



RF EXPOSURE EVALUATION REPORT

FCC ID : UDX-60076015
Equipment : Wi-Fi Router
Brand Name : CISCO
Model Name : MX67W-HW
Applicant : Cisco Systems, Inc.
170 West Tasman Drive, San Jose, CA 95134
Standard : 47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated in accordance with 47 CFR Part 2.1091 for the device and pass the limit.

The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any agency of government.

The results in this variant report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERTIONAL INC. EMC & Wireless Communications Laboratory, the test report shall not be reproduced except in full.

Approved by: Jones Tsai / Manager

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History of this test report

Report No.	Version	Description	Issued Date
FA831426	Rev. 01	Initial issue of report	Jul. 12, 2018



1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Wi-Fi Router
Brand Name	CISCO
Model Name	MX67W-HW
FCC ID	UDX-60076015
Wireless Technology and Frequency Range	WLAN 2.4GHz Band: 2412 MHz ~ 2462 MHz WLAN 5.2GHz Band: 5180 MHz ~ 5240 MHz WLAN 5.8GHz Band: 5745 MHz ~ 5825 MHz
Mode	802.11a/b/g/n/ac HT20/HT40/VHT20/VHT40/VHT80
HW Version	V0.2
SW Version	Linux ls1043ardb 4.9.35 #1 SMP PREEMPT Thu Feb 8 01:14:06 CST 2018 aarch64 GNU/Linux
EUT Stage	Identical Prototype

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

Reviewed by: Eric Huang

Report Producer: Wan Liu



2. Maximum RF average output power among production units

<Non-Beamforming Mode>

	Mode	Maximum Average Power (dBm)
2.4GHz WLAN	802.11b	28
	802.11g	24
	802.11n-HT20	24
	802.11n-HT40	24
	802.11ac-VHT20	24
	802.11ac-VHT40	24
5GHz WLAN	802.11a	29
	802.11n-HT20	29
	802.11n-HT40	29
	802.11ac-VHT20	29
	802.11ac-VHT40	29
	802.11ac-VHT80	26

<Beamforming Mode>

	Mode	Maximum Average Power (dBm)
2.4GHz WLAN	802.11b	
	802.11g	
	802.11n-HT20	24
	802.11n-HT40	24
	802.11ac-VHT20	24
	802.11ac-VHT40	24
5GHz WLAN	802.11a	
	802.11n-HT20	29
	802.11n-HT40	29
	802.11ac-VHT20	29
	802.11ac-VHT40	29
	802.11ac-VHT80	26



3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Table with 5 columns: Frequency range (MHz), Electric field strength (V/m), Magnetic field strength (A/m), Power density (mW/cm²), Averaging time (minutes). It is divided into two sections: (A) Limits for Occupational/Controlled Exposures and (B) Limits for General Population/Uncontrolled Exposure.

The MPE was calculated at 21 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

S = PG / (4πR²)

Where:

- S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna



4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

<Non-Beamforming Mode>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 21cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
2.4GHz WLAN	2412.0	2.00	28.00	30.000	1.000	1000.000	0.181	1.000	0.181
5GHz WLAN	5180.0	3.00	29.00	32.000	1.585	1584.893	0.286	1.000	0.286

<Beamforming Mode>

Band	Frequency (MHz)	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 21cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
2.4GHz WLAN	2412.0	5.01	24.00	29.010	0.796	796.159	0.144	1.000	0.144
5GHz WLAN	5180.0	6.01	29.00	35.010	3.170	3169.567	0.572	1.000	0.572

Note:

- For conservativeness, the lowest frequency of each band is used to determine the MPE limit of that band
- For this device supports Beamforming for WLAN 2.4GHz HT20/HT40/VHT20/VHT40 and WLAN 5.2GHz/5.8GHz HT20/HT40/VHT20/VHT40/VHT80; therefore, in the table above which consider maximum directional Gain 5.01dBi / 6.01dBi for WLAN2.4GHz / WLAN5GHz Beamforming mode.

4.2. Collocated Power Density Calculation

Maximum 2.4GHz WLAN Power Density / Limit	Maximum 5GHz WLAN Power Density / Limit	Σ(Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN
0.286	0.572	0.858

Note:

- Σ(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for 2.4GHz WLAN + 5GHz WLAN.
- Considering the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 2 collocated transmitters is compliant

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.