FCC Test Report

Product Name	Wireless image transmission module
Model No	P301-D
FCC ID.	2A735-SIRASF1E

Applicant	Coretronic Intelligent Robotics Corporation
Address	No.11, Lixing Rd., East Dist., Hsinchu City 30078, Taiwan

Date of Receipt	May 27, 2022
Issued Date	Aug. 05, 2022
Report No.	2250839R-RFUSWL5V01-A
Report Version	V1.0

Testing Laboratory
3023

Test Report

Issued Date: Aug. 05, 2022
Report No.: 2250839R-RFUSWL5V01-A

Product Name	Wireless image transmission module
Applicant	Coretronic Intelligent Robotics Corporation
Address	No.11, Lixing Rd., East Dist., Hsinchu City 30078, Taiwan
Manufacturer	Coretronic Intelligent Robotics Corporation
Model No.	P301-D
FCC ID.	2A735-SIRASF1E
EUT Rated Voltage	DC 5V by Test Fixture
EUT Test Voltage	DC 5V by Test Fixture
Trade Name	FLIR
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E ANSI C63.4: 2014, ANSI C63.10: 2013 KDB Publication 789033
Test Result	Complied

Documented By : Joanne Lin

(Senior Project Specialist / Joanne Lin)

Tested By : Ivan Chuang

(Senior Engineer / Ivan Chuang)

Approved By : Jack Hsu

(Senior Engineer / Jack Hsu)

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Revision History

Report No.	Version	Description	Issued Date
2250839R-RFUSWL5V01-A	V1.0	Initial issue of report.	Aug. 05, 2022

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Wireless image transmission module
Trade Name	FLIR
Model No.	P301-D
FCC ID.	2A735-SIRASF1E
Frequency Range	5MBW & 10MBW: 5180-5240MHz, 5740-5820MHz
Number of Channels	8CH
Type of Modulation	OFDM, BPSK, QPSK, 16QAM, 64QAM
Antenna type	Dipole Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	CIROCOMM	43N15C6V0W0010T	Dipole Antenna	5.0dBi for 5GHz

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

Center Working Frequency of Each Channel: (5MBW & 10MBW)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 36:	5180 MHz	Channel 40:	5200 MHz	Channel 44:	5220 MHz	Channel 48:	5240 MHz
Channel 148:	5740 MHz	Channel 156:	5780 MHz	Channel 160:	5800 MHz	Channel 164:	5820 MHz

Note:

1. This device is a Wireless image transmission module with built-in 2.4G and 5G transceiver, this report for 5G transceiver.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
3. The spectrum plot against conducted item only shows the worst case.
4. These tests were conducted on a sample for the purpose of demonstrating compliance of 802.11a/n/ac/ax transmitter with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Mode 1: Transmit (5M-BW) Mode 2: Transmit (10M-BW)

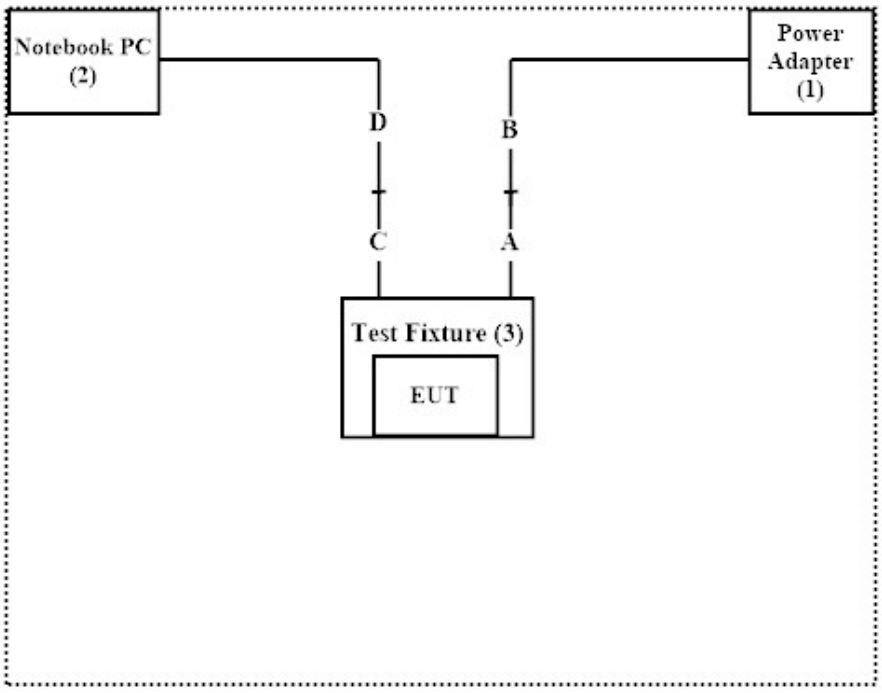
1.2. Tested System Datails

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	SPARK LIGHTING TECHNOLOGY CO., LTD	FJ-SW1203000T	N/A	N/A
2	Notebook PC	Lenovo	TP00067C	PF-0EW26J	N/A
3	Test Fixture	N/A	N/A	N/A	N/A

Signal Cable Type		Signal cable Description
A	Power Cable	Non-shielded, 1.8m
B	Power Cable	Non-shielded, 1.5m, with one ferrite core bonded.
C	LAN Cable	Non-shielded, 0.3m
D	LAN Cable	Non-shielded, 2m

1.3. Configuration of tested System



1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software “ARSiriusPCTool v2.0.0-20200512” on the notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. 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	27.0 °C
	Humidity (%RH)	10~90 %	48.7 %
Radiated Emission	Temperature (°C)	10~40 °C	21.5 °C
	Humidity (%RH)	10~90 %	54.1 %
Conductive	Temperature (°C)	10~40 °C	22.0 °C
	Humidity (%RH)	10~90 %	55.0 %

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 : +866-3-327-8031
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	2022.07.04	2023.07.03
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	FSV30	103466	2021.12.27	2022.12.26
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-CB01

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
	Loop Antenna	AMETEK	HLA6121	56736	2022.05.14	2023.05.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021.08.10	2022.08.09
	Horn Antenna	ETS-Lindgren	3117	00203761	2021.11.25	2022.11.24
	Horn Antenna	Com-Power	AH-840	101087	2021.06.18	2022.06.17
	Pre-Amplifier	SGH	0301	20211007-7	2021.01.20	2022.01.19
	Pre-Amplifier	EMCI	EMC051835SE	980312	2022.02.22	2023.02.21
	Pre-Amplifier	EMCI	EMC05820SE	980362	2021.08.24	2022.08.23
	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		
	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	102792	2021.12.15	2022.12.14
	Spectrum Analyzer	R&S	FSV3044	101113	2022.01.25	2023.02.24
X	Coaxial Cable	SUHNER	SUCOFLEX 106	25450/6	2022.03.22	2023.03.21
	Coaxial Cable	SGH	HA800	GD20110222-8		
	Coaxial Cable	SGH	SGH18	2021003-8		
	Coaxial Cable	EMCI	EMC106	151113		

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 Radiated measurements / HY-CB03

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
	Loop Antenna	AMETEK	HLA6121	56736	2022.05.14	2023.05.13
	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-678	2021.09.23	2022.09.22
X	Horn Antenna	ETS-Lindgren	3117	00227700	2021.11.09	2022.11.08
X	Horn Antenna	Com-Power	AH-840	101100	2021.10.04	2022.10.03
	Pre-Amplifier	EMCI	EMC001330	980302	2021.07.26	2022.07.25
	Pre-Amplifier	EMCI	EMC051835SE	980313	2021.11.24	2022.11.23
	Pre-Amplifier	EMCI	EMC05820SE	980310	2021.07.07	2022.07.06
	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
	EMI Test Receiver	R&S	ESR	102793	2021.12.15	2022.12.14
X	Spectrum Analyzer	R&S	FSV3044	101113	2022.01.25	2023.02.24
X	Coaxial Cable	SGH	SGH18	2021005-1	2022.03.18	2023.03.17
	Coaxial Cable	SGH	SGH18	202108-4		
	Coaxial Cable	SGH	SGH18	GD20110223-1		
	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.

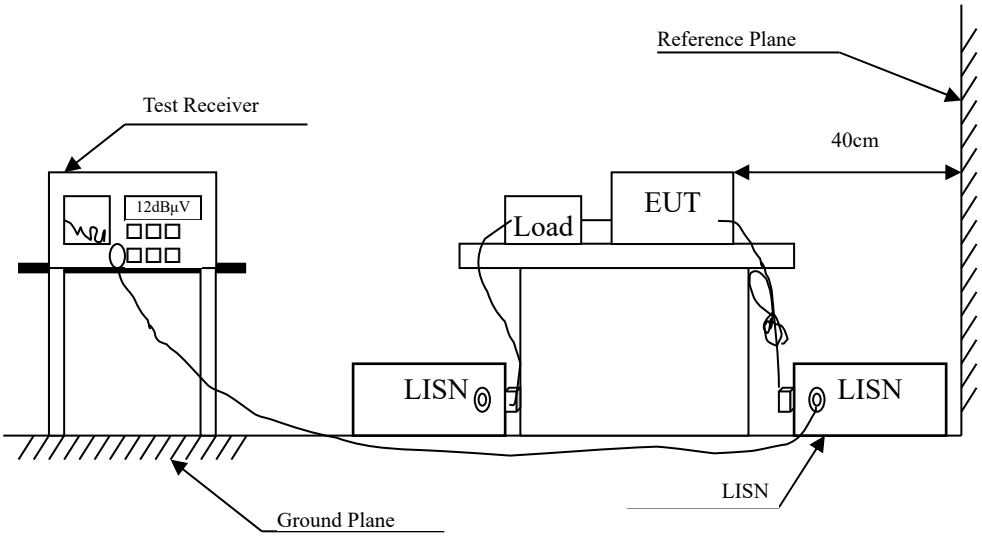
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

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	
Maximun conducted output power	Power Meter ±0.89 dB	Spectrum Analyzer ±2.06 dB
Peak Power Spectral Density	±2.06 dB	
Radiated Emission	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Band Edge	Under 1GHz ±4.05 dB	Above 1GHz ±3.73 dB
Occupied Bandwidth	±1544.74 Hz	
Duty Cycle	±2.31msec	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBµV) 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.)

