

TEST REPORT

CERTIFICATE OF CONFORMITY

Standard: 47 CFR FCC Part 15, Subpart B, Class B

ANSI C63.4–2014

ANSI C63.4a–2017

Report No.: FDBZCH-WTW-P23100496 R1

Product: Display Audio

Brand: Panasonic

Model No.: AH2301

FCC ID.: ACJ932AH2301

Received Date: 2023/10/20

Test Date: 2023/10/31 ~ 2023/11/25

Issued Date: 2024/2/23

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: No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kewi Shan Dist., Taoyuan City 33383, Taiwan

FCC Registration / 328930 / TW1050

Designation Number:

Approved by: _____

Leo Hsu

Date: _____

2024/2/23

Leo Hsu / Project Engineer

This test report consists of 43 pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The test results in the report only apply to the tested sample. The test results in this report are traceable to the national or international standards.



Prepared by : Lena Wang / Specialist

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/>, and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

Table of Contents

Release Control Record	3
1 Certificate.....	4
2 Summary of Test Results	5
2.1 Measurement Uncertainty	5
2.2 Supplementary Information	5
3 General Information	6
3.1 Description of EUT	6
3.2 Primary Clock Frequencies of Internal Source.....	6
3.3 Features of EUT	6
3.4 Operating Modes of EUT and Determination of Worst Case Operating Mode	7
3.5 Test Program Used and Operation Descriptions	7
3.6 Connection Diagram of EUT and Peripheral Devices	8
3.7 Configuration of Peripheral Devices and Cable Connections	10
4 Test Instruments	11
4.1 Radiated Emissions up to 1 GHz	11
4.2 Radiated Emissions above 1 GHz.....	12
4.3 Antenna-conducted Power Measurement.....	13
5 Limits of Test Items.....	14
5.1 Radiated Emissions up to 1 GHz	14
5.2 Radiated Emissions above 1 GHz.....	14
5.3 Antenna-conducted Power Measurement.....	14
6 Test Arrangements.....	15
6.1 Radiated Emissions up to 1 GHz	15
6.2 Radiated Emissions above 1 GHz.....	16
6.3 Antenna-conducted Power Measurement.....	17
7 Test Results of Test Item	18
7.1 Radiated Emissions up to 1 GHz	18
7.2 Radiated Emissions above 1 GHz.....	24
7.3 Antenna-conducted Power Measurement.....	36
8 Pictures of Test Arrangements	42
9 Information of the Testing Laboratories	43



Release Control Record

Issue No.	Description	Date Issued
FDBZCH-WTW-P23100496	Original release.	2024/1/23
FDBZCH-WTW-P23100496 R1	Addind FCC ID	2024/2/23

1 Certificate

Product: Display Audio

Brand: Panasonic

Test Model: AH2301

FCC ID: ACJ932AH2301

Sample Status: Engineering Sample

Applicant: Panasonic Corporation of North America.

Test Date: 2023/10/31 ~ 2023/11/25

Standard: 47 CFR FCC Part 15, Subpart B, Class B
ANSI C63.4–2014
ANSI C63.4a–2017

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.

2 Summary of Test Results

The test items that the EUT need to perform in accordance with its interfaces, evaluated functions, are as follows:

Standard / Clause	Test Item	Result	Remark
FCC Part 15.109	Radiated Emissions up to 1 GHz	Pass	Minimum passing Class B margin is -3.05 dB at 350.003 MHz
FCC Part 15.109	Radiated Emissions above 1 GHz	Pass	Minimum passing Class B margin is -15.29 dB at 2853.25 MHz
FCC Part 15.111	Antenna-Conducted Power Test (30MHz ~ 960MHz)	Pass	Minimum passing Class B margin is -6.28 dB at 390.317 MHz

Note: 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 as specified in CISPR 16-4-2:

Measurement	Specification	Expanded Uncertainty (k=2) (±)	Maximum allowable uncertainty (±)
Radiated Emissions up to 1 GHz	30 MHz ~ 1 GHz	5.34 dB	6.3 dB (U_{CISPR})
	1 GHz ~ 6 GHz	4.92 dB	5.2 dB (U_{CISPR})
Radiated Emissions above 1 GHz	6 GHz ~ 18 GHz	4.44 dB	5.5 dB (U_{CISPR})
	18 GHz ~ 40 GHz	4.53 dB	-
Antenna-conducted Power Measurement	30MHz ~ 960MHz	5.57 dB	-

The other instruments specified are routine verified to remain within the calibrated levels, no measurement uncertainty is required to be calculated.

2.2 Supplementary Information

There is not any deviation from the test standards for the test method, and no modifications required for compliance.

3 General Information

3.1 Description of EUT

Product	Display Audio
Brand	Panasonic
Test Model	AH2301
FCC ID	ACJ932AH2301
Sample Status	Engineering Sample
Operating Software	N/A
Equipment Radio Type	Receiver
FM Frequency Band	87.5-108 MHz
Power Supply Rating	12 Vdc (10Vdc ~ 16Vdc)
Accessory Device	N/A
Data Cable Supplied	N/A

3.2 Primary Clock Frequencies of Internal Source

The highest frequency generated or used within the EUT or on which the EUT operates or tunes is 5825MHz, provided by Panasonic Corporation of North America., for detailed internal source, please refer to the manufacturer's specifications.

3.3 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. Please refer to appendix of the report if the applicant has provided additional descriptions of the EUT.

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

The EUT has been pre-tested under following test modes.

Test Condition	
Mode	Radiated Emissions up to 1 GHz
1	USB(Play Music from Flash) + WLAN(5G) + BT LINK + GPS RX
2	USB(with FLASH) + WLAN(5G) + Play Music from BT + GPS RX
3	USB(with FLASH) + WLAN(5G) + Smartphone display from BT + GPS RX
4	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + Camera preview
5	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + FM 88MHz
6	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + FM 98MHz
7	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + FM 108MHz
8	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + DAB 202.928MHz

Note: The worst case is that modes 1, 6 and 8 are shown in bold.

Test modes are presented in the report as below.

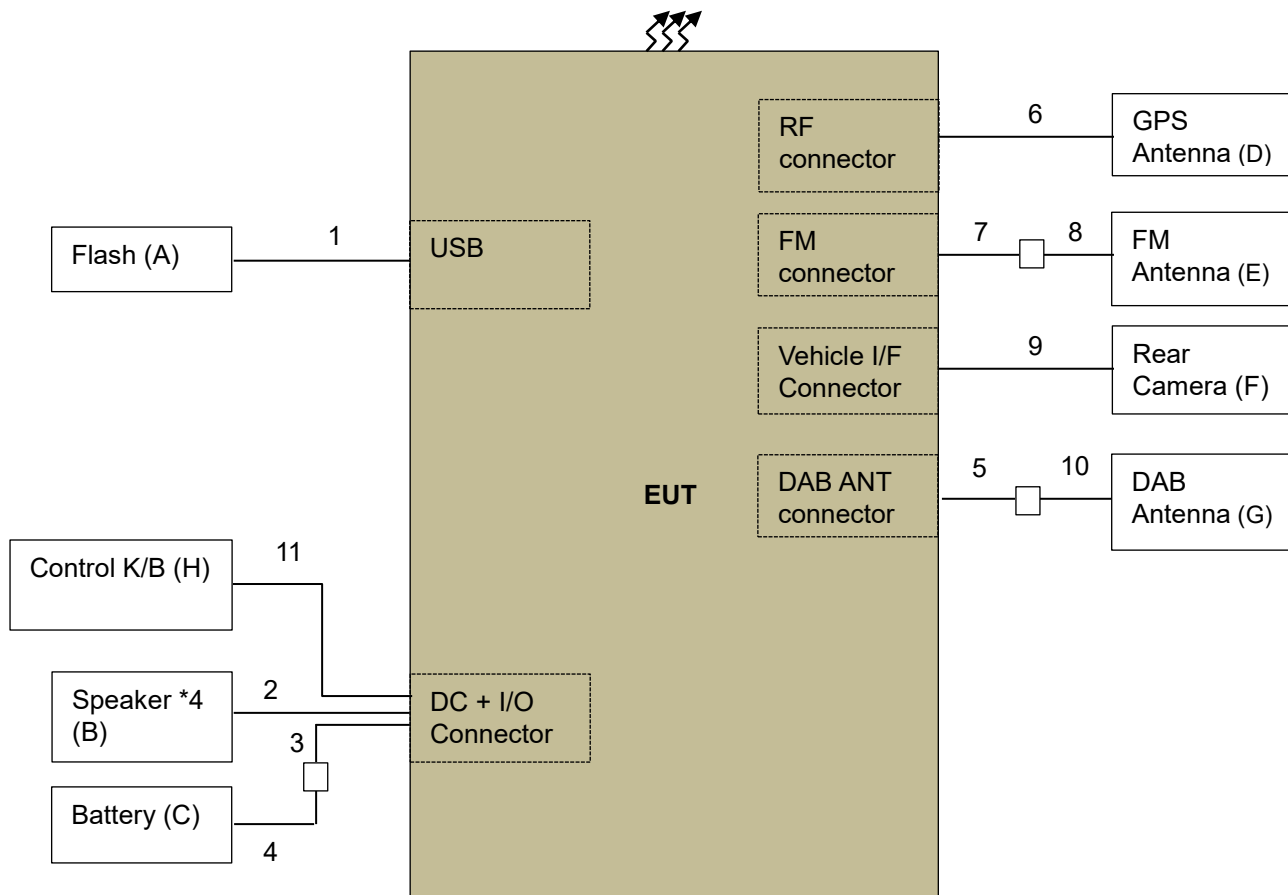
Test Condition	
Mode	Radiated Emissions up to 1 GHz
A	USB(Play Music from Flash) + WLAN(5G) + BT LINK + GPS RX
B	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + FM 98MHz
C	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + DAB 202.928MHz
Mode	Radiated Emissions above 1 GHz
A	USB(Play Music from Flash) + WLAN(5G) + BT LINK + GPS RX
B	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + FM 98MHz
C	USB(with FLASH) + WLAN(5G) + BT LINK + GPS RX + DAB 202.928MHz
Mode	Antenna-conducted power measurement test
A	FM 88MHz + 12 Vdc
B	FM 98MHz + 12 Vdc
C	FM 108MHz + 12 Vdc
D	DAB 174.928MHz + 12 Vdc
E	DAB 202.928MHz + 12 Vdc
F	DAB 229.072MHz + 12 Vdc

