FCC Test Report

FCC ID	:	**WR2-FLEX-WPEA**
Equipment	:	**802.11ac/b/g/n Mini PCIe Module**
Model No.	:	**WPEA-352ACN**
Brand Name	:	**SparkLAN**
Applicant	:	**SPIRENT COMMUNICATIONS INC**
Address	:	**5280 Corporate Dr., Suite A100, Frederick, MD 20876**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Feb. 17, 2016**
Tested Date	:	**Feb. 18 ~ Mar. 28, 2016**

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:

Along Chen

Along Chen / Assistant Manager

Testing Laboratory
2732

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Release Record

Report No.	Version	Description	Issued Date
FR621703AN	Rev. 01	Initial issue	Apr. 25, 2016

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.499MHz 42.49 (Margin -13.52dB) - QP	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 6920.00MHz 67.98 (Margin -0.22dB) - 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: 17.72 5725-5850MHz: 22.08	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	a	5180-5240	36-48 [4]	1	6-54 Mbps
5150-5250	n (HT20)	5180-5240	36-48 [4]	3	MCS 0-23
5150-5250	n (HT40)	5190-5230	38-46 [2]	3	MCS 0-23
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	3	MCS 0-9
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	3	MCS 0-9
5150-5250	ac (VHT80)	5210	42 [1]	3	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 3: 802.11a is transmitting signal through chain 0 only.					

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

1.1.2 Antenna Details

Ant. No.	**Model/Brand**	**Type**	**Connector**	**Antenna Gain (dBi)**		
				2400~2483.5MHz	**5150~5250MHz**	**5725~5850MHz**
1	Molex 0479501001	PCB	UFL	3	3.7	3.7

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	3.3Vdc from host

1.1.4 Accessories

N/A

1.1.5 Channel List

For Frequency band 5150-5250 MHz			
802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	VHT 80	
48	5240	42	5210

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

1.1.6 Test Tool and Duty Cycle

Test Tool	ART2 GUI, version 2.3		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11a	100.00%	0.00
	VHT20	100.00%	0.00
	VHT40	100.00%	0.00
	VHT80	100.00%	0.00

1.1.7 Power Setting

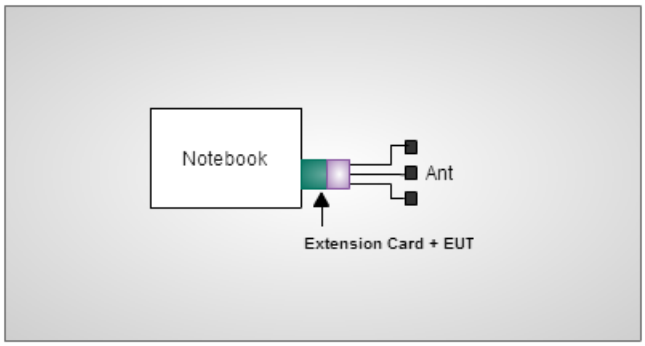
For Frequency band 5150-5250 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5180	15.5
11a	5200	15
11a	5240	15.5
HT20	5180	7.5
HT20	5200	7.5
HT20	5240	10
HT40	5190	7.5
HT40	5230	9
VHT20	5180	7.5
VHT20	5200	7.5
VHT20	5240	10
VHT40	5190	7.5
VHT40	5230	9
VHT80	5210	7.5

For Frequency band 5725~5850 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5745	13.5
11a	5785	15
11a	5825	15
HT20	5745	11.5
HT20	5785	15.5
HT20	5825	13
HT40	5755	10.5
HT40	5795	14.5
VHT20	5745	11.5
VHT20	5785	15.5
VHT20	5825	13
VHT40	5755	10.5
VHT40	5795	14.5
VHT80	5775	9

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	---

1.3 Test Setup Chart

Test Setup Diagram
 **Antenna distance 5cm

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	100169	Oct. 21, 2015	Oct. 20, 2016
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2015	Nov. 12, 2016
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 21, 2015	Dec. 20, 2016
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 chamber1 / (03CH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 13, 2015	Dec. 12, 2016
Receiver	R&S	ESR3	101658	Nov. 04, 2015	Nov. 03, 2016
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Aug. 20, 2015	Aug. 19, 2016
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 16, 2015	Dec. 15, 2016
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 04, 2015	Nov. 03, 2016
Loop Antenna	R&S	HFH2-Z2	11900	Nov. 16, 2015	Nov. 15, 2016
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 10, 2015	Dec. 09, 2016
Preamplifier	Burgeon	BPA-530	SN:100219	Sep. 10, 2015	Sep. 09, 2016
Preamplifier	Agilent	83017A	MY39501308	Oct. 02, 2015	Oct. 01, 2016
Preamplifier	EMC	EMC184045B	980192	Sep. 01, 2015	Aug. 31, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 10, 2015	Dec. 09, 2016
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 10, 2015	Dec. 09, 2016
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 10, 2015	Dec. 09, 2016
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 10, 2015	Dec. 09, 2016
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Feb. 17, 2016	Feb. 16, 2017
Power Meter	Anritsu	ML2495A	1241002	Sep. 21, 2015	Sep. 20, 2016
Power Sensor	Anritsu	MA2411B	1207366	Sep. 21, 2015	Sep. 20, 2016
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Testing Applied Standards

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

47 CFR FCC Part 15.407
ANSI C63.10-2013
FCC KDB 789033 D02 General UNII Test Procedures New Rules v01r02
FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

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

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.134 Hz
Conducted power	±0.808 dB
Frequency error	±34.134 Hz
Power density	±0.463 dB
Conducted emission	±2.670 dB
AC conducted emission	±2.90 dB
Radiated emission ≤ 1GHz	±3.66 dB
Radiated emission > 1GHz	±5.63 dB
Time	±0.1%
Temperature	±0.6 ^{o}C

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	17°C / 60%	Alex Tsai
Radiated Emissions	03CH01-WS	20-22°C / 63-70%	Vincent Yeh Warren Lee
RF Conducted	TH01-WS	21°C / 64%	Alex Huang

- FCC site registration No.: 181692
- IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

For Frequency band 5150-5250 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5180	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5180	6 Mbps	---
RF Output Power	11a	5180 / 5200 / 5240	6 Mbps	---
	HT20	5180 / 5200 / 5240	MCS 0	
	HT40	5190 / 5230	MCS 0	
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240	6 Mbps	---
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
Frequency Stability	Un-modulation	5200	---	---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-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	VHT20	5785	MCS 0	---
Radiated Emissions ≤1GHz	VHT20	5785	MCS 0	---
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 >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a	5745 / 5785 / 5825	6 Mbps	---
	VHT20	5745 / 5785 / 5825	MCS 0	
	VHT40	5755 / 5795	MCS 0	
	VHT80	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	---
NOTE: 1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **X-plane** results were found as the worst case and were shown in this report.				

3 Transmitter Test Results

3.1 Conducted Emissions

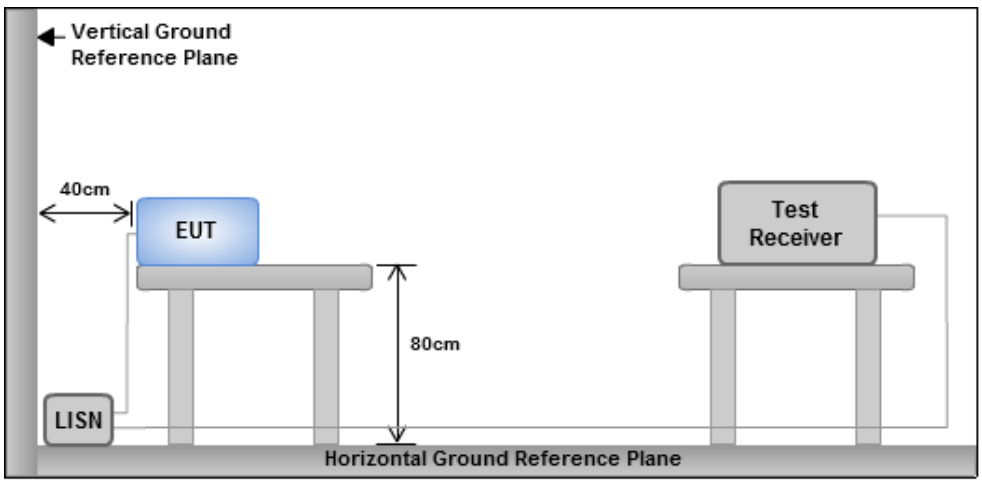
3.1.1 Limit of Conducted Emissions

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

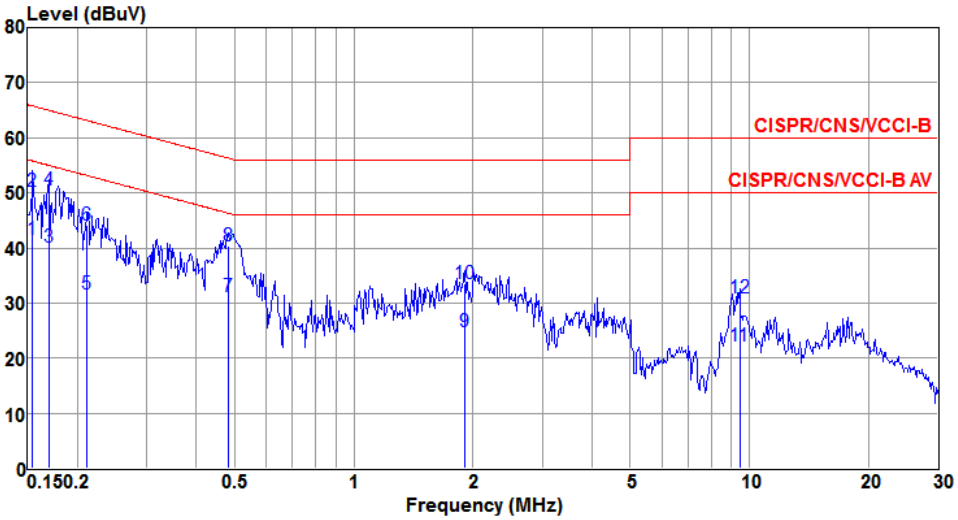


Note: 1. Support units were connected to second LISN.

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

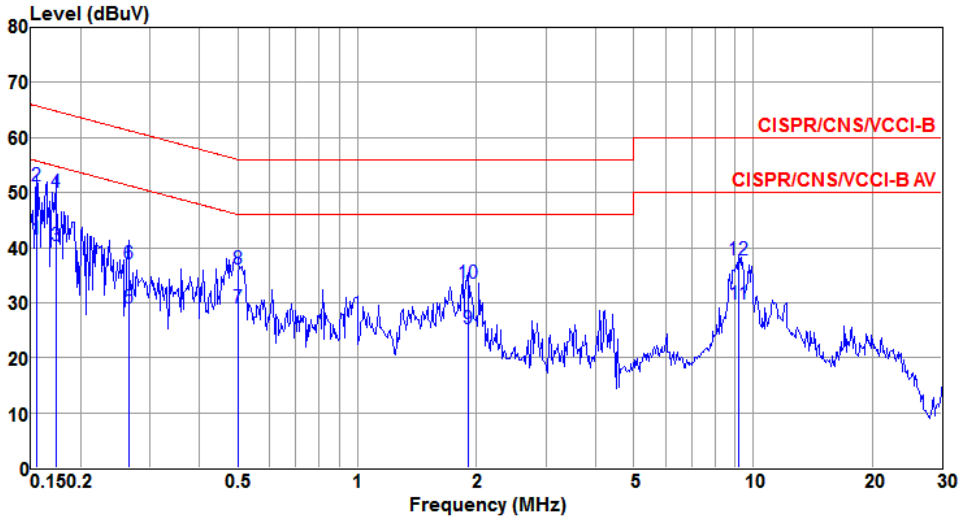
Modulation	11a	Test Freq. (MHz)	5180
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1@	0.154	41.47	55.78	-14.31	41.34	0.11	0.02	Average
2	0.154	50.29	65.78	-15.49	50.16	0.11	0.02	QP
3	0.169	40.05	54.99	-14.94	39.92	0.11	0.02	Average
4	0.169	50.52	64.99	-14.47	50.39	0.11	0.02	QP
5	0.212	31.64	53.14	-21.50	31.51	0.11	0.02	Average
6	0.212	44.07	63.14	-19.07	43.94	0.11	0.02	QP
7	0.481	31.25	46.32	-15.07	31.08	0.13	0.04	Average
8	0.481	40.43	56.32	-15.89	40.26	0.13	0.04	QP
9	1.908	24.85	46.00	-21.15	24.61	0.16	0.08	Average
10	1.908	33.44	56.00	-22.56	33.20	0.16	0.08	QP
11	9.451	22.11	50.00	-27.89	21.71	0.24	0.16	Average
12	9.451	30.91	60.00	-29.09	30.51	0.24	0.16	QP

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

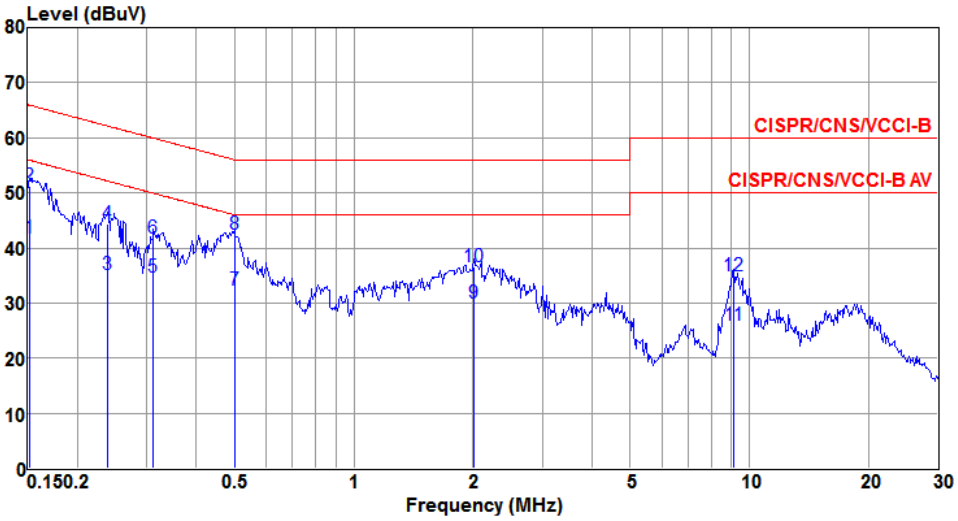
Modulation	11a	Test Freq. (MHz)	5180
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1@	0.155	41.54	55.74	-14.20	41.39	0.13	0.02	Average
2	0.155	51.16	65.74	-14.58	51.01	0.13	0.02	QP
3	0.173	40.44	54.81	-14.37	40.30	0.12	0.02	Average
4	0.173	49.99	64.81	-14.82	49.85	0.12	0.02	QP
5	0.264	28.96	51.29	-22.33	28.82	0.12	0.02	Average
6	0.264	37.03	61.29	-24.26	36.89	0.12	0.02	QP
7	0.499	29.07	46.01	-16.94	28.89	0.14	0.04	Average
8	0.499	36.10	56.01	-19.91	35.92	0.14	0.04	QP
9	1.908	25.29	46.00	-20.71	25.04	0.17	0.08	Average
10	1.908	33.41	56.00	-22.59	33.16	0.17	0.08	QP
11	9.204	29.67	50.00	-20.33	29.25	0.26	0.16	Average
12	9.204	37.76	60.00	-22.24	37.34	0.26	0.16	QP

