FCC C2PC Test Report

FCC ID	:	**MXF-L1000**
Equipment	:	**Luma Home**
Model No.	:	**WRTQ-329ACN**
Brand Name	:	**Gemtek**
Applicant	:	**Gemtek Technology Co., Ltd.**
Address	:	**No. 15-1 Zhonghua Road, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, 30352.**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Aug. 23, 2016**
Tested Date	:	**Sep. 10 ~ Sep. 13, 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.

Reviewed by: **Approved by:**

Along Chen / Assistant Manager **Gary Chang / Manager**

Testing Laboratory 2732

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Release Record

Report No.	Version	Description	Issued Date
FR632301-01AN	Rev. 01	Initial issue	Nov. 11, 2016

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.375MHz 32.70 (Margin -15.69dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5350.00MHz 72.87 (Margin -1.13dB) - PK	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: 5250~5350MHz: 23.16 5470~5725MHz: 23.92	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

This report is issued as a FCC Class II Permissive Change. The modification is only concerned as below

1. Size and location of conductive foam is changed.
2. Height of Shielding case is changed
3. Adding 5250~5350 / 5470 ~ 5725 MHz band by software setting

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**
5250-5350 5470-5725	a	5260-5320 5500-5720	52-64 [4] 100-144 [12]	2	6-54 Mbps
5250-5350 5470-5725	n (HT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	2	MCS 0-15
5250-5350 5470-5725	n (HT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	2	MCS 0-15
5250-5350 5470-5725	ac (VHT20)	5260-5320 5500-5720	52-64 [4] 100-144 [12]	2	MCS 0-9
5250-5350 5470-5725	ac (VHT40)	5270-5310 5510-5710	54-62 [2] 102-142 [6]	2	MCS 0-9
5250-5350 5470-5725	ac (VHT80)	5290 5530~5690	58 [1] 106-138 [3]	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.					

1.1.2 Antenna Details

Ant. No.	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)	
			5250~5350	**5470~5725**
1	PIFA	IPEX	5	5.5

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	Adapter	Brand: Luma Model: LWONCA-US1215 I/P: 100-240Vac, 50-60Hz, 0.5A Max O/P: 12Vdc, 1.5A Power line: 1.55m non-shielded without core
2	RJ45 cable	Brand: EKSON Model: ZP01-C254 1m non-shielded w/o core
3	RJ45 cable	Brand: Ricolink Model: 21A16030101 1m non-shielded w/o core

1.1.5 Channel List

802.11 a / HT20 / VHT20		HT40 / VHT40	
Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
52	5260	54	5270
56	5280	62	5310
60	5300	102	5510
64	5320	110	5550
100	5500	118	5590
104	5520	126	5630
108	5540	134	5670
112	5560	142	5710
116	5580	**VHT80**	
120	5600	58	5290
124	5620	106	5530
128	5640	122	5610
132	5660	138	5690
136	5680	---	---
140	5700	---	---
144	5720	---	---

1.1.6 Test Tool and Duty Cycle

Test Tool	QSPR, Version: 5.0.0		
Duty Cycle and Duty Factor	**Mode**	**Duty cycle (%)**	**Duty factor (dB)**
	11a	96.91%	0.14
	HT20	88.94%	0.51
	HT40	76.82%	1.15
	VHT20	88.92%	0.51
	VHT40	78.97%	1.03
	VHT80	84.48%	0.73

1.1.7 Power Setting

For Frequency band 5250~5350 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5260	20.5
11a	5300	20.5
11a	5320	21
HT20	5260	21
HT20	5300	21
HT20	5320	20
HT40	5270	22
HT40	5310	17.5
VHT20	5260	21
VHT20	5300	21
VHT20	5320	20
VHT40	5270	22
VHT40	5310	17.5
VHT80	5290	17

For Frequency band 5470~5725 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5500	20
11a	5580	20
11a	5700	18
HT20	5500	19
HT20	5580	20.5
HT20	5700	18
HT40	5510	17
HT40	5590	22
HT40	5670	19.5
VHT20	5500	19
VHT20	5580	20.5
VHT20	5700	18
VHT40	5510	17
VHT40	5590	22
VHT40	5670	19.5
VHT80	5530	17
VHT80	5610	22.5

Channel that extends across the 5.725 GHz boundary

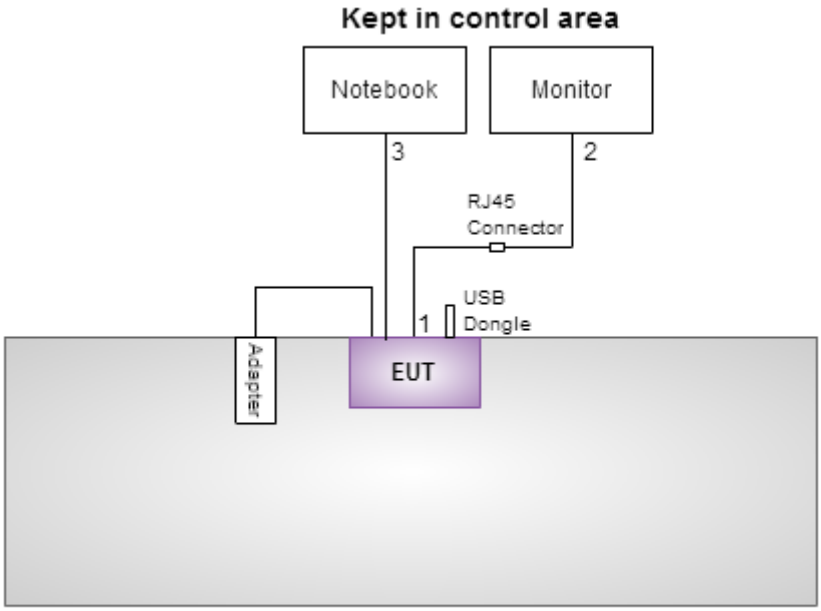
For Frequency band 5470~5725 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5720	19
HT20	5720	19.5
HT40	5710	23
VHT20	5720	19.5
VHT40	5710	23
VHT80	5690	23

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	RJ45, 10m non-shielded.
2	Notebook	DELL	Latitude E6430	DoC	RJ45, 10m non-shielded. RJ45, 1m non-shielded.
3	USB Dongle	Kingston	DTSE9	---	---

1.3 Test Setup Chart

Test Setup Diagram



1. RJ45, 1m non-shielded (provided by client)
2 & 3. RJ45, 10m non-shielded

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
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Nov. 26, 2015	Nov. 25, 2016
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 21, 2015	Dec. 20, 2016
50 ohm terminal (Support Unit)	NA	50	04	Apr. 12, 2016	Apr. 11, 2017
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 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. 04, 2016	Aug. 03, 2017
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	100330	Nov. 16, 2015	Nov. 15, 2016
Preamplifier	EMC	EMC02325	980225	Aug. 05, 2016	Aug. 04, 2017
Preamplifier	Agilent	83017A	MY39501308	Oct. 02, 2015	Oct. 01, 2016
Preamplifier	EMC	EMC184045B	980192	Aug. 24, 2016	Aug. 23, 2017
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 1M	EMC	EMCCFD400-NM-NM-1000	16052	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
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 27, 2015	Nov. 26, 2016
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 v01r03
FCC KDB 644545 D03 Guidance for IEEE 802 11ac New Rules v01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 412172 D01 Determining ERP and EIRP v01r01

1.6 Measurement Uncertainty

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

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

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	25°C / 55%	Howard Huang
Radiated Emissions	03CH01-WS	24°C / 62-63%	Kevin Lee Vincent Yeh
RF Conducted	TH01-WS	22°C / 63%	Brad Wu

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

2.2 The Worst Test Modes and Channel Details

For Frequency band 5250-5350 MHz, 5470-5725 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate**	**Test Configuration**
Conducted Emissions	VHT40	5590	MCS 0	---
Radiated Emissions ≤1GHz	VHT40	5590	MCS 0	---
RF Output Power	11a	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	6 Mbps	---
	HT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0	
	HT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0	
	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0	
	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0	
	VHT80	5290 / 5530 / 5610 / 5690	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	6 Mbps	---
	VHT20	5260 / 5300 / 5320 5500 / 5580 / 5700 / 5720	MCS 0	
	VHT40	5270 / 5310 5510 / 5590 / 5670 / 5710	MCS 0	
	VHT80	5290 / 5530 / 5610 / 5690	MCS 0	
Frequency Stability	Un-modulation	5320	---	---

Note:
1. The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement – X, Y, and Z-plane. The **Y-plane** results were found as the worst case and were shown in this report.
2. 2 RJ45 cables, EKSON and Ricolink, had been pretested and found that **EKSON** was the worst case and was selected for final testing.

3 Transmitter Test Results

3.1 Conducted Emissions

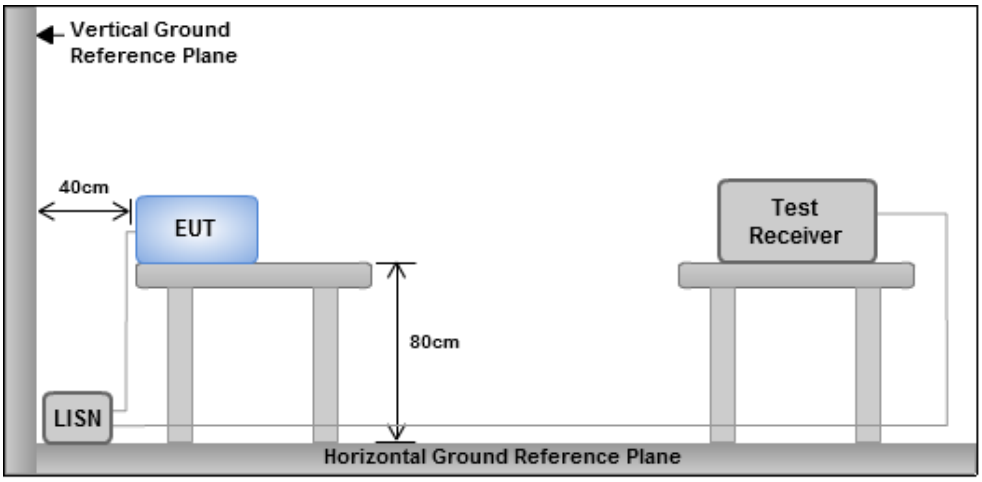
3.1.1 Limit of Conducted Emissions

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

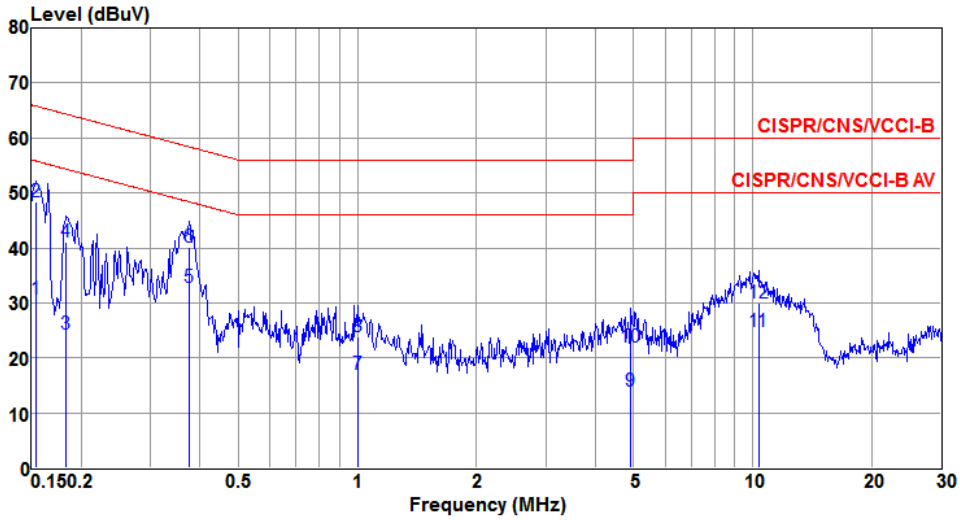
3.1.3 Test Setup



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

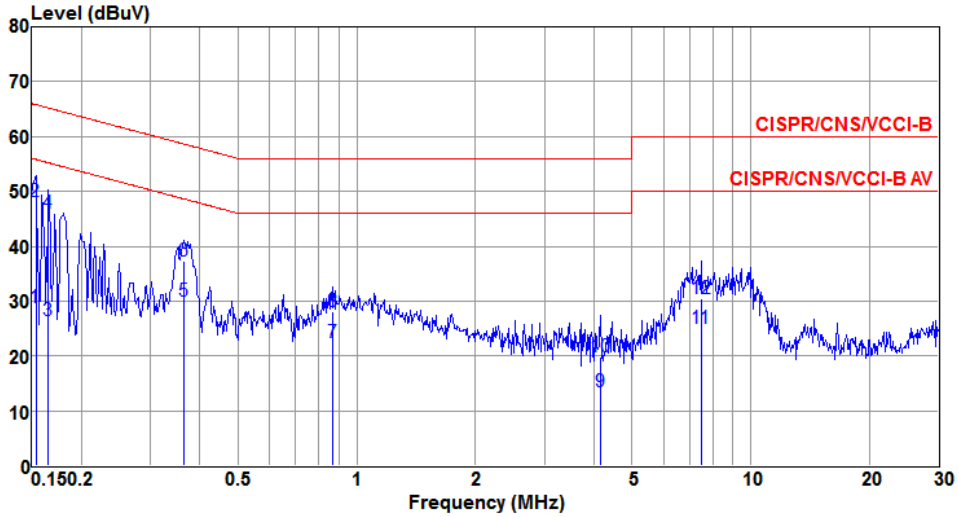
Modulation	VHT40	Test Freq. (MHz)	5590
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.154	30.66	55.78	-25.12	29.78	0.86	0.02	Average
2	0.154	48.44	65.78	-17.34	47.56	0.86	0.02	QP
3	0.183	24.43	54.33	-29.90	23.97	0.44	0.02	Average
4	0.183	41.15	64.33	-23.18	40.69	0.44	0.02	QP
5@	0.375	32.70	48.39	-15.69	32.48	0.19	0.03	Average
6	0.375	40.08	58.39	-18.31	39.86	0.19	0.03	QP
7	1.000	16.92	46.00	-29.08	16.77	0.09	0.06	Average
8	1.000	23.82	56.00	-32.18	23.67	0.09	0.06	QP
9	4.926	14.00	46.00	-32.00	13.52	0.35	0.13	Average
10	4.926	21.93	56.00	-34.07	21.45	0.35	0.13	QP
11	10.342	24.86	50.00	-25.14	24.03	0.67	0.16	Average
12	10.342	29.93	60.00	-30.07	29.10	0.67	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	VHT40	Test Freq. (MHz)	5590
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.153	28.90	55.82	-26.92	28.06	0.82	0.02	Average
2@	0.153	48.26	65.82	-17.56	47.42	0.82	0.02	QP
3	0.165	26.55	55.21	-28.66	25.89	0.64	0.02	Average
4	0.165	46.10	65.21	-19.11	45.44	0.64	0.02	QP
5	0.363	29.90	48.65	-18.75	29.72	0.15	0.03	Average
6	0.363	37.19	58.65	-21.46	37.01	0.15	0.03	QP
7	0.871	22.52	46.00	-23.48	22.21	0.25	0.06	Average
8	0.871	27.98	56.00	-28.02	27.67	0.25	0.06	QP
9	4.158	13.46	46.00	-32.54	12.61	0.73	0.12	Average
10	4.158	19.77	56.00	-36.23	18.92	0.73	0.12	QP
11	7.486	25.09	50.00	-24.91	24.35	0.59	0.15	Average
12	7.486	30.38	60.00	-29.62	29.64	0.59	0.15	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 Test Procedures

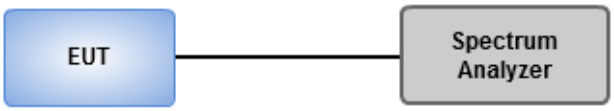
26dB Bandwidth

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

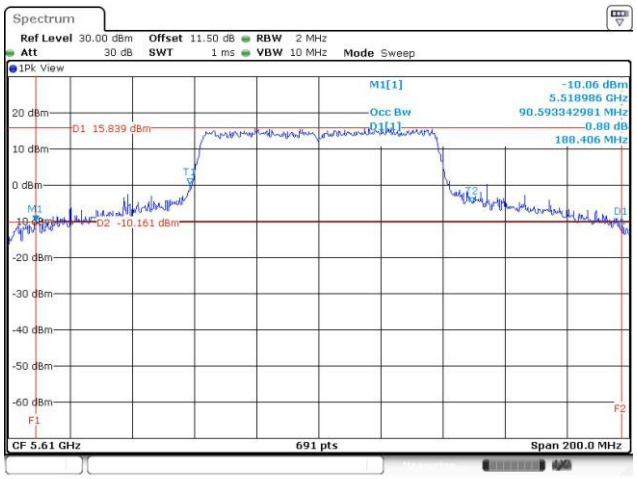
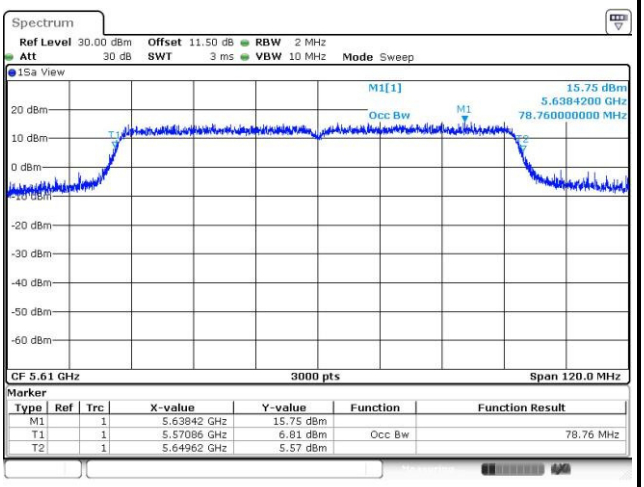
1. Set RBW = 1 % to 5 % of the OBW
2. Set VBW ≥ 3 RBW
3. Sample detection and single sweep mode shall be used
4. Use the 99 % power bandwidth function of the instrument

