



Q-MAC ML-90 ROOF RACK MAGNETIC LOOP NVIS ANTENNA



PACKAGE DESCRIPTION

The Q-MAC ML-90 Vehicle Roofrack Magnetic Loop NVIS Antenna is a technological breakthrough in vehicle-based HF radio communications. At the core of the system is the renowned HF-90 transceiver, which is combined with the innovative Magnetic Loop NVIS Automatic Tune Antenna.

The ML-90 is available in a choice of two packages - fixed or removable transceiver installations. The roof rack can be installed without drilling any holes in the vehicle.

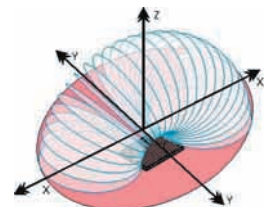
The ML-90 Magnetic Loop Antenna is without doubt the best type of antenna for NVIS (near vertical incidence skywave) operations. Skip zones are substantially eliminated and coverage (with the correct selection of frequency) is from 0 to 1000km or more. Within this range it is significantly more efficient than any vehicle whip antenna, producing considerably more radiated transmit power and receive sensitivity. The actual gain over whip antenna systems varies between +10dB and +14dB.

The ML-90 Automatic Tuner Unit (ATU) uses a highly efficient, continuously variable tuning capacitor which is driven by a microprocessor controlled stepper motor to precisely peak the antenna current. Maximising antenna current correlates exactly with maximum radiated signal. This is preferred to minimizing VSWR which seldom coincides with peak signal. The ML-90 is powered from a DC feed in the RF Coaxial Cable connected to the HF-90.



ML-90 FEATURES

- Highly efficient antenna, radiating between +10dB and +14dB more than a whip antenna. Equivalent to a 500 Watt transmitter with a whip antenna.
- NVIS performance - skip zone substantially eliminated.
- Reduced ignition and power line noise nulling adjacent to vehicle.
- Simpler installation – no need to weld mounting plates for a whip antenna and no separate tuner to install – therefore installation is quicker and cheaper, and the system can be moved simply between vehicles.
- Folds down when not in use.
- Free roof rack with every package! The antenna can be used as a conventional roof rack for storing luggage and non-flammable items.



Radiation Diagram for ML-90

FIXED TRANSCEIVER PACKAGE INCLUDES

- Q-MAC HF-90 Transceiver, complete with fist mike. (Selcall, & front panel programming optional).
- Q-MAC ML-90 Magnetic Loop Antenna, built into a vehicle roof rack, complete with integral automatic tuner unit, cabling & mounting kit. (No drilling required for most vehicles)
- Q-MAC Transceiver Installation Kit - Comprises HF-90 Mounting Cradle, external mount speaker, microphone clip, antenna coaxial cable & connectors, HRC fuse (20amp) & holder, battery lugs and cable ties.

Q-MAC ML-90 MAGNETIC LOOP ANTENNA DETAILS

The roof rack has been designed by Q-MAC Electronics Pty Ltd as an integral part of the antenna system. The ground plane is a heavy-duty aluminium mesh floor, which is welded to the frame bars that maximise current within the radiating loop. The ML-90 effectively shields and isolates ignition noise from the vehicle providing a greater clarity in communications as well as providing nulling of noise from adjacent power lines. (See radiation diagram). The loop antenna forms a closed system which does not include the vehicle ignition system ground, unlike a whip antenna system.

The ML-90 can be fitted to almost any surface. The roof rack comes in 2 sizes and a range of mounting bracket options. Solutions are available that will allow clamping to the roofs of 4WD's, sedans, buses, trucks and prime movers. It is designed for minimum wind noise and has a polycarbonate wind deflector to improve fuel economy.

The ML-90 is available in two sizes.

Standard Size Roof Rack Dimensions 1800 x 1250mm.

Compact Size Roof Rack Dimensions 1500 x 1250mm.

Specifications are subject to change without notice.

Represented by:

REMOVABLE PORTABLE TRANSCEIVER PACKAGE INCLUDES

The removable portable transceiver package provides the ability to use the HF-90 both in the vehicle connected to the ML-90 Antenna and removed from the vehicle in a self-contained package comprising an end fed broadband antenna with portable battery.

- Q-MAC HF-90 Portable Transceiver Package. (See Separate Brochure on Q-MAC Portable Package)
- Q-MAC ML-90 Magnetic Loop Antenna, built into a vehicle roof rack, complete with integral automatic tuner unit, cabling & mounting kit. (No drilling required for most vehicles)

**TECHNICAL SPECIFICATION**

Frequency range:	3.5-15MHz
Power supply:	12V DC (from HF-90)
Input Impedance:	50 Ohm
Tune control:	Control signal from HF-90 Transceiver
Tune time:	Approximately 3 seconds
Tuning method:	Continuously variable tuning capacitor
Drive method:	Microprocessor controlled precision stepper motor
Tune point:	Peak antenna current
Receive bandwidth:	40kHz at 3.5MHz 280kHz at 15MHz

THE Q-MAC Electronics Pty Ltd ML-90 Vehicle Roof Rack Magnetic Loop Antenna System is protected by Australian Patent App No 2001100423.

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