

# FCC Test Report

Product Name	InstaShow X Host
Model No	WDC30R,WDC30SER,WDC30+R,WDC31R
FCC ID.	JVPWDC30R

Applicant	BenQ Corporation
Address	16 Jihu Road, 11492 Neihu, Taipei, TAIWAN

Date of Receipt	Sep. 08, 2021
Issued Date	Mar. 16, 2022
Report No.	2190300R-RFUSWL5V01-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: Mar. 16, 2022

Report No.: 2190300R-RFUSWL5V01-A



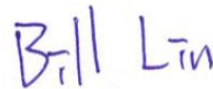
Product Name	InstaShow X Host
Applicant	BenQ Corporation
Address	16 Jihu Road, 11492 Neihu, Taipei, TAIWAN
Manufacturer	Shuttle Inc.
Model No.	WDC30R,WDC30SER,WDC30+R,WDC31R
FCC ID.	JVPWDC30R
EUT Rated Voltage	AC 100-240V / 50-60Hz
EUT Test Voltage	AC 120V / 60Hz
Trade Name	BenQ
Applicable Standard	FCC CFR Title 47 Part 15 Subpart E ANSI C63.4: 2014, ANSI C63.10: 2013 KDB Publication 789033
Test Result	Complied

Documented By :



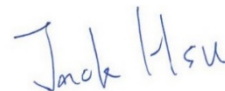
( Senior Project Specialist / Genie Chang )

Tested By :



( Senior Engineer / Bill Lin )

Approved By :



( Senior Engineer / Jack Hsu )

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## Revision History

Report No.	Version	Description	Issued Date
2190300R-RFUSWL5V01-A	V1.0	Initial issue of report.	2022-03-16

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	InstaShow X Host
Trade Name	BenQ
Model No.	WDC30R,WDC30SER,WDC30+R,WDC31R
FCC ID.	JVPWDC30R
Frequency Range	802.11a/n/ac/ax-20MHz: 5180-5240MHz, 5745-5825MHz 802.11n/ac/ax-40MHz: 5190-5230, 5755-5795MHz 802.11ac/ax-80MHz: 5210MHz, 5775MHz
Number of Channels	802.11a/n/ac/ax-20MHz: 9; 802.11n/ac/ax-40MHz: 4, 802.11ac/ax-80MHz: 2
Data Rate	802.11a: 6 - 54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps 802.11ax: up to 1201MHz
Type of Modulation	802.11a/n/ac/ax: OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Channel Control	Auto
Antenna type	Dipole Antenna
HDMI Cable	MFR: AVIER, M/N: AVFH2010BKV
Power Adapter	MFR: FSP, M/N: FSP040-DHMN3 Input: AC 100-240V, 50/60Hz, 1.2A Output: DC 12V, 3.34A, 40W Cable Out: Non-shielded, 1.5m

#### Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain	Directional Gain
1.	WHA YU	N/A	Dipole Antenna	4.3dBi for 5150~5250 GHz 4.5dBi for 5725~5850 GHz	7.31dBi for 5150~5250 GHz
2.	WHA YU	N/A	Dipole Antenna	4.3dBi for 5150~5250 GHz 4.5dBi for 5725~5850 GHz	7.51dBi for 5725~5850 GHz

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

802.11a/n/ac/ax-20MHz Center Working Frequency of Each Channel:

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 149:	5745 MHz	Channel 153:	5765 MHz	Channel 157:	5785 MHz	Channel 161:	5805 MHz
Channel 165:	5825 MHz						

802.11n/ac/ax-40MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 38:	5190 MHz	Channel 46:	5230 MHz	Channel 151:	5755 MHz	Channel 159:	5795 MHz

802.11ac/ax-80MHz Center Working Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 42:	5210 MHz	Channel 155:	5775 MHz				

Note:

1. This device is an InstaShow X Host with built-in 5GHz WLAN transceiver.
2. It's declared by manufacture about all models are electrically identical, different model names for marketing purpose. The identification of test sample is WDC30R.
3. Evaluate all modes and only the worst case is shown in the report.
4. This device is not support partial RU.
5. These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance of transmitter with Part 15 Subpart E for Unlicensed National Information Infrastructure devices.

Test Mode	Mode 1: Transmit 802.11a Mode 2: Transmit 802.11ax-20MBW Mode 3: Transmit 802.11ax-40MBW Mode 4: Transmit 802.11ax-80MBW Mode 5: Transmit 802.11ax-20MBW-Beamforming Mode 6: Transmit 802.11ax-40MBW-Beamforming Mode 7: Transmit 802.11ax-80MBW-Beamforming
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## 1.2. Tested System Details

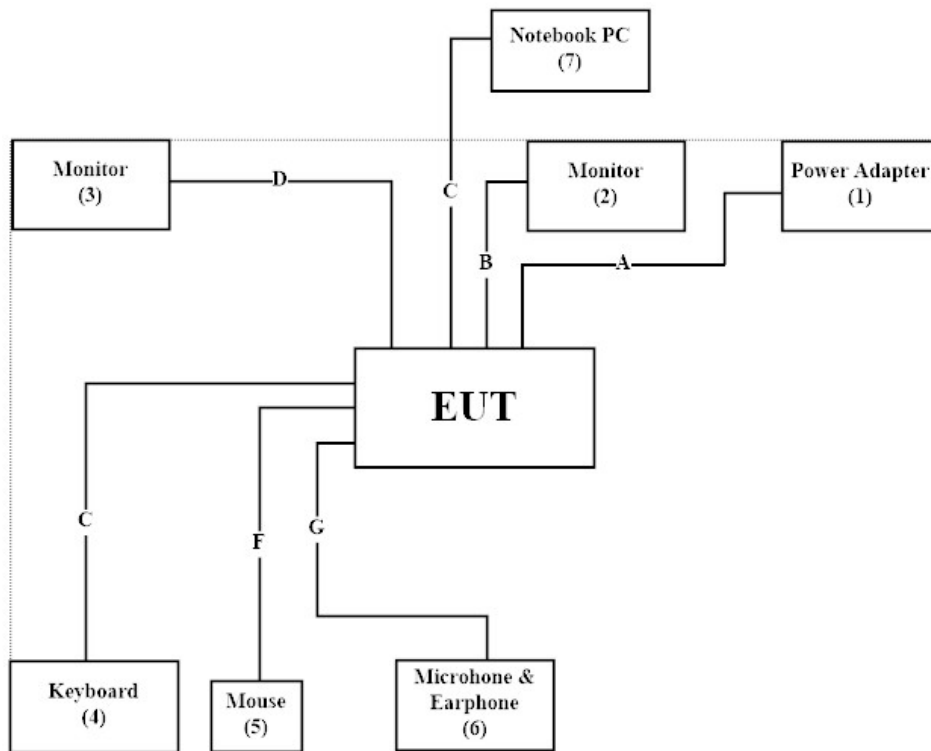
The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Power Adapter	FSP	FSP040-DHMN3	N/A	N/A
2	Monitor	Lenovo	A21215FS0	V5DMD987	Non-shielded, 1.8m
3	Monitor	ASUS	VS229HA	F4LMQS135395	Non-shielded, 1.8m
4	Keyboard	Logitech	K120	N/A	N/A
5	Mouse	Logitech	U0026	N/A	N/A
6	Microphone & Earphone	Verbatim	C09024VB	N/A	N/A
7	Notebook PC	DELL	Latitude E5440	74BTK32	N/A

	Signal Cable Type	Signal cable Description
A	Power Cable	Non-shielded, 1.5m
B	HDMI Cable	Shielded, 1.8m
C	LAN Cable	Non-shielded, 3m
D	HDMI Cable	Shielded, 1.8m
E	USB Cable	Shielded, 1.5m
F	USB Cable	Non-shielded, 1.8m
G	Microphone & Earphone Cable	Shielded, 1.2m



### 1.3. Configuration of tested System



### 1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “QAtool Version 0.0.2.15” 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	25.1°C
	Humidity (%RH)	10~90 %	57.6 %
Radiated Emission	Temperature (°C)	10~40 °C	24.3°C
	Humidity (%RH)	10~90 %	58.4%
Conductive	Temperature (°C)	10~40 °C	24.0°C
	Humidity (%RH)	10~90 %	60.9%

**USA : FCC Registration Number: TW0033**

**Canada : IC Registration 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](mailto:info.tw@dekra.com)  
Website : <http://www.dekra.com.tw>

## 1.6. List of Test Equipment

### For Conduction measurements /SH1

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	EMI Test Receiver	R&S	ESR7	101601	2021.06.19	2022.06.18
X	Two-Line V-Network	R&S	ENV216	101306	2021.04.08	2022.04.07
X	Two-Line V-Network	R&S	ENV216	101307	2021.05.04	2022.05.03
X	Coaxial Cable	DEKRA	RG400_BNC	RF001	2021.05.24	2022.05.23

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 : AUDIX e3 V9

### For Conducted measurements /SH2

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Spectrum Analyzer	R&S	FSV30	103466	2020.12.28	2021.12.27
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2021.06.07	2022.06.06
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2021.05.17	2022.05.16
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2021.05.17	2022.05.16

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 : DEKRA Conduction Test System V9.0.5

### For Radiated measurements /966-3

	Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Due. Date
X	Loop Antenna	AMETEK	HLA6121	56736	2021.04.14	2022.04.13
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	9168-675	2021.08.11	2022.08.10
X	Horn Antenna	ETS-Lindgren	3117	00201259	2020.10.23	2021.10.22
X	Horn Antenna	Com-Power	AH-840	101087	2021.06.16	2022.06.15
X	Pre-Amplifier	EMCI	EMC001330	980254	2021.01.20	2022.01.19
X	Pre-Amplifier	EMCI	EMC051835SE	980313	2020.11.25	2021.11.24
X	Pre-Amplifier	EMCI	EMC05820SE	980310	2021.07.07	2022.07.06
X	Pre-Amplifier	EMCI	EMC184045SE	980369	2021.04.27	2022.04.26
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	2020.12.17	2021.12.16
X	Spectrum Analyzer	R&S	FSV3044	101113	2021.02.03	2022.02.02
X	Coaxial Cable	SGH, EMCI	HA800 , SGH18	HY2103-001C	2021.09.02	2022.09.01
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2021.06.25	2022.06.24

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 : AUDIX e3 V9

## 1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.

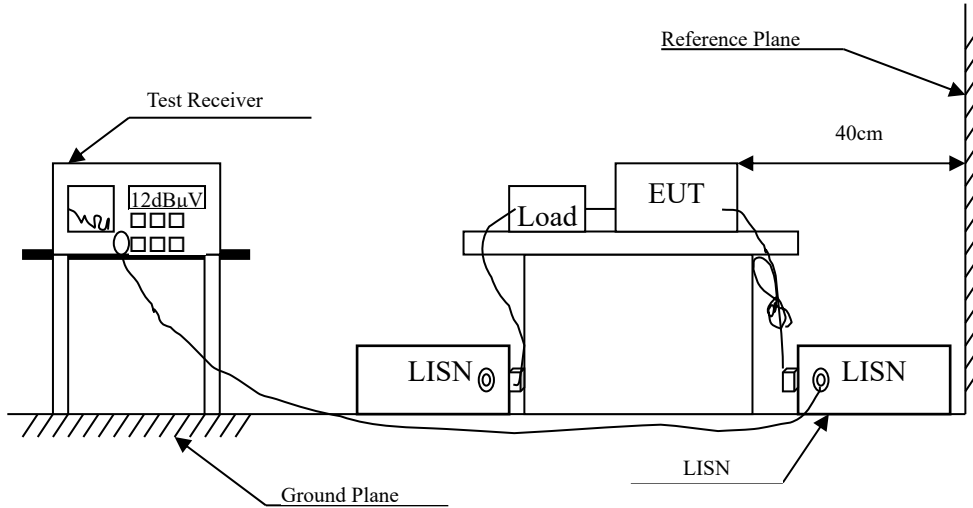
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

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 ±0.91 dB	Spectrum Analyzer ±2.53 dB
Peak Power Spectral Density	±2.53 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
Occupied Bandwidth	±682.83 Hz	
Duty Cycle	±2.31msec	

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dB $\mu$ 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.

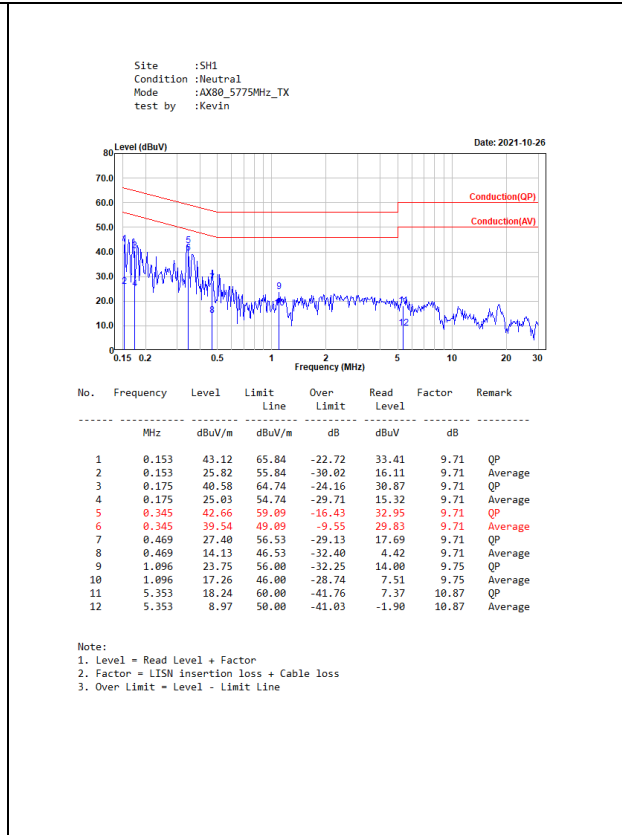
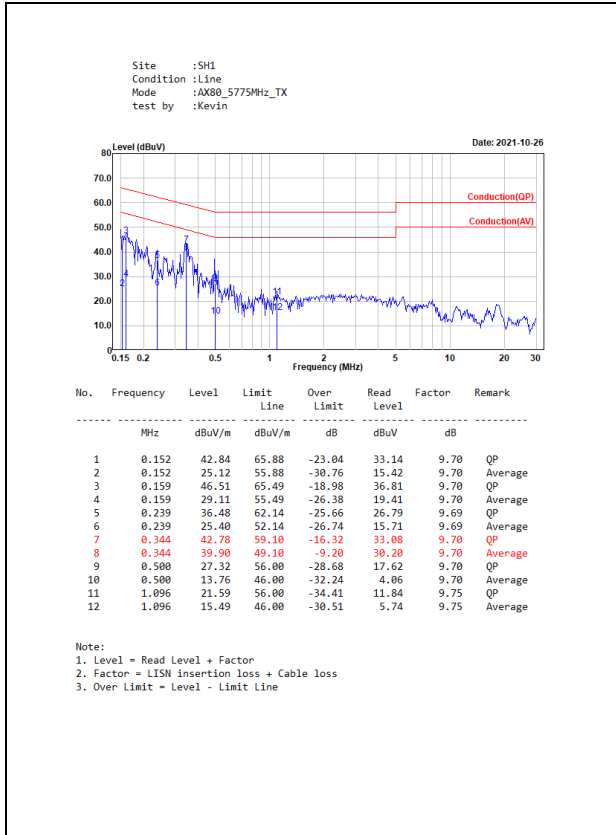
### 2.3. Test Procedure

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.

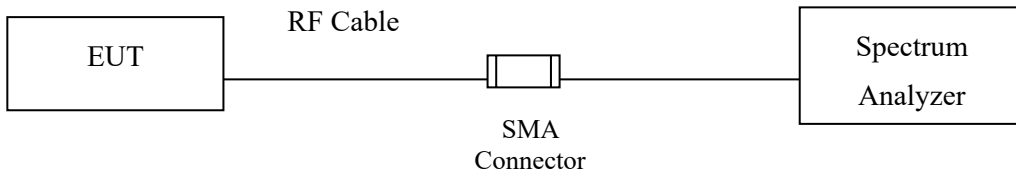
## 2.4. Test Result of Conducted Emission



### 3. Maximun conducted output power

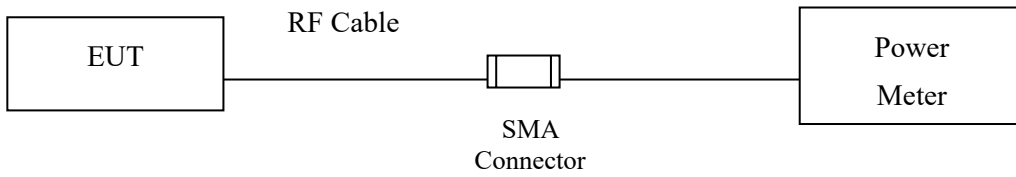
#### 3.1. Test Setup

##### 99% Occupied Bandwidth

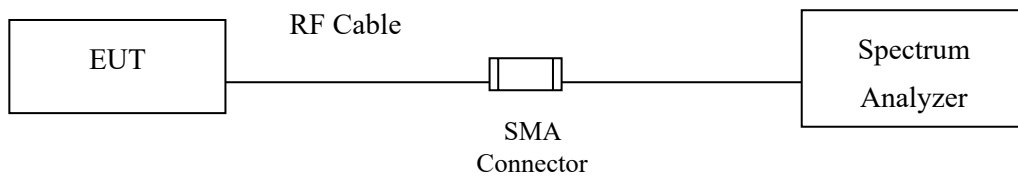


##### Conduction Power Measurement

##### Conduction Power Measurement (for 802.11an)



##### Conduction Power Measurement (for 802.11ac)





### 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-to-point 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  $11 \text{ dBm} + 10 \log B$ , 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.

### 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 than 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  $\leq$  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 : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 1: Transmit 802.11a  
 Test Date : 2021/10/13

#### Chain A

Cable loss=1.5dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	For different Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
36	5180	20.56	--	--	--	--	--	--	--
44	5220	20.63	20.59	20.52	20.43	20.38	20.32	20.26	20.23
48	5240	20.78	--	--	--	--	--	--	--
149	5745	19.63	--	--	--	--	--	--	--
157	5785	20.29	20.2	20.16	20.07	20	19.93	19.83	19.79
165	5825	20.41	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

#### Chain B

Cable loss=1.5dB		Maximum conducted output power							
Channel No.	Frequency (MHz)	For different Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
		Measurement Level (dBm)							
36	5180	21.32	--	--	--	--	--	--	--
44	5220	21.43	21.4	21.36	21.33	21.24	21.18	21.12	21.03
48	5240	21.43	--	--	--	--	--	--	--
149	5745	19.86	--	--	--	--	--	--	--
157	5785	20.66	20.57	20.53	20.43	20.34	20.29	20.23	20.19
165	5825	20.37	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	20.56	21.32	23.97	30	--
44	5220	--	20.63	21.43	24.06	30	--
48	5240	--	20.78	21.43	24.13	30	--
149	5745	--	19.63	19.86	22.76	30	--
157	5785	--	20.29	20.66	23.49	30	--
165	5825	--	20.41	20.37	23.40	30	--

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

Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 2: Transmit 802.11ax-20MBW  
 Test Date : 2021/10/13

**Chain A**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
36	5180	19.16	--	--	--	--	--	--	--	--	--	--	--
44	5220	20.36	20.29	20.19	20.1	20.07	19.98	19.91	19.86	19.79	19.73	19.66	19.57
48	5240	20.42	--	--	--	--	--	--	--	--	--	--	--
149	5745	19.89	--	--	--	--	--	--	--	--	--	--	--
157	5785	20.42	20.36	20.26	20.18	20.11	20.07	20.00	19.94	19.84	19.81	19.72	19.64
165	5825	20.51	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
36	5180	19.54	--	--	--	--	--	--	--	--	--	--	--
44	5220	21.11	21.06	20.97	20.91	20.82	20.78	20.68	20.61	20.53	20.46	20.43	20.39
48	5240	21.03	--	--	--	--	--	--	--	--	--	--	--
149	5745	19.82	--	--	--	--	--	--	--	--	--	--	--
157	5785	20.93	20.84	20.76	20.73	20.64	20.54	20.49	20.44	20.37	20.31	20.26	20.22
165	5825	20.55	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	19.16	19.54	22.36	30	--
44	5220	--	20.36	21.11	23.76	30	--
48	5240	--	20.42	21.03	23.75	30	--
149	5745	--	19.89	19.82	22.87	30	--
157	5785	--	20.42	20.93	23.69	30	--
165	5825	--	20.51	20.55	23.54	30	--

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

Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 3: Transmit 802.11ax-40MBW  
 Test Date : 2021/10/13

**Chain A**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
38	5190	17.72	--	--	--	--	--	--	--	--	--	--	--
46	5230	21.33	21.26	21.2	21.14	21.04	21.00	20.95	20.87	20.84	20.76	20.73	20.63
151	5755	21.81	--	--	--	--	--	--	--	--	--	--	--
159	5795	22.31	22.26	22.16	22.09	21.99	21.92	21.82	21.75	21.67	21.63	21.56	21.47

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
38	5190	18.16	--	--	--	--	--	--	--	--	--	--	--
46	5230	21.75	21.72	21.63	21.60	21.56	21.47	21.42	21.33	21.24	21.18	21.15	21.09
151	5755	21.95	--	--	--	--	--	--	--	--	--	--	--
159	5795	22.15	22.1	22.05	21.96	21.88	21.83	21.76	21.69	21.62	21.57	21.48	21.38

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
38	5190	--	17.72	18.16	20.956	30	--
46	5230	--	21.33	21.75	24.555	30	--
151	5755	--	21.81	21.95	24.891	30	--
159	5795	--	22.31	22.15	25.241	30	--

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

Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 4: Transmit 802.11ax-80MBW  
 Test Date : 2021/10/13

**Chain A**

Cable loss=1.5dB		Maximum conducted output power									
Channel No	Frequency (MHz)	For different Data Rate (VHT index)									
		0	1	2	3	4	5	6	7	8	9
42	5210	12.75	--	--	--	--	--	--	--	--	--
155	5775	21.78	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Chain B**

Cable loss=1.5dB		Maximum conducted output power									
Channel No	Frequency (MHz)	For different Data Rate (VHT index)									
		0	1	2	3	4	5	6	7	8	9
42	5210	12.68	--	--	--	--	--	--	--	--	--
155	5775	21.83	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Maximum conducted output power Measurement**

