RF Exposure Report

Report No.:	SABHAA-WTW-P21080670
FCC ID:	UJH-R1LOW
Test Model:	R1LOW
Received Date:	Nov. 22, 2019
Test Date:	Dec. 29, 2019 ~ Jan. 03, 2020 Sep. 03 ~ Sep. 13, 2021
Issued Date:	Oct. 08, 2021
Applicant:	Mitsubishi Electric Corporation Sanda Works
Address:	2-3-33 Miwa, Sanda-City, Hyogo 669-1513, Japan
Issued By:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories
Lab Address:	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
Test Location:	No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, Taiwan
FCC Registration / Designation Number:	788550 / TW0003

Testing Laboratory
2021

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Release Control Record

Issue No.	Description	Date Issued
SABHAA-WTW-P21080670	Original release	Oct. 08, 2021

1 Certificate of Conformity

Product:	Display Audio
Brand:	Mitsubishi Electric
Test Model:	R1LOW
Sample Status:	DV
Applicant:	Mitsubishi Electric Corporation Sanda Works
Test Date:	Dec. 29, 2019 ~ Jan. 03, 2020
Standards:	FCC Part 2 (Section 2.1091)
References Test Guidance:	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.

Prepared by : Pettie Chen , **Date:** Oct. 08, 2021

Pettie Chen / Senior Specialist

Approved by : Bruce Chen , **Date:** Oct. 08, 2021

Bruce Chen / Senior Engineer

2 RF Exposure

2.1 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

2.2 MPE Calculation Formula

$Pd = (Pout*G) / (4*pi*r^2)$
where
Pd = power density in mW/cm^2
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

2.3 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 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm^2)	Limit (mW/cm^2)
Module 1					
WLAN 2412~2462	14.51	5.07	20	0.0181	1
WLAN 5180~5240	6.31	6.07	20	0.0034	1
WLAN 5260~5320	6.63	6.07	20	0.0037	1
WLAN 5500~5700	6.73	6.07	20	0.0038	1
WLAN 5745~5825	6.46	6.07	20	0.0036	1
BT EDR 2402~2480	-0.80	3	20	0.0003	1
BT LE 2402~2480	-1.15	3	20	0.0003	1
Module 2					
BT LE 2402~2480	4.08	3	20	0.0010	1

Note: Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

WLAN 2.4GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2] = 5.07dBi$
WLAN 5.0GHz: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + ... + 10^{GN/20})^2/2] = 6.07dBi$

Conclusion:

Module 1:5GHz Band & Module 2: BT LE can transmit at same time.

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

Module 1: WLAN 5GHz Band + Module 2: BT LE = 0.0038 / 1 + 0.0010 / 1 = 0.0048

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

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