

4x4 MiMo 4G/5G Antenna

DWMM4[G]-6-60

PANORAMA ANTENNAS



DWMM4[G]-6-60

- 4x4 MiMo 4G/5G Omni-Directional Antenna Solution
- Mast, Wall or Desk Mount
- Optional GPS/GNSS - 26dB LNA
- Integral FRZH Rated Coaxial Cables

The DWMM4[G]-6-60 antenna provides a 4x4 MiMo omnidirectional antenna solution for global 4G/5G networks covering 617-6000MHz. It features four separately fed ultra-wideband elements in a single housing and is suitable for a wide range of fixed-site branch office and enterprise failover applications.

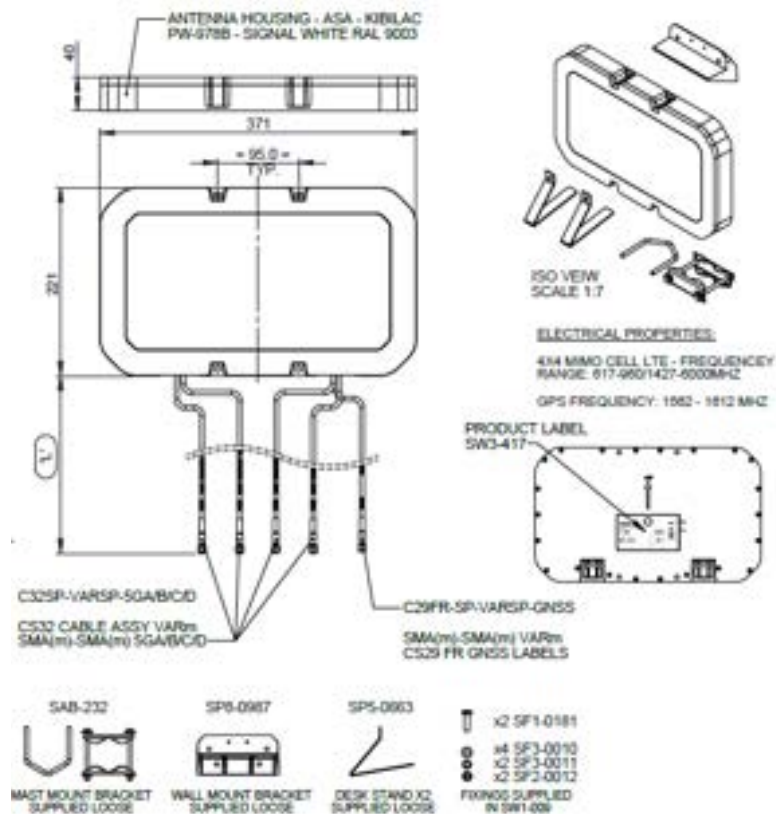
The supplied mounting bracket enables mast mounting using the supplied clamp assembly or it can be wall-mounted using the supplied screws and wall plugs. The antenna can be fitted directly to non-conductive panels or internal walls and mounting feet are supplied to allow it to be stood on a desk or window sill.

The omni-directional radiation pattern allows easy placement of the antenna without consideration of directional alignment and makes it ideal where access to multiple network sites is required. The DWMM4G version incorporates an integral GPS/GNSS antenna with 26dB LNA gain and advanced filtering for resilient operation.

The antenna has integral flame retardant coaxial cables, which eliminates or reduces exposed connector joints and simplify installation.

Technical Drawing

DWMM4G-6-60-5SP Shown



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Product Data

Part No.					
		DWMM4-6-60-5SP	DWMM4-6-60-5FKJ	DWMM4-6-60-5NP	DWMM4-6-60-05NJ
Electrical Data					
Frequency Range (MHz)	Elements 1-4	617-960 / 1427-6000			
Operational Band	Elements 1-4	2G/3G/4G/5G			
Typical VSWR**		<2.5:1			
Correlation Co-efficient		< 0.1			
Polarisation		+/-45 degrees			
Pattern		Hybrid			
Impedance		50Ω			
Max Input Power (W)		10			
Mechanical Data					
Dimensions (mm)	Length	371 (14.6")			
	Height Excl Brkt	221 (8.7")			
	Depth	40 (1.57")			
Operating Temp (°C)		-40° / +85°C (-40° / 185° F)			
Radome Material		ASA			
Material Approvals		Radome ASA Material - UL 746C F1, UL 94-HB			
Colour		White			
Ingress Protection		IP66			
Mounting Data					
Fixing		Wall, Mast, Rail or Panel Mount			
Max Mast / Rail Diameter (mm)		50 (1.96")			
Cable Data					
4G/5G Cables	Type	CS32 (EN45545-2)			
	Diameter (mm)	5 (0.19")			
	Length (m)	5 (16' 4")	5 (16' 4")	5 (16' 4")	0.5 (1' 6")
	Termination	SMA (m)	FAKRA D Jack	N (m)	N(f)

* Peak gain and efficiency simulated in CST microwave studio for each element in free space excluding cable loss ** Typical VSWR measured with 0.5m (1.5') of cable in free space.

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Product Data				
Part No.				
DWMM4G-6-60-5SP DWMM4G-6-60-5FKJ DWMM4G-6-60-5NP DWMM4G-6-60-05NJ				
Electrical Data				
Frequency Range (MHz)	Elements 1-4	617-960 / 1427-6000		
	Element 5	1559-1612		
Operational Band	Elements 1-4	2G/3G/4G/5G		
	Element 5	GPS/GNSS		
Typical VSWR**		<2.5:1		
Correlation Co-efficient		< 0.1		
Polarisation		+/-45 degrees		
Pattern		Hybrid		
Impedance		50Ω		
Max Input Power (W)		10		
GPS/GNSS Data				
Frequency Range (MHz)		1559-1612		
Typical VSWR		<2.5:1		
LNA Gain		26dB (+/-3)		
Polarisation		RHCP		
Operating Voltage		3-5 VDC <20ma		
Mechanical Data				
Dimensions (mm)	Length	371 (14.6")		
	Height Excl Brkt	221 (8.7")		
	Depth	40 (1.57")		
Operating Temp (°C)		-40° / +85°C (-40° / 185°F)		
Radome Material		ASA		
Material Approvals		Radome ASA Material - UL 746C F1, UL 94-HB		
Colour		White		
Ingress Protection		IP66		
Mounting Data				
Fixing		Wall, Mast, Rail or Panel Mount		
Max Mast Diameter (mm)		50 (1.96")		
Cable Data				
4G/5G Cables	Type	CS32 (EN45545-2 Compliant)		
	Diameter (mm)	5 (0.19")		
	Length (m)	5 (16' 4")	5 (16' 4")	5 (16' 4")
	Termination	SMA (m)	FAKRA D Jack	N (m)
GPS/GNSS Cables	Type	CS29 FR (EN45545-2 Compliant)		
	Diameter (mm)	5 (0.19")		
	Length (m)	5 (16' 4")	5 (16' 4")	5 (16' 4")
	Termination	SMA (m)	FAKRA C Jack	N (m)

* Peak gain and efficiency simulated in CST microwave studio for each element in free space excluding cable loss ** Typical VSWR measured with 0.5m (1.5') of cable in free space.

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Product Data

Part No.

DWMM4G5-6-60-5SP

DWMM4G5-6-60-05NJ

Electrical Data

Frequency Range (MHz)	Elements 1-4	617-960 / 1427-6000
	Element 5	1164-1189 / 1559-1612
Operational Band	Elements 1-4	2G/3G/4G/5G
	Element 5	GPS/GNSS
Typical VSWR**		<2.5:1
Correlation Co-efficient		< 0.1
Polarisation		+/-45 degrees
Pattern		Hybrid
Impedance		50Ω
Max Input Power (W)		10

GPS/GNSS Data

Frequency Range (MHz)	1164-1189 / 1559-1612
Typical VSWR	<2.5:1
LNA Gain	19dB / 29dB (+/-7.5)
Polarisation	RHCP
Operating Voltage	3-5v 36ma Typical

Mechanical Data

Dimensions (mm)	Length	371 (14.6")
	Height Excl Brkt	221 (8.7")
	Depth	40 (1.57")
Operating Temp (°C)		-40° / +85°C (-40° / 185°F)
Radome Material		ASA
Material Approvals		Radome ASA Material - UL 746C F1, UL 94-HB
Colour		White
Ingress Protection		IP66

Mounting Data

Fixing	Wall, Mast, Rail or Panel Mount
Max Mast Diameter (mm)	50 (1.96")

Cable Data

4G/5G Cables	Type	CS32 (EN45545-2 Compliant)	
	Diameter (mm)	5 (0.19")	
	Length (m)	5 (16' 4")	0.5 (1' 6")
	Termination	SMA (m)	N(f)
GPS/GNSS Cables	Type	CS29 FR (EN45545-2 Compliant)	
	Diameter (mm)	5 (0.19")	
	Length (m)	5 (16' 4")	0.5 (1' 6")
	Termination	SMA (m)	N(f)

* Peak gain and efficiency simulated in CST microwave studio for each element in free space excluding cable loss ** Typical VSWR measured with 0.5m (1.5') of cable in free space.

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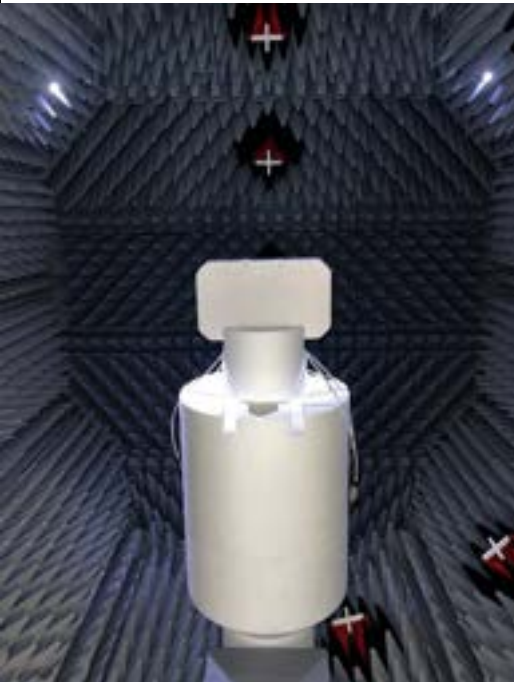
Waiver: The data given above is indicative of the performance of the product/s under particular conditions and does not imply a guarantee of performance. These specifications are subject to change without notice. Copyright © Panorama Antennas Ltd. All rights reserved.

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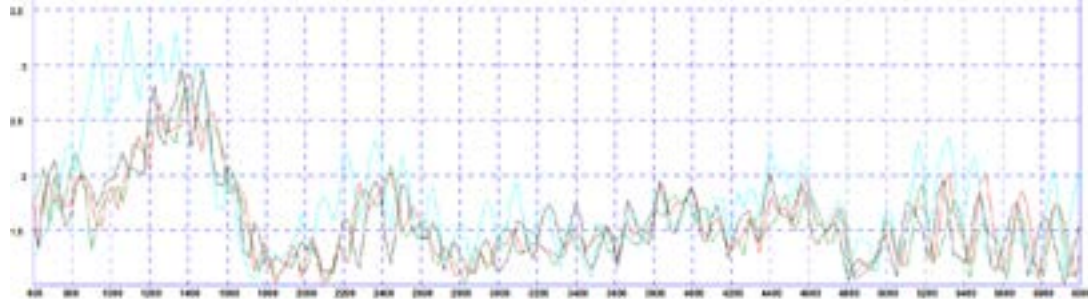
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Electrical Data in
Free Space

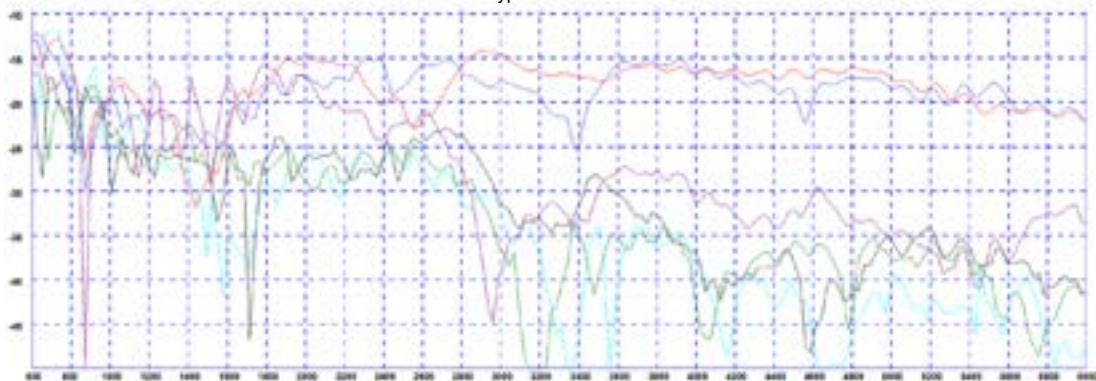
Measurement Conditions	4G/5G Antennas				
Measured in free space with 0.5(1.5') of CS32 cable	Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	617-698	71,105	Cell A	6.4	73
			Cell B	4.8	79
			Cell C	5.3	78
			Cell D	6.4	74
	699-798	12,13, 14 17,28	Cell A	7.4	77
			Cell B	4.0	69
			Cell C	5.3	73
			Cell D	5.1	71
	807- 862	5,19,20,26,27	Cell A	6.3	77
			Cell B	3.2	69
			Cell C	4.3	70
			Cell D	5.2	77
	880-960	8	Cell A	5.6	83
			Cell B	4.4	70
			Cell C	3.9	64
			Cell D	4.7	79
	1427-1518	11, 21, 74,75,76	Cell A	4.0	69
			Cell B	5.3	66
			Cell C	5.1	64
			Cell D	5.0	70
	1710-1920	2,3,4,9,25,35, 39,66	Cell A	4.5	75
			Cell B	4.2	74
			Cell C	4.2	75
			Cell D	4.3	74
	1920-2170	1,23	Cell A	5.2	77
			Cell B	4.4	78
			Cell C	3.9	74
			Cell D	5.0	79
	2300-2400	30,40	Cell A	4.7	73
			Cell B	4.5	72
			Cell C	3.7	68
			Cell D	4.1	73
	2496-2690	7,38,41	Cell A	5.2	79
			Cell B	5.2	75
			Cell C	6.2	75
			Cell D	4.9	76
	3300-4200	22,42,43,48,77, 78,79	Cell A	5.6	66
			Cell B	5.5	70
			Cell C	5.9	70
			Cell D	5.9	66
	4400-5000	79	Cell A	7.0	60
			Cell B	4.7	57
			Cell C	6.0	60
			Cell D	7.4	60

