

Newcomers and Elmers Net: Scanning with Amateur Radios

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If you are like me there is not much that doesn't fascinate you about radio, and my limited hobby time is spent between a number of RF pursuits like ham radio, scanning, SWL and AM DXing to name a few. -

-- My poor wife is constantly putting up with my radio passions, and to her great credit, has even tried to learn a little bit about it all to better understand my ramblings.

-- I want to spend some time talking equipment, particularly as it relates to amateur radio equipment being used for the dual purposes of scanning and amateur contacts.

-- If you have been into scanning or amateur radio for a long time you probably come from the days where the two categories are separate —amateur radio equipment was used just for amateur contacts, while scanners were used just for scanning police and fire or military frequencies.

-- Of course for some, bridging the gap between the two aspects of the hobby just gave one the opportunity to buy more toys.

-- We've all seen those photos of cars decked out with a dozen radios and at least as many antennas, and we are all left wondering just how a person manages to actually drive the car!

While scanners have for some time included amateur frequencies at least as scanning options, amateur equipment has only fairly recently started including wideband reception capabilities in transmitters.

-- Both handhelds (HT's) and mobile units may be purchased which not only cover the 2-meter and 440 bands, but they also have extended receive options and memory capacity to handle a lot of public service monitoring.

-- While I will discuss my own equipment a bit, this is by no means a plug for these manufacturers;

-- I will use my equipment as indicative of what is available now, but I will also list some makes and models later on from a number of manufacturers.

Differing Goals

First of all, I want to make sure there is no confusion here: ham radio equipment is not designed with the same goals in mind as a scanner, and neither are scanners designed with amateur uses in mind.

-- Both are ancillary aspects of the respective equipment, but I think manufacturers are more than willing to "cross over" to broaden the appeal for their product.

-- In the case of scanners, movement in the field made including amateur radio options easy, while in the case of ham equipment, advances were made to set one manufacturer apart from another.

-- Wider and wider receivers have been included in newer amateur rigs, and this is very much market driven I believe.

-- Who benefits? We do! There are now available a number of radios with coverage going from the upper HF bands all the way into microwave territory, with some radios even covering the whole HF spectrum, and doing it fairly well.

Keep in mind, scanners are designed from the ground up to move very rapidly from one channel (or object/group/etc.) to another, with speeds often reaching 100 channels per second (cps) or more.

-- Amateur equipment does not scan that rapidly, and this may be a source of concern for those who are used to scanners alone.

-- Nor (as of now) are there amateur rigs capable of handling digital systems or trunking systems the way many scanners do.

Amateur rigs excel at allowing you to program specific analog frequencies into memory, along with the needed PL tones, and then search these frequencies along with the local repeater frequencies you already have in your rig.

-- Since many of these radios are dual band radios covering 2 meters and 440, there is usually a multiband antenna already connected to the radio which will work well for the police and fire frequencies.

-- In addition, many radios allow for programming in frequency ranges for random scanning, allowing you to hear and identify new frequencies and then store them in memory for future use.

Band Scanning

Most radios now have the ability to scan ranges of frequencies or collections of channels held in banks.

-- Some allow banks to be linked together, and this gives you the opportunity to scan a range of frequencies more quickly.

-- I find that while it is more work initially, programming in the frequencies I want to scan works better than scanning through a search range.

-- Search ranges are great for catching things you don't know about, but when scanning for specific services usually knowing the typical frequencies in use will be much more efficient.

-- It takes a scanner or an amateur rig a long time to scan, say, air bands between 118 and 399MHz. and many of the frequencies will be empty.

-- (A nice resource for aircraft frequencies which you can program in can be found at:

<http://www.angelfire.com/wi/scanner/generalaviation.html>)

Options Galore!

Today our options are better than ever for combining two of our favorite hobbies together and for catching a lot of the action in our area.

-- When mobile or in the house I can keep in touch with local hams, and I can listen to police, fire, marine, aircraft and military channels at the same time.

-- I really appreciate this last aspect because frankly, our local repeaters are fairly quiet these days, even though I live fairly close to a large city.

-- There is less and less traffic on the 2-meter and 440 bands, so having the ability to keep up with local public service traffic is a real treat.

-- And being able to use one radio for both I avoid having to fight between radios when both have something on them.

So what can you expect to get with wideband amateur equipment these days?

-- Well, in the handheld department many HT's have at least extended VHF coverage starting around 136 MHz up to 174 MHz,

-- while dualband HT's often additionally cover 400-479 MHz. With wideband coverage, however, many dualband radios now receive 108-520 MHz and 700-999.99 MHz (less cellular).

