Review by Tim Kirby G4VXE

● E-mail: tim@g4vxe.com ● Twitter: g4vxe

The Yaesu FTM-7250DE 144/432MHz C4FM/FM Dual-Band Transceiver

Continuing his look at Yaesu's System Fusion, Tim Kirby G4VXE reviews the FTM-7250DE Fusion Transceiver.

As part of our short series of articles revisiting the Yaesu digital voice system, System Fusion II, we thought we would review the new FTM-7250DE dual-band transceiver. It was introduced about a year ago as an addition to the range of System Fusion transceivers. This, along with the FTM-3200DE (144MHz single band) and FTM-3207DE (432MHz single band) was introduced as a lower-cost entry point, allowing people the option of a digital capable rig, without features that they may not necessarily want, such as GPS or APRS.

Here, we are looking at the FTM-7250DE, but **Karl Brazier** from Yaesu tells me that the features on the FTM-3200DE and FTM-3207DE are identical – the only difference being that they are single-band radios, rather than dual-band like the FTM-7250DE.

The features and specification, from Yaesu, are set out in the sidebar.

First Impressions

I first encountered the FTM-7250DE when I visited Yaesu UK to meet Karl Brazier to have a demonstration of the new System Fusion II features. The FTM-7250DE has a solid, simple look to it, with a nice display. I asked Karl if I could borrow one to review and he very kindly agreed.

Pretty much the first thing I do with any digital transceiver these days is to try it out on my digital hotspot at home and this is exactly what I did with the FTM-7250DE. When you first switch on, you have the option to set your callsign into the radio. This is what will be displayed on other people's radios, when you are in Digital (C4FM) mode. You can enter up to ten characters so if you have a short name such as Tim, you can set your callsign and name, in my case as G4VXE-Tim. Also, I set the power to 5W (there are three power levels – 50W/25W/5W), popped a dummy load in the antenna socket and set the frequency to that of my digital hotspot. With the hotspot connected to one of the Yaesu System Fusion reflectors, America Link, I soon started to see traffic and hear voices

The FTM-7250 in digital mode, receiving the GB3CF repeater.

coming through the radio. My first contact, as a quick test, was actually with **Scott KH6AGL** in Hawaii! Although, of course, it's not the same as working Hawaii directly, it still makes for an interesting contact. Scott kindly confirmed that the rig's audio sounded good.

Programming the FTM-7250DE

Because I wanted to take the FTM-7250DE mobile, I thought I would program up some memory channels to keep an ear on while I was out and about. The first nice discovery was that programming the memories was pretty intuitive and I didn't have to resort to the instruction manual. Having said all that, the *Operating Manual* is simple and concise – and written in straightforward and clear English. It runs to a modest 47 pages. There is also an *Advanced Manual* that covers less frequently used but useful features. This is not supplied but you can download it from the Yaesu website (click on the Files tab) at: **https://tinyurl.com/y7afx5ux**

Anyway, back to programming the memories. I programmed a variety of 145 and 433MHz repeaters that I thought I was likely to hear on my travels. Unfortunately for testing, the area around West Oxfordshire where we are currently living does not have any nearby Fusion repeaters. Nevertheless, I programmed up some, optimistically, which I thought I might hear. I decided to program up the digital simplex calling frequencies on both 144 and 438MHz (144.6125 and 438.6125MHz) in the hope of making a simplex contact or two. Finally, to take advantage of the FTM-7250DE's wideband receive coverage, I set up a few memories with airband and marine frequencies of interest.

With all that done, I connected the rig to the V-2000 triband vertical at home to check that everything was working as it should. It all sounded promising.

Fitting any rig into modern cars is always a challenge and the FTM-7250DE is too large to fit in the centre console of my car – most radios are! However, I found a way of safely mounting it and then connected it up to the 144/432MHz mobile antenna.

Setting the rig scanning as I drove around suggested a couple of things. Firstly, that it was nice and sensitive – I noticed one or two weak signals that I hadn't heard since using one of the cheaper (and great value) Chinese mobile sets. Secondly, the receiver was pretty bomb-proof and there were fewer funny noises when I passed shops, buses and other well-known noise sources.

The rear panel of the FTM-7250 is simple, with antenna, speaker, power and data connectors.

With 50W available from the FTM-7250, transmitter performance was good with distant repeaters, or indifferent locations. The three power levels are quite sensible, although perhaps Foundation licensees would have appreciated a 10W power setting as well. When running the rig on 50W, the heatsink gets warm, but not super hot, so the cooling system seems to work very well.

With conditions slightly up one day, I noticed the rig stop in digital mode on 145.600MHz, where both GB3CF and GB-3WR can be heard (I'm located on the fringe of both of their coverage areas, somewhere in the middle of them) but I only got the odd word. It was promising though.

