SCANNER EQUIPMENT

EQUIPMENT AND ACCESSORIES FOR YOUR MONITORING POST

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Radio Shack PRO-2053 Trunk-Tracking Scanner

The Radio Shack PRO-2053 is a 300 channel, trunk tracking, desk top scanner made in China by GRE (General Research Electronics). It is a cost and feature reduced cousin of the 500 channel PRO-2067 mobile scanner we reviewed in September 2000 *MT*.

Radio Shack sent us an early PRO-2053, fitted with version 1.00 firmware and bearing date code 07A01. We inspected the firmware version by pressing the 3 key while the welcome message is visible, shortly after power up.

❖ Frequency Coverage

It receives AM and FM signals on the most popular scanner bands plus Citizens Band, 216 - 220, and 1240 - 1300 MHz. Neither the PRO-2053 nor its upscale PRO-2067 cousin tune the UHF military air band, the 72 MHz mid band, nor most television frequencies.

The PRO-2053 tunes the 137 - 174 MHz band using factory-selected steps of 5, 6.25, or 7.5 kHz, and the user cannot change the step size. As a consequence, you cannot directly program frequencies like 160.000 MHz because the radio coerces the entry to the closest FCC allocated channel of 159.9975 MHz. The VHF-high federal assignments, e.g., 165.2375 MHz, are coerced as well.

❖ Memory and Modes

The PRO-2053's 300 memory channels are divided equally among 10 banks. Each channel has a mode: AM, FM, MO (Motorola trunked), or ED (EDACS trunked). The PRO-2067 supports LTR trunking, CTCSS and DCS squelch, but the PRO-2053 does not. Both models provide the flexibility of choosing between AM or FM, which is handy when scanning military activity adjacent to the 2 meter ham band because the military employs both modes within the same band.

For trunking purposes, a memory bank must be designated as MO or ED. You can mix conventional and a trunked system within the same bank, but you cannot use a bank for both Motorola and EDACS trunking.

The PRO-2053 has a total of 10 talk group ID banks and each one contains five sub-banks. Each sub-bank can hold 20 IDs.

You can program a 12-character label for each memory bank and each memory channel. Both the channel label and frequency are displayed simultaneously when stopped on a channel. A defect in our PRO-2053's version 1.00 firmware causes some of the labels for channels in banks 0 and 1 to be overwritten by the labels from banks 8 and 9. For instance, channels 004 and 820 share the same label.

Figure 1: Radio Shack PRO-2053 Trunk Tracking scanner

❖ Scanning and Searching

Each memory channel supports a selectable 2-second rescan delay and the delay works well for talk groups when scanning trunked systems. The PRO-2053 scans combinations of conventional and trunked systems with little, if any, noticeable delay while switching between the two. Trunked systems may be scanned in open or closed mode. I prefer to visualize open mode as searching a trunked system for any transmission, regardless of talk group.

You can lock out conventional channels so they won't be scanned. You can lock out talk group IDs from being scanned in closed mode, but the PRO-2053 lacks the ability to lock out IDs in open mode.

The PRO-2053 has a single limit search bank, a weather search, and five service search (factory preprogrammed) banks, including Marine, CB, Police/Fire, Aircraft, and Ham. The Police/Fire and Ham services are further subdivided into six and four selectable groups. Marine and CB channel numbers are displayed along with the actual frequency.

❖ Cloning

A 1/8 inch jack on the rear panel can be used to connect two PRO-2053s or a PRO-2053 and PRO-93 portable together to clone the memory data from one radio to the other. The manual does not document the interface commands that would be required to write computer cloning software. Experimenters have already reverse engineered the port details and have written Windows software to clone either radio.

Too bad Radio Shack doesn't publish the cloning port specifications. That would make it easier for people to develop software and make the PRO-2053 more attractive to hobbyists who use Mac and Linux computers.

