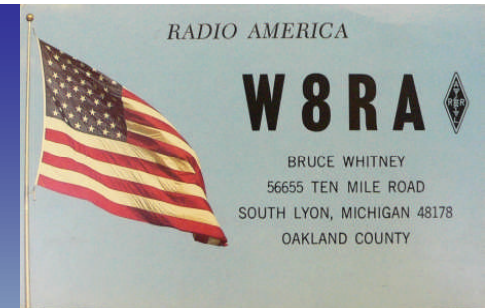


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160 M Shunt Fed Tower

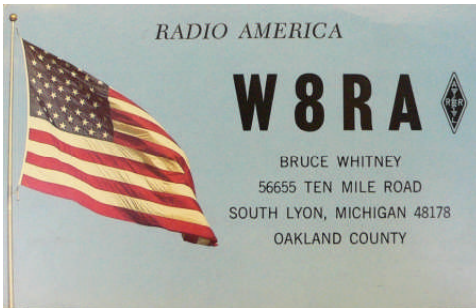


160 Meters

130 foot free standing tower
shunt fed with Omega Match

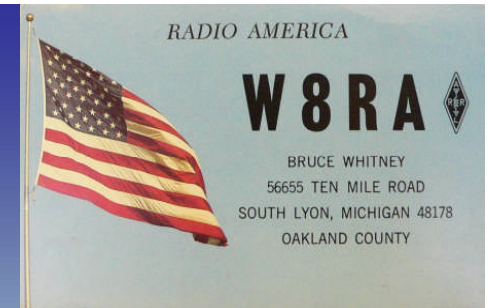
Bruce Whitney

W8RA April 2010



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160 M Shunt Fed Tower



Tower:

- 100 ft 'utility' lattice transmission tower un-guyed (12,000 pounds mild steel)
- Mast 30 ft street lighting pole 8 5/8" diam.
- Antenna - SteppIR/MonstIR at 130 feet

Feeder

- Cage feeder - 12 1/2" diam., 8 wire cage bolted to tower at 82 feet, spaced @ 31"

Match

- Omega Match (shunt-series)
- Remote control - motor operated tuning

Radials

- 64, 1/4 wave radials pushed down in slits cut in sod

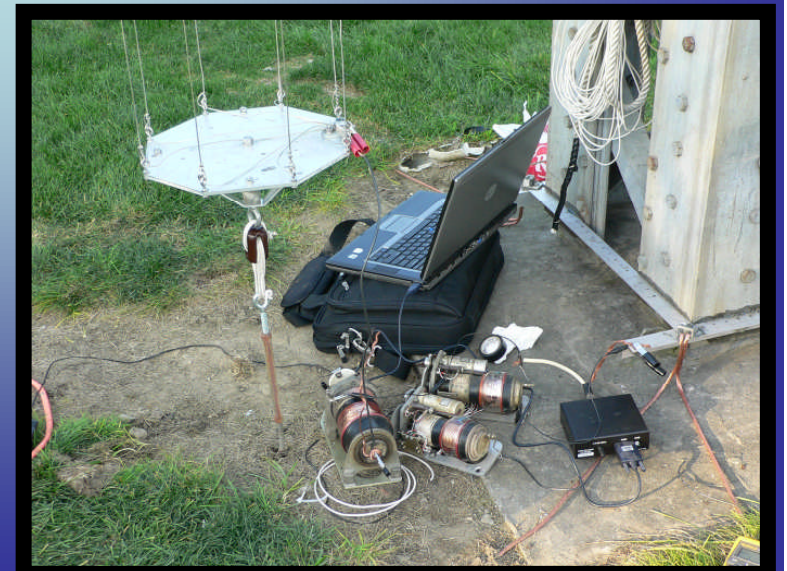


RADIO AMERICA
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BRUCE WHITNEY
56655 TEN MILE ROAD
SOUTH LYON, MICHIGAN 48178
OAKLAND COUNTY

