

Test Report No.:
FCC2022-0030-RF3

RF Test Report

EUT : SPARK LXi2 Datalogger
MODEL : PS-3600B
BRAND NAME : N/A
APPLICANT : Chengdu Vantron Technology Co., Ltd.
Classification Of Test : N/A

CVC Testing Technology Co., Ltd.



Client	Name : Chengdu Vantron Technology Co., Ltd. Address : No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China		
Manufacturer	Name : Chengdu Vantron Technology Co., Ltd. Address : No.5 GaoPeng Road, Hi-Tech Zone, Chengdu, SiChuan, P.R. China		
Equipment Under Test	Name : SPARK LXI2 Datalogger Model/Type: PS-3600B Trade mark : N/A SerialNO.:N/A Sampe NO.:3-1		
Date of Receipt.	2022.05.16	Date of Testing	2022.05.16~2022.06.23
Test Specification		Test Result	
FCC Part 15, Subpart E (15.407) Canada RSS-247 Issue 2 (2017-02) Canada RSS-Gen Issue 5 (2019-03)		PASS	
Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. Issue Date: 2022.06.24		
Tested by:  Xu ZhenFei Name Signature	Reviewed by:  Liu YongHai Name Signature	Approved by:  Chen HuaWen Name Signature	
Other Aspects: NONE.			
Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested			

This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.



TABLE OF CONTENTS

RELEASE CONTROL RECORD	5
1 SUMMARY OF TEST RESULTS	6
1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS	7
1.2 MEASUREMENT UNCERTAINTY	8
1.3 TEST LOCATION	8
2 GENERAL INFORMATION	9
2.1 GENERAL PRODUCT INFORMATION	9
2.2 DESCRIPTION OF ACCESSORIES	10
2.3 CARRIER FREQUENCY AND CHANNEL	11
2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL	12
2.5 DESCRIPTION OF SUPPORT UNITS	13
2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS	13
3 TEST TYPES AND RESULTS	14
3.1 CONDUCTED EMISSION MEASUREMENT	14
3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT	14
3.1.2 TEST PROCEDURES	14
3.1.3 TEST SETUP	14
3.1.4 TEST RESULTS	15
3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT	17
3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT	17
3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS	18
3.1.3 TEST PROCEDURES	19
3.1.4 TEST SETUP	20
3.1.5 TEST RESULTS - BELOW 1GHz	21
3.1.6 TEST RESULTS - Band 1 (5180-5240MHz):	23
3.1.7 TEST RESULTS - Band 4 (5745-5825MHz):	39
3.3 OCCUPIED BANDWIDTH MEASUREMENT	55
3.3.1 Measurement procedure	55
3.3.2 TEST SETUP	55
3.3.3 Test result	55
3.4 26DB EMISSION BANDWIDTH	56
3.4.1 LIMITS OF 26DB EMISSION BANDWIDTH	56
3.4.2 TEST PROCEDURES	56
3.4.3 TEST SETUP	56
3.4.4 TEST RESULTS	56
3.5 6DB EMISSION BANDWIDTH	57
3.5.1 LIMITS OF 6DB EMISSION BANDWIDTH	57
3.5.2 TEST PROCEDURES	57
3.5.3 TEST SETUP	57
3.5.4 TEST RESULTS	57
3.6 TRANSMIT POWER MEASUREMENT	58
3.6.1 LIMITS OF TRANSMIT POWER MEASUREMENT(FCC)	58
3.6.2 LIMITS OF TRANSMIT POWER MEASUREMENT(IC)	58
3.6.3 TEST PROCEDURES	58
3.6.4 TEST SETUP	58
3.6.5 TEST RESULTS	58
3.7 POWER SPECTRAL DENSITY MEASUREMENT	59
3.7.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT(FCC)	59
3.7.2 . LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT(IC)	59
3.7.3 TEST PROCEDURE	59



3.7.4	TEST SETUP	60
3.7.5	TEST RESULT	60
3.8	FREQUENCY STABILITY	61
3.8.1	LIMITS OF FREQUENCY STABILITY	61
3.8.2	TEST PROCEDURES	61
3.8.3	TEST SETUP	61
3.8.4	TEST RESULTS	62
4	PHOTOGRAPHS OF TEST SETUP	63
5	APPENDIX	64
5.1	APPENDIX A: 26DB EMISSION BANDWIDTH	64
5.1.1	Test Result	64
5.1.2	Test Graphs	65
5.2	APPENDIX B: 6DB EMISSION BANDWIDTH	80
5.2.1	Test Result	80
5.2.2	Test Graphs	81
5.3	APPENDIX C: OCCUPIED CHANNEL BANDWIDTH	89
5.3.1	Test Result	89
5.3.2	Test Graphs	90
5.4	APPENDIX D: TRANSMIT POWER MEASUREMENT	105
5.4.1	Test Result	105
5.5	APPENDIX E: POWER SPECTRAL DENSITY MEASUREMENT	107
5.5.1	Test Result	107
5.5.2	Test Graphs	109
5.6	APPENDIX F: FREQUENCY STABILITY	124
5.6.1	Test Result	124



RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2022-0030-RF3	Original release	2022.06.24



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART E (SECTION 15.407); RSS-247; RSS-Gen			
STANDARD SECTION	TEST TYPE	RESULT	REMARK
15.207 RSS-Gen 8.8	Conducted Emissions	PASS	Meet the requirement of limit.
15.403(i) RSS-247 6.2.4 (1)	6dB&26dB Emission Bandwidth	PASS	Meet the requirement of limit.
RSS-Gen 6.7	Occupied Bandwidth Measurement	PASS	Report Only
15.407(b) RSS-247 6.2.1 (2) RSS-247 6.2.2 (2) RSS-247 6.2.3 (2) RSS-247 6.2.4 (2)	Radiated Emission and Bandedge	PASS	Meet the requirement of limit.
15.407(a) RSS-247 6.2.1 (1) RSS-247 6.2.2 (1) RSS-247 6.2.3 (1) RSS-247 6.2.4 (1)	Transmit Power	PASS	Meet the requirement of limit.
15.407(a) RSS-247 6.2.1 (1) RSS-247 6.2.2 (1) RSS-247 6.2.3 (1) RSS-247 6.2.4 (1)	Power Spectral Density	PASS	Meet the requirement of limit.
15.407(g)	Frequency Stability	PASS	Meet the requirement of limit.
15.203 15.407(a)	Antenna Requirement	PASS	No antenna connector is used



1.1 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Test Equipment	Type/Mode	SERIAL NO.	Equipment No.	Manufacturer	Cal. Due
WIFI & Bluetooth Test System 1					/
Communication Shielded Room 1	4m*3m*3m	CRTDSWKS44301	VGDS-0699	CRT	2024/04/24
Spectrum Analyzer	FSV30	104337	DZ-000235	R&S	2022/11/03
Comprehensive Test Instrument	CMW500	137779	DZ-000220	R&S	2022/06/30
Comprehensive Test Instrument	CMW500	169888	DZ-000342	R&S	2022/12/01
Analog Signal Generator	SMA100B	103663	DZ-000239-2	R&S	2022/06/30
Vector Signal Generator	SMBV100B	101757	DZ-000239-1	R&S	2022/06/30
Programmable DC Power Supply	E3642A	MY59108106	DZ-000242-2	KEYSIGHT	2022/08/05
Radiation Spurious Test System					/
3m Semi-Anechoic Chamber	FACT-4	ST08035	WKNA-0024	ETS	2024/12/12
Spectrum Analyzer	N9010B	MY57470323	DZ-000174	KEYSIGHT	2023/03/02
EMI Test Receiver	N9038A-508	MY532290079	EM-000397	Agilent	2023/03/02
Broadband Antenna	VULB 9163	9163-530	EM-000342	SCHWARZBECK	2022/06/26
Waveguide Horn Antenna	HF906	360306/008	WKNA-0024-8	R&S	2023/03/04
Waveguide Horn Antenna	BBHA9170	00949	DZ-000209-2	SCHWARZBECK	2022/08/27
Preamplifier	BBV 9721	9721-050	DZ-000209-1	SCHWARZBECK	2022/06/30
5G Bandstop Filters	WRCJV12-4900-5100-5900-6100-50EE	1	DZ-000186	WI	2022/12/20
Comprehensive tester	CMW500	159000	DZ-000240-2	R&S	2022/12/20
Conducted emission					/
EMI Test Receiver	ESCI	100857	WKNB-0081	R&S	2022-12-08
EMI Test Receiver	ESR3	102394	VG DY-0705	R&S	2023-03-04
LISN	NSLK 8127	8127644	VG DY-0150	SCHWARZBECK	2022-09-01
LISN	NSLK 8129	8129-268	EM-000388	SCHWARZBECK	2023-03-03
Plus Limiter (#1)	VTSD 9561 F-N	00515	VG DY-0808	SCHWARZBECK	2023-03-04
Impedance Stabilization Network	ISN T800	27095	WKNE-0195	TESEQ	2022-09-01
Voltage Probe	TK9420	9420-499	VG DY-0128	SCHWARZBECK	2023-03-04
Power Divider	4901.17.B	22643830	DB-0016	HUBER+SUHNER	2023-09-01
Audio Signal Generator	GAG-810	EK871591	EM-000309	GW	2022-12-08
Shielding Room(#1)	GP1A	001	WKNF-0001	LEINING	2024-08-08



1.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT:

No.	ITEM	FREQUENCY	UNCERTAINTY
1	Conducted emissions	9kHz~30MHz	±2.66dB
2	Radiated emissions	9KHz ~ 30MHz	±0.769dB
		30MHz ~ 1GMHz	±0.877dB
		1GHz ~ 18GHz	±0.777dB
		18GHz ~ 40GHz	±1.315dB

1.3 TEST LOCATION

The tests and measurements refer to this report were performed by EMC testing Lab. of CVC Testing Technology Co., Ltd.

Address: No.3,TiantaiyiRoad,KaitaiAvenue,ScienceCity,Guangzhou,China

Post Code: 510663 Tel: 020-32293888

FAX: 020-32293889 E-mail: office@cvc.org.cn



2 GENERAL INFORMATION

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	SPARK LXi2 Datalogger
BRAND	N/A
MODEL NO.	PS-3600B
ADDITIONAL MODEL	N/A
FCC ID	2AAGEPASCO
IC ID	11152A-PASCO
POWER SUPPLY	DC 5V from Adapter or DC 3.8V from battery
MODULATION TECHNOLOGY	OFDM
MODULATION TYPE	256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
TRANSFER RATE	802.11a: up to 54Mbps, 802.11n: up to 300Mbit/s 802.11ac: up to 866Mbps
OPERATING FREQUENCY	5180 ~ 5240MHz, 5745 ~ 5825MHz
NUMBER OF CHANNEL	See item 2.2
Maximum OUTPUT POWER	15.10 dBm (Maximum.Conducted) for 5180 ~ 5240MHz 12.15 dBm (Maximum.Conducted) for 5745 ~ 5825MHz 19.87 dBm (Maximum.EIRP) for 5180 ~ 5240MHz 15.63 dBm (Maximum.EIRP) for 5745 ~ 5825MHz
ANTENNA TYPE (Remark 5)	ANT0: 5180 ~ 5240MHz: PIFA antenna with 4.19dBi gain 5745 ~ 5825MHz: PIFA antenna with 5.38dBi gain ANT1: 5180 ~ 5240MHz: PIFA antenna with 3.1dBi gain 5745 ~ 5825MHz: PIFA antenna with 3.89dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	USB line, 1 Meter, Shielded without ferrite

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. EUT photo refer to report (Report NO.: FCC2022-0030-E).
4. The EUT incorporates a MIMO function. Physically, the EUT provides 2 completed transmitter and 2 receiver.
5. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

MODULATION MODE	TX FUNCTION	MODULATION MODE	TX FUNCTION
802.11a	SISO	802. 11n 40MHz	2TX/2RX
802. 11n 20MHz	2TX/2RX	802.11ax 80MHz	2TX/2RX



2.2 Description of Accessories

Adapter	
BRAND	N/A
Model No.:	SW1260502000UN
Input:	100-240 V~50/60 Hz 0.4 A Max
Output:	5.0 V $\overline{=}$ 2 A
AC Cable:	N/A
DC Cable:	N/A



2.3 Carrier Frequency and Channel

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20)

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
36	5180 MHz	40	5200 MHz
44	5220 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40)

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80)

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
42	5210MHz	--	--

FOR 5745 ~ 5825MHz

5 channels are provided for 802.11a, 802.11a c 20MHz, 802.11n (20MHz)

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
149	5745MHz	153	5765MHz
157	5785MHz	161	5805MHz
165	5825MHz	--	--

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40)

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80),

CHANNEL	FREQUENCY	CHANNEL	FREQUENCY
155	5775MHz	--	--

1. The channels which were indicated in bold type of the above channel list were selected as representative test channel. Therefore only the data of the test channels were recorded in this report.



2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE $\geq$ 1G	RE<1G	PLC	APCM	
-	√	√	√	√	Powered by host unit with wifi(5G) link

Where **RE $\geq$ 1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

NOTE:

1. The EUT had been pre-tested on the positioned of each 3 axis. The worst case was found when positioned on **X-plane**.

NOTE: "-" means no effect.

MODULATION	DATA RATE
802.11a	6Mbps
802.11n HT20	MCS0
802.11n HT40	MCS0
802.11ac VHT20(Covered by HT20)	MCS0
802.11ac VHT40(Covered by HT40)	MCS0
802.11ac VHT80	MCS0

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE<1G	25deg. C, 54%RH	DC 5V From USB Host Unit	Liu ShiWei
RE $\geq$ 1G	25deg. C, 54%RH	DC 5V From USB Host Unit	Liu ShiWei
PLC	20deg. C, 56%RH	DC 5V From USB Host Unit	Liu ShiWei
APCM	20deg. C, 55%RH	DC 5V From USB Host Unit	Liu ShiWei



2.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Support Equipment							
NO	Description	Brand	Model No.	Serial Number	Supplied by		
Support Cable							
NO	Description	Quantity (Number)	Length (m)	Detachable (Yes/ No)	Shielded (Yes/ No)	Cores (Number)	Supplied by
-	-	-	-	-	-	-	-

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC Part 15, Subpart E (15.407)

KDB 789033 D02 General UNII Test Procedures New Rules v02r01

KDB 662911 D01 Multiple Transmitter Output v02r01

Canada RSS-247 Issue 2 (2017-02)

Canada RSS-Gen Issue 5 (2019-03)

ANSI C63.10-2020

All test items have been performed and recorded as per the above standards

3 TEST TYPES AND RESULTS

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dB μ V)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

3.1.2 TEST PROCEDURES

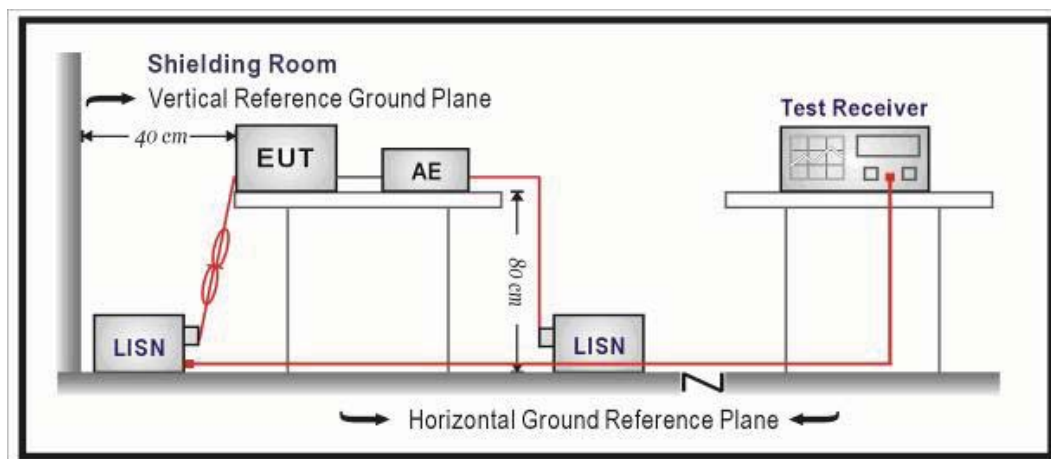
a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) were not recorded.

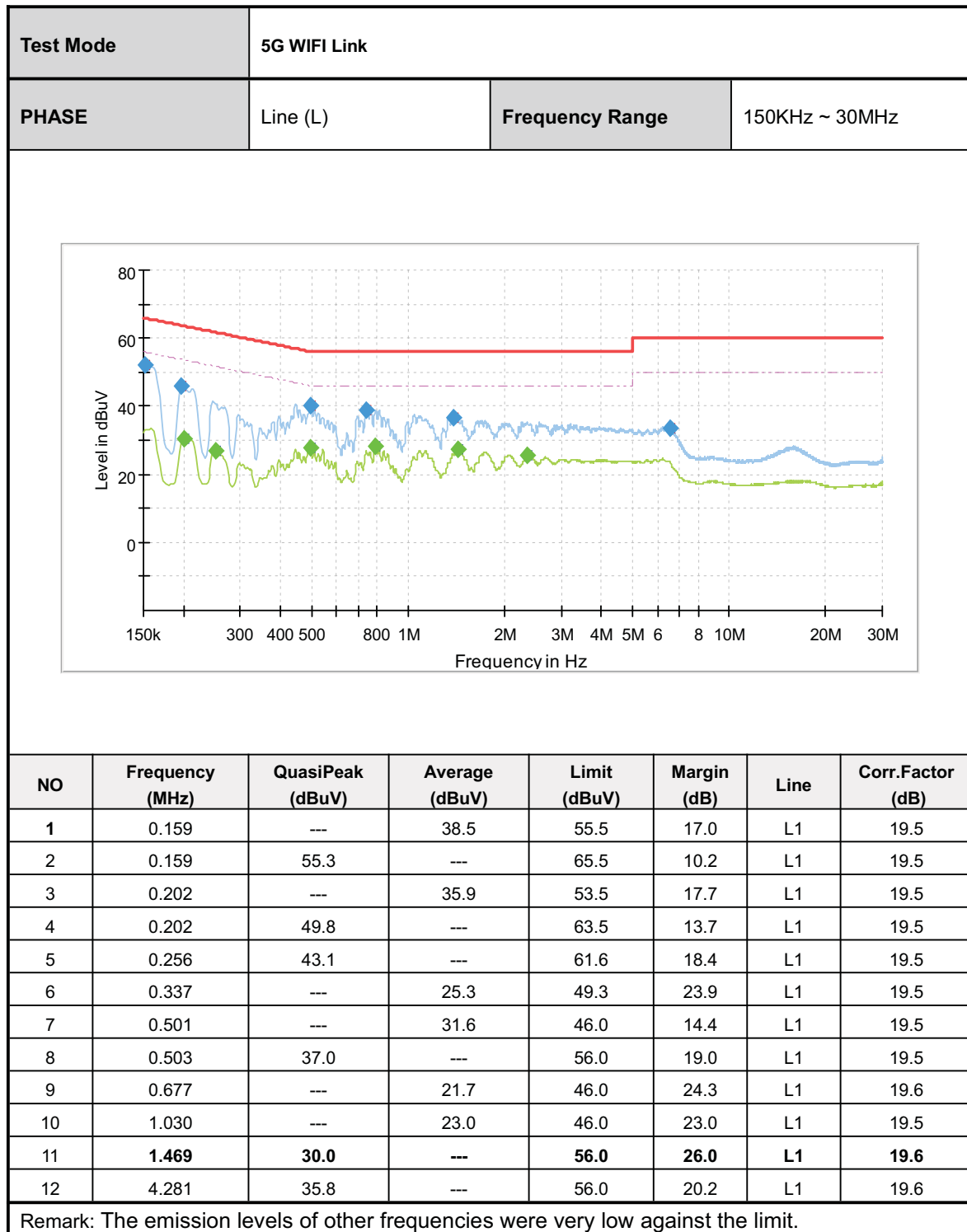
NOTE: All modes of operation were investigated and the worst-case emissions are reported.

