

FCC SAR Test Exclusion Evaluation Report

Report No: WD-RF-R-210346-C0

Product Name : 2D Wireless Ring Scanner
Model Name : MT581
FCC ID : IRJ-MT581
Applicant : Marson Technology Co., Ltd.
Received Date : Oct. 19, 2021
Tested Date : Nov. 08, 2021 ~ Nov. 23, 2021
Applicable Standard : 47 CFR FCC Part 2.1093
KDB 447498 D01
KDB 865664 D01
KDB 865664 D02



Wendell Industrial Co., Ltd Wendell EMC & RF Laboratory

Caution:

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.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment.

Please note that the measurement uncertainty are provided for informational purpose only and are not used in determining the Pass/Fail results.

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Test Report

Issued Date: November 23, 2021

Project No.: 21Q101903

Product Name	2D Wireless Ring Scanner
Trade Name	Marson
Model Name	MT581
FCC ID	IRJ-MT581
Applicant	Marson Technology Co., Ltd.
Manufacturer	Marson Technology Co., Ltd.
EUT Rated Voltage	Battery 3.7V / USB 5V
EUT Test Voltage	Battery 3.7V
EUT Supports Radios Application	Bluetooth BR/EDR/LE
Applicable Standard	47 CFR FCC Part 2.1093 KDB 447498 D01 KDB 865664 D01 KDB 865664 D02
Test Result	Complied

Documented :



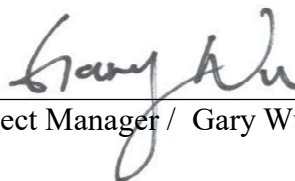
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Approved :



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Table of Contents

Document Revision History	4
Reference Testing Standard.....	5
1 Generation Information	6
1.1 Applicant.....	6
1.2 Manufacturer.....	6
1.3 Description of Equipment under Test.....	6
1.4 Test Facility	7
2 SAR Test Exclusion.....	8
3 Limit Requirement	8
4 Test Results.....	9

Document Revision History

Report No.	Issue date	Description
WD-RF-R-210346-C0	November 23, 2021	Initial report

Reference Testing Standard

Standard	Description	Version
47 CFR FCC Part 2.1093	Radiofrequency radiation exposure evaluation: portable devices.	--
KDB 447498 D01	RF Exposure procedures and equipment authorization policies for mobile and portable devices.	v06
KDB 865664 D01	SAR Measurement 100 MHz to 6 GHz	v01r04
KDB 865664 D02	RF Exposure Reporting	v01r02

1 Generation Information

1.1 Applicant

Marson Technology Co., Ltd.
9F, No. 108-3, Mincyuan Rd., Sindian Dist., New Taipei City 23141 Taiwan R.O.C

1.2 Manufacturer

Marson Technology Co., Ltd.
9F, No. 108-3, Mincyuan Rd., Sindian Dist., New Taipei City 23141 Taiwan R.O.C

1.3 Description of Equipment under Test

Product Name	2D Wireless Ring Scanner
Model No.	MT581
FCC ID	IRJ-MT581
Frequency Range	2402~2480MHz
Number of Channels	BT: 79 CH BLE: 40CH
Antenna Information	Refer to the table “Antenna List”

The above equipment was tested by Wendell EMC & RF Laboratory For compliance with the requirements set forth in 47 CFR § 2.1093. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties

Antenna List

No.	Manufacturer	Model No.	Antenna Type	Peak Gain
1	Advanced Ceramic X	AT3216-B2R7HAA	Chip Antenna	0.50 dBi for 2.4GHz

1.4 Test Facility

Items	Required (IEC 60068-1)	Actual
Temperature (°C)	15-35	25
Humidity (% RH)	25-75	65
Barometric pressure (mbar)	860-1060	1001

Description: Accredited by TAF

Accredited Number: 2965

Issued by: Wendell Industrial Co., Ltd

Lab Address: 6F/6F-1, No.188, Baoqiao Rd., Xindian Dist.,
New Taipei City 23145, Taiwan (R.O.C)

Test Lab: Wendell EMC & RF Laboratory

Test Location: 1F., No. 119, Wugong 3rd Rd., Wugu Dist.,
New Taipei City 248, Taiwan (R.O.C.)

Designation Number: TW0025

Test Firm Registration Number: 665221

2 SAR Test Exclusion

As RF exposure evaluation of portable device, SAR test is not required when the evaluation results. According to KDB 447498 4.3.1, unless excluded by specific FCC test procedures, portable devices shall include SAR data for equipment approval. SAR test necessity will be based on the exclusion result.

3 Limit Requirement

The test exclusion refers KDB 447498 4.3.1 as below:

- (a) For 100 MHz to 6 GHz and test separation distances ≤ 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following :**

$$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0 \text{ for 1-g SAR, and } \leq 7.5 \text{ for 10-g extremity SAR}$$

- (b) For 100 MHz to 6 GHz and test separation distances > 50 mm, the 1-g and 10-g SAR test exclusion thresholds are determined by the following:**

- (1) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot (f(\text{MHz})/150)]\}$ mW, for 100 MHz to 1500 MHz
- (2) $\{[\text{Power allowed at numeric threshold for 50 mm in step a)}] + [(\text{test separation distance} - 50 \text{ mm}) \cdot 10]\}$ mW, for > 1500 MHz and ≤ 6 GHz

4 Test Results

Mode	Max. Power (E.I.R.P)		Distance (mm)	Calculation results	Limit		Result	
	dBm	mW			SAR _{1g}	SAR _{10g}	SAR _{1g}	SAR _{10g}
BT	5.30	3.39	5	1.1	3	7.5	Not required	Not required
LE	2.58	1.81	5	0.6	3	7.5	Not required	Not required

Note :

- * Please refer to report number WD-RF-R-210346-A0 、WD-RF-R-210346-B0 for output power.
- * The test reduction for distance less than 50mm. Use the max power to make sure minimum distance by evaluated for SAR testing.
- * The Body and limbs SAR conform to exclude assessment.
- * The BT and LE cannot be transmitted at the same time.

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