



A Test Lab Techno Corp.

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MPE Report

Test Report No.	: 1512FS13
Applicant	: Meshreen Technology Ltd.
Product Type	: module
Trade Name	: Meshreen
Model Number	: ZSB-6801, ZSB-6800
Date of Received	: Dec. 02, 2015
Test Period	: Dec. 03, 2015
Date of Issued	: Jan. 07, 2016
Test Specification	: ANSI / IEEE Std.C95.1-1992 / IEEE Std. 1528-2013 47 CFR § 2.1091 47 CFR §1.1310
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
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Approved By

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Tested By

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1. Description of Equipment under Test (EUT)

Applicant	Meshreen Technology Ltd. No.11-3, Xiashe, Guishan Township, Taoyuan County 333, Taiwan
Manufacturer	Meshreen Technology Ltd. No.11-3, Xiashe, Guishan Township, Taoyuan County 333, Taiwan
Product Type	module
Trade Name	Meshreen
Model Number	ZSB-6801, ZSB-6800
Model Different Description	The only difference between the two models is ZSB-6800 doesn't have flash, ZSB-6801 has flash for marketing purpose.
FCC ID	2AC2E-ZSB-6801
Frequency Range	2405 - 2475 MHz
Transmit Power (conducted power)	0.06012 W / 17.79 dBm
Antenna Type	PCB Antenna
Antenna Gain	1.2 dBi
RF Evaluation	0.0162 mW/cm ²

The above equipment was tested by A Test Lab Techno Corp. For compliance with the requirements set forth in 47 CFR § 2.1091 & 47 CFR § 1.1310. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties



2. Human Exposure Assessment

Due to the design and installation of this product, it is not possible to conduct SAR evaluation. This is because client either manufactures or supplies the antenna(s) that will be used in the installation of this product. Therefore, this product will be evaluated as a mobile device per 47 CFR §1.1310 titled "Radiofrequency radiation exposure limits", generally referred to as MPE limits.

In 47 CFR § 2.1091, paragraph (b) defines a mobile device as "a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. " This product is intended to be installed into a vehicle such that the unit is physically secured at one location. In the installation guide supplied with the product,

Client has made the following statement: "IMPORTANT: To meet the FCC's RF Exposure Guidelines, the antenna should be installed so there is at least 20 cm of separation between the body of the user and nearby persons and the antenna". Based on the installation of the transceiver and the antenna, the transmitters radiating structure is more than 20 cm from the user. Thus, this product is a "mobile device" as defined in section § 2.1091 paragraph (b).

Exposure evaluation

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

Where

S: power density

P: power input to the 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.

3. RF Output Power

Band	Frequency (MHz)	Average Conducted power (dBm)
Zigbee	2405	17.79
	2440	17.21
	2475	16.62

4. Test Result

Band	Frequency (MHz)	Limit (mw/cm ²)	Distance (cm) [R]	Max Tune-up power (dBm) [P]	ANT Gain (dBi)	Numeric Gain [G]	Duty Cycle	[P] x [G] With Duty Cycle (mW) [TP]	Power Density [S] (mw/cm ²)
Zigbee	2405	1	20	17.9	1.20	1.32	1	81.39	0.0162
	2440	1	20	17.9	1.20	1.32	1	81.39	0.0162
	2475	1	20	17.9	1.20	1.32	1	81.39	0.0162

Note:

1. The Numeric Gain calculated by $10^{(\text{ant. Gain(dBi)} / 10)}$.
2. Each band max power which perform MPE of any configurations.