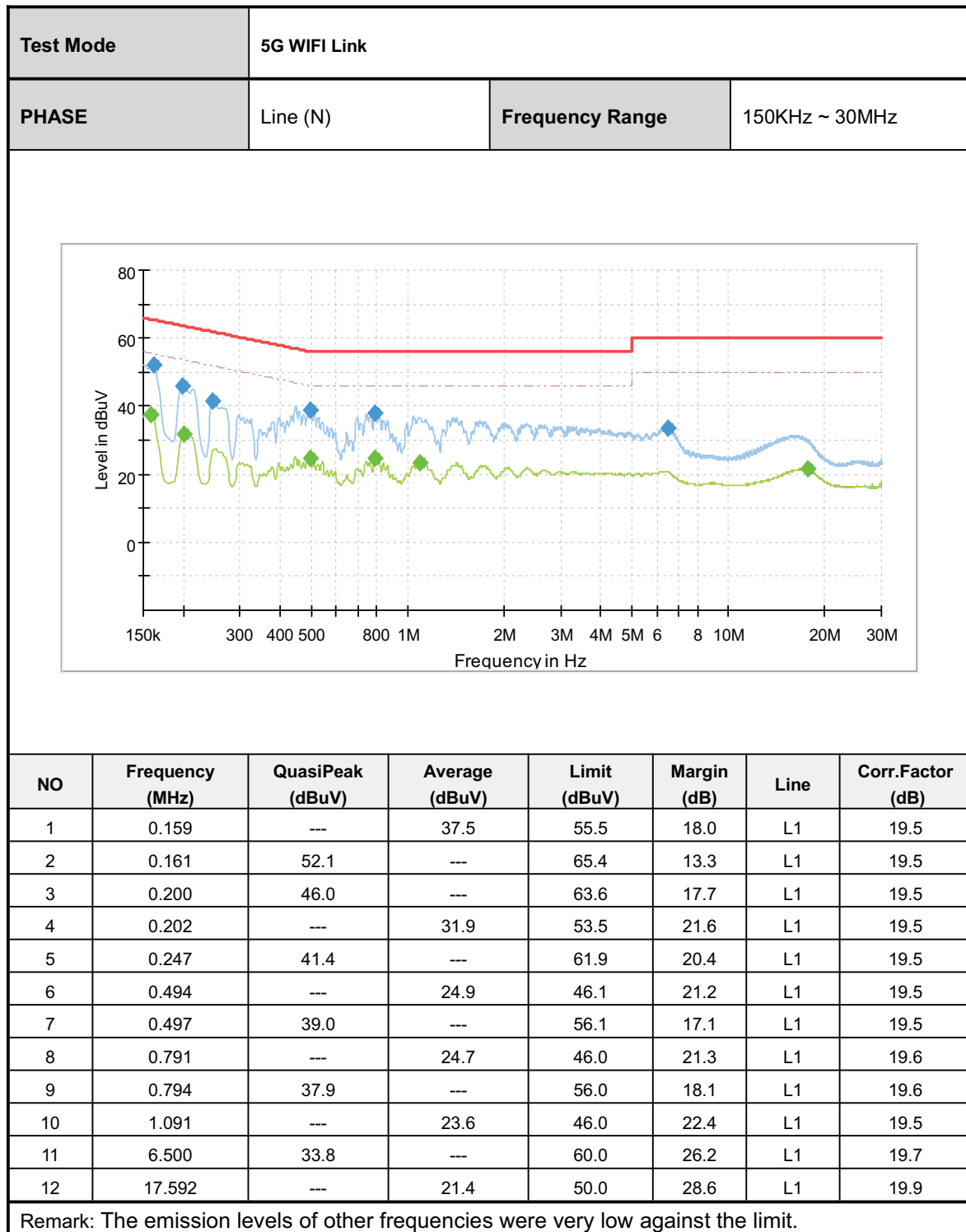
3.1.3 TEST SETUP



NOTE: For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.4 TEST RESULTS







3.2 RADIATED EMISSION AND BANDEDGE MEASUREMENT

3.1.1 LIMITS OF RADIATED EMISSION AND BANDEDGE MEASUREMENT

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table:

FREQUENCIES (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
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 30dB under any condition of modulation.



3.1.2 LIMITS OF UNWANTED EMISSION OUT OF THE RESTRICTED BANDS

APPLICABLE TO	LIMIT	
KDB 789033 D02 General UNII Test Procedures New Rules v02r01	FIELD STRENGTH AT 3m	
	PK: 74 (dBμV/m)	AV: 54 (dBμV/m)
APPLICABLE TO	EIRP LIMIT	EQUIVALENT FIELD STRENGTH AT 3m
15.407(b)(1), RSS-247 6.2.1 (2)	PK: -27 (dBm/MHz)	PK: 68.2 (dBμV/m)
15.407(b)(2), RSS-247 6.2.2 (2)		
15.407(b)(3), RSS-247 6.2.3 (2)		
15.407(b)(4), RSS-247 6.2.4 (2)	Note	Note

NOTE:

For transmitters operating in the 5.725-5.85 GHz band: Section 15.407(b)(4) specifies the unwanted emissions limit for the U-NII-3 band. A band emissions mask is specified in Section 15.407(b)(4)(i). An alternative to the band emissions mask is specified in Section 15.407(b)(4)(ii). The alternative limits are based on the highest antenna gain specified in the filing. There are also marketing and importation restrictions for the alternative limit.

15.407(b)(4)(i) 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.

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

$$E = \frac{1000000\sqrt{30P}}{3} \mu\text{V/m, where } P \text{ is the eirp (Watts).}$$



3.1.3 TEST PROCEDURES

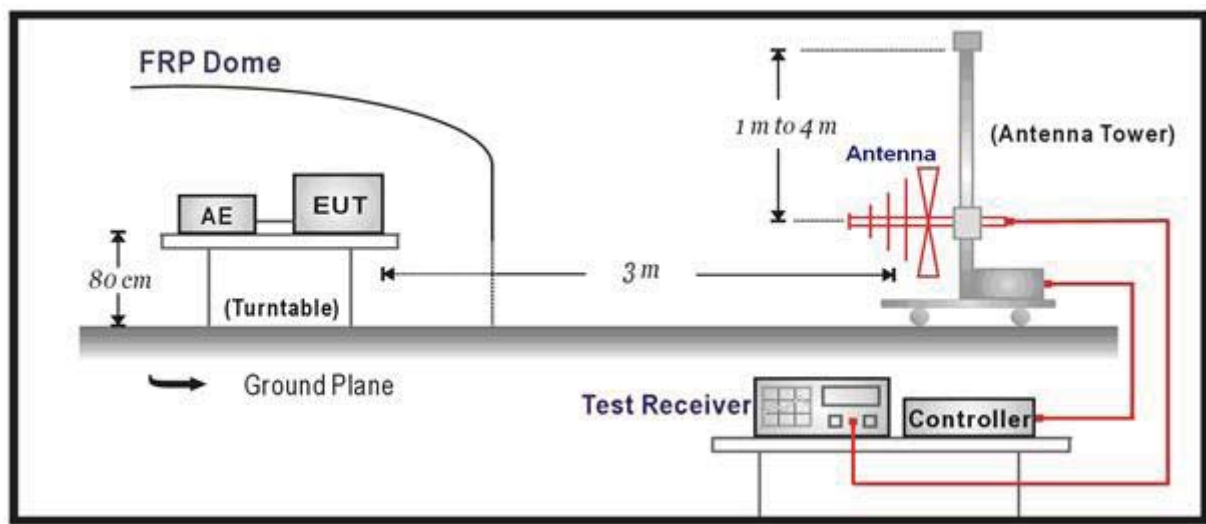
- a. The EUT was placed on the top of a rotating table 1.5 meters(above 1GHz) and 0.8 meters(below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its 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 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, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

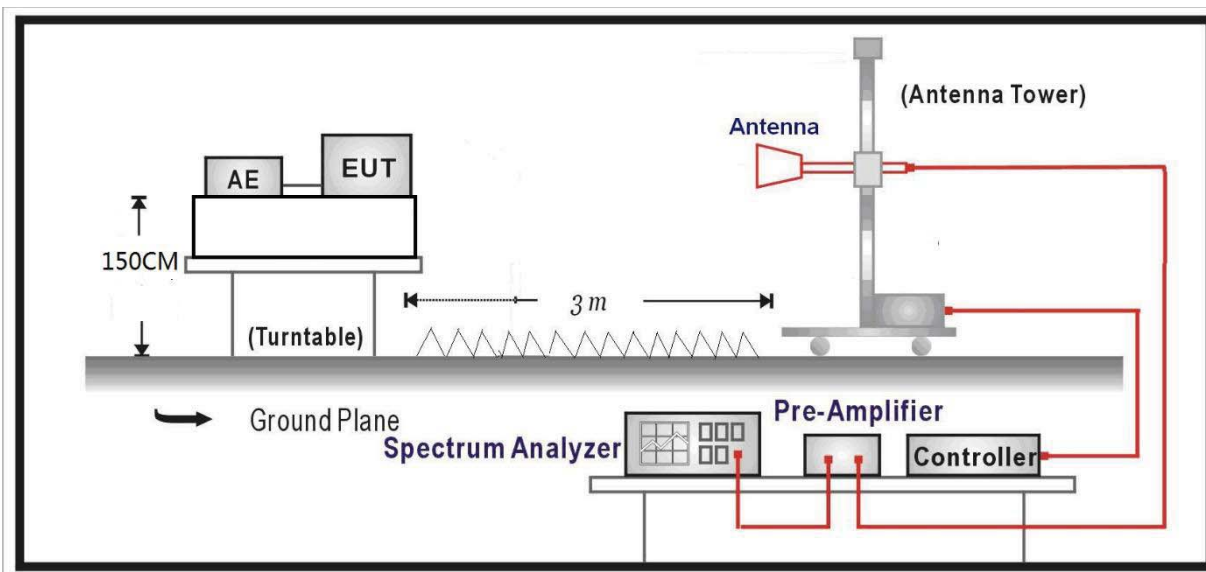
1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle $< 98\%$) or 10Hz(Duty cycle $> 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

3.1.4 TEST SETUP

Below 1GHz Test Setup:



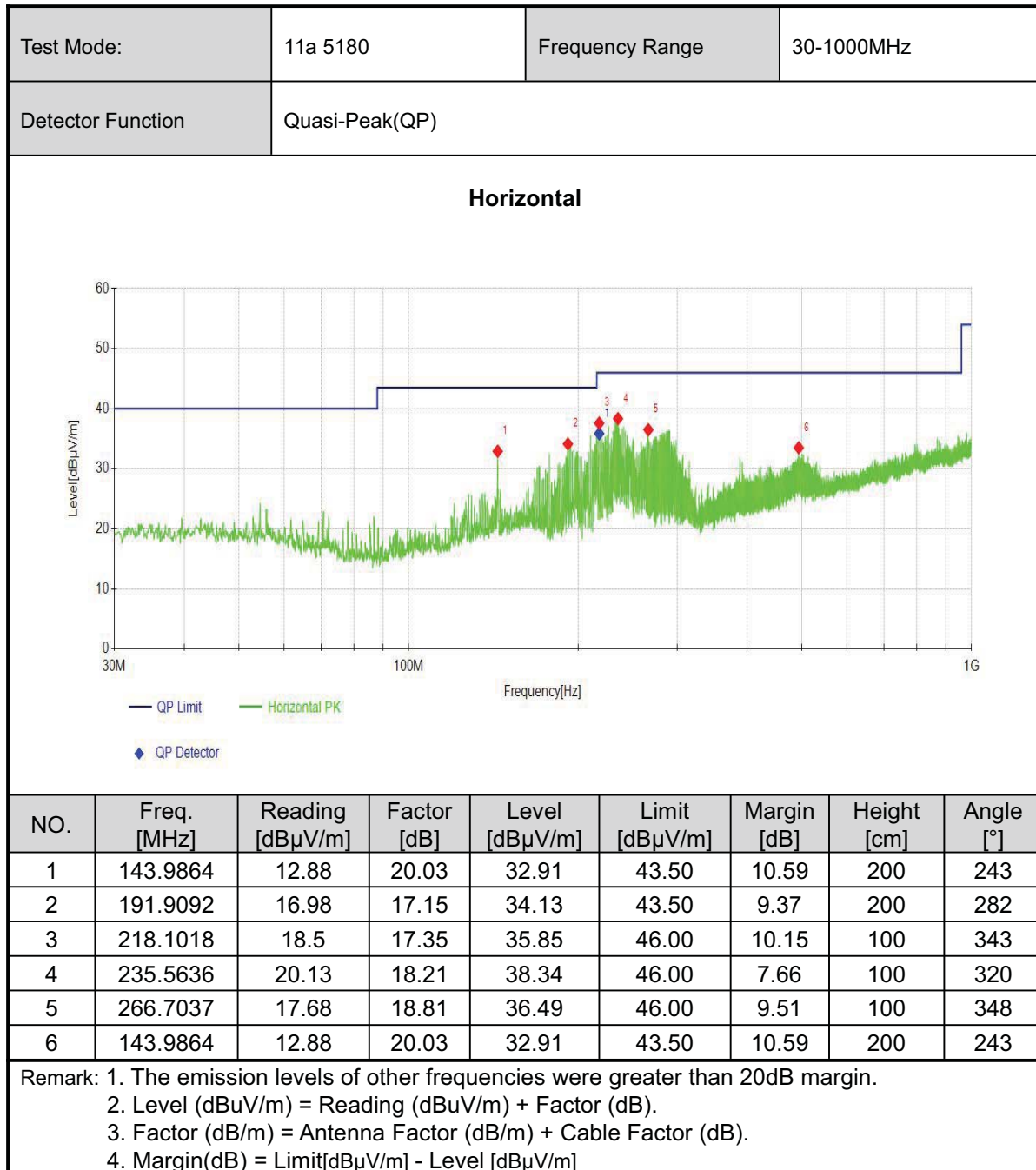
Above 1GHz Test Setup:

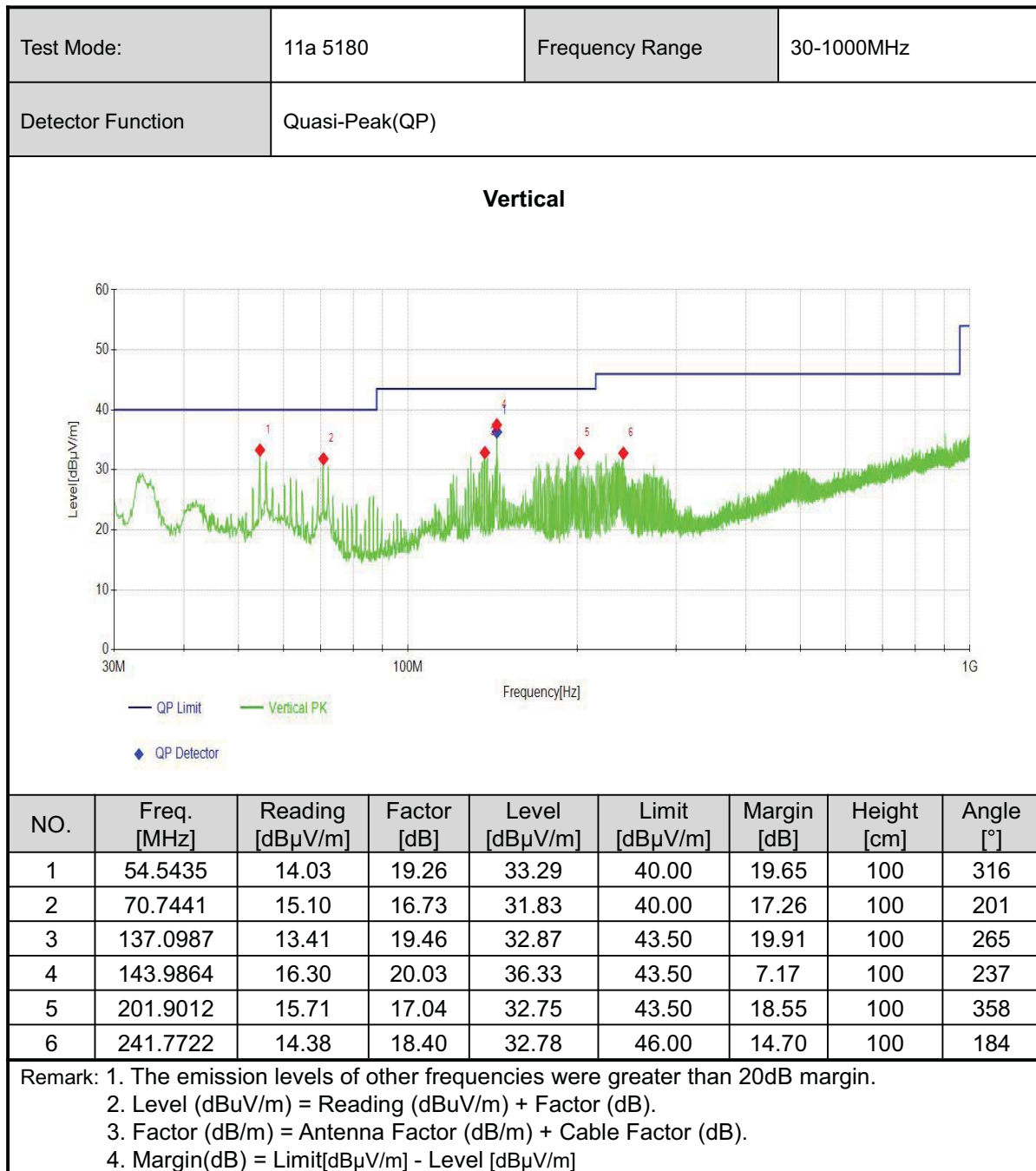


Note: For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Setup)



3.1.5 TEST RESULTS - BELOW 1GHz





3.1.6 TEST RESULTS - Band 1 (5180-5240MHz):

ABOVE 1GHz DATA

Channel		802.11a CH36		Frequency		5180 MHz			
Frequency Range		Above 1G		Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5129.5948	47.67	8.23	55.90	74.00	18.10	262	359	PK
2	5129.5948	35.22	8.23	43.45	54.00	10.55	262	144	AV
3	5150.0000	37.50	8.03	45.53	54.00	8.47	178	146	AV
4	5150.0000	52.17	8.03	60.20	74.00	13.80	178	212	PK
5	5179.0595	87.37	7.91	95.28			117	129	AV
6	5181.4607	96.00	7.88	103.88			117	131	PK
7	10360.0000	18.09	14.09	32.18	54.00	21.82	288	24	AV
8	10360.0000	27.07	14.09	41.16	68.20	27.04	288	203	PK
9	15540.0000	14.82	19.38	34.20	54.00	19.80	187	84	AV
10	15540.0000	23.71	19.38	43.09	74.00	30.91	187	182	PK

FCC Part15E

Level[dBμV/m]

Frequency[Hz]

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

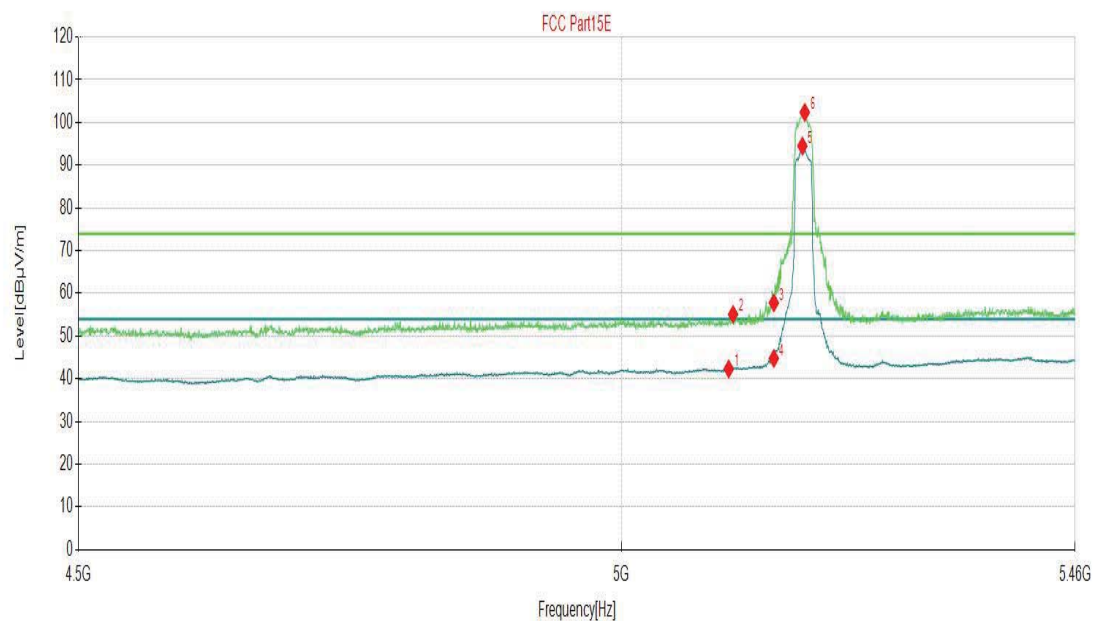
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11a CH36	Frequency	5180 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5105.1026	34.49	7.82	42.31	54.00	11.69	201	64	PK
2	5109.4247	47.05	8.05	55.10	74.00	18.90	201	323	AV
3	5150.0000	49.75	8.03	57.78	74.00	16.22	221	273	PK
4	5150.0000	36.74	8.03	44.77	54.00	9.23	221	273	AV
5	5178.5793	86.60	7.90	94.50			116	277	PK
6	5180.9805	94.49	7.89	102.38			116	277	AV
7	10360.0000	27.18	14.09	41.27	68.20	26.93	262	296	PK
8	10360.0000	18.80	14.09	32.89	54.00	21.11	262	58	AV
9	15540.0000	23.55	19.38	42.93	74.00	31.07	117	1	PK
10	15540.0000	14.51	19.38	33.89	54.00	20.11	117	262	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