Channel No	Frequency Range (MHz)	99% Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
42	5210	--	12.75	12.68	15.725	30	--	Pass
155	5775	--	21.78	21.83	24.815	30	--	Pass

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



Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 5: Transmit 802.11ax-20MBW-Beamforming  
 Test Date : 2021/12/06

**Chain A**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
36	5180	16.15	--	--	--	--	--	--	--	--	--	--	--
44	5220	17.35	17.32	17.29	17.24	17.14	17.09	17.03	16.96	16.87	16.82	16.72	16.64
48	5240	17.41	--	--	--	--	--	--	--	--	--	--	--
149	5745	16.88	--	--	--	--	--	--	--	--	--	--	--
157	5785	17.41	17.32	17.27	17.19	17.10	17.00	16.93	16.88	16.80	16.75	16.72	16.63
165	5825	17.5	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
36	5180	16.53	--	--	--	--	--	--	--	--	--	--	--
44	5220	18.1	18.26	18.19	18.12	18.05	18.00	17.97	17.88	17.80	17.77	17.72	17.69
48	5240	18.02	--	--	--	--	--	--					--
149	5745	16.81	--	--	--	--	--	--	--	--	--	--	--
157	5785	17.92	17.85	17.78	17.74	17.64	17.55	17.47	17.42	17.36	17.26	17.17	17.09
165	5825	17.54	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
36	5180	--	16.15	16.53	19.35	28.69	--
44	5220	--	17.35	18.26	20.84	28.69	--
48	5240	--	17.41	18.02	20.74	28.69	--
149	5745	--	16.88	16.81	19.86	28.49	--
157	5785	--	17.41	17.92	20.68	28.49	--
165	5825	--	17.50	17.54	20.53	28.49	--

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

Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 6: Transmit 802.11ax-40MBW-Beamforming  
 Test Date : 2021/12/06

**Chain A**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
38	5190	14.71	--	--	--	--	--	--	--	--	--	--	--
46	5230	18.32	18.26	18.19	18.12	18.05	18.00	17.97	17.88	17.80	17.77	17.72	17.69
151	5755	18.8	--	--	--	--	--	--	--	--	--	--	--
159	5795	19.3	19.22	19.12	19.08	19.03	18.93	18.85	18.77	18.67	18.64	18.56	18.46

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Chain B**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
38	5190	15.15	--	--	--	--	--	--	--	--	--	--	--
46	5230	18.74	18.65	18.61	18.51	18.47	18.43	18.38	18.34	18.25	18.18	18.09	18.06
151	5755	18.94	--	--	--	--	--	--	--	--	--	--	--
159	5795	19.14	19.11	19.05	18.97	18.87	18.84	18.81	18.73	18.67	18.64	18.55	18.46

Note: Maximum conducted output power Value =Reading value on average power meter + cable loss

**Maximum conducted output power Measurement:**

Channel No	Frequency Range (MHz)	26dB Bandwidth (MHz)	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit	
						(dBm)	dBm+10log(BW)
38	5190	--	14.71	15.15	17.95	28.69	--
46	5230	--	18.32	18.74	21.55	28.69	--
151	5755	--	18.80	18.94	21.88	28.49	--
159	5795	--	19.30	19.14	22.23	28.49	--

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

Product : InstaShow X Host  
 Test Item : Maximum conducted output power  
 Test Mode : Mode 7: Transmit 802.11ax-80MBW-Beamforming  
 Test Date : 2021/12/06

**Chain A**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
42	5210	9.74	--	--	--	--	--	--	--	--	--	--	--
155	5775	18.77	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

**Chain B**

Channel No	Frequency (MHz)	Maximum Conducted Power Output (dBm)											
		Data Rate (Mbps)											
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9	MCS10	MCS11
42	5210	9.67	--	--	--	--	--	--	--	--	--	--	--
155	5775	18.82	--	--	--	--	--	--	--	--	--	--	--

Note: Maximum conducted output power Value =Reading value on Spectrum Analyzer + cable loss

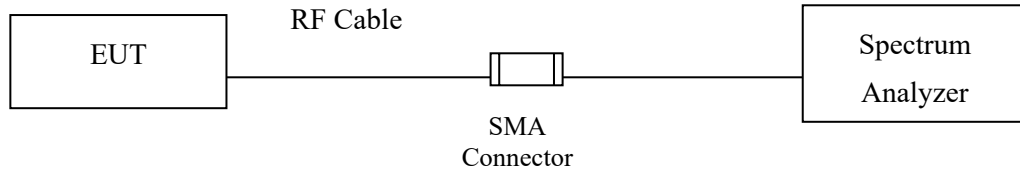
**Maximum conducted output power Measurement**

Channel No	Frequency Range (MHz)	26dB Bandwidth	Chain A Power (dBm)	Chain B Power (dBm)	Output Power (dBm)	Output Power Limit		Result
						(dBm)	dBm+10log(BW)	
42	5210	--	9.74	9.67	12.72	28.69	--	Pass
155	5775	--	18.77	18.82	21.81	28.49	--	Pass

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

## 4. Peak Power Spectral Density

### 4.1. Test Setup



### 4.2. Limits

- (1) 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-to-point 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.
- (2) 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.

- (3) 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 colocated 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.

### 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.

For the band 5.725-5.85 GHz, Scale the observed power level to an equivalent value in 500 kHz by adjusting (increase) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(500\text{ kHz}/100\text{ kHz}) = 6.98\text{ dB}$ .

#### 4.4. Test Result of Peak Power Spectral Density

Product : InstaShow X Host  
 Test Item : Peak Power Spectral Density  
 Test Mode : Mode 1: Transmit 802.11a

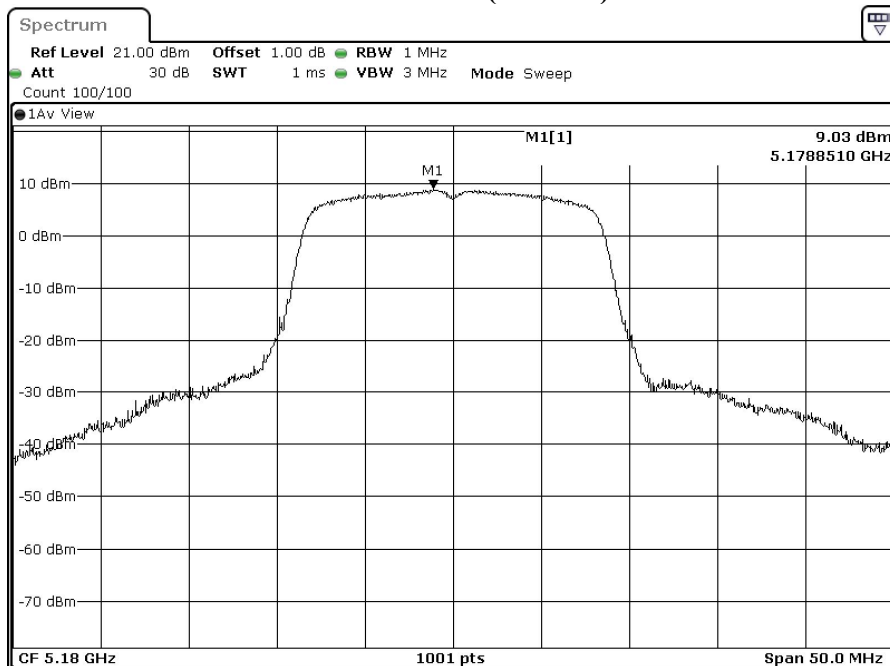
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Duty factor (db)	Total PPSD (dBm)	Limit (dBm)	Result
36	5180	A	7.98	0.48	11.47	17	Pass
		B	9.03	0.48	12.52		Pass
44	5220	A	8.22	0.48	11.71	17	Pass
		B	8.64	0.48	12.13		Pass
48	5240	A	8.16	0.48	11.65	17	Pass
		B	8.80	0.48	12.29		Pass

Note: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Duty factor (db)	Total PPSD (dBm)	Limit (dBm)	Result
149	5745	A	-0.98	6.98	0.48	9.49	30	Pass
		B	-0.48	6.98	0.48	9.99		Pass
157	5785	A	-0.05	6.98	0.48	10.42	30	Pass
		B	-0.35	6.98	0.48	10.12		Pass
165	5825	A	0.14	6.98	0.48	10.61	30	Pass
		B	-0.67	6.98	0.48	9.80		Pass

Note: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel 36: (Chain A)



Date: 25.OCT.2021 12:15:29

Product : InstaShow X Host  
 Test Item : Peak Power Spectral Density  
 Test Mode : Mode 2: Transmit 802.11ax-20MBW

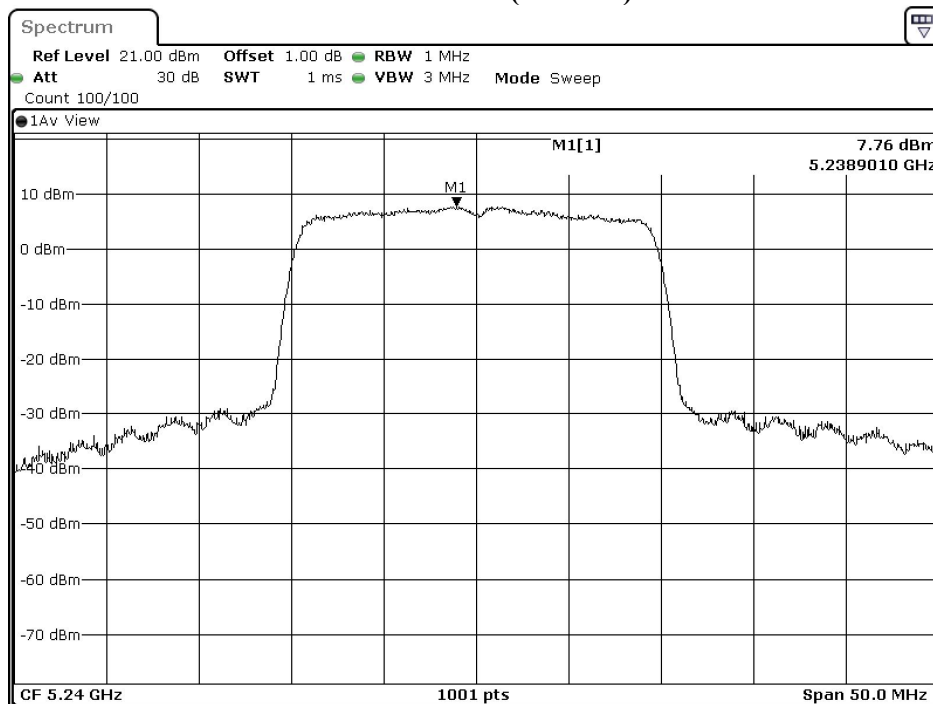
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
36	5180	A	6.87	2.84	12.72	17	Pass
		B	7.54	2.84	13.39		Pass
44	5220	A	7.21	2.84	13.06	17	Pass
		B	7.72	2.84	13.57		Pass
48	5240	A	6.88	2.84	12.73	17	Pass
		B	7.76	2.84	13.61		Pass

Note: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
36	5180	A	-1.73	6.99	2.84	11.11	30	Pass
		B	-1.75	6.99	2.84	11.09		Pass
44	5220	A	-1.68	6.99	2.84	11.16	30	Pass
		B	-1.27	6.99	2.84	11.57		Pass
48	5240	A	-1.58	6.99	2.84	11.26	30	Pass
		B	-1.53	6.99	2.84	11.31		Pass

Note: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Channel 48: (Chain B)**



Date: 25.OCT.2021 12:23:02



Product : InstaShow X Host  
 Test Item : Peak Power Spectral Density  
 Test Mode : Mode 3: Transmit 802.11ax-40MBW

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
38	5190	A	3.09	2.79	8.89	17	Pass
		B	3.61	2.79	9.41		Pass
46	5230	A	6.46	2.79	12.26	17	Pass
		B	7.17	2.79	12.97		Pass

Note: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
151	5755	A	-1.69	6.99	2.79	11.10	30	Pass
		B	-1.82	6.99	2.79	10.97		Pass
159	5795	A	-1.44	6.99	2.79	11.35	30	Pass
		B	-0.58	6.99	2.79	12.21		Pass

Note: The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Channel 46: (Chain B)**



Date: 13.OCT.2021 08:02:38

Product : InstaShow X Host  
 Test Item : Peak Power Spectral Density  
 Test Mode : Mode 4: Transmit 802.11ax-80MBW

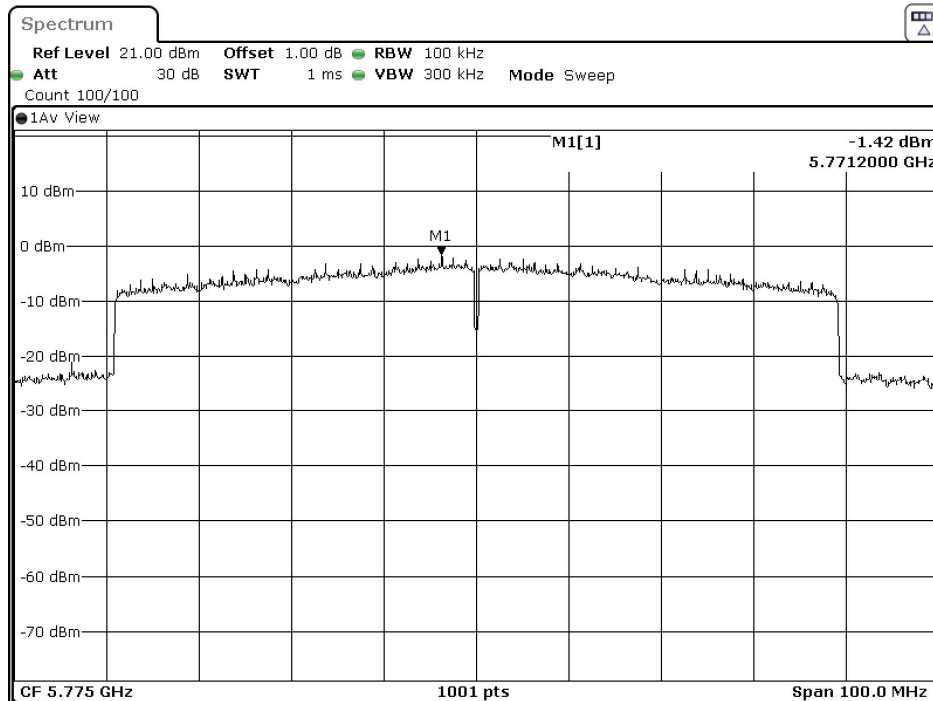
Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
42	5210	A	-5.54	1.99	-0.54	17	Pass
		B	-4.97	1.99	0.03	17	Pass

Note: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

Channel Number	Frequency (MHz)	Chain	PPSD (dBm)	BWCF (dB)	Duty factor (dBm)	Total PPSD (dBm)	Limit (dBm)	Result
155	5775	A	-1.42	6.99	1.99	10.57	30	Pass
		B	-1.77	6.99	1.99	10.22		Pass

Note: The quantity  $10 \cdot \log 2$  (two antennas) is added to the spectrum peak value according to document 662911 D01.

**Channel 155: (Chain A)**

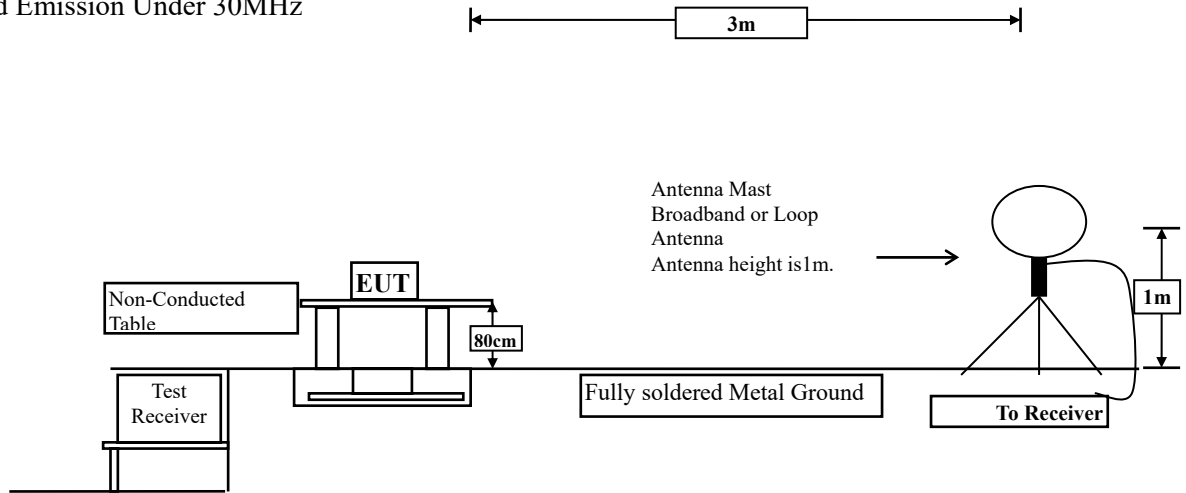


Date: 13.OCT.2021 07:28:12

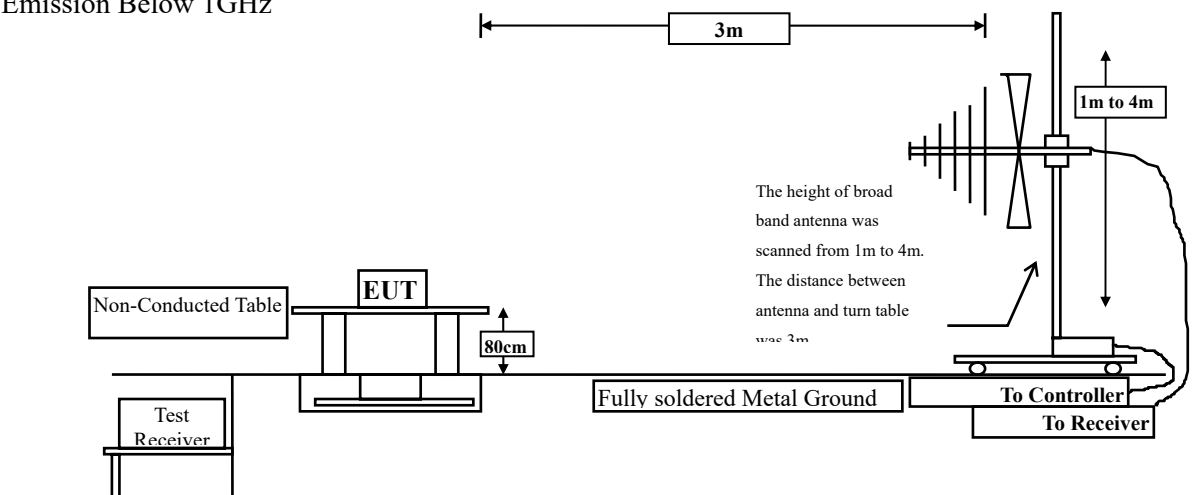
## 5. Radiated Emission

### 5.1. Test Setup

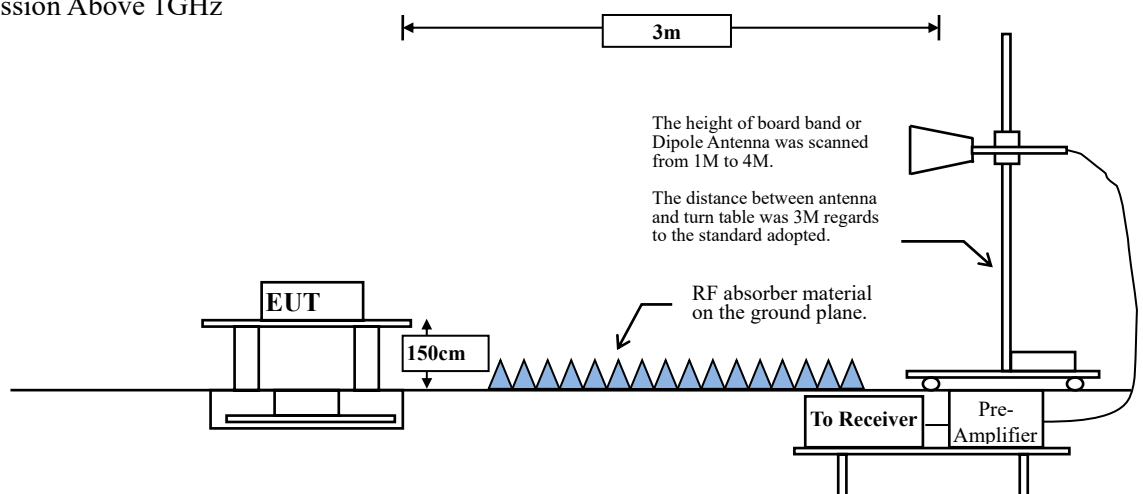
Radiated Emission Under 30MHz



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.

