

# Ultra Low Profile MiMo IOT Antenna

LPM2-7-27[-X]

PANORAMA ANTENNAS



- Ultra Low Profile
- 2x2 MiMo 4G LTE
- Cost effective solution for M2M and IOT applications
- Meets IK10 & IP69K

The LPM2-7-27 range has been designed to provide MiMo 4G/LTE coverage in an ultra low profile package. The compact, robust, low-profile housing is weatherproof and contains two antenna elements with effective isolation and low correlation coefficient covering 698-960/1427-2700MHz.

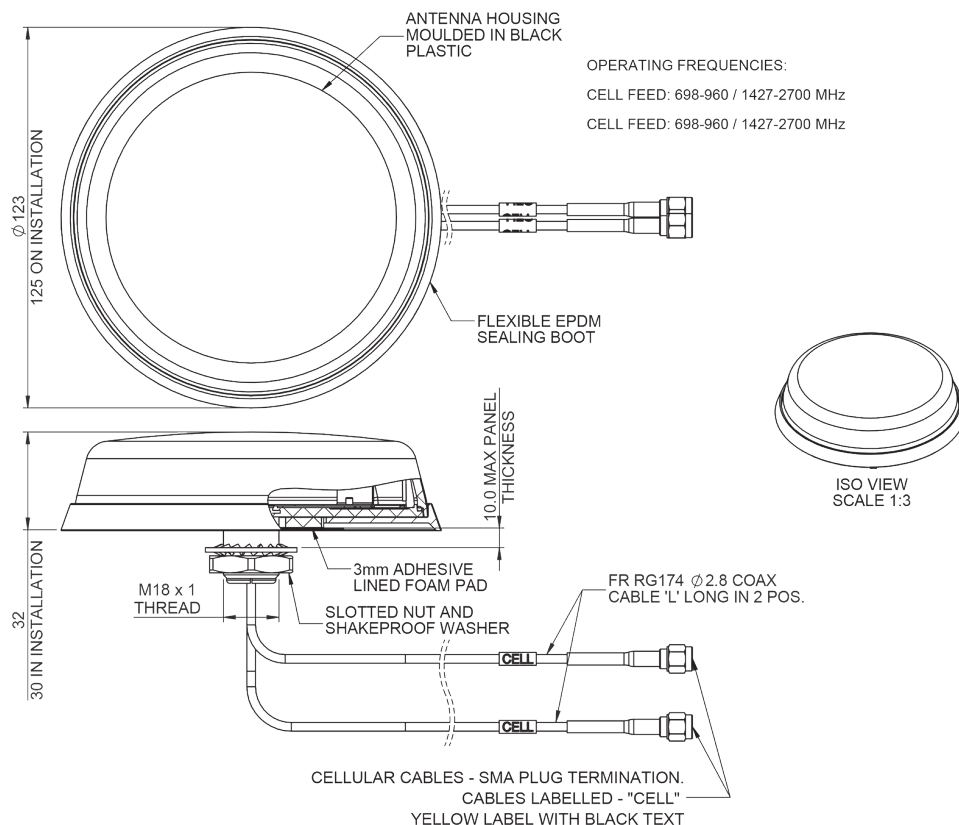
The antenna is designed to be panel mounted. Supplied with integrated flame retardant RG174 (Compliant to UN ECE 118.03) cables and SMA plug connectors, the antenna will offer plug and play connectivity with many different routers and modems.

The antenna is supplied in black flame retardant LEXAN EXL9330 plastic as standard.

The product is engineered specifically for installation on a non-conductive ground plane and performance will be detrimentally affected by installation on a metallic or conductive panel.

## Technical Drawing

LPM2-7-27-VARSP Shown



# Ultra Low Profile MiMo IOT Antenna

LPM2-7-27[-X]

Product Data

## Part No.

LPM2-7-27-3SP

LPM2-7-27-2SP

LPM2-7-27-05SP

## Electrical Data

4G LTE Elements (MiMo)	2x2
Frequency Range (MHz)	698-960/1427-2700
Typical VSWR*	<2.5:1
Typical Isolation*	>15dB
Pattern	Omni-directional
Nominal Impedance	50Ω
Max input power (W)	5

## Mechanical Data

Dimensions (mm)	Diameter	123 (4.84")
	Height	32 (1.25")
Operating Temp (°C)	-40° / +80°C (-40° / 176°F)	
Material	LEXAN EXL 9330 Plastic	
Colour	Black	
Typical Weight (g)	225	
Ingress Protection**	IP69K	
Vandal Protection	IK10	

## Mounting Data

Fixing	Panel Mount - 18mm (3/4")
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## Cable Data

4G / LTE	Cable Type	RG174 FR (meets UN ECE R118.03)		
	Diameter (mm)	2.8 (0.1")		
	Length (m)	3 (9.8')	2 (6.5')	0.5 (1.64')
	Termination	2x SMA (m)		

\*Typical Isolation and VSWR measured in free space with 2m (6.6') of RG174 cable.

\*\* IP rating mounted to a sealed enclosure in accordance with the installation instructions.

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Electrical Data in  
Free Space

## Measurement Conditions

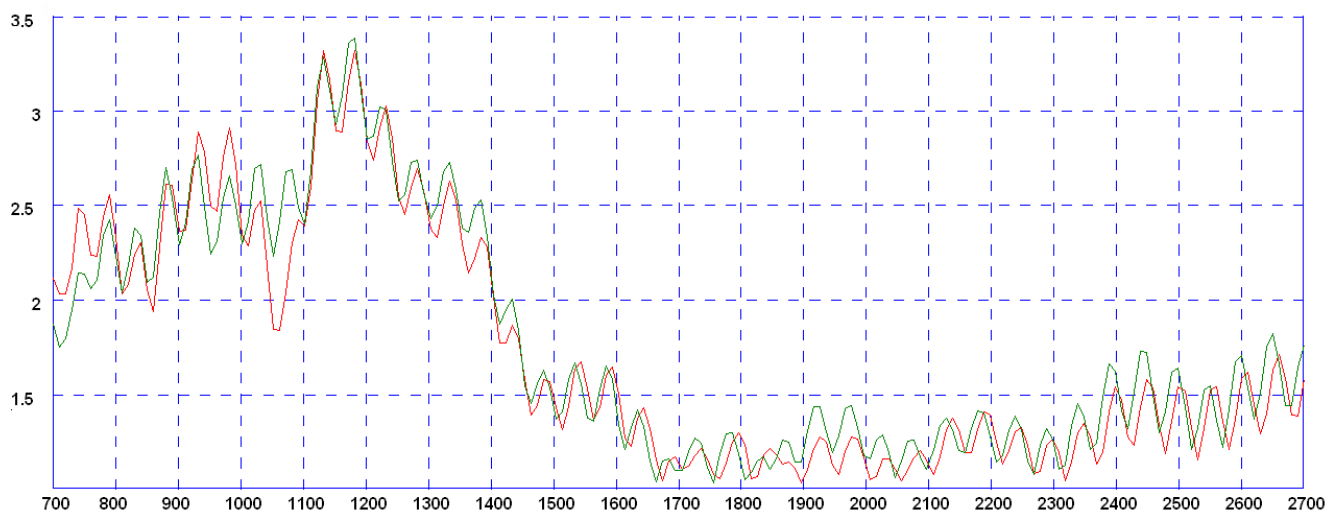
In free space with 0.5m (1.5') RG174 cables

## 4G Antennas

Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
699-798	12,13,14,17,28	Cell A	1.2	50
		Cell B	2.7	55
807- 862	5,19,20,26,27	Cell A	0.5	47
		Cell B	1.5	50
880-960	8	Cell A	0.8	44
		Cell B	0.2	42
1427-1518	11,21,74,75,76	Cell A	1.8	56
		Cell B	2.0	63
1710-1920	2,3,4,9,25,35,39,66	Cell A	4.1	72
		Cell B	4.3	71
1920-2170	1,2,3	Cell A	4.9	68
		Cell B	4.7	66
2300-2400	30,40	Cell A	4.6	70
		Cell B	4.5	65
2496-2690	7,38,41	Cell A	5.1	60
		Cell B	4.3	55



Typical VSWR



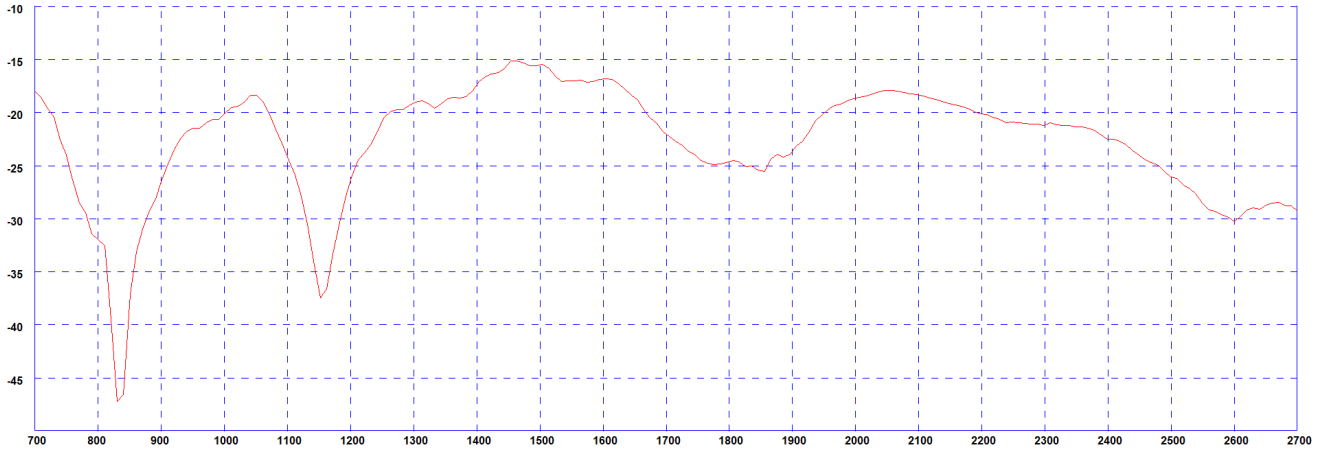
LPM2-7-27 VSWR measured with 2m (6.6') of RG174 cable in free space

