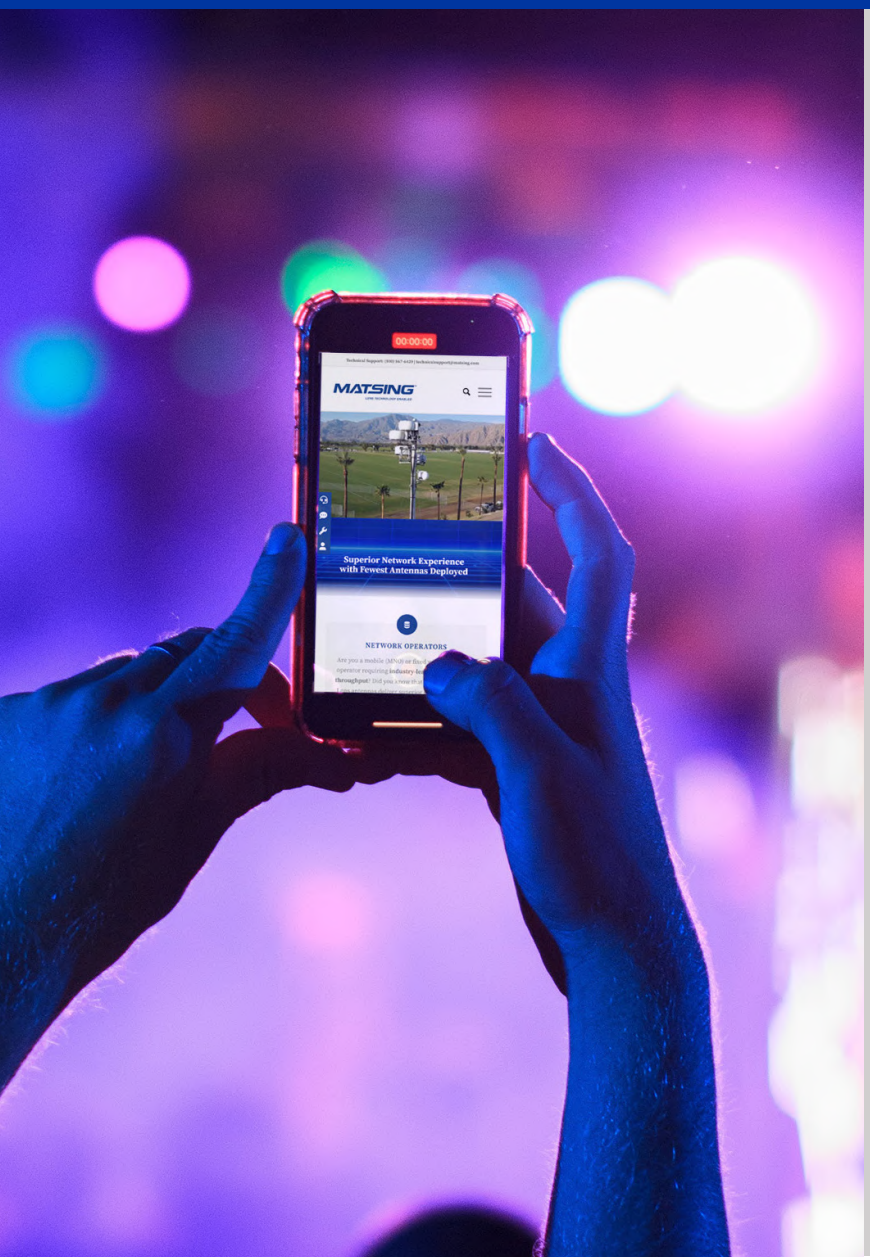
MATSING®

LENS TECHNOLOGY ENABLED

Highest Capacity Lens Antenna Portfolio

Product Catalog



About MatSing

Privately-owned technology company focused on constant innovation

Pioneered the lens antenna technology in 2005 for use in multiple industries including telecom

HQ in Irvine, CA with global manufacturing, operations, in North America, Asia Pacific, and Europe

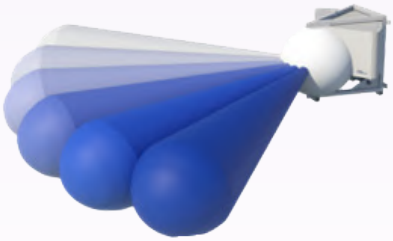
Customer-first mindset with agility, collaboration, and empathy as core values

Best-in-class cutting-edge technology delivering the highest-performing networks

Innovative Products

Our diversified product portfolio caters to varied needs including macros for dense urban, suburban, and rural areas, and indoor deployments in high-capacity venues and events. With 18+ years spent in optimizing the lens antenna technology, our antennas are outperforming all other antenna types today, including beam-forming and under-the-seat.

Whether you are a mobile network operator (MNO), fixed wireless carrier, venue owner, event organizer, government entity or an enterprise, we have the right antenna solution for your needs!



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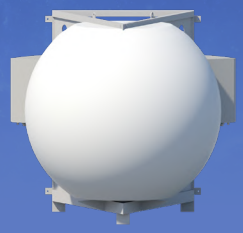
Product Categories

MBA Lens Antennas

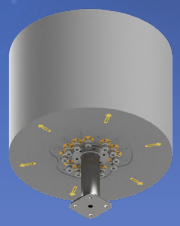
- High-capacity, multi-band, multi-beam antennas
- Ideal for towers, rooftops, fixed wireless, stadiums and events

Large Sphere Lens Antennas



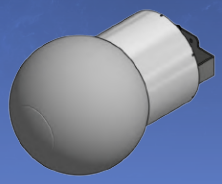
- High-capacity, multi-band, multi-beam antennas
- Ideal for macros, stadiums and events

Light Pole Lens Antennas



- 6-sector, dual band, easy to mount antennas
- Ideal for dense-urban and high-traffic areas

Single Beam Lens Antennas



- Single band, light-weight, easy to mount antennas
- Ideal for macros, stadiums, concources and buildings

Table of Contents

Click on the page name below to view the data sheet.

MBA Lens Antennas

MS-MBA-2	Page 7
MS-MNA2-L2	Page 8
MS-MBA-2-L4	Page 9
MS-MBA-2-L2	Page 10
MS-MBA-3-C4A3	Page 11
MS-MBA-3-F2	Page 12
MS-MBA-3-F4	Page 13
MS-MBA-3-F4A3	Page 14
MS-MBA-3-H4	Page 15
MS-MBA-3-H8A2	Page 16
MS-MBA-3-L4A2	Page 17
MS-MBA-3.2-H2-L2	Page 18
MS-MBA-3.2-H2-T2	Page 19
MS-MBA-3.2-H4-L4	Page 20
MS-MBA-3.2-H4-T4	Page 21
MS-MBA-3.2-H8-L4	Page 22
MS-MBA-3.2-H8-T4	Page 23
MS-MBA-3.3-C4A3-H4A2	Page 24
MS-MBA-3.3-F4A3-H4A2	Page 25
MS-MBA-3.3-LAA2-F4	Page 26
MS-MBA-3.3.2-C2-H2-L2	Page 27
MS-MBA-3.3.2-F2-H2-L2	Page 28
MS-MBA-4-H4	Page 29
MS-MBA-4.2-H2-L2	Page 30
MS-MBA-4.2-H2-T2	Page 31
MS-MBA-4.4-SH2-SH2	Page 32
MS-MBA-4.4-SH2-SH2-45	Page 33
MS-MBA-4.4-SH2-SH2-45M	Page 34
MS-MBA-4.4.2-C2-H2-L2	Page 35
MS-MBA-4.4.2-F2-H2-L2	Page 36
MS-MBA-4.4.2-F4-H2-L2	Page 37
MS-MBA-8	Page 38

Large Sphere Lens Antennas

MS-10.10.10DBA180	Page 40
MS-10.10.10DBA180-T	Page 41
MS-12.6DB180	Page 42
MS-12.6DB180-T	Page 43
MS-12C45	Page 44
MS-12C90	Page 45
MS-12F45	Page 46
MS-12F90	Page 47
MS-12H180	Page 48
MS-12H90	Page 49
MS-12L180	Page 50
MS-16F60	Page 51
MS-16H120	Page 52
MS-18F45	Page 53
MS-18H90	Page 54
MS-20.10DBA180	Page 55
MS-20.10DBA180-T	Page 56
MS-24C180	Page 57
MS-24C90	Page 58
MS-24H180	Page 59
MS-4.2DB60-T	Page 60
MS-48F90	Page 61
MS-48H180	Page 62
MS-4F30	Page 63
MS-4H60	Page 64
MS-6.3DB90	Page 65
MS-6.3DB90-T	Page 66
MS-6C45	Page 67
MS-6F45	Page 68
MS-6H90	Page 69
MS-6L180	Page 70
MS-6T180	Page 71

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Large Sphere Lens Antennas (cont...)

MS-8.4DB120	Page 72
MS-8.4DB120-T	Page 73
MS-8F30	Page 74
MS-8F60	Page 75
MS-8H120	Page 76
MS-8H60	Page 77
MS-8L120	Page 78
MS-8T120	Page 79
MS-9H90-FWB-2.3	Page 80
MS-9SH90-FWB	Page 81

Light Pole Lens Antennas

MS-LP-6-H2	Page 83
MS-LP-6-H4	Page 84
MS-LP-6-H4-30i	Page 85

Single Beam Lens Antennas

MS-SV17-C	Page 87
MS-SB17-F	Page 88
MS-SB17-H	Page 89
MS-SB23-C	Page 90
MS-SB-23-F	Page 91
MS-SB23-H	Page 92
MS-SB23-LAA	Page 93
MS-SB34-L	Page 94
MS-SB34-T	Page 95

MBA Lens Antennas

Future-Proof, Multi-Band Lens Antennas

Macros, Fixed Wireless, Stadiums, Venues & Events

4G LTE and 5G

Coverage and Capacity

Dynamically Scale

Network with Individual Broadband Beams

Rapid Capacity

Augmentation with Fewest Antennas

MATSING®

LENS TECHNOLOGY ENABLED

MS-MBA-2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

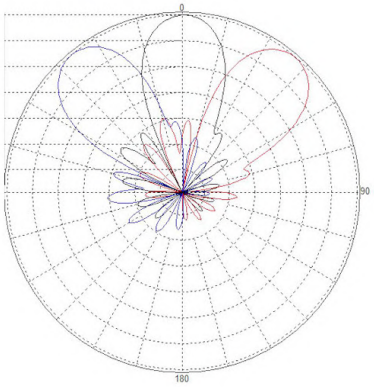
Frequency	1695 – 2690 MHz
Gain	17.8dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10 dbB level) Horizontal Beamwidth (3 dB level)	40° 23°
Vertical Beamwidth (10 dbB level) Vertical Beamwidth (3 dB level)	40° 23°
Beam Cross-over	10dB typical
Total Number of Beams	3
Number of Ports per Beam	2
Number of Ports Total	6
Tilt Per Cross-Pol	0° to 30°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	6 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

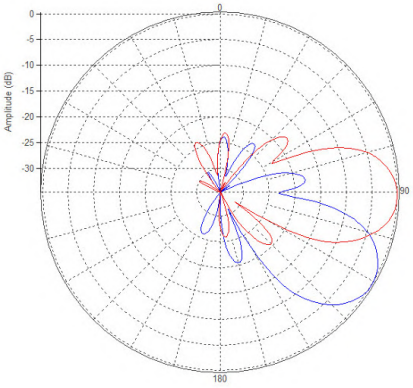
Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for 3 to 9 sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated high-frequency (1695 – 2690 MHz) crosspolarized beams. Each beam has 2 cross-polarized ports for supporting 2X2 MIMO. Tilt is adjustable from 0 - 30° for each beam. High tilt provides null at horizon.

PATTERN RESULTS:

Horizontal Pattern (1.80GHz)



Vertical pattern 0° tilt and 30° tilt (1.80GHz)



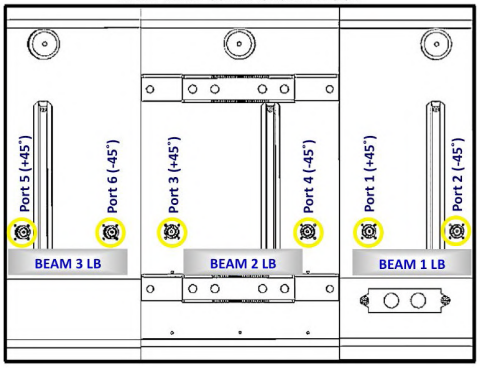
MECHANICAL DATA

Dimensions (H x W x D)	52.5 x 60.7 x 67.8 cm 20.7 x 23.9 x 26.7 inch
Dimensions (H x W x D) w / brackets:	53 x 62 x 60 cm 21 x 24.5 x 24 inch
Antenna Weight	21.28 kg | 46.9 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount **Compatible pipe diameter:** 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

CONNECTOR LAYOUT

MS-MBA-2

PLAN VIEW CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	N / lbf Frontal 225 / 50.6 Lateral 323 / 72.6 Rear 264 / 59.4

MS-MBA-2-L2

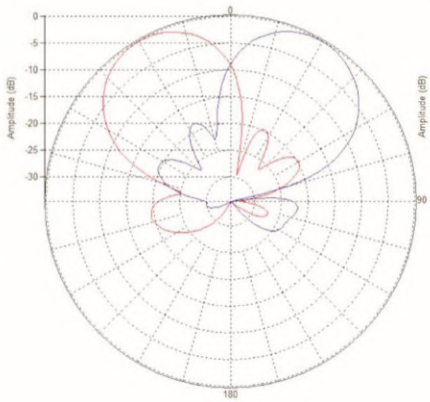
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

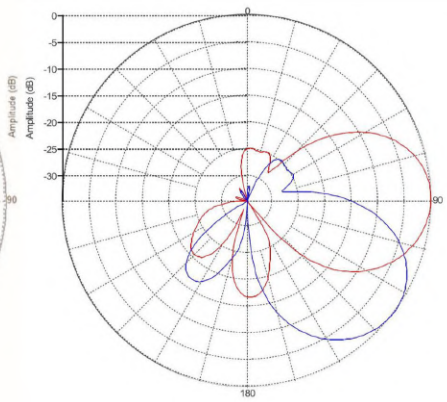
Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for 6 sector LTE cell site deployments, utilizes a patented spherical lens design with 2 isolated low-frequency (698-960MHz) cross-polarized beams. Each beam has 2 cross-polarized ports for supporting 2X2 MIMO. Tilt is adjustable from 0 to 40° for each beam, high tilt provides null at horizon.

PATTERN RESULTS:

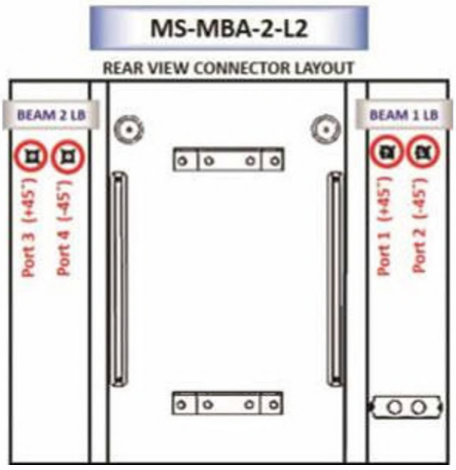
Low-Band Horizontal Pattern (698-960 MHz)



Vertical pattern at 0° tilt and 40° tilt (698-960MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698 – 960 MHz
Gain	13.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10 dbB level) Horizontal Beamwidth (3 dB level)	34° 60°
Vertical Beamwidth (10 dbB level) Vertical Beamwidth (3 dB level)	34° 60°
Beam Cross-over	10dB typical
Total Number of Beams	2
Number of Ports per Beam	2
Number of Ports Total	4
Tilt Per Cross-Pol	0° to 40°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	4 x 4.3-10 female

MECHANICAL DATA

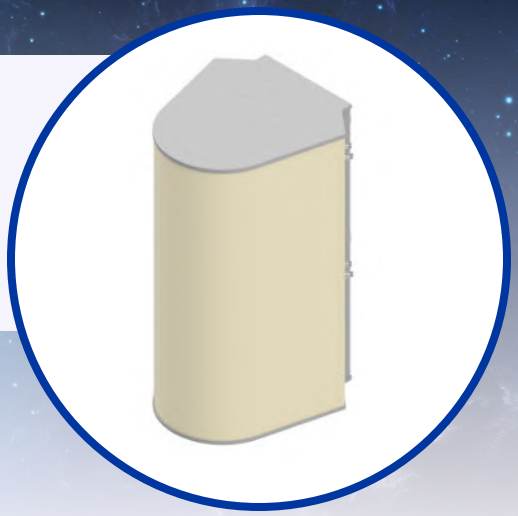
Dimensions (H x W x D)	63.7 X 61.2 X 71.8 cm 25.1 X 24.1 X 28.3 inch
Antenna Weight	25.86 kg | 57 lbs
Radome Material	Fiber Glass
Mounting	Standard position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	410N @ 150 km / hr

MS-MBA-2-L4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

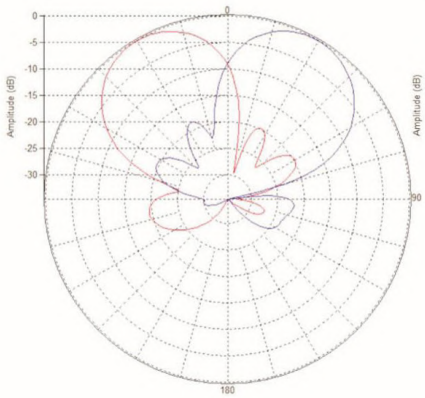
Frequency	698 – 960 MHz
Gain	13.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10 dbB level) Horizontal Beamwidth (3 dB level)	60° 34°
Vertical Beamwidth (10 dbB level) Vertical Beamwidth (3 dB level)	60° 34°
Beam Cross-over	10dB typical
Total Number of Beams	2
Number of Ports per Beam	4
Number of Ports Total	8
Tilt Per Cross-Pol	0° to 40°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	8 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

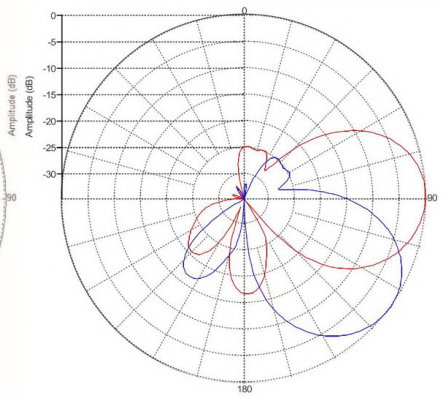
Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for 6 sector LTE cell site deployments, utilizes a patented spherical lens design with 2 isolated low-frequency (698-960MHz) cross-polarized beams. Each beam has 4 cross-polarized ports for supporting 4x4 MIMO. Tilt is adjustable from 0 to 40° for each beam.

PATTERN RESULTS:

Low-Band Horizontal Pattern (698-960MHz)



Vertical pattern at 0° tilt and 40° tilt (698-960MHz)



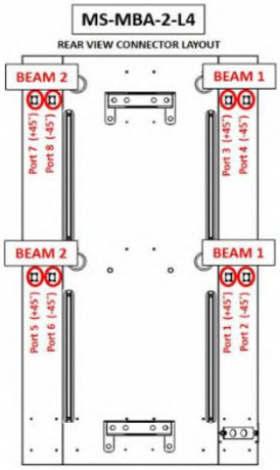
MECHANICAL DATA

Dimensions (H x W x D)	112.2 X 61.7 X 72.1 cm 44.2 X 24.3 X 28.4 inch
Antenna Weight	37.8 kg | 83.3 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	N/lbf Frontal: 548/123.2 Lateral: 787/176.9 Rear: 642/144.3

CONNECTOR LAYOUT



MS-MBA-2-L2

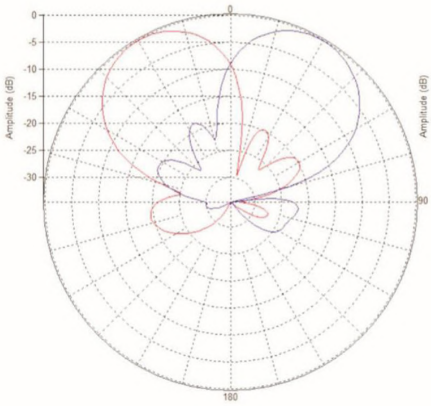
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

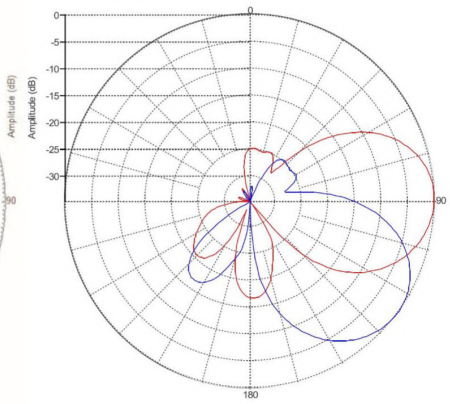
Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for 6 sector LTE cell site deployments, utilizes a patented spherical lens design with 2 isolated low-frequency (617-896MHz) cross-polarized beams. Each beam has 2 cross-polarized ports for supporting 2X2 MIMO. Tilt is adjustable from 0° to 40° for each beam.

PATTERN RESULTS:

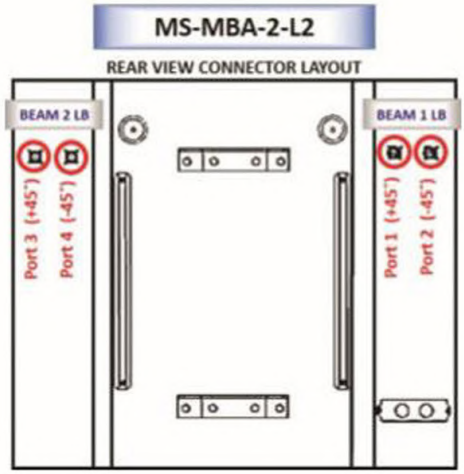
Horizontal Pattern (720MHz)



Vertical Pattern at 0° tilt and 40° tilt (720MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617 - 896 MHz
Gain	13.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10 dbB level) Horizontal Beamwidth (3 dB level)	60° 34°
Vertical Beamwidth (10 dbB level) Vertical Beamwidth (3 dB level)	60° 34°
Beam Cross-over	10dB typical
Total Number of Beams	2
Number of Ports per Beam	2
Number of Ports Total	4
Tilt Per Cross-Pol	0° to 40°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	4 x 4.3-10 female

MECHANICAL DATA

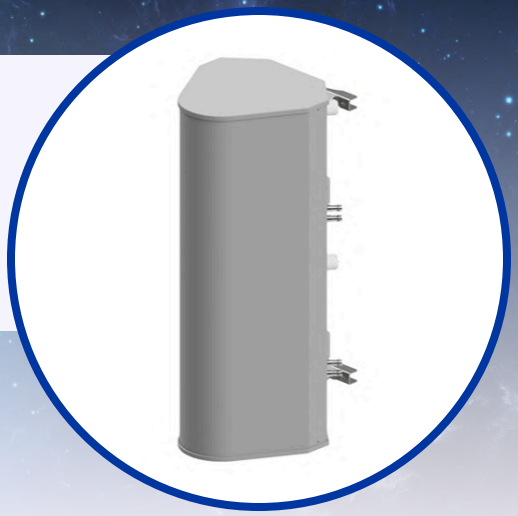
Dimensions (H x W x D)	64 x 61 x 64 cm 25 x 24 x 25 inch
Antenna Weight	26 kg | 57 lbs
Radome Material	Fiber Glass
Mounting	Standard position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	410N @ 150Km / hr

MS-MBA-3-C4A3

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated C-Band (3700 - 4200MHz) cross-polarized beams. Each beam has 4 ports, or 4X4 MIMO.

RET available from 0 to 15 for each beam.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3700 – 4200 MHz
Gain	20dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (3dB) Horizontal Beamwidth (10dB)	25° 45°
Vertical Beamwidth (3 dB level)	8°
Beam Cross-over	8 dB typical
Total Number of Beams	3
Number of Ports per Beam	4
Total Number of Ports	12
RET Per Cross-Pol	0°- 15°
USLS (upper sidelobe suppression)	16dB
Azimuth Sidelobe Level	-18dB
Front to Back Ratio	28dB
Isolation Port to Port - Polarization	28dB
Isolation Port to Port - Beam	25dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

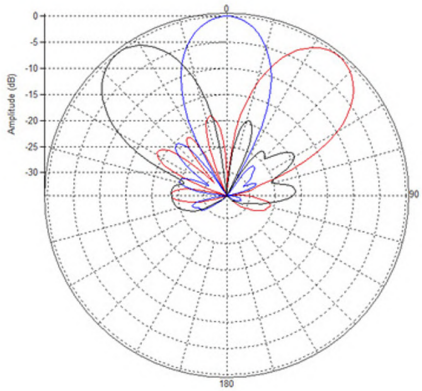
Dimensions (H x W x D)	118.8 x 29.4 x 37 cm 46.8 x 11.6 x 14.6 inch
Antenna Weight	19.46 kg | 42.9 lbs
Radome Material	Polycarbonate
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

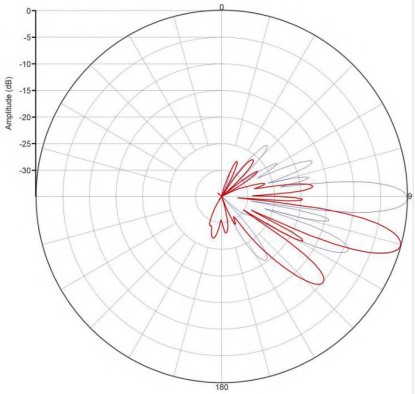
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	N/lbf Frontal : 262 /58.9 Lateral : 374 /84.1 Rear : 298 /67

PATTERN RESULTS:

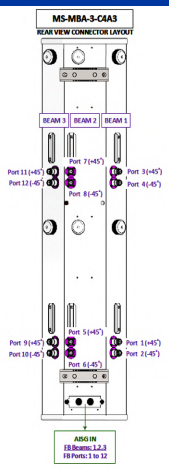
C-Band Horizontal Pattern (3.7GHz)

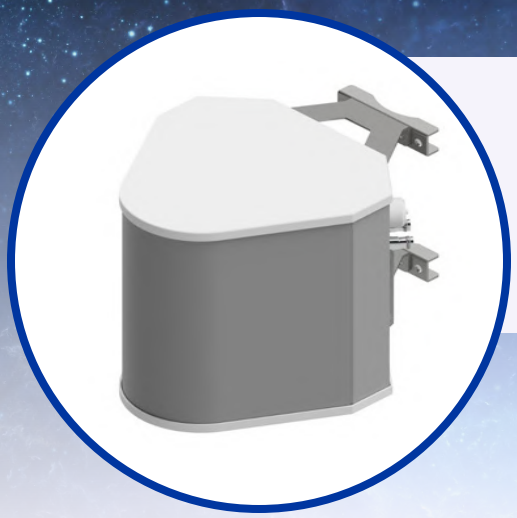


C-Band Vertical Pattern at 0° and 15° Tilt (3.7GHz)



CONNECTOR LAYOUT





MS-MBA-3-F2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

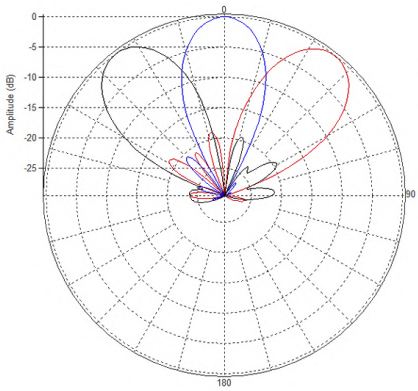
LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated CBRS-frequency (3300 - 4200MHz) cross- polarized beams. Each beam has 2 ports, or 2X2 MIMO.

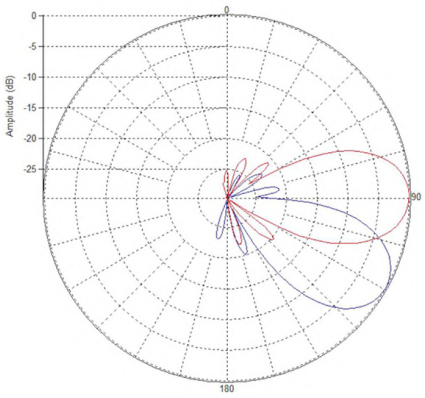
Tilt is adjustable from 0° to 30° for each beam.

PATTERN RESULTS:

Horizontal Beam Pattern (3.6GHz)



Vertical Pattern at 0° and 30° Tilt (3.6GHz)



CONNECTOR/BEAM LAYOUT

TECHNICAL SPECIFICATIONS

Frequency	3300 MHz – 4200 MHz
Gain	17dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (3dB) Horizontal Beamwidth (10dB)	25° 45°
Vertical Beamwidth (3dB level) Vertical Beamwidth (10dB level)	25° 45°
Beam Cross-over	6-8 dB typical
Total Number of Beams	3
Number of Ports per Beam	2
Number of Ports Total	6
Tilt Per Cross-Pol	0° - 30°
First Sidelobe level	<-18dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	6 x 4.3-10 female

MECHANICAL DATA

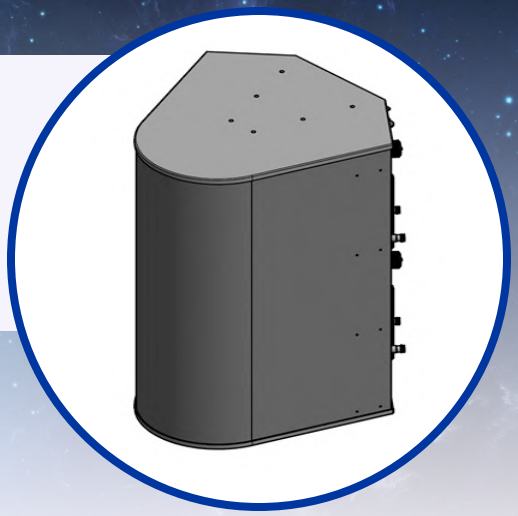
Dimensions (H x W x D)	36 x 41 x 38 cm 14 x 16 x 15 inch
Antenna Weight	6 kg | 13 lbs
Radome Material	Polycarbonate
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load (Lateral)	323N @ 150km/hr 73lbf 73lbf@150km/hr

MS-MBA-3-F4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS

Frequency	3300 MHz – 4200 MHz
Gain	17dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (3dB) Horizontal Beamwidth (10dB)	25° 45°
Vertical Beamwidth (3dB level) Vertical Beamwidth (10dB level)	25° 45°
Beam Cross-over	6-8 dB typical
Total Number of Beams	3
Number of Ports per Beam	4
Number of Ports Total	12
Tilt Per Cross-Pol	0° - 30°
First Sidelobe level	<-18dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

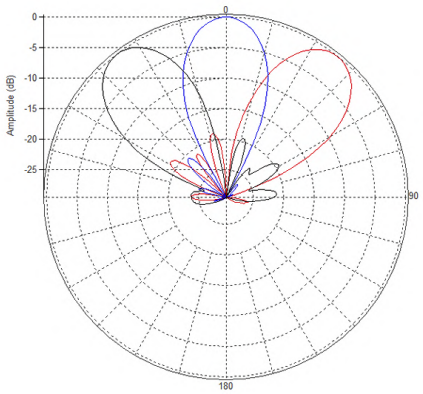
LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated CBRS-frequency (3300 - 4200MHz) cross- polarized beams. Each beam has 4 ports, or 4X4 MIMO.

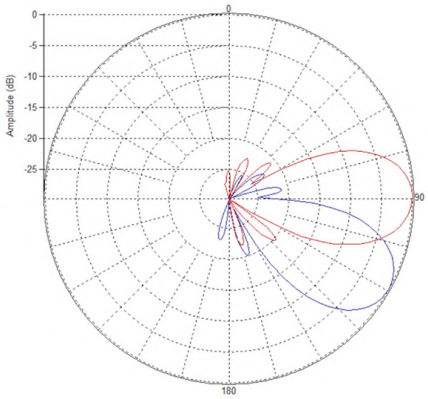
Tilt is adjustable from 0° to 30° for each beam.

PATTERN RESULTS:

Horizontal Beam Pattern (3.6GHz)



Vertical Pattern at 0° and 30° Tilt (3.6GHz)



MECHANICAL DATA

Dimensions (H x W x D)	61 x 41 x 38 cm 24 x 16 x 15 inch
Antenna Weight	9 kg | 20 lbs
Radome Material	Polycarbonate
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load (Lateral)	TBD

MS-MBA-3-F4A3

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

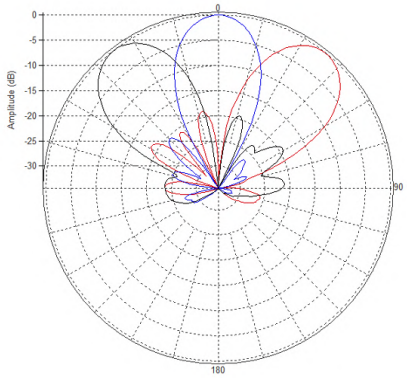
LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated CBRS-frequency (3300 - 4200MHz) cross- polarized beams. Each beam has 4 ports, or 4X4 MIMO.

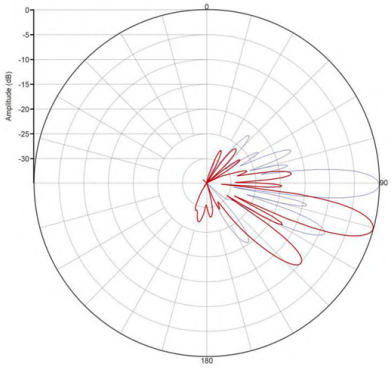
Tilt is adjustable from 0° to 15° for each beam.

PATTERN RESULTS:

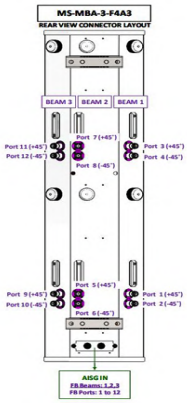
Horizontal Beam Pattern (3.7GHz)



Vertical Pattern at 0° and 15° Tilt (3.7GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300 MHz – 4200 MHz
Gain	20dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (3dB) Horizontal Beamwidth (10dB)	25° 45°
Vertical Beamwidth (3dB level)	8°
Beam Cross-over	8 dB typical
Total Number of Beams	3
Number of Ports per Beam	4
Total Number of Ports	12
Tilt Per Cross-Pol	0° - 15°
Upper Side Lobe Suppression	16dB
Azimuth Sidelobe Level	-18dB
Front to Back Ratio	28dB
Isolation Port to Port - Polarization	28dB
Isolation Port to Port - Beam	28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	114 x 29 x 30.5 cm 45 x 11 x 12 inch
Antenna Weight	15 kg | 33 lbs
Radome Material	Polycarbonate
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load (Lateral)	TBD

MS-MBA-3-H4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

TECHNICAL SPECIFICATIONS

Frequency	1695-2690 MHz
Gain	17.8dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°
Vertical Beamwidth (10dB) Vertical Beamwidth (3dB)	40° 23°
Beam Cross-over	10dB typical
Total Number of Beams	3
Number of Ports per Beam	4
Number of Ports Total	12
Tilt Per Cross-Pol (Four adjustments per beam) Remote Electrical Tilt (AISG 2.0)	0°- 30°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	89.9 x 61.7 x 68.3 cm 35.4 x 24.3 x 26.9 inch
Antenna Weight	32.04 kg | 70.6 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

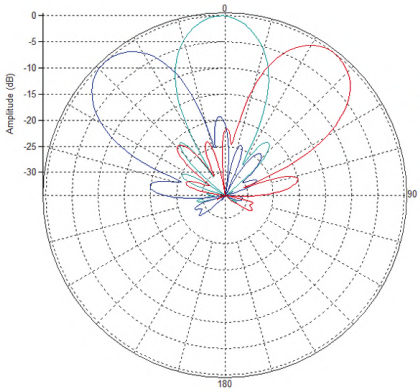
ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	N/lbf Frontal: 387 / 87 Lateral: 602 / 135.3 Rear: 555 / 124.8

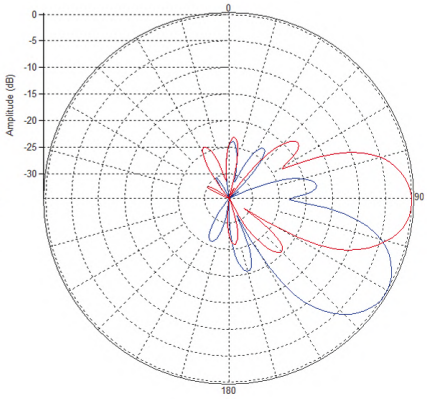
Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated high-frequency (1695 - 2690MHz) cross-polarized beams. Each beam has 4 ports, for two independent antennas, or 4X4 MIMO. There are two independent tilt settings per beam (0-30° tilt for each pair of cross-polarized elements).

