

Sony Mariner Antenna Data Sheet

Date : Apr 12, 2023 Prepared by : Larry Jiang



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Outline

- Antenna Structure & Placement
- Test Infomation
- Test Configuration
- Test Setup & Procedure
- Test Equipment & Calibration
- Antenna Specification
- Return Loss & Isolation
- Radiation Pattern
- Peak Gain & Efficiency



Antenna Structure & Placement

Ant No.	Operating Band	Туре	Material	Feeding	Dimension
Ant 1~4 WiFi 2G/5G	2400 MHz ~ 2500 MHz 5150 MHz ~ 5850 MHz	Dipole	РСВ	Cable	34(L) x 14(W) x 0.6(T) mm ³
Ant 5 BLE	2400 MHz ~ 2500 MHz	Dipole	РСВ	Cable	22(L) x 18(W) x 0.4(T) mm ³



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Test Infomation

Iteam	Description
Brand Name	Sony
Equipment	Wi-Fi
Test Location	8F, No. 3-1, YuanQu St. Taipei, Taiwan 115 R.O.C.
Test Condition	Radiation
Test Engineer	Larry Jiang
Test Environment	ETS-8500 Antenna Measurement Chamber
Test Date	Mar. 1, 2023 ~ Mar. 10, 2023

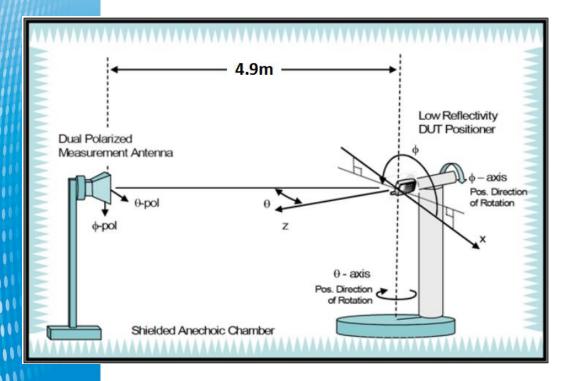


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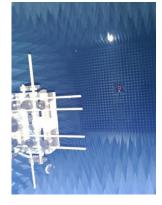
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Test Configuration

ETS AMS-8500 antenna measurement system with a size of $7.32(L) \times 3.66(W) \times 3.66(H) m^3$ is used for antenna performance test, which is based on the great-circle test method defined by CTIA. The multi-axis positioning system (MAPS) rotates the DUT around two orthogonal axes for full spherical coverage.









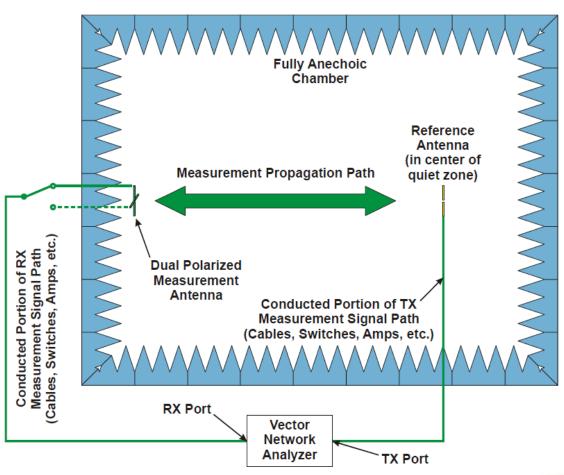
Test Setup & Procedure

- 1. Fix the DUT on the dielectric support structure and connect the feeding cable to the antenna used for test
- 2. Set measurement parameters such as frequency range and sampling angle
- 3. Perform 3D test and then get far-field data (radiation pattern, gain, efficiency)



Equipment Used Information (With Calibration)

Network analyzer and reference antennas (Precision Sleeve Dipole) are used for calibration. Path loss for each band can be checked and calculated.





