RF TEST REPORT

For

VITRINEMEDIA Enterprise

Product Name: LIGHT&PLAY

Test Model(s).: 0106_2_00

Report Reference No.	:	**DACE241101016RL004**
FCC ID	:	**2AR5X-0106**
Applicant's Name	:	VITRINEMEDIA Enterprise
Address	:	50 route de la Reine 92100 Boulogne-Billancourt FRANCE
Testing Laboratory	:	Shenzhen DACE Testing Technology Co., Ltd.
Address	:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Community, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15E**
Date of Receipt	:	November 1, 2024
Date of Test	:	November 1, 2024 to November 30, 2024
Data of Issue	:	November 30, 2024
Result	:	**Pass**

Apply for company information

Applicant's Name	:	VITRINEMEDIA Enterprise
Address	:	50 route de la Reine 92100 Boulogne-Billancourt FRANCE
Product Name	:	LIGHT&PLAY
Test Model(s)	:	0106_2_00
Series Model(s)	:	0106_2_01; 0106_3_00; 0106_3_01; 0106_4_00; 0106_4_01; 0106_5_00; 0106_5_01; 0106_7_00; 0106_7_01
Test Specification Standard(s)	:	47 CFR Part 15E

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

Compiled by:	Supervised by:	Approved by:
Keren Huang	Ben Tang	Machael Mo
Keren Huang / Test Engineer	Ben Tang / Project Engineer	Machael Mo / Manager
November 30, 2024	November 30, 2024	November 30, 2024

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE241101016RL004	November 30, 2024

CONTENTS

1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15E: Unlicensed National Information Infrastructure Devices

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Conducted Emission at AC power line	47 CFR Part 15E	ANSI C63.10-2013 section 6.2	47 CFR Part 15.207(a)	Pass
Duty Cycle	47 CFR Part 15E	ANSI C63.10-2013 section 12.2 (b)		Pass
Emission bandwidth and occupied bandwidth	47 CFR Part 15E	ANSI C63.10-2013, section 6.9 & 12.4 KDB 789033 D02, Clause C.2	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. 47 CFR Part 15.407(e)	Pass
Maximum conducted output power	47 CFR Part 15E	ANSI C63.10-2013, section 12.3	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)	Pass
Power spectral density	47 CFR Part 15E	ANSI C63.10-2013, section 12.5	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)	Pass
Band edge emissions (Radiated)	47 CFR Part 15E	ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
Undesirable emission limits (below 1GHz)	47 CFR Part 15E	ANSI C63.10-2013, section 12.7.4, 12.7.5	47 CFR Part 15.407(b)(9)	Pass
Undesirable emission limits (above 1GHz)	47 CFR Part 15E	ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name	:	VITRINEMEDIA Enterprise
Address	:	50 route de la Reine 92100 Boulogne-Billancourt FRANCE
Manufacturer	:	Huizhou Vitrinemedia Optoelectronic Technology Co., Ltd
Address	:	Address: Building #4,Desheng Industrial Park, Changbu Village, Xinxu Town, Huiyang District, Huizhou City, China

2.2 Description of Device (EUT)

Product Name:	LIGHT&PLAY
Model/Type reference:	0106_2_00
Series Model:	0106_2_01; 0106_3_00; 0106_3_01; 0106_4_00; 0106_4_01; 0106_5_00; 0106_5_01; 0106_7_00; 0106_7_01
Model Difference:	Their electrical circuit designs, layouts, components used and internal wiring layouts are identical, only the product sizes are different.
Trade Mark:	VITRINEMEDIA
Power Supply:	DC 24V from adapter
O peration Frequency:	802.11a/n(HT20)/ac(HT20)(HE20): U-NII Band 1: 5180MHz to 5240MHz; U-NII Band 3: 5745MHz to 5825MHz; 802.11n(HT40)/ac(HT40)(HE40): U-NII Band 1: 5190MHz to 5230MHz; U-NII Band 3: 5755MHz to 5795MHz; 802.11ac(HT80)(HE80): U-NII Band 1: 5210MHz; U-NII Band 3: 5775MHz
Number of Channels:	802.11a/n(HT20)/ac(HT20): U-NII Band 1: 4; U-NII Band 3: 5; 802.11n(HT40)/ac(HT40)(HE40): U-NII Band 1: 2; U-NII Band 3: 2; 802.11ac(HT80)(HE80): U-NII Band 1: 1; U-NII Band 3: 1
Modulation Type:	802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM);
Antenna Type:	External
Antenna Gain:	3dBi
Hardware Version:	V1.0
Software Version:	V1.0

Remark:The Antenna Gain is supplied by the customer.DACE is not responsible for this data and the related calculations associated with it

Operation Frequency each of channel

802.11a/n(HT20)/ac(HT20)

	U-NII Band 1	U-NII Band 3
Channel	Frequency	Frequency
1	5180 MHz	5745 MHz
2	5200 MHz	5765 MHz
3	5220 MHz	5785 MHz
4	5240 MHz	5805 MHz
5	/	5825 MHz

802.11n(HT40)/ac(HT40)

	U-NII Band 1	U-NII Band 3
Channel	Frequency	Frequency
1	5190 MHz	5755 MHz
2	5230 MHz	5795 MHz

802.11ac(HT80)

	U-NII Band 1	U-NII Band 3
Channel	Frequency	Frequency
1	5210 MHz	5775 MHz

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

802.11a/n(HT20)/ac(HT20)		
	U-NII Band 1	U-NII Band 3
Test channel	**Frequency (MHz)**	**Frequency (MHz)**
Lowest channel	5180 MHz	5745 MHz
Middle channel	5200 MHz	5785 MHz
Highest channel	5240 MHz	5825 MHz

802.11n(HT40)/ac(HT40)		
	U-NII Band 1	U-NII Band 3
Test channel	**Frequency (MHz)**	**Frequency (MHz)**
Lowest channel	5190 MHz	5755 MHz
Highest channel	5230 MHz	5795 MHz

802.11ac(HT80)		
	U-NII Band 1	U-NII Band 3
Test channel	**Frequency (MHz)**	**Frequency (MHz)**
Middle channel	5210 MHz	5775 MHz

2.3 Description of Test Modes

No	Title	Description
TM1	802.11a mode	Keep the EUT in continuously transmitting mode with 802.11a modulation type at lowest, middle and highest channel. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.
TM2	802.11n mode	Keep the EUT in continuously transmitting mode with 802.11n modulation type at lowest, middle and highest channel. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
TM3	802.11ac mode	Keep the EUT in continuously transmitting mode with 802.11ac modulation type at lowest, middle and highest channel. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
Remark:Only the data of the worst mode would be recorded in this report.		

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
AC-DC adapter	HUAWEI TECHNOLOGY	HW100400C01	

2.5 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2024-03-25	2025-03-24
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	/	/
Cable	SCHWARZ BECK	/	/	2024-03-20	2025-03-19
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	ID:1164.6607K 03-102109-MH	2024-06-12	2025-06-11
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2025-12-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
Pulse Limiter	CYBERTEK	EM5010A	/	2024-09-27	2025-09-26
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Power spectral density Duty Cycle Emission bandwidth and occupied bandwidth Maximum conducted output power					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
RF Test Software	Tachoy Information Technology(shenzhen) Co.,Ltd.	RTS-01	V1.0.0	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Vector Signal Generator	Keysight	N5181A	MY50143455	2023-12-11	2024-12-10
Signal Generator	Keysight	N5182A	MY48180415	2023-12-12	2024-12-11
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

Band edge emissions (Radiated) Undesirable emission limits (below 1GHz) Undesirable emission limits (above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	MF	MF-7802	/	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-03-20	2025-03-19
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-03-20	2025-03-19
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Wideband radio communication tester	R&S	CMW500	113410	2024-06-12	2025-06-11
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2024-06-12	2025-06-11
Test Receiver	R&S	ESCI 3	1166.5950K03 -101431-Jq	2024-06-13	2025-06-12
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±3.41dB
Duty cycle	±3.1%
Occupied Bandwidth	±3.63%
RF conducted power	±0.733dB
RF power density	±0.234%
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Identification of Testing Laboratory

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	102, Building H1, & 1/F., Building H, Hongfa Science & Technology Park, Tangtou Connunity, Shiyan Subdistrict, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration Number:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

(1) The test report reference to the report template version v0.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

(6) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

3 Radio Spectrum Matter Test Results (RF)

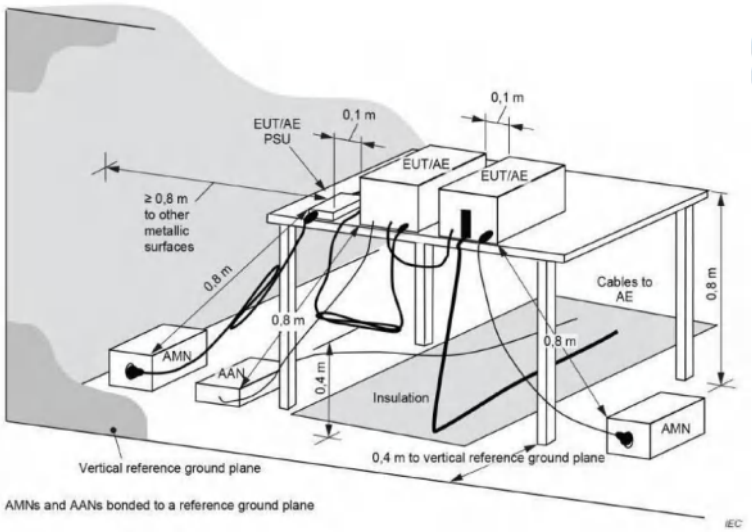
3.1 Conducted Emission at AC power line

Test Requirement:	47 CFR Part 15.207(a)
Test Limit:	Frequency of emission (MHz) / Conducted limit (dBμV): Quasi-peak / Average 0.15-0.5: 66 to 56* / 56 to 46* 0.5-5: 56 / 46 5-30: 60 / 50 *Decreases with the logarithm of the frequency.
Test Method:	ANSI C63.10-2013 section 6.2

3.1.1 E.U.T. Operation:

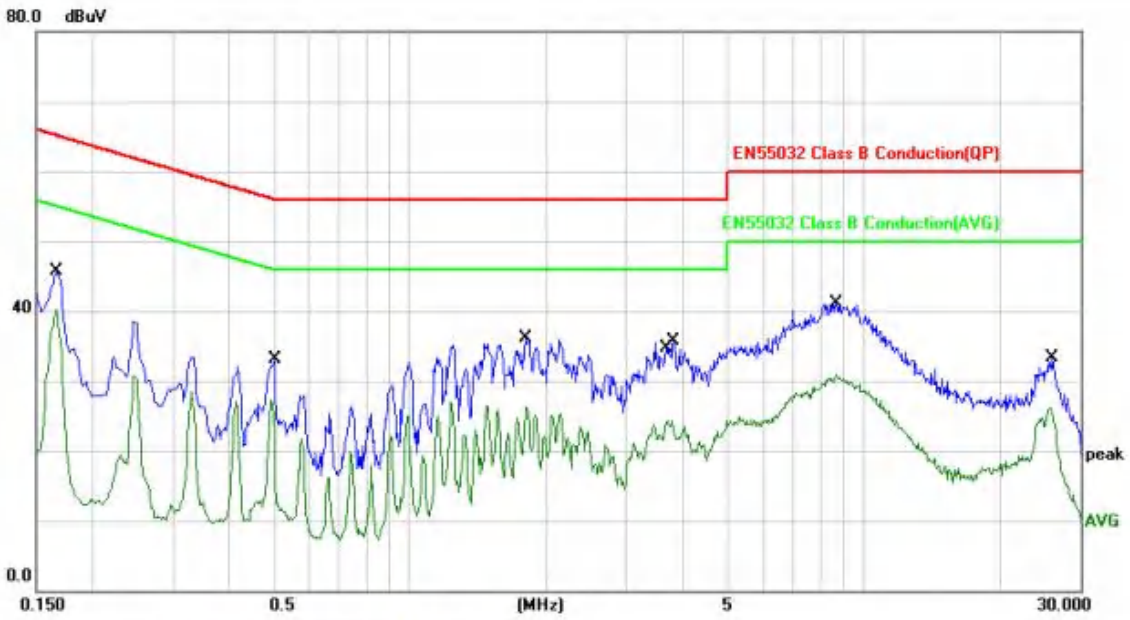
Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1				
Final test mode:	TM1				

3.1.2 Test Setup Diagram:



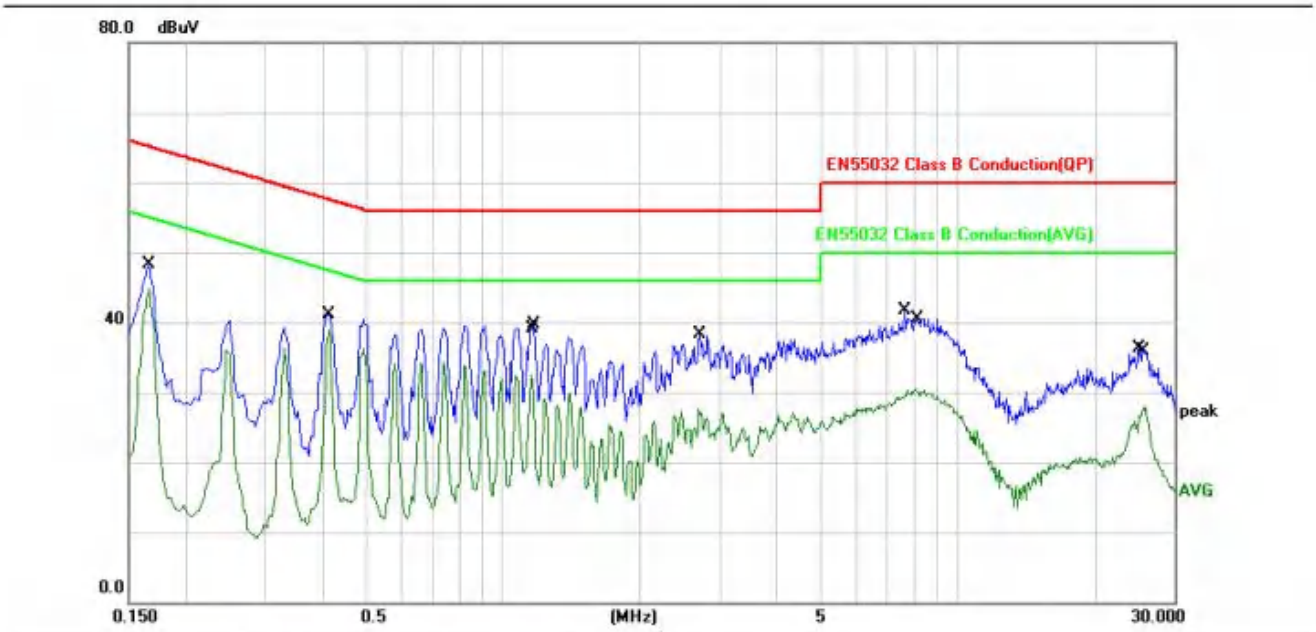
3.1.3 Test Data:

TM1 / Line: Line / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1660	35.64	10.10	45.74	65.15	-19.41	QP	
2	*	0.1660	30.18	10.10	40.28	55.15	-14.87	AVG	
3		0.4940	17.25	10.08	27.33	46.10	-18.77	AVG	
4		0.5020	22.94	10.08	33.02	56.00	-22.98	QP	
5		1.7980	26.14	10.01	36.15	56.00	-19.85	QP	
6		1.8020	16.26	10.01	26.27	46.00	-19.73	AVG	
7		3.6980	14.14	10.13	24.27	46.00	-21.73	AVG	
8		3.8100	25.55	10.15	35.70	56.00	-20.30	QP	
9		8.7180	30.74	10.29	41.03	60.00	-18.97	QP	
10		8.7180	20.57	10.29	30.86	50.00	-19.14	AVG	
11		25.6860	15.26	10.87	26.13	50.00	-23.87	AVG	
12		25.8860	22.49	10.88	33.37	60.00	-26.63	QP	

TM1 / Line: Neutral / Band: 2400-2483.5 MHz / BW: 1 / CH: L



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1660	38.16	10.10	48.26	65.15	-16.89	QP	
2		0.1660	34.78	10.10	44.88	55.15	-10.27	AVG	
3		0.4140	30.98	10.07	41.05	57.57	-16.52	QP	
4	*	0.4140	28.87	10.07	38.94	47.57	-8.63	AVG	
5		1.1539	22.44	10.07	32.51	46.00	-13.49	AVG	
6		1.1660	29.70	10.07	39.77	56.00	-16.23	QP	
7		2.6980	17.65	10.04	27.69	46.00	-18.31	AVG	
8		2.7180	28.19	10.04	38.23	56.00	-17.77	QP	
9		7.6700	31.41	10.26	41.67	60.00	-18.33	QP	
10		8.0900	20.14	10.28	30.42	50.00	-19.58	AVG	
11		25.1060	25.46	10.84	36.30	60.00	-23.70	QP	
12		25.9020	17.00	10.88	27.88	50.00	-22.12	AVG	

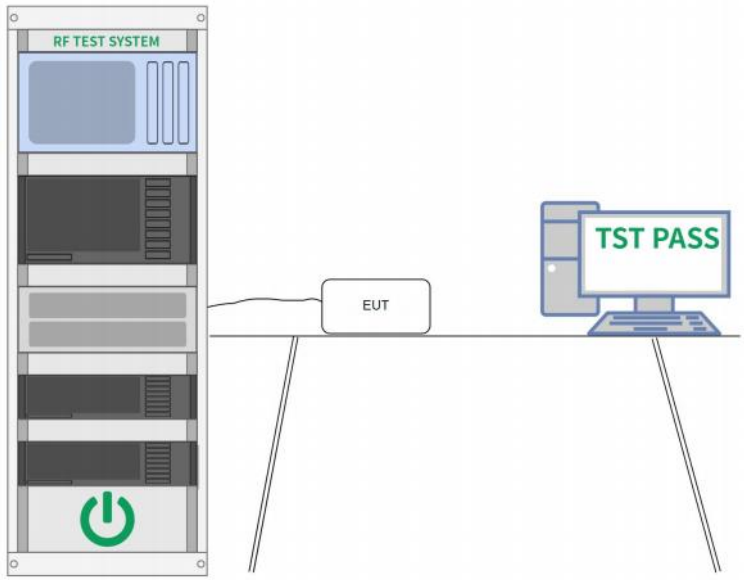
3.2 Duty Cycle

Test Requirement:	All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.
Test Limit:	No limits, only for report use.
Test Method:	ANSI C63.10-2013 section 12.2 (b)
Procedure:	i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW >= EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW >= RBW. iv) Set detector = peak. v) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.

3.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

3.2.2 Test Setup Diagram:



3.2.3 Test Data:

Please Refer to Appendix for Details.

3.3 Emission bandwidth and occupied bandwidth

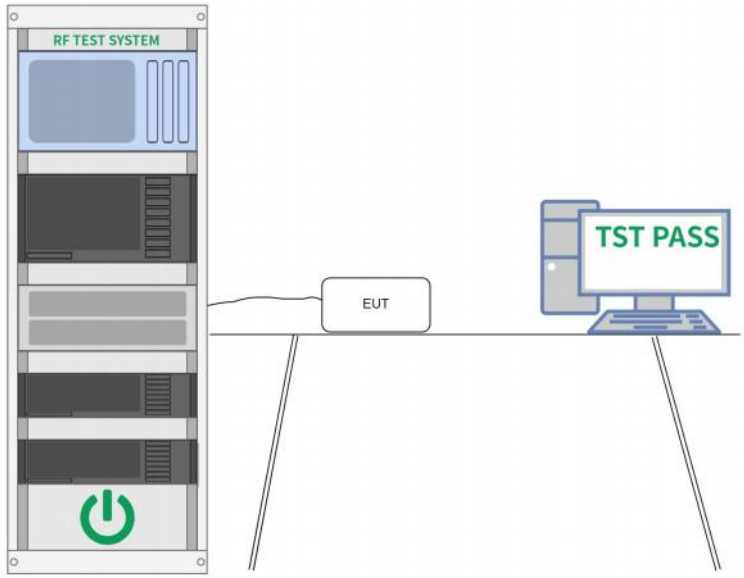
Test Requirement:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: 47 CFR Part 15.407(e)
Test Limit:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.
Test Method:	ANSI C63.10-2013, section 6.9 & 12.4 KDB 789033 D02, Clause C.2
Procedure:	Emission bandwidth: a) Set RBW = approximately 1% of the emission bandwidth. b) Set the VBW > RBW. c) Detector = peak. d) Trace mode = max hold. e) Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%. Occupied bandwidth: a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2. d) Step a) through step c) might require iteration to adjust within the specified range. e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used. f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is

	the difference between these two frequencies. h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s). 6 dB emission bandwidth: a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) ≥ 3 >= RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

3.3.2 Test Setup Diagram:



3.3.3 Test Data:

Please Refer to Appendix for Details.

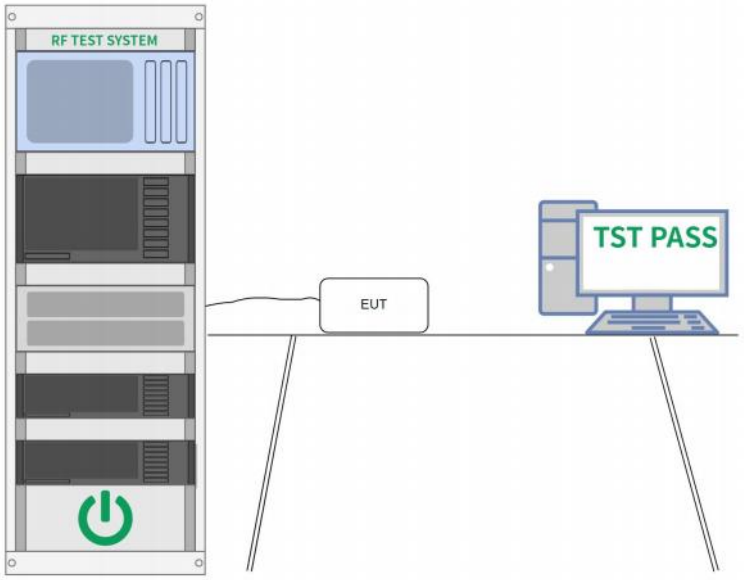
3.4 Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For 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. 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 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. 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 U-NII 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.
Test Method:	ANSI C63.10-2013, section 12.3
Procedure:	Refer to ANSI C63.10-2013 section 12.3

3.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

3.4.2 Test Setup Diagram:



3.4.3 Test Data:

Please Refer to Appendix for Details.

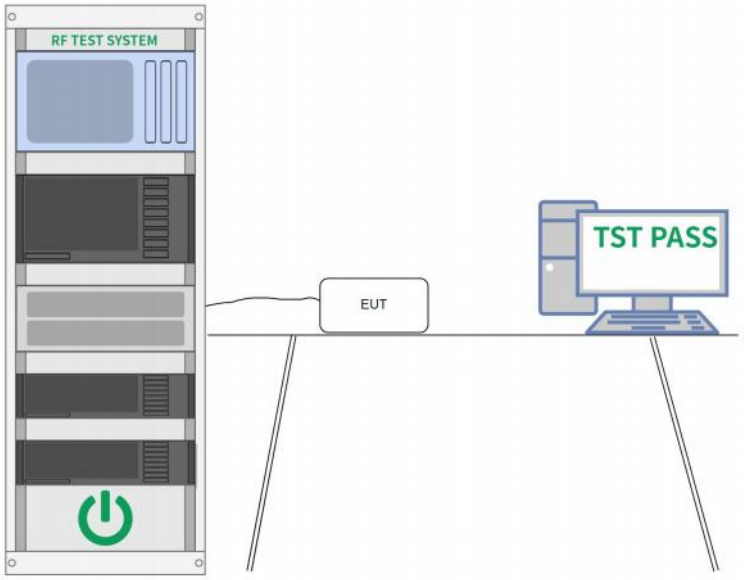
3.5 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For 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 band 5.725-5.850 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 U-NII 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.
Test Method:	ANSI C63.10-2013, section 12.5
Procedure:	Refer to ANSI C63.10-2013, section 12.5

3.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

3.5.2 Test Setup Diagram:



3.5.3 Test Data:

Please Refer to Appendix for Details.

3.6 Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1] 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply to these measurements.

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB

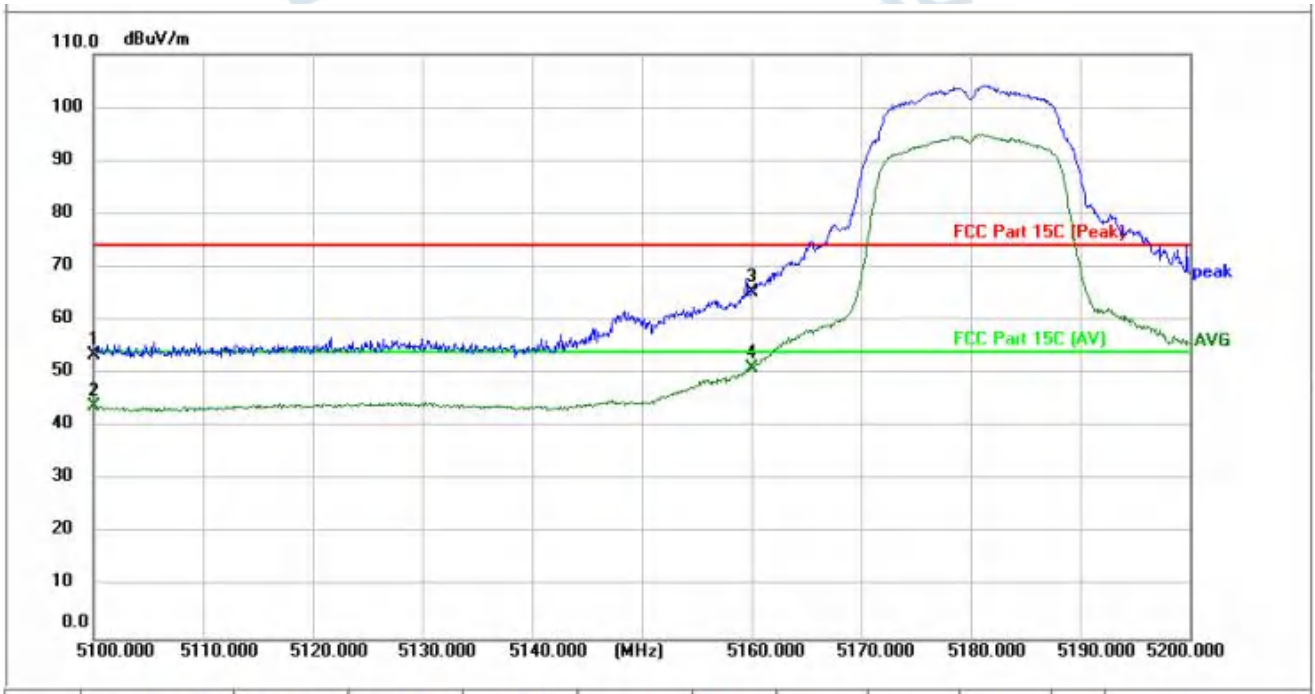
	under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

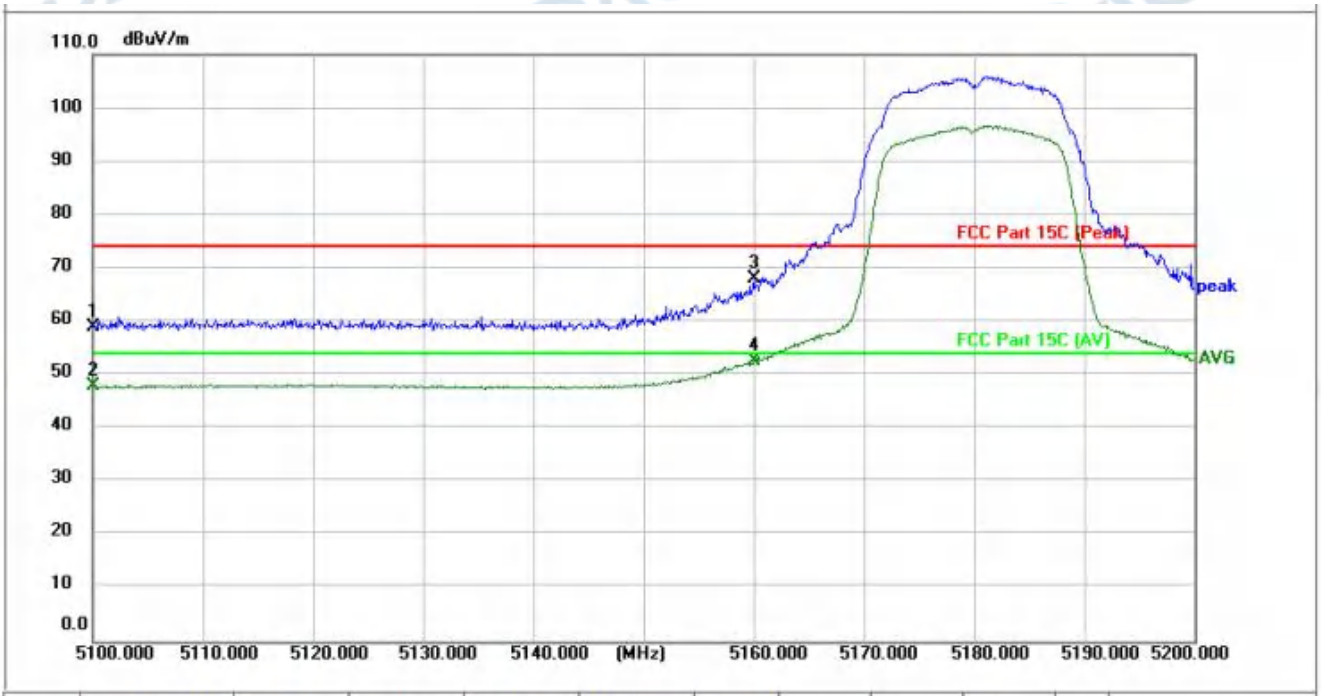
3.6.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: L



