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TEST REPORT

Report No.....: **CTC20230301E04**

FCC ID.....: **2AR24-AIBOX410**

Applicant: **Shenzhen Absen Optoelectronic Co.,Ltd**

Address.....: 18-20/F,Tower A,Building 3,Phase I,Tian An Cloud Park,N0.2018,Xuegang Rd,Bantian,Longgang District,Shenzhen,Guangdong,P.R.China

Manufacturer.....: Shenzhen Absen Optoelectronic Co.,Ltd

Address.....: 18-20/F,Tower A,Building 3,Phase I,Tian An Cloud Park,N0.2018,Xuegang Rd,Bantian,Longgang District,Shenzhen,Guangdong,P.R.China

Product Name: **LED Multimedia Processor**

Trade Mark: /

Model/Type reference.....: Ai Box 410

Listed Model(s): /

Standard: **FCC Part 15, Subpart E 15. 407**

Date of receipt of test sample...: Mar. 02, 2023

Date of testing.....: Mar. 02, 2023 to Mar. 27, 2023

Date of issue.....: Jun. 02, 2023

Result.....: **PASS**

Compiled by:
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Approved by:
(Printed name+signature) Totti Zhao *Totti Zhao*

Testing Laboratory Name: **CTC Laboratories, Inc.**

Address.....: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

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1. TEST SUMMARY

1.1. Test Standards

The tests were performed according to following standards:

[FCC Part 15, Subpart E\(15.407\)](#) — for 802.11a/n/ac, the test procedure follows the FCC KDB 789033 D02 General UNII Test Procedures New Rules V02r01.

[RSS-247 Issue 2 February 2017](#) — Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

[RSS-Gen](#) — General Requirements for Compliance of Radio Apparatus

1.2. Report Version

Revised No.	Date of issue	Description
01	Jun. 02, 2023	Original



1.3. Test Description

FCC Part 15 Subpart E (15.407) / RSS-247 Issue 2 February 2017				
Test Item	Test require		Result	Test Engineer
	FCC	IC		
Antenna Requirement	15.203	/	Pass	Lucy Lan
Conducted Emission	15.207	RSS-Gen 8.8	Pass	Lucy Lan
Band Edge Emissions	15.407(b)	RSS-247 6.2.1.2 RSS-247 6.2.2.2 RSS-247 6.2.4.2	Pass	Lucy Lan
26dB Bandwidth & 99% Bandwidth	15.407(a) (5)	RSS-247 6.2.1.2	Pass	Lucy Lan
6dB Bandwidth (only for UNII-3)	15.407(e)	RSS-247 6.2.4.1	Pass	Lucy Lan
Peak Output Power	15.407(a)	RSS-247 6.2.1.1 RSS-247 6.2.4.1	Pass	Lucy Lan
Power Spectral Density	15.407(a)	RSS-247 6.2	Pass	Lucy Lan
Transmitter Radiated Spurious Emission	15.407(b) &15.209	RSS-Gen 8.9 RSS-247 6.2.1.2 RSS-247 6.2.4.2	Pass	Lucy Lan
Frequency Stability	15.407(g)	/	Pass	Lucy Lan
Dynamic Frequency Selection (DFS)	15.407(h)	RSS-247 6.3	N/A	N/A
Automatically Discontinue Transmission	15.407(c)	/	Pass	Note(3)

Note:

(1)“N/A” is not applicable.

(2)The measurement uncertainty is not included in the test result.

(3)During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. the EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.



1.4. Test Facility

CTC Laboratories, Inc.

Add: 1-2/F., Building 2, Jiaquan Building, Guanlan High-Tech Park, Shenzhen, Guangdong, China

Laboratory accreditation

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5365

CTC Laboratories, Inc. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation. Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements) for the Competence of Testing and Calibration Laboratories.

A2LA-Lab Cert. No.: 4340.01

CTC Laboratories, Inc. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

Industry Canada (Registration No.: 9783A, CAB Identifier: CN0029)

CTC Laboratories, Inc. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 9783A on Jan, 2016.

FCC (Registration No.: 951311, Designation Number CN1208)

CTC Laboratories, Inc. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 951311, Aug. 26, 2017.

1.5. Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to TR-100028-01 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1" and TR-100028-02 "Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 2" and is documented in the CTC Laboratories, Inc. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Below is the best measurement capability for CTC Laboratories, Inc.



Test Items	Measurement Uncertainty	Notes
Transmitter power conducted	0.42 dB	(1)
Transmitter power Radiated	2.14 dB	(1)
Conducted spurious emissions 9kHz~40GHz	1.60 dB	(1)
Radiated spurious emissions 9kHz~40GHz	2.20 dB	(1)
Conducted Emissions 9kHz~30MHz	3.20 dB	(1)
Radiated Emissions 30~1000MHz	4.70 dB	(1)
Radiated Emissions 1~18GHz	5.00 dB	(1)
Radiated Emissions 18~40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)

Note (1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.6. Environmental Conditions

Normal Condition	Temperature	21°C~27°C
	Relative humidity	40%~60%
	Voltage	The equipment shall be the nominal voltage for which the equipment was designed.
Extreme Condition	Temperature	Measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer.
	Voltage	Measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer.


Normal Condition	T _N =Normal Temperature	21°C~27°C
Extreme Condition	T _L =Lower Temperature	-10 °C
	T _H =Higher Temperature	40 °C

2. GENERAL INFORMATION

2.1. Client Information

Applicant:	Shenzhen Absen Optoelectronic Co.,Ltd
Address:	18-20/F,Tower A,Building 3,Phase I,Tian An Cloud Park,N0.2018,Xuegang Rd,Bantian,Longgang District,Shenzhen,Guangdong,P.R.China
Manufacturer:	Shenzhen Absen Optoelectronic Co.,Ltd
Address:	18-20/F,Tower A,Building 3,Phase I,Tian An Cloud Park,N0.2018,Xuegang Rd,Bantian,Longgang District,Shenzhen,Guangdong,P.R.China

2.2. General Description of EUT

Product Name:	LED Multimedia Processor			
Trade Mark:				
Model/Type reference:	Ai Box 410			
Listed Model(s):	/			
Model Difference:	/			
Power supply:	100-240V~ 50/60Hz			
RF Module Model:	ZK-7632A			
Hardware version:	/			
Software version:	/			
Remark:	EUT is a fixed point-to-point access points operating device. According to the power limit for 5150~5250MHz band, ZK-7632A can operating in client mode.			
Technical index for 5G WIFI				
Operation Band:	<input checked="" type="checkbox"/> U-NII-1	<input type="checkbox"/> U-NII-2A	<input type="checkbox"/> U-NII-2C	<input checked="" type="checkbox"/> U-NII-3
Operation Frequency Range:	U-NII-1:	5150MHz~5250MHz		
	U-NII-3:	5725MHz~5850MHz		
Support bandwidth:	802.11a	<input checked="" type="checkbox"/> 20MHz		
	802.11n	<input checked="" type="checkbox"/> 20MHz	<input checked="" type="checkbox"/> 40MHz	
Modulation:	802.11a: OFDM (BIT/SK, QPSK, BPSK, 16QAM) 802.11n: OFDM (BIT/SK, QPSK, BPSK, 16QAM, 64QAM)			
Bit Rate of Transmitter:	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: up to 300Mbps			
Antenna 1 or 2 type:	External Antenna			
Antenna 1 or 2 gain:	5dBi			



2.3. Accessory Equipment Information

Equipment Information			
Name	Model	S/N	Manufacturer
Notebook	X220	/	Lenovo
Cable Information			
Name	Shielded Type	Ferrite Core	Length
USB Cable	Unshielded	NO	150cm
AC Cable	Unshielded	NO	120cm
Test Software Information			
Name	Software version	/	/
QA Tool	0.0.1.88	/	/

2.4. Operation State

Operation Frequency List:

Band (MHz)	20MHz Bandwidth		40MHz Bandwidth	
	Channel	Frequency (MHz)	Channel	Frequency (MHz)
U-NII-1	36	5180	38	5190
	40	5200		
	44	5220	46	5230
	48	5240		
U-NII-3	149	5745	151	5755
	153	5765		
	157	5785	159	5795
	161	5805		
	165	5825		

Test channel is below:

Operating Band	Test Channel	20MHz		40MHz	
		Channel	Frequency (MHz)	Channel	Frequency (MHz)
U-NII-1	CH _L	36	5180	38	5190
	CH _M	40	5200	/	/
	CH _H	48	5240	46	5230
U-NII-3	CH _L	149	5745	151	5755
	CH _M	157	5785	/	/
	CH _H	165	5825	159	5795



Data Rated

Preliminary tests were performed in different data rate, and found which the below bit rate is worst case mode, so only show data which it is a worst case mode.

Mode	Data rate (worst mode)
802.11a	6Mbps
802.11n(HT20)/ 802.11n(HT40)	HT-MCS0

Antenna Specification:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain(dBi)
1	NA	NA	External Antenna	IPEX	5
2	NA	NA	External Antenna	IPEX	5

Note: Antenna Gain=5dBi. This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain = $G_{Ant} + 10\log(N)$ dBi, that is Directional gain = $5 + 10\log(2)$ dBi = 8dBi; So, the UNII-1, UNII-3 output power limit is $30 - 8 + 6 = 28$ dBm. The UNII-1 power spectral density limit is $17 - 8 + 6 = 15$ dBm/MHz, the UNII-3 power spectral density limit is $30 - 8 + 6 = 28$ dBm/500kHz.

Test mode

For RF test items
The engineering test program was provided and enabled to make EUT continuous transmit.
For AC power line conducted emissions:
The EUT was set to connect with the WLAN AP under large package sizes transmission.
For Radiated spurious emissions test item:
The engineering test program was provided and enabled to make EUT continuous transmit. The EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data Recorded in the report.

2.5. Measurement Instruments List

Radiated emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated Until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB 9168	9168-759	Mar. 30, 2024
2	Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-647	Dec. 01, 2024
3	Test Receiver	Keysight	N9038A	MY56400071	Dec. 16, 2023
4	Broadband Prempplier	SCHWARZBECK	BBV9743B	259	Dec. 16, 2023
5	Mirowave Broadband Amplifier	SCHWARZBECK	BBV9718C	111	Dec. 16, 2023
6	3m chamber 3	YIHENG	EE106	/	Sep. 09, 2023

Conducted emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	LISN	R&S	ENV216	101112	Dec. 16, 2023
2	LISN	R&S	ENV216	101113	Dec. 16, 2023
3	EMI Test Receiver	R&S	ESCS30	100353	Dec. 16, 2023
4	ISN CAT6	Schwarzbeck	NTFM 8158	CAT6-8158-0046	Dec. 16, 2023
5	ISN CAT5	Schwarzbeck	NTFM 8158	CAT5-8158-0046	Dec. 16, 2023

Tonscend RF Test System					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibrated until
1	MXA Signal Analyzer	Keysight	N9020A	MY46471737	Dec. 16, 2023
2	Spectrum Analyzer	R&S	FSU26	100105	Dec. 16, 2023
3	Spectrum Analyzer	R&S	FSV40-N	101331	Mar. 14, 2024
4	MXG Vector Signal Generator	Agilent	N5182A	MY47420864	Dec. 16, 2023
5	PSG Analog Signal Generator	Agilent	E8257D	MY46521908	Dec. 16, 2023
6	Power Sensor	Keysight	U2021XA	MY55130004	Mar. 14, 2024
7	Power Sensor	Keysight	U2021XA	MY55130006	Mar. 14, 2024
8	Wideband Radio Communication Tester	R&S	CMW500	102414	Dec. 16, 2023
9	High and low temperature box	ESPEC	MT3035	/	Mar. 24, 2024
10	JS1120 RF Test system	TONSCEND	v2.6	/	/

Note: 1. The Cal. Interval was one year.

2. The cable loss has calculated in test result which connection between each test instruments.

3. TEST ITEM AND RESULTS

3.1. Conducted Emission

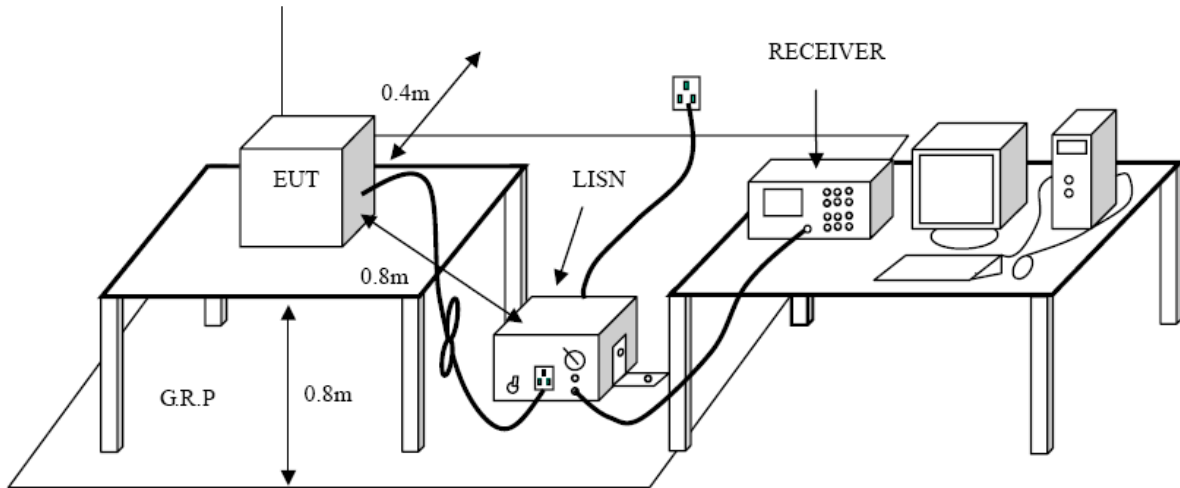
Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.207/ RSS – Gen 8.8:

Frequency range (MHz)	Limit (dBuV)	
	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 Configuration



Test Procedure

1. The EUT was setup according to ANSI C63.10:2013 requirements.
2. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface.
3. The EUT and simulators are connected to the main power through a line impedances stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment.
The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs)
4. Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.
5. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.
6. Conducted Emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9 kHz.
7. During the above scans, the emissions were maximized by cable manipulation.

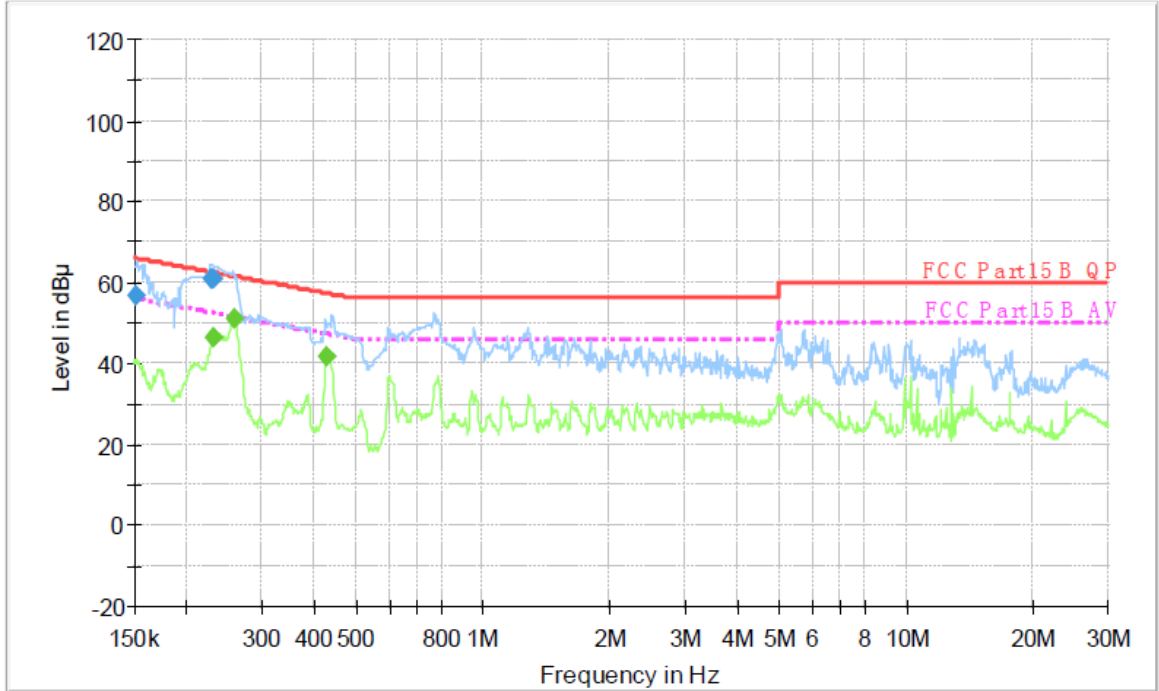
Test Mode

Please refer to the clause 2.4.



