Amphenol ANTENNA SOLUTIONS

6-Port Panel Antenna

(1x) 696-960 | (2x) 1695-2400 MHz

85° | 98.7 in | VARIABLE TILT

HEX858CU0000x

Features

- Ultra wide-band, AWS-3 Ready
- 4x4 MIMO high band compatible
- Patented internal RET actuator adds no additional length to the antenna
- Can be ordered with a Multi-Device Dual Unit (MDDU) with two separate inputs for independent control of each band

PRODUCT OVERVIEW			
	Frequency Range (MHz)	(1x) 696-960	(2x) 1695-2400
	Array	R1	Y1 Y2
	Connector	2 PORTS	4 PORTS
	Polarization	XPOL	XPOL
	Azimuth Beamwidth (avg)	85°	85°
	Electrical Downtilt	0-10°	0-10°
	Maximum Continuous Power Per Port @ 50° C (122° F)	500 W	250 W
	Maximum Total Continuous Power at 50° C (122° F)	1000 W	1000 W
	Connector Type	(6x) 7/16-DIN FEMALE CONNECTORS	
	Dimensions	2508 x 305 x 180 mm (98.7 x 12.0 x 7.1 in)	

ELECTRICAL SPECIFICATIONS			R1	
Frequency Range		MHz	(1x) 696-960	
Frequency Sub-Range		MHz	696-806	806-960
Polarization		---	(1x) ±45°	
Gain Over all Tilts		dBi	14.9 ± 0.5	15.5 ± 0.3
Azimuth Beamwidth (3 dB)		degrees	84.3 ± 3.2	83.3 ± 2.2
Elevation Beamwidth (3 dB)		degrees	9.1 ± 0.7	8.0 ± 0.5
Electrical Downtilt		degrees	0-10°	
Impedance		Ohms	50Ω	
VSWR		---	< 1.5:1	
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	< -153	
Front-to-Back Ratio		dB	> 23.9	> 26.9
Upper Sidelobe Suppression		dB	> 13.3	> 12.9
Isolation	In-Band	dB	> 23	
	Between Ports	dB	> 30	

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

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ELECTRICAL SPECIFICATIONS

■ Y1 ■ Y2

Frequency Range		MHz	(2x) 1695-2400			
Frequency Sub-Range		MHz	1695-1850	1850-1990	2100-2180	2200-2400
Polarization		---	(2x) ±45°			
Gain Over all Tilts		dBi	17.4 ± 0.5	17.3 ± 0.4	17.0 ± 0.6	16.6 ± 1.0
Azimuth Beamwidth (3 dB)		degrees	75.9 ± 4.3	76.7 ± 4.7	78.1 ± 5.8	75.1 ± 16.6
Elevation Beamwidth (3 dB)		degrees	5.2 ± 0.4	4.8 ± 0.2	4.6 ± 0.4	6.5 ± 14.5
Electrical Downtilt		degrees	0-10°			
Impedance		Ohms	50Ω			
VSWR		---	< 1.5:1			
Passive Intermodulation 3rd Order for 2x20 W Carriers		dBc	< -153			
Front-to-Back Ratio		dB	> 29.1	> 29.2	> 28.4	> 25.9
Upper Sidelobe Suppression		dB	> 14.0	> 13.6	> 12.8	> 10.5
Isolation	In-Band	dB	> 25			
	Between Ports	dB	> 30			

ELECTRICAL DOWNTILT CONTROL

Manual Electrical Tilt (MET) Control	Electrical downtilt for each band can be controlled separately. A colored knob at the end of the tilt indicator allows change of the tilt without need of a tool. The knob color is identical to the corresponding connector ring color. To access the knob, remove the cap by turning it counter-clockwise. It is re-installed by opposite rotation. Do not remove the transparent cap(s) from the antenna.	
Remote Electrical Tilt (RET) Control	Electrical downtilt for each band can be controlled separately. The remote control of the electrical tilt is managed by either a Multi-Device Control Unit (MDCU) or a Multi-Device Dual Unit (MDDU) inserted in the bottom of the antenna. A single actuator individually controls the tilt of each band (no need for daisy chain cables between the bands). This module does not add any additional length to the antenna. For RET control, the transparent caps must be in place and locked. The tilt angle indicators always remain visible and the antenna still has manual tilt control (manual override). Do not remove the transparent cap(s) from the antenna.	
RET Actuators (Units are Field Replaceable)	Multi-Device Control Unit (MDCU) An electronic module that allows the remote control of the electrical downtilt (RET) in Amphenol antennas with factory embedded motors. The MDCU is factory installed.	Multi-Device Dual Unit (MDDU) Allows two separate RET Controllers to independently drive the RETs in Amphenol antennas with factory installed motors (for antenna sharing). The MDDU is factory installed. Refer to Ordering Options for unique AISG port configirations
		 Port A Port B Two separate inputs for independent control of each band

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RET ACTUATOR

Amphenol's **RET-READY** antennas are delivered with the RET Actuator already installed and pre-commissioned with all antenna parameters. Every RET device is factory configured and calibrated so the antenna is ready to be used once delivered to the site which means that there is no need for further installation of RET devices or for programming their configuration or for running a calibration process.

