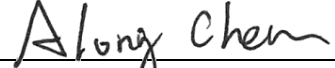


FCC Test Report

FCC ID : I88NWA5123-ACHD
Equipment : 802.11ac Wave2 Dual-Radio Unified Access Point
Model No. : NWA5123-AC HD
Multiple Listing : Refer to item 1.1.1 for more details
Brand Name : ZYXEL
Applicant : Zyxel Communications Corporation
Address : No.2 Industry East RD. IX, Hsinchu Science Park, Hsinchu 30075, Taiwan, R.O.C.
Standard : 47 CFR FCC Part 15.407
Received Date : Jun. 22, 2017
Tested Date : Jun. 27 ~ Jul. 21, 2017

We, International Certification Corp., would like to declare that the tested sample has been evaluated and in compliance with the requirement of the above standards. The test results contained in this report refer exclusively to the product. It may be duplicated completely for legal use with the approval of the applicant. It shall not be reproduced except in full without the written approval of our laboratory.

Reviewed by:


Along Chen / Assistant Manager

Approved by:


Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR762202AN	Rev. 01	Initial issue	Aug. 28, 2017

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.561MHz 39.82 (Margin -6.18dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5150.00MHz 53.88 (Margin -0.12dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: Non-beamforming mode 5150-5250MHz: 26.86 5725-5850MHz: 28.13 Beamforming mode 5150-5250MHz: 26.24 5725-5850MHz: 26.60	Pass
15.407(a)	Peak Power Spectral Density	Meet the requirement of limit	Pass
15.407(g)	Frequency Stability	Meet the requirement of limit	Pass
15.203	Antenna Requirement	Meet the requirement of limit	Pass

1 General Description

1.1 Information

1.1.1 Product Details

The following models are provided to this EUT.

Brand Name	Model Name	Product Name
ZYSXEL	NWA5123-AC HD	802.11ac Wave2 Dual-Radio Unified Access Point
	NWA1123-AC HD	802.11ac Wave2 Dual-Radio Access Point
	NAP113	802.11ac Wave2 Dual-Radio Nebula Cloud Managed Access Point
✦ All models are electrically identical, different model names are for marketing purpose. ✦ The above models, model NWA5123-AC HD was selected as a representative one for the final test and only its data was recorded in this report.		

1.1.2 Specification of the Equipment under Test (EUT)

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
5150-5250	a	5180-5240	36-48 [4]	3	6-54 Mbps
5150-5250	n (HT20)	5180-5240	36-48 [4]	3	MCS 0-23
5150-5250	n (HT40)	5190-5230	38-46 [2]	3	MCS 0-23
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	3	MCS 0-9
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	3	MCS 0-9
5150-5250	ac (VHT80)	5210	42 [1]	3	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 3: 802.11n/ac supports beamforming function.					

RF General Information					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	Data Rate / MCS
5725-5850	a	5745-5825	149-165 [5]	3	6-54 Mbps
5725-5850	n (HT20)	5745-5825	149-165 [5]	3	MCS 0-23
5725-5850	n (HT40)	5755-5795	151-159 [2]	3	MCS 0-23
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	3	MCS 0-9
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	3	MCS 0-9
5725-5850	ac (VHT80)	5775	155 [1]	3	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 3: 802.11n/ac supports beamforming function.					

1.1.3 Antenna Details

Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
		2400~2483.5	5150~5250	5725~5850
PIFA	I-PEX	3	---	---
PIFA	I-PEX	3	---	---
Monopole	I-PEX	---	4	4
Monopole	I-PEX	---	4	4
Monopole	I-PEX	---	4	4

1.1.4 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	From AC adapter: 12Vdc From PoE: 54Vdc
--------------------------	---

1.1.5 Accessories

Accessories		
No.	Equipment	Description
1	AC adapter	Brand: APD Model: WA-24Q12R Power Rating: I/P: 100-240Vac, 50-60Hz, 0.7A Max. O/P: 12Vdc, 2A Power Line: 1.4m non-shielded without core

1.1.6 Channel List

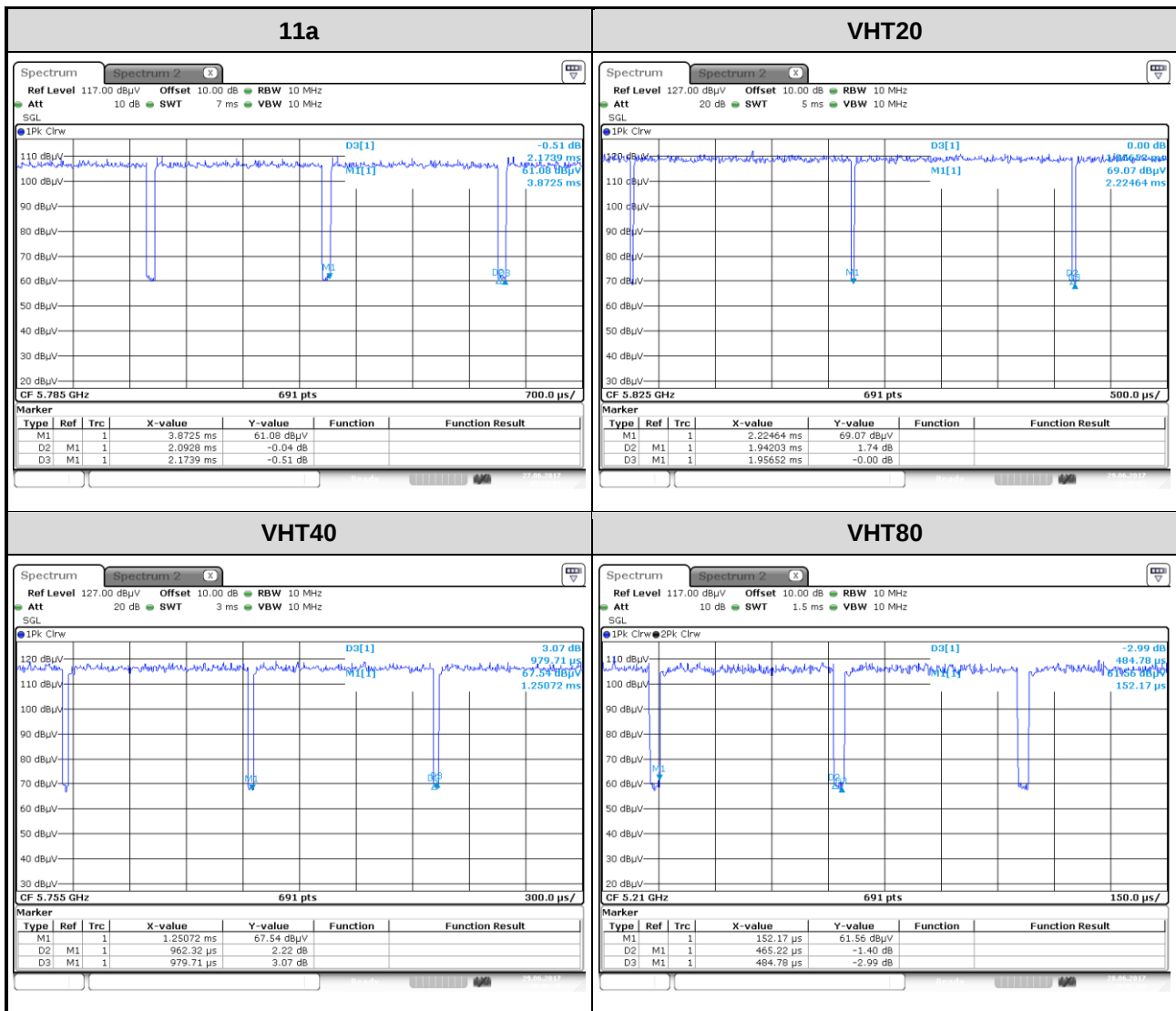
For Frequency band 5150-5250 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	VHT80	
48	5240	42	5210

For Frequency band 5725~5850 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
149	5745	151	5755
153	5765	159	5795
157	5785	VHT80	
161	5805	155	5775
165	5825	---	---

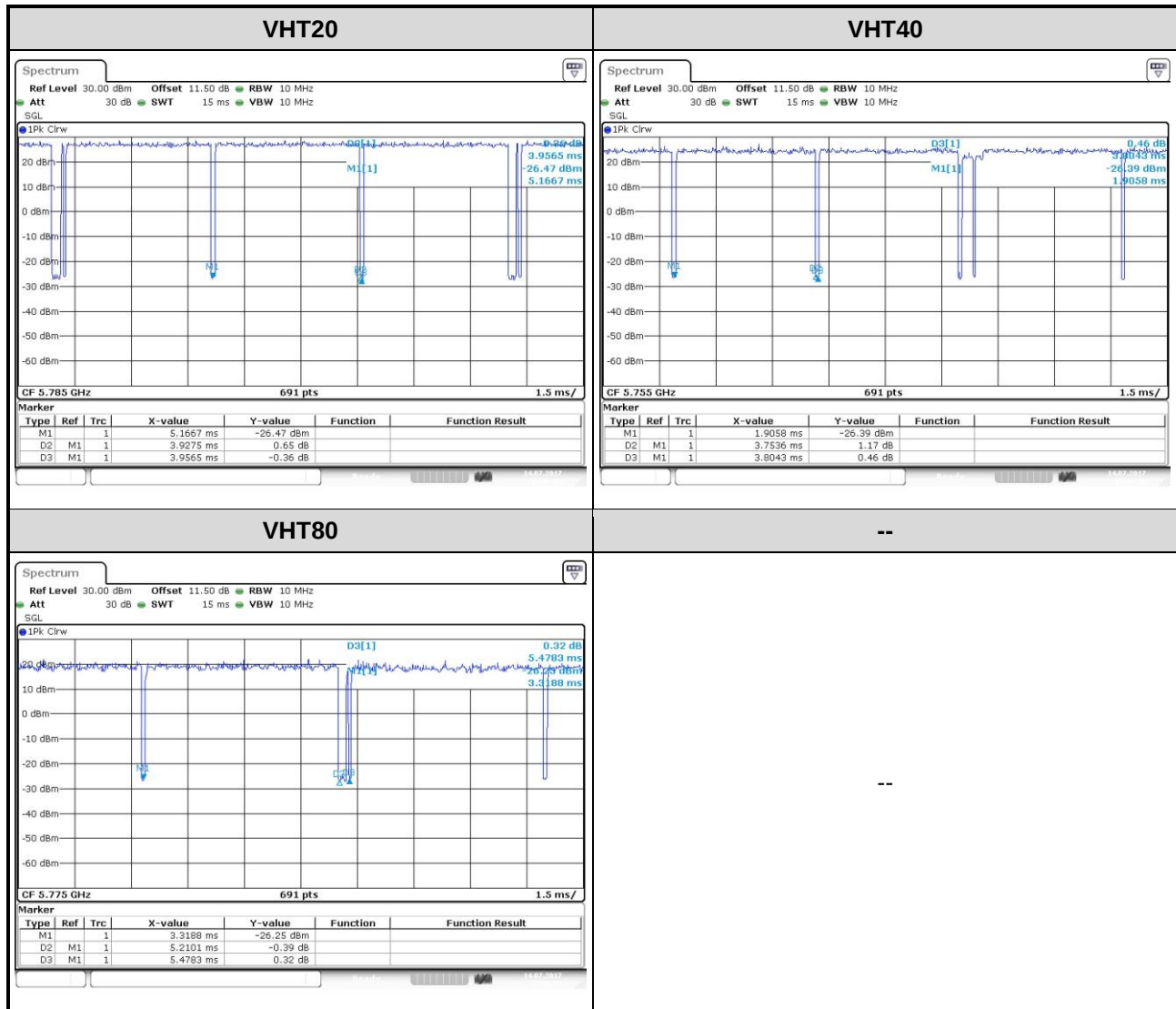
1.1.7 Test Tool and Duty Cycle

Test Tool	putty, V0.6				
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11a	96.27%	0.17	---	---
	VHT20	99.26%	0.03	99.27%	0.03
	VHT40	98.22%	0.08	98.67%	0.06
	VHT80	95.97%	0.18	95.10%	0.22

Non-beamforming mode



Beamforming mode



1.1.8 Power Setting

For Frequency band 5150-5250 MHz			
Modulation Mode	Test Frequency (MHz)	Power Set	
		Non-Beamforming	Beamforming
11a	5180	82	---
11a	5200	92	---
11a	5240	92	---
HT20	5180	76	76
HT20	5200	90	90
HT20	5240	90	90
HT40	5190	70	62
HT40	5230	74	74
VHT20	5180	76	76
VHT20	5200	90	90
VHT20	5240	90	90
VHT40	5190	70	62
VHT40	5230	74	74
VHT80	5210	68	64

For Frequency band 5725~5850 MHz			
Modulation Mode	Test Frequency (MHz)	Power Set	
		Non-Beamforming	Beamforming
11a	5745	96	---
11a	5785	96	---
11a	5825	96	---
HT20	5745	96	92
HT20	5785	96	92
HT20	5825	96	92
HT40	5755	96	92
HT40	5795	96	92
VHT20	5745	96	92
VHT20	5785	96	92
VHT20	5825	96	92
VHT40	5755	96	92
VHT40	5795	96	92
VHT80	5775	87	78

1.2 Local Support Equipment List

Non-beamforming mode

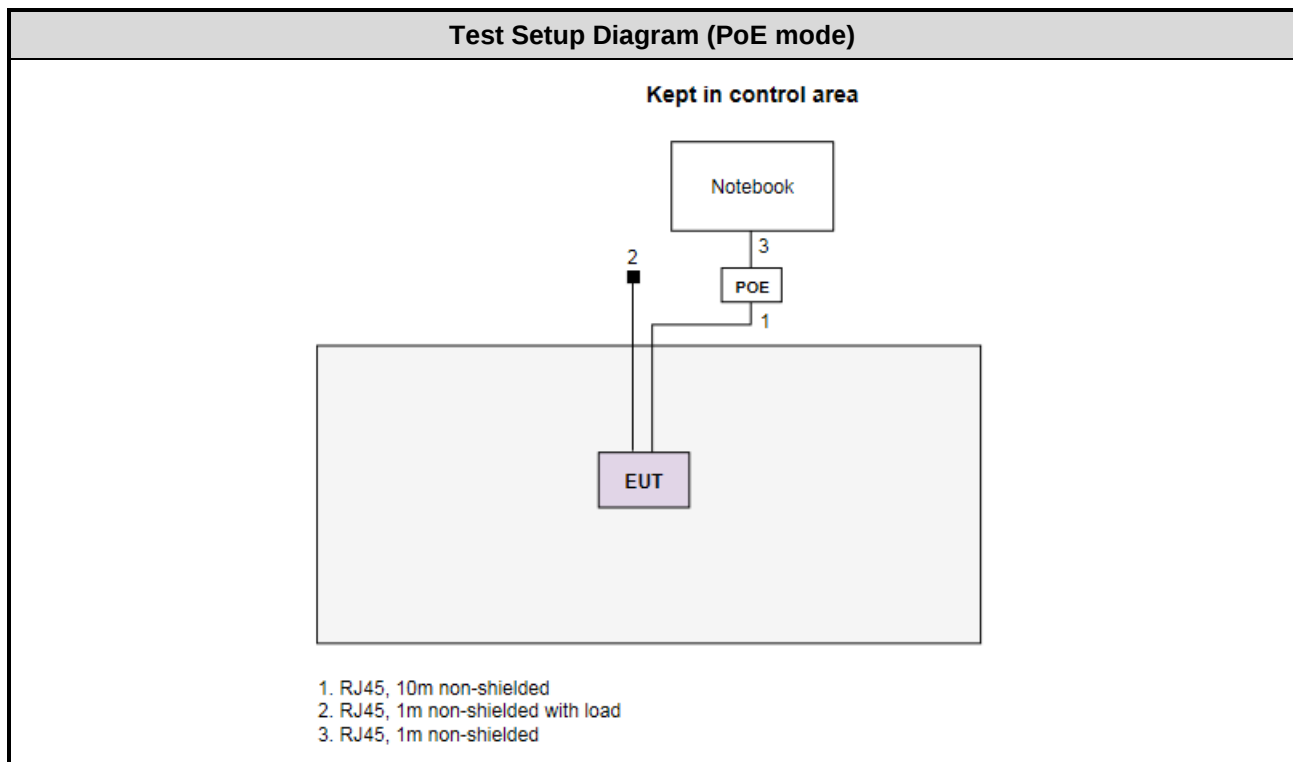
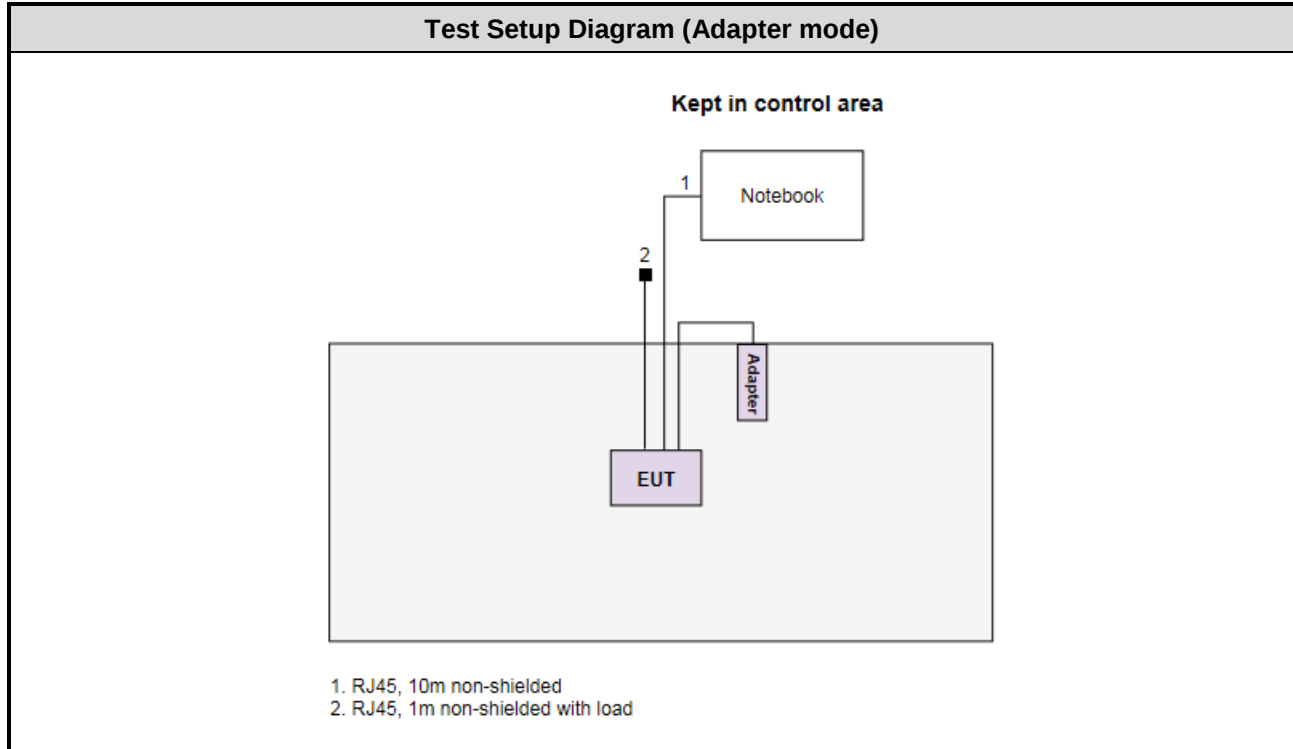
Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	9ZFB4X1	RJ45, 10m non-shielded.
2	POE	ZYXEL	GS1900-8HP	---	---

Beamforming mode

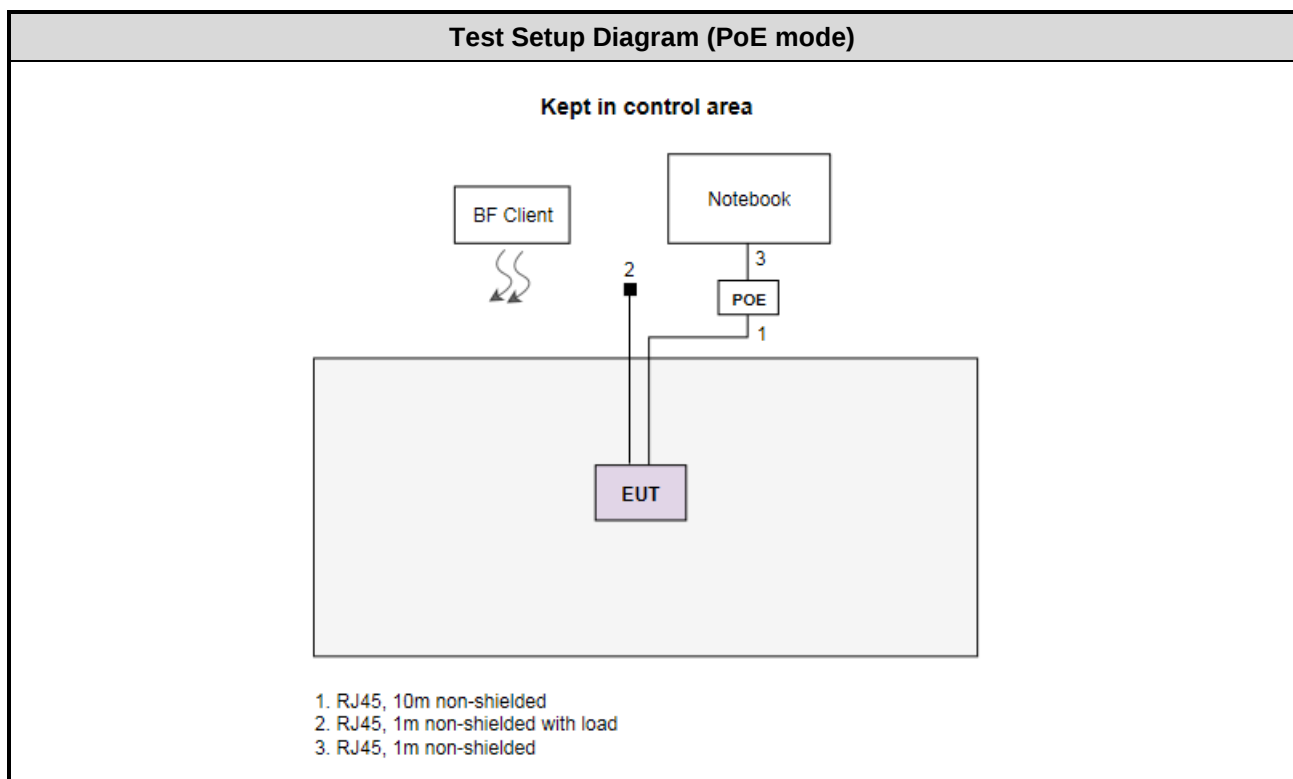
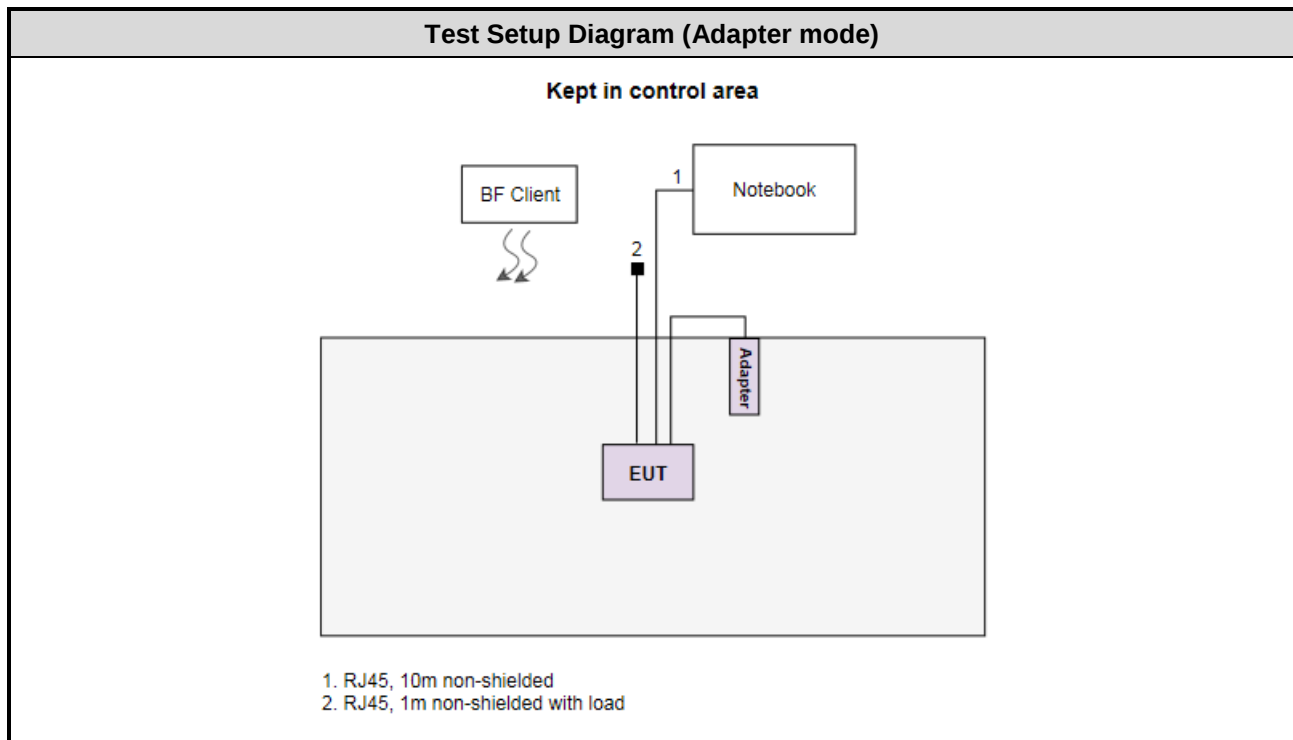
Support Equipment List					
No.	Equipment	Brand	Model	S/N	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	9ZFB4X1	RJ45, 10m non-shielded.
2	Client	ASUS	PCE-AC68	---	---
3	POE	ZYXEL	GS1900-8HP	---	---

1.3 Test Setup Chart

Non-beamforming mode



Beamforming mode



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Receiver	R&S	ESR3	101657	Dec. 21, 2016	Dec. 20, 2017
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 08, 2016	Nov. 07, 2017
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 20, 2016	Dec. 19, 2017
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 3 / (03CH03-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	Agilent	N9010A	MY53400091	Sep. 09, 2016	Sep. 08, 2017
Receiver	Agilent	N9038A	MY53290044	Oct. 06, 2016	Oct. 05, 2017
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 09, 2017	Feb. 08, 2018
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Oct. 25, 2016	Oct. 24, 2017
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 10, 2016	Nov. 09, 2017
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017
Preamplifier	EMC	EMC02325	980187	Sep. 08, 2016	Sep. 07, 2017
Preamplifier	Agilent	83017A	MY53270014	Aug. 22, 2016	Aug. 21, 2017
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22600/4	Feb. 04, 2017	Feb. 03, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 04, 2017	Feb. 03, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Feb. 04, 2017	Feb. 03, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 04, 2017	Feb. 03, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Feb. 04, 2017	Feb. 03, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Until
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 21, 2016	Nov. 20, 2017
Power Meter	Anritsu	ML2495A	1241002	Oct. 06, 2016	Oct. 05, 2017
Power Sensor	Anritsu	MA2411B	1207366	Oct. 06, 2016	Oct. 05, 2017
AC POWER SOURCE	APC	AFC-500W	F312060012	Oct. 28, 2016	Oct. 27, 2017
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Testing Applied Standards

According to the specification of EUT, the EUT must comply with following standards and KDB documents.

