FCC Test Report

Report No.: FDBHCP-WTW-P21010887

FCC ID: ACJ932AT1906

Test Model: AT1906

Received Date: Feb. 1, 2021

Test Date: Feb. 2 to 6, 2021

Issued Date: Mar. 11, 2021

Applicant: Panasonic Corporation of North America

Address: 101 Moo 2 Teparak Rd., T. Bangsaothong,A. Bangsaothong, Samutprakarn 10570 Thailand

Manufacturer: Panasonic Automotive Systems Asia Pacific Co., Ltd.

Manufacture's address: 101 Moo 2 Teparak Rd., T. Bangsaothong,A. Bangsaothong, Samutprakarn 10570 Thailand

Factory: Panasonic Automotive Systems Asia Pacific Co., Ltd.

Factory's address: 101 Moo 2 Teparak Rd., T. Bangsaothong,A. Bangsaothong, Samutprakarn 10570 Thailand

Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Lin Kou Laboratories

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FCC Registration/ Designation Number: 418586 / TW1078

Testing Laboratory 2021

Certificate #4327.01

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Table of Contents

Release Control Record **3**

1 Certificate of Conformity **4**

2 Summary of Test Results **5**

2.1 Measurement Uncertainty 5
2.2 Modification Record 5

3 General Information **6**

3.1 Description of EUT 6
3.2 Features of EUT 6
3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode 7
3.4 Test Program Used and Operation Descriptions 7
3.5 Primary Clock Frequencies of Internal Source 7

4 Configuration and Connections with EUT **8**

4.1 Connection Diagram of EUT and Peripheral Devices 8
4.2 Configuration of Peripheral Devices and Cable Connections 8

5 Radiated Emissions up to 1 GHz **9**

5.1 Limits 9
5.2 Test Instruments 9
5.3 Test Arrangement 10
5.4 Test Results 11

6 Radiated Emissions above 1 GHz **15**

6.1 Limits 15
6.2 Test Instruments 16
6.3 Test Arrangement 17
6.4 Test Results 18

7 Pictures of Test Arrangements **22**

Appendix – Information of the Testing Laboratories **23**

Release Control Record

Issue No.	Description	Date Issued
FDBHCP-WTW-P21010887	Original release.	Mar. 11, 2021

1 Certificate of Conformity

Product: Display Audio

Brand: Panasonic

Test Model: AT1906

Sample Status: Engineering sample

Applicant: Panasonic Corporation of North America

Test Date: Feb. 2 to 6, 2021

Standards: 47 CFR FCC Part 15, Subpart B, Class B
ICES-003: 2016 Issue 6, updated Apr. 2019 Class B
ANSI C63.4:2014

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 EMC characteristics under the conditions specified in this report.

Prepared by : Jessica Cheng , **Date:** Mar. 11, 2021
Jessica Cheng / Senior Specialist

Approved by : Jim Hsiang , **Date:** Mar. 11, 2021
Jim Hsiang / Associate Technical Manager

2 Summary of Test Results

47 CFR FCC Part 15, Subpart B / ICES-003: 2016 Issue 6, updated Apr. 2019 Class B ANSI C63.4:2014				
FCC Clause	ICES-003 Clause	Test Item	Result/Remarks	Verdict
15.107	6.1	Conducted Emissions at mains ports	Without AC power port of the EUT	N/A
15.109	6.2.1	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -7.08 dB at 839.125 MHz	Pass
	6.2.2	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -16.66 dB at 5407.250 MHz	Pass

Note:

1. There is no deviation to the applied test methods and requirements covered by the scope of this report.
2. Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
3. N/A: Not Applicable

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.64 dB
Radiated Emissions above 1 GHz	Above 1GHz	4.96 dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	Display Audio
Brand	Panasonic
Test Model	AT1906
Sample Status	Engineering sample
Operating Software	N/A
Power Supply Rating	DC 12 V, 10 A
Accessory Device	N/A
Data Cable Supplied	N/A

Note:

1. This report is issued as a supplementary report to the original BV CPS report no.: FD191108C22. The difference compared with the original report is removed RSE(HDMI output) & HDMI (DTV) functions; therefore the EUT is re-tested in this report.
2. The EUT is a kind of Display Audio.

3.2 Features of EUT

The tests reported herein were performed according to the method specified by Panasonic Corporation of North America, for detailed feature description, please refer to the manufacturer's specifications or user's manual.

3.3 Operating Modes of EUT and Determination of Worst Case Operating Mode

1. The EUT has been pre-tested under following test modes, and test **mode 2 , mode 8** was the worst case for final test.

