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Alinco DJ-X2T Portable Wide Band Receiver

We've tested three tiny portable scanners in about as many years: the ICOM IC-R2 (April 1999), the AOR AR-16 (August 1999), and the Yaesu VR-500 (February 2000). A simple pair of AA batteries can power all three models. AOR USA is no longer selling the AR-16, which lacks a limit search and adjustable squelch. The other two remain popular and their discount prices have dropped making them even more attractive.

Figure 1. Alinco DJ-X2T wide coverage receiver

Alinco recently introduced its DJ-X2T wide coverage scanner (fig. 1). It is the thinnest scanner available, measuring just over 1/2 inch thick. The DJ-X2T's height and width place in the same size class as the tiny IC-R2 and VR-500, so comparison among the three models is inevitable (fig. 2).

The DJ-X2T tunes AM, FM, and WFM signals from 0.53 to almost 1000 MHz. The IC-R2 and VR-500 top limits are 1310 and 1300 MHz respectively.

Dual Battery System

The DJ-X2T contains an internal lithium-ion battery. If you don't mind the added size, the radio can be powered instead from three AA cells by snapping an auxiliary battery case/charger onto the rear (fig. 3). The combination of radio and battery case is as thick as an IC-R2 and VR-500.

The charger is used in tandem with an AC wall wart to charge the internal lithium-ion battery at a fast 2-hour rate. Both the battery case/charger and the wall wart are included with the DJ-X2T. The IC-R2 is furnished with a 7-hour wall charger and two NiCd batteries, while the VR-500 comes with neither.

When powered by the three AA batteries, our DJ-X2T consumes 94 mA while scanning. That's less than the IC-R2 (109 mA) and more than the VR-500 (73 mA), which are powered by two AA batteries.

Construction

The slim profile and silver coloring are reminiscent of an art deco cigarette holder from the 1930s. While the case is plastic, the rear panel is made of metal.

Producing a scanner as thin as the DJ-X2T is bound to involve compromises. The radio is truly a shirt pocket model and is too thin to stand upright without the external battery holder attached. There is no belt clip so you must purchase a holster unless you carry the DJ-X2T in a pocket.

The DJ-X2T has no knobs. Operations are performed using an 8 key, nonnumeric pad and a side mounted rocker switch. The keypad is a plastic membrane and the keys are slightly raised "bubbles." Pressing them feels like pressing on burnt toast. One must take care to avoid puncturing a membrane keypad with a sharp fingernail. The key press confirmation beep tone is low volume. It may be disabled but the keys have almost no tactile feedback so we recommend you keep the beep.

Volume and squelch adjustments require multiple key presses using two keys. Changing the frequency takes work too. You can press the 1 MHz or 10 MHz key while pressing the side mounted up/down rocker switch for large frequency excursions.

The supplied flexible antenna screws onto a brass SMA connector. If you want to listen without attracting unwanted attention, a clever innovation permits you to disconnect the flexible antenna and employ the earphone cord as an antenna. In actual use, signals are much stronger when using the flexible antenna.

Figure 2. Alinco DJ-X2T, Yaesu VR-500, and ICOM IC-R2.

VFO and Memory

The DJ-X2T has 700 memory channels, divided into 10 banks of 70 channels. With 700 channels, the DJ-X2T is positioned midway between the IC-R2's 400 channels in 8 banks and the VR-500's 1000 channels in 10 banks. All three models provide a single VFO.

Figure 3. Rear view of DX-X2T (left) and the snap on, auxilliary battery pack/charger (right).

The DJ-X2T can scan memory, search using the VFO or perform a limit search using one of 20 programmable ranges. A maximum of 5 memory banks may be linked together for scanning. The IC-R2 scans only one bank at a time and the VR-500 scans any combination of its 10 banks. All three models let you choose to resume scanning after a fixed interval or sometime after the signal ends. The DJ-X2 and VR-500 rescan delay time is 2 seconds. The IC-R2 provides a choice of rescan delay times.

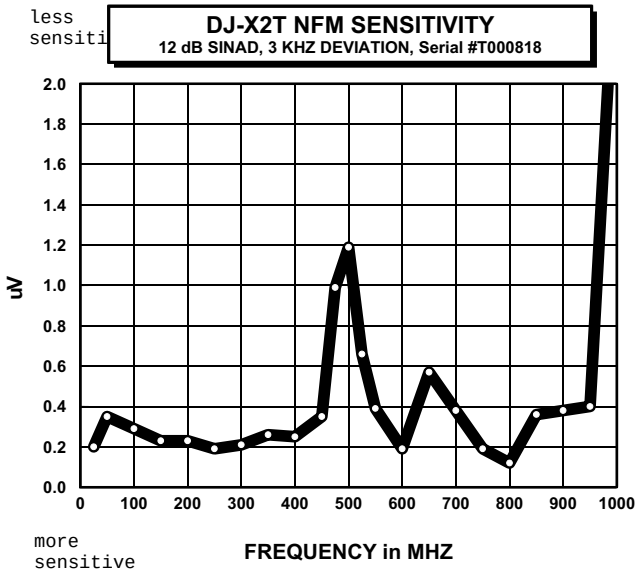
All three models permit memory channels to be locked out from the scan and frequencies to be skipped during a limit or VFO search.

