



EFM Series

Elevated Feed-point Monopole Series

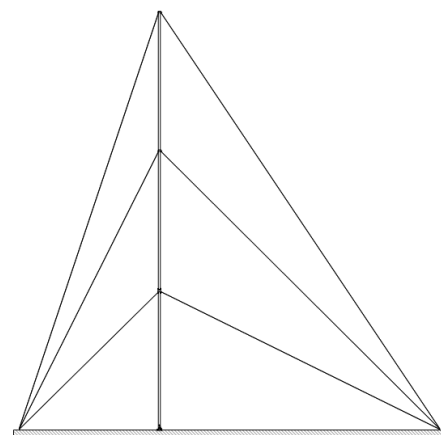
These elevated feed-point monopole antennas have been designed for HF receiving applications as either a standalone element or as an element in an array.

Each antenna operates from 1.5 to 30 MHz. For enhanced performance, models EFM-6,12 or 18 can be used together to provide separate low, mid, and high band receiving elements.

The antenna consists of a rugged stainless-steel radiator having a solid insulator fitted at the feed point that is located above the base of the antenna. An impedance transformer/matching network provides suitable impedance transformation to a 50-ohm coaxial cable input. The position of the feed-point combined with the transformer impedance ratio allows optimum performance over a selected operating bandwidth.

The antenna is mechanically stabilized by non-conductive guy wires.

A radial earth mat of any length, consisting of up to 64 copper wires can be fitted to the base of the antenna to stabilise antenna impedance and radiation patterns.



EFM-18 shown

FEATURES / BENEFITS

- Rugged, high-reliability construction with stable performance
- Proven design, installed in multiple locations over many decades
- Stainless steel construction for harsh environments
- Cyclonic wind rating
- Element performance can be optimized for specific operational requirements, frequency sub-bands, or array configurations using RFS state of the art simulation and optimization algorithms
- Hinged base construction allows ease of maintenance and installation

Technical features

ELECTRICAL SPECIFICATIONS

Model		EFM-18	EFM-12	EFM-6
Frequency Range	MHz	1.5 - 32		
Optimum Frequency Range	MHz	3-13	6-20	11-32
Polarization		Vertical		
Elevation Radiation Pattern		Refer to plot		
Azimuth Radiation Pattern		Omni Directional		
Maximum Power Rating	kW	0.25 RMS		
Mismatch Loss	dB	Typical <3dB from 4 MHz to 10 MHz	Typical <2.5dB from 7 MHz to 18 MHz	Typical <2.5dB from 15 MHz to 32 MHz
Mismatch Loss Note		Mismatch loss/bandwidth properties can be adjusted to suit customer operational requirements		
Input Connector		N-type socket		
Impedance (unbalanced), ohms	Ω	50		

MECHANICAL SPECIFICATIONS

Antenna Height	m (ft)	18 (59.1)	12 (39.4)	6 (19.7)
Wind Survival Rating (no ice)	km/h (mph)	337 (209)		

TEMPERATURE SPECIFICATIONS

Operating Temperature Range	$^{\circ}\text{C}$ ($^{\circ}\text{F}$)	-20 to 70 (-4 to 158)		
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MATERIAL

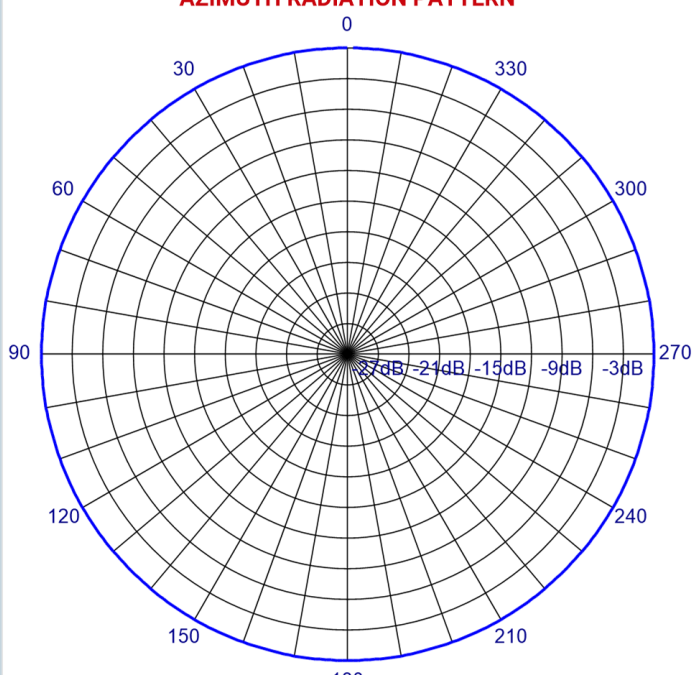
Material - Guys		Phillystran or equivalent (option: Insulated Stainless Steel)
Material - Earth Mat		Up to 64 copper radials, or mesh ground screen when used in array configuration
Material - Insulators		Delrin