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

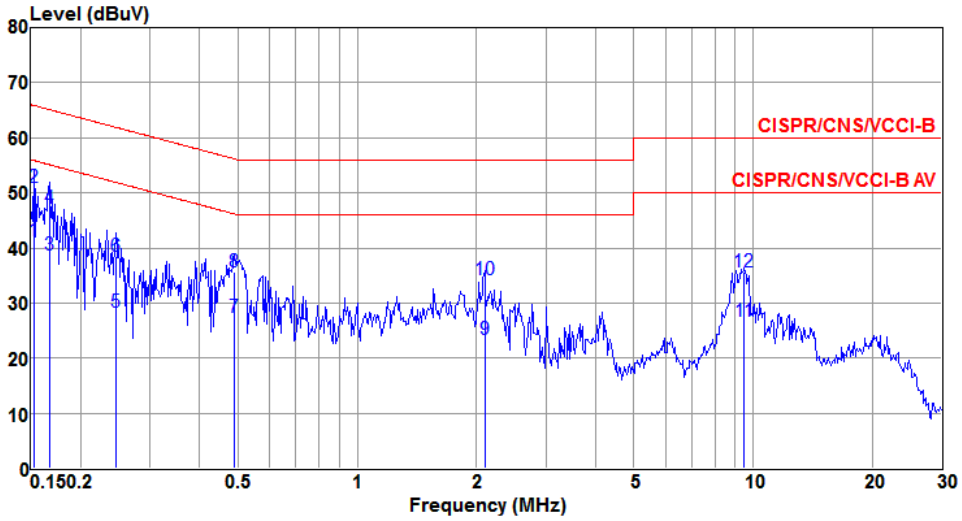
Modulation	VHT20	Test Freq. (MHz)	5785
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.152	41.82	55.91	-14.09	41.69	0.11	0.02	Average
2	0.152	51.31	65.91	-14.60	51.18	0.11	0.02	QP
3	0.238	35.23	52.17	-16.94	35.09	0.12	0.02	Average
4	0.238	44.47	62.17	-17.70	44.33	0.12	0.02	QP
5	0.312	34.60	49.93	-15.33	34.45	0.12	0.03	Average
6	0.312	41.84	59.93	-18.09	41.69	0.12	0.03	QP
7	0.499	32.25	46.01	-13.76	32.08	0.13	0.04	Average
8@	0.499	42.49	56.01	-13.52	42.32	0.13	0.04	QP
9	2.012	29.87	46.00	-16.13	29.63	0.16	0.08	Average
10	2.012	36.50	56.00	-19.50	36.26	0.16	0.08	QP
11	9.156	25.87	50.00	-24.13	25.47	0.24	0.16	Average
12	9.156	35.01	60.00	-24.99	34.61	0.24	0.16	QP

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

Modulation	VHT20	Test Freq. (MHz)	5785
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1@	0.152	41.33	55.87	-14.54	41.18	0.13	0.02	Average
2	0.152	50.89	65.87	-14.98	50.74	0.13	0.02	QP
3	0.167	38.82	55.12	-16.30	38.68	0.12	0.02	Average
4	0.167	47.24	65.12	-17.88	47.10	0.12	0.02	QP
5	0.246	28.38	51.91	-23.53	28.25	0.11	0.02	Average
6	0.246	38.57	61.91	-23.34	38.44	0.11	0.02	QP
7	0.489	27.33	46.19	-18.86	27.15	0.14	0.04	Average
8	0.489	35.59	56.19	-20.60	35.41	0.14	0.04	QP
9	2.099	23.32	46.00	-22.68	23.07	0.17	0.08	Average
10	2.099	34.11	56.00	-21.89	33.86	0.17	0.08	QP
11	9.502	26.63	50.00	-23.37	26.21	0.26	0.16	Average
12	9.502	35.66	60.00	-24.34	35.24	0.26	0.16	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.

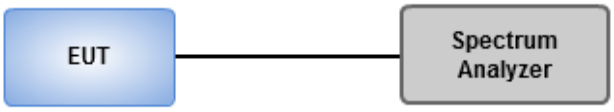
Occupied Bandwidth

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

6dB Bandwidth

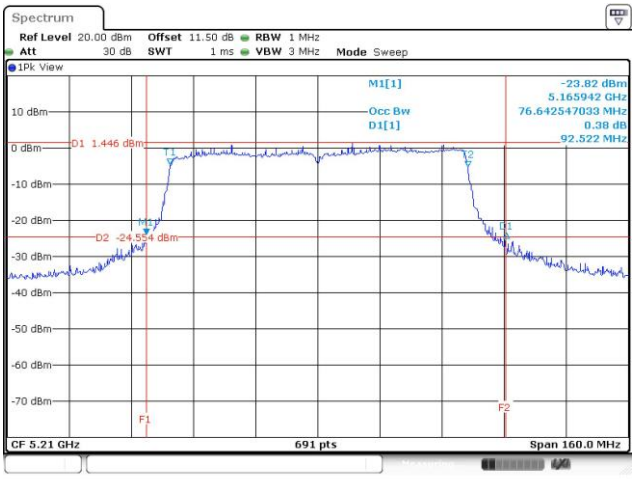
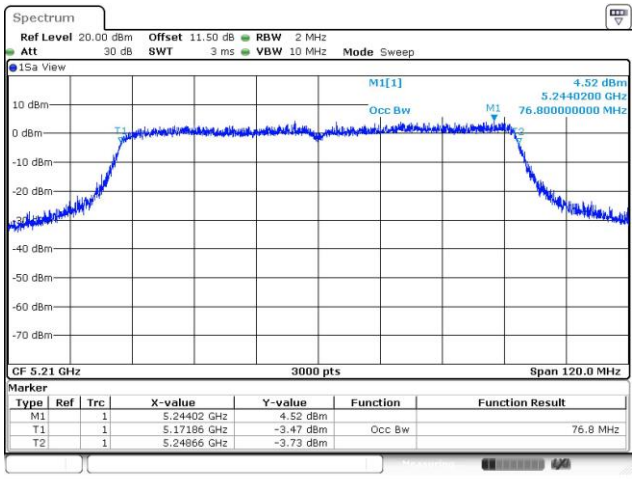
1. Set RBW = 100kHz, VBW = 300kHz
2. Detector = Peak,Trace mode = max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

3.2.3 Test Setup

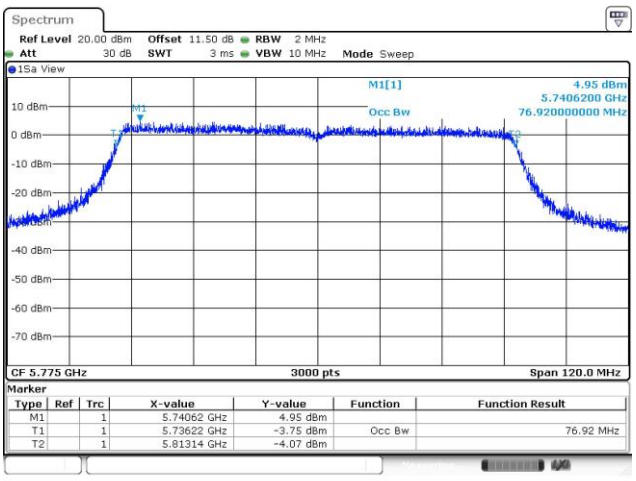
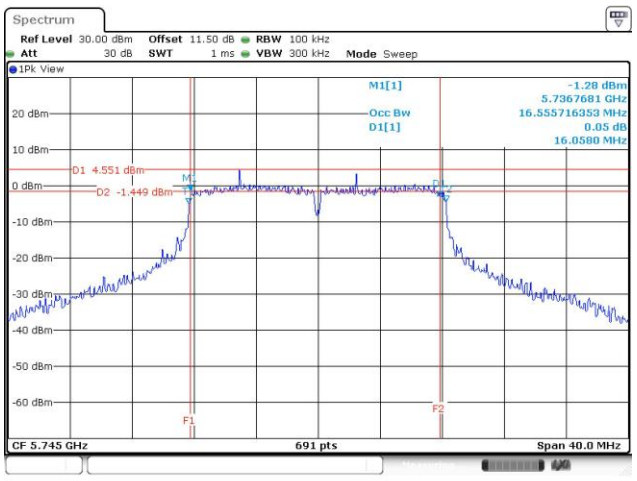


3.2.4 Test Result of Emission Bandwidth

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	1	5180	32.83	---	---	---	17.43	---	---	---
11a	1	5200	35.29	---	---	---	17.38	---	---	---
11a	1	5240	36.30	---	---	---	17.31	---	---	---
VHT20	3	5180	23.54	22.90	23.83	---	17.95	17.93	17.88	---
VHT20	3	5200	24.58	23.83	23.36	---	17.95	17.93	17.88	---
VHT20	3	5240	23.48	23.94	24.70	---	17.96	17.85	17.86	---
VHT40	3	5190	48.00	47.07	46.38	---	36.94	36.94	36.80	---
VHT40	3	5230	47.19	46.15	46.03	---	36.92	37.00	36.92	---
VHT80	3	5210	87.65	92.52	87.19	---	76.68	76.80	76.72	---

Worst Plot of 26dB Bandwidth	Worst Plot of 99% Bandwidth
	

For Frequency band 5725-5850 MHz											
Emission Bandwidth											
Mode	N_{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)
11a	1	5745	16.84	---	---	---	16.06	---	---	---	0.5
11a	1	5785	19.52	---	---	---	16.58	---	---	---	0.5
11a	1	5825	18.63	---	---	---	16.35	---	---	---	0.5
VHT20	3	5745	17.95	17.91	17.93	---	17.62	17.51	17.62	---	0.5
VHT20	3	5785	23.89	24.82	22.91	---	17.28	17.68	17.51	---	0.5
VHT20	3	5825	18.18	18.08	17.95	---	17.62	17.62	17.57	---	0.5
VHT40	3	5755	36.96	36.98	36.86	---	36.29	36.06	36.29	---	0.5
VHT40	3	5795	37.34	37.14	37.02	---	36.06	36.29	36.41	---	0.5
VHT80	3	5775	76.92	76.76	76.44	---	74.67	75.83	75.83	---	0.5

Worst Plot of 99% Bandwidth	Worst Plot 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

☒ **Method PM-G (Measurement using a gated RF average power meter)**

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

3.3.3 Test Setup

3.3.4 Test Result of Maximum Conducted Output Power

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	1	5180	17.72	---	---	---	59.156	**17.72**	24.00
11a	1	5200	17.4	---	---	---	54.954	17.40	24.00
11a	1	5240	17.68	---	---	---	58.614	17.68	24.00
HT20	3	5180	9.31	9.48	9.39	---	26.092	14.17	24.00
HT20	3	5200	9.49	9.45	9.47	---	26.554	14.24	24.00
HT20	3	5240	11.70	12.21	12.68	---	49.961	16.99	24.00
HT40	3	5190	9.04	9.60	9.19	---	25.435	14.05	24.00
HT40	3	5230	10.88	11.99	11.36	---	41.736	16.21	24.00
VHT20	3	5180	9.35	9.52	9.42	---	26.313	14.20	24.00
VHT20	3	5200	9.51	9.46	9.51	---	26.697	14.26	24.00
VHT20	3	5240	11.73	12.26	12.71	---	50.384	17.02	24.00
VHT40	3	5190	9.08	9.62	9.22	---	25.609	14.08	24.00
VHT40	3	5230	10.92	12.03	11.38	---	42.059	16.24	24.00
VHT80	3	5210	8.86	9.41	9.05	---	24.456	13.88	24.00

For Frequency band 5725-5850 MHz									
Mode	N_{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	1	5745	16.32	---	---	---	42.855	16.32	30.00
11a	1	5785	17.71	---	---	---	59.020	17.71	30.00
11a	1	5825	17.56	---	---	---	57.016	17.56	30.00
HT20	3	5745	14.92	14.48	14.99	---	90.650	19.57	30.00
HT20	3	5785	17.50	17.13	17.15	---	159.756	22.03	30.00
HT20	3	5825	16.15	14.82	15.3	---	105.433	20.23	30.00
HT40	3	5755	12.4	13.19	12.61	---	56.462	17.52	30.00
HT40	3	5795	16.92	16.8	16.39	---	140.618	21.48	30.00
VHT20	3	5745	14.97	14.52	15.02	---	91.488	19.61	30.00
VHT20	3	5785	17.51	17.23	17.19	---	161.568	**22.08**	30.00
VHT20	3	5825	16.18	14.89	15.34	---	106.525	20.27	30.00
VHT40	3	5755	12.46	13.23	12.65	---	57.065	17.56	30.00
VHT40	3	5795	16.96	16.89	16.46	---	142.783	21.55	30.00
VHT80	3	5775	10.41	10.43	10.24	---	32.599	15.13	30.00

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

☒ Method SA-1

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

1. Set RBW = 1 MHz, VBW = 3 MHz, Detector = RMS.
2. Set sweep time ≥ 10 * (number of points in sweep) * (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

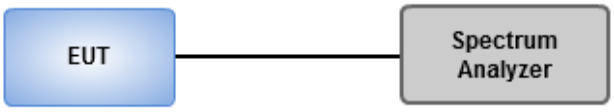
☒ Method SA-1

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

1. Set RBW = 500 kHz, VBW = 2 MHz, Detector = RMS.
2. Set sweep time ≥ 10 * (number of points in sweep) * (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

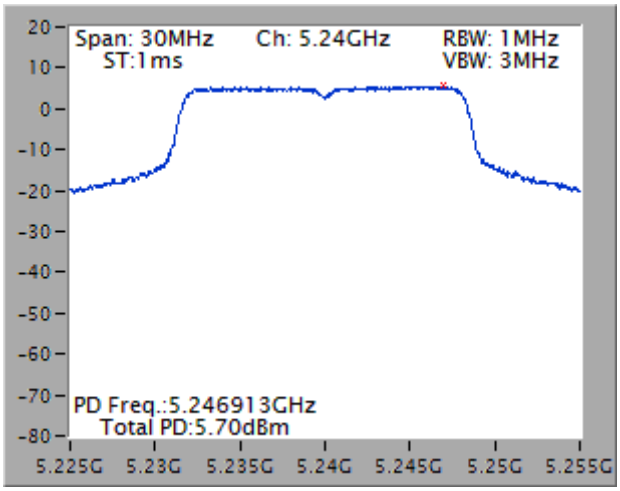


3.4.4 Test Result of Peak Power Spectral Density

For Frequency band 5150-5250 MHz						
Condition			Peak Power Spectral Density (dBm/MHz)			
Modulation Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	1	5180	5.26	0.00	5.26	11
11a	1	5200	5.36	0.00	5.36	11
11a	1	5240	5.70	0.00	5.70	11
VHT20	3	5180	0.75	0.00	0.75	8.53
VHT20	3	5200	0.84	0.00	0.84	8.53
VHT20	3	5240	3.78	0.00	3.78	8.53
VHT40	3	5190	-2.53	0.00	-2.53	8.53
VHT40	3	5230	-0.58	0.00	-0.58	8.53
VHT80	3	5210	-5.41	0.00	-5.41	8.53

Note:
1. D.F is duty factor.
2. Test results for VHT20 / VHT40 / VHT80 are bin-by-bin summing measured value of each TX port.
3. Directional gain = 3.7+10* log(3/1) = 8.47 dBi > 6 dBi.
   Limit shall be reduced to 11 dBm – (8.47 dBi – 6 dBi) = 8.53 dBm.

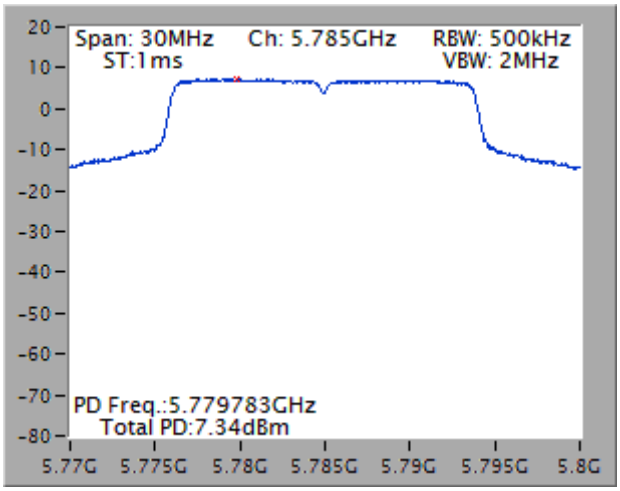
Worst Plot



For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm/500kHz)			
Modulation Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	1	5745	1.55	0.00	1.55	30.00
11a	1	5785	3.79	0.00	3.79	30.00
11a	1	5825	3.41	0.00	3.41	30.00
VHT20	3	5745	3.41	0.00	3.41	27.53
VHT20	3	5785	7.34	0.00	7.34	27.53
VHT20	3	5825	4.37	0.00	4.37	27.53
VHT40	3	5755	-1.16	0.00	-1.16	27.53
VHT40	3	5795	2.14	0.00	2.14	27.53
VHT80	3	5775	-6.93	0.00	-6.93	27.53

Note:
1. D.F is duty factor.
2. Test results for VHT20 / VHT40 / VHT80 are bin-by-bin summing measured value of each TX port.
3. Directional gain = 3.7+10* log(3/1) = 8.47 dBi > 6 dBi.
   Limit shall be reduced to 30 dBm – (8.47 dBi – 6 dBi) = 27.53 dBm.

