Bob Parnass, AJ9S
parnass@megsinet.net
www.megsinet.com/parnass

Racing Electronics RE2000 Alpha Portable Scanner

Racing Electronics is a company that sells communications equipment and frequency lists to auto racing drivers and fans. Their catalog shows Motorola 2-way radio equipment, Uniden scanners, and the RE2000 Alpha – a portable scanner made in Japan by RELM especially for Racing Electronics. The RE2000 is very much like an enhanced HS200, a scanner we reviewed in April 1997 *MT*.

Like the HS200, the newer RE2000 is equipped with built-in CTCSS (continuous tone controlled squelch system) and DCS (digital coded squelch) decoding. The RE2000 has additional features like alphanumeric memory labels and computer downloading capability.

The Basics

The RE2000 tunes the conventional bands, including 800 MHz and civil aviation. Citizens Band is included, too (see measurements table). AM and NFM (narrow FM) modes are automatically selected based on frequency and cannot be overridden. The aircraft band is covered in 25 kHz steps, versus 12.5 kHz steps found in other scanners. Both the RE2000 and HS200 support VHF high band step sizes of 5 and 6.25 kHz, though the latter is not mentioned in the manuals.

The 200 memory channels are divided into 10 banks. The RE2000 is supplied preprogrammed with dozens of racing frequencies, tone codes, and labels, though we reprogrammed the channels to suit our testing. Channels can be locked out from the scan list or cleared. The first channel of each bank is a priority channel that can be checked every 2 seconds. You can access a channel directly through the keypad or scroll through the channels by twisting a top mounted selector knob.

The RE2000 and HS200 key sequences follow in the tradition of older Regency programmables, like the M400. You program a memory channel by typing the frequency digits, then press Enter and the channel number, followed again by Enter. You can stop there or use the keypad or selector knob to specify a CTCSS or DCS code. Pressing Enter stores the code in the current memory channel. A 2-second rescan delay can be enabled or disabled for all channels at the same time, not on a per-channel basis.

Racing Electronics claims a scan speed of "up to 100 channels/second," but we measure a rate of about 43 channels/second with a mixture of frequencies and CTCSS codes in different bands and banks. The word SCAN appears on the display instead of a sequence of channel numbers or "rolling zeroes."

The RE2000 has a weather search key and supports one search bank with programmable limits. Up to 100 frequencies can be locked out during a search, twice as many as the HS200. Reprogramming either search limit erases the skip memories. We measure a search rate of 104 steps/second, regardless of step size. When placed in search mode, the DL/HL (delay/hold) key toggles between two settings: restart delay or search hold, which halts the search upon finding a signal. In the latter case, the channel selector knob can be used as a VFO (variable frequency oscillator) tuning knob, although the RE2000 contains no VFO, per se.

Tone Squelch

The HS200 was the first portable scanner to include a CTCSS tone squelch. The ICOM IC-R2 and now the RE2000 have followed suit. CTCSS / DCS tone squelch is a great asset in areas where frequencies are shared by disparate users. If you know the code used by the system you want to monitor, you can program the proper code into memory and the HS200 will ignore signals on that frequency unless they are transmitted with the matching code.

Our county sheriff uses the same frequency as the Chicago Police, 60 miles away. We program the CTCSS code for our sheriff so we don't have to listen to Chicago during band openings.

The RE2000 tone squelch can be used while in manual mode or while scanning, but not while searching.

Power and Packaging

The RE2000 is designed to operate from AA penlight cells. The battery trap door is difficult to open on our scanner. The batteries can be alkaline or nickel cadmium, and a NiCd charging circuit is built inside the scanner. A 12 Vdc power jack is located on the side of the case and a wall wart power supply is furnished. It can power the scanner while charging NiCd batteries (not supplied). A battery saving feature reduces current drain after a few seconds of silence in manual mode.

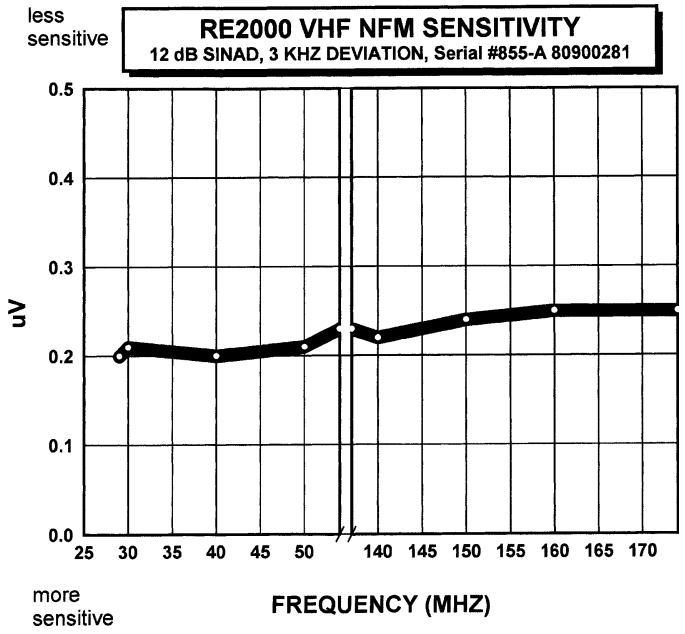
The RE2000 powers up doing the same task it was doing when last powered off: scanning, searching, or in manual mode. Too bad more scanners don't behave this way. If you use the scanner as a monitor receiver in manual mode, it saves you the bother of taking the scanner off your belt and pressing the Manual key each time you turn it on.