3.5 Test Program Used and Operation Descriptions

- The EUT powered by Car Battery.
- EUT GPS/FM/DAB connected to Antenna.
- EUT read USB Flash files, EUT played audio signal to speaker and video signal to Monitor. (Mode A)
- The EUT connected to Pattern Generator, EUT sent 1kHz audio signal to speaker via FM/DAB Antenna.(Mode B, C)
- The EUT communicated data with the GPS simulator.
- The EUT linked with Smart Phone via BT.
- The EUT communicated data with the AP router which acted as a communication partner.

3.6 Connection Diagram of EUT and Peripheral Devices

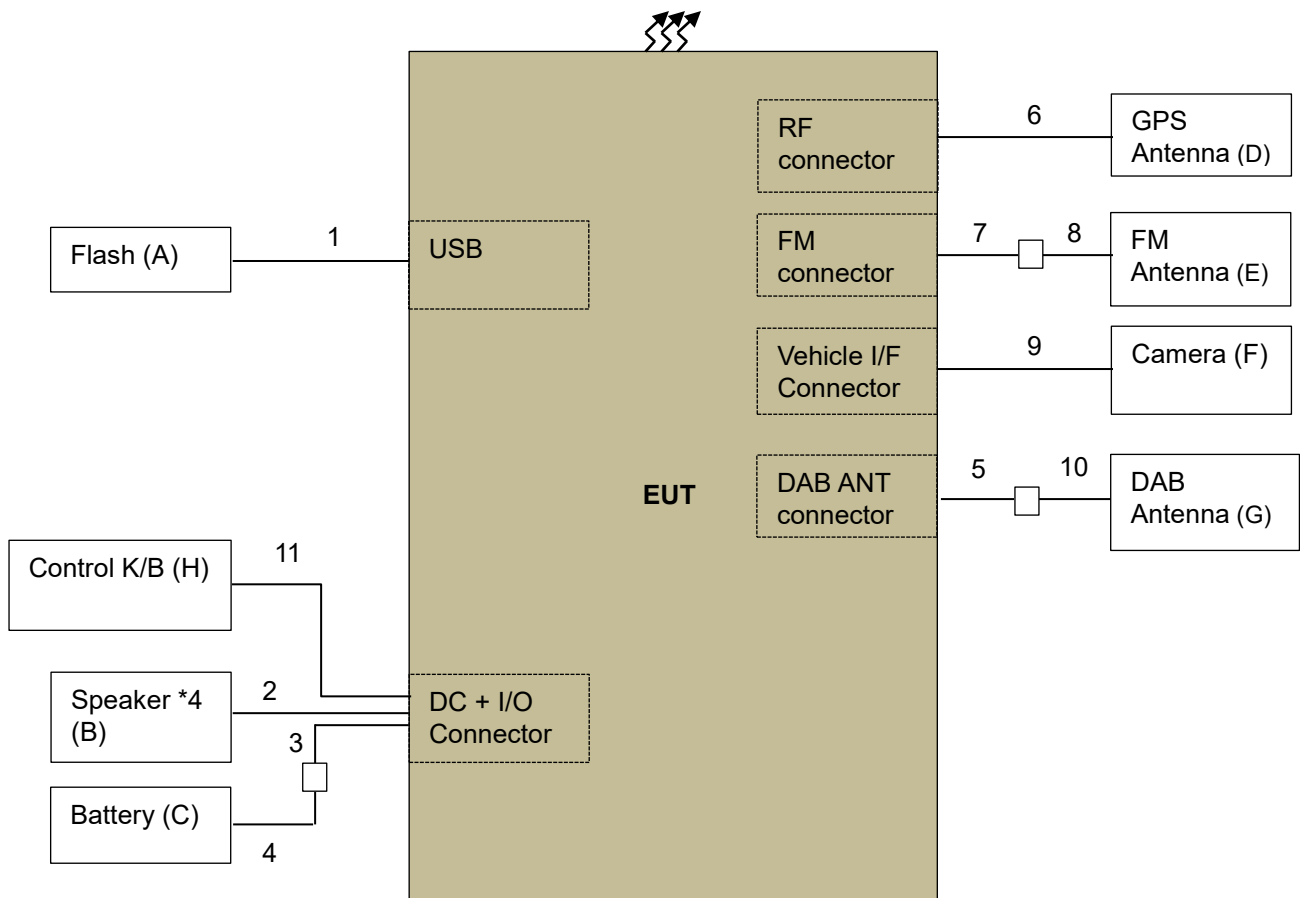
For Radiated Emissions Mode A



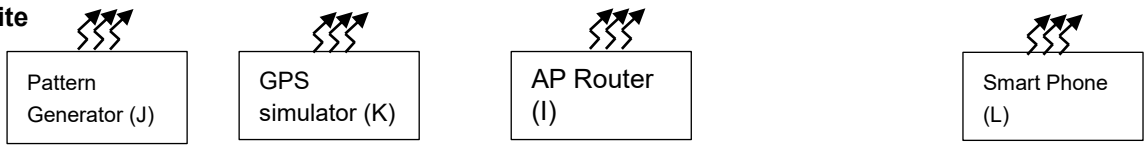
Remote Site



For Radiated Emissions Mode B, C



Remote Site



3.7 Configuration of Peripheral Devices and Cable Connections

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A	Flash	HP	X5000m	N/A	N/A	Provided by Lab
B	Speaker*2	Logitech	THX	N/A	N/A	Provided by Lab
	Speaker*2	N/A	JC125-025	N/A	N/A	Provided by Lab
C	Battery	GS	100D26L	N/A	N/A	Provided by Lab
D	GPS antenna	N/A	N/A	N/A	N/A	Supplied by applicant
E	FM Antenna	N/A	N/A	N/A	N/A	Provided by Lab
F	Rear Camera	N/A	N/A	N/A	N/A	Supplied by applicant
G	DAB antenna	N/A	N/A	N/A	N/A	Provided by Lab
H	Control K/B	N/A	N/A	N/A	N/A	Supplied by applicant
I	AP Router	D-LINK	DIR826L	QBQ91C9000007	N/A	Provided by Lab
J	PatternGenerator	R&S	SMJ100A	101943	N/A	Provided by Lab-For Mode B
	PatternGenerator	LEADER	408NPS	3487385	N/A	Provided by Lab-For Mode C
K	GPS simulator	Spectracom	GSG-54	191121	N/A	Provided by Lab
L	Smartphone	LG	LG-H791	511KPQJ544996	N/A	Provided by Lab

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

4 Test Instruments

The calibration interval of the all test instruments are 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1 Radiated Emissions up to 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower BVADT	AT100	AT93021702	N/A	N/A
Bi_Log Antenna Schwarzbeck	VULB 9168	9168-149	2023/10/13	2024/10/12
Controller BVADT	SC100	SC93021702	N/A	N/A
EMI Test Receiver R&S	ESCI	100412	2023/8/23	2024/8/22
Fixed Attenuator Mini-Circuits	UNAT-5+	PAD-CH2-01	2023/5/7	2024/5/6
Preamplifier Agilent	8447D	2944A10629	2023/3/12	2024/3/11
RF Coaxial Cable TIMES	LMR-400 (18M)	CABLE-CH2-01	2023/5/7	2024/5/6
Software BVADT	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Turn Table BVADT	TT100	TT93021702	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 1. The test site validated date: 2022/11/26 (NSA)
2. The VCCI Site Registration No. is R-20018.
3. Tested Date: 2023/11/7