Test Results

Test Voltage:	AC 120V/60 Hz
Terminal:	Line



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.152410	56.8	1000.00	9.000	On	L1	9.7	9.1	65.9	
0.229020	60.8	1000.00	9.000	On	L1	9.7	1.7	62.5	
0.231770	60.7	1000.00	9.000	On	L1	9.7	1.7	62.4	

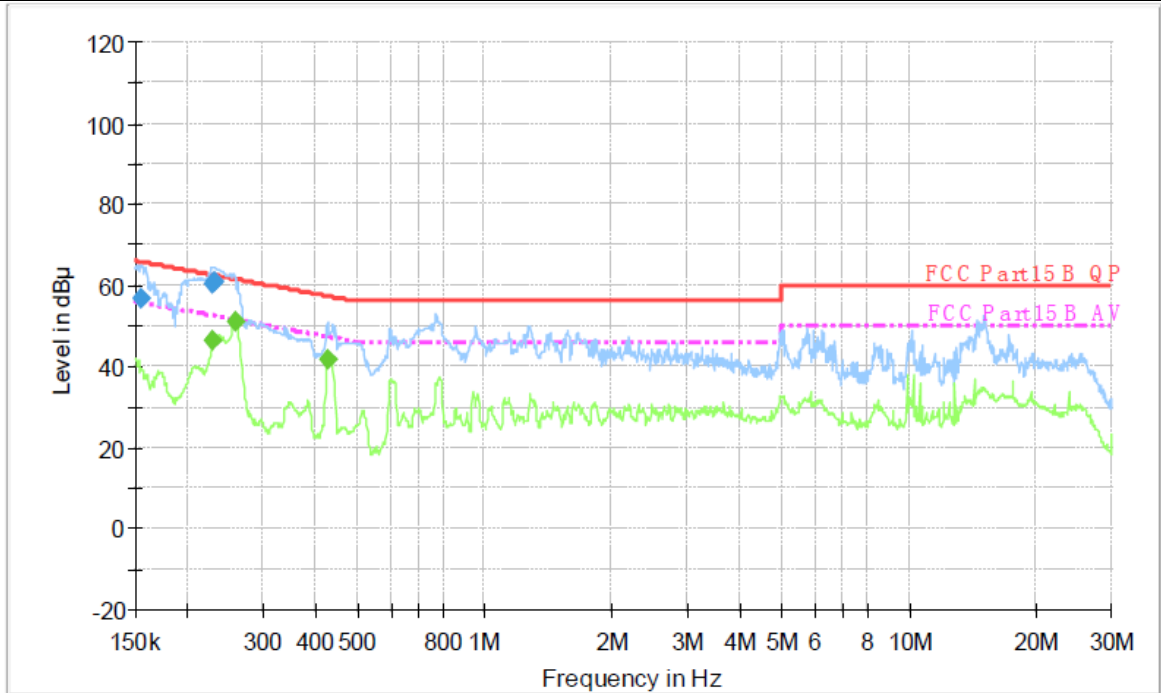
Final Measurement Detector 2

Frequency (MHz)	Average (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.230850	46.5	1000.00	9.000	On	L1	9.7	5.9	52.4	
0.258150	50.9	1000.00	9.000	On	L1	9.7	0.6	51.5	
0.430320	41.5	1000.00	9.000	On	L1	9.7	5.7	47.2	

Emission Level= Read Level+ Correct Factor



Test Voltage:	AC 120V/60 Hz
Terminal:	Neutral



Final Measurement Detector 1

Frequency (MHz)	QuasiPeak (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.155490	57.0	1000.00	9.000	On	N	10.0	8.7	65.7	
0.228100	60.5	1000.00	9.000	On	N	10.0	2.0	62.5	
0.231770	60.8	1000.00	9.000	On	N	10.0	1.6	62.4	

Final Measurement Detector 2

Frequency (MHz)	Average (dBu V)	Meas. Time (ms)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBu V)	Comment
0.229930	46.2	1000.00	9.000	On	N	10.0	6.3	52.5	
0.259190	50.8	1000.00	9.000	On	N	10.0	0.7	51.5	
0.430320	41.9	1000.00	9.000	On	N	10.0	5.3	47.2	

Emission Level= Read Level+ Correct Factor



3.2. Radiated Emission

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.209/ RSS-Gen 8.9

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
960~1000	500	3

Frequency (MHz)	dB(uV/m) (at 3 meters)	
	Peak	Average
Above 1000	74	54

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)= 20log Emission Level (uV/m).

Limits of unwanted emission out of the restricted bands

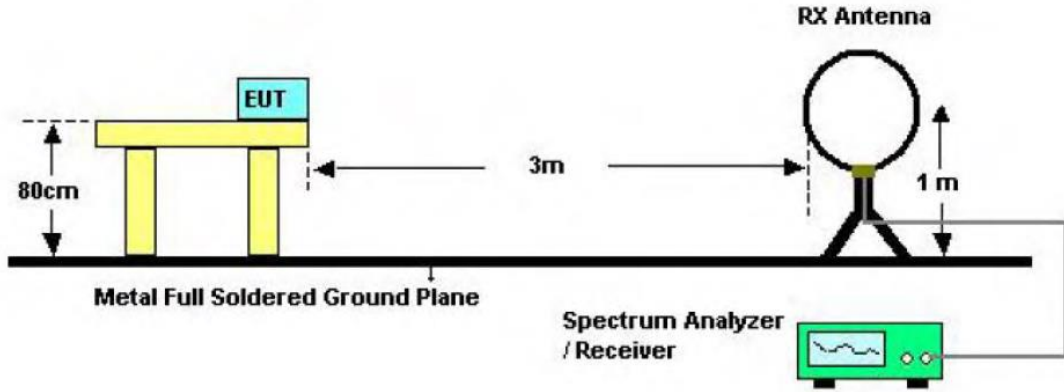
FCC CFR Title 47 Part 15 Subpart C Section 15.407(b)/ RSS-247 6.2.1.2 & RSS-247 6.2.4.2

Frequency (MHz)	EIRP Limits (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5150~5250	-27	68.2
5250~5350	-27	68.2
5470~5725	-27	68.2
5725~5825	-27(Note 2)	68.2
	10(Note 2)	105.2
	15.6(Note 2)	110.8
	27(Note 2)	122.2

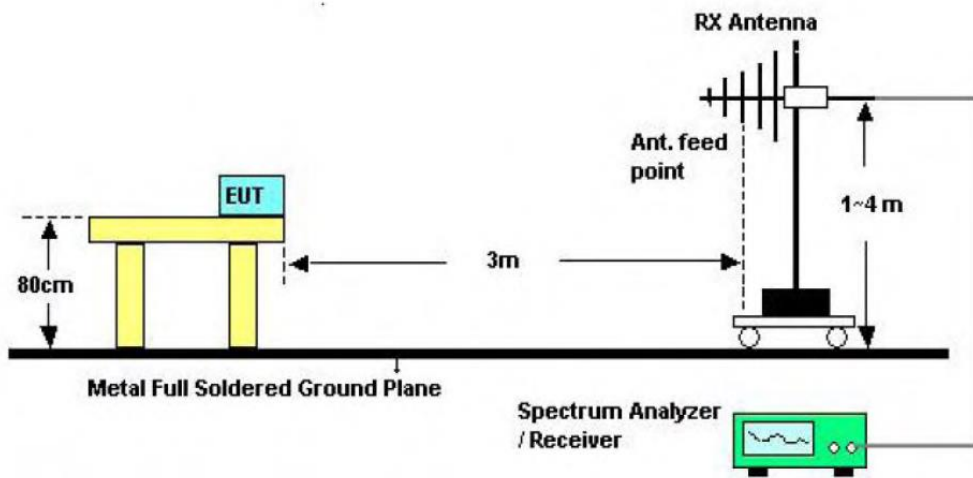
Note: 1. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength: $E = \frac{1000000\sqrt{30P}}{3}$ uV/m, where P is the eirp (Watts)

2. According to FCC 16-24, 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 25MHz 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 27dBm/MHz at the band edge.

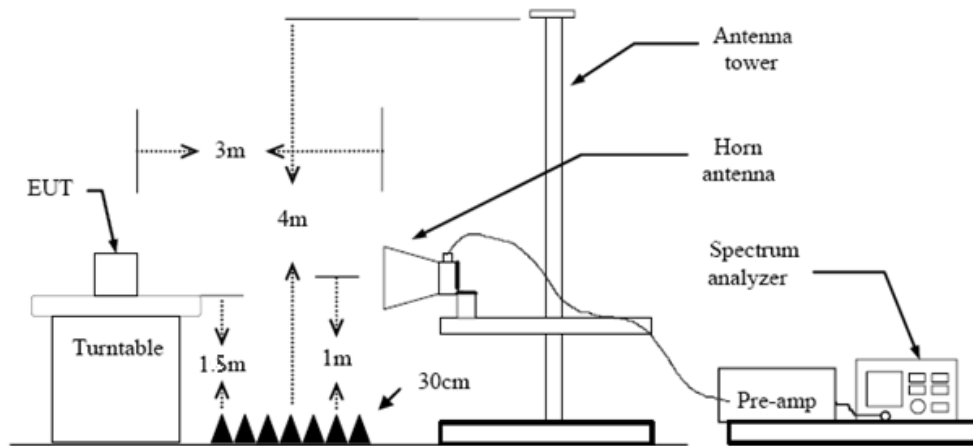
Test Configuration



Below 30MHz Test Setup



Below 1000MHz Test Setup



Above 1GHz Test Setup

Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013
2. The EUT is placed on a turn table which is 0.8 meter above ground for below 1 GHz, and 1.5 m for above 1 GHz. The turn table is rotated 360 degrees to determine the position of the maximum emission level.



3. The EUT was set 3 meters from the receiving antenna, which was mounted on the top of a variable height antenna tower.
4. For each suspected emission, the EUT was arranged to its worst case and then tune the Antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level to comply with the guidelines.
5. Set to the maximum power setting and enable the EUT transmit continuously.
6. Use the following spectrum analyzer settings
 - (1) Span shall wide enough to fully capture the emission being measured;
 - (2) Below 1 GHz:
RBW=120 kHz, VBW=300 kHz, Sweep=auto, Detector function=peak, Trace=max hold;
If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
 - (3) From 1 GHz to 10th harmonic:
RBW=1MHz, VBW=3MHz Peak detector for Peak value.
RBW=1MHz, VBW \geq 1/T Peak detector for Average value.
Note 1: For the 1/T& Duty Cycle please refer to clause Duty Cycle.

Test Mode

Please refer to the clause 2.4.

Test Result

9 KHz~30 MHz

From 9 KHz to 30 MHz: Conclusion: PASS

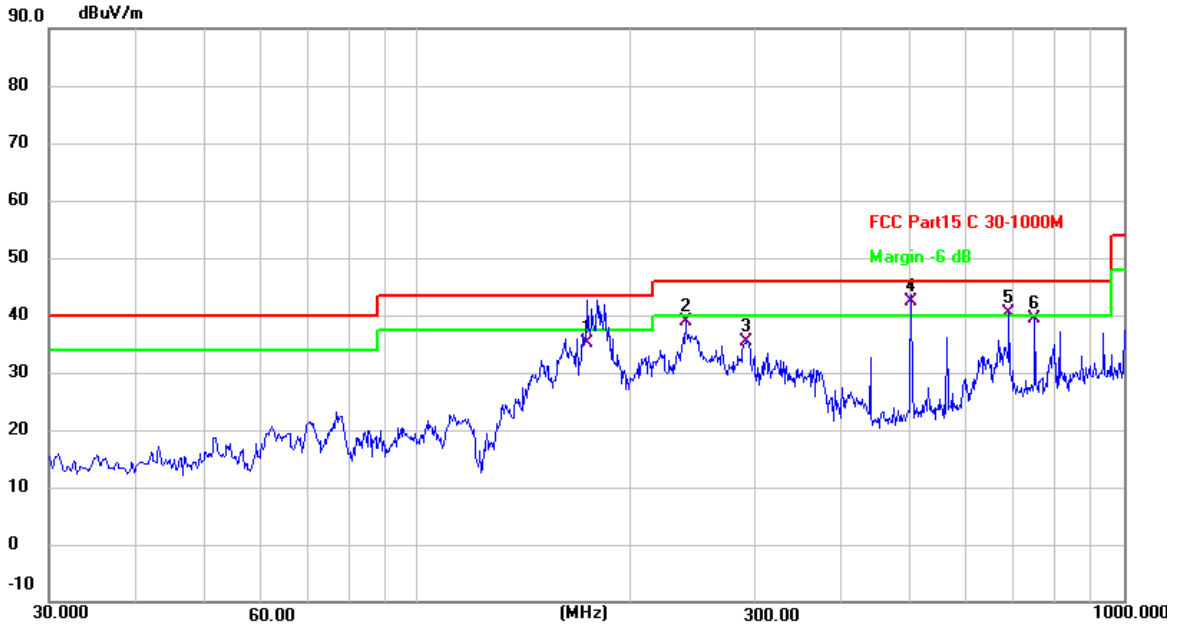
Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Pre-scan all antenna, only show the test data for worse case antenna on the test report.



30MHz-1GHz

Ant No.:	Ant 1
Ant. Pol.	Horizontal
Test Mode:	802.11a Mode 5180MHz (U-NII-1)
Remark:	Only worse case is reported



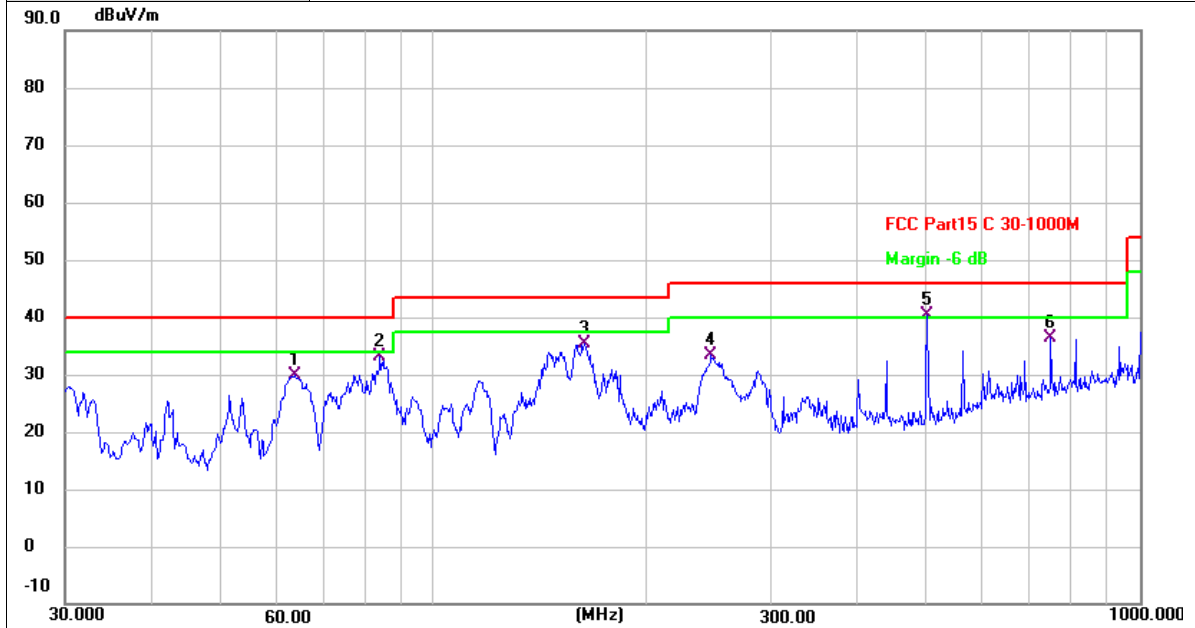
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	174.2067	53.54	-18.38	35.16	43.50	-8.34	QP
2	239.8433	53.76	-14.93	38.83	46.00	-7.17	QP
3	291.2533	49.19	-13.74	35.45	46.00	-10.55	QP
4 *	500.1267	51.64	-9.19	42.45	46.00	-3.55	QP
5 !	687.6599	46.04	-5.68	40.36	46.00	-5.64	QP
6	750.0633	44.20	-4.82	39.38	46.00	-6.62	QP

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.	Vertical
Test Mode:	802.11a Mode 5180MHz (U-NII-1)
Remark:	Only worse case is reported



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	63.6267	46.75	-16.84	29.91	40.00	-10.09	QP
2	83.9967	52.45	-19.43	33.02	40.00	-6.98	QP
3	163.5367	54.42	-19.01	35.41	43.50	-8.09	QP
4	247.2800	48.21	-14.72	33.49	46.00	-12.51	QP
5 *	500.1267	49.69	-9.19	40.50	46.00	-5.50	QP
6	750.0633	41.09	-4.82	36.27	46.00	-9.73	QP

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Above 1GHz

Ant No.:	Ant 1																														
Ant. Pol.:	Horizontal																														
Test Mode:	TX 802.11a Mode 5180MHz (U-NII-1)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	10359.999	40.35	13.60	53.95	74.00	-20.05	peak																								
2 *	10360.301	26.63	13.60	40.23	54.00	-13.77	AVG																								
<p>Note: The chart shows Limits 74dBuV for Peak, 54dBuV for AVG, but Unwanted Emissions that fall Outside of the Restricted Bands is 68.2dBuV for Peak. No limit for AVG. All test results are in t compliance with the limits. After calculation, the Peak measurement value meets the limit requirements.</p>																															
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	10399.688	40.27	13.67	53.94	74.00	-20.06	peak																								
2 *	10400.127	25.12	13.67	38.79	54.00	-15.21	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	10479.649	26.66	13.80	40.46	54.00	-13.54	AVG																								
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
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Http://www.sz-ctc.org.cn



中国国家认证认可监督管理委员会
 Certification and Accreditation Administration of the People's Republic of China

For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : yz.cnca.cn



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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
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Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT20) Mode 5240MHz (U-NII-1)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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Test Mode:	TX 802.11n(HT40) Mode 5230MHz (U-NII-1)																														
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Test Mode:	TX 802.11a Mode 5745MHz (U-NII-3)																														
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Test Mode:	TX 802.11a Mode 5825MHz (U-NII-3)																														
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Test Mode:	TX 802.11n(HT20) Mode 5745MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	10489.659	37.75	13.82	51.57	74.00	-22.43	peak																								
2 *	10490.027	23.46	13.83	37.29	54.00	-16.71	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT20) Mode 5745MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11489.967	37.56	15.00	52.56	74.00	-21.44	peak																								
2 *	11490.034	23.09	15.01	38.10	54.00	-15.90	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Horizontal																														
Test Mode:	TX 802.11n(HT20) Mode 5785MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11569.986	38.40	15.06	53.46	74.00	-20.54	peak																								
2 *	11570.055	23.49	15.07	38.56	54.00	-15.44	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT20) Mode 5785MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11569.516	38.89	15.06	53.95	74.00	-20.05	peak																								
2 *	11570.315	23.08	15.07	38.15	54.00	-15.85	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Horizontal																														
Test Mode:	TX 802.11n(HT20) Mode 5825MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	10649.502	37.56	14.17	51.73	74.00	-22.27	peak																								
2 *	10649.721	22.62	14.17	36.79	54.00	-17.21	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT20) Mode 5825MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11649.709	38.03	15.13	53.16	74.00	-20.84	peak																								
2 *	11650.452	22.74	15.14	37.88	54.00	-16.12	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



Ant No.:	Ant 1 + Ant 2																														
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Test Mode:	TX 802.11n(HT40) Mode 5755MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11509.515	37.62	15.00	52.62	74.00	-21.38	peak																								
2 *	11509.992	22.67	15.00	37.67	54.00	-16.33	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT40) Mode 5755MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11509.794	38.88	15.00	53.88	74.00	-20.12	peak																								
2 *	11510.224	22.91	15.01	37.92	54.00	-16.08	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															



Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Horizontal																														
Test Mode:	TX 802.11n(HT40) Mode 5795MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1 *	11589.532	23.11	15.08	38.19	54.00	-15.81	AVG																								
2	11590.451	39.29	15.09	54.38	74.00	-19.62	peak																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

Ant No.:	Ant 1 + Ant 2																														
Ant. Pol.:	Vertical																														
Test Mode:	TX 802.11n(HT40) Mode 5795MHz (U-NII-3)																														
Remark:	No report for the emission which more than 20 dB below the prescribed limit.																														
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No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector																								
1	11589.506	38.32	15.08	53.40	74.00	-20.60	peak																								
2 *	11589.999	23.14	15.08	38.22	54.00	-15.78	AVG																								
Remarks: 1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor 2.Margin value = Level -Limit value																															

3.3. Band Edge Emissions

Limit

Limits of unwanted emission out of the restricted bands

FCC CFR Title 47 Part 15 Subpart C Section 15.407(b)/ RSS-247 6.2.1.2 & RSS-247 6.2.4.2

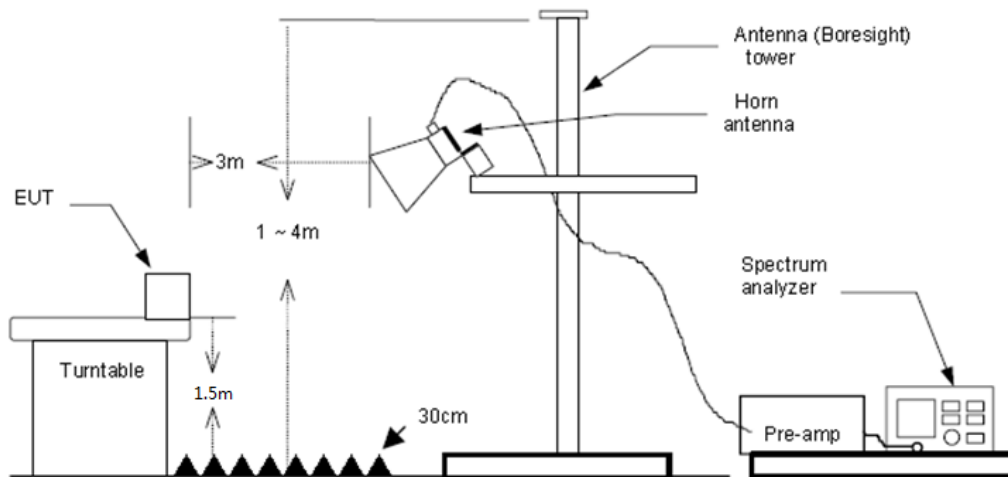
Frequency (MHz)	EIRP Limits (dBm)	Equivalent Field Strength at 3m (dBuV/m)
5150~5250	-27	68.2
5250~5350	-27	68.2
5470~5725	-27	68.2
5725~5825	-27(Note 2)	68.2
	10(Note 2)	105.2
	15.6(Note 2)	110.8
	27(Note 2)	122.2

Note: 1. The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$\text{strength: } E = \frac{1000000\sqrt{30P}}{3} \text{ uV/m, where P is the eirp (Watts)}$$

2. According to FCC 16-24, 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 25MHz 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 27dBm/MHz at the band edge.

