





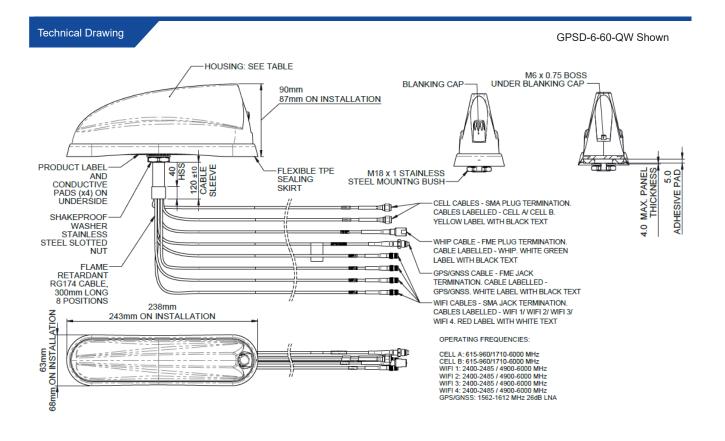
- OEM style sharkfin with 2x2 MiMo for 4G/5G
- GPS/GNSS and optional up to 4x MiMo WiFi
- Support for external whip

The GPSD 5G Sharkee<sup>™</sup> range has become a byword for industry leading technology in a discrete OEM style shark fin housing. The GPSD-6-60 brings 5G capability to the GPSD family.

The antenna should be installed on a metal panel when a comms whip is used, but if whip is not required, then it may be fitted on a nonmetallic panel and still offer similar performance.

The shark fin housing contains a 2x2 MiMo antenna function for 4G/5G (617-960/1710-6000MHz) and option of 2x2, 3x3 or 4x4 MiMo dual band WiFi, which supports WiFi 6e. An active antenna for GPS/ GLONASS/Galileo/ BeiDou is included, with 26dB gain LNA and advanced filtering for LTE Band 13/14 operation. In addition, there is an integral stud mount for an external antenna whip that can support a range of VHF, UHF or 700/800MHz antennas. A blanking cap is supplied for when this is not required.

The GPSD shark 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 GPSD reduces vehicle damage, installation time & cost and visual impact whilst protecting a vehicle's resale value.



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Product Data

Part No.								
		GPSD[W]-6-60-		GPSD[W]-6-60-				
		QW	GPSD[W]-6-60-TW	DW	GPSD[W]-6-60	FIND[W]-6-60		
Electrical Data								
	Element 1		1562-	1612		-		
Frequency Range (MHz)	Elements 2 & 3		2>	< 617-960/1710-600	0			
	Elements 4, 5 6 & 7	4 x 2.4/5.0/7.1GHz	3 x 2.4/5.0/7.1GHz	2 x 2.4/5.0/7.1GHz	-	-		
	Whip Position		Depe	endent on selected	whip			
	Elements 2 & 3	50	lBi (617-960MHz) / 7d	Bi (1710-4900MHz)	/ 8dBi (5000-6000MH	Hz)		
Peak gain: Isotropic*	Elements 4, 5, 6 & 7	5dBi (2396-2	5dBi (2396-2485MHz) / 11dBi (5150-7200MHz) -					
Isolation**	4G/5G			>12dB				
ooladon	WiFi		> 15dB		-			
Typical Efficiency* w/o Cable	Elements 2 & 3		> 70% (617-9	960Mz) / >55% (171	0-6000MHz)			
Loss	Elements 4, 5, 6 & 7	50% (2400-	2485MHz) / 50%(5150	)-7125MHz)				
Correlation Co-efficient	Elements 2 & 3			<0.2				
Polarisation				Vertical				
Pattern				Omni-directional				
Impedance				50Ω				
Max Input Power (W)			10 (int	ernal elements) / 60	) Whip			
GPS/GNSS Data								
Frequency Range (MHz)		-	1562-	1612		-		
/SWR			<2:	:1		-		
Gain: LNA			260	IB		-		
Polarisation		Right Hand Circular						
Out of Band Rejection		>40dB (+/- 100MHz f)   Notch Filter @787MHz - 23dB -						
Operating Voltage			3-5V DC (fe	d via coax)		-		
Current			<201	mA		-		
Mechanical Data								
	Total Height			90 (3.54")				
Dimensions (mm) - Installed	Length			243 (9.56")				
	Width			63 (2.48")				
Operating Temp (°C)			-40°	° / +80°C (-40° / 176	δ°F)			
Vaterial				one Rubber, Alumin	,			
Colour				Vhite (GPSDW part	-			
Ingress Protection				IP69K				
Mounting Info								
Fixing				Panel Mount				
Hole Size (mm)				19 (3/4")				
Cable Data								
Cable Type - All Feeds			FR RG17	4 (UN ECE R 118 C	compliant)			
	Diameter			2.8 (0.11")				
Dimensions (mm)	Length			300 mm (12")				
	GPS/GNSS		FME			-		
	4G/5G			2 x SMA plug				
Termination	WiFi	4x SMA (f)	3x SMA (f)	2x SMA (f)	-			

\*Peak gain and efficiency measured on a 600x600mm (2'x2') ground plane without additional cable \*\* Isolation measured on a 600x600mm (2'x2') ground plane without additional cable

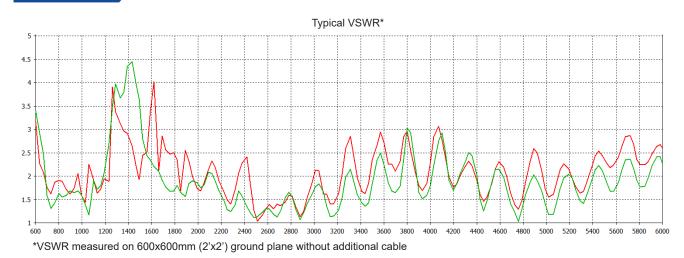
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#### Electrical Data Cell -Ground Plane

Measurement Conditions	4G/5G Antennas					
GPSD-6-60[-X] measured on 600x600mm (2'x2') ground plane without additional cable	Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)	
	017 000		Cell A	3.5	57	
	617-698	71, 105	Cell B	3.5	57	
+	000 700	10.10.11.17.00	Cell A	4.6	68	
	699-798	12,13, 14 17,28	Cell B	5.2	76	
	007 000	5 40 00 00 07	Cell A	5.4	72	
	807-862	5,19,20,26,27	Cell B	5.7	78	
	880.060	0	Cell A	5.8	74	
		8	Cell B	5.8	79	
	1407 1510	11, 21, 74,75,76	Cell A	6.2	63	
	1427-1518	Cell B	4.1	38		
	1710-1920 2,3,4,9,25,35,39,6	0.0.4.0.05.05.00.00	Cell A	5.5	51	
A ANNI A ANNI		2,3,4,9,25,35,39,00	Cell B	5.2	66	
	1920-2170	1,23	Cell A	4.6	58	
			Cell B	5.3	63	
	1920-2170 1,23 Cell B 2300-2400 30,40 Cell B Cell B	30.40	Cell A	4.9	53	
		Cell B	5.0	61		
	2496-2690	7,38,41	Cell A	6.2	63	
	2490-2090	4.7	69			
	3300-4200	22,42,43,48,77,78	Cell A	6.2	46	
	3300-4200	22,42,43,40,77,70	Cell A         3.5         57           Cell B         3.5         57           Cell A         4.6         68           Cell B         5.2         76           Cell A         5.4         72           Cell B         5.7         78           Cell A         5.8         74           Cell B         5.8         79           Cell A         6.2         63           Cell B         5.5         51           Cell B         5.2         66           Cell B         5.2         66           Cell B         5.2         66           Cell B         5.2         66           Cell A         4.6         58           Cell B         5.3         63           Cell B         5.3         63           Cell A         4.6         58           Cell B         5.0         61           Cell A         6.2         63           Cell B<			
	4400-5000	79	Cell A	6.1	46	
	4400-5000	13	Cell B	6.5	51	
	5000 6000	00,400,404	Cell A	5.1	48	
	5000-6000	96, 102, 104	Cell B	8.2	57	