4.2 Radiated Emissions above 1 GHz

Description Manufacturer	Model No.	Serial No.	Calibrated Date	Calibrated Until
Antenna Tower BVADT	AT100	AT93021702	N/A	N/A
Band Pass Filter Micro-Tronics	BRM17690-01	003	2023/9/2	2024/9/1
	BRM50716-01	G011	2023/9/2	2024/9/1
Controller BVADT	SC100	SC93021702	N/A	N/A
Fix tool for Boresight antenna tower BV	BAF-01	2	N/A	N/A
Fixed Attenuator Mini-Circuits	BW-K3-2W44+	PAD-CH1-03	2023/9/2	2024/9/1
	BW-N4W5+	PAD-CH2-02	2023/1/7	2024/1/6
Horn Antenna ETS-Lindgren	3117	00034126	2023/10/18	2024/10/17
Horn Antenna Schwarzbeck	BBHA 9120D	9120D-405	2022/11/13	2023/11/12
	BBHA 9170	148	2022/11/13	2023/11/12
Preamplifier Agilent	8449B	3008A01961	2023/9/2	2024/9/1
Preamplifier EMCI	EMC012645SE	980338	2023/5/7	2024/5/6
	EMC184045B	980175	2023/9/2	2024/9/1
	EMC184045SE	980610	2023/5/7	2024/5/6
PSA Spectrum Analyzer Agilent	E4446A	MY51100039	2022/12/8	2023/12/7
RF Coaxial Cable ATK+EMC	EM104-SMSM- 600&EM104-SMSM-500	Cable-CH2-02	2023/1/7	2024/1/6
RF Coaxial Cable EMCI	EMC102-KM-KM-1000	170820	2023/1/7	2024/1/6
RF Coaxial Cable Rosnol	K1K50-UP0279-K1K50- 3000	181129-2	2023/1/7	2024/1/6
Software BVADT	ADT_Radiated_V8.7.08	N/A	N/A	N/A
Turn Table BVADT	TT100	TT93021702	N/A	N/A

Notes:

1. The test was performed in HY - 966 chamber 1. The test site validated date: 2023/1/7 (VSWR)
2. The VCCI Site Registration No. is G-10018.
3. Tested Date: 2023/10/31

4.3 Antenna-conducted Power Measurement

Description & Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due
Test Receiver R&S	ESR3	102412	2022/12/21	2023/12/20
Matching Pad EMCI	EMCI-3PDSM75BF	N/A	2022/12/13	2023/12/12
Pre_Amplifier HP	8447D	2944A08118	2023/2/15	2024/2/14
RF Coaxial Cable Wonpro	5D-FB	FCC-APC-01	2022/12/6	2023/12/5
Software BVADT	Radiated_V8.7.08	NA	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 Linkou 966 Chamber 2 (CH 7).
 3. Tested Date: 2023/11/25.

5 Limits of Test Items

5.1 Radiated Emissions up to 1 GHz

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

Radiated Emissions Limits at 10 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B, Class A	FCC 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	39.1	29.5	40	30
88-216	43.5	33.1		
216-230	46.4	35.6		
230-960				
960-1000	49.5	43.5	47	37

Radiated Emissions Limits at 3 meters (dB μ V/m)				
Frequencies (MHz)	FCC 15B, Class A	FCC 15B, Class B	CISPR 22, Class A	CISPR 22, Class B
30-88	49.5	40.0	50.5	40.5
88-216	54.0	43.5		
216-230	56.9	46.0		
230-960				
960-1000	60.0	54.0	57.5	47.5

Notes: 1. The lower limit shall apply at the transition frequencies.

5.2 Radiated Emissions above 1 GHz

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

Radiated Emissions Limits at 3 meters (dB μ V/m)		
Frequency range	Class A	Class B
Above 1GHz	Avg: 60 Peak: 80	Avg: 54 Peak: 74

Notes: 1. These limit levels apply for a measurement distance of 3 m. If using a different measurement distance, the measured levels shall be extrapolated to the 3 m limit distance using a factor of 20 dB per decade of distance. The measurement distance shall place the measurement antenna in the far field of the ITE or digital apparatus under test.

5.3 Antenna-conducted Power Measurement

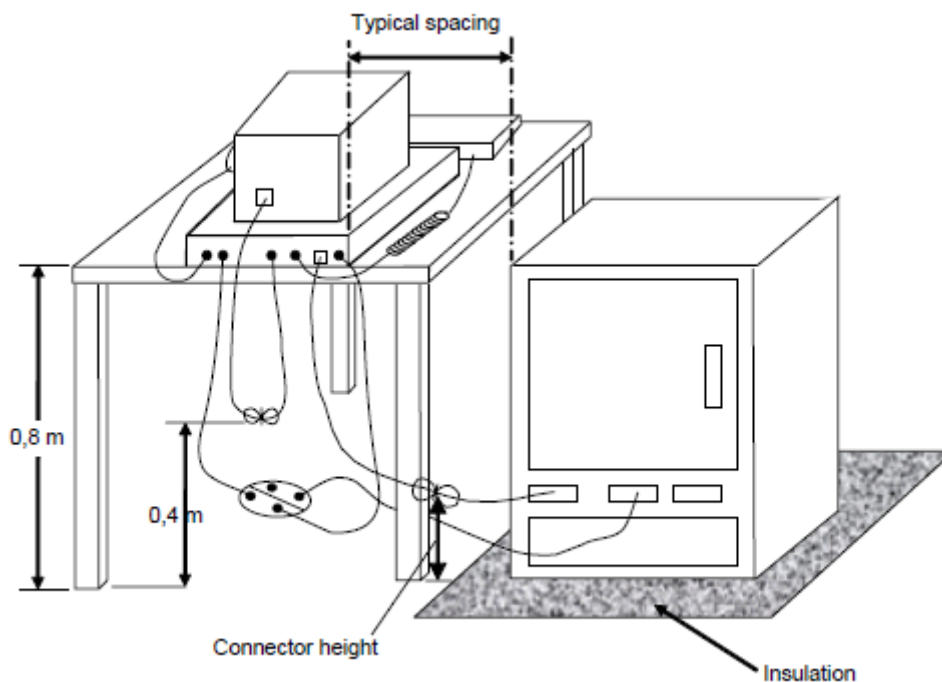
Frequency (MHz)	Limits	
	(nW \rightarrow dB μ V)	
30 – 960	2 nW	51.81 dB μ V

6 Test Arrangements

6.1 Radiated Emissions up to 1 GHz

- For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is up to 1 GHz.

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

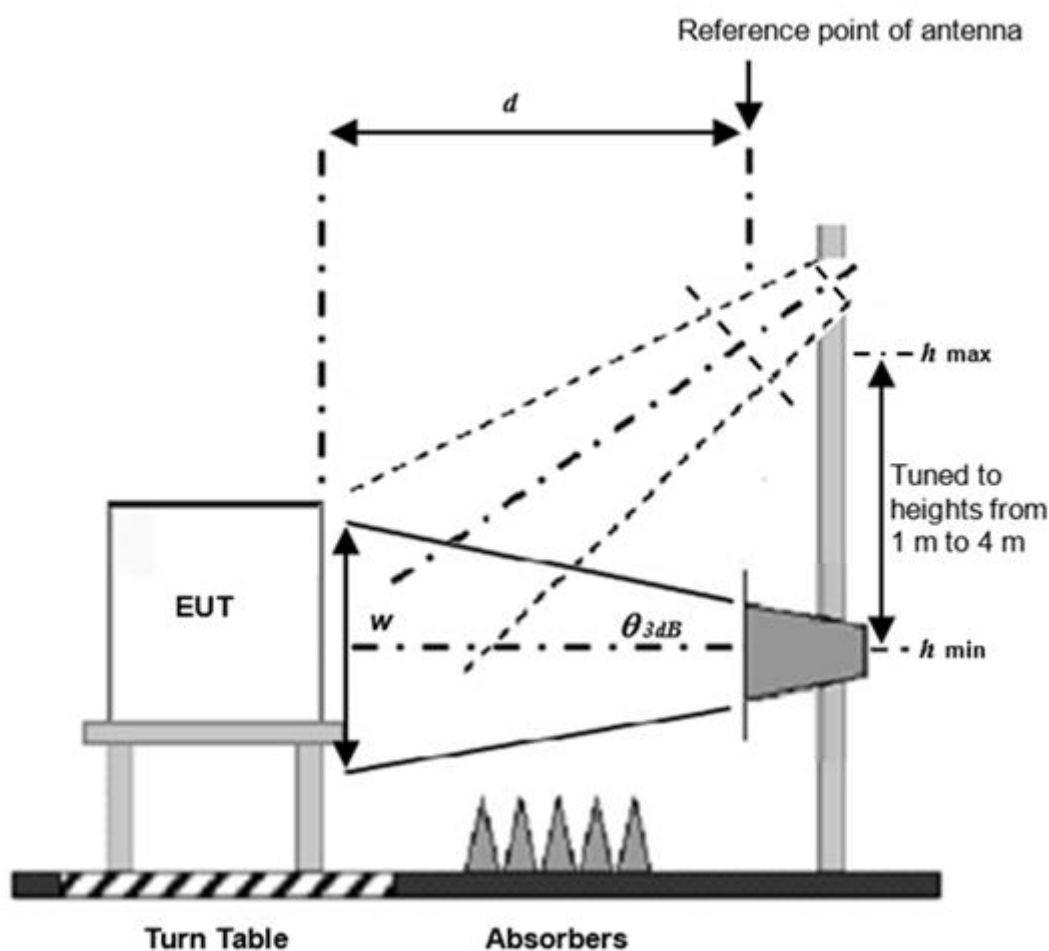


For the actual test configuration, please refer to the related Item – Photographs of the Test Configuration.

