

Low Profile IOT Antenna

4x4 MiMo 698-960/1427-4200MHz

Up to 4x4 MiMo WiFi 6e (Optional)

GPS/GNSS L1/L5 or L1 only 30dB / 26dB LNA (Optional)

Meets IK10 and IP69K

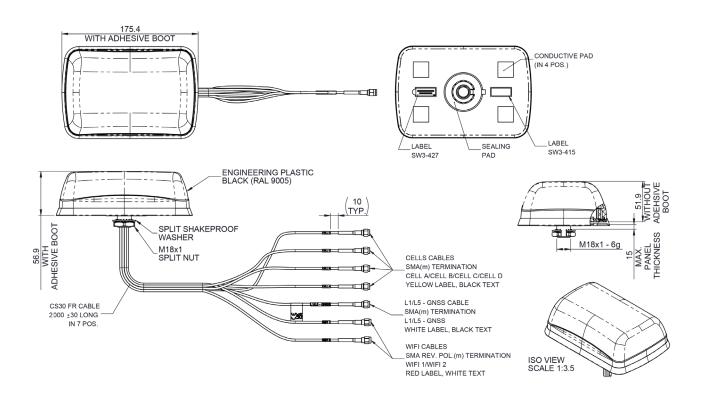
The L[X]A[X]M4-7-42[-X] MiMo antenna is designed to be a one size fits all solution for IOT applications. The robust low profile housing contains 4x 4G LTE / 5G NR elements covering 698-960/1427-4200MHz. Versions of the product also contain up to 4x optional WiFi elements supporting WiFi 6e 2.4/5.150-7.125GHz and op ional L1 only or L1/L5 GPS/GNSS.

The housing is constructed from robust, flame retardant, impact resistant plastic. The subtle, curved design makes the product hardert to vandalise and the IK10 rating ensures that the product is suitable for use in tough environments and devices located in public areas. The housing is UV stable and approved to IP69K for ingress protection.

The product is supplied with integrated low loss flame retardant cables approved to UN ECE R118 and fitted connectors offer plug and play connectivity for a huge range of devices.

The L[X]A[X]M4-7-42[-X] can be installed on conductive or non-conductive panels without significant detriment to performance.

Technical Drawing LG5ADM4-7-42 Shown





Product Data

Port No.						
Part No.		LGAQM4-7-42	LGADM4-7-42	LGAM4-742		
Electrical Data		LGAQIVI4-7-42	LGADIVI4-7-42	LGANI4-742		
Liectifical Data	Cell /LTE		4x 698-960 / 1427-4200			
Frequency Range	WiFi	4x 2396-7125	2x 2396-7125			
(MHz)	GPS/GNSS	4x 2390-7123	1x 1559-1612	<u> </u>		
	Cell Elements		<2.5:1			
Typical VSWR*	WiFi Elements		2:1			
	Cell Elements		B (698-960MHz) / ≥12dB (1427-4200MH			
Isolation**	Wifi Elements		-7.125GHz)	-		
Pattern	VIII Elomonio	>2000 (2.1	Omni-directional			
Impedance			50Ω			
Max Input Power (\	W)		5			
GPS/GNSS Data	, 					
Frequency Range	(MHz)		1559-1612			
Impedance	_/		50Ω			
·						
LNA Gain			26dB			
Voltage / Current		3-5v 17ma Typical				
Polarisation			Right Hand Circular			
Mechanical Data	Linialist (consequents al)		FC 0 (0 0!!)			
5 :	Height (unmounted)		56.9 (2.2")			
Dimensions (mm)	Wid h		118 (4.64")			
Length			175.4 (6 9")			
Environmental Spe			400 / 0500 / 400 / 40505)			
Operating Temp (°C	J)		-40° / +85°C (-40° / +185°F)			
Radome Material		Lexan EXL 9330				
Radome Approvals		V0 (UL 94) / UL 746C (F1)				
Ingress Protection		IP69K				
Vandal Resistance			IK10			
Mounting Data			M40 (0(4II) May 11 D			
Fixing			M18 (3/4") Mounting Bush			
Termination Data			0000 (0			
Cable Type	`		CS30 (Compliant to UN ECE R118)			
Cable Diameter (mm)		2.8 (0.1")				
Cable Length (m)	10/50		2m (6.6')			
	4G/5G		4x SMA Plug (m)			
Termination	WiFi	4x Reverse Polarity SMA Plug	2x Reverse Polarity SMA Plug	-		
	GPS/GNSS		1x SMA Plug (m)			

^{*}Across 90% of relevant bands when measured in free space with 0.5m (20") of CS30 cable **Worst case isolation measured for LGADM4-7-42 in free space with 0.5m (1.5") CS30 cable

4X4 MiMo 4G/5G IOT AntennaL[X]A[X]M4-7-42[-X]



Product Data

Part No.								
		LG5AQM4-7-42	LG5ADM4-7-42	LG5AM4-7-42				
Electrical Data								
	Cell /LTE		4x 698-960 / 1427-4200					
Frequency Range (MHz)	WiFi	4x 2396-7125	2x 2396-7125	-				
()	GPS/GNSS		1x 1164-1189 / 1559-1612					
Typical VSWR*	Cell Elements		<2.5:1					
	WiFi Elements	<	2:1	-				
Isolation**	Cell Elements	≥6	≥6dB (698-960MHz) / ≥12dB (1427-4200MHz)					
	Wifi Elements	>25dB (2.	>25dB (2.4-7.125GHz) -					
Pattern			Omni-directional					
Impedance			50Ω					
Max Input Power (\	N)		5					
GPS/GNSS Data								
Frequency Range	(MHz)		1164-1189 / 1559-1612					
Impedance			50Ω					
LNA Gain			30dB / 26dB					
Voltage / Current			3-5v 37ma Typical					
Polarisation			Right Hand Circular					
Mechanical Data								
	Height		56.9 (2.2")					
Dimensions (mm)	Width		118 (4.64")					
	Length		175.4 (6.9")					
Environmental Spe	cification							
Operating Temp (°C	C)		-40° / +85°C (-40° / +185°F)					
Radome Material			Lexan EXL 9330					
Radome Approvals			V0 (UL 94) / UL 746C (F1)					
Ingress Protection			IP69K					
Vandal Resistance			IK10					
Mounting Data								
Fixing			M18 (3/4") Mounting Bush					
Termination Data								
Cable Type			CS30 (Compliant to UN ECE R118)					
Cable Diameter (mm)			2.8 (0.1")					
Cable Length (m)			2m (6.6')					
	4G/5G		4x SMA Plug (m)					
Termination	WiFi	4x Reverse Polarity SMA Plug	2x Reverse Polarity SMA Plug	-				
	GPS/GNSS		1x SMA Plug (m)					

^{*}Across 90% of relevant bands when measured in free space with 0.5m (20") of CS30 cable **Worst case isolation measured for LGADM4-7-42 in free space with 0.5m (1.5") CS30 cable



Product Data

Part No.								
		LPAQM4-7-42	LPADM4-7-42	LPAM4-7-42				
Electrical Data								
Frequency Range	Cell /LTE		4x 698-960 / 1427-4200					
(MHz)	WiFi	4x 2396-7125	4x 2396-7125 2x 2396-7125					
Typical VSWR*	Cell Elements		<2.5:1					
Typical VOVIII	WiFi Elements	< 2:	< 2:1					
Isolation**	Cell Elements	≥6dB	≥6dB (698-960MHz) / ≥12dB (1427-4200MHz)					
isolation	Wifi Elements	>25dB (2.4-7	>25dB (2.4-7.125GHz)					
Pattern			Omni-directional					
Impedance			50Ω					
Max Input Power (V	V)		5					
Mechanical Data								
	Height		56.9 (2.2")					
Dimensions (mm)	Wid h		118 (4.64")					
	Length		175.4 (6 9")					
Environmental Spe	cification							
Operating Temp (°C	C)		-40°/+85°C (-40°/+185°F)					
Radome Material			Lexan EXL 9330					
Radome Approvals			V0 (UL 94) / UL 746C (F1)					
Ingress Protection			IP69K					
Vandal Resistance			IK10					
Mounting Data								
Fixing			M18 (3/4") Mounting Bush					
Termination Data			, , ,					
Cable Type			CS30 (Compliant to UN ECE R118)					
Cable Diameter (mm)			2.8 (0.1")					
Cable Length (m)			2m (6.6')					
	4G/5G		4x SMA Plug (m)					
Termination	WiFi	4x Reverse Polarity SMA Plug	2x Reverse Polarity SMA Plug	_				
	*****	TA TOVOISO I Glarity Givi/ (1 lug	Ex 11010100 Folding Olvin I lug					

^{*}Across 90% of relevant bands when measured in free space with 0.5m (20") of CS30 cable **Worst case isolation measured for LGADM4-7-42 in free space with 0.5m (1.5") CS30 cable

