

Improvised Antennas for Emergency Operations



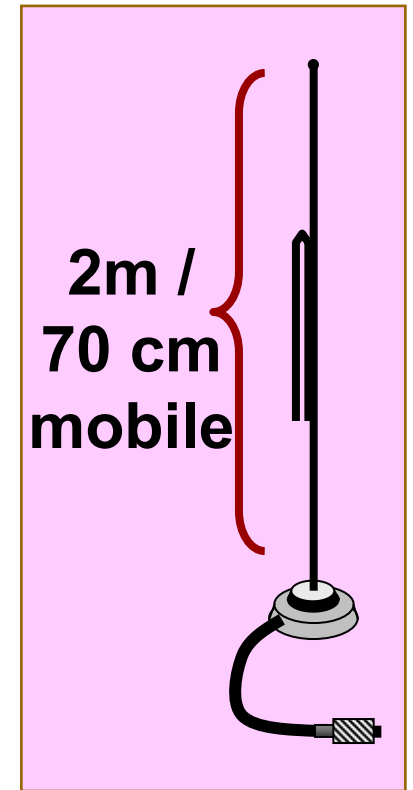
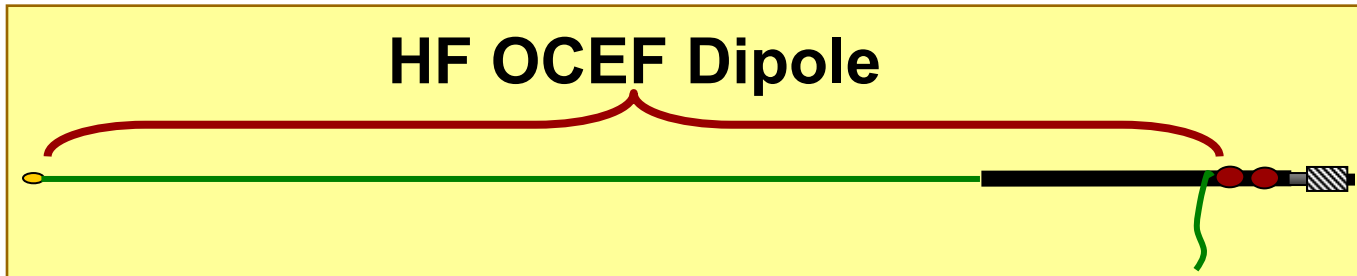
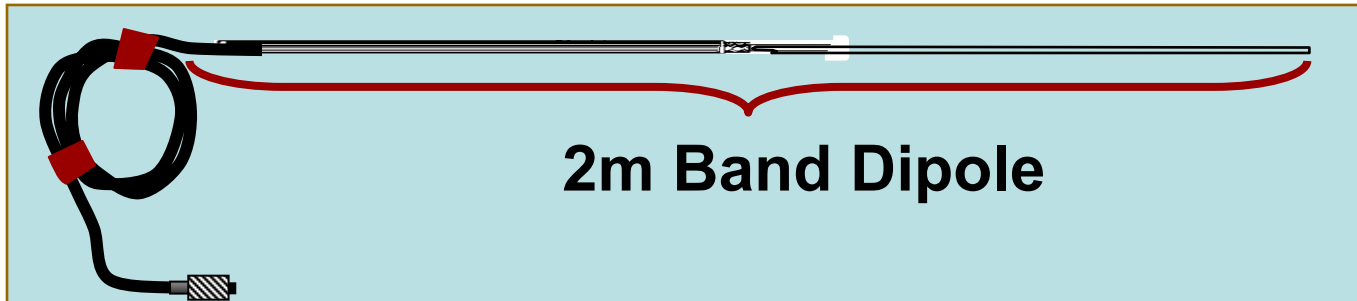
Kai Siwiak, KE4PT

15 July 2014



July 15, 7:30 PM, Broward Health, Oak Room, Ft. Lauderdale, FL

Ad Hoc HF and V/UHF Antennas



HF Design Goals

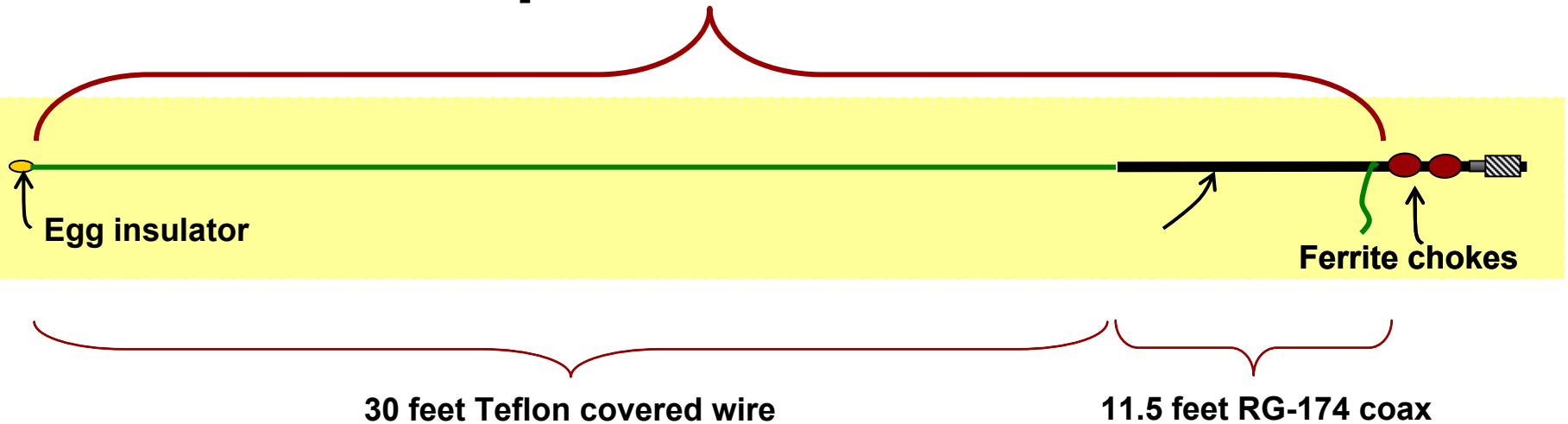
- Intended for ad-hoc portable operation
- Useable 7 to 54 MHz
- Mounting not critical:
 - drooped it
 - draped it
 - stretched it
- Lightweight and compact

OCEF (Off-Center-End-Fed) Dipole

- Constructed from thin coax
 - RG-174 preferred, but RG-58 is ok
 - Can also use 75 Ω CATV cable
- Use with automatic tuner (tested with Elecraft T1)
 - good matching from 7 – 54 MHz
 - limited performance down to 3.5 MHz
- Support
 - hang by egg-insulator end, or
 - “drooped” over a fiberglass tent pole, or bushes