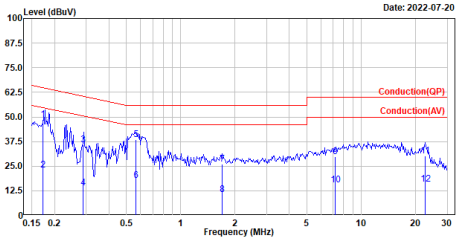
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4:2014 on conducted measurement.

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

2.4. Test Result of Conducted Emission

Mode 1: Transmit (5M-BW)

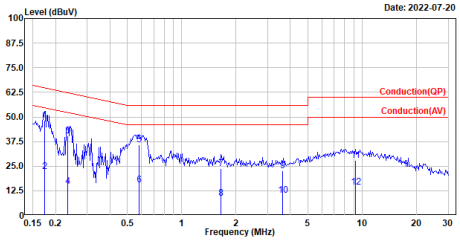
Site :HY-SR01
Condition :Line
Mode :5M_5G_5820MHz_TX
test by :Lucas



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.173	48.59	64.83	-16.24	38.91	9.68	QP
2	0.173	23.15	54.83	-31.68	13.47	9.68	Average
3	0.288	35.97	60.60	-24.63	26.30	9.67	QP
4	0.288	13.93	50.60	-36.67	4.26	9.67	Average
5	0.566	38.37	56.00	-17.63	28.69	9.68	QP
6	0.566	17.73	46.00	-28.27	8.05	9.68	Average
7	1.698	26.03	56.00	-29.97	16.24	9.79	QP
8	1.698	10.55	46.00	-35.45	0.76	9.79	Average
9	7.169	29.81	60.00	-30.19	18.98	10.83	QP
10	7.169	15.65	50.00	-34.35	4.82	10.83	Average
11	22.617	30.07	60.00	-29.93	19.46	10.61	QP
12	22.617	15.78	50.00	-34.22	5.17	10.61	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 :5M_5G_5820MHz_TX
test by :Lucas

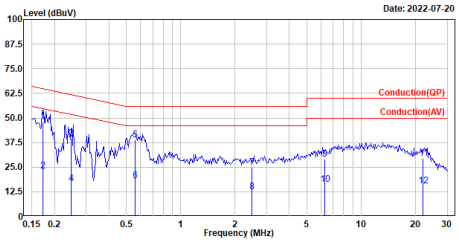


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.174	48.33	64.75	-16.42	38.67	9.66	QP
2	0.174	22.36	54.75	-32.39	12.70	9.66	Average
3	0.235	40.37	62.28	-21.91	30.71	9.66	QP
4	0.235	14.86	52.28	-37.42	5.20	9.66	Average
5	0.581	36.01	56.00	-19.99	26.35	9.66	QP
6	0.581	15.61	46.00	-30.39	5.95	9.66	Average
7	1.650	23.73	56.00	-32.27	13.96	9.77	QP
8	1.650	8.75	46.00	-37.25	-1.02	9.77	Average
9	3.634	22.72	56.00	-33.28	12.37	10.35	QP
10	3.634	10.15	46.00	-35.85	-0.20	10.35	Average
11	9.172	28.11	60.00	-31.89	17.31	10.80	QP
12	9.172	14.23	50.00	-35.77	3.43	10.80	Average

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

Mode 2: Transmit (10M-BW)

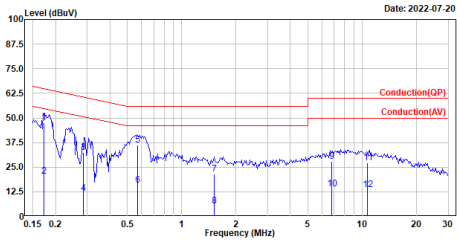
Site :HY-SR01
Condition :Line
Mode :10M_5G_5820MHz_TX
test by :Lucas



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.172	47.94	64.85	-16.91	38.26	9.68	QP
2	0.172	23.04	54.85	-31.81	13.36	9.68	Average
3	0.248	39.54	61.83	-22.29	29.86	9.68	QP
4	0.248	16.76	51.83	-35.07	7.08	9.68	Average
5	0.559	38.80	56.00	-17.20	29.12	9.68	QP
6	0.559	18.26	46.00	-27.74	8.58	9.68	Average
7	2.488	24.80	56.00	-31.20	14.82	9.98	QP
8	2.488	12.43	46.00	-33.57	2.45	9.98	Average
9	6.272	29.15	60.00	-30.85	18.32	10.83	QP
10	6.272	16.16	50.00	-33.84	5.33	10.83	Average
11	22.057	29.62	60.00	-30.38	18.99	10.63	QP
12	22.057	15.37	50.00	-34.63	4.74	10.63	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 :10M_5G_5820MHz_TX
test by :Lucas



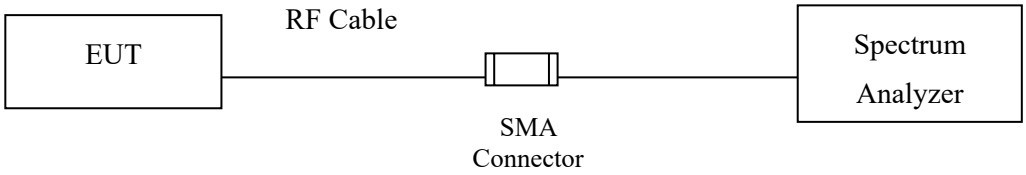
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	0.172	47.61	64.87	-17.26	37.95	9.66	QP
2	0.172	20.52	54.87	-34.35	10.86	9.66	Average
3	0.285	32.37	60.66	-28.29	22.72	9.65	QP
4	0.285	11.77	50.66	-38.89	2.12	9.65	Average
5	0.572	36.40	56.00	-19.60	26.74	9.66	QP
6	0.572	15.89	46.00	-30.11	6.23	9.66	Average
7	1.514	21.43	56.00	-34.57	11.67	9.76	QP
8	1.514	5.27	46.00	-40.73	-4.49	9.76	Average
9	6.762	27.81	60.00	-32.19	16.99	10.82	QP
10	6.762	13.90	50.00	-36.10	3.08	10.82	Average
11	10.728	27.12	60.00	-32.88	16.33	10.79	QP
12	10.728	13.65	50.00	-36.35	2.86	10.79	Average

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

3. Maximun conducted output power

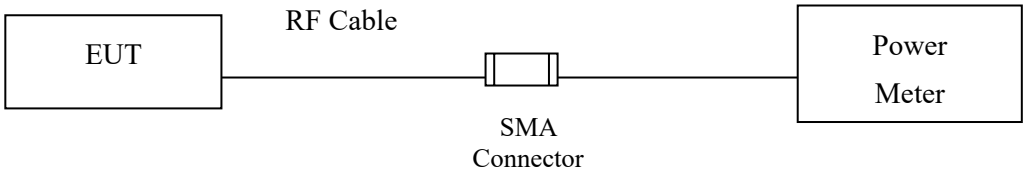
3.1. Test Setup

26dB Occupied Bandwidth

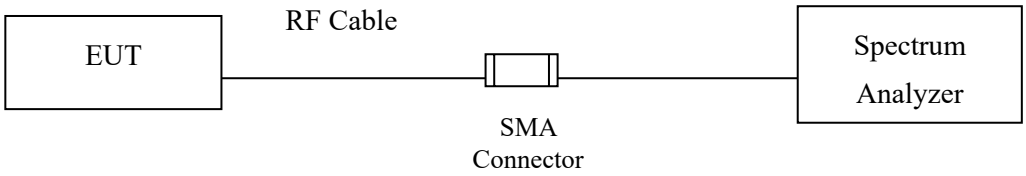


Conduction Power Measurement

Conduction Power Measurement (for 802.11an)



Conduction Power Measurement (for 802.11ac/ax)



3.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm 10 log B, where B is the 99% emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3.3. Test Procedure

As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater the 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW≦40MHz) Maximum conducted output power using KDB 789033 section E)3)b) Method PM-G (Measurement using a gated RF average power meter)
Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b) Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).

When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D03 section D) procedure is used for measurements.

3.4. Test Result of Maximum conducted output power

Product : Wireless image transmission module
Test Item : Maximum conducted output power
Test Mode : Mode 1: Transmit (5M-BW)
Test Date : 2022/07/26

Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	15.70	15.09	18.42	24
44	5220	15.61	14.86	18.26	24
48	5240	15.26	14.75	18.02	24
148	5740	26.00	26.02	29.02	30
156	5780	25.75	26.19	28.99	30
160	5800	25.53	26.20	28.89	30
164	5820	25.38	26.04	28.73	30

Note: Output Power Value (dBm) = 10*LOG (Chain A(mW)+ Chain B(mW))

Product : Wireless image transmission module
Test Item : Maximum conducted output power
Test Mode : Mode 2: Transmit (10M-BW)
Test Date : 2022/07/26

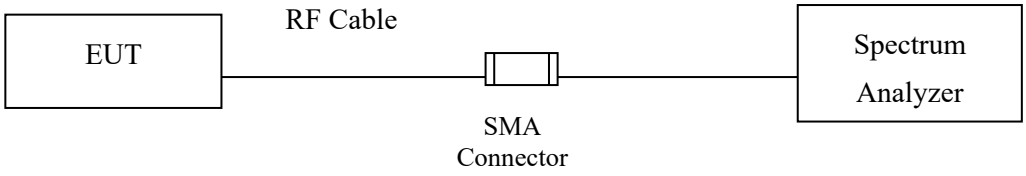
Maximum conducted output power Measurement:

Channel No.	Frequency (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit (dBm)
36	5180	16.84	16.91	19.89	24
44	5220	16.79	16.63	19.72	24
48	5240	16.89	16.67	19.79	24
148	5740	26.24	27.00	29.65	30
156	5780	25.85	26.54	29.22	30
160	5800	25.76	26.58	29.20	30
164	5820	25.94	26.70	29.35	30

Note: Output Power Value (dBm) = 10*LOG (Chain A(mW)+Chain B(mW))

4. Maximun Power Spectral Density

4.1. Test Setup



4.2. Limits

For the band 5.15-5.25 GHz,

(i) For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(iii) For fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-topoint U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(iv) For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the band 5.725-5.85 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point UNII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.3. Test Procedure

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.
The Peak Power Spectral Density using KDB 789033 section F) procedure, Create an average power spectrum for the EUT operating mode being tested by following the instructions in section E)2) for measuring maximum conducted output power using a spectrum analyzer.
SA-1 method is selected to run the test.