-- And these are just the HT's! Alinco makes a tri-band radio that covers 2 meter, 440, and 1200 MHz for transmit, with receive frequencies from 540 kHz to 1299 MHz.

These modern wideband receivers from a number of manufacturers come with hundreds of memories, wide and narrow band options, and some even come with AM capability.

-- Like the Alinco mentioned above, Kenwood makes a nice tri-band HT (2m, 220, and 440) which covers 100 kHz to 1300 MHz, with single side-band capability.

-- Are these wideband receivers equally sensitive across all bands and impervious to overload? Nope!

-- But each manufacturer has tried to find a good balance among features to give as good of a signal as they can within reasonable limitations.

-- No radio is going to be able to handle these extremes equally well, but considering these reasonable limitations, they do a great job.

In the mobile rig department I have two mobiles—a Kenwood V71A and an Icom 2200H.

-- While the Icom is representative of the older, less capable receive rigs, it still covers enough of the lower band VHF frequencies to allow me to listen to a lot of local analog police and fire channels, especially through search ranges.

(It also allows the addition of a D-Star chip to add digital capability)

-- With its somewhat limited memory I can still have a good number frequencies stored to cover a lot of analog services in my area.

My Kenwood, on the other hand, represents some of the best of the modern amateur rig capabilities by having 1000 memories, coverage from 118-1300 MHz, and multiple tuning spacing and band width capabilities.

-- I listen to air traffic frequencies, police, fire, weather alert, towing and traffic information, as well as some military aviation frequencies.

-- Oh yeah, I also listen amateur bands as well (grin)!

-- This is typical of the newer more advanced rigs on the market today, with similar models from Alinco, Yaesu and Icom.

Taking Advantage Of The Newer Rigs

While there is a lot to be gained by having multiple radios including scanners, mobile ham gear, and base stations, sometimes it is nice to be able to enjoy multiple options from one rig.

-- With many radios having a dual receive option, one band can cover scanning the local repeaters while the other band scans public service frequencies.

-- If you take the time to program up your radio effectively, chances are good you will hear a lot of great stuff out there!

-- And even if you don't want to do all that much programming, some of the amateur gear available today offer the equivalent of a signal stalker mode where they will try to identify the CTCSS codes of unknown frequencies for ease of capture.

With all of the great features available on the modern rigs, the possibilities for enjoyment are almost endless.

-- Even if most of the police and fire dispatches are digital or trunked systems in your area, there are a lot of other systems still using analog systems such as railroad, marine, and aviation signals.

-- Check out www.radioreference.com in the database section for listings of stations in your area—you might be amazed at what is still out there in the analog world.

Radio Options

Here, as promised, and in no particular order, is a listing of a number of wideband amateur rigs similar to those discussed above:

- Alinco DR-635T (nothing above 480 MHz, but does cover aircraft AM and FM commercial bands)
- Alinco DJ-G7T (low power HT with receive up to 1299 MHz)
- ICOM IC-80AD (DStar capable HT and receive from 495 kHz to 999 MHz)
- ICOM IC-91 and 92AD (same as above with added features)
- ICOM IC-2820H (dual band mobile receive 118-999 MHz)
- ICOM IC-880H (same as above added features)
- Kenwood TM-710A (Packet/APRS receive 118-1300 MHz)
- Kenwood TM-V71A (118-1300 MHz)
- Kenwood TH-F6A (HT receive 100 kHz-1300 MHz)
- Yaesu FT-60R (HT receive 108-999 MHz)
- Yaesu VX-3R (500 - 1800 kHz (AM Band), 1.8 - 30 MHz (Shortwave), 30 - 76 MHz (VHF Lowband with 6M), 76 - 108 MHz (FM band), 108 - 137 MHz (Air Band), 137 - 174 MHz (VHF High band with 2M), 174 - 222 MHz, 222 - 420 MHz (VHF band with 220), 420 - 470 MHz (440), 470 - 800 MHz and 800 - 999 MHz)
- Yaesu VX-6R (receive 504-998.9 MHz)
- Yaesu VX-7R, 8R (all similar to VX-3R above with different features)
- Yaesu 7900/8800R (receive 108-999 MHz)
- Yaesu 8900 (adds 10 meters and 6 meters to above receive)

I hope this sparks an interest in you to see what your amateur rig can do, or to purchase one of the newer more capable rigs available today. If you are like me you can't get enough scanning and amateur time in during a day, so anything which adds to the hobby is a welcome treat.