Test Configuration



Test Procedure

1. The EUT was setup and tested according to ANSI C63.10:2013 requirements.
2. 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.
3. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.
4. The antenna is scanned from 1 meter to 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.



5. The receiver set as follow:

RBW=1MHz, VBW=3MHz PEAK detector for Peak value.

RBW=1MHz, VBW see note 1 with Peak Detector for Average Value.

Note 1: For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector for average measurements. For the Duty Cycle please refer to clause Appendix E: Duty Cycle

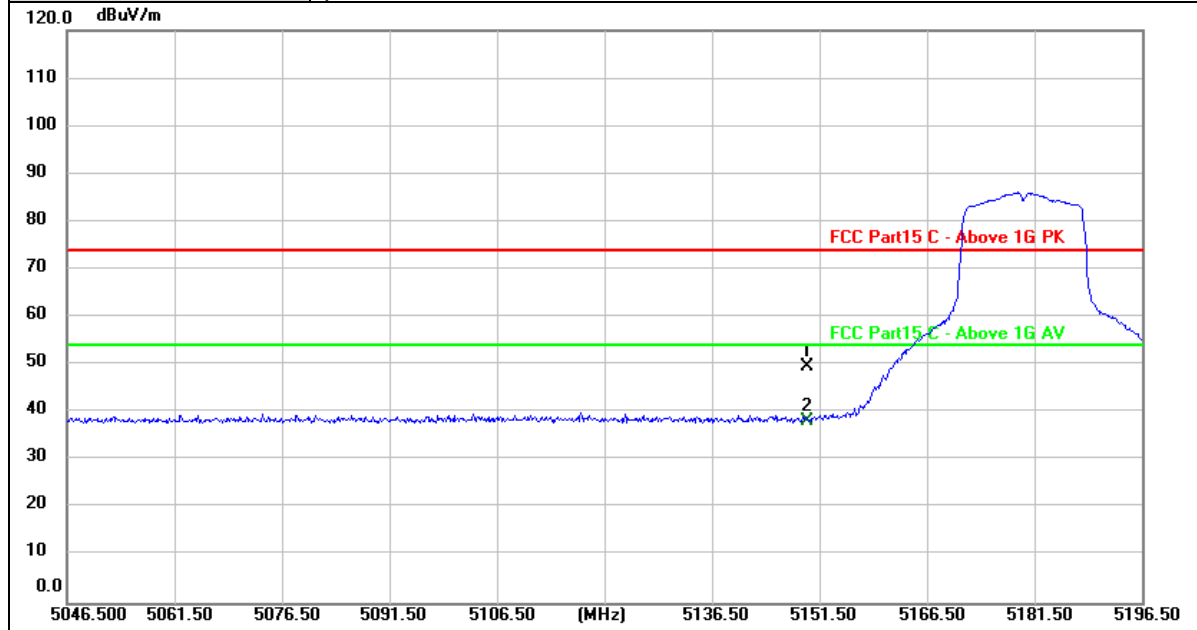
Test Mode

Please refer to the clause 2.4.

Test Results

Pre-scan all antenna, only show the test data for worse case antenna on the test report.

Ant No.:	Ant 1
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11a Mode 5180MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5150.000	12.52	37.15	49.67	74.00	-24.33	peak
2 *	5150.000	1.18	37.15	38.33	54.00	-15.67	AVG

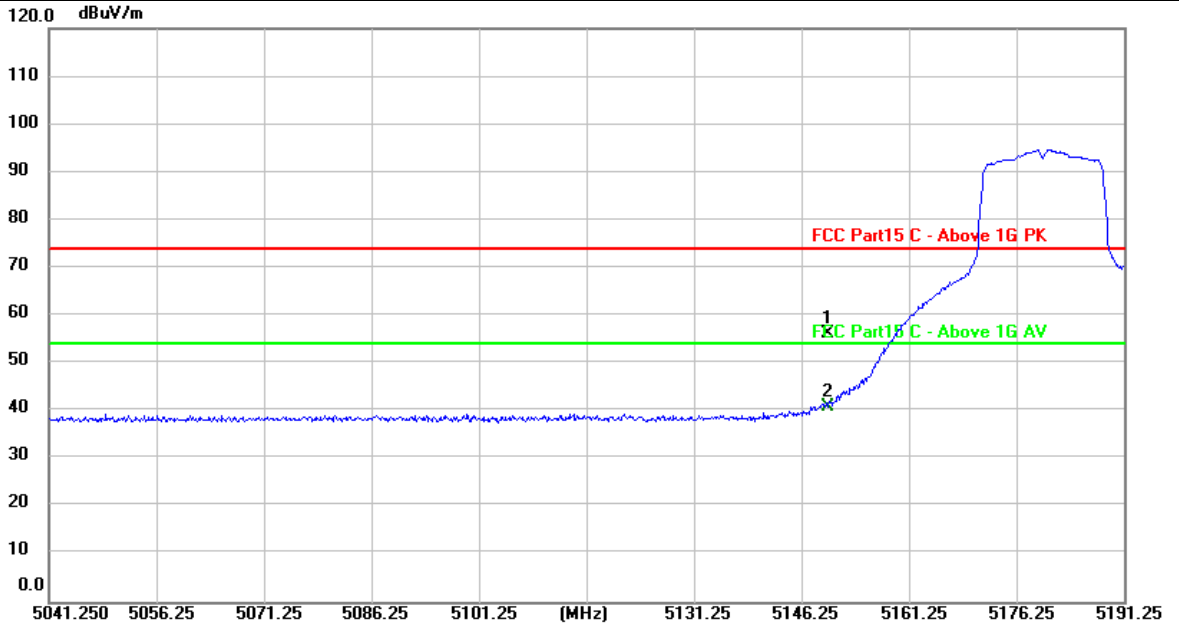
Remarks:

1.Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor

2.Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Vertical
Test Mode:	TX 802.11a Mode 5180MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



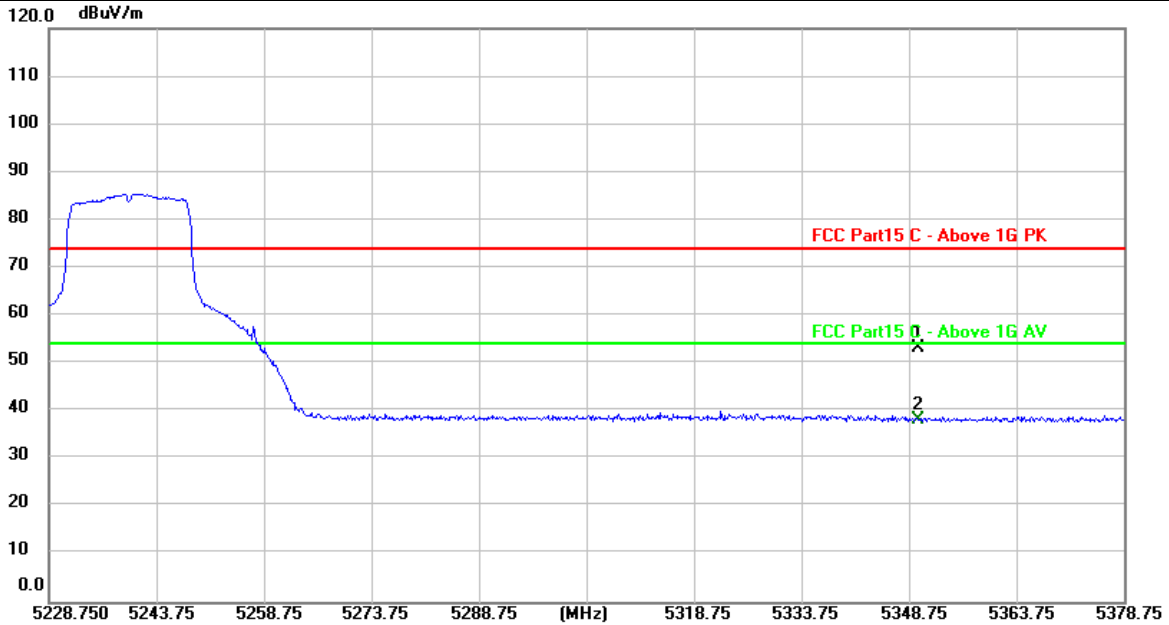
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5150.000	19.02	37.15	56.17	74.00	-17.83	peak
2 *	5150.000	3.76	37.15	40.91	54.00	-13.09	AVG

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11a Mode 5240MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



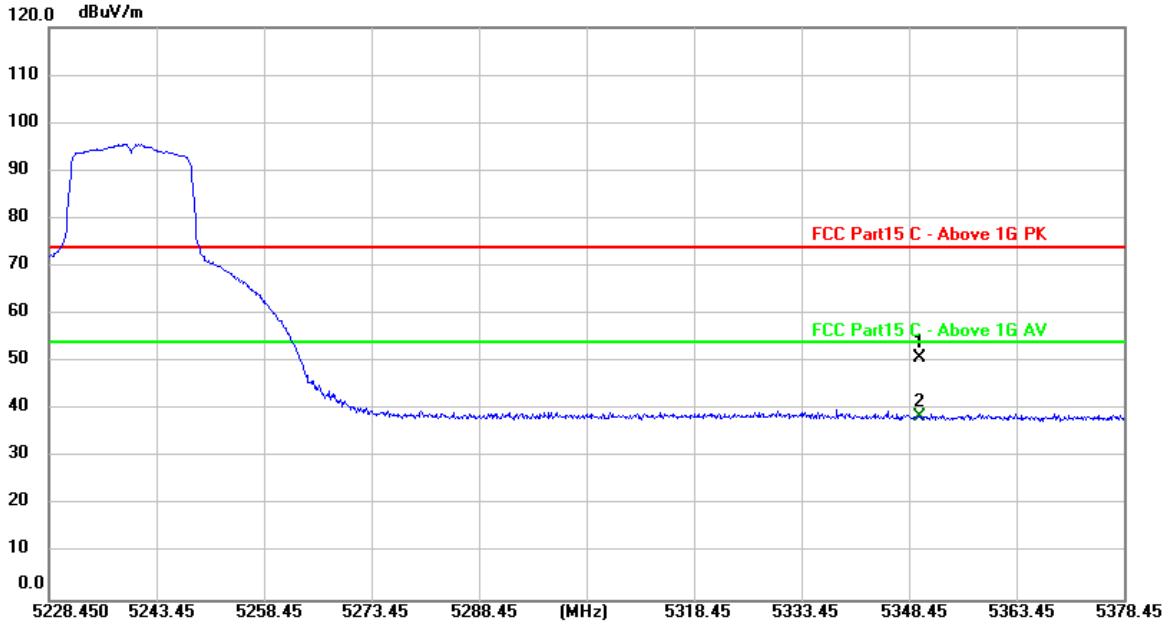
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	15.70	37.41	53.11	74.00	-20.89	peak
2 *	5350.000	0.90	37.41	38.31	54.00	-15.69	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Vertical
Test Mode:	TX 802.11a Mode 5240MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



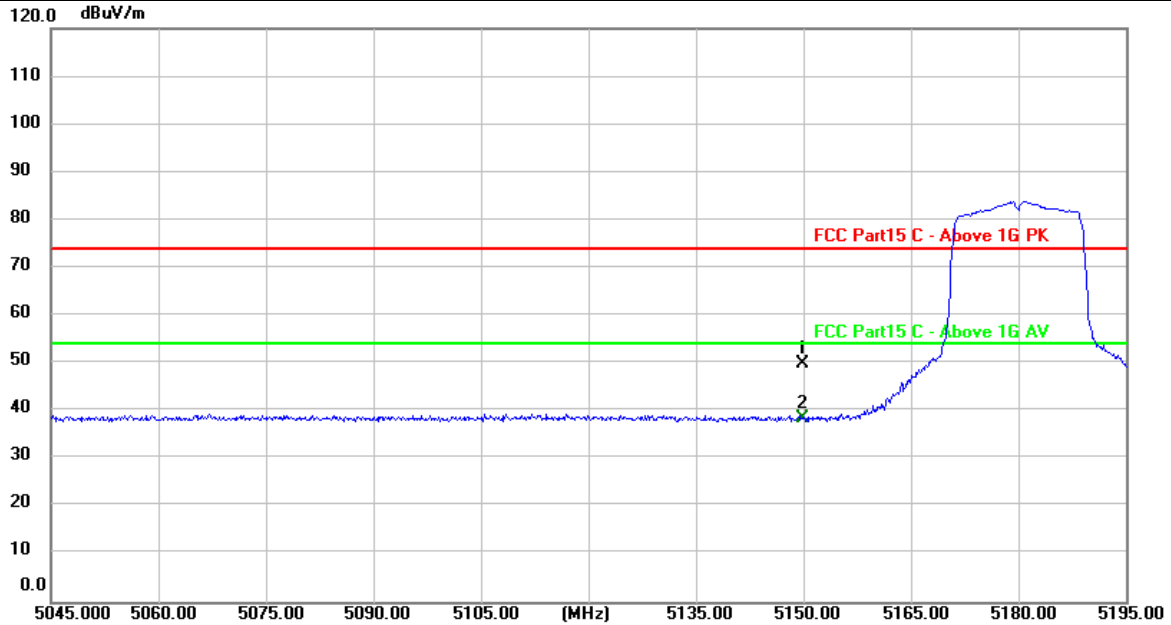
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	13.38	37.41	50.79	74.00	-23.21	peak
2 *	5350.000	1.12	37.41	38.53	54.00	-15.47	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 5180MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



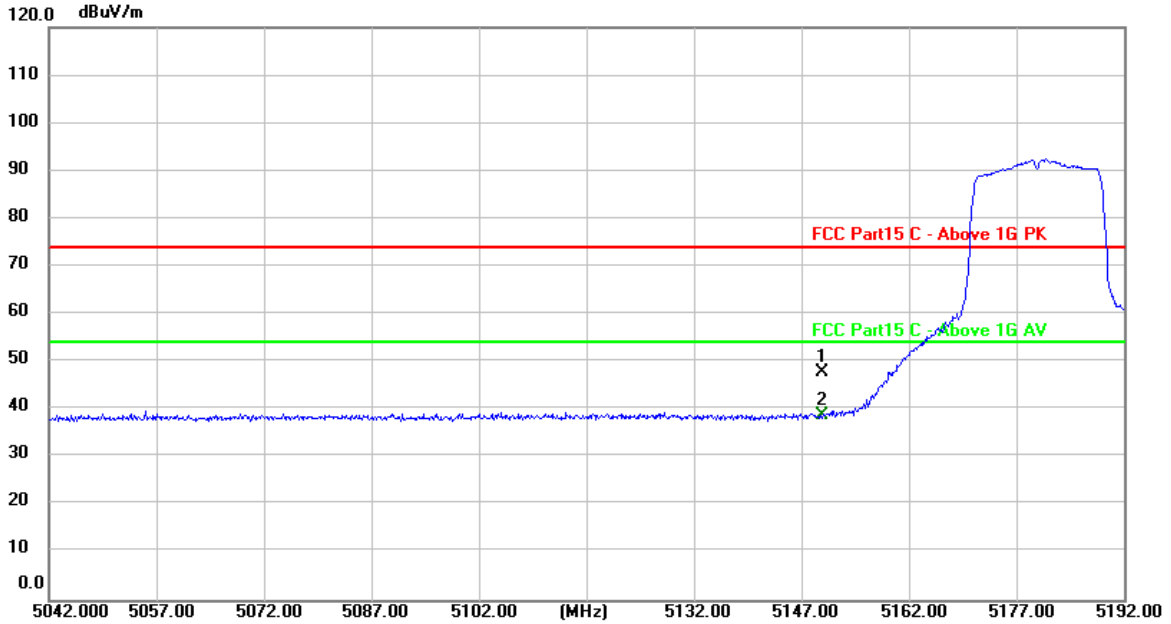
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5150.000	12.72	37.15	49.87	74.00	-24.13	peak
2 *	5150.000	1.54	37.15	38.69	54.00	-15.31	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT20) Mode 5180MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