Typical VSWR*



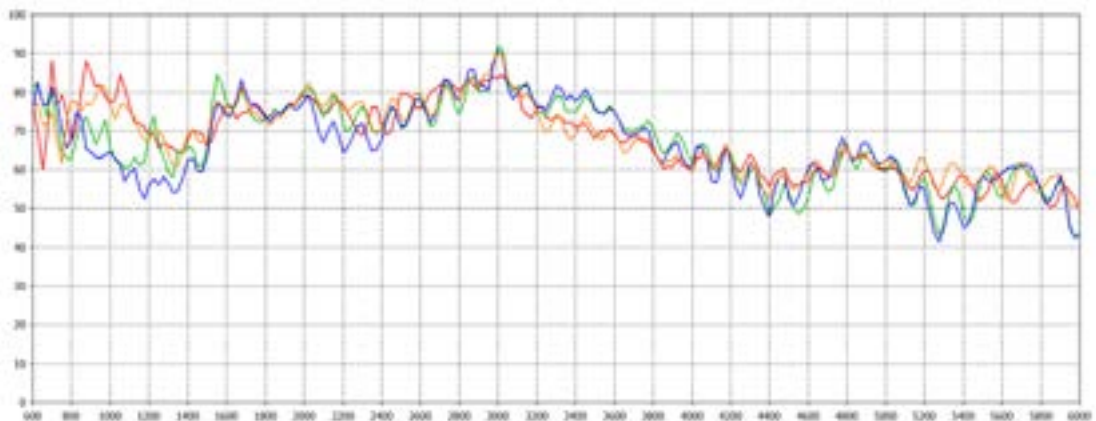
*Typical VSWR for elements 1-4 measured in free space with 0.5m (1.5') of CS32 cable.

Typical Isolation*



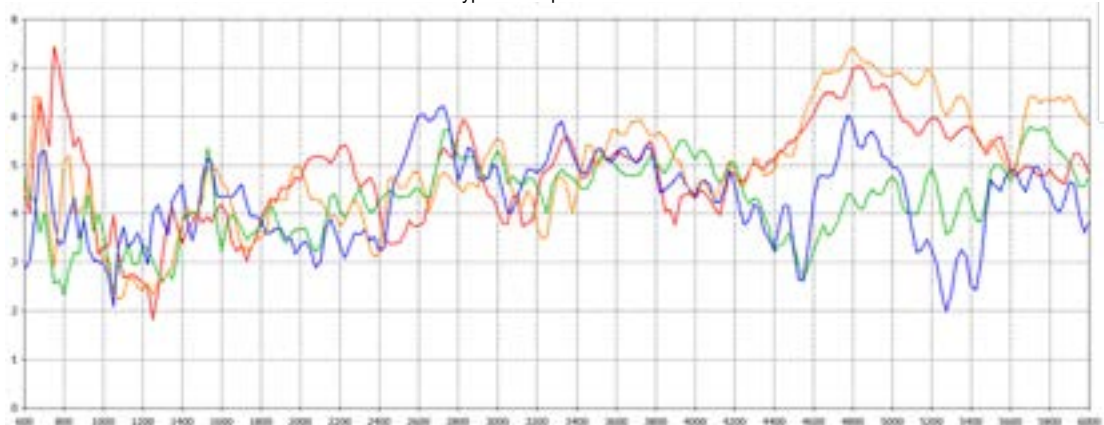
*Typical isolation measured for elements 1-4 in free space with 0.5(1.5') of CS32 cable.

Typical Efficiency*



*Typical efficiency measured for elements 1-4 in free space with 0.5(1.5') of CS32 cable.

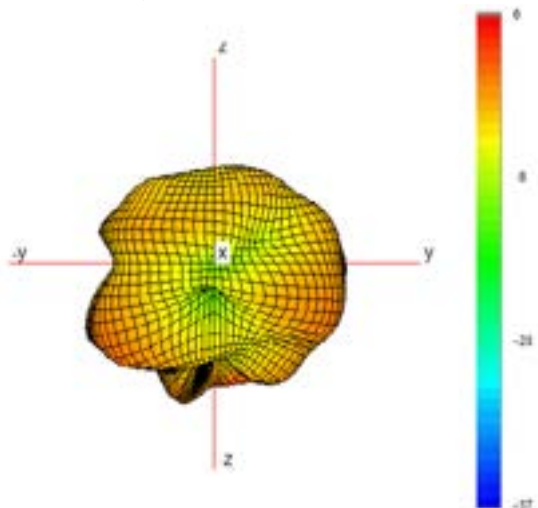
Typical Swept Peak Gain*



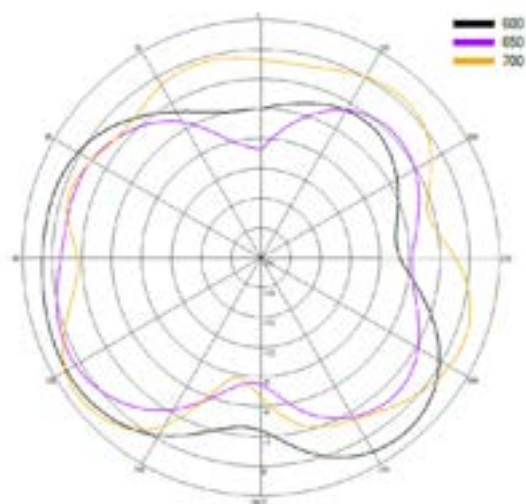
* Peak gain measured for elements 1-4 in free space with 0.5(1.5') of CS32 cable.

3D Patterns Cell A

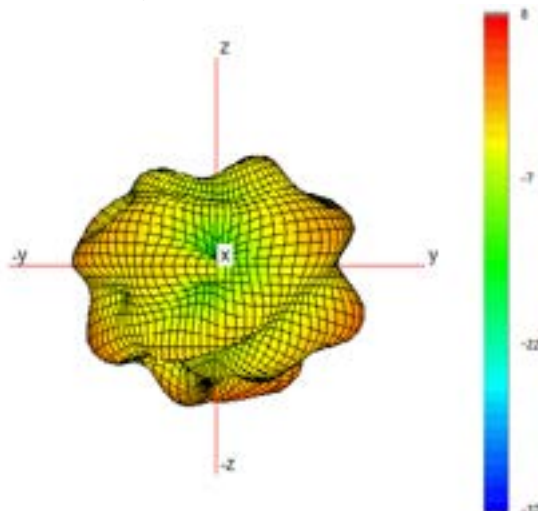
Typical 3D Pattern- Cell A - 650 MHz



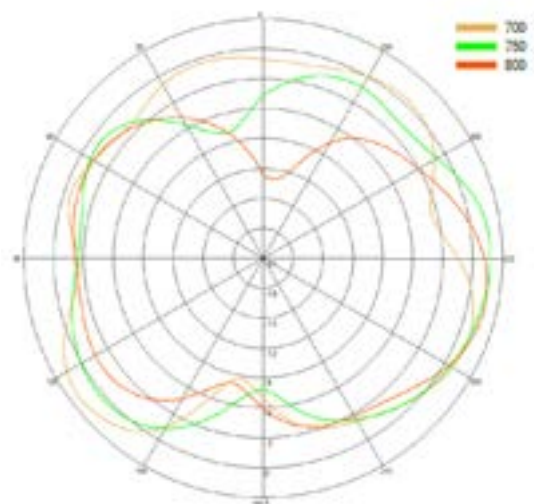
Typical H Plane- Cell A - Patterns- 600-700MHz



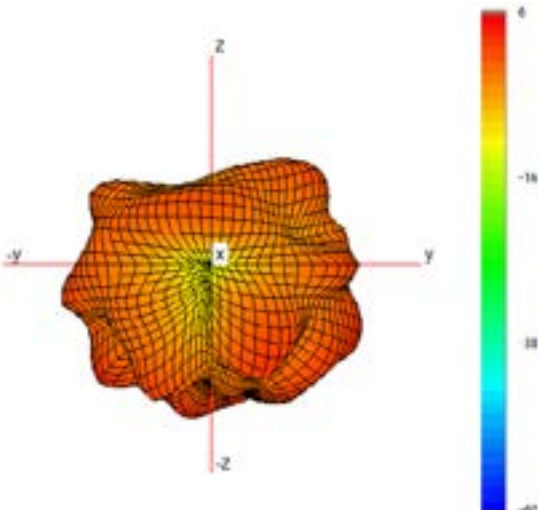
Typical 3D Pattern- Cell A - 750 MHz



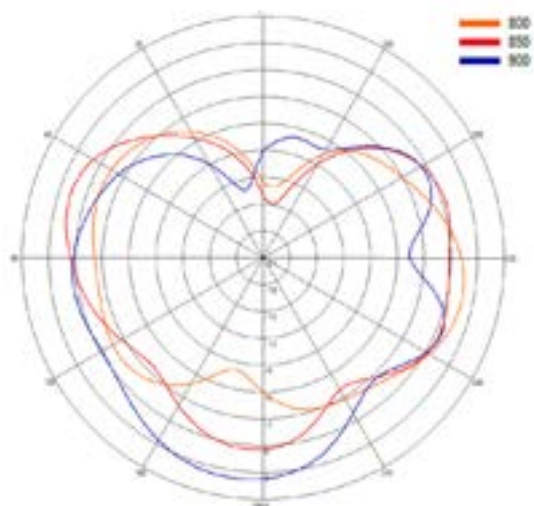
Typical H Plane- Cell A - Patterns- 700-800MHz



Typical 3D Pattern- Cell A - 850 MHz



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

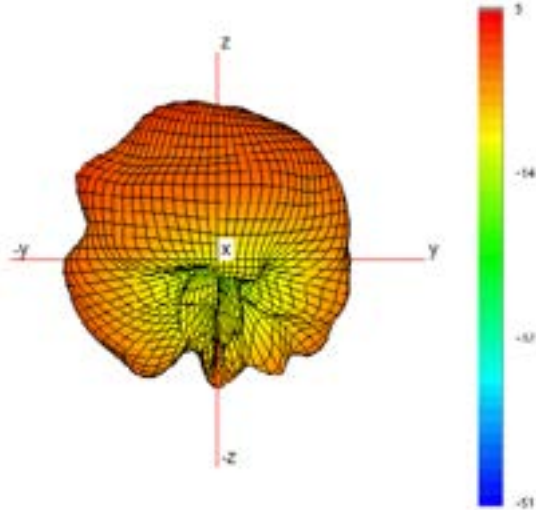


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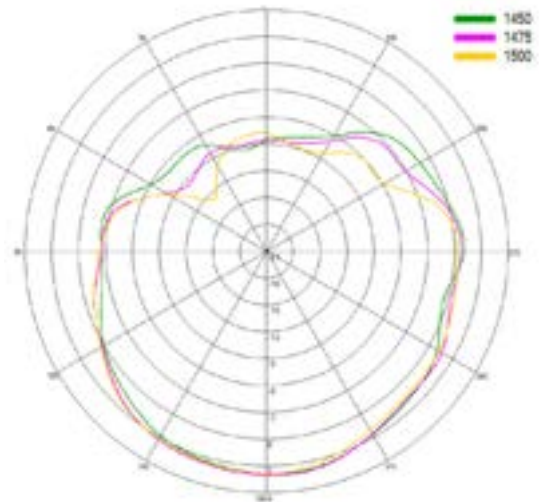
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3D Patterns Cell A

