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Radio Shack PRO-2052 Trunk Tracker Scanner

The Radio Shack PRO-2052 is a 1000 channel table top scanner capable of selectively following conversations in VHF and UHF Motorola and Ericsson trunked radio systems. The PRO-2052's front panel looks identical to the earlier PRO-2050 we reviewed in May 1998. Uniden manufactures both models in the Philippines for Radio Shack.

Physical resemblance aside, the PRO-2052 has several improvements over the PRO-2050. The new model tunes the 225 - 400 MHz UHF military air band, VHF television channels 7 - 13, the 216 - 225 MHz band, and a 1240 - 1300 MHz sliver. The designers censored frequencies adjacent to the cellular phone bands so our PRO-2052 will not receive 823.9625 MHz – a frequency commonly allocated to local and state government agencies.

Memory capacity is increased from 300 channels in 10 banks to 1000 channels in 20 banks. A new 9 pin jack permits the PRO-2052 to be connected to a personal computer, though software is not included. The user manual documents the computer commands so programmers can write software to "drive" and download the PRO-2052.

The PRO-2050 tracks only 800 MHz Motorola trunked systems. The new PRO-2052 has expanded trunking to Ericsson systems and can track conversations in the 137 - 174, 406 - 512, 800, and 900 MHz bands.

The PRO-2052 is compatible with NOAA's SAME system (Specific Area Message Encoding) and you can program the PRO-2052 with FIPS codes for up to 15 areas.

Conventional Features

A 2 second rescan delay may be programmed on a per channel basis. A query feature identifies duplicate memory channels. Our PRO-2052 scans a mixture of frequencies at 73 channels/sec., skipping over empty channels.

One channel per bank can be designated a priority channel and sampled every 2 seconds. A single pair of frequency limits can be programmed for searching up or down, but searching and priority cannot be used simultaneously. Up to 50 frequencies may be locked out from a limit search.

There is no Direct key or direct search facility. Factory preprogrammed frequencies for police, fire/emergency, commercial air, public service, and weather can be scanned by pressing the SVC key. You can lock out up to 20 frequencies from a service bank search.

Frequency step sizes and AM, WFM, and NFM emission modes are selected automatically depending on the frequency and cannot be overridden. There is a 6 MHz step size when searching the VHF television bands and you cannot program the PRO-2052 for frequencies in between the TV audio channels.

Figure 1: Radio Shack PRO-2052 scanner

Trunk Tracking

Each of the PRO-2052's 20 banks can be programmed with the frequencies for a single trunked system or with frequencies for conventional use. You must identify the type of trunked system before programming a bank using a needlessly complicated procedure. For instance, you must differentiate between Motorola VHF, UHF, 800 or 900 MHz systems. The PRO-2052 firmware should know this by the frequencies you program in memory, but it does not.

You can scan several banks of trunked systems but the PRO-2052 cannot follow trunked conversations and scan conventional systems at the same time. We scanned three trunked systems and observed a 5 second delay before our PRO-2052 switched to the next bank, even during silent periods.

You can search or scan for active talk groups in the trunked domain and lock out up to 100 uninteresting talk groups. You can program up to 5 lists per bank with talk group numbers for scanning. Each list can hold up to 10 group IDs.

Usability and Performance

The PRO-2052 keyboard, display, and cabinetry resemble the PRO-2050 closely. The LCD display is easy to read and brilliantly backlit by an incandescent bulb through an orange filter.

The volume and squelch knobs are too close together and it's difficult to adjust one knob without a finger bumping into the other knob. The tiny dimple marker on each knob is virtually invisible.

The rubber keypad has a good feel and a keypress confirmation beep can be disabled. We must squint to read the tiny keytop lettering of the center keys. The Manual key is perhaps the most important key in any scanner, but it is small and the same color and shape as most other keys. Radio Shack had two years to make the keypad and knobs easier to use but they did not.

