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Uniden BC296D Portable Scanner

We reviewed the Uniden BC250D handheld scanner in May 2003. The new Uniden BC296D model is basically a BC250D fitted with enhanced firmware to add new capabilities. Both models compete with the Radio Shack PRO-96 (Dec. 2003 *MT*).

Both the BC250D and BC296D share the same wide frequency coverage, including the UHF military air band. Both models can follow conversations in conventional and several different types of trunked systems, but trunk tracking is where the two scanners differ.

The earlier BC250D could demodulate APCO P-25 digital signals only when fitted with an optional BCi 25D card. The BC296D scanner contains a new digital card which is furnished with the radio. The Radio Shack PRO-96 is designed to demodulate C4FM signals. Both Uniden models can detect both C4FM and the newer, less common CQPSK type modulation.

The BC296D and PRO-96 are able to track APCO 25 systems which employ a control channel with either a 3600 or 9600 bps (bits per second) rate. The BC250D does not support the 9600 bps control channel.

There are no APCO 25 digital trunked systems located within our reception range, so we could test BC296D only with analog systems.

The BC296D has more features than we will cover, therefore we recommend you download an electronic copy of the owner's manual from the Support section at **http://uniden.com.**

Like the BC250D, the BC296D tunes 25 - 512, 806 - 956 (minus cellular phone), and 1240 - 1300 MHz.

The BC296D provides 8 step sizes plus an AUTO setting, the latter being determined by frequency. A 6.25 kHz step has been added beyond the choices available in the older BC250D, though a 8.33 kHz step is not supported by either model. The PRO-96 steps sizes are "hard coded" and not user selectable.

The BC296D Service Search, Limit Search, and Auto Store implementations rank among the best of any handheld model we've tested. There are 10 limit search ranges which can be "chained" together. The BC296D user can choose the frequency step in each limit search bank.

The 12 Service Search banks are weather, public safety, news, television broadcast audio, ham radio, marine, railroad, air, CB, FRS/GMRS, racing, and special. The "special" bank consists of low power, itinerant, and interstitial frequencies. We heard fast food drive up window intercoms in this bank, for example.

What You Get

The BC296D comes with a user manual and two frequency guides. The supplied 6 inch, rubber covered antenna looks to be the same helical antenna used by other recent Uniden models.

The BC296D is packed with a CDROM containing software for controlling and programming the scanner using a PC running Microsoft Windows. The software was not ready when our sample BC296D was sent from Uniden, but should be included by the time you read this column.

Uniden includes a cable to connect the BC296 to a computer's 9-pin serial port. One BC296D may be cloned to another using the furnished cable together with an optional adapter.

Uniden's custom 4.8 volt, 1500 mAH NiMH rechargeable battery pack (see photo) is packed inside the radio. The included AD-600U wall wart power supply is used to recharge the internal battery in 14 to 16 hours. You can listen to the scanner while recharging, but the manual warns that you should disconnect the wall wart after charging completes.

Radio Shack's GRE-made scanners have a superior battery setup. They are powered by four individual AA batteries and you, the customer, get to choose your favorite style alkaline, NiCD, or NiMH batteries. GRE-made scanners like the PRO-92 and PRO-95 are supplied with two battery holders; one for rechargeable and another for alkaline cells.

A regulated supply could be connected to the BC296D via the optional UA502 DC power

cord, available at the Uniden web site for $6.60.

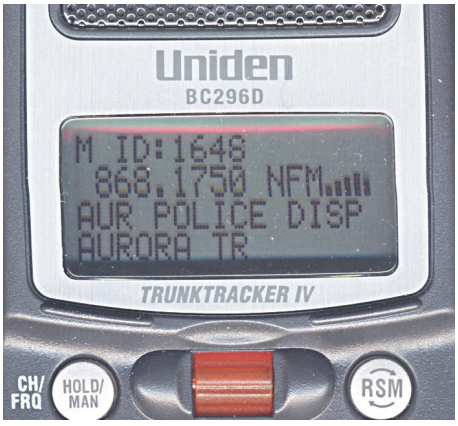
The snap on plastic belt clip is the same type which comes with the BC250D. Four fingers clamp into notches on the sides of the radio and a spring loaded clip grabs your belt.

