

# APX N50 UHF WIFI BT ANTENNA GAIN MEASUREMENT REPORT

**REPORT NO.:** 2023-AG-PEN004

**MODEL NO.:** H25XDF9PW6AN

**TESTED DATE:** 2023.10.04

**ISSUED:** 2023.10.05

**MANUFACTURER:** Motorola Solutions Inc.

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**ISSUED BY:** Motorola Solutions Malaysia Sdn Bhd.

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**TEST LOCATION :** Motorola Solutions, 11900 Bayan Lepas, Penang, Malaysia

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## RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
2023-AG-PEN004	Original release	2023.10.05

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## 1 General Information

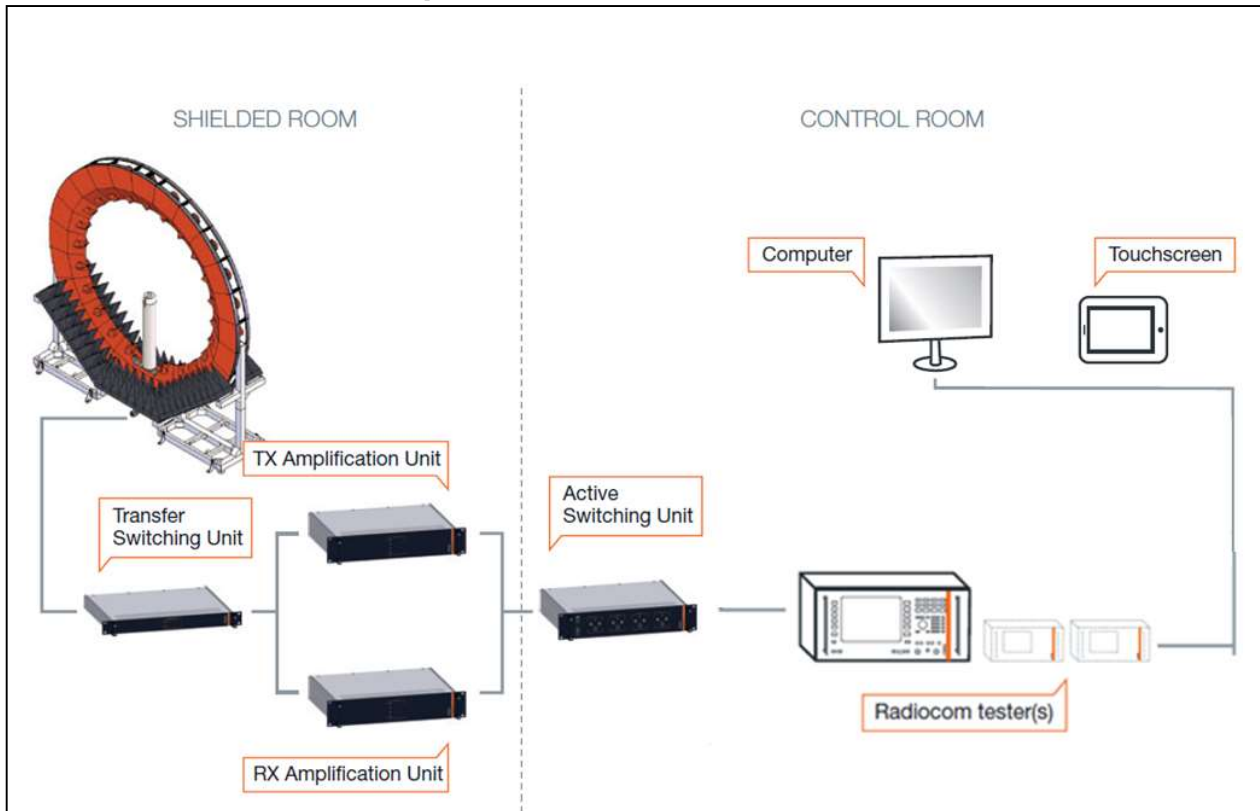
<b>APPLICANT:</b>	Motorola Solutions, Inc
<b>MANUFACTURER:</b>	Motorola Solutions, Inc
<b>MODEL NO:</b>	H25XDF9PW6AN
<b>SERIAL NUMBER/ESN/IMEI:</b>	287TZT0229
<b>HARDWARE VERSION:</b>	Proto 1
<b>SOFTWARE VERSION:</b>	D31.50.21
<b>PRODUCT TYPE:</b>	Portable Radio
<b>BLUETOOTH ANTENNA:</b>	AN000410A01, Embedded.
<b>WiFi 2.4GHz ANTENNA:</b>	AN000410A01, Same physical antenna as above
<b>WiFi 5GHz ANTENNA:</b>	AN000410A01, Same physical antenna as above

The above equipment has been tested by **Motorola Solutions Malaysia Sdn Bhd**

PREPARED BY: Mohamad Jamadi Mohamad Sukeri

APPROVED BY: Teik Yang Goh

## 2 Measurement Setup



Overview of the SG24 multi-probe antenna measurement system from Microwave Vision Group.

