1 Cover Page

RF MPE REPORT

Application No.:	SHEM1812010245CR
FCC ID:	2ASDJ-ATMUBX0A
Applicant:	Jiangsu Ascend Electronics Technology Co.,Ltd
Address of Applicant:	S&T Center, No.18, Tiancheng Rd., Jiangning Binjiang Development Zone, Nanjing, Jiangsu Province, China
Manufacturer:	Jiangsu Ascend Electronics Technology Co.,Ltd
Address of Manufacturer:	S&T Center, No.18, Tiancheng Rd., Jiangning Binjiang Development Zone, Nanjing, Jiangsu Province, China
Factory:	Jiangsu Ascend Electronics Technology Co.,Ltd
Address of Factory:	S&T Center, No.18, Tiancheng Rd., Jiangning Binjiang Development Zone, Nanjing, Jiangsu Province, China
Equipment Under Test (EUT):	
EUT Name:	UWB Module
Model No.:	ATMUBX0A
Trade mark:	AT Eudemon
Standard(s) :	FCC Rules 47 CFR §2.1093 KDB447498 D01 General RF Exposure Guidance v06
Date of Receipt:	2018-12-28
Date of Test:	2019-01-23 to 2019-01-26
Date of Issue:	2019-03-20
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

Parlam Zhan
E&E Section Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

检验检测专用章 Inspection & Testing Services

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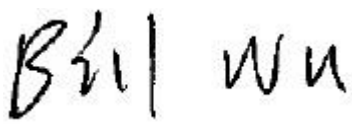
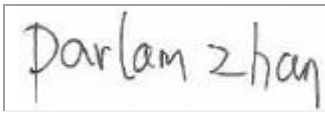
Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2019-03-20	/

Authorized for issue by:				
				
		Bill Wu / Project Engineer		
				
		Parlam Zhan /Reviewer		

2 Contents

3 General Information

3.1 General Description of E.U.T.

Power supply:	DC 3.6V
Test voltage:	DC 3.6V

3.2 Technical Specifications

BLE

Antenna Gain	1.63dBi
Antenna Type	Ceramic Antenna
Channel Spacing	2MHz
Modulation Type	GFSK
Number of Channels	40
Operation Frequency	2402MHz to 2480MHz

UWB

Antenna Gain	1.5dBi
Antenna Type	Integrate Antenna
Number of Channels	1
Operation Frequency	6230MHz to 6860MHz

3.3 Test Location

All tests were performed at:
SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch
588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

No tests were sub-contracted.

3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• CNAS (No. CNAS L0599)

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

• NVLAP (Certificate No. 201034-0)

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the National Voluntary Laboratory Accreditation Program(NVLAP). Certificate No. 201034-0.

• FCC –Designation Number: CN5033

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.
Designation Number: CN5033. Test Firm Registration Number: 479755.

• Industry Canada (IC) – IC Assigned Code: 8617A

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A-1.

• VCCI (Member No.: 3061)

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.

4 Test Standards and Limits

4.1 FCC Radiofrequency radiation exposure limits:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max power of channel)/(min test separation distance)]*[√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

• The result is rounded to one decimal place for comparison

• 3.0 and 7.5 are referred to as the numeric thresholds

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.

1) For 2.4G BLE

according to §2.1093,Specific Absorption Rate (SAR) for general population/uncontrolled exposure limits 1.6W/kg for 1g ,4.0W/kg for 10g Extremity SAR.

the limit of worse case is

$P_{max} \leq 3*D_{min})/\sqrt{f} = 3*5/\sqrt{2.480} = 9.525mW$

2) For UWB band

according to §2.1093, portable devices that transmit at frequencies above 6 GHz are to be evaluated in terms of the MPE limits specified in §1.1310 of this chapter.

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm^2)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report SHEM181201024501 & SHEM181201024502.

Test Mode	Test Frequency (MHz)	Output Power (dBm)	Reading Power (mW)
BLE	2402	-1.45	0.72
	2440	-0.55	0.88
	2480	-0.06	0.99

Test Mode	Test Frequency (MHz)	Field Strength of fundamental @ RBW=50MHz	EIRP (dBm)	Reading Power (mW)
UWB	6540	95.02	-0.28	0.94

5.2 MPE Calculation

For BLE:

The Max Conducted Peak Output Power is 0.99mW

The best case gain of the antenna is 1.63dBi. 1.63dB logarithmic terms convert to numeric result is nearly 1.46

Max Output Power = 0.99mW<9.525mW

For UWB:

The Max EIRP is 0.94mW

According to the formula S= $\frac{PG}{4R^2\pi}$, we can calculate S which is MPE.

Note:

1) P (Watts) =Power Input to antenna = $10^{\frac{dBm}{10}}$ / 1000
2) G (Antenna gain in numeric) = 10^ (Antenna gain in dBi /10)
3) R = distance to the center of radiation of antenna (in meter) = 0.5cm
4) MPE limit = 1mW/cm²

S= $\frac{PG}{4R^2\pi}$ = 0.94/(4*0.25*3.14)=0.30 mW/cm^2

The BLE and the UWB can simultaneous transmitting.But the maximum rate of MPE is (0.99/9.525)+(0.30/1) =0.404<=1.0.

according to the KDB447498 section 7.2 determine the device is exclusion from SAR test.

--End of the Report--