

**Why Would you
Want a
Remote Auto-Tuner?**

Antenna Tuners

*Have been
around
since the
early days*



So has a MYTH

I can tune anything

with

a tuner in my shack

**You can make your rig
happy (1:1 SWR) but
you may be wasting
most of your power**

In-shack Manual Tuner



In-shack Tuner in Rig



In-shack Auto Tuner



Only tuner
I'll ever need

More Recently

**Remote Auto-Tuners
(Tuner at the Antenna)**



**I'll
never
need one**

**The Original
"Auto Tuner/
Coupler"
SGC-239
200 W**



ICOM AH-4 Antenna Tuners AH-4

★★★★★ (9) [Review This Product](#)

Antenna Tuner, Automatic, Remote, 120 watts

\$299.99

**Remote
Auto Tuner**



MFJ-993BRT

300W \$349.95

**And there is a
BIG reason you
may need one**

Two Categories of Antennas

- **Resonant**

- **Non-Resonant**

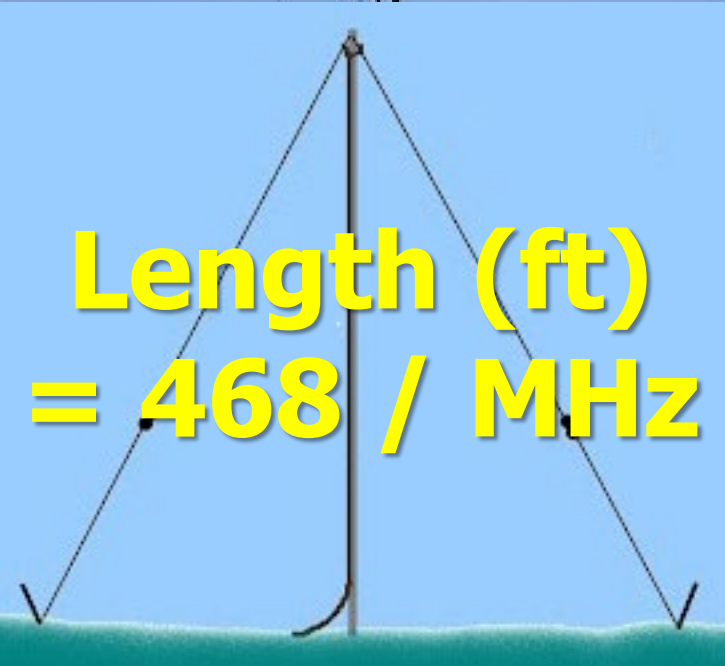
Antennas

Is Resonance Required?

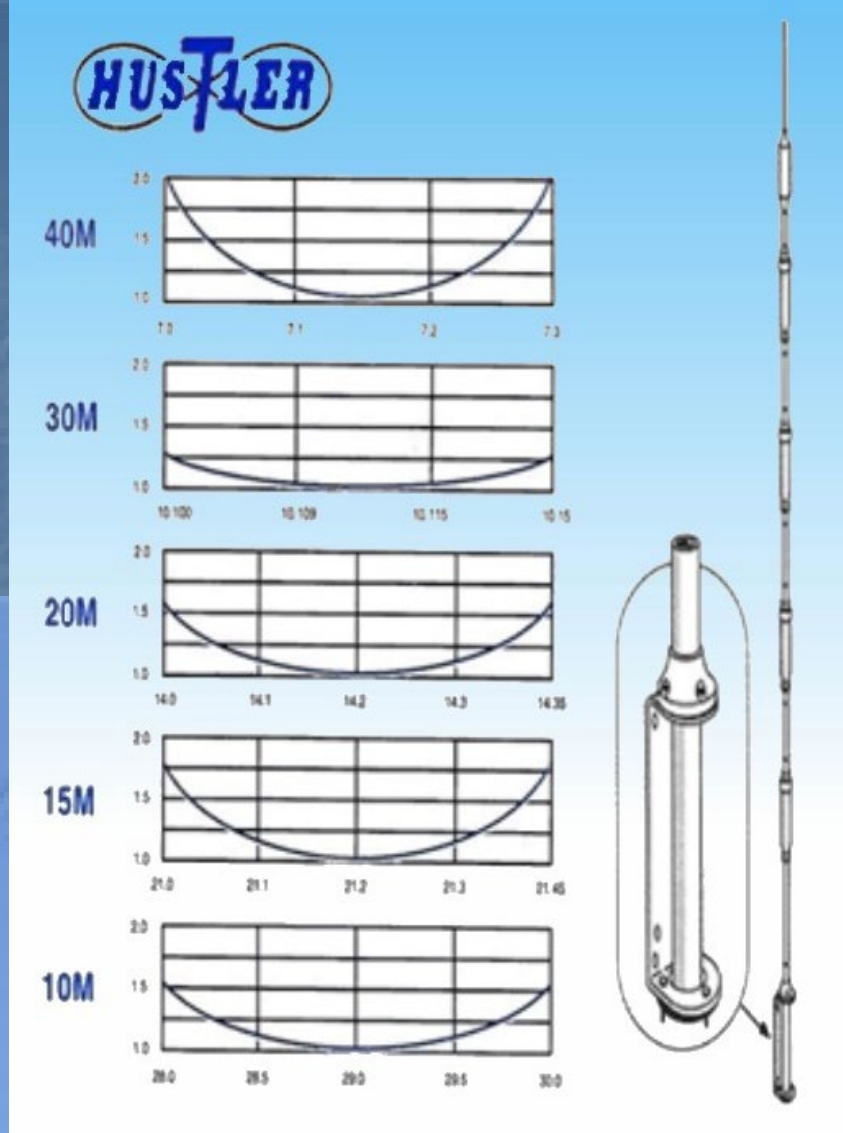
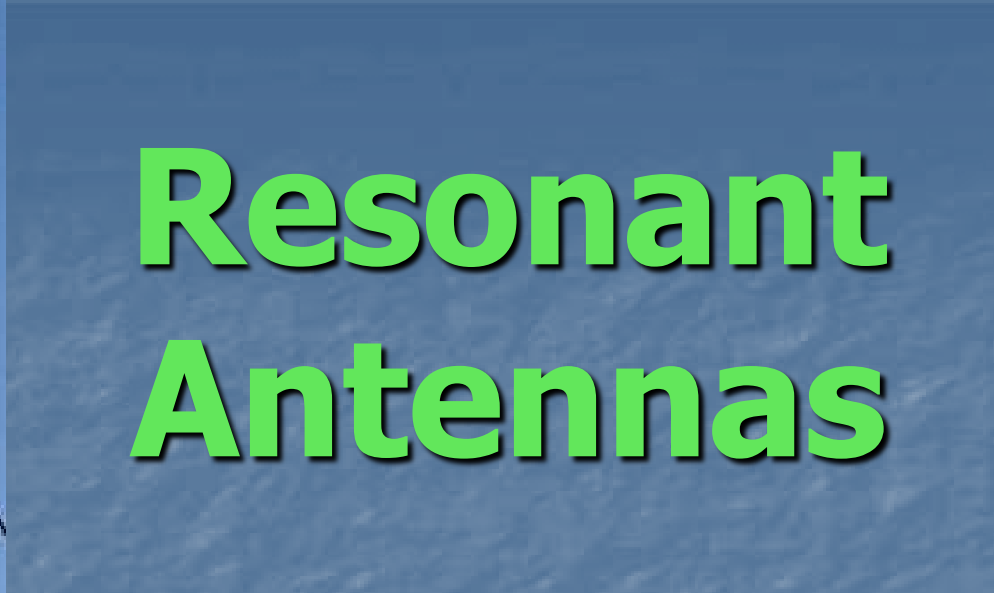
An antenna need not be resonant in order to be an effective radiator. There is in fact nothing magic about having a resonant antenna, provided of course that you can devise some efficient means to feed the antenna. Many amateurs use non-resonant (even random-length) antennas fed with open-wire transmission lines and antenna tuners. They radiate signals just as well as those using coaxial cable and resonant antennas and as a bonus can usually be used on multiple frequency bands. It is important to consider an antenna and its feed line as a system in which all losses should be kept to a minimum.