OCEF (Off-Center-End-Fed) Dipole

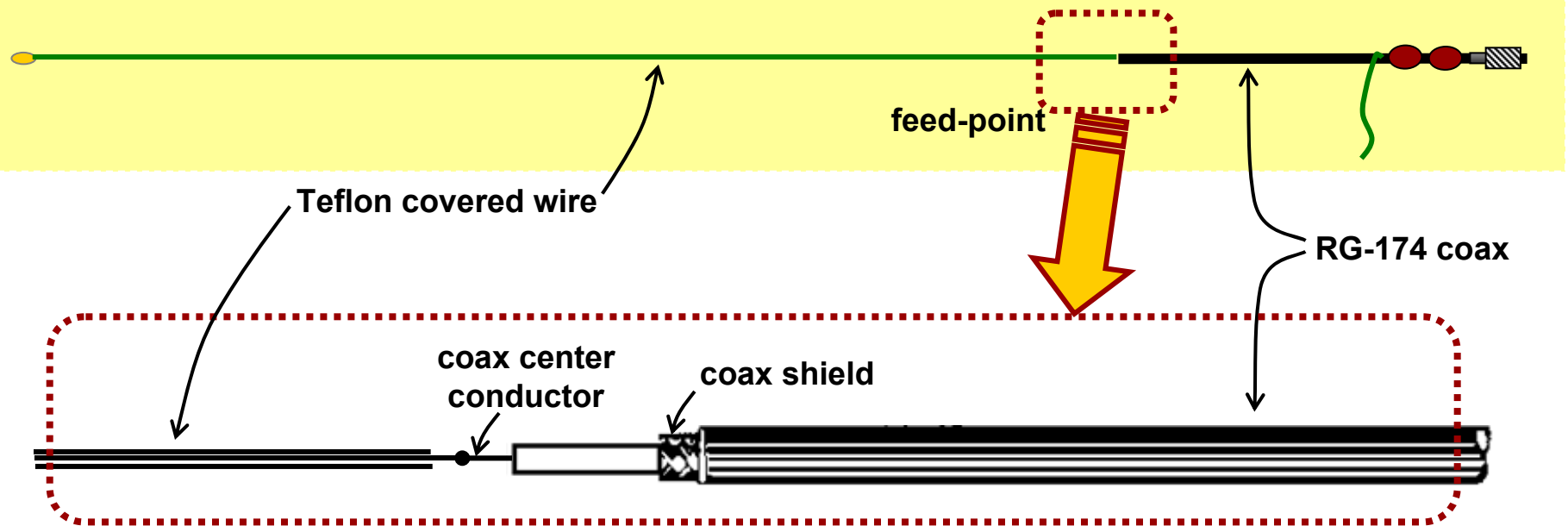
This portion radiates



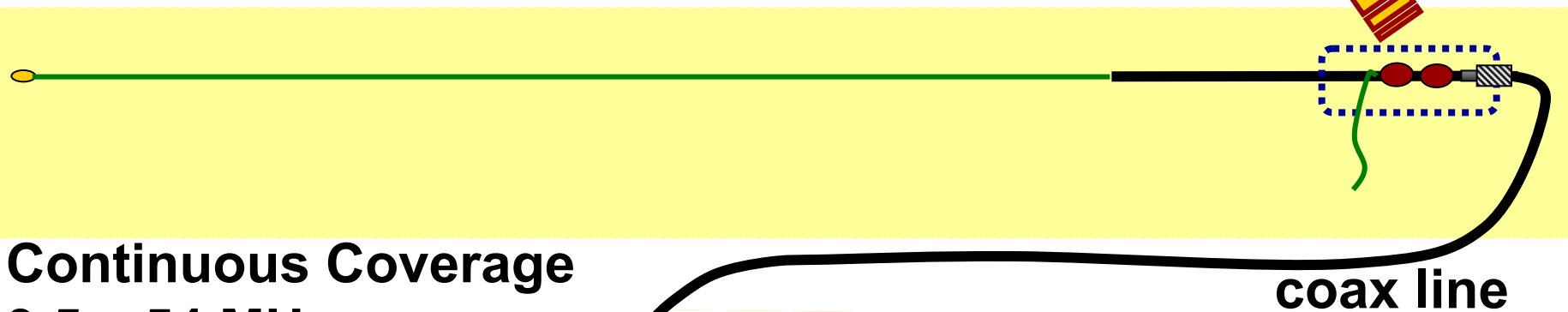
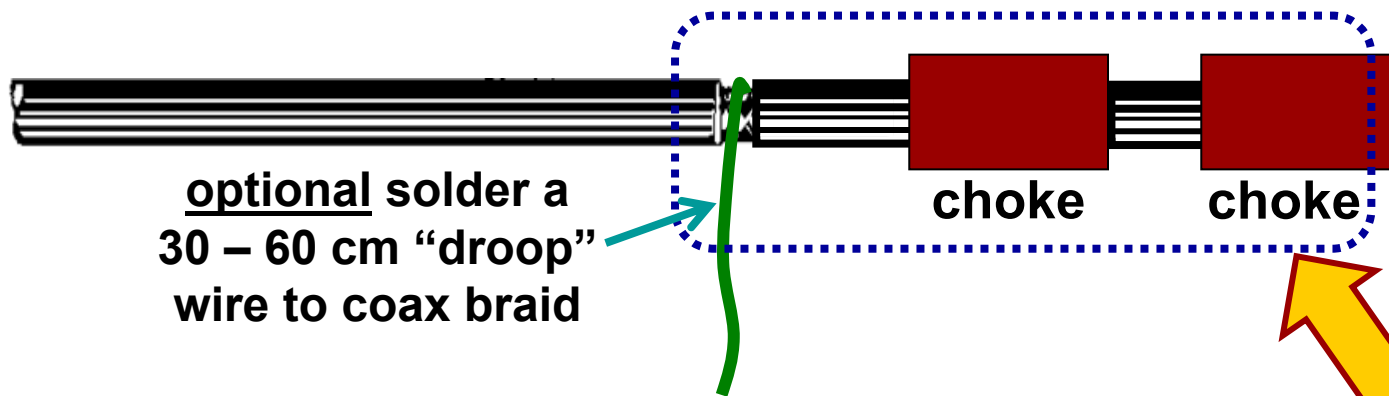
Neither dipole leg can be a multiple of a half wavelength

