

Wi-Fi7 Router

Antenna Measurement Report

Test personnel : Dixon Luo

Test date : 13th May, 2025



Outlines of Antenna Measurement

- Antenna test equipment calibration Date
- Test setup description
- Antenna Placement
- Antenna Return Loss & Isolation
- Antenna 2D Radiation Pattern
- Antenna 3D Radiation of Wi-Fi
- Antenna Efficiency & Peak Gain Table
- Envelope Correlation Coefficient

Antenna test equipment calibration Date



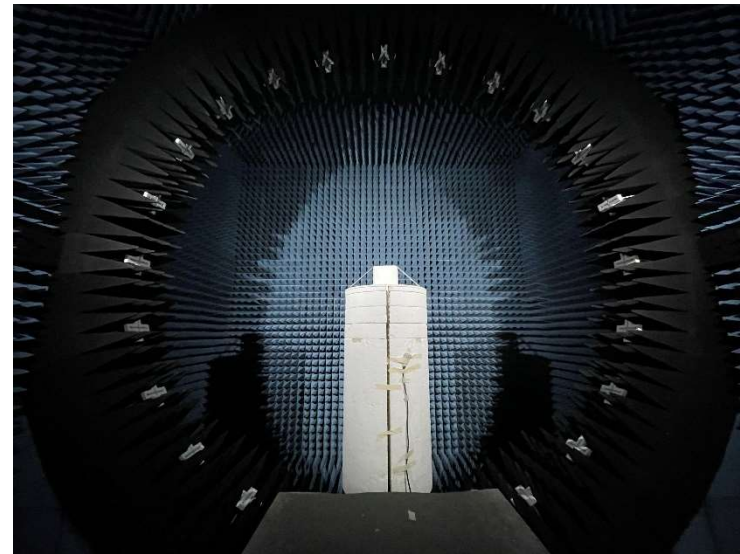
Antenna test equipment calibration Date

- Keysight E5080B ENA Vector Network Analyzer



regular calibration on 15th/April./2025

- ETS LINDGREN OTA Chamber (AMS-8923-195-G)



regular calibration on 18th/April./2025

Test Setup Description

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Test Setup Description



- Place the device at the center of the chamber.
- Connect the antenna cable to RF cable of the chamber
- Run IETS-Lindgren SW test measurement
- Get 3D data in 2.8125 degree step from phi 0° ~ 360° and theta -90° ~ $+90^{\circ}$, including efficiency, peak gain, 2D & 3D radiation pattern.

Antenna Placement

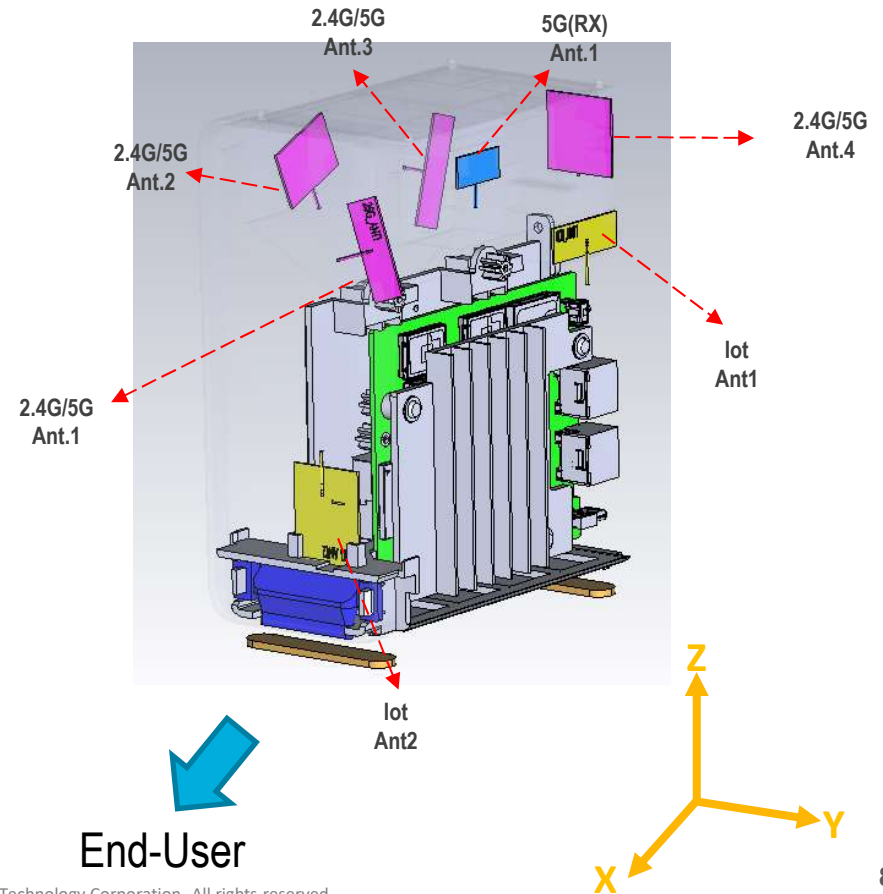
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Antenna Placement

