Yaesu FT-5DE 144/430MHz C4FM/ analogue handheld transceiver

The Yaesu FT-5DE handheld.

I've observed before that handhelds these days fall in to two camps; value and premium. The 'value' units are amazingly cheap and, if you are after a simple handheld with transmit and receive of FM on 2m and 70cm, most will do a great job for you. The 'premium' units do all this and more, with additional features such as digital voice, in-built GPS, APRS/packet. Of course, they do this at a cost and you will have to decide, when you are in the market for a new handheld, what you want to do with it and how much you are willing to pay.

The Yaesu FT-5DE is Yaesu's latest model, boasting C4FM (System Fusion) and FM on both 2m and 70cm with a host of other features that we will take a look at. It falls into the 'premium' band of handhelds, with a price tag of £399.95.

What do Yaesu say about the unit?
The new FT5DR is a full-featured C4FM handheld transceiver with superior operability and new sophisticated functions.

Even in a compact body (W2.44" x D1.34" x H3.94"), the FT5DR provides reliable 5W RF power output and achieves loud 1W audio power that has been tuned for quality audio. Real Dual Band Operations (V+V, U+U, V+U, U+V) are available with two independent receivers. Large individual LED indicators for A band and B band present the status and communication modes (C4FM or Analog) of each band instantly. The new FT5DR supports simultaneous C4FM digital (C4FM/C4FM standby).

With rubber protection on the corner of the main body, the FT5DR has rugged and shock-resistant construction. The waterproof rating is IPX7. The comfortable size and form of the full-flat back body provides excellent grasp for the radio operator.

A high-resolution display highlights the frequency of the operational band. The colour of the operating band frequency can be selected from white, blue or red. Three (3) touch panel keys and seven (7) operation keys below the display offer intuitive operability.

The new TOUCH & GO operation is convenient in order to immediately start the communications on an often-used frequency.

By pressing and holding the "PMG" key, the frequency of the current display is registered into Primary Memory Group. After registration, pressing the "PMG" key will display the receive status of the registered frequencies as bars on a graph (activity monitor). By simply touching the displayed bar, the user can instantly recall that frequency. (TOUCH & GO Operation)

Band Scope function monitors in real time, up to 79 displayed channels that are centred around the current VFO frequency. The centre frequency can be tuned by the dial knob or by touching and moving the frequency of a displayed channel bar.

The C4FM digital communication features which are already popular in the market, such as: Automatic Mode Select (AMS), Digital Group ID (DG-ID) operation, and Smart Navigation function are available with the new FT5DR.

The FT5DR supports the WiRES-X Portable Digital Node Function as well. A portable digital node can be easily set up with the new FT5DR, an internet connected laptop PC, and the optional SCU-39 cable kit

Plus advanced features of the new FT5DR are: Wireless hands-free operation using the optional Bluetooth® headset (SSM-BT10); VOX function; Memory Auto Grouping (MAG); VFO Band Skip Function; Wide-range RX coverage with continuous reception from 0.5MHz–999.99MHz (A Band) & 108MHz–580MHz (B Band); Built-in high-sensitivity 66 channel GPS receiver; 1200/9600bps APRS Data modem; 2,200mAh High-Capacity Li-ion Battery Pack (SBR-14LI) as standard; Voice Recording Function; Simultaneous AM/FM broadcast Reception while monitoring two frequency channels; Micro SD Card Slot.

New Quick Release Holster (SHB-26) is included in the FT5DR package as a supplied accessory that allows single-touch attaching and detaching the transceiver while wearing the holster on a belt.

First impressions
Unpacking the unit, the first impression was of a pleasantly sized unit, which feels quite rugged and fits nicely in the hand. Although

A pleasantly sized unit that fits well in the hand.

I wouldn't recommend putting it to the test, it feels as if it would withstand the bumps that are inevitable in the life of a well-used handheld. It's IPX7 waterproof rated (meaning that it can be submerged in 1m of water for 30 minutes).

The FT-5DE is the latest in the line of C4FM/FM dual band handhelds, following on from the FT-3DE and the original FT-2DE. The FT-3DE introduced a colour screen that has been continued with the FT-5DE and some care has been taken to make this as readable as possible. There's the ability to change the colour of the operating band display to three different colours. I found the default white was most suitable for my taste, but you may prefer blue or red.

Included with the FT-5DE is Yaesu's new Quick Release Holder allowing you to quickly snap the transceiver in and out of a holster worn on the belt, which may well prove useful depending on how you plan to use the handheld.

The battery supplied is a 2200mAh unit, which takes a good few hours to charge with the supplied charger. Battery life seemed quite good, although I suspect the colour screen is reasonably demanding and the FT-5DE is the sort of handheld that I think you'll want to charge up every day if you are using it regularly, rather than being the type that you can charge up once every few weeks and forget about.