<b>FCC Part 15 Subpart C Paragraph 15.209(a) Limits</b>		
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 $\mu$ V/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 from 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  $\geq$  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  $\geq$  98 %

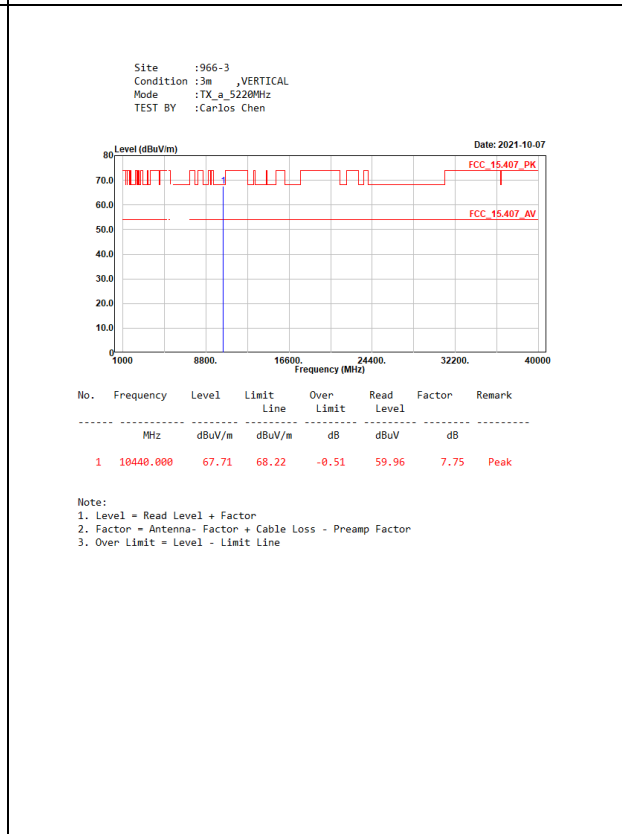
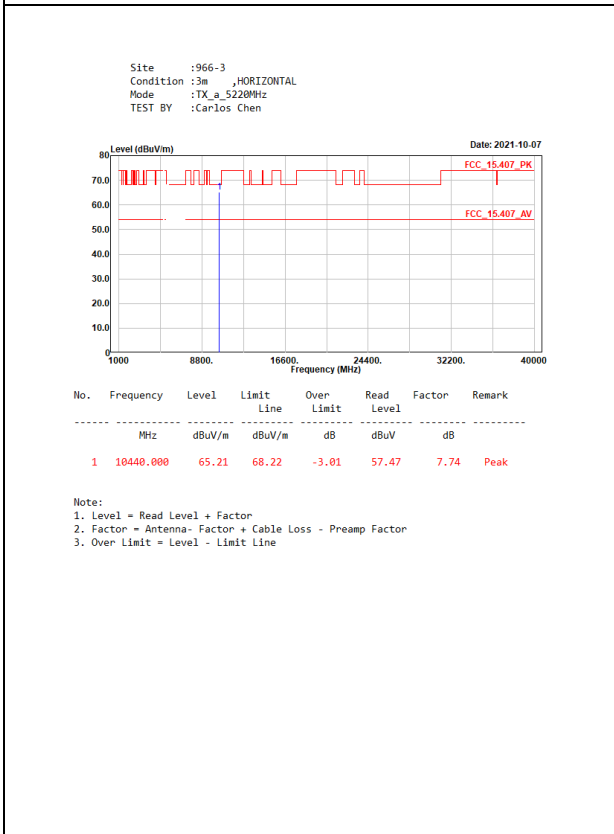
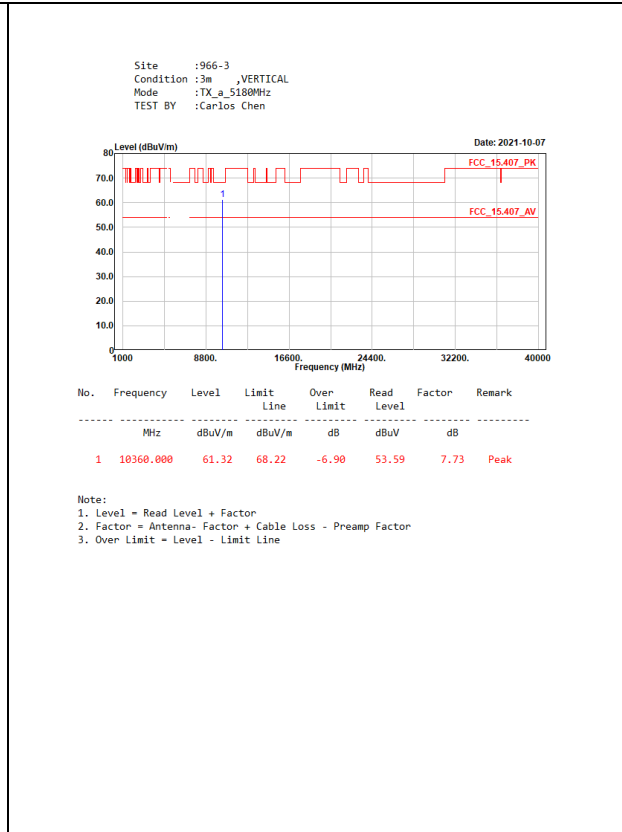
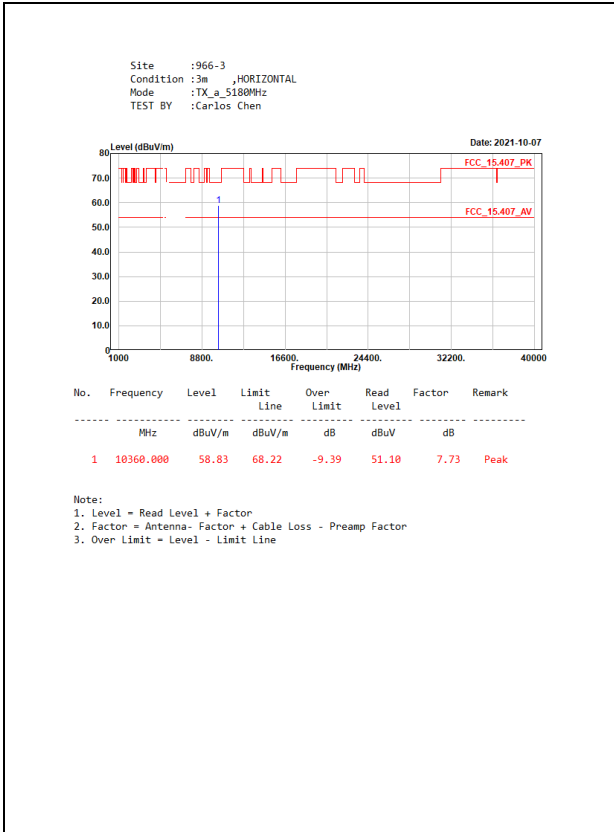
VBW  $\geq$  1/T, when duty cycle < 98 %

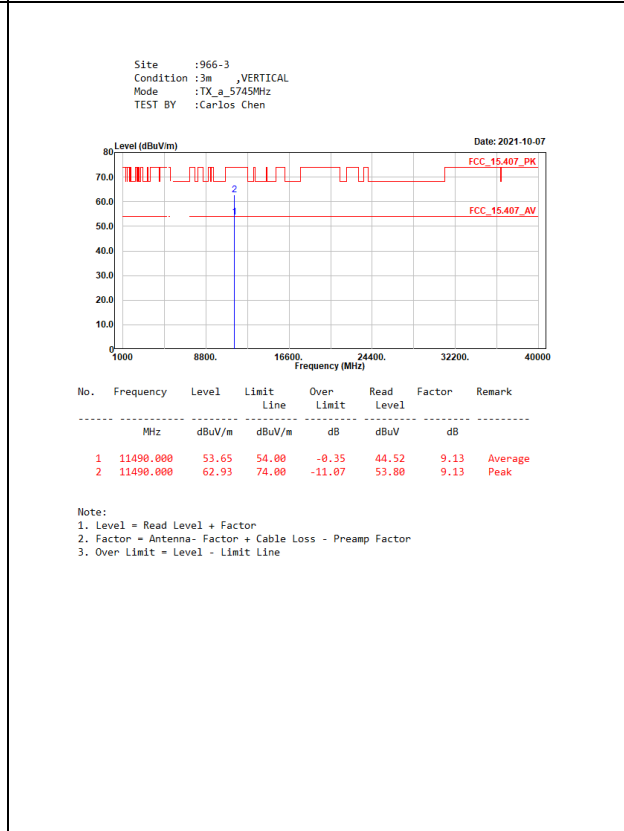
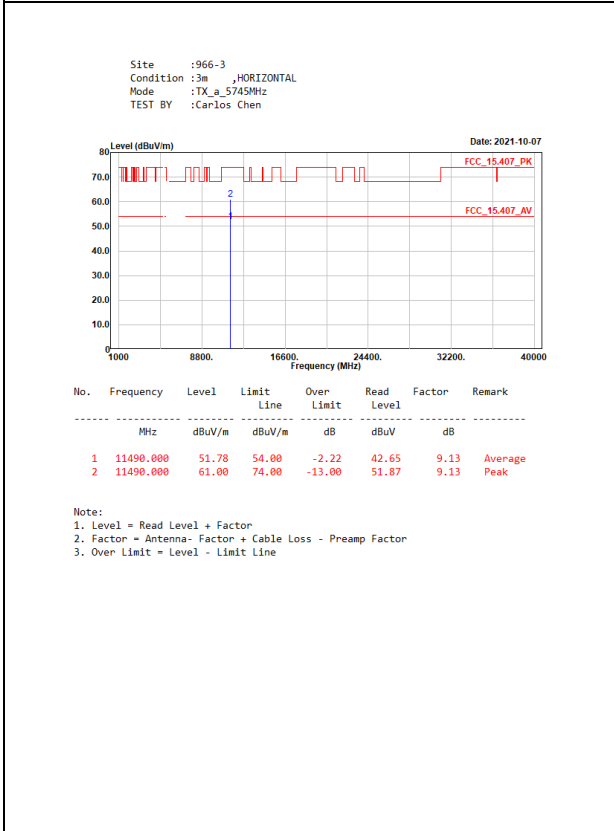
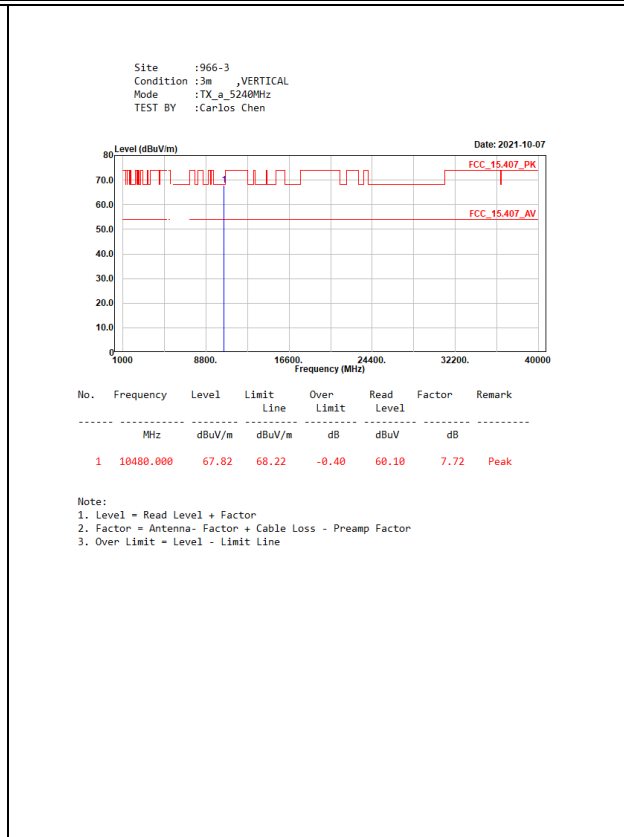
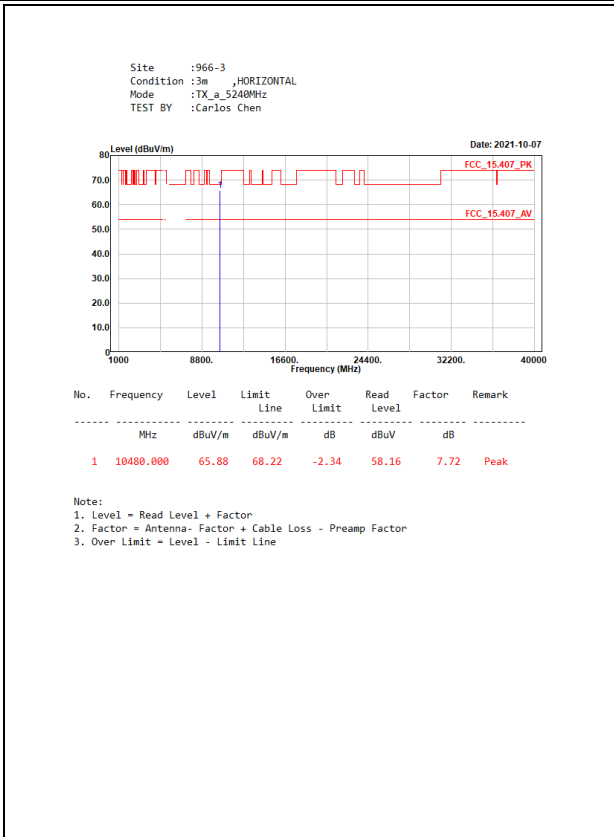
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a	89.55	1.3973	716	1000
802.11ax20	52.02	0.2012	4970	5000
802.11ax40	52.64	0.2030	4926	5000
802.11ax80	63.28	0.1930	5181	10000

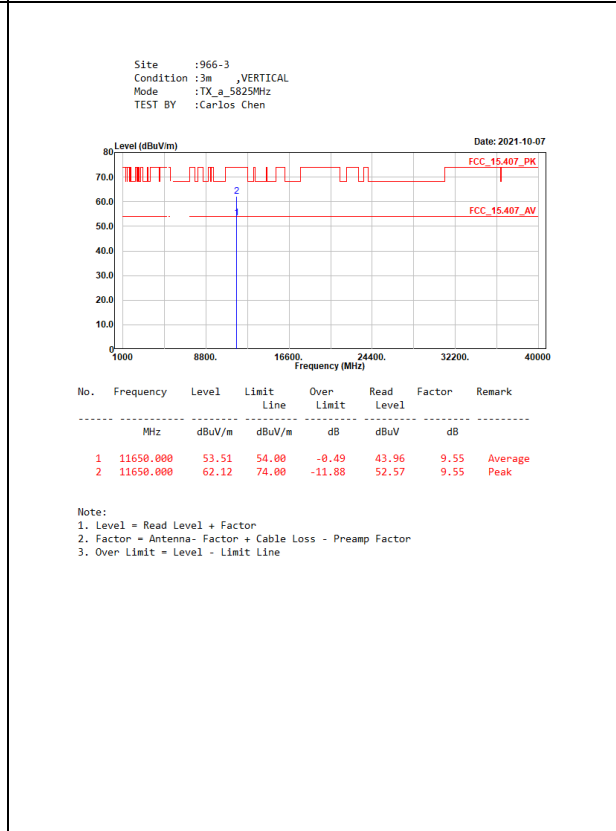
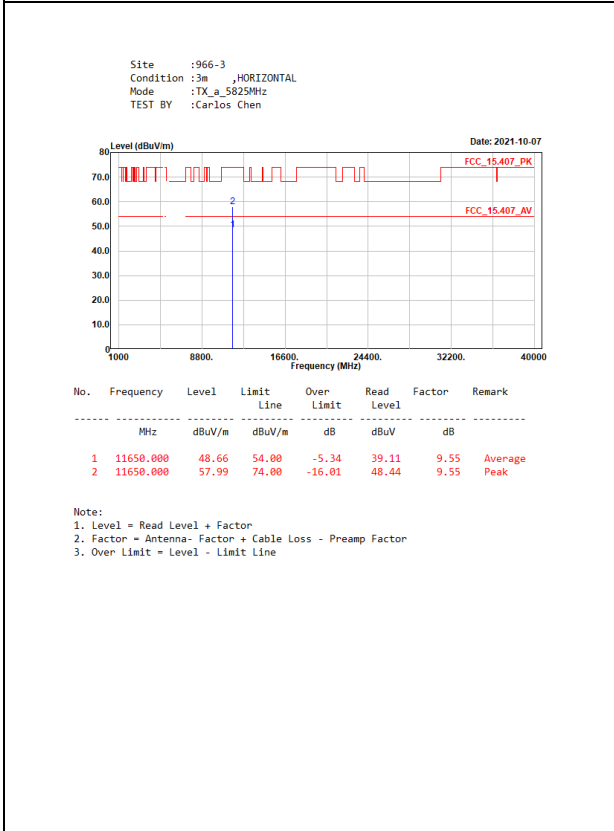
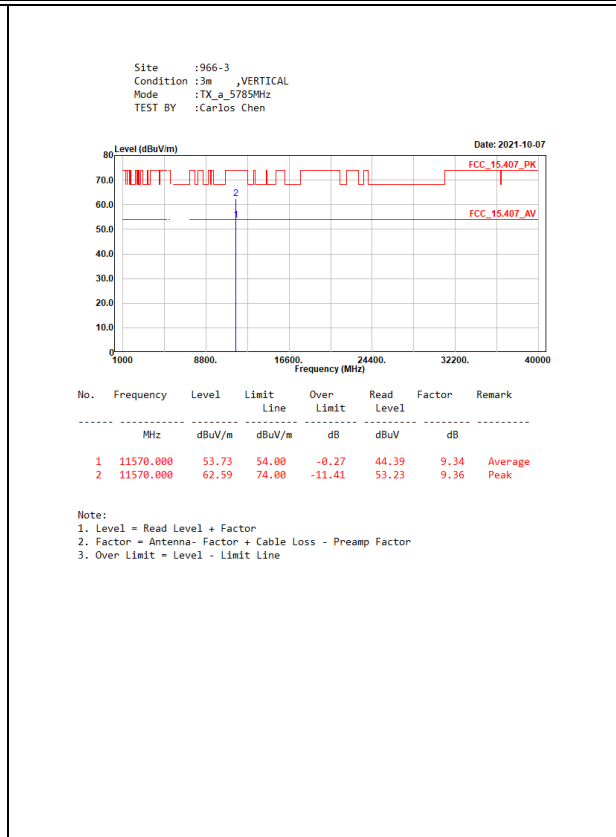
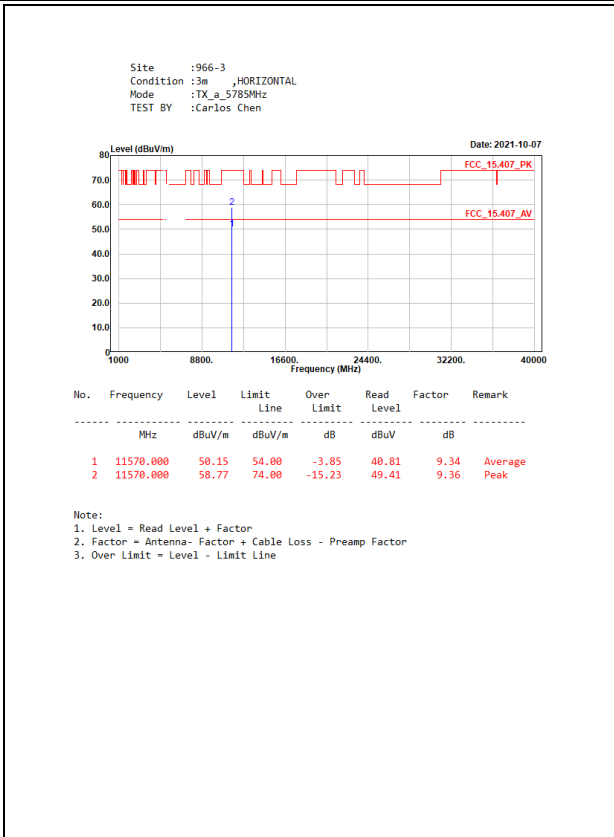
Note: Duty Cycle Refer to Section 8

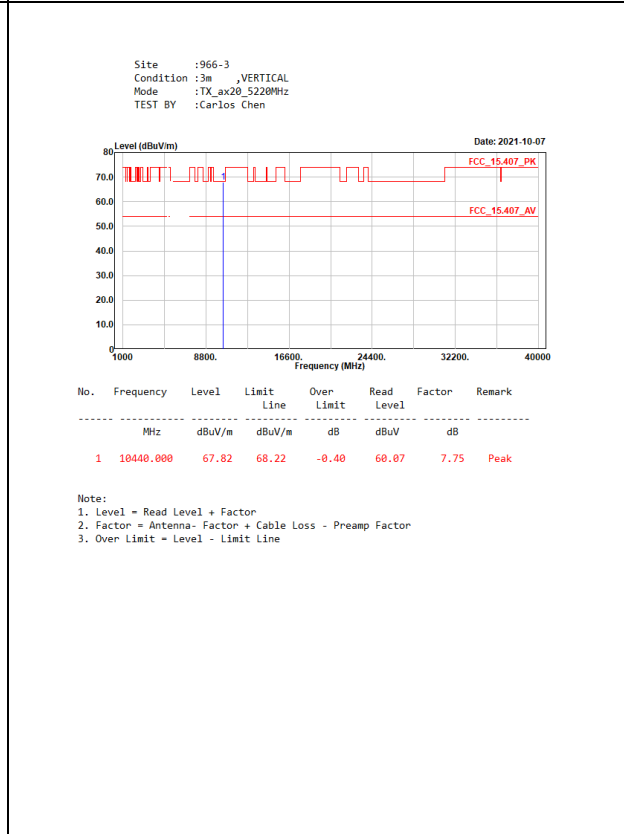
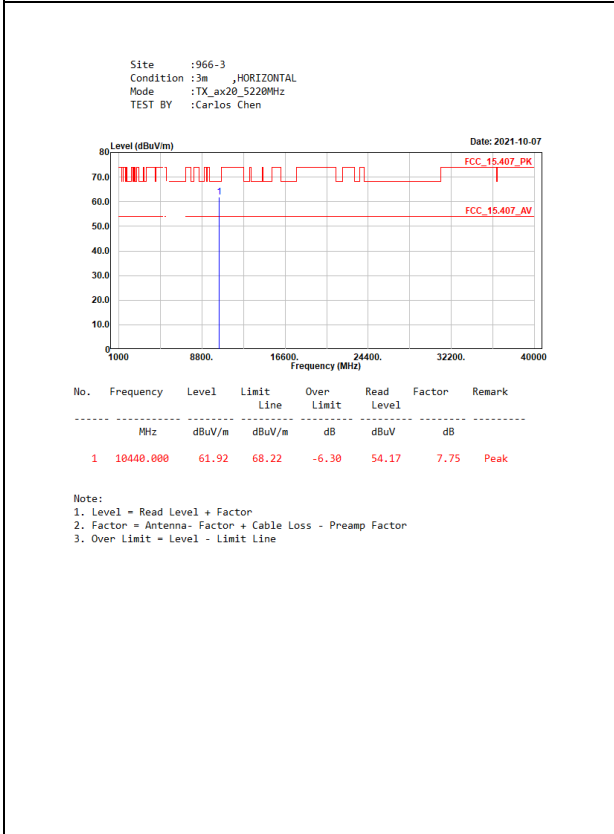
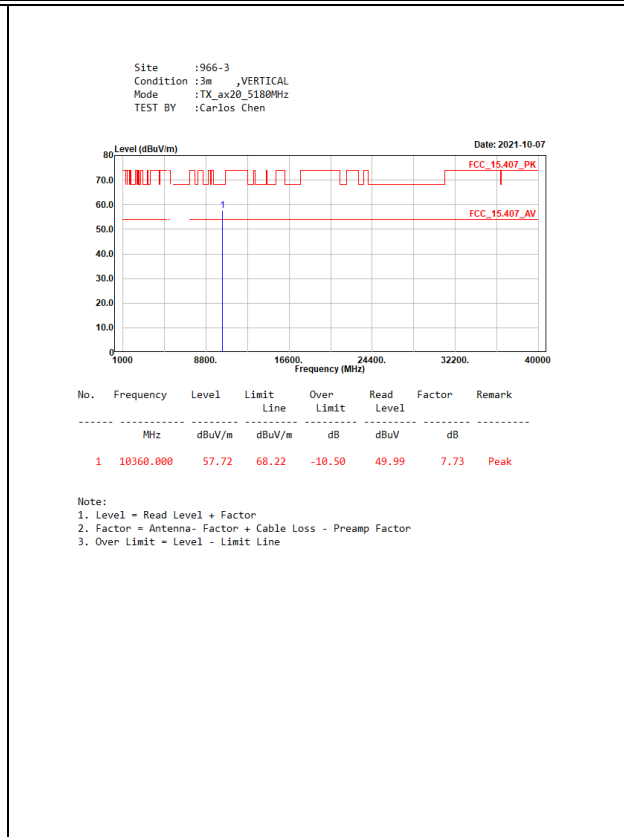
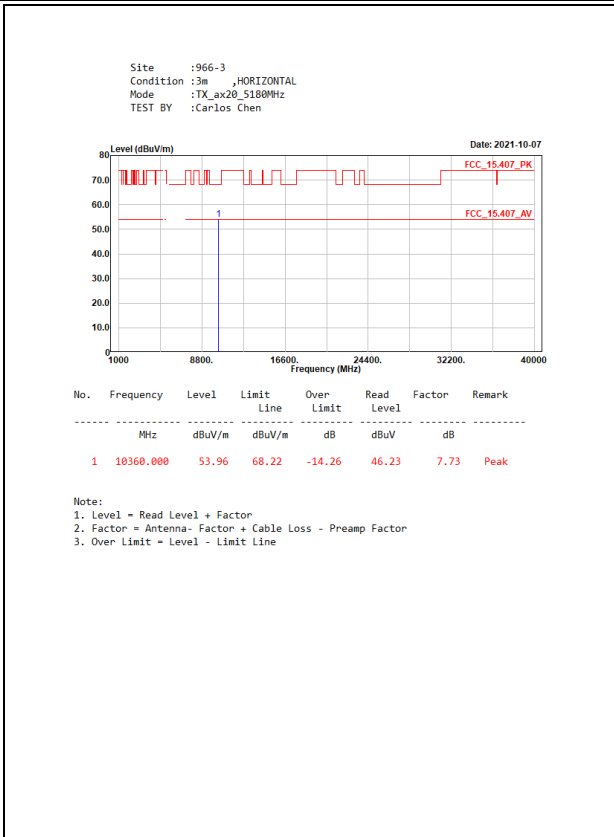
### 5.4. Test Result of Radiated Emission