Worst Plot



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

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

Note 1:
Qusai-Peak value is measured for frequency below 1GHz except for 9–90 kHz, 110–490 kHz frequency band. Peak and average value are measured for frequency above 1GHz. The limit on average radio frequency emission is as above table. The limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit
Note 2:
Measurements may be performed at a distance other than what is specified provided. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor as below, Frequency at or above 30 MHz: 20 dB/decade Frequency below 30 MHz: 40 dB/decade.

Un-restricted band emissions above 1GHz Limit	
Operating Band	**Limit**
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]
5.725 - 5.850 GHz	5.715 5.725 GHz: e.i.r.p. -17 dBm [78.2 dBuV/m@3m] 5.85 5.86 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

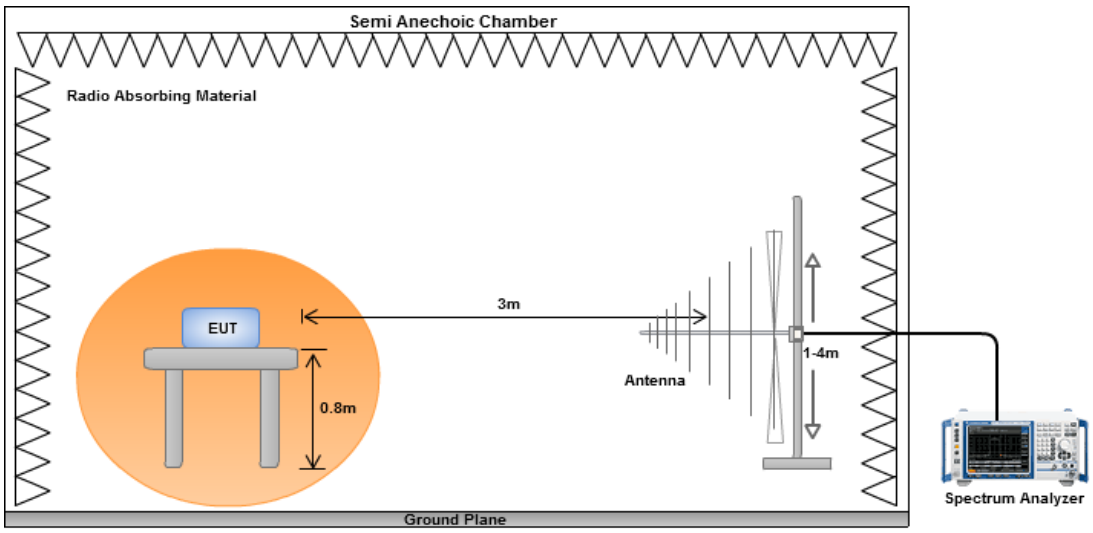
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

Note:

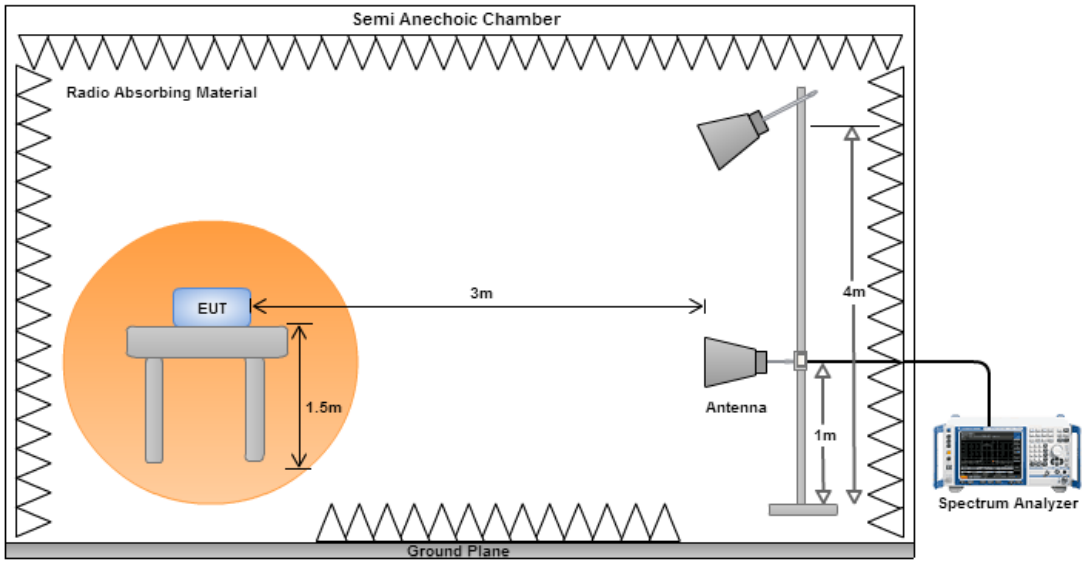
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

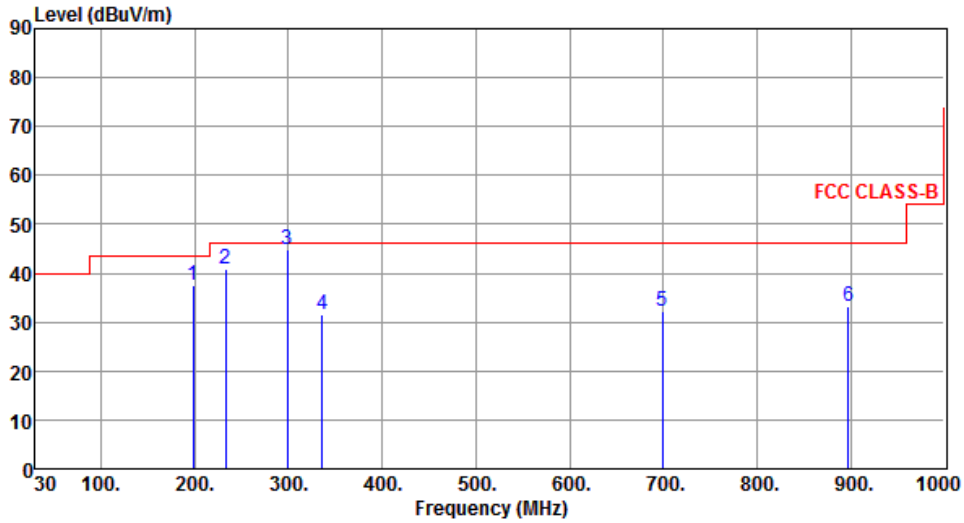


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

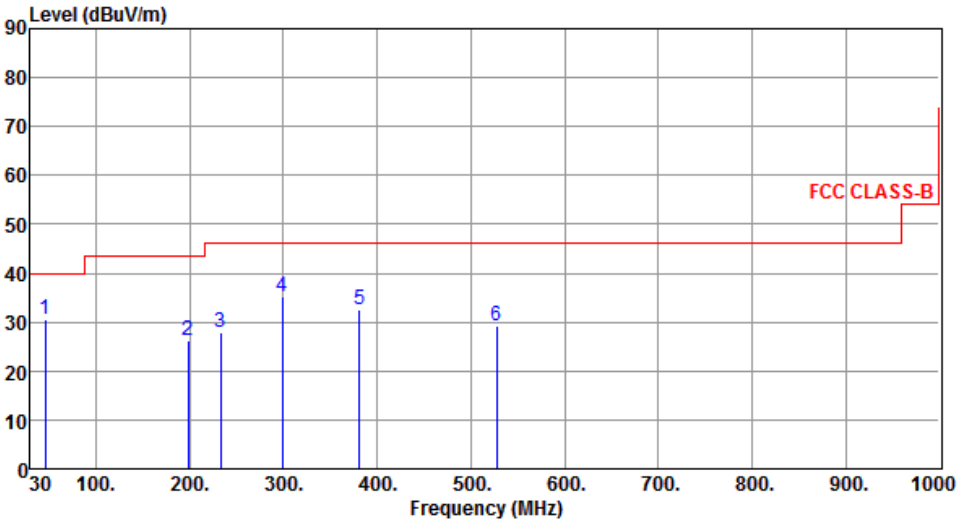
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	198.78	37.41	43.50	-6.09	56.67	-19.26	Peak	---	---
2	232.73	40.78	46.00	-5.22	59.20	-18.42	Peak	---	---
3	298.69	44.97	46.00	-1.03	60.79	-15.82	QP	100	258
4	336.52	31.69	46.00	-14.31	46.75	-15.06	Peak	---	---
5	699.30	32.09	46.00	-13.91	40.17	-8.08	Peak	---	---
6	897.18	33.14	46.00	-12.86	38.39	-5.25	Peak	---	---

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

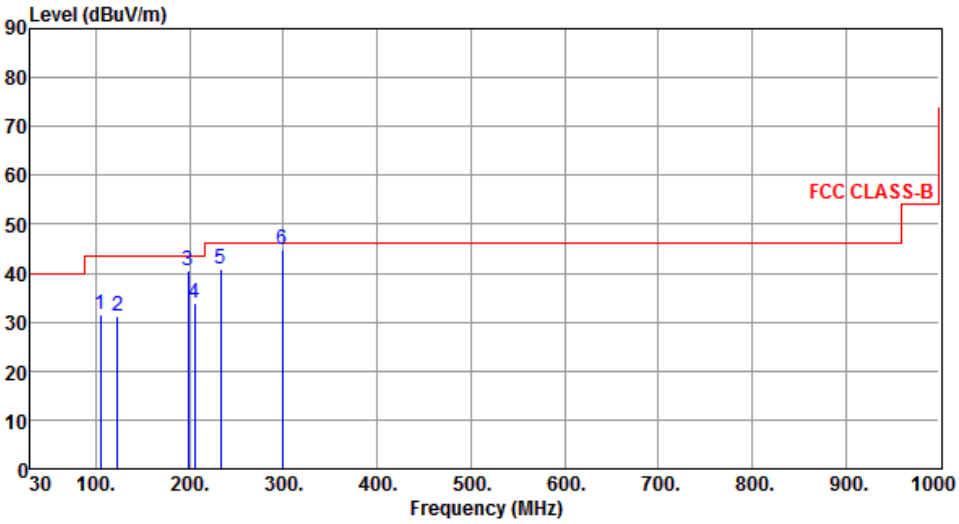
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	45.52	30.57	40.00	-9.43	46.88	-16.31	Peak	---	---
2	198.78	26.28	43.50	-17.22	45.54	-19.26	Peak	---	---
3	232.73	27.91	46.00	-18.09	46.33	-18.42	Peak	---	---
4	298.69	35.10	46.00	-10.90	50.92	-15.82	Peak	---	---
5	381.14	32.68	46.00	-13.32	46.62	-13.94	Peak	---	---
6	527.61	29.31	46.00	-16.69	40.08	-10.77	Peak	---	---

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

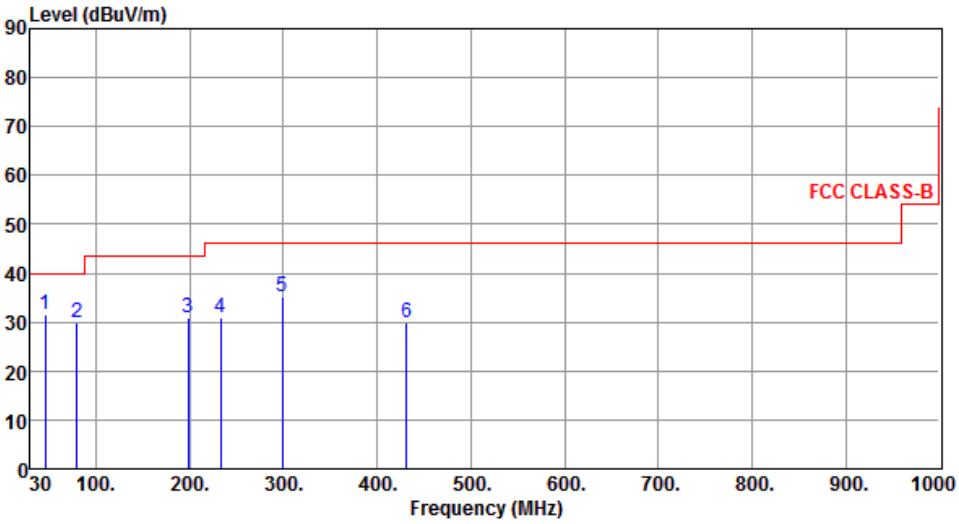
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	104.69	31.56	43.50	-11.94	52.05	-20.49	Peak	---	---
2	123.12	31.07	43.50	-12.43	49.65	-18.58	Peak	---	---
3	198.78	40.39	43.50	-3.11	59.65	-19.26	Peak	---	---
4	205.57	33.95	43.50	-9.55	53.27	-19.32	Peak	---	---
5	232.73	40.90	46.00	-5.10	59.32	-18.42	Peak	---	---
6	298.69	44.92	46.00	-1.08	60.74	-15.82	QP	100	158

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

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		

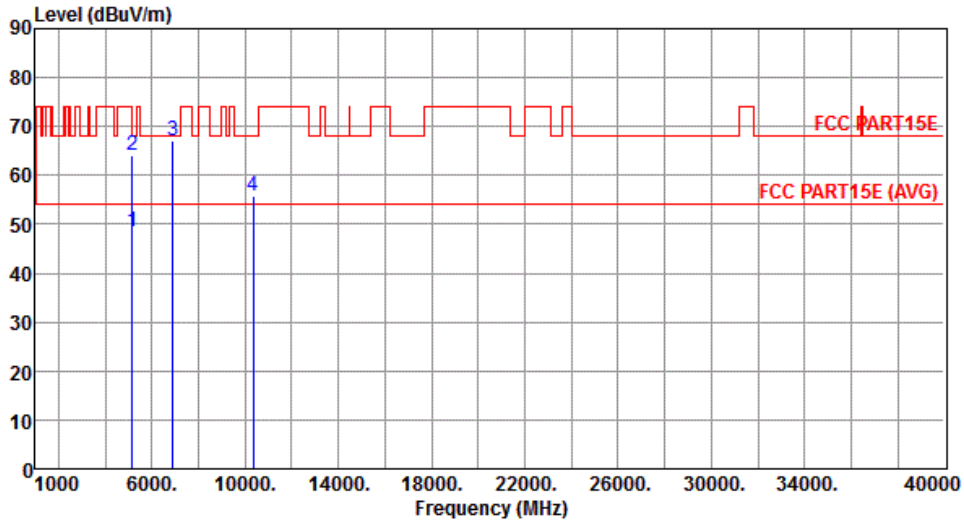


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	45.52	31.47	40.00	-8.53	47.78	-16.31	Peak	---	---
2	79.47	30.00	40.00	-10.00	51.16	-21.16	Peak	---	---
3	198.78	30.89	43.50	-12.61	50.15	-19.26	Peak	---	---
4	232.73	30.86	46.00	-15.14	49.28	-18.42	Peak	---	---
5	298.69	35.12	46.00	-10.88	50.94	-15.82	Peak	---	---
6	431.58	29.73	46.00	-16.27	42.37	-12.64	Peak	---	---

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

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

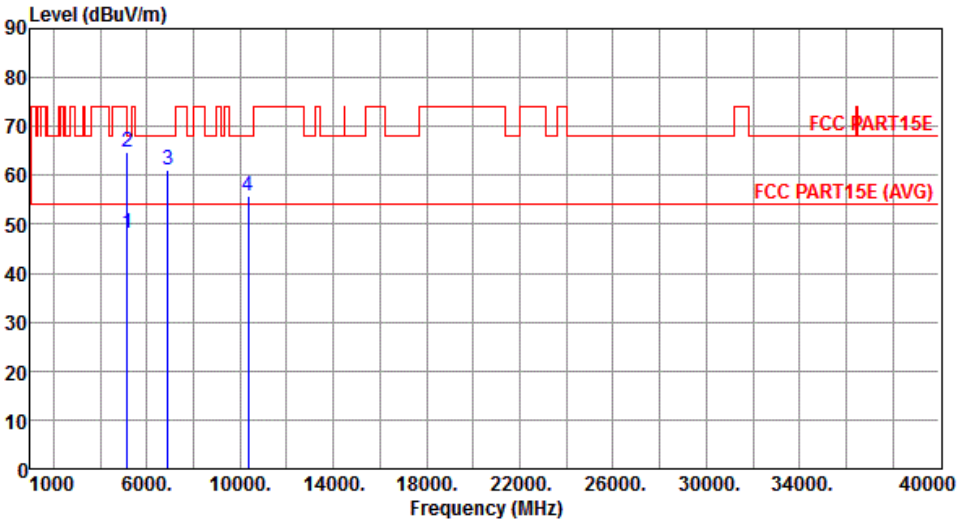
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.39	54.00	-5.61	43.99	4.40	Average	269	264
2	5150.00	64.20	74.00	-9.80	59.80	4.40	Peak	269	264
3	6906.00	67.08	68.20	-1.12	59.34	7.74	Peak	260	271
4	10360.00	55.75	68.20	-12.45	41.55	14.20	Peak	111	226

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).

