

# IC-V8000

144MHz FM Mobile Transceiver

## QST Product Review

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## ICOM IC-V8000 VHF FM Transceiver

Reviewed by Steve Ford, WB8IMY

ICOM has gone back to basics with the IC-V8000 transceiver. Gone are the elaborate menus, the multitude of buttons and the endless features—most of which you may never use. Instead, the V8000 puts the focus on simplicity, durability and power—lots of power.

Although it is designed as a 2-meter FM mobile, the V8000 does just as well on your desk (as long as you have a hefty dc power supply handy). The display is large and easy to read. You can vary not only the display brightness, but also the *color* (amber or green). VOLUME and SQUELCH controls are separate. The tuning knob is sizeable and the speaker is forward firing. There is enough audio power to overcome most mobile noise environments. In fact, one of our reviewers characterized it as “deafening.”

The HM-133V microphone that’s packed with the V8000 is particularly nice. Nearly all front-panel operations can also be controlled using the mike keypad—even the squelch level. The 25 buttons on the keypad are translucent and backlit. The key size and spacing is generous. The microphone cable connects to the radio via an RJ45 connector. The mike cable connects to the mike itself with an RJ45 connector as well, making it easy to replace the cord. Extension microphone cables—16.4 and 8.2 feet long—are available as optional accessories. There are so many functions on the microphone, you could probably store the radio out of sight and use the microphone as the remote “front panel.”

At about 6 × 2 × 6 inches, the V8000 is relatively compact. But don’t let the size fool you—this transceiver is built like a tank. The V8000 has quite a bit of heft at nearly 3 pounds. In fact, its die-cast single-piece chassis reminded me of several commercial marine radios on the market.

### Features

Repeater input/output offset frequencies are programmable in all of the 207 memory channels, or you can use the “auto repeater” function to let the V8000 set them automatically. Subaudible tones for repeater access can be programmed and stored in the same manner. The V8000 can even scan for subaudible tones and write them to memory. The V8000 also

offers DTMF “TouchTone” transmission for autopatch and control functions. DTMF decoding is available as an option.

Speaking of tones and decoding, the IC-V8000 makes good use of both audible and subaudible tone decoding for its various tone squelch, pocket beep and paging functions. You can set the V8000 for complex group-calling schemes where, for example, your V8000 will spring to life only when it receives your code or the code of your group. Not many hams will use these functions in normal day-to-day operation, but they are excellent for public service applications.

There is one feature in the V8000 that I wish was standard equipment in every FM transceiver. It’s called “Repeater Lockout” and its function is straightforward. When it is active, Repeater Lockout will not allow you to transmit while there is a signal present. Even if you become impatient on the push-to-talk button, the V8000 will not let you interfere. Think of it as a courtesy enforcer. Of course, you have to have the initial courtesy to turn the function on in the first place!

I’ve already mentioned the ample memory channels. The well-written V8000 manual devotes a number of pages to describing how to program them. In truth, the process is much easier than it appears. It follows the procedures that have become standard in most modern FM radios. I was

able to program the V8000 memories without referring to the manual, although I did have to glance at the pages when I tried to *transfer* the memory contents. Programming the memory channel names (up to 6 alphanumeric characters per channel) also required a little time with the book. If you travel with your V8000, you’ll be pleased to learn that the memories can be stored in up to 10 different “banks” of about 20 slots each. You could have one bank of settings for your hometown, another for the city where your buddy lives, and so on.

Toggling between the frequency and name display is easy—just a long press of the MON/ANM button. And the choice of showing the frequency or channel name display is independent for each memory position.

The memory channels store power output settings, which is very handy. Repeaters that are within easy range can be programmed in with low output power settings. Memory channels for repeaters that are on the fringe can be set up with the higher levels.

You can clone memory programming from another V8000, or from a personal computer. The rear-panel external speaker jack functions as a data port in this application. To program from your PC, however, you need an optional ICOM interface and software.

When it comes to scanning, the V8000 features the typical full scan (band edge



### Bottom Line

ICOM's IC-V8000 packs a substantial RF punch in a no-nonsense package.