RET-READY ACTUATORS	**Multi-Device Control Unit (MDCU).** The MCDU is an electronic module that allows the remote control of the electrical downtilt (RET) in Amphenol antennas with factory embedded motors. The MDCU is factory installed. *Refer to the* ORDERING OPTIONS *for availability with this model.*
	Multi-Device Dual Unit (MDDU). The MDDU allows two separate RET Controllers to independently drive the RETs in antennas with factory embedded motors (for antenna sharing or two technologies). The MDDU is factory installed. *Refer to the* ORDERING OPTIONS *for availability with this model.*

Number of RET-READY Actuators		One per antenna
Input Voltage		+10 to +30 V
Power Consumption	Idle State (AISG P1)	0.5 W
	High Power Mode (AISG P2)	3 W
Protocol		3GPP/AISG 2.0
Tilt Change Duration		Less than 15 seconds, typical (may vary dependent on antenna type and outdoor temperature)
Precision		±0.5°
Tilt Change Capability		50,000 minimum
RET Interface	MDCU	One pair of AISG Male and Female (type IEC60130-9)
	MDDU	Two male AISG 8 pin connectors (type IEC60130-9 Ed 3.0)
Field Replaceable Unit		Yes

MECHANICAL SPECIFICATIONS

Antenna	Length		mm (in)	2508 (98.7)
	Width		mm (in)	305 (12.0)
	Depth		mm (in)	180 (7.1)
Net Weight - Antenna Only			kg (lbs)	19.8 (43.7)
Net Weight - Antenna with Mounting Kit MKS09T02			kg (lbs)	26.2 (57.8)
Windload		Calculation	km/h (mph)	160 (100)
		Frontal	N (lbf)	930 (209)
		Side	N (lbf)	550 (124)
Survival Wind Speed			km/h (mph)	241 (150)
Connector		Type	---	7/16-DIN Female
		Quantity	---	6
		Position	---	Bottom
Radome Color			---	Grey
Operating Temperature			degrees	-40 to +60 C (-40 to +140 F)
Lightning Protection (Grounding Type)			---	Direct Ground

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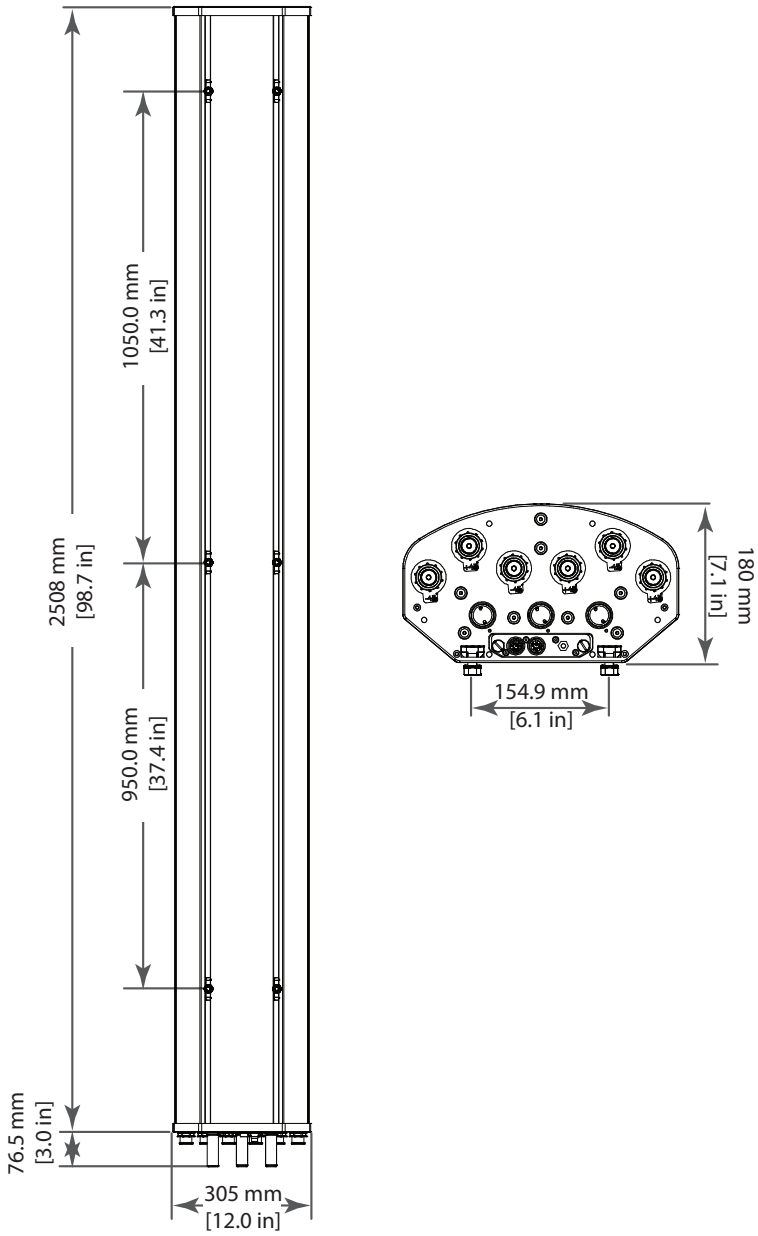

INSTALLATION Please read all installation notes before installing this product.

⚠	Always attach the antenna using all mounting points.
	Do not install the antenna with the connectors facing upwards.
	Do not cut the tethered transparent cap(s) that cover the antenna's tilt adjustment indicators
	In order to operate the RET control, the transparent cap(s) covering the tilt adjustment indicators must be engaged and locked.

