

4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

PANORAMA ANTENNAS



GPS[X]D4[X]-6-60[-X]

- 4x4 MiMo Sharkfin for 4G/5G
- L1 GPS/GNSS with advanced filtering (Optional)
- Up to 4x WiFi elements covering WiFi 6e (Optional)

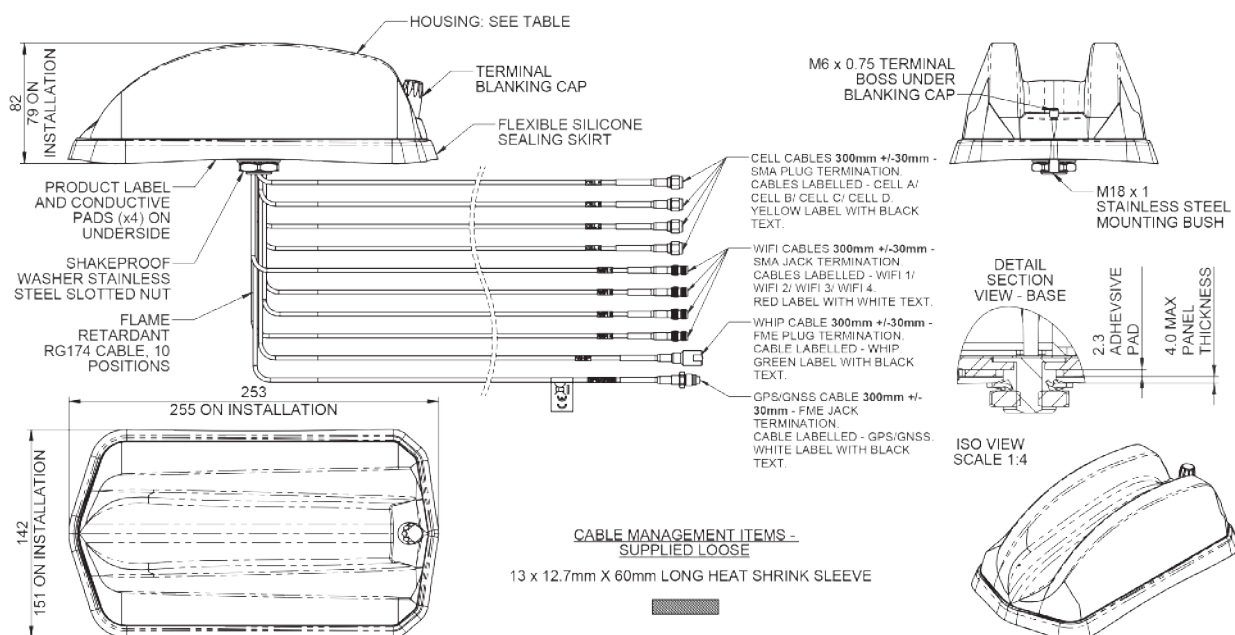
The GPS[X]D4[X]-6-60[-X] is advanced 4G/5G, GPS/GNSS and WiFi antenna with a dual sharkfin style housing. The housing contains a 4x4 MiMo antenna function for 4G/5G (617-960/1427-6000MHz), up to 4x WiFi elements covering WiFi 6e and an active L1 GPS/GNSS antenna (optional) with advanced filtering for LTE Band 13/14 operation.

The antennas may be fitted on a non-metallic panel whilst still offering similar performance.

The dual fin design provides multiple antenna functions while remaining discreet and is suitable for public safety (overt/covert), industrial and transport applications, where a cost-effective, efficient and robust antenna is essential. Requiring only a single hole mounting, the antenna reduces vehicle damage, installation time, cost and visual impact whilst protecting a vehicle's resale value.

Technical Drawing

GPSD4VAR-6-60-Q Shown



4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

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Product Data

Part No.					
		GPS2D4[W]-6-60-Q	GPS2D4[W]-6-60-T	GPS2D4[W]-6-60-D	GPS2D4[W]-6-60
Electrical Data					
Frequency Range (MHz)	GPS/GNSS Elements	2x 1562-1612			
	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz)			
		8dBi (1427-6000MHz)			
	WiFi Elements	6dBi (2396-2485MHz)			
		9dBi (4900-7200MHz)			
Isolation**	4G/5G Elements	>8dB (617-960 MHz) > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			
Typical Efficiency* W/o Cable Loss	4G/5G Elements	≥46% (617-698MHz) ≥60% (698-960/1427-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation		Vertical			
Pattern		Omni-directional			
Impedance		50Ω			
Max Input Power (W)		Internal elements 5W / main whip 60W			
GPS/GNSS Data					
Frequency Range (MHz)		1562-1612			
Gain: LNA		26dB			
Polarisation		Right Hand Circular			
Out of Band Rejection		>40dB (+/- 100MHz f) Notch Filter @787MHz - 23dB			
Operating Voltage		3-5V DC (fed via coax)			
Current		Typical <20mA			
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)		-40° / +80°C (-40° / 176°F)			
Material		ASA,Silicone Rubber, Aluminium Alloy			
Colour		Black (GPS[X]D4W denotes White variant)			
Ingress Protection		IP69K			
Mounting Info					
Fixing		Panel Mount			
Hole Size (mm)		19 (3/4")			
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
	Whip	1x FME (m)			
Termination	GPS/GNSS	2x FME (f)			
	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency measured on 600x600mm (2'x2') ground plane without additional cable

** Isolation measured as worst case for elements of the same type on a 600x600 (2'x2') ground plane without additional cable

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GPS[X]D4[X]-6-60[-X]

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Product Data

Part No.					
		GPSD4[W]-6-60-Q	GPSD4[W]-6-60-T	GPSD4[W]-6-60-D	GPSD4[W]-6-60
Electrical Data					
Frequency Range (MHz)	GPS/GNSS Elements	1x 1562-1612			
	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz)			
		8dBi (1427-6000MHz)			
	WiFi Elements	6dBi (2396-2485MHz)			
		9dBi (4900-7200MHz)			
Isolation**	4G/5G Elements	>8dB (617-960 MHz) > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			
Typical Efficiency* W/o Cable Loss	4G/5G Elements	≥46% (617-698MHz) ≥60% (698-960/1427-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation	Vertical				
Pattern	Omni-directional				
Impedance	50Ω				
Max Input Power (W)	Internal elements 5W / main whip 60W				
GPS/GNSS Data					
Frequency Range (MHz)	1562-1612				
Gain: LNA	26dB				
Polarisation	Right Hand Circular				
Out of Band Rejection	>40dB (+/- 100MHz f) Notch Filter @787MHz - 23dB				
Operating Voltage	3-5V DC (fed via coax)				
Current	Typical <20mA				
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)				
Material	ASA,Silicone Rubber, Aluminium Alloy				
Colour	Black (GPS[X]D4W denotes White variant)				
Ingress Protection	IP69K				
Mounting Info					
Fixing	Panel Mount				
Hole Size (mm)	19 (3/4")				
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
	Whip	1x FME (m)			
Termination	GPS/GNSS	1x FME (f)			
	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency measured on 600x600mm (2'x2') ground plane without additional cable

** Isolation measured as worst case for elements of the same type on a 600x600 (2'x2') ground plane without additional cable

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4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

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Product Data

Part No.					
		FIND4[W]-6-60-Q	FIND4[W]-6-60-T	FIND4[W]-6-60-D	FIND4[W]-6-60
Electrical Data					
Frequency Range (MHz)	4G/5G Elements	4x 617-960, 1427-6000			
	WiFi Elements	4x 2.4/5.0/7.1GHz	3x 2.4/5.0/7.1GHz	2x 2.4/5.0/7.1GHz	-
	Whip	dependent on whip			
Peak gain: Isotropic*	4G/5G Elements	5dBi (617-960MHz)			
		8dBi (1427-6000MHz)			
	WiFi Elements	6dBi (2396-2485MHz)			
		9dBi (4900-7200MHz)			
Isolation**	4G/5G Elements	>8dB (617-960 MHz) > 15dB (1427-6000MHz)			
	WiFi Elements	> 15dB			
Typical Efficiency* W/o Cable Loss	4G/5G Elements	≥ 46% (617-698MHz) ≥60% (698-960/1427-6000MHz)			
Correlation Co-efficient	4G/5G Elements	<0.25			
Polarisation	Vertical				
Pattern	Omni-directional				
Impedance	50Ω				
Max Input Power (W)	Internal elements 5W / main whip 60W				
Mechanical Data					
Dimensions (mm) - Installed	Total Height (excl whip)	82 (3.2")			
	Length	253 (9.96")			
	Width	142 (5.56")			
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)				
Material	ASA,Silicone Rubber, Aluminium Alloy				
Colour	Black (FIND4W denotes White variant)				
Ingress Protection	IP69K				
Mounting Info					
Fixing	Panel Mount				
Hole Size (mm)	19 (3/4")				
Cable Data					
Cable Type - All Pigtails		FR RG174 (UN ECE R 118 Compliant)			
Dimensions (mm)	Diameter	2.8 (0.11")			
	Length	300 mm (12")			
	Whip	1x FME (m)			
Termination	4G/5G	4x SMA plug			
	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-

*Peak Gain and efficiency measured on 600x600mm (2'x2') ground plane without additional cable

** Isolation measured as worst case for elements of the same type on a 600x600 (2'x2') ground plane without additional cable

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PANORAMA ANTENNAS

Electrical Data
Ground Plane - Cell

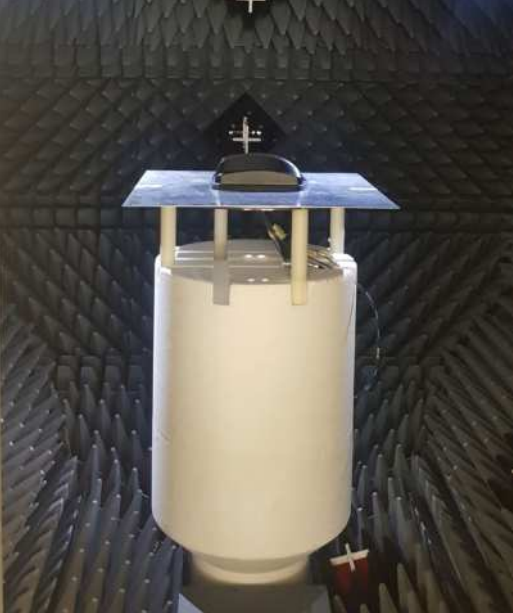
Measurement Conditions	4G/5G Antennas				
GPSD4-6-60-Q measured on 600x600mm (2'x2') ground plane without additional cable	Frequency Range (MHz)	LTE / NR Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	617-698	71	Cell A	3.3	44
			Cell B	3.8	48
			Cell C	3.2	47
			Cell D	3.5	47
	699-798	12,13, 14 17,28	Cell A	4.9	52
			Cell B	4.9	55
			Cell C	4.3	53
			Cell D	5.0	54
	807- 862	5,19,20,26,27	Cell A	5.9	58
			Cell B	5.8	57
			Cell C	5.2	56
			Cell D	5.6	56
	880-960	8	Cell A	5.9	55
			Cell B	5.8	56
			Cell C	5.2	53
			Cell D	5.6	53
	1427-1518	11, 21, 74,75,76	Cell A	7.2	81
			Cell B	8.0	80
			Cell C	7.4	82
			Cell D	7.8	79
	1710-1920	2,3,4,9,25,35, 39,66	Cell A	6.4	61
			Cell B	7.0	65
			Cell C	6.3	64
			Cell D	6.8	60
	1920-2170	1,23	Cell A	6.1	57
			Cell B	6.6	62
			Cell C	5.4	57
			Cell D	6.4	61
	2300-2400	30,40	Cell A	6.3	54
			Cell B	5.6	58
			Cell C	6.5	54
			Cell D	6.1	67
	2496-2690	7,38,41	Cell A	5.6	66
			Cell B	5.2	60
			Cell C	4.7	61
			Cell D	6.4	61
	3300-4200	22,42,43,48,77, 78	Cell A	6.9	52
			Cell B	7.2	57
			Cell C	7.1	55
			Cell D	7.1	58
	4400-5000	79	Cell A	6.4	54
			Cell B	6.1	59
			Cell C	6.3	57
			Cell D	6.1	57
	5000-6000	96,102,104	Cell A	6.4	46
			Cell B	8.2	61
			Cell C	6.8	53
			Cell D	7.7	53

4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

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Electrical Data
Ground Plane- WiFi

Measurement Conditions	4G/5G Antennas				
GPSD4-6-60-Q measured on 600x600mm (2'x2') ground plane without additional cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	2396-2485	2.4GHz	WiFi 1	5.5	47
			WiFi 2	6.1	55
			WiFi 3	6.0	54
			WiFi 4	3.8	47
	5150-5250	UNII-1	WiFi 1	8.2	52
			WiFi 2	8.3	55
			WiFi 3	9.2	55
			WiFi 4	8.1	57
	5250-5350	UNII-2A	WiFi 1	8.7	55
			WiFi 2	8.7	54
			WiFi 3	8.8	56
			WiFi 4	8.9	58
	5350-5470	UNII-2B	WiFi 1	8.6	50
			WiFi 2	8.6	52
			WiFi 3	8.8	59
			WiFi 4	8.8	51
	5470-5725	UNII-2C	WiFi 1	8.3	42
			WiFi 2	7.9	44
			WiFi 3	9.1	57
			WiFi 4	7.7	45
	5725-5850	UNII-3	WiFi 1	7.5	36
			WiFi 2	8.1	43
			WiFi 3	9.1	56
			WiFi 4	6.2	37
	5850-5925	UNII-4	WiFi 1	5.9	28
			WiFi 2	5.9	33
			WiFi 3	8.5	53
			WiFi 4	5.8	43
	5925-6425	UNII-5	WiFi 1	5.5	33
			WiFi 2	6.1	40
			WiFi 3	8.5	37
			WiFi 4	6.9	56
	6425-6525	UNII-6	WiFi 1	6.1	49
			WiFi 2	6.8	53
			WiFi 3	4.1	27
			WiFi 4	7.9	55
	6525-6875	UNII-7	WiFi 1	6.6	48
			WiFi 2	6.8	47
			WiFi 3	6.5	45
			WiFi 4	7.9	51
	6875-7125	UNII-8	WiFi 1	6.5	43
			WiFi 2	6.4	39
			WiFi 3	7.0	52
			WiFi 4	5.5	41

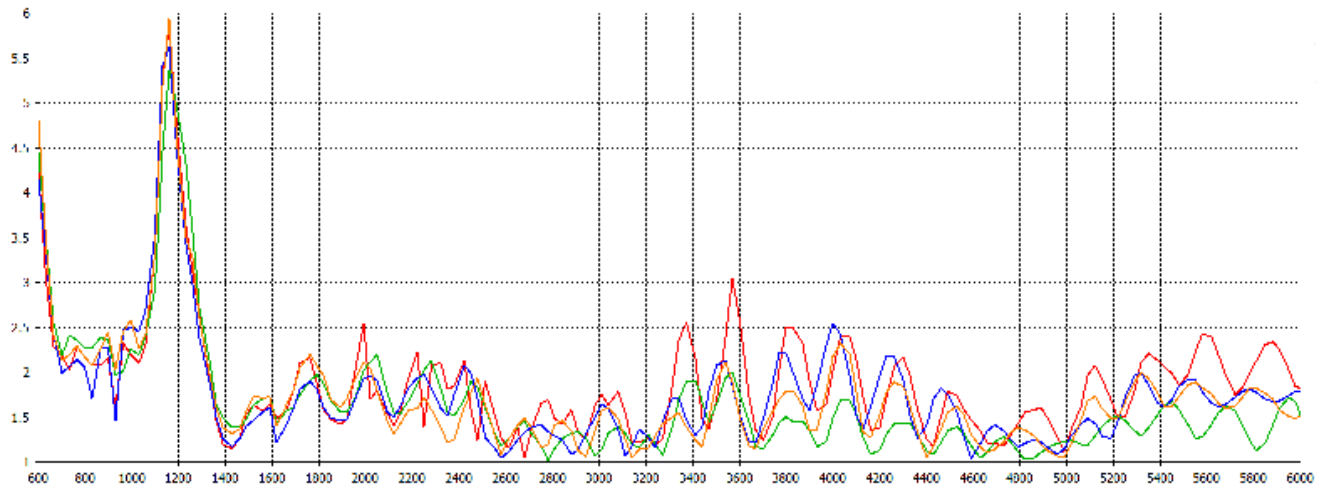
4x4 MiMo 4G/5G Sharkfin Antenna

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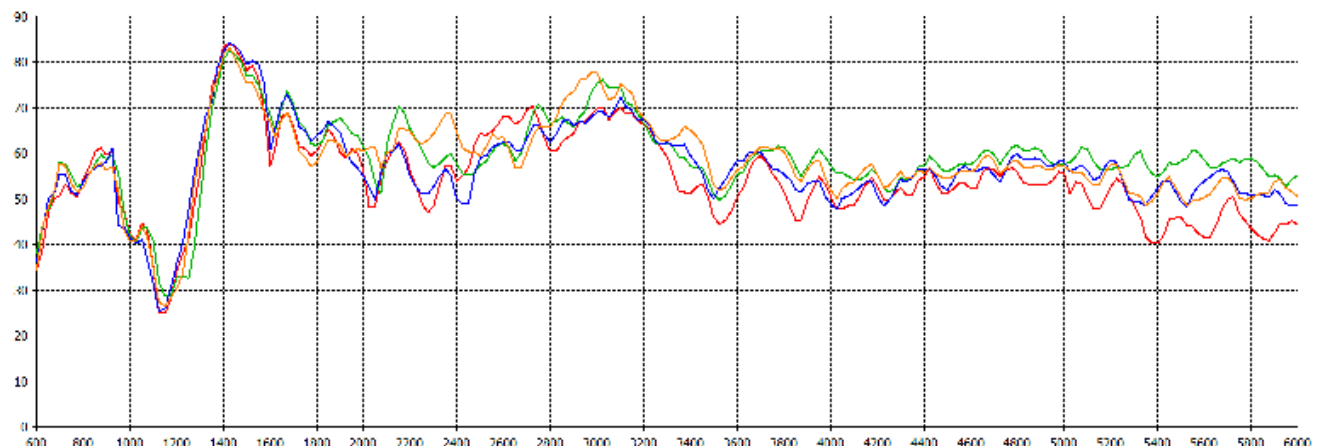
Electrical Data
Ground Plane - Cell

Typical VSWR*



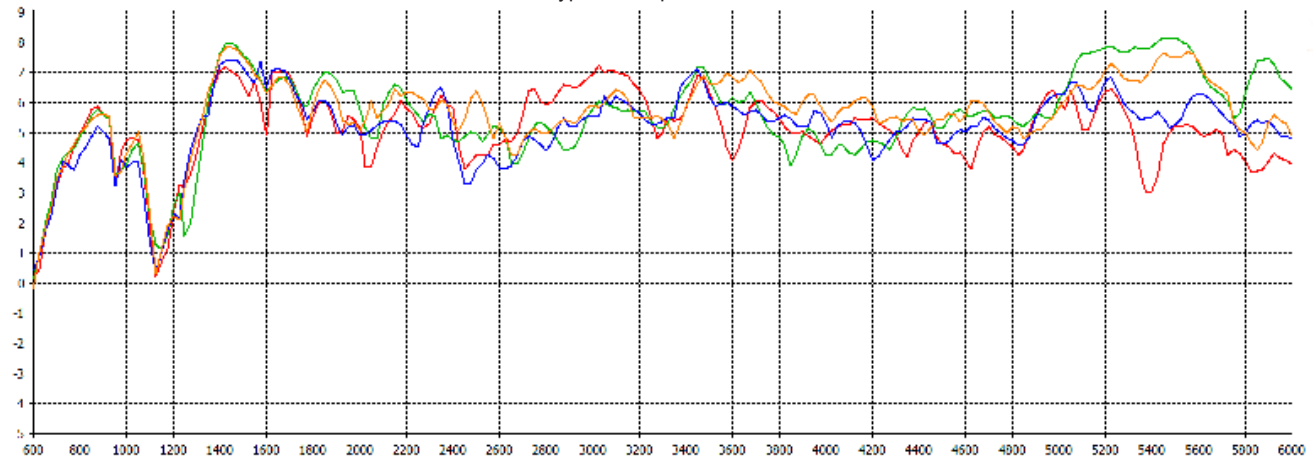
*VSWR measured on 600x600mm (2'x2') ground plane without additional cable

Typical Efficiency*



*Efficiency measured on 600x600mm (2'x2') ground plane without additional cable

Typical Swept Peak Gain*



*Peak Gain measured on 600x600mm (2'x2') ground plane without additional cable

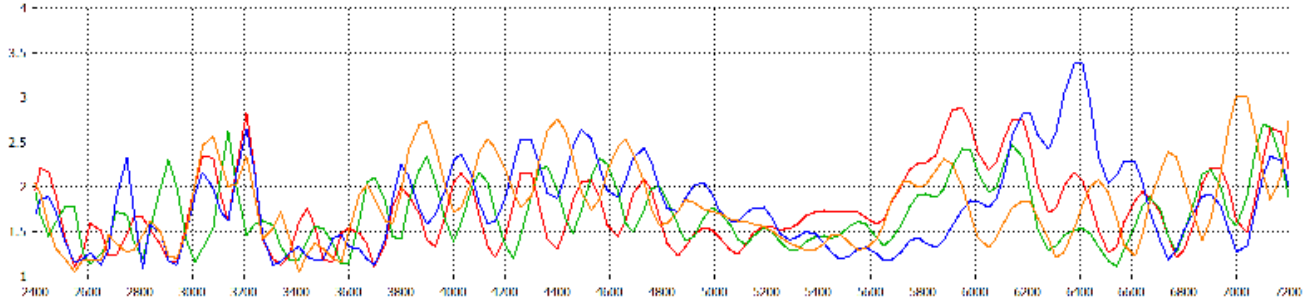
4x4 MiMo 4G/5G Sharkfin Antenna

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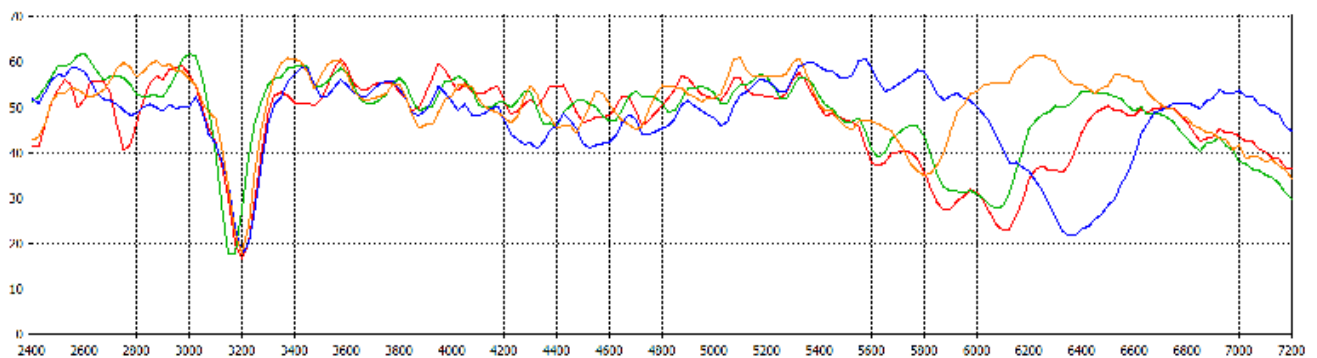
Electrical Data
Ground Plane- WiFi

Typical VSWR*



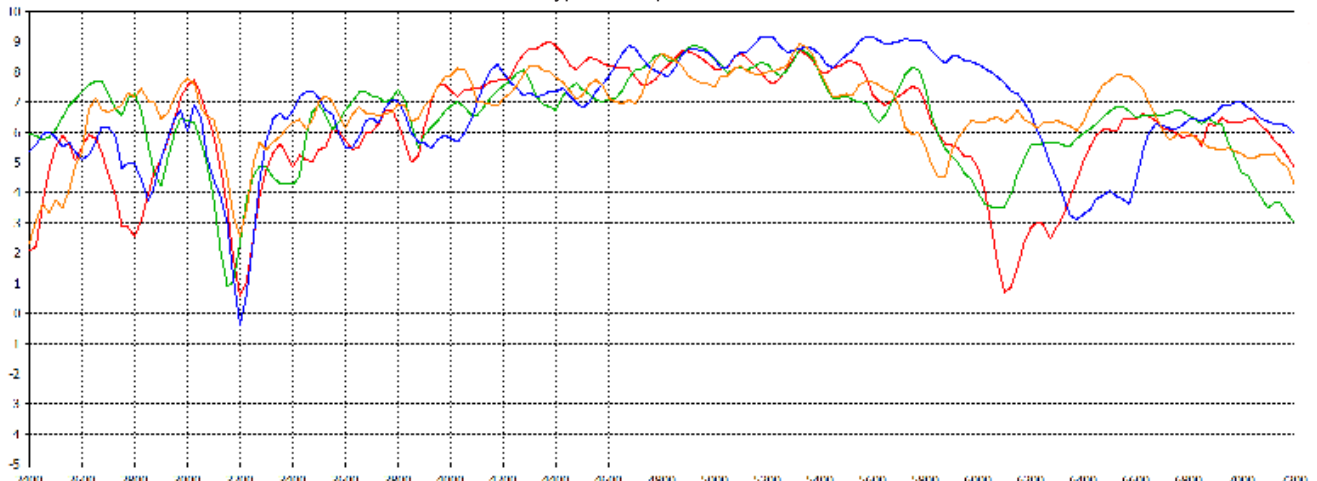
*VSWR measured on 600x600mm (2'x2') ground plane without additional cable

Typical Efficiency*



*Efficiency measured on 600x600mm (2'x2') ground plane without additional cable

Typical Swept Peak Gain*



*Peak Gain measured on 600x600mm (2'x2') ground plane without additional cable

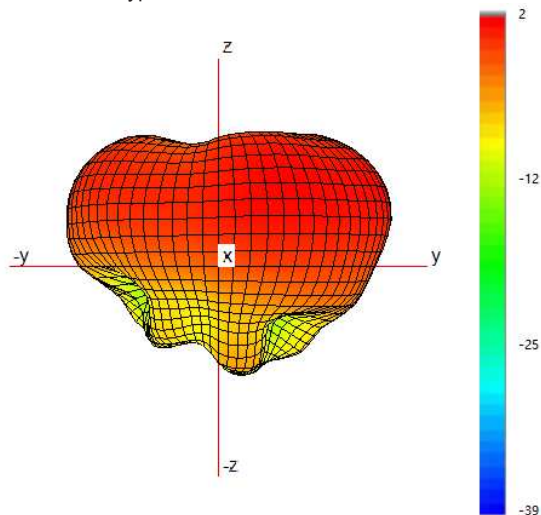
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

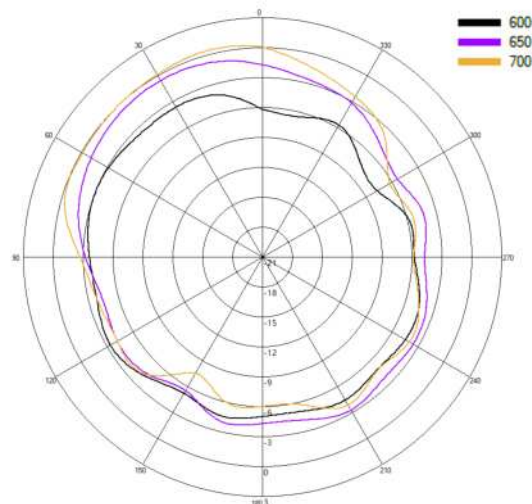
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3D Pattern Data on
Ground Plane Cell A

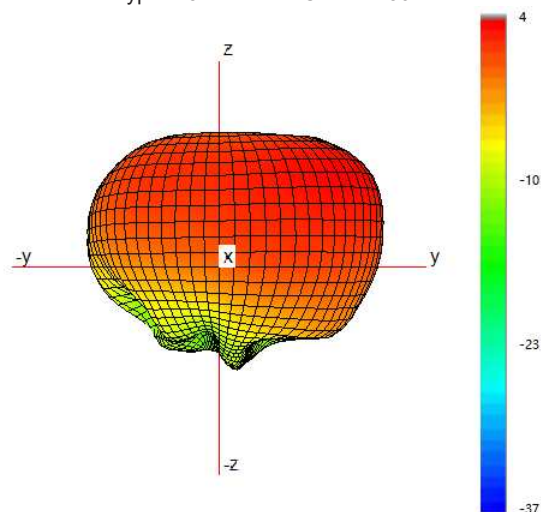
Typical 3D Pattern- Cell A - 650 MHz



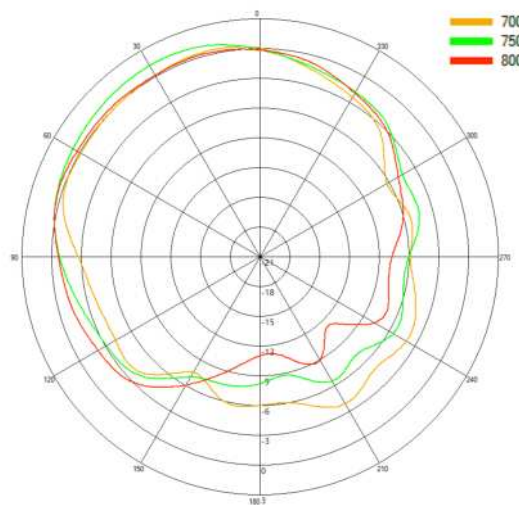
Typical H Plane- Cell A - Patterns- 600-700MHz



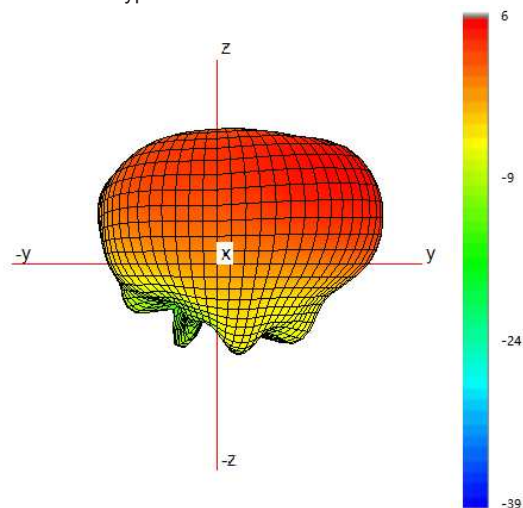
Typical 3D Pattern- Cell A - 750 MHz



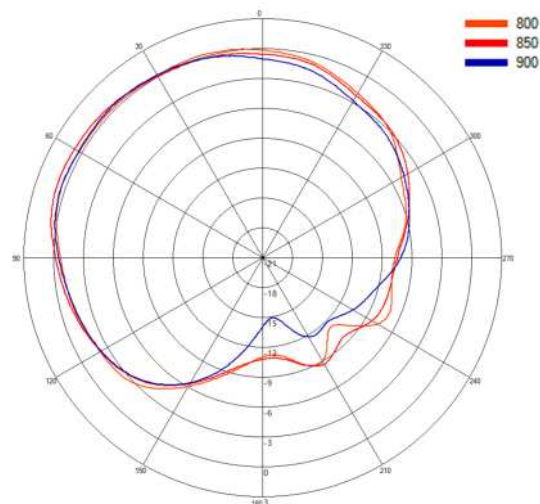
Typical H Plane- Cell A - Patterns- 700-800MHz



Typical 3D Pattern- Cell A - 850 MHz



Typical H Plane- Cell A - Patterns- 800-900MHz



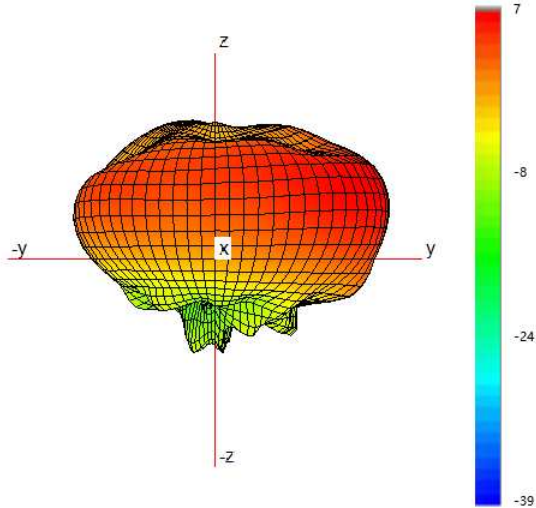
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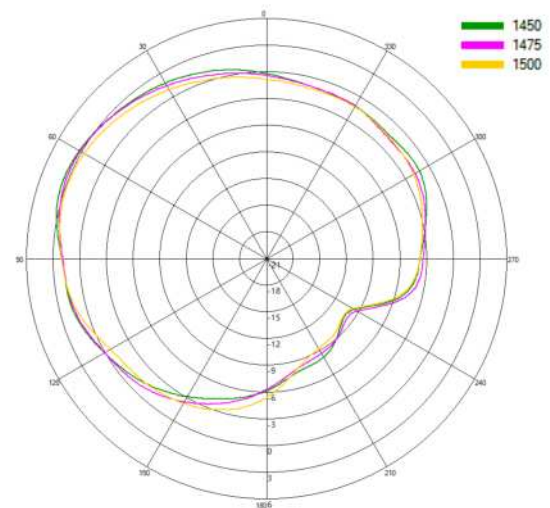
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3D Pattern Data on
Ground Plane Cell A