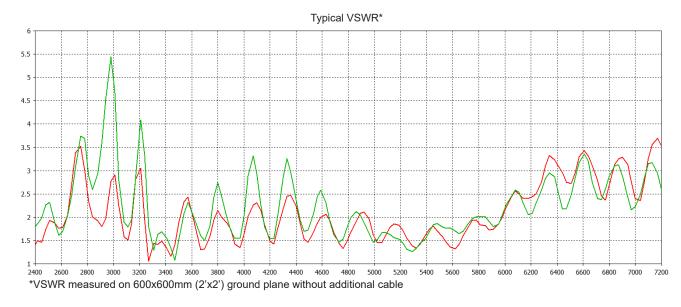


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Electrical Data WiFi -Ground Plane

Measurement Conditions	WiFi Antennas					
GPSD-6-60[-X] measured on 600x600mm (2'x2') ground plane without additional cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)	
	2206 2485	2 404-	WiFi 1	4.1	45	
	nd Frequency WiFi Bands	2.4662	WiFi 2	5.7	54	
	5150 5250		WiFi 1	7.6	57	
	Frequency         2396-2485         5150-5250         5250-5350         5350-5470         5470-5725         5725-5850         5850-5925         5925-6425	UNII-1	WiFi 2	7.8	54	
	5250 5350		WiFi 1	8.1	64	
	5250-5550	UNII-2A	WiFi 2	9.8	58	
	5350-5470 UNII-2B		WiFi 1	8.2	66	
	5350-5470	UNII-2B	WiFi 2	9.9	58	
	5470-5725 UNII-2C		WiFi 1	8.3	65	
AND		UNII-2C	WiFi 2	8.9	56	
	5725 5950		WiFi 1	8.3	61	
	5725-5850 UNII-3	WiFi 2	9.4	59		
		UNII-4	WiFi 1	7.7	59	
	5650-5925		WiFi 2	9.6	58	
	5925-6425 U	UNII-5	WiFi 1	7.7	48	
			WiFi 2	9.6	51	
	Range (MHz)         Element         (dBi)           2396-2485 $2.4$ GHz         WiFi 1         4.1 $2396-2485$ $2.4$ GHz         WiFi 2         5.7 $2396-2485$ $2.4$ GHz         WiFi 1         7.6 $2396-2485$ $2.4$ GHz         WiFi 1         7.6 $5150-5250$ $2.1$ UNII-1         WiFi 1         8.1 $5250-5350$ $2.1$ UNII-2A         WiFi 1         8.1 $5250-5350$ $2.1$ UNII-2B         WiFi 1         8.2 $5350-5470$ $2.1$ UNII-2B         WiFi 1         8.3 $5470-5725$ $2.1$ UNII-2C         WiFi 1         8.3 $5725-5850$ $2.1$ UNII-3         WiFi 1         8.3 $5725-5850$ $2.1$ UNII-3         WiFi 1         7.7 $5850-5925$ $2.1$ UNI-4         WiFi 1         7.7 $5925-6425$ $2.1$ UNI-5         WiFi 1         7.7 $ViFi 2$ 9.6         WiFi 2         9.6 $ViFi 1$ 2.2         9.6         WiFi 1         2.2	2.2	26			
		0420-0020	UNII-6	WiFi 2	6.8	37
	6505 6075		WiFi 1	2.7	28	
	0525-0875	UNII-7	WiFi 2	5.0	31	
	6975 7105		WiFi 1	3.0	30	
	0075-7125	υινιι-δ	WiFi 2	4.1	30	

Electrical Data WiFi -Ground Plane

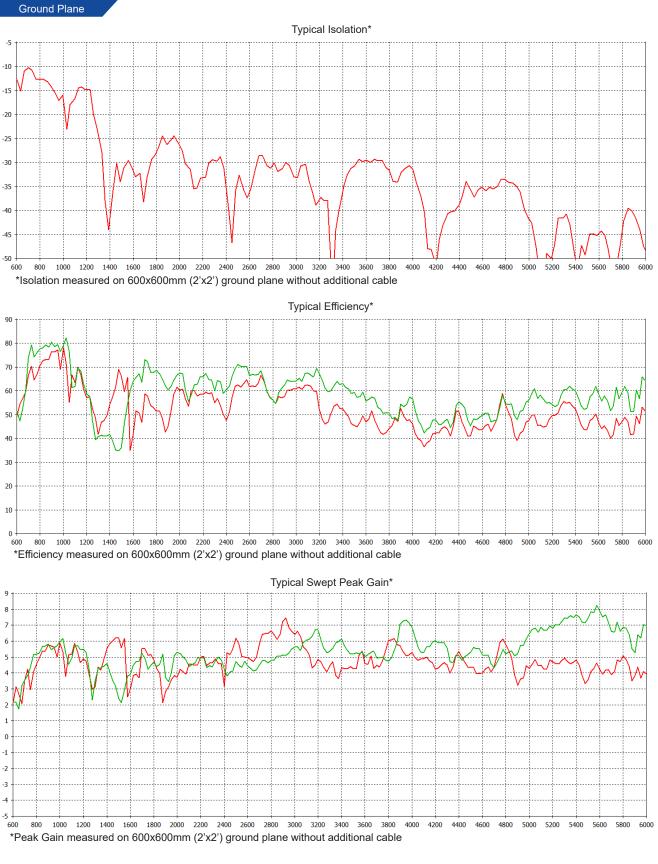


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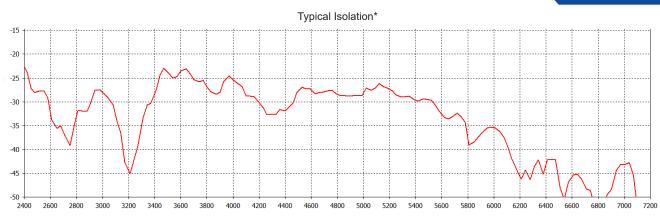
Electrical Data Cell -



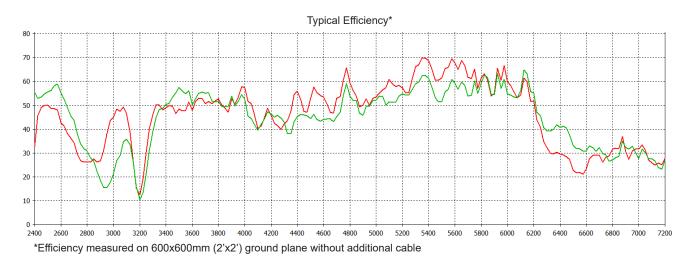
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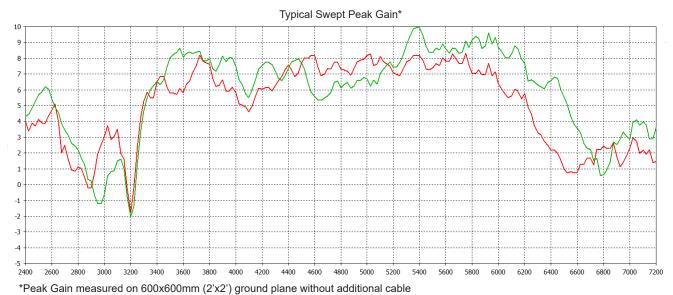
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Electrical Data WiFi -Ground Plane



