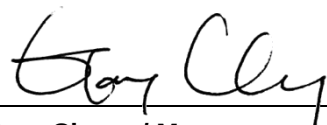


FCC Test Report

FCC ID : NKR-SP69
Equipment : 11abgn/ac WLAN/Bluetooth Combo Module
Model No. : DHUB-SP69
Brand Name : SHARP Corporation
Applicant : Wistron NeWeb Corp.
Address : 20 Park Avenue II, Hsinchu Science Park,
Hsinchu 308, Taiwan, R.O.C.
Standard : 47 CFR FCC Part 15.407
Received Date : Oct. 03, 2014
Tested Date : Oct. 03 ~ Nov. 12, 2014

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.

Approved & Reviewed by:



Gary Chang / Manager ✓



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Release Record

Report No.	Version	Description	Issued Date
FR4O1301AN	Rev. 01	Initial issue	Dec. 04, 2014

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.497MHz 33.55 (Margin -12.50dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 15540.00MHz 53.00 (Margin -1.00dB) - AV [dBuV/m at 3m]: 15780.00MHz 53.00 (Margin -1.00dB) - AV [dBuV/m at 3m]: 5725.00MHz 67.20 (Margin -1.00dB) - PK [dBuV/m at 3m]: 5715.00MHz 67.20 (Margin -1.00dB) - PK	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]: 5150~5250MHz: 21.49 5250~5350MHz: 20.91 5470~5725MHz: 22.41 5725~5850MHz: 21.21	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 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 5250-5350 5470-5725 5725-5850	a	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	6-54 Mbps
5150-5250 5250-5350 5470-5725 5725-5850	n (HT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-15
5150-5250 5250-5350 5470-5725 5725-5850	n (HT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-15
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT20)	5180-5240 5260-5320 5500-5720 5745-5825	36-48 [4] 52-64 [4] 100-144 [12] 149-165 [5]	2	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT40)	5190-5230 5270-5310 5510-5710 5755-5795	38-46 [2] 54-62 [2] 102-142 [6] 151-159 [2]	2	MCS 0-9
5150-5250 5250-5350 5470-5725 5725-5850	ac (VHT80)	5210 5290 5530~5690 5775	42 [1] 58 [1] 106-138 [3] 155 [1]	2	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 MIMO CDD and beamforming function.					

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	Left antenna	Printed	NA	4.29	3.02	3.51	4.25	4.32
2	Right antenna	Printed	NA	4.47	4.35	4.43	4.43	4.19

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	5Vdc from host
--------------------------	----------------

1.1.4 Accessories

N/A

1.1.5 Channel List

802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	54	5270
48	5240	62	5310
52	5260	102	5510
56	5280	110	5550
60	5300	118	5590
64	5320	126	5630
100	5500	134	5670
104	5520	142	5710
108	5540	151	5755
112	5560	159	5795
116	5580	VHT80	
120	5600	42	5210
124	5620	58	5290
128	5640	106	5530
132	5660	122	5610
136	5680	138	5690
140	5700	155	5775
144	5720	---	---
149	5745	---	---
153	5765	---	---
157	5785	---	---
161	5805	---	---
165	5825	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	Mtool, Version: 2.0.1.1		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11a	99.28%	0.03
	VHT20	73.99%	1.31
	VHT40	66.12%	1.80
	VHT80	56.37%	2.49

1.1.7 Power Setting

For Frequency band 5150-5250 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5180	72
11a	5200	72
11a	5240	72
HT20	5180	70
HT20	5200	70
HT20	5240	70
HT40	5190	62
HT40	5230	76
VHT20	5180	70
VHT20	5200	70
VHT20	5240	70
VHT40	5190	62
VHT40	5230	76
VHT80	5210	66

For Frequency band 5250~5350 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5260	72
11a	5300	74
11a	5320	72
HT20	5260	68
HT20	5300	70
HT20	5320	70
HT40	5270	72
HT40	5310	62
VHT20	5260	68
VHT20	5300	70
VHT20	5320	70
VHT40	5270	72
VHT40	5310	62
VHT80	5290	64

For Frequency band 5470~5725 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5500	70
11a	5580	80
11a	5700	70
HT20	5500	70
HT20	5580	80
HT20	5700	68
HT40	5510	52
HT40	5550	80
HT40	5670	68
VHT20	5500	70
VHT20	5580	80
VHT20	5700	68
VHT40	5510	52
VHT40	5590	80
VHT40	5670	68
VHT80	5530	54
VHT80	5610	76

Channel that extends across the 5.725 GHz boundary

For Frequency band 5470~5725 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5720	84
HT20	5720	86
HT40	5710	78
VHT20	5720	86
VHT40	5710	78
VHT80	5690	80

For Frequency band 5725~5850 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5745	68
11a	5785	76
11a	5825	76
HT20	5745	68
HT20	5785	74
HT20	5825	72
HT40	5755	56
HT40	5795	70
VHT20	5745	68
VHT20	5785	74
VHT20	5825	72
VHT40	5755	56
VHT40	5795	70
VHT80	5775	54

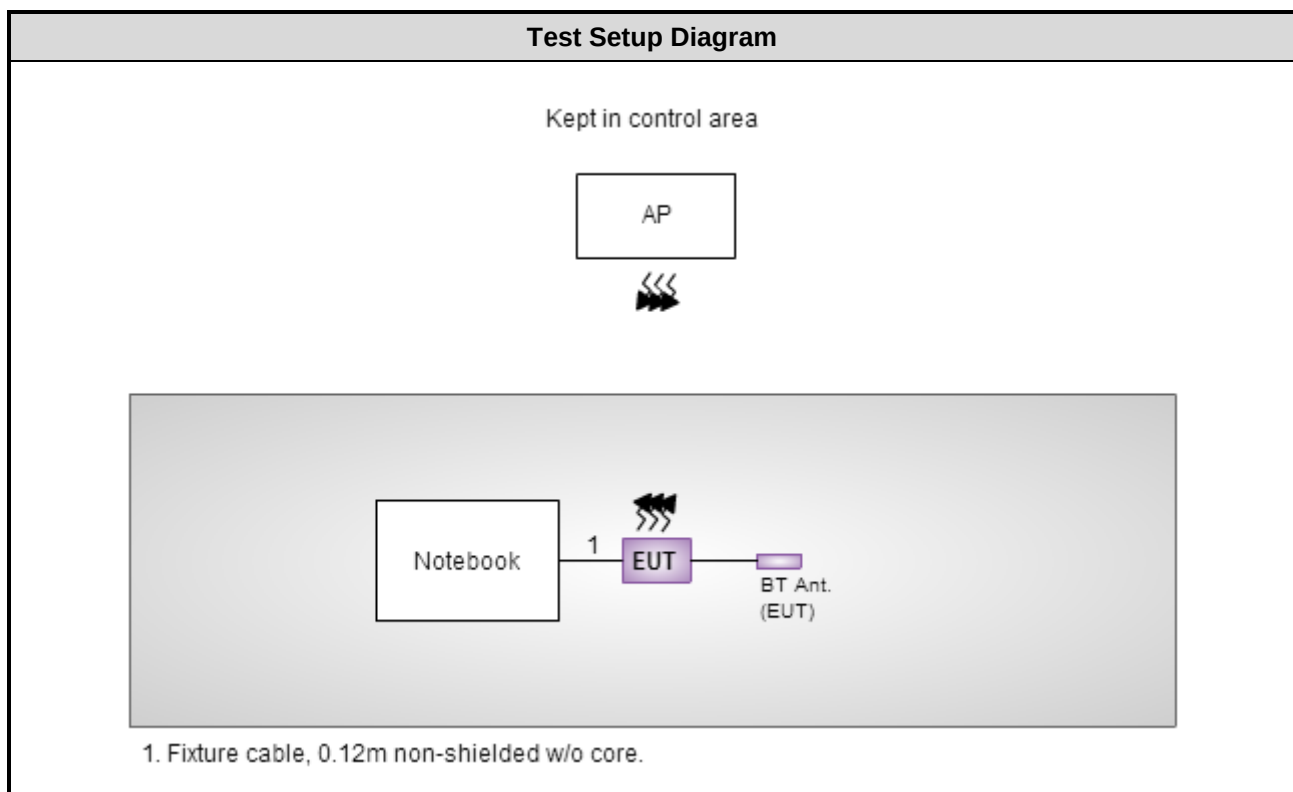
1.2 Local Support Equipment List

Support Equipment List					
No.	Equipment	Brand	Model	FCC ID	Signal cable / Length (m)
1	Notebook	DELL	Latitude E6430	DoC	Fixture cable, 0.12m non-shielded w/o core.
2	AP	LINSYS	EA6900	DoC	---

Note:

- 1) No.2 was provided by applicant.
- 2) No.2 was for 11n / 11ac mode use only.

1.3 Test Setup Chart



Note: The support AP was for beamforming test use only.

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
EMC Receiver	R&S	ESCS 30	100174	Apr. 14. 2014	Apr. 13. 2015
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 23, 2013	Nov. 22, 2014
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 04, 2013	Dec. 03, 2014
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Apr. 23, 2014	Apr. 22, 2015
50 ohm terminal (Support Unit)	NA	50	04	Apr. 18, 2014	Apr. 17, 2015
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. 16, 2014	Sep. 15, 2015
Receiver	R&S	ESR3	101657	Jan. 18, 2014	Jan. 17, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-562	Feb. 07, 2014	Feb. 06, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 20, 2014	Feb. 19, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA9170154	Jan. 10, 2014	Jan. 09, 2015
Preamplifier	EMC	EMC02325	980187	Nov. 22, 2013	Nov. 21, 2014
Preamplifier	Agilent	83017A	MY53270014	Sep. 17, 2014	Sep. 16, 2015
Preamplifier	EMC	EMC184045B	980192	Aug. 26, 2014	Aug. 25, 2015
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Feb. 19, 2014	Feb. 18, 2015
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY22601/4	Feb. 19, 2014	Feb. 18, 2015
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Feb. 19, 2014	Feb. 18, 2015
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Feb. 17, 2014	Feb. 16, 2015
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Feb. 17, 2014	Feb. 16, 2015
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Feb. 17, 2014	Feb. 16, 2015
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Note: Calibration Interval of instruments listed above is two 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	Feb. 17, 2014	Feb. 16, 2015
Spectrum Analyzer	Agilent	N9010A	MY53400091	Sep. 16, 2014	Sep. 15, 2015
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Dec. 11, 2013	Dec. 10, 2014
Power Meter	Anritsu	ML2495A	1241002	Sep. 29, 2014	Sep. 28, 2015
Power Sensor	Anritsu	MA2411B	1207366	Sep. 29, 2014	Sep. 28, 2015
Signal Generator	R&S	SMB100A	175727	Jan. 07, 2014	Jan. 06, 2015
Radio Communication Analyzer	Anritsu	MT8820C	6201240341	Mar. 18, 2014	Mar. 17, 2015
MXG-B RF Vector Signal Generator	Agilent	N5182B	MY53050081	Apr. 08, 2014	Apr. 07, 2015
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 C63.10-2009

FCC KDB 789033 D02 General UNII Test Procedures New Rules v01

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

FCC KDB 644545 D02 Alternative Guidance for 802.11ac Old Rules v01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

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
Temperature	±0.6 °C
Conducted emission	±2.670 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.26 dB
Radiated emission > 1GHz	±4.94 dB

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	22°C / 69%	Peter Lin
Radiated Emissions	03CH03-WS	21-22°C / 61-63%	Anderson Hung Aska Huang
RF Conducted	TH01-WS	22°C / 63%	Brad Wu

➤ FCC site registration No.: 390588

➤ IC site registration No.: 10807C-1

2.2 The Worst Test Modes and Channel Details

Frequency band		5150~5250 MHz 5250~5350 MHz 5470~5725 MHz		
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11a	5580	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5580	6 Mbps	---
RF Output Power	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	---
	HT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	---
	HT40	5190 / 5230 / 5270 / 5310 / 5510 5550 / 5670 / 5710	MCS 0	---
	VHT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	---
	VHT40	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	---
	VHT80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	---
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	6 Mbps	---
	VHT20	5180 / 5200 / 5240 / 5260 / 5300 5320 / 5500 / 5580 / 5700 / 5720	MCS 0	---
	VHT40	5190 / 5230 / 5270 / 5310 / 5510 5590 / 5670 / 5710	MCS 0	---
	VHT80	5210 / 5290 / 5530 / 5610 / 5690	MCS 0	---
Frequency Stability	Un-modulation	5320	---	---
NOTE: 1. The device supports non-beamforming and beamforming function in 802.11n/ac. After pre-testing, beamforming mode has the worst emission value, therefore the following test results came out from this. 2. 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.				

For Frequency band 5725-5850 MHz				
Test item	Modulation Mode	Test Frequency (MHz)	Data Rate (Mbps) / MCS	Test Configuration
Conducted Emissions	11a	5785	6 Mbps	---
Radiated Emissions ≤ 1 GHz	11a	5785	6 Mbps	---
RF Output Power	11a	5745 / 5785 / 5825	6 Mbps	---
	HT20	5745 / 5785 / 5825	MCS 0	---
	HT40	5755 / 5795	MCS 0	---
	VHT20	5745 / 5785 / 5825	MCS 0	---
	VHT40	5755 / 5795	MCS 0	---
	VHT80	5775	MCS 0	---
Radiated Emissions > 1 GHz	11a	5745 / 5785 / 5825	6 Mbps	---
Emission Bandwidth	VHT20	5745 / 5785 / 5825	MCS 0	---
6dB bandwidth	VHT40	5755 / 5795	MCS 0	---
Peak Power Spectral Density	VHT80	5775	MCS 0	---
Frequency Stability	Un-modulation	5785	---	---
NOTE: - The device supports non-beamforming and beamforming function in 802.11n/ac. After pre-testing, beamforming mode has the worst emission value, therefore the following test results came out from this. - 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.				

3 Transmitter Test Results

3.1 Conducted Emissions

3.1.1 Limit of Conducted Emissions

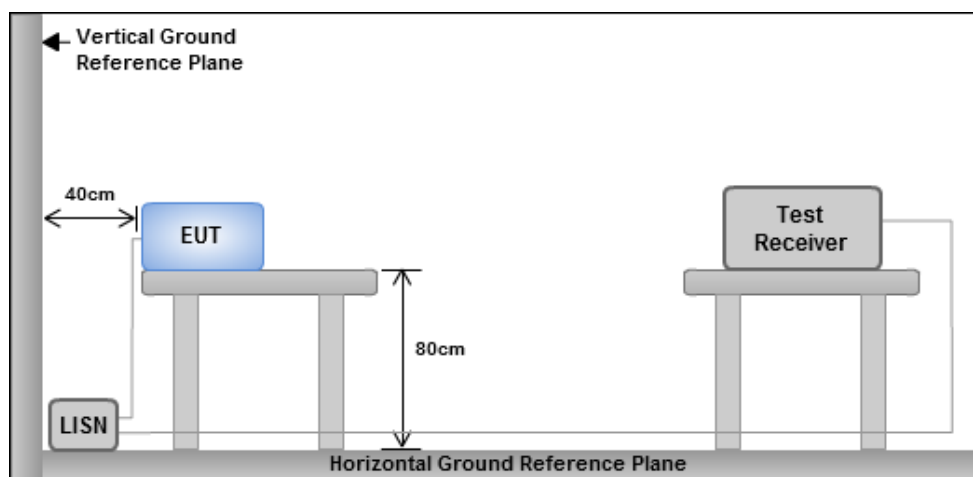
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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

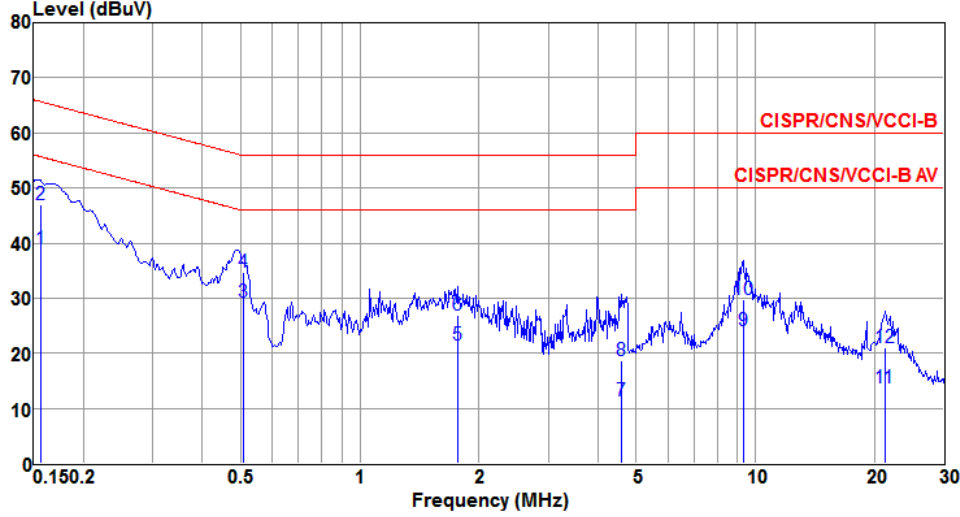
3.1.3 Test Setup



- 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

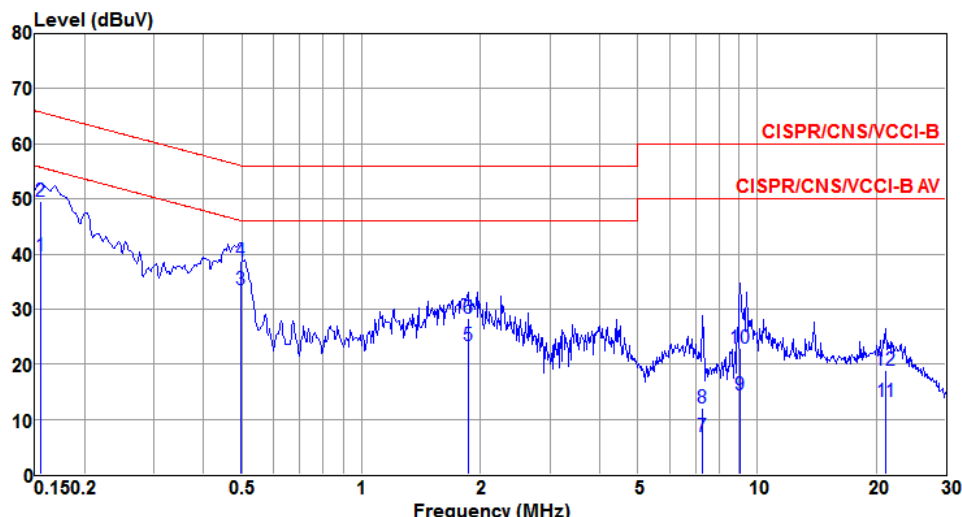
Modulation	11a	Test Freq. (MHz)	5580
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.156	38.87	55.69	-16.82	38.45	0.40	0.02	Average
2	0.156	47.09	65.69	-18.60	46.67	0.40	0.02	QP
3*	0.506	29.38	46.00	-16.62	28.96	0.40	0.02	Average
4	0.506	34.75	56.00	-21.25	34.33	0.40	0.02	QP
5	1.762	21.60	46.00	-24.40	21.15	0.43	0.02	Average
6	1.762	27.01	56.00	-28.99	26.56	0.43	0.02	QP
7	4.574	11.27	46.00	-34.73	10.64	0.47	0.16	Average
8	4.574	18.59	56.00	-37.41	17.96	0.47	0.16	QP
9	9.302	24.07	50.00	-25.93	23.30	0.53	0.24	Average
10	9.302	29.76	60.00	-30.24	28.99	0.53	0.24	QP
11	21.260	13.72	50.00	-36.28	12.76	0.55	0.41	Average
12	21.260	20.92	60.00	-39.08	19.96	0.55	0.41	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)	5580
Power Phase	Neutral		

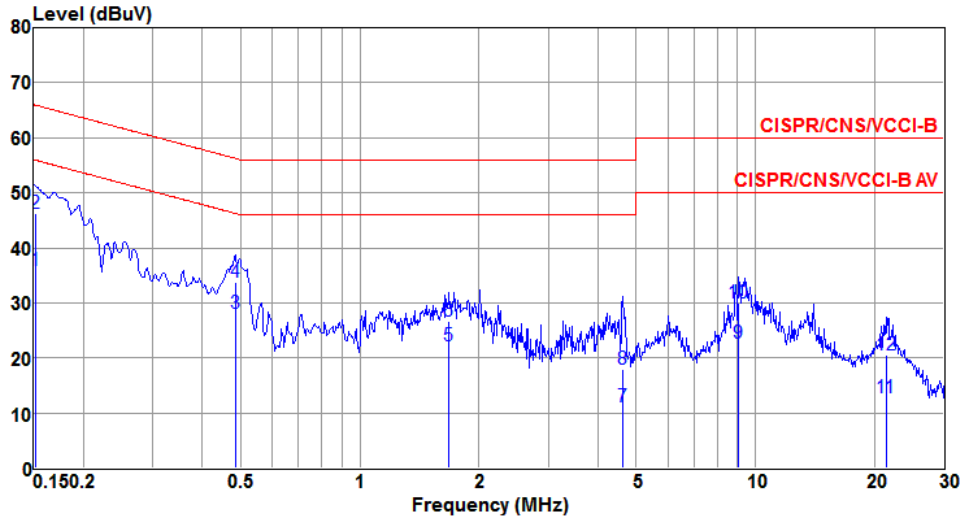


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.155	39.62	55.74	-16.12	39.12	0.48	0.02	Average
2	0.155	49.60	65.74	-16.14	49.10	0.48	0.02	QP
3*	0.497	33.55	46.05	-12.50	33.06	0.47	0.02	Average
4	0.497	38.82	56.05	-17.23	38.33	0.47	0.02	QP
5	1.858	23.31	46.00	-22.69	22.79	0.50	0.02	Average
6	1.858	28.27	56.00	-27.73	27.75	0.50	0.02	QP
7	7.252	6.95	50.00	-43.05	6.19	0.55	0.21	Average
8	7.252	12.00	60.00	-48.00	11.24	0.55	0.21	QP
9	9.059	14.42	50.00	-35.58	13.62	0.56	0.24	Average
10	9.059	22.90	60.00	-37.10	22.10	0.56	0.24	QP
11	21.147	13.26	50.00	-36.74	12.30	0.55	0.41	Average
12	21.147	18.99	60.00	-41.01	18.03	0.55	0.41	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)	5785
Power Phase	Line		