# Ultra Low Profile MiMo IOT Antenna

LPM2-7-27[-X]

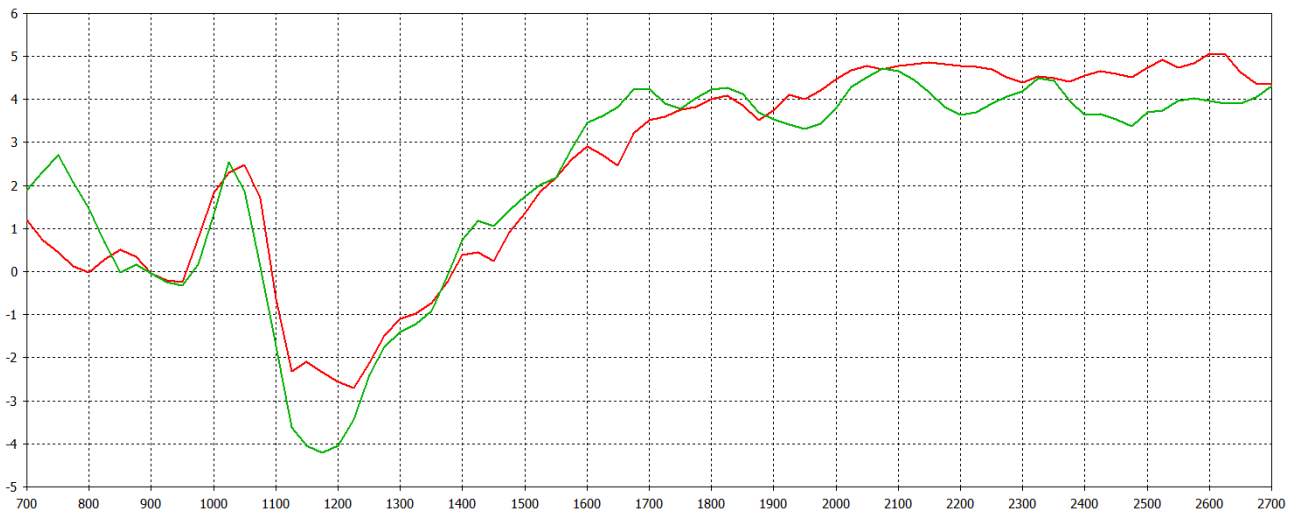
Electrical Data in  
Free Space

Typical Isolation\*



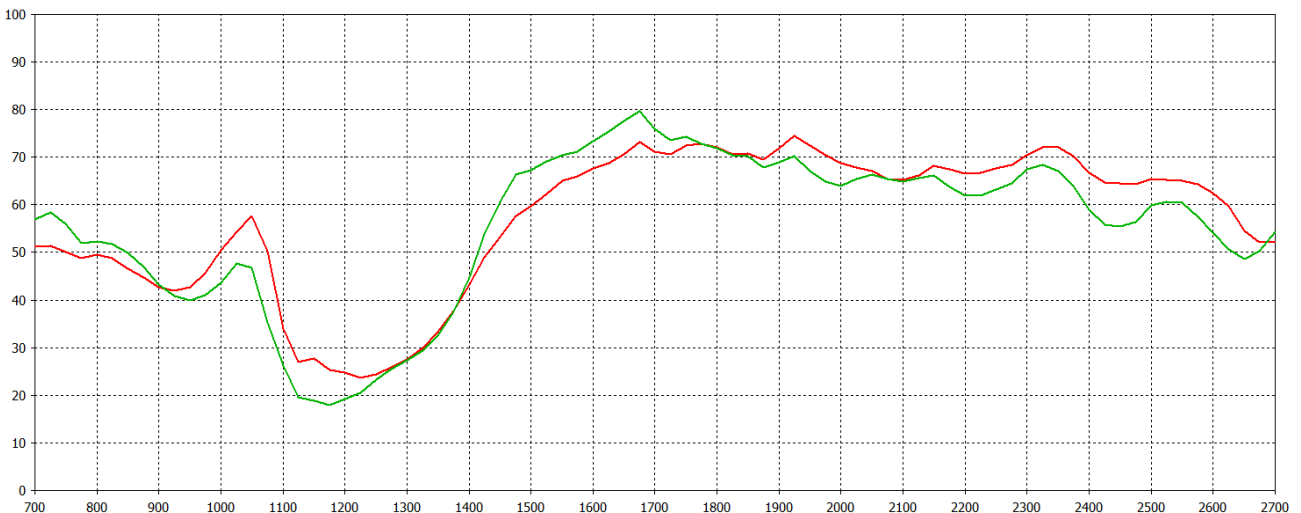
LPM2-7-27 Isolation measured with 2m (6.6') of RG174 cable in free space

Typical Swept Peak Gain



LPM2-7-27 Swept Peak Gain measured with 0.5m (1.5') of RG174 cable in free space

Typical Efficiency



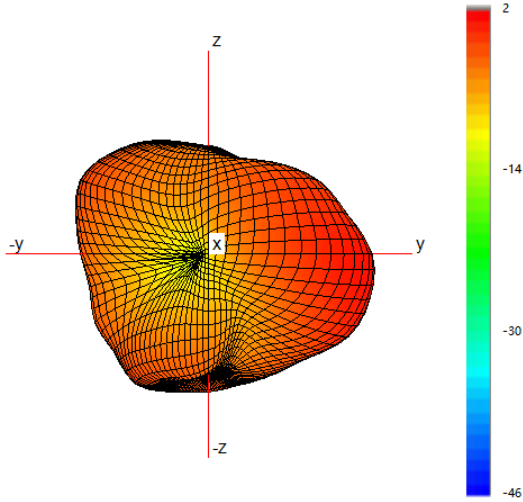
LPM2-7-27 Efficiency measured with 0.5m (1.5') of RG174 cable in free space

# Ultra Low Profile MiMo IOT Antenna

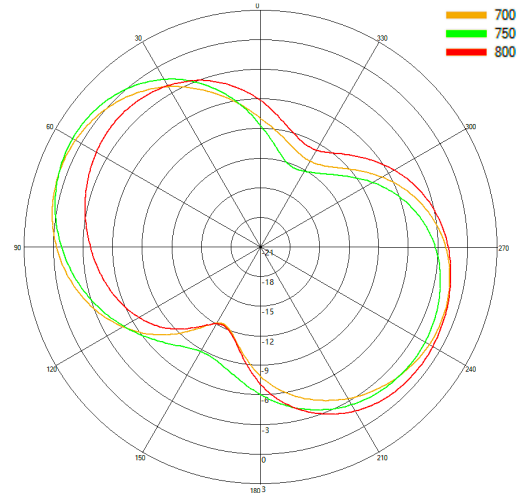
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell A

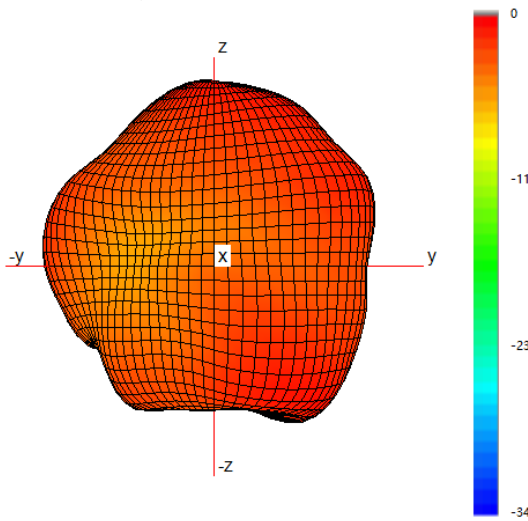
Typical 3D Pattern- Cell A - 750 MHz



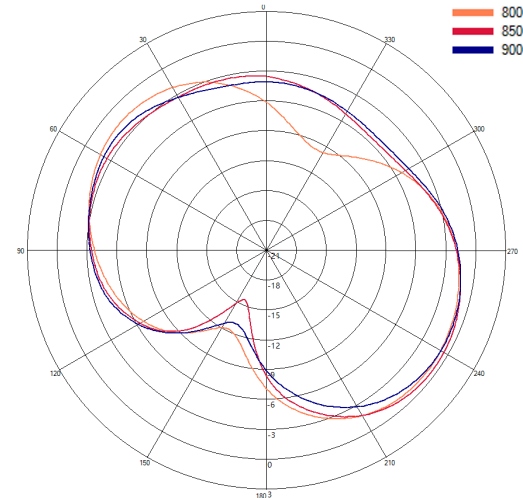
Typical H Plane- Cell A - Patterns- 700-800 MHz



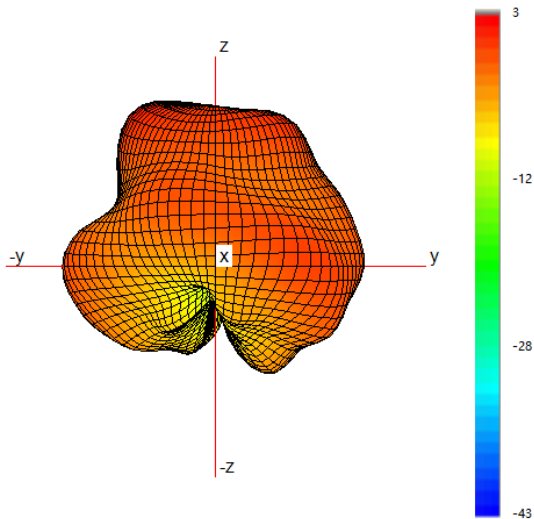
Typical 3D Pattern- Cell A - 850 MHz



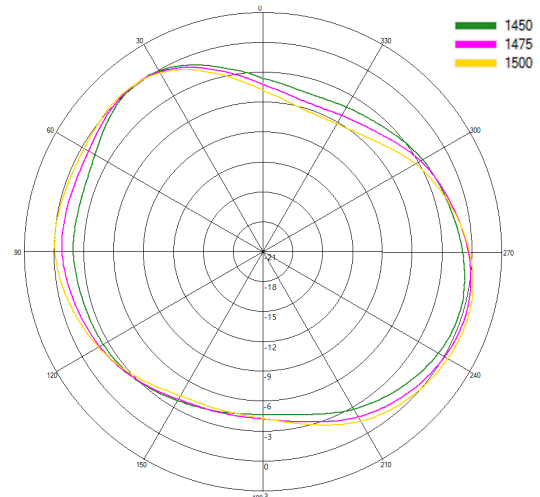
Typical H Plane- Cell A - Patterns- 800-900 MHz