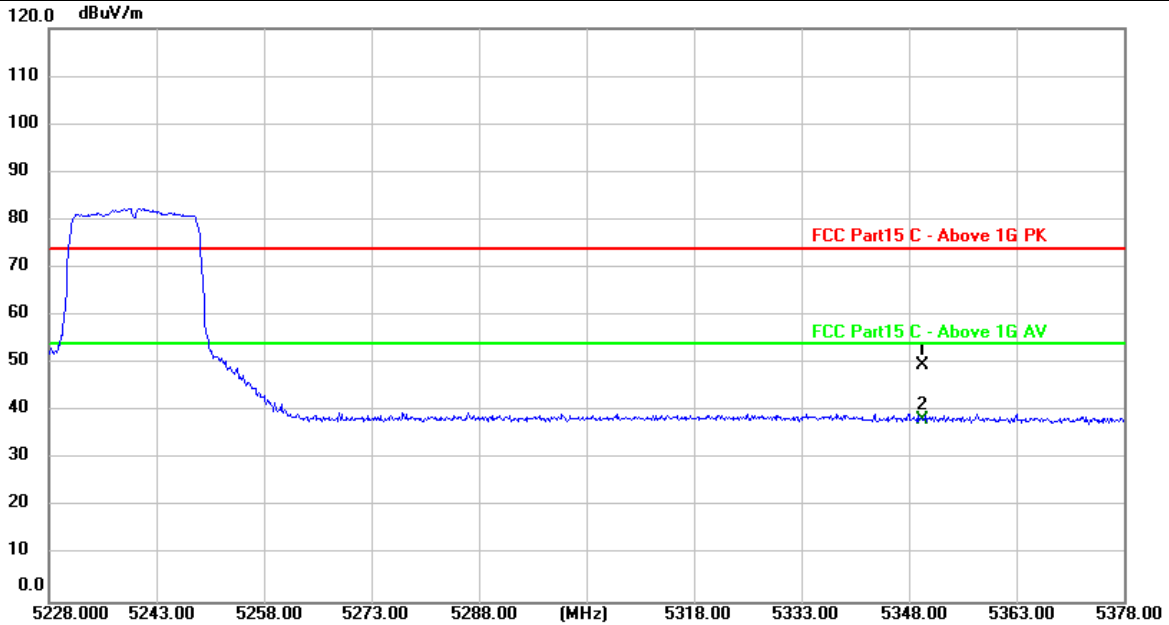
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5150.000	10.73	37.15	47.88	74.00	-26.12	peak
2 *	5150.000	1.83	37.15	38.98	54.00	-15.02	AVG

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 5240MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



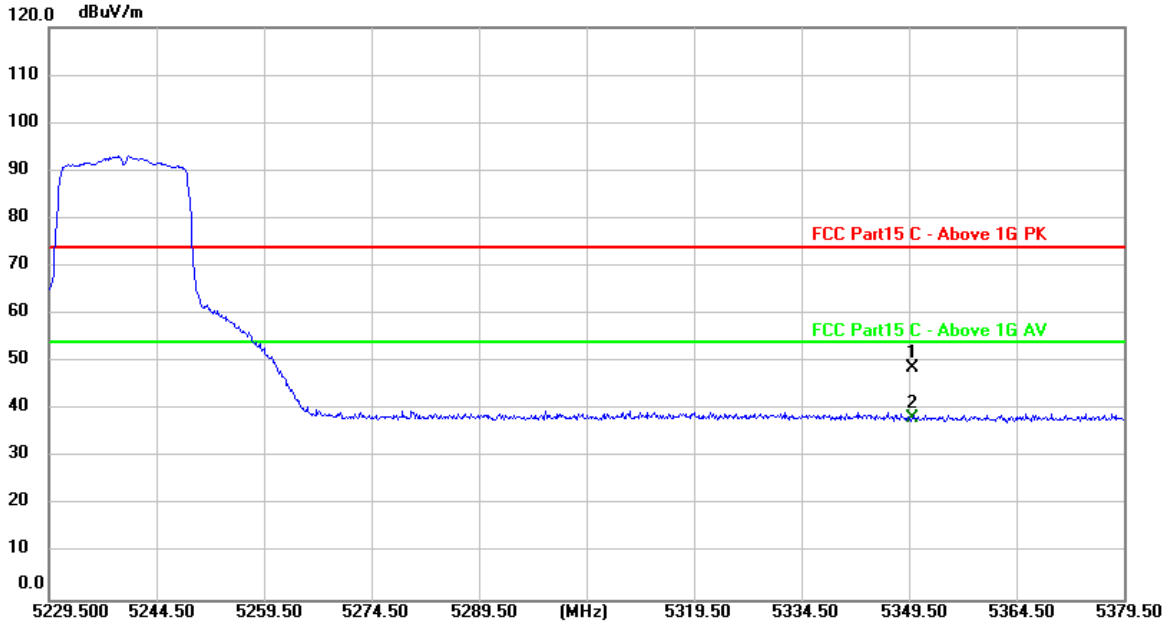
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	12.33	37.41	49.74	74.00	-24.26	peak
2 *	5350.000	0.90	37.41	38.31	54.00	-15.69	AVG

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT20) Mode 5240MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	11.29	37.41	48.70	74.00	-25.30	peak
2 *	5350.000	0.74	37.41	38.15	54.00	-15.85	AVG

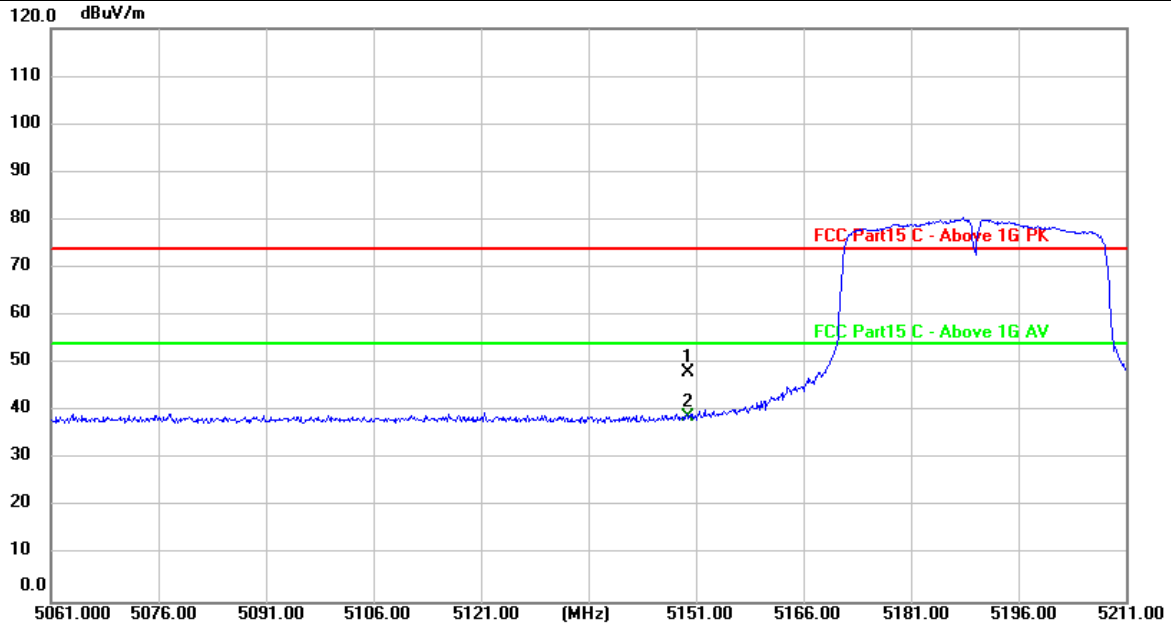
Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value





Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 5190MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



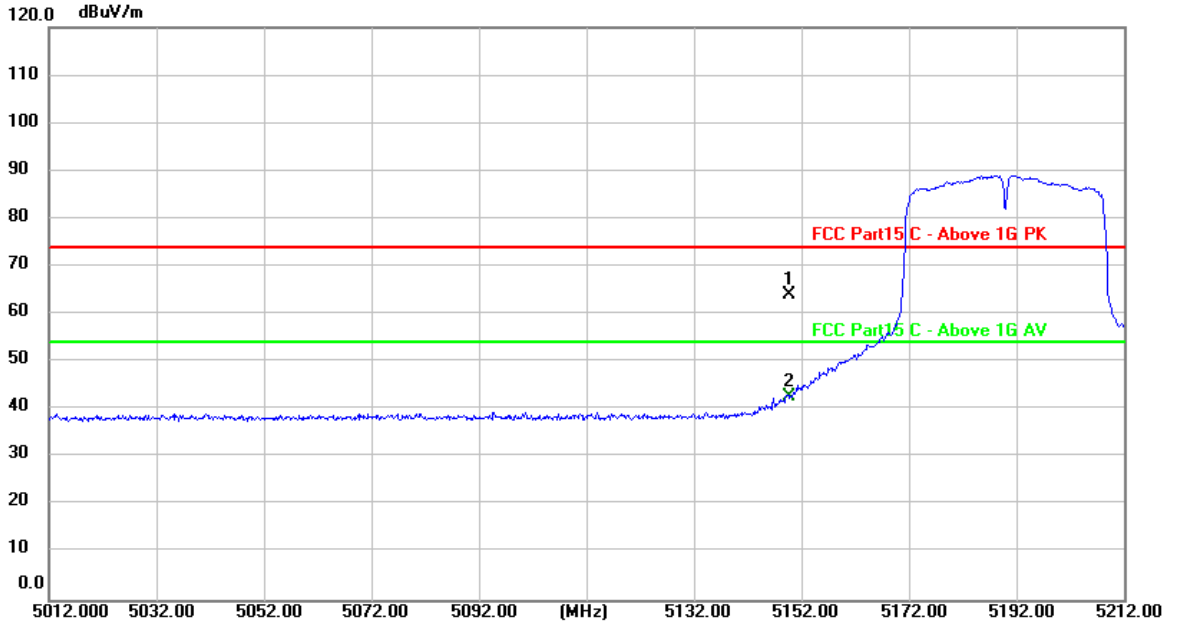
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5150.000	10.87	37.15	48.02	74.00	-25.98	peak
2 *	5150.000	1.62	37.15	38.77	54.00	-15.23	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT40) Mode 5190MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



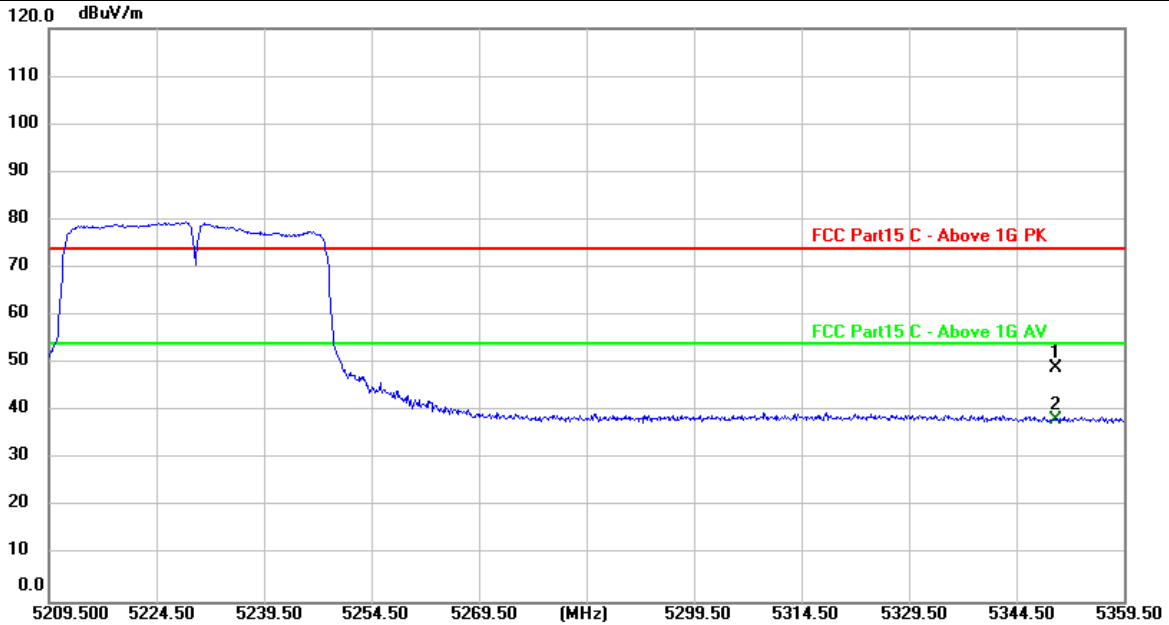
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5150.000	26.97	37.15	64.12	74.00	-9.88	peak
2	5150.000	5.70	37.15	42.85	54.00	-11.15	AVG

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 5230MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



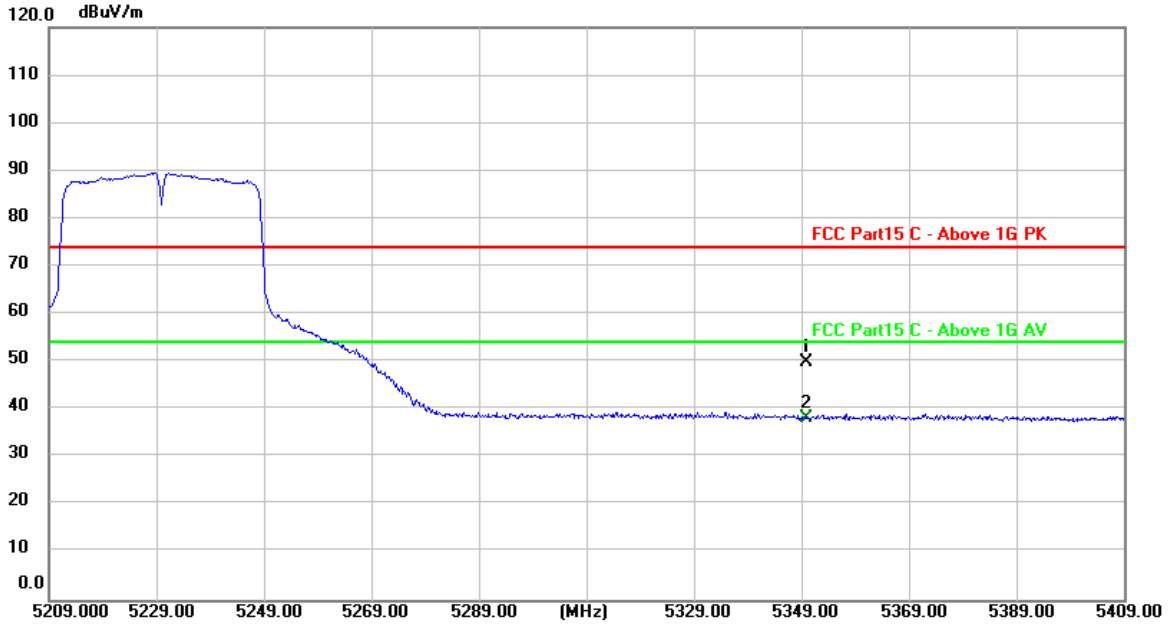
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	11.68	37.41	49.09	74.00	-24.91	peak
2 *	5350.000	0.77	37.41	38.18	54.00	-15.82	AVG

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT40) Mode 5230MHz (U-NII-1)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



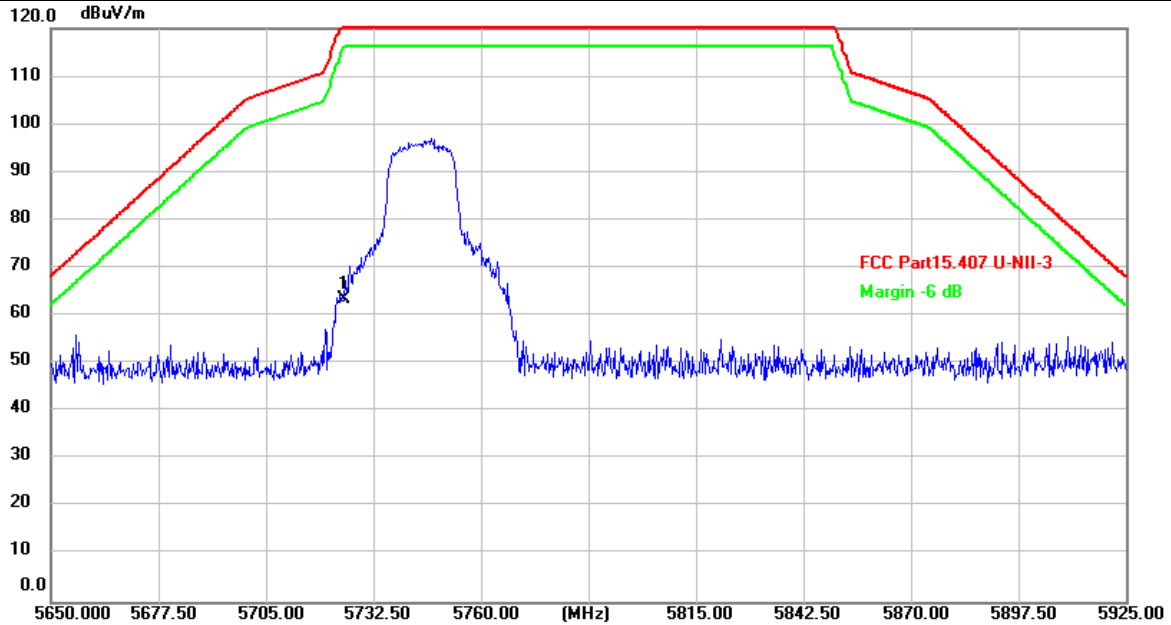
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5350.000	12.40	37.41	49.81	74.00	-24.19	peak
2 *	5350.000	0.86	37.41	38.27	54.00	-15.73	AVG

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11a Mode 5745MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