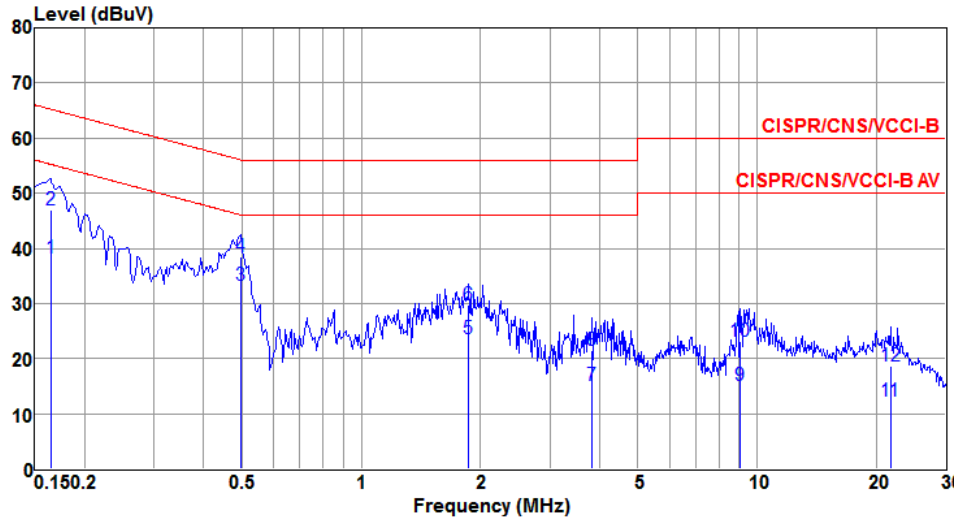


	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.152	35.95	55.91	-19.96	35.53	0.40	0.02	Average
2	0.152	46.22	65.91	-19.69	45.80	0.40	0.02	QP
3*	0.484	27.99	46.27	-18.28	27.58	0.39	0.02	Average
4	0.484	33.64	56.27	-22.63	33.23	0.39	0.02	QP
5	1.680	22.22	46.00	-23.78	21.77	0.43	0.02	Average
6	1.680	26.71	56.00	-29.29	26.26	0.43	0.02	QP
7	4.622	11.12	46.00	-34.88	10.48	0.47	0.17	Average
8	4.622	17.84	56.00	-38.16	17.20	0.47	0.17	QP
9	9.059	22.59	50.00	-27.41	21.82	0.53	0.24	Average
10	9.059	30.00	60.00	-30.00	29.23	0.53	0.24	QP
11	21.373	12.73	50.00	-37.27	11.77	0.55	0.41	Average
12	21.373	20.42	60.00	-39.58	19.46	0.55	0.41	QP

Note 1: Level (dBuV) = Read Level (dBuV) + LISN Factor (dB) + Cable Loss (dB).

Note 2: Over Limit (dB) = Level (dBuV) – Limit Line (dBuV).

Modulation	11a	Test Freq. (MHz)	5785
Power Phase	Neutral		



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.164	38.24	55.25	-17.01	37.74	0.48	0.02	Average
2	0.164	46.88	65.25	-18.37	46.38	0.48	0.02	QP
3*	0.497	33.30	46.05	-12.75	32.81	0.47	0.02	Average
4	0.497	38.47	56.05	-17.58	37.98	0.47	0.02	QP
5	1.868	23.60	46.00	-22.40	23.08	0.50	0.02	Average
6	1.868	29.84	56.00	-26.16	29.32	0.50	0.02	QP
7	3.820	15.00	46.00	-31.00	14.34	0.52	0.14	Average
8	3.820	21.54	56.00	-34.46	20.88	0.52	0.14	QP
9	9.059	15.00	50.00	-35.00	14.20	0.56	0.24	Average
10	9.059	23.02	60.00	-36.98	22.22	0.56	0.24	QP
11	21.715	12.33	50.00	-37.67	11.36	0.55	0.42	Average
12	21.715	18.75	60.00	-41.25	17.78	0.55	0.42	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.

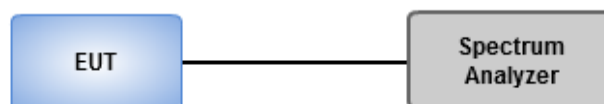
Occupied Bandwidth

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

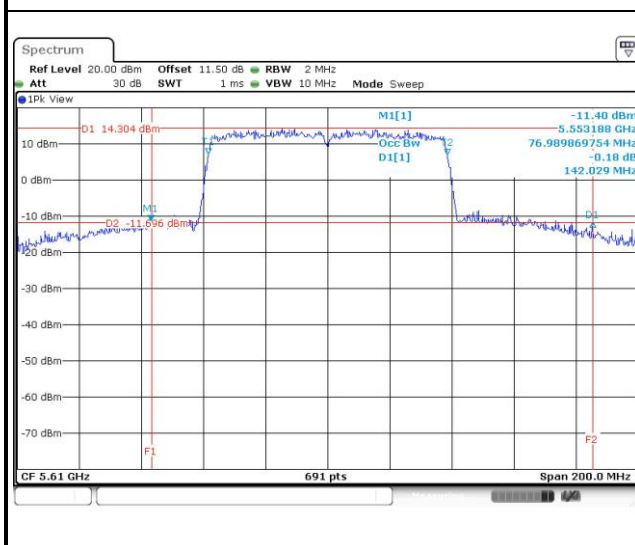
For Frequency band 5150~5250 MHz										
Emission Bandwidth										
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
11a	2	5180	21.86	21.62	---	---	17.10	17.59	---	---
11a	2	5200	21.97	21.74	---	---	17.29	17.01	---	---
11a	2	5240	21.80	21.68	---	---	17.64	17.18	---	---
VHT20	2	5180	21.86	21.91	---	---	18.14	18.25	---	---
VHT20	2	5200	22.26	21.86	---	---	18.19	17.98	---	---
VHT20	2	5240	22.03	22.26	---	---	18.28	17.91	---	---
VHT40	2	5190	41.16	40.81	---	---	36.62	36.92	---	---
VHT40	2	5230	59.71	52.61	---	---	36.98	36.88	---	---
VHT80	2	5210	83.25	81.86	---	---	76.36	76.64	---	---

For Frequency band 5250~5350 MHz											
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	2	5260	21.80	21.57	---	---	17.15	17.08	---	---	24.00
11a	2	5300	25.68	21.62	---	---	17.64	17.04	---	---	24.00
11a	2	5320	29.04	21.62	---	---	17.16	17.13	---	---	24.00
VHT20	2	5260	21.91	21.91	---	---	18.12	18.03	---	---	24.00
VHT20	2	5300	21.97	21.80	---	---	18.29	17.99	---	---	24.00
VHT20	2	5320	22.03	21.91	---	---	18.15	18.07	---	---	24.00
VHT40	2	5270	41.30	40.09	---	---	37.06	36.64	---	---	24.00
VHT40	2	5310	41.28	41.04	---	---	36.60	36.60	---	---	24.00
VHT80	2	5290	81.39	82.32	---	---	76.60	76.16	---	---	24.00

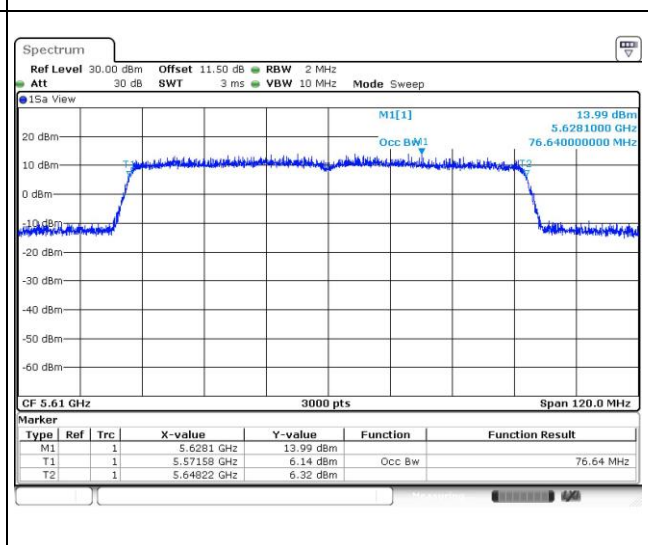
For Frequency band 5470~5725 MHz

Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	2	5500	21.80	21.68	---	---	17.16	17.05	---	---	24.00
11a	2	5580	37.61	36.23	---	---	17.47	18.21	---	---	24.00
11a	2	5700	21.91	21.68	---	---	17.14	17.05	---	---	24.00
VHT20	2	5500	22.03	21.74	---	---	18.17	18.02	---	---	24.00
VHT20	2	5580	44.20	39.49	---	---	18.27	18.35	---	---	24.00
VHT20	2	5700	22.09	22.09	---	---	18.17	18.00	---	---	24.00
VHT40	2	5510	41.04	40.93	---	---	36.64	36.62	---	---	24.00
VHT40	2	5590	96.67	98.12	---	---	37.38	37.66	---	---	24.00
VHT40	2	5670	41.16	41.04	---	---	36.66	36.70	---	---	24.00
VHT80	2	5530	81.86	82.78	---	---	76.16	76.28	---	---	24.00
VHT80	2	5610	142.03	135.36	---	---	76.64	76.48	---	---	24.00

Worst Plots of 26dB Bandwidth



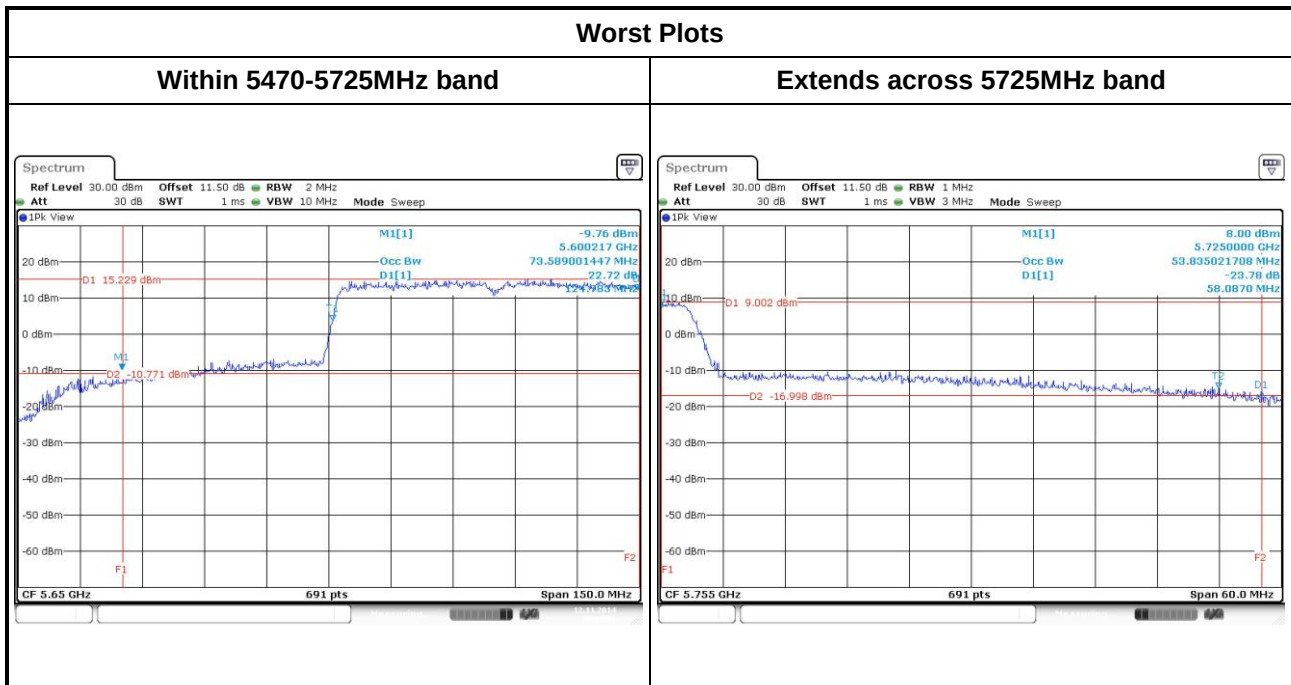
Worst Plots of 99% Bandwidth



Channel that extends across the 5.725 GHz boundary

Frequency band			UNII Emission Bandwidth Result (Within 5470-5725MHz band)								
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)				Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	2	5720	24.39	25.13	---	---	15.50	15.39	---	---	24.00
VHT20	2	5720	26.98	23.78	---	---	15.33	15.43	---	---	24.00
VHT40	2	5710	68.26	64.42	---	---	33.67	34.74	---	---	24.00
VHT80	2	5690	110.22	124.78	---	---	73.60	73.10	---	---	24.00

Frequency band			UNII Emission Bandwidth Result (Extends across 5725MHz band)							
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	2	5720	14.54	14.57	---	---	11.61	11.67	---	---
VHT20	2	5720	14.93	14.74	---	---	11.85	11.97	---	---
VHT40	2	5710	33.39	35.19	---	---	28.27	29.89	---	---
VHT80	2	5690	58.09	57.48	---	---	54.68	54.08	---	---

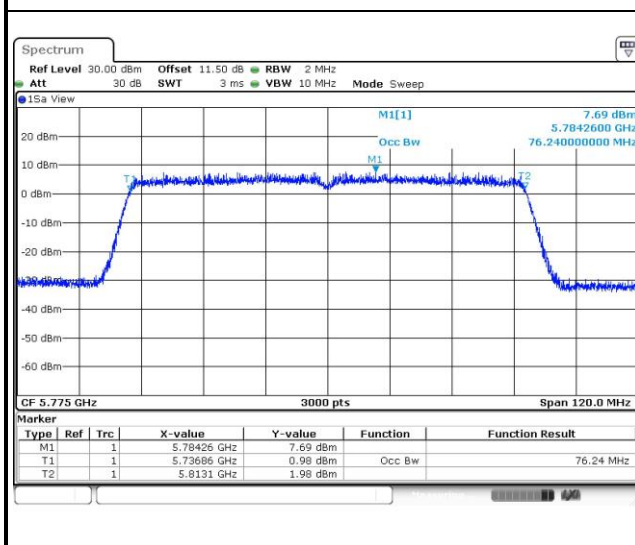


For Frequency band 5725-5850 MHz

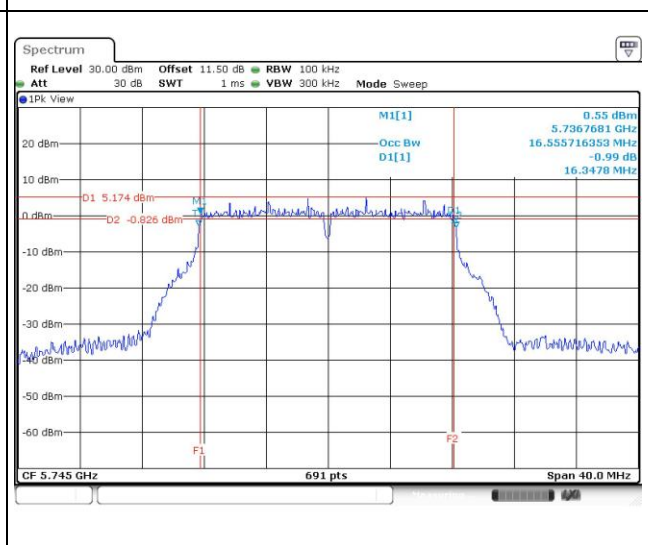
Emission Bandwidth

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	2	5745	17.12	17.05	---	---	16.35	16.35	---	---	0.5
11a	2	5785	17.72	17.52	---	---	16.35	16.35	---	---	0.5
11a	2	5825	17.51	18.01	---	---	16.35	16.35	---	---	0.5
VHT20	2	5745	18.17	18.01	---	---	17.57	17.62	---	---	0.5
VHT20	2	5785	18.22	18.14	---	---	17.62	17.62	---	---	0.5
VHT20	2	5825	18.16	18.04	---	---	17.62	17.62	---	---	0.5
VHT40	2	5755	36.66	36.58	---	---	36.29	36.29	---	---	0.5
VHT40	2	5795	36.74	36.84	---	---	36.29	36.29	---	---	0.5
VHT80	2	5775	76.24	76.16	---	---	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

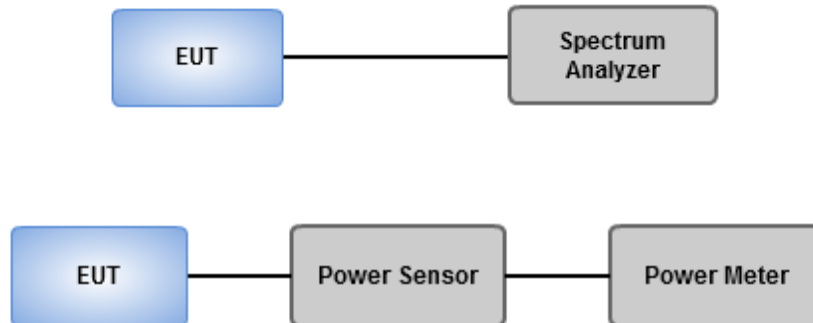
Frequency band 5150-5250 MHz		
Operating Mode		Limit
☐	Outdoor access point	Conducted Power: 1 W The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm)
☐	Indoor access point	Conducted Power: 1 W
☐	Fixed point-to-point access points	Conducted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

- ☒ Power meter (For channel that does not extends across the 5.725 GHz boundary)
 - ☒ 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
- ☒ Spectrum analyzer (For channel that extends across the 5.725 GHz boundary)
 1. Set RBW=1MHz, VBW=3MHz , Sweep time= Auto, Detector = RMS
 2. Trace average at least 100 traces in power averaging mode
 3. Compute power by integrating the spectrum across the 26 dB EBW

3.3.3 Test Setup



3.3.4 Test Result of Maximum Conducted Output Power

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	2	5180	16.78	16.42	---	---	91.496	19.61	24.00
11a	2	5200	16.71	16.51	---	---	91.653	19.62	24.00
11a	2	5240	16.75	16.61	---	---	93.129	19.69	24.00
HT20	2	5180	16.02	15.94	---	---	79.259	18.99	23.28
HT20	2	5200	15.91	15.86	---	---	77.542	18.90	23.28
HT20	2	5240	16.15	15.82	---	---	79.404	19.00	23.28
HT40	2	5190	14.43	14.51	---	---	55.982	17.48	23.28
HT40	2	5230	18.62	18.15	---	---	138.091	21.40	23.28
VHT20	2	5180	16.17	16.08	---	---	81.951	19.14	23.28
VHT20	2	5200	16.05	15.94	---	---	79.536	19.01	23.28
VHT20	2	5240	16.23	15.95	---	---	81.331	19.10	23.28
VHT40	2	5190	14.53	14.62	---	---	57.353	17.59	23.28
VHT40	2	5230	18.71	18.23	---	---	140.829	21.49	23.28
VHT80	2	5210	15.14	15.06	---	---	64.721	18.11	23.28

Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{3.02/20} + 10^{4.35/20})^2 / 2) = 6.72 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $24 \text{ dBm} - (6.72 \text{ dBi} - 6 \text{ dBi}) = 23.28 \text{ dBm}$

For Frequency band 5250~5350 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	2	5260	17.61	16.6	---	---	103.385	20.14	24.00
11a	2	5300	18.61	17.05	---	---	123.310	20.91	24.00
11a	2	5320	17.53	16.23	---	---	98.600	19.94	24.00
HT20	2	5260	15.94	15.66	---	---	76.077	18.81	23.01
HT20	2	5300	17.04	16.15	---	---	91.792	19.63	23.01
HT20	2	5320	16.72	15.81	---	---	85.096	19.30	23.01
HT40	2	5270	18.24	17.06	---	---	117.497	20.70	23.01
HT40	2	5310	14.35	14.28	---	---	54.019	17.33	23.01
VHT20	2	5180	16.02	15.78	---	---	77.839	18.91	23.01
VHT20	2	5200	17.19	16.27	---	---	94.724	19.76	23.01
VHT20	2	5240	16.83	15.94	---	---	87.459	19.42	23.01
VHT40	2	5190	18.31	17.15	---	---	119.644	20.78	23.01
VHT40	2	5230	14.41	14.37	---	---	54.958	17.40	23.01
VHT80	2	5290	14.69	14.57	---	---	58.086	17.64	23.01

Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{3.51/20} + 10^{4.43/20})^2 / 2) = 6.99 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $24 \text{ dBm} - (6.99 \text{ dBi} - 6 \text{ dBi}) = 23.01 \text{ dBm}$

