

## HL Global Antenna Proposal for CIG WF-186

Passive Measurement Report

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#### Introduction

- Brief Project Description
  - Project Name: CIG WF-186
  - Category: WiFi AP
- The AP supports IEEE 802.11 a/b/g/n/ac/ax wireless standards
- Antenna Configuration:
  - 2x Dual WLAN antennas
  - 1x BT antenna
- Antennas in HL proposal are
  - Off-board
  - Cable-fed

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- PCB type and Stampled metal
- Tooling housing and real PCB were received from CIG





## Requirements Review

- Antenna Configuration of CIG WF-186
  - -2x Dual: 2400-2490MHz/5150-5850MHz
  - -1x BT antenna: 2400-2500MHz
- Basic Passive Requirements
  - RL for each antenna >10dB
  - Efficiency >60%
  - Isolation between each antenna: >=20dB



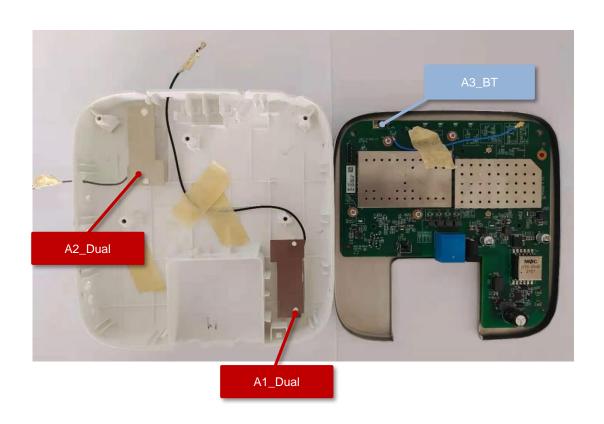


## **HL Antenna System Proposal**





## **HL Antenna System**



HL Antenna Designator	HL Antenna Dimensions	HL Antenna Part Number	Cable length
A1_Dual	/	/	1
A2_Dual	/	/	/
A3_BT	/	/	/



