

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.

ADDRESS : 2000 Progress Parkway, SCHAUMBURG IL 60196, UNITED STATES

ISSUED BY: Motorola Solutions Malaysia Sdn Bhd.

ADDRESS : Motorola Solutions, 11900 Bayan Lepas, Penang, Malaysia

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

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification

RELEASE CONTROL RECORD

REPORT NO.	REASON FOR CHANGE	DATE ISSUED
2024-AG-PEN008	Original release	2024.09.10

Table of Contents

1	General Information	3
2	Measurement Setup	4
3	Test Procedure	4
4	Test Lab Environment Conditions	5
5	Test Equipment List	5
6	Device Configuration	5
	6.1 Bands and Protocols Supported by Each Antenna	5
7	Evaluation Summary	6
	7.1 Conducted Power, TRP, EIRP	6
	7.2 Antenna patterns	7
8	Antenna Photographs / drawings	8

1 General Information

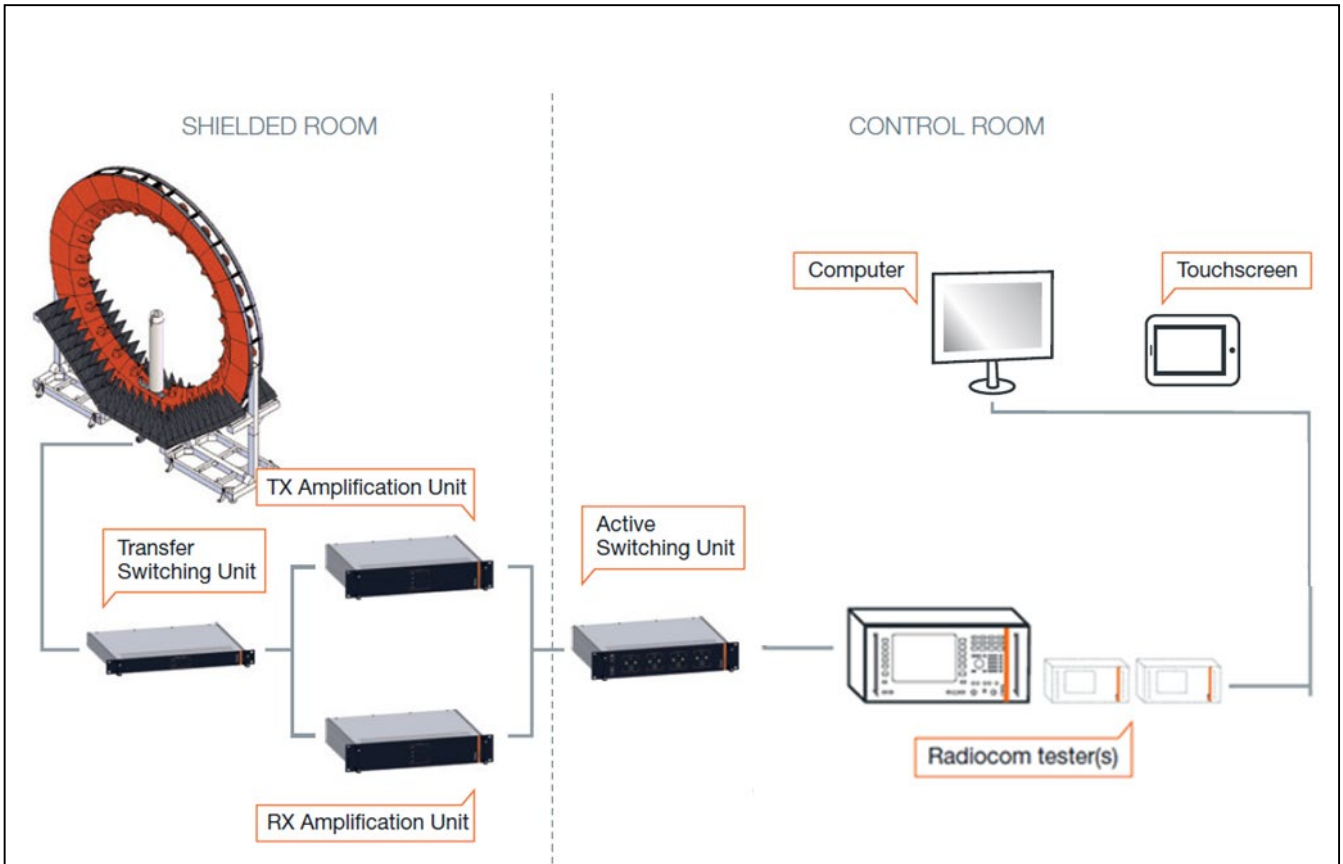
APPLICANT:	Motorola Solutions, Inc
MANUFACTURER:	Motorola Solutions, Inc
MODEL NO:	R5 VHF
SERIAL NUMBER/ESN/IMEI:	651EAQ0135
HARDWARE VERSION:	P1b
SOFTWARE VERSION:	D02.25.01.0024
PRODUCT TYPE:	Portable Radio
BLUETOOTH/WIFI ANTENNA:	AN000389A01, Embedded.