Up and running

Once the battery was charged up, I put the rig on the shelf in the shack, next to my trusty FT-2DE monitoring the same channels (EI7MLR on Mount Leinster – 85 miles away across the sea and the 144.800MHz APRS channel). Sensitivity of the two rigs seemed pretty similar although there seemed to be minor variations in the APRS packets that one rig decoded compared to the other, they were both much of a muchness. The sensitivity on the 2m and 70cm FM bands seemed to be as expected.

Deciding it was time for a voice contact, I walked up the field behind the house to where I can normally get into the GB3SP UHF repeater, some 25 miles away in South Pembrokeshire. Sure enough, I was able to open the repeater using the 5W power setting (5W, 2.5W, 1W and 0.3W levels are selectable) and Steve, GW7FBV replied to me on FM confirming that the audio quality was good. Martin, GW3XJQ joined us including a test on C4FM (DN voice and datamode) that worked well and both transmit and received audio seemed good.

I've noticed a trend in recent Yaesu FM/C4FM (FTM300 and FT5) rigs to a slightly more trebly sound to the audio. It's probably quite good for intelligibility although I do miss a little more bass response. It maybe the size of speakers being used or some audio tailoring going on.

Back inside the house, I changed the FT-5 to the frequency of my digital hotspot and setup the hotspot to connect to the busy 'America Link' room. There was plenty of activity here from all over the world and I was able to talk with a number of stations successfully. With the inbuilt GPS, the FT-5DE can show you the distance and bearing to the station that you are working, assuming that they are transmitting position data. This can be quite interesting.

Saving channels to memories proved quite straightforward (without recourse to the manual, which is clear and well written) and I'd quickly set up a few of the locally popular channels on VHF and UHF and was scanning them for activity.

The 'Primary Memory Group' feature allows you to set your most often used channels and have a visual display on the screen of when the channels are in touch. Touch the bar that is showing activity and you'll be taken to that channel. Because of the size of screen, you can only display up to 5 channels. I was wondering why you'd do this rather than an audible scan, but there miay be situations when you didn't want the audio to be heard and you'd prefer a visual display of the active channels. Using the PMG function does mean that you can't monitor two bands at the same time (Band A and B), only Band A as well as the visual display.

A similar feature is the 'Band Scope'. This allows you to see up to 79 channels close to the frequency that is set on your VFO. Touching a 'signal peak' allows you to move to that frequency quickly. This is a nice feature if you're out and

about on an unfamiliar hilltop and allows you to see where the local activity is. It works out of the amateur bands too for those that use airband and marine frequencies.

Bluetooth

The FT-5DE comes with Bluetooth as standard, allowing you to pair a Bluetooth headset with the rig. Yaesu supply an optional Bluetooth headset (SSM-BT10), but you may have success in pairing with other headsets that you already have.

With a Bluetooth headset you can either opt for VOX operation or to use the 'call' button on the headset to toggle transmit on and off.

Personal Digital Node

One of the nice features Yaesu introduced a couple of years ago was the capability to connect certain of their Fusion enabled radios, using a suitable cable and a computer running the Wires-X software, to their Wires-X network. The FT-5DE is one of these radios, so I updated my Wires-X software (a free download from the Yaesu website), grabbed my cable (it's the same SCU-39 as used for the FT-2 and FT-3 radios) and put the FT-5 into Portable HRI Mode.

You then have two choices, to use the radio as essentially a speaker/microphone (Direct Mode) or Access Point mode. Access point mode makes the FT-5 a hotspot, so you'll need another Fusion-enabled rig to communicate with the FT-5. The advantage of this, fairly obviously, is that you can use the connection anywhere you have an RF path to. With Direct mode, you are tethered to the location of the computer running the Wires-X software. This all takes a little setting up, but is well described in the Yaesu Wires-X Portable Digital Note Function Instruction Manual, which can be downloaded from the Yaesu website (look under the HRI-200 and Files).

I connected to the CQ-UK Room on the Wires-X network and spoke with Dave G0TKV in Oxfordshire. The quality of the connection was excellent.

This Personal Digital Node functionality is very useful as it allows you to connect directly to Yaesu's Wires-X network, something not possible from a standard hotspot (although bridges to certain networks such as CQ-UK and America Link may be available).

Memory auto grouping

A feature I liked on the FT-5DE was 'Memory Auto Grouping'. This automatically

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The FT5DR has a rugged, shock-resistant construction and is waterproof to IPX7.

sorts memories into groups based on their frequencies. There are groups for 'ALL', 'AIR', 'VHF', 'UHF', 'AM', 'SW' and 'OTHER'. If you save a 2m band frequency, it will be saved to the ALL and VHF groups. If you save an airband frequency it will be saved in the ALL and AIR groups. When you scan the memories, you can choose what you'd like to scan. Note that marine band frequencies are stored in the VHF bank, so you won't be able to separate 2m and marine band channels in that way.