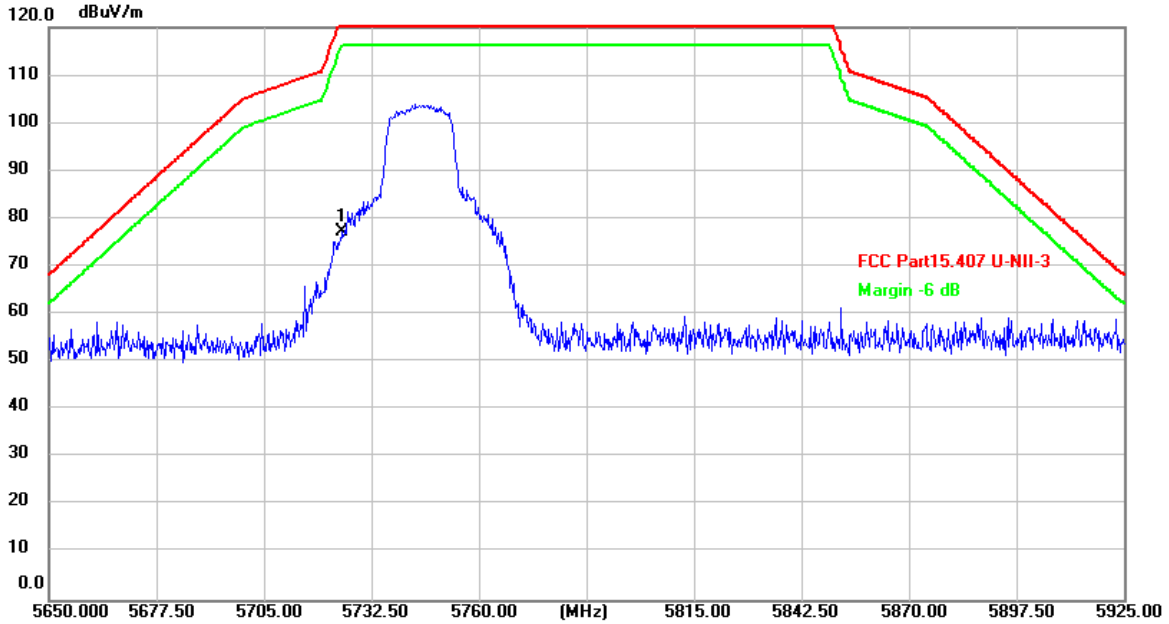
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	25.51	38.07	63.58	122.20	-58.62	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Vertical
Test Mode:	TX 802.11a Mode 5745MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



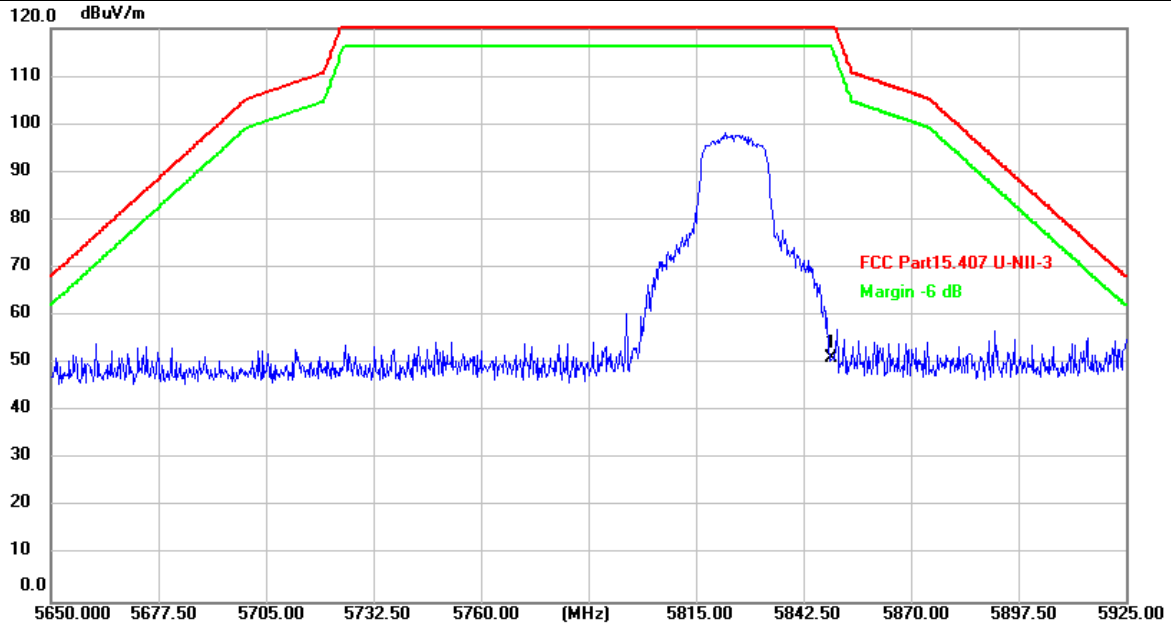
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	39.18	38.07	77.25	122.20	-44.95	peak

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11a Mode 5825MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



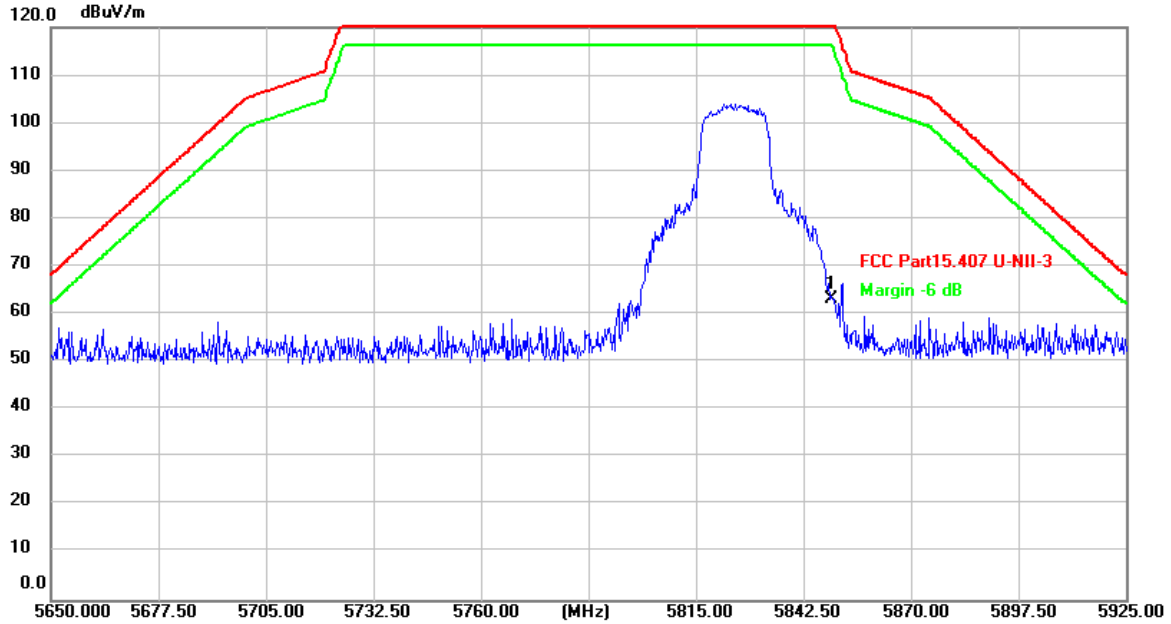
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	12.71	38.33	51.04	122.20	-71.16	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1
Ant. Pol.:	Vertical
Test Mode:	TX 802.11a Mode 5825MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



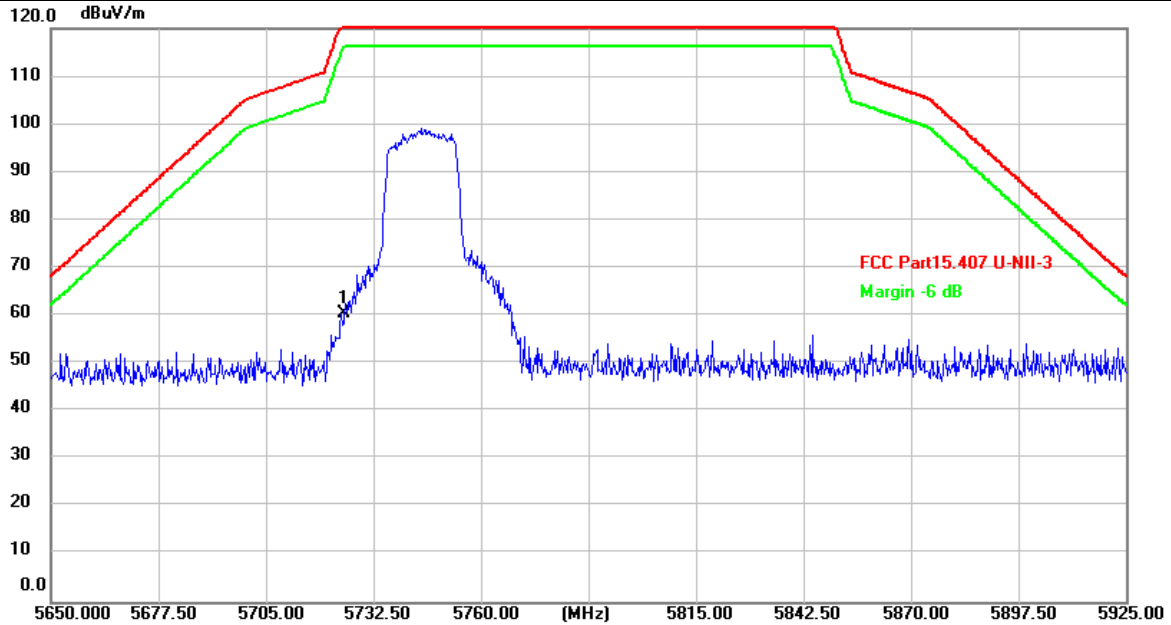
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	24.82	38.33	63.15	122.20	-59.05	peak

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 5745MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



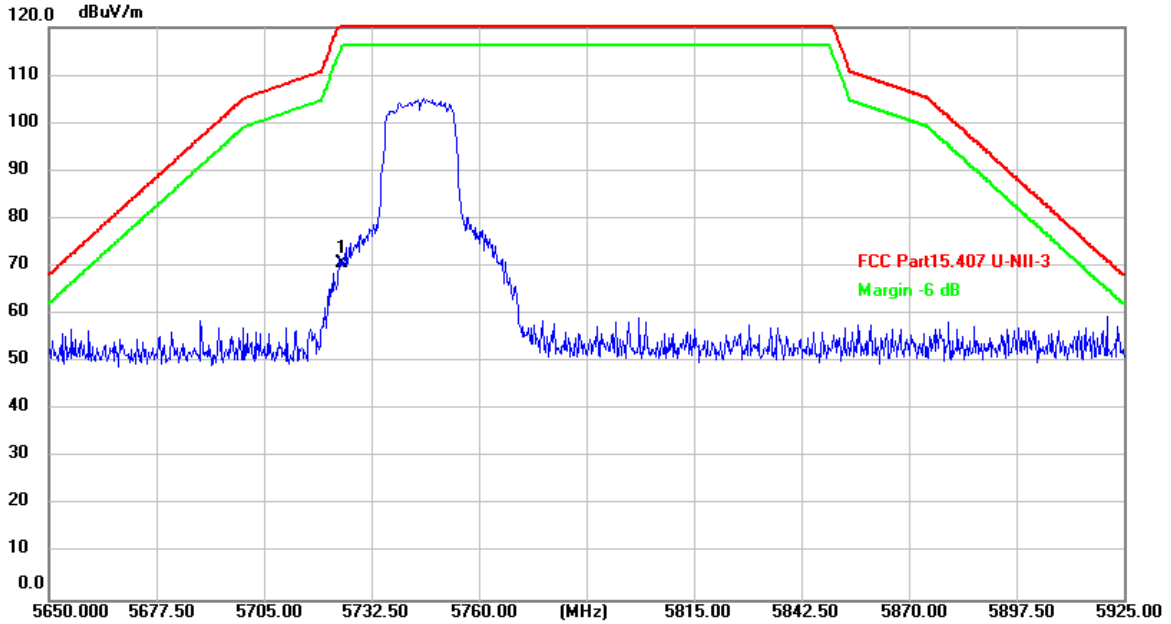
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	22.47	38.07	60.54	122.20	-61.66	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT20) Mode 5745MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.

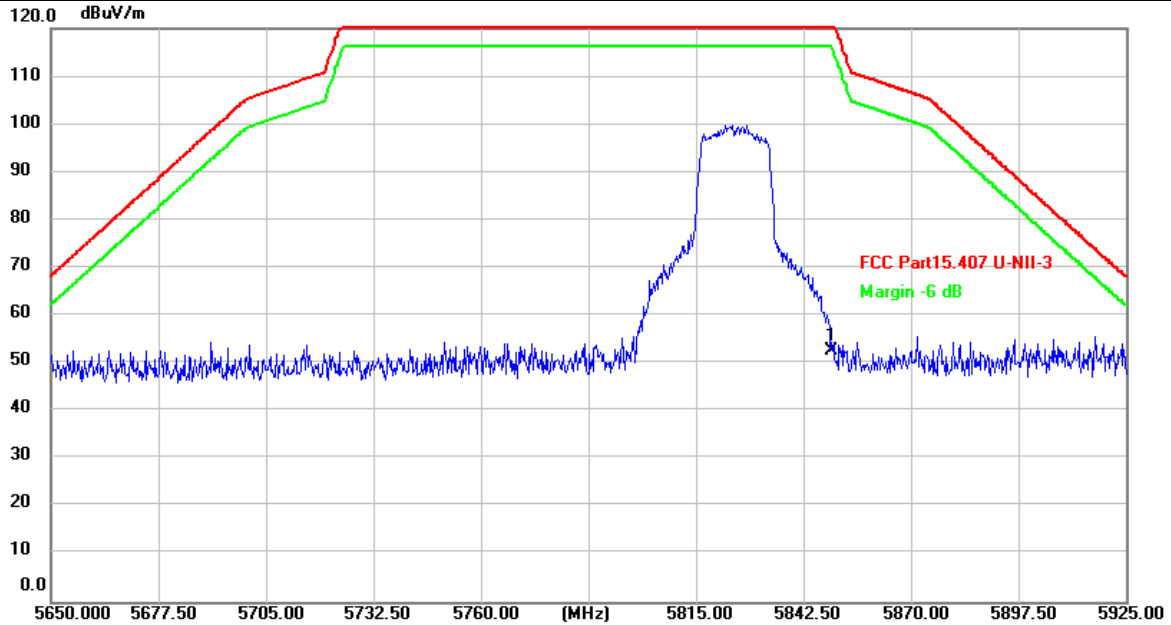


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	32.53	38.07	70.60	122.20	-51.60	peak

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value

Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT20) Mode 5825MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



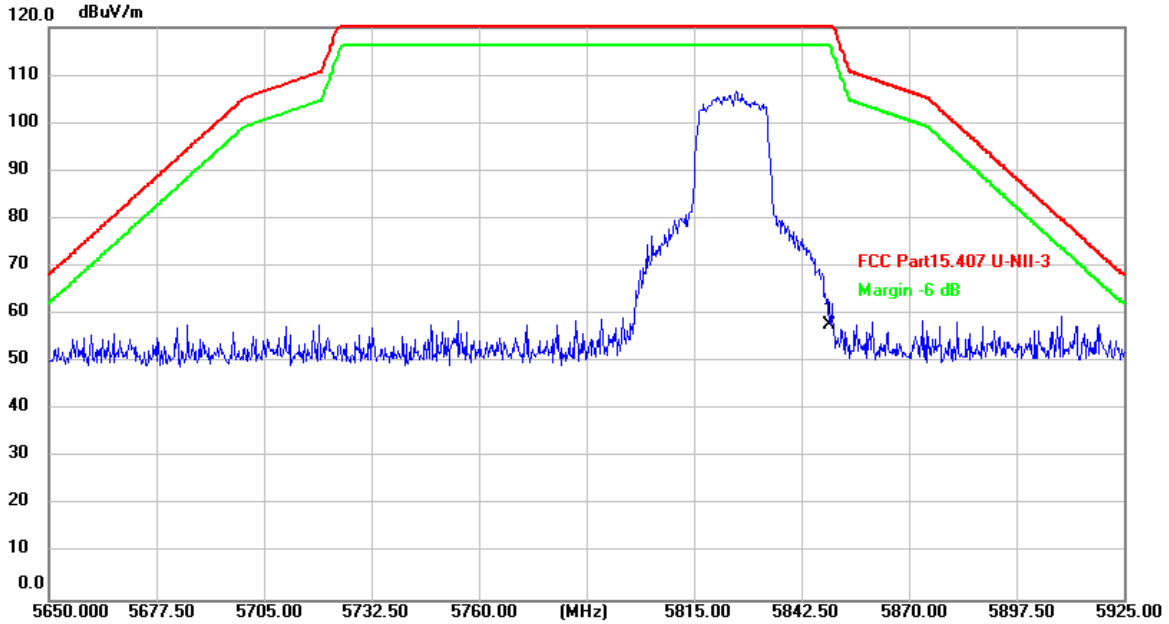
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	14.31	38.33	52.64	122.20	-69.56	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT20) Mode 5825MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



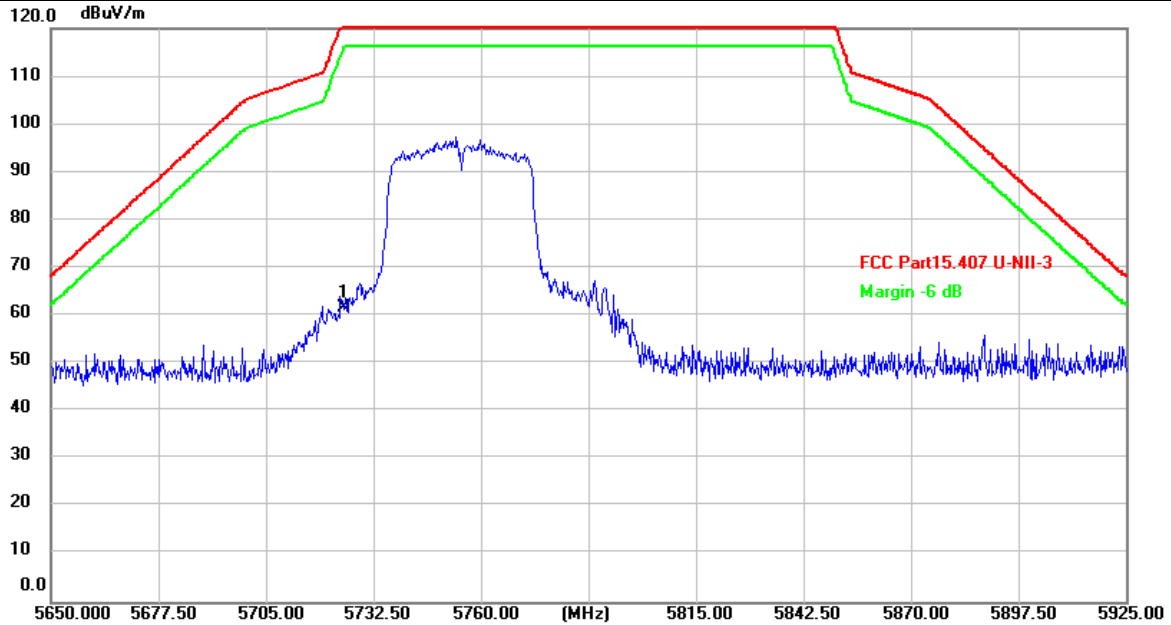
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	19.56	38.33	57.89	122.20	-64.31	peak