OCEF (Off-Center-End-Fed) Dipole

Feed-point detail



OCEF (Off-Center-End-Fed) Dipole



**Continuous Coverage
3.5 – 54 MHz**



DX-go-bag: All Bands – All modes

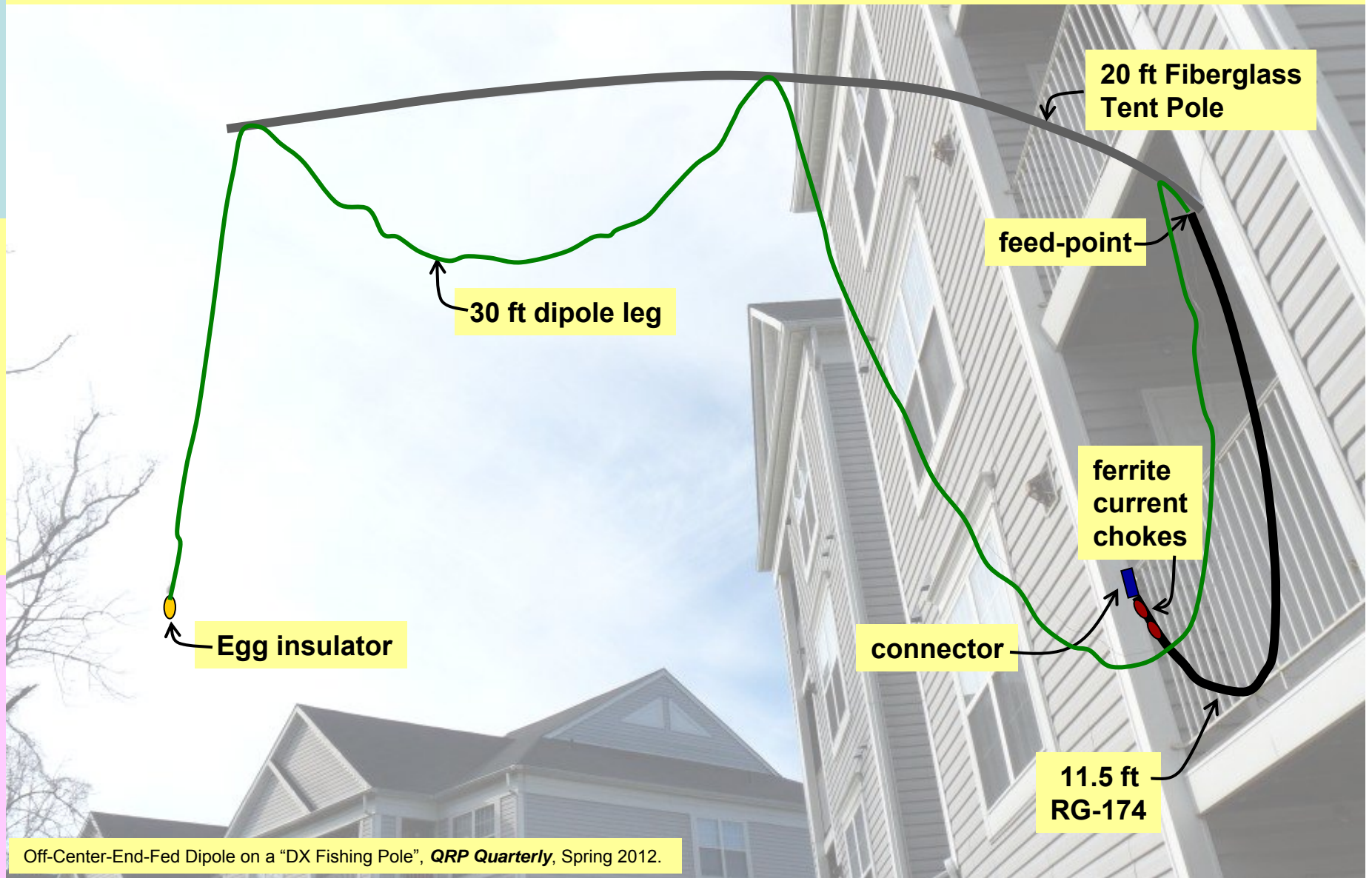


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8

Drop over a Fiberglass Tent Pole



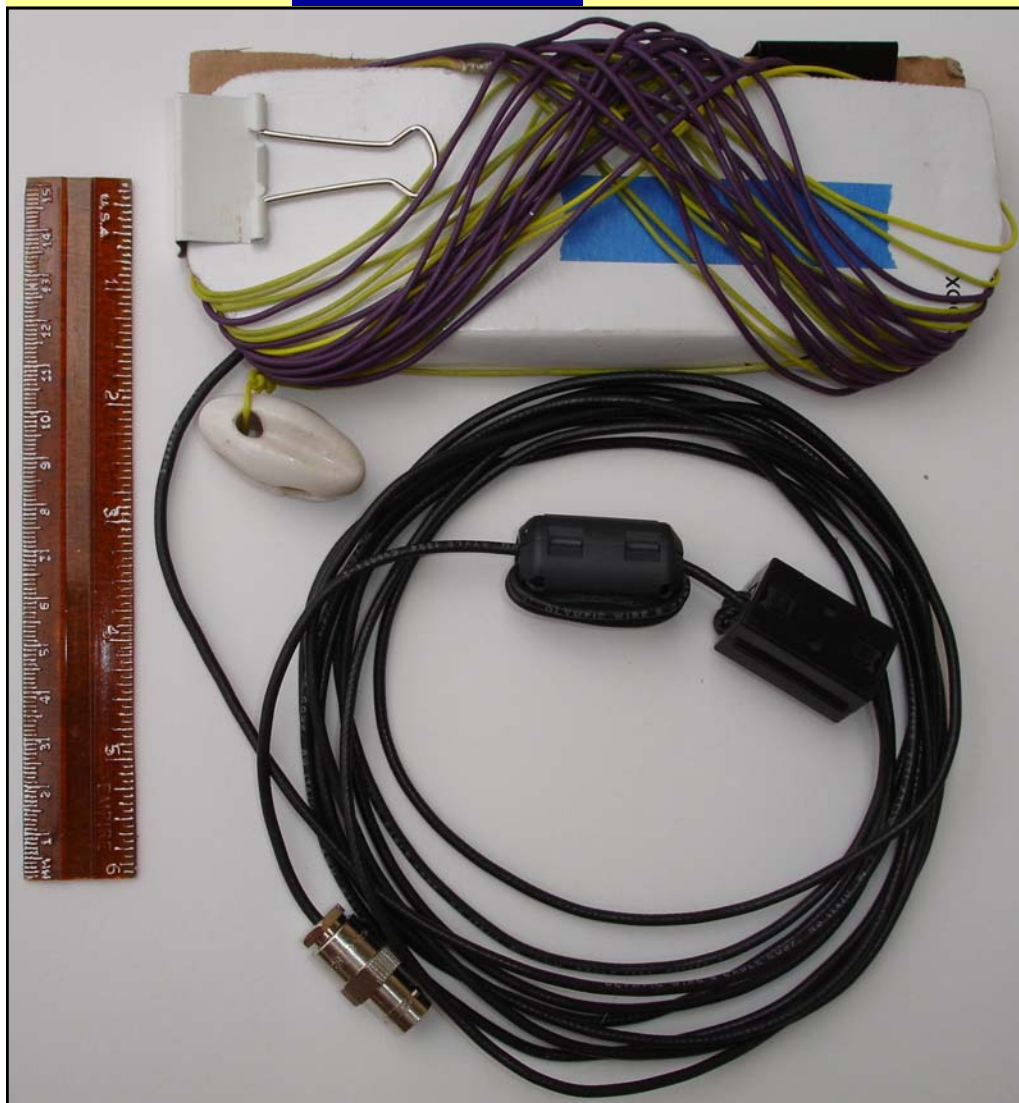
Off-Center-End-Fed Dipole on a "DX Fishing Pole", *QRP Quarterly*, Spring 2012.