PATTERN RESULTS:

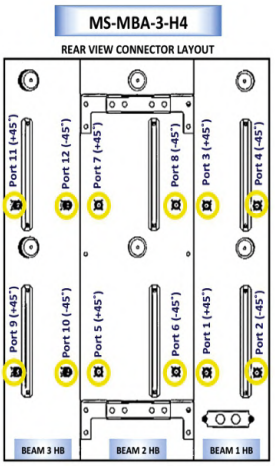
High-Band Horizontal Pattern (1.80GHz)



Vertical pattern at 0° tilt and 30° tilt (1.80GHz)



CONNECTOR/BEAM LAYOUT



MS-MBA-3-H8A2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

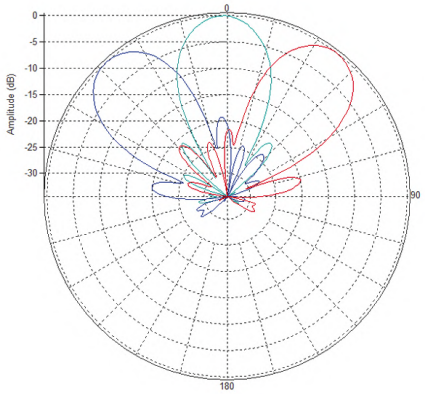
Lens Technology Enabled™ Multi-Beam Base-Station Antenna perfect for 6 to 9 sector LTE cell site deployments for best SINR results. Utilizes a patented spherical lens design with 3 isolated highfrequency (1695 – 2690 MHz) dual-polarized beams. Each beam is made of four independent antennas and has 8 ports. There is independent tilt settings per beam 0-15°.

TECHNICAL SPECIFICATIONS

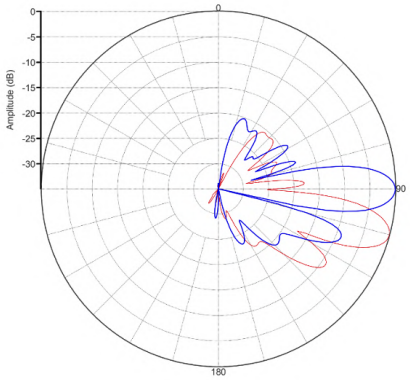
Frequency	1695-2690 MHz
Gain	18.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10 dbB level) Horizontal Beamwidth (3 dB level)	40° 23°
Vertical Beamwidth (10 dbB level) Vertical Beamwidth (3 dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	3
Number of Ports per Beam	8
Number of Ports Total	24
RET Per Beam	0° to 15°
Upper Sidelobe level Azimuth Sidelobe Level	<-16dB <-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

PATTERN RESULTS:

Horizontal Pattern (1.80GHz)



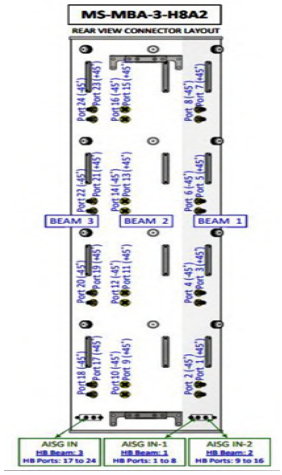
at tilt 0-15° Vertical Pattern (1.80GHz)



MECHANICAL DATA

Dimensions (H x W x D)	241.8 x 61.7 x 68.3 cm 95.2 x 24.3 x 26.9 inch
Antenna Weight	82.0 kg | 181.0 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT

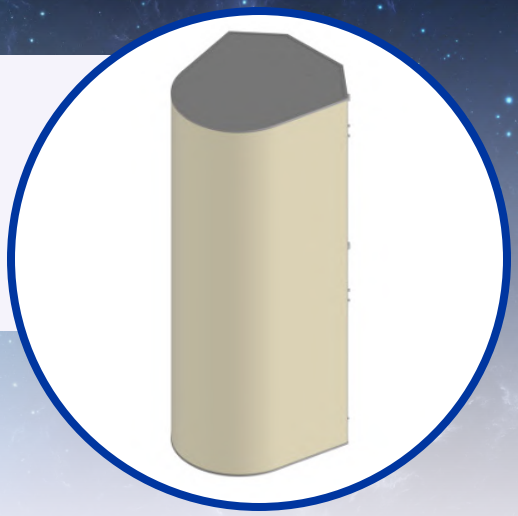


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	N/lbf Frontal: 1046/235.2 Lateral: 1331/299.2 Rear: 1227/275.9

MS-MBA-3-L4A2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam High Band Spherical Lens Antenna capable of four independent high-frequency (1695-2690MHz) cross-polarized beams to support 4X4 MIMO. Each beam has independent tilt adjust from 0° to 20°.

MS-MBA-4-H4 has standard RET capability.

TECHNICAL SPECIFICATIONS

Frequency	698 - 960 MHz
Gain	18dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 24°
Vertical Beamwidth (3dB level)	15°
Beam Cross-over	10dB typical
Total Number of Beams	3
Number of Ports per Beam	4
Number of Ports Total	12
RET Per Cross-Pol	0° - 15°
First Sidelobe Level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization Isolation Port to Port - Beam	>28dB >26dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 Ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

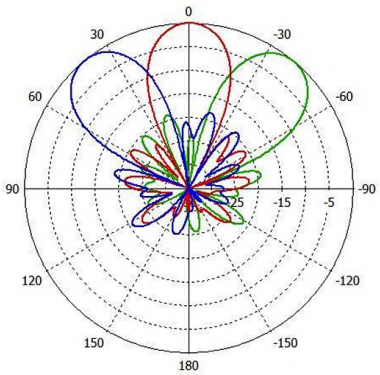
Dimensions (H x W x D)	241.8 x 93.4 x 108.4 cm 95.2 x 36.8 x 42.7 inch
Antenna Weight	95 kg | 209.4 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

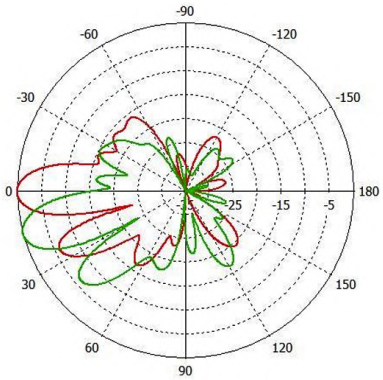
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	N/lbf Frontal: 1584/356.1 Lateral: 2371/533 Rear: 1858/417.7

PATTERN RESULTS:

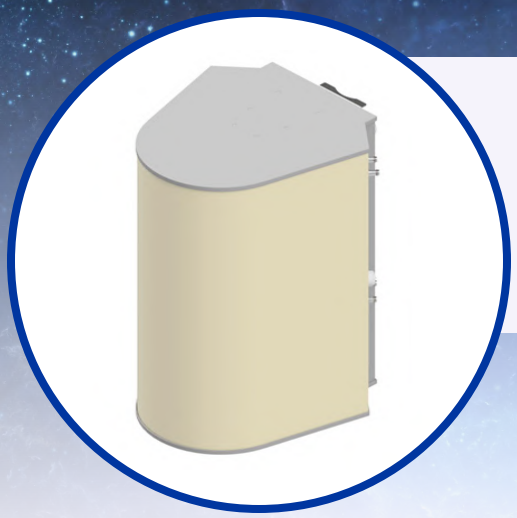
Horizontal Pattern (800MHz)



Vertical Pattern at 0° tilt and 15° tilt (800MHz)



CONNECTOR LAYOUT



MS-MBA-3.2-H2-L2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Multi-Beam Base-Station Antenna perfect for 6 to 9 high-band sector LTE cell site deployments and 3 to 6 low- band sector LTE cell site deployments for best CINR results. Utilizes a patented spherical lens design with 3 isolated high-frequency (1695- 2690MHz) cross-polarized beams and 2 isolated low-frequency (698- 960MHz) cross-polarized beams. Each beam has 2 ports. There are two independent tilt settings per beam (0-30° for HB and 0-40° for LB) tilt for each pair of cross-polarized elements.

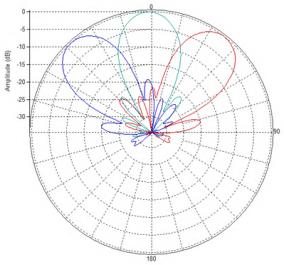
*Optional Packages:

a) MS-MBA-3.2-H2-L2-M : AISG 2.0 Remote Electrical Tilt, multi RET

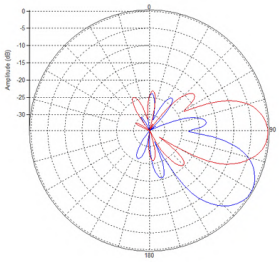
b) MS-MBA-3.2-H2-L2-S : AISG 2.0 Remote Electrical Tilt, single RET

PATTERN RESULTS:

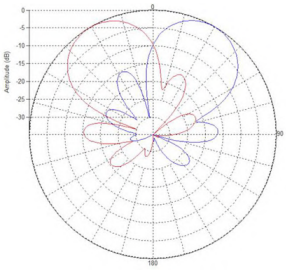
High-Band Horizontal Pattern (1.80GHz)



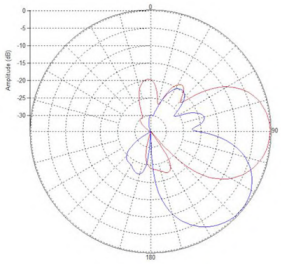
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



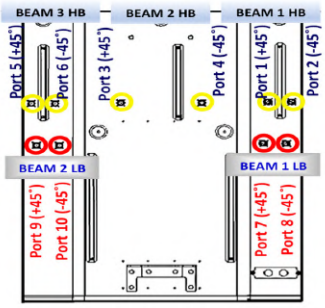
Low-Band Horizontal Pattern (750MHz)



Low-Band Vertical Pattern 0° tilt and 40° tilt (750MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698 - 960 MHz	698-960MHz
Gain	17.8dBi	14.2dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 34°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	2
Number of Ports per Beam	2	2
Number of Ports Total	6	4
Tilt Per Cross-Pol	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6X4.3-10 female	3X4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	94 x 61 x 66 cm 37 x 24 x 26 inch
Antenna Weight	35 kg | 77 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 701 N/157 lbf Lateral: 1007 N/226 lbf

MS-MBA-3.2-H2-T2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz	617-896MHz
Gain	17.5dBi	14.2dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 34°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	2
Number of Ports per Beam	2	2
Number of Ports Total	6	4
Tilt Per Cross-Pol	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6X4.3-10 female	3X4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	94 x 61 x 66 cm 37 x 24 x 26 inch
Antenna Weight	35 kg | 77 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

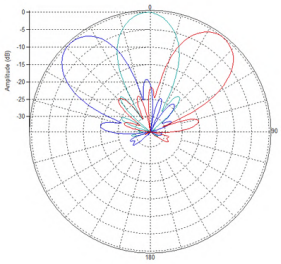
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 701 N/157 lbf Lateral: 1007 N/226 lbf

LENS TECHNOLOGY EN/ BLED

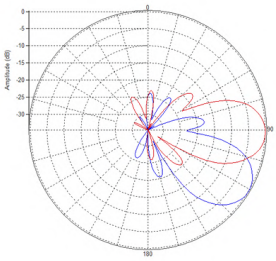
Lens Technology Enabled™ Multi-Beam Base-Station Antenna perfect for 6 to 9 high-band sector LTE cell site deployments and 3 to 6 low- band sector LTE cell site deployments for best CINR results. Utilizes a patented spherical lens design with 3 isolated high-frequency (1695- 2690MHz) cross-polarized beams and 2 isolated low-frequency (617- 896MHz) cross-polarized beams. Each beam has 2 ports. There are two independent tilt settings per beam (0-30° for HB and 0-40° for LB) tilt for each pair of cross-polarized elements.

PATTERN RESULTS:

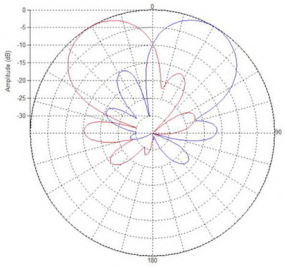
High-Band Horizontal Pattern (1.80GHz)



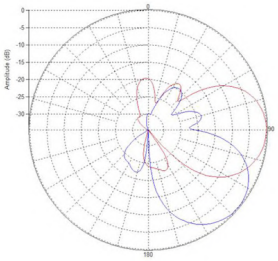
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



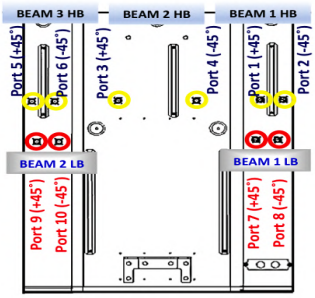
Low-Band Horizontal Pattern (750MHz)

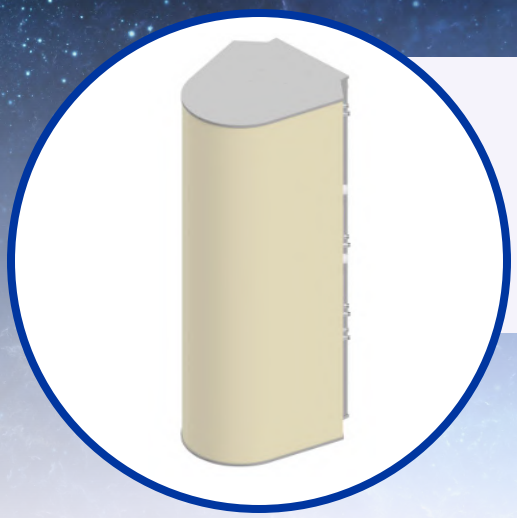


Low-Band Vertical Pattern 0° tilt and 40° tilt (750MHz)



CONNECTOR LAYOUT





MS-MBA-3.2-H4-L4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

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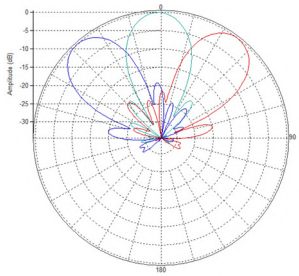
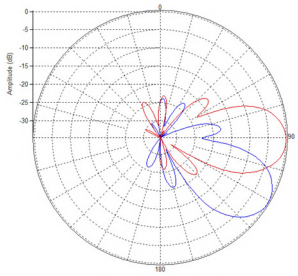
PATTERN RESULTS:

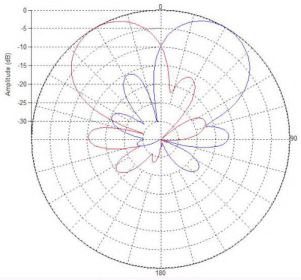
High-Band Horizontal Pattern (1.80GHz)



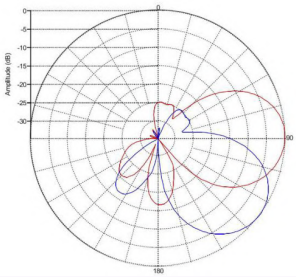
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



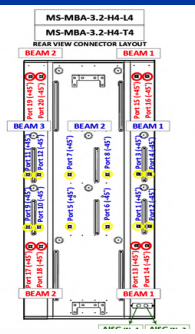
Low-Band Horizontal Pattern (750MHz)



Low-Band Vertical Pattern 0° tilt and 40° tilt (750MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz	698-960MHz
Gain	17.8dBi	13.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 34°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	2
Number of Ports per Beam	4	4
Number of Ports Total	12	8
Tilt Per Cross-Pol	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 x 4.3-10 female	8 x 4.3-10 female

MECHANICAL DATA

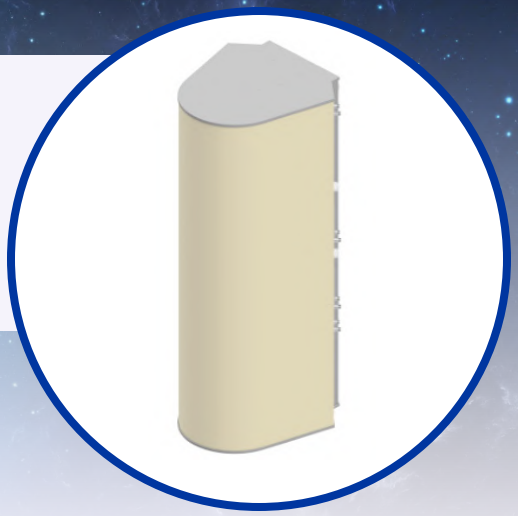
Dimensions (H x W x D)	182.6 x 61.2 x71.8 cm 71.9 x 24.1 x 28.3 inch
Antenna Weight	59.62 | 131.4 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 786 N/ 176.7 lbf Lateral: 1223 N / 275 lbf Rear: 1129 N/ 253.8 lbf

MS-MBA-3.2-H4-T4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz	617-896MHz
Gain	17.5dBi	14.0dBi
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 36°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 36°
Beam Cross-over	10dB typical	8.5dB typical
Total Number of Beams	3	2
Number of Ports per Beam	4	4
Number of Ports Total	12	8
Tilt Per Cross-Pol: (Two adjustments per beam)	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>25dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>24dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 x 4.3-10 female	8 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

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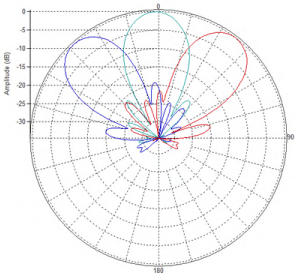
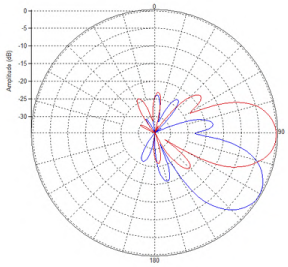
PATTERN RESULTS:

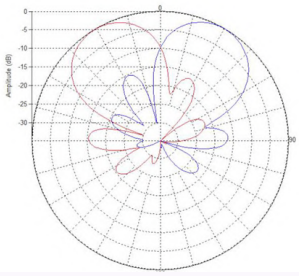
High-Band Horizontal Pattern (1.80GHz)



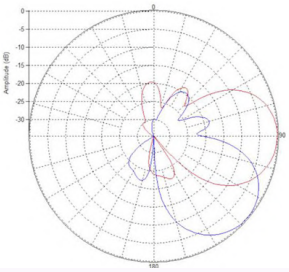
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



Low-Band Horizontal Pattern (750MHz)



Low-Band Vertical Pattern 0° tilt and 40° tilt (750MHz)



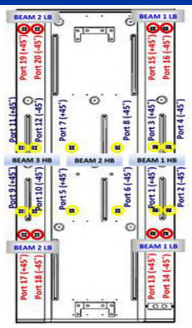
MECHANICAL DATA

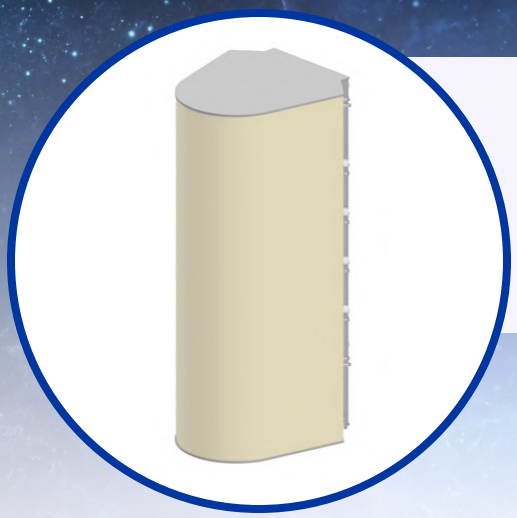
Dimensions (H x W x D)	184 x 61 x 66 cm 72 x 24 x 26 inch
Antenna Weight	60 kg | 132 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 701 N/157 lbf Lateral: 1007 N/226 lbf

CONNECTOR LAYOUT





MS-MBA-3.2-H8-L4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

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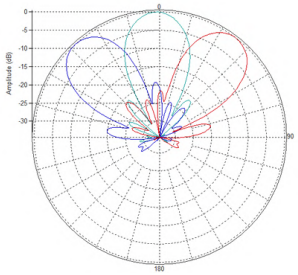
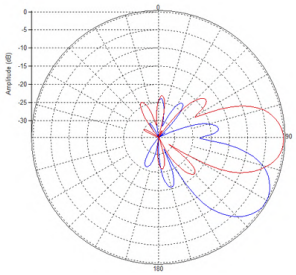
PATTERN RESULTS:

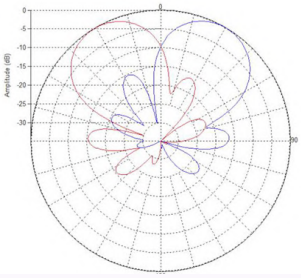
High-Band Horizontal Pattern (1.80GHz)



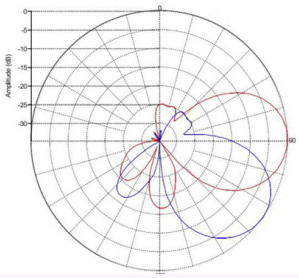
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



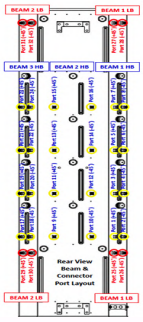
Low-Band Horizontal Pattern (750MHz)



Low-Band Vertical Pattern 0° tilt and 20° tilt (750MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz	698-960 MHz
Gain	17.8dBi	14.2dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 34°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	2
Number of Ports per Beam	8	4
Number of Ports Total	24	8
Tilt Per Cross-Pol	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	24 x 4.3-10 female	8 x 4.3-10 female

MECHANICAL DATA

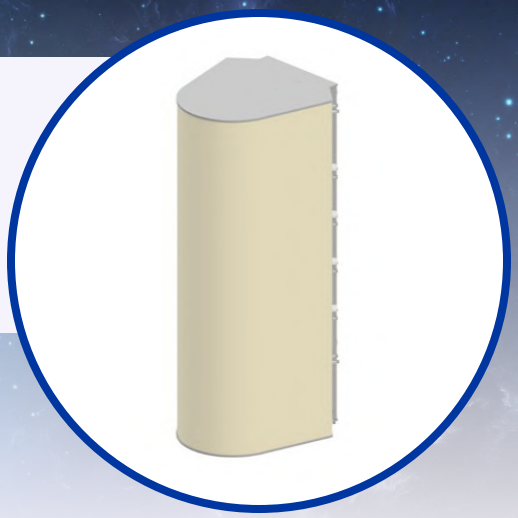
Dimensions (H x W x D)	243.8 X 61.2 X 71.8 cm 96 X 24.1 X 28.3 inch
Antenna Weight	79.16 kg | 174.5 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 1049 N / 235.8 lbf Lateral: 1633 N / 367.1 lbf

MS-MBA-3.2-H8-T4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz	617-896 MHz
Gain	17.8dBi	14.2dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 23°	60° 34°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	2
Number of Ports per Beam	8	4
Number of Ports Total	24	8
Tilt Per Cross-Pol	0° to 30°	0° to 40°
First Sidelobe Level	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	24 x 4.3-10 female	8 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	243.8 X 61.2 X 71.8 cm 96 X 24.1 X 28.3 inch
Antenna Weight	79.16 kg | 174.5 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 1049 N / 235.8 lbf Lateral: 1633 N / 367.1 lbf

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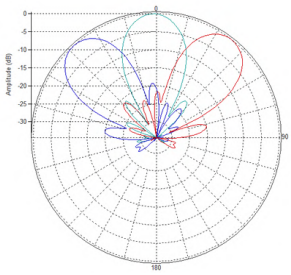
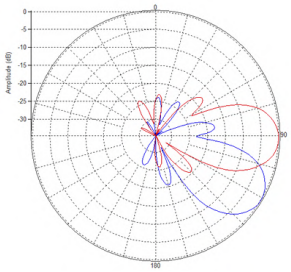
PATTERN RESULTS:

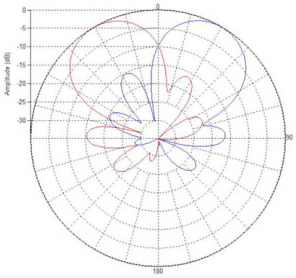
High-Band Horizontal Pattern (1.80GHz)



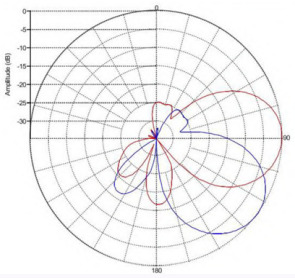
High-Band Vertical pattern 0° tilt and 30° tilt (1.80GHz)



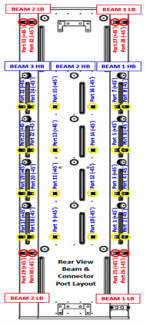
Low-Band Horizontal Pattern (750MHz)

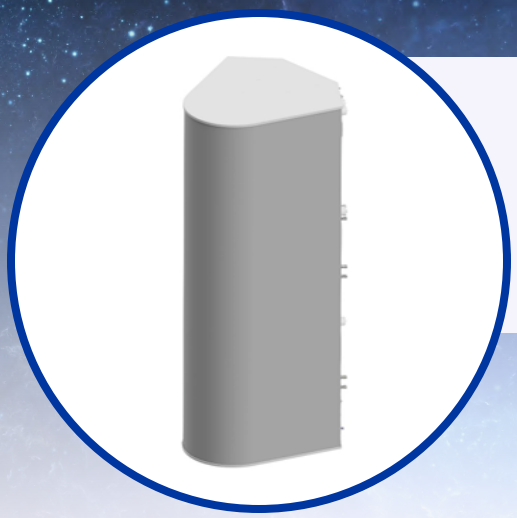


Low-Band Vertical Pattern 0° tilt and 20° tilt (750MHz)



CONNECTOR LAYOUT





MS-MBA-3.3-C4A3-H4A2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

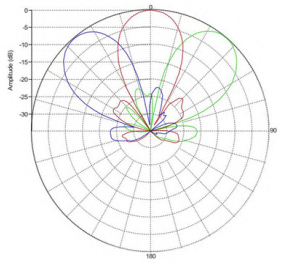
LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Multi -Beam Base -Station Antenna perfect for six to nine sector LTE cell site deployments , utilizes a patented spherical lens design with 3 isolated C-Band (3700 - 4200 MHz) cross - polarized beams and 3 isolated H-Band (1695 -2690 MHz) cross -polarized beams . Each beam has 4 ports, or 4x4 MIMO.

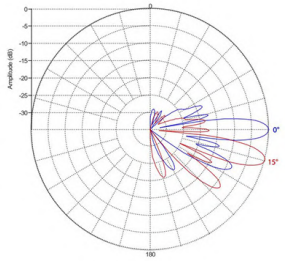
Each C-Band beam has 0° to 15° RET, and each H-Band beam has 0° to 15° RET.

PATTERN RESULTS:

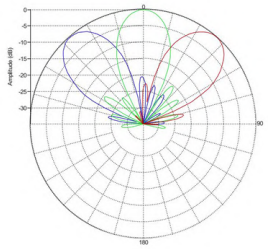
C-Band Horizontal Pattern (3.7GHz)



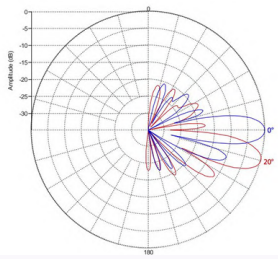
C-Band Vertical Pattern at 0° and 15° Tilt (3.7GHz)



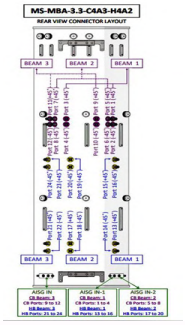
High-Band Horizontal Pattern (1.8GHz)



High-Band Vertical Pattern at 0° and 15° Tilt (1.8GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3700-4200MHz	1695-2690MHz
Gain	20.5dBi	20dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	40° 23°
Vertical Beamwidth (10dB level)	8°	12°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	3
Number of Ports per Beam	8	4
Number of Ports Total	12	12
Tilt Per Cross-Pol	0° to 15°	0° to 15°
USLS (Upper Sidelobe Suppression)	<-16dB	<-16dB
Azimuth Sidelobe Level	<-18dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	150W per port	200W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 x 4.3-10 female	12 x 4.3-10 female

MECHANICAL DATA

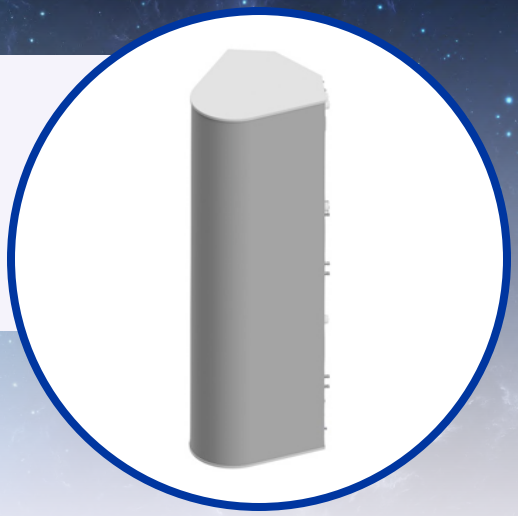
Dimensions (H x W x D)	210.8 x 61.7 x 8.36 cm 83 x 24.3 x 26.9 inch
Antenna Weight	68 kg | 150 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	N/lbf Frontal: 912 / 205 Lateral: 1161 / 261 Rear: 1070 / 240.6

MS-MBA-3.3-F4A3-H4A2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300-4200MHz	1695-2690MHz
Gain	20dBi	20dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°	40° 23°
Vertical Beamwidth (10dB level)	8°	12°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	3
Number of Ports per Beam	4	4
Number of Ports Total	12	12
Tilt Per Cross-Pol	0° to 15°	0° to 15°
USLS (Upper Sidelobe Suppression)	<-16dB	<-16dB
Azimuth Sidelobe Level	<-18dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	150W per port	200W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 x 4.3-10 female	12 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	207 x 61 x 60 cm 8 x 24 x 23.5 inch
Antenna Weight	60 kg | 132 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	TBD

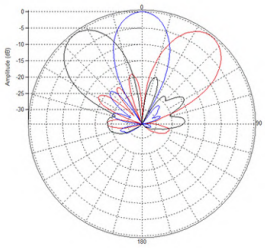
LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Multi -Beam Base -Station Antenna perfect for LTE cell site deployments , utilizes a patented spherical lens design with 3 isolated F-Band (3300 - 4200 MHz) cross - polarized beams and 3 isolated HBand (1695 -2690 MHz) cross -polarized beams . Each beam has 4 ports, or 4x4 MIMO.

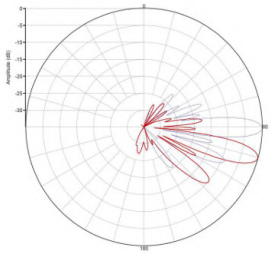
RET available for each F-Band & H-Band beam from 0° to 15°.

PATTERN RESULTS:

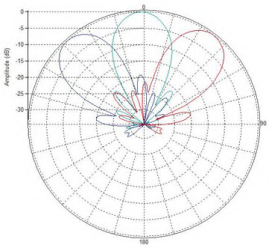
F-Band Horizontal Pattern (3.5GHz)



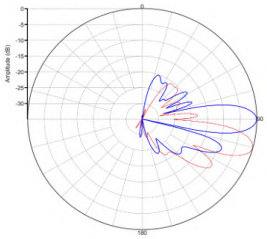
F-Band Vertical Pattern at 0° and 15° Tilt (3.5GHz)



High-Band Horizontal Pattern (1.8GHz)



High-Band Vertical Pattern at 0° and 15° Tilt (1.8GHz)



MS-MBA-3.3-LAA2-F4

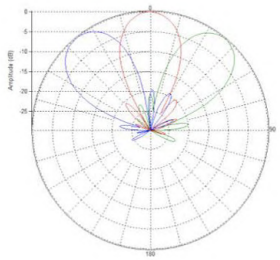
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

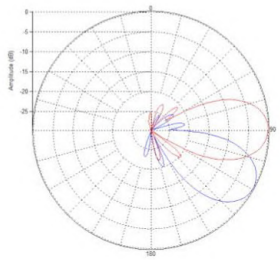
Lens Technology Enabled™ Multi-Beam Dual Band Base-Station Antenna utilizes a patented spherical lens design with 3 isolated LAA- frequency (5.0GHz – 6.0GHz) cross-polarized beams and 3 isolated F- Band (3.3GHz – 4.2GHz) cross-polarized beams. Each LAA beam has 2 ports to support 2x2 MIMO. Each F-Band beam has 4 ports to support 4x4 MIMO. There are two independent tilt settings per beam (0-30° for F-Band and 0-30° for LAA).