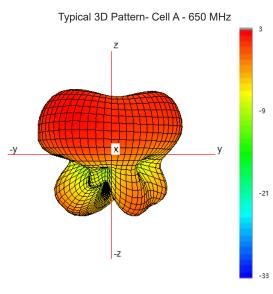
\*Isolation measured on 600x600mm (2'x2') ground plane without additional cable



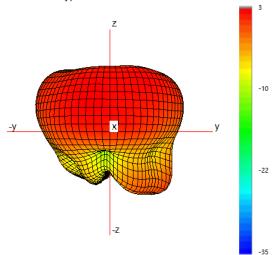


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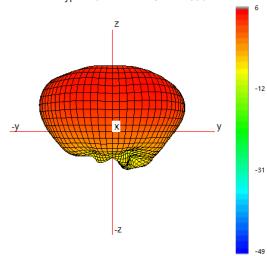
#### 3D Pattern Data on Ground Plane Cell A

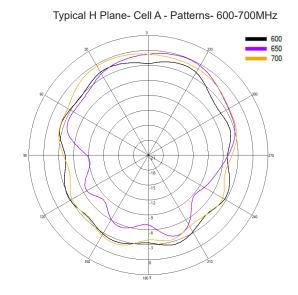


Typical 3D Pattern- Cell A - 750 MHz

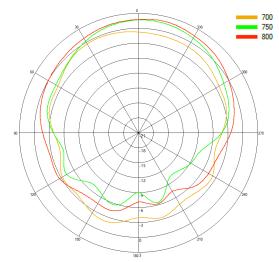


Typical 3D Pattern- Cell A - 850 MHz

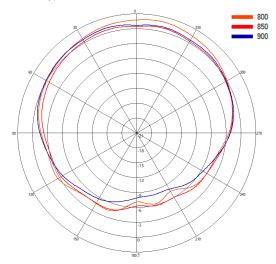




Typical H Plane- Cell A - Patterns- 700-800MHz



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



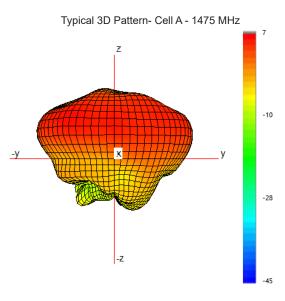
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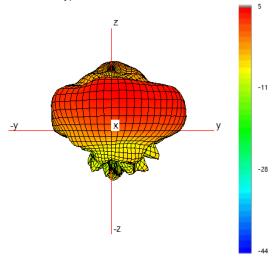
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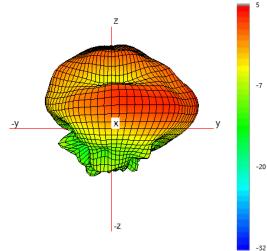
3D Pattern Data on Ground Plane Cell A

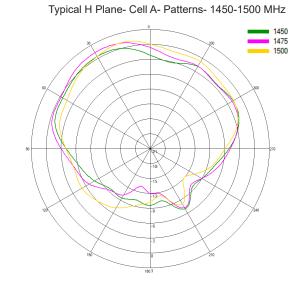


Typical 3D Pattern- Cell A - 1800 MHz

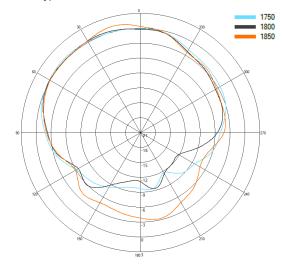


Typical 3D Pattern- Cell A - 2150 MHz

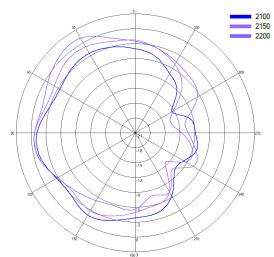




Typical H Plane- Cell A- Patterns- 1750-1850 MHz



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



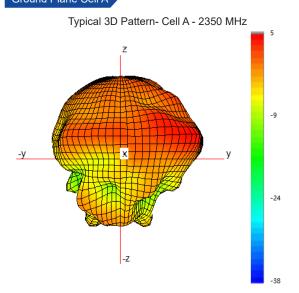
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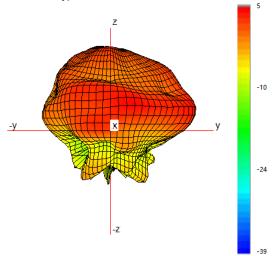
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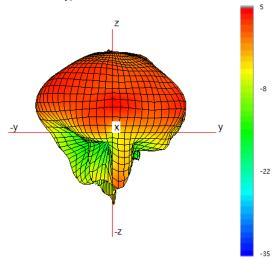
#### 3D Pattern Data on Ground Plane Cell A

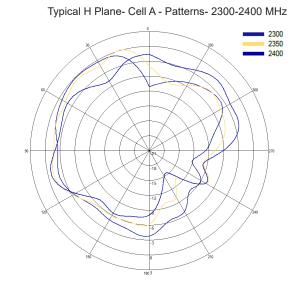


Typical 3D Pattern- Cell A - 2650 MHz

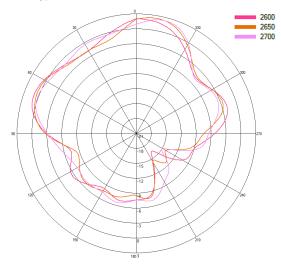


Typical 3D Pattern- Cell A - 3600 MHz

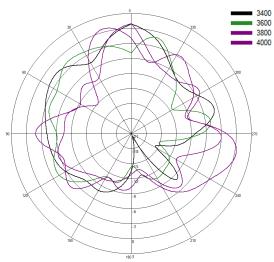




Typical H Plane- Cell A - Patterns- 2600-2700 MHz



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



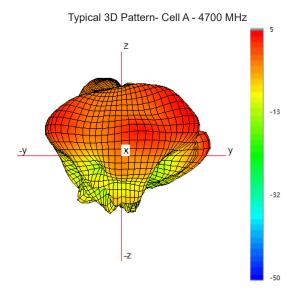
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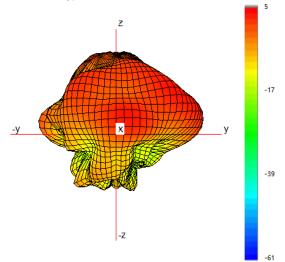
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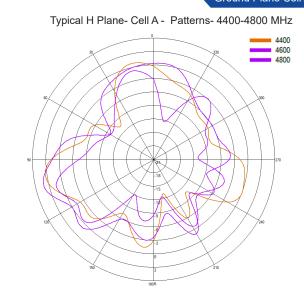
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3D Pattern Data on Ground Plane Cell A

