ICOM IC-R5 Portable Receiver

The ICOM IC-R5 is a tiny, handheld scanning receiver with wide frequency coverage. Like the IC-R2 it replaces (April 1999 *MT*), the IC-R5 detects FM, wide FM, and AM signals from the VLF to UHF spectrum.

The palm-sized IC-R5 provides memory channel labeling, but lacks a full numeric keypad. It competes with the Yaesu VR-120 (July 2001 *MT*), the Japanese-only VR-150 (November 2002 *MT*), and the Alinco DJ-X3 (March 2002 *MT*). The accompanying photo shows an IC-R5, IC-R2, and a VR-120. All these models are simply powered by two AA batteries, except the DJ-X3, which requires three.

The USA version IC-R5 is furnished with two 1100 mAH NiCd AA batteries and a 6 VDC 1000 mA wall wart which can be used recharge the batteries while in the radio.

❖ Frequency Coverage

The older IC-R2 begins coverage at 495 kHz, but the IC-R5 tunes lower – down to 150 kHz.

ICOM deletes the 822 - 851 and 867 - 896 MHz ranges in the US version IC-R5 to comply with FCC requirements for rejection of cellular telephone signals. This includes 822 - 824, 849 - 851, 867 - 870, and 894 - 896 MHz – bands which are not allocated to cellular telephony. The IC-R5's wider gaps are troublesome to those of us who monitor the conventional and trunked systems in those ranges.

The IC-R5's frequency step size choices are the same as the earlier IC-R2, with the addition of 8.33 kHz available only in the VHF air band. Missing is a 7.5 kHz step size, which would be useful on the VHF-high band.

❖ Memory

The IC-R5 memory organization is a departure from other scanners. It provides up to 18 memory banks of variable size, with up to 100 channels in a bank, with a maximum number of 1000 channels. Banks are named with a single letter: A-H, J, L, N, O-R, and may be identified by an optional text label, as well.

The variable size bank scheme is designed in an interesting way. There are 1000 "regular" memory channels, 000 to 999, which hold the frequency, mode (AM, FM, WFM), CTCSS or Digital Code (DTCS) settings, scan skip, and offset information.

In addition, you can associate a regular memory channel with bank and channel number within that bank. For example, regular memory channel 205 may be assigned to bank A, channel 7. A regular memory channel can be associated
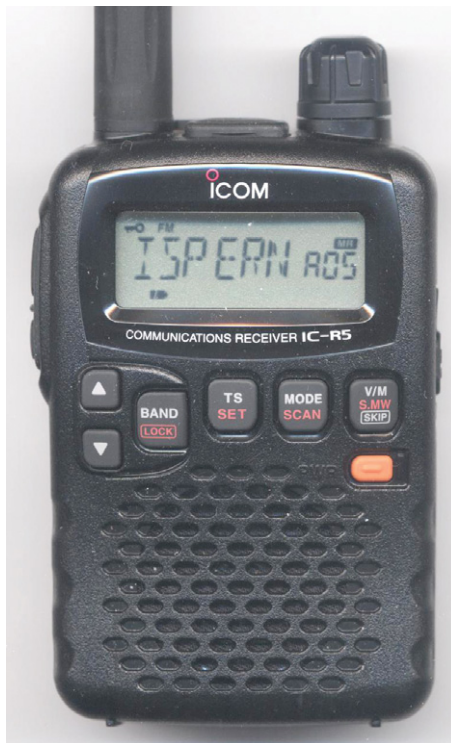
with only one bank or none at all. If you want the frequency 155.475 MHz to appear in three different banks, you must program it into three different regular memory channels first.

As with the other wide coverage handhelds, memory programming requires you tune the frequency and select other settings using a VFO, then write the information to a regular memory channel. But, IC-R5 memory programming is more complex than other palm sized scanners. If you want the channel to appear in a bank, you must then assign the regular memory channel to a bank and channel number.

❖ Scanning and Searching

The IC-R5 follows ICOM's tradition of restricting memory scanning to a single bank or all banks. You can scan the regular memories, too, but you cannot scan a combination of memory banks. Channels may be locked out by setting the Skip flag.

The IC-R5 provides 25 pairs of scan "edges" for searching between frequency limits, the same

as the IC-R2. A single range may be searched, though multiple ranges cannot be chained together for searching. Frequencies may be skipped during searches by programming them in a memory channels with the Pskip flag set.

A memory write scan stores active frequencies found while searching into a special group of 200 channels. The IC-R5 is smart enough to recognize duplicate hits and store only unique frequencies.

❖ CTCSS and Digital Code Squelch

One of the IC-R2's major assets is its CTCSS squelch. The IC-R5 carries forward the CTCSS tradition and adds a Digital Coded Squelch (aka DTCS, DCS, and DPL), too.

