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Report No.: 2301TWE903-U2
Report Version: 1.0
Issue Date: 2023-01-31

RF Exposure Evaluation

FCC ID: I4L- GH20WD
APPLICANT: Micro-Star Int'l Co.,Ltd.
Application Type: Certification
Product: 2.4GHz Dongle
Model No.: GH20WD
Brand Name: msi
FCC Rule Part(s): Part 2.1093 (Portable)
Received Date: January 04 ,2022
Test Date: January 31 ,2023

Tested By : Fran Chen
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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2301TWE903-U2	1.0	Original Report	2023-01-31	

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	2.4GHz Dongle
Model No.	GH20WD
Brand Name	msi
Specification	SRD 2.4GHz
Operating Frequency	2405.889~2477.569MHz
Accessories	
Wireless Headset	Brand: msi Model No: 8ZC7

1.2. Antenna Description

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	somic	GH20WD 2.4G	PCB	-1.2dBi

2. RF Exposure Evaluation

2.1. FCC Limits

According to FCC KDB 447498 D04V01 - SAR-Based Exemption

This method shall only be used at separation distances from 0.5 cm to 40 cm and at frequencies from 0.3 GHz to 6 GHz (inclusive). P_{th} is given by Formula .

$$P_{th} \text{ (mW)} = \begin{cases} ERP_{20 \text{ cm}} (d/20 \text{ cm})^x & d \leq 20 \text{ cm} \\ ERP_{20 \text{ cm}} & 20 \text{ cm} < d \leq 40 \text{ cm} \end{cases}$$

where

$$x = -\log_{10} \left(\frac{60}{ERP_{20 \text{ cm}} \sqrt{f}} \right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20 \text{ cm}}$ is per Formula.

$$P_{th} \text{ (mW)} = ERP_{20 \text{ cm}} \text{ (mW)} = \begin{cases} 2040f & 0.3 \text{ GHz} \leq f < 1.5 \text{ GHz} \\ 3060 & 1.5 \text{ GHz} \leq f \leq 6 \text{ GHz} \end{cases}$$

The example values shown as below are for illustration only.

Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)										
		5	10	15	20	25	30	35	40	45	50
	300	39	65	88	110	129	148	166	184	201	217
	450	22	44	67	89	112	135	158	180	203	226
	835	9	25	44	66	90	116	145	175	207	240
	1900	3	12	26	44	66	92	122	157	195	236
	2450	3	10	22	38	59	83	111	143	179	219
	3600	2	8	18	32	49	71	96	125	158	195
	5800	1	6	14	25	40	58	80	106	136	169

2.2. Test Result of RF Exposure Evaluation

Mode	Frequency Band (MHz)	Average Output Power (dBm)	Output Power (mW)	FCC SAR Test Exclusion Threshold (mW)
2.4G	2405.889~2477.569	3.62	2.30	3

So, this device can complies the SAR test exclusion.

_____ The End _____