47 CFR FCC Part 15.407

ANSI C63.10-2013

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r04

FCC KDB 644545 D03 Guidance for IEEE 802.11ac New Rules v01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

Measurement Uncertainty	
Parameters	Uncertainty
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Frequency error	±34.134 Hz
Power density	±0.463 dB
Conducted emission	±2.670 dB
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.66 dB
Radiated emission > 1GHz	±5.37 dB
Time	±0.1%
Temperature	±0.6 °C

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	24°C / 57%	Alex Tsai
Radiated Emissions	03CH03-WS	24-25°C / 67%	Aska Huang Kevin Lee
RF Conducted	TH01-WS	22°C / 63%	Felix Sung

- FCC Designation No.: TW0009
- FCC site registration No.: 207696
- IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

For Frequency band 5150-5250 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11a	5240	6 Mbps	1, 2
Radiated Emissions ≤ 1 GHz	11a	5240	6 Mbps	1, 2
RF Output Power	11a HT20 HT40 VHT20 VHT40 VHT80	5180 / 5200 / 5240 5180 / 5200 / 5240 5190 / 5230 5180 / 5200 / 5240 5190 / 5230 5210	6 Mbps MCS 0 MCS 0 MCS 0 MCS 0 MCS 0	1
Radiated Emissions > 1 GHz Emission Bandwidth Peak Power Spectral Density	11a VHT20 VHT40 VHT80	5180 / 5200 / 5240 5180 / 5200 / 5240 5190 / 5230 5210	6 Mbps MCS 0 MCS 0 MCS 0	1
Frequency Stability	Un-modulation	5200	---	1
For Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	VHT40	5755	MCS 0	1, 2
Radiated Emissions ≤ 1 GHz	VHT40	5755	MCS 0	1, 2
RF Output Power	11a HT20 HT40 VHT20 VHT40 VHT80	5745 / 5785 / 5825 5745 / 5785 / 5825 5755 / 5795 5745 / 5785 / 5825 5755 / 5795 5775	6 Mbps MCS 0 MCS 0 MCS 0 MCS 0 MCS 0	1
Radiated Emissions > 1 GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a VHT20 VHT40 VHT80	5745 / 5785 / 5825 5745 / 5785 / 5825 5755 / 5795 5775	6 Mbps MCS 0 MCS 0 MCS 0	1
Frequency Stability	Un-modulation	5785	---	1
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report. 2. This device can be powered by AC adapter or POE . Each power supply was selected for final testing as below configuration. 1) Test configuration 1: POE mode 2) Test configuration 2: Adapter mode				

Beamforming mode

For Frequency band 5150-5250 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	VHT20	5240	MCS 0	1, 2
Radiated Emissions ≤1GHz	VHT20	5240	MCS 0	1, 2
RF Output Power	HT20 HT40 VHT20 VHT40 VHT80	5180 / 5200 / 5240 5190 / 5230 5180 / 5200 / 5240 5190 / 5230 5210	MCS 0 MCS 0 MCS 0 MCS 0 MCS 0	1
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	VHT20 VHT40 VHT80	5180 / 5200 / 5240 5190 / 5230 5210	MCS 0 MCS 0 MCS 0	1
Frequency Stability	VHT20	5200	MCS 0	1
For Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	VHT40	5755	MCS 0	1, 2
Radiated Emissions ≤1GHz	VHT40	5755	MCS 0	1, 2
RF Output Power	HT20 HT40 VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0 MCS 0 MCS 0	1
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0	1
Frequency Stability	VHT20	5785	MCS 0	1
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The Y-plane results were found as the worst case and were shown in this report. 2. This device can be powered by AC adapter or POE . Each power supply was selected for final testing as below configuration. 1) Test configuration 1: POE mode 2) Test configuration 2: Adapter mode				

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

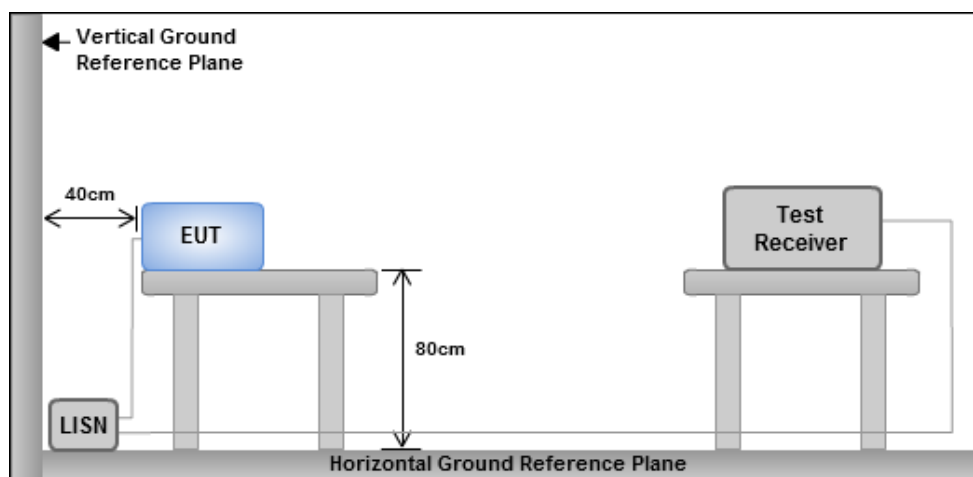
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

Note 1: * Decreases with the logarithm of the frequency.

3.1.2 Test Procedures

1. The device is placed on a test table, raised 80 cm above the reference ground plane. The vertical conducting plane is located 40 cm to the rear of the device.
2. The device is connected to line impedance stabilization network (LISN) and other accessories are connected to other LISN. Measured levels of AC power line conducted emission are across the 50 Ω LISN port.
3. AC conducted emission measurements is made over frequency range from 150 kHz to 30 MHz.
4. This measurement was performed with AC 120V / 60Hz.

3.1.3 Test Setup

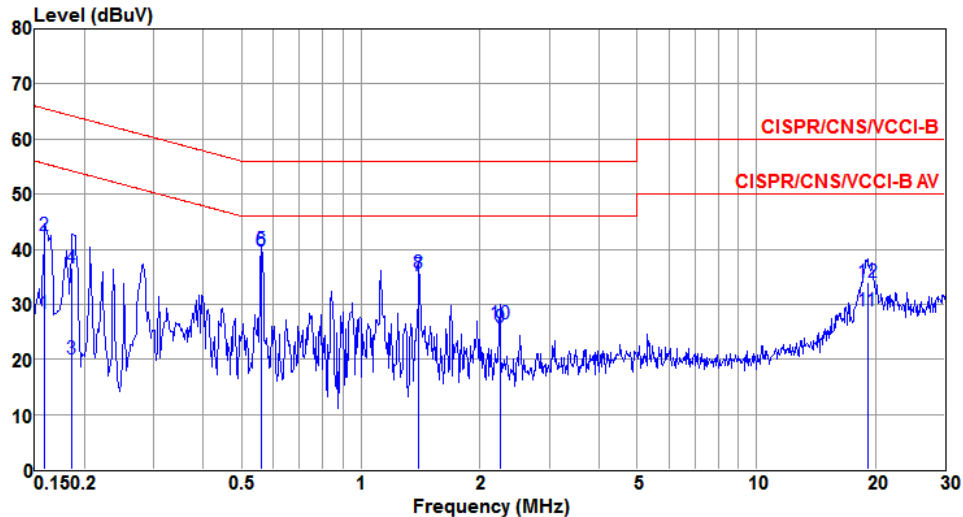


- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Non-beamforming mode

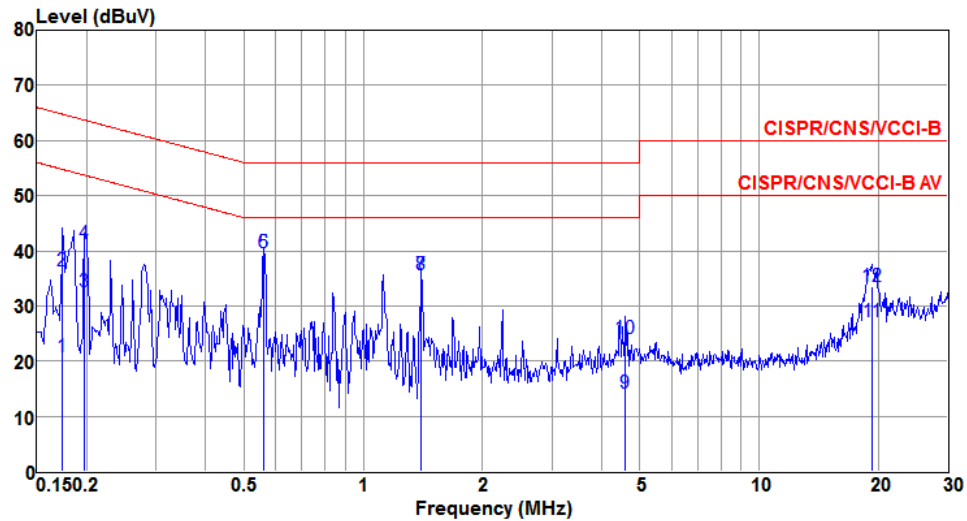
Modulation	11a	Test Freq. (MHz)	5240
Power Phase	Line	Test configuration	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.159	28.21	55.52	-27.31	18.67	9.50	0.04	Average
2	0.159	42.47	65.52	-23.05	32.93	9.50	0.04	QP
3	0.186	20.14	54.20	-34.06	10.60	9.50	0.04	Average
4	0.186	36.62	64.20	-27.58	27.08	9.50	0.04	QP
5	0.561	39.82	46.00	-6.18	30.23	9.55	0.04	Average
6	0.561	39.62	56.00	-16.38	30.03	9.55	0.04	QP
7	1.403	35.11	46.00	-10.89	25.52	9.55	0.04	Average
8	1.403	35.62	56.00	-20.38	26.03	9.55	0.04	QP
9	2.249	25.81	46.00	-20.19	16.14	9.61	0.06	Average
10	2.249	26.40	56.00	-29.60	16.73	9.61	0.06	QP
11	19.122	28.74	50.00	-21.26	18.78	9.71	0.25	Average
12	19.122	33.98	60.00	-26.02	24.02	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

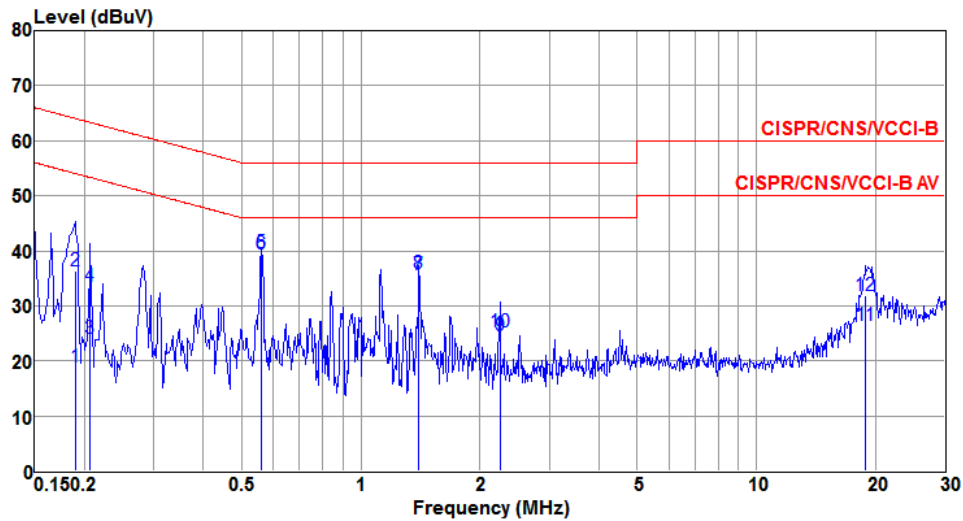
Modulation	11a	Test Freq. (MHz)	5240
Power Phase	Neutral	Test configuration	1



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.174	20.81	54.77	-33.96	11.18	9.59	0.04	Average
2	0.174	36.44	64.77	-28.33	26.81	9.59	0.04	QP
3	0.198	32.48	53.71	-21.23	22.84	9.60	0.04	Average
4	0.198	41.23	63.71	-22.48	31.59	9.60	0.04	QP
5@	0.561	39.72	46.00	-6.28	30.09	9.59	0.04	Average
6	0.561	39.54	56.00	-16.46	29.91	9.59	0.04	QP
7	1.403	35.58	46.00	-10.42	25.94	9.60	0.04	Average
8	1.403	35.74	56.00	-20.26	26.10	9.60	0.04	QP
9	4.598	14.10	46.00	-31.90	4.22	9.71	0.17	Average
10	4.598	24.02	56.00	-31.98	14.14	9.71	0.17	QP
11	19.326	27.26	50.00	-22.74	17.28	9.72	0.26	Average
12	19.326	33.51	60.00	-26.49	23.53	9.72	0.26	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

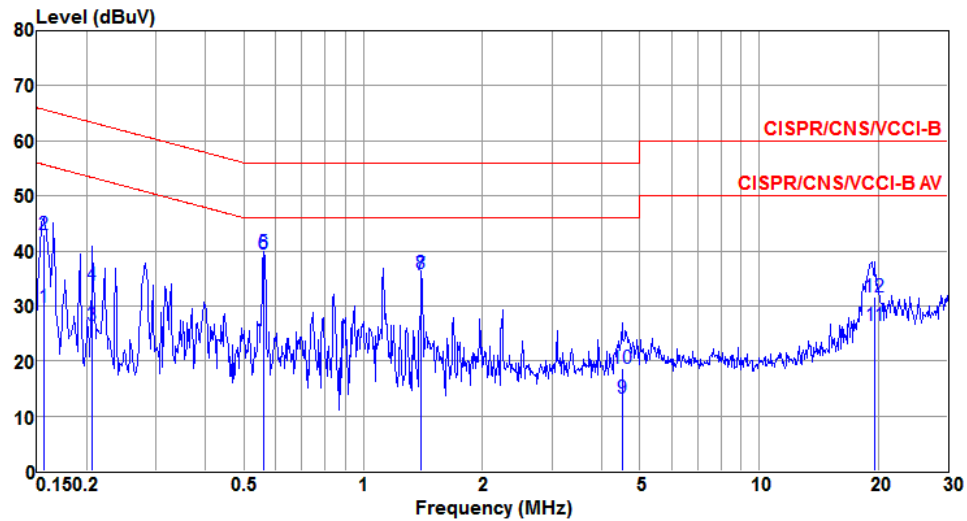
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Line	Test configuration	1



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.189	19.01	54.06	-35.05	9.47	9.50	0.04	Average
2	0.189	36.25	64.06	-27.81	26.71	9.50	0.04	QP
3	0.207	24.00	53.32	-29.32	14.45	9.51	0.04	Average
4	0.207	33.63	63.32	-29.69	24.08	9.51	0.04	QP
5@	0.561	39.64	46.00	-6.36	30.05	9.55	0.04	Average
6	0.561	39.45	56.00	-16.55	29.86	9.55	0.04	QP
7	1.403	35.62	46.00	-10.38	26.03	9.55	0.04	Average
8	1.403	35.81	56.00	-20.19	26.22	9.55	0.04	QP
9	2.249	24.60	46.00	-21.40	14.93	9.61	0.06	Average
10	2.249	25.22	56.00	-30.78	15.55	9.61	0.06	QP
11	18.920	26.53	50.00	-23.47	16.57	9.71	0.25	Average
12	18.920	31.98	60.00	-28.02	22.02	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

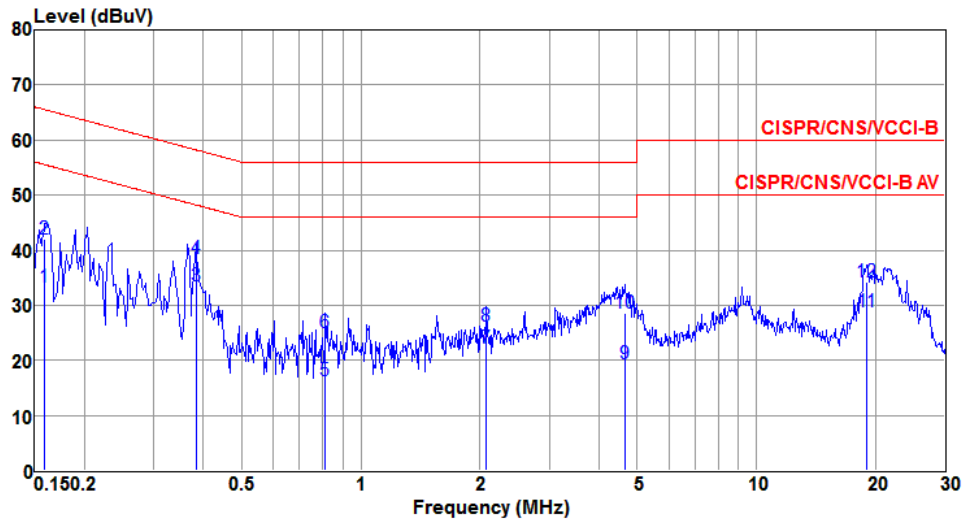
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Neutral	Test configuration	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.156	29.68	55.69	-26.01	20.06	9.58	0.04	Average
2	0.156	42.85	65.69	-22.84	33.23	9.58	0.04	QP
3	0.207	26.34	53.32	-26.98	16.70	9.60	0.04	Average
4	0.207	33.85	63.32	-29.47	24.21	9.60	0.04	QP
5	0.561	39.71	46.00	-6.29	30.08	9.59	0.04	Average
6	0.561	39.51	56.00	-16.49	29.88	9.59	0.04	QP
7	1.403	35.63	46.00	-10.37	25.99	9.60	0.04	Average
8	1.403	35.84	56.00	-20.16	26.20	9.60	0.04	QP
9	4.501	13.17	46.00	-32.83	3.29	9.71	0.17	Average
10	4.501	18.72	56.00	-37.28	8.84	9.71	0.17	QP
11	19.635	26.32	50.00	-23.68	16.34	9.72	0.26	Average
12	19.635	31.63	60.00	-28.37	21.65	9.72	0.26	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

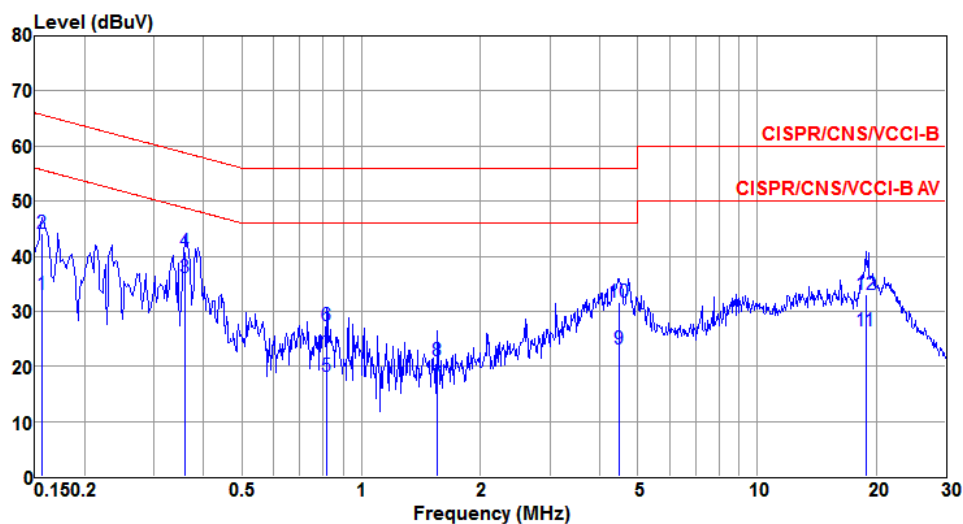
Modulation	11a	Test Freq. (MHz)	5240
Power Phase	Line	Test configuration	2



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.159	33.29	55.52	-22.23	23.75	9.50	0.04	Average
2	0.159	42.12	65.52	-23.40	32.58	9.50	0.04	QP
3@	0.383	33.55	48.21	-14.66	23.92	9.59	0.04	Average
4	0.383	38.54	58.21	-19.67	28.91	9.59	0.04	QP
5	0.813	16.21	46.00	-29.79	6.68	9.49	0.04	Average
6	0.813	24.98	56.00	-31.02	15.45	9.49	0.04	QP
7	2.077	22.31	46.00	-23.69	12.63	9.63	0.05	Average
8	2.077	26.24	56.00	-29.76	16.56	9.63	0.05	QP
9	4.647	19.33	46.00	-26.67	9.65	9.51	0.17	Average
10	4.647	28.47	56.00	-27.53	18.79	9.51	0.17	QP
11	19.021	28.91	50.00	-21.09	18.95	9.71	0.25	Average
12	19.021	34.18	60.00	-25.82	24.22	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

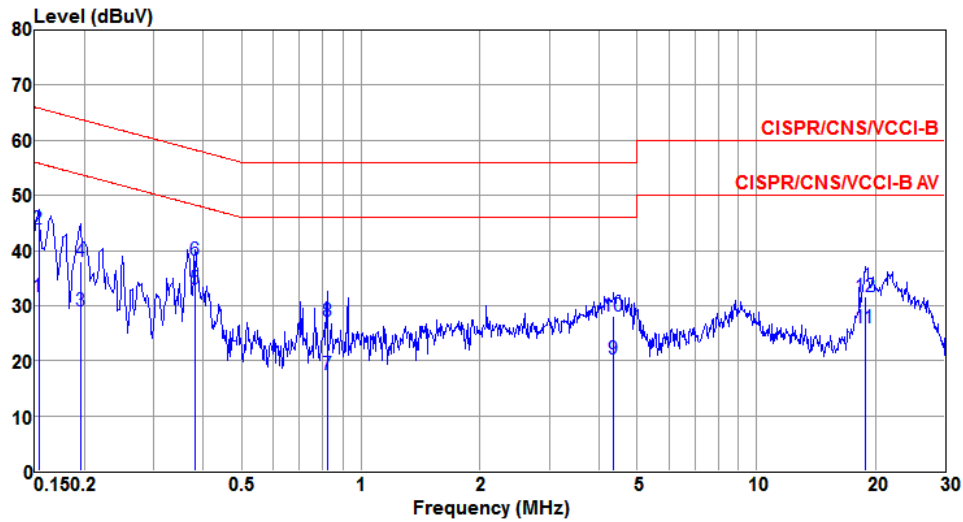
Modulation	11a	Test Freq. (MHz)	5240
Power Phase	Neutral	Test configuration	2



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.156	33.06	55.69	-22.63	23.44	9.58	0.04	Average
2	0.156	44.07	65.69	-21.62	34.45	9.58	0.04	QP
3@	0.360	36.23	48.74	-12.51	26.64	9.55	0.04	Average
4	0.360	40.94	58.74	-17.80	31.35	9.55	0.04	QP
5	0.817	18.12	46.00	-27.88	8.44	9.64	0.04	Average
6	0.817	27.45	56.00	-28.55	17.77	9.64	0.04	QP
7	1.560	16.70	46.00	-29.30	7.09	9.57	0.04	Average
8	1.560	20.92	56.00	-35.08	11.31	9.57	0.04	QP
9	4.478	23.18	46.00	-22.82	13.30	9.71	0.17	Average
10	4.478	31.67	56.00	-24.33	21.79	9.71	0.17	QP
11	18.820	26.48	50.00	-23.52	16.52	9.71	0.25	Average
12	18.820	33.10	60.00	-26.90	23.14	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

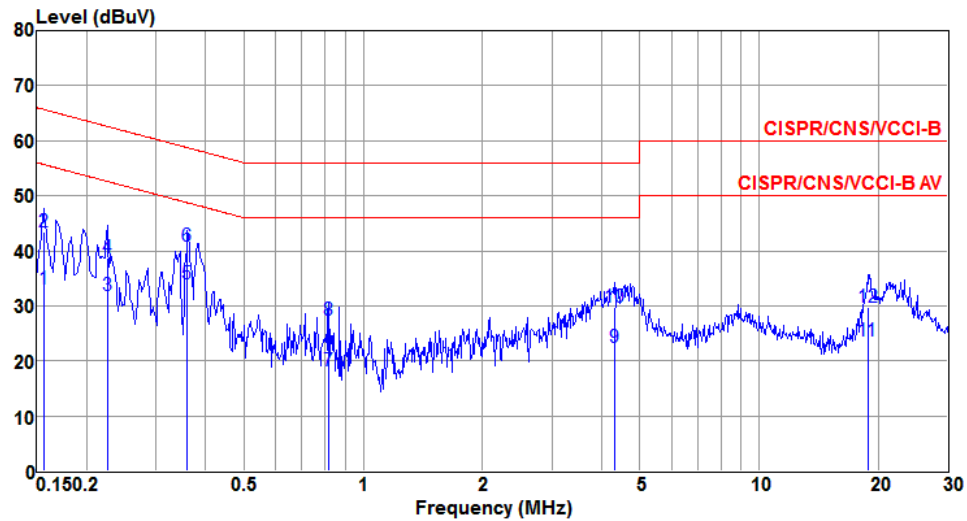
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Line	Test configuration	2



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line dBuV	Limit dB	Level dBuV	factor dB	loss dB	Remark
1	0.153	31.75	55.82	-24.07	22.21	9.50	0.04	Average
2	0.153	43.94	65.82	-21.88	34.40	9.50	0.04	QP
3	0.195	29.15	53.80	-24.65	19.61	9.50	0.04	Average
4	0.195	37.99	63.80	-25.81	28.45	9.50	0.04	QP
5@	0.381	33.13	48.25	-15.12	23.50	9.59	0.04	Average
6	0.381	38.32	58.25	-19.93	28.69	9.59	0.04	QP
7	0.822	17.53	46.00	-28.47	8.00	9.49	0.04	Average
8	0.822	27.10	56.00	-28.90	17.57	9.49	0.04	QP
9	4.361	20.37	46.00	-25.63	10.70	9.50	0.17	Average
10	4.361	28.00	56.00	-28.00	18.33	9.50	0.17	QP
11	18.820	25.97	50.00	-24.03	16.01	9.71	0.25	Average
12	18.820	31.63	60.00	-28.37	21.67	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Neutral	Test configuration	2

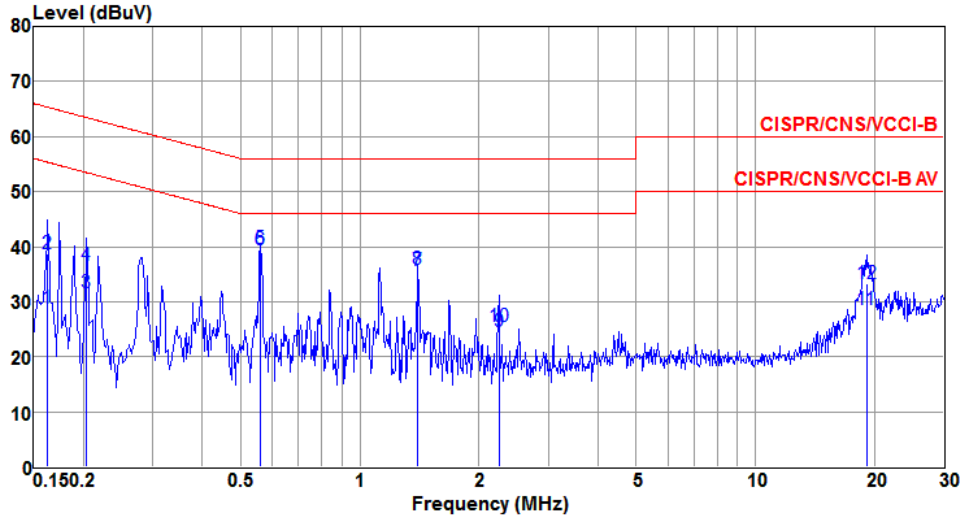


	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.156	33.02	55.65	-22.63	23.40	9.58	0.04	Average
2	0.156	43.51	65.65	-22.14	33.89	9.58	0.04	QP
3	0.226	31.80	52.61	-20.81	22.17	9.59	0.04	Average
4	0.226	38.67	62.61	-23.94	29.04	9.59	0.04	QP
5@	0.360	34.06	48.74	-14.68	24.47	9.55	0.04	Average
6	0.360	40.76	58.74	-17.98	31.17	9.55	0.04	QP
7	0.817	18.13	46.00	-27.87	8.45	9.64	0.04	Average
8	0.817	27.37	56.00	-28.63	17.69	9.64	0.04	QP
9	4.315	22.41	46.00	-23.59	12.54	9.71	0.16	Average
10	4.315	29.69	56.00	-26.31	19.82	9.71	0.16	QP
11	18.820	23.55	50.00	-26.45	13.59	9.71	0.25	Average
12	18.820	29.74	60.00	-30.26	19.78	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Beamforming mode

Modulation	VHT20	Test Freq. (MHz)	5240
Power Phase	Line	Test configuration	1



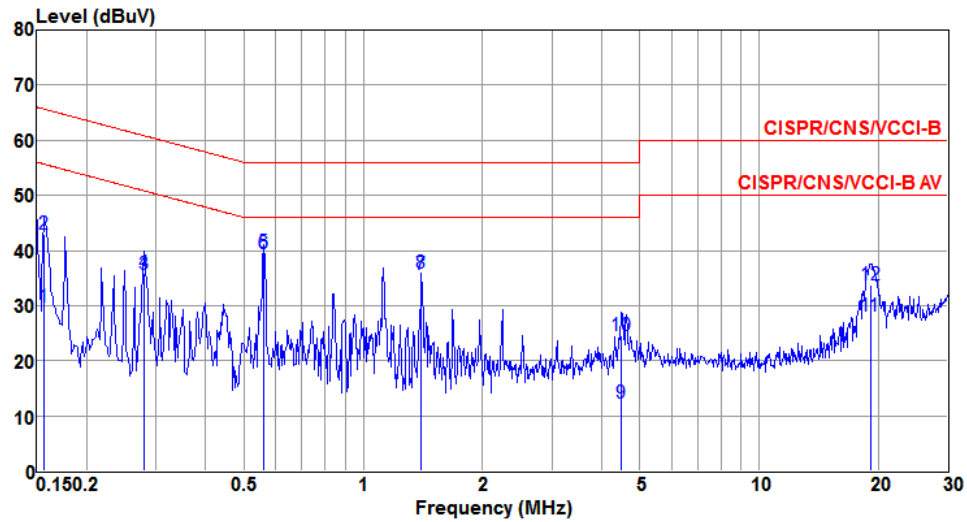
Level (dBUV)

Frequency (MHz)

	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	LISN factor dB	cable loss dB	Remark
1	0.162	28.89	55.34	-26.45	19.35	9.50	0.04	Average
2	0.162	38.71	65.34	-26.63	29.17	9.50	0.04	QP
3	0.204	31.68	53.45	-21.77	22.14	9.50	0.04	Average
4	0.204	36.49	63.45	-26.96	26.95	9.50	0.04	QP
5@	0.561	39.63	46.00	-6.37	30.04	9.55	0.04	Average
6	0.561	39.44	56.00	-16.56	29.85	9.55	0.04	QP
7	1.403	35.63	46.00	-10.37	26.04	9.55	0.04	Average
8	1.403	35.85	56.00	-20.15	26.26	9.55	0.04	QP
9	2.249	24.53	46.00	-21.47	14.86	9.61	0.06	Average
10	2.249	25.41	56.00	-30.59	15.74	9.61	0.06	QP
11	19.122	28.57	50.00	-21.43	18.61	9.71	0.25	Average
12	19.122	33.29	60.00	-26.71	23.33	9.71	0.25	QP

Note 1: Level (dBUV) = Read Level (dBUV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBUV) – Limit Line (dBUV).