4X4 MiMo 4G/5G IOT AntennaL[X]A[X]M4-7-42[-X]



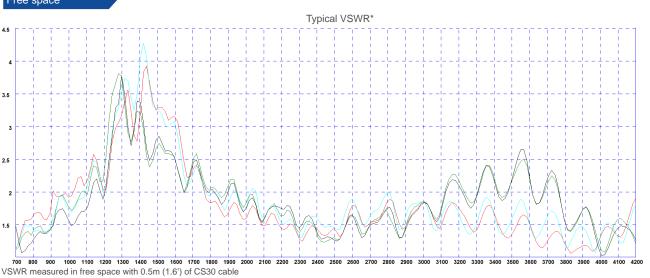
Electrical Data- Cell-Free space

Measurement Conditions	4G/5G Antennas				
LGADM4-7-42 measured in free space with 0.5m (1.6') CS30 Cable	Frequency Range (MHz)	LTE Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
SKINNYA HAMPIYA DUGA	699-798	12,13, 14 17,28	Cell A	0.8	45
			Cell B	-0.2	45
			Cell C	-0.2	45
			Cell D	-0.1	46
	807- 862	5,19,20,26,27	Cell A	1.8	50
			Cell B	0.5	50
			Cell C	0.7	50
三国教林林林			Cell D	0.6	52
Hally to the	880-960	8	Cell A	1.9	53
	800-900	0	Cell B	1.3	57
			Cell C	1.6	53
			Cell D	1.6	56
	1427-1518	11, 21, 74,75,76	Cell A	1.3	40
ALCOHOLD HIM STATE	1427-1316	11, 21, 74,75,76	Cell B	1.8	46
			Cell C	1.0	35
ALLE STATE OF THE			Cell D	1.5	45
	1710-1920	2,3,4,9,25,35, 39,66	Cell A	2.2	52
	1710-1920		Cell B	2.0	47
			Cell C	2.2	48
			Cell D	1.2	44
	1920-2170	1,23	Cell A	3.7	56
			Cell B	2.5	48
			Cell C	3.9	55
			Cell D	2.2	47
	2300-2400	30,40	Cell A	4.4	63
			Cell B	1.3	53
			Cell C	4.5	60
			Cell D	1.4	51
	2406 2600	7 20 41	Cell A	5.4	64
	2496-2690	7,38,41	Cell B	3.3	53
			Cell C	5.2	61
			Cell D	2.6	54
	3300-4200	22,42,43,48,77, 78	Cell A	6.3	65
			Cell B	4.5	47
			Cell C	4.9	62
			Cell D	4.4	47

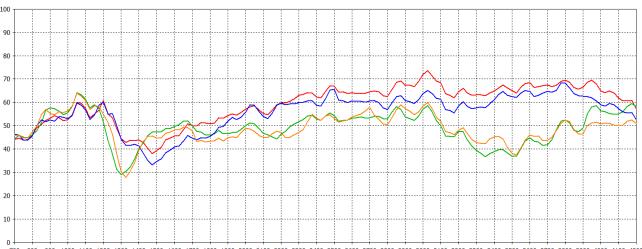
Electrical Data - WiFi-Free Space

Measurement Conditions	WiFi Antennas				
LGADM4-7-42 measured in free space with 0.5m (1.6') CS30 Cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
SHIP THE WATER OF THE SHIP SHIP SHIP SHIP SHIP SHIP SHIP SHIP	2396-2485	2.4GHz	WiFi 1	3.6	60
SON ALL MARKET (ASSESSED			WiFi 2	3.4	57
	5150-5250	UNII-1	WiFi 1	63	63
			WiFi 2	6.6	61
A CONTRACTOR OF THE CONTRACTOR	5250-5350	UNII-2A	WiFi 1	6.1	60
	5250-5350	UNII-ZA	WiFi 2	6.7	59
			WiFi 1	6.1	60
	5350-5470	UNII-2B	WiFi 2	6.4	56
			WiFi 1	6.1	61
	5470-5725	UNII-2C	WiFi 2	6 5	55
		UNII-3	WiFi 1	6 0	65
	5725-5850		WiFi 2	6 2	56
	5850-5925	UNII-4	WiFi 1	5 3	64
			WiFi 2	5 5	56
	5925-6425	UNII-5	WiFi 1	5.4	63
			WiFi 2	5 3	57
		UNII-6	WiFi 1	5.4	61
	6425-6525		WiFi 2	5 5	60
			WiFi 1	5 2	57
	6525-6875	UNII-7	WiFi 2	62	58
			WiFi 1	4 8	51
	6875-7125	UNII-8	WiFi 2	5.6	58

Electrical Data- Cell-Free space

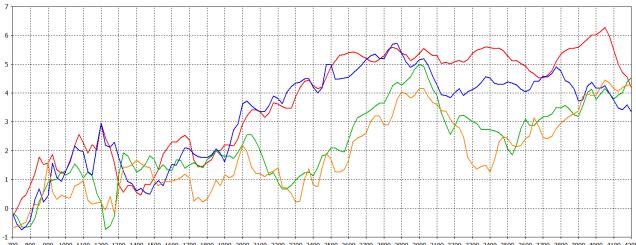


Typical Efficiency*



700 800 900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 *Efficiency measured in free space with 0.5m (1.6') of CS30 cable

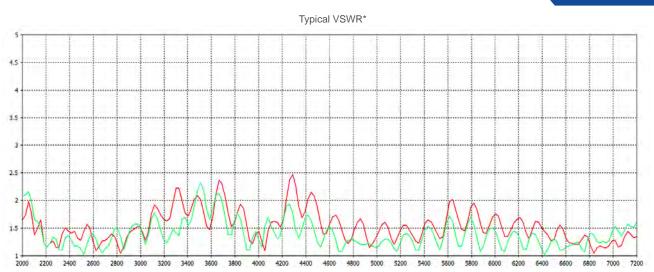




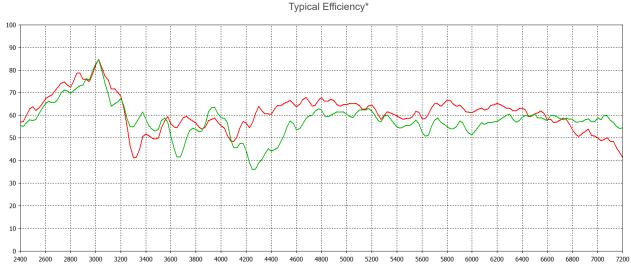
900 1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4200 700

^{*} Swept peak gain measured in free space wi h 0.5m (1.6') of CS30 cable

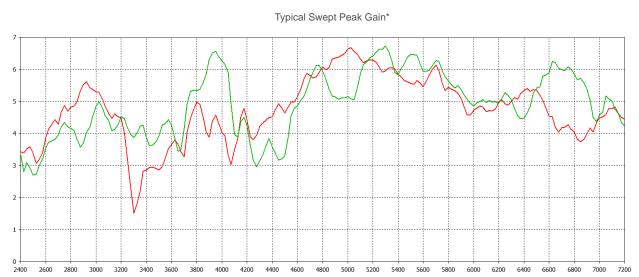
Electrical Data -WiFi-Free Space



*VSWR measured in free space with 0 5m (1.6') of CS30 cable



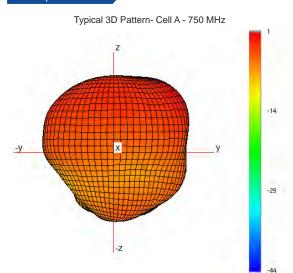
*Efficiency measured in free space with 0.5m (1.6') of CS30 cable

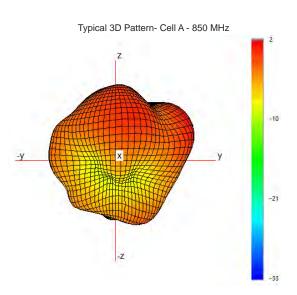


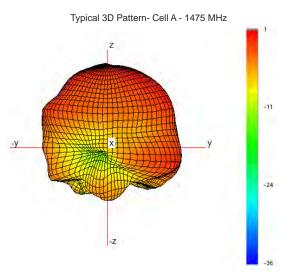
* Swept peak gain measured in free space with 0.5m (1.6') of CS30 cable

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

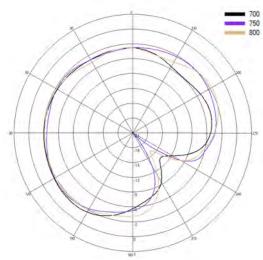
3D Pattern Data in Free Space Cell A



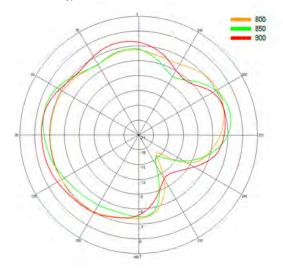




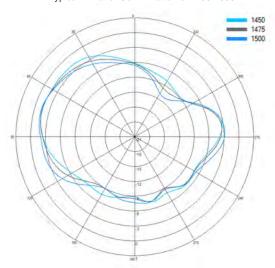
Typical H Plane- Cell A - Patterns- 700-800MHz