6.2 Radiated Emissions above 1 GHz

- For the table-top EUT is placed on a 0.8 meter to the top of rotating table; for the floor standing EUT shall be insulated (by insulation of 12 mm) from the horizontal reference ground plane. The rotating table is rotated 360 degrees to determine the position of the highest radiation. If the equipment requires a dedicated ground connection, this shall be provided and bonded to the RGP.
- The EUT was set $d = 3$ meters for 1 GHz to 18 GHz and $d = 1.5$ meters for 18 GHz to 40 GHz away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The spectrum analyzer system was set to peak and average detects 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.



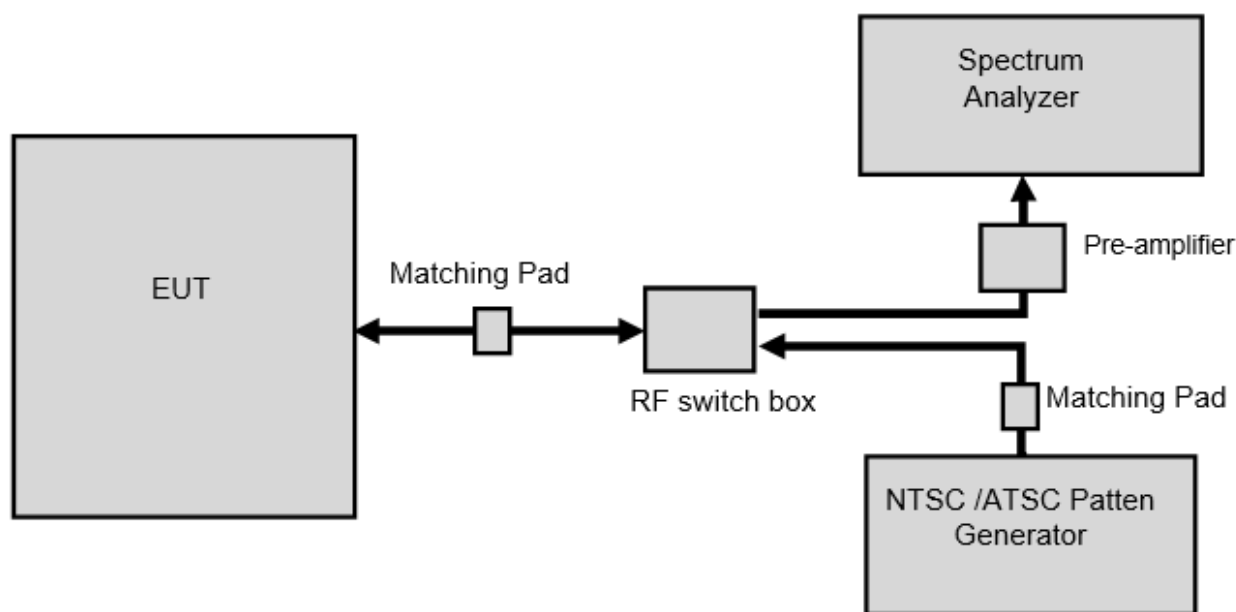
For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

6.3 Antenna-conducted Power Measurement

- 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 investigated 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 Test Results of Test Item

7.1 Radiated Emissions up to 1 GHz

Mode A

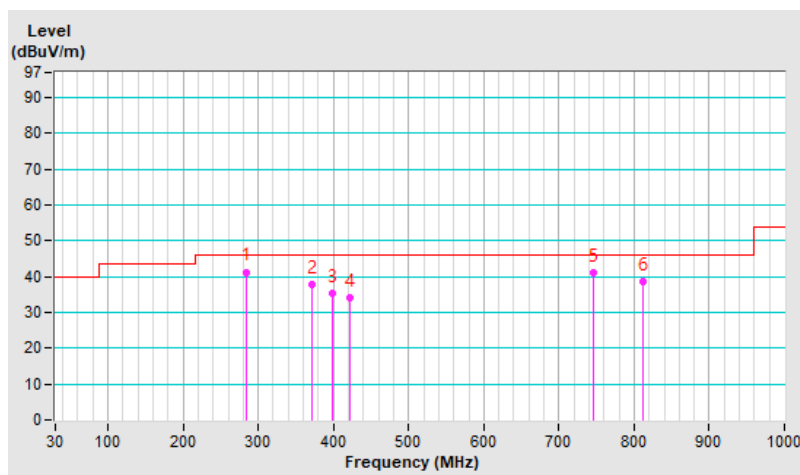
Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	25°C, 75% RH
Tested By	Jim Lee		

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	284.140	41.31 QP	46.00	-4.69	1.00 H	94	48.98	-7.67
2	371.440	37.87 QP	46.00	-8.13	1.00 H	211	43.77	-5.90
3	398.600	35.48 QP	46.00	-10.52	2.00 H	73	41.22	-5.74
4	421.880	34.13 QP	46.00	-11.87	1.00 H	323	39.27	-5.14
5	745.860	41.13 QP	46.00	-4.87	1.00 H	131	39.57	1.56
6	811.820	38.72 QP	46.00	-7.28	2.00 H	2	36.18	2.54

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

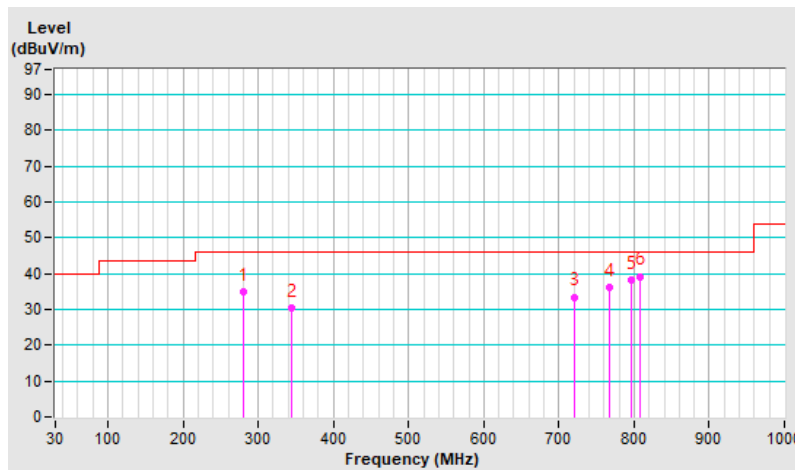


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	25°C, 75% RH
Tested By	Jim Lee		

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	280.260	34.75 QP	46.00	-11.25	2.00 V	360	42.50	-7.75
2	344.280	30.25 QP	46.00	-15.75	1.50 V	204	36.92	-6.67
3	720.640	33.46 QP	46.00	-12.54	1.00 V	360	32.76	0.70
4	767.200	36.10 QP	46.00	-9.90	1.00 V	346	34.19	1.91
5	796.300	38.07 QP	46.00	-7.93	3.00 V	140	35.84	2.23
6	807.940	39.23 QP	46.00	-6.77	2.50 V	2	36.80	2.43

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



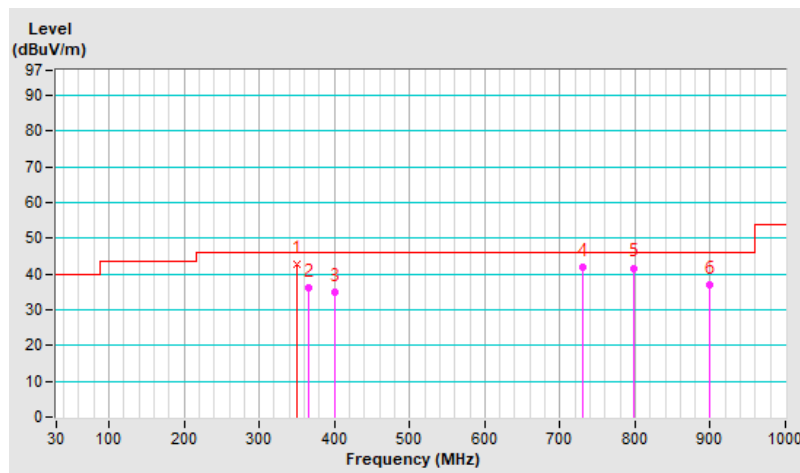
Mode B

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	27°C, 66% RH
Tested By	Scott Yang		

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	350.003	42.61 QP	46.00	-3.39	1.00 H	297	49.24	-6.63
2	366.040	36.03 QP	46.00	-9.97	2.50 H	77	42.07	-6.04
3	399.635	35.07 QP	46.00	-10.93	3.00 H	239	40.79	-5.72
4	730.340	41.73 QP	46.00	-4.27	3.00 H	328	40.57	1.16
5	798.014	41.70 QP	46.00	-4.30	1.00 H	360	39.44	2.26
6	900.025	37.02 QP	46.00	-8.98	1.00 H	303	33.43	3.59