3.2.2 Test Setup



3.2.3 Test Result of Emission Bandwidth

Emission Bandwidth									
Mode	N_{TX}	Freq. (MHz)	26dB Bandwidth (MHz)			99% Bandwidth (MHz)			Power Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2	
11a	2	5260	42.61	42.75	---	17.42	17.29	---	24.00
11a	2	5300	41.45	42.46	---	17.31	17.16	---	24.00
11a	2	5320	41.16	40.07	---	17.23	17.11	---	24.00
VHT20	2	5260	45.65	44.35	---	18.52	18.54	---	24.00
VHT20	2	5300	44.49	45.29	---	18.43	18.46	---	24.00
VHT20	2	5320	41.81	39.93	---	18.13	18.07	---	24.00
VHT40	2	5270	90.44	88.99	---	37.92	38.08	---	24.00
VHT40	2	5310	46.61	46.26	---	37.06	37.00	---	24.00
VHT80	2	5290	90.90	88.81	---	76.96	76.92	---	24.00
11a	2	5500	41.23	40.36	---	17.24	17.14	---	24.00
11a	2	5580	40.36	38.19	---	17.12	17.06	---	24.00
11a	2	5700	41.38	41.38	---	17.10	17.05	---	24.00
VHT20	2	5500	42.10	39.49	---	18.09	18.09	---	24.00
VHT20	2	5580	43.70	43.91	---	18.33	18.24	---	24.00
VHT20	2	5700	44.86	39.49	---	18.18	18.20	---	24.00
VHT40	2	5510	47.19	47.54	---	37.12	37.06	---	24.00
VHT40	2	5590	87.10	83.77	---	40.74	40.96	---	24.00
VHT40	2	5670	84.20	82.17	---	37.38	37.54	---	24.00
VHT80	2	5530	90.67	94.38	---	77.16	77.04	---	24.00
VHT80	2	5610	184.93	188.41	---	78.40	78.76	---	24.00

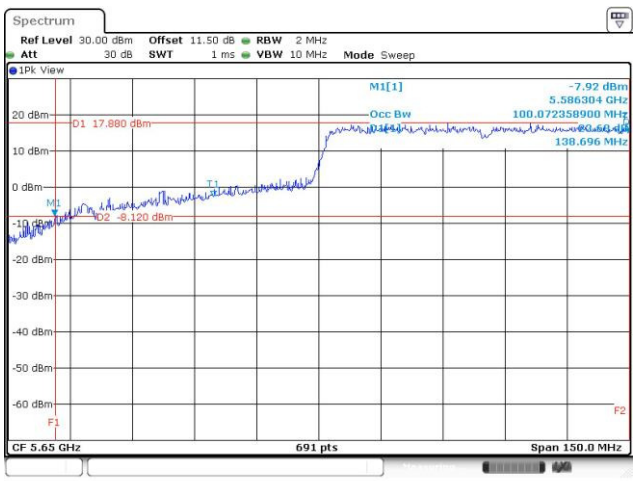
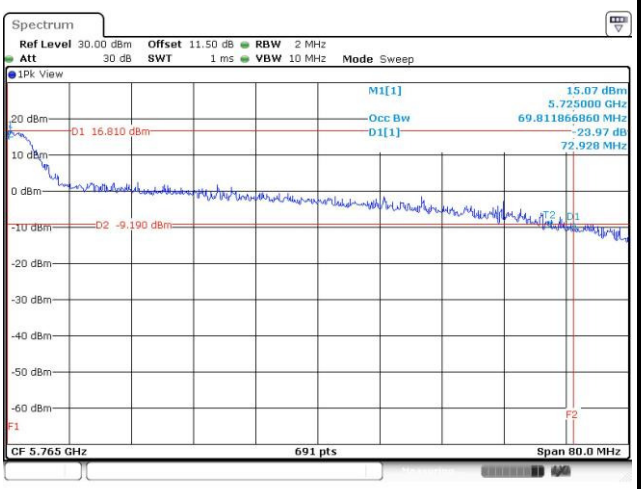
Worst Plot of 26dB Bandwidth	Worst Plot of 99% Bandwidth
	

Channel that extends across the 5.725 GHz boundary

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 0	Chain 1	Chain 2	
11a	2	5720	22.36	21.74	---	13.63	13.62	---	24.00
VHT20	2	5720	24.02	23.84	---	14.20	14.19	---	24.00
VHT40	2	5710	65.74	65.94	---	36.89	37.35	---	24.00
VHT80	2	5690	134.78	138.70	---	76.30	78.42	---	24.00

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 0	Chain 1	Chain 2
11a	2	5720	13.22	13.35	---	3.71	3.62	---
VHT20	2	5720	14.76	14.83	---	4.20	4.19	---
VHT40	2	5710	36.99	38.32	---	7.39	7.83	---
VHT80	2	5690	71.54	72.93	---	7.38	9.66	---

Worst Plots

Within 5470-5725MHz band	Extends across 5725MHz band
	

3.3 RF Output Power

3.3.1 Limit of RF Output Power

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	250mW or 11dBm+10 log B
☒	5470 ~ 5725	250mW or 11dBm+10 log B
Note: “B” is the 26dB emission bandwidth in MHz.		

3.3.2 Test Procedures

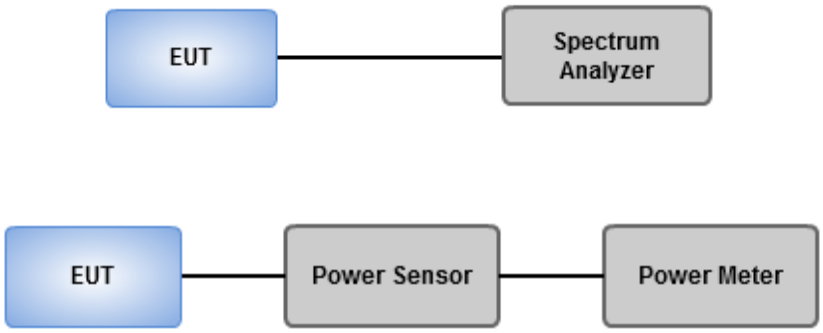
☒ Power meter (For channel that does not extends across the 5.725 GHz boundary)

☒ 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
4. Add 10 log(1/X, X:duty cycle) if duty cycle is <98%)

3.3.3 Test Setup



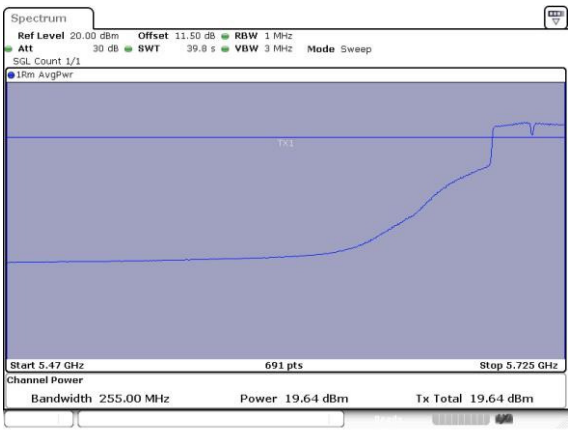
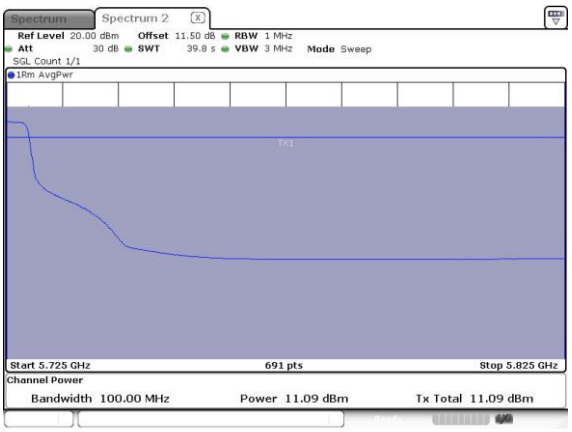
3.3.4 Test Result of Maximum Conducted Output Power

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	18.54	18.64	---	---	144.564	21.60	24.00
11a	2	5300	18.28	18.32	---	---	135.218	21.31	24.00
11a	2	5320	18.55	18.35	---	---	140.006	21.46	24.00
HT20	2	5260	18.96	18.91	---	---	156.508	21.95	24.00
HT20	2	5300	18.65	18.64	---	---	146.396	21.66	24.00
HT20	2	5320	17.55	17.53	---	---	113.509	20.55	24.00
HT40	2	5270	20.06	20.04	---	---	202.316	23.06	24.00
HT40	2	5310	15.41	15.48	---	---	70.072	18.46	24.00
VHT20	2	5260	19.01	19.05	---	---	159.969	22.04	24.00
VHT20	2	5300	18.78	18.79	---	---	151.193	21.80	24.00
VHT20	2	5320	17.67	17.62	---	---	116.289	20.66	24.00
VHT40	2	5270	20.12	20.18	---	---	207.033	**23.16**	24.00
VHT40	2	5310	15.52	15.61	---	---	72.037	18.58	24.00
VHT80	2	5290	15.02	15.15	---	---	64.503	18.10	24.00
11a	2	5500	18.48	18.35	---	---	138.860	21.43	24.00
11a	2	5580	18.57	18.28	---	---	139.243	21.44	24.00
11a	2	5700	17.42	17.75	---	---	114.774	20.60	24.00
HT20	2	5500	17.35	17.61	---	---	112.002	20.49	24.00
HT20	2	5580	18.52	18.63	---	---	144.067	21.59	24.00
HT20	2	5700	17.29	17.75	---	---	113.146	20.54	24.00
HT40	2	5510	15.42	15.84	---	---	73.204	18.65	24.00
HT40	2	5590	20.71	20.82	---	---	238.542	23.78	24.00
HT40	2	5670	18.04	18.41	---	---	133.022	21.24	24.00
VHT20	2	5500	17.47	17.72	---	---	115.003	20.61	24.00
VHT20	2	5580	18.63	18.70	---	---	147.077	21.68	24.00
VHT20	2	5700	17.42	17.86	---	---	116.302	20.66	24.00
VHT40	2	5510	15.55	15.97	---	---	75.429	18.78	24.00
VHT40	2	5590	20.86	20.96	---	---	246.637	**23.92**	24.00
VHT40	2	5670	18.19	18.53	---	---	137.203	21.37	24.00
VHT80	2	5530	15.24	15.62	---	---	69.895	18.44	24.00
VHT80	2	5610	19.38	19.83	---	---	182.857	22.62	24.00

Channel that extends across the 5.725 GHz boundary

Maximum Conducted Output Power (Within 5470-5725MHz band)											
Mode	N_{TX}	Freq. (MHz)	Conducted Power without duty factor					Duty factor (dB)	Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)				
11a	2	5720	17.22	17.21	---	---	20.23	0.14	108.775	20.37	24.00
HT20	2	5720	16.80	16.93	---	---	19.88	0.51	109.290	20.39	24.00
HT40	2	5710	19.03	19.44	---	---	22.25	1.15	218.783	23.40	24.00
VHT20	2	5720	16.99	16.97	---	---	19.99	0.51	112.210	20.50	24.00
VHT40	2	5710	19.26	19.64	---	---	22.46	1.03	223.586	23.49	24.00
VHT80	2	5690	19.45	19.32	---	---	22.40	0.73	205.390	23.13	24.00

Maximum Conducted Output Power (Extends across 5725MHz band)											
Mode	N_{TX}	Freq. (MHz)	Conducted Power without duty factor					Duty factor (dB)	Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3	Total Power (dBm)				
11a	2	5720	10.97	10.80	---	---	13.90	0.14	25.329	14.04	30.00
HT20	2	5720	10.74	11.09	---	---	13.93	0.51	27.790	14.44	30.00
HT40	2	5710	8.66	9.60	---	---	12.17	1.15	21.457	13.32	30.00
VHT20	2	5720	11.01	11.01	---	---	14.02	0.51	28.381	14.53	30.00
VHT40	2	5710	8.81	9.76	---	---	12.32	1.03	21.633	13.35	30.00
VHT80	2	5690	6.67	6.53	---	---	9.61	0.73	10.816	10.34	30.00

Worst Channel Power Plots	
Within 5470-5725MHz band	Extends across 5725MHz band
	

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

Frequency Band (MHz)		Limit
☒	5250 ~ 5350	11 dBm / MHz
☒	5470 ~ 5725	11 dBm / MHz

3.4.2 Test Procedures

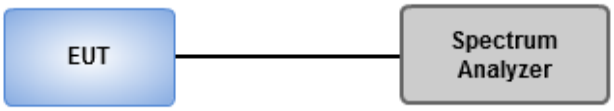
☐ Method SA-1

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 if duty cycle < 98%

3.4.3 Test Setup

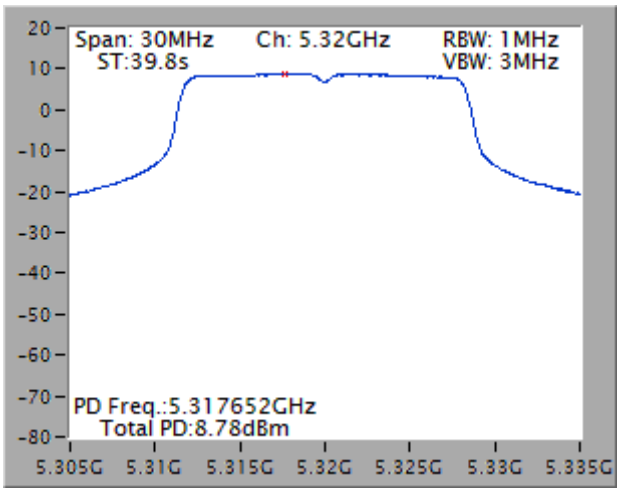


3.4.4 Test Result of Peak Power Spectral Density

Condition			Peak Power Spectral Density (dBm/MHz)			
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	2	5260	8.42	0.14	8.56	8.99
11a	2	5300	8.47	0.14	8.61	8.99
11a	2	5320	8.78	0.14	8.92	8.99
VHT20	2	5260	8.21	0.51	8.72	8.99
VHT20	2	5300	8.30	0.51	8.81	8.99
VHT20	2	5320	7.26	0.51	7.77	8.99
VHT40	2	5270	6.17	1.03	7.20	8.99
VHT40	2	5310	1.89	1.03	2.92	8.99
VHT80	2	5290	-1.59	0.73	-0.86	8.99
11a	2	5500	8.17	0.14	8.31	8.49
11a	2	5580	8.09	0.14	8.23	8.49
11a	2	5700	7.78	0.14	7.92	8.49
11a	2	5720	8.05	0.14	8.19	8.49
VHT20	2	5500	7.13	0.51	7.64	8.49
VHT20	2	5580	7.86	0.51	8.37	8.49
VHT20	2	5700	7.15	0.51	7.66	8.49
VHT20	2	5720	7.87	0.51	8.38	8.49
VHT40	2	5510	1.97	1.03	3.00	8.49
VHT40	2	5590	6.40	1.03	7.43	8.49
VHT40	2	5670	4.46	1.03	5.49	8.49
VHT40	2	5710	7.02	1.03	8.05	8.49
VHT80	2	5530	-1.47	0.73	-0.74	8.49
VHT80	2	5610	3.07	0.73	3.80	8.49
VHT80	2	5690	3.79	0.73	4.52	8.49

Note:

1. D.F is duty factor.
2. Test results are bin-by-bin summing measured value of each TX port.
3. Frequency 5250-5350MHz:
   Directional gain = 5+10* log(2/1) = 8.01 dBi > 6 dBi.
   Limit shall be reduced to 11 dBm – (8.01 dBi – 6 dBi) = 8.99 dBm.
4. Frequency 5470-5725MHz:
   Directional gain = 5.5+10* log(2/1) = 8.51 dBi > 6 dBi.
   Limit shall be reduced to 11 dBm – (8.51 dBi – 6 dBi) = 8.49 dBm.

Worst Plot


Note: Test plot without duty factor

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**
5.25 - 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]

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

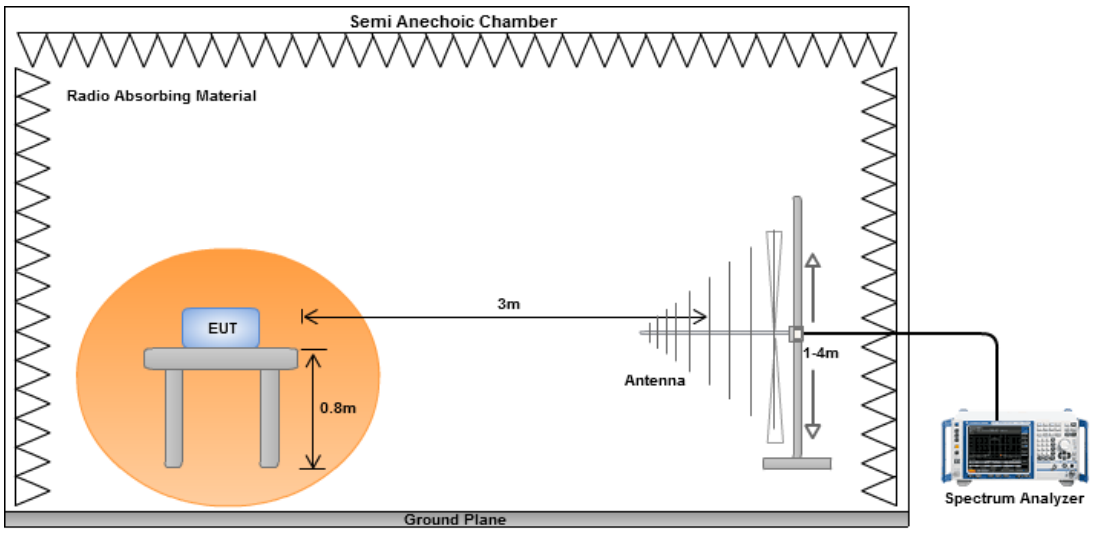
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

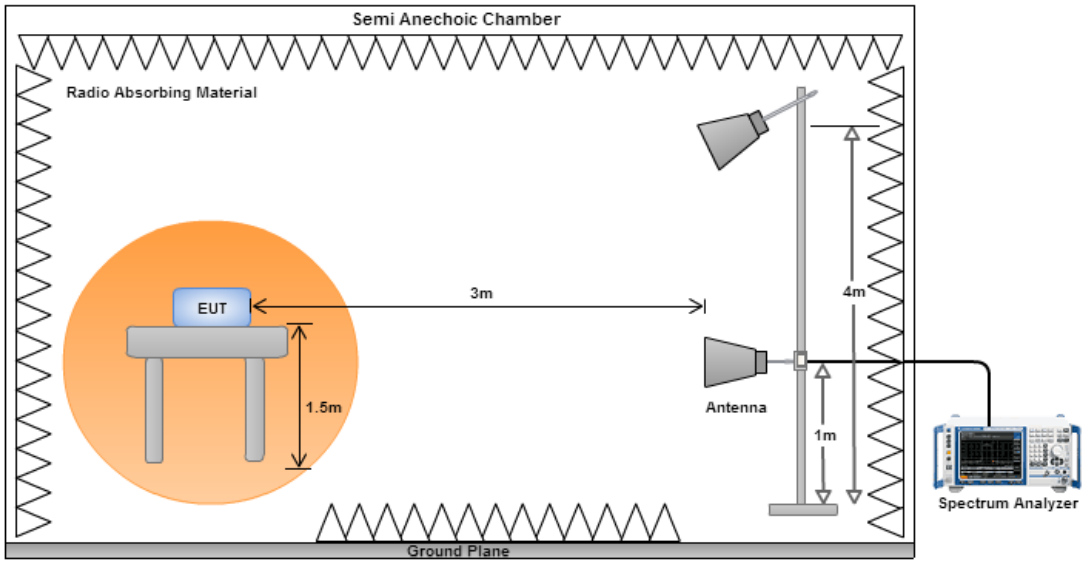
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