For Frequency band 5470~5725 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	2	5500	16.05	16.61	---	---	86.086	19.35	24.00
11a	2	5580	19.57	19.23	---	---	174.326	22.41	24.00
11a	2	5700	15.95	16.31	---	---	82.111	19.14	24.00
HT20	2	5500	16.14	16.42	---	---	84.968	19.29	22.65
HT20	2	5580	18.75	18.64	---	---	148.103	21.71	22.65
HT20	2	5700	15.42	15.91	---	---	73.828	18.68	22.65
HT40	2	5510	12.31	12.86	---	---	36.341	15.60	22.65
HT40	2	5590	19.24	19.14	---	---	165.981	22.20	22.65
HT40	2	5670	16.05	16.58	---	---	85.771	19.33	22.65
VHT20	2	5500	16.22	16.51	---	---	86.651	19.38	22.65
VHT20	2	5580	18.86	18.72	---	---	151.386	21.80	22.65
VHT20	2	5700	15.56	16.02	---	---	75.969	18.81	22.65
VHT40	2	5510	12.37	12.98	---	---	37.119	15.70	22.65
VHT40	2	5590	19.37	19.21	---	---	169.865	22.30	22.65
VHT40	2	5670	16.18	16.72	---	---	88.485	19.47	22.65
VHT80	2	5530	12.37	12.78	---	---	36.225	15.59	22.65
VHT80	2	5610	18.01	18.22	---	---	129.615	21.13	22.65

Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{4.25/20} + 10^{4.43/20})^2 / 2) = 7.35 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $24 \text{ dBm} - (7.35 \text{ dBi} - 6 \text{ dBi}) = 22.65 \text{ dBm}$

Channel that extends across the 5.725 GHz boundary

Maximum Conducted Output Power (Within 5470-5725MHz band)									
RF Output Power (dBm)									
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (mW)	Total Power (dBm)	Limit
11a	2	5720	17.47	17.29	---	---	109.427	20.39	24.00
HT20	2	5720	18.21	17.75	---	---	125.835	21.00	22.65
HT40	2	5710	17.98	17.94	---	---	124.988	20.97	22.65
VHT20	2	5720	18.33	17.94	---	---	130.261	21.15	22.65
VHT40	2	5710	18.49	18.19	---	---	136.453	21.35	22.65
VHT80	2	5690	17.79	17.49	---	---	116.204	20.65	22.65

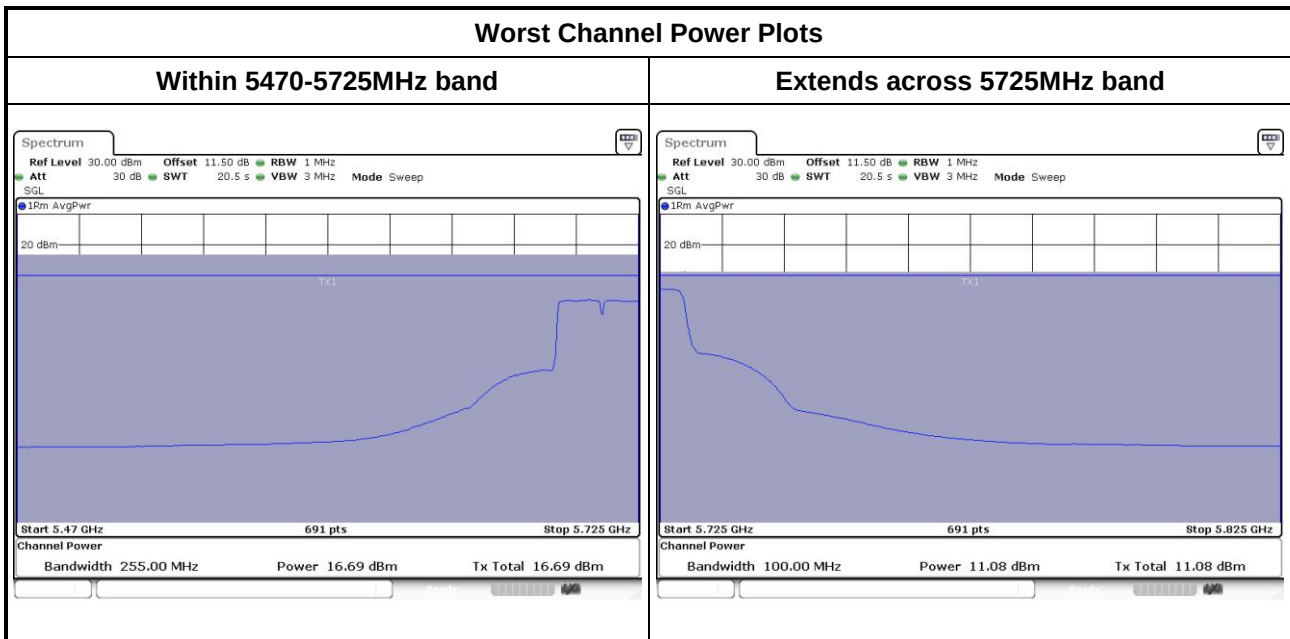
Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{4.25/20} + 10^{4.43/20})^2 / 2) = 7.35 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $24 \text{ dBm} - (7.35 \text{ dBi} - 6 \text{ dBi}) = 22.65 \text{ dBm}$

Maximum Conducted Output Power (Extends across 5725MHz band)									
RF Output Power (dBm)									
Mode	N _{TX}	Freq. (MHz)	Chain 0	Chain 1	Chain 2	Chain 3	Total Power (mW)	Total Power (dBm)	Limit
11a	2	5720	11.42	11.13	---	---	26.839	14.29	30.00
HT20	2	5720	11.82	11.51	---	---	29.374	14.68	28.73
HT40	2	5710	7.33	7.32	---	---	10.799	10.33	28.73
VHT20	2	5720	12.39	12.06	---	---	33.396	15.24	28.73
VHT40	2	5710	7.88	7.74	---	---	12.072	10.82	28.73
VHT80	2	5690	3.57	3.09	---	---	4.311	6.35	28.73

Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{4.32/20} + 10^{4.19/20})^2 / 2) = 7.27 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $30 \text{ dBm} - (7.27 \text{ dBi} - 6 \text{ dBi}) = 28.73 \text{ dBm}$



Note: Above plots are without duty factor.

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	2	5745	15.99	16.41	---	---	83.471	19.22	30.00
11a	2	5785	18.06	18.34	---	---	132.207	21.21	30.00
11a	2	5825	17.82	17.42	---	---	115.742	20.63	30.00
HT20	2	5745	15.74	16.28	---	---	79.959	19.03	28.73
HT20	2	5785	17.69	17.82	---	---	119.283	20.77	28.73
HT20	2	5825	16.95	17.06	---	---	100.361	20.02	28.73
HT40	2	5755	13.44	14.07	---	---	47.607	16.78	28.73
HT40	2	5795	17.17	17.36	---	---	106.570	20.28	28.73
VHT20	2	5745	15.82	16.37	---	---	81.546	19.11	28.73
VHT20	2	5785	17.8	17.95	---	---	122.629	20.89	28.73
VHT20	2	5825	17.01	17.12	---	---	101.757	20.08	28.73
VHT40	2	5755	13.51	14.12	---	---	48.261	16.84	28.73
VHT40	2	5795	17.23	17.45	---	---	108.435	20.35	28.73
VHT80	2	5775	12.26	13.02	---	---	36.871	15.67	28.73

Note: 802.11 n / 11ac supports beamforming.

Directional Antenna gain for 11n mode is $10 * \log((10^{4.32/20} + 10^{4.19/20})^2 / 2) = 7.27 \text{ dBi} > 6 \text{ dBi}$, conducted power limit of 11n/ 11ac is reduced to $30 \text{ dBm} - (7.27 \text{ dBi} - 6 \text{ dBi}) = 28.73 \text{ dBm}$

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
☒	Mobile and portable 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

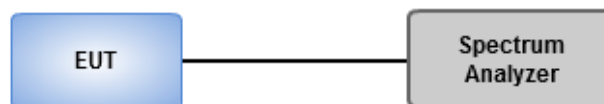
For 5150~5250 MHz, 5250~5350 MHz, 5470~5725 MHz

- ☒ Method SA-1 (For 11a)
 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 (For 11n / 11ac)
 1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
 2. Set sweep time $\geq 10 * (\text{number of points in sweep}) * (\text{total on/off period of the transmitted signal})$.
 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 (For 11a)
 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 (For 11n / 11ac)
 1. Set RBW = 500 kHz, VBW = 2 MHz, Detector = RMS.
 2. Set sweep time $\geq 10 * (\text{number of points in sweep}) * (\text{total on/off period of the transmitted signal})$.
 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

Frequency band			5150~5250 MHz / 5250~5350 MHz			
Condition			Peak Power Spectral Density (dBm)			
Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm)	Duty Factor (dB)	PPSD with D.F (dBm)	PPSD Limit (dBm)
11a	2	5180	6.28	0.00	6.28	10.28
11a	2	5200	6.31	0.00	6.31	10.28
11a	2	5240	6.58	0.00	6.58	10.28
VHT20	2	5180	4.04	1.31	5.35	10.28
VHT20	2	5200	4.09	1.31	5.40	10.28
VHT20	2	5240	4.37	1.31	5.68	10.28
VHT40	2	5190	-0.76	1.80	1.04	10.28
VHT40	2	5230	3.34	1.80	5.14	10.28
VHT80	2	5210	-5.30	2.49	-2.81	10.28
11a	2	5260	6.79	0.00	6.79	10.01
11a	2	5300	7.58	0.00	7.58	10.01
11a	2	5320	6.93	0.00	6.93	10.01
VHT20	2	5260	3.91	1.31	5.22	10.01
VHT20	2	5300	4.82	1.31	6.13	10.01
VHT20	2	5320	4.54	1.31	5.85	10.01
VHT40	2	5270	2.69	1.80	4.49	10.01
VHT40	2	5310	-0.60	1.80	1.20	10.01
VHT80	2	5290	-5.76	2.49	-3.27	10.01

Note1: D.F is duty factor.

Note2: Test result is bin-by-bin summing measured value of each TX port

Note3:

For 5150 ~ 5250 MHz

Directional Antenna gain is $10 * \log((10^{3.02/20} + 10^{4.35/20})^2 / 2) = 6.72 \text{ dBi} > 6 \text{ dBi}$, conducted power limit is reduced to 11 dBm – (6.72 dBi – 6 dBi) = 10.28 dBm

For 5250 ~ 5350

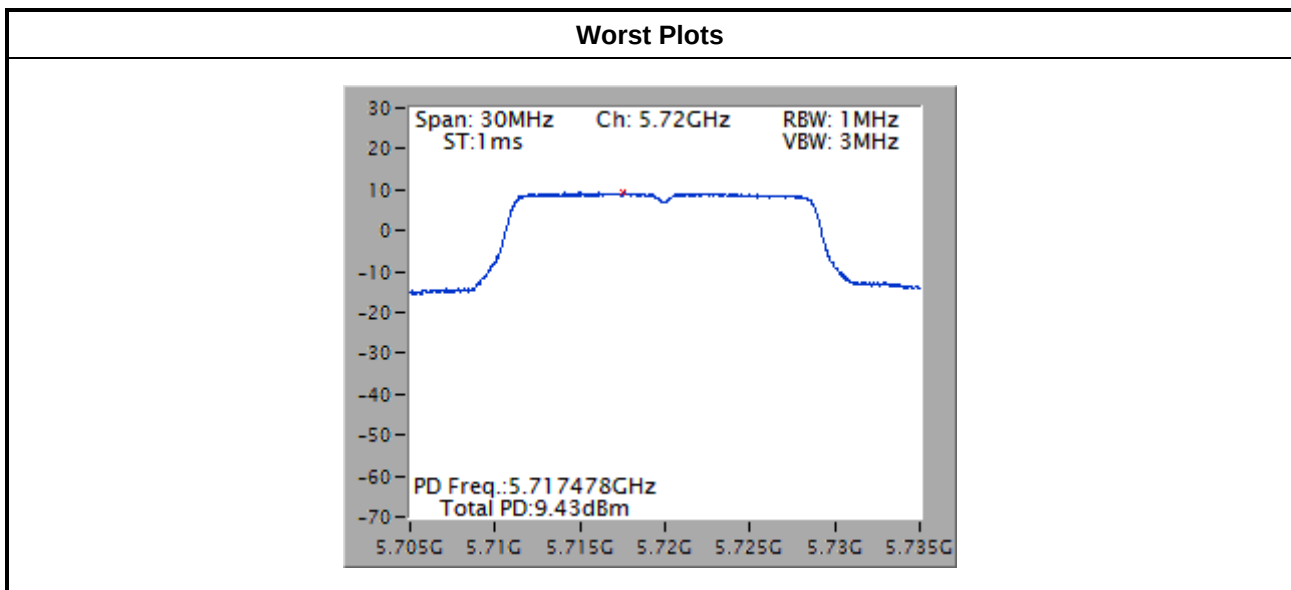
Directional Antenna gain is $10 * \log((10^{3.51/20} + 10^{4.43/20})^2 / 2) = 6.99 \text{ dBi} > 6 \text{ dBi}$, conducted power limit is reduced to 11 dBm – (6.99 dBi – 6 dBi) = 10.01 dBm

Frequency band			5475~5725 MHz			
Condition			Peak Power Spectral Density (dBm)			
Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm)	Duty Factor (dB)	PPSD with D.F (dBm)	PPSD Limit (dBm)
11a	2	5500	7.02	0.00	7.02	9.65
11a	2	5580	8.93	0.00	8.93	9.65
11a	2	5700	6.70	0.00	6.70	9.65
11a	2	5720	9.43	0.00	9.43	9.65
VHT20	2	5500	4.71	1.31	6.02	9.65
VHT20	2	5580	8.12	1.31	9.43	9.65
VHT20	2	5700	4.04	1.31	5.35	9.65
VHT20	2	5720	7.61	1.31	8.92	9.65
VHT40	2	5510	-2.50	1.80	-0.70	9.65
VHT40	2	5590	4.74	1.80	6.54	9.65
VHT40	2	5670	1.43	1.80	3.23	9.65
VHT40	2	5710	3.96	1.80	5.76	9.65
VHT80	2	5530	-7.64	2.49	-5.15	9.65
VHT80	2	5610	-1.92	2.49	0.57	9.65
VHT80	2	5690	-0.92	2.49	1.57	9.65

Note1: D.F is duty factor.

Note2: Test result is bin-by-bin summing measured value of each TX port

Note3: Directional Antenna gain is $10 * \log((10^{4.25/20} + 10^{4.43/20})/2) = 7.35 \text{ dBi} > 6 \text{ dBi}$, conducted power limit is reduced to $11 \text{ dBm} - (7.35 \text{ dBi} - 6 \text{ dBi}) = 9.65 \text{ dBm}$

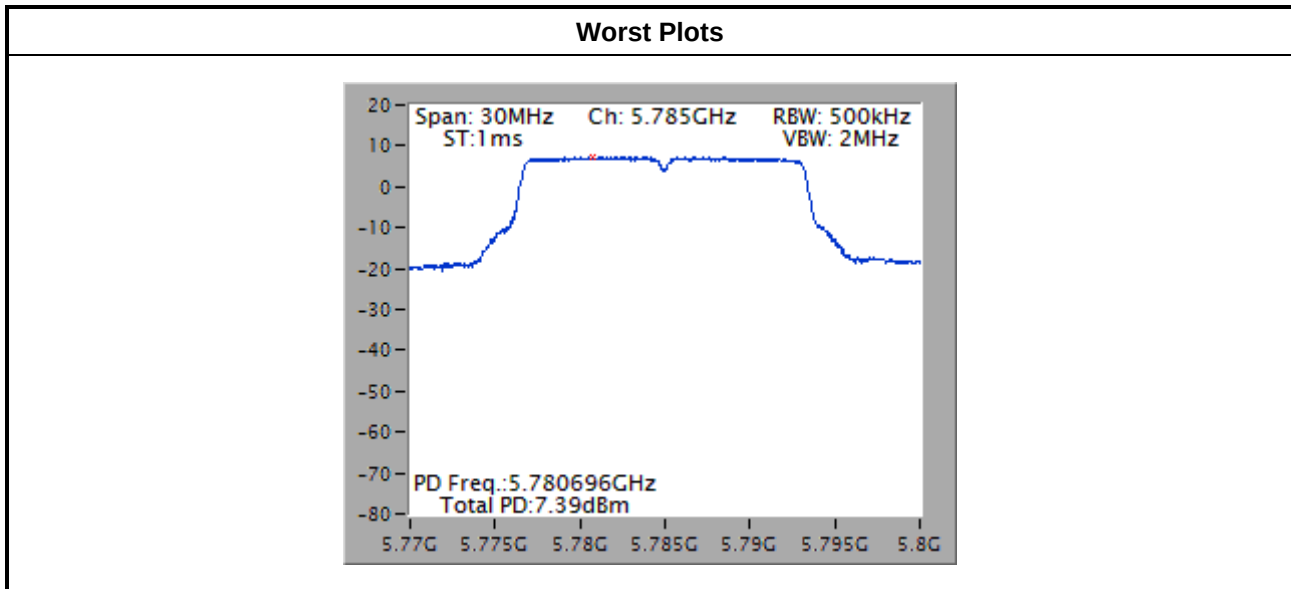


For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm)	Duty Factor (dB)	PPSD with D.F (dBm)	PPSD Limit (dBm)
11a	2	5745	5.10	0.00	5.10	28.73
11a	2	5785	7.39	0.00	7.39	28.73
11a	2	5825	7.29	0.00	7.29	28.73
VHT20	2	5745	2.98	1.31	4.29	28.73
VHT20	2	5785	4.43	1.31	5.74	28.73
VHT20	2	5825	3.81	1.31	5.12	28.73
VHT40	2	5755	-3.03	1.80	-1.23	28.73
VHT40	2	5795	0.89	1.80	2.69	28.73
VHT80	2	5775	-9.04	2.49	-6.55	28.73

Note1: D.F is duty factor.

Note2: Test result is bin-by-bin summing measured value of each TX port

Note3: Directional Antenna gain is $10 * \log((10^{4.32/20} + 10^{4.19/20})^2 / 2) = 7.27 \text{ dBi} > 6 \text{ dBi}$, conducted power limit is reduced to 30 dBm – (7.27dBi – 6 dBi) = 28.73 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]
5.25 - 5.35 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.47 - 5.725 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.825 GHz	5.715 5.725 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] 5.825 5.835 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] Other un-restricted band: e.i.r.p. -27 dBm [68.2 dBuV/m@3m]

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

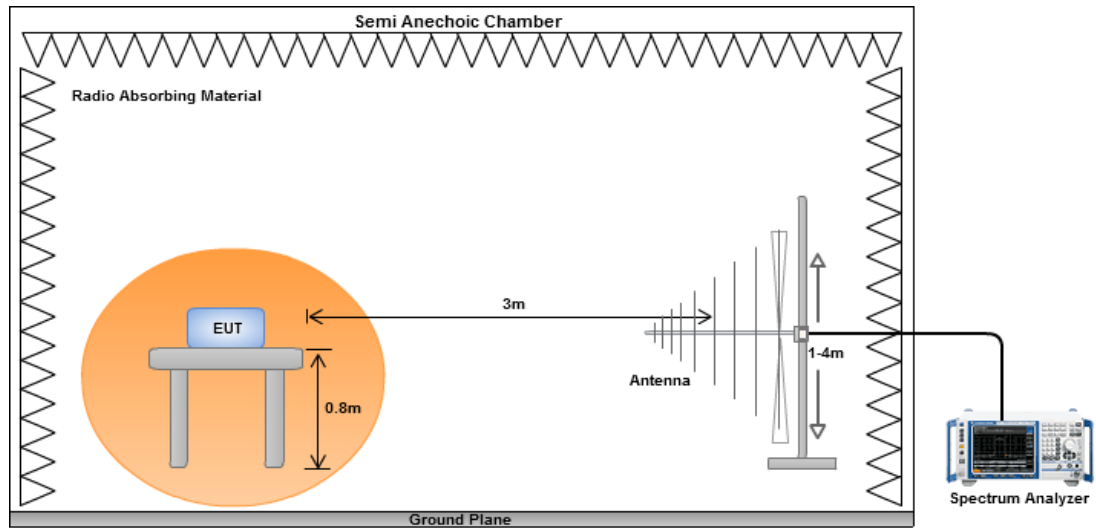
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission frequency. The EUT is placed at a height of 0.8 m test table above the ground plane.
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:

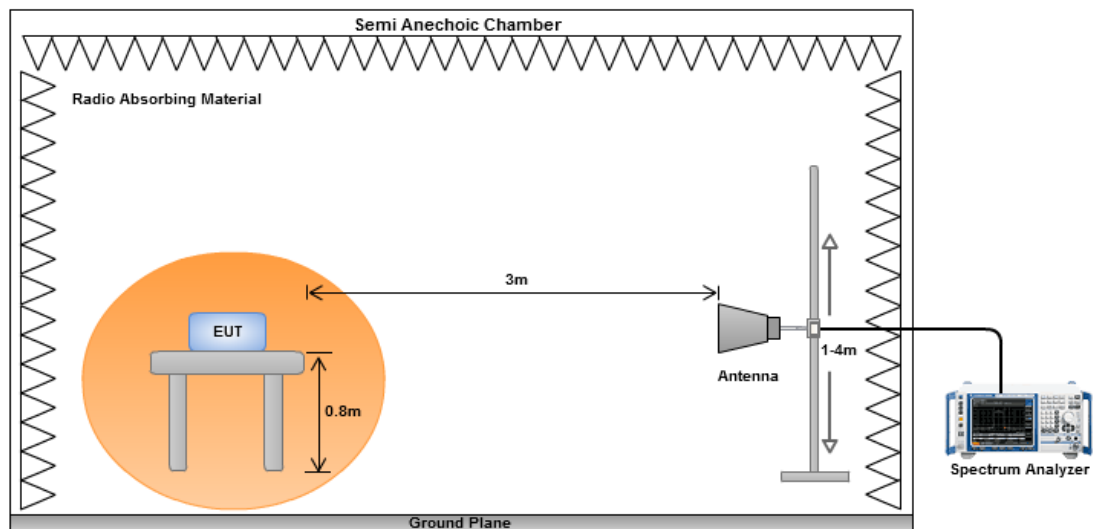
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz



