# Exhibit 10: Measurements Demonstrating Conformance to 97.307 and 97.317

## External Radio Frequency Power Amplifier ACOM 1500

## Model 1500

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# Measurements Demonstrating Conformance to 97.307 and 97.317

**97.317(a)(1)(2)&(3) & 97.317(b). Spurious Emissions per 97.307(d) and Gain versus Frequency.**

Results reflect amplifier as shipped with 24.5 and 28MHz Bands disabled.

Amplifier under test operated at frequency f1 with CW (A1A) excitation. Spectrum analyzer with a 20dB input attenuator was used to observe all frequencies, from f1 through at least 10f1 for harmonic and spurious emissions.

| **Power Gain per 97.317-(a) (1) (2) (3)** | | | | **Spurious emissions per 97.307 (d) (e)** | | |
|---|---|---|---|---|---|---|
| **Frequency $f_1$, MHz** | **Input Power, W** | **Output Power, W** | **Amplifier Gain, dB** | **2f1, dBc** | **3f1, dBc** | **(4-10)f1, dBc worst case** |
| 1.800 | 65 | 1200 | 12.7 | -50.0 | -66.0 | Better than -70.0 |
| 3.500 | 80 | 1200 | 11.8 | -51.5 | -74.0 | Better than -68.0 |
| 7.100 | 80 | 1200 | 11.8 | -59.0 | -73.0 | Better than -66.0 |
| 10.125 | 81 | 1200 | 11.7 | -58.0 | -74.0 | Better than -68.0 |
| 14.350 | 65 | 1200 | 12.7 | -56.0 | Better than -68.0 | Better than -66.0 |
| 18.100 | 71 | 1200 | 12.3 | -58.0 | Better than -68.0 | Better than -65.0 |
| 21.450 | 66 | 1200 | 12.6 | -56.0 | -68.0 | Better than -65.0 |
| 52.000 | 55 | 1200 | 13.4 | -70.0 | -78.0 | Better than -78.0 |
| Amplifier was not capable of operation on any frequency or frequencies between 26 and 28MHz as measured at the points below per 97.317-(a) (3). Data for: amplifier in Stand-by / amplifier ON. | | | | | | |
| 26.000 | 50 / 4 | 48.3 / 0.031 | -0.15 / -21 | | | |
| 27.000 | 50 / 4 | 48.3 / 0.002 | -0.15 / --33 | | | |
| 28.000 | 50 / 4 | 48.3 / 0.008 | -0.15 / -27 | | | |
| After owner modification to activate 24-28 MHz band: | | | | | | |
| 24.900* | 67.0 | 1200 | 12.5 | -72.0 | Better than -65.0 | Better than -65.0 |
| 29.000* | 64.0 | 1200 | 12.7 | Better than -68.0 | Better than -68.0 | Better than -66.0 |

*Not usable as shipped; data applicable only after enabling of 24- 28 MHz band.

When delivered to any buyer located within the FCC's jurisdiction, the equipment is operable on authorized amateur bands only from 1.8 through 21.45 MHz. To meet the requirements of 97.317(b), the equipment employs internal mechanical and electrical lock-out means. Both ensure that the 26-28

MHz band cannot be operated. To ensure mechanical lock out a solid steel lug prevents the band switch from being fixed on the top band position. As seen on the photo below (Figure 1), moving the band switch axis clockwise is limited to the steel lug. It is pointed with an yellow arrow on this photo only but not in the construction.

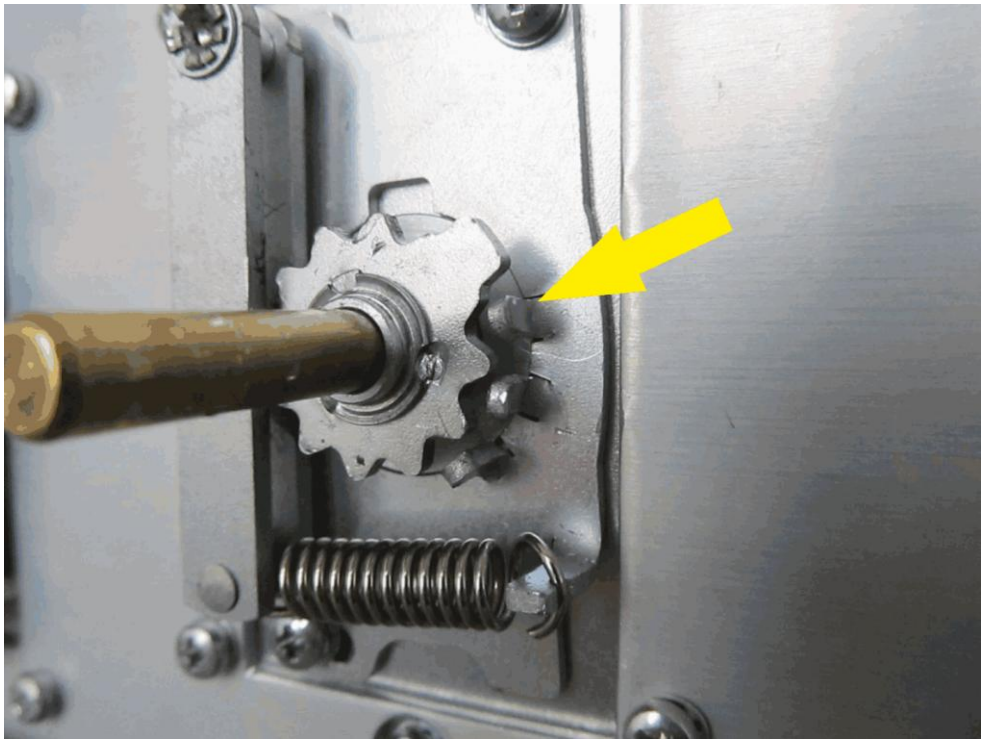

**Figure 1. Block on 24-28MHz Band**

### 97.307(a)(b). Intermodulation & Linearity

Exciter operating in SSB mode with two equal-tone audio applied to the microphone input. Amplifier under test driven to 1500W PEP output at the center of the band with 81W PEP input power.

| Intermodulation in dB relative to 1500W PEP per 97.307(a)(b) | | | |
|---|---|---|---|
| **Order:** | **D3** | **D5** | **D7 and higher** |
| **Freq. (MHz)** | **dB** | **dB** | **dB** |
| 14.200 | -35 | -38 | -50 |

**97.317(a)(1).** When the amplifier is in the “standby” or “off” positions, but still connected to the exciter, no measurable spectrum change from the normal output of the exciter is detectable with the spectrum analyzer (noise floor approximately –105dBc) when amplifier is driven with 0 to 150 W mean RF power.

**97.317(b).** The amplifier possesses none of the prohibited characteristics listed in this section.

**97.317(a)(2).** The amplifier gain does not exceed 13.4 dB for any level of input signal.

Amplifier gain is established principally by RF negative feedback in the cathode circuit. The input swamping resistor is used only to present a 50-Ohm load to the grid matching circuit, not as an attenuator. Removal of this resistor or changing its value will result in a severe load mismatch to the exciter output.

**Additional data:** Information and data supplied by tube manufacturer concerning 4CX1000A tetrode is available by request from the manufacturer.