

FCC Test Report

Product Name	Motorized Cellular Shade with Dual Motor
Model No.	DMCS1-A, DMCS1-B
FCC ID	Q3V-DMCS1

Applicant	NIEN MADE ENTERPRISE CO., LTD.
Address	23F.-1, No. 98, Shizheng N. 7th Rd., Xitun Dist., Taichung City 407, Taiwan (R.O.C.)

Date of Receipt	May 06, 2022
Issued Date	Aug. 12, 2022
Report No.	2250103R-RFUSOTHV06-A
Report Version	V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test Report

Issued Date: Aug. 12, 2022

Report No.: 2250103R-RFUSOTHV06-A



Product Name	Motorized Cellular Shade with Dual Motor
Applicant	NIEN MADE ENTERPRISE CO., LTD.
Address	23F.-1, No. 98, Shizheng N. 7th Rd., Xitun Dist., Taichung City 407, Taiwan (R.O.C.)
Manufacturer	NIEN MADE ENTERPRISE CO., LTD.
Model No.	DMCS1-A, DMCS1-B
FCC ID	Q3V-DMCS1
EUT Rated Voltage	AC 100-240V/50-60Hz DC 16.4V (Power Charger PB-01S) DC 24V (Power Charger PB-02)
EUT Test Voltage	AC 120V / 60Hz and DC 16.4V (Power by battery)
Trade Name	NORMAN 、BLINDS.COM 、AMERICAN BLINDS 、VENETA 、ACADIA LIVING
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By :



(Senior Project Specialist / Genie Chang)

Tested By :



(Senior Engineer / Bill Lin)

Approved By :



(Senior Engineer / Alan Chen)

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Appendix 1: EUT Test Photographs

Appendix 2: Product Photos-Please refer to the file: 2250103R-Product Photos

Revision History

Report No.	Version	Description	Issued Date
2250103R-RFUSOTHV06-A	V1.0	Initial issue of report.	Aug. 12, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Motorized Cellular Shade with Dual Motor
Trade Name	NORMAN · BLINDS.COM · AMERICAN BLINDS · VENETA · ACADIA LIVING
Model No.	DMCS1-A, DMCS1-B
FCC ID	Q3V-DMCS1
Frequency Range	2415-2459MHz
Channel Number	3
Type of Modulation	GFSK
Antenna Type	PCB Antenna
Antenna Gain	Refer to the table “Antenna List”
Channel Control	Auto
Remote Control	MFR: NienMade, M/N: RC-A01
DC Extension cord (Black)	MFR: NienMade, M/N: 35501-40108, Non-shielded, 2m
Power Charger (Optional) (Black)	MFR: NienMade, M/N: PB-02
Power Charger (Optional) (Black) (GA)	MFR: NienMade, M/N: PB-01S
Power Charger (Optional) (White) (35E)	MFR: NienMade, M/N: PB-01S
36W Power Cable (Black)	MFR: NienMade, M/N: 84601-11725, Non-shielded, 0.6m
36W Adapter	MFR: Unifive, M/N: UHVUU3036-240015SA Input: AC 100-240V, 50-60Hz 0.9A Output: DC 24V, 1.5A, 36W Cable out: Non-shielded, 1.55m with one ferrite core bonded.
65W Power Cable	MFR: NienMade, M/N: 84601-11721
65W Adapter	MFR: Unifive, M/N: CHDZD3065-240027PA Input: AC 100-240V, 50-60Hz 1.7A Output: DC 24V, 2.7A, 64.8W Cable in: Non-shielded, 1m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	INPAQ	RFPCA310503IMAB302	PCB Antenna	1.18dBi for 2.4GHz

Note: The antenna of EUT is conform to FCC 15.203.

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 15:	2415 MHz	Channel 39:	2439 MHz	Channel 59:	2459 MHz

Note:

1. The EUT is a Motorized Cellular Shade with Dual Motor with a built-in 2.4G wireless transceiver.
2. Regarding to the operation frequency, the lowest, middle, and highest frequency are selected to perform the test.
3. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
4. The EUT is including two models for different is listed as below:

Model Name	Description
DMCS1-A	Operating with Adapter
DMCS1-B	Operating with Battery

5. These tests are conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.249 for spread spectrum devices.

Test Mode	Mode 1: Transmit Mode 2: Normal mode
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1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

Power Charger (Optional) + 36W Adapter:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Adapter	Unifive	UHVUU3036-240015SA	N/A	N/A
2 Power Charger (Optional) (Black)	NienMade	PB-02	N/A	N/A

Cable Type	Cable Description
A 36W Power Cable	Non-shielded, 1.55m, with one ferrite core bonded.
B DC Extension cord (Black)	Non-shielded, 2m

Power Charger (Optional):

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Charger (Optional) (Black) (GA)	NienMade	PB-01S	N/A	N/A

Cable Type	Cable Description
	N/A

36W Adapter:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Adapter	Unifive	UHVUU3036-240015SA	N/A	N/A

Cable Type	Cable Description
A 36W Power Cable	Non-shielded, 1.55m, with one ferrite core bonded.
B 36W Power Cable (Black)	Non-shielded, 0.6m

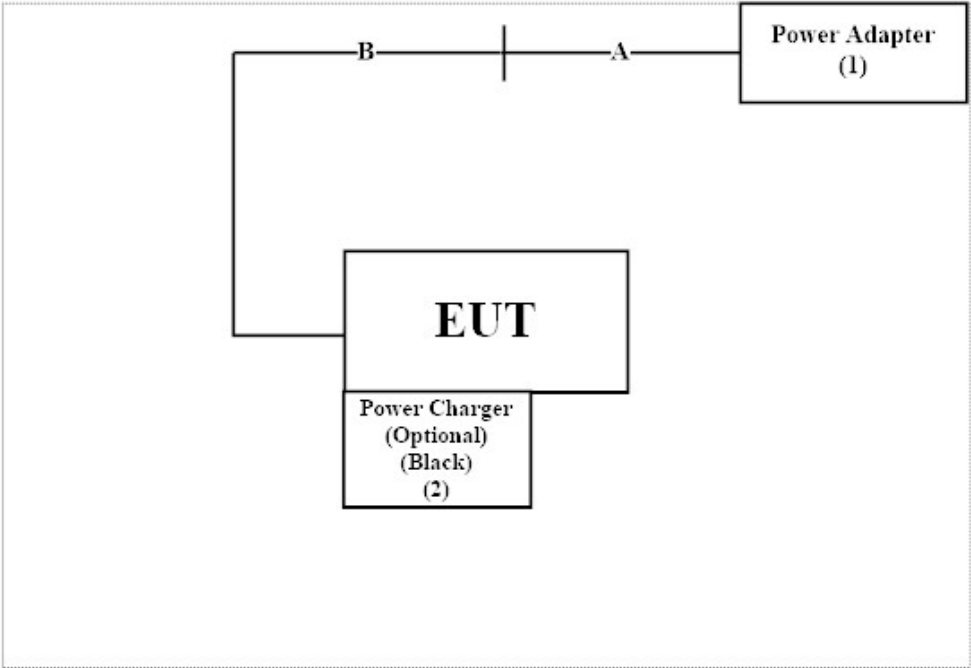
65W Adapter:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Power Adapter	Unifive	CHDZD3065-240027PA	N/A	N/A

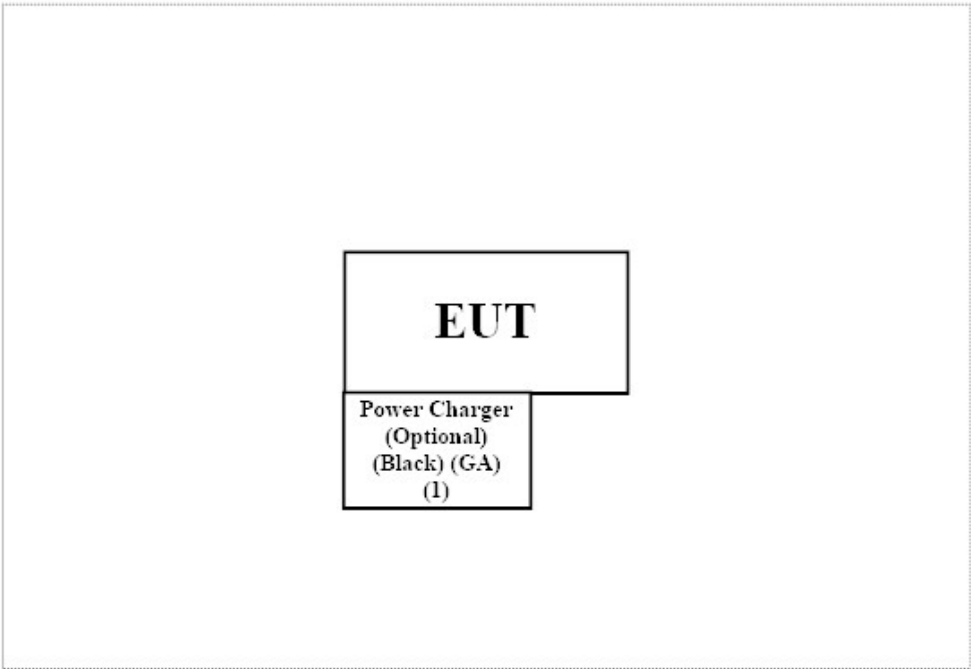
Cable Type	Cable Description
A 65W Power Cable	Non-shielded, 1.8m,
B 65W Power Cable	Non-shielded, 1m

