MLA - ER

A Short-Wave Magnetic Loop Antenna for portable and SOTA activities

The MLA-ER is a small-size compromise design of a short-wave magnetic loop antenna (by OK2ER), suitable mostly for portable activities such as an urban QTH. It can be used in locations where other gain antennas can not be used, such as a balcony, indoors, or from a loft.

(The un-protected MLA-ER cannot be used in rain. Water drops or water that has leaked into the loop cause a significant mis-tuning at a chosen frequency.)

This design is lightweight, is easily transportable, and (contrary to other antennas) it needs no ground connection or counterweight. In its price, frame the MLA-ER is probably the unique commercial MLA that can operate under a full 100 W power input available from commercial transceivers. The MLA-ER is also an ideal antenna for vacations as it can be run from a hotel room with a reduced input power.

Long-time evaluation by skimmers allows to claim that the MLA-ER achieved results comparable to antennas that need much more space to operate. These results prove that the MLA-ER is no longer a "compromise" design. The only addition can be seen in a more demanding operation.

Magnetic loop antennas, contrary to most other designs, are extremely narrow-band, and without precise tuning they cannot cover the full ham-band short-wave frequency range. Their high Q and selectivity, however, are mostly welcome in reception. The MLAs significantly reduce unwanted signals in the spectrum that otherwise cause intermodulation (interference due to virtual "noise"). The high directivity of a MLA allows the reduction of signals carried by surface waves, and a lower directivity for signals reflected by the ionosphere under larger angles. By this, the MLA can effectively reject local QRM which often limits HAM activities in urban QTHs.

The critical parameter, in addition to a precise tuning, is a good impedance matching. Other short-wave antennas allow for a sloppy matching, but with MLAs this is really critical. The MLA-ER therefore utilizes the FCC coupling loop (Faraday Coupling Coil), see Figs. 1a, 1b, which could move in several planes to achieve a perfect SWR (matching to 50 Ohms (jX = 0) in any QTH. This device allows The MLA-ER to be superior to any competing MLAs.

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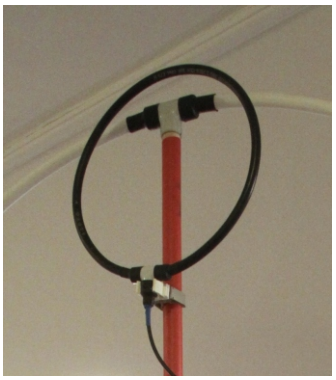
Band selection with the MLA-ER is made by preselected inserts (capacitance sections), see Fig.2, by which the loop is tuned just above a selected band. A capacitive disk on a screw then adjusts the loop capacitance to a lower frequency in the band. For details, see the user manual for the MLA-ER.

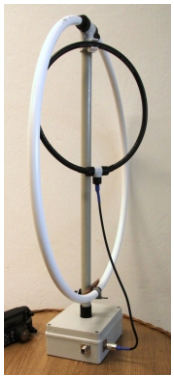
IMPORTANT NOTICE

The MLA-ER may be used indoors only with extreme caution. With input power exceeding 10 W, the MLA-ER is not recommended for indoor use: the first caution is that so far, no scientific study has been undertaken for health effects of strong RF magnetic fields (these fields have been used in medical practice). Long term exposure to the MLA magnetic field would not be good to one's health. Under a 100 W input, an operator should stay at least 5 meters from a MLA. Another problem is that an RF magnetic field passes freely through walls.
Common screening materials for LAN cabling (without using ferromagnetic materials) are not efficient enough for RF magnetic field, therefore, it is uncertain which electronics could be affected by it. An indoor antenna with 100 W input can block, reset or destroy electronics located nearby.
Do not touch the MLA under RF input power! It is not lethal, but it can leave unpleasant burns. Operators with implanted pacemakers should never operate magnetic loop antennas.

Technical Specifications of MLA-ER_ L

Frequency Range : 10, 14, 18, 21 MHz
Input Impedance : 50 Ohms
Maximum Input Power : 100 W
SWR under a correct tuning: 1:1.0
Input Connector: PL
Cable Impedance : 50 Ohms
Antenna Diameter: 120 cm
Antenna Weight : 1 kg
Antenna Weight with a Pole : 2,x kg





Technical Specifications of MLA-ER_ H

Frequency Range: 18, 21, 24, 28 MHz
Input Impedance: 50 Ohms
Maximum Input Power: 100 W
SWR under a correct tuning : 1:1.0
Input Connector: PL
Cable Impedance: 50 Ohms
Antenna Diameter: 80 cm
Antenna Weight: 1.x kg
Antenna Weight with Pole: 2.x kg

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