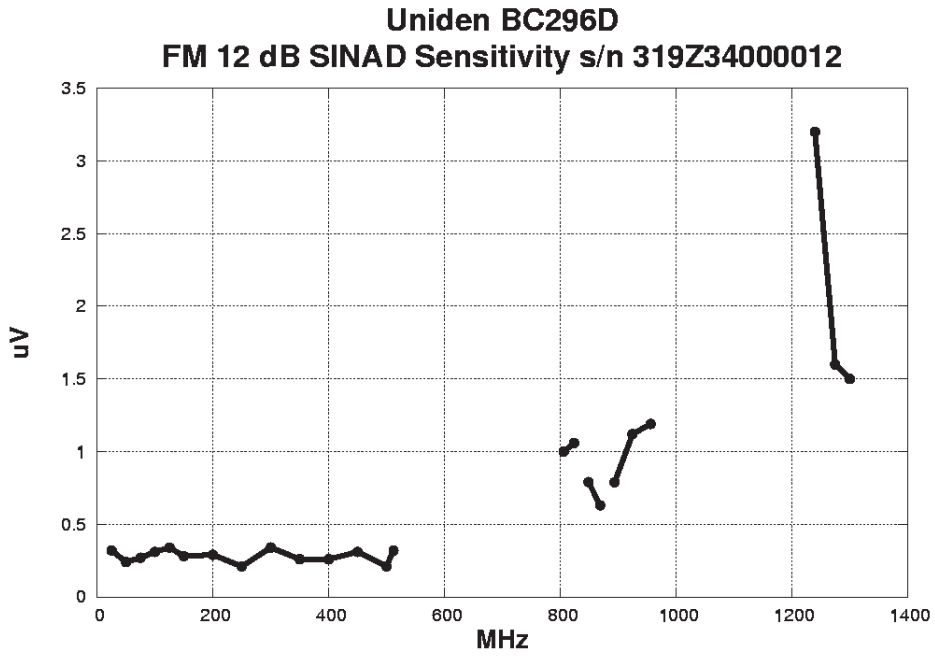
Memory

The BC296D's 1000 memory channels are separated into 10 banks of 100 channels each. Each conventional channel may be programmed with these attributes: a frequency and mode (AM, FM, WFM, NFM), a 16 character label, step size, rescan delay on/off, lockout, attenuator on/off, CTCSS or DCS tone squelch, and beep alert.

Trunked Systems

There are a wide variety of trunked systems in use and the BC250D is designed to track conversations in these systems: Motorola Types 1, 2 (VHF, 400, 800, and 900 MHz), EDACS (Wideband 9600 baud, Narrow 4800 baud, and SCAT), and LTR. SCAT stands for Single Channel Autonomous Trunking and is an EDACS configuration in which a single frequency serves





as both as a control and voice channel.

The BC296D can demodulate APCO 25 digital voice on conventional and trunked systems employing 3600 and 9600 baud control channel signaling, with C4FM or CQPSK modulation.

Measurements

Uniden BC296D Scanner
S/N 319Z34000012

List price $999.99
Uniden America Corp.
4700 Amon Carter Blvd.
Fort Worth, TX 76155
tel. (800) 554-3988
http://www.uniden.com

Frequency coverage (MHz):
25 - 512
806 - 823.9875
849.0125 - 868.9875
894.0125 - 956
1240 - 1300
Step sizes (kHz):
5, 6.25 7.5, 10, 12.5, 25, 50, and 100, AUTO
Modes:
AM, WFM, FM, NFM, conventional digital APCO 25, user selectable
Trunking:
Motorola Type I, II, IIi Hybrid, APCO 25 Phase 1 digital (3600 and 9600 bps control channel), EDACS, EDACS SCAT, LTR.
NFM modulation acceptance:
12.5 kHz
Audio output at earphone jack:
0.11 watts @ 9% distortion
Attenuator:
1 dB @ 40 MHz
10 dB @ 155 MHz
23 dB @ 460 MHz
27.5 dB @ 860 MHz
Image Rejection Due to 1st IF (380.7 MHz):
39 dB @ 40 MHz
46 dB @ 155 MHz
92 dB @ 460 MHz
74 dB @ 860 MHz

As with the earlier Uniden models, EDACS and LTR frequencies must be programmed into memory channels in the proper sequence.

