

RF Exposure Report

Report No.: SA171027E03

FCC ID: 2AF5PMR2600

Test Model: MR2600

Series Model: MR2600XY (where X can be A, B, C, D or blank, and Y can be A, B, C, D, or blank, for identical hardware models for marketing purposes only)

Received Date: Oct. 27, 2017

Test Date: Dec. 13, 2017

Issued Date: Jan. 04, 2018

Applicant: MTRLC LLC

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

Issue No.	Description	Date Issued
SA171027E03	Original release.	Jan. 04, 2018

1 Certificate of Conformity

Product: AC2600 WiFi Gigabit Router

Brand: Motorola

Test Model: MR2600

Series Model: MR2600XY (where X can be A, B, C, D or blank, and Y can be A, B, C, D, or blank, for identical hardware models for marketing purposes only)

Sample Status: ENGINEERING SAMPLE

Applicant: MTRLC LLC

Test Date: Dec. 13, 2017

Standards: FCC Part 2 (Section 2.1091)

KDB 447498 D01 General RF Exposure Guidance v06

IEEE C95.1-1992

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 : Mary Ko , **Date:** Jan. 04, 2018
Mary Ko / Specialist

Approved by : May Chen , **Date:** Jan. 04, 2018
May Chen / 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				
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

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 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 42cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna NO.	Ant. Gain (dBi)	Ant. Net Gain (dBi)	Frequency range (GHz to GHz)	Antenna Type	Connector Type	Cable Loss(dB)	Cable Length (mm)
1	5	4.42	2.4~2.4835GHz	Dipole	i-pex(MHF)	0.58	150
	5	4.04	5.15~5.85GHz	Dipole	i-pex(MHF)	0.96	150
2	5	4.27	2.4~2.4835GHz	Dipole	i-pex(MHF)	0.73	180
	5	3.7	5.15~5.85GHz	Dipole	i-pex(MHF)	1.3	180
3	5	4.27	2.4~2.4835GHz	Dipole	i-pex(MHF)	0.73	180
	5	3.7	5.15~5.85GHz	Dipole	i-pex(MHF)	1.3	180
4	5	4.42	2.4~2.4835GHz	Dipole	i-pex(MHF)	0.58	150
	5	4.04	5.15~5.85GHz	Dipole	i-pex(MHF)	0.96	150

2.5 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412-2462	906.761	10.37	42	0.44543	1
5180-5240	389.192	9.89	42	0.17118	1
5745-5825	994.756	9.89	42	0.43753	1

Note:

2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 10.37\text{dBi}$

5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 9.89\text{dBi}$

Conclusion:

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 2.4GHz + WLAN 5GHz = $0.44543 / 1 + 0.43753 / 1 = 0.88296$

Therefore the maximum calculations of above situations are less than the "1" limit.

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