Typical 3D Pattern- Cell A - 1475 MHz



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

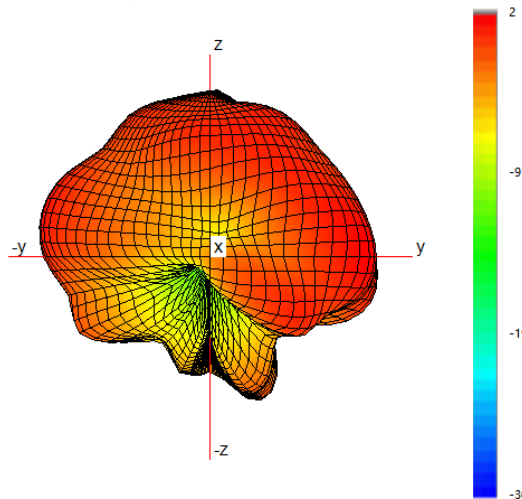


# Ultra Low Profile MiMo IOT Antenna

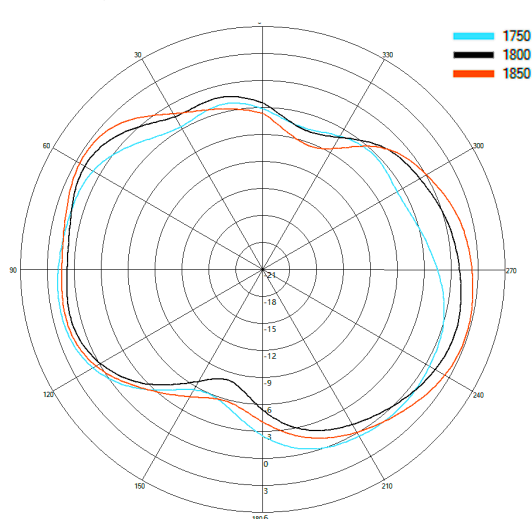
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell A

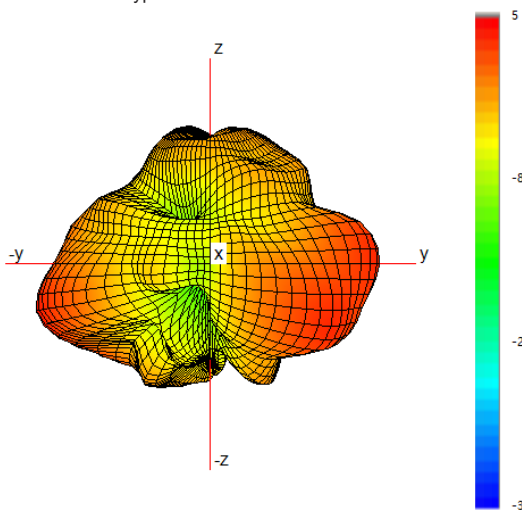
Typical 3D Pattern- Cell A - 1800 MHz



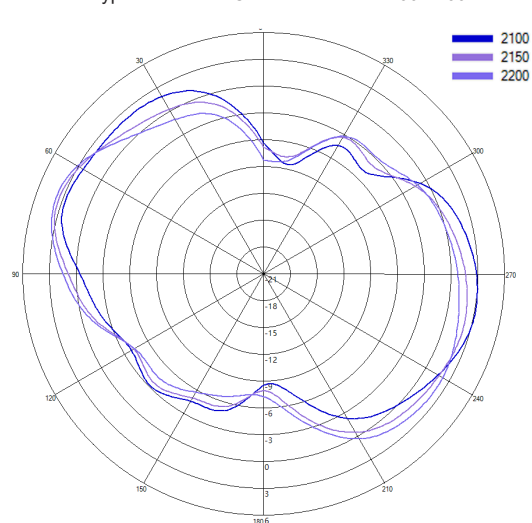
Typical H Plane- Cell A - Patterns- 1750-1850 MHz



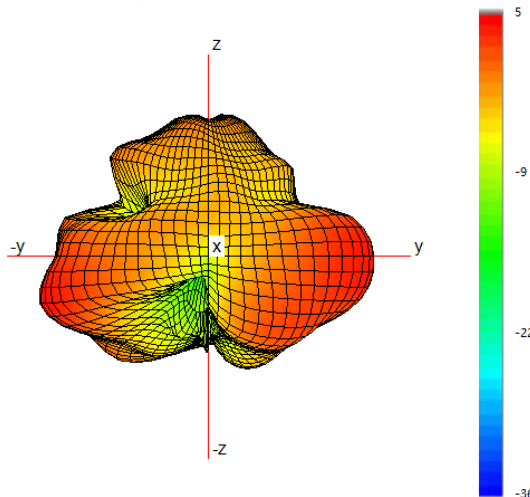
Typical 3D Pattern- Cell A - 2150 MHz



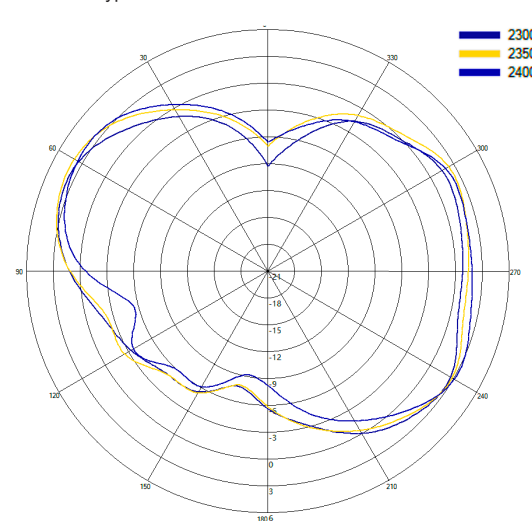
Typical H Plane- Cell A - Patterns- 2100-2200 MHz



Typical 3D Pattern- Cell A - 2350 MHz



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

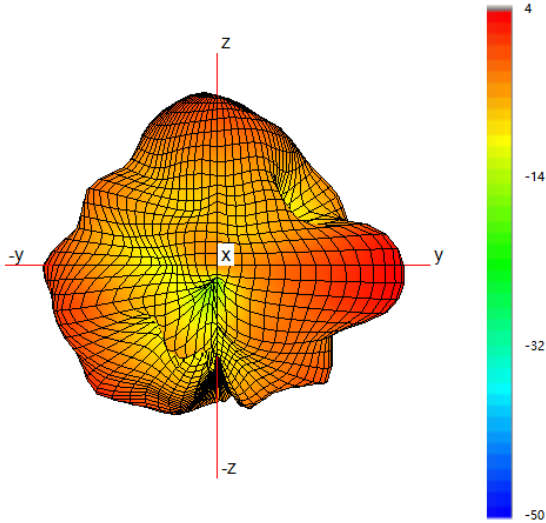


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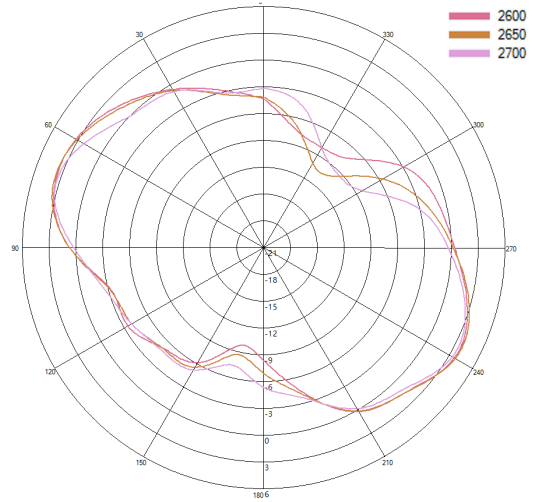
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell A

Typical 3D Pattern- Cell A - 2650 MHz



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

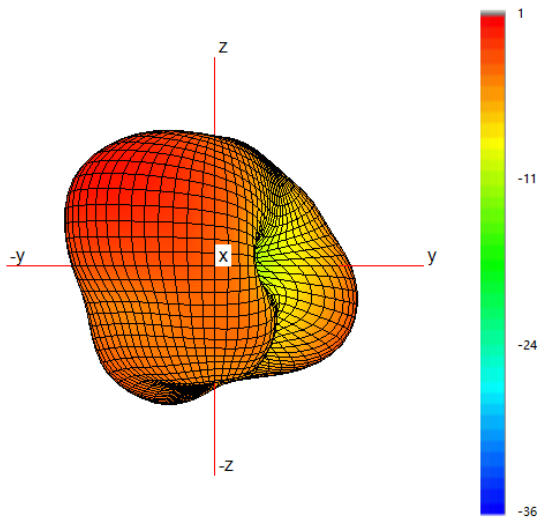


# Ultra Low Profile MiMo IOT Antenna

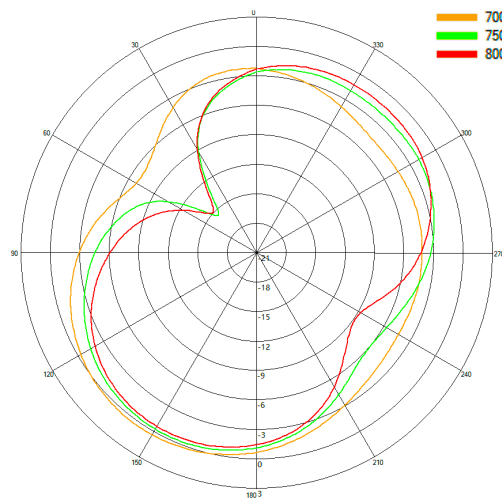
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell B