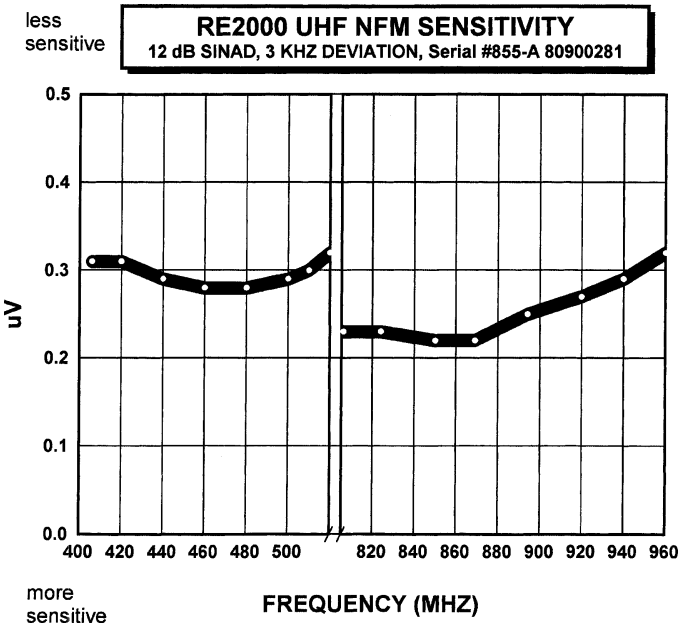
The RE2000 liquid crystal display contains most of the information you would expect in a portable scanner, plus a 5-bar S-meter. The low contrast display makes viewing difficult unless held at the proper angle. The plastic lens is flush with the front panel, exposing it to more scrapes than a recessed lens would be.

Kudos to Racing Electronics for including a backlit keyboard. The Lamp key illuminates both keyboard and display using green LEDs, which remain lit for 3 seconds unless another key is pressed. The lamps light whenever a signal is present or the squelch opens. We couldn't find a way to disable this feature for those times it's not needed.

Computer Downloading

The optional RE2000-PC kit includes a 3-foot cable to connect the RE2000 to the 9-pin serial port on a personal computer, a software disk, and an "e-GUIDE" disk. The e-GUIDE disk contains 24 files of racing frequencies, CTCSS / DCS codes, and alpha labels ready to download into the scanner. We are writing this column at the end of April and our e-GUIDE disk was dated April 1999.





RACING ELECTRONICS RE2000 MEASUREMENTS

SERIAL NO. 855-A 80900281

Frequency coverage (MHz):
26 - 28.995 in 5 kHz steps (AM)
29 - 54, in 5 kHz steps
118 - 137, in 25 kHz steps (AM)
137.005 - 174, in 5 and 6.25 kHz steps
406 - 520, in 12.5 kHz steps
806 - 824.0375, in 12.5 kHz steps
848.975 - 869.0375, in 12.5 kHz steps
893.975 - 960, in 12.5 kHz steps

FM sensitivity:
(12 dB SINAD, 1 kHz tone, 3 kHz deviation, see charts)
less than 0.32 uV

Modulation acceptance:
15 kHz

Intermediate Frequencies:
280.2 and 0.45 MHz

Practical scan rate (approx.):
43 channels/sec.

Search rate (approx.):
104 steps/sec.

Audio output power (measured at earphone jack):
138 mW @ 10% distortion into 8 ohm load

Current consumption @ 6VDC:
70 mA scanning,
140 mA scanning plus lamp,
218 mA open squelch, max. volume.
Battery saver reduces consumption considerably in manual mode.

The Racing Scanner software, version 1.20, resembles the software furnished with the RELM MS200 mobile scanner. Frequency files, named with an .scn extension, consist of comma-separated lines of ASCII characters. You can copy frequencies from the computer to the scanner and vice-versa, but the software does not control scanning.

An optional RE2000-CC cloning kit contains a cable to connect two RE2000s. This permits the memory contents of one scanner to be copied to the other scanner.

Does it Work?

The RE2000 is supplied with a 6-1/4 inch rubber-covered helical antenna, fitted with a BNC connector. The RE2000 antenna is different from the HS200 antenna and a lot more flexible.

Our RE2000 is sensitive both on the bench and in the field. We measure better than 0.3 □V SINAD NFM sensitivity on most frequencies (see graphs). The RE2000, like the HS200, is an excellent companion during trips to busy shopping malls. The good sensitivity and fast search capability allowed us to find and monitor security and inside sales operations of several area stores while sitting in the parking lot.

The user manual did not specify the IFs (intermediate frequencies). Like the HS200, the RE2000's first IF appears to be 280.2 MHz and the last IF is 0.45 MHz. The high first IF and selective front end does a good job of rejecting images, though cellular telephone signals popped up in the 800 MHz range when we drove near cellular base stations.

RE2000 audio quality is good, but not quite as loud as the HS200 we tested. We measured about 140 mW of audio at the earphone jack (vs. 200 mW for the HS200); it's probably attenuated to avoid hearing damage.

Summary

We enjoy using the Racing Electronics RE2000. It has several important strengths: CTCSS and DCS decoding, outstanding performance, alpha display, and computer downloading capability.

The RE2000 is available in either black or red. It is supplied with a helical antenna, metal belt clip, earphone, carrying strap, AC wall wart, and a comprehensive booklet of auto racing frequencies and CTCSS / DCS codes, vol. 11, no. 3, dated 1999. For more information, contact Racing Electronics, 34 Somerset Ave., Pleasantville, NJ 08232, call 1-800-272-7111 or visit their web site at **www.racingelectronics.com**.

May Column Correction

Ray Parker caught a potentially dangerous error in figure 2, the remote scanner controller schematic on page 92 of our May column. Relay RL4's contacts are shown breaking the neutral side of the ac plug. They should be breaking the hot side of the ac plug instead. Thanks to Ray for calling this to our attention.