I didn't get the chance to try a digital Fusion repeater until **Julie** and I drove up to Warwickshire for an appointment. While I waited for Julie to return, I tuned the rig to the GB3CF frequency to find that the repeater was an excellent S7 or S8. I waited for the QSO to end and put a call through. I was delighted to find that it all worked very well and I had a series of excellent contacts, including **Colin MU0FAL** and **Peter G7RPG**. I discovered that GB3CF was not hooked up to the Wires-X system, but instead connected to the Hubnet system, which seemed busy with lots of interesting contacts. I found that with a strong signal from GB3CF, I was able to drop power to 5W without any detrimental effect on my outgoing transmission quality.

Digital and Wires-X Features

The FTM-7250DE firmware includes support for the Digital Group ID (DGID) and Digital Personal ID (DPID) capabilities that I mentioned in last month's *Reintroducing System Fusion* article. The default DGID is set to 00, meaning that everyone hears everyone but, as I mentioned last month, you can change

the value as required, should this be used on your local Fusion repeater. Similarly, DPID is available and could be used, for example, to identify you as a control channel operator for a Fusion repeater.

If you are connected to a Wires-X node or Wires-X enabled repeater, you can use the FTM-7250DE to select another node to connect to. Unlike the FTM-100DE and FTM-400XDE models, you cannot press the Dx button and scroll down a list. On the FTM-7250, you'll need to enter the Wires-X number of the node you want to connect to (for example GB3SP in Pembroke Dock is number 43417). You can look up whatever nodes you want to connect to at the URL below and obtain the appropriate node number. If you connect to a particular node regularly, then you can save the node number for regular use. Once you're done with having connected to the node, you can hit the '*' button and it will disconnect you. Note that you don't have to do this each time you connect to a Fusion repeater. If the repeater you connect to is already connected to a Wires-X room, then you'll often be content to leave it as it is, but this feature gives you the option to disconnect and connect somewhere else if you want to (and have permission to do so). Karl and I tried this feature at Yaesu HQ and it worked just fine and although it sounds a bit cumbersome, was actually pretty easy to do in practice.

https://tinyurl.com/ydfdoc3b

Like all System Fusion capable rigs, the FTM-7250DE has Automatic Mode Select (AMS), such that when it receives a Digital Fusion signal, it will automatically change to the appropriate narrow or wide digital mode or, of course, analogue FM.

In case you're wondering, you can't use the FTM-7250DE in conjunction with an

HRI-200 box to create a Wires-X node. If you want to do that, you'll need to use either an FTM-100DE or an FTM-400XDE.

The Wideband Receiver

A few words about the wideband receiver (108 – 579.995MHz). I used it successfully on the Marine and Air bands for receive and it seemed nice and sensitive. I noticed good strong signals from aircraft at least 100 miles away on several occasions and once, driving around Oxfordshire, I was surprised to hear a signal on 156.800MHz (Marine channel 16). For those of you interested in listening to airband, the FTM-7250DE copes with the new 8.33kHz channels and, of course, provides for AM reception. Another point worth noting is that the rig's scan speed is very fast, meaning that you don't miss much unless a transmission is very short.

Summary

When I'd first seen the adverts for the FTM-7250DE I confess, I'd not felt too excited by it because it was missing the GPS and APRS functionality but, having had the chance to play with one extensively at first hand (thank you Karl!), I realise I'd done it a disservice. It's a great, solid rig that performs well. I liked the receiver performance, both in terms of sensitivity and the robust front-end as well as having 50W available on the transmit side for those more distant contacts. If you've a wider interest in radio and enjoy listening to air and marine bands, for example, you will probably enjoy the extended receive coverage of the FTM-7250DE.

The FTM-7250DE will work nicely as a mobile rig or, indeed, as your shack base station where it would work very well, especially if you are in an area served by a Fusion repeater. And that's the key thing really – the FTM-7250 or its sister rigs will probably suit you best if the region where you live has a good base of Fusion activity. This varies but you can always look on the UK Repeater site to get an idea of Fusion repeaters or gateways close to you.

Don't forget that if you like the sound of the features that I've described, but only want a single-band VHF or UHF version, then those models are also available.

