

Alinco DR-620T VHF/UHF FM Transceiver

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Not too many years ago, the concept of a dual-band VHF/UHF radio seemed distant. Today it seems that dual-band radios are standard for base station or mobile FM operation. Into this market Alinco introduces the DR-620T, its latest 144/440 MHz FM transceiver.

The DR-620T is packed with pretty much all of the features that today's amateur has come to expect. But these standard features come with lots of bells and whistles that Alinco hopes will attract amateurs who enjoy a wide range of activities on the VHF/UHF bands.

User-Customizable Appearance

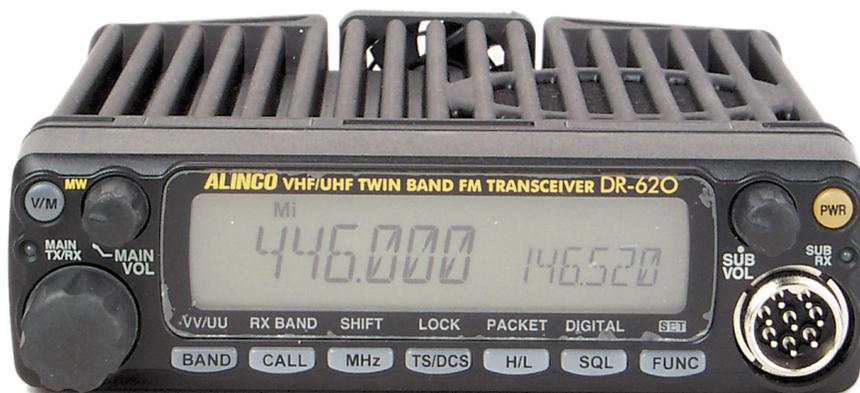
One physical design feature stands out, and offers unprecedented flexibility and convenience for mobile installation and operation. Have you ever had to compromise with how to place a mobile radio in the car so you could still hear the speaker? The DR-620T resolves this by making it possible to detach the front panel and turning it 180° so you can position both the control panel and the speaker to your liking (see Figure 5). The days of choosing between standing on your ear to read the display or listening to a muffled speaker covered by the carpet or dashboard are history. Users can choose the configuration (speaker up or speaker down) that works for them.

Another user-customizable feature is the display color, solving the phenomenon of liking a radio but hating the color of the display backlighting. Alinco gives the DR-620T user the option of three display illuminations: amber (a reddish-orange), yellow or orange. When combined with the 4-setting dimmer feature for adjusting the intensity of the back lighting, the DR-620T should provide a combination easy on the eyes of any operator.

Running Down the Basics

When it comes to standard FM communication, the DR-620T packs the punch to get the signal through with three power levels. Low power on both 144 and 440 MHz is 5 W, mid-level power is 10 W, and the high-power setting offers 50 W on VHF and 35 W on UHF. The PWR button is located among the array of buttons on the bottom of the front panel, perhaps not in the most conspicuous location but easily accessible once you learn the layout of the function keys.

As do many other modern radios, the '620T includes a power supply voltage display in its package of features. While



activating this display is not intuitive, it is simple: the user presses the SQL and FUNC keys simultaneously, and the voltage is shown in the lower right corner of the display, just beside the frequency. This display terminates when any other key is pressed.

Having previously owned a dual-band mobile that included both bands' audio controls on a single knob, I especially liked having distinct adjustment knobs for the MAIN volume and the SUB band volume controls. This makes it easier for those of us with big fingers. Also especially helpful were the distinctly separated reception indicators. Placing the indicator for each band on opposite sides of the radio allowed me to tell which receiver was active in one glance.

One thing I have always liked about Alinco products has been their relative simplicity. It has always seemed that some mobile radios required you to push button A, then hold button B while pressing button C to get to the controls for the feature you wanted to employ. Alinco again keeps it simple. The '620T user presses the FUNC key to activate the various functional capabilities of the rig.