You can program a known CTCSS or DTCS code for a memory channel or sit on a frequency and search for the proper CTCSS or DTCS code. When a signal is present, the IC-R5 slowly steps through all codes in sequence until it finds a match. Hunting for the right code is so slow that we can't find the code unless listening to an unusually long transmission.

❖ Other Features

The IC-R5's belt clip arrangement is similar to the IC-R2. We prefer to carry the radio in a pocket or cell phone case rather than trust the odd plastic clip.

An auto power-off feature can turn off the IC-R5 after 30, 60, 90, or 120 minutes. We exploit the power-off feature in case we forget to turn off the radio.
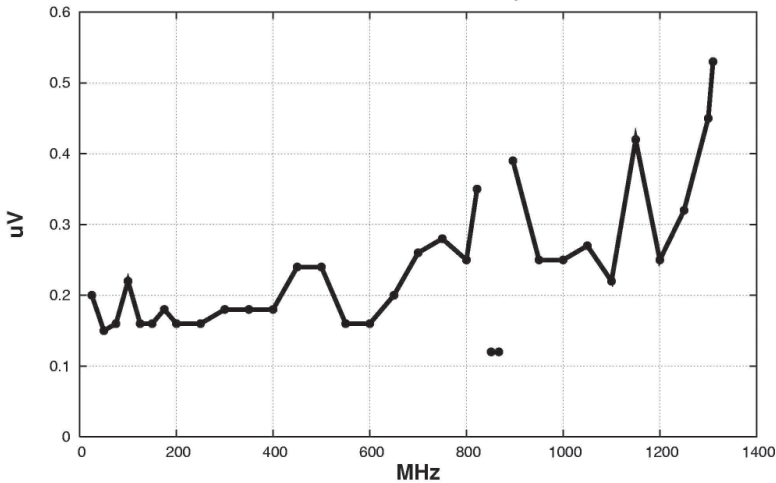
A variable duty cycle power save function can be enabled to cut battery drain while the radio is silently monitoring one frequency.

The earphone cord can be used as an antenna for FM broadcast band reception, though you will have to furnish your own earphone.
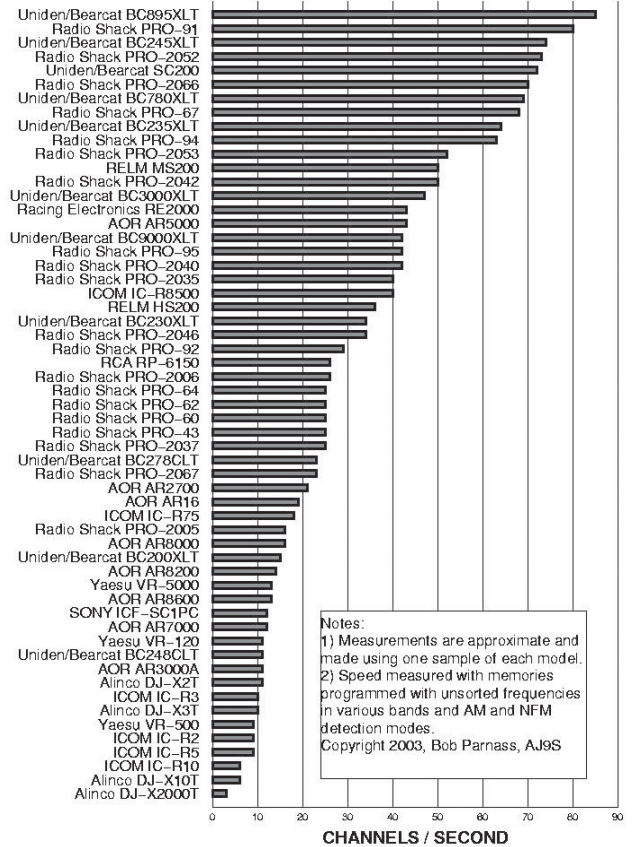
The IC-R5's LCD display contrast is ad-