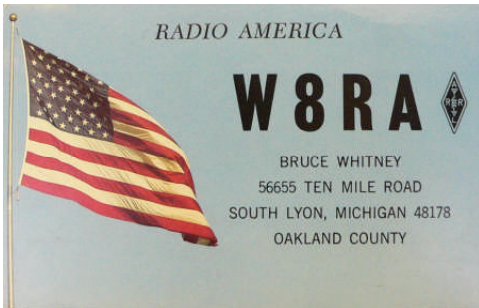
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160 M Shunt Fed Tower

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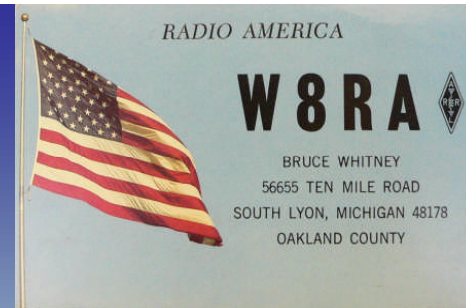


Construction and Tuning:
Tap Height and spacing
adjustable

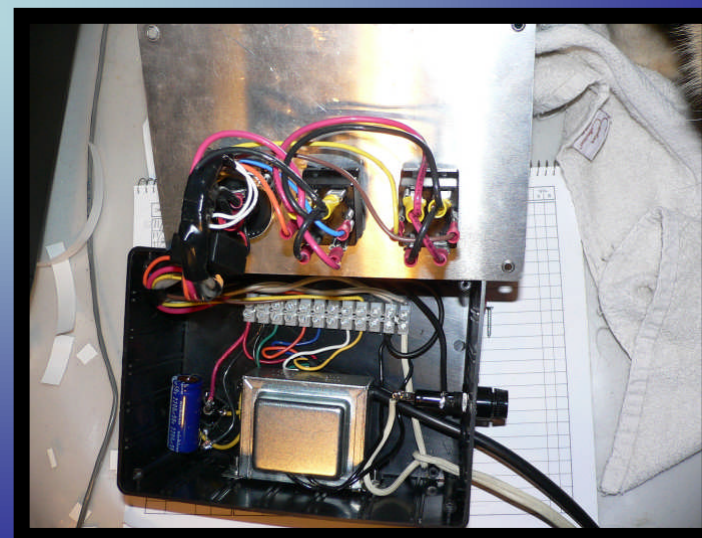


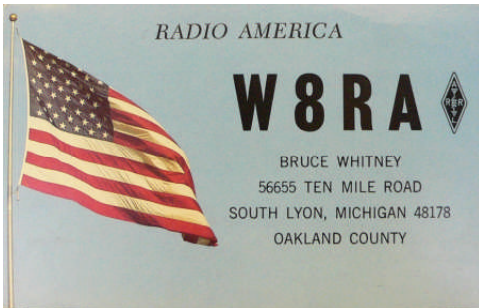
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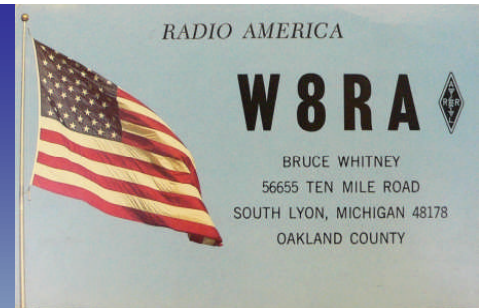
Remote Control
24V DC for cap
motors