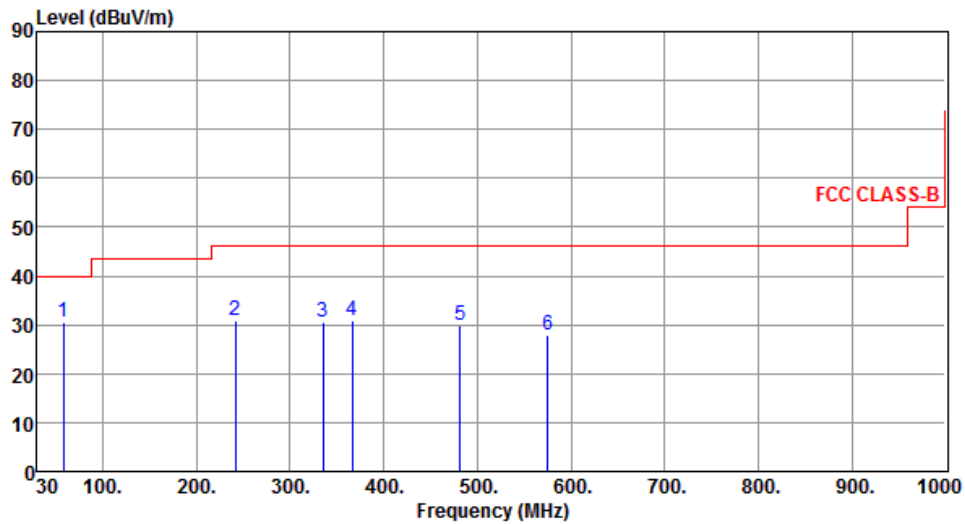
3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	11a	Test Freq. (MHz)	5580
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	11a	Test Freq. (MHz)	5580
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	58.13	30.53	40.00	-9.47	43.96	-13.43	Peak	---	---
2	241.46	30.99	46.00	-15.01	45.66	-14.67	Peak	---	---
3	335.55	30.42	46.00	-15.58	42.13	-11.71	Peak	---	---
4	366.59	30.82	46.00	-15.18	41.78	-10.96	Peak	---	---
5	482.02	30.03	46.00	-15.97	38.25	-8.22	Peak	---	---
6	575.14	28.05	46.00	-17.95	34.42	-6.37	Peak	---	---

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

*Factor includes antenna factor , cable loss and amplifier gain

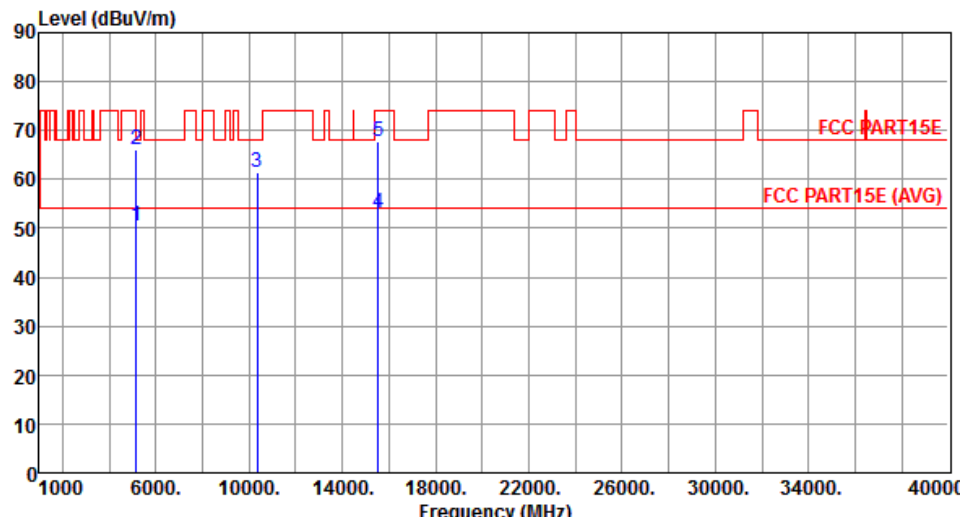
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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		
Level (dBUV/m)			

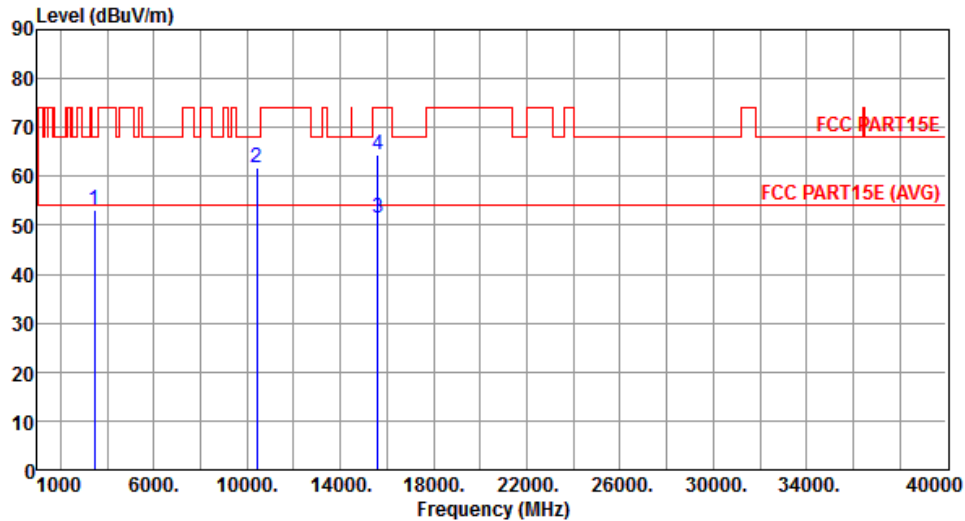
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.32	54.00	-3.68	44.14	6.18	Average	---	---
2	5150.00	66.00	74.00	-8.00	59.82	6.18	Peak	---	---
3	10360.00	61.29	68.20	-6.91	44.33	16.96	Peak	---	---
4	15540.00	52.99	54.00	-1.01	35.11	17.88	Average	---	---
5	15540.00	67.90	74.00	-6.10	50.02	17.88	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).

Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



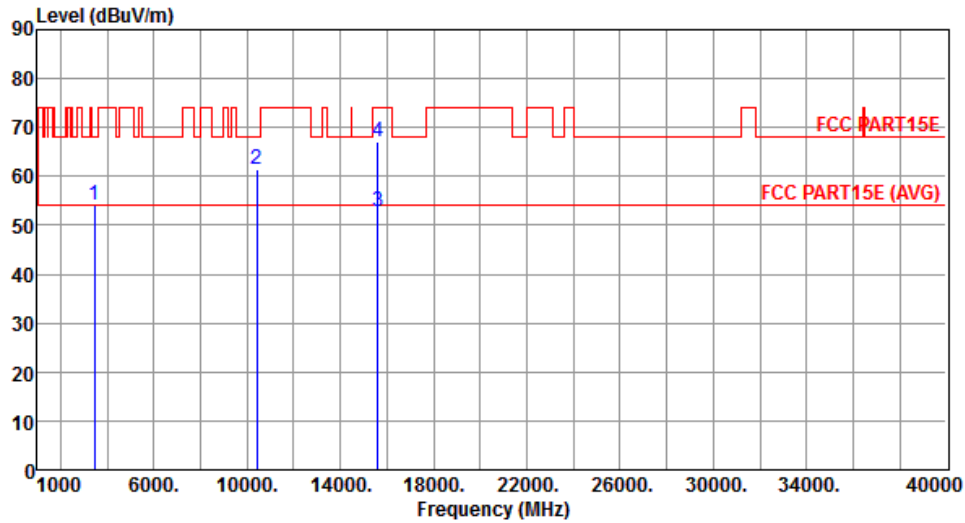
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3466.70	53.27	68.20	-14.93	51.93	1.34	Peak	---	---
2	10400.00	61.70	68.20	-6.50	44.62	17.08	Peak	---	---
3	15600.00	51.35	54.00	-2.65	33.62	17.73	Average	---	---
4	15600.00	64.55	74.00	-9.45	46.82	17.73	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).

Modulation	11a	Test Freq. (MHz)	5200
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	3466.70	54.15	68.20	-14.05	52.81	1.34	Peak	---	---
2	10400.00	61.32	68.20	-6.88	44.24	17.08	Peak	---	---
3	15600.00	52.76	54.00	-1.24	35.03	17.73	Average	---	---
4	15600.00	67.08	74.00	-6.92	49.35	17.73	Peak	---	---

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

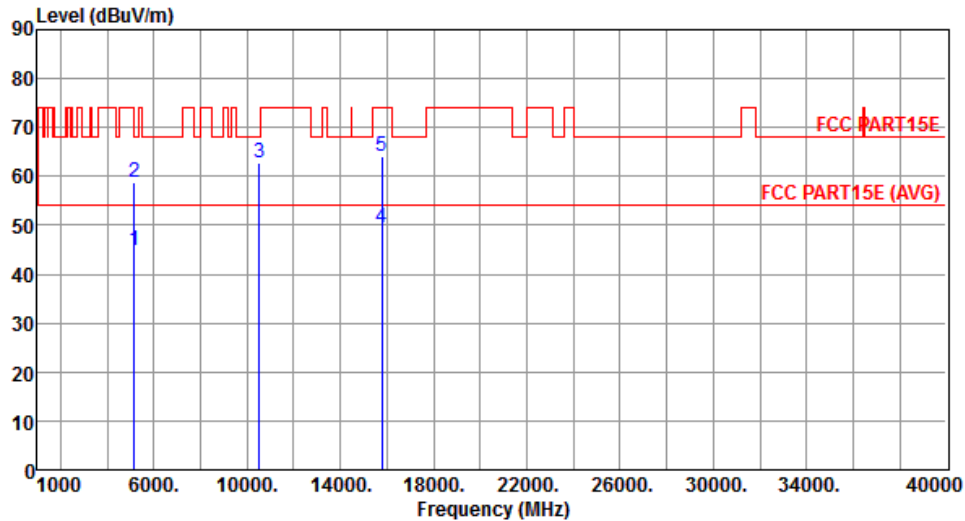
*Factor includes antenna factor , cable loss and amplifier gain

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

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

Modulation	11a	Test Freq. (MHz)	5240																																																												
Polarization	Vertical																																																														
Level (dBuV/m) Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5350.00</td><td>46.99</td><td>54.00</td><td>-7.01</td><td>40.48</td><td>6.51</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5350.00</td><td>59.66</td><td>74.00</td><td>-14.34</td><td>53.15</td><td>6.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10480.00</td><td>62.14</td><td>68.20</td><td>-6.06</td><td>44.82</td><td>17.32</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>15720.00</td><td>52.67</td><td>54.00</td><td>-1.33</td><td>35.24</td><td>17.43</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15720.00</td><td>66.51</td><td>74.00</td><td>-7.49</td><td>49.08</td><td>17.43</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5350.00	46.99	54.00	-7.01	40.48	6.51	Average	---	---	2	5350.00	59.66	74.00	-14.34	53.15	6.51	Peak	---	---	3	10480.00	62.14	68.20	-6.06	44.82	17.32	Peak	---	---	4	15720.00	52.67	54.00	-1.33	35.24	17.43	Average	---	---	5	15720.00	66.51	74.00	-7.49	49.08	17.43	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																						
1	5350.00	46.99	54.00	-7.01	40.48	6.51	Average	---	---																																																						
2	5350.00	59.66	74.00	-14.34	53.15	6.51	Peak	---	---																																																						
3	10480.00	62.14	68.20	-6.06	44.82	17.32	Peak	---	---																																																						
4	15720.00	52.67	54.00	-1.33	35.24	17.43	Average	---	---																																																						
5	15720.00	66.51	74.00	-7.49	49.08	17.43	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).																																																															

Modulation	11a	Test Freq. (MHz)	5260
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	5150.00	44.95	54.00	-9.05	38.77	6.18	Average	---	---
2	5150.00	58.63	74.00	-15.37	52.45	6.18	Peak	---	---
3	10520.00	62.64	68.20	-5.56	45.24	17.40	Peak	---	---
4	15780.00	49.43	54.00	-4.57	32.13	17.30	Average	---	---
5	15780.00	64.21	74.00	-9.79	46.91	17.30	Peak	---	---

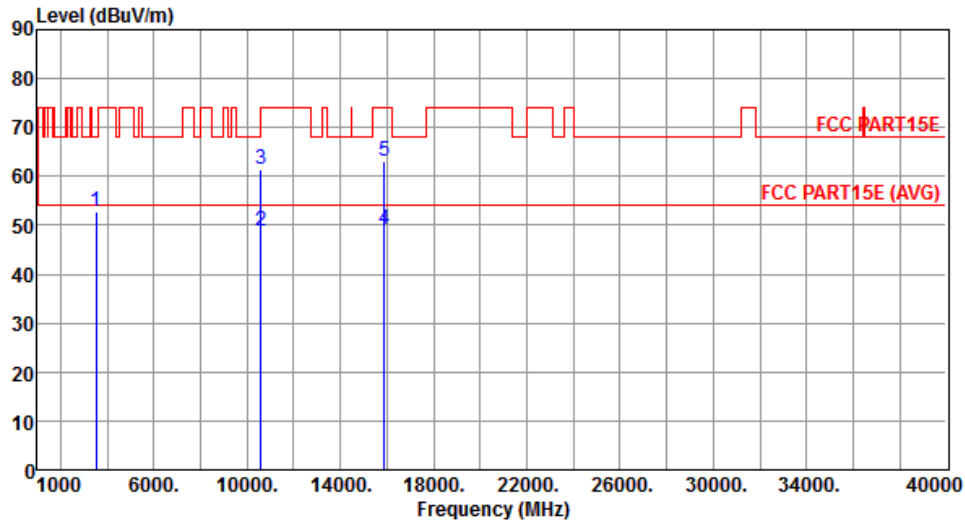
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

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

Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical		
Level (dBUV/m)			

Modulation	11a	Test Freq. (MHz)	5300
Polarization	Horizontal		



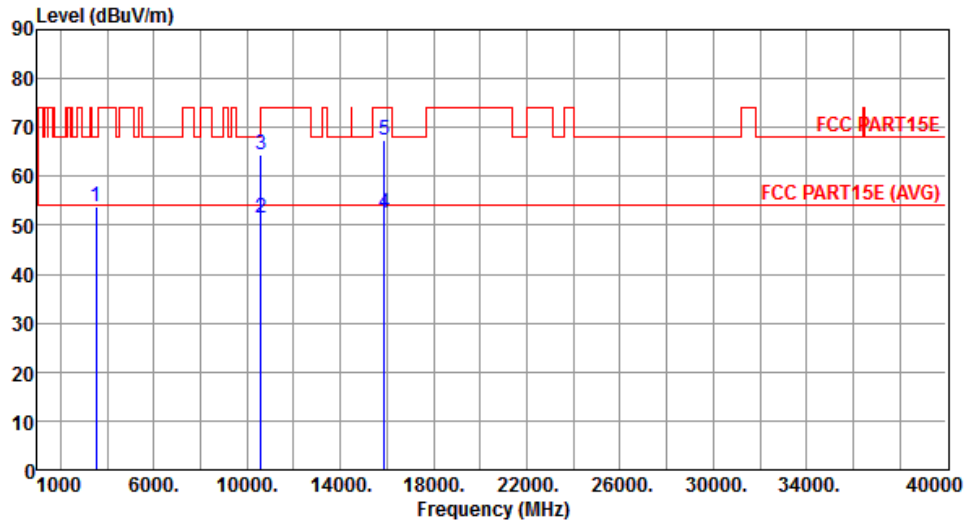
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3533.30	52.89	68.20	-15.31	51.38	1.51	Peak	---	---
2	10600.00	48.97	54.00	-5.03	31.47	17.50	Average	---	---
3	10600.00	61.51	74.00	-12.49	44.01	17.50	Peak	---	---
4	15900.00	49.26	54.00	-4.74	32.26	17.00	Average	---	---
5	15900.00	63.21	74.00	-10.79	46.21	17.00	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).

Modulation	11a	Test Freq. (MHz)	5300
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	3533.30	53.94	68.20	-14.26	52.43	1.51	Peak	---	---
2	10600.00	51.52	54.00	-2.48	34.02	17.50	Average	---	---
3	10600.00	64.41	74.00	-9.59	46.91	17.50	Peak	---	---
4	15900.00	52.53	54.00	-1.47	35.53	17.00	Average	---	---
5	15900.00	67.33	74.00	-6.67	50.33	17.00	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).

Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal		

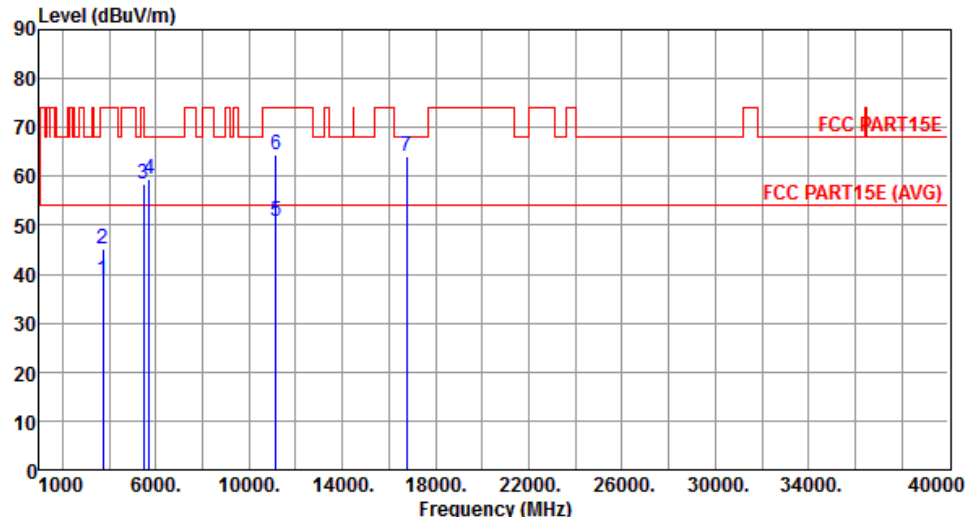
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.62	54.00	-1.38	46.11	6.51	Average	---	---
2	5350.00	71.85	74.00	-2.15	65.34	6.51	Peak	---	---
3	10640.00	49.89	54.00	-4.11	32.33	17.56	Average	---	---
4	10640.00	63.02	74.00	-10.98	45.46	17.56	Peak	---	---
5	15960.00	49.19	54.00	-4.81	32.34	16.85	Average	---	---
6	15960.00	63.43	74.00	-10.57	46.58	16.85	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).