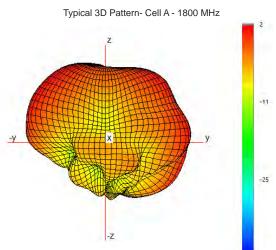
Typical H Plane- Cell A - Patterns- 800-900MHz

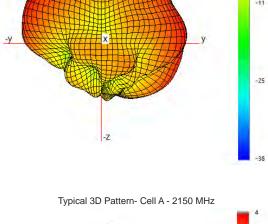


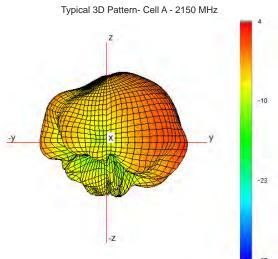
Typical H Plane- Cell A- Patterns- 1450-1500 MHz

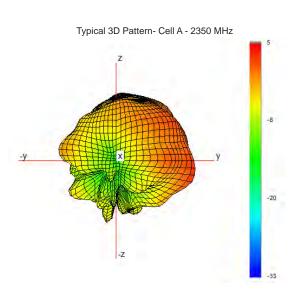


3D Pattern Data in Free Space Cell A



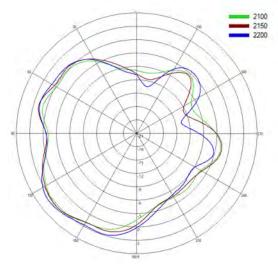




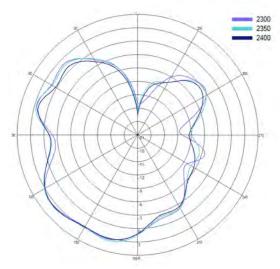


Typical H Plane- Cell A- Patterns- 1750-1850 MHz 1750 1800 1850

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

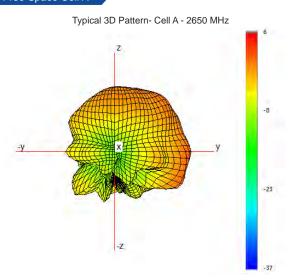


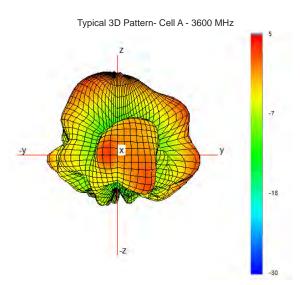
Typical H Plane- Cell A - Patterns- 2300-2400 MHz

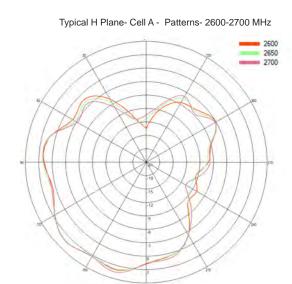


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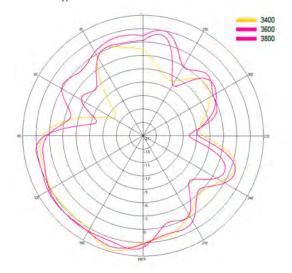
3D Pattern Data in Free Space Cell A



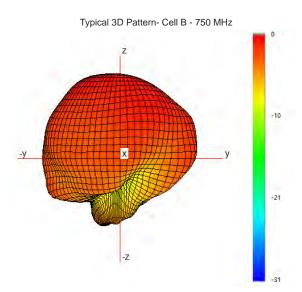


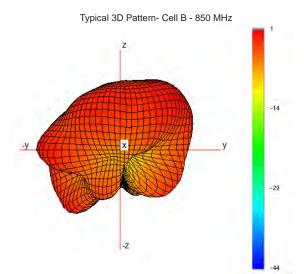


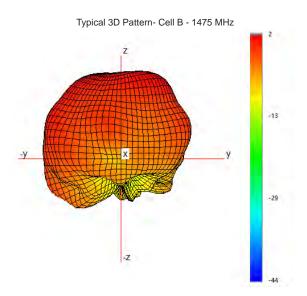
Typical H Plane- Cell A - Patterns- 3400-3800 MHz



3D Pattern Data in Free Space Cell B

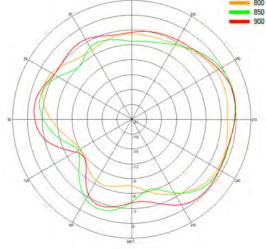




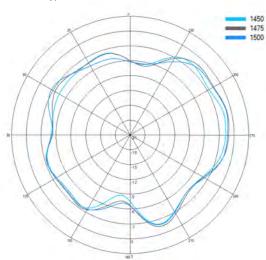


Typical H Plane- Cell B - Patterns- 700-800MHz 750 800

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

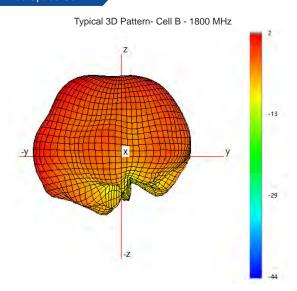


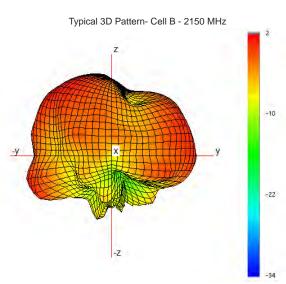
Typical H Plane- Cell B- Patterns- 1450-1500 MHz

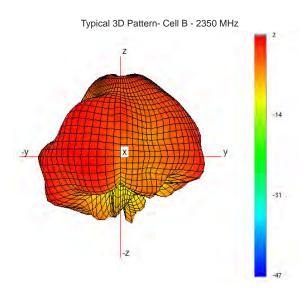


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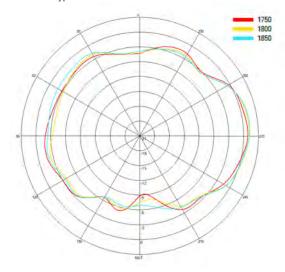
3D Pattern Data in Free Space Cell B



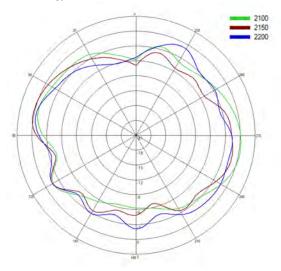




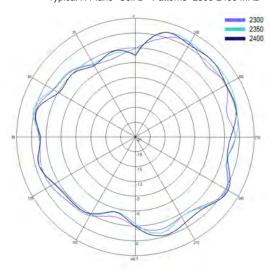
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



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



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



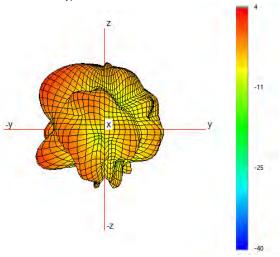
3D Pattern Data in Free Space Cell B

Typical 3D Pattern- Cell B - 2650 MHz

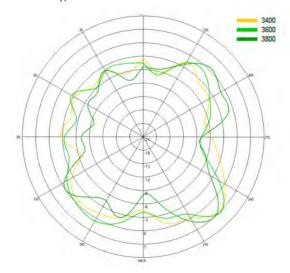
-21

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

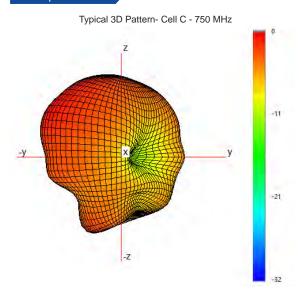
Typical 3D Pattern- Cell B - 3600 MHz

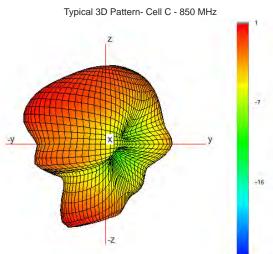


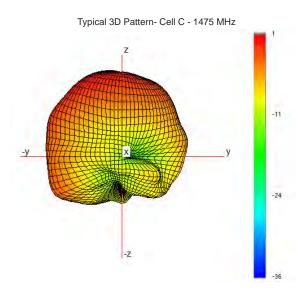
Typical H Plane- Cell B - Patterns- 3400-3800 MHz