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

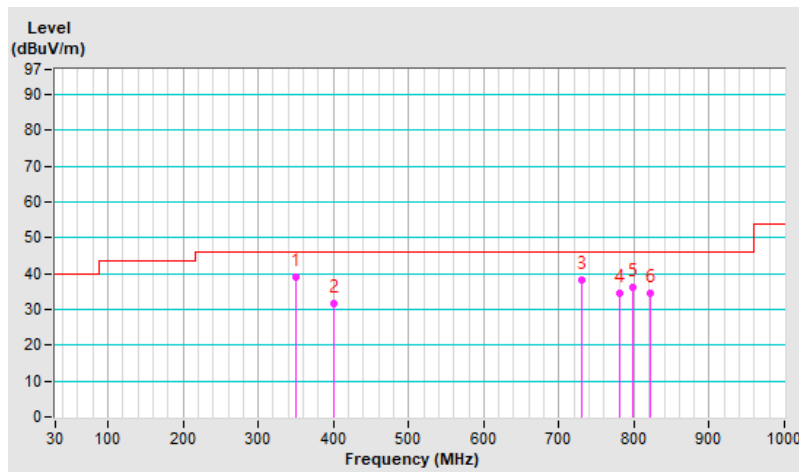


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	27°C, 66% RH
Tested By	Scott Yang		

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	350.003	38.92 QP	46.00	-7.08	1.00 V	289	45.55	-6.63
2	399.635	31.45 QP	46.00	-14.55	1.50 V	16	37.17	-5.72
3	730.631	38.21 QP	46.00	-7.79	1.00 V	111	37.04	1.17
4	780.909	34.66 QP	46.00	-11.34	1.50 V	338	32.57	2.09
5	798.014	36.02 QP	46.00	-9.98	2.00 V	360	33.76	2.26
6	820.712	34.58 QP	46.00	-11.42	2.00 V	139	31.79	2.79

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



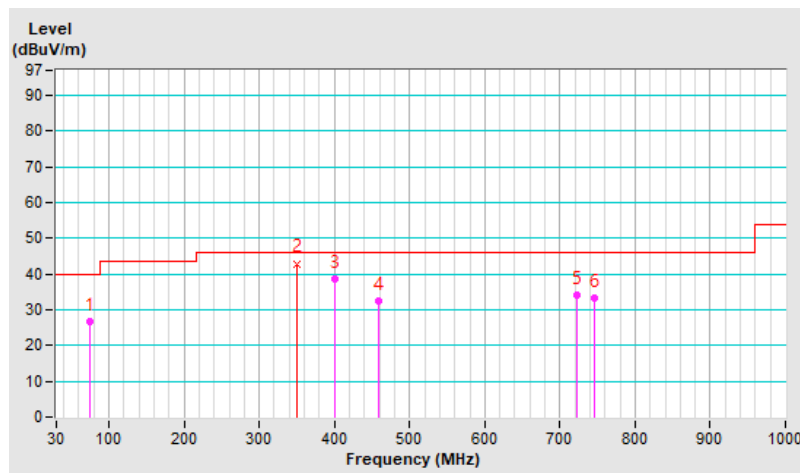
Mode C

Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	27°C, 66% RH
Tested By	Scott Yang		

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	73.715	26.59 QP	40.00	-13.41	3.00 H	89	38.41	-11.82
2	350.003	42.95 QP	46.00	-3.05	1.00 H	214	49.58	-6.63
3	399.635	38.72 QP	46.00	-7.28	1.00 H	240	44.44	-5.72
4	457.932	32.56 QP	46.00	-13.44	2.00 H	8	36.91	-4.35
5	722.321	34.16 QP	46.00	-11.84	1.50 H	345	33.36	0.80
6	745.666	33.30 QP	46.00	-12.70	1.00 H	249	31.75	1.55

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

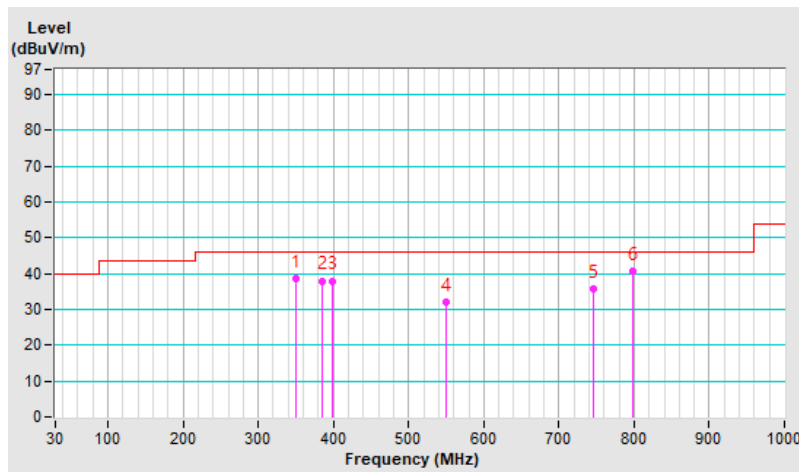


Frequency Range	30 MHz ~ 1 GHz	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120 kHz
Input Power	12 Vdc	Environmental Conditions	27°C, 66% RH
Tested By	Scott Yang		

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	350.003	38.52 QP	46.00	-7.48	1.50 V	308	45.15	-6.63
2	385.473	38.00 QP	46.00	-8.00	1.50 V	165	43.93	-5.93
3	398.147	38.02 QP	46.00	-7.98	1.50 V	165	43.76	-5.74
4	550.017	32.17 QP	46.00	-13.83	1.50 V	334	35.03	-2.86
5	745.504	35.85 QP	46.00	-10.15	1.00 V	36	34.30	1.55
6	798.014	40.54 QP	46.00	-5.46	1.00 V	289	38.28	2.26

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



7.2 Radiated Emissions above 1 GHz

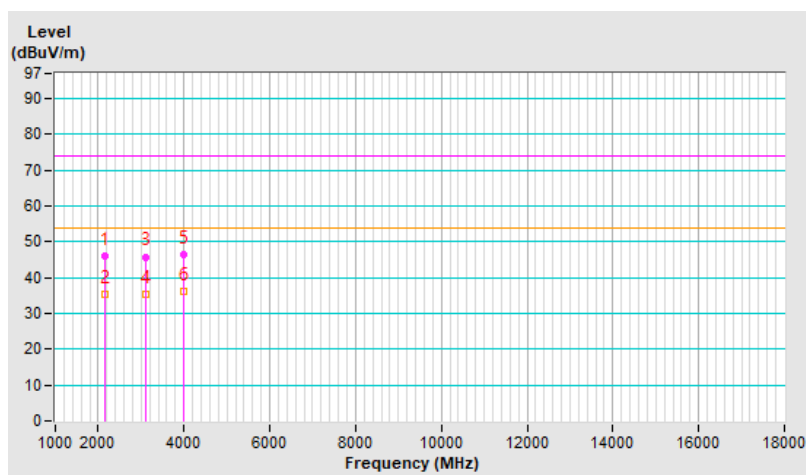
Mode A

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	2154.93	46.15 PK	74.00	-27.85	1.00 H	214	45.43	0.72
2	2154.93	35.47 AV	54.00	-18.53	1.00 H	214	34.75	0.72
3	3118.18	45.77 PK	74.00	-28.23	1.50 H	360	43.37	2.40
4	3118.18	35.25 AV	54.00	-18.75	1.50 H	360	32.85	2.40
5	4008.79	46.41 PK	74.00	-27.59	1.50 H	316	41.83	4.58
6	4008.79	36.02 AV	54.00	-17.98	1.50 H	316	31.44	4.58

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

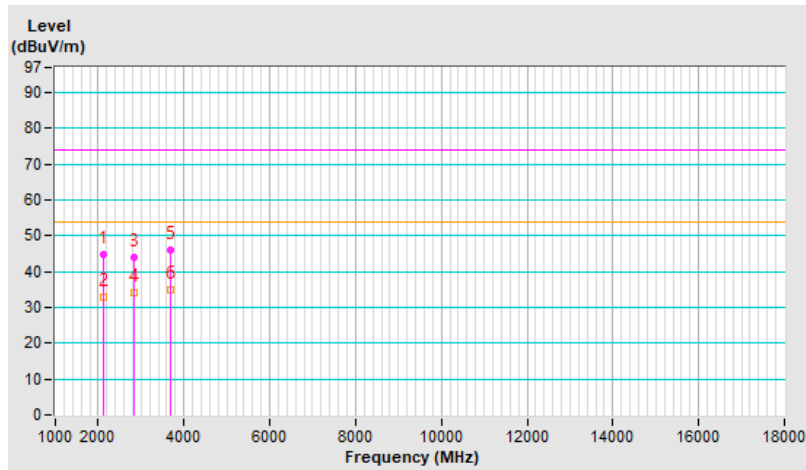


Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	2116.47	44.76 PK	74.00	-29.24	2.00 V	203	44.54	0.22
2	2116.47	32.69 AV	54.00	-21.31	2.00 V	203	32.47	0.22
3	2823.95	44.10 PK	74.00	-29.90	1.00 V	304	42.26	1.84
4	2823.95	34.13 AV	54.00	-19.87	1.00 V	304	32.29	1.84
5	3687.71	45.91 PK	74.00	-28.09	1.50 V	249	42.26	3.65
6	3687.71	34.96 AV	54.00	-19.04	1.50 V	249	31.31	3.65

