

The Columbia Amateur Radio Club
Presents

Stealth Antennas

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AG3EK



What is a Stealth Antenna?

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

This can be accomplished by any of the following:

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



Why Use a Stealth Antenna?

Most people that choose to use a stealth antenna do so to avoid the wrath of one or more of these:

1. Home Owners Association
2. Spouse
3. Neighbors
4. Gestapo/SS/KGB/FBI/CIA/etc.

Some people just don't have the room for a traditional antenna.



What About the Ham Radio Parity Act?

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.



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.



What Are Your Options?

In order to know what your options are, you need to know what you have to work with. Size of yard, trees, type of siding and insulation, desired bands and modes, and your budget all factor into your decision.

Many multiband designs require a tuner, often a remote tuner, at the antenna to compensate for a less than optimal design.

Realize that many stealth antennas are not as efficient or have as good of a pattern as visible antennas do. Just remember that any antenna is better than no antenna.

Consider CW and digital modes when using a reduced efficiency antenna.



VHF/UHF vs HF

It's much easier to hide a VHF or UHF antenna than one designed for HF. The lower the frequency, the longer the antenna. The longer the antenna, the more difficult it is to keep it out of view.

A 2m/70cm antenna can be made to look like a roof vent pipe or a weather vane or made by cutting a slot in a satellite dish.



Some VHF/UHF Antennas



Ventenna (<http://www.ventenna.com>)



2m Slot Antenna from
March 2016 QST



Indoor Stealth Antennas

Indoor antennas may work very poorly if your home has aluminum siding, a metal roof, steel construction, or foil-lined insulation.

If you have a big attic (preferably without ducts running all over it) you have many more options.

Magnetic loop antennas are compact and can be moved around as needed. You may need more than one. The more power they can handle, the more expensive they get.



With a remote tuner, you can put all kinds of wire loops, long wires, and OCF dipoles up for multiband operation.

Even without a tuner, you can put in trap or fan dipoles or band specific antennas.

Thin wire or adhesive foil tape can be put around a room and painted over. Or, get a bunch of points at home by putting up crown molding with an antenna wire running behind it.

Spiral wire on a door and swing the door open or closed for directivity.



Some Outdoor 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.

Paint is almost like magic at hiding antennas. Match the background to make antennas disappear.



More Outdoor Stealth Antennas



Good results on 40, 20, 15, 10 and 6 meters, lesser output but very usable on 30, 17 and 12 meters



Magnetic Loops typically cover 3-4 bands and are about 3' in diameter



Isotron 40 and 80 meters

32" x 16" x 30"

<http://www.w4cae.com>



Mobile Antenna as a Stealth Antenna

If you have a mobile ham radio (and if not, why not?) you can simply run a cable out to the antenna and use it from the air conditioned comfort of your chair.

You might want to use a pull-apart connector in case you forget and drive off with the cable still attached.



Does Your HOA Have any Limitations on Mobile Antennas?



Where to go to Learn More

1. Google “stealth antenna” and you’ll have plenty to read for a long time.
2. Search QST archives.
3. [The Villages Amateur Radio Club Antenna Guide \(www.k4vrc.com\)](http://www.k4vrc.com)
4. [TVARC Flagpole Antenna Guide](#) (some of it is specific to The Villages)
5. [ARRL page of articles on limited space and indoor antennas](#)
6. [Small Transmitting Loop Antennas](#)



Books and Articles About Stealth Antennas

1. [Small Antennas for Small Spaces](#) (ARRL)
2. [Stealth Antennas](#) (RSGB)
3. [Smartuners for Stealth Antennas](#) (SGC)
4. [Stealth Kit](#) (SGC)
5. [Stealth Amateur Radio: Operate From Anywhere](#)
6. [The ARRL Antenna Book for Radio Communications](#) (ARRL)
7. [HF Antennas for Limited Space](#)
8. The Clothesline Antenna (July 1998 QST)
9. [Portable Wire Antennas](#)
10. [HF Antennas for All Locations](#)
11. [Magnetic Loop Antenna](#)