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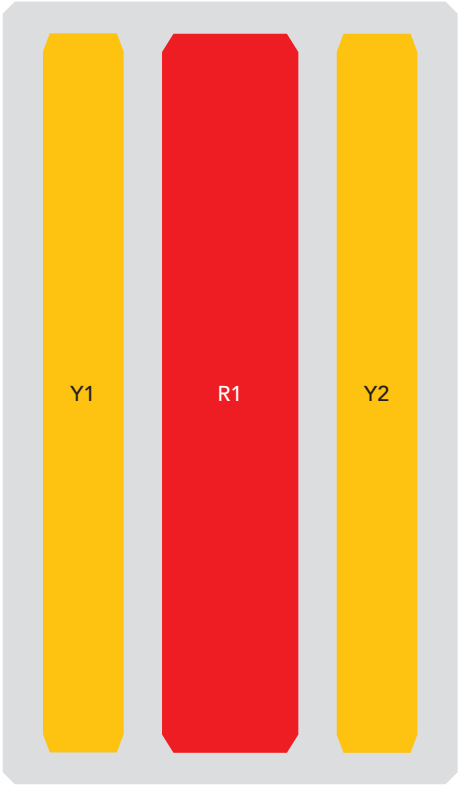
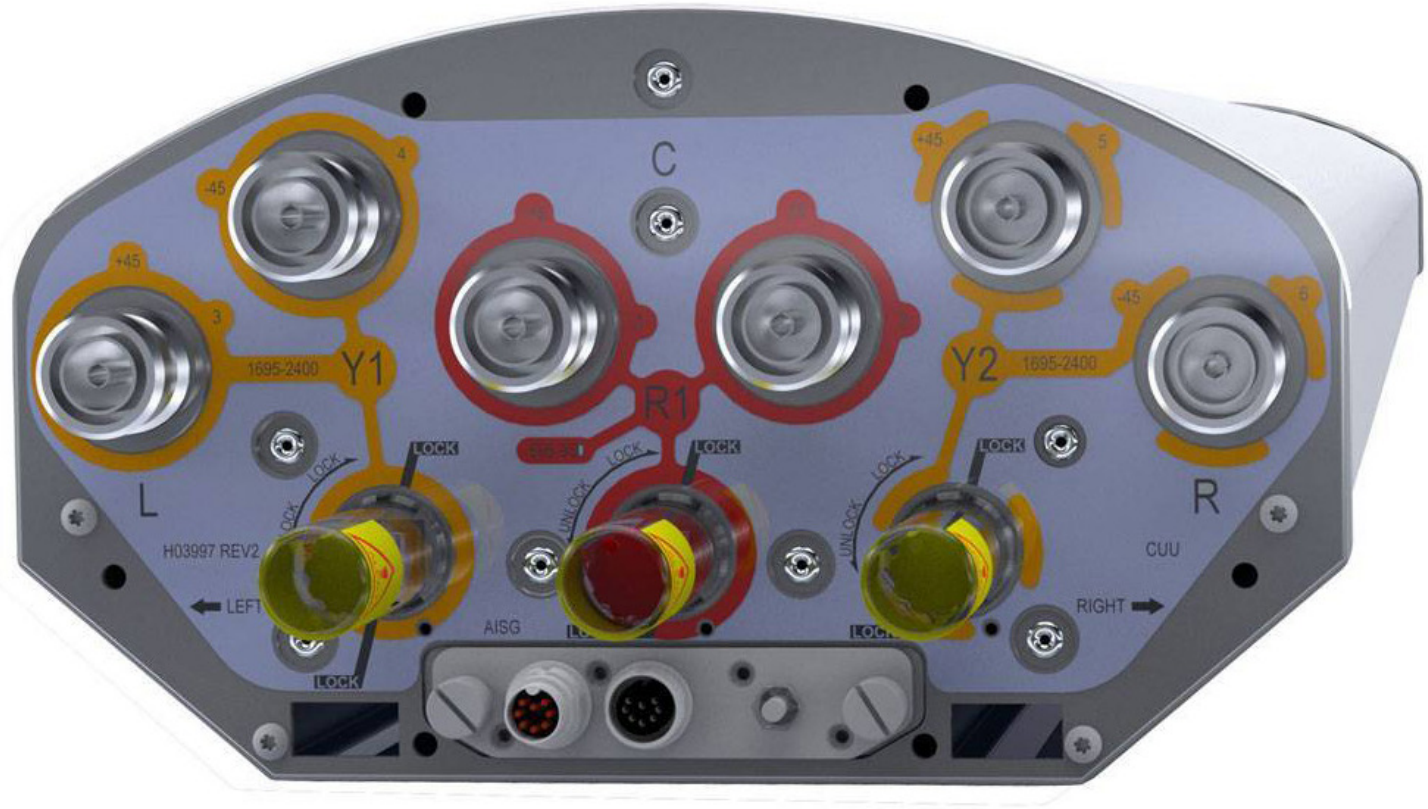
ARRAY LAYOUT Topology

FREQUENCY	ARRAY	CONNECTOR	CONNECTOR TYPE
696-960 MHz	R1	1-2	(2x) 7/16-DIN Female
1695-2700 MHz	Y1	3-4	(2x) 7/16-DIN Female
1695-2700 MHz	Y2	5-6	(2x) 7/16-DIN Female

The illustration at right is not shown to scale.



BOTTOM VIEW - LABELING



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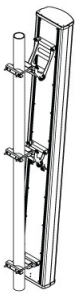
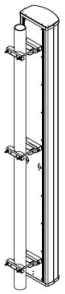
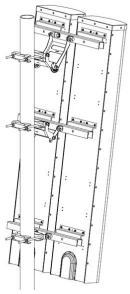
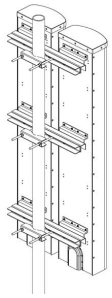
MOUNTING KITS The default mounting kit is included in the price of the antenna. Any other mounting kits are optional and must be ordered separately.

