ASK BOB

GENERAL QUESTIONS RELATED TO RADIO

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Q. *Can I combine a Scantenna and a Cellular Yagi antenna with a TV antenna splitter to get better 800 MHz reception, or would they reject each other? (Joe K, email)*

A. If they are in phase for an incoming signal, that will work. The problem is that there will be certain angles toward the signal that the two will be 180 degrees out of phase, and thus the signal will be lowered. Of course, you can always put the array on a rotator and simply turn it for maximum signal strength – that would be where the signal is arriving in phase between the two antennas.

Q. *I have a Blaupunkt car radio that belonged to my cousin in Italy. It has the following bands written on the label on the radio: UKW, KW, LW, MW. What frequencies or bands are these? (Jon C., Naples, FL)*

A. Since Blaupunkt is a German product, the designators are in German. Here are their equivalents: UKW, 80-100 MHz FM; KW, short wave AM; LW, 150-340 kHz long wave; MW, 520-1640 kHz medium wave AM.

Q. *It seems like the next big fad could be "wireless electricity" in which power is radiated into a home or office, and picked up by sensors rather than conducted by wire. Is this an old idea whose time has come, or are we in for yet another source of wideband noise once this idea gains significant market share? (Ken, email)*

A. Unless the laws of physics change substantially, I don't see this mode of power transmission coming in the foreseeable future. The problem is not one of interference, but efficiency.

While the promoters say that they get upward of 90% efficiency when an inductively-coupled accessory like a toothbrush is sitting right on the charger, the promoters are speculating the invisible transmission of power throughout buildings to power lamps, computers, TVs, and other accessories.

At such separation, the efficiency drops dramatically. When you hear a distant base station on your scanner, it's the results of hundreds of watts in the transmitting antenna dwindling to millionths of a watt by the time the signal reaches you.

Promoters continue their argument by saying they would wrap the building in wire coils so that you and your equipment would be in the middle of the electromagnetic field. No thank you! Not only are there conceivable health concerns from such an arrangement, but you're still not saving wire.

Electrical cords in the home and office are still the answer for much time to come.

Q. *I am interested in improving my AM DXing of high-power broadcasters along the U.S. East Coast. I currently have an ICOM R-75 communications receiver and several portables, as well as wire antennas with their broadsides favoring the East Coast. (Tom Gallagher, Troy, AL)*

A. You already own an excellent AM receiver; if you aren't satisfied with your reception, then we need to look at your antennas.

Many AM DXers use loop antennas to null co-channel interference. The main problem is that it is best mounted some distance away from your home to avoid electrical interference.

If electrical noise is a problem, you may need a good noise canceller like the Timewave: **www.grove-ent.com/dsp599zx.html**.

Of course, time of day/night monitoring is a factor as well because of signal propagation and high/low power changes mandated by the FCC on nighttime broadcasters.

Q. *I erected a 60 foot tower with a high gain HDTV antenna and pre-amp located at the top of the tower.*

My FM reception is really good; I can listen to FM stations from Tampa 110 miles away, but a local station on 102.7 MHz overloads my tuner so that I hear them on several spots across the dial.

Is there a sharp, one frequency notch filter that would only attenuate the offending signal without impacting other FM frequencies? (John Bulmer, K3JAB).

A. Chances are that it's the antenna preamp that's getting overloaded and sending those phantom signals down, so the first thing you should do would be to take that out of the system to see if it takes care of the problem.

If it does, then see if you can live with the signal levels of the other stations since no notch filter is going to notch out just 102.7 without spreading its attenuation several megahertz up and down the dial.

Finally, if the Tampa target is substantially in a different direction from the offensive 102.7, then move the beam around until it finds a null for the offender, reducing the images. Just hope that it's a direction that still allows Tampa reception!

As last-ditch effort, you might want to try a receiver with better image/overload rejection.

Q. *Why do I receive greater distance on the 20 meter band than 40 meters? On 20 meters I hear ham radio operators from around the world, but on 40, I only hear U.S. operators. (Rene Puente, San Diego, CA)*

A. Let's think of these bands in terms of frequency. At the lower frequencies, signals propagate more directly, often following the curvature of the earth, while at higher frequencies they take off over the visual horizon and proceed skyward.

The electrically-charged upper layers of the atmosphere (the ionosphere) behaves differently on higher and lower frequencies as daytime solar radiation energizes them. Higher-frequency signals are more likely to be reflected back down to the earth, thus skipping over great distances and heard remotely, while lower frequency signals are more likely to be absorbed by the ionosphere, limiting the distance over which they can be heard as the signal dissipates traveling over the earth's surface.

Questions or tips sent to Ask Bob, c/o MT are printed in this column as space permits. Mail your questions along with a self-addressed stamped envelope in care of MT, or e-mail to bobgrove@monitoringtimes.com. (Please include your name and address.)