SAR Exclusion Evaluation Report

Applicant	:	Mobile Action Technology Inc.
Applicant Address	:	5F., No.205-3, Sec.3, Beishin Rd., Shindian City Taipei Taiwan 231
Product Type	:	Bluetooth GPS Logger
Trade Name	:	Mobile Action
Model Number	:	GT-120B
Applicable Standard	:	47 CFR Part S2.1093
Received Date	:	Oct. 08, 2021
Issued Date	:	Nov. 17, 2021

Issued by

Approved By : Kris Pan

(Kris Pan)

A Test Lab Techno Corp.
No. 140-1, Changan Street, Bade District,
Taoyuan City 33465, Taiwan (R.O.C.)
Tel：+886-3-2710188 / Fax：+886-3-2710190

Taiwan Accreditation Foundation accreditation number: 1330
Test Firm MRA designation number: TW0010

Note:
1. The test results are valid only for samples provided by customers and under the test conditions described in this report.
2. This report shall not be reproduced except in full, without the written approval of A Test Lab Technology Corporation.
3. The relevant information is provided by customers in this test report. According to the correctness, appropriateness or completeness of the information provided by the customer, if there is any doubt or error in the information which affects the validity of the test results, the laboratory does not take the responsibility.

Revision History

Rev.	Issued Date	Revisions	Revised By
00	Nov. 17, 2021	Initial Issue	Nicole Chu

Contents

1. General Information

1.1 Reference Testing Standards

Standard	Description	Version
47 CFR Part §2.1093	Radiofrequency radiation exposure evaluation: portable devices	-
IEEE 1528	Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques	2013
IEEE C95.1	IEEE Standard for Safety Levels with Respect to Human Exposure to Electric, Magnetic, and Electromagnetic Fields, 0 Hz to 300 GHz	1992
KDB 447498 D01	RF exposure procedures and equipment authorization policies for mobile and portable devices	v06
KDB 865664 D02	RF exposure compliance reporting and documentation considerations	v01r02

2. Description of Device Under Test (DUT)

Applicant	Mobile Action Technology Inc. 5F., No.205-3, Sec.3, Beishin Rd., Shindian City Taipei Taiwan 231			
Manufacturer	VALTEC Technology Co., Ltd. 5F, No.5, Alley 8, Lane 45, Pao Hsin Rd. Hsin-Tien Dist. New Taipei City 23145, Taiwan R.O.C.			
Product Type	Bluetooth GPS Logger			
Trade Name	Mobile Action			
Model Number	GT-120B			
FCC ID	Q7Z-21G120B			
RF Function	Operate Bands		Operate Frequency (MHz)	
	Bluetooth LE		2402 - 2480	
Modulations	GFSK			
Device Category	Portable			
RF Exposure Environment	General Population / Uncontrolled			
Application Type	Certification			
Antenna Information	Model	Type	Max. Gain (dBi)	
	IVX-CA2400-321605	Chip Antenna	2402 - 2480	2.5

Note:

1. The above information of DUT was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

3. Introduction

As RF exposure evaluation of portable device, SAR test is not required when the evaluation results. According to KDB 447498 4.3.1, unless excluded by specific FCC test procedures, portable devices shall include SAR data for equipment approval. SAR test necessity will be based on the exclusion result.

3.1 Assessment Crtiria

The test exclusion refers KDB 447498 as below:

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:
[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [$\sqrt{}$f(GHz)] ≤ 3.0 for 1-g SAR, and ≤ 7.5 for 10-g extremity SAR,

Where:
f(GHz) is the RF channel transmit frequency in GHz
Power and distance are rounded to the nearest mW and mm before calculation31
The result is rounded to one decimal place for comparison
The values 3.0 and 7.5 are referred to as numeric thresholds in step b) below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm, and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 4.1 f) is applied to determine SAR test exclusion.

b) 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:

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

c) For frequencies below 100 MHz, the following may be considered for SAR test exclusion :

1) For test separation distances > 50 mm and < 200 mm, the power threshold at the corresponding test separation distance at 100 MHz in step b) is multiplied by [1 + log(100/f(MHz))]

2) For test separation distances ≤ 50 mm, the power threshold determined by the equation in c) 1) for 50 mm and 100 MHz is multiplied by ½

When an antenna qualifies for the standalone SAR test exclusion of KDB 447498 section 4.3.1 and also transmits simultaneously with other antennas, the standalone SAR value must be estimated according to KDB 447498 section "4.3.2. Simultaneous transmission SAR test exclusion considerations b)

4. Evaluation Results

4.1 Conducted Power

Test mode	MHz	Average Power	Tune up (dBm)
		dBm	
LE	2402	1.32	2.00
	2440	1.97	2.00
	2480	1.31	2.00
2LE	2402	1.24	2.00
	2440	1.95	2.00
	2480	1.29	2.00
BLR C2	2402	1.30	2.00
	2440	1.95	2.00
	2480	1.28	2.00
BLR C8	2402	1.29	2.00
	2440	1.96	2.00
	2480	1.27	2.00

4.2 Assessment Results

SAR Test Exclusion							
Ant. Used	Band	Frequency (GHz)	Tune-Power (dBm)	(mW)	Distance of Ant. To User (mm)	SAR calculate Threshold (mW)	SAR Test Exclusion Threshold (mW)
Bluetooth Antenna	BT	2.480	2	1.58	5	0.50 EXEMPT	3

Note:

1. Calculated Value include string "'mW",that is meam through compare output power with threshold, if the output power more than threshold value the SAR test should be perform. Otherwise, the SAR test could be exempt. (> 50mm)
2. Calculated Value only inculde number format, that is mean through compare output power with threshold, if the Calculated value more than 3, the SAR test should be perform. Otherwise, the SAR test could be exempt. (<50mm)
3. We used highest frequency and power that result should be evaluated the worst case.
4. Power and distance are rounded to the nearest mW and mm before calculation.
5. The result is rounded to one decimal place for comparison.
6. SAR test is not required when the results showed "EXEMPT".

5. Conclusion

The results shaows that the device is in compliance with SAR exclusion, the electromagnetic fields emitted is incapable of producing exposures that exceed the basic restrictions.

---- END ----