



## 2M and 1.25M LOOPS

This documents the Loops-N-More LLC (LNM) 2M loop (see **Note** below), and the 1.25M (222Mhz) loop. All Loop Antennas manufactured by LNM are designed to provide performance with little or no maintenance required. The design is centered on the half-wave dipole. The antenna was designed primarily for the weak signal operator (CW-SSB) in that they are horizontal polarized and omnidirectional. Some of the applications include mobile/rover, net monitoring and Amateur operation with restrictive CC & R's. The current models have been tested at 750W CW or 1,000W on SSB. In addition, these loops have good bandwidth and virtually no weather detuning. All antennas are assembled, tuned and tested at the factory to the CW-SSB calling frequencies to make certain you receive a properly functioning antenna. The SWR will be <2:1, and typically 1.5 or less.

### INSTALLATION SUGGESTIONS

It is impossible to cover every antenna installation, but some general suggestions can be made. All our loops are designed to operate either mobile or base. For installation at your shack study your intended antenna location carefully, keep clear of power lines (safety) and telephone lines (interference). If mounting mobile make sure to ALWAYS place the antenna loop INSULATOR towards the REAR of the vehicle and it's MOUNT towards the FRONT (Failure to do so could result in loop damage from excess vibration). The mast can be 1" to 1.5" in diameter. In all cases remember that you cannot over engineer the mounting if it looks weak, it probably is and always mount the loops with the coax connector facing down. Try to install your antenna at least one wavelength or more from other antennas or metal structures; at minimum keep the distance at least 3 feet. Exceptions to this would be stacking 2 loops on a common mast. It is suggested that you weatherproof the coax connections. An inexpensive method to weatherproof the connection is to use Scotch brand 33+ Electrical Tape - no substitutes. Always start your taping low and tape up, allowing the tape to overlap each other. Do not break the tape by pulling it, cut the tape with scissors or a knife, and try not to stretch the tape more than necessary especially just before cutting the tape. Another workable weatherproofing solution is the use of coaxial seal, and is available at many stores including Radio Shack. Note that some like to tape and then apply the seal which allows for easier removal of the seal. Keep your antenna feed line length SHORT! Remember at 150 MHz 100 feet of RG8 coaxial cable has approximately 2.5 dB loss!

### ANTENNA STACKING

If you decide to stack two antennas for more gain then make sure to place both with the antenna connectors facing down. The phasing harness we suggest is 3/4 wavelength. It is impossible to cover every stacked antenna configuration, but some general stacking guidelines can be made. Specific configuration guidelines can be provided as needed.

The table below depicts the recommended loop stacking distance for each band:

BAND	TUNED FREQ.	STACKED LOOPS
2M	144.200	3' to 4'
1.25M	222.100	27"
70cm*	432.100	17"

If using a phasing harness for 2M and 1.25M it will be 2 odd multiples of 1/4 wavelength (typically 3/4), corrected for the velocity factor, and built from 75 ohm coaxial cable. Assuming both sides are typically 3/4 wavelength it is not necessary to invert one of the antennas. Place both antennas (one directly below the other at the distance in the table above) on the same side of the mast with the connectors facing down. Use a "T" connector to attach

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both phasing lines. At the unused port of the "T" connector, connect your 50 ohm (low loss) feed line. Note that the phasing harness is longer than the stacking distance between the loops. All you need to do is to fold the access cable up against the mast and tie or tape it to the mast so it doesn't "flop" around. For 70cm it is recommended that you use a power divider and equal lengths of a quality 50 ohm coax.

### LOOP ANTENNA TUNING

Every antenna manufactured by Loops-N-More (LNM) is assembled and tuned before shipment. Generally, the CW-SSB calling frequency is the tuning point for most bands. All antennas are tuned at the factory 7 to 8 feet above ground. It offers a good compromise between mobile or base operation. If you find it necessary to retune the antenna, the following suggestions are offered (Note that all of our loops use the same tuning procedures). Make certain your test equipment is designed for the intended frequency. Many SWR bridges do not work on VHF and above frequencies. Antenna analyzers do a much better job than SWR bridges do because it "looks" at the same system that the transceiver/amplifier "sees" and does not require extra coaxial cable jumpers. Know the general performance characteristics of your test equipment in advance. For example: MFJ antenna analyzers will render a 'higher' SWR reading when the batteries are low. If the antenna match is in question, try a second test instrument to compare with the first measurements. All LNM Loop Antennas tune very easy. Where the 2 dipole elements connect at the insulator, remove the set screw from one side and slide the element in or out to facilitate adjustment - note that the aluminum elements may be a little "springy" and sometimes have a tendency to move outward. We use a thin piece of duct tape or upholstery thumb tacks to hold the elements in place as required until we finish tuning and get the set screw in place. Moving the elements CLOSER together LOWERS the resonant frequency and moving the elements OUTWARD RAISES the resonant frequency- it's that simple. After you have reached the adjustment you desire it is a good idea to mark the insulator at the end of the element in case it should slip and then replace the set screw. Please note that we can't guarantee any of the antennas to adjust to a frequency outside of the design bandwidth from the calling frequency. Remember, you are welcome to contact us if you feel our assistance is required in any way.

**Note** *The primary design frequency of the 2M loop is the weak signal part of the 2M band, and that is where our focus is and where the best performance of the antenna is. We can't guarantee how well it will load on 70cm, However, utilizing the 3rd harmonic of 2M, 70cm is generally usable for local use. The radiation pattern at 70cm is sub-par to the 2M omni-directional pattern, and we can't guarantee an SWR below 2:1, but we decided to let folks know that the antenna will probably work local 70cm.*

We would appreciate it if you could take the time and let us know how the installation went and how the antenna performs. If you care to we would like to receive any pictures of your installation that you would like to share, and let us know if it is ok to post your comments and/or the pictures on our web page. Please forward your comments and pictures to [loopsnmore@gmail.com](mailto:loopsnmore@gmail.com).

Thanks for purchasing your Loop Antenna from Loops-N-More LLC and we hope you get years of great service out of it!

### IMPORTANT

**IN MOBILE INSTALLATIONS ALWAYS PLACE THE LOOP ELEMENTS TOWARDS THE REAR OF THE VEHICLE AND IT'S MOUNT TOWARDS THE FRONT OF THE VEHICLE.**

**IN STATIONARY INSTALLATIONS NEVER INSTALL ANTENNAS OR TRANSMISSION LINES OVER OR NEAR POWER LINES. YOU CAN BE SERIOUSLY INJURED OR KILLED IF ANY PART OF THE ANTENNA, SUPPORT OR TRANSMISSION LINE TOUCHES A POWER LINE. ALWAYS FOLLOW THIS ANTENNA SAFETY RULE: THE DISTANCE TO THE NEAREST POWER LINE SHOULD BE AT LEAST TWICE THE LENGTH OF THE LONGEST ANTENNA, TRANSMISSION LINE OR SUPPORT DIMENSION.**