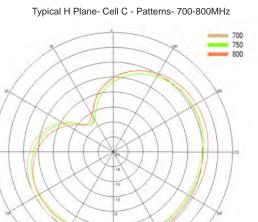


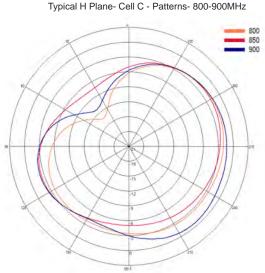
3D Pattern Data in Free Space Cell C

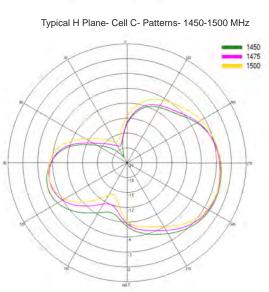




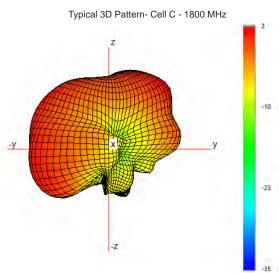


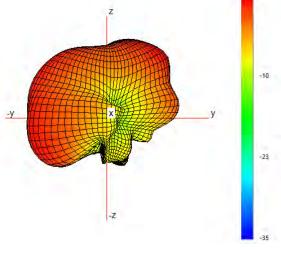


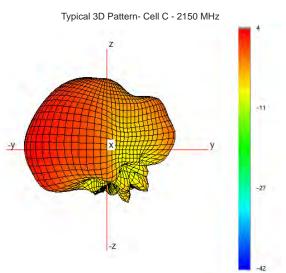


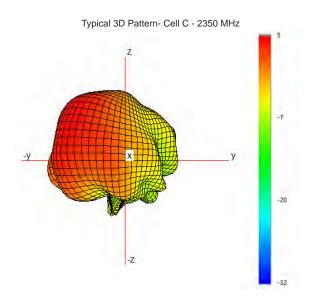


3D Pattern Data in Free Space Cell C





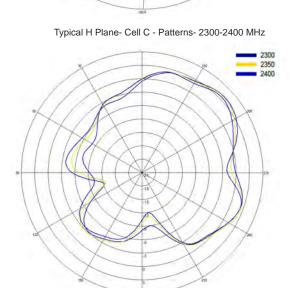




Typical H Plane- Cell C- Patterns- 1750-1850 MHz 1750 1800

2150 2200

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



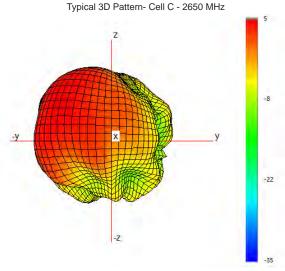
Panorama Antennas Ltd Panorama Antennas Ltd Frogmore, London, SW18 1HF, United Kingdom T: +44 (0)20 8877 4444 | F: +44 (0)20 8877 4477 E: sales@panorama-antennas.com W: www.panorama-antennas.com

L[X]A[X]M4-7-42[-X] -04/06/2024 V4

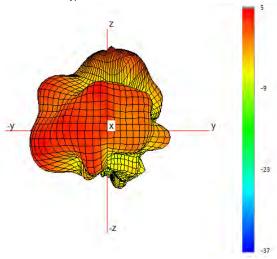
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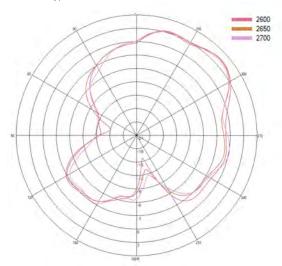
3D Pattern Data in Free Space Cell C



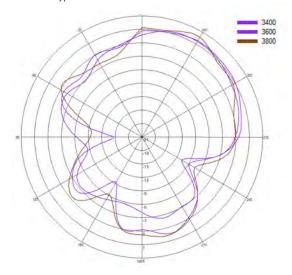
Typical 3D Pattern- Cell C - 3600 MHz



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

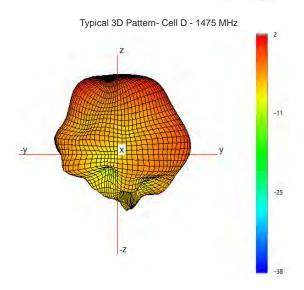


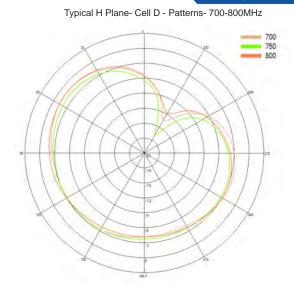
Typical H Plane- Cell C - Patterns- 3400-3800 MHz

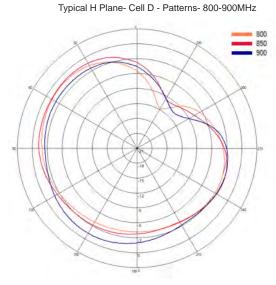


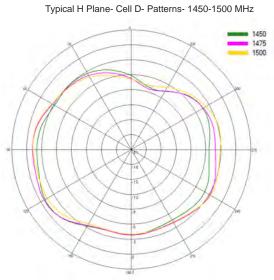
3D Pattern Data in Free Space Cell D

-Z





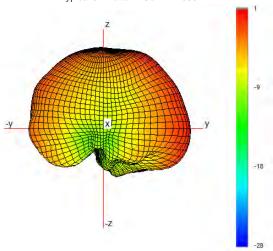




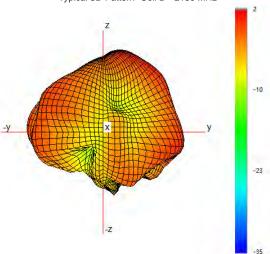
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3D Pattern Data in Free Space Cell D

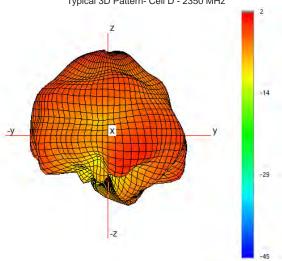
Typical 3D Pattern- Cell D - 1800 MHz



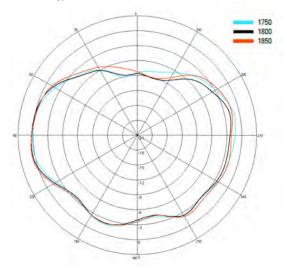
Typical 3D Pattern- Cell D - 2150 MHz



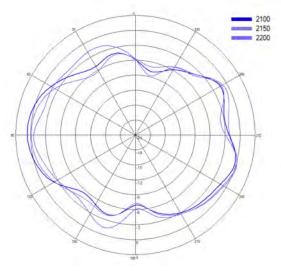
Typical 3D Pattern- Cell D - 2350 MHz



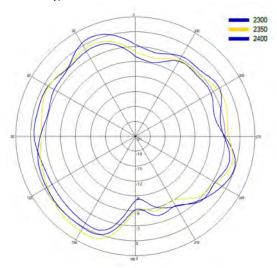
Typical H Plane- Cell D- Patterns- 1750-1850 MHz



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

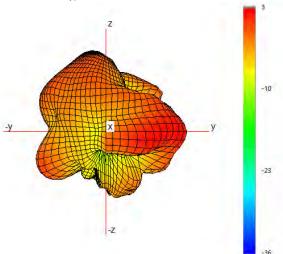


Typical H Plane- Cell D - Patterns- 2300-2400 MHz

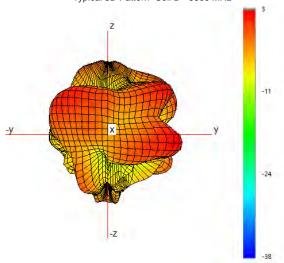


3D Pattern Data in Free Space Cell D

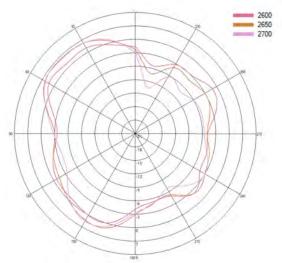
Typical 3D Pattern- Cell D - 2650 MHz



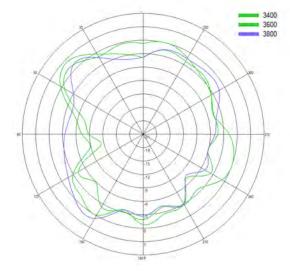
Typical 3D Pattern- Cell D - 3600 MHz



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

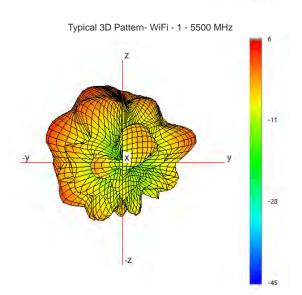


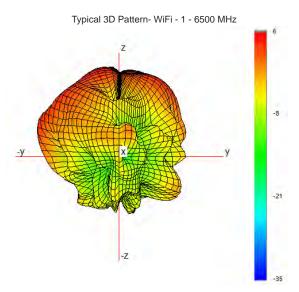
Typical H Plane- Cell D - Patterns- 3400-3800 MHz



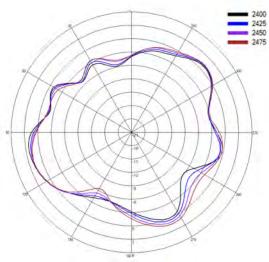
WiFi Pattern-Data in Free Space -WiFi -1