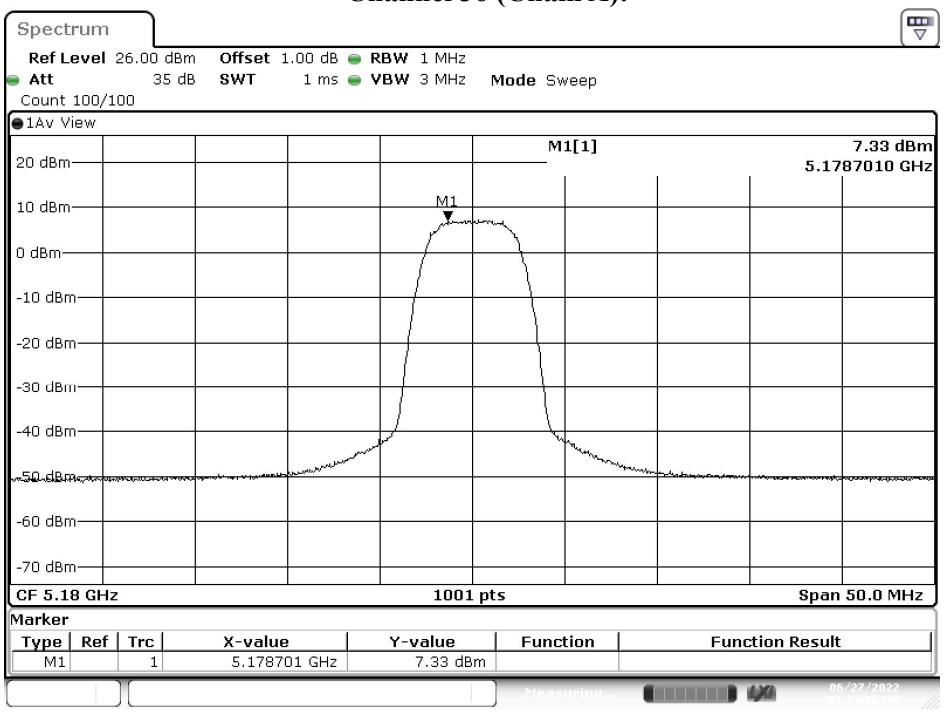
4.4. Test Result of Maximun Power Spectral Density

Product : Wireless image transmission module
Test Item : Maximun Power Spectral Density
Test Mode : Mode 1: Transmit (5M-BW)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	HT8	A	7.33	0.45	10.79	11	Pass
			B	6.26	0.45	9.72		
44	5220	HT8	A	6.93	0.45	10.39	11	Pass
			B	6.42	0.45	9.88		
48	5240	HT8	A	6.68	0.45	10.14	11	Pass
			B	6.26	0.45	9.72		
148	5740	HT8	A	10.38	0.45	20.82	30	Pass
			B	11.27	0.45	21.71		
156	5780	HT8	A	10.67	0.45	21.11	30	Pass
			B	12.21	0.45	22.65		
160	5800	HT8	A	10.64	0.45	21.08	30	Pass
			B	12.50	0.45	22.94		
164	5820	HT8	A	9.92	0.45	20.36	30	Pass
			B	11.07	0.45	21.51		

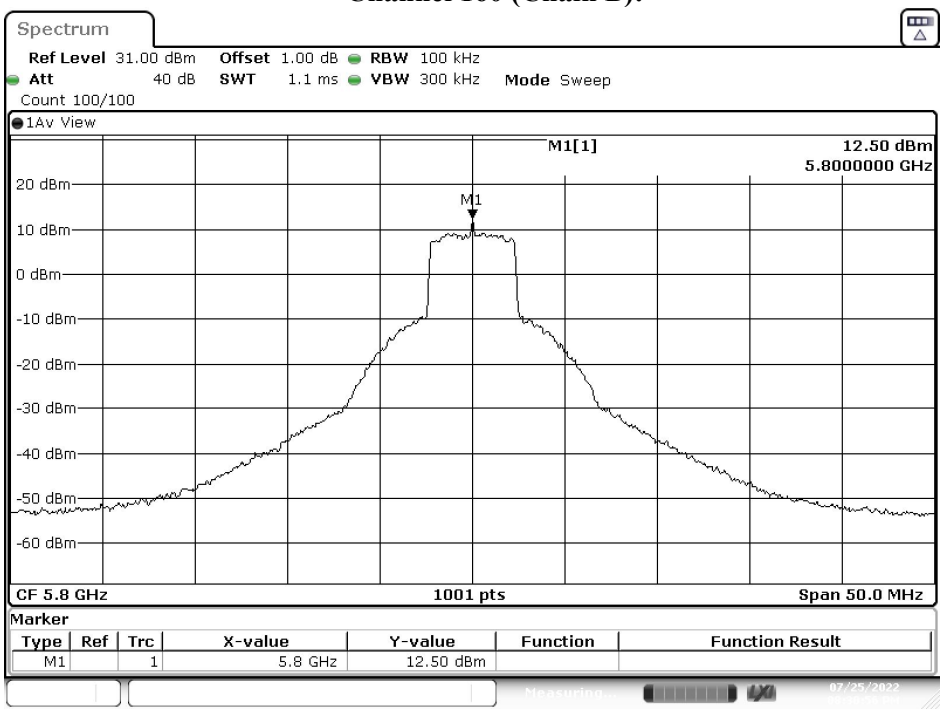
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor.

Channel 36 (Chain A):



Date: 27.JUN.2022 16:13:57

Channel 160 (Chain B):



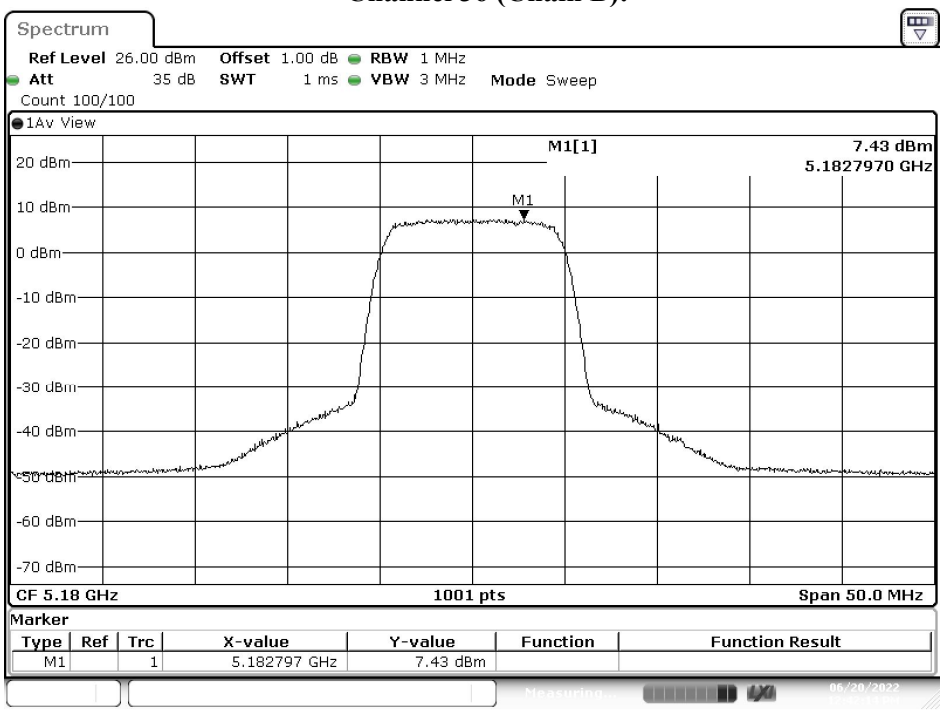
Date: 25.JUL.2022 20:30:56

Product : Wireless image transmission module
Test Item : Maximun Power Spectral Density
Test Mode : Mode 2: Transmit (10M-BW)

Channel No.	Frequency (MHz)	Data Rate (Mbps)	Chain	PPSD/MHz (dBm)	Duty factor (dB)	Total PPSD/MHz (dBm)	Limit (dBm)	Result
36	5180	HT8	A	6.74	0.45	10.20	11	Pass
			B	7.43	0.45	10.89		
44	5220	HT8	A	6.62	0.45	10.08	11	Pass
			B	7.33	0.45	10.79		
48	5240	HT8	A	6.67	0.45	10.13	11	Pass
			B	7.33	0.45	10.79		
148	5740	HT8	A	8.48	0.45	18.92	30	Pass
			B	7.28	0.45	17.72		
156	5780	HT8	A	8.89	0.45	19.33	30	Pass
			B	8.33	0.45	18.77		
160	5800	HT8	A	8.32	0.45	18.76	30	Pass
			B	7.94	0.45	18.38		
164	5820	HT8	A	7.89	0.45	18.33	30	Pass
			B	7.82	0.45	18.26		

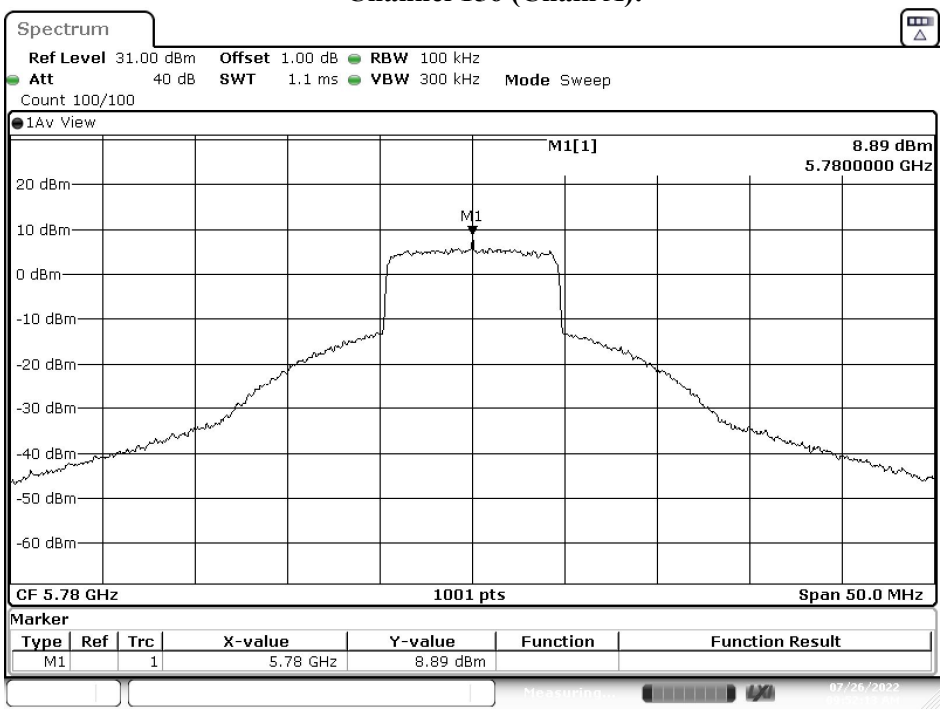
Note: Total PPSD = 10*log(Chain A (mW) + Chain B (mW) + Duty factor

