FCC Test Report

Report No.:	FDBHCP-WTW-P22090444
FCC ID:	ACJ932AH2201
Test Model:	AH2201
Received Date:	2022/3/11
Test Date:	2022/3/30~2022/4/8 & 2022/8/16
Issued Date:	2022/9/27
Applicant:	Panasonic Corporation of North America
Address:	Two Riverfront Plaza, 9th Floor Newark New Jersey United States 07102-5490
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 (1):	No.19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN
FCC Registration / Designation Number:	328930 / TW1050
Test Location (2):	No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan
FCC Registration / Designation Number:	418586 / TW1078

Table of Contents

Release Control Record

Issue No.	Description	Date Issued
FDBHCP-WTW-P22090444	Original release.	2022/9/27

1 Certificate of Conformity

Product:	Display Audio
Brand:	Panasonic
Test Model:	AH2201
Sample Status:	Engineering sample
Applicant:	Panasonic Corporation of North America
Test Date:	2022/3/30~2022/4/8 & 2022/8/16
Standards:	47 CFR FCC Part 15, Subpart B, 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 : Jessie Kuo , **Date:** **2022/9/27**

Jessie Kuo / Specialist

Approved by : Ace Wu , **Date:** **2022/9/27**

Ace Wu / Project Engineer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart B, Class B ANSI C63.4:2014			
FCC Clause	Test Item	Result/Remarks	Verdict
15.107	AC Power Line Conducted Emissions	Without AC power port of the EUT	N/A
15.109	Radiated Emissions up to 1 GHz	Minimum passing Class B margin is -0.73 dB at 797.99 MHz	Pass
	Radiated Emissions above 1 GHz	Minimum passing Class B margin is -15.70 dB at 18901.24 MHz	Pass
15.111	Antenna-Conducted Power Test (30MHz ~ 960MHz)	Minimum passing Class B margin is -7.44 dB at 353.950 MHz	Pass

N/A: Not Applicable

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.

2.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	4.14 dB
Radiated Emissions above 1 GHz	Above 1GHz	5.09 dB (Mode A, B) 5.04 dB (Mode C)
Antenna-conducted Power Measurement	30MHz ~ 960MHz	5.57 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	AH2201
Sample Status	Engineering sample
Operating Software	N/A
Power Supply Rating	10-16Vdc
Accessory Device	Antenna
Data Cable Supplied	N/A

3.2 Features of EUT

The tests reported herein were performed according to the method specified by Panasonic Corporation of North America, Ltd, 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

The EUT is designed with DC power.

For radiated emission test, the EUT has been pre-tested under following test modes, and test mode 1, 6 were the worst cases for final test.

Mode	Test Condition
1	Play Music from Flash + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
2	Play Music from BT + WLAN 5G B4 Link +BT Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
3	Smartphone display to EUT + WLAN 5G B4 Link + USB with Samrt Phone + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
4	Camera preview + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
5	FM 88MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
6	FM 98MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
7	FM 108MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc

Test modes are presented in the report as below.

Mode	Test Condition
Radiated emission up to 1GHz test	
A	Play Music from Flash + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
B	FM 98MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
C	Play Music from BT + BT Link + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
Radiated emission above 1GHz test	
A	Play Music from Flash + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
B	Play Music from BT + BT Link + WLAN 5G B4 Link + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
Antenna-conducted power measurement test	
A	FM 88MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
B	FM 98MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc
C	FM 108MHz + EUT with Speaker + FM/AM Antenna + GPS Antenna + USB with Flash, 12 Vdc

3.4 Test Program Used and Operation Descriptions

For all tests except Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B

a. Turned on the power of all equipment.
b. The volume control was adjusted to be 1/8 of the rated audio output power.
c. Pattern Generator sent FM signal to EUT and EUT played audio signal to speaker.
d. Pattern Generator sent AM signal to EUT and EUT played audio signal to speaker.
e. EUT read music files from USB Flash and EUT played audio signal to speaker.
f. Steps c-e were repeated.
g. EUT sent and received messages to/from Notebook (kept in a remote area) via wireless transmission.
h. EUT received messages from GPS simulator (kept in a remote area) via wireless transmission.

For Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B

a. Turned on the power of all equipment.
b. The volume control was adjusted to be 1/8 of the rated audio output power.
c. EUT connected to USB Flash via USB cable.
d. EUT sent and received messages to/from AP Router (kept in a remote area) via wireless transmission.
e. EUT received messages from GPS simulator (kept in a remote area) via wireless transmission.
f. EUT sent and received audio to/from smartpohne (kept in a remote area) via bluetooth transmission.
g. Steps g were repeated.

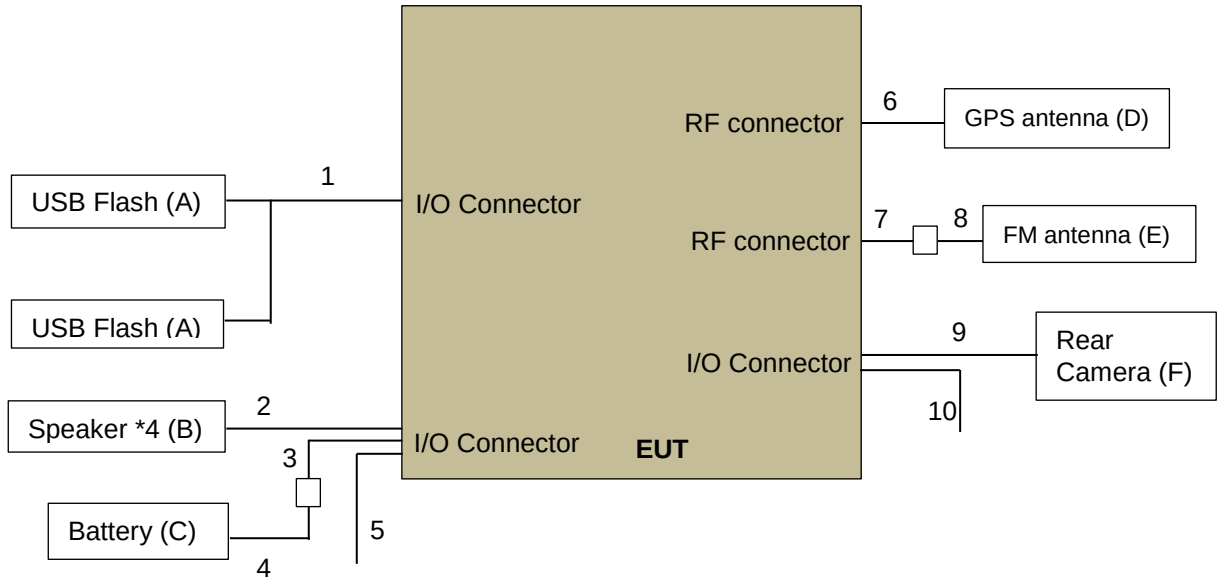
3.5 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5875 MHz, provided by Panasonic Corporation of North America, Ltd, for detailed internal source, please refer to the manufacturer's specifications.

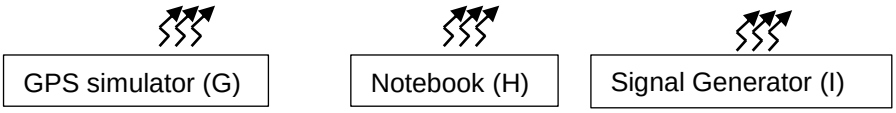
4 Configuration and Connections with EUT