**Table 1**  
**ICOM IC-V8000, serial number 01825**

<b>Manufacturer's Claimed Specifications</b>	<b>Measured in the ARRL Lab</b>
Frequency coverage: Receive, 136-174 MHz; transmit, 144-148 MHz.	Receive and transmit, as specified.
Power requirement: Receive, 1.0 A (maximum audio); transmit, 15 A (high power).	Receive, 0.8 A; transmit, 12 A. Tested at 13.8 V.
Modes of operation: FM.	As specified.
<b>Receiver</b>	<b>Receiver Dynamic Range</b>
FM sensitivity: 12 dB SINAD, 0.15 $\mu$ V typical.	For 12 dB SINAD, 0.15 $\mu$ V.
Weather band sensitivity, 12-dB SINAD (tested at 162.400 MHz): Not specified.	0.14 $\mu$ V.
FM adjacent channel rejection: Not specified.	20-kHz channel spacing: 74 dB.
FM two-tone, third-order IMD dynamic range: Not specified.	20-kHz channel spacing: 74 dB.* 10-MHz channel spacing: 87 dB.
FM two-tone, second-order IMD dynamic range: Not specified.	93 dB.
S-meter sensitivity: Not specified.	S9 indication: 1.8 $\mu$ V.
Squelch sensitivity: 0.08 $\mu$ V typical.	At threshold: 0.09 $\mu$ V.
Receiver audio output: 2.0 W at 10% THD into 8 $\Omega$ .	2.4 W at 10% THD into 8 $\Omega$ .
Spurious and image rejection: 75 dB typical.	First IF rejection, 99 dB; image rejection, 93 dB.
<b>Transmitter</b>	<b>Transmitter Dynamic Testing</b>
Power output (H/M/ML/L): 75/25/10/5 W (approximately).	69 / 26 / 9.3 / 5.0 W.
Spurious-signal and harmonic suppression: $\geq$ 60 dB	64 dB. Meets FCC requirements for spectral purity.
Transmit-receive turnaround time (PTT release to 50% audio output): Not specified.	S9 signal, 168 ms.
Receive-transmit turnaround time (tx delay): Not specified.	130 ms.
Size (HWD): 2.0x5.9x5.9 inches; weight, 2.4 pounds.	

\*Note: Unless otherwise noted, all dynamic range measurements are taken at the ARRL Lab standard spacing of 20 kHz.

to band edge), programmed scan and memory scan. You can opt to skip channels during a memory scan and adjust the scan-resume conditions for all three scan types. The V8000 receiver covers 136 to 174 MHz, so you can eavesdrop on more than just amateur activity.

### Weather Alert

One of the most interesting features of the IC-V8000 is the "weather channel operation." When this feature is switched on, the V8000 will quickly scan through the NOAA Weather Radio channels every five seconds. The V8000 scans through 10 channels:

US—162.550, 162.400, 162.475, 162.425, 162.450, 162.500, 162.525 MHz  
 Canada—161.650, 161.775, 163.275 MHz

If it detects a weather alert tone, the V8000 gets your attention by sounding an alarm and flashing a display message. This is ideal for hams involved in SKYWARN and other severe-weather support activities.

You can test the weather channel alarm by switching on your V8000 each

Wednesday between 10 AM and noon local time when the NOAA Weather Radio stations run their tests.

### Power

As I stated at the beginning of this review, the V8000 offers more power than you are likely to need. The output is variable from 5 W to 75 W. We found the 5-W setting to be adequate most of the time, but when the going became rough, the 75-W punch made the difference. This is particularly true when you are operating at the fringe of a repeater coverage area, or when operating simplex.

We were pleasantly surprised at how cool the V8000 was when running high power. Even after a couple of hours of net operation, the case remained cool to the touch. That's thanks in large part to the sizeable fan on the rear panel. Our reviewers described the fan noise as "moderate." Fan operation is adjustable as part of the V8000 programming.

ICOM rates the 75 W output level as "approximate." The ARRL Lab measured

69 W with our V8000. In random tests ICOM reported output between 71 and 74 W. It's important to note that you must use a heavy dc power cord, preferably the one supplied by ICOM. This transceiver draws almost 15 A in high-power transmit, so an inadequate power cord may create resistive loss, resulting in lower voltage and lower output. However, it is highly unlikely that you or anyone else will notice a performance difference based on the lack of a few watts of RF.

*Manufacturer:* ICOM America, 2380 116th Ave NE, Bellevue, WA 98004; 425-454-8155, fax 425-454-1509; [amateur@icomamerica.com](mailto:amateur@icomamerica.com); [www.icomamerica.com](http://www.icomamerica.com). Manufacturer's suggested list price: \$306.65. Typical current street price: \$250. List prices of selected optional accessories: CS-V8000 *Windows 95/98/ME* programming software (on CD ROM), \$35; OPC-478 cable for computer to transceiver programming, \$45; OPC-474 cable for transceiver to transceiver cloning, \$18; OPC-440 microphone extension cable (16.4 feet), \$85; UT-108 DTMF decoder unit, \$35.