

# 3.8 Meter Multi Feed Antenna "MFA"

## Antenna Technologies



### Overview

The CPI Antenna Technologies' 3.8 meter MULTI FEED antenna delivers exceptional performance for receive only applications for L through Ka-Band frequencies. The MFA Antenna is designed to hold up to 5 feeds on a remotely controllable sliding feed arm mechanism which lets the user decide which frequency band (feed) at which they want to operate. Customers can switch downlink frequency bands rapidly without manual intervention.

This antenna offers a dual offset reflector design that incorporates precision formed panels, contoured radials and a machined hub assembly. The state-of-the-art design provides exceptional performance for low cross-polarization levels and excellent sidelobe patterns.

The rugged feed boom can support up to 300 lbs. (136 kg) of integration equipment in addition to the feed weights. The reflector is supported by a galvanized steel motorizable pedestal that provides the required stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations using concrete foundations, load-frames or non-penetrating mounts. The electrical performance is compliant with FCC 25.209 regulations and ITU-RS-580 sidelobe specifications. are available for Intelsat (F1, E2), Eutelsat (L, M), Asiasat, Europe Star and Singapore Telecom.

### FEATURES:

- 'Type-Approved' bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components
- Designed for 1.5 to 31 GHz operation, meeting FCC 25.209 regulations in Ku-Band and beyond the main beam at C-Band
- Feed boom supports 300 lbs (136 kg) of equipment
- Galvanized steel EL over AZ pedestal with jackscrews
- Standard: Survives 125 mph (200 km/h) winds in any position; 150mph (240 km/h) at preferential stow orientation

### OPTIONS:

- L, S, C, X, Ku, DBS and Ka-Band feeds
- C/Ku receive-only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- Antenna control system with tracking
- Reflector and feed deicing systems
- Integrated transmit cross-axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Motorizable pedestals
- Non-penetrating and load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing

### UPGRADES:

- Low operating temperatures
- High power configurations
- Special upgrades - available upon request

### BENEFITS:

- High antenna efficiency
- Excellent rejection of noise and microwave interference

### APPLICATIONS:

- Communications, Data Transfer, Broadcast

# 3.8 Meter Multi Feed Antenna "MFA"

## Specifications

ELECTRICAL <sup>(1)</sup>		X-Band, 2-Port Circular Polarized Receive
Frequency (GHz)		7.250 - 7.750
Antenna Gain, Midband dBi (+/- 0.2 dB)	7.250 / 7.250 GHz 7.500 / 7.500 GHz 7.750 / 7.750 GHz	47.30 dBi 47.40 dBi 47.50 dBi
Antenna Noise Temperature	5° Elevation 10° Elevation 20° Elevation 40° Elevation	54 K 43 K 37 K 35 K
Typical G/T (dB/K) at 20 Degree Clear Horizon	7.500 GHz, 35° K LNA 7.500 GHz, 45° K LNA	28.5 dB/K 28.0 dB/K
Typical Beamwidth in Degrees	7.500 GHz, -3 dB Beamwidth 7.500 GHz, -15 dB Beamwidth	0.73 1.53
Sidelobes	For Angle A from 1 to 48 Degrees For Angles from 48 to 180 Degrees	Meets ITU-RS-580 Meets ITU-RS-580
Cross Polarization Isolation	On Axis Within 1.0 dB Beamwidth	27.3 dB 27.3 dB
VSWR (Return Loss)		1.30:1 (17.7dB)
Axial Ratio		0.75 dB
Feed Insertion or Ohmic Loss		0.20 dB
Port to Port Isolation (Rx to Rx Same Band)		19.0 dB
Port to Port Isolation Port to Port Isolation		-19.0 dB 0.0 dB (Input)
Output Waveguide Flange Interface		WR-112
RF Specifications		975-2630A

**Notes** - Other operational frequencies available. 10% of sidelobes may exceed the sidelobe specifications where applicable.

-G/T is calculated by bolting single LNA directly to the feed. It does not allow for any post LNA effects. All values are at the rear feed output flange.