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Equipment Used Information

Instrument	Brand	Characteristics	Model No.	Serial No.	Calibration Due Date
Precision Sleeve Dipole	ETS-Lindgren	700 MHz ~ 900 MHz	3126-700	00169715	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	900 MHz ~ 1000 MHz	3126-900	00169592	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	1400 MHz ~ 1700 MHz	3126-1550	00164599	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	1700 MHz ~ 2000 MHz	3126-1850	00169588	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	2000 MHz ~ 2300 MHz	3126-2150	00169593	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	2300 MHz ~ 2700 MHz	3126-2500	00169597	Feb 13, 2023
Precision Sleeve Dipole	ETS-Lindgren	5000 MHz ~ 6000 MHz	3126-5500	00169728	Feb 13, 2023
Horn Antenna	SCHWARZBECK	1 GHz ~ 18 GHz	BBHA 9120D	BBHA 9120D- 1294	Feb 13, 2023
EMQuest Antenna Measurement Software	ETS-Lindgren	Control chamber system	EMQ-100	1437	Non-Calibration Required



Antenna Specification

Antenna Specification	Comply	Note
Return Loss: > 10dB (WiFi & BLE)	Yes	
Isolation : > 15dB (WiFi & BLE)	Yes	
Efficiency : > 50% (WiFi & BLE)	Yes	



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Return Loss – Ant 1 WiFi 2G/5G

	.og Mag 10.00dв/ Ref 0.000dв [F2]	
50.00	1 2.4000000 GHz -11.085 dB 2 2.4500000 GHz -16.003 dB	
	3 2.5000000 GHz -19.090 dB 4 5.1500000 GHz -18.954 dB	
40.00	5 5.5000000 GHZ -16.555 dB	
	>7 920.00000 MHz -1.0582 dB 8 926.00000 MHz -1.0701 dB	
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Return Loss – Ant 2 WiFi 2G/5G

	Log Mag 10.00dB/ Ref 0.000dB [F2]
50.00	1 2.4000000 GHz -10.498 dB 2 2.4500000 GHz -12.117 dB 3 2.5000000 GHz -10.088 dB 4 5.1500000 GHz -11.627 dB
40.00	5 5.500000 GHZ -12.502 dB 6 5.8500000 GHZ -33.019 dB >7 920.00000 MHZ -1.2372 dB 8 926.00000 MHZ -1.2421 dB
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Return Loss – Ant 3 WiFi 2G/5G

Tr1 S11	Log N	Mag 10	.00dB/	Ref 0	. 000de	3 [F2]						
50.00	1 2 3 4	2.450	0000 GH 0000 GH 0000 GH 0000 GH	z -10 z -12	.825 0	IB IB							
40.00	5 6 >7 8	5.500	0000 GH 0000 GH 0000 MH 0000 MH	z -16	.736 0	IB IB							
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Return Loss – Ant 4 WiFi 2G/5G

	Log Mag	10.00dB/ R	ef 0.000dB	[F2]				
50.00	2 2.4	000000 GHz 500000 GHz 500000 GHz	-12.362 dE -10.923 dE					
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Return Loss – Ant 5 BLE

	Log Mag 10.00dB/ Ref 0.000dB [F2]	
50.00	1 2.4000000 GHz -21.502 dB	
	2 2.4500000 GHz -17.762 dB 3 2.5000000 GHz -11.729 dB 4 5.1500000 GHz -10.487 dB	
40.00	5 5.5000000 GHz -16.572 dB	
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Tr2 521	Log	Mag 10	0.00dB	/ Ref	• 0.000	B [[F2]					
50.00	1 2 3 4	2.450	00000	GHZ -	-39.750 -34.258 -34.650 -42.601	dB dB						
40.00	4 5 >7 8	5.500	00000	GHZ -	-36.286 -36.662 -43.189 -43.140	dB dB						
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Tr2 521	Log Mag 10.00dB/ Ref 0.000dB [F2]
50.00	1 2.4000000 GHz -17.410 dB 2 2.4500000 GHz -16.676 dB 3 2.5000000 GHz -17.226 dB 4 5.1500000 GHz -36.474 dB
40.00	5 5.500000 GHZ -28.767 dB 6 5.8500000 GHZ -27.491 dB >7 920.00000 MHZ -38.528 dB 8 926.00000 MHZ -38.916 dB
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	Log Mag 10.00dB/ Ref 0.000dB [F2]
50.00	1 2.4000000 GHz -31.169 dB 2 2.4500000 GHz -33.287 dB 3 2.5000000 GHz -35.047 dB
40.00	3 2.5000000 GHz -35.047 dB 4 5.1500000 GHz -28.534 dB 5 5.5000000 GHz -30.255 dB
	6 5.8500000 GHz -38.444 dB >7 920.00000 MHz -44.902 dB
30.00	8 926.00000 MHz -44.060 dB
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▶ Tr2 521 L	.og Mag 10.00dB/ Ref 0.000dB [[F2]	
40.00	1 2.4000000 GHZ -22.988 dB 2 2.4500000 GHZ -23.492 dB 3 2.5000000 GHZ -25.748 dB 4 5.1500000 GHZ -37.444 dB 5 5.5000000 GHZ -39.625 dB >6 5.8500000 GHZ -30.957 dB 7 920.00000 MHZ -53.103 dB 8 926.00000 MHZ -52.035 dB		
30.00	8 926.00000 MHz -52.035 dB		
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			5/7/2020 4:43 PM
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-50.00			