Resonant Antennas



Length (ft)
= 468 / MHz



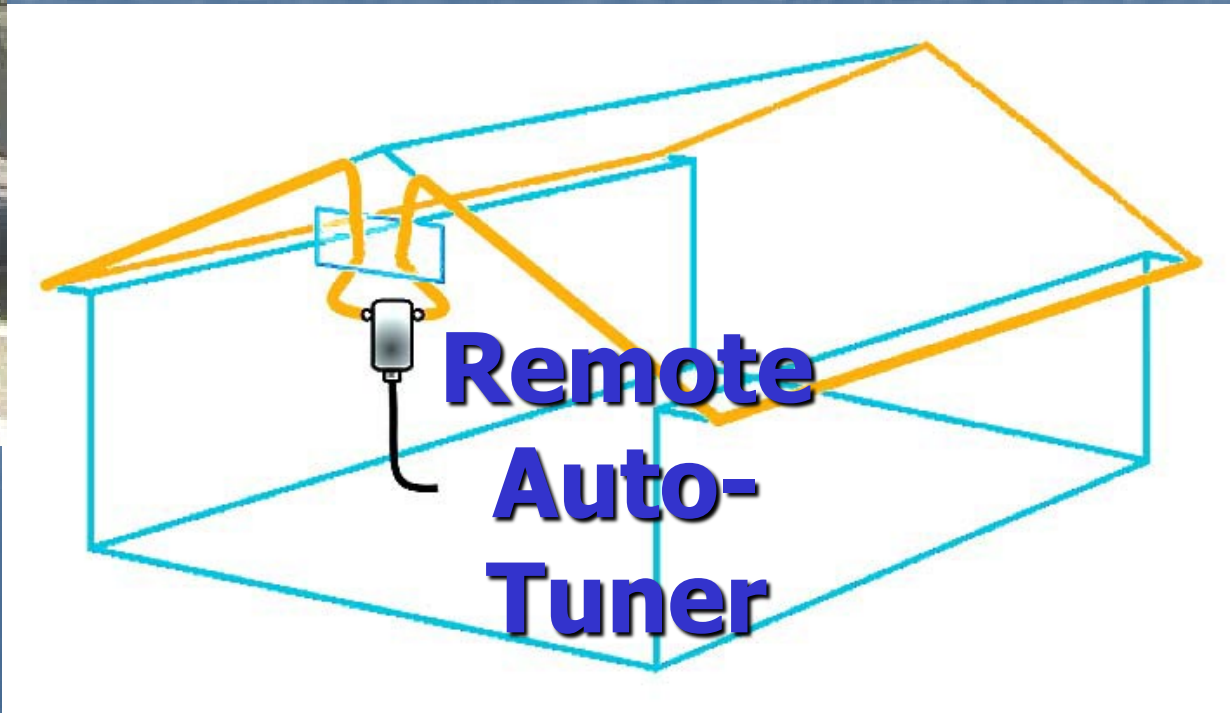


**Remote
Auto-
Tuner**

Non-Resonant Antennas



**Remote
Auto-
Tuner**

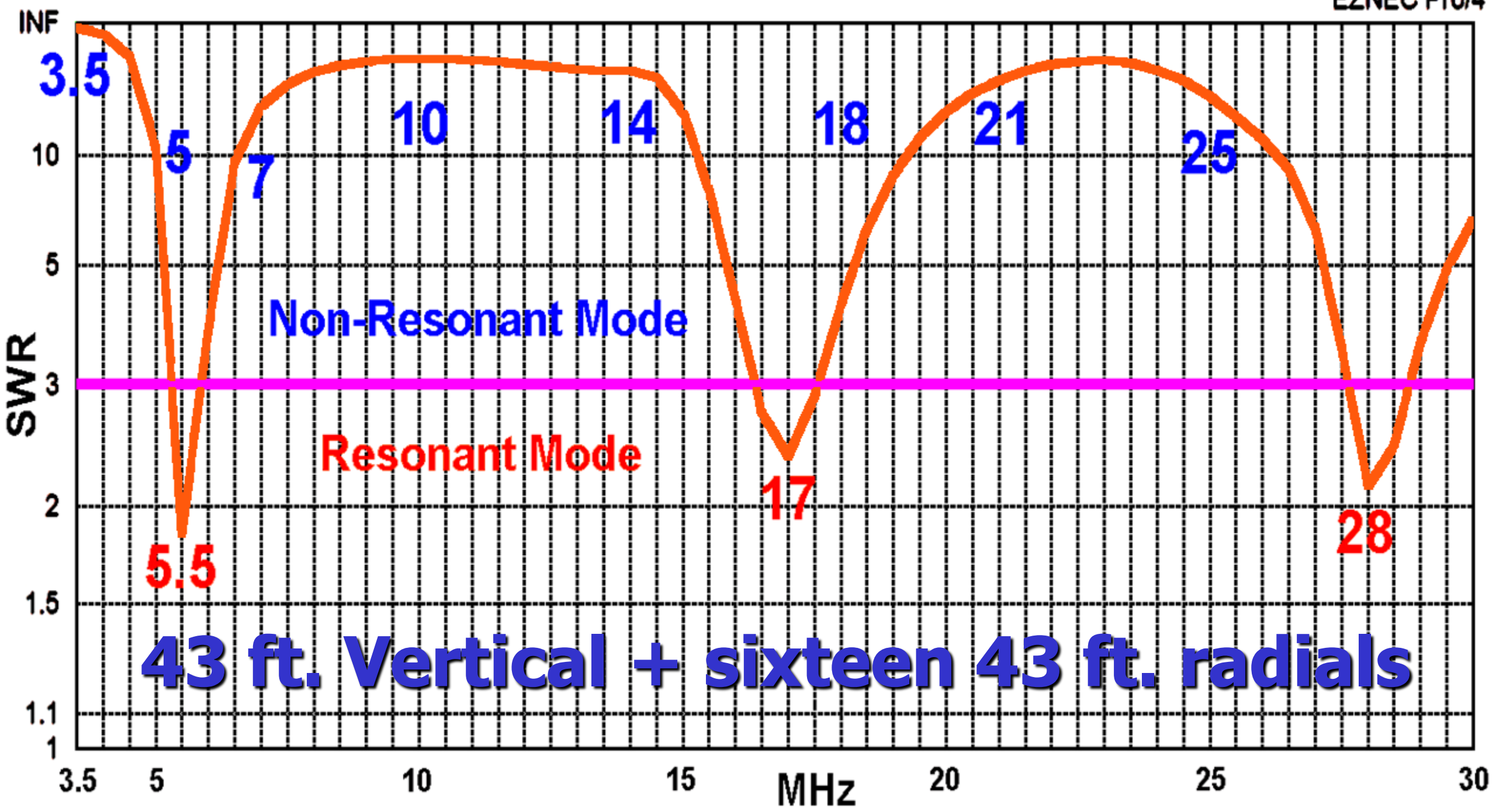


**Remote
Auto-
Tuner**

- Zepp, Windom, G5RV
- Long wire (**non $\lambda/2$**)
- OCF dipole
- On a different band

**43 ft.
Vertical
With
Radials**





Non-Resonant Mode

Resonant Mode

43 ft. Vertical + sixteen 43 ft. radials



OCF
1/2 Wave
No-Radial
HF
Non-
Resonant
Flagpole

- QST Features:**
- 41 **Yaseu VA-081**
Handmade Transceiver
 - 44 **Arroy Schellens**
QRP MASTER
External DDC/TE Switch
for HF Amplifiers
 - 45 **W1EL Whiskey**
VFO CW Keyer and
Interface

Articles:

- 33 **VHF UHF Coastal Steals** — Stealthy, Weatherproof and Easy to Build
- 39 **ARRL National Convention / Dayton Convention** — Unbeatable Combination
- 42 **Bill before Congress Promotes Amateur Radio Public Service**

Sun's out, surf's up, the outdoors beckons — perfect time to enjoy Amateur Radio wireless!