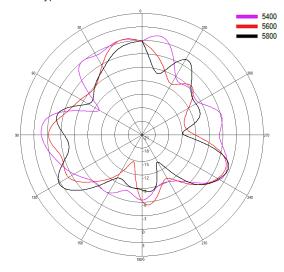


Typical 3D Pattern- Cell A - 5600 MHz



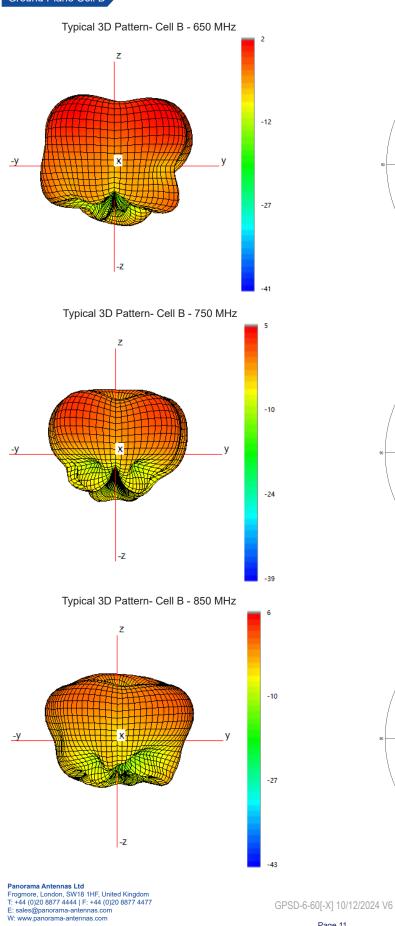


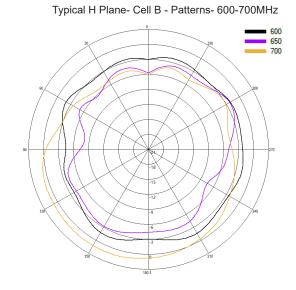
Typical H Plane- Cell A - Patterns- 5400-5800 MHz



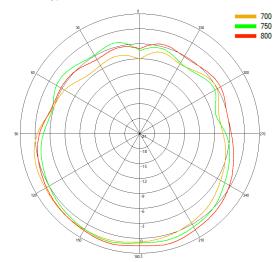
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3D Pattern Data on Ground Plane Cell B

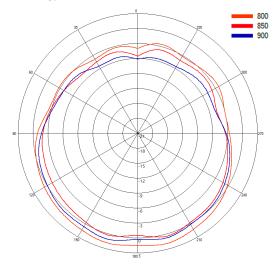




Typical H Plane- Cell B - Patterns- 700-800MHz



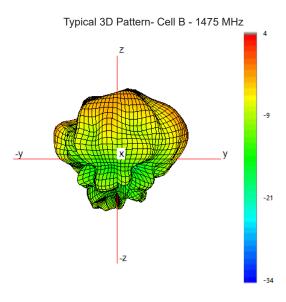
Typical H Plane- Cell B - Patterns- 800-900MHz



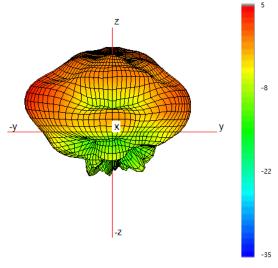
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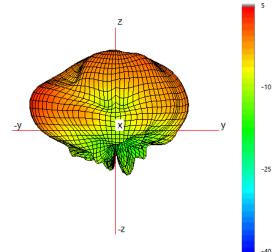
3D Pattern Data on Ground Plane Cell B

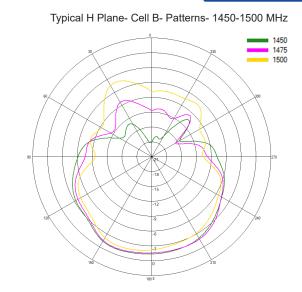


Typical 3D Pattern- Cell B - 1800 MHz

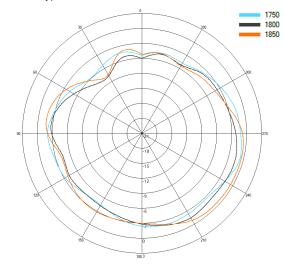


Typical 3D Pattern- Cell B - 2150 MHz

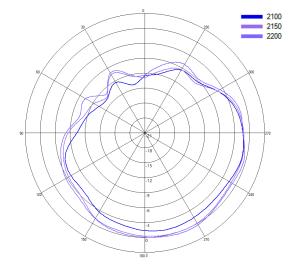




Typical H Plane- Cell B- Patterns- 1750-1850 MHz



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



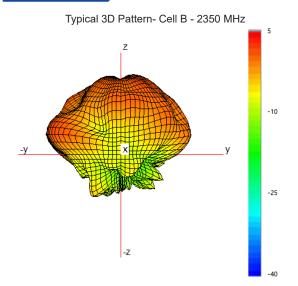
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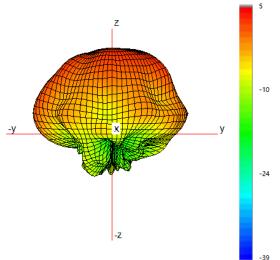
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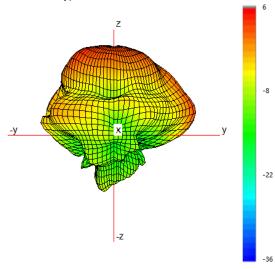
#### 3D Pattern Data on Ground Plane Cell B

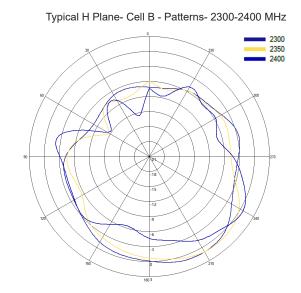


Typical 3D Pattern- Cell B - 2650 MHz

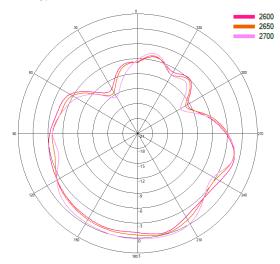


Typical 3D Pattern- Cell B - 3600 MHz

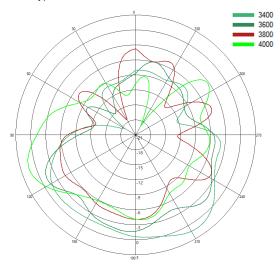




Typical H Plane- Cell B - Patterns- 2600-2700 MHz



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



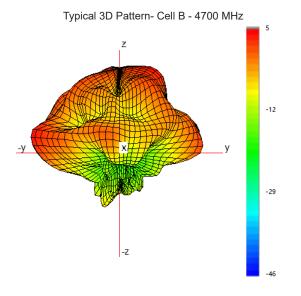
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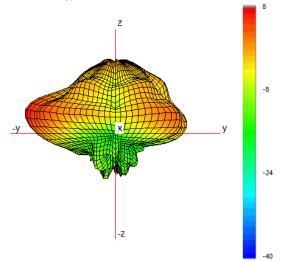
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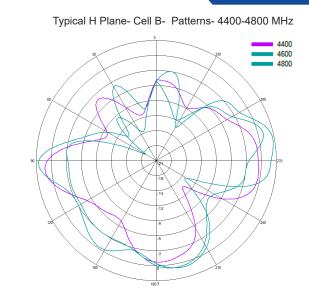
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3D Pattern Data on Ground Plane Cell B