Tr2 521	Log Mag 10.00dB/ Ref 0.000dB [F2]	
50.00	1 2.4000000 GHz -20.570 dB 2 2.4500000 GHz -17.308 dB 3 2.5000000 GHz -17.500 dB 4 5.1500000 GHz -35.626 dB	
40.00	5 5.5000000 GHz -28.446 dB 6 5.8500000 GHz -31.622 dB >7 920.00000 MHz -43.365 dB	
30.00	8 926.00000 MHz -44.118 dB	
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▶ <mark>Tr2</mark> 521	Log Ma	ig 10.00	dB/ Re	f 0.000dB	[F2]						
50.00	1 2 2 2	.400000	0 GHZ 0 GHZ	-18.067 d -18.430 d -20.007 d	B						
40.00	4 5	500000	0 GHZ	-23.591 d	B						
	6 >7 8	.850000 20.0000	0 GHZ 0 MHZ	-25.423 d -41.018 d -41.118 d	B						
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Tr2 521	Log	Mag 10).00dB/	Ref ().000dB	[F2]						
50.00	2	2.450	00000 GH 00000 GH 00000 GH 00000 GH	z -42	2.658 d	B						
40.00	5 >6 7	5.500 5.850 920.0	00000 GH 00000 GH 00000 MH 00000 MH	z -37 z -39 z -61	7.791 d 9.395 d L.996 d	B B B						
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	Log Mag 10.00dB/ Ref 0.000dB [F2]
50.00	1 2.4000000 GHz -22.037 dB 2 2.4500000 GHz -22.422 dB 3 2.5000000 GHz -26.010 dB 4 5.1500000 GHz -31.252 dB
40.00	4 5.1500000 GHZ -31.252 dB 5 5.500000 GHZ -30.627 dB 6 5.8500000 GHZ -30.650 dB >7 920.00000 MHZ -48.341 dB 8 926.00000 MHZ -48.393 dB
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Tr2 521	Log	Mag 1(0.00dB	/ Rei	f 0.000	dB [[F2]						
50.00 40.00	2 3 4 5	2.45 2.50 5.15 5.50	00000 00000 00000	GHZ GHZ GHZ	-35.591 -34.251 -38.433 -43.278 -42.384 -42.384 -43.957	dB dB dB dB							
30.00	78	920. 926.	00000	MHZ MHZ	-43.957 -62.759 -61.044	i d₿ dB							
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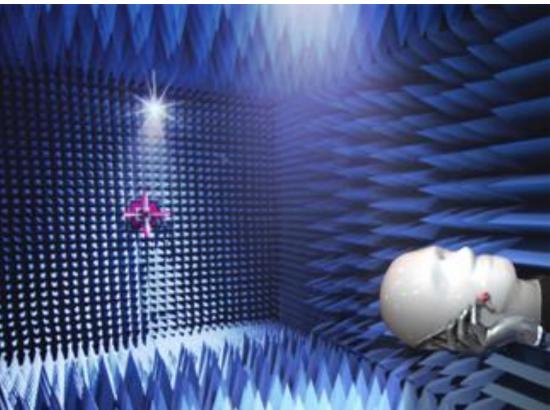