PATTERN RESULTS:

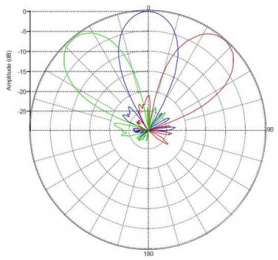
F-Band Horizontal Pattern (3.5GHz)



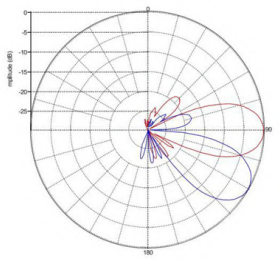
F-Band Vertical Pattern 0° tilt and 30° tilt (3.5GHz)



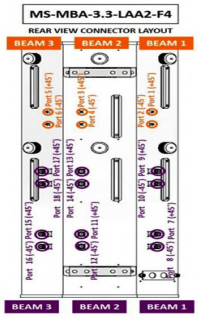
LAA-Band Horizontal Pattern (5.5GHz)



LAA-Band Vertical Pattern at 0° and 30° Tilt (5.5GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	5.0 – 6.0 GHz	3.3 – 4.2 GHz
Gain	6dBi	16.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	44° 25°	45° 25°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	44° 25	45° 25
Beam Cross-over	7-9dB typical	6-8dB typical
Total Number of Beams	3	3
Number of Ports per Beam	2	4
Number of Ports Total	6	12
Tilt Per Cross-Pol; Remote Electrical Tilt (AISG 2.0)	0° to 30°	0° to 30°
First Sidelobe Level	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	200W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 x 4.3-10 female	12 x 4.3-10 female

MECHANICAL DATA

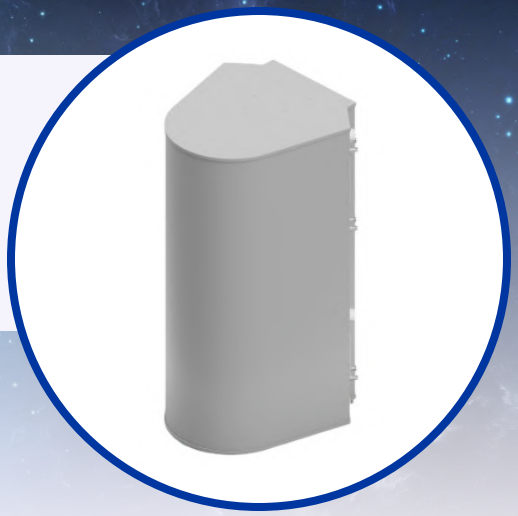
Dimensions (H x W x D)	121.1x42.6x44.4cm 47.7x16.8x17.5 inch
Antenna Weight	10 kg | 22 lbs
Radome Material	Fiber Glass
Mounting	1 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 318 N / 71 lbf Lateral: 402 N/90 lbf

MS-MBA-3.3.2-C2-H2-L2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3700-4200MHz	1695-2690MHz	698-960MHz
Gain	17dBi	17.8dBi	13.5dBi
VSWR	<1.5:1	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	45° 25°	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	45° 25°	40° 23°	60° 34°
Beam Cross-over	8dB typical	10dB typical	10dB typical
Total Number of Beams	3	3	2
Number of Ports per Beam	2	2	2
Number of Ports Total	6	6	4
RET Per Cross-Pol;	0° to 30°	0° to 30°	0° to 40°
First Sidelobe Level	<-18dB	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB	>26dB
Power Rating	150W per port	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm	50 ohm
Connector Quantity and Type	6 x 4.3-10 female	6 x 4.3-10 female	4 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	160 x 61 x 66 cm 63 x 24 x 26 inch
Antenna Weight	45 kg | 99 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

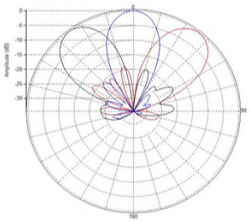
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 686 N / 154.2 lbf Lateral: 930 N/209.1 lbf

LENS TECHNOLOGY EN/ BLED

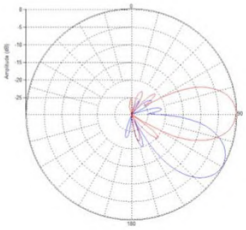
Lens Technology Enabled™ Multi-Beam Tri-Band Base-Station Antenna utilizes a patented spherical lens design with 3 isolated CBand frequency (3700-4200 MHz) cross-polarized beams, 3 isolated H-Band frequency (1695-2690 MHz) cross-polarized beams & 2 isolated Low-Band frequency (698-960 MHz) cross-polarized beams. Each C, H & L Band beams have 2 ports to support 2x2 MIMO. There are threeindependent tilt settings per beam (0-30° for C-Band, 0-30° for HBandand 0-40° for Low-Band) for each pair of cross-polarized elements.

PATTERN RESULTS:

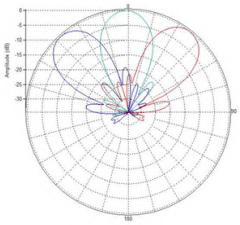
C-Band Horizontal Pattern (3.7GHz)



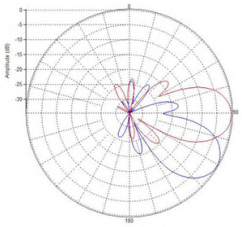
C-Band Vertical Pattern 0° tilt and 30° tilt (3.7GHz)



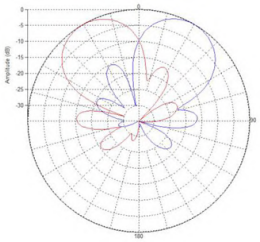
High-Band Horizontal Pattern (1.92GHz)



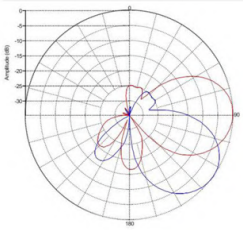
High-Band Vertical Pattern 0° tilt and 30° tilt (1.92GHz)

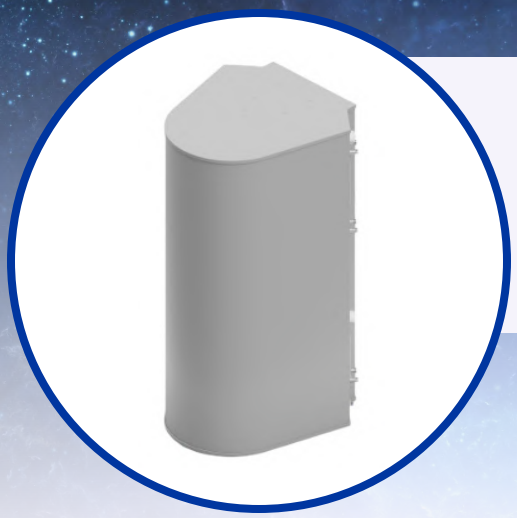


High-Band Horizontal Pattern (0.8GHz)



High-Band Vertical Pattern 0° tilt and 40° tilt (0.8GHz)





MS-MBA-3.3.2-F2-H2-L2

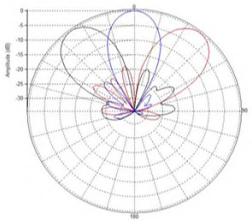
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

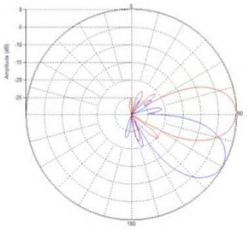
Lens Technology Enabled™ Multi-Beam Tri-Band Base-Station Antenna utilizes a patented spherical lens design with 3 isolated F-Band frequency (3300-4200 MHz) cross-polarized beams, 3 isolated H-Band frequency (1695-2690 MHz) cross-polarized beams & 2 isolated Low- Band frequency (698-960 MHz) cross-polarized beams. Each F, H & L Band beams have 2 ports to support 2x2 MIMO. There are three independent tilt settings per beam (0-30° for F-Band, 0-30° for H-Band and 0-40° for Low-Band) for each pair of cross-polarized elements.

PATTERN RESULTS:

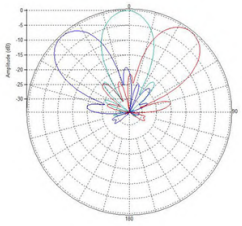
F-Band Horizontal Pattern (3.6GHz)



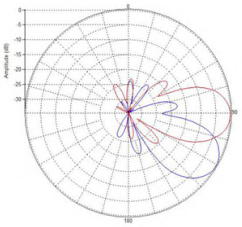
F-Band Vertical Pattern 0° tilt and 30° tilt (3.6GHz)



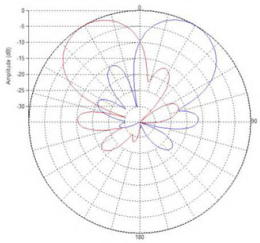
High-Band Horizontal Pattern (1.92GHz)



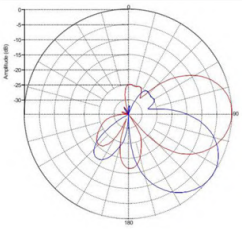
High-Band Vertical Pattern 0° tilt and 30° tilt (1.92GHz)



High-Band Horizontal Pattern (0.8GHz)



High-Band Vertical Pattern 0° tilt and 40° tilt (0.8GHz)



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300-4200MHz	1695-2690MHz	698-960MHz
Gain	16dBi	17.8dBi	13.5dBi
VSWR	<1.5:1	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	45° 25°	40° 23°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	45° 25°	40° 23°	60° 34°
Beam Cross-over	8dB typical	10dB typical	10dB typical
Total Number of Beams	3	3	2
Number of Ports per Beam	2	2	2
Number of Ports Total	6	6	4
RET Per Cross-Pol;	0° to 30°	0° to 30°	0° to 40°
First Sidelobe Level	<-18dB	<-16dB	<-15dB
Front to Back Ratio	>28dB	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB	>26dB
Power Rating	150W per port	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm	50 ohm
Connector Quantity and Type	6 x 4.3-10 female	6 x 4.3-10 female	4 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	160 x 61 x 66 cm 63 x 24 x 26 inch
Antenna Weight	45 kg | 99 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 686 N / 154.2 lbf Lateral: 930 N/209.1 lbf

MS-MBA-4-H4

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Base-Station Antenna perfect for six to nine sector LTE cell site deployments, utilizes a patented spherical lens design with 3 isolated CBRS-frequency (3300 - 4200MHz) cross- polarized beams. Each beam has 4 ports, or 4X4 MIMO.

Tilt is adjustable from 0° to 30° for each beam.

TECHNICAL SPECIFICATIONS

Frequency	1695-2690 MHz
Gain	19dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	30° 17°
Vertical Beamwidth (10dB) Vertical Beamwidth (3dB)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	4
Number of Ports per Beam	4
Number of Ports Total	16
Tilt Per Cross-Pol (Four adjustments per beam) Remote Electrical Tilt (AISG 2.0)	0°- 20°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 x 4.3-10 female

MECHANICAL DATA

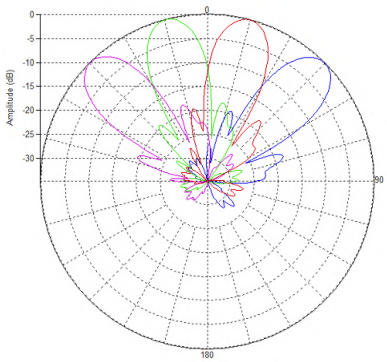
Dimensions (H x W x D)	110 x 61 x 66cm 43 x 24 x 26 inch
Antenna Weight	35 kg | 77 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

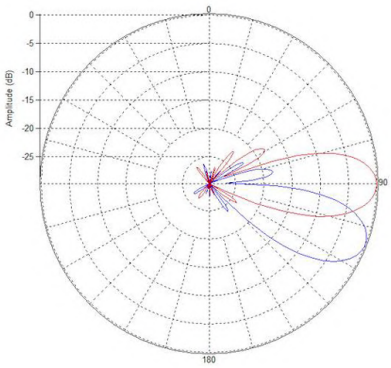
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load (Front)	462 N @ 151km/hr 104lbf @ 151km/hr

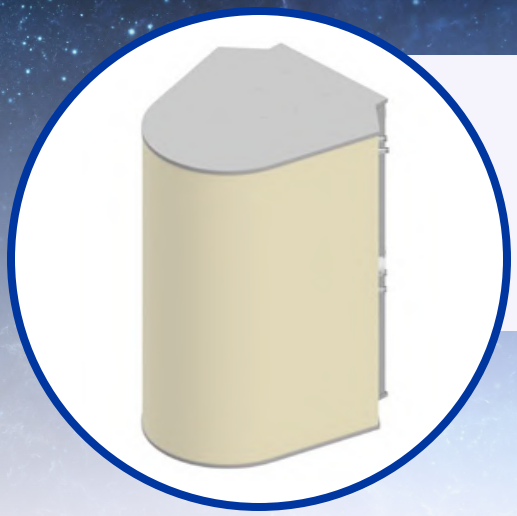
PATTERN RESULTS:

High-band Horizontal Pattern (1.92GHz)



High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°





MS-MBA-4.2-H2-L2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

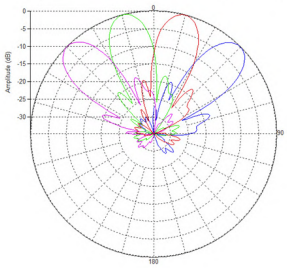
LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 4 independent high- frequency (1695-2690MHz) cross-polarized beams and 2 independent low-frequency (698-960MHz) cross-polarized beams with 2X2 MIMO support. Each beam has independent tilt adjust, for high frequency 0°-20° and for low frequency 0°-40°.

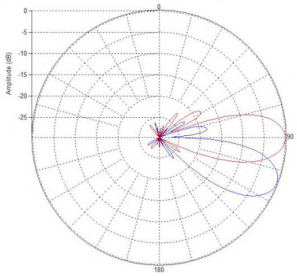
Improved Design Oers; 1. Superior Pattern Performance 2. Individual RET Capability per Beam

PATTERN RESULTS:

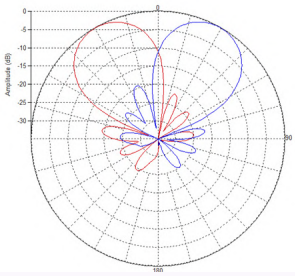
High-Band Horizontal Pattern (1.92GHz)



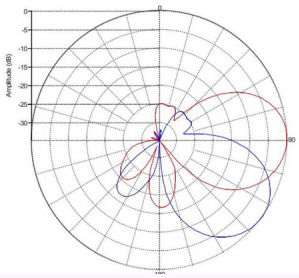
High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°



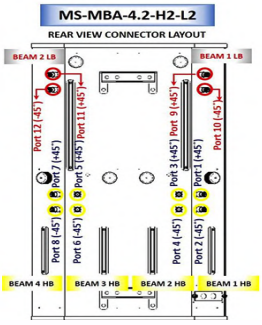
Low-band Horizontal Pattern (0.8GHz)



Low-band Vertical Pattern (0.8GHz) at tilt 0° and 40°



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698-960 MHz	1695-2690 MHz
Gain	13dBi	19dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	74° 42°	34° 19°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	74° 42°	34° 19°
Beam Cross-over	10dB typical	10dB typical
Tilt Per Cross-Pol	0° to 40°	0° to 20°
Total Number of Beams	2	4
First Sidelobe Level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>28dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	4 x 4.3-10 female	8 x 4.3-10 female

MECHANICAL DATA

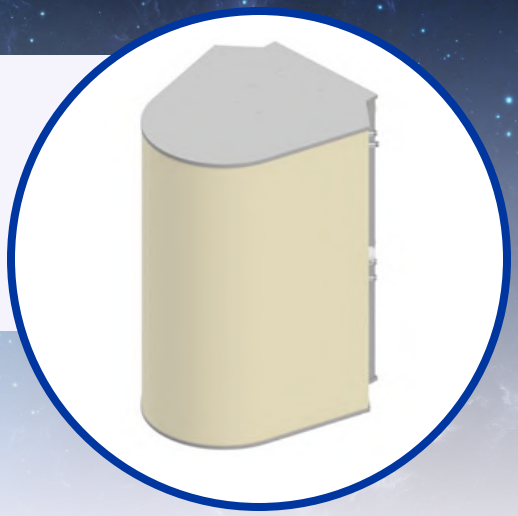
Dimensions (H x W x D)	109.7 X 61.7 X 72.3 cm 43.2 X 24.3 X 28.5 inch
Antenna Weight	35.2 kg | 77.7 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	Frontal: 473 N/106.3 lbf Lateral: 736 N/165.5 lbf Rear: 679N/152.7 lbf

MS-MBA-4.2-H2-T2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



LENS TECHNOLOGY EN/ BLED

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	14.2dBi	19.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	60° 34°	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	60° 34°	30° 17°
Beam Cross-over	10dB typical	10dB typical
Tilt Per Cross-Pol	0° to 40°	0° to 20°
Total Number of Beams	2	4
First Sidelobe Level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>28dB
Power Rating	200W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	4 x 4.3-10 female	8 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	109.7 X 61.7 X 72.3 cm 43.2 X 24.3 X 28.5 inch
Antenna Weight	37.9 kg | 83.5 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

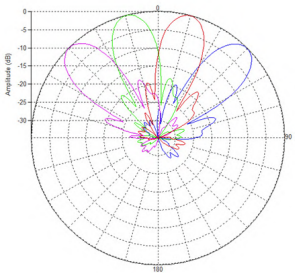
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind loading:	Frontal:473 N @ 150km/hr 106.3 lbf @ 150km/hr Lateral: 736 N @ 150km/hr 165.5 lbf @ 150km/hr

Multi-Beam Dual Band Spherical Lens Antenna: 4 independent high- frequency (1695-2690MHz) cross-polarized beams and 2 independent low-frequency (617-896MHz) cross-polarized beams with 2X2 MIMO support. Each beam has independent tilt adjust, for high frequency 0°-20° and for low frequency 0°-40°.

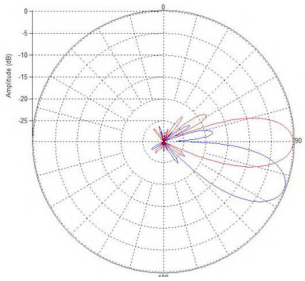
Improved Design Oers; 1. Superior Pattern Performance 2. Individual RET Capability per Beam

PATTERN RESULTS:

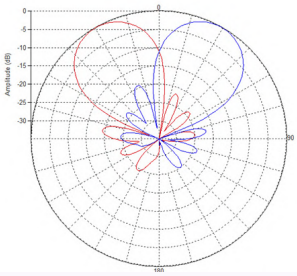
High-Band Horizontal Pattern (1.92GHz)



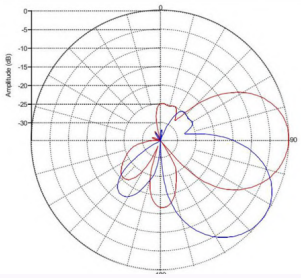
High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°



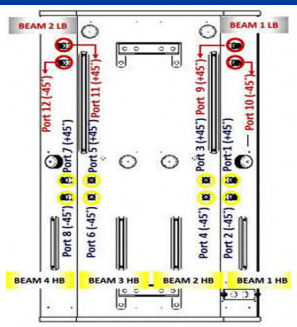
Low-band Horizontal Pattern (0.75GHz)



Low-band Vertical Pattern (0.75GHz) at tilt 0° and 40°



CONNECTOR LAYOUT



MS-MBA-4.4-SH2-SH2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

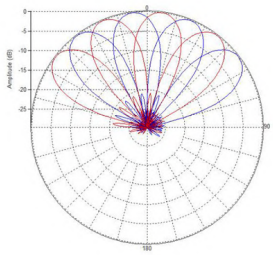
Multi-Beam Dual Band Spherical Lens Antenna: 8 independent high- frequency (2.3 – 2.4GHz / 3.4 – 3.6GHz) cross-polarized beams with 2X2 MIMO support. Each beam has independent tilt 0° to 15°.

TECHNICAL SPECIFICATIONS PER BEAM

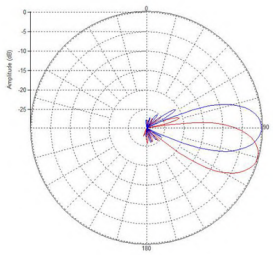
Frequency	2.3 - 2.4GHz	3.4 - 3.6GHz
Gain	18dBi	21dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	35° 20°	23° 13°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	35° 20°	23° 13°
Beam Cross-over	2dB	4dB
Tilt Per Cross-Pol	0° to 15°	0° to 15°
Total Number of Beams	8	8
Total Number of Ports	16	16
First Sidelobe Level	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB
Power Rating	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	16 x 4.3-10 female	16 x 4.3-10 female

PATTERN RESULTS:

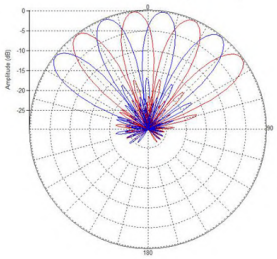
Horizontal Pattern (2.35GHz)



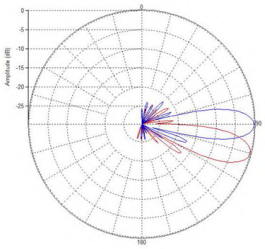
Vertical Pattern (2.35GHz) at tilt 0° and 15°



Horizontal Pattern (3.5GHz)



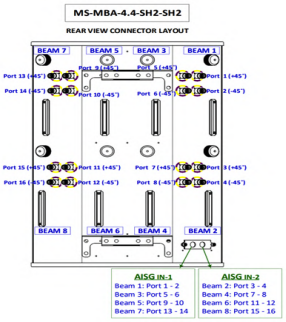
Vertical Pattern (3.5GHz) at tilt 0° and 15°



MECHANICAL DATA

Dimensions (H x W x D)	90 x 62 x 60 cm 35 x 24 x 24 inch
Antenna Weight	32 kg | 71 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT

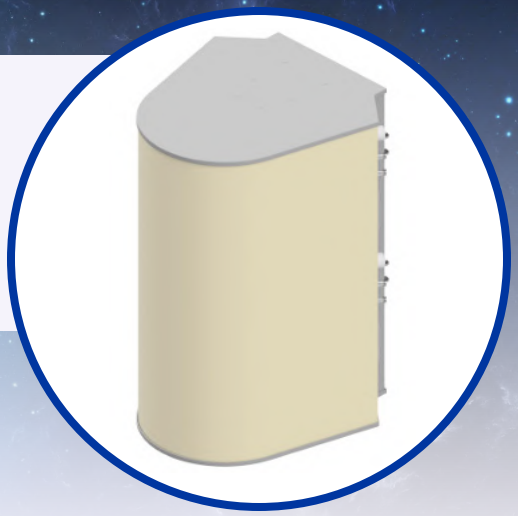


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind loading:	Units (N / lbf) Frontal: 386 / 86.8 Lateral: 523 / 117.6 Rear: 452 / 101.6

MS-MBA-4.4-SH2-SH2-45

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 8 independent high- frequency (2.3 – 2.4GHz / 3.4 – 3.6GHz) cross-polarized beams with 2X2 MIMO support.

Each beam has independent tilt 0° to 15°.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	2.3 - 2.4GHz	3.4 - 3.6GHz
Gain	19.5dBi	22.0dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	28° 16°	19° 11°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	28° 16°	19° 11°
Beam Cross-over	3dB	5.5dB
Tilt Per Cross-Pol	0° to 15°	0° to 15°
Total Number of Beams	8	8
Total Number of Ports	16	16
First Sidelobe Level	-20dB Typical	-20dB Typical
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB
Power Rating	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	16 x 4.3-10 female	16 x 4.3-10 female

MECHANICAL DATA

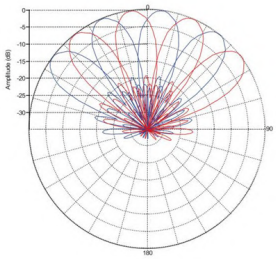
Dimensions (H x W x D)	110 x 61 x 71 cm 43 x 24 x 28 inch
Antenna Weight	38 kg | 84 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

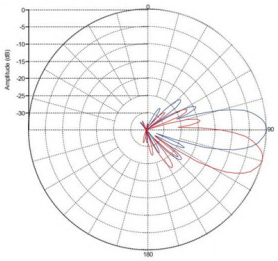
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind loading @150km / hr	Units (N / lbf) Frontal: 473 / 106.3 Lateral: 638 / 143.4 Rear: 555 / 124.81

PATTERN RESULTS:

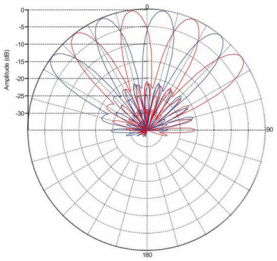
Horizontal Pattern (2.35GHz)



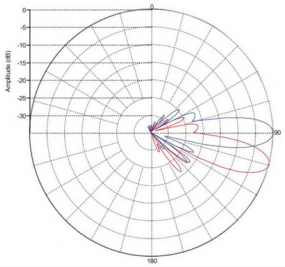
Vertical Pattern (2.35GHz) at tilt 0° and 15°



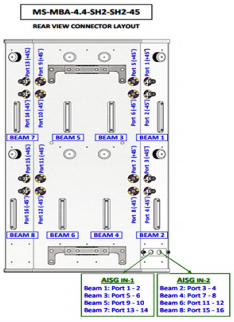
Horizontal Pattern (3.5GHz)

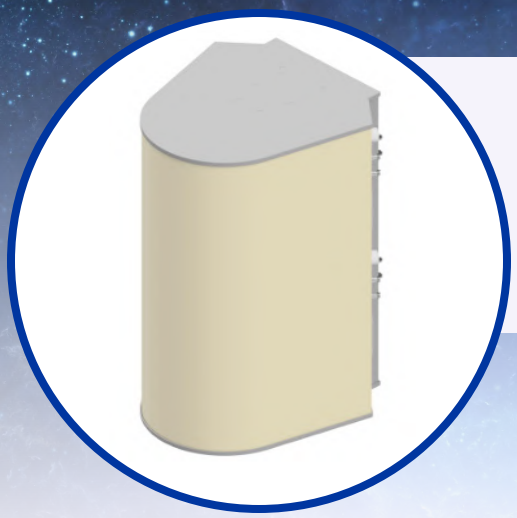


Vertical Pattern (3.5GHz) at tilt 0° and 15°



CONNECTOR LAYOUT





MS-MBA-4.4-SH2-SH2-45M

Multi-beam Base-Station Antenna (MBA)

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 8 independent high- frequency (2.3 – 2.4GHz / 3.4 – 3.6GHz) cross-polarized beams with 2X2 MIMO support.

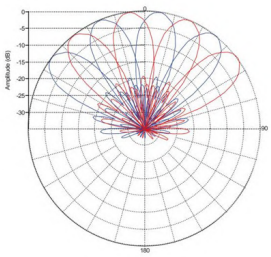
Each beam has independent tilt 0° to 15°.

TECHNICAL SPECIFICATIONS PER BEAM

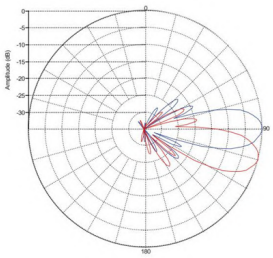
Frequency	2.3 - 2.4GHz	3.4 - 3.6GHz
Gain	19.5dBi	22.0dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	28° 16°	19° 11°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	28° 16°	19° 11°
Beam Cross-over	3dB	5.5dB
Tilt Per Cross-Pol	0° to 16°	0° to 16°
Total Number of Beams	8	8
Total Number of Ports	16	16
First Sidelobe Level	-20dB Typical	-20dB Typical
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB
Power Rating	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	4 x MQ4	4 x MQ4

PATTERN RESULTS:

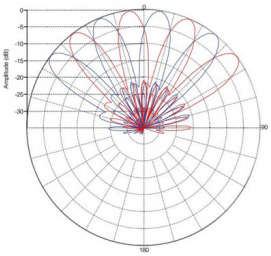
Horizontal Pattern (2.35GHz)



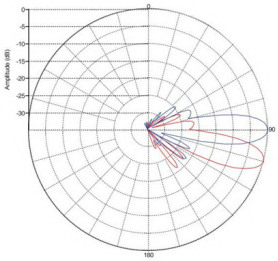
Vertical Pattern (2.35GHz) at tilt 0° and 15°



Horizontal Pattern (3.5GHz)



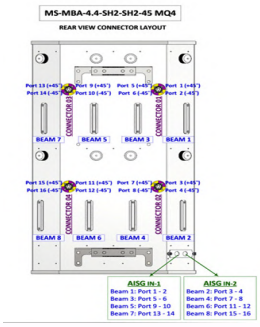
Vertical Pattern (3.5GHz) at tilt 0° and 15°



MECHANICAL DATA

Dimensions (H x W x D)	110 x 61 x 71 cm 43 x 24 x 28 inch
Antenna Weight	38 kg | 84 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT

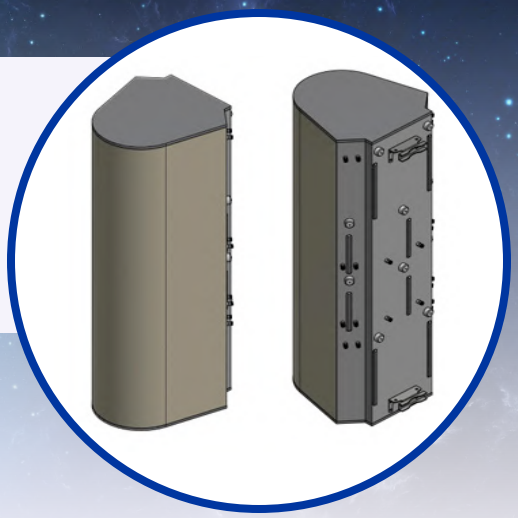


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind loading @150km / hr	Units (N / lbf) Frontal: 473 / 106.3 Lateral: 638 / 143.4 Rear: 555 / 124.81

MS-MBA-4.4.2-C2-H2-L2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.7 – 4.2 GHz	1695-2690MHz	698-960MHz
Gain	18dBi	19dBi	14.2dBi
VSWR	<1.5:1	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	34° 19°	30° 17°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	34° 19°	30° 17°	60° 34°
Beam Cross-over	7dB typical	10dB typical	10dB typical
Total Number of Beams	4	4	2
Number of Ports per Beam	2	2	2
Number of Ports Total	8	8	4
RET Per Cross-Pol;	0° to 20°	0° to 20°	0° to 40°
First Sidelobe Level	<-16dB	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB	>26dB
Power Rating	150W per port	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm	50 ohm
Connector Quantity and Type	8 x 4.3-10 female	8 x 4.3-10 female	4 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Multi-Beam Tri Band Base-Station Antenna utilizes a patented spherical lens design with 4 isolated C Band (3.7GHz – 4.2GHz) cross-polarized beams, 4 isolated High Band (1695MHz – 2690MHz) cross-polarized beams and 2 isolated Low Band (698MHz – 960MHz) beams, each beam has 2 ports to support 2x2 MIMO. RET for C Band & High Band Beams 0°-20°. RET for Low Band Beams 0°-40°.

MECHANICAL DATA

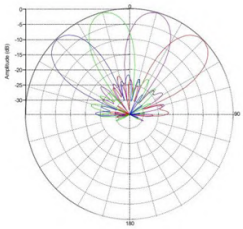
Dimensions (H x W x D)	140.9 X 61.7 X 72.1 cm 55.5 x 24.3 x 28.4 inch
Antenna Weight	47.7 kg | 105 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

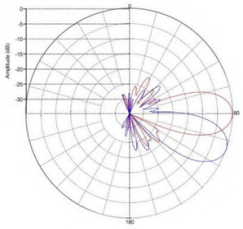
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load Frontal	462 N @ 151km/hr 104 lbf @ 151km/hr

PATTERN RESULTS:

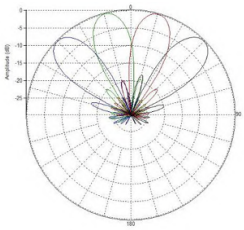
C-Band Horizontal Pattern (3.7GHz)



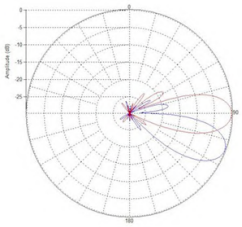
C-Band Vertical Pattern (3.7GHz) at tilt 0° and 20°



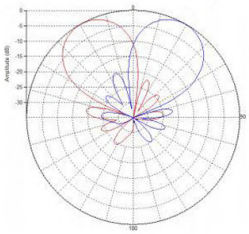
High-Band Horizontal Pattern (1.92GHz)



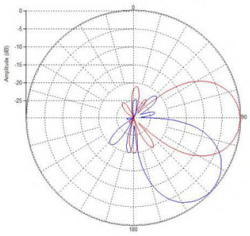
High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°

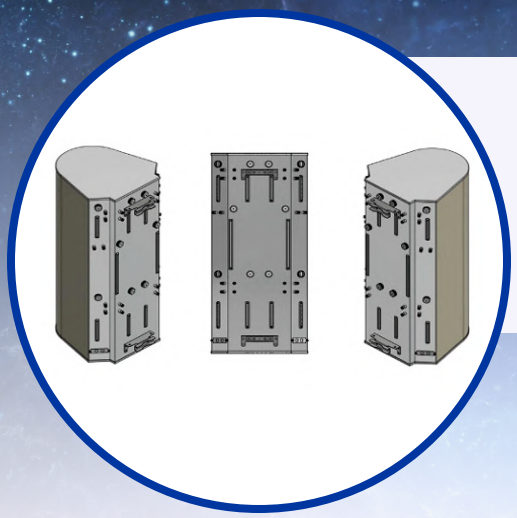


Low-Band Horizontal Pattern (0.8GHz)



Low-band Vertical Pattern (0.8GHz) at tilt 0° and 40°





MS-MBA-4.4.2-F2-H2-L2

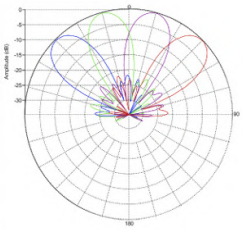
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

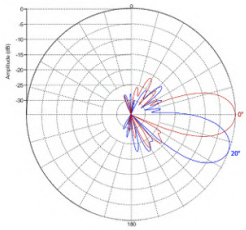
Lens Technology Enabled™ Multi-Beam Tri Band Base-Station Antenna utilizes a patented spherical lens design with 4 isolated F Band (3.3GHz –4.2GHz) cross-polarized beams, 4 isolated High Band (1695MHz 2690MHz) cross-polarized beams and 2 isolated Low Band (698MHz 960MHz) beams, each beam has 2 ports to support 2x2 MIMO. RET for F Band & High Band Beams 0°-20°. RET for Low Band Beams 0°-40°

PATTERN RESULTS:

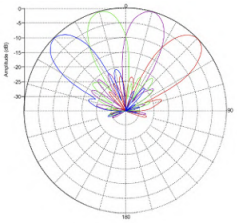
F-Band Horizontal Pattern (3.6GHz)



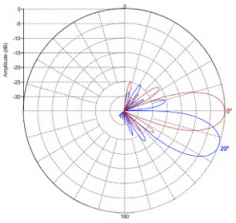
F-Band Vertical pattern (3.6GHz) at tilt 0° and 20°



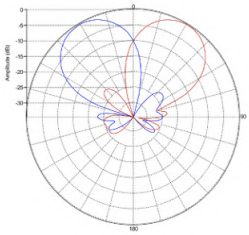
High-Band Horizontal Pattern (1.92GHz)



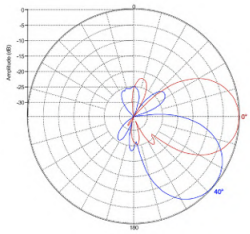
High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°



Low-Band Horizontal Pattern (0.8GHz)



Low-band Vertical Pattern (0.8GHz) at tilt 0° and 40°



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.3-4.2 GHz	1695-2690MHz	698-960MHz
Gain	17dBi	19dBi	13.5dBi
VSWR	<1.5:1	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	34° 19°	30° 17°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	34° 19°	30° 17°	60° 34°
Beam Cross-over	7dB typical	10dB typical	10dB typical
Total Number of Beams	4	4	2
Number of Ports per Beam	2	2	2
Number of Ports Total	8	8	4
RET Per Cross-Pol;	0° to 20°	0° to 20°	0° to 40°
First Sidelobe Level	<-16dB	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB	>28dB
Power Rating	150W per port	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm	50 ohm
Connector Quantity and Type	8 x 4.3-10 female	8 x 4.3-10 female	4 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	140.9 X 61.7 X 72.1 cm 55.5 x 24.3 x 28.4 inch
Antenna Weight	47.7 kg | 105 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load Frontal	462 N @ 151km/hr 104 lbf @ 151km/hr

MS-MBA-4.4.2-F4-H2-L2

Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

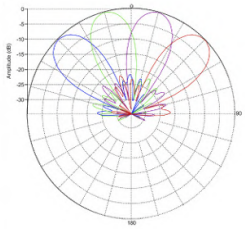
Frequency	3300-4200 MHz	1695-2690MHz	698-960MHz
Gain	17dBi	19dBi	13.5dBi
VSWR	<1.5:1	<1.5:1	<1.5:1
Polarization	Dual Slant ± 45°	Dual Slant ± 45°	Dual Slant ± 45°
Horizontal Coverage	120°	120°	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	34° 19°	30° 17°	60° 34°
Vertical Beamwidth (10dB level) Vertical Beamwidth (10dB level)	34° 19°	30° 17°	60° 34°
Beam Cross-over	8dB typical	10dB typical	10dB typical
Total Number of Beams	4	4	2
Number of Ports per Beam	4	2	2
Number of Ports Total	16	8	4
Tilts Per Cross-Pol;	0° to 20°	0° to 20°	0° to 40°
First Sidelobe Level	<-16dB	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB	>28dB
Power Rating	150W per port	150W per port	150W per port
Intermodulation	<-153dBc	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm	50 ohm
Connector Quantity and Type	8 x 4.3-10 female	8 x 4.3-10 female	4 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

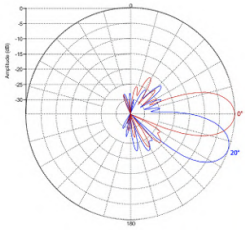
Lens Technology Enabled™ Multi-Beam Tri Band Base-Station Antenna utilizes a patented spherical lens design with 4 isolated F Band (3300MHz – 4200MHz) cross-polarized beams, 4 isolated High Band (1695MHz – 2690MHz) cross-polarized beams and 2 isolated Low Band (698MHz – 960MHz) beams. Each F-Band and H-Band beams have 4 ports per beam to support 4x4 MIMO. Each L-Band beam has 2 ports to support 2x2 MIMO. RET for F Band & High Band Beams 0°-20°. RET for Low Band Beams 0°-40°

PATTERN RESULTS:

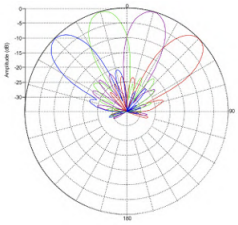
F-Band Horizontal Pattern (3.6GHz)



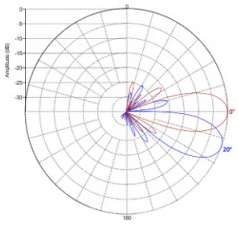
F-Band Vertical pattern (3.6GHz) at tilt 0° and 20°



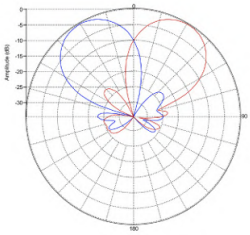
High-Band Horizontal Pattern (1.92GHz)



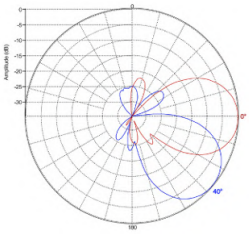
High-band Vertical Pattern (1.92GHz) at tilt 0° and 20°



Low-Band Horizontal Pattern (0.8GHz)



Low-band Vertical Pattern (0.8GHz) at tilt 0° and 40°

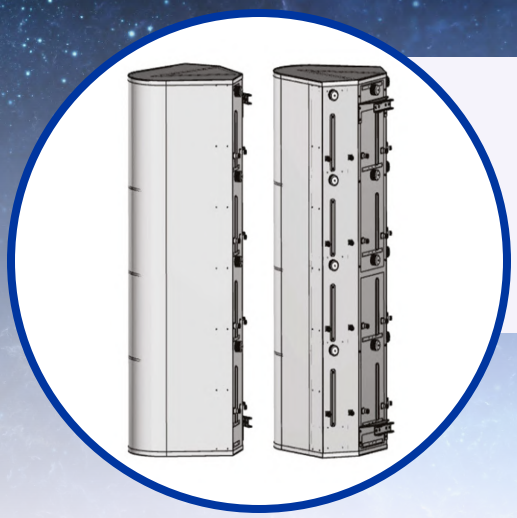


MECHANICAL DATA

Dimensions (H x W x D)	163.5 X 61.7 X 72.1 cm 64.4 X 24.3 X 28.4 inch
Antenna Weight	51 kg | 112.4 lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150km/hr	Frontal: 686N/154.2lbf Lateral: 930N/209.1lbf



MS-MBA-8

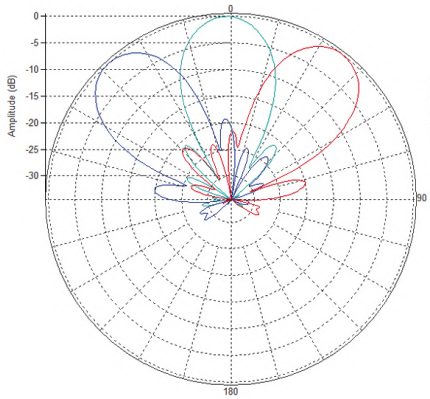
Future-proof, multi-band antennas ideal for macros, fixed wireless, stadiums, venues & events

LENS TECHNOLOGY EN/ BLED

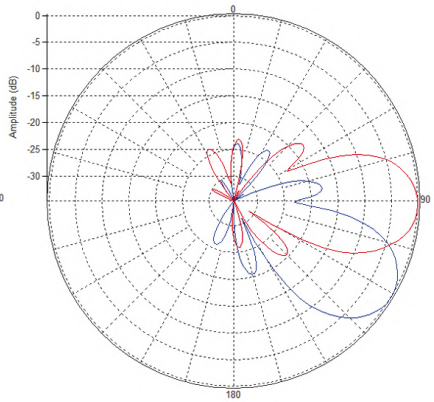
Lens Technology Enabled™ Multi-Beam Base-Station Antenna perfect for 3 to 9 sector LTE cell site deployments for best CINR results. Utilizes a patented spherical lens design with 3 isolated high-frequency (1710 – 2690 MHz) cross-polarized beams. Each beam is made of four independent antennas and has 8 ports. There are four independent tilt settings per beam (0-30° tilt for each pair of cross-polarized elements).