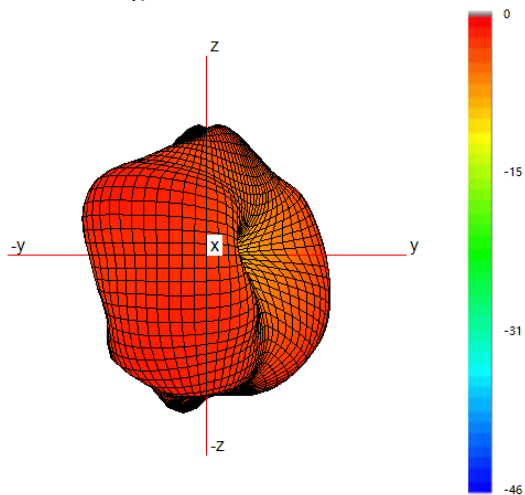
Typical 3D Pattern- Cell B - 750 MHz



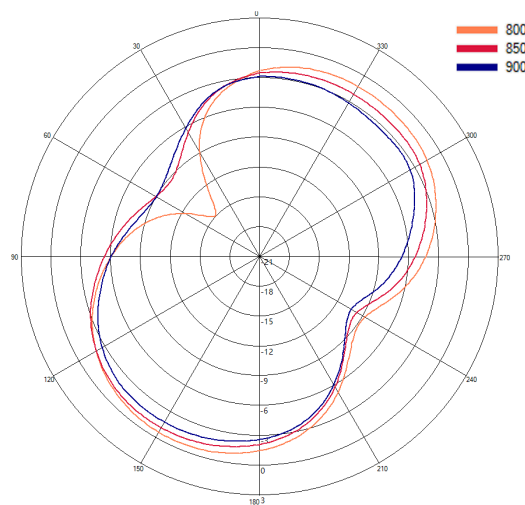
Typical H Plane- Cell B - Patterns- 700-800 MHz



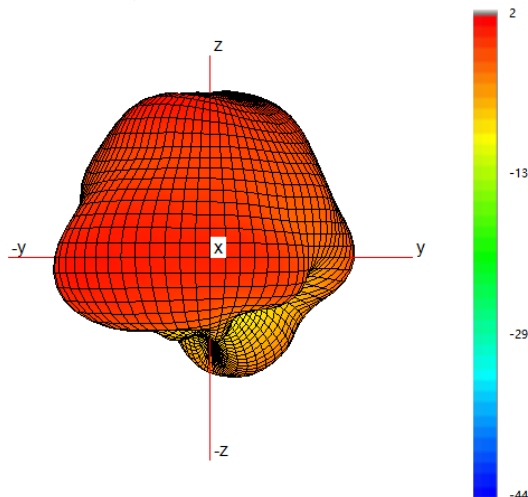
Typical 3D Pattern- Cell B - 850 MHz



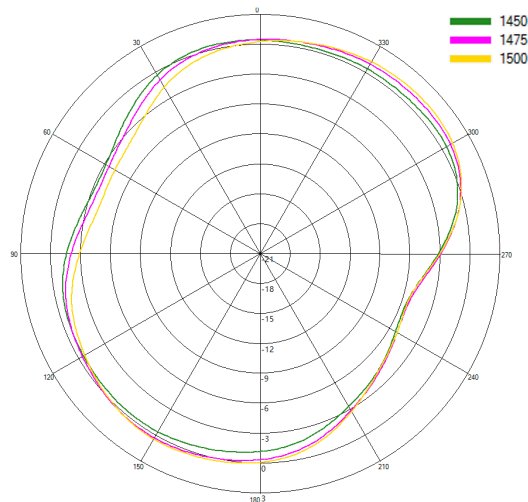
Typical H Plane- Cell B - Patterns- 800-900 MHz



Typical 3D Pattern- Cell B - 1475 MHz



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

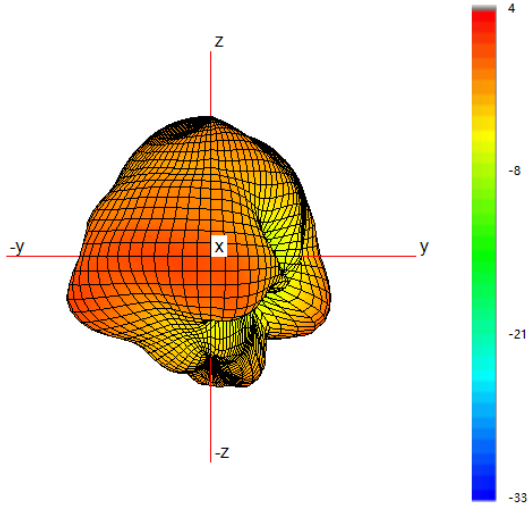


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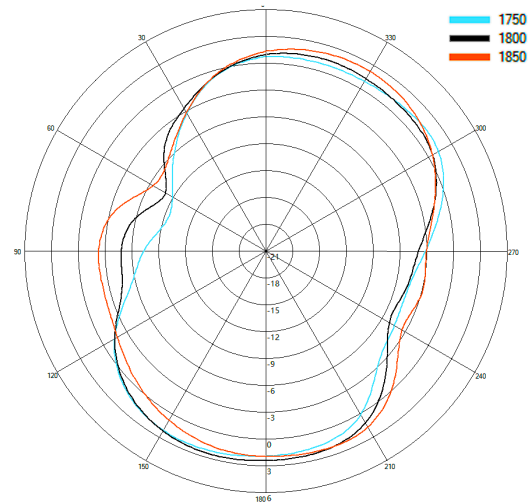
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell B

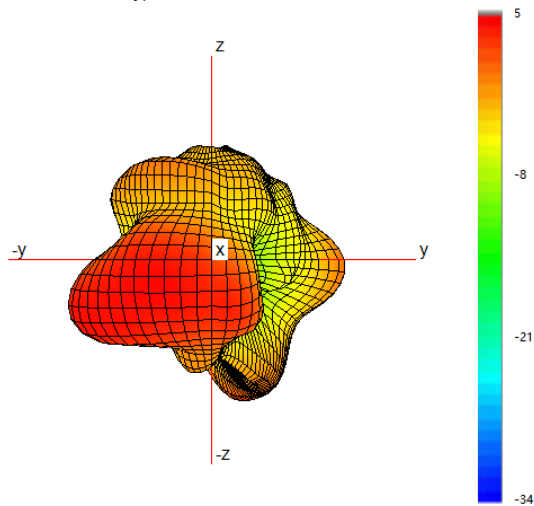
Typical 3D Pattern- Cell B - 1800 MHz



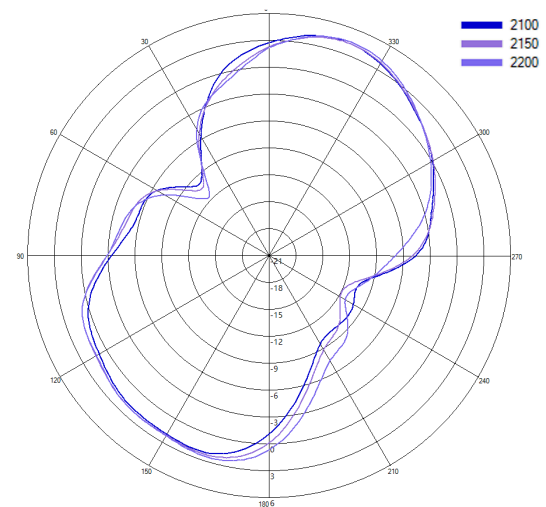
Typical H Plane- Cell B - Patterns- 1750-1850 MHz



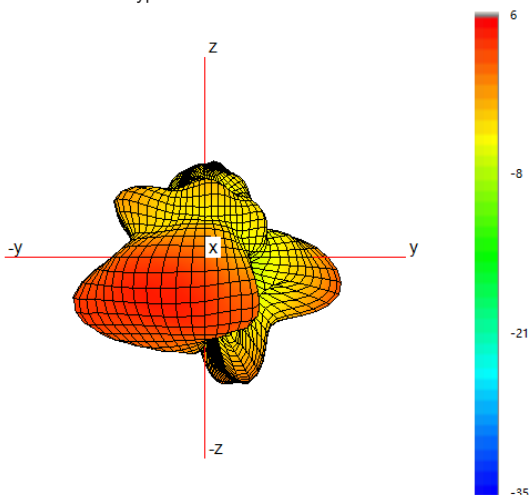
Typical 3D Pattern- Cell B - 2150 MHz



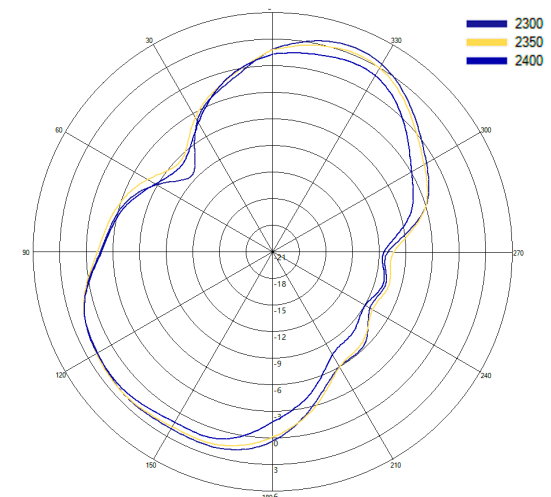
Typical H Plane- Cell B - Patterns- 2100-2200 MHz