4.1 Connection Diagram of EUT and Peripheral Devices

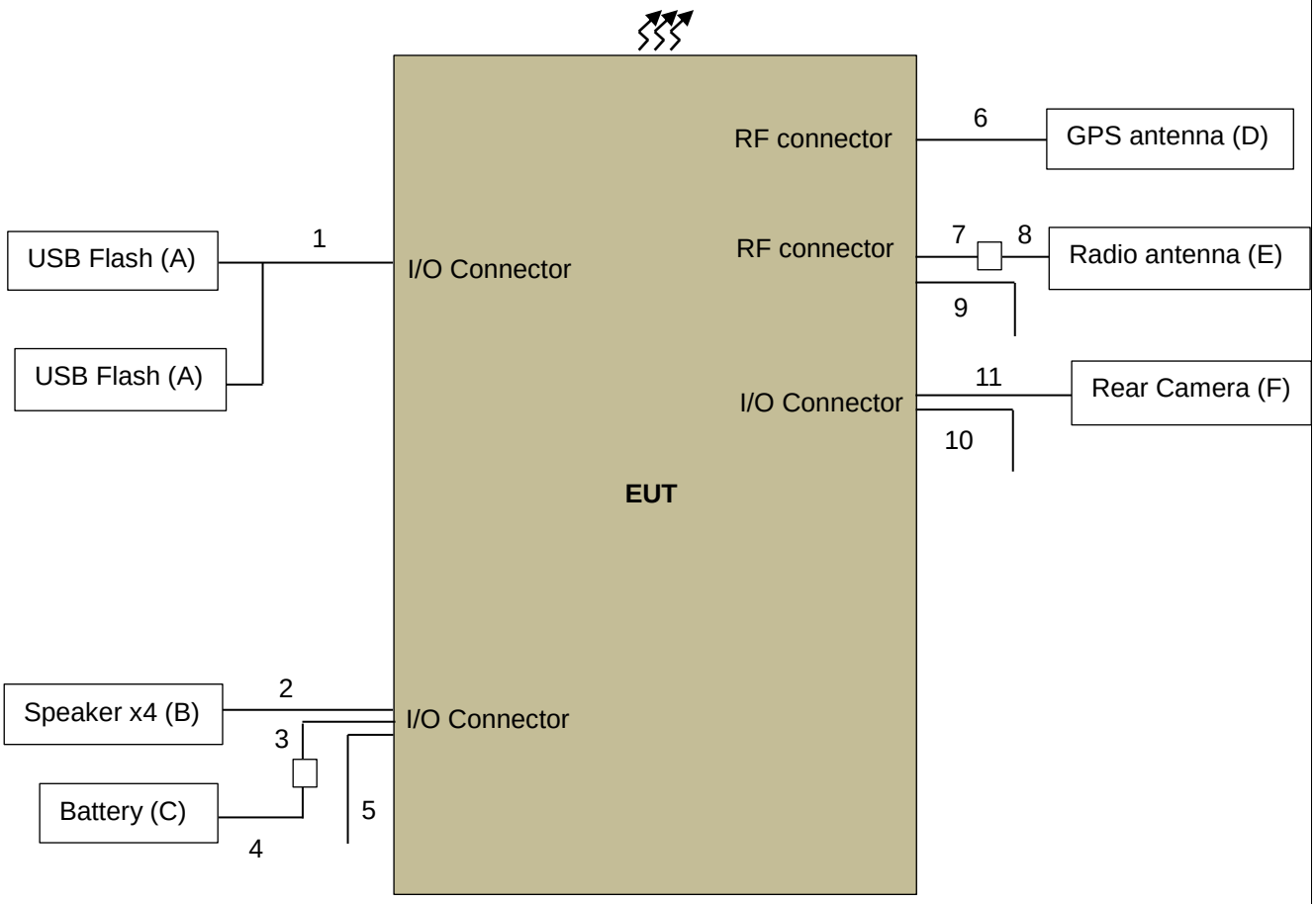
For all tests except Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B



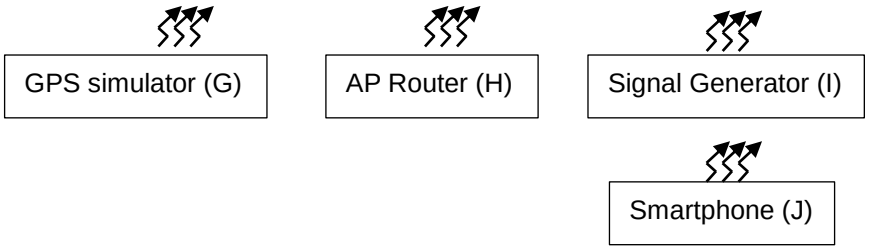
Remote Site



For Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B



Remote Site



4.2 Configuration of Peripheral Devices and Cable Connections

For all tests except Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	USB Flash	HP	X5000m	N/A	NA	--
		HP	X5000m	N/A	NA	--
B.	Speaker	Logitech	THX	N/A	NA	--
		Logitech	THX	N/A	NA	--
		N/A	JC125-025	N/A	NA	--
		N/A	JC125-025	N/A	N/A	--
C.	Battery	SMF	NX120-7L	N/A	NA	--
D.	GPS antenna	N/A	N/A	N/A	NA	Supplied by applicant
E.	FM antenna	N/A	N/A	N/A	NA	--
F.	Rear Camera	N/A	N/A	N/A	NA	Supplied by applicant
G.	GPS simulator	PENDULUM	GSG-54	191121	N/A	--
H.	Notebook	DELL	Latitude 5501	F42VP13	FCC DoC Approved	--
I.	Signal Generator	R&S	SMJ100A	101943	N/A	--

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1.	USB Cable	1	2	Yes	0	Supplied by applicant
2.	I/O Cable	4	0.8	No	0	Supplied by applicant
3.	DC Cable	1	1	No	0	Supplied by applicant
4.	DC Cable	1	0.8	No	0	--
5.	I/O Cable	1	1	No	0	Supplied by applicant
6.	RF able	1	0.4	Yes	0	Supplied by applicant
7.	RF able	1	0.4	Yes	0	Supplied by applicant
8.	RF able	1	2	Yes	0	--
9.	I/O Cable	1	2	No	0	Supplied by applicant
10.	I/O Cable	1	2	No	0	Supplied by applicant

For Radiated emission up to 1GHz test Mode C & Radiated emission above 1GHz test Mode B

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	USB Flash	HP	X5000m	N/A	N/A	--
	USB Flash	HP	X5000m	N/A	N/A	--
B	Speaker	Logitech	THX	N/A	N/A	--
	Speaker	Logitech	THX	N/A	N/A	--
	Speaker	N/A	JC125-025	N/A	N/A	--
	Speaker	N/A	JC125-025	N/A	N/A	--
C	Battery	SMF	NX120-7L	N/A	N/A	--
D	GPS antenna	N/A	N/A	N/A	N/A	Supplied by applicant
E	Radio antenna	N/A	N/A	N/A	N/A	--
F	Rear Camera	N/A	N/A	N/A	NA	Supplied by applicant
G	GPS simulator	PENDULUM	GSG-54	191121	N/A	--
H	AP Router	D-LINK	DIR826L	QBQ91C9000007	N/A	--
I	Signal Generator	R&S	SMJ100A	101943	N/A	--
J	Smartphone	LG	LG-H791	511KPQJ544996	N/A	--

ID	Cable Descriptions	Qty.	Length (m)	Shielding (Yes/No)	Cores (Qty.)	Remarks
1	USB Cable	1	1.8	Yes	0	Supplied by applicant
2	I/O Cable	4	2	No	0	Supplied by applicant
3	DC Cable	1	0.4	No	0	Supplied by applicant
4	DC Cable	1	0.8	No	0	Provided by Lab
5	I/O Cable	1	1	No	0	Supplied by applicant
6	RF able	1	0.4	Yes	0	Supplied by applicant
7	RF able	1	0.4	Yes	0	Supplied by applicant
8	RF able	1	2	Yes	0	Provided by Lab
9	I/O Cable	1	0.5	No	0	Supplied by applicant
10	I/O Cable	1	1.2	No	0	Supplied by applicant
11	I/O Cable	1	1.2	No	0	Supplied by applicant

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, Class A	FCC 15B, 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, Class A	FCC 15B, 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

Mode A, B

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Software	ADT_Radiated_V8.7.08	NA	NA	NA
Turn Table	DS430	50303	NA	NA
Controller (V)	MF7802	074	NA	NA
Controller (H)	MF7802	08093	NA	NA
Test Receiver ESR7 R&S	ESR	101240	2021/11/3	2022/11/2
Test Receiver ESR7 R&S	ESR7	101471	2022/3/11	2023/3/10
Bi_Log Antenna Schwarbeck	VULB9168	9168-148	2021/10/19	2022/10/18
Bi_Log Antenna Schwarbeck	VULB9168	9168-156	2021/10/19	2022/10/18
Pre_Amplifier Sonoma	310N	352924	2021/6/5	2022/6/4
Pre_Amplifier Sonoma	310N	352923	2021/6/5	2022/6/4
RF Coaxial Cable TIMES	LMR-600(18M)+LMR-400 (7M)	CABLE-CH1(VER)-01	2021/9/4	2022/9/3
RF Coaxial Cable TIMES	LMR-600(11.8M)+LMR-400 (7M)	CABLE-CH1(HOR)-01	2021/9/4	2022/9/3
Antenna Tower (V)	MFA-440	9707	NA	NA
Antenna Tower (H)	MFA-440	970705	NA	NA

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 HY - 10M Chamber.
3. The test site validated date: 2021/8/07 (NSA)
4. Tested Date: 2022/3/30.