PACKAGING INFORMATION

Shipping information	Packed weight [kg]	Packed size [m]
EFM-18	370	6.0 x 0.3 x 0.15 and 1.2 x 1.2 x 0.6
EFM-12	230	6.0 x 0.2 x 0.15 and 1.2 x 1.2 x 0.6
EFM-6	115	6.0 x 0.2 x 0.15 and 1.2 x 1.2 x 0.4

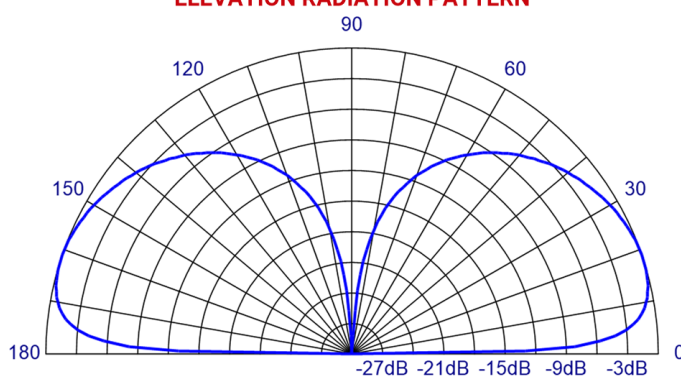
PATTERNS OVER AVERAGE GROUND WITH 64 BURIED RADIALS WITH LENGTH EQUAL TO MONOPOLE HEIGHT

AZIMUTH RADIATION PATTERN



Typical Azimuth Pattern, all models

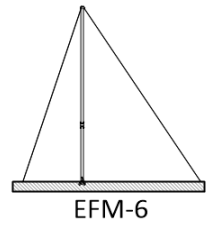
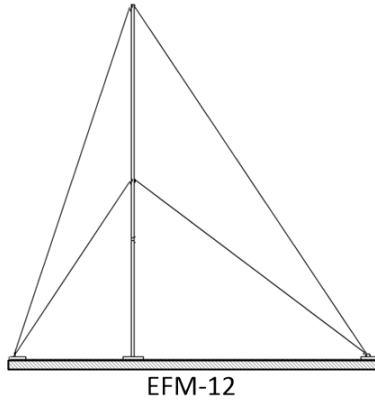
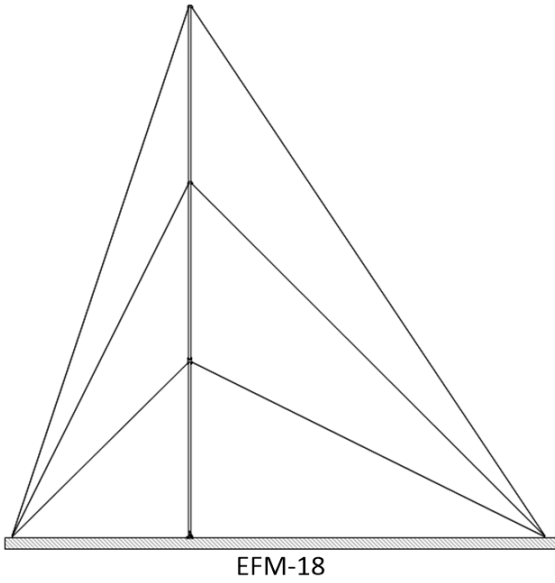
ELEVATION RADIATION PATTERN



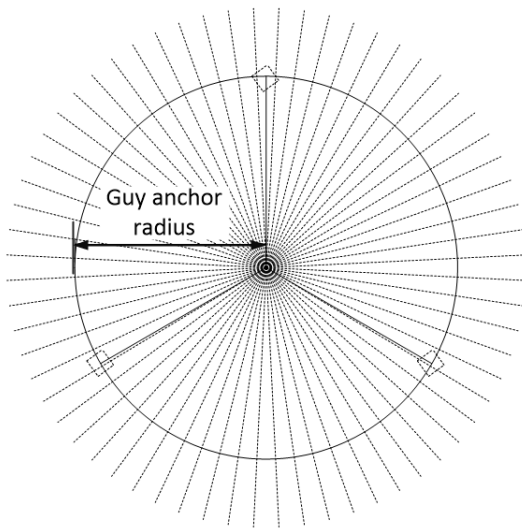
Typical Elevation Pattern, all models



ANTENNA ELEVATION VIEWS



ANTENNA GROUND DIMENSIONS



	Guy anchor radius, m
EFM-18	12
EFM-12	8
EFM-6	4

The length of the earth radial sets the ground dimensions.
The length of the earth radials are typically made the same as the antenna height.

External Document Links

Notes