

YAESU FT767GX

Upgrade

In the Nov 1987 issue of HRT, when I tested the FT767GX, I commented that the synthesiser reciprocal mixing noise let the radio's performance down somewhat, and noted the improvement given in this respect by an add-on board designed and fitted by an enterprising British Yaesu dealer. It appears that the Yaesu design engineers have not been resting on their laurels however, as the large FT767GX main circuit board has now been upgraded by the manufacturers to improve the synthesiser performance. This version of the FT767GX should by the date of publication be supplied as 'standard' equipment. A review sample of one of the first sets came our way, of course, to be subjected to the rigors of the HRT review team's spectrum analysers and signal generators as well as thorough on-air testing.

On Air

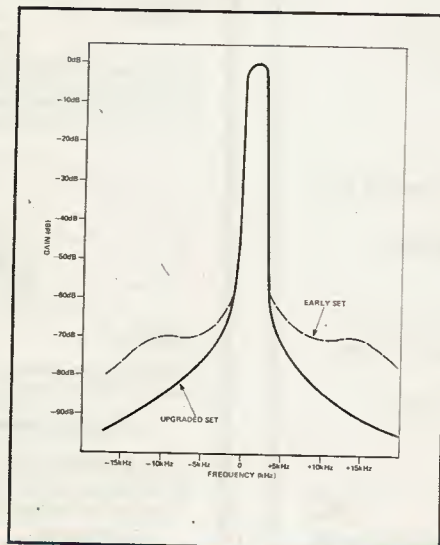
This is not meant to be a complete review of the transceiver, which may be read in the aforementioned issue of HRT. Instead the performance of the receiver section was tested during crowded on-air conditions, as well as coupling the set up in the laboratory. The set was tested over a period of several weeks, allowing a good deal of close evaluation to take place.

Tuning onto 40m, using a dipole at 10m above ground level, showed the set was coping very well. Operating close in frequency to the illegal broadcast intruders in our band didn't cause anywhere near the previously encountered level of rasping noise, increasing in amplitude as I tuned closer with a corresponding increase in S-meter level. Instead, the higher frequency splitches of AM modulation sidebands could be heard at low levels, which were previously being masked by noise. As soon as an amateur signal came up in the vicinity

G4HCL finds that Yaesu have improved the FT767GX's reciprocal mixing performance noticeably

of these it was resolved with relative clarity.

When operating on less crowded bands, the difference was rather less obvious; however, bands such as 20m during busy periods did seem to yield good results. For instance when operating in the often very busy packet radio sections, corruption from adjacent 2kW Italian BBS stations was minor when attempting to copy weak DX packet stations when using narrow IF filters. The effect of reciprocal mixing here superimposes 'noise' on the received signal, in sympathy with strong adjacent signals, extra filtering in the receiver giving no improvement. This effect is best seen where constant carriers are received, ie CW or FSK Data signals, as opposed to SSB transmissions where transmitter non-linearity is often the major cause of adjacent frequency degradation.



Laboratory Tests

Coupling a low-noise cavity-tuned signal generator combined with a variable constant-impedance cavity attenuator gave a good test of the reciprocal mixing performance; the tests were repeated on a second generator using an in-line 21.4MHz crystal filter matched to 50ohms as a further test, yielding similar results. Comparing the single-signal SSB selectivity with that measured on the previously-tested unmodified FT767GX receiver using the same apparatus shows a significant improvement, as may be seen from the accompanying plots. There was no significant difference in other respects of the receiver performance such as dynamic range although this was not closely tested, the upgrade of course being limited to the synthesiser sections rather than the front end circuitry.

Conclusions

The upgraded set is certainly a welcome improvement in performance of what must now be establishing itself around the world as a popular all-round HF/VHF/UHF base station. In the past, Japanese manufacturers of amateur HF rigs have often been accused of poor synthesiser design, and rightly so in my opinion, for the sake of a little more work and a few extra components it makes sense not to 'spoil the ship for a ha'porth of tar'. It looks like they're taking note, and more importantly acting upon it.

I am informed that owners of early sets may have the board fitted by S.M.C. in Eastleigh at a nominal cost to cover only the board importation/duty costs etc. However, the upgrade is not being made available as a user-fitted kit.

My thanks go to South Midlands Communications Ltd. for the loan of the upgraded transceiver.