

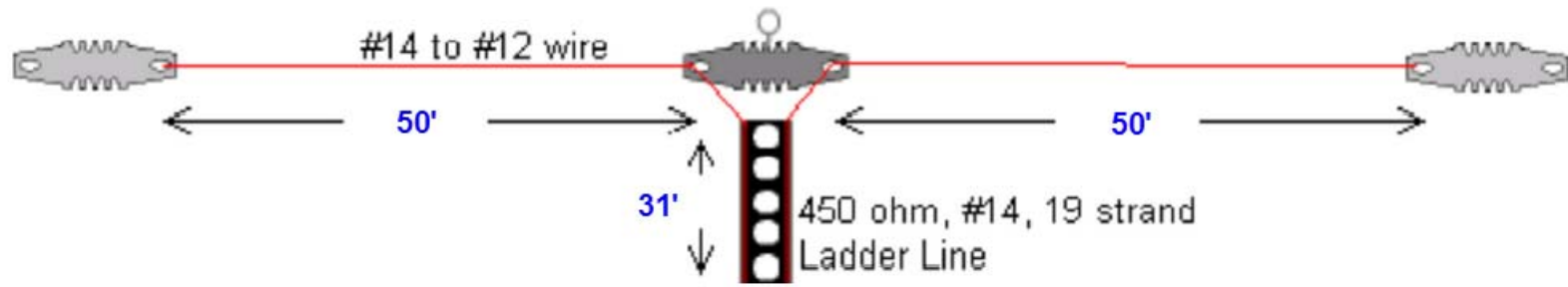
Multiband Antennas

Stealth Antennas

Azalea Coast Amateur Radio Club

January 2018

Multiband Antennas - G5RV



G5RV - Louis Varney, 1946

102'