Mode C

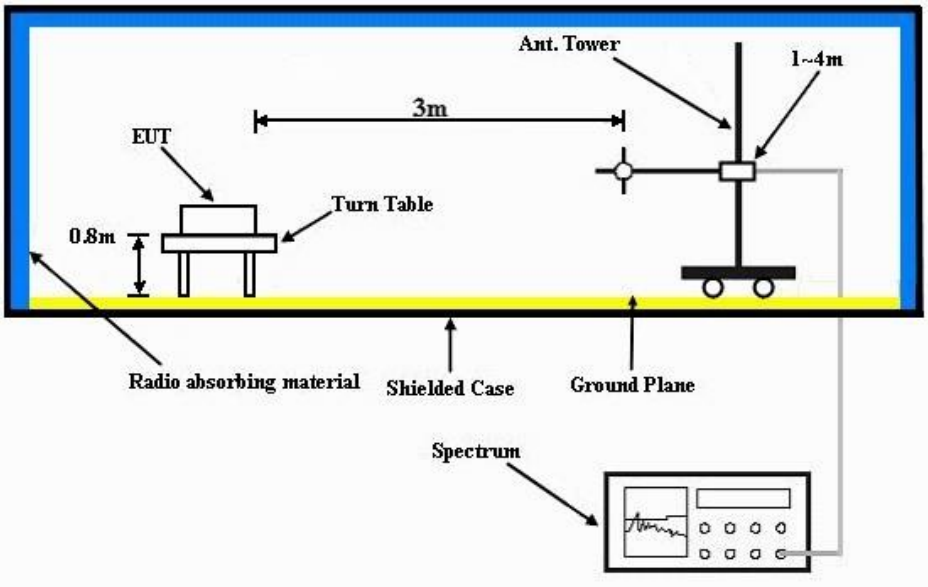
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Antenna Tower (H)	MFA-440	970705	N/A	N/A
Antenna Tower (V)	MFA-440	9707	N/A	N/A
Bi_Log Antenna Schwarbeck	VULB9168	9168-148	2021/10/19	2022/10/18
		9168-156	2021/10/19	2022/10/18
Controller (H)	MF7802	08093	N/A	N/A
Controller (V)	MF7802	074	N/A	N/A
Pre_Amplifier Sonoma	310N	352923	2022/5/14	2023/5/13
		352924	2022/5/14	2023/5/13
RF Coaxial Cable TIMES	LMR-600(11.8M)+LMR-400 (7M)	CABLE-CH1(HOR)-01	2021/9/4	2022/9/3
	LMR-600(18M)+LMR-400 (7M)	CABLE-CH1(VER)-01	2021/9/4	2022/9/3
Software	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Test Receiver ESR7 R&S	ESR	101240	2021/11/3	2022/11/2
		101264	2022/4/11	2023/4/10
Turn Table	DS430	50303	N/A	N/A

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 HY - 10M Chamber.
3. The test site validated date: 2021/8/07 (NSA)
4. Tested Date: 2022/8/16.

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.



5.4 Test Results

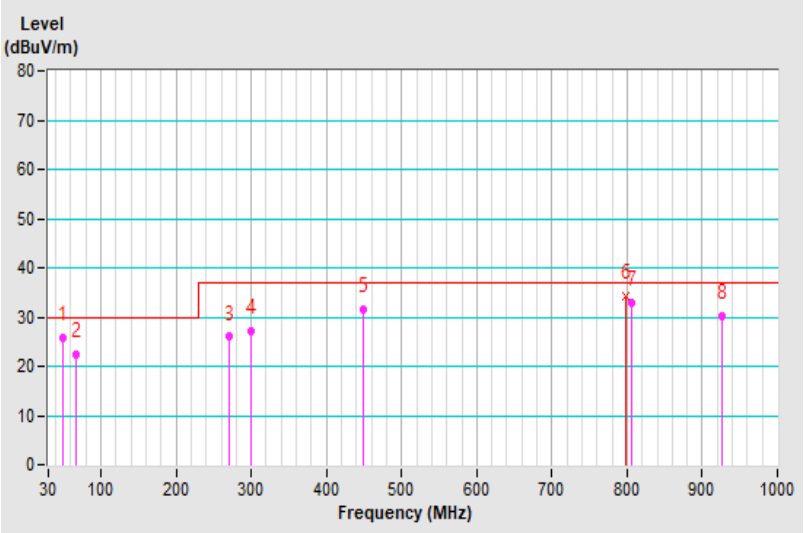
Mode A

Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	**Environmental Conditions**	23°C, 66% RH

Antenna Polarity & Test Distance : Horizontal at 10 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	49.40	25.75 QP	30.00	-4.25	2.50 H	182	38.51	-12.76
2	67.54	22.31 QP	30.00	-7.69	2.50 H	182	36.68	-14.37
3	270.96	26.00 QP	37.00	-11.00	4.00 H	325	39.15	-13.15
4	299.96	27.09 QP	37.00	-9.91	3.50 H	88	39.56	-12.47
5	449.98	31.49 QP	37.00	-5.51	2.00 H	262	40.26	-8.77
6	797.99	34.39 QP	37.00	-2.61	3.50 H	66	36.62	-2.23
7	806.48	32.99 QP	37.00	-4.01	3.50 H	34	35.06	-2.07
8	925.40	30.23 QP	37.00	-6.77	2.50 H	337	29.70	0.53

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

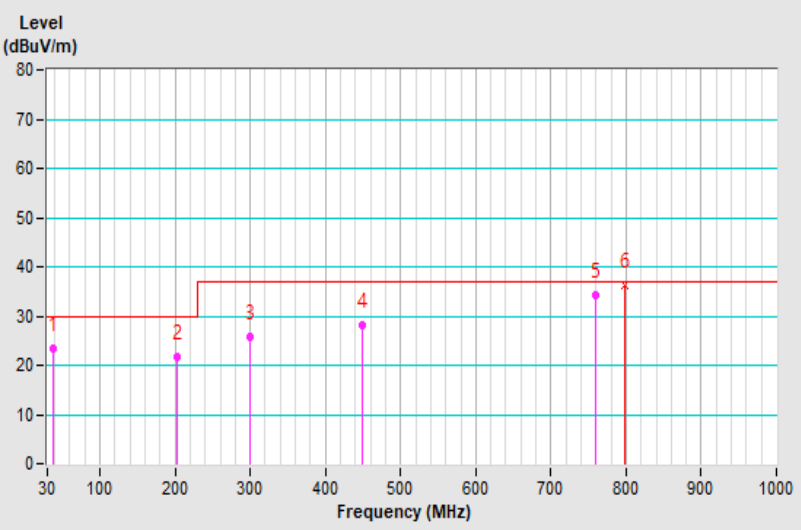


Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	**Environmental Conditions**	23°C, 66% RH

Antenna Polarity & Test Distance : Vertical at 10 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	38.00	23.42 QP	30.00	-6.58	4.00 V	202	37.73	-14.31
2	203.20	21.78 QP	30.00	-8.22	1.00 V	67	37.86	-16.08
3	300.01	25.83 QP	37.00	-11.17	1.00 V	303	37.82	-11.99
4	449.98	28.16 QP	37.00	-8.84	1.00 V	343	36.22	-8.06
5	759.86	34.22 QP	37.00	-2.78	2.50 V	2	36.69	-2.47
6	**797.99**	**36.27 QP**	**37.00**	**-0.73**	**3.00 V**	**308**	**38.42**	**-2.15**

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



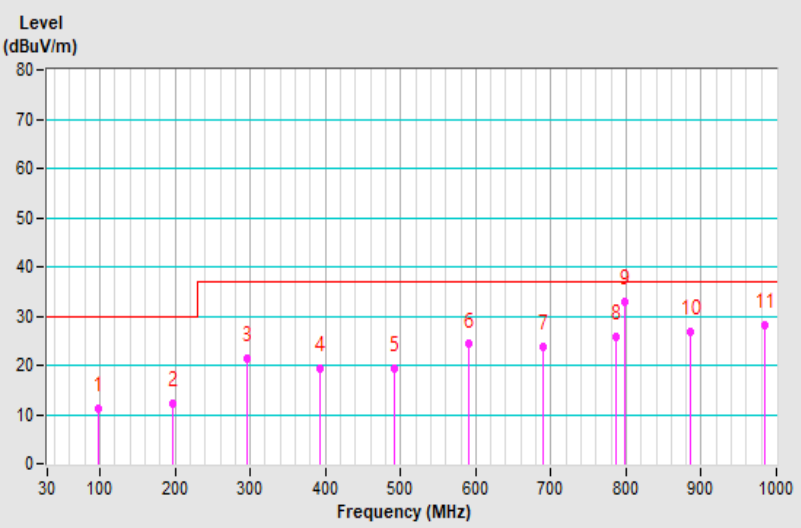
Mode B

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	Environmental Conditions	23°C, 66% RH