● Antenna Definition and Distribution

□ 7x Antenna: 4x [2.4G/5G WiFi] + 1x [5G Rx] + 2x [IoT]

Antenna	Frequency(MHz)
2.4G / 5G Ant.1	2400-2500 / 5150-5850
2.4G / 5G Ant.2	2400-2500 / 5150-5850
2.4G / 5G Ant.3	2400-2500 / 5150-5850
2.4G / 5G Ant.4	2400-2500 / 5150-5850
IoT Ant.1	2400-2500
IoT Ant.2	2400-2500
5G Rx Ant.1	5150-5850

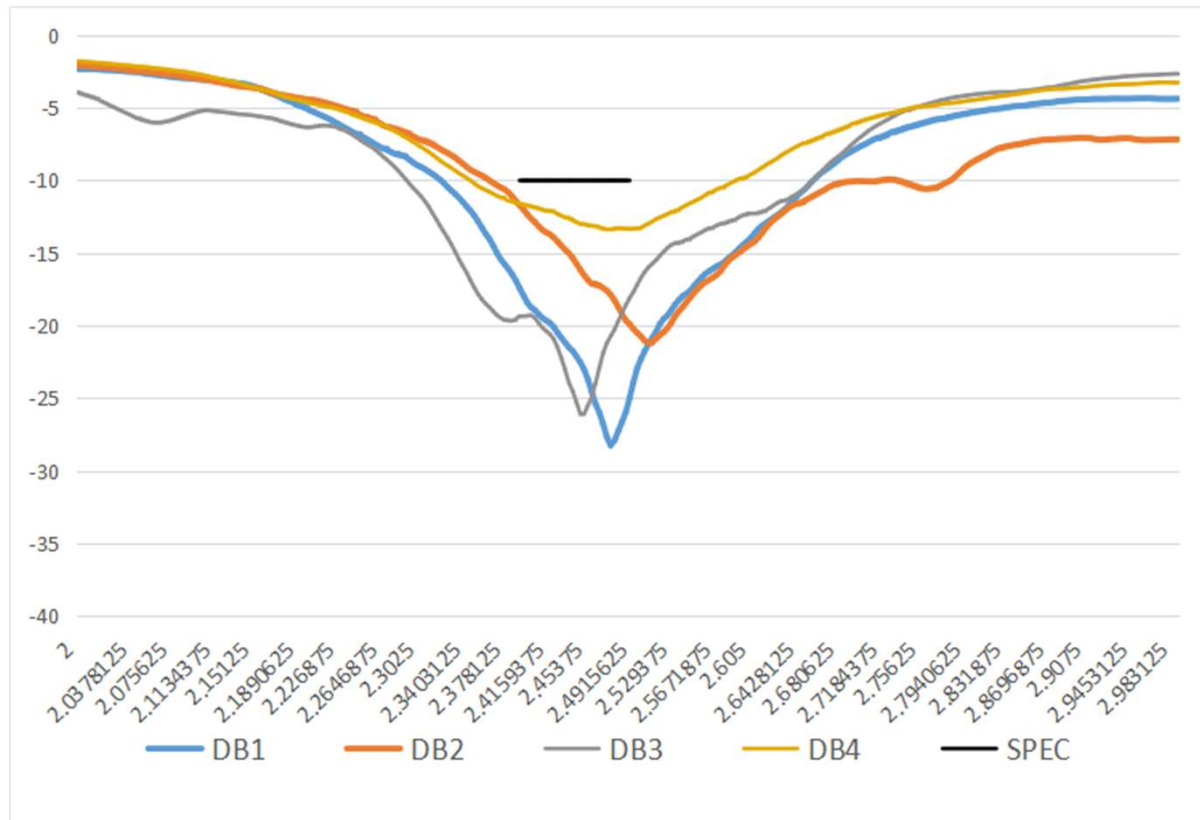


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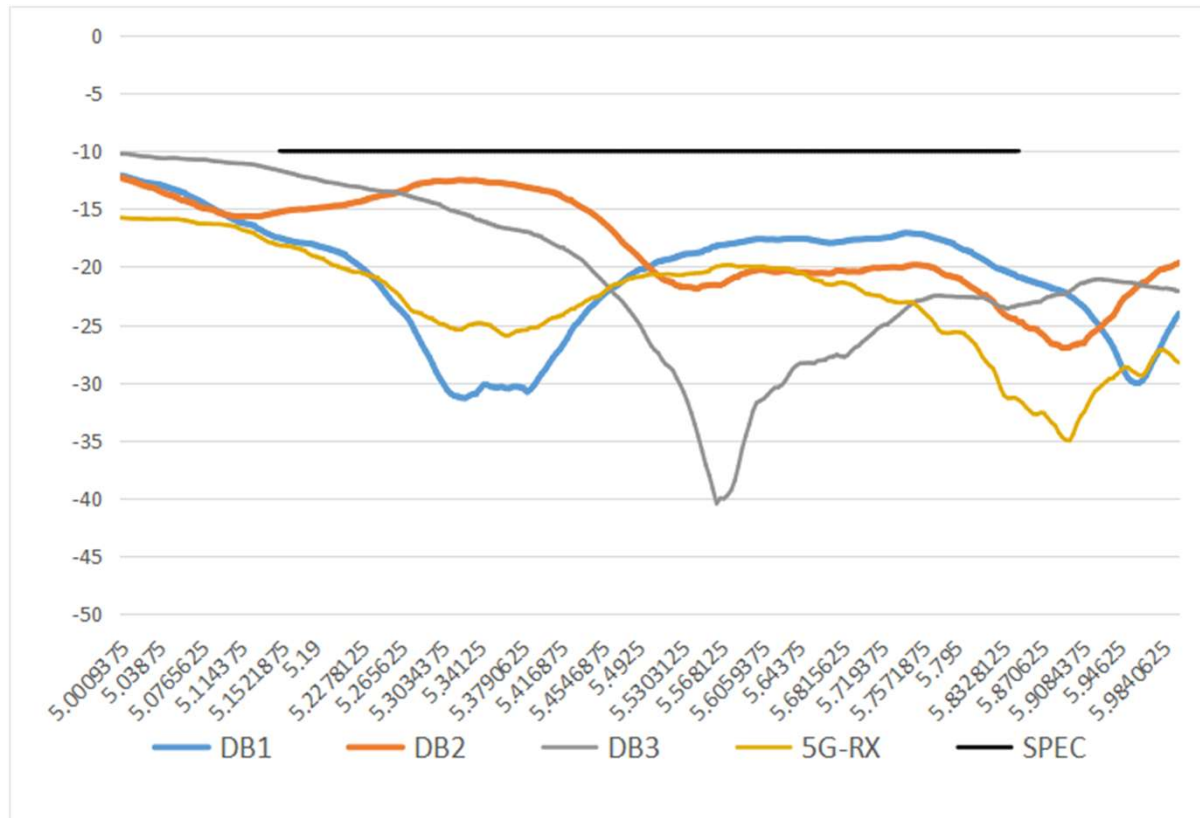
Antenna Return Loss & Isolation

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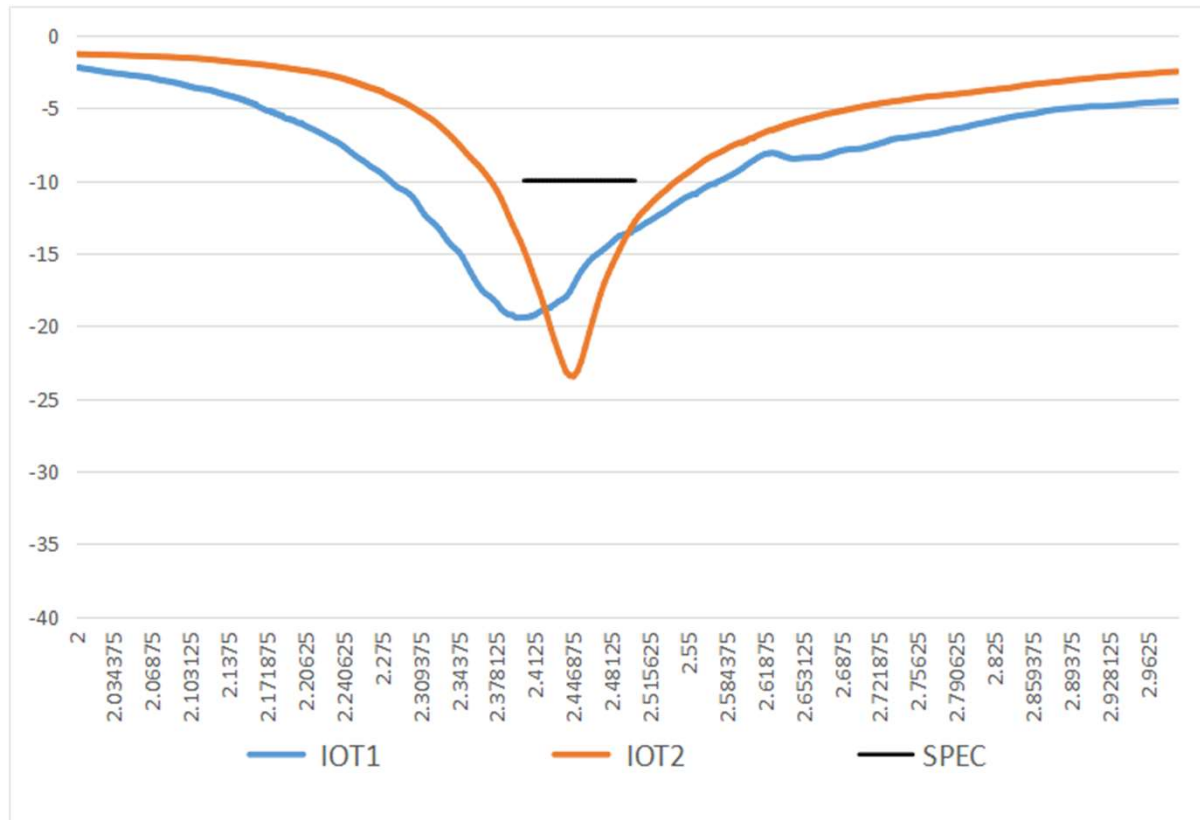
Antenna Return Loss (WiFi @ 2G)