Tr2 521	Log Mag 10.00dB/ Ref 0.000dB [F2]	
	1 2.4000000 GHZ -29.205 dB 2 2.4500000 GHZ -29.042 dB 3 2.5000000 GHZ -31.444 dB 4 5.1500000 GHZ -43.714 dB	
40.00	5 5.500000 GHZ -36.759 dB 6 5.8500000 GHZ -35.771 dB 7 920.00000 MHZ -57.460 dB >8 926.00000 MHZ -54.988 dB	
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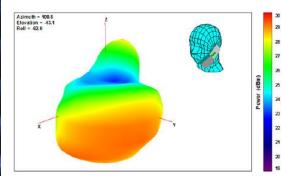


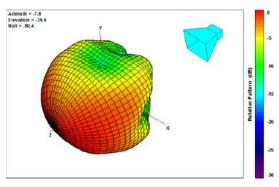
Antenna Measurement Chamber

- ETS AMS-8500 antenna measurement system
- Interior dimensions : 7.32(L)×3.66(W)×3.66(H)m³
- Operating band : 700 MHz 10 GHz
- Support passive test & active test
- Provide graphic data display



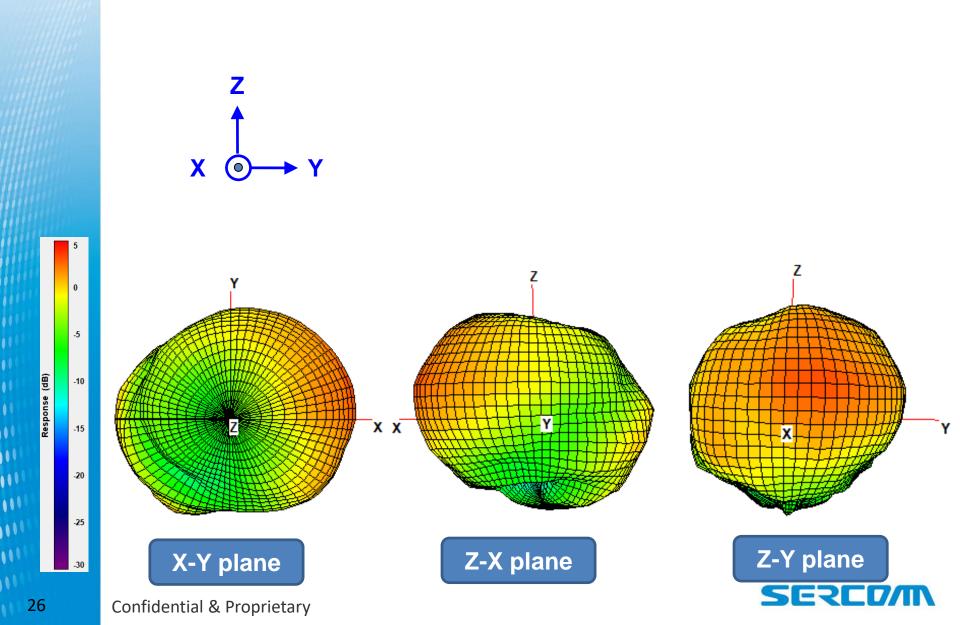




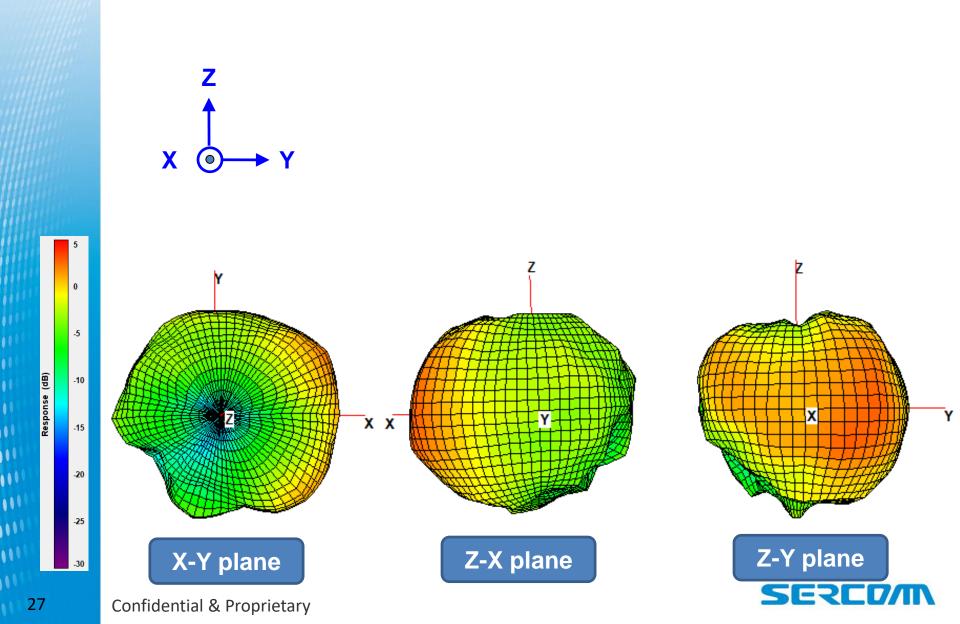