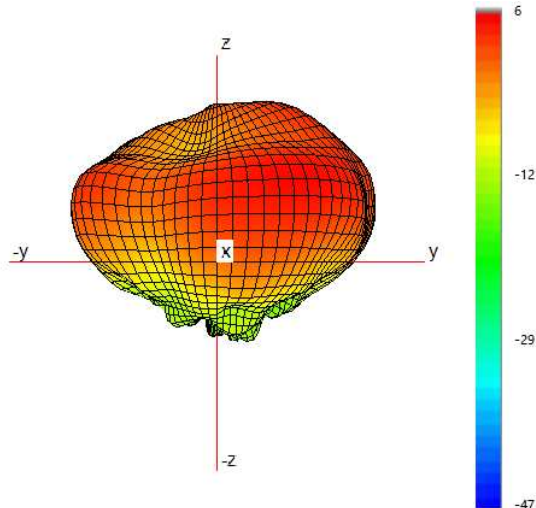
Typical 3D Pattern- Cell A - 1475 MHz



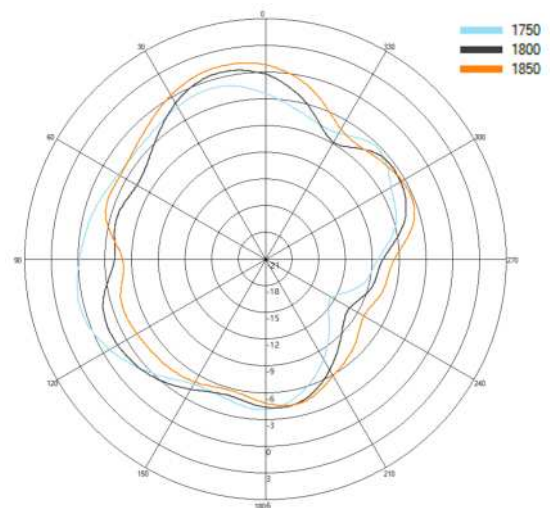
Typical H Plane- Cell A- Patterns- 1450-1500 MHz



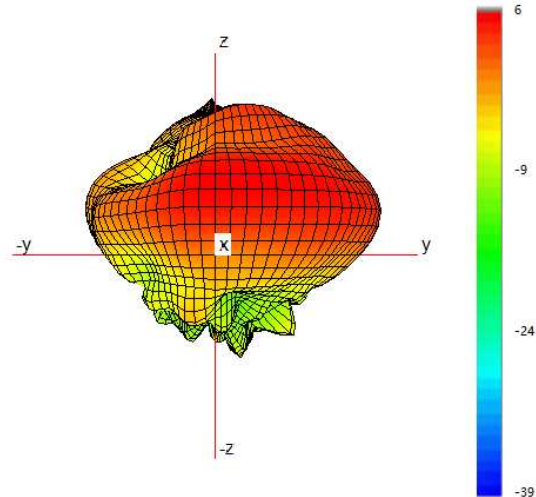
Typical 3D Pattern- Cell A - 1800 MHz



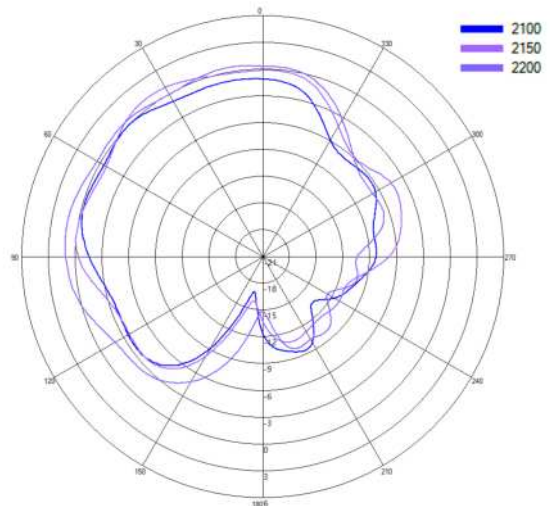
Typical H Plane- Cell A- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell A - 2150 MHz



Typical H Plane- Cell A- Patterns- 2100-2200 MHz



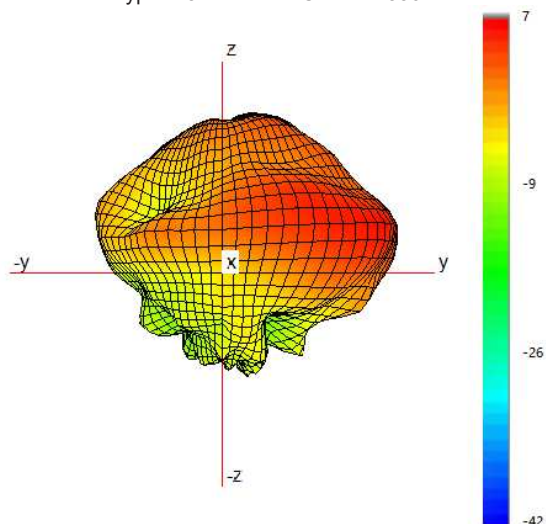
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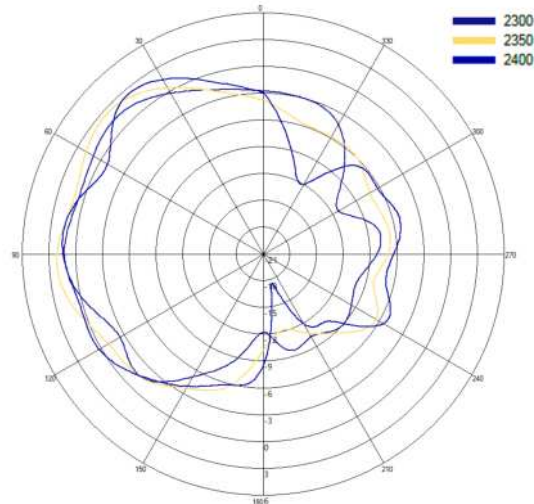
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3D Pattern Data on
Ground Plane Cell A

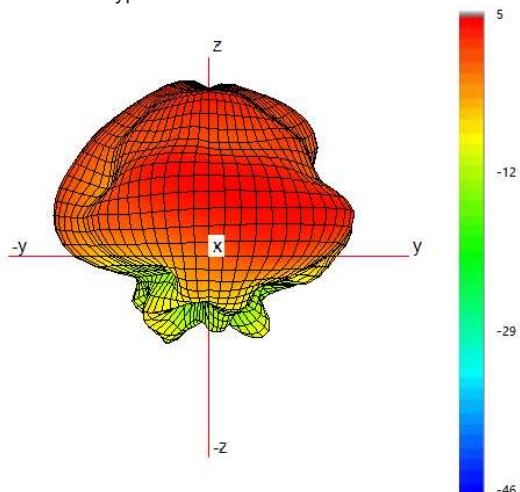
Typical 3D Pattern- Cell A - 2350 MHz



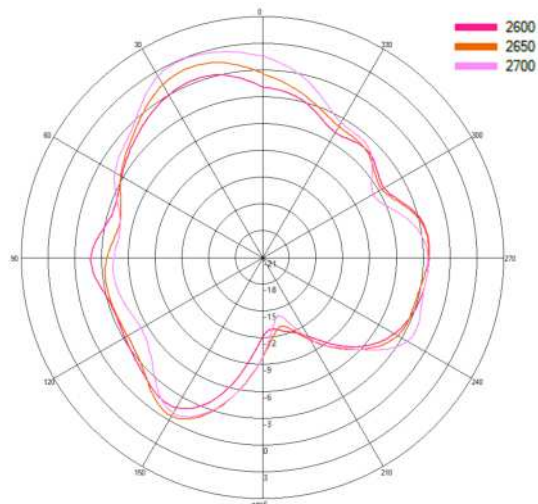
Typical H Plane- Cell A - Patterns- 2300-2400 MHz



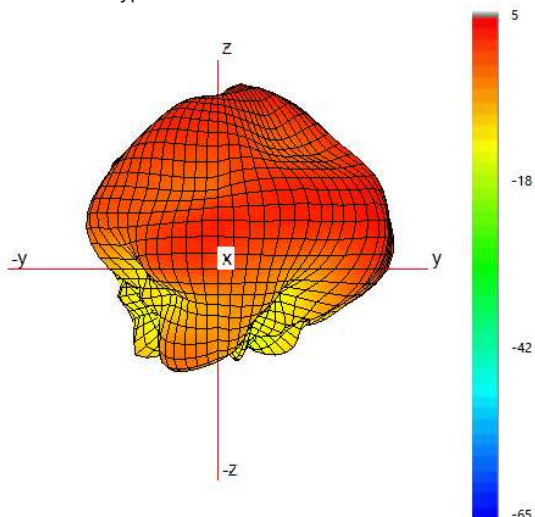
Typical 3D Pattern- Cell A - 2650 MHz



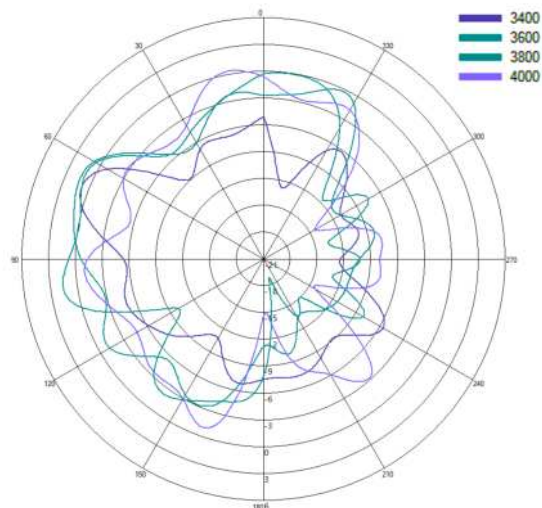
Typical H Plane- Cell A - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell A - 3600 MHz



Typical H Plane- Cell A - Patterns- 3400-4000 MHz



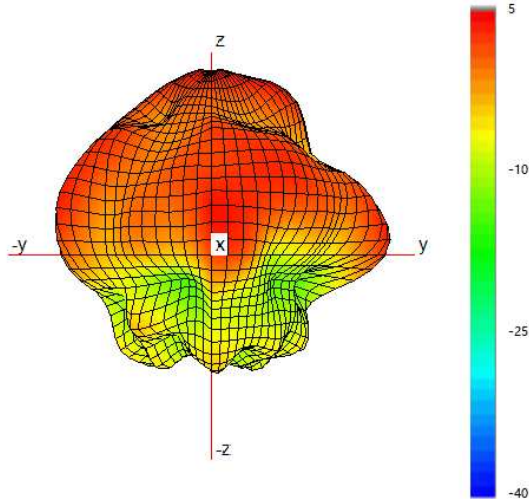
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

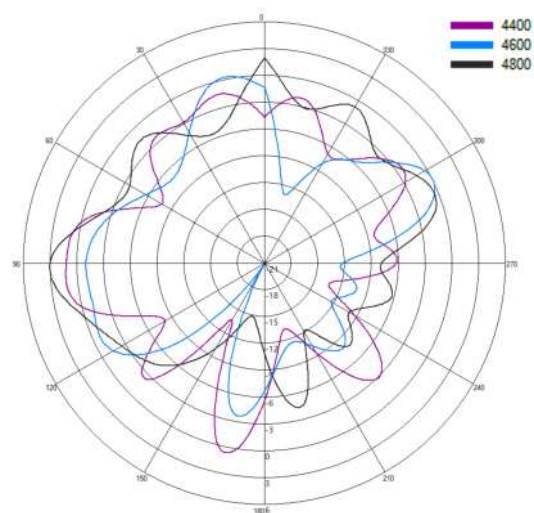
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3D Pattern Data on
Ground Plane Cell A

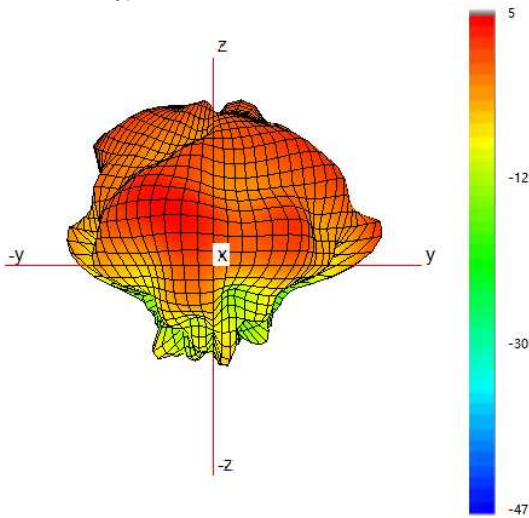
Typical 3D Pattern- Cell A - 4700 MHz



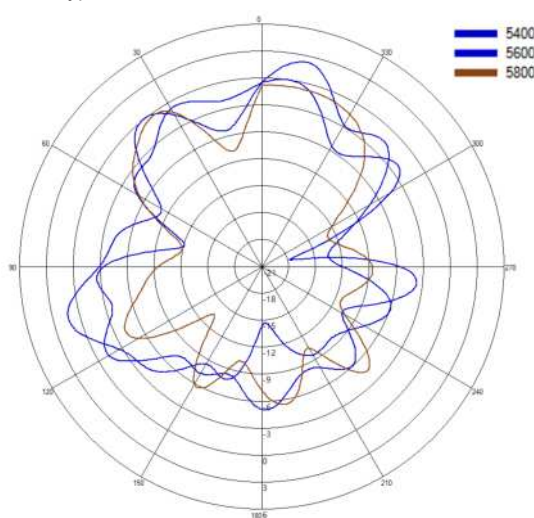
Typical H Plane- Cell A - Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell A - 5600 MHz



Typical H Plane- Cell A - Patterns- 5400-5800 MHz



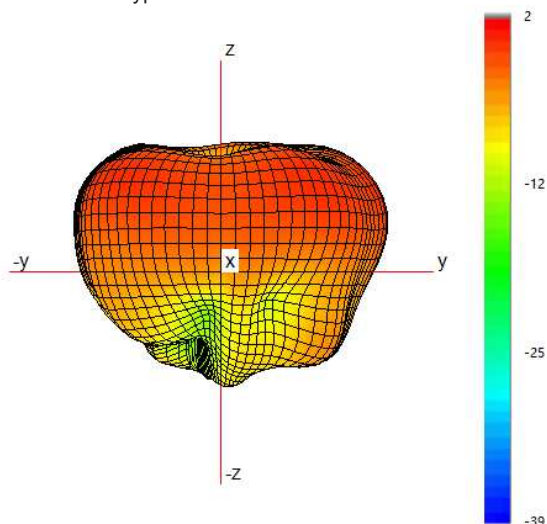
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

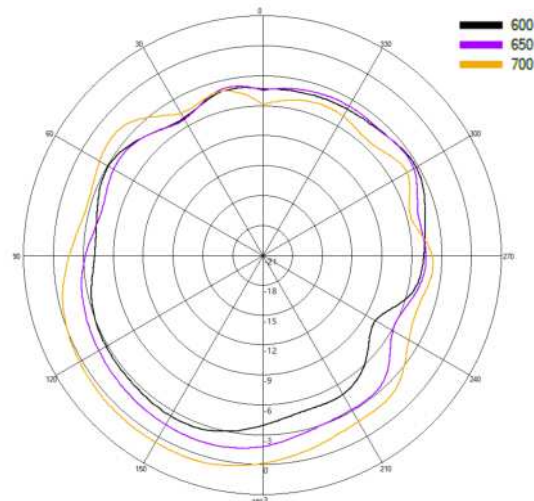
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell B

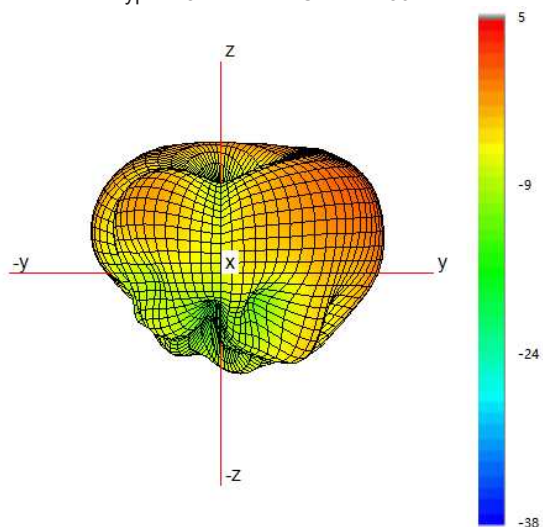
Typical 3D Pattern- Cell B - 650 MHz



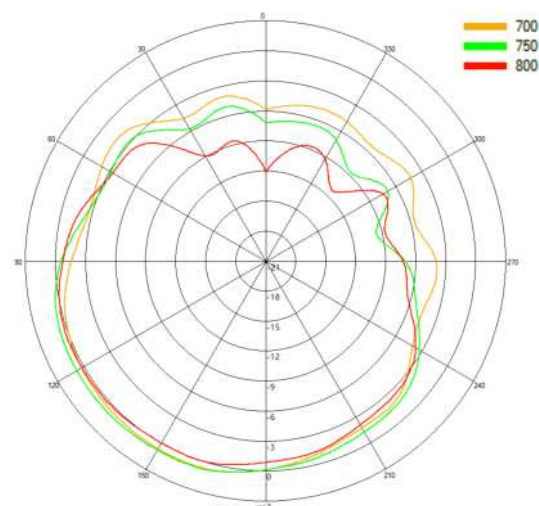
Typical H Plane- Cell B - Patterns- 600-700MHz



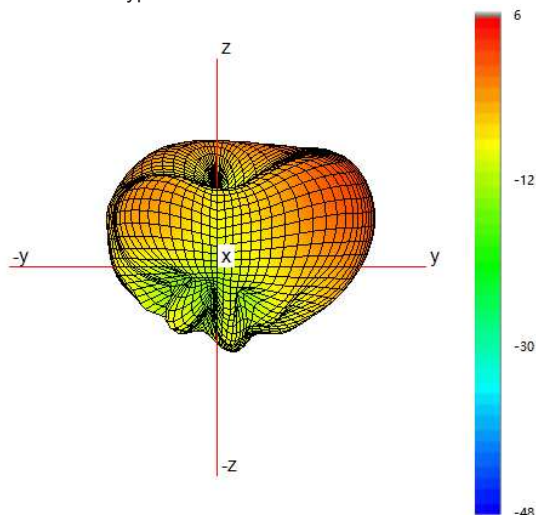
Typical 3D Pattern- Cell B - 750 MHz



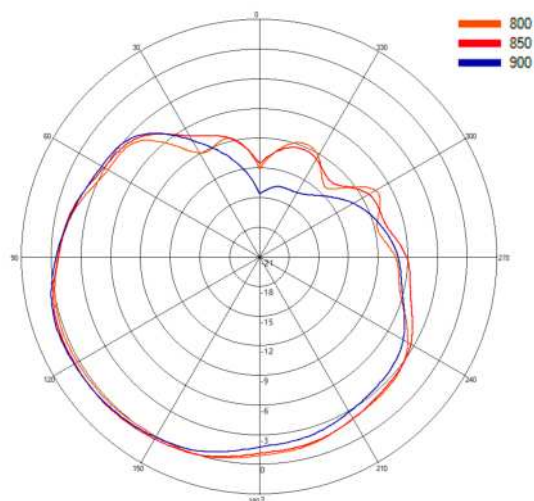
Typical H Plane- Cell B - Patterns- 700-800MHz



Typical 3D Pattern- Cell B - 850 MHz



Typical H Plane- Cell B - Patterns- 800-900MHz



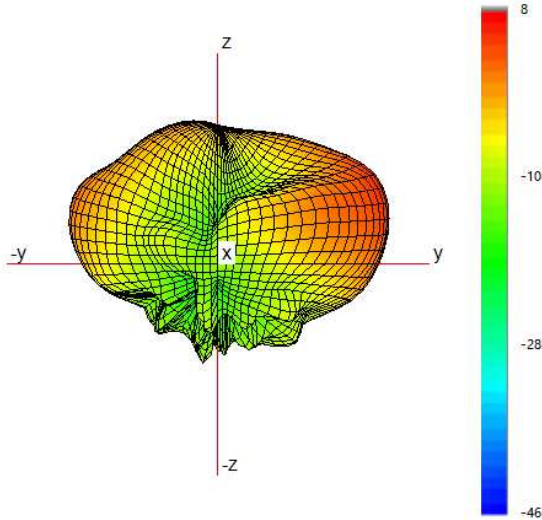
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

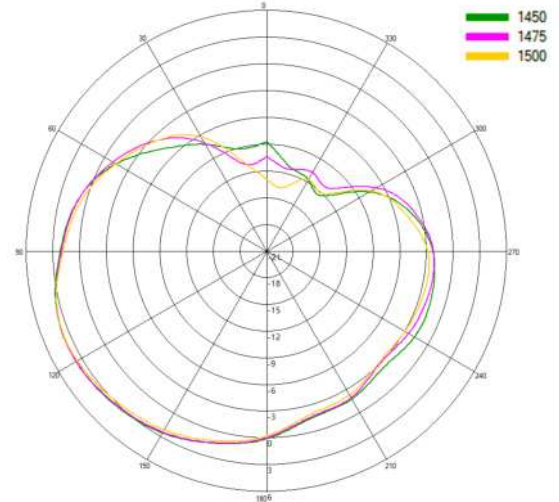
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell B

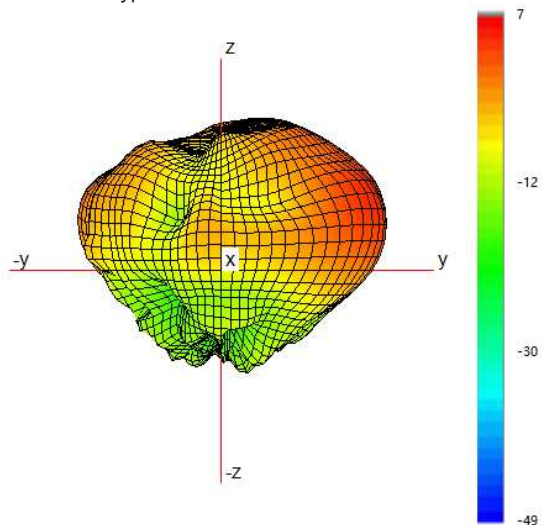
Typical 3D Pattern- Cell B - 1475 MHz



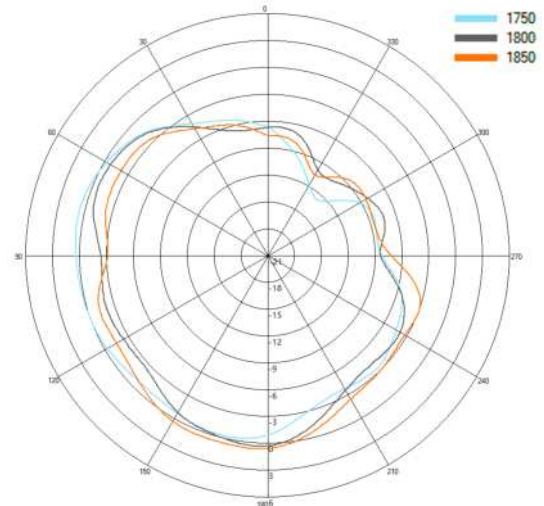
Typical H Plane- Cell B- Patterns- 1450-1500 MHz



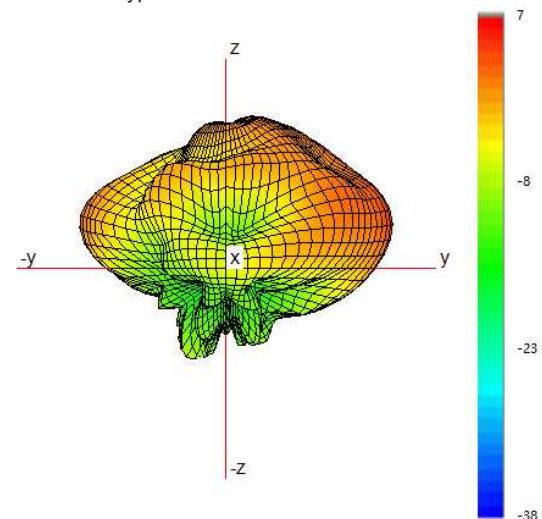
Typical 3D Pattern- Cell B - 1800 MHz



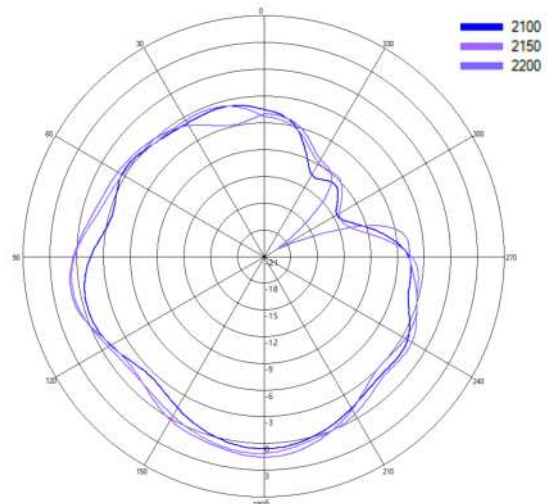
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell B - 2150 MHz



Typical H Plane- Cell B- Patterns- 2100-2200 MHz



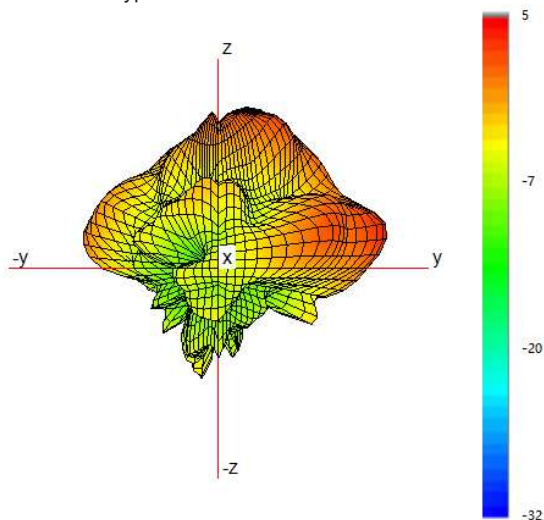
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

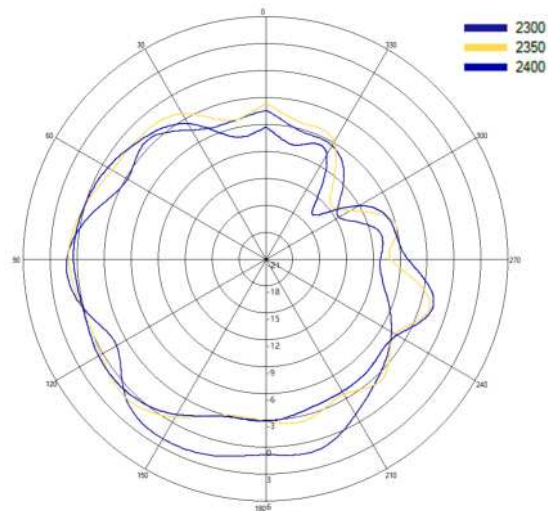
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell B

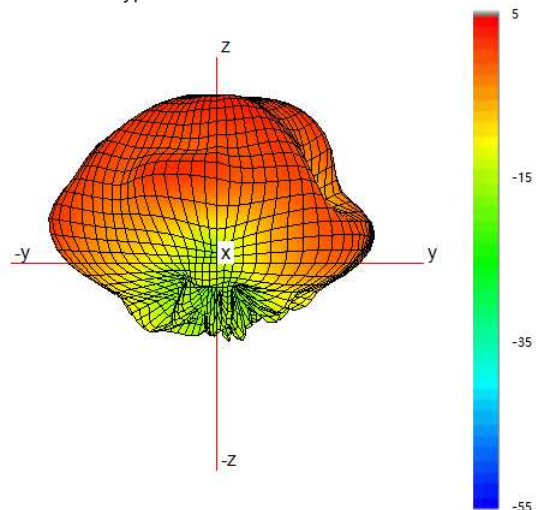
Typical 3D Pattern- Cell B - 2350 MHz



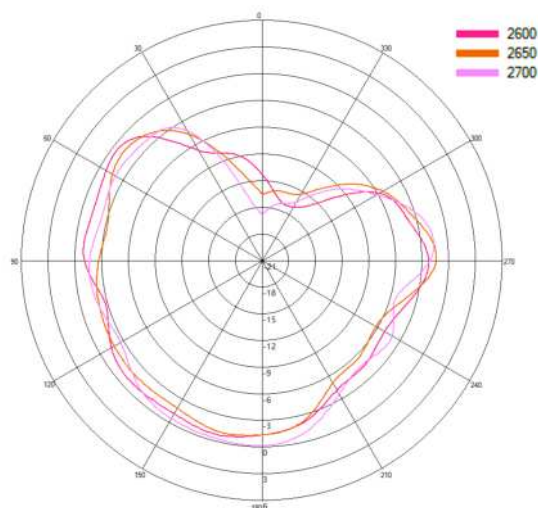
Typical H Plane- Cell B - Patterns- 2300-2400 MHz



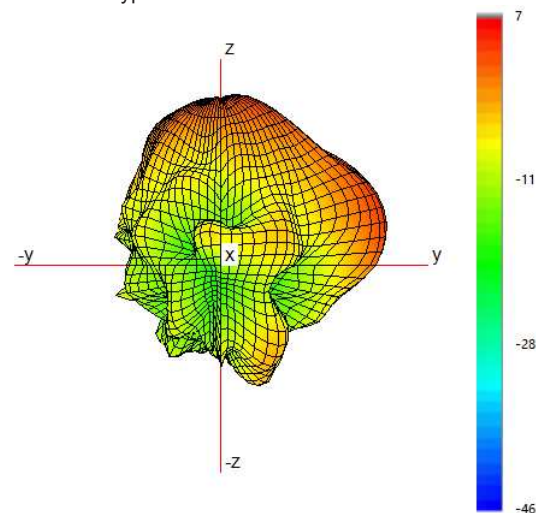
Typical 3D Pattern- Cell B - 2650 MHz



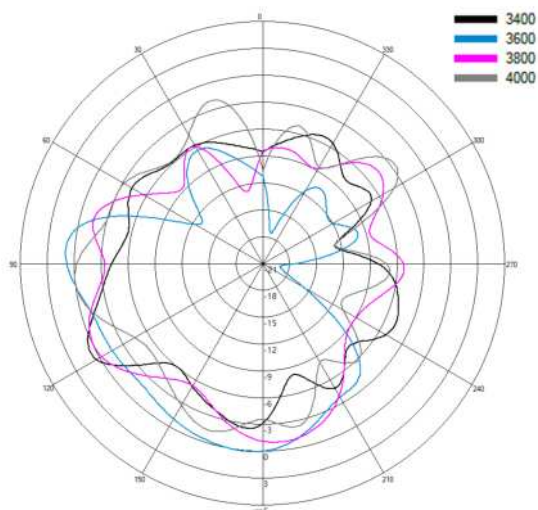
Typical H Plane- Cell B - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell B - 3600 MHz



Typical H Plane- Cell B - Patterns- 3400-4000 MHz



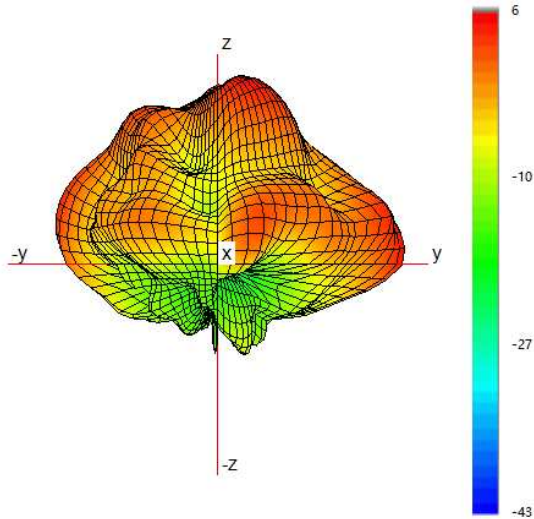
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