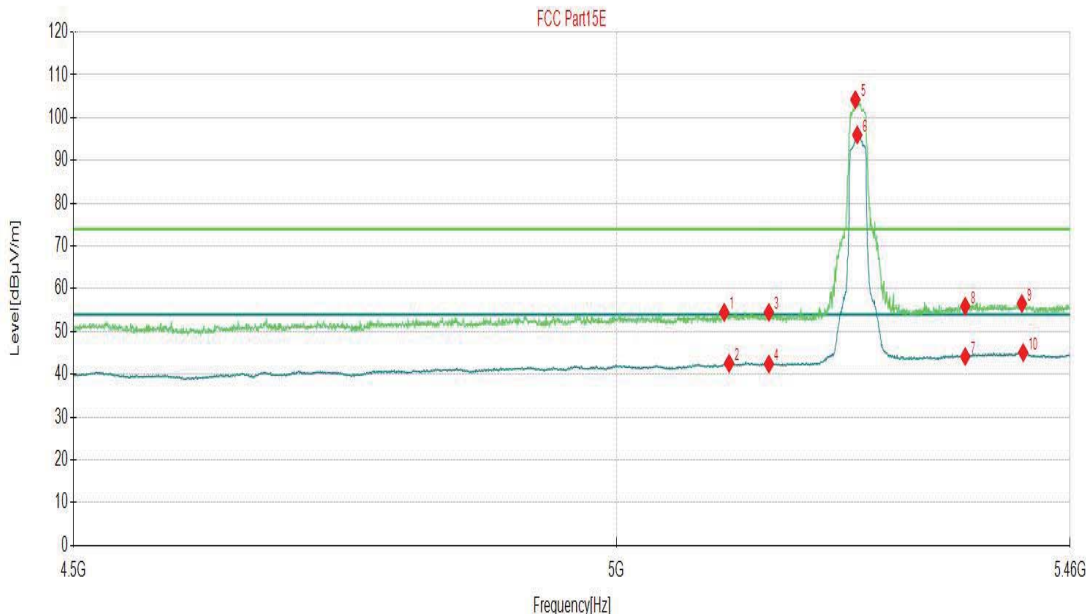


Channel		802.11a CH 44		Frequency		5220MHz			
Frequency Range		Above 1G		Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	10440.0000	27.25	14.45	41.70	68.20	26.50	108	296	PK
2	10440.0000	17.82	14.45	32.27	54.00	21.73	108	149	AV
3	15660.0000	23.85	20.15	44.00	74.00	30.00	117	54	PK
4	15660.0000	14.42	20.15	34.57	54.00	19.43	117	330	AV
Vertical									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	10440.0000	26.90	14.45	41.35	68.20	26.85	151	139	PK
2	10440.0000	18.36	14.45	32.81	54.00	21.19	151	339	AV
3	15660.0000	23.54	20.15	43.69	74.00	30.31	249	173	PK
4	15660.0000	14.91	20.15	35.06	54.00	18.94	249	224	AV
Remark: 1. The emission levels of other frequencies were greater than 20dB margin. 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB). 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB). 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]									



Channel	802.11a CH48			Frequency	5240 MHz				
Frequency Range	Above 1G			Detector Function	PK/AV				
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5105.5828	46.64	7.84	54.48	74.00	19.52	270	325	PK
2	5110.3852	34.49	8.07	42.56	54.00	11.44	270	134	AV
3	5150.0000	46.45	8.03	54.48	74.00	19.52	238	251	PK
4	5150.0000	34.38	8.03	42.41	54.00	11.59	238	123	AV
5	5237.1686	95.98	8.21	104.19			149	147	PK
6	5239.0895	87.74	8.22	95.96			149	134	AV
7	5350.0000	34.21	9.96	44.17	54.00	9.83	274	158	AV
8	5350.0000	45.97	9.96	55.93	74.00	18.07	274	164	PK
9	5409.0945	46.27	10.27	56.54	74.00	17.46	114	319	PK
10	5410.5353	34.82	10.27	45.09	54.00	8.91	114	51	AV
11	10480.0000	27.84	14.45	42.29	68.20	25.91	277	1	PK
12	10480.0000	18.95	14.45	33.40	54.00	20.60	277	178	AV
13	15720.0000	23.31	20.55	43.86	74.00	30.14	136	134	PK
14	15720.0000	14.01	20.55	34.56	54.00	19.44	136	358	AV

FCC Part15E



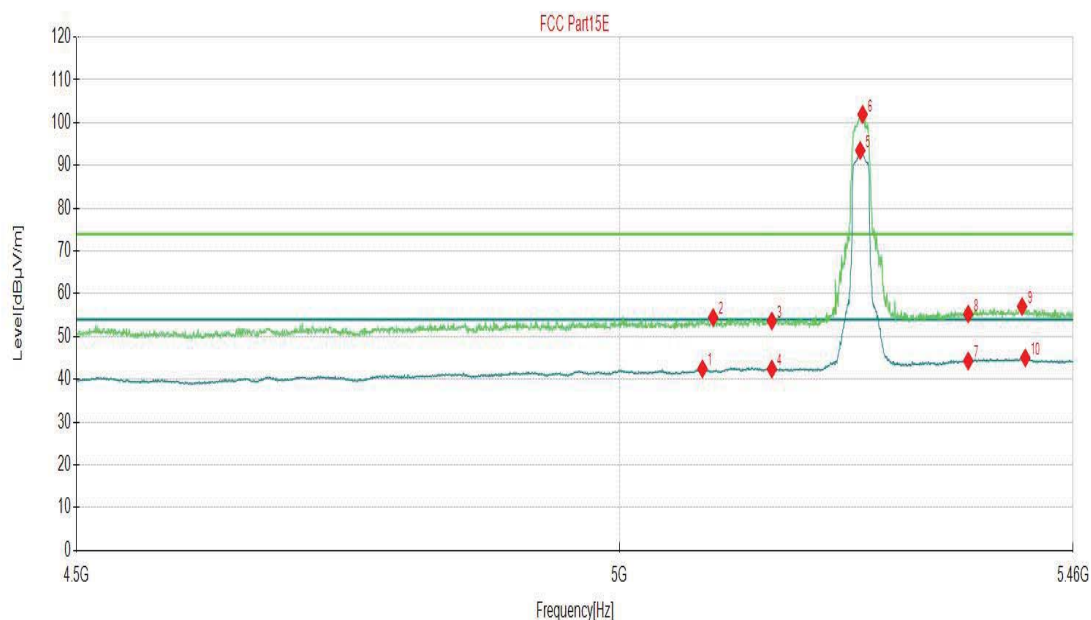
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]



Channel	802.11a CH48	Frequency	5240 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5081.0905	34.67	7.79	42.46	54.00	11.54	155	289	AV
2	5091.6558	46.84	7.60	54.44	74.00	19.56	155	289	PK
3	5150.0000	45.61	8.03	53.64	74.00	20.36	128	153	PK
4	5150.0000	34.38	8.03	42.41	54.00	11.59	128	153	AV
5	5239.0895	85.28	8.22	93.50			218	299	AV
6	5241.4907	93.72	8.22	101.94			218	299	PK
7	5350.0000	34.33	9.96	44.29	54.00	9.71	249	188	AV
8	5350.0000	45.32	9.96	55.28	74.00	18.72	249	188	PK
9	5406.2131	46.85	10.19	57.04	74.00	16.96	150	231	PK
10	5409.5748	34.74	10.28	45.02	54.00	8.98	150	231	AV
11	10480.0000	26.87	14.45	41.32	68.20	26.88	249	126	PK
12	10480.0000	17.77	14.45	32.22	54.00	21.78	249	126	AV
13	15720.0000	22.74	20.55	43.29	74.00	30.71	273	117	PK
14	15720.0000	14.03	20.55	34.58	54.00	19.42	273	117	AV



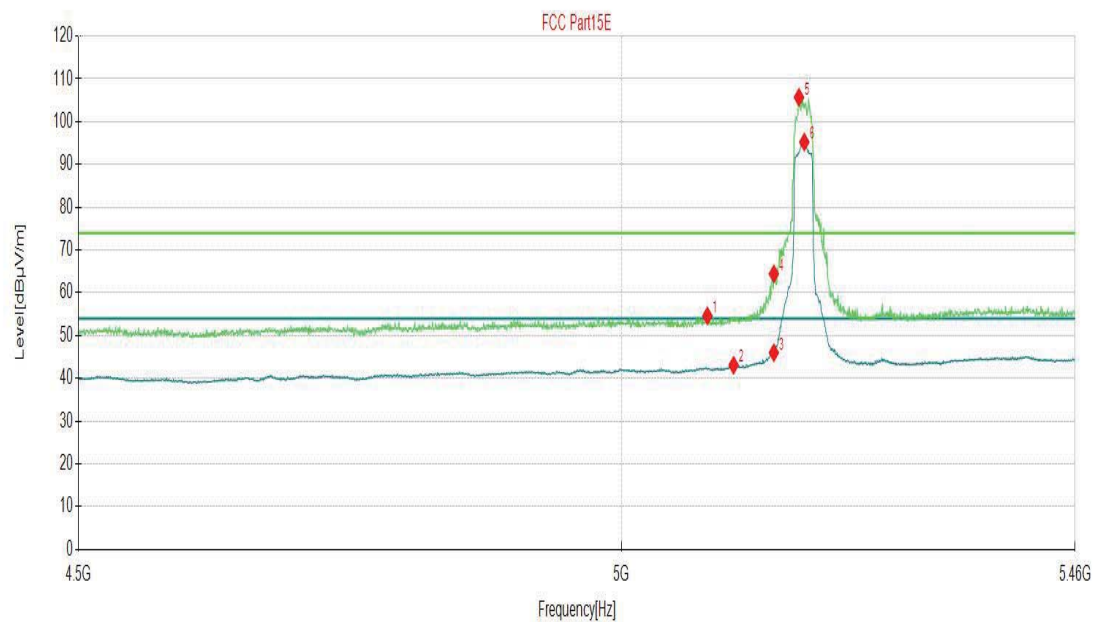
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH36	Frequency	5180 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5083.9720	46.87	7.73	54.60	74.00	19.40	209	20	PK
2	5109.9050	35.00	8.07	43.07	54.00	10.93	209	122	AV
3	5150.0000	37.97	8.03	46.00	54.00	8.00	142	140	AV
4	5150.0000	56.40	8.03	64.43	74.00	9.57	142	144	PK
5	5175.2176	97.81	7.87	105.68			247	140	PK
6	5180.5003	87.35	7.90	95.25			247	131	AV
7	10360.0000	27.19	14.09	41.28	68.20	26.92	269	97	PK
8	10360.0000	18.06	14.09	32.15	54.00	21.85	269	300	AV
9	15540.0000	24.46	19.38	43.84	74.00	30.16	185	202	PK
10	15540.0000	14.27	19.38	33.65	54.00	20.35	185	37	AV



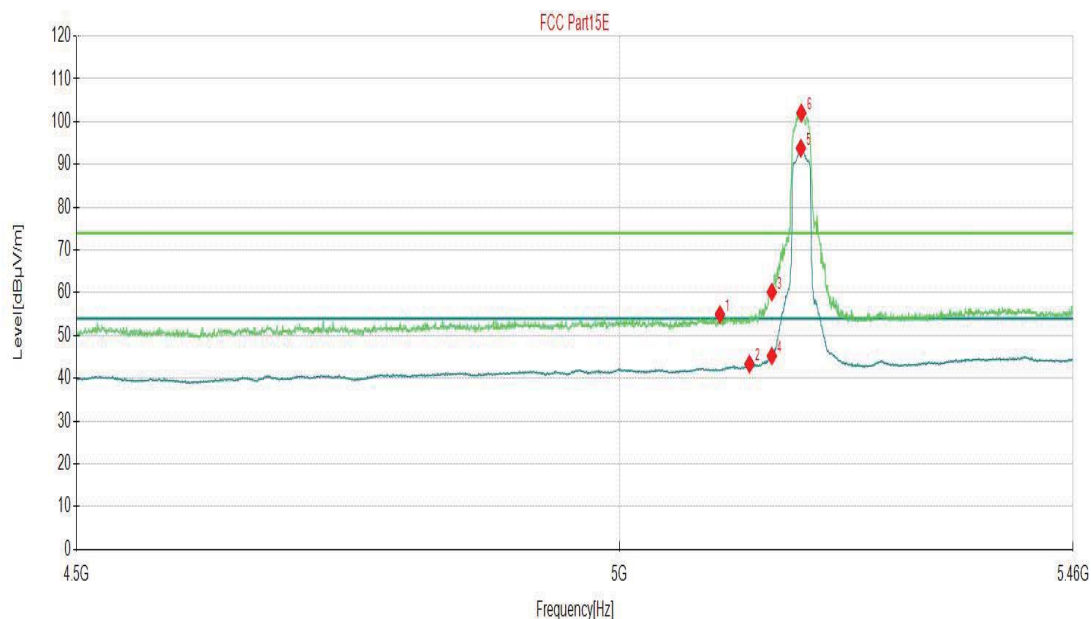
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH36	Frequency	5180 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5098.3792	47.37	7.56	54.93	74.00	19.07	215	232	PK
2	5127.6738	35.22	8.14	43.36	54.00	10.64	215	72	AV
3	5150.0000	52.14	8.03	60.17	74.00	13.83	278	271	PK
4	5150.0000	37.20	8.03	45.23	54.00	8.77	278	274	AV
5	5179.0595	85.87	7.91	93.78			172	276	AV
6	5179.5398	94.13	7.91	102.04			172	40	PK
7	10360.0000	27.25	14.09	41.34	68.20	26.86	127	15	PK
8	10360.0000	18.44	14.09	32.53	54.00	21.47	127	2	AV
9	15540.0000	24.82	19.38	44.20	74.00	29.80	169	137	PK
10	15540.0000	14.73	19.38	34.11	54.00	19.89	169	177	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel		802.11n20 CH 44			Frequency		5220MHz		
Frequency Range		Above 1G			Detector Function		PK/AV		
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	10440.0000	28.28	14.45	42.73	68.20	25.47	255	313	PK
2	10440.0000	17.79	14.45	32.24	54.00	21.76	255	313	AV
3	15660.0000	24.70	20.15	44.85	74.00	29.15	150	88	PK
4	15660.0000	14.59	20.15	34.74	54.00	19.26	150	88	AV
Vertical									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	10440.0000	26.48	14.45	40.93	68.20	27.27	225	269	PK
2	10440.0000	18.01	14.45	32.46	54.00	21.54	225	211	AV
3	15660.0000	23.51	20.15	43.66	74.00	30.34	267	201	PK
4	15660.0000	14.40	20.15	34.55	54.00	19.45	267	201	AV
Remark: 1. The emission levels of other frequencies were greater than 20dB margin. 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB). 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB). 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]									



Channel	802.11n20 CH48	Frequency	5240 MHz						
Frequency Range	Above 1G	Detector Function	PK/AV						
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5079.1696	34.50	7.78	42.28	54.00	11.72	283	148	AV
2	5090.6953	46.58	7.60	54.18	74.00	19.82	283	286	PK
3	5150.0000	34.23	8.03	42.26	54.00	11.74	163	215	AV
4	5150.0000	45.29	8.03	53.32	74.00	20.68	163	232	PK
5	5241.0105	86.97	8.22	95.19			277	135	AV
6	5245.3327	97.45	8.24	105.69			277	140	PK
7	5350.0000	46.16	9.96	56.12	74.00	17.88	283	241	PK
8	5350.0000	34.36	9.96	44.32	54.00	9.68	283	12	AV
9	5385.0825	46.82	10.09	56.91	74.00	17.09	277	133	PK
10	5409.5748	35.01	10.28	45.29	54.00	8.71	277	76	AV
11	10480.0000	27.26	14.45	41.71	68.20	26.49	234	266	PK
12	10480.0000	18.64	14.45	33.09	54.00	20.91	234	138	AV
13	15720.0000	23.37	20.55	43.92	74.00	30.08	219	186	PK
14	15720.0000	14.04	20.55	34.59	54.00	19.41	219	266	AV

FCC Part15E

Level[dBμV/m]

Frequency[Hz]

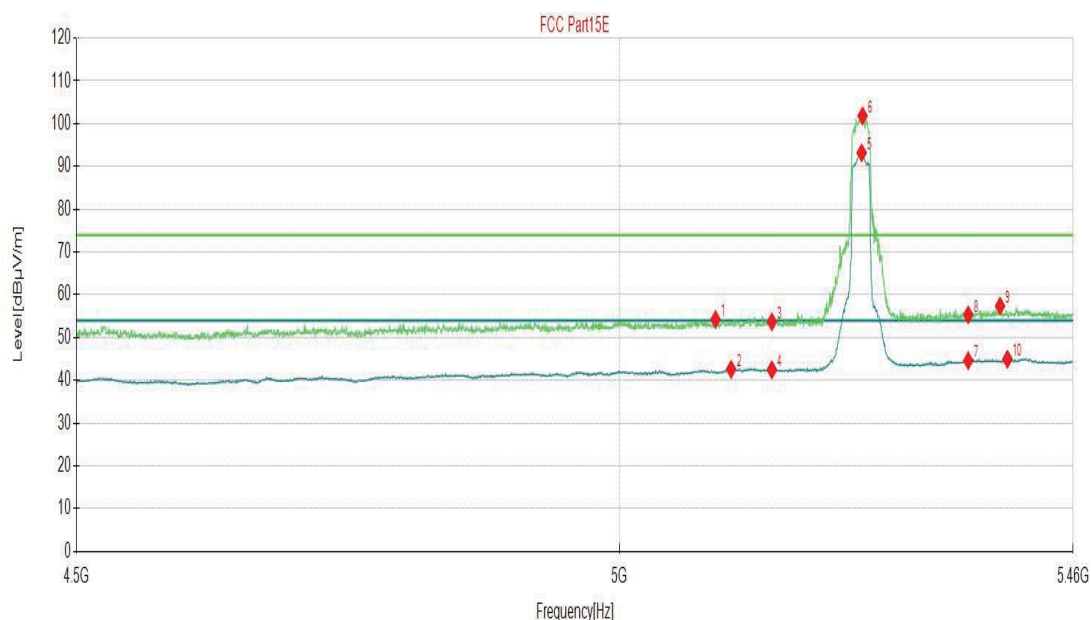
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH48	Frequency	5240 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5094.0570	46.66	7.58	54.24	74.00	19.76	191	259	PK
2	5109.4247	34.52	8.05	42.57	54.00	11.43	191	2	AV
3	5150.0000	45.67	8.03	53.70	74.00	20.30	101	97	PK
4	5150.0000	34.44	8.03	42.47	54.00	11.53	101	283	AV
5	5240.5303	84.97	8.22	93.19			133	266	AV
6	5241.4907	93.59	8.22	101.81			133	272	PK
7	5350.0000	34.64	9.96	44.60	54.00	9.40	184	69	AV
8	5350.0000	45.33	9.96	55.29	74.00	18.71	184	232	PK
9	5383.1616	47.27	10.10	57.37	74.00	16.63	225	147	PK
10	5390.8454	34.91	10.05	44.96	54.00	9.04	225	279	AV
11	10480.0000	27.04	14.45	41.49	68.20	26.71	254	205	PK
12	10480.0000	18.55	14.45	33.00	54.00	21.00	254	64	AV
13	15720.0000	22.71	20.55	43.26	74.00	30.74	249	87	PK
14	15720.0000	14.21	20.55	34.76	54.00	19.24	249	185	AV