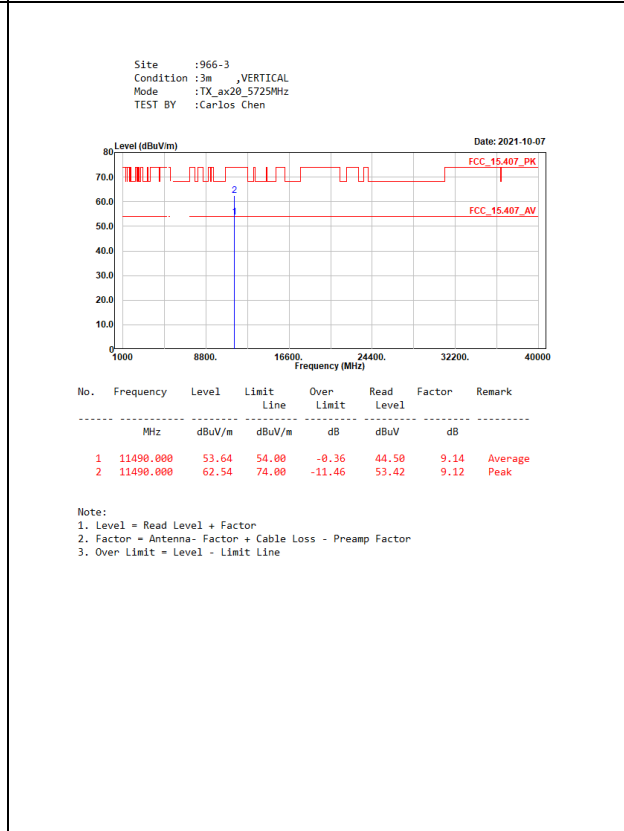
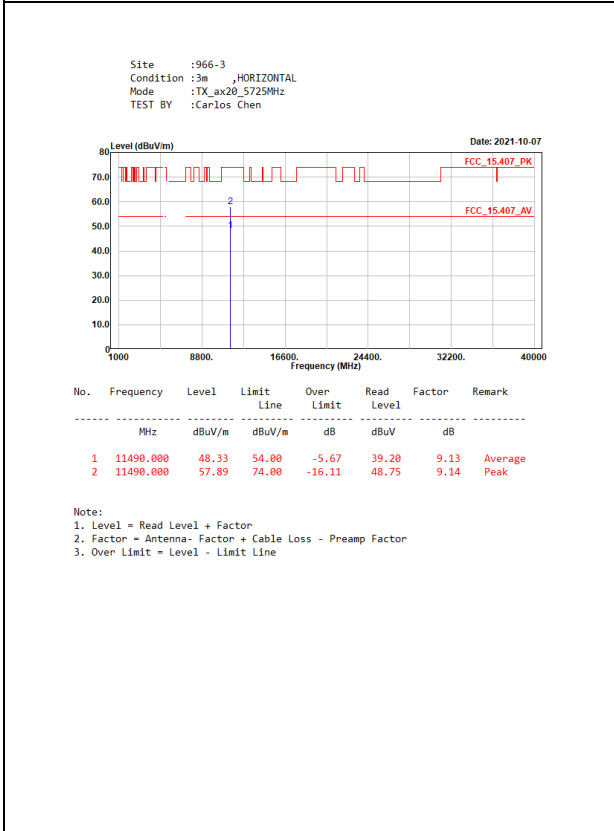
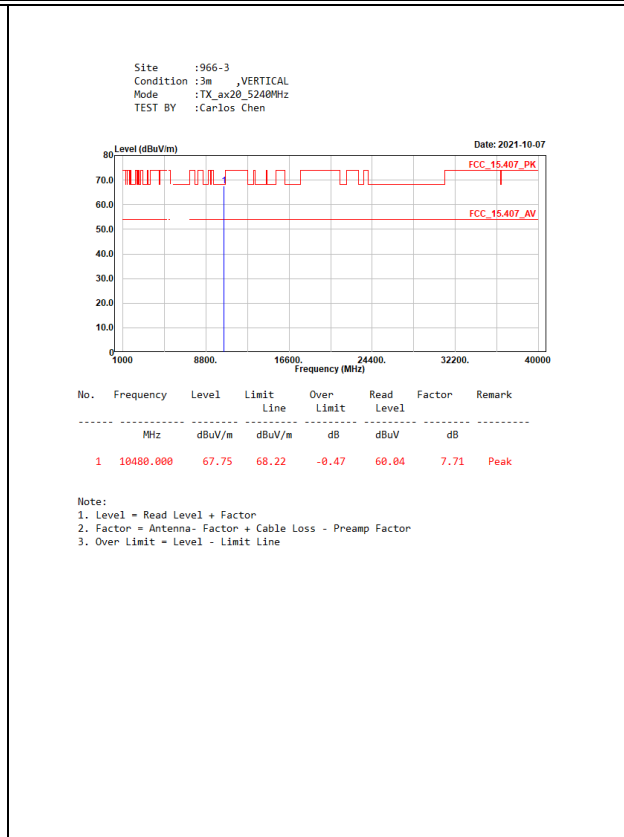
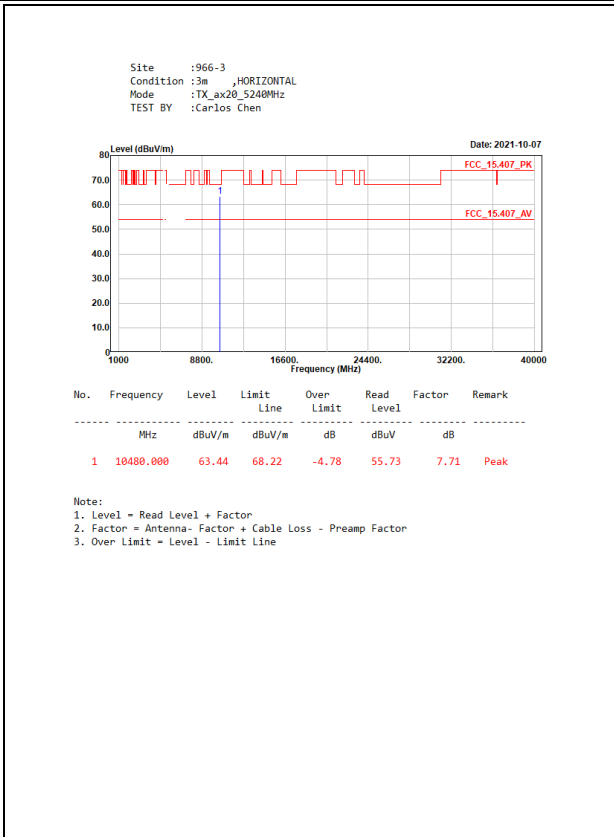


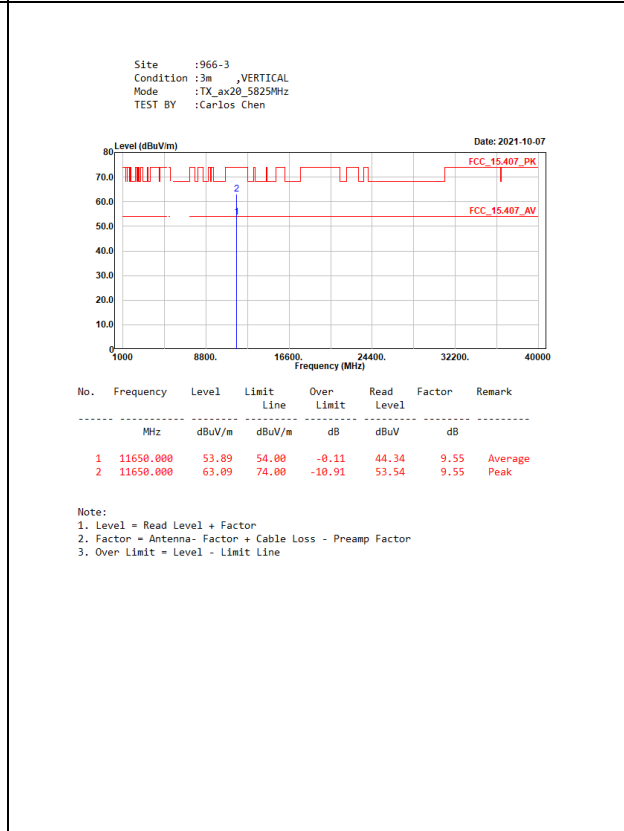
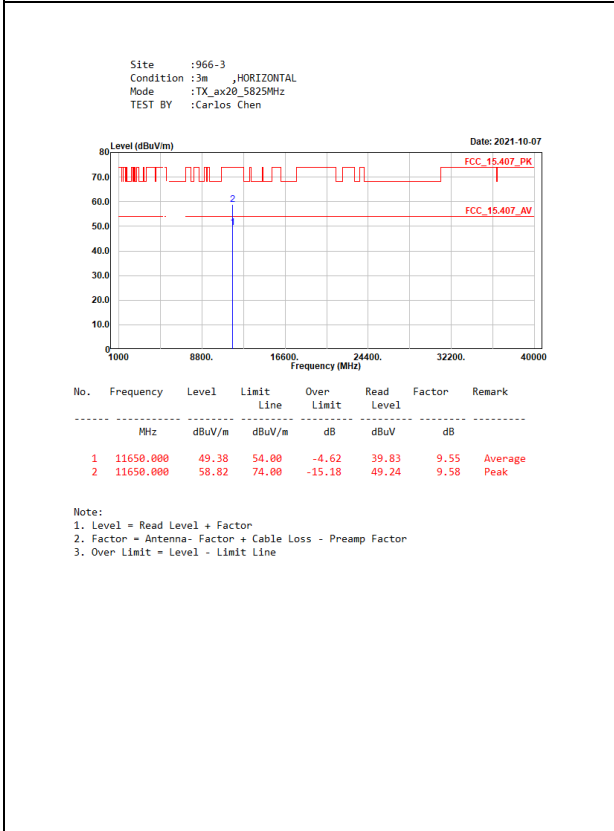
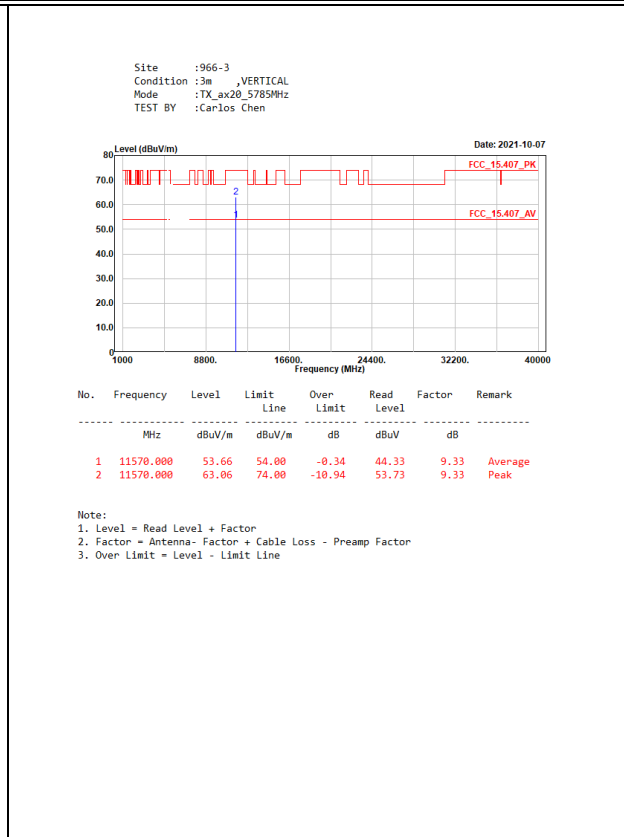
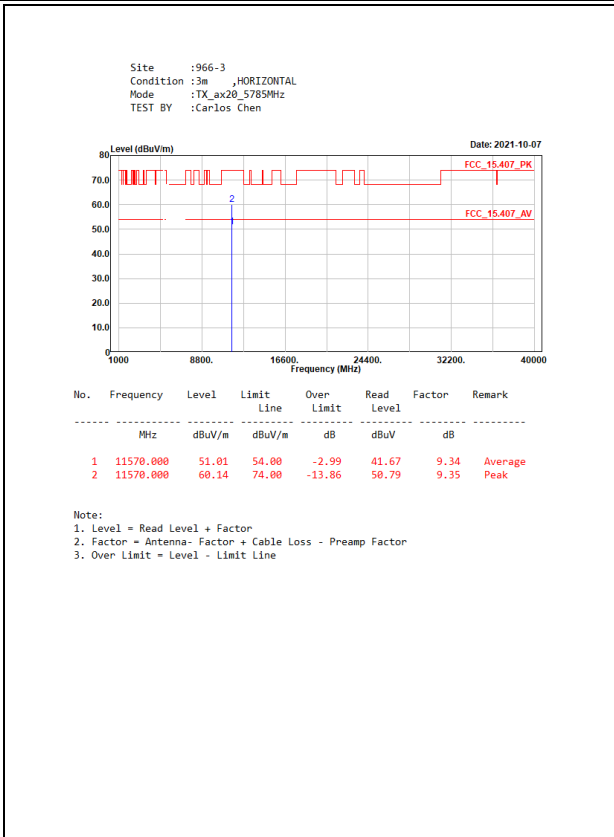


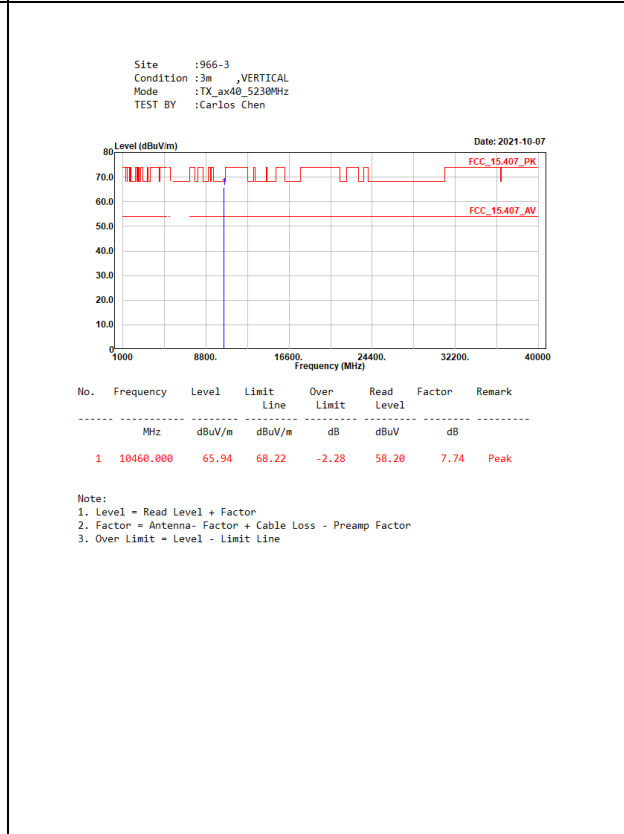
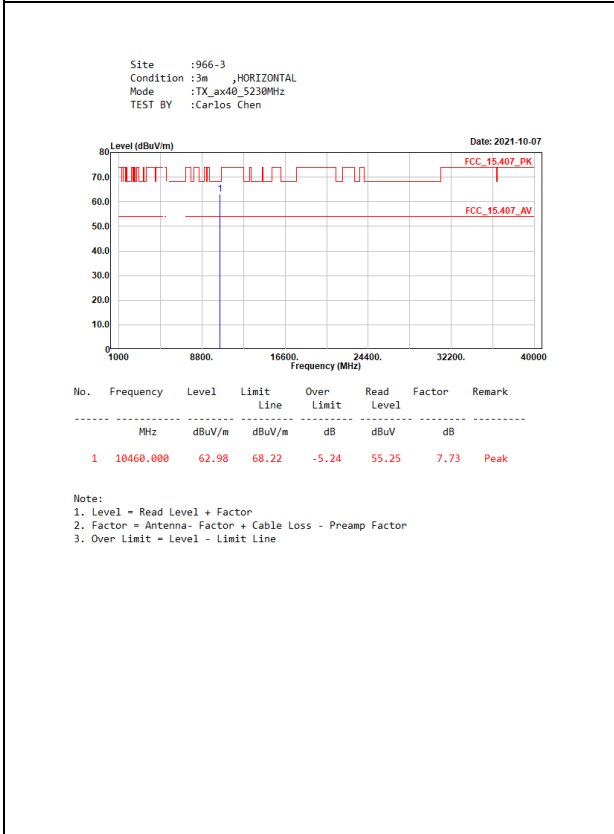
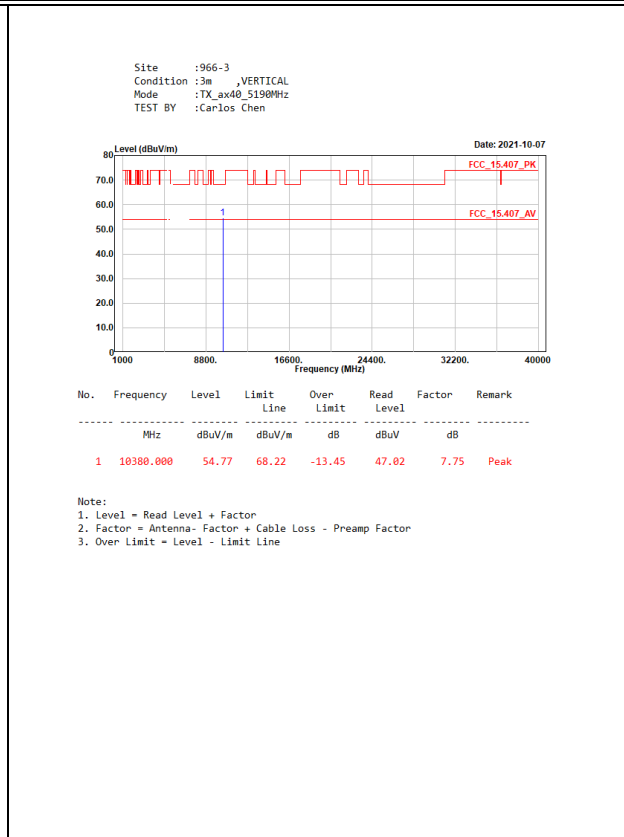
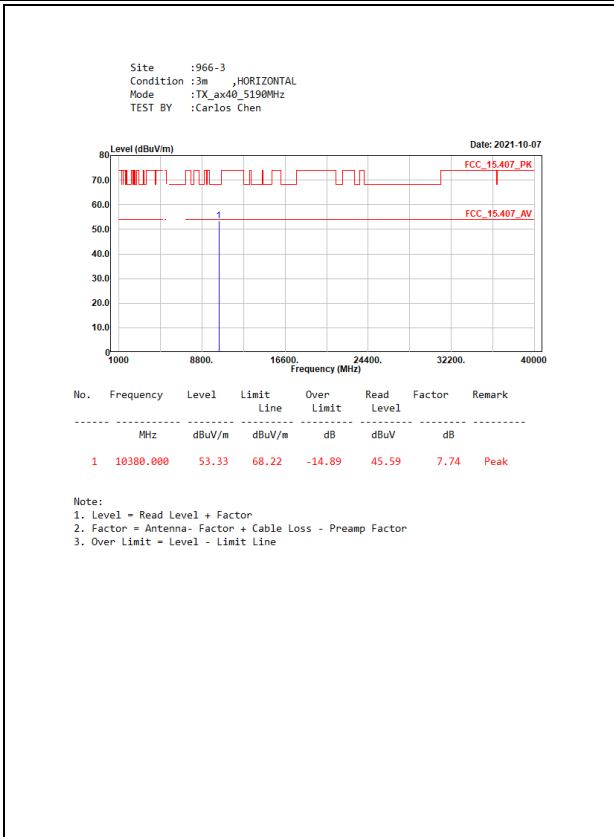


