Intellitron

All-Band 10M-80M G5RV Dipole Antenna

WA-1080

Thank you for purchasing the Intellitron WA-1080 “G5RV” antenna. Originally designed nearly 80 years ago by Louis Varney, the G5RV remains one of the most popular HF wire antennas in use today. Measuring 102 feet in length and center-fed with a 32.5-foot transmission-line transformer made from 450-ohm, 18-gauge ladder line, the WA-1080 delivers efficient multi-band performance with manageable SWR across all amateur bands from 3.5 to 30 MHz.

The Intellitron WA-1080 includes storm-resistant 14-gauge stranded copper wire, stainless steel hardware, pull-tested insulators, and a fully waterproof, on-axis ladder-line to SO-239 feed transition. It is rated for maximum legal power (1500W) and can be installed as a horizontal dipole, inverted V, or directional sloper.

Before installation, please read these instructions carefully to understand the WA-1080’s setup and safety requirements.

MATCHING REQUIREMENTS

A tuner or ATU is required. The Intellitron WA-1080’s wire element and transmission-line transformer present different impedances across each band. When Louis Varney designed the original G5RV, tube transmitters could easily match these variations through link coupling or pi-network tuning. Modern solid-state transceivers and amplifiers, however, require an antenna tuner to maintain a proper 50-ohm match for efficient and safe operation.

RADIATING CHARACTERISTICS

The WA-1080 provides efficient multiband performance across the HF spectrum. The following chart summarizes its general radiation behavior by band:

Band	Electrical Length	Radiation Pattern	Typical Characteristics
80m	½ λ (shortened)	High-angle, near-omnidirectional	Best for local contacts
40m	2 x ½ λ (in phase)	Broadside gain pattern	Moderate forward gain
30m	EDZ (extended double zero)	Broadside with minor lobes	Higher gain, narrow beam
20m	3/2 λ center fed	Multiple low-angle lobes	Excellent DX performance
17m	2 x 1 λ (in phase)	Low angle, multiple lobes	Good all-around coverage
15m	2 x 1.1 λ (in phase)	Multiple low-angle lobes	Broad coverage, moderate gain
12m	2 x 1.3 λ long wires	Multi-lobe, low-angle	Good DX, wide pattern
10m	2 x 1.5 λ (in phase)	Multi-lobe, low-angle	Strong forward gain

The WA-1080 can also function on 160 meters when configured as a top-loaded vertical Marconi antenna, provided a proper counterpoise or ground system is used.

Important Safety Warning: Never install your Intellitron WA-1080 near power lines, service entrances, or any conductive structures. Contact with live wiring is lethal. Always maintain safe clearances during installation.

MOUNTING CONFIGURATIONS

Dipole:

Mount the center as high as possible (30 feet or more). Keep both legs at equal height for best balance. Stay clear of wiring, gutters, or metal surfaces. Use UV-resistant non-conductive rope for support.

Inverted V:

Suspend the center high and secure both ends at least 10 feet above ground, out of reach of people and animals. Ends should droop no more than 12 feet below center, maintaining a 120° or wider inside angle.

Sloper:

Mount with a 45° slope, keeping the low end at least 10 feet above ground. Route ladder line perpendicular to the antenna for the first 10 feet before dropping it toward ground level.

80-Meter Marconi:

Short both ladder-line leads together and connect to the coax center conductor. Connect the coax shield to a suitable ground or counterpoise (one or more ¼-wave radials). Without a proper counterpoise, the antenna will not tune and the coax shield may radiate dangerous RF levels back to the operator.

LADDER-LINE TRANSFORMER

To reduce interaction with the radiating element, allow at least 10 feet of vertical drop before routing the ladder line in another direction. Avoid running it along the ground or near metal surfaces. If mounting on a tower or mast, maintain at least one foot of clearance between the center insulator and metal structures.

1:1 CHOKE BALUN

Because the WA-1080's radiator and transformer are balanced but the coax is unbalanced, a 1:1 choke balun must be installed at the ladder-line junction to prevent "RF in the shack."

To make one, wind 8–10 turns of coax into a 6–8 inch coil, and secure it with tape or cable ties.

WATERPROOFING

When connecting coax at the ladder-line junction, seal only the front half of the connector and exposed SO-239 threads with tape or coax seal. Leave the rear portion unsealed so condensation can escape.

SUPPORT MAINTENANCE

When connecting coax at the ladder-line junction, seal only the front half of the connector and exposed SO-239 threads with tape or coax seal. Leave the rear portion unsealed so condensation can escape.

TWO YEAR LIMITED WARRANTY

This Limited Product Warranty is provided by the Dealer where your Intellitron product was purchased. The Product Warranty extends only to the original purchaser of the product and is valid for a period of two years from the date of purchase. Please keep your dated sales receipt as evidence of the date of purchase. You will need it to receive warranty service. Your Dealer warrants the product will be free from defects in workmanship and materials under normal use. If the product fails to conform to the warrant and is within the warranty period of two years, contact your original dealer for a return authorization. Your dealer may choose to either repair or replace the non-conforming product.