Antenna Polarity & Test Distance : Horizontal at 10 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	98.39	11.19 QP	30.00	-18.81	1.00 H	293	29.19	-18.00
2	196.78	12.25 QP	30.00	-17.75	3.50 H	344	28.34	-16.09
3	295.16	21.31 QP	37.00	-15.69	4.00 H	296	33.86	-12.55
4	393.55	19.29 QP	37.00	-17.71	3.00 H	18	29.61	-10.32
5	491.94	19.46 QP	37.00	-17.54	2.00 H	309	27.25	-7.79
6	590.33	24.28 QP	37.00	-12.72	1.00 H	278	30.05	-5.77
7	688.72	23.80 QP	37.00	-13.20	2.50 H	139	28.11	-4.31
8	787.10	25.93 QP	37.00	-11.07	2.00 H	47	28.17	-2.24
9	798.04	32.80 QP	37.00	-4.20	1.00 H	294	35.03	-2.23
10	885.49	26.81 QP	37.00	-10.19	1.50 H	40	27.55	-0.74
11	983.88	28.14 QP	37.00	-8.86	3.50 H	239	26.54	1.60

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

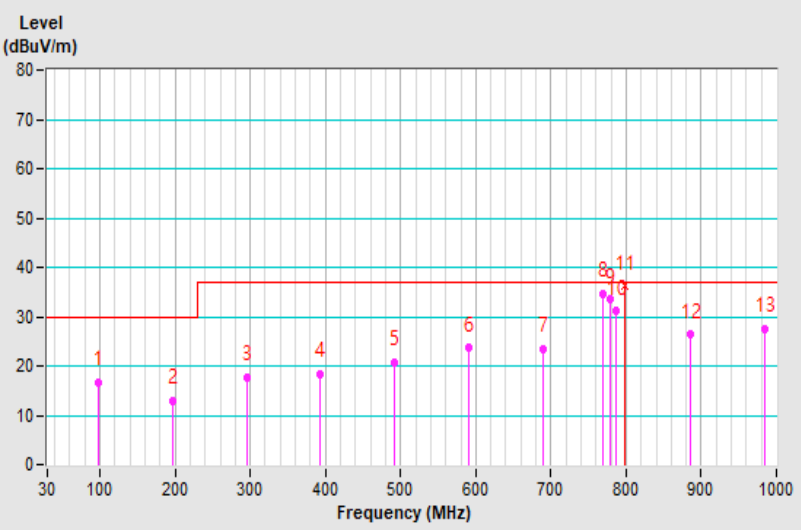


Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	**Environmental Conditions**	23°C, 66% RH

Antenna Polarity & Test Distance : Vertical at 10 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	98.39	16.76 QP	30.00	-13.24	1.00 V	298	35.06	-18.30
2	196.78	13.04 QP	30.00	-16.96	2.50 V	325	28.94	-15.90
3	295.16	17.76 QP	37.00	-19.24	1.00 V	29	29.88	-12.12
4	393.55	18.35 QP	37.00	-18.65	2.00 V	13	28.01	-9.66
5	491.94	20.71 QP	37.00	-16.29	3.50 V	326	27.85	-7.14
6	590.33	23.59 QP	37.00	-13.41	4.00 V	168	28.94	-5.35
7	688.72	23.44 QP	37.00	-13.56	3.50 V	0	27.37	-3.93
8	768.30	34.75 QP	37.00	-2.25	2.50 V	310	36.79	-2.04
9	778.20	33.43 QP	37.00	-3.57	3.00 V	343	35.42	-1.99
10	787.10	31.04 QP	37.00	-5.96	2.00 V	307	33.17	-2.13
11	797.99	36.14 QP	37.00	-0.86	2.50 V	230	38.29	-2.15
12	885.49	26.32 QP	37.00	-10.68	2.00 V	175	26.92	-0.60
13	983.88	27.49 QP	37.00	-9.51	1.00 V	276	26.34	1.15

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



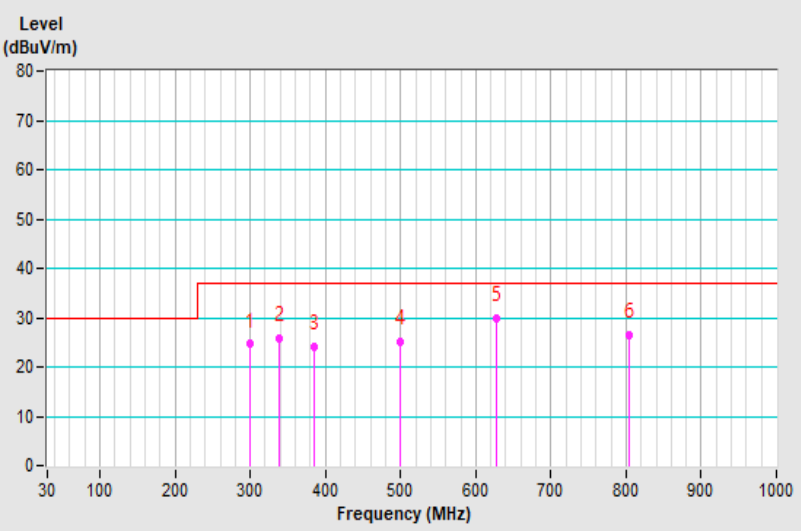
Mode C

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	Environmental Conditions	25°C, 67% RH

Antenna Polarity & Test Distance : Horizontal at 10 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	299.96	24.64 QP	37.00	-12.36	3.00 H	76	37.14	-12.50
2	338.67	25.79 QP	37.00	-11.21	3.00 H	84	37.13	-11.34
3	385.33	24.06 QP	37.00	-12.94	2.00 H	9	34.40	-10.34
4	499.99	25.16 QP	37.00	-11.84	1.50 H	138	32.67	-7.51
5	626.68	29.99 QP	37.00	-7.01	1.50 H	35	34.68	-4.69
6	804.39	26.42 QP	37.00	-10.58	2.50 H	169	28.23	-1.81

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

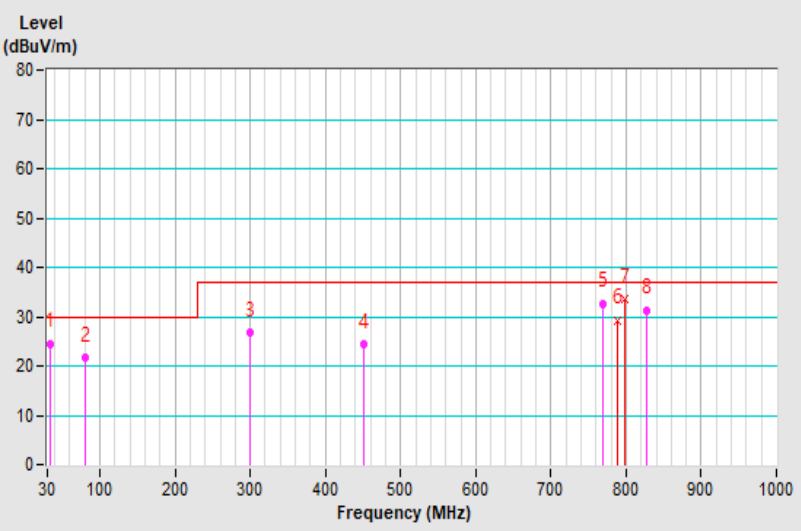


Frequency Range	30 MHz ~ 1 GHz	**Detector Function & Resolution Bandwidth**	Quasi-Peak (QP), 120 kHz
Tested By	Mick Chou	**Environmental Conditions**	25°C, 67% RH

Antenna Polarity & Test Distance : Vertical at 10 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	33.15	24.38 QP	30.00	-5.62	1.00 V	316	39.60	-15.22
2	79.96	21.56 QP	30.00	-8.44	1.50 V	216	39.41	-17.85
3	300.01	26.68 QP	37.00	-10.32	1.00 V	37	38.74	-12.06
4	450.03	24.26 QP	37.00	-12.74	1.00 V	343	32.17	-7.91
5	768.40	32.55 QP	37.00	-4.45	2.50 V	1	34.84	-2.29
6	788.38	29.19 QP	37.00	-7.81	2.50 V	329	31.31	-2.12
7	798.04	33.39 QP	37.00	-3.61	2.50 V	290	35.40	-2.01
8	827.57	31.30 QP	37.00	-5.70	2.50 V	1	32.86	-1.56

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



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, Class A	FCC 15B, 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, Class A	FCC 15B, 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

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.