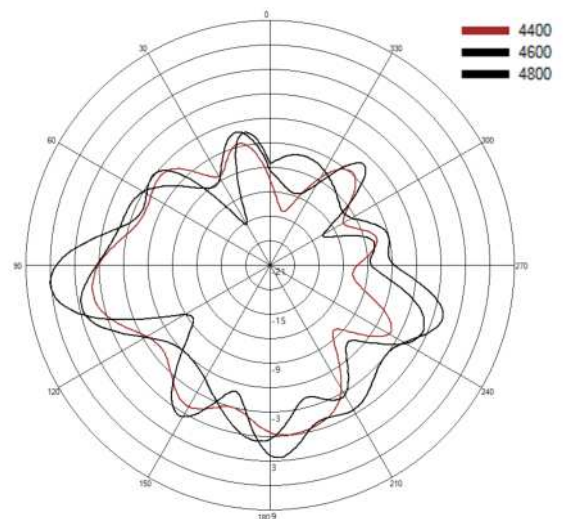
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell B

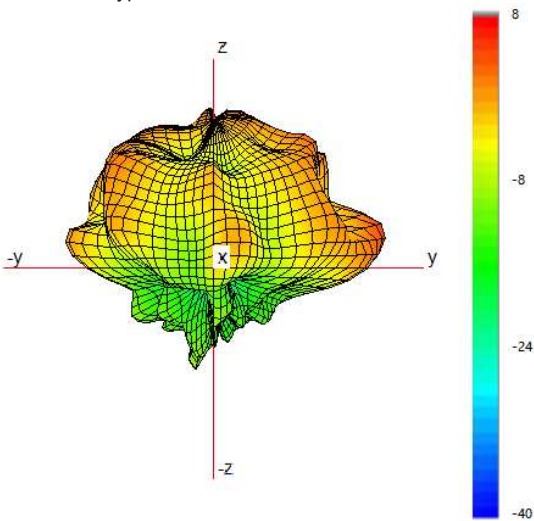
Typical 3D Pattern- Cell B - 4700 MHz



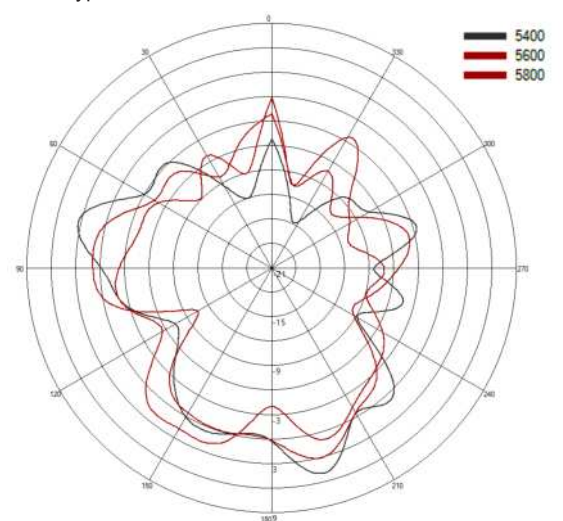
Typical H Plane- Cell B- Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell B - 5600 MHz



Typical H Plane- Cell B- Patterns- 5400-5800 MHz



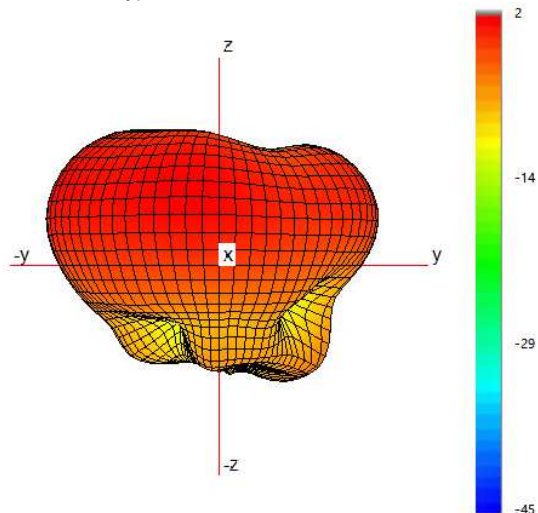
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

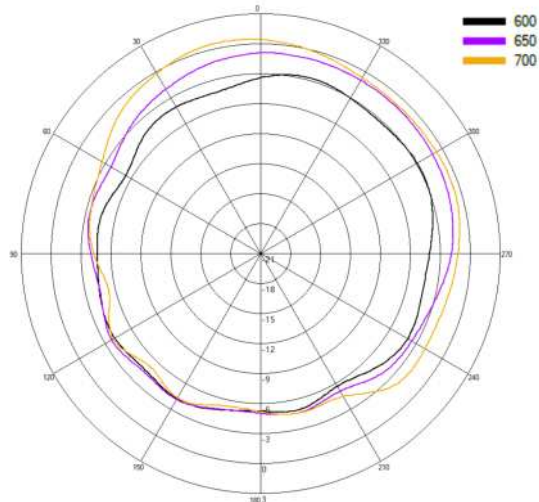
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell C

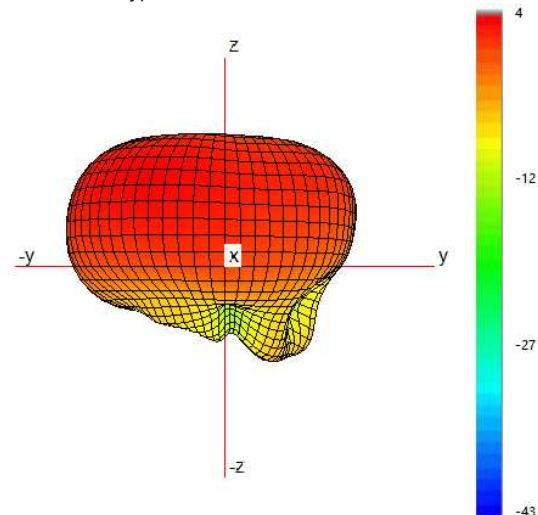
Typical 3D Pattern- Cell C - 650 MHz



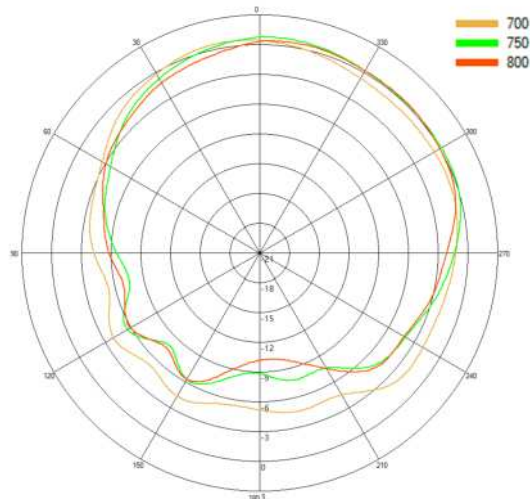
Typical H Plane- Cell C - Patterns- 600-700MHz



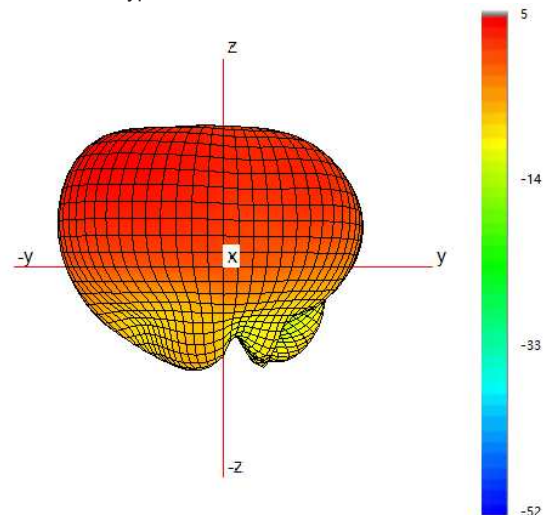
Typical 3D Pattern- Cell C - 750 MHz



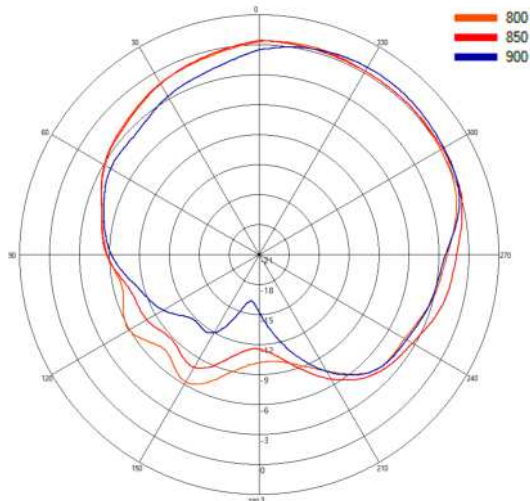
Typical H Plane- Cell C - Patterns- 700-800MHz



Typical 3D Pattern- Cell C - 850 MHz



Typical H Plane- Cell C - Patterns- 800-900MHz



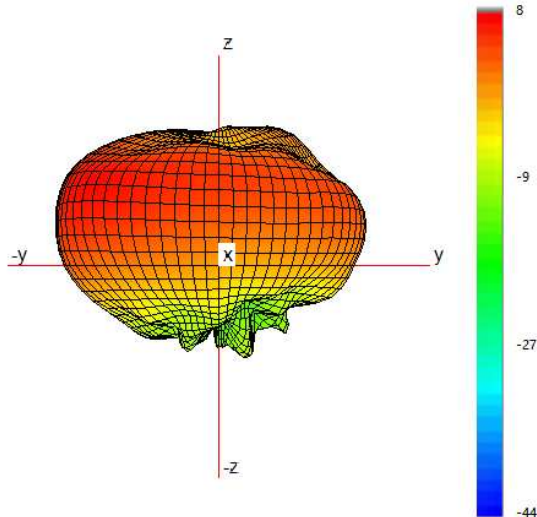
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

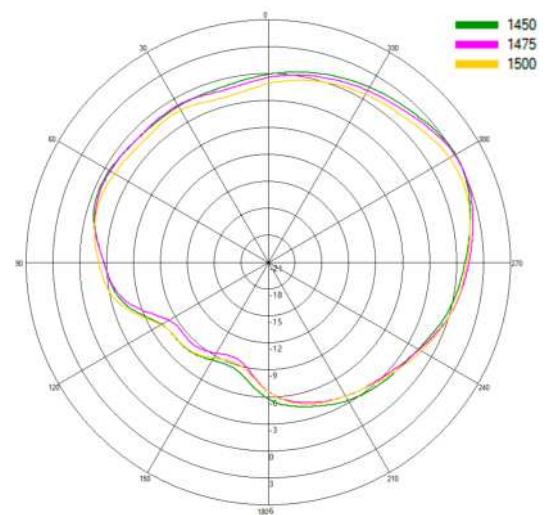
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell C

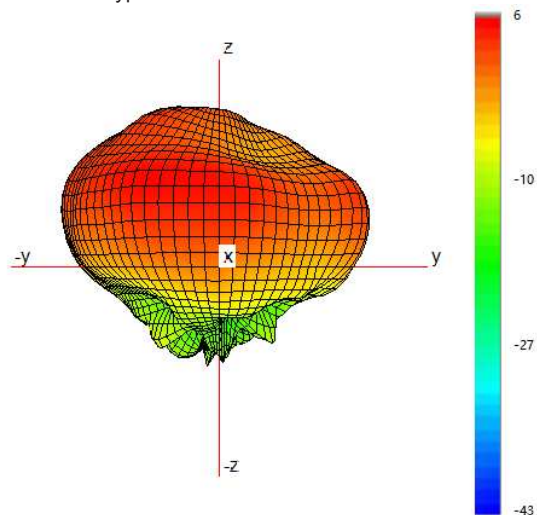
Typical 3D Pattern- Cell C - 1475 MHz



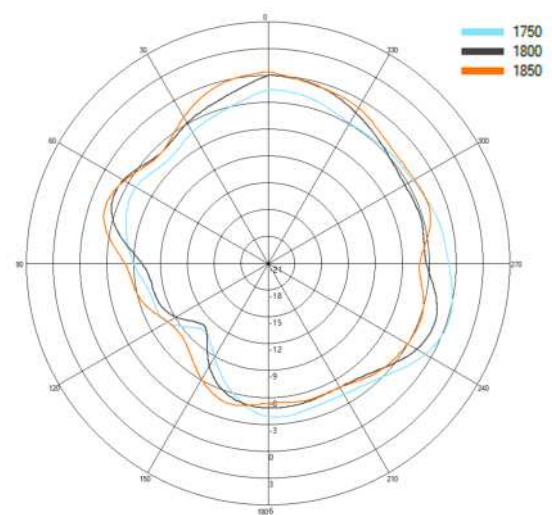
Typical H Plane- Cell C- Patterns- 1450-1500 MHz



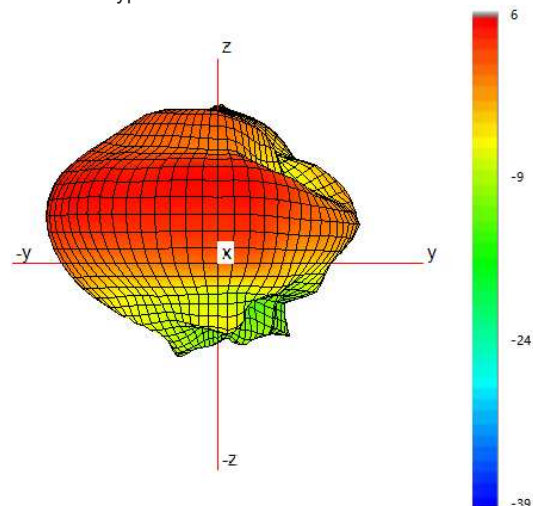
Typical 3D Pattern- Cell C - 1800 MHz



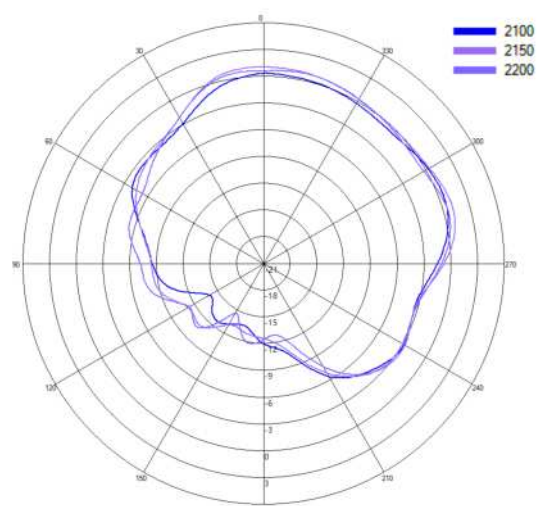
Typical H Plane- Cell C- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell C - 2150 MHz



Typical H Plane- Cell C- Patterns- 2100-2200 MHz



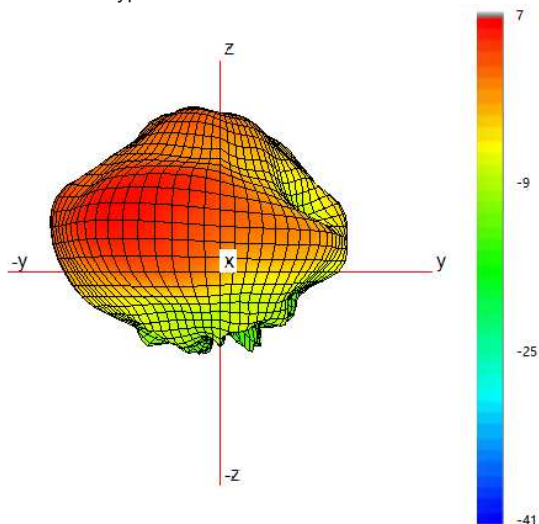
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

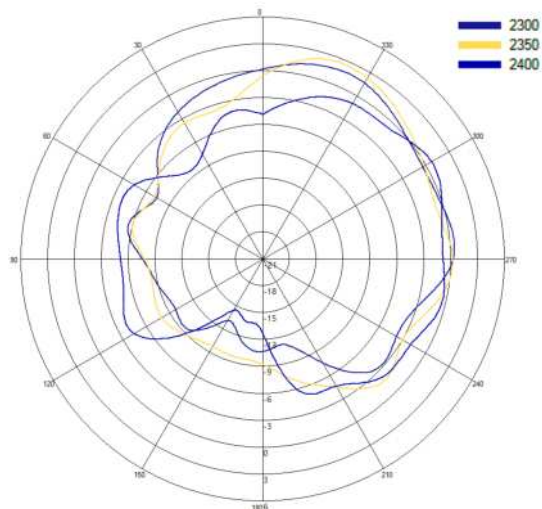
PANORAMA ANTENNAS

3D Pattern Data on Ground Plane Cell C

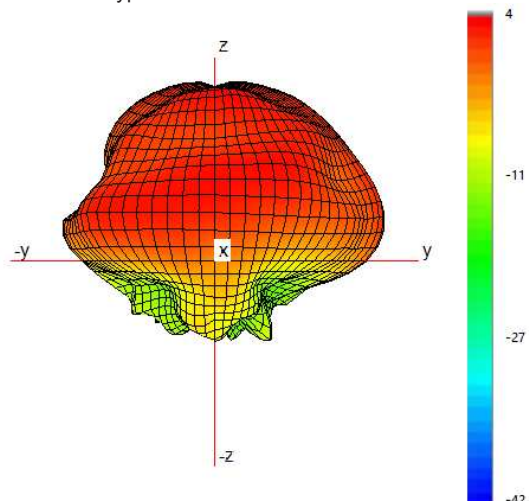
Typical 3D Pattern- Cell C - 2350 MHz



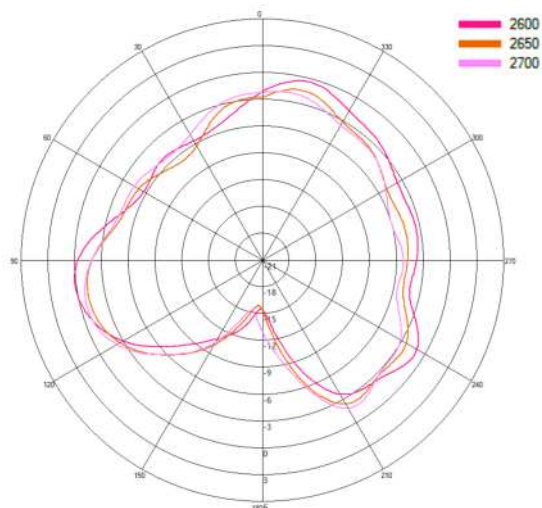
Typical H Plane- Cell C - Patterns- 2300-2400 MHz



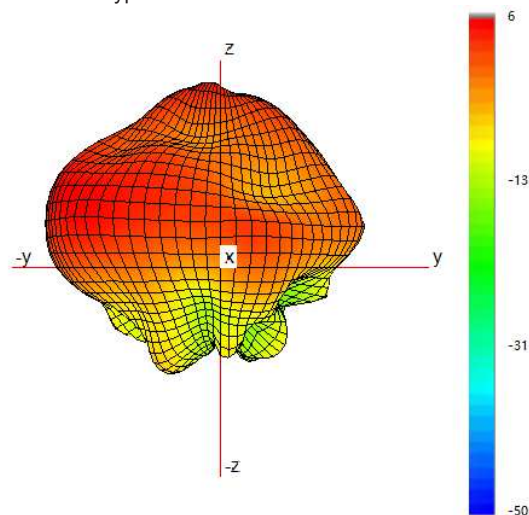
Typical 3D Pattern- Cell C - 2650 MHz



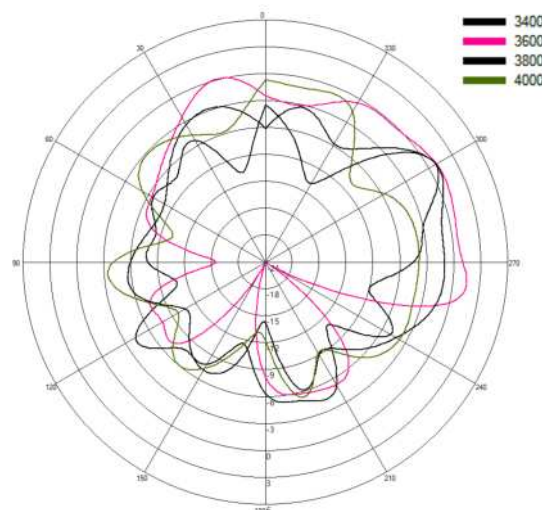
Typical H Plane- Cell C - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell C - 3600 MHz



Typical H Plane- Cell C - Patterns- 3400-4000 MHz



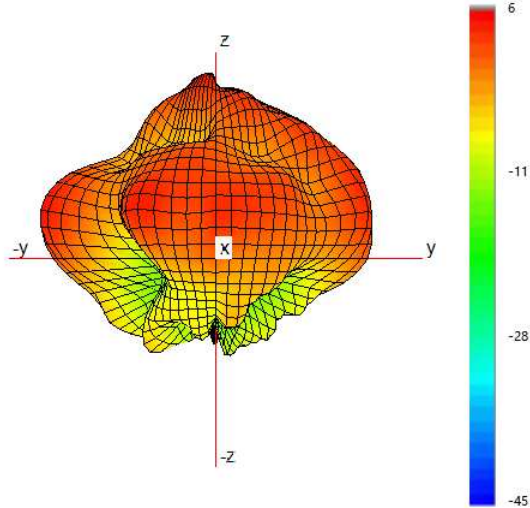
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

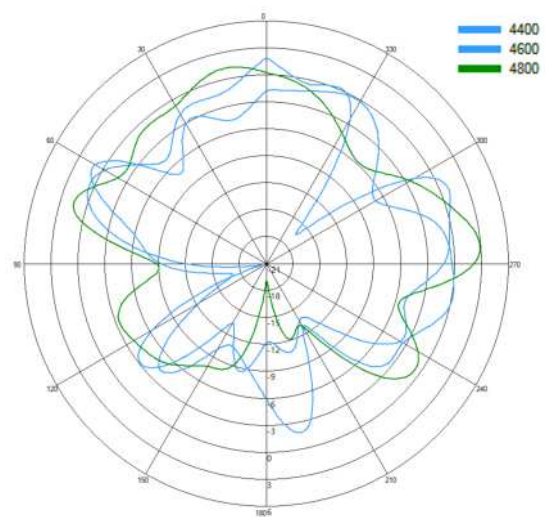
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell C

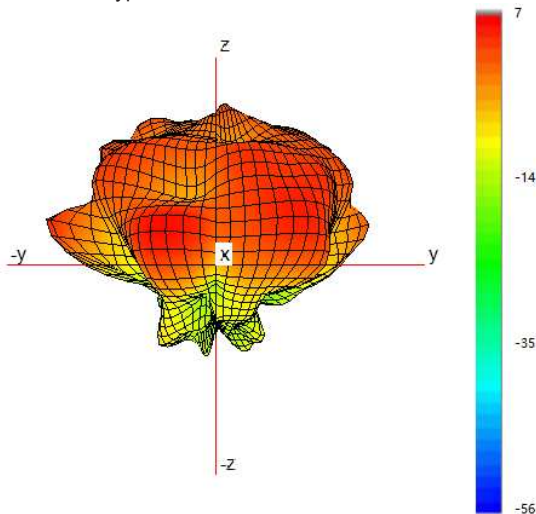
Typical 3D Pattern- Cell C - 4700 MHz



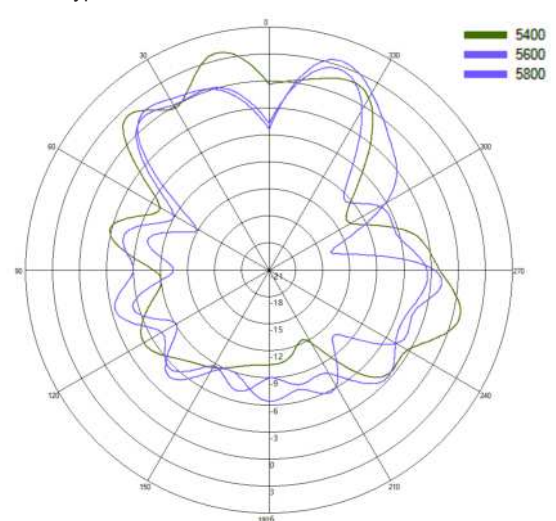
Typical H Plane- Cell C- Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell C - 5600 MHz



Typical H Plane- Cell C- Patterns- 5400-5800 MHz



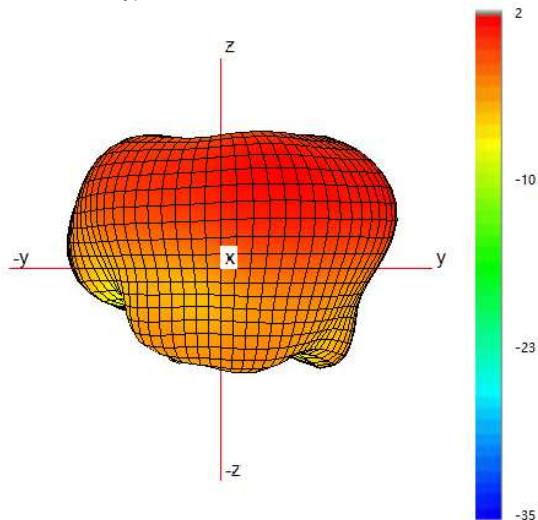
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

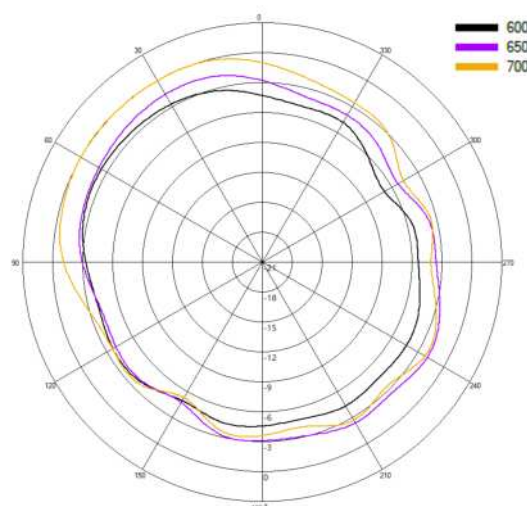
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell D

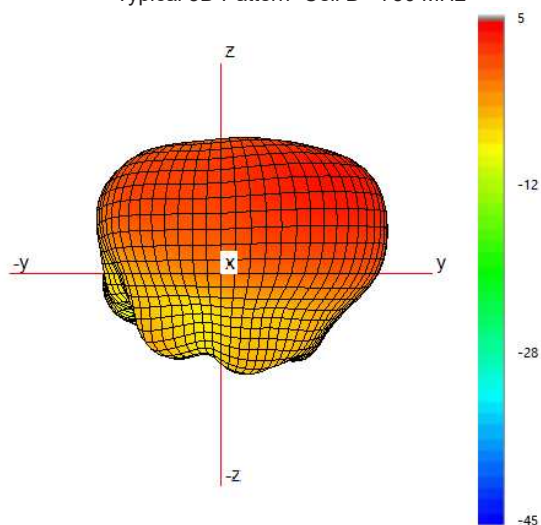
Typical 3D Pattern- Cell D - 650 MHz



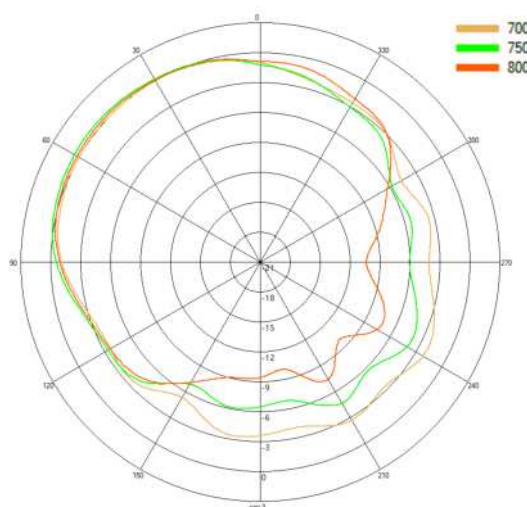
Typical H Plane- Cell D - Patterns- 600-700MHz



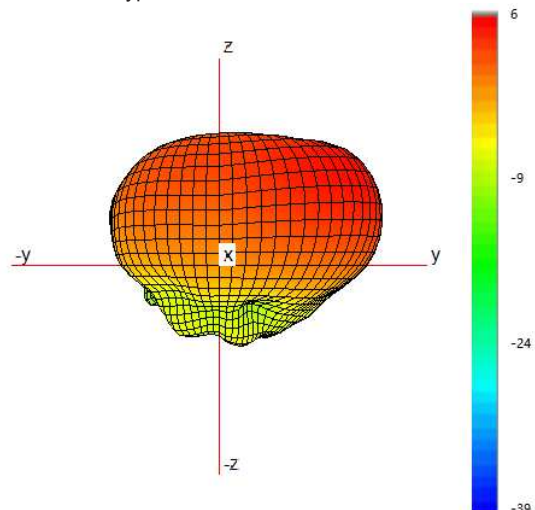
Typical 3D Pattern- Cell D - 750 MHz



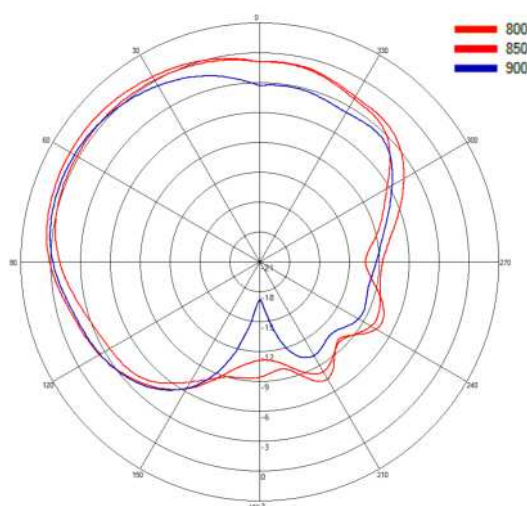
Typical H Plane- Cell D - Patterns- 700-800MHz



Typical 3D Pattern- Cell D - 850 MHz



Typical H Plane- Cell D- Patterns- 800-900MHz



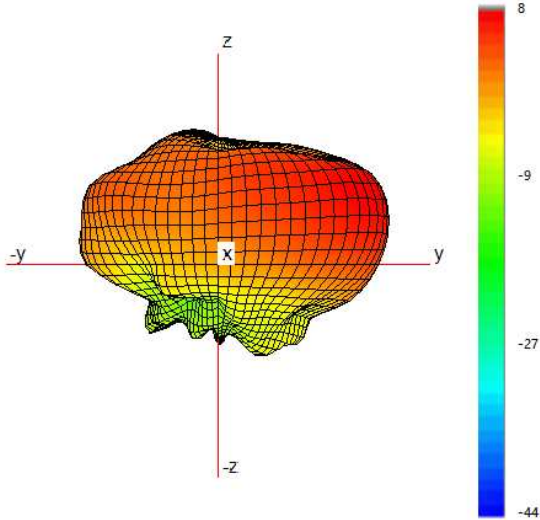
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

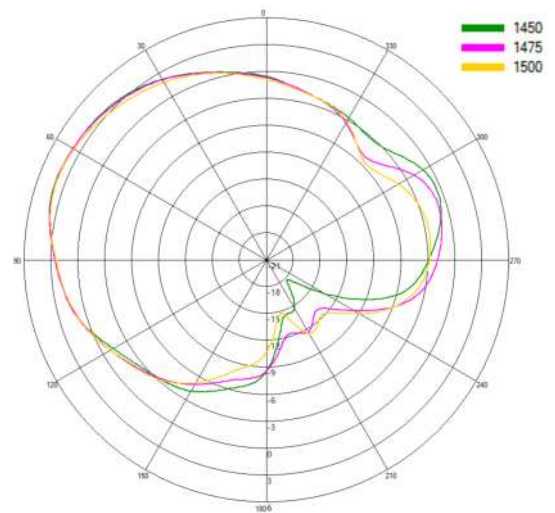
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell D