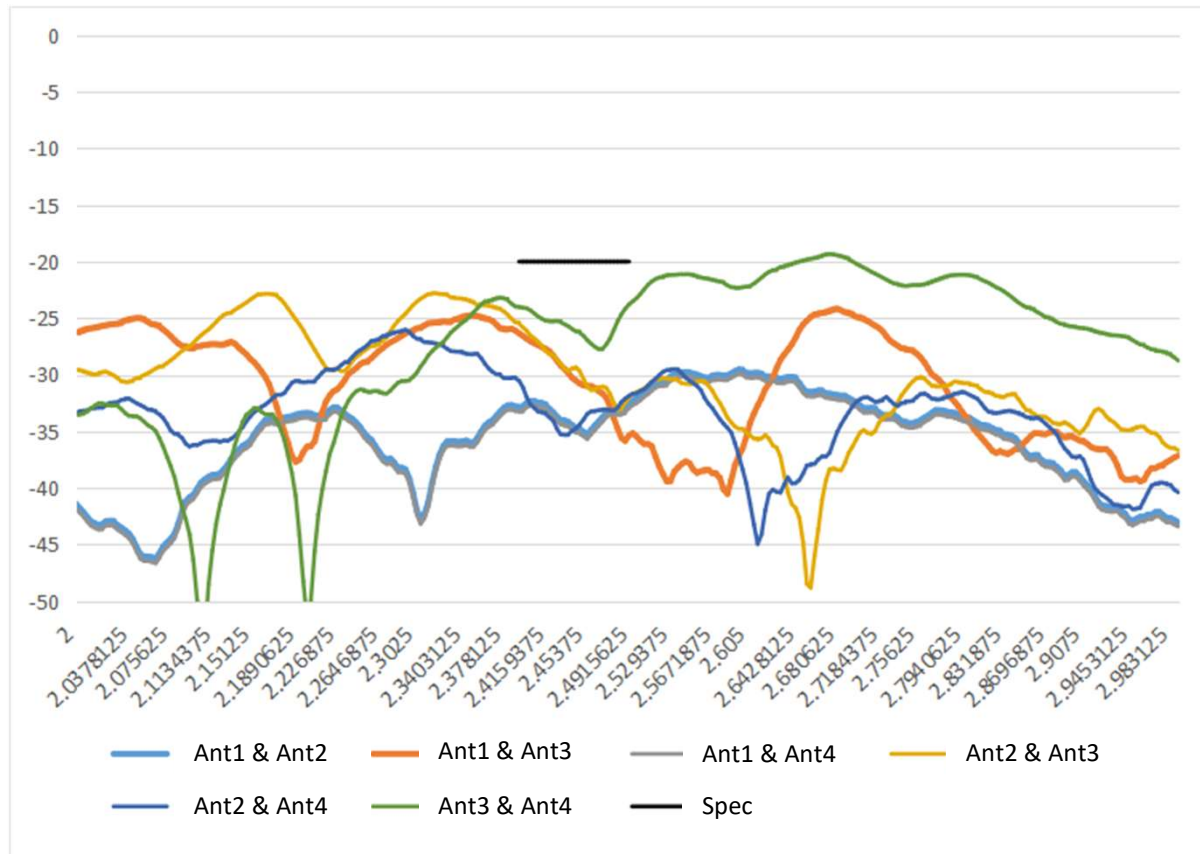
Antenna Return Loss (WiFi @ 5G)



Antenna Return Loss (IOT)