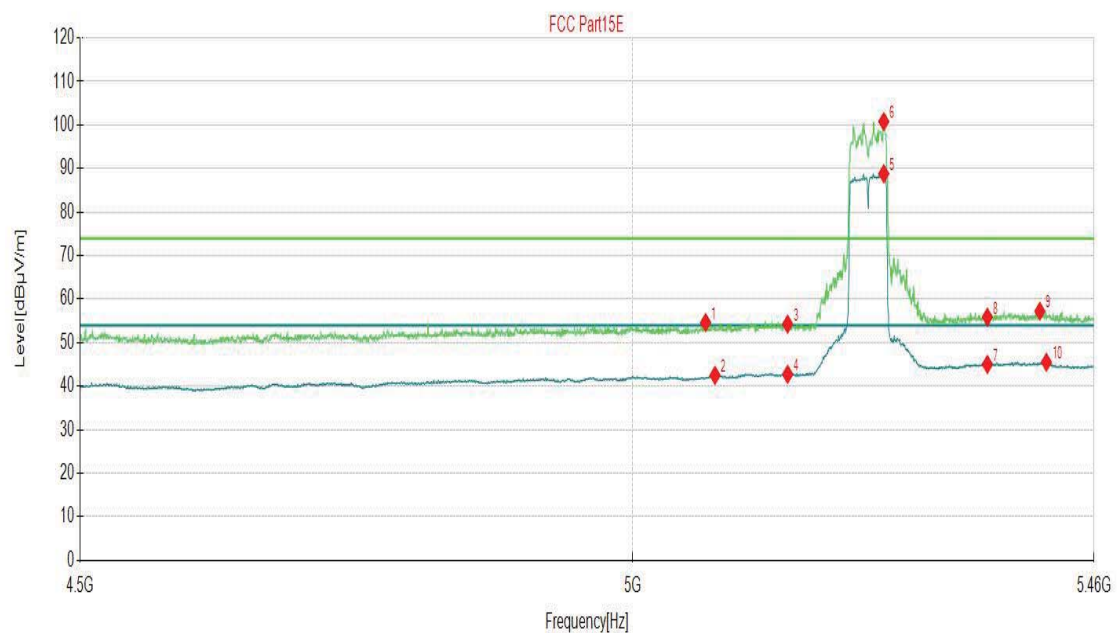


Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

Channel	802.11n40 CH38	Frequency	5190 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5129.5948	47.19	8.23	55.42	74.00	18.58	106	204	PK
2	5132.4762	35.34	8.17	43.51	54.00	10.49	106	38	AV
3	5150.0000	41.91	8.03	49.94	54.00	4.06	201	146	AV
4	5150.0000	55.38	8.03	63.41	74.00	10.59	201	101	PK
5	5195.3877	92.70	7.64	100.34			149	141	PK
6	5204.9925	79.91	8.11	88.02			149	146	AV
7	10380.0000	26.58	14.14	40.72	68.20	27.48	101	43	PK
8	10380.0000	17.18	14.14	31.32	54.00	22.68	101	227	AV
9	15570.0000	23.04	19.64	42.68	74.00	31.32	105	243	PK
10	15570.0000	13.65	19.64	33.29	54.00	20.71	105	173	AV



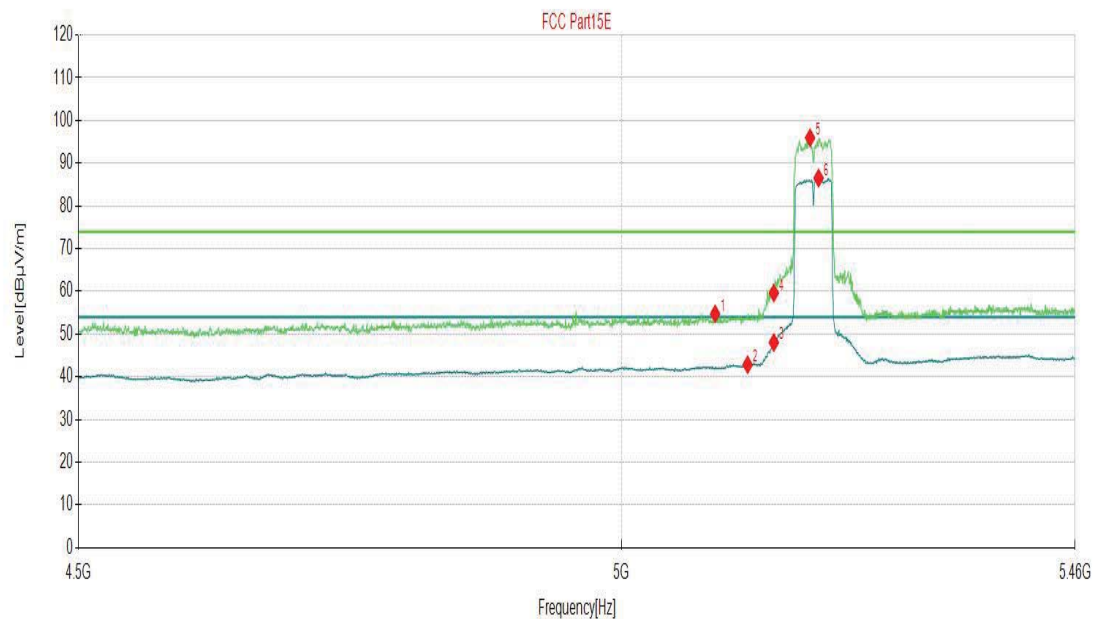
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
 2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH38	Frequency	5190 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5091.6558	47.14	7.60	54.74	74.00	19.26	264	50	PK
2	5123.8319	34.89	7.95	42.84	54.00	11.16	264	65	AV
3	5150.0000	40.00	8.03	48.03	54.00	5.97	248	270	AV
4	5150.0000	51.59	8.03	59.62	74.00	14.38	248	283	PK
5	5186.2631	88.20	7.74	95.94			159	265	PK
6	5194.9075	78.88	7.64	86.52			159	276	AV
7	10380.0000	26.58	14.14	40.72	68.20	27.48	249	43	PK
8	10380.0000	17.18	14.14	31.32	54.00	22.68	249	227	AV
9	15570.0000	23.04	19.64	42.68	74.00	31.32	242	243	PK
10	15570.0000	13.65	19.64	33.29	54.00	20.71	242	173	AV

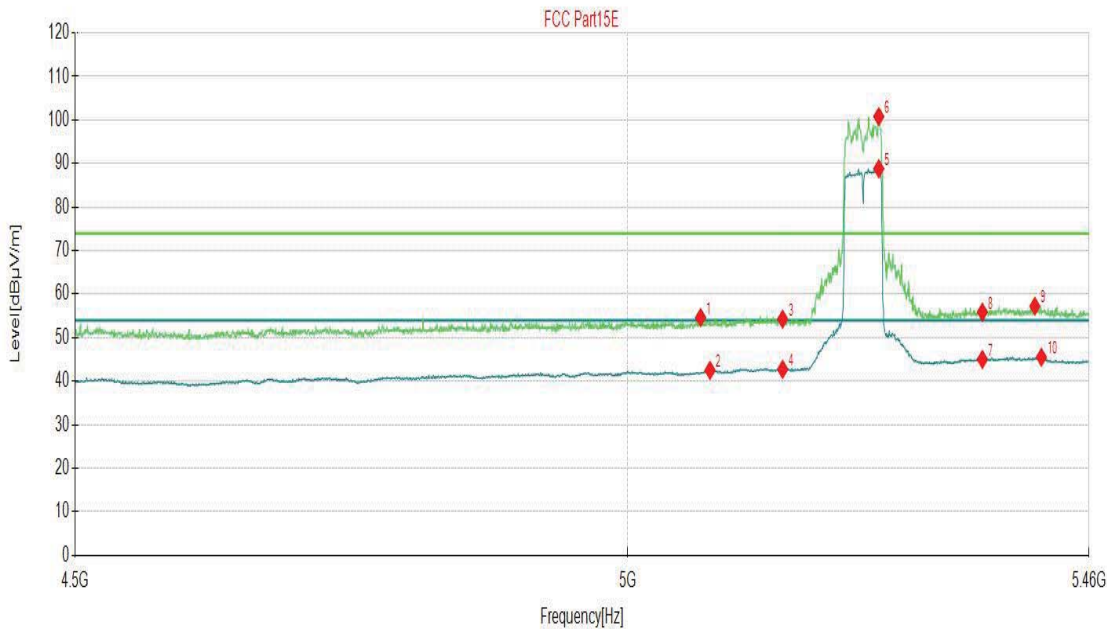


Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH46			Frequency		5230 MHz			
Frequency Range	Above 1G			Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5070.0450	47.22	7.40	54.62	74.00	19.38	273	201	PK
2	5079.1696	34.73	7.78	42.51	54.00	11.49	273	96	AV
3	5150.0000	46.24	8.03	54.27	74.00	19.73	244	103	PK
4	5150.0000	34.70	8.03	42.73	54.00	11.27	244	249	AV
5	5245.3327	80.57	8.24	88.81			285	136	AV
6	5245.3327	92.55	8.24	100.79			285	136	PK
7	5350.0000	35.05	9.96	45.01	54.00	8.99	226	149	AV
8	5350.0000	45.91	9.96	55.87	74.00	18.13	226	140	PK
9	5403.8119	47.10	10.12	57.22	74.00	16.78	195	140	PK
10	5410.5353	35.24	10.27	45.51	54.00	8.49	195	332	AV
11	10460.0000	26.46	14.59	41.05	68.20	27.15	242	113	PK
12	10460.0000	18.07	14.59	32.66	54.00	21.34	242	0	AV
13	15690.0000	14.64	20.46	35.10	54.00	18.90	270	22	AV
14	15690.0000	23.54	20.46	44.00	74.00	30.00	270	265	PK

FCC Part15E



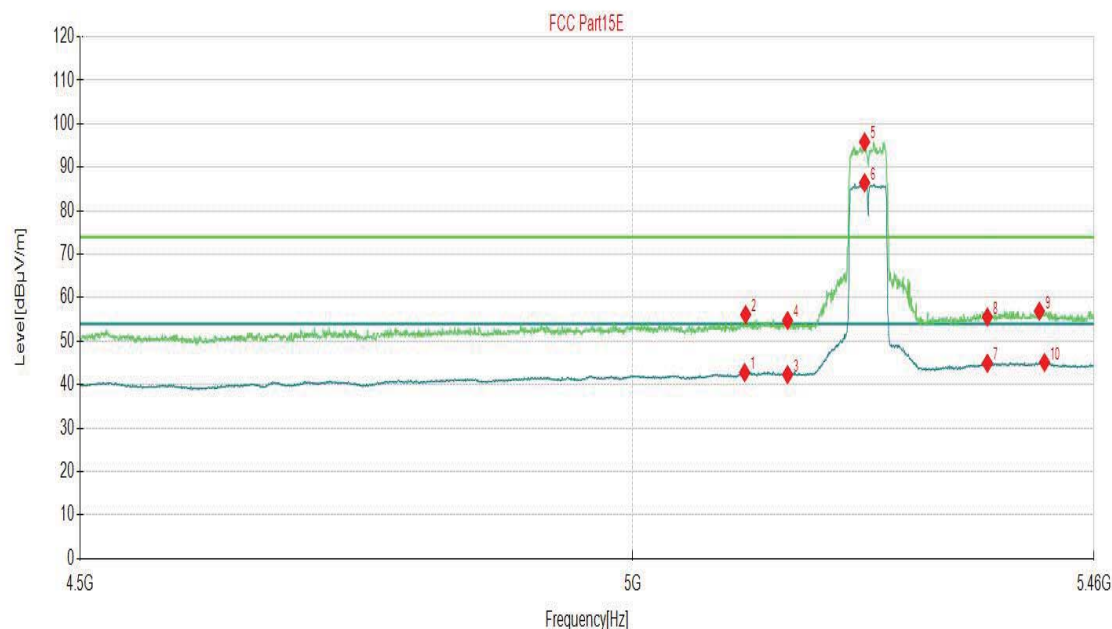
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBuV/m] - Level [dBuV/m]



Channel	802.11n40 CH46	Frequency	5230 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5107.9840	34.81	7.97	42.78	54.00	11.22	273	269	AV
2	5108.9445	48.10	8.02	56.12	74.00	17.88	273	78	PK
3	5150.0000	34.28	8.03	42.31	54.00	11.69	244	238	AV
4	5150.0000	46.72	8.03	54.75	74.00	19.25	244	278	PK
5	5226.1231	87.65	8.20	95.85			285	267	PK
6	5226.1231	78.26	8.20	86.46			285	278	AV
7	5350.0000	34.97	9.96	44.93	54.00	9.07	226	62	AV
8	5350.0000	45.61	9.96	55.57	74.00	18.43	226	187	PK
9	5403.3317	46.79	10.11	56.90	74.00	17.10	195	204	PK
10	5408.6143	34.86	10.26	45.12	54.00	8.88	195	273	AV
11	10460.0000	27.19	14.59	41.78	68.20	26.42	242	187	PK
12	10460.0000	18.28	14.59	32.87	54.00	21.13	242	282	AV
13	15690.0000	14.60	20.46	35.06	54.00	18.94	270	357	AV
14	15690.0000	23.53	20.46	43.99	74.00	30.01	270	44	PK

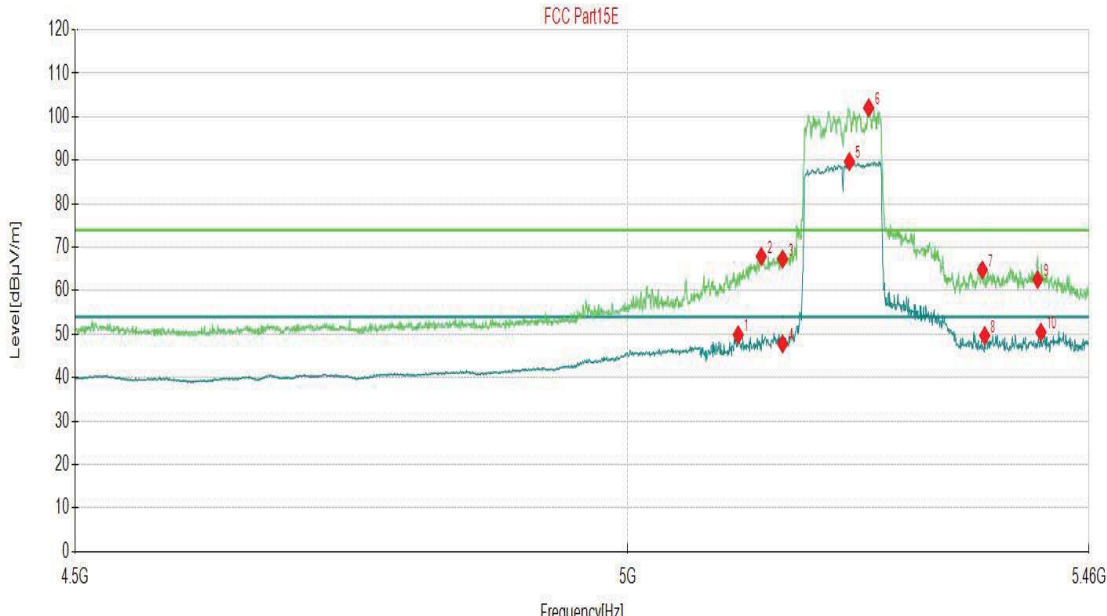


Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11ac80 CH42			Frequency	5210 MHz				
Frequency Range	Above 1G			Detector Function	PK/AV				
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5106.5433	41.98	7.90	49.88	54.00	4.12	299	208	AV
2	5129.1146	59.69	8.21	67.90	74.00	6.10	299	137	PK
3	5150.0000	59.26	8.03	67.29	74.00	6.71	165	211	PK
4	5150.0000	39.76	8.03	47.79	54.00	6.21	165	115	AV
5	5216.0380	81.35	8.35	89.70			219	132	AV
6	5235.2476	93.84	8.21	102.05			219	137	PK
7	5350.0000	54.83	9.96	64.79	74.00	9.21	274	130	PK
8	5352.4262	39.70	9.98	49.68	54.00	4.32	274	128	AV
9	5406.6933	52.37	10.20	62.57	74.00	11.43	281	18	PK
10	5410.0550	40.16	10.29	50.45	54.00	3.55	281	126	AV
11	10420.0000	27.26	14.27	41.53	68.20	26.67	157	262	PK
12	10420.0000	18.02	14.27	32.29	54.00	21.71	157	120	AV
13	15630.0000	23.17	20.00	43.17	74.00	30.83	210	0	PK
14	15630.0000	14.22	20.00	34.22	54.00	19.78	210	245	AV

FCC Part15E



Level[dBμV/m]

Frequency[Hz]

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

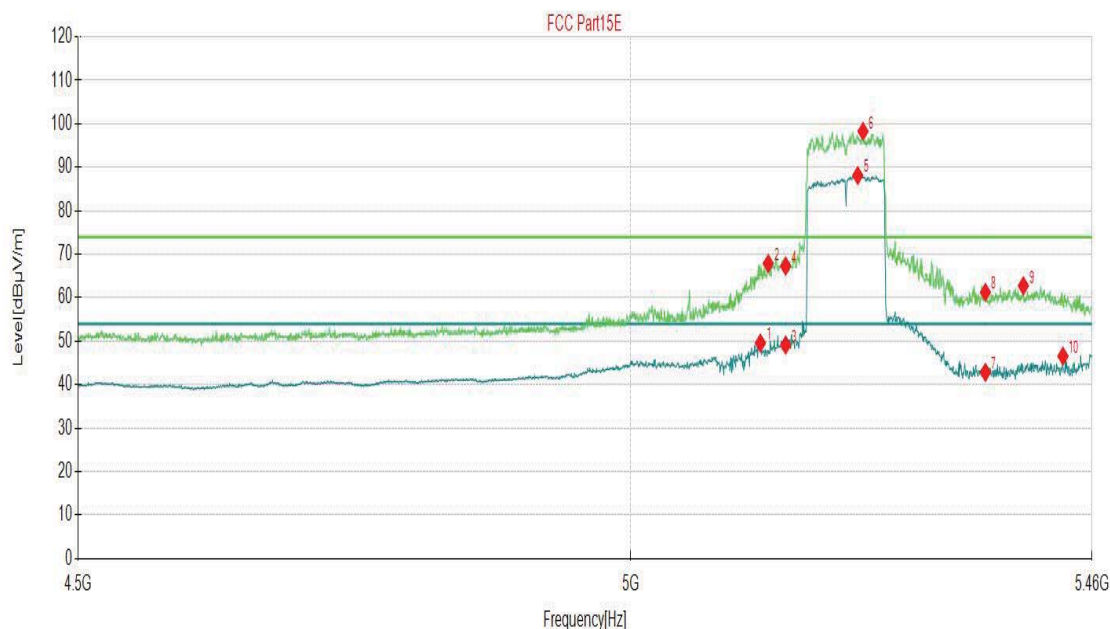
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11ac80 CH42	Frequency	5210 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5125.2726	41.57	8.02	49.59	54.00	4.41	174	280	AV
2	5132.9565	59.69	8.16	67.85	74.00	6.15	174	278	PK
3	5150.0000	41.09	8.03	49.12	54.00	4.88	127	261	AV
4	5150.0000	59.27	8.03	67.30	74.00	6.70	127	280	PK
5	5221.3207	79.92	8.20	88.12			264	267	AV
6	5226.6033	90.07	8.20	98.27			264	265	PK
7	5350.0000	32.88	9.96	42.84	54.00	11.16	193	254	AV
8	5350.0000	51.27	9.96	61.23	74.00	12.77	193	263	PK
9	5388.9245	52.68	10.06	62.74	74.00	11.26	298	280	PK
10	5429.7449	36.73	9.85	46.58	54.00	7.42	298	280	AV
11	10420.0000	27.79	14.27	42.06	68.20	26.14	182	279	PK
12	10420.0000	18.45	14.27	32.72	54.00	21.28	182	313	AV
13	15630.0000	23.47	20.00	43.47	74.00	30.53	127	84	PK
14	15630.0000	14.47	20.00	34.47	54.00	19.53	127	340	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3.1.7 TEST RESULTS - Band 4 (5745-5825MHz):

ABOVE 1GHz DATA

Channel		802.11a CH149		Frequency		5745 MHz			
Frequency Range		Above 1G		Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5632.0785	47.54	8.92	56.46	68.20	11.74	269	207	PK
2	5745.3852	100.88	8.94	109.82			269	209	PK
3	5936.7309	47.80	10.71	58.51	68.20	9.69	269	160	PK
4	11490.0000	24.84	15.04	39.88	74.00	34.12	274	14	PK
5	11490.0000	18.44	15.04	33.48	54.00	20.52	274	146	AV
6	17235.0000	19.82	25.53	45.35	68.20	22.85	201	28	PK
7	17235.0000	12.44	25.53	37.97	54.00	16.03	201	48	AV

FCC Part15E

Level [dBμV/m]

Frequency [Hz]