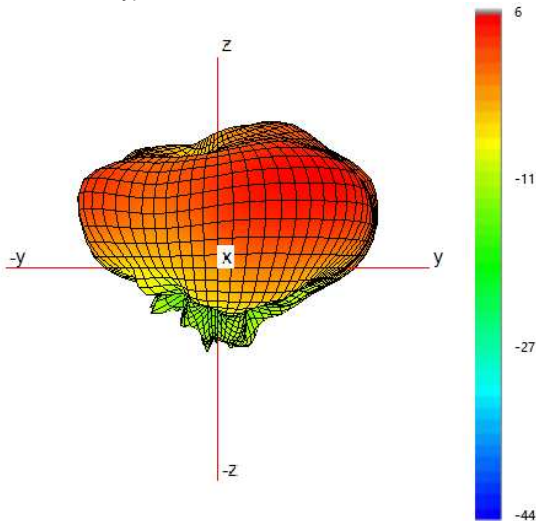
Typical 3D Pattern- Cell D - 1475 MHz



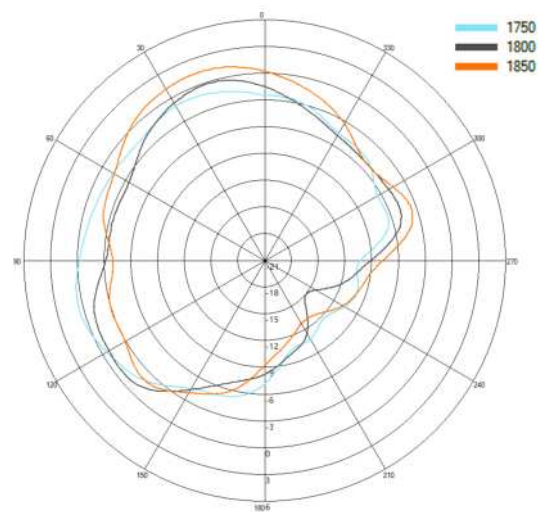
Typical H Plane- Cell D- Patterns- 1450-1500 MHz



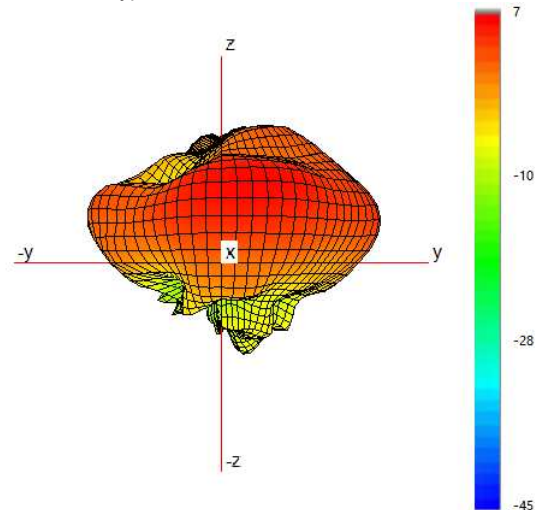
Typical 3D Pattern- Cell D- 1800 MHz



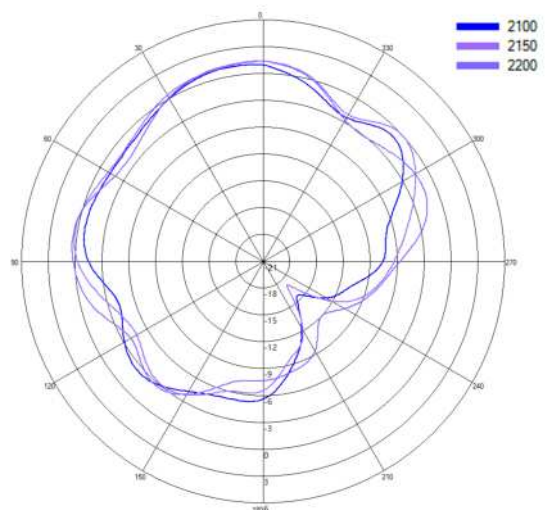
Typical H Plane- Cell D- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell D - 2150 MHz



Typical H Plane- Cell D- Patterns- 2100-2200 MHz



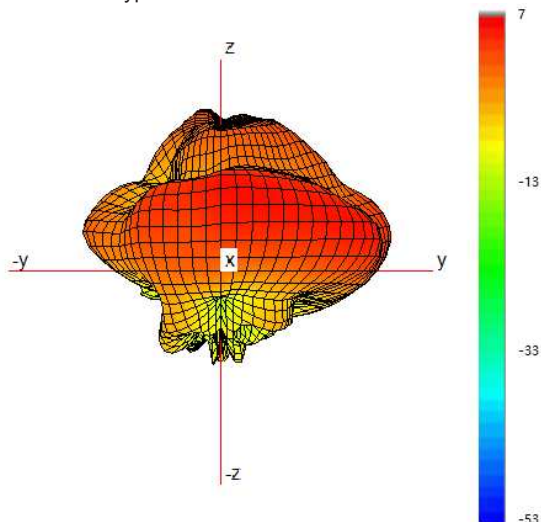
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

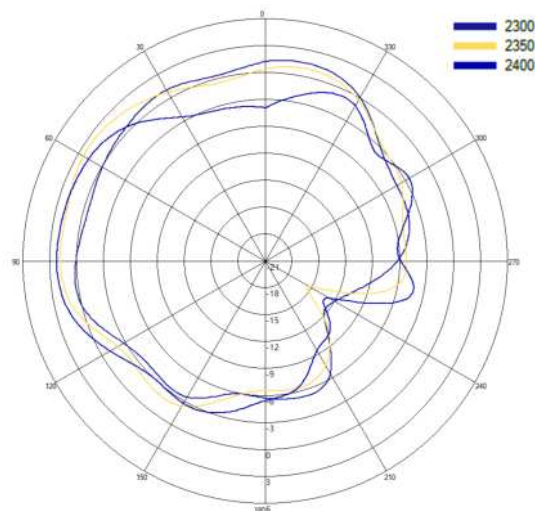
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell D

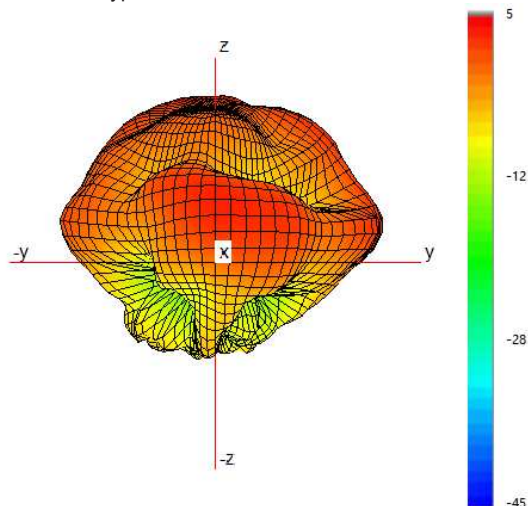
Typical 3D Pattern- Cell D - 2350 MHz



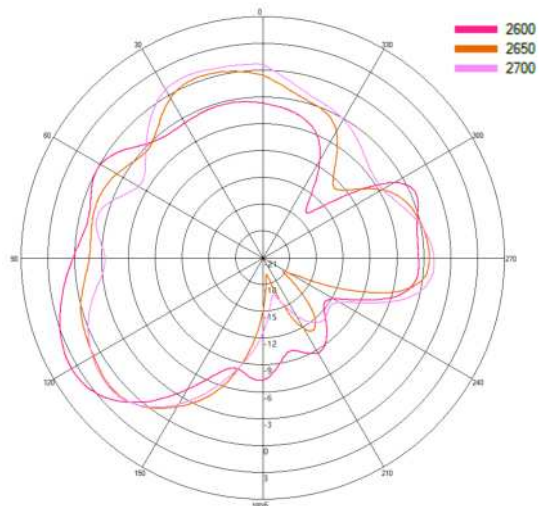
Typical H Plane- Cell D - Patterns- 2300-2400 MHz



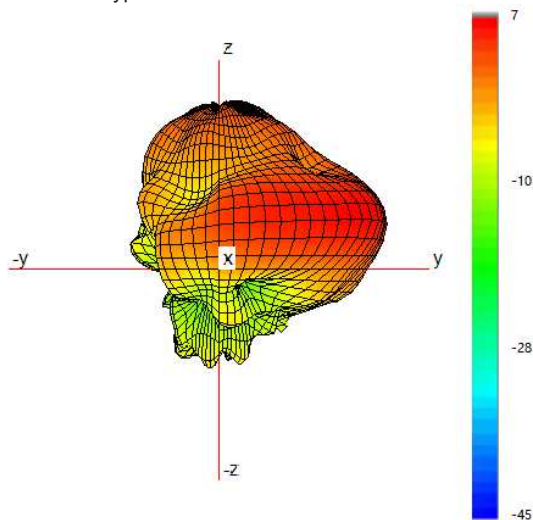
Typical 3D Pattern- Cell D - 2650 MHz



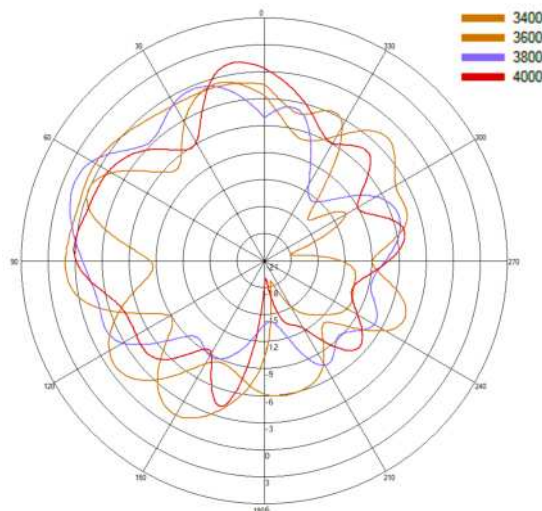
Typical H Plane- Cell D - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell D - 3600 MHz



Typical H Plane- Cell D - Patterns- 3400-4000 MHz



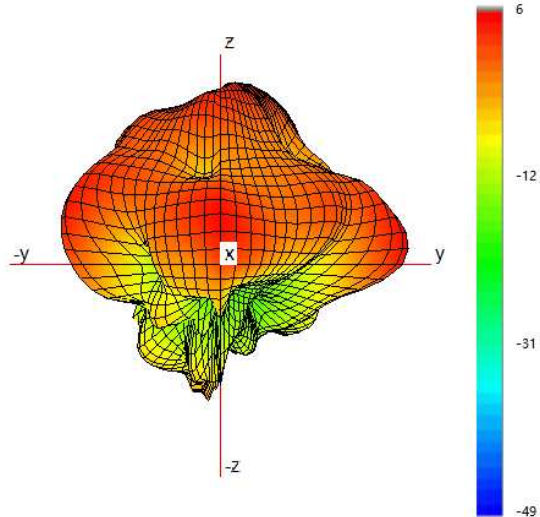
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

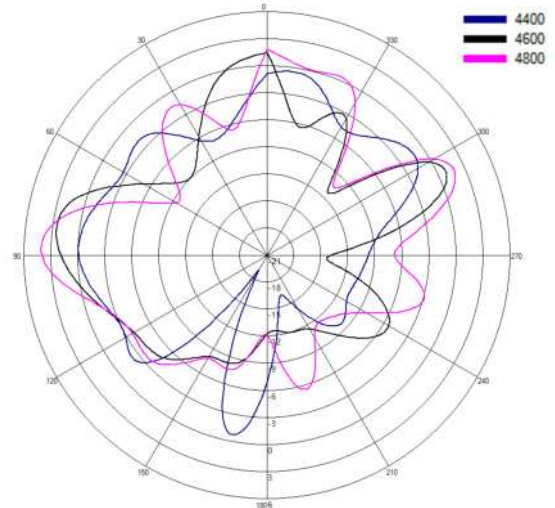
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane Cell D

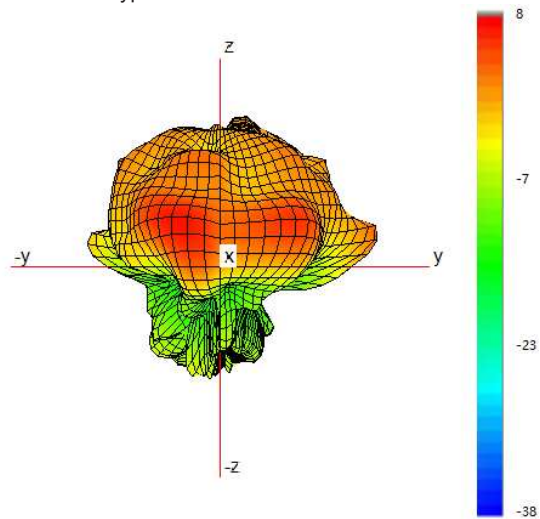
Typical 3D Pattern- Cell D - 4700 MHz



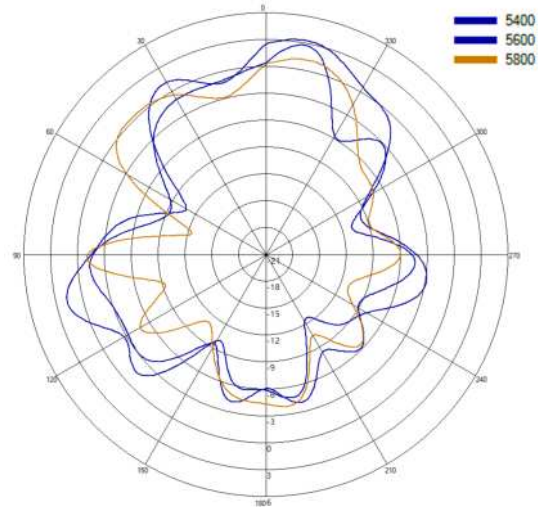
Typical H Plane- Cell D- Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell D - 5600 MHz



Typical H Plane- Cell D- Patterns- 5400-5800 MHz



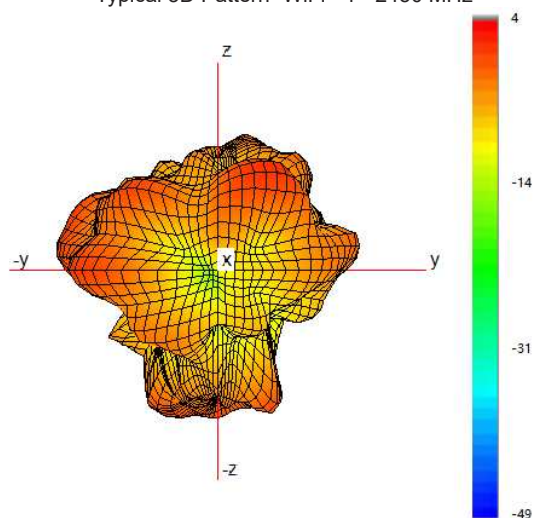
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

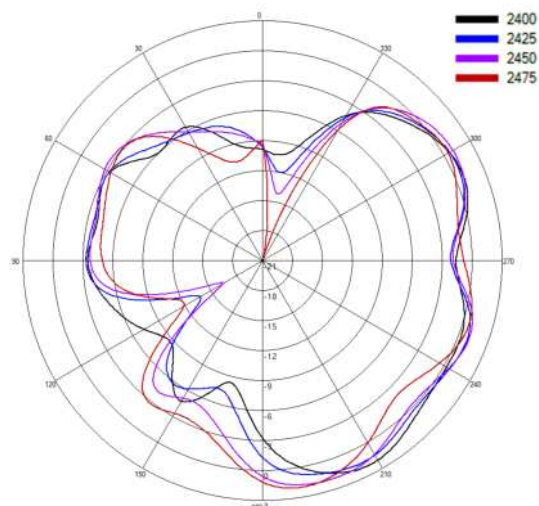
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane WIFI - 1

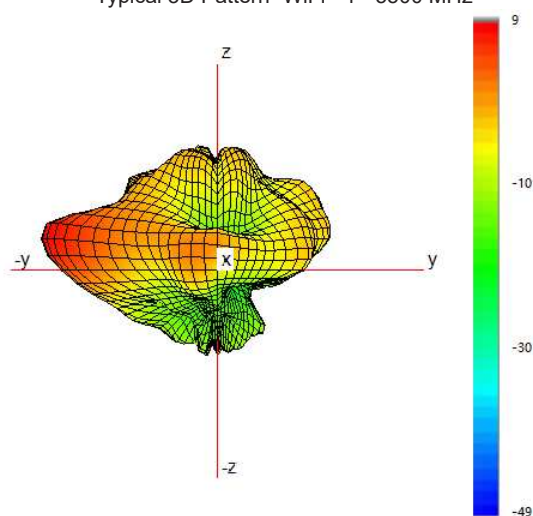
Typical 3D Pattern- WiFi - 1 - 2450 MHz



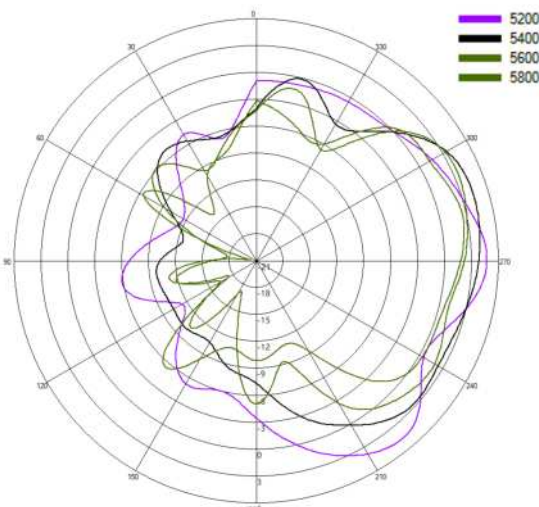
Typical H Plane- WiFi - 1 - Patterns- 2400-2475MHz



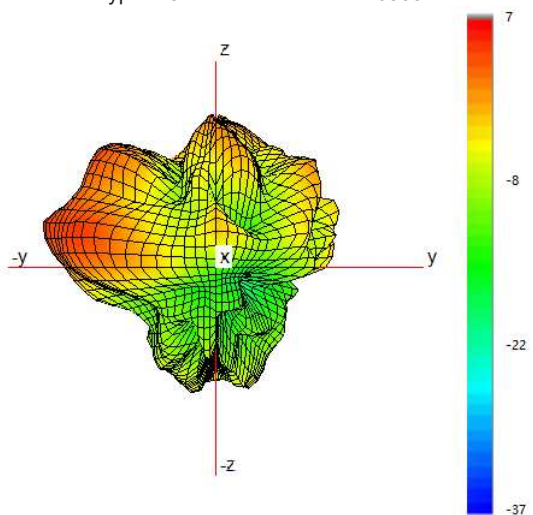
Typical 3D Pattern- WiFi - 1 - 5500 MHz



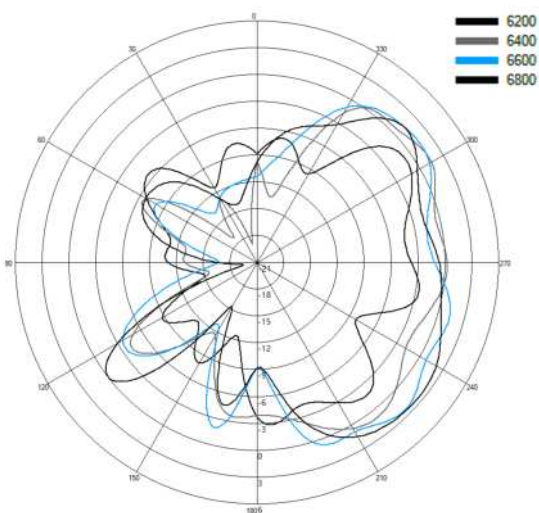
Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 1 - 6500 MHz



Typical H Plane- WiFi - 1 - Patterns- 6200-6800MHz



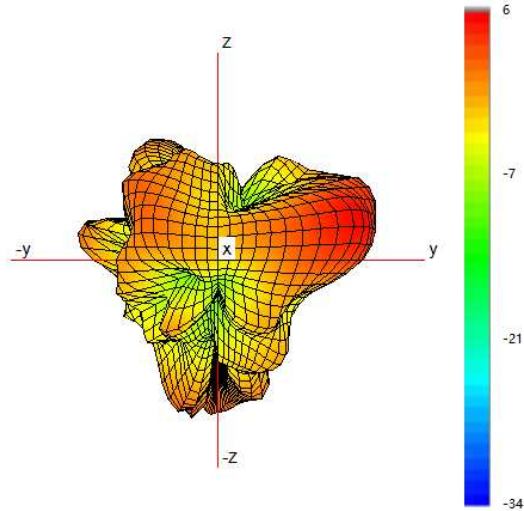
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

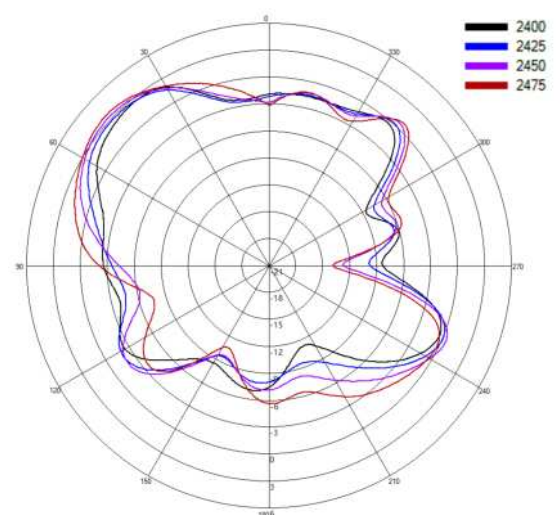
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane WIFI- 2

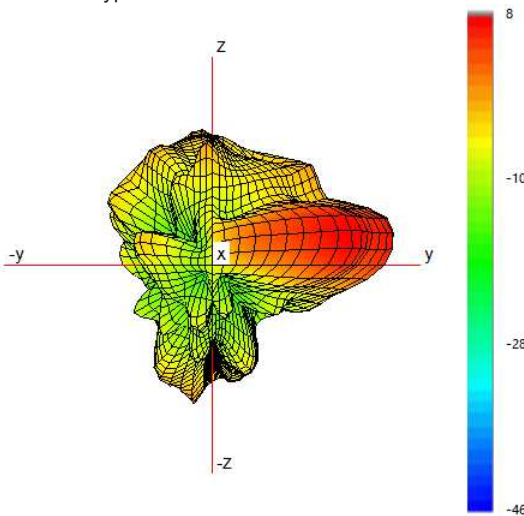
Typical 3D Pattern- WiFi - 2 - 2450 MHz



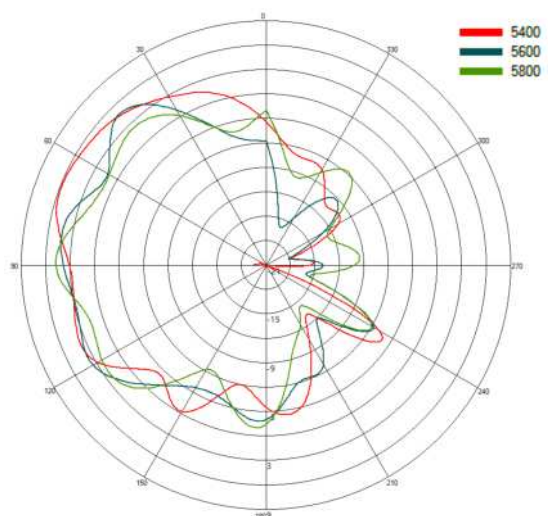
Typical H Plane- WiFi - 2 - Patterns- 2400-2475MHz



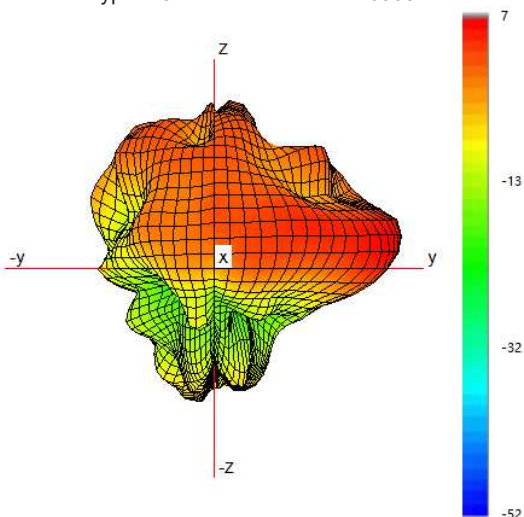
Typical 3D Pattern- WiFi - 2 - 5500 MHz



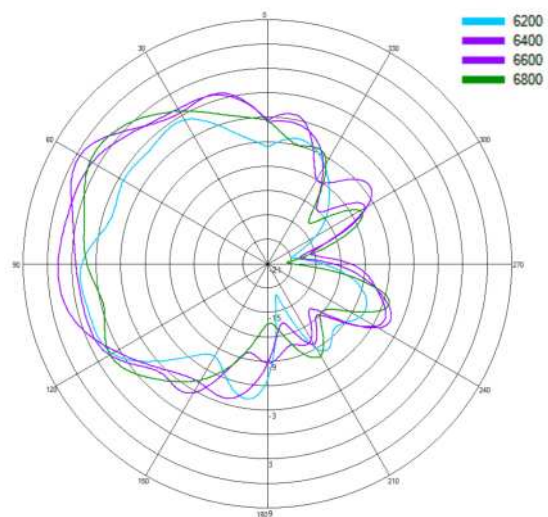
Typical H Plane- WiFi - 2 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 2 - 6500 MHz



Typical H Plane- WiFi - 2 - Patterns- 6200-6800MHz



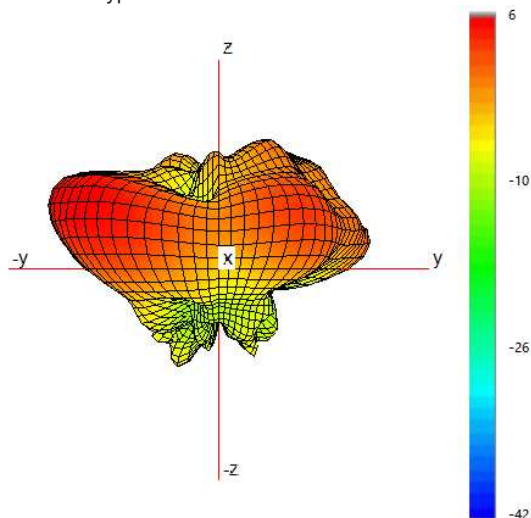
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

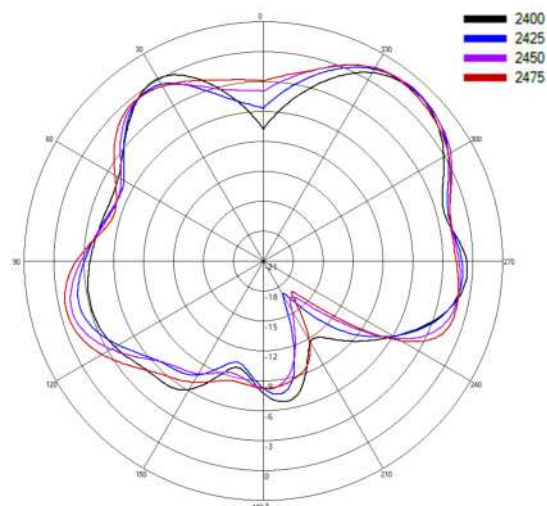
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane WIFI- 3

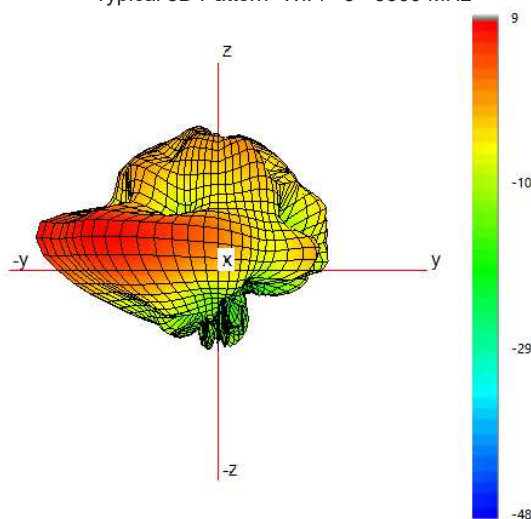
Typical 3D Pattern- WiFi - 3 - 2450 MHz



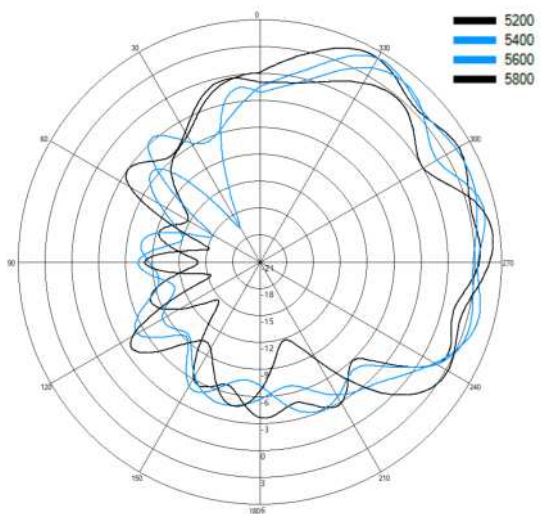
Typical H Plane- WiFi - 3 - Patterns- 2400-2475MHz



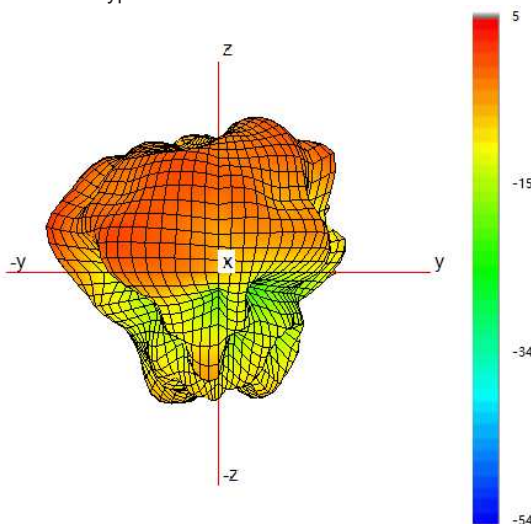
Typical 3D Pattern- WiFi - 3 - 5500 MHz



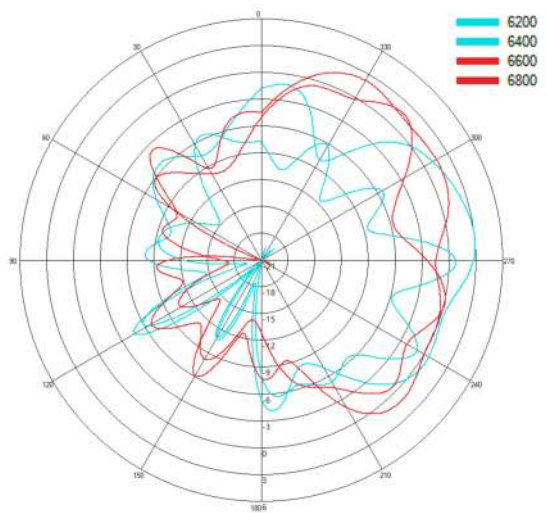
Typical H Plane- WiFi - 3 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 3 - 6500 MHz



Typical H Plane- WiFi - 3 - Patterns- 6200-6800MHz



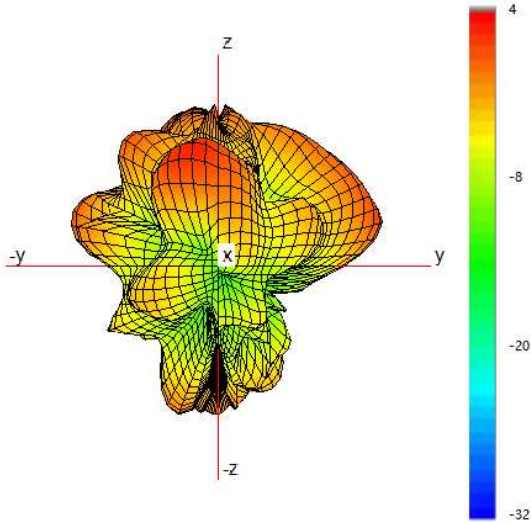
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