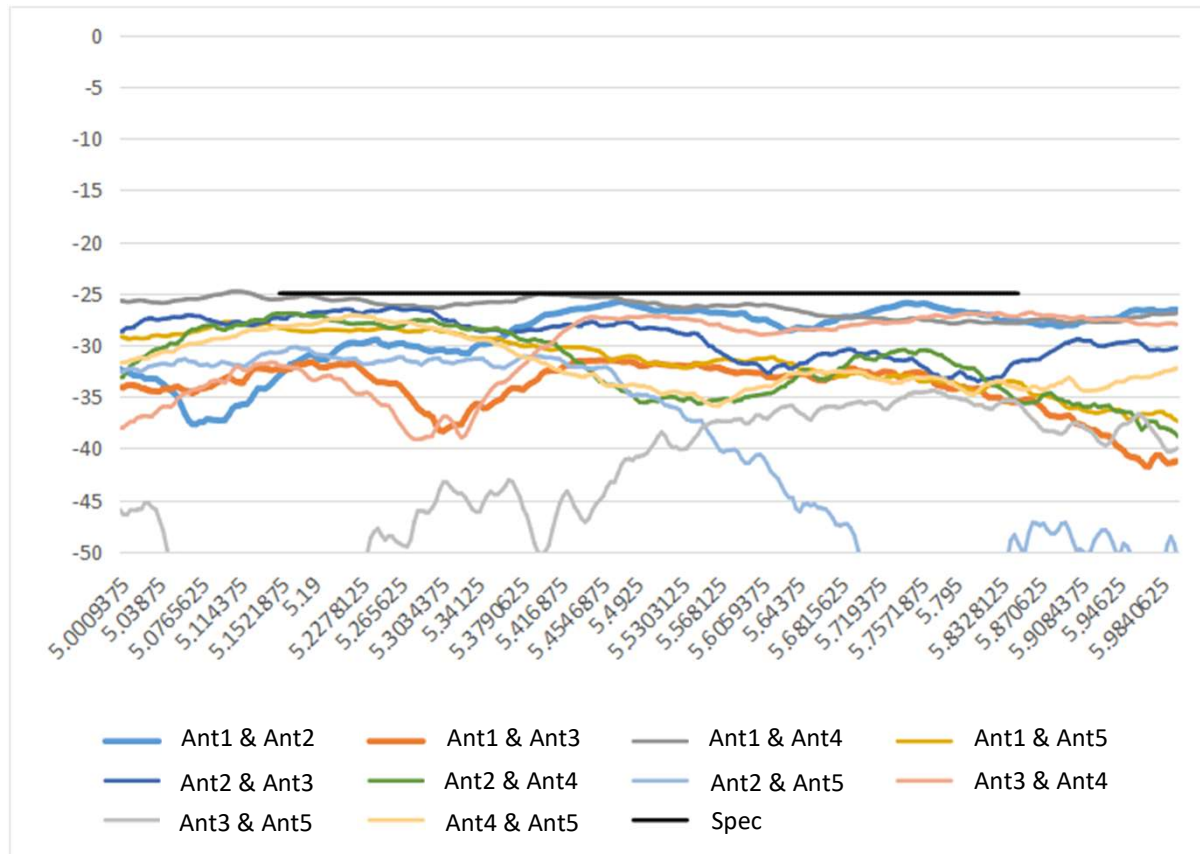


Antenna Isolation (2G)



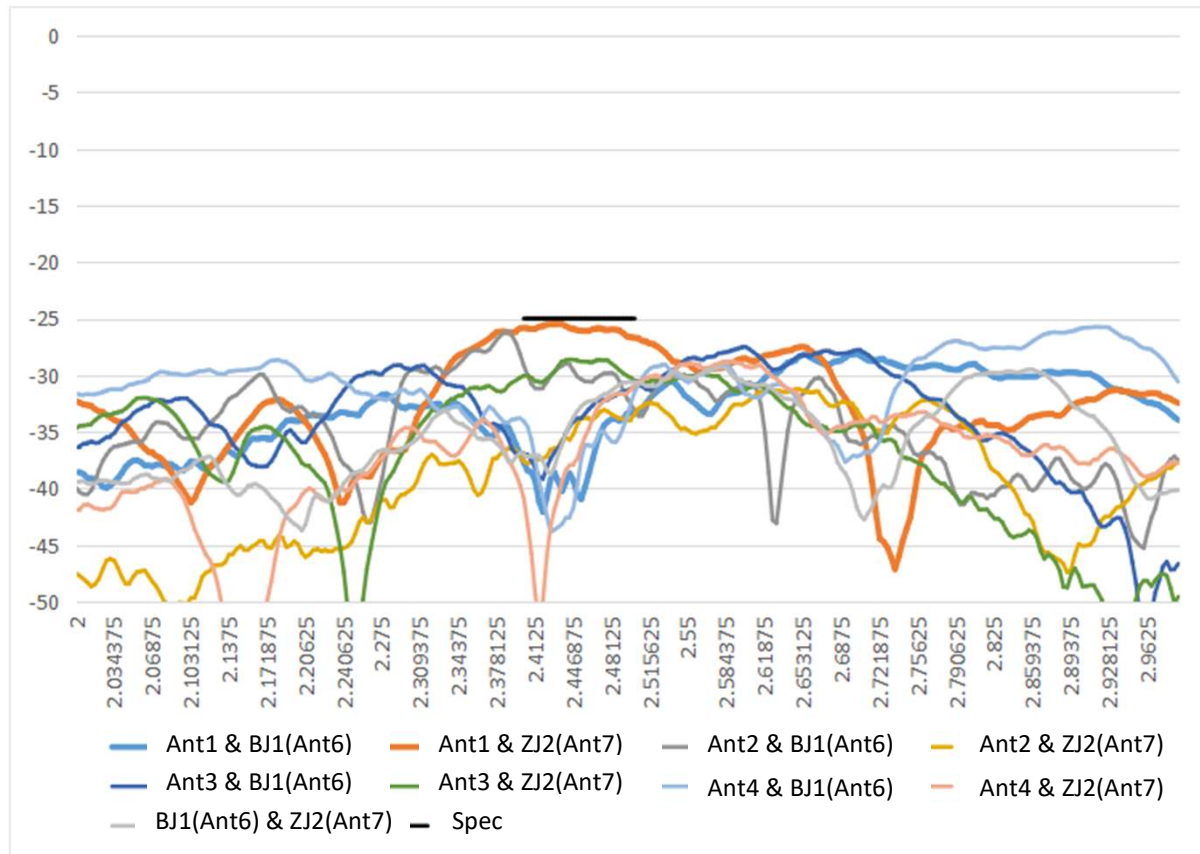
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Antenna Isolation (5G)



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Antenna Isolation (BT)