Channel 36 (Chain B):



Date: 20.JUN.2022 12:42:14

Channel 156 (Chain A):

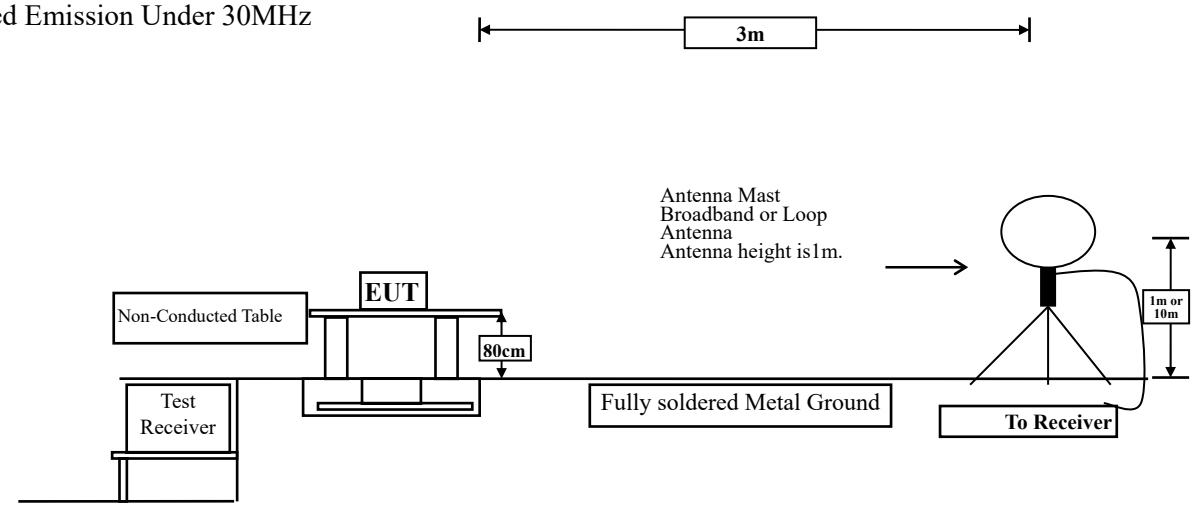


Date: 26.JUL.2022 09:52:13

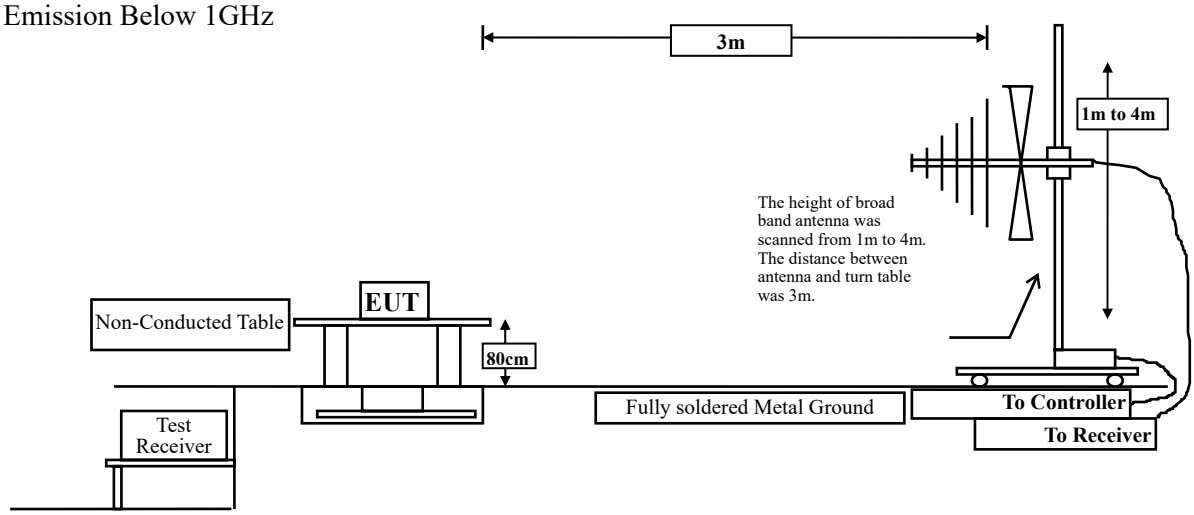
5. Radiated Emission

5.1. Test Setup

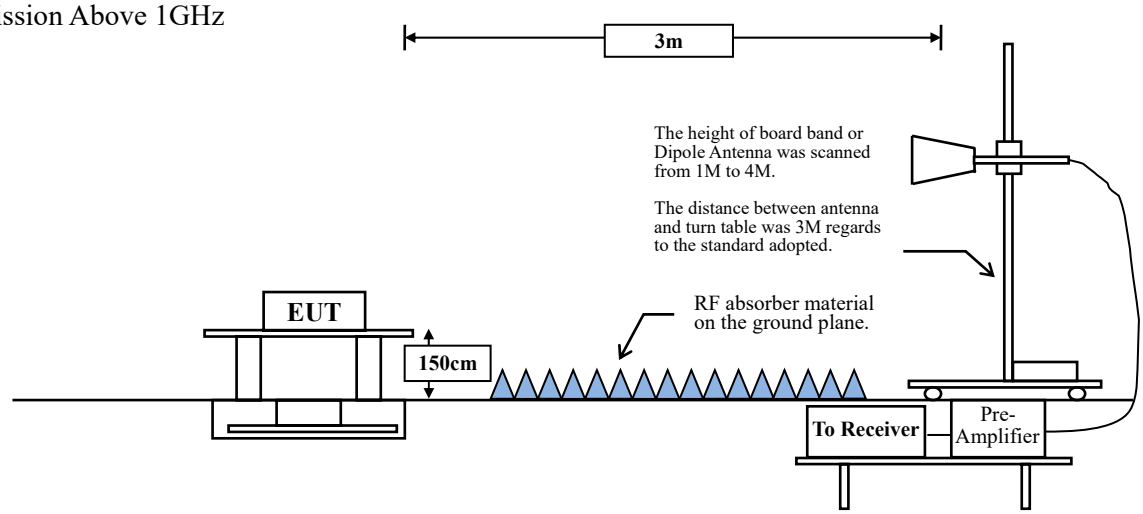
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



5.2. Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB 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)

5.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to FCC KDB-789033 test procedure for compliance to FCC 47CFR 15. 407 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 form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.

RBW = 1MHz.

VBW ≥ 3MHz.

According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

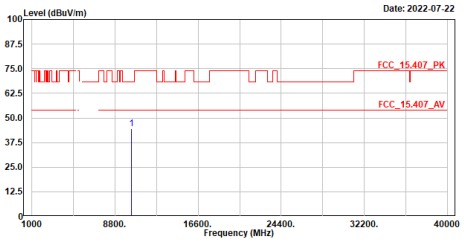
5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
5M	89.74	5.3261	188	200
10M	90.11	5.3478	187	200

Note: Duty Cycle Refer to Section 8.

5.4. Test Result of Radiated Emission

Mode 1: Transmit (5M-BW)

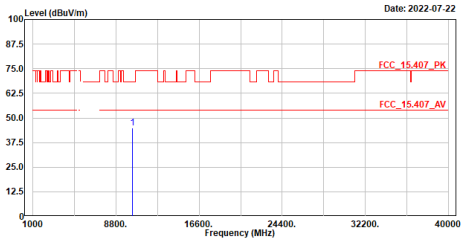
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	44.50	68.22	-23.72	38.43	6.07	Peak

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

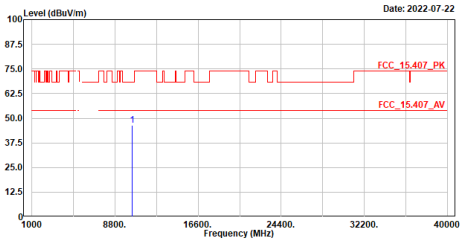
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	44.93	68.22	-23.29	38.86	6.07	Peak

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

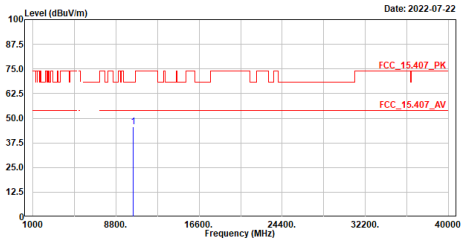
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	46.25	68.22	-21.97	40.12	6.13	Peak

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

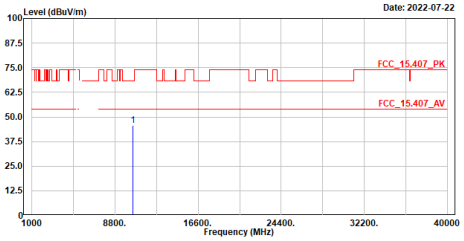
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	45.67	68.22	-22.55	39.54	6.13	Peak

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

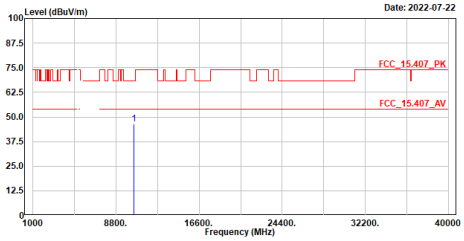
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	45.64	68.22	-22.58	39.49	6.15	Peak

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

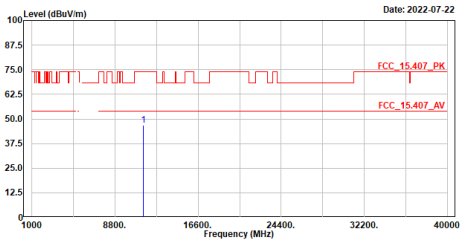
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	46.52	68.22	-21.70	40.37	6.15	Peak