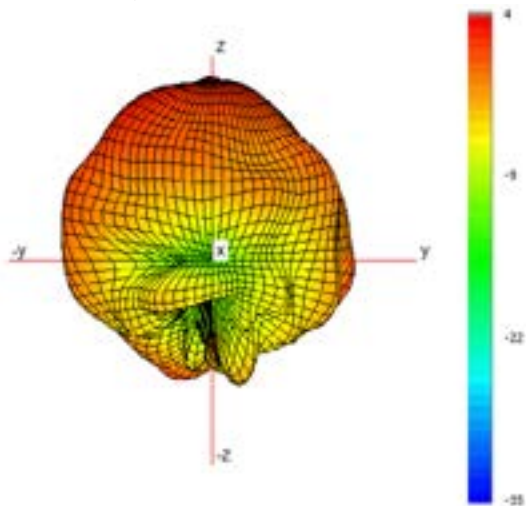
Typical 3D Pattern- Cell A - 1475 MHz



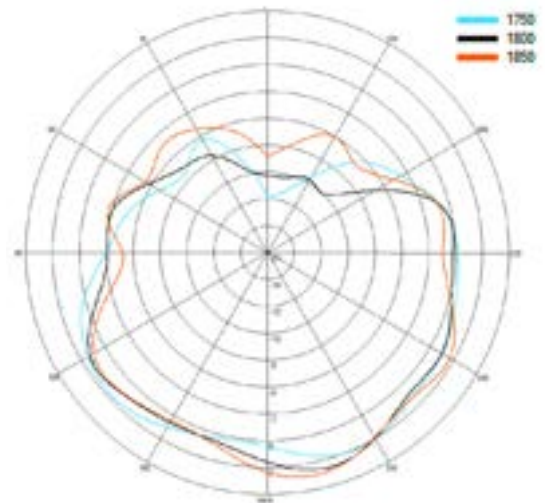
Typical H Plane- Cell A- Patterns- 1450-1500 MHz



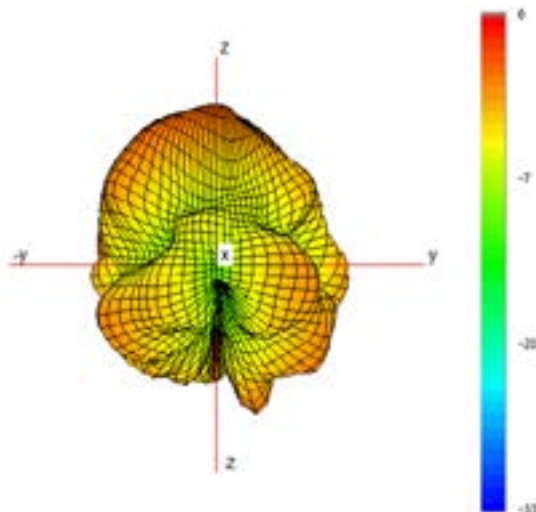
Typical 3D Pattern- Cell A - 1800 MHz



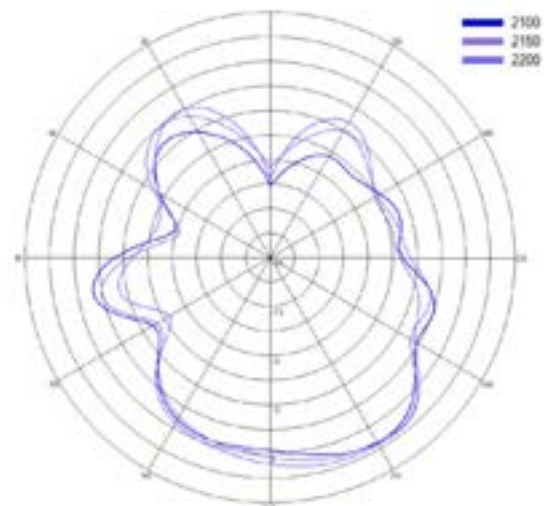
Typical H Plane- Cell A- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell A - 2150 MHz

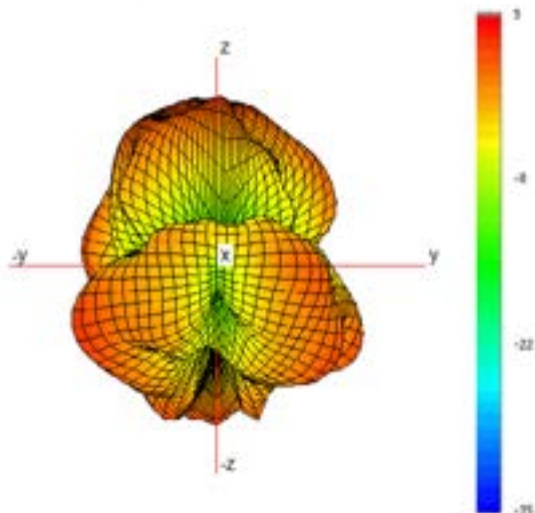


Typical H Plane- Cell A- Patterns- 2100-2200 MHz

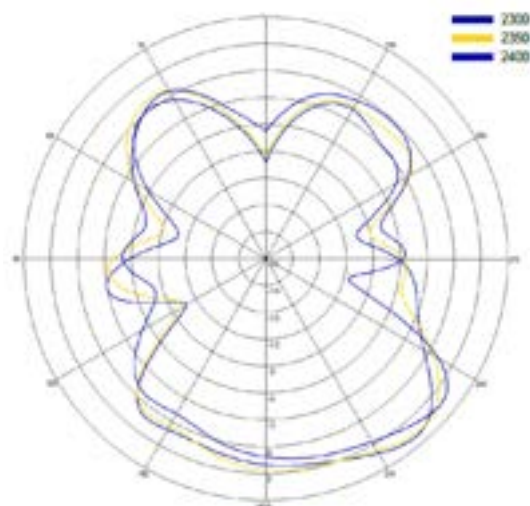


3D Patterns Cell A

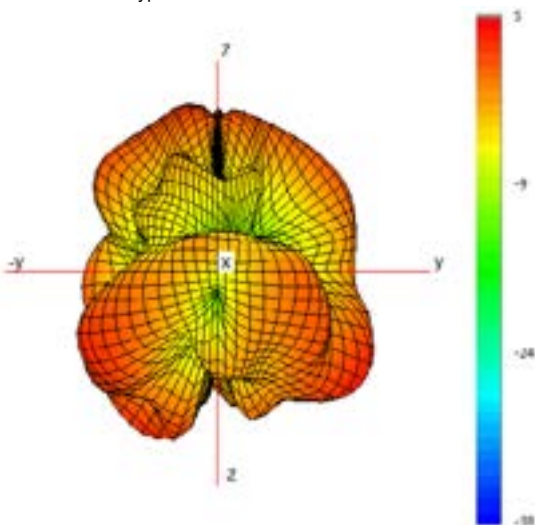
Typical 3D Pattern- Cell A - 2350 MHz



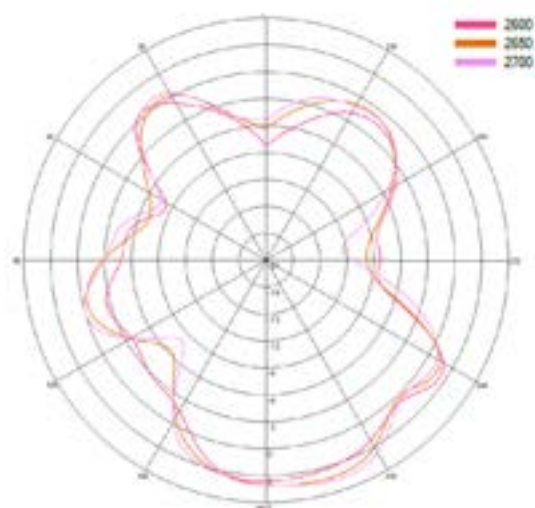
Typical H Plane- Cell A - Patterns- 2300-2400 MHz



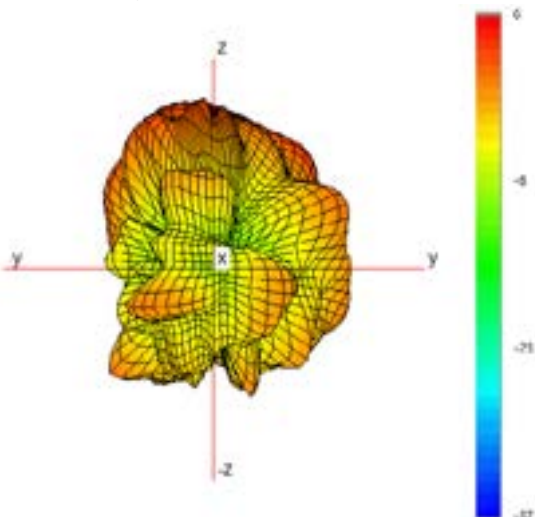
Typical 3D Pattern- Cell A - 2650 MHz



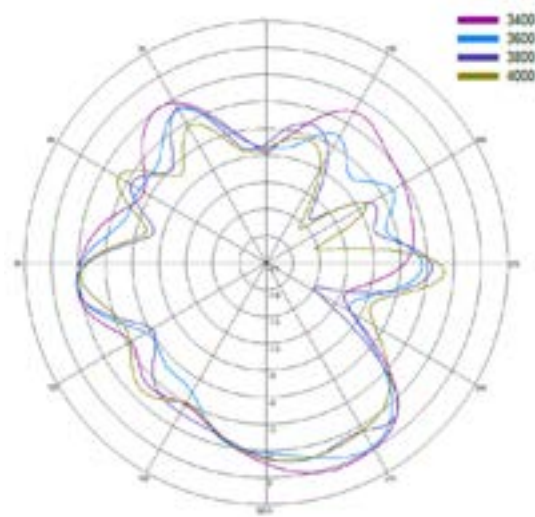
Typical H Plane- Cell A - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell A - 3600 MHz