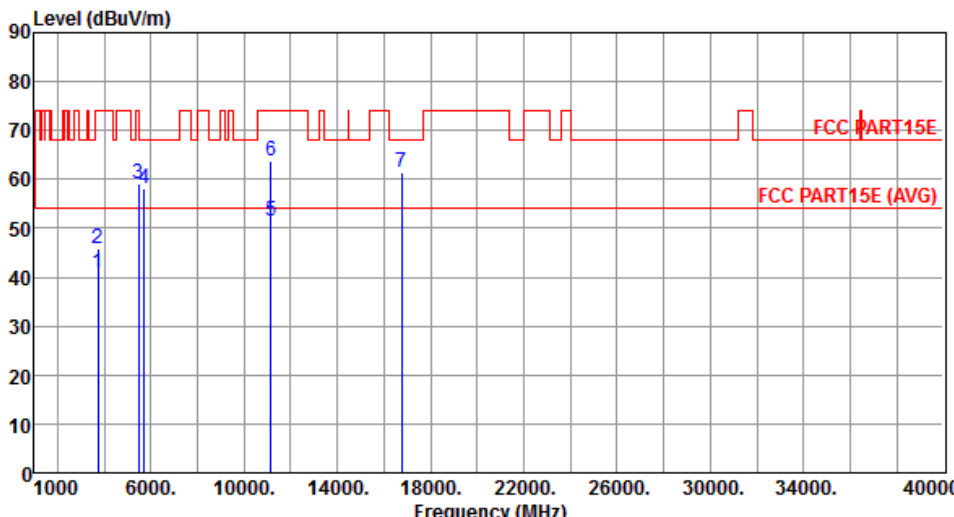
Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical		
Level (dBUV/m) <			

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Horizontal		
Level (dBUV/m)			

Modulation	11a	Test Freq. (MHz)	5500
Polarization	Vertical		
Level (dBUV/m) </			

Modulation	11a	Test Freq. (MHz)	5580																																																																																
Polarization	Horizontal																																																																																		
Level (dBuV/m)  <table><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr><tr><td>1</td><td>3720.00</td><td>38.78</td><td>54.00</td><td>-15.22</td><td>36.63</td><td>2.15</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>3720.00</td><td>45.30</td><td>74.00</td><td>-28.70</td><td>43.15</td><td>2.15</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5470.00</td><td>58.37</td><td>68.20</td><td>-9.83</td><td>51.67</td><td>6.70</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5725.00</td><td>59.53</td><td>68.20</td><td>-8.67</td><td>52.44</td><td>7.09</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>11160.00</td><td>50.73</td><td>54.00</td><td>-3.27</td><td>32.98</td><td>17.75</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>11160.00</td><td>64.28</td><td>74.00</td><td>-9.72</td><td>46.53</td><td>17.75</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>7</td><td>16740.00</td><td>64.26</td><td>68.20</td><td>-3.94</td><td>46.15</td><td>18.11</td><td>Peak</td><td>---</td><td>---</td></tr></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	3720.00	38.78	54.00	-15.22	36.63	2.15	Average	---	---	2	3720.00	45.30	74.00	-28.70	43.15	2.15	Peak	---	---	3	5470.00	58.37	68.20	-9.83	51.67	6.70	Peak	---	---	4	5725.00	59.53	68.20	-8.67	52.44	7.09	Peak	---	---	5	11160.00	50.73	54.00	-3.27	32.98	17.75	Average	---	---	6	11160.00	64.28	74.00	-9.72	46.53	17.75	Peak	---	---	7	16740.00	64.26	68.20	-3.94	46.15	18.11	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																										
1	3720.00	38.78	54.00	-15.22	36.63	2.15	Average	---	---																																																																										
2	3720.00	45.30	74.00	-28.70	43.15	2.15	Peak	---	---																																																																										
3	5470.00	58.37	68.20	-9.83	51.67	6.70	Peak	---	---																																																																										
4	5725.00	59.53	68.20	-8.67	52.44	7.09	Peak	---	---																																																																										
5	11160.00	50.73	54.00	-3.27	32.98	17.75	Average	---	---																																																																										
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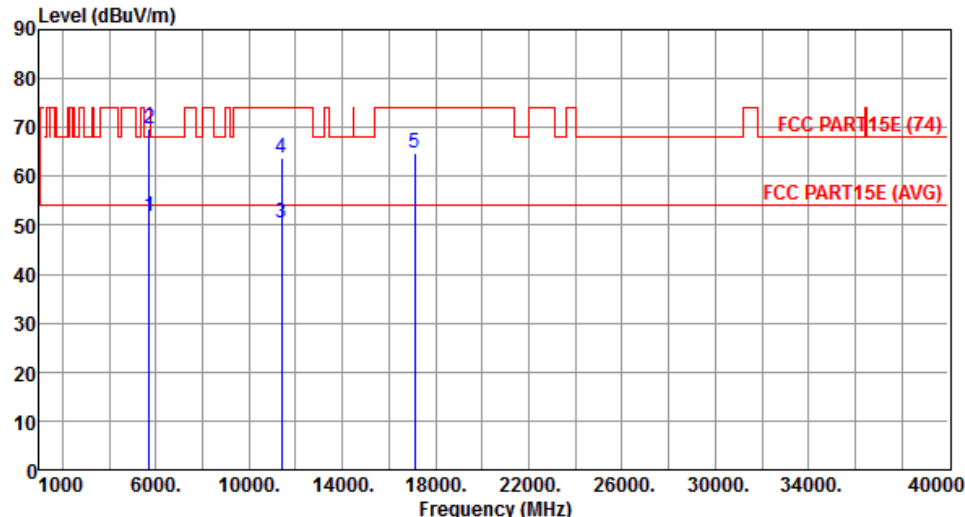
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical		

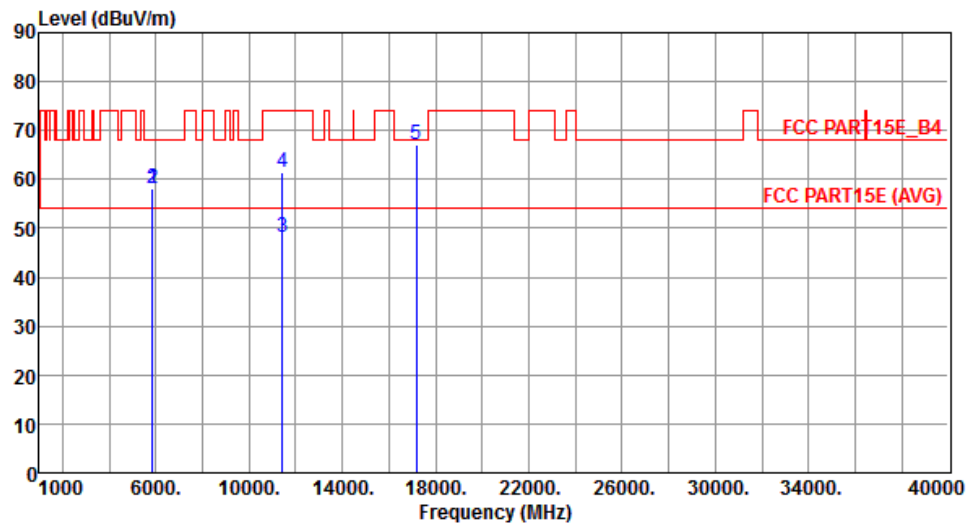


	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB		High	Table
		dBuV/m			dBuV			cm	deg
1	3720.00	40.71	54.00	-13.29	38.56	2.15	Average	---	---
2	3720.00	45.86	74.00	-28.14	43.71	2.15	Peak	---	---
3	5470.00	59.05	68.20	-9.15	52.35	6.70	Peak	---	---
4	5725.00	58.21	68.20	-9.99	51.12	7.09	Peak	---	---
5	11160.00	51.33	54.00	-2.67	33.58	17.75	Average	---	---
6	11160.00	63.92	74.00	-10.08	46.17	17.75	Peak	---	---
7	16740.00	61.54	68.20	-6.66	43.43	18.11	Peak	---	---

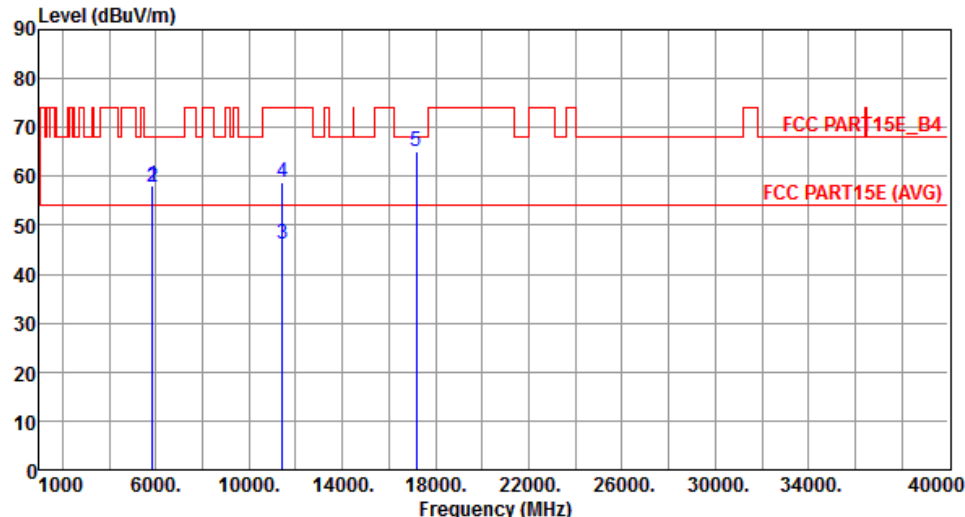
Note 1: Emission Level (dBUV/m) = SA Reading (dBUV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	11a	Test Freq. (MHz)	5700																																																												
Polarization	Vertical																																																														
Level (dBUV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5725.00</td><td>51.76</td><td>54.00</td><td>-2.24</td><td>44.67</td><td>7.09</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5725.00</td><td>69.62</td><td>74.00</td><td>-4.38</td><td>62.53</td><td>7.09</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>11400.00</td><td>50.50</td><td>54.00</td><td>-3.50</td><td>33.13</td><td>17.37</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>11400.00</td><td>63.65</td><td>74.00</td><td>-10.35</td><td>46.28</td><td>17.37</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>17100.00</td><td>64.71</td><td>74.00</td><td>-9.29</td><td>46.28</td><td>18.43</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5725.00	51.76	54.00	-2.24	44.67	7.09	Average	---	---	2	5725.00	69.62	74.00	-4.38	62.53	7.09	Peak	---	---	3	11400.00	50.50	54.00	-3.50	33.13	17.37	Average	---	---	4	11400.00	63.65	74.00	-10.35	46.28	17.37	Peak	---	---	5	17100.00	64.71	74.00	-9.29	46.28	18.43	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																						
1	5725.00	51.76	54.00	-2.24	44.67	7.09	Average	---	---																																																						
2	5725.00	69.62	74.00	-4.38	62.53	7.09	Peak	---	---																																																						
3	11400.00	50.50	54.00	-3.50	33.13	17.37	Average	---	---																																																						
4	11400.00	63.65	74.00	-10.35	46.28	17.37	Peak	---	---																																																						
5	17100.00	64.71	74.00	-9.29	46.28	18.43	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).																																																															

Modulation	11a	Test Freq. (MHz)	5720																																																												
Polarization	Horizontal																																																														
Level (dBUV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5850.00</td><td>58.19</td><td>78.20</td><td>-20.01</td><td>50.95</td><td>7.24</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5860.00</td><td>58.01</td><td>68.20</td><td>-10.19</td><td>50.77</td><td>7.24</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>11440.00</td><td>48.03</td><td>54.00</td><td>-5.97</td><td>30.72</td><td>17.31</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>11440.00</td><td>61.37</td><td>74.00</td><td>-12.63</td><td>44.06</td><td>17.31</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>17160.00</td><td>67.12</td><td>68.20</td><td>-1.08</td><td>48.42</td><td>18.70</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5850.00	58.19	78.20	-20.01	50.95	7.24	Peak	---	---	2	5860.00	58.01	68.20	-10.19	50.77	7.24	Peak	---	---	3	11440.00	48.03	54.00	-5.97	30.72	17.31	Average	---	---	4	11440.00	61.37	74.00	-12.63	44.06	17.31	Peak	---	---	5	17160.00	67.12	68.20	-1.08	48.42	18.70	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																						
1	5850.00	58.19	78.20	-20.01	50.95	7.24	Peak	---	---																																																						
2	5860.00	58.01	68.20	-10.19	50.77	7.24	Peak	---	---																																																						
3	11440.00	48.03	54.00	-5.97	30.72	17.31	Average	---	---																																																						
4	11440.00	61.37	74.00	-12.63	44.06	17.31	Peak	---	---																																																						
5	17160.00	67.12	68.20	-1.08	48.42	18.70	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).																																																															

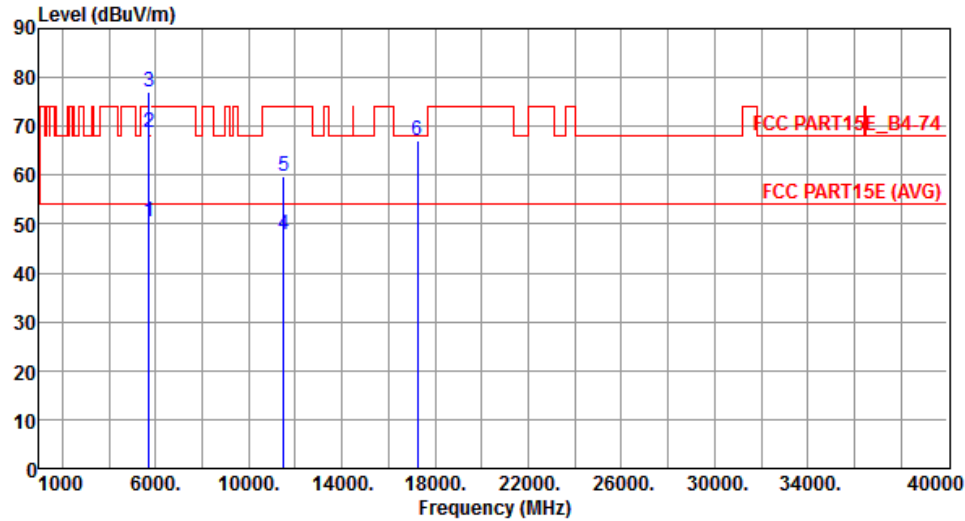
Modulation	11a	Test Freq. (MHz)	5720
Polarization	Vertical		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	58.08	78.20	-20.12	50.84	7.24	Peak	---	---
2	5860.00	57.92	68.20	-10.28	50.68	7.24	Peak	---	---
3	11440.00	46.28	54.00	-7.72	28.97	17.31	Average	---	---
4	11440.00	58.85	74.00	-15.15	41.54	17.31	Peak	---	---
5	17160.00	65.04	68.20	-3.16	46.34	18.70	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).

Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



The graph displays the emission level in dBuV/m against frequency in MHz. The y-axis ranges from 0 to 90 dBuV/m, and the x-axis ranges from 1000 to 40000 MHz. A red line represents the FCC PART15E (AVG) limit at approximately 55 dBuV/m. A red stepped line represents the FCC PART15E_B4-74 limit. Blue vertical lines with markers indicate specific test points: 1 (5715 MHz), 2 (5715 MHz), 3 (5725 MHz), 4 (11490 MHz), 5 (11490 MHz), and 6 (17235 MHz). The emission levels at these points are shown in the table below.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5715.00	50.32	54.00	-3.68	43.24	7.08	Average	---	---
2	5715.00	68.72	74.00	-5.28	61.64	7.08	Peak	---	---
3	5725.00	77.00	78.20	-1.20	69.91	7.09	Peak	---	---
4	11490.00	47.79	54.00	-6.21	30.56	17.23	Average	---	---
5	11490.00	59.62	74.00	-14.38	42.39	17.23	Peak	---	---
6	17235.00	66.99	68.20	-1.21	47.95	19.04	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).

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		
Level (dBUV/m)			

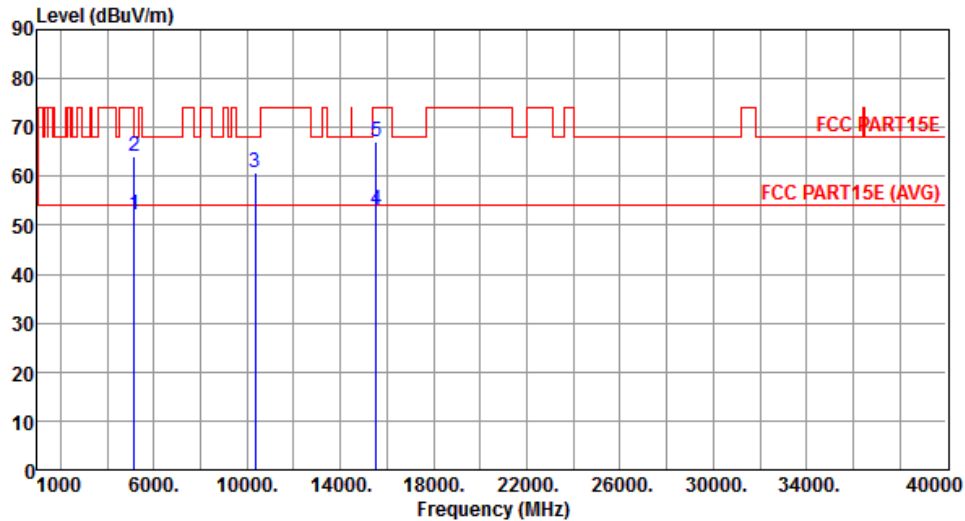
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		
Level (dBuV/m)			

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		
Level (dBUV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		



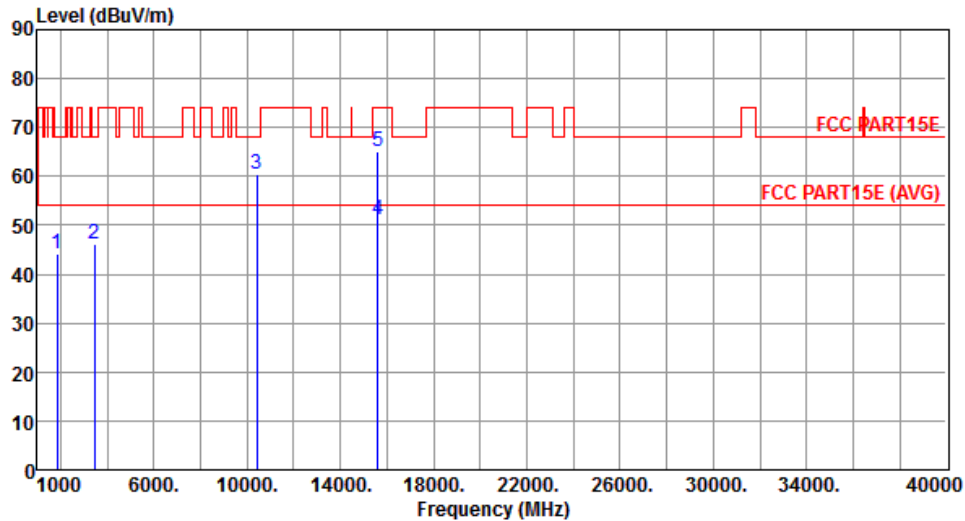
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	52.21	54.00	-1.79	46.03	6.18	Average	---	---
2	5150.00	63.95	74.00	-10.05	57.77	6.18	Peak	---	---
3	10360.00	60.91	68.20	-7.29	43.95	16.96	Peak	---	---
4	15540.00	53.00	54.00	-1.00	35.12	17.88	Average	---	---
5	15540.00	67.15	74.00	-6.85	49.27	17.88	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).

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		



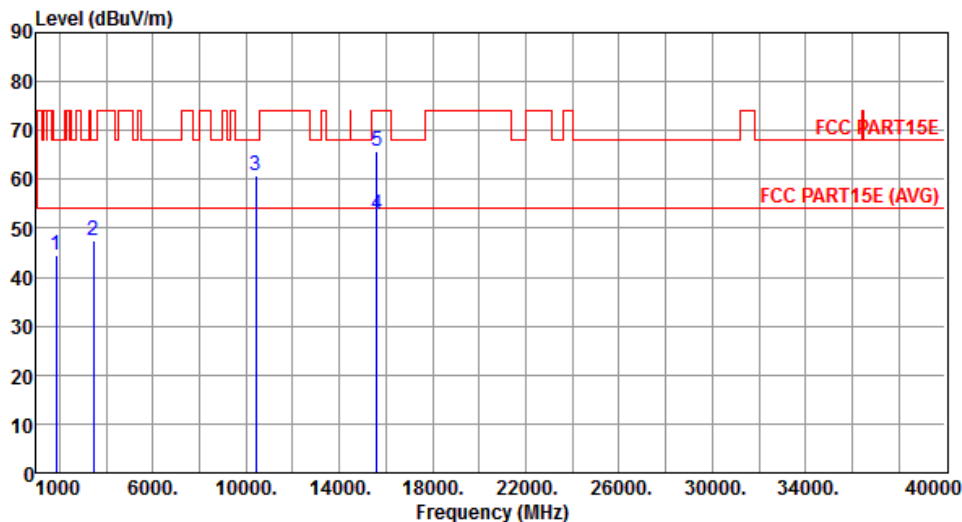
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1850.00	44.04	68.20	-24.16	47.90	-3.86	Peak	---	---
2	3466.70	46.23	68.20	-21.97	44.89	1.34	Peak	---	---
3	10400.00	60.53	68.20	-7.67	43.45	17.08	Peak	---	---
4	15600.00	51.29	54.00	-2.71	33.56	17.73	Average	---	---
5	15600.00	64.93	74.00	-9.07	47.20	17.73	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).

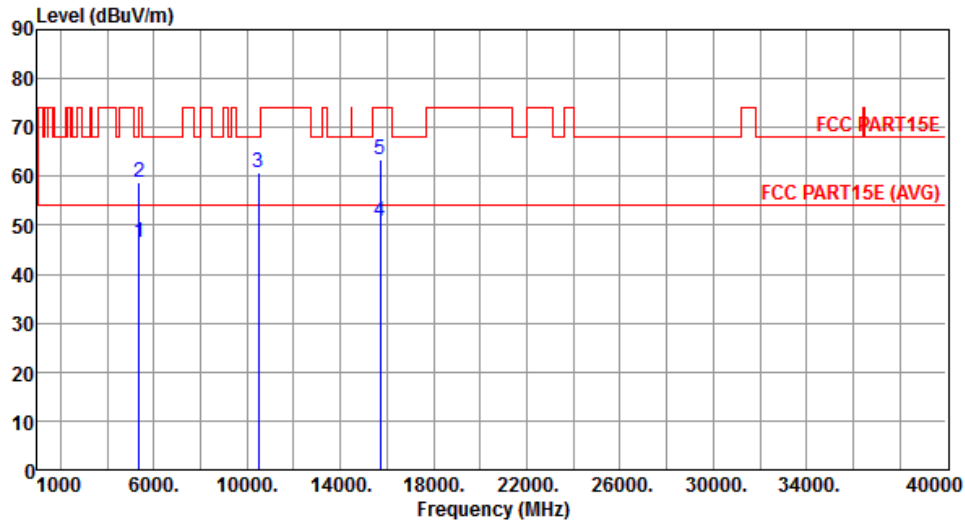
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		



Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1850.00	44.51	68.20	-23.69	48.37	-3.86	Peak	---
2	3466.70	47.54	68.20	-20.66	46.20	1.34	Peak	---
3	10400.00	60.85	68.20	-7.35	43.77	17.08	Peak	---
4	15600.00	52.92	54.00	-1.08	35.19	17.73	Average	---
5	15600.00	65.84	74.00	-8.16	48.11	17.73	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).

