

Forcite Helmet Systems PTY LTD

TEST REPORT

Model:
MK1

REPORT NUMBER
220600071THC-001

ISSUE DATE
Oct. 17, 2022

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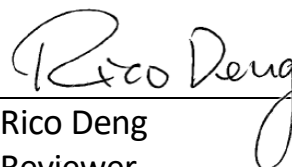


Maximum Permissible Exposure (MPE) Evaluation Report

| | |
|-------------------------------|--|
| 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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Rico Deng
Reviewer

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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

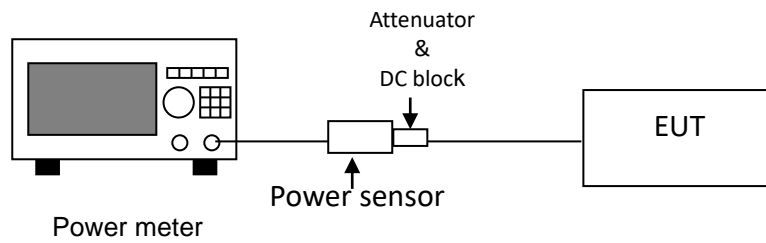
EUT connected to Notebook USB port, executing “tera term” and enter command to select different frequency and modulation.

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