

Custom Design Service
Customer: Bosch
Project: CZ0031
Report: CZ0031-R04

22 APR 2023



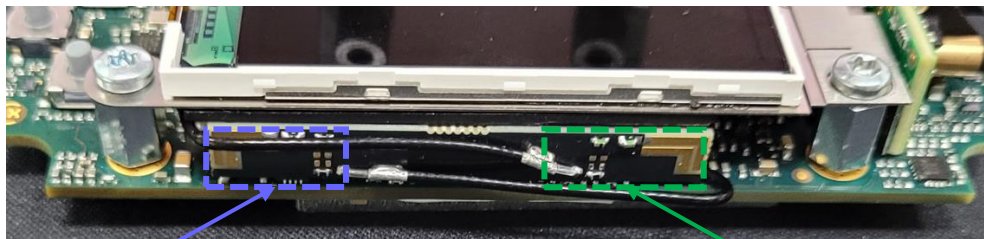
- A device was supplied for benchmarking and development for a Wi-Fi 6E 2 x MIMO antenna.

Antenna Requirements			
Application	Wi-Fi 6		
Frequency Range (MHz)	2400-2500	5150-5850	5925-7125



- The antenna was connected using a coax RF cable and was tested fully assembled for both solutions.

The antennas were tested and named as per the device PCB connection.



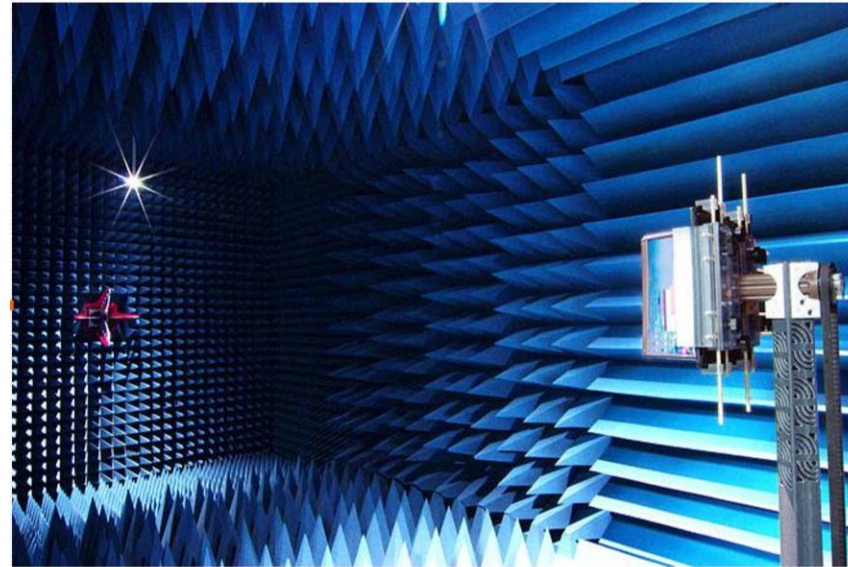
BT + Wi-Fi

Wi-fi

All antennas were tested with the device fully assembled.