Mode	Test Condition
1	USB in Mode + DC 12V
2	BT Mode + DC 12V
3	WiFi (2.4G) Mode + DC 12V
4	WiFi (5G) Mode + DC 12V
5	WiFi Miracast Mode + DC 12V
6	Rear Camera Mode + DC 12V
7	FM (88MHz) + DC 12V
8	FM (98MHz) + DC 12V
9	FM (108MHz) + DC 12V

2. Test modes are presented in the report as below.

Mode	Test Condition
Radiated emission test (30MHz ~ 1GHz)	
1	BT Mode + DC 12V
2	FM (98MHz) + DC 12V
Radiated emission test (Above 1GHz)	
1	BT Mode + DC 12V

3.4 Test Program Used and Operation Descriptions

a. Turned on the power of all equipment.

b. Pattern generator sent 1 kHz audio signal to the speaker via EUT. (For Mode 2)

c. Cell Phone (kept in a remote area) sent audio signal to the speaker via EUT with Bluetooth transmission. (For Mode 1)

d. Wifi Router (kept in a remote area) sent audio signal to the speaker via EUT with WiFi transmission.

e. USB flash sent audio signal to EUT.

f. Rear Camera sent video signal to EUT.

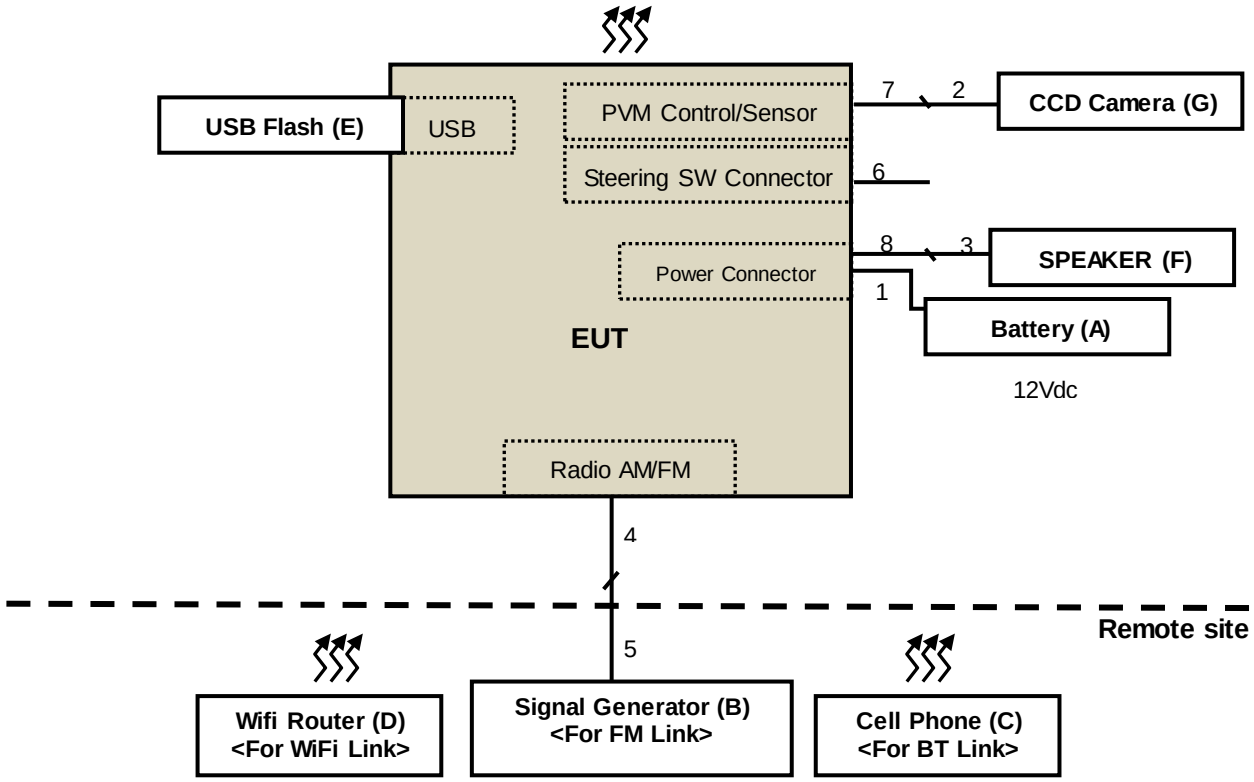
g. Steps b-f were repeated.

3.5 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5GHz, provided by Panasonic Corporation of North America, for detailed internal source, please refer to the manufacturer's specifications.