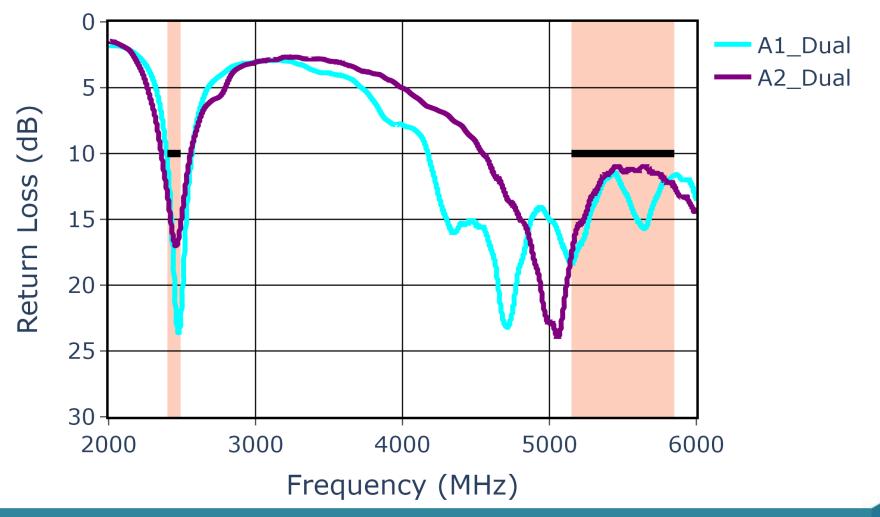


## S-parameters

- Return Loss
- Isolation

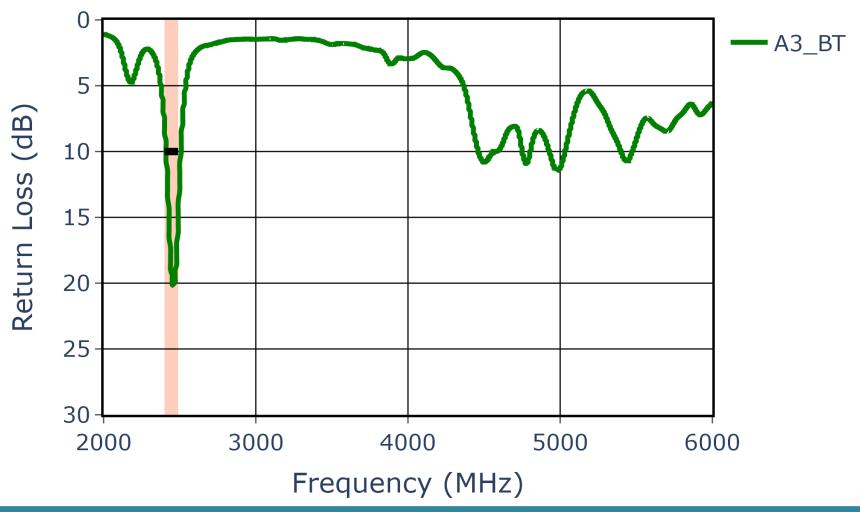


#### **Return Loss of WLAN Antennas**



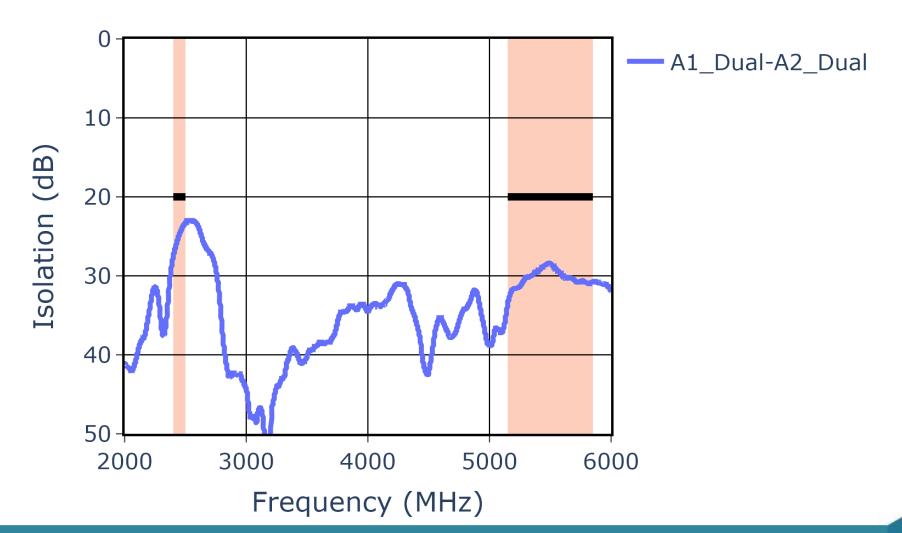


### Return Loss of BT Antenna



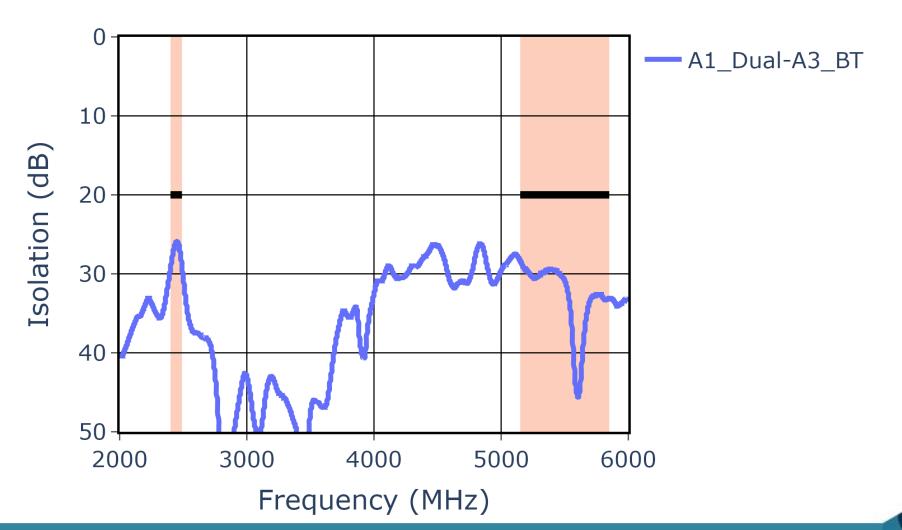


## Isolation Between A1\_Dual and Remaining Antennas



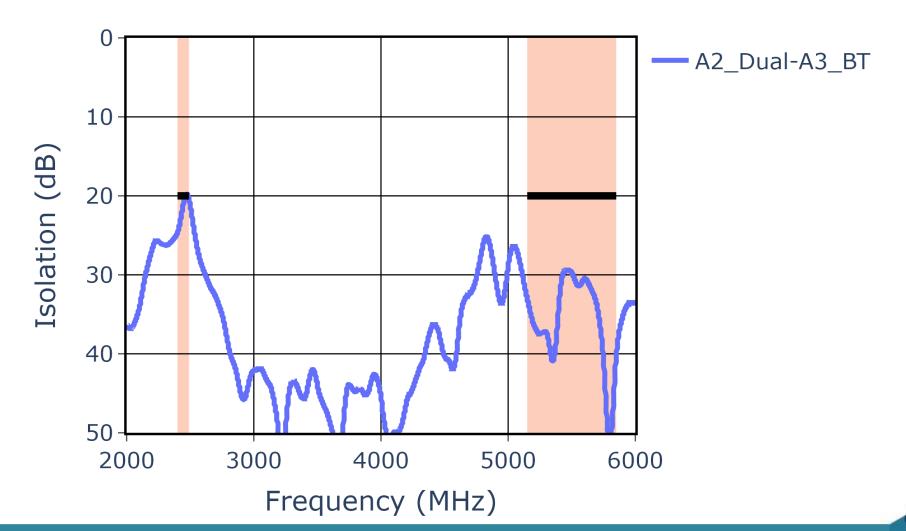


## Isolation Between A1\_Dual and Remaining Antennas





## Isolation Between A2\_Dual and Remaining Antennas





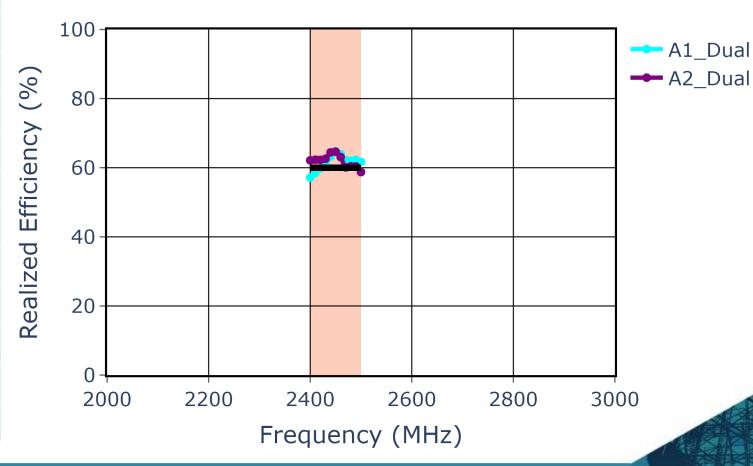
## Radiated Performance: Grouped by Antennas, Polarization: Total

- Realized Efficiency