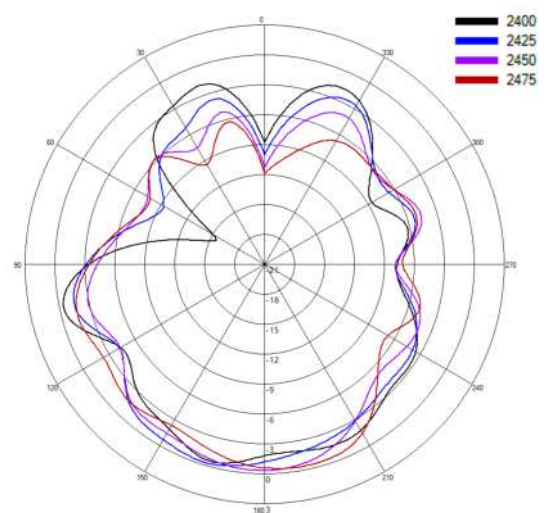
PANORAMA ANTENNAS

3D Pattern Data on
Ground Plane WiFi- 4

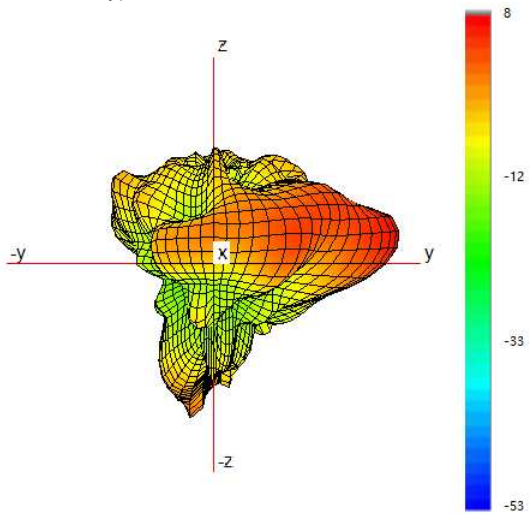
Typical 3D Pattern- WiFi - 4 - 2450 MHz



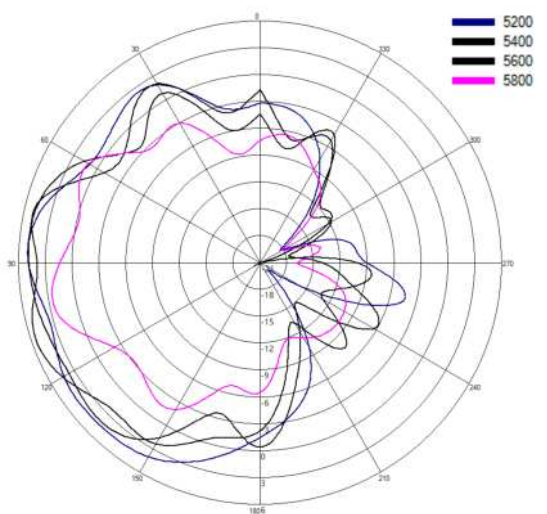
Typical H Plane- WiFi - 4 - Patterns- 2400-2475MHz



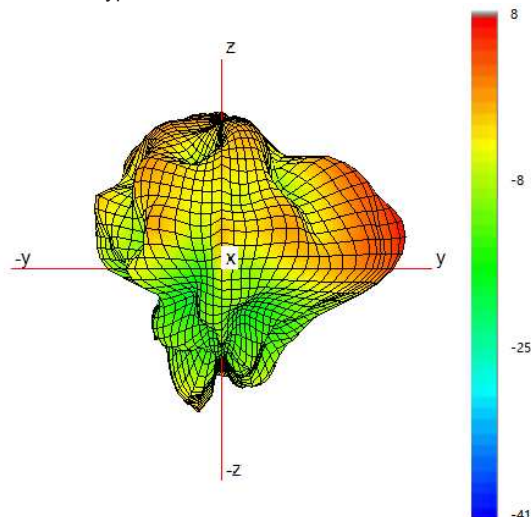
Typical 3D Pattern- WiFi - 4 - 5500 MHz



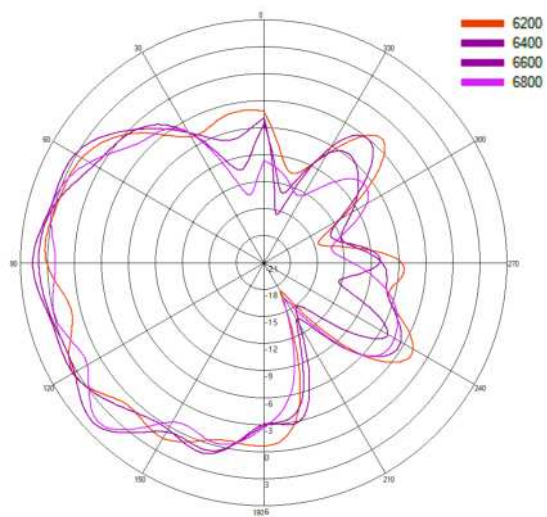
Typical H Plane- WiFi - 4 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 4 - 6500 MHz



Typical H Plane- WiFi - 4 - Patterns- 6200-6800MHz



4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

PANORAMA ANTENNAS

Electrical Data Free
Space - Cell

Measurement Conditions	4G/5G Antennas				
GPSD4-6-60-Q measured in free space without additional cable	Frequency Range (MHz)	LTE / NR Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	617-698	71	Cell A	2.6	50
			Cell B	0.8	49
			Cell C	2.5	55
			Cell D	0.7	52
	699-798	12, 13, 14 17, 28	Cell A	3.2	63
			Cell B	2.8	59
			Cell C	3.2	66
			Cell D	2.4	64
	807- 862	5, 19, 20, 26, 27	Cell A	3.7	70
			Cell B	3.5	72
			Cell C	3.3	71
			Cell D	3.5	71
	880-960	8	Cell A	3.9	67
			Cell B	3.7	68
			Cell C	3.6	67
			Cell D	3.5	67
	1427-1518	11, 21, 74, 75, 76	Cell A	5.2	84
			Cell B	4.1	76
			Cell C	4.9	83
			Cell D	4.6	82
	1710-1920	2, 3, 4, 9, 25, 35, 39, 66	Cell A	5.4	65
			Cell B	4.8	59
			Cell C	5.1	68
			Cell D	4.7	67
	1920-2170	1, 23	Cell A	4.6	59
			Cell B	3.9	54
			Cell C	4.6	64
			Cell D	4.6	68
	2300-2400	30, 40	Cell A	4.6	66
			Cell B	4.2	67
			Cell C	4.4	63
			Cell D	4.6	72
	2496-2690	7, 38, 41	Cell A	6.1	70
			Cell B	5.2	56
			Cell C	4.5	60
			Cell D	4.7	65
	3300-4200	22, 42, 43, 48, 77, 78	Cell A	6.4	56
			Cell B	5.2	51
			Cell C	6.2	57
			Cell D	5.9	60
	4400-5000	79	Cell A	6.7	59
			Cell B	4.5	55
			Cell C	5.8	64
			Cell D	6.6	64
	5000-6000	96, 102, 104	Cell A	6.5	50
			Cell B	4.6	47
			Cell C	5.8	56
			Cell D	6.4	56

4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

PANORAMA ANTENNAS

Electrical Data Free
Space- WiFi

Measurement Conditions	4G/5G Antennas				
GPSD4-6-60-Q measured in free space without additional cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	2396-2485	2.4GHz	WiFi 1	3.2	53
			WiFi 2	4.3	59
			WiFi 3	2.3	48
			WiFi 4	2.8	53
	5150-5250	UNII-1	WiFi 1	6.0	56
			WiFi 2	5.6	57
			WiFi 3	6.6	58
			WiFi 4	6.5	56
	5250-5350	UNII-2A	WiFi 1	6.3	57
			WiFi 2	5.9	57
			WiFi 3	6.9	61
			WiFi 4	6.7	60
	5350-5470	UNII-2B	WiFi 1	6.0	50
			WiFi 2	5.8	54
			WiFi 3	7.2	61
			WiFi 4	6.6	59
	5470-5725	UNII-2C	WiFi 1	5.1	41
			WiFi 2	5.0	44
			WiFi 3	7.2	54
			WiFi 4	6.1	53
	5725-5850	UNII-3	WiFi 1	4.2	38
			WiFi 2	5.0	43
			WiFi 3	5.5	50
			WiFi 4	5.7	48
	5850-5925	UNII-4	WiFi 1	2.5	31
			WiFi 2	3.8	35
			WiFi 3	4.1	38
			WiFi 4	4.2	40
	5925-6425	UNII-5	WiFi 1	4.2	35
			WiFi 2	4.5	45
			WiFi 3	5.6	52
			WiFi 4	5.7	53
	6425-6525	UNII-6	WiFi 1	4.4	52
			WiFi 2	4.6	56
			WiFi 3	5.2	58
			WiFi 4	5.4	57
	6525-6875	UNII-7	WiFi 1	5.3	52
			WiFi 2	4.7	52
			WiFi 3	5.0	55
			WiFi 4	6.2	55
	6875-7125	UNII-8	WiFi 1	5.2	47
			WiFi 2	4.7	43
			WiFi 3	4.6	46
			WiFi 4	5.9	46

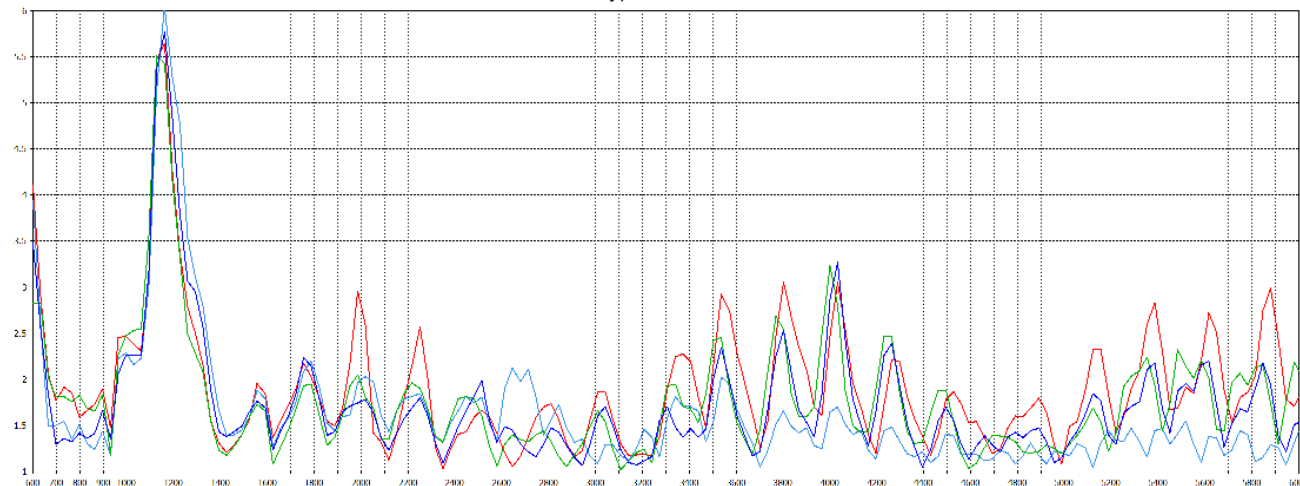
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

PANORAMA ANTENNAS

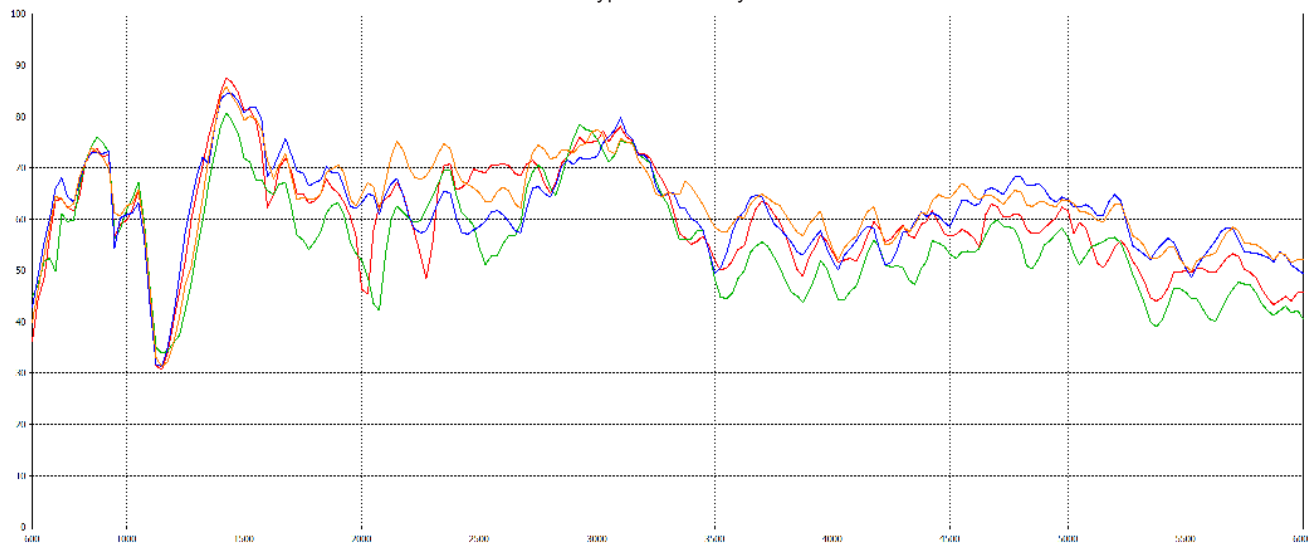
Electrical Data Free
Space - Cell

Typical VSWR*



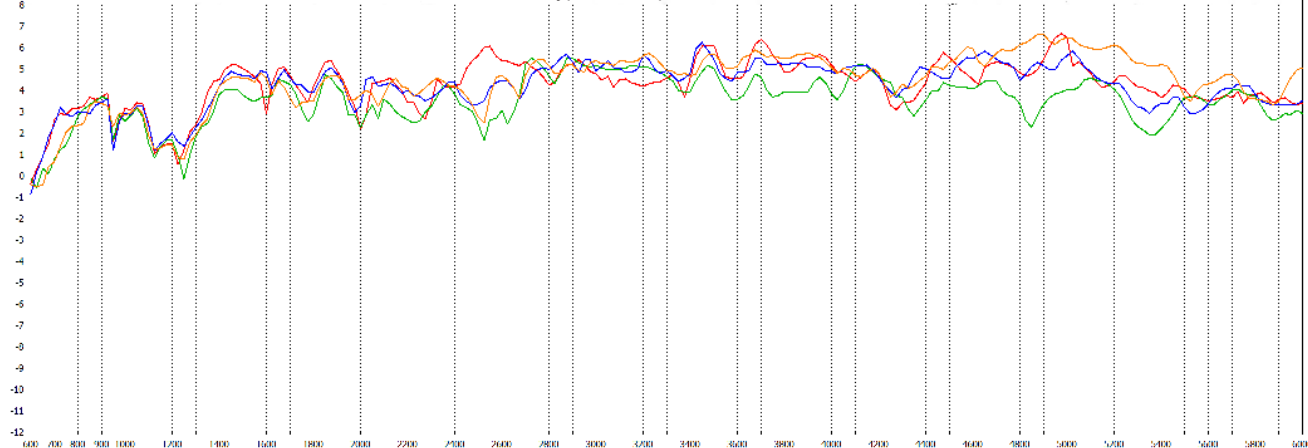
*VSWR measured in free space without additional cable

Typical Efficiency*



*Efficiency measured in free space without additional cable

Typical Swept Peak Gain*



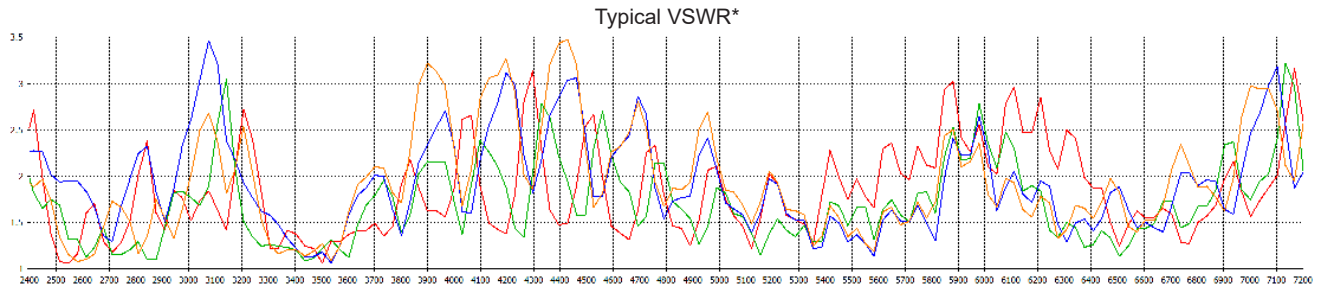
*Peak Gain measured in free space without additional cable

4x4 MiMo 4G/5G Sharkfin Antenna

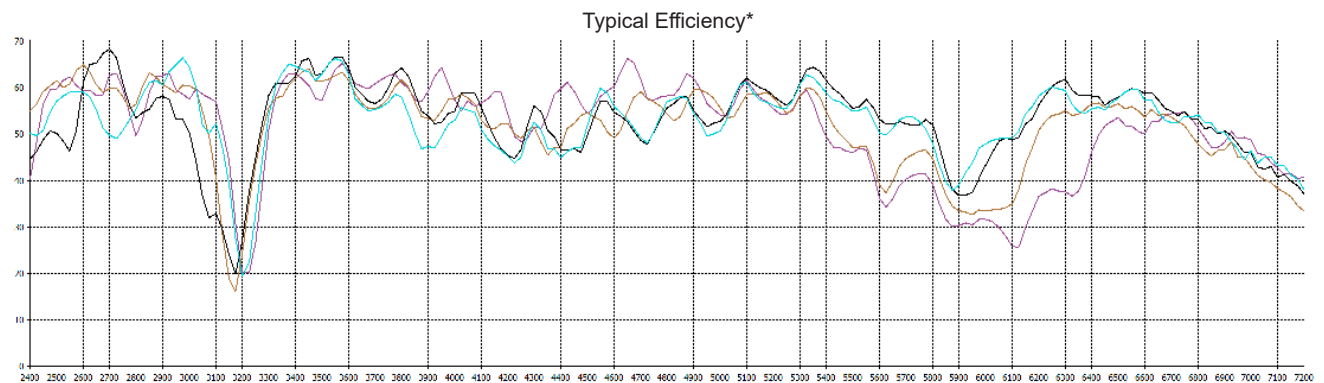
GPS[X]D4[X]-6-60[-X]

PANORAMA ANTENNAS

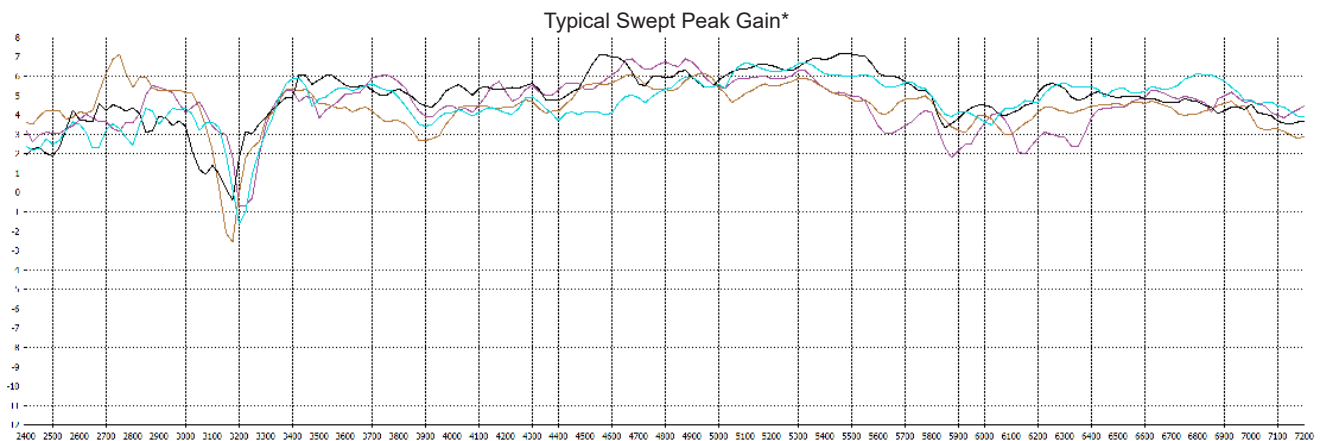
Electrical Data Free
Space - WiFi



*VSWR measured in free space without additional cable



*Efficiency measured in free space without additional cable



*Peak Gain measured in free space without additional cable

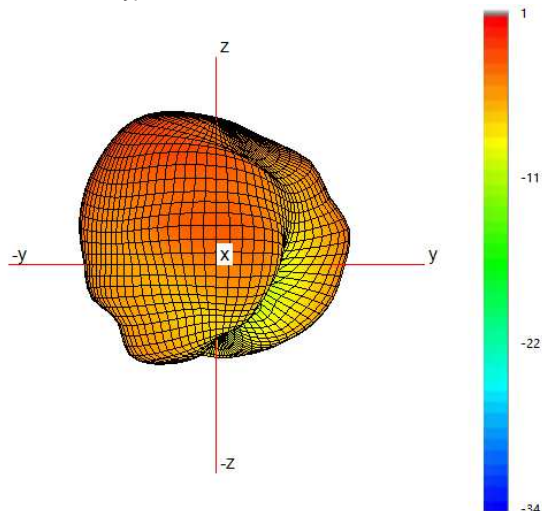
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

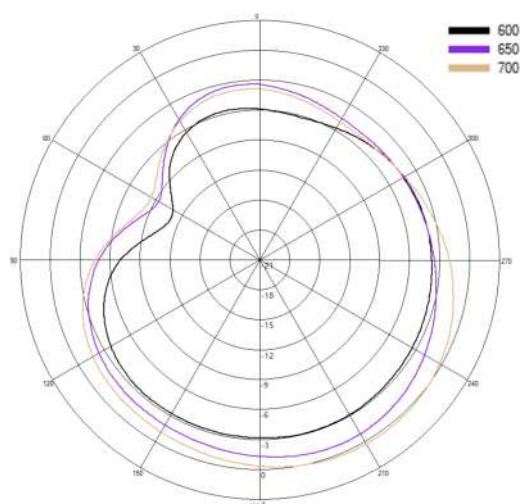
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell A

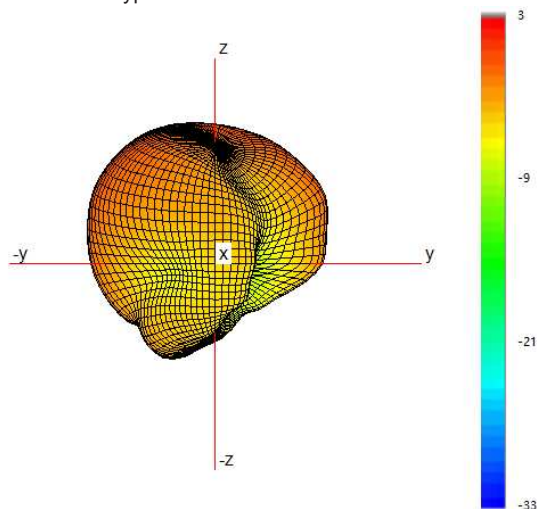
Typical 3D Pattern- Cell A - 650 MHz



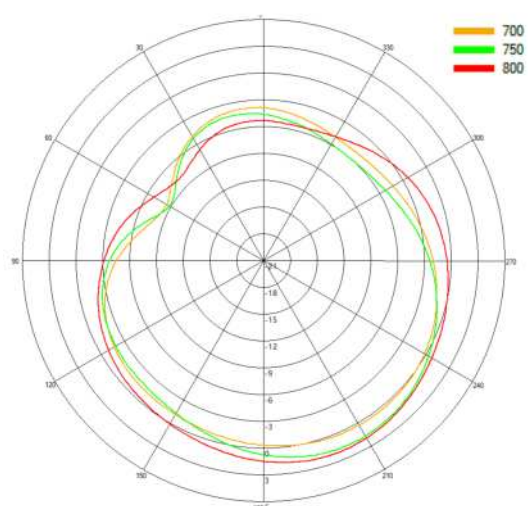
Typical H Plane- Cell A - Patterns- 600-700MHz



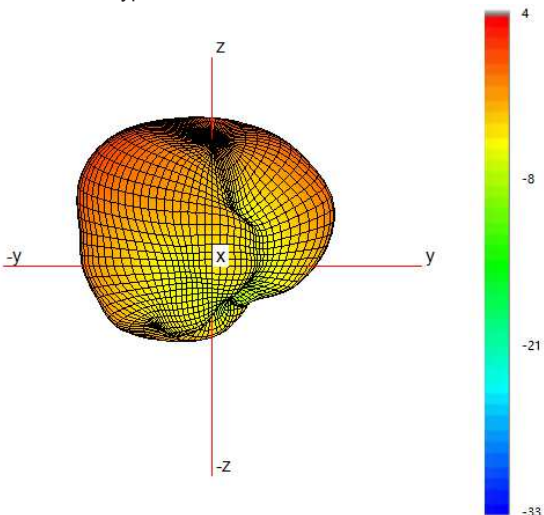
Typical 3D Pattern- Cell A - 750 MHz



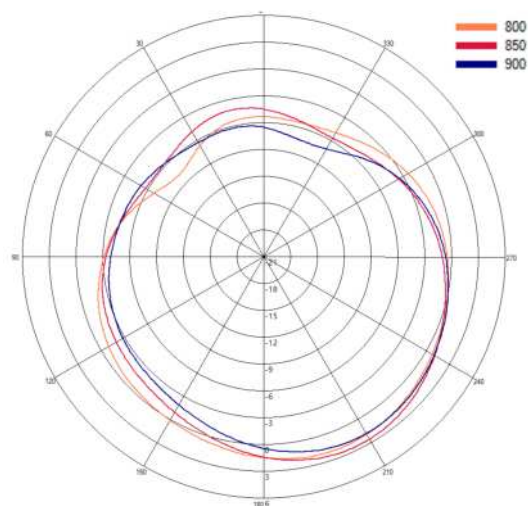
Typical H Plane- Cell A - Patterns- 700-800MHz



Typical 3D Pattern- Cell A - 850 MHz



Typical H Plane- Cell A - Patterns- 800-900MHz



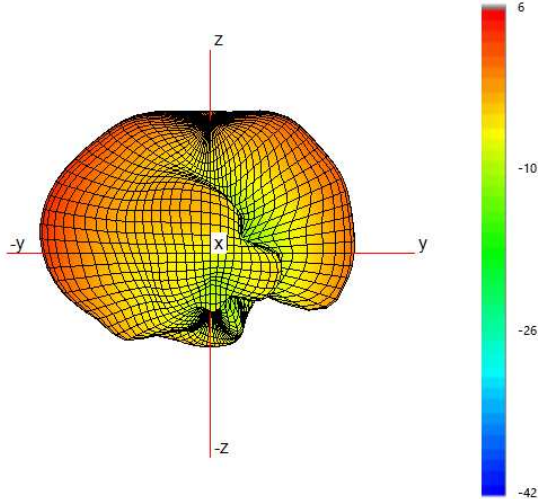
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

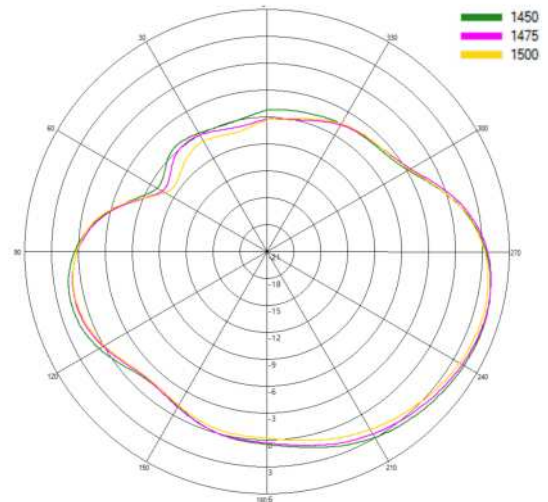
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell A

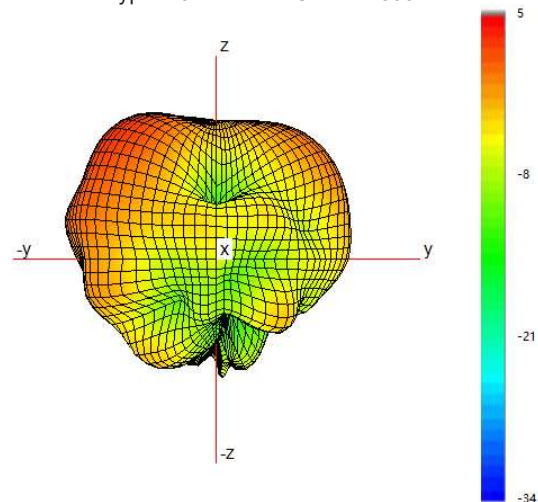
Typical 3D Pattern- Cell A - 1475 MHz



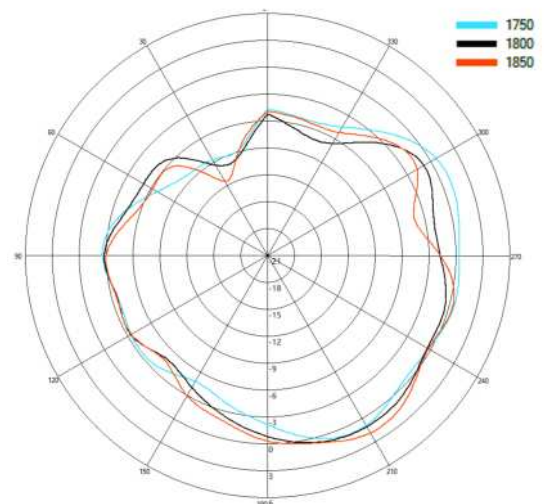
Typical H Plane- Cell A- Patterns- 1450-1500 MHz



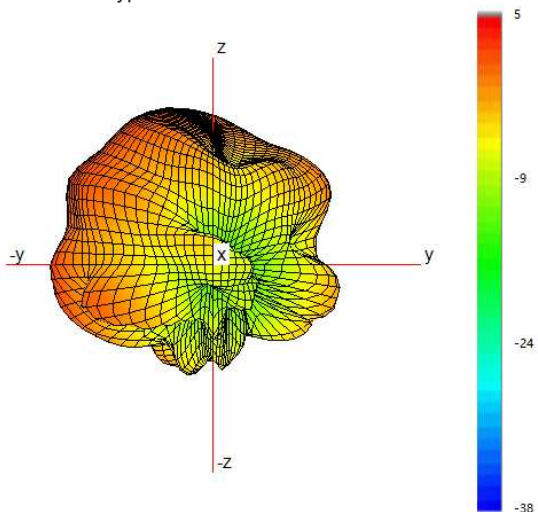
Typical 3D Pattern- Cell A - 1800 MHz



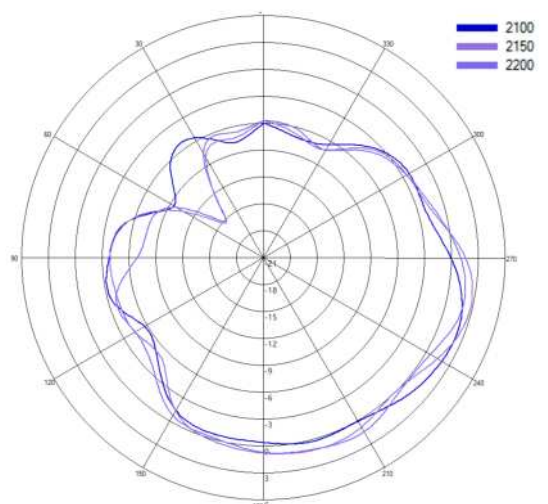
Typical H Plane- Cell A- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell A - 2350 MHz



Typical H Plane- Cell A- Patterns- 2100-2200 MHz



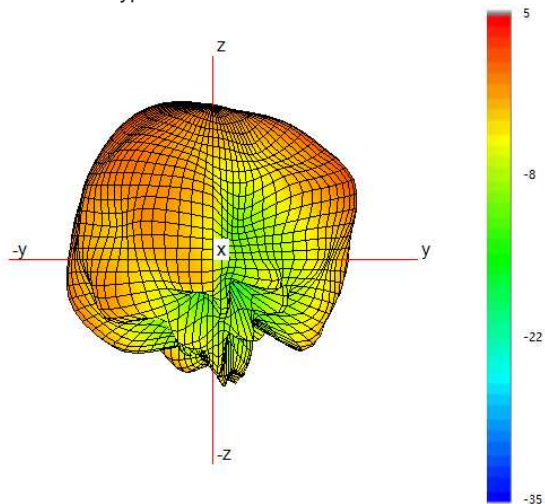
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

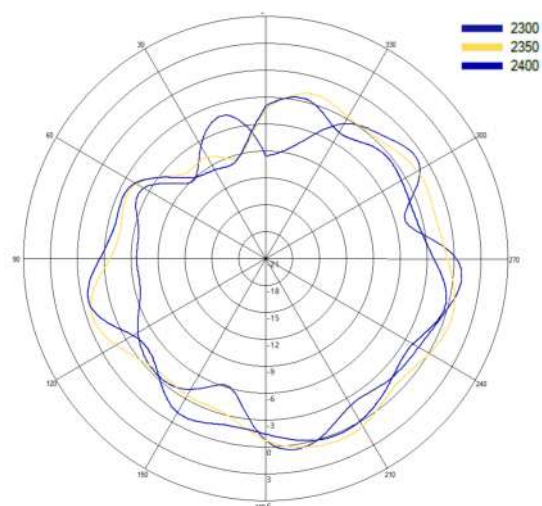
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell A