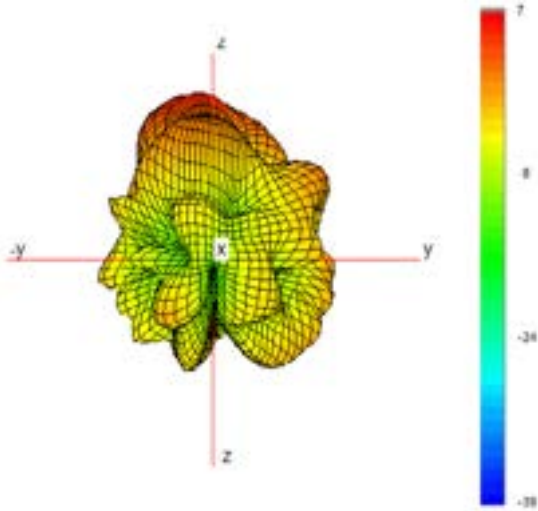


Typical H Plane- Cell A - Patterns- 3400-4000 MHz

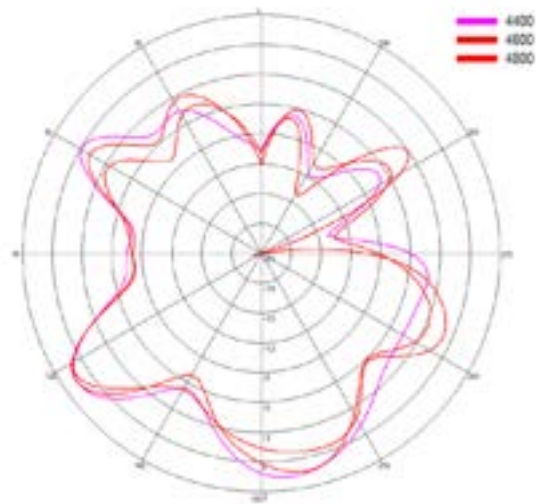


3D Patterns Cell A

Typical 3D Pattern- Cell A - 4700 MHz

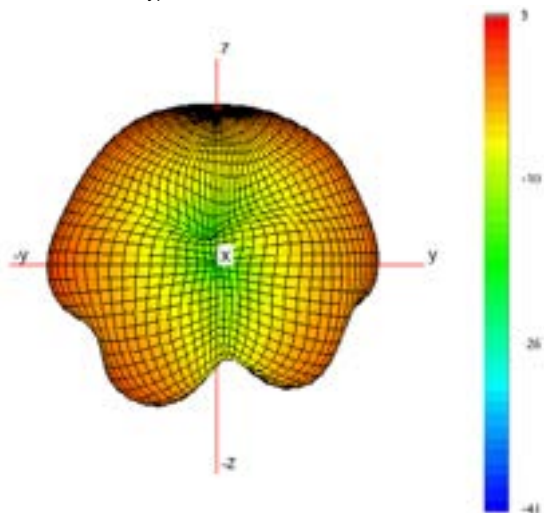


Typical H Plane- Cell A - Patterns- 4400-4800 MHz

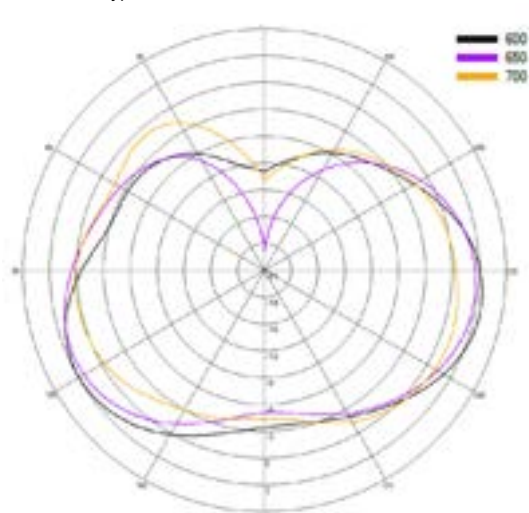


3D Patterns Cell B

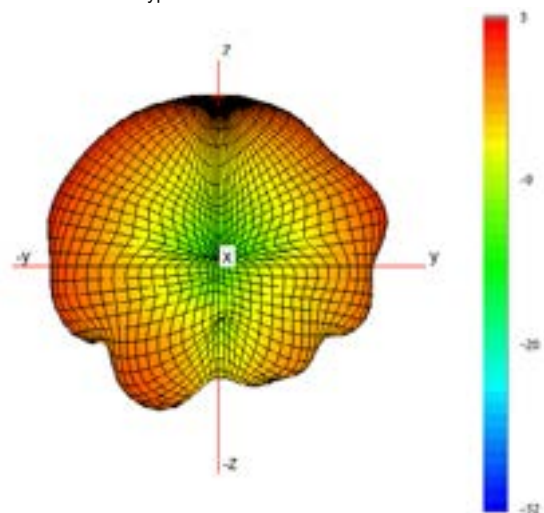
Typical 3D Pattern- Cell B - 650 MHz



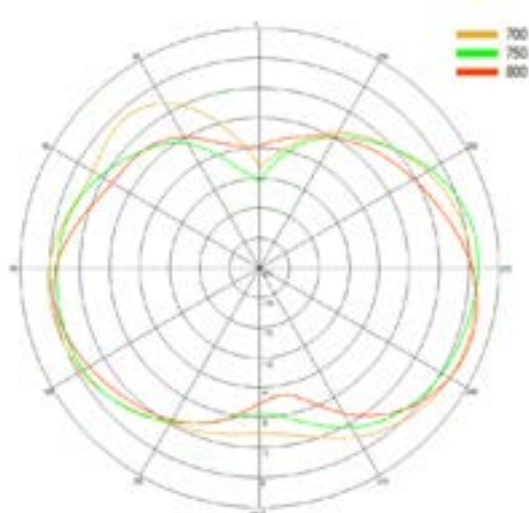
Typical H Plane- Cell B - Patterns- 600-700MHz



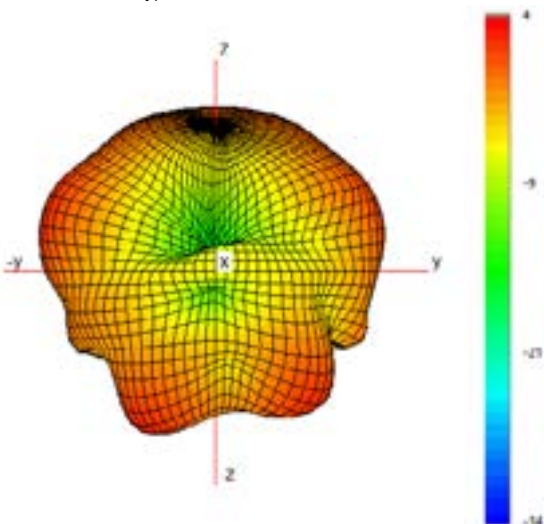
Typical 3D Pattern- Cell B - 750 MHz



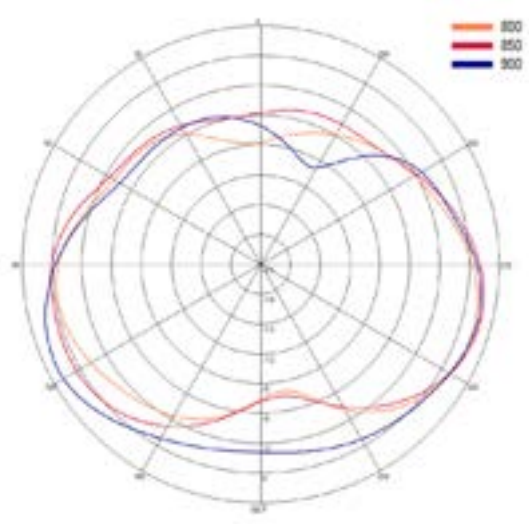
Typical H Plane- Cell B - Patterns- 700-800MHz



Typical 3D Pattern- Cell B - 850 MHz

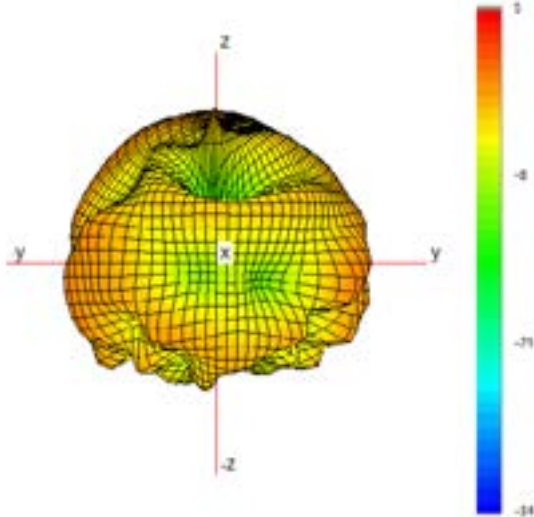


Typical H Plane- Cell B - Patterns- 800-900MHz

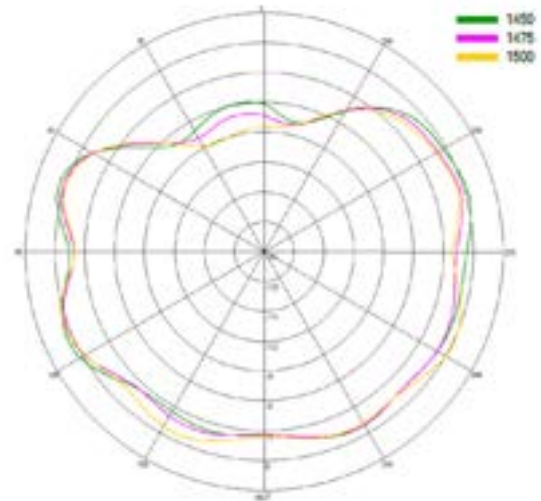


3D Patterns Cell B

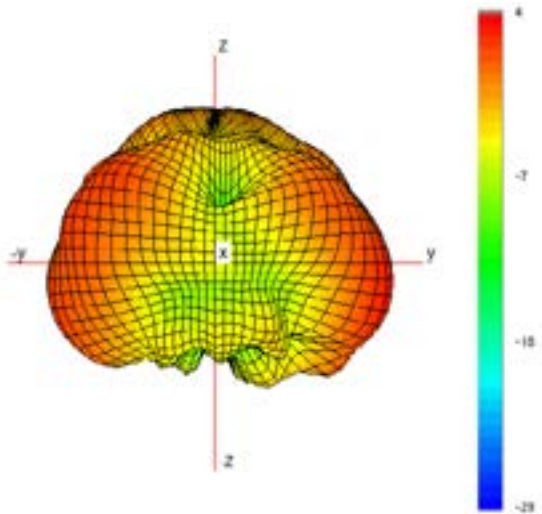
Typical 3D Pattern- Cell B - 1475 MHz



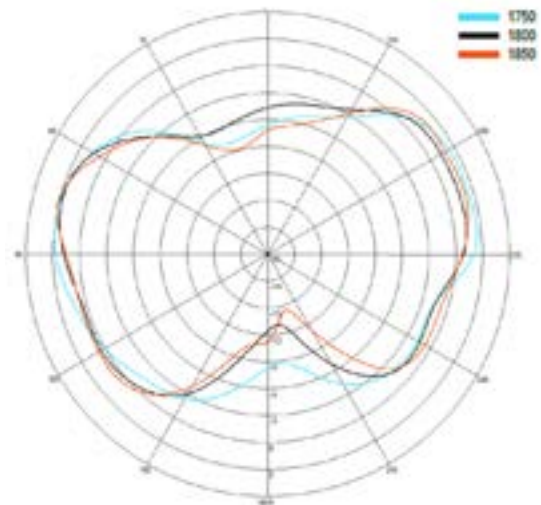
Typical H Plane- Cell B- Patterns- 1450-1500 MHz



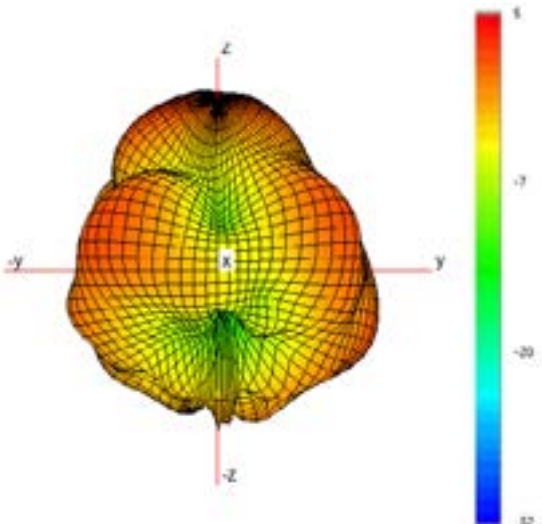
Typical 3D Pattern- Cell B - 1800 MHz



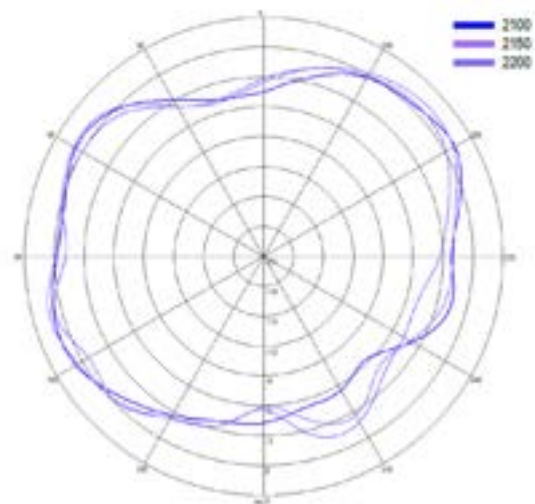
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell B - 2150 MHz

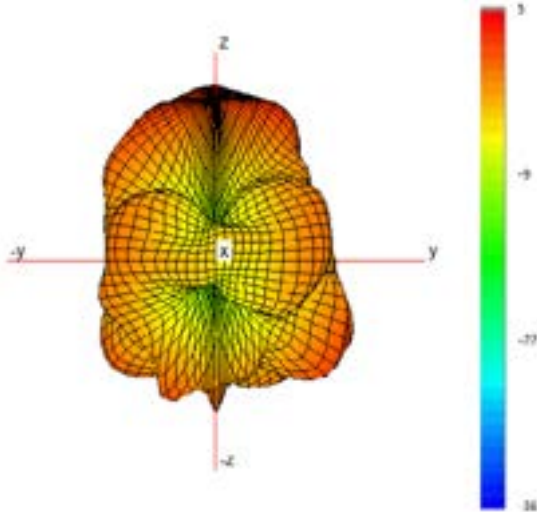


Typical H Plane- Cell B- Patterns- 2100-2200 MHz

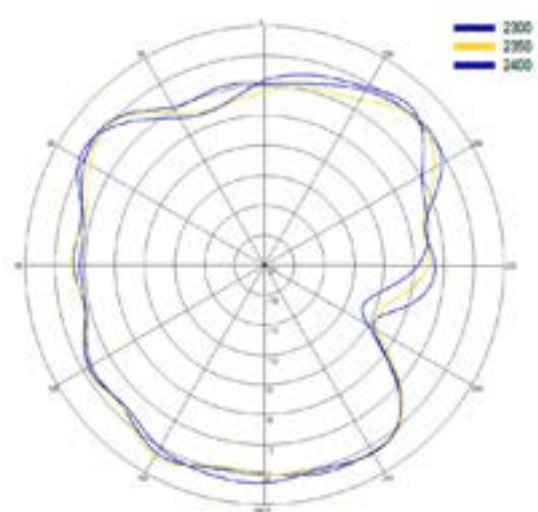


3D Patterns Cell B

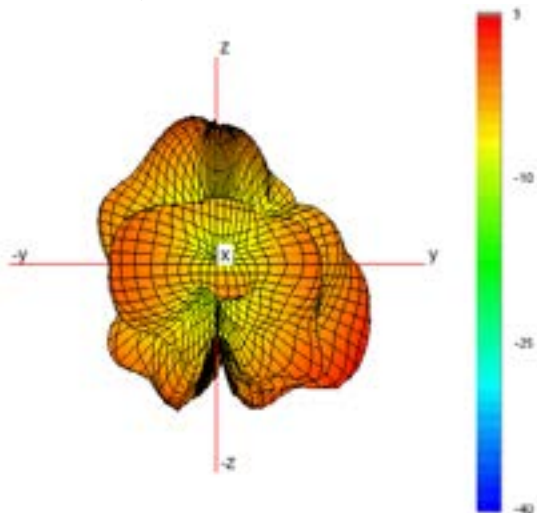
Typical 3D Pattern- Cell B - 2350 MHz



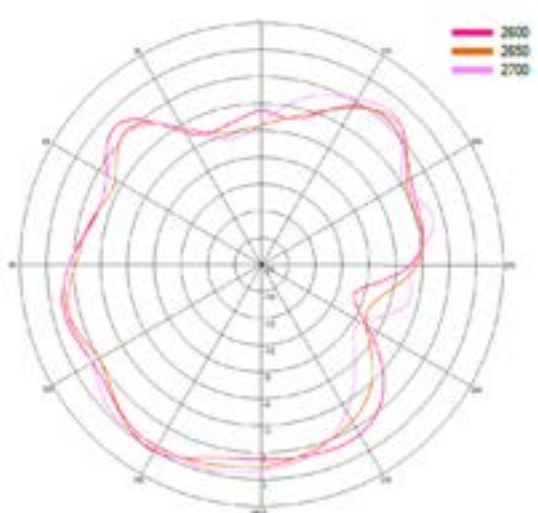
Typical H Plane- Cell B - Patterns- 2300-2400 MHz