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		

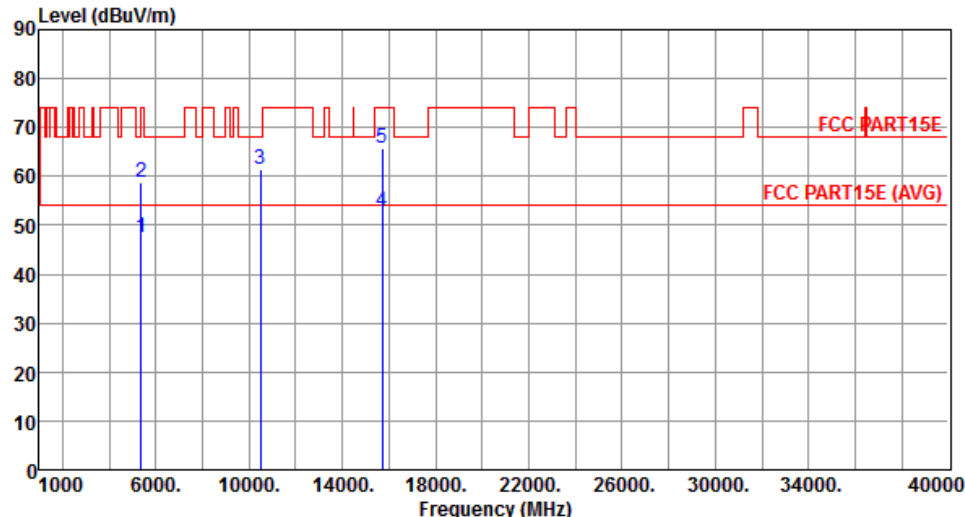


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	46.51	54.00	-7.49	40.00	6.51	Average	---	---
2	5350.00	58.90	74.00	-15.10	52.39	6.51	Peak	---	---
3	10480.00	60.76	68.20	-7.44	43.44	17.32	Peak	---	---
4	15720.00	50.88	54.00	-3.12	33.45	17.43	Average	---	---
5	15720.00	63.32	74.00	-10.68	45.89	17.43	Peak	---	---

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

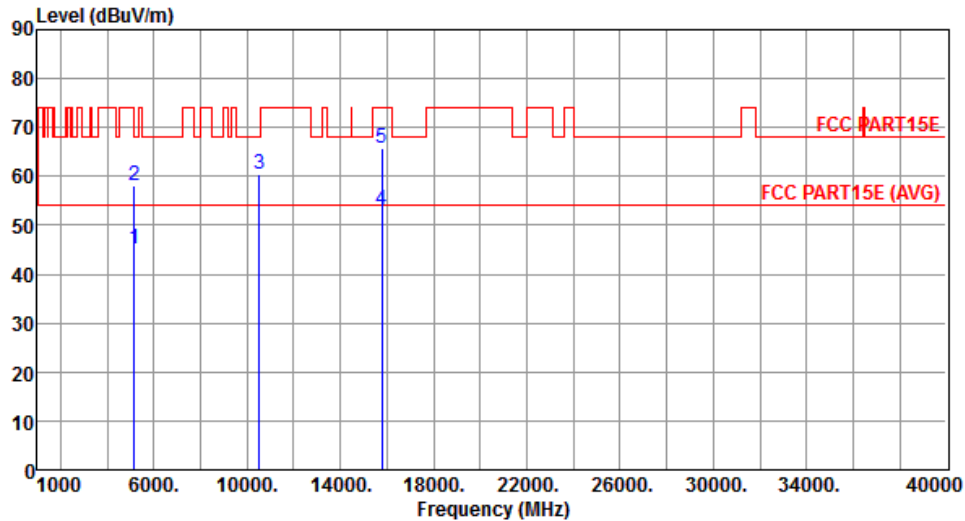
*Factor includes antenna factor , cable loss and amplifier gain

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

Modulation	VHT20	Test Freq. (MHz)	5240																																																												
Polarization	Vertical																																																														
Level (dBUV/m)  <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5350.00</td><td>47.47</td><td>54.00</td><td>-6.53</td><td>40.96</td><td>6.51</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5350.00</td><td>58.73</td><td>74.00</td><td>-15.27</td><td>52.22</td><td>6.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10480.00</td><td>61.33</td><td>68.20</td><td>-6.87</td><td>44.01</td><td>17.32</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>15720.00</td><td>52.68</td><td>54.00</td><td>-1.32</td><td>35.25</td><td>17.43</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15720.00</td><td>65.66</td><td>74.00</td><td>-8.34</td><td>48.23</td><td>17.43</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> 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).					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5350.00	47.47	54.00	-6.53	40.96	6.51	Average	---	---	2	5350.00	58.73	74.00	-15.27	52.22	6.51	Peak	---	---	3	10480.00	61.33	68.20	-6.87	44.01	17.32	Peak	---	---	4	15720.00	52.68	54.00	-1.32	35.25	17.43	Average	---	---	5	15720.00	65.66	74.00	-8.34	48.23	17.43	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																						
1	5350.00	47.47	54.00	-6.53	40.96	6.51	Average	---	---																																																						
2	5350.00	58.73	74.00	-15.27	52.22	6.51	Peak	---	---																																																						
3	10480.00	61.33	68.20	-6.87	44.01	17.32	Peak	---	---																																																						
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5	15720.00	65.66	74.00	-8.34	48.23	17.43	Peak	---	---																																																						

Modulation	VHT20	Test Freq. (MHz)	5260
Polarization	Horizontal		
Level (dBUV/m)			

Modulation	VHT20	Test Freq. (MHz)	5260
Polarization	Vertical		

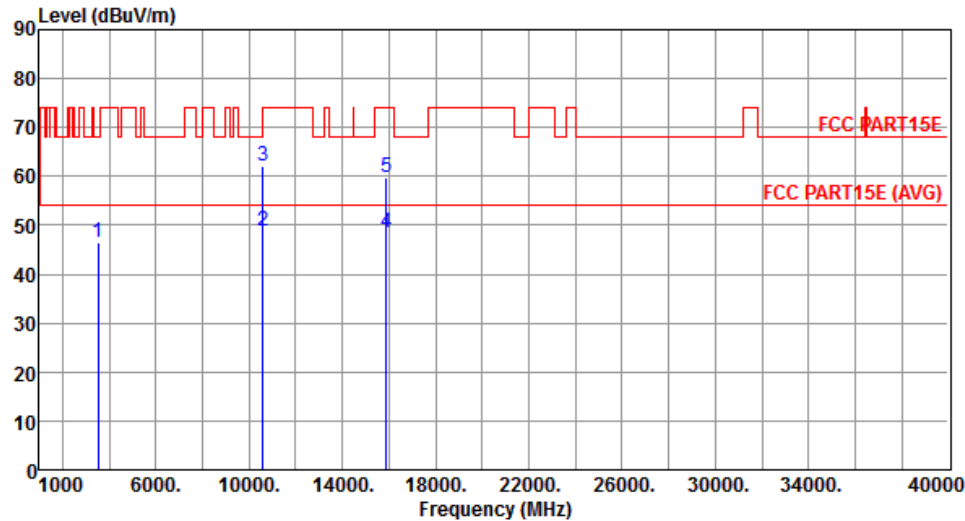


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.26	54.00	-8.74	39.08	6.18	Average	---	---
2	5150.00	58.07	74.00	-15.93	51.89	6.18	Peak	---	---
3	10520.00	60.37	68.20	-7.83	42.97	17.40	Peak	---	---
4	15780.00	53.00	54.00	-1.00	35.70	17.30	Average	---	---
5	15780.00	65.80	74.00	-8.20	48.50	17.30	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).

Modulation	VHT20	Test Freq. (MHz)	5300																																																												
Polarization	Horizontal																																																														
Level (dBUV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>3533.30</td><td>46.43</td><td>68.20</td><td>-21.77</td><td>44.92</td><td>1.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>10600.00</td><td>48.71</td><td>54.00</td><td>-5.29</td><td>31.21</td><td>17.50</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10600.00</td><td>61.96</td><td>74.00</td><td>-12.04</td><td>44.46</td><td>17.50</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>15900.00</td><td>48.65</td><td>54.00</td><td>-5.35</td><td>31.65</td><td>17.00</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15900.00</td><td>59.69</td><td>74.00</td><td>-14.31</td><td>42.69</td><td>17.00</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	3533.30	46.43	68.20	-21.77	44.92	1.51	Peak	---	---	2	10600.00	48.71	54.00	-5.29	31.21	17.50	Average	---	---	3	10600.00	61.96	74.00	-12.04	44.46	17.50	Peak	---	---	4	15900.00	48.65	54.00	-5.35	31.65	17.00	Average	---	---	5	15900.00	59.69	74.00	-14.31	42.69	17.00	Peak	---	---
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4	15900.00	48.65	54.00	-5.35	31.65	17.00	Average	---	---																																																						
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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).																																																															

Modulation	VHT20	Test Freq. (MHz)	5300
Polarization	Vertical		
Level (dBUV/m)			

Modulation	VHT20	Test Freq. (MHz)	5320
Polarization	Horizontal		
Level (dBUV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5320
Polarization	Vertical		

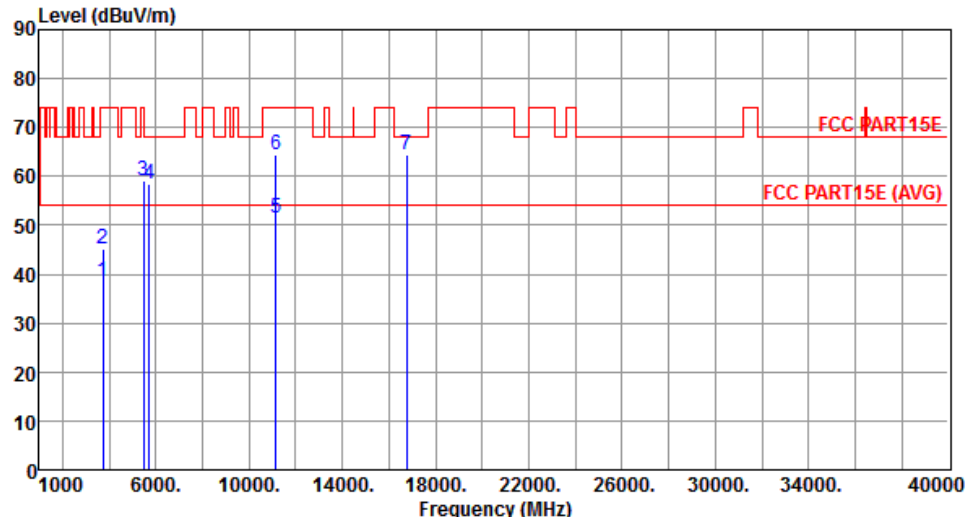
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	50.31	54.00	-3.69	43.80	6.51	Average	---	---
2	5350.00	63.00	74.00	-11.00	56.49	6.51	Peak	---	---
3	10640.00	49.69	54.00	-4.31	32.13	17.56	Average	---	---
4	10640.00	62.70	74.00	-11.30	45.14	17.56	Peak	---	---
5	15960.00	52.22	54.00	-1.78	35.37	16.85	Average	---	---
6	15960.00	64.83	74.00	-9.17	47.98	16.85	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).

Modulation	VHT20	Test Freq. (MHz)	5500
Polarization	Horizontal		
Level (dBuV/m)			

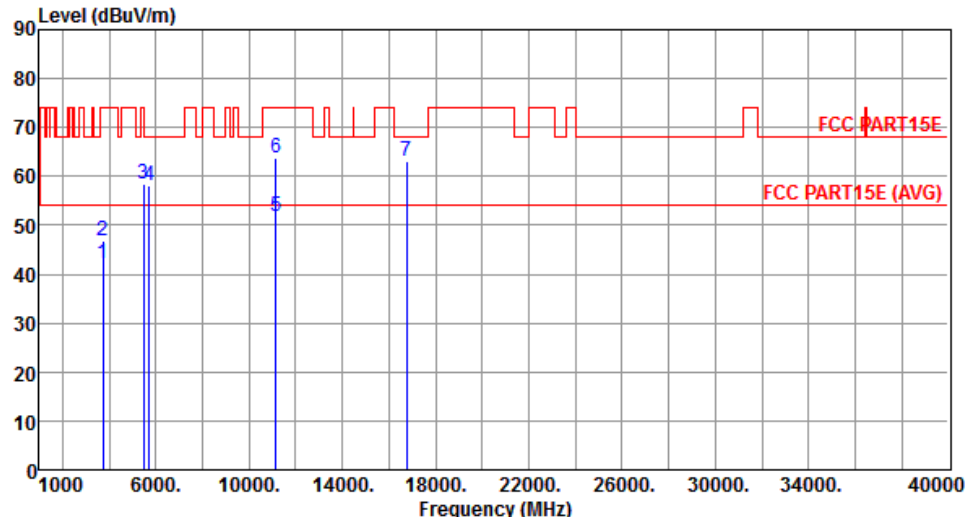
Modulation	VHT20	Test Freq. (MHz)	5500
Polarization	Vertical		
Level (dBUV/m)			

Modulation	VHT20	Test Freq. (MHz)	5580
Polarization	Horizontal		

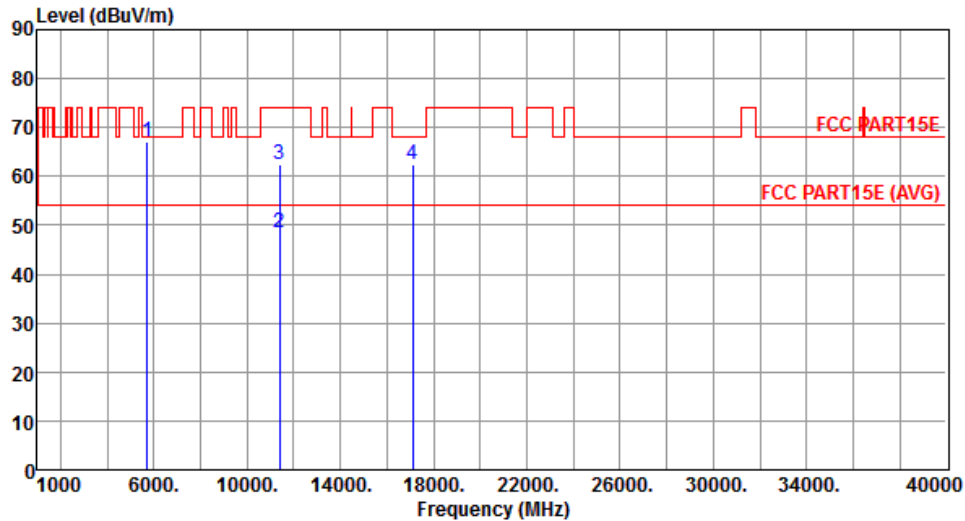


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3720.00	38.65	54.00	-15.35	36.50	2.15	Average	---	---
2	3720.00	45.05	74.00	-28.95	42.90	2.15	Peak	---	---
3	5470.00	59.24	68.20	-8.96	52.54	6.70	Peak	---	---
4	5725.00	58.46	68.20	-9.74	51.37	7.09	Peak	---	---
5	11160.00	51.44	54.00	-2.56	33.69	17.75	Average	---	---
6	11160.00	64.37	74.00	-9.63	46.62	17.75	Peak	---	---
7	16740.00	64.53	68.20	-3.67	46.42	18.11	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).

Modulation	VHT20	Test Freq. (MHz)	5580																																																																																
Polarization	Vertical																																																																																		
Level (dBuV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>3720.00</td><td>42.10</td><td>54.00</td><td>-11.90</td><td>39.95</td><td>2.15</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>3720.00</td><td>46.89</td><td>74.00</td><td>-27.11</td><td>44.74</td><td>2.15</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5470.00</td><td>58.42</td><td>68.20</td><td>-9.78</td><td>51.72</td><td>6.70</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5725.00</td><td>58.14</td><td>68.20</td><td>-10.06</td><td>51.05</td><td>7.09</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>11160.00</td><td>51.71</td><td>54.00</td><td>-2.29</td><td>33.96</td><td>17.75</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>11160.00</td><td>63.70</td><td>74.00</td><td>-10.30</td><td>45.95</td><td>17.75</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>7</td><td>16740.00</td><td>63.08</td><td>68.20</td><td>-5.12</td><td>44.97</td><td>18.11</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> 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).					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	3720.00	42.10	54.00	-11.90	39.95	2.15	Average	---	---	2	3720.00	46.89	74.00	-27.11	44.74	2.15	Peak	---	---	3	5470.00	58.42	68.20	-9.78	51.72	6.70	Peak	---	---	4	5725.00	58.14	68.20	-10.06	51.05	7.09	Peak	---	---	5	11160.00	51.71	54.00	-2.29	33.96	17.75	Average	---	---	6	11160.00	63.70	74.00	-10.30	45.95	17.75	Peak	---	---	7	16740.00	63.08	68.20	-5.12	44.97	18.11	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																										
1	3720.00	42.10	54.00	-11.90	39.95	2.15	Average	---	---																																																																										
2	3720.00	46.89	74.00	-27.11	44.74	2.15	Peak	---	---																																																																										
3	5470.00	58.42	68.20	-9.78	51.72	6.70	Peak	---	---																																																																										
4	5725.00	58.14	68.20	-10.06	51.05	7.09	Peak	---	---																																																																										
5	11160.00	51.71	54.00	-2.29	33.96	17.75	Average	---	---																																																																										
6	11160.00	63.70	74.00	-10.30	45.95	17.75	Peak	---	---																																																																										
7	16740.00	63.08	68.20	-5.12	44.97	18.11	Peak	---	---																																																																										

Modulation	VHT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



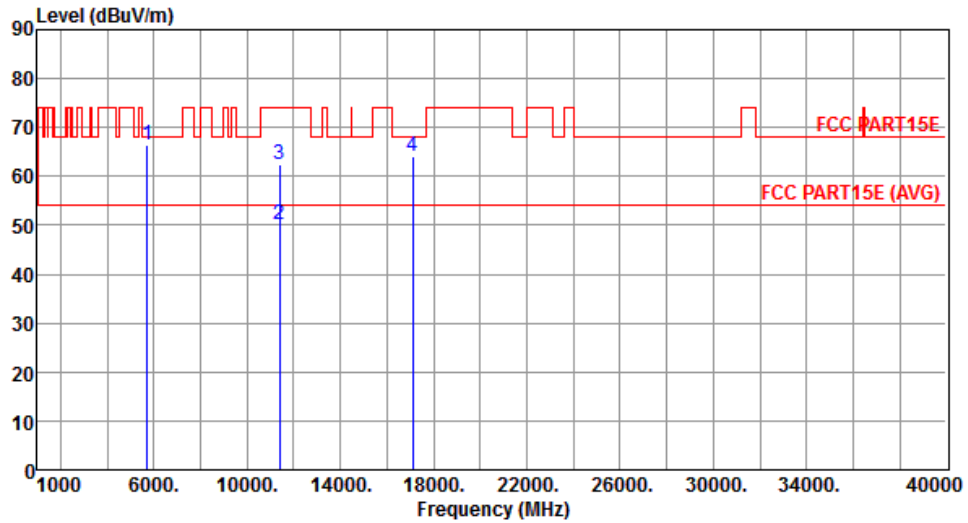
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5725.00	67.20	68.20	-1.00	60.11	7.09	Peak	---	---
2	11400.00	48.42	54.00	-5.58	31.05	17.37	Average	---	---
3	11400.00	62.30	74.00	-11.70	44.93	17.37	Peak	---	---
4	17100.00	62.56	68.20	-5.64	44.13	18.43	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).

Modulation	VHT20	Test Freq. (MHz)	5700
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	5725.00	66.32	68.20	-1.88	59.23	7.09	Peak	---	---
2	11400.00	50.18	54.00	-3.82	32.81	17.37	Average	---	---
3	11400.00	62.48	74.00	-11.52	45.11	17.37	Peak	---	---
4	17100.00	64.18	68.20	-4.02	45.75	18.43	Peak	---	---

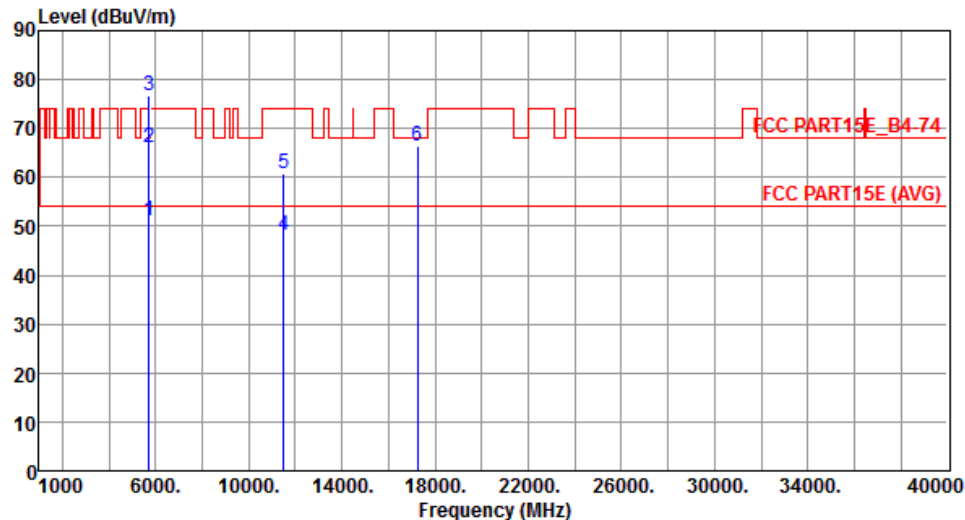
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*Factor includes antenna factor , cable loss and amplifier gain

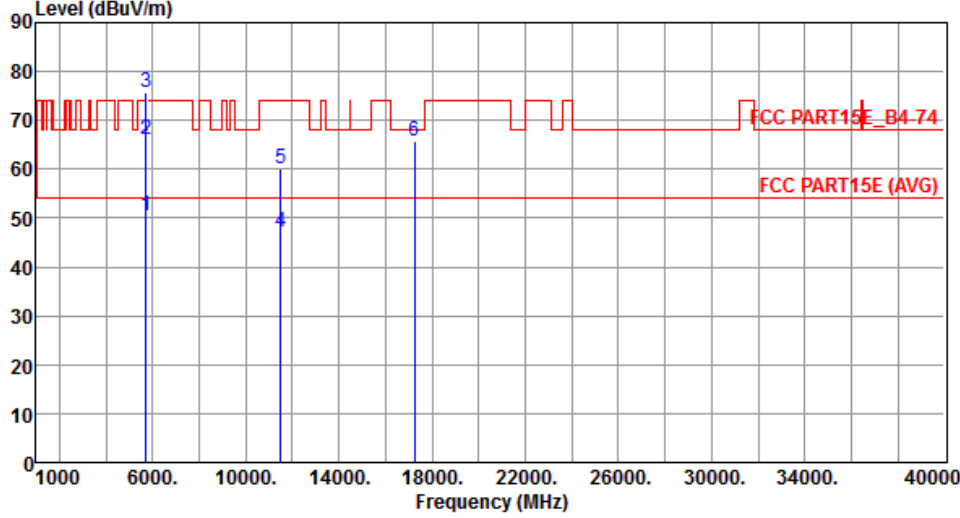
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT20	Test Freq. (MHz)	5720
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	VHT20	Test Freq. (MHz)	5720
Polarization	Vertical		
Level (dBuV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5745																																																																						
Polarization	Horizontal																																																																								
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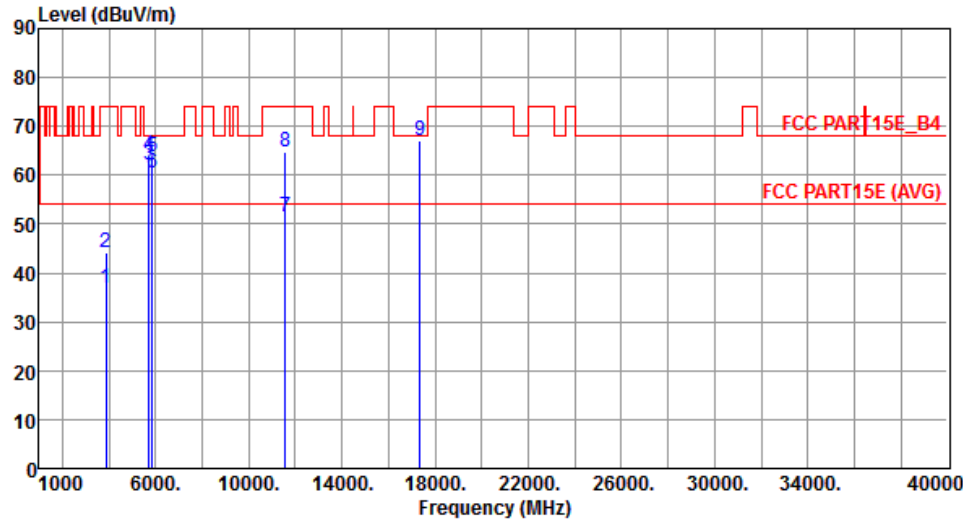
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5715.00	50.39	54.00	-3.61	43.31	7.08	Average	---	---
2	5715.00	66.10	74.00	-7.90	59.02	7.08	Peak	---	---
3	5725.00	75.72	78.20	-2.48	68.63	7.09	Peak	---	---
4	11490.00	47.10	54.00	-6.90	29.87	17.23	Average	---	---
5	11490.00	60.22	74.00	-13.78	42.99	17.23	Peak	---	---
6	17235.00	65.73	68.20	-2.47	46.69	19.04	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).

