mm
- Transfer cable is 6963mm long, RG213
 - On the cable 5pcs FB43-1020 Amidon ferrites at both ends
 - The cable shall be installed so that polarity is inverted
 - See drawing on next page

Power transfer cable D1 --> R





Manufactured and assembled by OH1XFE. Ready for testing phase



9.12.2018

OH1TV

15



Installation to its final
position, up 24m.
OH1ND in the tower.



The happy team from left: OH1EBL, OH1LR, OH1NPW, OH1XFE, OH1TV, OH1WR, OH1LEG, OH1KW, OH1ND still in the tower.