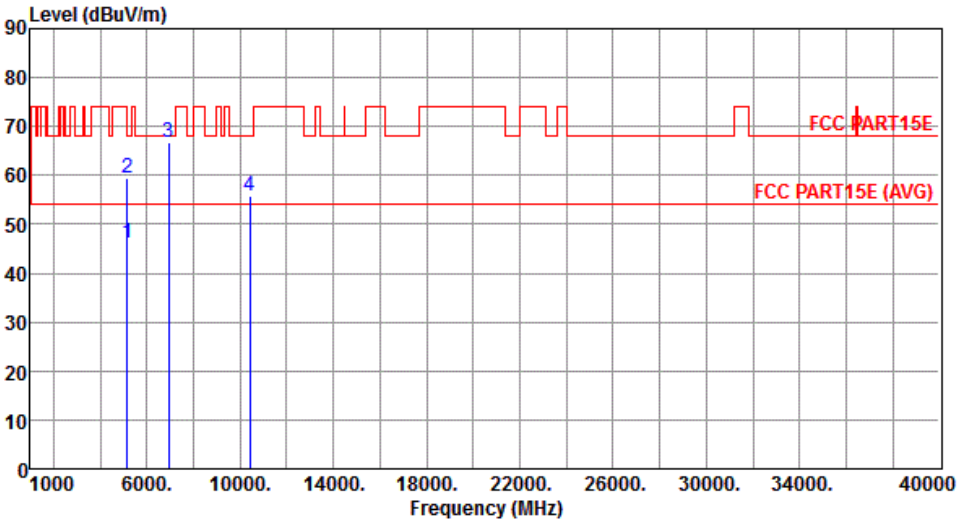
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	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	48.23	54.00	-5.77	43.83	4.40	Average	356	278
2	5150.00	64.90	74.00	-9.10	60.50	4.40	Peak	356	278
3	6906.00	61.06	68.20	-7.14	53.32	7.74	Peak	387	316
4	10360.00	55.95	68.20	-12.25	41.75	14.20	Peak	221	321

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).

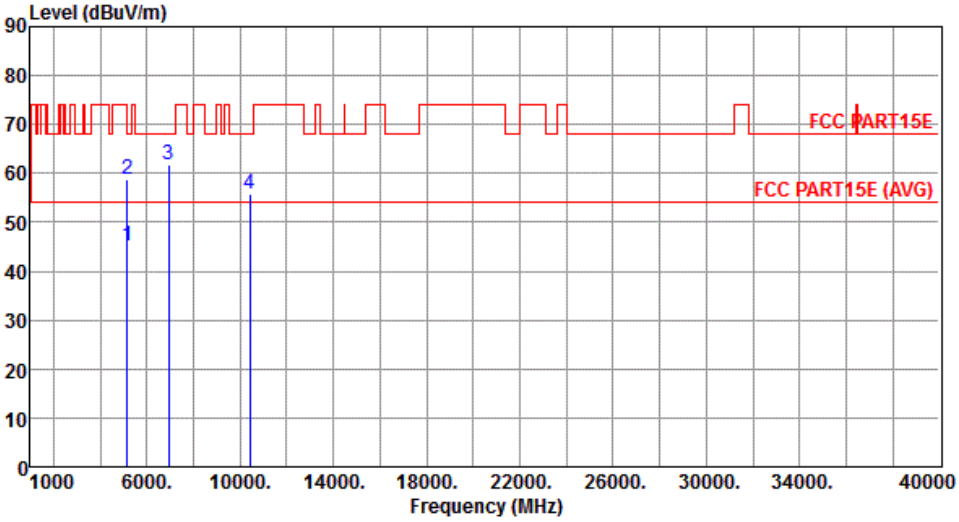
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	46.12	54.00	-7.88	41.72	4.40	Average	260	271
2	5150.00	59.40	74.00	-14.60	55.00	4.40	Peak	260	271
3	6933.33	66.77	68.20	-1.43	59.00	7.77	Peak	260	278
4	10400.00	55.93	68.20	-12.27	41.65	14.28	Peak	221	213

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).

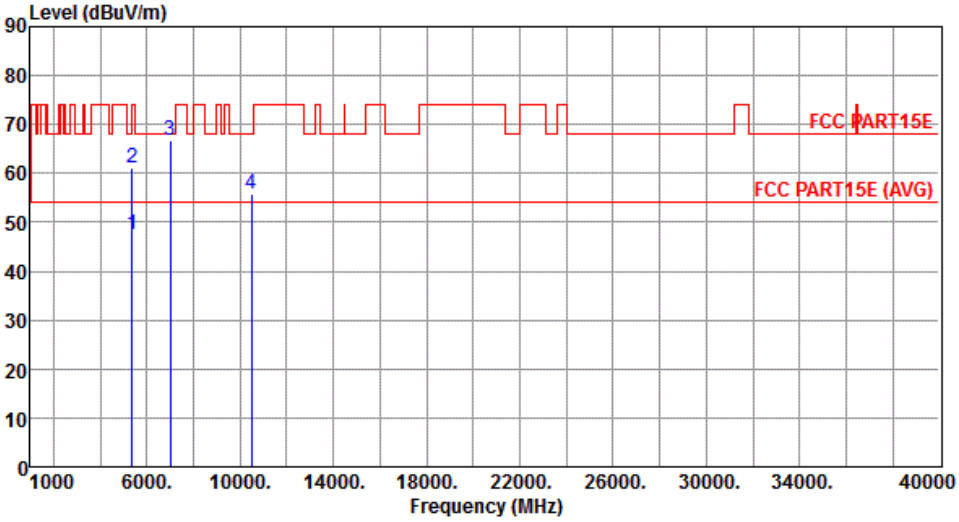
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.29	54.00	-8.71	40.89	4.40	Average	294	278
2	5150.00	58.64	74.00	-15.36	54.24	4.40	Peak	294	278
3	6933.33	61.77	68.20	-6.43	54.00	7.77	Peak	336	282
4	10400.00	55.63	68.20	-12.57	41.35	14.28	Peak	221	163

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

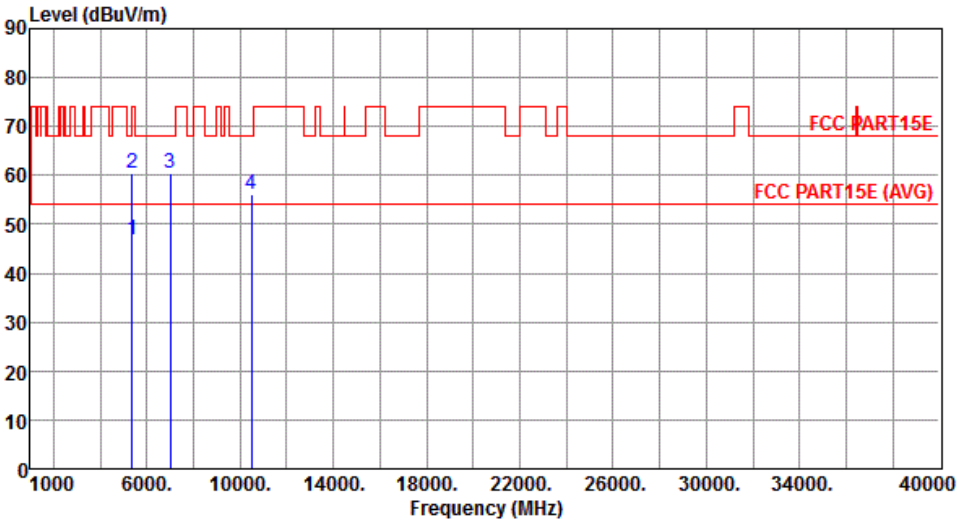
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	47.45	54.00	-6.55	42.81	4.64	Average	262	265
2	5350.00	61.01	74.00	-12.99	56.37	4.64	Peak	262	265
3	6986.66	66.79	68.20	-1.41	58.95	7.84	Peak	264	261
4	10480.00	55.74	68.20	-12.46	41.31	14.43	Peak	222	321

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).

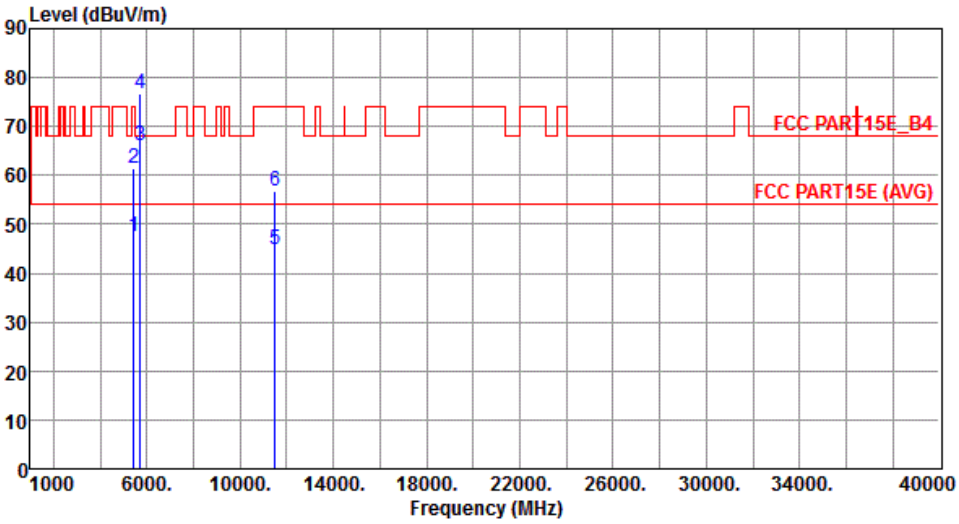
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		



	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	46.81	54.00	-7.19	42.17	4.64	Average	228	309
2	5350.00	60.35	74.00	-13.65	55.71	4.64	Peak	228	309
3	6986.66	60.47	68.20	-7.73	52.63	7.84	Peak	379	315
4	10480.00	56.24	68.20	-11.96	41.81	14.43	Peak	228	309

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).

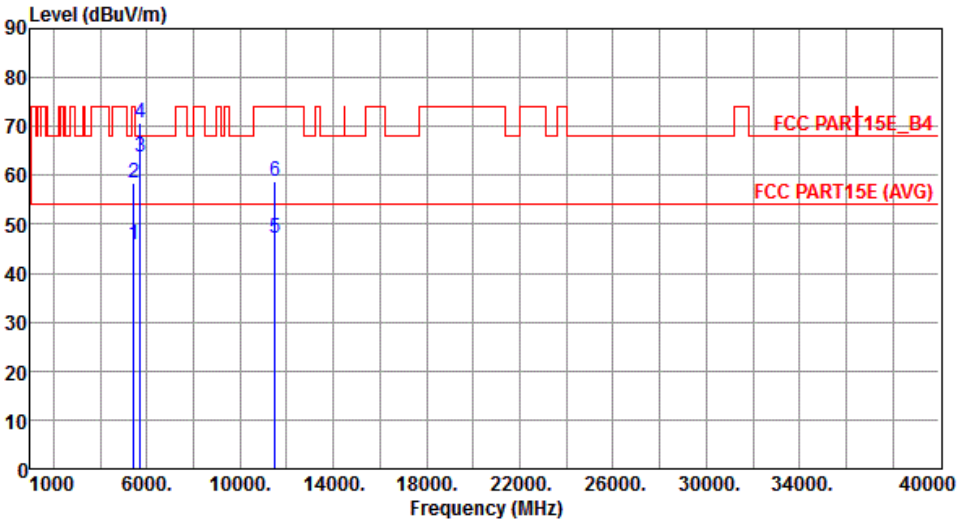
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	47.46	54.00	-6.54	42.70	4.76	Average	259	275
2	5440.00	61.49	74.00	-12.51	56.73	4.76	Peak	259	275
3	5715.00	66.21	68.20	-1.99	61.11	5.10	Peak	259	275
4	5725.00	76.63	78.20	-1.57	71.54	5.09	Peak	259	275
5	11490.00	44.85	54.00	-9.15	29.32	15.53	Average	155	168
6	11490.00	56.84	74.00	-17.16	41.31	15.53	Peak	155	168

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

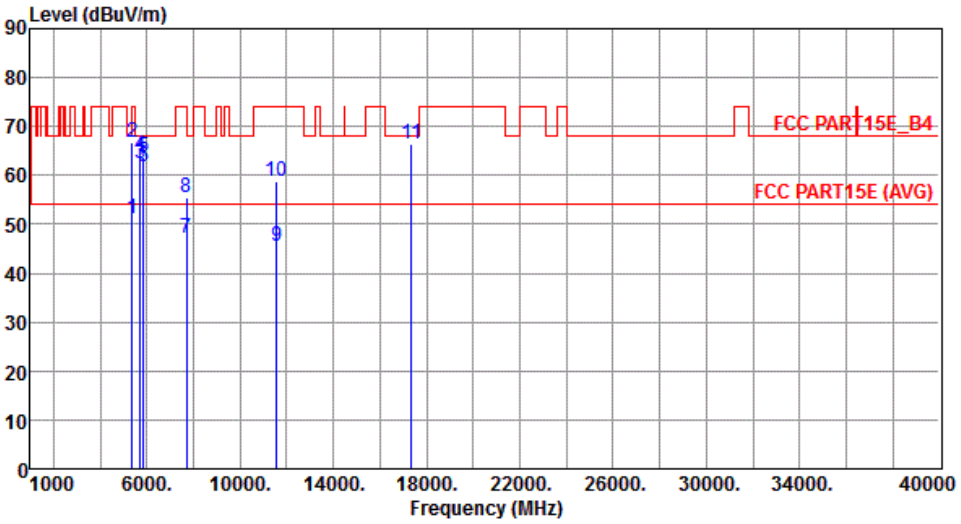
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	45.99	54.00	-8.01	41.23	4.76	Average	241	256
2	5440.00	58.44	74.00	-15.56	53.68	4.76	Peak	241	256
3	5715.00	63.61	68.20	-4.59	58.51	5.10	Peak	241	256
4	5725.00	70.76	78.20	-7.44	65.67	5.09	Peak	241	256
5	11490.00	47.09	54.00	-6.91	31.56	15.53	Average	163	242
6	11490.00	58.84	74.00	-15.16	43.31	15.53	Peak	241	242

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).