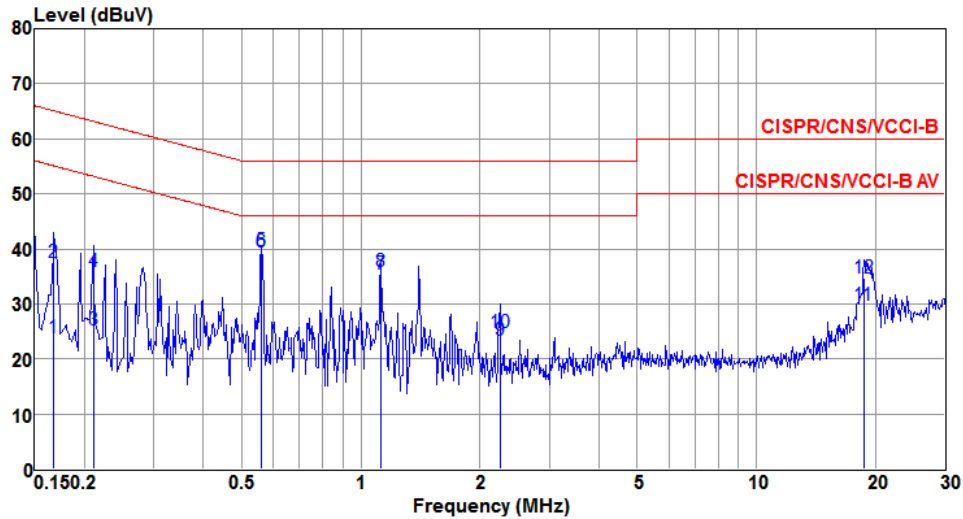
Modulation	VHT20	Test Freq. (MHz)	5240
Power Phase	Neutral	Test configuration	1



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.156	29.86	55.69	-25.83	20.24	9.58	0.04	Average
2	0.156	42.88	65.69	-22.81	33.26	9.58	0.04	QP
3	0.279	35.54	50.85	-15.31	25.93	9.57	0.04	Average
4	0.279	35.94	60.85	-24.91	26.33	9.57	0.04	QP
5@	0.561	39.69	46.00	-6.31	30.06	9.59	0.04	Average
6	0.561	39.52	56.00	-16.48	29.89	9.59	0.04	QP
7	1.403	35.68	46.00	-10.32	26.04	9.60	0.04	Average
8	1.403	35.84	56.00	-20.16	26.20	9.60	0.04	QP
9	4.478	12.32	46.00	-33.68	2.44	9.71	0.17	Average
10	4.478	24.64	56.00	-31.36	14.76	9.71	0.17	QP
11	19.122	28.10	50.00	-21.90	18.13	9.72	0.25	Average
12	19.122	33.84	60.00	-26.16	23.87	9.72	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

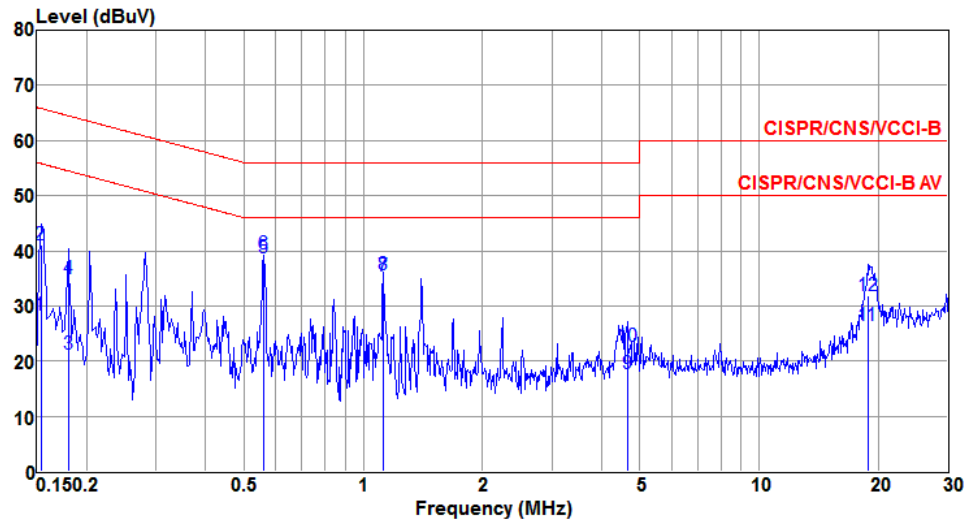
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Line	Test configuration	1



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.168	23.96	55.08	-31.12	14.42	9.50	0.04	Average
2	0.168	37.59	65.08	-27.49	28.05	9.50	0.04	QP
3	0.211	25.29	53.18	-27.89	15.74	9.51	0.04	Average
4	0.211	35.83	63.18	-27.35	26.28	9.51	0.04	QP
5	0.561	39.63	46.00	-6.37	30.04	9.55	0.04	Average
6	0.561	39.45	56.00	-16.55	29.86	9.55	0.04	QP
7	1.123	35.41	46.00	-10.59	25.88	9.49	0.04	Average
8	1.123	35.86	56.00	-20.14	26.33	9.49	0.04	QP
9	2.249	23.30	46.00	-22.70	13.63	9.61	0.06	Average
10	2.249	24.69	56.00	-31.31	15.02	9.61	0.06	QP
11	18.721	29.73	50.00	-20.27	19.77	9.71	0.25	Average
12	18.721	34.63	60.00	-25.37	24.67	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

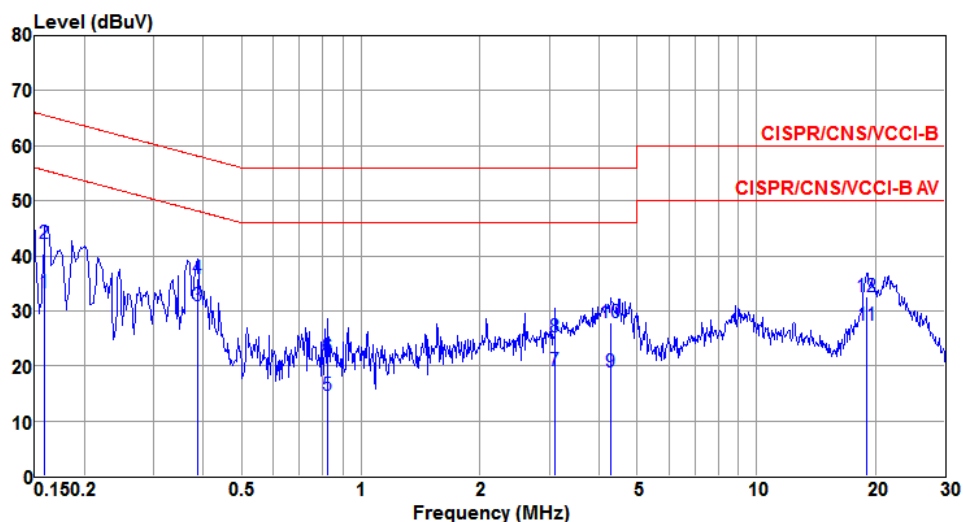
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Neutral	Test configuration	1



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.153	28.44	55.82	-27.38	18.82	9.58	0.04	Average
2	0.153	41.09	65.82	-24.73	31.47	9.58	0.04	QP
3	0.180	21.20	54.50	-33.30	11.57	9.59	0.04	Average
4	0.180	34.91	64.50	-29.59	25.28	9.59	0.04	QP
5@	0.561	38.69	46.00	-7.31	29.06	9.59	0.04	Average
6	0.561	39.50	56.00	-16.50	29.87	9.59	0.04	QP
7	1.123	35.40	46.00	-10.60	25.71	9.65	0.04	Average
8	1.123	35.72	56.00	-20.28	26.03	9.65	0.04	QP
9	4.647	17.81	46.00	-28.19	7.93	9.71	0.17	Average
10	4.647	22.70	56.00	-33.30	12.82	9.71	0.17	QP
11	18.820	26.54	50.00	-23.46	16.58	9.71	0.25	Average
12	18.820	31.98	60.00	-28.02	22.02	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

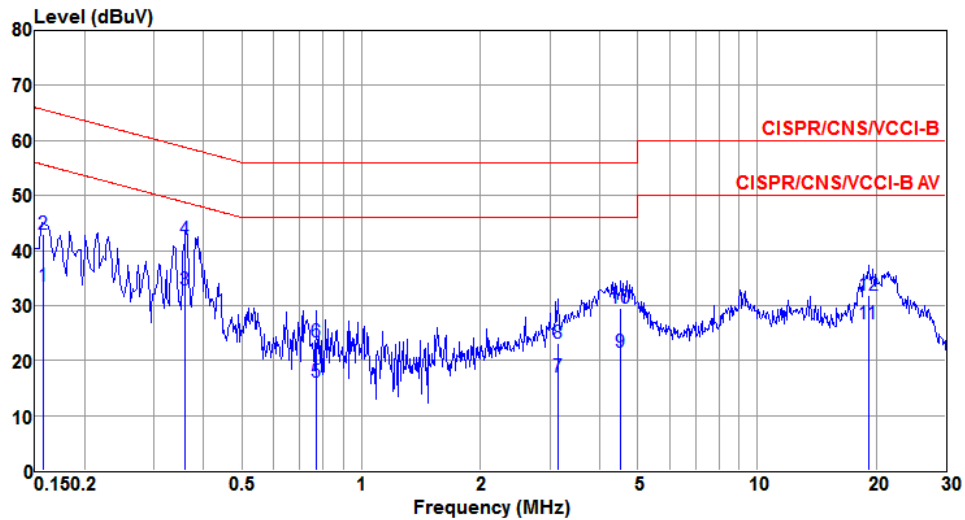
Modulation	VHT20	Test Freq. (MHz)	5240
Power Phase	Line	Test configuration	2



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line dBuV	Limit dB	Level dBuV	factor dB	loss dB	Remark
1	0.159	33.28	55.52	-22.24	23.74	9.50	0.04	Average
2	0.159	42.35	65.52	-23.17	32.81	9.50	0.04	QP
3	0.387	30.81	48.12	-17.31	21.17	9.60	0.04	Average
4	0.387	35.77	58.12	-22.35	26.13	9.60	0.04	QP
5	0.826	14.62	46.00	-31.38	5.09	9.49	0.04	Average
6	0.826	21.76	56.00	-34.24	12.23	9.49	0.04	QP
7	3.107	19.12	46.00	-26.88	9.46	9.54	0.12	Average
8	3.107	25.17	56.00	-30.83	15.51	9.54	0.12	QP
9	4.269	18.90	46.00	-27.10	9.25	9.49	0.16	Average
10	4.269	27.92	56.00	-28.08	18.27	9.49	0.16	QP
11	19.021	27.43	50.00	-22.57	17.47	9.71	0.25	Average
12	19.021	32.66	60.00	-27.34	22.70	9.71	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

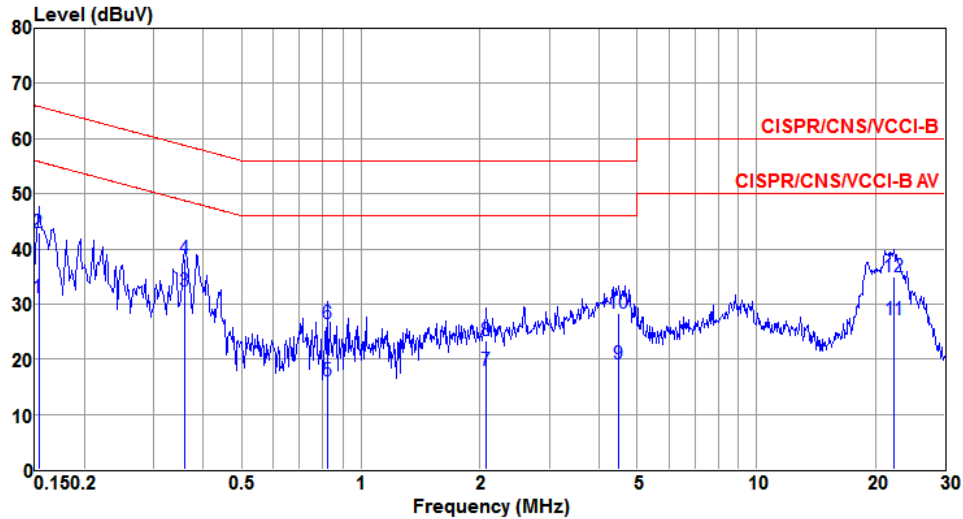
Modulation	VHT20	Test Freq. (MHz)	5240
Power Phase	Neutral	Test configuration	2



	Freq	Level	Limit	Over	Read	LISN	cable	Remark
	MHz	dBuV	Line dBuV	Limit dB	Level dBuV	factor dB	loss dB	
1	0.157	33.49	55.60	-22.11	23.87	9.58	0.04	Average
2	0.157	43.00	65.60	-22.60	33.38	9.58	0.04	QP
3	0.360	32.91	48.74	-15.83	23.32	9.55	0.04	Average
4	0.360	42.01	58.74	-16.73	32.42	9.55	0.04	QP
5	0.767	15.96	46.00	-30.04	6.29	9.63	0.04	Average
6	0.767	23.39	56.00	-32.61	13.72	9.63	0.04	QP
7	3.140	17.10	46.00	-28.90	7.33	9.65	0.12	Average
8	3.140	23.14	56.00	-32.86	13.37	9.65	0.12	QP
9	4.525	21.47	46.00	-24.53	11.59	9.71	0.17	Average
10	4.525	29.41	56.00	-26.59	19.53	9.71	0.17	QP
11	19.122	26.63	50.00	-23.37	16.66	9.72	0.25	Average
12	19.122	31.85	60.00	-28.15	21.88	9.72	0.25	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

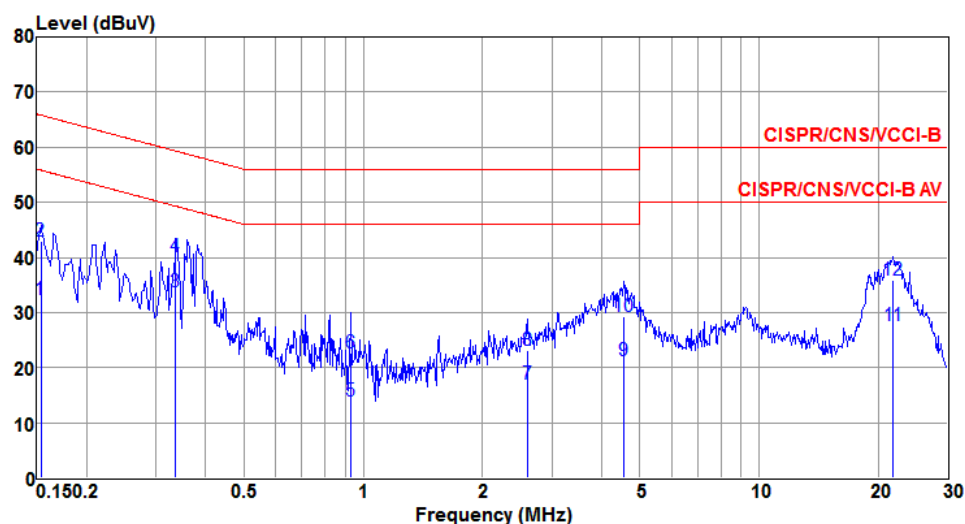
Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Line	Test configuration	2



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.153	31.24	55.82	-24.58	21.70	9.50	0.04	Average
2	0.153	42.99	65.82	-22.83	33.45	9.50	0.04	QP
3@	0.358	32.31	48.78	-16.47	22.69	9.58	0.04	Average
4	0.358	38.28	58.78	-20.50	28.66	9.58	0.04	QP
5	0.822	16.14	46.00	-29.86	6.61	9.49	0.04	Average
6	0.822	26.39	56.00	-29.61	16.86	9.49	0.04	QP
7	2.077	17.84	46.00	-28.16	8.16	9.63	0.05	Average
8	2.077	23.39	56.00	-32.61	13.71	9.63	0.05	QP
9	4.478	19.19	46.00	-26.81	9.52	9.50	0.17	Average
10	4.478	28.24	56.00	-27.76	18.57	9.50	0.17	QP
11	22.298	27.12	50.00	-22.88	17.18	9.67	0.27	Average
12	22.298	35.00	60.00	-25.00	25.06	9.67	0.27	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	VHT40	Test Freq. (MHz)	5755
Power Phase	Neutral	Test configuration	2



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.153	32.33	55.82	-23.49	22.71	9.58	0.04	Average
2	0.153	43.06	65.82	-22.76	33.44	9.58	0.04	QP
3@	0.336	33.78	49.31	-15.53	24.18	9.56	0.04	Average
4	0.336	40.02	59.31	-19.29	30.42	9.56	0.04	QP
5	0.933	14.00	46.00	-32.00	4.30	9.66	0.04	Average
6	0.933	22.66	56.00	-33.34	12.96	9.66	0.04	QP
7	2.594	17.11	46.00	-28.89	7.44	9.59	0.08	Average
8	2.594	23.22	56.00	-32.78	13.55	9.59	0.08	QP
9	4.549	21.35	46.00	-24.65	11.47	9.71	0.17	Average
10	4.549	29.16	56.00	-26.84	19.28	9.71	0.17	QP
11	21.830	27.65	50.00	-22.35	17.64	9.74	0.27	Average
12	21.830	35.89	60.00	-24.11	25.88	9.74	0.27	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).
 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

3.2 Emission Bandwidth

3.2.1 Limit of Emission bandwidth

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

3.2.2 Test Procedures

26dB Bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW, Detector = Peak.
3. Trace mode = max hold.
4. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

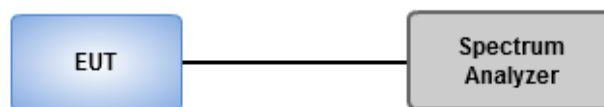
Occupied Bandwidth

1. Set RBW = 1 % to 5 % of the OBW
2. Set VBW $\geq$ 3 RBW
3. Sample detection and single sweep mode shall be used
4. Use the 99 % power bandwidth function of the instrument

6dB Bandwidth

1. Set RBW = 100kHz, VBW = 300kHz
2. Detector = Peak, Trace mode = max hold.
3. Allow the trace to stabilize.
4. 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

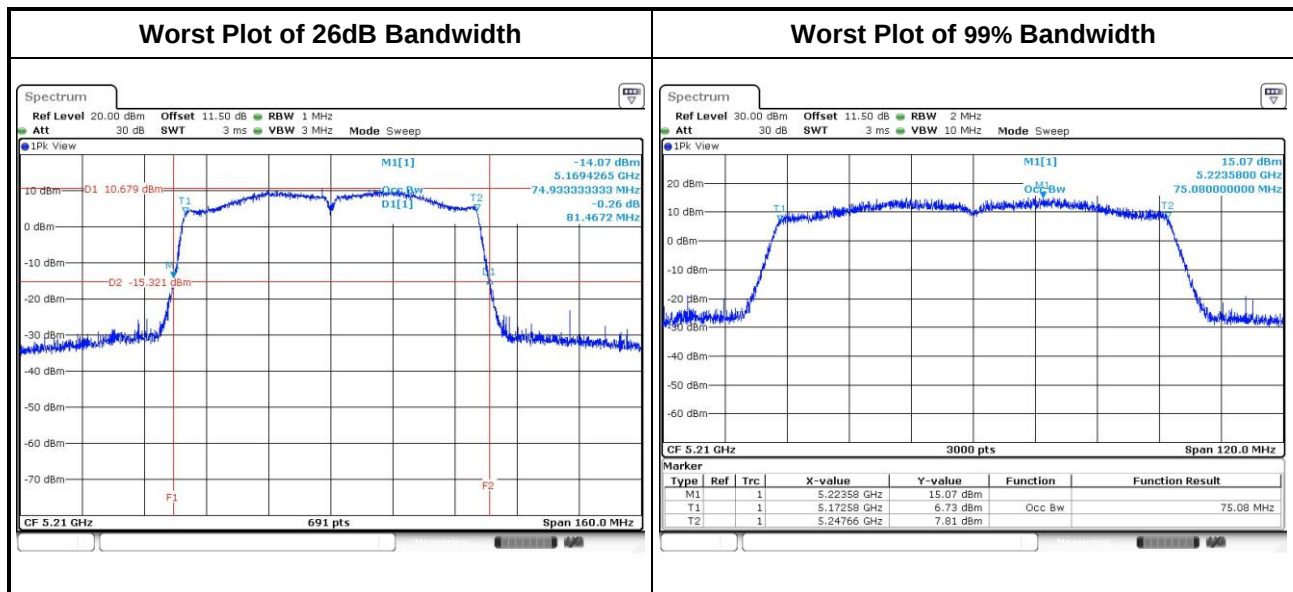
3.2.3 Test Setup



3.2.4 Test Result of Emission Bandwidth

Non-beamforming mode

For Frequency band 5150-5250 MHz										
Emission Bandwidth										
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
11a	3	5180	21.57	21.45	21.45	---	17.09	16.91	16.89	---
11a	3	5200	21.74	21.74	21.51	---	17.20	17.02	17.00	---
11a	3	5240	21.68	25.22	21.62	---	17.24	17.05	17.01	---
VHT20	3	5180	21.86	21.57	21.68	---	18.16	17.94	17.96	---
VHT20	3	5200	37.62	38.43	32.17	---	18.24	17.99	18.00	---
VHT20	3	5240	37.80	36.17	31.36	---	18.24	18.01	18.02	---
VHT40	3	5190	41.08	40.60	40.49	---	36.50	36.56	36.66	---
VHT40	3	5230	40.70	40.58	40.58	---	36.64	36.62	36.56	---
VHT80	3	5210	81.47	80.83	80.61	---	75.08	75.08	75.04	---

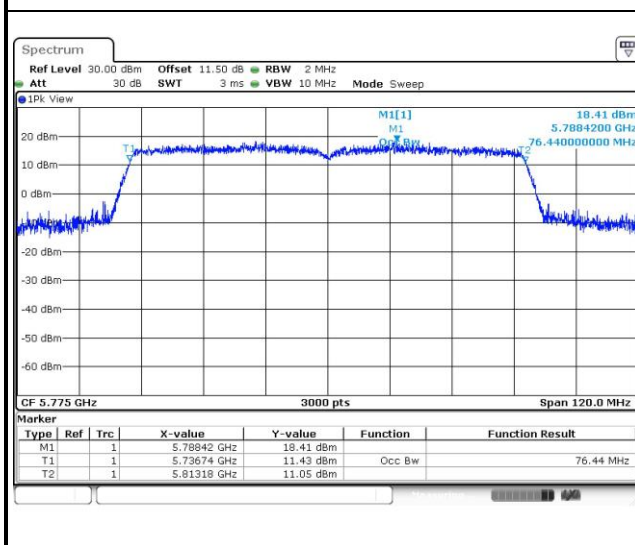


For Frequency band 5725-5850 MHz

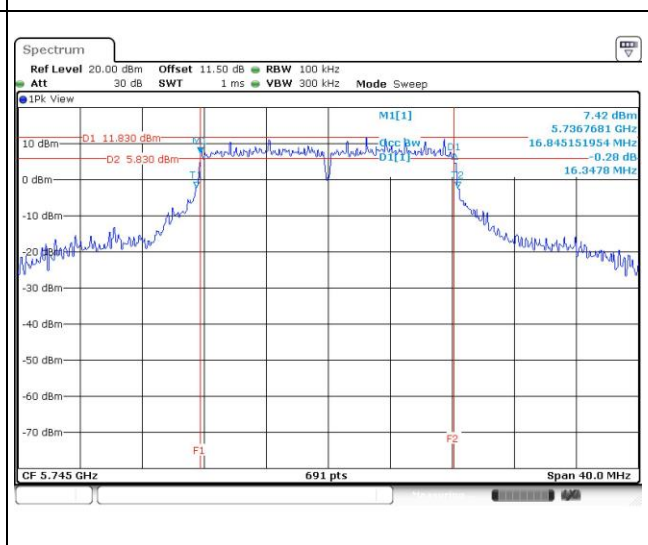
Emission Bandwidth

Mode	N _{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				6dB BW Limit (MHz)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	3	5745	17.56	17.30	17.10	---	16.35	16.35	16.41	---	0.5
11a	3	5785	17.61	17.55	17.14	---	16.35	16.35	16.35	---	0.5
11a	3	5825	17.71	17.72	17.12	---	16.35	16.35	16.35	---	0.5
VHT20	3	5745	18.58	18.43	18.18	---	17.62	17.62	17.62	---	0.5
VHT20	3	5785	18.59	18.42	18.24	---	17.62	17.62	17.62	---	0.5
VHT20	3	5825	18.66	18.52	18.18	---	17.62	17.62	17.62	---	0.5
VHT40	3	5755	37.62	37.46	36.89	---	36.41	36.41	36.41	---	0.5
VHT40	3	5795	37.64	37.56	37.00	---	36.41	36.41	36.41	---	0.5
VHT80	3	5775	76.44	76.24	76.20	---	76.29	76.35	76.29	---	0.5

