

OET Bulletin 65 (MPE) Test Report

For

Zigbee Module

Model Name: MZG-9162

Brand Name: Microlink

FCC ID: XZPMZG-9162

Report No.: AGC10270911SZ06E7

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Prepared For

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1. TEST RESULT CERTIFICATION

Applicant Name:	MICROLINK COMMUNICATIONS INC.
Address:	B BLOCK, 5th Floor, Building 2, Cyber-Tech Zone, GaoXinAve.7.S, Nanshan District, Shenzhen, GuangDong
Manufacturer Name:	Fu Gang Electronic (Dong Guan) Co., Ltd.
Address:	Industry Street, DongKeng Town, DongGuan City, Guangdong Province, China
Brand Name:	Microlink
Equipment Under Test:	Zigbee Module
Model Number:	MZG-9162
Test Standard	OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01)
File Number:	AGC10270911SZ06E6
Date of Test:	Dec.02, 2009

We (AGC), Shenzhen Attestation of Global Compliance Science & Technology Co., Ltd. for compliance with the requirements set forth in the European Standard OET Bulletin 65 (Edition 97-01) Supplement C (Edition 01-01) The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Checked By:

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2. TECHNICAL INFORMATION

Note: the following data is based on the information by the applicant.

2.1 EUT DESCRIPTION

Product	Zigbee Module
Brand / Model Name	Microlink
Support Channels	CH 00 – CH 78
Modulation	DSS
Antenna Type	PCB Antenna and External Antenna
Power Supply	DC 2.1-3.6V
Channels Frequency	CH 00 2.405GHZ CH 78 2.480GHZ Channel Space = 5MHz

Note:

1. The EUT is Zigbee Module. The EUT provides wireless interface operating at 2.4G ISM band (2400MHZ-2483MHZ). The EUT use (DSS) modulation.
2. Please refer to the User's manual of the EUT.

3. RF EXPOSURE MEASUREMENT

3.1 INTRODUCTION

Human exposure to RF emissions from mobile devices (47 CFR §2.1091) may be evaluated based on the MPE limits adopted by the FCC for electric and magnetic field strength and/or power density, as appropriate, since exposures are assumed to occur at distances of 20 cm or more from persons.

The 1992 ANSI/IEEE standard (See Listed limit table) specifies a minimum separation distance of 20 cm for performing reliable field measurements to determine adherence to MPE limits.

If the minimum separation distance between a transmitter and nearby persons is more than 20 cm under normal operating conditions, compliance with MPE limits may be determined at such distance from the transmitter. When applicable, operation instructions and prominent warning labels may be used to alert the exposed persons to maintain a specified distance from the transmitter or to limit their exposure durations and usage conditions to ensure compliance.

3.2 FCC LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE(MPE)

LIMITS FOR GENERAL POPULATION / UNCONTROLLED EXPOSURE

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

*Note:

1. f=Frequency in MHz * Plane-wave Equivalent Power Density
2. The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirements for mobile and portable transmitters.

4. CLASSIFICATION OF THE ASSESSMENT METHODS

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user for keeping at least 1cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

$$S = \frac{PG}{4\pi R^2}$$

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

MPE Calculated Values for Zigbee Module

5. EUT OPERATION CONDITION

The software provided by Manufacturer enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.

6. TEST RESULTS

Since the maximum eirp power is used as the output power to antenna, so the Gain of the antenna can be assumed as 0dBi.

Channel	Frequency	Output Power	Output Power	Power Density	Power Density Limit	Result
	MHz	dBm	mW	mW/cm2	mW/cm2	Pass/Fail
CH 00	2402	17.82	60.53	0.01	1.00	Pass
CH 39	2441	17.68	58.61	0.01	1.00	Pass
CH 78	2480	17.49	56.10	0.01	1.00	Pass