- Peak Realized Gain



### Realized Efficiency of Antennas in 2G4 Band

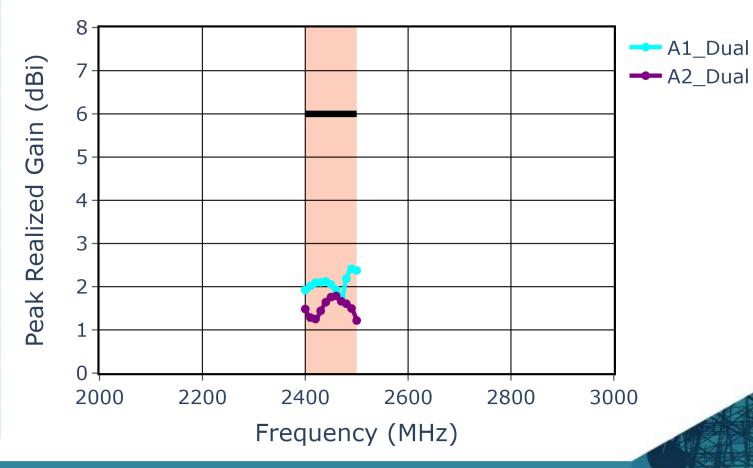
Frequency (MHz)	A1_Dual (%)	A2_Dual (%)
2400	57	62
2410	58	62
2419	60	62
2428	61	63
2437	63	64
2446	64	65
2455	64	64
2464	63	62
2473	62	60
2482	62	60
2491	62	60
2500	62	59





#### Peak Realized Gain of Antennas in 2G4 Band

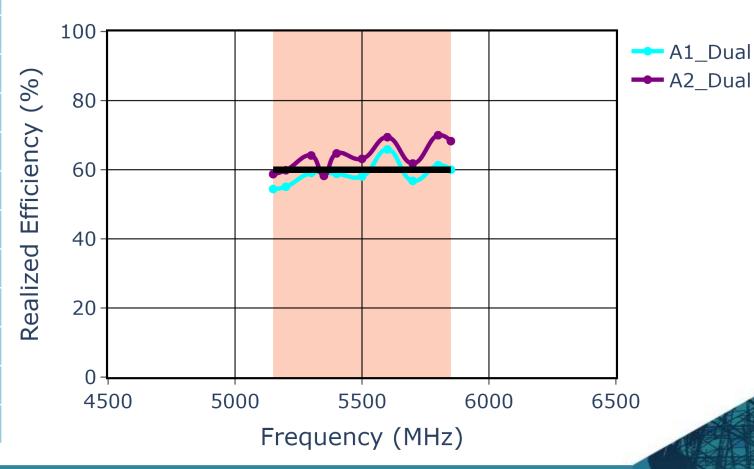
Frequency (MHz)	A1_Dual (dBi)	A2_Dual (dBi)
2400	1.9	1.5
2410	2.0	1.3
2419	2.1	1.3
2428	2.1	1.4
2437	2.1	1.6
2446	2.1	1.7
2455	2.0	1.8
2464	1.9	1.7
2473	1.9	1.6
2482	2.2	1.6
2491	2.4	1.5
2500	2.4	1.2