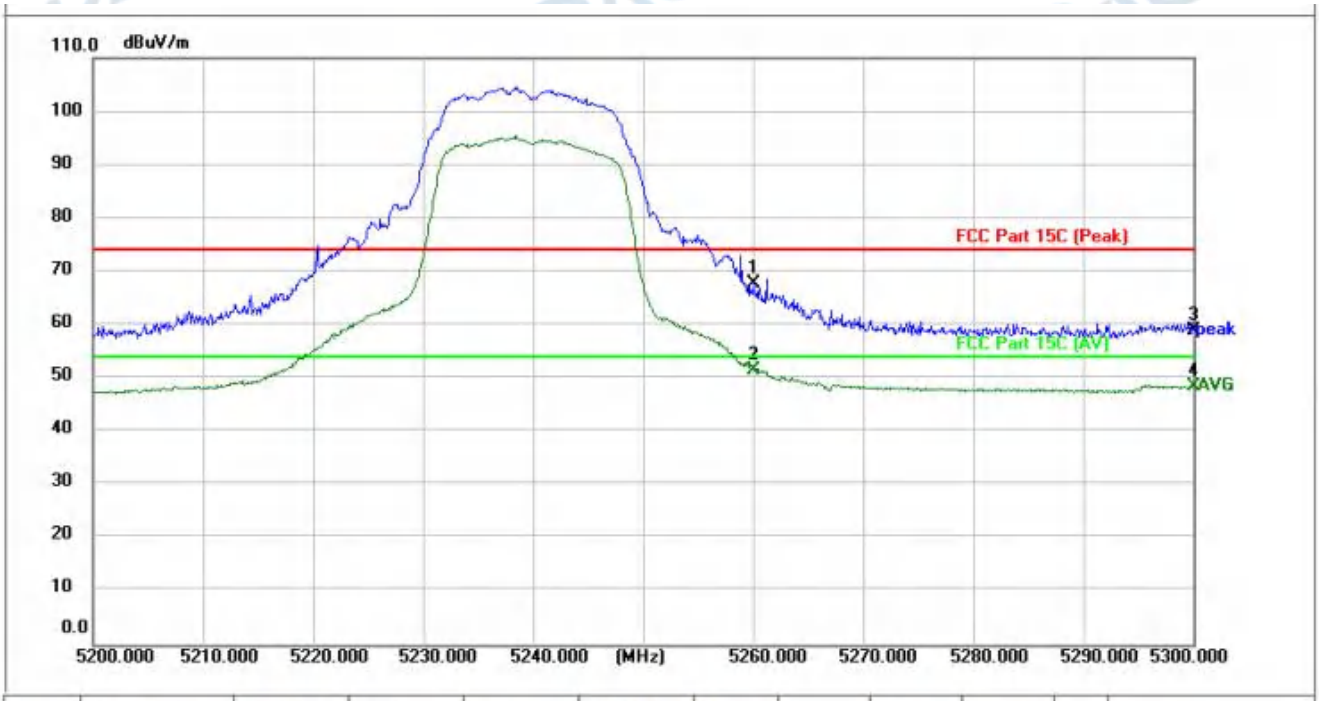
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5100.000	48.83	4.71	53.54	74.00	-20.46	peak	150		P	
2	5100.000	39.02	4.71	43.73	54.00	-10.27	AVG	150		P	
3	5160.000	60.37	4.87	65.24	74.00	-8.76	peak	150		P	
4 *	5160.000	46.18	4.87	51.05	54.00	-2.95	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L



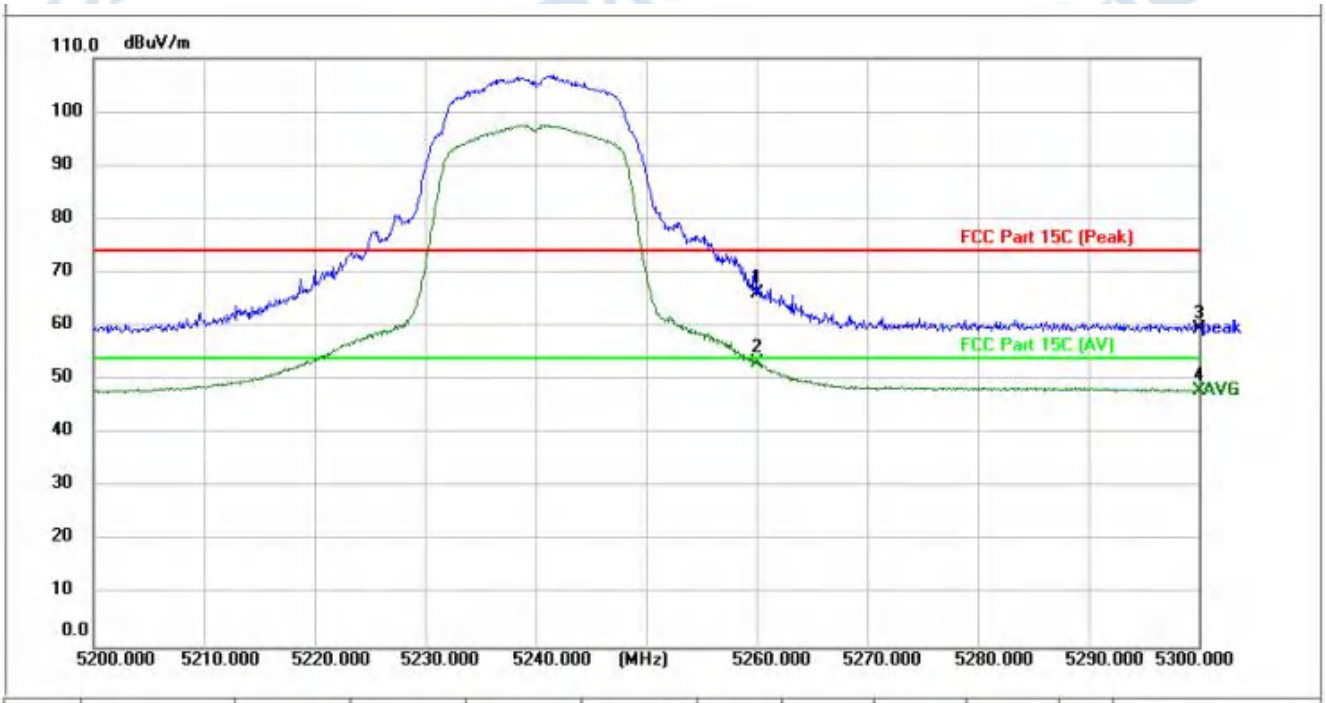
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5100.000	54.32	4.71	59.03	74.00	-14.97	peak	150		P	
2	5100.000	43.24	4.71	47.95	54.00	-6.05	AVG	150		P	
3	5160.000	63.32	4.87	68.19	74.00	-5.81	peak	150		P	
4 *	5160.000	47.83	4.87	52.70	54.00	-1.30	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: H



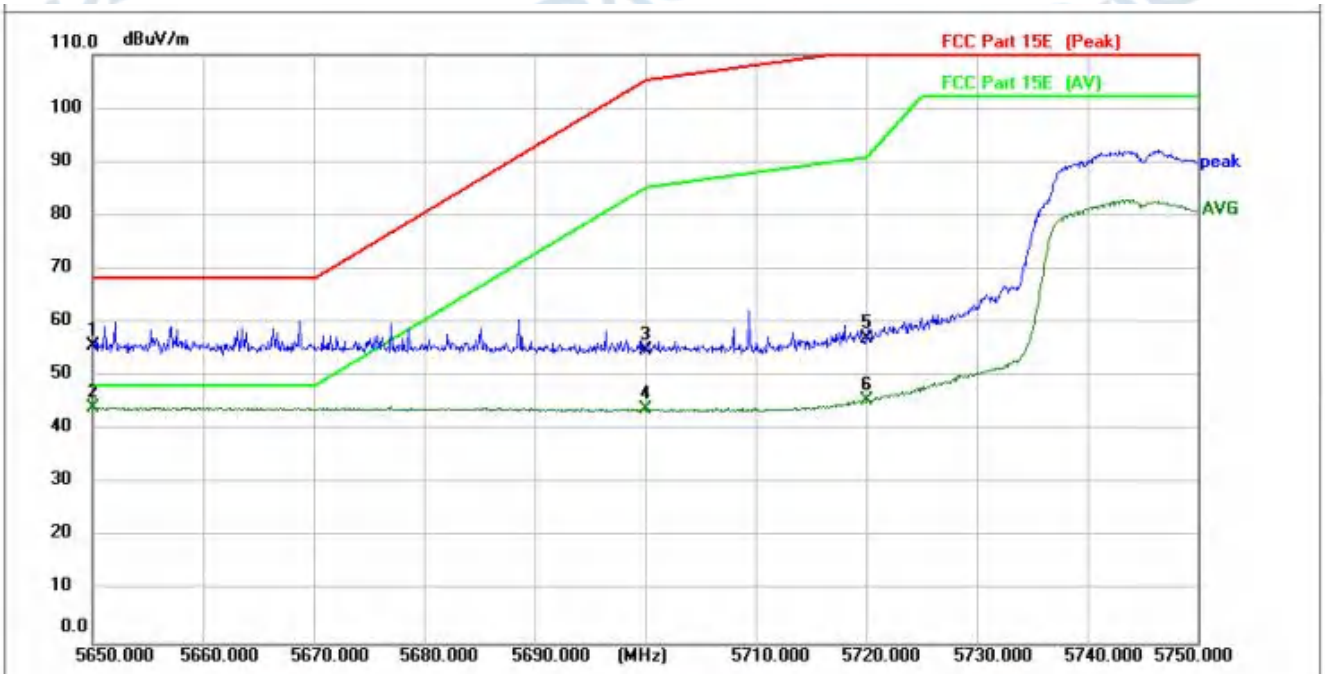
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5260.000	62.54	5.15	67.69	74.00	-6.31	peak	150		P	
2 *	5260.000	46.51	5.15	51.66	54.00	-2.34	AVG	150		P	
3	5300.000	53.82	5.26	59.08	74.00	-14.92	peak	150		P	
4	5300.000	43.32	5.26	48.58	54.00	-5.42	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: H



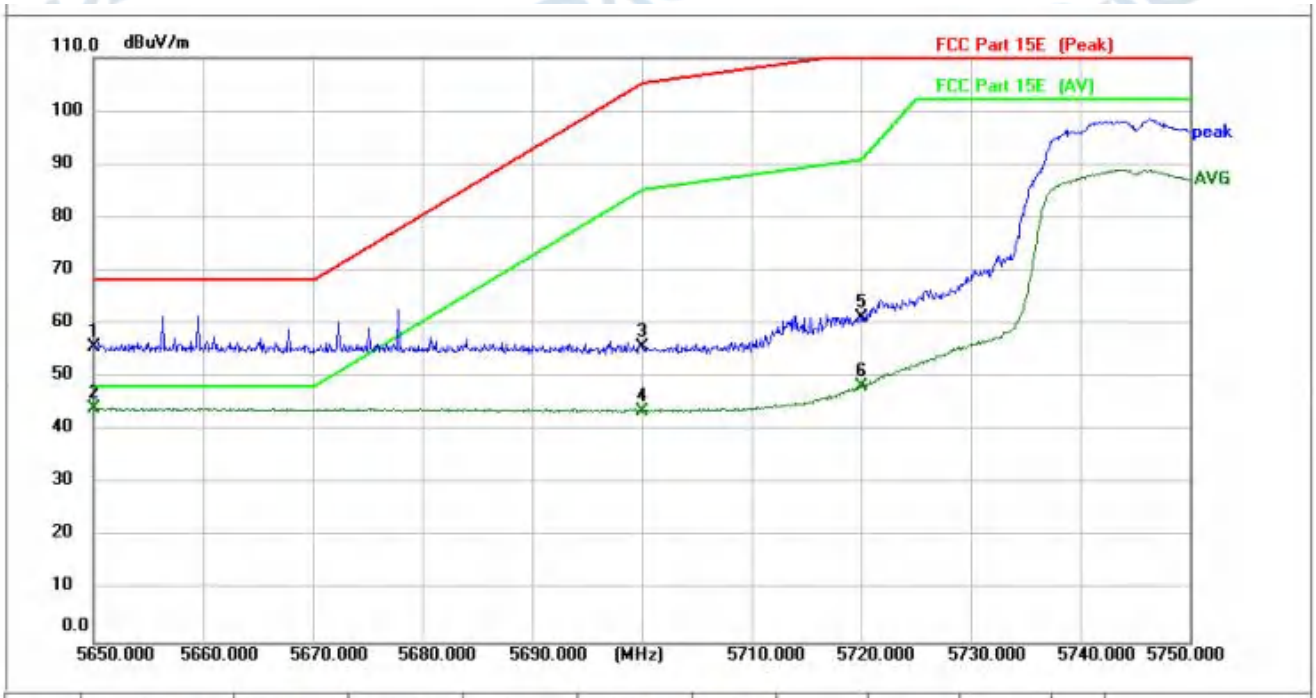
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5260.000	60.91	5.15	66.06	74.00	-7.94	peak	150		P	
2 *	5260.000	48.10	5.15	53.25	54.00	-0.75	AVG	150		P	
3	5300.000	54.23	5.26	59.49	74.00	-14.51	peak	150		P	
4	5300.000	42.79	5.26	48.05	54.00	-5.95	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: L



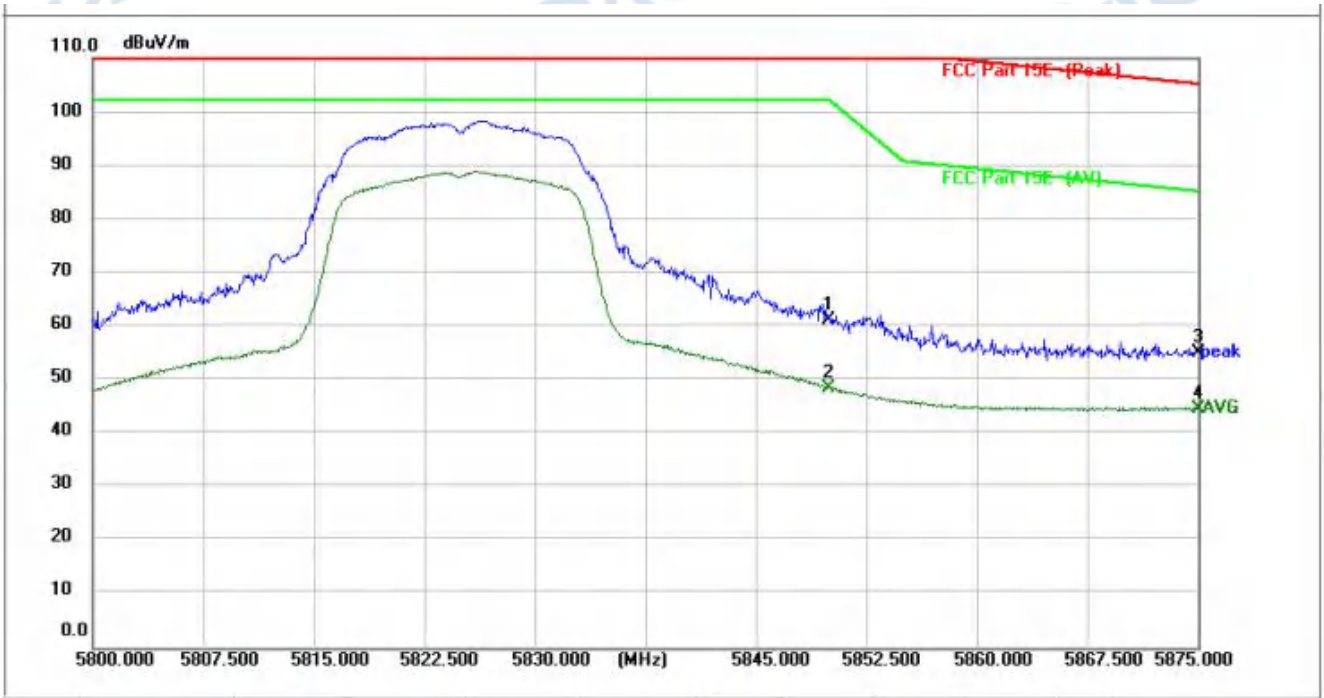
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5650.000	54.50	1.09	55.59	68.20	-12.61	peak	150		P	
2 *	5650.000	42.93	1.09	44.02	48.20	-4.18	AVG	150		P	
3	5700.000	53.77	1.15	54.92	105.20	-50.28	peak	150		P	
4	5700.000	42.71	1.15	43.86	85.20	-41.34	AVG	150		P	
5	5720.000	55.76	1.17	56.93	110.80	-53.87	peak	150		P	
6	5720.000	44.41	1.17	45.58	90.80	-45.22	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: L