TYPE		MODEL NUMBER	DESCRIPTION	FITS PIPE DIAMETER	WEIGHT
DEFAULT MOUNTING KIT *Shipped as standard and included in the price of the antenna*		MKS09T02	3-Point Pole Mounting & Downtilt Bracket Kit	50-115 mm (2.0-4.5 in)	6.4 kg (14 lbs)
OPTIONAL MOUNTING KITS *Must order separately*		MKS09P02	3-Point Pole Mounting Bracket Kit	50-115 mm (2.0-4.5 in)	4.1 kg (9 lbs)
		MKS09T07TWIN	3-Point Dual Antenna Extended Scissor Tilt Mounting Bracket Kit	50-115 mm (2.0-4.5 in)	36.1 kg (80 lbs)
		MKS09P07TWIN	3-Point Dual Antenna Pole Mounting Bracket Kit	50-115 mm (2.0-4.5 in)	TBD

HEX858CU0000x

HOW TO READ THE MODEL NUMBER Each letter and number has meaning.

ANTENNA TYPE OR NUMBER OF PORTS	AZIMUTH BEAMWIDTH	LENGTH IN FEET	OPERATING FREQUENCY		ANTENNA VARIATION	ELECTRICAL DOWNTILT CONTROL
HEX	85	8	C	U	0000	x
Hex (6) Port Panel	85°	~ 8 feet	696-960	1695-2400	Variations of the same antenna or similar antennas may be available. Refer to the data sheets to compare different variations. In this instance, 0000 indicates this is the original design	Replace "x" in the model number with the type of electrical downtilt control. M indicates the model is available with manual electrical tilt (MET). G indicates the antenna is equipped with a Multi-Device Control Unit for remote electrical tilt (RET). L indicates the antenna is equipped with a Multi-Device Dual Unit for remote electrical tilt (RET). See additional ordering options below.

ORDERING OPTIONS Select from the following ordering options

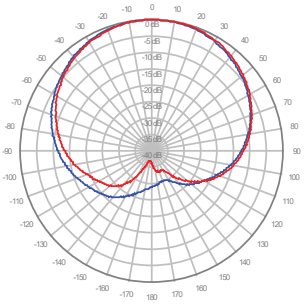
SELECT ELECTRICAL TILT TYPE	ACTUATOR DESCRIPTION	SELECT RET ACTUATOR PORT CONFIGURATION		ANTENNA MODEL NUMBER
		Port A	Port B	
Manual Electrical Tilt	---	---	---	HEX858CU0000**M**
Remote Electrical Tilt AISG v2.0 / 3GPP with an **MDCU RET ACTUATOR**	The **MDCU** (Multi-Device Control Unit) is an electronic module that allows the remote control of the electrical downtilt (RET) in Amphenol antennas with factory embedded motors. The MDCU is factory installed.	---	---	HEX858CU0000**G**
Remote Electrical Tilt AISG v2.0 / 3GPP with an **MDDU** RET Actuator	The **MDDU** (Multi-Device Dual Unit) allows two separate RET Controllers to independently drive the RETs in Amphenol antennas with factory installed motors (for antenna sharing). The MDDU is factory installed.	■ R1 696-960 MHz	■ Y1 / ■ Y2 1695-2400 / 1695-2400 MHz	HEX858CU0000**L**
		■ Y2 1695-2400 MHz	■ Y1 / ■ R1 1695-2400 / 696-960 MHz	HEX6858CU000**L1**
		■ Y1 1695-2400 MHz	■ Y2 / ■ R1 1695-2400 / 696-960 MHz	HEX858CU000**L2**

HEX858CU0000x

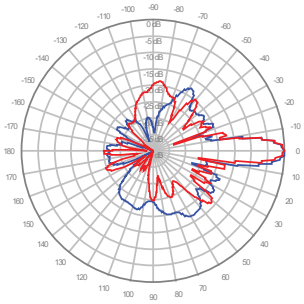
750 MHz
850 MHz

R1, 0° TILT

+45°

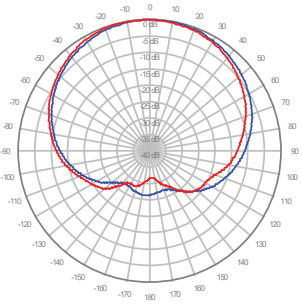


Azimuth



Elevation

-45°



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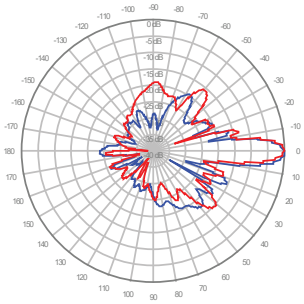
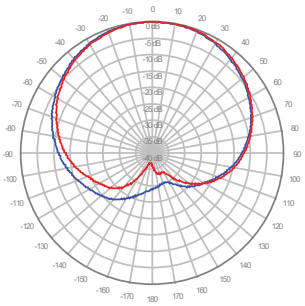