❖ Performance

The PRO-2053's audio is better quality than the average desktop scanner when using the internal, top mounted speaker. The squelch has little hysteresis and an acceptable tail. The display is easy to read and the contrast is adjustable.

Measurements

Radio Shack PR-2053 Scanner

S/N C000217, Date code 07A01,
Firmware Version 1.00
List price $249.99
Radio Shack, Inc.
Ft. Worth, TX 76102

Frequency coverage (MHz):
25 - 54 (5 kHz steps)
108 - 136.9875 (12.5 kHz steps)
137 - 174 (various, factory selected steps)
216.0025 - 225 (5 kHz steps)
408 - 512 (6.25 kHz steps)
806 - 823.9875 (6.25 kHz steps)
849 - 868.9875 (6.25 kHz steps)
894 - 960 (6.25 kHz steps)
1240 - 1300 (6.25 kHz steps)

Modes: AM, NFM, user selectable

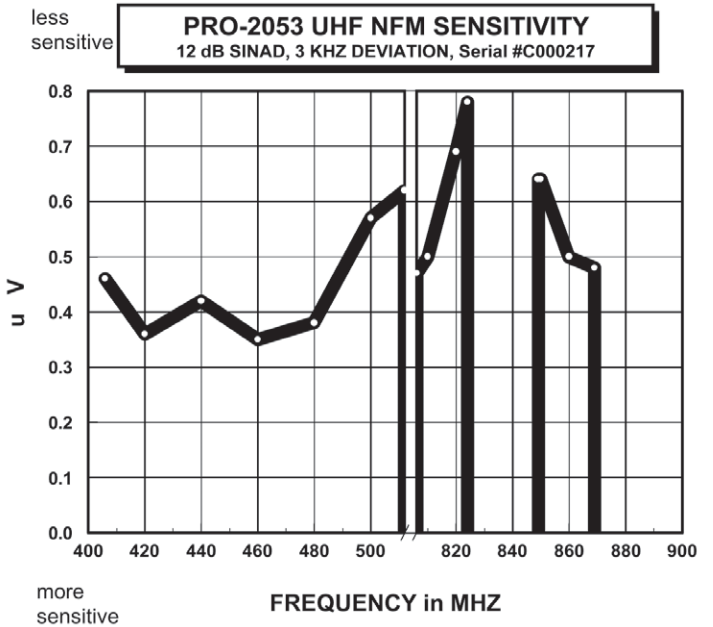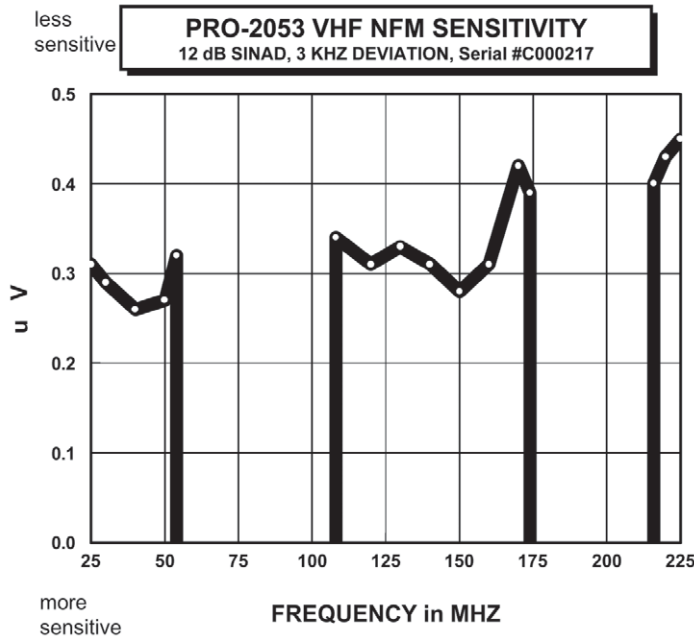**Intermediate Frequencies:**
Approx. 380.8, 21.4, and 0.455 MHz

Image rejection due to 1st IF:
61 dB at 40 MHz
41 dB at 155 MHz
59 dB at 460 MHz

Audio output: 0.97 W @ 10% distortion

Squelch tail: moderate

Practical memory scan speed: 52 channels/sec.