# 3.8 Meter Multi Feed Antenna "MFA"

## Specifications

ELECTRICAL <sup>(1)</sup>		L-Band, 2-Port Circular Polarized Receive
Frequency (GHz)		1.500-2.400
Antenna Gain, Midband dBi (+/- 0.2 dB)	1.500 / 1.500 GHz 1.950 / 1.950 GHz 2.400 / 2.400 GHz	30.90 dBi 33.50 dBi 35.00 dBi
Antenna Noise Temperature	5° Elevation 10° Elevation 20° Elevation 40° Elevation	175 K 168 K 163 K 157 K
Typical G/T (dB/K) at 20 Degree Clear Horizon	2.400 GHz, 50° K LNA 2.400 GHz, 60° K LNA	11.7 dB/K 11.5 dB/K
Typical Beamwidth in Degrees	1.950 GHz, -3 dB Beamwidth 1.950 GHz, -15 dB Beamwidth	3.04 6.38
Sidelobes For Angle A beyond first sidelobe to 48° For Angles from 48 to 180°		40 - 25 log A 0 dBi
Cross Polarization Isolation	On Axis Within 1.0 dB Beamwidth	21.3 dB 21.3 dB
VSWR (Return Loss)		1.38:1(15.9dB)
Axial Ratio		1.50 dB
Feed Insertion or Ohmic Loss		1.75 dB
Port to Port Isolation (Rx to Rx Same Band)		14.0 dB
Port to Port Isolation Port to Port Isolation		-14.0 dB 0.0 dB (Input)
Output Waveguide Flange Interface		N TYPE
RF Specifications		975-5521F

**Notes** - Other operational frequencies available. 10% of sidelobes may exceed the sidelobe specifications where applicable.

-G/T is calculated by bolting single LNA directly to the feed. It does not allow for any post LNA effects. All values are at the rear feed output flange.

