

RF Exposure Report

Report No.: SABGSN-WTW-P21080119

FCC ID: I4L-BM25SD

Test Model: BM25

Received Date: Aug. 13, 2021

Date of Evaluation: Sep. 29, 2021

Issued Date: Oct. 15, 2021

Applicant: Micro-Star INT'L Co., Ltd

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SABGSN-WTW-P21080119	Original Release	Oct. 15, 2021

1 Certificate of Conformity

Product: 802.11a/b/g/n/ac + BT 4.2 Module

Brand: MSI

Test Model: BM25

Sample Status: Identical Prototype

Applicant: Micro-Star INT'L Co., Ltd

Date of Evaluation: Sep. 29, 2021

Standards: FCC Part 2 (Section 2.1093)

References Test Guidance : KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

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Date: Oct. 15, 2021

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Date: Oct. 15, 2021

Dylan Chiou / Senior Engineer

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	f/1500	30
1500-100,000	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

r = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	17.67	1.67	20	0.017	1.00
	5180-5240	17.55	2.14	20	0.019	1.00
	5260-5320	17.47	1.44	20	0.015	1.00
	5500-5700	15.67	2.95	20	0.014	1.00
	5745-5825	16.81	2.37	20	0.016	1.00
BT	2402-2480	5.86	1.67	20	0.001	1.00

Note:

1. Refer to original report (BV CPS report no. SA180518C15) for BT conducted power.
2. The EUT is authorized for use in specific End-product. All models are electrically identical, different model names are for marketing purpose. Please refer to below for more details.

Sample	Product Name	Brand Name	Model Name	Remark
A	Display System	Trimble	137000-99, GFX-1260, XCN-1260, TME-1260	12 inch
B	Display System	Trimble	134000-99, GFX-1060, XCN-1060, TME-1060	10 inch

3. The antenna information is listed as below.

Sample	Antenna type	Antenna Gain (dBi)				
		BT / 2412 ~ 2462 MHz	5180 ~ 5240 MHz	5260 ~ 5320 MHz	5500 ~ 5700 MHz	5745 ~ 5825 MHz
A	PIFA	1.67	2.14	0.79	2.37	2.37
B	PIFA	-0.09	1.24	1.44	2.95	2.29

4. The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.
5. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Conclusion:

2.4GHz, 5GHz, and BT can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WLAN\ 2.4GHz + WLAN\ 5GHz + BT = 0.017/1 + 0.019/1 + 0.001/1 = 0.037$

Therefore the maximum calculations of above situations are less than the "1" limit.

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