Remarks:

- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 5755MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



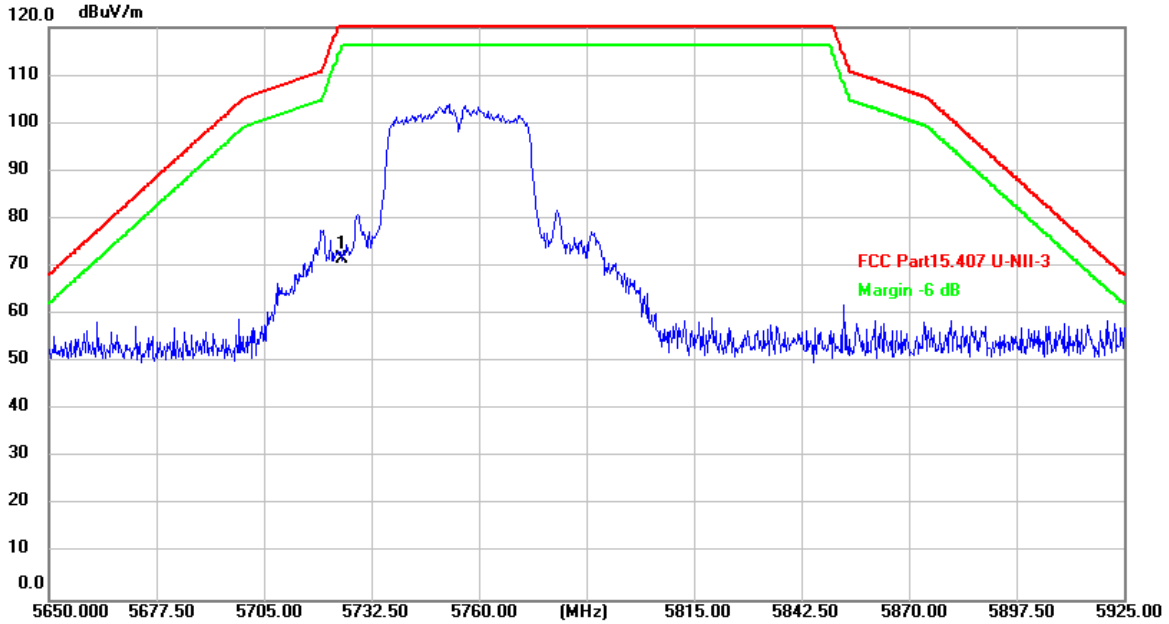
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	23.46	38.07	61.53	122.20	-60.67	peak

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT40) Mode 5755MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



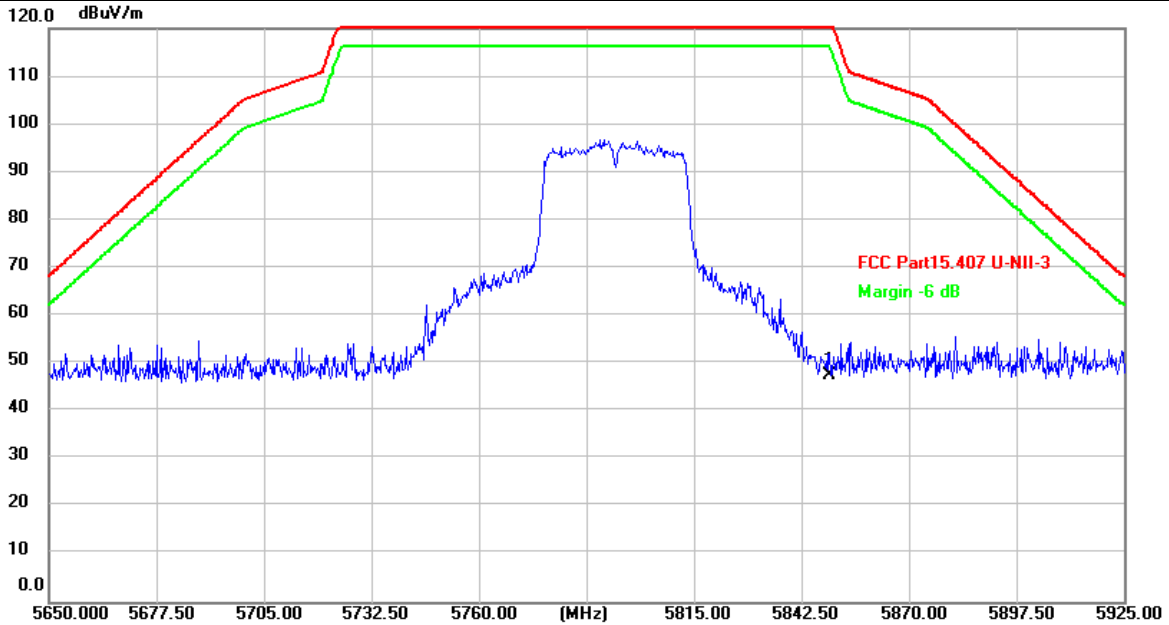
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5725.000	33.40	38.07	71.47	122.20	-50.73	peak

Remarks:

- Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Horizontal
Test Mode:	TX 802.11n(HT40) Mode 5795MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



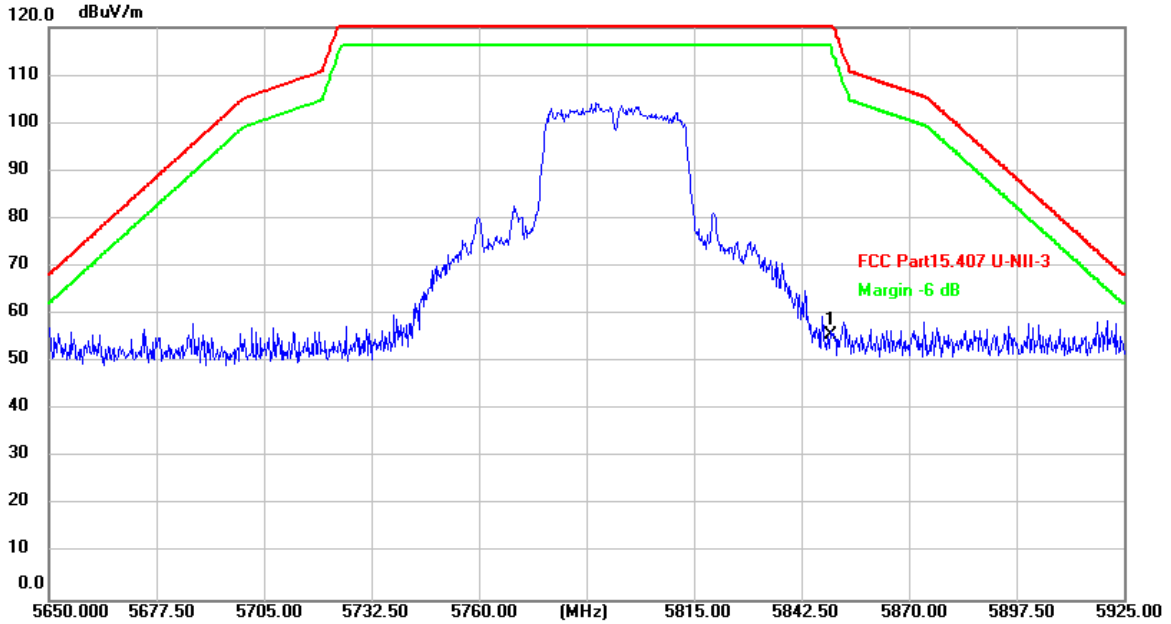
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	9.18	38.33	47.51	122.20	-74.69	peak

Remarks:

1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
2. Margin value = Level -Limit value



Ant No.:	Ant 1 + Ant 2
Ant. Pol.:	Vertical
Test Mode:	TX 802.11n(HT40) Mode 5795MHz (U-NII-3)
Remark:	No report for the emission which more than 20 dB below the prescribed limit.



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	5850.000	17.21	38.33	55.54	122.20	-66.66	peak

Remarks:

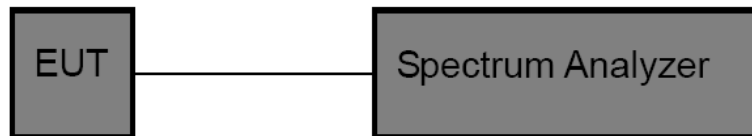
- 1. Factor (dB/m) = Antenna Factor (dB/m)+Cable Factor (dB)-Pre-amplifier Factor
- 2. Margin value = Level -Limit value

3.4. Bandwidth Test

Limit

FCC Part 15 Subpart C(15.407)/ RSS-247		
Test Item	Limit	Frequency Range (MHz)
26 dB Bandwidth	N/A	5150~5250
		5250~5350
		5500~5700
6 dB Bandwidth	>500kHz	5725~5850

Test Configuration



Test Procedure

Please refer to According to KDB789033 D02, for the measurement methods.

The setting of the spectrum analyser as below:

26dB Bandwidth Test	
Spectrum Parameters	Setting
Attenuation	Auto
Span	>26 dB Bandwidth
RBW	Approximately 1% of the emission bandwidth
VBW	VBW>RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto



6dB Bandwidth Test	
Spectrum Parameters	Setting
Attenuation	Auto
Span	>6 dB Bandwidth
RBW	100 kHz
VBW	$VBW \geq 3 * RBW$
Detector	Peak
Trace	Max Hold
Sweep Time	Auto
99% Occupied Bandwidth Test	
Spectrum Parameters	Setting
Attenuation	Auto
RBW	1% to 5% of the OBW
VBW	$\geq 3RBW$
Detector	Peak
Trace	Max Hold

Note: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

Please refer to the clause 2.4.

Test Results

**26dB Bandwidth Test**

TestMode	Antenna	Channel	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	30.16	5164.88	5195.04	---	PASS
	Ant2	5180	21.04	5169.96	5191.00	---	PASS
	Ant1	5200	28.72	5185.72	5214.44	---	PASS
	Ant2	5200	24.16	5188.12	5212.28	---	PASS
	Ant1	5240	28.20	5226.20	5254.40	---	PASS
	Ant2	5240	26.76	5227.68	5254.44	---	PASS
	Ant1	5745	27.88	5730.80	5758.68	---	PASS
	Ant2	5745	23.64	5733.00	5756.64	---	PASS
	Ant1	5785	22.44	5774.28	5796.72	---	PASS
	Ant2	5785	26.40	5771.44	5797.84	---	PASS
11N20MIMO	Ant1	5825	29.16	5810.24	5839.40	---	PASS
	Ant2	5825	27.32	5810.48	5837.80	---	PASS
	Ant1	5180	20.28	5169.80	5190.08	---	PASS
	Ant2	5180	19.84	5170.16	5190.00	---	PASS
	Ant1	5200	20.00	5190.04	5210.04	---	PASS
	Ant2	5200	20.00	5190.04	5210.04	---	PASS
	Ant1	5240	20.88	5229.80	5250.68	---	PASS
	Ant2	5240	19.52	5230.28	5249.80	---	PASS
	Ant1	5745	23.24	5733.12	5756.36	---	PASS
	Ant2	5745	20.04	5735.04	5755.08	---	PASS
11N40MIMO	Ant1	5785	20.28	5774.80	5795.08	---	PASS
	Ant2	5785	20.32	5774.64	5794.96	---	PASS
	Ant1	5825	21.44	5813.52	5834.96	---	PASS
	Ant2	5825	19.88	5814.92	5834.80	---	PASS
	Ant1	5190	42.24	5168.00	5210.24	---	PASS
	Ant2	5190	40.00	5170.00	5210.00	---	PASS
	Ant1	5230	45.12	5209.52	5254.64	---	PASS
	Ant2	5230	40.08	5209.68	5249.76	---	PASS
	Ant1	5755	47.04	5728.44	5775.48	---	PASS
	Ant2	5755	40.40	5734.84	5775.24	---	PASS
11N40MIMO	Ant1	5795	44.08	5773.16	5817.24	---	PASS
	Ant2	5795	39.84	5775.56	5815.40	---	PASS

6dB Bandwidth Test

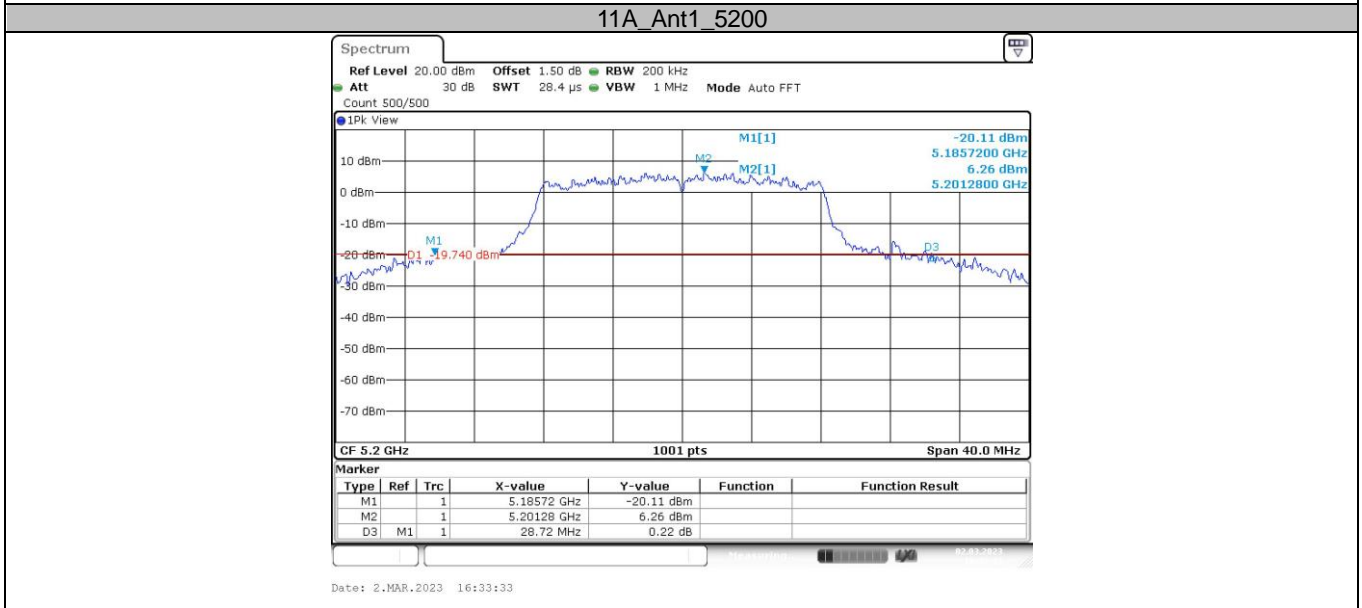
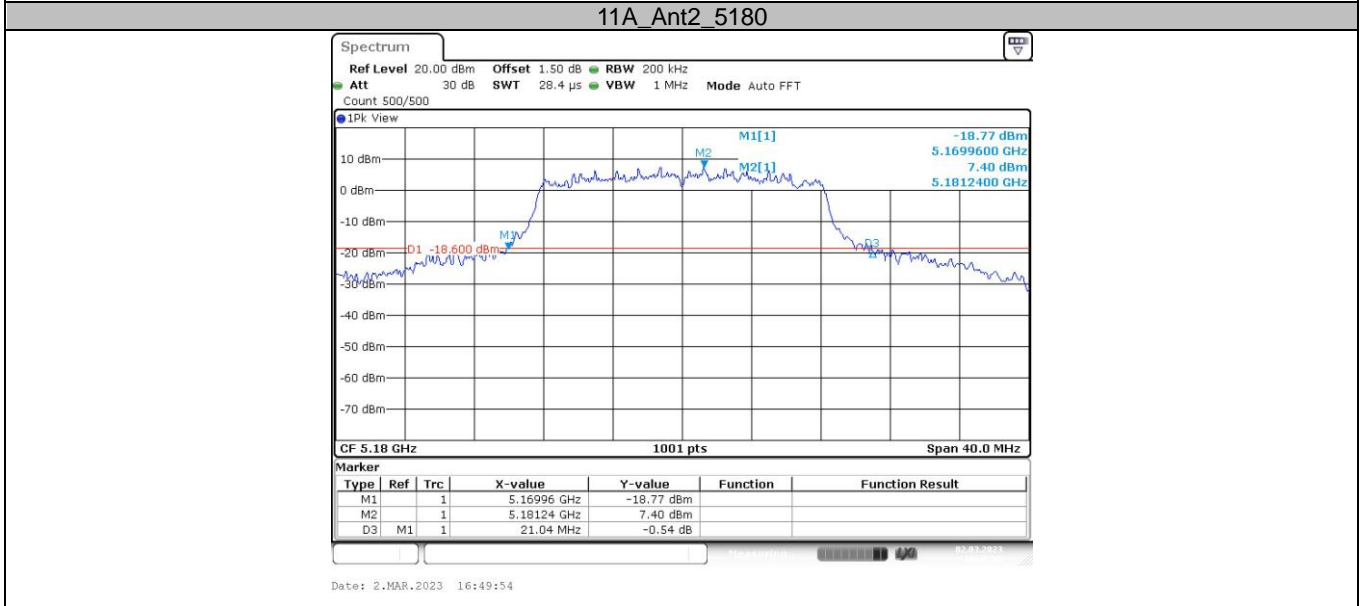
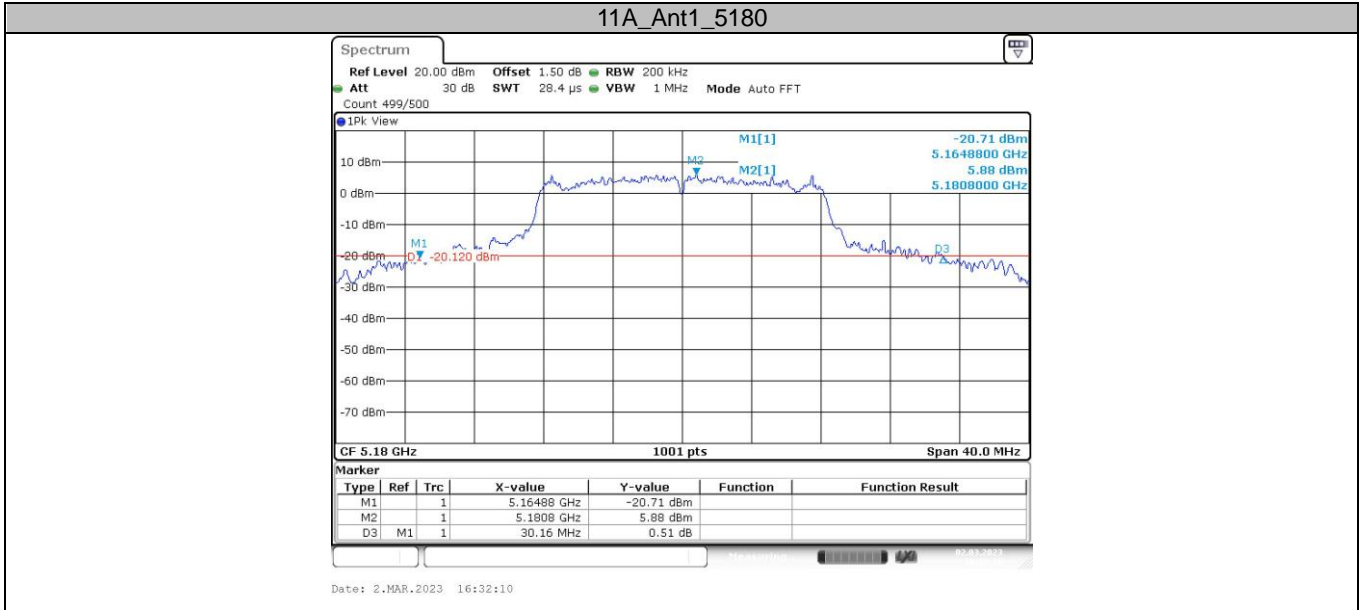
TestMode	Antenna	Channel	6db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5745	16.32	5736.80	5753.12	0.5	PASS
	Ant2	5745	15.72	5736.84	5752.56	0.5	PASS
	Ant1	5785	16.32	5776.80	5793.12	0.5	PASS
	Ant2	5785	16.36	5776.80	5793.16	0.5	PASS
	Ant1	5825	15.68	5816.80	5832.48	0.5	PASS
	Ant2	5825	16.32	5816.80	5833.12	0.5	PASS
11N20MIMO	Ant1	5745	16.68	5736.44	5753.12	0.5	PASS
	Ant2	5745	17.56	5736.20	5753.76	0.5	PASS
	Ant1	5785	17.56	5776.20	5793.76	0.5	PASS
	Ant2	5785	17.56	5776.20	5793.76	0.5	PASS
	Ant1	5825	17.56	5816.20	5833.76	0.5	PASS
	Ant2	5825	16.92	5816.44	5833.36	0.5	PASS
11N40MIMO	Ant1	5755	35.12	5737.40	5772.52	0.5	PASS
	Ant2	5755	35.52	5737.24	5772.76	0.5	PASS
	Ant1	5795	35.12	5777.40	5812.52	0.5	PASS
	Ant2	5795	35.12	5777.40	5812.52	0.5	PASS