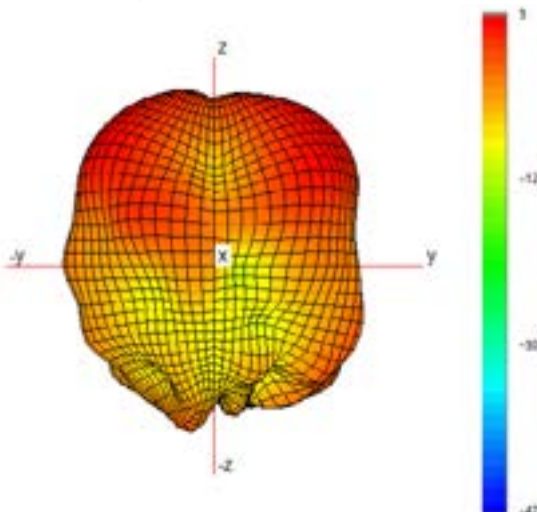
Typical 3D Pattern- Cell B - 2650 MHz



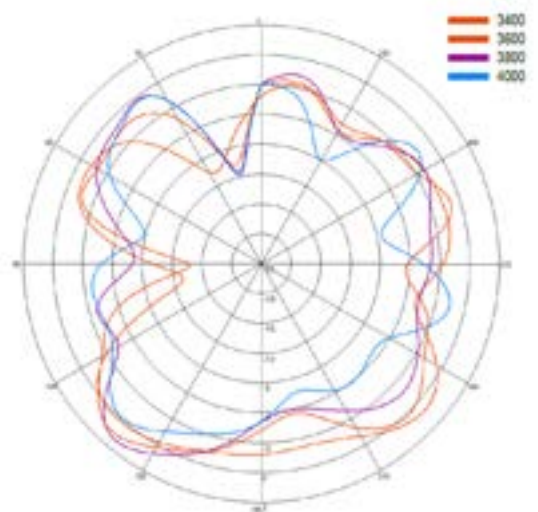
Typical H Plane- Cell B - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell B - 3600 MHz

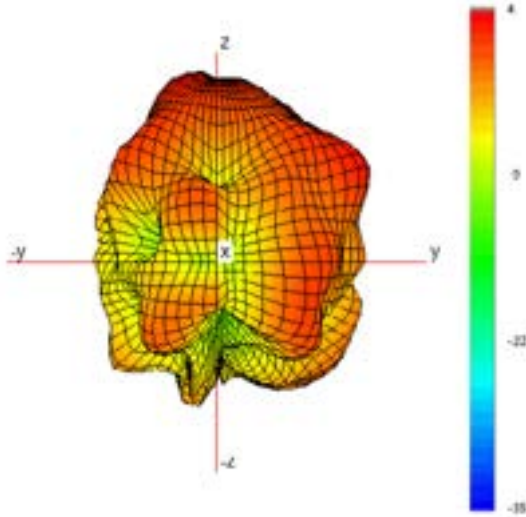


Typical H Plane- Cell B - Patterns- 3400-4000 MHz

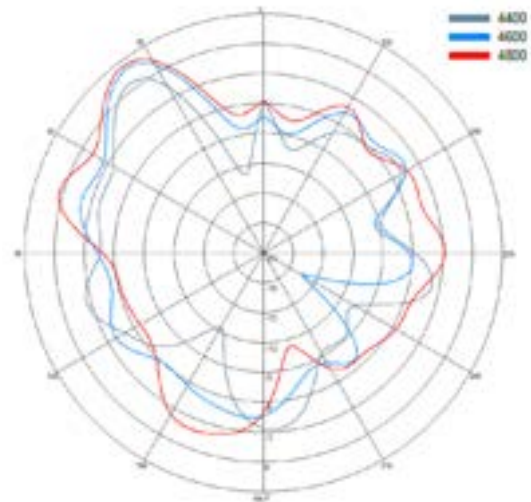


3D Patterns Cell B

Typical 3D Pattern- Cell B - 4700 MHz

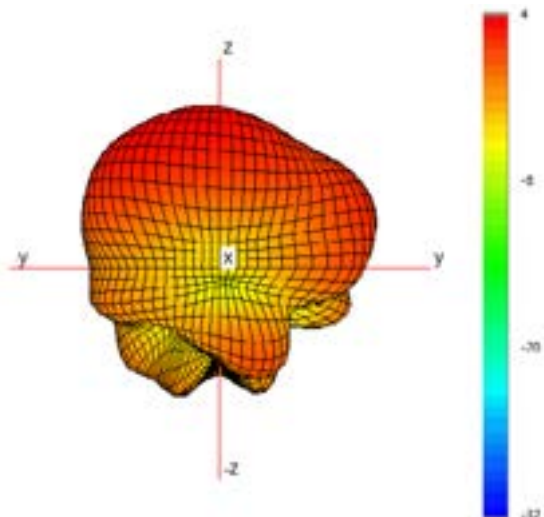


Typical H Plane- Cell B - Patterns- 4400-4800 MHz

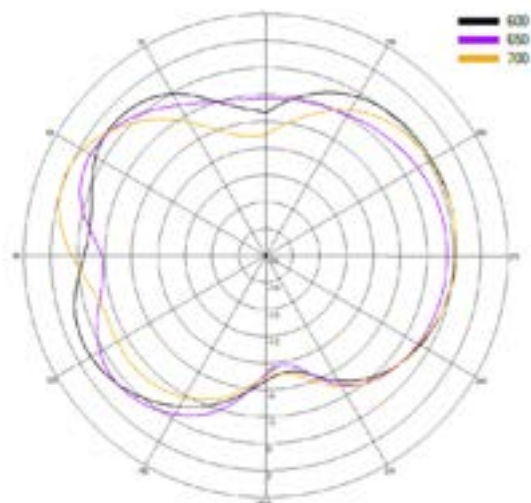


3D Patterns Cell C

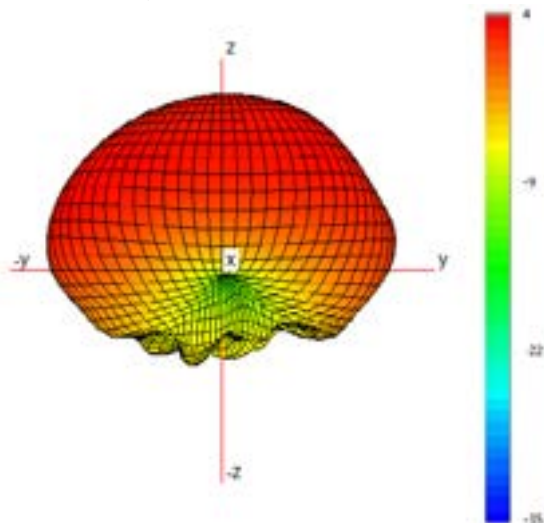
Typical 3D Pattern- Cell C - 650 MHz



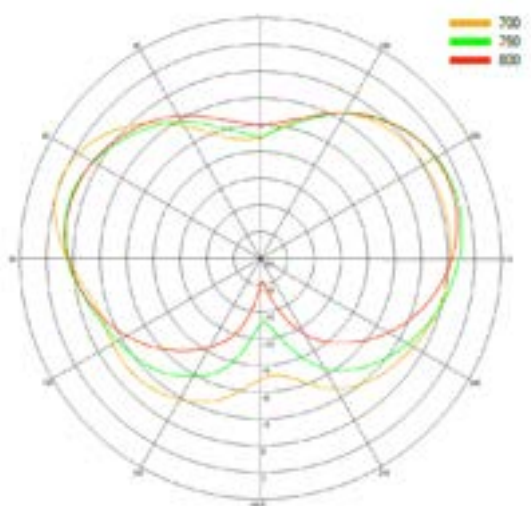
Typical H Plane- Cell C - Patterns- 600-700MHz



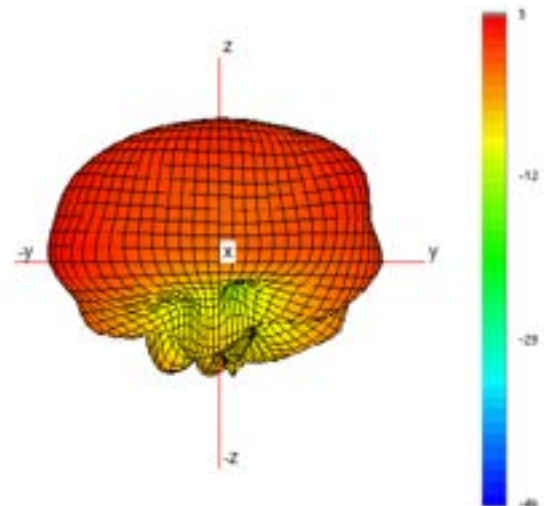
Typical 3D Pattern- Cell C - 750 MHz



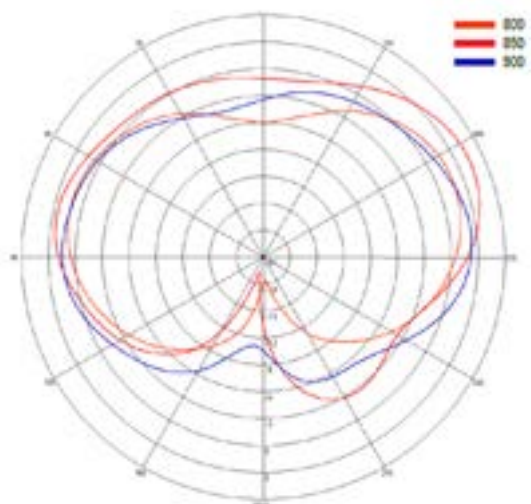
Typical H Plane- Cell C - Patterns- 700-800MHz



Typical 3D Pattern- Cell C - 850 MHz

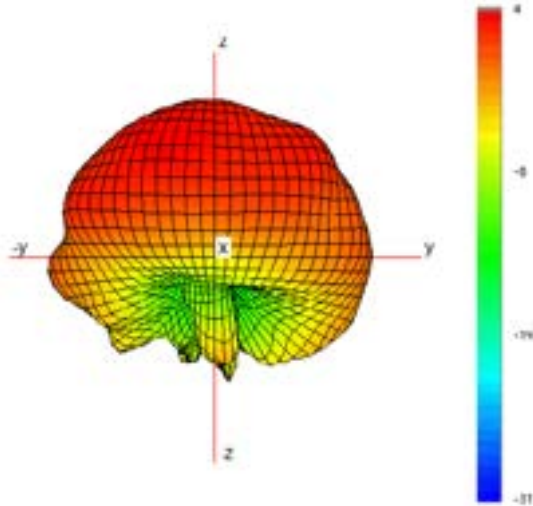


Typical H Plane- Cell C - Patterns- 800-900MHz

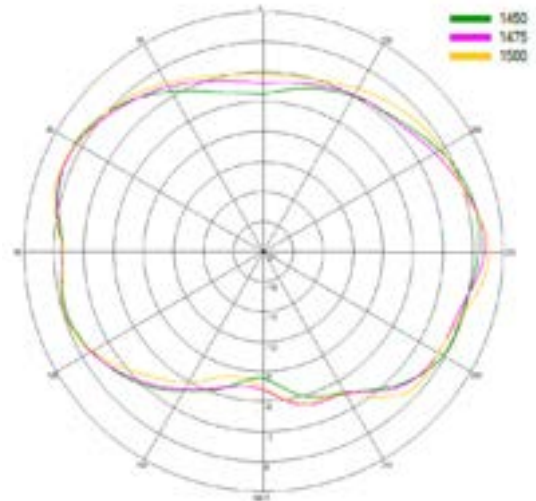


3D Patterns Cell C

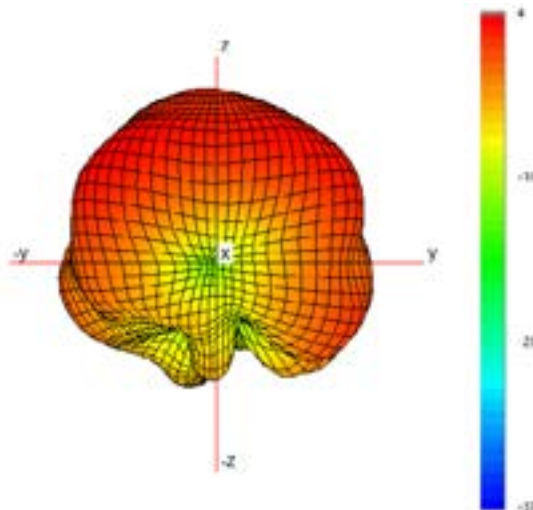
Typical 3D Pattern- Cell C - 1475 MHz



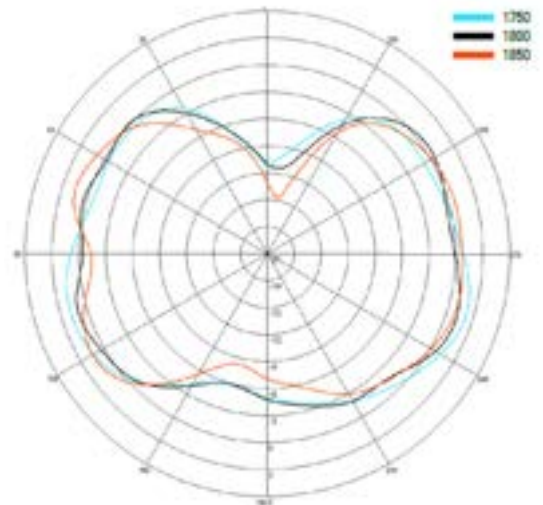
Typical H Plane- Cell C- Patterns- 1450-1500 MHz