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9

OCEF Dipole: rolled and stowed



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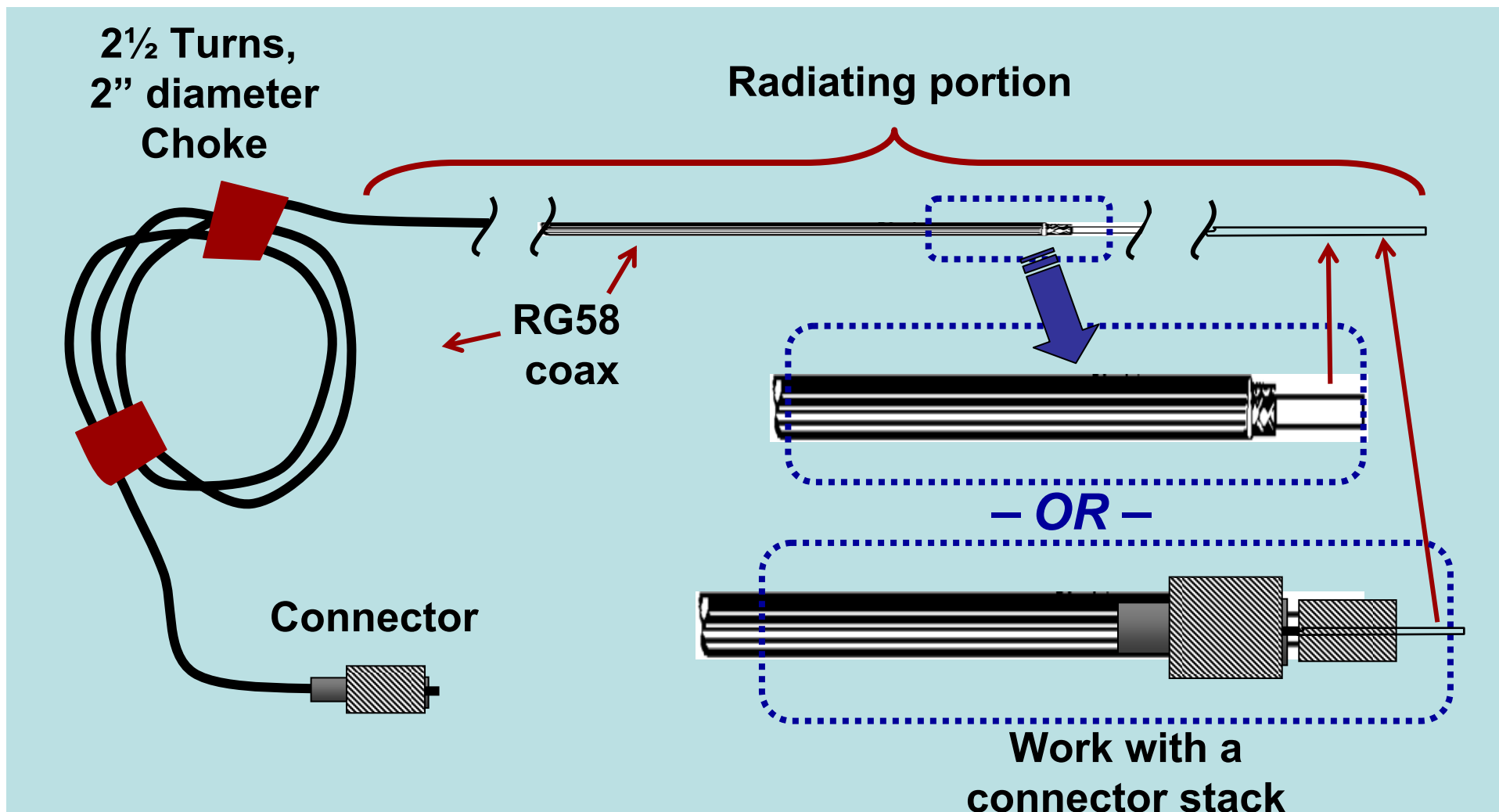
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10