APRS

One of the attractions I think, of the Yaesu System Fusion handhelds has been the inclusion of APRS functionality. I've always casually liked APRS and often find it interesting to place the rig on 144.800MHz and see what APRS packets are flying around. The FT-5DE supports this interest well. It's easy enough to set up for APRS reception and you are then all set. Once the FT-5DE picks up your position using its internal GPS receiver you can send a beacon to be picked up or digipeated by other APRS equipped stations. You can read more specifics about the APRS functionality at [1].

It's a little more hidden on the FT-5DE than it has been in previous models, but once the GPS has established a position, you can see the GPS status, including your latitude and longitude, altitude, speed as well as the current date and time. I've often thought that it would be nice to have an option to display your current location in Maidenhead 'grid' format as well as latitude and longitude. A future version of the firmware, Yaesu, perhaps?

You can use your FT-5DE to decode packets from space-based APRS as well as terrestrial APRS. If you want to try receiving something, put your receiver on 145.825MHz when the International Space Station is due over. If the radio gear on the ISS is in APRS mode (you can check at [2]) then as the ISS passes by, you will hopefully hear and decode some packets, even if you are using the rubber duck. Having done that, you might want to try getting your signal digipeated by the APRS. You'll need to change the packet path (the FT-5DE neatly supports up to 8 paths which you can set and select) to ARISS. When you are decoding packets well from the ISS, try sending a beacon and see if you get digipeated. Using a better aerial than the rubber duck will certainly work, but it's fun to try with a minimal setup. Don't forget to change your packet path back to the default, once you have finished on 145.825MHz.

The FT-5DE would also support APRS at 9600baud although I am not yet aware of any substantial use of this baud rate for APRS applications.

Aside from all of this, the FT-5DE supports navigation and finding your way to a station. You can read more in the manual. Although this is all very clever and interesting, I am not sure how much this is used in the 'real world'.

MicroSD card

The FT-5DE will accept a MicroSD card of up to 32Gb capacity. You can use this to backup the transceiver's data and information, including memories, voice recording and playback, GPS log data as well as image data if you've got the camera/microphone which allows you to send images using the data mode, supported by C4FM.

With the microSD card installed, you can record activity if you wish, including transmitted audio. This may be useful if you are into satellite working, where there is not a lot of time during a pass for much more that working the stations. Many operators carry a separate audio recorder or use their phone to record the QSOs. The audio recording function in the FT-5DE makes that so much easier as there is no additional hardware needed to carry and setup. The date and time of the recording is included in the audio file name on the SD Card. You can even record both Bands A + B at the same time.

Power measurements

A quick check on the power settings on the rig showed that they were within spec, with the High power level around 4.5W on a battery, which had already seen some use. With the battery fully charged, 5W was no problem. Strangely enough, the power settings were labelled HIGH, LOW3, LOW2 and LOW1. According to the manual, it should be called MID3 rather than LOW3. No matter, it did 2.5W on that setting, with LOW2 at 1W and LOW1 at 0.3W. LOW1 should be perfect, in digital mode for use with hotspots.

Wide band receiver

The FT-5DE has a wide band receiver, covering 520kHz to 999.995MHz on Band A and 108MHz to 579.995MHz on Band B. Although the supplied rubber duck is hardly ideal for medium or short wave, you'll find that there are some preset short wave broadcast frequencies stored in the rig, as well as the international marine VHF frequencies. A quick spin through the international short wave frequencies didn't come up with much, although there was a weak signal on 6000kHz that was labelled Deutsche Welle and another one at 11765kHz labelled Italy. Anyway, you might have some fun with that when short wave conditions improve! Where the wide band receiver is very good, is air band and if you have an interest in this area you should find the performance of the FT-5 excellent here as well as on the marine band. Transmit is disabled outside the amateur bands, of course.

Overall

The FT-5DE was an enjoyable companion during the review period. I like a handheld that can do several things, such as FM/digital, air and marine band receive and APRS. The FT-5DE did all of these very competently and of course, there are many other features including the Bluetooth connectivity as standard, which many people will enjoy. The display is clear and the rig seems quite rugged and able to cope with a reasonably 'outdoor life' including being waterproof.

If you are in the market for a 'premium' type handheld and especially, if you are in an area served by a Fusion-enabled repeater, then the FT-5DE will be well worth considering. It is available at £399.95. Many thanks to Paul Bigwood and Yaesu UK for the loan of the review model.

Websearch
[1] https://www.yaesu.com/downloadFile.cfm?FileID=17057&FileCatID=263&FileName=FT5DR%5FDE%5FAPRS%5FENG%5F2108%2DA.pdf&FileContentType=application%2Fpdf
[2] www.ariss.org/current-status-of-iss-stations.html