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

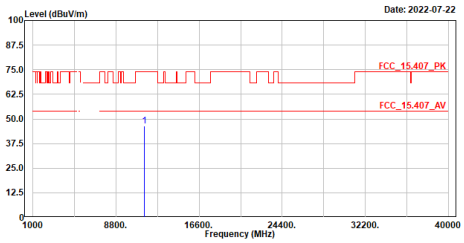
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11480.000	46.96	74.00	-27.04	39.91	7.05	Peak

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

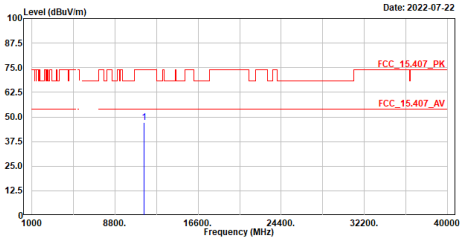
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11480.000	46.28	74.00	-27.72	39.23	7.05	Peak

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

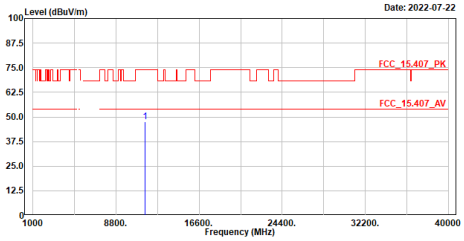
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5780MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11560.000	47.26	74.00	-26.74	40.02	7.24	Peak

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

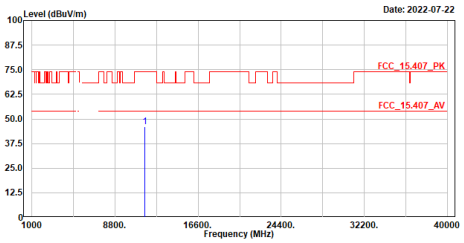
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5780MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11560.000	47.57	74.00	-26.43	40.33	7.24	Peak

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

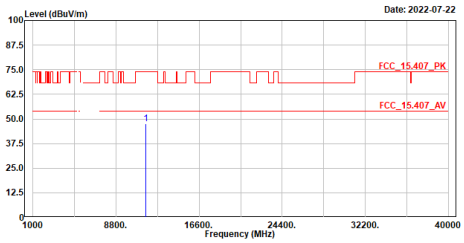
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5800MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11600.000	46.08	74.00	-27.92	38.69	7.39	Peak

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

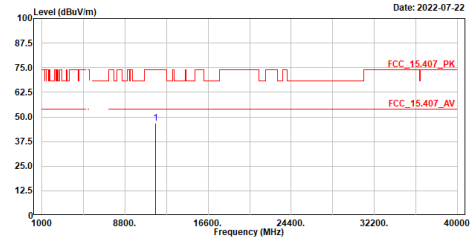
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5800MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11600.000	47.39	74.00	-26.61	40.00	7.39	Peak

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

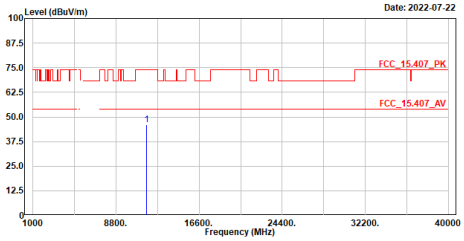
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5820MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11640.000	46.62	74.00	-27.38	39.12	7.50	Peak

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

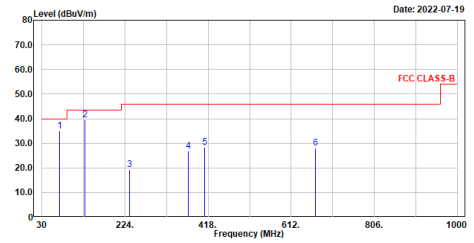
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5820MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11640.000	45.85	74.00	-28.15	38.35	7.50	Peak

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

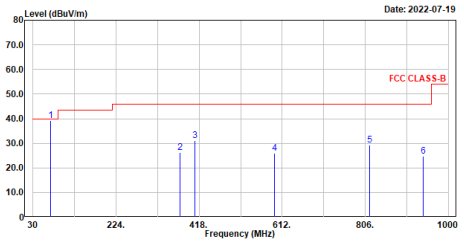
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_5g_5820MHz
Test BY :Johnny



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	70.740	35.15	40.00	-4.85	61.48	-26.33	QP
2	129.910	39.51	43.50	-3.99	64.73	-25.22	QP
3	234.670	19.42	46.00	-26.58	45.12	-25.70	QP
4	371.440	26.89	46.00	-19.11	48.47	-21.58	QP
5	410.240	28.46	46.00	-17.54	49.21	-20.75	QP
6	668.260	28.06	46.00	-17.94	43.34	-15.28	QP

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-CB01
Condition :3m ,VERTICAL
Mode :TX_5g_5820MHz
Test BY :Johnny

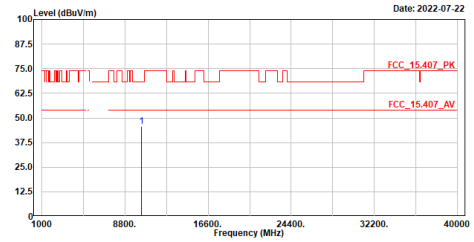


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	70.740	39.24	40.00	-0.76	65.57	-26.33	QP
2	374.350	26.29	46.00	-19.71	47.79	-21.50	QP
3	408.300	31.02	46.00	-14.98	51.79	-20.77	QP
4	594.540	25.95	46.00	-20.05	42.08	-16.13	QP
5	816.670	29.19	46.00	-16.81	42.47	-13.28	QP
6	941.800	24.88	46.00	-21.12	36.70	-11.82	QP

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.

Mode 2: Transmit (10M-BW)

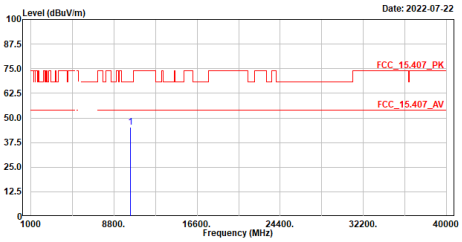
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	45.69	68.22	-22.53	39.62	6.07	Peak

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

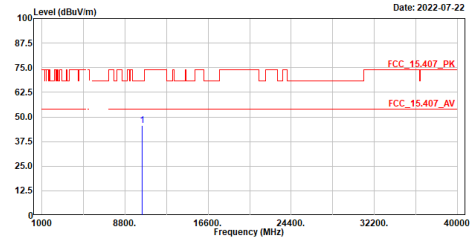
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10360.000	45.47	68.22	-22.75	39.40	6.07	Peak

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

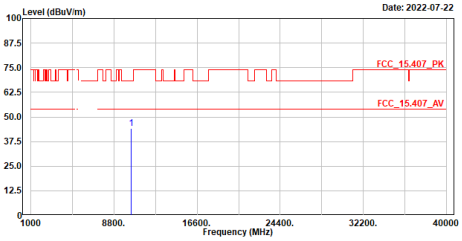
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	45.69	68.22	-22.53	39.56	6.13	Peak

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

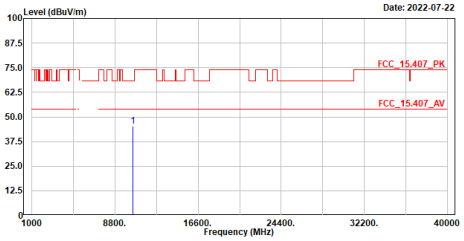
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5220MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10440.000	44.11	68.22	-24.11	37.98	6.13	Peak

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

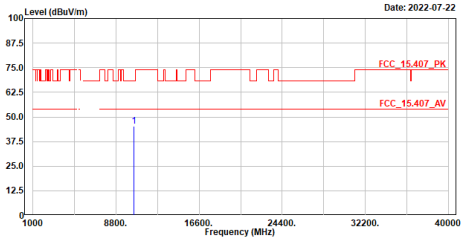
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	45.17	68.22	-23.05	39.02	6.15	Peak

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

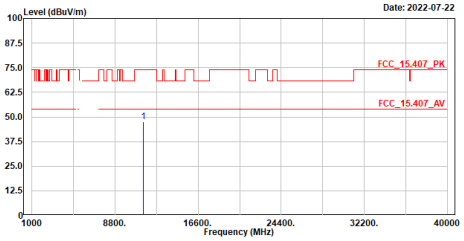
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5240MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	10480.000	45.33	68.22	-22.89	39.18	6.15	Peak

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

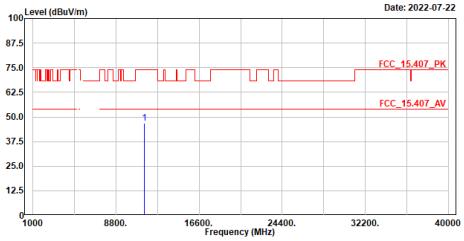
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11480.000	47.49	74.00	-26.51	40.44	7.05	Peak

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

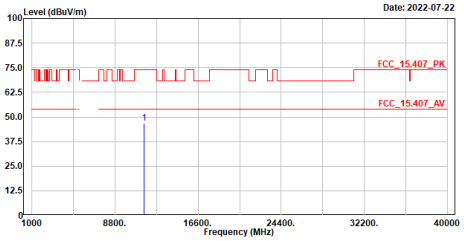
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11480.000	46.64	74.00	-27.36	39.59	7.05	Peak

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

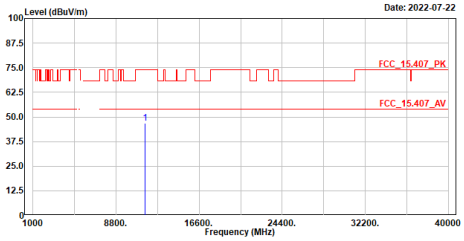
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5780MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11560.000	46.83	74.00	-27.17	39.59	7.24	Peak

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

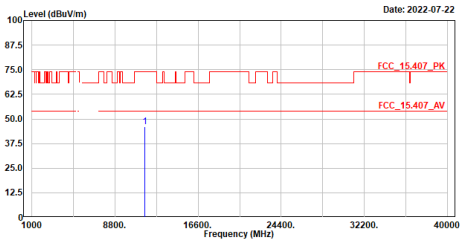
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5780MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11560.000	46.78	74.00	-27.22	39.54	7.24	Peak