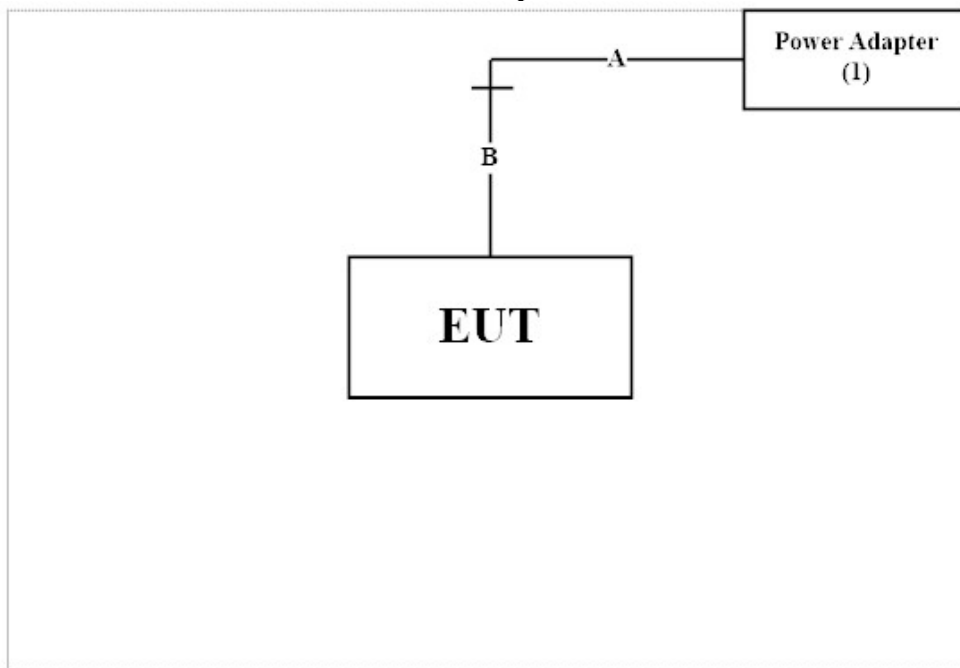
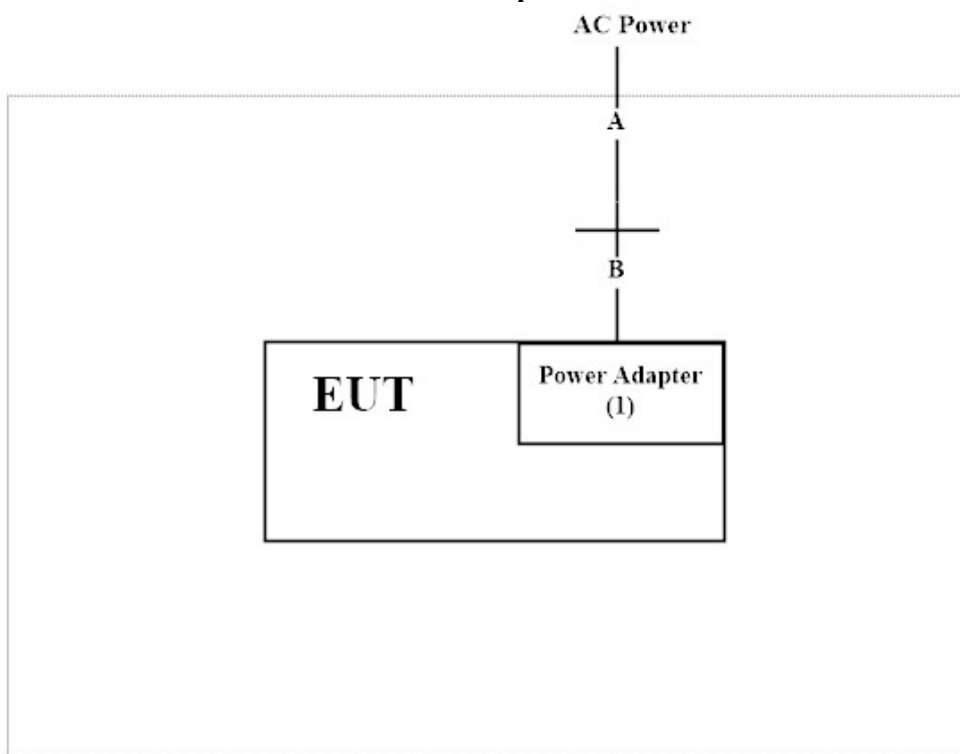
1.3. Configuration of Test System

Power Charger (Optional) + 36W Adapter:



Power Charger (Optional):



36W Adapter:**65W Adapter:****1.4. EUT Exercise Software**

- (1) Setup the EUT as shown in Section 1.3.
- (2) Provide the AC / DC Power Source.
- (3) Start the continuous transmit.
- (4) Verify that the EUT works properly.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (°C)	10~40 °C	27.9 °C
	Humidity (%RH)	10~90 %	45.4 %
Radiated Emission	Temperature (°C)	10~40 °C	24.2 °C
	Humidity (%RH)	10~90 %	54.3 %

USA : FCC Registration Number: TW0033

Canada : CAB Identifier Number: TW3023 / Company Number: 26930

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 5-22, Ruishukeng Linkou District, New Taipei City,
24451, Taiwan

Performed Location : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City
333411, Taiwan, R.O.C.

Phone number : +886-3-275-7255
Fax number : +886-3-327-8031
Email address : info.tw@dekra.com
Website : <http://www.dekra.com.tw>

1.6. List of Test Equipment

For Conduction measurements /HY-SR01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2022/06/23	2023/06/22
X	Two-Line V-Network	R&S	ENV216	101306	2022/05/23	2023/05/22
X	Two-Line V-Network	R&S	ENV216	101307	2022/05/04	2023/05/03
X	Coaxial Cable	SUHNER	RG400_BNC	RF001	2022/05/24	2023/05/23

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : E3 210616 dekra V9.

For Conducted measurements /HY-SR02

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	R&S	FSV40	101149	2022/03/25	2023/03/24
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2022/05/27	2023/05/26
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2022/05/19	2023/05/18
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2022/05/19	2023/05/18

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : RF Conducted Test Tools R3 V3.0.1.19.

For Radiated measurements /HY-CB03

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	49611	2022/03/18	2023/03/17
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021/08/11	2023/08/10
X	Horn Antenna	ETS-Lindgren	3117	00227700	2021/10/12	2022/10/11
X	Horn Antenna	Com-Power	AH-840	101100	2021/10/04	2022/10/03
X	Pre-Amplifier	SGH	0301	20211007-10	2022/02/22	2023/02/21
X	Pre-Amplifier	SGH	PRAMP118	20200202	2022/03/23	2023/03/22
X	Pre-Amplifier	EMCI	EMC05820SE	980309	2021/09/27	2022/09/26
	Pre-Amplifier	EMCI	EMC184045SE	980369	2022/05/12	2023/05/11
	Coaxial Cable	EMCI	EMC102-KM-KM-600	1160314		
	Coaxial Cable	EMCI	EMC102-KM-KM-7000	170242		
X	Filter	MICRO TRONICS	BRM50702	G251	2021/09/16	2022/09/15
	Filter	MICRO TRONICS	BRM50716	G188	2021/09/16	2022/09/15
X	EMI Test Receiver	R&S	ESR	102793	2021/12/15	2022/12/14
X	Spectrum Analyzer	R&S	FSV3044	101114	2022/02/11	2023/02/10
X	Coaxial Cable	SGH	SGH18	2021005-3	2022/01/05	2023/01/04
	Coaxial Cable	SGH	SGH18	202108-4		
	Coaxial Cable	SGH	SGH18	202110223-1		
	Coaxial Cable	SGH	HA800	GD20110222-3		

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version : E3 210616 dekra V9.

1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

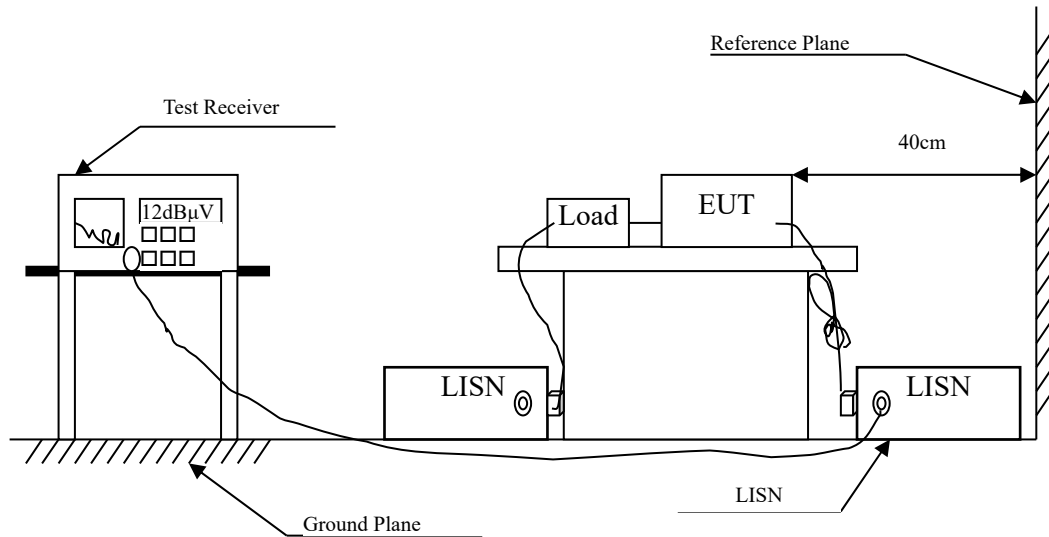
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	Uncertainty	
Conducted Emission	± 3.42 dB	
Radiated Emission	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
Band Edge	Under 1GHz ± 4.06 dB	Above 1GHz ± 3.73 dB
Duty Cycle	± 2.31 ms	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB μ V) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

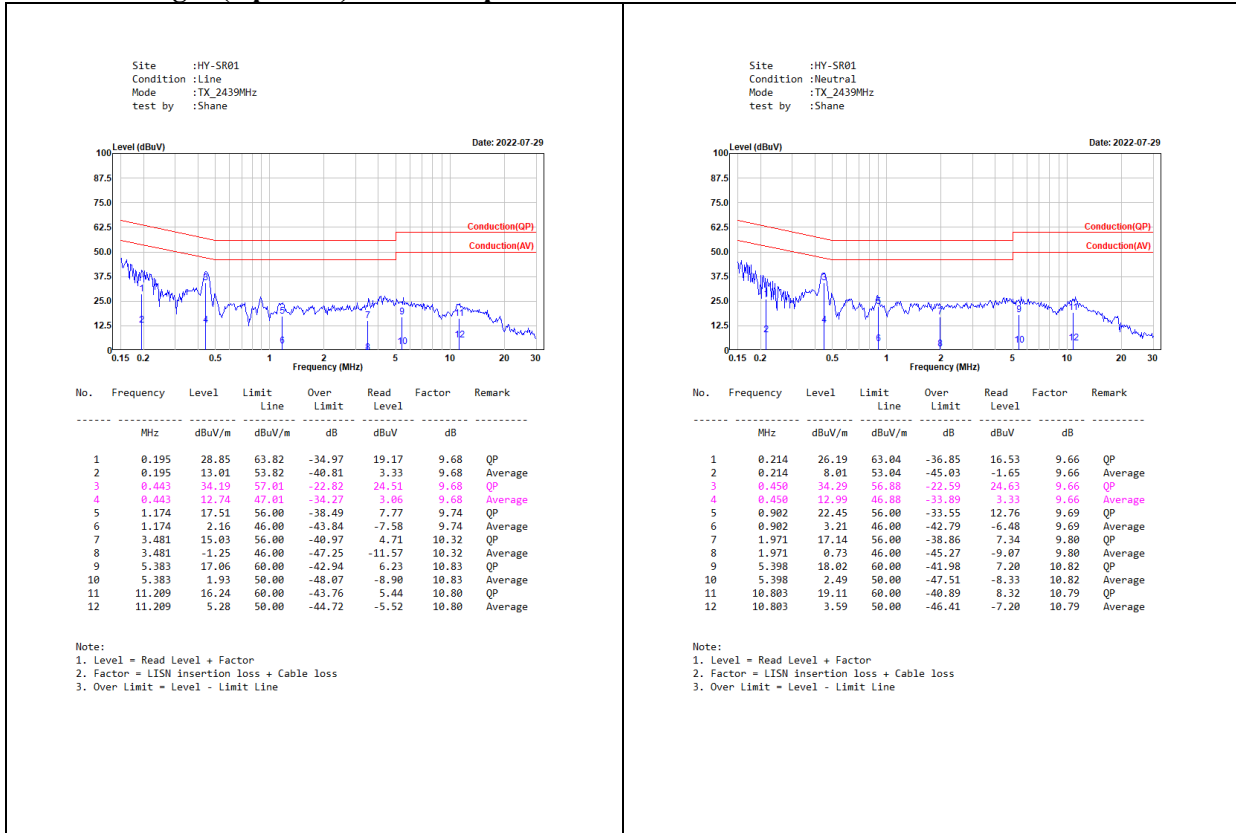
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