Typical 3D Pattern- WiFi - 1 - 2450 MHz -24

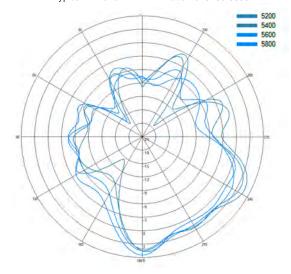




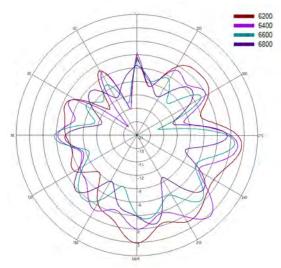
Typical H Plane- WiFi - 1 - Patterns- 2400-2475MHz



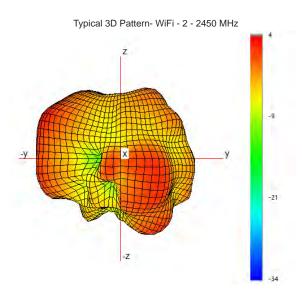
Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz



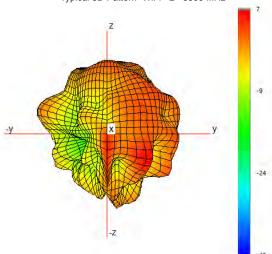
Typical H Plane- WiFi - 1 - Patterns- 6200-6800MHz



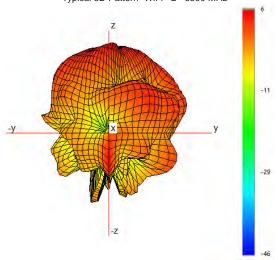
WiFi Pattern-Data in Free Space -WiFi -2



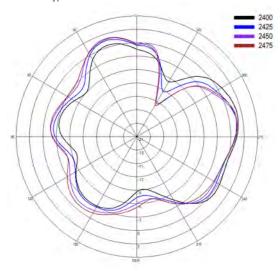
Typical 3D Pattern- WiFi - 2 - 5500 MHz



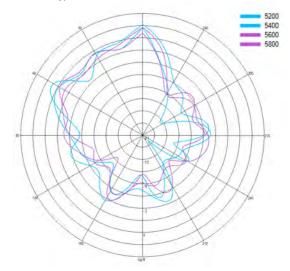
Typical 3D Pattern- WiFi - 2 - 6500 MHz



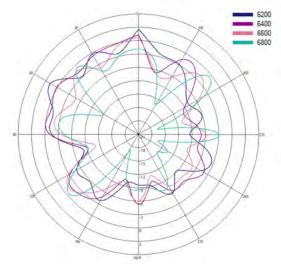
Typical H Plane- WiFi - 2 - Patterns- 2400-2475MHz



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



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



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4X4 MiMo 4G/5G IOT AntennaL[X]A[X]M4-7-42[-X]



Electrical Data Cell on Ground Plane

Measurement Conditions	4G/5G Antennas				
LGADM4-7-42 measured on 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') CS30 Cable	Frequency Range (MHz)		Antenna Element	Peak Gain (dBi)	Efficiency (%)
		40.40.44.47.00	Cell A	3.5	44
	699-798	12,13, 14 17,28	Cell B	3.0	46
			Cell C	3.7	40
			Cell D	2.4	46
	807- 862	5,19,20,26,27	Cell A	3.8	46
			Cell B	4.0	49
			Cell C	3.5	43
			Cell D	3.9	50
			Cell A	4.2	64
	880-960	8	Cell B	4.2	55
			Cell C	4.5	59
福州	1427-1518		Cell D	3.9	56
			Cell A	3.3	31
		11, 21, 74,75,76	Cell B	4.4	47
			Cell C	3.3	35
			Cell D	4.1	46
	1710-1920	2,3,4,9,25,35, 39,66	Cell A	5.6	54
			Cell B	4.8	47
			Cell C	5.0	49
			Cell D	4.4	47
	1920-2170	1,23	Cell A	7.6	61
			Cell B	5.9	49
			Cell C	7.1	58
			Cell D	5.2	49
		30,40	Cell A	8.6	64
	2300-2400		Cell B	6.1	49
			Cell C	7.8	61
			Cell D	5.5	51
		7,38,41	Cell A	7.8	57
	2496-2690		Cell B	7.2	56
			Cell C	7.5	59
			Cell D	6.5	54
	3300-4200	22,42,43,48,77, 78	Cell A	6.9	61
			Cell B	6.8	49
			Cell C	7.1	61
			Cell D	6.6	49

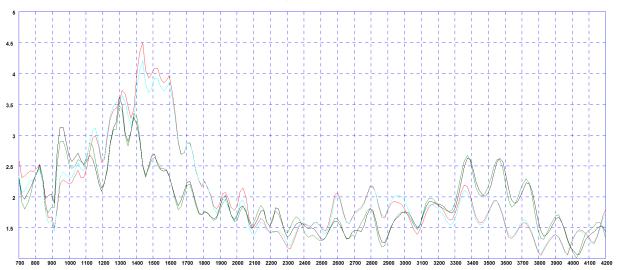


Electrical Data WiFi on Ground Plane

Measurement Conditions	WiFi Antenna	S			
LGADM4-7-42 measured on 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') CS30 Cable	Frequency Range (MHz)	WiFi Bands	Antenna Element	Peak Gain (dBi)	Efficiency (%)
	2396-2485	2.4GHz	WiFi 1	5.7	55
			WiFi 2	5.6	47
	5150-5250		WiFi 1	8 0	57
		UNII-1	WiFi 2	8.6	60
			WiFi 1	7 8	57
+	5250-5350	UNII-2A	WiFi 2	8 5	58
			WiFi 1	7 8	57
+	5350-5470	UNII-2B	WiFi 2	8 2	56
			WiFi 1	6.7	55
	5470-5725	UNII-2C	WiFi 2	7 0	52
	5725-5850	UNII-3	WiFi 1	5 8	59
			WiFi 2	6.6	54
	5850-5925	UNII-4	WiFi 1	5 9	60
			WiFi 2	6.7	55
	5925-6425	UNII-5	WiFi 1	78	60
			WiFi 2	6 8	57
		UNII-6	WiFi 1	73	60
	6425-6525		WiFi 2	6.4	58
	6525-6875		WiFi 1	5 9	62
		UNII-7	WiFi 2	5 8	58
	6875-7125	UNII-8	WiFi 1	5.7	59
			WiFi 2	5 5	56

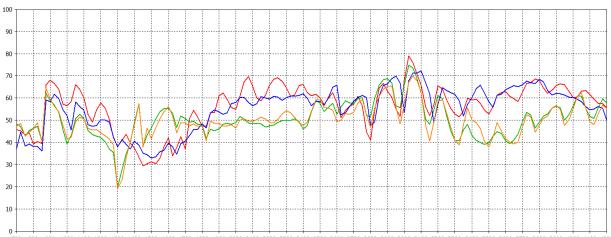
Electrical Data Cell on Ground Plane

Typical VSWR*

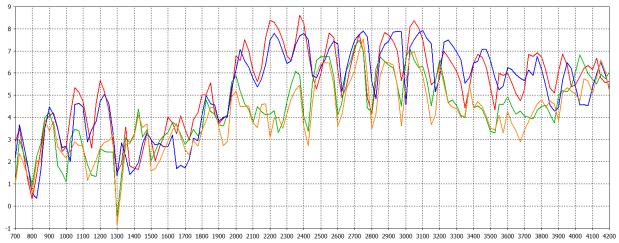


*VSWR measured on a 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') of CS30 cable

Typical Efficiency*



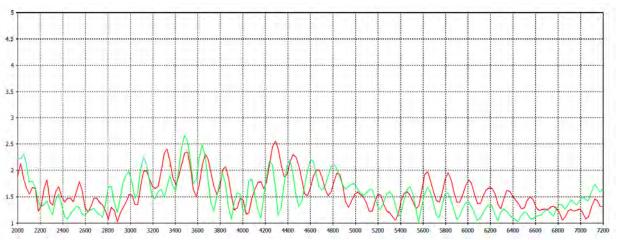
Typical Swept Peak Gain*



* Swept peak gain measured on a 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') of CS30 cable

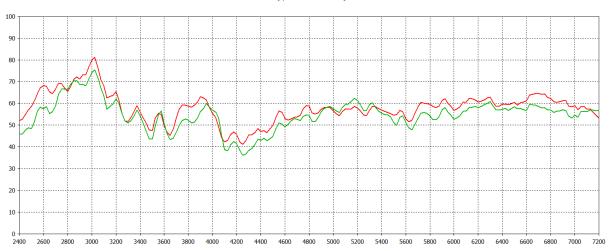
Electrical Data WiFi on Ground Plane





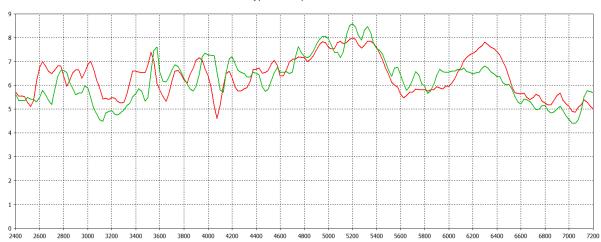
*VSWR measured on a 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') of CS30 cable