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

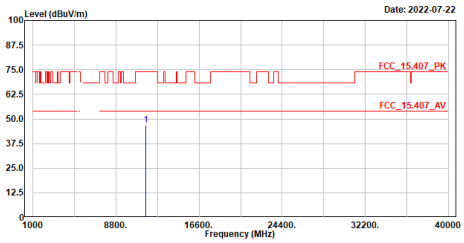
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5800MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11600.000	45.96	74.00	-28.04	38.57	7.39	Peak

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

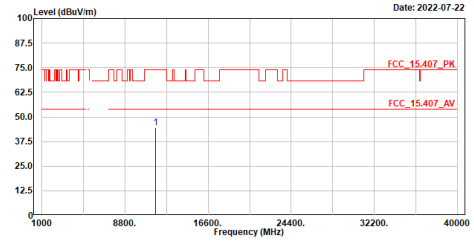
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5800MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11600.000	46.68	74.00	-27.32	39.29	7.39	Peak

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

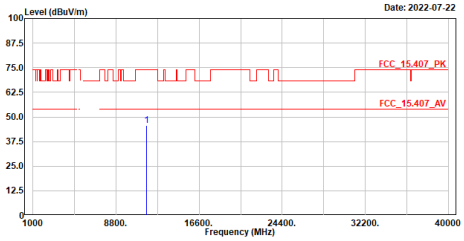
Site :HY-CB03
Condition :3m ,HORIZONTAL
Mode :TX_5G_5820MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11640.000	44.66	74.00	-29.34	37.16	7.50	Peak

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

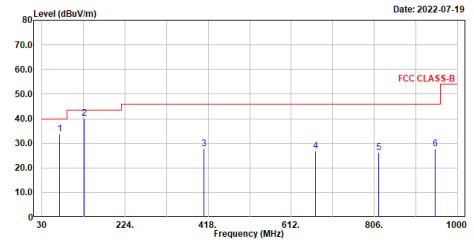
Site :HY-CB03
Condition :3m ,VERTICAL
Mode :TX_5G_5820MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	11640.000	45.69	74.00	-28.31	38.19	7.50	Peak

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

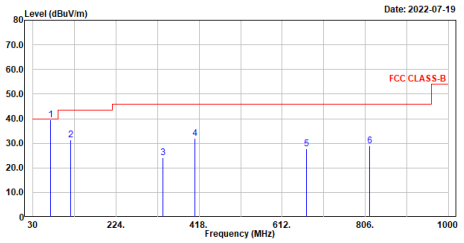
Site :HY-CB01
Condition :3m ,HORIZONTAL
Mode :TX_5g_5820MHz
Test BY :Johnny



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	70.740	33.68	40.00	-6.32	60.01	-26.33	QP
2	128.940	40.17	43.50	-3.33	65.50	-25.33	QP
3	408.300	27.89	46.00	-18.11	48.66	-20.77	QP
4	668.260	26.88	46.00	-19.12	42.16	-15.28	QP
5	816.670	26.13	46.00	-19.87	39.41	-13.28	QP
6	948.590	27.91	46.00	-18.09	39.66	-11.75	QP

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-CB01
Condition :3m ,VERTICAL
Mode :TX_5g_5820MHz
Test BY :Johnny



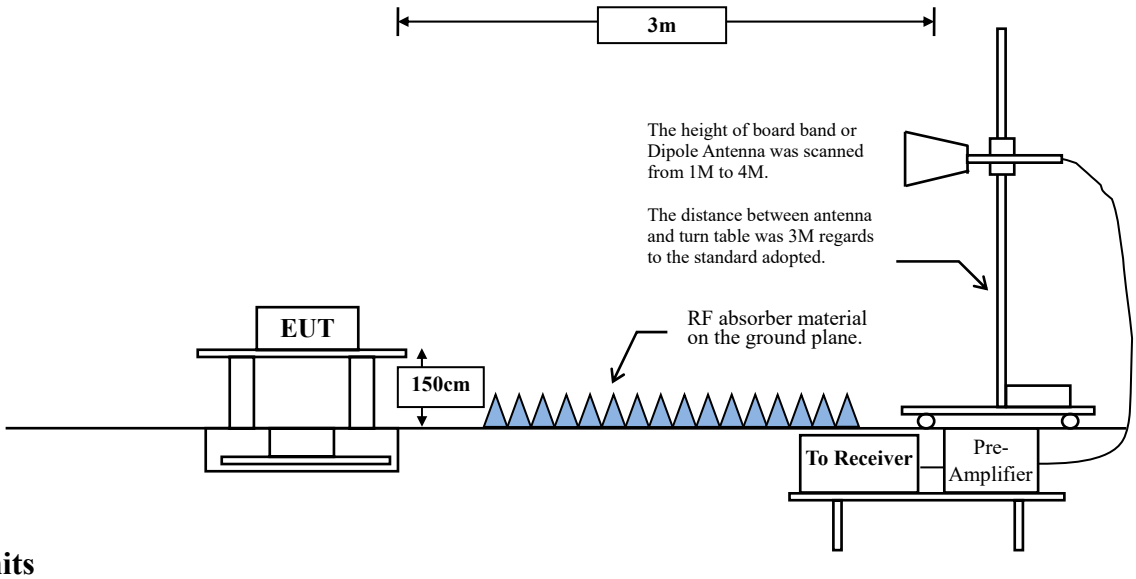
No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	70.740	39.68	40.00	-0.32	66.01	-26.33	QP
2	118.270	31.47	43.50	-12.03	57.90	-26.43	QP
3	333.610	24.22	46.00	-21.78	46.63	-22.41	QP
4	408.300	32.13	46.00	-13.87	52.90	-20.77	QP
5	668.260	27.83	46.00	-18.17	43.11	-15.28	QP
6	816.670	28.85	46.00	-17.15	42.13	-13.28	QP

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.

6. Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. Limits

The provisions of Section 15.205 of this part apply to intentional radiators operating under this section.

Radiated emissions which fall in the restricted bands, as defined in Section 15.205, must also comply with the radiated emission limits specified in Section 15.209:

FCC Part 15 Subpart C Paragraph 15.209 Limits		
Frequency MHz	uV/m @3m	dBµV/m@3m
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

Remarks : 1. RF Voltage (dBµV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

6.3. Test Procedure

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table can rotate 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 below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

RBW and VBW Parameter setting:

According to KDB 789033 section II.G.5 Procedure for Unwanted Maximum Emissions Measurements above 1000 MHz.

RBW = 1MHz.

VBW ≥ 3MHz.

According to KDB 789033 section II.G.6 Procedures for Average Unwanted Emissions Measurements above 1000 MHz.

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 1/T, when duty cycle < 98 %

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

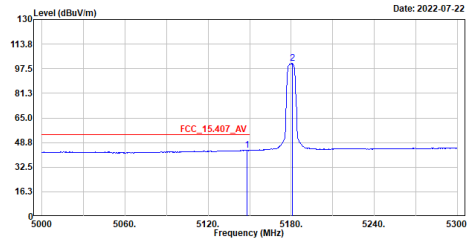
5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
5M	89.74	5.3261	188	200
10M	90.11	5.3478	187	200

Note: Duty Cycle Refer to Section 8.

6.4. Test Result of Band Edge

Mode 1: Transmit (5M-BW)

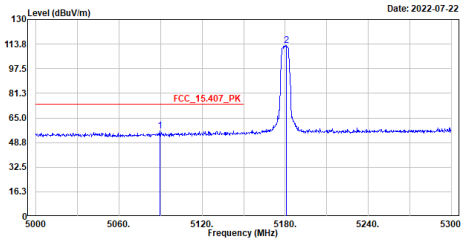
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5147.921	43.61	54.00	-10.39	26.16	17.45	Average
2	5180.891	100.94	------	------	83.39	17.55	Average

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

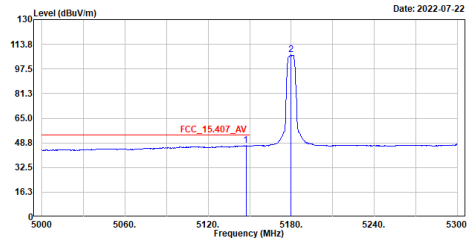
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5089.703	56.34	74.00	-17.66	39.01	17.33	Peak
2	5180.891	112.85	------	------	95.30	17.55	Peak

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

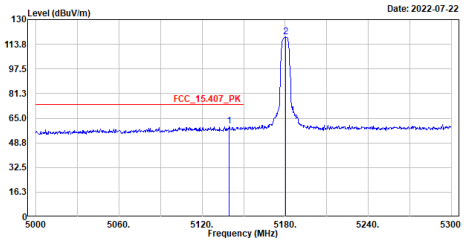
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5147.327	46.95	54.00	-7.05	29.51	17.44	Average
2	5180.000	106.73	------	------	89.18	17.55	Average

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

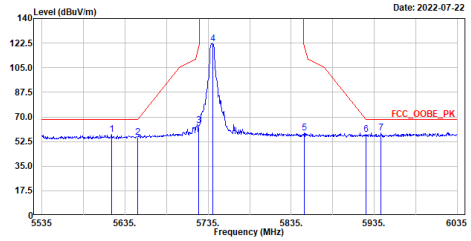
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5180MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5139.604	59.75	74.00	-14.25	42.32	17.43	Peak
2	5180.297	118.48	------	------	100.93	17.55	Peak

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

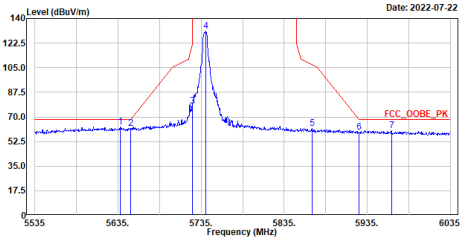
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5740MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5618.664	57.72	68.20	-10.48	39.26	18.46	Peak
2	5650.000	55.60	68.21	-12.61	37.34	18.26	Peak
3	5724.109	64.07	120.17	-56.10	45.31	18.76	Peak
4	5740.445	122.29	------	------	103.44	18.85	Peak
5	5850.842	58.81	120.28	-61.47	39.71	19.10	Peak
6	5925.000	57.69	68.21	-10.52	38.18	19.51	Peak
7	5943.416	58.80	68.20	-9.40	39.22	19.58	Peak