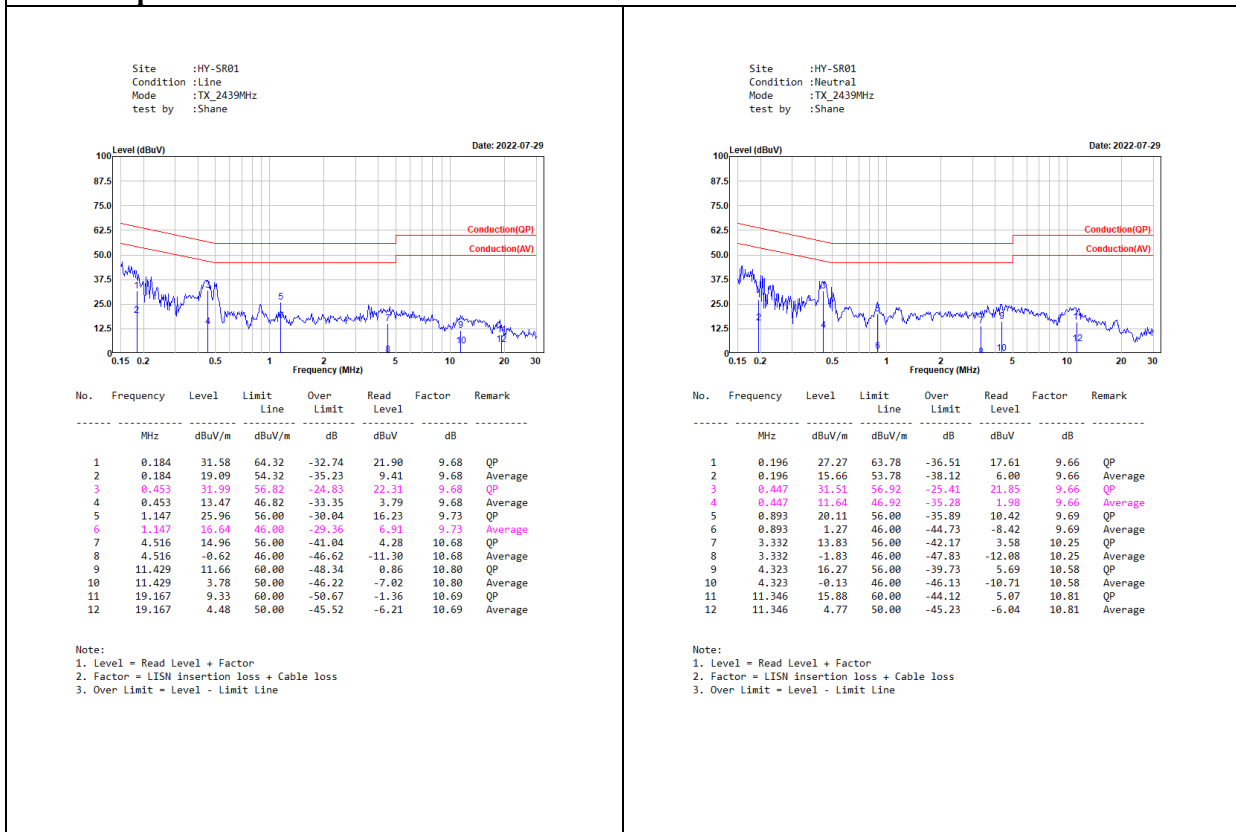
Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.4. Test Result of Conducted Emission

Power Charger (Optional)+36W Adapter

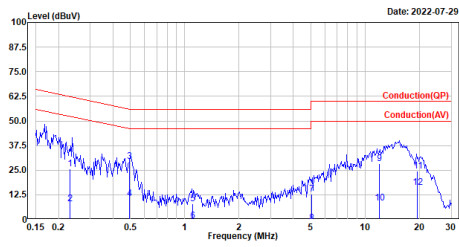


36W Adapter



65W Adapter

Site :HY-SR01
Condition :Line
Mode :TX_2439MHz
test by :Shane

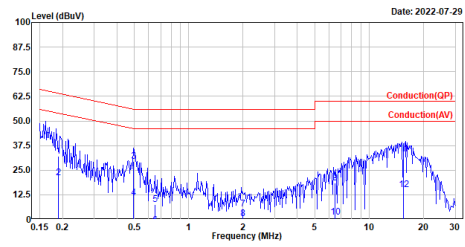


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	0.232	25.65	62.37	-36.72	15.97	9.68	QP
2	0.232	7.86	52.37	-44.51	-1.82	9.68	Average
3	0.497	29.50	56.06	-26.56	19.82	9.68	QP
4	0.497	10.54	46.06	-35.52	0.86	9.68	Average
5	1.109	8.01	56.00	-47.99	-1.72	9.73	QP
6	1.109	-0.66	46.00	-46.66	-10.39	9.73	Average
7	5.038	12.98	60.00	-47.02	2.14	10.84	QP
8	5.038	-2.01	50.00	-52.01	-12.85	10.84	Average
9	12.005	28.41	60.00	-31.59	17.62	10.79	QP
10	12.005	8.43	50.00	-41.57	-2.36	10.79	Average
11	19.474	24.63	60.00	-35.37	13.94	10.69	QP
12	19.474	16.34	50.00	-33.66	5.65	10.69	Average

Note:

1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

Site :HY-SR01
Condition :Neutral
Mode :TX_2439MHz
test by :Shane



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level	dB	
1	0.190	31.91	64.05	-32.14	22.25	9.66	QP
2	0.190	21.14	54.05	-32.91	11.48	9.66	Average
3	0.494	29.43	56.10	-26.67	19.77	9.66	QP
4	0.494	10.93	46.10	-35.17	1.27	9.66	Average
5	0.653	7.51	56.00	-48.49	-2.17	9.68	QP
6	0.653	-3.09	46.00	-49.09	-12.77	9.68	Average
7	1.989	5.38	56.00	-50.62	-4.42	9.80	QP
8	1.989	0.43	46.00	-45.57	-9.37	9.80	Average
9	6.475	18.38	60.00	-41.62	7.56	10.82	QP
10	6.475	1.29	50.00	-48.71	-9.53	10.82	Average
11	15.437	33.03	60.00	-26.97	22.20	10.83	QP
12	15.437	15.00	50.00	-35.00	4.17	10.83	Average

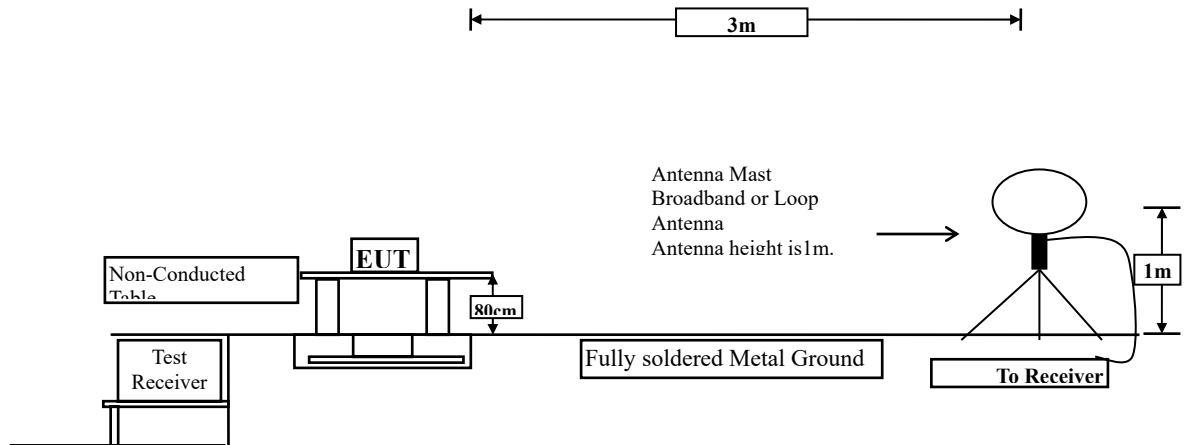
Note:

1. Level = Read Level + Factor
2. Factor = LISN insertion loss + Cable loss
3. Over Limit = Level - Limit Line

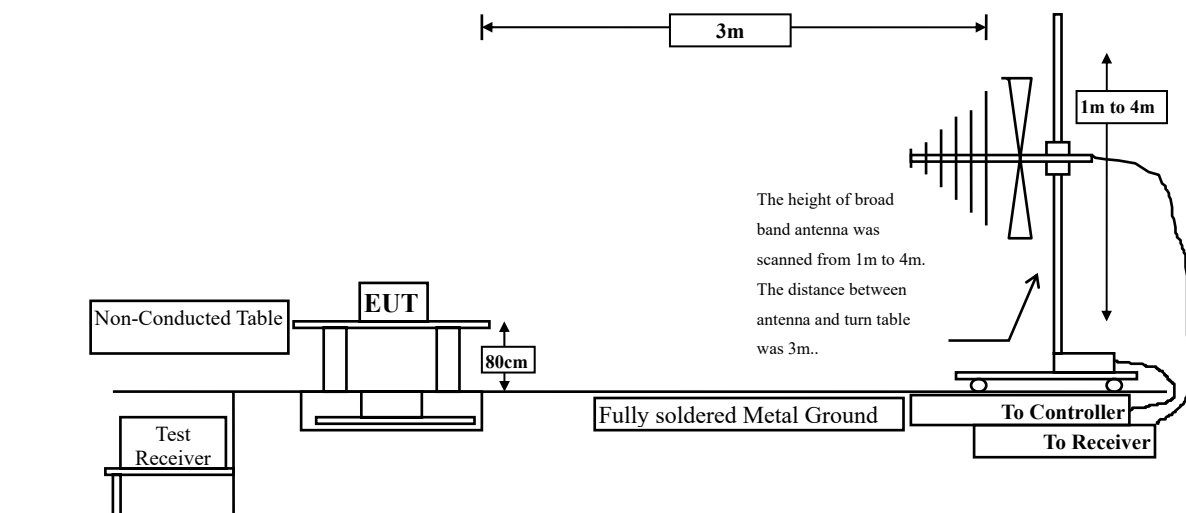
3. Radiated Emission

3.1. Test Setup

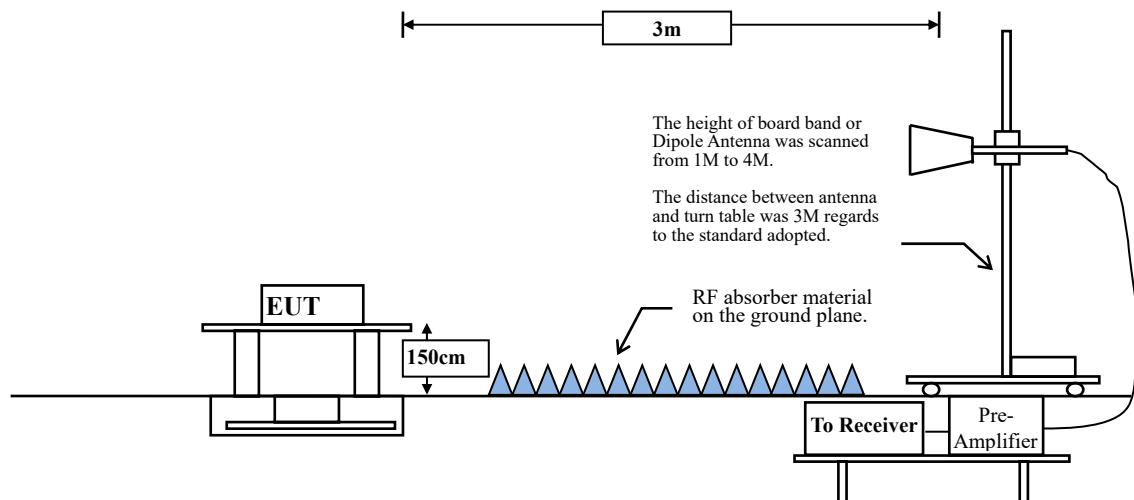
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.2. Limits

➤ Fundamental and Harmonics Emission Limits

FCC Part 15 Subpart C Paragraph 15.249 Limits				
Frequency MHz	Field Strength of Fundamental		Field Strength of Harmonics	
	(mV/m @3m)	(dBμV /m @3m)	(uV/m @3m)	(dBμV /m @3m)
902-928	50	94	500	54
2400-2483.5	50	94	500	54
5725-5875	50	94	500	54
24000-24250	250	108	2500	68

Remarks : 1. RF Voltage (dBμV /m) = 20 log RF Voltage (uV/m)
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dBμV /m) = 20 log E field strength (uV/m)

3.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested compliance to FCC 47CFR 15.249 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level.

This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

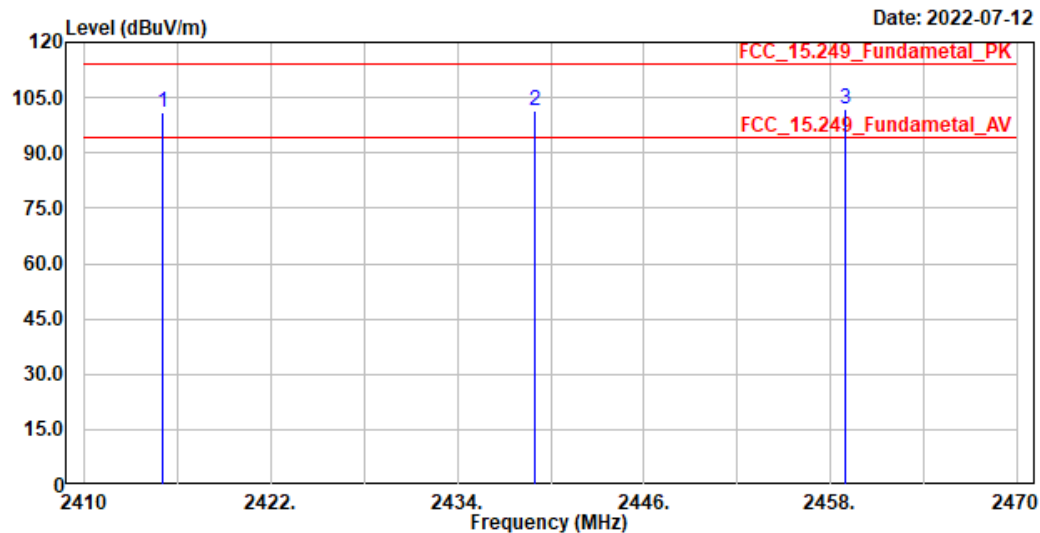
The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

3.4. Test Result of Radiated Emission

Site :HY-CB03
 Condition :3m ,Horizontal
 Mode :TX_Fundamental_X
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	101.04	113.97	-12.93	88.05	12.99	Peak
2	2439.000	101.48	113.97	-12.49	88.46	13.02	Peak
3	2459.000	101.96	113.97	-12.01	88.92	13.04	Peak

Note:

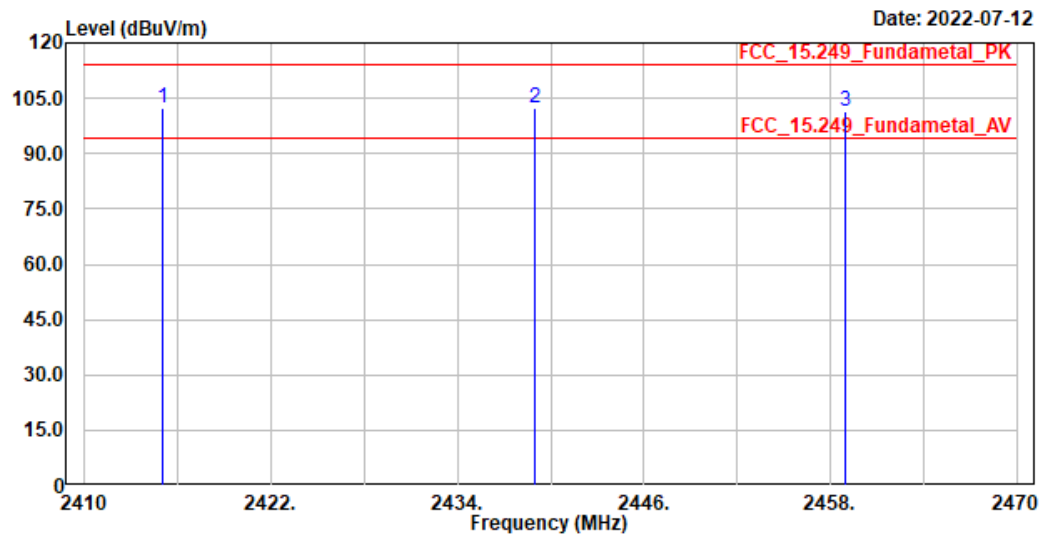
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	101.04	-44.293	56.747	-37.223	93.970
2439	101.48	-44.293	57.187	-36.783	93.970
2459	101.96	-44.293	57.667	-36.303	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Vertical
 Mode :TX_Fundamental_X
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	102.27	113.97	-11.70	89.28	12.99	Peak
2	2439.000	102.29	113.97	-11.68	89.27	13.02	Peak
3	2459.000	101.50	113.97	-12.47	88.46	13.04	Peak

Note:

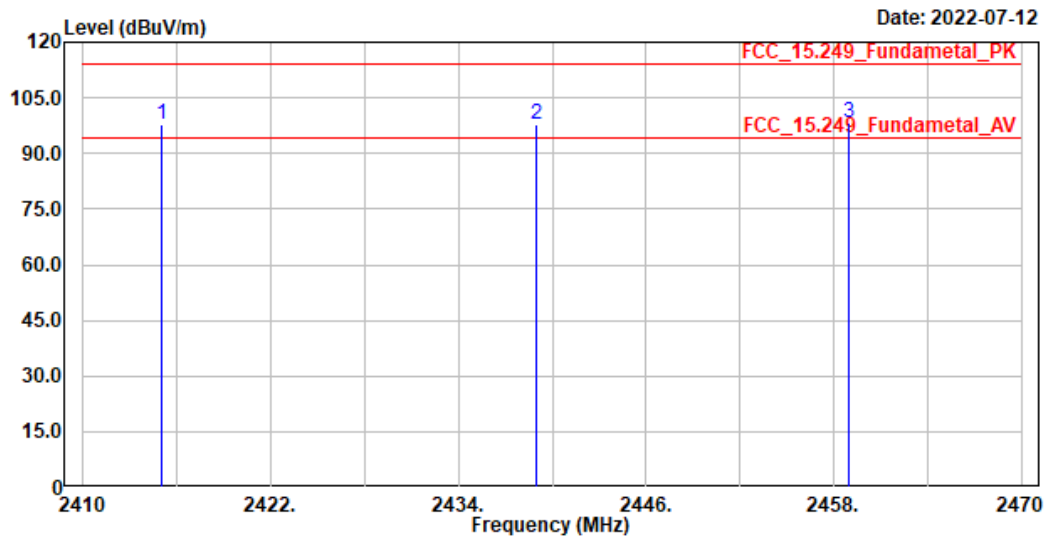
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	102.27	-44.293	57.977	-35.993	93.970
2439	102.29	-44.293	57.997	-35.973	93.970
2459	101.5	-44.293	57.207	-36.763	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Horizontal
 Mode :TX_Fundamental_Y
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	97.83	113.97	-16.14	84.84	12.99	Peak
2	2439.000	97.66	113.97	-16.31	84.64	13.02	Peak
3	2459.000	98.28	113.97	-15.69	85.24	13.04	Peak

Note:

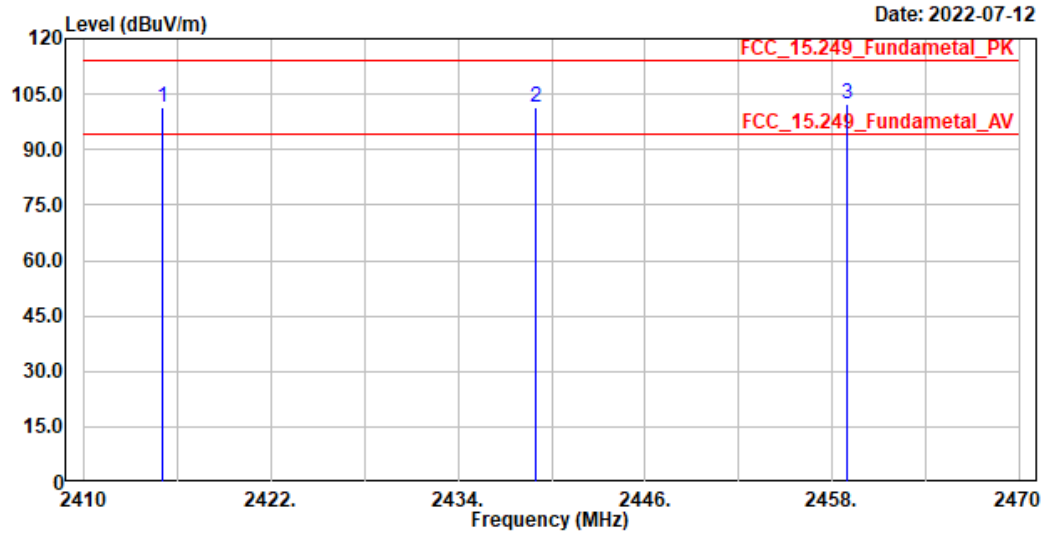
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	97.83	-44.293	53.537	-40.433	93.970
2439	97.66	-44.293	53.367	-40.603	93.970
2459	98.28	-44.293	53.987	-39.983	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Vertical
 Mode :TX_Fundamental_Y
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	101.64	113.97	-12.33	88.65	12.99	Peak
2	2439.000	101.32	113.97	-12.65	88.30	13.02	Peak
3	2459.000	102.45	113.97	-11.52	89.41	13.04	Peak

Note:

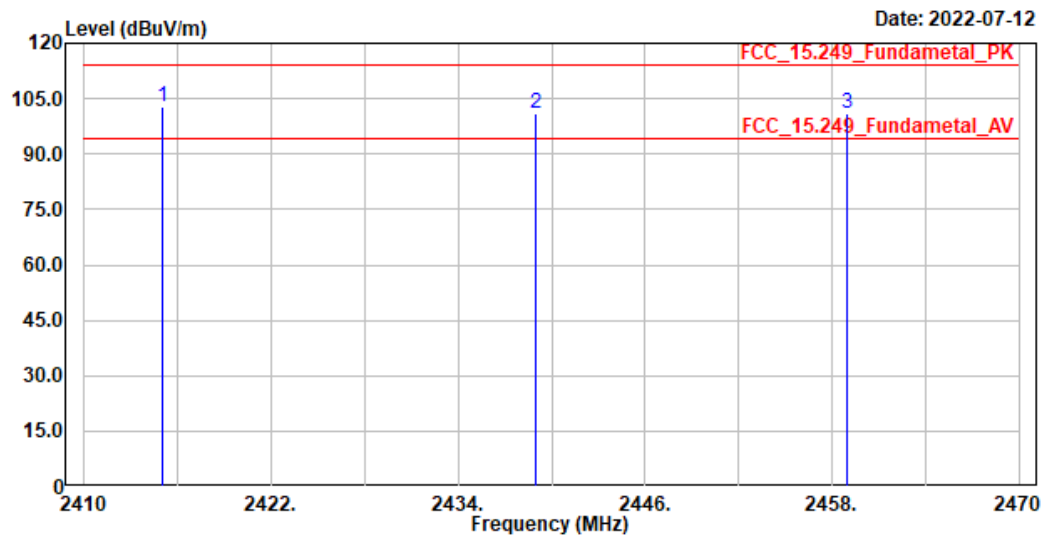
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	101.64	-44.293	57.347	-36.623	93.970
2439	101.32	-44.293	57.027	-36.943	93.970
2459	102.45	-44.293	58.157	-35.813	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Horizontal
 Mode :TX_Fundamental_Z
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	102.86	113.97	-11.11	89.87	12.99	Peak
2	2439.000	100.97	113.97	-13.00	87.95	13.02	Peak
3	2459.000	100.78	113.97	-13.19	87.74	13.04	Peak

Note:

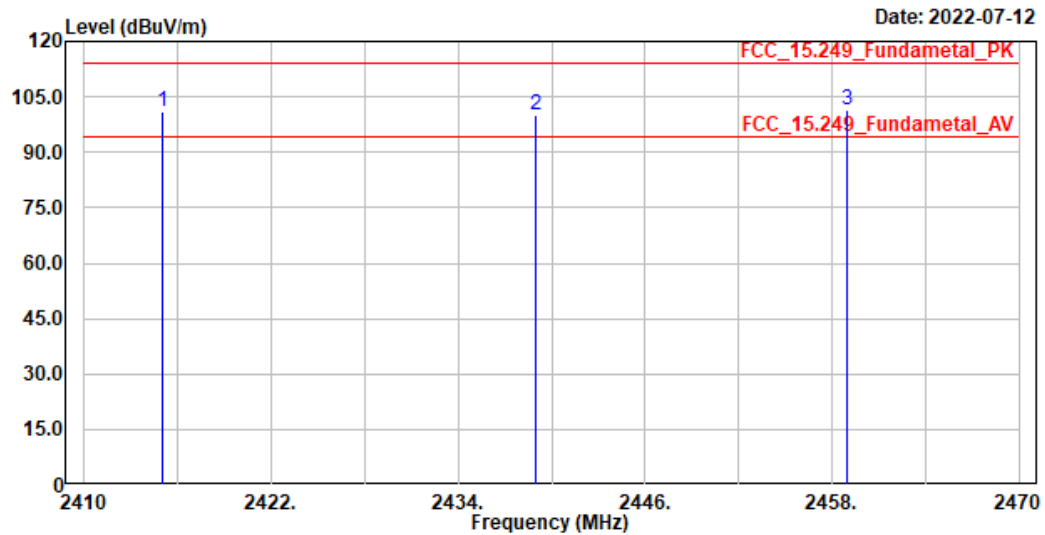
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	102.86	-44.293	58.567	-35.403	93.970
2439	100.97	-44.293	56.677	-37.293	93.970
2459	100.78	-44.293	56.487	-37.483	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Vertical
 Mode :TX_Fundamental_Z
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2415.000	101.06	113.97	-12.91	88.07	12.99	Peak
2	2439.000	99.86	113.97	-14.11	86.84	13.02	Peak
3	2459.000	101.24	113.97	-12.73	88.20	13.04	Peak

Note:

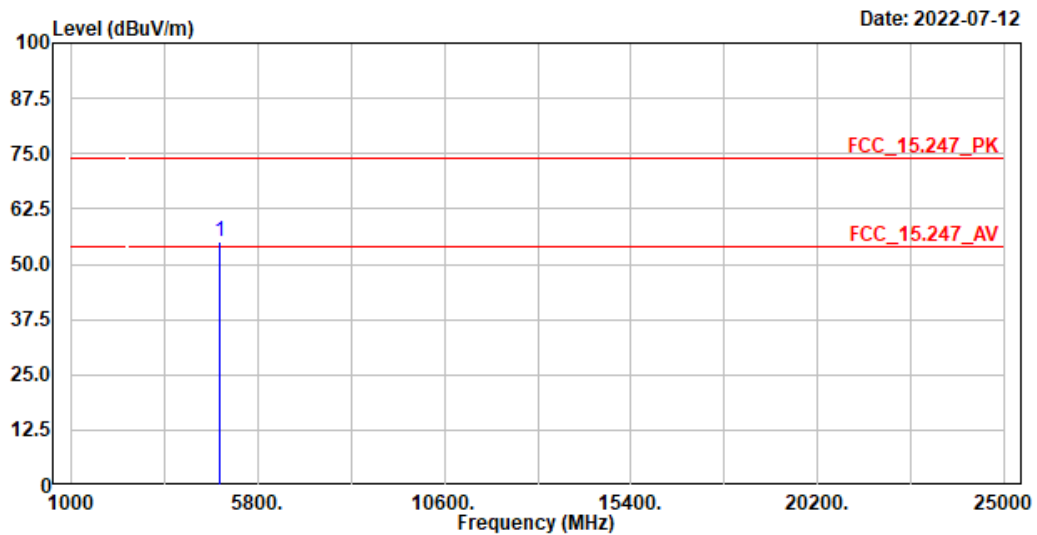
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
2415	101.06	-44.293	56.767	-37.203	93.970
2439	99.86	-44.293	55.567	-38.403	93.970
2459	101.24	-44.293	56.947	-37.023	93.970

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,HORIZONTAL
 Mode :TX_2415MHz
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4830.000	55.12	74.00	-18.88	54.25	0.87	Peak

Note:

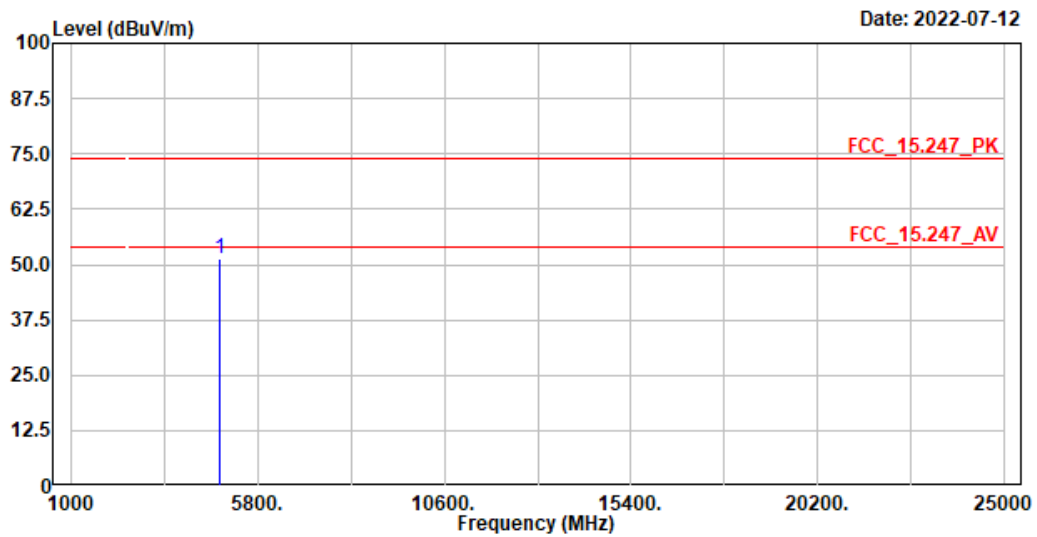
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)
4830	55.12	-44.293	10.827	-43.173	54.000

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle Correct Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,VERTICAL
 Mode :TX_2415MHz
 Test BY :Ashton Chiu