See... **Getting on the Air**

Page **51**

Joel Hellas
W1ZR 2021 SK

Official Journal of **ARRL** AMATEUR RADIO

HF Sailboat Marine Mobile with Auto Tuner



Mast Backstay

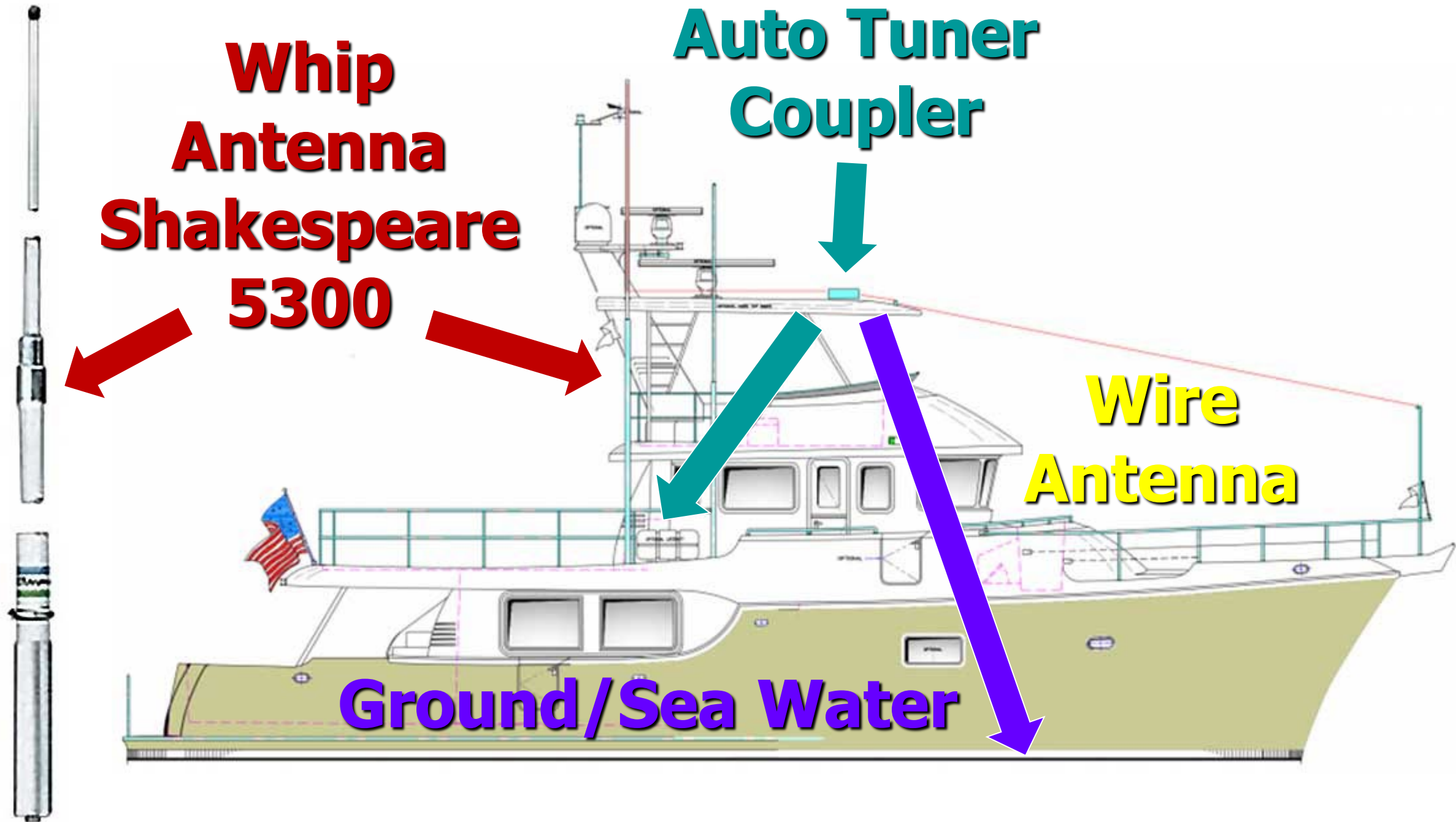


An aerial photograph of the Pentagon building in Arlington, Virginia, with a callout map of Virginia in the upper right corner. The text is overlaid on the image.

