

Forcite Helmet Systems PTY LTD

TEST REPORT

Model:
MK1

REPORT NUMBER
220600071THC-001

ISSUE DATE
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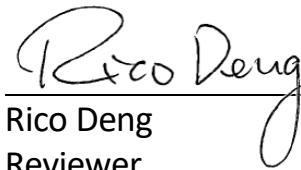
Maximum Permissible Exposure (MPE)

Evaluation Report

Applicant:	Forcite Helmet Systems PTY LTD Unit A1, 35-39 Bourke Rd, Alexandria NSW 2015, Australia
Product:	FORCITE HELMET
Model No.:	MK1
Brand Name:	MK1S, MK1R, MK1X, MK1SE, MK1D
FCC ID:	2A8MD-MK1
Test Method/ Standard:	47 CFR FCC 1.1310 KDB 447498
Test By:	Intertek Testing Services Taiwan Ltd., Hsinchu Laboratory No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li, Shiang-Shan District, Hsinchu City, Taiwan



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Engineer



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Revision History

Report No.	Issue Date	Revision Summary
220600071THC-001	Oct. 17, 2022	Original report

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1. General Information**1.1 Identification of the EUT**

Product:	FORCITE HELMET
Model No.:	MK1
Operating Frequency:	1. 2402 MHz ~ 2480 MHz for BLE; BTC 2. 2412 MHz ~ 2462 MHz for Wi-Fi 2.4G
Channel Number:	1. 40 channels for BLE 2. 79 channels for BTC 3. 11 channels for Wi-Fi 2.4G
Frequency of Each Channel:	1. 2402+2 k, k=0 ~ 39 for BLE 2. 2402+k, k = 0~78 for BTC 3. 2412+5 k, k=0 ~ 10 for Wi-Fi 2.4G
Rated Power:	DC 5V
Power Cord:	N/A
Sample receiving date:	2022/07/21
Sample condition:	Workable
Test Date(s):	2022/08/31

1.2 Additional information about the EUT

The customer confirmed there are several trade names, the different brands served as marketing strategy.

Brand Name	Model Number	Different
MK1S	MK1	painting different; helmet padding different
MK1R	MK1	painting different; helmet padding different
MK1X	MK1	painting different; helmet padding different
MK1SE	MK1	painting different; helmet padding different
MK1D	MK1	painting different; helmet padding different

1.3 Antenna description**For BLE; BTC**

Antenna Gain : 3.77 dBi
Antenna Type : PCB antenna
Connector Type : I-Pex

For Wi-Fi 2.4G

Antenna Gain : 4.2 dBi
Antenna Type : PCB antenna
Connector Type : I-Pex

1.4 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	Data cable
Notebook PC	ASUS	N81V	N/A	Micro USB shielded cable 0.2m
Fixture	N/A	N/A	N/A	Micro USB shielded cable 0.2m
Adapter	Samsung	EP-TA10JWS	N/A	N/A

2. Test specifications

2.1 RF Exposure calculations

According to KDB 447498 D01 , Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

Clause 4.3: General SAR test reduction and exclusion guidance Sub , clause 4.3.1: Standalone SAR test exclusion considerations

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 (also illustrated in Appendix B): ³²

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

2.2 Operation mode

For Wi-Fi 2.4G

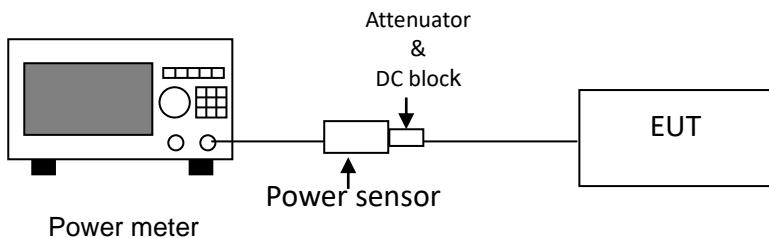
EUT connected to Notebook USB port, executing “tera term” and enter command to select different frequency and modulation.

For BLE; BTC

Connected to Notebook via USB Cable, executing “BLU Test3” and select different frequency and modulation.

2.3 Test equipment

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
Power Meter	Anritsu	ML2495A	0844001	2021/10/17	2022/10/16
Power Sensor	Anritsu	MA2411B	0738452	2021/10/17	2022/10/16
20dB Attenuator	Mini-Circuits	BW-S20W5+	N/A	2022/05/25	2023/05/24

2.4 Test Set-up

Remark: Cable loss = 21 dB

3. Test results

Temperature (°C) :	27
Relative Humidity (%) :	61
Test date :	2022/08/31

For BLE

Mode	Frequency (MHz)	Output Power (dBm)	Tune-up Tolerance (dB)	Tune-up Output Power (dBm)	Tune-up Output Power (mW)	Exemption Limit (mW)
BLE 1M	2402	-1.11	2	0.89	1.23	10.09
	2440	-1.66	2	0.34	1.08	10.02
	2480	-0.49	2	1.51	1.42	9.95

SAR evaluation – Exemption limits for routine evaluation for 5mm

For BTC

Mode	Frequency (MHz)	Output Power (dBm)	Tune-up Tolerance (dB)	Tune-up Output Power (dBm)	Tune-up Output Power (mW)	Exemption Limit (mW)
DH5	2402	-1.24	2	0.76	1.19	10.09
	2441	-3.73	2	-1.73	0.67	10.02
	2480	-2.83	2	-0.83	0.83	9.95
2DH5	2402	-1.51	2	0.49	1.12	10.09
	2441	-2.19	2	-0.19	0.96	10.02
	2480	-0.91	2	1.09	1.29	9.95
3DH5	2402	-1.39	2	0.61	1.15	10.09
	2441	-1.99	2	0.01	1.00	10.02
	2480	-0.75	2	1.25	1.33	9.95

SAR evaluation – Exemption limits for routine evaluation for 5mm

For Wi-Fi 2.4G

Mode	Frequency (MHz)	Output Power (dBm)	Tune-up Tolerance (dB)	Tune-up Output Power (dBm)	Tune-up Output Power (mW)	Exemption Limit (mW)
802.11b	2412	-3.98	2	-1.98	0.63	10.07
	2437	-4.07	2	-2.07	0.62	10.02
	2462	-4.12	2	-2.12	0.61	9.98
802.11g	2412	-9.25	2	-7.25	0.19	10.07
	2437	-9.11	2	-7.11	0.19	10.02
	2462	-9.17	2	-7.17	0.19	9.98
802.11n (HT20)	2412	-9.88	2	-7.88	0.16	10.07
	2437	-9.46	2	-7.46	0.18	10.02
	2462	-9.01	2	-7.01	0.20	9.98

SAR evaluation – Exemption limits for routine evaluation for 5mm