Forcite Helmet Systems PTY LTD

TEST REPORT

Model:
MK1-HBC

REPORT NUMBER
220600076THC-001

ISSUE DATE
Oct. 17, 2022

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DOCUMENT CONTROL NUMBER
GFT-OP-10h (28-Nov-2018)

Maximum Permissible Exposure (MPE) Evaluation Report

Applicant:	**Forcite Helmet Systems PTY LTD** **Unit A1, 35-39 Bourke Rd, Alexandria NSW 2015, Australia**
Product:	**FORCITE BT CONTROLLER MK01**
Model No.:	**MK1-HBC**
Brand Name:	**MK1S-HBC, MK1R-HBC, MK1X-HBC, MK1SE-HBC, MK1D-HBC**
FCC ID:	**2A8MD-MK1HBC**
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**

Zero Chen
Engineer

Rico Deng
Reviewer

Revision History

Report No.	Issue Date	Revision Summary
220600076THC-001	Oct. 17, 2022	Original report

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1. General Information

1.1 Identification of the EUT

Product:	FORCITE BT CONTROLLER MK01
Model No.:	MK1-HBC
Operating Frequency:	2402 MHz ~ 2480 MHz
Channel Number:	40 channels
Frequency of Each Channel:	2402+2 k, k＝0 ~ 39
Rated Power:	DC 5V
Power Cord:	N/A
Sample receiving date:	2022/07/21
Sample condition:	Workable
Test Date(s):	2022/08/12

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-HBC	MK1-HBC	Only laser mark different, to match the name of MK1S helmet
MK1R-HBC	MK1-HBC	Only laser mark different, to match the name of MK1R helmet
MK1X-HBC	MK1-HBC	Only laser mark different, to match the name of MK1X helmet
MK1SE-HBC	MK1-HBC	Only laser mark different, to match the name of MK1SE helmet
MK1D-HBC	MK1-HBC	Only laser mark different, to match the name of MK1D helmet

1.3 Antenna description

Antenna Gain : 0.16 dBi
Antenna Type : Meander PCB Printed Antenna
Connector Type : Fixed

1.4 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	Data cable
Notebook PC	HP	HP ProBook 440 G3	5CD8021S9H	N/A
Fixture	N/A	N/A	N/A	N/A
USB Power Adapter	Apple	A1357	N/A	Type-C USB Cable 1.3m

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 A): [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

Appendix A

***SAR Test Exclusion Thresholds* for 100 MHz – 6 GHz and ≤ 50 mm**

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table. The equation and threshold in 4.3.1 must be applied to determine SAR test exclusion.

MHz	5	10	15	20	25	mm
150	39	77	116	155	194	*SAR Test Exclusion Threshold* (mW)
300	27	55	82	110	137	
450	22	45	67	89	112	
835	16	33	49	66	82	
900	16	32	47	63	79	
1500	12	24	37	49	61	
1900	11	22	33	44	54	
2450	10	19	29	38	48	
3600	8	16	24	32	40	
5200	7	13	20	26	33	
5400	6	13	19	26	32	
5800	6	12	19	25	31	

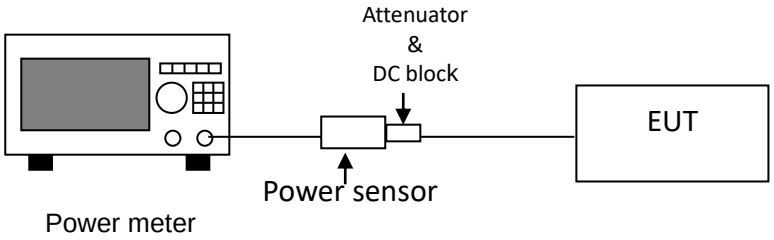
2.2 Operation mode

Connected to Notebook via USB Cable, executing “nRF connect v3.11.1” to 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 (℃) :	22
Relative Humidity (%) :	57
Test date :	2022/08/12

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	3.4	2	5.4	3.47	10.09
	2440	3.2	2	5.2	3.31	10.02
	2480	2.8	2	4.8	3.02	9.95
BLE 2M	2402	3.3	2	5.3	3.39	10.09
	2440	3.1	2	5.1	3.24	10.02
	2480	2.7	2	4.7	2.95	9.95

SAR evaluation – Exemption limits for routine evaluation for 5mm