PRO-2053 VHF NFM SENSITIVITY
12 dB SINAD, 3 KHZ DEVIATION, Serial #C000217

PRO-2053 UHF NFM SENSITIVITY
12 dB SINAD, 3 KHZ DEVIATION, Serial #C000217

Our PRO-2053 experiences some intermod on the VHF air band due to a mixture of a strong 162.4 MHz weather radio transmitter and other transmissions.

The sensitivity is fairly good below 894 MHz. Though we didn't graph the results above 894 MHz, we measured an FM sensitivity better than 0.5 uV for 12 dB SINAD from 894 to 1300 MHz.

We measured a zippy 52 channels/sec scan speed. That is more than twice as fast our PRO-2067 and the fastest of any GRE-made model we've tested so far.

The PRO-2053 is a very good alternative to the PRO-2067 if you don't require CTCSS or DCS squelch, LTR trunking, or more channels. Download the owner's manual at **http://www.radioshack.com** for more information.

SKU #271773

Figure 2: CompUSA PCI high speed serial and parallel port adapter

❖ More Serial Ports

Two trends are on a collision course. More radios are being offered with serial data ports at the same time as computer manufacturers are offering fewer RS-232 serial ports on their new computers. The computer companies have been replacing RS-232 serial ports with USB ports, but radio manufacturers have ignored the trend.

Serial-to-USB converters are available but are often incompatible with scanner software. What can you do? You can add an external port switch that permits a serial port to be shared among several radios, one at a time.

What if your computer has only a single serial port and it is being used by your dialup modem? You can install a multi port circuit card inside the computer cabinet. Modern cards plug into a PCI slot.

We installed a $30 CompUSA PCI High Speed Serial and Parallel Port Adapter card (SKU 271773) and gained two extra RS-232 serial ports and one extra printer port (fig. 2). A 25-pin parallel port connector and a 9-pin serial port connector are mounted on one panel, and a separate panel holds the second 25-pin serial connector. The additional serial port connects to the card by a ribbon cable, though the minimalist instructions don't show it.

The new ports on CompUSA's card share a single IRQ so it doesn't gobble many resources. NetMos Technology makes the chips on the card. The version 1.0 driver software furnished with our card
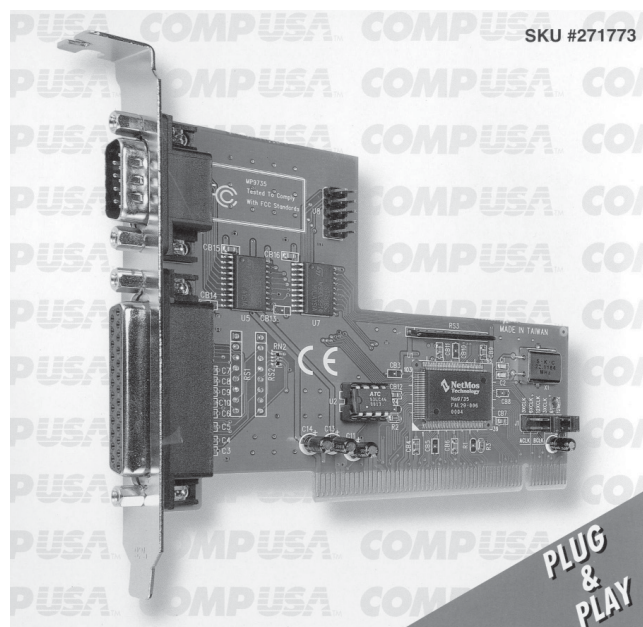
caused problems, so we downloaded newer software from the NetMos Technology web page and the card is working well under both Linux and Windows 98SE.