

Icom IC-2725E

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G4HLX takes a look at the Icom IC-2725E dual-band f.m. mobile transceiver. It turns out the transceiver is versatile, proving useful both in the car and shack.

The latest dual-band v.h.f./u.h.f. mobile transceiver from Icom is the IC-2725E. At first sight it appears to be rather similar to other dual-band rigs that have been on the market in recent years. So, in what way is this one different - what makes it stand out from the others? I was interested to find out, giving the IC-2725E a good trial at home in the shack and also out on the road mobile.

I found that while the transceiver offers no outstanding new features, it does provide all the facilities that you need for v.h.f. and u.h.f. f.m. mobile operation, and is easy to use once you have configured it for your preferences. It provides 50W output on 144MHz and 35W on 430MHz (switchable to 5W or 15W on each band), and seems to have a good receiver, so in terms of performance it's certainly up to the requirements of n.b.f.m. simplex or repeater operation.

Removable Front Panel

The removable front panel or control head is attached to the main unit by a bracket that can be adjusted to different angles so that when mounted in a vehicle a convenient viewing angle can be set. The head is connected to the main unit by a 200mm cable that's easily unplugged at either end if required. An optional 3.5m

- The IC-2725E control head, where basic functions are easy to control, shown detached (see text).



- IC-2725E ready for mounting with main control panel attached (see text).

cable is available (OPC-1155) which allows the main unit to be mounted under a seat or in the boot, so the control head alone can be sited on the dashboard or wherever a suitable space can be found.

Other optional brackets are available for mounting the control head. This arrangement has become almost essential in modern vehicles where it can be so hard to find space to tidily install our essential Amateur Radio gear!

A nice feature of the IC-2725E is that the microphone can be plugged into either the main unit or the control head. So, if you have the main unit mounted in the boot - right under the antenna maybe, with a short feeder run - you don't need a long microphone cable running all the way back to your operating position.

Main Display

The main l.c.d. display on the control head shows exactly what you would expect - the operating frequencies on the two bands, signal strength/power output bar graph, and all the usual status information (e.g. repeater shift, memory numbers, etc.). Either amber or green back-lighting can be selected.

There's also a completely separate tuning dial, volume control and squelch control for each band, as well as buttons to select

memory or v.f.o. mode and to control scanning. So the main functions of each band can be controlled completely independently, and there is one button for each, at the top, that selects it as the band for transmitting when the microphone push-to-talk (p.t.t.) is pressed. (I found that this made it easy to do the basic operations needed, and when mobile it is essential to have straightforward control of these things, without the need for multiple button presses).

The other buttons on the control head select repeater shift, CTCSS tone facilities (for repeater access) and power output level (low/mid/high), for the currently selected **Main** band. Finally there's the **On/Off** button and a **Set** button providing access to the menu system for setting a wide range of parameters.

All the buttons on the control head have an alternative function if you hold them for one second instead of a momentary press. These give access to all the memory programming facilities, which are extensive, and various scanning modes.

Quite a few button presses are needed to perform some of the actions, and it would be hard to remember how to do things that are done infrequently. So, a much better alternative is to use the keys on the HM-133 microphone, which is supplied as standard.

Microphone Keys

As well as the p.t.t., the microphone has 25 keys, resembling somewhat the keys



● The microphone with its comprehensive keypad, which facilitates the setting up of the rig and programming the memories (see text).

on a hand-held transceiver. All the settings of the rig can be made here (even the volume and squelch can be turned up and down), and I found this much more straightforward and intuitive than using the front panel buttons for the programming of memories and other settings. It's even possible to key in a frequency directly using the numeric keypad.

There are a staggering 200 memory channels available on the IC-2725E, each storing not only the frequency but also repeater offset, CTCSS tone frequency and other settings. I can't imagine how anyone could want to store 200 different channels within the ranges 144-146 and 430-440MHz, so I have to regard the memory size as effectively unlimited!