Typical Efficiency*



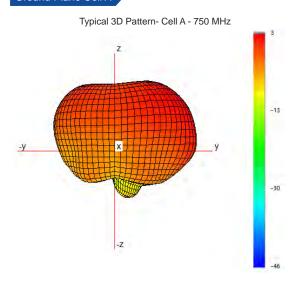
*Efficiency measured on a 400x400mm (1 3'x1.3') ground plane with 0.5m (1.6') of CS30 cable

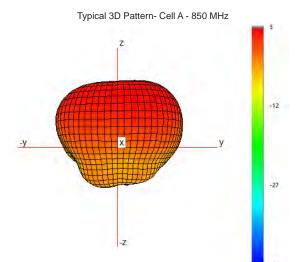
Typical Swept Peak Gain*

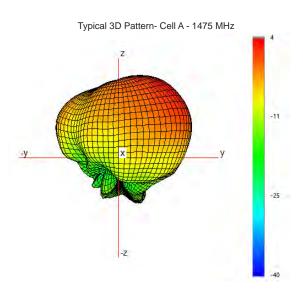


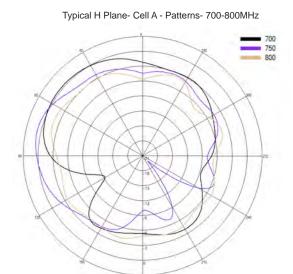
* Swept peak gain measured on a 400x400mm (1.3'x1.3') ground plane with 0.5m (1.6') of CS30 cable

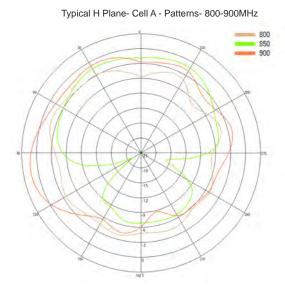
3D Pattern Data on Ground Plane Cell A

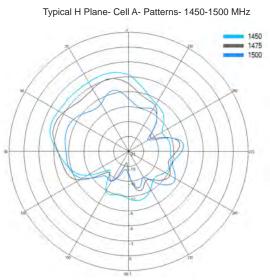




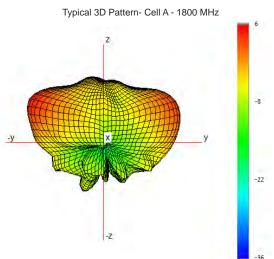


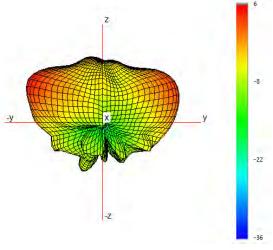


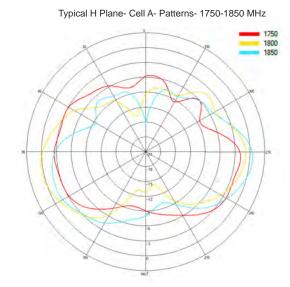


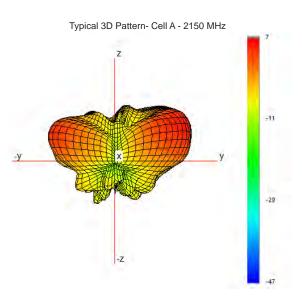


3D Pattern Data on Ground Plane Cell A

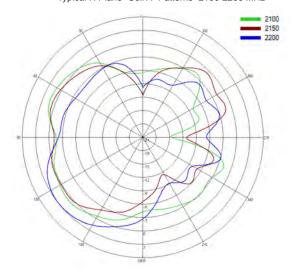


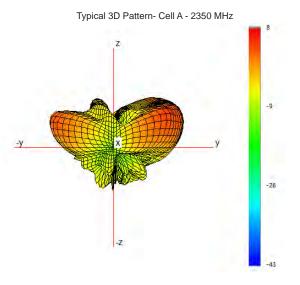




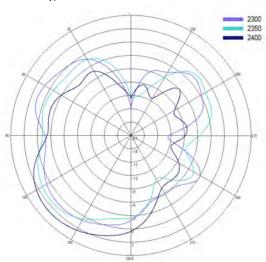






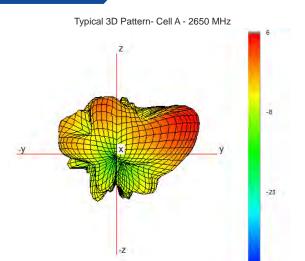


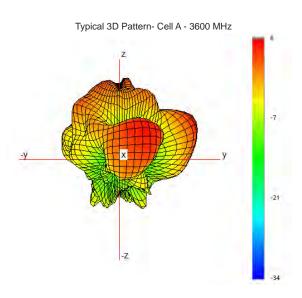
Typical H Plane- Cell A - Patterns- 2300-2400 MHz

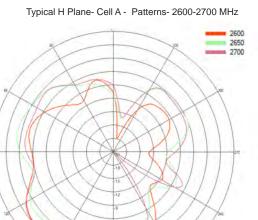


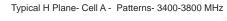
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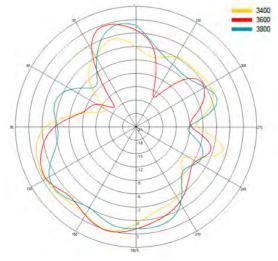
3D Pattern Data on Ground Plane Cell A



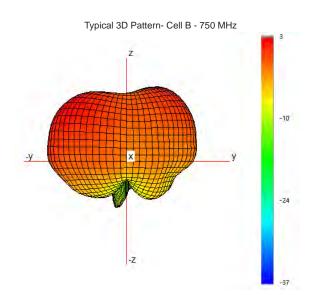




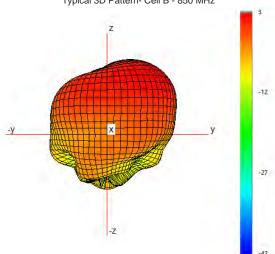




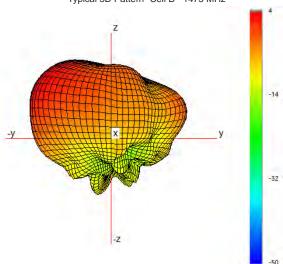
3D Pattern Data on Ground Plane Cell B



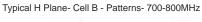
Typical 3D Pattern- Cell B - 850 MHz

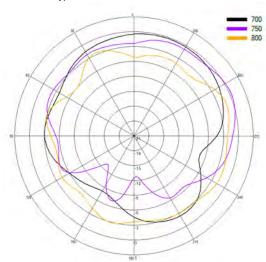


Typical 3D Pattern- Cell B - 1475 MHz

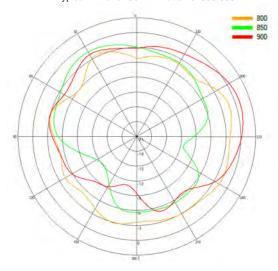


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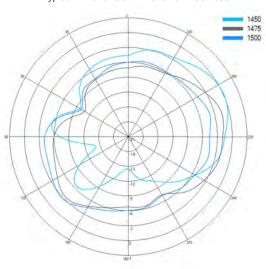




Typical H Plane- Cell B - Patterns- 800-900MHz



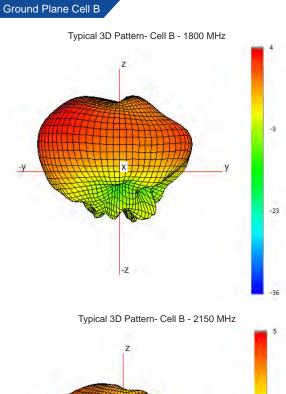
Typical H Plane- Cell B- Patterns- 1450-1500 MHz

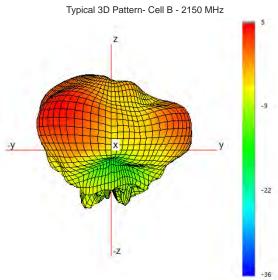


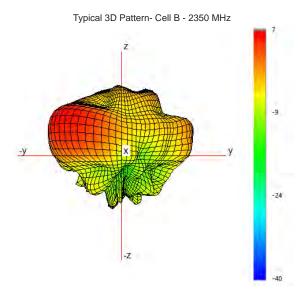
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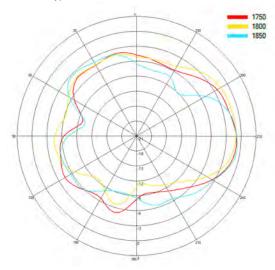
3D Pattern Data on



