Maximum Permissible Exposure Evaluation

FCC ID: 2A8EM-READ

Report No.	:	TBR-C-202503-0095-163
Applicant	:	Bigme Cloud Literacy Technology Co., Ltd.
Equipment Under Test (EUT)		
EUT Name	:	AI Reader
Model No.	:	Read
Series Model No.	:	Read Lite, Read Pro, Read Plus, Read Max, Read SE, Read Ultra, Read Color Lite, Read Color Pro, Read Color Plus, Read Color Max, Read Color SE, Read Color Ultra
Brand Name	:	Bigme
Sample ID	:	HC-C-202503-0095-13-01-1#&HC-C-202503-0095-13-01-2#
Receipt Date	:	2025-03-20
Test Date	:	2025-03-20 to 2025-04-07
Issue Date	:	2025-04-08
Standards	:	FCC Part 2.1093
Test Method	:	KDB 447498 D01 General RF Exposure Guidance v06
Conclusions	:	**PASS**
		In the configuration tested, the EUT complied with the standards specified above.

Test By	:	Lily.zhang	Lily.zhang
Reviewed By	:	Wade.Lv	Wade.Lv
Approved By	:	IVAN SU	Ivan Su

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

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Revision History

Report No.	Version	Description	Issued Date
TBR-C-202503-0095-163	Rev.01	Initial issue of report	2025-04-08

1. General Information about EUT

1.1 Client Information

Applicant	:	Bigme Cloud Literacy Technology Co., Ltd.
Address	:	01 18F., COFCO PROPERTY TOWER, BAOMIN NO.1RD., BAO AN 3RD DISTRICT, SHENZHEN, CHINA
Manufacturer	:	Bigme Cloud Literacy Technology Co., Ltd.
Address	:	01 18F., COFCO PROPERTY TOWER, BAOMIN NO.1RD., BAO AN 3RD DISTRICT, SHENZHEN, CHINA

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	AI Reader	
Models No.	:	Read, Read Lite, Read Pro, Read Plus, Read Max, Read SE, Read Ultra, Read Color Lite, Read Color Pro, Read Color Plus, Read Color Max, Read Color SE, Read Color Ultra	
Model Different	:	All these models are identical in the same PCB, layout and electrical circuit, the only difference is model name.	
Product Description	:	Operation Frequency:	Bluetooth V4.0: 2402MHz~2480MHz 802.11b/g/n(HT20): 2412MHz~2462MHz 802.11n(HT40): 2422MHz~2452MHz
		Modulation Type:	GFSK, π/4-DQPSK, 8-DPSK 802.11b: DSSS (DQPSK, DBPSK, CCK) 802.11g: OFDM (BPSK, QPSK,16QAM, 64QAM) 802.11n: OFDM (BPSK, QPSK,16QAM, 64QAM)
		Antenna Gain:	2.91dBi FPC Antenna
Power Rating	:	Input: DC 5V/2A DC 3.7V 1300mAh 4.81Wh Rechargeable Li-ion battery	
Software Version	:	----	
Hardware Version	:	V1.1	
Remark: The above antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.			

2. Measurement Uncertainty

The reported uncertainty of measurement y±U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.50 dB ±3.10 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.50 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB
RF Power-Conducted	Level Accuracy: Above 1000MHz	±0.95 dB
Power Spectral Density-Conducted	Level Accuracy: Above 1000MHz	±3dB
Occupied Bandwidth	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	±3.8%
Unwanted Emission-Conducted	Level Accuracy: 30MHz to 1000 MHz Above 1000MHz	±2.72 dB
Temperature	/	±0.6℃
Humidity	/	±4%
Supply voltages	/	±2%
Time	/	±4%

3. Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1/F., Building 6, Rundongsheng Industrial Zone, Longzhu, Xixiang, Bao'an District, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025：2017 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01.FCC Accredited Test Site Number: 854351. Designation Number: CN1223.

IC Registration No.: (11950A)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A. CAB identifier: CN0056.

4. SAR Test Exclusion Calculations

4.1 FCC: According to KDB447498 D01 v06 Mobile and Portable Devices RF Exposure Procedures and Equipment Authorization Policies v06.