ICOM IC-R5
FM 12 dB SINAD Sensitivity s/n 01085

PRACTICAL MEMORY SCAN SPEED

Models (top to bottom):
Uniden/Bearcat BC895XLT
Radio Shack PRO-91
Uniden/Bearcat BC245XLT
Radio Shack PRO-2052
Uniden/Bearcat SC200
Radio Shack PRO-2066
Uniden/Bearcat BC780XLT
Radio Shack PRO-67
Uniden/Bearcat BC235XLT
Radio Shack PRO-94
Radio Shack PRO-2053
RELM MS200
Radio Shack PRO-2042
Uniden/Bearcat BC3000XLT
Racing Electronics RE2000
AOR AR5000
Uniden/Bearcat BC9000XLT
Radio Shack PRO-95
Radio Shack PRO-2040
Radio Shack PRO-2035
ICOM IC-R8500
RELM HS200
Uniden/Bearcat BC230XLT
Radio Shack PRO-2046
Radio Shack PRO-92
RCA RP-6150
Radio Shack PRO-2006
Radio Shack PRO-64
Radio Shack PRO-62
Radio Shack PRO-60
Radio Shack PRO-43
Radio Shack PRO-2037
Uniden/Bearcat BC278CLT
Radio Shack PRO-2067
AOR AR2700
AOR AR16
ICOM IC-R75
Radio Shack PRO-2005
AOR AR8000
Uniden/Bearcat BC200XLT
AOR AR8200
Yaesu VR-5000
AOR AR8600
SONY ICF-SC1PC
AOR AR7000
Yaesu VR-120
Uniden/Bearcat BC248CLT
AOR AR3000A
Alinco DJ-X2T
ICOM IC-R3
Alinco DJ-X3T
Yaesu VR-500
ICOM IC-R2
ICOM IC-R5
ICOM IC-R10
Alinco DJ-X10T
Alinco DJ-X2000T

Notes:
1) Measurements are approximate and made using one sample of each model.
2) Speed measured with memories programmed with unsorted frequencies in various bands and AM and NFM detection modes.
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CHANNELS / SECOND

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justable and the larger display is easier to see than the IC-R2.

The IC-R5 may be cloned to another radio or configured using a computer. ICOM has not made public the information needed to write IC-R5 configuration software, though some hobbyists have started to figure out the memory image layout and cloning protocol.

❖ Performance

The older IC-R2, known for splendid audio, is louder and has less distortion than one expects for a palm sized scanner. Subjectively, the IC-R5's audio isn't quite as good because it doesn't have the same treble, or high pitch. Good, high frequency response helps the audio "stand out" when using a scanner in a noisy environment, e.g., while driving.

While the IC-R2's audio sounds best, the IC-R5's audio quality is still excellent – better than our Yaesu VR-120 and much better than our VR-500.

The IC-R5 has a new, internal bar antenna for AM BCB (broadcast band) reception. The IC-R5's BCB reception is improved over the IC-R2, though it is not as good as our VR-120 or a mediocre AM radio.

❖ Summary

If you like the IC-R2, you will probably prefer the IC-R5 except for the missing 800 MHz frequencies and the increased complexity in programming. Good configuration software (not supplied) eases programming of radios lacking a full keypad.

❖ Nitelogger II Source

The BMI Nitelogger II is a tape recorder activator. It may be used with recorders which lack their own sound activation feature.

We reviewed the Nitelogger II in August 1996 *MT* and published a schematic after tracing out the circuit by eye. The Nitelogger contains a sound detector circuit. It connects to a receiver's external speaker jack and a tape recorder's audio input and auxiliary control jacks. The Nitelogger's volume control and internal speaker permit audio to be monitored or the traffic may be silently recorded. The recorder's "hang time" is adjustable between .25 and 2.5 seconds.

We were very impressed with the Nitelogger II and found it worked better and was more flexible than the sound-activated feature built into our VOX recorders. As time passed, we could not find Nitelogger IIs being sold. Recently, a representative of In Compliance Corporation told us they still sell the Nitelogger II for $69.95 plus shipping.

For more information, contact: In Compliance Corp., 3260 N. Hayden Road #106, Scottsdale, AZ 85251, email: incompliancecorp@aol.com. To order, call In Compliance at (800)239-0441.

The Icom IC-R5 pocket-size receiver is available for $199.95 from Grove Enterprises. Check 1-800-438-8155 for sale pricing and current shipping charges.

Measurements

ICOM IC-R5 Receiver S/N 01085

Icom America Inc.
    2380 116th Ave NE
    Bellevue, WA 98004
    Phone: (425) 454-8155
    Fax: (425) 454-1509
    Customer Service: (425) 454-7619
    http://www.icomamerica.com

Frequency coverage, USA version (MHz):
    0.150 - 821.995
    851 - 866.995
    896 - 1309.995

Step sizes (kHz):
    5, 6.25, 8.33 (VHF air), 9 (AM BCB), 10, 12.5, 15, 20, 25, 30, 50, and 100

Modes: AM, WFM, FM, user selectable

NFM modulation acceptance: 10 kHz

Audio output at earphone jack:
    0.1 watt @ 9% distortion

Attenuator:
    15 dB @ 40 MHz
    16 dB @ 155 MHz
    15 dB @ 460 MHz
    10 dB @ 860 MHz

Intermediate Frequencies (MHz):
    266.7, 19.65, 0.45

Image Rejection Due to 1st IF (266.7 MHz):
    51 dB @ 40 MHz
    76 dB @ 460 MHz
    37 dB @ 860 MHz

Squelch tail near threshhold
    (1 uV @ 155 MHz): 20 ms.

Practical memory scan speed:
    9 ch/sec