Villages Antenna Guide



The Villages
FLORIDA

Amateur RADIO Club



Antenna	On Air	Stealth	Tuner	Install	Cost	6M	10M	12M	15M	17M	20M	30M	40M	80M	160M
Flagpole	B	A	Remote	D	F	C	B	B	B	B	A	A	C	D	D
Screwdriver	B	B	None	C	D	B	B	B	B	B	B	B	D	D	D
Fishing Pole	B	C	Remote	D	C	C	B	B	B	B	A	A	C	D	D
Trapped Vertical	C	C	Shack	D	D	C	C	C	C	C	C	C	C	D	D
Palm Tree Cage	B	A	Remote	F	F	C	B	B	B	B	A	A	A	A	B
Rain Downspout	D	A	Remote	C	C	D	C	C	D	D	D	D	D	F	F
Antenna	On Air	Stealth	Tuner	Install	Cost	6M	10M	12M	15M	17M	20M	30M	40M	80M	160M
Dipole	C	C	Shack	B	B	C	C	C	C	C	C	D	D	F	F
Inverted Vee	C	D	Shack	C	B	C	B	B	B	B	C	C	C	D	F
G5RV Jr	C	C	Shack	B	B	C	C	C	C	C	C	D	D	F	F
Buddipole	D	C	Shack	B	C	C	C	C	C	D	D	F	F	F	F
Slinky Dipole	D	C	Shack	B	B	C	C	C	C	D	D	F	F	F	F
Helical-Coil Dipole	D	C	Shack	B	C	C	C	C	C	D	D	F	F	F	F
Wound Vert Dipole	C	D	Shack	B	C	B	B	C	C	C	D	D	F	F	F
Fence Dipole	D	A	Remote	C	C	F	F	D	D	D	D	C	C	C	B
TAK-tenna	D	B	Shack	B	C	C	C	C	C	C	C	D	D	F	F
Antenna	On Air	Stealth	Tuner	Install	Cost	6M	10M	12M	15M	17M	20M	30M	40M	80M	160M
Off Center Fed	C	C	Shack	B	B	C	C	C	C	C	C	D	D	F	F
Windom	C	C	Shack	B	B	C	C	C	C	C	C	D	D	F	F
Inverted L	A	B	Remote	C	C	B	B	A	A	A	A	A	A	A	A
End Fed	B	B	Remote	B	C	B	B	B	B	B	B	C	C	F	F
Random Wire	C	B	Shack	B	B	C	C	C	C	C	C	D	D	F	F
Flagpole L	A	B	Remote	C	F	B	B	A	A	A	A	A	A	A	A
Rain Gutter Dipole	D	A	Shack	C	C	F	F	D	D	C	C	C	D	D	D
Spiral Dipole	D	B	Shack	B	C	C	C	C	C	C	C	D	D	F	F
Antenna	On Air	Stealth	Tuner	Install	Cost	6M	10M	12M	15M	17M	20M	30M	40M	80M	160M
WL Horz Loop	D	C	Remote	D	D	F	F	D	D	C	C	C	D	D	D
Rain Gutter Loop	D	A	Shack	D	C	F	F	F	D	C	C	D	D	D	F
WL Vert Loop	B	B	Shack	B	B	B	A	B	A	B	A	B	A	C	F
Magnetic Loop	C	A	F	B	D	C	C	C	C	C	C	C	D	D	D

Rated A-F, for best to worst



Online Resources

The Villages Amateur Radio Club	http://www.k4vrc.com/
ARRL QST Archives	http://www.arrl.org/qst
SGC Tuners	http://www.sgcworld.com/
LDG Tuners	http://www.ldgelectronics.com/
Spiral Dipole Antenna	http://www.kn9b.us/spiral-dipole
Ventenna	http://www.ventenna.com/
Ed Fong Antennas	http://edsantennas.weebly.com/
MFJ Enterprises	http://mfjenterprises.com
Isotron Antennas	http://www.isotronantennas.com/