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

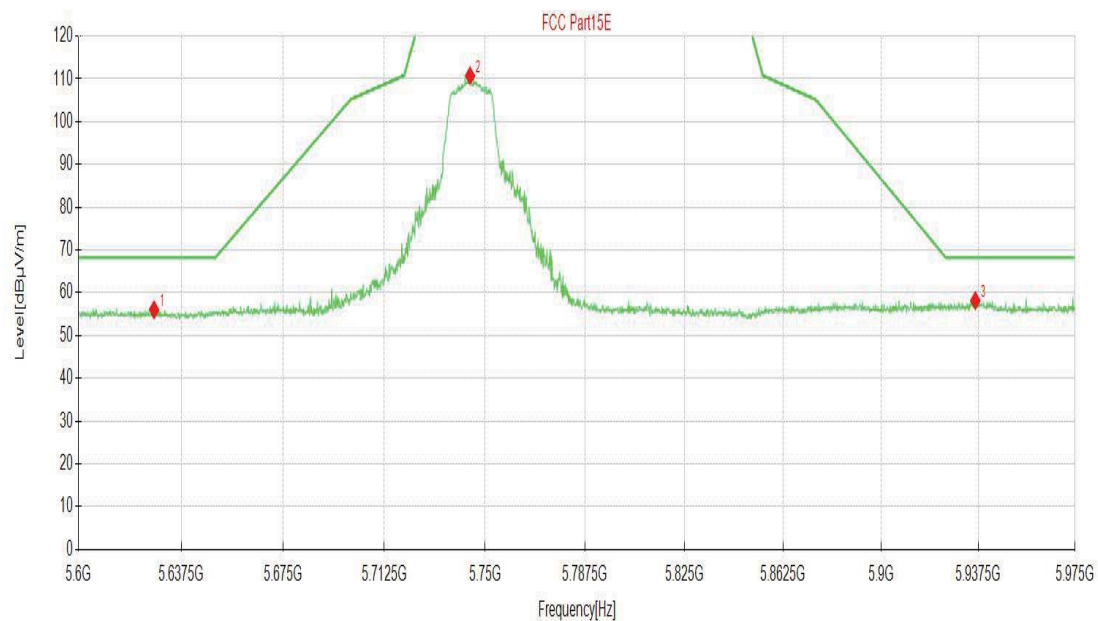
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11a CH149	Frequency	5745 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5627.5763	46.97	9.04	56.01	68.20	12.19	292	247	PK
2	5744.4472	101.78	8.94	110.72			292	212	PK
3	5936.3557	47.45	10.70	58.15	68.20	10.05	292	310	PK
4	11490.0000	24.26	15.04	39.30	74.00	34.70	126	216	PK
5	11490.0000	17.58	15.04	32.62	54.00	21.38	126	285	AV
6	17235.0000	20.47	25.53	46.00	68.20	22.20	279	262	PK
7	17235.0000	13.66	25.53	39.19	54.00	14.81	279	346	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

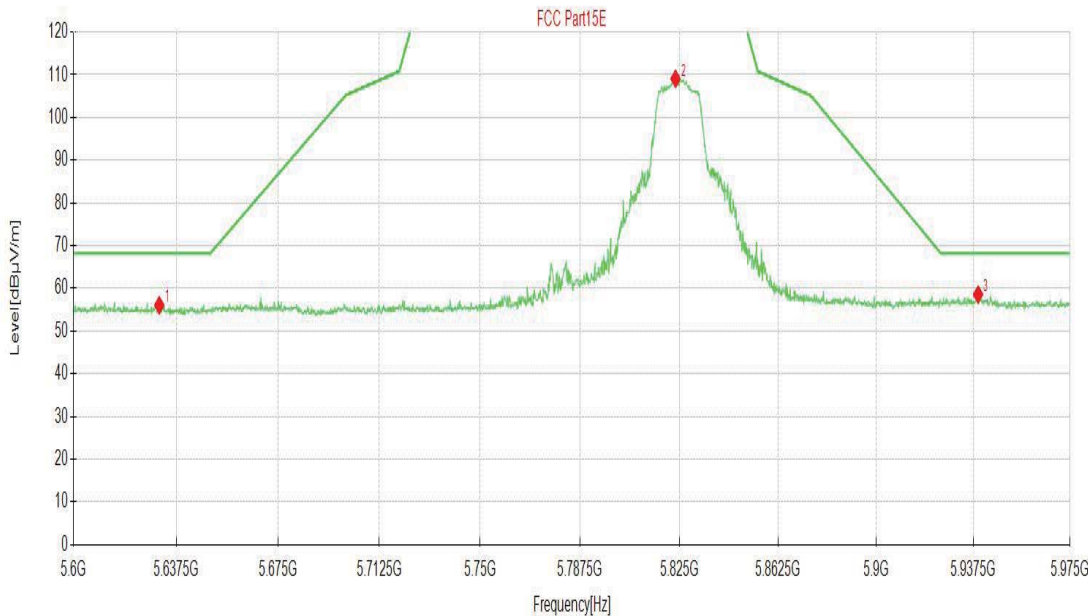


Channel		802.11a CH 157			Frequency		5785MHz		
Frequency Range		Above 1G			Detector Function		PK/AV		
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	11570.0000	25.89	15.34	41.23	74.00	32.77	192	259	PK
2	11570.0000	17.95	15.34	33.29	54.00	20.71	192	3	AV
3	17355.0000	19.39	26.30	45.69	68.20	22.51	264	57	PK
4	17355.0000	11.93	26.30	38.23	54.00	15.77	264	189	AV
Vertical									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	11570.0000	26.22	15.34	41.56	74.00	32.44	297	141	PK
2	11570.0000	18.54	15.34	33.88	54.00	20.12	297	134	AV
3	17355.0000	19.43	26.30	45.73	68.20	22.47	102	121	PK
4	17355.0000	12.14	26.30	38.44	54.00	15.56	102	354	AV
Remark: 1. The emission levels of other frequencies were greater than 20dB margin. 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB). 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB). 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]									



Channel	802.11a CH165	Frequency	5825 MHz						
Frequency Range	Above 1G	Detector Function	PK/AV						
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5631.3282	47.07	8.97	56.04	68.20	12.16	139	222	PK
2	5823.6118	100.26	8.81	109.07			139	211	PK
3	5939.3572	47.77	10.79	58.56	68.20	9.64	139	246	PK
4	11650.0000	26.27	15.21	41.48	74.00	32.52	228	249	PK
5	11650.0000	19.04	15.21	34.25	54.00	19.75	228	360	AV
6	17475.0000	18.87	26.05	44.92	68.20	23.28	245	331	PK
7	17475.0000	11.85	26.05	37.90	54.00	16.10	245	79	AV

FCC Part15E



Level[dBμV/m]

Frequency[Hz]

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

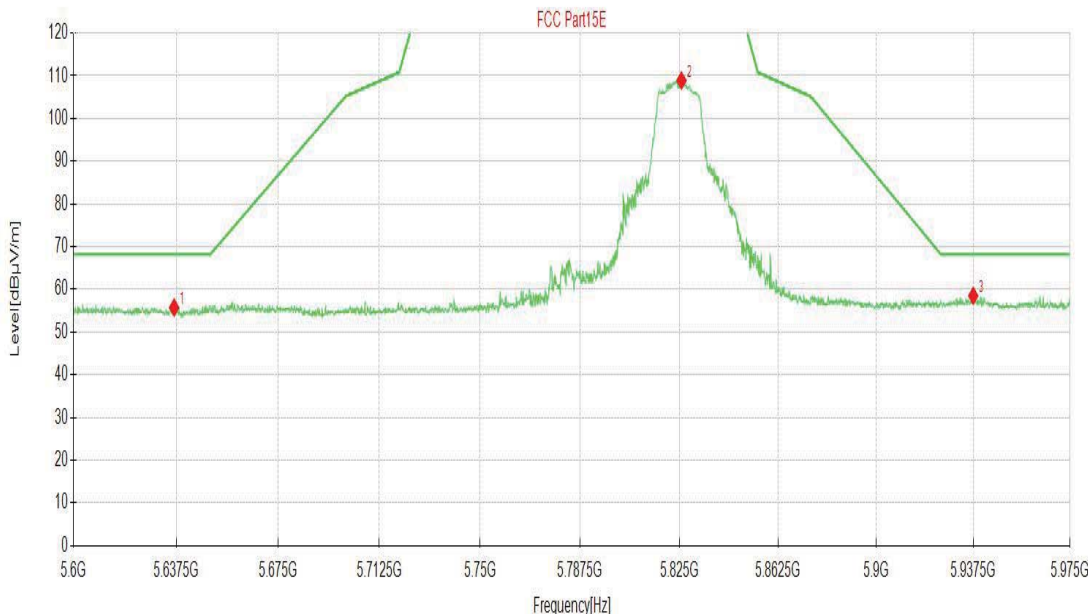
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel		802.11a CH165		Frequency		5825 MHz			
Frequency Range		Above 1G		Detector Function		PK/AV			
Vertical									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5636.7684	47.10	8.63	55.73	68.20	12.47	252	319	PK
2	5825.8629	100.10	8.78	108.88			252	215	PK
3	5937.4812	47.75	10.73	58.48	68.20	9.72	252	14	PK
4	11650.0000	25.83	15.21	41.04	74.00	32.96	282	255	PK
5	11650.0000	18.68	15.21	33.89	54.00	20.11	282	311	AV
6	17475.0000	19.19	26.05	45.24	68.20	22.96	170	306	PK
7	17475.0000	11.36	26.05	37.41	54.00	16.59	170	132	AV

FCC Part15E



Level[dBμV/m]

Frequency[Hz]

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel		802.11n20 CH149		Frequency		5745 MHz			
Frequency Range		Above 1G		Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5642.0210	47.73	8.52	56.25	68.20	11.95	164	316	PK
2	5747.2611	101.88	8.93	110.81			164	154	PK
3	5951.7384	48.70	9.78	58.48	68.20	9.72	164	187	PK
4	11490.0000	23.72	15.04	38.76	74.00	35.24	166	152	PK
5	11490.0000	16.83	15.04	31.87	54.00	22.13	166	352	AV
6	17235.0000	21.20	25.53	46.73	68.20	21.47	101	264	PK
7	17235.0000	13.91	25.53	39.44	54.00	14.56	101	111	AV

FCC Part15E

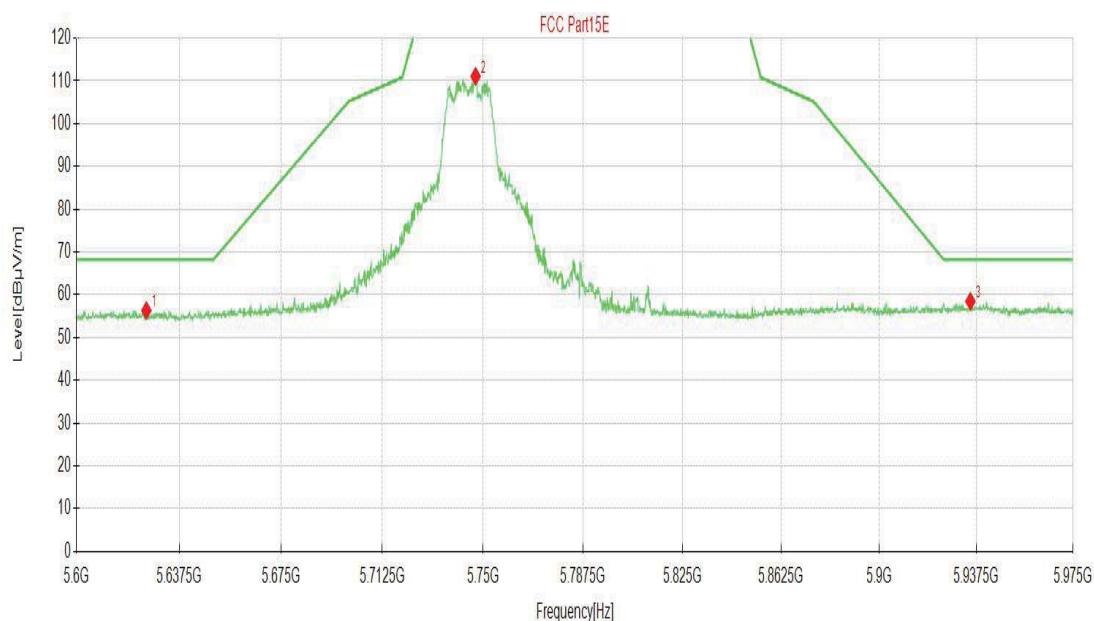
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH149	Frequency	5745 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5625.5128	47.29	9.02	56.31	68.20	11.89	193	30	PK
2	5747.2611	102.15	8.93	111.08			193	156	PK
3	5935.2301	47.80	10.66	58.46	68.20	9.74	193	348	PK
4	11490.0000	24.54	15.04	39.58	74.00	34.42	152	277	PK
5	11490.0000	17.36	15.04	32.40	54.00	21.60	152	334	AV
6	17235.0000	20.17	25.53	45.70	68.20	22.50	180	135	PK
7	17235.0000	13.14	25.53	38.67	54.00	15.33	180	356	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel		802.11n20 CH 157			Frequency		5785MHz		
Frequency Range		Above 1G			Detector Function		PK/AV		
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	11570.0000	25.80	15.34	41.14	74.00	32.86	212	50	PK
2	11570.0000	18.51	15.34	33.85	54.00	20.15	212	135	AV
3	17355.0000	19.88	26.30	46.18	68.20	22.02	150	40	PK
4	17355.0000	12.67	26.30	38.97	54.00	15.03	150	244	AV
Vertical									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Remark
1	11570.0000	25.50	15.34	40.84	74.00	33.16	191	14	PK
2	11570.0000	19.46	15.34	34.80	54.00	19.20	191	14	AV
3	17355.0000	20.49	26.30	46.79	68.20	21.41	297	333	PK
4	17355.0000	11.78	26.30	38.08	54.00	15.92	297	17	AV
Remark: 1. The emission levels of other frequencies were greater than 20dB margin. 2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB). 3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB). 4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]									



Channel		802.11n20 CH165		Frequency		5825 MHz _z			
Frequency Range		Above 1G		Detector Function		PK/AV			
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5643.3342	47.29	8.57	55.86	68.20	12.34	157	318	PK
2	5825.8629	103.48	8.78	112.26			157	315	PK
3	5935.0425	47.32	10.66	57.98	68.20	10.22	157	139	PK
4	11650.0000	26.29	15.21	41.50	74.00	32.50	127	44	PK
5	11650.0000	18.37	15.21	33.58	54.00	20.42	127	263	AV
6	17475.0000	18.52	26.05	44.57	68.20	23.63	154	78	PK
7	17475.0000	12.23	26.05	38.28	54.00	15.72	154	145	AV

FCC Part15E

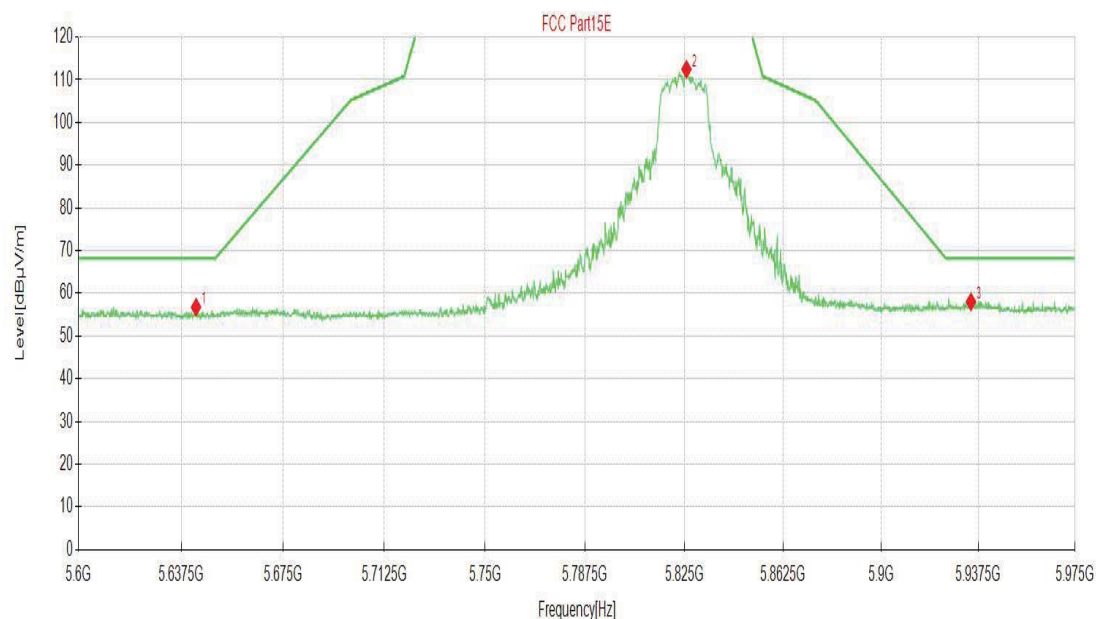
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBuV/m) = Reading (dBuV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n20 CH165	Frequency	5825 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5642.9590	48.21	8.56	56.77	68.20	11.43	163	312	PK
2	5825.8629	103.66	8.78	112.44			163	317	PK
3	5934.6673	47.38	10.64	58.02	68.20	10.18	163	5	PK
4	11650.0000	26.78	15.21	41.99	74.00	32.01	108	290	PK
5	11650.0000	19.01	15.21	34.22	54.00	19.78	108	290	AV
6	17475.0000	19.95	26.05	46.00	68.20	22.20	283	243	PK
7	17475.0000	11.90	26.05	37.95	54.00	16.05	283	283	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

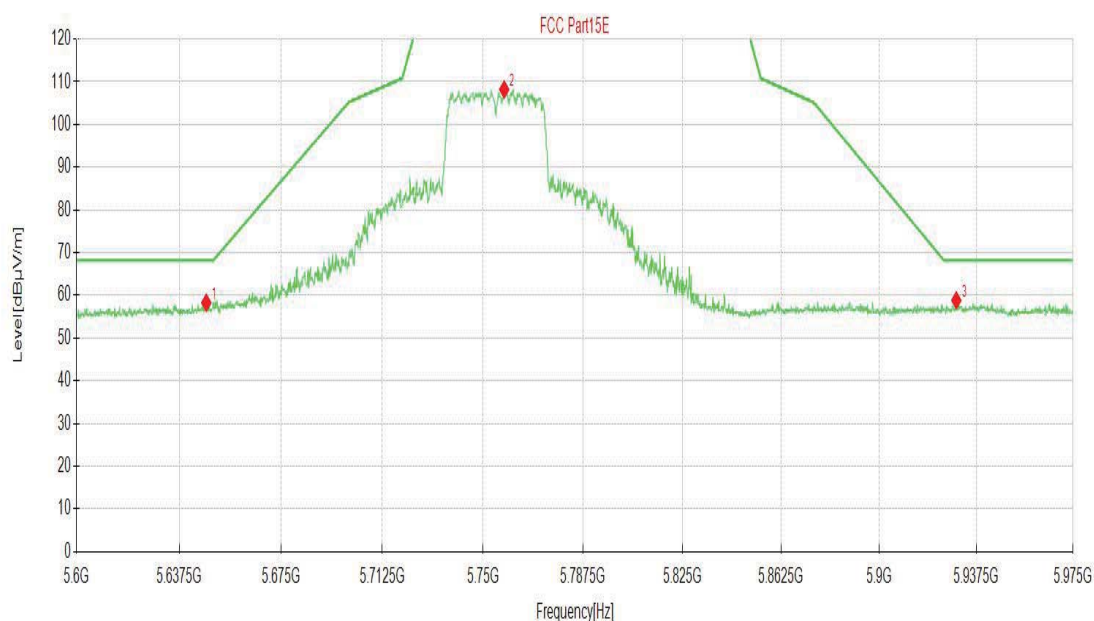
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH151	Frequency	5755 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5647.4612	49.53	8.74	58.27	68.20	9.93	299	322	PK
2	5757.9540	98.93	9.27	108.20			299	314	PK
3	5929.7899	48.33	10.50	58.83	68.20	9.37	299	316	PK
4	11510.0000	25.18	15.12	40.30	74.00	33.70	167	251	PK
5	11510.0000	18.24	15.12	33.36	54.00	20.64	167	275	AV
6	17265.0000	20.56	25.62	46.18	68.20	22.02	271	58	PK
7	17265.0000	12.87	25.62	38.49	54.00	15.51	271	245	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