My thanks to Karl Brazier of Yaesu UK for the loan of the transceiver and for answering all my questions regarding the rig and System Fusion in general. The FTM-7250DE is available from retailers at £229.95, the FTM-3200DE and FTM-3207DE single band models at £189.95.
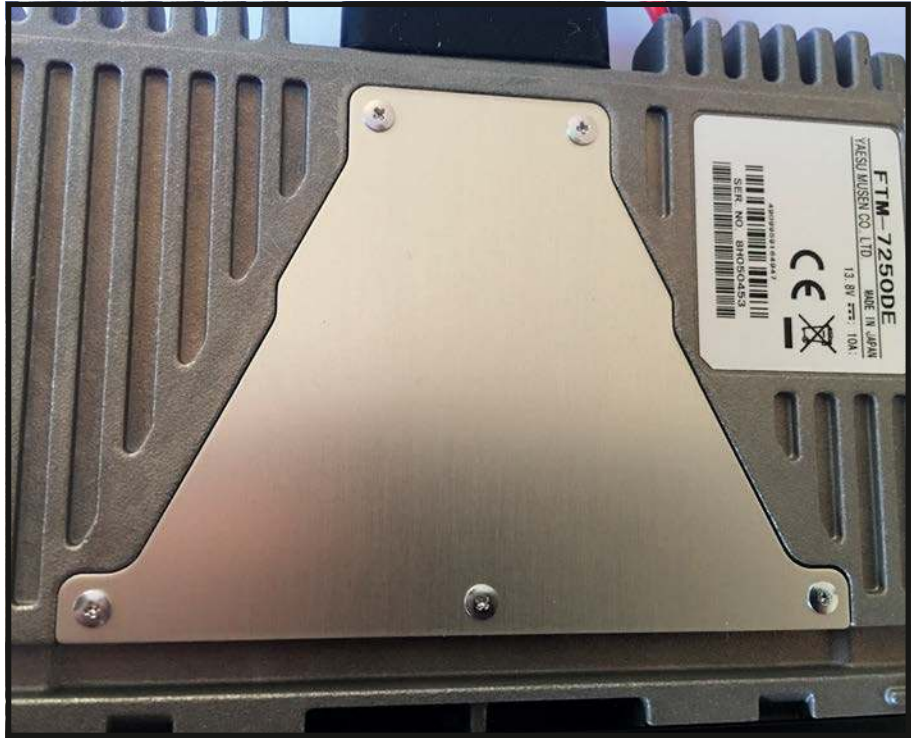
The FTM-7250 features a good heatsink especially useful when the rig is running 50W.

Features & Specification (from Yaesu)

The new FTM-7250DR/E is a compact ruggedly built C4FM/FM 144/430MHz Dual-Band 50W Transceiver incorporating the latest advanced features YAESU offers for the System Fusion II platform. Users can expect this attractive new transceiver to provide reliable performance for long-lasting communications because the FTM-7250DR/E incorporates a Heavy-Duty Heat Sink equipped with the Yaesu exclusive FACC (Funnel Air-Convection Conductor – Wind Tunnel). Its Front Speaker delivers 3W of powerful clear and crisp audio – ensuring consistent communications – even in noisy environments.

As with other YAESU C4FM Transceivers, the new FTM-7250DR/E supports the Automatic Mode Select (AMS) function, Digital Group ID (DG-ID)/Digital Personal ID (DP-ID) features for group communications and easy connectivity to the WiRES-X Internet Linking System. A new feature of the FTM-7250DR/E certain to be very popular in the Amateur Radio community with its expanded Wider Receiver Coverage: 108 – 579.995MHz (108 – 137MHz: Air Band).

Other practical functions included in the new FTM-7250DR/E are: Large Multi-Colour LED Indicator to show Operation Mode at glance; 225 memories (199 'basic' memory channels, 10 sets of band-edge memory channels and 6 'Home' channel) with 8-character Alpha-numeric tags for easy channel recognition; keyboard entry of operating frequencies from the supplied DTMF microphone; Built-in CTCSS and DCS Encoder/Decoder circuits; Time-Out-Timer (TOT); Automatic Power-Off(APO) and Automatic Repeater Shift (ARS); VFO scan, Preferential Memory Scan, Programmable memory scan and Dual Watch and so on.

Detail:
- System Fusion-II Compatible
- Operates Advanced C4FM Digital and Conventional FM modes
- AMS (Automatic Mode Select) function automatically recognises the signal as C4FM digital or conventional FM
- Sophisticated Digital-Group-ID (DG-ID) Operation
- Digital-Group-ID (DG-ID) Memory Feature: Up to 10 DG-ID pairs with alpha-numeric tags
- True 50W (VHF and UHF) Stable High-Power Transmitter with FACC
- FACC: Funnel Air-Convection Conductor (Wind Tunnel)
- High Stability ±2.5ppm TCXO Included
- 3W Powerful & Clear Audio with Front Speaker
- AMS with Multi-coloured large LED Mode-Indicator Effortless FM and C4FM Operation – 225 Memory Channels with Alpha-numeric tags (maximum 8 characters)
- Wideband Receive for 108MHz – 579.995MHz (108 – 137MHz: Airband)
- Weather Broadcast Reception
- Severe Weather Alert Feature
- Easily connect with the WIRES-X linking system (Not support operation of WIRES-X Node Station)
- Keyboard entry of operating frequencies from the microphone – CTCSS and DCS Encode/Decode, with split Tone – Versatile Scan features: VFO scan, Preferential Memory scan, Programmable memory scan and Dual watch.