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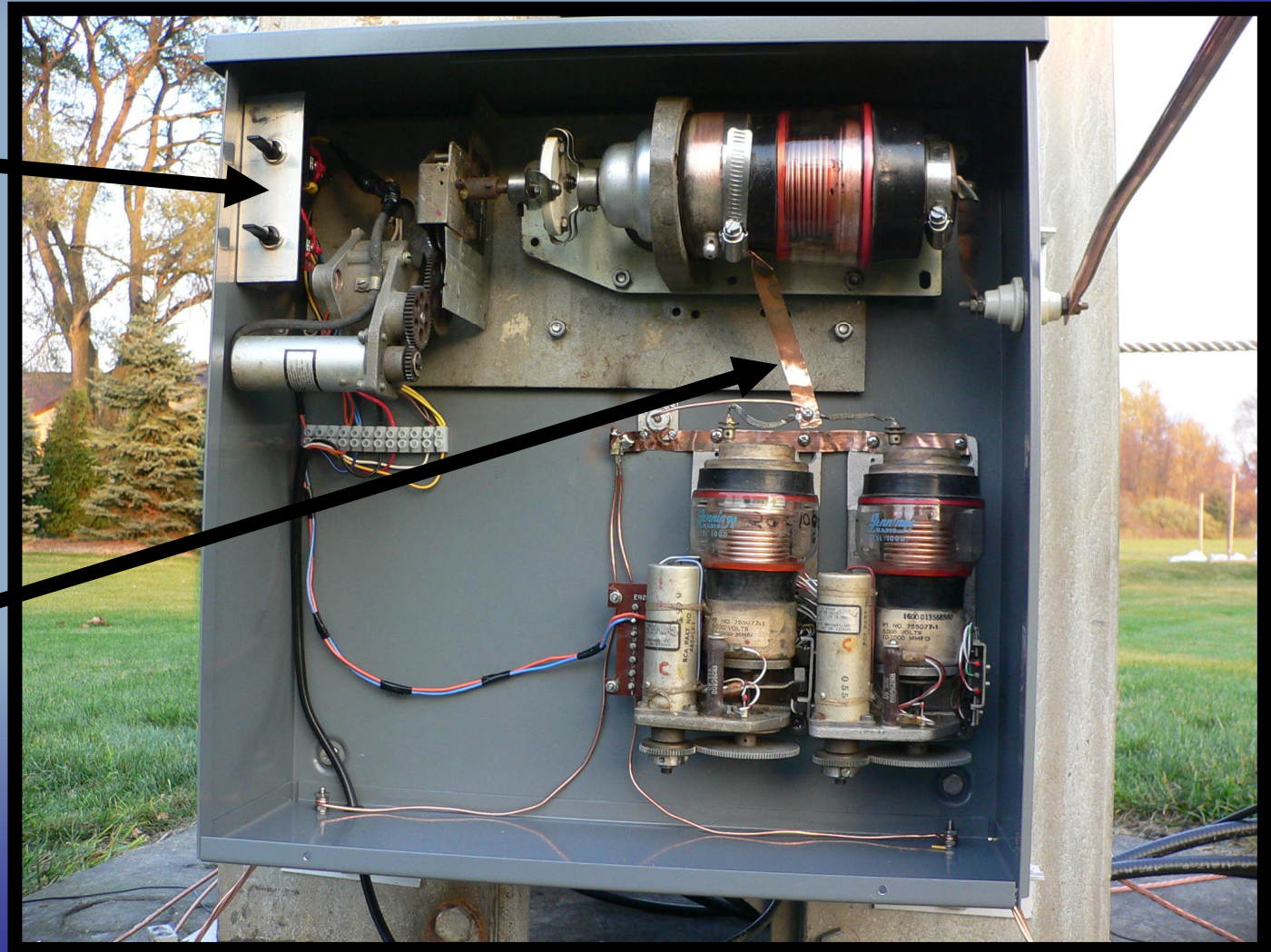
160 M Shunt Fed Tower

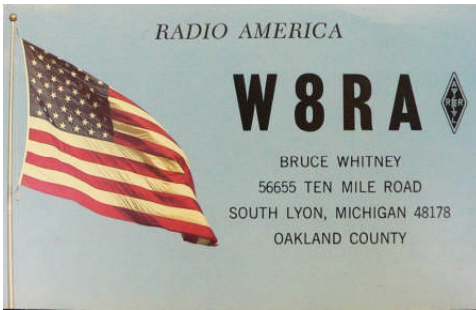


Omega Match

Motor operated for both local and remote tuning

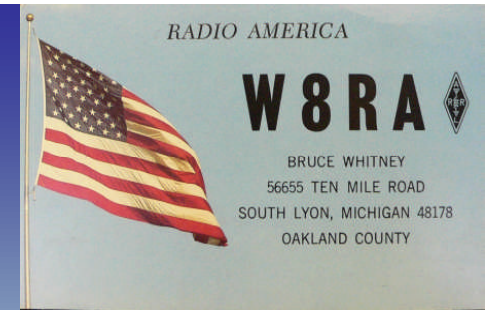
Connected as shunt-series rather than series-shunt