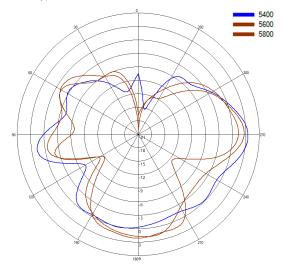


Typical 3D Pattern- Cell B - 5600 MHz



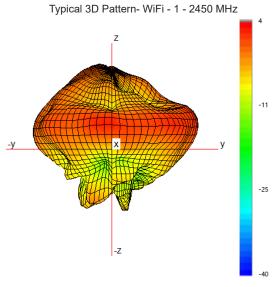


Typical H Plane- Cell B - Patterns- 5400-5800 MHz

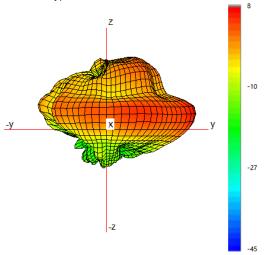


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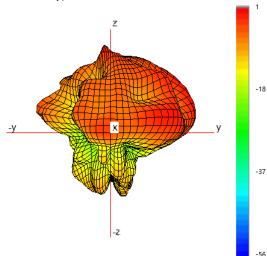
#### 3D Pattern Data on Ground Plane WIFI- 1

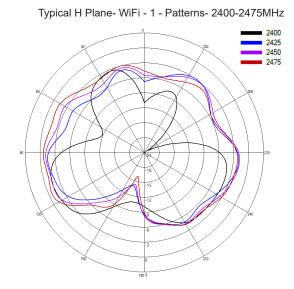


Typical 3D Pattern- WiFi - 1 - 5500 MHz

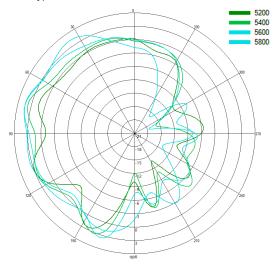


Typical 3D Pattern- WiFi - 1 - 6500 MHz

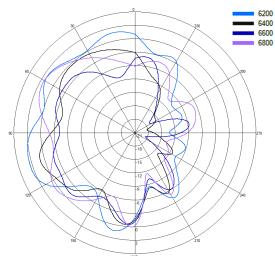




Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz



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



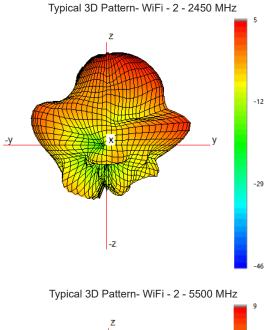
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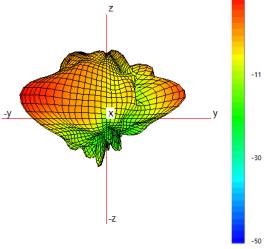
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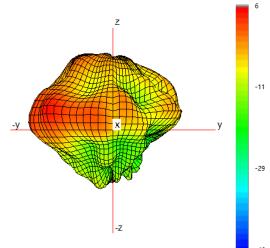
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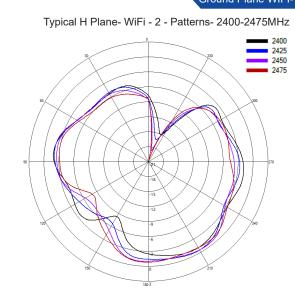
3D Pattern Data on Ground Plane WIFI- 2



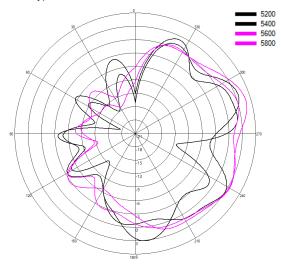


Typical 3D Pattern- WiFi - 2 - 6500 MHz

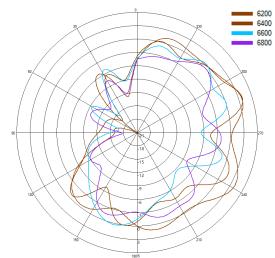




Typical H Plane- WiFi - 2 - Patterns- 5200-5800MHz



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



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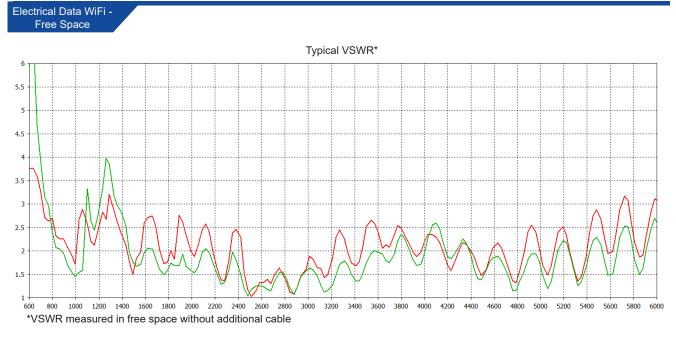
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#### Electrical Data Cell -Ground Plane

Measurement Conditions	4G/5G Anten	4G/5G Antennas					
GPSD-6-60[-X] measured in free space without additional cable	Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)		
	617-698	71, 105	Cell A	1.3	44		
	017-090		Cell B	0.7	35		
	699-798	12,13, 14 17,28	Cell A	2.1	55		
	099-790		Cell B	2.2	58		
	807-862	5,19,20,26,27	Cell A	3.0	67		
	807-802	5,19,20,20,27	Cell B	3.5	69		
	880-960		Cell A	3.6	70		
	880-900	8	Cell B	3.7	74		
	1407 1519	11, 21, 74,75,76	Cell A	3.2	66		
	1427-1518		Cell B	2.8	68		
	1710-1920	2 2 4 0 25 25 20 66	Cell A	2.9	57		
FINAL FINAL	1710-1920 2,3,4,9,25,35,39	2,3,4,9,23,33,39,00	Cell B	3.6	66		
	1920-2170         1,23           2300-2400         30,40           2496-2690         7,38,41	1,23	Cell A	3.7	59		
A A A A A A A A A A A A A A A A A A A			Cell B	4.1	65		
CARLA FIRM		30.40	Cell A	3.1	58		
		30,40	Cell B	3.2	58		
		7 28 /1	Cell A	4.0	65		
	2490-2090	7,30,41	Cell B	3.8	67		
	3300-4200	22,42,43,48,77,78	Cell A	5.8	46		
	3300-4200	22,42,43,40,77,70	Cell B	5.5	53		
	4400-5000	79	Cell A	5.2	50		
	4400-3000	13	Cell B	4.2	54		
	5000-6000	96, 102, 104	Cell A	5.4	58		
	5000-0000	50, 102, 104	Cell B	5.1	55		



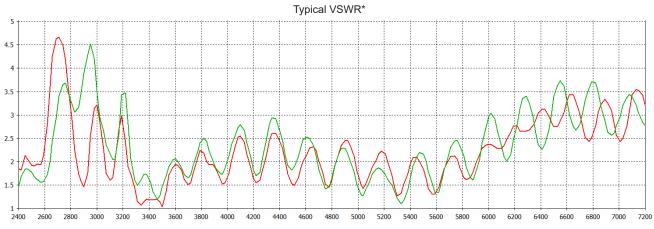
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Electrical Data WiFi -Free Space