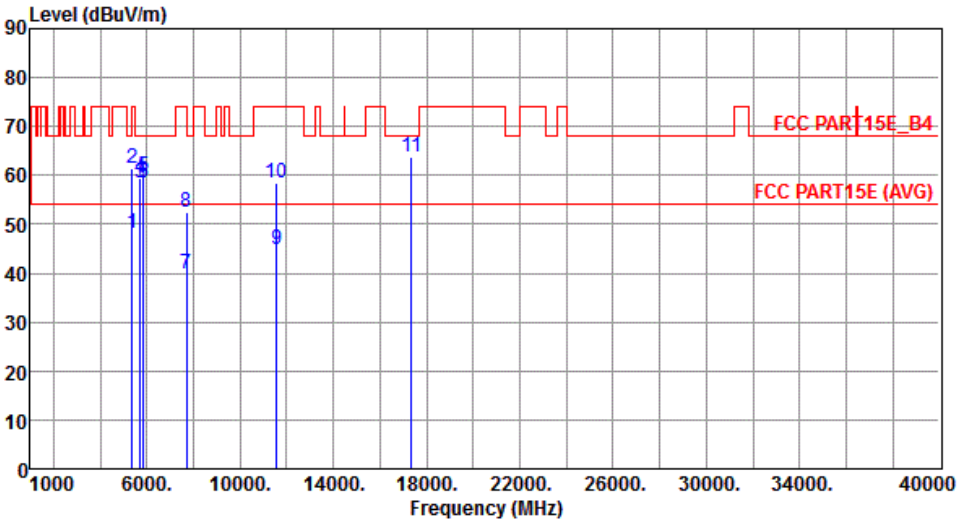
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	51.18	54.00	-2.82	46.54	4.64	Average	259	270
2	5350.00	66.80	74.00	-7.20	62.16	4.64	Peak	259	270
3	5715.00	62.47	68.20	-5.73	57.37	5.10	Peak	259	270
4	5725.00	64.11	78.20	-14.09	59.02	5.09	Peak	259	270
5	5850.00	63.79	78.20	-14.41	58.53	5.26	Peak	259	270
6	5860.00	61.64	68.20	-6.56	56.37	5.27	Peak	259	270
7	7713.33	47.04	54.00	-6.96	38.30	8.74	Average	242	269
8	7713.33	55.59	74.00	-18.41	46.85	8.74	Peak	242	269
9	11570.00	45.38	54.00	-8.62	30.05	15.33	Average	236	234
10	11570.00	58.78	74.00	-15.22	43.45	15.33	Peak	236	234
11	17355.00	66.50	68.20	-1.70	47.29	19.21	Peak	242	67

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).

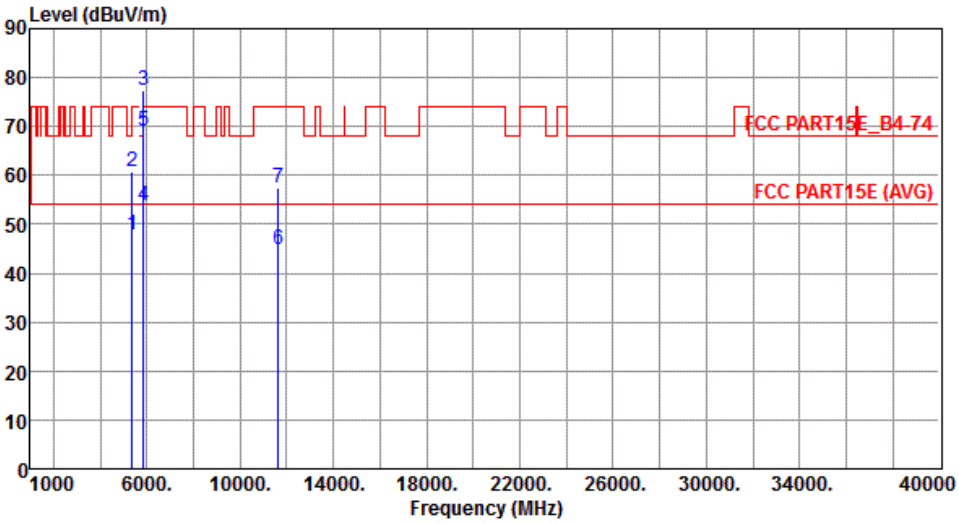
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	48.27	54.00	-5.73	43.63	4.64	Average	242	175
2	5350.00	61.37	74.00	-12.63	56.73	4.64	Peak	242	175
3	5715.00	58.44	68.20	-9.76	53.34	5.10	Peak	242	175
4	5725.00	59.38	78.20	-18.82	54.29	5.09	Peak	242	175
5	5850.00	59.67	78.20	-18.53	54.41	5.26	Peak	242	175
6	5860.00	58.43	68.20	-9.77	53.16	5.27	Peak	242	175
7	7713.33	39.88	54.00	-14.12	31.14	8.74	Average	116	231
8	7713.33	52.36	74.00	-21.64	43.62	8.74	Peak	116	231
9	11570.00	44.72	54.00	-9.28	29.39	15.33	Average	244	111
10	11570.00	58.38	74.00	-15.62	43.05	15.33	Peak	244	111
11	17355.00	63.90	68.20	-4.30	44.69	19.21	Peak	116	231

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).

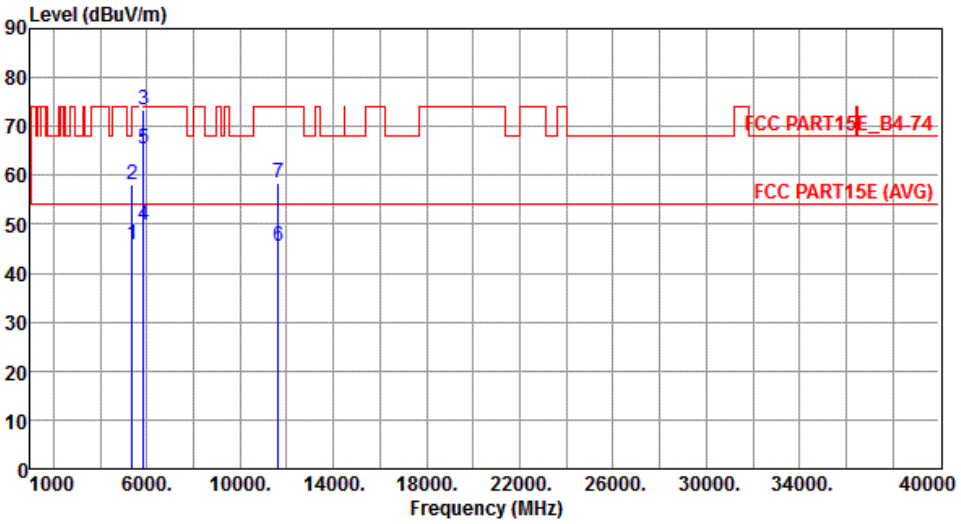
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	47.88	54.00	-6.12	43.24	4.64	Average	259	252
2	5350.00	60.65	74.00	-13.35	56.01	4.64	Peak	259	252
3	5850.00	77.29	78.20	-0.91	72.03	5.26	Peak	259	252
4	5860.00	53.69	54.00	-0.31	48.42	5.27	Average	259	252
5	5860.00	69.11	74.00	-4.89	63.84	5.27	Peak	259	252
6	11650.00	44.92	54.00	-9.08	29.83	15.09	Average	222	116
7	11650.00	57.51	74.00	-16.49	42.42	15.09	Peak	222	116

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)	5825
Polarization	Vertical		

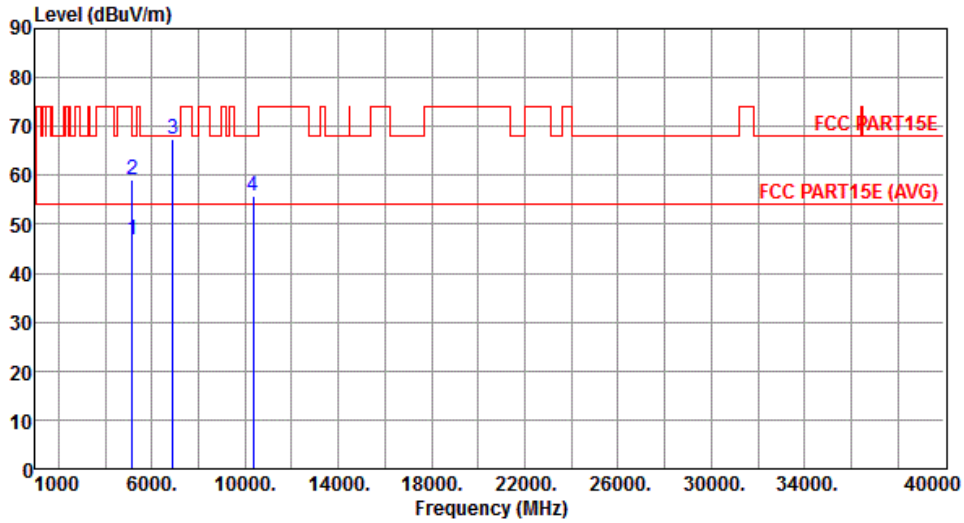


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	46.00	54.00	-8.00	41.36	4.64	Average	188	186
2	5350.00	58.20	74.00	-15.80	53.56	4.64	Peak	188	186
3	5850.00	73.49	78.20	-4.71	68.23	5.26	Peak	188	186
4	5860.00	49.95	54.00	-4.05	44.68	5.27	Average	188	186
5	5860.00	65.58	74.00	-8.42	60.31	5.27	Peak	188	186
6	11650.00	45.48	54.00	-8.52	30.39	15.09	Average	185	253
7	11650.00	58.41	74.00	-15.59	43.32	15.09	Peak	185	253

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).

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

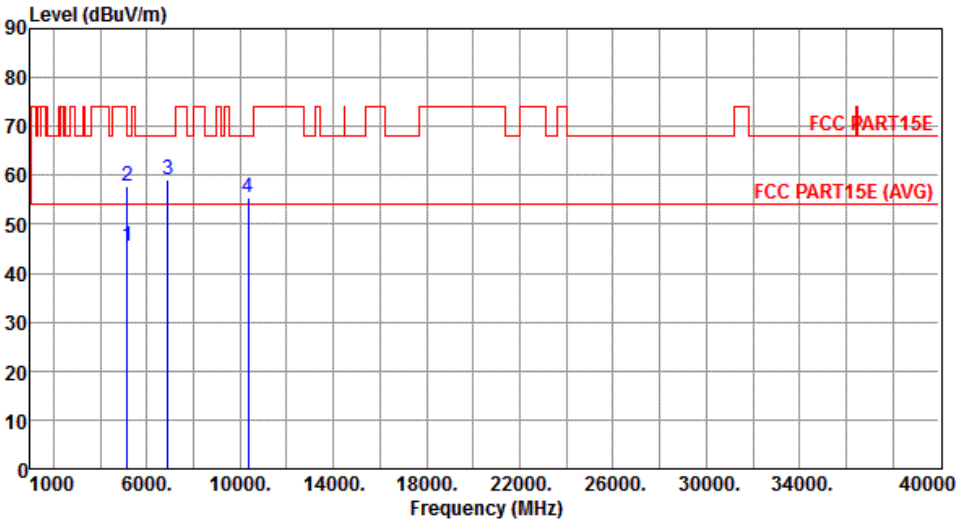
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	46.99	54.00	-7.01	42.59	4.40	Average	256	296
2	5150.00	59.01	74.00	-14.99	54.61	4.40	Peak	256	296
3	6906.00	67.51	68.20	-0.69	59.77	7.74	Peak	254	81
4	10360.00	55.76	68.20	-12.44	41.56	14.20	Peak	165	168

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

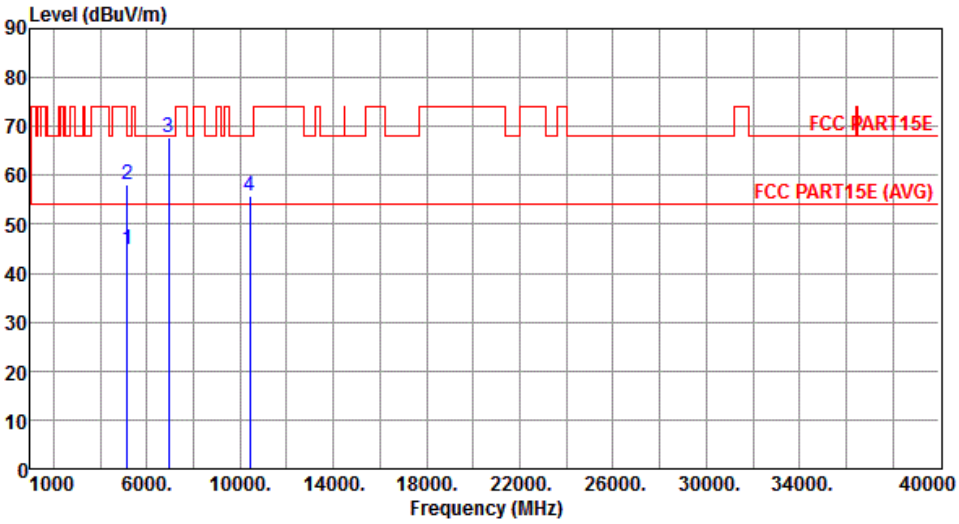
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	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	45.41	54.00	-8.59	41.01	4.40	Average	296	120
2	5150.00	57.71	74.00	-16.29	53.31	4.40	Peak	296	120
3	6906.00	59.10	68.20	-9.10	51.36	7.74	Peak	291	42
4	10360.00	55.43	68.20	-12.77	41.23	14.20	Peak	166	213

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).

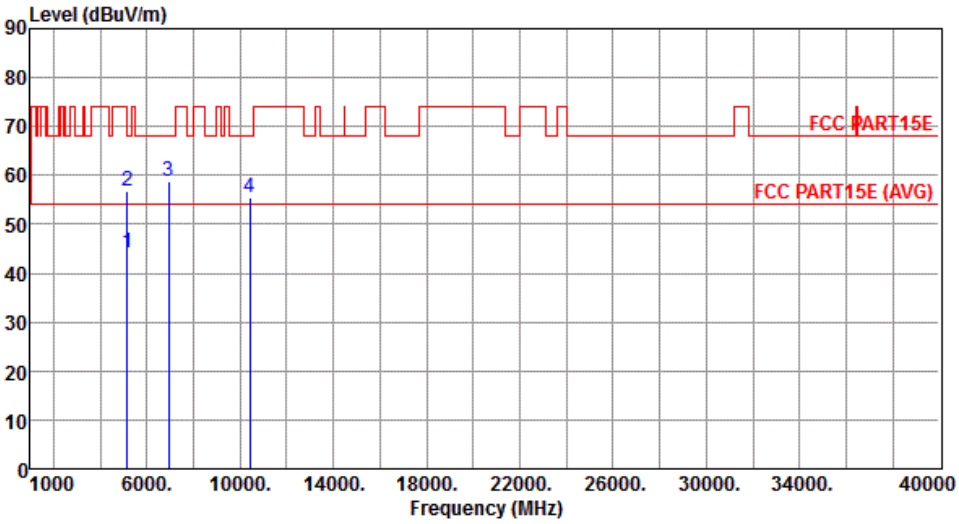
Modulation	VHT20	**Test Freq. (MHz)**	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.73	54.00	-9.27	40.33	4.40	Average	229	161
2	5150.00	57.97	74.00	-16.03	53.57	4.40	Peak	229	161
3	6933.33	67.74	68.20	-0.46	59.97	7.77	Peak	268	80
4	10400.00	55.90	68.20	-12.30	41.62	14.28	Peak	255	122

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).