Radiated Emissions Limits at 1.5 meter (dBμV/m)		
Frequencies (MHz)	FCC 15B, Class A	FCC 15B, Class B
18000-40000	Avg: 66 Peak: 86	Avg: 60 Peak: 80

Note: Limit@1.5m = Limit@3m + 20log(3/1.5)

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

Mode A

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Software BVADT	ADT_Radiated_V8.7.08	NA	NA	NA
Antenna Tower BVADT	AT100	AT93021702	NA	NA
Turn Table BVADT	TT100	TT93021702	NA	NA
Controller BVADT	SC100	SC93021702	NA	NA
PXA KEYSIGHT	N9030A	MY54490561	2021/7/28	2022/7/27
Horn Antenna Schwarzbeck	BBHA 9120 D	209	2021/11/14	2022/11/13
Pre_Amplifier Agilent	8449B	3008A02465	2022/3/19	2023/3/18
BandPass Filter MICRO-TRONICS	BRM17690-01	002	2021/9/4	2022/9/3
BandPass Filter MICRO-TRONICS	BRM50716-01	G010	2021/9/4	2022/9/3
RF Coaxial Cable HUBER+SUHNER&EMCI	SUCOFLEX 104&EMC104-SM-SM-8000	Cable-CH3-03(309224+170907)	2021/7/24	2022/7/23
Attenuator Mini-Circuits	BW-N4W5+	PAD-CH3-03	2021/7/24	2022/7/23
Boresight antenna tower fixture BV	BAF-02	3	NA	NA
Pre_Amplifier EMCI	EMC184045SE	980610	2021/6/5	2022/6/4
Horn Antenna Schwarzbeck	BBHA 9170	BBHA9170241	2021/10/26	2022/10/25
RF Coaxial Cable EMCI	EMC102-KM-KM-1000	200311	2021/7/24	2022/7/23
RF Coaxial Cable EMCI	EMC102-KM-KM-3000	200313	2021/7/24	2022/7/23
Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH3-04	2021/7/24	2022/7/23
Boresight antenna tower fixture BV	BAF-02	3	NA	NA

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 HY - 966 Chamber 2.
3. The test site validated date: 2021/11/08 (NSA)
4. Tested Date: 2022/4/1.

Mode B

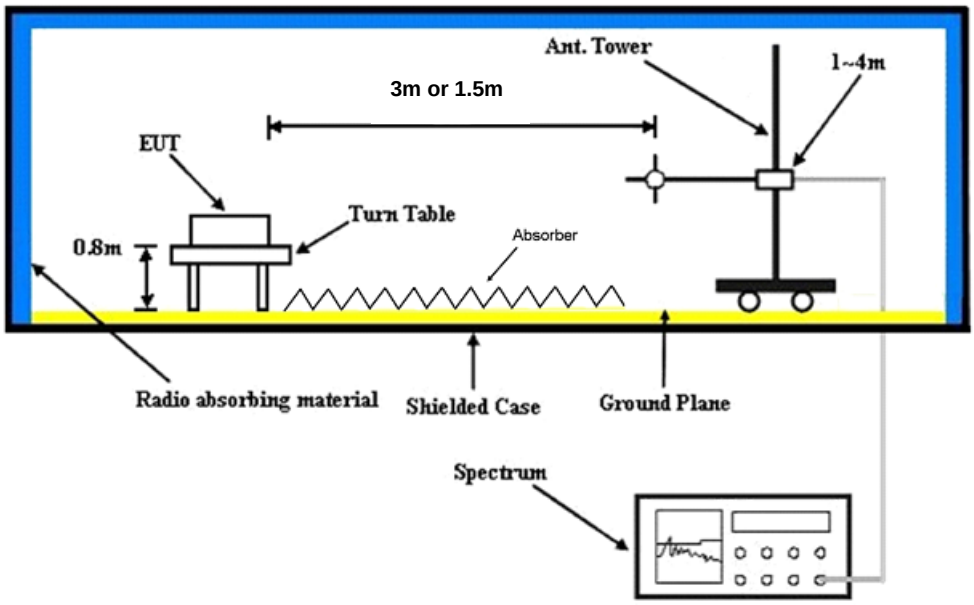
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Antenna Tower BVADT	AT100	AT93021702	N/A	N/A
BandPass Filter MICRO-TRONICS	BRM17690-01	003	2021/9/4	2022/9/3
	BRM50716-01	G011	2021/9/4	2022/9/3
Controller BVADT	SC100	SC93021702	N/A	N/A
Fix tool for Boresight antenna tower BV	BAF-01	2	N/A	N/A
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-405	2021/11/14	2022/11/13
	BBHA 9170	148	2021/11/14	2022/11/13
Pre-Ammlifier Agilent	8449B	3008A01961	2021/9/4	2022/9/3
Pre-amplifier (18GHz-40GHz) EMCI	EMC184045B	980175	2021/9/4	2022/9/3
RF Coaxial Cable ATK+EMC	EM104-SMSM-600&EM104-SMSM-500	Cable-CH2-02	2022/1/15	2023/1/14
RF Coaxial Cable EMCI	EMC102-KM-KM-1000	170820	2022/1/15	2023/1/14
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50-3000	181129-2	2022/1/15	2023/1/14
Software BVADT	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Spectrum Analyzer Agilent	E4446A	MY51100039	2021/12/7	2022/12/6
Turn Table BVADT	TT100	TT93021702	N/A	N/A

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 HY - 966 chamber 1.
3. The test site validated date: 2022/1/8 (VSWR)
4. Tested Date: 2022/8/16.

6.3 Test Arrangement

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at an accredited chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
b. For frequency range 1GHz ~ 18GHz, 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. For frequency range 18GHz ~ 40GHz, the EUT was set 1.5 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
d. 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.
e. 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.
f. 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: 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.



6.4 Test Results

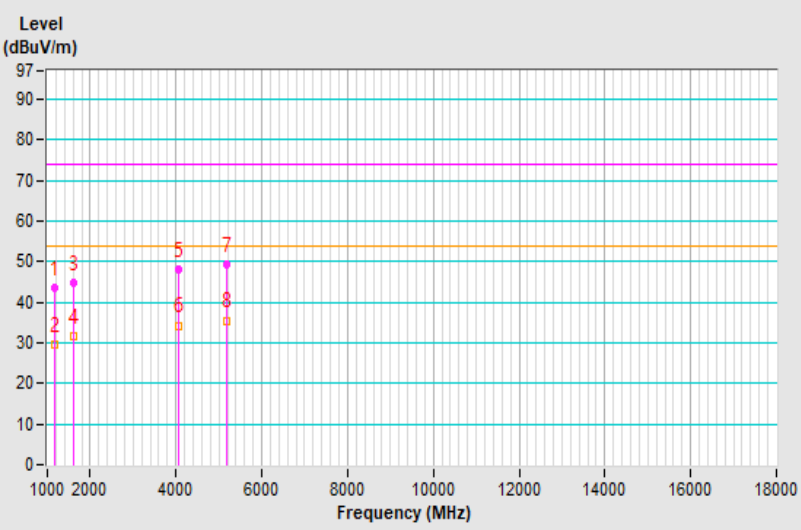
Mode A

Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Jim Lee	**Environmental Conditions**	22°C, 63% RH

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	1158.10	43.61 PK	74.00	-30.39	1.24 H	293	45.28	-1.67
2	1158.10	29.65 AV	54.00	-24.35	1.24 H	293	31.32	-1.67
3	1595.85	44.82 PK	74.00	-29.18	1.00 H	127	46.20	-1.38
4	1595.85	31.49 AV	54.00	-22.51	1.00 H	127	32.87	-1.38
5	4074.45	48.18 PK	74.00	-25.82	1.99 H	65	42.70	5.48
6	4074.45	34.31 AV	54.00	-19.69	1.99 H	65	28.83	5.48
7	5182.85	49.14 PK	74.00	-24.86	1.00 H	162	40.43	8.71
8	5182.85	35.54 AV	54.00	-18.46	1.00 H	162	26.83	8.71