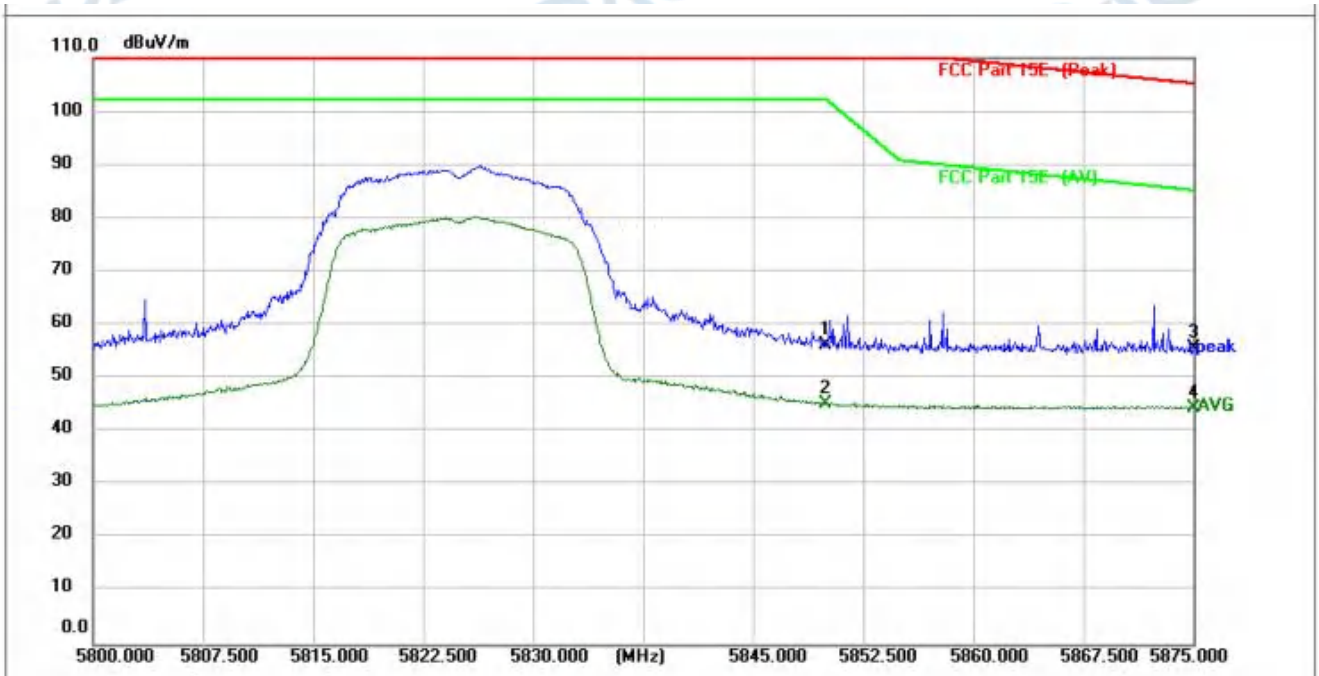
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5650.000	54.52	1.09	55.61	68.20	-12.59	peak	150		P	
2 *	5650.000	42.98	1.09	44.07	48.20	-4.13	AVG	150		P	
3	5700.000	54.58	1.15	55.73	105.20	-49.47	peak	150		P	
4	5700.000	42.45	1.15	43.60	85.20	-41.60	AVG	150		P	
5	5720.000	60.14	1.17	61.31	110.80	-49.49	peak	150		P	
6	5720.000	47.08	1.17	48.25	90.80	-42.55	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5850.000	59.75	1.33	61.08	122.20	-61.12	peak	150		P	
2	5850.000	47.16	1.33	48.49	102.20	-53.71	AVG	150		P	
3	5875.000	53.86	1.35	55.21	105.20	-49.99	peak	150		P	
4 *	5875.000	43.29	1.35	44.64	85.20	-40.56	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5850.000	55.02	1.33	56.35	122.20	-65.85	peak	150		P	
2	5850.000	44.01	1.33	45.34	102.20	-56.86	AVG	150		P	
3	5875.000	54.24	1.35	55.59	105.20	-49.61	peak	150		P	
4 *	5875.000	43.20	1.35	44.55	85.20	-40.65	AVG	150		P	

3.7 Undesirable emission limits (below 1GHz)

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15.407(b)(9)</td></tr>
<tr><td>Test Limit:</td><td>Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:
<table>
<tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr>
<tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr>
<tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr>
<tr><td>1.705-30.0</td><td>30</td><td>30</td></tr>
<tr><td>30-88</td><td>100 **</td><td>3</td></tr>
<tr><td>88-216</td><td>150 **</td><td>3</td></tr>
<tr><td>216-960</td><td>200 **</td><td>3</td></tr>
<tr><td>Above 960</td><td>500</td><td>3</td></tr>
</table>
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.
In the emission table above, the tighter limit applies at the band edges.
The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2013, section 12.7.4, 12.7.5</td></tr>
<tr><td>Procedure:</td><td>Below 1GHz:
a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
i. Repeat above procedures until all frequencies measured was complete.
Remark:
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor</td></tr>
</table>

	2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

3.7.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	215.2678	45.21	-8.42	36.79	40.00	-3.21	QP	100		P	
2	250.3012	45.97	-7.97	38.00	47.00	-9.00	QP	100		P	
3	333.6867	42.91	-5.21	37.70	47.00	-9.30	QP	100		P	
4	584.7895	40.42	0.11	40.53	47.00	-6.47	QP	100		P	
5 *	752.7432	41.31	2.84	44.15	47.00	-2.85	QP	100		P	
6 !	836.2443	38.28	4.37	42.65	47.00	-4.35	QP	100		P	

TM1 / Polarization: Vertical / Band: 2400-2483.5 MHz / BW: 1 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	42.4508	42.77	-7.86	34.91	40.00	-5.09	QP	100		P	
2 !	166.6514	43.47	-7.44	36.03	40.00	-3.97	QP	100		P	
3	250.3012	46.48	-7.97	38.51	47.00	-8.49	QP	100		P	
4	417.6411	42.78	-2.72	40.06	47.00	-6.94	QP	100		P	
5 *	584.7895	44.35	0.10	44.45	47.00	-2.55	QP	100		P	
6	919.2866	34.38	5.65	40.03	47.00	-6.97	QP	100		P	

3.8 Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
[1] 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	([2])
13.36-13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply to these measurements.

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

	<table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.
Test Method:	ANSI C63.10-2013, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: a. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB

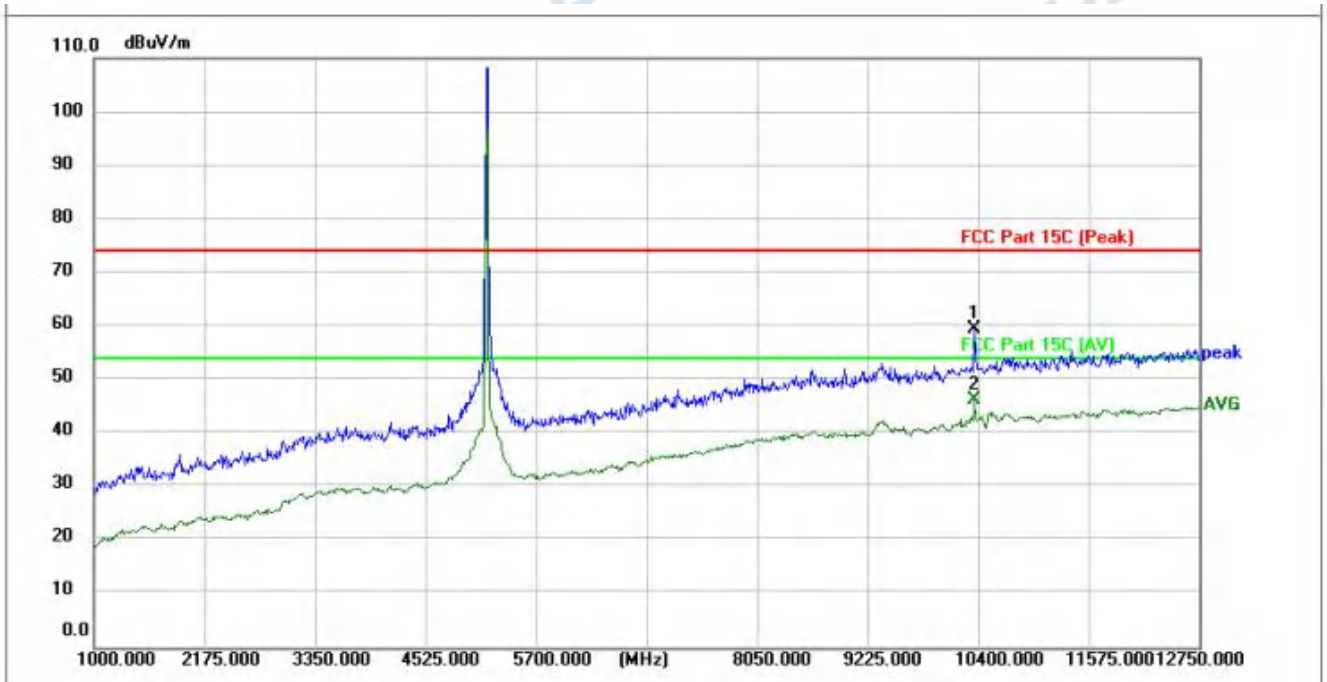
	under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3				
Final test mode:	TM1, TM2, TM3				

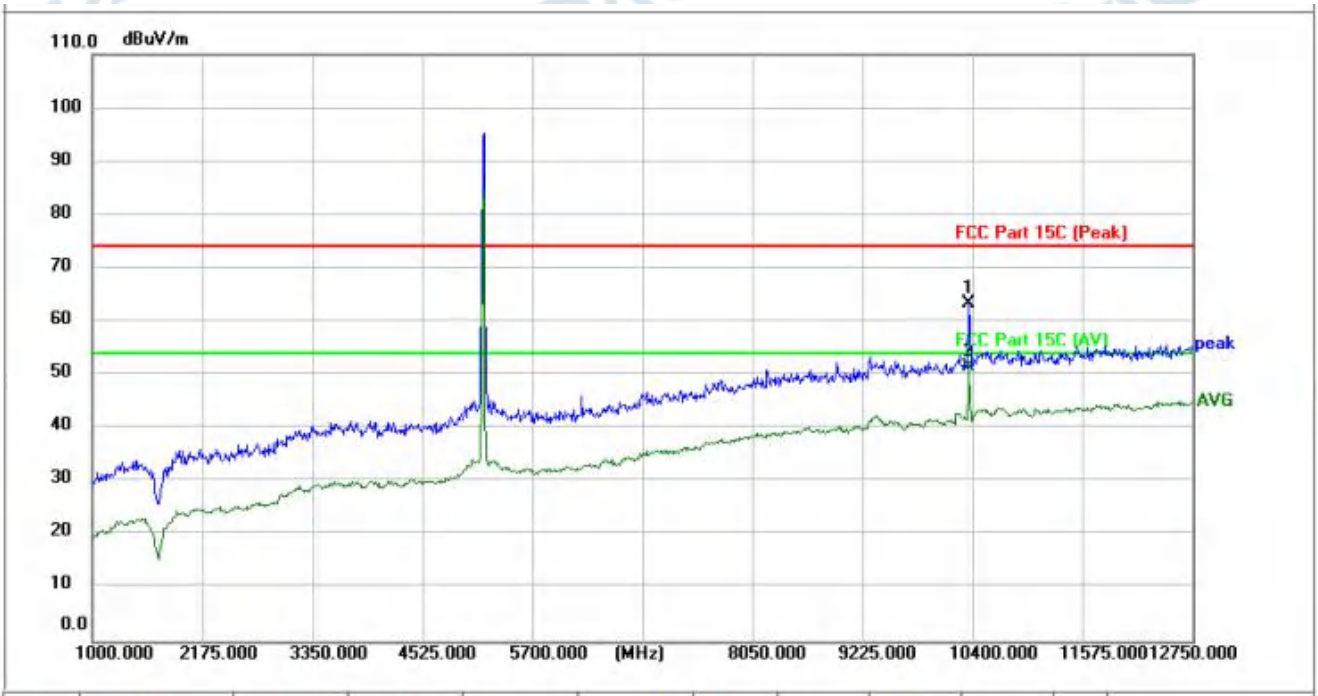
3.8.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: L