Pentagon Amateur

Radio Club

K4AF



**Whip
Antenna
Shakespeare
5300**

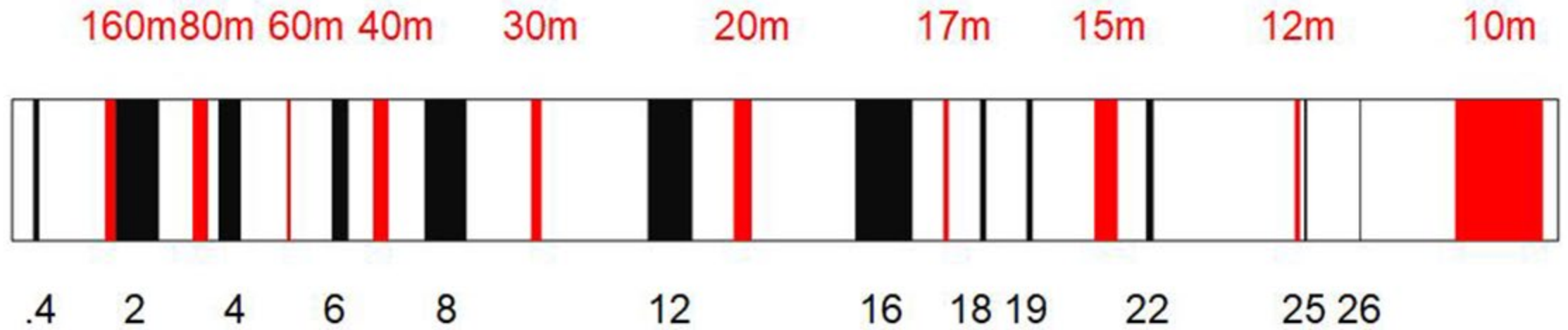
**Auto Tuner
Coupler**

**Wire
Antenna**

Ground/Sea Water

FYI

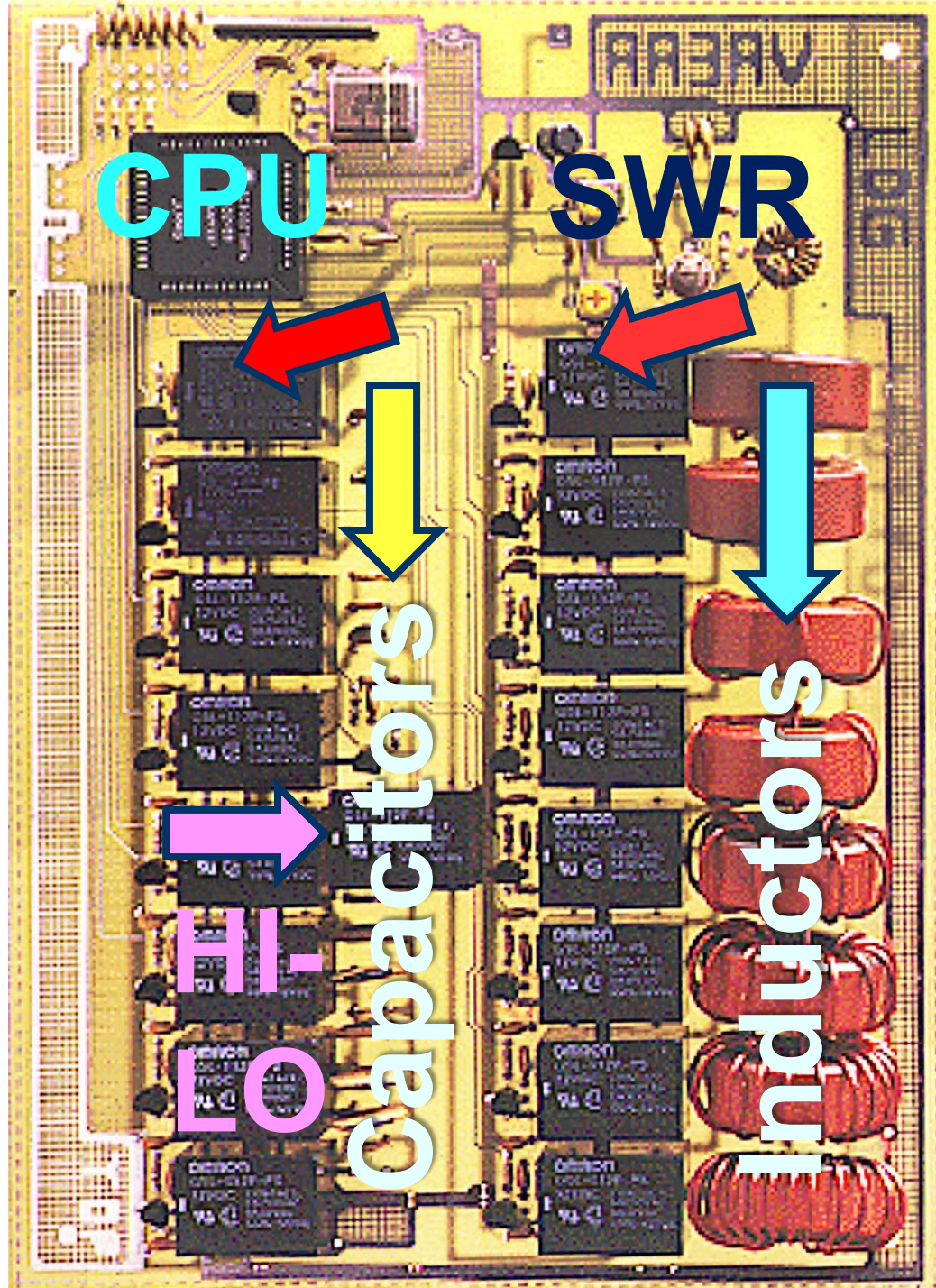
HAM BANDS



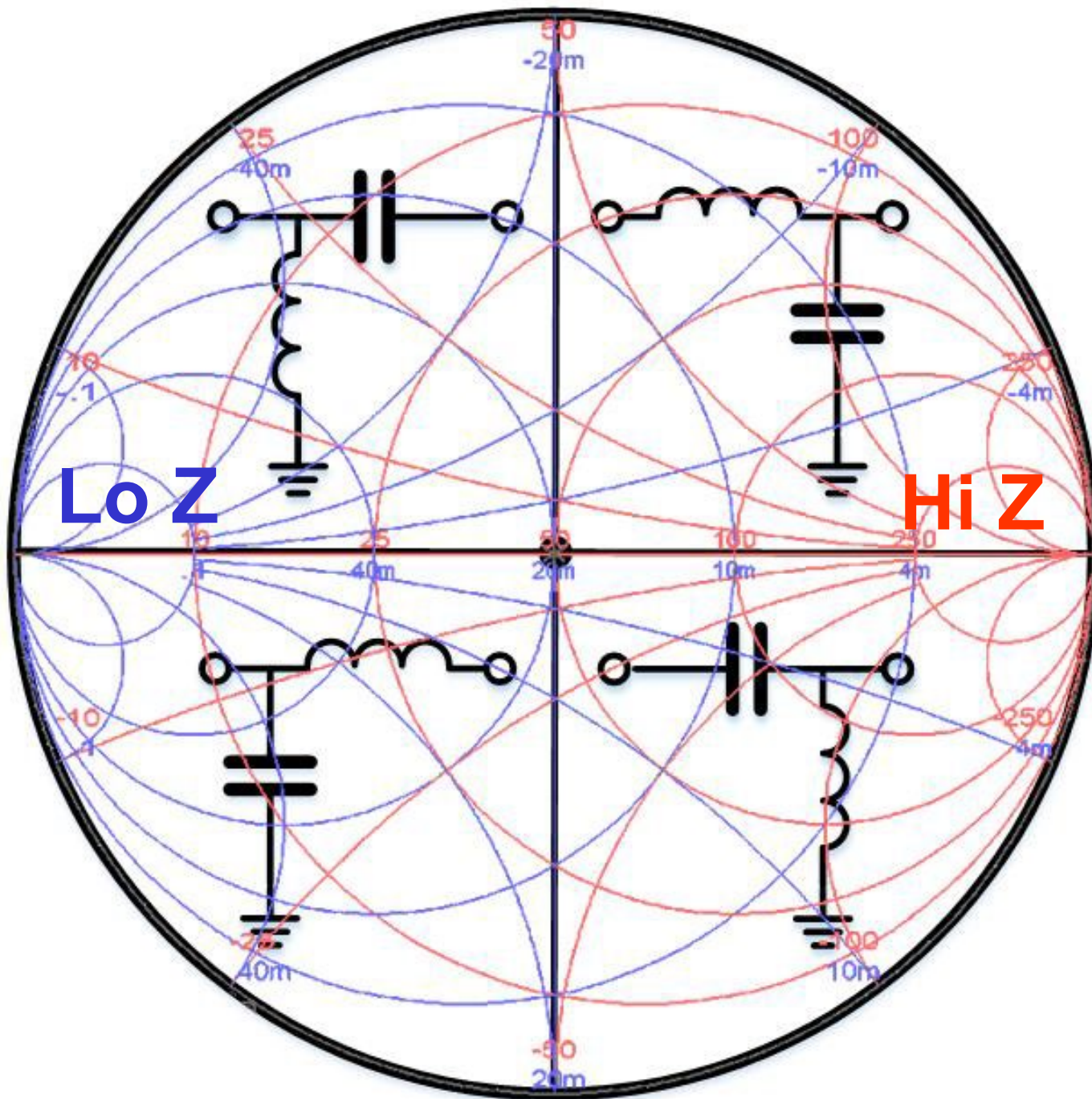
MARINE BANDS



How do Auto Tuners Work?