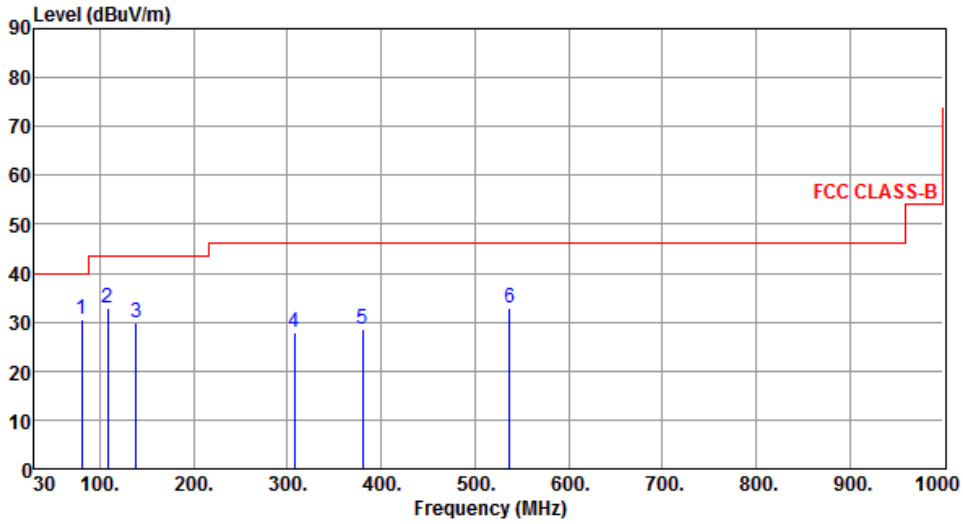


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

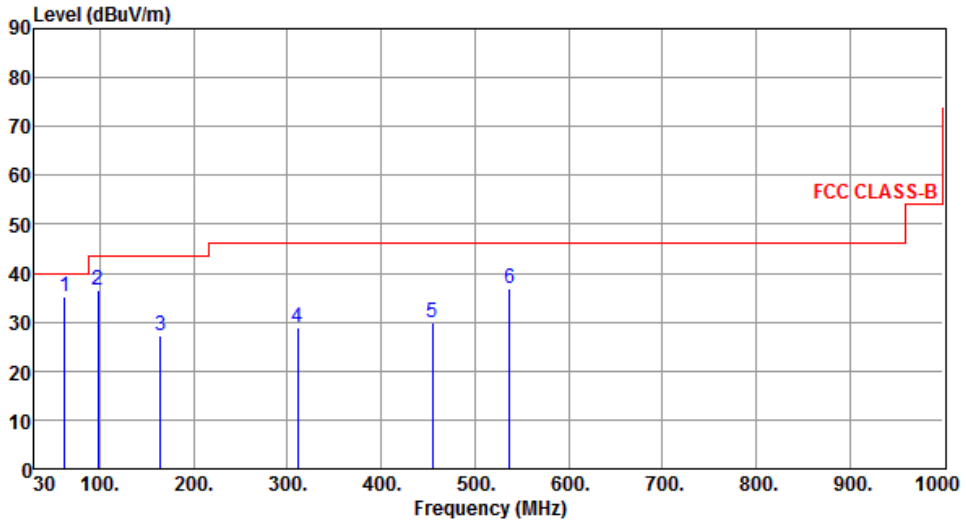
Modulation	VHT40	**Test Freq. (MHz)**	5590
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	80.44	30.44	40.00	-9.56	43.18	-12.74	Peak	---	---
2	108.57	32.77	43.50	-10.73	44.32	-11.55	Peak	---	---
3	138.64	29.87	43.50	-13.63	38.42	-8.55	Peak	---	---
4	307.42	28.06	46.00	-17.94	35.58	-7.52	Peak	---	---
5	380.17	28.48	46.00	-17.52	34.18	-5.70	Peak	---	---
6	537.31	32.74	46.00	-13.26	35.11	-2.37	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.

Modulation	VHT40	Test Freq. (MHz)	5590
Polarization	Vertical		

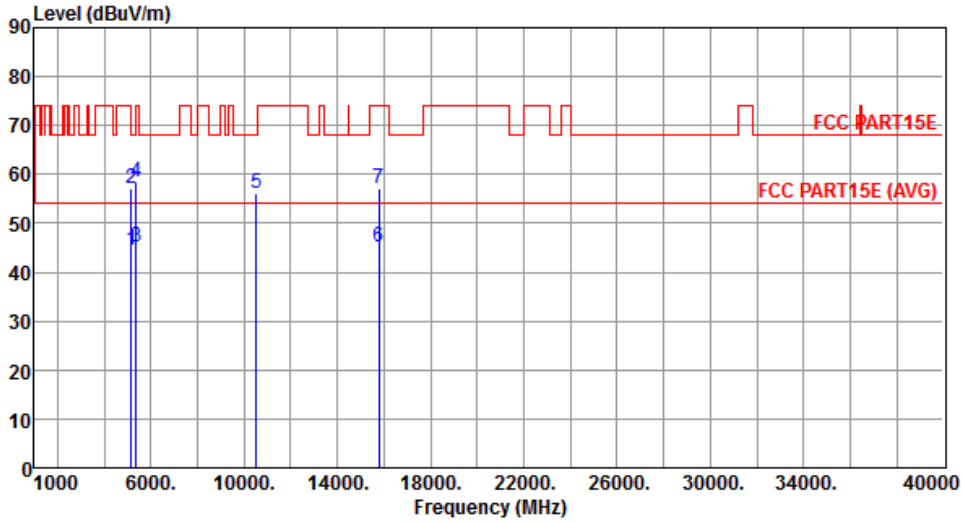


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	62.49	35.27	40.00	-4.73	44.70	-9.43	QP	100	83
2	97.90	36.49	43.50	-7.01	49.83	-13.34	Peak	---	---
3	164.83	27.19	43.50	-16.31	35.66	-8.47	Peak	---	---
4	311.30	28.97	46.00	-17.03	36.39	-7.42	Peak	---	---
5	454.86	29.82	46.00	-16.18	33.73	-3.91	Peak	---	---
6	537.31	36.75	46.00	-9.25	39.12	-2.37	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

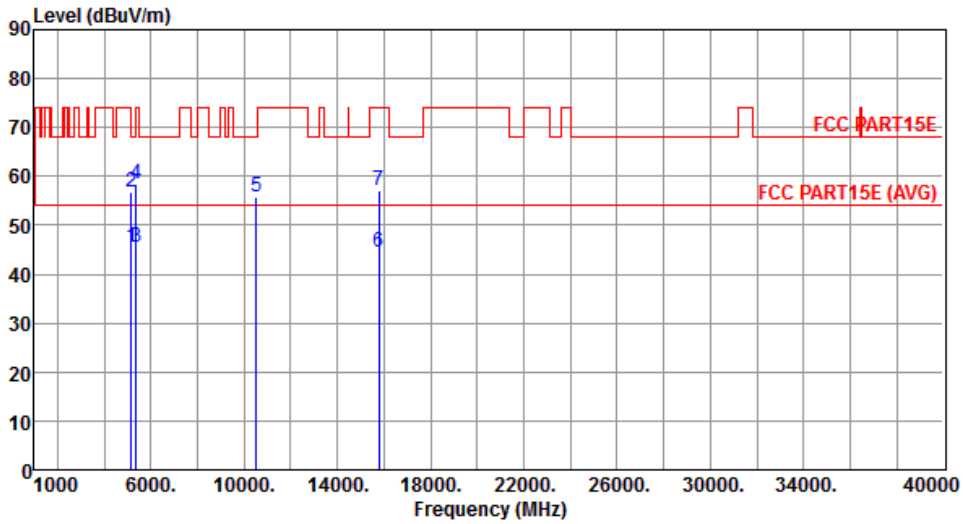
Modulation	11a	**Test Freq. (MHz)**	5260
Polarization	Horizontal		



	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	44.61	54.00	-9.39	40.21	4.40	Average	100	73
2	5150.00	57.07	74.00	-16.93	52.67	4.40	Peak	100	73
3	5350.00	45.27	54.00	-8.73	40.63	4.64	Average	100	73
4	5350.00	58.50	74.00	-15.50	53.86	4.64	Peak	100	73
5	10520.00	56.16	68.20	-12.04	41.66	14.50	Peak	126	256
6	15780.00	45.02	54.00	-8.98	30.23	14.79	Average	139	271
7	15780.00	57.24	74.00	-16.76	42.45	14.79	Peak	139	271

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).

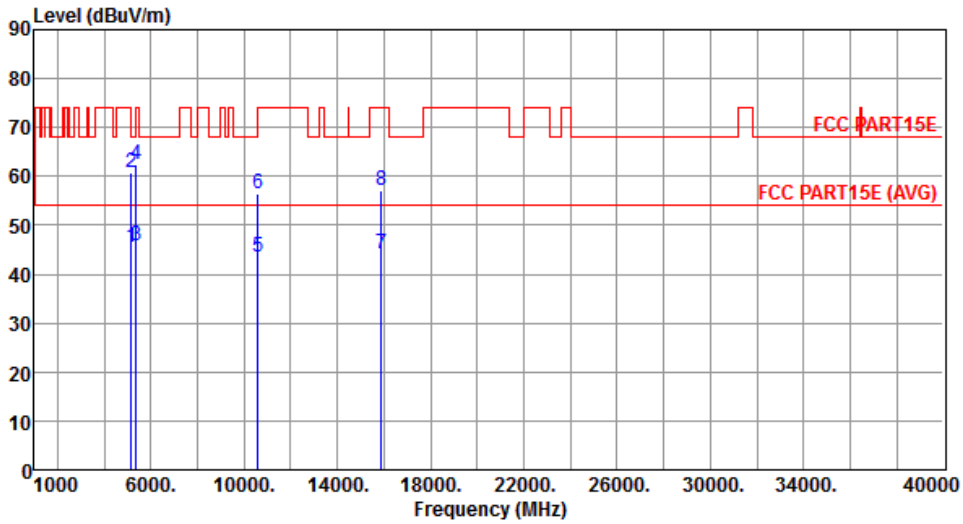
Modulation	11a	Test Freq. (MHz)	5260
Polarization	Vertical		



	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	45.63	54.00	-8.37	41.23	4.40	Average	286	92
2	5150.00	56.93	74.00	-17.07	52.53	4.40	Peak	286	92
3	5350.00	45.63	54.00	-8.37	40.99	4.64	Average	286	92
4	5350.00	58.37	74.00	-15.63	53.73	4.64	Peak	286	92
5	10520.00	55.86	68.20	-12.34	41.36	14.50	Peak	130	245
6	15780.00	44.53	54.00	-9.47	29.74	14.79	Average	192	325
7	15780.00	57.16	74.00	-16.84	42.37	14.79	Peak	192	325

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).

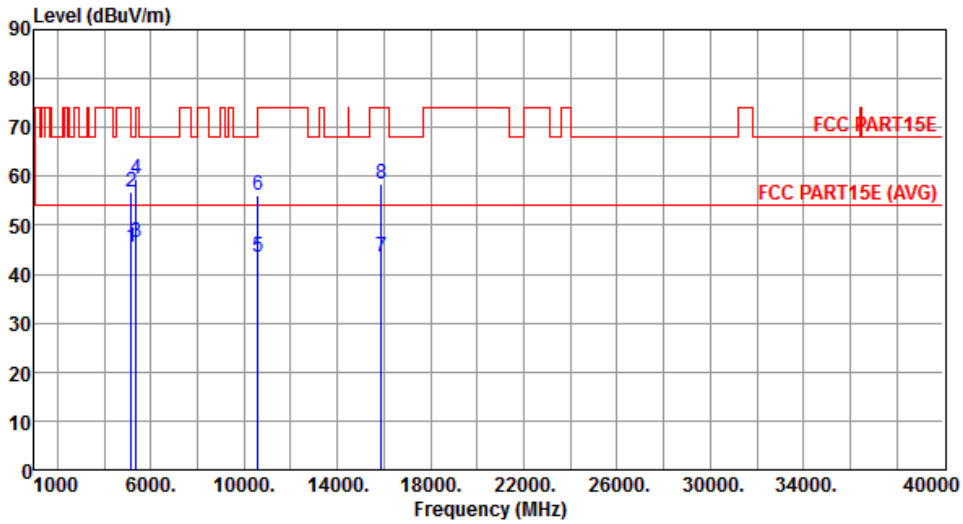
Modulation	11a	Test Freq. (MHz)	5300
Polarization	Horizontal		



	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	45.55	54.00	-8.45	41.15	4.40	Average	100	74
2	5150.00	60.64	74.00	-13.36	56.24	4.40	Peak	100	74
3	5350.00	45.74	54.00	-8.26	41.10	4.64	Average	100	74
4	5350.00	62.53	74.00	-11.47	57.89	4.64	Peak	100	74
5	10600.00	43.45	54.00	-10.55	28.86	14.59	Average	103	256
6	10600.00	56.40	74.00	-17.60	41.81	14.59	Peak	103	256
7	15900.00	44.09	54.00	-9.91	29.45	14.64	Average	105	271
8	15900.00	57.17	74.00	-16.83	42.53	14.64	Peak	105	271

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).

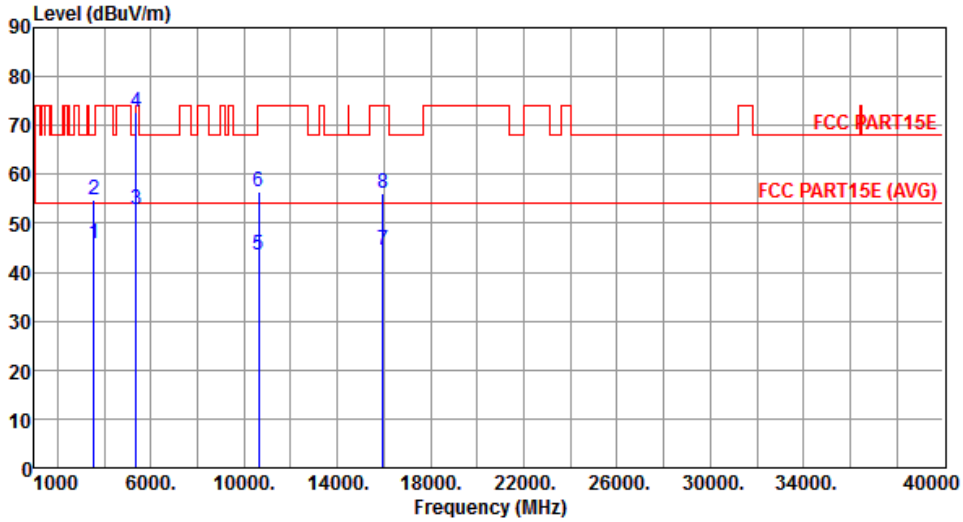
Modulation	11a	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.41	54.00	-8.59	41.01	4.40	Average	298	90
2	5150.00	56.64	74.00	-17.36	52.24	4.40	Peak	298	90
3	5350.00	46.45	54.00	-7.55	41.81	4.64	Average	298	90
4	5350.00	59.56	74.00	-14.44	54.92	4.64	Peak	298	90
5	10600.00	43.37	54.00	-10.63	28.78	14.59	Average	268	42
6	10600.00	56.20	74.00	-17.80	41.61	14.59	Peak	268	42
7	15900.00	43.38	54.00	-10.62	28.74	14.64	Average	255	182
8	15900.00	58.34	74.00	-15.66	43.70	14.64	Peak	255	182

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).

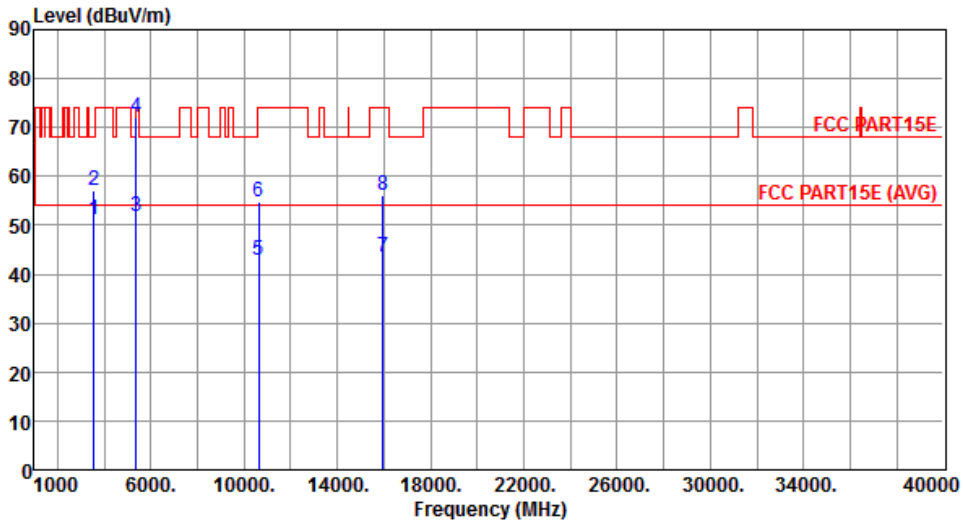
Modulation	11a	Test Freq. (MHz)	5320
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3547.00	45.89	54.00	-8.11	45.81	0.08	Average	100	223
2	3547.00	54.83	68.20	-13.37	54.75	0.08	Peak	100	223
3	5350.00	52.66	54.00	-1.34	48.02	4.64	Average	100	68
4	5350.00	72.87	74.00	-1.13	68.23	4.64	Peak	100	68
5	10640.00	43.35	54.00	-10.65	28.71	14.64	Average	106	256
6	10640.00	56.53	74.00	-17.47	41.89	14.64	Peak	106	256
7	15960.00	44.60	54.00	-9.40	30.05	14.55	Average	112	284
8	15960.00	56.11	74.00	-17.89	41.56	14.55	Peak	112	284

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).