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

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	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

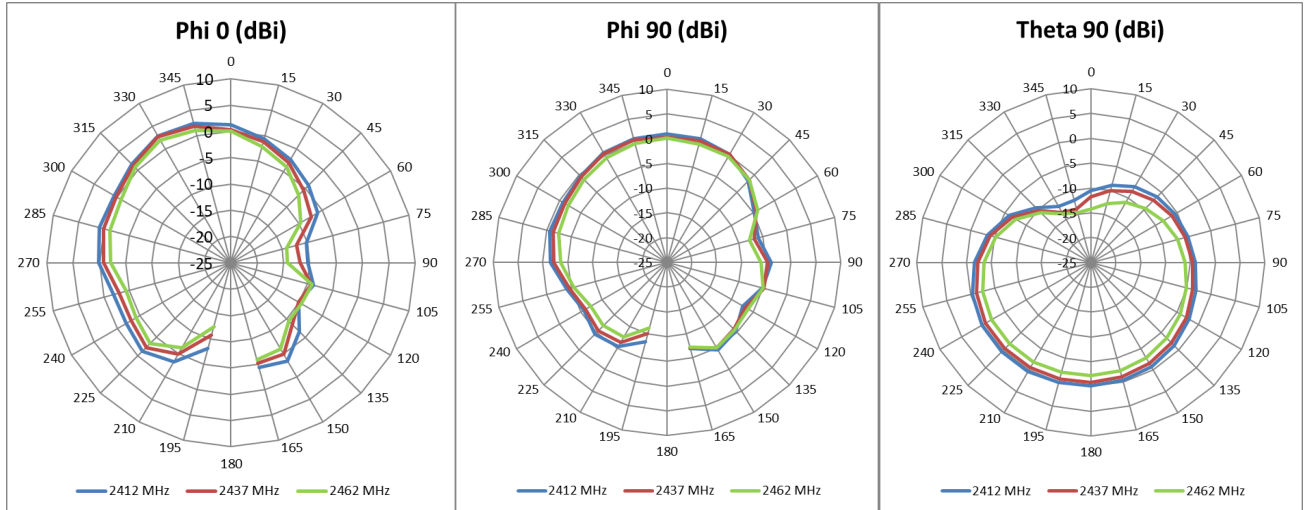
Protocol	Frequency (MHz)	BW (MHz)	Rate (Mbps)	Conducted Power	TRP	EIRP	Peak Gain = EIRP – Conducted Power
802.11g	2412	20	6	12.05	9.78	15.1	3
	2437	20	6	13.05	10.1	15.8	2.75
	2462	20	6	12.89	9.06	14.8	1.94
802.11a	5180	20	6	12.63	7.87	15.8	3.17
	5500	20	6	8.12	5.91	14.1	6
	5825	20	6	10.37	5.29	13	2.58

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

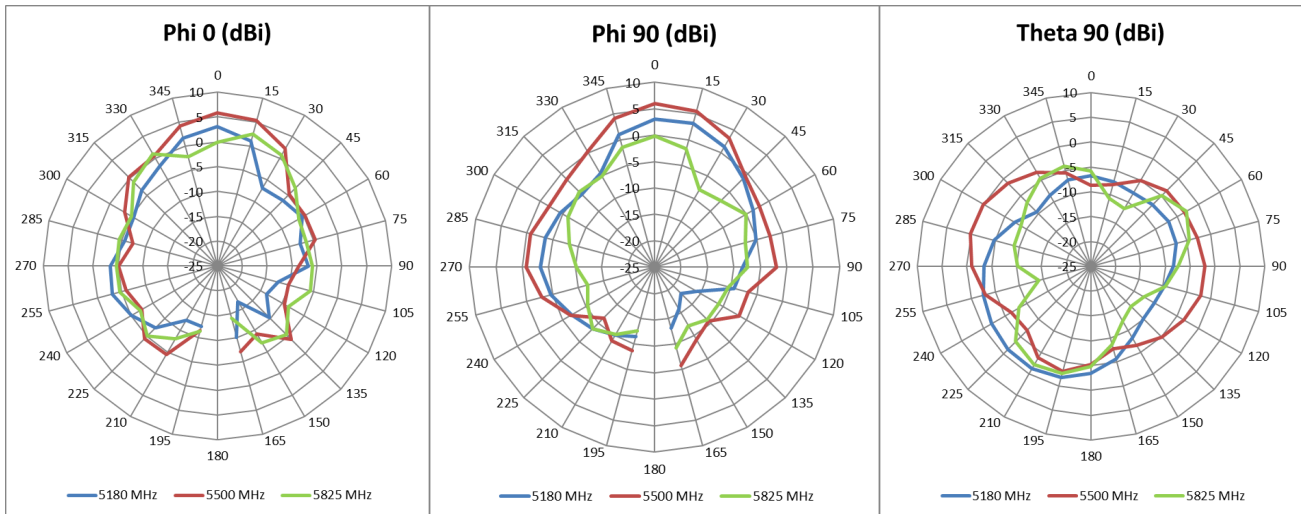
Test Configuration	Measurement Uncertainty (dB)	
	LTE/WLAN 2300-2800 MHz	LTE/WLAN 5150-5925 MHz
Free Space	1.60	1.72

7.2 Antenna patterns

2.4GHz WIFI



5GHz WIFI



8 Antenna Photographs / drawings

Part Number : AN000389A01