PATTERN RESULTS:

High-Band Horizontal Pattern (1.80GHz)



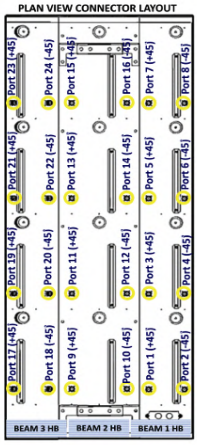
Vertical pattern at 0° tilt and 30° tilt (1.80GHz)



CONNECTOR LAYOUT

MS-MBA-8

PLAN VIEW CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS

Frequency	1710-2690 MHz
Gain	17.8dBi
VSWR	<1.5:1
Polarization	Dual Slant ± 45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°
Vertical Beamwidth (10dB) Vertical Beamwidth (3dB)	40° 23°
Beam Cross-over	10dB typical
Total Number of Beams	3
Number of Ports per Beam	8
Number of Ports Total	24
Tilt Per Cross-Pol (Four adjustments per beam) Remote Electrical Tilt (AISG 2.0)	0°- 30°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 4.3-10 DIN female

MECHANICAL DATA

Dimensions (H x W x D)	163 .8 X 61 .7 X 68 .3 cm 64.5 X 24.3 X 26.9 inch
Antenna Weight	48.4 kg | 106.7 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @150km/hr	Frontal: 701 N/157.6 lbf Lateral: 1007 N/226.4 lbf Rear: 822 N/ 184.8 lbf

Large Sphere Lens Antennas

High-Capacity, Multi-Band Antennas

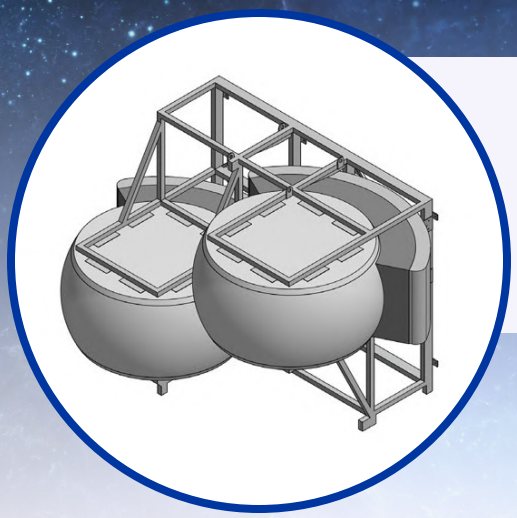
Macros, Venues and Events

Fast 4G and 5G
Venue Connectivity

High Capacity
User Experience

High Sectorization
with up to 48 Individual Beams per Lens Antenna

MATSING®
LENS TECHNOLOGY ENABLED



MS-10.10.10DBA180

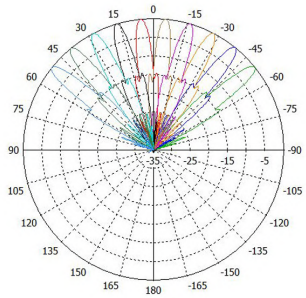
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

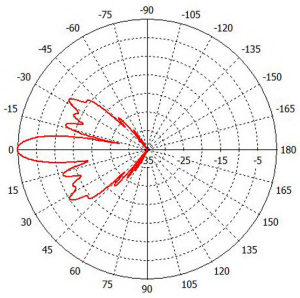
Multi-Beam Dual Band Spherical Lens Antenna: 10 independent low frequency (698-960MHz) cross-polarized beams and 10 independent high-frequency (1695-2690MHz) cross-polarized beams (each lens has independent high frequency beams providing 4 ports for 4X4 MIMO or multiple base stations).

PATTERN RESULTS:

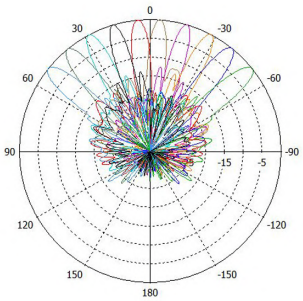
High-Band Horizontal Pattern (1950MHz)



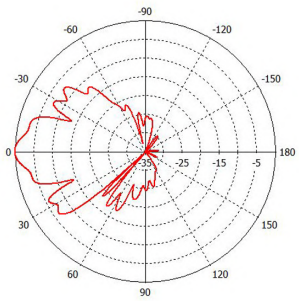
High-Band Vertical pattern (1950MHz)



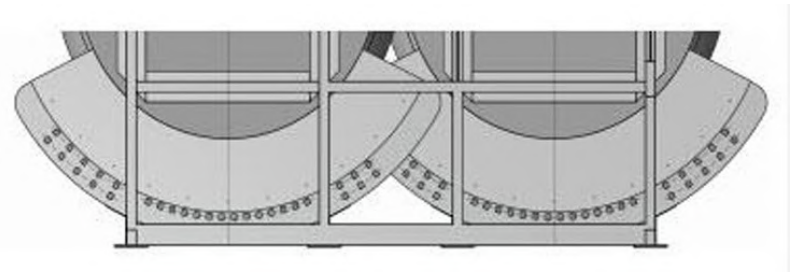
Low-Band Horizontal Pattern (850MHz)



Low-Band Vertical Pattern (850MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698-960 MHz	1695-2690 MHz
Gain	19dBi	26dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	100°	100°
Horizontal Beamwidth (10dB level): Central Beams Side Beams	 10° ± 1.5° 15° ± 1.5°	 10° ± 1.5° 14° ± 1.5°
Vertical Beamwidth (10dB level)	40°	25°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	10	10 (4 ports/beam)
Tilt	0°	0°
First Sidelobe Level	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	20 X 4.3-10 female	40 X 4.3-10 female

MECHANICAL DATA

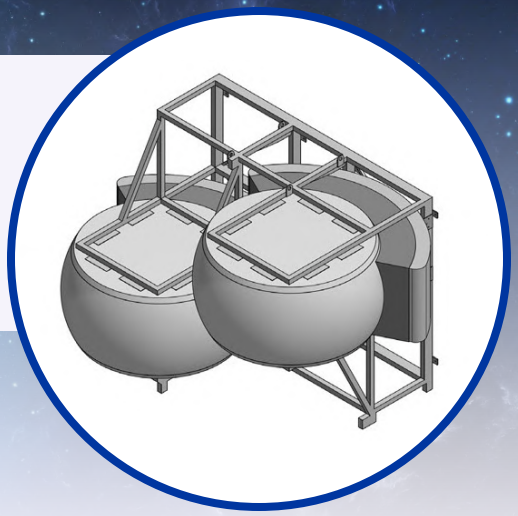
Dimensions (H x W x D)	Two Truncated Lenses: Spherical Lens Diameter: 180cm/70inch Spherical Lens Height: 80cm/31inch Antenna dimensions: 219.7x391.6x220.9cm 86.5x154.2x87inch
Antenna Weight	476 kg | 1049.4 lbs
Radome Material	Fiber Glass
Mounting	4 position pipe mount Compatible pipe diameter: 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load: Front Side Back	@ 160km/hr 5868N/1319lbf 4760N/1070lbf 6547N/1471lbf

MS-10.10.10DBA180-T

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896MHz	1695-2690 MHz
Gain	19dBi	26dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	100°	100°
Horizontal Beamwidth (10dB level): Central Beams Side Beams	 10° ± 1.5° 15° ± 1.5°	 10° ± 1.5° 14° ± 1.5°
Vertical Beamwidth (10dB level)	40°	25°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	10	10 (4 ports/beam)
Tilt	0°	0°
First Sidelobe Level	<-16dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	20 X 4.3-10 female	40 X 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Two Truncated Lenses: Spherical Lens Diameter: 180cm/70inch Spherical Lens Height: 80cm/31inch Antenna dimensions: 219.7x391.6x220.9cm 86.5x154.2x87inch
Antenna Weight	476 kg | 1049.4 lbs
Radome Material	Fiber Glass
Mounting	4 position pipe mount Compatible pipe diameter: 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

ENVIRONMENTAL RATINGS

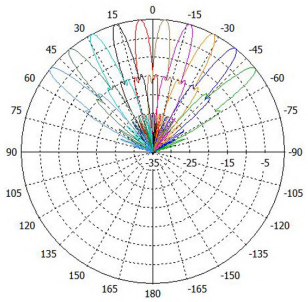
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load: Front Side Back	@ 160km/hr 5868N/1319lbf 4760N/1070lbf 6547N/1471lbf

LENS TECHNOLOGY EN/ BLED

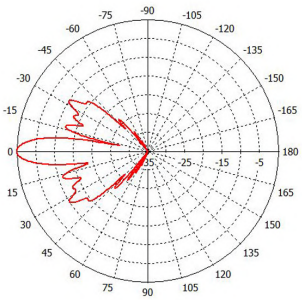
Multi-Beam Dual Band Spherical Lens Antenna: 10 independent low frequency (617-896MHz) cross-polarized beams and 10 independent high-frequency (1695-2690MHz) cross-polarized beams (each lens has independent high frequency beams providing 4 ports for 4X4 MIMO or multiple base stations).

PATTERN RESULTS:

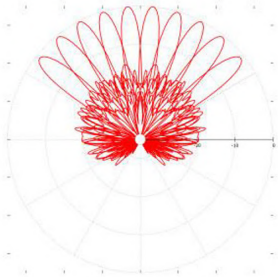
High-Band Horizontal Pattern (1950MHz)



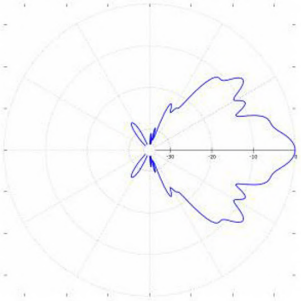
High-Band Vertical pattern (1950MHz)



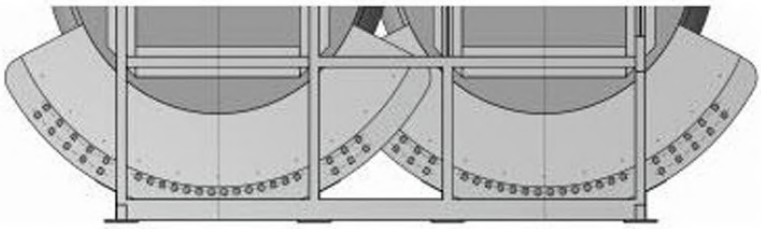
Low-Band Horizontal Pattern (850MHz)



Low-Band Vertical Pattern (850MHz)



CONNECTOR LAYOUT



MS-12.6DB180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

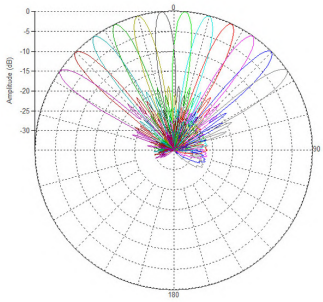
LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 6 independent low frequency (698-960MHz) cross-polarized beams and 12 independent high-frequency (1695-2690MHz) cross-polarized beams, with 0-15° tilt for each 20° sector and 2X2 MIMO support. Sector consists of 1 low- band beam and 2 high-band beams.

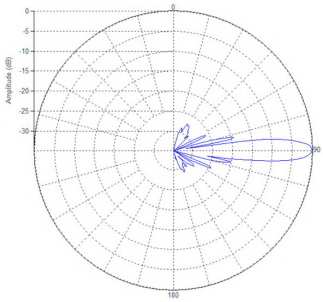
External RET Controller MS-EXT-RET-12.6 Option available

PATTERN RESULTS:

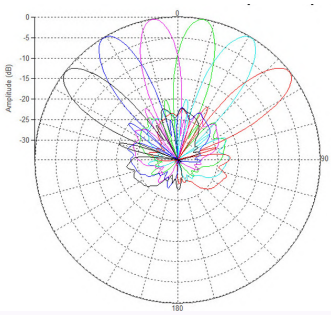
High-Band Horizontal Pattern (1.80GHz)



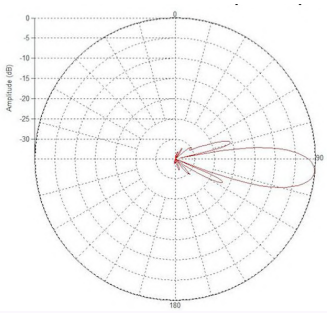
High-Band Vertical pattern (1.80GHz)



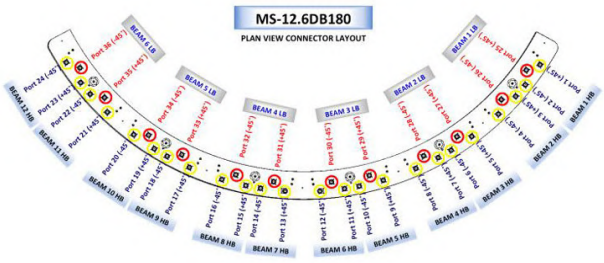
Low-Band Horizontal Pattern (0.85GHz)



Low-Band Vertical Pattern (0.85GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698-960 MHz	1695-2690 MHz
Gain	20.5dBi	27.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°	10° 6°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	6	12
Manual Adjustable Tilt per 20° sector (each sector having 2 high-band beams and 1 low- band beam)	5° to 20°	0° to 15°
First Sidelobe Level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>28dB
Power Rating	250W per port	250W per port
Total Applied Power	≤ 2.5KWatts	
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 X 4.3-10 female	24 X 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 207 X 204.4 cm 73.7 X 81.5 X 80.5 inch
Antenna Weight	247.6 kg | 545.9 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	1892 N @ 160km/hr 425 lbf @ 160km/hr

MS-12.6DB180-T

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	20dBi	27.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°	10° 6°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	6	12
Manual Adjustable Tilt per 20° sector (each sector having 2 high-band beams and 1 low- band beam)	5° to 20°	0° to 15°
First Sidelobe Level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>28dB
Power Rating	250W per port	250W per port
Total Applied Power	≤ 2.5KWatts	
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	12 X 4.3-10 female	24 X 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 207 X 204.4 cm 73.7 X 81.5 X 80.5 inch
Antenna Weight	247.6 kg | 545.9 lbs
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	2316 N @ 160km/hr 520 lbf @ 160km/hr

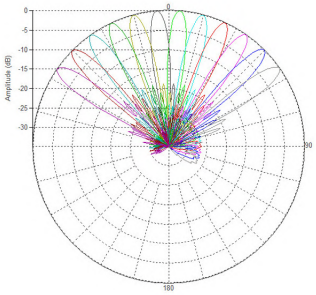
LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 6 independent low frequency (617-896MHz) cross-polarized beams and 12 independent high-frequency (1695-2690MHz) cross-polarized beams, with 0-15° tilt for each 20° sector and 2X2 MIMO support. Sector consists of 1 low- band beam and 2 high-band beams. Standard RET conguration.

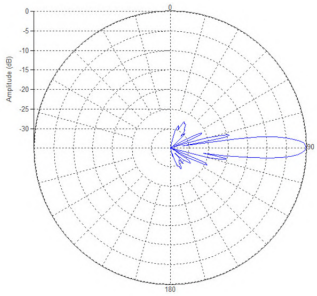
Standard RET conguration.

PATTERN RESULTS:

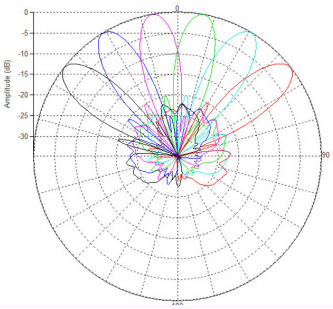
High-Band Horizontal Pattern (1950MHz)



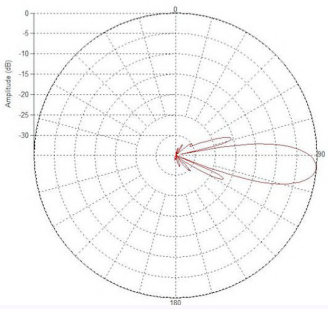
High-Band Vertical pattern (1950MHz)



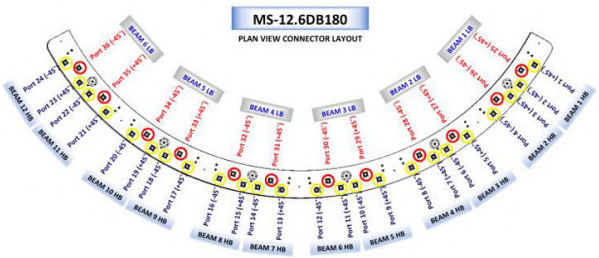
Low-Band Horizontal Pattern (750MHz)

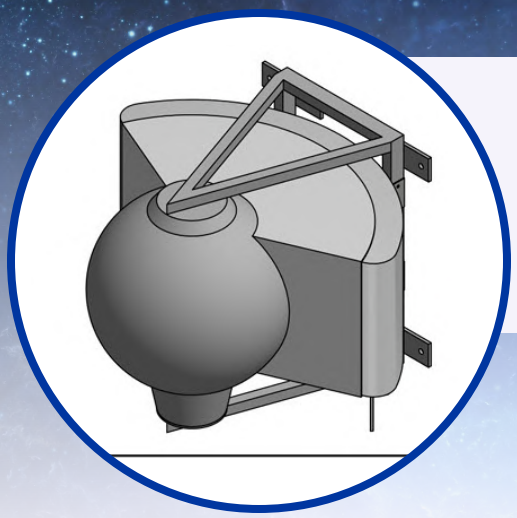


Low-Band Vertical Pattern (750MHz)



CONNECTOR LAYOUT





MS-12C45

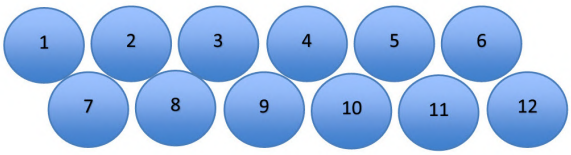
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: Two rows of 6 independent C-Band frequency (3.7 – 4.2GHz) cross- polarized beams. Tilt is factory set for each beam.

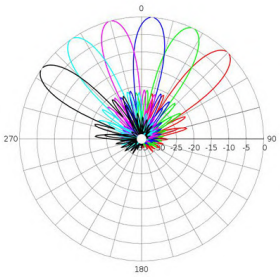
BEAM LAYOUT

+8.66° Tilt

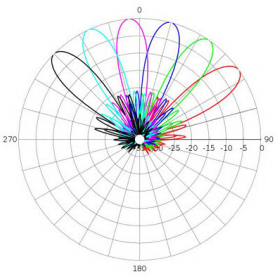


PATTERN RESULTS (3.95GHz):

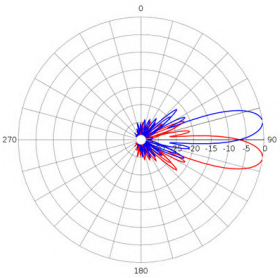
Horizontal Pattern top row



Horizontal Pattern bottom row



Vertical Pattern



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.7– 4.2GHz
Gain	22dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	Fixed Tilt Top Row: +8.66° Bottom Row: -8.66°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

MECHANICAL DATA

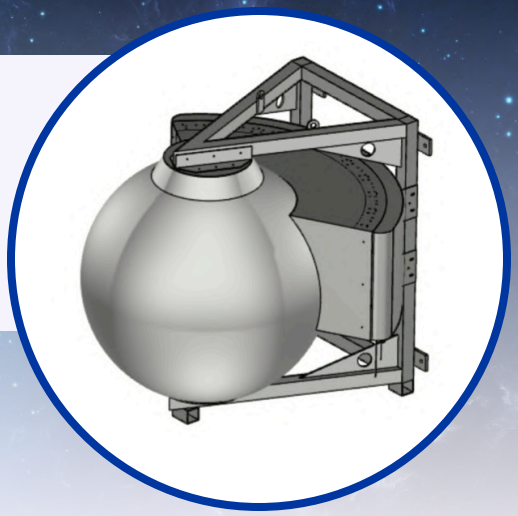
Dimensions (H x W x D)	Spherical Lens diameter: 45 cm/18 inch Antenna dimensions: 61.7 X 78.9 X 69.3 cm 24.3 X 31.1 X 27.3 inch
Antenna Weight	22.28kg | 49.1lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	[N/lbf] Frontal: 284.8/64 Lateral: 245/55

MS-12C90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

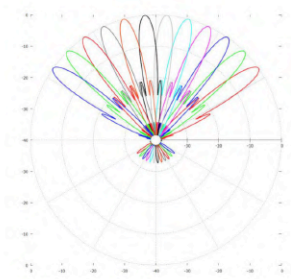
Frequency	3.7– 4.2GHz
Gain	28.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	Fixed
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	500W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

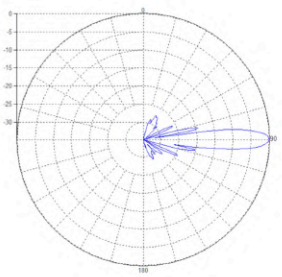
Multi-Beam Wide Band Spherical Lens Antenna: 1 row of 12 independent C-Band (3700-4200MHz) cross-polarized beams. Each beam has Fixed Tilt

PATTERN RESULTS (3.95GHz):

Horizontal Pattern (3.95GHz)



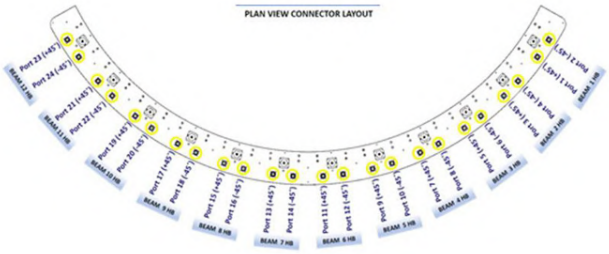
Vertical Pattern (3.95GHz) 0° Tilt



MECHANICAL DATA

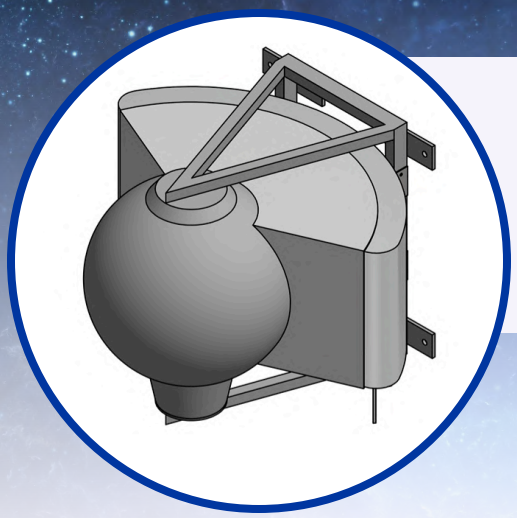
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 x 113.7 x 109.9 cm 41.5 x 44.8 x 43.3 inch
Antenna Weight	61.6kg | 135.51lbs
Radome Material	Fiber Glass
Mounting	Standard position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	Frontal: 489 N / 110lbf Lateral 543 N / 122 lbf



MS-12F45

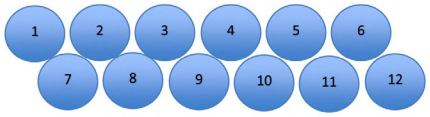
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: Two rows of 6 independent F-Band frequency (3.3GHz – 4.2GHz) cross-polarized beams. Top and bottom rows have xed tilt.

BEAM LAYOUT

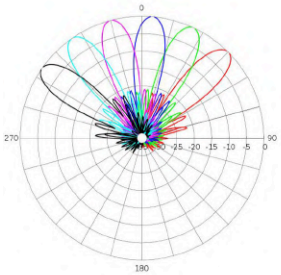
+8.66° Tilt



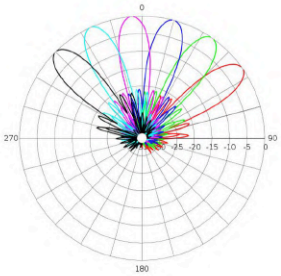
-8.66° Tilt

PATTERN RESULTS (3.6Hz):

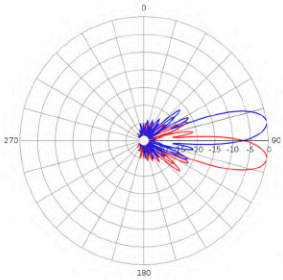
Horizontal Pattern top row



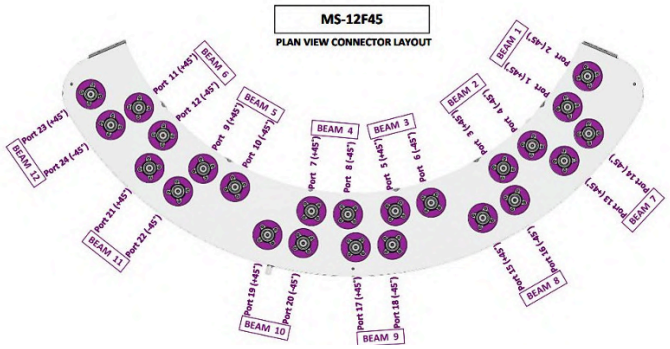
Horizontal Pattern bottom row



Vertical Pattern



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.7– 4.2GHz
Gain	22dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	Fixed Tilt Top Row: +8.66° Bottom Row: -8.66°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

MECHANICAL DATA

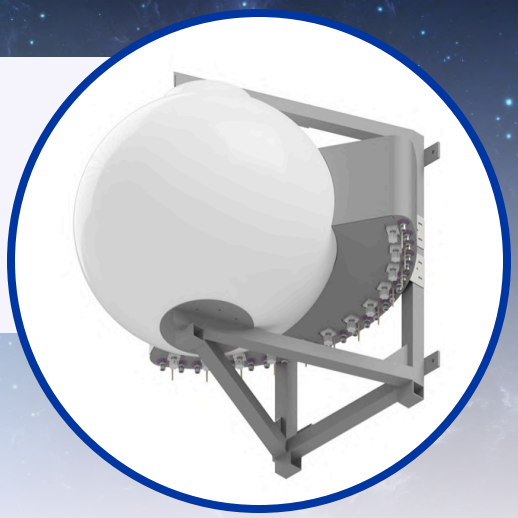
Dimensions (H x W x D)	Spherical Lens diameter: 45 cm/18 inch Antenna dimensions: 61.7 X 78.9 X 69.3 cm 24.3 X 31.1 X 27.3 inch
Antenna Weight	22.28kg | 49.1lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

MS-12F90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam Wide Band Spherical Lens Antenna: 1 row of 12 independent high frequency (3300-4200MHz) cross- polarized beams. Each beam has independent tilt 0-15° (RET).

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300-4200 MHz
Gain	26dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	0 - 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	500W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

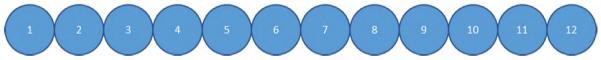
MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 107 x 114 x 109 cm 42 x 45 x 43 inch
Antenna Weight	61.6kg | 135.51lbs
Radome Material	Fiber Glass
Mounting	Standard position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

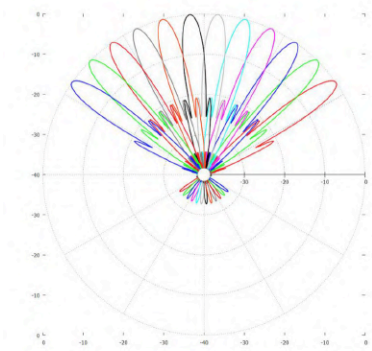
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	Frontal: 489 N / 110lbf Lateral 543 N / 122 lbf

BEAM LAYOUT

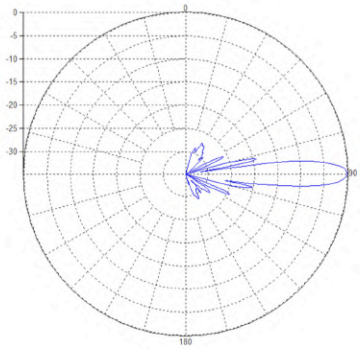


PATTERN RESULTS

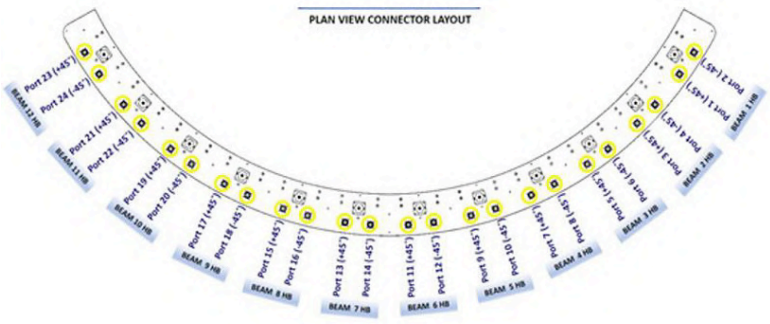
Horizontal Pattern (3.6GHz)

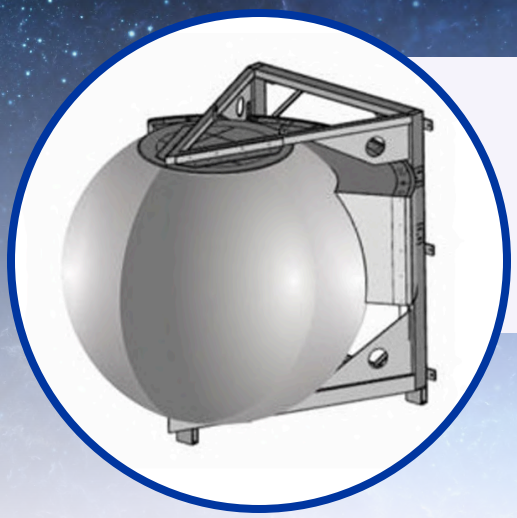


Vertical Pattern (3.6GHz) 0° Tilt



CONNECTOR LAYOUT





MS-12H180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Wide Band Spherical Lens Antenna: 12 independent high frequency (1695-2690MHz) cross-polarized beams, with independent 15° tilt per beam.