Measurement Conditions	WiFi Antennas					
GPSD-6-60[-X] measured in free space without additional cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)	
	2206 2485	2 4047	WiFi 1	3.2	46	
+	2390-2465	2.4662	WiFi 2	2.3	54	
Charles and the second states and the	5450 5050		WiFi 1	6.5	56	
	5250-5350 UNII 5350-5470 UNII 5470-5725 UNII	UNII-1	WiFi 2	5.9	50	
			WiFi 1	7.4	64	
	5250-5350	UNII-2A	WiFi 2	6.4	57	
	5050 5170	2.4GHz UNII-1 UNII-2A UNII-2B UNII-2C UNII-3 UNII-3 UNII-5 UNII-5	WiFi 1	7.5	64	
	5350-5470		WiFi 2	6.4	53	
	5470 5705	UNII-2C UNII-3	WiFi 1	7.5	62	
	5470-5725		WiFi 2	5.7	52	
	E705 5050		WiFi 1	6.9	58	
	5725-5850 UNII-3	UNII-3	WiFi 2	6.6	52	
	5950 5025		WiFi 1	5.7	55	
	5650-5925	UNII-4	WiFi 2	7.0	53	
	5005 6405		WiFi 1	6.2	51	
	5925-6425	UNII-5	WiFi 2	7.1	48	
			WiFi 1	2.4	31	
	6425-6525	UNII-6	WiFi 2	4.7	35	
	0505 0075		WiFi 1	3.5	31	
	2396-2485 2.4GHz 5150-5250 UNII-1 5250-5350 UNII-2A 5350-5470 UNII-2B 5470-5725 UNII-2C 5725-5850 UNII-3 5850-5925 UNII-4 5925-6425 UNII-5 6425-6525 UNII-6 6525-6875 UNII-7	WiFi 2	4.0	25		
	0075 7405		WiFi 1	3.5	32	
	5725-5850 5850-5925 5925-6425 6425-6525 6525-6875	υνιι-δ	WiFi 2	2.1	22	
		-				

Electrical Data WiFi -Free Space



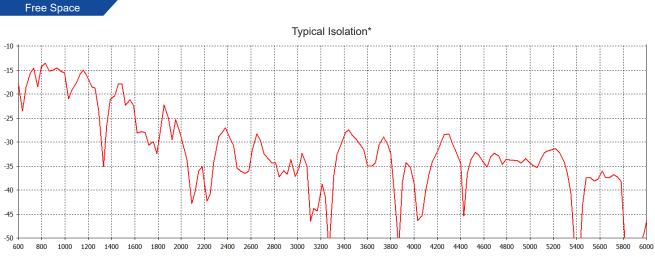
\*VSWR measured in free space without additional cable

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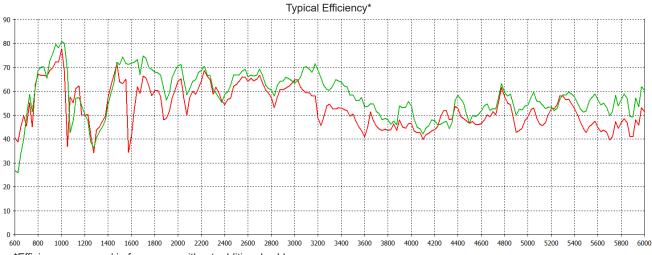


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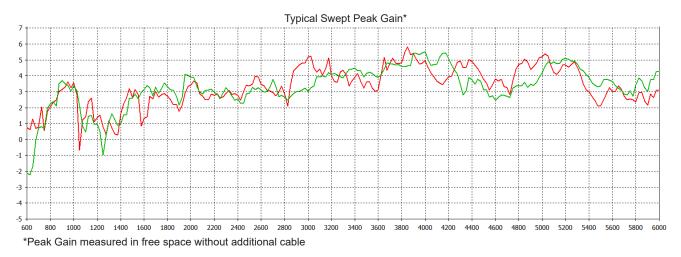
Electrical Data WiFi -



\*Isolation measured in free space without additional cable



\*Efficiency measured in free space without additional cable



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Electrical Data WiFi -Free Space

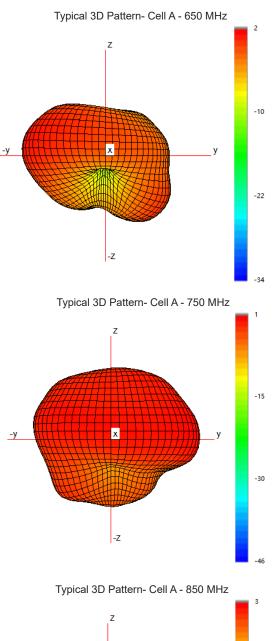


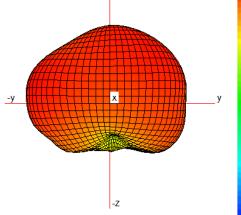
-3 -4 -5

7000 7200

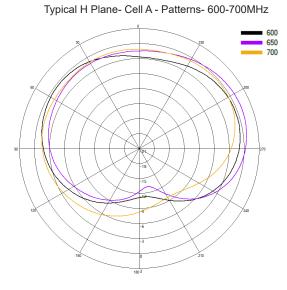
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#### 3D Pattern Data in Free Space Cell A

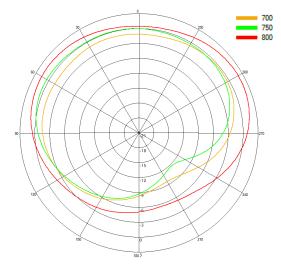




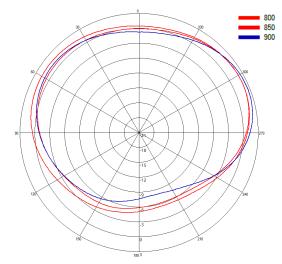
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Typical H Plane- Cell A - Patterns- 700-800MHz



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



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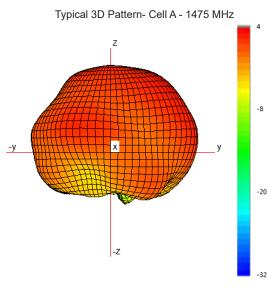
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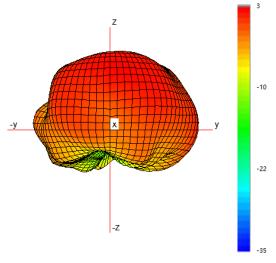
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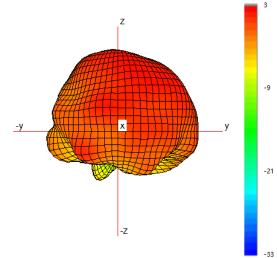
3D Pattern Data in Free Space Cell A

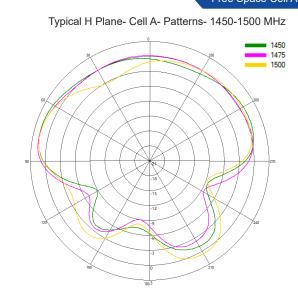


Typical 3D Pattern- Cell A - 1800 MHz

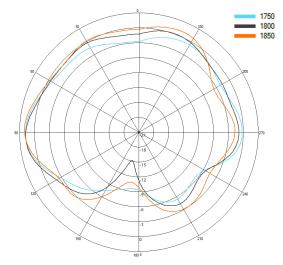


Typical 3D Pattern- Cell A - 2150 MHz

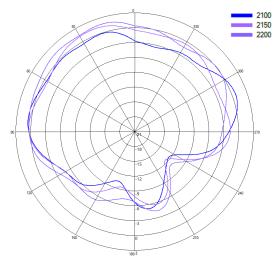




Typical H Plane- Cell A- Patterns- 1750-1850 MHz



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



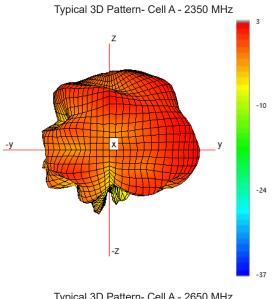
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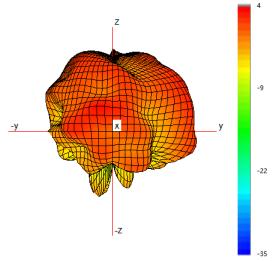
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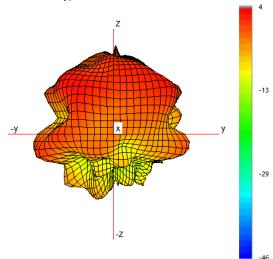
#### 3D Pattern Data in Free Space Cell A