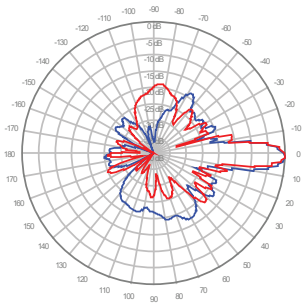
Elevation

R1, 2° TILT

+45°

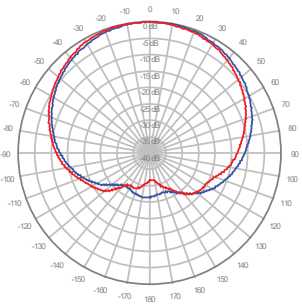


Azimuth



Elevation

-45°



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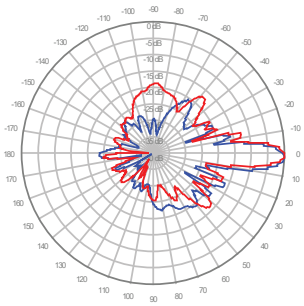
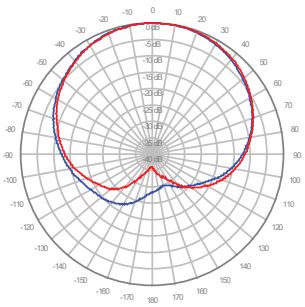


Elevation

R1, 4° TILT

+45°



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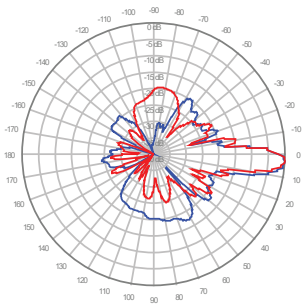
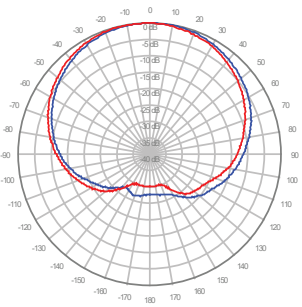


Elevation

-45°



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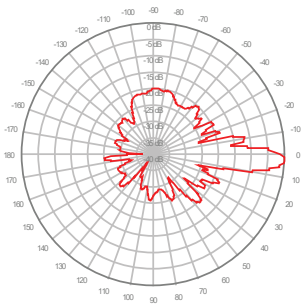
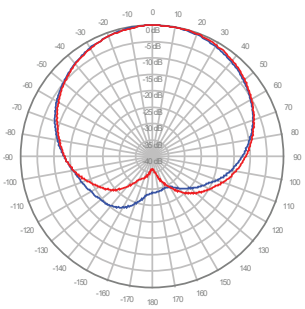


Elevation

R1, 6° TILT

+45°



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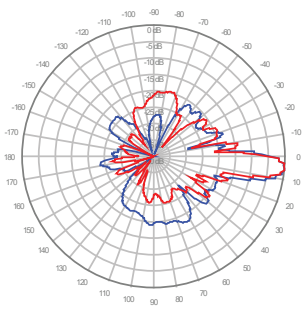
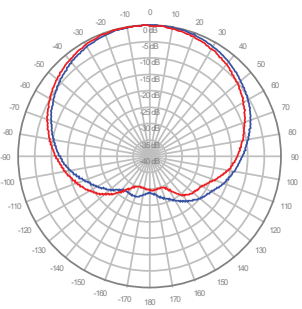


Elevation

-45°



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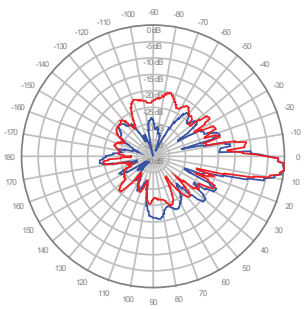


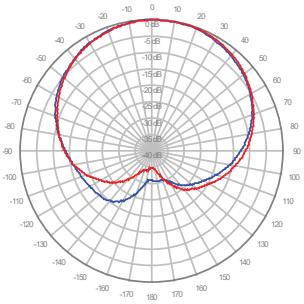
Elevation

HEX858CU0000x

750 MHz
850 MHz

R1, 8° TILT

+45°



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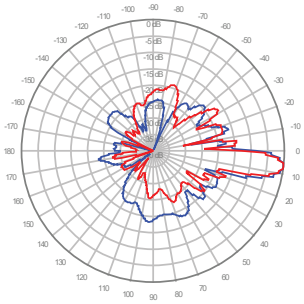
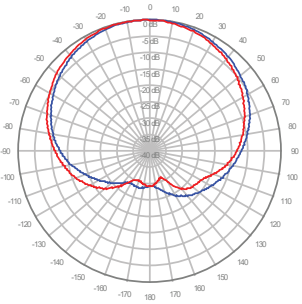


Elevation

-45°



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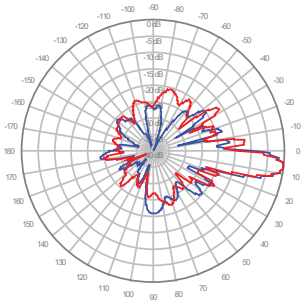
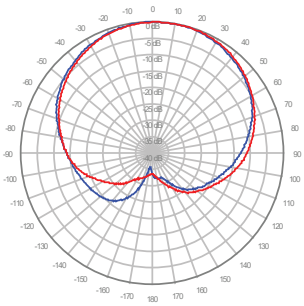


Elevation

R1, 10° TILT

+45°



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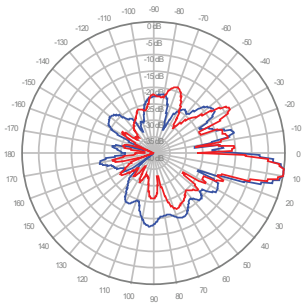
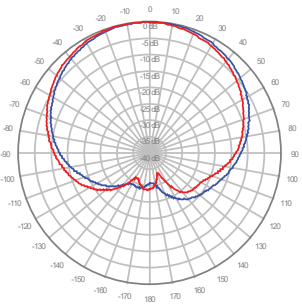