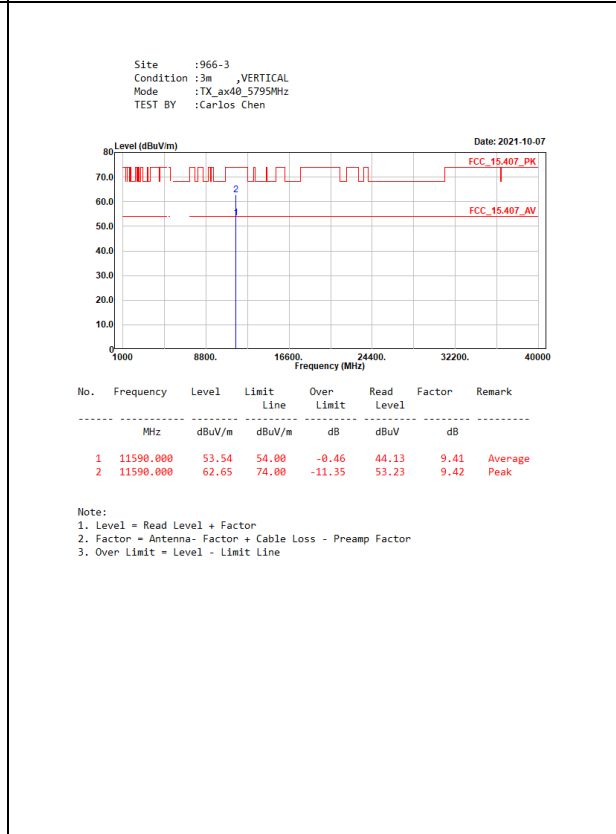
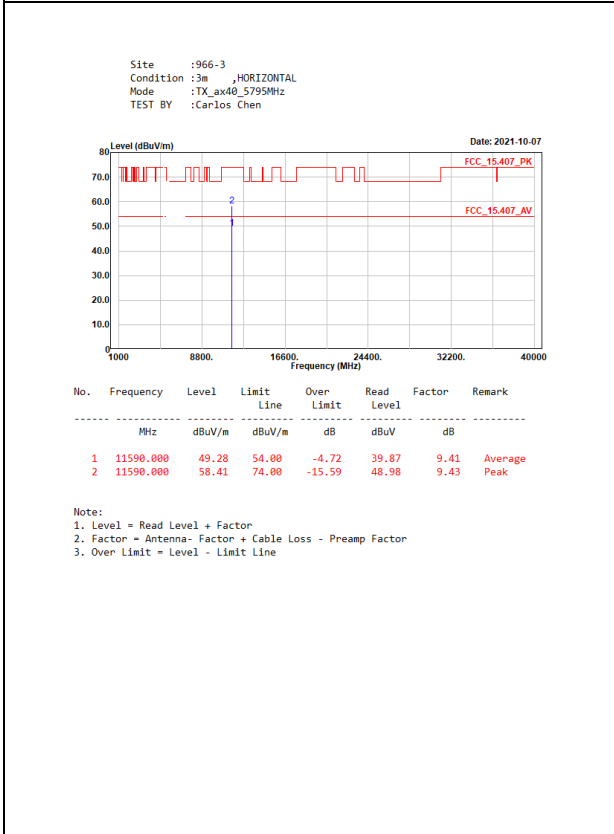
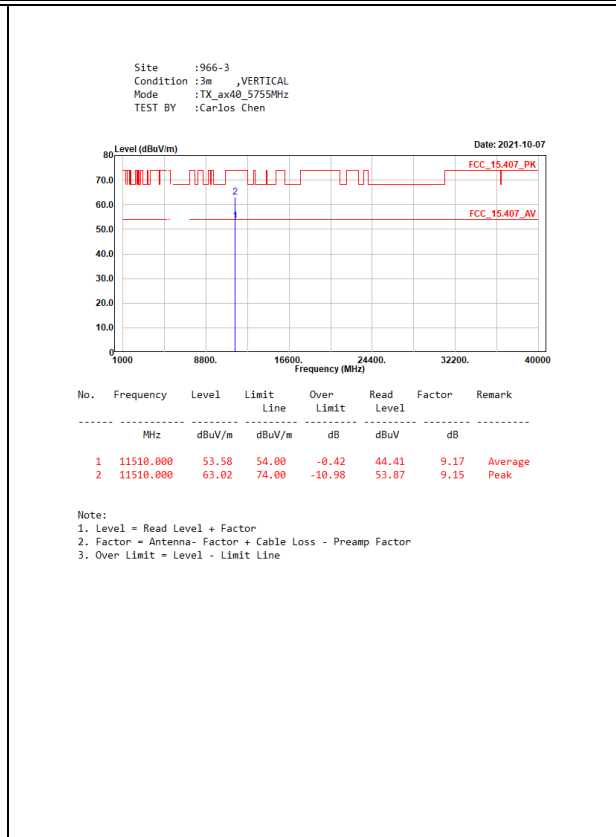
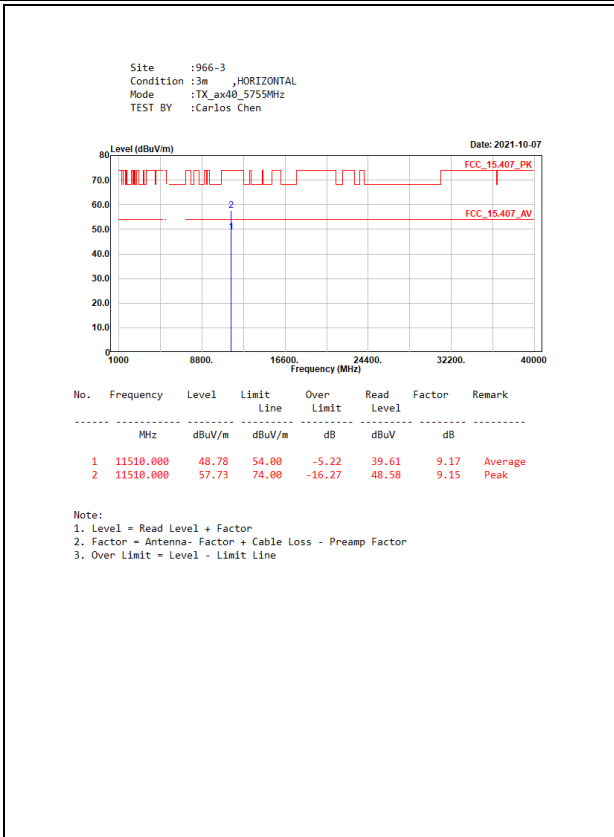


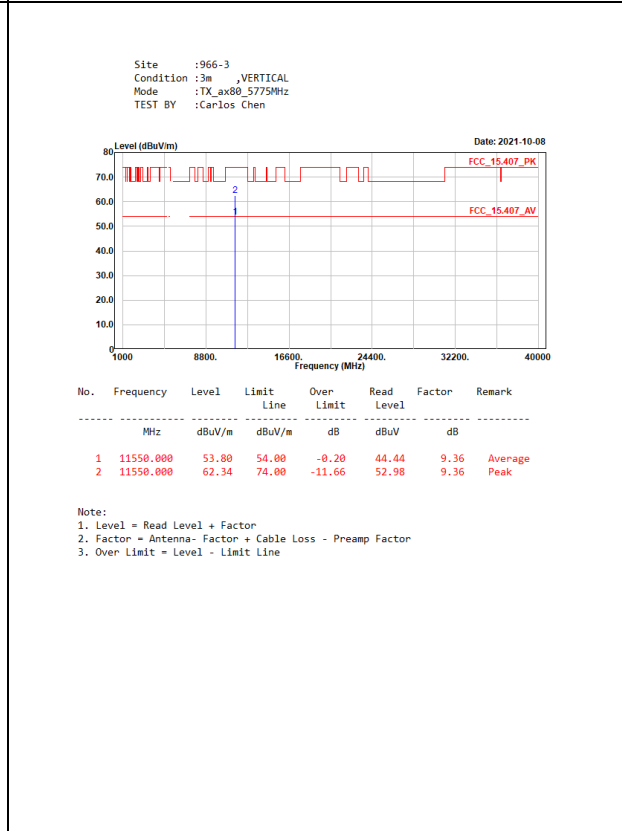
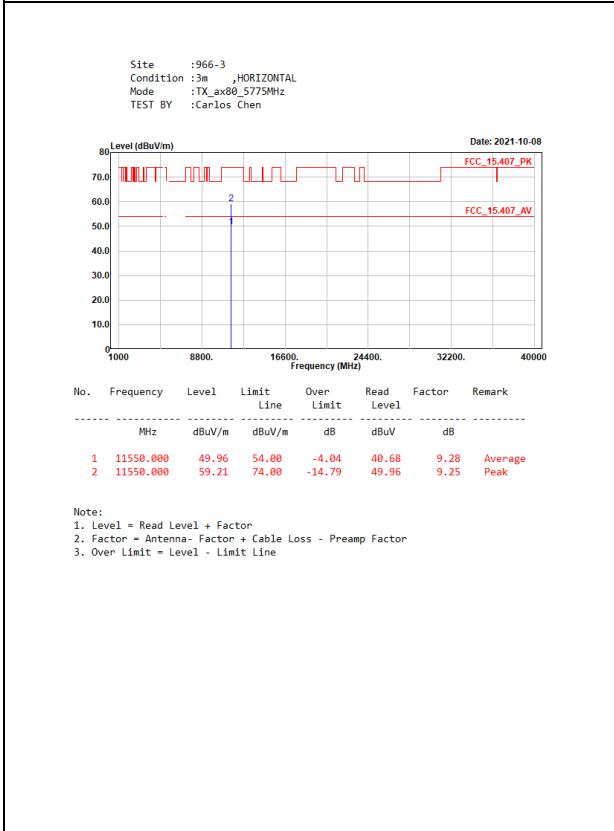
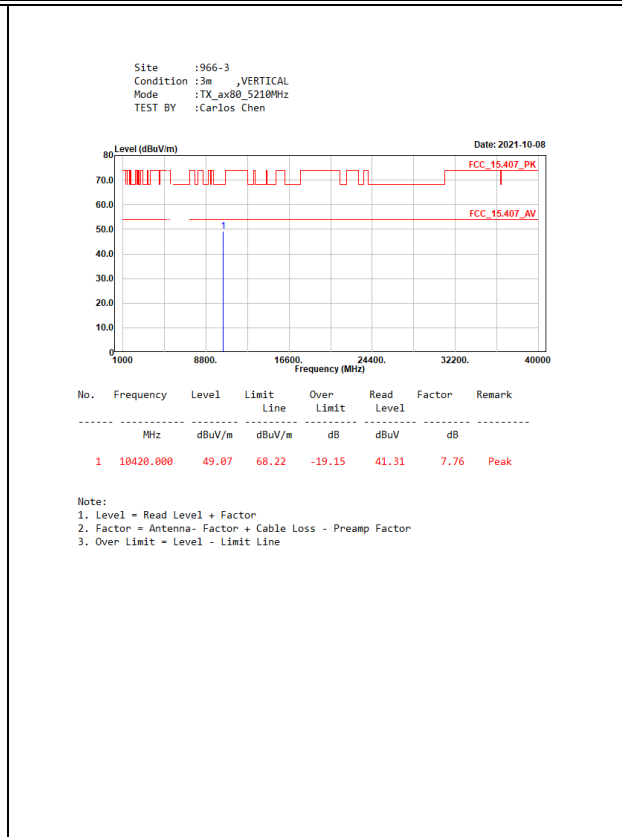
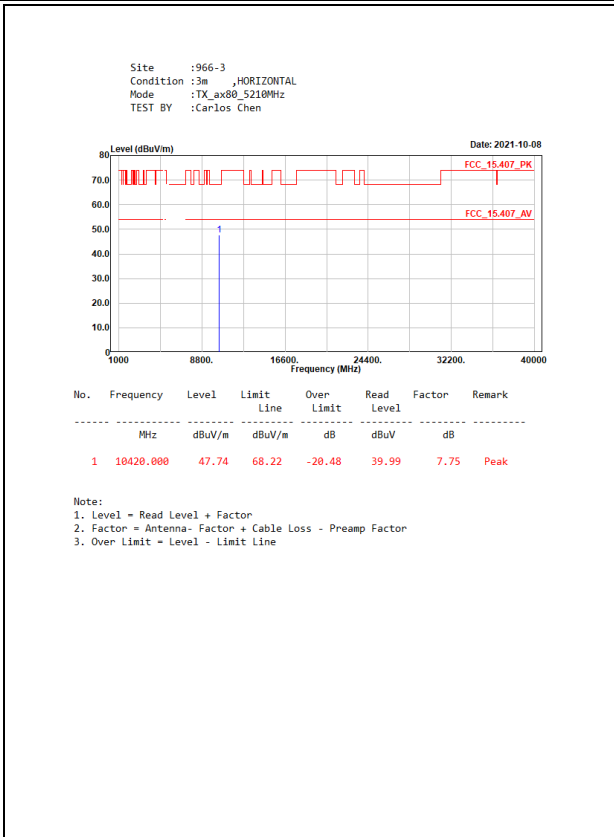


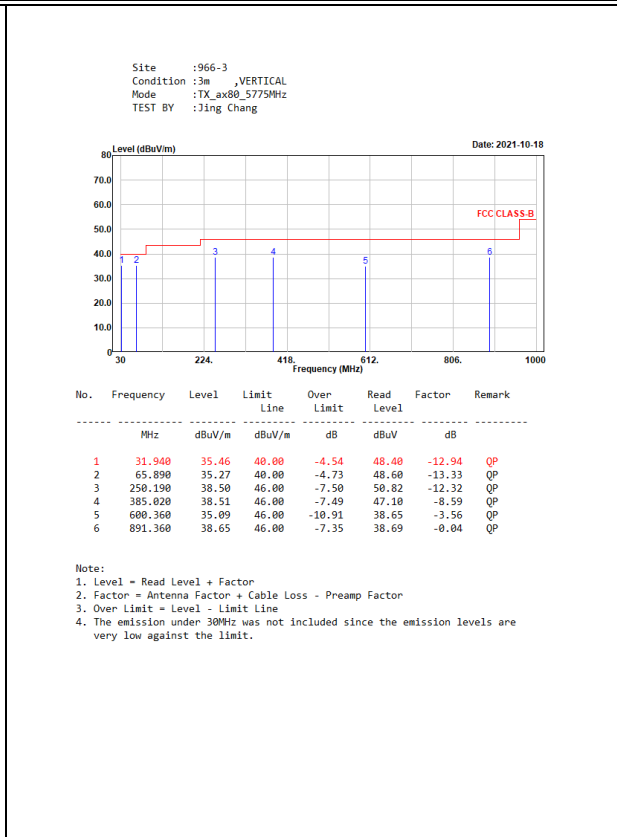
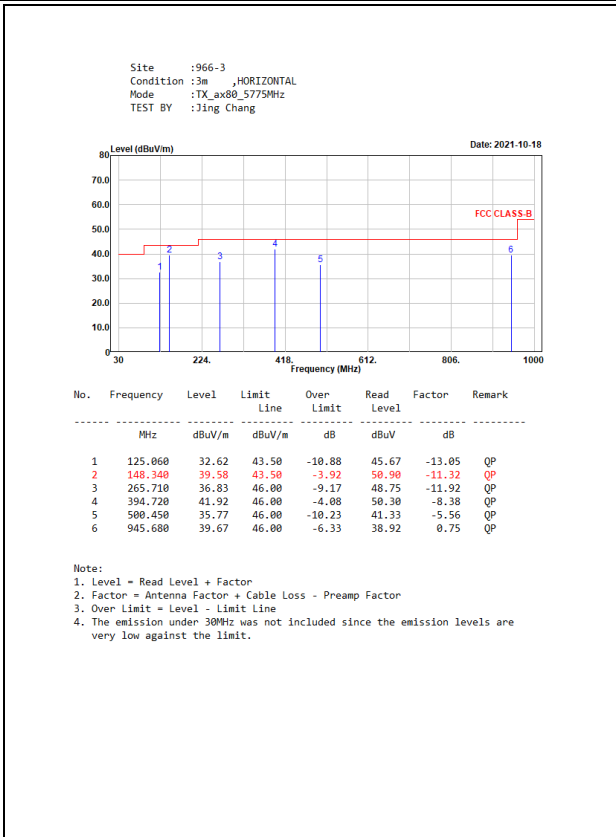










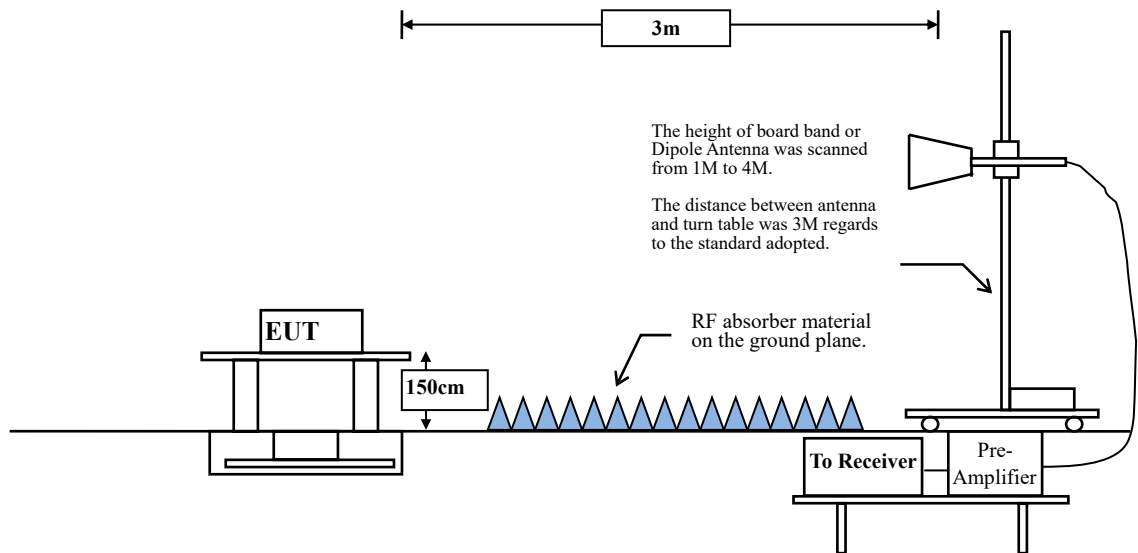




## 6. Band Edge

### 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  $\geq$  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  $\geq$  98 %