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

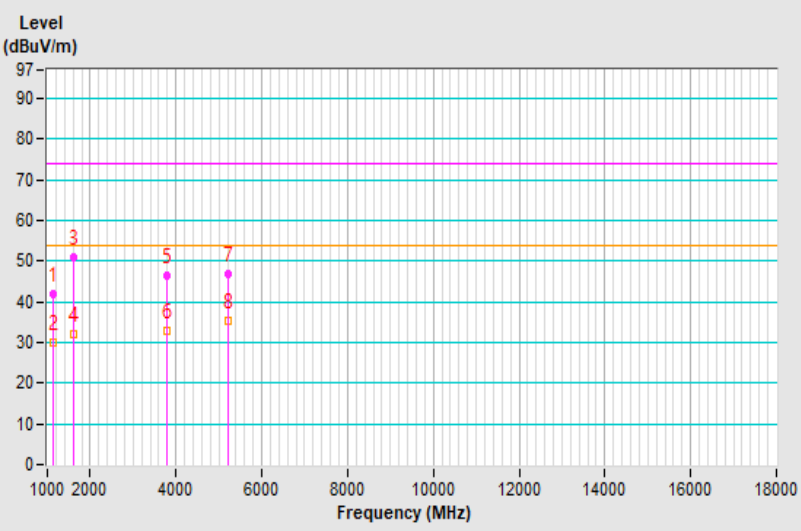


Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Jim Lee	**Environmental Conditions**	22°C, 63% RH

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	1152.15	41.74 PK	74.00	-32.26	1.50 V	26	43.40	-1.66
2	1152.15	29.85 AV	54.00	-24.15	1.50 V	26	31.51	-1.66
3	1595.85	50.85 PK	74.00	-23.15	1.09 V	39	52.23	-1.38
4	1595.85	31.97 AV	54.00	-22.03	1.09 V	39	33.35	-1.38
5	3777.80	46.35 PK	74.00	-27.65	1.26 V	73	41.59	4.76
6	3777.80	32.81 AV	54.00	-21.19	1.26 V	73	28.05	4.76
7	5206.65	46.68 PK	74.00	-27.32	2.00 V	96	37.94	8.74
8	5206.65	35.24 AV	54.00	-18.76	2.00 V	96	26.50	8.74

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

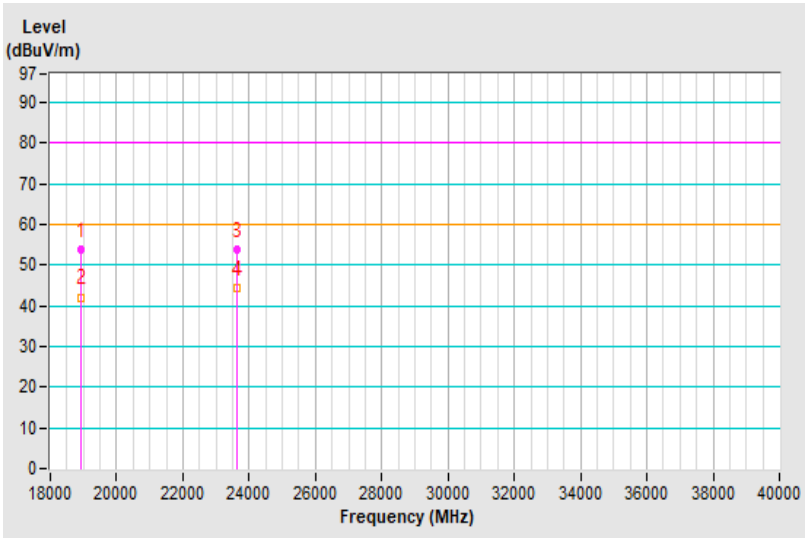


Frequency Range	18GHz ~ 30GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Jim Lee	**Environmental Conditions**	22°C, 63% RH

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	18937.02	53.96 PK	80.00	-26.04	1.00 H	214	58.27	-4.31
2	18937.02	42.10 AV	60.00	-17.90	1.00 H	214	46.41	-4.31
3	23638.02	53.69 PK	80.00	-26.31	1.12 H	148	53.46	0.23
4	23638.02	44.20 AV	60.00	-15.80	1.12 H	148	43.97	0.23

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

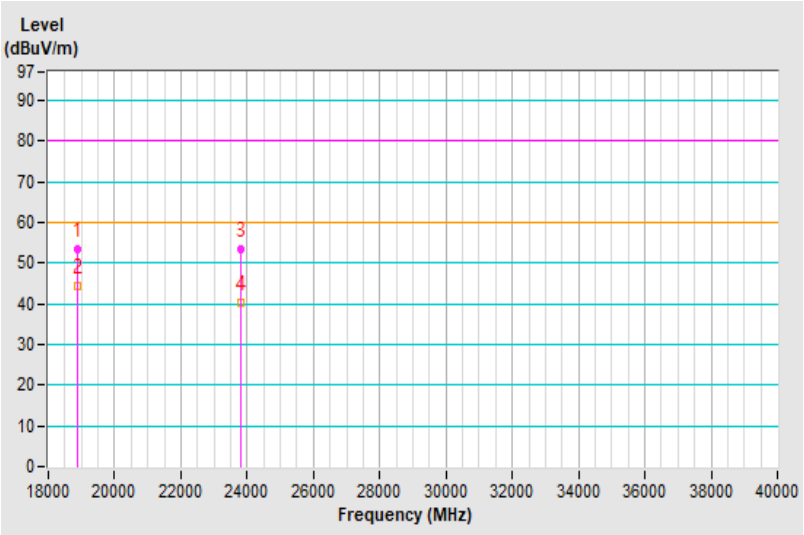


Frequency Range	18GHz ~ 30GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Jim Lee	**Environmental Conditions**	22°C, 63% RH

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	18901.24	53.39 PK	80.00	-26.61	1.00 V	162	57.67	-4.28
2	**18901.24**	**44.30 AV**	**60.00**	**-15.70**	**1.00 V**	**162**	**48.58**	**-4.28**
3	23796.10	53.40 PK	80.00	-26.60	1.00 V	266	53.17	0.23
4	23796.10	40.10 AV	60.00	-19.90	1.00 V	266	39.87	0.23

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



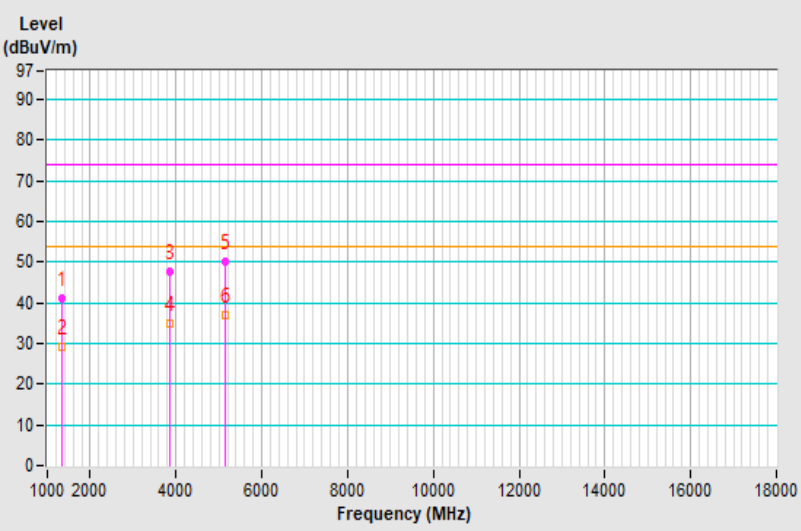
Mode B

Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Fox Chang	**Environmental Conditions**	23°C, 63% RH

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	1325.85	41.14 PK	74.00	-32.86	1.35 H	264	43.05	-1.91
2	1325.85	29.03 AV	54.00	-24.97	1.35 H	264	30.94	-1.91
3	3853.74	47.53 PK	74.00	-26.47	1.57 H	148	40.76	6.77
4	3853.74	34.96 AV	54.00	-19.04	1.57 H	148	28.19	6.77
5	5159.20	50.27 PK	74.00	-23.73	1.00 H	40	39.51	10.76
6	5159.20	37.10 AV	54.00	-16.90	1.00 H	40	26.34	10.76