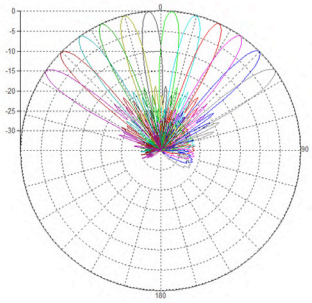
***Optional Packages:**

a) MS-6L180-A-M:
AISG 2.0 Remote Electrical Tilt, multi RET conguration

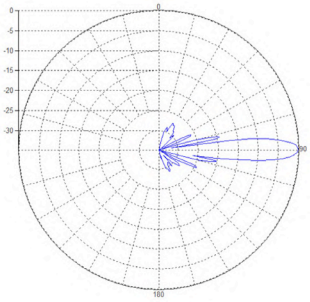
b) MS-6L180-A-S:
AISG 2.0 Remote Electrical Tilt, single RET conguration

PATTERN RESULTS:

Horizontal Pattern (1.80GHz)



Vertical Pattern (1.80GHz)



CONNECTOR LAYOUT

TECHNICAL SPECIFICATIONS

Frequency	1695-2690 MHz
Gain	27.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level): Horizontal Beamwidth (3dB level):	10° 6°
Vertical Beamwidth (10dB level): Vertical Beamwidth (10dB level):	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	0° to 15°
First Sidelobe Level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 X 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens Diameter: 180cm/70inch Antenna dimensions: 187.1 X 207 X 204.4 cm 73.7 X 81.5 X 80.5 inch
Antenna Weight	240 kg | 529 lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 (cm) | 2.4 – 4.5 (inch)

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load: @ 160km/hr	N/lbf Frontal: 1838/413 Lateral: 2053/462

MS-12H90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz
Gain	22.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt ≥12°beam separation required between the two rows	3° to -15° upper row -3° to 15° lower row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 X 122.4 X 114.5 cm 24.3 X 31.1 X 27.3 inch
Antenna Weight	58.8kg | 129.81lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

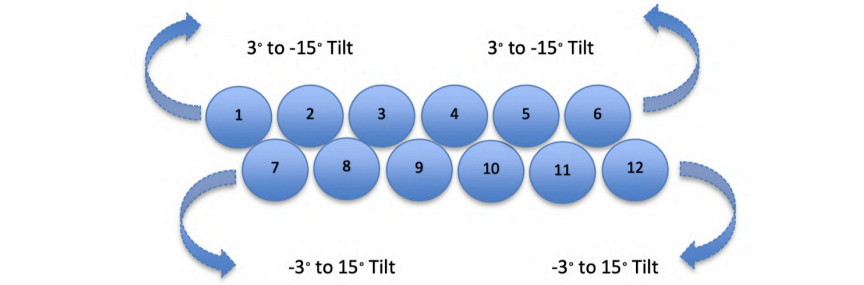
ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	754N @ 160km/h 170lbf @ 160km/h

LENS TECHNOLOGY EN/ BLED

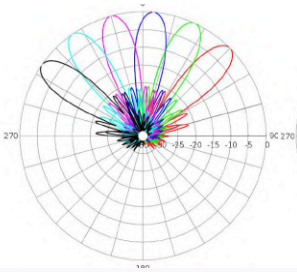
Multi-Beam Wide Band Spherical Lens Antenna: 2 rows of 6 independent high frequency (1695-2690MHz) cross- polarized beams. Top and bottom row have independent 15° tilt.

BEAM LAYOUT

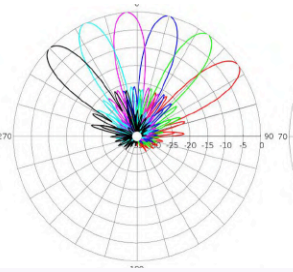


PATTERN RESULTS:

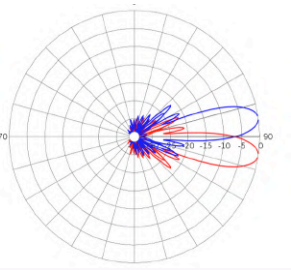
Horizontal Pattern top row

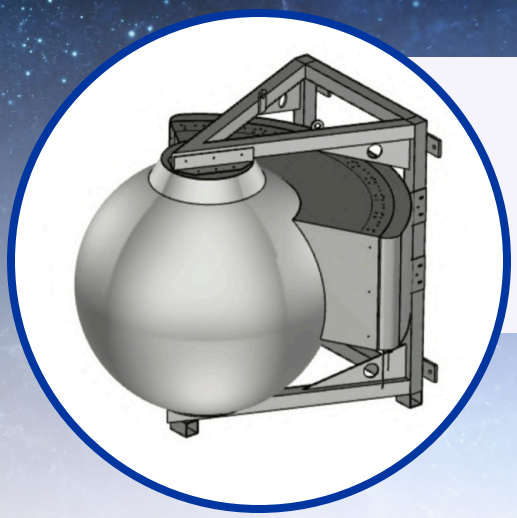


Horizontal Pattern bottom row



Vertical Pattern





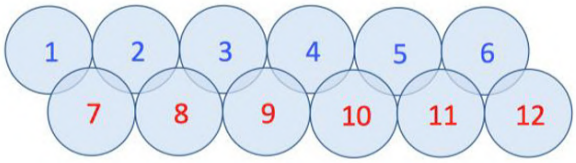
MS-12L180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

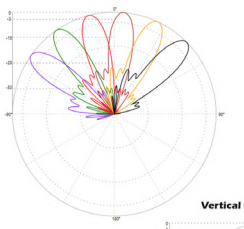
Multi-Beam Wide Band Spherical Lens Antenna: 12 independent low frequency (698-960MHz) cross-polarized beams.

BEAM LAYOUT

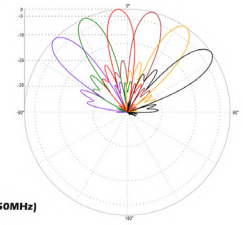


PATTERN RESULTS:

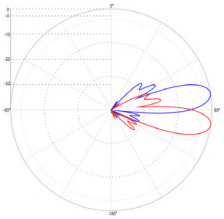
Horizontal Pattern Row 1 (850MHz)



Horizontal Pattern Row 2 (850MHz)

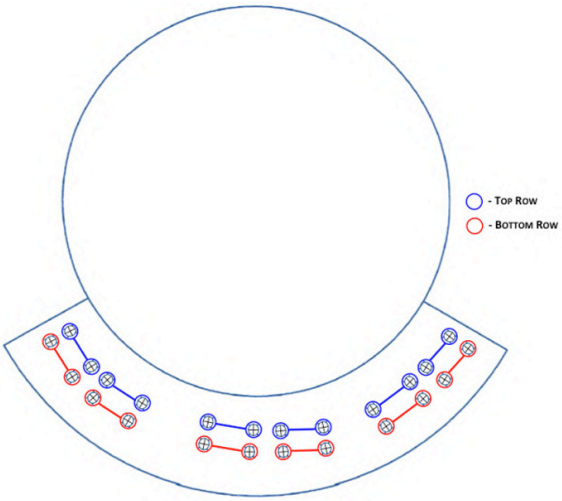


Vertical Pattern (850MHz)



Vertical Patt (850MHz)

CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698 - 960 MHz
Gain	20.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage per row Total coverage	120° 130°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	12
Tilt	Factory Set
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 213.6 X 201.9 cm 73.7 X 84.1 X 79.5 inch
Antenna Weight	240kg | 529lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front) Wind load (Lateral)	N/lbf 2046/459 @ 150km/hr 2321/522 @ 150 km/hr

MS-16F60

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Wide Band Spherical Lens Antenna: 2 rows of 8 independent F-Band (3300 - 4200MHz) crosspolarized beams. Fixed Tilt.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300-4200MHz
Gain	24dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	15° 8.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	15° 8.5°
Beam Cross-over	10dB typical
Total Number of Beams	16
Tilt	-6.5° upper row +6.5° lower row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	32 X 4.3-10 female

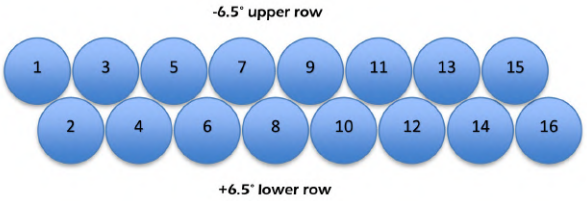
MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 60cm/24inch Antenna dimensions: 72.3 X 88.6 X 79.7 cm 28.5 X 34.9 X 31.4 inch
Antenna Weight	28kg | 61.7lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

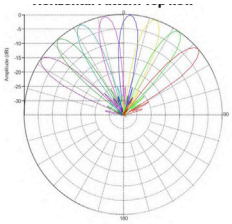
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

BEAM LAYOUT

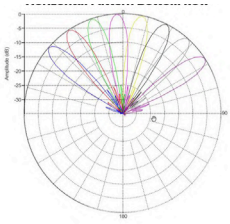


PATTERN RESULTS: (3.6GHz)

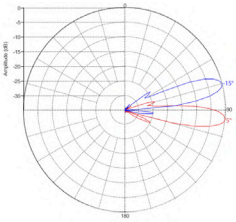
Horizontal Pattern Top Row



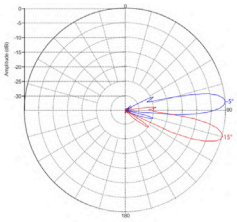
Horizontal Pattern Bottom Row



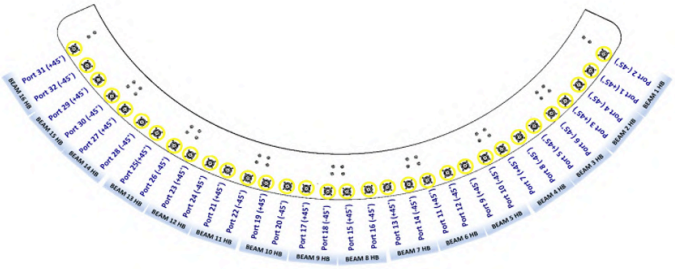
Vertical Pattern Top Row

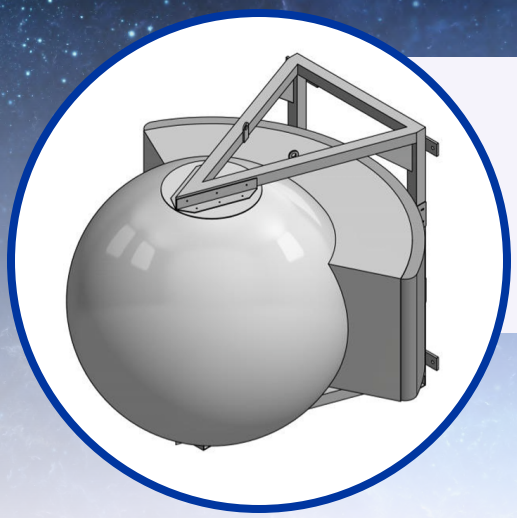


Vertical Pattern Bottom Row



CONNECTOR LAYOUT





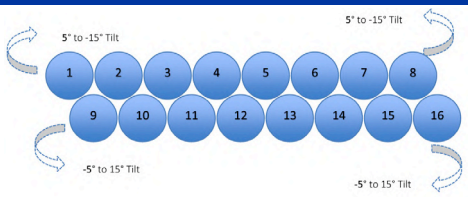
MS-16H120

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

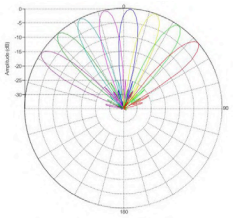
Multi-Beam Wide Band Spherical Lens Antenna: 2 rows of 8 independent high frequency (1695-2690MHz) cross- polarized beams.

BEAM LAYOUT

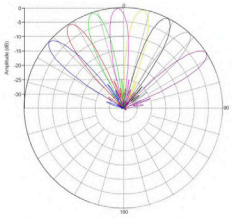


PATTERN RESULTS: (1.8GHz)

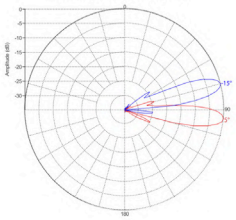
Horizontal Pattern Top Row



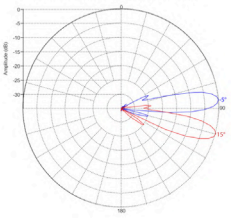
Horizontal Pattern Bottom Row



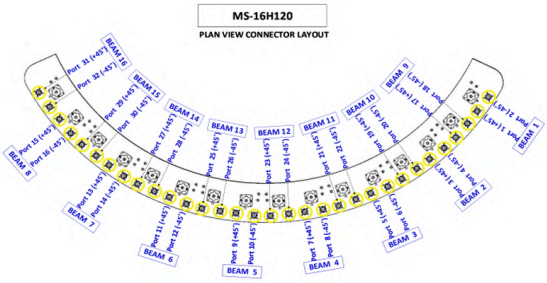
Vertical Pattern Top Row



Vertical Pattern Bottom Row



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz
Gain	24.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	15° 8.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	15° 8.5°
Beam Cross-over	10dB typical
Total Number of Beams	16
Tilt ≥12°beam separation required between the two rows	5° to -15° upper row -5° to 15° lower row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	32 X 4.3-10 female

MECHANICAL DATA

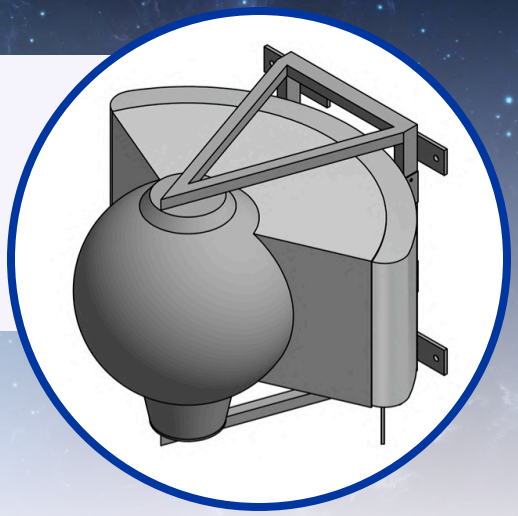
Dimensions (H x W x D)	Spherical Lens diameter: 120cm/47inch Antenna dimensions: 128 x 149 x 142.4 cm 50.4 x 58.7 x 56.1inch
Antenna Weight	75kg | 16.5lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load	959 N @ 160km/hr 216 lbf @ 160km/hr

MS-18F45

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 3 rows of 6 independent high frequency (3.3GHz – 4.2GHz) cross- polarized beams.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.3GHz – 4.2GHz
Gain	22dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	18
Tilt	Factory Set
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	36 x 4.3-10 female

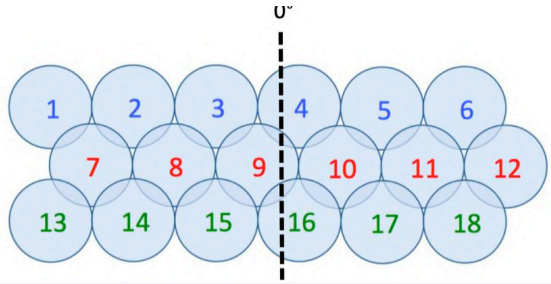
MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 45 cm/18 inch Antenna dimensions: 61.7 x 78.7 x 69.3 cm 24.3 x 31 x 27.3 inch
Antenna Weight	22kg | 48.5lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

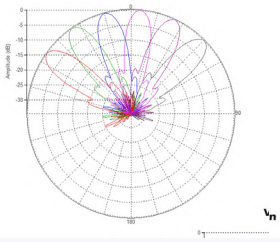
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

BEAM LAYOUT

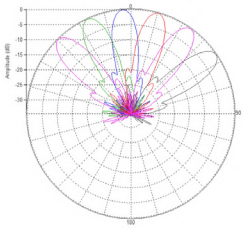


PATTERN RESULTS (3.6GHz):

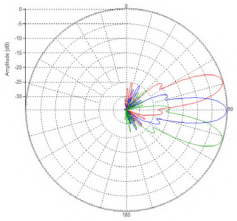
Horizontal Pattern Row 1 and 3



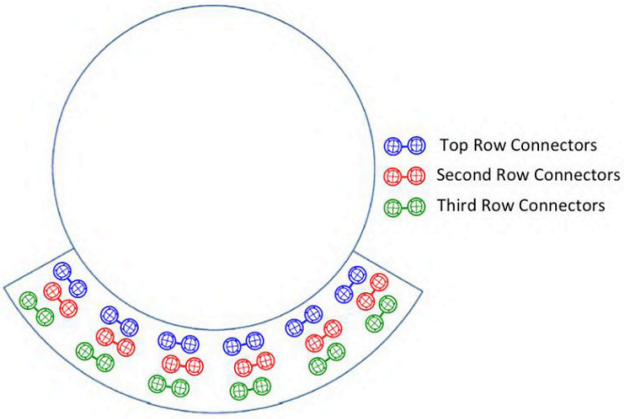
Horizontal Pattern Row 2

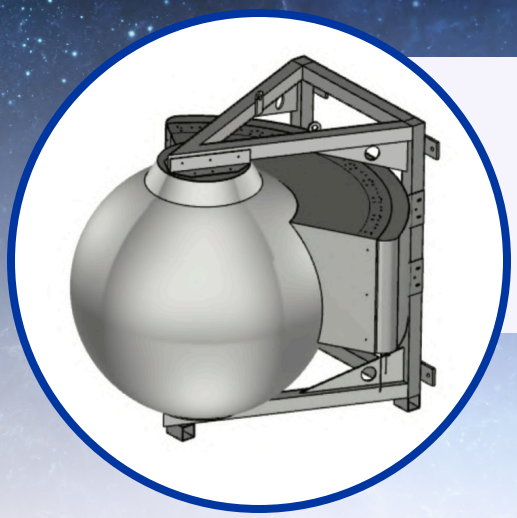


Vertical Pattern



CONNECTOR LAYOUT





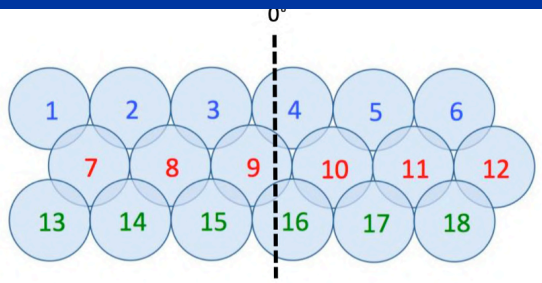
MS-18H90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

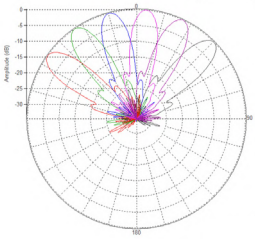
Multi-Beam Wide Band Spherical Lens Antenna: 3 rows of 6 independent high frequency (1695-2690MHz) crosspolarized beams.

BEAM LAYOUT

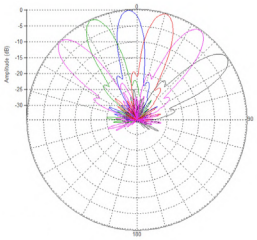


PATTERN RESULTS (1.8GHz):

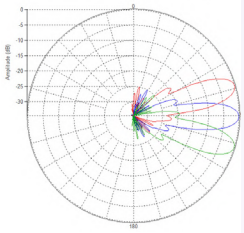
Horizontal Pattern Row 1 and 3 (1950MHz)



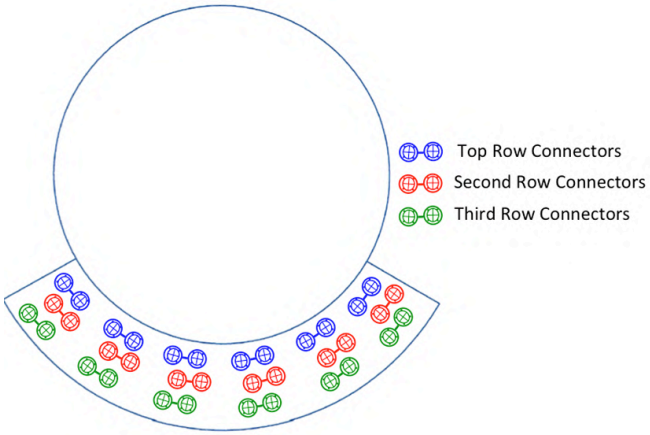
Horizontal Pattern Row 2 (1950MHz)



Vertical Pattern (1950MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690MHz
Gain	23dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	18
Tilt	17° First row 0° Second row -17° Third Row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	2100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	36 x 4.3-10 female

MECHANICAL DATA

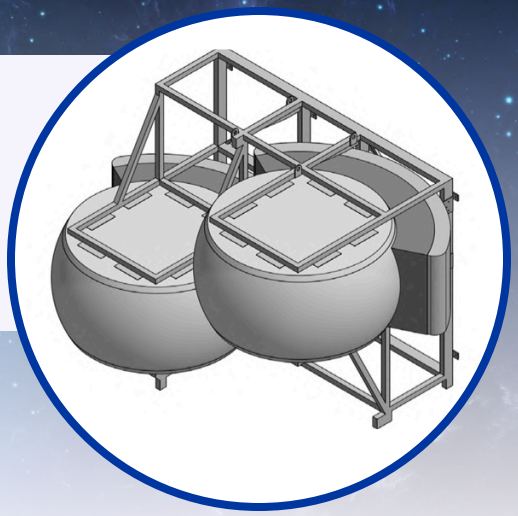
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 X 118.3 X 109.9 cm 41.5 X 46.6 X 43.3 inch
Antenna Weight	60.3kg | 132.9lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load @ 150km/h	N/lbf Frontal: 574/129 Lateral: 753/169

MS-20.10DBA180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

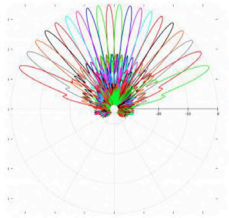
Frequency	698-960 MHz	1695-2690 MHz
Gain	18dBi	26dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	100°	100°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°	5° 3°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 25°	16° 9°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	10	20
Tilt	0°	0°
First Sidelobe level	<-15dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	200W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	20 X 4.3-10 female	40 X 4.3-10 female

LENS TECHNOLOGY EN/ BLED

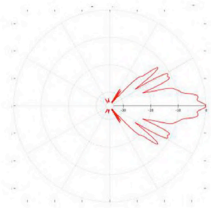
Multi-Beam Dual Band Spherical Lens Antenna: 10 independent low frequency (698-960MHz) cross-polarized beams and 20 independent high-frequency (1695-2690MHz) cross-polarized beams.

PATTERN RESULTS:

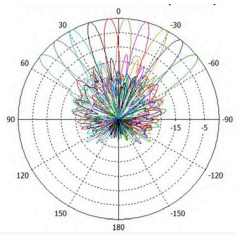
High-Band Horizontal Pattern (1950MHz)



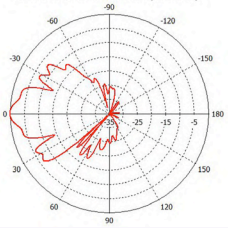
High-Band Vertical pattern (1950MHz)



Low-Band Horizontal Pattern (850MHz)



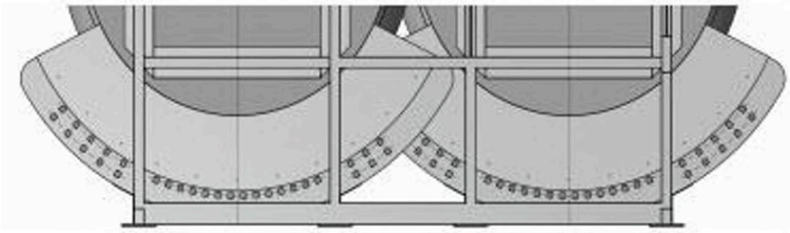
Low-Band Vertical Pattern (850MHz)



MECHANICAL DATA

Dimensions (H x W x D)	Two Truncated Lenses: Spherical Lens diameter: 180cm/70inch Antenna dimensions: 219.7 x 391.6 x 220.9 cm 86.5 x 154.2 x 87 inch
Antenna Weight	522kg | 1150.8lbs
Radome Material	Fiber Glass
Mounting	4 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load: Front Side Back	@ 160km/hr 5868N/1319lbf 4760N/1070lbf 6547N/1471lbf

MS-20.10DBA180-T

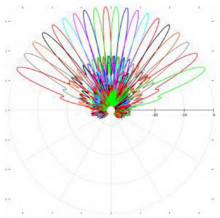
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

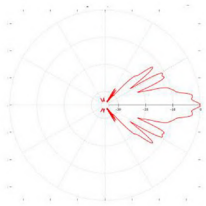
Multi-Beam Dual Band Spherical Lens Antenna: 10 independent low frequency (617-896MHz) cross-polarized beams and 20 independent high-frequency (1695-2690MHz) cross-polarized beams.

PATTERN RESULTS:

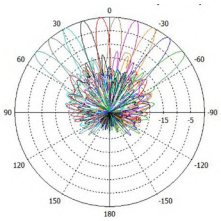
High-Band Horizontal Pattern (1950MHz)



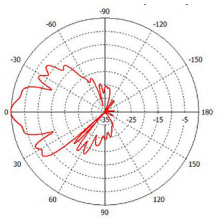
High-Band Vertical pattern (1950MHz)



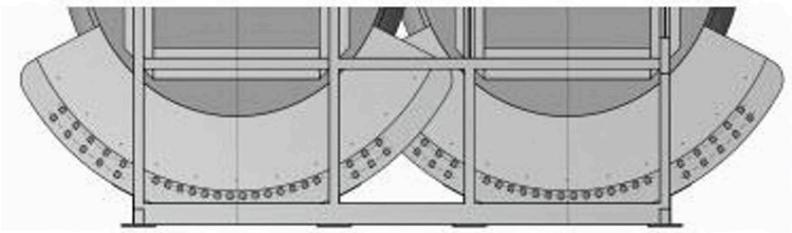
Low-Band Horizontal Pattern (700MHz)



Low-Band Vertical Pattern (700MHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	18dBi	26dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	100°	100°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°	5° 3°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	40° 25°	16° 9°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	10	20
Tilt	0°	0°
First Sidelobe level	<-15dB	<-15dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	200W per port	200W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	20 X 4.3-10 female	40 X 4.3-10 female

MECHANICAL DATA

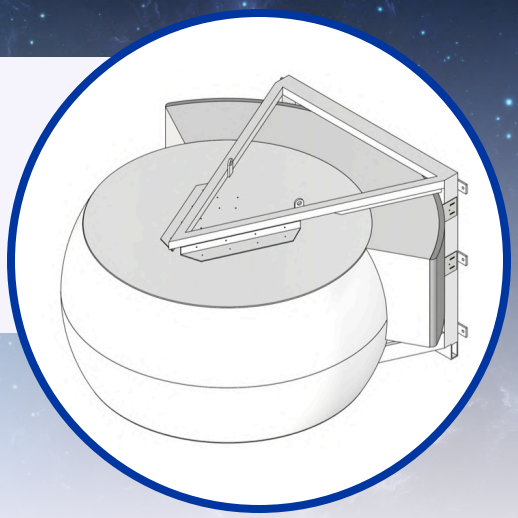
Dimensions (H x W x D)	Two Truncated Lenses: Spherical Lens diameter: 180cm/70inch Antenna dimensions: 219.7 x 391.6 x 220.9 cm 86.5 x 154.2 x 87 inch
Antenna Weight	522kg | 1150.8lbs
Radome Material	Fiber Glass
Mounting	4 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load: Front Side Back	@ 160km/hr 5868N/1319lbf 4760N/1070lbf 6547N/1471lbf

MS-24C180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

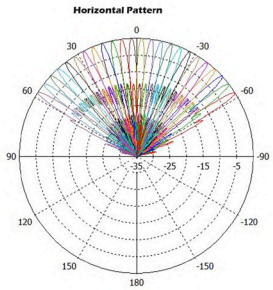
Multi-Beam C-Band Spherical Lens Antenna: 1 row of 24 dualpolarized beams, with independent 0° - 15° tilt per beam.

TECHNICAL SPECIFICATIONS PER BEAM

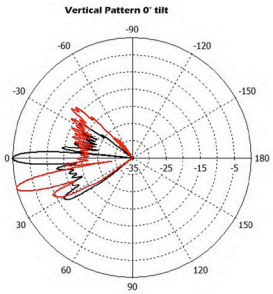
Frequency	3.3GHz – 4.2GHz
Gain	30dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	5° 3°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	9° 5°
Beam Cross-over	10dB typical
Total Number of Beams	24
Adjust Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	2100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	48 X 4.3-10 female

PATTERN RESULTS: (3.9GHz)

Horizontal Pattern



Vertical Pattern 0° tilt

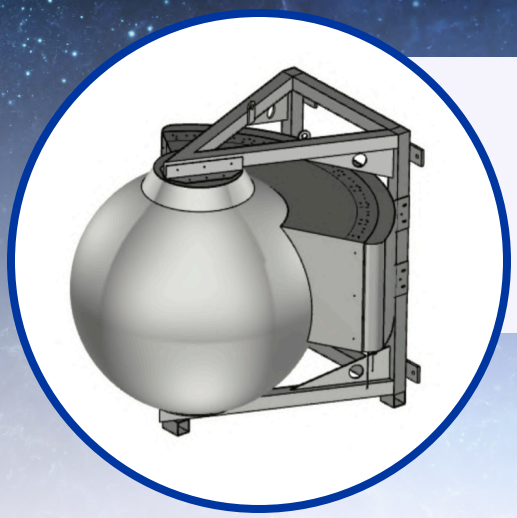


MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 122 x 205 x 207 cm 48 x 80 x 81 inch
Antenna Weight	180kg | 397lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150 km/hr	N/lbf Frontal: 1610.7/362 Lateral: 1610.7/362 Rear: 1610.7/362



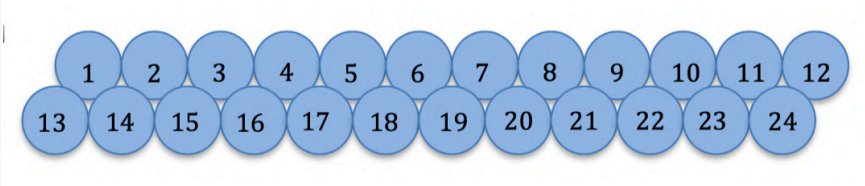
MS-24C90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

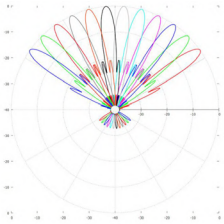
Multi-Beam Wide Band Spherical Lens Antenna: 2 rows of 12 independent C-Band (3.7-4.2GHz) cross-polarized beams. Factory set tilt for each beam.

BEAM LAYOUT

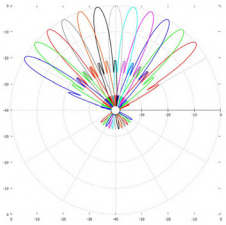


PATTERN RESULTS (3.9GHz):

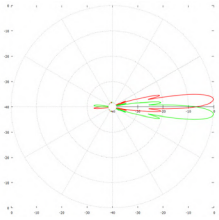
Horizontal pattern Row 1



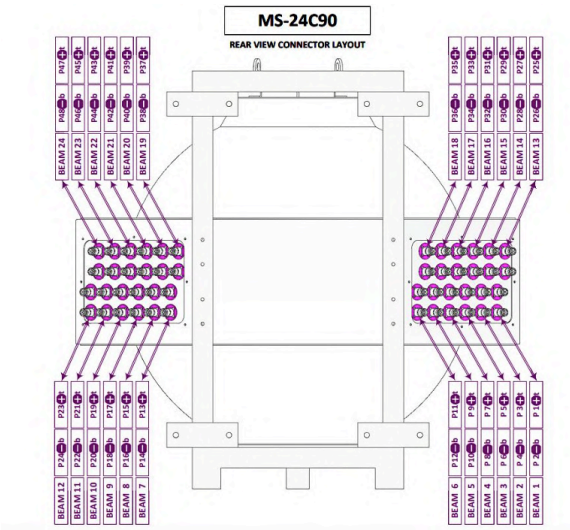
Horizontal pattern Row 2



Vertical Pattern



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.7-4.2 GHz
Gain	26dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	24
Tilt	+/- 15° Upper Row Lower Row Set based on Upper Row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	50W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	48 X 4.3-10 female

MECHANICAL DATA

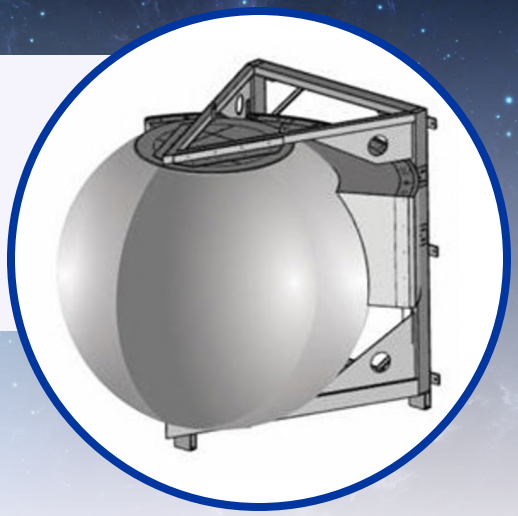
Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 X 108.4 X 109.9 cm 41.5 X 42.7 X 43.3 inch
Antenna Weight	47.9kg | 105.6lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load Frontal Wind Load Lateral	N/ lbf 429.3/96.5 @ 150km/h 562.8/126.5 @ 150km/h

MS-24H180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 24 independent high-frequency (1695-2690MHz) cross-polarized beams with 2X2 MIMO support per beam.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz
Gain	27.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	126°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	24
Tilt	4° Upper Row -4° Lower Row Or by customer request
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	48 X 4.3-10 female

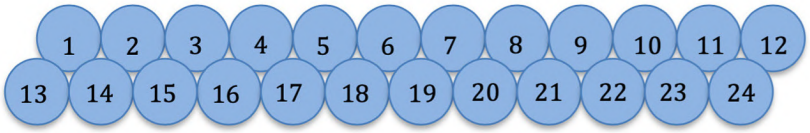
MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 207 X 206.5 cm 73.7 X 81.5 X 81.3 inch
Antenna Weight	247.92kg | 546.5lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

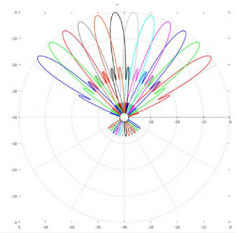
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front) Wind load (Lateral)	N/lbf 1838/413 @150 km/hr 2053/462 @150 km/hr

BEAM LAYOUT

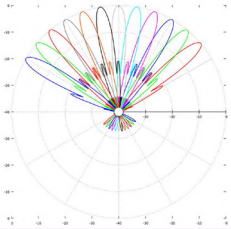


PATTERN RESULTS (1.8GHz):

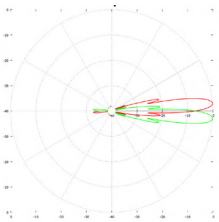
Horizontal pattern Row 1



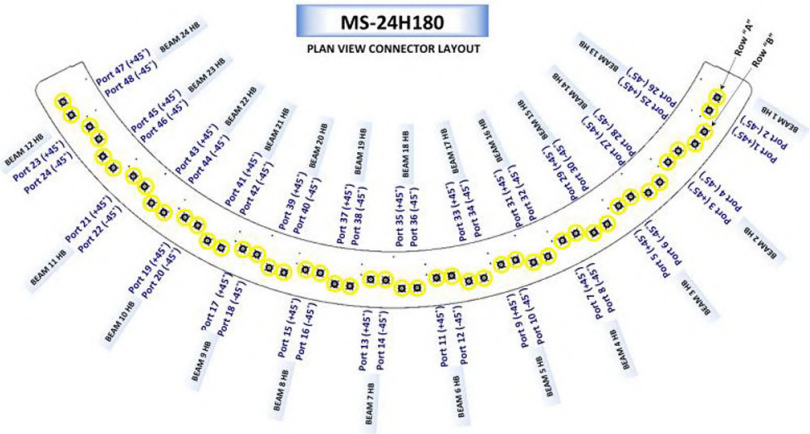
Horizontal pattern Row 2

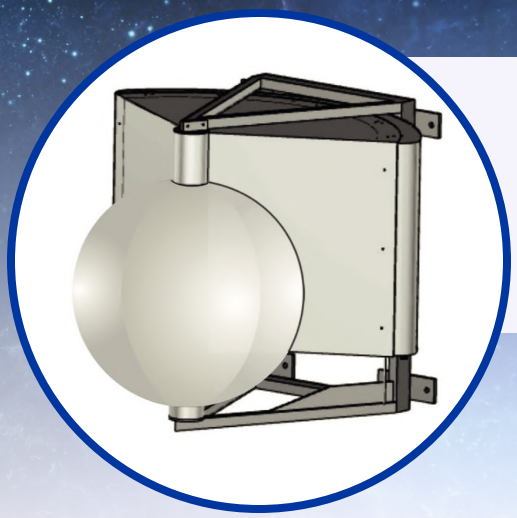


Vertical Pattern



CONNECTOR LAYOUT





MS-4.2DB60-T

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

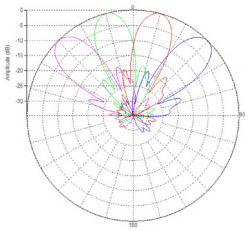
LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 4 independent high- frequency (1695-2690MHz) cross-polarized beams and 2 independent low-frequency (617-896MHz) cross-polarized beams with 15° tilt for each 60° group and 2X2 MIMO support. Group consists of 1 low-band and 2 high-band beams.