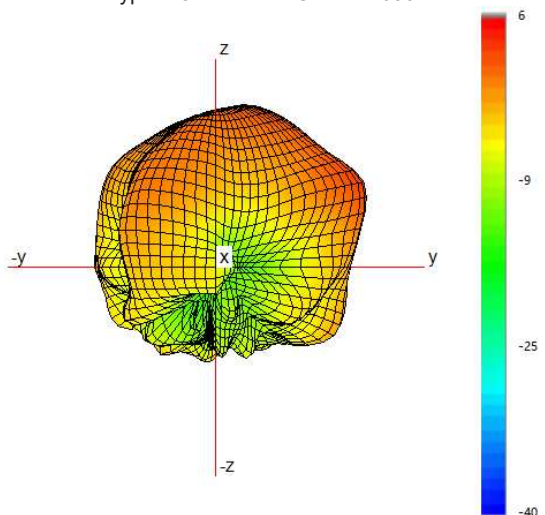
Typical 3D Pattern- Cell A - 2350 MHz



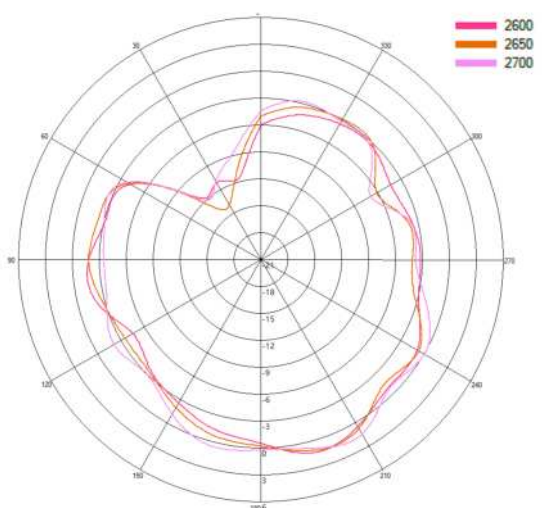
Typical H Plane- Cell A - Patterns- 2300-2400 MHz



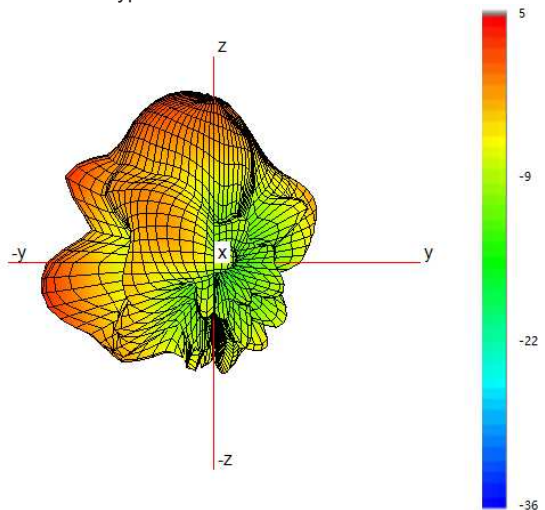
Typical 3D Pattern- Cell A - 2650 MHz



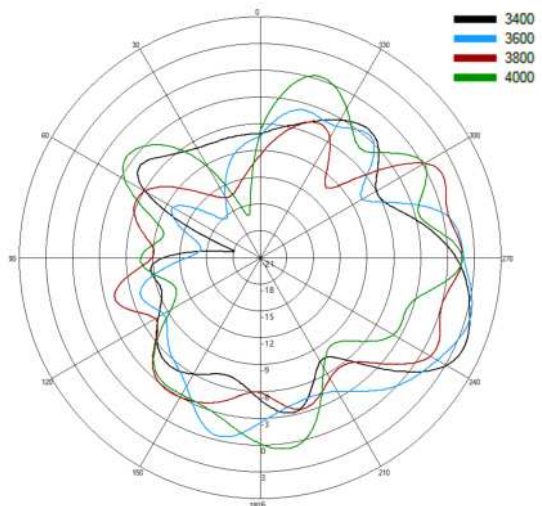
Typical H Plane- Cell A - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell A - 3600 MHz



Typical H Plane- Cell A - Patterns- 3400-4000 MHz



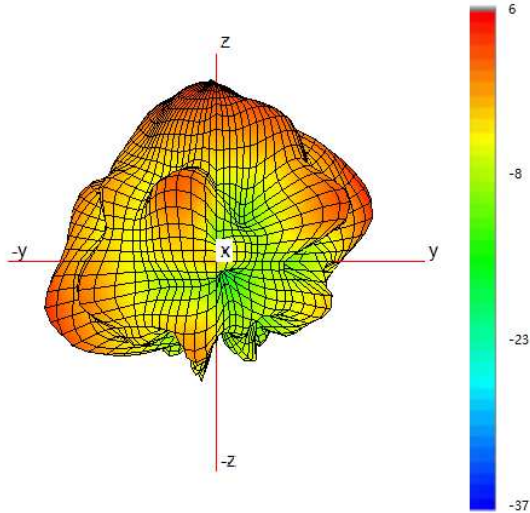
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

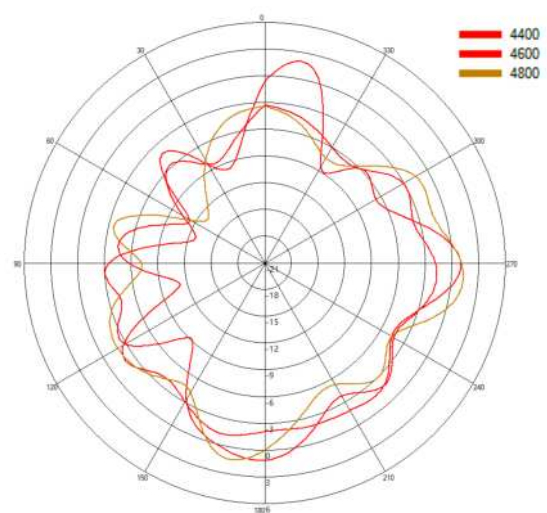
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell A

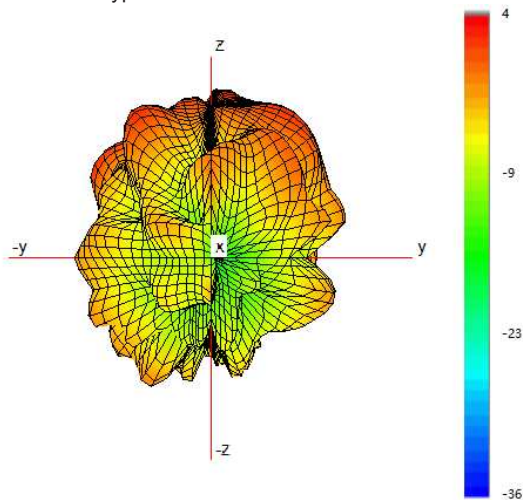
Typical 3D Pattern- Cell A - 4700 MHz



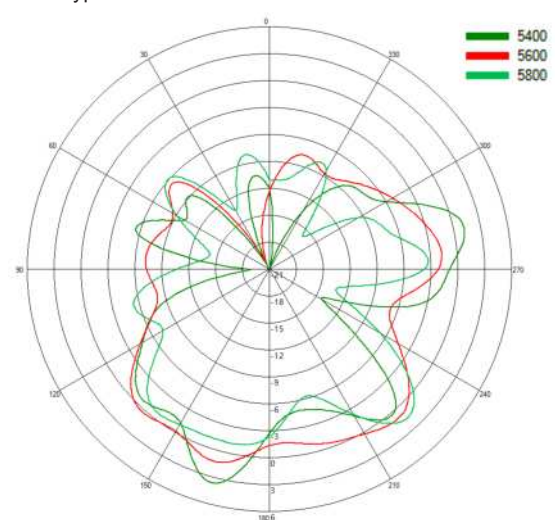
Typical H Plane- Cell A - Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell A - 5600 MHz



Typical H Plane- Cell A - Patterns- 5400-5800 MHz



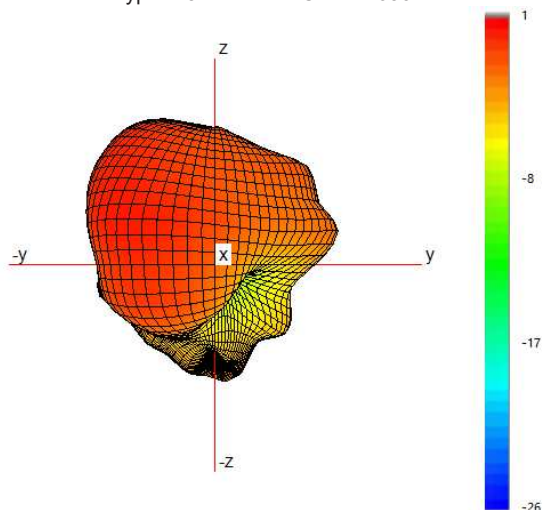
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

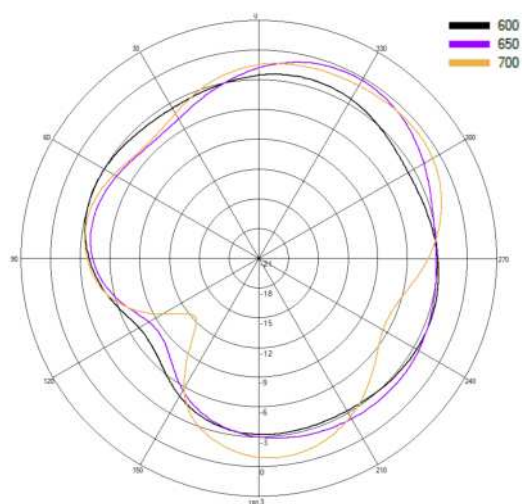
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell B

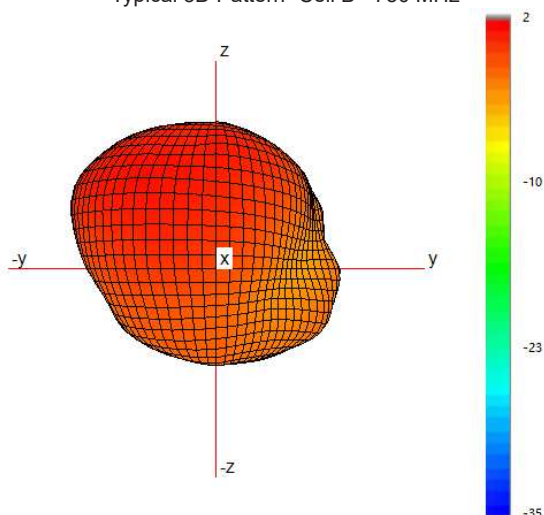
Typical 3D Pattern- Cell B - 650 MHz



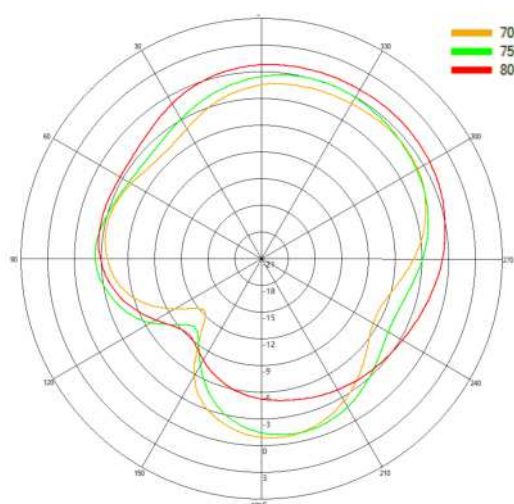
Typical H Plane- Cell B - Patterns- 600-700MHz



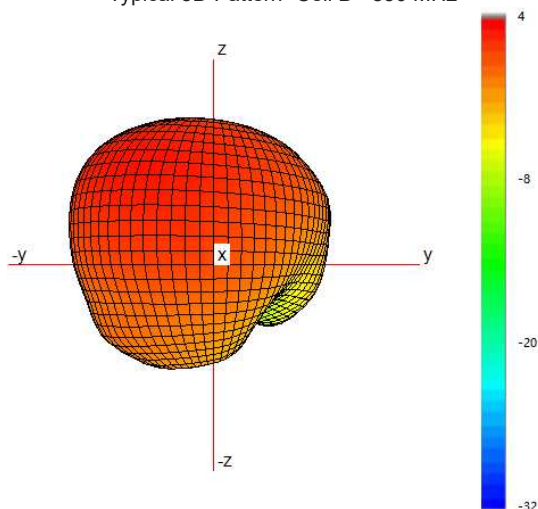
Typical 3D Pattern- Cell B - 750 MHz



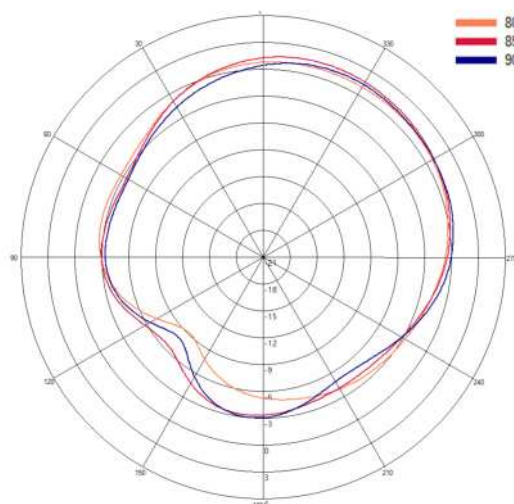
Typical H Plane- Cell B - Patterns- 700-800MHz



Typical 3D Pattern- Cell B - 850 MHz



Typical H Plane- Cell B - Patterns- 800-900MHz



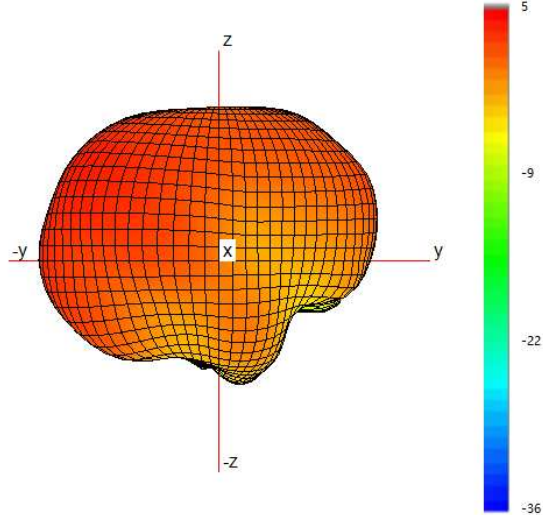
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

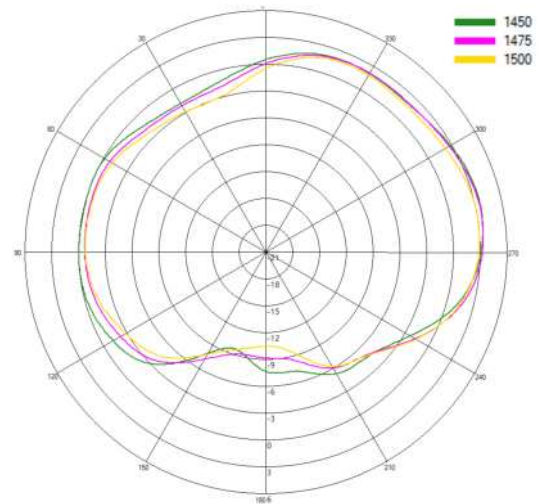
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell B

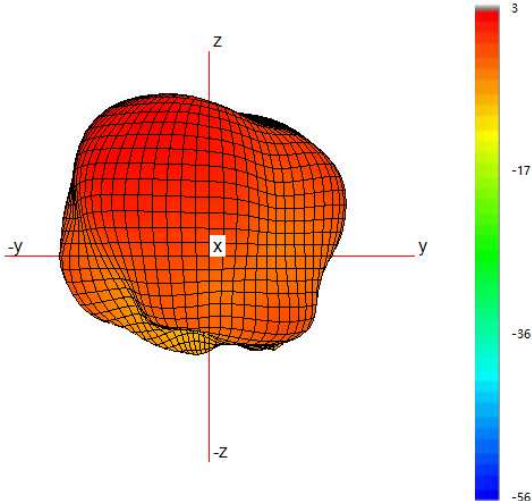
Typical 3D Pattern- Cell B - 1475 MHz



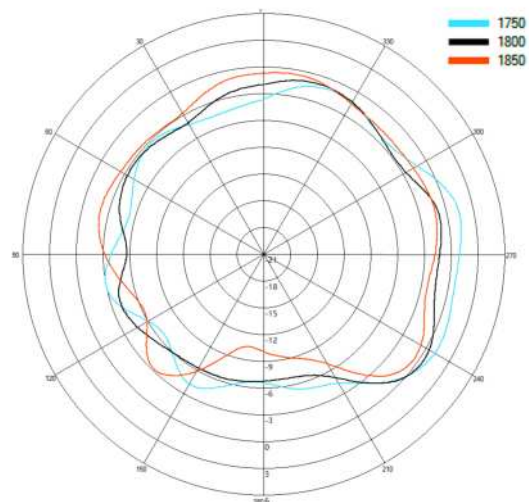
Typical H Plane- Cell B- Patterns- 1450-1500 MHz



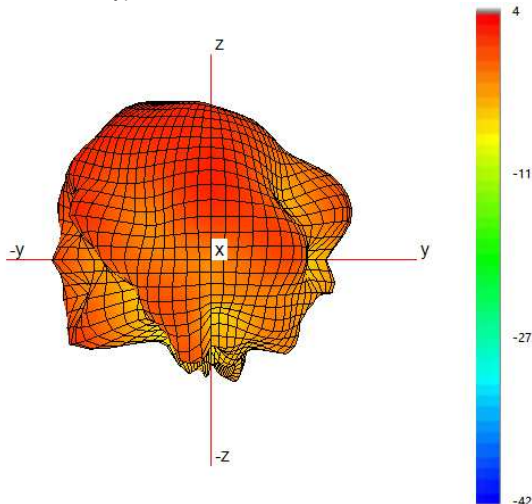
Typical 3D Pattern- Cell B - 1800 MHz



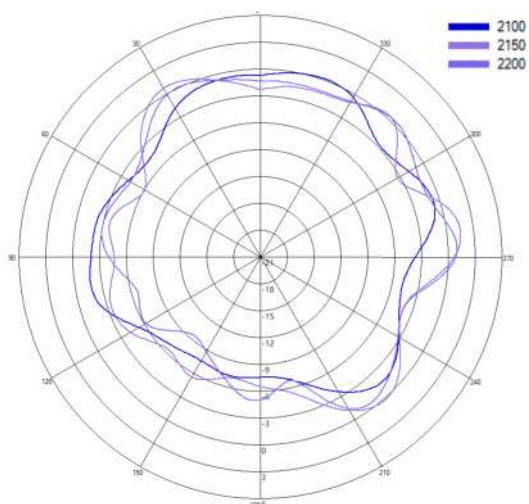
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell B - 2150 MHz



Typical H Plane- Cell B- Patterns- 2100-2200 MHz



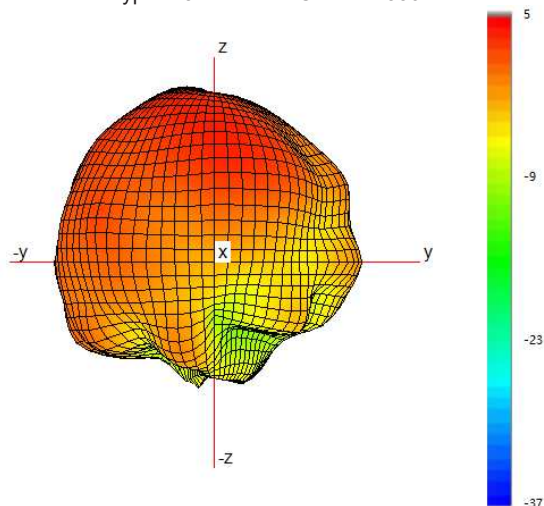
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

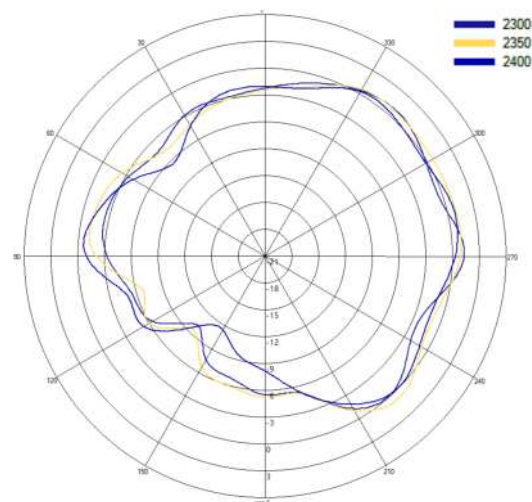
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell B

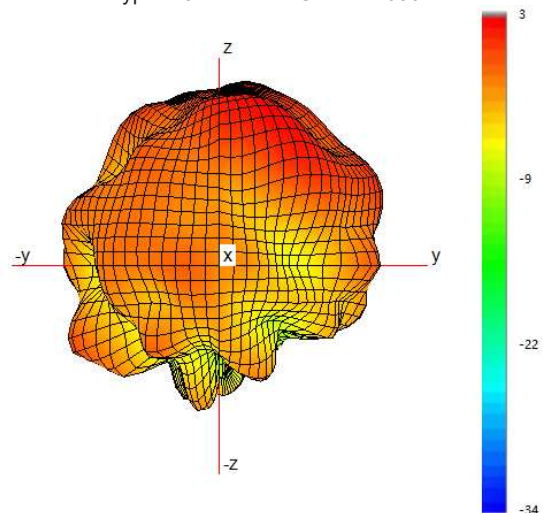
Typical 3D Pattern- Cell B - 2350 MHz



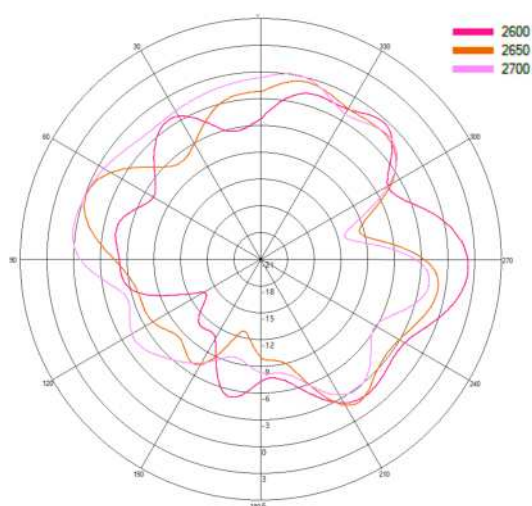
Typical H Plane- Cell B - Patterns- 2300-2400 MHz



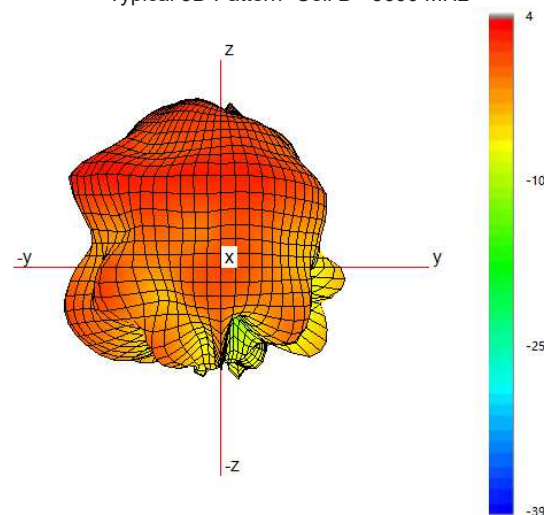
Typical 3D Pattern- Cell B - 2650 MHz



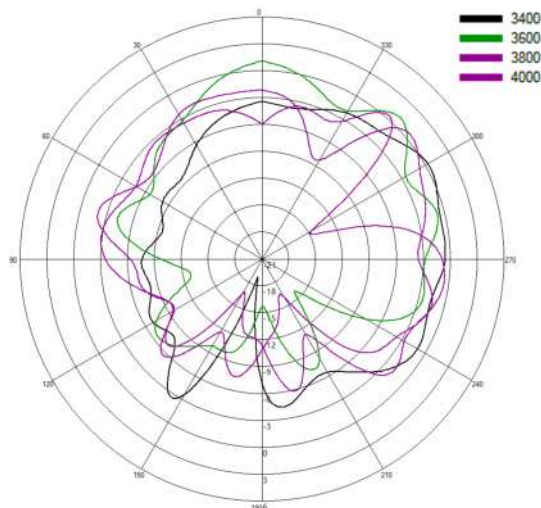
Typical H Plane- Cell B - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell B - 3600 MHz



Typical H Plane- Cell B - Patterns- 3400-4000 MHz



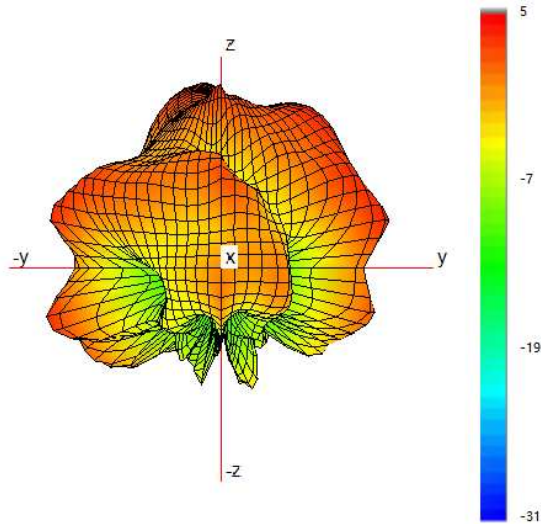
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

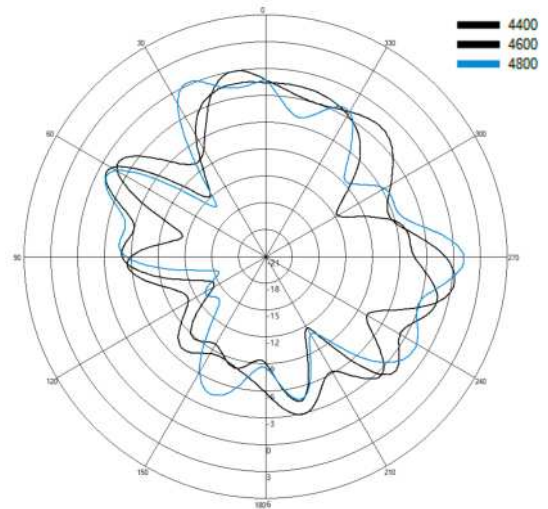
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell B

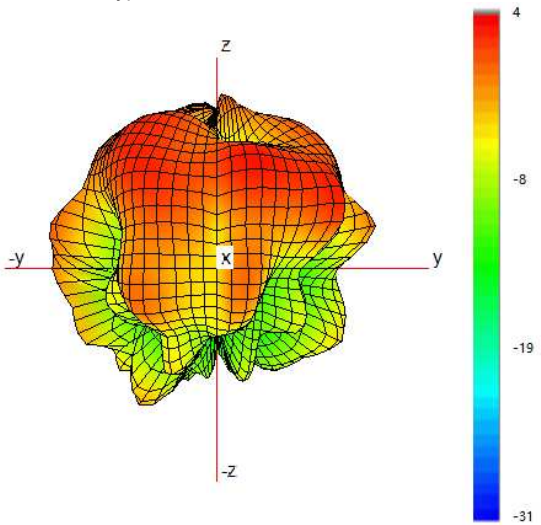
Typical 3D Pattern- Cell B - 4700 MHz



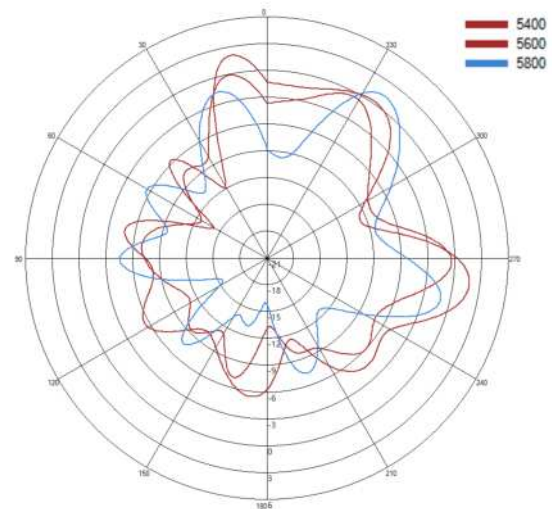
Typical H Plane- Cell B - Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell B - 5600 MHz



Typical H Plane- Cell B - Patterns- 5400-5800 MHz



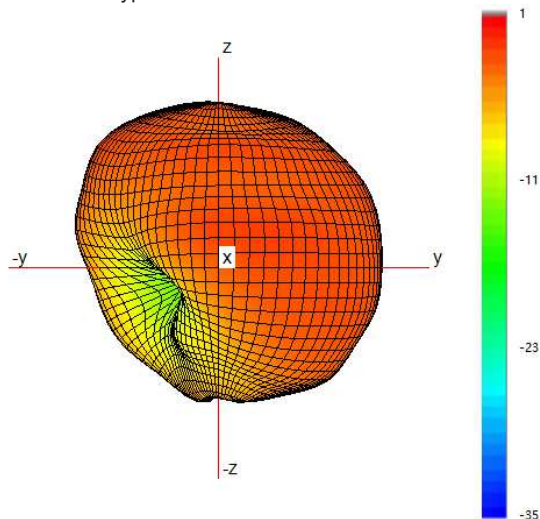
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

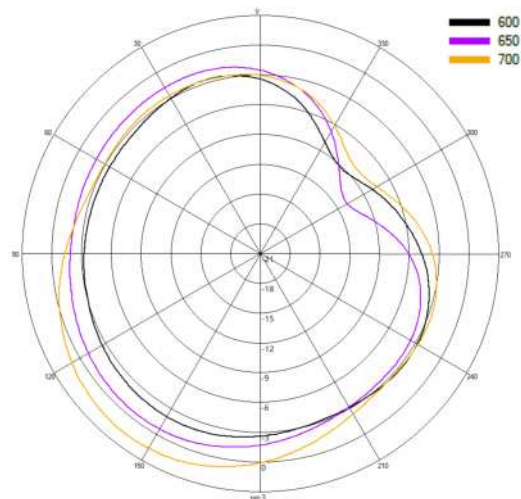
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell C

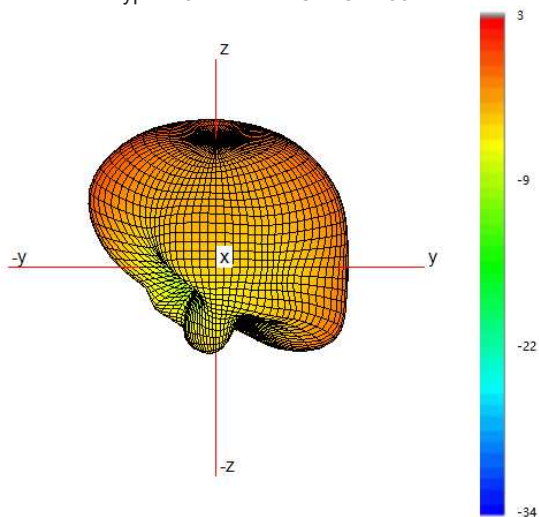
Typical 3D Pattern- Cell C - 650 MHz



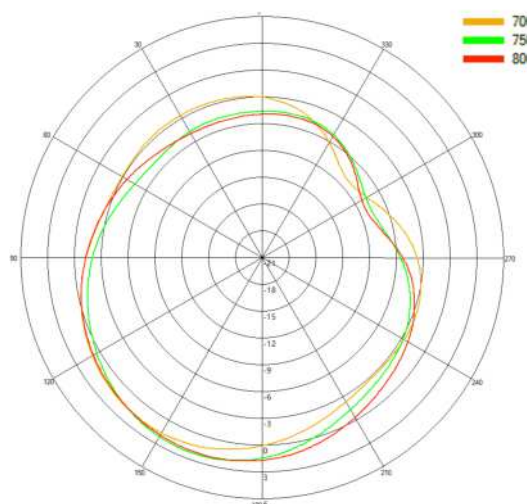
Typical H Plane- Cell C - Patterns- 600-700MHz