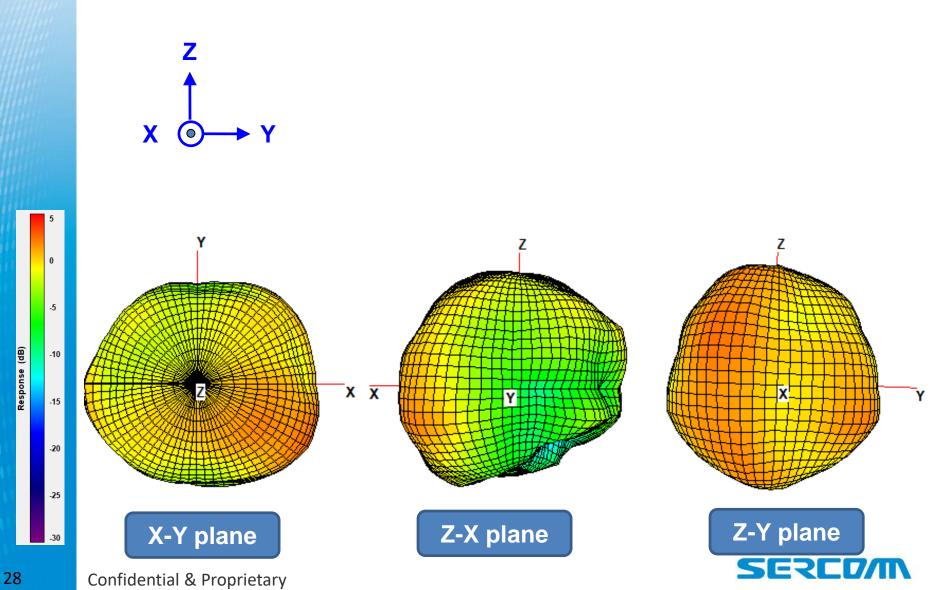
Radiation Pattern – Ant 1 @ 2450MHz



Radiation Pattern – Ant 1 @ 5500MHz

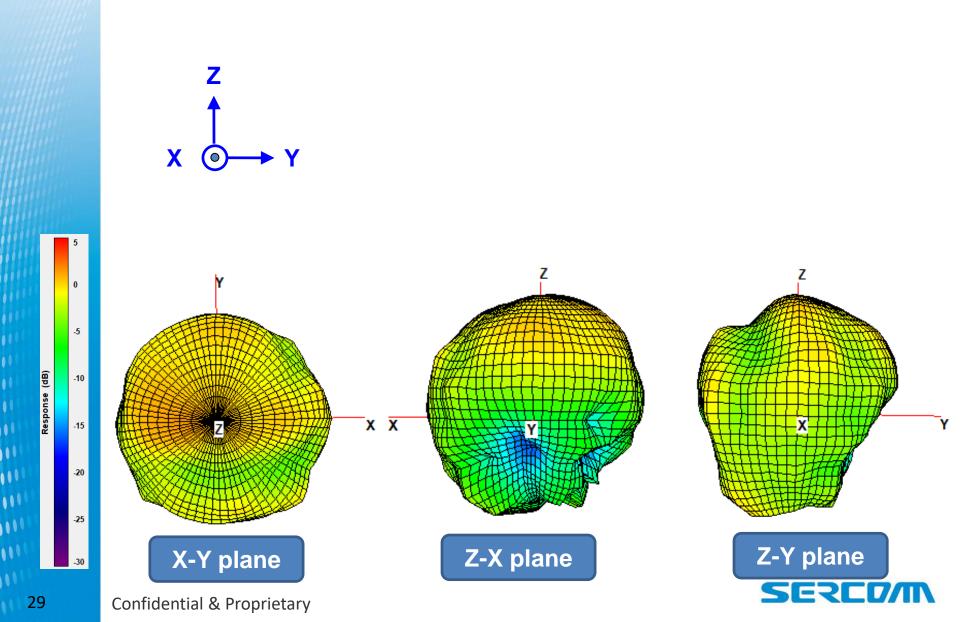


Radiation Pattern – Ant 2 @ 2450MHz

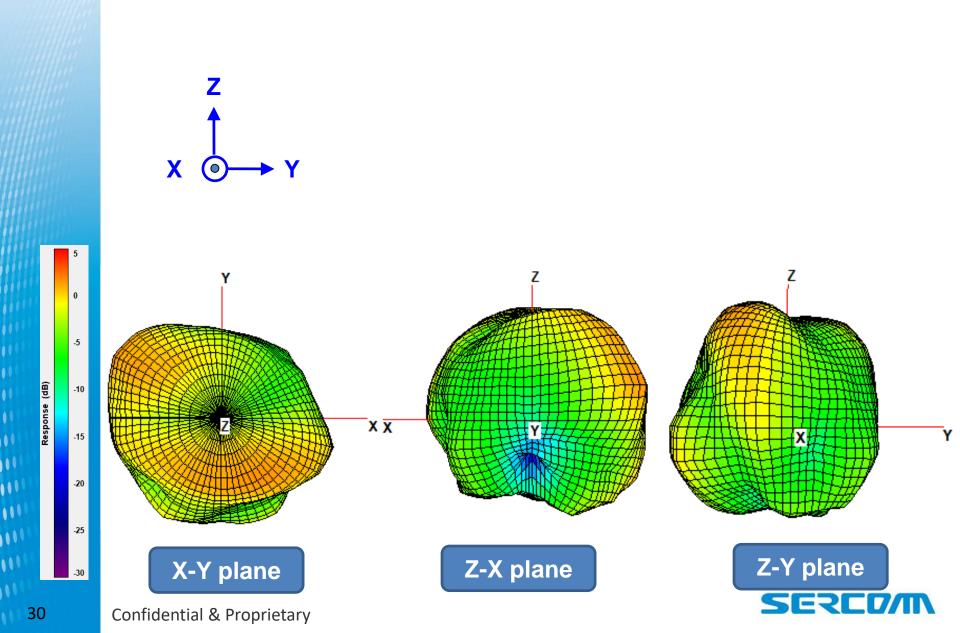


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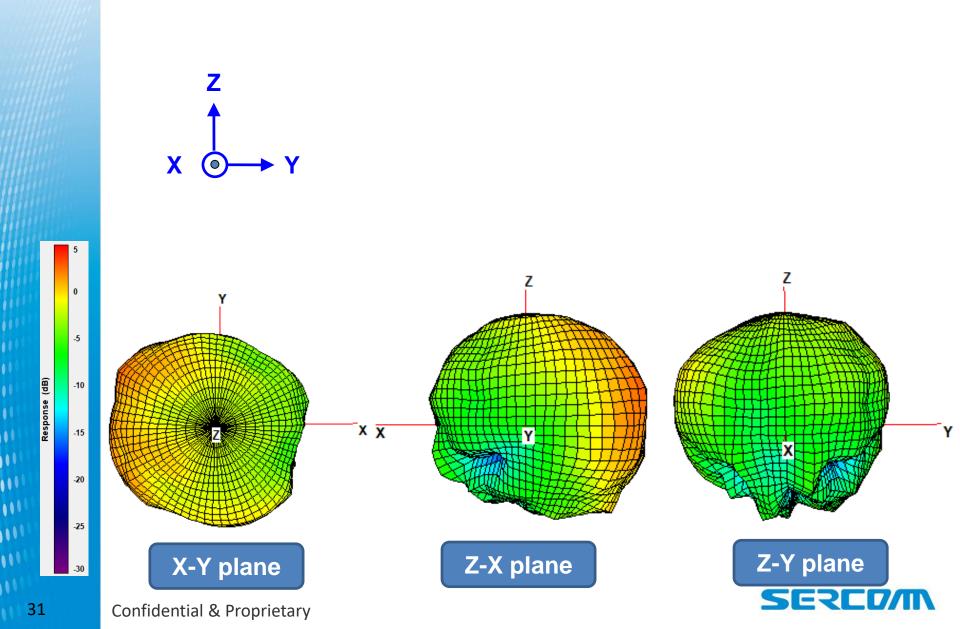
Radiation Pattern – Ant 2 @ 5500MHz