Worst Plot of 99% Bandwidth

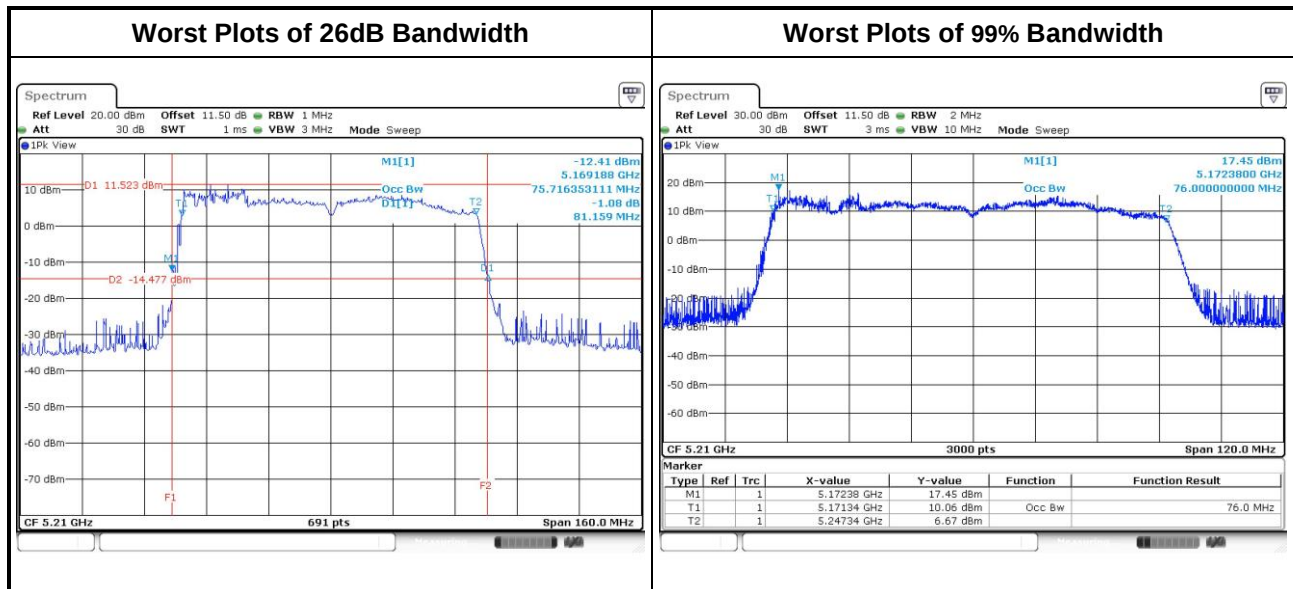


Worst Plot of 6dB Bandwidth



Beamforming mode

For Frequency band 5150-5250 MHz										
Emission Bandwidth										
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
VHT20	3	5180	21.97	21.45	21.62	---	18.09	17.85	17.91	---
VHT20	3	5200	23.71	22.14	21.68	---	18.18	17.93	17.94	---
VHT20	3	5240	24.75	24.41	21.68	---	18.19	17.93	18.06	---
VHT40	3	5190	40.81	40.93	40.70	---	36.64	36.52	36.52	---
VHT40	3	5230	40.70	41.28	41.04	---	36.68	36.60	36.58	---
VHT80	3	5210	80.70	81.16	79.54	---	75.64	75.80	76.00	---

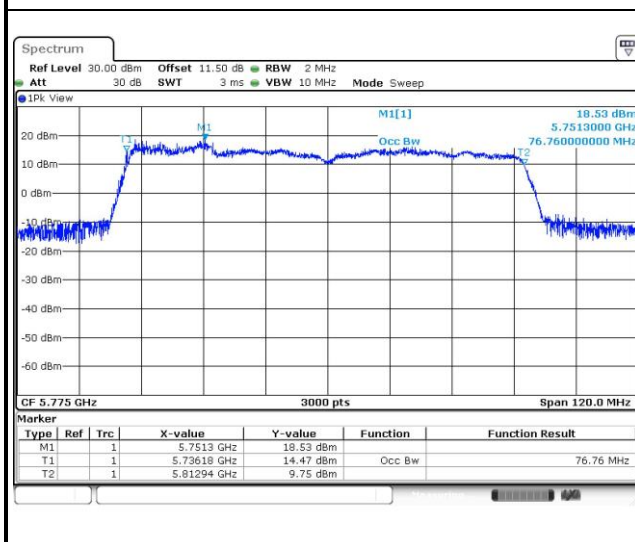


For Frequency band 5725-5850 MHz

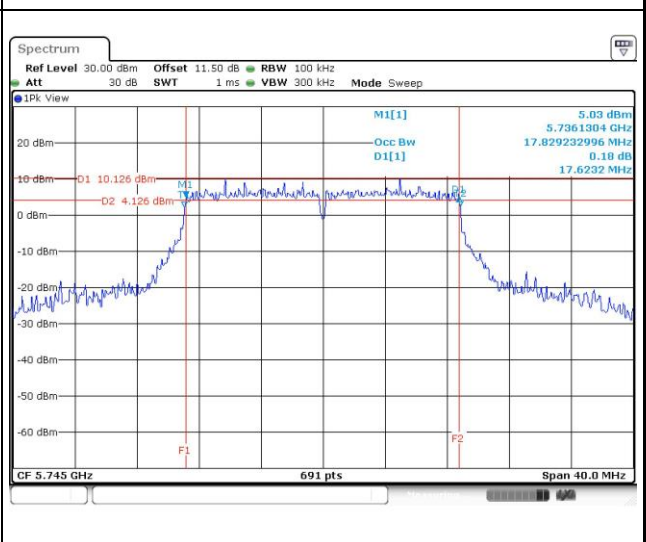
Emission Bandwidth

Mode	N _{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				6dB BW Limit (MHz)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
VHT20	3	5745	18.29	18.08	18.00	---	17.62	17.62	17.62	---	0.5
VHT20	3	5785	18.30	18.10	18.02	---	17.62	17.62	17.62	---	0.5
VHT20	3	5825	18.25	18.14	18.02	---	17.62	17.62	17.62	---	0.5
VHT40	3	5755	37.10	37.08	36.86	---	35.83	35.71	36.29	---	0.5
VHT40	3	5795	37.22	37.22	36.76	---	36.06	36.06	35.83	---	0.5
VHT80	3	5775	76.76	76.56	76.48	---	75.59	75.83	75.83	---	0.5

Worst Plots of 99% Bandwidth



Worst Plots of 6dB Bandwidth



3.3 RF Output Power

3.3.1 Limit of RF Output Power

Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
☒	Indoor access point	Conducted Power: 1 W
☐	Fixed point-to-point access points	Conducted Power: 1 W
☐	Client devices	Conducted Power: 250 mW

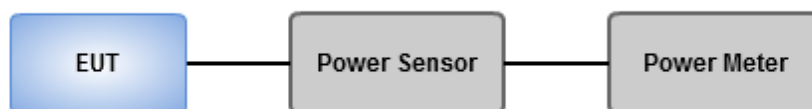
Frequency Band (MHz)	Limit
☐ 5250 ~ 5350	250mW or 11dBm+10 log B
☐ 5470 ~ 5725	250mW or 11dBm+10 log B
☒ 5725 ~ 5850	1 W

Note: "B" is the 26dB emission bandwidth in MHz.

3.3.2 Test Procedures

- ☒ **Method PM-G (Measurement using a gated RF average power meter)**
 - ☒ Measurements is performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

Non-beamforming mode

For Frequency band 5150-5250 MHz									
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	3	5180	20.39	20.15	19.19	---	295.895	24.71	30.00
11a	3	5200	22.42	22.31	21.44	---	484.114	26.85	30.00
11a	3	5240	22.41	22.39	21.38	---	484.965	26.86	30.00
HT20	3	5180	18.91	18.51	17.62	---	206.571	23.15	30.00
HT20	3	5200	21.73	21.88	21.03	---	429.871	26.33	30.00
HT20	3	5240	21.76	21.99	21.04	---	435.151	26.39	30.00
HT40	3	5190	17.43	17.44	17.35	---	165.123	22.18	30.00
HT40	3	5230	18.36	18.52	18.29	---	207.123	23.16	30.00
VHT20	3	5180	18.96	18.59	17.67	---	209.461	23.21	30.00
VHT20	3	5200	21.82	21.98	21.09	---	438.345	26.42	30.00
VHT20	3	5240	21.85	22.02	21.13	---	442.048	26.45	30.00
VHT40	3	5190	17.55	17.51	17.48	---	169.225	22.28	30.00
VHT40	3	5230	18.51	18.62	18.32	---	211.656	23.26	30.00
VHT80	3	5210	17.23	17.01	17.16	---	155.078	21.91	30.00

For Frequency band 5725-5850 MHz									
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	3	5745	23.38	23.34	23.01	---	633.532	28.02	30.00
11a	3	5785	23.23	23.26	23.05	---	624.051	27.95	30.00
11a	3	5825	23.26	23.31	22.88	---	620.214	27.93	30.00
HT20	3	5745	23.40	23.06	23.11	---	625.723	27.96	30.00
HT20	3	5785	23.30	23.09	23.01	---	617.487	27.91	30.00
HT20	3	5825	23.19	23.26	22.74	---	608.217	27.84	30.00
HT40	3	5755	23.35	23.52	22.96	---	638.874	28.05	30.00
HT40	3	5795	23.43	23.52	22.77	---	634.432	28.02	30.00
VHT20	3	5745	23.43	23.15	23.22	---	636.725	28.04	30.00
VHT20	3	5785	23.35	23.16	23.05	---	625.123	27.96	30.00
VHT20	3	5825	23.28	23.31	22.87	---	620.745	27.93	30.00
VHT40	3	5755	23.41	23.63	23.02	---	650.402	28.13	30.00
VHT40	3	5795	23.52	23.61	22.85	---	647.273	28.11	30.00
VHT80	3	5775	20.79	20.93	20.52	---	356.549	25.52	30.00

Beamforming mode

For Frequency band 5150-5250 MHz									
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
HT20	3	5180	18.59	18.11	17.30	---	190.694	22.80	27.23
HT20	3	5200	21.49	21.57	20.76	---	403.602	26.06	27.23
HT20	3	5240	21.59	21.66	20.83	---	411.826	26.15	27.23
HT40	3	5190	15.43	15.39	15.16	---	102.317	20.10	27.23
HT40	3	5230	18.11	18.24	18.06	---	195.368	22.91	27.23
VHT20	3	5180	18.65	18.24	17.35	---	194.288	22.88	27.23
VHT20	3	5200	21.53	21.65	20.88	---	410.912	26.14	27.23
VHT20	3	5240	21.62	21.79	20.95	---	420.671	26.24	27.23
VHT40	3	5190	15.52	15.41	15.29	---	104.205	20.18	27.23
VHT40	3	5230	18.26	18.34	18.10	---	199.788	23.01	27.23
VHT80	3	5210	16.45	15.76	15.03	---	113.669	20.56	27.23

Note:

- Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 27.23 \text{ dBm}$.

For Frequency band 5725-5850 MHz									
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
HT20	3	5745	21.66	21.43	21.44	---	424.866	26.28	27.23
HT20	3	5785	21.65	21.47	21.43	---	425.494	26.29	27.23
HT20	3	5825	21.55	21.49	21.65	---	430.036	26.34	27.23
HT40	3	5755	22.03	21.62	21.59	---	449.011	26.52	27.23
HT40	3	5795	21.98	21.61	21.54	---	445.199	26.49	27.23
VHT20	3	5745	21.75	21.51	21.53	---	433.436	26.37	27.23
VHT20	3	5785	21.76	21.53	21.48	---	432.806	26.36	27.23
VHT20	3	5825	21.63	21.56	21.71	---	437.017	26.40	27.23
VHT40	3	5755	22.06	21.75	21.68	---	457.549	26.60	27.23
VHT40	3	5795	22.04	21.72	21.69	---	456.120	26.59	27.23
VHT80	3	5775	18.52	18.61	18.25	---	210.566	23.23	27.23

Note:

- Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 27.23 \text{ dBm}$.

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	17 dBm / MHz
☒	Indoor access point	17 dBm / MHz
☐	Fixed point-to-point access points	17 dBm / MHz
☐	Client devices	11 dBm / MHz

Frequency Band (MHz)		Limit
☐	5250 ~ 5350	11 dBm / MHz
☐	5470 ~ 5725	11 dBm / MHz
☒	5725 ~ 5850	30 dBm /500 kHz

3.4.2 Test Procedures

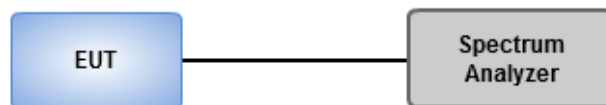
For 5150 ~ 5250 MHz

- ☒ Method SA-1 (Non- Beamforming: VHT20/VHT40 / Beamforming: VHT20/VHT40)
 1. Set RBW = 1 MHz, VBW = 3 MHz, Sweep time = auto, Detector = RMS.
 2. Trace average 100 traces.
 3. Use the peak marker function to determine the maximum amplitude level.
- ☒ Method SA-2 Alternative (Non- Beamforming: 11a/VHT80 / Beamforming: VHT80)
 1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
 2. Set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
 3. Perform a single sweep.
 4. Use the peak marker function to determine the maximum amplitude level.
 5. Add $10 \log(1/x)$, where x is the duty cycle.

For 5725 ~ 5850 MHz

- ☒ Method SA-1 (Non- Beamforming: VHT20/VHT40 / Beamforming: VHT20/VHT40)
 1. Set RBW = 500 kHz, VBW = 2 MHz, Sweep time = auto, Detector = RMS.
 2. Trace average 100 traces.
 3. Use the peak marker function to determine the maximum amplitude level.
- ☒ Method SA-2 Alternative (Non- Beamforming: 11a/VHT80 / Beamforming: VHT80)
 1. Set RBW = 500 kHz, VBW = 2 MHz, Detector = RMS.
 2. Set sweep time $\geq 10 \times (\text{number of points in sweep}) \times (\text{total on/off period of the transmitted signal})$.
 3. Perform a single sweep.
 4. Use the peak marker function to determine the maximum amplitude level.
 5. Add $10 \log(1/x)$, where x is the duty cycle.

3.4.3 Test Setup



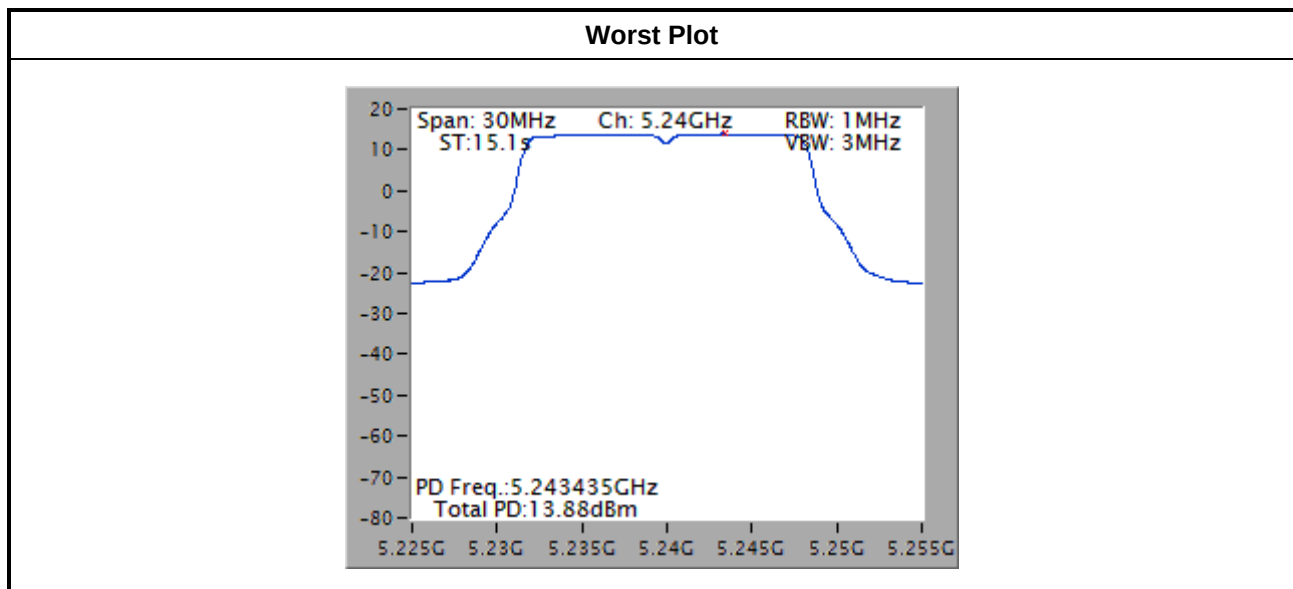
3.4.4 Test Result of Peak Power Spectral Density

Non-beamforming mode

For Frequency band 5150-5250 MHz						
Condition			Peak Power Spectral Density (dBm/MHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	3	5180	11.42	0.17	11.59	14.23
11a	3	5200	13.84	0.17	14.01	14.23
11a	3	5240	13.88	0.17	14.05	14.23
VHT20	3	5180	10.24	0.00	10.24	14.23
VHT20	3	5200	13.70	0.00	13.70	14.23
VHT20	3	5240	13.76	0.00	13.76	14.23
VHT40	3	5190	6.20	0.00	6.20	14.23
VHT40	3	5230	7.57	0.00	7.57	14.23
VHT80	3	5210	4.03	0.18	4.21	14.23

Note:

1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $17 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 14.23 \text{ dBm}$.

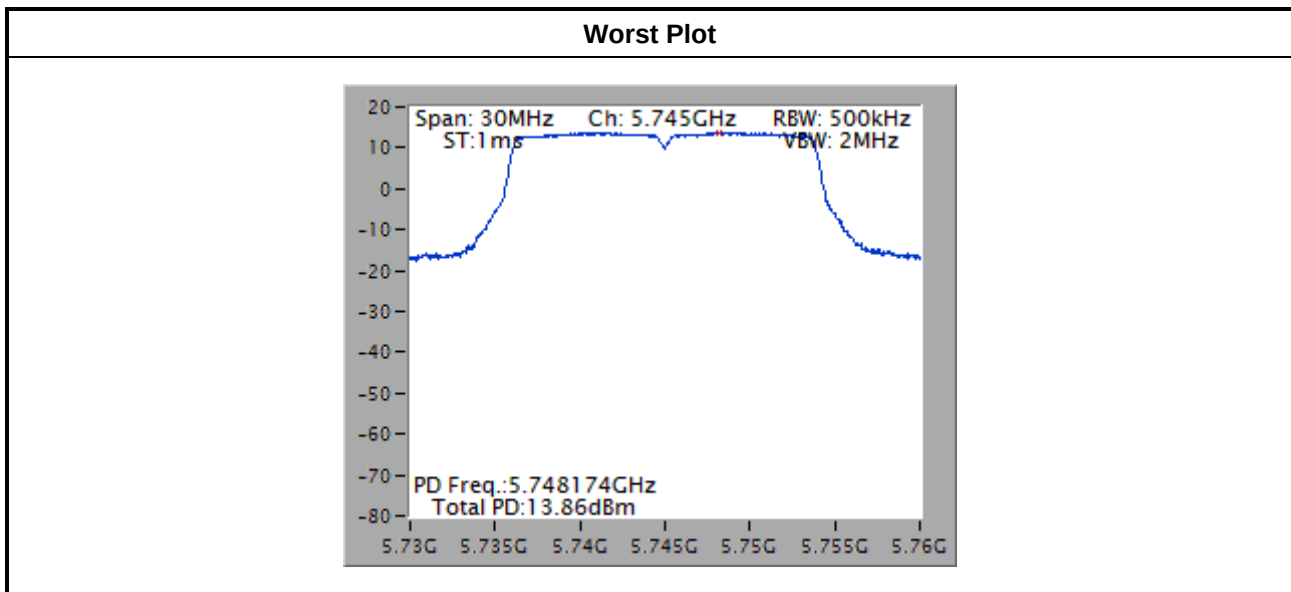


Note: Worst plot is w/o duty factor.

For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm/500kHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	3	5745	13.48	0.17	13.65	27.23
11a	3	5785	13.28	0.17	13.45	27.23
11a	3	5825	13.13	0.17	13.30	27.23
VHT20	3	5745	13.86	0.00	13.86	27.23
VHT20	3	5785	13.83	0.00	13.83	27.23
VHT20	3	5825	13.45	0.00	13.45	27.23
VHT40	3	5755	10.90	0.00	10.90	27.23
VHT40	3	5795	10.91	0.00	10.91	27.23
VHT80	3	5775	5.43	0.18	5.61	27.23

Note:

1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 27.23 \text{ dBm}$.

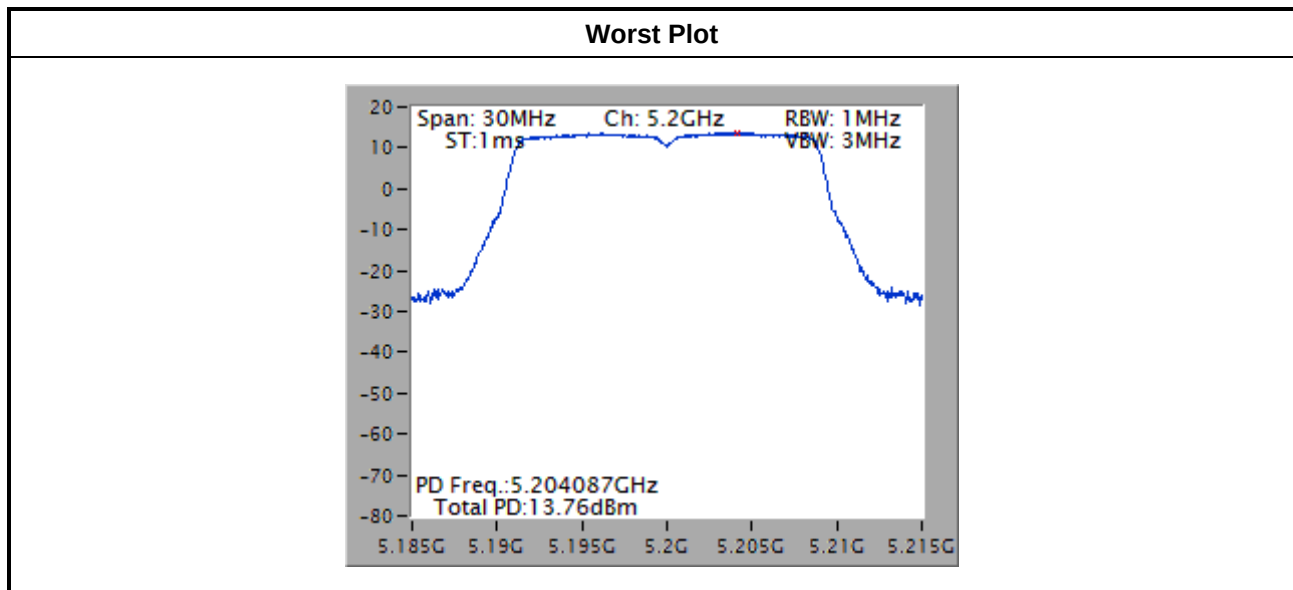


Beamforming mode

For Frequency band 5150-5250 MHz						
Condition			Peak Power Spectral Density (dBm/MHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
VHT20	3	5180	9.62	0.00	9.62	14.23
VHT20	3	5200	13.76	0.00	13.76	14.23
VHT20	3	5240	13.20	0.00	13.20	14.23
VHT40	3	5190	3.84	0.00	3.84	14.23
VHT40	3	5230	6.92	0.00	6.92	14.23
VHT80	3	5210	2.83	0.22	3.05	14.23

Note:

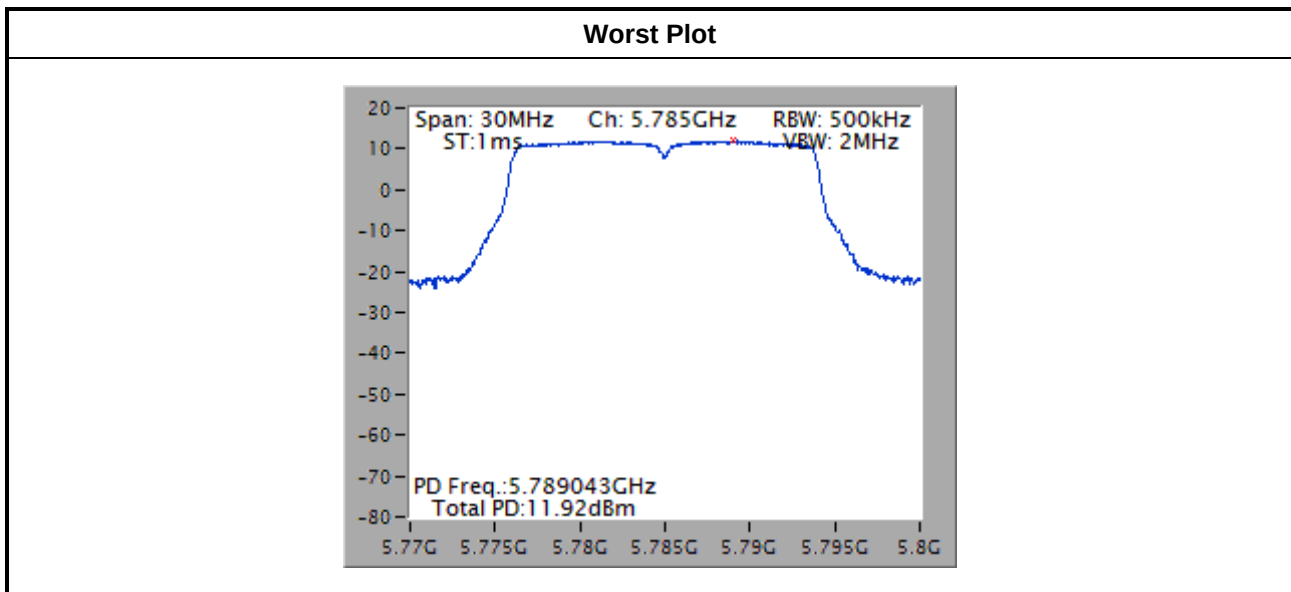
1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $17 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 14.23 \text{ dBm}$.



For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm/500kHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
VHT20	3	5745	11.91	0.00	11.91	27.23
VHT20	3	5785	11.92	0.00	11.92	27.23
VHT20	3	5825	11.67	0.00	11.67	27.23
VHT40	3	5755	9.19	0.00	9.19	27.23
VHT40	3	5795	9.04	0.00	9.04	27.23
VHT80	3	5775	2.48	0.22	2.70	27.23

Note:

1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = $4 + 10 \cdot \log(3/1) = 8.77 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (8.77 \text{ dBi} - 6 \text{ dBi}) = 27.23 \text{ dBm}$.