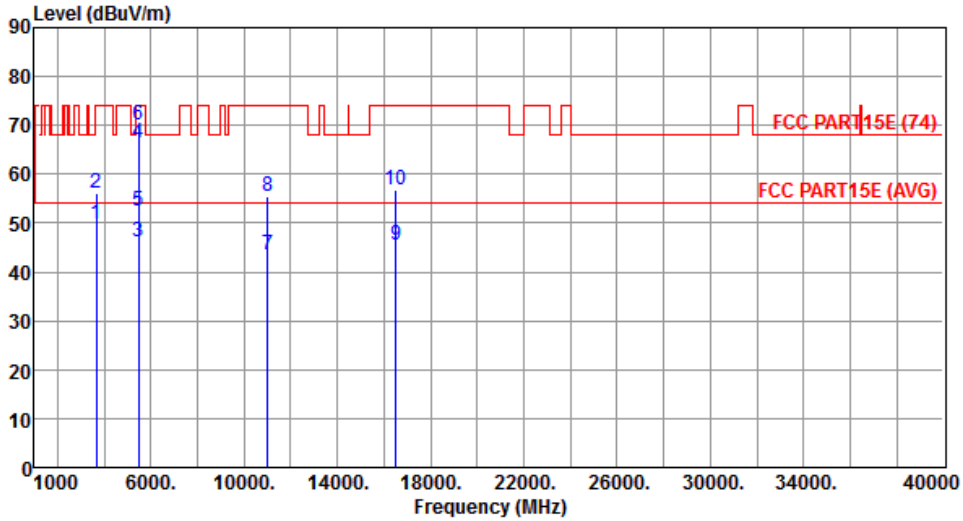
Modulation	11a	Test Freq. (MHz)	5320
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3547.00	51.18	54.00	-2.82	51.10	0.08	Average	305	158
2	3547.00	57.08	68.20	-11.12	57.00	0.08	Peak	305	158
3	5350.00	51.78	54.00	-2.22	47.14	4.64	Average	275	94
4	5350.00	72.00	74.00	-2.00	67.36	4.64	Peak	275	94
5	10640.00	42.91	54.00	-11.09	28.27	14.64	Average	122	40
6	10640.00	54.78	74.00	-19.22	40.14	14.64	Peak	122	40
7	15960.00	43.58	54.00	-10.42	29.03	14.55	Average	149	57
8	15960.00	56.00	74.00	-18.00	41.45	14.55	Peak	149	57

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).

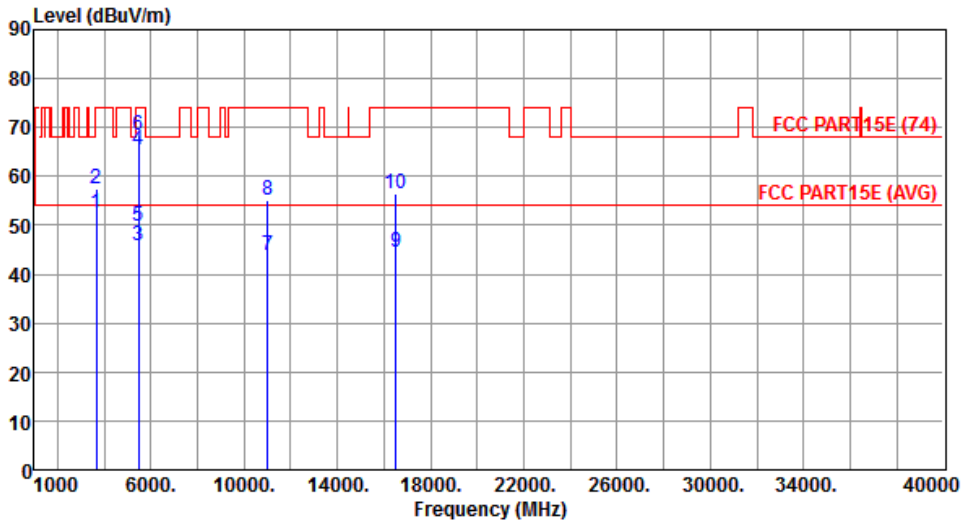
Modulation	11a	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3667.00	49.69	54.00	-4.31	49.26	0.43	Average	105	225
2	3667.00	56.24	74.00	-17.76	55.81	0.43	Peak	105	225
3	5460.00	46.21	54.00	-7.79	41.43	4.78	Average	100	52
4	5460.00	66.42	74.00	-7.58	61.64	4.78	Peak	100	52
5	5470.00	52.39	54.00	-1.61	47.60	4.79	Average	100	52
6	5470.00	70.09	74.00	-3.91	65.30	4.79	Peak	100	52
7	11000.00	43.64	54.00	-10.36	28.58	15.06	Average	121	247
8	11000.00	55.31	74.00	-18.69	40.25	15.06	Peak	121	247
9	16500.00	45.61	54.00	-8.39	29.23	16.38	Average	142	134
10	16500.00	56.71	74.00	-17.29	40.33	16.38	Peak	142	134

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).

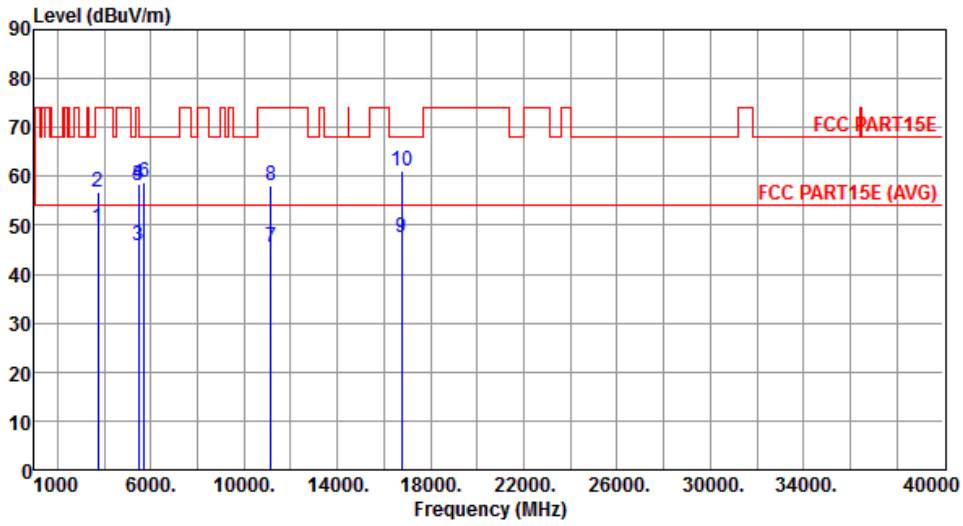
Modulation	11a	Test Freq. (MHz)	5500
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3667.00	52.42	54.00	-1.58	51.99	0.43	Average	322	162
2	3667.00	57.31	74.00	-16.69	56.88	0.43	Peak	322	162
3	5460.00	45.89	54.00	-8.11	41.11	4.78	Average	100	107
4	5460.00	65.29	74.00	-8.71	60.51	4.78	Peak	100	107
5	5470.00	49.82	54.00	-4.18	45.03	4.79	Average	100	107
6	5470.00	68.25	74.00	-5.75	63.46	4.79	Peak	100	107
7	11000.00	43.68	54.00	-10.32	28.62	15.06	Average	113	258
8	11000.00	55.11	74.00	-18.89	40.05	15.06	Peak	113	258
9	16500.00	44.47	54.00	-9.53	28.09	16.38	Average	122	149
10	16500.00	56.47	74.00	-17.53	40.09	16.38	Peak	122	149

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).

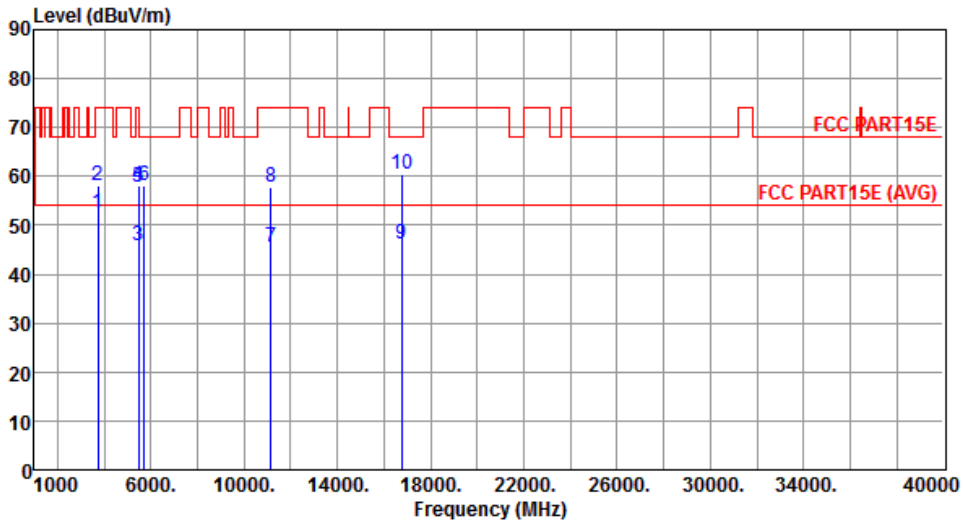
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Horizontal		



	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	49.63	54.00	-4.37	49.03	0.60	Average	104	218
2	3720.00	56.77	74.00	-17.23	56.17	0.60	Peak	104	218
3	5460.00	45.99	54.00	-8.01	41.21	4.78	Average	103	73
4	5460.00	58.41	74.00	-15.59	53.63	4.78	Peak	103	73
5	5470.00	58.09	68.20	-10.11	53.30	4.79	Peak	103	73
6	5725.00	58.69	68.20	-9.51	53.60	5.09	Peak	103	73
7	11160.00	45.52	54.00	-8.48	30.31	15.21	Average	104	294
8	11160.00	58.10	74.00	-15.90	42.89	15.21	Peak	104	294
9	16740.00	47.50	54.00	-6.50	30.24	17.26	Average	144	272
10	16740.00	61.16	68.20	-7.04	43.90	17.26	Peak	144	272

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).

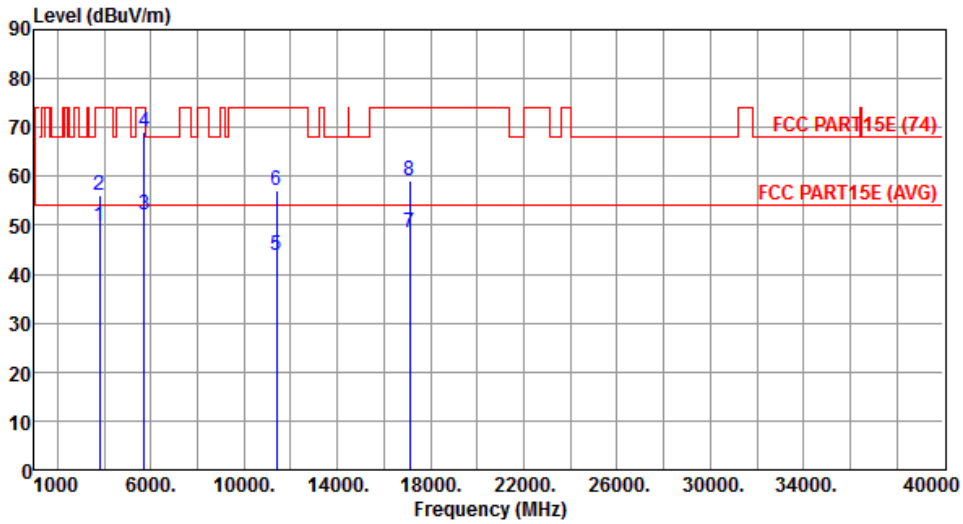
Modulation	11a	Test Freq. (MHz)	5580
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3720.00	52.49	54.00	-1.51	51.89	0.60	Average	302	165
2	3720.00	58.05	74.00	-15.95	57.45	0.60	Peak	302	165
3	5460.00	45.90	54.00	-8.10	41.12	4.78	Average	250	105
4	5460.00	58.12	74.00	-15.88	53.34	4.78	Peak	250	105
5	5470.00	57.66	68.20	-10.54	52.87	4.79	Peak	250	105
6	5725.00	58.03	68.20	-10.17	52.94	5.09	Peak	250	105
7	11160.00	45.36	54.00	-8.64	30.15	15.21	Average	129	175
8	11160.00	57.86	74.00	-16.14	42.65	15.21	Peak	129	175
9	16740.00	46.15	54.00	-7.85	28.89	17.26	Average	194	62
10	16740.00	60.31	68.20	-7.89	43.05	17.26	Peak	194	62

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

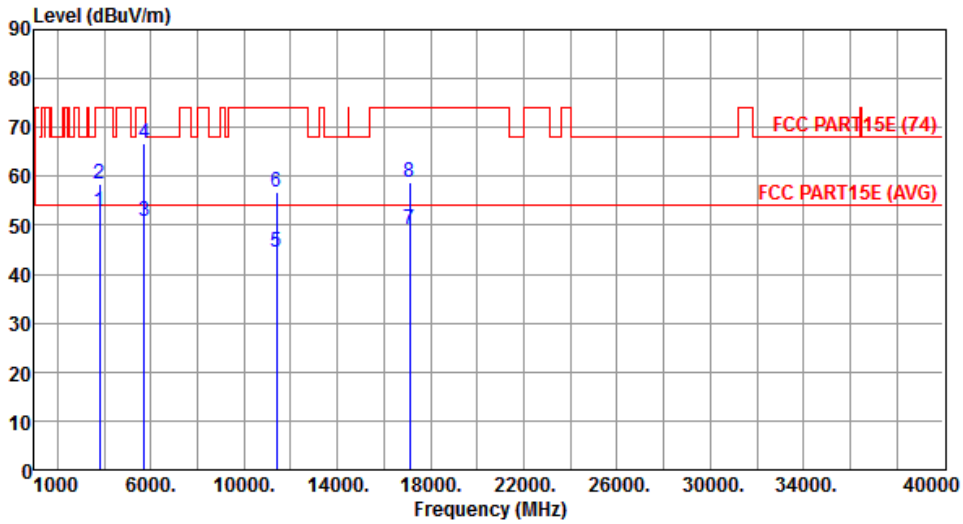
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3800.00	49.69	54.00	-4.31	48.85	0.84	Average	102	229
2	3800.00	56.12	74.00	-17.88	55.28	0.84	Peak	102	229
3	5725.00	52.22	54.00	-1.78	47.13	5.09	Average	106	272
4	5725.00	68.98	74.00	-5.02	63.89	5.09	Peak	106	272
5	11400.00	43.96	54.00	-10.04	28.52	15.44	Average	113	250
6	11400.00	57.03	74.00	-16.97	41.59	15.44	Peak	113	250
7	17100.00	48.36	54.00	-5.64	29.86	18.50	Average	131	155
8	17100.00	59.14	74.00	-14.86	40.64	18.50	Peak	131	155

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).

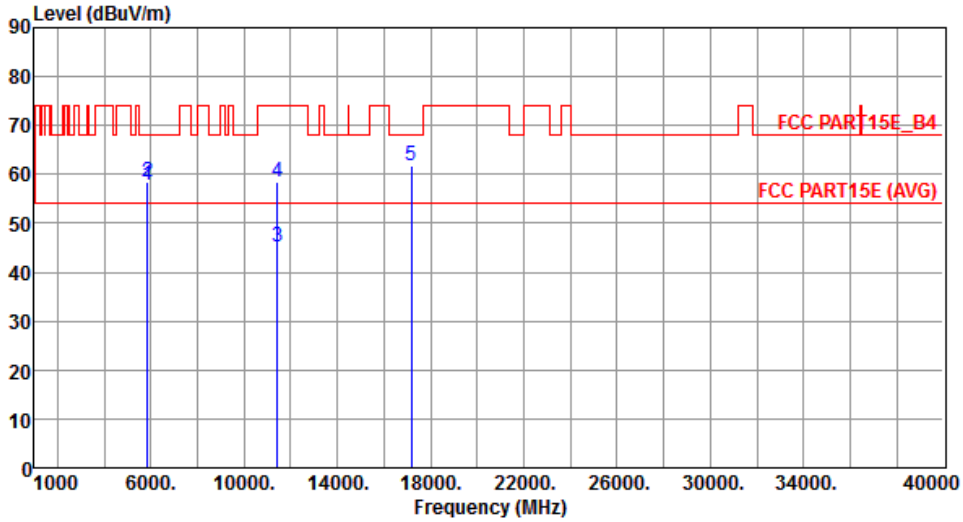
Modulation	11a	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3800.00	52.64	54.00	-1.36	51.80	0.84	Average	308	167
2	3800.00	58.56	74.00	-15.44	57.72	0.84	Peak	308	167
3	5725.00	50.92	54.00	-3.08	45.83	5.09	Average	245	98
4	5725.00	66.74	74.00	-7.26	61.65	5.09	Peak	245	98
5	11400.00	44.37	54.00	-9.63	28.93	15.44	Average	155	129
6	11400.00	56.95	74.00	-17.05	41.51	15.44	Peak	155	129
7	17100.00	49.14	54.00	-4.86	30.64	18.50	Average	191	72
8	17100.00	58.67	74.00	-15.33	40.17	18.50	Peak	191	72

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).

