Another Quest for 5BWAZ

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In the June 2002 column (when this column was Propagation in the printed magazine WorldRadio), I discussed the 5BWAZ (5 Band Worked All Zones) quest of Dennis Ashworth K7FL (in southwest Washington). He had all forty zones on 40-Meters, 20-Meters, 15-Meters and 10-Meters, but needed two zones on 80-Meters (Zones 23 and 37). The column reviewed propagation possibilities to these two zones, and K7FL ultimately worked those zones to achieve his 5BWAZ.

At the end of this old column I mentioned that this fired me up to complete my 5BWAZ. I've been slowly (and I mean slowly) working on this award, and I'm almost in the same boat as K7FL – I have all forty zones on 40-Meters thru 10-Meters, but need seven zones on 80-Meters (17, 18, 22, 23, 24, 26 and 29). For me to achieve 5BWAZ, I need to make sure my station is capable in three important arenas: transmit power, receive antenna and transmit antenna.

With respect to transmit power, I could go after those last seven zones on 80-Meters at a QRP power level or even at a 100 Watt power level. But I ain't getting any younger, so I've opted to use my Commander HF-1250 amplifier. It puts out 1000 Watts from a single 3CX800 tube, so I'm all set in the transmit power arena.

With respect to a receive antenna, in late 2013 I installed a low-noise receive antenna system to help with signal-to-noise ratios (SNR) on 160-Meters, 80-Meters and 40-Meters where man-made noise and atmospheric noise can be a problem. I don't have room for eight 1000-foot Beverages around the compass, so I decided my optimum compromise was a Shared Apex Loop array from Array Solutions (http://www.arraysolutions.com/Products/sal_array.htm). It offers a good improvement in SNR but with a relatively small footprint. I believe I'm all set in the receive antenna arena, too.

With respect to a transmit antenna, here's where I could do some work. At the moment I use an inverted-vee for 75-Meters and 80-Meters. It's on a 42-foot tower, so its apex is at only 38-feet or so. That's not very high in terms of an electrical wavelength (it works out to 0.137 wavelengths) on our lowest HF band, with the result being much radiation at the higher elevation angles that are generally not favorable to DXing.

I have an inverted-L on 160-Meters thanks to a very tall oak tree on the east side of our property. The vertical portion goes up about 60-feet, then slants down to the house to resonate it on the low end of 160-Meters. I have two 120-foot elevated radials under it, and it does a very good job for my DX activities on 160-meters. My plan is to put an 80-Meter trap at the top of the vertical portion, and add two (or three) 60-foot elevated radials. This then makes it a duo-band antenna – a quarter-wave vertical on 80-Meters and an inverted-L on 160-Meters.

At the lower elevation angles (15 degrees and below), the soon-to-be quarter-wave vertical beats the existing low inverted-vee by several dB. That doesn't sound like much, especially on the higher bands where signals are much stronger. But on the lower bands with signals much closer to the noise, I firmly believe every dB of improvement helps (which says I should push my amplifier to 1500 Watts out!).

With the transmit power, receive antenna and transmit antenna issues addressed, what's left are propagation issues and sleep habits. Figure 1 shows paths (the white lines) from my QTH to the seven zones I need on 80-Meters. The map is from VE3NEA's DX Atlas, and is arbitrarily set up for mid December at my sunset. The red lines and red numbers are CQ zone boundaries and CQ zones, respectively.

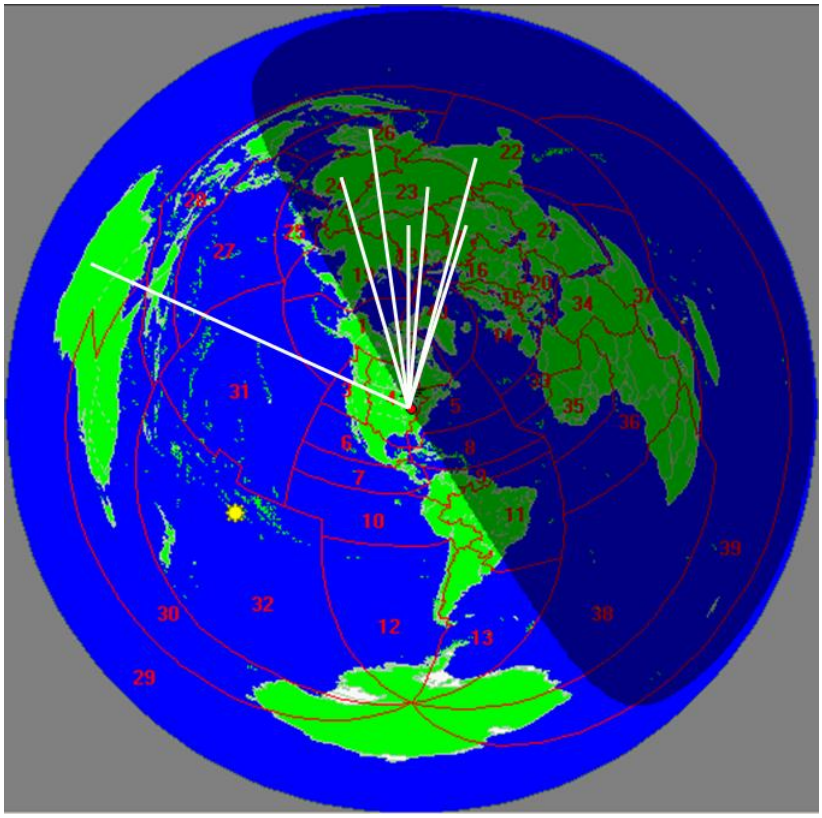

Figure 1 – Zones Needed on 80-Meters

Six of the needed seven zones are to my north – essentially over-the-pole, with all the associated high latitude and polar cap propagation problems. The path to the seventh needed zone (Zone 29) should be the easiest for a QSO, as this zone includes VK6. Note that Zone 29 also includes certain portions of Antarctica (for example, KC4AAA at the South Pole counts for Zone 29).

The final issue to address is sleep habits. With ionospheric absorption the driver on 80-Meters (and even more on 160-Meters), these paths need for all intents and purposes to be in the dark ionosphere. Of course one needs to pay special attention to sunrise and sunset times, but the fact remains that turning into a night owl is a requisite for WAZ on

the low bands. There is one good thing that comes out of this – Snoopy (our dog) and Cali and Tiger (our two cats) will likely be up with me during the wee hours of the night.