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160 M Shunt Fed Tower



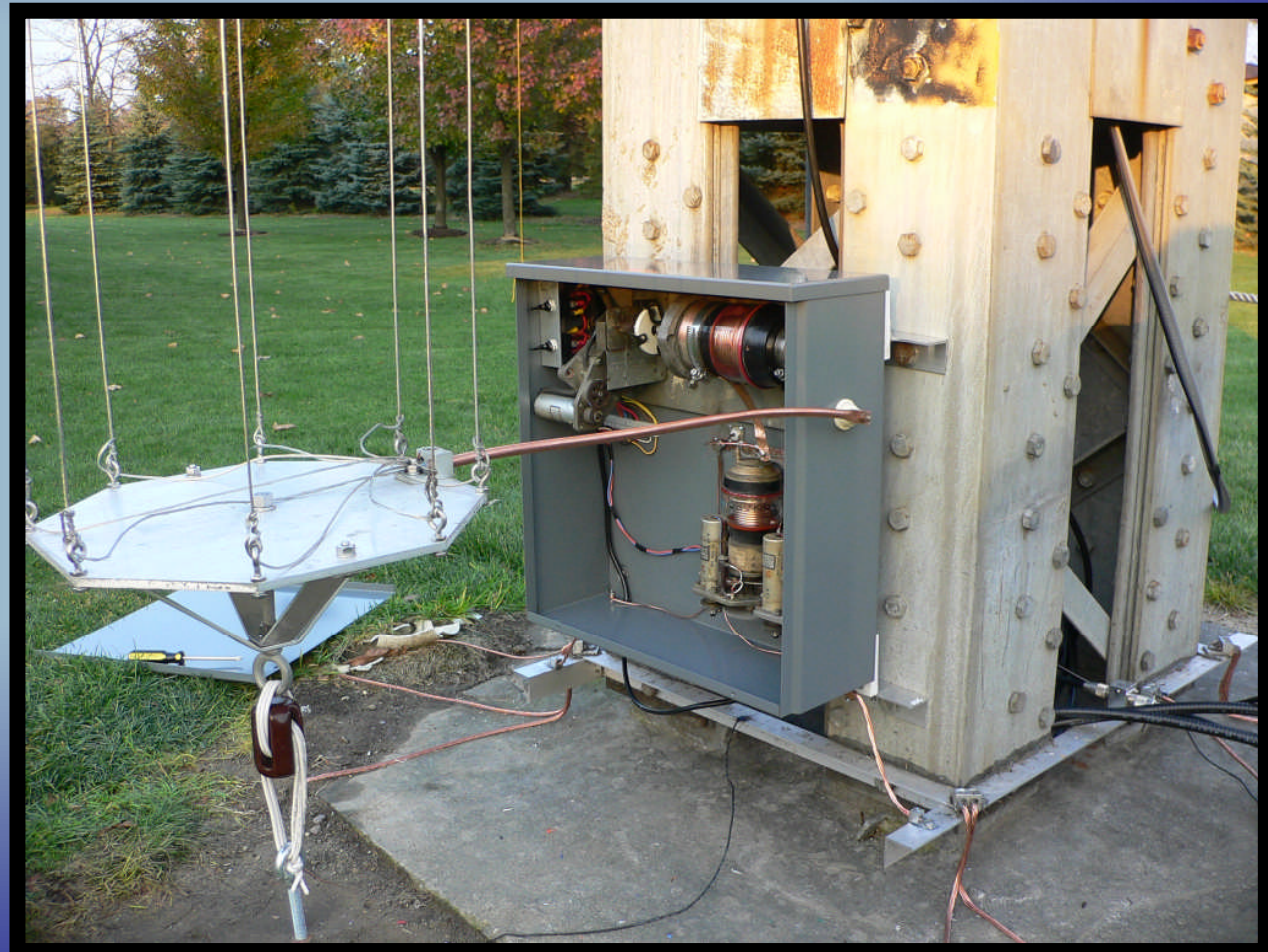
Omega Match

Connected to 8
wire cage

Single point
grounding to tower

Picture taken
before radials

Tower grounded to
8, ten foot $\frac{3}{4}$ " diam.
rods, exothermic
welded to 4 gauge
stranded copper



