

RF Exposure Evaluation Declaration

FCC ID: 2AF5PMH7601
Applicant: MTRLC LLC
Application Type: Certification
Product: AX1800 Dual-band Mesh WiFi
Model No.: MH7601
Brand Name: Motorola
Serial Model No.: MH760XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D, or blank)
FCC Classification: Digital Transmission System (DTS)
Unlicensed National Information Infrastructure (NII)
Test Procedure(s): FCC part 2.1091

Reviewed By: 

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Approved By: 

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The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date	Note
2105RSZ007-U3	Rev. 01	Initial Report	08-04-2021	Valid

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1.4. Product Information

Product Name	AX1800 Dual-band Mesh WiFi
Model No.	MH7601
Serial Model No.	MH760XY (Where X can be 0, 1, 2, 3, or 4, and Y can be A, B, C, D, or blank)
Wi-Fi Specification	802.11a/b/g/n/ac
Operating Temp.	0 ~ 40°C
Power Supply	AC/DC adapter
Accessories	
Adapter	Model No: S15B22-050A300-PK Input: 100 ~ 240V ~ 50/60Hz, max 0.7A Output: 5V=3A
Remark: The different models are only for marketing different clients, others are the same.	

1.5. Description of Available Antennas

Antenna Type	Frequency Band (GHz)	Antenna Gain (dBi)		Directional Gain (dBi)	
		Ant 1	Ant 2	For Power	For PSD
PIFA Antenna	2.412~2.462	3.00	3.00	3.00	6.01
	5.15 ~ 5.25	3.00	3.00	3.00	6.01
	5.725 ~ 5.85				

Note 1: The EUT supports Cyclic Delay Diversity (CDD) technology for 802.11a/b/g/n/ac mode.

Note 2: The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain, G_{ANT} , Directional gain = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,
Array Gain = $10 \log (N_{ANT} / N_{SS})$ dB;
- For power measurements on IEEE 802.11 devices,
Array Gain = 0 dB for $N_{ANT} \leq 4$;

If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.

Note 3: The antenna gain is declared by manufacture.

2. RF Exposure Evaluation

2.1. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} * G) / (4 * \pi * r^2)$

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

P_d is the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

2.2. Test Result

Product	AX1800 Dual-band Mesh WiFi
Test Item	RF Exposure Evaluation

Test Mode	Frequency Band (MHz)	Maximum Power (dBm)		Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
		Average	EIRP		
802.11b/g/n/ax	2412 ~ 2462	29.88	32.88	0.3861	1
802.11a/n/ac/ax	5180 ~ 5240 5745 ~ 5825	29.71	32.71	0.3713	1

Note 1: The Maximum average power refer to DTS and NII report.

Note 2: Maximum EIRP (dBm) = Maximum Average Power (dBm) + Antenna Gain (dBi).

CONCLUSION:

Therefore, the Max Power Density at R (20 cm) = $0.3861 \text{ mW/cm}^2 + 0.3713 \text{ mW/cm}^2 = 0.7574 \text{ mW/cm}^2 < 1 \text{ mW/cm}^2$.

So the safety distance is 20cm for this device installed without any other radio equipment.

_____ The End _____

Appendix - EUT Photograph

Refer to "2105RSZ007-UE" file.