Elevation

-45°



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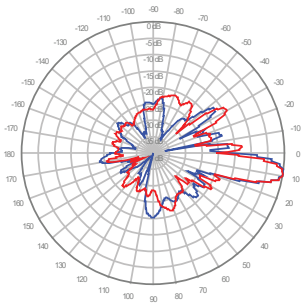


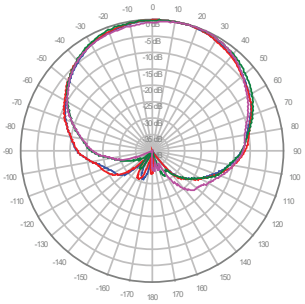
Elevation

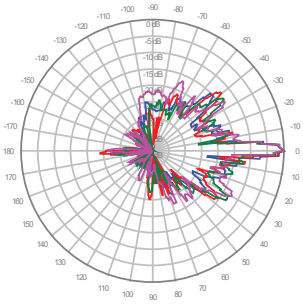
HEX858CU0000x

1800 MHz
1900 MHz
2100 MHz
2300 MHz

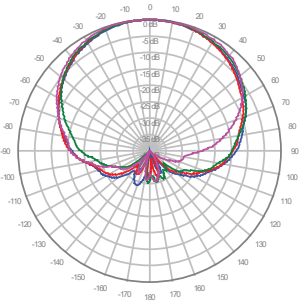
Y1, 0° TILT

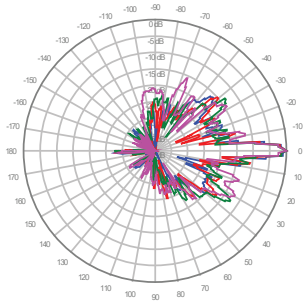
+45°





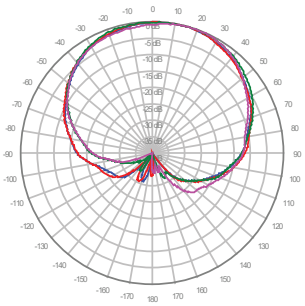
-45°

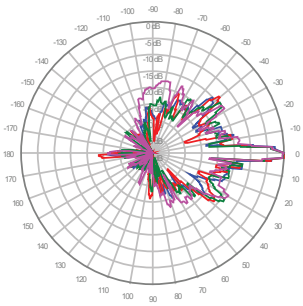




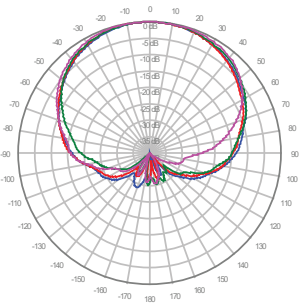
Y1, 2° TILT

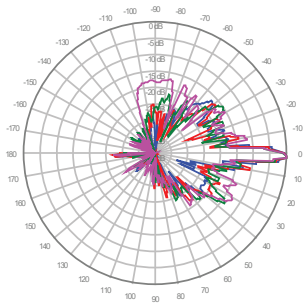
+45°





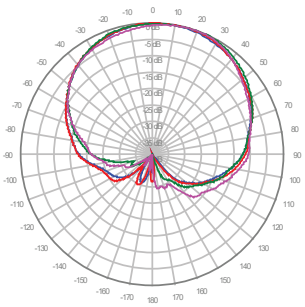
-45°

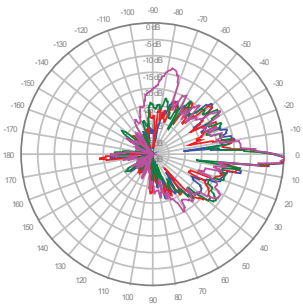




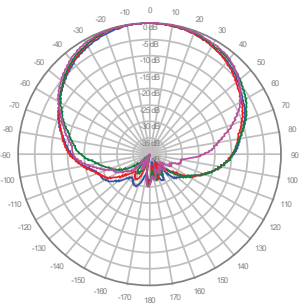
Y1, 4° TILT

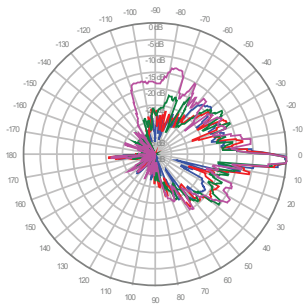
+45°





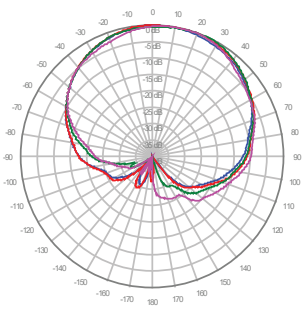
-45°

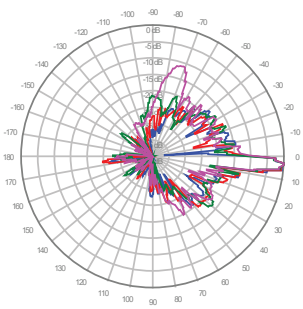




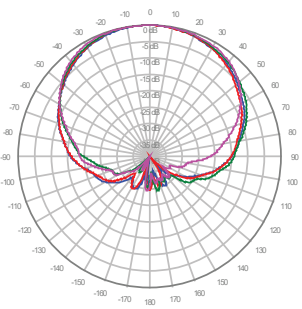
Y1, 6° TILT

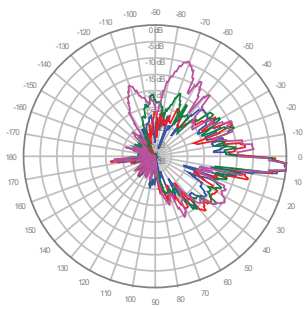
+45°





-45°



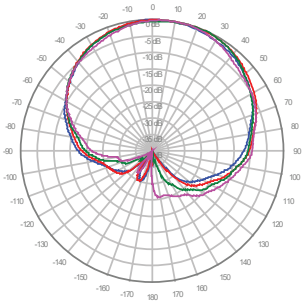


HEX858CU0000x

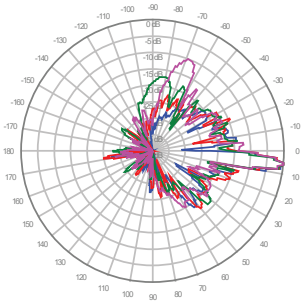
