

TEST RESULTS ON YAESU FT-102 HF TRANSCEIVER

RECEIVE MODE: all receive tests carried out at the following frequencies unless otherwise stated:-

a. 1.9MHz b. 3.7MHz c. 7.05MHz d. 10.1MHz e. 14.2MHz f. 18.1MHz g. 21.2MHz h. 24.5MHz i. 28.5MHz

1) Test dial calibration against CW tone

The test dial will only display to an accuracy of 100Hz and it is possible to change the audio note by up to 100Hz without any visible change on the front panel frequency indication.
All test frequencies were accurate within 100Hz of display.

2) Set generator level for 12dB s + n to n: record level of CW tone at each point with equipment set for USB reception

a. 2uV b. 2uV c. 2uV d. 2.5uV e. 2uV f. 2.8uV g. 3.2uV h. 2.5uV i. 2.3uV
FOR 12dB S+N:N RF AMP OFF VOLTAGES MEASURED AS EMF

3) With equipment set for CW reception (minimum bandwidth) repeat test 2 at 14.2MHz only

14.2MHz CW 1.3uV EMF

4) Couple two generators through a combiner: adjust one for 12dB s + n to n at each test point (equipment set for USB reception): tune second CW generator to f + 50kHz: increase level of this generator until SINAD is degraded by 1dB: record level of both generators

a. 2.35uV/80mV b. 2.5uV/80mV c. 2.5uV/80mV d. 3.2uV/90mV e. 2.5uV/110mV f. 3.2uV/70mV g. 3.2uV/100mV h. 2.5uV/25mV
RF AMP off AGC off Generator levels measured as EMF. See table for dB dynamic range conversion

5) Repeat test 4 at 14.2MHz with equipment set to receive CW at minimum bandwidth

14.2MHz CW 1.25uV EMF/90mV EMF at F+50kHz

6) Repeat test 4 (equipment set for USB reception) with the noise blanking system functional: record results at 14.2 and 21.2MHz only

14.2MHz dial indication: no blanking 2uV/100mV; 50% blanking 2uV/125mV; 100% blanking 2uV/80mV
21.2MHz dial indication: no blanking 3.2uV/100mV; 50% blanking 3.2uV/90mV; no blanking 3.2uV/80mV

7) Repeat test 4 with second generator set for f + 6kHz: record level of both generators

a. 2uV/9mV b. 2.2uV/8mV c. 2uV/11mV d. 2uV/14mV e. 1.4uV/10mV f. 1.4uV/8mV g. 2uV/10mV h. 1.6uV/1.1mV Generator levels measured as EMF. See table for dB conversion

8) Set equipment to 14.2MHz: slowly sweep a 50mV EMF signal from 450kHz to 30MHz: record any unscheduled responses

Receiver section tuned to 14.2MHz: unscheduled responses occurred at 18.1, 15.7, 15.3, 15.1, 14.7, 13.7, 12.7, 8.2, 7.2, 4.75, 4.1, 2.84, 2.37, 2.04, 1.58, 1.42, 1.29, 1.19, 1.09, 0.95, 0.83, 0.75, 0.675, 0.615 MHz. All generator harmonics discounted

TRANSMIT MODE: all tests to be carried out at the frequency points a to i unless otherwise stated, 50ohm dummy load.

9) Set equipment to transmit on SSB (USB): connect two-tone generator to microphone input and increase the level of both equal tones until the observed PEP output level reaches 100W. Record third and fifth order intermod products for each point

10) As for test 11 but back off the input level at each frequency point to produce half (-6dB power, -3dB voltage) the previous output power: record third and fifth order intermodulation products

Tests 9, 10 and 11 see plots.

11) As for test 9 but repeat with single tone (CW); record result

12) Set equipment to 3.7MHz: record level of 2nd, 3rd, 4th and 5th harmonic products at maximum single tone output

Test 12 plot
(harmonic output spectrum at 3.7MHz) on previous page

13) Check for satisfactory operation into 3:1 VSWR at 28.5MHz, maximum single tone output level

Satisfactory