There are also two **Call** channels that can be recalled



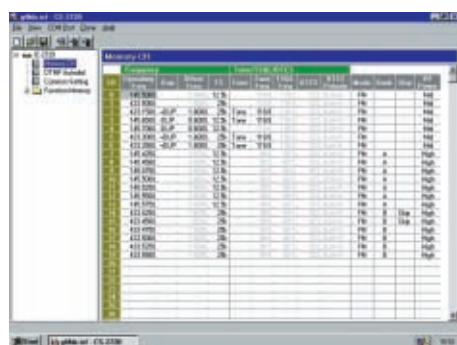
● Inside view of main chassis, showing the large ferrite feed-through bead filters on the d.c. power supply input.

rapidly, which I set to the f.m. calling frequencies on each band. Although it might be natural to regard the band on the left of the display as 144MHz and the band on the right as 430MHz, in fact all memory channels are

available on both displays. So you can, for example, listen to two frequencies within the same band simultaneously if desired, and easily select either for transmitting.

To help manage so many memories, you

can, if you wish, organise them into banks, labelled A - J. So, for instance, I put some popular 145MHz simplex frequencies into



● The optional CS-2720 cloning software, making the management of all the memory functions much more straightforward.

bank A, and 433MHz simplex frequencies into bank B. Then I could set the left-display band to use bank A and the right-display band to use bank B. Another way of using this facility would be to set up repeater channels for different geographic areas that you visit into different banks.

Of course, you'd set the appropriate CTCSS access tones, too. Then, for example, I might have bank C for visits to the Midlands and bank D for visits to the south coast, and so on.

Cloning Software

Well, even using the keypad on the microphone, setting up all the memories could be quite a chore. And that's where the optional CS-2720 cloning software becomes really valuable.

The software can be installed on a PC running Windows (98 or later), and communicates with the IC-2725E transceiver using the optional OPC-478 cable which connects from the rig's loudspeaker socket to the PC's RS232 serial port (an alternative version for USB ports is also available). It then shows all the memory settings on the screen - as well as every other setting in the rig - and I found that it is really simple to set-up the memory contents, assignment to memory banks, etc., etc.

Having got everything set the way you like it, the you can save it to disk as well as loading it back into the transceiver. So, of course you can then have several different set-ups stored in your PC in different files, for easy retrieval and loading back into the IC-2725E.

I was, for example, thinking, that if I travelled abroad often with the rig in the car, I might have different set-ups stored for different countries, and load one into the rig before departing. When the 'French settings' are selected, for instance, I might have the repeaters in Provence in memory bank C and those of the Paris region in bank D.

Scanning Capabilities

The scanning capabilities of the IC-2725E are everything that you would expect. Five sets of programmable band limits are available for defining the range of frequencies to be checked, for example I set one to 433.000 - 433.375MHz, which covers the u.h.f. repeaters channels when

scanned with 25kHz steps.

Alternatively you can scan memories, either the whole lot or one of the memory banks A - J. Different scans can be running on left and right bands, allowing some pretty comprehensive scouring of the possible activity. There's also a **Priority Watch** scan, which checks the current v.f.o. frequency every 5 seconds (set to the calling channel maybe, or your local Raynet channel) while other memories are scanned.

There are many other features that I don't have space to discuss fully. These include a data connector for 1200 or 9600bps packet operation, a.m. receive capability, and the **F1** and **F2** buttons on the microphone which can store almost all the settings of the rig.

There are eight options for the tuning steps on each band, from 5 to 50kHz - of course I chose 12.5kHz on 144MHz and 25kHz on 430MHz. Also, on the left-display band only, the transmit deviation and receive intermediate frequency (i.f.) bandwidth can be set to values suitable for either 12.5 or 25kHz channel spacing. On the right-display band only the wider setting is available.

The DTMF tones can be sent from the microphone keypad directly. Alternatively they can be programmed into one of 14 DTMF memories, up to 24 digits each.

Actual Performance?

So, with all these capabilities for choosing the operating parameters on the IC-2725E, how does the rig actually perform? Well, at home in the shack, connected to my dual-band collinear antenna, I was very satisfied with the performance.

On 430MHz, in flat conditions, I could access no less than 12 repeaters, equal to any other rig I've tried. I was particularly pleased by the receiver blocking characteristics - I found that listening to my local repeater I could easily hear myself through the repeater while transmitting on a hand-held in the shack, with no apparent desense on the IC-2725E receiver. (Not bad - other rigs with which I've tried this, in the same conditions, have been blocked badly by the enormous local signal).

But it was when working

mobile that the transceiver needed to be put through its paces. Since I was installing it in my car only temporarily, I did not detach the control head from its bracket on the front of the main unit. Despite this, the swivelling bracket was useful to give me clear vision of the display.