### Realized Efficiency of Antennas in 5G Band

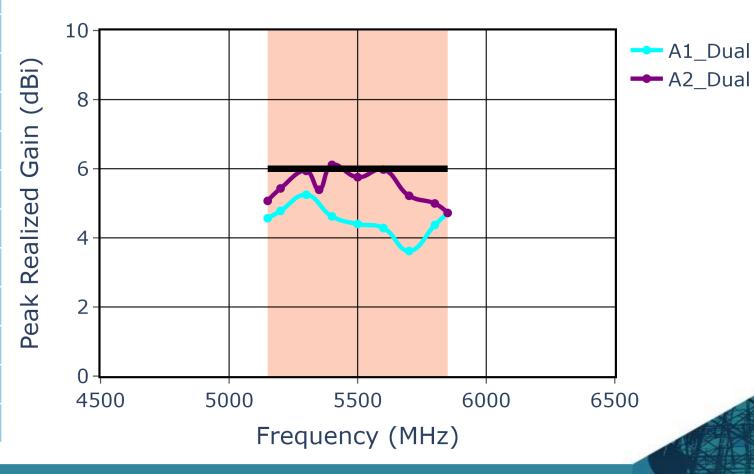
Frequency (MHz)	A1_Dual (%)	A2_Dual (%)
5150	54	59
5214	56	60
5278	58	63
5341	59	64
5405	59	65
5469	58	64
5532	61	65
5596	66	69
5660	60	65
5723	58	64
5787	61	69
5850	60	68





#### Peak Realized Gain of Antennas in 5G Band

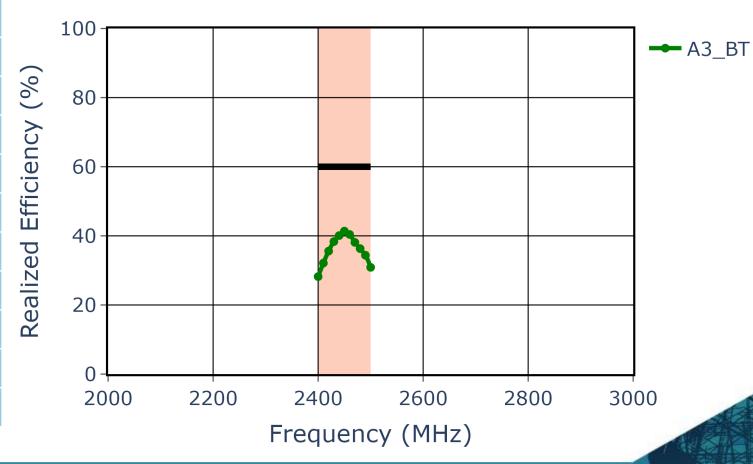
Frequency (MHz)	A1_Dual (dBi)	A2_Dual (dBi)
5150	4.6	5.1
5214	4.8	5.5
5278	5.1	5.8
5341	5.0	6.0
5405	4.6	6.1
5469	4.5	5.9
5532	4.4	5.8
5596	4.3	6.0
5660	3.9	5.5
5723	3.8	5.2
5787	4.3	5.0
5850	4.7	4.7





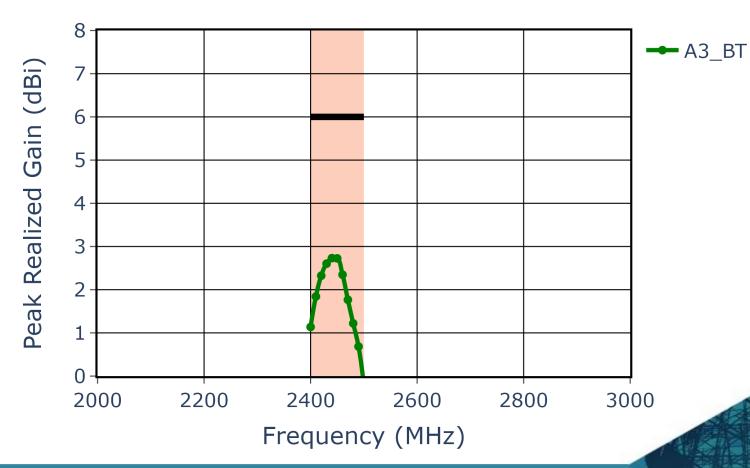
## Realized Efficiency of Antennas in BT Band