The radio has plenty of memory capability, with 200 available channels for storing those frequently used repeater pairs or simplex frequencies. There are 80 channels reserved each for VHF and UHF frequency storage, along with 40 channels available for either VHF or UHF. In addition there is also available a

primary CALL channel for both VHF and UHF. One simple push of the V/M key, located in the upper left corner of the front panel, switches the rig between VFO and memory operation.

Programming a channel into memory was relatively easy. All you do is first set up the channel parameters in VHF mode (offset, CTCSS tones, DCS codes, etc). Next push the FUNC key and rotate the main dial to select the desired memory in which to store the information. Once you find the channel, push the V/M key, listen for a beep and you're all set!

Get confused by what repeater is on what frequency? The DR-620T allows you do alphanumeric labeling. Press the H/L Key from the front panel along with the FUNC key and you will see letters appear on the main display. Rotate the main dial until the desired letter comes up. By pressing the BAND key the displayed letter is written into memory, and the next letter space appears. Repeat the process until the alphanumeric designation you desire is displayed (such as "W1AW/R"). Once you have finished, press any key other than BAND or CALL and you are finished. The CALL key can be used during programming to delete all characters already programmed. You won't have to worry if the 146.91 repeater you have keyed in is the one you need for your home tone decoder or the one you programmed in with a different decoder for your recent vacation road trip.

Menu Options Aboard

In step with modern technology, the Alinco DR-620T has a wide range of user-determined parameters that assist the operator. Ever talked a repeater down (nah, none of us have ever done that)? You can program the time-out-timer for up to 450 seconds. When five seconds

Bottom Line

The newest dual-band mobile offering from Alinco maintains the brand's ease of use while incorporating digital voice capability.

Table 2
Alinco DR-620T, serial number M000558

Manufacturer's Claimed Specifications

Frequency coverage: Receive, 87.5-174,¹ 335-480 MHz; transmit, 144-148, 430-450 MHz.
Power requirement: Receive, 0.6 A (max audio); transmit, 11 A (high power).
Modes of operation: FM, AM (receive only).

Receiver

AM sensitivity: Not specified.
FM sensitivity, 12 dB SINAD: 0.2 μ V.
FM adjacent channel rejection: Not specified.
FM two-tone, third-order IMD dynamic range: Not specified.
FM two-tone, second-order IMD dynamic range: Not specified.
S-meter sensitivity: Not specified.
Squelch sensitivity: < 0.126 μ V.
Receiver audio output: 2 W at 10% THD into 8 Ω .
Spurious and image rejection: 70 dB.

Transmitter

Power output (H/M/L), 144 MHz: 50/10/5 W; 430 MHz, 35/10/5 W.
Spurious-signal and harmonic suppression: 60 dB.
Transmit-receive turnaround time (PTT release to 50% audio output): Not specified.
Receive-transmit turnaround time (tx delay): Not specified.
Size (height, width, depth): main unit, 1.6x5.5x7.3 inches; weight, 2.2 pounds.

Note: Unless otherwise noted, all dynamic range measurements are taken at the ARRL Lab standard spacing of 20 kHz.
¹WFM only for 87.5-108 MHz and AM only for 108-136 MHz.

Measured in the ARRL Lab

Receive and transmit, as specified.
Receive, 0.68 A; transmit, 8.2 A. Tested at 13.8 V.
As specified.

Receiver Dynamic Testing

AM, 10 dB S+N/N: 120 MHz, 12.3 μ V.
For 12 dB SINAD, 144 MHz, 0.18 μ V; 430 MHz, 0.15 μ V;
20 kHz channel spacing: 146 MHz, 64 dB; 440 MHz, 61 dB.
20 kHz channel spacing: 146 MHz, 57 dB; 440 MHz, 56 dB; 10 MHz channel spacing: 146 MHz, 68 dB; 440 MHz, 66 dB.
78 dB.
S9 indication: 146 MHz, 4.6 μ V; 440 MHz, 3.6 μ V.
At threshold: 146 MHz, 0.11 μ V; 440 MHz, 0.068 μ V.
2.7 W at 10% THD into 8 Ω .
First IF rejection, 146 MHz, 126 dB; 440 MHz, 142 dB; Image rejection, 146 MHz, 95 dB; 440 MHz, 113 dB.