For the mobile tests I used a dual-band antenna that's mounted permanently on my car. I then ran the IC-2725E at its full rated power output.

Received Audio

An important aspect of a mobile rig performance is the received audio. The audio output (rated at 2.4W in the specifications) was certainly enough, even using the small built-in loudspeaker in the main unit.

However, this unit is likely to be mounted out of the way, so a separate loudspeaker will probably be used in most mobile installations. I tried the optional SP-10 mobile speaker, which had a very good full sounding audio response. It was very comfortable to listen to even with a high level of background road noise.

The transmit audio quality was also good, according to those who gave me reports, with several favourable comments being given. This was using the standard HM-133 microphone supplied, although personally I don't like using a hand-held microphone while driving (and this may become legally outlawed soon, anyhow), preferring a hands-free arrangement.

Also, I found a couple of times that I accidentally pressed one of the many keys on the microphone, with unpredictable consequences! But it should be straightforward to use different microphones, especially since a socket is readily accessible on the side of the control head.

Easy To Use

Overall, after spending some time getting things set up, I found the IC-2725E easy-to-use in the mobile environment. The controls give easy access to the basic functions that are needed while on the road, while the more complex settings can be done

v.h.f./u.h.f. f.m. transceiver that I've tried. It's a very capable transceiver, with good performance in both the mobile environment and in the shack. With its many features, after setting up the configuration to suit your preferences, it is also easy-to-use.

Manufacturer's Specifications

General

Frequency Coverage (Europe): 144-146, 430-440MHz
 Type of emission: f.m., a.m. (a.m. receive only)
 Number of memory channels: 212 (inc. 10 scan edges and two calls)
 Frequency resolution: 5, 10, 12.5, 15, 20, 25, 30, 50kHz.
 Operating temp. range: -10°C to +60°C
 Freq. stability: ±10 ppm (-10°C to +60°C).
 Power supply: 13.8V d.c. ±15%.
 Current drain @ 13.8V d.c. (approx.):

Transmit 12A (50W)
 Receive (standby) 1.2A
 SO-239
 Dimensions (Main unit): 140 x 40 x 187mm (W, H, D).
 Remote control head: 140 x 50 x 24.5mm (W, H, D).
 Weight: Main unit 1.25kg
 Remote control head: 150g.

Transmitter

Modulation system: Variable reactance
 Output power: (v.h.f) 50, 15, 5W (approx.).
 (u.h.f.) 35, 15, 5W (approx.).
 Max. freq. deviation: ±5kHz (wide)
 ±2.5kHz (narrow: left band only).
 Spurious emissions: < than -60dB
 Microphone connector: 8-pin modular (600Ω).

Receiver

Receiver design: Double conversion superhet.
 Intermediate frequencies: (Left band) 1st: 38.85MHz, 2nd. 450kHz.
 (Right band): 1st 46.05MHz, 2nd. 455kHz.
 Sensitivity: (f.m. at 12dB SINAD) 144MHz band < 0.18µV/0.45µV typical.
 a.m. at dB 10dB S/N): 430MHz < 0.18µV
 Selectivity (Typical)
 Wide: >12kHz/6dB
 < 20kHz/60dB.
 Narrow: > 6kHz/6dB
 < 20kHz/60dB
 Spurious & Image rejection: >60dB
 Audio output power: >2.4W @ 10%THD (13.8V d.c.) into 8Ω

easily using the microphone keypad or through the optional CS-2720 cloning software (although, of course, I'd have to either remove the rig from the vehicle, or take a laptop into the car, to do this).

I also found that the transceiver is equally at home as an f.m. rig for use in the shack at home. It has a performance that is at least as good as any other

Product

Icom IC-2725E

Company

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Pros and Cons

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Consa couple of times that I accidentally pressed one of the many keys on the microphone, with unpredictable consequences! But it should be straightforward to use different microphones, especially since a socket is readily accessible on the side of the control head.

Price

£399.95

Summary

A very capable transceiver, with good performance in both the mobile environment and in the shack. With its many features, after setting up the configuration to suit your preferences, it is also easy-to-use.

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● Rear view of the transceiver, showing centrally-placed antenna socket.



● The loudspeaker unit, available as an optional item for use with the transceiver.