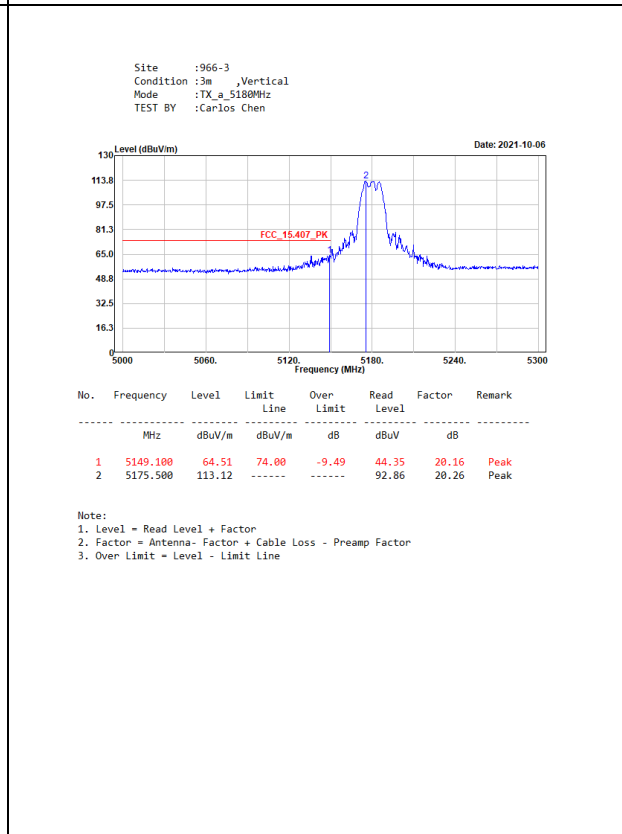
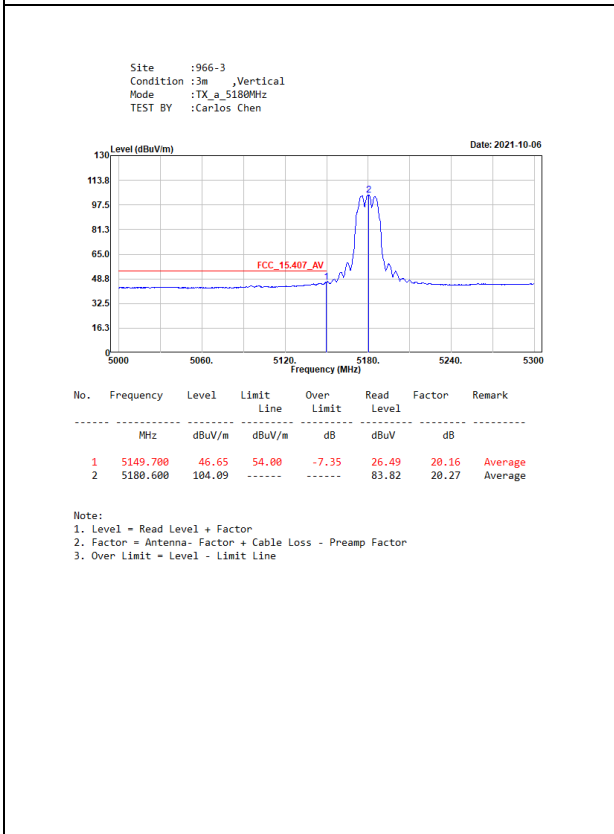
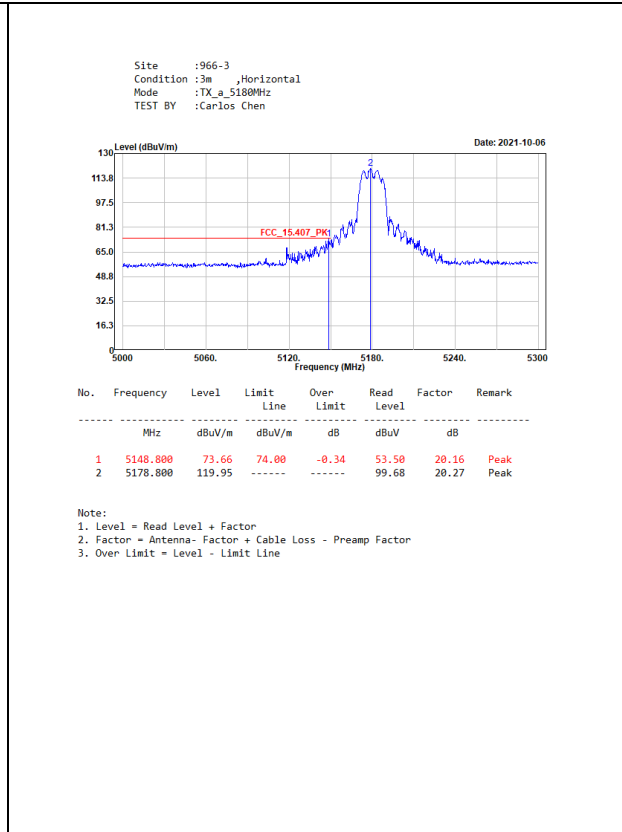
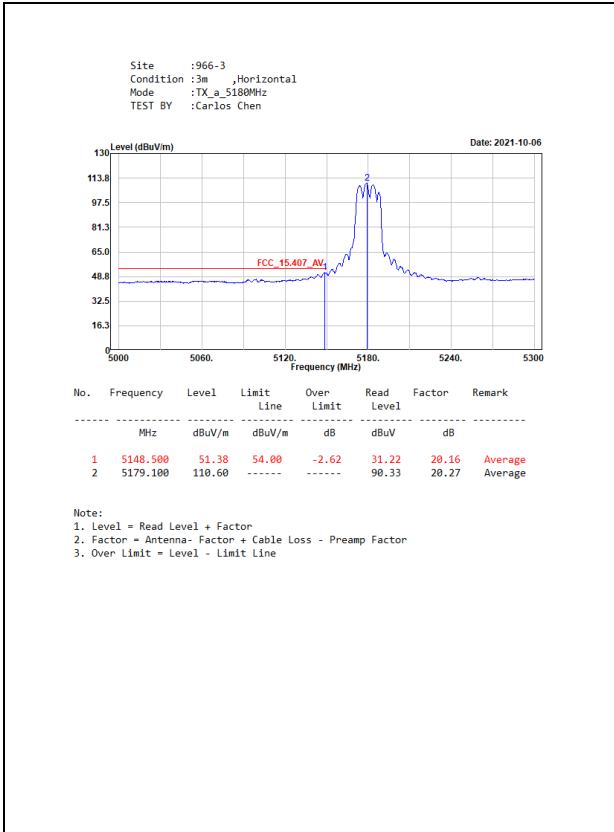
VBW  $\geq$  1/T, when duty cycle < 98 %

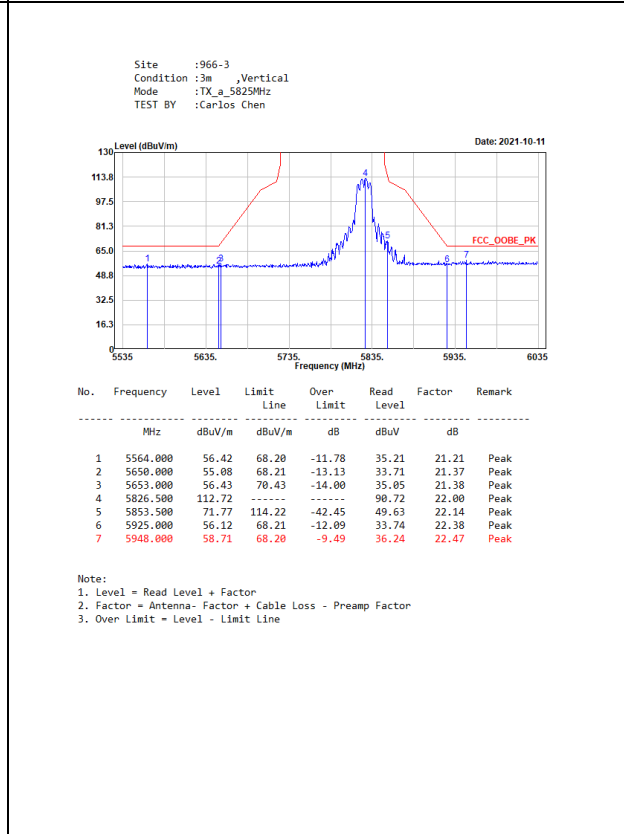
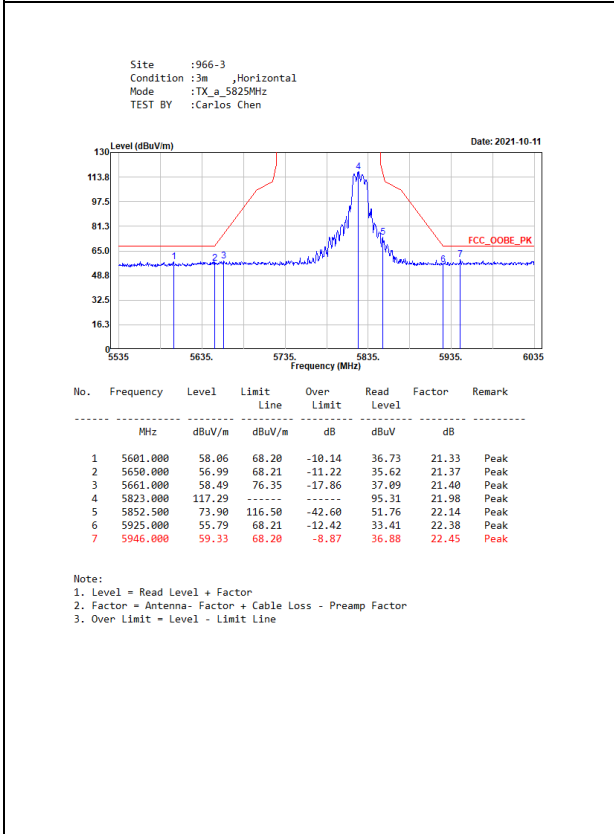
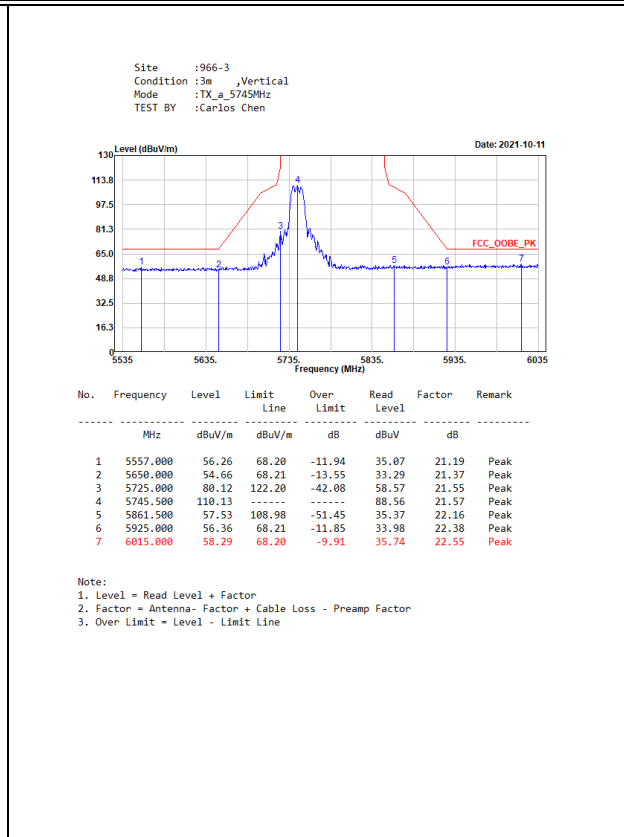
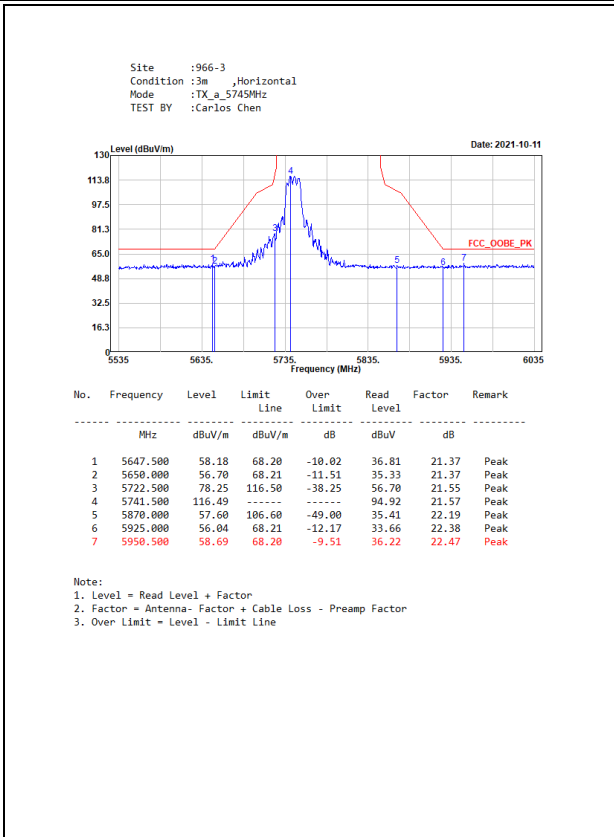
( T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

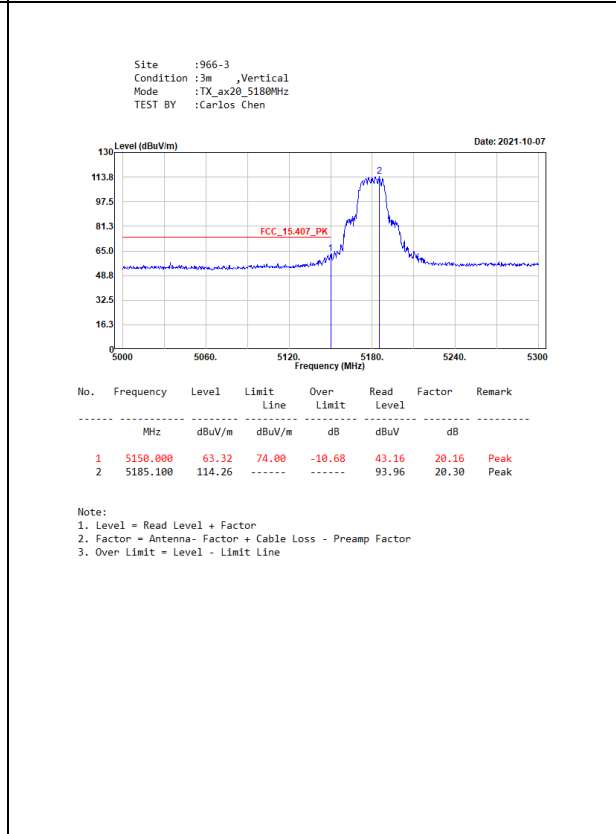
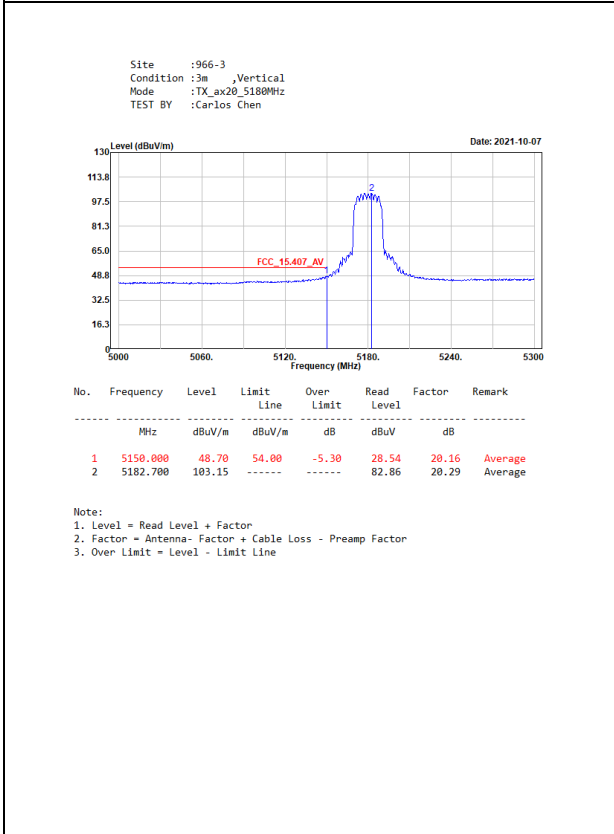
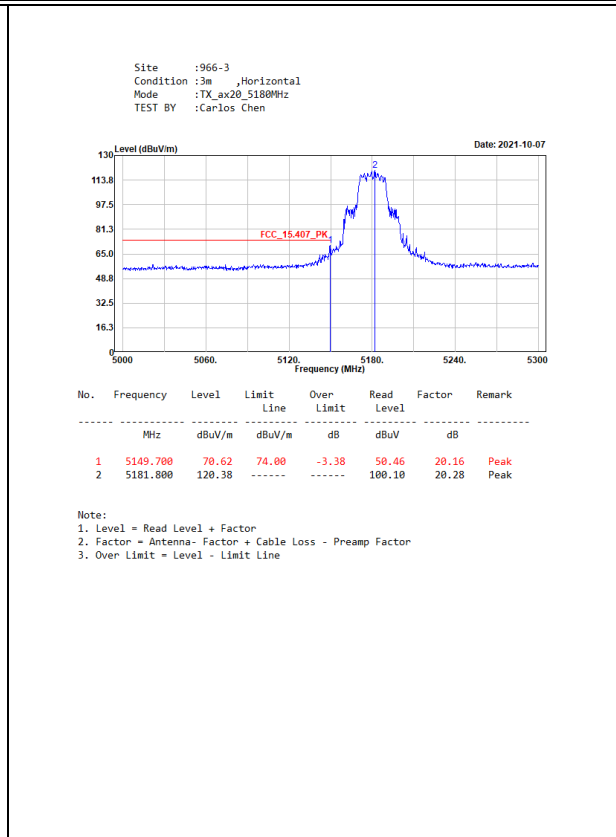
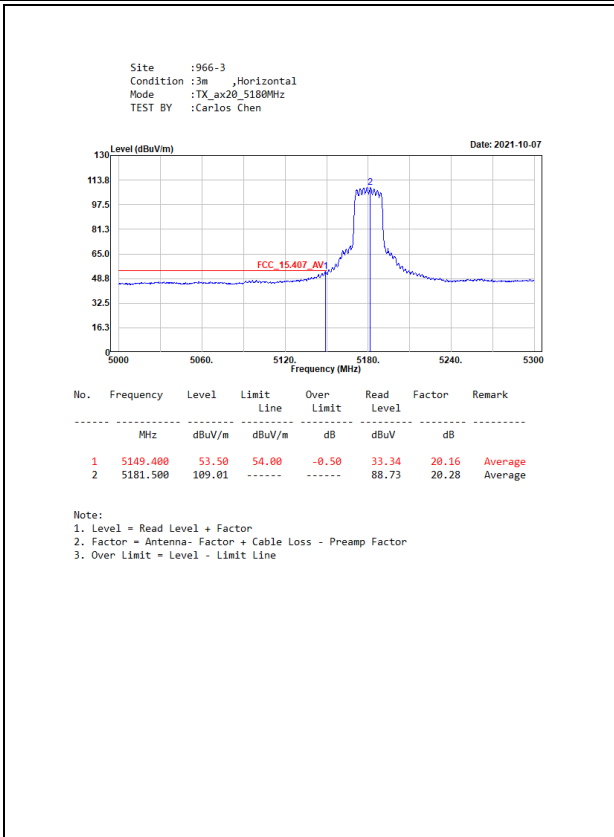
5GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
802.11a	89.55	1.3973	716	1000
802.11ax20	52.02	0.2012	4970	5000
802.11ax40	52.64	0.2030	4926	5000
802.11ax80	63.28	0.1930	5181	10000

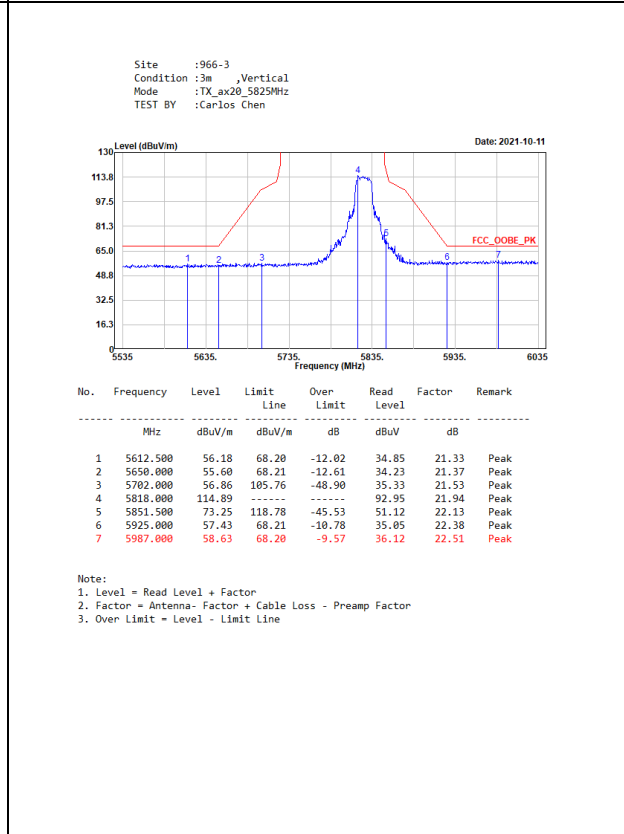
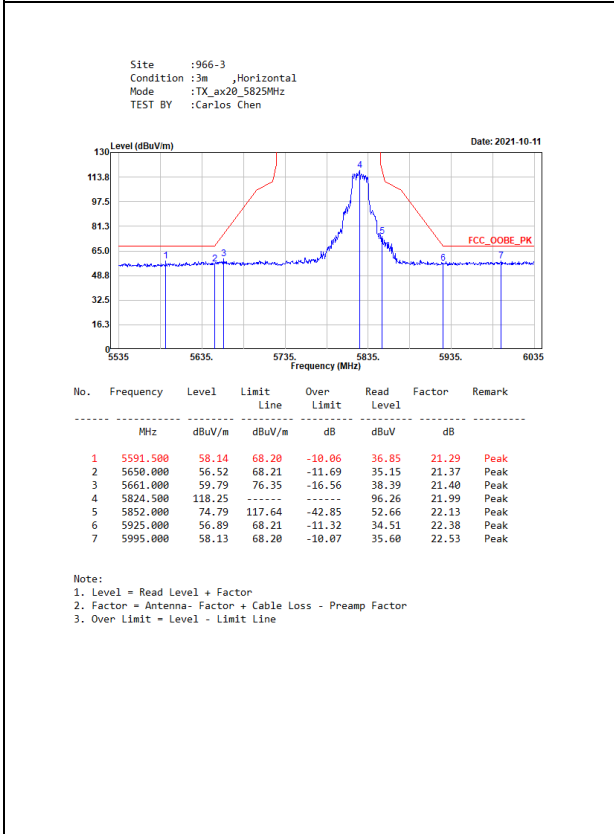
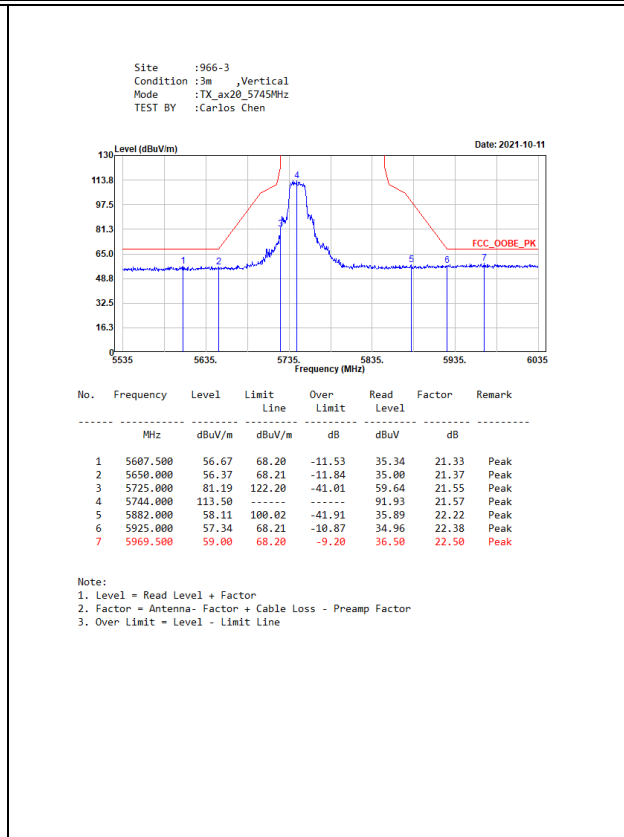
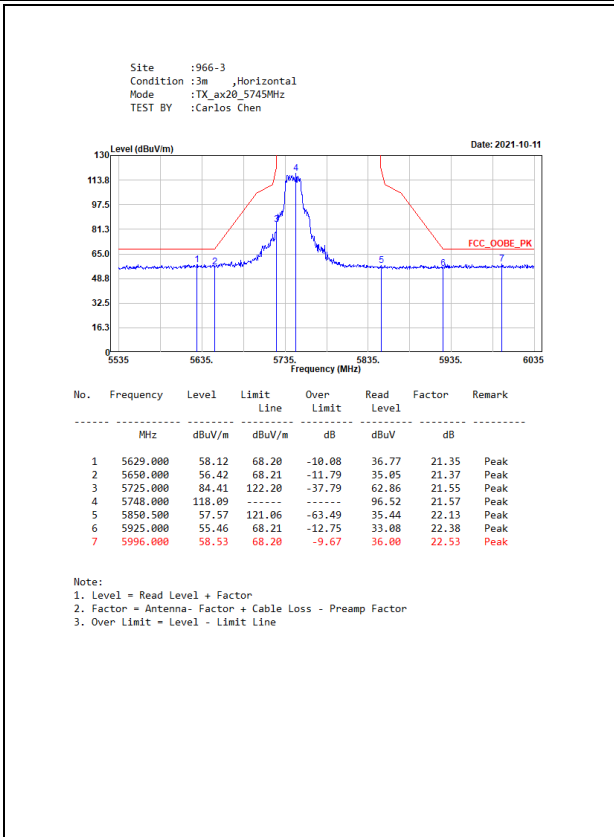
Note: Duty Cycle Refer to Section 8