**Dwayne L.
Kincaid
WD8OYG
*An Automatic
Antenna Tuner:
The AT-11*
QST, pp. 35-39,
January 1996**



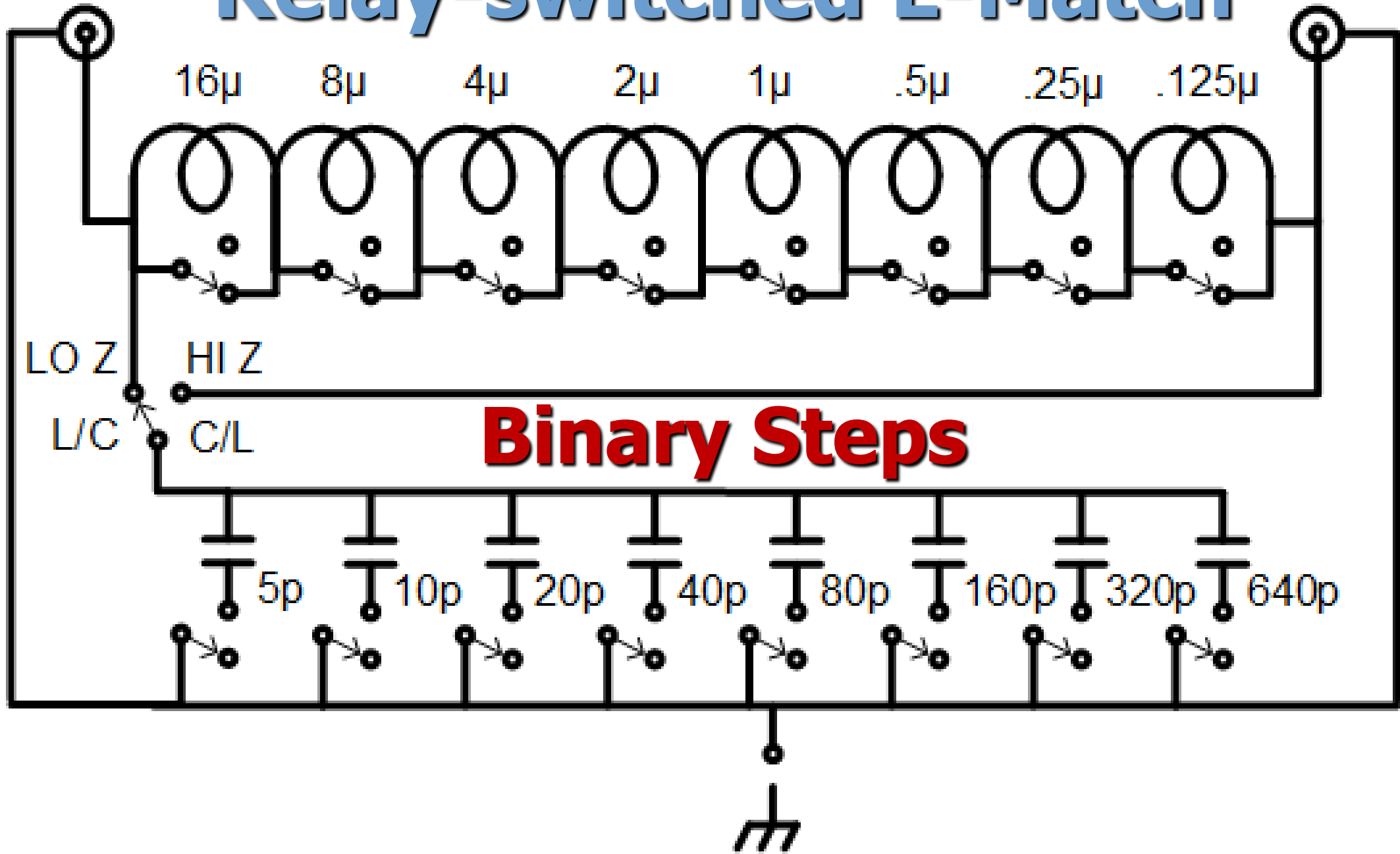
Philip Smith
LEFT HALF

Four Simple
Low
two-element
Impedance
L-match

networks will
RIGHT HALF
match MOST
High
antenna
Impedance

RADIO

Relay-switched L-Match



A Vital Issue With Tuners Coax Loss

Many Hams believe: Two ways to use a tuner



Many Hams believe: Two ways to use a tuner



Non-Resonant

ARRL Web Site



An antenna tuner is **NOT A GOOD IDEA** when using coaxial cable [after it], that has high SWR.

The tuner may provide a 50 ohm match to the transmitter, *but high SWR will still exist between the antenna tuner and the antenna!*

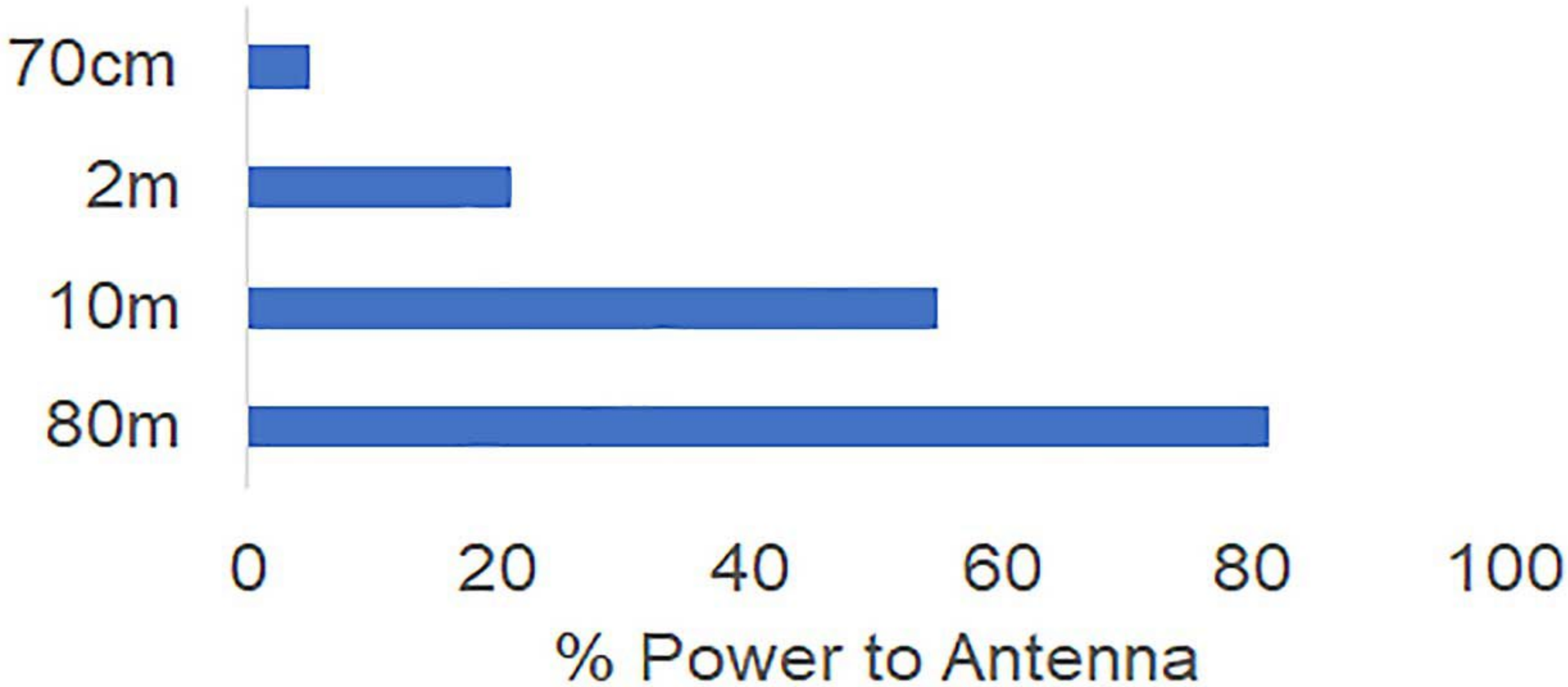
This translates to **HIGH LOSSES IN THE COAXIAL CABLE**