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit

Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

Un-restricted band emissions above 1GHz Limit		
Operating Band	Limit	
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]	
5.725 - 5.850 GHz	☒	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.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see § 15.205(c))

Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

3.5.2 Test Procedures

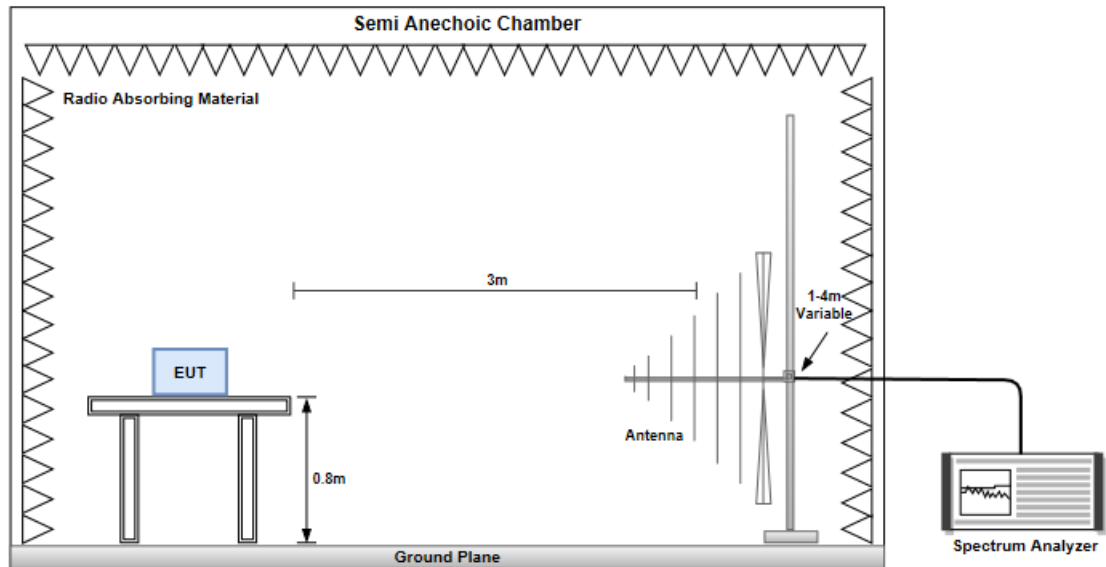
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360° . A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at test table. For emissions testing at or below 1 GHz, the table height is 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height is 1.5 m
2. Measurement is made with the antenna positioned in both the horizontal and vertical planes of polarization. The measurement antenna is varied in height (1m ~ 4m) above the reference ground plane to obtain the maximum signal strength. Distance between EUT and antenna is 3 m.
3. This investigation is performed with the EUT rotated 360° , the antenna height scanned between 1 m and 4 m, and the antenna rotated to repeat the measurements for both the horizontal and vertical antenna polarizations.

Note:

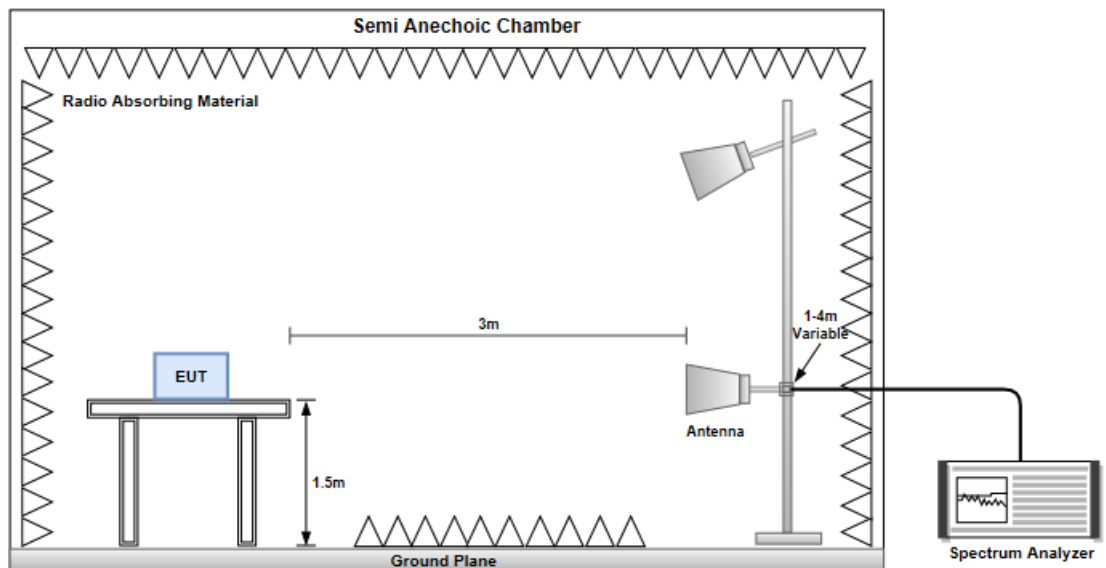
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above 1GHz.

3.5.3 Test Setup

Radiated Emissions below 1 GHz



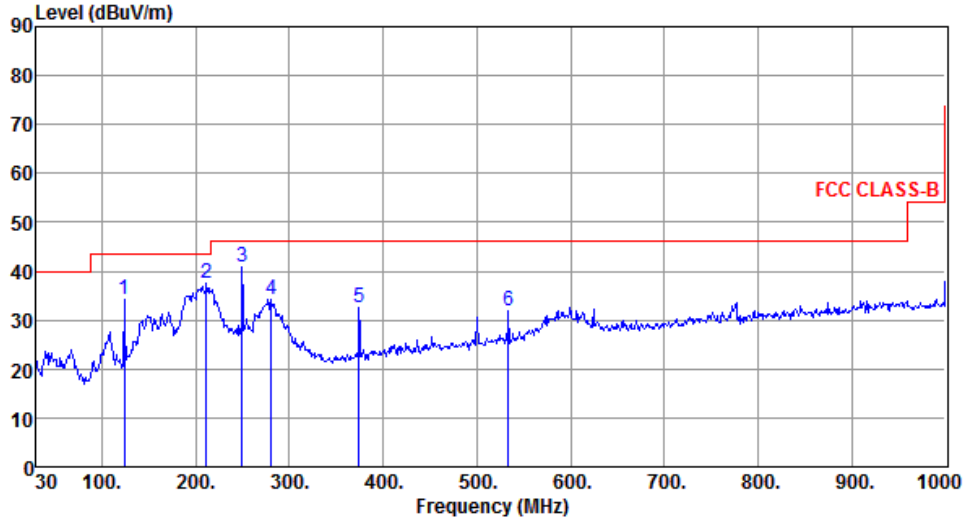
Radiated Emissions above 1 GHz



Non- beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal	Test Configuration	1

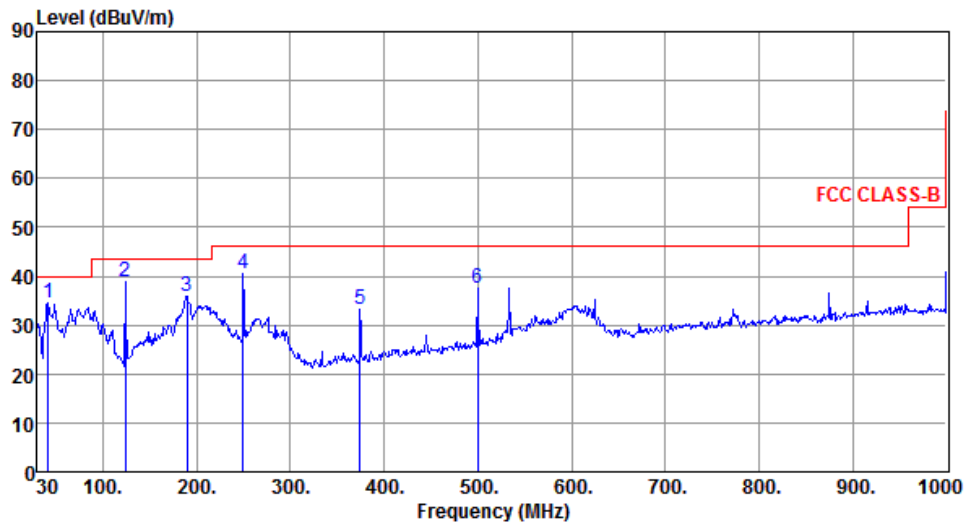


The graph displays the measured emission levels (blue line) against frequency from 30 MHz to 1000 MHz. A red stepped line represents the FCC CLASS-B limit. Six specific peaks are identified and numbered 1 through 6. The emission levels are generally below the limit, with the highest peak at 249.22 MHz (Peak 3) reaching 40.75 dBuV/m.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	34.15	43.50	-9.35	44.76	-10.61	Peak	---	---
2	211.39	37.39	43.50	-6.11	48.47	-11.08	Peak	---	---
3	249.22	40.75	46.00	-5.25	50.18	-9.43	Peak	---	---
4	280.26	34.23	46.00	-11.77	42.53	-8.30	Peak	---	---
5	374.35	32.47	46.00	-13.53	38.45	-5.98	Peak	---	---
6	533.43	31.96	46.00	-14.04	34.52	-2.56	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	41.64	34.44	40.00	-5.56	43.03	-8.59	Peak	---	---
2	124.09	38.86	43.50	-4.64	49.47	-10.61	Peak	---	---
3	190.05	35.91	43.50	-7.59	46.74	-10.83	Peak	---	---
4	249.22	40.63	46.00	-5.37	50.06	-9.43	Peak	---	---
5	374.35	33.36	46.00	-12.64	39.34	-5.98	Peak	---	---
6	499.48	37.50	46.00	-8.50	40.75	-3.25	Peak	---	---

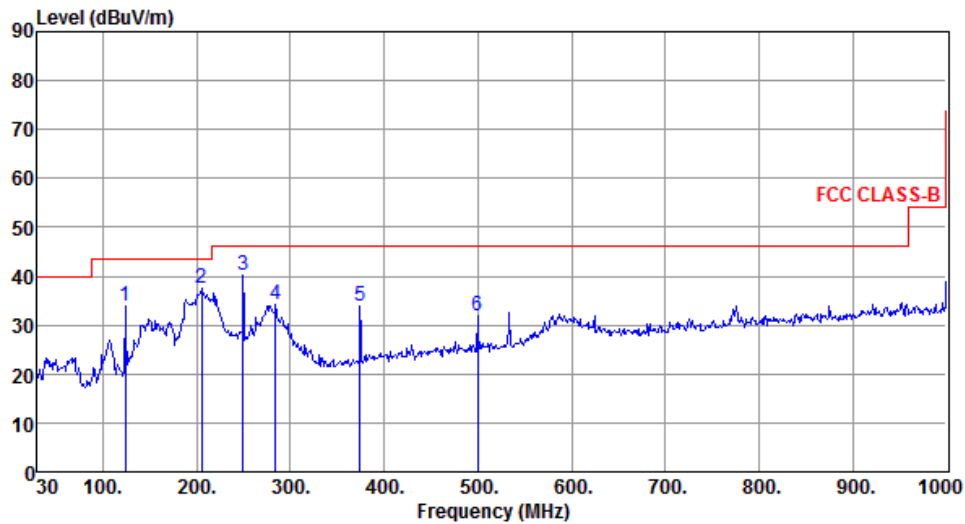
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	33.73	43.50	-9.77	44.34	-10.61	Peak	---	---
2	205.57	37.55	43.50	-5.95	48.69	-11.14	Peak	---	---
3	249.22	40.19	46.00	-5.81	49.62	-9.43	Peak	---	---
4	284.14	34.35	46.00	-11.65	42.56	-8.21	Peak	---	---
5	374.35	33.85	46.00	-12.15	39.83	-5.98	Peak	---	---
6	499.48	31.92	46.00	-14.08	35.17	-3.25	Peak	---	---

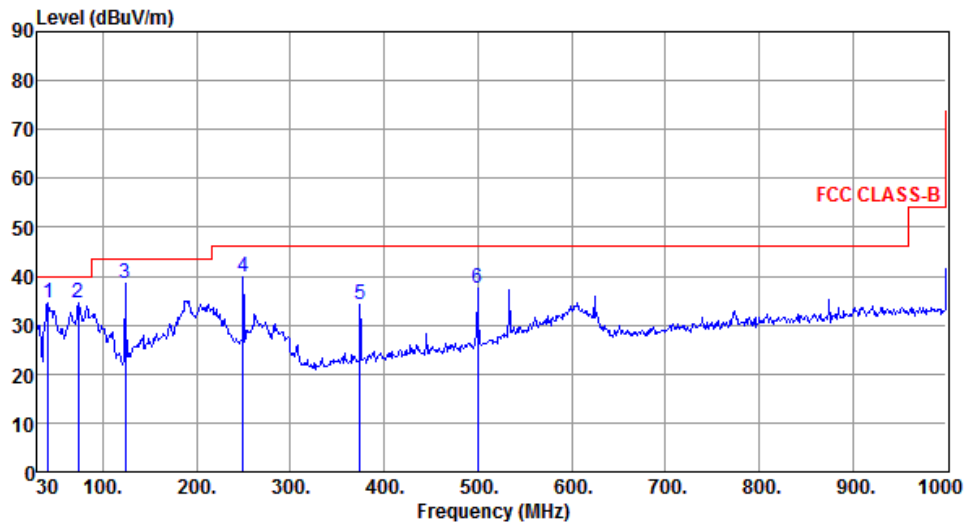
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	41.64	34.69	40.00	-5.31	43.28	-8.59	Peak	---	---
2	73.65	34.51	40.00	-5.49	46.16	-11.65	Peak	---	---
3	124.09	38.53	43.50	-4.97	49.14	-10.61	Peak	---	---
4	249.22	39.93	46.00	-6.07	49.36	-9.43	Peak	---	---
5	374.35	34.21	46.00	-11.79	40.19	-5.98	Peak	---	---
6	499.48	37.44	46.00	-8.56	40.69	-3.25	Peak	---	---

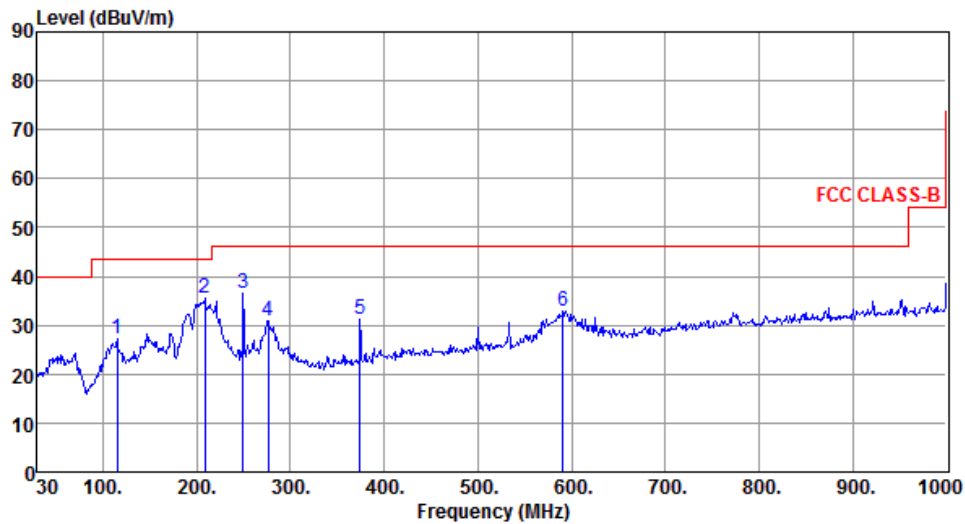
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	115.36	27.17	43.50	-16.33	38.55	-11.38	Peak	---	---
2	208.48	35.45	43.50	-8.05	46.56	-11.11	Peak	---	---
3	249.22	36.45	46.00	-9.55	45.88	-9.43	Peak	---	---
4	276.38	30.77	46.00	-15.23	39.23	-8.46	Peak	---	---
5	374.35	31.35	46.00	-14.65	37.33	-5.98	Peak	---	---
6	590.66	33.02	46.00	-12.98	34.19	-1.17	Peak	---	---

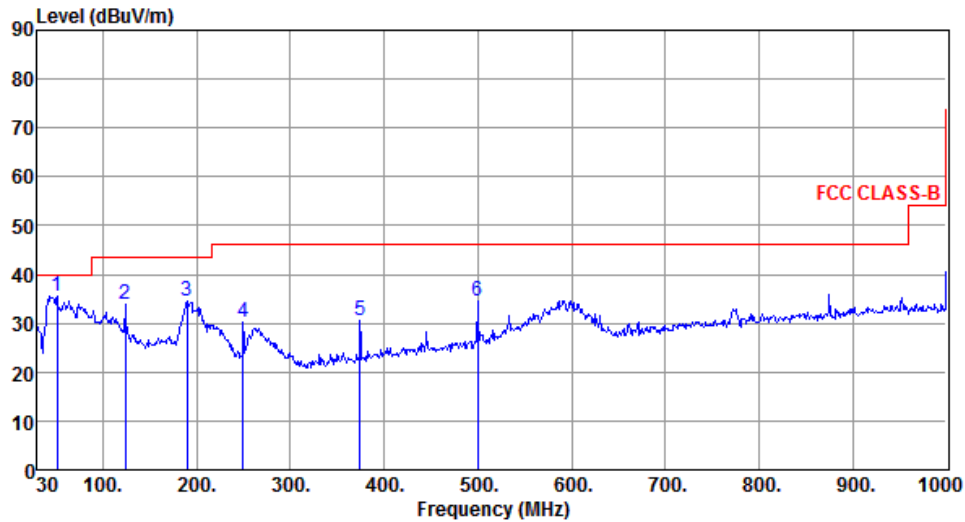
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	51.34	35.63	40.00	-4.37	43.87	-8.24	Peak	---	---
2	124.09	33.76	43.50	-9.74	44.37	-10.61	Peak	---	---
3	190.05	34.56	43.50	-8.94	45.39	-10.83	Peak	---	---
4	249.22	30.06	46.00	-15.94	39.49	-9.43	Peak	---	---
5	374.35	30.54	46.00	-15.46	36.52	-5.98	Peak	---	---
6	499.48	34.51	46.00	-11.49	37.76	-3.25	Peak	---	---

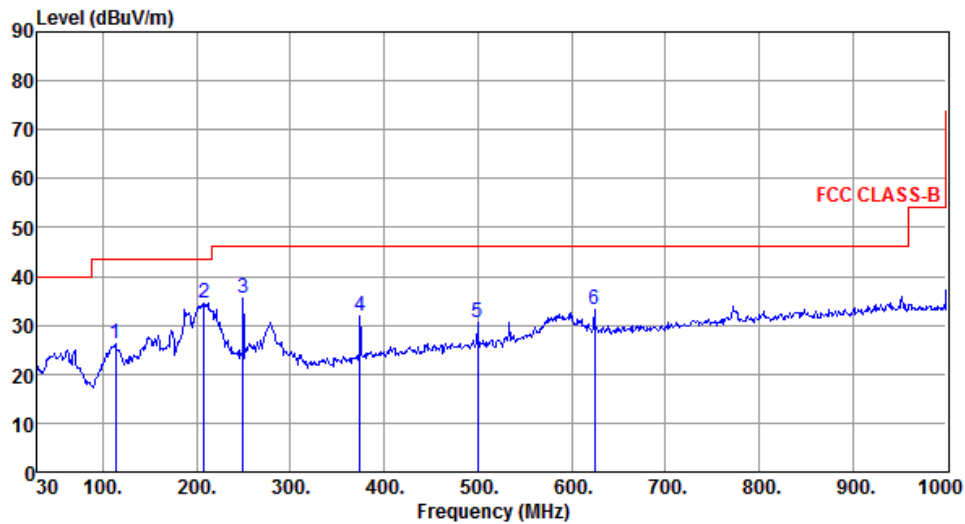
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	113.42	26.13	43.50	-17.37	37.67	-11.54	Peak	---	---
2	207.51	34.58	43.50	-8.92	45.69	-11.11	Peak	---	---
3	249.22	35.51	46.00	-10.49	44.94	-9.43	Peak	---	---
4	374.35	31.81	46.00	-14.19	37.79	-5.98	Peak	---	---
5	499.48	30.56	46.00	-15.44	33.81	-3.25	Peak	---	---
6	624.61	33.11	46.00	-12.89	33.73	-0.62	Peak	---	---

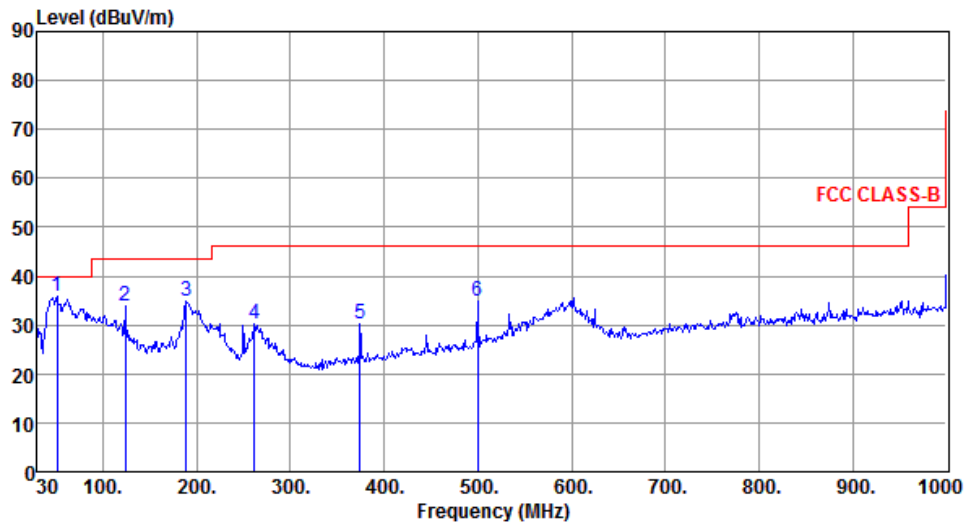
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	51.34	35.77	40.00	-4.23	44.01	-8.24	Peak	---	---
2	124.09	34.01	43.50	-9.49	44.62	-10.61	Peak	---	---
3	189.08	34.87	43.50	-8.63	45.63	-10.76	Peak	---	---
4	261.83	30.08	46.00	-15.92	39.18	-9.10	Peak	---	---
5	374.35	30.10	46.00	-15.90	36.08	-5.98	Peak	---	---
6	499.48	34.70	46.00	-11.30	37.95	-3.25	Peak	---	---

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

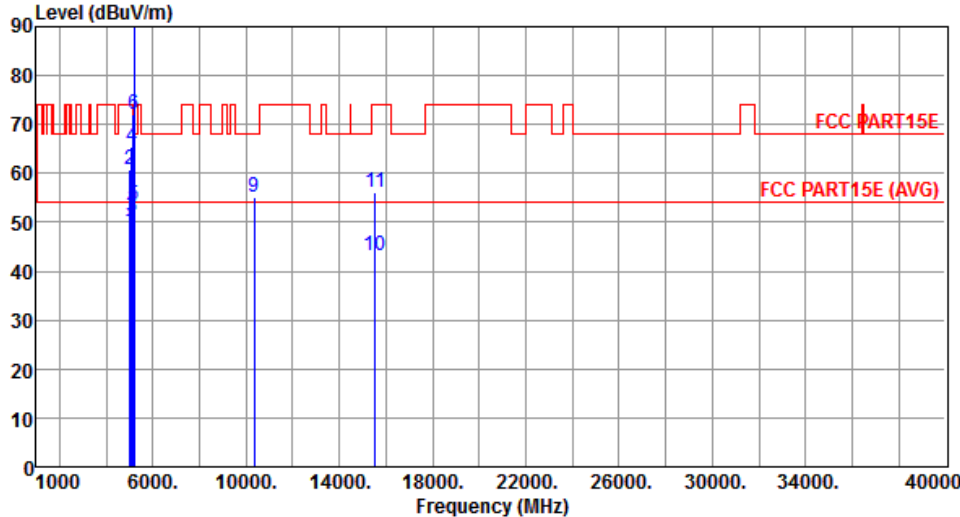
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

3.5.5 Transmitter Radiated Unwanted Emissions (Above 1GHz) for 11a

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



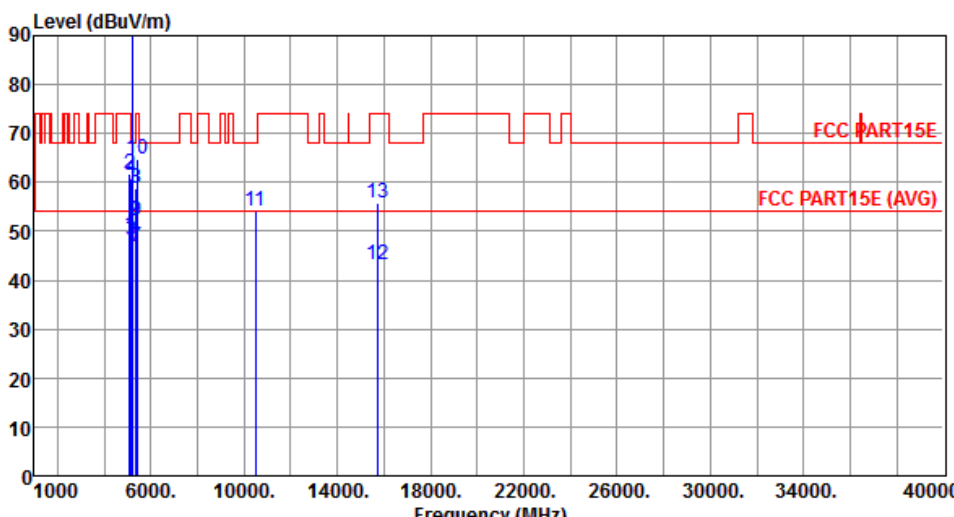
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5020.00	48.19	54.00	-5.81	43.34	4.85	Average	184	299
2	5020.00	60.65	74.00	-13.35	55.80	4.85	Peak	184	299
3	5100.00	51.21	54.00	-2.79	46.26	4.95	Average	143	291
4	5100.00	65.45	74.00	-8.55	60.50	4.95	Peak	143	291
5	5150.00	53.56	54.00	-0.44	48.54	5.02	Average	190	304
6	5150.00	72.22	74.00	-1.78	67.20	5.02	Peak	190	304
7 *	5180.00	109.11			104.05	5.06	Average	132	304
8 *	5180.00	118.46			113.40	5.06	Peak	132	304
9	10360.00	55.27	68.20	-12.93	41.53	13.74	Peak	100	106
10	15540.00	43.18	54.00	-10.82	28.21	14.97	Average	100	143
11	15540.00	56.25	74.00	-17.75	41.28	14.97	Peak	100	143

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		
Level (dBuV/m)			

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		
Level (dBuV/m)			

Modulation	11a	Test Freq. (MHz)	5240						
Polarization	Horizontal								
									
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5080.00	49.05	54.00	-4.95	44.13	4.92	Average	205	302
2	5080.00	61.75	74.00	-12.25	56.83	4.92	Peak	205	302
3	5150.00	48.14	54.00	-5.86	43.12	5.02	Average	100	57
4	5150.00	60.74	74.00	-13.26	55.72	5.02	Peak	100	57
5 *	5240.00	110.26			105.12	5.14	Average	100	57
6 *	5240.00	120.45			115.31	5.14	Peak	100	57
7	5350.00	46.75	54.00	-7.25	41.44	5.31	Average	100	57
8	5350.00	58.79	74.00	-15.21	53.48	5.31	Peak	100	57
9	5400.00	52.21	54.00	-1.79	46.82	5.39	Average	127	300
10	5400.00	64.70	74.00	-9.30	59.31	5.39	Peak	127	300
11	10480.00	54.06	68.20	-14.14	40.25	13.81	Peak	100	144
12	15720.00	43.13	54.00	-10.87	28.22	14.91	Average	100	165
13	15720.00	55.95	74.00	-18.05	41.04	14.91	Peak	100	165

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3:"*" is Peak / Average value of fundamental frequency

