



**SGS-CSTC Standards Technical
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Report No.: SHEM130800173802

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1 Cover Page

FCC MPE REPORT

Application No.:	SHEM1308001738RF
Applicant:	Atmel R&D India Pvt Ltd
Equipment Under Test (EUT):	
NOTE: The following sample(s) submitted was/were identified on behalf of the client as	
Product Name:	ATREB233-XPRO
Brand Name:	N/A
Model:	REB233-XPRO
Added Model:	N/A
FCC ID:	VW4A091887
IC:	11019A-091887
Standards:	47 CFR Part 1.1310 Radiofrequency radiation exposure limits
Date of Receipt:	August 30, 2013
Date of Test:	September 10, 2013 to September 12, 2013
Date of Issue:	September 16, 2013
Test Result:	PASS*

*In the configuration tested, the EUT detailed in this report complied with the standards specified above.



Tony Wu

E&E Section Manager

SGS-CSTC (Shanghai) Co., Ltd.

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.



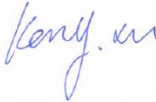
The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	September 16, 2013	/	Original

Authorized for issue by:				
Engineer		Eddy Zong _____ Print Name		 _____
Clerk		Susie Liu _____ Print Name		 _____
Reviewer		Keny Xu _____ Print Name		 _____



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4 General Information

4.1 Client Information

Applicant:	Atmel R&D India Pvt Ltd
Address of Applicant:	10 th Floor, 2 nd Building, RMZ Millenia Business Park2, MGR Road, Perugundi, Chennai 600096 India
Manufacturer:	Atmel R&D India Pvt Ltd
Address of Manufacturer:	10 th Floor, 2 nd Building, RMZ Millenia Business Park2, MGR Road, Perugundi, Chennai 600096 India
Factory:	Escatec Electronics Sdn, Bhd
Address of Factory:	Free Industrial Zone III, 11900, Penang, Malaysia

4.2 General Description of EUT (Equipment Under Test)

Product Name	ATREB233-XPRO
Brand Name:	N/A
Model No:	REB233-XPRO
Added Model:	N/A
Product Description:	Module

4.3 Technical Specifications:

Operation Frequency:	2405MHz-2480MHz
Modulation Technique:	DSSS
Number of Channel:	16
Power Supply:	DC 5V Supply by PC
Antenna Type	Integral
Antenna Gain	0dBi



4.4 Test Location

All tests were performed at SGS E&E EMC lab
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.
Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

4.5 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. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **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. Expiry Date: 2014-09-20.

- **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-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.

5 Test Standards and Limits

The Equipment under Test (EUT) has been tested at SGS's (own or subcontracted) laboratories.

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

FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time $ E ^2$, $ H ^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz *Plane-wave equivalent power density

6 Summary of Results

Frequency Band	Limit (mW/cm ²)	Result (mW/cm ²)	Verdict
2412-2462MHz	1.0	0.0005	Pass

7 Measurement and Calculation

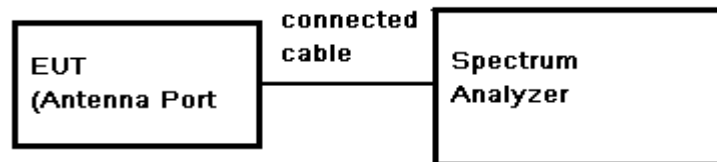
7.1 Conducted Output Power

Test Date: September 10, 2013 to September 12, 2013

The is from RF test Reprot SHEM130800173801

EUT Operation: Test in fixing frequency operating mode at lowest, middle and highest frequency.

Test Configuration:



Test Results record:

Channel	Reading (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Output Peak Power (mW)
Low	3.56	0.3	3.86	2.43
Mid	3.51	0.3	3.81	2.40
High	3.62	0.3	3.92	2.47



7.2 MPE Evaluation

The Max Conducted Peak Output Power is 3.92dBm(2.47mW) in highest channel;

The best case gain of the antenna is 0dBi..

3dB logarithmic terms convert to numeric result is nearly 1.0

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

Now, R=20 cm, P=2.47mW, G=2.

$$\text{So, } S = \frac{PG}{4R^2\pi} = \frac{2.47 \times 1.0}{4 \times 400 \times 3.14} = 0.0005 \text{ mW/cm}^2$$

So the SAR report is not required.

8 EUT Constructional Details

Refer to the < REB233-XPRO_EUT Photos >.

The End Of Report