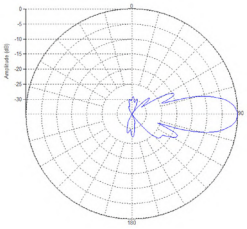
Standard RET Conguration.

PATTERN RESULTS:

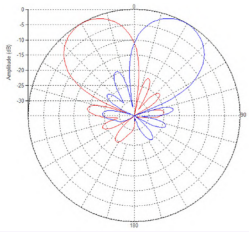
High-band Horizontal Pattern (1.92GHz)



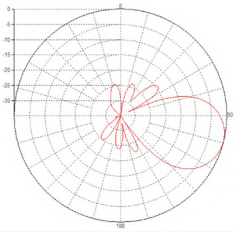
High-band Vertical Pattern (1.92GHz)



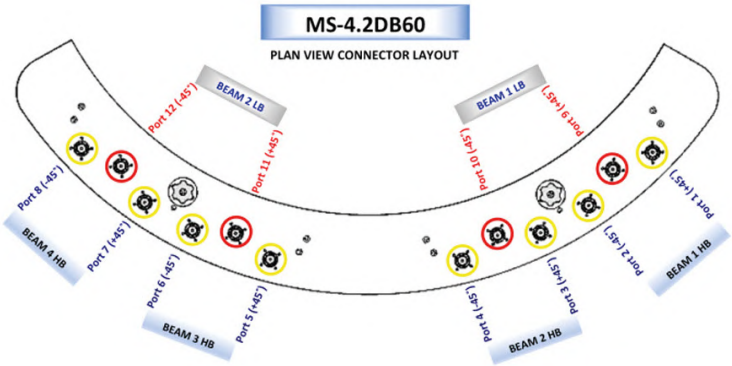
Low-band Horizontal Pattern (0.8GHz)



Low-band Vertical Pattern (0.8GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	14.2dBi	20.5dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	60° 34°	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	60° 34°	30° 17°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	2	4
Manual Adjustable Tilt per 60° group (each group having 2 high-band beams and 1 low- band beam, low-band beam down 15 degree to high-band beam)	15° to 30°	0° to 15°
First Sidelobe level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	4 X 4.3-10 female	8 X 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	SphericalLensdiameter: 60cm/24inch Antenna dimensions: 85.8 x 92.7x 84.5cm 33.8x 36.5x 33.3inch
Antenna Weight	32.76kg | 72.2lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	462 N @ 151km/hr 104 lbf @ 151km/hr

MS-48F90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Wide Band Spherical Lens Antenna: 4 rows of 12 independent high frequency (3300- 4200MHz) full-band cross-polarized beams.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3300 - 4200 MHz
Gain	26dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	48
Tilt	Fixed
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	50W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	96 X 4.3-10 female

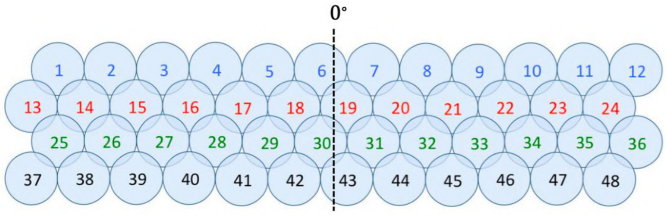
MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 X 108.4 X 109.9 cm 41.5 X 42.7 X 43.3 inch
Antenna Weight	58.18kg | 128.2lbs
Radome Material	Fiber Glass
Mounting	Standard Pipe Mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

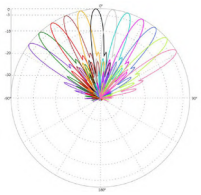
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150km/h	N/lbf Frontal: 574/129 Lateal: 753/169

BEAM LAYOUT

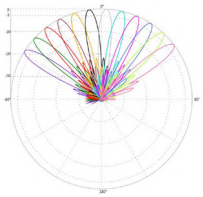


PATTERN RESULTS (3.6GHz):

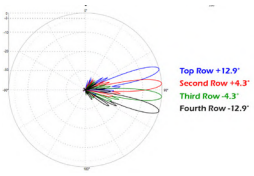
Horizontal pattern top/third



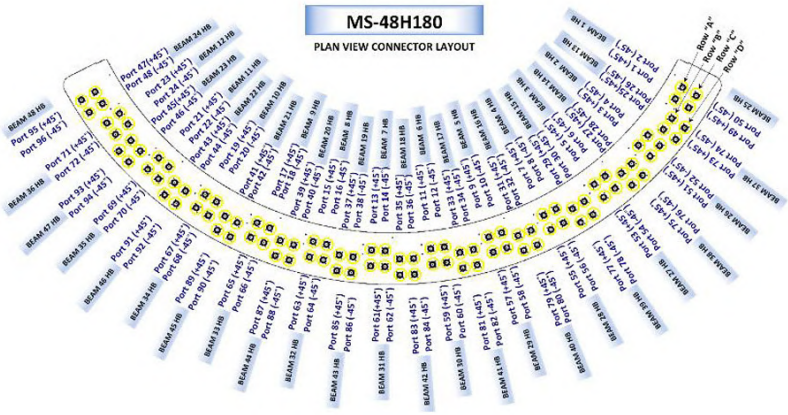
Horizontal pattern second/bottom

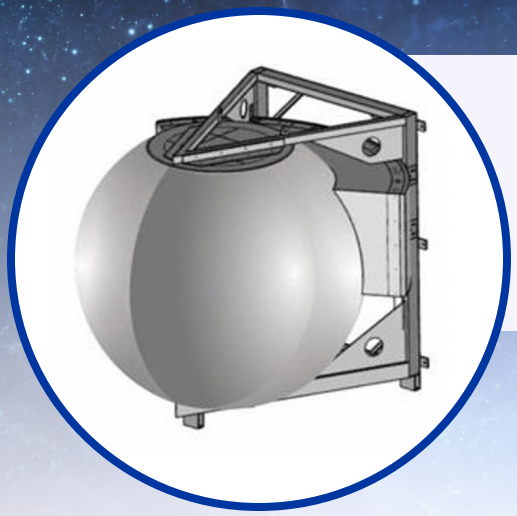


Vertical Pattern



CONNECTOR LAYOUT





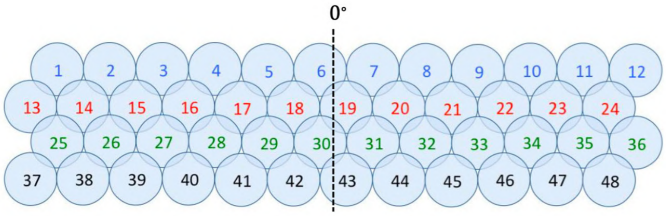
MS-48H180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

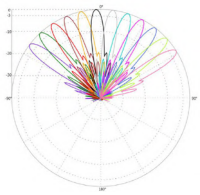
Multi-Beam Wide Band Spherical Lens Antenna: 4 rows of 12 independent high frequency (1695 - 2690MHz) full-band cross-polarized beams.

BEAM LAYOUT

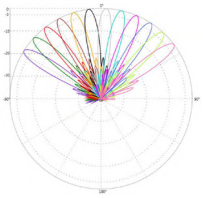


PATTERN RESULTS (1.9GHz):

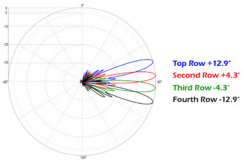
Horizontal pattern top/third



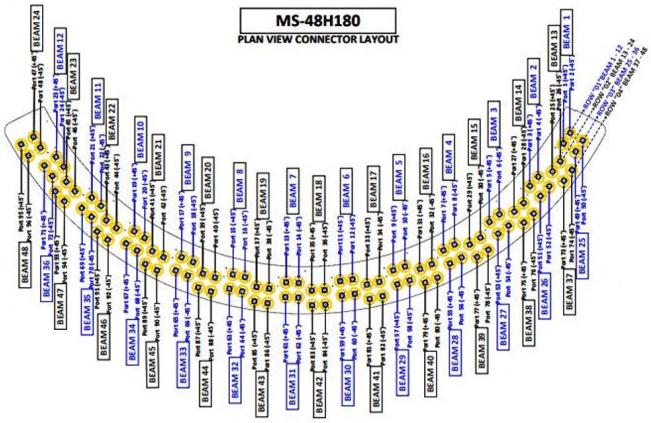
Horizontal pattern second/bottom



Vertical Pattern



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695 - 2690 MHz
Gain	27.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	10° 6°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	10° 6°
Beam Cross-over	10dB typical
Total Number of Beams	48
Tilt	Fixed
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	96 X 4.3-10 female

MECHANICAL DATA

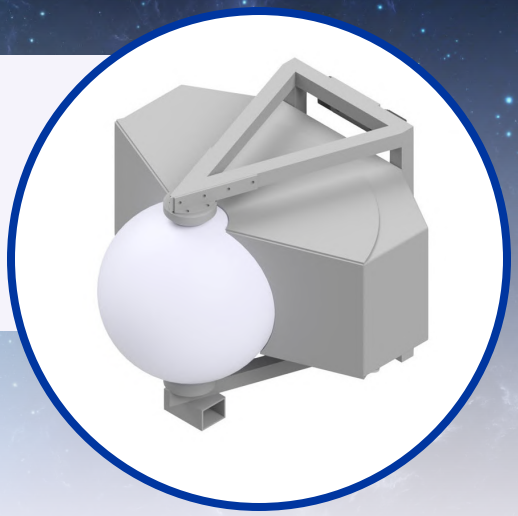
Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 207 X 206.5 cm 73.7 X 81.5 X 81.3 inch
Antenna Weight	258.3kg | 569.4lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150km/h	N/lbf Frontal: 1838/413 Lateral: 2053/462

MS-4F30

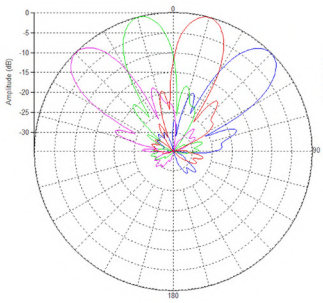
High-Capacity, Multi-Band Antennas ideal for macros, venues & events



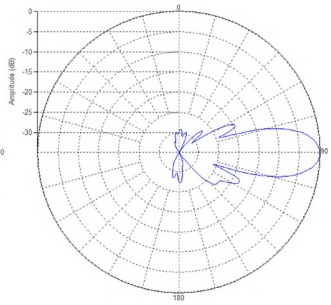
Multi-Beam Spherical Lens antenna with 4 independent (3300 - 4200MHz) cross-polarized beams with 2x2 MIMO support and 15° adjustable tilt per beam.

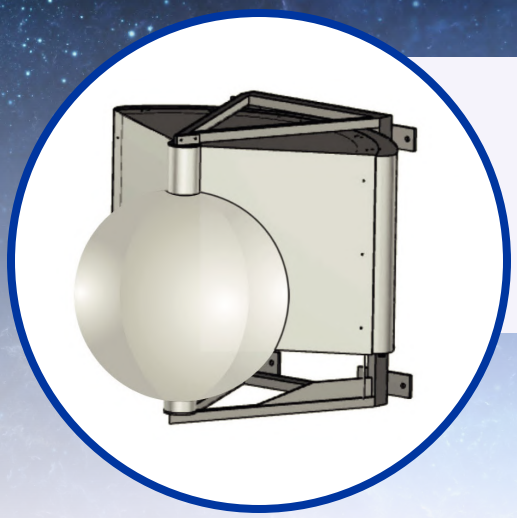
PATTERN RESULTS

Horizontal Pattern (3.6GHz)



Vertical Pattern (3.6GHz)





MS-4H60

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

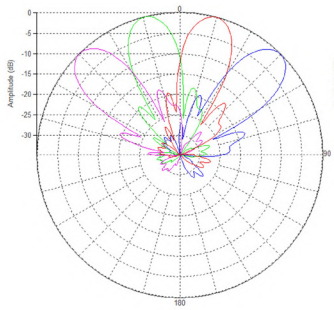
Multi-Beam Wide Band Spherical Lens Antenna 4 independent high frequency (1695-2690MHz) cross-polarized beams with 2X2 MIMO support and 15° adjustable tilt per beam.

TECHNICAL SPECIFICATIONS PER BEAM

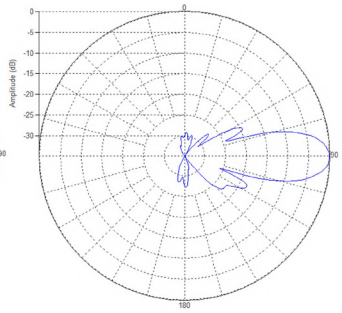
Frequency	1695-2690 MHz
Gain	20.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	4
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	8 x 4.3-10 female

PATTERN RESULTS

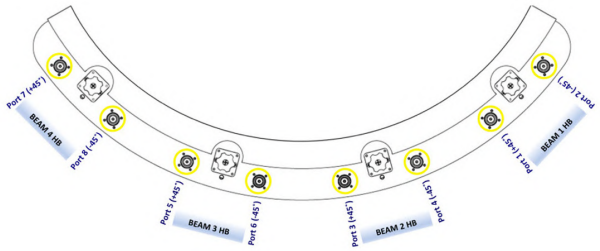
Horizontal pattern for 1.92GHz



Vertical pattern for 1.92GHz



CONNECTOR LAYOUT



MECHANICAL DATA

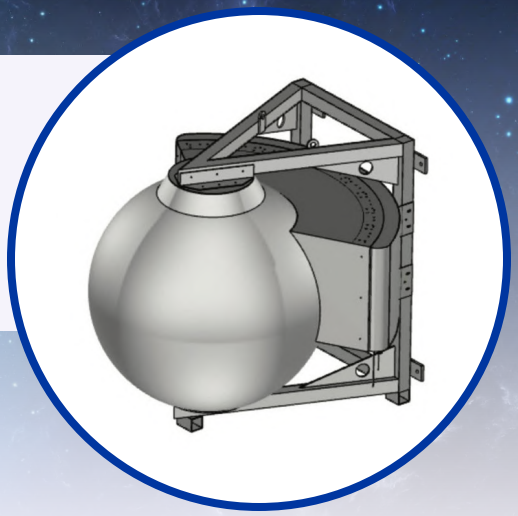
Dimensions (H x W x D)	Spherical Lens diameter: 60cm/24inch Antenna dimensions: 66 X 83 X 79.2 cm 26 X 32.7 X 31.2 inch
Antenna Weight	26.42kg | 58.2lbs
Radome Material	Fiber Glass
Mounting	Adjustable clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load (Front)	462N @ 151km/h 104lbf @ 151km/h

MS-6.3DB90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698-960 MHz	1695-2690 MHz
Gain	16.5dBi	22.8dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	40° 23°	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	42° 23°	21° 12°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
RET available, each RET motor controls 2 high-band beams and 1 low- band beam	10° to 25°	0° to 15°
First Sidelobe level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 X 4.3-10 female	12 X 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (698MHz - 960MHz) cross-polarized beams and 6 independent high-frequency (1695 - 2690MHz) crosspolarized beams, with 0-15° RET. Each RET motor controls two high-frequency beams and one low-frequency beam.

MECHANICAL DATA

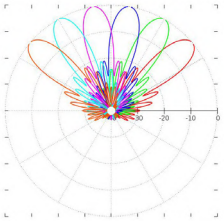
Dimensions (H x W x D)	SphericalLensdiameter: 90cm/35inch Antenna dimensions: 105 x 117 x 114 cm 41.4 x 46 x 45 inch
Antenna Weight	53kg/117lbs [Without RET] 57kg/126lbs [With RET]
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

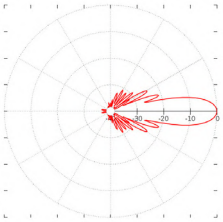
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	837 N @ 151km/hr 188 lbf @ 151km/hr

PATTERN RESULTS:

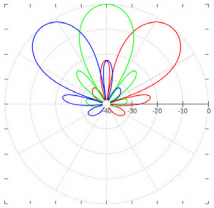
High-Band Horizontal Pattern (1.80GHz)



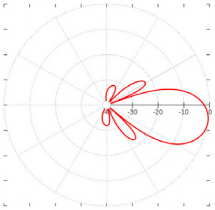
High-Band Vertical pattern (1.80GHz)



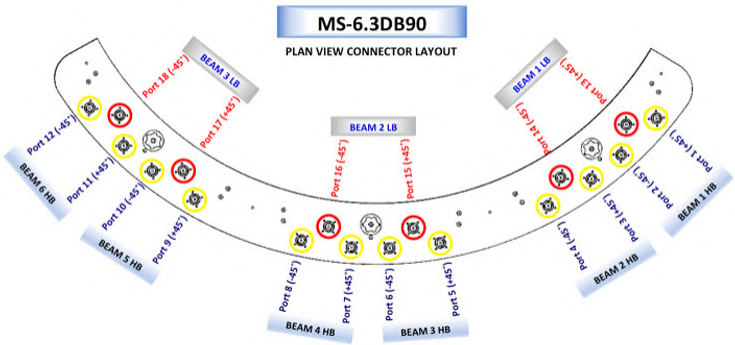
Low-Band Horizontal Pattern (0.85GHz)

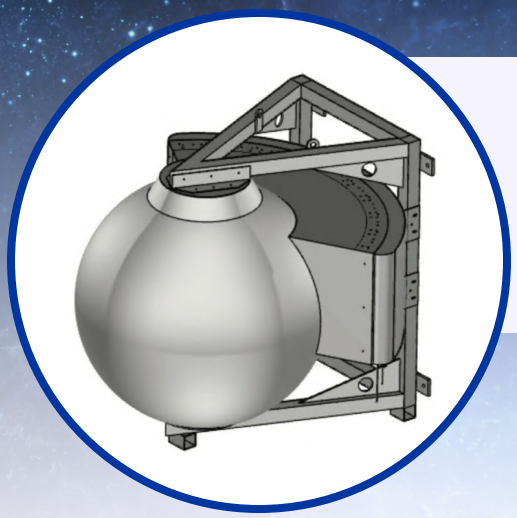


Low-Band Vertical Pattern (0.85GHz)



CONNECTOR LAYOUT





MS-6.3DB90-T

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

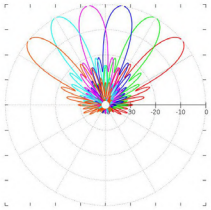
LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 3 independent low frequency (617-896 MHz) cross-polarized beams and 6 independent high-frequency (1695-2690MHz) cross-polarized beams, with 0-15° tilt for each 40° sector and 2X2 MIMO support per beam. Sector consists of 1 low-band beam and 2 high-band beams.

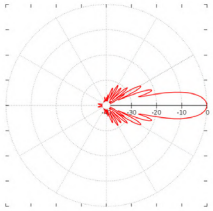
Standard RET Conguration

PATTERN RESULTS:

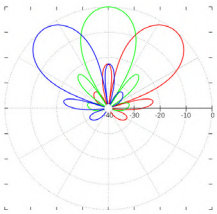
High-Band Horizontal Pattern (1.80GHz)



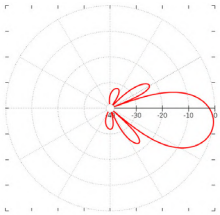
High-Band Vertical pattern (1.80GHz)



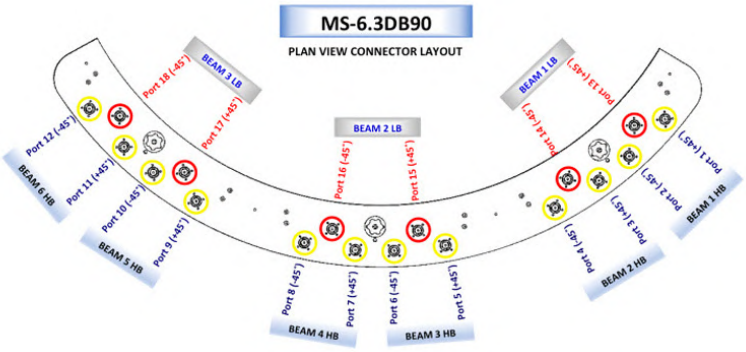
Low-Band Horizontal Pattern (0.85GHz)



Low-Band Vertical Pattern (0.85GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	16.5dBi	22.8dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	40° 23°	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	42° 23°	21° 12°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	3	6
Manual Adjustable Tilt per 40° sector (each sector having 2 high-band beams and 1 low- band beam)	10° to 25°	0° to 15°
First Sidelobe level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>28dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	6 X 4.3-10 female	12 X 4.3-10 female

MECHANICAL DATA

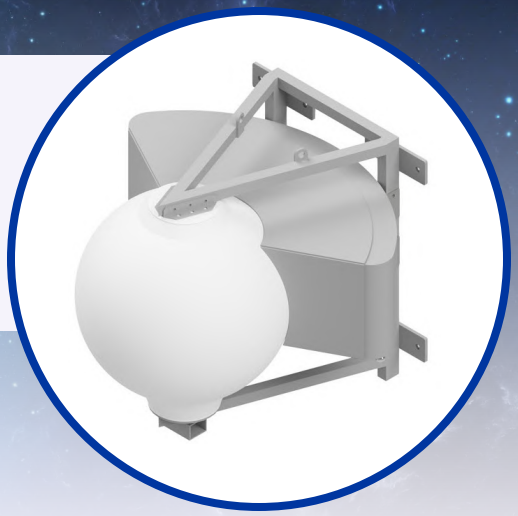
Dimensions (H x W x D)	SphericalLensdiameter: 90cm/35inch Antenna dimensions: 105.4 x 116.5 x 113.2cm 41.5 x 45.9 x 44.6 inch
Antenna Weight	53kg/117lbs [Without RET] 59.3kg/130.7lbs [With RET]
Radome Material	Fiber Glass
Mounting	Adjustable Clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	754 N @ 151 km/hr 170 lbf @ 151 km/h

MS-6C45

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

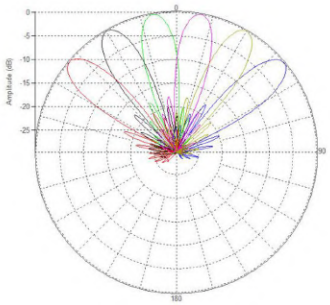
Multi-Beam Spherical Lens Antenna: 6 independent C-Band (3.7 - 4.2GHz) cross-polarized beams, with factory set 0-15° tilt for each beam and 2X2 MIMO support per beam.

TECHNICAL SPECIFICATIONS PER BEAM

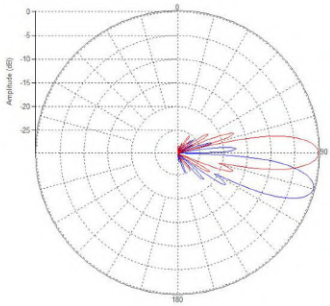
Frequency	3.7 – 4.2 GHz
Gain	22.6dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	19° 11.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	19° 11.5°
Beam Cross-over	10dB typical
Total Number of Beams	6
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

PATTERN RESULTS

High-Band Horizontal Pattern (3.95GHz)



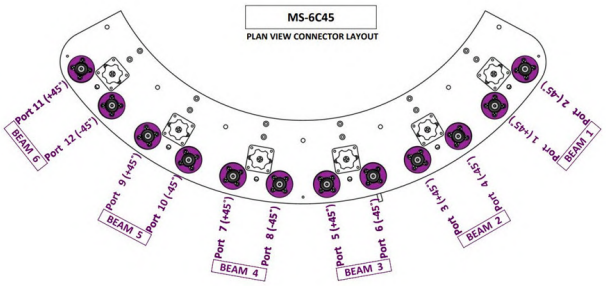
High-Band Vertical pattern (3.95GHz) tilt 0 & 15°



MECHANICAL DATA

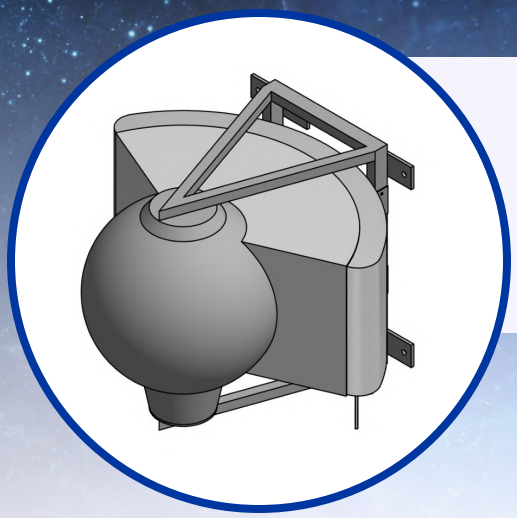
Dimensions (H x W x D)	Spherical Lens diameter: 45cm/18inch Antenna dimensions: 61.7 x 72.8 x 67.8 cm 24.3 x 28.7 x 26.7 inch
Antenna Weight	35kg | 77lbs
Radome Material	Fiber Glass
Mounting	Adjustable clamps Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @ 150m/hr	[N/lbf] Frontal: 263/95 Lateral: 197/44



MS-6F45

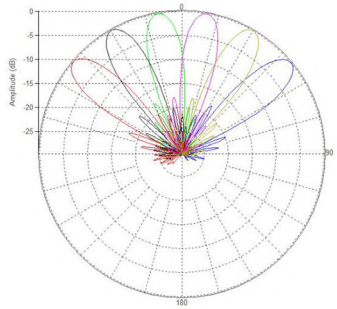
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

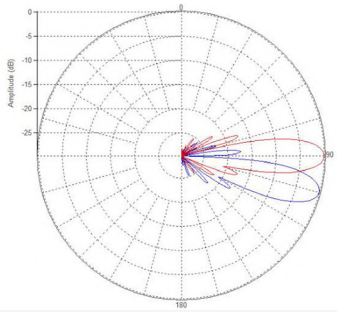
Multi-Beam Spherical Lens Antenna: 6 independent high-frequency (3300-4200MHz) cross-polarized beams, with 0-15° tilt for each beam and 2X2 MIMO support per beam.

PATTERN RESULTS (1.8GHz):

High-Band Horizontal Pattern (3.7GHz)



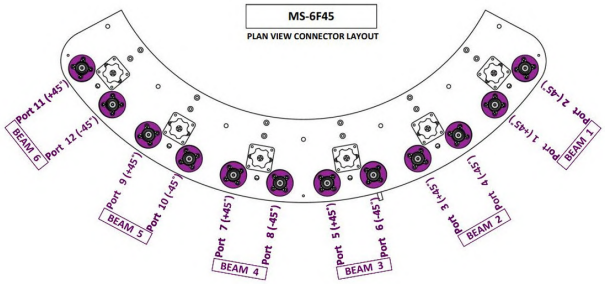
High-Band Vertical pattern (3.7GHz) tilt 0 & 15°



TECHNICAL SPECIFICATIONS

Frequency	3300 - 4200 MHz
Gain	22.3dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	6
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

CONNECTOR LAYOUT



MECHANICAL DATA

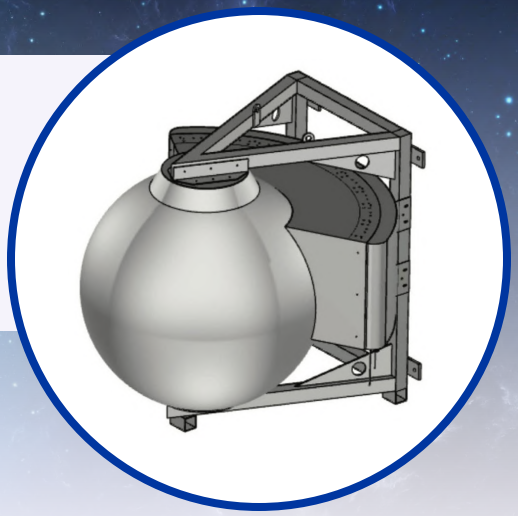
Dimensions (H x W x D)	Spherical Lens diameter: 45cm/18inch Antenna dimensions: 61.7 x 72.8 x 67.8 cm 24.3 x 28.7 x 26.7 inch
Antenna Weight	35kg | 77lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	TBD

MS-6H90

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	1695-2690 MHz
Gain	22.8dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	6
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm/35inch Antenna dimensions: 105.4 x 116.5 x 113.2 cm 41.5 x 45.9 x 44.6 inch
Antenna Weight	55.38kg | 122lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front) Wind load (Lateral)	520N/117lbf @ 150km/hr 614N/138lbf @ 150km/hr

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 6 independent high-frequency (1695-2690MHz) cross-polarized beams, with 0-15° tilt for each beam and 2X2 MIMO support per beam.

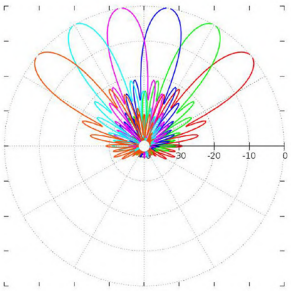
***Optional Packages:**

a) MS-6H90-RET

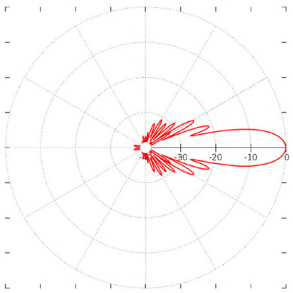
AISG 2.0 Remote Electrical Tilt

PATTERN RESULTS:

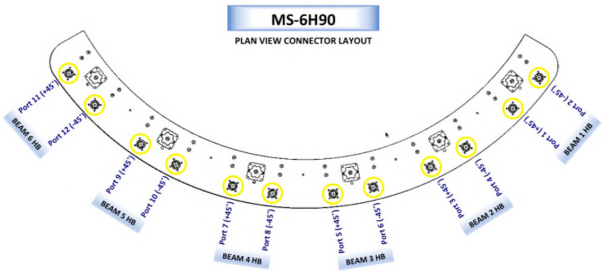
High-Band Horizontal Pattern (1.80GHz)

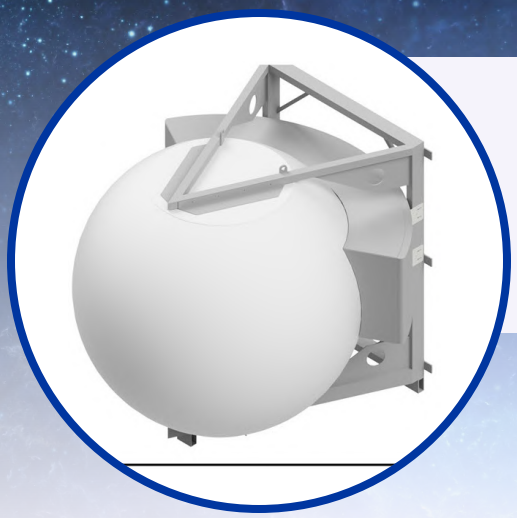


High-Band Vertical pattern (1.80GHz)



CONNECTOR LAYOUT





MS-6L180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 6 independent low frequency (698-960MHz) cross-polarized beams with 0°-15° tilt for each beam and 2X2 MIMO support.

***Optional Packages:**

a) MS-6L180-A-M :

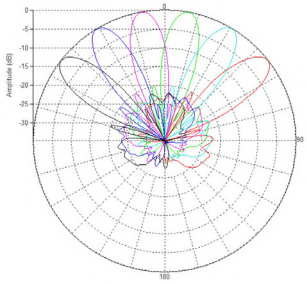
AISG 2.0 Remote Electrical Tilt, multi RET conguration

b) MS-6L180-A-S :

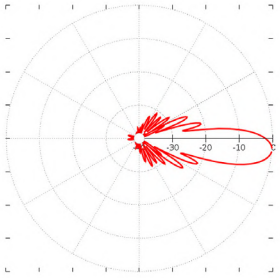
AISG 2.0 Remote Electrical Tilt, single RET conguration

PATTERN RESULTS:

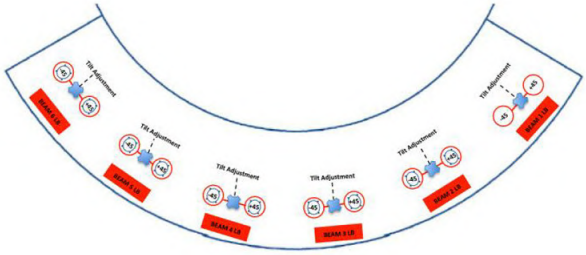
Low-Band Horizontal Pattern (0.85GHz)



Low-Band Vertical Pattern (0.85GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698-960 MHz
Gain	20.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	6
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

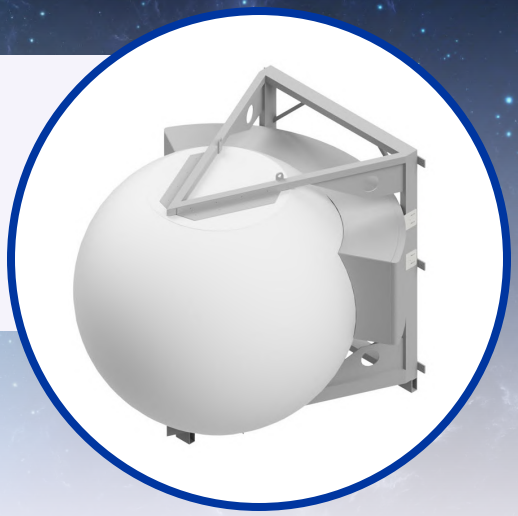
Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 204.4 X 207 cm 73.7 X 80.5 X 81.5 inch
Antenna Weight	233.5kg | 514.8lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	2316 N @ 160km/hr 520 lbf @ 160km/hr

MS-6T180

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

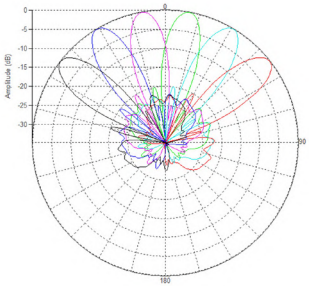
Multi-Beam Spherical Lens Antenna. Six independent low frequency (617-896MHz) cross-polarized beams with 0°-15° tilt for each beam and 2X2 MIMO support

TECHNICAL SPECIFICATIONS PER BEAM

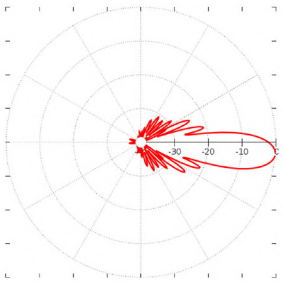
Frequency	617-896 MHz
Gain	20.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	20° 12°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	20° 12°
Beam Cross-over	10dB typical
Total Number of Beams	6
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

PATTERN RESULTS:

Low-Band Horizontal Pattern (0.85GHz)



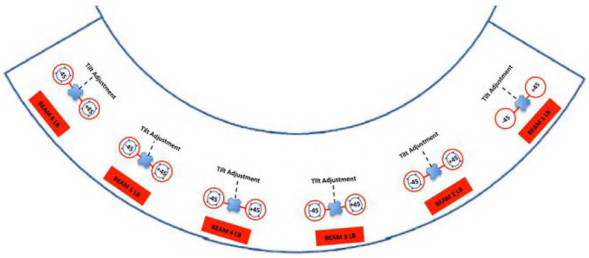
Low-Band Vertical Pattern (0.85GHz)



MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 180cm/70inch Antenna dimensions: 187.1 X 204.4 X 207 cm 73.7 X 80.5 X 81.5 inch
Antenna Weight	233.54kg | 514.8lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	2316 N @ 160km/hr 520 lbf @ 160km/hr

MS-8.4DB120

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

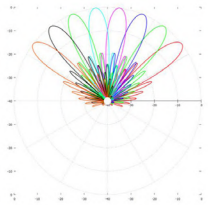
Multi-Beam Dual Band Spherical Lens Antenna: 4 independent low frequency (698 - 960MHz) cross-polarized beams and 8 independent high-frequency (1695-2690MHz) cross-polarized beams. High-band tilt range = 0-15° & Low-band tilt range =7.5-22.5° for each sector. The sector consists of 1 low-band beam and 2 high band beams.