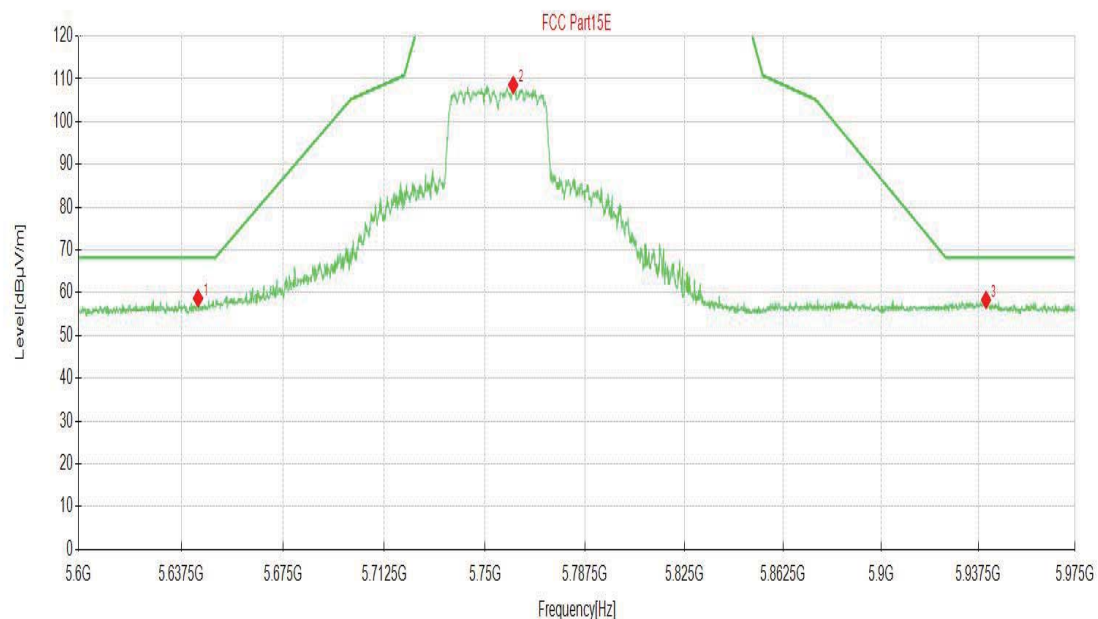
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH151	Frequency	5755 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

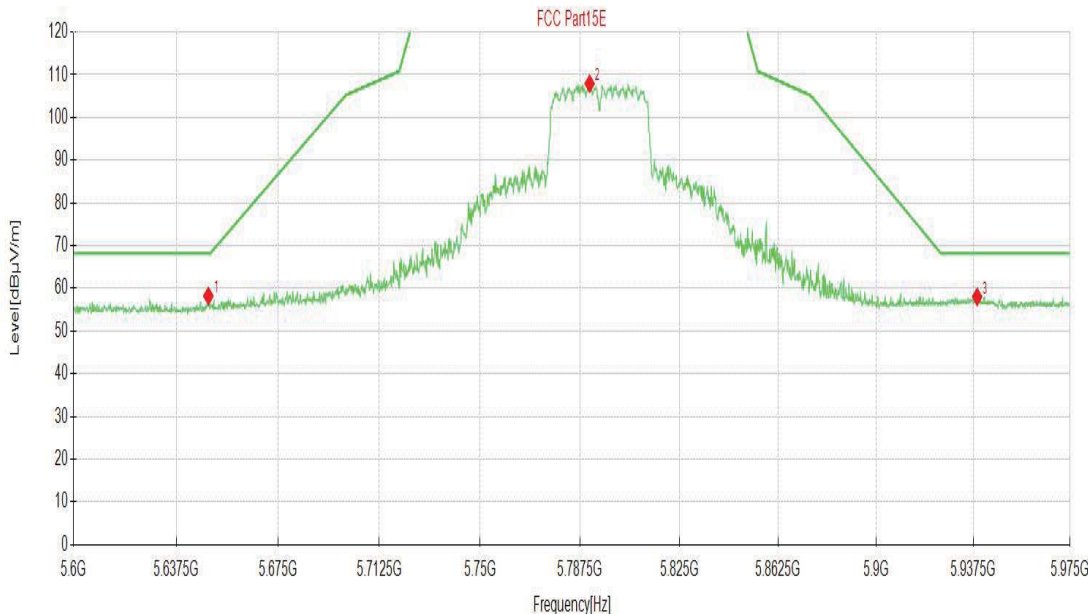
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5643.7094	50.10	8.59	58.69	68.20	9.51	231	208	PK
2	5760.5803	99.24	9.33	108.57			231	316	PK
3	5940.4827	47.57	10.76	58.33	68.20	9.87	231	75	PK
4	11510.0000	25.32	15.12	40.44	74.00	33.56	245	331	PK
5	11510.0000	18.04	15.12	33.16	54.00	20.84	245	251	AV
6	17265.0000	20.77	25.62	46.39	68.20	21.81	181	149	PK
7	17265.0000	12.72	25.62	38.34	54.00	15.66	181	105	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH159			Frequency	5795 MHz				
Frequency Range	Above 1G			Detector Function	PK/AV				
Horizontal									
NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5649.3372	49.39	8.82	58.21	68.20	9.99	247	30	PK
2	5791.1581	99.30	8.61	107.91			247	216	PK
3	5938.9820	47.23	10.78	58.01	68.20	10.19	247	273	PK
4	11590.0000	26.10	15.17	41.27	74.00	32.73	173	260	PK
5	11590.0000	18.82	15.17	33.99	54.00	20.01	173	69	AV
6	17385.0000	21.17	26.14	47.31	68.20	20.89	133	300	PK
7	17385.0000	12.24	26.14	38.38	54.00	15.62	133	48	AV



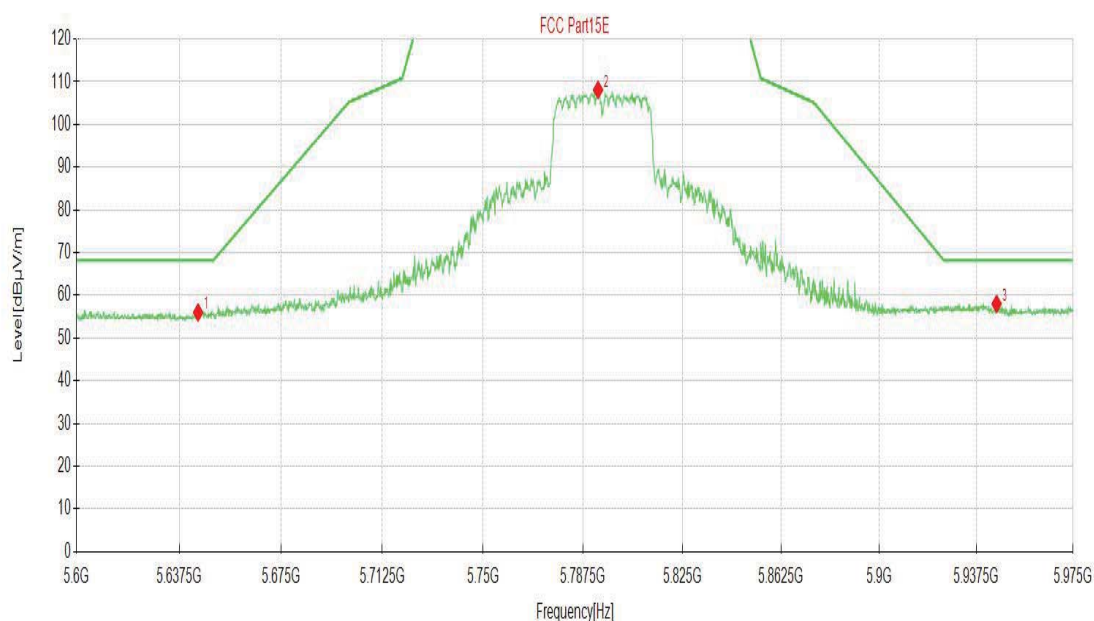
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).
3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11n40 CH159	Frequency	5795 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5644.4597	47.37	8.62	55.99	68.20	12.21	176	309	PK
2	5793.2216	99.49	8.61	108.10			176	317	PK
3	5945.3602	47.78	10.22	58.00	68.20	10.20	176	104	PK
4	11590.0000	25.28	15.17	40.45	74.00	33.55	217	318	PK
5	11590.0000	18.21	15.17	33.38	54.00	20.62	217	37	AV
6	17385.0000	18.80	26.14	44.94	68.20	23.26	206	335	PK
7	17385.0000	12.12	26.14	38.26	54.00	15.74	206	360	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

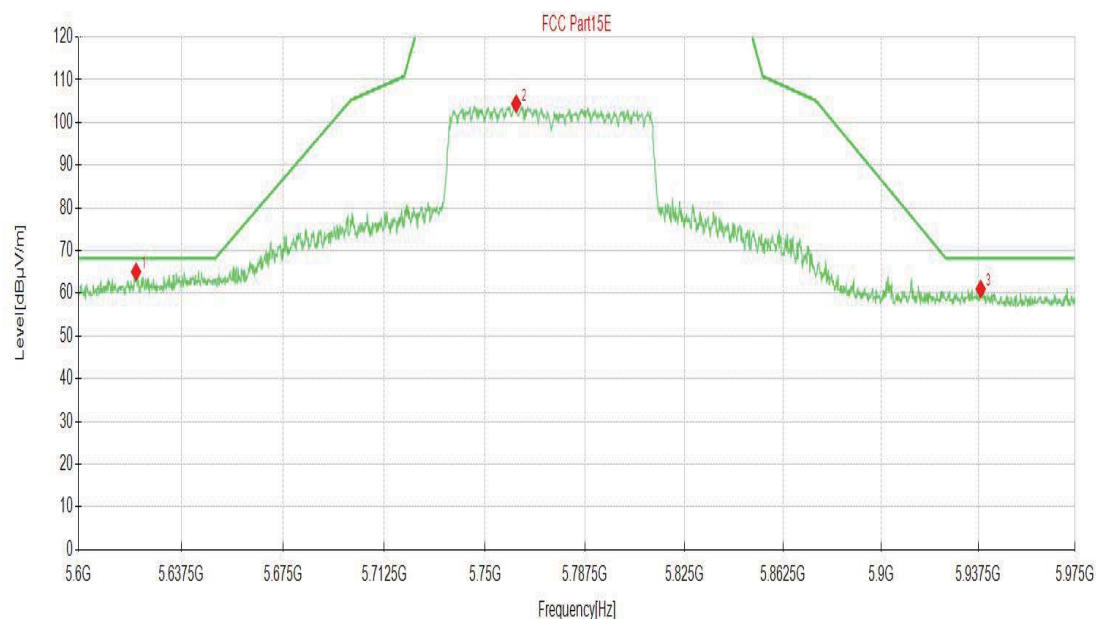
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11ac80 CH155	Frequency	5775 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Horizontal

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5621.0105	56.05	8.99	65.04	68.20	3.16	220	324	PK
2	5761.7059	95.10	9.28	104.38			220	212	PK
3	5938.4192	50.25	10.76	61.01	68.20	7.19	220	318	PK
4	11550.0000	25.51	15.40	40.91	74.00	33.09	212	282	PK
5	11550.0000	18.22	15.40	33.62	54.00	20.38	212	360	AV
6	17325.0000	19.05	26.20	45.25	68.20	22.95	296	279	PK
7	17325.0000	12.44	26.20	38.64	54.00	15.36	296	51	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

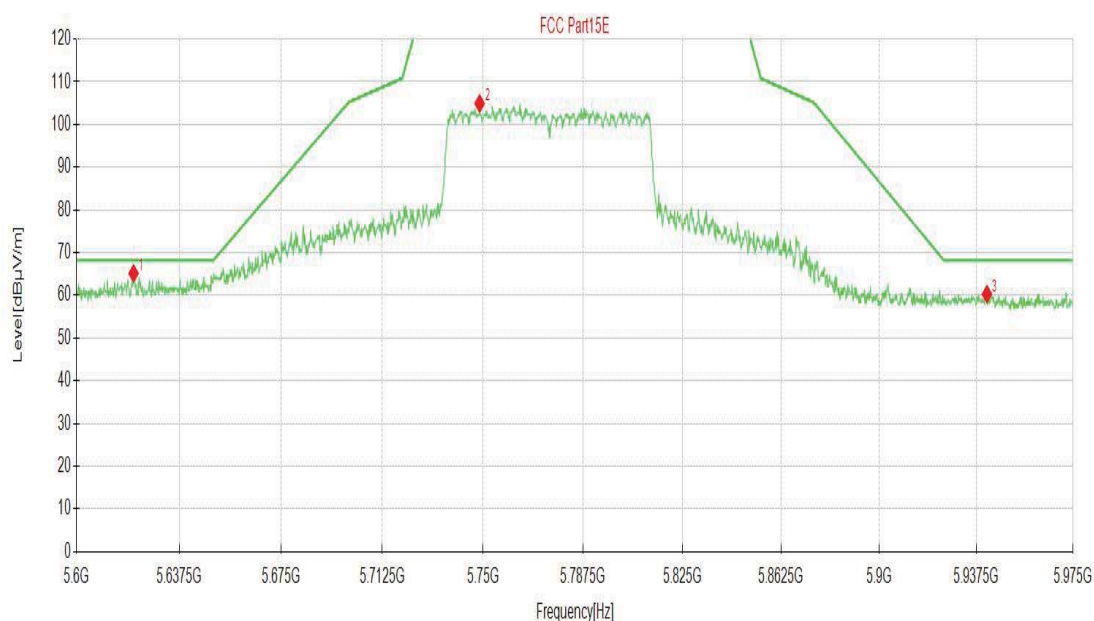
4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]



Channel	802.11ac80 CH155	Frequency	5775 MHz
Frequency Range	Above 1G	Detector Function	PK/AV

Vertical

NO.	Freq. [MHz]	Reading [dBμV/m]	Factor [dB]	Level [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector
1	5620.8229	56.14	8.99	65.13	68.20	3.07	164	315	PK
2	5748.7619	95.98	8.93	104.91			164	157	PK
3	5941.6083	49.66	10.63	60.29	68.20	7.91	164	321	PK
4	11550.0000	25.13	15.40	40.53	74.00	33.47	100	6	PK
5	11550.0000	18.26	15.40	33.66	54.00	20.34	100	153	AV
6	17325.0000	19.65	26.20	45.85	68.20	22.35	246	85	PK
7	17325.0000	11.59	26.20	37.79	54.00	16.21	246	85	AV



Remark: 1. The emission levels of other frequencies were greater than 20dB margin.

2. Level (dBμV/m) = Reading (dBμV/m) + Factor (dB).

3. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

4. Margin(dB) = Limit[dBμV/m] - Level [dBμV/m]

3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 Measurement procedure

The transmitter antenna output was connected to the spectrum analyzer through an attenuator. The resolution bandwidth shall be set to the range of 1% to 5% of the anticipated emission bandwidth, and a video bandwidth at least 3x the resolution bandwidth.

below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 %of the total mean power of a given emission.

3.3.2 TEST SETUP



3.3.3 Test result

Please refer Annex C.

3.4 26DB EMISSION BANDWIDTH

3.4.1 LIMITS OF 26DB EMISSION BANDWIDTH

This section is for reporting purpose only, there is on restriction limit of bandwidth

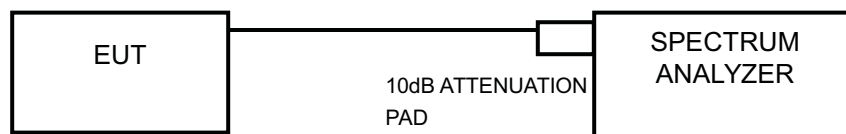
3.4.2 TEST PROCEDURES

FOR 26dB BANDWIDTH

- 1) Set RBW = approximately 1% of the emission bandwidth.
- 2) Set the VBW > RBW.
- 3) Detector = Peak
- 4) Trace mode = max hold.
- 5) 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 analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

3.4.3 TEST SETUP

FOR 26dB BANDWIDTH



3.4.4 TEST RESULTS

Refer to Appendix A

3.5 6DB EMISSION BANDWIDTH

3.5.1 LIMITS OF 6DB EMISSION BANDWIDTH

The minimum of 6dB Bandwidth Measurement is 0.5MHz.

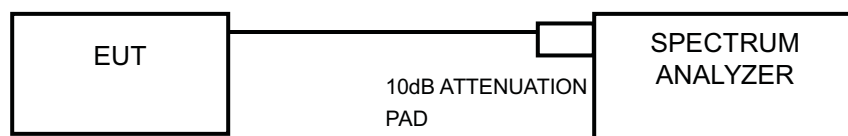
3.5.2 TEST PROCEDURES

FOR 6dB BANDWIDTH

- 1) Set RBW = 100 kHz.
- 2) Set the video bandwidth (VBW) ≥ 3 RBW.
- 3) Detector = Peak.
- 4) Trace mode = max hold.
- 5) Sweep = auto couple.
- 6) Allow the trace to stabilize.
- 7) 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.

3.5.3 TEST SETUP

FOR 6dB BANDWIDTH



3.5.4 TEST RESULTS

Refer to Appendix B

3.6 TRANSMIT POWER MEASUREMENT

3.6.1 LIMITS OF TRANSMIT POWER MEASUREMENT(FCC)

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p $\leq$ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
	√	Mobile and Portable client device	250mW (24 dBm)
U-NII-2A	√		250mW(24dBm) or 11 dBm+10LogB*
U-NII-2C	√		250mW(24dBm) or 11 dBm+10LogB*
U-NII-3	√		1 Watt (30 dBm)

NOTE: 1. Where B is the 26dB emission bandwidth in MHz.

3.6.2 LIMITS OF TRANSMIT POWER MEASUREMENT(IC)

FREQUENCY BAND	LIMIT
5.150 ~ 5.250GHz	EIRP shall not exceed 200mW or 10+ 10logB, dBm
5.250 ~ 5.350GHz	Conducted output power shall not exceed 250mW or 11+ 10logB, dBm EIRP shall not exceed 1.0W or 17+ 10logB, dBm
5.470 ~ 5.600GHz	
5.650 ~ 5.725GHz	
5.725 ~ 5.825GHz	Conducted output power shall not exceed 1 W.

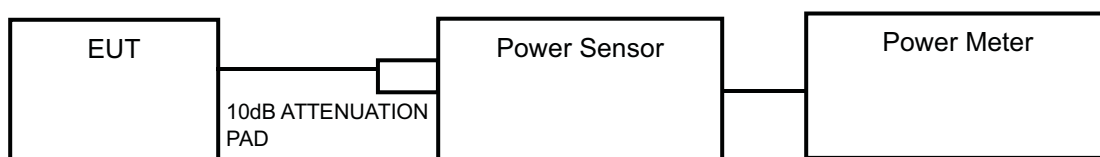
NOTE: Where B is the 99% emission bandwidth in MHz

3.6.3 TEST PROCEDURES

FOR AVERAGE POWER MEASUREMENT

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

3.6.4 TEST SETUP



3.6.5 TEST RESULTS

Refer to Appendix D



3.7 POWER SPECTRAL DENSITY MEASUREMENT

3.7.1 LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT(FCC)

Operation Band	EUT Category		LIMIT
U-NII-1		Outdoor Access Point	17dBm/ MHz
		Fixed point-to-point Access Point	
		Indoor Access Point	
	√	Mobile and Portable client device	11dBm/ MHz
U-NII-2A	√		11dBm/ MHz
U-NII-2C	√		11dBm/ MHz
U-NII-3	√		30dBm/ 500kHz

3.7.2 . LIMITS OF PEAK POWER SPECTRAL DENSITY MEASUREMENT(IC)

FREQUENCY BAND	LIMIT(dBm)
5.15 ~ 5.25GHz	EIRP spectral density shall not exceed 10 dBm in any 1.0 MHz band.
5.25 ~ 5.35GHz and 5.470 ~ 5.725GHz	Power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
5.725~5825GHz	Power spectral density shall not exceed 30 dBm in any 500 kHz band.