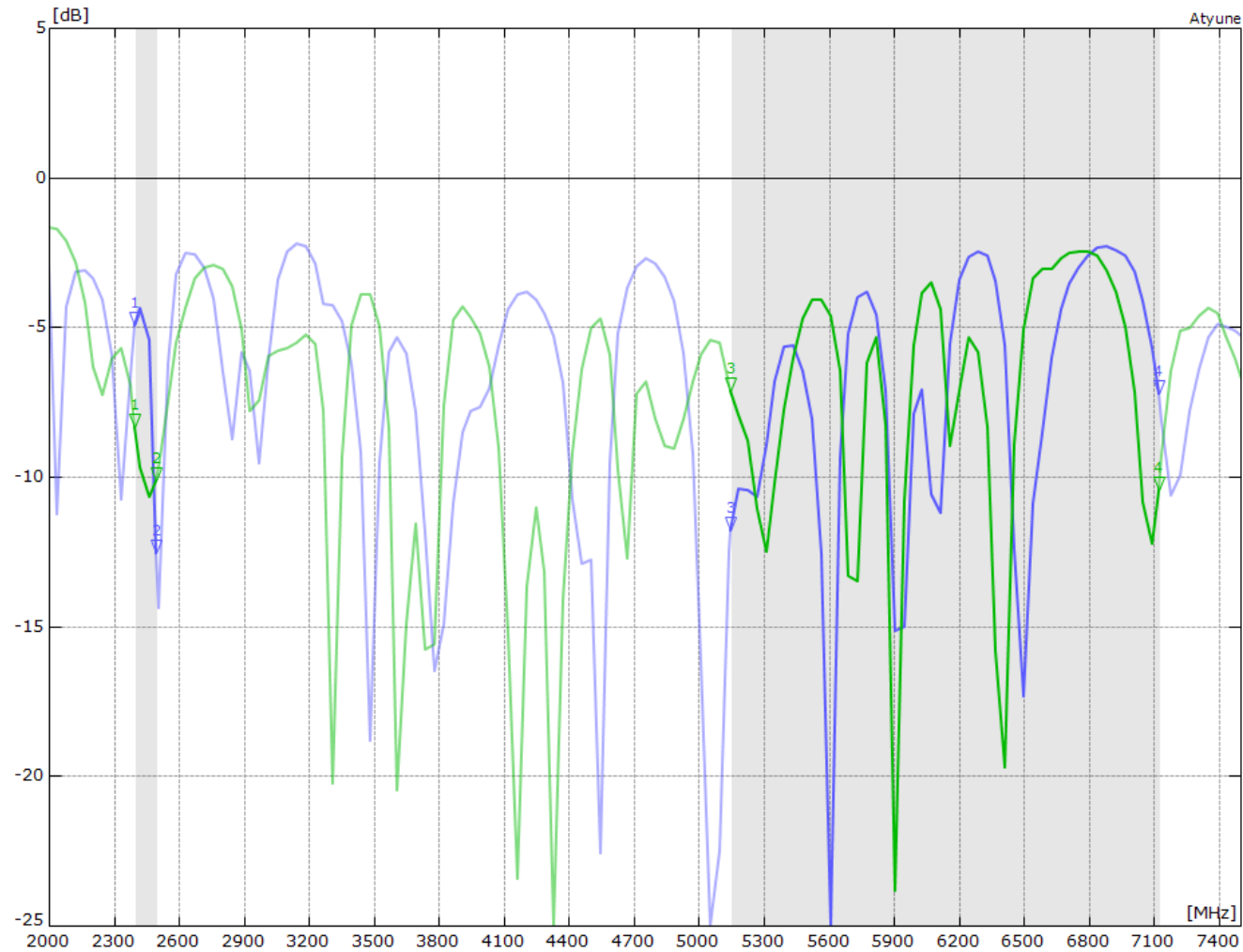
Equipment	Model/Type	Calibration due date
Network Analyser	Rhode&Schwarz ZNB-8	02/2024
Calibration Kit	Rhode&Schwarz ZV-Z132	02/2024
Chamber	AMS-8500	CTIA Approved IST





BT + Wi-Fi			
Frequency Range (MHz)	2400-2500	5150-5850	5925-7125
Peak Efficiency (%)	25.1	35.2	31.4
Avg Efficiency (%)	24.4	26.7	21.5
Peak Gain (dBi)	-3.41	0.28	0.53