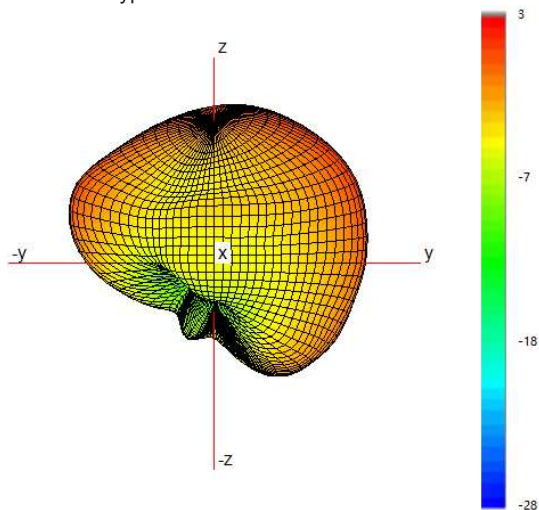
Typical 3D Pattern- Cell C - 750 MHz



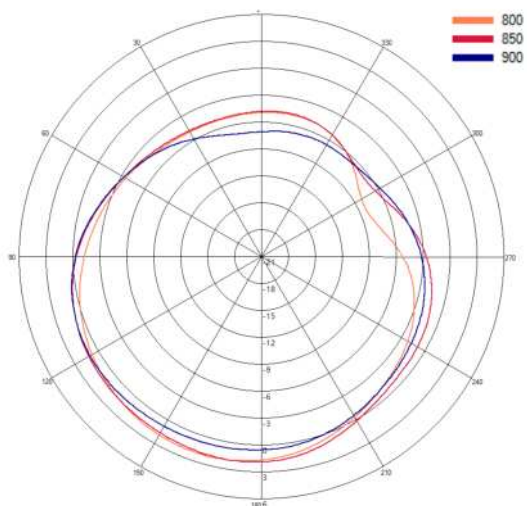
Typical H Plane- Cell C - Patterns- 700-800MHz



Typical 3D Pattern- Cell C - 850 MHz



Typical H Plane- Cell C - Patterns- 800-900MHz



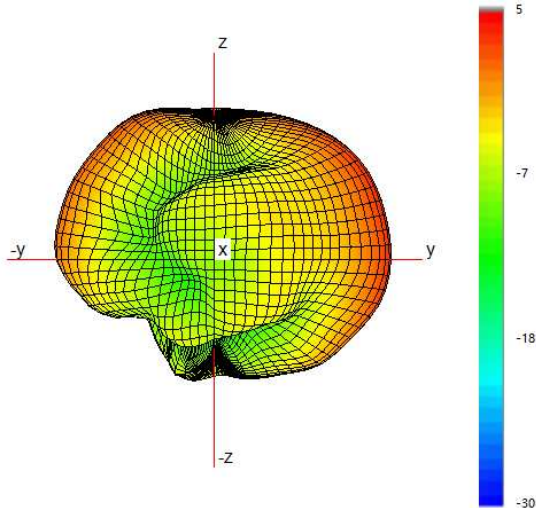
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

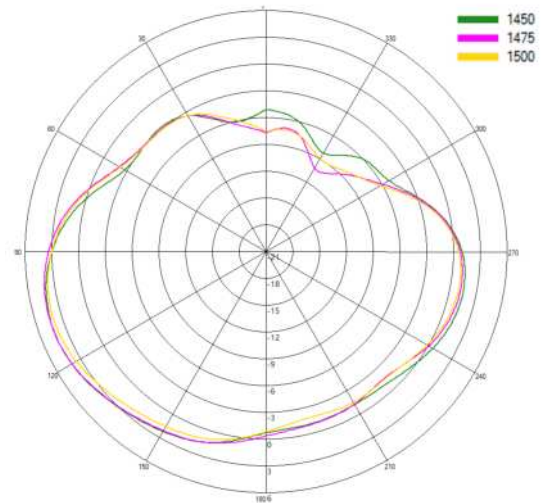
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell C

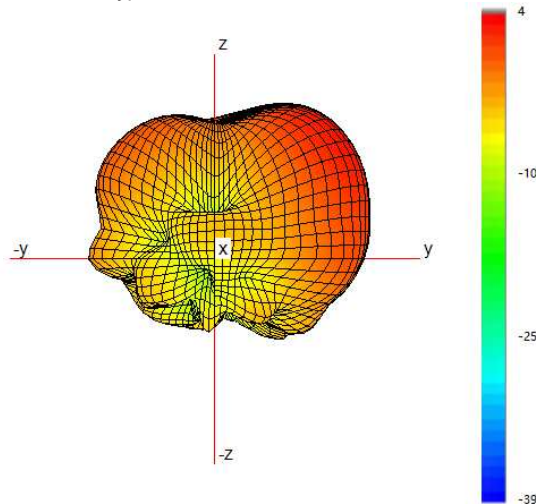
Typical 3D Pattern- Cell C - 1475 MHz



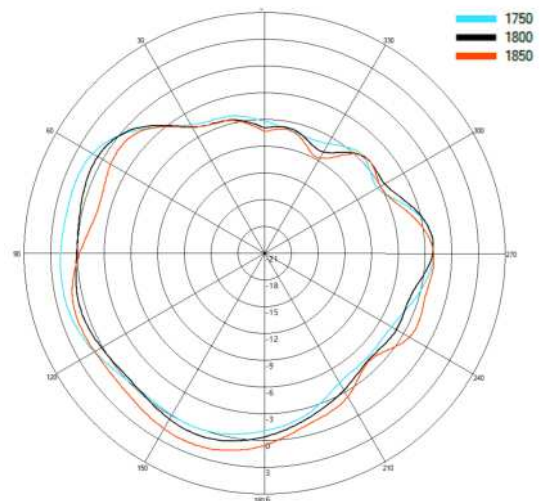
Typical H Plane- Cell C- Patterns- 1450-1500 MHz



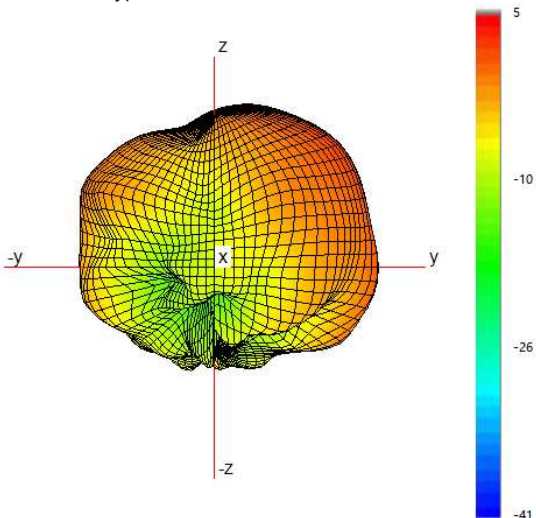
Typical 3D Pattern- Cell C - 1800 MHz



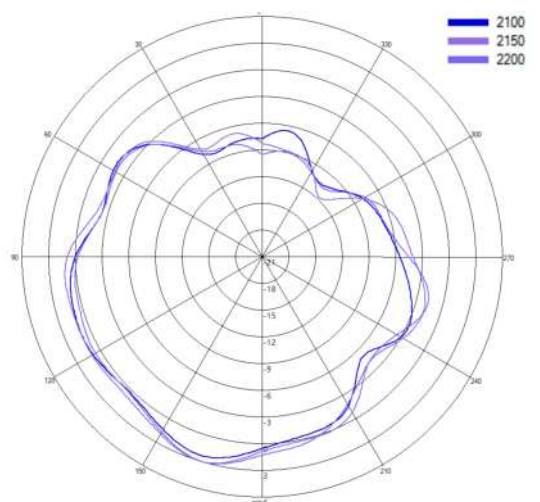
Typical H Plane- Cell C- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell C - 2150 MHz



Typical H Plane- Cell C- Patterns- 2100-2200 MHz



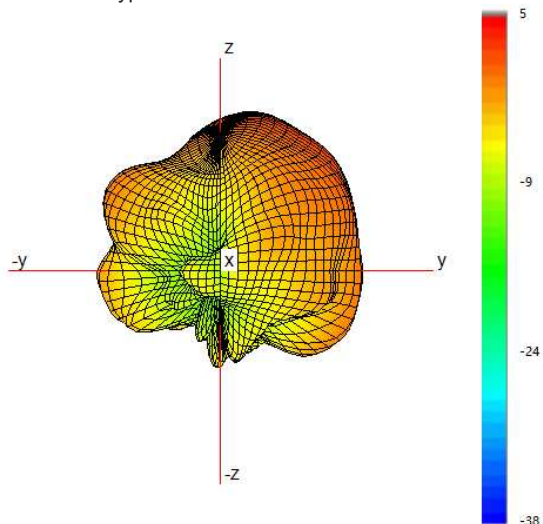
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

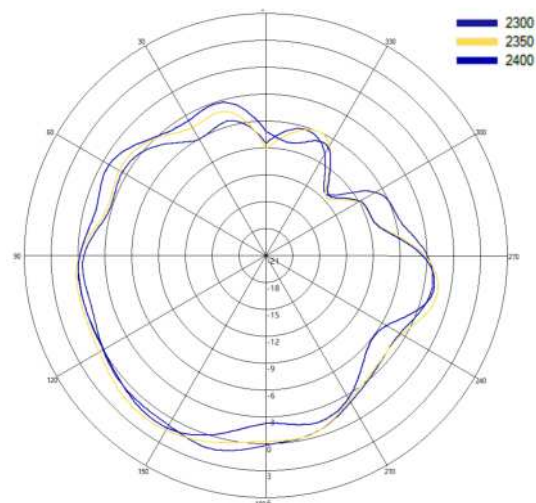
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell C

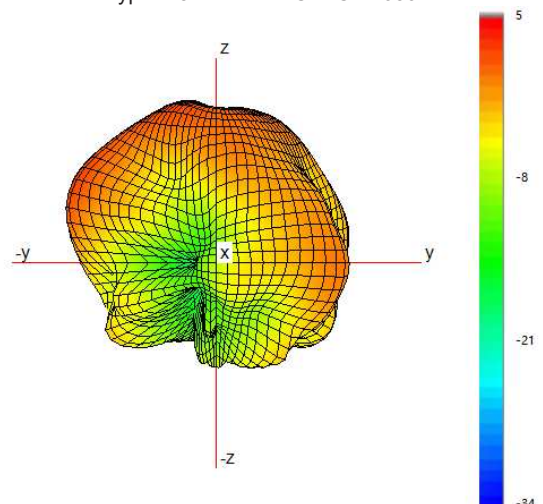
Typical 3D Pattern- Cell C - 2350 MHz



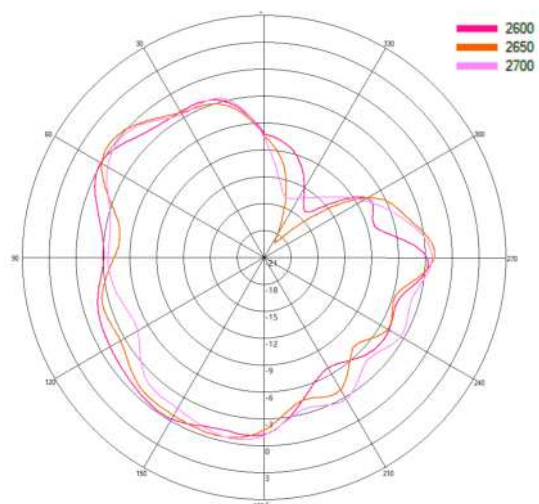
Typical H Plane- Cell C - Patterns- 2300-2400 MHz



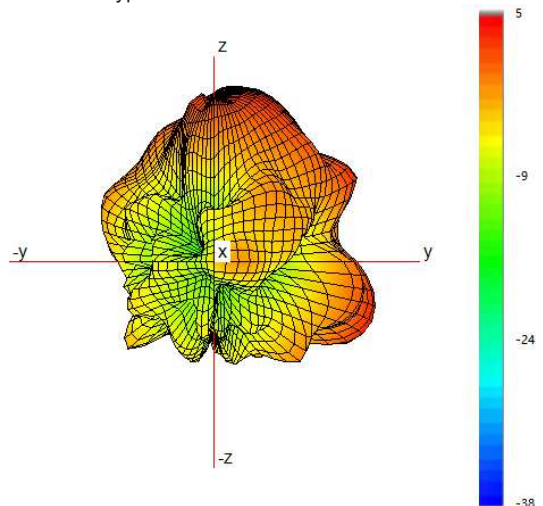
Typical 3D Pattern- Cell C - 2650 MHz



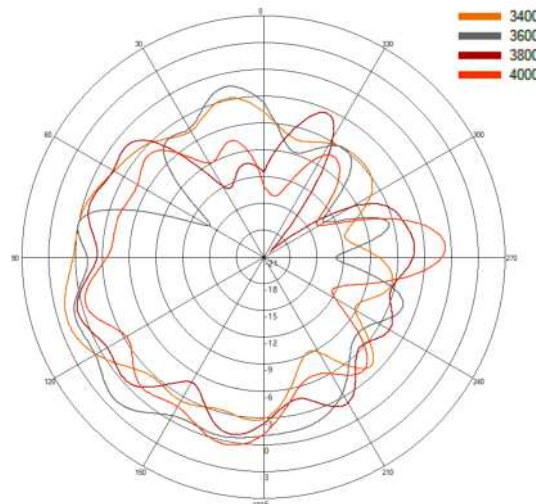
Typical H Plane- Cell C - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell C - 3600 MHz



Typical H Plane- Cell C - Patterns- 3400-4000 MHz



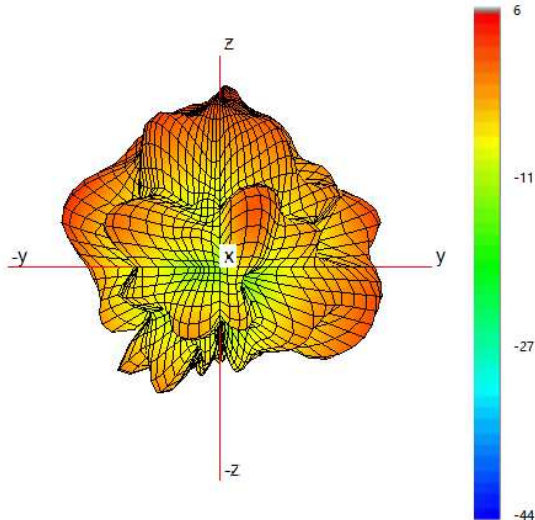
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

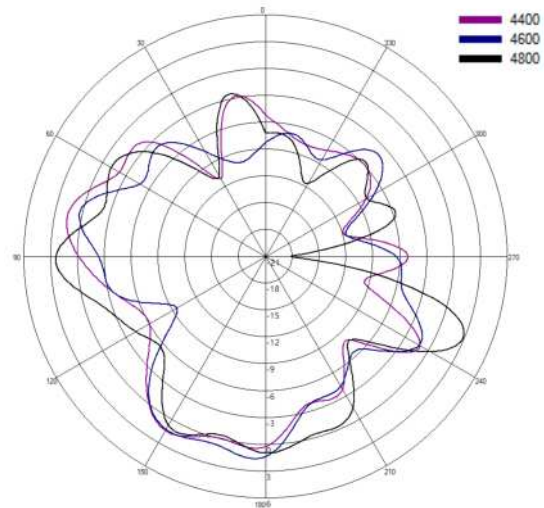
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell C

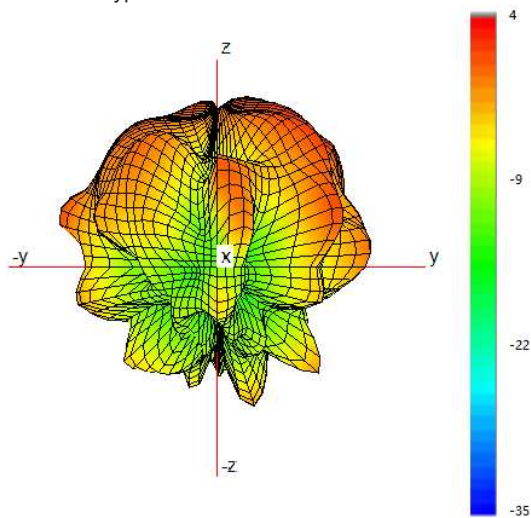
Typical 3D Pattern- Cell C - 4700 MHz



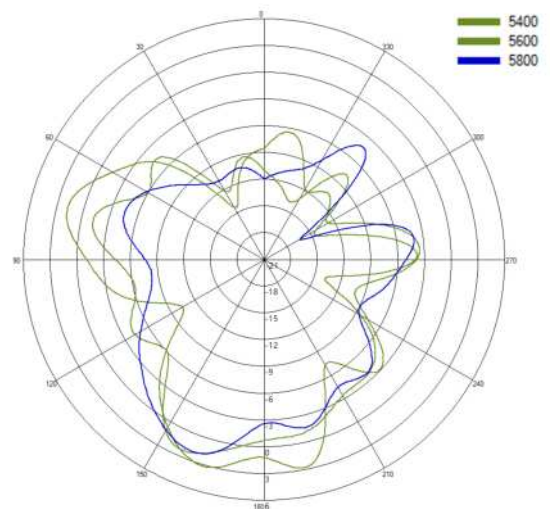
Typical H Plane- Cell C - Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell C - 5600 MHz



Typical H Plane- Cell C - Patterns- 5400-5800 MHz



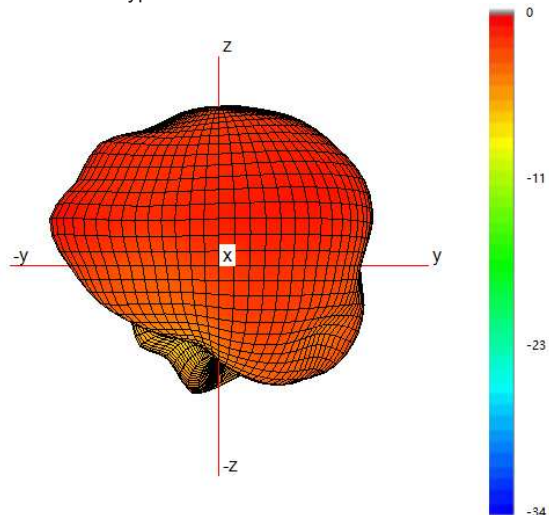
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

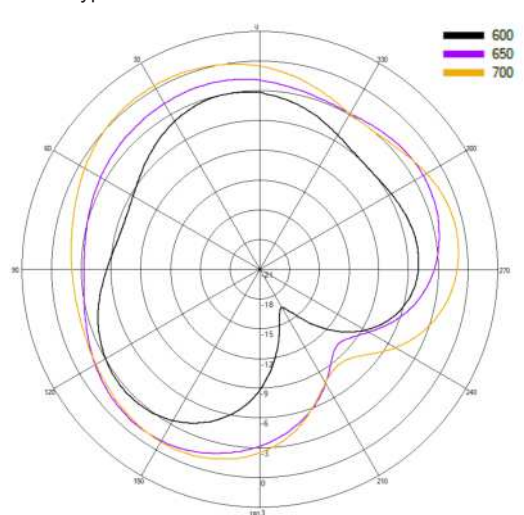
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell D

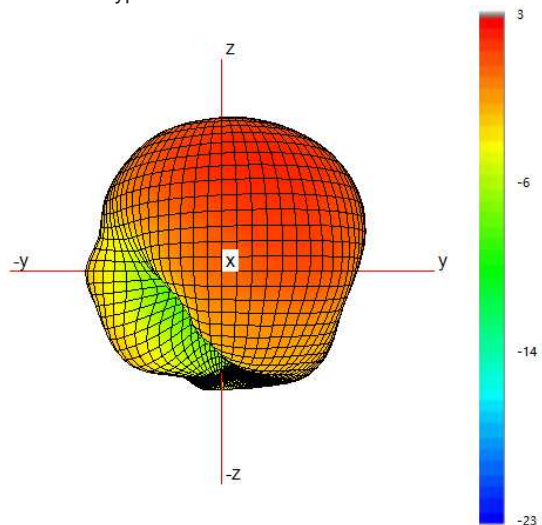
Typical 3D Pattern- Cell D - 650 MHz



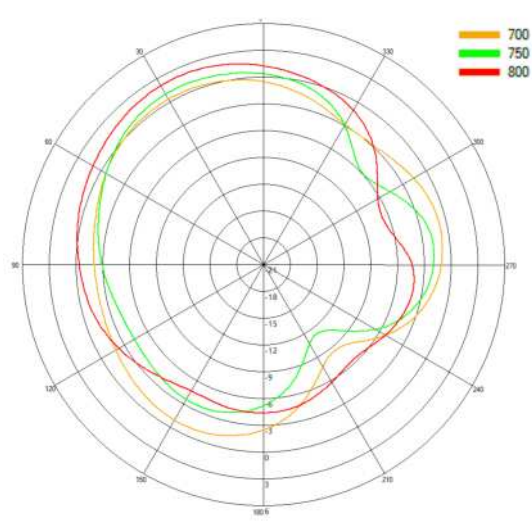
Typical H Plane- Cell D - Patterns- 600-700MHz



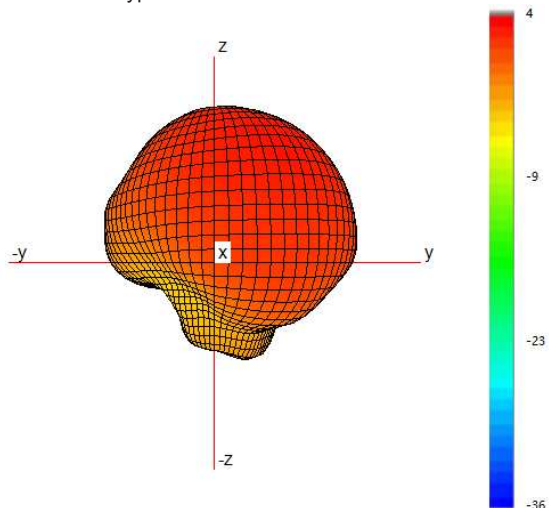
Typical 3D Pattern- Cell D - 750 MHz



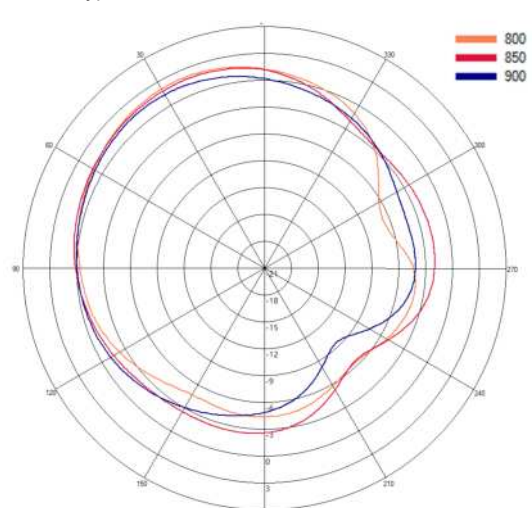
Typical H Plane- Cell D - Patterns- 700-800MHz



Typical 3D Pattern- Cell D - 850 MHz



Typical H Plane- Cell D - Patterns- 800-900MHz



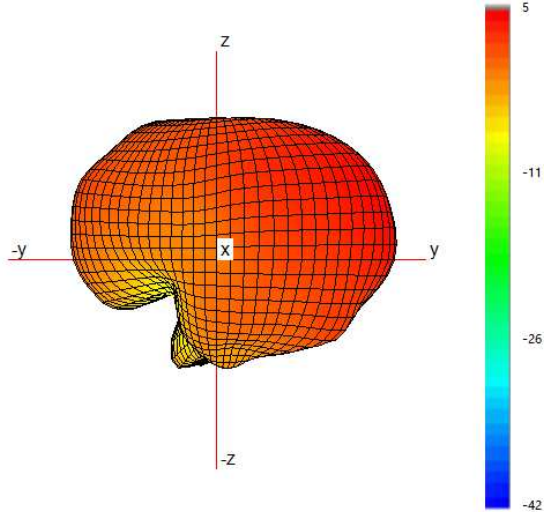
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

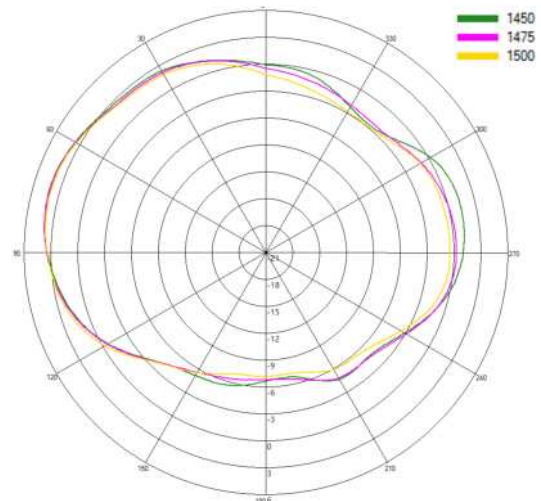
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell D

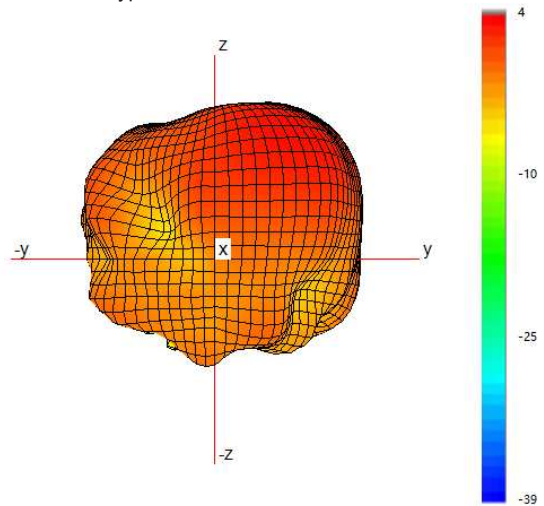
Typical 3D Pattern- Cell D - 1475 MHz



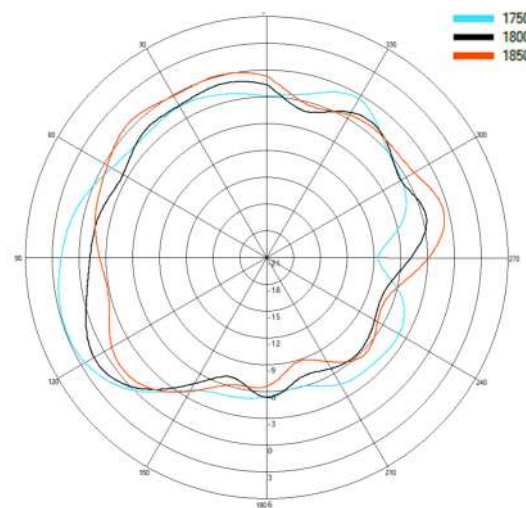
Typical H Plane- Cell D- Patterns- 1450-1500 MHz



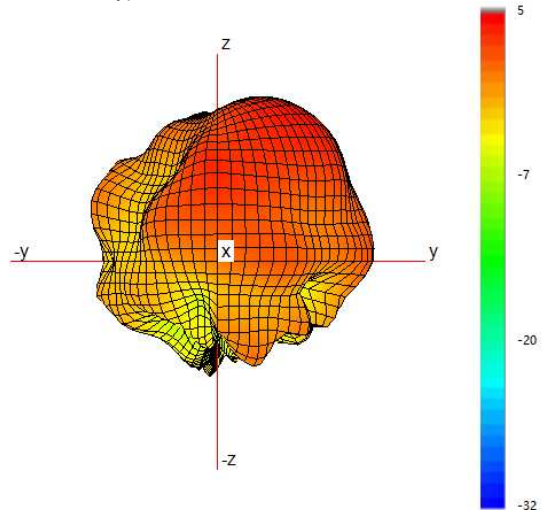
Typical 3D Pattern- Cell D - 1800 MHz



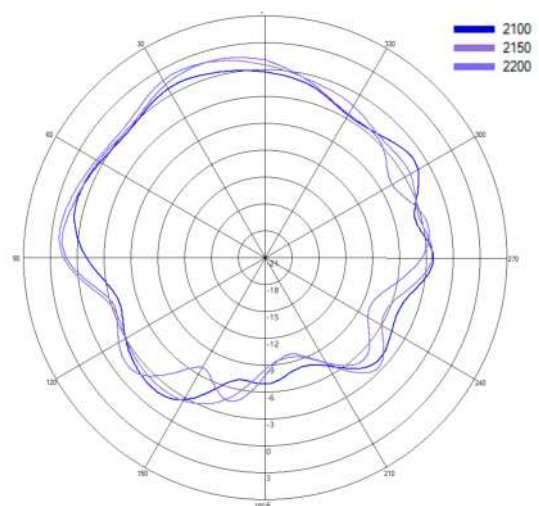
Typical H Plane- Cell D- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell D - 2150 MHz



Typical H Plane- Cell D- Patterns- 2100-2200 MHz



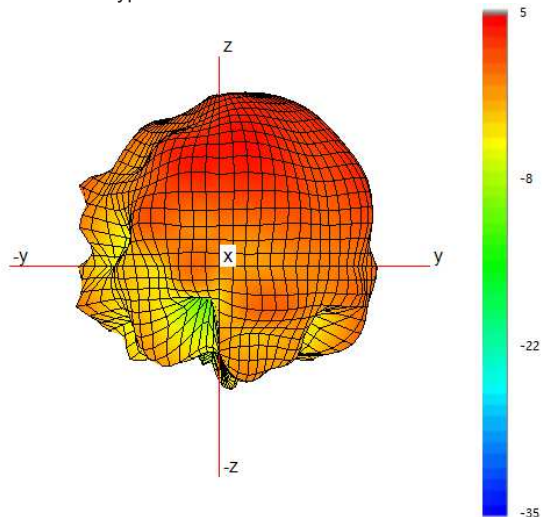
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

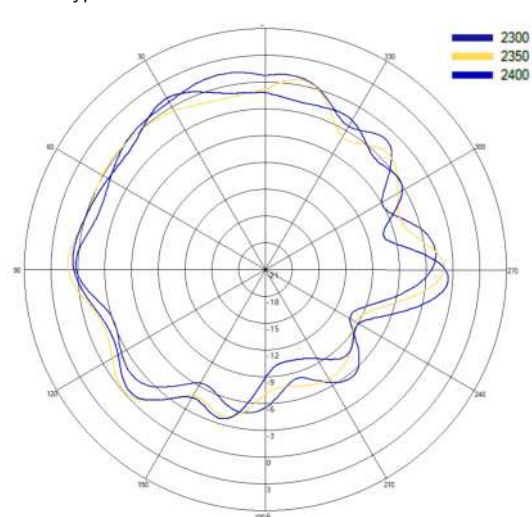
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell D

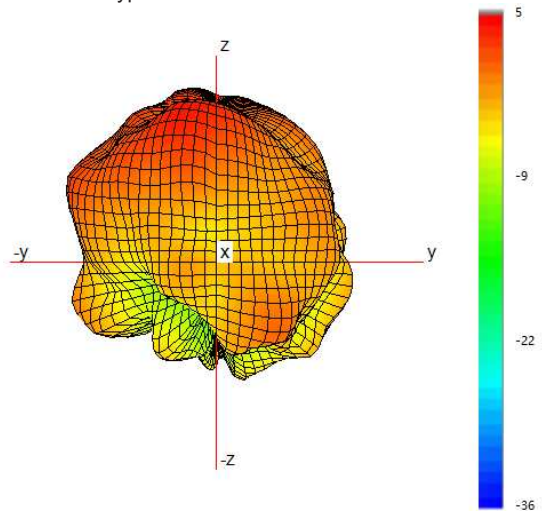
Typical 3D Pattern- Cell D - 2350 MHz



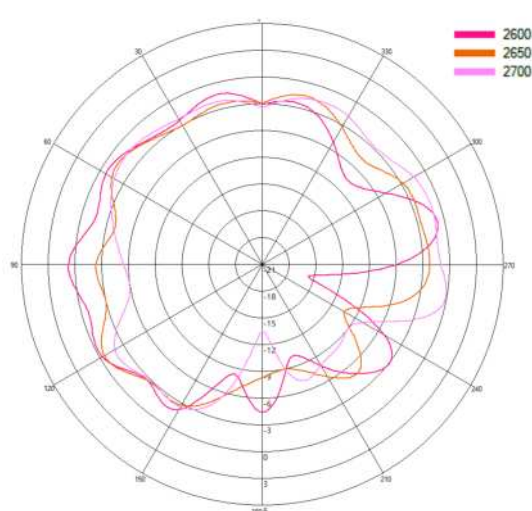
Typical H Plane- Cell D - Patterns- 2300-2400 MHz