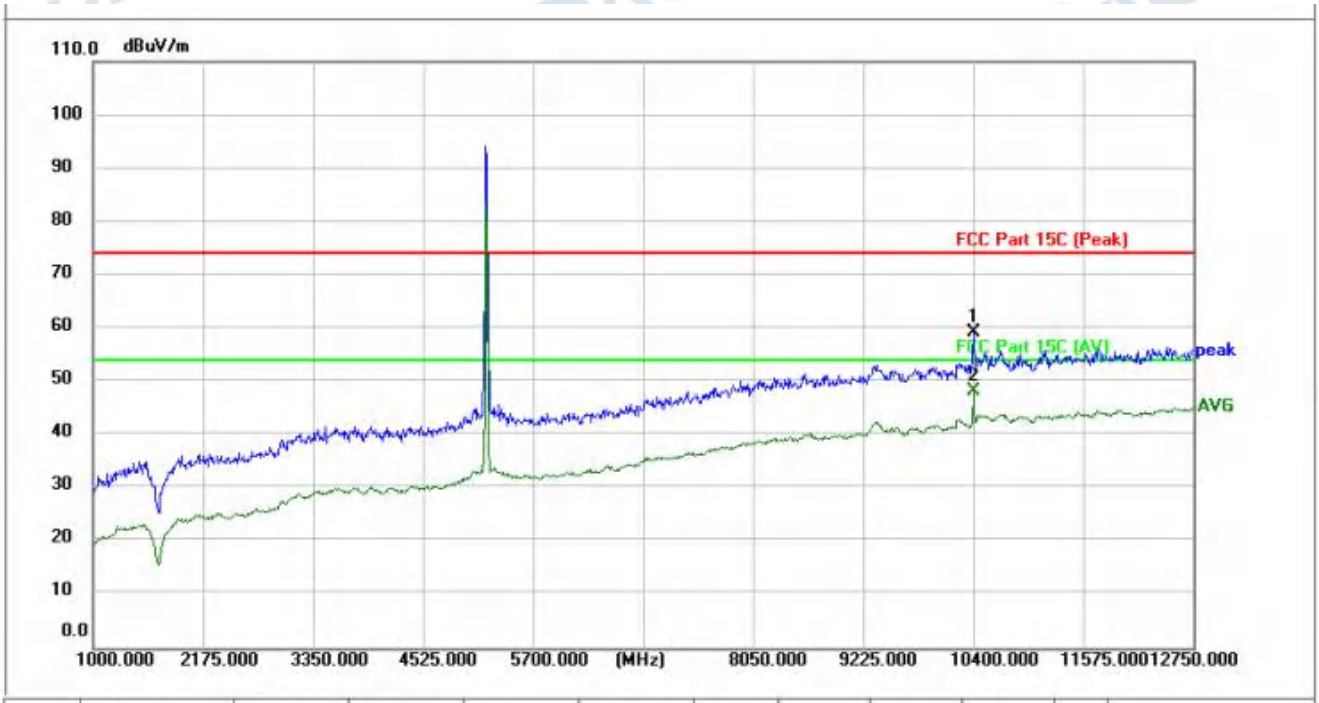
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10364.750	42.76	16.89	59.65	74.00	-14.35	peak	150		P	
2 *	10364.750	29.36	16.89	46.25	54.00	-7.75	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: L



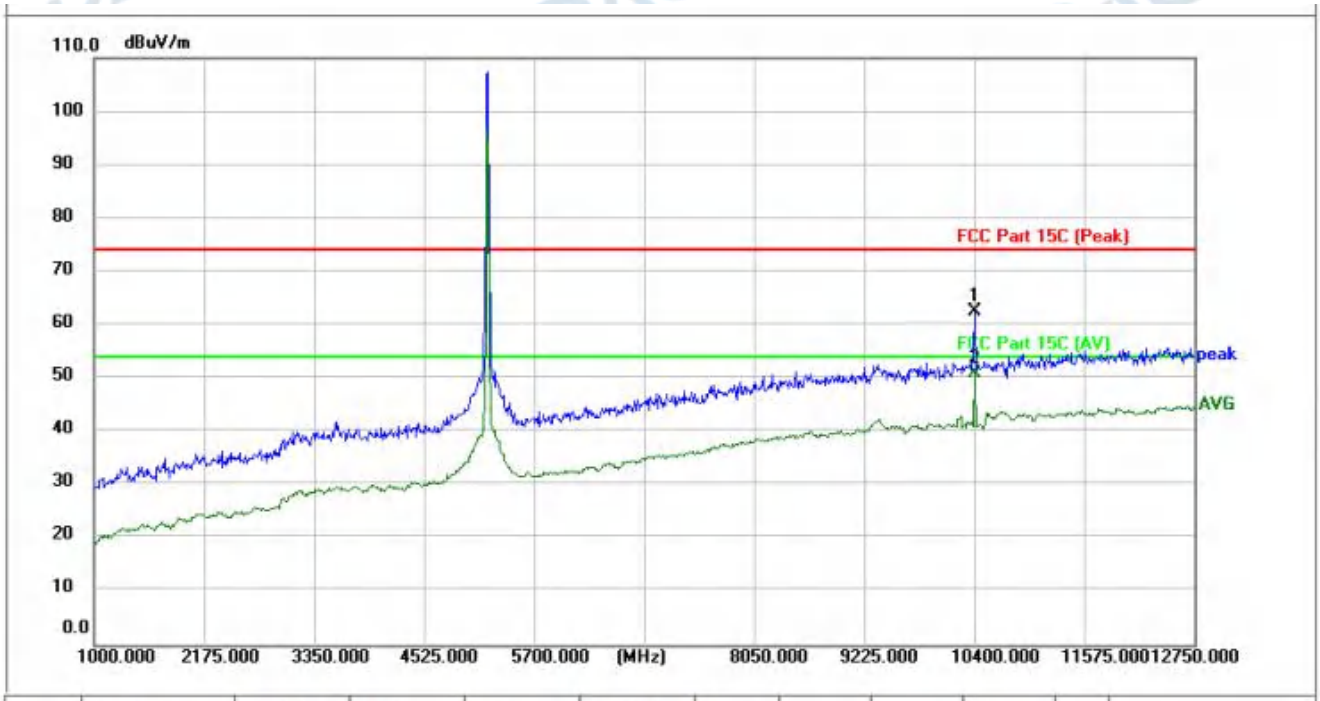
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10364.750	46.54	16.89	63.43	74.00	-10.57	peak	150		P	
2 *	10364.750	34.79	16.89	51.68	54.00	-2.32	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: M



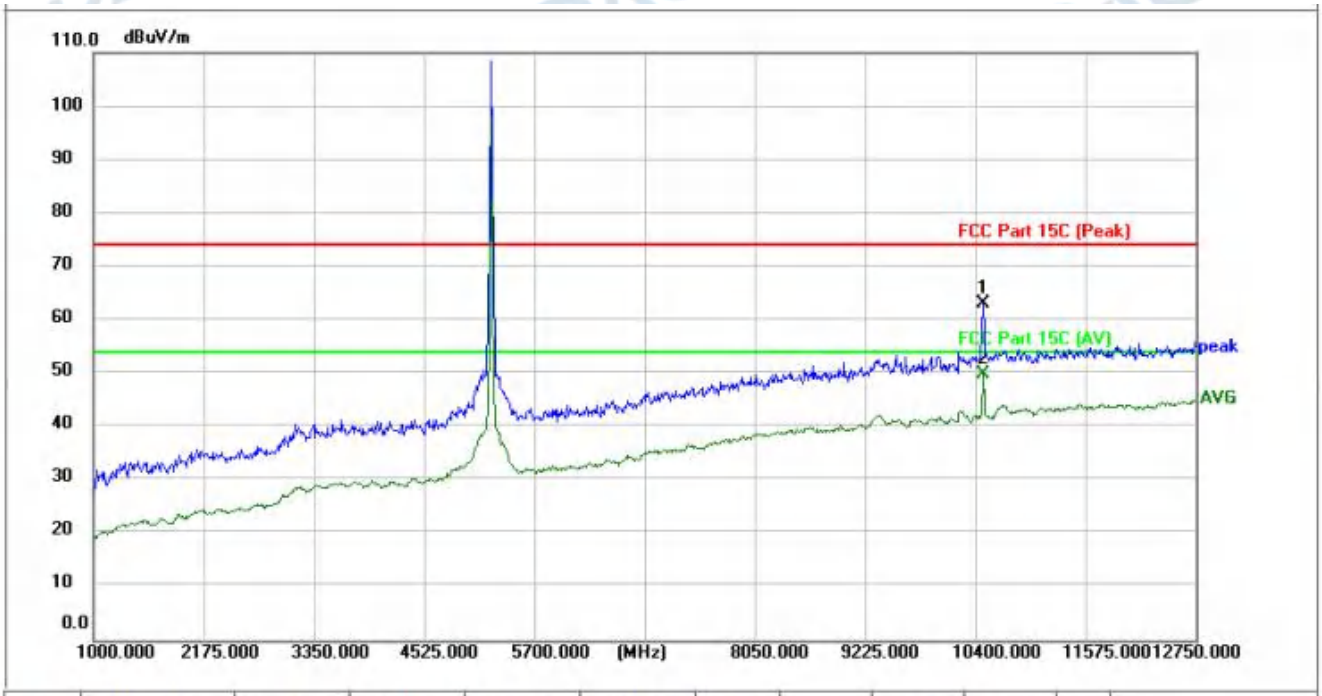
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10400.000	42.33	16.97	59.30	74.00	-14.70	peak	150		P	
2 *	10400.000	31.26	16.97	48.23	54.00	-5.77	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: M



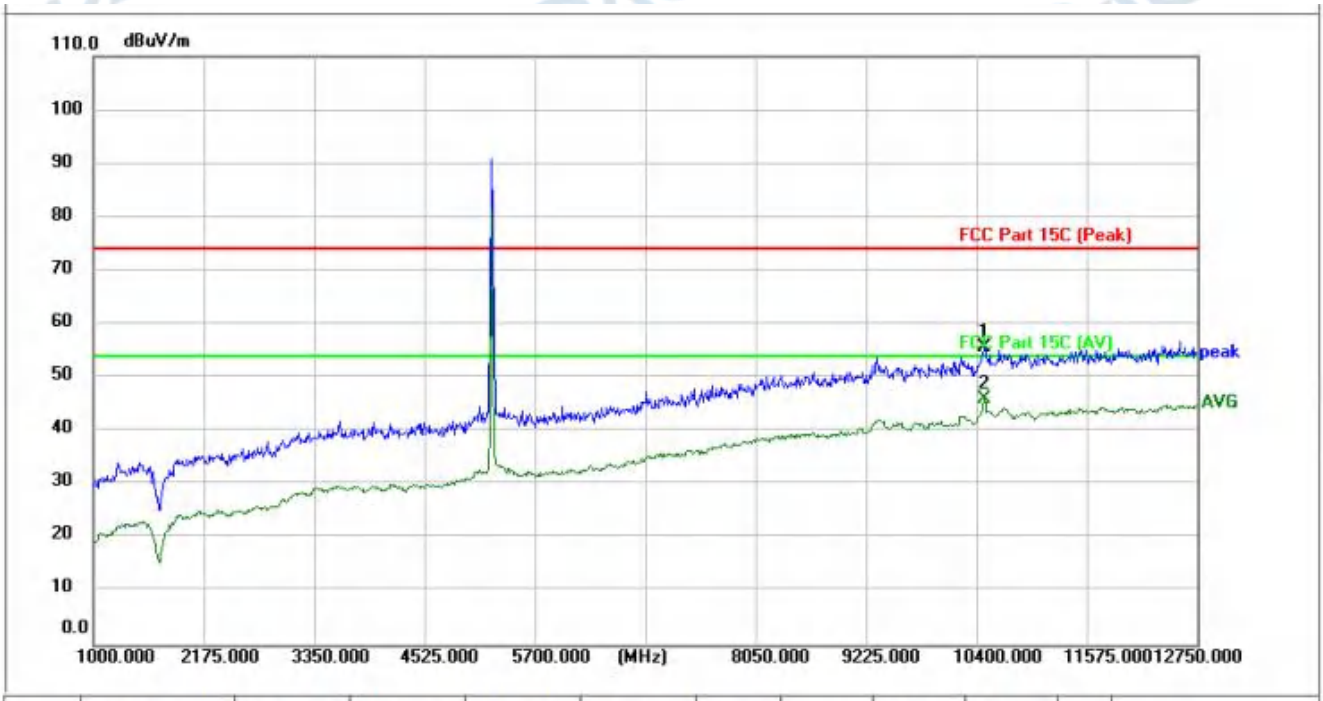
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10400.000	45.70	16.97	62.67	74.00	-11.33	peak	150		P	
2 *	10400.000	34.08	16.97	51.05	54.00	-2.95	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20 / CH: H



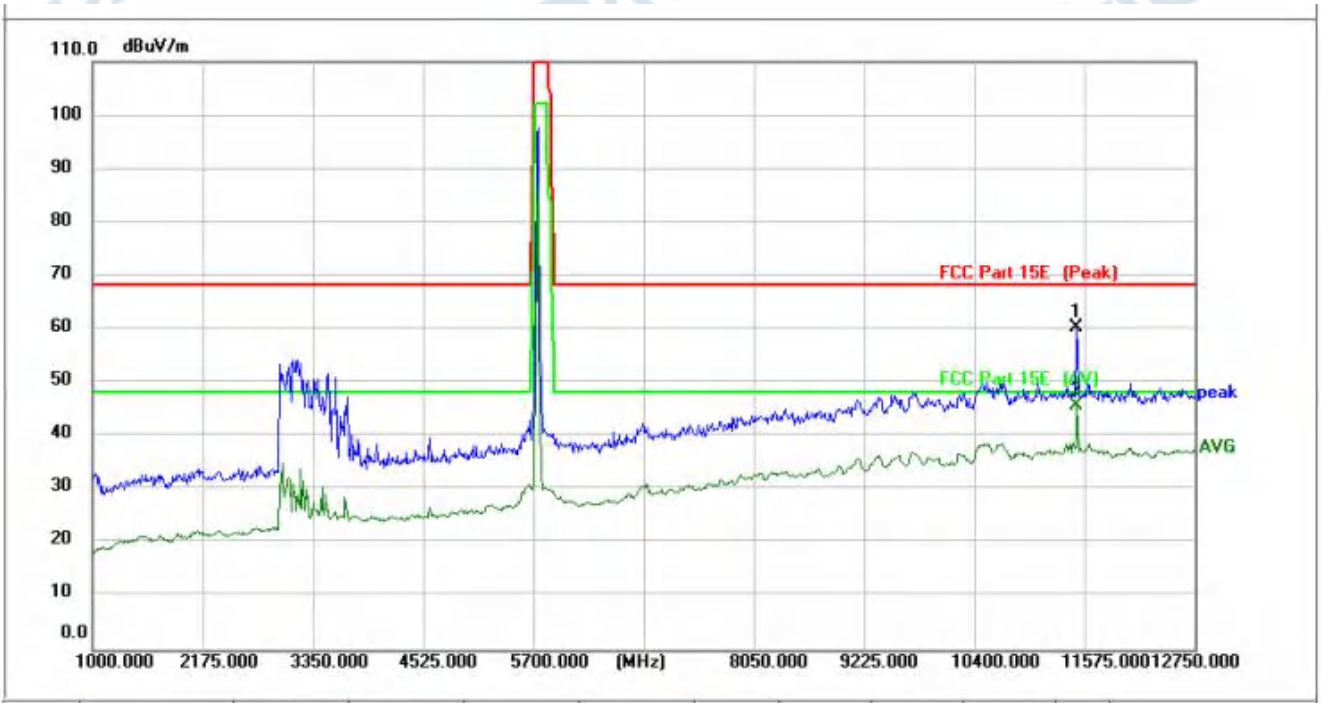
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10482.250	45.87	17.17	63.04	74.00	-10.96	peak	150		P	
2 *	10482.250	32.76	17.17	49.93	54.00	-4.07	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20 / CH: H