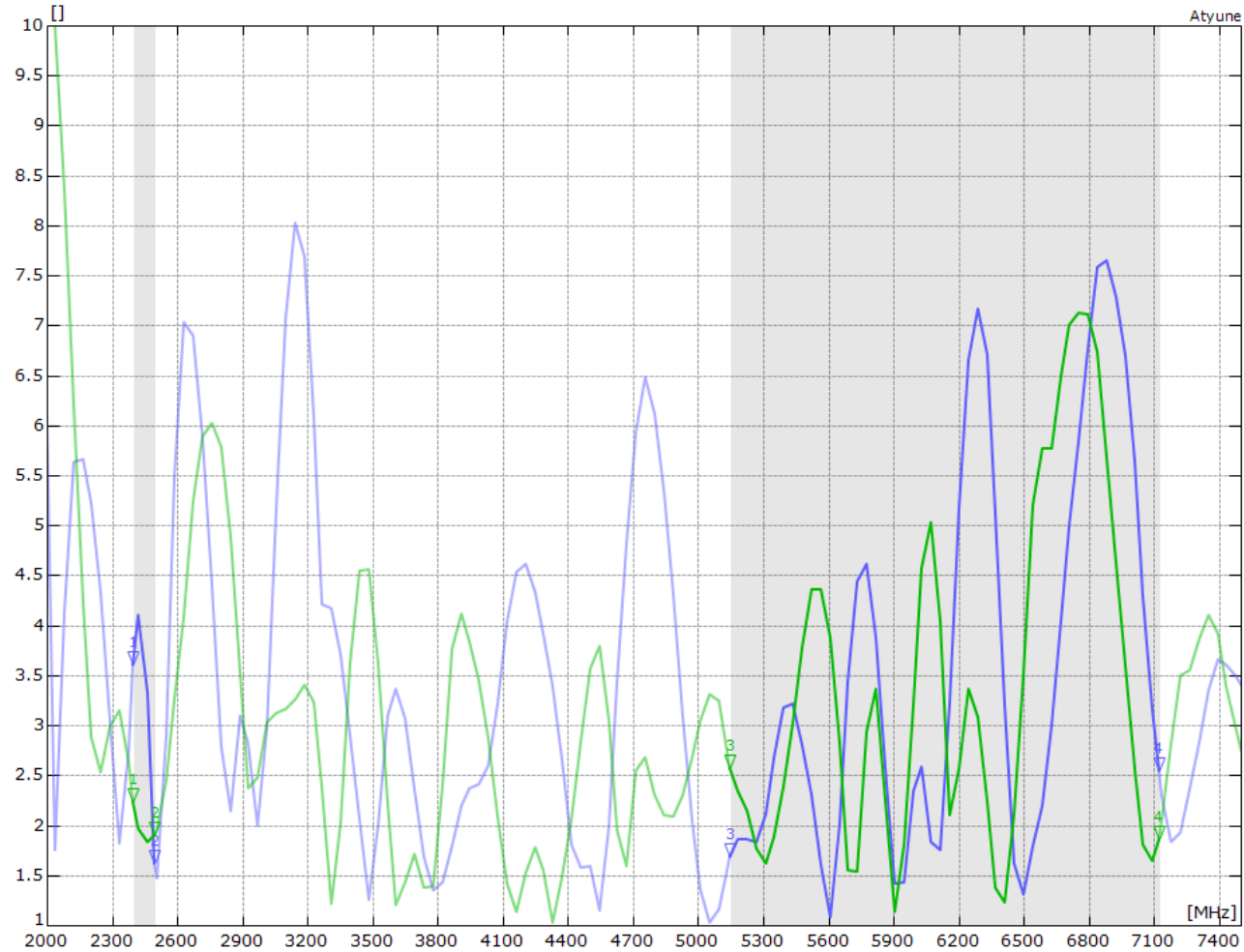
Wi-Fi			
Frequency Range (MHz)	2400-2500	5150-5850	5925-7125
Peak Efficiency (%)	27.0	39.7	31.5
Avg Efficiency (%)	26.6	26.6	24.5
Peak Gain (dBi)	-2.91	0.80	1.31





MARKERS: MHz dB MHz dB			
BT_Wi-Fi_ant.s1p - S11			
1:	2400	-4.93	3: 5150 -11.77
2:	2500	-12.53	4: 7125 -7.21
Wi-Fi_ant.s1p - S11			
1:	2400	-8.34	3: 5150 -7.10
2:	2500	-10.10	4: 7125 -10.42