1800 MHz
1900 MHz
2100 MHz
2300 MHz

Y1, 8° TILT

+45°

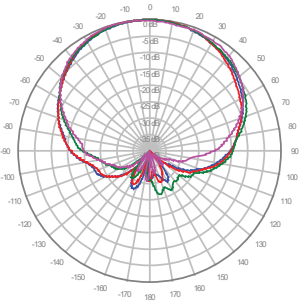


Azimuth

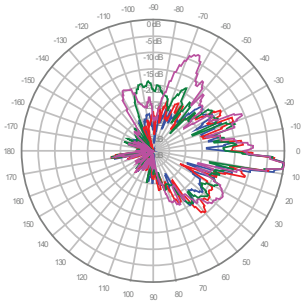


Elevation

-45°



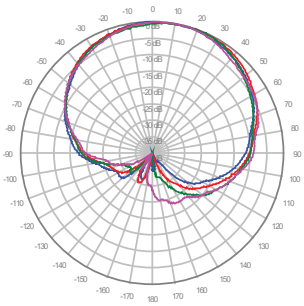
Azimuth



Elevation

Y1, 10° TILT

+45°



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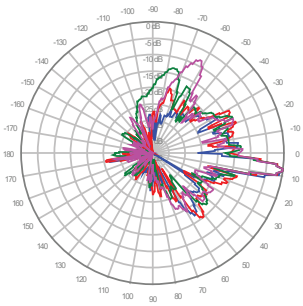
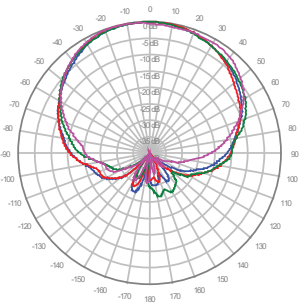
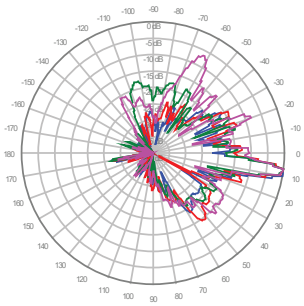


Elevation

-45°



Azimuth



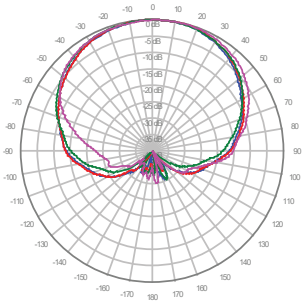
Elevation

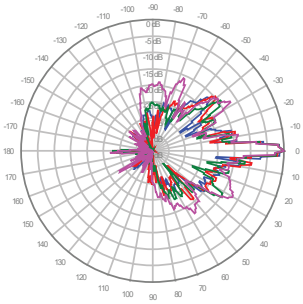
HEX858CU0000x

1800 MHz
1900 MHz
2100 MHz
2300 MHz

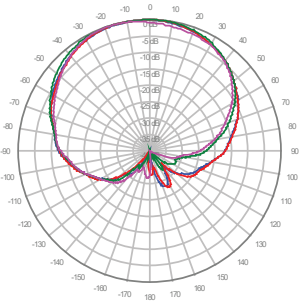
Y2, 0° TILT

+45°


Azimuth


Elevation

-45°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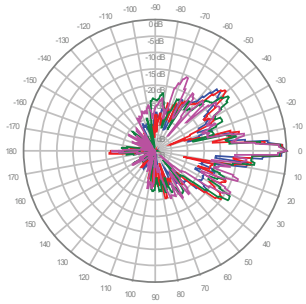
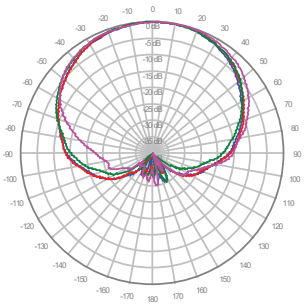

Elevation

Y2, 2° TILT

+45°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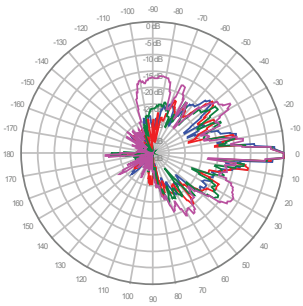
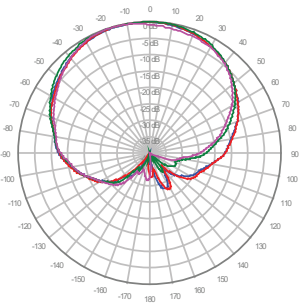
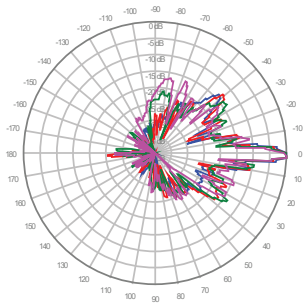