Typical 3D Pattern- Cell B - 2350 MHz



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

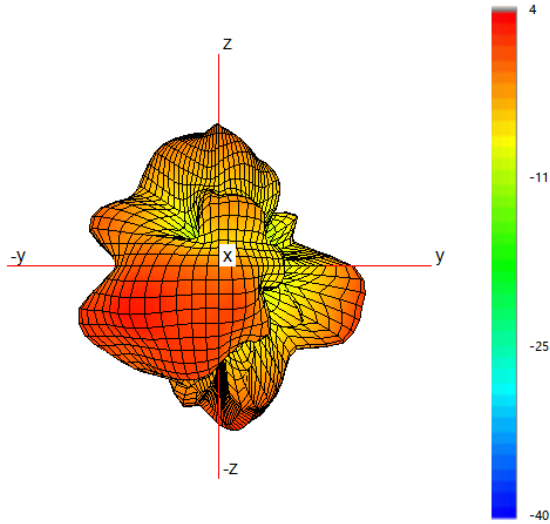


# Ultra Low Profile MiMo IOT Antenna

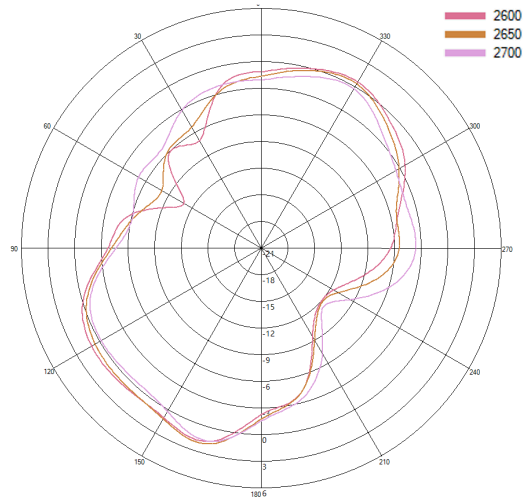
LPM2-7-27[-X]

3D Pattern Data in  
Free Space Cell B

Typical 3D Pattern- Cell B - 2650 MHz



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



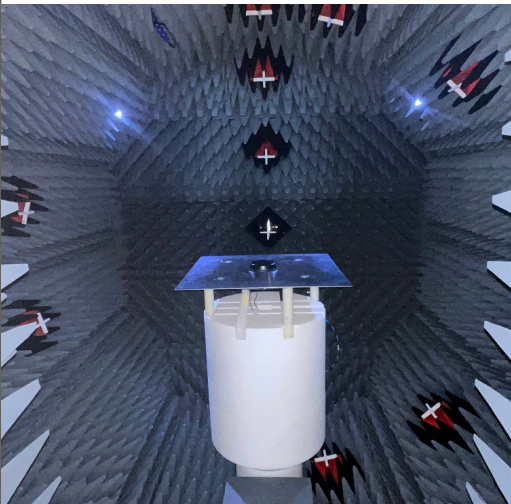
# Ultra Low Profile MiMo IOT Antenna

LPM2-7-27[-X]

## Electrical Data on Ground Plane

### Measurement Conditions

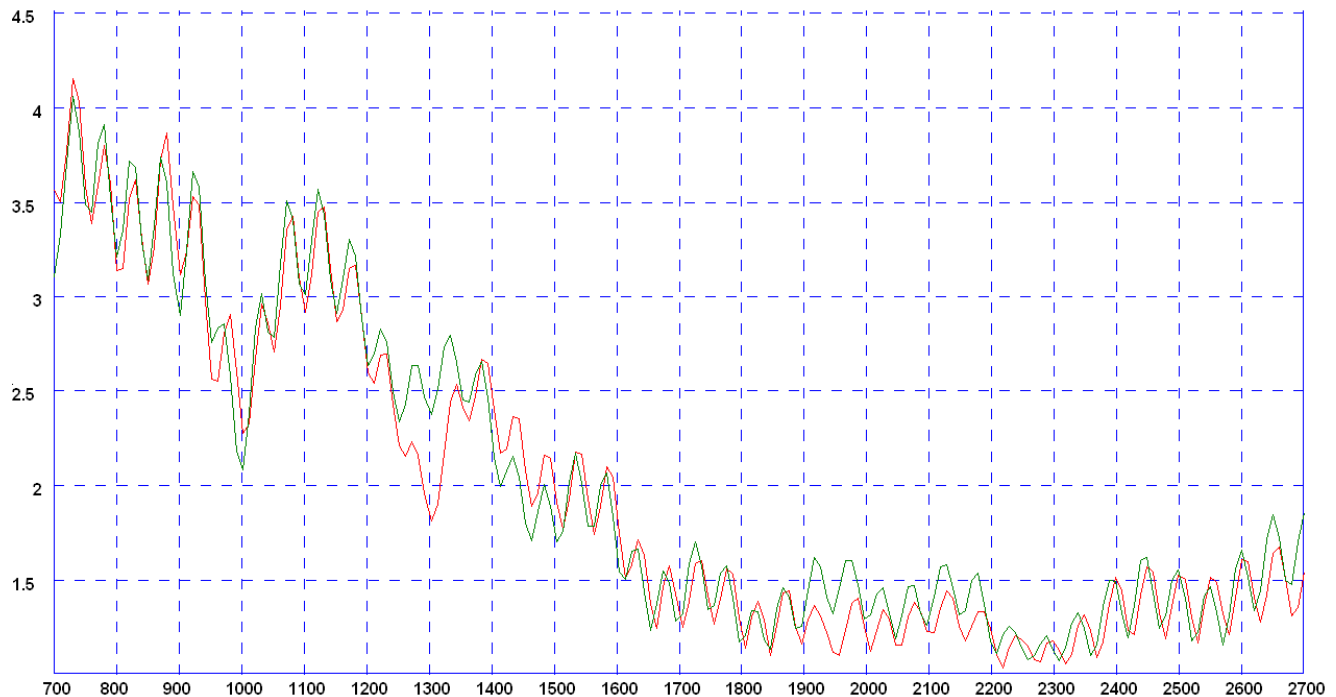
On 600x600mm (2'x2') ground plane with 0.5m (1.5') FR RG174 cables



### 4G Antennas

Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
699-798	12,13,14,17,28	Cell A	-1.8	19
		Cell B	0.2	22
807- 862	5,19,20,26,27	Cell A	-0.6	19
		Cell B	-1.3	22
880-960	8	Cell A	1.2	25
		Cell B	0.7	26
1427-1518	11,21,74,75,76	Cell A	4.8	50
		Cell B	5.3	47
1710-1920	2,3,4,9,25,35,39,66	Cell A	6.1	66
		Cell B	5.7	65
1920-2170	1,2,3	Cell A	7.4	64
		Cell B	7.5	67
2300-2400	30,40	Cell A	7.9	79
		Cell B	8.1	76
2496-2690	7,38,41	Cell A	6.7	65
		Cell B	6.9	63

Typical VSWR

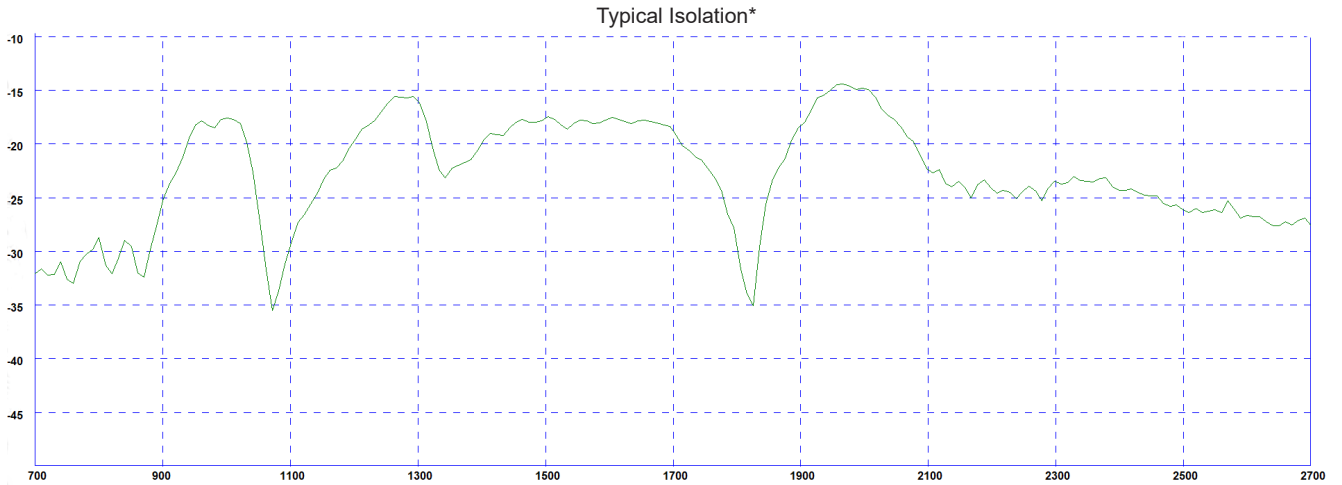


LPM2-7-27 VSWR measured with 2m (6.6') of RG174 cable on 600x600 (2'x2') ground plane