BT + Wi-Fi

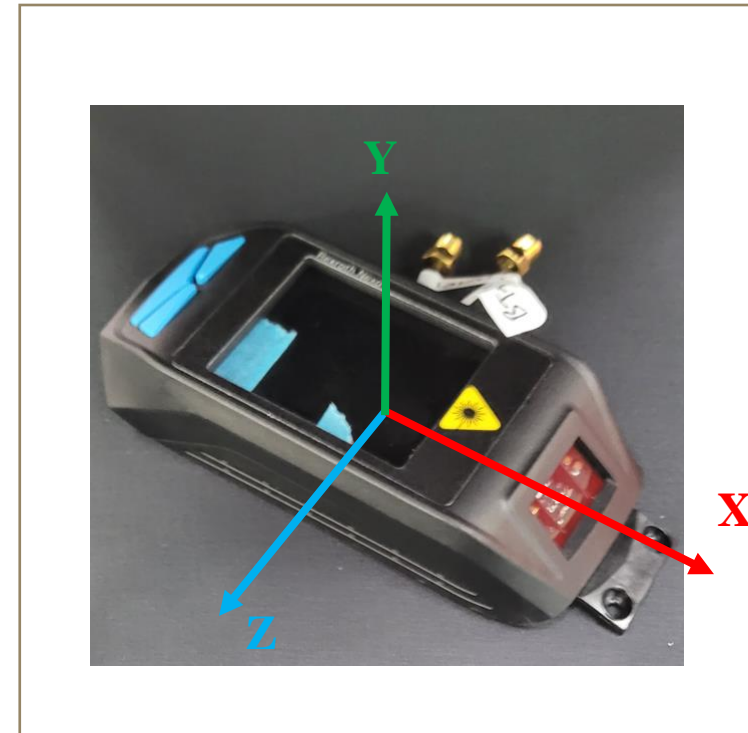
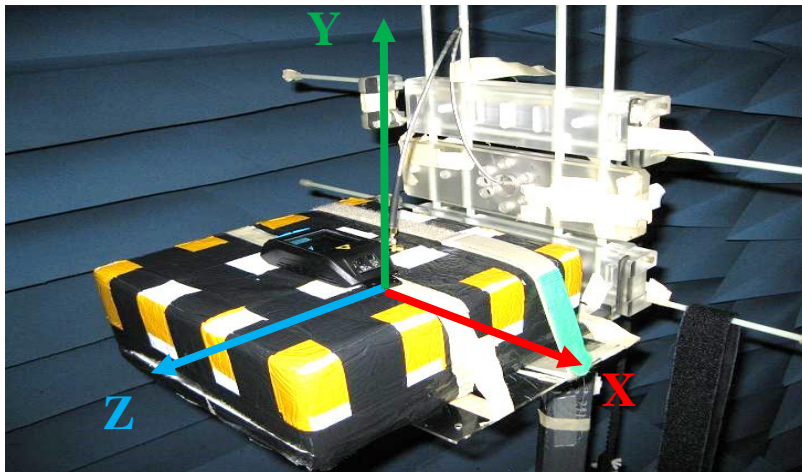
Wi-Fi

