# RF EXPOSURE EVALUATION REPORT

| | | |
|---|---|---|
| FCC ID | : | 2AIMRRN12 |
| Equipment | : | Xiaomi Wi-Fi Range Extender AX1500 |
| Brand Name | : | xiaomi |
| Model Name | : | RN12 |
| Applicant | : | Beijing Xiaomi Electronics Co., Ltd.<br>Room 802, Floor 8, Building 5, No.15 KeChuang 10th Road, Beijing Economic and Technological Development Zone, Beijing City, China. |
| Manufacturer | : | Beijing Xiaomi Electronics Co., Ltd.<br>Room 802, Floor 8, Building 5, No.15 KeChuang 10th Road, Beijing Economic and Technological Development Zone, Beijing City, China. |
| Standard | : | 47 CFR Part 2.1091 |

**We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.**

**Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3786) and the FCC designation No. TW3786 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.**

**The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.**

Cona Huang

**Approved by: Cona Huang / Deputy Manager**

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# History of this test report

| Report No. | Version | Description | Issued Date |
|---|---|---|---|
| FA530461 | Rev. 01 | Initial issue of report | Jun. 24, 2025 |
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# 1. Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|---|
| EUT Type | Xiaomi Wi-Fi Range Extender AX1500 |
| Brand Name | xiaomi |
| Model Name | RN12 |
| FCC ID | 2AIMRRN12 |
| Wireless Technology and Frequency Range | WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz<br>WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz<br>WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz<br>WLAN 5.6 GHz Band: 5470 MHz ~ 5725 MHz<br>WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz |
| Mode | WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 |
| HW Version | V2.0 |
| SW Version | 1.0.10 |

**Reviewed by: Jason Wang**

**Report Producer: Daisy Peng**

## 2. Maximum RF average output power among production units

| MIMO Mode | | Maximum Power (dBm) |
|---|---|---|
| WLAN 2.4G | 11b | 22.57 |
| | 11g | 16.82 |
| | HT20 | 16.20 |
| | HT40 | 16.26 |
| WLAN 5.2G | 11a | 23.71 |
| | HT20 | 23.65 |
| | HT40 | 21.30 |
| | VHT20 | 23.55 |
| | VHT40 | 21.28 |
| | VHT80 | 16.56 |
| | HE20 | 23.75 |
| | HE40 | 21.37 |
| | HE80 | 16.63 |
| WLAN 5.3G | 11a | 19.32 |
| | HT20 | 19.54 |
| | HT40 | 22.50 |
| | VHT20 | 19.47 |
| | VHT40 | 22.45 |
| | VHT80 | 15.90 |
| | HE20 | 19.63 |
| | HE40 | 22.6 |
| | HE80 | 15.97 |
| WLAN 5.6G | 11a | 17.79 |
| | HT20 | 18.22 |
| | HT40 | 21.69 |
| | VHT20 | 18.20 |
| | VHT40 | 21.61 |
| | VHT80 | 20.17 |
| | HE20 | 18.28 |
| | HE40 | 21.76 |
| | HE80 | 20.25 |
| WLAN 5.8G | 11a | 23.61 |
| | HT20 | 23.99 |
| | HT40 | 25.57 |
| | VHT20 | 23.89 |
| | VHT40 | 25.52 |
| | VHT80 | 21.31 |
| | HE20 | 24.09 |
| | HE40 | 25.63 |
| | HE80 | 21.37 |

## 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.

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density ($mW/cm^2$) | Averaging time (minutes) |
|---|---|---|---|---|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3-3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0-30 | 1842/f | 4.89/f | *(900/f2) | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | | | f/300 | 6 |
| 1500-100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3-1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34-30 | 824/f | 2.19/f | *(180/f2) | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | | | f/1500 | 30 |
| 1500-100,000 | | | 1.0 | 30 |

The MPE was calculated at 20 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

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

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum PG (mW) | Power Density at 20cm (mW/cm^2) | Limit (mW/cm^2) | Power Density / Limit |
|---|---|---|---|---|---|---|---|
| 2.4GHz WLAN | 3.65 | 22.57 | 26.22 | 418.79 | 0.083 | 1.000 | 0.083 |
| 5.2GHz WLAN | 4.40 | 23.75 | 28.15 | 653.13 | 0.130 | 1.000 | 0.130 |
| 5.3GHz WLAN | 3.74 | 22.60 | 26.34 | 430.53 | 0.086 | 1.000 | 0.086 |
| 5.5GHz WLAN | 4.88 | 21.76 | 26.64 | 461.32 | 0.092 | 1.000 | 0.092 |
| 5.8GHz WLAN | 4.31 | 25.63 | 29.94 | 986.28 | 0.196 | 1.000 | 0.196 |

## 4.2. Collocated Power Density Calculation

| 2.4GHz WLAN Power Density / Limit | 5GHz WLAN Power Density / Limit | ∑(Power Density / Limit) of 2.4GHz WLAN + 5GHz WLAN |
|---|---|---|
| 0.083 | 0.196 | 0.279 |

**Note:**

1. ∑(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
2. Considering the 2.4GHz WLAN module collocation with the 5GHz WLAN transmitter of 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.