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

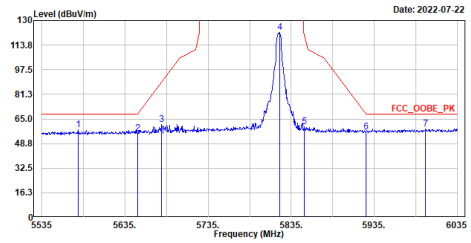
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5740MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5637.970	62.69	68.20	-5.51	44.35	18.34	Peak
2	5650.000	61.60	68.21	-6.61	43.34	18.26	Peak
3	5724.604	77.55	121.30	-43.75	58.79	18.76	Peak
4	5740.940	130.76	------	------	111.91	18.85	Peak
5	5868.664	61.89	106.97	-45.08	42.68	19.21	Peak
6	5925.000	59.15	68.21	-9.06	39.64	19.51	Peak
7	5964.208	60.05	68.20	-8.15	40.43	19.62	Peak

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

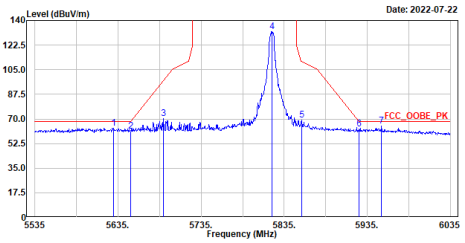
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5820MHz
Test BY :Ashton Chiu



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5579.060	57.79	68.20	-10.41	39.30	18.49	Peak
2	5650.000	55.35	68.21	-12.86	37.09	18.26	Peak
3	5678.564	61.52	89.34	-27.82	43.04	18.48	Peak
4	5821.139	121.96	------	------	102.93	19.03	Peak
5	5850.842	59.63	120.28	-60.65	40.53	19.10	Peak
6	5925.000	56.25	68.21	-11.96	36.74	19.51	Peak
7	5996.881	58.49	68.20	-9.71	38.82	19.67	Peak

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_5G_5820MHz
Test BY :Ashton Chiu

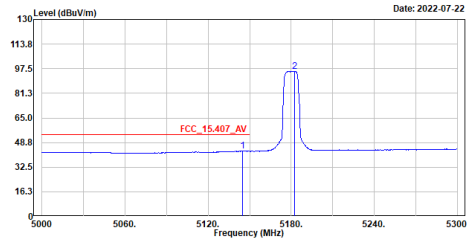


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5630.049	63.39	68.20	-4.81	45.00	18.39	Peak
2	5650.000	61.09	68.21	-7.12	42.83	18.26	Peak
3	5689.951	70.17	97.76	-27.59	51.61	18.56	Peak
4	5820.148	132.10	------	------	113.07	19.03	Peak
5	5855.792	69.21	110.58	-41.37	50.09	19.12	Peak
6	5925.000	62.61	68.21	-5.60	43.10	19.51	Peak
7	5952.327	64.88	68.20	-3.32	45.28	19.60	Peak

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

Mode 2: Transmit (10M-BW)

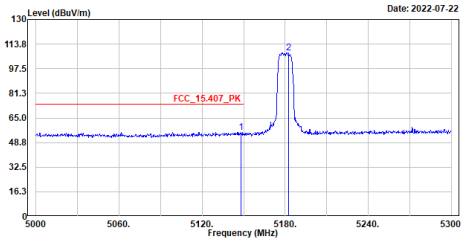
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5144.900	43.26	54.00	-10.74	25.82	17.44	Average
2	5182.700	95.89	------	------	78.33	17.56	Average

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

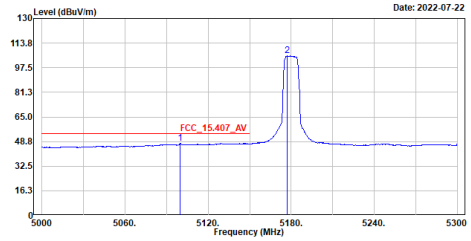
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5147.900	55.56	74.00	-18.44	38.11	17.45	Peak
2	5182.700	108.12	------	------	90.56	17.56	Peak

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

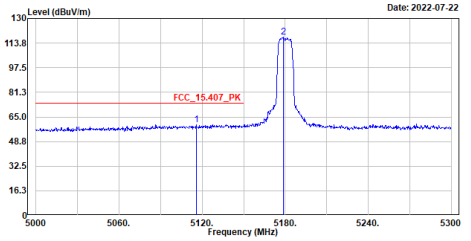
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5099.900	47.47	54.00	-6.53	30.13	17.34	Average
2	5177.300	105.40	------	------	87.86	17.54	Average

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

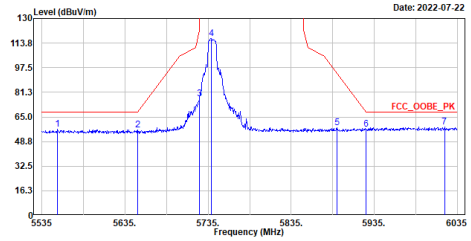
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5180MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5115.800	59.91	74.00	-14.09	42.54	17.37	Peak
2	5178.500	117.83	------	------	100.28	17.55	Peak

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

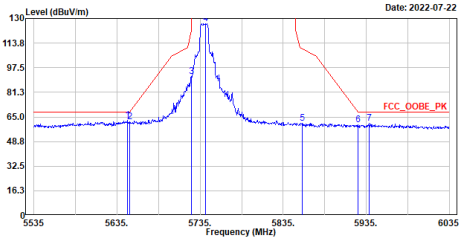
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5553.500	56.79	68.20	-11.41	38.39	18.40	Peak
2	5650.000	56.63	68.21	-11.58	38.37	18.26	Peak
3	5725.000	76.93	122.20	-45.27	58.17	18.76	Peak
4	5738.500	116.65	------	------	97.83	18.82	Peak
5	5890.000	58.07	94.10	-36.03	38.70	19.37	Peak
6	5925.000	56.75	68.21	-11.46	37.24	19.51	Peak
7	6019.500	58.51	68.20	-9.69	38.74	19.77	Peak

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

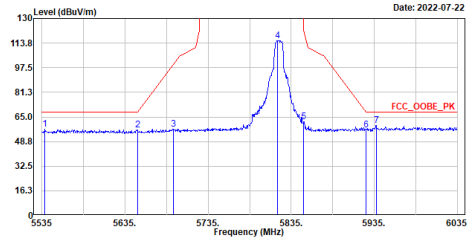
Site :HY-CB03
Condition :3m ,Vertical
Mode :TX_5G_5740MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5647.500	62.56	68.20	-5.64	44.29	18.27	Peak
2	5650.000	61.92	68.21	-6.29	43.66	18.26	Peak
3	5724.500	91.61	121.06	-29.45	72.85	18.76	Peak
4	5741.500	126.74	------	------	107.88	18.86	Peak
5	5858.000	60.75	109.96	-49.21	41.61	19.14	Peak
6	5925.000	60.06	68.21	-8.15	40.55	19.51	Peak
7	5938.500	61.03	68.20	-7.17	41.47	19.56	Peak

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

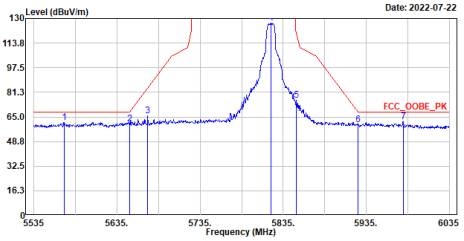
Site :HY-CB03
Condition :3m ,Horizontal
Mode :TX_5G_5820MHz
Test BY :Jing Chang



No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5538.500	56.94	68.20	-11.26	38.58	18.36	Peak
2	5650.000	56.23	68.21	-11.98	37.97	18.26	Peak
3	5693.000	57.13	100.02	-42.89	38.55	18.58	Peak
4	5818.500	115.49	------	------	96.46	19.03	Peak
5	5850.000	61.81	122.20	-60.39	42.73	19.08	Peak
6	5925.000	56.32	68.21	-11.89	36.81	19.51	Peak
7	5937.500	59.21	68.20	-8.99	39.67	19.54	Peak

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_5G_5820MHz
Test BY :Jing Chang

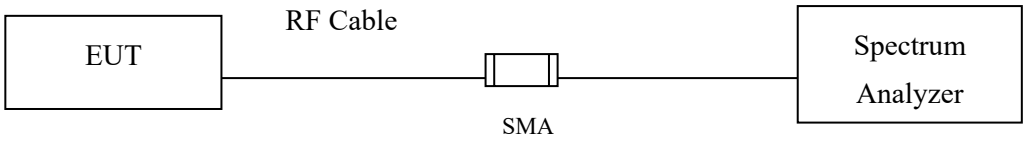


No.	Frequency	Level	Limit Line	Over Limit	Read Level	Factor	Remark
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	
1	5571.500	61.41	68.20	-6.79	42.95	18.46	Peak
2	5650.000	60.21	68.21	-8.00	41.95	18.26	Peak
3	5672.000	65.60	84.48	-18.88	47.17	18.43	Peak
4	5820.000	126.89	------	------	107.86	19.03	Peak
5	5850.500	75.94	121.06	-45.12	56.85	19.09	Peak
6	5925.000	59.96	68.21	-8.25	40.45	19.51	Peak
7	5979.500	61.91	68.20	-6.29	42.27	19.64	Peak