TECHNICAL SPECIFICATIONS PER BEAM

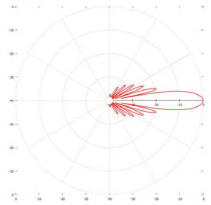
Frequency	698-960 MHz	1695-2690 MHz
Gain	19dBi	24dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°	15° 8.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°	15° 8.5°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	4	8
Manual Adjustable Tilt per 40° sector (each sector having 2 high-band beams and 1 low- band beam)	7.5° to 22.5°	0° to 15°
First Sidelobe level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	8 X 4.3-10 female	16 X 4.3-10 female

PATTERN RESULTS:

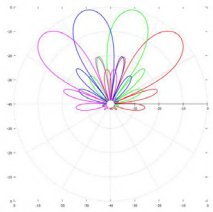
High-Band Horizontal Pattern (1.80GHz)



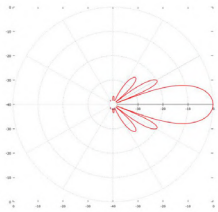
High-Band Vertical pattern (1.80GHz)



Low-Band Horizontal Pattern (0.85GHz)



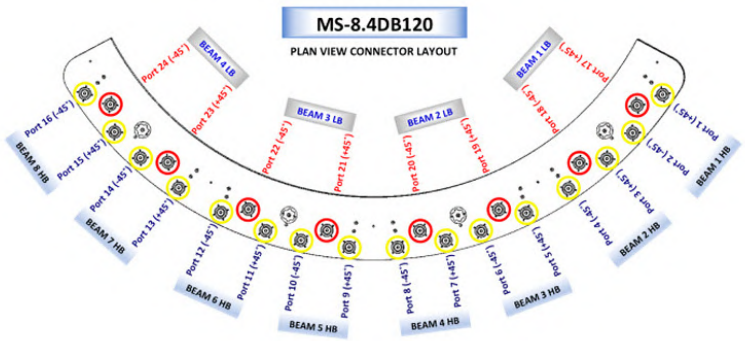
Low-Band Vertical Pattern (0.85GHz)



MECHANICAL DATA

Dimensions (H x W x D)	SphericalLensdiameter: 120cm/47inch Antenna dimensions: 128 X 143 X 145.5 cm 50.4 X 56.3 X 57.3 inch
Antenna Weight	91.06 kg 59.3kg/200.7lbs
Radome Material	Fiber Glass
Mounting	Standard Pipe Mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	959 N @ 151 km/hr 216 lbf @ 151 km/hr

MS-8.4DB120-T

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz	1695-2690 MHz
Gain	16dBi	24dBi
VSWR	<1.5:1	<1.5:1
Polarization	Dual Slant ±45°	Dual Slant ±45°
Horizontal Coverage	120°	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°	15° 8.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°	15° 8.5°
Beam Cross-over	10dB typical	10dB typical
Total Number of Beams	4	8
Manual Adjustable Tilt per 40° sector (each sector having 2 high-band beams and 1 low- band beam)	7.5° to 22.5°	0° to 15°
First Sidelobe level	<-15dB	<-16dB
Front to Back Ratio	>28dB	>28dB
Isolation Port to Port - Polarization	>28dB	>28dB
Isolation Port to Port - Beam	>26dB	>26dB
Power Rating	250W per port	250W per port
Intermodulation	<-153dBc	<-153dBc
Impedance	50 ohm	50 ohm
Connector Quantity and Type	8 X 4.3-10 female	16 X 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Multi-Beam Dual Band Spherical Lens Antenna: 4 independent low frequency (617 - 896MHz) cross-polarized beams and 8 independent high-frequency (1695 - 2690MHz) cross-polarized beams. High-band tilt range = 0 - 15° & Low-band tilt range =7.5 - 22.5° for each sector. The sector consists of 1 low-band beam and 2 high band beams.

MECHANICAL DATA

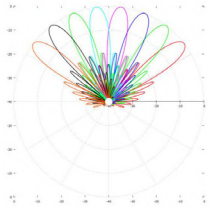
Dimensions (H x W x D)	SphericalLensdiameter: 120cm/47inch Antenna dimensions: 128 X 143 X 145.5 cm 50.4 X 56.3 X 57.3 inch
Antenna Weight	91.06 kg 200.7lbs
Radome Material	Fiber Glass
Mounting	Standard Pipe Mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

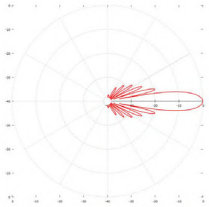
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	TBD

PATTERN RESULTS:

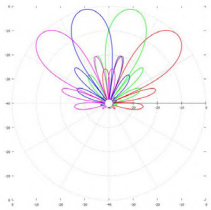
High-Band Horizontal Pattern (1.80GHz)



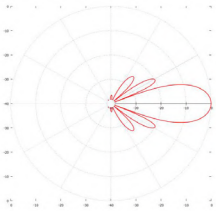
High-Band Vertical pattern (1.80GHz)



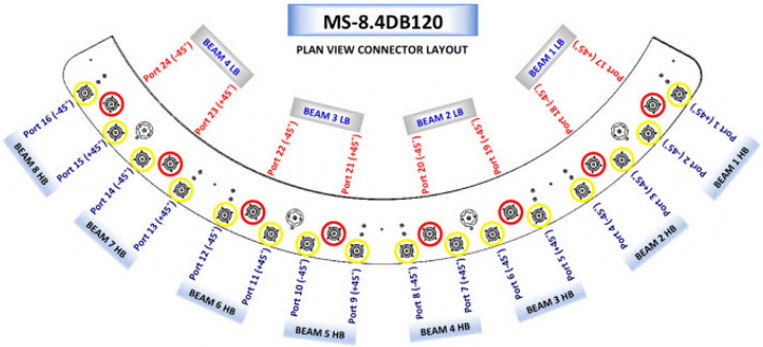
Low-Band Horizontal Pattern (0.80GHz)

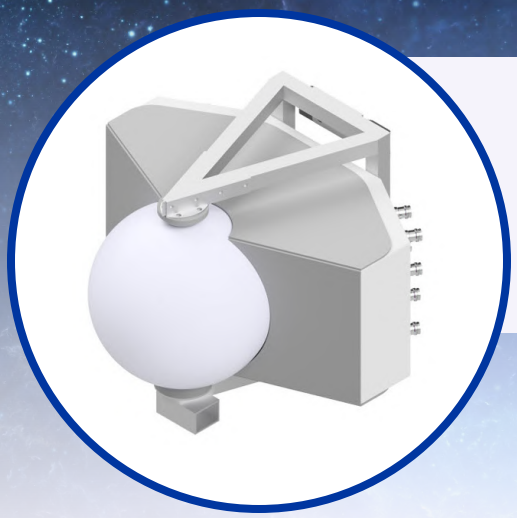


Low-Band Vertical Pattern (0.850Hz)



CONNECTOR LAYOUT





MS-8F30

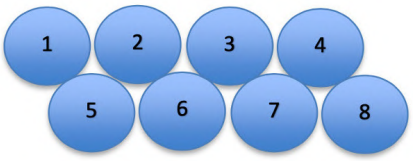
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna utilizes a patented spherical lens design with 8 F-Band (3.3GHz – 4.2GHz) cross-polarized beams. Beams are arranged in two rows of 4 with the second row oset to minimize overlap/null.

BEAM LAYOUT

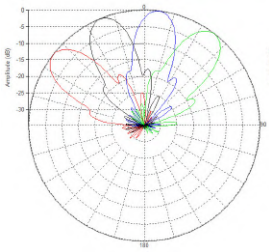
Top Row Tilt = -13°



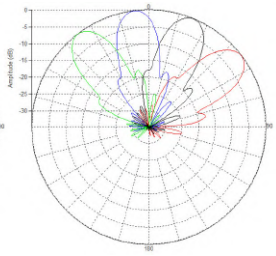
Bottom Row Tilt = 13°

PATTERN RESULTS (3.6GHz):

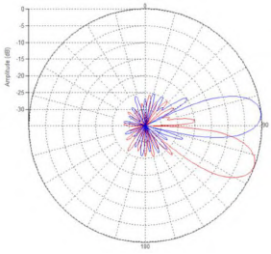
Horizontal Pattern top row



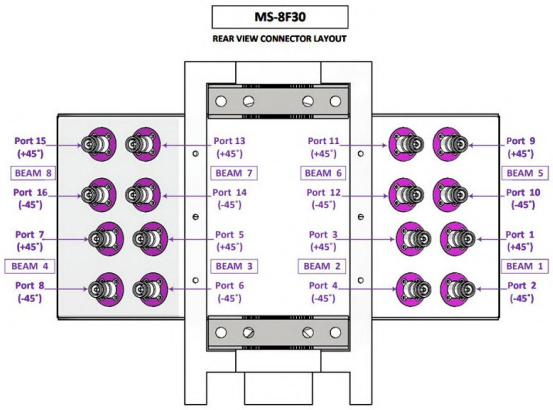
Horizontal Pattern bottom row



Vertical Pattern



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	3.3GHz – 4.2GHz
Gain	20dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	8
Tilt (Factory Set)	-13° upper row -13° lower row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 x 4.3-10 female

MECHANICAL DATA

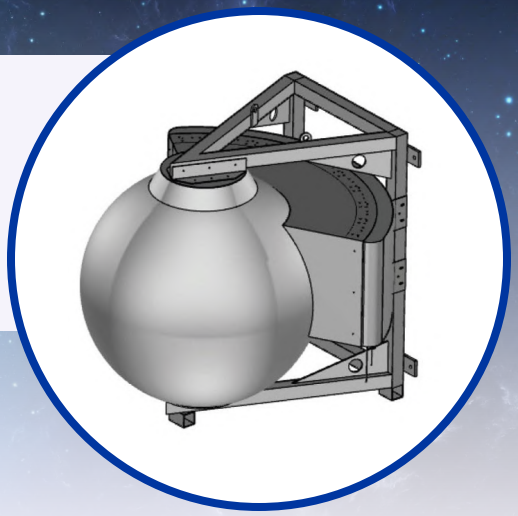
Dimensions (H x W x D)	40.3 x 52 x 48.2 cm 16 x 20.5 x 19 inch
Antenna Weight	12.14kg | 26.71lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	TBD

MS-8F60

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

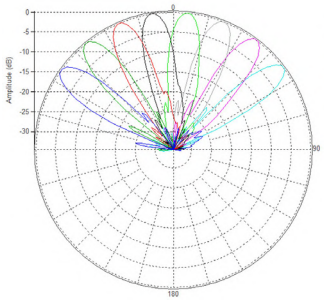
Multi-Beam Spherical Lens Antenna: With eight CBRS frequency (3.3 GHz – 4.2 GHz) cross-polarized beams, each beam has independent tilt from 0° to 15°

TECHNICAL SPECIFICATIONS PER BEAM

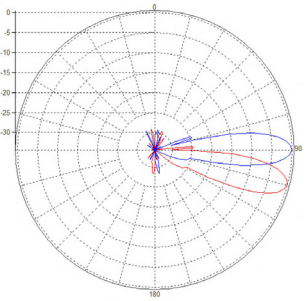
Frequency	3.3GHz – 4.2GHz
Gain	24dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	17° 9.5°
Vertical Beamwidth (3dB level)	10°
Beam Cross-over	6-8dB typical
Total Number of Beams	8
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-18dB
Front to Back Ratio	>30dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 x 4.3-10 female

PATTERN RESULTS (3.6GHz):

Horizontal Pattern



Vertical Pattern



MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 60cm / 23inch Antenna dimensions: 72.3 X 86.1 X 80 cm 28.5 X 33.9 X 31.5 inch
Antenna Weight	23kg | 50.7lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

MS-8H120

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 8 independent high frequency (1695-2690MHz) cross-polarized beams, with 0-15° tilt for each beam and 2X2 MIMO support per beam.

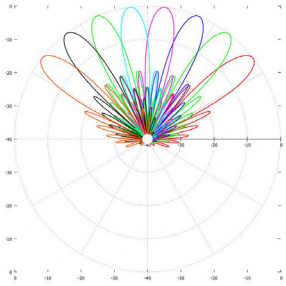
***Optional Packages:**

a) MS-8H120-RET

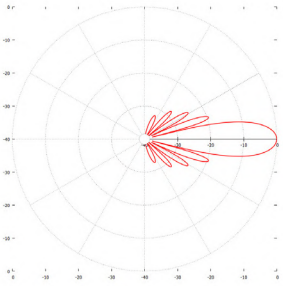
AISG 2.0 Remote Electrical Tilt

PATTERN RESULTS:

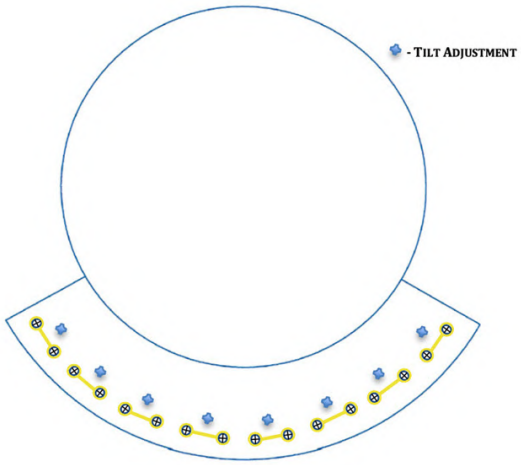
High-Band Horizontal Pattern (1.80GHz)



High-Band Vertical pattern (1.80GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS

Frequency	1695-2690 MHz
Gain	24.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	15° 8.5°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	15° 8.5°
Beam Cross-over	10dB typical
Total Number of Beams	8
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 x 4.3-10 female

MECHANICAL DATA

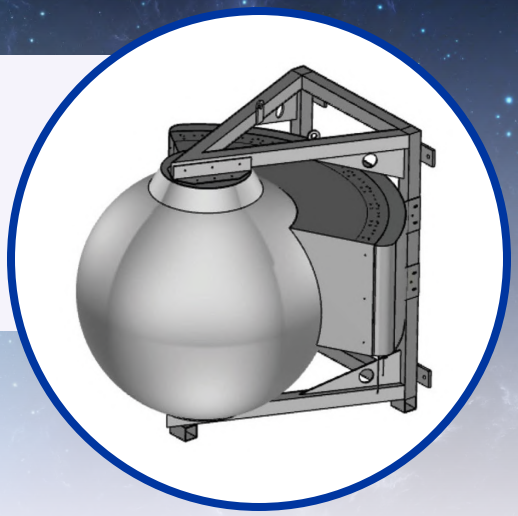
Dimensions (H x W x D)	Spherical Lens diameter: 120cm/47inch Antenna dimensions: 128 X 145.5 X 142.4 cm 50.4 X 57.3 X 56.1inch
Antenna Weight	75kg | 165.3lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load @150 km/hr	N/lbf Frontal: 1108.5/249.2

MS-8H60

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

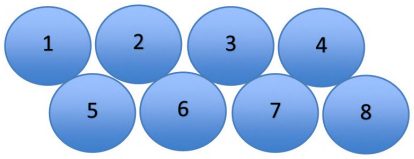
Frequency	1695-2690 MHz
Gain	20.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120° 4 sectors 30° each
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	8
Tilt (Factory Set)	-13° upper row -13° lower row
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 8 independent high frequency (1695-2690MHz) cross-polarized beams. Beams are arranged in two rows of 4 with the second row oset to minimize overlap/null.

BEAM LAYOUT

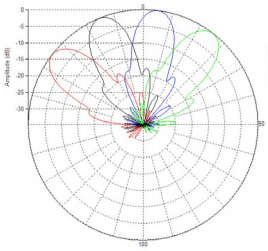
Top Row Tilt = -13°



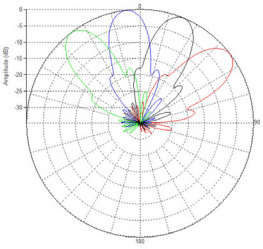
Bottom Row Tilt = 13°

PATTERN RESULTS (1.8GHz):

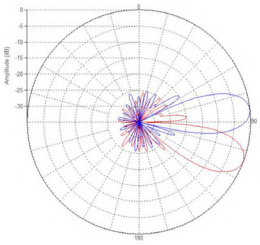
Horizontal Pattern top row



Horizontal Pattern bottom row



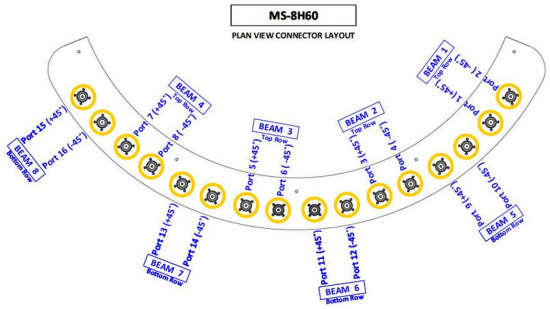
Vertical Pattern



MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 60cm/24inch Antenna dimensions: 81.5 x 92.4 x 80 cm 32 x 36.4 x 31.5 inch
Antenna Weight	30.62kg | 67.51lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 60cm/24inch Antenna dimensions: 81.5 x 92.4 x 80 cm 32 x 36.4 x 31.5 inch
Antenna Weight	30.62kg | 67.51lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	TBD

MS-8L120

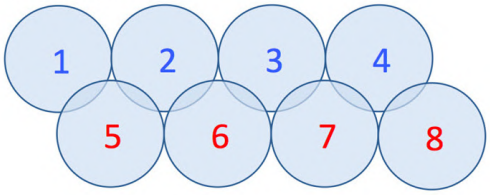
High-Capacity, Multi-Band Antennas ideal for macros, venues & events

LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna: 8 independent low-frequency (698 - 960 MHz) cross-polarized beams with 2X2 MIMO support per beam.

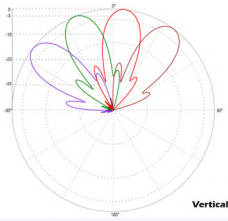
BEAM LAYOUT

BEAM LAYOUT:

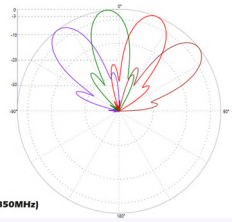


PATTERN RESULTS (3.6GHz):

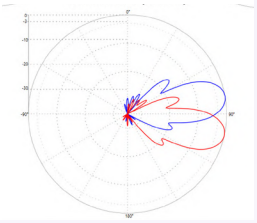
Horizontal Pattern Row 1 (850MHz)



Horizontal Pattern Row 2 (850MHz)

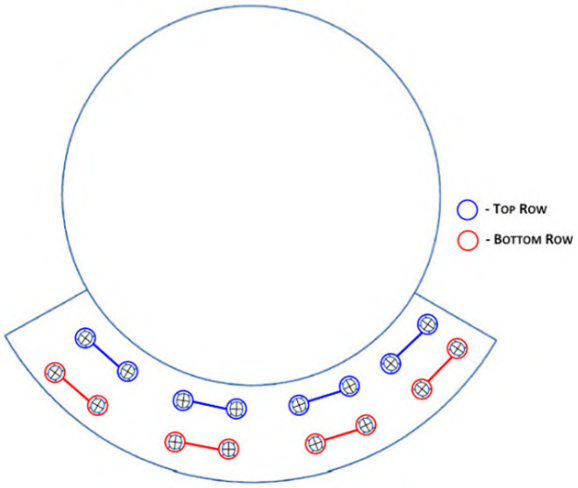


Vertical Pattern (850MHz)



Vertical Pattern (1 (850MHz)

CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	698 - 960 MHz
Gain	19dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage per row Total coverage	120° 135°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	8
Tilt	Factory Set
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 X 4.3-10 female

MECHANICAL DATA

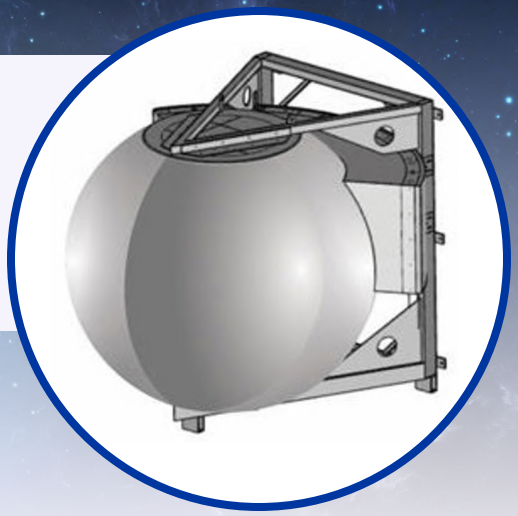
Dimensions (H x W x D)	Spherical Lens diameter: 120cm/47inch Antenna dimensions: 128 X 155.1 X 143 cm 50.4 X 61.1 X 56.3 inch
Antenna Weight	86.08kg | 189.7lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Front)	959N @ 150km/hr 216lbf @150km/hr

MS-8T120

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



LENS TECHNOLOGY EN/ BLED

Multi-Beam Spherical Lens Antenna. Eight independent low-frequency (617-896MHz) cross-polarized beams with 2X2 MIMO support per beam.

TECHNICAL SPECIFICATIONS PER BEAM

Frequency	617-896 MHz
Gain	19dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage per row Total coverage	120° 135°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	30° 17°
Vertical Beamwidth (10dB level) Vertical Beamwidth (3dB level)	30° 17°
Beam Cross-over	10dB typical
Total Number of Beams	8
Tilt	Factory Set
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>26dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	16 X 4.3-10 female

MECHANICAL DATA

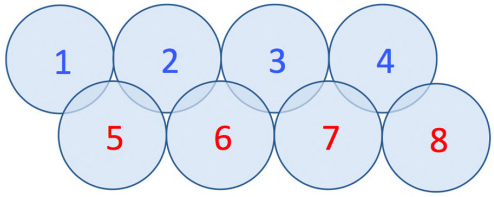
Dimensions (H x W x D)	Spherical Lens diameter: 120cm/47inch Antenna dimensions: 140 x 140 x 160 cm 55 x 55 x 62 inch
Antenna Weight	75kg | 165lbs
Radome Material	Fiber Glass
Mounting	Standard pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	TBD

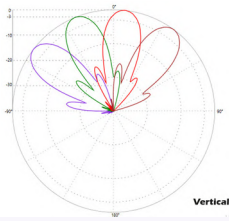
BEAM LAYOUT

BEAM LAYOUT:

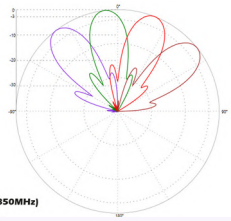


PATTERN RESULTS

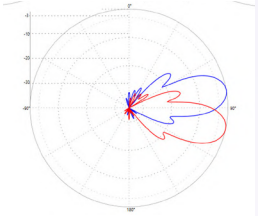
Horizontal Pattern Row 1 (850MHz)



Horizontal Pattern Row 2 (850MHz)

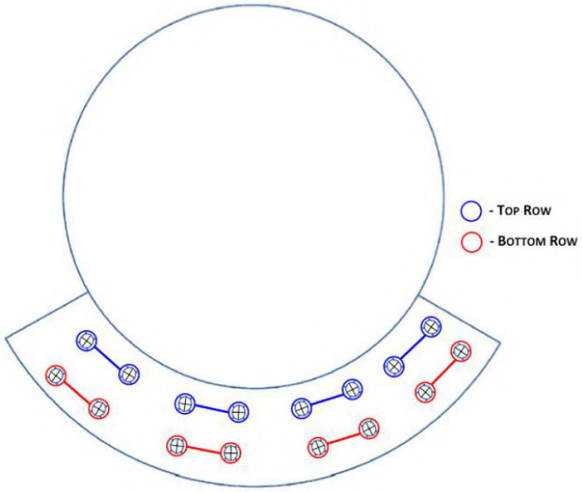


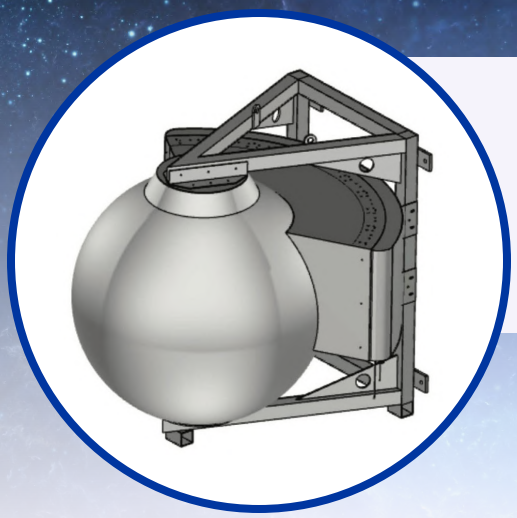
Vertical Pattern (850MHz)



Vertical Pattern (n (850MHz)

CONNECTOR LAYOUT





MS-9H90-FWB-2.3

High-Capacity, Multi-Band Antennas ideal for macros, venues & events

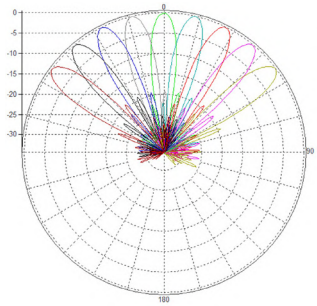
LENS TECHNOLOGY EN/ BLED

Multi-Beam broadband Spherical Lens Antenna to support xed wireless broadband LTE 40 band: 9 independent high-frequency (2300MHz - 2400MHz) cross-polarized beams, with 0-15° tilt for each beam and 2X2 MIMO support per beam.

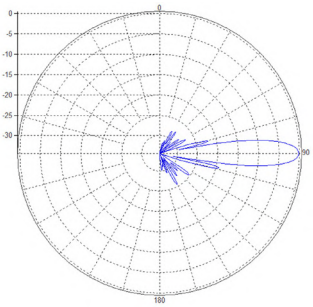
- MS-9H90-FWB-2.3 (Non-RET Model)
- MS-9H90-FWB-2.3-S (RET Model)

PATTERN RESULTS:

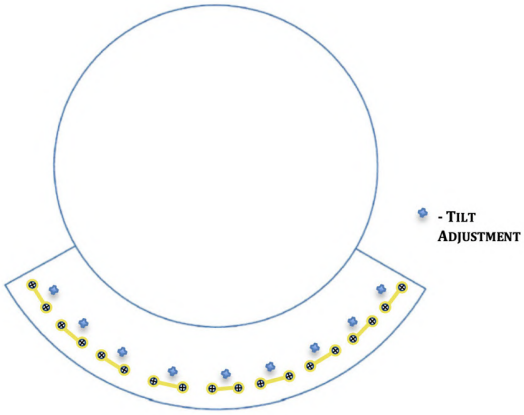
Horizontal Antenna Patterns (2.35GHz)



Vertical Antenna Patterns (2.35GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	2300 -2400 MHz
Gain	25dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level)	15° ± 1.5°
Vertical Beamwidth (10dB level)	14 - 16°
Beam Cross-over	7 ± 1 dB typical
Total Number of Beams	9
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	18 x 4.3-10 DIN female

MECHANICAL DATA

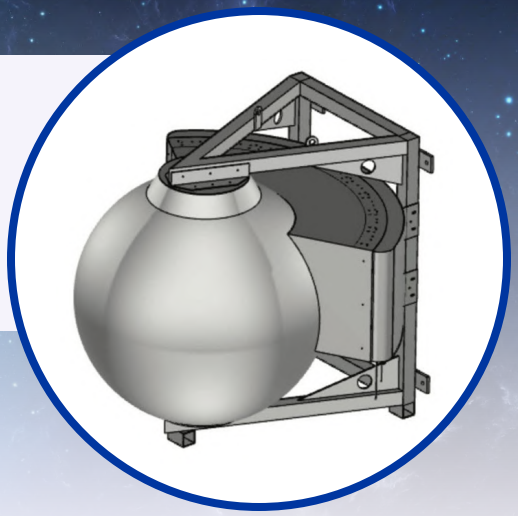
Dimensions (H x W x D)	Spherical Lens diameter: 90cm / 36inch Antenna dimensions: 105 x 115 x 110 cm 41 x 45 x 43 inch
Antenna Weight (RET Capable) Antenna Weight (Non-RET)	756 kg / 123lbs 51 kg / 112lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	754 N @ 151 km/hr 170 lbf @ 151 km/hr

MS-9SH90-FWB

High-Capacity, Multi-Band Antennas ideal for macros, venues & events



TECHNICAL SPECIFICATIONS PER BEAM

Frequency	2300MHz -2400MHz 3400MHz - 3600 MHz
Gain	25dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	120°
Horizontal Beamwidth (10dB level)	15° ± 1.5°
Vertical Beamwidth (10dB level)	14 - 16°
Beam Cross-over	7 ± 1 dB typical
Total Number of Beams	9
Manual Adjustable Tilt per Beam	0° to 15°
First Sidelobe level	<-16dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	200W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	18 x 4.3-10 DIN female

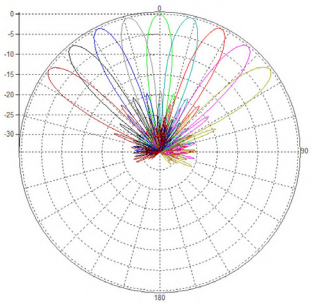
LENS TECHNOLOGY EN/ BLED

Multi-Beam broadband Spherical Lens Antenna to support xed wireless broadband LTE 40 and 42 bands: 9 independent high-frequency (2300MHz – 2400MHz & 3400MHz - 3600MHz) cross-polarized beams, with 0-15° tilt for each beam and 2X2 MIMO support per beam.

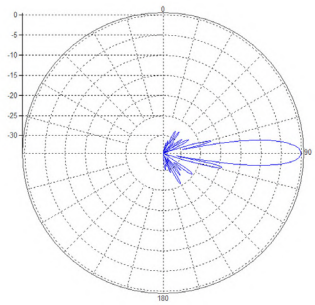
- MS-9SH90-FWB (Non-RET Model)
- MS-9SH90-FWB-S (RET Model)

PATTERN RESULTS:

Horizontal Antenna Patterns (2.35GHz)



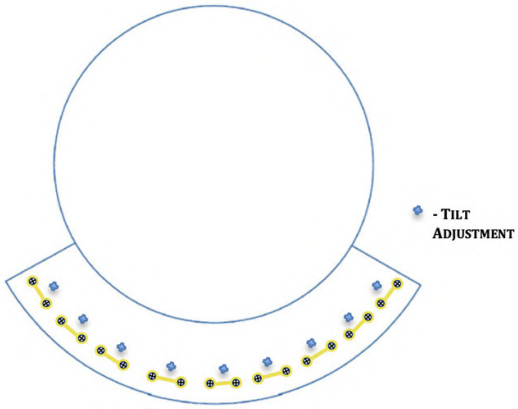
Vertical Antenna Patterns (2.35GHz)



MECHANICAL DATA

Dimensions (H x W x D)	Spherical Lens diameter: 90cm / 36inch Antenna dimensions: 105.4 x 113.7 x 109.9 cm 41.5 x 44.8 x 43.3 inch
Antenna Weight (RET Capable) Antenna Weight (Non-RET)	54 kg / 119lbs 49 kg / 108lbs
Radome Material	Fiber Glass
Mounting	2 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



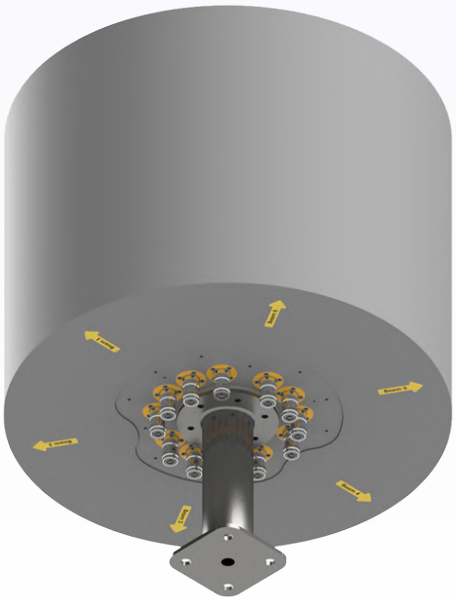
ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	754 N @ 151 km/hr 170 lbf @ 151 km/hr

Light Pole Lens Antennas

6-Sector, Dual Band, Lens Antennas

Dense Urban and High Traffic Areas



Multi-Sector Coverage

Quick Install

Discreet Placement

Ideal for Outdoors and Indoors

High Bandwidth

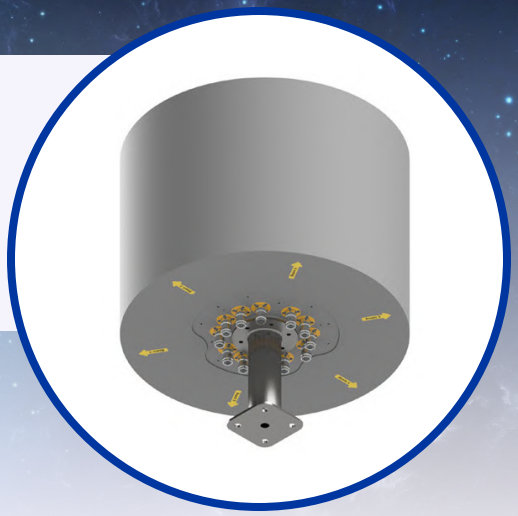
4G and 5G

MATSING®

LENS TECHNOLOGY ENABLED

MS-LP-6-H2

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments



LENS TECHNOLOGY EN/ BLED

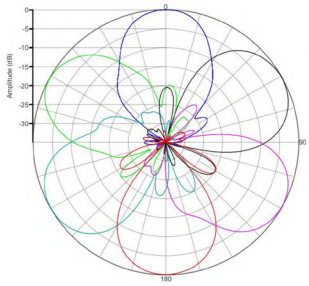
Matsing introduces Lens Technology EnabledTM Multi-Beam Antenna perfect for up to 6 sectors CRAN, Outdoor DAS and Small Cell deployment. This antenna is capable of 2X2 MIMO with a coverage footprint of 360°. Each beam has two full-band ports to support 1695- 2690 MHz. Factory Set Tilt of 0°.

TECHNICAL SPECIFICATIONS

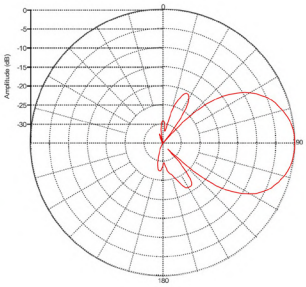
Frequency	1695 - 2690 MHz
Gain	14dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	360°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	65° 38°
Vertical Beamwidth (3dB level)	38°
Beam Cross-over	8dB typical
Total Number of Beams	6
Number of Ports per Beam	2
Number of Ports Total	12
Tilt Per Cross-Pol	0°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

PATTERN RESULTS:

Horizontal Pattern (2.0GHz)



Vertical pattern at 0° tilt and 30° tilt (2.0GHz)

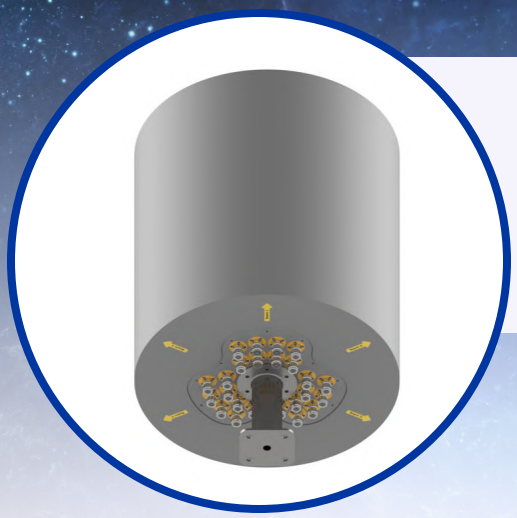


MECHANICAL DATA

Dimensions (H x W x D)	Cylindrical Design Diameter: 54 cm / 21 inches Total Height 40 cm / 16 inches
Antenna Weight	8kg | 17.6lbs
Radome Material	Fiber Glass
Mounting	1 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	N/lbf Frontal: 164.4/37.2 Lateral: 164.4/37.2 Rear: 164.4/37.2



MS-LP-6-H4

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments

LENS TECHNOLOGY EN/ BLED

Lens Technology EnabledTM Multi-Beam Antenna perfect for up to 6 sectors CRAN, Outdoor DAS and Small Cell deployment. This antenna is capable of 4X4 MIMO with a coverage footprint of 360°. Each beam has four full-band ports to support 1695- 2690 MHz. Factory installed tilt settings are available for 0° & 30°.