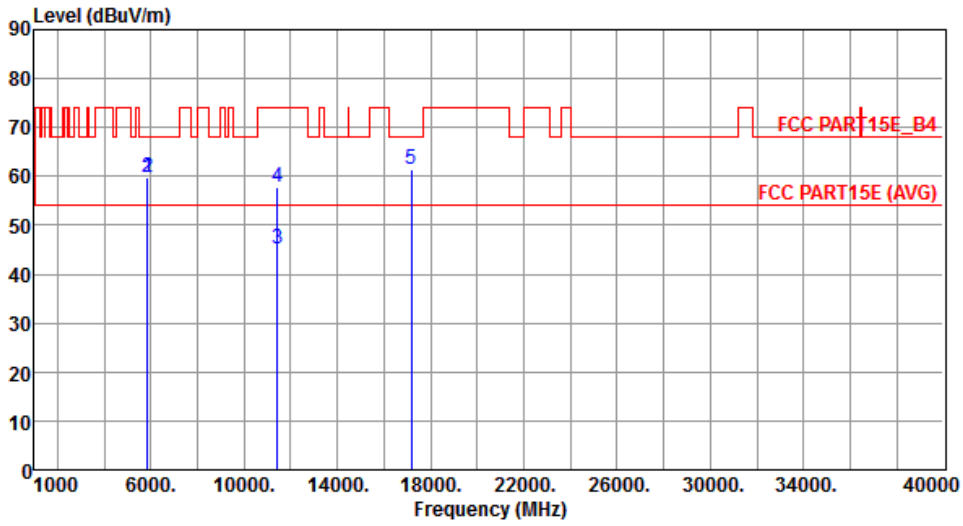
Modulation	11a	Test Freq. (MHz)	5720
Polarization	Horizontal		



	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	57.71	78.20	-20.49	52.45	5.26	Peak	100	70
2	5860.00	58.32	68.20	-9.88	53.05	5.27	Peak	100	70
3	11440.00	45.21	54.00	-8.79	29.72	15.49	Average	118	245
4	11440.00	58.36	74.00	-15.64	42.87	15.49	Peak	118	245
5	17160.00	61.83	68.20	-6.37	43.16	18.67	Peak	133	241

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		

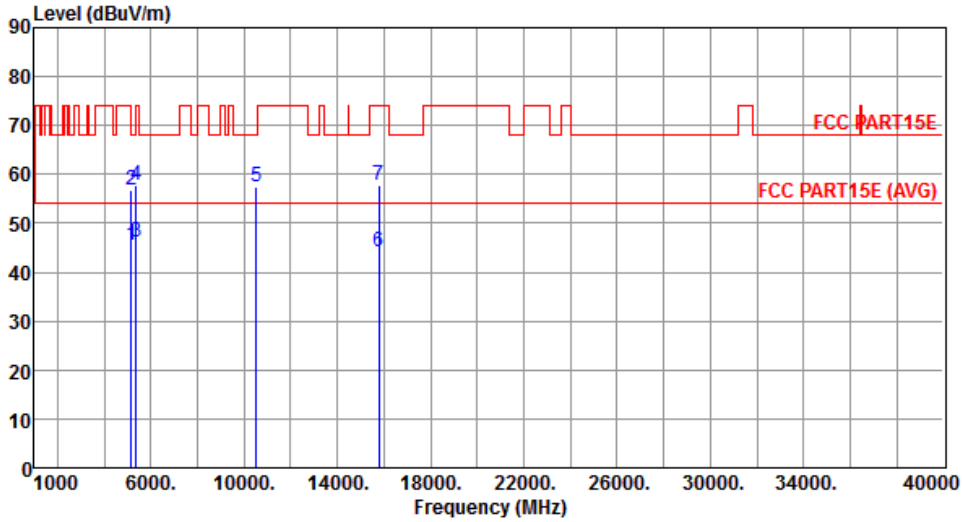


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	59.85	78.20	-18.35	54.59	5.26	Peak	100	310
2	5860.00	59.68	68.20	-8.52	54.41	5.27	Peak	100	310
3	11440.00	45.10	54.00	-8.90	29.61	15.49	Average	122	91
4	11440.00	57.75	74.00	-16.25	42.26	15.49	Peak	122	91
5	17160.00	61.34	68.20	-6.86	42.67	18.67	Peak	130	72

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

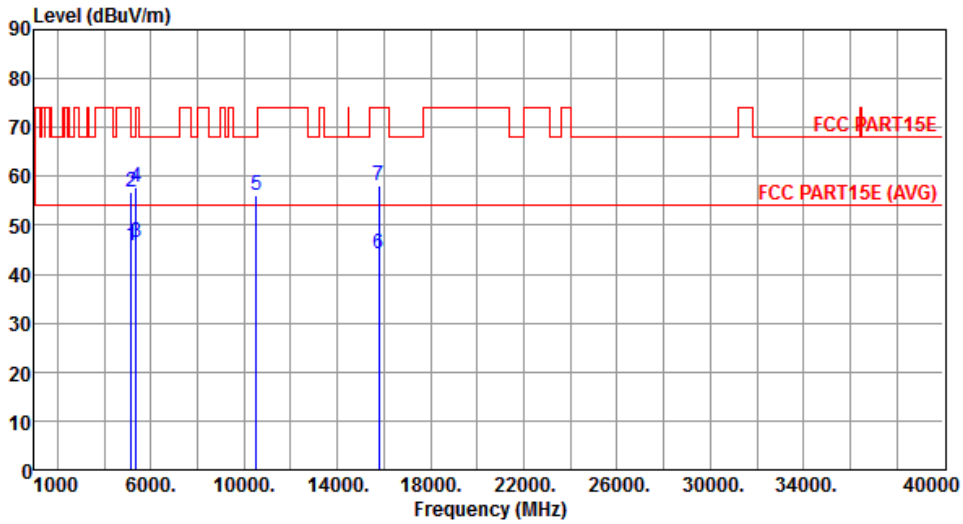
Modulation	VHT20	**Test Freq. (MHz)**	5260
Polarization	Horizontal		



	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	45.60	54.00	-8.40	41.20	4.40	Average	100	75
2	5150.00	56.91	74.00	-17.09	52.51	4.40	Peak	100	75
3	5350.00	46.30	54.00	-7.70	41.66	4.64	Average	100	75
4	5350.00	57.85	74.00	-16.15	53.21	4.64	Peak	100	75
5	10520.00	57.37	68.20	-10.83	42.87	14.50	Peak	114	256
6	15780.00	44.10	54.00	-9.90	29.31	14.79	Average	166	32
7	15780.00	57.89	74.00	-16.11	43.10	14.79	Peak	166	32

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).

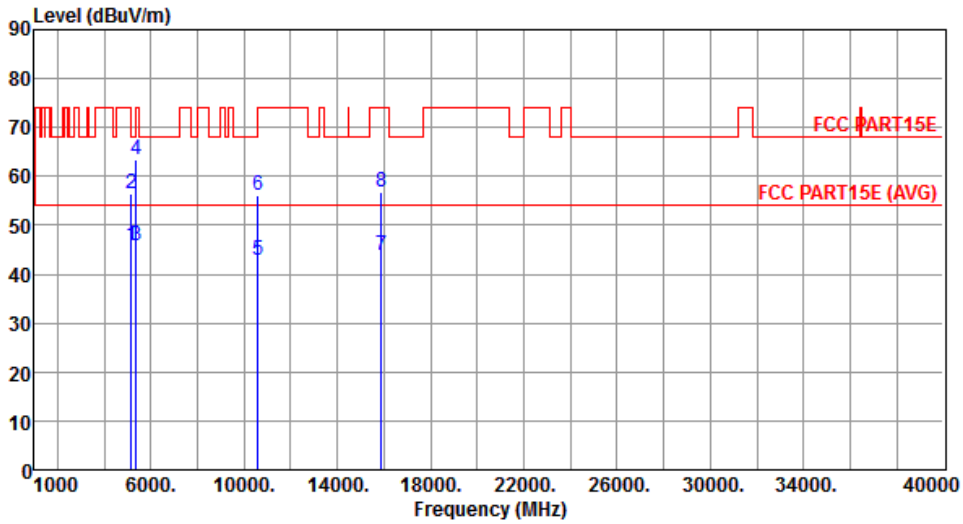
Modulation	VHT20	Test Freq. (MHz)	5260
Polarization	Vertical		



	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	45.83	54.00	-8.17	41.43	4.40	Average	100	107
2	5150.00	56.73	74.00	-17.27	52.33	4.40	Peak	100	107
3	5350.00	46.34	54.00	-7.66	41.70	4.64	Average	100	107
4	5350.00	57.73	74.00	-16.27	53.09	4.64	Peak	100	107
5	10520.00	56.01	68.20	-12.19	41.51	14.50	Peak	105	327
6	15780.00	44.03	54.00	-9.97	29.24	14.79	Average	135	146
7	15780.00	58.23	74.00	-15.77	43.44	14.79	Peak	135	146

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).

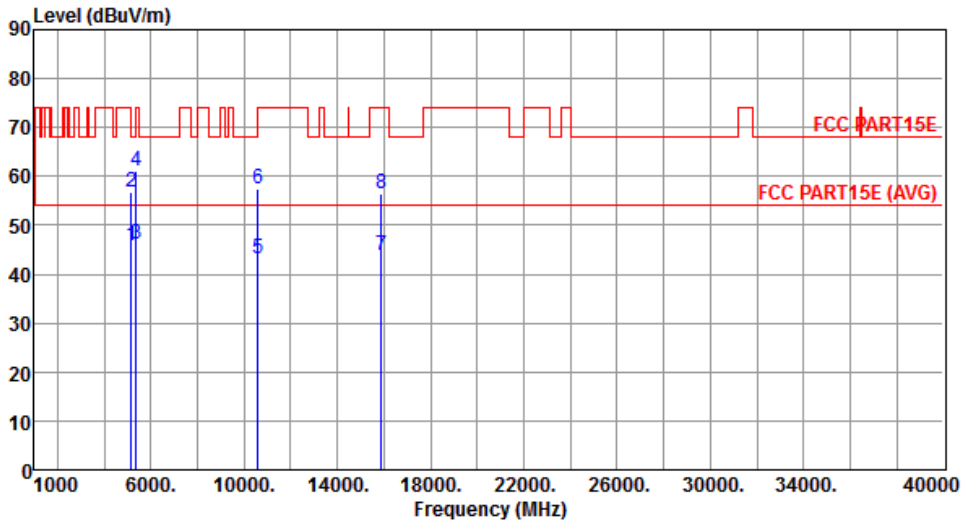
Modulation	VHT20	Test Freq. (MHz)	5300
Polarization	Horizontal		



	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	45.68	54.00	-8.32	41.28	4.40	Average	100	71
2	5150.00	56.62	74.00	-17.38	52.22	4.40	Peak	100	71
3	5350.00	46.00	54.00	-8.00	41.36	4.64	Average	100	71
4	5350.00	63.31	74.00	-10.69	58.67	4.64	Peak	100	71
5	10600.00	42.85	54.00	-11.15	28.26	14.59	Average	108	260
6	10600.00	56.08	74.00	-17.92	41.49	14.59	Peak	108	260
7	15900.00	43.91	54.00	-10.09	29.27	14.64	Average	155	39
8	15900.00	56.86	74.00	-17.14	42.22	14.64	Peak	155	39

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

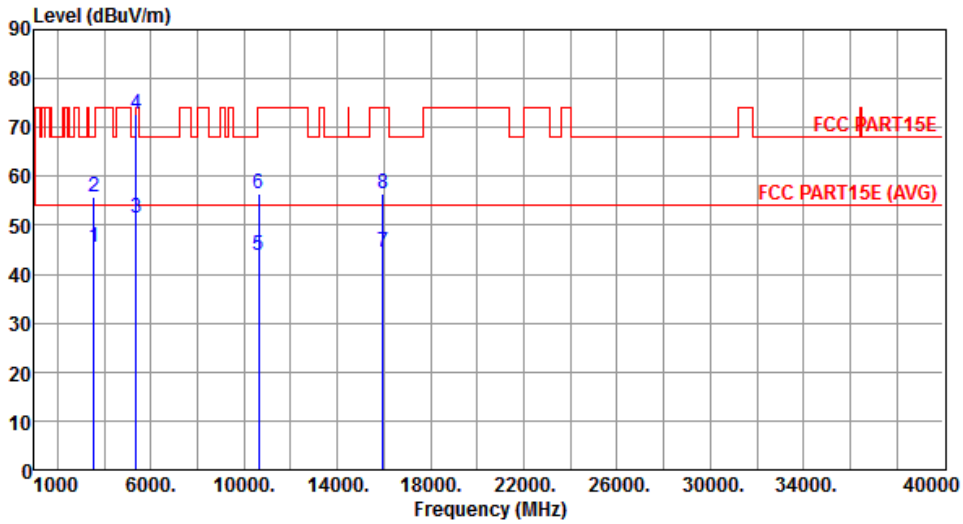
Modulation	VHT20	Test Freq. (MHz)	5300
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.96	54.00	-8.04	41.56	4.40	Average	100	106
2	5150.00	56.85	74.00	-17.15	52.45	4.40	Peak	100	106
3	5350.00	46.30	54.00	-7.70	41.66	4.64	Average	100	106
4	5350.00	61.01	74.00	-12.99	56.37	4.64	Peak	100	106
5	10600.00	43.23	54.00	-10.77	28.64	14.59	Average	108	251
6	10600.00	57.31	74.00	-16.69	42.72	14.59	Peak	108	251
7	15900.00	43.96	54.00	-10.04	29.32	14.64	Average	175	56
8	15900.00	56.29	74.00	-17.71	41.65	14.64	Peak	175	56

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

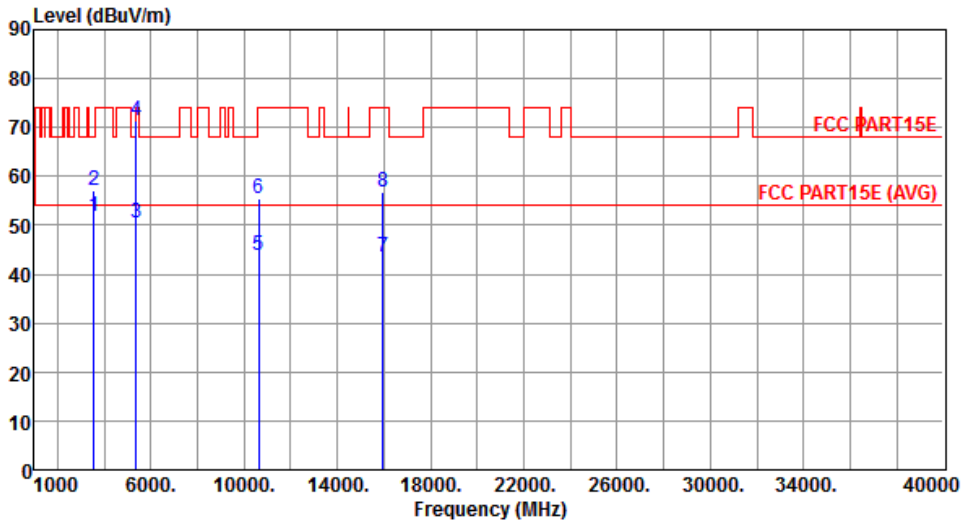
Modulation	VHT20	Test Freq. (MHz)	5320
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3546.00	45.39	54.00	-8.61	45.31	0.08	Average	189	220
2	3546.00	55.69	68.20	-12.51	55.61	0.08	Peak	189	220
3	5350.00	51.48	54.00	-2.52	46.84	4.64	Average	100	69
4	5350.00	72.59	74.00	-1.41	67.95	4.64	Peak	100	69
5	10640.00	43.94	54.00	-10.06	29.30	14.64	Average	107	261
6	10640.00	56.35	74.00	-17.65	41.71	14.64	Peak	107	261
7	15960.00	44.48	54.00	-9.52	29.93	14.55	Average	205	76
8	15960.00	56.44	74.00	-17.56	41.89	14.55	Peak	205	76

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).

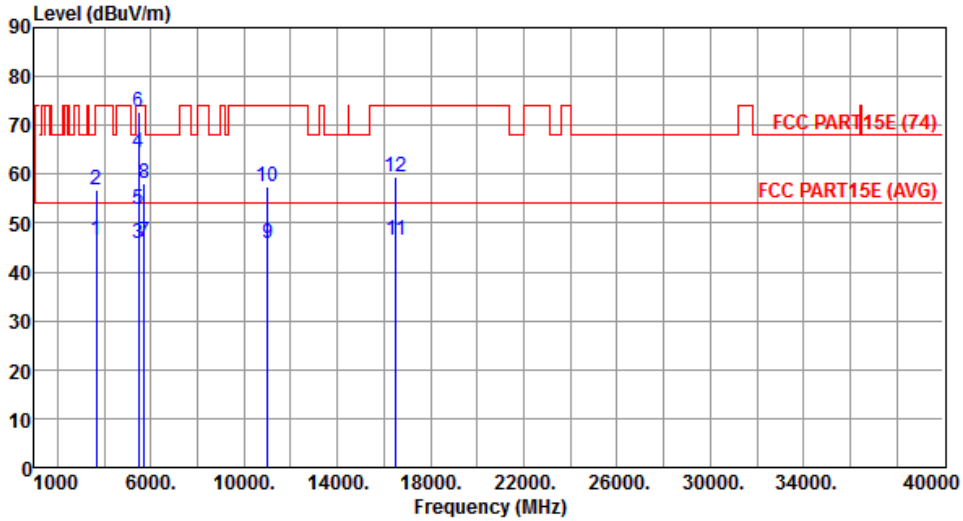
Modulation	VHT20	Test Freq. (MHz)	5320
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3546.00	51.82	54.00	-2.18	51.74	0.08	Average	330	163
2	3546.00	57.04	68.20	-11.16	56.96	0.08	Peak	330	163
3	5350.00	50.52	54.00	-3.48	45.88	4.64	Average	105	107
4	5350.00	71.34	74.00	-2.66	66.70	4.64	Peak	105	107
5	10640.00	43.78	54.00	-10.22	29.14	14.64	Average	113	49
6	10640.00	55.58	74.00	-18.42	40.94	14.64	Peak	113	49
7	15960.00	43.49	54.00	-10.51	28.94	14.55	Average	151	69
8	15960.00	56.74	74.00	-17.26	42.19	14.55	Peak	151	69

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).

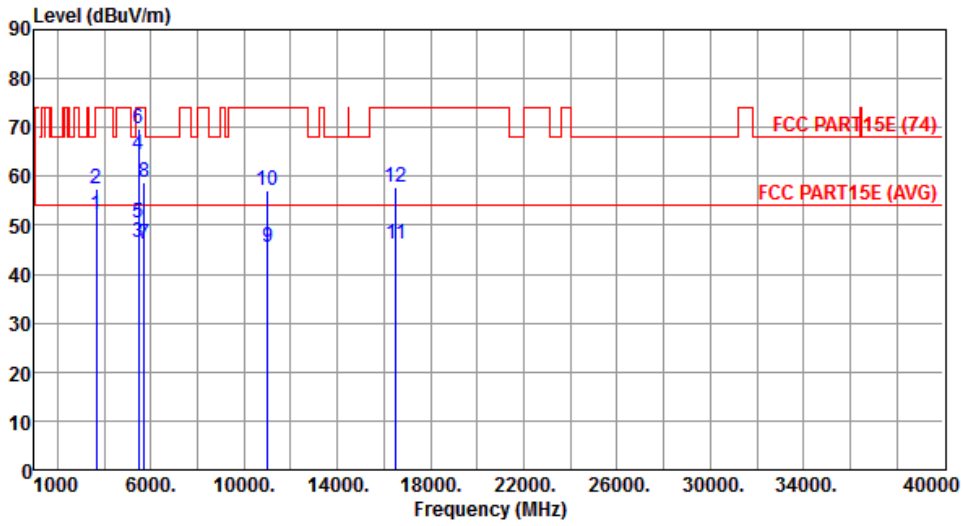
Modulation	VHT20	Test Freq. (MHz)	5500
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3666.00	46.37	54.00	-7.63	45.94	0.43	Average	112	225
2	3666.00	56.88	74.00	-17.12	56.45	0.43	Peak	112	225
3	5460.00	45.94	54.00	-8.06	41.16	4.78	Average	100	71
4	5460.00	64.36	74.00	-9.64	59.58	4.78	Peak	100	71
5	5470.00	52.69	54.00	-1.31	47.90	4.79	Average	100	71
6	5470.00	72.57	74.00	-1.43	67.78	4.79	Peak	100	71
7	5725.00	46.30	54.00	-7.70	41.21	5.09	Average	100	71
8	5725.00	58.19	74.00	-15.81	53.10	5.09	Peak	100	71
9	11000.00	45.73	54.00	-8.27	30.67	15.06	Average	114	255
10	11000.00	57.45	74.00	-16.55	42.39	15.06	Peak	114	255
11	16500.00	46.51	54.00	-7.49	30.13	16.38	Average	105	52
12	16500.00	59.45	74.00	-14.55	43.07	16.38	Peak	105	52

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).

