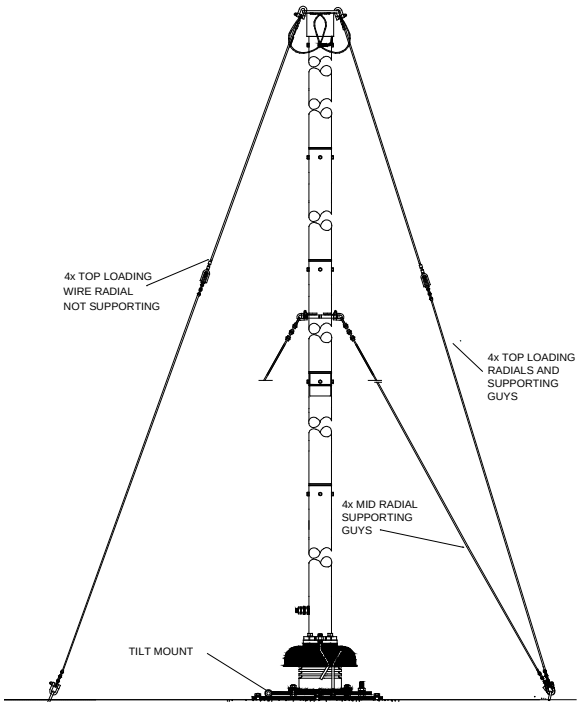
MOONRAKER

Type 150MF

Professional high quality LF/MF guyed antenna system

Designed for temporary or permanent land use as non directional beacons, differential GPS base stations and low power AM broadcast stations operating in the 190-3000 KHz band to provide an economical solution where space or cost precludes the use of tower supported wire antennas.



The 15 metre (50ft) whip is base mounted and guyed to withstand winds of 216 km/h (134 mph). Construction is of heavy gauge high temper marine grade aluminium alloy to give a large low loss surface area for maximum radiating efficiency. High durability epoxy based coating provides protection from chemical attack, abrasion and the effects of ozone and ultra-violet radiation. The base insulator is ribbed high strength low loss polypropylene shrouded with a dished corona shield. RF connection is via a stainless steel terminal above the corona shield.

The antenna breaks down into five transportable sections which slip together and fasten with stainless steel locking screws. The top wire radials are utilised as capacitive top loading. Joints are "O" ring sealed to prevent water ingress. The top loading coil is easily replaced should this be necessary. A hinged base mount is available as an option to assist further with erection and maintenance. The system may be deployed by 2 to 4 people in up to 1 hour.

150MF systems are tailored to suit individual frequency and ground conditions and can be used with commonly available couplers. Earth system design is critical as actual overall performance depends mainly upon the antenna coupling unit Q and earth losses relating to soil type, soil conductivity and earth system.

The performance specifications given below are based on an earth system resistance of 1Ω and an ATU (coupler) working Q of 200. The expected feed point impedance is 1.35 –J970Ω at 300 kHz, 2.1 +j938Ω at 490 kHz and 3.9 +j1847Ω at 518 kHz.

Specifications

Colour	Colour to Order
Frequency Range	250-3000 kHz (with suitable ATU)
Overall Length	15m (50ft)
Top Loading	4 x 7m (23ft) non supporting top radials, 4 x 7m (23ft) top loading guy supporting radials and a loading coil
Radiator Diameter	80mm (3.1 in)
Pattern	Omnidirectional
Polarisation	Vertical
Power Capability	Below 500 KHz: 100w CW plus 100% amplitude modulation; 500-3000 KHz: 600w PEP/400w CW; higher power to order

Specifications subject to change – Issued 01/09/13

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Wind Survival	Antenna survival : 216 km/h (134 mph/60 m/s) no ice, 160 km/h (100 mph/44.5 m/s) 20mm radial ice
Mounting	Base mounting plate with integral insulator and connections for earth mat; hinged base plate optional
Footings	Concrete footings are required to suit ground conditions: typically Mast 300 x 300 x 600 mm deep (11.8 x 11.8 x 23.6 in), Guys (4) 600 x 600 x 600 mm (23.6 x 23.6 x 23.6 in) depending on ground type
Guy Radius	9m (29.5ft) minimum
Earth Mat	Systems available to suit site conditions (request a quotation)
Erection	Easily erected by two men with a small winch and a gin pole when using hinged base plate option
Operating Frequency	300 kHz (for example)
System Efficiencies	Antenna and Earth only 4.3%; system (incl. coupler) 1.9%
System Bandwidth	1.759 kHz at -3 dB
Effective Base Capacitance	405 pf

Coupler Coil

Q	**Inductance**	**Reactance**	**Resistance**
200.00	695μHy	1310Ω	6.6Ω

Earth Resistance	1.0Ω
Calculated Power for 100w input	Losses: coupler coil 56.1w, top coil 29.1w, earth 8.6w, mast 4.3w; Radiated Power: 1.9

Unattenuated Field Intensity perfect ground, 100w input

1km	**1 N/Mile**	**50 N/Miles**
13.0 Mv/M	7.1 Mv/M	141.3μv/M

Weight	Unpacked: 74kg (162.8 lbs); packed 117 kg (257.4 lbs), excluding optional hinged base; hinged base packed 30kg (66 lbs)