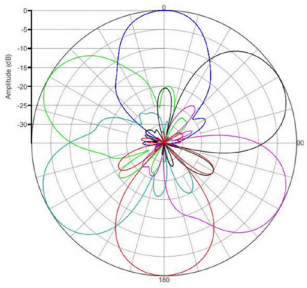
Model Numbers:

0° Light Pole Antenna Model # MS-LP-6-H4

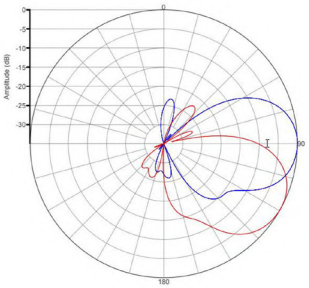
30° Light Pole Antenna Model # MS-LP-6-H4-30°b) MS-6L180-A-S:

PATTERN RESULTS:

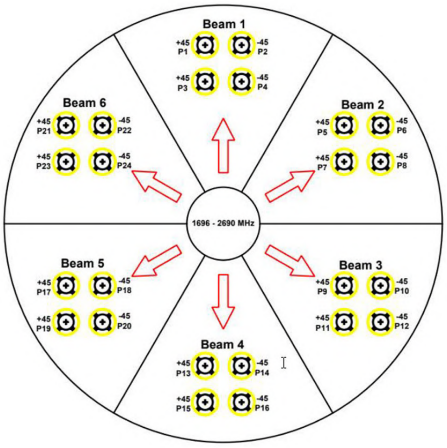
Horizontal Pattern (2.0GHz)



Vertical pattern at 0° tilt and 30° tilt (2.0GHz)



CONNECTOR LAYOUT



TECHNICAL SPECIFICATIONS

Frequency	1695 - 2690 MHz
Gain	14dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	360°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	65° 38°
Vertical Beamwidth (3dB level)	38°
Beam Cross-over	8dB typical
Total Number of Beams	6
Number of Ports per Beam	4
Number of Ports Total	24
Tilt Per Cross-Pol	0°, 30°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	12 x 4.3-10 female

MECHANICAL DATA

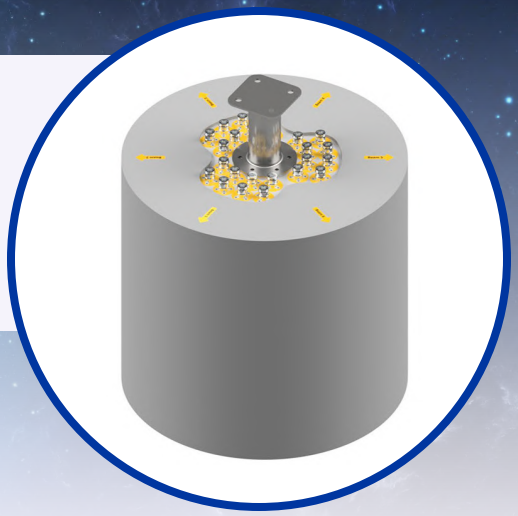
Dimensions (H x W x D)	Cylindrical Design Diameter: 61 cm / 24 inches Total Height 61 cm / 24 inches
Antenna Weight	11kg | 24lbs
Radome Material	Fiber Glass
Mounting	1 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	230 N / 562 lbf

MS-LP-6-H4-30i

6-Sector, Dual Band, Easy to Mount Lens Antennas
for dense urban and high traffic area deployments



LENS TECHNOLOGY EN/ BLED

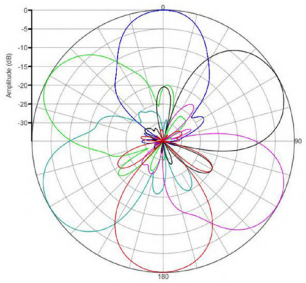
Matsing introduces Lens Technology EnabledTM Multi-Beam Antenna perfect for up to 6 sectors CRAN, Outdoor DAS and Small Cell deployment. This antenna is capable of 4X4 MIMO with a coverage footprint of 360°. Each beam has four full-band ports to support 1695- 2690 MHz. Factory installed tilt settings are available for 0° & 30°.

TECHNICAL SPECIFICATIONS

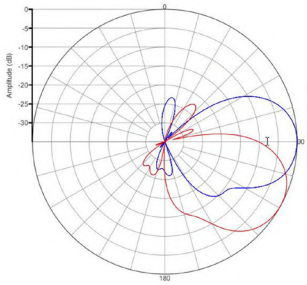
Frequency	1695 - 2690 MHz
Gain	13dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	360°
Horizontal Beamwidth (10dB level) Horizontal Beamwidth (3dB level)	65° 38°
Vertical Beamwidth (3dB level)	38°
Beam Cross-over	8dB typical
Total Number of Beams	6
Number of Ports per Beam	4
Number of Ports Total	24
Tilt Per Cross-Pol	0°, 30°
First Sidelobe level	<-15dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Isolation Port to Port - Beam	>28dB
Power Rating	100W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	24 x 4.3-10 female

PATTERN RESULTS:

Horizontal Pattern (2.0GHz)



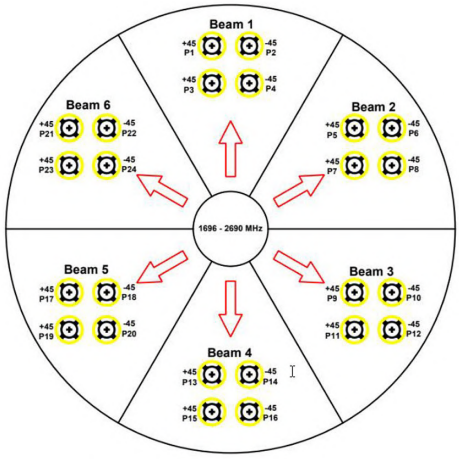
Vertical pattern at 0° tilt and 30° tilt (2.0GHz)



MECHANICAL DATA

Dimensions (H x W x D)	Cylindrical Design Diameter: 61 cm / 24 inches Total Height 61 cm / 24 inches
Antenna Weight	20kg | 44lbs
Radome Material	Fiber Glass
Mounting	1 position pipe mount Compatible pipe diameter: 6.1 – 11.4 cm 2.4 – 4.5 inch

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 150m/hr	230 N / 562 lbf

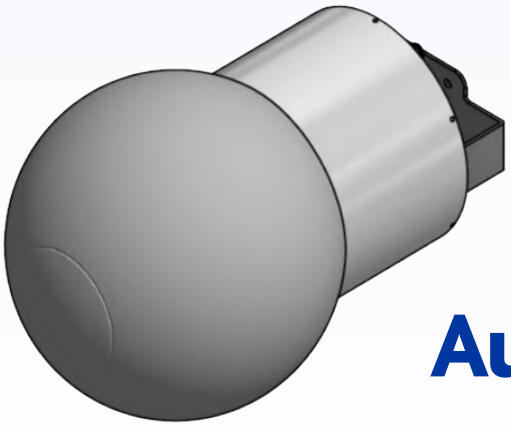
Single Beam Lens Antennas

Light-Weight, Single Band Lens Antennas

Venues and Buildings

C-Band Overlay

Cost Effective Deployment



Capacity Augmentation

For 4G LTE and 5G

In-Building Coverage

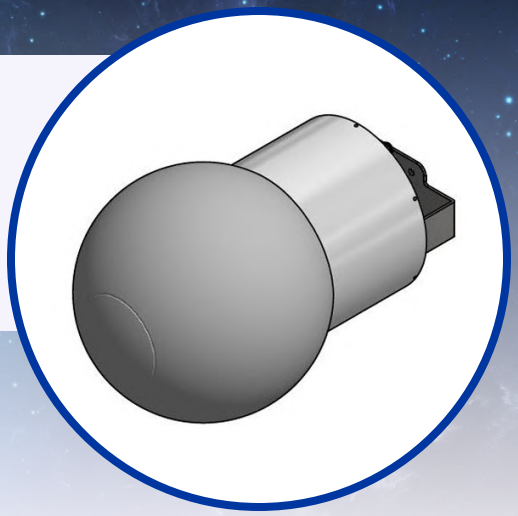
Easy Mount and Install

MATSING®

LENS TECHNOLOGY ENABLED

MS-SB17-C

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments



TECHNICAL SPECIFICATIONS

Frequency	3700– 4200 MHz
Gain	20dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	30°
Horizontal Beamwidth (3dB level)	17°
Vertical Beamwidth (3dB level)	17°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-19dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated C- Band Frequency (3700-4200MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low sidelobe levels.

MECHANICAL DATA

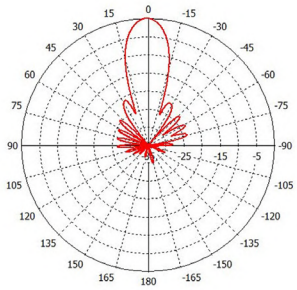
Dimensions (H x W x D)	27.4 x 27.4 x 45.9 cm 10.8 x 10.8 x 81.1 inch
Antenna Weight	3.5kg | 7.7lbs
Radome Material	Polycarbonate
Mounting	TBD

ENVIRONMENTAL RATINGS

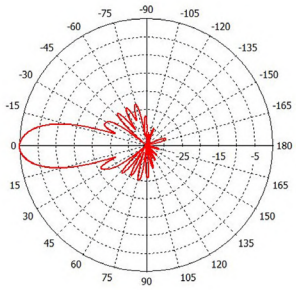
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 160m/hr	N/lbf Frontal:25.7/5.8 Lateral: 57.6/12.6

PATTERN RESULTS:

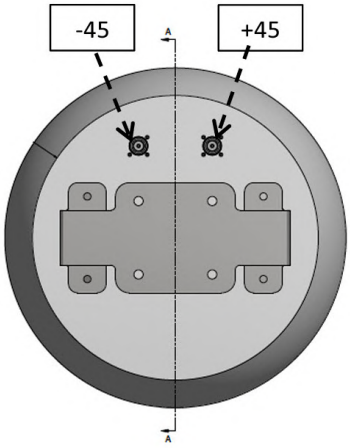
Horizontal Pattern (3.7GHz)

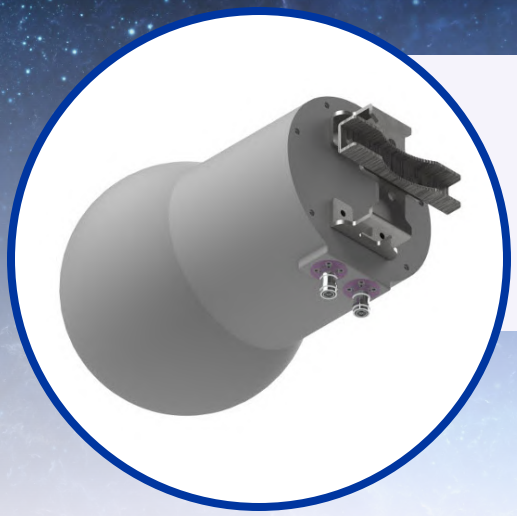


Vertical Pattern (3.7GHz)



CONNECTOR LAYOUT





MS-SB17-F

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments

LENS TECHNOLOGY EN/ BLED

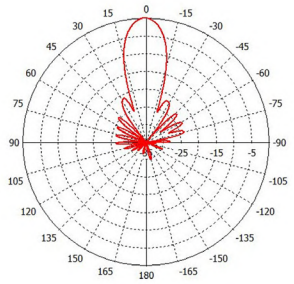
Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated F- Band Frequency (3300-4200MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobe levels.

TECHNICAL SPECIFICATIONS

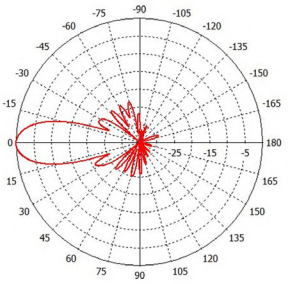
Frequency	3300– 4200 MHz
Gain	19dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	30°
Horizontal Beamwidth (3dB level)	17°
Vertical Beamwidth (3dB level)	17°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-19dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

PATTERN RESULTS:

Horizontal Pattern (3.5GHz)



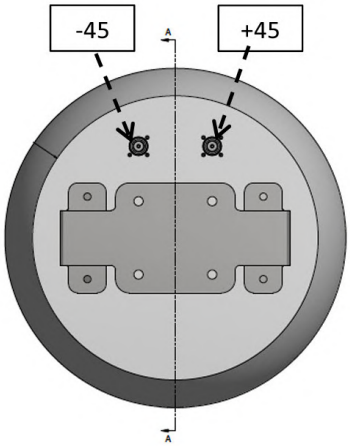
Vertical Pattern (3.5GHz)



MECHANICAL DATA

Dimensions (H x W x D)	27.4 x 27.4 x 45.9 cm 10.8 x 10.8 x 81.1 inch
Antenna Weight	3.5kg | 7.7lbs
Radome Material	Polycarbonate
Mounting	TBD

CONNECTOR LAYOUT

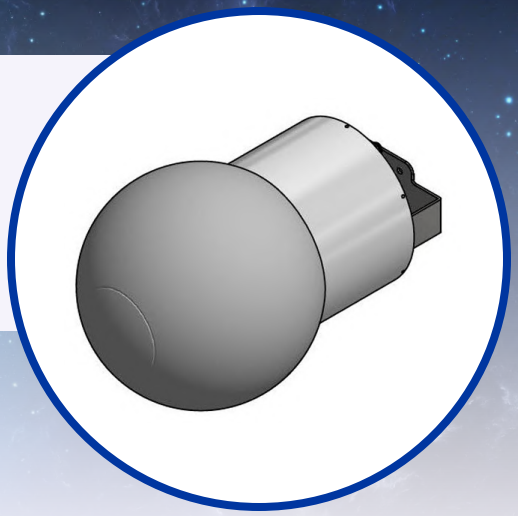


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 160m/hr	N/lbf Frontal: 27.8/6.25 Lateral: 56.7/12.74

MS-SB17-H

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments



TECHNICAL SPECIFICATIONS

Frequency	1710 - 2690 MHz
Gain	19.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	30°
Horizontal Beamwidth (3dB level)	17°
Vertical Beamwidth (3dB level)	17°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-20dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated high-frequency (1710-2690MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobes.

MECHANICAL DATA

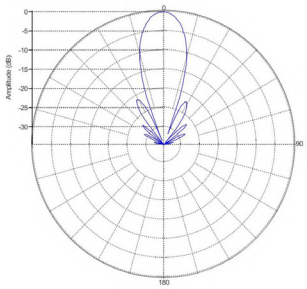
Dimensions (H x W x D)	44.9 x 44.9 x 62.9 cm 17.7 x 17.7 x 24.8 inch
Antenna Weight	9.94kg | 21.9lbs
Radome Material	Polycarbonate
Mounting	TBD

ENVIRONMENTAL RATINGS

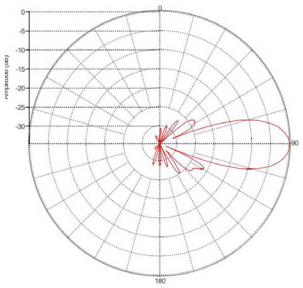
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Windload @ 160m/hr	N/lbf Frontal: 94.4/21.2 Lateral: 196.7/44.2

PATTERN RESULTS:

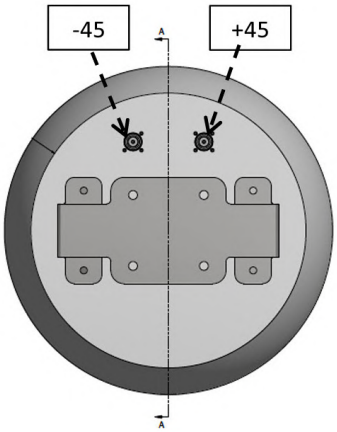
High-Band Horizontal Pattern (1.80GHz)

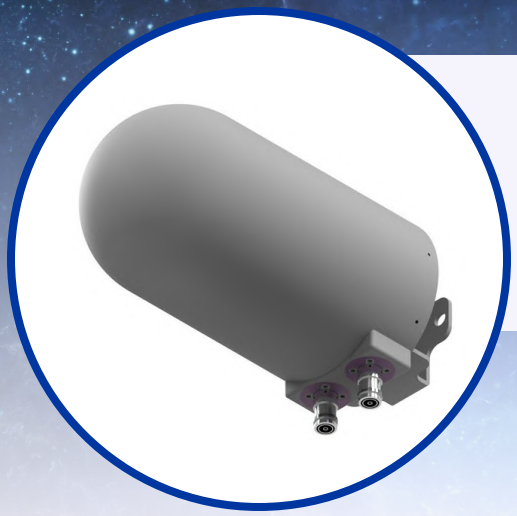


High-Band Vertical pattern (1.80GHz)



CONNECTOR LAYOUT





MS-SB23-C

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments

LENS TECHNOLOGY EN/ BLED

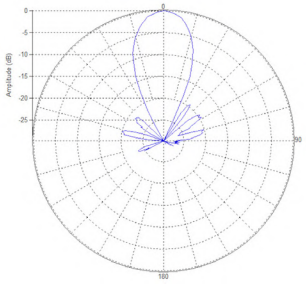
Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1C-Band Frequency (3700-4200MHz) cross-polarized beam. Beam has 2 cross polarized ports for supporting 2X2 MIMO and low side-lobe levels.

TECHNICAL SPECIFICATIONS

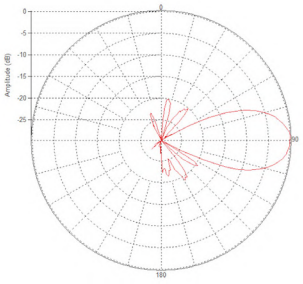
Frequency	3300– 4200 MHz
Gain	17dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	40°
Horizontal Beamwidth (3dB level)	23°
Vertical Beamwidth (3dB level)	23°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-18dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

PATTERN RESULTS:

Horizontal Pattern (3.9GHz)



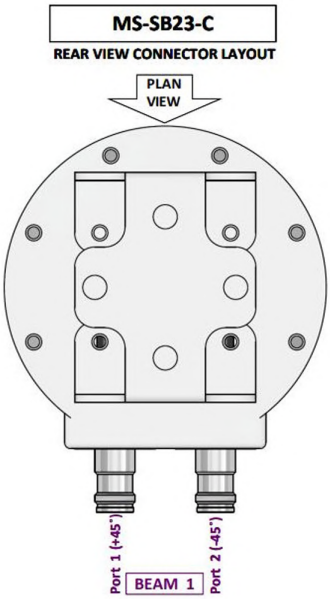
Vertical Pattern (3.9GHz)



MECHANICAL DATA

Dimensions (H x W x D)	16 x 16 x 35 cm 6.2 x 6.2 x 13.7 inch
Antenna Weight	1.5kg | 3.3lbs
Radome Material	Polycarbonate
Mounting	TBD

CONNECTOR LAYOUT



ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

MS-SB23-F

6-Sector, Dual Band, Easy to Mount Lens Antennas
for dense urban and high traffic area deployments

TECHNICAL SPECIFICATIONS

Frequency	3300– 4200 MHz
Gain	17dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	40°
Horizontal Beamwidth (3dB level)	23°
Vertical Beamwidth (3dB level)	23°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-2018dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	150W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

MECHANICAL DATA

Dimensions (H x W x D)	15.7 x 15.7 x 33.7 cm 6.2 x 6.2 x 13.3 inch
Antenna Weight	1.5kg | 3.3lbs
Radome Material	Polycarbonate
Mounting	TBD

ENVIRONMENTAL RATINGS

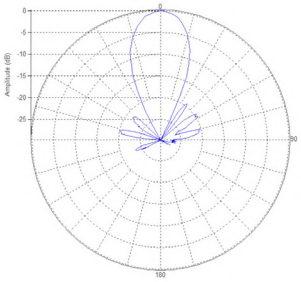
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C

LENS TECHNOLOGY EN/ BLED

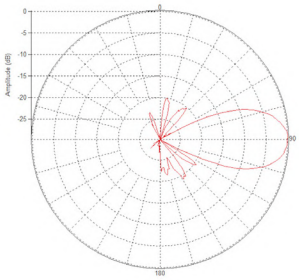
Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated F- Band Frequency (3300-4200MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobe levels.

PATTERN RESULTS:

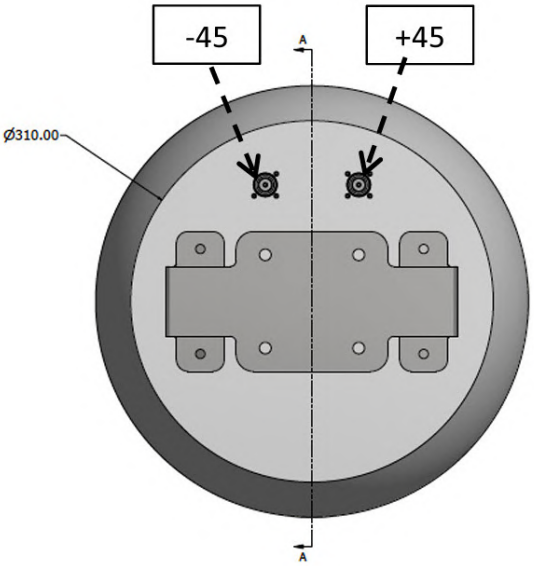
Horizontal Pattern (3.5GHz)

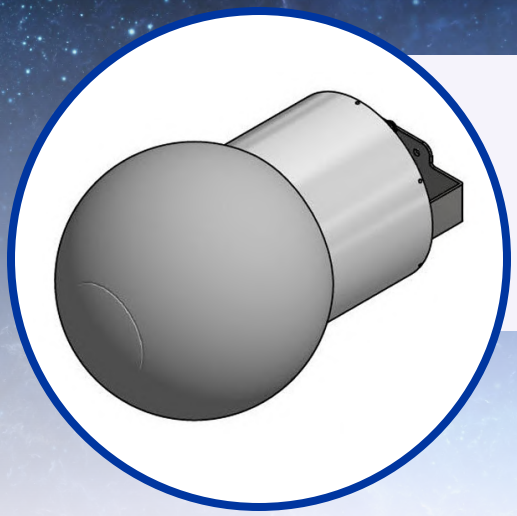


Vertical Pattern (3.5GHz)



CONNECTOR LAYOUT





MS-SB23-H

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments

LENS TECHNOLOGY EN/ BLED

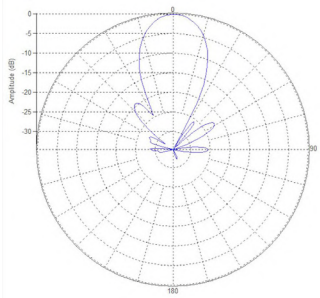
Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated high-frequency (1695-2690MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobes.

TECHNICAL SPECIFICATIONS

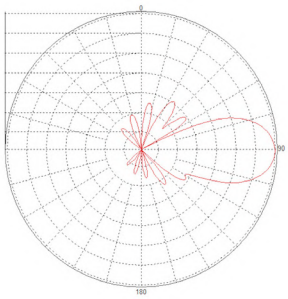
Frequency	1695-2690 MHz
Gain	17.5dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	40°
Horizontal Beamwidth (3dB level)	23°
Vertical Beamwidth (3dB level)	23°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-20dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

PATTERN RESULTS:

High-Band Horizontal Pattern (1.80GHz)



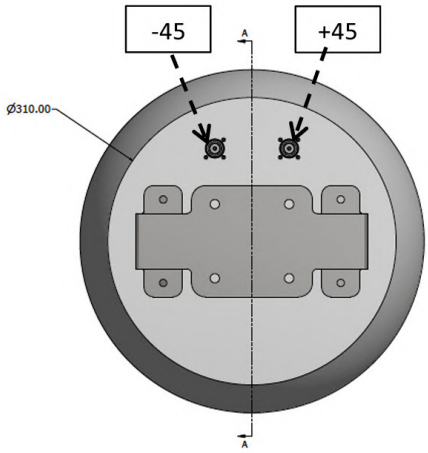
High-Band Vertical pattern (1.80GHz)



MECHANICAL DATA

Dimensions (H x W x D)	36.8 x 36.8 x 54.8 cm 14.5 x 14.5 x 21.6 inch
Antenna Weight	4kg | 9lbs
Radome Material	Polycarbonate
Mounting	TBD

CONNECTOR LAYOUT

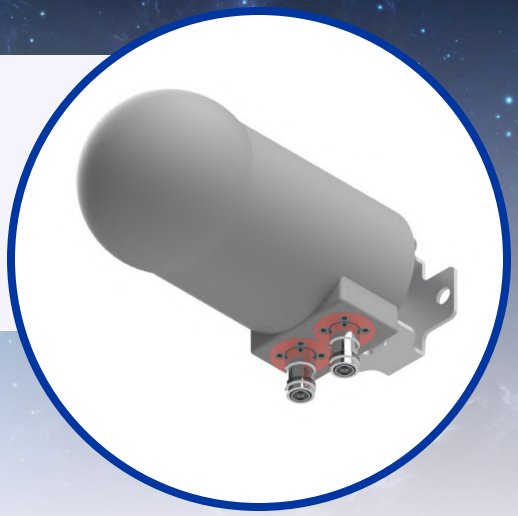


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Frontal)	61.13N @ 150km/hr 13.74lbf @150km/hr
Wind load (Lateral)	110.3N @ 150km/hr 24.8lbf @150km/hr

MS-SB23-LAA

6-Sector, Dual Band, Easy to Mount Lens Antennas
for dense urban and high traffic area deployments



LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications , utilizes a patented spherical lens design with 1 isolated LAA-frequency (5000-6000MHz) cross-polarized beam. Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobe levels.

TECHNICAL SPECIFICATIONS

Frequency	5000-6000 MHz
Gain	6dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	40°
Horizontal Beamwidth (10dB) Horizontal Beamwidth (3dB)	40° 23°
Vertical Beamwidth (10dB) Vertical Beamwidth (3dB)	40° 23°
Total Number of Beams	1
Number of Ports per Beam	2
First Sidelobe level	<-20dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	20W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

MECHANICAL DATA

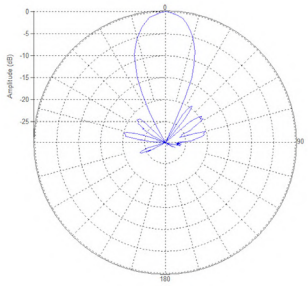
Dimensions (H x W x D)	12 x 12 x 28 cm 4.7 x 4.7 x 11 inch
Antenna Weight	0.88kg | 1.94lbs
Radome Material	Polycarbonate
Mounting	TBD

ENVIRONMENTAL RATINGS

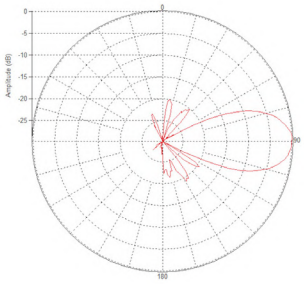
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind Load	N/lbf Frontal: 3.0/0.67 Lateral: 29.5/6.63

PATTERN RESULTS:

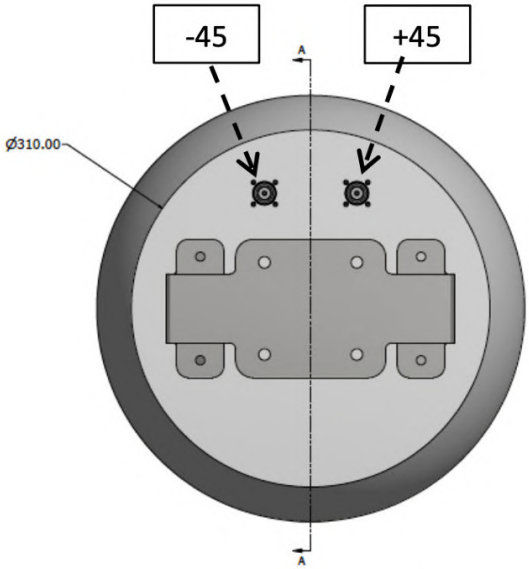
High-Band Horizontal Pattern (5.5GHz)

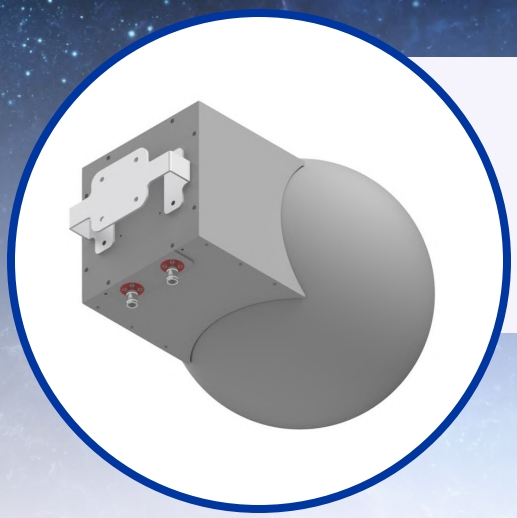


High-Band Vertical pattern (5.5GHz)



CONNECTOR LAYOUT





MS-SB34-L

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments

LENS TECHNOLOGY EN/ BLED

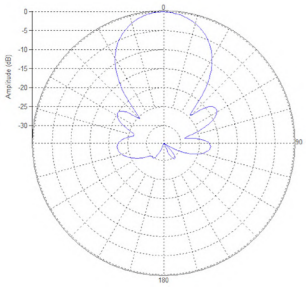
Lens Technology EnabledTM Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated low-frequency (698-960MHz) cross-polarized beam. Each Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobes.

TECHNICAL SPECIFICATIONS

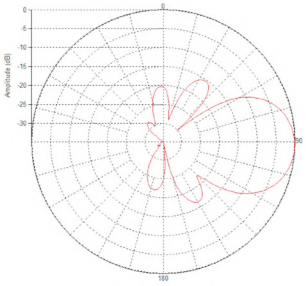
Frequency	698-960 MHz
Gain	14.2dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	60°
Horizontal Beamwidth (3dB level)	34°
Vertical Beamwidth (3dB level)	34°
Total Number of Beams	1
Number of Ports per Beam	2
Number of Ports Total	2
First Sidelobe level	<-18dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

PATTERN RESULTS:

Low-Band Horizontal Pattern (800MHz)



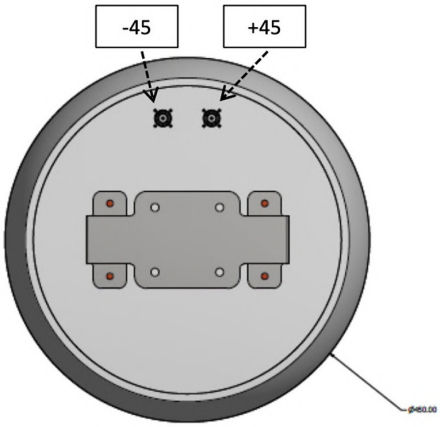
Low-Band Vertical Pattern (800MHz)



MECHANICAL DATA

Dimensions (H x W x D)	45 x 45 x 65 cm 17.7 x 17.7 x 25.5 inch
Antenna Weight	6.6kg | 14.5lbs
Radome Material	Polycarbonate
Mounting	TBD

CONNECTOR LAYOUT

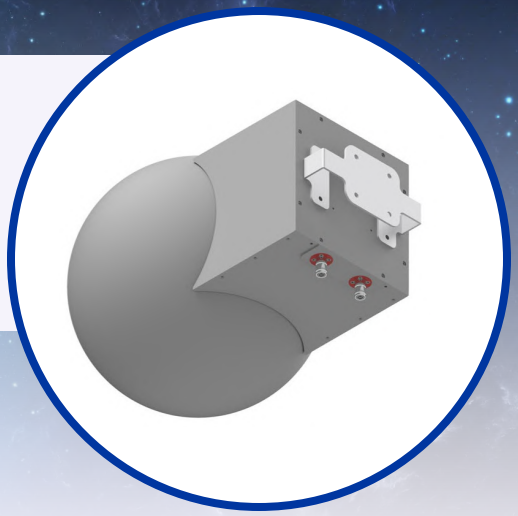


ENVIRONMENTAL RATINGS

Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load	TBD

MS-SB34-T

6-Sector, Dual Band, Easy to Mount Lens Antennas for dense urban and high traffic area deployments



LENS TECHNOLOGY EN/ BLED

Lens Technology Enabled™ Base-Station Antenna perfect for stadium applications, utilizes a patented spherical lens design with 1 isolated low-frequency (617-896MHz) cross-polarized beam. Each Beam has 2 cross-polarized ports for supporting 2X2 MIMO and low side-lobes.

TECHNICAL SPECIFICATIONS

Frequency	617-896MHz
Gain	14.2dBi
VSWR	<1.5:1
Polarization	Dual Slant ±45°
Horizontal Coverage	60°
Horizontal Beamwidth (3dB level)	34°
Vertical Beamwidth (3dB level)	34°
Total Number of Beams	1
Number of Ports per Beam	2
Number of Ports Total	2
First Sidelobe level	<-18dB
Front to Back Ratio	>28dB
Isolation Port to Port - Polarization	>28dB
Power Rating	250W per port
Intermodulation	<-153dBc
Impedance	50 ohm
Connector Quantity and Type	2 x 4.3-10 female

MECHANICAL DATA

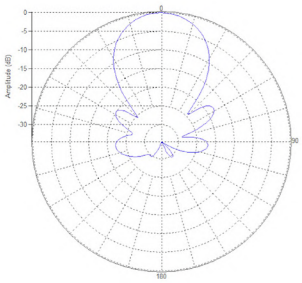
Dimensions (H x W x D)	45 x 45 x 65 cm 17.7 x 17.7 x 25.5 inch
Antenna Weight	6kg | 13lbs
Radome Material	Polycarbonate
Mounting	TBD

ENVIRONMENTAL RATINGS

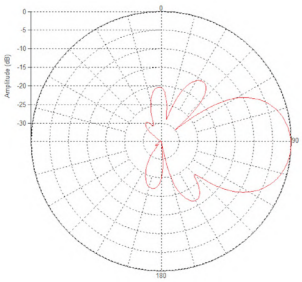
Humidity	95% RH @ +30°C
Temperature	-40°C to +70°C
Wind load (Frontal)	90.2N @ 150km/hr 20.3lbf @150km/hr
Wind load (Lateral)	236.2N @ 150km/hr 53lbf @150km/hr

PATTERN RESULTS:

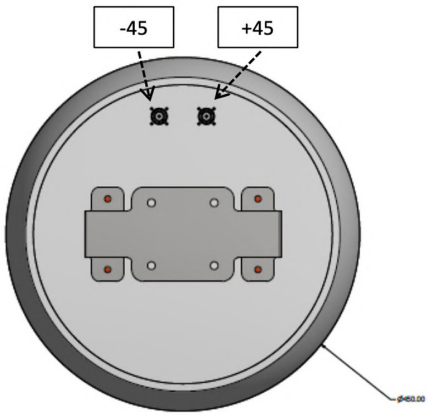
Low-Band Horizontal Pattern (800MHz)



Low-Band Vertical Pattern (800MHz)



CONNECTOR LAYOUT



MATSING®

LENS TECHNOLOGY ENABLED

Final product information should be referenced on the data sheets