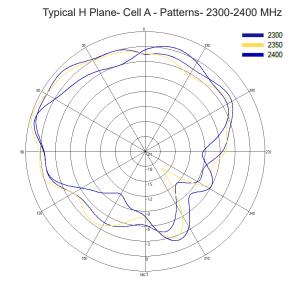


Typical 3D Pattern- Cell A - 2650 MHz

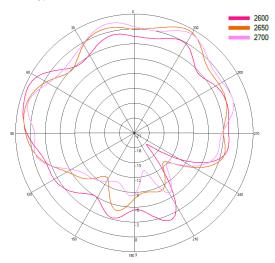


Typical 3D Pattern- Cell A - 3600 MHz

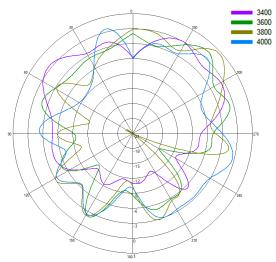




Typical H Plane- Cell A - Patterns- 2600-2700 MHz



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



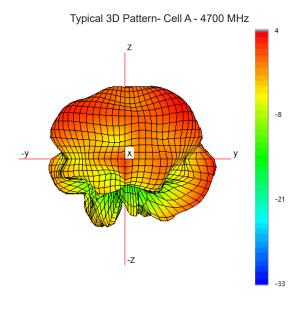
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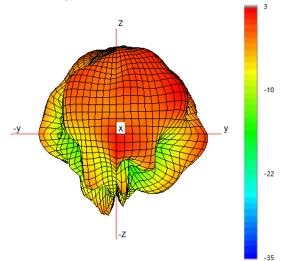
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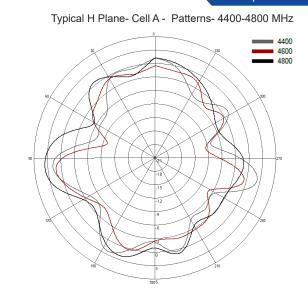
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3D Pattern Data in Free Space Cell A

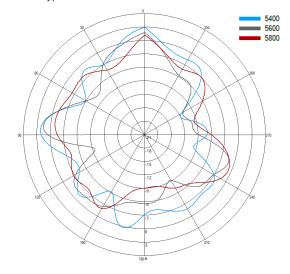


Typical 3D Pattern- Cell A - 5600 MHz



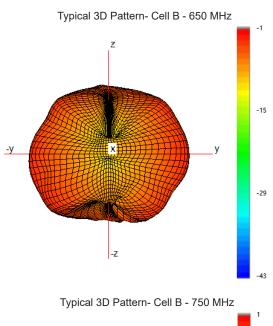


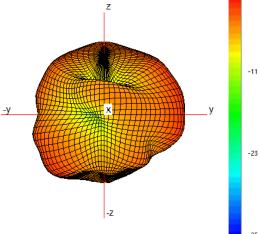
Typical H Plane- Cell A - Patterns- 5400-5800 MHz



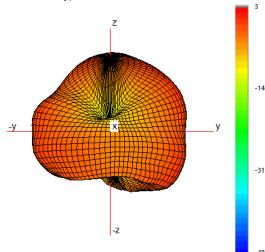
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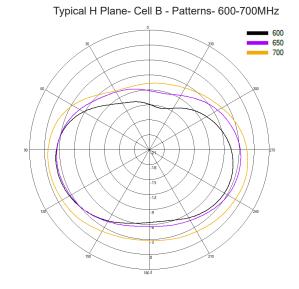
3D Pattern Data in Free Space Cell B



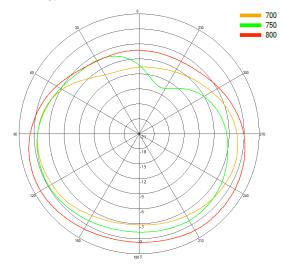


Typical 3D Pattern- Cell B - 850 MHz

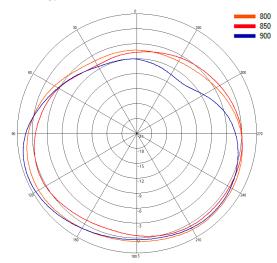




Typical H Plane- Cell B - Patterns- 700-800MHz



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

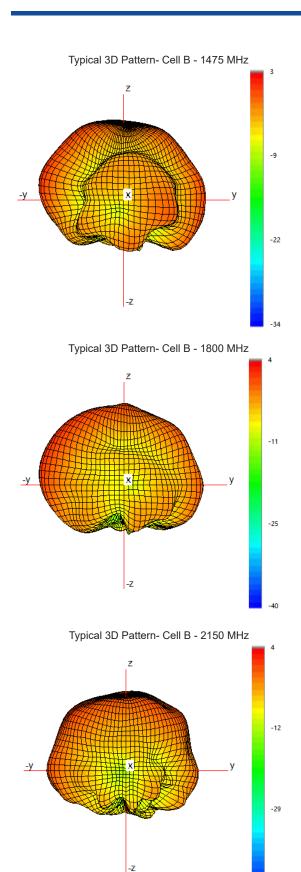


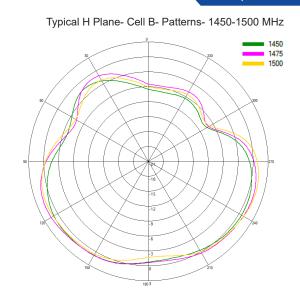
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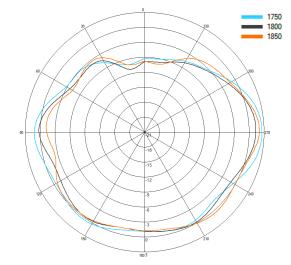
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3D Pattern Data in Free Space Cell B

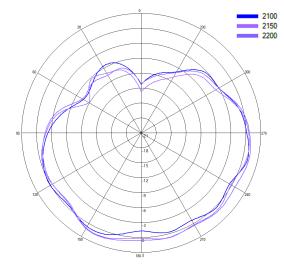




Typical H Plane- Cell B- Patterns- 1750-1850 MHz



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



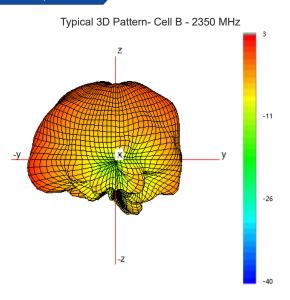
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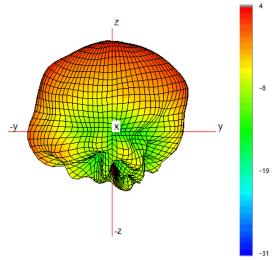
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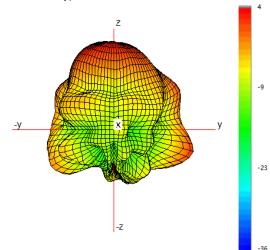
3D Pattern Data in Free Space Cell B

