

S meter, USB. RF levels for:

S1 / S3 / S5 (μ V pd) — / 0.2 / 1.2
 S9 / S9+20dB (μ V pd) 9.8 / 46

Accuracy of dialled frequency, USB (Hz) +100

Signal generator offset from dialled frequency required for best FM SINAD (Hz) 0 +/- 100 Hz

Audio distortion at 125 mW into 8 ohms audio output. 1kHz fundamental audio output.

USB / FM (%) 2.2 / 2.3

Audio output into 8 ohms at 10% THD (W) 2.0

Transmitter measurements

Output power, FM (carrier control max.) at 144.000, 145.000, 145.975 MHz (W) 12.0 / 12.3 / 12.0

Output power, CW at 144.000 / 145.000 / 145.975 MHz (W) 11.2 / 11.3 / 10.7

Output power, USB at 144.000 / 145.000 / 145.975 MHz (W PEP) 15 / 15 / 15

Difference between dialled frequency and transmitted carrier FM / CW (Hz) +160 / +720 (see text)

Harmonic output, FM (full power):

Relative levels of 2nd / 3rd harmonics (dBc) —56 / —65

4th and greater order harmonics (dBc) < —70

analysis and explanation of the special Mutek board. My admiration for Mutek has always been high, and so perhaps it's not surprising that this Mutek modification turns a very average rig into one which has the finest RF front end that most of us can wish for. It really is superb, and users of this Mutek version will no doubt agree with me. In particular, using the rig very much brings home the vast differences between good and bad received transmissions. Of course, rigs come and go, and soon the IC251E will be phased out, but with the Mutek front end, I have a feeling that the second hand price will remain high, for it is the sort of receiver that is being used by DX chasers. Since its IM performance is so amazingly good, a mast head pre-amplifier with not too much gain will gild the lily without significantly affecting IM. I suggest that this rig with a mast head pre-amp is better than the average one without, ignoring some of the monstrous boxes that have really shocking RFIM performance. It is worth noting that this is the sort of rig that is likely to be as bomb proof as any for portable contest operating.

Two final points may be of interest. With their help, I estimate that if a circuit as good as Mutek's had been incorporated in the original design, the rig would have cost and absolute maximum of £50 more in the shop, and possibly less. Since this rig was designed by Icom as their top line one, why on earth didn't they do it for themselves, and why don't other manufacturers make similar improvements just on the top line products? The second point is that I would like to draw the readers attention to an exceptionally important article in January 1983 QST, "Modern Receivers and Transceivers — What ails them?", by Doug De Maw, W1FB, and Wes Hayward, W7Z01. This article details many grumbles about poor design practices in modern amateur radio equipment. I strongly recommend that you read it, if possible, as it covers some very useful ground work.

I would like to thank Thanet Electronics and Mutek for their tremendous co-operation in supplying this sample for review, with Thanet fully acknowledging the excellent improvements of the Mutek front end.