Construction

The BC296D is a large scanner – near in size to the Radio Shack PRO-92. Rubber grips along the side of the BC296D make it easier to hold without slipping from the hand.

The BC296D's liquid crystal display is a dot matrix, i.e., composed entirely of small dots. The display options are essentially the same as the BC250D. Pressing the lamp key causes the display to be lit in an orange color and there are menu options for two brightness levels. The lamp times out after 15 seconds or may be set to remain on continuously.

Missing from the display are indicators for Tone Squelch, Attenuator, and Rescan Delay, so you cannot tell at a glance whether these options are enabled or disabled on a particular channel. To view a channel's configuration, push and hold the Menu/Back key for a couple of seconds. You can then see the channel settings, but you must scroll through them because the screen shows only three settings at a time.

The keypad can be backlit, which makes it easy to use the BC296D in the dark. The keys have tactile feedback, but require more pressure than other models. It's a good idea to enable the keypad confirmation beep tone.

Usability

You can program conventional memory channel frequencies using one of two procedures: 1) By positioning to the desired channel, then typing in the frequency followed by pressing the E key, or 2) Navigating the menu system.

The simpler, direct method works, but only for frequencies which coincide with the default step size. For example, the default step size is 50 kHz in the 225 - 399.95 MHz military air band. If you enter 335.525 MHz directly, the BC296D will coerce the frequency to 335.55. You can then use the menu system to "drill down" to the STEP submenu, change the step size to 25 kHz, then re-enter the 335.525 frequency. Now, the BC296D will accept the frequency without rounding.

You can program alphanumeric labels for memory channels, banks, and talk groups. The BC296D makes it easier to distinguish "new hits" from previously programmed talk groups. If a programmed talk group becomes active while searching for new talk groups, the BC296D will display both the ID and the group label. This is an improvement over the earlier BC250D which would show the ID but not the label while searching. If the BC296D detects activity on a talk group not previously programmed, the word NEW is displayed.

You can tune the BC296D to a frequency without programming it in a memory channel using the following procedure:

1. From normal SCAN mode, momentarily press HOLD/MAN.
2. Then press and hold the HOLD/MAN button until the display changes to ROTARY:FREQUENCY.
3. Then type in the freq you want to tune to without hitting E/enter (i.e. 1, 6, 2, ., 5 for 162.5 MHz)
4. Finally, push the rotary up or down and the radio tunes to your frequency.

Other Observations

Our BC296D has loud audio, better than the tiny palm sized scanners we usually carry. The user manual does a fair job covering the BC296D's features, though we found the instructions for programming a trunked system had some gaps.

Overall

The BC296D strikes us as more powerful than the PRO-96 for general purpose scanning due to the Uniden's wider frequency coverage, richer search capabilities, selectable step sizes, C4FM/CQPSK demodulator, FM bandwidth choices, and other features.

That said, the PRO-96 has a better battery arrangement, multiple configurations (virtual folders), and an instant CTCSS display.

❖ Trunkito MPT1327 Trunk Tracking Software

MPT1327 is the trunking standard in Europe and popular in other parts of the world, except for the USA. Several manufacturers build MPT1327 compliant radio equipment, but there are no hobbyist scanning receivers designed to track MPT1327 systems.

Javier Moreno wrote in to alert us to Trunkito, new MPT1327 trunk tracking software for hobbyists. Trunkito decodes and tracks MPT1327 trunked systems and runs on computers equipped with the Linux operating system, a sound card, and an ICOM receiver. Trunkito may be used with a single ICOM scanner or with two scanners; an ICOM for tracking calls and a generic scanner for decoding the control channel.

Trunkito is free, open source software. See the **http://unixforge.org/~tronkito** web page for more information.

The Uniden BC-296D is available for $524.95 plus shipping from Grove Enterprises (1-800-438-8155 or visit http://www.grove-ent.com).