



FCC RF EXPOSURE REPORT

For

**ZigBee module
MODEL NUMBER: CMBA1ZZABE**

**FCC ID: VPYCMABE
IC: 772C-CMABE**

REPORT NUMBER: 4788065238-1

ISSUE DATE: August 21, 2017

Prepared for

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Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
--	08/21/17	Initial Issue	

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1. ATTESTATION OF TEST RESULTS

Applicant Information

Company Name: Murata Manufacturing Co., Ltd.
Address: 10-1, Higashikotari 1-chome, Nagaokakyo-shi Kyoto 617-8555
Japan

Manufacturer Information

Company Name: Murata Manufacturing Co., Ltd.
Address: 10-1, Higashikotari 1-chome, Nagaokakyo-shi Kyoto 617-8555
Japan

EUT Description

Product Name ZigBee module
Brand Name N/A
Model Name CMBA1ZZABE
Serial Number N/A
Model Difference N/A
Date Tested July 20, 2017 ~ August 15, 2017

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC 47CFR§2.1091	Complies

Tested By:



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Engineer Project Associate

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Laboratory Leader

Approved By:



Stephen Guo
Laboratory Manager

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091.

3. FACILITIES AND ACCREDITATION

Test Location	Dongguan Dongdian Testing Service Co., Ltd
Address	No. 17, Zongbu Road 2, Songshan Lake Sci&Tech Park, Dongguan City, Guangdong Province, 523808, China
Accreditation Certificate	<p>Dongguan Dongdian Testing Service Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until January 31, 2018.</p> <p>Dongguan Dongdian Testing Service Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 270092, Renewal date March 11, 2015, valid time is until March 11, 2018.</p> <p>The 3m Alternate Test Site of Dongguan Dongdian Testing Service Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 10288A on April 23, 2015, valid time is until April 23, 2018.</p>

4. REQUIREMENT

LIMIT AND CALCULATION METHOD

Systems operating under the provisions of FCC 47 CFR section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

In accordance with 47 CFR FCC Part 2 Subpart J, section 2.1091 this device has been defined as mobile device whereby a distance of 0.2m normally can be maintained between the user and the device, and below RF Permissible Exposure limit shall comply with.

Limits for General Population/Uncontrolled Exposure

RF EXPOSURE LIMIT

Frequency Range (MHz)	E-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

CALCULATION METHOD

$$S=PG/4\pi R^2$$

Where:

S=power density

P=power input to antenna

G=power gain of the antenna in the direction of interest relative to an isotropic radiator

R=distance to the center of radiation of the antenna

CALCULATED RESULTS

ZigBee Mode (WORST-CASE): DSSS Channel 0						
Frequency	Max.Output Power	Max Tune Up Power		Power Density	Power Density Limit	Test Result
MHz	dBm	dBm	mW	mW/cm ²	mW/cm ²	--
2405	3.37	4	2.511886	0.000344809	1.0	Complies

- Note: 1. Antenna Gain=-1.60.0dBi (Numeric 0.69), $\pi=3.141$.
2. The Power comes from report 4788065238-1.
3. The minimum separation distance of the device is greater than 20 cm.
4. Calculate by WORST-CASE mode.
5. Owing to the maximum Calculated Result is below the limit, so it deemed to comply with the basic restrictions without testing which means that no SAR is required.
6. Max Tune Up Power by manufacturer's declaration

END OF REPORT