4 Configuration and Connections with EUT

4.1 Connection Diagram of EUT and Peripheral Devices



4.2 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Battery	GS	60044-MFZ	N/A	N/A	Provided by Lab
B.	Signal Generator	HP	8648A	3430U00217	N/A	Provided by Lab
C.	Cell Phone	ASUS	ASUS_A001	N/A	N/A	Provided by Lab
D.	Wifi Router	NETGEAR	R6350	58E798B00017E	N/A	Provided by Lab
E.	USB Flash Drive	SP	MOBILE C31	N/A	N/A	Provided by Lab
F.	SPEAKER	N/A	N/A	N/A	N/A	Supplied by client
G.	CCD Camera	N/A	N/A	N/A	N/A	Supplied by client

Note:
1. All power cords of the above support units are non-shielded (1.8m).
2. Items B-D acted as communication partners to transfer data.

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	DC cable	1	3.0	N	0	Supplied by client
2.	Camera cable	1	2.0	N	0	Supplied by client
3.	Audio cable	1	0.8	N	0	Supplied by client
4.	Coaxial cable	1	0.4	Y	0	Supplied by client
5.	Coaxial cable	1	10	Y	0	Provided by Lab
6.	I/O cable	1	2.0	N	0	Supplied by client
7.	I/O cable	1	2.0	N	0	Supplied by client
8.	I/O cable	1	2.0	N	0	Supplied by client

Note: The core(s) is(are) originally attached to the cable(s).

5 Radiated Emissions up to 1 GHz

5.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960			47	37
960-1000	49.5	43.5		

Radiated Emissions Limits at 3 meters (dBμV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40	50.5	40.5
88-216	54	43.5		
216-230	56.9	46		
230-960			57.5	47.5
960-1000	60	54		

Notes:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. QP detector shall be applied if not specified.

5.2 Test Instruments

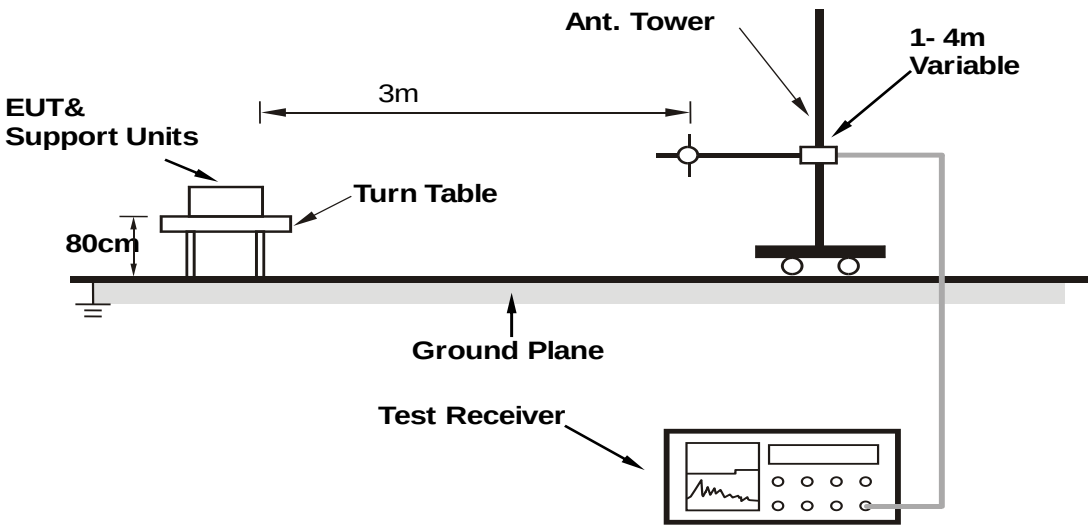
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Preamplifier	8447D	2944A08118	Feb. 18, 2020	Feb. 17, 2021
Agilent Test Receiver	N9038A	MY50010135	May 29, 2020	May 28, 2021
Schwarzbeck Antenna	VULB9168	9168-434	Nov. 4, 2020	Nov. 3, 2021
Max Full. Turn Table & Tower	MF7802	MF780208103	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
WOKEN RF cable With 5dB PAD	8D	CABLE-CH7-01	Jan. 19, 2021	Jan. 18, 2022

Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber No. 7.
3. The VCCI Site Registration No. R-20008.
4. Tested Date: Feb. 3 to 6, 2021

5.3 Test Arrangement

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited test facility. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.

Note: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for quasi-peak detection (QP) at frequency below 1GHz.