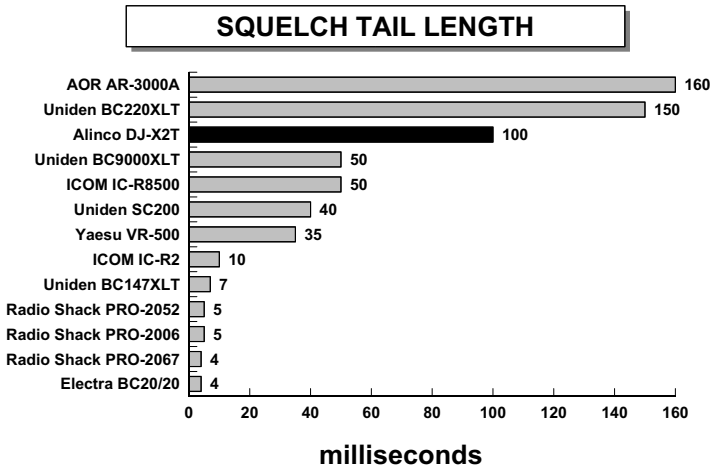
Other Features

An attenuator may be enabled and is global to all channels. An "Easy Mode" limits commands and prevents memory programming.

You can select from among factory preprogrammed AM, FM, and TV broadcast frequencies in Preset Mode, but the frequencies don't align with American allocations! The AM broadcast band, for instance, is set up to tune in 9 kHz steps from 531 to 1620 kHz and the TV channels are wrong. Wake up, Alinco!

One DJ-X2T may be cloned to another if you buy or build the proper cable and connect the two radios via the earphone jack. Users will be able to program the DJ-X2T using a personal computer, the proper cable (not supplied), and software avail-





Notes:
One sample of each model tested.
Produced by a 155 MHz, 1uV unmodulated signal.
Squelch control set beyond threshold in NFM mode.

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able from the Alinco web site, **http://www.alinco.com**. RT Systems is planning to sell programming software, as well. Contact RT Systems at (256) 880-3093 or visit their web page at **http://www.rtsars.com** for price and availability.

Advertisements for the DJ-X2T brag about a "bugging detector" feature. When placed in the bugging detector mode, the DJ-X2T looks for a signal with "howling" feedback while scanning the memory channels you've programmed in advance. The howling is presumed to be feedback from an eavesdropping transmitter nearby.

Performance

We borrowed two DJ-X2T scanners for testing. The first one (s/n T000521) receives all FM signals accompanied by a high noise level and further testing shows the radio to be defective. The replacement DJ-X2T (s/n T000818) performs better.

Audio from the thumb-tip-sized speaker is sufficient for listening in a quiet room, but far too weak for use in a noisy room or outdoors. DJ-X2T volume may be set at one of 20 discrete levels and we had to set it at levels 17 and 18 in a quiet room.

Our IC-R2 easily has the best audio of the three scanners, with the VR-500 in between. Both have larger speakers than the DJ-X2T. It's best to use the DJ-X2T with an earphone. The supplied ear bud is padded, fitted with a subminiature (3/16") plug, and reproduces sufficient, pleasant audio.

A squelch tail is the noise burst ("kerchunk" sound) heard at the end of a transmission. We measured our DJ-X2T's squelch tail at 100 ms. The accompanying chart shows our VR-500's tail at 35 ms and our IC-R2 has a brief 10 ms tail.

Our DJ-X2T is remarkably sensitive except for a deaf spot near 500 MHz. The 145 - 160 MHz band is peppered with intermod products from pagers and a 162.4 MHz NOAA weather transmitter while using an outdoor antenna. Our VR-500 and IC-R2 are much cleaner under the same conditions, with the IC-R2 having the least intermod of the three scanners.

Bottom Line

The DJ-X2T is at its best when used in discreet situations. While powered by the internal battery, the DJ-X2T's ultra slim profile and ability to use the earphone for listening let you monitor virtually unnoticed. Drawbacks include low speaker audio, long squelch tail, and the membrane keypad.

We prefer the VR-500 and IC-R2 for most listening situations. When listening on the internal speaker, the thicker IC-R2 and VR-500 provide much better audio and are easier to use. They are still small enough to carry comfortably in a shirt or jacket pocket.

See the Grove ad on page 25

Measurements

Alinco DJ-X2T Wideband Receiver
S/N T000818

Street price **$269.95**
Alinco, Inc.
438 Amapola Ave., Unit 130
Torrance, CA 90501

Frequency coverage (MHz):
0.530 - 999.995 (USA version, cell bands blocked)

Step sizes (kHz):
5, 6.25, 8.33, 10, 12.5, 15, 20, 25, 30, 50, 100

FM modulation acceptance: 10.5 kHz

Intermediate Frequencies:
248.45, 38.85 (AM, NFM), and 0.45 MHz

Image rejection due to 1st IF:
47 dB at 40 MHz
67 dB at 155 MHz
74 dB at 460 MHz
64 dB at 860 MHz

Audio output power, measured at ext. speaker jack:
31 mW @ 10% distortion

Squelch tail length (1uV @155 MHz): 100 ms.

Practical memory scan speed: 11 channels/sec.

Current consumption @ 4.5 VDC
off: 0 mA
scanning: 94 mA
full volume: 124 mA