3357 again. The squelch facilities of the same chip are used, both for the audio squelch and also the scan interrupt function.

SSB and CW signals are processed at 10.7MHz by a crystal filter (2.4kHz @ −6dB), amplified and then demodulated via an i.c. product detector, before audio amplification and shaping. AGC is derived by diode detectors, and used to control gate 2 of the i.f. Mosfet amplifiers, as well as the S-Meter indication.

To transmit

On transmit, the input mic amplifier is also used as the speech compressor when required, the output filtered for AF shaping, before routing via bipolar switches to the FM or SSB generating circuits.

For SSB, the conventional balanced modulator/filter method is used, routing through the same filter as for SSB receive. An ALC controlled amplifier follows, then mixing using balanced FET's up to 67.3MHz. After bandpass filtering and buffering, conversion to final frequency follows, where a power output of 1 watt pep is obtainable from the driver/amplifier. Before reaching the antenna, two low-pass filters are used to aid harmonic suppression (quoted at better than −50dB).

FM is generated by means of a varactor diode modulating the same oscillator used for SSB conversion to 67.3MHz, otherwise the circuit is the same as for SSB. A toneburst is available using a crystal controlled oscillator (7.168MHz divided by 4096).

CW mode utilises the PLL unlock signal as a keying control, with carrier injection from the 10.7MHz USB oscillator, with the audio circuits inhibited.

On the air

During the review period, the FT-790R was used mainly as a base station, with some portable and (warily) mobile operation. The supplied antenna was used for portable and also mobile, and a colinear and Multibeam for base operation.

As a portable rig, the unit performed admirably well, especially from the mountain tops known locally as the South Downs. Received reports were good, with little objection to the speech compressor when in use. Another 790R at the other end of a QSO used the compressor with little audible degradation at fairly good signal strengths.

One interesting phenomena was that received signals were apparently better, in both recovered audio and S-Meter reading, on FM than SSB, when the other station was using comparable power in both modes. The manual quotes similar sensitivities for both so it may be that the review sample had appreciably better FM sensitivity, otherwise all we have learnt about the advantages of SSB over other modes needs amending!

Mobile operation, bearing in mind the difficulties mentioned earlier, was satisfactory with the low power output. Those who haven't used 70cm mobile may be pleasantly surprised at the results obtainable. One of the more noticeable effects is that generally, signals either tend to be there or not there with little in between. Most areas have effective 70cm repeaters available which extend the mobile coverage considerably. The noise blanker is reasonably efficient at removing much mobile interference, considering it is non-adjustable.

As a base station, there is little to comment on, other than the front mounted antenna socket! The scanning facility is more than useful when activity is low, as is the priority function if you are listening to a QSO but want to keep an ear on another channel. Nobody could be found to try out the CW function unfortunately, otherwise the rig performed satisfactorily.

One useful tip — if you use both SSB and FM, keep one of the VFO's around 433.5MHz, and the other at 432.3MHz. This saves a lot of time if you change modes, as to move down the band rapidly you need to either do a lot of knob turning, or wait while the scan gets there, or stay in FM mode to get to the SSB portion as otherwise moving 1MHz in 1kHz steps takes an eternity.

Summary

The FT-790R is a compact and useful transceiver, and could be used quite adequately for any of its intended roles. As a mobile rig, it is less than ideal due to the LCD display, and panel mount tone burst button. However, control over the frequency can be via the microphone controls, leaving one free to concentrate on the driving, providing the LCD display is easily visible — this may be difficult in a lot of vehicles. At a price of around £325, it is approximately £50 more expensive than its 2M counterpart.

The writer has been told that some of the models around have had the front ends modified by some suppliers and that the modification causes a number of problems both on transmit and receive. No further information is available but this may be worth checking on before purchasing.

The review sample was supplied by Amateur Radio Exchange of Ealing. Price £325. ●

YAESU FT-790R

MEASURED SENSITIVITY IN RECEIVE MODE

Generator level for 12dB SINAD
FM mode 430MHz: 0.1 microvolt

Generator level for 12dB SINAD
FM mode 434MHz: 0.1 microvolt

Generator level for 12dB SINAD
FM mode 439MHz: 0.12 microvolt

Generator level for 12dB SINAD
SSB mode (USB) 432MHz: 0.1 microvolt

Note: Voltage measured as EMF