Elevation

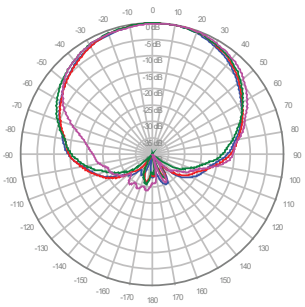
-45°


Azimuth


Elevation

Y2, 4° TILT

+45°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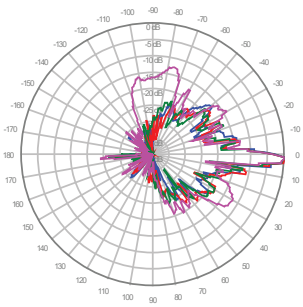
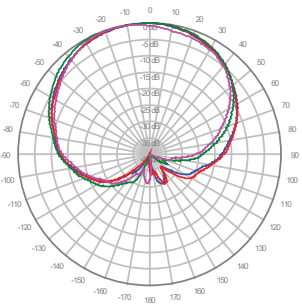

Elevation

-45°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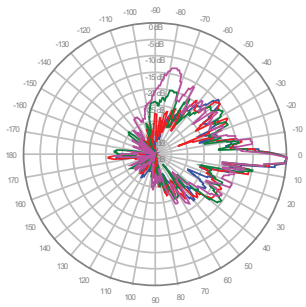
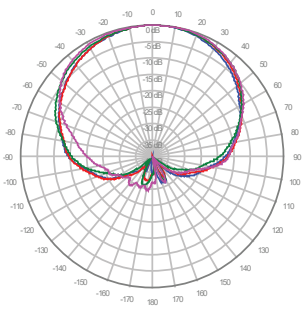

Elevation

Y2, 6° TILT

+45°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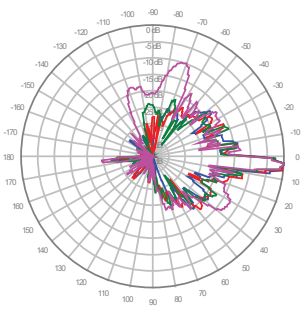
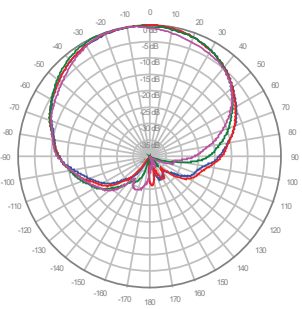
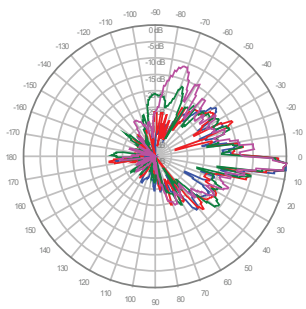

Elevation

-45°


Azimuth

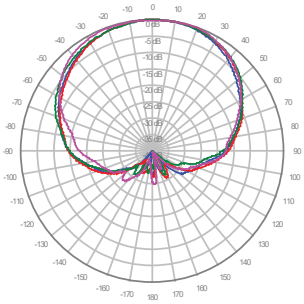

Elevation

HEX858CU0000x

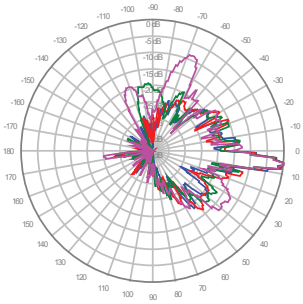
1800 MHz
1900 MHz
2100 MHz
2300 MHz

Y2, 8° TILT

+45°

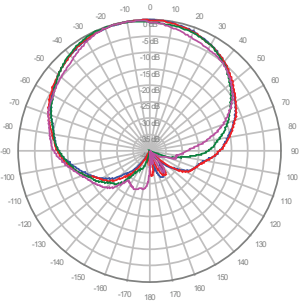


Azimuth

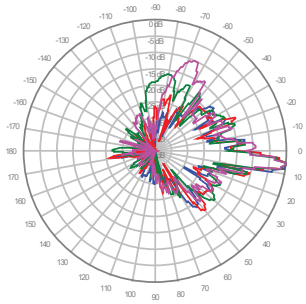


Elevation

-45°



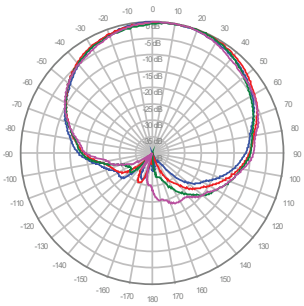
Azimuth



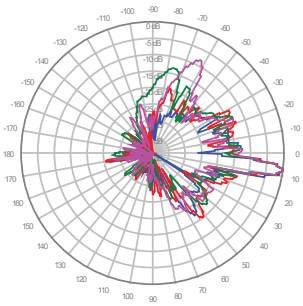
Elevation

Y2, 10° TILT

+45°

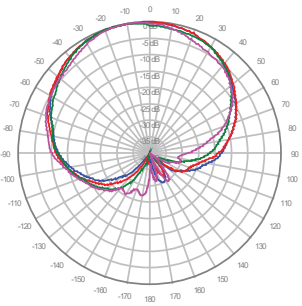


Azimuth

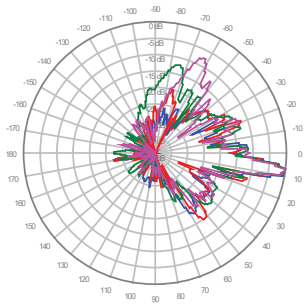


Elevation

-45°



Azimuth



Elevation