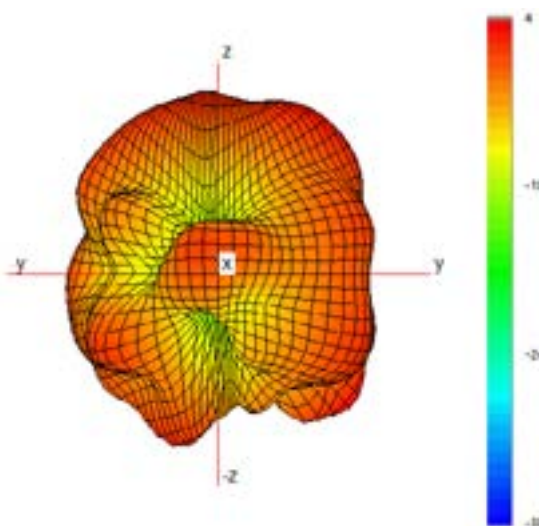
Typical 3D Pattern- Cell C - 1800 MHz



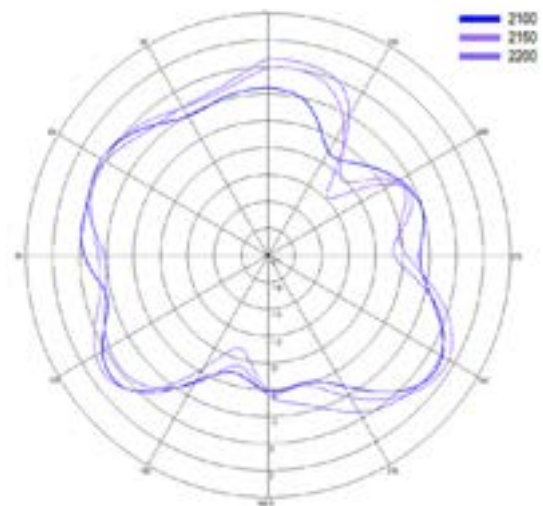
Typical H Plane- Cell C- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell C - 2150 MHz

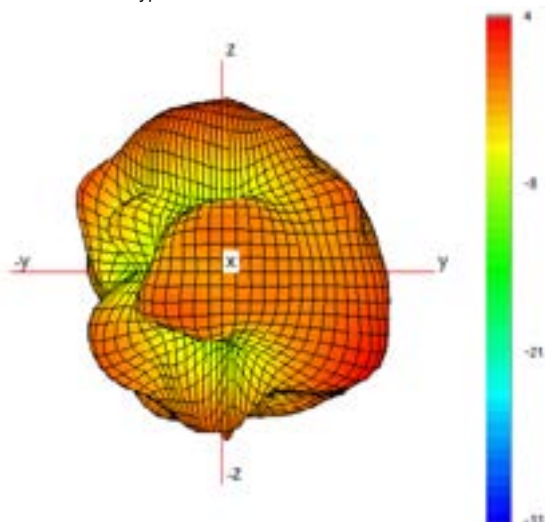


Typical H Plane- Cell C- Patterns- 2100-2200 MHz

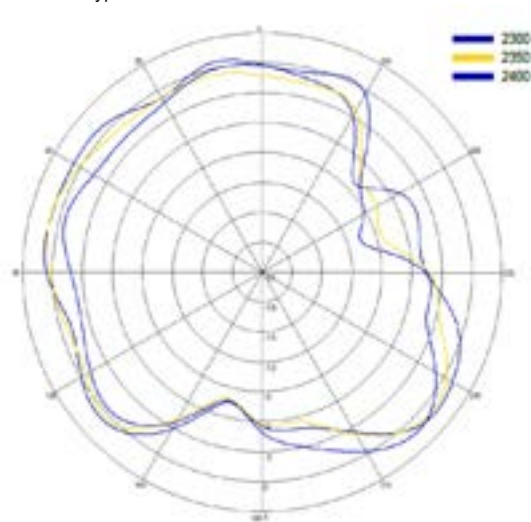


3D Patterns Cell C

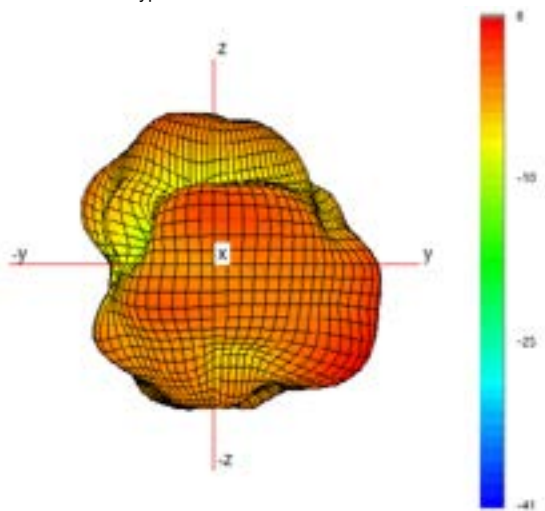
Typical 3D Pattern- Cell C - 2350 MHz



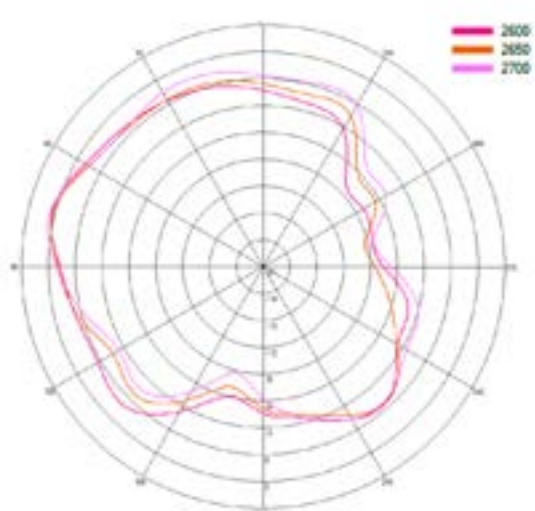
Typical H Plane- Cell C - Patterns- 2300-2400 MHz



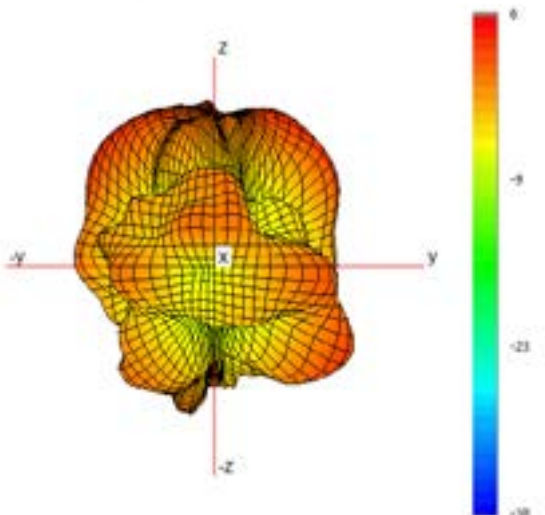
Typical 3D Pattern- Cell C - 2650 MHz



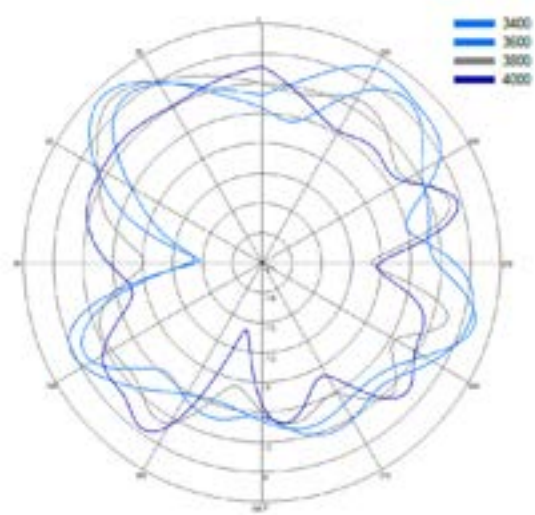
Typical H Plane- Cell C - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell C - 3600 MHz