# 3.8 Meter Multi Feed Antenna "MFA"

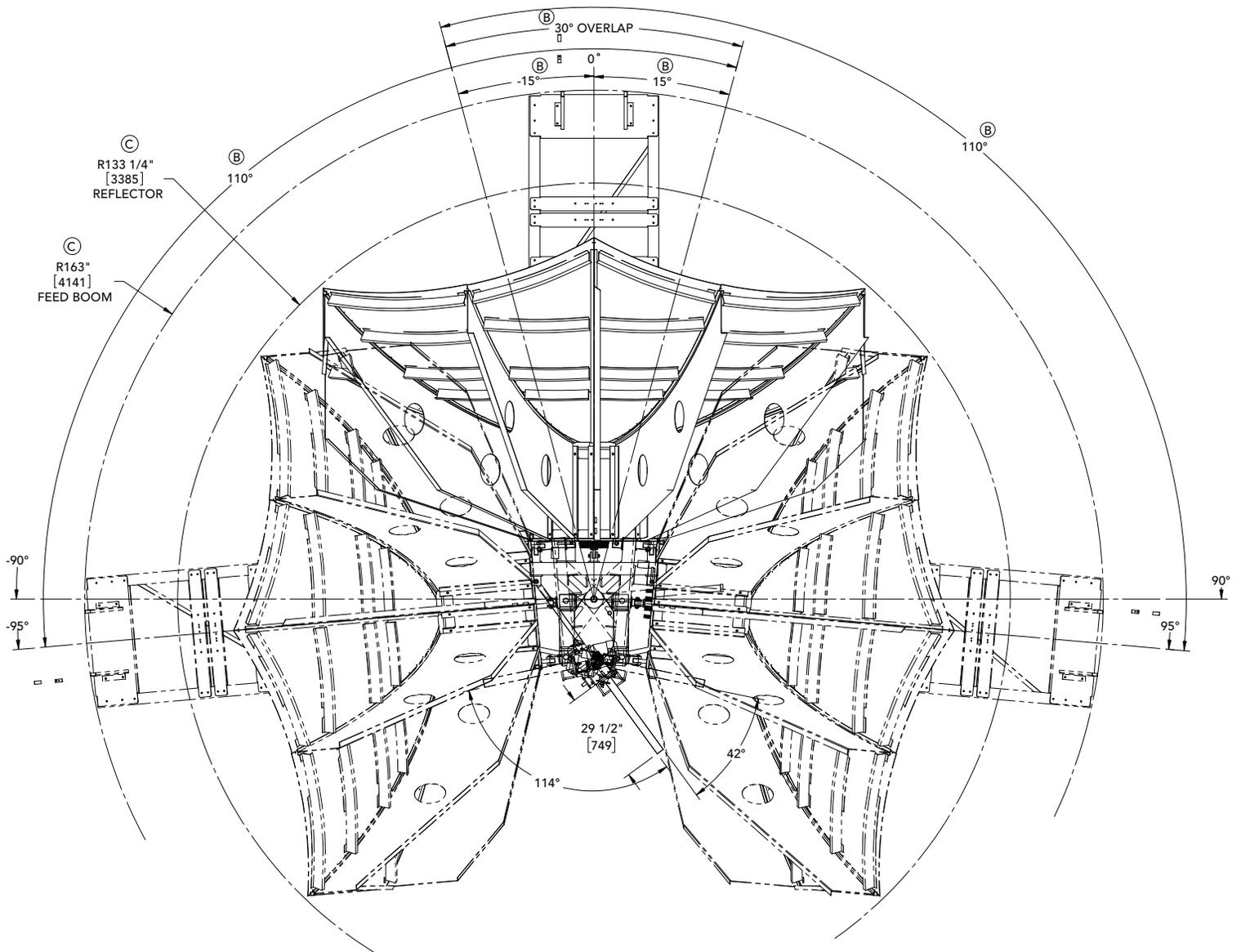
## Specifications

ELECTRICAL <sup>(1)</sup>	C/Ku-Band, 4-Port Circular/Linear Switchable Receive	C/Ku-Band, 4-Port Linear Polarized Receive
Frequency (GHz)	3.400-4.200	10.700-12.750
Antenna Gain, dBi (+/- 0.2 dB)	3.400 / 10.700 GHz 4.000 / 11.725 GHz 4.200 / 12.750 GHz	49.50 dBi 51.00 dBi 51.70 dBi
Antenna Noise Temperature	5° Elevation 10° Elevation 20° Elevation 40° Elevation	112 K 99 K 88 K 82 K
Typical G/T (dB/K) at 20°, Clear Horizon	4.000 GHz, 35° K LNA 4.000 GHz, 50° K LNA 11.725 GHz, 70° K LNA 11.725 GHz, 90° K LNA	29.0 dB/K 28.5 dB/K
Typical Beamwidth in Degrees	4.000, 11.7250 GHz, -3 dB Beamwidth 4.000, 11.7250 GHz, -15 dB Beamwidth	0.45 0.95
Sidelobes	For Angle A beyond 1st sidelobe to 48° For Angles from 48 to 180°	32 - 25 log A -10 dBi
Cross Polarization Isolation	On Axis (CP Mode) Within 1.0 dB Beamwidth (CP Mode) On Axis (LP Mode) Within 1.0 dB Beamwidth (LP Mode)	30.0 dB 30.0 dB
VSWR (Return Loss)	1.38:1(15.9dB)	1.30:1 (17.7 dB)
Axial Ratio	0.50 dB	-----
Feed Insertion or Ohmic Loss	0.50 dB	0.50 dB
Port to Port Isolation (Rx to Rx Same Band) (Rx to Rx Same Band) (LP Mode)	16.0 dB 30.0 dB	
Port to Port Isolation Port to Port Isolation	-16.0 dB 0.0 dB (Input)	-30.0 dB 0.0 dB (Input)
Output Waveguide Flange Interface	CPR-229G	WR-75 Flat
RF Specifications	975-5517B	975-5517