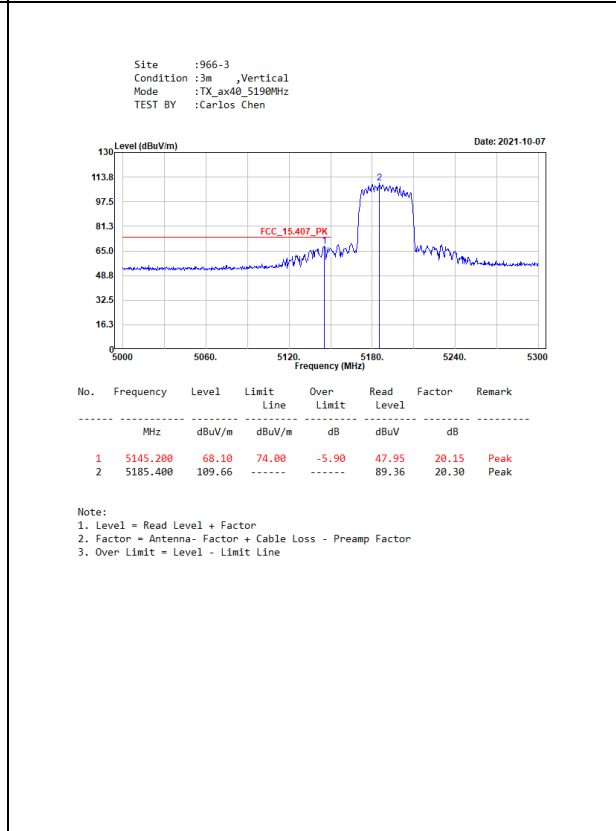
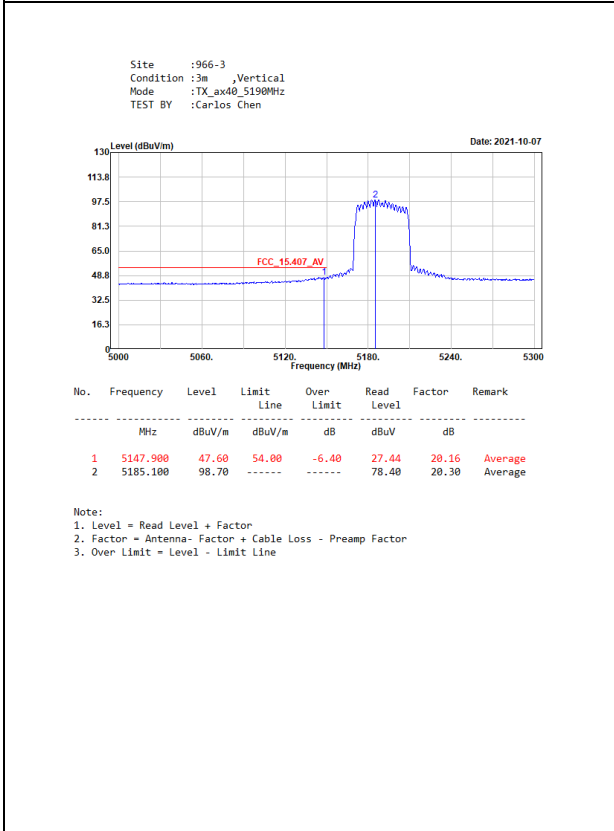
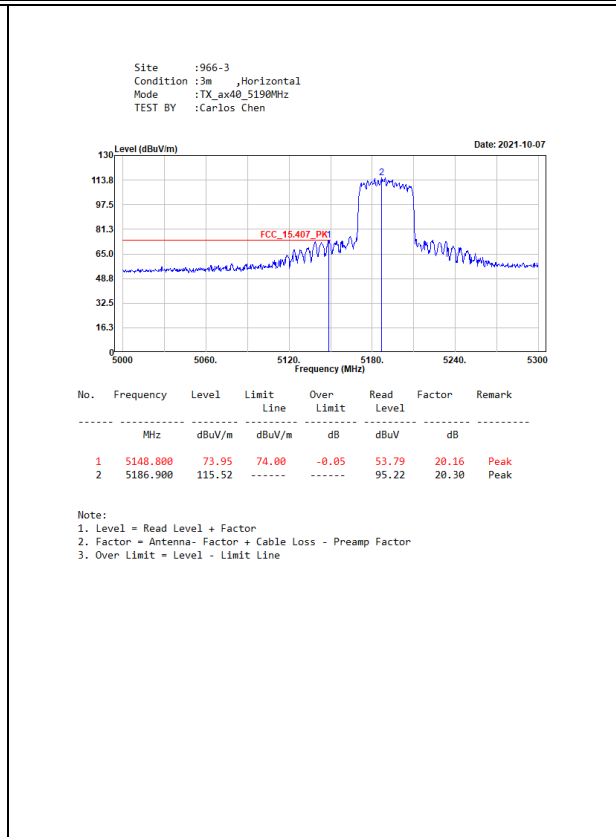
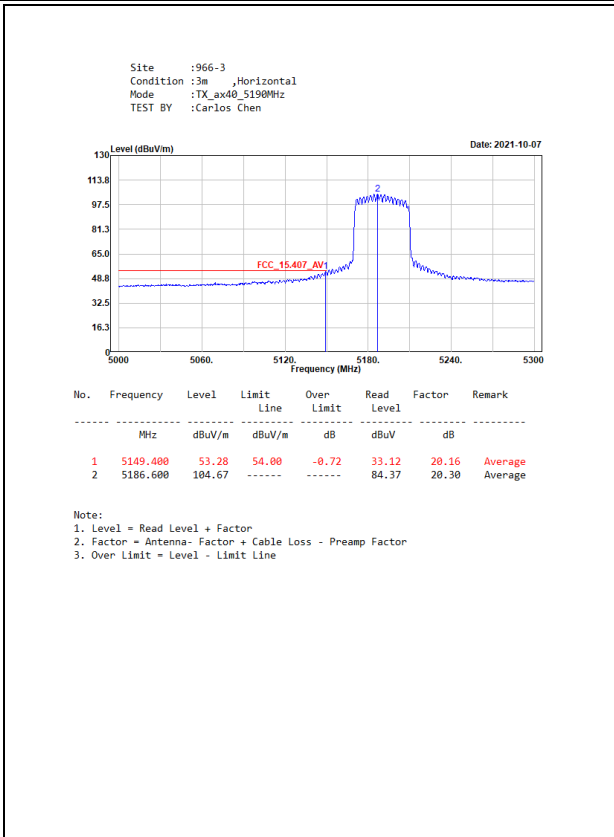
### 6.4. Test Result of Band Edge

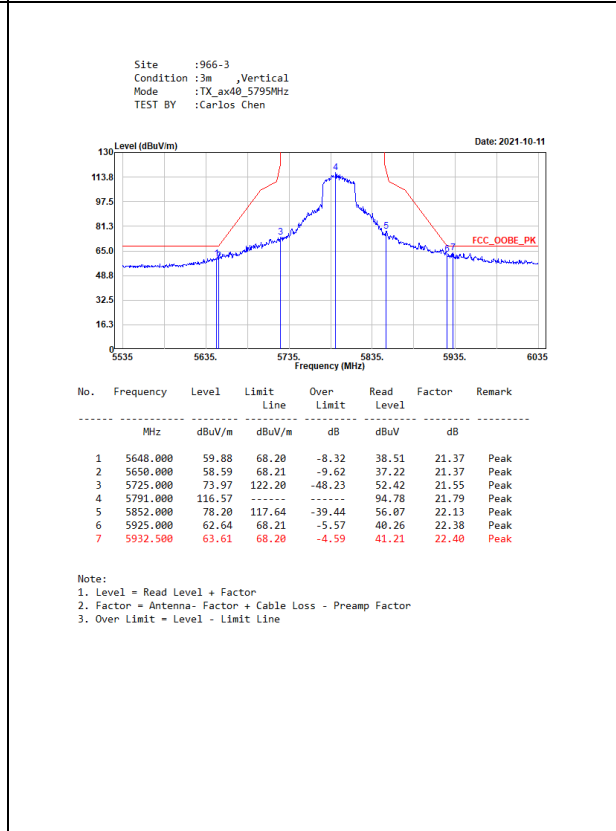
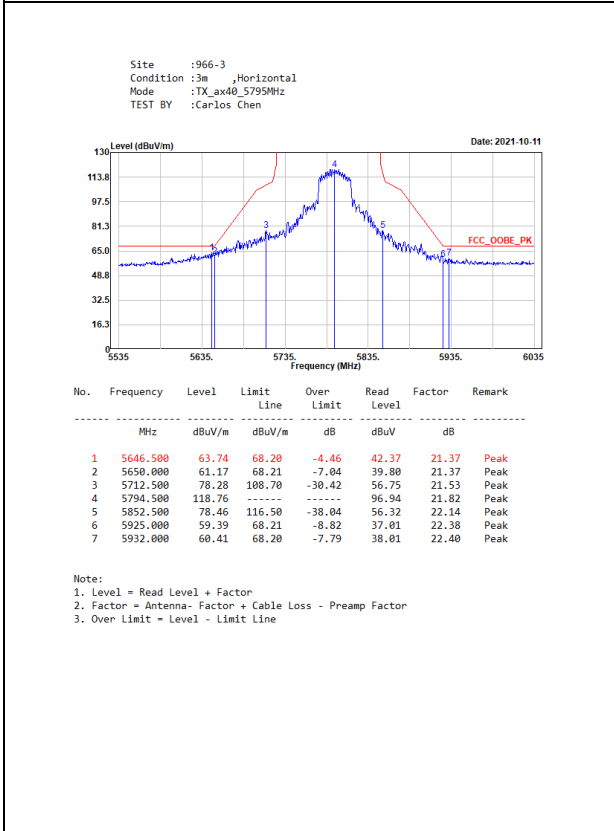
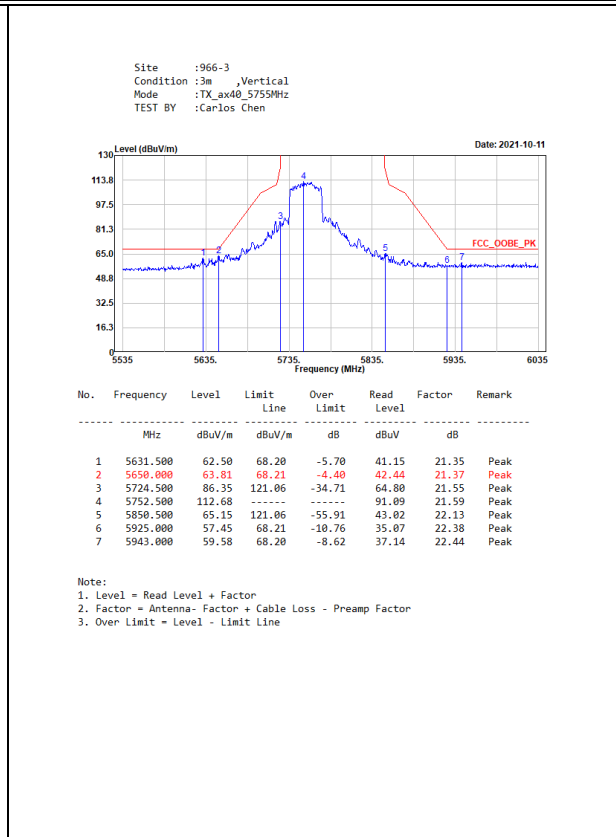
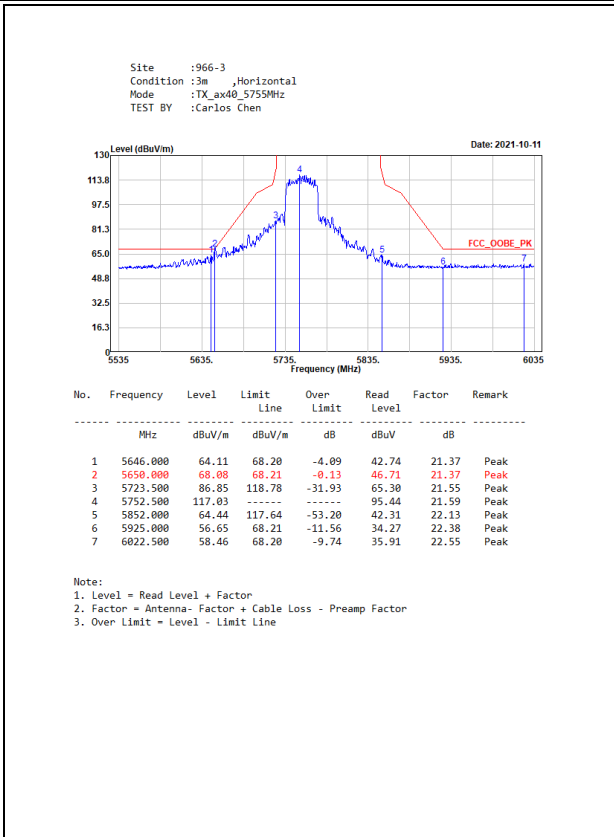




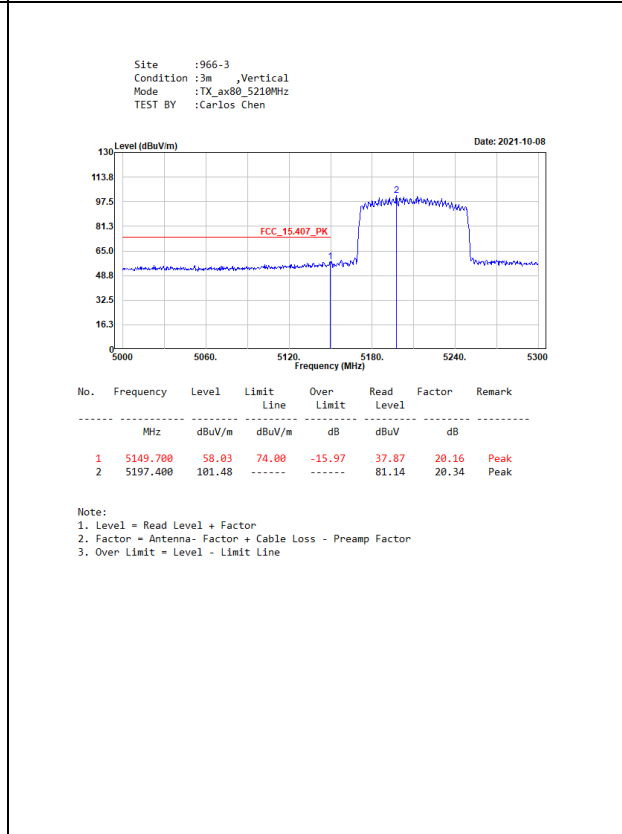
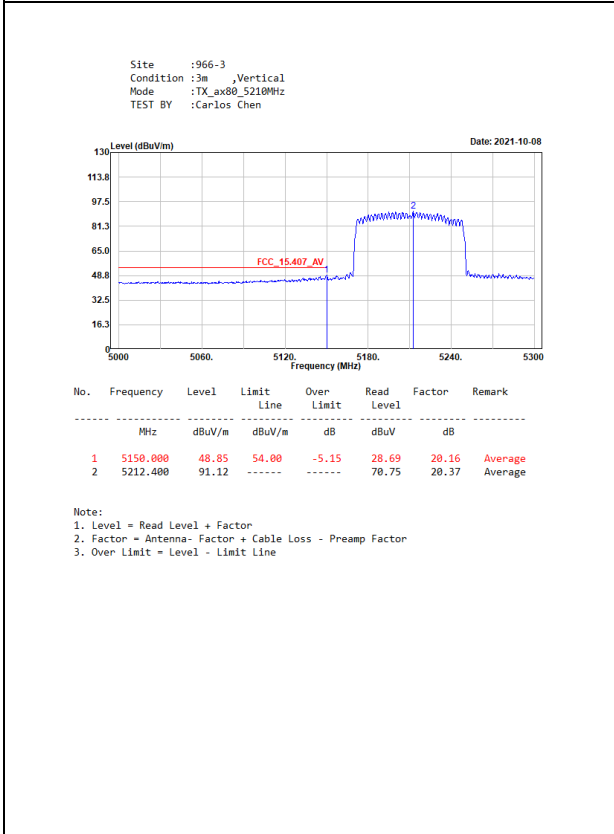
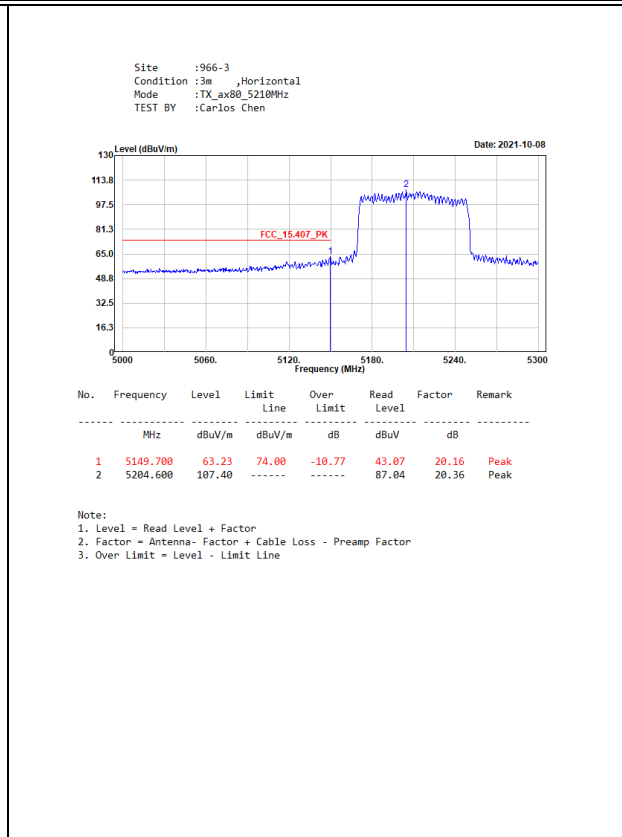
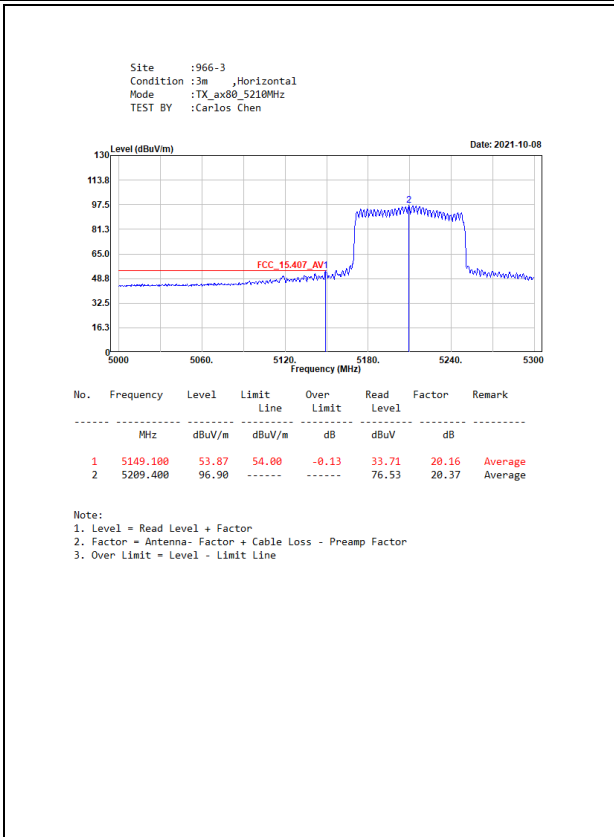


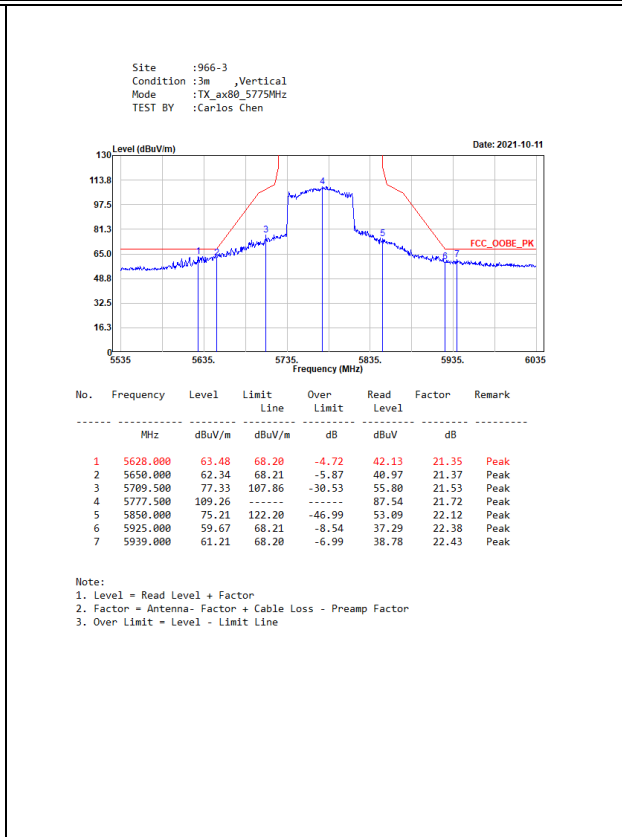
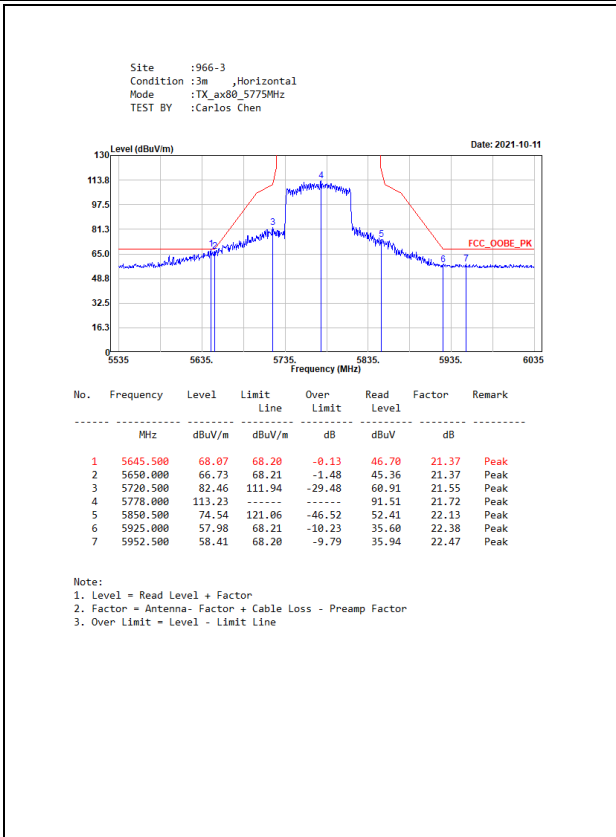