Frequency (MHz)	A3_BT (%)
2400	28
2410	32
2419	35
2428	38
2437	40
2446	41
2455	41
2464	39
2473	38
2482	36
2491	34
2500	31



#### Peak Realized Gain of Antennas in BT Band

Frequency (MHz)	A3_BT (dBi)
2400	1.1
2410	1.8
2419	2.3
2428	2.5
2437	2.7
2446	2.7
2455	2.5
2464	2.1
2473	1.6
2482	1.1
2491	0.6
2500	-0.2



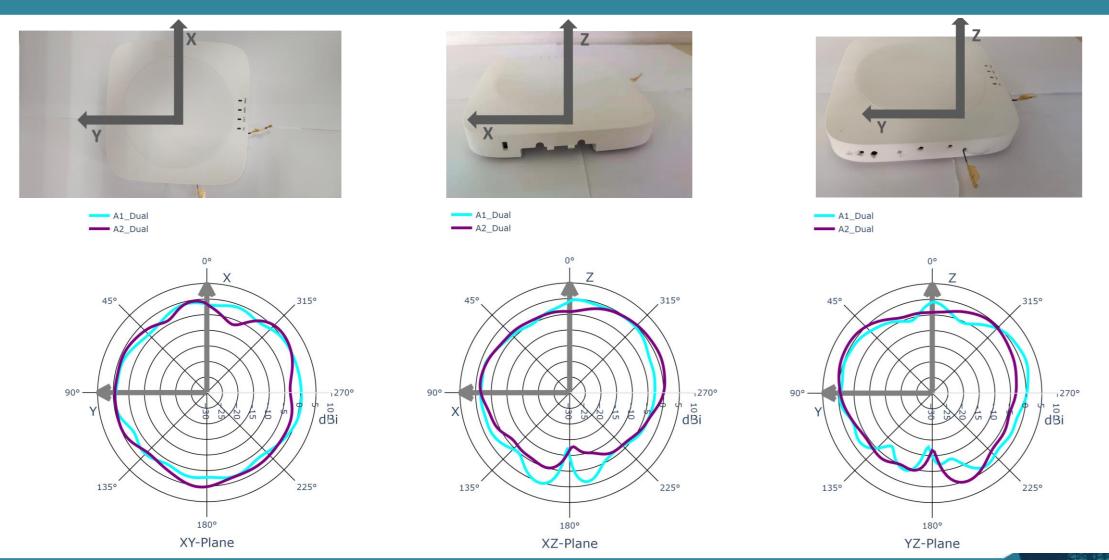
# Radiation Patterns in Principal Planes: Grouped by Antennas, Polarization: Total