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

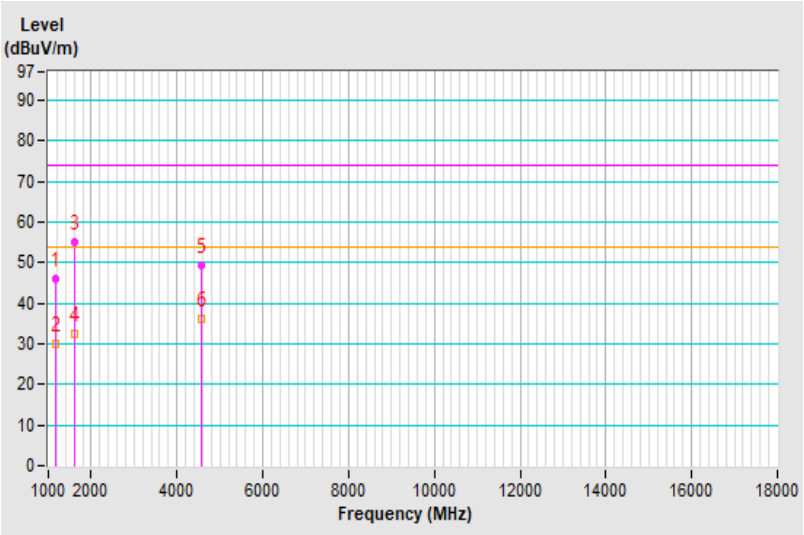


Frequency Range	1GHz ~ 18GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Fox Chang	**Environmental Conditions**	23°C, 63% RH

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	1177.14	46.14 PK	74.00	-27.86	1.16 V	360	48.94	-2.80
2	1177.14	29.88 AV	54.00	-24.12	1.16 V	360	32.68	-2.80
3	1596.07	55.07 PK	74.00	-18.93	1.25 V	140	57.24	-2.17
4	1596.07	32.36 AV	54.00	-21.64	1.25 V	140	34.53	-2.17
5	4567.70	49.32 PK	74.00	-24.68	1.00 V	217	40.68	8.64
6	4567.70	36.12 AV	54.00	-17.88	1.00 V	217	27.48	8.64

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

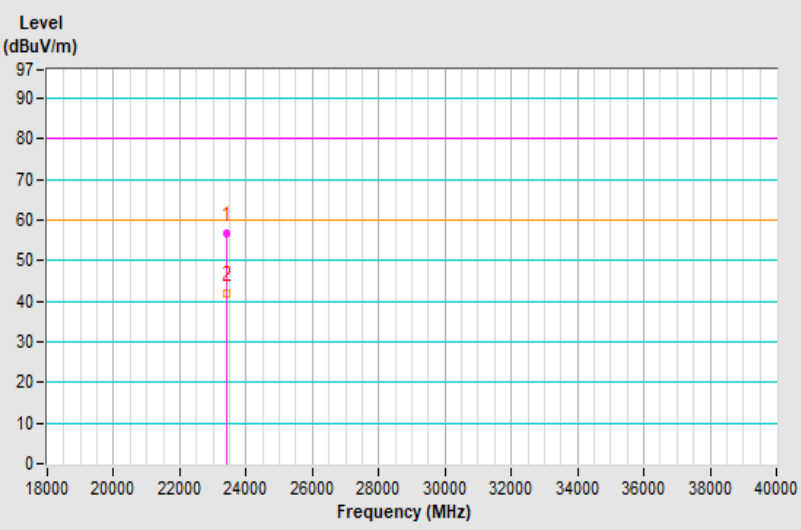


Frequency Range	18GHz ~ 30GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Fox Chang	**Environmental Conditions**	23°C, 63% RH

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	23412.83	56.79 PK	80.00	-23.21	1.00 H	178	49.27	7.52
2	23412.83	41.78 AV	60.00	-18.22	1.00 H	178	34.26	7.52

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

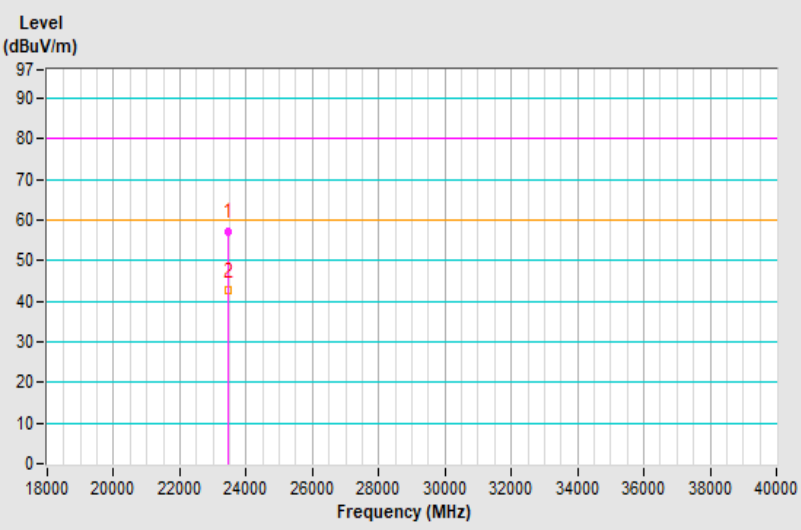


Frequency Range	18GHz ~ 30GHz	**Detector Function & Resolution Bandwidth**	Peak (PK) / Average (AV), 1MHz
Tested By	Fox Chang	**Environmental Conditions**	23°C, 63% RH

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	23436.22	57.33 PK	80.00	-22.67	1.00 V	59	49.76	7.57
2	23436.22	42.65 AV	60.00	-17.35	1.00 V	59	35.08	7.57

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



7 Antenna-conducted Power Measurement

7.1 Limits

Frequency (MHz)	Limits (nW→dBuV)	
30 – 960	2 nW	51.81 dBuV

7.2 Test Instruments

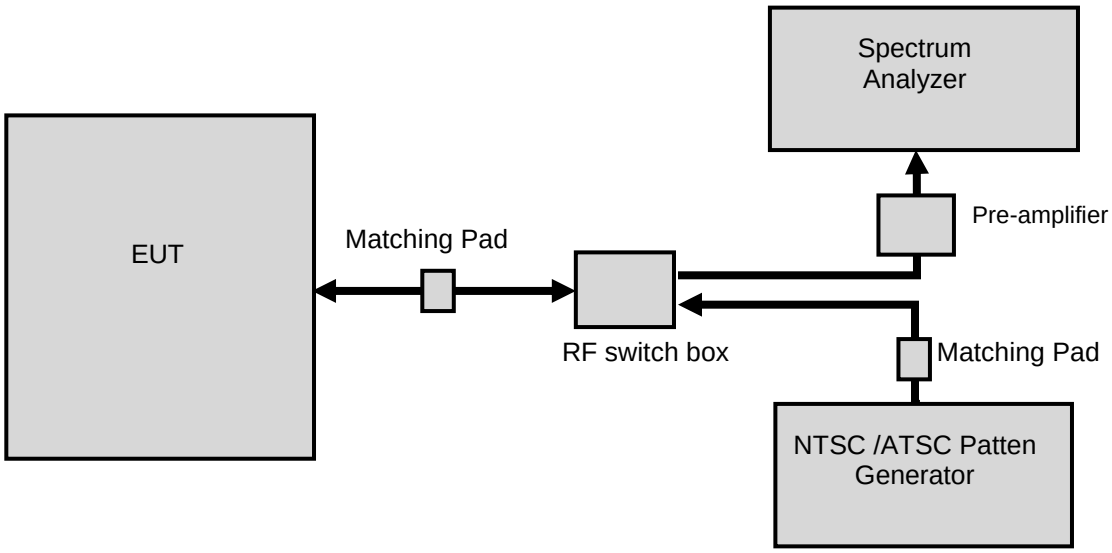
Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver R&S	ESR3	102412	Jan. 22, 2022	Jan. 21, 2023
Matching Pad EMCI	EMCI-3PDSM75BF	N/A	Dec. 20, 2021	Dec. 19, 2022
Pre_Amplifier HP	8447D	2944A08118	Feb. 16, 2022	Feb. 15, 2023
RF Coaxial Cable Wonpro	5D-FB	FCC-APC-01	Dec. 07, 2021	Dec. 06, 2022
Software BVADT	Radiated_V8.7.08	NA	NA	NA
Patten Generator	SMJ100A	101943	Sep.17.2021	Sep.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 Linkou 966 Chamber 2 (CH 7).
3. Tested Date: 2022/4/8.