(1) Clause 4.3: General SAR test reduction and exclusion guidance
Sub clause 4.31: Standalone SAR test exclusion considerations

1) The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6GHz at test separation distance≤5 mm are determined by:

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[√$f_{(GHz)}$] ≤3.0 for 1-g SAR

[(max. power of channel, including tune-up tolerance, mW)/(min. test separation, mm)]*[√$f_{(GHz)}$] ≤7.5.0 for 10-g SAR

4.2 Summary simultaneous transmission for SAR Exclusion

The SAR exemption limits outlined in clause 4.3.2(b) of KDB 447498 have been derived based on an approximate SAR value of 0.4 W/kg using half-wave dipole antennas Footnote 1. As such, when simultaneous transmitter SAR evaluations include transmitters that have been exempt from routine SAR evaluation, the SAR must be estimating based on the ratio between the maximum tune-up tolerance limit of the transmitter that has been exempt and the exemption limit at the specific distance and frequency for that transmitter. This ratio must be multiplied by 0.4 W/kg (2.0 W/kg for controlled use and 1.0 W/kg for limb worn devices) in order to calculate the estimated SAR level.

The estimate SAR value is calculated based the following equation:

(maximum power level including tune-up tolerance for transmitter A / maximum power level of exemption at the same frequency and distance) * 0.4W/kg

1) [(*max. power of channel, including tune-up tolerance, mW*) / (*min. test separation distance, mm*)]·[$\sqrt{f_{(GHz)}}/x$] W/kg, for *test separation distances* ≤ 50 mm;
   where x = 7.5 for 1-g SAR and x = 18.75 for 10-g SAR.
2) 0.4 W/kg for 1-g SAR and 1.0 W/kg for 10-g SAR, when the *test separation distance* is > 50 mm.[37]

The [∑ of (the highest measured or estimated SAR for each standalone antenna configuration, adjusted for maximum tune-up tolerance) / 1.6 W/kg] + [∑ of MPE ratios] is ⩽ 1.0.
The SAR to peak location separation ratios of all simultaneously transmitting antenna pairs operating in portable device exposure conditions are all ⩽ 0.04, and the [∑ of MPE ratios] is ⩽ 1.0.

4.3 Calculation:

Test separation: 5mm						
Bluetooth Mode (GFSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	3.023	3±1	4	2.512	0.779	**3.0**
2.441	3.075	3±1	4	2.512	0.785	**3.0**
2.480	2.936	2±1	3	1.995	0.628	**3.0**
Bluetooth Mode (Pi/4-DQPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	4.623	4±1	5	3.162	0.980	**3.0**
2.441	4.808	4±1	5	3.162	0.988	**3.0**
2.480	4.73	4±1	5	3.162	0.996	**3.0**
Bluetooth Mode (8-DPSK)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	5.292	5±1	6	3.981	1.234	**3.0**
2.441	5.564	5±1	6	3.981	1.244	**3.0**
2.480	5.542	5±1	6	3.981	1.254	**3.0**

Test separation: 5mm						
Bluetooth LE 1M						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.402	7.170	7±1	8	6.31	1.956	**3.0**
2.440	7.328	7±1	8	6.31	1.971	**3.0**
2.480	7.265	7±1	8	6.31	1.987	**3.0**

Test separation: 5mm						
802.11b						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	8.28	8±1	9	7.943	2.467	3.0
2.437	8.13	8±1	9	7.943	2.480	3.0
2.462	7.60	7±1	8	6.31	1.980	3.0
802.11g						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	7.98	7±1	8	6.31	1.960	3.0
2.437	7.46	7±1	8	6.31	1.970	3.0
2.462	7.03	7±1	8	6.31	1.980	3.0
802.11n(HT20)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.412	7.84	7±1	8	6.31	1.960	3.0
2.437	7.36	7±1	8	6.31	1.970	3.0
2.462	6.93	6±1	7	5.012	1.573	3.0
802.11n(HT40)						
Frequency (GHz)	Conducted Power (dBm)	Turn-up Power Tolerance (dB)	Max power of tune up tolerance (dBm)	Max power of tune up tolerance (mw)	Calculation Value	Threshold Value
2.422	7.78	7±1	8	6.31	1.964	3.0
2.437	7.40	7±1	8	6.31	1.970	3.0
2.452	7.20	7±1	8	6.31	1.976	3.0

The measurement results comply with the FCC Limit per 47 CFR 2.1093 for the uncontrolled RF Exposure and SAR Exclusion Threshold per KDB447498 D01 v06.

-----END OF THE REPORT-----