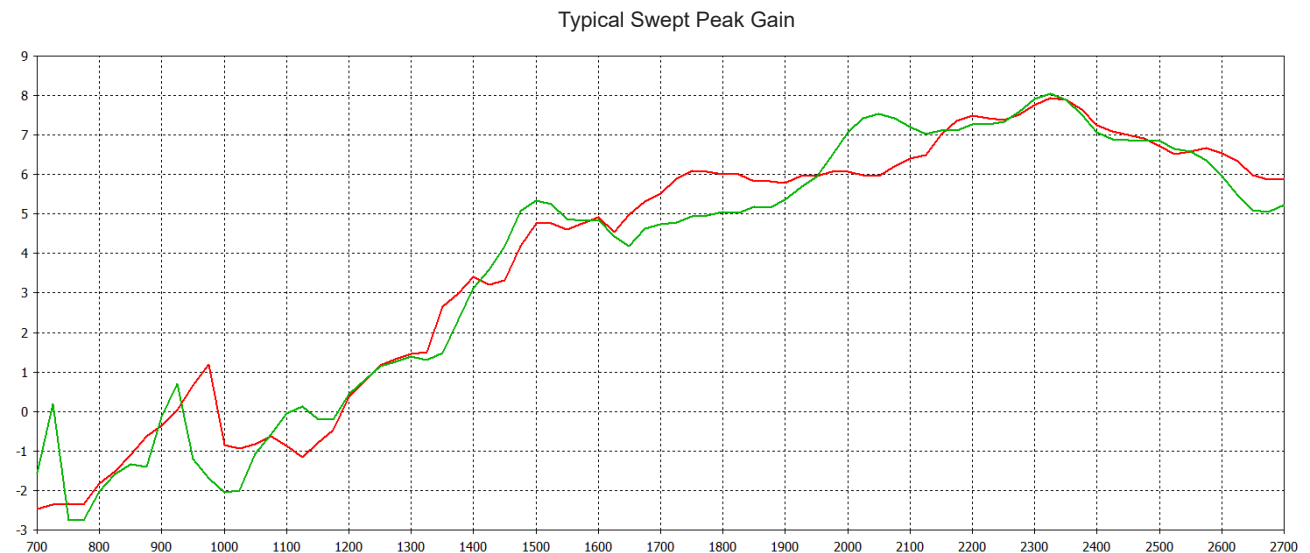
# Ultra Low Profile MiMo IOT Antenna

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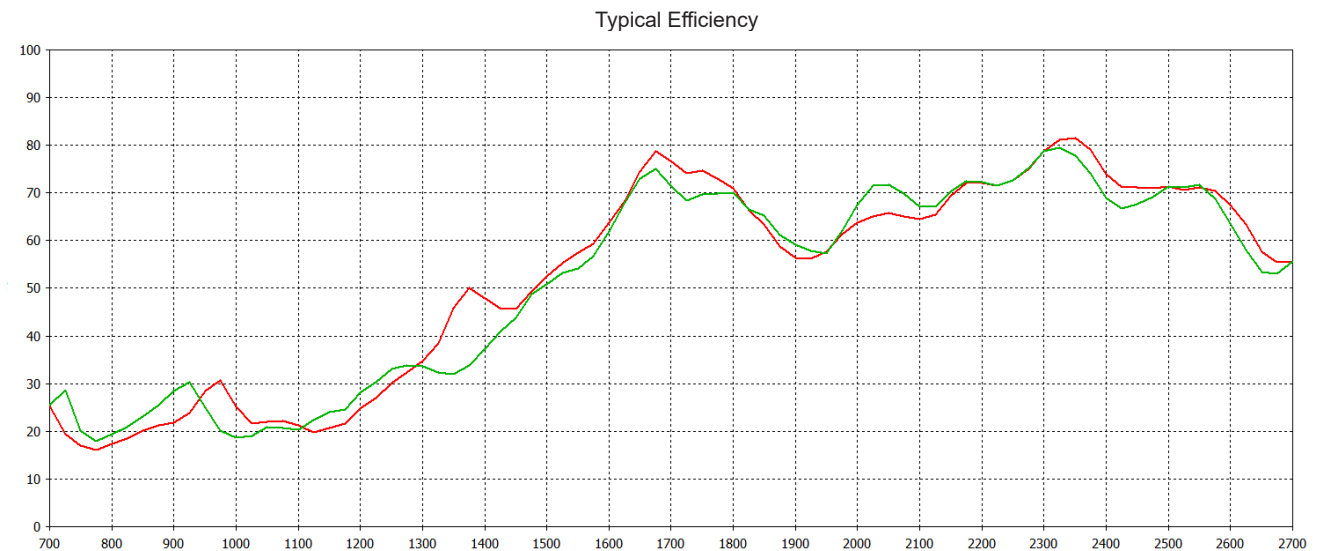
Electrical Data on  
Ground Plane



LPM2-7-27 Isolation measured with 2m (6.6') of RG174 cable on 600x600 (2'x2') ground plane



LPM2-7-27 Swept Peak Gain measured with 0.5m (1.5') of RG174 cable on 600x600 (2'x2') ground plane



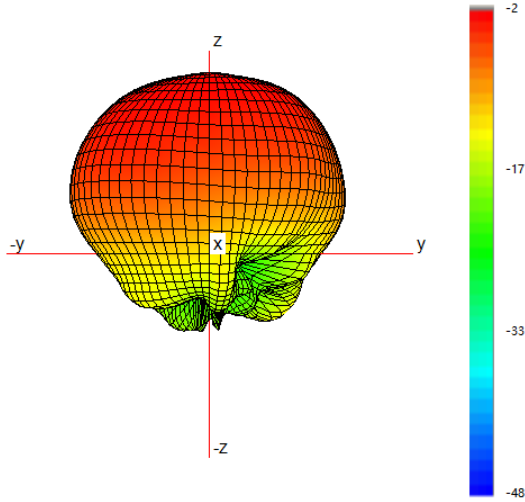
LPM2-7-27 Efficiency measured with 0.5m (1.5') of RG174 cable on 600x600 (2'x2') ground plane

# Ultra Low Profile MiMo IOT Antenna

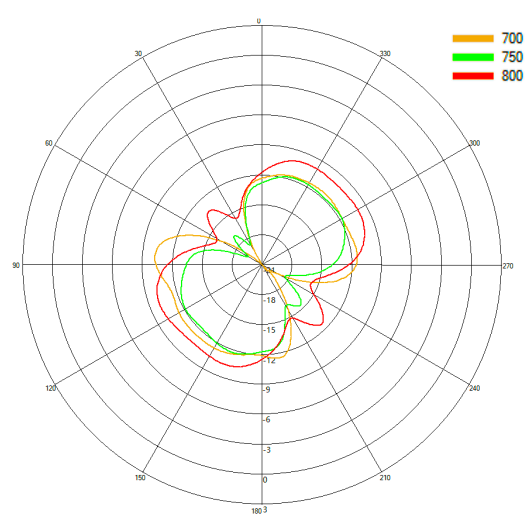
LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell A

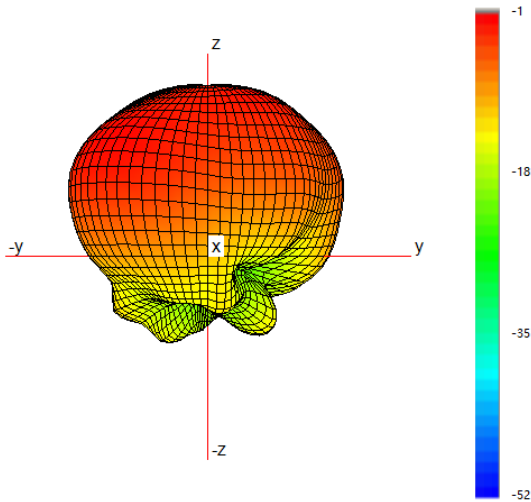
Typical 3D Pattern- Cell A - 750 MHz



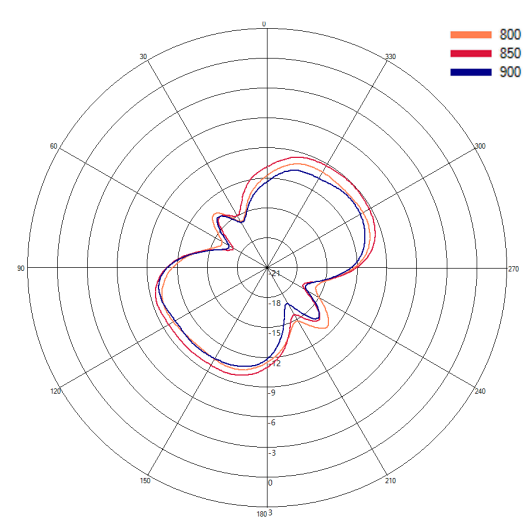
Typical H Plane- Cell A - Patterns- 700-800 MHz



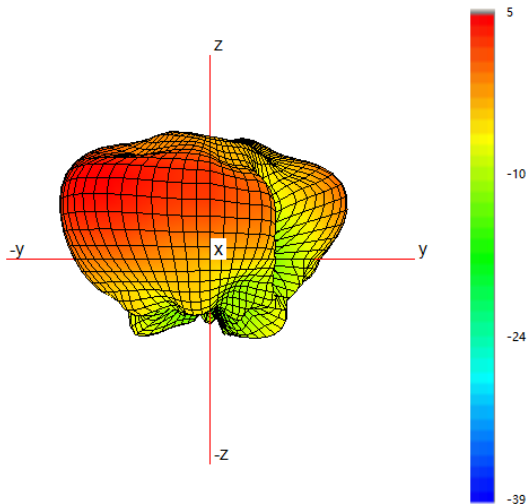
Typical 3D Pattern- Cell A - 850 MHz



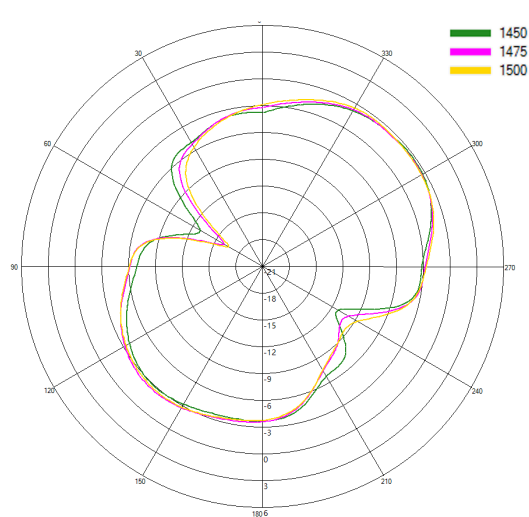
Typical H Plane- Cell A- Patterns- 800-900 MHz