7.3 Test Arrangement

a. The antenna terminals of the EUT and the auxiliary signal generator(NTSC/ATSC) are connected to the measuring receiver by means of coaxial cables.
b. RF switch box shall be switched to auxiliary signal generator side.
c. The output level of the auxiliary signal generator would be set to give 70dB (μV) at the antenna input of the EUT on 75Ω impedance. (For Analog signal in)
d. The output level of the auxiliary signal generator would be set to give VHF 50 dB (μV) and UHF 54 dB (μV) at the antenna input of the EUT on 75Ω impedance. (For Digital signal in)
e. RF switch box shall be switched to spectrum analyzer side.
f. The measuring receiver is tuned to the test frequency and the disturbance level is measured, taking into account the attenuation between the receiver antenna terminal and the measuring receiver input.
g. The test shall then be repeated with EUT switched off, to check that the measured disturbance voltage is not due to the auxiliary generator.
h. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed on antenna input terminal emission measurement.
i. Conducted emissions were invested over the frequency range from 30MHz to 960MHz using a receiver bandwidth of 120kHz.

Note:
1. Emission level = Reading + Correction Factor
2. Correction factor = Insertion loss + Cable loss – amplifier gain.
3. Margin value = Emission level – Limit value.



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

7.4 Test Results

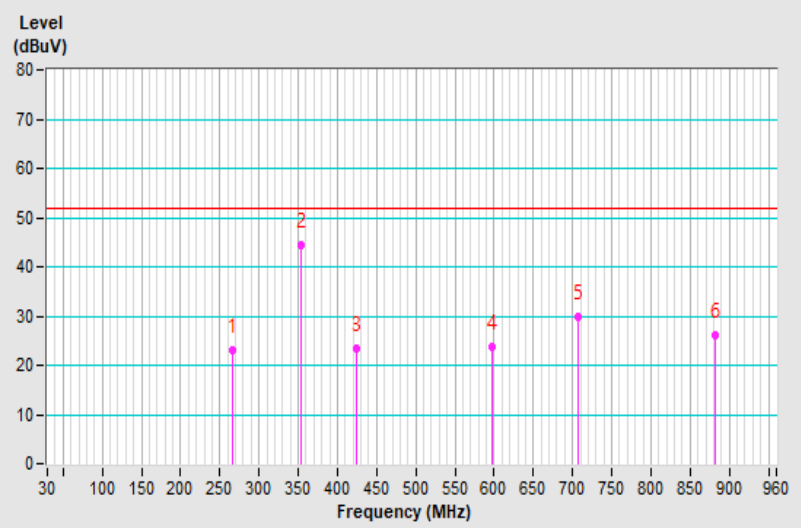
Mode A (FM 88MHz)

Frequency Range	30MHz ~ 960MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	Environmental Conditions	23℃, 75%RH
Tested by	Chin-Wen Wang		

No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB)
1	265.600	22.97	51.81	-28.84	40.06	-17.09
2	**353.950**	**44.37**	**51.81**	**-7.44**	**60.76**	**-16.39**
3	423.700	23.35	51.81	-28.46	39.93	-16.58
4	597.300	23.75	51.81	-28.06	39.76	-16.01
5	707.350	29.90	51.81	-21.91	44.63	-14.73
6	880.950	26.17	51.81	-25.64	38.97	-12.80

Remarks:

1. Emission Level = Reading + Correction Factor
2. Correction Factor = Insertion loss + Cable loss – amplifier gain.
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



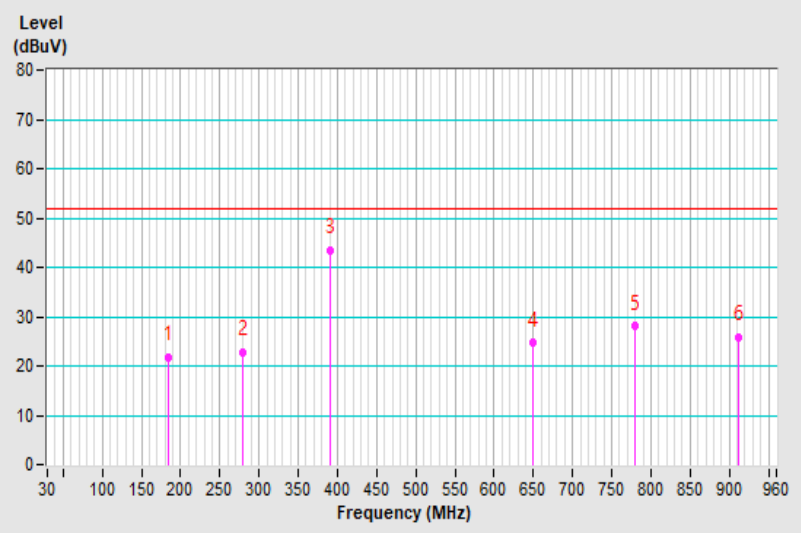
Mode B (FM 98MHz)

Frequency Range	30MHz ~ 960MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	Environmental Conditions	23℃, 75%RH
Tested by	Chin-Wen Wang		

No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB)
1	185.000	21.68	51.81	-30.13	39.71	-18.03
2	279.550	22.71	51.81	-29.10	39.58	-16.87
3	391.150	43.45	51.81	-8.36	59.89	-16.44
4	648.450	24.63	51.81	-27.18	40.11	-15.48
5	780.200	27.97	51.81	-23.84	42.41	-14.44
6	911.950	25.82	51.81	-25.99	38.43	-12.61

Remarks:

1. Emission Level = Reading + Correction Factor
2. Correction Factor = Insertion loss + Cable loss – amplifier gain.
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



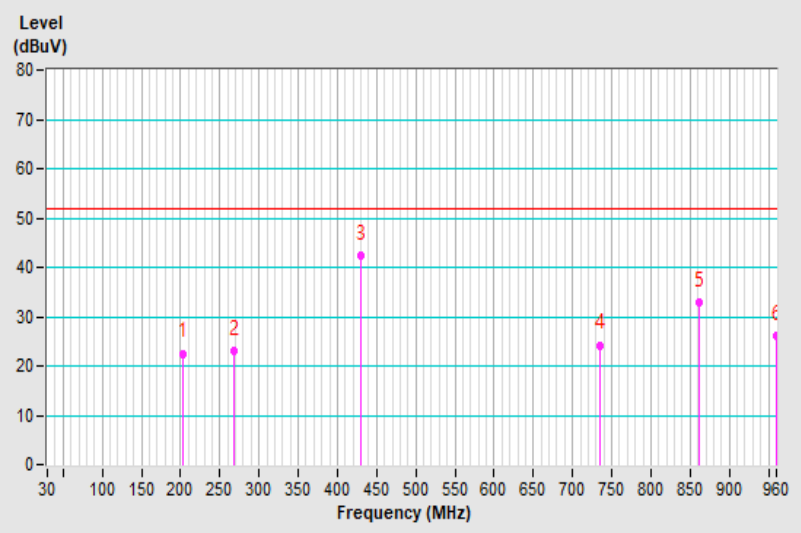
Mode C (FM 108MHz)

Frequency Range	30MHz ~ 960MHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Input Power	12Vdc	Environmental Conditions	23℃, 75%RH
Tested by	Chin-Wen Wang		

No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB)
1	203.600	22.31	51.81	-29.50	40.11	-17.80
2	268.700	22.92	51.81	-28.89	39.98	-17.06
3	429.900	42.22	51.81	-9.59	58.77	-16.55
4	735.250	24.15	51.81	-27.66	38.83	-14.68
5	860.800	32.74	51.81	-19.07	45.70	-12.96
6	960.000	25.99	51.81	-25.82	37.75	-11.76

Remarks:

1. Emission Level = Reading + Correction Factor
2. Correction Factor = Insertion loss + Cable loss – amplifier gain.
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value



8 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 and approved according to ISO/IEC 17025.

If you have any comments, please feel free to contact us at the following:

Lin Kou EMC/RF Lab
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF/Telecom Lab
Tel: 886-3-6668565
Fax: 886-3-6668323

Hwa Ya EMC/RF/Safety Lab
Tel: 886-3-3183232
Fax: 886-3-3270892

Email: service.adt@tw.bureauveritas.com
Web Site: www.bureauveritas-adt.com

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

--- END ---