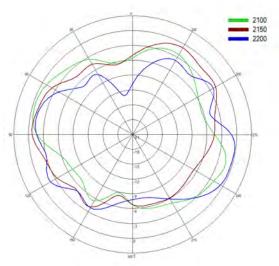




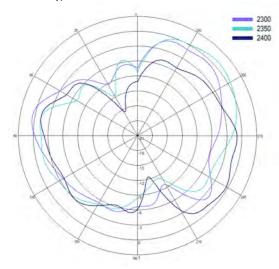
Typical H Plane- Cell B- Patterns- 1750-1850 MHz



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



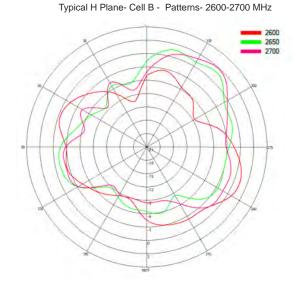
Typical H Plane- Cell B - Patterns- 2300-2400 MHz



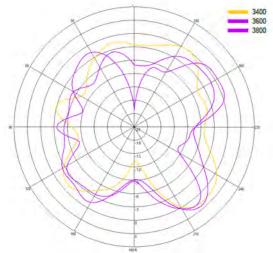
3D Pattern Data on Ground Plane Cell B

Typical 3D Pattern- Cell B - 2650 MHz

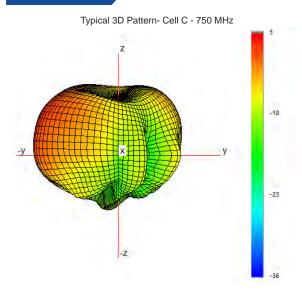
Typical 3D Pattern- Cell B - 3600 MHz -27

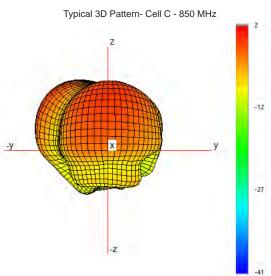


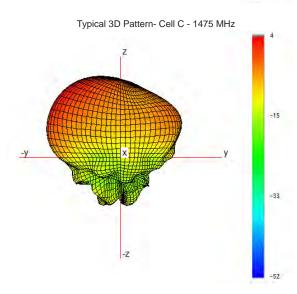
Typical H Plane- Cell B - Patterns- 3400-3800 MHz



3D Pattern Data on Ground Plane Cell C

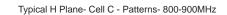


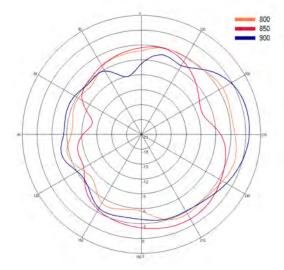




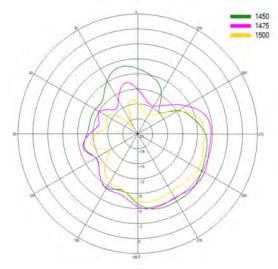
700 750 800

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



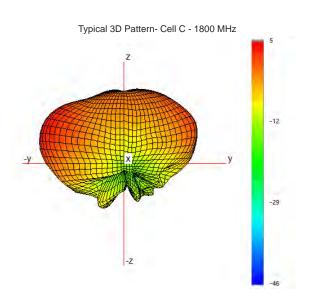


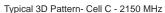
Typical H Plane- Cell C- Patterns- 1450-1500 MHz

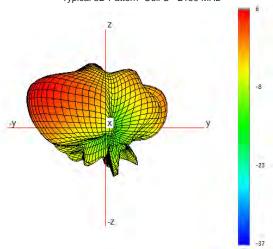


Typical H Plane- Cell C- Patterns- 1750-1850 MHz

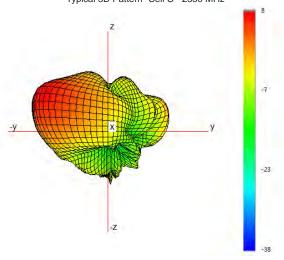
3D Pattern Data on Ground Plane Cell C



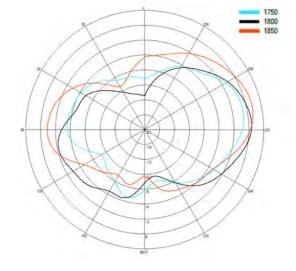




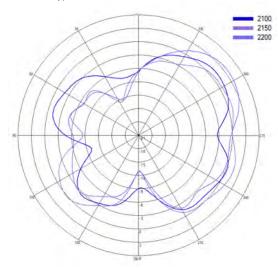
Typical 3D Pattern- Cell C - 2350 MHz



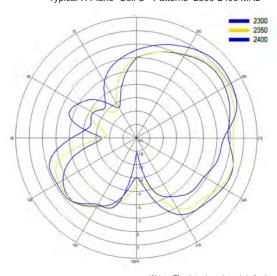
Panorama Antennas Ltd Panorama Antennas Ltd Frogmore, London, SW18 1HF, United Kingdom T: +44 (0)20 8877 4444 | F: +44 (0)20 8877 4477 E: sales@panorama-antennas.com W: www.panorama-antennas.com



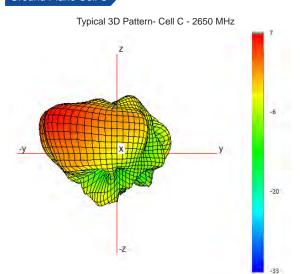
Typical H Plane- Cell C- Patterns- 2100-2200 MHz

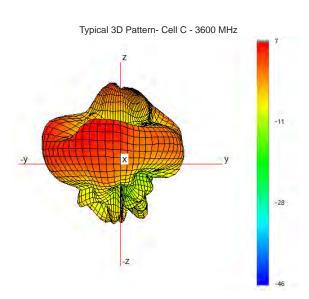


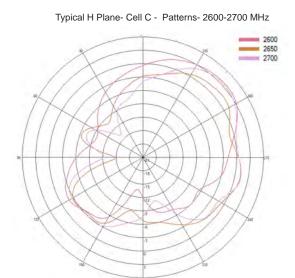
Typical H Plane- Cell C - Patterns- 2300-2400 MHz

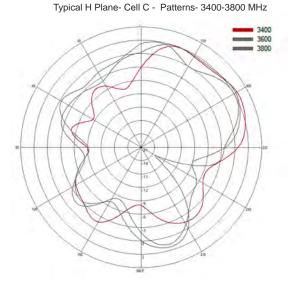


3D Pattern Data on Ground Plane Cell C

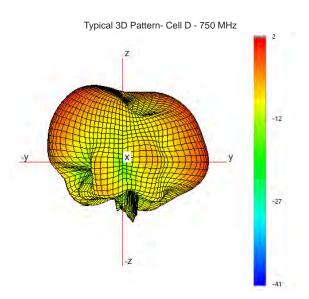




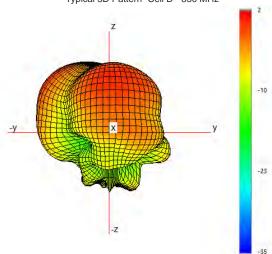




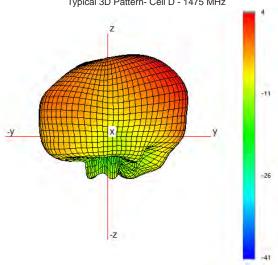
3D Pattern Data on Ground Plane Cell D



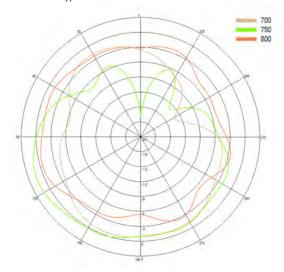
Typical 3D Pattern- Cell D - 850 MHz



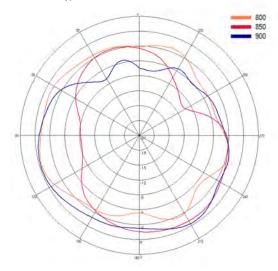
Typical 3D Pattern- Cell D - 1475 MHz



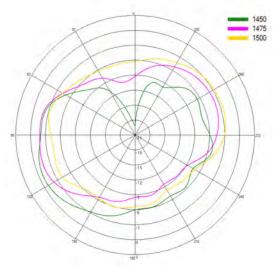
Typical H Plane- Cell D - Patterns- 700-800MHz



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

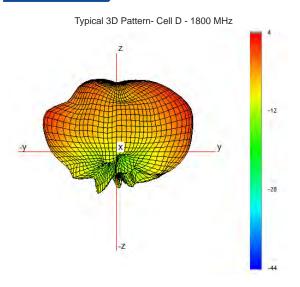


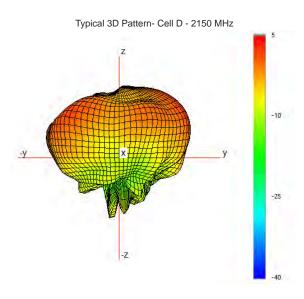
Typical H Plane- Cell D- Patterns- 1450-1500 MHz

