

Lightweight Manportable Theater Range HF Broadband Antenna

FANLITE™

MILITARY ANTENNA SOLUTIONS



Commonly known as the LFH, this antenna is available in 1.6 to 30 MHz and 2 to 30 MHz with various input power options. This datasheet provides information on the most popular model, the **FANLITE™** model LFH230/1/VE. A 2-30 MHz, 1 kW antenna (NSN 5985-01-342-9592).

The **FANLITE™** is a tactical, quick erect base station type of antenna that can be erected by one or two personnel in less than 30 minutes. It provides true broadband capability in a NVIS plus omnidirectional pattern and has repeatedly demonstrated excellent connectivity to all stations within a 2,000 mile circle.

- Broadband 1.6 to 30 MHz
- Rapid deployment
- Light, compact manportable package
- Excellent performance characteristics
- 0 to 2,000 mile range, omnidirectional
- 1 kW continuous operation
- Ideal for frequency-agile and ALE radios
- Available options:
 - Reconfigurable kit for long range
 - 400 W, 1 kW options
 - 200 mph "Hurricane" capable version



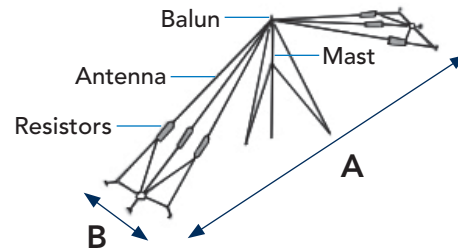
In Service With:

AN/TSC107 Quick Reaction Package (QRP)
AN/TRC181 Air Logistics Communication Elements (ALCE)

FANLITE™ Manportable Theater Range HF Broadband Antenna

SERVICES PROVIDED

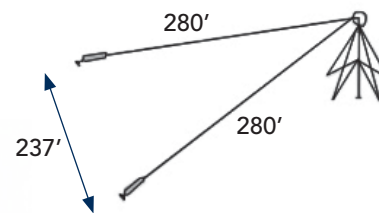
- Omnidirectional theater range HF skywave communications
- Long range directional communications (optional)
- The FANLITE™ and sloping vee receive both horizontally and vertically transmitted signals, as well as ground wave signals



APPLICATIONS

- Temporary Base Stations
- Contingency Communications
- Emergency Communications
- Short-Range Communications in Mountainous or Difficult Terrain
- Counter-Narcotics Operations
- Ground to Air
- Shore to Ship

	LFH1.630	LFH230
A	64 m (210 ft)	48 m (150 ft)
B	18.4 m (60 ft)	13.8 m (45 ft)



DESCRIPTION

The LFH230/1/VE **FANLITE™** antenna is a lightweight, manportable HF wire antenna intended primarily for omnidirectional skywave communications to a range of about 2,000 miles, including short-range Near Vertical Incidence Skywave (NVIS) operation. Supplied in a rapidly assembled kit form, the antenna is designed for use with C&S Antennas' telescopic **CARRYMAST™**. When erected on one of these masts, the LFH may be set up by two people in less than 25 minutes.

The antenna is rated for 1 kW continuous operation and is broadband, with a VSWR average of better than 2.2:1 from 2 to 30 MHz. An antenna coupler is not necessary.

The primary configuration is a fan dipole. Viewed from above, the elements resemble a bow tie. In this configuration, the center of the antenna beam over the lower portion of the HF band is directed straight upwards for optimum NVIS operation. Here the radiation pattern is omnidirectional ± 1 dB over the frequency range 2 to 8 MHz at angles at or above 60° above the horizon. At higher frequencies, the antenna beam becomes approximately hemispherical, providing useful single-hop performances to about 2,000 miles.

The **FANLITE™** radiates at a 30° TOA (Take Off Angle) to provide complete NVIS HF coverage from 0-2,000 miles without any skip zones, even in mountainous terrain. For directional long range communications (2,000+ miles), the antenna may be deployed as a sloping vee or sloping long wire using C&S Antennas' available SVK/LFH reconfiguration kit.

ORDERING OPTIONS

LFH1630/0.4/VE		LFH antenna 1.6-30MHz, 400w
LFH1630/1/VE		LFH antenna 1.6-30MHz, 1Kw
LFH230/0.4/VE		LFH antenna 2.0-30MHz, 400w
LFH230/1/VE		LFH antenna 2.0-30MHz, 1Kw
LFH230/1/VE-SVK/LFH		LFH Antenna 2.0-30MHz, 1Kw, with sloping vee kit
<i>Additional items to order separately</i>	MAST	C&S Antennas CARRYMAST™ available in different mast heights: CTM9, CTM10, CTM12 or CTM15
	LPK	Lightning protection kit designed to divert lightning strike energy to ground via a deliberate and controlled path
	SVK/LFH	Sloping vee kit for FANLITE™ Antennas