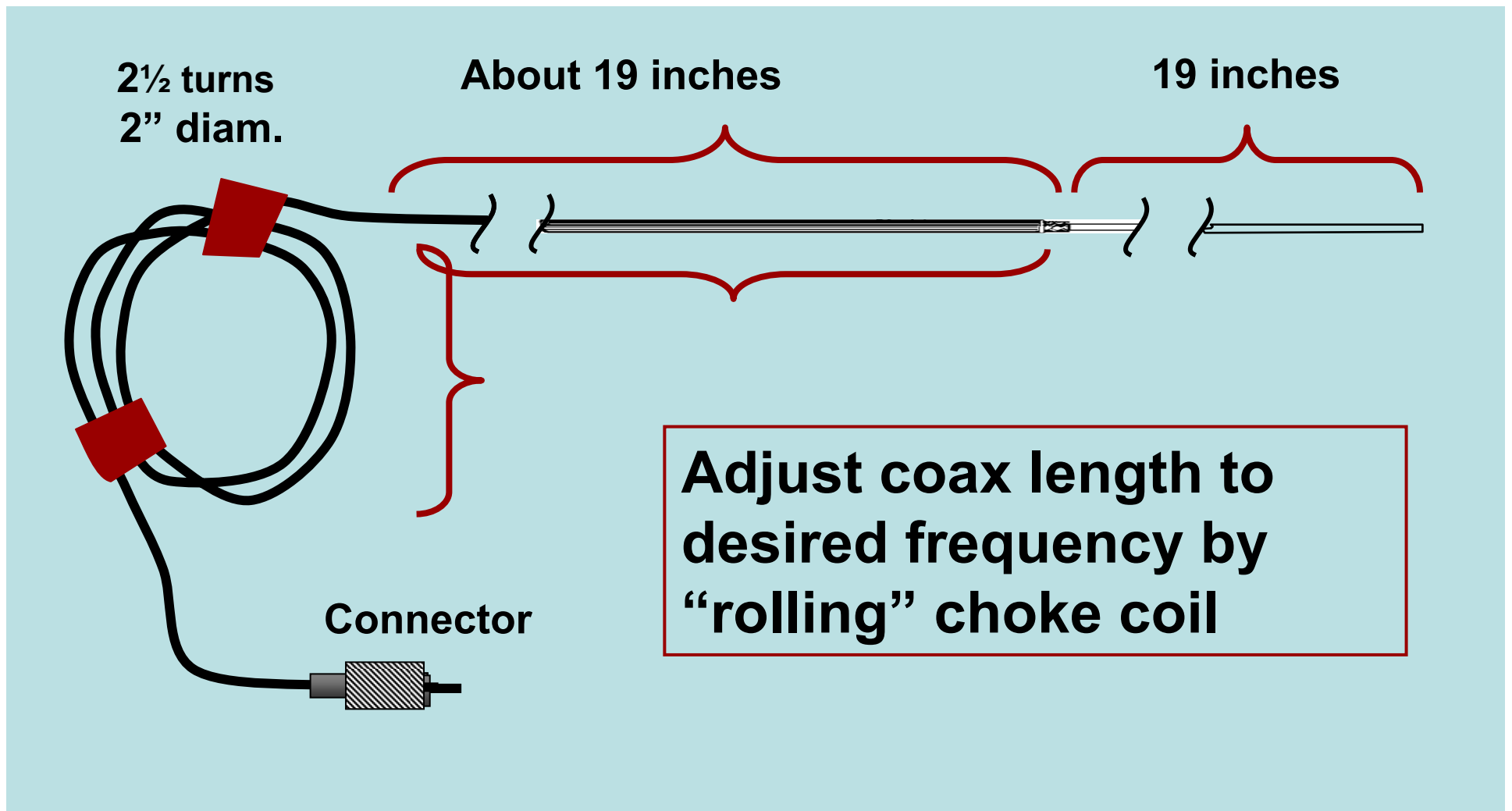
VHF Antenna Design Goals

- For ad-hoc / emergency operation
- Made from coax scrap
- Mounting not critical:
 - drooped it
 - drape it
 - stretched it
- Tune it to the 2 m band