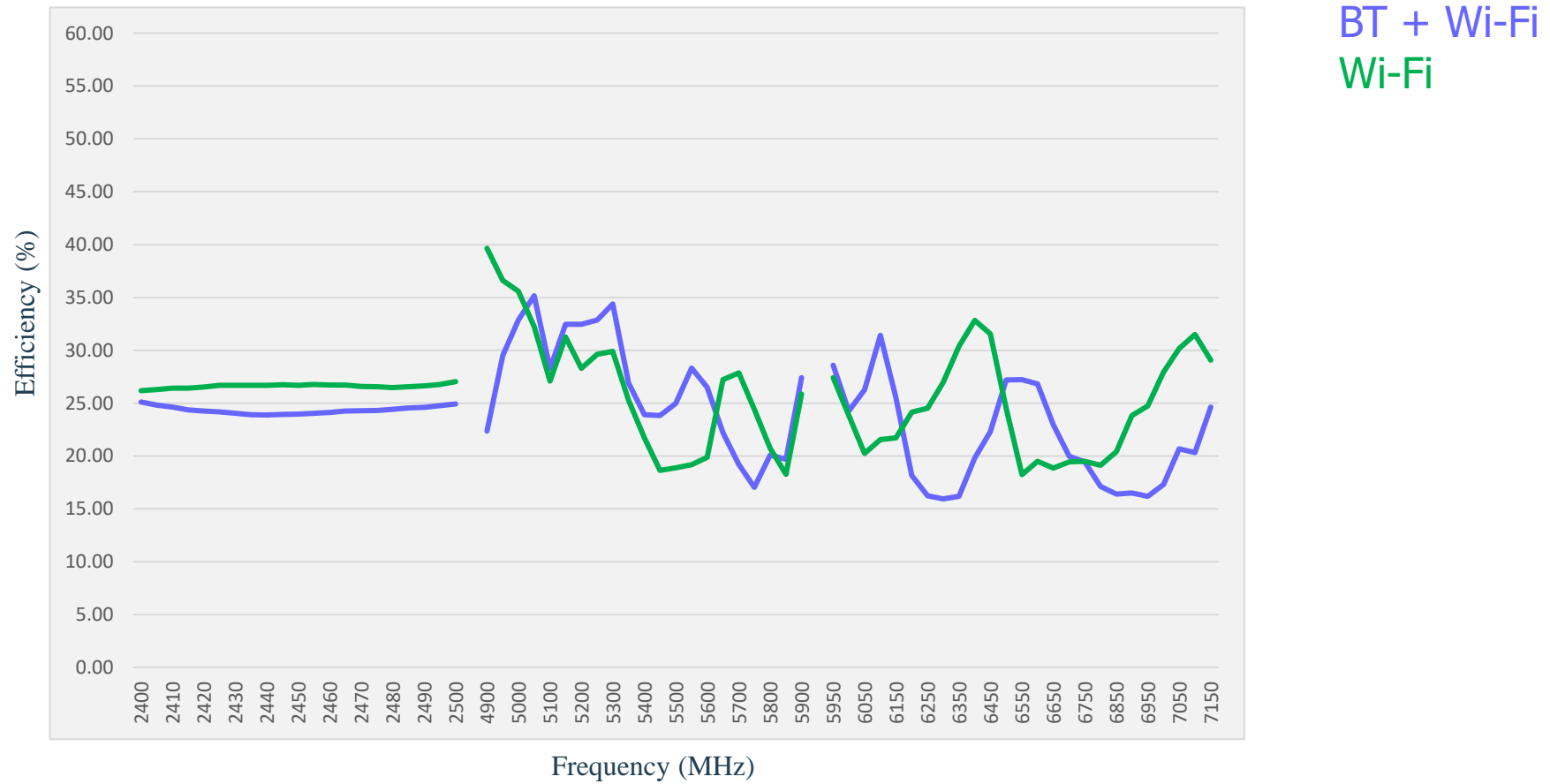


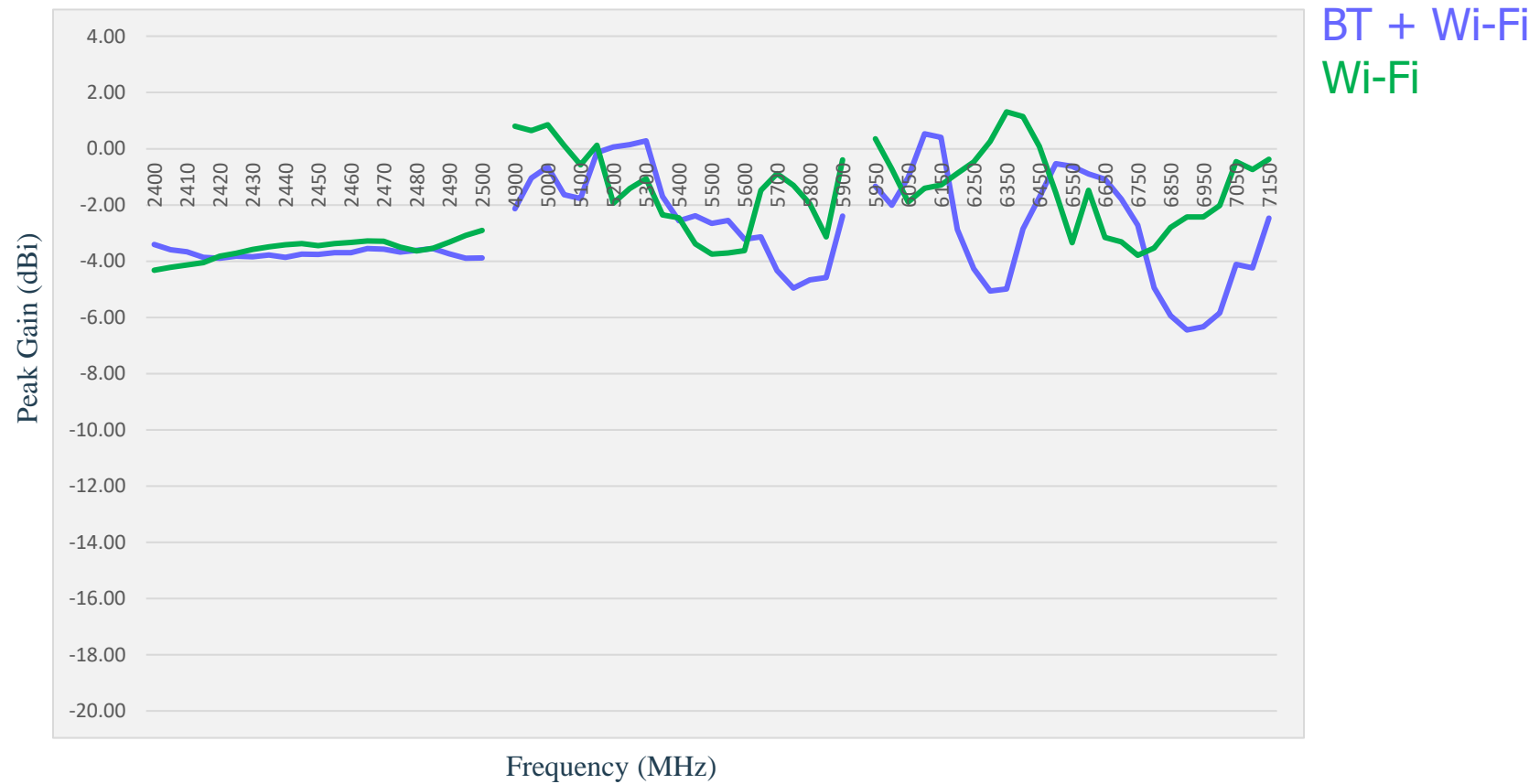
MARKERS: MHz			MHz	
BT_Wi-Fi_ant.s1p - S11				
	1: 2400	3.61	3: 5150	1.69
	2: 2500	1.62	4: 7125	2.55
Wi-Fi_ant.s1p - S11				
	1: 2400	2.24	3: 5150	2.58
	2: 2500	1.91	4: 7125	1.86

BT + Wi-Fi
Wi-Fi

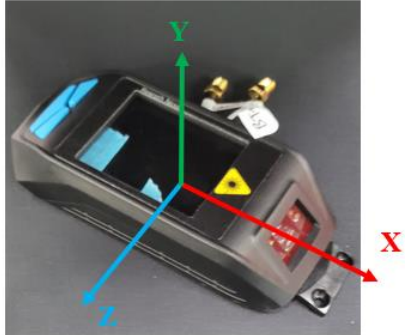
- The device was placed in the chamber as shown. The antenna under test used the required RF choke to prevent cable radiation which can give false high performance and incorrect radiation pattern data.