• Realized Gain



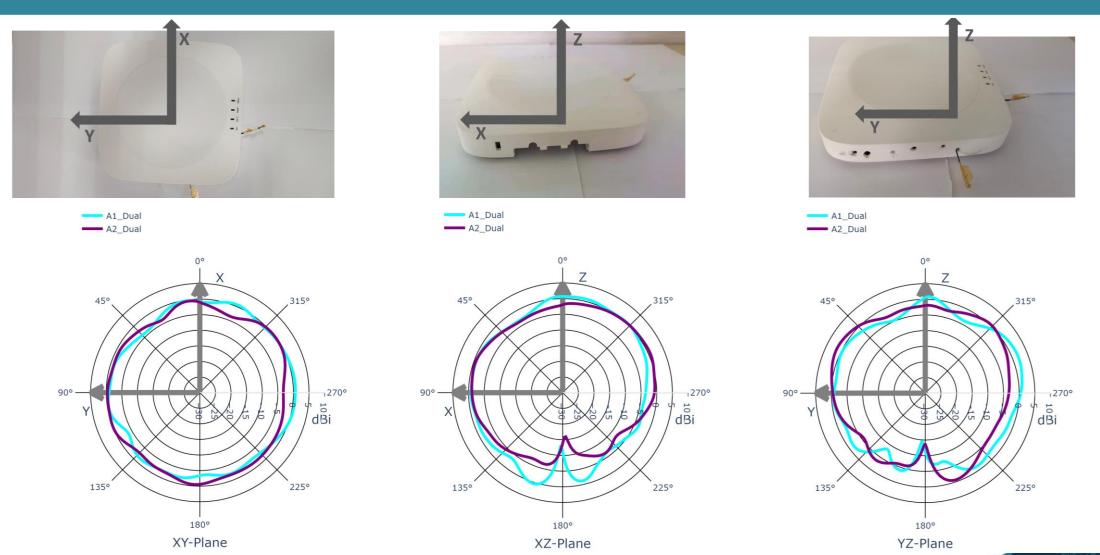


## Realized Gain Radiation Patterns of Antennas in 2G4 Band at 2400 MHz



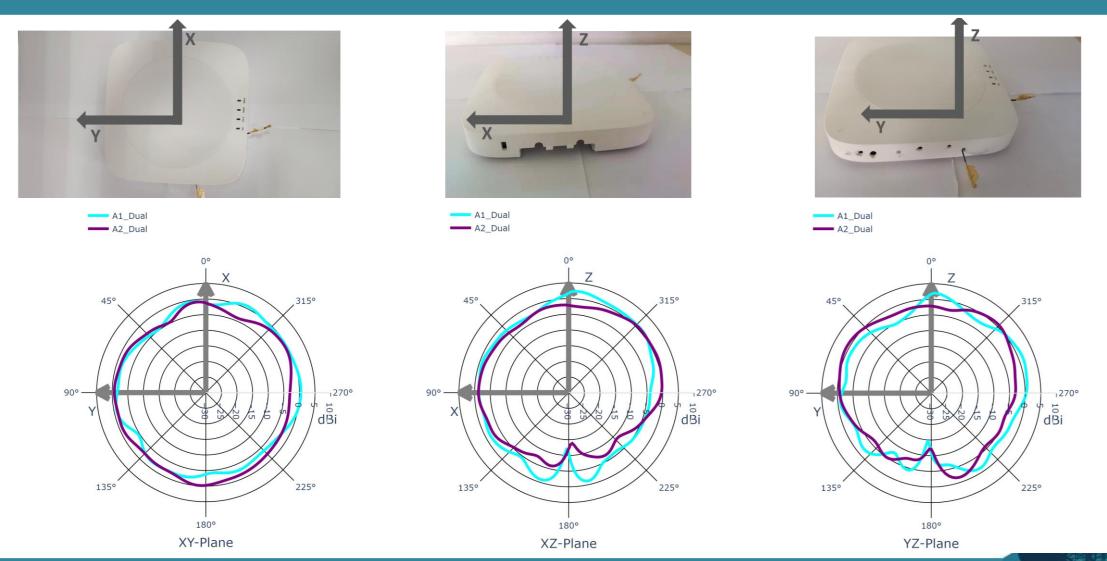


## Realized Gain Radiation Patterns of Antennas in 2G4 Band at 2450 MHz



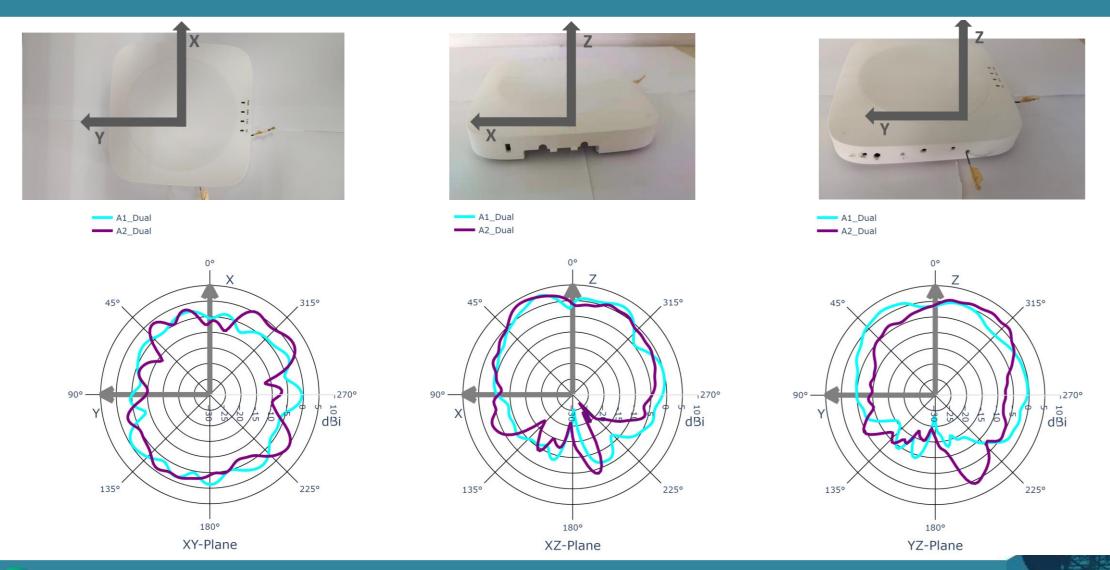