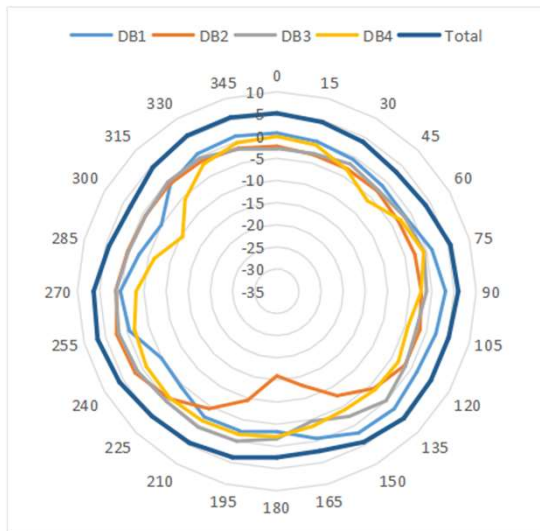


Antenna 2D Radiation Pattern

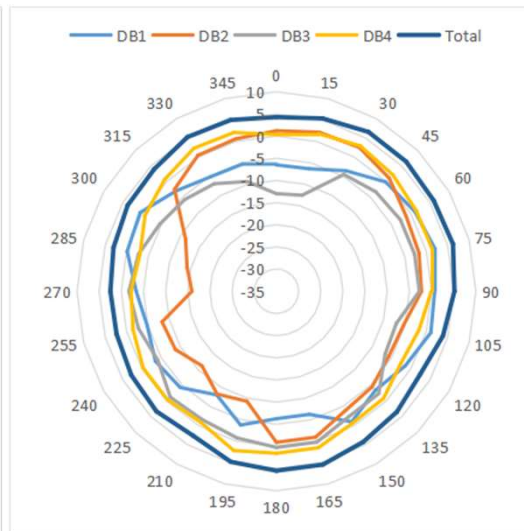


Antenna 2D Radiation Pattern (2G)

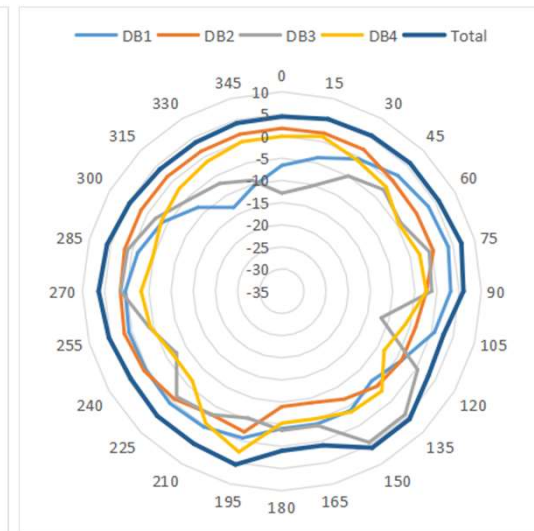
XY Plane



ZX Plane

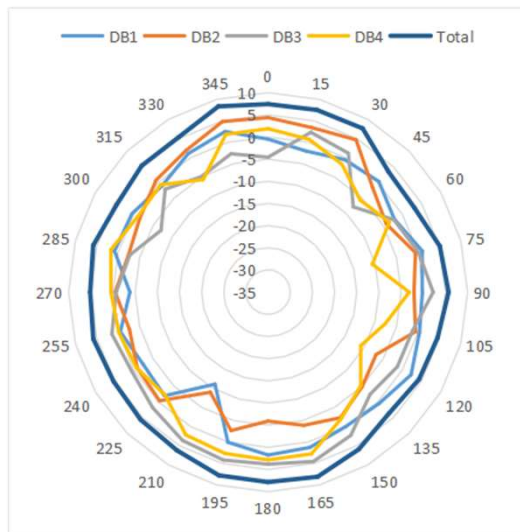


ZY Plane

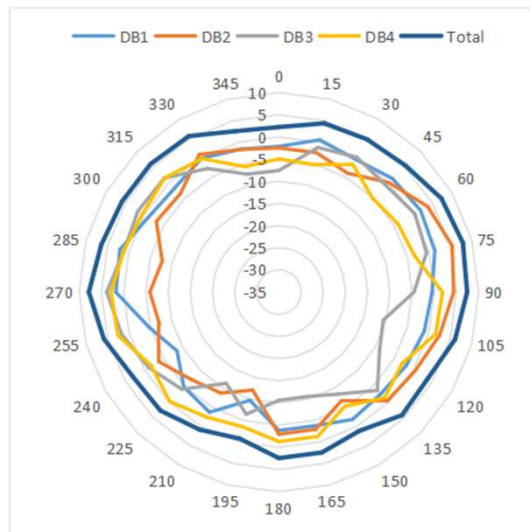


Antenna 2D Radiation Pattern (5G)