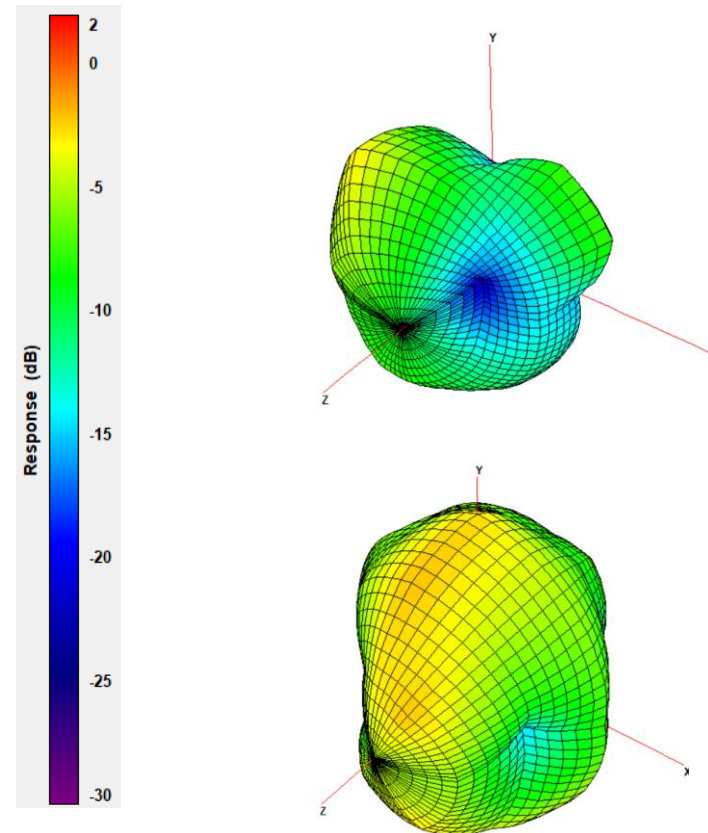


3D Radiation Patterns

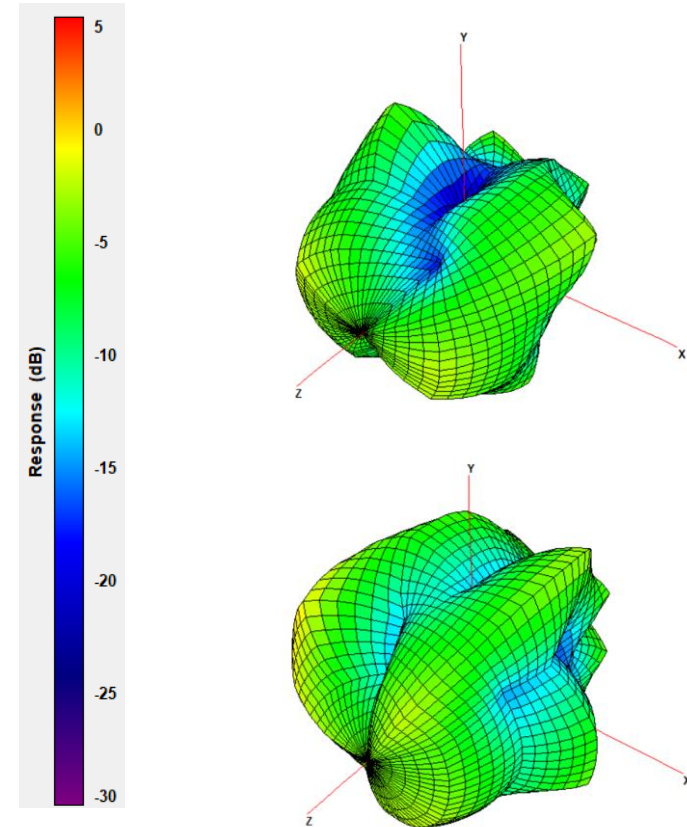


BT + Wi-Fi
Wi-Fi

Patterns at 2450MHz



Patterns at 5500MHz





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