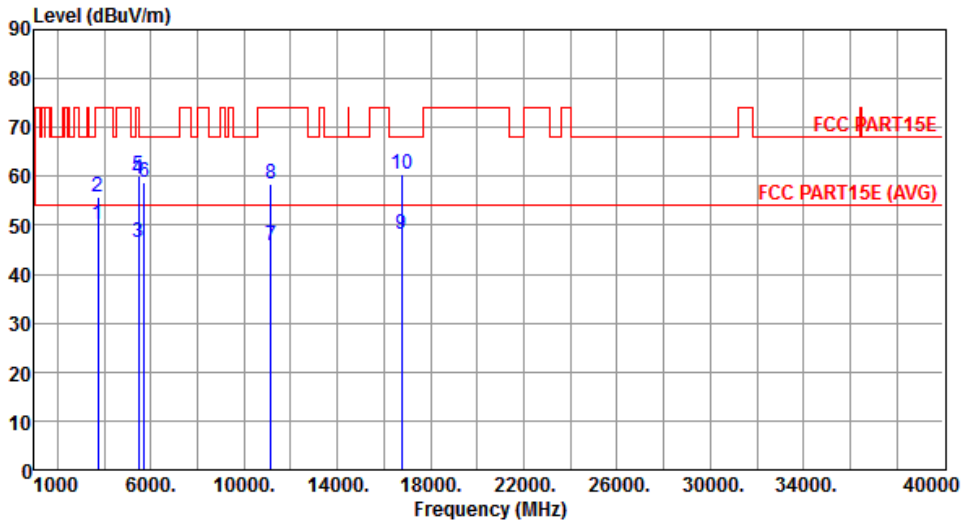
Modulation	VHT20	Test Freq. (MHz)	5500
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3666.00	52.04	54.00	-1.96	51.61	0.43	Average	328	164
2	3666.00	57.39	74.00	-16.61	56.96	0.43	Peak	328	164
3	5460.00	46.51	54.00	-7.49	41.73	4.78	Average	252	93
4	5460.00	64.28	74.00	-9.72	59.50	4.78	Peak	252	93
5	5470.00	50.54	54.00	-3.46	45.75	4.79	Average	252	93
6	5470.00	69.71	74.00	-4.29	64.92	4.79	Peak	252	93
7	5725.00	46.26	54.00	-7.74	41.17	5.09	Average	252	93
8	5725.00	58.71	74.00	-15.29	53.62	5.09	Peak	252	93
9	11000.00	45.43	54.00	-8.57	30.37	15.06	Average	156	164
10	11000.00	57.27	74.00	-16.73	42.21	15.06	Peak	156	164
11	16500.00	46.32	54.00	-7.68	29.94	16.38	Average	202	138
12	16500.00	57.64	74.00	-16.36	41.26	16.38	Peak	202	138

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).

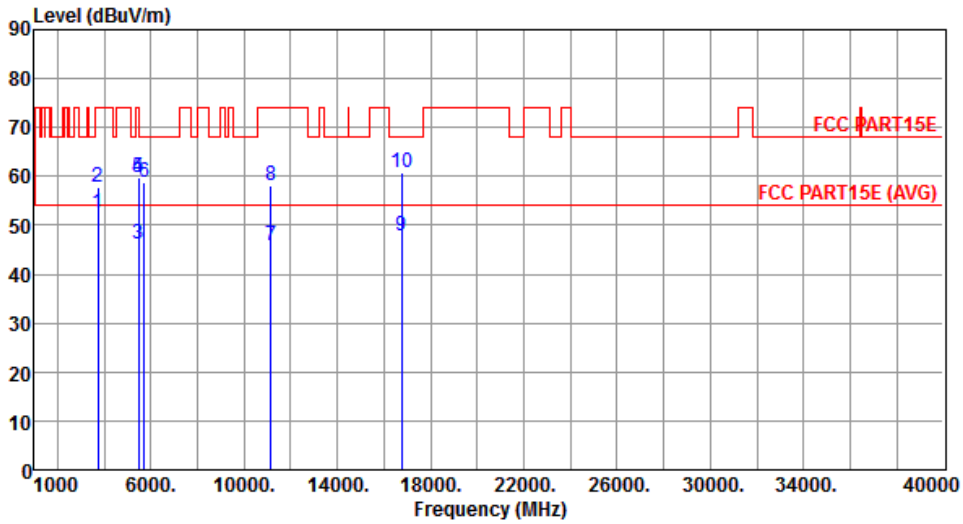
Modulation	VHT20	Test Freq. (MHz)	5580
Polarization	Horizontal		



	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	50.23	54.00	-3.77	49.63	0.60	Average	100	221
2	3720.00	55.84	74.00	-18.16	55.24	0.60	Peak	100	221
3	5460.00	46.33	54.00	-7.67	41.55	4.78	Average	100	74
4	5460.00	59.60	74.00	-14.40	54.82	4.78	Peak	100	74
5	5470.00	60.16	68.20	-8.04	55.37	4.79	Peak	100	74
6	5725.00	58.79	68.20	-9.41	53.70	5.09	Peak	100	74
7	11160.00	45.94	54.00	-8.06	30.73	15.21	Average	112	298
8	11160.00	58.37	74.00	-15.63	43.16	15.21	Peak	112	298
9	16740.00	48.10	54.00	-5.90	30.84	17.26	Average	192	85
10	16740.00	60.51	68.20	-7.69	43.25	17.26	Peak	192	85

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).

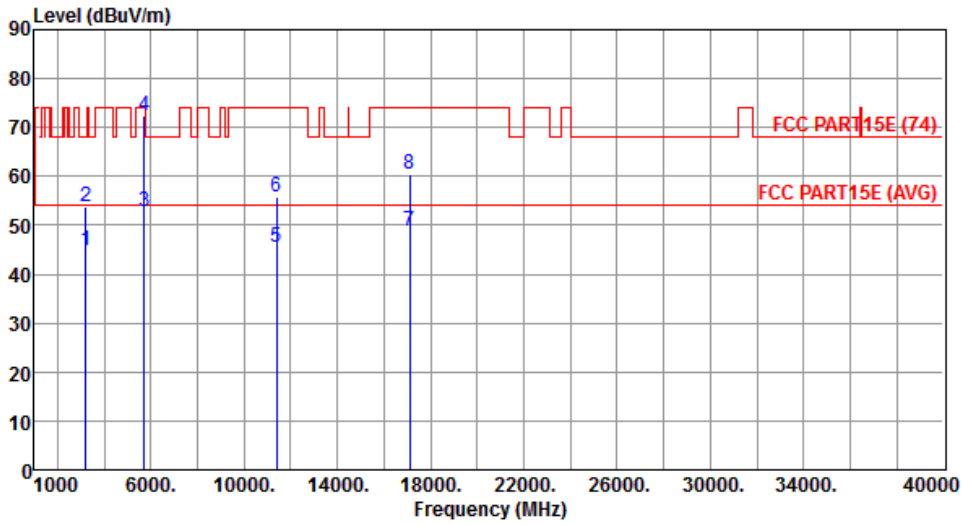
Modulation	VHT20	Test Freq. (MHz)	5580
Polarization	Vertical		



	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	52.48	54.00	-1.52	51.88	0.60	Average	323	162
2	3720.00	57.89	74.00	-16.11	57.29	0.60	Peak	323	162
3	5460.00	46.26	54.00	-7.74	41.48	4.78	Average	244	102
4	5460.00	59.67	74.00	-14.33	54.89	4.78	Peak	244	102
5	5470.00	59.83	68.20	-8.37	55.04	4.79	Peak	244	102
6	5725.00	58.64	68.20	-9.56	53.55	5.09	Peak	244	102
7	11160.00	45.74	54.00	-8.26	30.53	15.21	Average	143	155
8	11160.00	58.15	74.00	-15.85	42.94	15.21	Peak	143	155
9	16740.00	47.68	54.00	-6.32	30.42	17.26	Average	124	170
10	16740.00	60.64	68.20	-7.56	43.38	17.26	Peak	124	170

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).

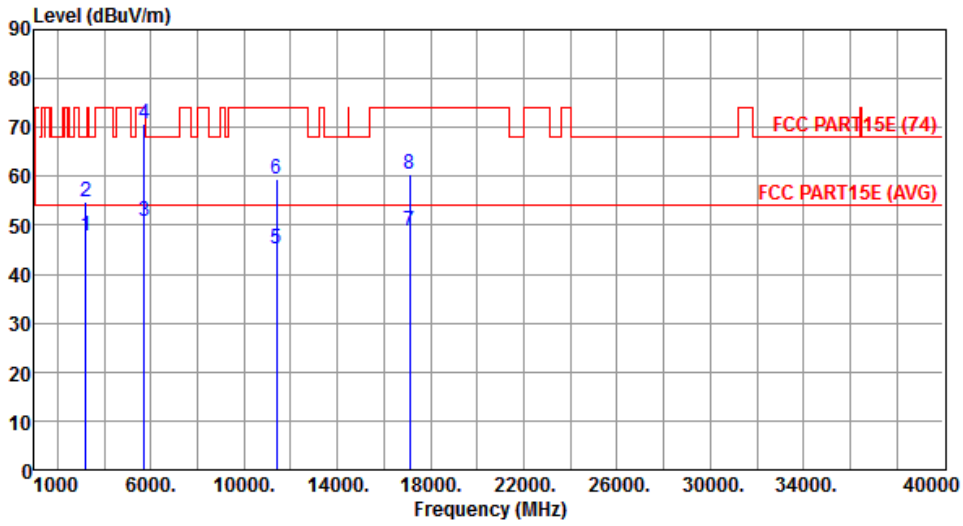
Modulation	VHT20	Test Freq. (MHz)	5700
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3205.00	44.74	54.00	-9.26	45.33	-0.59	Average	100	171
2	3205.00	53.70	68.20	-14.50	54.29	-0.59	Peak	100	171
3	5725.00	52.79	54.00	-1.21	47.70	5.09	Average	100	271
4	5725.00	72.54	74.00	-1.46	67.45	5.09	Peak	100	271
5	11400.00	45.52	54.00	-8.48	30.08	15.44	Average	116	259
6	11400.00	55.79	74.00	-18.21	40.35	15.44	Peak	116	259
7	17100.00	48.95	54.00	-5.05	30.45	18.50	Average	134	143
8	17100.00	60.39	74.00	-13.61	41.89	18.50	Peak	134	143

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

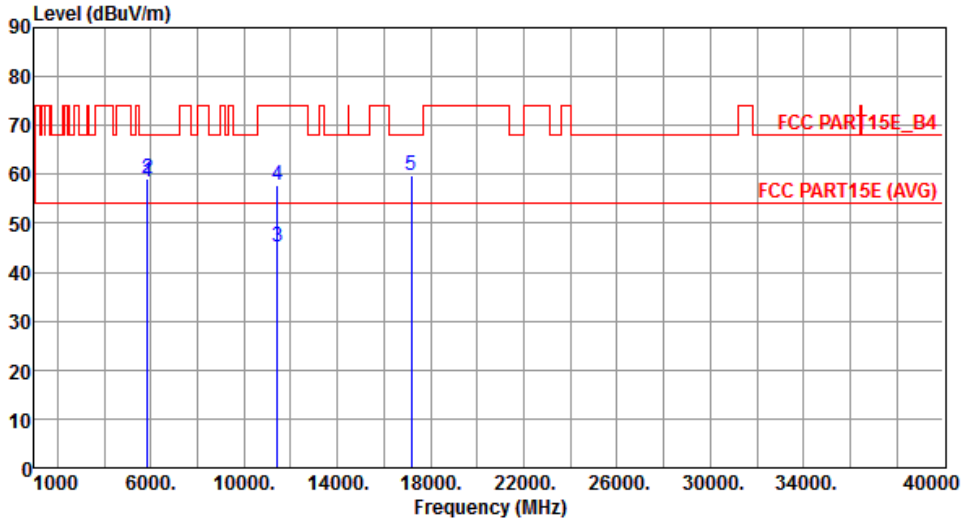
Modulation	VHT20	Test Freq. (MHz)	5700
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3205.00	47.70	54.00	-6.30	48.29	-0.59	Average	100	192
2	3205.00	54.81	68.20	-13.39	55.40	-0.59	Peak	100	192
3	5725.00	50.94	54.00	-3.06	45.85	5.09	Average	245	103
4	5725.00	70.67	74.00	-3.33	65.58	5.09	Peak	245	103
5	11400.00	45.31	54.00	-8.69	29.87	15.44	Average	105	273
6	11400.00	59.29	74.00	-14.71	43.85	15.44	Peak	105	273
7	17100.00	48.86	54.00	-5.14	30.36	18.50	Average	153	142
8	17100.00	60.53	74.00	-13.47	42.03	18.50	Peak	153	142

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

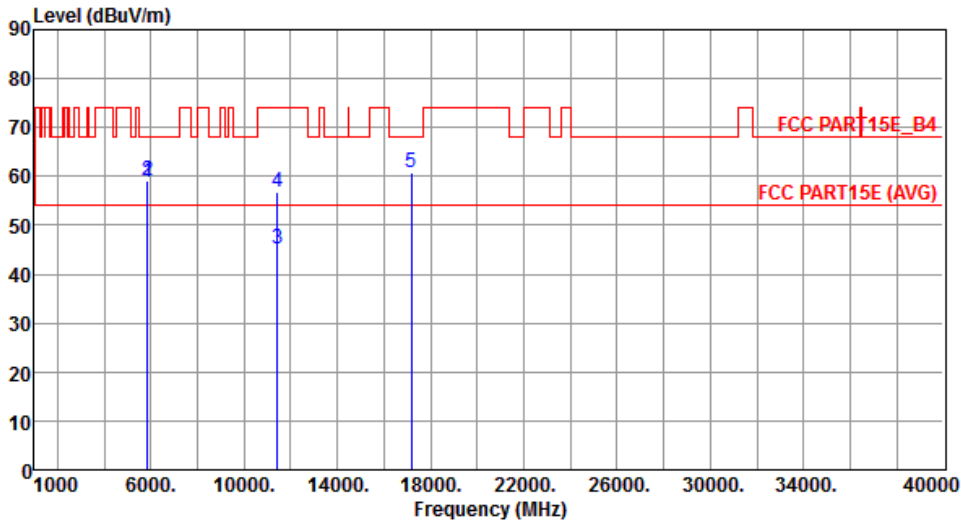
Modulation	VHT20	Test Freq. (MHz)	5720
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	58.38	78.20	-19.82	53.12	5.26	Peak	126	89
2	5860.00	59.00	68.20	-9.20	53.73	5.27	Peak	126	89
3	11440.00	45.27	54.00	-8.73	29.78	15.49	Average	159	102
4	11440.00	57.72	74.00	-16.28	42.23	15.49	Peak	159	102
5	17160.00	59.91	68.20	-8.29	41.24	18.67	Peak	192	86

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	Vertical		

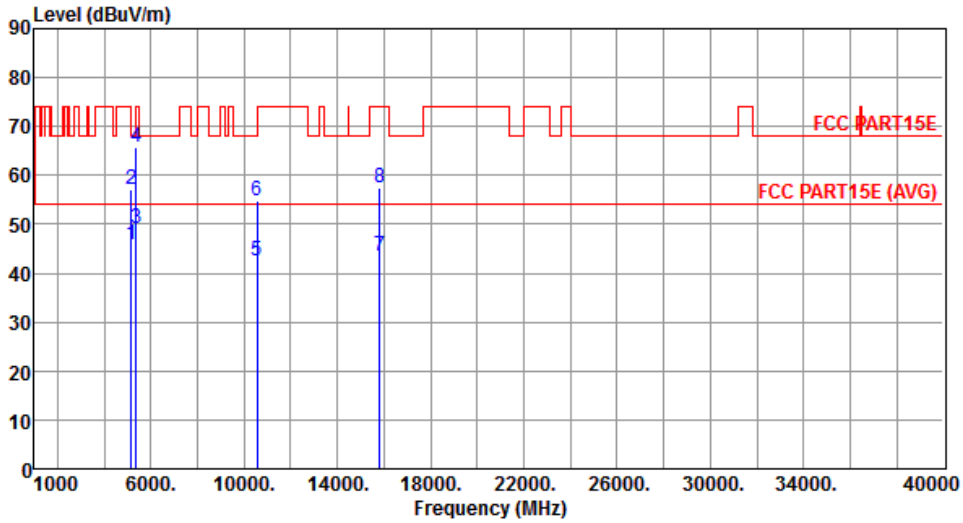


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	58.70	78.20	-19.50	53.44	5.26	Peak	312	104
2	5860.00	59.00	68.20	-9.20	53.73	5.27	Peak	312	104
3	11440.00	45.30	54.00	-8.70	29.81	15.49	Average	169	140
4	11440.00	56.85	74.00	-17.15	41.36	15.49	Peak	169	140
5	17160.00	60.84	68.20	-7.36	42.17	18.67	Peak	136	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).

