

MRT Technology (Suzhou) Co., Ltd Phone: +86-512-66308358 Web: www.mrt-cert.com Report No.: 2301RSU001-U4 Report Version: V01 Issue Date: 2023-03-18

# **RF Exposure Evaluation Declaration**

FCC ID: 2AF5PR14

**Applicant:** MTRLC LLC

**Product:** AX6000 Dual-band WiFi Router

Model No.: R14

FCC Classification: Digital Transmission System (DTS)

Unlicensed National Information Infrastructure (NII)

FCC Rule Part(s): FCC Part 2.1091

Result: Complies

Approved By:

Reviewed By:

Vincent Yu

Robin Wu

Robin Wu

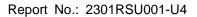
Reviewed By:

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.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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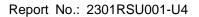
## **Revision History**

Report No.	Version	Description	Issue Date	Note	
2301RSU001-U4	V01	Initial Report	2023-03-18	Valid	



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### 1. General Information

## 1.1. Applicant

MTRLC LLC

275 Turnpike Street Suite 101 Canton, MA 02021

#### 1.2. Manufacturer

MTRLC LLC

275 Turnpike Street Suite 101 Canton, MA 02021

## 1.3. Testing Facility

	Test Site - MRT	Test Site – MRT Suzhou Laboratory								
	Laboratory Loca	Laboratory Location (Suzhou - Wuzhong)								
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China									
	Laboratory Location (Suzhou - SIP)  4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China									
	Laboratory Accre	editations								
Ĭ	A2LA: 3628.01		CNAS	S: L10551						
	FCC: CN1166		ISED:	: CN0001						
	VOCI.	□R-20025	□G-20034	□C-20020	□T-20020					
	VCCI:	□R-20141	□G-20134	□C-20103	□T-20104					
	Test Site – MRT Shenzhen Laboratory									
	Laboratory Location (Shenzhen)  1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations									
	A2LA: 3628.02	A2LA: 3628.02 CNAS: L10551								
	FCC: CN1284		ISED:	CN0105						
	Test Site – MRT Taiwan Laboratory									
	Laboratory Loca	tion (Taiwan)								
	No. 38, Fuxing 2n	ıd Rd., Guishan Dis	st., Taoyuan City 333,	Taiwan (R.O.C.)						
	Laboratory Accre	editations								
	TAF: L3261-1907	25								
	FCC: 291082, TW	FCC: 291082, TW3261 ISED: TW3261								



#### 1.4. Product Information

AX6000 Dual-band WiFi Router				
R14				
802.11a/b/g/n/ac/ax				
See Section 1.5				
Accessories				
Model: RD1202000-CS5-154MG				
Input: 100-240V ~ 50/60Hz 1.0A Max				
Output: 12V===2.0A				

Note: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.

#### 1.5. Antenna Details

Antenna	Frequency	Nant	Antenna Gain (dBi)				Max. Antenna	Directional
Туре	Range (MHz)		Ant 1	Ant 2	Ant 3	Ant 4	Gain (dBi)	Gain (dBi)
Dipole	2400 ~ 2483.5	4	2.14	2.38	2.77	4.15	4.15	7.64
	5150 ~ 5250	4	4.94	5.30	4.26	3.81	5.30	7.40
	5250 ~ 5350	4	5.07	4.96	3.78	3.21	5.07	7.05
	5470 ~ 5725	4	3.73	2.81	2.29	2.28	3.73	6.20
	5725 ~ 5850	4	4.28	2.31	2.55	3.66	4.28	7.31

Remark: The directional gain is measured which follows the procedure of KDB 662911 D03. The antenna report is provided for this application.

#### 1.6. Device Classification

According to the user manual, the antenna of this device is at least 35 cm away from the body of the user, this device is classified as a Mobile Device. So, the RF exposure evaluation requirements of § 2.1091 for mobile device exposure conditions subject to MPE limits.



#### 2. RF Exposure Evaluation

#### 2.1. Test Limits

According to FCC Part 2.1091, A mobile device is defined as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 cm is normally maintained between the RF source's radiating structure(s) and the body of the user or nearby persons.

According to FCC Part 1.1307(b)(3)(i)(C), for the exemption in Table 1 to apply, R must be at least  $\lambda/2\pi$ , where  $\lambda$  is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of  $\lambda/4$  or if the antenna gain is less than that of a half-wave dipole.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source Frequency (MHz)	Threshold ERP (watts)			
0.3-1.34	1.920 R <sup>2</sup>			
1.34-30	3.450 R <sup>2</sup> /f <sup>2</sup>			
30-300	3.83 R <sup>2</sup>			
300-1500	0.0128 R <sup>2</sup> f			
1500-100,000	19.2 R <sup>2</sup>			
f = frequency in MHz, R = minimum separation distance in meters.				

According to FCC Part 1.1307(b)(3)(ii)(B), in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation.

$$\sum_{i=1}^{a} \frac{P_i}{P_{\text{th},i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{\text{th},j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \le 1$$



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#### 2.2. Test Result

Product	AX6000 Dual-band WiFi Router
Test Item	RF Exposure Evaluation

Test	Frequency	Max.	Max.	Max. EIRP	Compliance	ERP	Threshold
Mode	Band	Conducted	Antenna	(dBm)	Distance (R)	(W)	ERP
	(MHz)	Power	Gain		(m)		(W)
		(dBm)	(dBi)				
802.11b/g/n/ax	2412 ~ 2462	27.40	4.15	31.55	0.35	0.8710	2.352
	5180 ~ 5240	28.35	5.30	33.65	0.35	1.4125	2.352
802.11a/n/ac/ax	5260 ~ 5320	23.38	5.07	28.45	0.35	0.4266	2.352
	5500 ~ 5720	23.95	3.73	27.68	0.35	0.3573	2.352
	5745 ~ 5825	26.91	4.28	31.19	0.35	0.8017	2.352

#### Note:

- 1. EIRP (dBm) = Max. Conducted Power (dBm) + Max. Antenna Gain (dBi)
- 2. ERP (W) =  $10^{[ERP (dBm) 30)]/10}$  =  $10^{[EIRP (dBm) 2.15 (dB) 30]/10}$
- 3. Threshold ERP (W) =  $19.2 * R^2$  (W) =  $19.2 * 0.35^2$  (W) = 2.352 (W)

The 2.4GHz WLAN and 5GHz WLAN can transmit simultaneously.

**Exposure Ratio** = 0.8710 / 2.352 + 1.4125 / 2.352 = 0.9709 < 1.

Therefore, this device meets the RF Exposure requirements when it is installed and operated with a minimum distance of 35cm between the radiator and user.