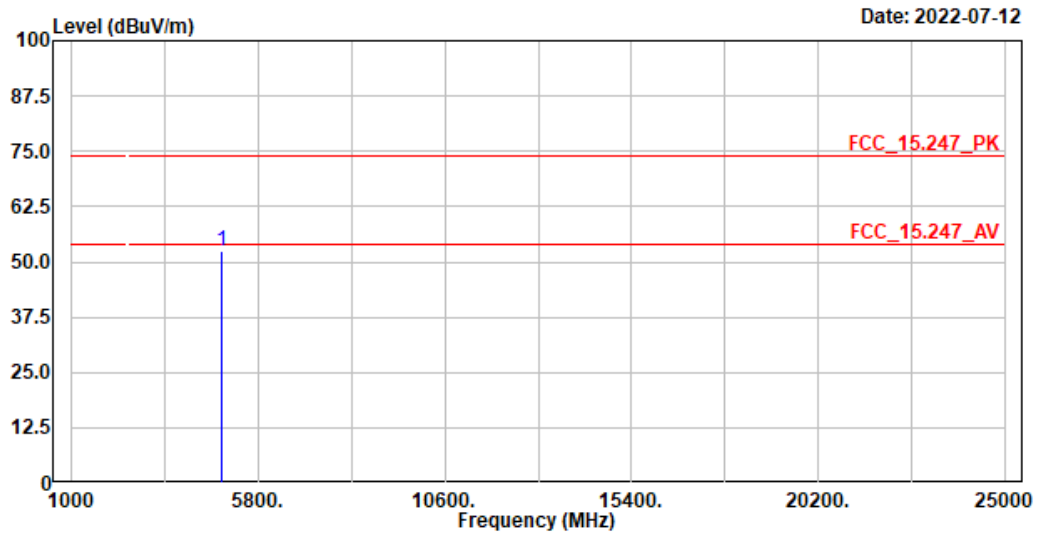


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4830.000	51.33	74.00	-22.67	50.46	0.87	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
 Condition :3m ,HORIZONTAL
 Mode :TX_2439MHz
 Test BY :Ashton Chiu

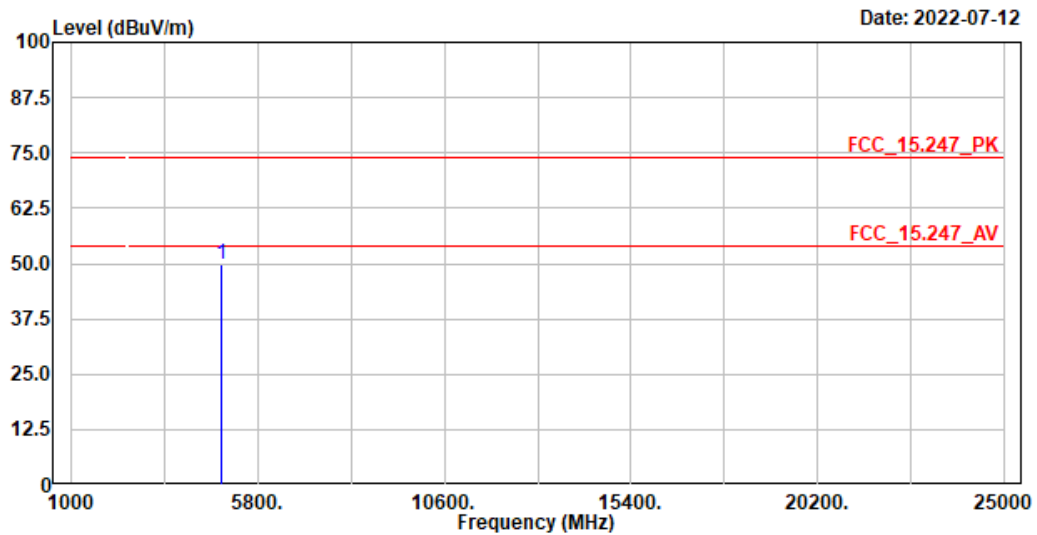


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4878.000	52.49	74.00	-21.51	51.60	0.89	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
 Condition :3m ,VERTICAL
 Mode :TX_2439MHz
 Test BY :Ashton Chiu

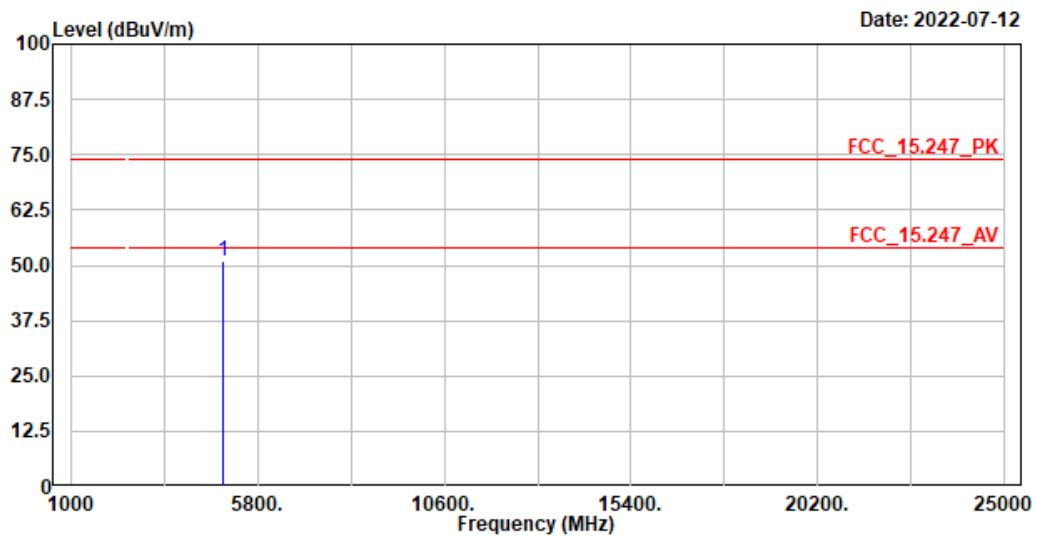


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4878.000	49.99	74.00	-24.01	49.10	0.89	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
 Condition :3m ,HORIZONTAL
 Mode :TX_2459MHz
 Test BY :Ashton Chiu

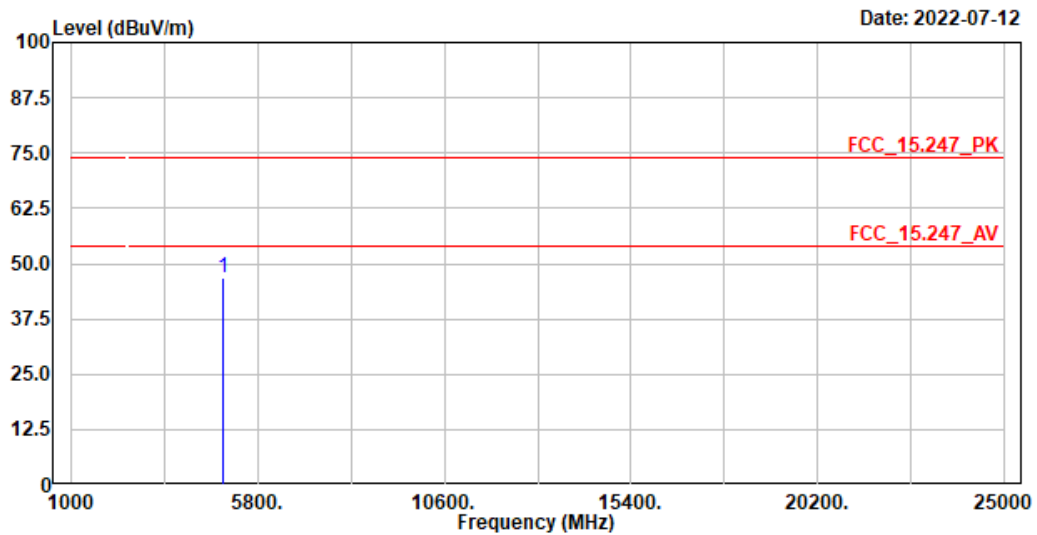


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4918.000	50.90	74.00	-23.10	49.92	0.98	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03
 Condition :3m ,VERTICAL
 Mode :TX_2459MHz
 Test BY :Ashton Chiu



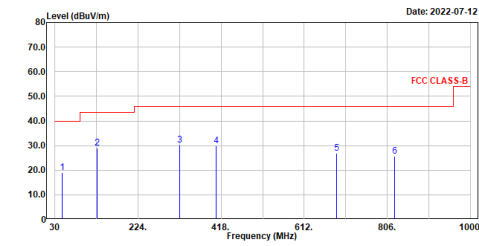
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	4918.000	46.93	74.00	-27.07	45.95	0.98	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line
4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Power Charger (Optional)+36W Adapter

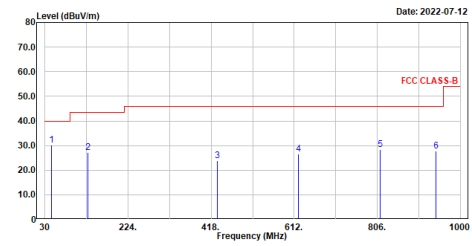
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_2439MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	46.490	19.02	40.00	-20.98	43.07	-24.05	QP
2	128.940	29.11	43.50	-14.39	54.68	-25.57	QP
3	321.000	30.28	46.00	-15.72	53.18	-22.90	QP
4	406.360	29.90	46.00	-16.10	50.86	-20.96	QP
5	687.660	26.74	46.00	-19.26	41.76	-15.02	QP
6	823.460	25.60	46.00	-20.40	38.78	-13.18	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_2439MHz
Test BY :Ashton Chiu

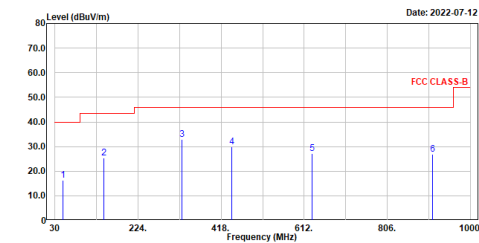


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	45.520	30.12	40.00	-9.88	54.18	-24.06	QP
2	130.880	27.17	43.50	-16.33	52.43	-25.26	QP
3	432.550	23.98	46.00	-22.02	44.05	-20.07	QP
4	621.700	26.44	46.00	-19.56	42.48	-16.04	QP
5	812.790	28.39	46.00	-17.61	41.70	-13.31	QP
6	943.740	27.63	46.00	-18.37	39.33	-11.70	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Power Charger (Optional)

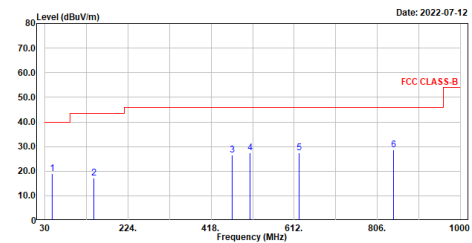
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_2439MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	40.430	16.23	40.00	-23.77	40.46	-24.23	QP
2	144.460	25.36	43.50	-18.14	49.90	-24.54	QP
3	326.820	32.87	46.00	-13.13	55.63	-22.76	QP
4	443.220	30.00	46.00	-16.00	49.75	-19.75	QP
5	630.430	27.05	46.00	-18.95	42.85	-15.80	QP
6	911.730	26.97	46.00	-19.03	38.91	-11.94	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_2439MHz
Test BY :Ashton Chiu

