

# FCC RF Exposure Report

**FCC ID** : I88EMG3425Q10A  
**Equipment** : Simultaneous Dual-Band Wireless AC2200 Gigabit Ethernet Gateway  
**Model No.** : EMG3425-Q10A  
**Brand Name** : ZyXEL  
**Applicant** : ZyXEL Communications Corporation  
**Address** : No. 2, Gongye E. 9th Road, Hsinchu Science Park, Hsinchu, Taiwan.  
**Standard** : 47 CFR FCC Part 2.1091  
**Received Date** : Dec. 19, 2017  
**Tested Date** : Dec. 19, 2017 ~ Feb. 21, 2018

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:

  
\_\_\_\_\_  
Along Chen / Assistant Manager

Approved by:

  
\_\_\_\_\_  
Gary Chang / Manager



---

## Table of Contents

<b>1</b>	<b>MPE EVALUATION OF MOBILE DEVICES .....</b>	<b>4</b>
1.1	LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE.....	4
1.2	MPE EVALUATION FORMULA .....	4
1.3	MPE EVALUATION RESULTS .....	5
<b>2</b>	<b>TEST LABORATORY INFORMATION .....</b>	<b>6</b>

---

## Release Record

Report No.	Version	Description	Issued Date
FA570601-07	Rev. 01	Initial issue	Mar. 09, 2018

## 1 MPE EVALUATION OF MOBILE DEVICES

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 21 cm or more from persons.

### 1.1 LIMITS FOR GENERAL POPULATION/UNCONTROLLED EXPOSURE

Frequency Range (MHz)	Power Density (mW /cm <sup>2</sup> )	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

### 1.2 MPE EVALUATION FORMULA

$$Pd = \frac{Pt}{4 * Pi * R^2}$$

Where

Pd= Power density in mW/cm<sup>2</sup>

Pt= EIRP in Mw

Pi= 3.1416

R= Measurement distance

### 1.3 MPE EVALUATION RESULTS

#### MPE Evaluation of Single Transmission

##### *Non-beamforming mode*

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412~2462	29.90	29.9	1.53	21	0.251	1
5180~5240	29.89	29.9	1.92	21	0.274	1
5745~5825	29.50	29.5	1.92	21	0.250	1

##### *Beamforming mode*

Frequency Range (MHz)	Maximum Conducted Power (dBm)	Rated Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
5180~5240	27.92	28.0	7.94	21	0.709	1
5745~5825	27.52	28.0	7.94	21	0.709	1

Note:

For 5150~5250 MHz band and 5725~5850 MHz band  
 Directional gain =  $1.92 + 10 \cdot \log(4/1) = 7.94$  dBi

#### MPE Evaluation of Simultaneous Transmission

2.4 and 5GHz can transmit at the same time, MPE evaluation is as below formula

$PD1 / \text{Limit}1 + PD2 / \text{Limit} 2 + \dots < 1$ , PD = Power density

##### **1. 2.4GHz Wi-Fi + 5GHz Wi-Fi Non-beamforming mode**

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz =  $0.251 / 1 + 0.274 / 1 = 0.525 < 1$

##### **2. 2.4GHz Wi-Fi + 5GHz Wi-Fi Beamforming mode**

MPE Evaluation = Maximum MPE of 2.4GHz + Maximum MPE of 5 GHz =  $0.251 / 1 + 0.709 / 1 = 0.960 < 1$

#### Conclusion

MPE evaluations of single and simultaneous transmission meet the requirement of standard.

## 2 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

### **Linkou**

Tel: 886-2-2601-1640

No. 30-2, Ding Fwu Tsuen, Lin  
Kou District, New Taipei City,  
Taiwan, R.O.C.

### **Kwei Shan**

Tel: 886-3-271-8666

No. 3-1, Lane 6, Wen San 3rd St.,  
Kwei Shan District, Tao Yuan City  
333, Taiwan, R.O.C.

### **Kwei Shan Site II**

Tel: 886-3-271-8640

No. 14-1, Lane 19, Wen San 3rd  
St., Kwei Shan District, Tao Yuan  
City 333, Taiwan, R.O.C.

If you have any suggestion, please feel free to contact us as below information.

Tel: 886-3-271-8666

Fax: 886-3-318-0155

Email: [ICC\\_Service@icertifi.com.tw](mailto:ICC_Service@icertifi.com.tw)

==END==