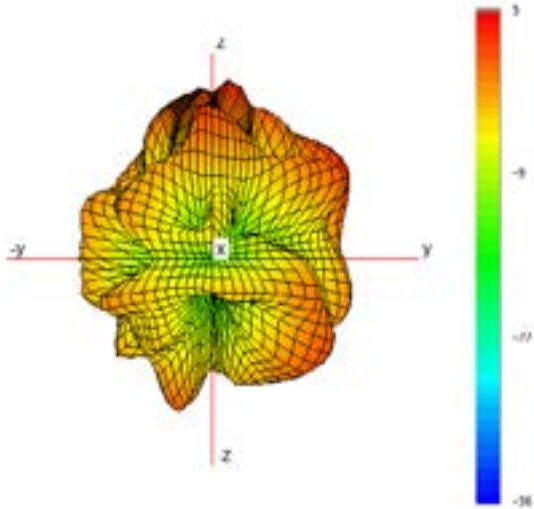


Typical H Plane- Cell C - Patterns- 3400-4000 MHz

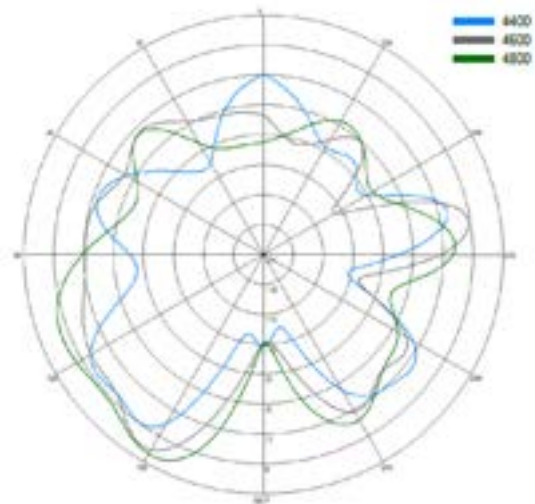


3D Patterns Cell C

Typical 3D Pattern- Cell C - 4700 MHz



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



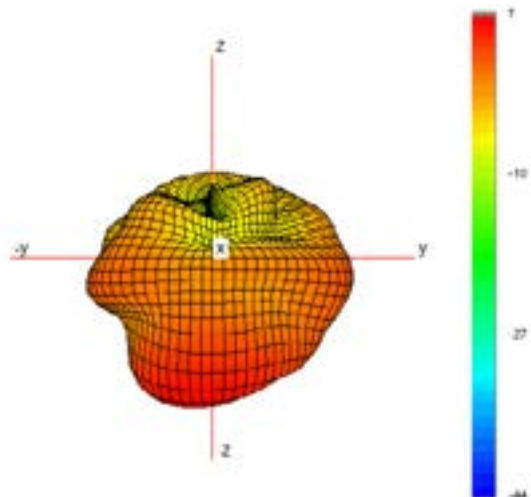
4x4 MiMo 4G/5G Antenna

DWMM4[G]-6-60

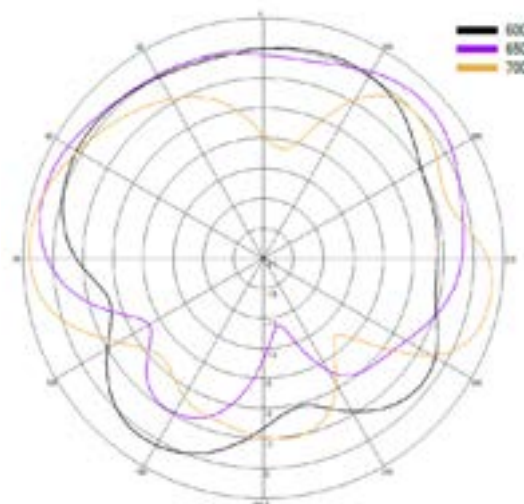
PANORAMA ANTENNAS

3D Patterns Cell D

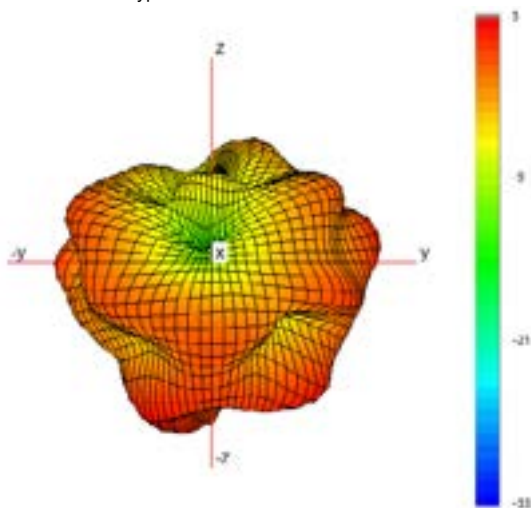
Typical 3D Pattern- Cell D - 650 MHz



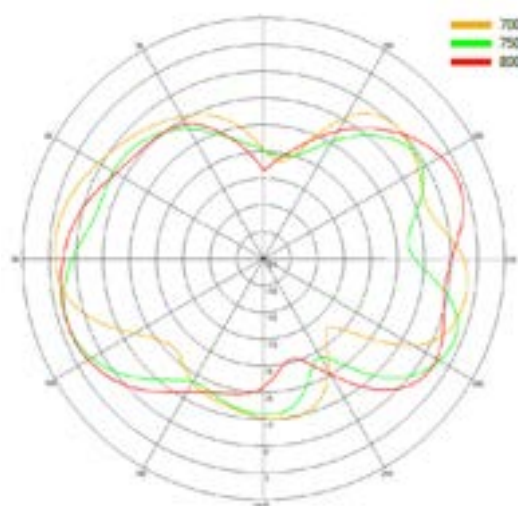
Typical H Plane- Cell D - Patterns- 600-700MHz



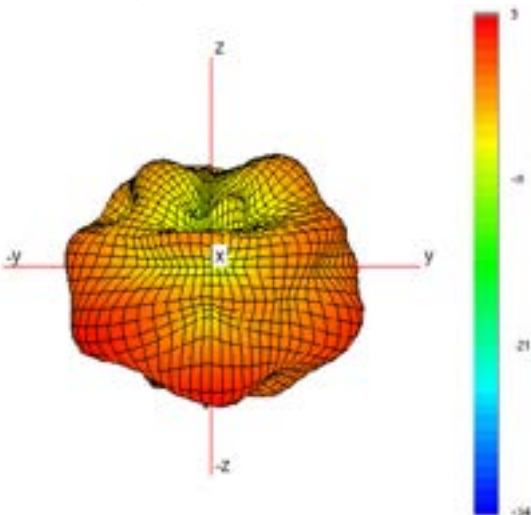
Typical 3D Pattern- Cell D - 750 MHz



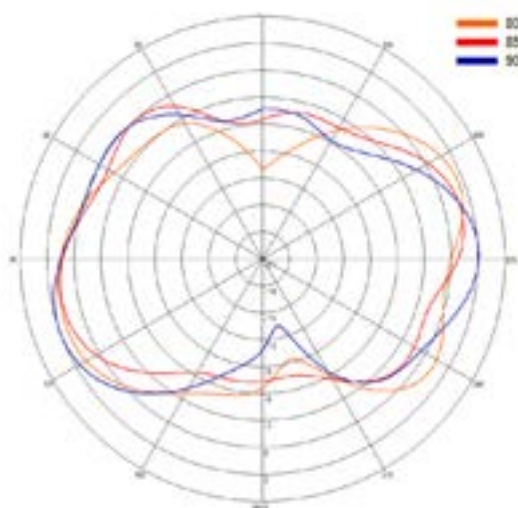
Typical H Plane- Cell D - Patterns- 700-800MHz



Typical 3D Pattern- Cell D - 850 MHz

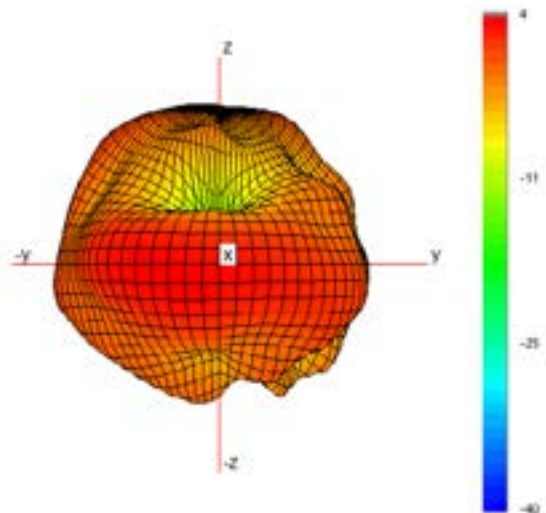


Typical H Plane- Cell D - Patterns- 800-900MHz

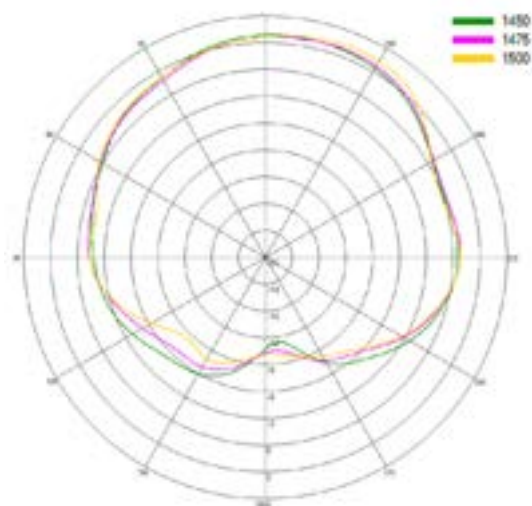


3D Patterns Cell D

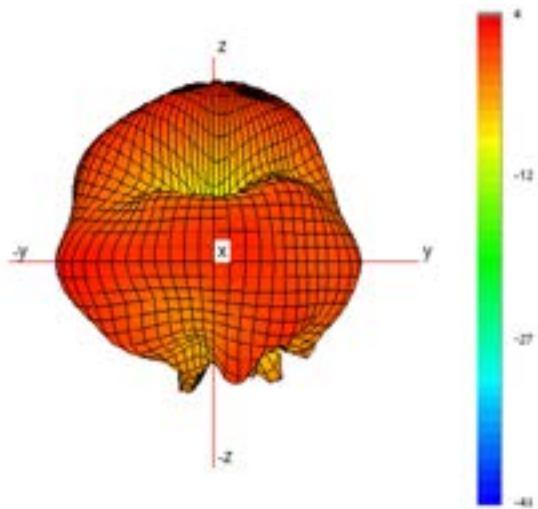
Typical 3D Pattern- Cell D - 1475 MHz



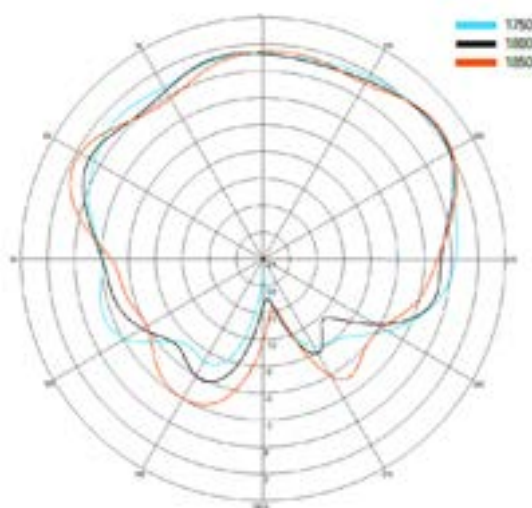
Typical H Plane- Cell D- Patterns- 1450-1500 MHz



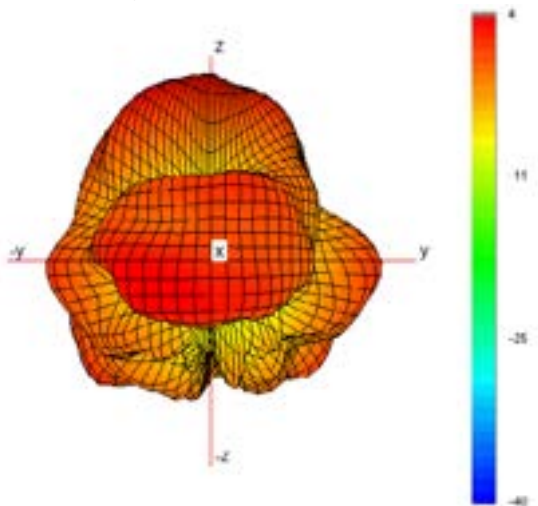
Typical 3D Pattern- Cell D - 1800 MHz



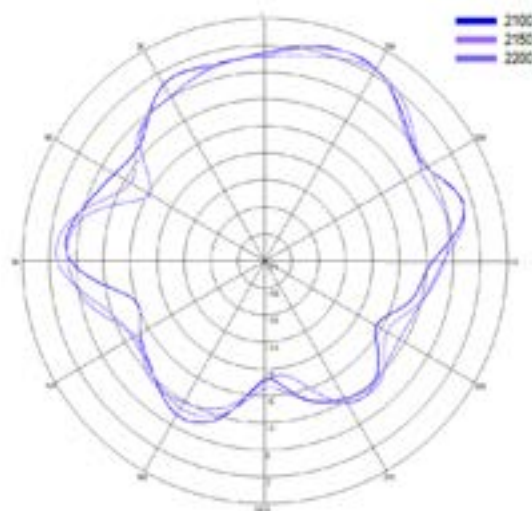
Typical H Plane- Cell D- Patterns- 1750-1850 MHz



Typical 3D Pattern- Cell D - 2150 MHz



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



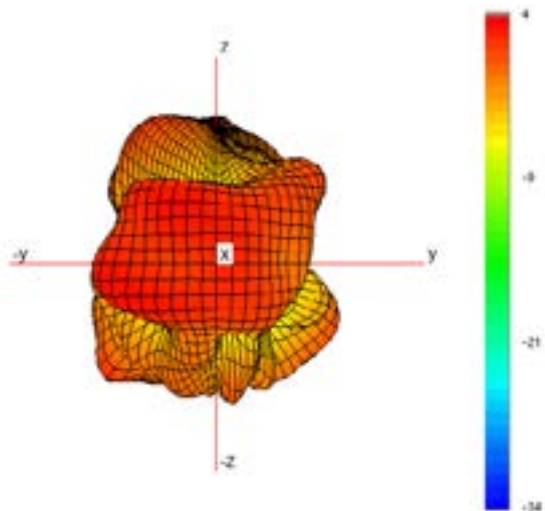
4x4 MiMo 4G/5G Antenna

DWMM4[G]-6-60

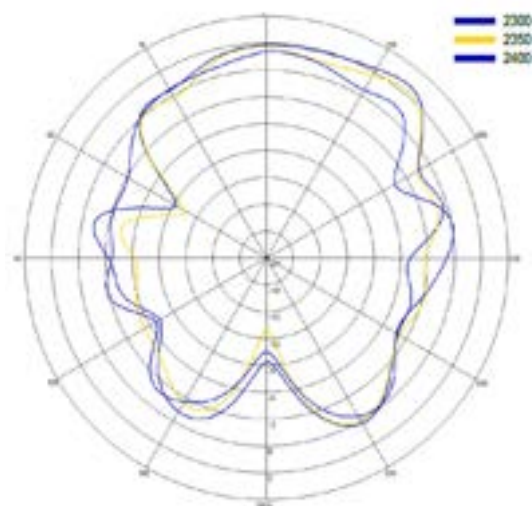
PANORAMA ANTENNAS

3D Patterns Cell D

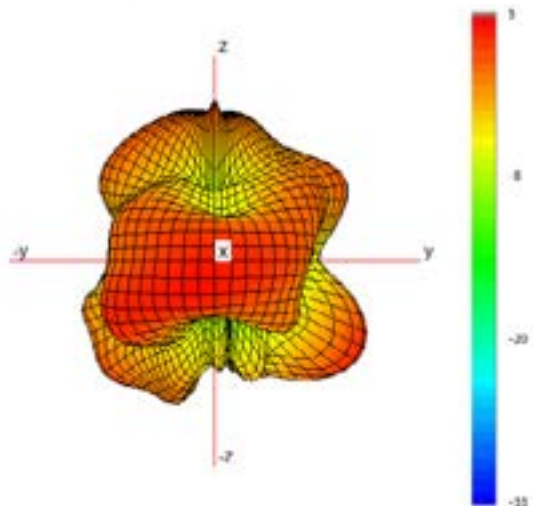
Typical 3D Pattern- Cell D - 2350 MHz



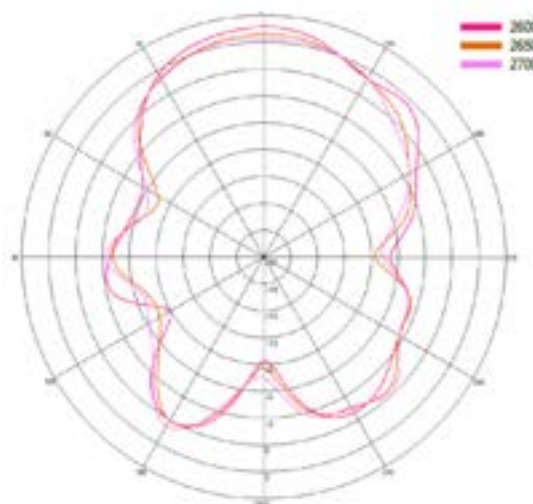
Typical H Plane- Cell D - Patterns- 2300-2400 MHz