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

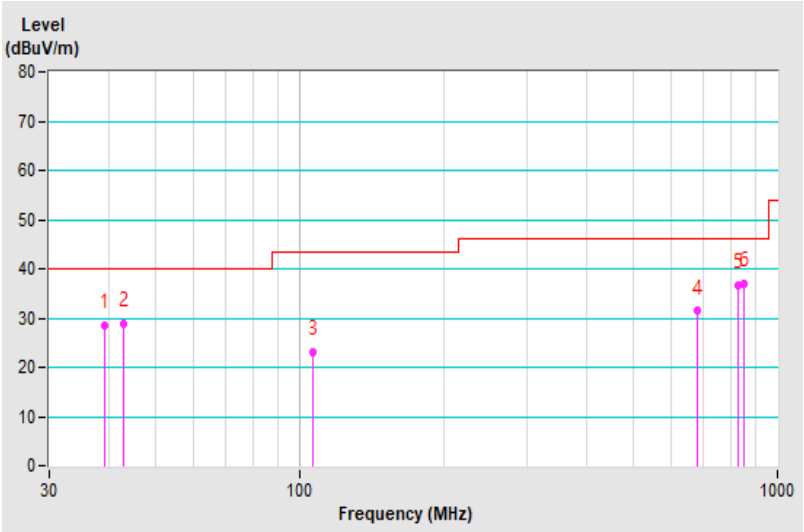
5.4 Test Results

Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/3
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	39.069	28.58 QP	40.00	-11.42	2.41 H	10	37.14	-8.56
2	42.828	28.98 QP	40.00	-11.02	1.25 H	184	37.37	-8.39
3	107.018	23.12 QP	43.50	-20.38	1.00 H	127	33.52	-10.40
4	678.906	31.44 QP	46.00	-14.56	1.53 H	167	29.21	2.23
5	825.885	36.74 QP	46.00	-9.26	2.41 H	360	31.53	5.21
6	852.875	37.05 QP	46.00	-8.95	1.09 H	360	31.48	5.57

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

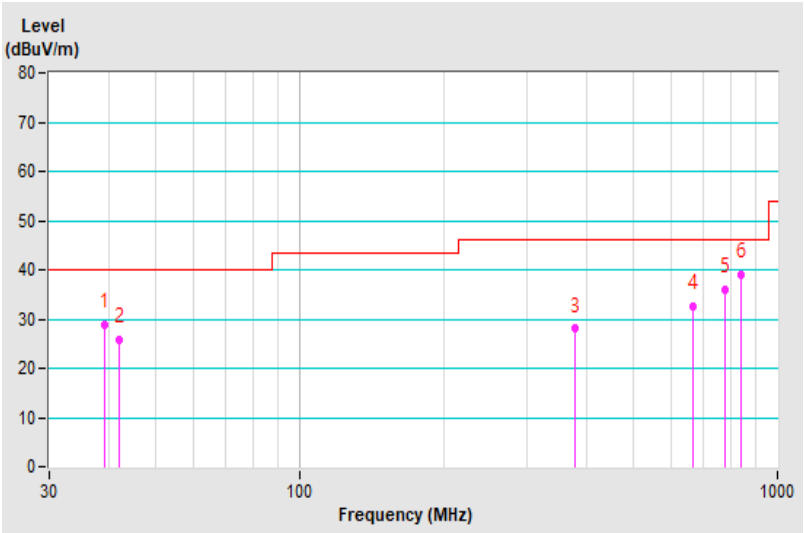


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/3
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	39.069	28.81 QP	40.00	-11.19	1.05 V	74	37.37	-8.56
2	42.125	25.86 QP	40.00	-14.14	1.35 V	360	34.23	-8.37
3	378.012	28.00 QP	46.00	-18.00	1.00 V	230	31.69	-3.69
4	666.878	32.71 QP	46.00	-13.29	2.38 V	164	30.64	2.07
5	775.106	36.10 QP	46.00	-9.90	1.25 V	61	31.75	4.35
6	**839.125**	**38.92 QP**	**46.00**	**-7.08**	**1.00 V**	**158**	**33.44**	**5.48**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