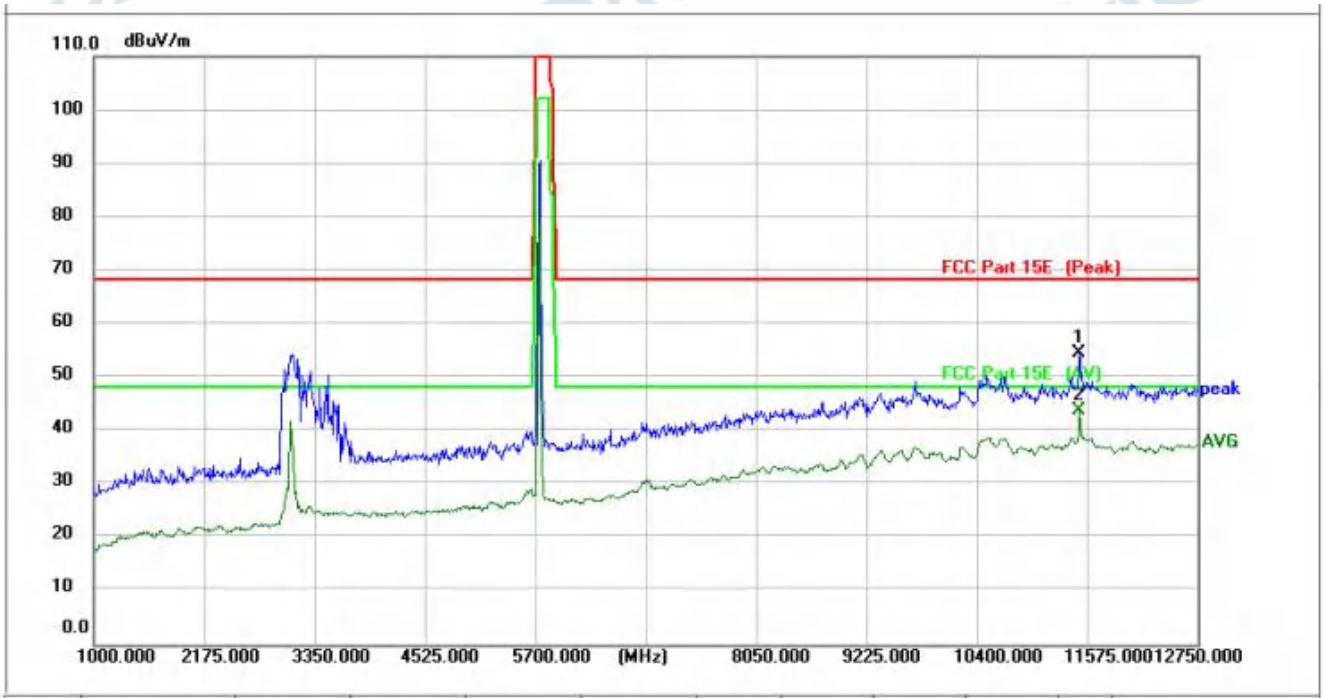
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	10482.250	38.58	17.17	55.75	74.00	-18.25	peak	150		P	
2 *	10482.250	28.96	17.17	46.13	54.00	-7.87	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: L



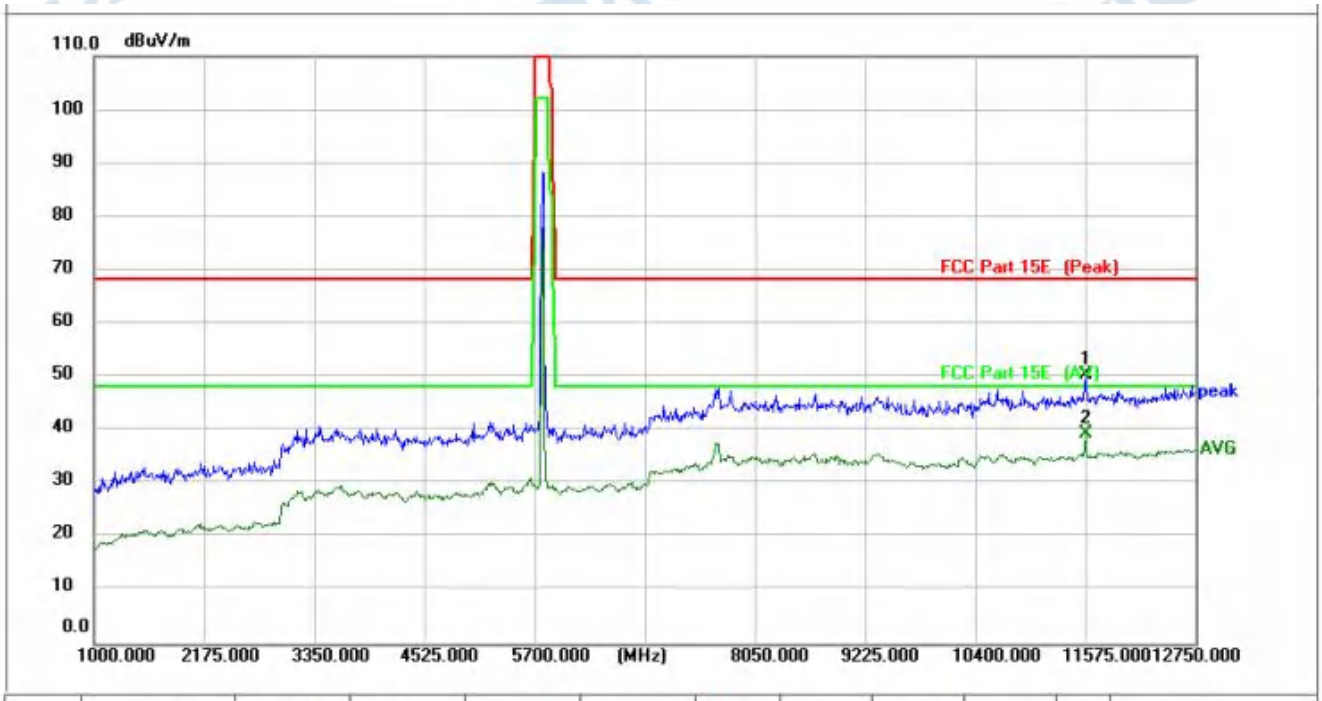
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11492.750	50.79	9.66	60.45	68.20	-7.75	peak			P	
2 *	11492.750	36.12	9.66	45.78	48.20	-2.42	AVG			P	

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: L



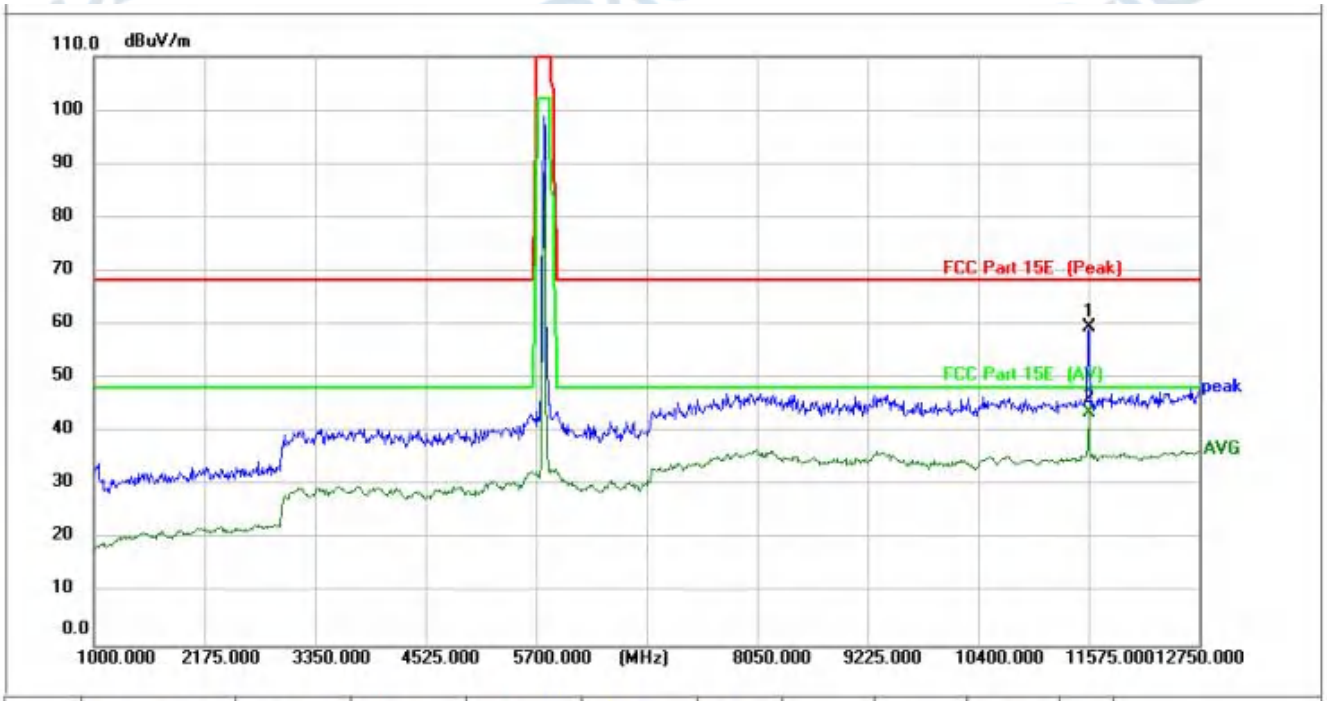
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11492.750	44.90	9.66	54.56	68.20	-13.64	peak	150		P	
2 *	11492.750	34.08	9.66	43.74	48.20	-4.46	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: M



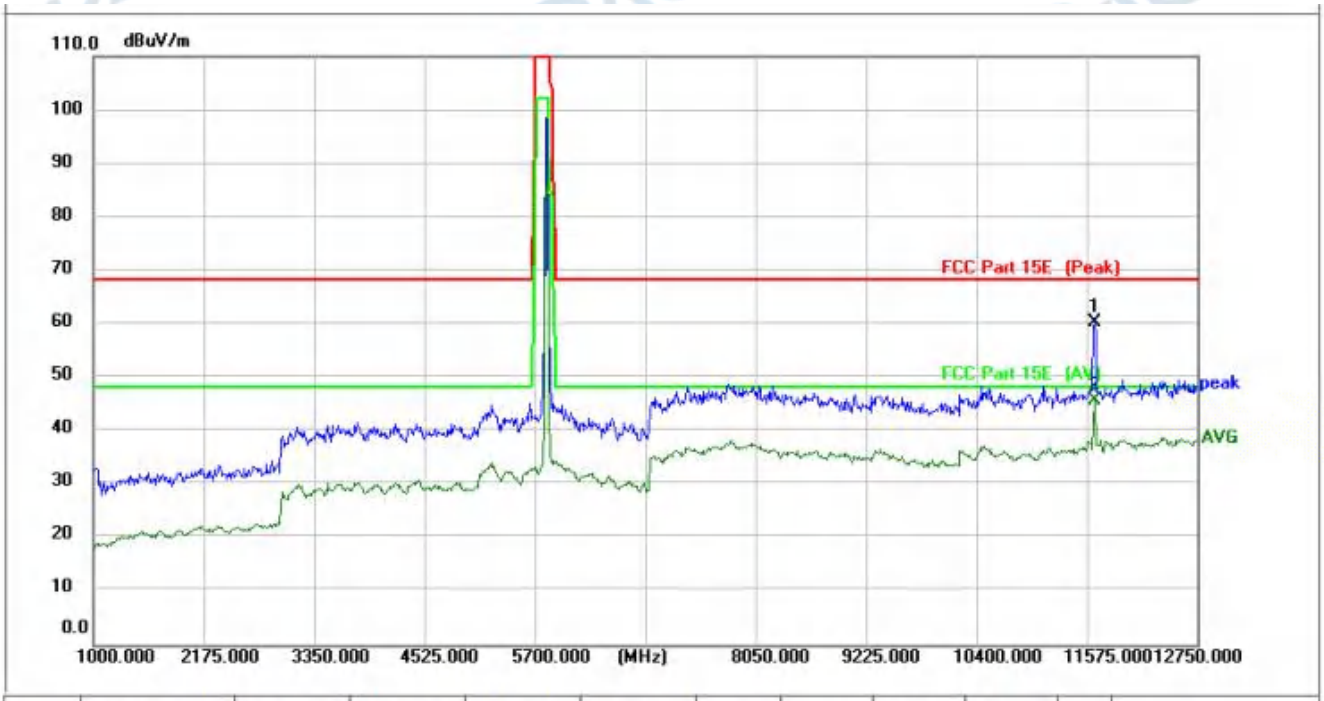
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11575.000	40.71	9.72	50.43	68.20	-17.77	peak	150		P	
2 *	11575.000	29.82	9.72	39.54	48.20	-8.66	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: M



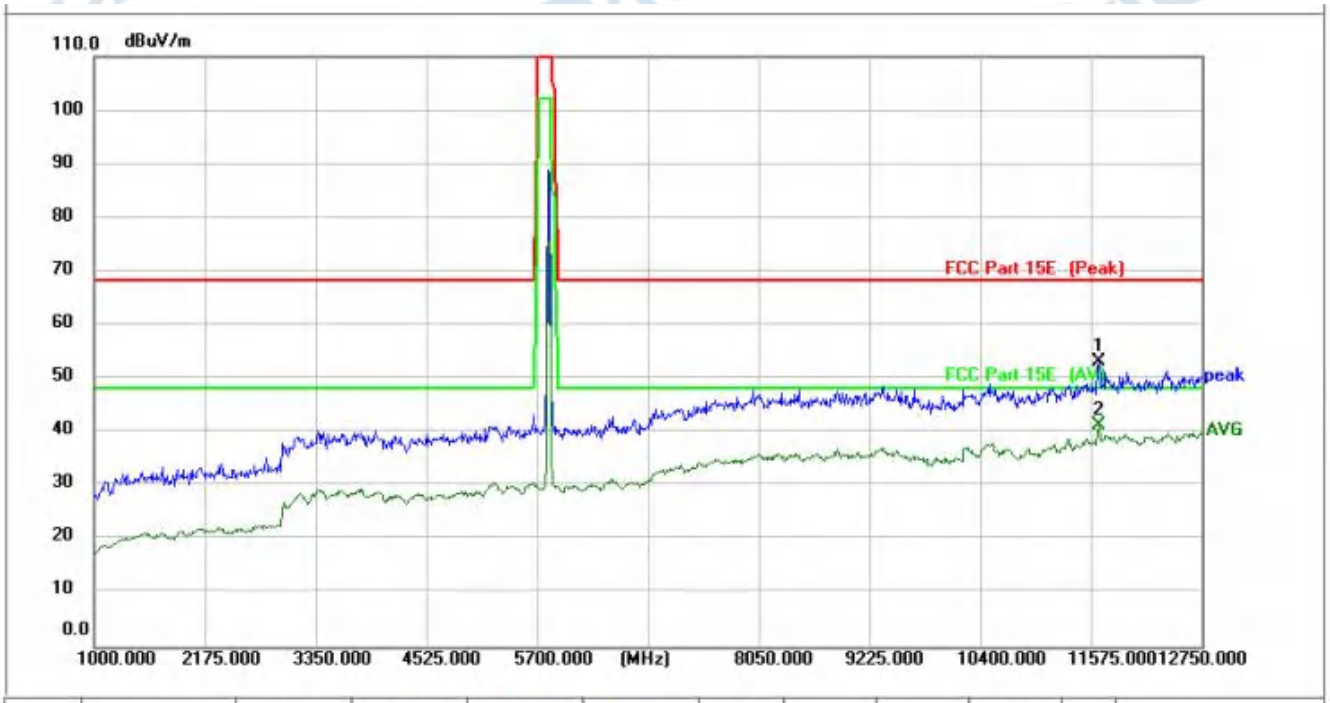
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11575.000	49.72	9.72	59.44	68.20	-8.76	peak	150		P	
2 *	11575.000	33.80	9.72	43.52	48.20	-4.68	AVG	150		P	

TM1 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11657.250	50.63	9.77	60.40	68.20	-7.80	peak	150		P	
2 *	11657.250	35.95	9.77	45.72	48.20	-2.48	AVG	150		P	

TM1 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20 / CH: H



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	11657.250	43.35	9.77	53.12	68.20	-15.08	peak	150		P	
2 *	11657.250	31.71	9.77	41.48	48.20	-6.72	AVG	150		P	

4 TEST SETUP PHOTOS

Reference to the Test setup file for details.