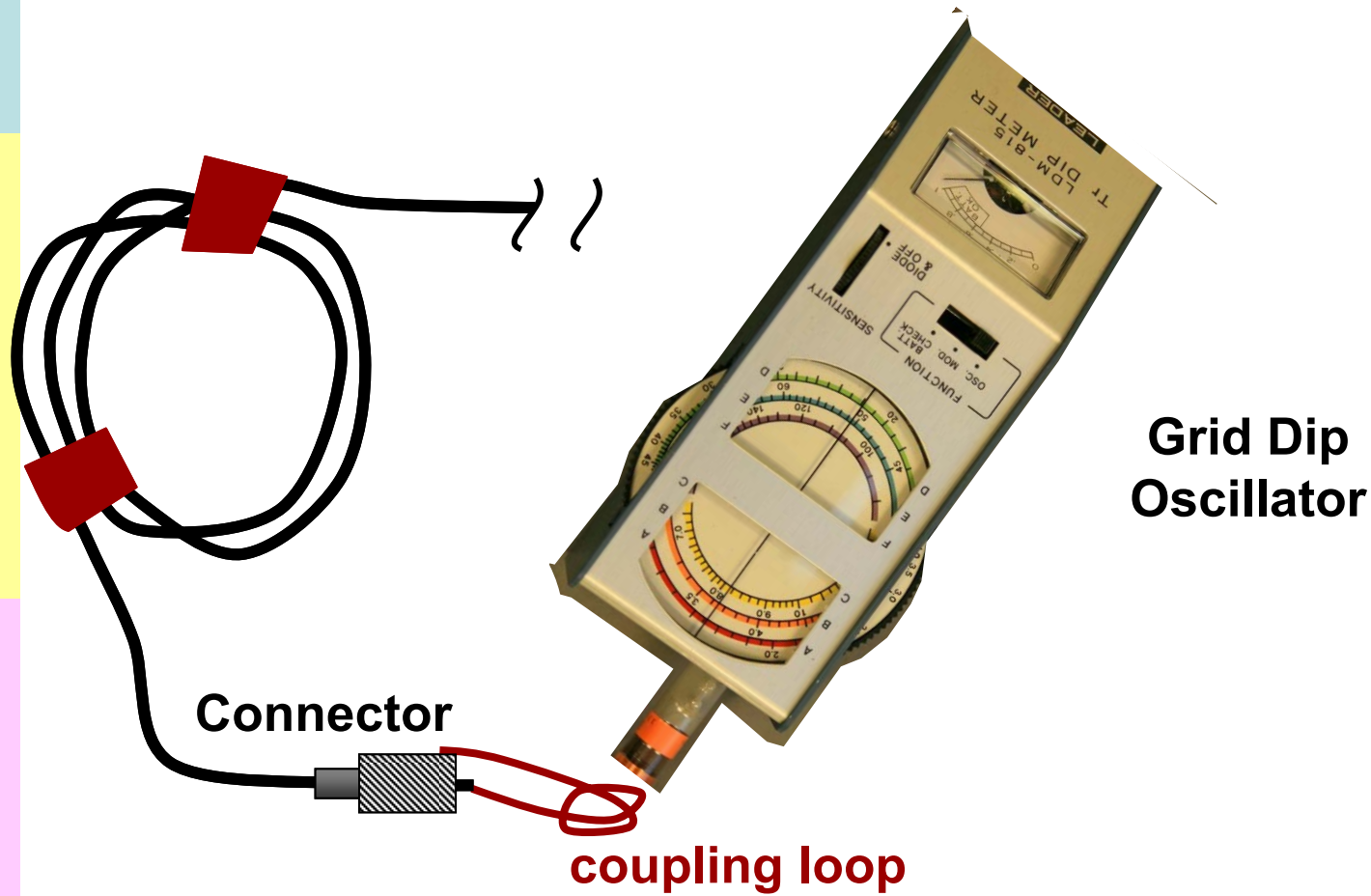
Ad Hoc VHF Antenna



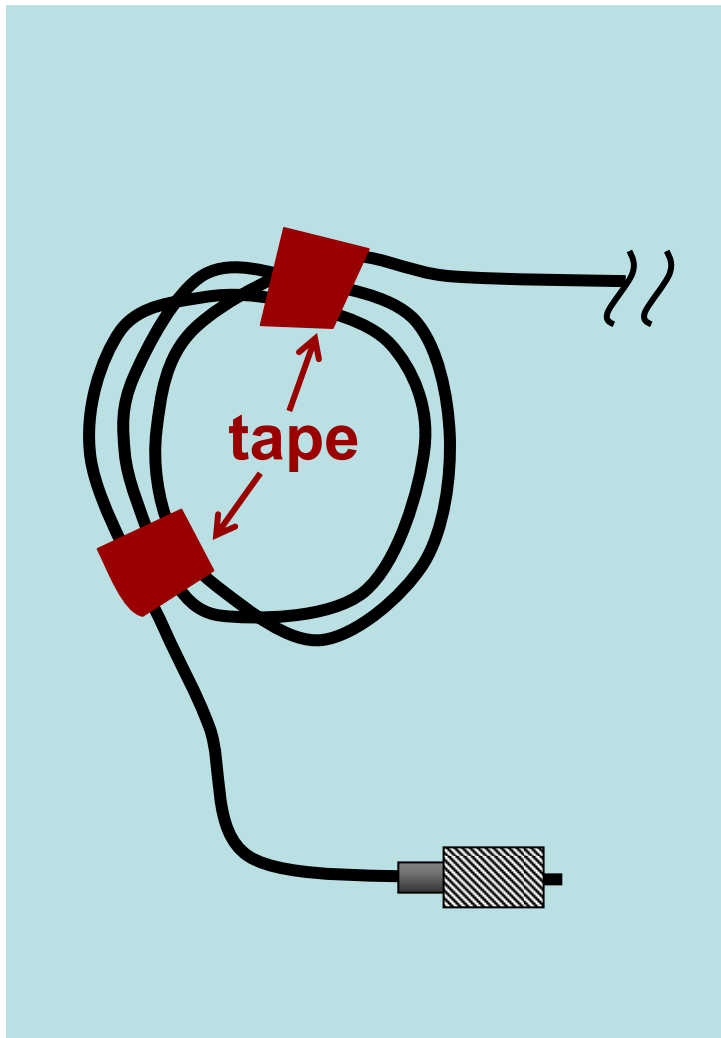
Ad Hoc VHF Antenna



Tuning an Antenna

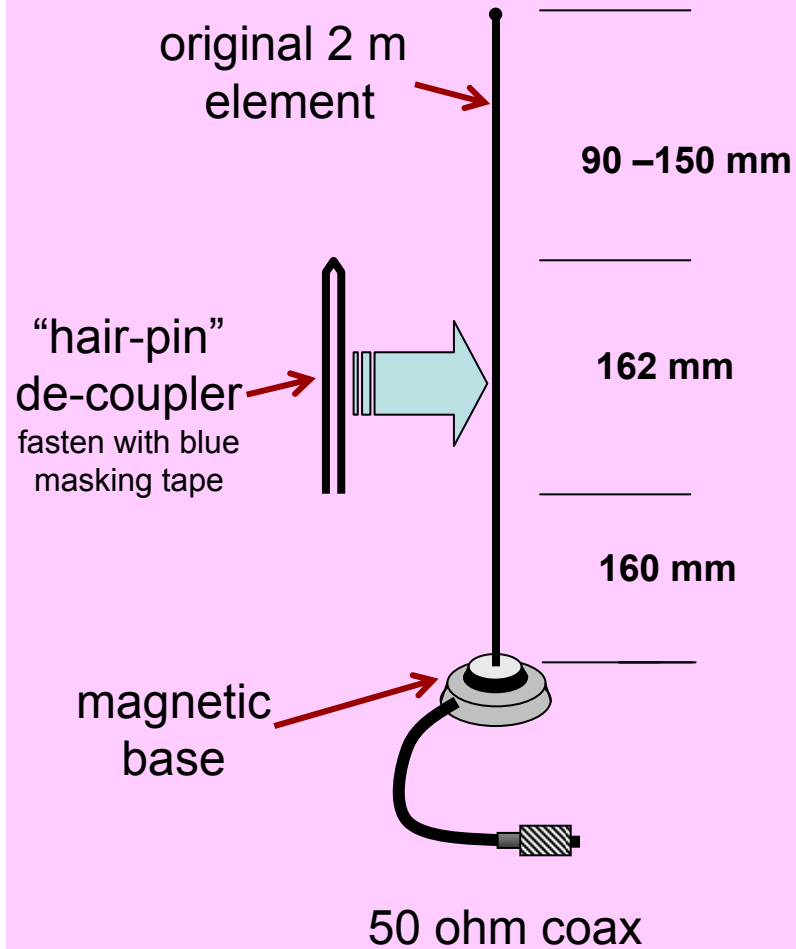


Tuning the VHF Antenna



- You can use:
 - a Grid Dip Oscillator
 - an Antenna Analyzer
 - a VSWR meter + radio
 - a Directional Power Meter
- Then **tape the coil bundle**
- Hang antenna as needed