3.7.3 TEST PROCEDURE

For U-NII-1, U-NII-2A, U-NII-2C band:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 1MHz, Set VBW =3 MHz, Detector = AV
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)

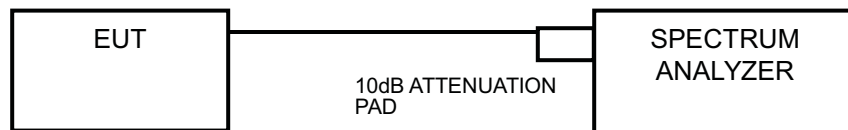
For U-NII-3 band:

Using method SA-2

- 1) Set span to encompass the entire emission bandwidth (EBW) of the signal.
- 2) Set RBW = 300 kHz, Set VBW =1 MHz, Detector = AV
- 3) Set Channel power measure = 1MHz
- 4) Sweep time = auto, trigger set to "free run".
- 5) Trace average at least 100 traces in power averaging mode.
- 6) Record the max value and add 10 log (1/duty cycle)



3.7.4 TEST SETUP



3.7.5 TEST RESULT

Refer to Appendix E

3.8 FREQUENCY STABILITY

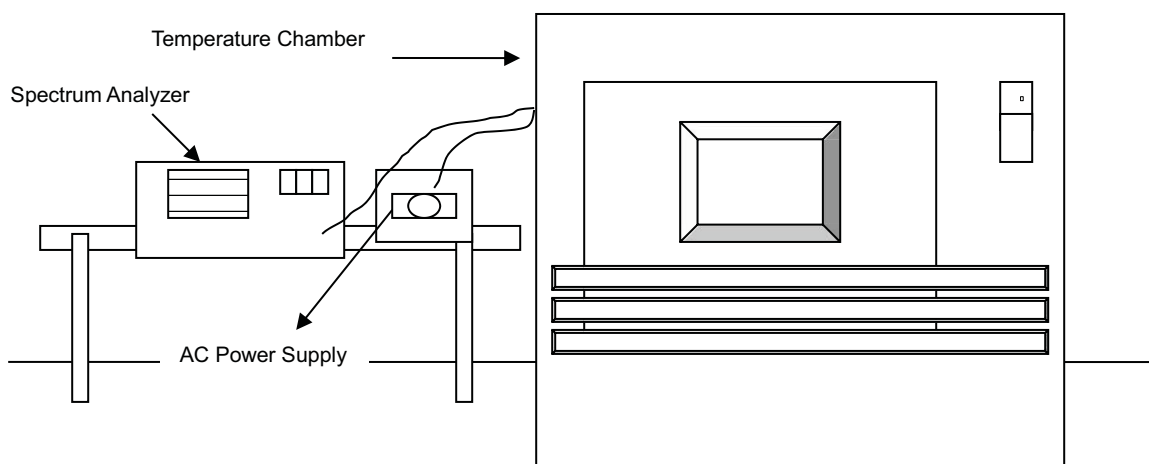
3.8.1 LIMITS OF FREQUENCY STABILITY

The frequency of the carrier signal shall be maintained within band of operation.

3.8.2 TEST PROCEDURES

- The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- Turn the EUT on and couple its output to a spectrum analyzer.
- Turn the EUT off and set the chamber to the highest temperature specified.
- Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
- Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

3.8.3 TEST SETUP





3.8.4 TEST RESULTS

Refer to Appendix F



4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Setup Photo).



5 Appendix

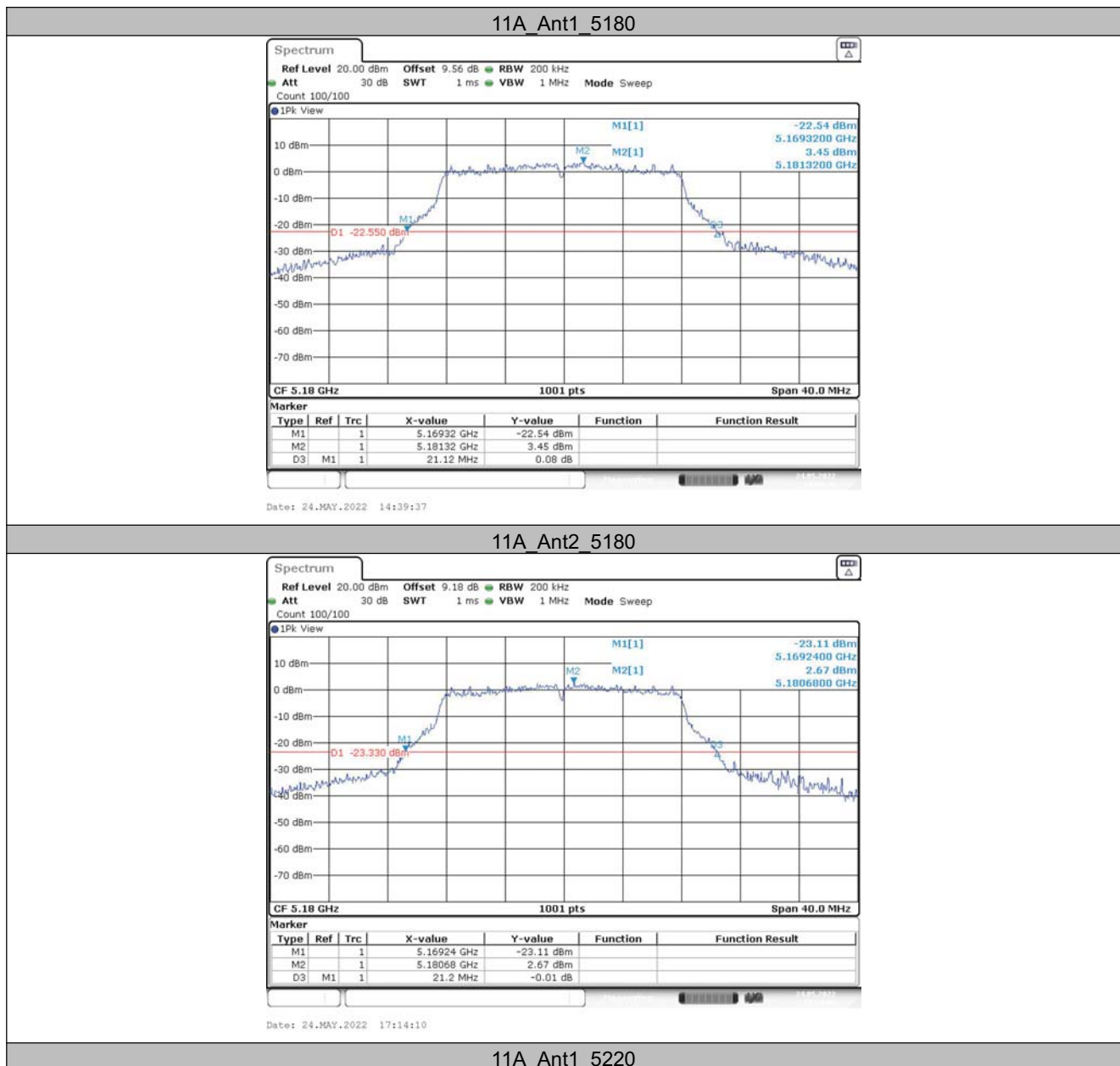
5.1 Appendix A: 26DB EMISSION BANDWIDTH

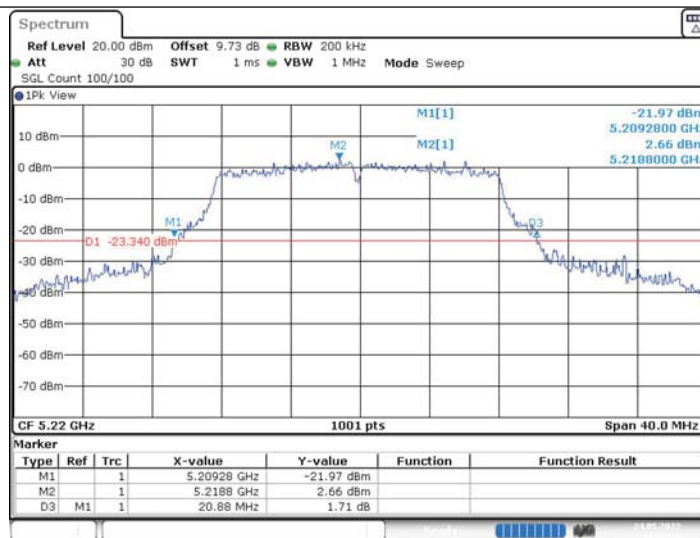
5.1.1 Test Result

TestMode	Antenna	Frequency[MHz]	26db EBW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11A	Ant1	5180	21.12	5169.32	5190.44	---	---
	Ant2	5180	21.20	5169.24	5190.44	---	---
	Ant1	5220	20.88	5209.28	5230.16	---	---
	Ant2	5220	21.32	5209.04	5230.36	---	---
	Ant1	5240	21.44	5229.08	5250.52	---	---
	Ant2	5240	21.36	5229.04	5250.40	---	---
	Ant1	5745	21.08	5734.44	5755.52	---	---
	Ant2	5745	21.64	5736.88	5752.60	---	---
	Ant1	5785	21.00	5774.32	5795.32	---	---
	Ant2	5785	21.32	5774.08	5795.40	---	---
	Ant1	5825	21.40	5814.16	5835.56	---	---
	Ant2	5825	21.24	5814.20	5835.44	---	---
11N20MIMO	Ant1	5180	21.36	5169.16	5190.52	---	---
	Ant2	5180	21.32	5169.20	5190.52	---	---
	Ant1	5220	21.20	5209.20	5230.40	---	---
	Ant2	5220	21.36	5209.12	5230.48	---	---
	Ant1	5240	21.36	5229.08	5250.44	---	---
	Ant2	5240	21.56	5228.96	5250.52	---	---
	Ant1	5745	21.36	5734.28	5755.64	---	---
	Ant2	5745	21.16	5734.40	5755.56	---	---
	Ant1	5785	21.32	5774.36	5795.68	---	---
	Ant2	5785	21.44	5774.32	5795.76	---	---
	Ant1	5825	21.48	5814.28	5835.76	---	---
	Ant2	5825	21.52	5814.16	5835.68	---	---
11N40MIMO	Ant1	5190	39.92	5170.00	5209.92	---	---
	Ant2	5190	40.48	5169.68	5210.16	---	---
	Ant1	5230	39.76	5210.00	5249.76	---	---
	Ant2	5230	40.48	5209.68	5250.16	---	---
	Ant1	5755	40.56	5734.76	5775.32	---	---
	Ant2	5755	40.00	5734.92	5774.92	---	---
	Ant1	5795	40.48	5774.68	5815.16	---	---
	Ant2	5795	39.84	5775.08	5814.92	---	---
11AC80MIMO	Ant1	5210	87.36	5169.04	5256.40	---	---
	Ant2	5210	87.04	5168.88	5255.92	---	---
	Ant1	5775	82.40	5733.72	5816.12	---	---
	Ant2	5775	82.40	5733.72	5816.12	---	---