Center fed single wire, matching ladder-line (31'), 450 ohms

Must use an Antenna Tuner, except 20m

Advantages

80m to 10m

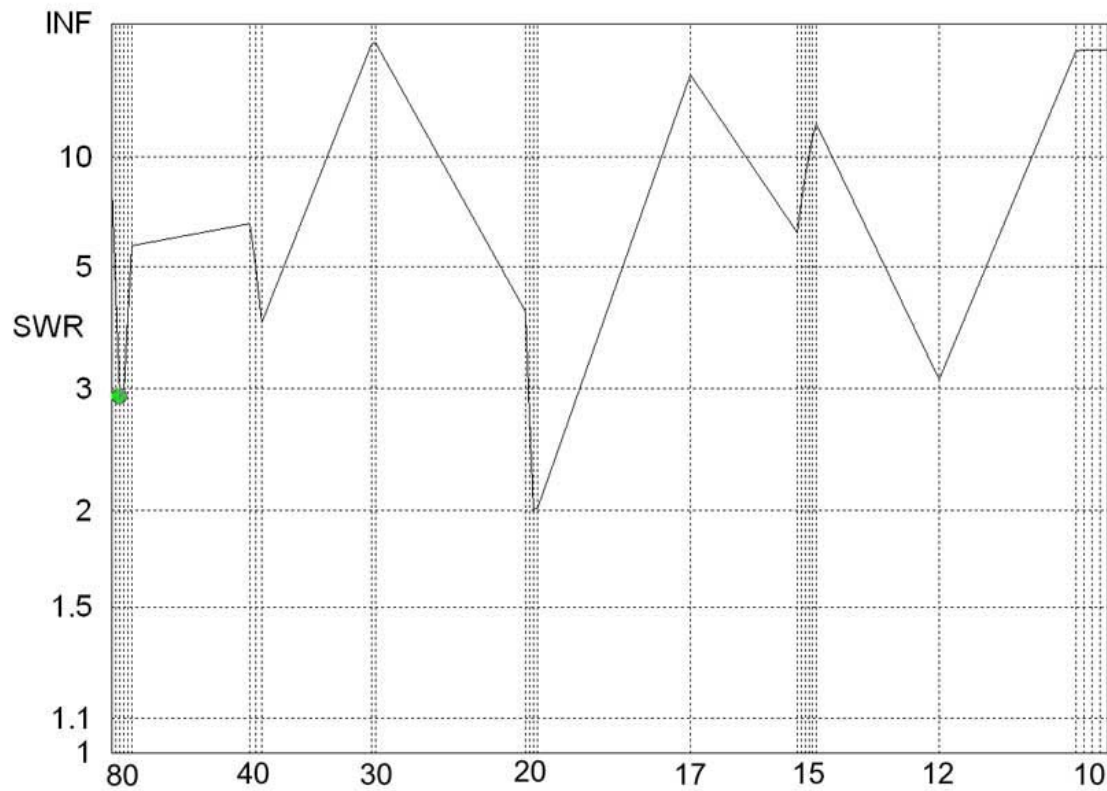
No traps or coils

Flat-top or Inverted V

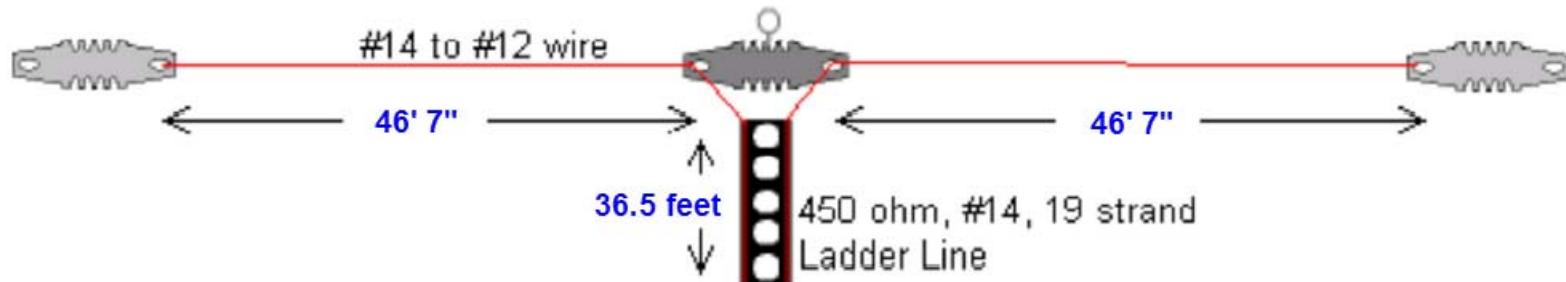
Disadvantages

SWR >2 except 20m

Multiband Antennas - G5RV



Multiband Antennas - ZS6BKW



ZS6BKW - Brian Austin

Based on the G5RV.

Design optimization using modern computer modeling

Significantly improved in-band performance.

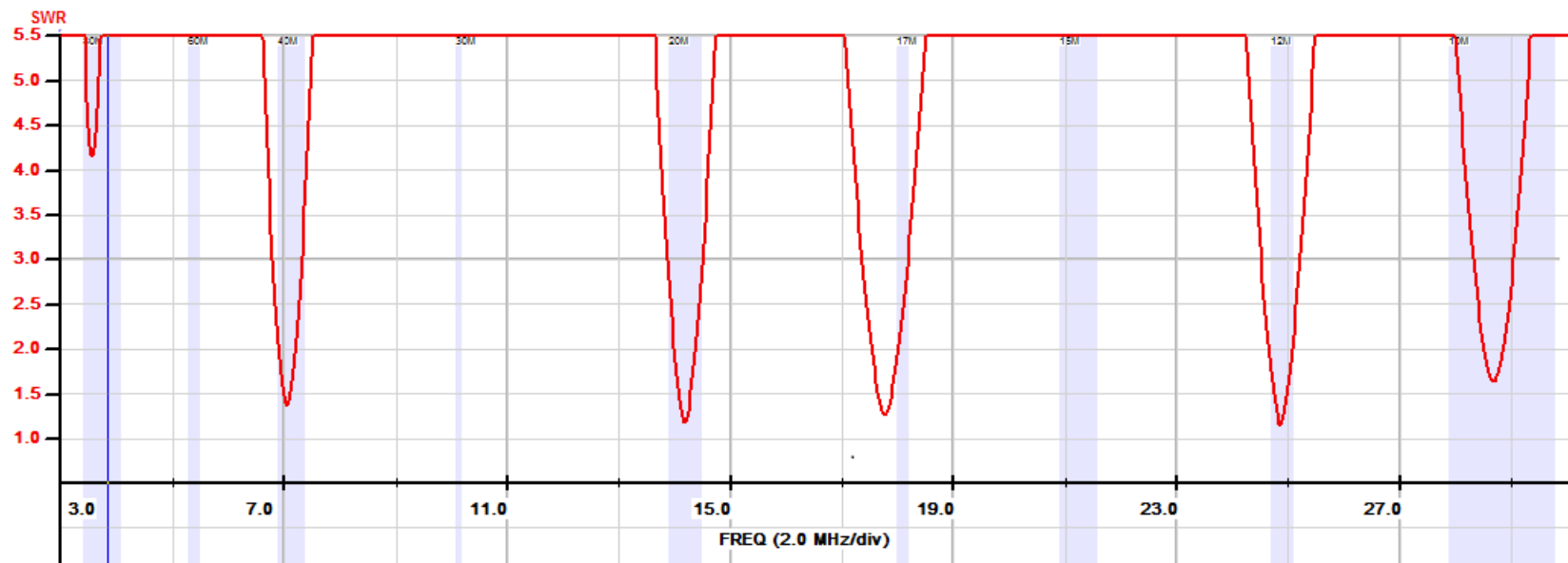
Only dimensions and ladder-line impedance changed.

