

R5 VHF WIFI ANTENNA GAIN MEASUREMENT REPORT

REPORT NO.: 2024-AG-PEN008

MODEL NO.: R5 VHF

TESTED DATE: 2024.09.08

ISSUED: 2024.09.10

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
2024-AG-PEN008	Original release	2024.09.10

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1 General Information

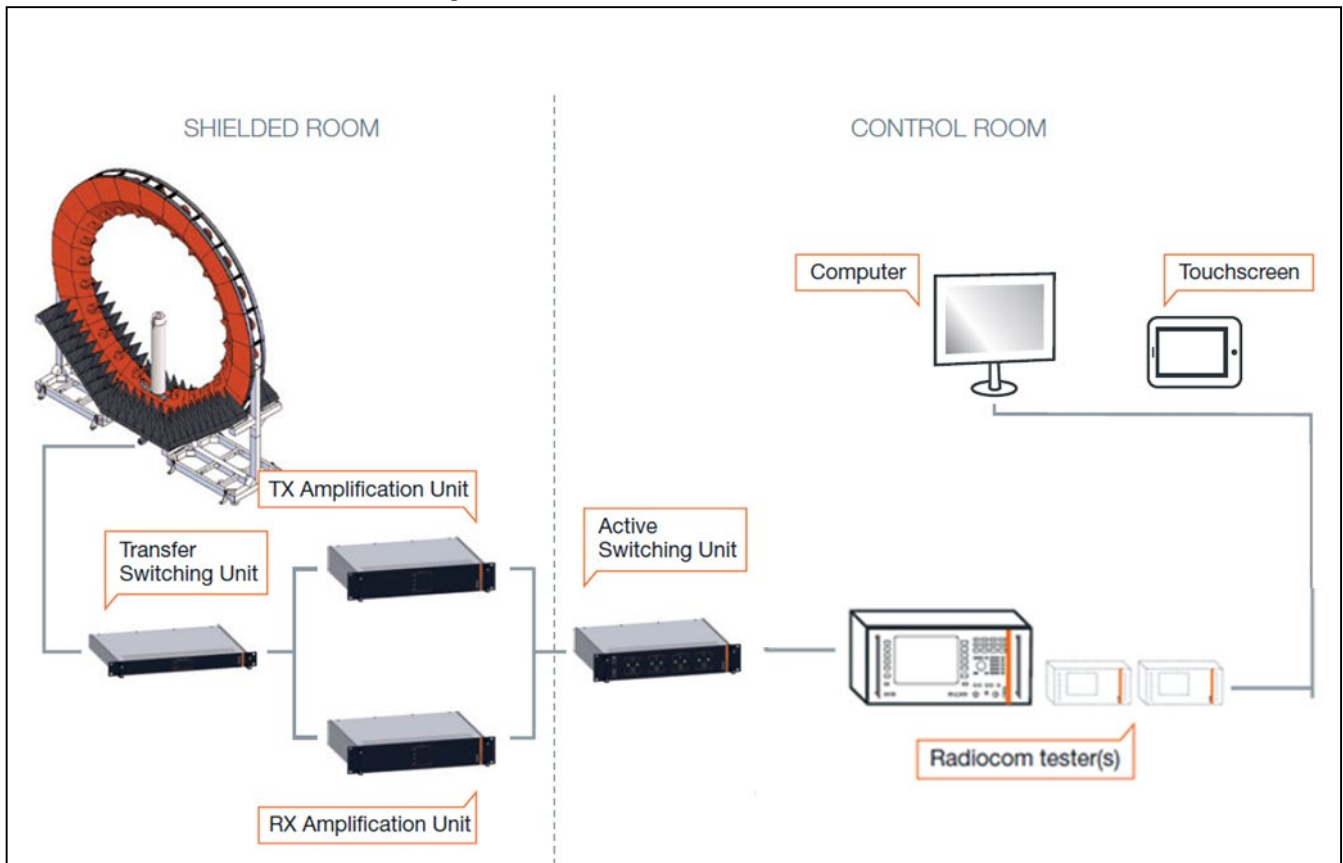
APPLICANT:	Motorola Solutions, Inc
MANUFACTURER:	Motorola Solutions, Inc
MODEL NO:	R5 VHF
SERIAL NUMBER/ESN/IMEI:	651EAQ0135
HARDWARE VERSION:	P1b
SOFTWARE VERSION:	D02.25.01.0024
PRODUCT TYPE:	Portable Radio
BLUETOOTH/WIFI ANTENNA:	AN000389A01, Embedded.