5 PHOTOS OF THE EUT

Reference to the external photos file and internal photos file for details.

Appendix-5.2GWIFI

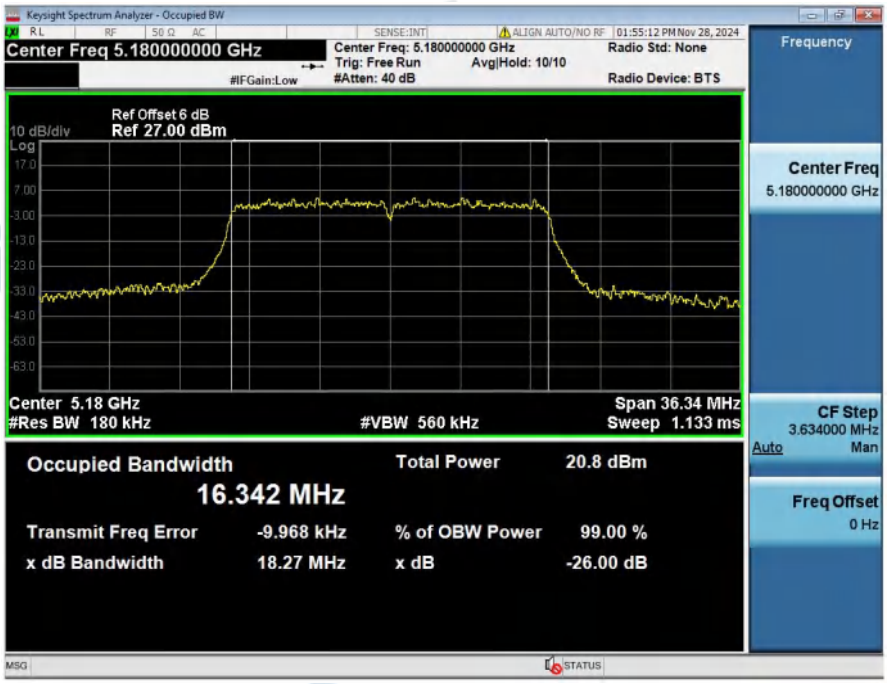
HT241011020--0106_2_00--5.2G--FCC
FCC_5.2G_WIFI (Part15.407) Test Data

1. -26dB and 99% Emission Bandwidth

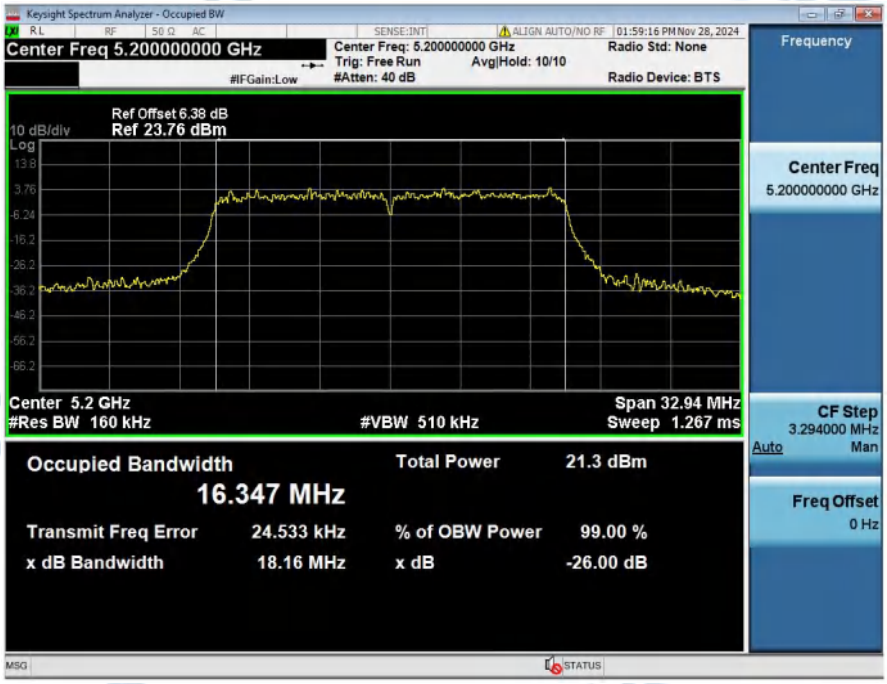
Condition	Antenna	Modulation	Frequency(MHz)	-26dB_Emission_Bandwidth(MHz)	Occupied Bandwidth(MHz)
NVNT	ANT1	802.11a	5180.00	18.27	16.33
NVNT	ANT1	802.11a	5200.00	18.24	16.35
NVNT	ANT1	802.11a	5240.00	18.39	16.33
NVNT	ANT1	802.11ac(VHT20)	5180.00	19.23	17.54
NVNT	ANT1	802.11ac(VHT20)	5200.00	19.33	17.54
NVNT	ANT1	802.11ac(VHT20)	5240.00	19.45	17.53
NVNT	ANT1	802.11ac(VHT40)	5190.00	40.82	36.12
NVNT	ANT1	802.11ac(VHT40)	5230.00	40.16	36.01
NVNT	ANT1	802.11ac(VHT80)	5210.00	80.72	74.54