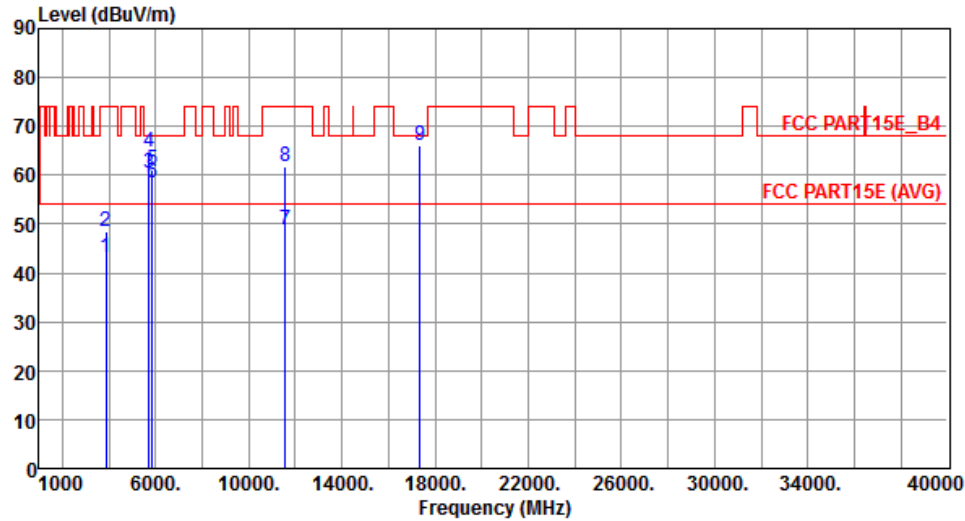
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3856.70	36.99	54.00	-17.01	34.39	2.60	Average	---	---
2	3856.70	44.27	74.00	-29.73	41.67	2.60	Peak	---	---
3	5715.00	61.96	68.20	-6.24	54.88	7.08	Peak	---	---
4	5725.00	64.06	78.20	-14.14	56.97	7.09	Peak	---	---
5	5850.00	63.90	78.20	-14.30	56.66	7.24	Peak	---	---
6	5860.00	60.58	68.20	-7.62	53.34	7.24	Peak	---	---
7	11570.00	51.50	54.00	-2.50	34.41	17.09	Average	---	---
8	11570.00	64.72	74.00	-9.28	47.63	17.09	Peak	---	---
9	17355.00	67.16	68.20	-1.04	47.58	19.58	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).

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		

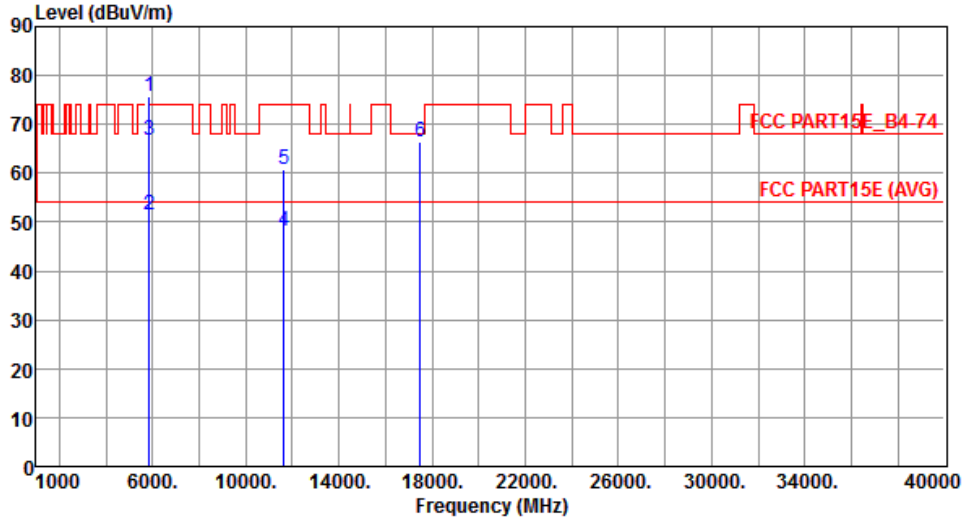


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3856.70	43.16	54.00	-10.84	40.56	2.60	Average	---	---
2	3856.70	48.36	74.00	-25.64	45.76	2.60	Peak	---	---
3	5715.00	60.59	68.20	-7.61	53.51	7.08	Peak	---	---
4	5725.00	64.90	78.20	-13.30	57.81	7.09	Peak	---	---
5	5850.00	61.06	78.20	-17.14	53.82	7.24	Peak	---	---
6	5860.00	58.49	68.20	-9.71	51.25	7.24	Peak	---	---
7	11570.00	48.96	54.00	-5.04	31.87	17.09	Average	---	---
8	11570.00	61.74	74.00	-12.26	44.65	17.09	Peak	---	---
9	17355.00	66.02	68.20	-2.18	46.44	19.58	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).

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

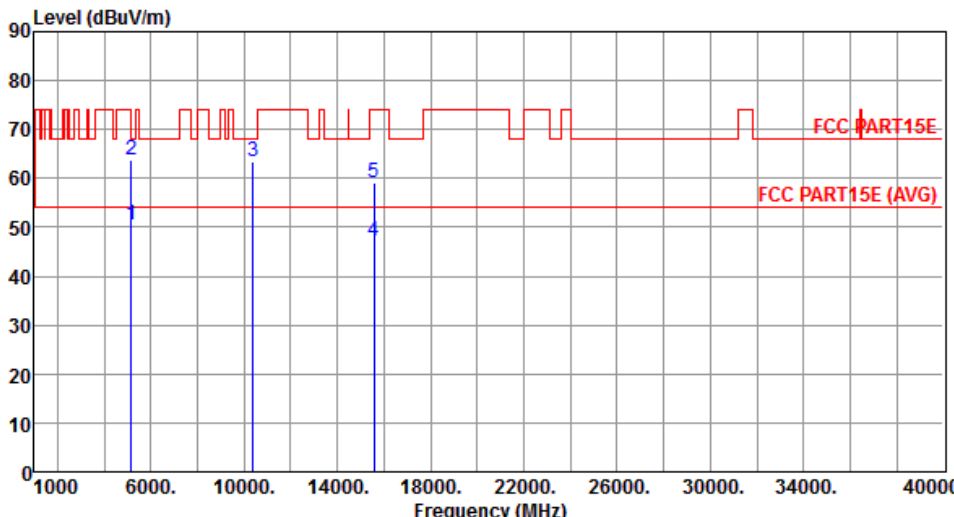
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		



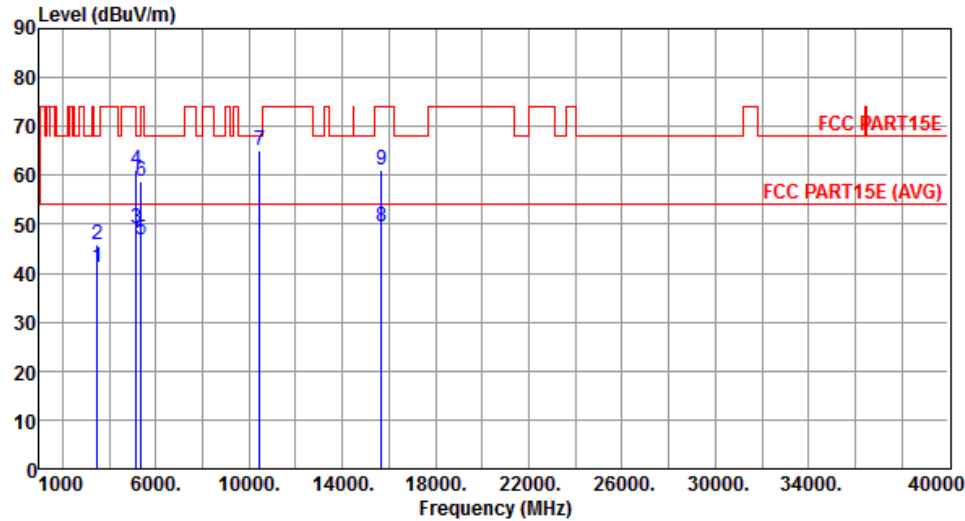
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	75.63	78.20	-2.57	68.39	7.24	Peak	---	---
2	5860.00	51.60	54.00	-2.40	44.36	7.24	Average	---	---
3	5860.00	66.76	74.00	-7.24	59.52	7.24	Peak	---	---
4	11650.00	48.03	54.00	-5.97	31.09	16.94	Average	---	---
5	11650.00	60.70	74.00	-13.30	43.76	16.94	Peak	---	---
6	17475.00	66.27	68.20	-1.93	46.14	20.13	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).

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

Modulation	VHT40	Test Freq. (MHz)	5190																																																												
Polarization	Horizontal																																																														
 <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBUV/m</th><th>Limit dBUV/m</th><th>Margin dB</th><th>SA reading dBUV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5150.00</td><td>50.62</td><td>54.00</td><td>-3.38</td><td>44.44</td><td>6.18</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5150.00</td><td>63.77</td><td>74.00</td><td>-10.23</td><td>57.59</td><td>6.18</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>10380.00</td><td>63.30</td><td>68.20</td><td>-4.90</td><td>46.28</td><td>17.02</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>15570.00</td><td>47.25</td><td>54.00</td><td>-6.75</td><td>29.45</td><td>17.80</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>5</td><td>15570.00</td><td>59.05</td><td>74.00</td><td>-14.95</td><td>41.25</td><td>17.80</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5150.00	50.62	54.00	-3.38	44.44	6.18	Average	---	---	2	5150.00	63.77	74.00	-10.23	57.59	6.18	Peak	---	---	3	10380.00	63.30	68.20	-4.90	46.28	17.02	Peak	---	---	4	15570.00	47.25	54.00	-6.75	29.45	17.80	Average	---	---	5	15570.00	59.05	74.00	-14.95	41.25	17.80	Peak	---	---
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg																																																						
1	5150.00	50.62	54.00	-3.38	44.44	6.18	Average	---	---																																																						
2	5150.00	63.77	74.00	-10.23	57.59	6.18	Peak	---	---																																																						
3	10380.00	63.30	68.20	-4.90	46.28	17.02	Peak	---	---																																																						
4	15570.00	47.25	54.00	-6.75	29.45	17.80	Average	---	---																																																						
5	15570.00	59.05	74.00	-14.95	41.25	17.80	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).																																																															

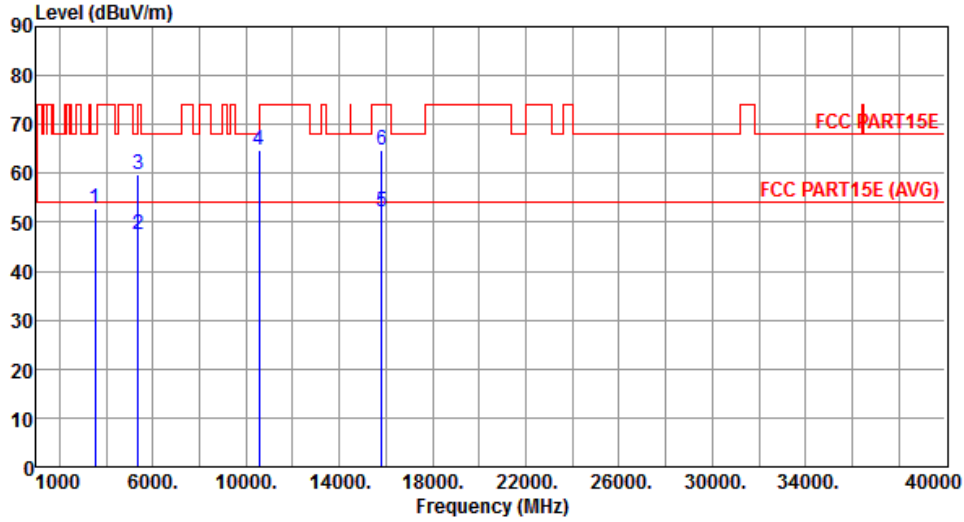
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5230																																																																																																														
Polarization	Horizontal																																																																																																																
Level (dBuV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq.</th><th>Emission level</th><th>Limit</th><th>Margin</th><th>SA reading</th><th>Factor</th><th>Remark</th><th>ANT High</th><th>Turn Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dBuV/m</th><th>dB</th><th>dBuV</th><th>dB</th><th></th><th>cm</th><th>deg</th></tr></thead><tbody><tr><td>1</td><td>3486.66</td><td>41.06</td><td>54.00</td><td>-12.94</td><td>39.68</td><td>1.38</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>3486.66</td><td>45.73</td><td>68.20</td><td>-22.47</td><td>44.35</td><td>1.38</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5150.00</td><td>49.17</td><td>54.00</td><td>-4.83</td><td>42.99</td><td>6.18</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5150.00</td><td>61.10</td><td>74.00</td><td>-12.90</td><td>54.92</td><td>6.18</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>5350.00</td><td>46.70</td><td>54.00</td><td>-7.30</td><td>40.19</td><td>6.51</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>5350.00</td><td>58.65</td><td>74.00</td><td>-15.35</td><td>52.14</td><td>6.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>7</td><td>10460.00</td><td>65.00</td><td>68.20</td><td>-3.20</td><td>47.74</td><td>17.26</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>8</td><td>15690.00</td><td>49.47</td><td>54.00</td><td>-4.53</td><td>31.96</td><td>17.51</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>9</td><td>15690.00</td><td>61.13</td><td>74.00</td><td>-12.87</td><td>43.62</td><td>17.51</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> 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).					Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table		MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg	1	3486.66	41.06	54.00	-12.94	39.68	1.38	Average	---	---	2	3486.66	45.73	68.20	-22.47	44.35	1.38	Peak	---	---	3	5150.00	49.17	54.00	-4.83	42.99	6.18	Average	---	---	4	5150.00	61.10	74.00	-12.90	54.92	6.18	Peak	---	---	5	5350.00	46.70	54.00	-7.30	40.19	6.51	Average	---	---	6	5350.00	58.65	74.00	-15.35	52.14	6.51	Peak	---	---	7	10460.00	65.00	68.20	-3.20	47.74	17.26	Peak	---	---	8	15690.00	49.47	54.00	-4.53	31.96	17.51	Average	---	---	9	15690.00	61.13	74.00	-12.87	43.62	17.51	Peak	---	---
	Freq.	Emission level	Limit	Margin	SA reading	Factor	Remark	ANT High	Turn Table																																																																																																								
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB		cm	deg																																																																																																								
1	3486.66	41.06	54.00	-12.94	39.68	1.38	Average	---	---																																																																																																								
2	3486.66	45.73	68.20	-22.47	44.35	1.38	Peak	---	---																																																																																																								
3	5150.00	49.17	54.00	-4.83	42.99	6.18	Average	---	---																																																																																																								
4	5150.00	61.10	74.00	-12.90	54.92	6.18	Peak	---	---																																																																																																								
5	5350.00	46.70	54.00	-7.30	40.19	6.51	Average	---	---																																																																																																								
6	5350.00	58.65	74.00	-15.35	52.14	6.51	Peak	---	---																																																																																																								
7	10460.00	65.00	68.20	-3.20	47.74	17.26	Peak	---	---																																																																																																								
8	15690.00	49.47	54.00	-4.53	31.96	17.51	Average	---	---																																																																																																								
9	15690.00	61.13	74.00	-12.87	43.62	17.51	Peak	---	---																																																																																																								

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

Modulation	VHT40	Test Freq. (MHz)	5270
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5270
Polarization	Vertical		



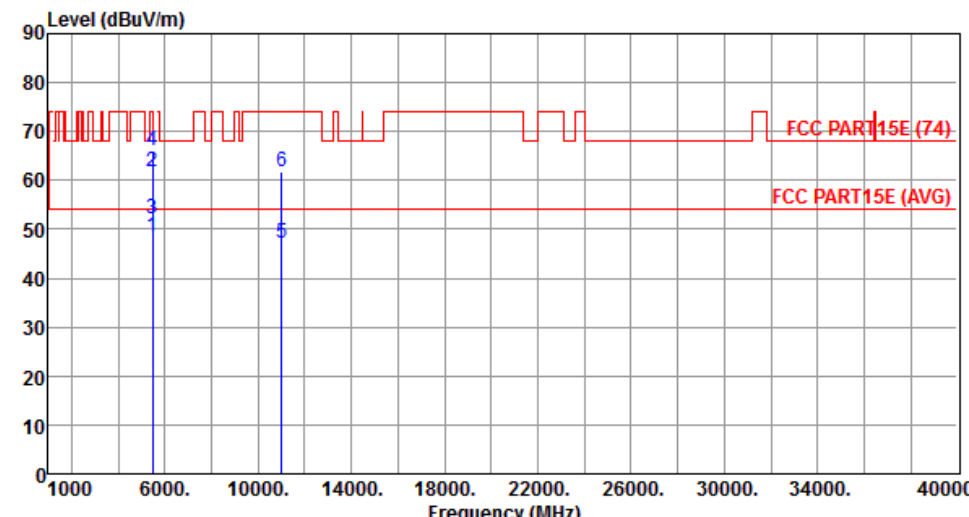
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3513.00	52.84	68.20	-15.36	51.40	1.44	Peak	---	---
2	5350.00	47.52	54.00	-6.48	41.01	6.51	Average	---	---
3	5350.00	59.65	74.00	-14.35	53.14	6.51	Peak	---	---
4	10540.00	64.71	68.20	-3.49	47.28	17.43	Peak	---	---
5	15810.00	52.23	54.00	-1.77	35.01	17.22	Average	---	---
6	15810.00	64.75	74.00	-9.25	47.53	17.22	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).

Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Horizontal		
 </			

Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Vertical		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5510
Polarization	Horizontal		



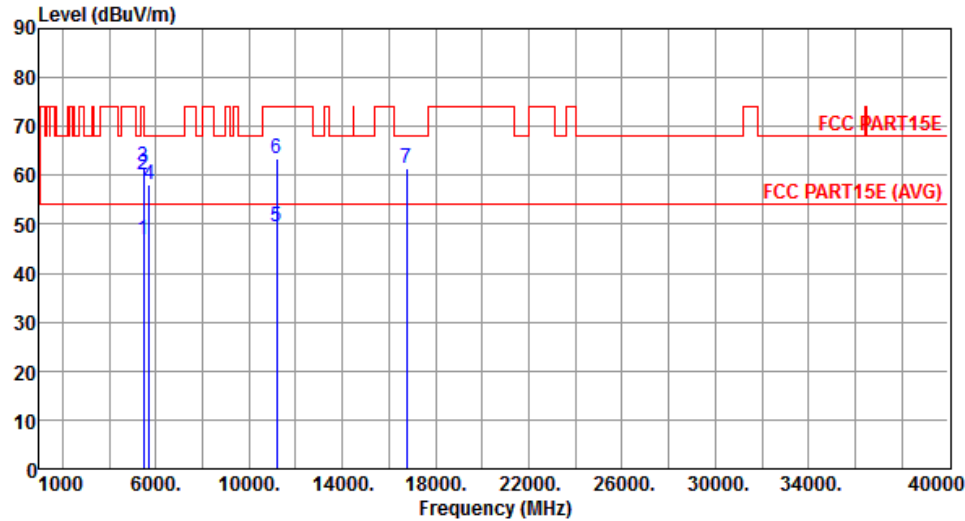
	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5460.00	48.61	54.00	-5.39	41.93	6.68	Average	---	---
2	5460.00	61.64	74.00	-12.36	54.96	6.68	Peak	---	---
3	5470.00	52.11	54.00	-1.89	45.41	6.70	Average	---	---
4	5470.00	66.08	74.00	-7.92	59.38	6.70	Peak	---	---
5	11020.00	47.15	54.00	-6.85	29.17	17.98	Average	---	---
6	11020.00	61.73	74.00	-12.27	43.75	17.98	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).