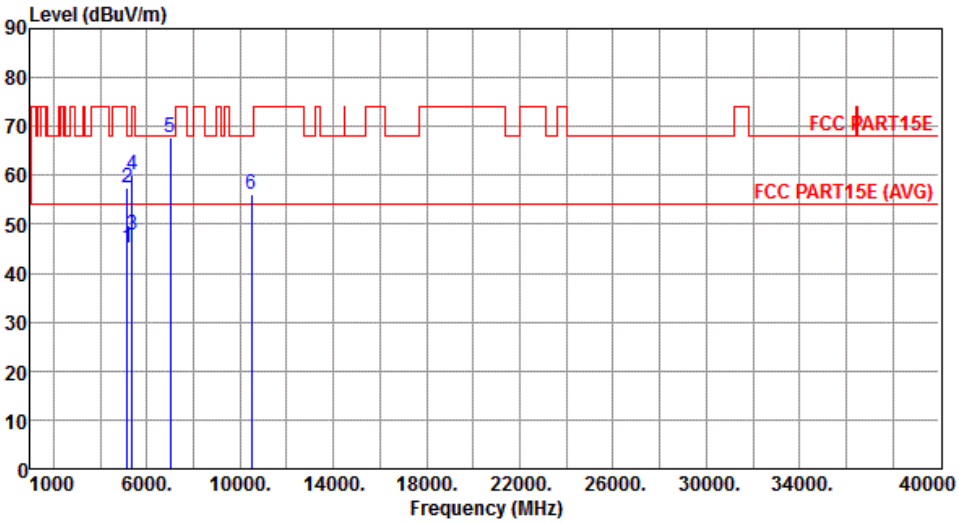
Modulation	VHT20	**Test Freq. (MHz)**	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.21	54.00	-9.79	39.81	4.40	Average	280	121
2	5150.00	56.74	74.00	-17.26	52.34	4.40	Peak	280	121
3	6933.33	58.94	68.20	-9.26	51.17	7.77	Peak	290	42
4	10400.00	55.62	68.20	-12.58	41.34	14.28	Peak	166	243

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).

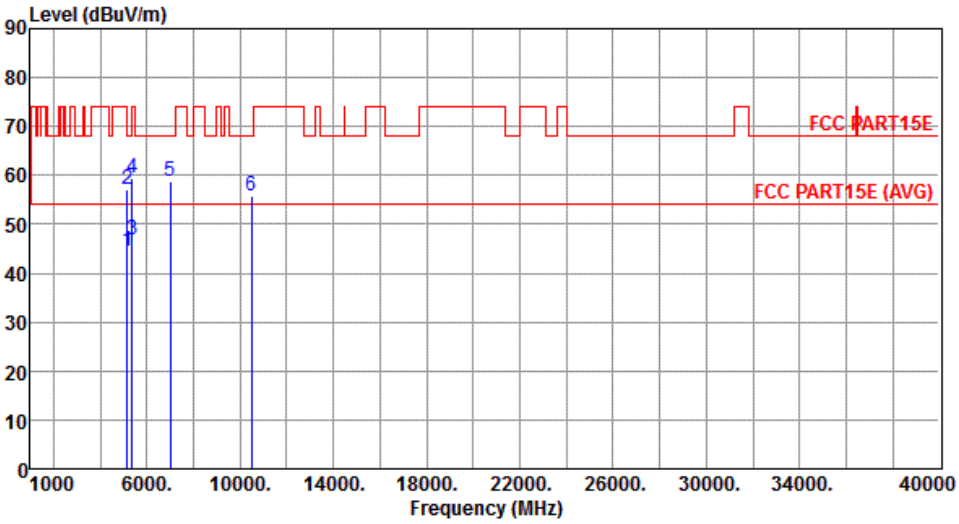
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.31	54.00	-8.69	40.91	4.40	Average	242	161
2	5150.00	57.55	74.00	-16.45	53.15	4.40	Peak	242	161
3	5350.00	47.90	54.00	-6.10	43.26	4.64	Average	242	161
4	5350.00	60.04	74.00	-13.96	55.40	4.64	Peak	242	161
5	6986.66	67.88	68.20	-0.32	60.04	7.84	Peak	267	80
6	10480.00	56.08	68.20	-12.12	41.65	14.43	Peak	168	165

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

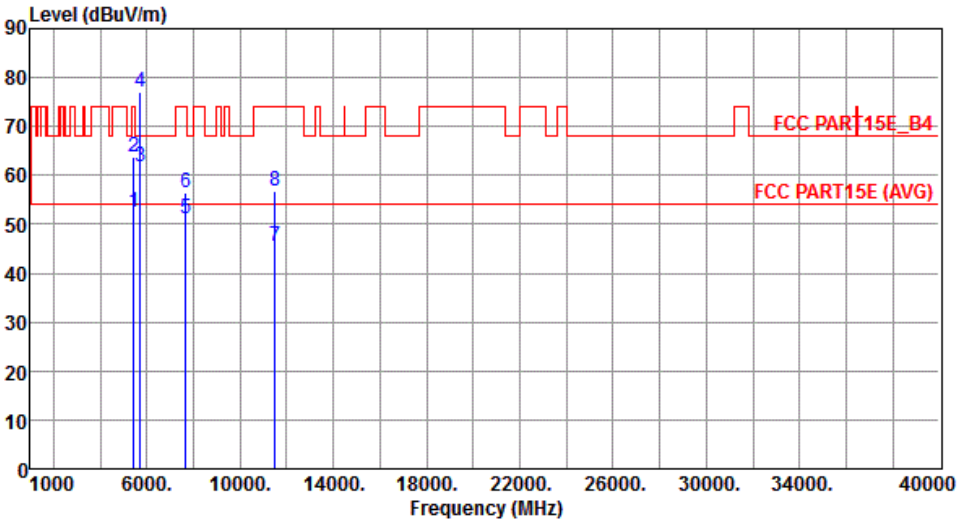
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	44.62	54.00	-9.38	40.22	4.40	Average	287	116
2	5150.00	57.27	74.00	-16.73	52.87	4.40	Peak	287	116
3	5350.00	46.87	54.00	-7.13	42.23	4.64	Average	287	116
4	5350.00	59.55	74.00	-14.45	54.91	4.64	Peak	287	116
5	6986.66	58.67	68.20	-9.53	50.83	7.84	Peak	275	42
6	10480.00	55.76	68.20	-12.44	41.33	14.43	Peak	156	318

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).

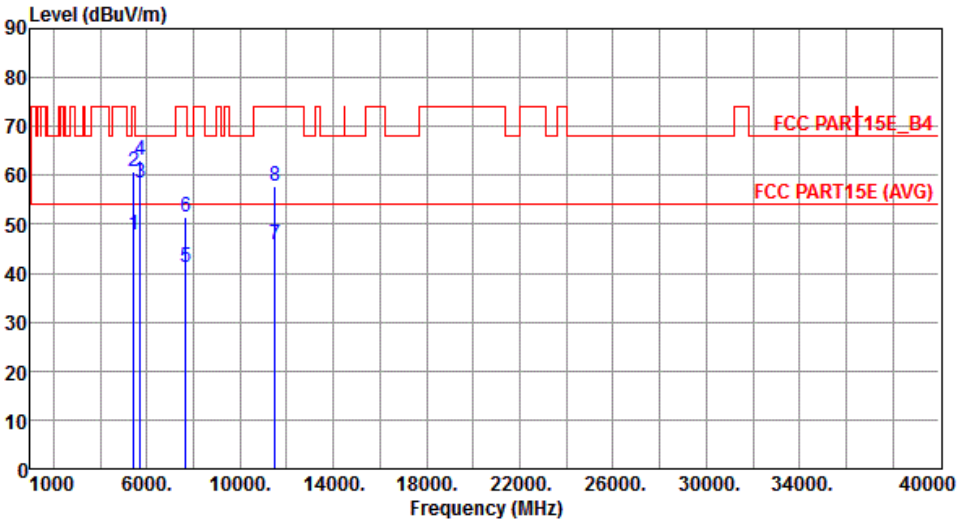
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	52.57	54.00	-1.43	47.81	4.76	Average	256	150
2	5440.00	63.75	74.00	-10.25	58.99	4.76	Peak	256	150
3	5715.00	61.79	68.20	-6.41	56.69	5.10	Peak	280	61
4	5725.00	77.18	78.20	-1.02	72.09	5.09	Peak	280	61
5	7660.00	51.26	54.00	-2.74	42.47	8.79	Average	246	80
6	7660.00	56.47	74.00	-17.53	47.68	8.79	Peak	246	80
7	11490.00	45.64	54.00	-8.36	30.11	15.53	Average	222	139
8	11490.00	56.79	74.00	-17.21	41.26	15.53	Peak	222	139

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).

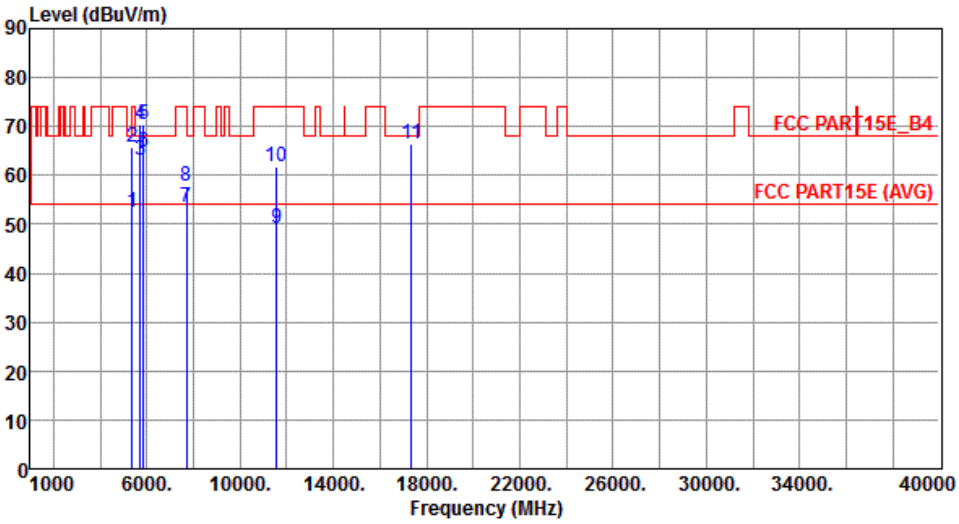
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	47.97	54.00	-6.03	43.21	4.76	Average	168	123
2	5440.00	60.89	74.00	-13.11	56.13	4.76	Peak	168	123
3	5715.00	58.40	68.20	-9.80	53.30	5.10	Peak	280	178
4	5725.00	63.23	78.20	-14.97	58.14	5.09	Peak	280	178
5	7660.00	41.17	54.00	-12.83	32.38	8.79	Average	158	146
6	7660.00	51.44	74.00	-22.56	42.65	8.79	Peak	158	146
7	11490.00	45.78	54.00	-8.22	30.25	15.53	Average	225	152
8	11490.00	57.88	74.00	-16.12	42.35	15.53	Peak	225	152

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

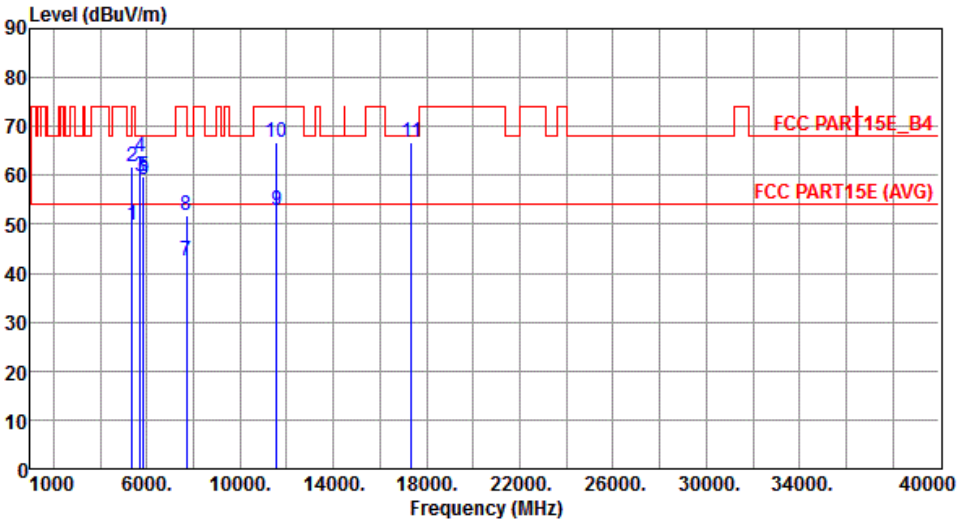
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	52.61	54.00	-1.39	47.97	4.64	Average	254	253
2	5350.00	65.70	74.00	-8.30	61.06	4.64	Peak	254	253
3	5715.00	63.12	68.20	-5.08	58.02	5.10	Peak	254	253
4	5725.00	70.39	78.20	-7.81	65.30	5.09	Peak	254	253
5	5850.00	70.38	78.20	-7.82	65.12	5.26	Peak	254	253
6	5860.00	64.69	68.20	-3.51	59.42	5.27	Peak	254	253
7	7713.33	53.44	54.00	-0.56	44.70	8.74	Average	254	79
8	7713.33	57.74	74.00	-16.26	49.00	8.74	Peak	254	79
9	11570.00	49.19	54.00	-4.81	33.86	15.33	Average	222	123
10	11570.00	61.86	74.00	-12.14	46.53	15.33	Peak	222	123
11	17355.00	66.31	68.20	-1.89	47.10	19.21	Peak	237	43

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).

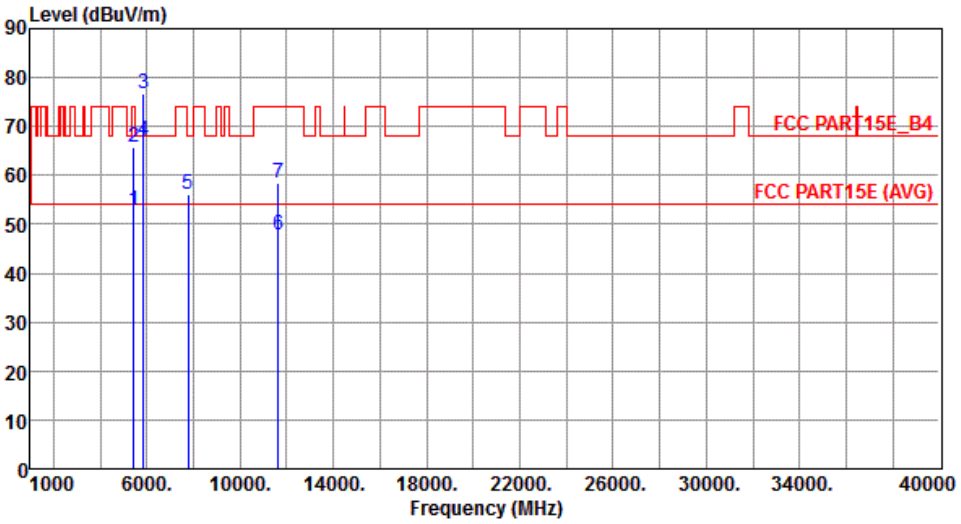
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5350.00	49.70	54.00	-4.30	45.06	4.64	Average	347	177
2	5350.00	61.92	74.00	-12.08	57.28	4.64	Peak	347	177
3	5715.00	59.88	68.20	-8.32	54.78	5.10	Peak	347	177
4	5725.00	63.80	78.20	-14.40	58.71	5.09	Peak	347	177
5	5850.00	59.73	78.20	-18.47	54.47	5.26	Peak	347	177
6	5860.00	59.02	68.20	-9.18	53.75	5.27	Peak	347	177
7	7713.33	42.49	54.00	-11.51	33.75	8.74	Average	242	20
8	7713.33	51.97	74.00	-22.03	43.23	8.74	Peak	242	20
9	11570.00	52.76	54.00	-1.24	37.43	15.33	Average	387	348
10	11570.00	66.86	74.00	-7.14	51.53	15.33	Peak	387	348
11	17355.00	66.85	68.20	-1.35	47.64	19.21	Peak	345	91

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).