99%_OCB_NVNT_ANT1_802_11a_5180

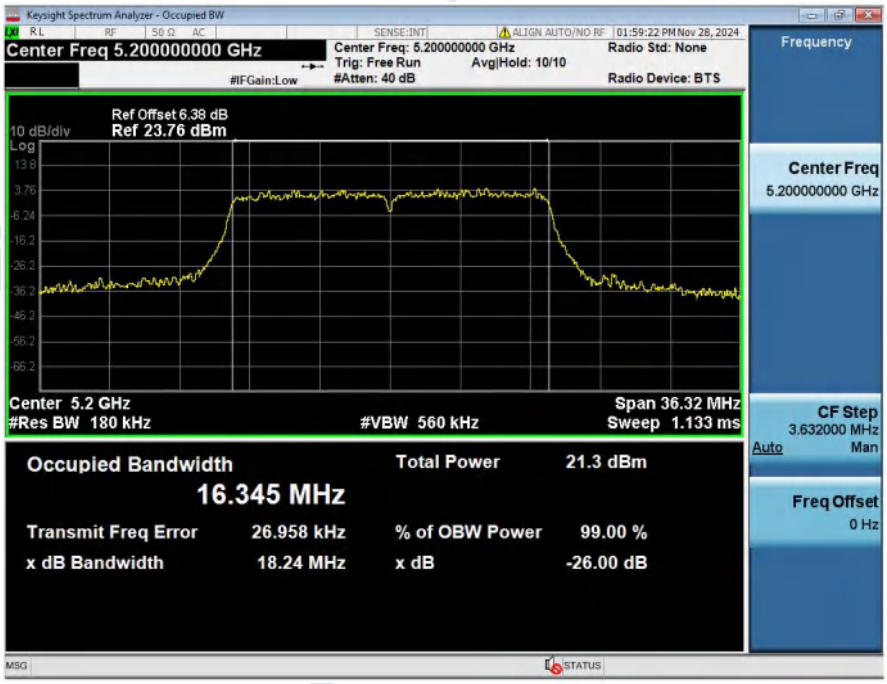
-26BW_NVNT_ANT1_802_11a_5180



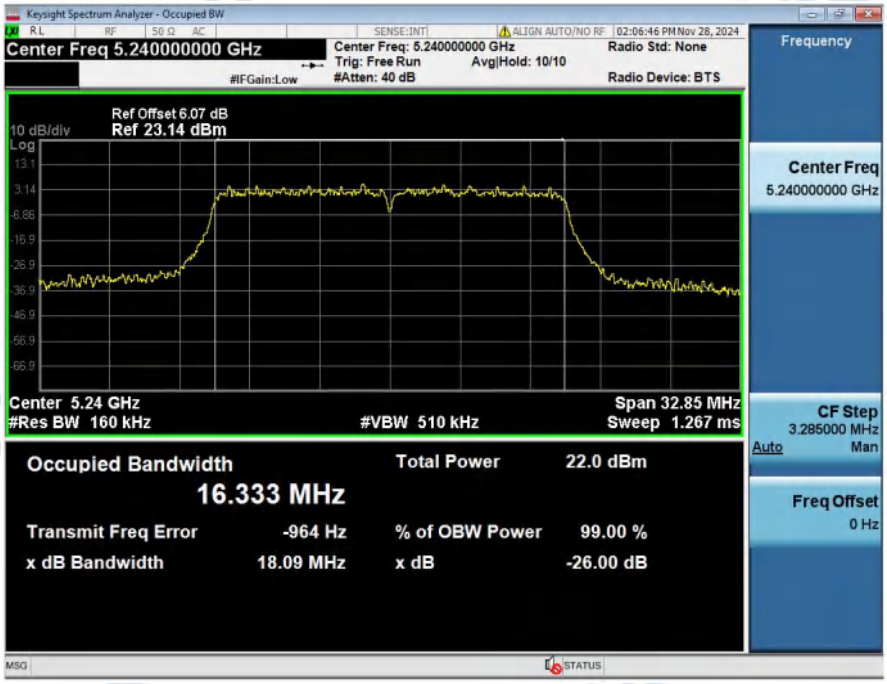
99%_OCB_NVNT_ANT1_802_11a_5200



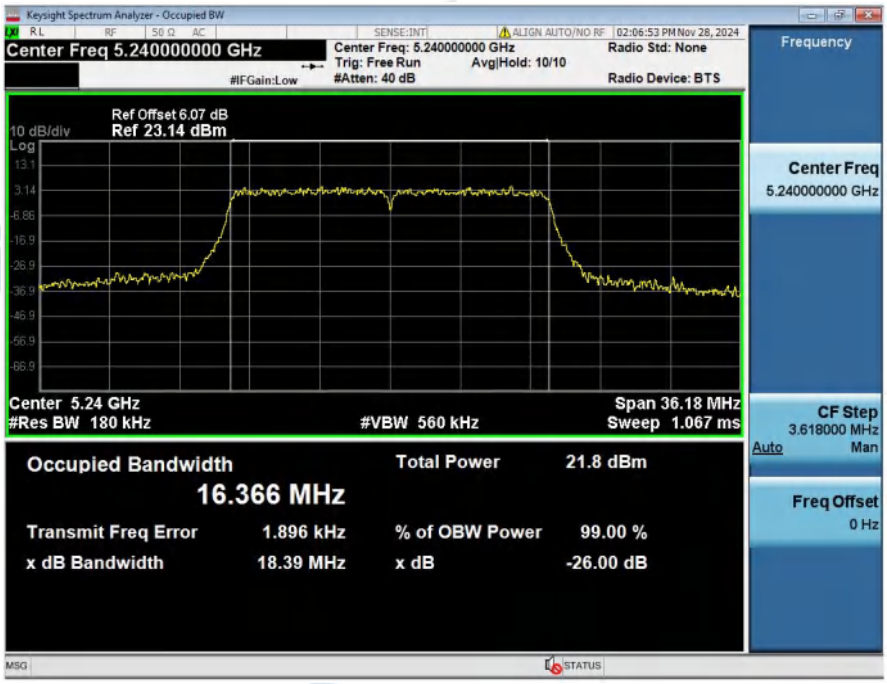
-26BW_NVNT_ANT1_802_11a_5200



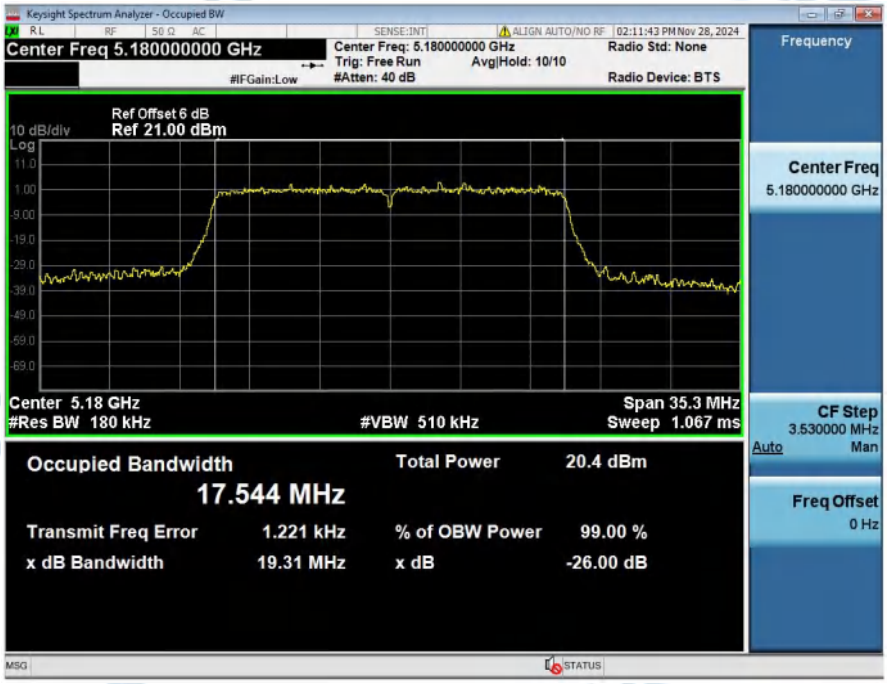
99%_OCB_NVNT_ANT1_802_11a_5240



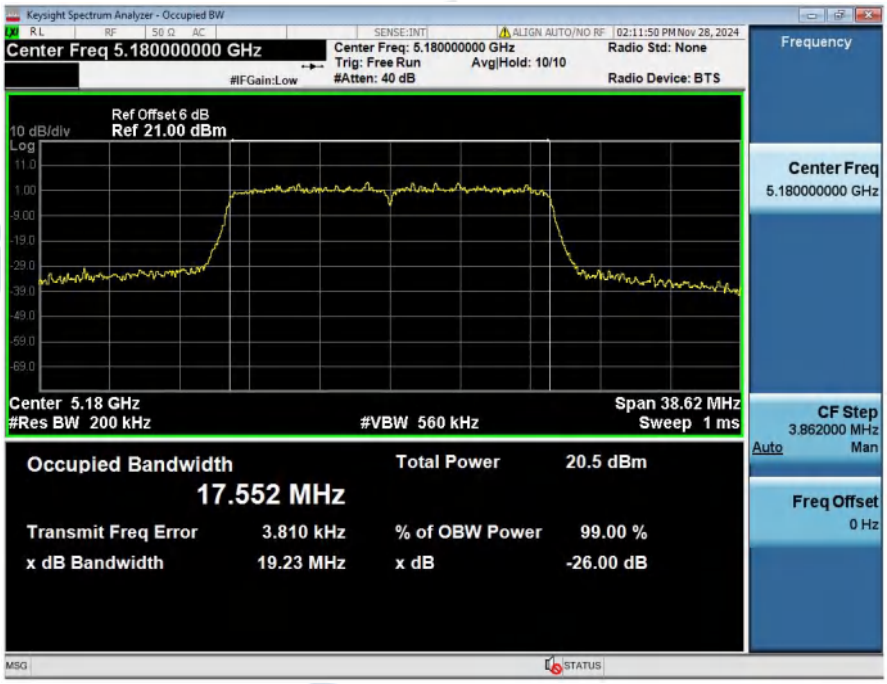
-26BW_NVNT_ANT1_802_11a_5240



99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5180

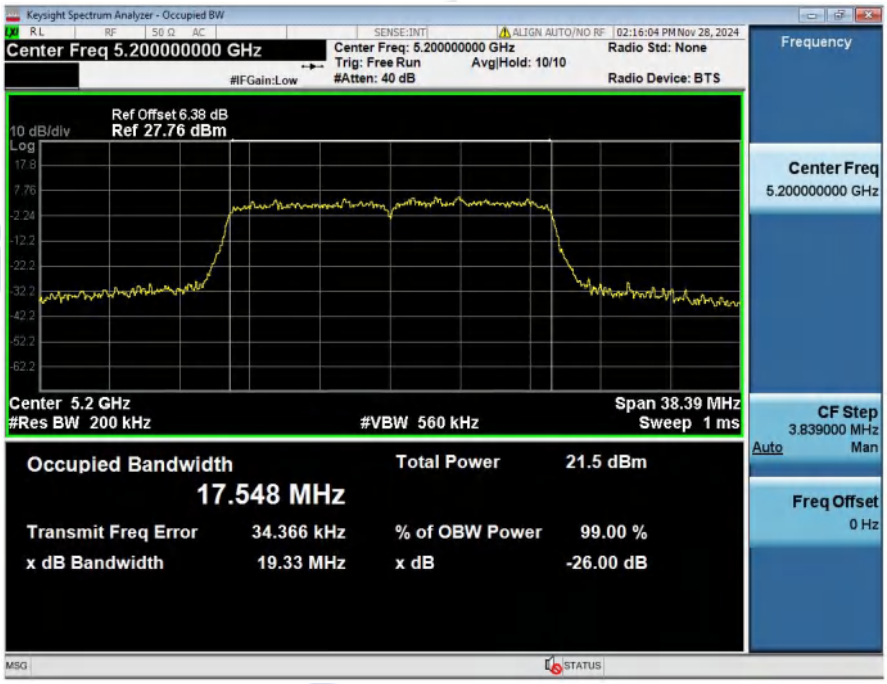


-26BW_NVNT_ANT1_802_11ac(VHT20)_5180

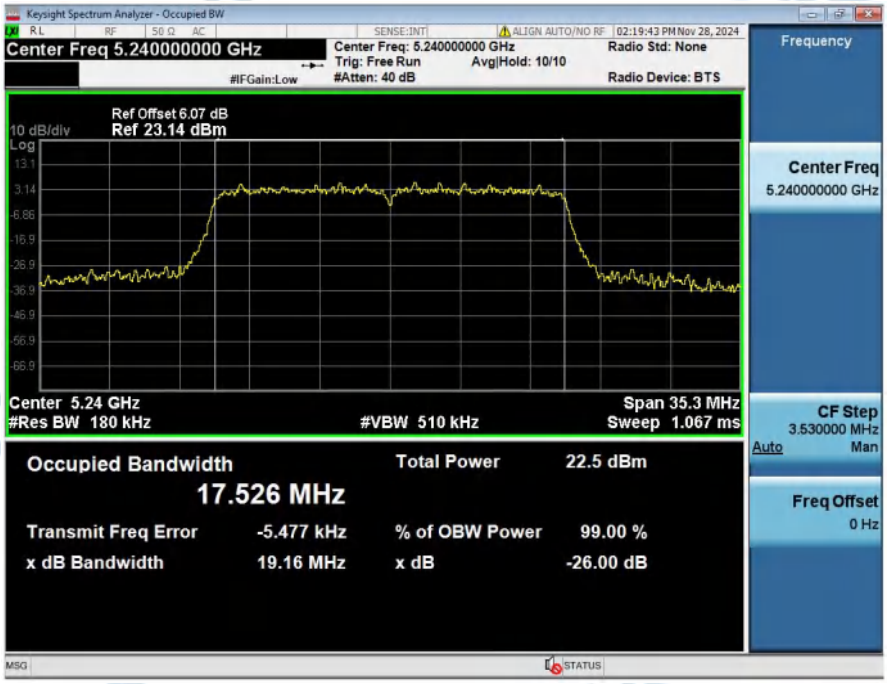


99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5200

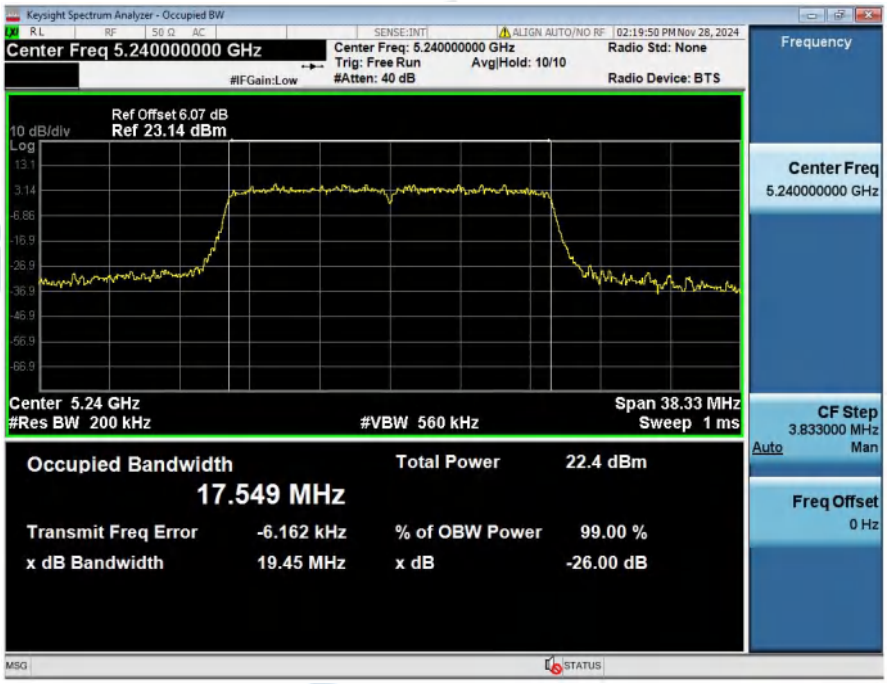
-26BW_NVNT_ANT1_802_11ac(VHT20)_5200



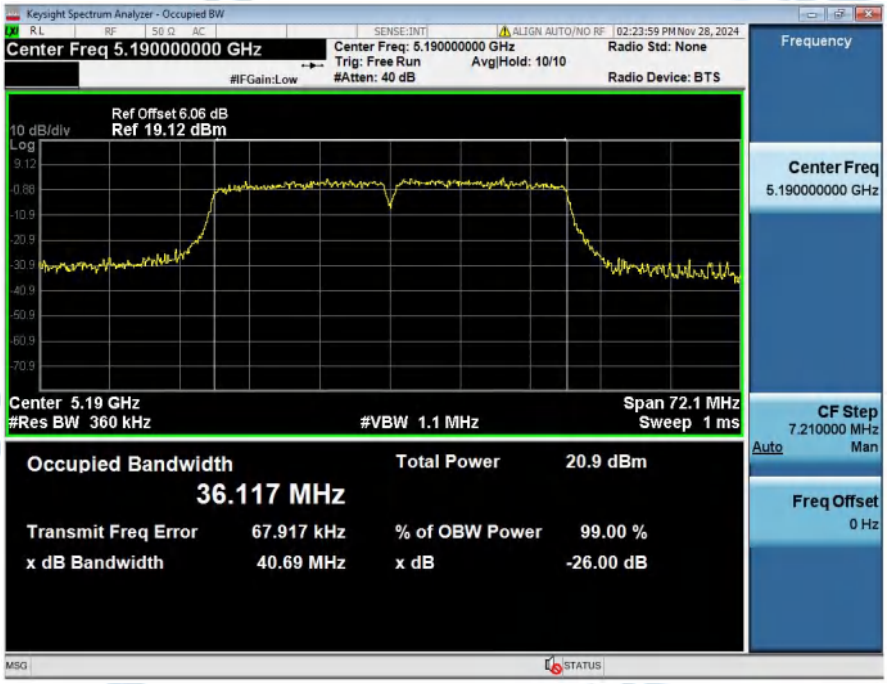
99%_OCB_NVNT_ANT1_802_11ac(VHT20)_5240



-26BW_NVNT_ANT1_802_11ac(VHT20)_5240

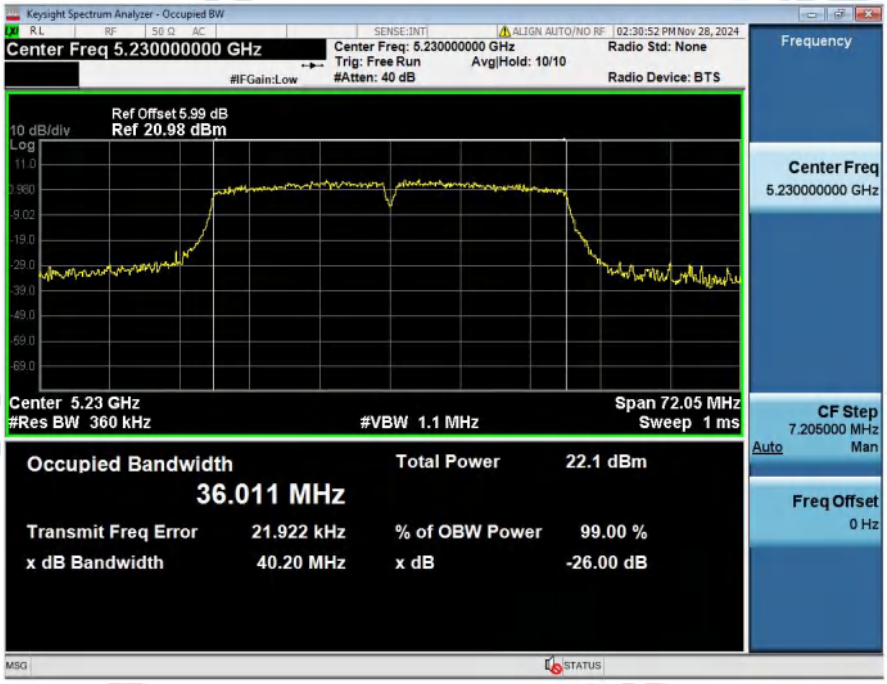


99%_OCB_NVNT_ANT1_802_11ac(VHT40)_5190



-26BW_NVNT_ANT1_802_11ac(VHT40)_5190

99%_OCB_NVNT_ANT1_802_11ac(VHT40)_5230



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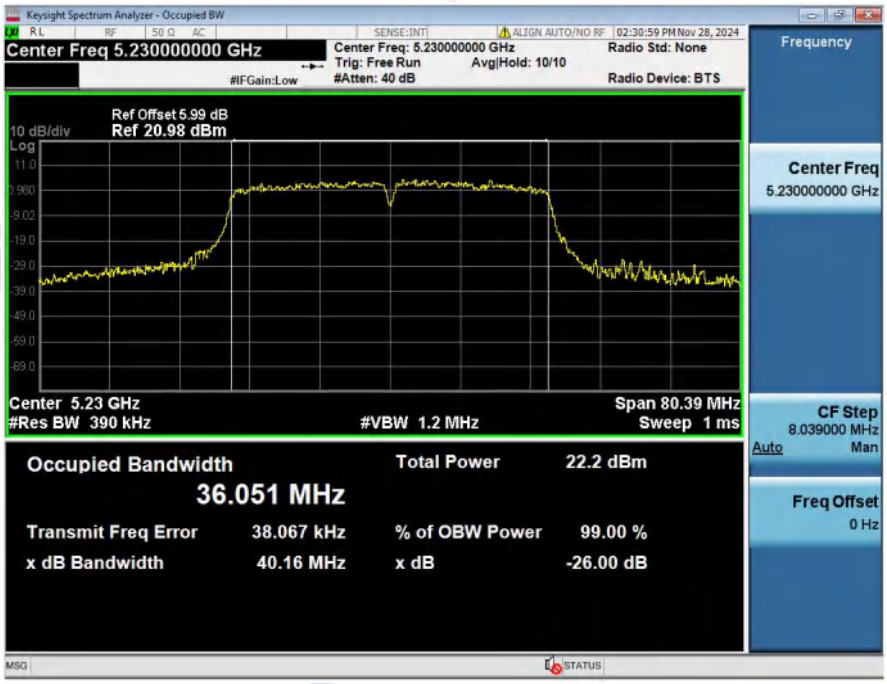

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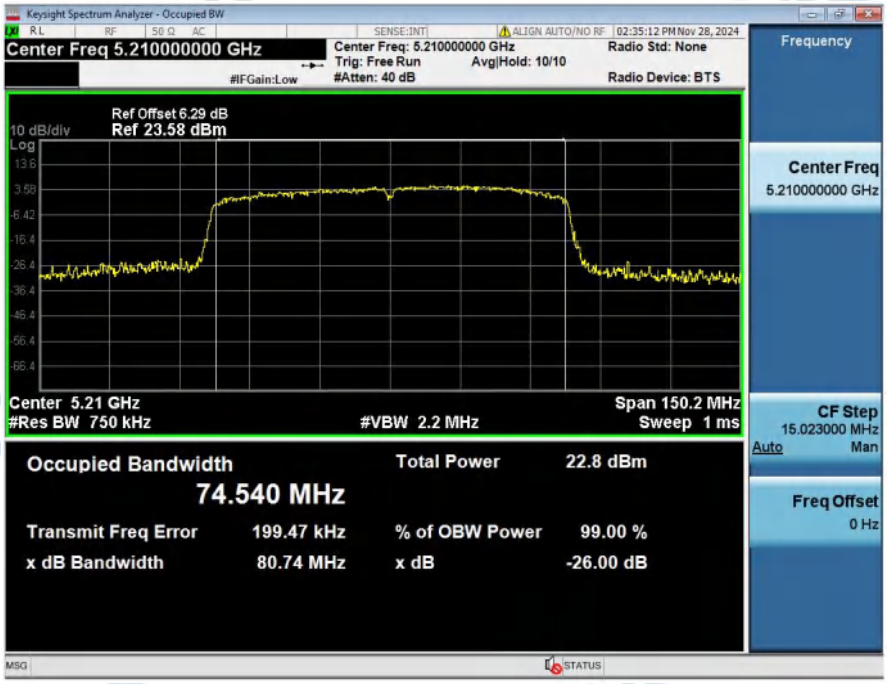

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