

Sherwood Engineering HF Test Results

Model Orion II

Serial # 10C10405

Test Date: 4/15/2006

| | | |
|-------------------------|----------|----|
| 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 50 kHz | 95 noise | dB | IP3 | dBm |
| Dynamic Range 20 kHz | 95 noise | dB | IP3 | dBm |
| Dynamic Range 5 kHz | 97 | dB | IP3 | dBm |
| Dynamic Range 2 kHz | 95 | dB | IP3 | dBm |
| Dynamic Range 1 kHz | 95* | dB | IP3 | dBm |

* with 300 Hz roofing filter enabled

Blocking above noise floor at 100 kHz spacing, AGC On 130 noise dB
 Phase noise (normalized) at 10 kHz spacing: 126 dBc

Noise floor, SSB bandwidth 14 MHz, Preamp Off -119 dBm
 Noise floor, SSB bandwidth 14 MHz, Preamp On -127 dBm
 Sensitivity at 14 MHz, Preamp Off) 0.75 uV
 Sensitivity at 14 MHz, Preamp On 0.3 uV

Noise floor, 500 Hz, 14.2 MHz, Preamp Off -125 dBm
 Noise floor, 500 Hz, 14.2 MHz, Preamp On -133 dBm

Signal for S9, Preamp Off 75 uV
 Signal for S9, Preamp On 16 uV
 Preamp, dB gain, 13 dB

AGC threshold at 3 dB, Preamp Off, 2.7 uV
 AGC threshold at 3 dB, Preamp On, 0.65 uV
 Threshold can be adjusted in menu

Comments:

Firmware updates have evolved over time. The adjustable AGC threshold settings were way off, being much lower than the menu value. This was corrected with an update. Also the S meter calibration, particularly above S9 was way too liberal, and this also was fixed with a firmware update. It is now possible to calibrate the S meter linearity using just the transceiver, though it best to fine tune it with a calibrated signal generator.

My later sample (S/N 01C10197) was upgraded with the Eagle sub-receiver option. The original sub receiver was a typical up-conversion design that performed far below the main receiver in respect to dynamic range. I operated one of the 160 meter CW contests after the Eagle option became available, using the sub receiver exclusively. For those needing top performance in split operation, the Eagle upgrade is of significant value.

Ten-Tec says even though the Orion II has been discontinued, the Eagle sub-receiver upgrade will continue to be offered to Orion II owners.

Ten-Tec is currently working on firmware updates to their entire line of transceivers in respect to proper handling of impulse noise. The new Argonaut VI handles impulse noise quite well, and this new DSP code is being improved and will then filter down to the Orion II and Omni-VII.

The AGC decay has never suited me, being too fast on weak signals even when set for long decays. This tends to make noise fill in the holes between sentences and words on SSB, and between words on CW.

The spectrum display has never been up to the standards of an Icom, and it appears there will never be a hardware upgrade for this feature.

The S-meter / power meter crashes against the peg on CW when the rig is run at 100 watts output.

The color quarter VGA screen is only a modest improvement over the Orion I. The color choices seem odd to me, and only selection #3 is relatively pleasant. The rather terrible IC-7000 rig has a tiny but better color display than the Orion II.

Noise reduction from my point of view is not particularly useful, being too aggressive.

The speech processor is not as effective as RF compression or RF clipping. Additionally there is only bass roll-off EQ. Treble boost should also be available in addition to reducing the bass response.

Rev B