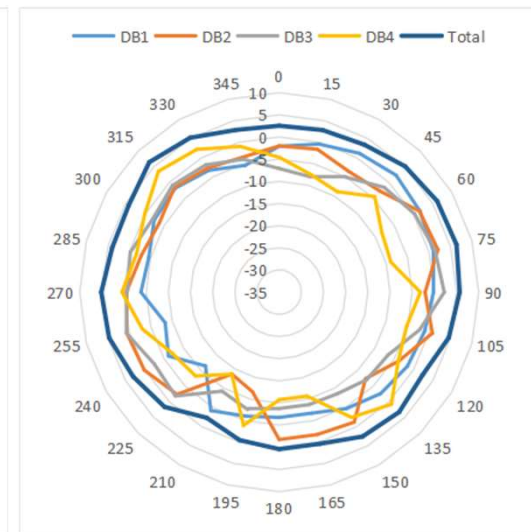
XY Plane



ZX Plane



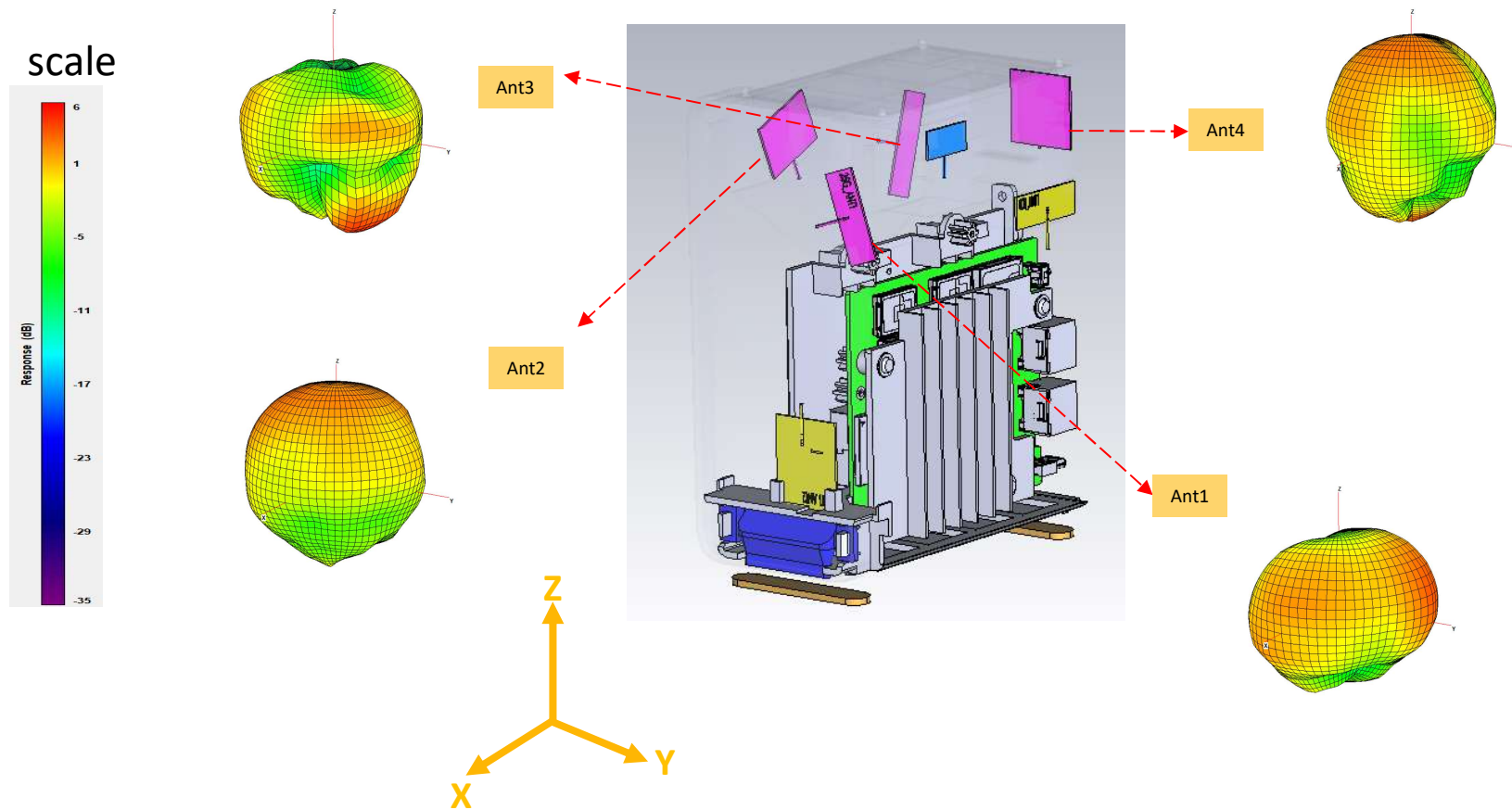
ZY Plane



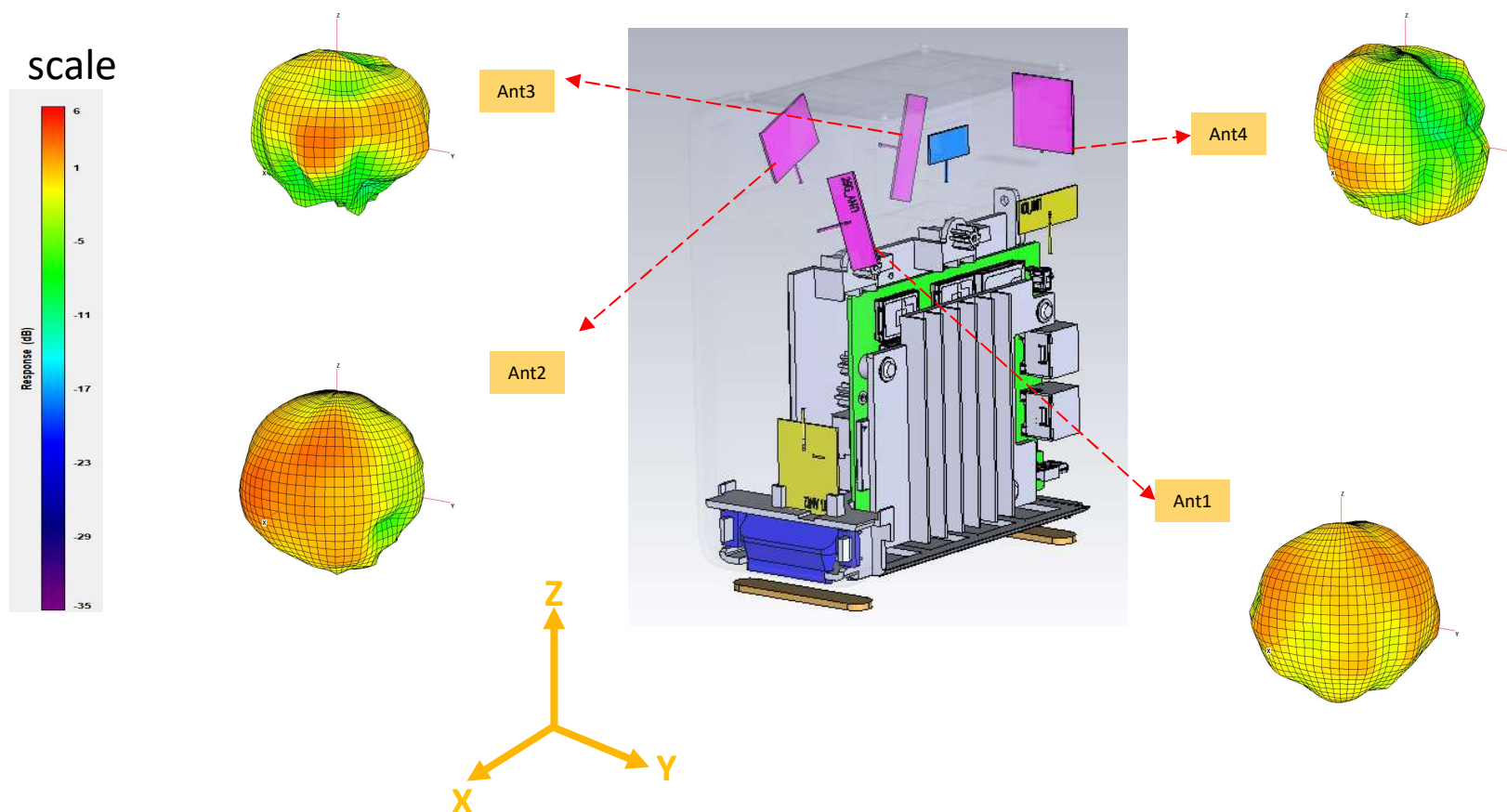
Antenna 3D Radiation of Wi-Fi

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3D Radiation Pattern – 2G



3D Radiation Pattern – 5G



Antenna Efficiency & Peak Gain Table

Antenna Efficiency & Peak Gain Table

	2.4G					
Frequency	2412		2442		2484	
Ant.1	75	3.6	75	3.5	73	3.5
Ant.2	74	2.8	75	2.6	74	2.7
Ant.3	71	2.9	72	2.9	73	3.1
Ant.4	74	2.8	73	2.7	71	2.6

	IoT					
Frequency	2400		2450		2500	
Ant.6	76	4.1	74	3.9	73	4
Ant.7	71	4.8	72	5.1	71	4.7

	5G										
Frequency	5150		5320		5500		5690		5850		MHz
Ant.1	75	3.8	73	3.5	76	3.3	74	3.4	70	3.5	(Effi./ Peak Gain(dBi))
Ant.2	75	1.7	70	1.8	74	2.0	74	2.0	70	2.2	
Ant.3	74	1.5	71	1.3	76	1.5	75	1.1	71	1.3	
Ant.4	76	2.5	72	2	75	1.8	75	1.7	71	2.2	

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Envelope Correlation Coefficient

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Ecc @ 2G & 5G

2GHz					
	DB-1	DB-2	DB-3	DB-4	5G-RX
DB-1	-	-	-	-	-
DB-2	0.006	-	-	-	-
DB-3	0.002	0.025	-	-	-
DB-4	0.010	0.006	0.027	-	-
5G-RX	0.019	0.029	0.003	0.010	-

5GHz					
	DB-1	DB-2	DB-3	DB-4	5G-RX
DB-1	-	-	-	-	-
DB-2	0.001	-	-	-	-
DB-3	0.001	0.013	-	-	-
DB-4	0.006	0.003	0.012	-	-
5G-RX	0.007	0.002	0.001	0.002	-



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