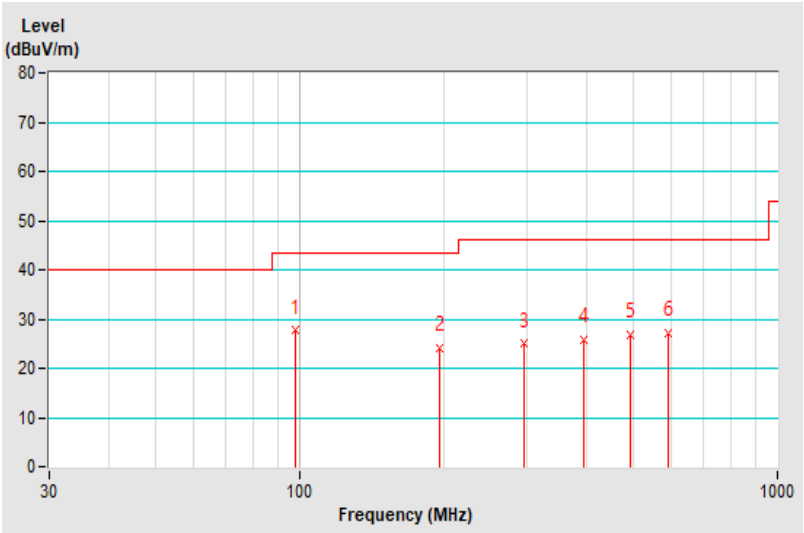


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Ken Lee	**Test Date**	2021/2/6
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	98.388	27.69 QP	43.50	-15.81	1.91 H	306	39.65	-11.96
2	196.776	24.14 QP	43.50	-19.36	1.74 H	211	33.77	-9.63
3	295.164	24.96 QP	46.00	-21.04	1.54 H	222	30.45	-5.49
4	393.552	25.89 QP	46.00	-20.11	1.70 H	271	29.34	-3.45
5	491.940	26.77 QP	46.00	-19.23	1.55 H	232	28.24	-1.47
6	590.328	27.15 QP	46.00	-18.85	1.52 H	279	26.32	0.83

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

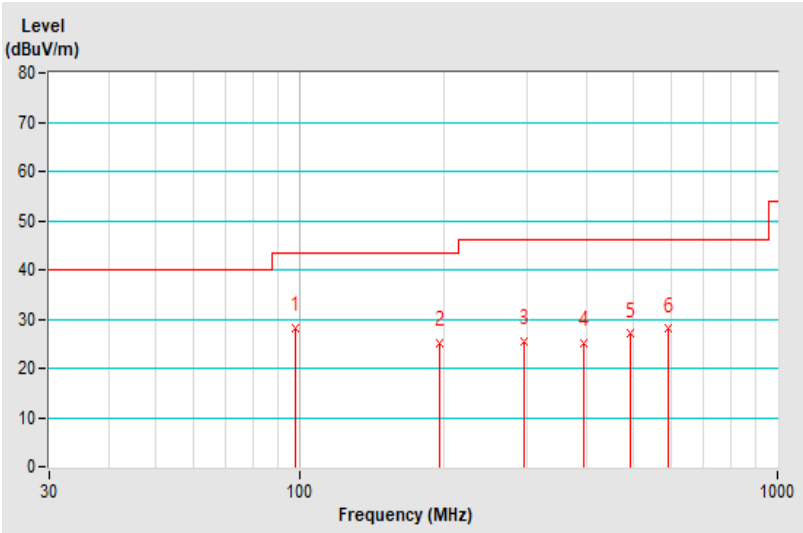


Frequency Range	30MHz ~ 1GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Ken Lee	**Test Date**	2021/2/6
Test Mode	Mode 2		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	98.388	28.14 QP	43.50	-15.36	1.00 V	264	40.10	-11.96
2	196.776	25.13 QP	43.50	-18.37	1.00 V	61	34.76	-9.63
3	295.164	25.38 QP	46.00	-20.62	1.00 V	156	30.87	-5.49
4	393.552	25.06 QP	46.00	-20.94	1.71 V	87	28.51	-3.45
5	491.940	26.96 QP	46.00	-19.04	1.98 V	109	28.43	-1.47
6	590.328	27.99 QP	46.00	-18.01	1.26 V	305	27.16	0.83

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



6 Radiated Emissions above 1 GHz

6.1 Limits

Emissions radiated outside of the specified bands, shall be according to the general radiated limits as following:

Radiated Emissions Limits at 10 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 49.5 Peak: 69.5	Avg: 43.5 Peak: 63.5	Not defined	Not defined
Above 3000			Not defined	Not defined

Radiated Emissions Limits at 3 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
1000-3000	Avg: 60 Peak: 80	Avg: 54 Peak: 74	Avg: 56 Peak: 76	Avg: 50 Peak: 70
Above 3000			Avg: 60 Peak: 80	Avg: 54 Peak: 74