## Realized Gain Radiation Patterns of Antennas in 2G4 Band at 2490 MHz



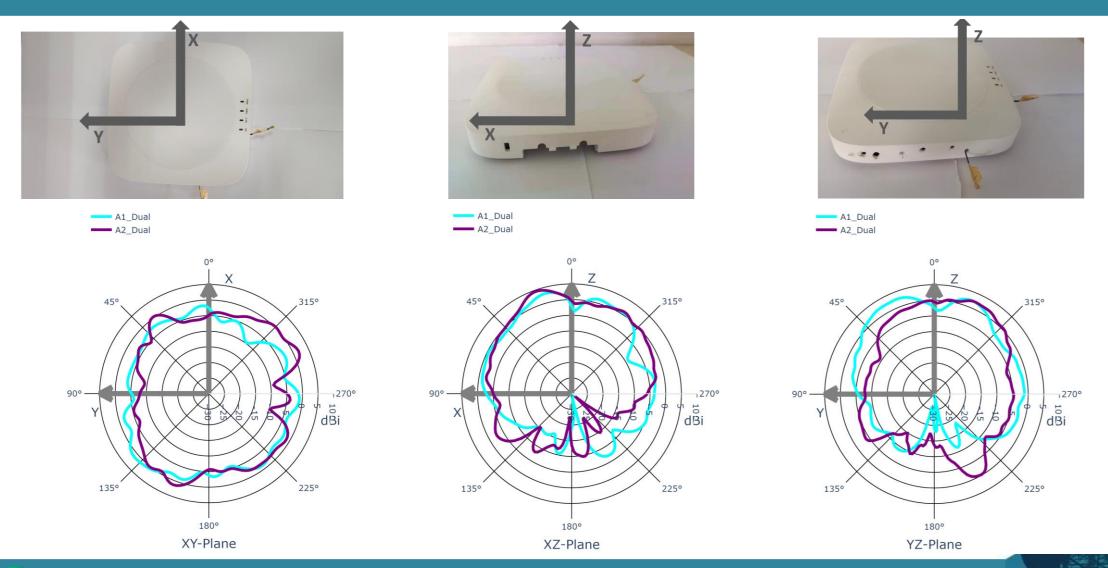


#### Realized Gain Radiation Patterns of Antennas in 5G Band at 5150 MHz



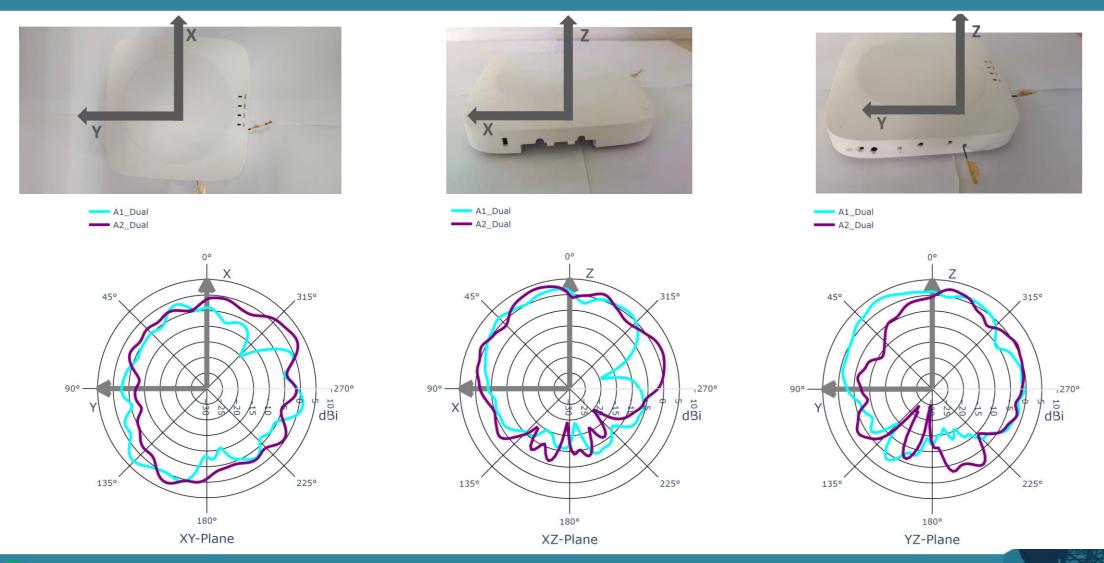


#### Realized Gain Radiation Patterns of Antennas in 5G Band at 5500 MHz



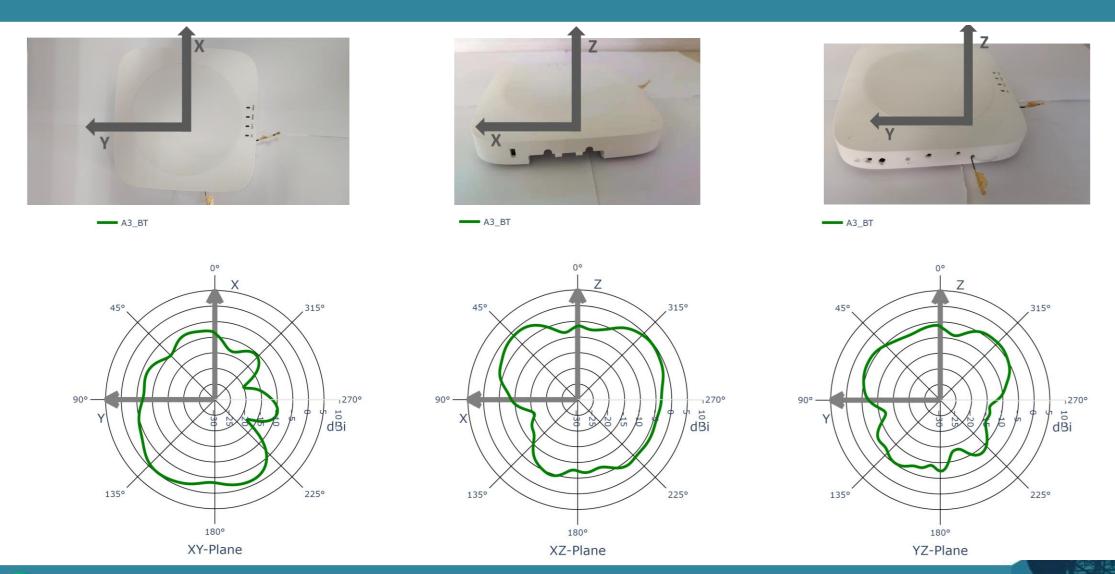


