

Model AT-KW1 No Ground Antenna Tuner

Installation and Operation Instructions

The RF Limited AT-KW1 No Ground Antenna Tuner will eliminate a very wide range of standing waves, including 10:1 or more. Why is this important? A 6:1 standing wave can reduce talk range up to 50%. A standing wave of 3:1 can reduce talk range up to 23%. The AT-KW1 eliminates these high VSWR situations and increases your talk range.

FEATURES:

- Maximizes transmitted signal strength by reducing reflected power, resulting in longer range.
- Insertion loss of less than ¼ watt.
- Can be used with or without a linear amplifier.
- Will handle up to 1,000 watts peak power without signal degradation.
- Reduces stress on transmitter, prolonging the life of your radio.
- Compatible with any antenna system – single or dual antennas.
- Does not need additional ground wires.

INSTALLATION:

- 1) Find a suitable location as close to the output of the radio or linear amplifier as practical. Keep the coax cables between the AT-KW1 and radio (or amplifier) as short as possible, without making the installation difficult.
- 2) Secure AT-KW1 to either a metal or plastic wall with screws (not provided).
- 3) Connect as shown in Figures 2, 3 or 4 (depending on your system).
- 4) Perform the tuning procedure as described below.

TUNING PROCEDURE:

- 1) Establish Reference Power Measurement
 - a. Connect as shown in Figure 1.
 - b. For this procedure, do NOT have the AT-KW1 or linear amplifier (if used) installed inline.
 - c. Insert a SWR/wattmeter in line as shown in Figure 1.
 - d. Make sure radio is set to AM mode.
 - e. Measure and record the power out (average power) while transmitting with no modulation.
 - f. This is the "reference power". Save this number for later use.
- 2) Next install the AT-KW1 and SWR/wattmeter inline, refer to Figures 2 and 3. NOTE: If using a linear amplifier, perform tuning procedure using Figure 2. Install amplifier after tuning, as shown in Figure 4.
- 3) Turn on the radio and set the SWR/wattmeter to measure forward RF watts.

IMPORTANT

A non-metallic screwdriver is supplied with the AT-KW1. Any adjustments to C1 or C2 must be done using this or any non-metallic tool. FAILING TO DO THIS MAY RESULT IN CATASTROPHIC FAILURE OF THE TRANSMITTER AND IS NOT COVERED UNDER ANY WARRANTY!

- 4) Press and hold the PTT switch, and adjust C1 on the AT-KW1 (Figure 5) until the SWR/wattmeter is set to the "reference power" measurement.
- 5) Switch the SWR/wattmeter to calibrate, or set, mode.
- 6) Press and hold the PTT switch, and adjust the SWR/wattmeter to the calibrate, or set, point.
- 7) Switch the SWR/wattmeter to SWR position.
- 8) Press and hold PTT switch and observe the standing wave, while adjusting C2 on the AT-KW1 to a minimum reading. You should be able to adjust the standing wave to 1.1 to 1.
- 9) Double check your work by repeating steps 5 and 6. Then switch the SWR/wattmeter to the SWR position and press the PTT switch. If everything was done correctly, the standing wave will be 1 to 1.
- 10) Tuning complete! Remove wattmeter and connect as required.



Figure 1 – Reference Power Measurement

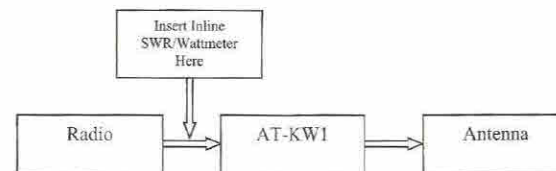


Figure 2 – Standard Setup (without Linear Amplifier)

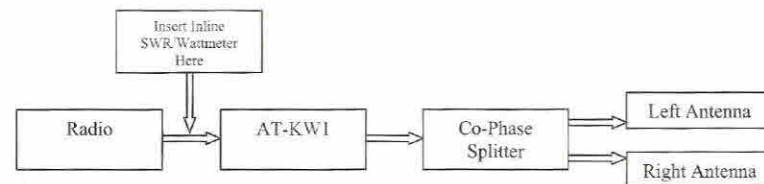


Figure 3 – Setup with Co-Phase Antennas

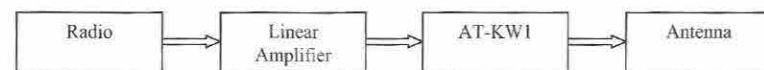


Figure 4 – Setup with Linear Amplifier



Figure 5 – AT-KW1