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

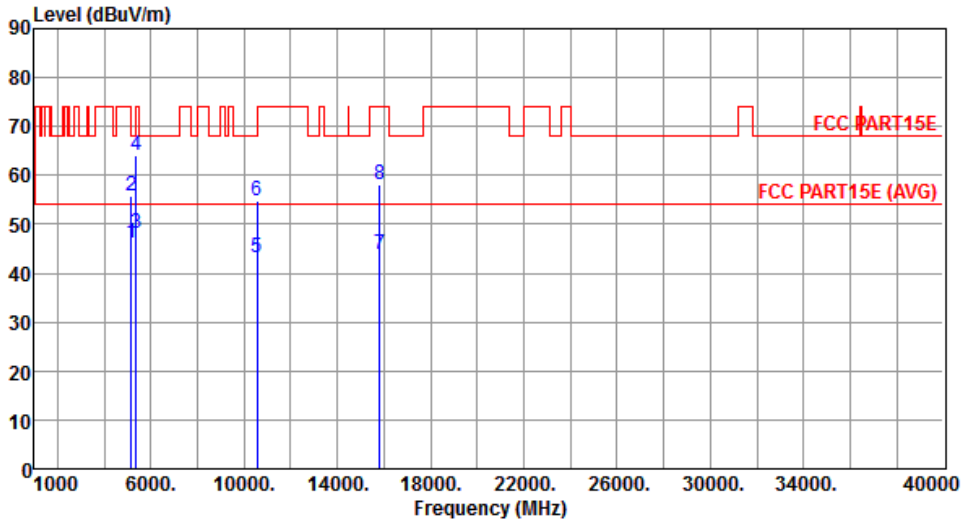
Modulation	VHT40	**Test Freq. (MHz)**	5270
Polarization	Horizontal		



	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	45.87	54.00	-8.13	41.47	4.40	Average	100	74
2	5150.00	56.98	74.00	-17.02	52.58	4.40	Peak	100	74
3	5350.00	49.12	54.00	-4.88	44.48	4.64	Average	100	74
4	5350.00	65.65	74.00	-8.35	61.01	4.64	Peak	100	74
5	10540.00	42.67	54.00	-11.33	28.15	14.52	Average	140	259
6	10540.00	54.94	68.20	-13.26	40.42	14.52	Peak	140	259
7	15810.00	43.67	54.00	-10.33	28.92	14.75	Average	182	227
8	15810.00	57.49	74.00	-16.51	42.74	14.75	Peak	182	227

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).

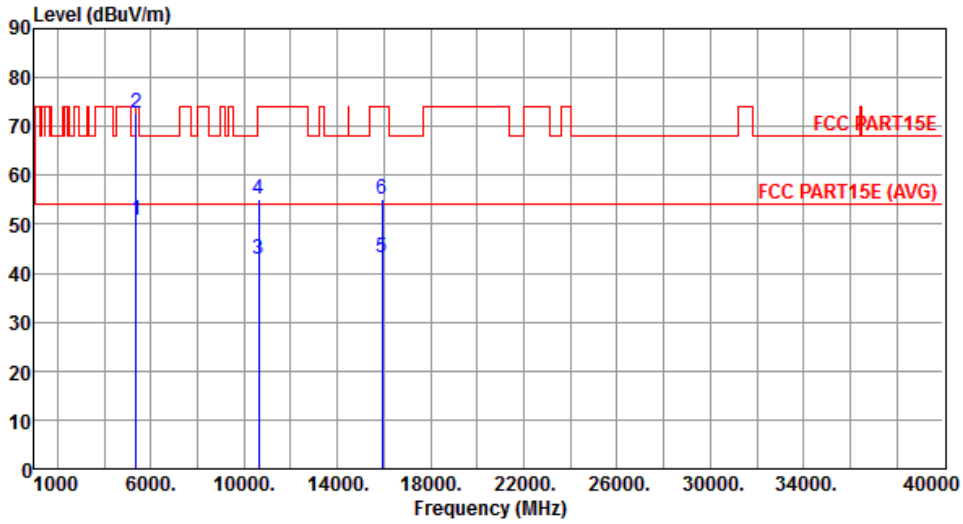
Modulation	VHT40	Test Freq. (MHz)	5270
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	46.15	54.00	-7.85	41.75	4.40	Average	108	99
2	5150.00	55.93	74.00	-18.07	51.53	4.40	Peak	108	99
3	5350.00	48.03	54.00	-5.97	43.39	4.64	Average	108	99
4	5350.00	64.19	74.00	-9.81	59.55	4.64	Peak	108	99
5	10540.00	43.29	54.00	-10.71	28.77	14.52	Average	232	85
6	10540.00	54.71	68.20	-13.49	40.19	14.52	Peak	232	85
7	15810.00	43.72	54.00	-10.28	28.97	14.75	Average	161	37
8	15810.00	58.07	74.00	-15.93	43.32	14.75	Peak	161	37

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).

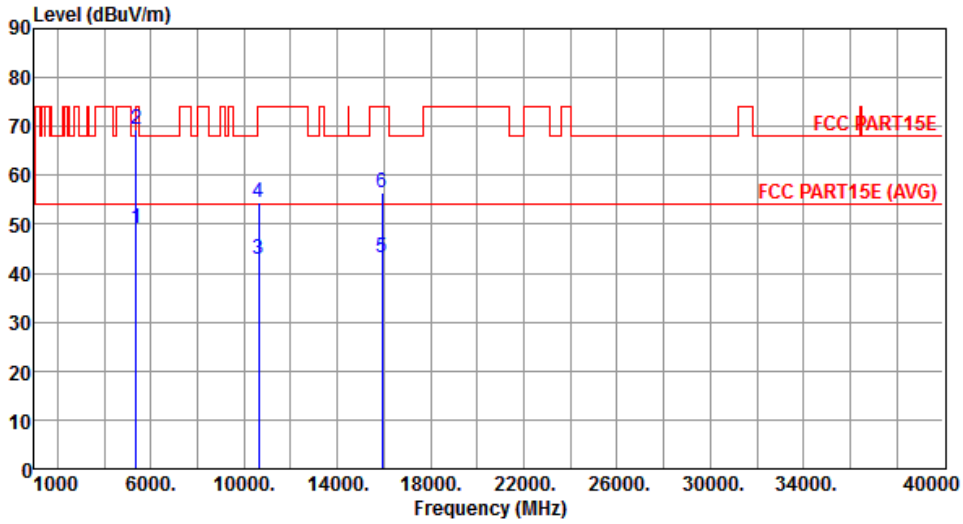
Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Horizontal		



	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	50.76	54.00	-3.24	46.12	4.64	Average	100	55
2	5350.00	72.62	74.00	-1.38	67.98	4.64	Peak	100	55
3	10620.00	42.97	54.00	-11.03	28.36	14.61	Average	120	255
4	10620.00	55.00	74.00	-19.00	40.39	14.61	Peak	120	255
5	15930.00	43.24	54.00	-10.76	28.64	14.60	Average	141	162
6	15930.00	55.05	74.00	-18.95	40.45	14.60	Peak	141	162

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

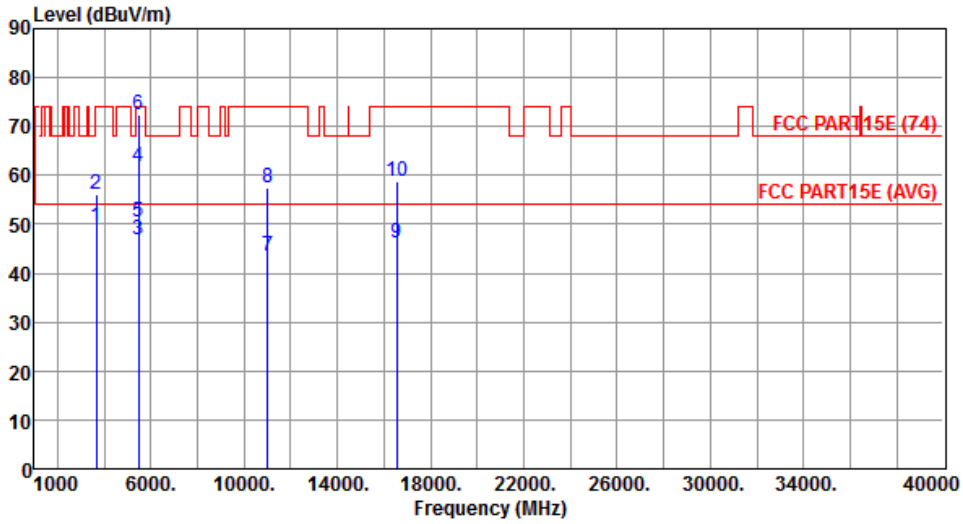
Modulation	VHT40	Test Freq. (MHz)	5310
Polarization	Vertical		



	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	49.18	54.00	-4.82	44.54	4.64	Average	100	105
2	5350.00	69.42	74.00	-4.58	64.78	4.64	Peak	100	105
3	10620.00	42.92	54.00	-11.08	28.31	14.61	Average	120	242
4	10620.00	54.35	74.00	-19.65	39.74	14.61	Peak	120	242
5	15930.00	43.33	54.00	-10.67	28.73	14.60	Average	144	132
6	15930.00	56.56	74.00	-17.44	41.96	14.60	Peak	144	132

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).

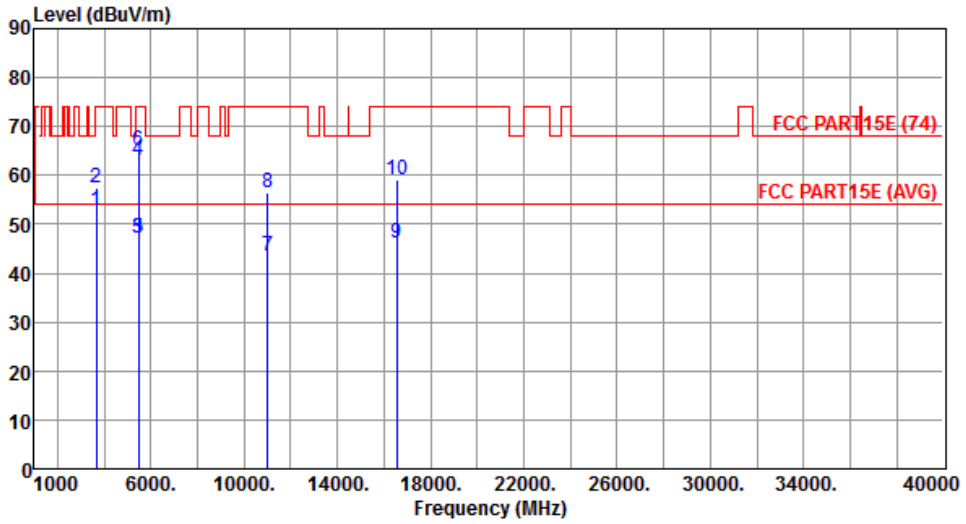
Modulation	VHT40	Test Freq. (MHz)	5510
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3673.00	49.42	54.00	-4.58	48.96	0.46	Average	101	225
2	3673.00	56.20	74.00	-17.80	55.74	0.46	Peak	101	225
3	5460.00	46.73	54.00	-7.27	41.95	4.78	Average	100	230
4	5460.00	61.72	74.00	-12.28	56.94	4.78	Peak	100	230
5	5470.00	50.61	54.00	-3.39	45.82	4.79	Average	100	230
6	5470.00	72.37	74.00	-1.63	67.58	4.79	Peak	100	230
7	11020.00	43.63	54.00	-10.37	28.55	15.08	Average	108	252
8	11020.00	57.47	74.00	-16.53	42.39	15.08	Peak	108	252
9	16530.00	46.18	54.00	-7.82	29.69	16.49	Average	139	151
10	16530.00	58.94	74.00	-15.06	42.45	16.49	Peak	139	151

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).

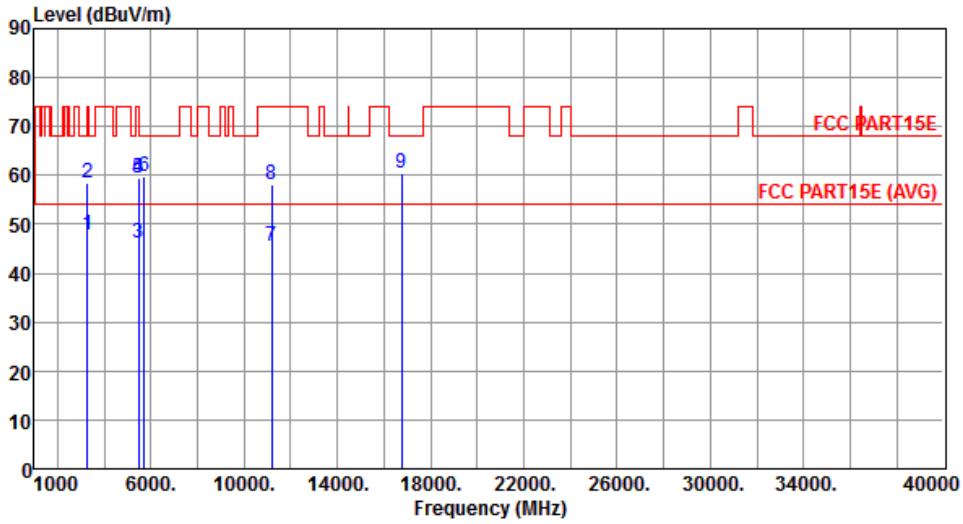
Modulation	VHT40	Test Freq. (MHz)	5510
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3673.00	52.76	54.00	-1.24	52.30	0.46	Average	284	151
2	3673.00	57.52	74.00	-16.48	57.06	0.46	Peak	284	151
3	5460.00	47.04	54.00	-6.96	42.26	4.78	Average	141	206
4	5460.00	63.09	74.00	-10.91	58.31	4.78	Peak	141	206
5	5470.00	47.25	54.00	-6.75	42.46	4.79	Average	100	314
6	5470.00	65.03	74.00	-8.97	60.24	4.79	Peak	100	314
7	11020.00	43.41	54.00	-10.59	28.33	15.08	Average	125	204
8	11020.00	56.44	74.00	-17.56	41.36	15.08	Peak	125	204
9	16530.00	46.13	54.00	-7.87	29.64	16.49	Average	141	206
10	16530.00	59.16	74.00	-14.84	42.67	16.49	Peak	141	206

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).

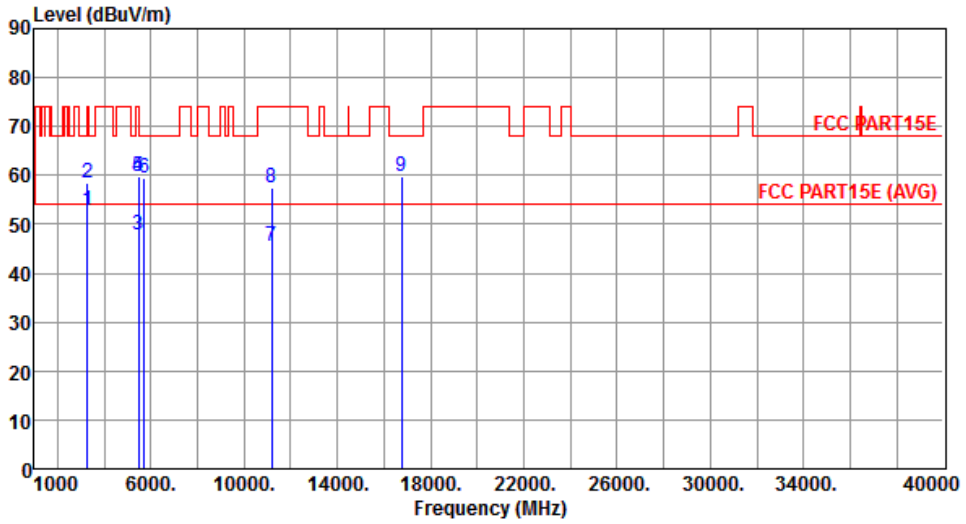
Modulation	VHT40	Test Freq. (MHz)	5590
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3276.00	47.84	54.00	-6.16	48.28	-0.44	Average	112	223
2	3276.00	58.41	68.20	-9.79	58.85	-0.44	Peak	112	223
3	5460.00	46.11	54.00	-7.89	41.33	4.78	Average	100	71
4	5460.00	59.54	74.00	-14.46	54.76	4.78	Peak	100	71
5	5470.00	59.34	68.20	-8.86	54.55	4.79	Peak	100	71
6	5725.00	59.69	68.20	-8.51	54.60	5.09	Peak	100	71
7	11180.00	45.66	54.00	-8.34	30.43	15.23	Average	110	247
8	11180.00	57.98	74.00	-16.02	42.75	15.23	Peak	110	247
9	16770.00	60.32	68.20	-7.88	42.94	17.38	Peak	130	144

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).