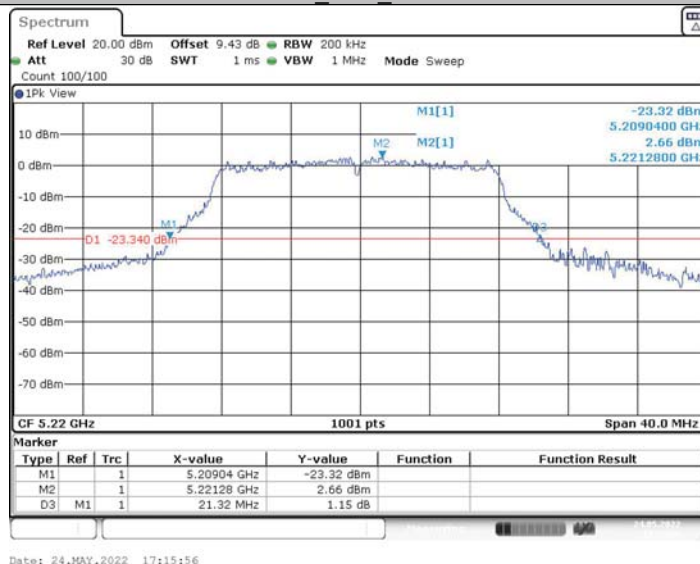


5.1.2 Test Graphs

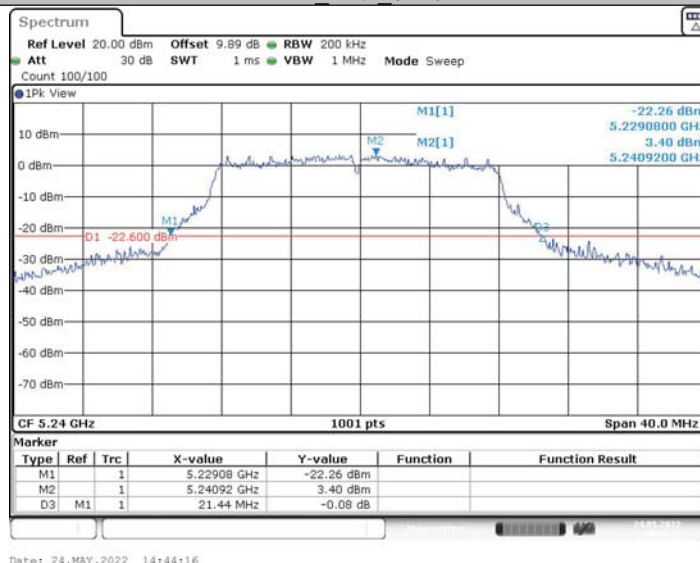




11A Ant2_5220

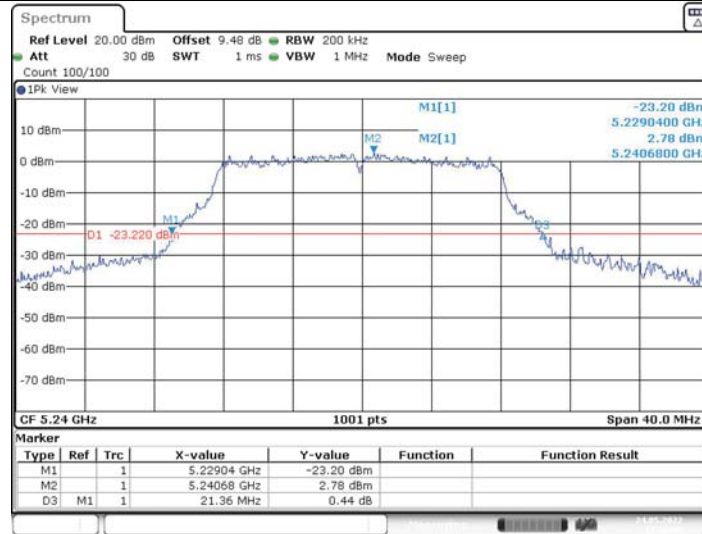


11A Ant1_5240



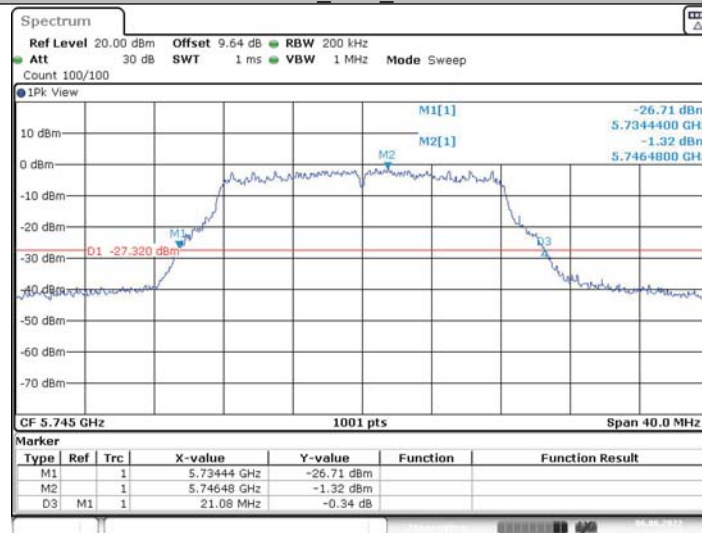


11A_Ant2_5240



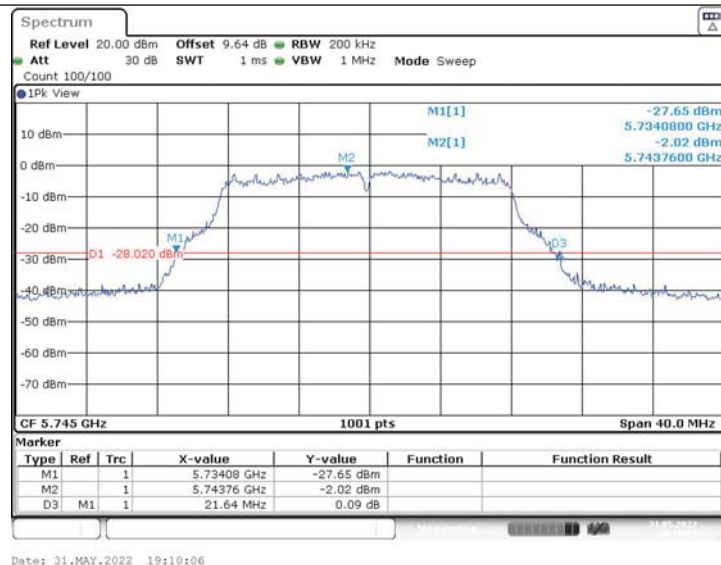
Date: 24.MAY.2022 17:18:06

11A_Ant1_5745

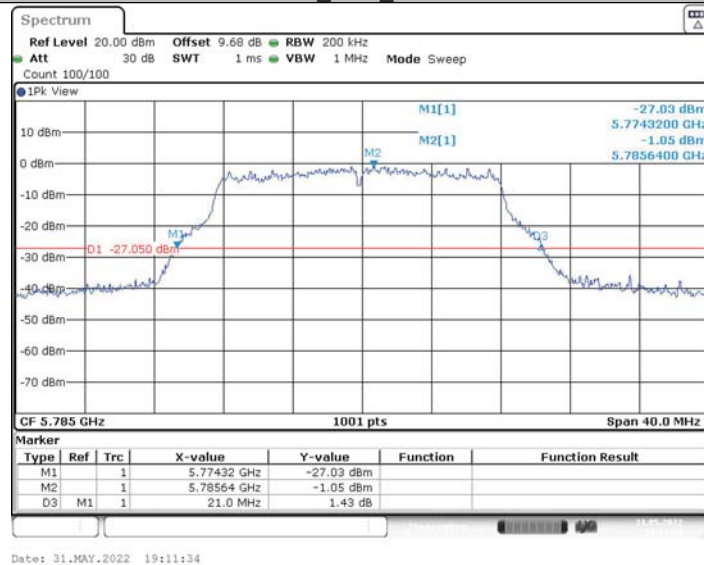


Date: 6.JUN.2022 11:27:21

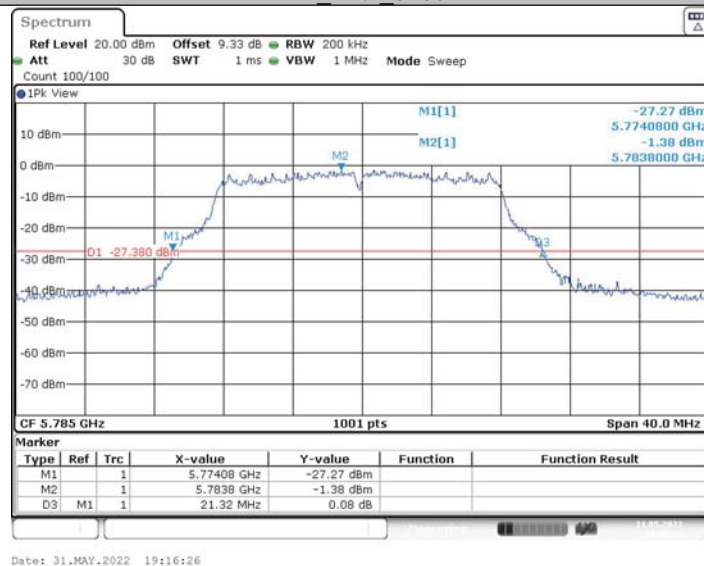
11A_Ant2_5745



11A Ant1 5785

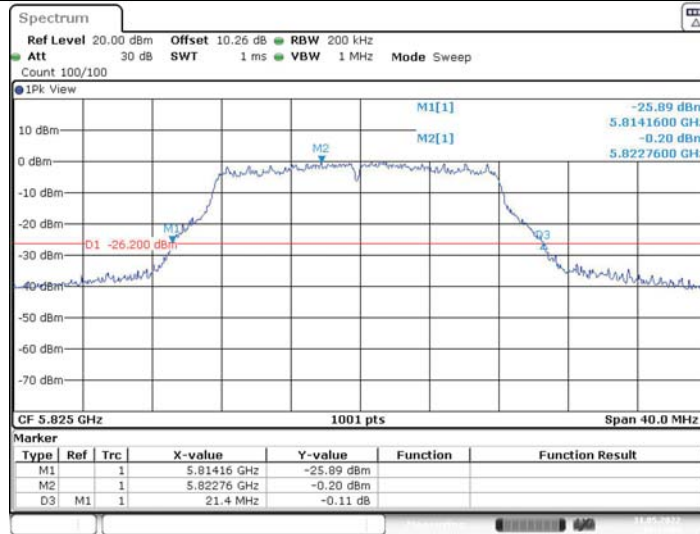


11A Ant2 5785

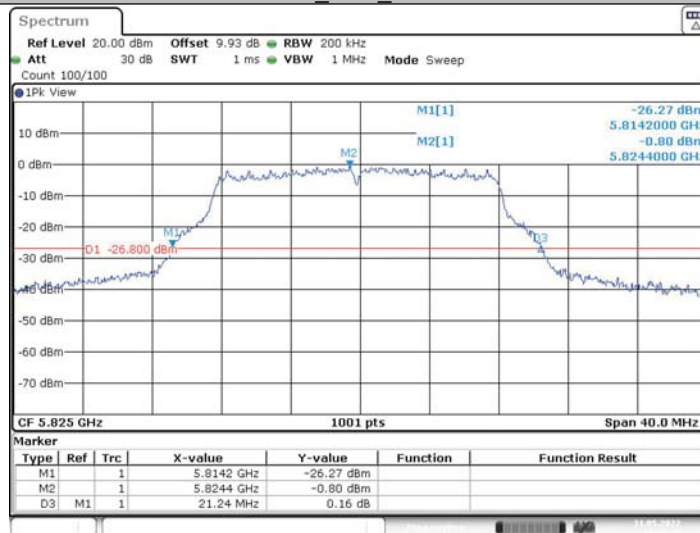




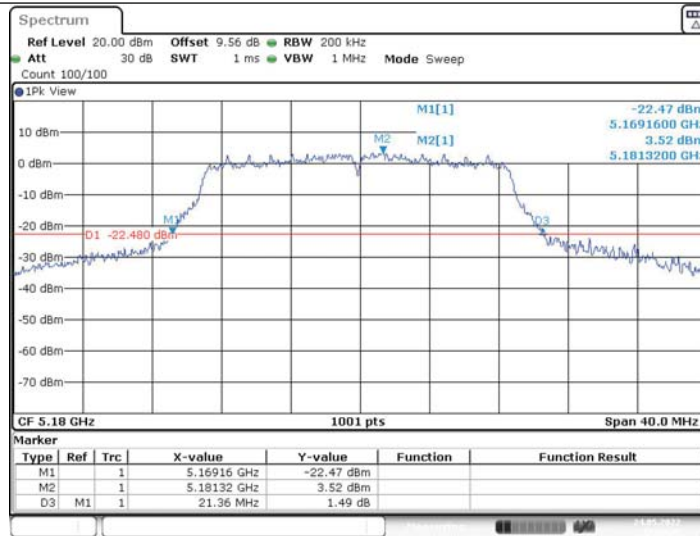
11A_Ant1_5825



11A_Ant2_5825

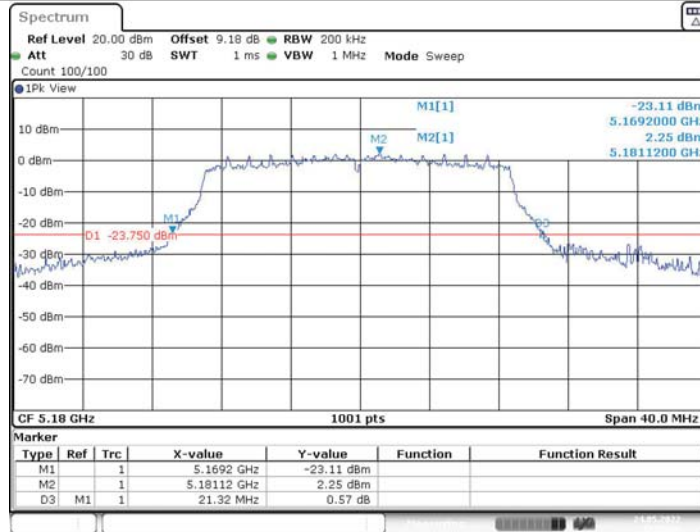


11N20MIMO_Ant1_5180



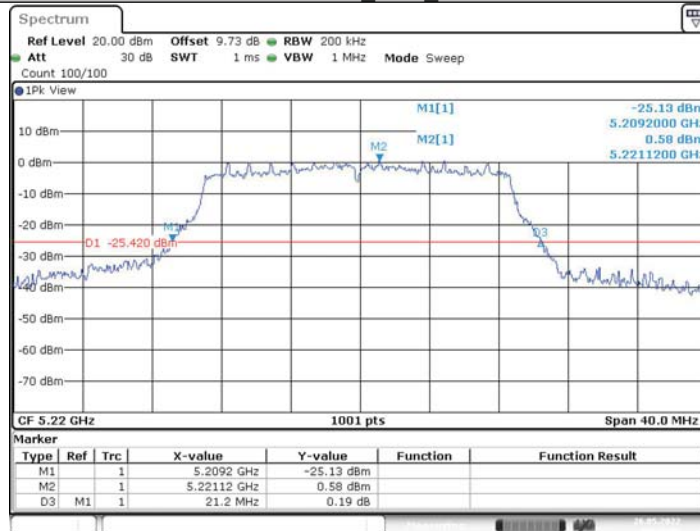
Date: 24.MAY.2022 17:24:25

11N20MIMO_Ant2_5180



Date: 24.MAY.2022 17:26:00

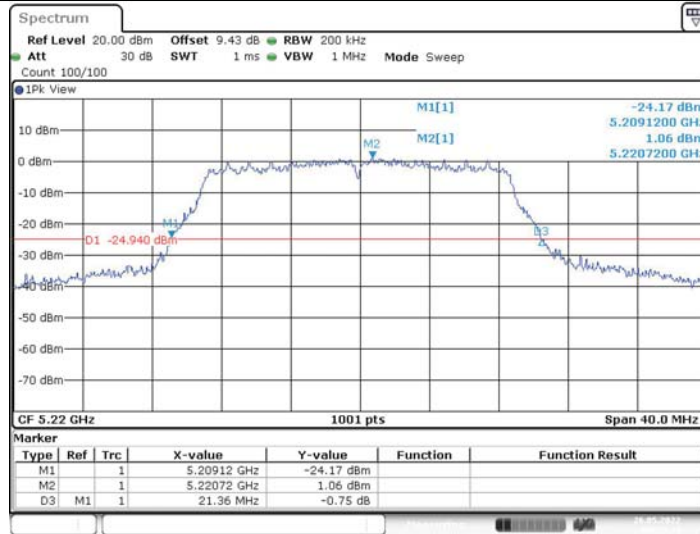
11N20MIMO_Ant1_5220



Date: 26.MAY.2022 09:18:10

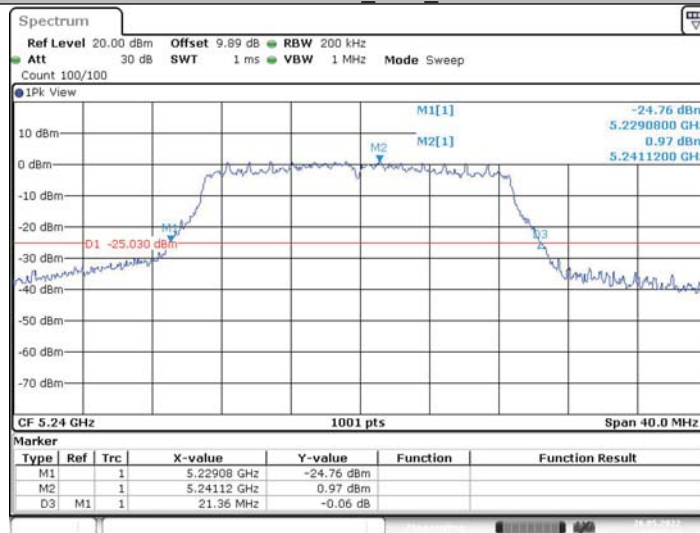


11N20MIMO_Ant2_5220



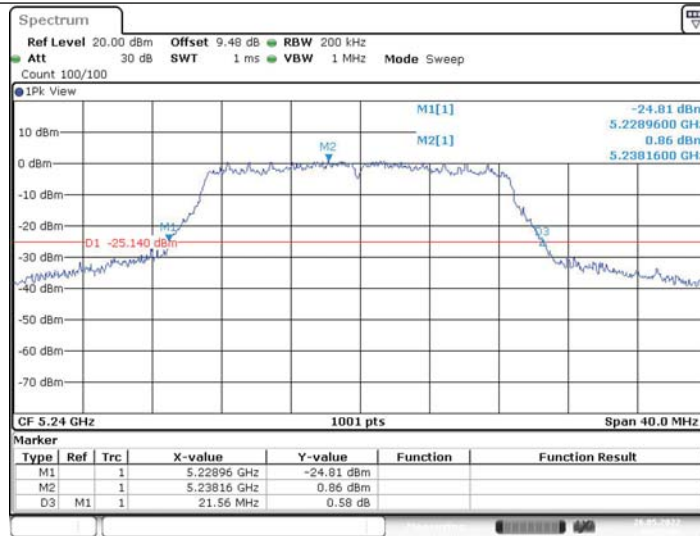
Date: 26.MAY.2022 09:19:14

11N20MIMO_Ant1_5240

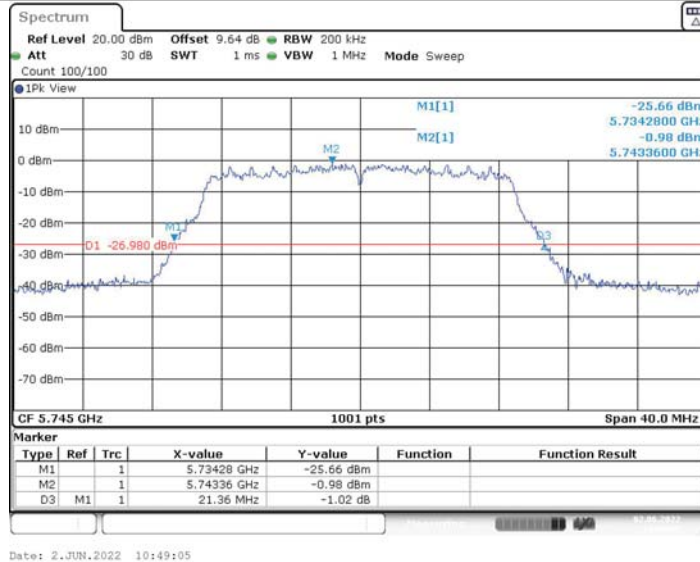


Date: 26.MAY.2022 09:23:35

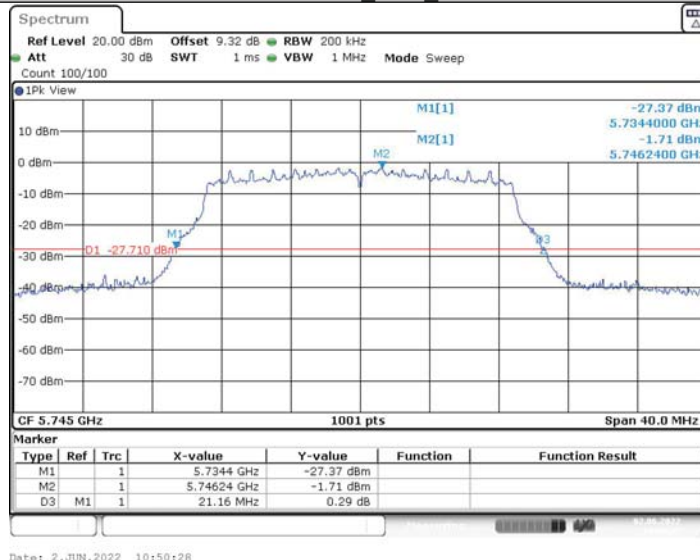
11N20MIMO_Ant2_5240



11N20MIMO_Ant1_5745

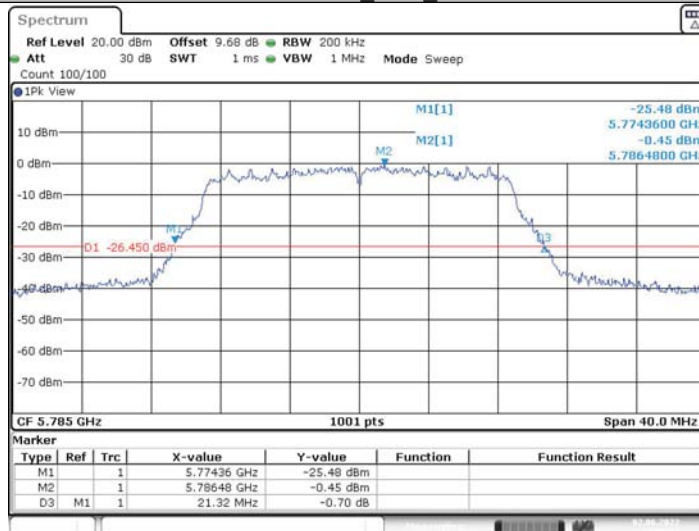


11N20MIMO_Ant2_5745



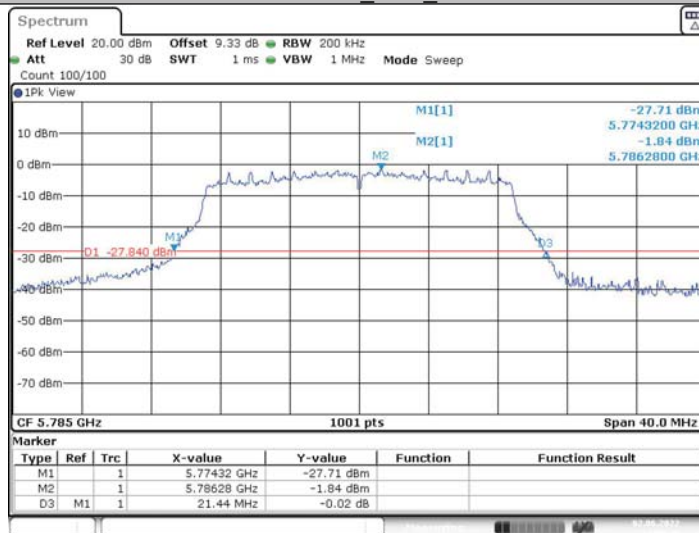


11N20MIMO_Ant1_5785



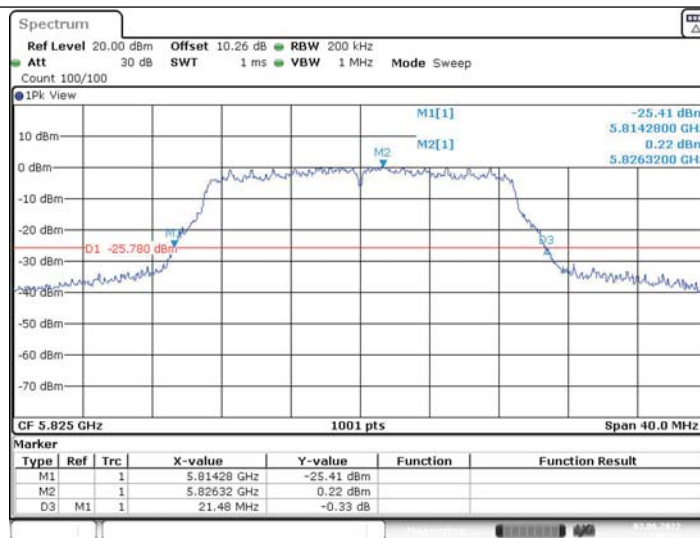
Date: 2.JUN.2022 10:59:04

11N20MIMO_Ant2_5785



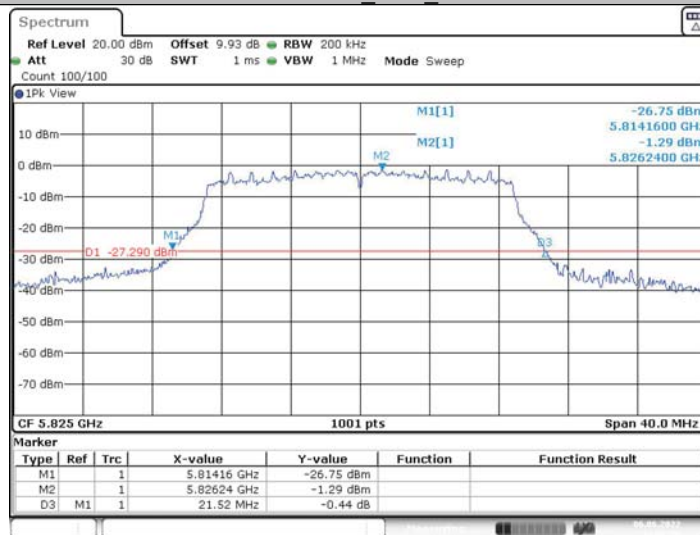
Date: 2.JUN.2022 11:00:28

11N20MIMO_Ant1_5825



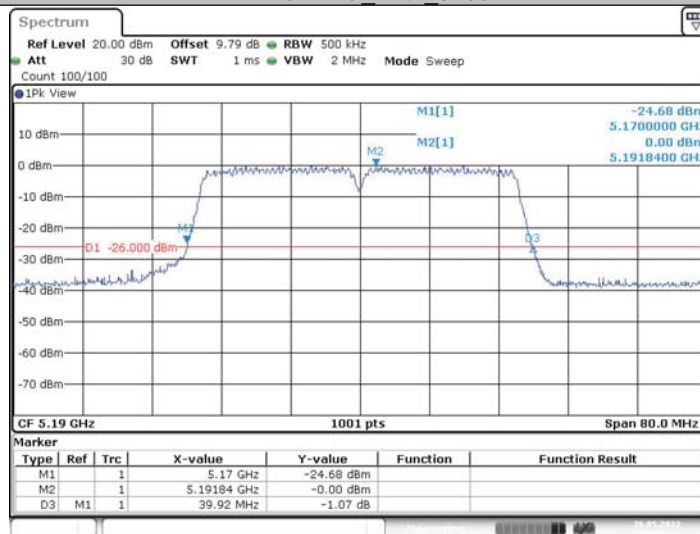
Date: 2.JUN.2022 11:02:15

11N20MIMO_Ant2_5825



Date: 6.JUN.2022 11:32:36

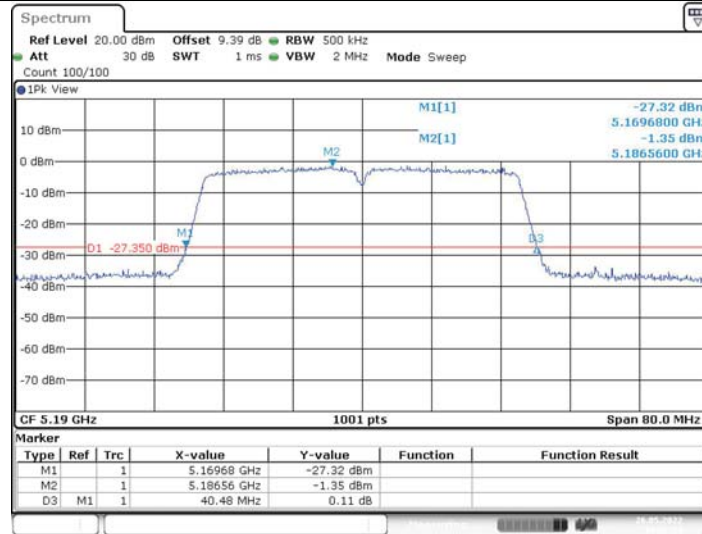
11N40MIMO_Ant1_5190



Date: 26.MAY.2022 10:36:21

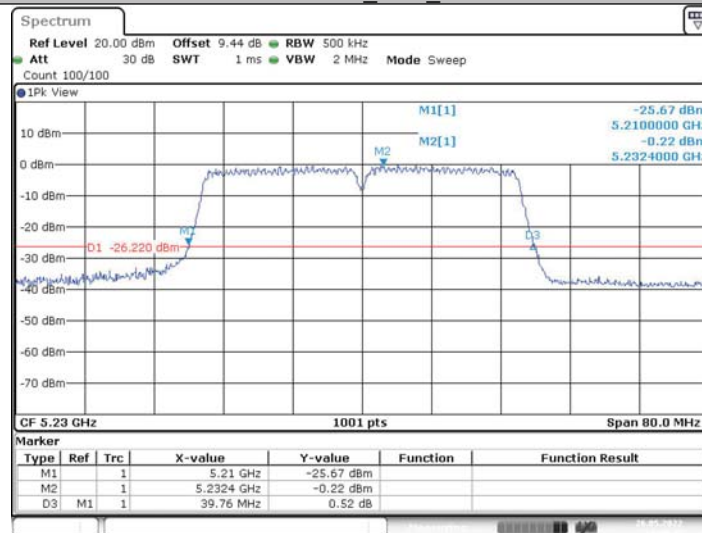


11N40MIMO_Ant2_5190



Date: 26.MAY.2022 10:37:53

11N40MIMO_Ant1_5230



Date: 26.MAY.2022 10:40:37

11N40MIMO_Ant2_5230