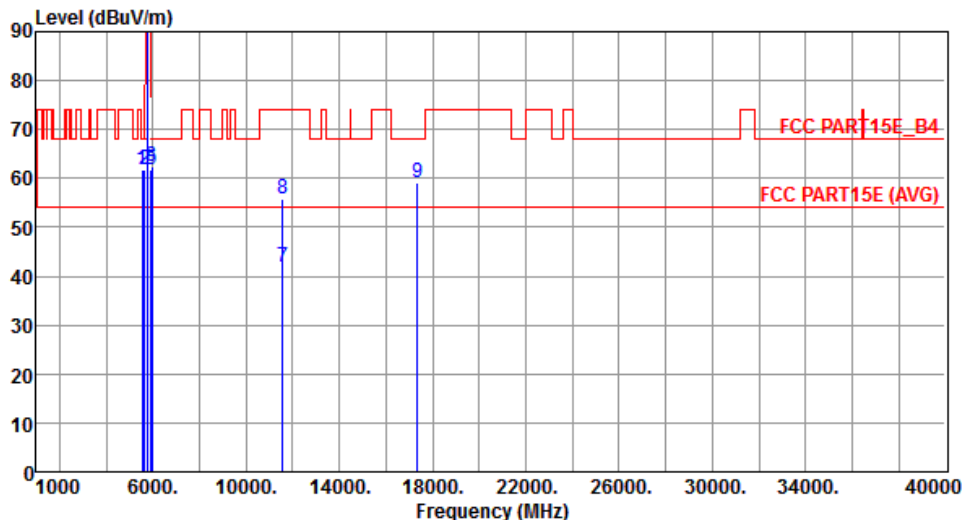
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		
Level (dBUV/m)			

Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		
Level (dBuV/m)			

Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	
1	5545.00	61.91	68.20	-6.29	56.36	5.55	Peak	374	359
2	5650.00	61.61	68.20	-6.59	55.92	5.69	Peak	374	359
3 *	5785.00	109.87		103.96	5.91	Average	374	359	
4 *	5785.00	120.69		114.78	5.91	Peak	374	359	
5	5925.00	61.74	68.20	-6.46	55.65	6.09	Peak	374	359
6	5945.00	62.39	68.20	-5.81	56.28	6.11	Peak	374	359
7	11570.00	41.98	54.00	-12.02	27.38	14.60	Average	100	168
8	11570.00	55.85	74.00	-18.15	41.25	14.60	Peak	100	168
9	17355.00	59.22	68.20	-8.98	41.67	17.55	Peak	100	111

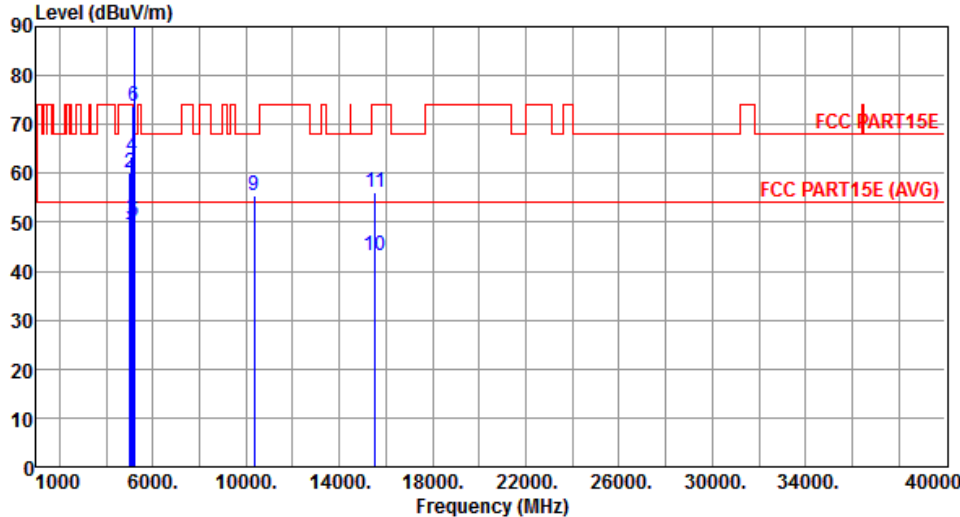
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		
Level (dBUV/m) <			

Modulation	11a	Test Freq. (MHz)	5825
Polarization	Vertical		
Level (dBuV/m)			

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5020.00	47.33	54.00	-6.67	42.48	4.85	Average	179	294
2	5020.00	60.27	74.00	-13.73	55.42	4.85	Peak	179	294
3	5100.00	50.45	54.00	-3.55	45.50	4.95	Average	189	303
4	5100.00	63.49	74.00	-10.51	58.54	4.95	Peak	189	303
5	5150.00	50.06	54.00	-3.94	45.04	5.02	Average	100	58
6	5150.00	73.57	74.00	-0.43	68.55	5.02	Peak	100	58
7 *	5180.00	107.49			102.43	5.06	Average	173	301
8 *	5180.00	118.40			113.34	5.06	Peak	173	301
9	10360.00	55.30	68.20	-12.90	41.56	13.74	Peak	100	145
10	15540.00	43.25	54.00	-10.75	28.28	14.97	Average	100	162
11	15540.00	56.25	74.00	-17.75	41.28	14.97	Peak	100	162

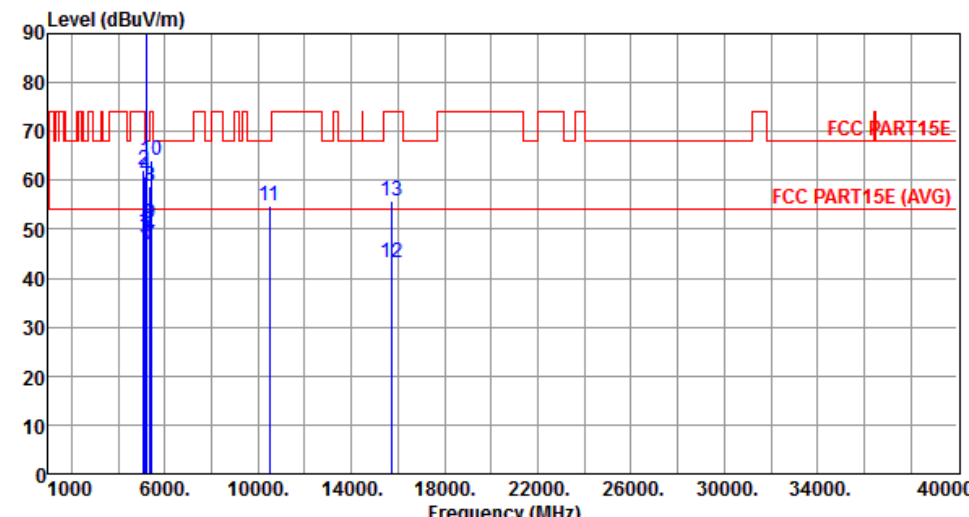
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		
Level (dBuV/m)			

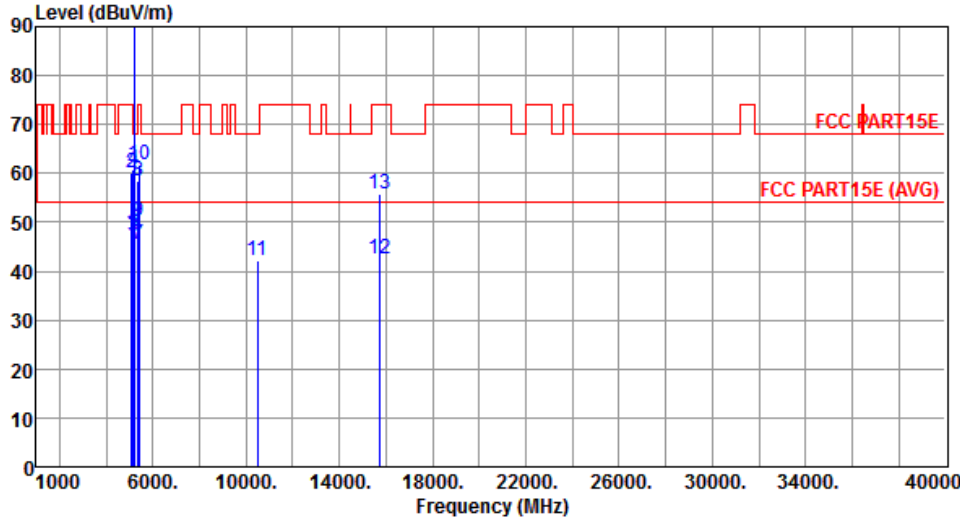
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5080.00	49.49	54.00	-4.51	44.57	4.92	Average	125	293
2	5080.00	62.14	74.00	-11.86	57.22	4.92	Peak	125	293
3	5150.00	48.23	54.00	-5.77	43.21	5.02	Average	198	305
4	5150.00	60.77	74.00	-13.23	55.75	5.02	Peak	198	305
5 *	5240.00	110.26			105.12	5.14	Average	206	312
6 *	5240.00	121.19			116.05	5.14	Peak	206	312
7	5350.00	46.96	54.00	-7.04	41.65	5.31	Average	198	305
8	5350.00	58.93	74.00	-15.07	53.62	5.31	Peak	198	305
9	5400.00	51.21	54.00	-2.79	45.82	5.39	Average	198	305
10	5400.00	64.03	74.00	-9.97	58.64	5.39	Peak	198	305
11	10480.00	54.86	68.20	-13.34	41.05	13.81	Peak	100	128
12	15720.00	43.11	54.00	-10.89	28.20	14.91	Average	100	196
13	15720.00	55.95	74.00	-18.05	41.04	14.91	Peak	100	196

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: "*" is Peak / Average value of fundamental frequency

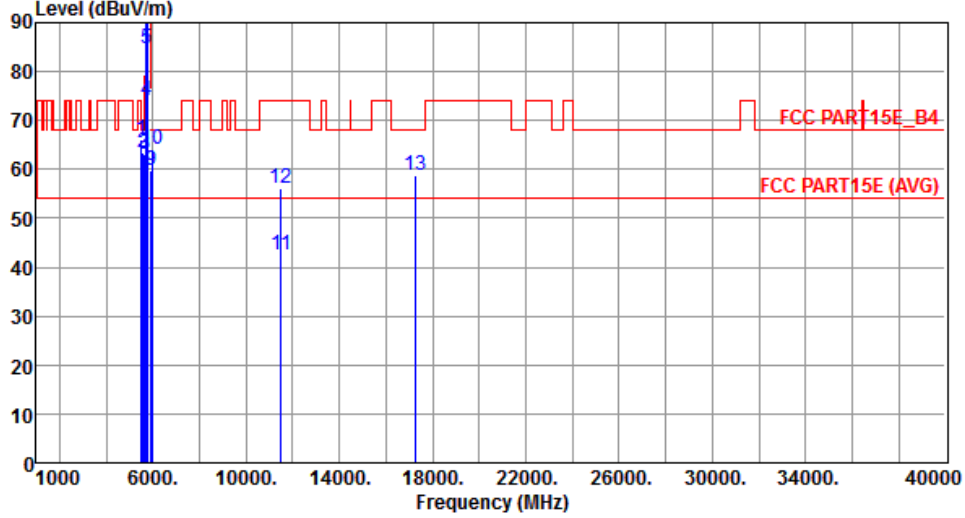
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5080.00	47.98	54.00	-6.02	43.06	4.92	Average	362	0
2	5080.00	60.15	74.00	-13.85	55.23	4.92	Peak	362	0
3	5150.00	47.15	54.00	-6.85	42.13	5.02	Average	375	0
4	5150.00	60.74	74.00	-13.26	55.72	5.02	Peak	375	0
5 *	5240.00	107.29			102.15	5.14	Average	375	0
6 *	5240.00	119.07			113.93	5.14	Peak	375	0
7	5350.00	45.66	54.00	-8.34	40.35	5.31	Average	396	0
8	5350.00	58.56	74.00	-15.44	53.25	5.31	Peak	396	0
9	5400.00	50.11	54.00	-3.89	44.72	5.39	Average	396	0
10	5400.00	61.74	74.00	-12.26	56.35	5.39	Peak	396	0
11	10480.00	42.05	68.20	-26.15	28.24	13.81	Peak	100	165
12	15720.00	42.45	54.00	-11.55	27.54	14.91	Average	100	131
13	15720.00	55.95	74.00	-18.05	41.04	14.91	Peak	100	131

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

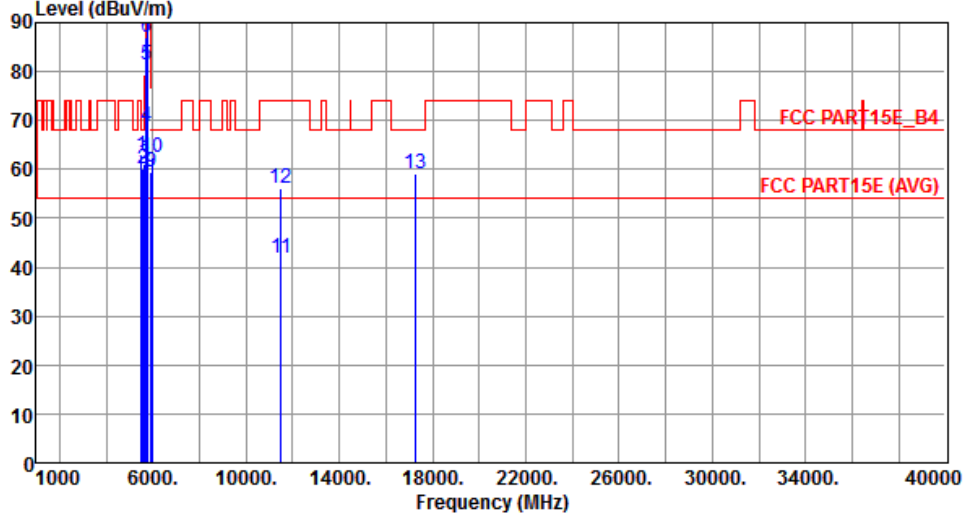
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5505.00	65.97	68.20	-2.23	60.45	5.52	Peak	184	305
2	5575.00	63.37	68.20	-4.83	57.80	5.57	Peak	184	304
3	5650.00	63.02	68.20	-5.18	57.33	5.69	Peak	156	309
4	5700.00	74.07	105.20	-31.13	68.30	5.77	Peak	156	309
5	5720.00	84.73	110.80	-26.07	78.94	5.79	Peak	156	309
6	5725.00	95.07	122.20	-27.13	89.26	5.81	Peak	156	309
7 *	5745.00	111.92			106.08	5.84	Average	156	309
8 *	5745.00	122.64			116.80	5.84	Peak	156	309
9	5925.00	59.68	68.20	-8.52	53.59	6.09	Peak	156	309
10	5985.00	64.02	68.20	-4.18	57.87	6.15	Peak	183	316
11	11490.00	42.35	54.00	-11.65	27.62	14.73	Average	100	143
12	11490.00	55.98	74.00	-18.02	41.25	14.73	Peak	100	143
13	17235.00	58.68	68.20	-9.52	41.61	17.07	Peak	100	126

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



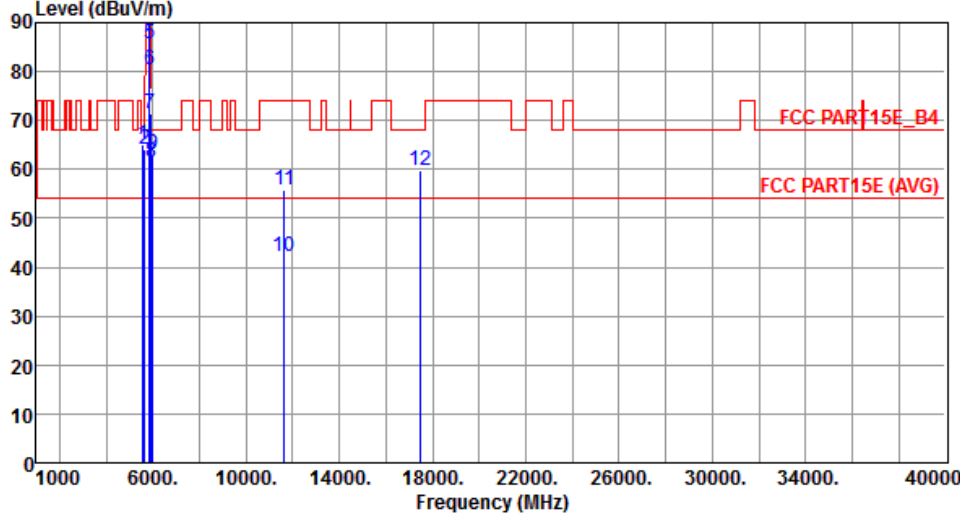
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5505.00	62.84	68.20	-5.36	57.32	5.52	Peak	393	358
2	5575.00	59.99	68.20	-8.21	54.42	5.57	Peak	392	357
3	5650.00	61.08	68.20	-7.12	55.39	5.69	Peak	392	357
4	5700.00	68.73	105.20	-36.47	62.96	5.77	Peak	392	357
5	5720.00	81.30	110.80	-29.50	75.51	5.79	Peak	392	357
6	5725.00	87.07	122.20	-35.13	81.26	5.81	Peak	392	357
7 *	5745.00	107.57			101.73	5.84	Average	392	357
8 *	5745.00	118.80			112.96	5.84	Peak	392	357
9	5925.00	59.37	68.20	-8.83	53.28	6.09	Peak	392	357
10	5985.00	62.27	68.20	-5.93	56.12	6.15	Peak	392	357
11	11490.00	41.98	54.00	-12.02	27.25	14.73	Average	100	138
12	11490.00	56.04	74.00	-17.96	41.31	14.73	Peak	100	138
13	17235.00	59.02	68.20	-9.18	41.95	17.07	Peak	100	305

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5585.00	65.07	68.20	-3.13	59.48	5.59	Peak	162	308
2	5650.00	64.10	68.20	-4.10	58.41	5.69	Peak	162	308
3 *	5825.00	111.41			105.45	5.96	Average	162	308
4 *	5825.00	122.45			116.49	5.96	Peak	162	308
5	5850.00	85.74	122.20	-36.46	79.75	5.99	Peak	162	308
6	5855.00	80.53	110.80	-30.27	74.53	6.00	Peak	162	308
7	5875.00	71.40	105.20	-33.80	65.38	6.02	Peak	162	308
8	5925.00	61.56	68.20	-6.64	55.47	6.09	Peak	162	308
9	5985.00	63.00	68.20	-5.20	56.85	6.15	Peak	162	308
10	11650.00	42.19	54.00	-11.81	27.75	14.44	Average	100	148
11	11650.00	55.88	74.00	-18.12	41.44	14.44	Peak	100	148
12	17475.00	59.70	68.20	-8.50	41.66	18.04	Peak	100	56

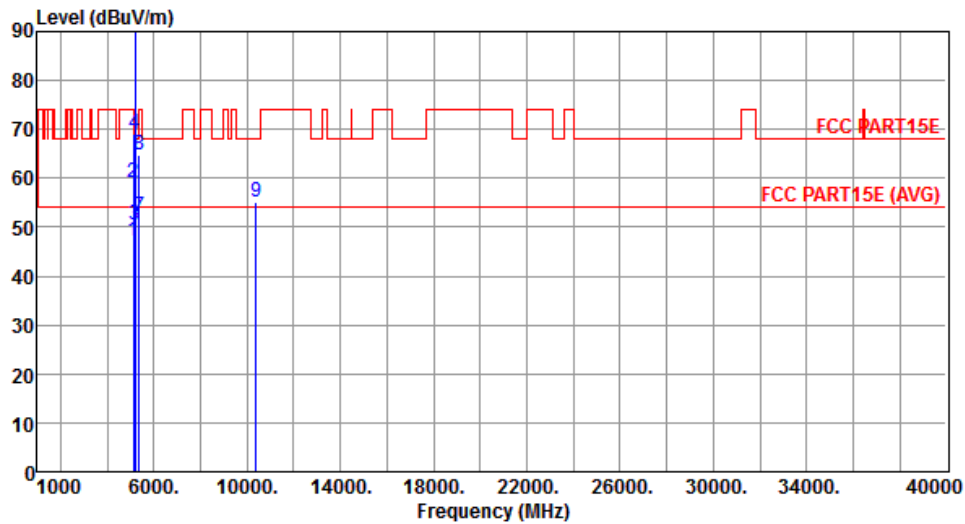
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		
Level (dBuV/m) </			

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5110.00	47.32	54.00	-6.68	42.36	4.96	Average	386	337
2	5110.00	59.03	74.00	-14.97	54.07	4.96	Peak	386	337
3	5150.00	50.57	54.00	-3.43	45.55	5.02	Average	371	354
4	5150.00	69.22	74.00	-4.78	64.20	5.02	Peak	371	354
5 *	5190.00	98.23			93.16	5.07	Average	391	343
6 *	5190.00	109.68			104.61	5.07	Peak	391	343
7	5350.00	52.14	54.00	-1.86	46.83	5.31	Average	382	2
8	5350.00	64.70	74.00	-9.30	59.39	5.31	Peak	382	2
9	10380.00	55.04	68.20	-13.16	41.29	13.75	Peak	100	205

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

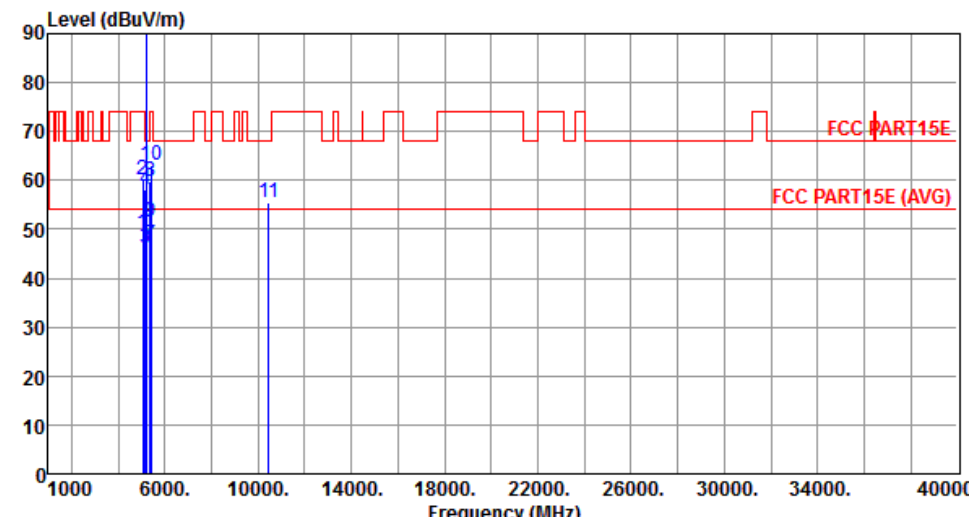
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		

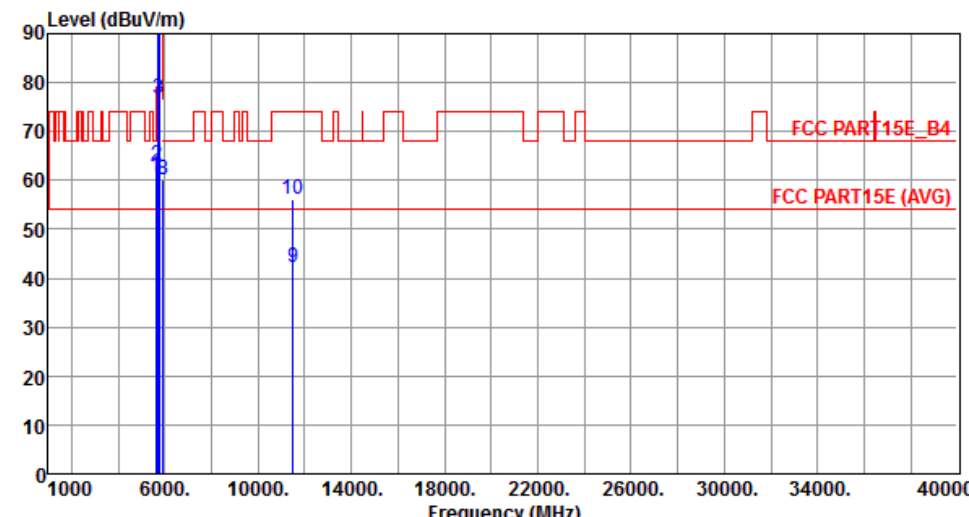


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5070.00	49.02	54.00	-4.98	44.11	4.91	Average	385	333
2	5070.00	60.21	74.00	-13.79	55.30	4.91	Peak	385	333
3	5150.00	46.21	54.00	-7.79	41.19	5.02	Average	377	331
4	5150.00	58.18	74.00	-15.82	53.16	5.02	Peak	377	331
5 *	5230.00	98.72			93.59	5.13	Average	377	331
6 *	5230.00	111.03			105.90	5.13	Peak	377	331
7	5350.00	46.89	54.00	-7.11	41.58	5.31	Average	377	331
8	5350.00	59.68	74.00	-14.32	54.37	5.31	Peak	377	331
9	5390.00	51.45	54.00	-2.55	46.08	5.37	Average	394	0
10	5390.00	63.01	74.00	-10.99	57.64	5.37	Peak	394	0
11	10460.00	55.43	68.20	-12.77	41.64	13.79	Peak	100	267

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5595.00	60.73	68.20	-7.47	55.14	5.59	Peak	394	356
2	5650.00	63.16	68.20	-5.04	57.47	5.69	Peak	394	356
3	5700.00	76.68	105.20	-28.52	70.91	5.77	Peak	394	356
4	5720.00	91.26	110.80	-19.54	85.47	5.79	Peak	394	356
5	5725.00	93.55	122.20	-28.65	87.74	5.81	Peak	394	356
6 *	5755.00	105.61			99.74	5.87	Average	394	356
7 *	5755.00	117.11			111.24	5.87	Peak	394	356
8	5925.00	59.95	68.20	-8.25	53.86	6.09	Peak	394	356
9	11510.00	42.18	54.00	-11.82	27.46	14.72	Average	100	163
10	11510.00	56.16	74.00	-17.84	41.44	14.72	Peak	100	163

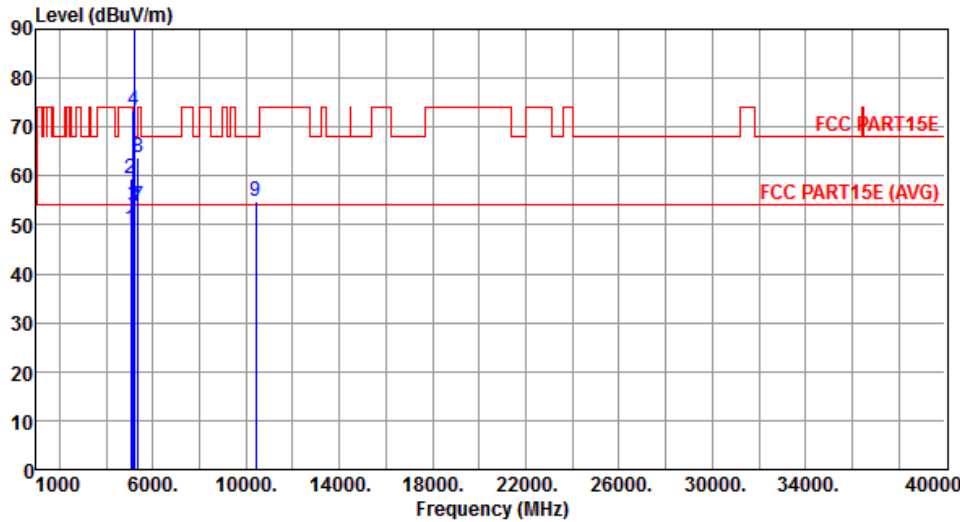
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		
Level (dBuV/m)			

