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MPE TEST REPORT

FCC Per 47 CFR 2.1091(b)

Report Reference No.....: **TRE1008000802**

FCC ID.....: **DI2CT-EM2506**

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Date of issue.....: June 06, 2012

Testing Laboratory Name.....: **Shenzhen Huatongwei International Inspection Co., Ltd**

Address.....: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

Applicant's name.....: **COMPUTIME LTD.**

Address.....: 17/F, Great Eagle Centre, 23 Harbour Road, Wanchai, Hong Kong

Test specification:

Standard.....: **FCC Per 47 CFR 2.1091(b)**

TRF Originator.....: Shenzhen Huatongwei International Inspection CO., Ltd

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Test item description.....: ZigBee Module EM2506

Trade Mark.....: /

Model/Type reference.....: CT-EM2506

Listed Models.....: /

Result.....: **Positive**

T E S T R E P O R T

Test Report No. :	TRE1008000802	June 06, 2012
		Date of issue

Equipment under Test : ZigBee Module EM2506

Model /Type : CT-EM2506

Listed Models : /

Applicant : **COMPUTIME LTD.**

Address : 17/F, Great Eagle Centre, 23 Harbour Road, Wanchai,
Hong Kong

Manufacturer : **COMPUTIME LTD.**

Address : Computime Technology Park. Dan Zhu

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. SUMMARY

1.1. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

● - supplied by the manufacturer

○ - supplied by the lab

<input type="radio"/>	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
<input type="radio"/>	Multimeter	Manufacturer :	/
		Model No. :	/

1.2. Power supply system utilised

Power supply voltage	:	<input type="radio"/> 120V / 60 Hz	<input type="radio"/> 115V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input type="radio"/> Other (specified in blank below)	

DC 3V from 2 AAA battery

1.3. Description of the test mode

The EUT has been tested under typical operating condition. The Applicant provides AT command to control the EUT for staying in continuous transmitting and receiving mode for testing. There are sixteen channels of EUT, and the test carried out at the channel 11(lowest), channel 18(middle) and channel 26 (highest) channels.

Channel	Frequency	Channel	Frequency
11	2405 MHz	19	2445 MHz
12	2410 MHz	20	2450 MHz
13	2415 MHz	21	2455 MHz
14	2420 MHz	22	2460 MHz
15	2425 MHz	23	2465 MHz
16	2430 MHz	24	2470 MHz
17	2435 MHz	25	2475 MHz
18	2440 MHz	26	2480 MHz

1.4. NOTE

1. The EUT is a an IEEE 802.15 ZigBee Standard type device, The functions of the EUT listed as below:

	Test Standards	Reference Report
Zigbee	FCC Part 15 Subpart C (Section15.247)	TRE1008000801
Zigbee	MPE report	TRE1008000802

2. The frequency bands used in this EUT are listed as follows:

Frequency Band(MHz)	2400-2483.5	5150-5350	5470-5725	5725-5850
Zigbee	√	—	—	—

3. The EUT provides one completed transmitter and receiver.

Modulation Mode	TX Function
Zigbee	1TX

2. TEST ENVIRONMENT

2.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

2.2. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM);Uncertainties in the measurement of mobile radio equipment characteristics; Part 2 " and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.57 dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3. Method of measurement

3.1. Applicable Standard

According to §1.1307(b)(1), systems operating under the provisions of this 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.

According to §1.1310 and §2.1091 RF exposure is calculated.

3.2. Limit

Limits for Maximum Permissible Exposure (MPE)/Controlled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	6
3.0 – 30	1842/f	4.89/f	(900/f)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	/	/	f/300	6
1500 – 100,000	/	/	5	6

Limits for Maximum Permissible Exposure (MPE)/Uncontrolled Exposure

Frequency Range(MHz)	Electric Field Strength(V/m)	Magnetic Field Strength(A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for Occupational/Controlled Exposure				
0.3 – 3.0	614	1.63	(100) *	30
3.0 – 30	824/f	2.19/f	(180/f)*	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

3.3. MPE Calculation Method

Predication of MPE limit at a given distance

Equation from page 18 of OET Bulletin 65, Edition 97-01

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

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

From the peak EUT RF output power, the minimum mobile separation distance, d=0.2m, as well as the gain of the used antenna is -0.32dBi, the RF power density can be obtained.

TEST RESULTS

Test Frequency (MHz)	Minimum Separation Distance	Output Power (dBm)	Output Power (mW)	Antenna Gain (Nemeric)	Power Density Limit (mW/cm ²)	Power Density At 20 cm (mW/cm ²)	Test Results
2405	20.00	18.30	67.61	0.929	1.000	0.012502	Pass
2440	20.00	18.36	68.55	0.929	1.000	0.012676	Pass
2480	20.00	-0.54	0.88	0.929	1.000	0.000163	Pass

4. Conclusion

The measurement results comply with the FCC Limit per 47 CFR 2.1091 (b) for the controlled RF Exposure.

.....**End of Report**.....