## 3 Test Procedure

Device Under Test mounted on Antenna Chamber turntable. Measurements, including conducted power, TRP, and Peak EIRP and obtained by the MVG SG24 test system across low, mid and hi portions of the frequency band and across a 360 degree sphere. Peak antenna gain is determined from the maximum EIRP measured across the sphere with respect to the conducted power.

## 4 Test Lab Environment Conditions

Temperature	20°C to 30°C
Humidity	30% to 70%

## 5 Test Equipment List

Type of Equipment	Model Number	Serial Number	Calibration Due Date
Antenna Chamber	MVG SG24		N/A
Call Box	R&S CMW500	141537	16 August 2024

## 6 Device Configuration

### 6.1 Bands and Protocols Supported by Each Antenna

Antenna Label	Bands and Protocols for Which the Antenna Is Connected to RF front end
A	BT, 2.4GHz WiFi, 5GHz WiFi

## 7 Evaluation Summary

### 7.1 Conducted Power, TRP, EIRP

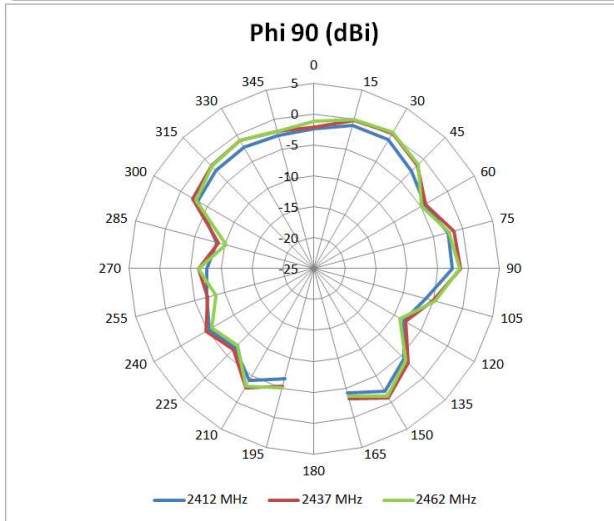
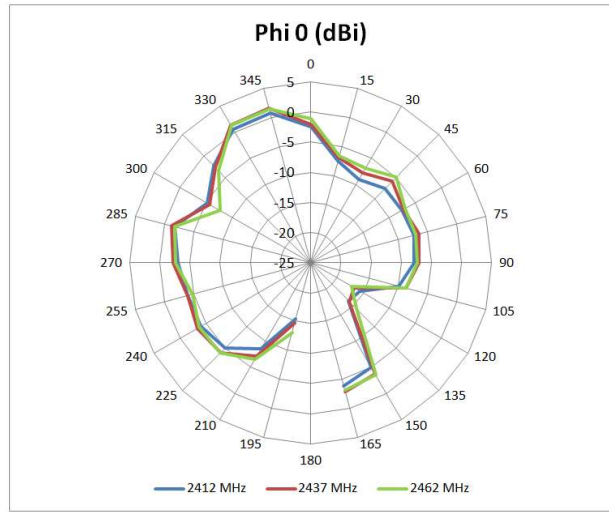
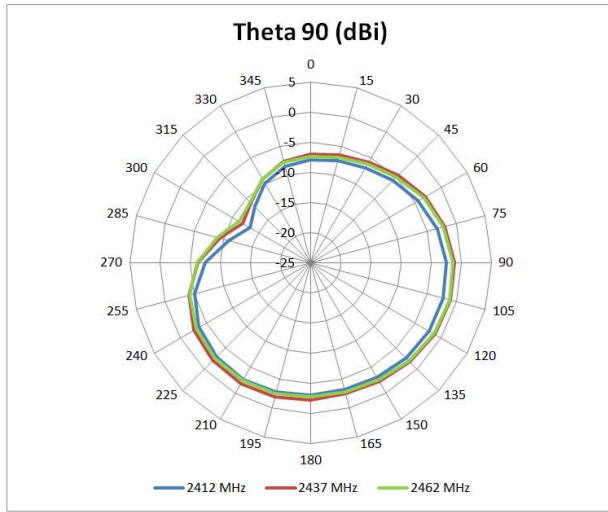
Protocol	Frequency (MHz)	BW (MHz)	Rate (Mbps)	Conducted Power	TRP	EIRP	Peak Gain = EIRP – Conducted Power
802.11g	2412	20	6	14.37	9.94	14.65	0.28
	2437	20	6	17.19	13.66	18.67	1.48
	2462	20	6	14.10	10.23	15.01	0.91
802.11a	5180	20	6	12.23	9.76	16.43	4.20
	5500	20	6	7.04	3.40	11.92	4.88
	5825	20	6	11.81	8.69	14.31	2.50

Measurement uncertainty for transmit parameters and antenna gain is as listed below, corresponding to 95% confidence level.

