



Tutorial:

Hunting Inside of Buildings

This environment is even more difficult than hunting mobile in a high rise community. Before entering the building attempt to establish by direction and signal strength generally what part of the building the source is in. Don't forget to try to take angle of elevation readings to try to establish how high up the source is. (SuperDF can measure elevation angle.)

Once inside virtually the only reliable hunting method is the measurement of relative signal strength while moving about in the building. SuperDF is not going to be useful. Useful tools are:

1. A simple field strength meter.
2. A service monitor.
3. A spectrum analyzer.
4. A "shielded" receiver.

A "shielded" receiver needs some explanation. No receiver is shielded well enough itself to be generally useful for this work. It is very simple to create the needed shielding. Here is how to do it.

The actual receiver can be any battery operated handheld unit, such as a scanner. Its own degree of shielding is not important. Obtain a paper mailing tube of sufficient diameter to allow lowering the radio completely inside the tube using a nonconductive strap or cord. Wrap the outside of the tube with ordinary household aluminum foil. As you wrap the tube heavily overlap the foil to be absolutely certain there are no "cracks" through which RF can leak.

Tune the radio to the frequency and set the volume to a comfortable level. Lower the radio into the tube using the strap or cord, while listening to the amount of quieting. As the radio drops into the tube, the tube acts like a wave guide beyond cutoff. The greater the penetration into the tube the greater will be the "shielding" effect, and the noisier the signal will be. To gain even more attenuation, remove the "rubber duck" antenna from the radio before lowering it into the tube.

Adding the shielding effect of your own human body can provide some directivity to this setup. While holding the tube snug against the front of your body, slowly turn yourself through 360° looking for the position which produces the most noisy signal. At that position assume the signal is coming from behind you.

With this tool, walk around inside the building. Use body shielding to get you going in the right direction, and for corrections. Ride up and down elevators, checking the RF level at each floor with the door open, or check RF level at each (open) landing door of a stair well. Look for the "hottest" spot (radio lowered deepest into the tube). Eventually there may be enough RF to register on a simple field strength meter. The actual radiating antenna can be found by Hot / Cold hunting with the field strength meter or the receiver / wave guide beyond cutoff.

George R. Andrews
President

Download a [Text-only version](#) of this article.

Contact

George R. Andrews (Russ, K6BMG)
BMG Engineering, Inc.
9935 Garibaldi Avenue
Temple City, CA
91780, USA

Voice 1(626)285-6963
Fax 1(626)285-1684 (24 hour automatic)
America OnLine: Grandrews
Web: <http://members.aol.com/bmgenginc>

(5 Feb 1996)

Send E-mail to grandrews@aol.com. (A message window will open.)

Return to [Tutorial, Contents](#).
Return to [TOP PAGE](#).