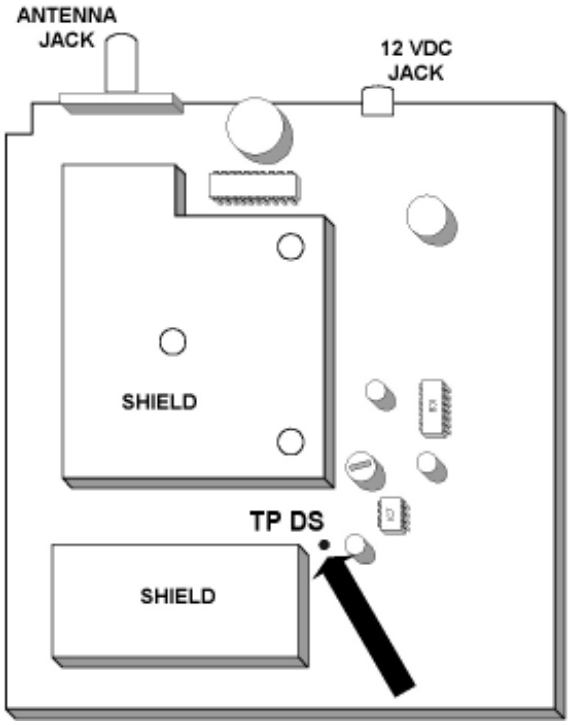
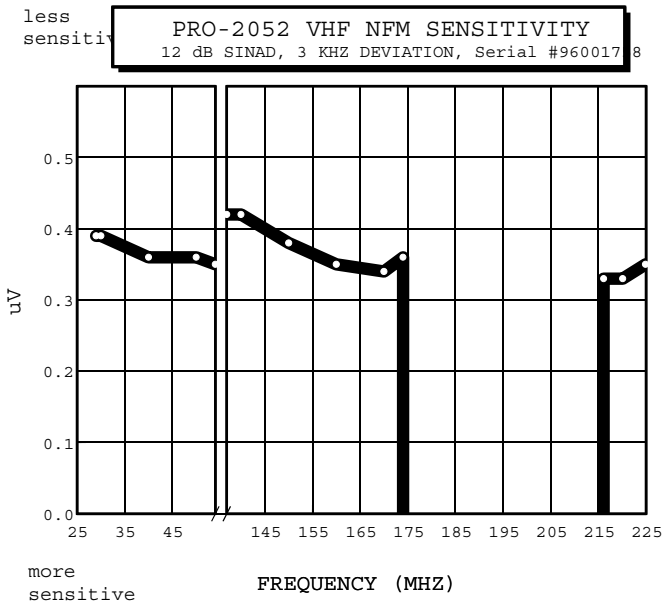
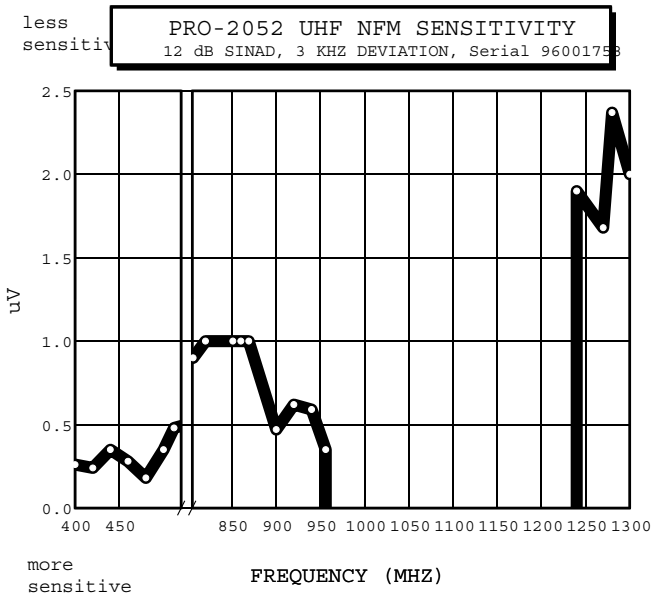
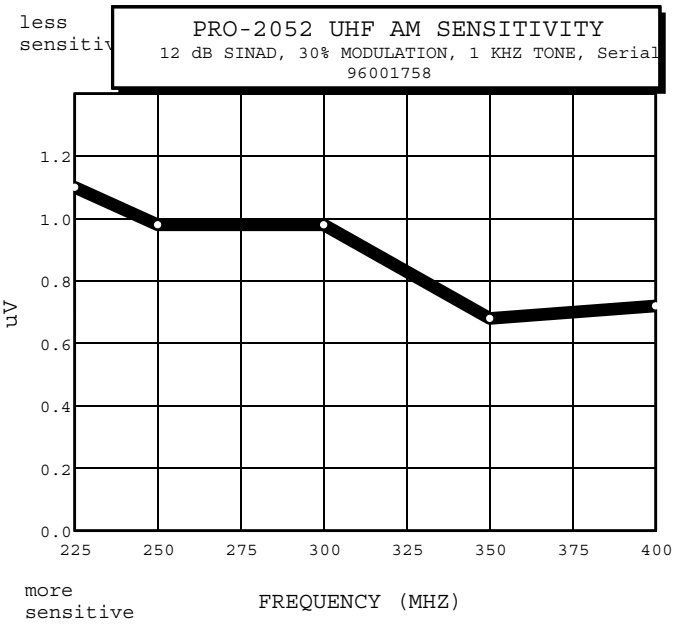


