

3.9M Multi-band Lightweight Medium Aperture Antenna (LMAA)



The L-3 Narda Satellite Networks 3.9M Lightweight Medium Aperture Antenna (LMAA) is a lightweight, high gain, quad-band antenna subsystem for delivering quick response satellite communications (SATCOM). The 3.9 LMAA addresses military and civil government requirements for a medium aperture antenna packed in transit cases less than one half of a 463L pallet.

THE 3.9M LIGHTWEIGHT MEDIUM APERTURE ANTENNA (LMAA) INCLUDES:

- 3.9-meter segmented reflector
- Transit case configuration
- Functional packaging
- Advanced technology antenna control available
- ACU override for manual control

QUAD-BAND OPERATING FREQUENCIES

Government: X- and Ka-Band
Commercial: C-, Ku-Band and XTAR

FEATURES

- Quad-Band (C-, X-, Ku-, Ka-Bands)
- DSCS/ARSTRAT WGS certified
- Pedestal designed for superior stability in high winds
- Lightweight construction
- Field-replaceable components
- Automatic satellite acquisition and tracking
- Ruggedized transit cases, five of which form integral part of the support structure
- Lightning protection
- Quick setup/take-down <1 hour
- Packs in transit cases less than one half of a 463L pallet
- XTAR- and WGS-ready



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ELECTRICAL/PERFORMANCE										
	C-Band 2-Port Linear Cross Pol Feed		C-Band 2-Port Circular Pol Feed or Linear Co-Pol Feed		X-Band 2-Port Reversible Circular Cross Pol Feed		Ku-Band 3-Port Co & Cross Pol Feed		Ka-Band 2-Port Reversible Circular Pol Feed	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.400-4.200	5.850-6.650	3.625-4.200	5.850-6.425	7.250-7.750	7.900-8.400	10.950-12.750	13.750-14.500	20.200-21.200	30.000-31.000
Antenna Gain at Lowband (dBi)	40.2	45.1	40.7	45.1	46.7	47.7	50.2	52.5	55.2	58.3
G/T at 10° Elevation/EIRP	21.3 dB/K	67.5 dBW	21.8 dB/K	67.5 dBW	25.5 dB/K	71.0 dBW	29.0 dB/K	74.5 dBW	31.5 dB/K	75.5 dBW
Cross-Polarization On-Axis within 0.5 dB Beamwidth	30 dB 28 dB	30 dB 28 dB	30 dB 28 dB	30 dB 28 dB			35 dB 27 dB	35 dB 35 dB		
Sidelobes	IESS Std F-1		IESS Std F-1		MIL-STD-188-164A DSCS TCR		IESS Std E-2		MIL-STD-188-164A WGS TCR	
Axial Ratio (VAR)			1.16 VAR	1.09 VAR	1.15 VAR	1.26 VAR			1.19 VAR	1.12 VAR
VSWR Performance	1.30:1	1.30:1	1.30:1	1.35:1	1.30:1	1.30:1	1.35:1	1.30:1	1.30:1	1.30:1
PORT-TO-PORT ISOLATION										
Tx/Rx (Rx Freq) transmit reject filtering incl.	30 dB		30 dB		26 dB		35 dB		35 dB	
Tx/Rx (Tx Freq) transmit reject filtering incl.		95 dB		95 dB		95 dB		90 dB		90 dB
Waveguide Interface Flange	CPR-229	CPR-137	CPR-229	CPR-137	CPR-137	WR-112	WR-75	WR-75	WR-42	WR-28
Total Power Handling Capability		1 kW CW		500 W CW		1 kW CW		1 kW CW		500 W CW

ENVIRONMENTAL		
Wind	Operation	25 mph Steady-state (unanchored) with gusts up to 45 mph, 40 mph Ka (anchored)
	Survival Deployed	45 mph gusting to 60 mph (w/ anchoring)
	Survival Stowed	90 mph max. (w/ anchoring)
	Pointing Loss	≤ 2.0 dB (Ka-Band): 25 mph, gusting 40 mph
Solar Radiation	360 BTU/h/ft ²	
Temperature	Operational	-22° to 140° F (-30° to 60° C)
	Survival	-40° to 160° F (-40° to 71° C)
Rain	Non-operational	Up to 4 in/hr (102 mm/hr)
	Operational	Up to 2 in/hr
Ice	Operational	1/2" (13mm)
	Survival	1"
Snow	Survival	10 lbs/ft ²
Relative Humidity	5% to 100%	
Sand	Particles driven by wind up to 40 mph (64 km/h)	
Salt	As encountered in moderately corrosive costal environments	

MECHANICAL	
Total Weight	Approx. 1800 lbs
Volume	< 1/2 of a 463L pallet
Setup	< 1 hr
Fasteners	Captive
DESIGN FEATURES	
The entire antenna subsystem is contained in nine (9) ruggedized transit cases. These cases are designed for military transport, by road, rail and air. Five (5) of the interlocking transit cases also function as part of the pedestal/support structure.	
The highly efficient antenna design provides excellent gain and side-lobe pattern performance at C-, X-, Ku- and Ka- frequency bands.	
Sustainability is optimized with field-replaceable components and minimal maintenance requirements.	

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AS9100 / ISO 9001

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