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

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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	166207	15 Nov 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 & 5GHz WIFI

7 Evaluation Summary

7.1 Conducted Power, TRP, EIRP

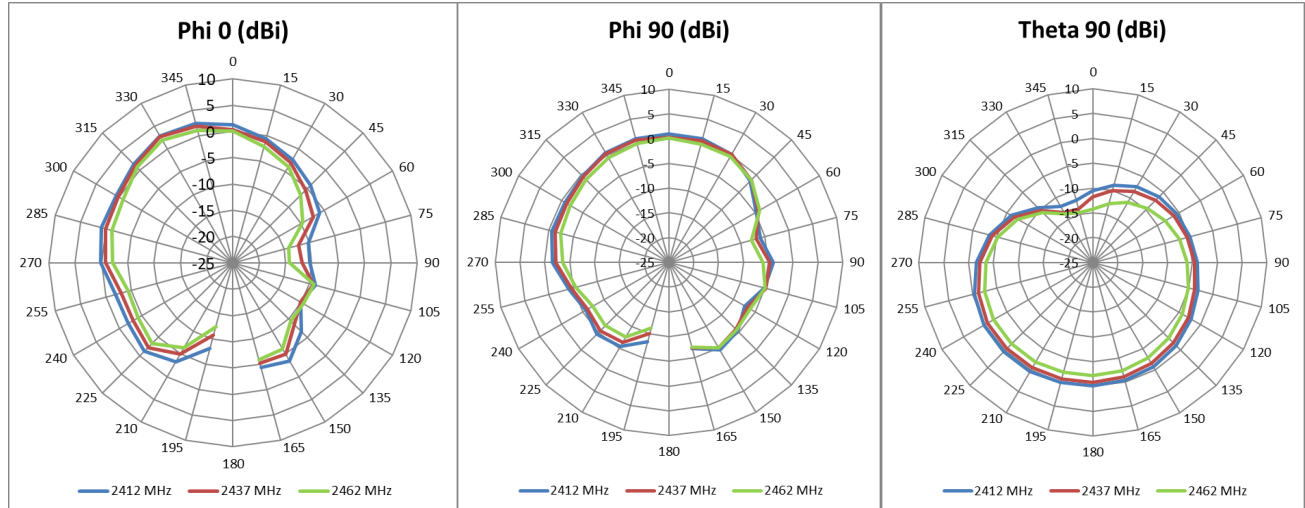
Protocol	Frequency (MHz)	BW (MHz)	Rate (Mbps)	Conducted Power	TRP	EIRP	Peak Gain = EIRP – Conducted Power
802.11g	2412	20	6	12.05	9.78	15.1	3
	2437	20	6	13.05	10.1	15.8	2.75
	2462	20	6	12.89	9.06	14.8	1.94
802.11a	5180	20	6	12.63	7.87	15.8	3.17
	5500	20	6	8.12	5.91	14.1	6
	5825	20	6	10.37	5.29	13	2.58

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

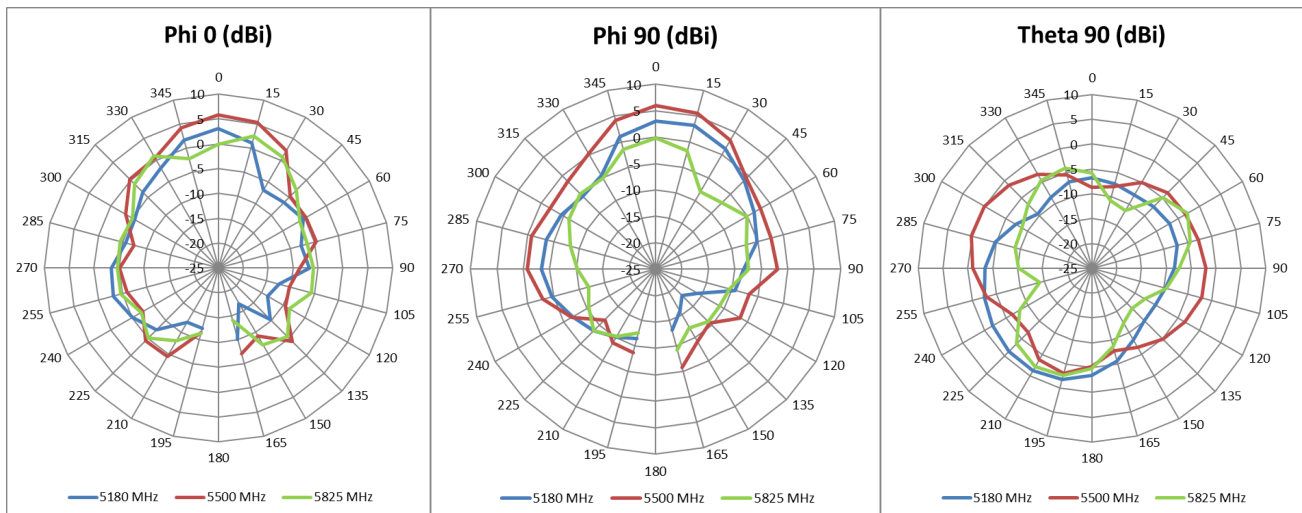
	Measurement Uncertainty (dB)	
Test Configuration	LTE/WLAN 2300-2800 MHz	LTE/WLAN 5150-5925 MHz
Free Space	1.60	1.72

7.2 Antenna patterns

2.4GHz WIFI



5GHz WIFI



8 Antenna Photographs / drawings

Part Number : AN000389A01