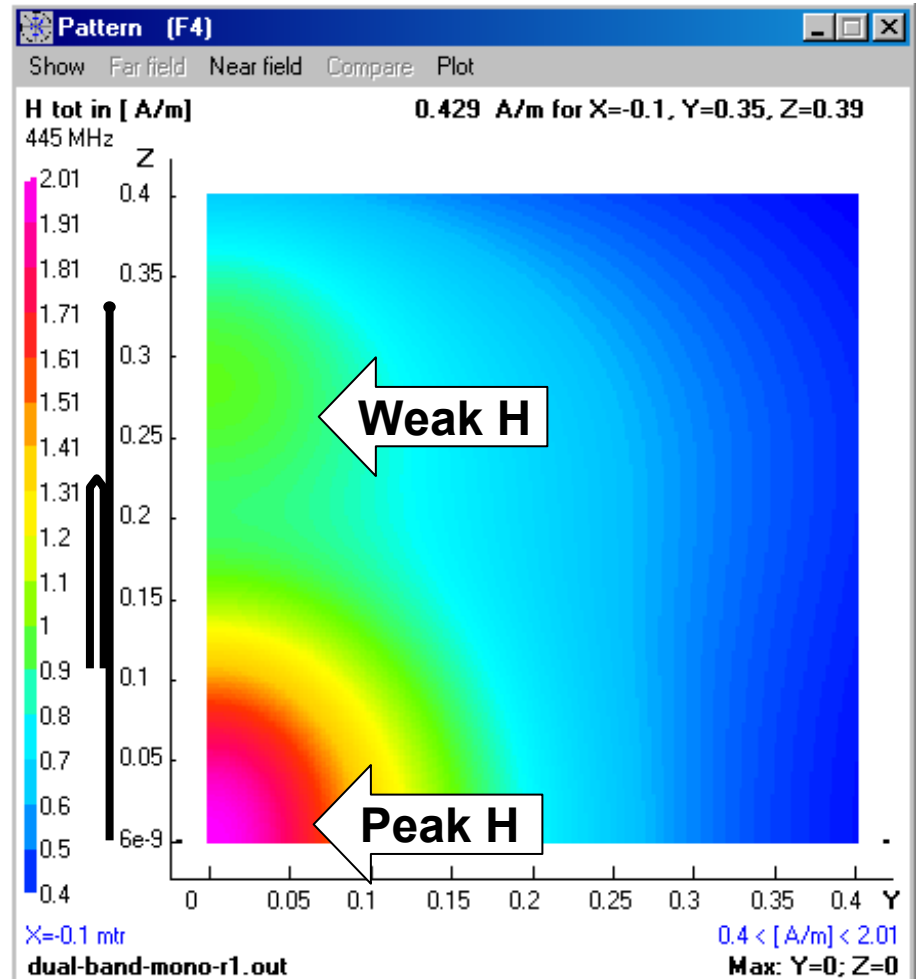
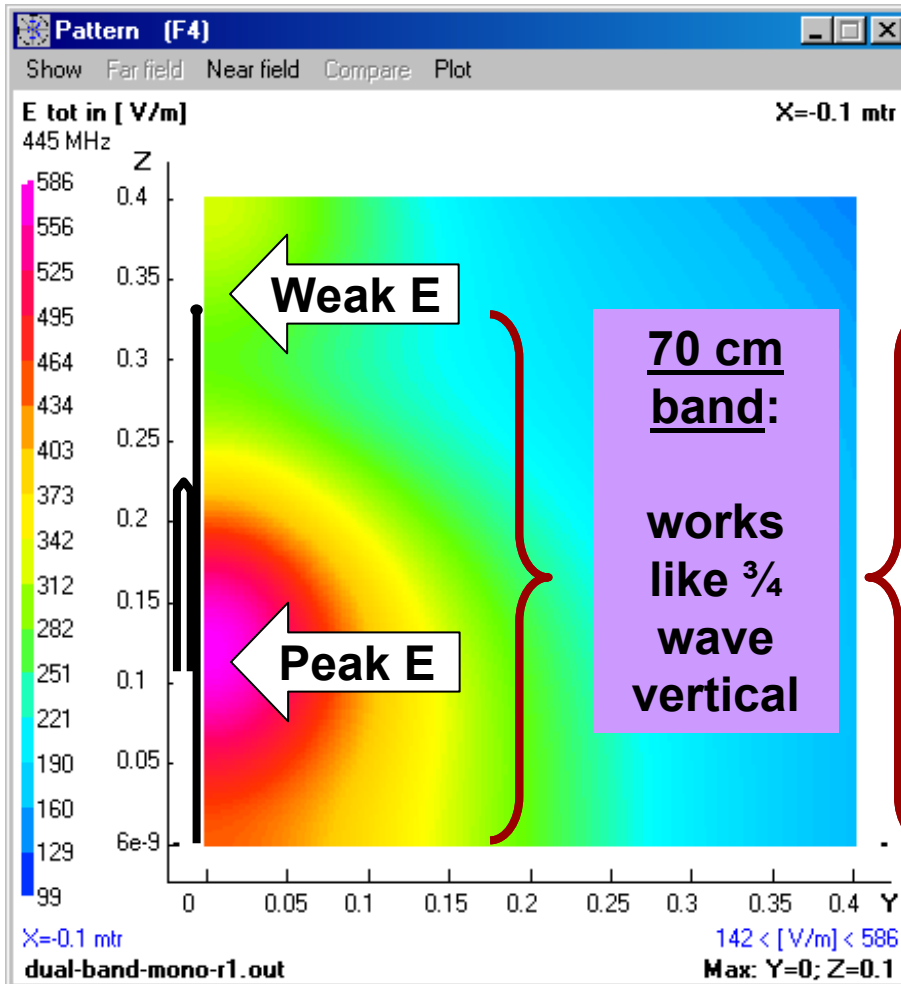
Modify 2 m whip to add 70 cm



K. Siwiak, KE4PT, "Add 70 cm to a 2 m whip with a coat hanger," Hints & Kinks, *QST*, Jul 2010 pp 59-60.

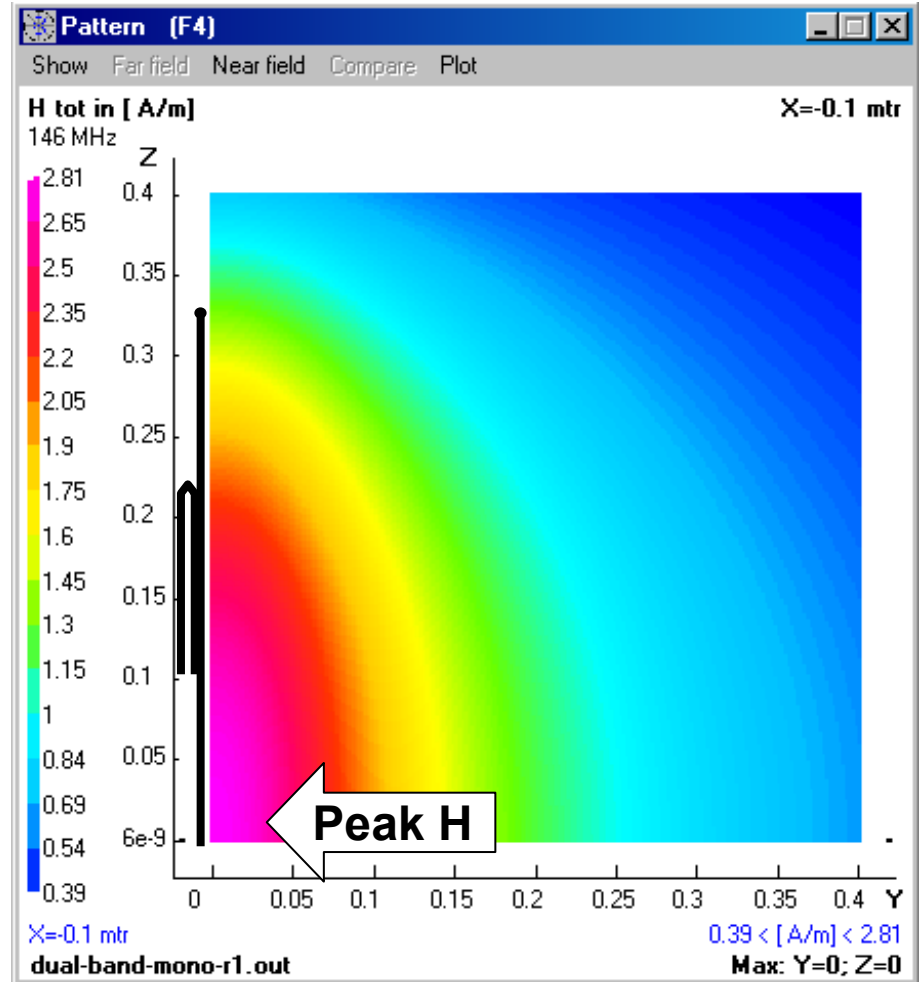
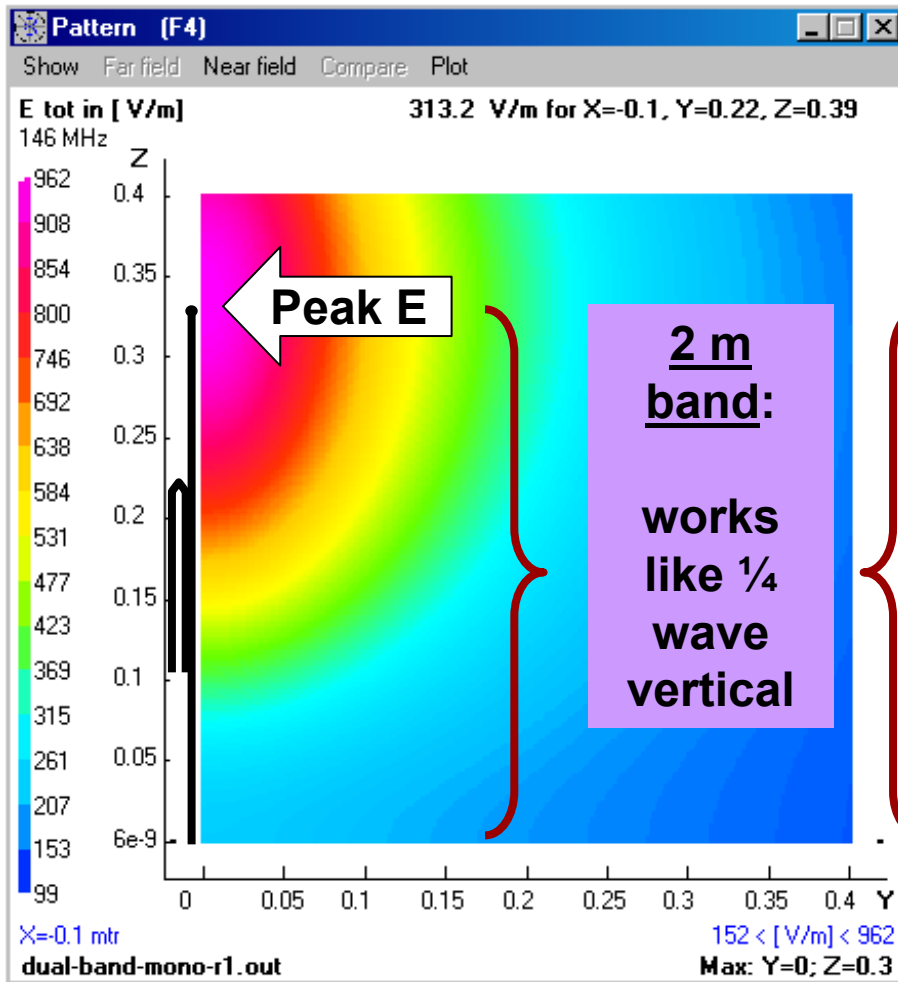
70 cm band