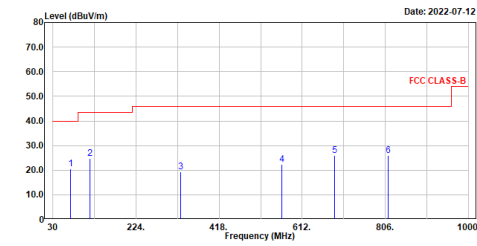


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	46.490	19.13	40.00	-20.87	43.18	-24.05	QP
2	144.460	17.32	43.50	-26.18	41.86	-24.54	QP
3	466.500	26.49	46.00	-19.51	45.73	-19.24	QP
4	509.180	27.54	46.00	-18.46	45.89	-18.35	QP
5	623.640	27.49	46.00	-18.51	43.52	-16.03	QP
6	843.830	28.73	46.00	-17.27	41.65	-12.92	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

36W Adapter

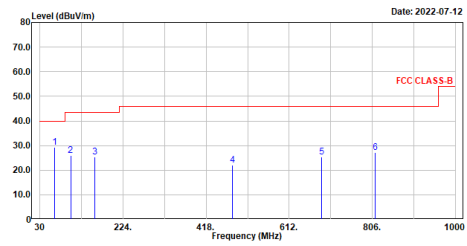
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_2439MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	70.740	20.64	40.00	-19.36	47.29	-26.65	QP
2	117.300	24.80	43.50	-18.70	51.59	-26.79	QP
3	327.790	19.31	46.00	-26.69	42.05	-22.74	QP
4	564.470	22.33	46.00	-23.67	39.76	-17.43	QP
5	687.660	26.10	46.00	-19.90	41.12	-15.02	QP
6	812.790	26.01	46.00	-19.99	39.32	-13.31	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_2439MHz
Test BY :Ashton Chiu

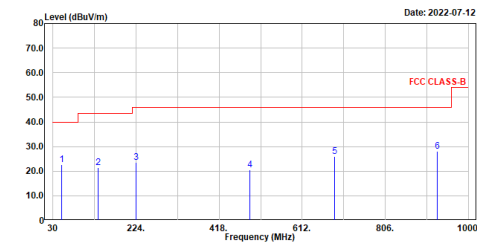


No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	63.950	29.14	40.00	-10.86	54.70	-25.56	QP
2	101.780	26.06	43.50	-17.44	54.82	-28.76	QP
3	158.040	25.32	43.50	-18.18	49.64	-24.32	QP
4	480.080	22.09	46.00	-23.91	41.21	-19.12	QP
5	687.660	25.45	46.00	-20.55	40.47	-15.02	QP
6	812.790	27.22	46.00	-18.78	40.53	-13.31	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

65W Adapter

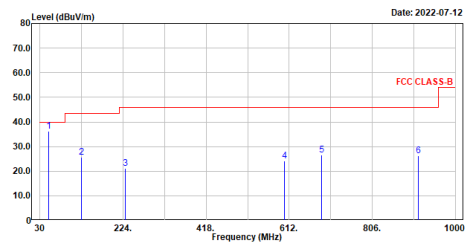
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_2439MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	51.340	22.53	40.00	-17.47	46.90	-24.37	QP
2	135.730	21.30	43.50	-22.20	46.26	-24.96	QP
3	224.970	23.61	46.00	-22.39	50.40	-26.79	QP
4	489.780	20.66	46.00	-25.34	39.54	-18.88	QP
5	687.660	25.92	46.00	-20.08	40.94	-15.02	QP
6	927.250	27.93	46.00	-18.07	39.84	-11.91	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_2439MHz
Test BY :Ashton Chiu



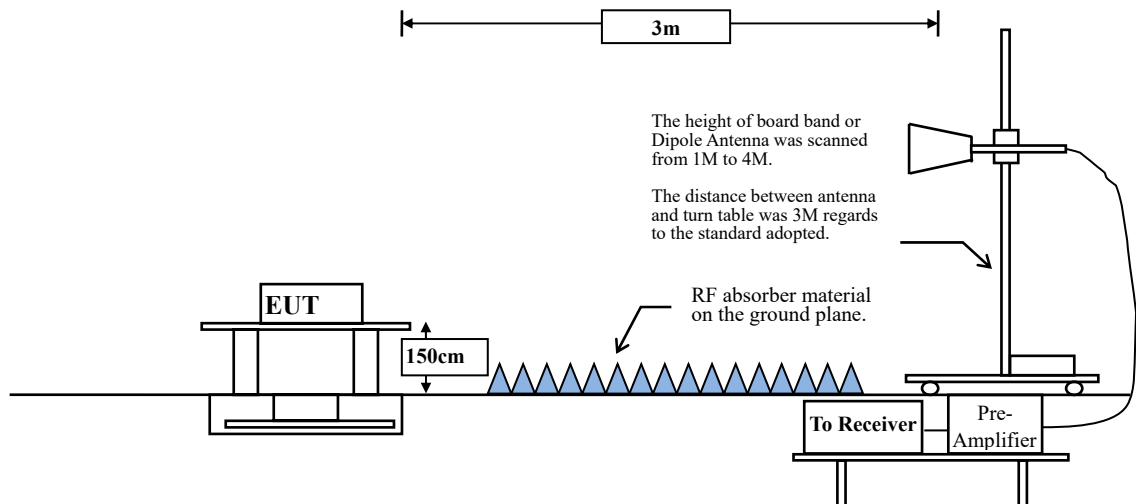
No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	50.370	36.15	40.00	-3.85	60.34	-24.19	QP
2	127.000	25.67	43.50	-17.83	51.44	-25.77	QP
3	229.020	21.11	46.00	-24.89	47.49	-26.38	QP
4	600.360	24.19	46.00	-21.81	40.28	-16.09	QP
5	687.660	26.49	46.00	-19.51	41.51	-15.02	QP
6	912.700	26.36	46.00	-19.64	38.29	-11.93	QP

Note:
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

4. Band Edge

4.1. Test Setup

RF Radiated Measurement:



4.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209(a) Limits		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remarks: E field strength (dB μ V /m) = 20 log E field strength (uV/m)

4.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

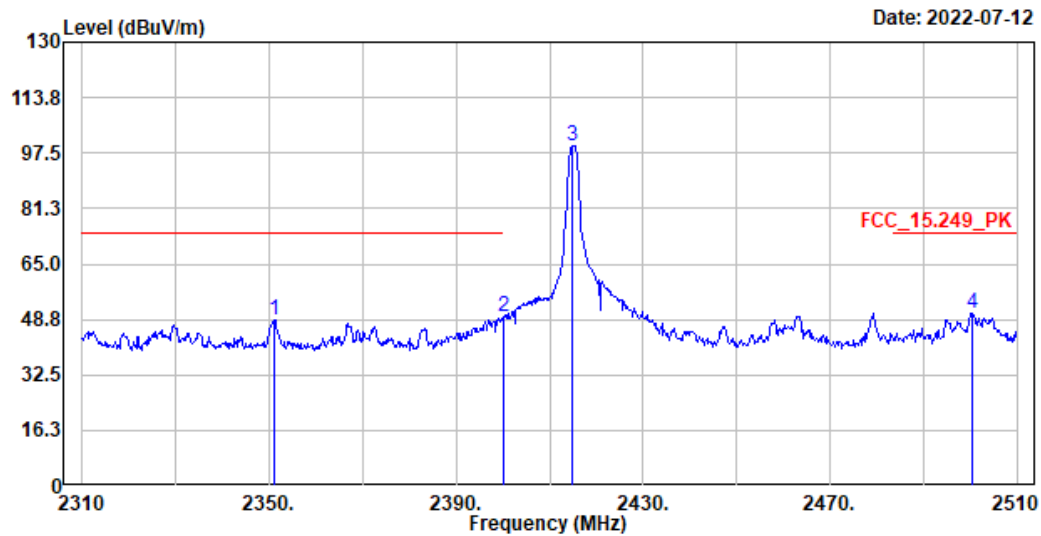
The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth setting below 1GHz and above 1GHz on the field strength meter is 120 kHz and 1MHz, respectively.

4.4. Test Result of Band Edge

Site :HY-CB03
 Condition :3m ,Horizontal
 Mode :TX_2415MHz
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2351.200	48.51	74.00	-25.49	36.96	11.55	Peak
2	2400.000	49.49	74.00	-24.51	37.66	11.83	Peak
3	2414.800	99.49	-----	-----	87.63	11.86	Peak
4	2500.400	50.57	74.00	-23.43	38.57	12.00	Peak

Note:

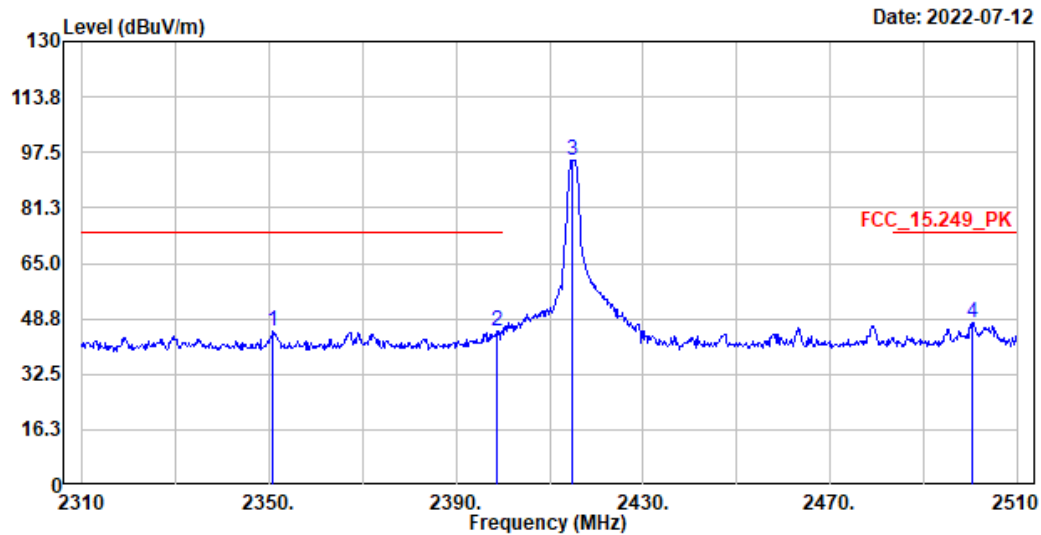
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)	Result
2351.2	48.51	-44.293	4.217	-49.783	54.000	Pass
2400	49.49	-44.293	5.197	-48.803	54.000	Pass
2414.8	99.49	-44.293	55.197	--	--	Pass
2500.4	50.57	-44.293	6.277	-47.723	54.000	Pass