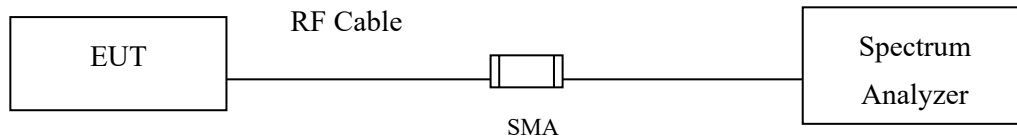






## 7. Occupied Bandwidth

### 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

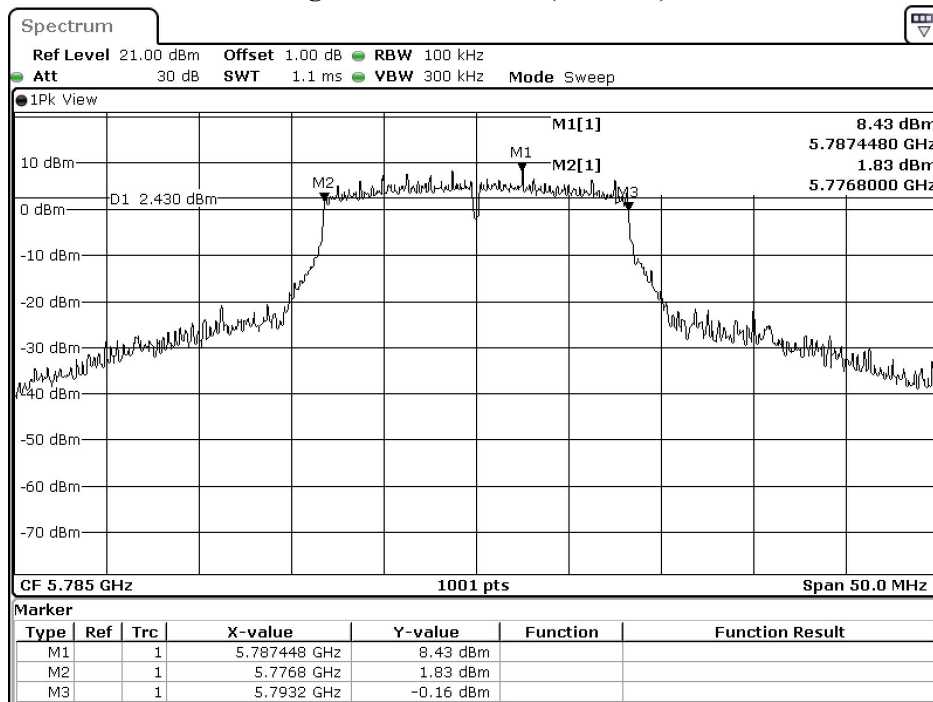
The EUT was setup to ANSI C63.10, 2013; tested to UNII test procedure of FCC KDB-789033 for compliance to FCC 47CFR Subpart E requirements.

### 7.4. Test Result of Occupied Bandwidth

Product : InstaShow X Host  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 1: Transmit 802.11a  
 Test Date : 2021/10/25

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	A	5745	16350	>500	Pass
157	A	5785	16400	>500	Pass
165	A	5825	16100	>500	Pass
149	B	5745	15250	>500	Pass
157	B	5785	15400	>500	Pass
165	B	5825	15750	>500	Pass

Figure Channel 157: (Chain A)

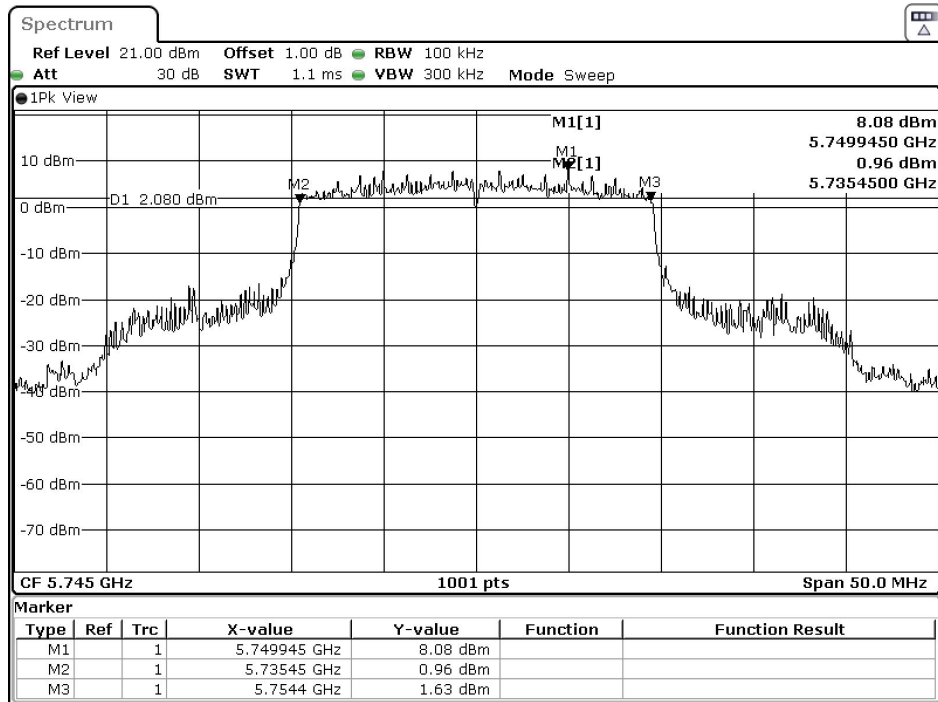


Date: 25.OCT.2021 12:08:21

Product : InstaShow X Host  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 2: Transmit 802.11ax-20MBW  
 Test Date : 2021/10/13

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
149	A	5745	18950	>500	Pass
157	A	5785	18800	>500	Pass
165	A	5825	18750	>500	Pass
149	B	5745	18750	>500	Pass
157	B	5785	18800	>500	Pass
165	B	5825	18650	>500	Pass

Figure Channel 149: (Chain A)

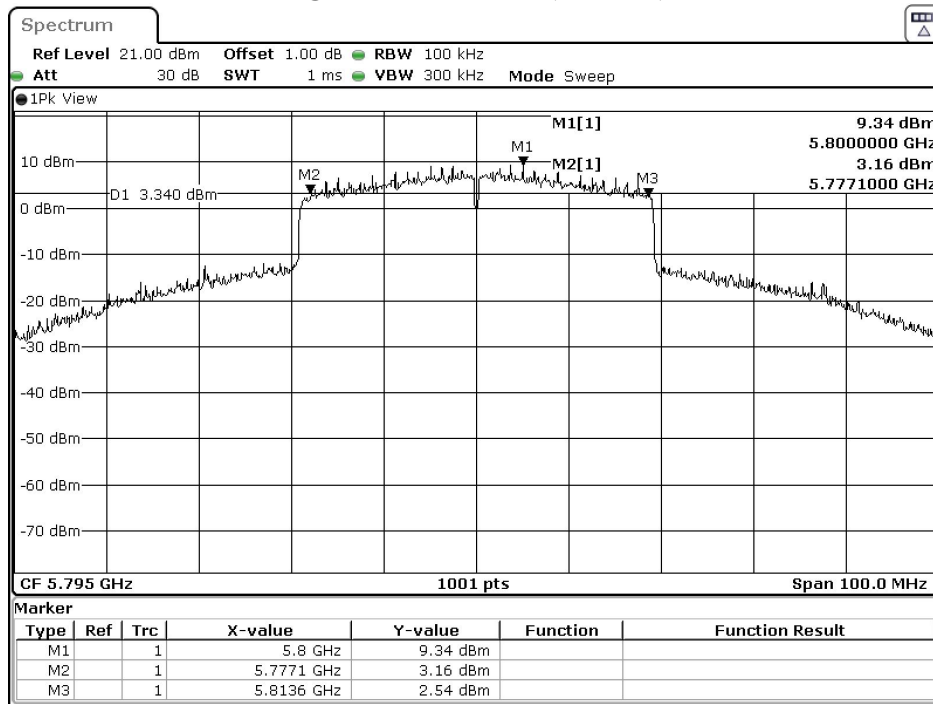


Date: 13.OCT.2021 07:30:22

Product : InstaShow X Host  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 3: Transmit 802.11ax-40MBW  
 Test Date : 2021/10/13

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
151	A	5755	35200	>500	Pass
159	A	5795	35800	>500	Pass
151	B	5755	35900	>500	Pass
159	B	5795	36500	>500	Pass

Figure Channel 159: (Chain B)

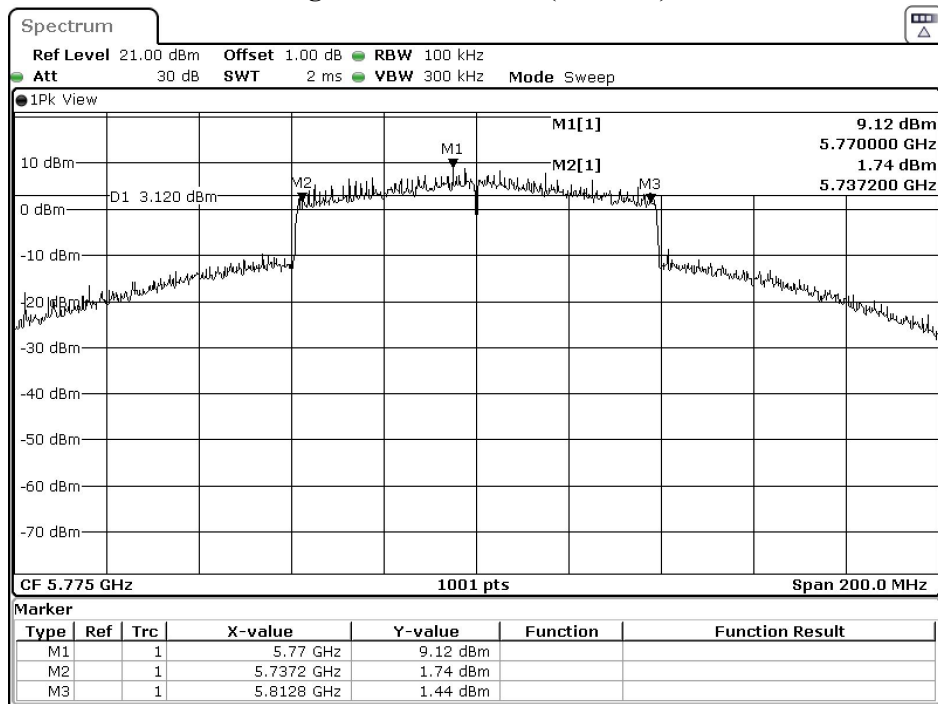


Date: 13.OCT.2021 08:19:21

Product : InstaShow X Host  
 Test Item : Occupied Bandwidth Data  
 Test Mode : Mode 4: Transmit 802.11ax-80MBW  
 Test Date : 2021/10/13

Channel No.	Chain	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
155	A	5775	75600	>500	Pass
155	B	5775	71800	>500	Pass

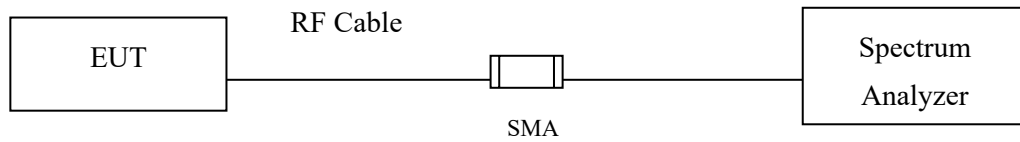
Figure Channel 155: (Chain A)



Date: 13.OCT.2021 07:27:49

## 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 : InstaShow X Host  
Test Item : Duty Cycle  
Test Mode : Transmit

Duty Cycle Formula:

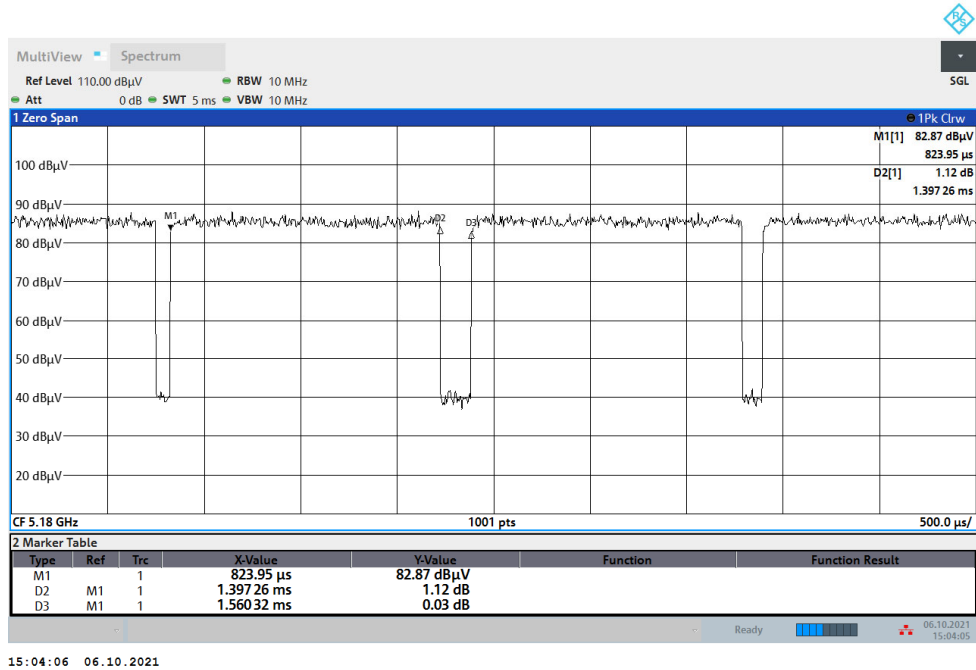
$\text{Duty Cycle} = \text{Ton} / (\text{Ton} + \text{Toff})$

$\text{Duty Factor} = 10 \text{ Log} (1/\text{Duty Cycle})$

Results:

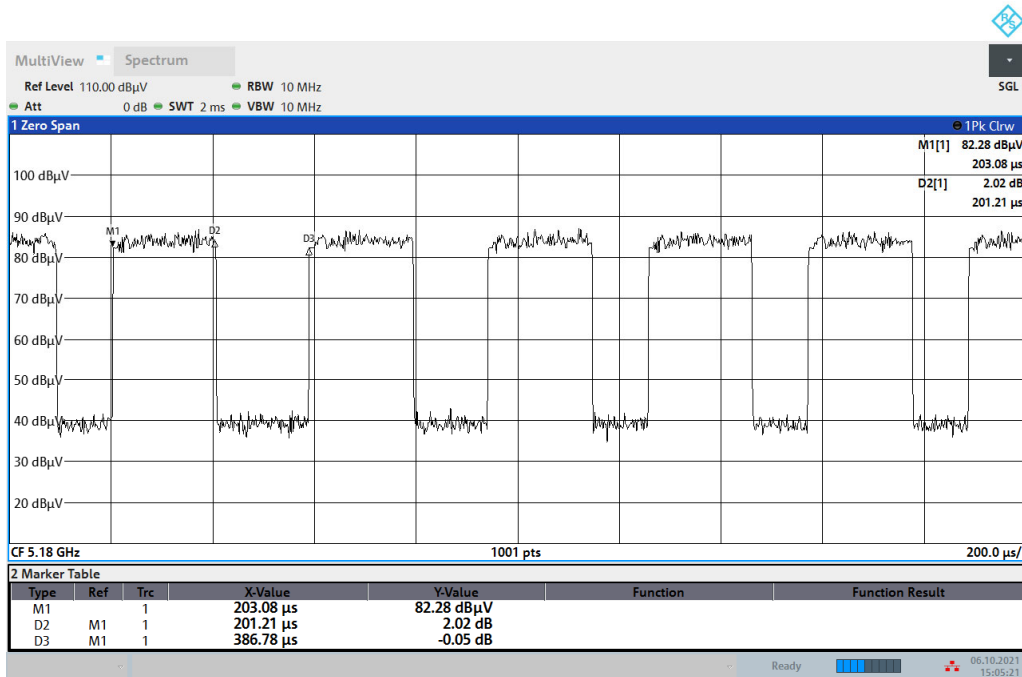
5GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
802.11 a	1.3973	1.5603	89.55	0.48
802.11 ax20	0.2012	0.3868	52.02	2.84
802.11 ax40	0.2030	0.3856	52.64	2.79
802.11 ax80	0.1930	0.3050	63.28	1.99

802.11a



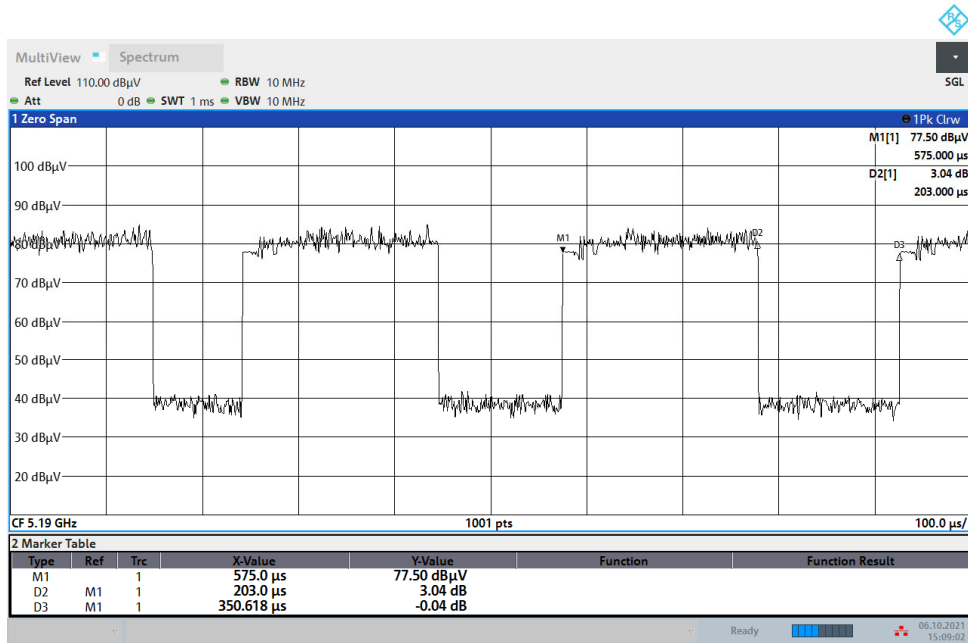
15:04:06 06.10.2021

802.11ax20



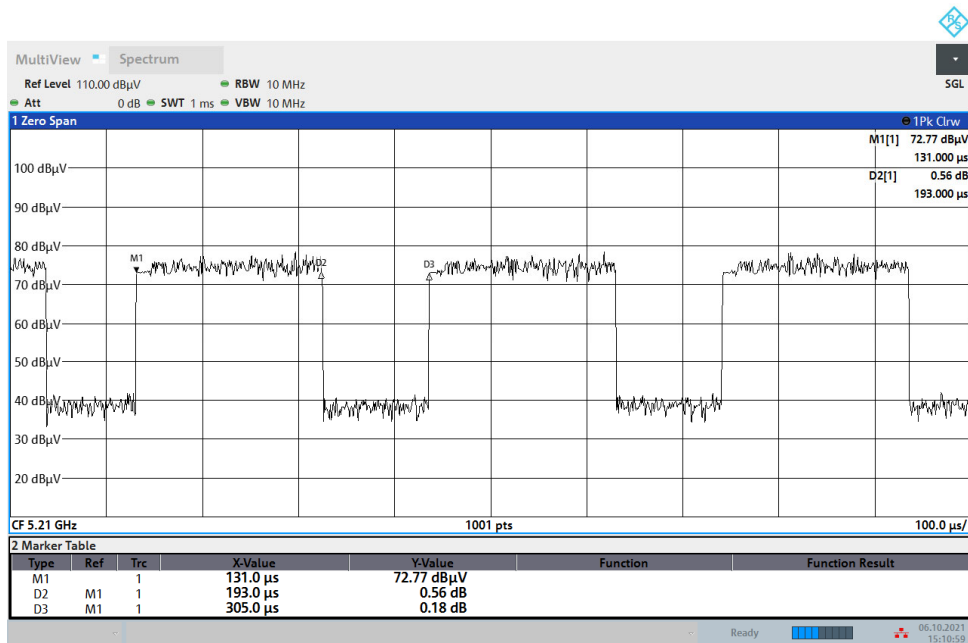
15:05:21 06.10.2021

802.11ax40



15:09:03 06.10.2021

802.11ax80



15:11:00 06.10.2021

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**9. EMI Reduction Method During Compliance Testing**

No modification was made during testing.