Fig 2: Discriminator tap is labeled "TP DS" (most components omitted for clarity)







Measurements

Radio Shack PRO-2052 Scanner
S/N 96007658

List price $369.99
Tandy Corp.
Fort Worth, TX 76102

Frequency coverage (MHz):
29 - 54 (5 kHz steps)
108 - 136.975 (AM, 12.5 kHz steps)
137 - 174 (5 kHz steps)
179.75 -215.75 (WFM, 6 MHz steps)
225 - 399.9875 (AM, 5 kHz steps)
406 - 512 (12.5 kHz steps)
806 - 823.9375, 851 - 868.9875, 896.1125 - 956 (12.5 kHz steps)
1240 - 1300 MHz (12.5 kHz steps)

FM modulation acceptance: 13 kHz

Intermediate Frequencies:
254.4 or 380.7 (approx), 10.7 or 10.85, and 0.450 MHz

Image rejection due to 1st IF:
69 dB at 155 MHz
69 dB at 224 MHz
66 dB at 460 MHz

Image rejection due to 2nd IF:
69 dB at 155 MHz
67 dB @ 224 MHz
68 dB at 460 MHz
70 dB @ 860 MHz

Audio output power, measured at headphone jack:
760 mW @ 10% distortion

Squelch tail near threshhold (1 uV @ 155 MHz): 5 ms.

Practical memory scan speed: 73 channels/sec.
Search speed, Turbo: 286 steps/sec.
Search speed, regular: 107 steps/sec.

The PRO-2052 is lightweight because there is no chassis and the cabinet is entirely plastic. It feels "cheap." A 12 VDC wall wart (supplied) furnishes power. Components are surface mounted on a main printed circuit board and a second board located behind the front panel. We connected a CTCSS/DCS display to the discriminator test point (marked TP DS) using the solder pad portrayed in Figure 2.

The triple conversion PRO-2050 employs IFs (intermediate frequencies) near 380.7, 10.85 and 0.450 MHz. The PRO-2052 is built around the same IFs but uses a first IF of 254 MHz when tuning 311 - 512 and a 10.7 MHz second IF for WFM reception of TV audio (179.75 - 215.75 MHz). Image rejection on our test unit exceeded 65 dB and that's outstanding.

Harmonics of the crystal controlled 10.4 MHz local oscillator are responsible for weak birdies at 31.2 and 41.6. Our PRO-2052 is fairly sensitive, except in the 1240 - 1300 MHz band.

Our PRO-2052's crisp audio gives us a headache unless we use an external speaker or amplifier with adjustable frequency response. Monaural headphones or an external speaker can be connected through a 1/8" jack on the front panel, though you must increase the setting of the volume control because the audio available at the earphone jack has been attenuated.

❖ Summary

It's great to have military air band coverage and fast scanning. Our PRO-2052's reception is excellent and the radio contains many useful features. The PRO-2052 Owner's Manual is quite good, though programming trunked systems and fleet maps is still too complex. We found the ergonomics and audio quality annoying. Physically, the PRO-2052 feels like a cheap scanner but carries a price tag in the $370 range.

PRO-2052 *$299.95* from Grove. See ad on pg 35.