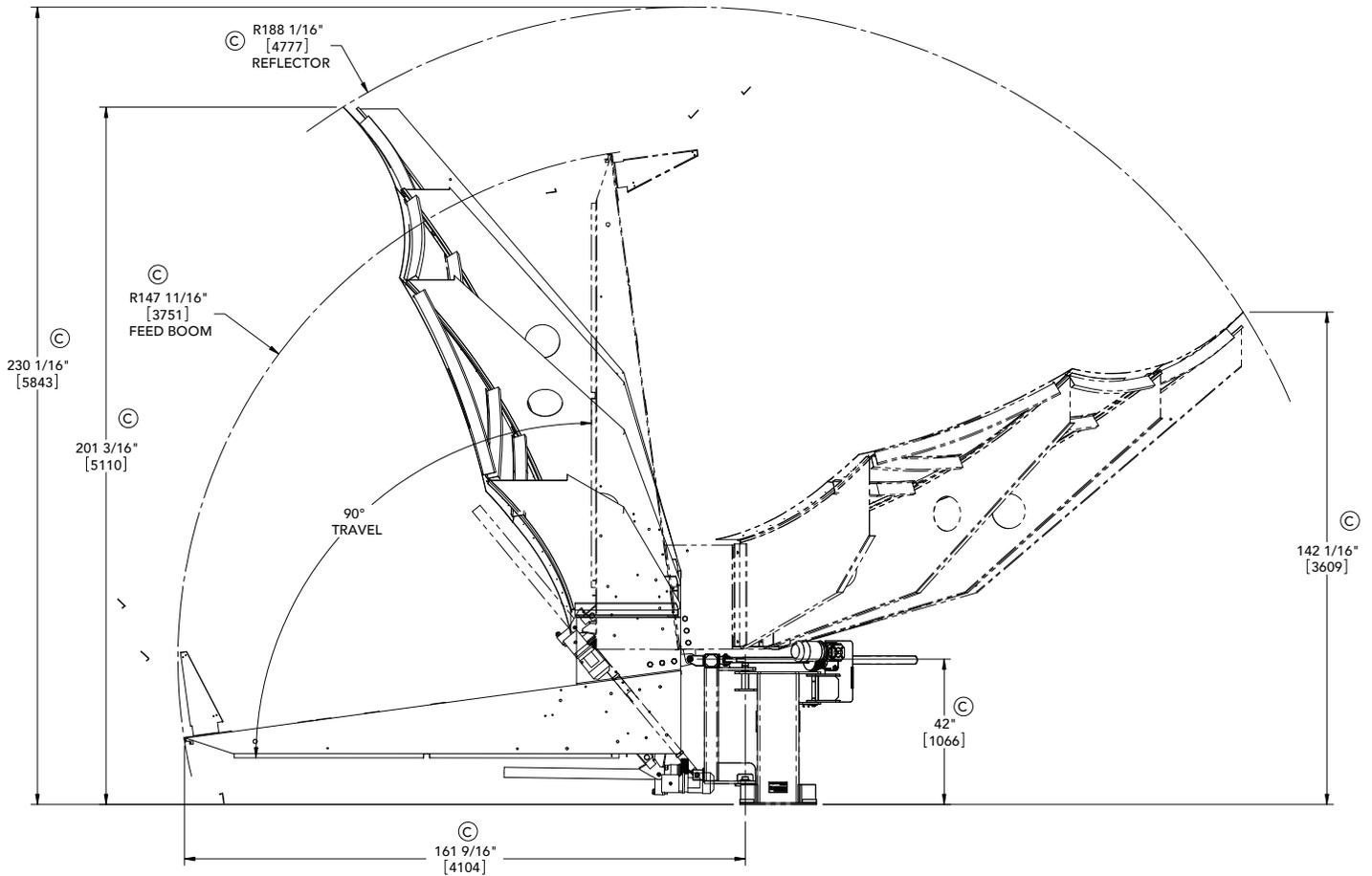
**Notes** - Other operational frequencies available. 10% of sidelobes may exceed the sidelobe specifications where applicable.

-G/T is calculated by bolting single LNA directly to the feed. It does not allow for any post LNA effects. All values are at the rear feed output flange.

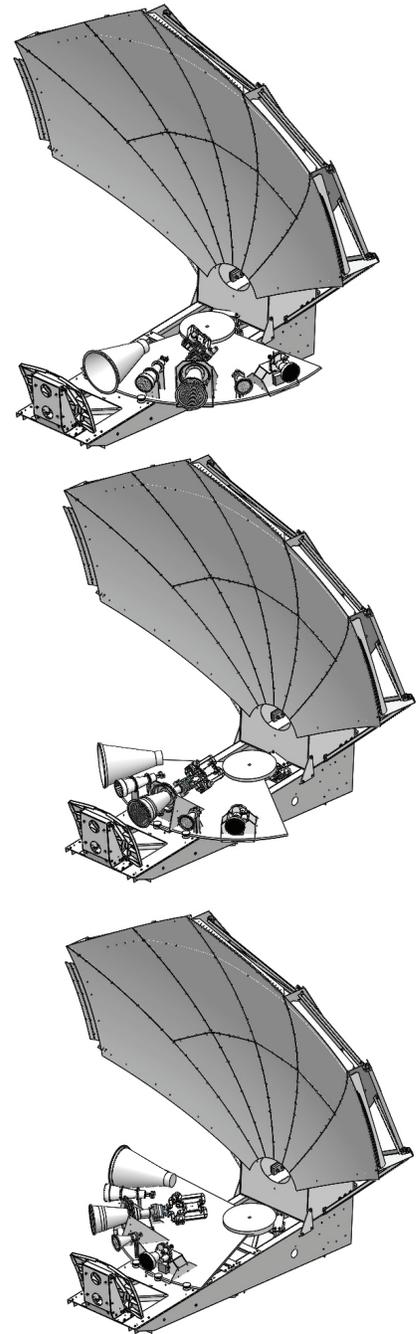
# 3.8 Meter Multi Feed Antenna "MFA"



# 3.8 Meter Multi Feed Antenna "MFA"



# 3.8 Meter Multi Feed Antenna "MFA"



Main-Reflector

Feeds, left to right:

- L/S CP
- X CP
- C CP/LP
- Ka CP
- Ku LP

Hub

Feed Selector Plate

Sub-Reflector

Feed Boom

With 5 selectable receive feeds installed



(Phone) +1 (517) 629-3000 • (Fax) +1 (517) 629-2379 • Viking Satcom 704 North Clark St Albion, MI 49224 • [www.vikingsatcom.com](http://www.vikingsatcom.com)