


RF EXPOSURE EVALUATION REPORT

FCC ID : TVE-240604
Equipment : Network Security Gateway
Brand Name : 
Model Name : FortiWiFi 70Gxxxxxxxxxx, FORTIWIFI-70Gxxxxxxxxxx,
FWF-70Gxxxxxxxxxx,
FortiWiFi 71Gxxxxxxxxxx, FORTIWIFI-71Gxxxxxxxxxx,
FWF-71Gxxxxxxxxxx
(where "x" can be used as "0-9", or "A-Z", or "-", or blank for software changes or marketing purposes only)
Applicant : Fortinet Inc.
909 Kifer Rd., Sunnyvale, CA 94086, United States
Manufacturer : Fortinet Inc.
909 Kifer Rd., Sunnyvale, CA 94086, United States
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: 1190) and the FCC designation No. TW1190 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.



Approved by: Cona Huang / Deputy Manager



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History of this test report

| Report No. | Version | Description | Issued Date |
|------------|---------|-------------------------|---------------|
| FA452223 | Rev. 01 | Initial issue of report | Oct. 01, 2024 |
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1. Description of Equipment Under Test (EUT)

| Product Feature & Specification | |
|---|--|
| EUT Type | Network Security Gateway |
| Brand Name | FORTINET |
| Model Name | FortiWiFi 70Gxxxxxxxxx, FORTIWIFI-70Gxxxxxxxxx, FWF-70Gxxxxxxxxx, FortiWiFi 71Gxxxxxxxxx, FORTIWIFI-71Gxxxxxxxxx, FWF-71Gxxxxxxxxx (where "x" can be used as "0-9", or "A-Z", or "-", or blank for software changes or marketing purposes only) |
| FCC ID | TVE-240604 |
| Wireless Technology and Frequency Range | WLAN 2.4 GHz Band: 2400 MHz ~ 2483.5 MHz WLAN 5.2 GHz Band: 5150 MHz ~ 5250 MHz WLAN 5.3 GHz Band: 5250 MHz ~ 5350 MHz WLAN 5.5 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz |
| Mode | WLAN: 802.11a/b/g/n/ac/ax HT20/HT40/VHT20/VHT40/VHT80/HE20/HE40/HE80 Bluetooth LE |

Reviewed by: Jason Wang

Report Producer: Carlie Tsai

2. Maximum RF average output power among production units

| Mode | Tune-up power(dBm) |
|--------------|--------------------|
| Bluetooth LE | 7.5 |

<non-Beamforming mode>

| Mode | | Tune-up power(dBm) |
|------|--------|--------------------|
| WLAN | 2.4GHz | 26.5 |
| | 5.2GHz | 27.0 |
| | 5.3GHz | 22.5 |
| | 5.5GHz | 24.5 |
| | 5.8GHz | 29.7 |

<Beamforming mode>

| Mode | | Tune-up power(dBm) |
|------|--------|--------------------|
| WLAN | 2.4GHz | 22.5 |
| | 5.2GHz | 27.0 |
| | 5.3GHz | 22.5 |
| | 5.5GHz | 24.5 |
| | 5.8GHz | 29.5 |



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 20 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

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|--------------|--------------------|---------------------|--------------------|-------------------|---|-----------------------------|-----------------------|
| Bluetooth LE | 1.53 | 7.50 | 9.03 | 8.00 | 0.002 | 1.000 | 0.002 |

<non-Beamforming mode>

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-----------------|--------------------|---------------------|--------------------|-------------------|---|-----------------------------|-----------------------|
| WLAN2.4GHz Band | 3.24 | 26.50 | 29.74 | 941.89 | 0.187 | 1.000 | 0.187 |
| WLAN5.2GHz Band | 3.27 | 27.00 | 30.27 | 1064.14 | 0.212 | 1.000 | 0.212 |
| WLAN5.3GHz Band | 2.60 | 22.50 | 25.10 | 323.59 | 0.064 | 1.000 | 0.064 |
| WLAN5.5GHz Band | 2.01 | 24.50 | 26.51 | 447.71 | 0.089 | 1.000 | 0.089 |
| WLAN5.8GHz Band | 1.58 | 29.70 | 31.28 | 1342.76 | 0.267 | 1.000 | 0.267 |

<Beamforming mode>

| Band | Antenna Gain (dBi) | Maximum Power (dBm) | Maximum EIRP (dBm) | Maximum EIRP (mW) | Power Density at 20cm (mW/cm ²) | Limit (mW/cm ²) | Power Density / Limit |
|-----------------|--------------------|---------------------|--------------------|-------------------|---|-----------------------------|-----------------------|
| WLAN2.4GHz Band | 6.25 | 22.50 | 28.75 | 749.89 | 0.149 | 1.000 | 0.149 |
| WLAN5.2GHz Band | 6.28 | 27.00 | 33.28 | 2128.14 | 0.424 | 1.000 | 0.424 |
| WLAN5.3GHz Band | 5.61 | 22.50 | 28.11 | 647.14 | 0.129 | 1.000 | 0.129 |
| WLAN5.5GHz Band | 5.02 | 24.50 | 29.52 | 895.36 | 0.178 | 1.000 | 0.178 |
| WLAN5.8GHz Band | 4.59 | 29.50 | 34.09 | 2564.48 | 0.510 | 1.000 | 0.510 |

4.2. Collocated Power Density Calculation

| WLAN 2.4GHz Power Density / Limit | WLAN 5GHz Power Density / Limit | Bluetooth Power Density / Limit | Σ (Power Density / Limit) of WLAN 2.4GHz + WLAN 5GHz + Bluetooth |
|-----------------------------------|---------------------------------|---------------------------------|--|
| 0.187 | 0.510 | 0.002 | 0.699 |

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 WLAN 2.4GHz + WLAN 5GHz + Bluetooth.
- Considering all the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 3 collocated transmitters is compliant.

Conclusion:

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