#### Realized Gain Radiation Patterns of Antennas in 5G Band at 5850 MHz



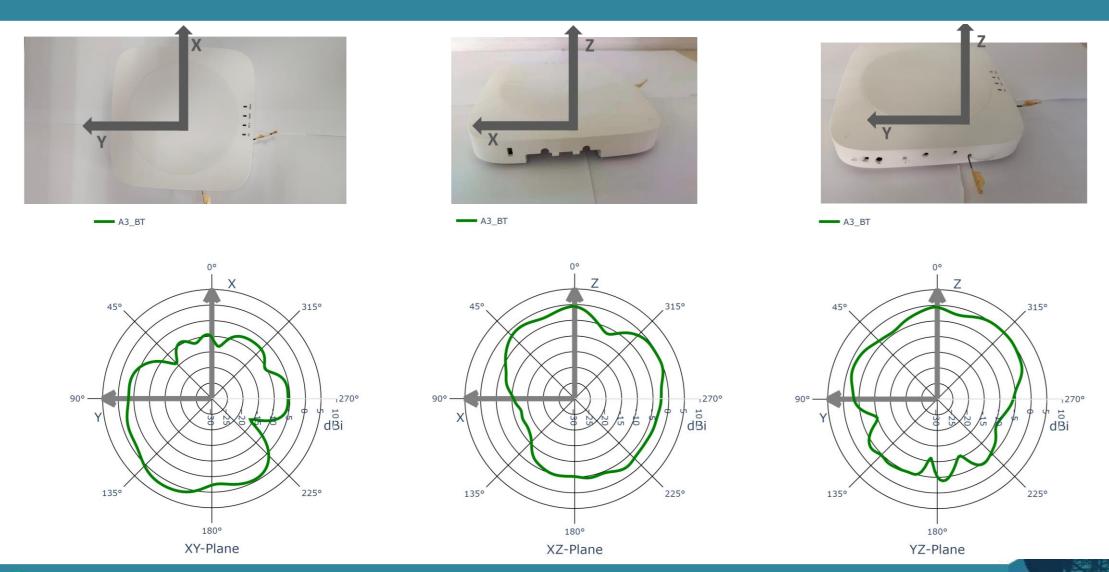


#### Realized Gain Radiation Patterns of Antennas in BT Band at 2400 MHz





#### Realized Gain Radiation Patterns of Antennas in BT Band at 2450 MHz





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