~93'

Center fed, ladder line (36.5'), 450 ohms

Improves on the G5RV and has SWR of <2 on most of the same bands except 80m where it is ~10

Multiband Antennas - ZS6BKW



Standard ZS6BKW HF SWR

Multiband Antennas - G5RV vs ZS6BKW

According to an acknowledged expert in computer antenna design and modeling, L. B. Cebik:

“Of all the G5RV antenna system cousins, the ZS6BKW antenna system has come closest to achieving the goal that is part of the G5RV mythology: a multi-band HF antenna consisting of a single wire and simple matching system to cover as many of the amateur HF bands as possible.”

“All antennas are compromises” – Linwood Todd, NT4F

Stealth Antennas



Stealth Antennas

A Stealth Antenna is one which is designed to go unnoticed.

This can be accomplished by any of the following:

- Making it difficult to see. Use thin wire. Run on fence, up tree or on roofline
- Disguising its appearance. Flagpole, roof vent, weather vane, satellite dish
- Put it indoors. In attic, spirals, wire loops, magnetic loop antennas

Why Use Stealth Antennas

- HOA covenants
- Spouse
- Neighbors
- Room

Stealth Antennas

ARRL Status Report: The Amateur Radio Parity Act of 2017 -
11/28/2017

The Amateur Radio Parity Act of 2017 – S. 1534 is alive, but with legislative action slowed to a glacial pace on Capitol Hill in recent months, there's been no real progress to report since this past summer. At present, the bill is under consideration by the US Senate Committee on Commerce, Science, and Transportation, and it remains an active concern for ARRL. The League is working diligently to shake the bill loose and move it forward.

While it may appear that time is short, S. 1534 does not need to pass the Senate by this year's end. We have until the current session of Congress adjourns, which is not until **December 31, 2018**. Once the bill passes both Houses, the FCC would still have to implement its essence in the Part 97 Amateur Service rules.

Introduced on July 12, 2017, S. 1534 marked another step forward for the landmark legislation. Senators Roger Wicker (R-MS) and Richard Blumenthal (D-CT) sponsored the bill in the Senate. The US House version of the legislation, HR 555, passed the House of Representatives by unanimous consent in January 2017.

Stealth Antennas

Even if the Ham Radio Parity Act were to pass (no guarantee that it will), a stealth antenna may still be desirable or required.

Remember, it's not just the HOA you may need to worry about and it will be some time before we know what "reasonable accommodations" means.

Stealth Antennas

Important Safety Considerations

In the process of hiding an antenna, it will often be operating in close proximity to people or conductive surfaces. Always perform an RF Exposure Evaluation and take the necessary steps to prevent any excessive RF exposure. Consider QRP or at least lower power use.

Stealth Antennas

Flagpole vertical- hide in plain sight.

Tree vertical- can be very tall, but will interact with the tree if up against it.

Long wire or dipole along fence top.

Loop or dipole along roof line.

Very thin wire can be virtually invisible and can be used in many configurations.

At night, use a tilt-up or extendable vertical antenna or use a portable antenna.

Balcony or deck mounted antennas.

Multiband Antennas

Stealth Antennas

Resources:

www.nc4fb.org/wordpress/zs6bkw-multi-band-antenna/

[www.w5ddl.org/files/Zs6bkw vs G5rv 20100221b.pdf](http://www.w5ddl.org/files/Zs6bkw_vs_G5rv_20100221b.pdf)

[http://www.w0btu.com/g5rv antenna.html](http://www.w0btu.com/g5rv_antenna.html)

www.g4ilo.com/stealth.html

forums.qrz.com/index.php?threads/10-ultra-stealth-antenna-designs-for-hoas.260566/

[www.bvarc.org/pdf/HF Antennas by KD5FX.pdf](http://www.bvarc.org/pdf/HF_Antennas_by_KD5FX.pdf)