43 ft. Vertical with 16 radials

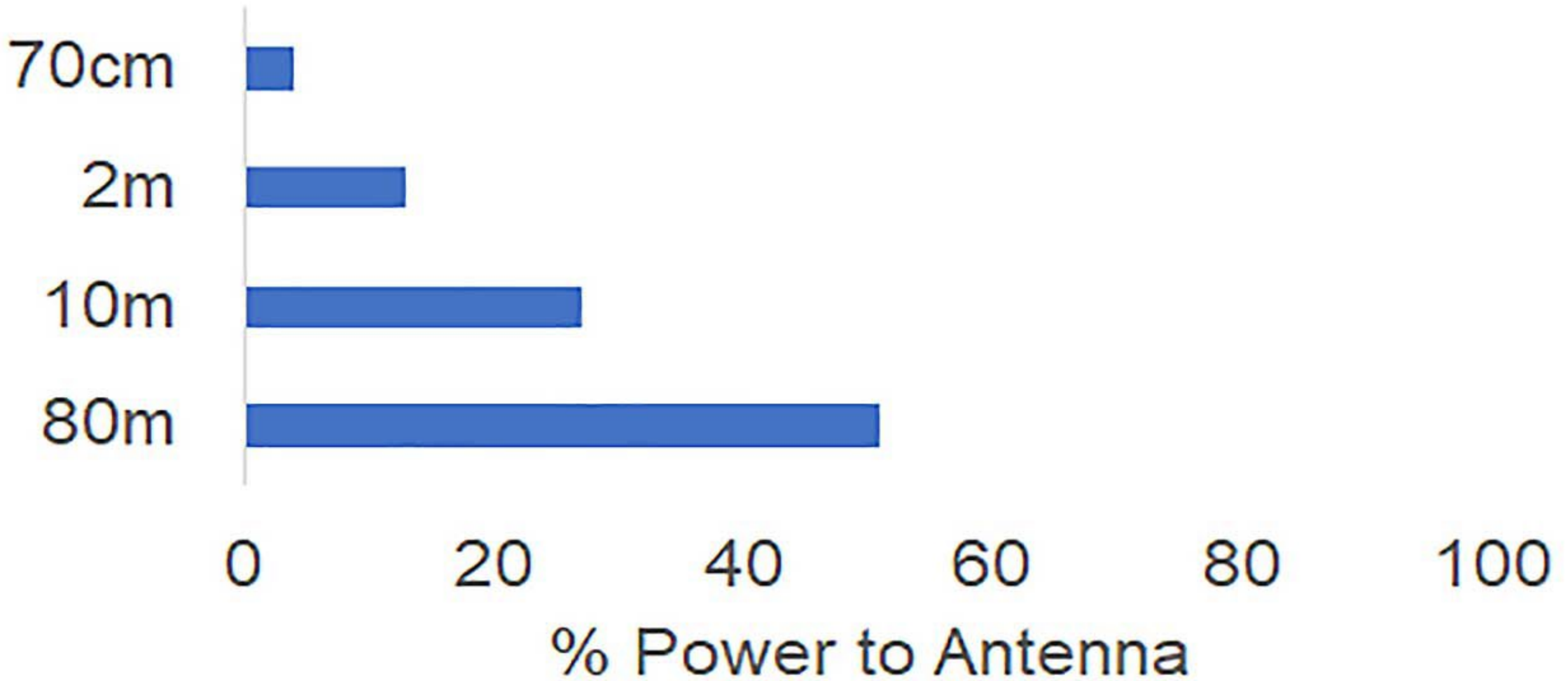
Over average soil

	MHz	SWR
	3.5	>100:1
	5	2:1
	7	13:1
	10	37:1
	14	20:1
	18	6:1
	21	24:1
	25	16:1
	28	2:1

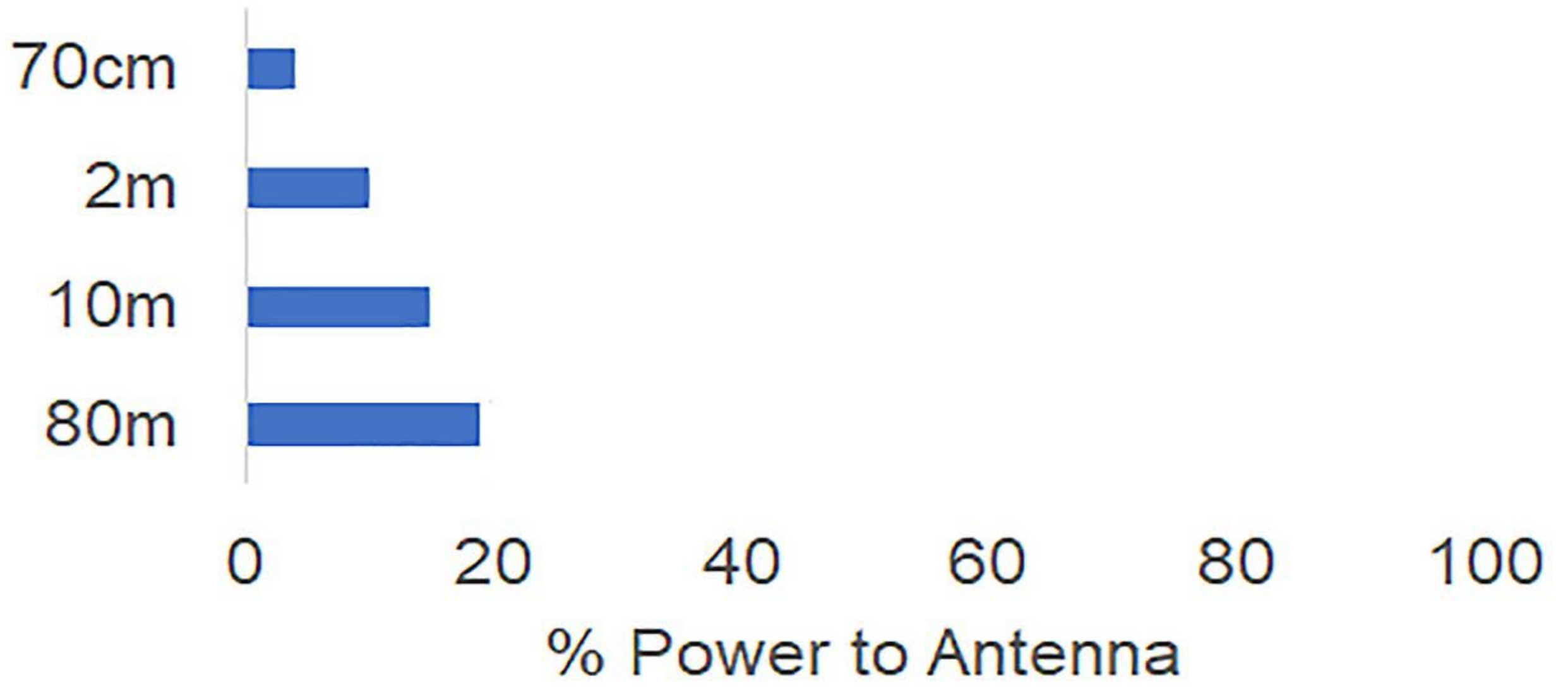
100 ft. RG-58 1:1 SWR



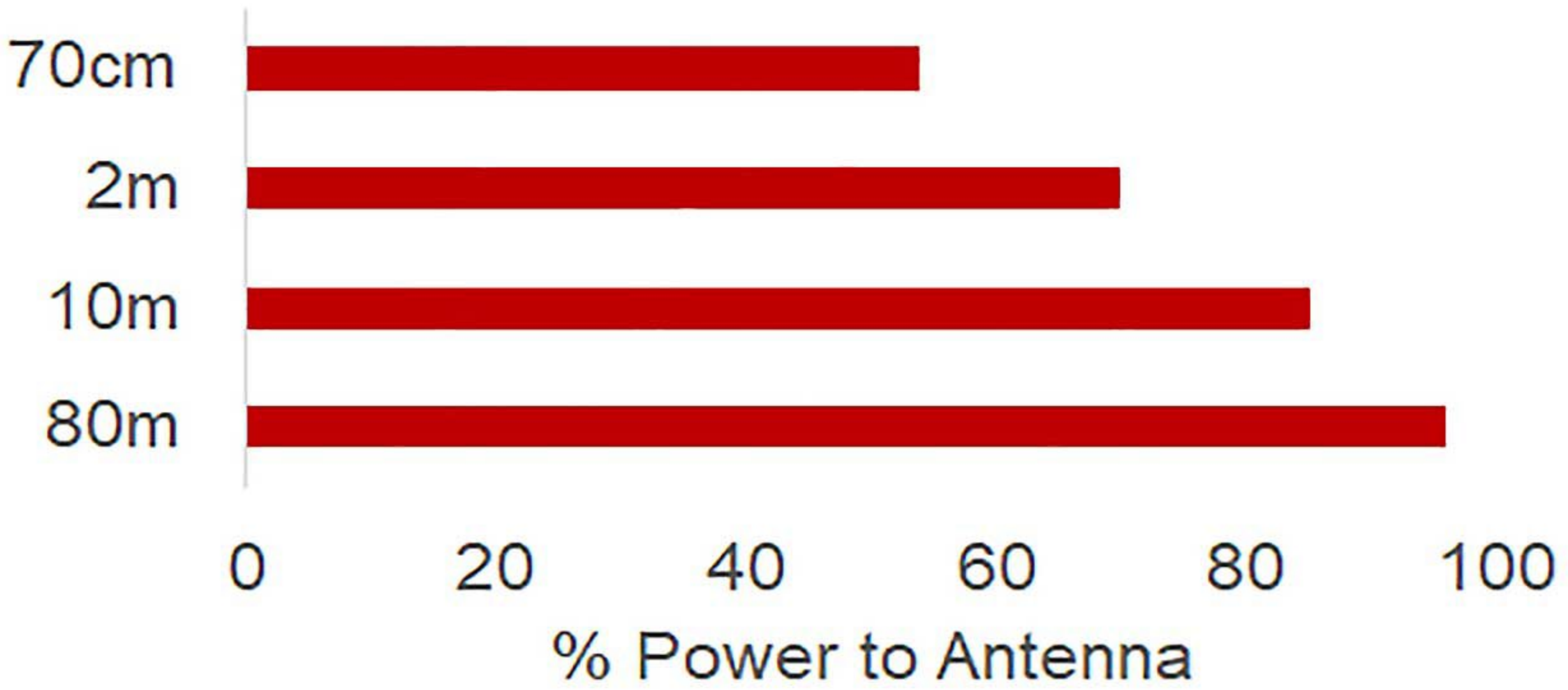
100 ft. RG-58 10:1 SWR



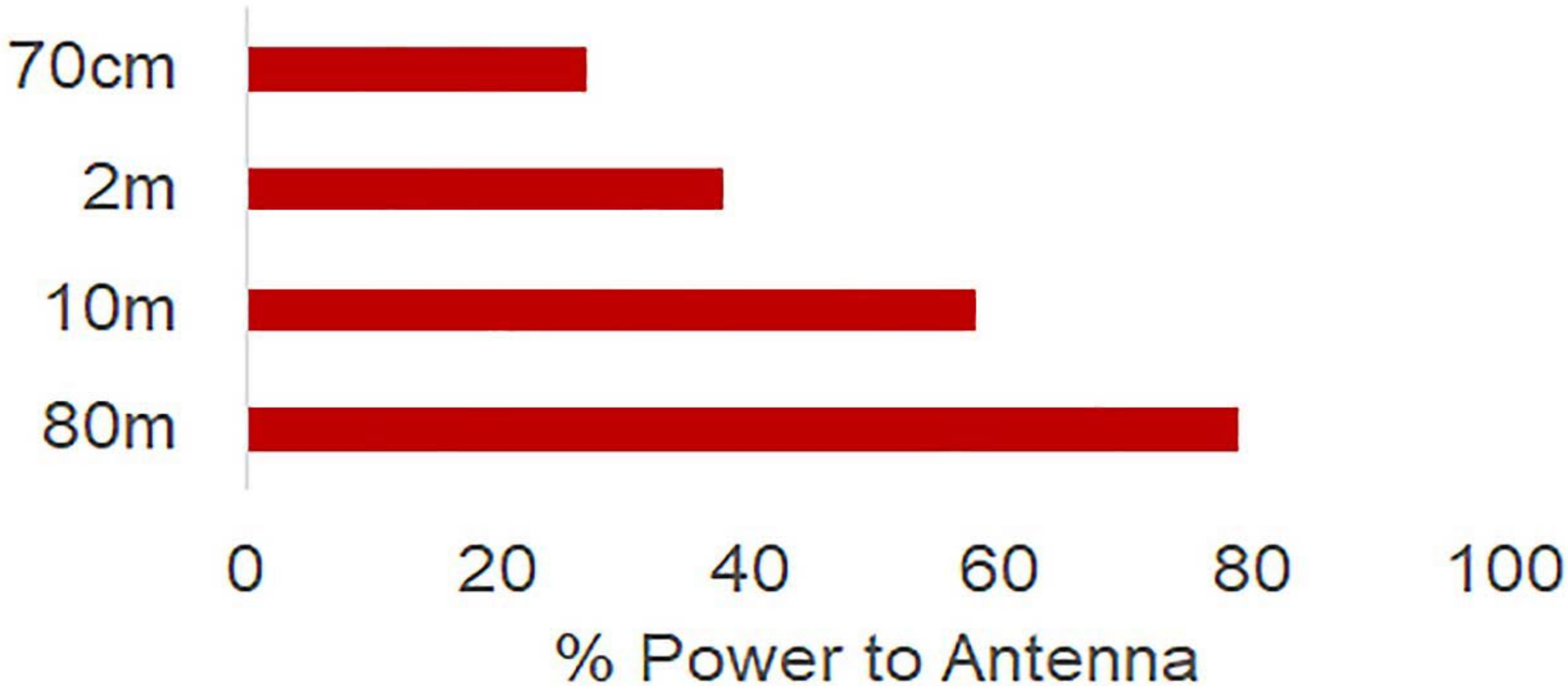
100 ft. RG-58 100:1 SWR



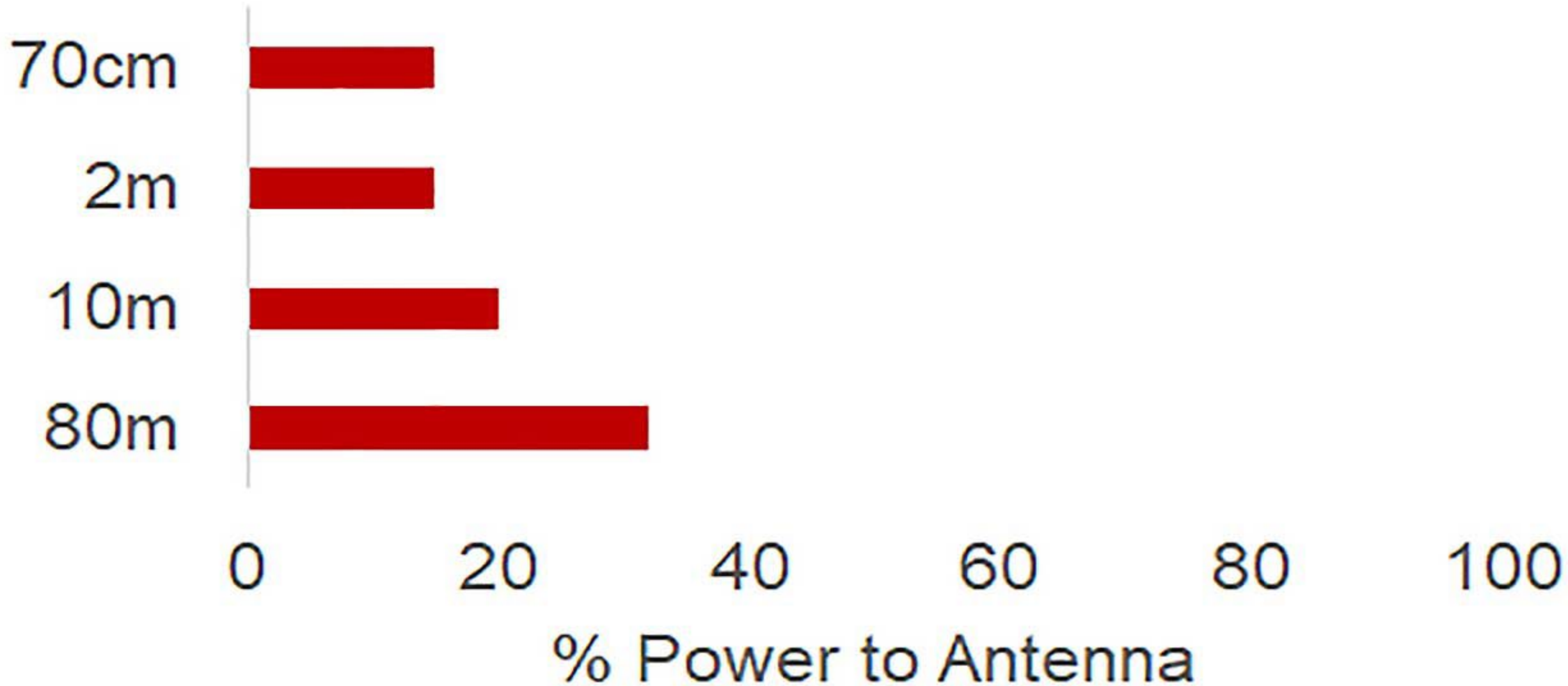
100 ft. LMR-400 1:1 SWR



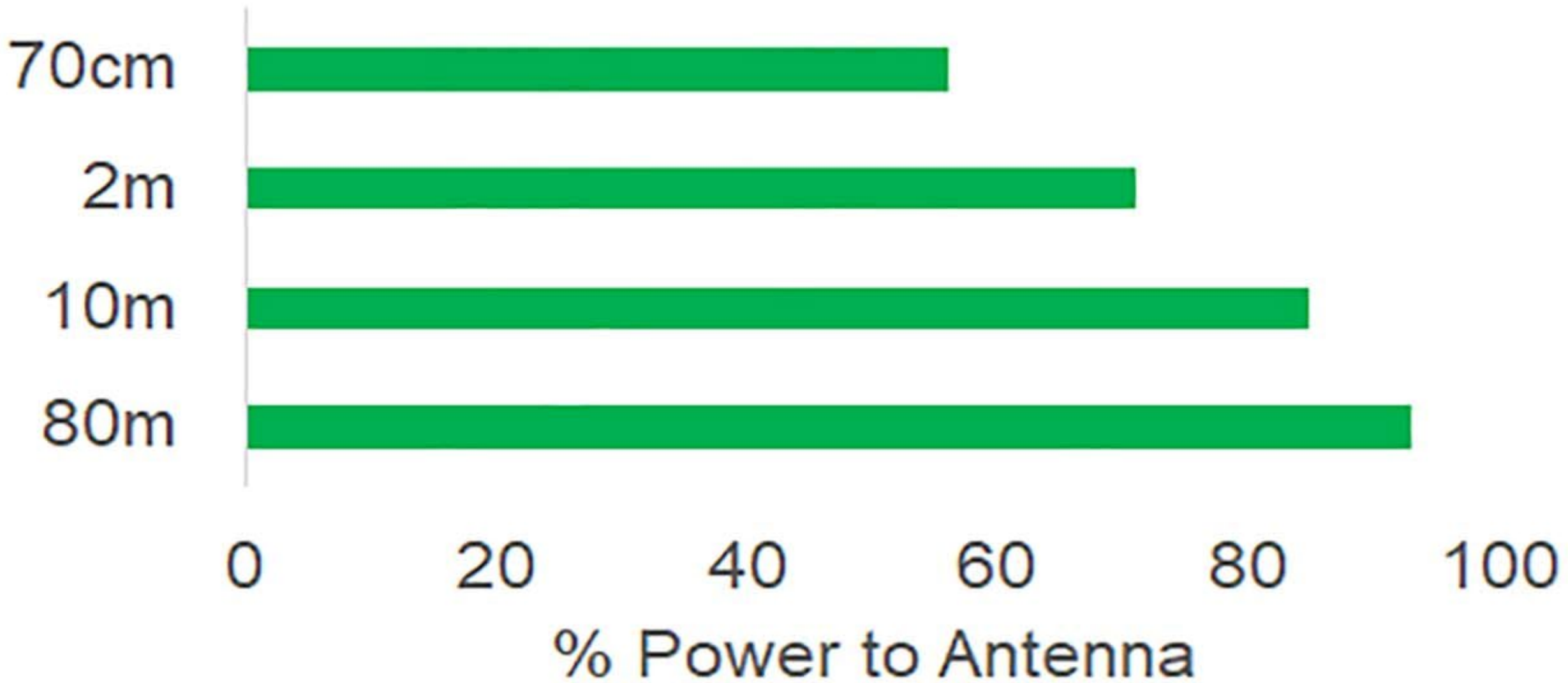
100 ft. LMR-400 10:1 SWR



100 ft. LMR-400 100:1 SWR



100 ft. 450Ω 1:1 SWR



