

RF Exposure Report

Report No.: SA170110C12

FCC ID: I88EMG6765-Q10A

Model: EMG6765-Q10A

Series Model: EMG3426-Q10A

Received Date: Jan. 10, 2017

Test Date: Feb. 24 ~ Mar. 29, 2017

Issued Date: Apr. 20, 2017

Applicant: Zyxel Communications Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch

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Test Location: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN (R.O.C.)



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Release Control Record

Issue No.	Description	Date Issued
SA170110C12	Original release.	Apr. 20, 2017

1 Certificate of Conformity

Product: AC2200 Gigabit Ethernet MoCA Gateway
AC2200 Gigabit Ethernet Gateway

Brand: ZYXEL

Model: EMG6765-Q10A

Series Model: EMG3426-Q10A

Sample Status: Engineering sample

Applicant: Zyxel Communications Corporation

Test Date: Feb. 24 ~ Mar. 29, 2017

Standards: FCC Part 2 (Section 2.1091)
KDB 447498 D03 (January 17, 2014)
IEEE C95.1

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by :  , **Date:** Apr. 20, 2017
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Approved by :  , **Date:** Apr. 20, 2017
Ken Liu / Senior Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
300-1500	...	...	F/1500	30
1500-100,000	...	...	1.0	30

F = Frequency in MHz

2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 28cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
CDD mode					
2412-2462	28.89	8.03	28	0.499	1
5180-5240	27.87	7.39	28	0.341	1
5745-5825	29.11	7.55	28	0.470	1
Beamforming mode					
5180-5240	27.87	7.39	28	0.341	1
5745-5825	28.26	7.55	28	0.387	1

Note:

2.4GHz Band: Directional gain = $10 \log[(10^{2.94/20} + 10^{3.40/20} + 10^{3.42/20})^2/2] = 8.03\text{dBi}$

5180-5240MHz: Directional gain = $10 \log[(10^{4.08/20} + 10^{4.66/20})^2/2] = 7.39\text{dBi}$

5745-5825MHz: Directional gain = $10 \log[(10^{4.49/20} + 10^{4.58/20})^2/2] = 7.55\text{dBi}$

CONCULSION:

Both of the WLAN 2.4G & WLAN 5G can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4G + WLAN 5.0G = 0.499 + 0.470 = 0.969

Therefore, the maximum calculation of this situation is 0.969, which is less than the "1" limit.

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