Equipment Review
ICOM IC-2GXAT

*Reviewed by Paul McMahon VK3DIP**

What is it?

The IC-2GXAT is a simple 2 metre handheld, offering 7 watts out (when used with the appropriate battery pack, and down to 3 watts with the standard pack provided) in a small package. The review set had a serial number of 01091.

First Impressions

The first thing to be noticed with the review IC-2GXAT came when opening the box. There is no foam, it is all cardboard. Environmentally friendly this may be, but for something as heavy for its size as this handheld, it makes the packaging basically non reusable. This was aptly illustrated in the case of the review set. It had obviously been to at least one other review before it got to me and, although the radio was in good condition, unfortunately the packaging was not. Enough on cardboard, on to the radio.

The IC-2GXAT is not the world's smallest handheld, yet it is still smaller than, say, the venerable IC-2A. It comes with a 240 V AC charger, "rubber ducky" antenna, BP-160 7.2 V 700 mAh nicad pack, a belt clip, a carry strap, and an instruction book. The top of the set has the standard BNC connector for the antenna, as well as the normal

ICOM speaker/mic connector, the latter being normally covered by some rubber stoppers to keep the outside outside. Also on the top, and fitted with a rubber guard, is the power cum charging socket that ICOM seem to have standardised on. Don't expect to buy one of the matching plugs down at the corner store, but it did seem to make a good contact. The top is completed by one small button (Set) and two relatively large knobs, one of which is a concentric squelch/volume on/off type and the other a click/detent type frequency control.

The side of the set has four buttons — the expected PTT, plus a second function key for use with the keypad, a monitor button to temporarily unmute the set, or listen on the input of repeaters, and a panel light button for the LCD display.

The front of the set has a reasonable sized LCD display which features frequency, memory number, and an S meter cum power out indicator. Also on the front is a numeric touch pad, with three other buttons for such things as duplex, scan, and VFO or memory selection, completing the list of controls. All buttons are slightly recessed into the case, probably to help prevent accidental activation. Likewise all have solid feeling rubber covers. This radio was made to be used in less than ideal conditions.

The IC-2GXAT, as the name suggests, seems to have evolved from the IC-2GAT. It has the same output power, receive power save, splash resistance, scanning, monitor function, call channel, etc, of its forbear. The main differences are better styling (more curves, less square edges, bigger knobs), improved receive sensitivity (0.18 μV for 12 dB SINAD, vs 0.25 μV), more memories (40 vs 20), and smaller size (57 x 125 x 35 mm vs 65 x 151 x 35 mm).

The set feels comfortable in the hand and looks pleasing to the eye. The control arrangement is functional. While some actions require two hands, they don't require three, or small fingers. In fact you could probably do most of the basic functions whilst wearing gloves.

Technical Bits

Firstly, these are very hard to come by. The manual is of very little help with only some very sketchy specs hidden at the back, from which you can glean that the receiver is a dual conversion with the first IF at 21.7 MHz and the second IF at 455 kHz. In fact, the manual is no more than an instruction book, and one aimed at the technically, and radio, illiterate at that. The results here have thus been obtained by experimentation rather than recourse to any technical considerations of circuit or anything. I realise that some amateurs, maybe even many, couldn't care less about how their equipment works, or what's inside it, but I hope there are some out there, like myself, for whom this is one of the first things looked for on opening the manual on a new set. I do realise that a service manual is probably available (and companies supplying rigs for review please note it would be real nice if you were to include a copy with the review set) this usually has to be ordered with a suitable delay, and price. More on this later.

In the review set the frequency display would have you believe that the set is capable of receiving from 50 MHz to 204 MHz in 5 kHz steps. This is, of course, at odds with the manual and brochure which suggest that the frequency coverage is restricted to 144 MHz to 148 MHz for Australia. I should perhaps note at this point that the manual also was not quite right for the fast tune function (ie turning the frequency knob whilst holding down the function key) with a 10 MHz rate being available in addition to the 1 MHz and 100 kHz rate mentioned in the manual. The frequency could also be set using the front panel keyboard. However, in this case, only the last four digits could be entered. In fact, while the set does have a fairly wide band receiver it is not as wide as the display indicates. The review set would not receive below 136 MHz, and strange things happen at about 195 MHz (the dial frequency changes but the actual receive frequency doesn't appear to vary).

The sensitivity appears pretty good across this range with no dropping off towards the edges. The limits are probably decided more by the processor than any RF circuitry and at some stage someone will probably come up with some combinations of buttons to push while turning the power on to extend this further. As said, the sensitivity was within a dB or so at all measured spots across this range. If anything it actually seemed to improve as the frequency went higher, though this could have been a function of my test equipment. Anyway, the local Channel 7 TV picture and sound carrier could be received at full scale on the S meter, at the appropriate frequencies of course, with just the rubber ducky on, and in my semi underground shack. The audio quality of the TV sound, of course, left lots to be desired, but the local CFA was perfectly clear copy. The behaviour of the S meter appeared consistent across the band, with about 6 dB taking a signal from S1 to S5 and a further 6 dB providing full scale.

