

Equipment Review

The Yaesu FT-411, two metre FM hand-held transceiver.

I often wonder where all of the two metre hand-held transceivers go to. The only ones heard on the air are via repeaters and many of those don't seem to be getting in properly. Maybe most use them the way that I use mine, as a monitor for the local repeaters. I must say that the rig I have been using for this application over the last year or so has been the little Yaesu FT-23 and it has performed the job extremely well. I was therefore most intrigued to hear about the FT-411. It's about the same size as the FT-23 but has a full keyboard for direct frequency entry plus an incredible 49 memories. I might be wrong, but it seems that the development of hand-helds is somewhat in advance of the larger mobile and base station transceivers. The amazing thing is how the designers fit it all in.

As might be expected, most of the accessories are interchangeable between the two transceivers. These include battery packs, chargers, external speaker/microphones, mobile mounting brackets etc. Many of the excellent features of the FT-23 have been extended and improved. The power saver system now has selectable options, the read out gives the operator more information although it is not as readable as the FT-23 display. And perhaps one of the greatest improvements is the illumination of the display and the keyboard. This was non-existent on the FT-23 although a modification is possible to incorporate it. Now not only is the display illuminated but the entire keyboard is brilliantly lit from the rear.

Let's now look at the FT-411 in more detail. As supplied with the FNB-14 battery pack, the dimensions of the complete transceiver are only 55mm wide, 32mm deep and 155mm high. Take the battery off and the actual transceiver is only 85mm high and this includes the knobs. With the FNB-14 pack the transmitter output is rated at 2.5 watts, however substitution of the FNB-11 battery pack gives a whopping 5 watts output. There are five nicad packs available which have either 7.2 or 12 volts output to give either 2.5 or 5.0 watts output and capacities from 200mAh to 1000mAh.

A variety of soft cases is available as options to suit the transceiver and the different battery packs. A soft case is not supplied as standard as it was with the FT-23.

As is usual with keyboards, most of the buttons have dual functions which are brought into use by pressing the 'F' or function button. These include the selection of two VFO's, high or low power selection, battery saver function, keyboard lock etc.

The 49 memory channels can be programmed for frequency, repeater shift, continuous tone controlled squelch system, one instant call channel memory, plus memories that set the

frequency limits for band scanning.

And there will be no more flat batteries because you just plain forgot to switch the transceiver off! A period of 10, 20 or 30 minutes can be programmed after which the transceiver switches off if no controls are used within that time. It will even play you a song to remind you that it is going to switch off!

A VOX circuit is built in but it is necessary to use the optional YH-2 headset. I recall trying the VOX on an earlier Yaesu two-metre hand-held some years ago and found it rather awkward to use and certainly not recommended for repeater use.

VFO tuning steps can be selected for 5, 10, 12.5, 20 and 25kHz. For our local band plan either the 5 or 25kHz stepping is fine. The 25kHz steps enable rapid tuning up and down the band. This is also excellent for band scanning.

The FT-411 On The Air

The first impression of the 411 was that the audio quality was rather worse than the FT-23. With the inclusion of the keyboard, panel space is rather limited and so a smaller speaker has been fitted. While the quality is fairly satisfactory for a small hand held, it is noticeably inferior to the FT-23 in both terms of quality and acoustic output. The LCD display is also inferior to the FT-23. While it is about the same size overall, it contains quite a bit more information, so everything is smaller. It also appears to be set further back from the clear plastic front cover so that in daylight there are reflections which cause distorted digits. The symbols that indicate power saver, auto power off, low battery etc. are too small to be discernible to my eyes. If you are younger than I am, you might do better.

Transmitted audio quality was rated as excellent with plenty of punch. As is usual the stubby antenna has rather limited radiation capabilities. If you are looking for consistent results, a larger antenna is recommended.

Battery life is excellent, particularly if the transceiver is used mainly for monitoring. Current drain in transmit is quite high at 1.3 amps for the nominal 5 watt output and about 750mA at 2.5 watts output, so as with all hand-held transceivers, only talk if you have something to say.

The transceiver is supplied with a wall point charger which is fitted with a multiple type output connector, so you might find this useful with other equipment.

The FT-411 On Test

Only a limited number of tests could be carried out on the FT-411 as I have not as yet set up all of my test gear after moving into a new QTH.

Power output using the supplied 7.2 volt

Ron Fisher VK3OM
'Galanungah'
24 Sugarloaf Rd
Beaconsfield Upper
3808

battery, 2.7 watts with fully charged battery, dropping to 1.8 watts just before the battery gave out. Low power setting produced exactly 0.5 watts.

The section of the LCD display that represents the 'S' meter was checked with the following results. There are actually twelve segments in the display and they give a range of about 15dB which is a little more than 1dB per segment. Because of its extremely small size and limited range it is of little use.

The transceiver was tested at length using my base station antenna and the receiver front-end performance was found to be very good with no "funnies" being heard. The receiver uses somewhat more front-end selectivity than is usually found in hand-held transceivers. The RF amplifier is an unusual device with two bipolar transistors in a direct coupled circuit but enclosed in a single package. The receiver first IF is at 17.3MHz and the second mixer, 455 second IF and FM detector are all in a single IC.

The FT-411 Instruction Book

As is usual for Yaesu, the instruction book is very well presented. There is unfortunately no technical description included but a full circuit covering four pages is there plus a block diagram. 15 pages are devoted to operation and an



Front panel view of the FT-411

excellent operations chart is included which you can take along with the rig as a reminder for those less-used functions.

The FT-411 Conclusions

If you need a hand-held two-metre transceiver with just about every conceivable feature with 49 memory channels that you can slip into your top pocket then the FT-411 is probably just what you are looking for. Compared with the FT-23, the operation is somewhat more complicated but once you have your required frequencies in the memory it becomes more straightforward. However, again compared with the FT-23 many of the often used functions require the pressing of two buttons as against one for the 23. The choice is yours of course, and if you do choose the 411, you will certainly have one of the most up to date full-featured FM transceivers around. Thanks to Dick Smith Electronics for the loan of the FT-411 used in this review. Full details on price and availability can be obtained from your nearest Dick Smith store.



A handful of transceivers, the FT-23 and FT-411 for comparison