Radiated Emissions Limits at 1.5 meters (dBµV/m)				
Frequencies (MHz)	FCC 15B / ICES-003, Class A	FCC 15B / ICES-003, Class B	CISPR 22, Class A	CISPR 22, Class B
Above 18000	Avg: 66 Peak: 86	Avg: 60 Peak: 80	Avg: 66 Peak: 86	Avg: 60 Peak: 80

Notes:
1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Frequency Range (For unintentional radiators)

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

6.2 Test Instruments

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Agilent Spectrum	E4446A	MY51100009	Jun. 23, 2020	Jun. 22, 2021
Agilent Test Receiver	N9038A	MY50010135	May 29, 2020	May 28, 2021
EMCI Preamplifier	EMC0126545	980076	Feb. 20, 2020	Feb. 19, 2021
MITEQ Preamplifier	AMF-6F-260400-33-8P	892164	Feb. 20, 2020	Feb. 19, 2021
EMCI Preamplifier	EMC184045B	980235	Feb. 20, 2020	Feb. 19, 2021
ETS Preamplifier	3117-PA	00215857	Nov. 23, 2020	Nov. 22, 2021
Schwarzbeck Horn Antenna	BBHA-9170	212	Nov. 22, 2020	Nov. 21, 2021
EMCO Horn Antenna	3115	9312-4192	Nov. 22, 2020	Nov. 21, 2021
Max Full. Turn Table & Tower	MF7802	MF780208103	NA	NA
Software	Radiated_V8.7.08	NA	NA	NA
SUHNER RF cable With 3/4dB PAD	SF102	Cable-CH7-3.6m	Jul. 9, 2020	Jul. 8, 2021
MICRO-TRONICS Notch filter	BRC50703-01	010	May 29, 2020	May 28, 2021
MICRO-TRONICS Band Pass Filter	BRM17690	005	May 29, 2020	May 28, 2021

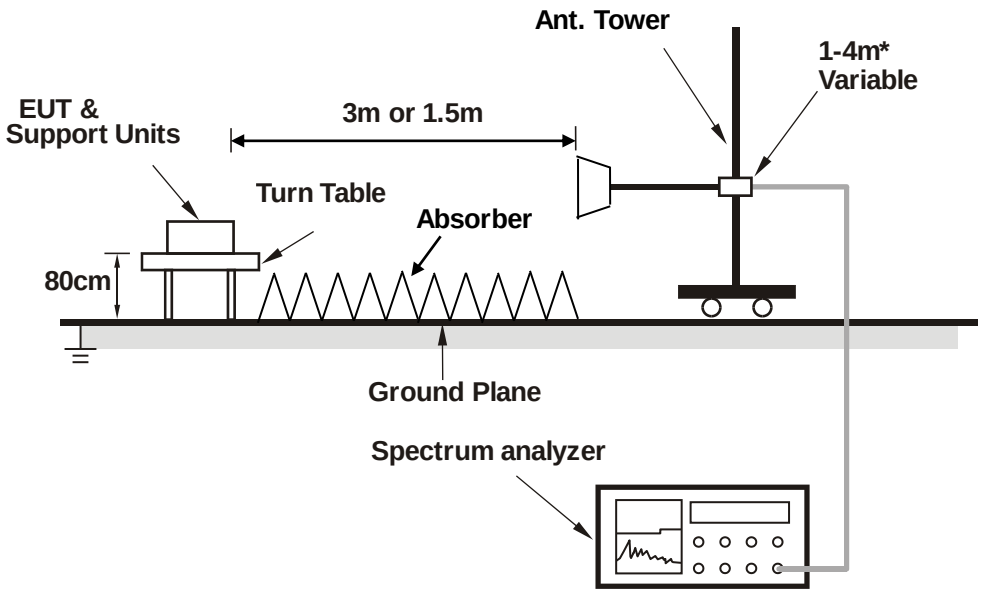
Note:
1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Chamber No. 7.
3. The VCCI Site Registration No. G-10039
4. Tested Date: Feb. 2, 2021

6.3 Test Arrangement

a. The EUT was placed on the horizontal ground reference plane at an accredited chamber room and orientated for normal use, but separated from metallic contact with the ground reference plane.
b. The EUT was set 3 meters / 1.5 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The height of antenna can be varied from one meter to four meters, the height of adjustment depends on the EUT height and the antenna 3dB beamwidth both, to detect the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The spectrum analyzer system was set to peak and average detect function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz.