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

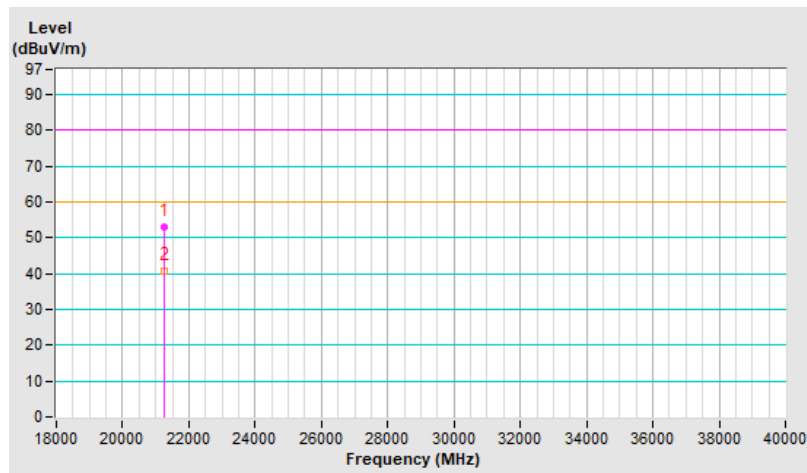


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21235.12	53.02 PK	80.00	-26.98	1.00 H	98	46.26	6.76
2	21235.12	40.65 AV	60.00	-19.35	1.00 H	98	33.89	6.76

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

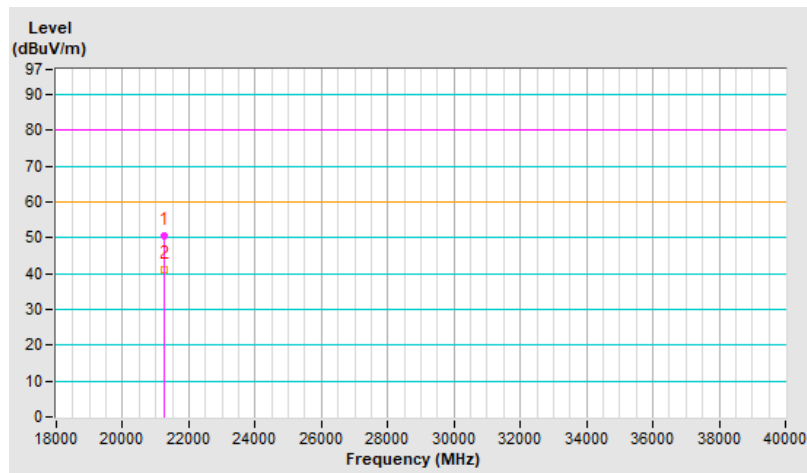


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21234.96	50.63 PK	80.00	-29.37	1.00 V	221	43.88	6.75
2	21234.96	41.03 AV	60.00	-18.97	1.00 V	221	34.28	6.75

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



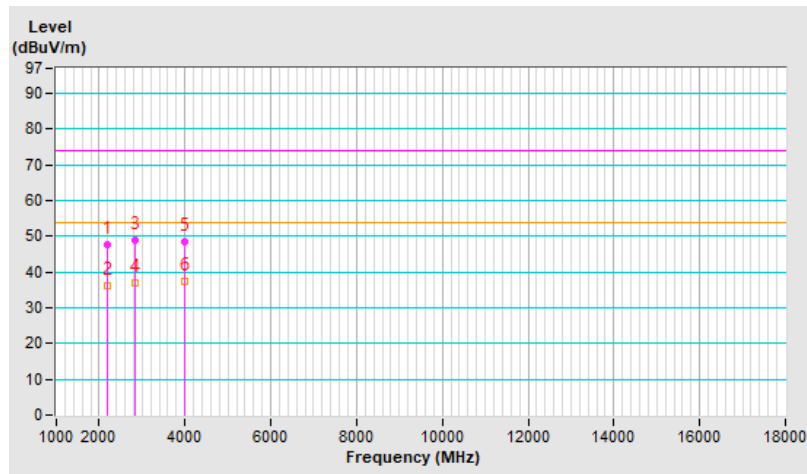
Mode B

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	2183.62	47.70 PK	74.00	-26.30	1.00 H	213	46.77	0.93
2	2183.62	36.12 AV	54.00	-17.88	1.00 H	213	35.19	0.93
3	2842.88	48.99 PK	74.00	-25.01	2.00 H	360	47.10	1.89
4	2842.88	36.87 AV	54.00	-17.13	2.00 H	360	34.98	1.89
5	3990.48	48.48 PK	74.00	-25.52	2.00 H	337	43.94	4.54
6	3990.48	37.26 AV	54.00	-16.74	2.00 H	337	32.72	4.54

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

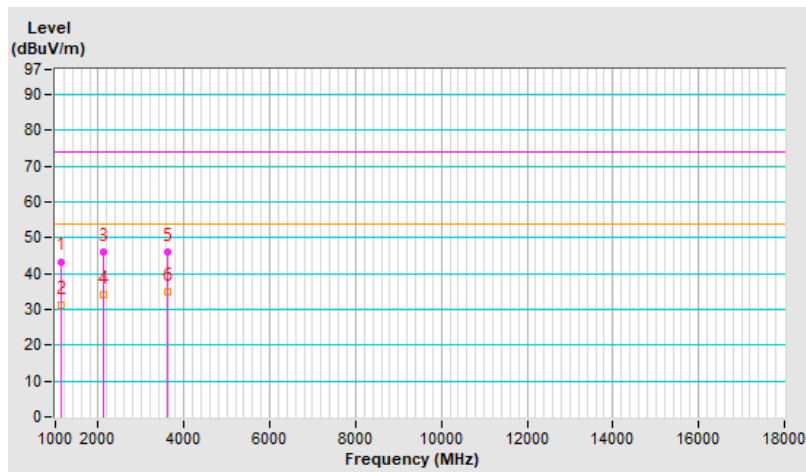


Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	1147.11	43.33 PK	74.00	-30.67	1.50 V	311	47.88	-4.55
2	1147.11	31.06 AV	54.00	-22.94	1.50 V	311	35.61	-4.55
3	2118.91	46.09 PK	74.00	-27.91	2.00 V	195	45.84	0.25
4	2118.91	34.11 AV	54.00	-19.89	2.00 V	195	33.86	0.25
5	3631.55	46.02 PK	74.00	-27.98	3.00 V	79	42.46	3.56
6	3631.55	34.79 AV	54.00	-19.21	3.00 V	79	31.23	3.56

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

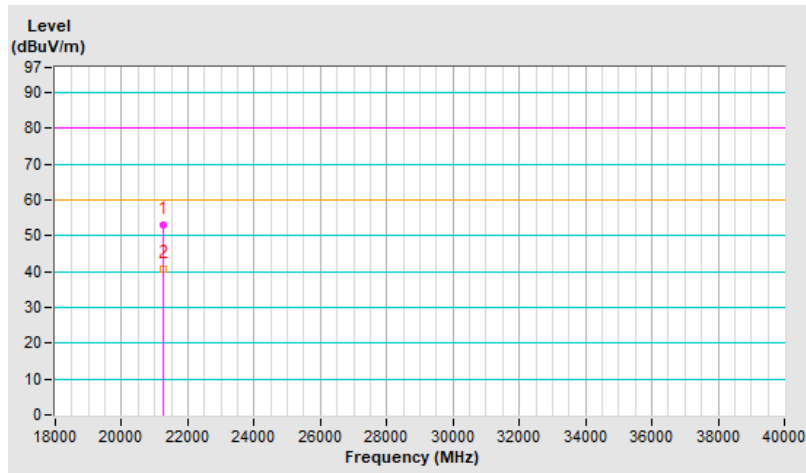


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21235.01	52.98 PK	80.00	-27.02	1.00 H	109	46.22	6.76
2	21235.01	40.74 AV	60.00	-19.26	1.00 H	109	33.98	6.76

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

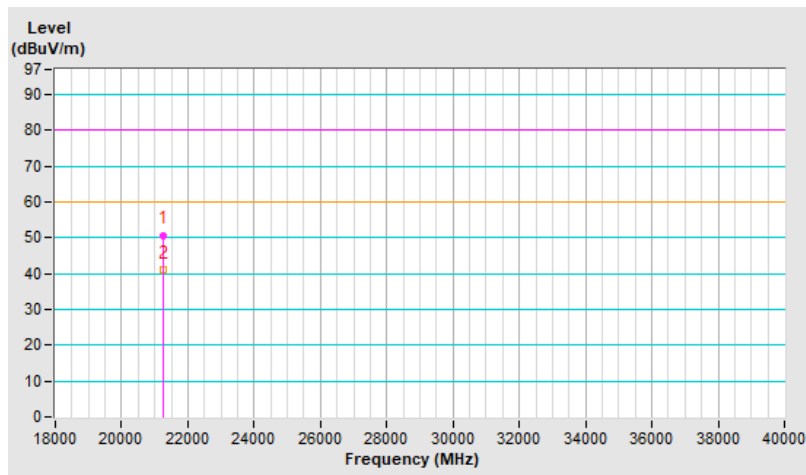


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21234.98	50.74 PK	80.00	-29.26	1.00 V	209	43.99	6.75
2	21234.98	41.06 AV	60.00	-18.94	1.00 V	209	34.31	6.75

