

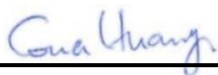
RF EXPOSURE EVALUATION REPORT

FCC ID : P4Q-TG2A001
Equipment : Internet Gateway
Brand Name : Amazon, AWS, SKF, 
Model Name : TG2A001,
TG2A001YYYY (Y= 10 characters, Y can be 0-9, a-z, A-Z,
“-“, “_” or blank for marketing purpose and no impact
safety related critical components and constructions.)
Applicant : Mitac Digital Technology Corp.
4F., NO. 1, R&D ROAD 2, HSINCHU SCIENCE PARK,
HSINCHU 30076, TAIWAN, R.O.C.
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



SPORTON INTERNATIONAL INC. EMC & Wireless Communications Laboratory
No. 52, Huaya 1st Rd., Guishan Dist., Taoyuan City, Taiwan (R.O.C.)



Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT)	4
2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS	4
3. RF EXPOSURE LIMIT INTRODUCTION	5
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION	6
4.1. Standalone Power Density Calculation	6
4.2. Collocated Power Density Calculation.....	6



History of this test report

Report No.	Version	Description	Issued Date
FA430401	Rev. 01	Initial issue of report	Nov. 29, 2024

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	Internet Gateway
Brand Name	Amazon, AWS, SKF, 
Model Name	TG2A001,
FCC ID	P4Q-TG2A001
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 5.6 GHz Band: 5470 MHz ~ 5725 MHz WLAN 5.8 GHz Band: 5725 MHz ~ 5850 MHz Bluetooth: 2400 MHz ~ 2483.5 MHz Sub 1GHz: 902 MHz ~ 928 MHz
Mode	WLAN: 802.11b/g/ax HE20/HE40/HE80 Bluetooth BR/EDR/LE Sub 1GHz: FSK
EUT Stage	Production Unit

Reviewed by: Jason Wang

Report Producer: Carlie Tsai

2. Maximum RF average output power among production units

<XM553>

Mode		Maximum Average power(dBm)
WLAN	2.4GHz	14.40
	5GHz	16.20
Bluetooth BR/EDR		1.69
Bluetooth LE		0.6

<nRF52840>

Mode		Maximum Average power(dBm)
Bluetooth LE		4.00

<CC1312R>

Mode		Maximum Average power(dBm)
Sub 1GHz		10.15

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/f ²)	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/f ²)	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

<XM553>

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
WLAN2.4GHz Band	2.89	14.40	17.29	53.58	0.011	1.000	0.011
WLAN5GHz Band	5.01	16.20	21.21	132.13	0.026	1.000	0.026
Bluetooth BR/EDR	2.89	1.69	4.58	2.87	0.001	1.000	0.001
Bluetooth LE	2.89	0.60	3.49	2.23	0.000	1.000	0.0004

<nRF52840>

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
Bluetooth LE	2.89	4.00	6.89	4.89	0.001	1.000	0.001

<CC1312R>

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Average EIRP (mW)	Power Density at 20cm (mW/cm ²)	Limit (mW/cm ²)	Power Density / Limit
Sub 1GHz	0.23	10.15	10.38	10.91	0.002	0.601	0.004

4.2. Collocated Power Density Calculation

<XM553 + CC1312R>

WLAN 2.4GHz (XM553) Power Density / Limit	WLAN 5GHz (XM553) Power Density / Limit	Bluetooth (XM553) Power Density / Limit	Sub 1GHz (CC1312R) Power Density / Limit	Σ (Power Density / Limit) of WLAN 2.4GHz+WLAN 5GHz+ Bluetooth+Sub 1GHz
0.011	0.026	0.001	0.004	0.042

<XM553 + nRF52840 + CC1312R>

WLAN 2.4GHz (XM553) Power Density / Limit	WLAN 5GHz (XM553) Power Density / Limit	Bluetooth (nRF52840) Power Density / Limit	Sub 1GHz (CC1312R) Power Density / Limit	Σ (Power Density / Limit) of WLAN 2.4GHz+WLAN 5GHz+ Bluetooth+Sub 1GHz
0.011	0.026	0.001	0.004	0.042

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

Conclusion:

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