Modulation	VHT40	Test Freq. (MHz)	5510
Polarization	Vertical		
Level (dBUV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5590
Polarization	Horizontal		
Level (dBUV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5590
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	5460.00	46.89	54.00	-7.11	40.21	6.68	Average	---	---
2	5460.00	60.16	74.00	-13.84	53.48	6.68	Peak	---	---
3	5470.00	61.91	68.20	-6.29	55.21	6.70	Peak	---	---
4	5725.00	58.15	68.20	-10.05	51.06	7.09	Peak	---	---
5	11180.00	49.48	54.00	-4.52	31.77	17.71	Average	---	---
6	11180.00	63.59	74.00	-10.41	45.88	17.71	Peak	---	---
7	16770.00	61.43	68.20	-6.77	43.33	18.10	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).

Modulation	VHT40	Test Freq. (MHz)	5670
Polarization	Horizontal		
Level (dBuV/m)			

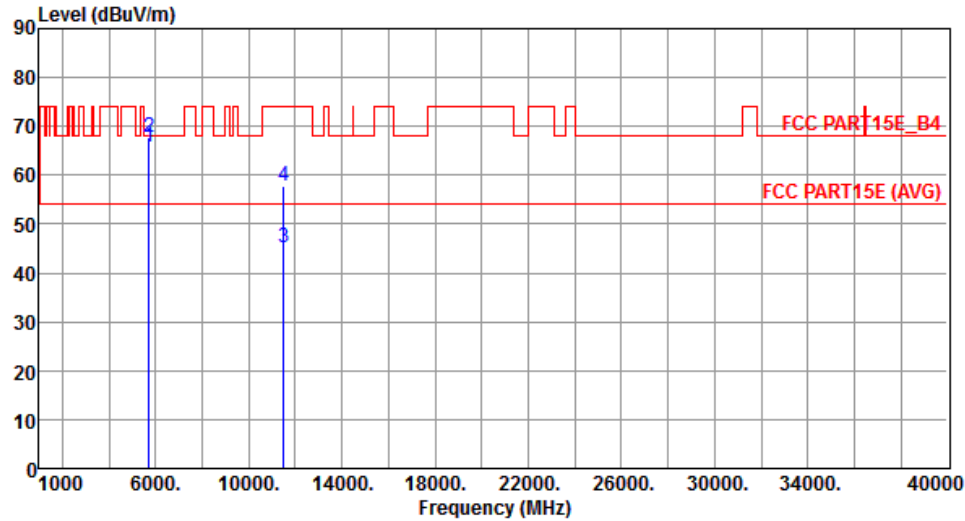
Modulation	VHT40	Test Freq. (MHz)	5670
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT40	Test Freq. (MHz)	5710
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT40	Test Freq. (MHz)	5710
Polarization	Vertical		
Level (dBuV/m)			

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

Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		

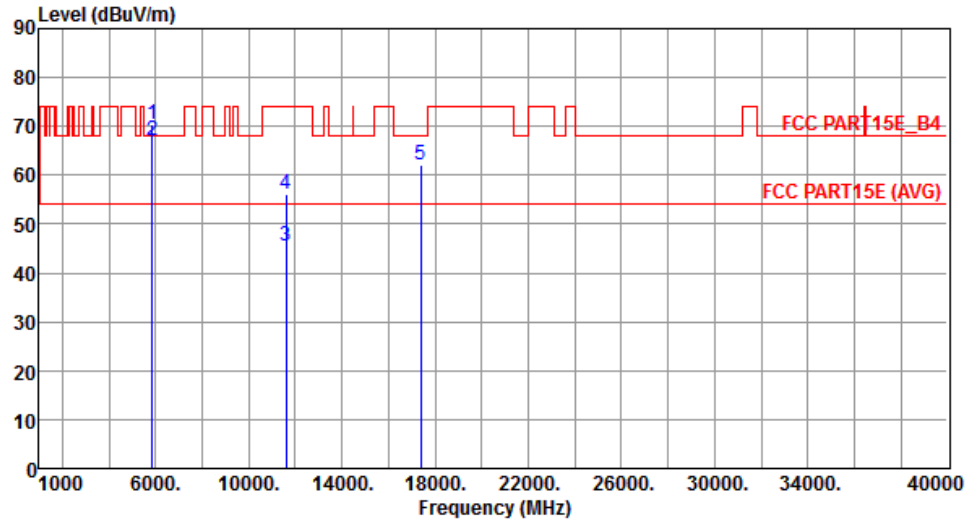


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5715.00	65.91	68.20	-2.29	58.83	7.08	Peak	---	---
2	5725.00	67.82	78.20	-10.38	60.73	7.09	Peak	---	---
3	11510.00	45.05	54.00	-8.95	27.85	17.20	Average	---	---
4	11510.00	57.77	74.00	-16.23	40.57	17.20	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).

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

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		



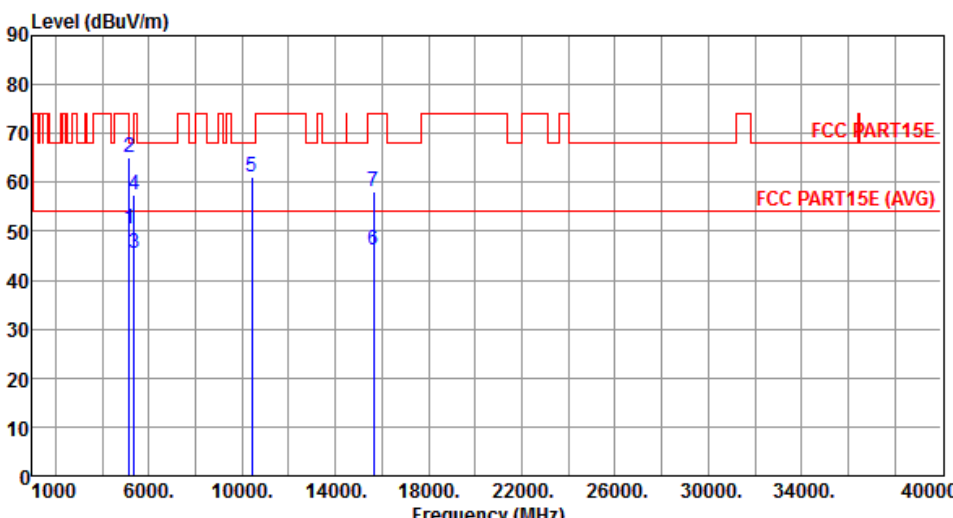
The graph displays the emission level in dBUV/m against frequency in MHz. The y-axis ranges from 0 to 90 dBUV/m, and the x-axis ranges from 1000 to 40000 MHz. A red line represents the FCC Part 15E limit, which is 70 dBUV/m for frequencies below 30 MHz and 60 dBUV/m for frequencies above 30 MHz. A horizontal red line at 55 dBUV/m represents the FCC Part 15E average limit. Five test points are marked with blue vertical lines and numbered 1 through 5. The test results are summarized in the table below.

	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	70.40	78.20	-7.80	63.16	7.24	Peak	---	---
2	5860.00	66.95	68.20	-1.25	59.71	7.24	Peak	---	---
3	11590.00	45.50	54.00	-8.50	28.45	17.05	Average	---	---
4	11590.00	56.23	74.00	-17.77	39.18	17.05	Peak	---	---
5	17385.00	62.27	68.20	-5.93	42.54	19.73	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).

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

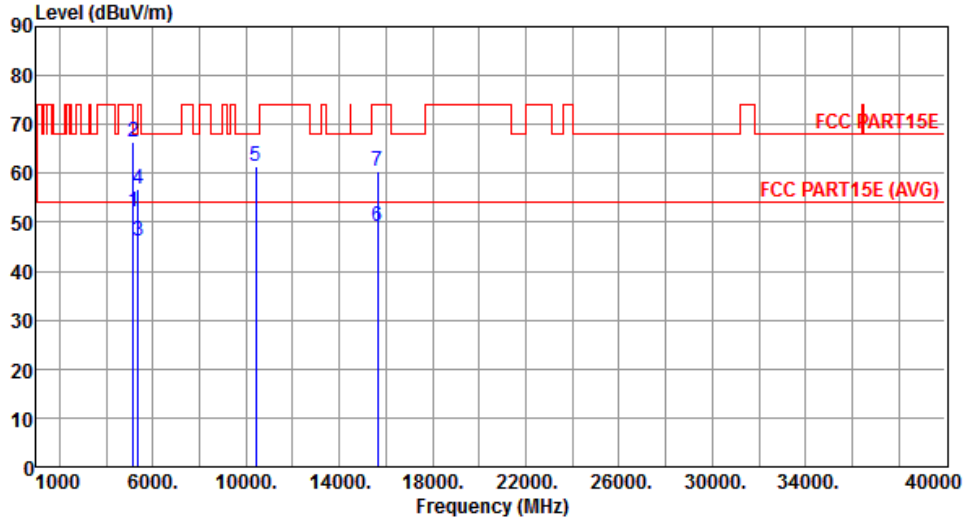
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.54	54.00	-3.46	44.36	6.18	Average	---	---
2	5150.00	65.03	74.00	-8.97	58.85	6.18	Peak	---	---
3	5350.00	45.42	54.00	-8.58	38.91	6.51	Average	---	---
4	5350.00	57.50	74.00	-16.50	50.99	6.51	Peak	---	---
5	10420.00	61.15	68.20	-7.05	44.02	17.13	Peak	---	---
6	15630.00	46.11	54.00	-7.89	28.46	17.65	Average	---	---
7	15630.00	58.02	74.00	-15.98	40.37	17.65	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).

Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		

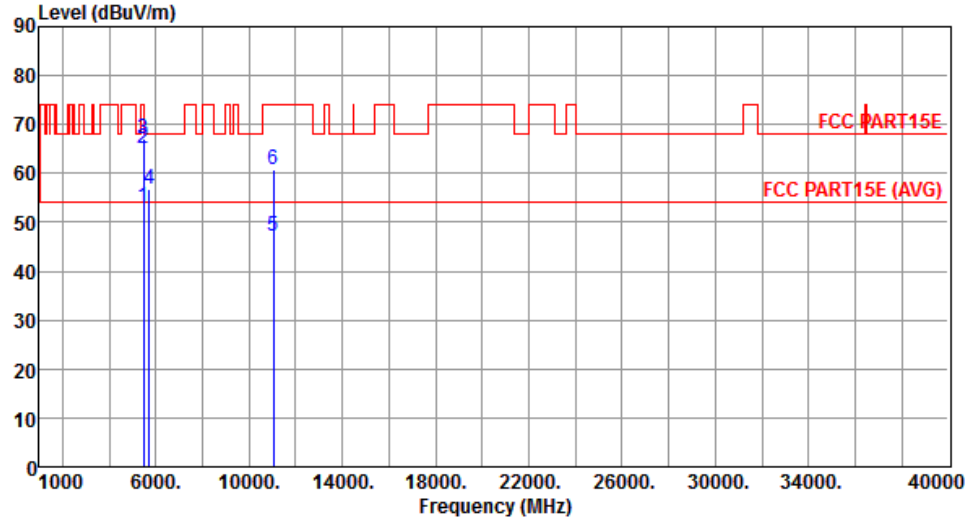


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	52.24	54.00	-1.76	46.06	6.18	Average	---	---
2	5150.00	66.37	74.00	-7.63	60.19	6.18	Peak	---	---
3	5350.00	46.08	54.00	-7.92	39.57	6.51	Average	---	---
4	5350.00	56.95	74.00	-17.05	50.44	6.51	Peak	---	---
5	10420.00	61.55	68.20	-6.65	44.42	17.13	Peak	---	---
6	15630.00	49.24	54.00	-4.76	31.59	17.65	Average	---	---
7	15630.00	60.57	74.00	-13.43	42.92	17.65	Peak	---	---

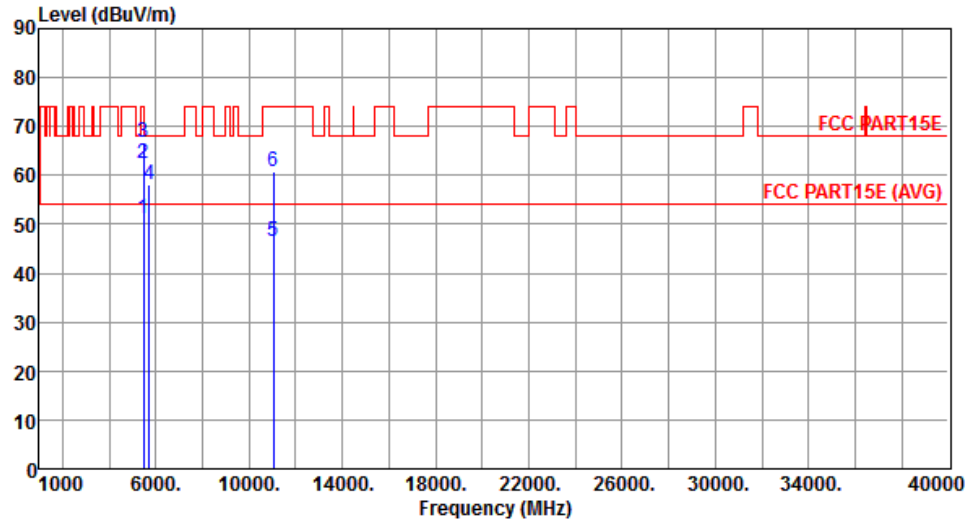
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

Modulation	VHT80	Test Freq. (MHz)	5290
Polarization	Horizontal		
Level (dBuV/m)			

Modulation	VHT80	Test Freq. (MHz)	5290
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT80	Test Freq. (MHz)	5530																																																																						
Polarization	Horizontal																																																																								
 <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5460.00</td><td>52.99</td><td>54.00</td><td>-1.01</td><td>46.31</td><td>6.68</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>2</td><td>5460.00</td><td>65.07</td><td>74.00</td><td>-8.93</td><td>58.39</td><td>6.68</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>5470.00</td><td>67.17</td><td>68.20</td><td>-1.03</td><td>60.47</td><td>6.70</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>5725.00</td><td>56.73</td><td>68.20</td><td>-11.47</td><td>49.64</td><td>7.09</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>11060.00</td><td>47.22</td><td>54.00</td><td>-6.78</td><td>29.31</td><td>17.91</td><td>Average</td><td>---</td><td>---</td></tr><tr><td>6</td><td>11060.00</td><td>60.66</td><td>74.00</td><td>-13.34</td><td>42.75</td><td>17.91</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table>					Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5460.00	52.99	54.00	-1.01	46.31	6.68	Average	---	---	2	5460.00	65.07	74.00	-8.93	58.39	6.68	Peak	---	---	3	5470.00	67.17	68.20	-1.03	60.47	6.70	Peak	---	---	4	5725.00	56.73	68.20	-11.47	49.64	7.09	Peak	---	---	5	11060.00	47.22	54.00	-6.78	29.31	17.91	Average	---	---	6	11060.00	60.66	74.00	-13.34	42.75	17.91	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																																																																
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Modulation	VHT80	Test Freq. (MHz)	5530
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	5460.00	51.26	54.00	-2.74	44.58	6.68	Average	---	---
2	5460.00	62.42	74.00	-11.58	55.74	6.68	Peak	---	---
3	5470.00	66.76	68.20	-1.44	60.06	6.70	Peak	---	---
4	5725.00	58.23	68.20	-9.97	51.14	7.09	Peak	---	---
5	11060.00	46.36	54.00	-7.64	28.45	17.91	Average	---	---
6	11060.00	60.62	74.00	-13.38	42.71	17.91	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).

Modulation	VHT80	Test Freq. (MHz)	5610
Polarization	Horizontal		
Level (dBuV/m)			

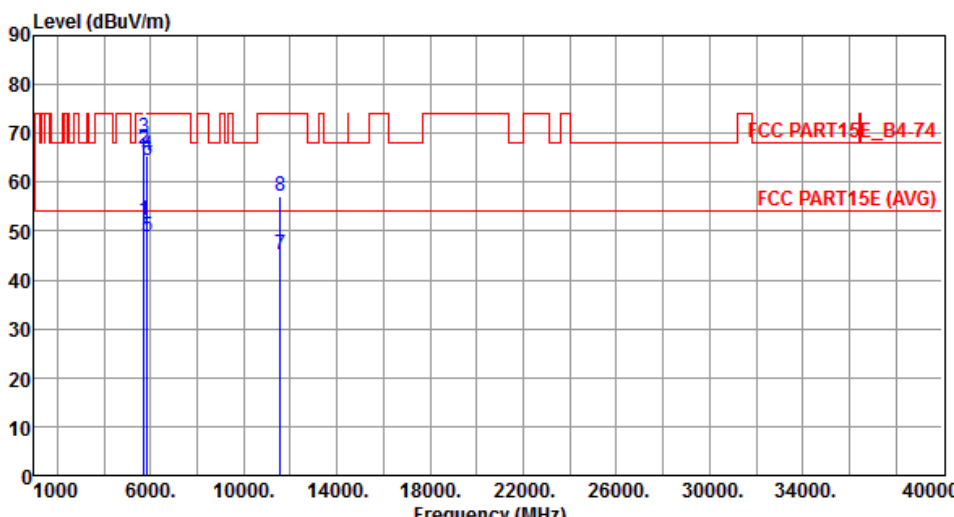
Modulation	VHT80	Test Freq. (MHz)	5610
Polarization	Vertical		
Level (dBuV/m) <			

Modulation	VHT80	Test Freq. (MHz)	5690
Polarization	Horizontal		
Level (dBuV/m) </			

Modulation	VHT80	Test Freq. (MHz)	5690
Polarization	Vertical		
Level (dBuV/m)			

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

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Vertical		



	Freq.	Emission	Limit	Margin	SA	Factor	Remark	ANT	Turn
	MHz	level	dBuV/m	dB	reading	dB		High	Table
								cm	deg
1	5715.00	52.18	54.00	-1.82	45.10	7.08	Average	---	---
2	5715.00	66.67	74.00	-7.33	59.59	7.08	Peak	---	---
3	5725.00	69.11	78.20	-9.09	62.02	7.09	Peak	---	---
4	5850.00	65.35	78.20	-12.85	58.11	7.24	Peak	---	---
5	5860.00	48.94	54.00	-5.06	41.70	7.24	Average	---	---
6	5860.00	64.49	74.00	-9.51	57.25	7.24	Peak	---	---
7	11550.00	45.22	54.00	-8.78	28.09	17.13	Average	---	---
8	11550.00	57.03	74.00	-16.97	39.90	17.13	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).

3.6 Frequency Stability

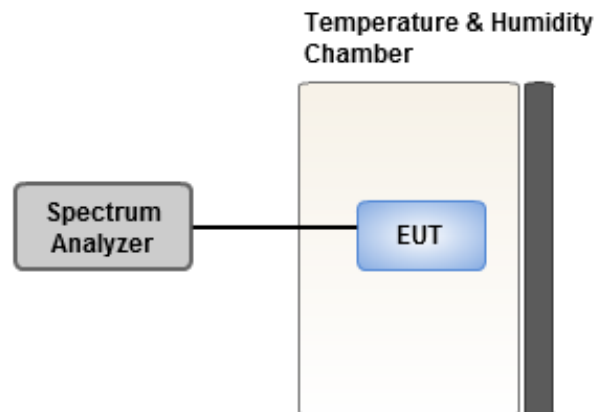
3.6.1 Limit of Frequency Stability

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

Frequency: 5320 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	0.38	0.59	-0.22	0.03
T20°C Vmin	3.26	3.06	3.39	3.04
T60°C Vnom	3.12	3.59	3.54	3.33
T50°C Vnom	2.74	3.21	3.09	3.20
T40°C Vnom	3.50	3.77	3.75	3.31
T30°C Vnom	2.28	2.31	2.41	3.10
T20°C Vnom	1.99	1.93	1.45	1.87
T10°C Vnom	1.57	1.84	1.95	1.23
T0°C Vnom	1.59	1.31	1.32	1.02
T-10°C Vnom	1.84	1.51	1.23	1.48
T-20°C Vnom	1.84	1.67	1.55	1.59
T-30°C Vnom	3.07	2.91	2.09	2.61
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 60		Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	0.43	0.25	0.39	1.06
T20°C Vmin	3.13	3.28	2.95	3.11
T60°C Vnom	2.74	3.55	3.28	3.01
T50°C Vnom	3.06	2.51	2.47	2.36
T40°C Vnom	3.99	3.82	3.12	3.75
T30°C Vnom	2.30	2.00	2.41	2.01
T20°C Vnom	1.91	2.24	2.02	1.73
T10°C Vnom	1.85	1.52	2.25	1.45
T0°C Vnom	1.47	1.67	1.39	1.26
T-10°C Vnom	2.29	2.07	1.48	2.27
T-20°C Vnom	1.87	1.99	1.98	1.40
T-30°C Vnom	2.44	2.54	2.49	2.50
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 60		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, 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 Hsiang. Location map can be found on our website <http://www.icertifi.com.tw>.

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

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Fax: 886-3-318-0155

Email: ICC_Service@icertifi.com.tw

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