HexTenna

Technical Manual v2.2

The **HexTenna™** by **Alpha Antenna®** is a versatile, portable antenna system designed for amateur radio enthusiasts. Whether you're operating in the field, at home, or during emergency situations, the HexTenna™ provides reliable performance across multiple bands. This technical manual outlines the assembly, deployment, and usage of the HexTenna™ as both a vertical and dipole antenna.

Specifications

- **Maximum Power**: 1.5 kW PEP (SSB), based on a 25% Duty Cycle. Where 1500W PEP SSB at 25% duty cycle will be 750W for CW at 50% duty cycle, and 325W for Digital (FT8, etc.) at 100% duty cycle.
- **Frequency Bands**: UHF/VHF/HF
- **Configurations**:
    - **Vertical**: Deployable as a HF/VHF/UHF vertical antenna from 440Mhz through 14MHz. This configuration provides the lowest take-off angle, which enhances DX performance.
    - **Dipole**: Deployable as a HF/VHF dipole antenna from 2 through 40 meters for higher take-off angles, which enhances NVIS performance.
    - **Yagi**: When purchased, the HexTenna™ can be deployed as a 2 through 20-meter Yagi antenna, which enhances directionality by providing gain for the signal pattern.

<u>Assembly Instructions</u>

Vertical Configuration

1. **Install the Hub**:
    - Install the HexTenna hub on the optional HD-Tripod or "Top of Mast Mount" upon your own mast.
2. **Deploy the Vertical**:
    - Install one vertical element at the pre-marked 'Vertical' location on the hub and the counterpoise for HF only to the 'Counterpoise' location on the hub. For UHF or VHF do not use the counterpoise element.
3. **Tuning:**
    - Tune the vertical element (and counterpoise element if deployed for HF) by adjusting their lengths according to Chart 1 below. NOTE – Actual length may vary slightly based upon ground conditions.

Dipole Configuration

1. **Install the Hub**:
    - Install the HexTenna hub on the optional HD-Tripod or "Top of Mast Mount" upon your own mast.

2. **Deploy the Dipole**:
    - Install both telescopic elements on the pre-marked ‘Dipole 1’ & ‘Dipole 2’ locations on the hub.
3. **Tuning:**
    - Tune the dipole elements by adjusting their lengths according to Chart 1 below. NOTE – Actual length may vary slightly based upon ground conditions.

Optional Yagi Configuration

1. **Deployment of the Yagi**:
    - Follow the same steps as for Installation and Deployment then tune the Yagi elements according to Chart 1 below. NOTE – Actual length may vary slightly based upon ground conditions.
    - Note that Yagi does not support UHF, 30, or 40 meters.

CHART 1

DIPOLE/YAGI VERTICAL

The deployed length of the elements can vary based upon ground conditions.

*Adjust element length to tune for the lowest SWR

Band (30/40 forms an M-Dipole)	* Each Dipole Element (add 4% if Yagi reflector)
40 Meters	15 ft 8.5 in & clip add-on element to whip's corona ball
30 Meters	4 ft 3.5 in & clip add-on element to whip's corona ball
20 Meters	16 feet 11 1/2 inches
17 Meters	13 feet 3/4 inch
15 Meters	10 feet 11 1/2 inches
12 Meters	9 feet 6 inches
10 Meters	8 feet 3 1/2 inches
6 Meters	4 feet 8 inches
2 Meters	4 feet 7 1/2 inches

Band	* Vertical Element	* Counterpoise
20 Meter	13 feet 2 inches	18 feet 2 inches
17 Meters	9 feet 8 inches	14 feet 2 3/8 inches
15 Meters	8 feet 7 3/4 inches	12 feet 1 1/2 inches
12 Meters	7 feet 1 inch	10 feet 4 inches
10 Meters	6 feet	9 feet
220 MHz	2 feet 2 inches	No counterpoise
440 MHz	3 feet 4 3/4 inches	No counterpoise

Troubleshooting

- **Counterpoise**: If using as a vertical, add the included counterpoise element for a balanced system.
- **Maintenance**: Regularly inspect connections and wires for wear.

For additional information contact alphaantenna@gmail.com