Sherwood Engineering HF Test Results

Model Ten-Tec Omni VII   Serial #11C10866   Test Date: 03/11/07

IF BW 6000 –6 / -60   Ultimate   dB
IF BW 2400 –6 / -60, Hz   Ultimate   dB
IF BW 1800 –6 /-60, Hz   Ultimate   dB
IF BW 500 –6 /-60, Hz   Ultimate   dB

Front End Selectivity (A – F)
IF Rejection, 14.2 MHz @   kHz IF   dB
First IF Rejection @   MHz IF   dB

Dynamic Range 100 kHz   dB   IP3   dBm
Dynamic Range 20 kHz   92   dB   IP3   dBm
Dynamic Range 5 kHz   dB   IP3   dBm
Dynamic Range 2 kHz   80   dB   IP3   dBm
Dynamic Range 1 kHz   dB   IP3   dBm

Blocking above noise floor at 100 kHz spacing, AGC On   dB
Phase noise (normalized) at 10 kHz spacing: dBc

Noise floor, SSB bandwidth 14 MHz, Preamp Off   -123   dBm
Noise floor, SSB bandwidth 14 MHz, Preamp On   -132   dBm
Sensitivity at 14 MHz, Preamp Off)   0.45   uV
Sensitivity at 14 MHz, Preamp On   0.17   uV

Noise floor, 500 Hz, 14.2 MHz, Preamp Off   -130   dBm
Noise floor, 500 Hz, 14.2 MHz, Preamp On   -140   dBm

Noise floor, SSB, 2 MHz   dBm
Noise floor, CW, 2 MHz   dBm
Sensitivity, 2 MHz   uV

Signal for S9, Preamp Off / On   50/50   uV
Preamp, dB gain,   12   dB

Attenuators: 6, 12 & 12   dB

AGC threshold at 3 dB, Preamp Off,   uV
AGC threshold at 3 dB, Preamp On,   uV

Comments:

I used the Omni VII in a 160 meter contest in 2007 or 2008. For good CW operation, at least one of the Collins distributed roofing filters must be installed. My sample has both the 500-Hz and 300-Hz Collins filters. Without the Collins filters, too much blow-by gets around the DSP filtering on CW. There would also likely be a desense problem for signals inside the standard Collins 2.6 kHz filter but outside the CW DSP filtering of 1000 Hz or less. I found the O7 performed quite well in the very crowded 160 meter CW contest, and at no time had to enable the 6 or 12 dB pads.

At my QTH 35 miles east of Ft. Collins, CO, the Omni-VII needed a 1.8-MHz high-pass filter when connected to my 160 meter Marconi T antenna due to BC overload. Many transceivers have this problem, as several BC signals are stronger than -10 dBm at my QTH. If a high-pass filter is not available, the 12 dB pad eliminated the intermod problem.

The Omni-VII has the typical AGC issue of exaggerating impulse noise. Note: The firmware for the Argonaut demonstrates that T-T has finally mastered that problem, as has Elecraft and Flex. At this time I do not know if this improvement has filtered down to any of the older rigs.

Ergonomically the Omni-VII is somewhat challenged, which isn't T-T's strong point with any transceiver. The RF & AF controls are one knob, and one switches back and forth between modes by pushing on the knob which is also a switch. I found it annoying as one often reached for the knob and inadvertently pushed it, swapping functions.

The option of connecting the Omni-VII via Ethernet for remote operation, without a computer, was never refined to the point I found it usable. The Boulder Amateur Radio Club also abandoned the O7 for remote operation, and instead switched to Kenwood products and their proprietary software. My station has been operated quite successfully remotely for one year using various Icom transceivers and their proprietary software, plus Microsoft Remote Desktop Protocol software.

The T-T Eagle (and Argonaut VI) have better close-in dynamic range numbers than the O7, though the ergonomics of those newer rigs are somewhat worse (a subjective observation).

Rev B