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Vertical
 Mode :TX_2415MHz
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2350.800	45.20	74.00	-28.80	33.65	11.55	Peak
2	2398.600	45.32	74.00	-28.68	33.50	11.82	Peak
3	2415.000	95.41	-----	-----	83.55	11.86	Peak
4	2500.400	47.79	74.00	-26.21	35.79	12.00	Peak

Note:

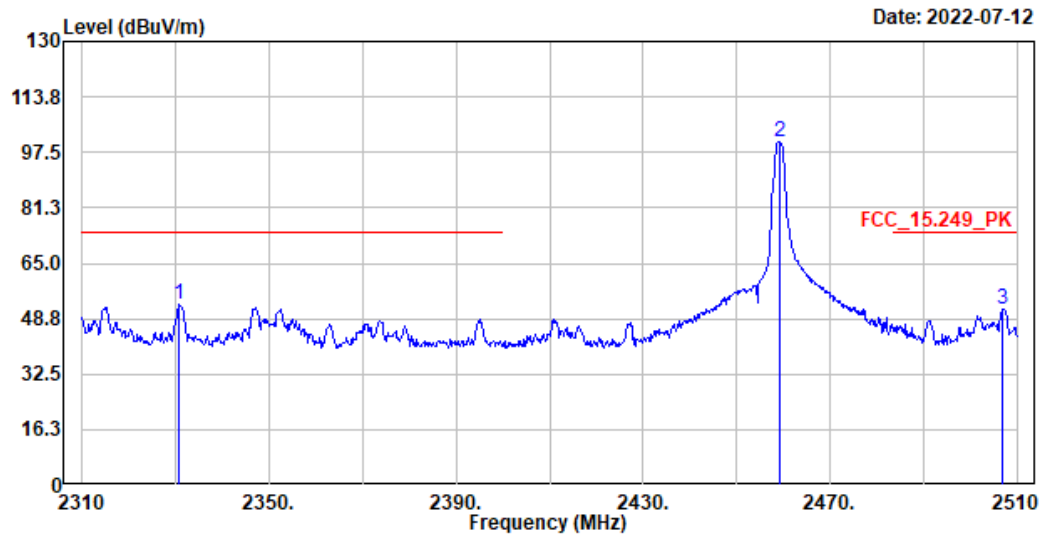
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBuV/m)	Duty Cycle Factor (dB)	Average Measurement (dBuV/m)	Margin (dB)	Average Limit (dBuV/m)	Result
2350.8	45.2	-44.293	0.907	-53.093	54.000	Pass
2398.6	45.32	-44.293	1.027	-52.973	54.000	Pass
2415	95.41	-44.293	51.117	--	--	Pass
2500.4	47.79	-44.293	3.497	-50.503	54.000	Pass

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Horizontal
 Mode :TX_2459MHz
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2330.800	52.85	74.00	-21.15	41.38	11.47	Peak
2	2459.200	100.50	-----	-----	88.57	11.93	Peak
3	2507.000	51.63	74.00	-22.37	39.59	12.04	Peak

Note:

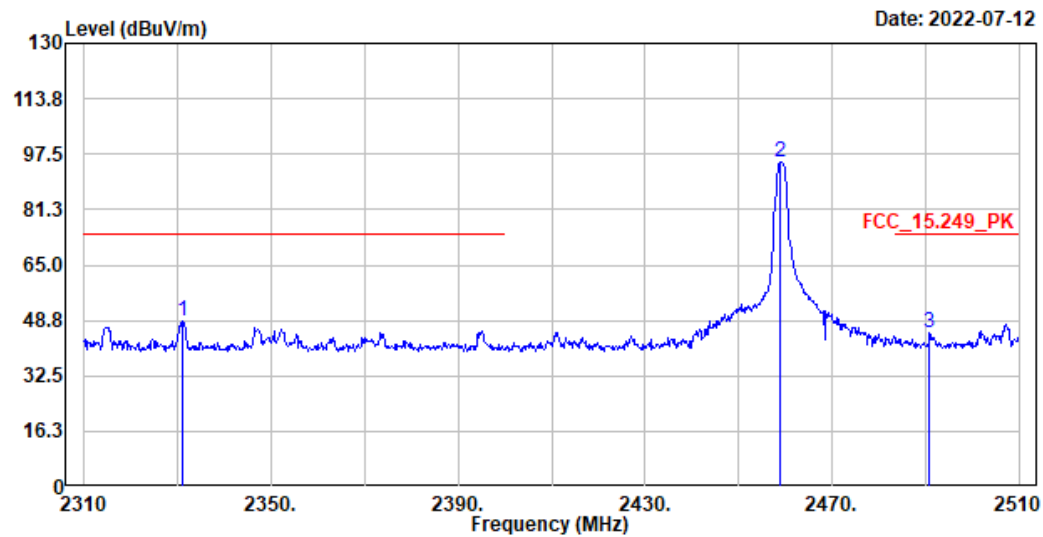
1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)	Result
2330.8	52.85	-44.293	8.557	-45.443	54.000	Pass
2459.2	100.5	-44.293	56.207	--	--	Pass
2507	51.63	-44.293	7.337	-46.663	54.000	Pass

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

Site :HY-CB03
 Condition :3m ,Vertical
 Mode :TX_2459MHz
 Test BY :Ashton Chiu



No.	Frequency	Level	Limit	Over	Read	Factor	Remark
	MHz	dBuV/m	Line	Limit	Level		
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	2331.200	48.56	74.00	-25.44	37.09	11.47	Peak
2	2459.000	95.41	-----	-----	83.48	11.93	Peak
3	2490.800	45.02	74.00	-28.98	33.04	11.98	Peak

Note:

1. Level = Read Level + Factor
2. Factor = Antenna Factor + Cable Loss - Preamp Factor
3. Over Limit = Level - Limit Line

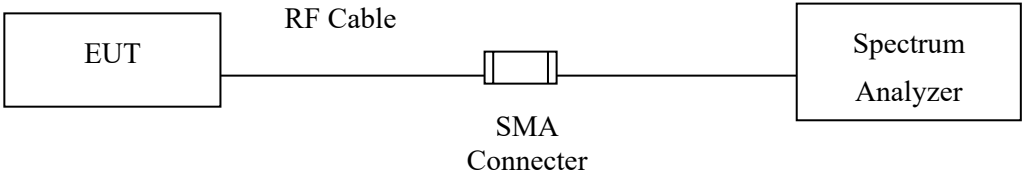
Frequency (MHz)	Peak Measurement (dBμV/m)	Duty Cycle Factor (dB)	Average Measurement (dBμV/m)	Margin (dB)	Average Limit (dBμV/m)	Result
2331.2	48.56	-44.293	4.267	-49.733	54.000	2331.2
2459	95.41	-44.293	51.117	--	--	2459
2490.8	45.02	-44.293	0.727	-53.273	54.000	2490.8

Note:

1. Average Measurement=Peak Measurement + Duty Cycle Factor
2. The Duty Cycle is refer to section 5.

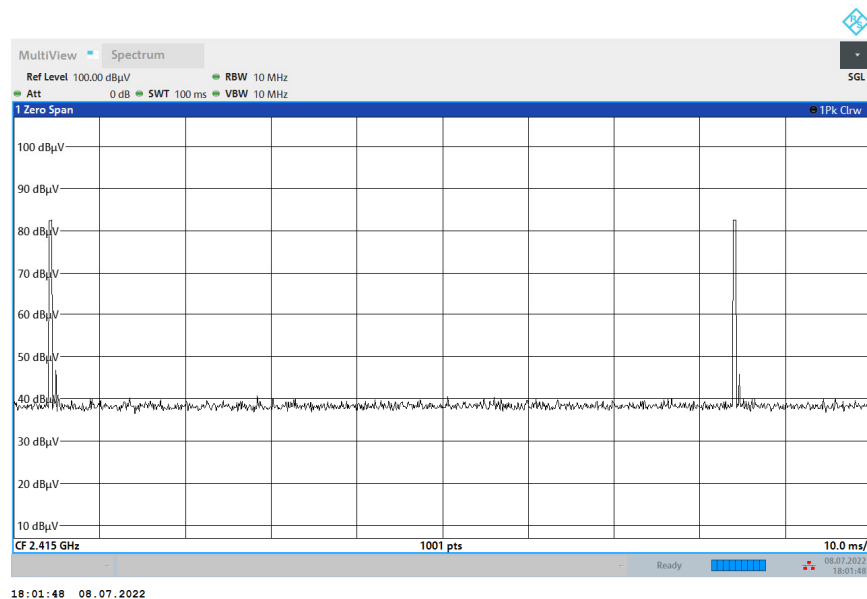
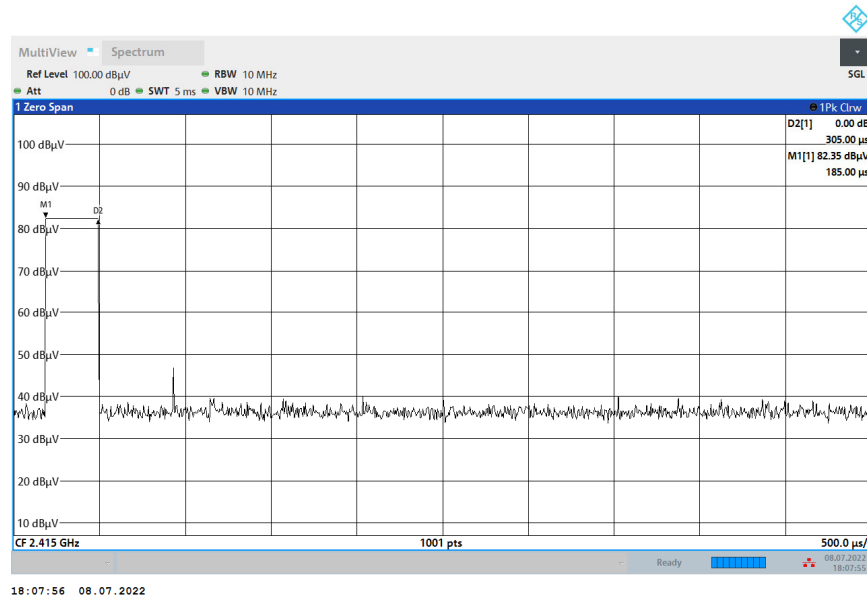
5. Duty Cycle

5.1. Test Setup



5.2. Test Result of Duty Cycle

Product : Motorized Cellular Shade with Dual Motor
 Test Item : Duty Cycle Data
 Test Mode : Mode 1: Transmit



Time on of 100ms = 0.610ms

Duty Cycle= 0.61ms / 100ms= 0.0061

Duty Cycle correction factor= 20 LOG 0.0061= -44.293 dB

Duty Cycle correction factor	-44.293 dB
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6. EMI Reduction Method During Compliance Testing

No modification was made during testing.