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



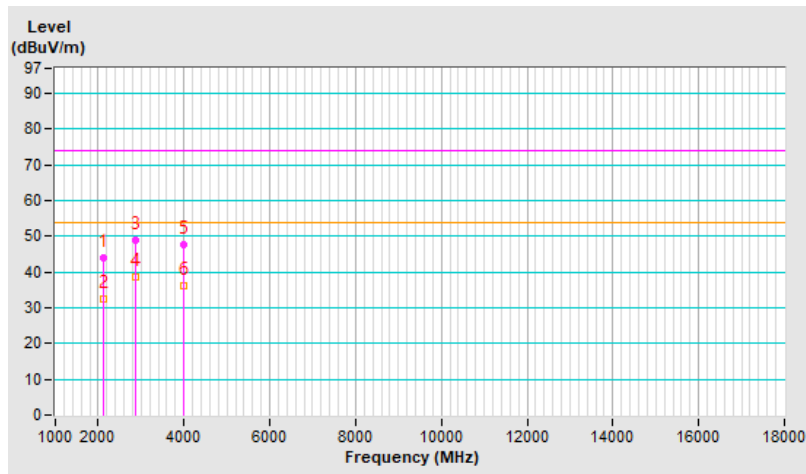
Mode C

Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	2118.91	43.95 PK	74.00	-30.05	3.00 H	20	43.70	0.25
2	2118.91	32.51 AV	54.00	-21.49	3.00 H	20	32.26	0.25
3	2853.25	48.98 PK	74.00	-25.02	2.00 H	360	47.06	1.92
4	2853.25	38.71 AV	54.00	-15.29	2.00 H	360	36.79	1.92
5	3989.87	47.52 PK	74.00	-26.48	3.00 H	26	42.99	4.53
6	3989.87	36.15 AV	54.00	-17.85	3.00 H	26	31.62	4.53

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

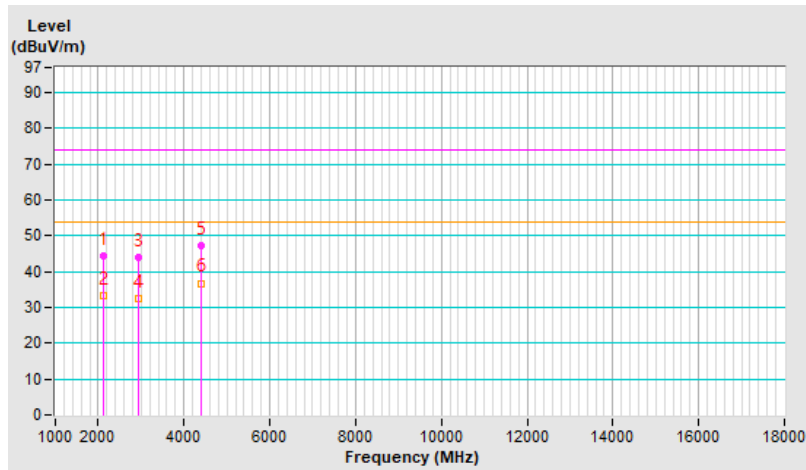


Frequency Range	1 GHz ~ 18 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	2118.91	44.51 PK	74.00	-29.49	2.00 V	203	44.26	0.25
2	2118.91	33.26 AV	54.00	-20.74	2.00 V	203	33.01	0.25
3	2936.88	43.92 PK	74.00	-30.08	3.00 V	360	41.86	2.06
4	2936.88	32.49 AV	54.00	-21.51	3.00 V	360	30.43	2.06
5	4409.23	47.12 PK	74.00	-26.88	1.50 V	219	41.50	5.62
6	4409.23	36.74 AV	54.00	-17.26	1.50 V	219	31.12	5.62

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

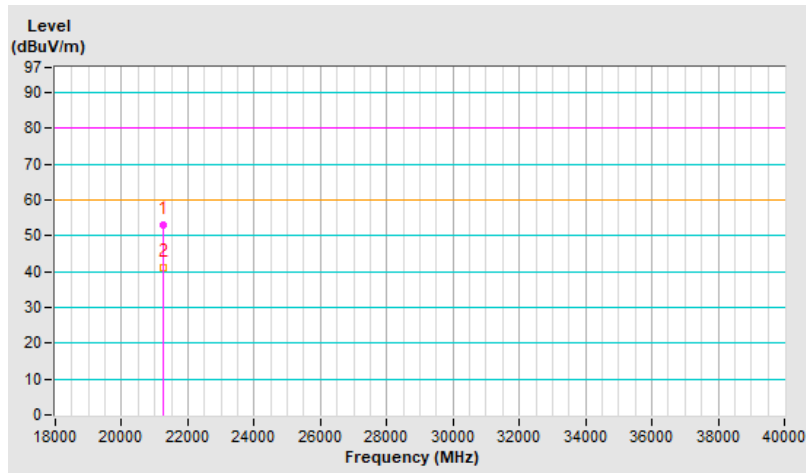


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21235.03	53.15 PK	80.00	-26.85	1.00 H	95	46.39	6.76
2	21235.03	41.03 AV	60.00	-18.97	1.00 H	95	34.27	6.76

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.

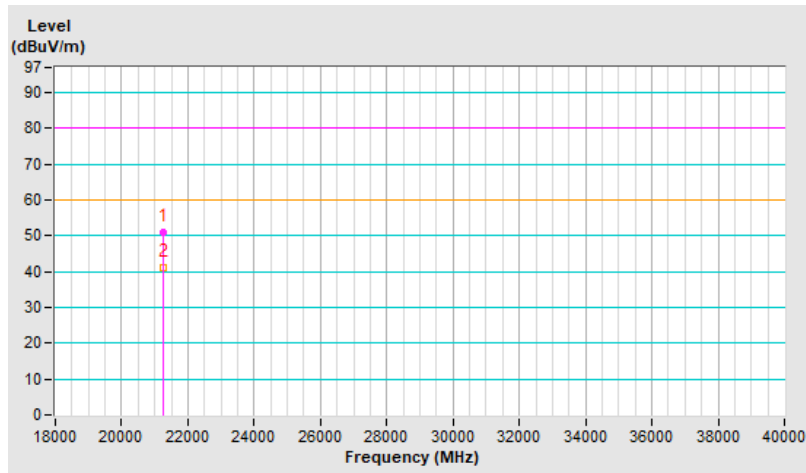


Frequency Range	18 GHz ~ 40 GHz	Detector Function & Resolution Bandwidth	Peak (PK) / Average (AV), 1MHz
Input Power	12 Vdc	Environmental Conditions	29°C, 70% RH
Tested By	Scott Yang		

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	21235.01	50.91 PK	80.00	-29.09	1.00 V	216	44.15	6.76
2	21235.01	41.07 AV	60.00	-18.93	1.00 V	216	34.31	6.76

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. Margin value = Emission level – Limit value
4. The other emission levels were very low against the limit.



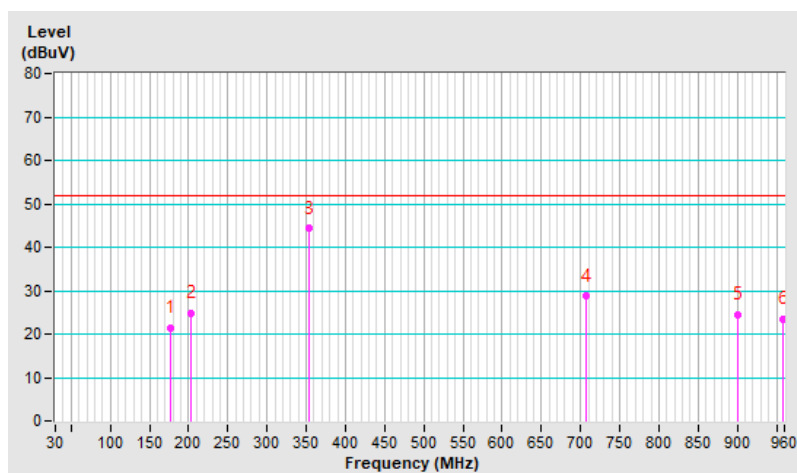
7.3 Antenna-conducted Power Measurement

Mode A

Test Mode	FM 88MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	176.815	21.29 QP	51.81	-30.52	39.73	-18.44
2	203.180	24.87 QP	51.81	-26.94	43.00	-18.13
3	353.613	44.32 QP	51.81	-7.49	61.02	-16.70
4	707.210	28.72 QP	51.81	-23.09	43.67	-14.95
5	900.033	24.56 QP	51.81	-27.25	37.50	-12.94
6	958.449	23.49 QP	51.81	-28.32	35.95	-12.46

Remarks: The other emission levels were very low against the limit.