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

7. Occupied Bandwidth

7.1. Test Setup



7.2. Limits

For the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

7.3. Test Procedure

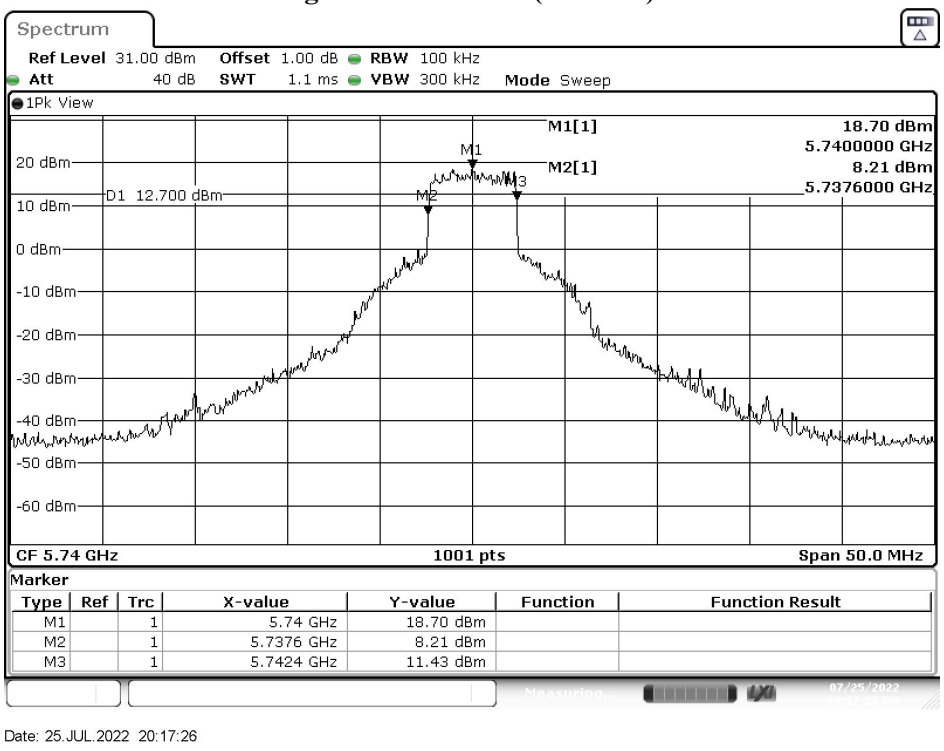
The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

7.4. Test Result of Occupied Bandwidth

Product : Wireless image transmission module
Test Item : Occupied Bandwidth Data
Test Mode : Mode 1: Transmit (5M-BW)

Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
148	5740	A	4800	>500	Pass
156	5780	A	4700	>500	Pass
160	5820	A	4750	>500	Pass
164	5820	A	4700	>500	Pass
148	5740	B	4550	>500	Pass
156	5780	B	4700	>500	Pass
160	5820	B	4800	>500	Pass
164	5820	B	4800	>500	Pass

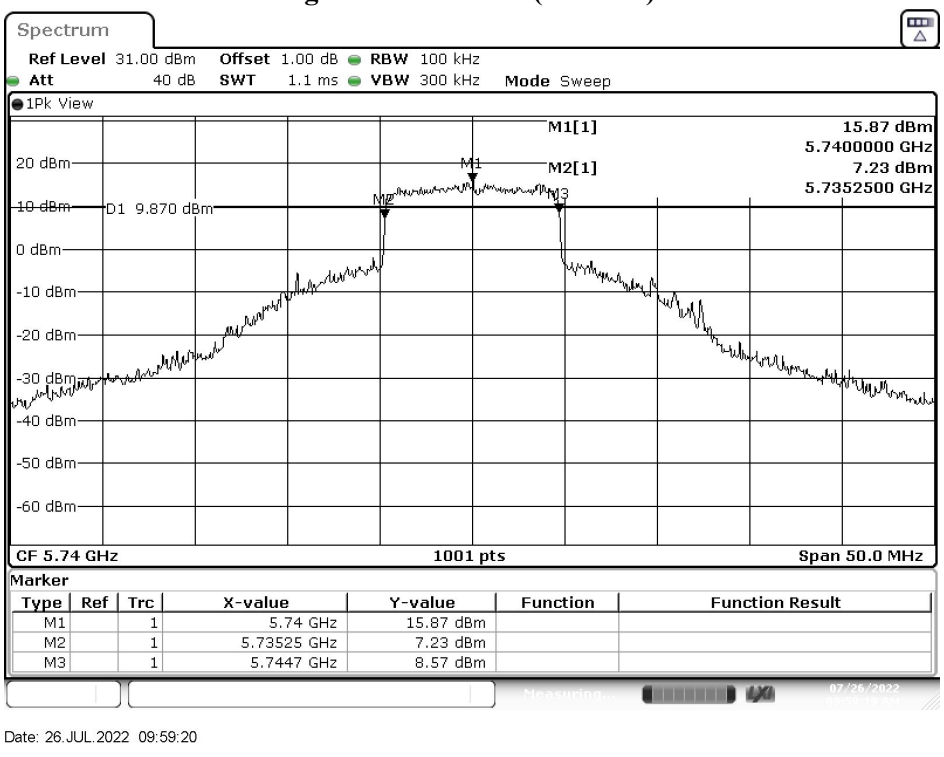
Figure Channel 148 (Chain A):



Product : Wireless image transmission module
Test Item : Occupied Bandwidth Data
Test Mode : Mode 2: Transmit (10M-BW)

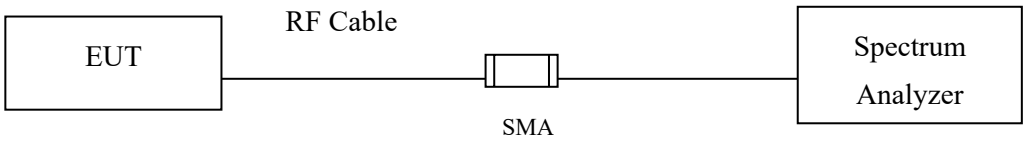
Channel No.	Frequency (MHz)	Chain	Measurement Level (kHz)	Required Limit (kHz)	Result
148	5740	A	9350	>500	Pass
156	5780	A	9300	>500	Pass
160	5820	A	9250	>500	Pass
164	5820	A	9200	>500	Pass
148	5740	B	9450	>500	Pass
156	5780	B	9350	>500	Pass
160	5820	B	9450	>500	Pass
164	5820	B	9400	>500	Pass

Figure Channel 148 (Chain B):



8. Duty Cycle

8.1. Test Setup



8.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to U-NII test procedure of KDB789033 for compliance to FCC 47CFR 15.407 requirements.

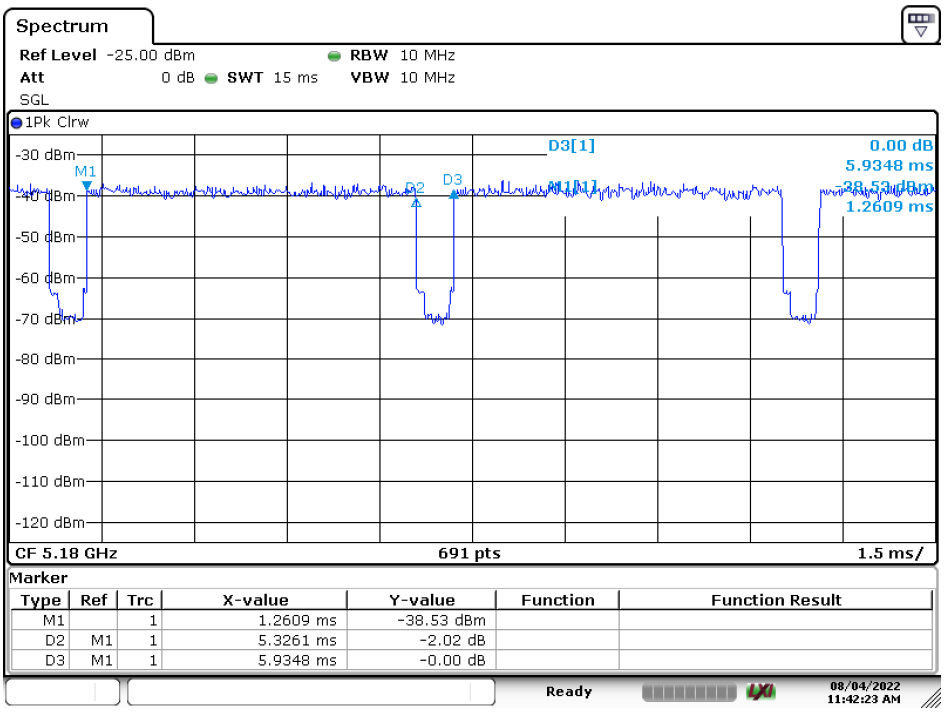
8.3. Test Result of Duty Cycle

Product : Wireless image transmission module
Test Item : Duty Cycle
Test Mode : Transmit

Duty Cycle Formula:
Duty Cycle = Ton / (Ton + Toff)
Duty Factor = 10 Log (1/Duty Cycle)
Results:

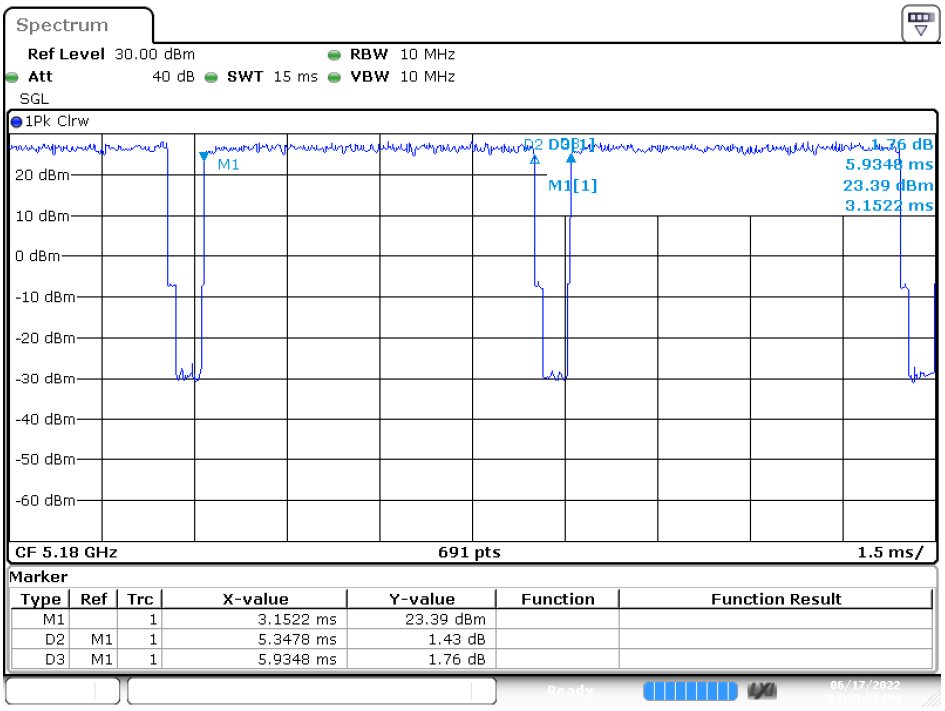
5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
5M	5.3261	5.9348	89.74	0.47
10M	5.3478	5.9348	90.11	0.45

5M



Date: 4.AUG.2022 11:42:23

10M



Date: 17.JUN.2022 16:50:52