On transmit the set would not make a noise outside 144 MHz to 148 MHz, but it did at least give you some indication of this when you pressed the PTT, with the word OFF on the display. Audio quality was acceptable with the internal microphone, and quite good when using the speaker mic from an IC-2A. Output power was as expected at around 3 watts on high and 1 watt on low, and pretty constant across the band. Unfortunately, due to the ICOM standard power connector, or at least my lack of a suitable plug, I could not verify that the output power on high was indeed the 7 watts claimed, but I have no reason to doubt this.

On the subject of power supplies, as stated the supplied pack is the BP-160 which is a 7.2 V 700 mAh unit. With the supplied charger the recommended charging time is 15 hours. For this ICOM claim you will get around 4.5 hours use assuming a one minute TX, one minute RX, and an eight minute power saved RX duty cycle. ICOM claim that the battery pack is good for at least 300 with up to 500 charges if the recommendations given are followed. It is worth while having a thought about how this would suit your usage of a handheld, and perhaps purchase an additional battery pack.

Alternatives include:

- The BP-132A which is a 12 V 600 mAh unit which will give you the full 7 watts out but which, at the duty cycle above, is only good for 2.5 hours.
- The BP-157A which is a 7.2 V 900 mAh unit which is similar to the supplied unit but with a claimed 5.83 hours.
- The BP-130A which holds 6 standard AA cells which could also be nicads. The timings here of course depend on the batteries fitted.

Which of these will be best for you is dependent on how you use your handheld. I would, however, suggest you give serious consideration to the AA cell pack. About the only disadvantages to the nicad packs are the relatively poor shelf life, and high initial cost. These are normally not so important, however there can be situations where they are the deciding factors.

For example, I normally carry a handheld with me to work, yet only use it for about 10 minutes each day, if that. Under these circumstances a nicad pack is pretty useless. Basically you either charge it up each night, or when you reach for it, it is invariably flat. I carry an AA cell pack and a spare set of batteries for it and under these circumstances have only to change batteries once every two or three months, and am virtually guaranteed use of the handheld when I need it. Not to mention the fact that a quick charge is only as far away as the nearest 7-11, and you will get, as in the case of the IC-2GXAT, the full rated power out.

Operation

The instruction manual is 35 pages long with a small fold up "cheat sheet" to carry around with the set. Both explain in often painful step-by-step detail exactly how to do anything the radio is capable of. This goes down to the level of telling you how to transmit by pressing the press to talk switch, and how to return to receive by releasing the press to talk switch. In summary no one will have any excuses for not being able to figure out how to do something.

There do, however, seem to be a couple of minor slip-ups in the manual, such as in a couple of cases mentioning the set as an IC-2GAT, and saying some things like *press this button and three beeps may sound?* Anyway, a good test of how simple a set is to use is to just try to figure it out without reading the manual. In this case I could figure out how to switch it on, adjust volume and squelch, set the required frequency by turning the big knob, and I was on the air. If what you want is a simple to use set then this is it.

As has been mentioned before, on air audio quality, both transmit and receive, was quite acceptable, and the rig felt comfortable in the hand. Operation of the memories and scan functions did require recourse to the instructions. However, once one could see how it was done this also is very straight forward. The IC-2GXAT seems to have followed the trend towards a smaller number of function buttons, going more for the same button performing different functions depending on how long you hold it for. For example, pressing the low/high power button briefly toggles the power level between high and low. If, however, you hold this button down for some seconds the handheld goes into set mode.

Scanning was simple to set up. You put some frequencies into the two special program scan edge memories, press scan and off you go. By the way, the memories hold all required information about the frequency such as duplex, shift, tone frequency, etc and are useable across the entire displayed frequency range. There are 40 memories available and if, for some reason, this is too much for you, you can reduce the number via a set function. You can also use a set function to have the display read channel number instead of frequency for the ultimate in appliance operation.

Other useful features are the input frequency monitor, the power saved receive mode, and the timed dial light. The set also offers a couple of tone access and pager functions when used with a matching unit at the other end and, of course, with the appropriate optional extra modules. While these sound like a good idea I wish someone would put some effort into standardising these sort of features so that they could be used independently of the brand of the set you happened to own.

These features also fit in with a couple aimed at repeater usage, which are of limited usefulness in Australia. For example, the ability built in to scan for any sub audible tone would be very useful except, of course, most Australian repeaters do not use sub audible tones.

Conclusion

The IC-2GXAT is a solid handheld which is built to be a useable work horse unit. It performed well on all tests made, and the extended receive coverage is a real bonus. The emphasis in the manual is keep it simple. However, it does contain everything you need to know to operate the set. There are several useful additional features but none that I would say were unusual enough to really sway a purchase one way or the other.

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