The Radio Hotel– A Fool for the (noisy) City

A cursory look at 'receive only' antennas

by Rick Hiller – W5RH

Many a Ham has "Gone Up the Country" to escape HOA restrictions or maybe the added noise that the city brings to our Ham Radio stations. However, some of us are not so lucky, or inclined, to be able to leave. So, with apologies to Foghat…..

Strug'lin to hear DX, cursing at the sun,
When I get my Remote Rig, I'll QSY and run
But now I'm ready in the city, band pollution here I come
Cause I'm a fool for the city…….I'm a fool for the city!
(paraphrased first verse from "A Fool for the City" – Foghat 1975)

Back in the April Beacon, K5JPP hit on solutions for RFI in the Ham Shack. But, what about the noise coming in on your main antenna? Locally generated garbage or even sky noise can be a problem. What can be done about that? Separate receive antenna(s) seem to be the answer, at least on the lower bands, where much of the noise appears. It is all about improving the signal to noise ratio of the received signal. These dedicated receive antennas provide a level of noise reduction due to 1) noise versus signal direction or 2) the noise type.

Over the years receive antenna suggestions stretch from shortened dipoles, to magnetic loops to EWE's, Pennants, the Wave (Beverages), BOG's, LOG's and many others. Some are band specific, some are wide-band. Use the QST search engine to find many articles about any of these receive antenna types, starting with the original "Wave Antenna" by H.H. Beverage in the November 1922 QST. FYI – My QST search for "Receive Antenna" showed 99 articles from 1923 to present.

Want more information? The Web is your friend, but also specific Ham Radio antenna books:

--Contest University 2020 W3LPL –"Effective Low Band Receiving Antennas" @ Contestuniversity.com
--The latest **ARRL Antenna Handbook** has 32 pages of Receive Antenna information.
-- ARRL published the excellent 150 page **Receiving Antennas** in 2018 by Eric Nichols, KL7AJ
-- Joe Carr's 1993 **Receiving Antenna Handbook** has 184 pages of info.

The goal of a receive antenna's use is one of 2 things – 1) noise reduction or 2) S/N signal to noise ratio improvement. Your signal strength on these antennas will be low, but, hopefully, the noise component will be even lower still, hence a S/N improvement. One simple trick is to use an antenna for a higher band to receive on your operating band. Por ejemplo: using a 20 meter dipole to receive on 40, 80 or 160 meters. Feed it thru a tuner and peak for maximum signal. Note: your xcvr pre-amp has 20 dB of gain, which is the same gain as the dedicated, external pre-amps for the popular receive loops. So, no reason to buy one, just push the button. The results just might surprise you. And what antennas are now popular? The Shared Apex Loop Array is a small format, electrically steerable, receive array for your easy-up backyard deployment. See QST, October 2012.

To end with -- My two $64,000 questions -- With the popularity and excellent performance of the new, software rendered "signals in the noise" digital modes, are these receive antennas necessary? At what point do receive antennas stop being beneficial? My guess is that receive antennas are useless when your ears don't need to "listen" or when we stop using the received signal as a demodulated audio bandwidth. But, I hope I'm wrong.…cause I truly am a fool for the city. *Enjoy your hobby, 73*