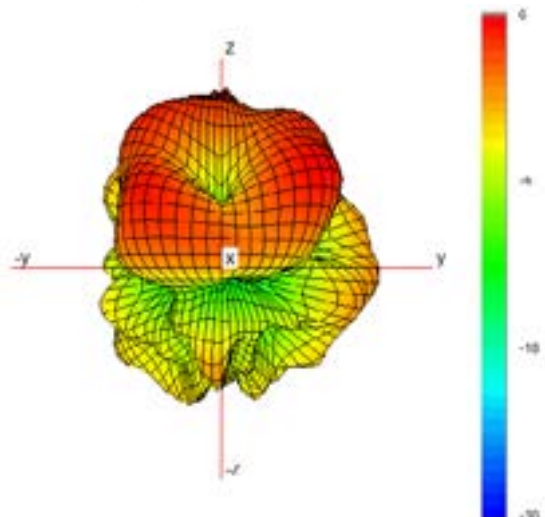
Typical 3D Pattern- Cell D - 2650 MHz



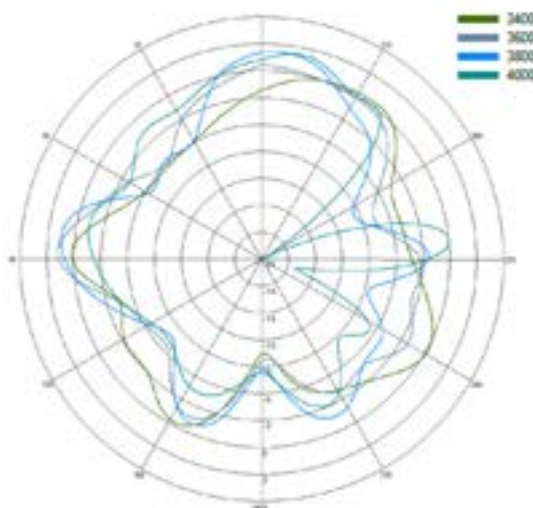
Typical H Plane- Cell D - Patterns- 2600-2700 MHz



Typical 3D Pattern- Cell D - 3600 MHz



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

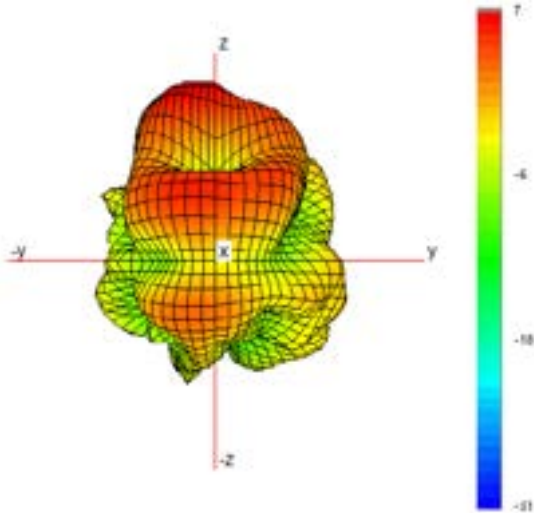


4x4 MiMo 4G/5G Antenna

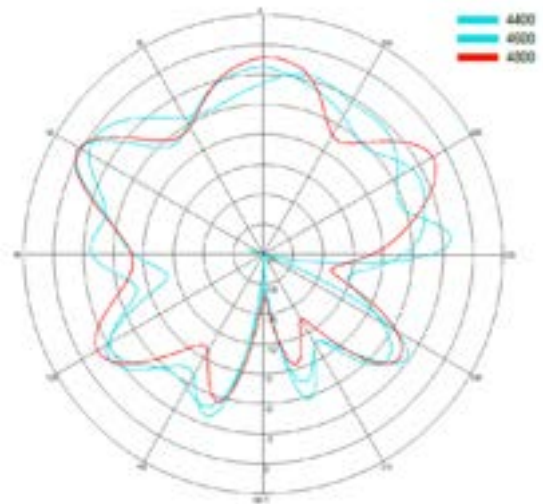
DWMM4[G]-6-60

3D Patterns Cell D

Typical 3D Pattern- Cell D - 4700 MHz



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



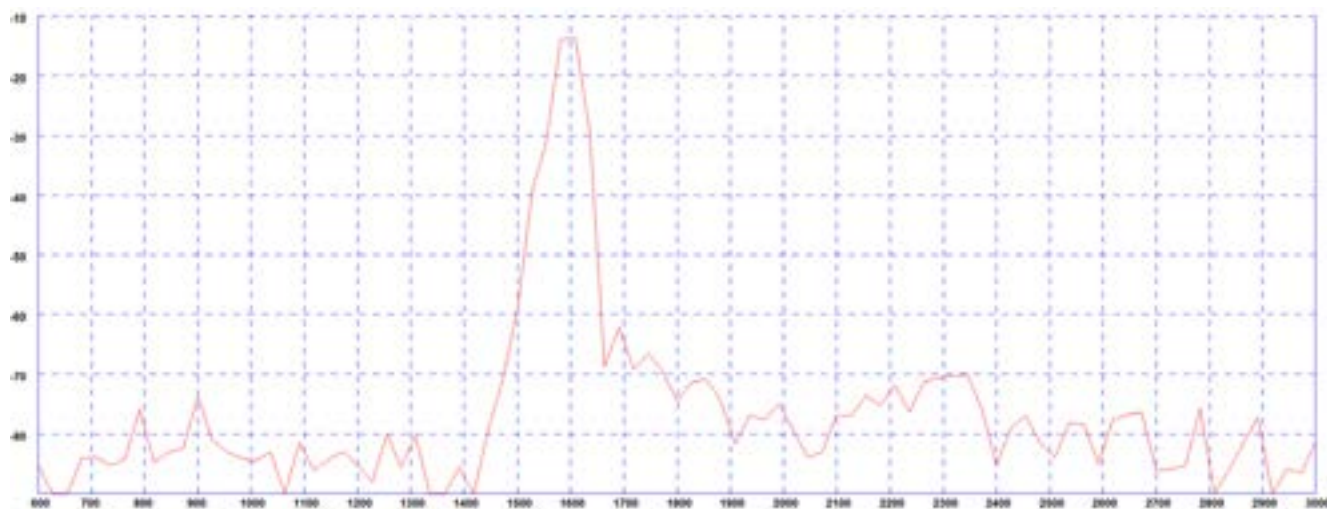
4x4 MiMo 4G/5G Antenna

DWMM4[G]-6-60

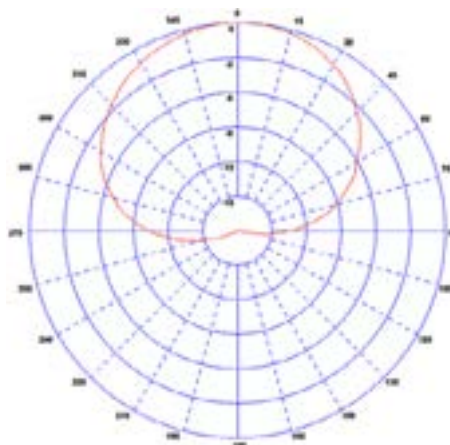
PANORAMA ANTENNAS

Electrical Data- L1 GPS/GNSS

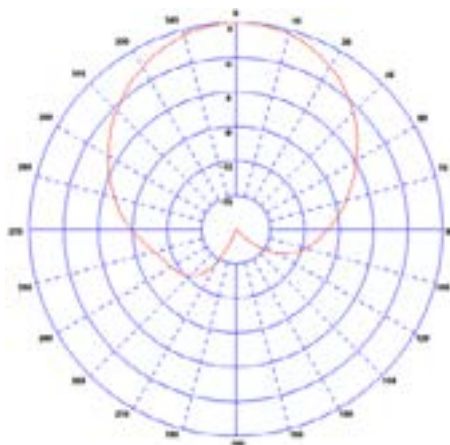
Swept Peak Gain GPS/GNSS



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

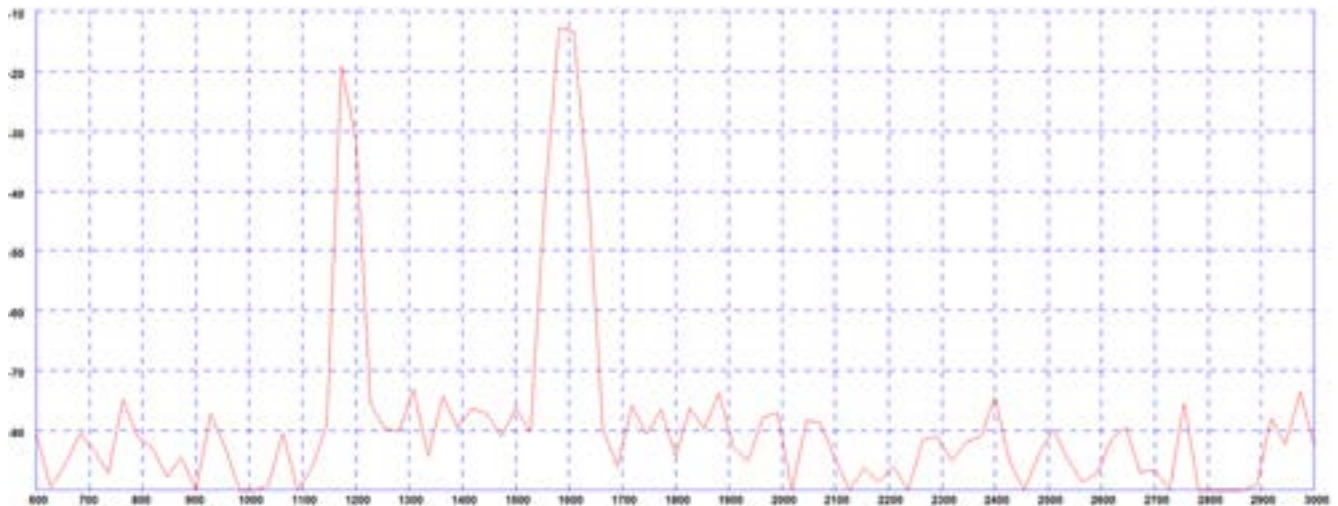
4x4 MiMo 4G/5G Antenna

DWMM4[G]-6-60

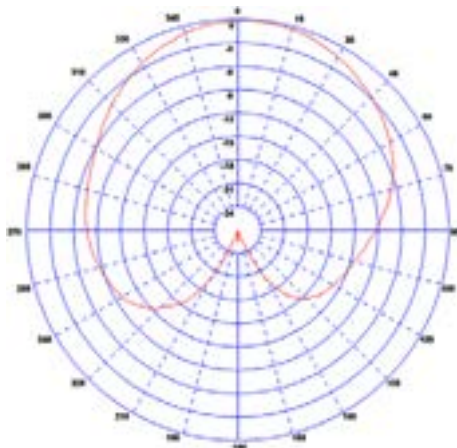
PANORAMA ANTENNAS

Electrical Data- L1/L5
GPS/GNSS

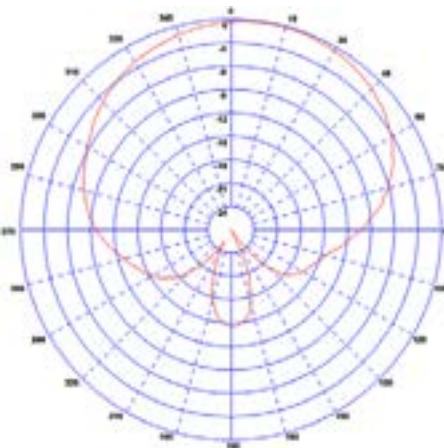
Swept Peak Gain GPS/GNSS



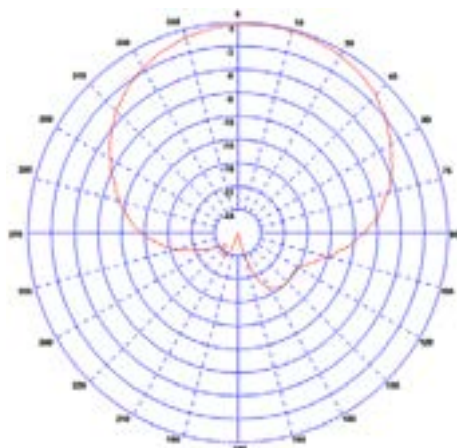
Typical E Plane Pattern - GPS/GNSS 1575 MHz



Typical E Plane Pattern - GPS/GNSS 1602 MHz



Typical E Plane Pattern - GPS/GNSS 1176 MHz



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