Note:

1. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection (PK) at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
2. For measurement of frequency 1 GHz ~ 18 GHz, the EUT was set 3 meters away from the receiver antenna
3. For measurement of frequency 18 GHz ~ 40 GHz, the EUT was set 1.5 meters away from the receiver antenna



* :depends on the EUT height and the antenna 3dB beamwidth both.

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

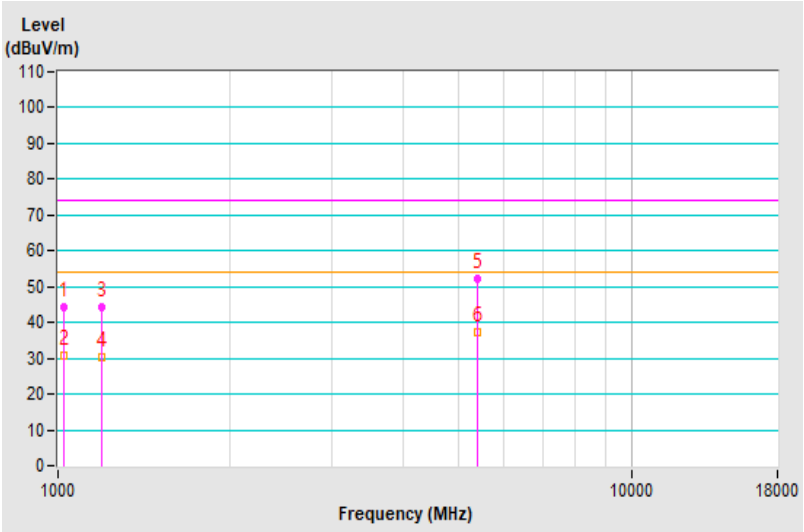
6.4 Test Results

Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/2
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	1025.075	44.27 PK	74.00	-29.73	1.14 H	360	46.78	-2.51
2	1025.075	30.86 AV	54.00	-23.14	1.14 H	360	33.37	-2.51
3	1190.825	44.31 PK	74.00	-29.69	1.58 H	261	47.05	-2.74
4	1190.825	30.21 AV	54.00	-23.79	1.58 H	261	32.95	-2.74
5	5407.250	52.13 PK	74.00	-21.87	2.00 H	28	43.87	8.26
6	**5407.250**	**37.34 AV**	**54.00**	**-16.66**	**2.00 H**	**28**	**29.08**	**8.26**

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

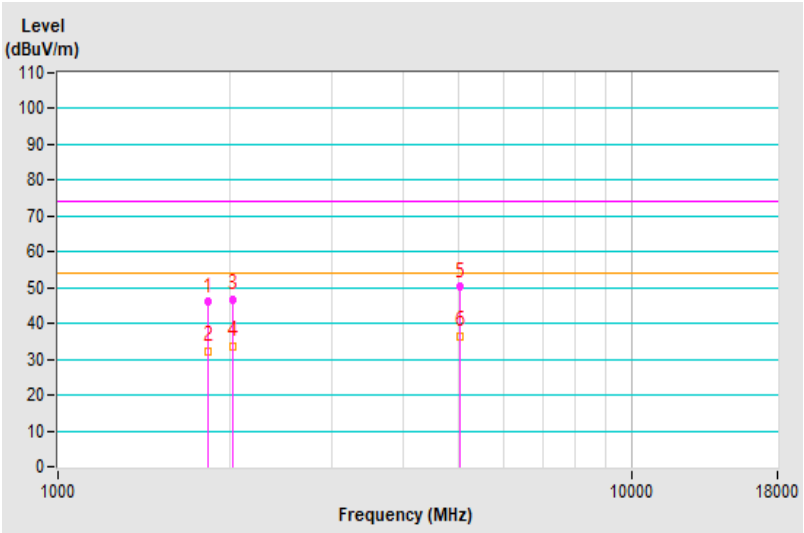


Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/2
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 3 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	1827.050	45.94 PK	74.00	-28.06	2.21 V	24	45.78	0.16
2	1827.050	32.25 AV	54.00	-21.75	2.21 V	24	32.09	0.16
3	2017.025	46.55 PK	74.00	-27.45	1.03 V	338	45.33	1.22
4	2017.025	33.58 AV	54.00	-20.42	1.03 V	338	32.36	1.22
5	5026.875	50.20 PK	74.00	-23.80	1.55 V	352	43.64	6.56
6	5026.875	36.38 AV	54.00	-17.62	1.55 V	352	29.82	6.56