Typical 3D Pattern- Cell A - 1475 MHz



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

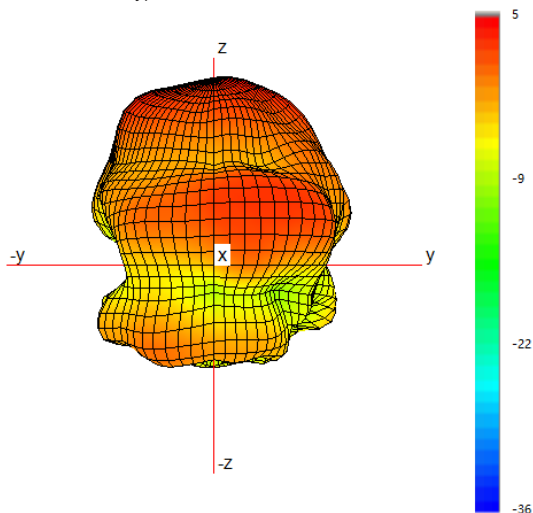


# Ultra Low Profile MiMo IOT Antenna

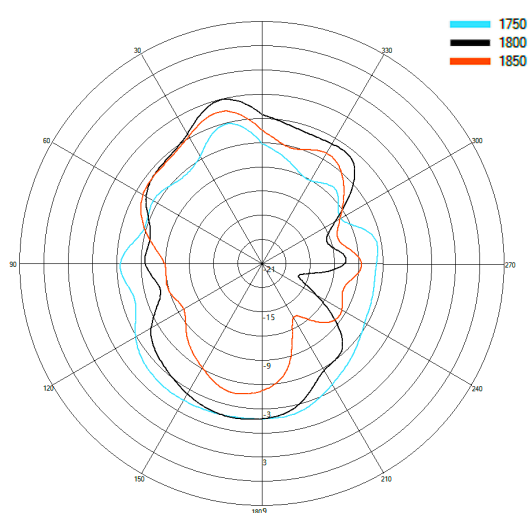
LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell A

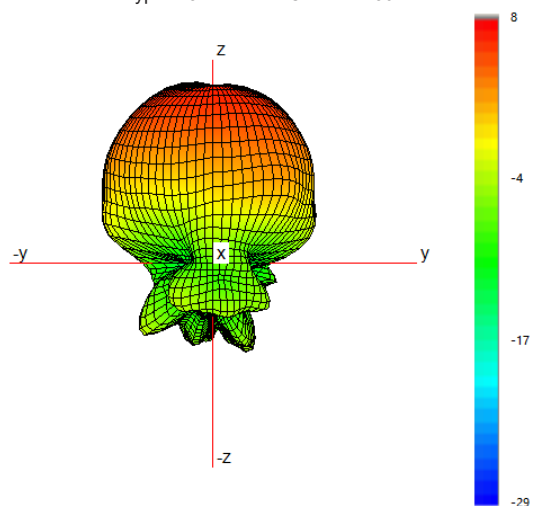
Typical 3D Pattern- Cell A - 1800 MHz



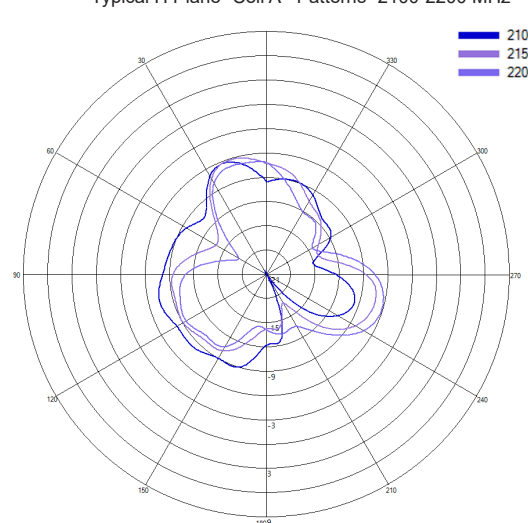
Typical H Plane- Cell A- Patterns- 1750-1850 MHz



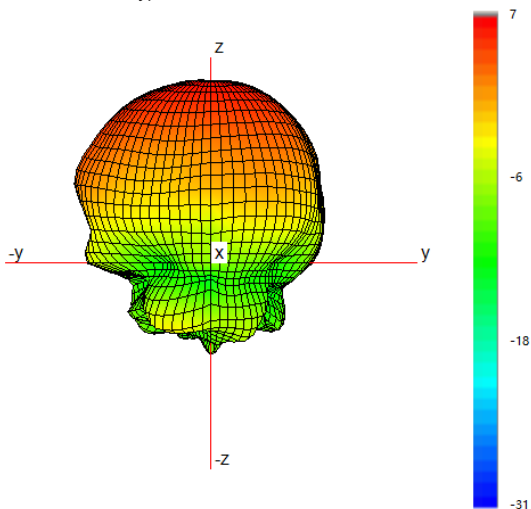
Typical 3D Pattern- Cell A - 2150 MHz



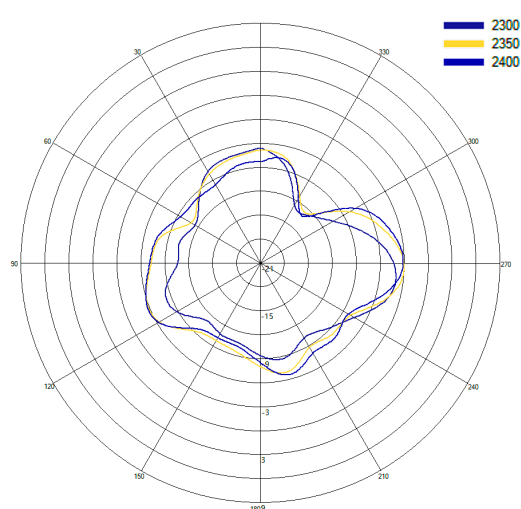
Typical H Plane- Cell A - Patterns- 2100-2200 MHz



Typical 3D Pattern- Cell A - 2350 MHz



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

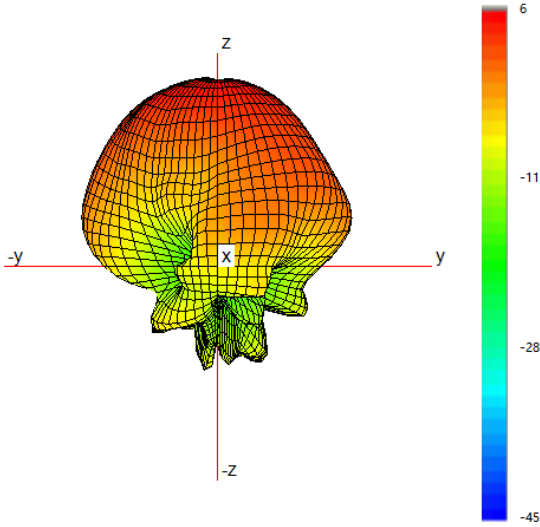


# Ultra Low Profile MiMo IOT Antenna

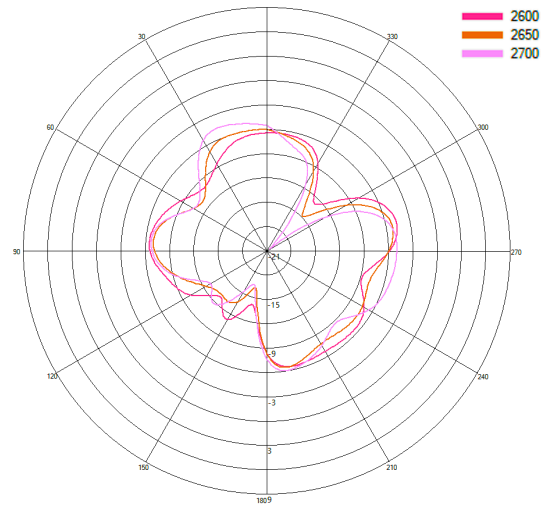
LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell A

Typical 3D Pattern- Cell A - 2650 MHz



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

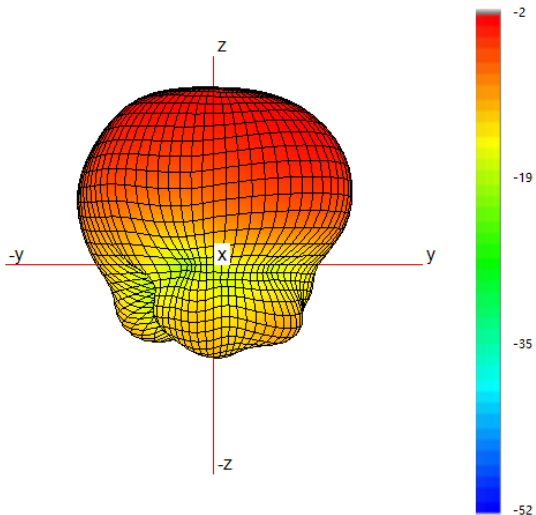


# Ultra Low Profile MiMo IOT Antenna

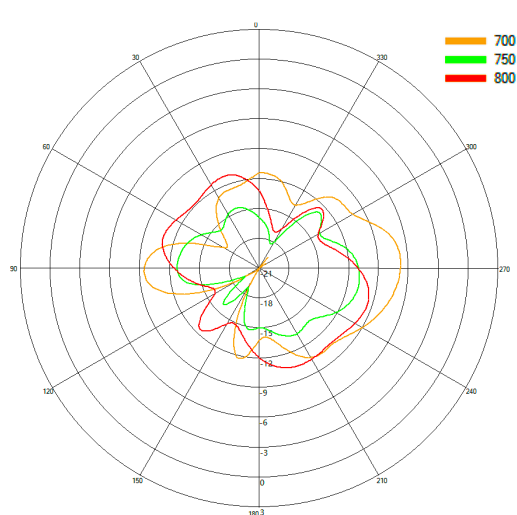
LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell B