100 ft.

450Ω 10:1 SWR

70cm



2m

10m

80m

75

80

85

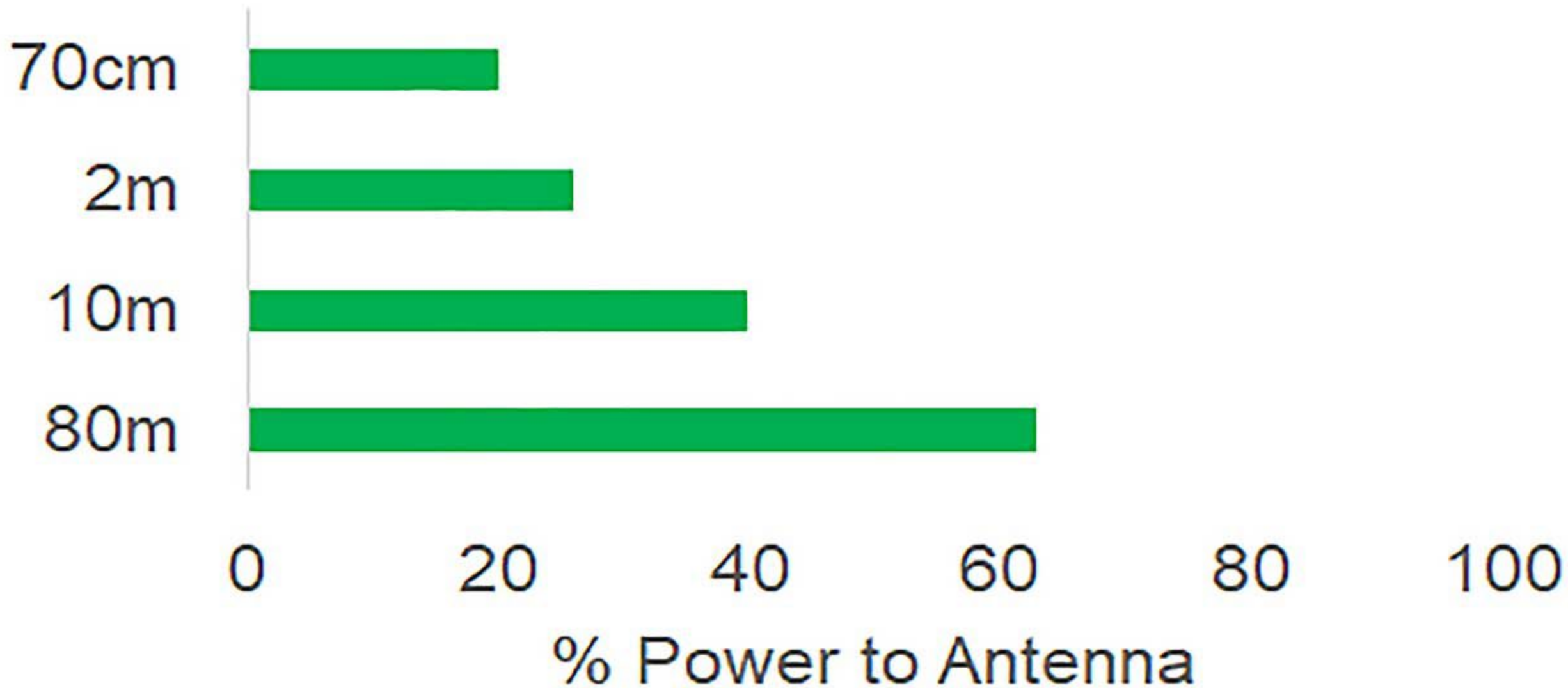
90

95

100

% Power to Antenna

100 ft. 450Ω 100:1 SWR



CONCLUSION

For **Non-resonant** antennas
the tuning **MUST BE** at the
antenna, not in the shack

Side Bar: **HAM MYTH**

“Antenna tuners are lossy”

QRZ Forum: Usually, tuner losses are **very small** if the tuner is built using large, high-Q components

Coil and capacitor reactance -- NO loss

Closing Example

**Double
Inverted
(non-resonant)
HF Delta
Skeleton Slot
Antenna**





**Home-
brew L-
Match
Set to
Marks
on
Face**

Slot Antennas For Ham Radio



John Portune W6NBC

Slot Antennas for Ham Radio: The Forgotten Antenna Kindle Edition

by John Portune W6NBC

Format: Kindle Edition



16 ratings

Slot antennas have been overlooked by ham radio operators since they were introduced in 1938. An aura of mystery surrounds them. Here's how they work and practical homebrew slot antenna projects from HF to UHF.

\$4.95 to buy





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gmail.com](mailto:w6nbcmail@gmail.com)
w6nbc.com

DØGGY



"That's all Folks!"