3.5.8 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

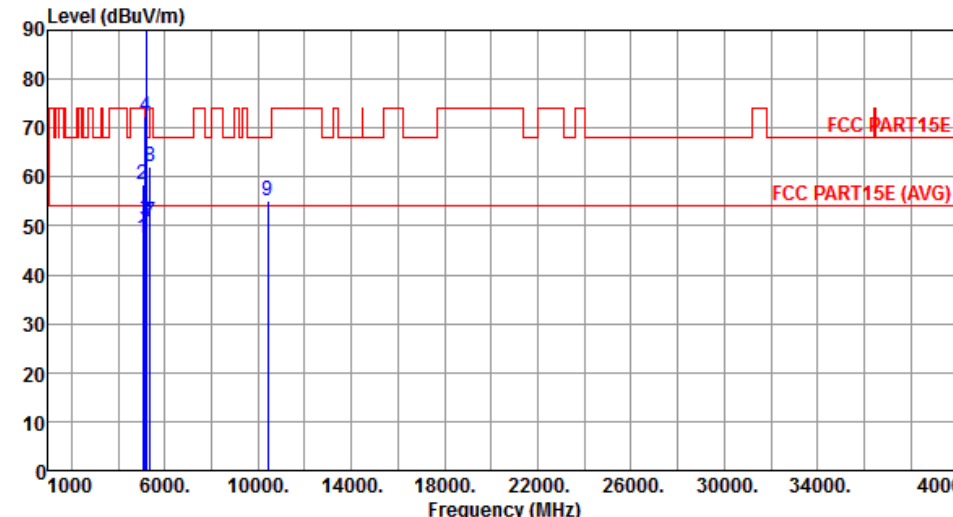
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5050.00	49.25	54.00	-4.75	44.36	4.89	Average	230	297
2	5050.00	59.44	74.00	-14.56	54.55	4.89	Peak	230	297
3	5150.00	53.88	54.00	-0.12	48.86	5.02	Average	230	297
4	5150.00	73.55	74.00	-0.45	68.53	5.02	Peak	230	297
5 *	5210.00	102.73			97.63	5.10	Average	230	297
6 *	5210.00	112.56			107.46	5.10	Peak	230	297
7	5350.00	53.79	54.00	-0.21	48.48	5.31	Average	230	297
8	5350.00	63.90	74.00	-10.10	58.59	5.31	Peak	230	297
9	10420.00	54.93	68.20	-13.27	41.15	13.78	Peak	100	133

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

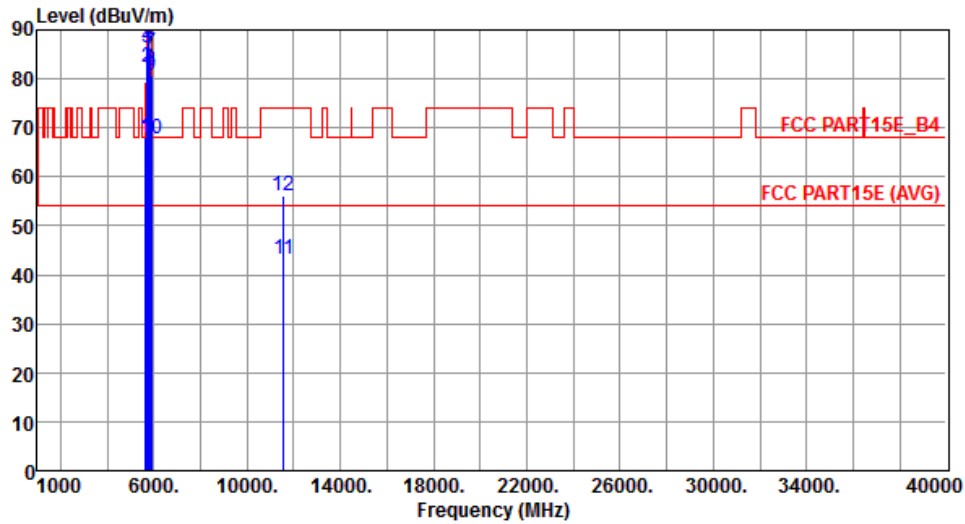
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5050.00	47.40	54.00	-6.60	42.51	4.89	Average	389	332
2	5050.00	58.37	74.00	-15.63	53.48	4.89	Peak	389	332
3	5150.00	51.18	54.00	-2.82	46.16	5.02	Average	373	352
4	5150.00	72.35	74.00	-1.65	67.33	5.02	Peak	373	352
5 *	5210.00	96.99			91.89	5.10	Average	381	333
6 *	5210.00	106.58			101.48	5.10	Peak	381	333
7	5350.00	50.80	54.00	-3.20	45.49	5.31	Average	392	356
8	5350.00	61.97	74.00	-12.03	56.66	5.31	Peak	392	356
9	10420.00	55.02	68.20	-13.18	41.24	13.78	Peak	100	268

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	68.01	68.20	-0.19	62.32	5.69	Peak	201	55
2	5700.00	82.50	105.20	-22.70	76.73	5.77	Peak	201	55
3	5720.00	86.30	110.80	-24.50	80.51	5.79	Peak	201	55
4	5725.00	86.84	122.20	-35.36	81.03	5.81	Peak	201	55
5 *	5775.00	105.35			99.45	5.90	Average	201	55
6 *	5775.00	115.01			109.11	5.90	Peak	201	55
7	5850.00	85.19	122.20	-37.01	79.20	5.99	Peak	201	55
8	5855.00	81.84	110.80	-28.96	75.84	6.00	Peak	201	55
9	5875.00	80.66	105.20	-24.54	74.64	6.02	Peak	201	55
10	5925.00	67.70	68.20	-0.50	61.61	6.09	Peak	201	55
11	11550.00	43.19	54.00	-10.81	28.55	14.64	Average	100	135
12	11550.00	56.07	74.00	-17.93	41.43	14.64	Peak	100	135

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

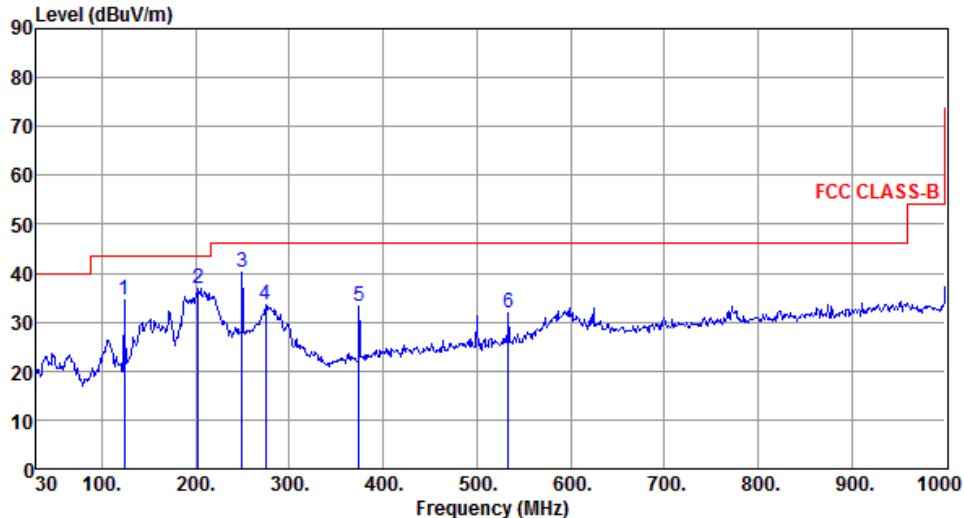
Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Vertical		
Level (dBuV/m)			

Beamforming mode

3.5.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)

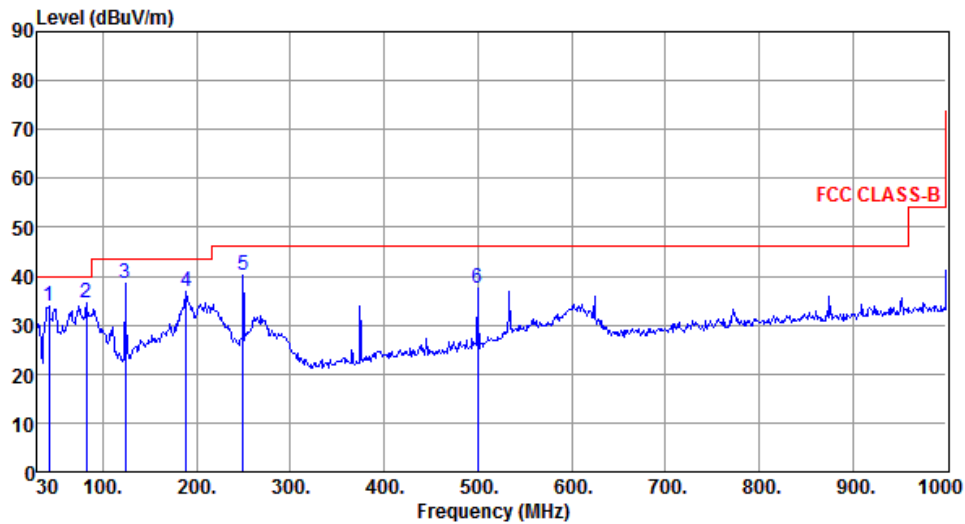
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	34.39	43.50	-9.11	45.00	-10.61	Peak	---	---
2	202.66	36.86	43.50	-6.64	48.05	-11.19	Peak	---	---
3	249.22	40.29	46.00	-5.71	49.72	-9.43	Peak	---	---
4	274.44	33.67	46.00	-12.33	42.22	-8.55	Peak	---	---
5	374.35	33.06	46.00	-12.94	39.04	-5.98	Peak	---	---
6	533.43	31.92	46.00	-14.08	34.48	-2.56	Peak	---	---

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	42.61	33.91	40.00	-6.09	42.43	-8.52	Peak	---	---
2	82.38	34.38	40.00	-5.62	47.88	-13.50	Peak	---	---
3	124.09	38.58	43.50	-4.92	49.19	-10.61	Peak	---	---
4	189.08	36.99	43.50	-6.51	47.75	-10.76	Peak	---	---
5	249.22	40.06	46.00	-5.94	49.49	-9.43	Peak	---	---
6	499.48	37.60	46.00	-8.40	40.85	-3.25	Peak	---	---

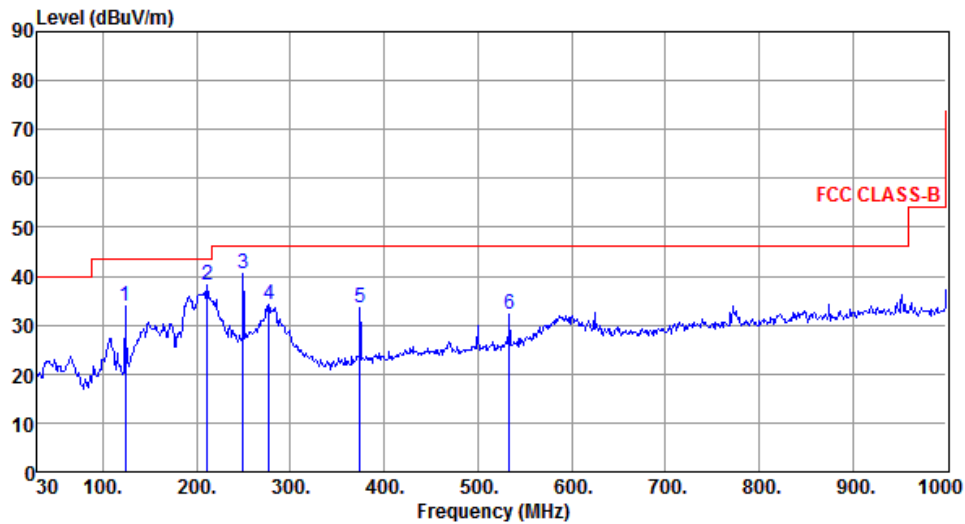
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	33.74	43.50	-9.76	44.35	-10.61	Peak	---	---
2	211.39	38.20	43.50	-5.30	49.28	-11.08	Peak	---	---
3	249.22	40.48	46.00	-5.52	49.91	-9.43	Peak	---	---
4	277.35	34.24	46.00	-11.76	42.67	-8.43	Peak	---	---
5	374.35	33.67	46.00	-12.33	39.65	-5.98	Peak	---	---
6	533.43	32.20	46.00	-13.80	34.76	-2.56	Peak	---	---

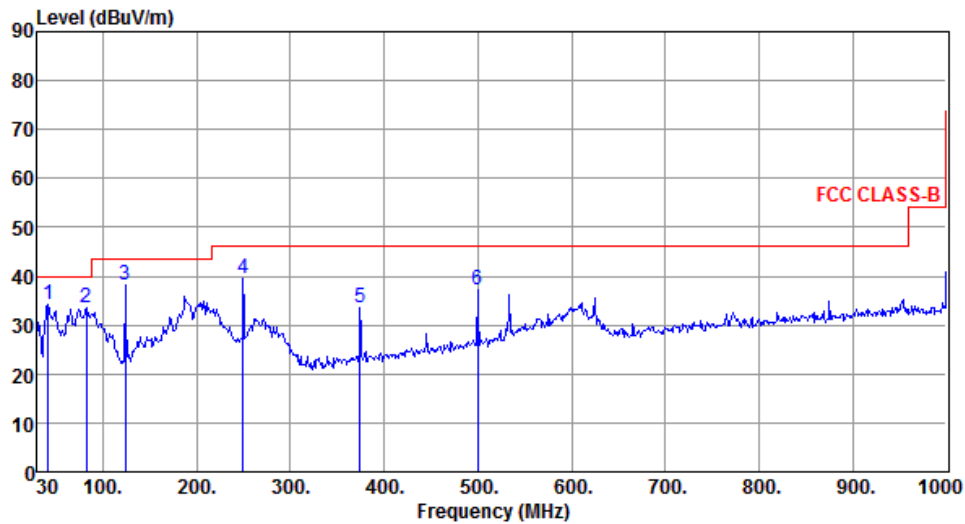
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical	Test Configuration	1



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	41.64	34.09	40.00	-5.91	42.68	-8.59	Peak	---	---
2	82.38	33.54	40.00	-6.46	47.04	-13.50	Peak	---	---
3	124.09	38.23	43.50	-5.27	48.84	-10.61	Peak	---	---
4	249.22	39.50	46.00	-6.50	48.93	-9.43	Peak	---	---
5	374.35	33.48	46.00	-12.52	39.46	-5.98	Peak	---	---
6	499.48	37.33	46.00	-8.67	40.58	-3.25	Peak	---	---

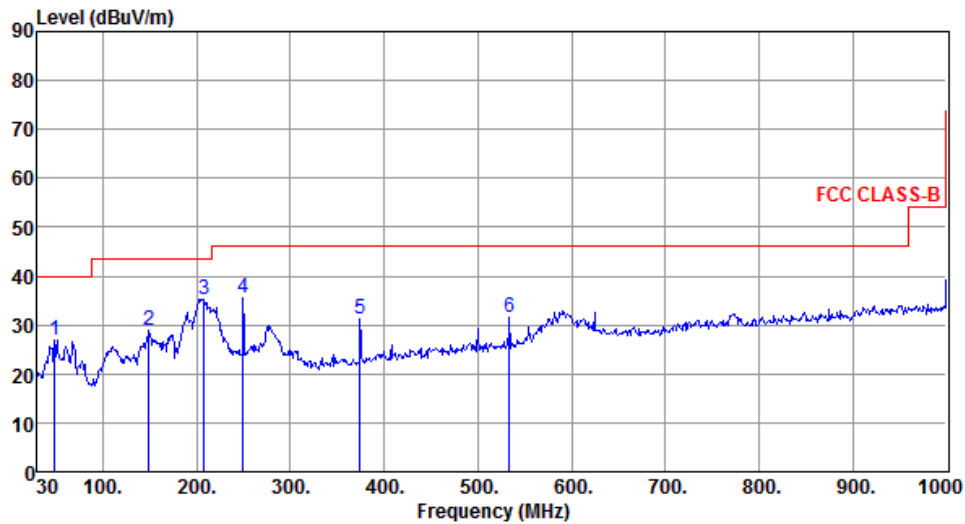
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	48.43	27.03	40.00	-12.97	35.23	-8.20	Peak	---	---
2	149.31	28.87	43.50	-14.63	37.41	-8.54	Peak	---	---
3	207.51	35.23	43.50	-8.27	46.34	-11.11	Peak	---	---
4	249.22	35.39	46.00	-10.61	44.82	-9.43	Peak	---	---
5	374.35	31.30	46.00	-14.70	37.28	-5.98	Peak	---	---
6	533.43	31.59	46.00	-14.41	34.15	-2.56	Peak	---	---

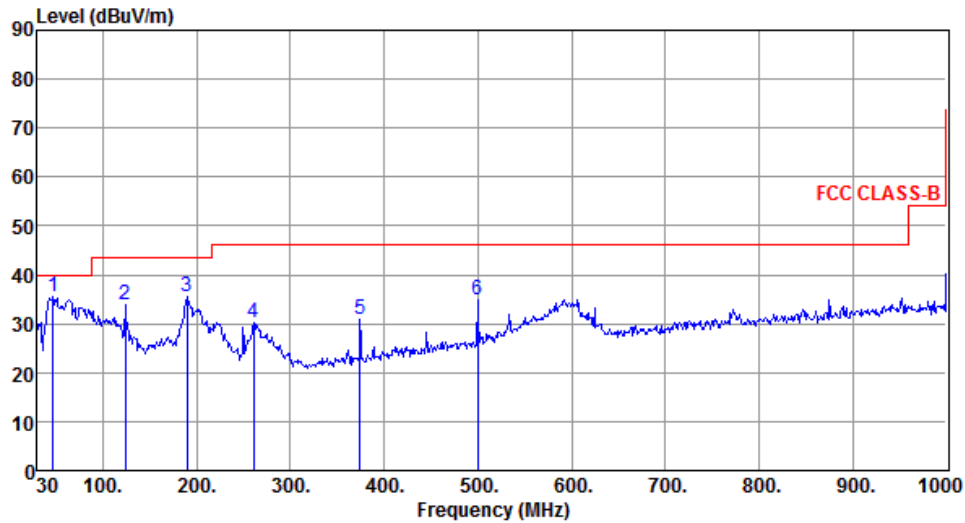
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	46.49	35.63	40.00	-4.37	43.92	-8.29	Peak	---	---
2	124.09	34.03	43.50	-9.47	44.64	-10.61	Peak	---	---
3	190.05	35.66	43.50	-7.84	46.49	-10.83	Peak	---	---
4	260.86	30.26	46.00	-15.74	39.40	-9.14	Peak	---	---
5	374.35	30.99	46.00	-15.01	36.97	-5.98	Peak	---	---
6	499.48	34.89	46.00	-11.11	38.14	-3.25	Peak	---	---

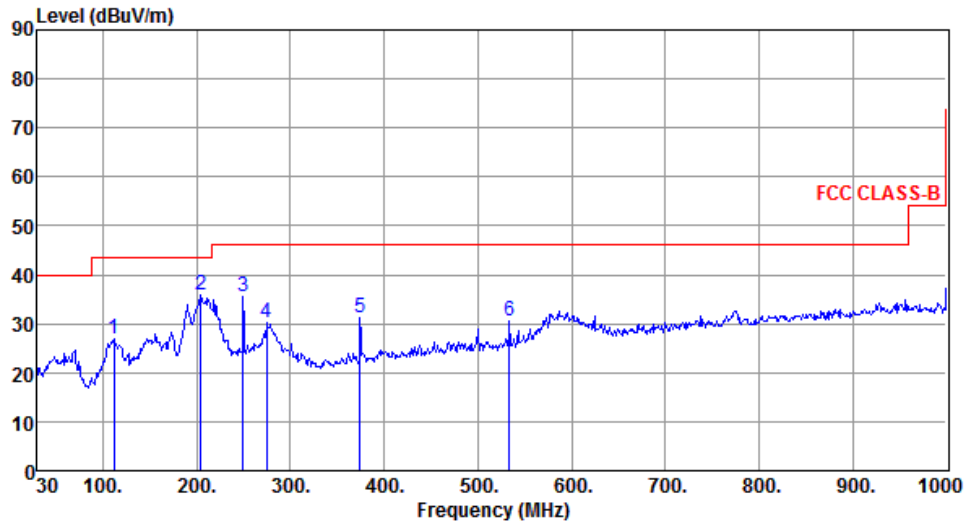
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal	Test Configuration	2



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	111.48	26.87	43.50	-16.63	38.56	-11.69	Peak	---	---
2	204.60	35.75	43.50	-7.75	46.90	-11.15	Peak	---	---
3	249.22	35.50	46.00	-10.50	44.93	-9.43	Peak	---	---
4	274.44	30.16	46.00	-15.84	38.71	-8.55	Peak	---	---
5	374.35	31.35	46.00	-14.65	37.33	-5.98	Peak	---	---
6	533.43	30.64	46.00	-15.36	33.20	-2.56	Peak	---	---

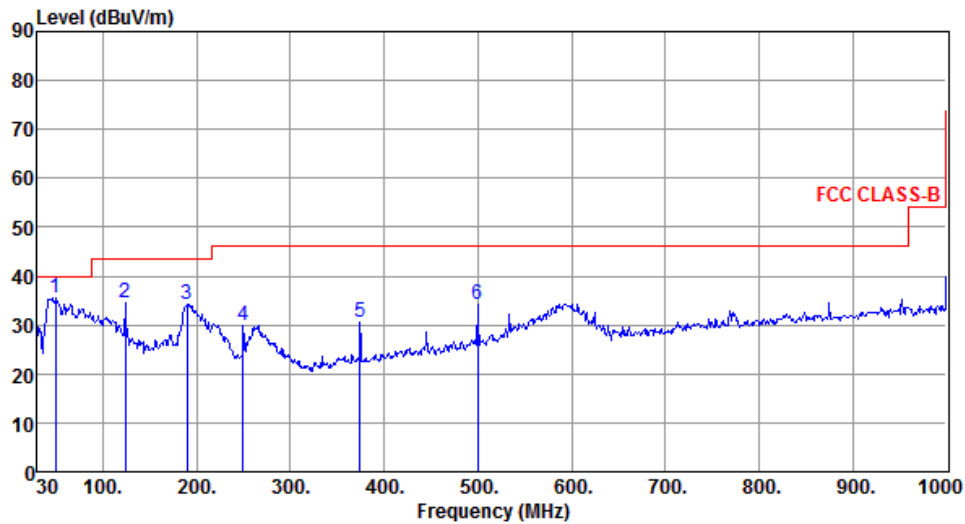
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical	Test Configuration	2



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	49.40	35.60	40.00	-4.40	43.76	-8.16	Peak	---	---
2	124.09	34.40	43.50	-9.10	45.01	-10.61	Peak	---	---
3	190.05	34.29	43.50	-9.21	45.12	-10.83	Peak	---	---
4	249.22	29.98	46.00	-16.02	39.41	-9.43	Peak	---	---
5	374.35	30.44	46.00	-15.56	36.42	-5.98	Peak	---	---
6	499.48	34.13	46.00	-11.87	37.38	-3.25	Peak	---	---

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

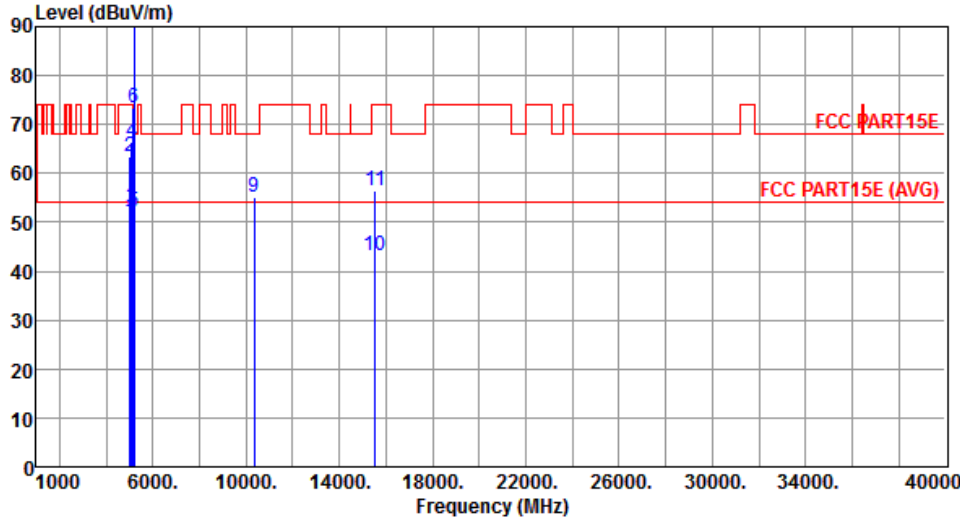
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: All spurious emissions below 30MHz are more than 20 dB below the limit.