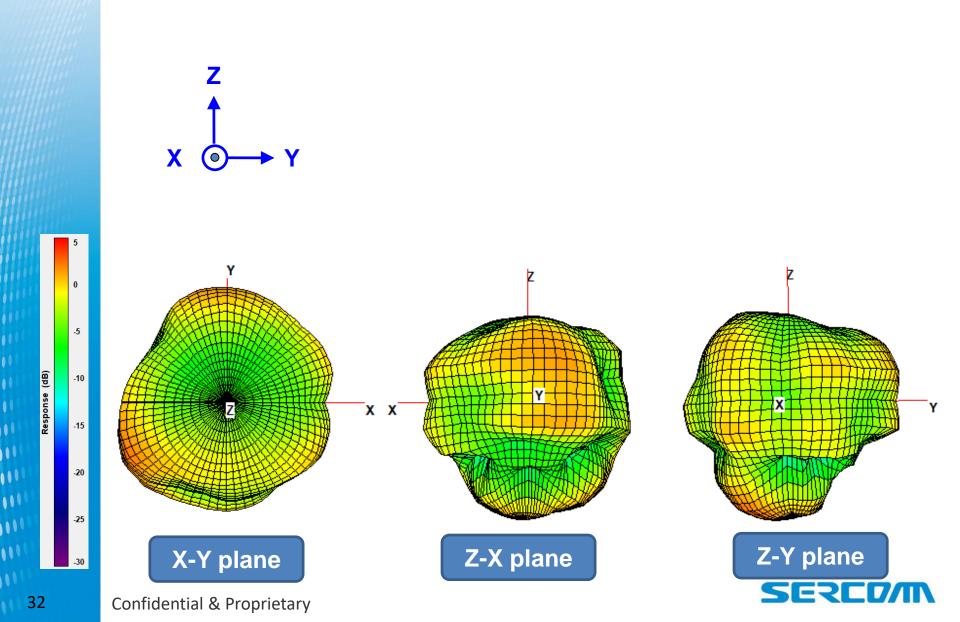
Radiation Pattern – Ant 3 @ 2450MHz



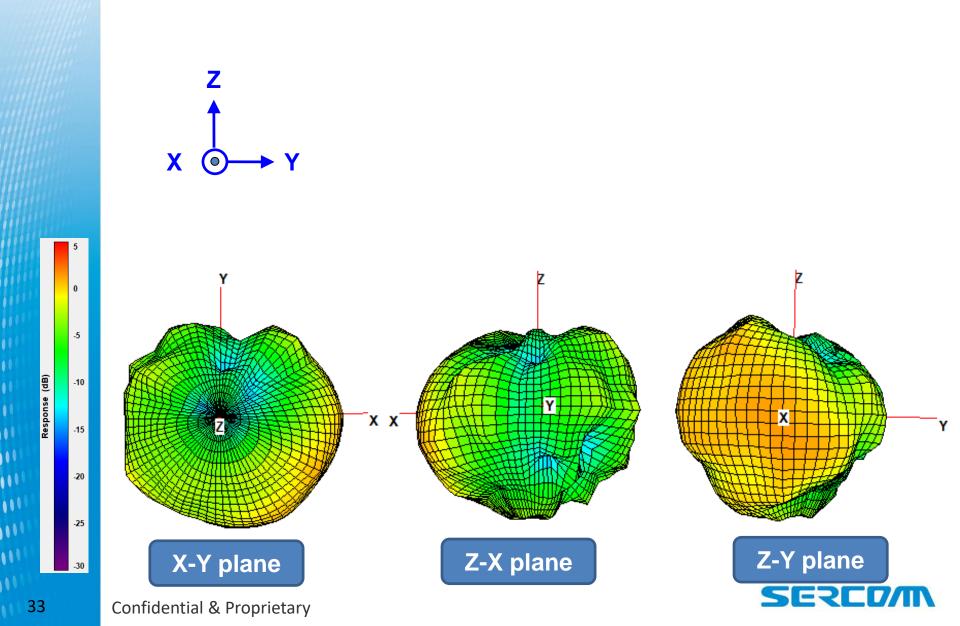
Radiation Pattern – Ant 3 @ 5500MHz



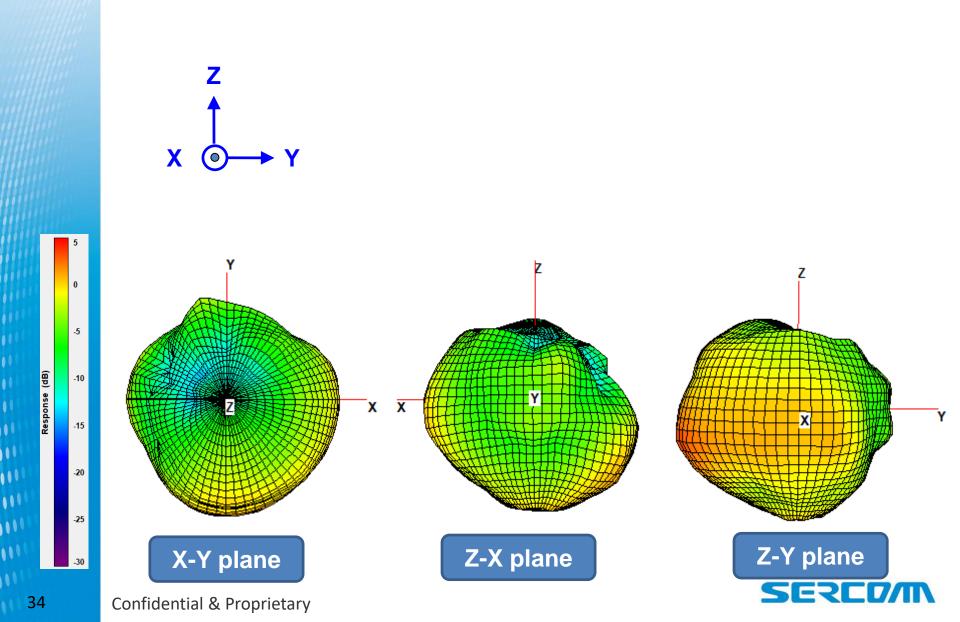
Radiation Pattern – Ant 4 @ 2450MHz



Radiation Pattern – Ant 4 @ 5500MHz



Radiation Pattern – Ant 5 @ 2450MHz



Ant 1 WiFi 2G/5G Performance							
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)					
2400	55	3.1					
2450	55	3.3					
2500	54	3.3					
5150	57	2.9					
5500	59	3.0					
5850	56	3.1					



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Ant 2 WiFi 2G/5G Performance							
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)					
2400	61	2.5					
2450	58	2.6					
2500	59	2.7					
5150	59	2.7					
5500	61	2.7					
5850	59	2.8					



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Ant 3 WiFi 2G/5G Performance							
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)					
2400	60	2.6					
2450	63	2.9					
2500	60	2.8					
5150	59	3.3					
5500	62	3.5					
5850	62	3.4					



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Ant 4 WiFi 2G/5G Performance							
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)					
2400	61	2.9					
2450	62	3.1					
2500	63	3.0					
5150	61	3.2					
5500	62	2.9					
5850	58	2.7					



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Ant 5 BLE Performance						
Frequency (MHz)	Efficiency (%)	Peak Gain (dBi)				
2400	61	3.0				
2450	60	2.9				
2500	60	2.8				



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