ANTENNA SPECIFICATIONS

LFH FAN DIPOLE CONFIGURATION

ELECTRICAL	
Frequency Range:	2 to 30 MHz
Input Impedance:	50 ohms
VSWR:	< 2.2:1 across band
Power Rating:	1 kW continuous
Polarization:	Vertical (NVIS)
Receive (Rx):	Horizontally & vertically transmitted signals as well as ground wave
Gain:	Refer to <i>Typical Power Gain Table</i> on following page
MECHANICAL	
Weight:	19 kg (42 lb)
Stowed Size:	0.25 x 0.25 x 0.6 m (10 x 10 x 24 in)
Deployed Size:	48 x 13.8 m (150 x 45 ft)
Erection Time:	25 minutes (2 people) with C&S Antennas' CARRYMAST™ telescopic mast
Max Wind Speed:	145 km/hr (90 mph)
Max Wind Speed, Permanent Version:	322 km/hr (200 mph)
Temperature Range:	-40° to +160° F
Antenna Elements:	Kevlar & copper
Fittings:	Stainless steel

LFH SLOPING VEE CONFIGURATION

ELECTRICAL	
Frequency Range:	2 to 30 MHz (8 to 26 MHz optimum)
Input Impedance:	50 ohms
VSWR:	< 2.2:1 across band
Power Rating:	1 kW continuous
Polarization:	Horizontal
Receive (Rx):	Horizontally & vertically transmitted signals as well as ground wave
Gain:	Refer to <i>Typical Power Gain Table</i> on following page
MECHANICAL	
Weight:	19 kg (42 lb)
Stowed Size:	0.25 x 0.25 x 0.6 m (10 x 10 x 24 in)
Deployed Size:	86 x 76 m (280 x 250 ft)
Erection Time:	25 minutes (2 people) with C&S Antennas' CARRYMAST™ telescopic mast
Max Wind Speed:	145 km/hr (90 mph)
Max Wind Speed, Permanent Version:	322 km/hr (200 mph)
Temperature Range:	-40° to +160° F
Antenna Elements:	Kevlar & copper
Fittings:	Stainless steel

Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

ANTENNA SPECIFICATIONS & RADIATION DIAGRAMS

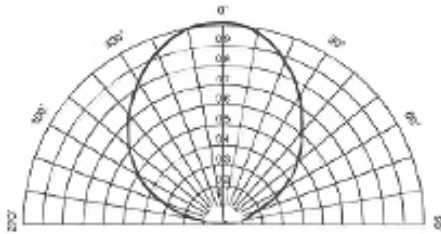
TYPICAL POWER GAIN (dBi)

Frequency (MHz)	2	3	4	6	8	10	12	16	20	30	40
Fan Dipole	-2.5	-2.0	-1.0	0	+2.0	+2.5	+3.0	+3.0	+2.5	+2.0	-
Sloping Vee 280'	-9.4	-6.5	-1.8	+1.7	+4.6	+6.4	+7.5	+8.2	+8.5	+9.6	+10.0

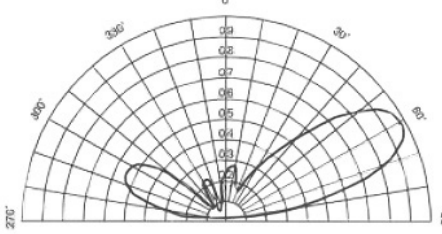
Notes:

1. The sloping vee data refers to an antenna with 86 m (280 ft) leg lengths.
2. Power gain for sloping vee assumes apex angle between legs is 50° for frequencies between 24 MHz and 35° for frequencies above 24 MHz. This equates to leg spacings of 73 m (237 ft) and 53 m (172 ft) respectively.
3. Gains are stated for antennas supported on a 15 m (49.2 ft) mast over average ground. (Conductivity 10 mS/m; relative permittivity 10).

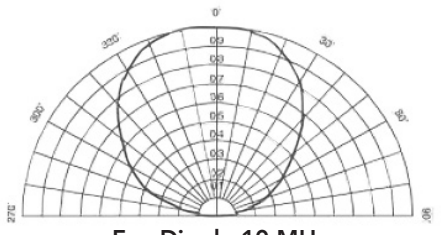
RADIATION DIAGRAMS



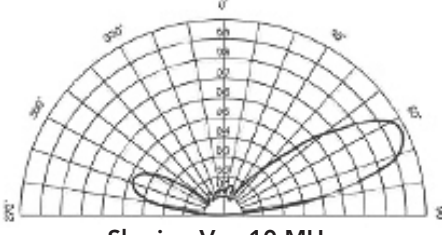
Fan Dipole 6 MHz



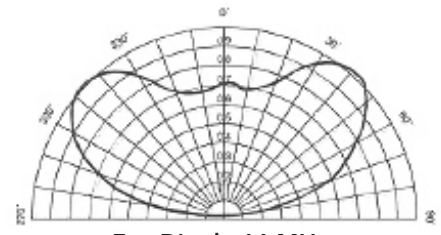
Sloping Vee 6 MHz



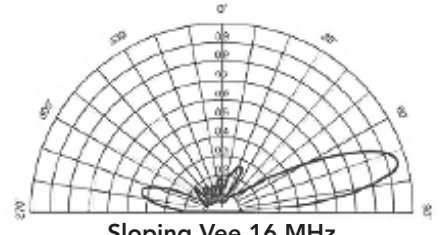
Fan Dipole 10 MHz



Sloping Vee 10 MHz



Fan Dipole 16 MHz



Sloping Vee 16 MHz

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