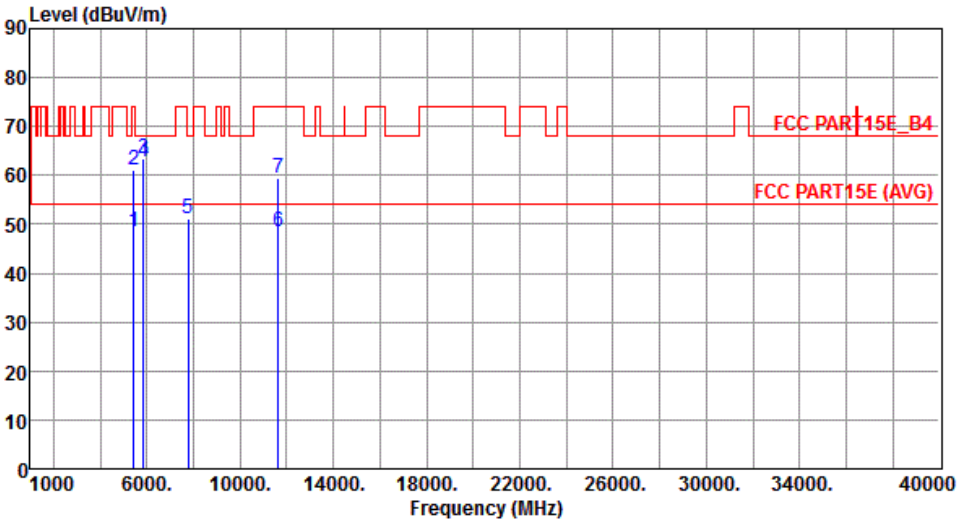
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	52.66	54.00	-1.34	47.90	4.76	Average	304	64
2	5440.00	65.75	74.00	-8.25	60.99	4.76	Peak	304	64
3	5850.00	76.84	78.20	-1.36	71.58	5.26	Peak	304	69
4	5860.00	67.16	68.20	-1.04	61.89	5.27	Peak	304	54
5	7766.66	56.07	68.20	-12.13	47.38	8.69	Peak	245	79
6	11650.00	47.96	54.00	-6.04	32.87	15.09	Average	283	222
7	11650.00	58.36	74.00	-15.64	43.27	15.09	Peak	283	222

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	Vertical		

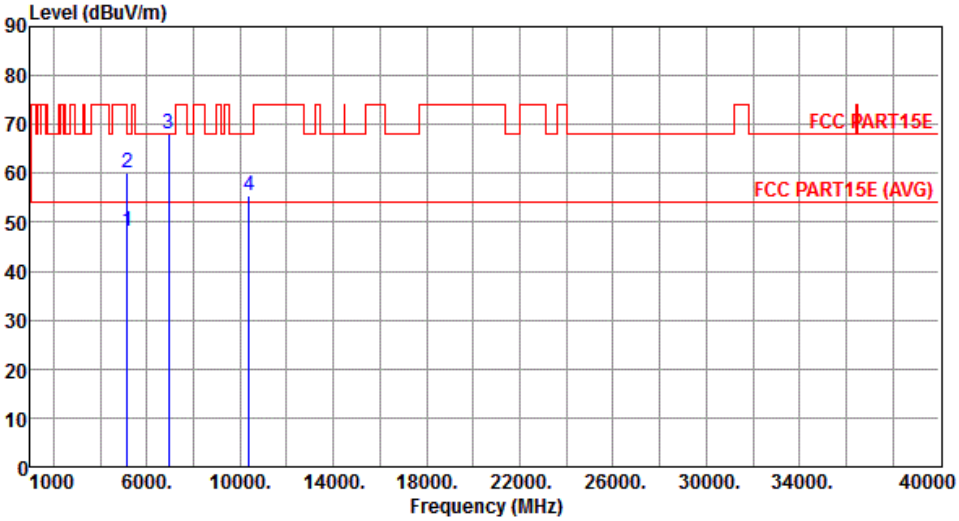


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	48.41	54.00	-5.59	43.65	4.76	Average	300	175
2	5440.00	61.14	74.00	-12.86	56.38	4.76	Peak	300	175
3	5850.00	63.49	78.20	-14.71	58.23	5.26	Peak	300	175
4	5860.00	62.92	68.20	-5.28	57.65	5.27	Peak	300	175
5	7766.66	51.16	68.20	-17.04	42.47	8.69	Peak	185	138
6	11650.00	48.55	54.00	-5.45	33.46	15.09	Average	280	235
7	11650.00	59.57	74.00	-14.43	44.48	15.09	Peak	280	235

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

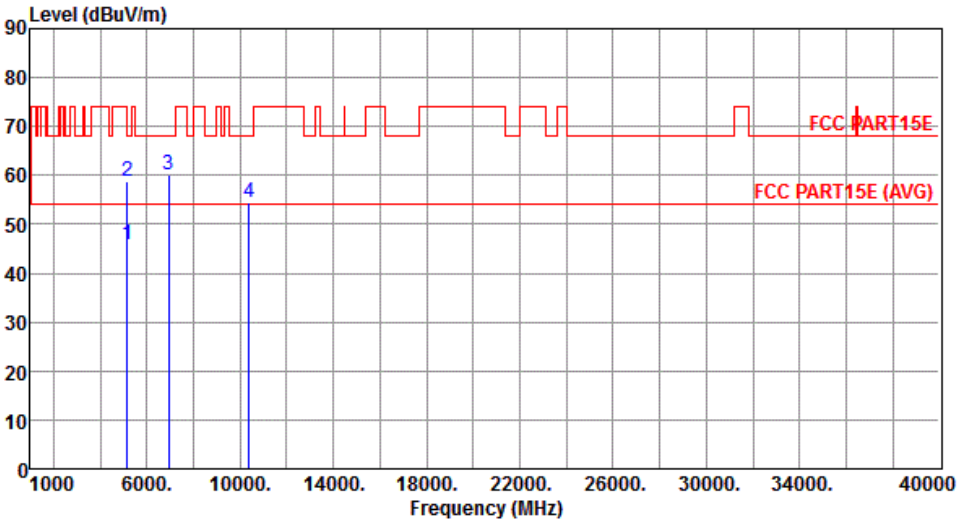
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	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	48.13	54.00	-5.87	43.73	4.40	Average	229	182
2	5150.00	60.08	74.00	-13.92	55.68	4.40	Peak	229	182
3	6920.00	67.98	68.20	-0.22	60.22	7.76	Peak	263	77
4	10380.00	55.57	68.20	-12.63	41.32	14.25	Peak	221	165

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

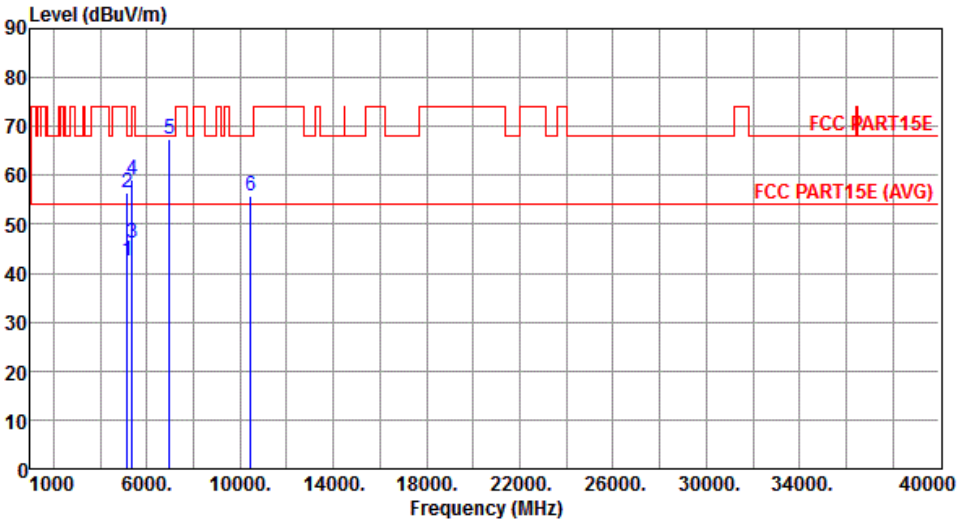
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.96	54.00	-8.04	41.56	4.40	Average	295	116
2	5150.00	58.65	74.00	-15.35	54.25	4.40	Peak	296	116
3	6920.00	60.07	68.20	-8.13	52.31	7.76	Peak	255	133
4	10380.00	54.62	68.20	-13.58	40.37	14.25	Peak	205	147

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).

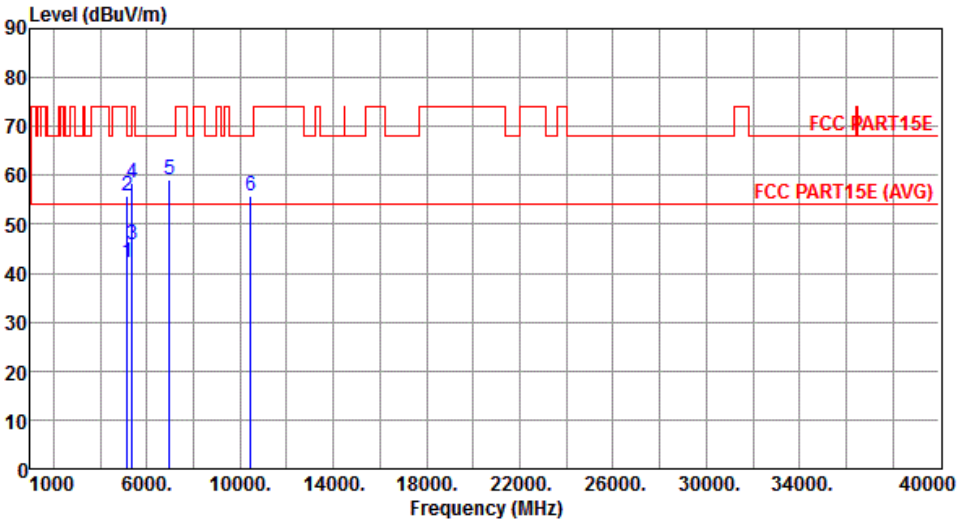
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		



	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	42.43	54.00	-11.57	38.03	4.40	Average	232	222
2	5150.00	56.34	74.00	-17.66	51.94	4.40	Peak	232	222
3	5350.00	46.10	54.00	-7.90	41.46	4.64	Average	232	222
4	5350.00	59.03	74.00	-14.97	54.39	4.64	Peak	232	222
5	6973.33	67.32	68.20	-0.88	59.49	7.83	Peak	232	222
6	10460.00	55.92	68.20	-12.28	41.52	14.40	Peak	155	169

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).

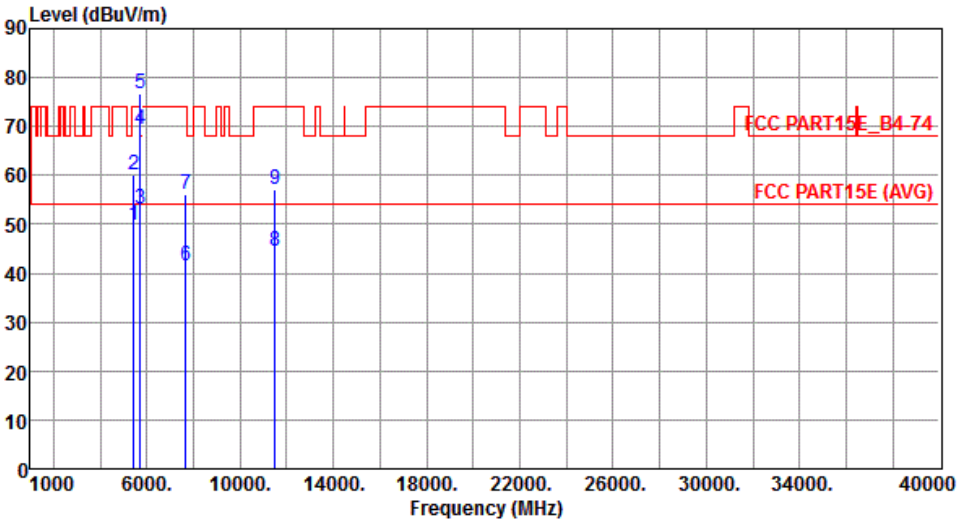
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	42.05	54.00	-11.95	37.65	4.40	Average	225	240
2	5150.00	55.85	74.00	-18.15	51.45	4.40	Peak	225	240
3	5350.00	46.00	54.00	-8.00	41.36	4.64	Average	225	240
4	5350.00	58.33	74.00	-15.67	53.69	4.64	Peak	225	240
5	6973.33	59.28	68.20	-8.92	51.45	7.83	Peak	220	138
6	10460.00	55.84	68.20	-12.36	41.44	14.40	Peak	196	213

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).

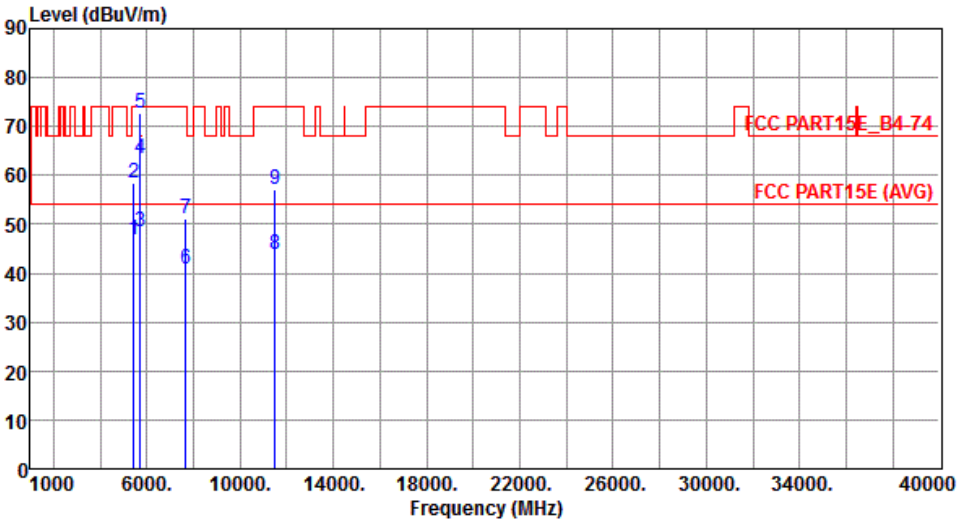
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	49.71	54.00	-4.29	44.95	4.76	Average	242	132
2	5440.00	60.23	74.00	-13.77	55.47	4.76	Peak	242	132
3	5715.00	52.98	54.00	-1.02	47.88	5.10	Average	242	277
4	5715.00	69.30	74.00	-4.70	64.20	5.10	Peak	242	277
5	5725.00	76.83	78.20	-1.37	71.74	5.09	Peak	242	294
6	7673.33	41.59	54.00	-12.41	32.81	8.78	Average	240	75
7	7673.33	56.24	74.00	-17.76	47.46	8.78	Peak	240	75
8	11510.00	44.37	54.00	-9.63	28.86	15.51	Average	222	311
9	11510.00	57.16	74.00	-16.84	41.65	15.51	Peak	222	311

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).

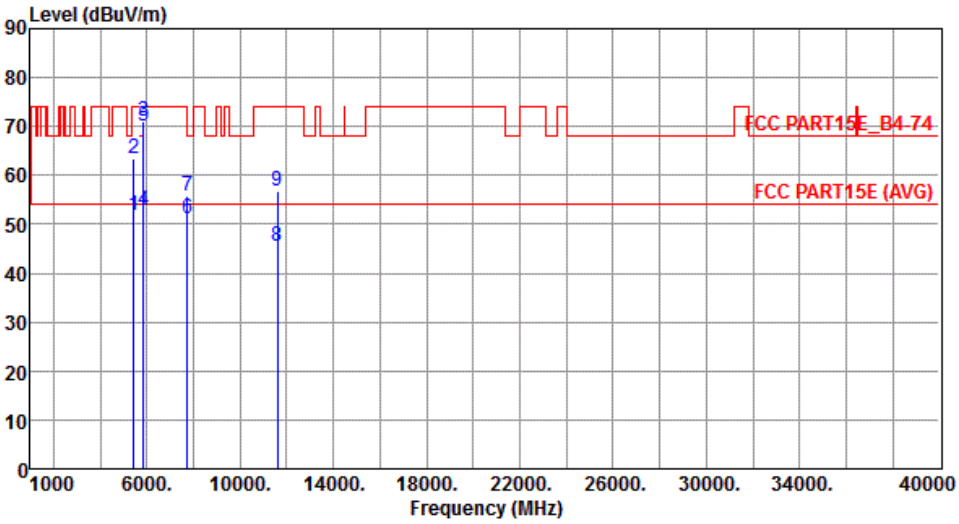
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	46.88	54.00	-7.12	42.12	4.76	Average	239	186
2	5440.00	58.54	74.00	-15.46	53.78	4.76	Peak	239	186
3	5715.00	48.40	54.00	-5.60	43.30	5.10	Average	239	186
4	5715.00	63.54	74.00	-10.46	58.44	5.10	Peak	239	186
5	5725.00	72.64	78.20	-5.56	67.55	5.09	Peak	239	186
6	7673.33	40.93	54.00	-13.07	32.15	8.78	Average	158	192
7	7673.33	51.19	74.00	-22.81	42.41	8.78	Peak	158	192
8	11510.00	43.96	54.00	-10.04	28.45	15.51	Average	188	275
9	11510.00	57.19	74.00	-16.81	41.68	15.51	Peak	188	275

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).