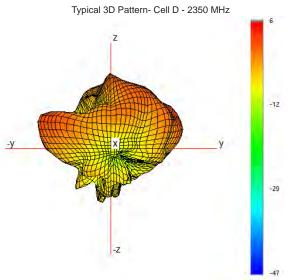


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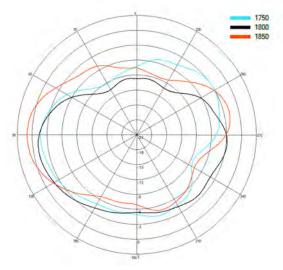
3D Pattern Data on Ground Plane Cell D



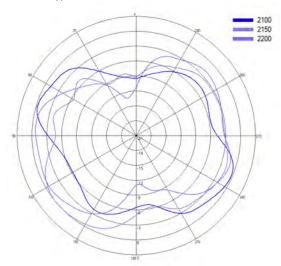




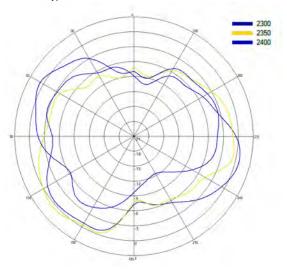
Typical H Plane- Cell D- Patterns- 1750-1850 MHz



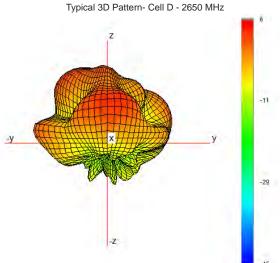
Typical H Plane- Cell D- Patterns- 2100-2200 MHz

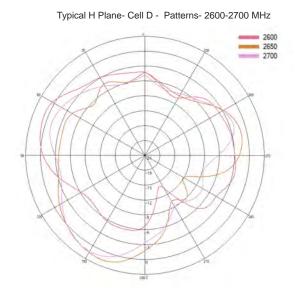


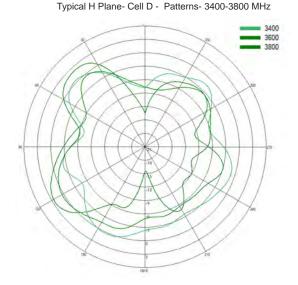
Typical H Plane- Cell D - Patterns- 2300-2400 MHz



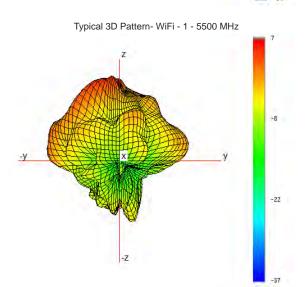
3D Pattern Data on Ground Plane Cell D

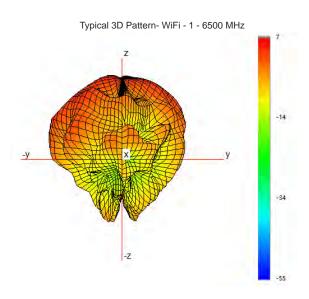




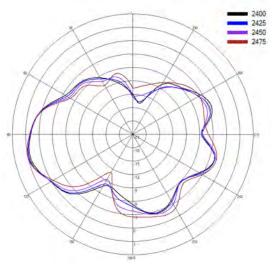


WiFi Pattern-Data on Ground Plane -WiFi -1

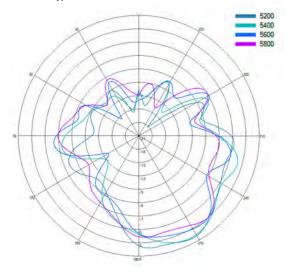




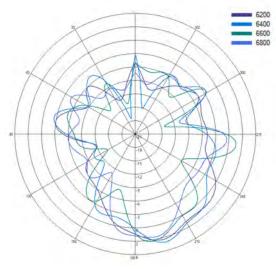




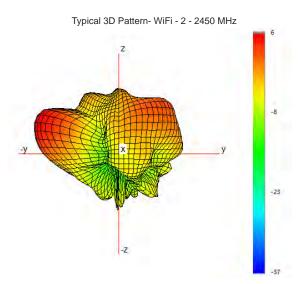
Typical H Plane- WiFi - 1 - Patterns- 5200-5800MHz

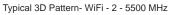


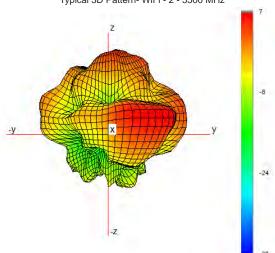
Typical H Plane- WiFi - 1 - Patterns- 6200-6800MHz



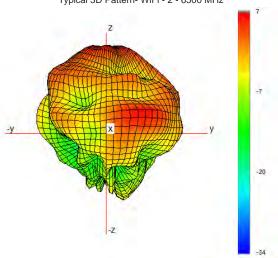
WiFi Pattern-Data on Ground Plane -WiFi -2



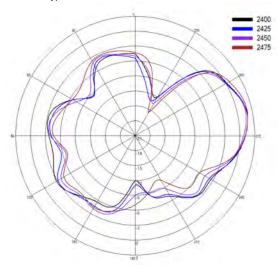




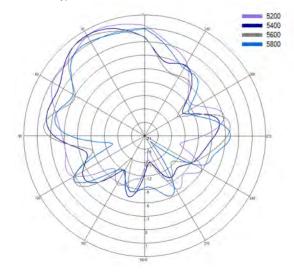
Typical 3D Pattern- WiFi - 2 - 6500 MHz



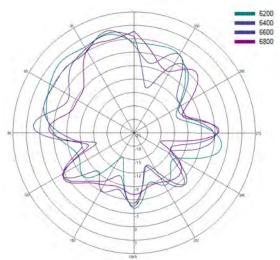
Typical H Plane- WiFi - 2 - Patterns- 2400-2475MHz



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

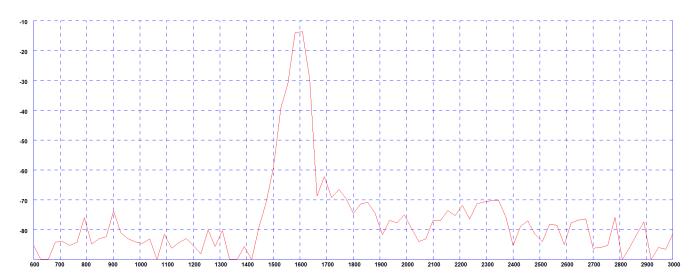


Typical H Plane- WiFi - 2 - Patterns- 6200-6800MHz



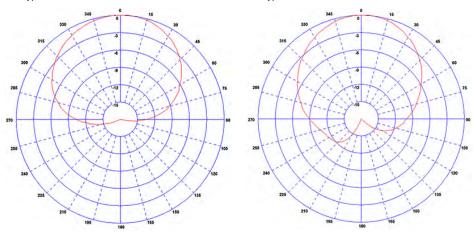
Electrical Data- L1 GPS/GNSS

Swept Gain GPS/GNSS



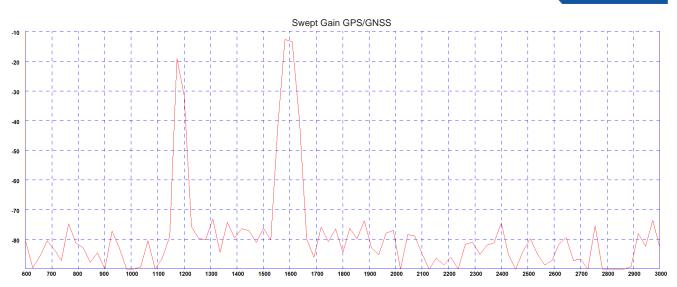
Typical E Plane Pattern - GPS/GNSS 1575 MHz

Typical E Plane Pattern - GPS/GNSS 1602 MHz



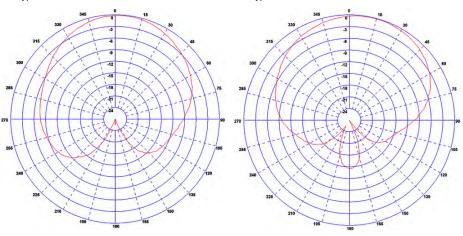
GPS/GNSS Measurements taken on 190x190mm (7.4" x 7.4") ground plane excluding cable loss

Electrical Data- L1/L5 GPS/GNSS

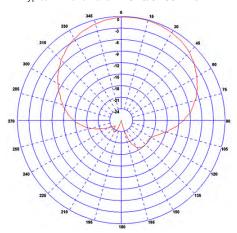


Typical E Plane Pattern - GPS/GNSS 1575 MHz

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