

## Uniden BC780XLT Trunk Tracker III

**W**e reviewed the Uniden BC9000XLT in March 1995. Its alpha labels, CTCSS decoding, tuning/channel select knob, and wide frequency coverage are major assets.

The number of trunked radio systems has increased steadily since 1995, fueling demand for trunk tracking scanners. Uniden responded with a succession of tracking models, but none of them provides the same flexible step size and mode choices, alpha tags, and wide frequency coverage as the original BC9000XLT.

The new BC780XLT combines the assets of the BC9000XLT with enhanced trunk tracking capability in a downsized cabinet. It is fitted with a DB9 serial port connector and can be controlled or downloaded by a personal computer without using a special level converter.

The BC780XLT includes an additional narrow bandwidth FM mode (NFM), as found in the ICOM IC-R8500. It reduces adjacent channel interference and compensates the audio for signals modulated with lower deviation.

Other improvements include Weather Alert with FIPS code programming, a mute capability, and a beep alert which emits 3 soft beeps at the start and end of transmissions on selected channels or talk group IDs.

### ◆ Memory

The 500 memory channels are divided into 10 banks of 50. The BC780XLT warns if you try to program a duplicate frequency, though you can override the warning. Channels and banks can be labeled, and both labels are displayed when receiving a conventional signal. Other per-channel parameters include attenuation, tuning step, mode (AM, FM, WFM, NFM), CTCSS and DCS tone squelch, rescan delay, and record enable.

The small, multipurpose VFO/Select knob has a detent action and can be pressed like a key. It can step through the memory channels or vary the frequency, as in the BC9000XLT. The BC780XLT doesn't remember a distinct VFO frequency when changing the knob function between memory channel selector and VFO. A handy repeater offset feature permits you to monitor a repeater input by pressing the VFO/Select knob.

### ◆ Programming Trunked Systems

Banks may be designated as Motorola Type 1 or 2, EDACS wide and narrow, or LTR trunked. The Motorola Type 2 category is further subdivided by band. Only one trunked system may be programmed per bank. Programming EDACS and LTR systems is tricky because the frequencies must be programmed in the proper channel

numbers. There's no easy way of knowing the proper order unless you find out from someone familiar with the system or devise the sequence through experimentation.

Each trunked bank supports up to 10 lists of 10 talk group IDs each. The BC780XLT doesn't warn of duplicate talk group IDs. You can assign a descriptive alphanumeric label to each talk group ID. Talk groups IDs can be saved during a search or directly entered via the keypad without actually listening to the system.



Unlike the PRO-2067 and PRO-92, the BC780XLT represents EDACS talk group IDs using the AFS (Agency-Fleet-Subfleet) convention. This affords the flexibility of monitoring related sets of talk groups in the same agency, fleet, or subfleet by specifying just the first few digits they have in common.

An I-Call is a station-to-station conversation not heard by other users. The BC780XLT permits monitoring of I-Calls in Motorola and EDACS systems. You can exclude I-Calls, include I-Calls, or hunt for them.

### ◆ Scanning and Searching

Rescan parameters may be programmed differently for each channel, search bank, and trunked system. The delay may be set at 0, 1, 2, or 4 seconds or an "infinite" setting which terminates the scan when the BC780XLT receives its first signal. Three "ruthless rescan" settings are provided which resume scanning after 2, 5, or 10 seconds, even if the current frequency or talk group is still active.

You can scan combinations of conventional frequency banks and trunked system talk group lists, though there's a brief delay when the BC780XLT starts scanning a trunked bank. Alternatively, you can scan conventional frequencies and search through

trunked systems. You cannot search one trunked system while scanning the talk group lists of another.

After 10 seconds of inactivity during a talk group scan, the BC780XLT hunts for (reacquires) the control channel. We didn't find this to be a minor distraction, nor a problem.

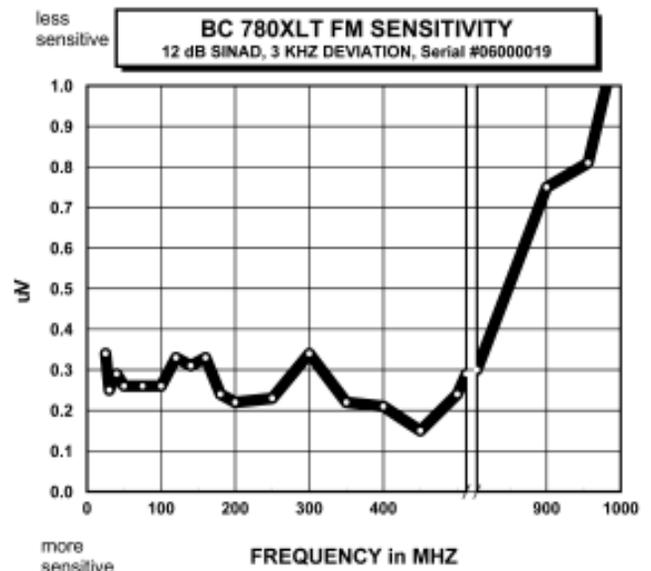
You can program and link up to 10 search ranges, use tone squelch while searching, and lock out up to 200 frequencies during limit searches. A silent Auto Store facility saves active, unique frequencies in one or more memory banks.