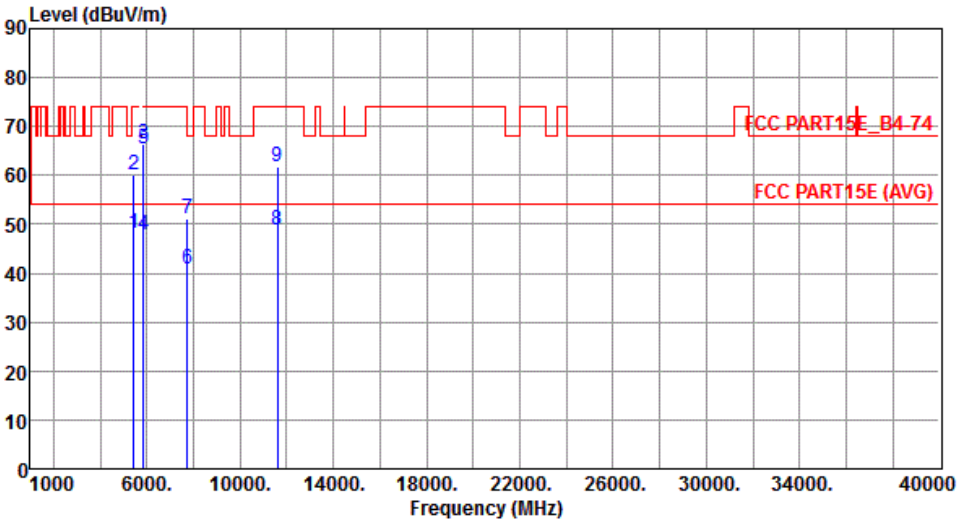
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	51.71	54.00	-2.29	46.95	4.76	Average	302	149
2	5440.00	63.50	74.00	-10.50	58.74	4.76	Peak	302	149
3	5850.00	70.98	78.20	-7.22	65.72	5.26	Peak	302	96
4	5860.00	52.96	54.00	-1.04	47.69	5.27	Average	302	113
5	5860.00	70.07	74.00	-3.93	64.80	5.27	Peak	302	113
6	7726.66	51.06	54.00	-2.94	42.34	8.72	Average	246	80
7	7726.66	55.95	74.00	-18.05	47.23	8.72	Peak	246	80
8	11590.00	45.59	54.00	-8.41	30.32	15.27	Average	265	321
9	11590.00	56.96	74.00	-17.04	41.69	15.27	Peak	265	321

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	Vertical		

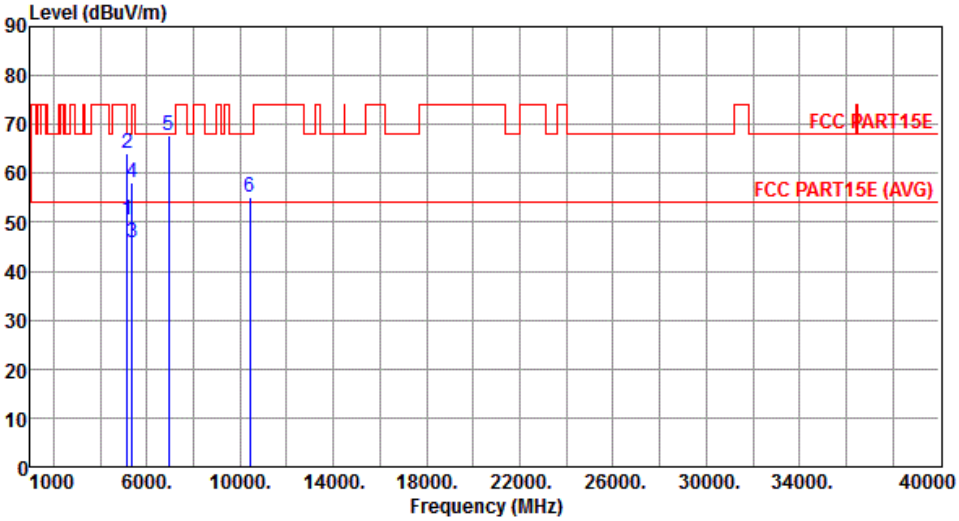


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	48.07	54.00	-5.93	43.31	4.76	Average	298	185
2	5440.00	60.18	74.00	-13.82	55.42	4.76	Peak	298	185
3	5850.00	66.58	78.20	-11.62	61.32	5.26	Peak	298	185
4	5860.00	47.92	54.00	-6.08	42.65	5.27	Average	298	175
5	5860.00	65.50	74.00	-8.50	60.23	5.27	Peak	298	185
6	7726.66	40.89	54.00	-13.11	32.17	8.72	Average	255	143
7	7726.66	51.29	74.00	-22.71	42.57	8.72	Peak	255	143
8	11590.00	48.84	54.00	-5.16	33.57	15.27	Average	244	156
9	11590.00	61.66	74.00	-12.34	46.39	15.27	Peak	244	156

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

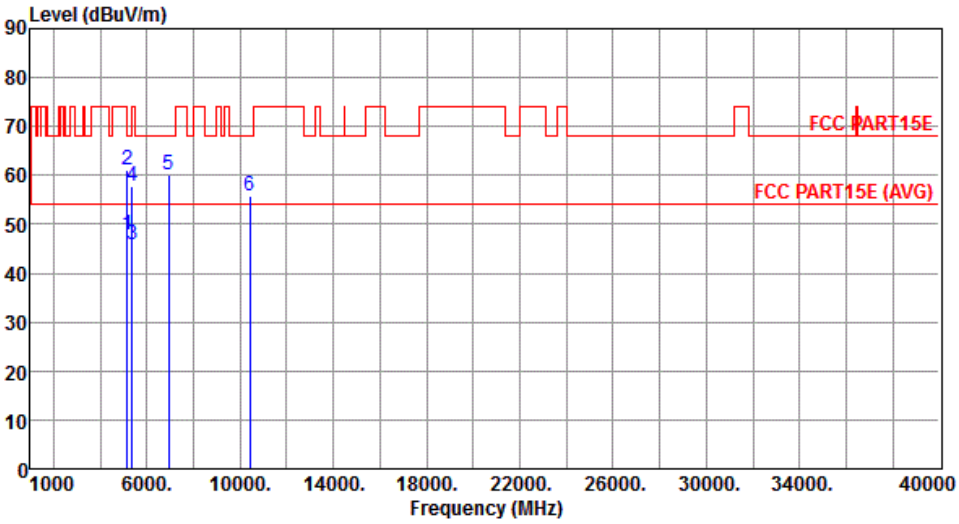
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	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	50.45	54.00	-3.55	46.05	4.40	Average	221	190
2	5150.00	64.07	74.00	-9.93	59.67	4.40	Peak	221	190
3	5350.00	46.00	54.00	-8.00	41.36	4.64	Average	221	190
4	5350.00	58.13	74.00	-15.87	53.49	4.64	Peak	221	190
5	6946.66	67.91	68.20	-0.29	60.12	7.79	Peak	255	78
6	10420.00	54.97	68.20	-13.23	40.65	14.32	Peak	188	147

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).

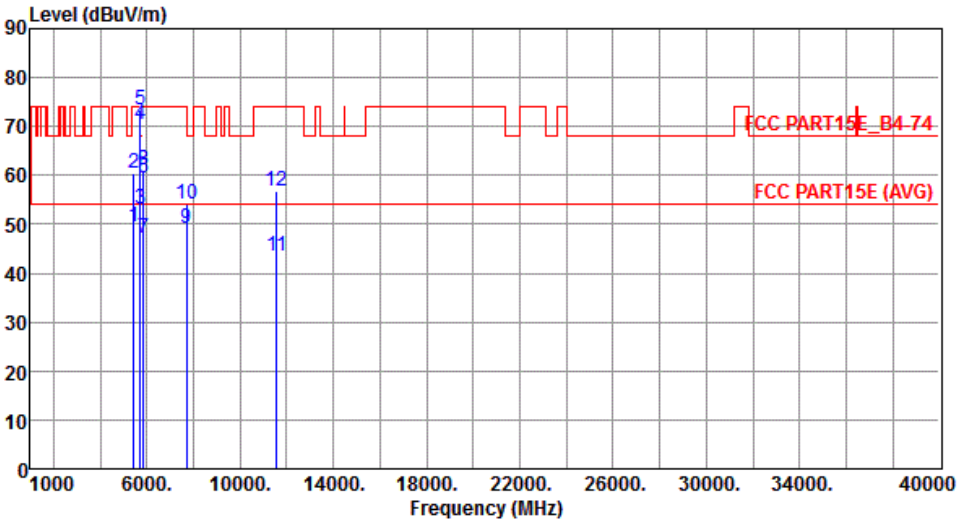
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Vertical		



	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	47.96	54.00	-6.04	43.56	4.40	Average	233	53
2	5150.00	61.18	74.00	-12.82	56.78	4.40	Peak	233	53
3	5350.00	45.67	54.00	-8.33	41.03	4.64	Average	233	53
4	5350.00	57.93	74.00	-16.07	53.29	4.64	Peak	233	53
5	6946.66	60.24	68.20	-7.96	52.45	7.79	Peak	240	68
6	10420.00	55.70	68.20	-12.50	41.38	14.32	Peak	175	248

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).

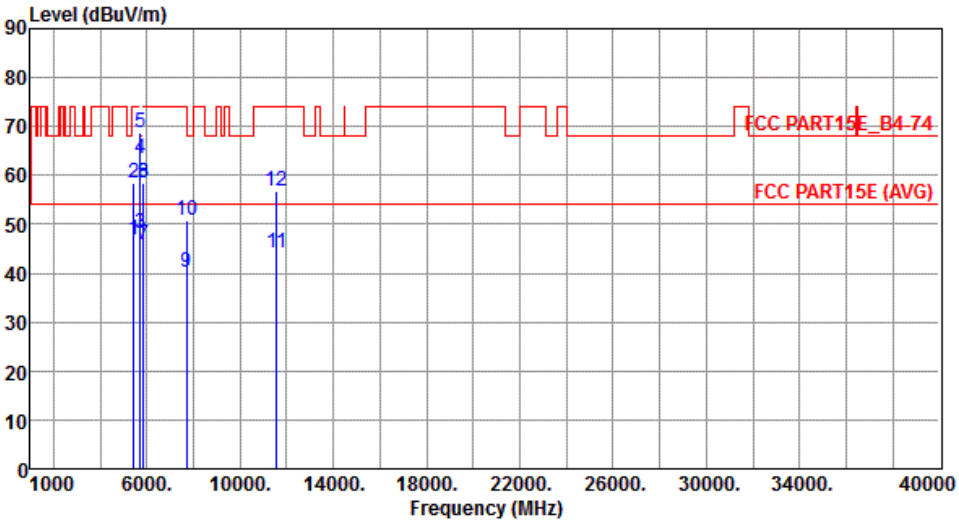
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5440.00	49.62	54.00	-4.38	44.86	4.76	Average	225	150
2	5440.00	60.44	74.00	-13.56	55.68	4.76	Peak	225	150
3	5715.00	52.99	54.00	-1.01	47.89	5.10	Average	218	296
4	5715.00	70.39	74.00	-3.61	65.29	5.10	Peak	218	296
5	5725.00	73.23	78.20	-4.97	68.14	5.09	Peak	218	313
6	5850.00	59.34	78.20	-18.86	54.08	5.26	Peak	218	313
7	5860.00	47.05	54.00	-6.95	41.78	5.27	Average	218	313
8	5860.00	61.23	74.00	-12.77	55.96	5.27	Peak	218	313
9	7700.00	49.31	54.00	-4.69	40.56	8.75	Average	185	135
10	7700.00	54.10	74.00	-19.90	45.35	8.75	Peak	185	135
11	11550.00	43.62	54.00	-10.38	28.22	15.40	Average	188	145
12	11550.00	56.95	74.00	-17.05	41.55	15.40	Peak	188	145

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)	5775
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	5440.00	46.88	54.00	-7.12	42.12	4.76	Average	220	180
2	5440.00	58.41	74.00	-15.59	53.65	4.76	Peak	220	180
3	5715.00	48.30	54.00	-5.70	43.20	5.10	Average	220	180
4	5715.00	63.54	74.00	-10.46	58.44	5.10	Peak	220	180
5	5725.00	68.64	78.20	-9.56	63.55	5.09	Peak	220	180
6	5850.00	58.57	78.20	-19.63	53.31	5.26	Peak	220	180
7	5860.00	45.83	54.00	-8.17	40.56	5.27	Average	220	180
8	5860.00	58.54	74.00	-15.46	53.27	5.27	Peak	220	180
9	7700.00	40.10	54.00	-13.90	31.35	8.75	Average	156	138
10	7700.00	50.88	74.00	-23.12	42.13	8.75	Peak	156	138
11	11550.00	44.04	54.00	-9.96	28.64	15.40	Average	165	147
12	11550.00	56.77	74.00	-17.23	41.37	15.40	Peak	165	147

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

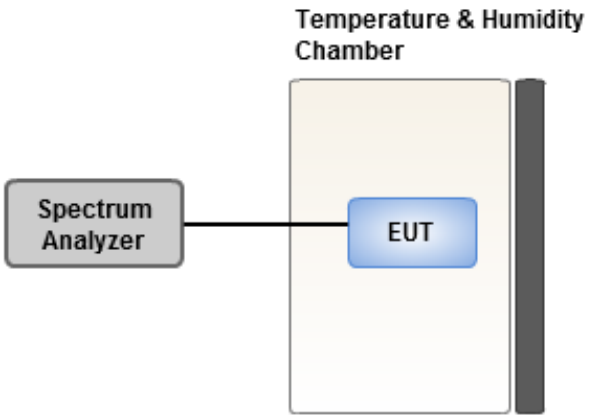
3.6.1 Limit of Frequency Stability

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 20 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 65 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: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	6.67	6.47	6.23	6.64
T20°CVmin	3.84	4.03	4.18	4.26
T65°CVnom	4.66	4.29	4.63	4.55
T60°CVnom	3.46	4.10	3.34	3.91
T50°CVnom	2.87	2.53	2.73	3.05
T40°CVnom	3.16	3.69	3.82	3.11
T30°CVnom	2.08	2.24	2.13	2.55
T20°CVnom	4.01	4.74	4.27	3.59
T10°CVnom	3.00	3.17	3.45	2.93
T0°CVnom	0.95	1.13	0.86	0.80
T-10°CVnom	0.88	1.00	0.80	0.79
T-20°CVnom	0.33	0.17	0.21	0.76
T-30°CVnom	0.01	0.01	0.08	0.64
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 65		Tmin [°C]: -30

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	5.89	5.96	5.88	5.86
T20°CVmin	4.77	4.83	4.87	4.80
T65°CVnom	4.67	4.72	4.79	4.70
T60°CVnom	3.92	3.93	3.99	4.03
T50°CVnom	4.51	4.49	4.42	4.43
T40°CVnom	3.44	3.44	3.53	3.57
T30°CVnom	3.50	3.55	3.48	3.56
T20°CVnom	3.16	3.19	3.20	3.30
T10°CVnom	1.42	1.44	1.52	1.61
T0°CVnom	1.55	1.69	1.76	1.77
T-10°CVnom	1.50	1.25	1.51	1.53
T-20°CVnom	1.46	1.69	1.49	1.52
T-30°CVnom	1.41	1.44	1.53	1.49
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 65		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.

Linkou	**Kwei Shan**	**Kwei Shan Site II**
Tel: 886-2-2601-1640	Tel: 886-3-271-8666	Tel: 886-3-271-8640
No. 30-2, Ding Fwu Tsuen, Lin Kou District, New Taipei City, Taiwan, R.O.C.	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.

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

Tel: 886-3-271-8666
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Email: ICC_Service@icertifi.com.tw

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