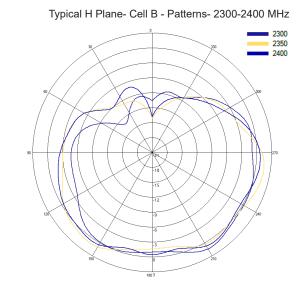


Typical 3D Pattern- Cell B - 2650 MHz

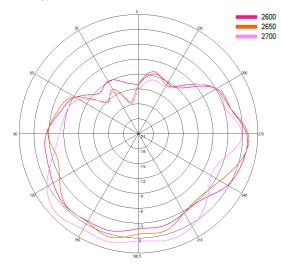


Typical 3D Pattern- Cell B - 3600 MHz

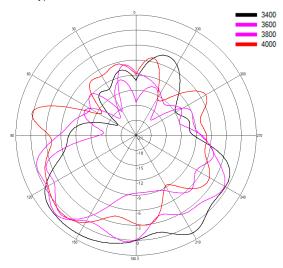




Typical H Plane- Cell B - Patterns- 2600-2700 MHz



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



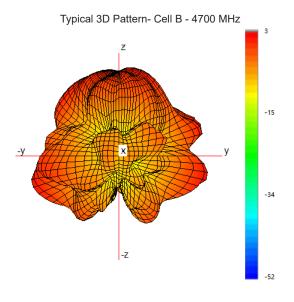
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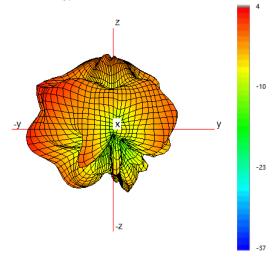
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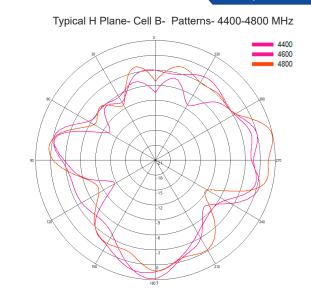
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3D Pattern Data in Free Space Cell B

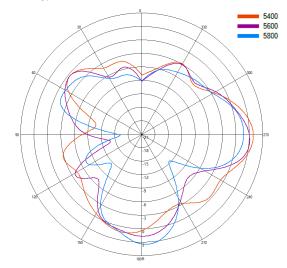


Typical 3D Pattern- Cell B - 5600 MHz



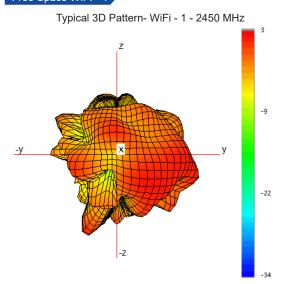


Typical H Plane- Cell B - Patterns- 5400-5800 MHz

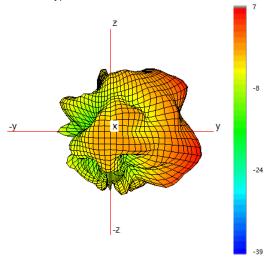


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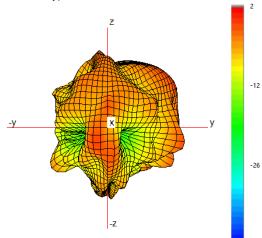
#### 3D Pattern Data in Free Space WIFI - 1

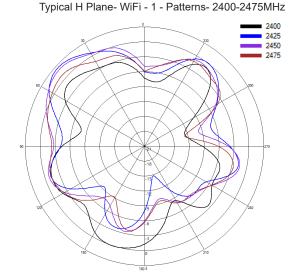


Typical 3D Pattern- WiFi - 1 - 5500 MHz

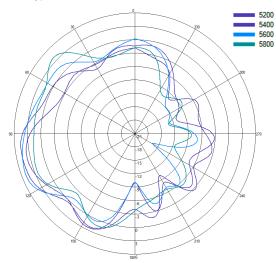


Typical 3D Pattern- WiFi - 1 - 6500 MHz

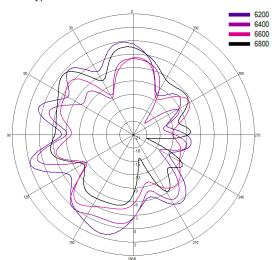




Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz



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



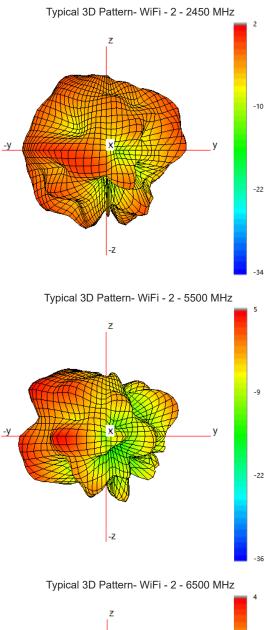
Panorama Antennas Ltd Frogmore, London, SW18 1HF, United Kingdom T: +44 (0)20 8877 4444 | F: +44 (0)20 8877 4477 E: sales@panorama-antennas.com W: www.panorama-antennas.com

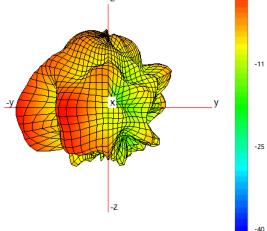
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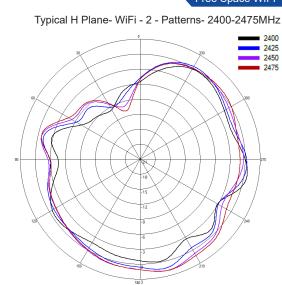
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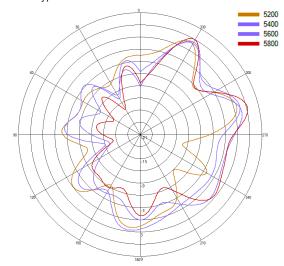
3D Pattern Data in Free Space WIFI - 2



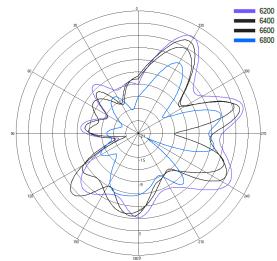




Typical H Plane- WiFi - 2 - Patterns- 5200-5800MHz



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



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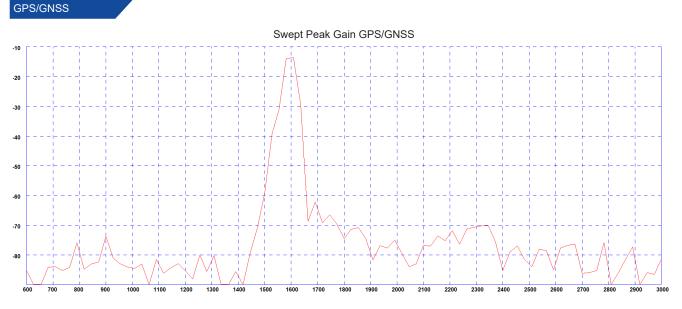
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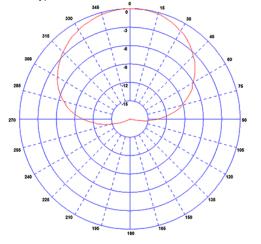


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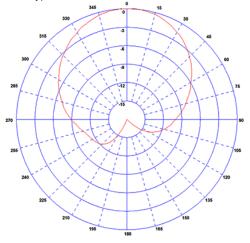
Electrical Data- L1



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