3.5.10 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT20

Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		

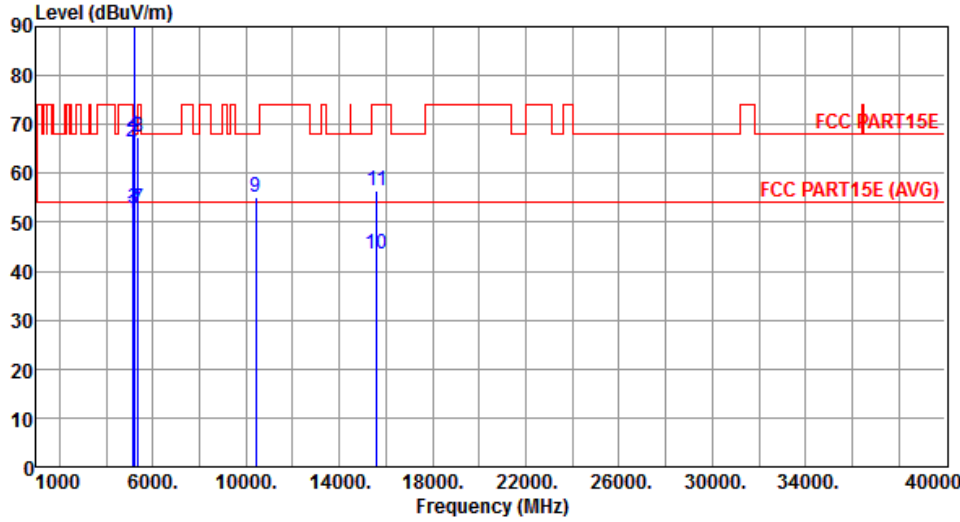


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5020.00	50.25	54.00	-3.75	45.40	4.85	Average	160	303
2	5020.00	63.34	74.00	-10.66	58.49	4.85	Peak	160	303
3	5100.00	52.65	54.00	-1.35	47.70	4.95	Average	160	303
4	5100.00	66.38	74.00	-7.62	61.43	4.95	Peak	160	303
5	5150.00	52.08	54.00	-1.92	47.06	5.02	Average	159	305
6	5150.00	73.55	74.00	-0.45	68.53	5.02	Peak	159	305
7 *	5180.00	109.37			104.31	5.06	Average	159	305
8 *	5180.00	122.01			116.95	5.06	Peak	159	305
9	10360.00	55.21	68.20	-12.99	41.47	13.74	Peak	105	165
10	15540.00	43.28	54.00	-10.72	28.31	14.97	Average	102	142
11	15540.00	56.34	74.00	-17.66	41.37	14.97	Peak	102	142

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		
Level (dBuV/m) </			

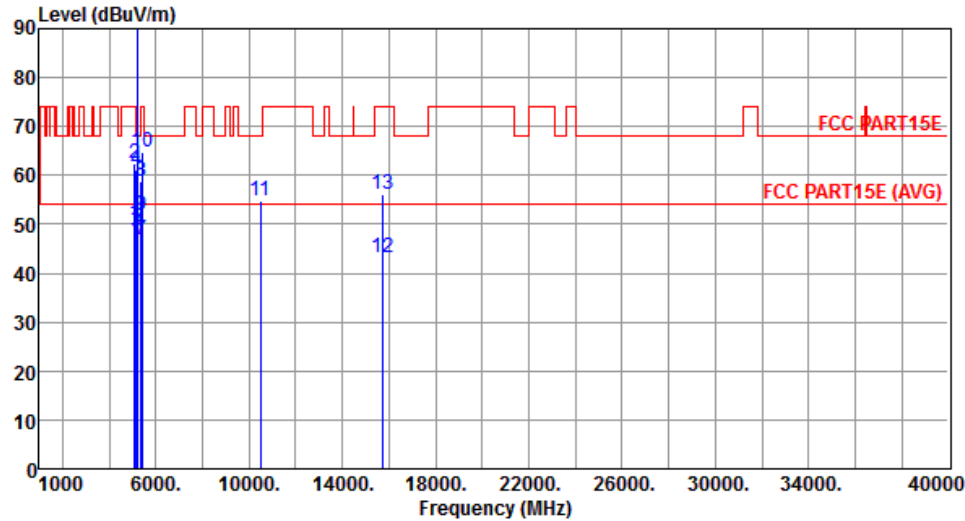
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5120.00	51.80	54.00	-2.20	46.82	4.98	Average	148	295
2	5120.00	66.56	74.00	-7.44	61.58	4.98	Peak	148	295
3	5150.00	52.95	54.00	-1.05	47.93	5.02	Average	148	295
4	5150.00	67.62	74.00	-6.38	62.60	5.02	Peak	148	295
5 *	5200.00	113.06			107.98	5.08	Average	146	300
6 *	5200.00	124.57			119.49	5.08	Peak	146	300
7	5360.00	52.96	54.00	-1.04	47.63	5.33	Average	148	300
8	5360.00	67.28	74.00	-6.72	61.95	5.33	Peak	148	300
9	10400.00	55.14	68.20	-13.06	41.37	13.77	Peak	100	156
10	15600.00	43.45	54.00	-10.55	28.51	14.94	Average	100	152
11	15600.00	56.34	74.00	-17.66	41.40	14.94	Peak	100	152

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		
Level (dBuV/m) </			

Modulation	VHT20	Test Freq. (MHz)	5240						
Polarization	Horizontal								
									
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5080.00	50.21	54.00	-3.79	45.29	4.92	Average	118	306
2	5080.00	62.38	74.00	-11.62	57.46	4.92	Peak	118	306
3	5150.00	48.52	54.00	-5.48	43.50	5.02	Average	118	306
4	5150.00	61.09	74.00	-12.91	56.07	5.02	Peak	118	306
5 *	5240.00	112.53			107.39	5.14	Average	118	306
6 *	5240.00	123.59			118.45	5.14	Peak	118	306
7	5350.00	46.67	54.00	-7.33	41.36	5.31	Average	118	306
8	5350.00	58.76	74.00	-15.24	53.45	5.31	Peak	118	306
9	5400.00	51.85	54.00	-2.15	46.46	5.39	Average	120	300
10	5400.00	64.63	74.00	-9.37	59.24	5.39	Peak	120	300
11	10480.00	54.96	68.20	-13.24	41.15	13.81	Peak	110	158
12	15720.00	43.25	54.00	-10.75	28.34	14.91	Average	105	166
13	15720.00	56.14	74.00	-17.86	41.23	14.91	Peak	105	166

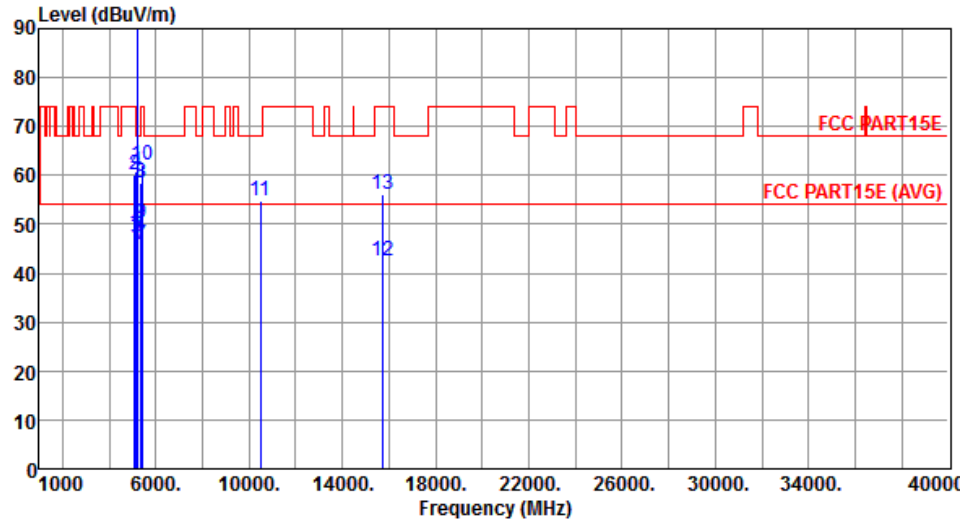
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5080.00	48.13	54.00	-5.87	43.21	4.92	Average	106	9
2	5080.00	60.25	74.00	-13.75	55.33	4.92	Peak	106	9
3	5150.00	47.22	54.00	-6.78	42.20	5.02	Average	106	9
4	5150.00	60.93	74.00	-13.07	55.91	5.02	Peak	106	9
5 *	5240.00	109.15			104.01	5.14	Average	106	9
6 *	5240.00	120.98			115.84	5.14	Peak	106	9
7	5350.00	45.69	54.00	-8.31	40.38	5.31	Average	106	9
8	5350.00	58.52	74.00	-15.48	53.21	5.31	Peak	106	9
9	5400.00	50.24	54.00	-3.76	44.85	5.39	Average	106	9
10	5400.00	61.95	74.00	-12.05	56.56	5.39	Peak	106	9
11	10480.00	54.85	68.20	-13.35	41.04	13.81	Peak	108	112
12	15720.00	42.56	54.00	-11.44	27.65	14.91	Average	110	124
13	15720.00	56.21	74.00	-17.79	41.30	14.91	Peak	110	124

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

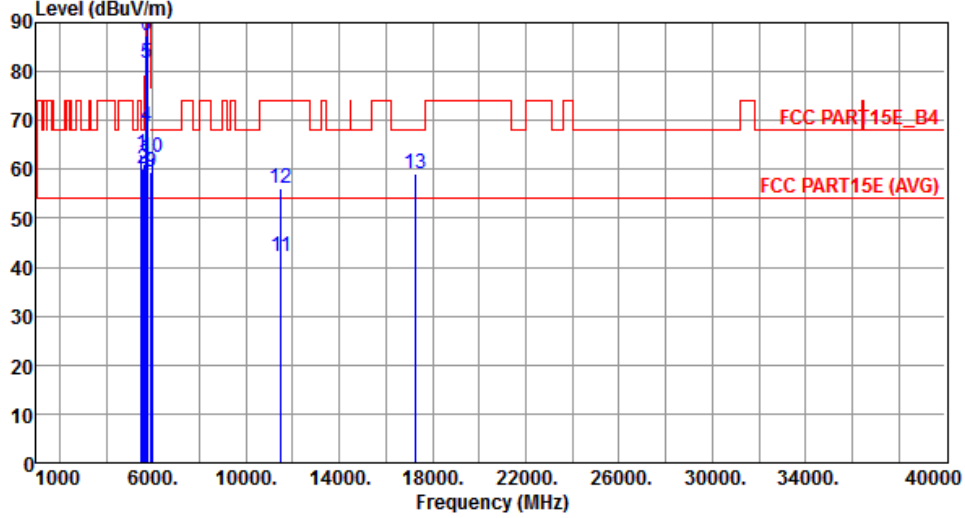
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		

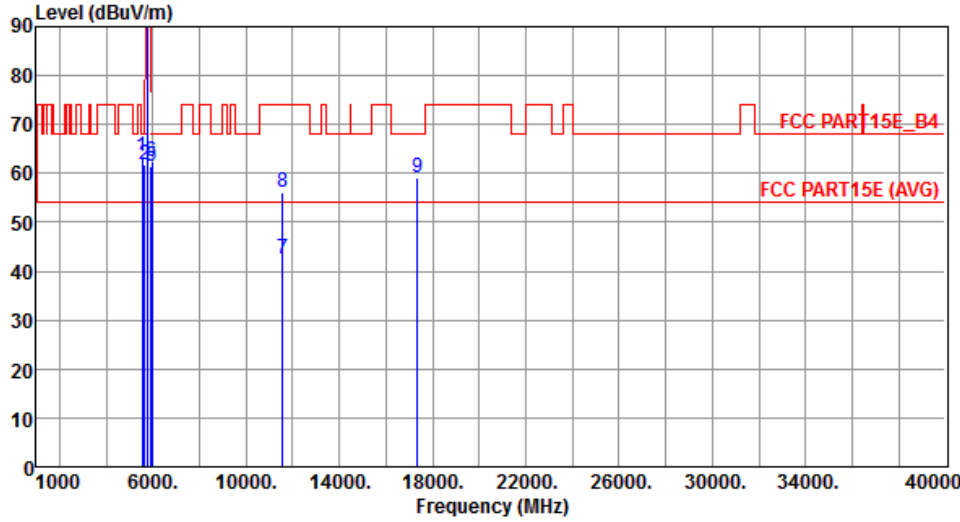


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5505.00	62.96	68.20	-5.24	57.44	5.52	Peak	120	10
2	5575.00	60.18	68.20	-8.02	54.61	5.57	Peak	119	15
3	5650.00	61.15	68.20	-7.05	55.46	5.69	Peak	119	15
4	5700.00	68.81	105.20	-36.39	63.04	5.77	Peak	119	15
5	5720.00	81.62	110.80	-29.18	75.83	5.79	Peak	119	15
6	5725.00	87.24	122.20	-34.96	81.43	5.81	Peak	119	15
7 *	5745.00	108.61			102.77	5.84	Average	119	15
8 *	5745.00	119.15			113.31	5.84	Peak	119	15
9	5925.00	59.46	68.20	-8.74	53.37	6.09	Peak	119	15
10	5985.00	62.34	68.20	-5.86	56.19	6.15	Peak	122	24
11	11490.00	42.15	54.00	-11.85	27.42	14.73	Average	108	26
12	11490.00	56.21	74.00	-17.79	41.48	14.73	Peak	108	26
13	17235.00	59.18	68.20	-9.02	42.11	17.07	Peak	121	39

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		

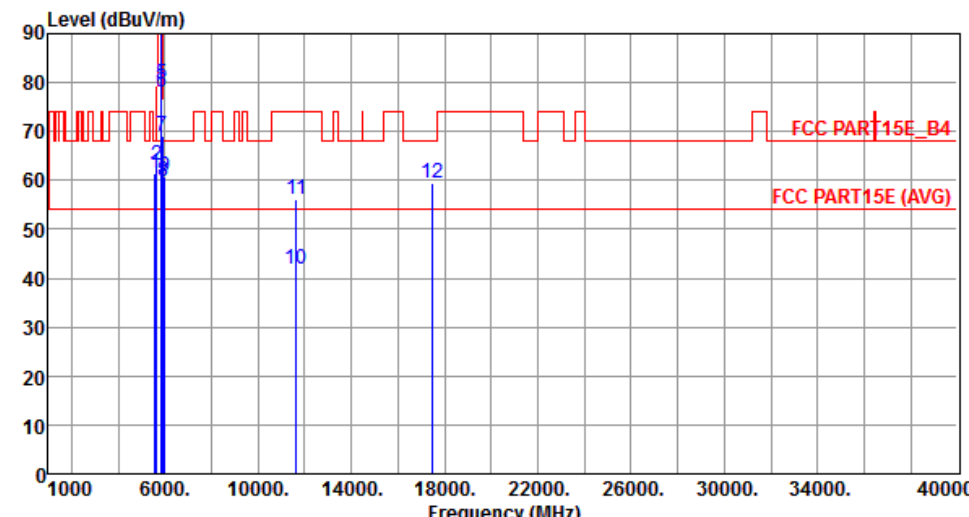


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5545.00	63.41	68.20	-4.79	57.86	5.55	Peak	108	23
2	5650.00	61.92	68.20	-6.28	56.23	5.69	Peak	108	23
3 *	5785.00	108.92			103.01	5.91	Average	108	23
4 *	5785.00	119.65			113.74	5.91	Peak	108	23
5	5925.00	61.48	68.20	-6.72	55.39	6.09	Peak	108	23
6	5945.00	62.55	68.20	-5.65	56.44	6.11	Peak	108	23
7	11570.00	42.47	54.00	-11.53	27.87	14.60	Average	108	46
8	11570.00	56.23	74.00	-17.77	41.63	14.60	Peak	108	46
9	17355.00	59.26	68.20	-8.94	41.71	17.55	Peak	119	31

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

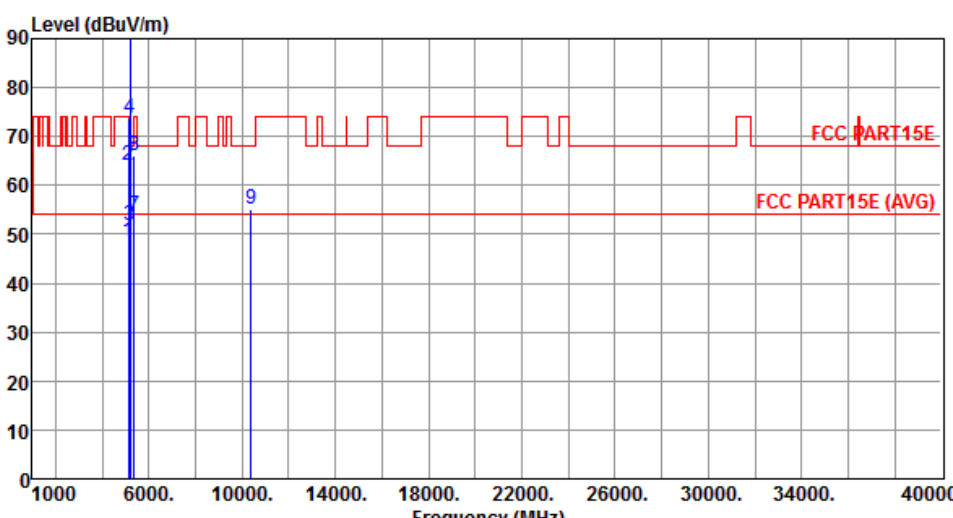


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5585.00	61.46	68.20	-6.74	55.87	5.59	Peak	108	12
2	5650.00	63.14	68.20	-5.06	57.45	5.69	Peak	108	12
3 *	5825.00	119.31			113.35	5.96	Peak	108	12
4 *	5825.00	108.64			102.68	5.96	Peak	108	12
5	5850.00	79.82	122.20	-42.38	73.83	5.99	Peak	108	12
6	5855.00	77.93	110.80	-32.87	71.93	6.00	Peak	108	12
7	5875.00	68.92	105.20	-36.28	62.90	6.02	Peak	108	12
8	5925.00	59.81	68.20	-8.39	53.72	6.09	Peak	108	12
9	5985.00	60.62	68.20	-7.58	54.47	6.15	Peak	108	12
10	11650.00	41.93	54.00	-12.07	27.49	14.44	Average	121	19
11	11650.00	56.14	74.00	-17.86	41.70	14.44	Peak	121	19
12	17475.00	59.36	68.20	-8.84	41.32	18.04	Peak	110	22

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

3.5.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

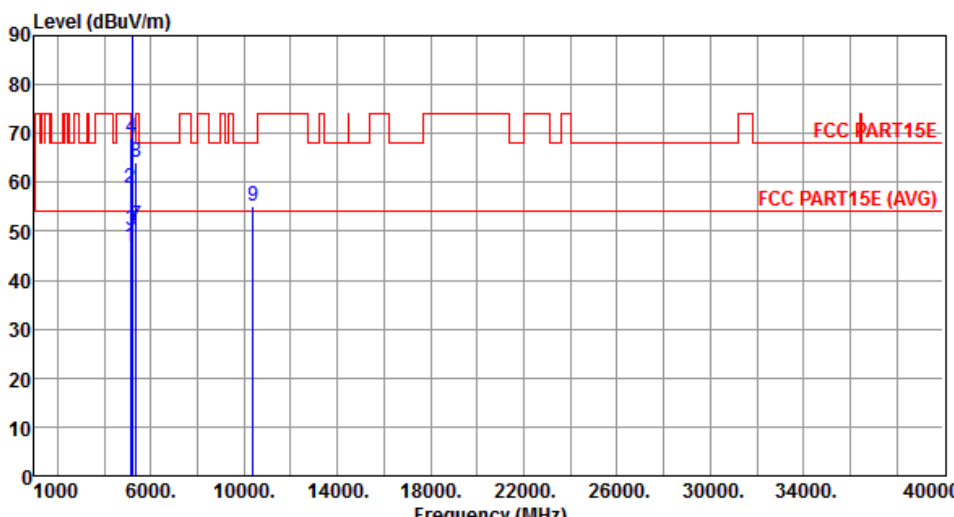
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5110.00	48.49	54.00	-5.51	43.53	4.96	Average	159	304
2	5110.00	64.21	74.00	-9.79	59.25	4.96	Peak	159	304
3	5150.00	51.96	54.00	-2.04	46.94	5.02	Average	159	304
4	5150.00	73.61	74.00	-0.39	68.59	5.02	Peak	159	304
5 *	5190.00	103.51			98.44	5.07	Average	159	304
6 *	5190.00	115.45			110.38	5.07	Peak	159	304
7	5350.00	53.69	54.00	-0.31	48.38	5.31	Average	159	304
8	5350.00	66.20	74.00	-7.80	60.89	5.31	Peak	159	304
9	10380.00	55.14	68.20	-13.06	41.39	13.75	Peak	116	168

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5110.00	46.82	54.00	-7.18	41.86	4.96	Average	108	23
2	5110.00	58.69	74.00	-15.31	53.73	4.96	Peak	108	23
3	5150.00	50.15	54.00	-3.85	45.13	5.02	Average	108	23
4	5150.00	68.94	74.00	-5.06	63.92	5.02	Peak	108	23
5 *	5190.00	100.16			95.09	5.07	Average	108	23
6 *	5190.00	113.21			108.14	5.07	Peak	108	23
7	5350.00	51.25	54.00	-2.75	45.94	5.31	Average	108	23
8	5350.00	63.98	74.00	-10.02	58.67	5.31	Peak	108	23
9	10380.00	55.26	68.20	-12.94	41.51	13.75	Peak	113	9

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

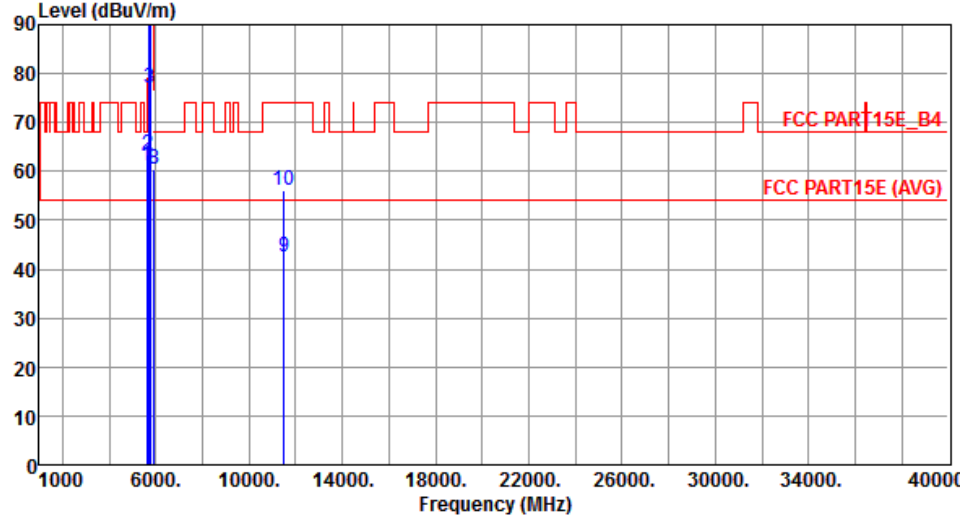
Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5595.00	61.24	68.20	-6.96	55.65	5.59	Peak	115	33
2	5650.00	63.58	68.20	-4.62	57.89	5.69	Peak	109	26
3	5700.00	76.92	105.20	-28.28	71.15	5.77	Peak	109	26
4	5720.00	92.14	110.80	-18.66	86.35	5.79	Peak	109	26
5	5725.00	94.66	122.20	-27.54	88.85	5.81	Peak	109	26
6 *	5755.00	107.52			101.65	5.87	Average	109	26
7 *	5755.00	119.24			113.37	5.87	Peak	109	26
8	5925.00	60.38	68.20	-7.82	54.29	6.09	Peak	110	19
9	11510.00	42.35	54.00	-11.65	27.63	14.72	Average	123	62
10	11510.00	56.23	74.00	-17.77	41.51	14.72	Peak	123	62

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		
Level (dBuV/m)			

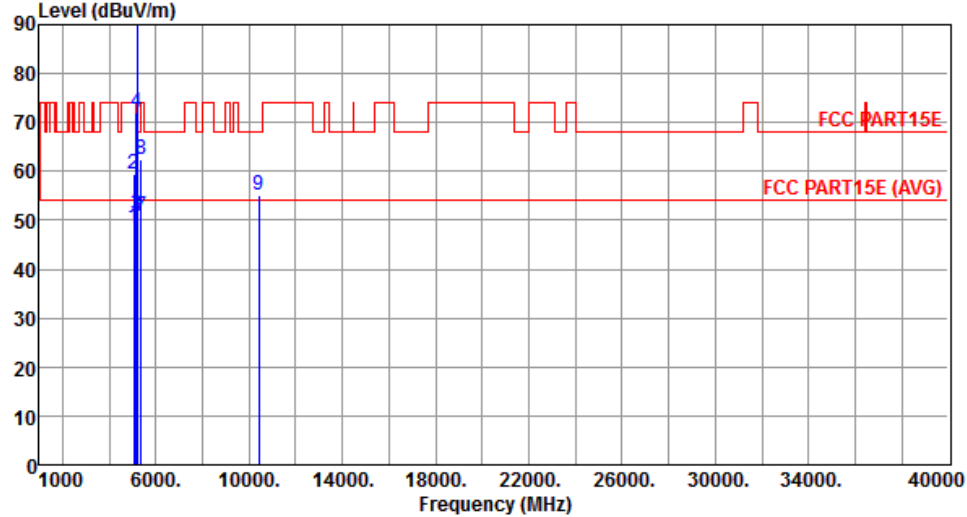
3.5.12 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT80

Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		

	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5050.00	51.48	54.00	-2.52	46.59	4.89	Average	190	64
2	5050.00	63.85	74.00	-10.15	58.96	4.89	Peak	190	64
3	5150.00	52.98	54.00	-1.02	47.96	5.02	Average	190	64
4	5150.00	73.44	74.00	-0.56	68.42	5.02	Peak	190	64
5 *	5210.00	104.02			98.92	5.10	Average	190	64
6 *	5210.00	114.56			109.46	5.10	Peak	190	64
7	5350.00	52.92	54.00	-1.08	47.61	5.31	Average	190	64
8	5350.00	68.16	74.00	-5.84	62.85	5.31	Peak	190	64
9	10420.00	54.65	68.20	-13.55	40.87	13.78	Peak	113	29

Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
 *Factor includes antenna factor , cable loss and amplifier gain
 Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).
 Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5050.00	48.65	54.00	-5.35	43.76	4.89	Average	105	13
2	5050.00	59.61	74.00	-14.39	54.72	4.89	Peak	105	13
3	5150.00	51.24	54.00	-2.76	46.22	5.02	Average	105	13
4	5150.00	72.06	74.00	-1.94	67.04	5.02	Peak	105	13
5 *	5210.00	100.85			95.75	5.10	Average	105	13
6 *	5210.00	110.47			105.37	5.10	Peak	105	13
7	5350.00	50.95	54.00	-3.05	45.64	5.31	Average	105	13
8	5350.00	62.33	74.00	-11.67	57.02	5.31	Peak	105	13
9	10420.00	55.21	68.20	-12.99	41.43	13.78	Peak	119	135

Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain

Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Note 3: "*" is Peak / Average value of fundamental frequency

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Vertical		
Level (dBuV/m)			

3.6 Frequency Stability

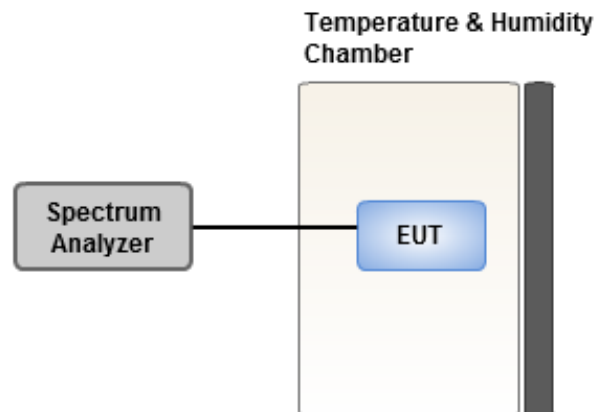
3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage. Change setting of chamber and external power source to complete all conditions.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Non-beamforming mode

Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	0.93	0.71	1.14	1.04
T20°C Vmin	-0.25	-0.33	-0.03	0.61
T50°C Vnom	0.74	1.03	1.31	1.93
T40°C Vnom	0.90	1.26	1.46	1.47
T30°C Vnom	2.36	1.57	1.61	2.19
T20°C Vnom	0.30	0.00	0.06	0.57
T10°C Vnom	1.67	1.51	1.93	2.03
T0°C Vnom	1.05	0.86	1.00	1.11
T-10°C Vnom	0.84	1.35	0.89	1.33
T-20°C Vnom	2.01	1.91	2.11	1.88
T-30°C Vnom	-0.17	0.55	-0.04	0.41
Vnom [Vac]: 120	Vmax [Vac]: 138			Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	0.85	0.90	0.80	0.42
T20°C Vmin	-0.28	-0.36	0.52	0.11
T50°C Vnom	0.97	0.22	1.11	0.96
T40°C Vnom	0.96	0.87	0.67	1.30
T30°C Vnom	1.92	2.69	1.84	2.85
T20°C Vnom	0.57	0.35	0.55	0.75
T10°C Vnom	1.84	1.64	1.90	1.42
T0°C Vnom	1.08	0.89	0.91	1.10
T-10°C Vnom	0.62	0.05	0.84	0.75
T-20°C Vnom	2.02	1.81	2.33	1.65
T-30°C Vnom	0.10	-0.12	-0.21	-0.01
Vnom [Vac]: 120	Vmax [Vac]: 138			Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

Beamforming mode

Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	0.79	0.47	0.94	1.11
T20°CVmin	0.31	0.83	0.24	0.17
T50°CVnom	0.88	1.16	1.00	1.44
T40°CVnom	0.79	0.24	0.12	0.44
T30°CVnom	1.06	0.79	0.83	-0.01
T20°CVnom	0.05	-0.12	0.59	0.41
T10°CVnom	0.71	0.73	0.22	0.96
T0°CVnom	0.70	0.32	0.73	1.17
T-10°CVnom	0.82	0.95	1.16	0.49
T-20°CVnom	0.87	0.84	0.76	0.72
T-30°CVnom	-0.10	0.51	-0.32	0.41
Vnom [Vac]: 120	Vmax [Vac]: 138			Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	0.99	1.24	1.20	1.35
T20°CVmin	-0.63	-0.10	-0.40	-0.55
T50°CVnom	0.92	1.07	1.28	1.23
T40°CVnom	1.32	1.00	1.48	1.39
T30°CVnom	2.53	2.22	2.84	1.93
T20°CVnom	0.43	0.68	0.80	1.16
T10°CVnom	1.39	1.84	1.84	1.93
T0°CVnom	1.71	2.41	1.98	1.97
T-10°CVnom	0.30	0.26	0.43	0.71
T-20°CVnom	1.98	1.93	2.36	2.67
T-30°CVnom	0.87	0.86	0.44	0.11
Vnom [Vac]: 120	Vmax [Vac]: 138			Vmin [Vac]: 102
Tnom [°C]: 20	Tmax [°C]: 50			Tmin [°C]: -30

4 Test laboratory information

Established in 2012, ICC provides foremost EMC & RF Testing and advisory consultation services by our skilled engineers and technicians. Our services employ a wide variety of advanced edge test equipment and one of the widest certification extents in the business.

International Certification Corp (EMC and Wireless Communication Laboratory), it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

Our Test sites are located at Linkou District and Kwei Shan District. Location map can be found on our website <http://www.icertifi.com.tw>.

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Tel: 886-3-271-8640

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If you have any suggestion, please feel free to contact us as below information.

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