Service Search provides 10 banks of factory preprogrammed frequencies and up to 100 lock-outs: rail, air, CB, FRS, special emergency, public safety, news media, TV, ham, and marine.

### ◆ CTCSS, DCS, and Carrier Squelch

Our BC780XLT's carrier squelch action has too much hysteresis, and about 90 degrees of "play" in the squelch control. Squelch threshold settings vary by band because our scanner's background noise level differs by as much as 7 dB between 40 and 460 MHz using the default modes. The squelch tail is 10 ms long on some signals and longer on others.

The BC780XLT provides both CTCSS and DCS (digital controlled) squelch decoding and display. The CTCSS squelch opens on the proper signal faster than our BC9000XLT, which clips the first part of a transmission. The penalty for using CTCSS is a slower scan speed when skipping over signals without a matching CTCSS tone. The practical scan speed slowed dramati-



cally from 69 channels/sec to 17 channels/sec when our BC780XLT heard, but skipped over a signal without the proper CTCSS.

The CTCSS display feature is sluggish compared to the almost instantaneous PRO-2067 display. Our BC780XLT takes 15 seconds to step through 38 CTCSS tones then listen for a DCS code, looking for a match. The tone finder scheme doesn't work well when transmissions are brief.

### ◆ Usability and Performance

Our BC780XLT is sensitive – more sensitive in the 860 MHz range than our PRO-2067 (s/n 00315). We found only 15 birdies (fig. 2). It is well behaved on an outdoor antenna, though we hear a few intermod products in the VHF-high band produced by a strong 158.7 MHz pager mixing with a NOAA weather transmitter. Our BC9000XLT receives the same intermod but our ICOM IC-R8500 does not.

The BC780XLT has many more features than keys on its keypad, so you set parameters by navigating an extensive menu system up to four levels deep. Enabling the attenuator or choosing a rescan delay for a channel requires a multi-key

**Table 1: Measurements**

#### Uniden BC780XLT Trunk Tracker III

s/n 06000019

**Gross price** \$349.95

Uniden America Corp.  
4700 Amon Carter Blvd.  
Fort Worth, TX 76155  
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**Frequency coverage (MHz):**

25 - 512, 806 - 956, and 1240 - 1300 (USA version, cell bands blocked)

**Step sizes (kHz):**

5, 7.5, 10, 12.5, 25, 50, 100, and auto

**Modes:** AM, NFM, FM, WFM

**FM modulation acceptance:** 13 kHz

**Intermediate Frequencies (MHz):**

380.7/244, 45/10.7, and 0.45

**Image rejection due to 1st IF:**

45 dB @ 40 MHz  
60 dB @ 15 MHz  
67 dB @ 460 MHz  
77 dB @ 806 MHz

**Attenuator:**

5 dB @ 40 MHz  
12 dB @ 155 MHz  
9 dB @ 460 MHz  
20 dB @ 860 MHz

**Audio output power, measured at ext. speaker jack:**

2.3 W @ 10% distortion

**Tape output audio:**

15 dB below ext. speaker audio

**Squelch tail length (1 $\mu$ V @155 MHz):** 10 ms.

**Practical memory scan speed:** 69 channels/sec.

**Current consumption @ 13.8 VDC**

**off:** less than 6  $\mu$ A

**scanning (lamps off):** 163 mA

**full volume (lamps off):** 242 mA

**lamps:** 100 mA additional

**Table 2: BC780XLT Birdies (MHz)**

29.7, 50.16, 134.1, 163.8, 245.65, 245.7, 348.95, 349.0, 378.95, 379.0, 806.05, 820.8, 895.5, 925.2, 955.2

sequence instead of a single key press. We found the menu system intuitive and easy to learn. The instruction manual documents the menu in clear, concise diagrams.

Our BC780XLT's audio quality is acceptable, but tinny. We prefer to use an external speaker that can be pointed toward the listener. Two 1/8" jacks on the rear panel are provided for external speaker and reduced level audio output for recording.

The reduced level audio output can be enabled on a per channel and per talk group ID basis. Its level varies with the volume control set-

ting and we measured its voltage at 15 dB below the external speaker output.

The full, lighted keypad is easy to see, but the information packed LCD display uses tiny digits for active banks.

### ◆ Bottom Line

Except for a fussy squelch, our BC780XLT is an excellent performer – the “top dog” in trunking scanners. It is packed with most of the features a scanner user would want and they are thoughtfully implemented.

The user manual is well written and teaches better than the PRO-2067 manual. Even so, the BC780XLT is an advanced model. An inexperienced consumer may find programming EDACS and LTR trunked systems too challenging.

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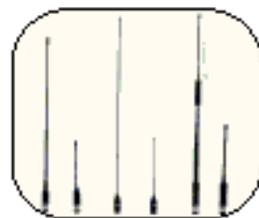
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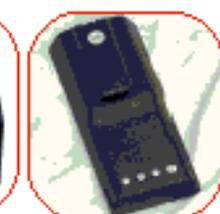
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