

RF Exposure Report

Report No.: MFBBQJ-WTW-P21030490B

FCC ID: ACJ9TGWW18A

Test Model: WW18A

Received Date: 2023/7/14

Date of Evaluation: 2023/8/11

Issued Date: 2023/9/15

Applicant: Panasonic Corporation of North America

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**FCC Registration /
Designation Number:** 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
MFBBQJ-WTW-P21030490B	Original Release	2023/9/15

1 Certificate of Conformity

Product: Radio Module

Brand: Panasonic

Test Model: WW18A

Sample Status: Engineering Sample

Applicant: Panasonic Corporation of North America

Date of Evaluation: 2023/8/11

FCC Rule Part: FCC Part 2 (Section 2.1091)

Standards: KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's RF characteristics under the conditions specified in this report.

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Date:

2023/9/15

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Approved by :

Jeremy Lin

Date:

2023/9/15

Jeremy Lin / Project Engineer

2 General Information

This report is issued as a supplementary report to the original BV CPS report no.: SABBQJ-WTW-P21030490. The difference compared with the original report is changing WLAN Module (Model : AX211NGW, FCC ID : ACJ9TGWL23A). Therefore, the RF exposure was re-calculation this report.

3 RF Exposure

3.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
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

f = Frequency in MHz ; *Plane-wave equivalent power density

3.2 MPE Calculation Formula

$$Pd = (Pout * G) / (4 * \pi * r^2)$$

where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 3.1416

r = distance between observation point and center of the radiator in cm

3.3 Classification

The antenna of this product, under normal use condition, is at least 20cm away from the body of the user. So, this device is classified as **Mobile Device**.

3.4 Calculation Result of Maximum Conducted Power

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WCDMA 2	1852.4-1907.6	24	0.1	20	0.051	1.00
WCDMA 4	1712.4-1752.6	24	1.16	20	0.065	1.00
WCDMA 5	826.4-846.6	24	-0.65	20	0.043	0.55
LTE 2	1850.7-1909.3	24	0.1	20	0.051	1.00
LTE 4	1710.7-1754.3	24	1.16	20	0.065	1.00
LTE 5	824.7-848.3	24	-0.65	20	0.043	0.55
LTE 7	2502.5-2567.5	23.8	-0.24	20	0.045	1.00
LTE 12	699.7-715.3	24	0.36	20	0.054	0.47
LTE 13	779.5-784.5	24	-0.26	20	0.047	0.52
LTE 14	790.5-795.5	24	-0.26	20	0.047	0.53
LTE 26	814.7-848.3	24	-0.65	20	0.043	0.54
LTE 41	2498.5-2687.5	23.8	-0.24	20	0.045	1.00
LTE 48	3552.5-3697.5	17.81	3.65	20	0.028	1.00
LTE 66	1710.7-1779.3	24	1.16	20	0.065	1.00
WLAN	2412-2462	23.87	2.99	20	0.097	1.00
	5180-5240	22.61	2.33	20	0.062	1.00
	5260-5320	22.87	2.33	20	0.066	1.00
	5500-5700	23.96	1.80	20	0.075	1.00
	5745-5825	24.10	1.78	20	0.077	1.00
	5925-7125	13.15	3.15	20	0.008	1.00
BT	2402-2480	10.50	2.66	20	0.004	1.00
BLE	2402-2480	8.72	2.66	20	0.003	1.00

Note:

1. The WLAN module (Model : AX211NGW, FCC ID : ACJ9TGWL23A), Refer to WLAN module report (Intel report No.: 200611-01.TR01, 200611-01.TR02, 200611-01.TR03, 200611-01.TR04, 200611-01.TR05 and 200611-01.TR38) for the WLAN Power.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. Detail antenna specification please refer to antenna datasheet and/or antenna measurement report.

Conclusion:

Both of the WWAN, WLAN and BT can transmit simultaneously, the formula of calculated the MPE is:

$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$

CPD = Calculation power density

LPD = Limit of power density

$WWAN + WLAN + BT = 0.054/0.47 + 0.097/1 + 0.004/1 = 0.216$

Therefore the maximum calculations of above situations are less than the “1” limit.

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