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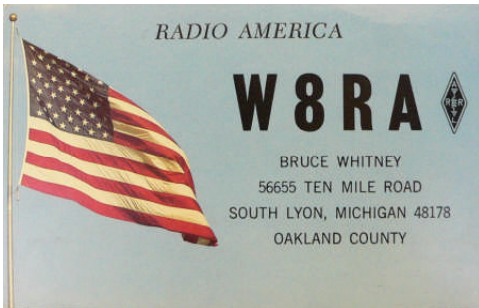
RADIO AMERICA



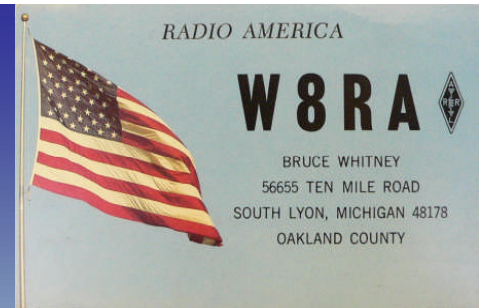
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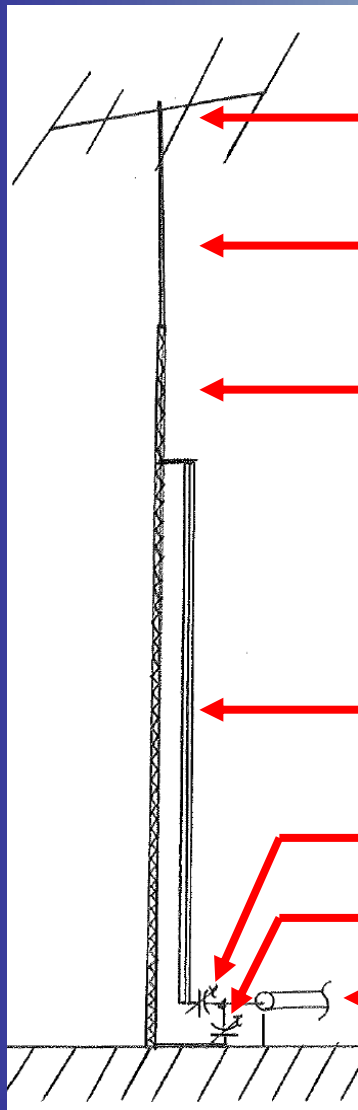




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160 M Shunt Fed Tower



SteppIR MonstIR 36 ft boom
3 full size 40M elements (retracted)

Mast 30 ft tall
8 5/8" diam base, 4" @ top

Tower 100 ft tall
2'x2' base, 1'x1' @ top

8 Wire Cage
82 ft tall, 12 1/2" diam.
31" spacing center to tower

C Series

C Shunt

50 Ohm Coax to Shack

Equivalent Circuit

Measured at bottom of cage feeder (AIM 4170)

1.80 MHz: $R=40.1$ $X=261.8$

1.85 MHz: $R=40.7$ $X=285.2$

Network Design Software

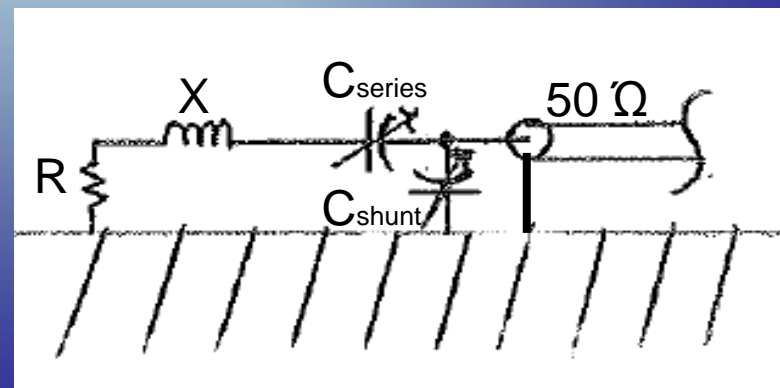
L Net matching calculations:

1.80 MHz: $C_{shunt}=884.2pF$ $C_{series}=365.4pF$

1.85 MHz: $C_{shunt}=806.1pF$ $C_{series}=323.7pF$

Caps measured after tuning for min SWR:

$C_{shunt}=654pF$ $C_{series}=338pF$



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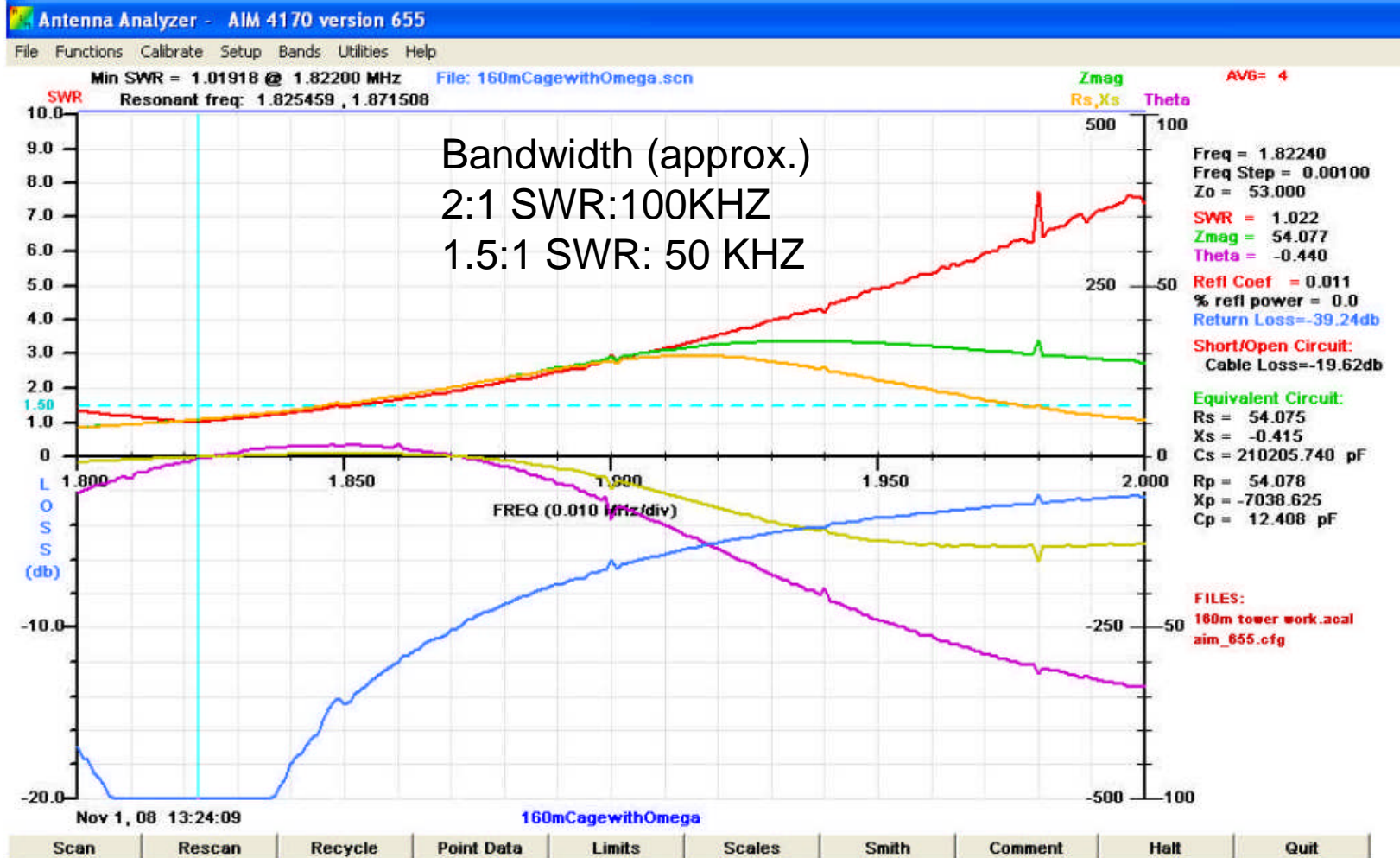
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