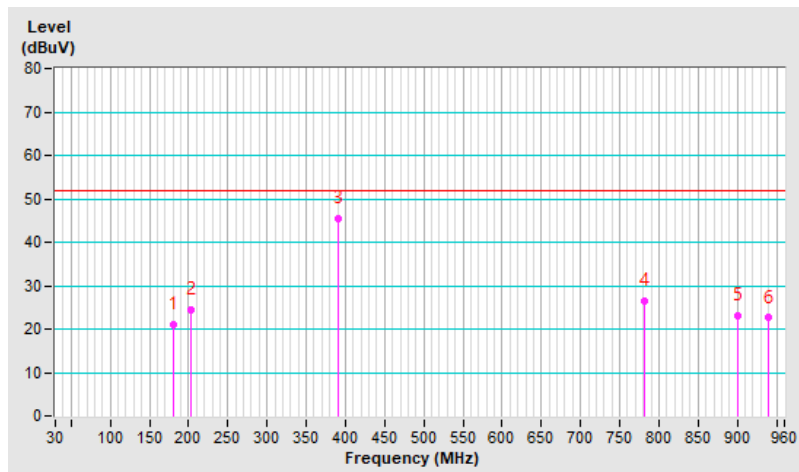


Mode B

Test Mode	FM 98MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	179.917	20.95 QP	51.81	-30.86	39.37	-18.42
2	203.180	24.53 QP	51.81	-27.28	42.66	-18.13
3	390.317	45.53 QP	51.81	-6.28	62.31	-16.78
4	781.134	26.50 QP	51.81	-25.31	41.07	-14.57
5	900.033	22.98 QP	51.81	-28.83	35.92	-12.94
6	940.356	22.58 QP	51.81	-29.23	35.13	-12.55

Remarks: The other emission levels were very low against the limit.

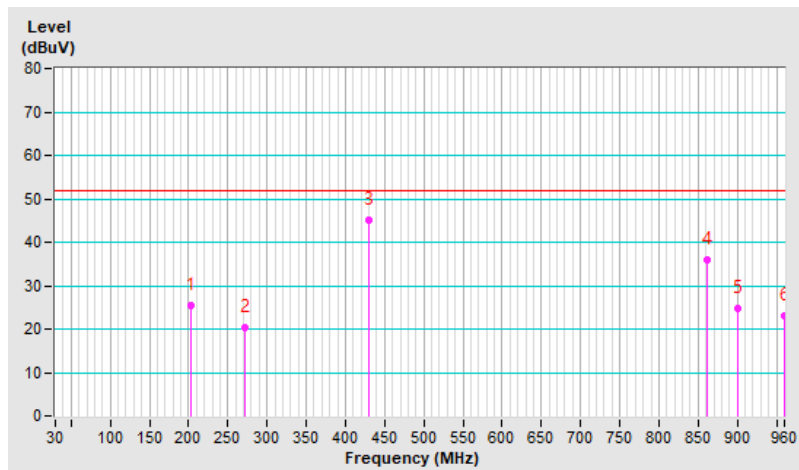


Mode C

Test Mode	FM 108MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	203.180	25.36 QP	51.81	-26.45	43.49	-18.13
2	270.901	20.37 QP	51.81	-31.44	37.57	-17.20
3	430.639	45.04 QP	51.81	-6.77	61.76	-16.72
4	860.745	36.01 QP	51.81	-15.80	49.41	-13.40
5	900.033	24.85 QP	51.81	-26.96	37.79	-12.94
6	960.000	22.99 QP	51.81	-28.82	35.43	-12.44

Remarks: The other emission levels were very low against the limit.

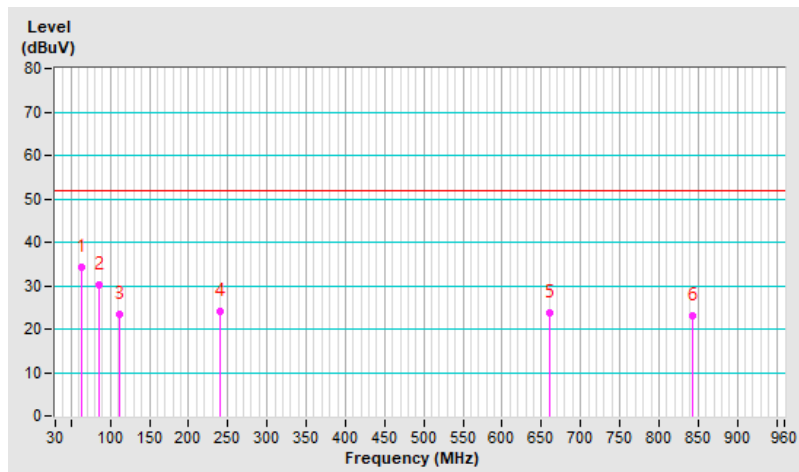


Mode D

Test Mode	DAB 174.928MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	63.602	34.19 QP	51.81	-17.62	53.95	-19.76
2	85.314	30.15 QP	51.81	-21.66	49.71	-19.56
3	111.162	23.50 QP	51.81	-28.31	42.74	-19.24
4	239.883	24.15 QP	51.81	-27.66	41.76	-17.61
5	660.167	23.84 QP	51.81	-27.97	39.37	-15.53
6	843.168	23.21 QP	51.81	-28.60	37.06	-13.85

Remarks: The other emission levels were very low against the limit.

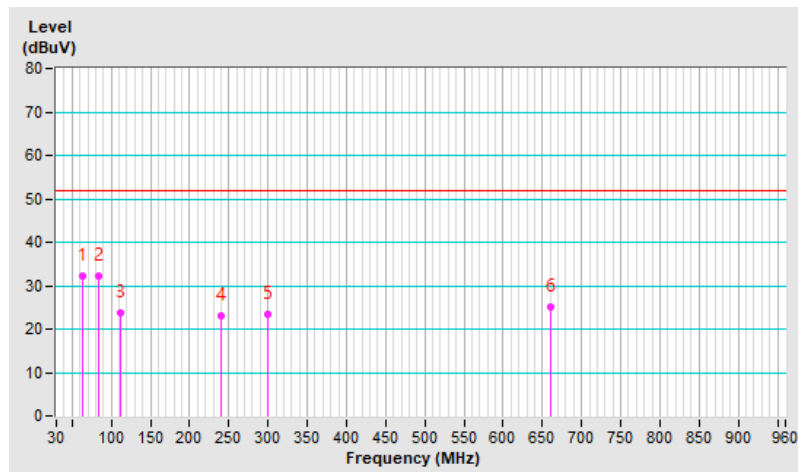


Mode E

Test Mode	DAB 202.928MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	64.119	32.23 QP	51.81	-19.58	51.99	-19.76
2	84.797	32.32 QP	51.81	-19.49	51.90	-19.58
3	111.162	23.83 QP	51.81	-27.98	43.07	-19.24
4	239.883	23.07 QP	51.81	-28.74	40.68	-17.61
5	299.850	23.37 QP	51.81	-28.44	40.27	-16.90
6	660.167	25.25 QP	51.81	-26.56	40.78	-15.53

Remarks: The other emission levels were very low against the limit.

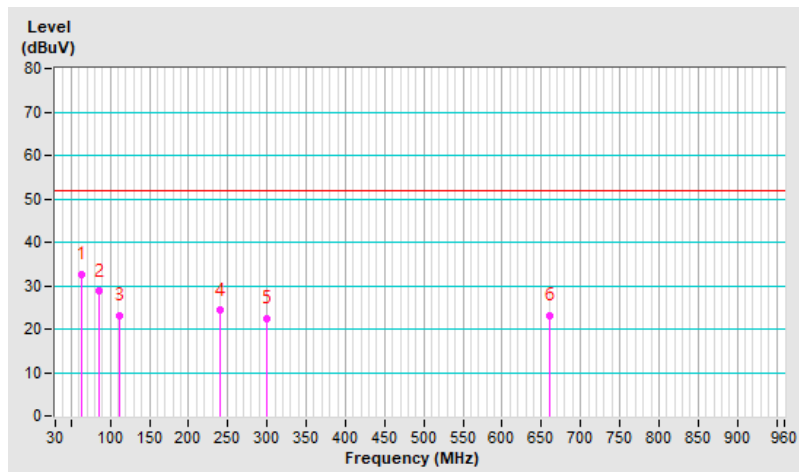


Mode F

Test Mode	DAB 229.072MHz	Frequency Range	30 MHz ~ 960 MHz
Input Power	12 Vdc	Detector Function & Resolution Bandwidth	Quasi-Peak (QP), 120kHz
Environmental Conditions	25°C, 70% RH	Tested By	Vincent Lin

No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Raw Value (dBuV)	Correction Factor (dB/m)
1	64.119	32.69 QP	51.81	-19.12	52.45	-19.76
2	85.314	28.70 QP	51.81	-23.11	48.26	-19.56
3	111.162	23.15 QP	51.81	-28.66	42.39	-19.24
4	239.883	24.27 QP	51.81	-27.54	41.88	-17.61
5	299.850	22.36 QP	51.81	-29.45	39.26	-16.90
6	660.167	23.12 QP	51.81	-28.69	38.65	-15.53

Remarks: The other emission levels were very low against the limit.



8 Pictures of Test Arrangements

Please refer to TSup Photo.pdf.

9 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.

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@bureauveritas.com

Web Site: <http://ee.bureauveritas.com.tw>

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

--- END ---