



scanners now available, the set was very light and was hence quite easy to carry around without being too incumbent. The nicads provided several hours worth of listening before a recharge became necessary, the lcd giving a 'Batt' indication to warn of this.

Reception

Taking the scanner out and about with me confirmed it was very sensitive indeed, better than many other handheld scanners. In use this allowed reception of quite weak signals that otherwise would have been difficult to copy when operating portable with a short whip aerial. When listening on VHF with the telescopic whip at full length, once or twice I noticed some wideband FM breakthrough over a period of a few weeks, although this usually didn't affect reception once other signals were present. At first this effect puzzled me, as the set was not used in the immediate vicinity of any FM broadcast stations, but this was later found to be a minor problem.

At Home

Using the set inside the house, connected to an external 25-

1300MHz discone gave very good results with reception of several distant signals, but sometimes with the odd problem of blocking which of course is not surprising considering its intended use. It wasn't anywhere near as bad as a previously reviewed wideband handheld scanner, which just gave up the ghost when connected to an external aerial.

Coupling a vertically polarised Create 105 1300MHz log-periodic yagi to the scanner gave good results, the yagi being beamed towards the wanted signal in each case. The receiver selectivity appeared quite reasonable, with stations separated by 25kHz being attenuated well, this however could require 5 or 10kHz offsets to be programmed into the scanner for better reception when monitoring certain aeronautical services operating at pre-determined offsets from the nominal frequency.

Viewing the lcd from above when the set was placed on a table top was rather difficult, the set had to be tilted backwards to see what was happening due to the viewing angle determined by the manufacturer, likewise when used in a car with the set clipped onto a vertical shelf edge with the belt clip. However mounting the set horizontally but within viewing distance gave an acceptable display.

Inside the Box

The set is constructed using a two-piece plastic cabinet, with a further small clip-on lid over the battery compartment. Inside the case three main printed circuit boards are used, for the control, the power regulator/charger, and the main RF circuit functions. The control pcb is very well screened to prevent micro-processor interference to the RF circuits, and the sensitive voltage controlled oscillators on the RF pcb are also well screened to prevent unwanted pickup. Surface mounted 'chip' components are used in great profusion to keep the set's size down while increasing reliability.

Individually screened tunable coils are used for the RF front end stage on VHF and the lower UHF ranges, the upper UHF range employing open wound coils. A first IF of 45MHz is used to ensure good image rejection, a pair of monolithic dual crystal filters being used here to provide the bulk of the receiver selectivity. Downconversion to the

usual second IF of 455kHz is used, further selectivity here being provided by a 6 pole 12kHz bandwidth ceramic filter.

Laboratory Results

In general, the RF performance was good for a handheld scanner, of note was the excellent sensitivity across the entire range. This good sensitivity can sometimes cause other problems, and although the dynamic range was also quite good in CB terms bearing in mind the set's intended use, the threshold for blocking effects and the like is of course that much lower as well, as sometimes found when connecting an external aerial.

The image rejection at VHF and the lower UHF ranges was very good indeed, far better than many other scanners of this type. This is due to the 45MHz first IF which removes the image frequency by 90MHz, but the measured rejection suffered at the upper frequency ranges where zero rejection was found due to limitations in front end selectivity. In practice, this wouldn't cause many problems in this upper frequency range unless an unfortunate mix of frequencies occurred in your area.

Few spurious responses were noted, but at the 45MHz IF this was 40dB relative to the wanted signal when measured at 145MHz, which exceeded the good image rejection here of 61dB. The IF rejection changed by less than 10dB across the measured frequency range. With sporadic-E reception of Band 1 signals during some seasons and times, this is the most probable explanation of the occasional wideband FM breakthrough noted in use, this would only be a minor problem in most cases.

Conclusions

The set appears to be a handheld 'World First' in its wide coverage range, offering almost complete coverage of 25-1300MHz. It only misses out the 550-800MHz range used for TV sound/vision which, not having a wideband FM mode, the set cannot usefully receive in any case. From comments received from other users of the Jupiter II scanner, the set is sure to be popular amongst scanner enthusiasts.

The receiver sensitivity is excellent for a handheld scanner, the