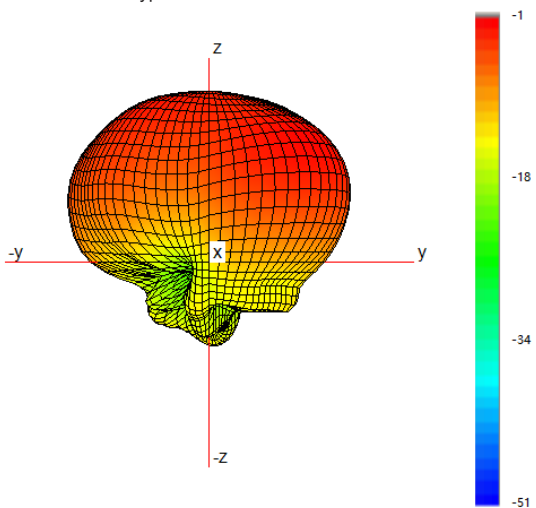
Typical 3D Pattern- Cell B - 750 MHz



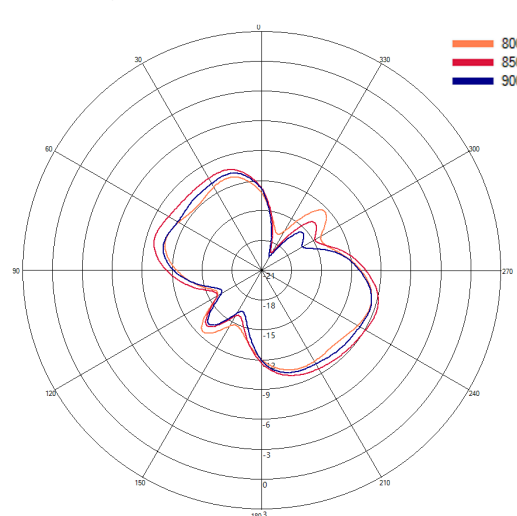
Typical H Plane- Cell B - Patterns- 700-800 MHz



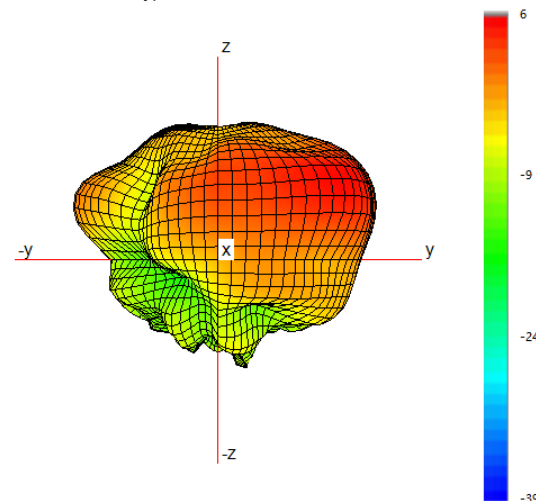
Typical 3D Pattern- Cell B - 850 MHz



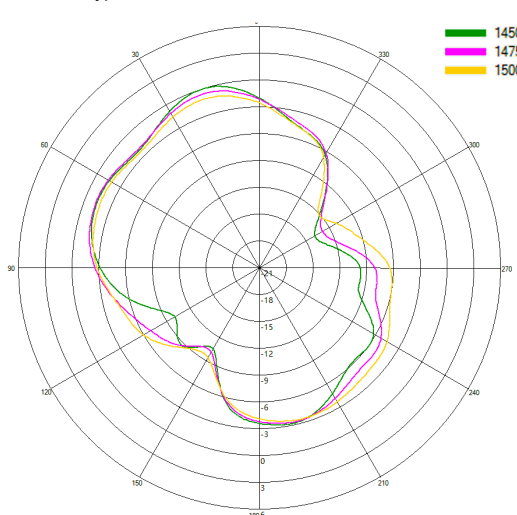
Typical H Plane- Cell B- Patterns- 800-900 MHz



Typical 3D Pattern- Cell B - 1475 MHz



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

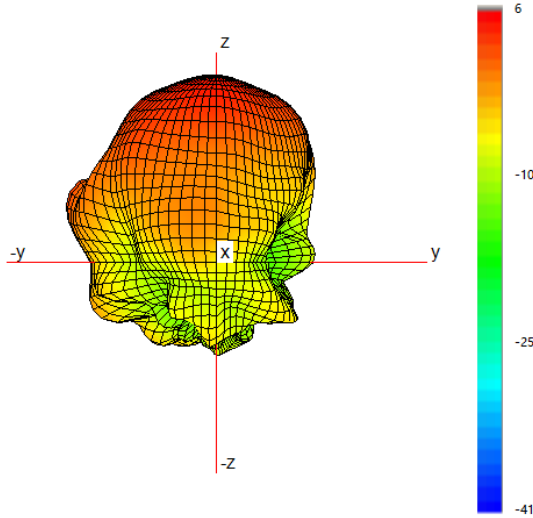


# Ultra Low Profile MiMo IOT Antenna

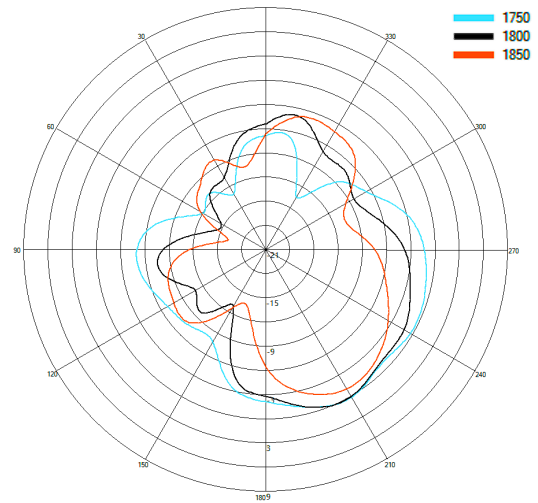
LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell B

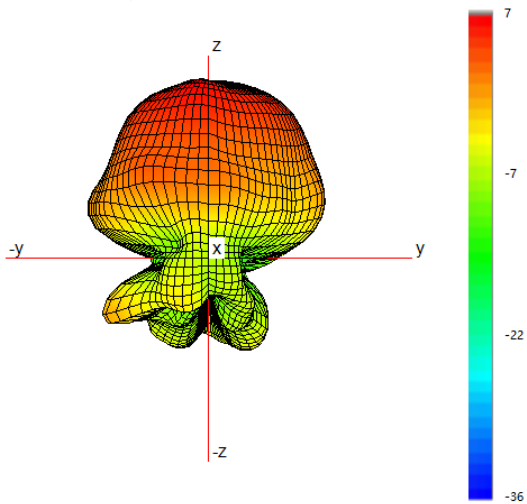
Typical 3D Pattern- Cell B - 1800 MHz



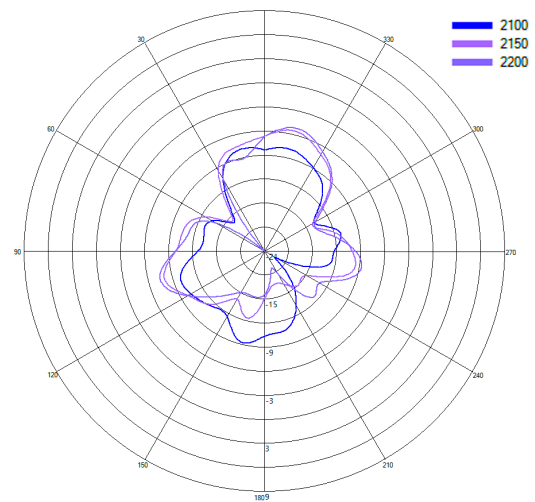
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



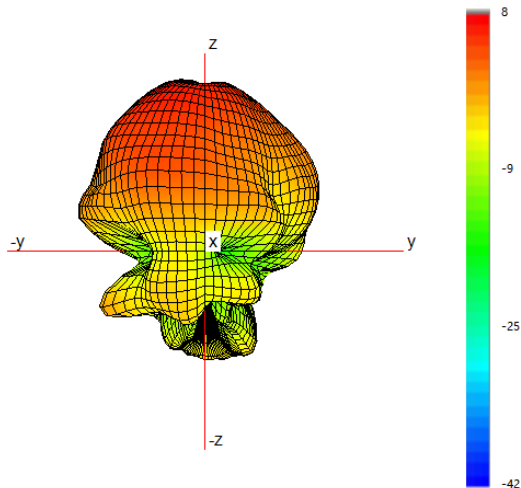
Typical 3D Pattern- Cell B - 2150 MHz



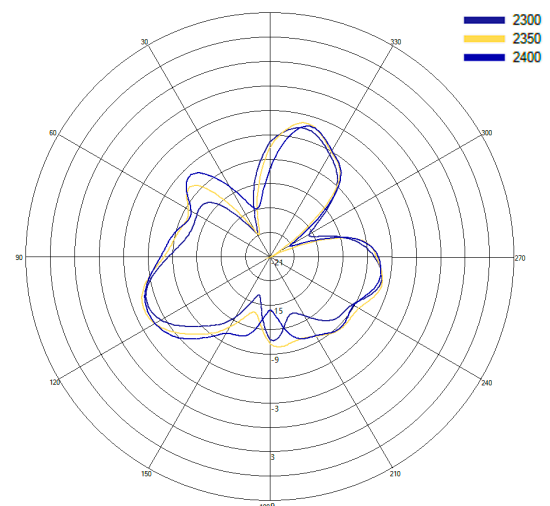
Typical H Plane- Cell B - Patterns- 2100-2200 MHz



Typical 3D Pattern- Cell B - 2350 MHz



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

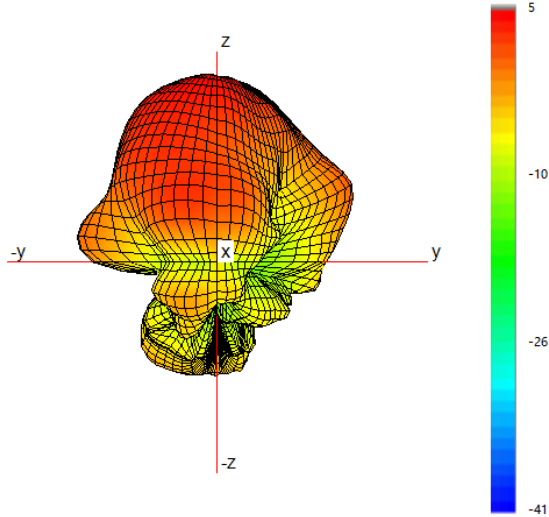


# Ultra Low Profile MiMo IOT Antenna

LPM2-7-27[-X]

Pattern Data on  
Ground Plane Cell B

Typical 3D Pattern- Cell B - 2650 MHz



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