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

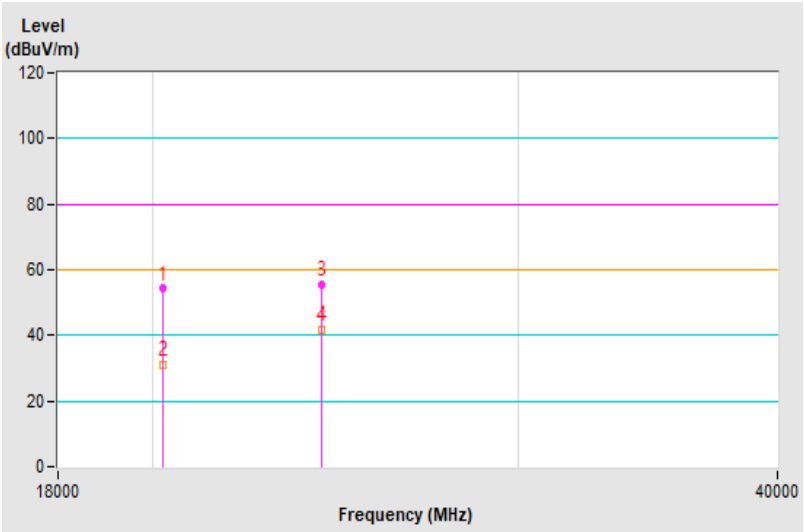


Frequency Range	18GHz ~ 25GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/2
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Horizontal at 1.5 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	20232.000	54.23 PK	80.00	-25.77	1.10 H	29	57.71	-3.48
2	20232.000	31.24 AV	60.00	-28.76	1.10 H	29	34.72	-3.48
3	24120.500	55.34 PK	80.00	-24.66	1.55 H	264	53.60	1.74
4	24120.500	41.57 AV	60.00	-18.43	1.55 H	264	39.83	1.74

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value

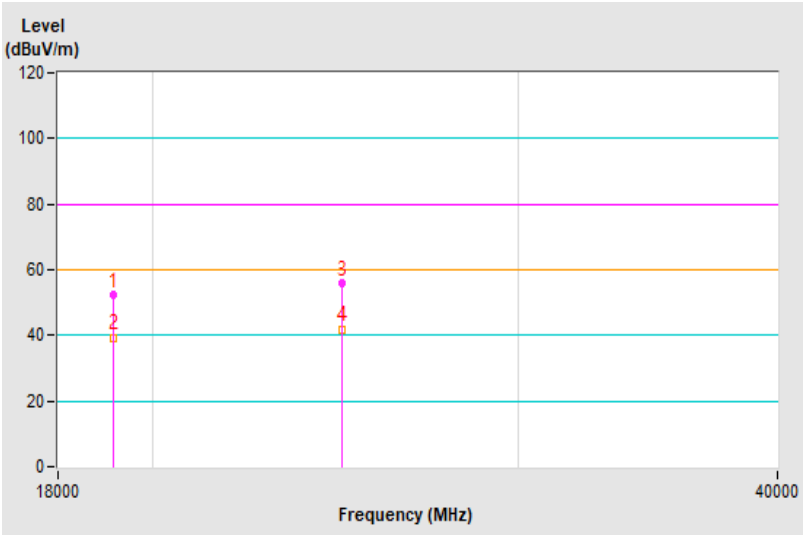


Frequency Range	18GHz ~ 25GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Input Power	12Vdc	**Environmental Conditions**	21.0℃, 65.0%RH
Tested By	Chin-Wen Wang	**Test Date**	2021/2/2
Test Mode	Mode 1		

Antenna Polarity & Test Distance : Vertical at 1.5 m								
No	**Frequency (MHz)**	**Emission Level (dBuV/m)**	**Limit (dBuV/m)**	**Margin (dB)**	**Antenna Height (m)**	**Table Angle (Degree)**	**Raw Value (dBuV)**	**Correction Factor (dB/m)**
1	19138.560	52.15 PK	80.00	-27.85	1.56 V	360	56.64	-4.49
2	19138.560	39.35 AV	60.00	-20.65	1.56 V	360	43.84	-4.49
3	24654.000	55.69 PK	80.00	-24.31	1.00 V	78	54.71	0.98
4	24654.000	41.64 AV	60.00	-18.36	1.00 V	78	40.66	0.98

Remarks:

1. Emission Level(dBuV/m) = Raw Value(dBuV) + Correction Factor(dB/m)
2. Correction Factor(dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Pre-Amplifier Factor (dB)
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



7 Pictures of Test Arrangements

Please refer to the attached file (Test Setup Photo).

Appendix – Information of the Testing Laboratories

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are FCC recognized accredited test firms and accredited according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

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