Transmitter Dynamic Testing

146 MHz, 55/9.2/4.3 W; 440 MHz, 35/10.2/5.4 W.
VHF, 60 dB; UHF, 70 dB. Meets FCC requirements for spectral purity.
S9 signal, 146 MHz, 198 ms; 440 MHz, 106 ms.
146, 440 MHz, 136 ms.

remain, the user gets an audible beep as a warning. When you surpass the programmed time, the radio automatically stops transmitting and returns to receive, just in time for you to hear the laughter of your friends! Release the PTT and press it again to return to normal transceiver operation.

When tuning in the VHF mode, this radio allows you to select between 10 different sized step intervals for tuning, from 5 kHz to 100 kHz. The default step is the smallest, 5 kHz. Another popular feature is the automatic power off function, which, when activated, will turn off the radio after there has been 30 minutes of inactivity.

Sure to be popular is the DR-620T's adaptability to use in packet operation and APRS. Users can automatically program their call sign (up to six characters) while operating in the packet communications mode. You can also easily select between 1200 and 9600 baud for setting the transmission speed, although 9600

baud capability requires an additional module. When operating APRS, there are seven settings to enable regular beacon transmissions, from a half minute up to 30 minutes apart.

Groovin'

Like to sometimes slip away from the wonders of Amateur Radio and kick back to jam with your favorite FM broadcast station? When the radio is in the VFO mode, holding the FUNC key and then pressing the CALL key will move the radio to the FM broadcasting band. Probably of more interest is the ability of the DR-620T to receive AM. Note that the radio will still transmit FM if it is in the AM receiver mode. Also, if narrow-band FM is used in your areas, the DR-620T includes a narrow-band mode feature, that lowers the microphone gain and modulation during transmission as well as the demodulation on the receiver side of the operation.

The DR-620T includes a theft alarm system that can be interfaced between the radio and your automobile. An optional digital voice communications module, the EJ-47U, enables digital voice transmission in the 10F3 digital mode. This is not compatible with the 20F3 digital modulation scheme used by the EJ-43U module reviewed with the DJ-596T handheld in June 2002. The EJ-47U module is compatible with other Alinco transceivers currently sold only in Japan—the DR-135MkII mobile and the DJ-596MkII and DJ-593MkII handhelds. The radio may be interfaced with a personal computer, and Classic Business Technologies released a software package to download settings to the DR-620T during Hamvention 2003.

Another Good Effort

I found the DR-620T to be relatively simple to set up for basic dual-band operation. Over the weekend I used the ra-



Figure 5—(Top) Is this a defect? Did Alinco manufacture this unit of the DR-620T upside down? No, not at all. Alinco allows the user to decide whether she wants the speaker facing up or facing down by rotating the front panel 180 degrees. (Right) As you can see, in this configuration, the speaker is at the bottom of the radio, ideal for mounting just under a shelf or dashboard.

dio, I temporarily installed it in my car and was able to make several QSOs on several local VHF or UHF repeaters. After programming in several repeater pairs, I was able to control the radio easily from the included microphone. The quality of the audio was good, and while tuned to my favorite FM radio station, I was able

to rock with the sounds of the oldies.

Over the years Alinco has provided good quality products with substantial bang for the buck. Once again, they have provided a good quality radio at a good price that provides decent value. It will be a welcome addition to many amateur stations.

Manufacturer: Alinco Inc, Shin Dai

Building 8F, 1-2-6 Doujimahama, Kitaku, Osaka 530-0004 Japan. Alinco's US distributor is ATOC Distributing LLC, 23 S High St, Covington, OH 45318; tel 937-473-2840; fax 937-473-2862; www.alinco.com. Price: \$339.95; EJ-47U digital voice board: \$169.95; EJ-50U TNC board: \$119.95. 