**99% Occupied Bandwidth Test**

TestMode	Antenna	Channel	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	17.343	5171.289	5188.631	---	PASS
	Ant2	5180	17.463	5171.209	5188.671	---	PASS
	Ant1	5200	17.542	5191.329	5208.871	---	PASS
	Ant2	5200	17.463	5191.209	5208.671	---	PASS
	Ant1	5240	17.982	5231.129	5249.111	---	PASS
	Ant2	5240	17.902	5230.969	5248.871	---	PASS
	Ant1	5745	17.463	5736.289	5753.751	---	PASS
	Ant2	5745	17.383	5736.329	5753.711	---	PASS
	Ant1	5785	17.343	5776.329	5793.671	---	PASS
	Ant2	5785	17.662	5776.089	5793.751	---	PASS
	Ant1	5825	17.662	5816.129	5833.791	---	PASS
	Ant2	5825	17.463	5816.129	5833.591	---	PASS
11N20MIMO	Ant1	5180	18.222	5170.929	5189.151	---	PASS
	Ant2	5180	17.742	5171.089	5188.831	---	PASS
	Ant1	5200	17.862	5191.049	5208.911	---	PASS
	Ant2	5200	17.862	5191.009	5208.871	---	PASS
	Ant1	5240	17.982	5231.009	5248.991	---	PASS
	Ant2	5240	17.822	5231.049	5248.871	---	PASS
	Ant1	5745	18.422	5735.689	5754.111	---	PASS
	Ant2	5745	17.822	5736.009	5753.831	---	PASS
	Ant1	5785	18.142	5775.889	5794.031	---	PASS
	Ant2	5785	17.902	5776.009	5793.911	---	PASS
	Ant1	5825	18.302	5815.569	5833.871	---	PASS
	Ant2	5825	17.902	5815.969	5833.871	---	PASS
11N40MIMO	Ant1	5190	36.843	5171.459	5208.302	---	PASS
	Ant2	5190	36.444	5171.698	5208.142	---	PASS
	Ant1	5230	36.364	5211.778	5248.142	---	PASS
	Ant2	5230	36.444	5211.858	5248.302	---	PASS
	Ant1	5755	36.284	5736.858	5773.142	---	PASS
	Ant2	5755	36.284	5736.778	5773.062	---	PASS
	Ant1	5795	36.364	5776.858	5813.222	---	PASS
	Ant2	5795	36.603	5776.778	5813.382	---	PASS

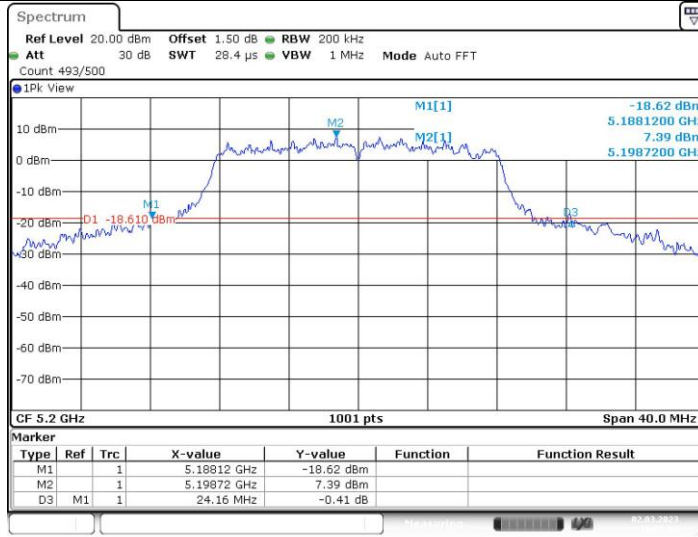


26dB Bandwidth Test:

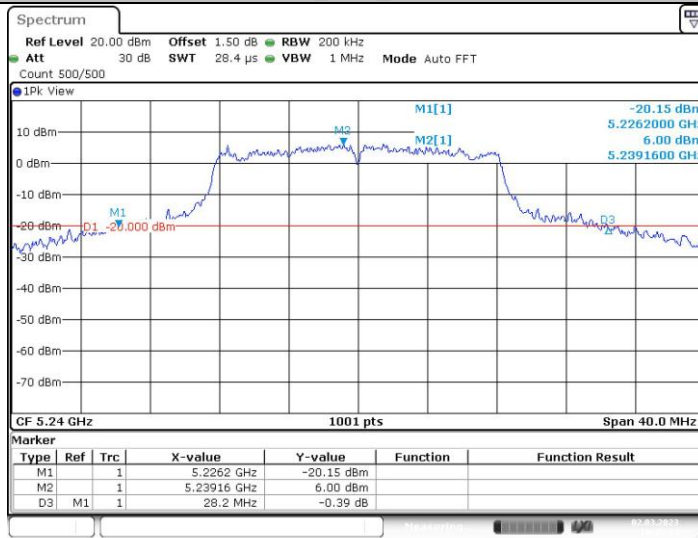


11A_Ant2_5200

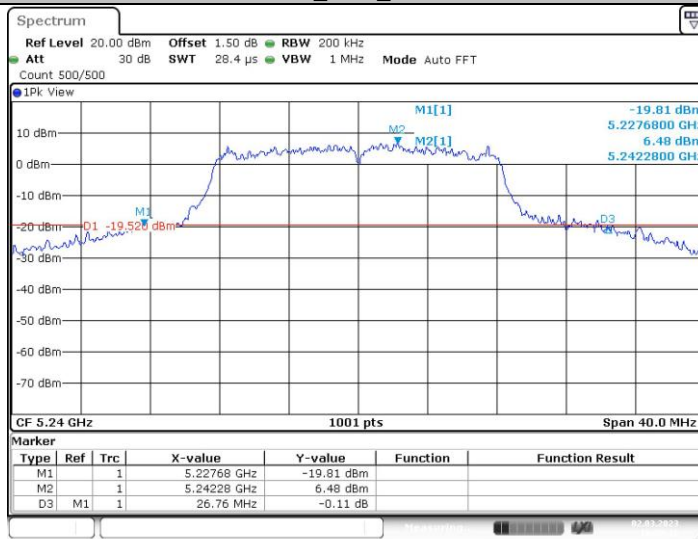




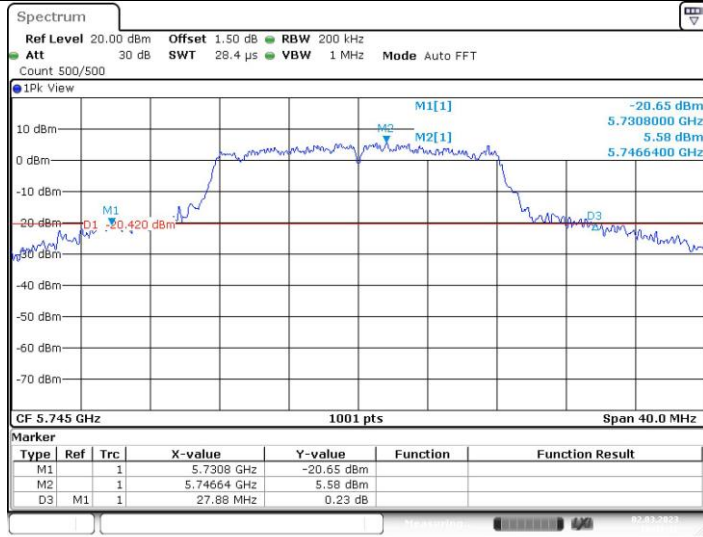
11A_Ant1_5240



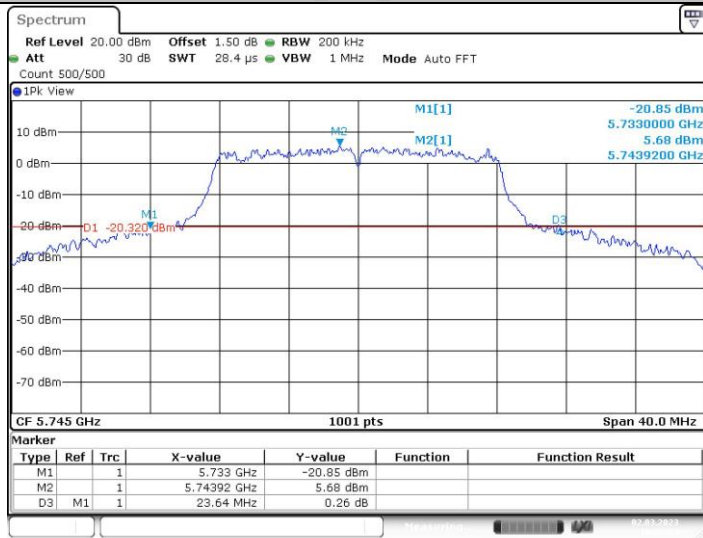
11A_Ant2_5240



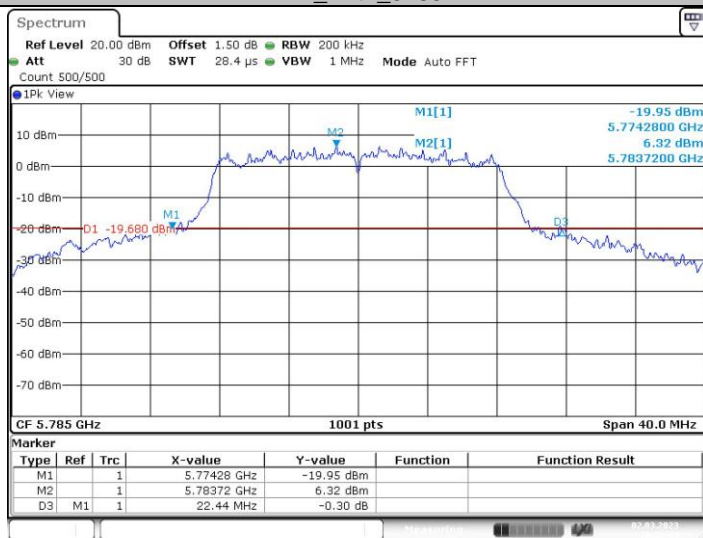
11A_Ant1_5745



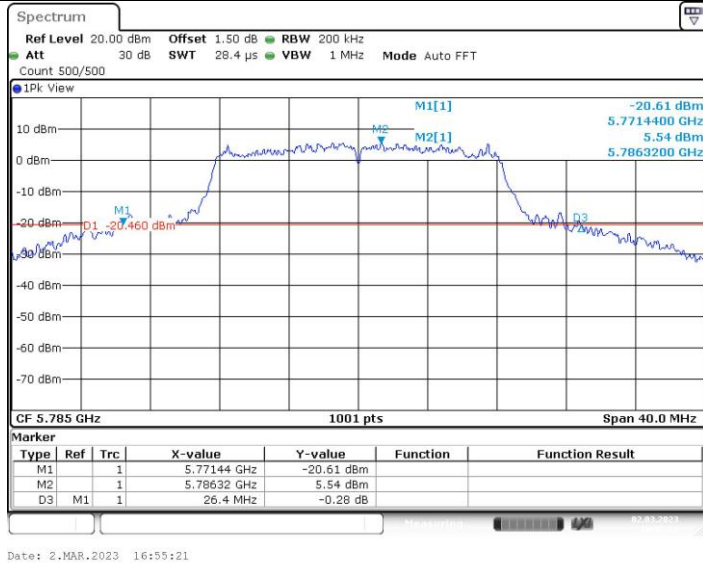
11A_Ant2_5745



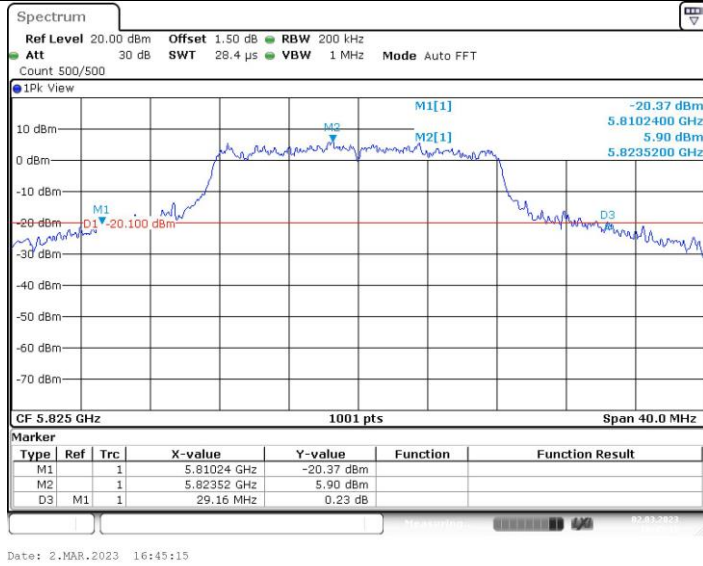
11A_Ant1_5785



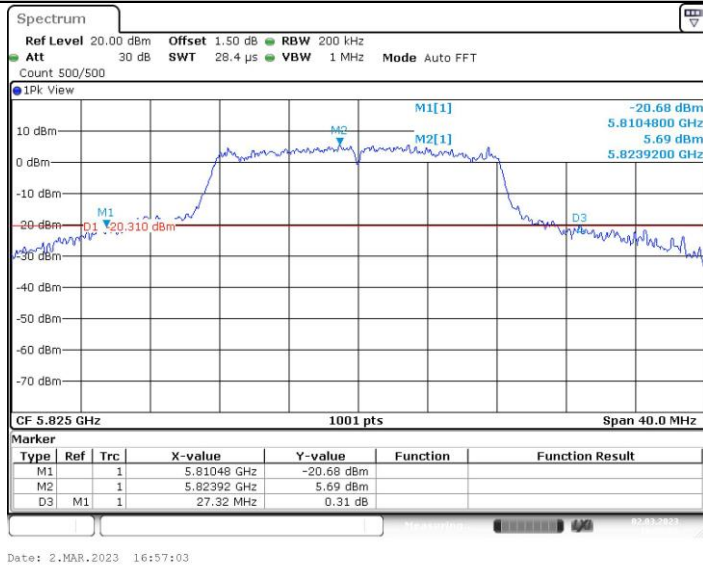
11A_Ant2_5785



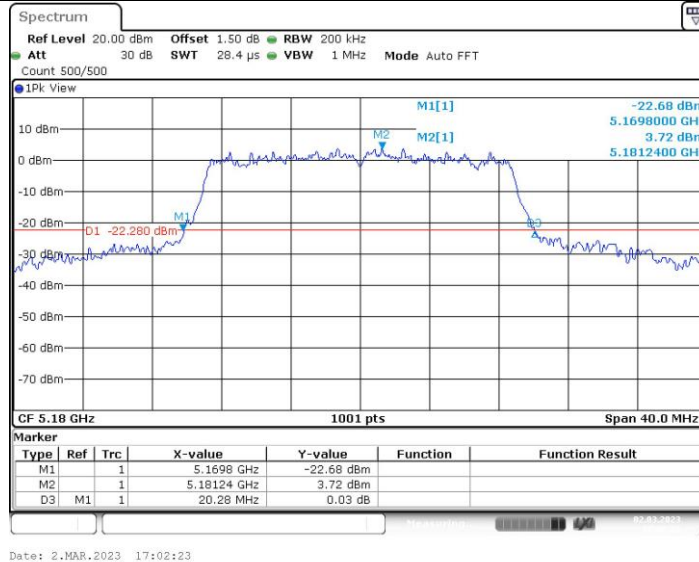
11A_Ant1_5825



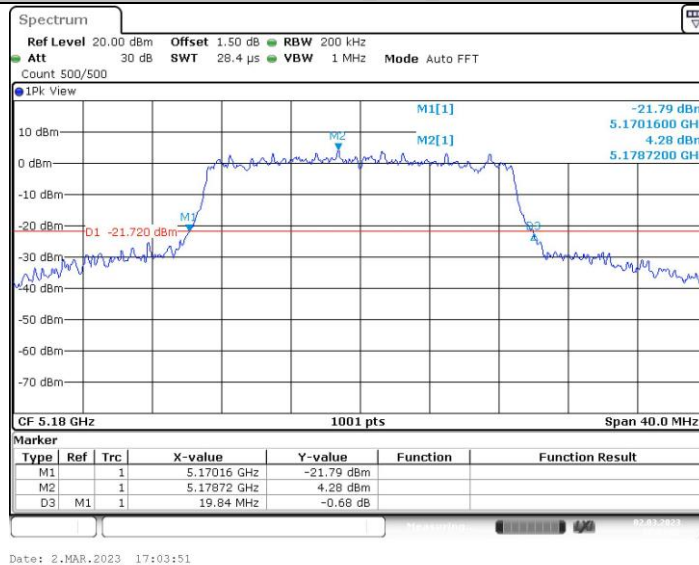
11A_Ant2_5825



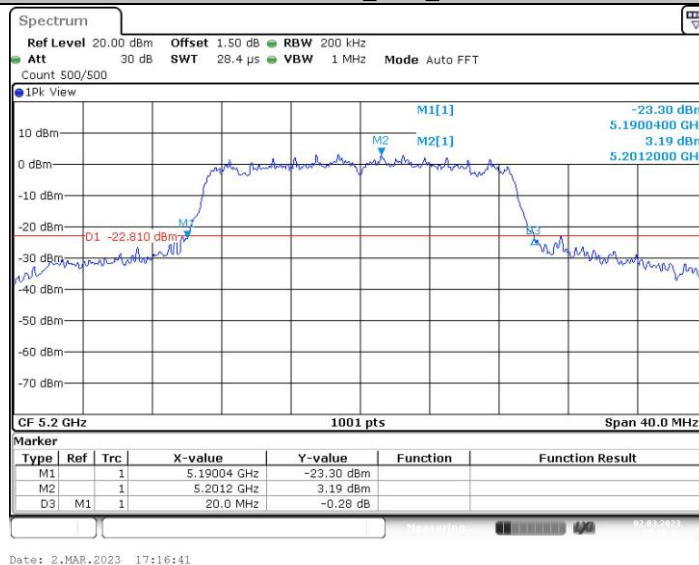
11N20MIMO_Ant1_5180



11N20MIMO_Ant2_5180

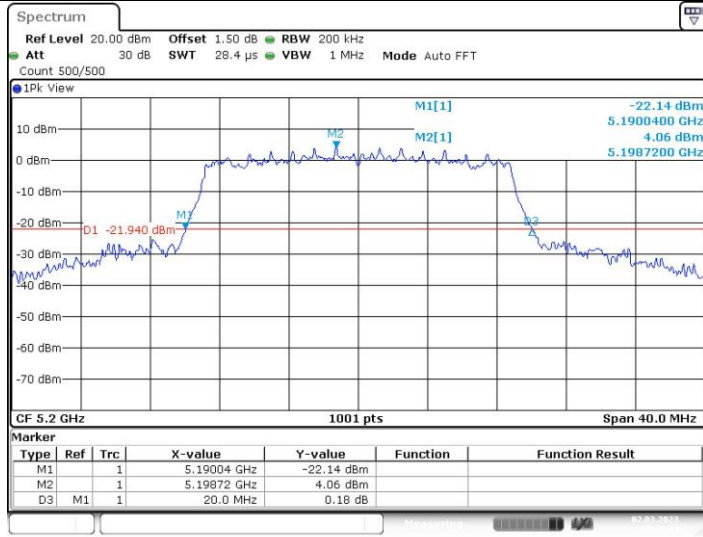


11N20MIMO_Ant1_5200



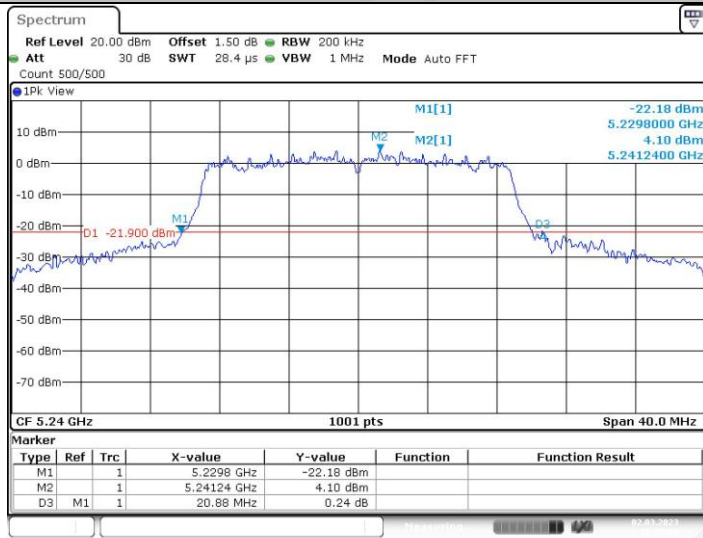
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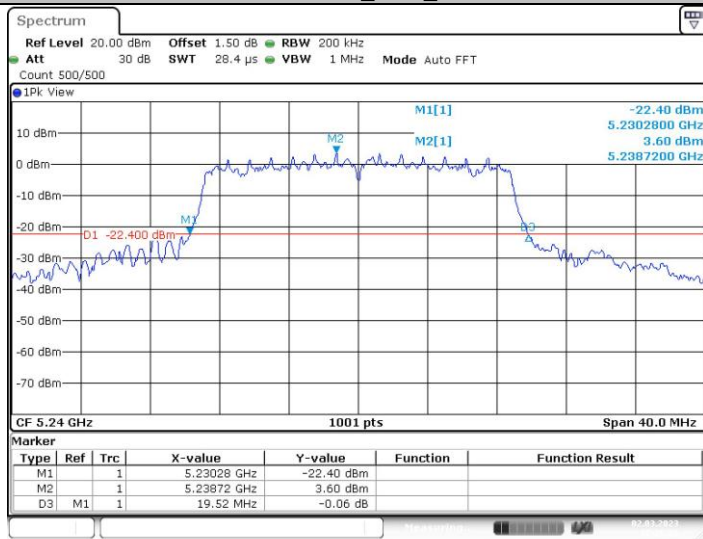
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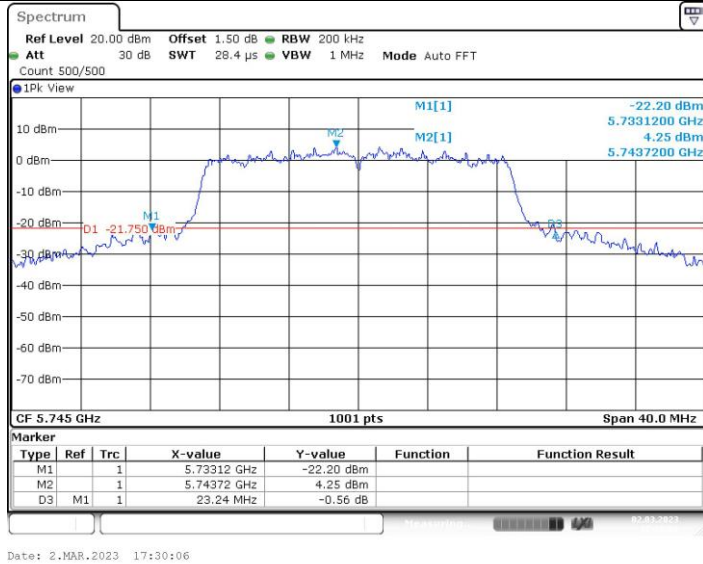
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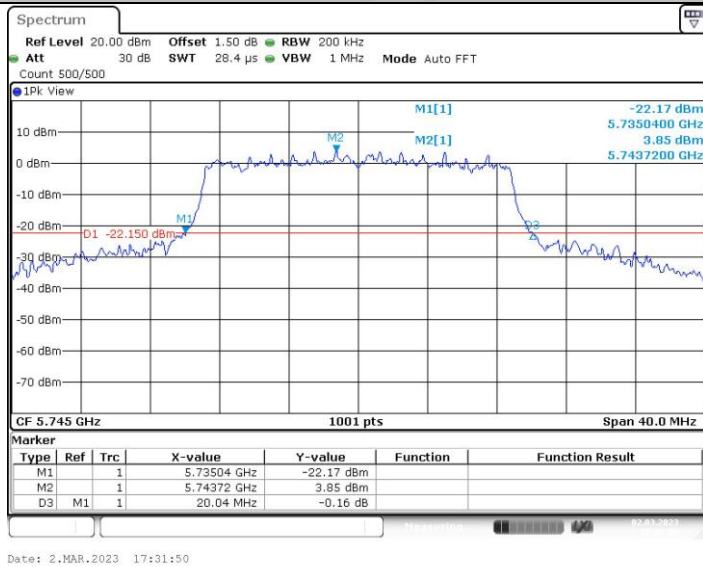
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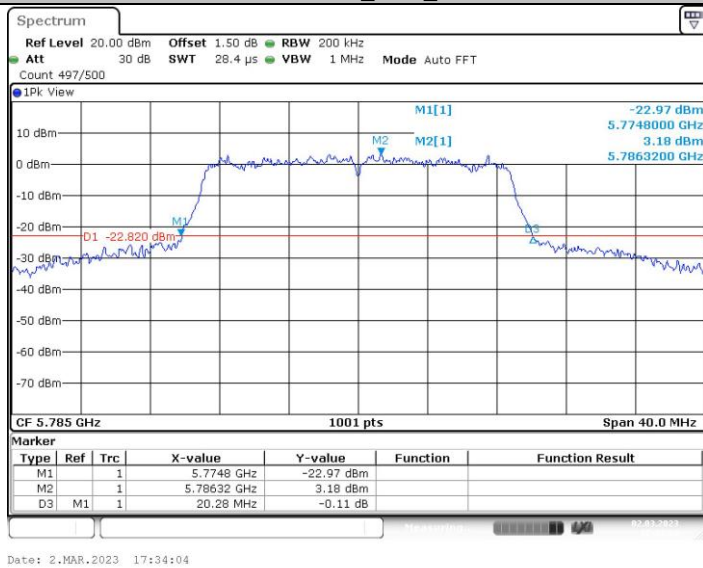




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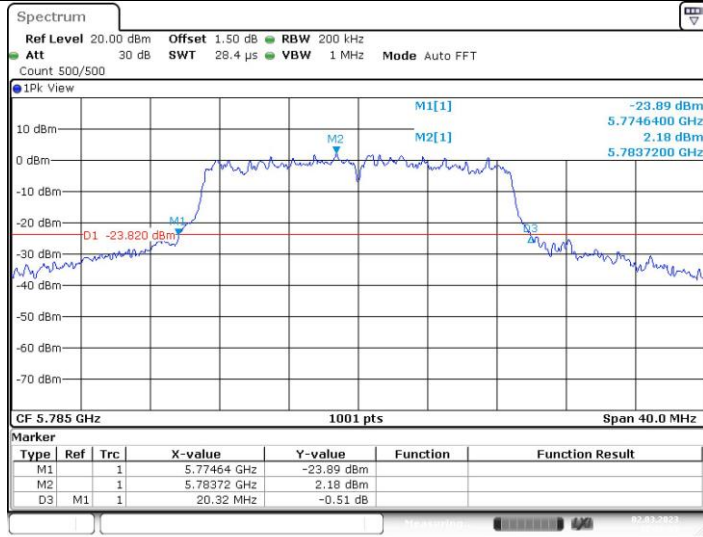


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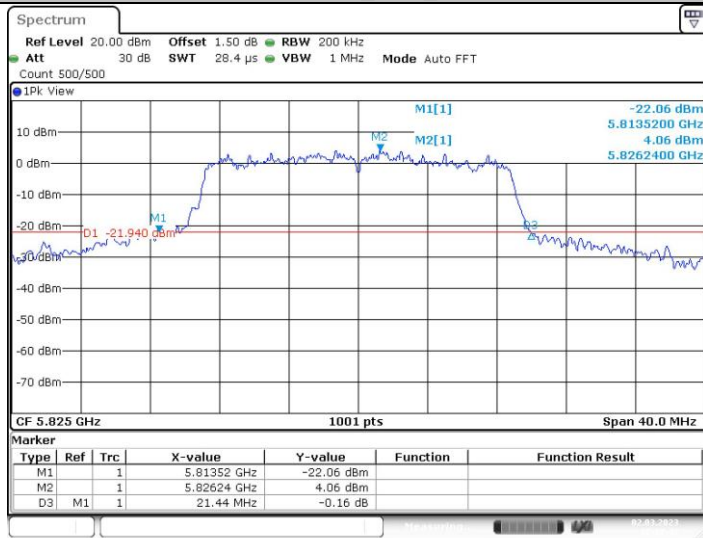


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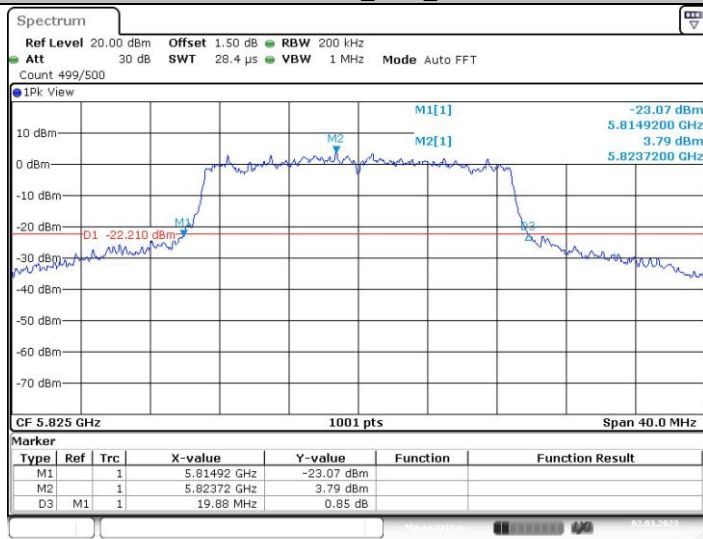




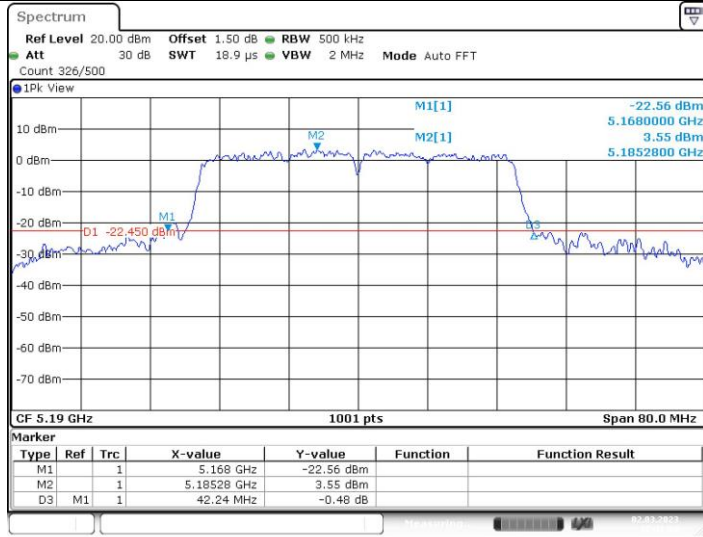
11N20MIMO_Ant1_5825



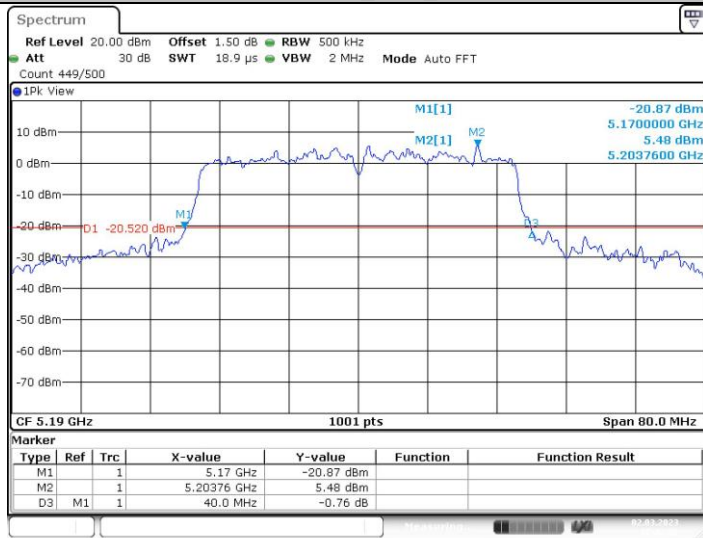
11N20MIMO_Ant2_5825



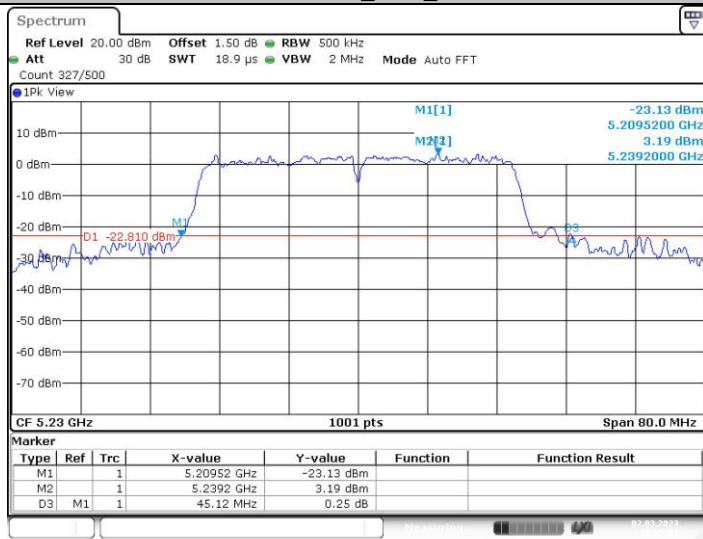
11N40MIMO_Ant1_5190



11N40MIMO_Ant2_5190



11N40MIMO_Ant1_5230



11N40MIMO_Ant2_5230