Near Field Simulation

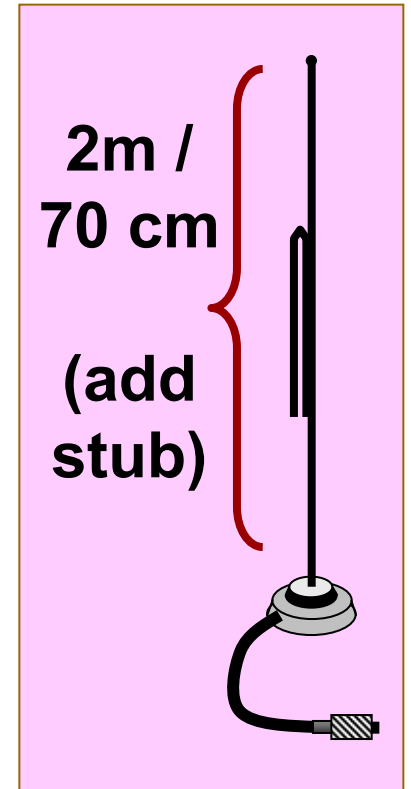
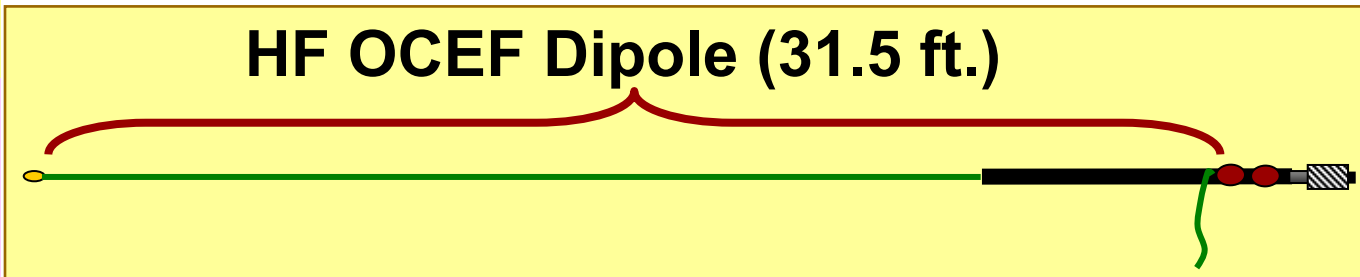
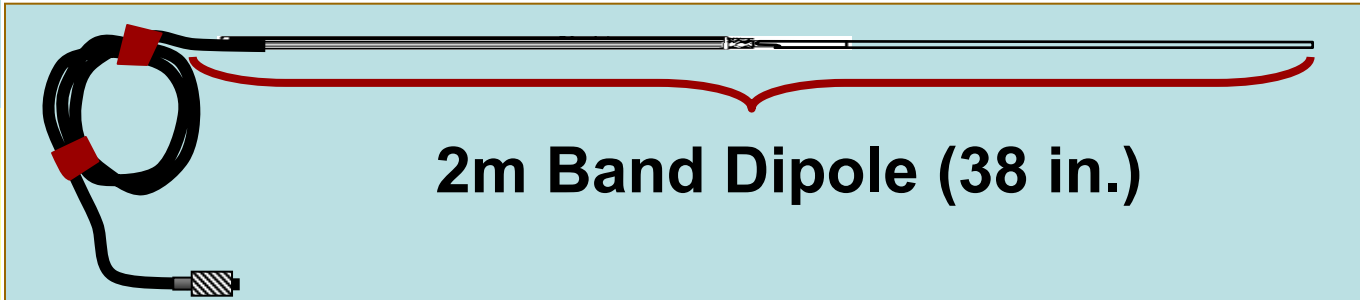


2 m band

Near Field Simulation



Ad Hoc Antennas: 3.5 to 450 MHz



Improvised Emergency Antennas

- VHF antenna usable in 2 m band
- HF antenna operates from 3.5 to 54 MHz
- VHF/UHF mobile antenna
- **RF exposure safety assessment ***
 - V/UHF: up to 25 W keep 3 ft distance
 - HF: up to 25 W keep 3 ft distance

*http://hintlink.com/power_density.htm

Thanks for your attention

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Copies available courtesy of *South Florida*



www.qsl.net/k4fk/presentations.htm