

Scanning Receivers, Then Through Now, and Beyond

PREAMBLE: The Scanner, like the telephone and amateur radio, and most things electro-mechanical, has developed with a similar pattern. What was once a simple user-friendly device one might enlighten his surroundings with has developed into a highly sophisticated tool – with a proportionately-sized manual – that requires at minimum, great patience and understanding – NOT for your average person – more for the technophile!

It is my intention to introduce you to the latest development in scanning – namely OBJECT ORIENTED SCANNING, or OOS. In doing so I will attempt to trace the history of this radio receiver and mention parallels to the telephone and amateur radio. Some references and URLs follow the article.

We start (for our purposes) after WWII when most homes had a radio, which at that time referred to a tube-type receiver, AM certainly, possibly SW also, but seldom FM. As the world recovered from war many surplus devices from the military made their way into society, i.e. the VHF transceiver into government and public service agencies. Motorola and others, who had supplied the military for ages, now concentrated their efforts towards police, fire, ambulance, and commercial users. Marine and aeronautical radios had previously been in use. Where there is a radio transmission there is always the general public wanting to listen in! So companies like Lafayette made VHF receivers. First they were tunable like an AM/FM radio; next they were individual crystal controlled; next multi-channel crystal controlled; and finally SCANNING!

Back to the telephone. Remember DDD? Before Direct Distance Dialing you talked to an operator. Then you dialed the number yourself – anywhere in the world. Now your cell phone provider knows where you are because a COMPUTER has received a startup transmission (automatic, user

unaware) and is controlling things. Amateur radios had small CPUs in them about 25 years ago controlling frequencies (PLL) and simple memory storage. Now units are mostly computer controlled via menus – sometimes even the volume control has been replaced by a menu setting! Likewise with scanners. Exceeding about 20 channels was bulky with crystals, so a PLL circuit established the frequencies and the size of the memory dictated the number of channels that could be stored. Scanners became 1) smaller in physical size (and usually price as well); 2) greater in number of channels (memory); 3) broader in mode and frequency spectrum; and 4) more sophisticated.

ASIDE: Aircraft generally use Amplitude Modulation, or AM because it was established earlier. Other agencies use Frequency Modulation, or FM (actually NARROW FM). This is mostly because narrow FM takes up less bandwidth, but also is less 'noisy' as noise on a signal is on the peaks of the wave, and FM receivers 'clip' the wave, eliminating most noise. Further reducing the amount of bandwidth required in a SYSTEM, trunking shares frequencies so less are need than in a conventional setup.

Trunked Mobile Radio, or TMR systems are today's norm. And so, as scanner manufacturers assumed, Mr. Average General Public still wants to listen, hence the availability of the penultimate scanner, the TRUNK-TRACKER, including the DIGITAL TRUNK TRACKER, to listen to those transmission quite expensively converted from analog to digital. (I have been told the price of a commercial radio is about \$1000, a Trunked Unit \$2000). Please note that ENCRYPTED signals CANNOT nor SHOULD NOT be decoded.

An overlap has developed between the amateur operator and the scanner listener. Actually, often one and the same. Ham radios now have scanning and priority features. Hams suggest their rigs as alternates to receive only units, and have long recommended VHF antennas from established

amateur suppliers. These facts have long been appreciated by 'foamers' (railroad fans) and those monitoring aircraft.

Programming a trunk tracker pretty well requires a computer – and a different mind set. Instead of having to know the frequency and store it in a channel, the listener must first determine the trunking system involved then find out and store the TALK GROUP. Actually there are two more requirements; first you must acquire software and cables to set up your scanner, even if you know the TGs. Herein comes the nasty bit about reading the manual! Then you must download the info into the scanner. With luck, you can share this info with others likewise interested.

Ultimately we arrive at OBJECT ORIENTED SCANNING, OOS. GRE has been the main supplier of Radio Shack Scanners such as the PRO-90 series handhelds and the PRO-2090 series base/mobiles. They make the PRO-106 and PRO-197 for RS, as well as their own PSR-500 and PSR-600 OOS units. Change mindset again – 'Scannable Objects' are now the buzz words. Memory has NO divisions – just a large list. A scannable object is a conventional channel, a talk group, searching limits, or Signal Stalker II setups. There are NO systems, banks, groups or ID lists. All SOs exist at the same level of hierarchy. The primary method of grouping is by 'mapping' them to scan lists. Little organizational skill is required by the listener. Like your cell phone, the unit does the thinking and the communicating.

The OOS is a NECESSITY in a crowded environment such as Los Angeles or Toronto. I do not see it superseding my digital trunk tracker – **YET!** – by **Glenn, VE1GK**

My email should you wish to comment or question:

VE1GK@rac.ca

URLs and their areas of information.

Maritime Scanner Site: Conventional and TMR info:

<http://www.marscan.com/>

Radio Reference Site - Forum and info on ALL things radio!:

<http://www.radioreference.com/>

Don Starr's Software - PC programs to upload and manage data:

<http://www.starrsoft.com/>

Official thread for PSR-500/600 OOS info:

<http://www.radioreference.com/forums/showthread.php?t=85037>

GRE America (OOS Scanner) PSR-500:

<http://www.greamerica.com/PSR-500.html>

Radio Shack (USA) Scanner list:

<http://www.radioshack.com/family/index.jsp?categoryId=2032072>

Photos and specs of RS scanners (others via links):

<http://www.rigpix.com/rs-realistic/rs-realistic.htm>

Antenna Source (RadioWorld) w/links:

http://radioworld.ca/index.php?cPath=73_191_193