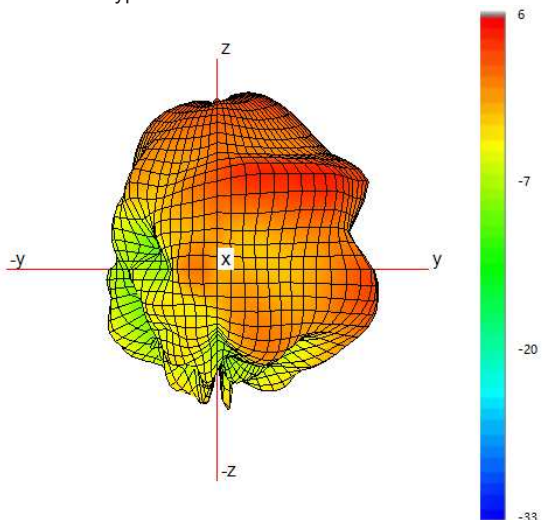
Typical 3D Pattern- Cell D - 2650 MHz



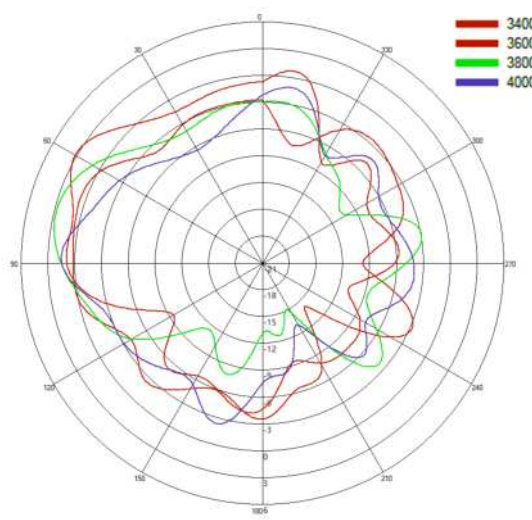
Typical H Plane- Cell D - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell D - 3600 MHz



Typical H Plane- Cell D - Patterns- 3400-4000 MHz



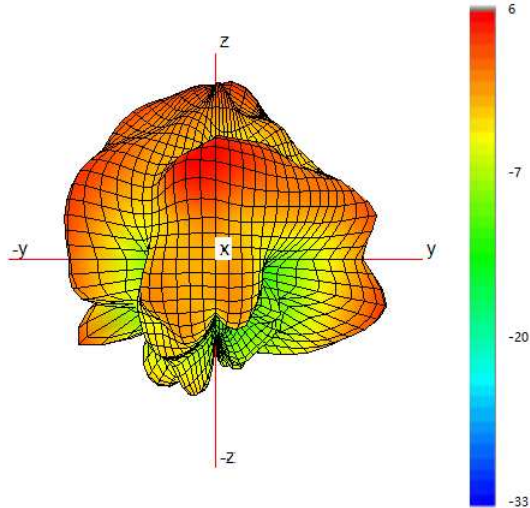
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

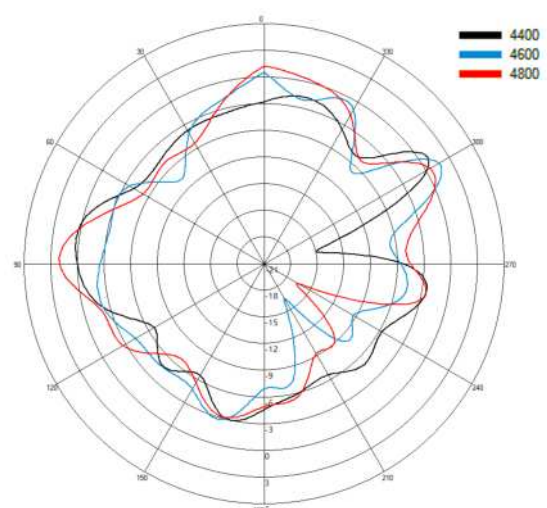
PANORAMA ANTENNAS

3D Pattern Data in
Free Space Cell D

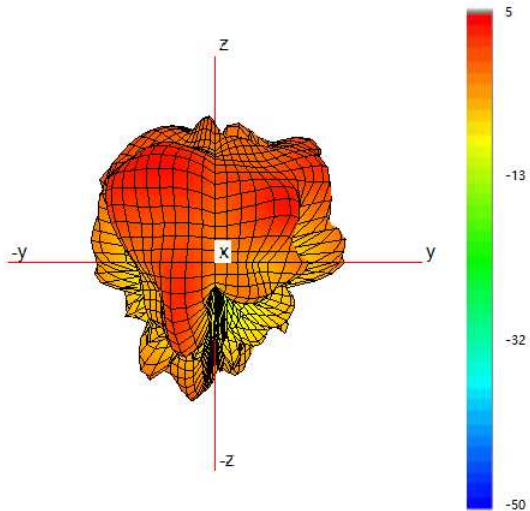
Typical 3D Pattern- Cell D - 4700 MHz



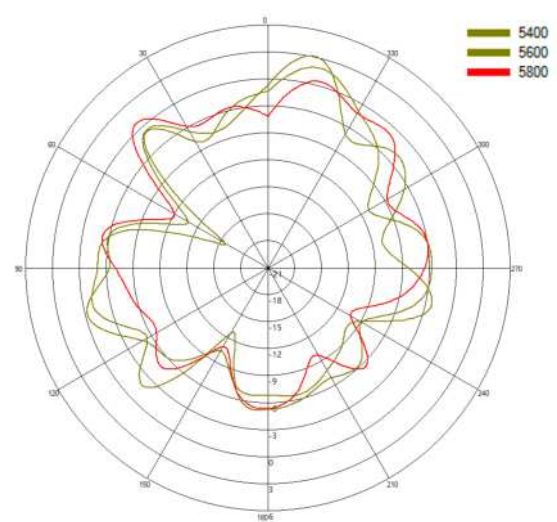
Typical H Plane- Cell D - Patterns- 4400-4800 MHz



Typical 3D Pattern- Cell D - 5600 MHz



Typical H Plane- Cell D- Patterns- 5400-5800 MHz



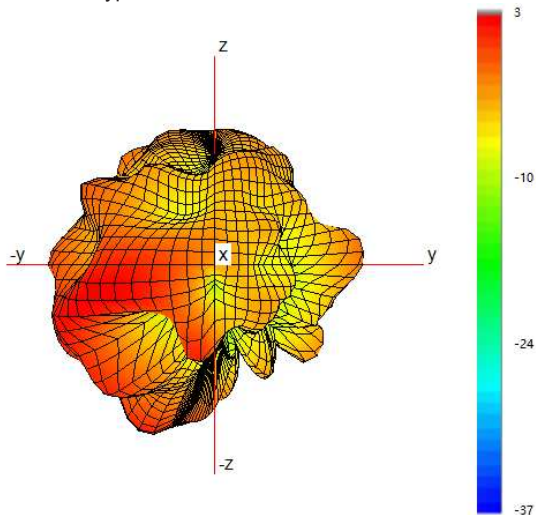
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

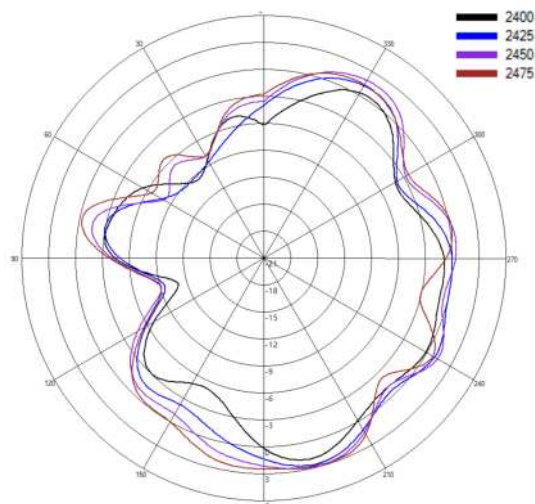
PANORAMA ANTENNAS

3D Pattern Data in
Free Space WiFi - 1

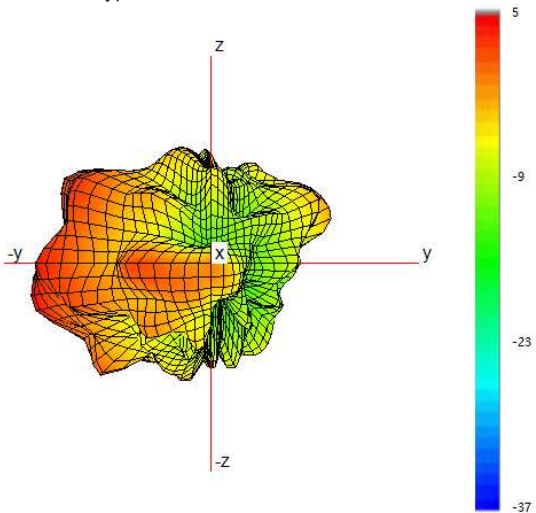
Typical 3D Pattern- WiFi - 1 - 2450 MHz



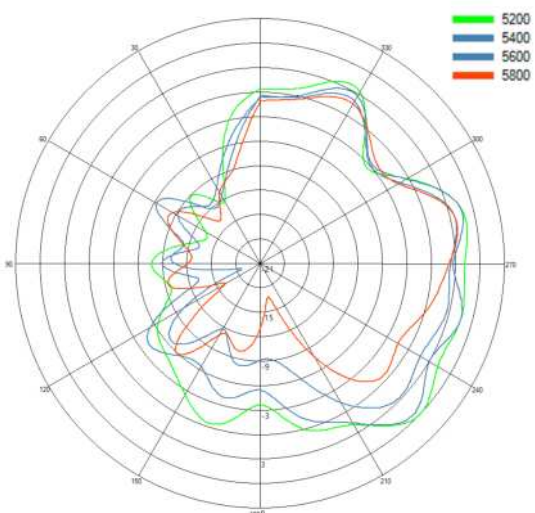
Typical H Plane- WiFi - 1 - Patterns- 2400-2475MHz



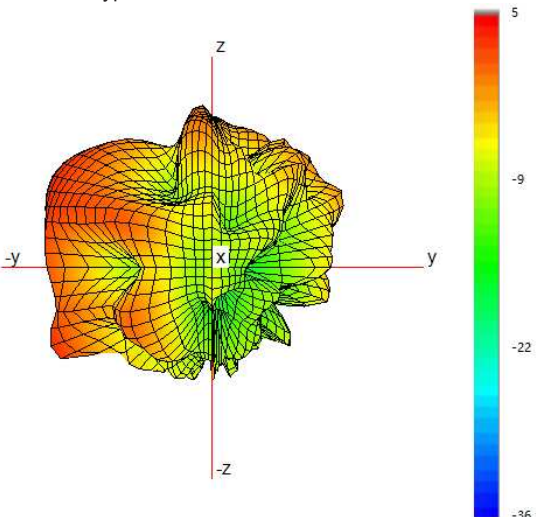
Typical 3D Pattern- WiFi - 1 - 5500 MHz



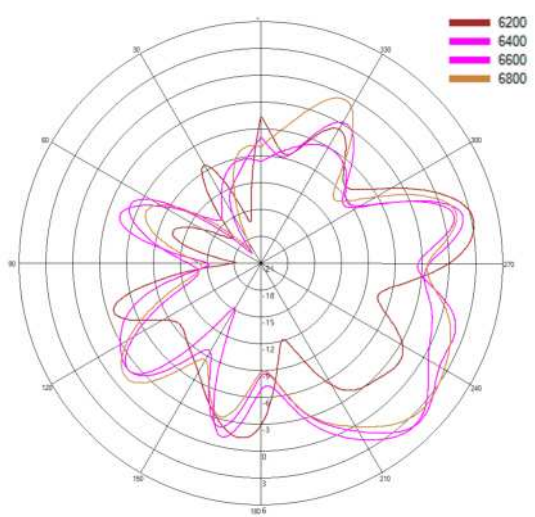
Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 1 - 6500 MHz



Typical H Plane- WiFi - 1 - Patterns- 6200-6800MHz



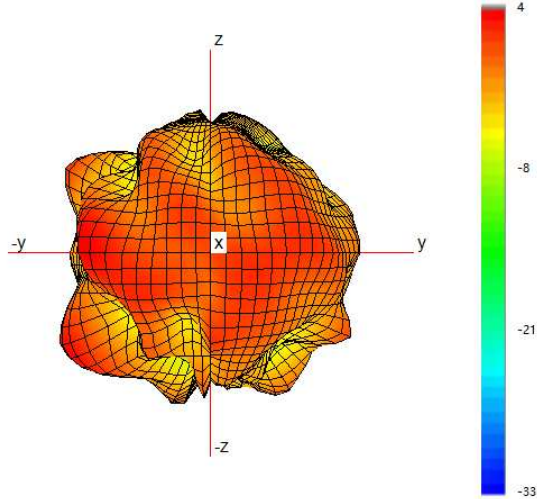
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

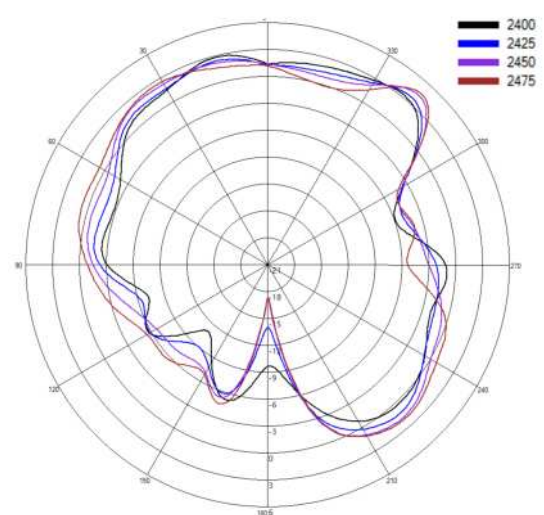
PANORAMA ANTENNAS

3D Pattern Data in
Free Space WIFI - 2

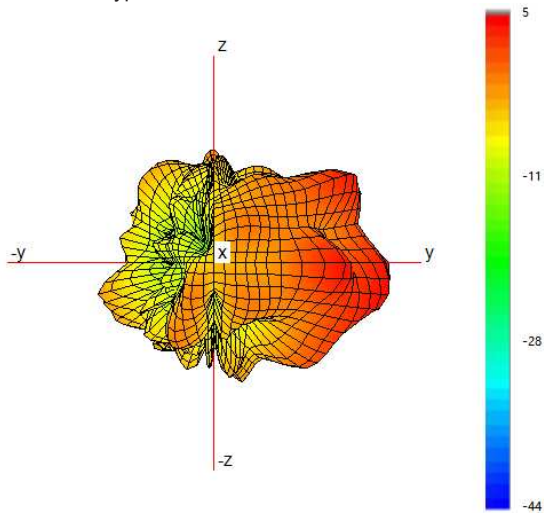
Typical 3D Pattern- WiFi - 2 - 2450 MHz



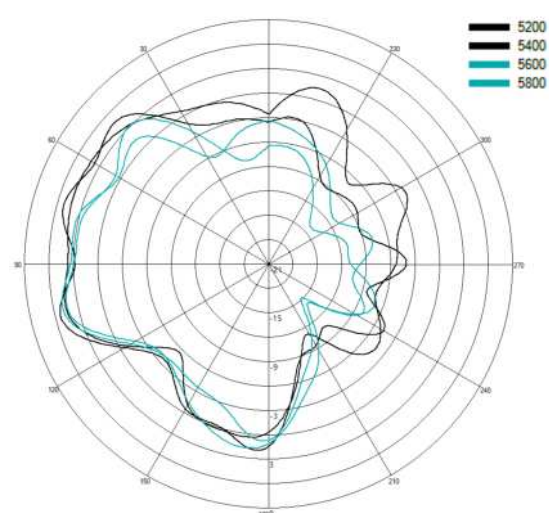
Typical H Plane- WiFi - 2 - Patterns- 2400-2475MHz



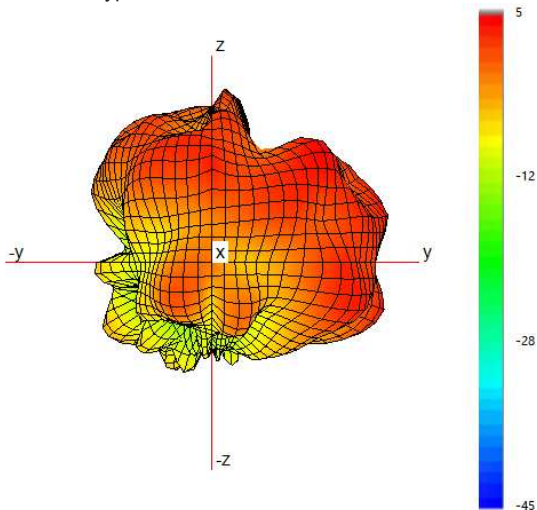
Typical 3D Pattern- WiFi - 2 - 5500 MHz



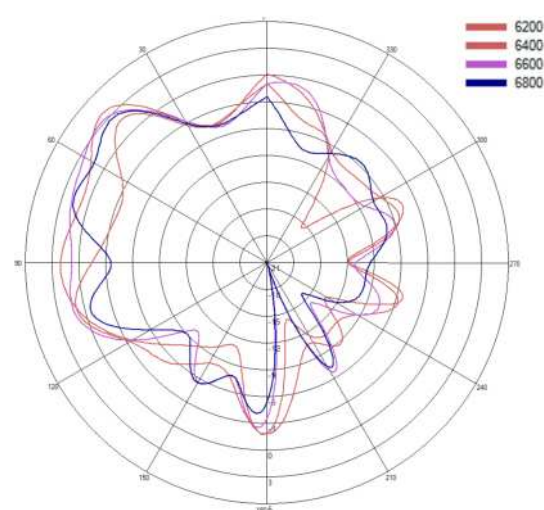
Typical H Plane- WiFi - 2 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 2 - 6500 MHz



Typical H Plane- WiFi - 2 - Patterns- 6200-6800MHz



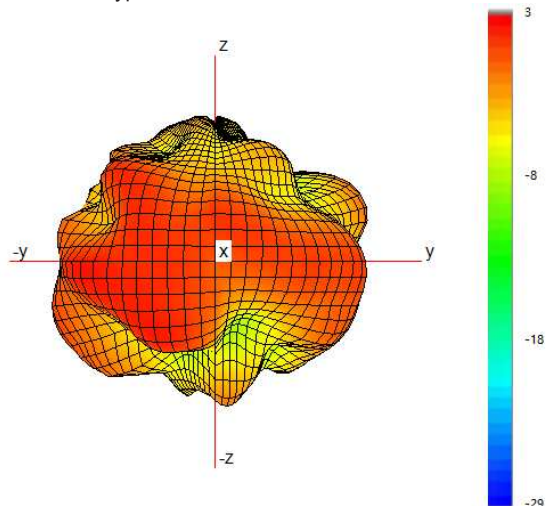
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

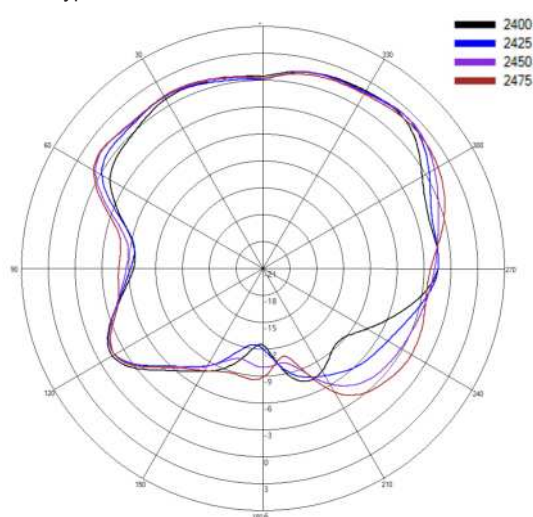
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3D Pattern Data in
Free Space WIFI - 3

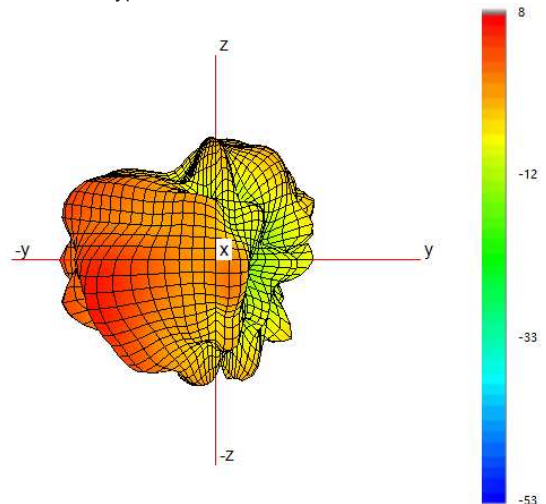
Typical 3D Pattern- WiFi - 3 - 2450 MHz



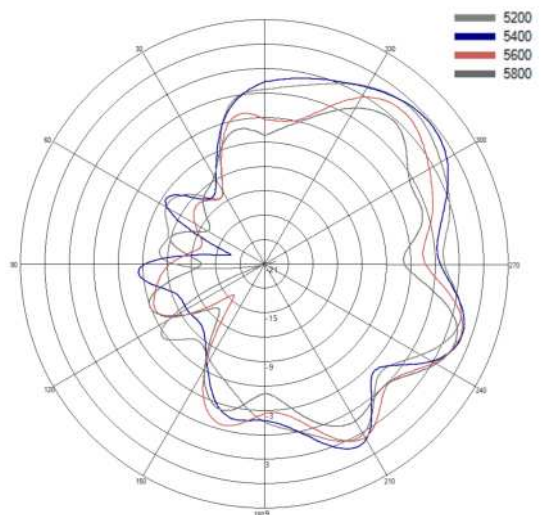
Typical H Plane- WiFi - 3 - Patterns- 2400-2475MHz



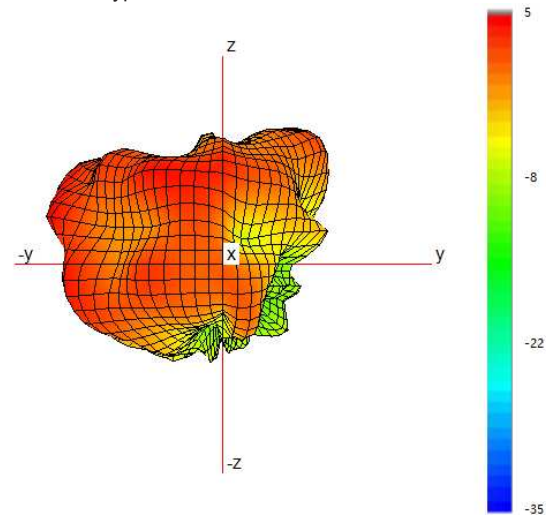
Typical 3D Pattern- WiFi - 3 - 5500 MHz



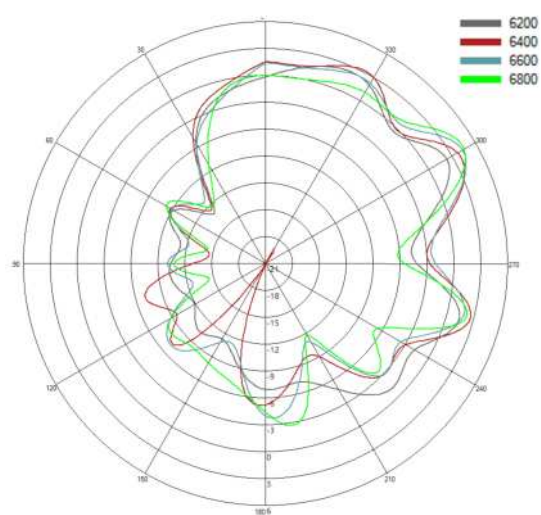
Typical H Plane- WiFi - 3 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 3 - 6500 MHz



Typical H Plane- WiFi - 3 - Patterns- 6200-6800MHz



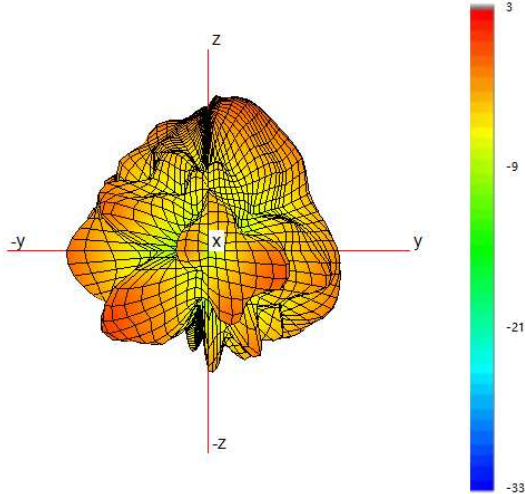
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

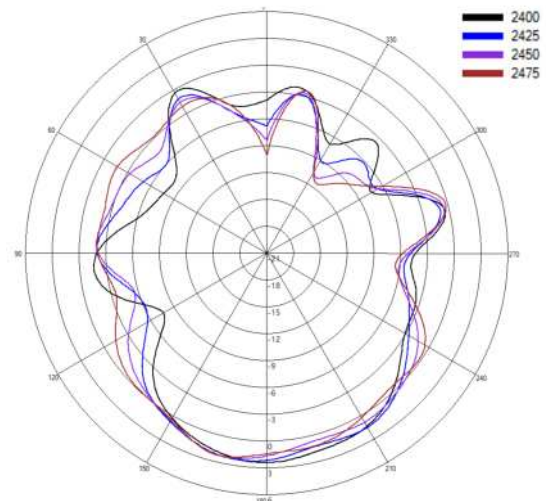
PANORAMA ANTENNAS

3D Pattern Data in
Free Space WIFI - 4

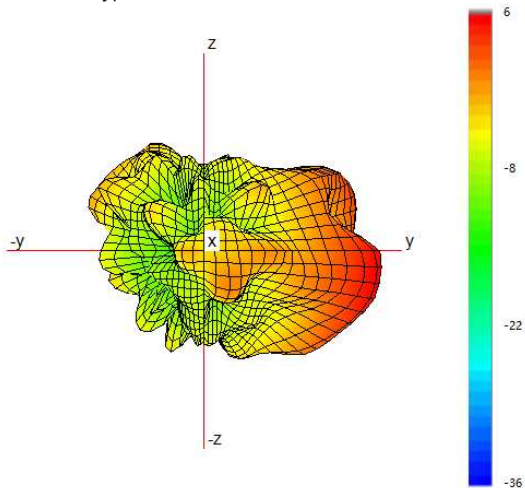
Typical 3D Pattern- WiFi - 4 - 2450 MHz



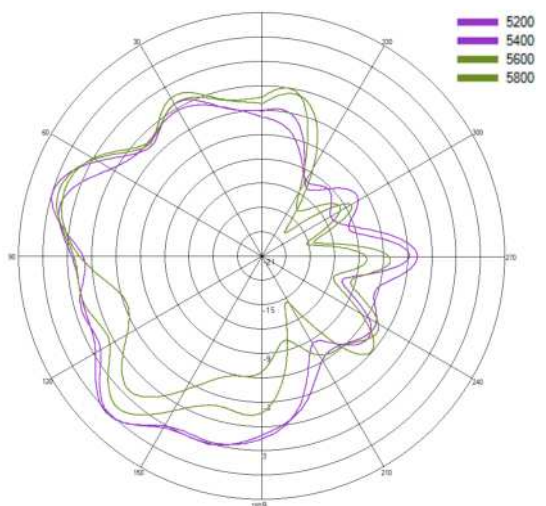
Typical H Plane- WiFi - 4 - Patterns- 2400-2475MHz



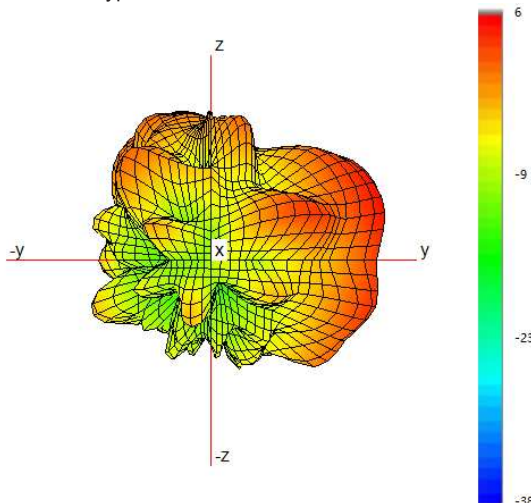
Typical 3D Pattern- WiFi - 4 - 5500 MHz



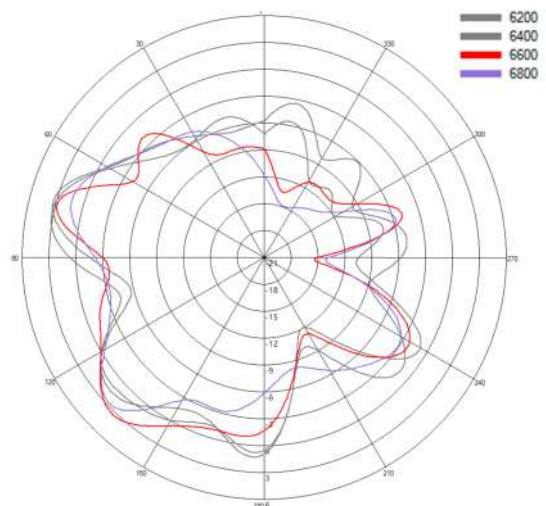
Typical H Plane- WiFi - 4 - Patterns- 5200-5800MHz



Typical 3D Pattern- WiFi - 4 - 6500 MHz



Typical H Plane- WiFi - 4 - Patterns- 6200-6800MHz



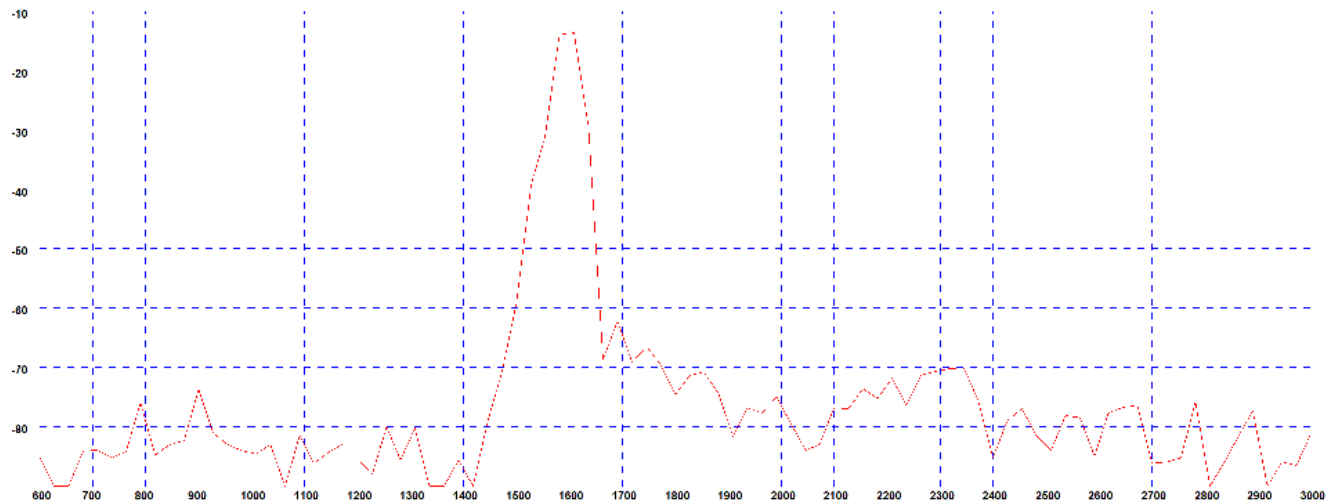
4x4 MiMo 4G/5G Sharkfin Antenna

GPS[X]D4[X]-6-60[-X]

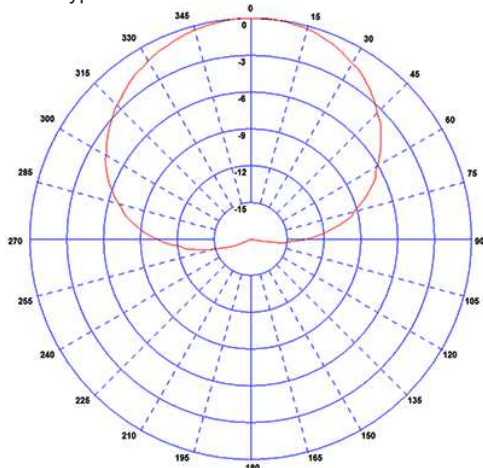
PANORAMA  ANTENNAS

Electrical Data- L1 GPS/GNSS

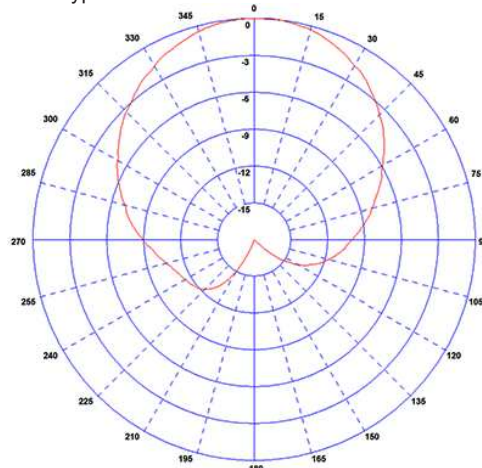
Swept Peak Gain GPS/GNSS



Typical E Plane Pattern - GPS/GNSS 1575 MHz



Typical E Plane Pattern - GPS/GNSS 1602 MHz



GPS/GNSS Measurements taken on 190x190mm (7.4" x 7.4") ground plane excluding cable loss