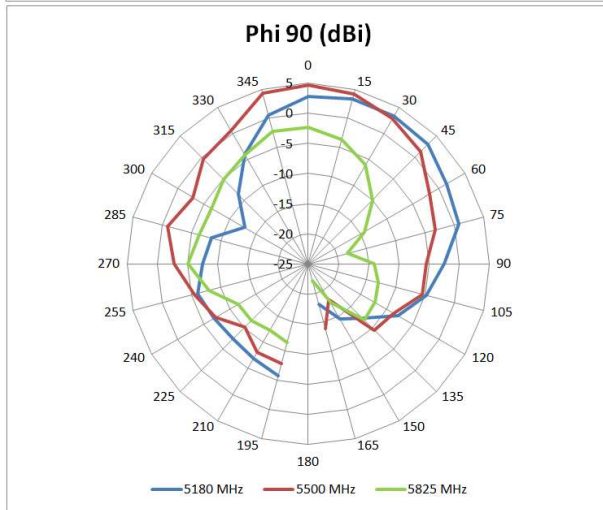
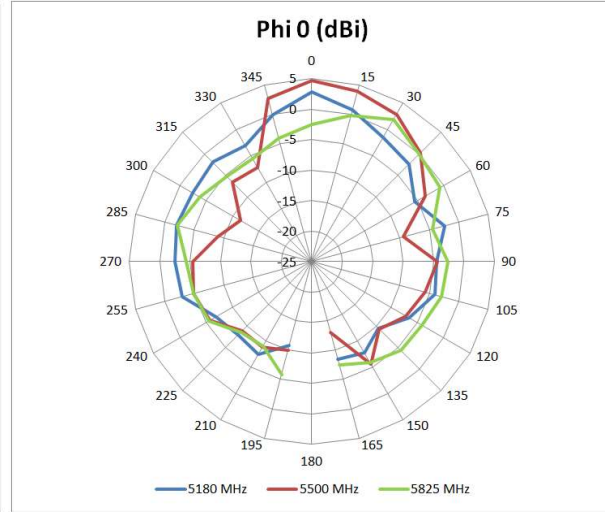
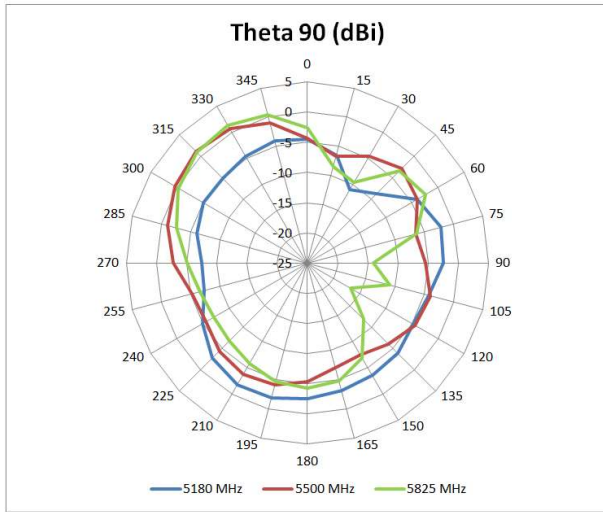
Test Configuration	Measurement Uncertainty (dB)	
	LTE/WLAN 2300-2800 MHz	LTE/WLAN 5150-5925 MHz
Free Space	1.60	1.72

## 7.2 Antenna patterns

### 2.4GHz WIFI

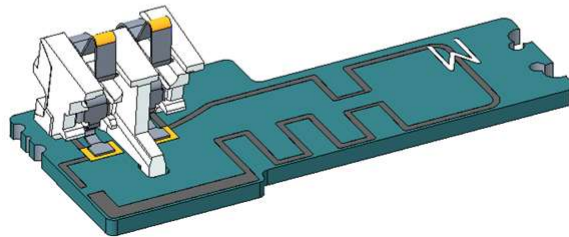
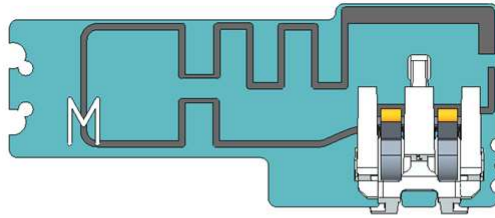


### 5GHz WIFI





## 8 Antenna Photographs / drawings



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