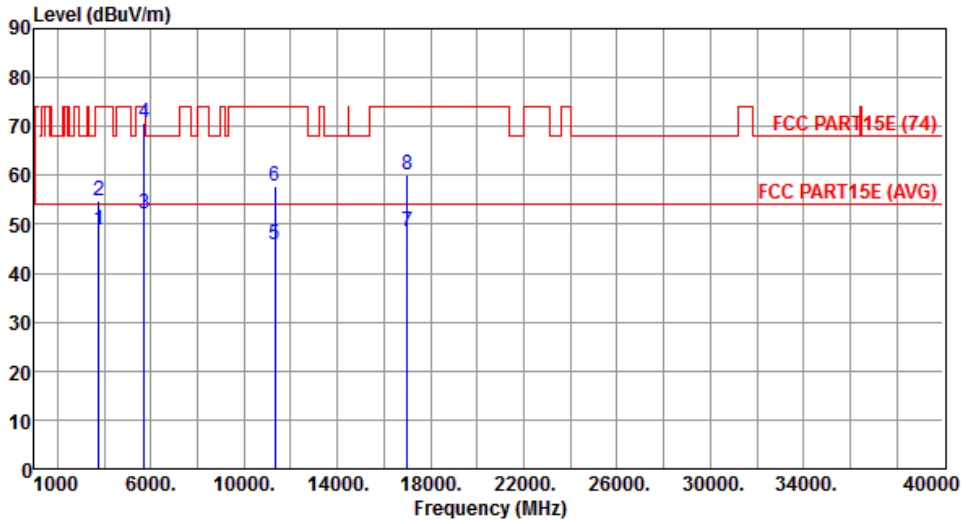
Modulation	VHT40	Test Freq. (MHz)	5590
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3276.00	52.76	54.00	-1.24	53.20	-0.44	Average	301	160
2	3276.00	58.37	68.20	-9.83	58.81	-0.44	Peak	301	160
3	5460.00	47.73	54.00	-6.27	42.95	4.78	Average	256	105
4	5460.00	59.62	74.00	-14.38	54.84	4.78	Peak	256	105
5	5470.00	59.68	68.20	-8.52	54.89	4.79	Peak	256	105
6	5725.00	59.41	68.20	-8.79	54.32	5.09	Peak	256	105
7	11180.00	45.55	54.00	-8.45	30.32	15.23	Average	159	135
8	11180.00	57.35	74.00	-16.65	42.12	15.23	Peak	159	135
9	16770.00	59.84	68.20	-8.36	42.46	17.38	Peak	208	124

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

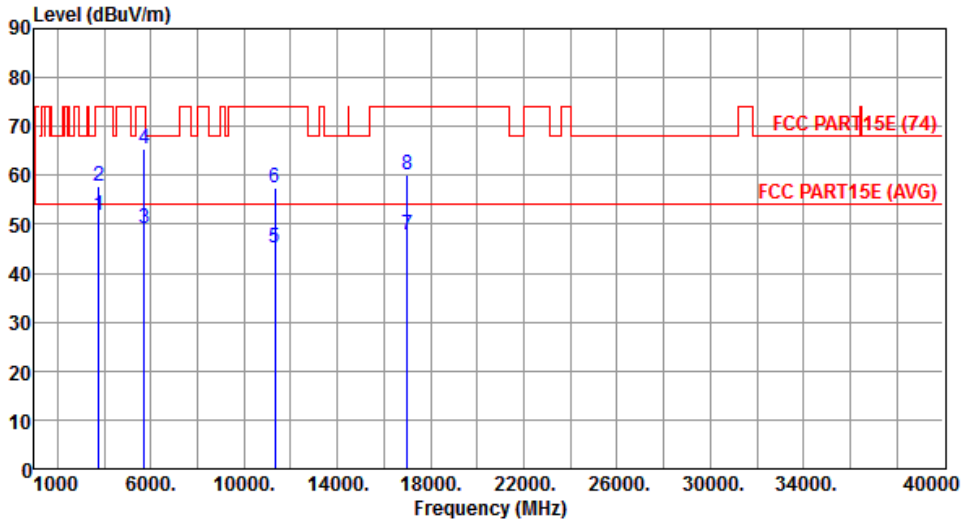
Modulation	VHT40	Test Freq. (MHz)	5670
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3780.00	48.94	54.00	-5.06	48.16	0.78	Average	112	230
2	3780.00	54.83	74.00	-19.17	54.05	0.78	Peak	112	230
3	5725.00	52.14	54.00	-1.86	47.05	5.09	Average	263	63
4	5725.00	70.85	74.00	-3.15	65.76	5.09	Peak	263	63
5	11340.00	45.71	54.00	-8.29	30.32	15.39	Average	121	247
6	11340.00	57.73	74.00	-16.27	42.34	15.39	Peak	121	247
7	17010.00	48.42	54.00	-5.58	30.17	18.25	Average	105	190
8	17010.00	60.10	74.00	-13.90	41.85	18.25	Peak	105	190

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).

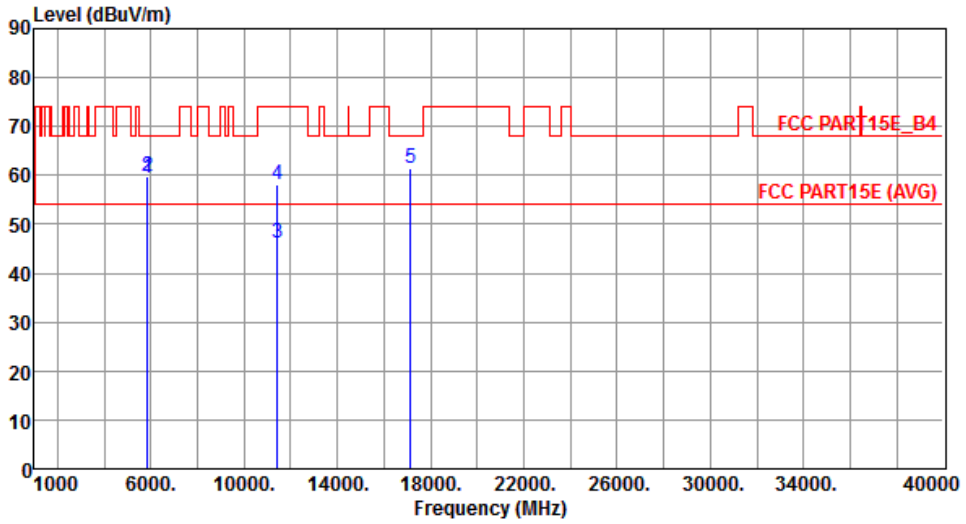
Modulation	VHT40	Test Freq. (MHz)	5670
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3780.00	51.72	54.00	-2.28	50.94	0.78	Average	312	166
2	3780.00	57.66	74.00	-16.34	56.88	0.78	Peak	312	166
3	5725.00	49.02	54.00	-4.98	43.93	5.09	Average	242	101
4	5725.00	65.37	74.00	-8.63	60.28	5.09	Peak	242	101
5	11340.00	45.25	54.00	-8.75	29.86	15.39	Average	100	179
6	11340.00	57.50	74.00	-16.50	42.11	15.39	Peak	100	179
7	17010.00	47.99	54.00	-6.01	29.74	18.25	Average	112	259
8	17010.00	60.23	74.00	-13.77	41.98	18.25	Peak	112	259

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).

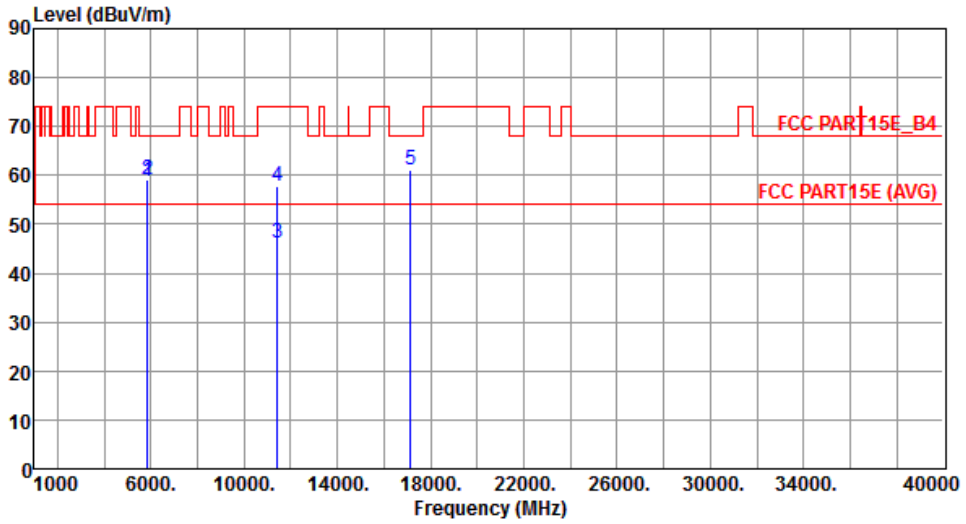
Modulation	VHT40	Test Freq. (MHz)	5710
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	59.29	78.20	-18.91	54.03	5.26	Peak	107	75
2	5860.00	59.87	68.20	-8.33	54.60	5.27	Peak	107	75
3	11420.00	46.03	54.00	-7.97	30.57	15.46	Average	115	252
4	11420.00	58.05	74.00	-15.95	42.59	15.46	Peak	115	252
5	17130.00	61.46	68.20	-6.74	42.88	18.58	Peak	141	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	VHT40	Test Freq. (MHz)	5710
Polarization	Vertical		

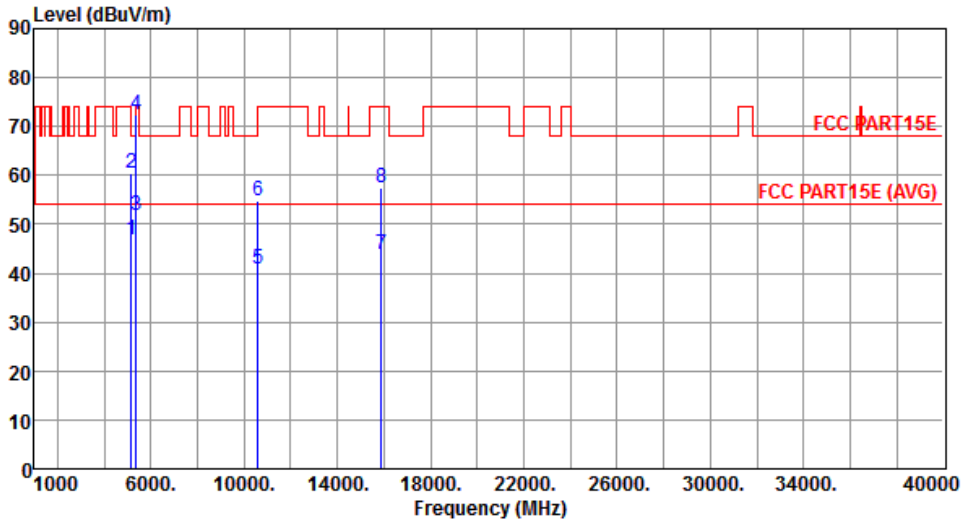


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5850.00	58.92	78.20	-19.28	53.66	5.26	Peak	310	104
2	5860.00	58.98	68.20	-9.22	53.71	5.27	Peak	310	104
3	11420.00	46.31	54.00	-7.69	30.85	15.46	Average	155	149
4	11420.00	57.91	74.00	-16.09	42.45	15.46	Peak	155	149
5	17130.00	61.19	68.20	-7.01	42.61	18.58	Peak	108	74

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

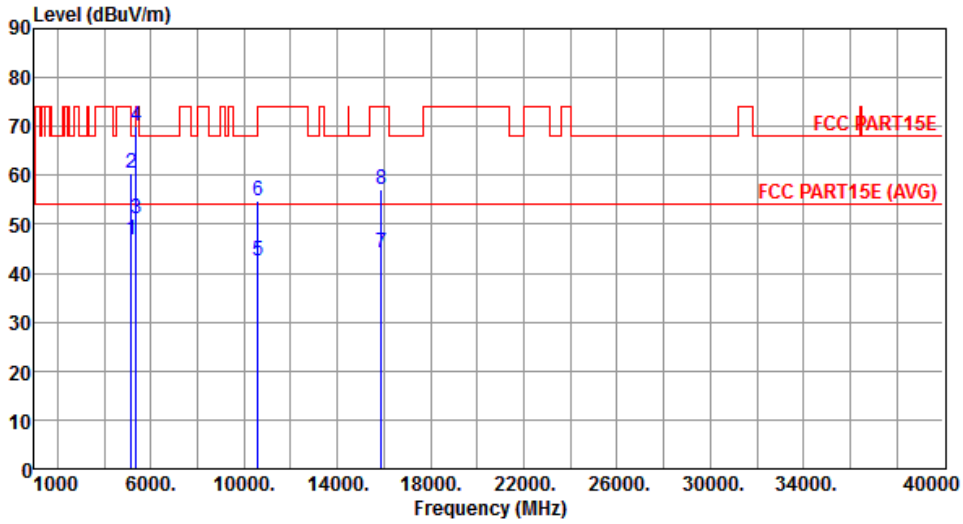
Modulation	VHT80	**Test Freq. (MHz)**	5290
Polarization	Horizontal		



	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	46.98	54.00	-7.02	42.58	4.40	Average	118	65
2	5150.00	60.51	74.00	-13.49	56.11	4.40	Peak	118	65
3	5350.00	51.70	54.00	-2.30	47.06	4.64	Average	118	65
4	5350.00	72.36	74.00	-1.64	67.72	4.64	Peak	118	65
5	10580.00	41.01	54.00	-12.99	26.45	14.56	Average	152	21
6	10580.00	54.83	68.20	-13.37	40.27	14.56	Peak	152	21
7	15870.00	43.79	54.00	-10.21	29.12	14.67	Average	196	29
8	15870.00	57.51	74.00	-16.49	42.84	14.67	Peak	196	29

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

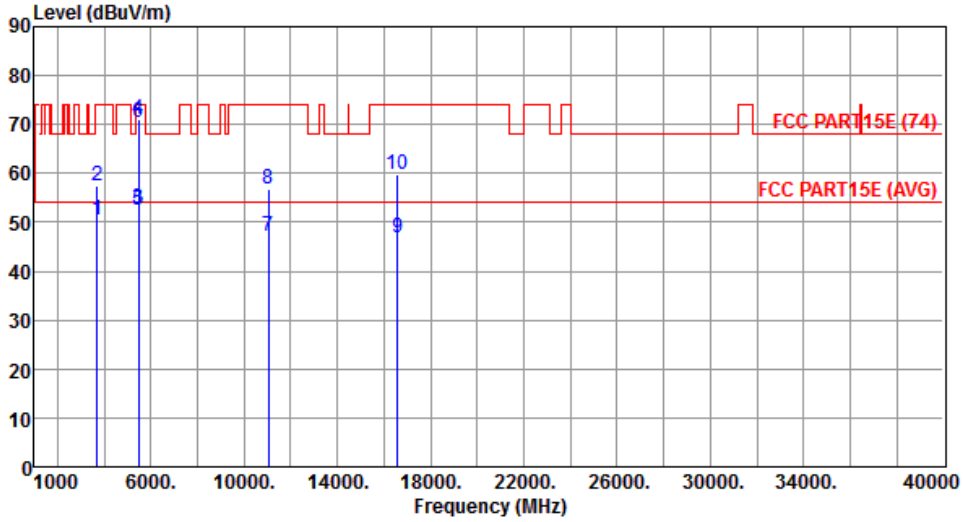
Modulation	VHT80	Test Freq. (MHz)	5290
Polarization	Vertical		



	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	46.91	54.00	-7.09	42.51	4.40	Average	277	95
2	5150.00	60.56	74.00	-13.44	56.16	4.40	Peak	277	95
3	5350.00	51.19	54.00	-2.81	46.55	4.64	Average	277	95
4	5350.00	70.24	74.00	-3.76	65.60	4.64	Peak	277	95
5	10580.00	42.60	54.00	-11.40	28.04	14.56	Average	110	314
6	10580.00	54.76	68.20	-13.44	40.20	14.56	Peak	110	314
7	15870.00	44.10	54.00	-9.90	29.43	14.67	Average	255	114
8	15870.00	57.23	74.00	-16.77	42.56	14.67	Peak	255	114

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).

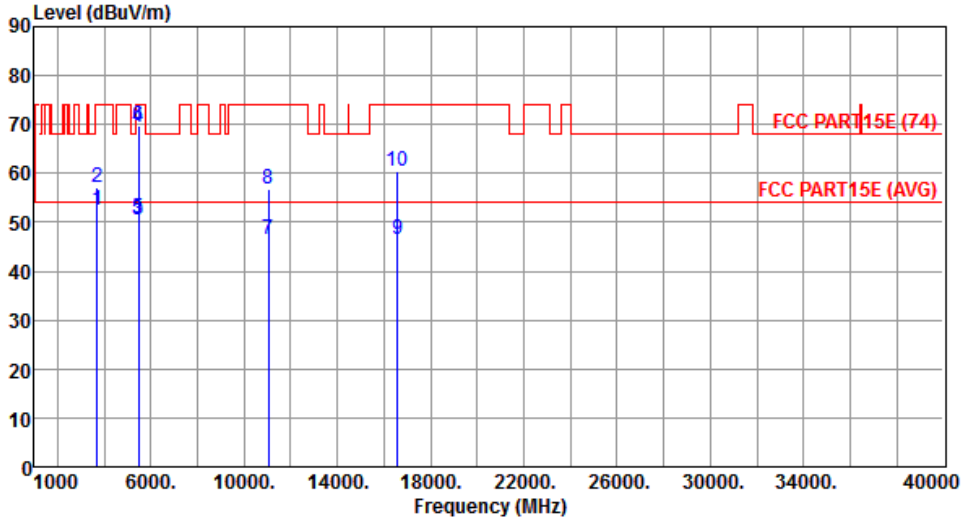
Modulation	VHT80	Test Freq. (MHz)	5530
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3687.00	50.57	54.00	-3.43	50.08	0.49	Average	108	226
2	3687.00	57.39	74.00	-16.61	56.90	0.49	Peak	108	226
3	5460.00	52.65	54.00	-1.35	47.87	4.78	Average	100	71
4	5460.00	70.92	74.00	-3.08	66.14	4.78	Peak	100	71
5	5470.00	52.47	54.00	-1.53	47.68	4.79	Average	100	71
6	5470.00	70.31	74.00	-3.69	65.52	4.79	Peak	100	71
7	11060.00	47.03	54.00	-6.97	31.92	15.11	Average	122	248
8	11060.00	56.84	74.00	-17.16	41.73	15.11	Peak	122	248
9	16590.00	46.85	54.00	-7.15	30.13	16.72	Average	134	59
10	16590.00	59.77	74.00	-14.23	43.05	16.72	Peak	134	59

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).

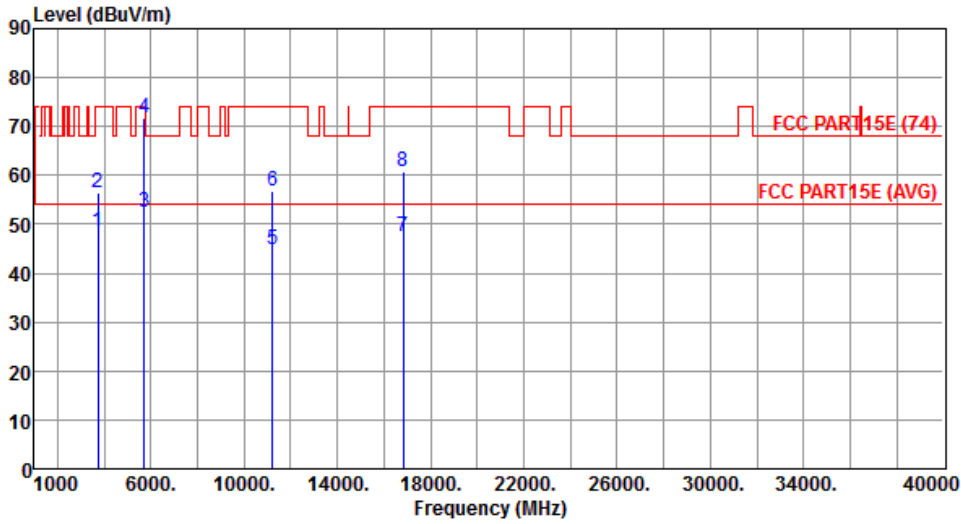
Modulation	VHT80	Test Freq. (MHz)	5530
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3687.00	52.52	54.00	-1.48	52.03	0.49	Average	328	161
2	3687.00	57.15	74.00	-16.85	56.66	0.49	Peak	328	161
3	5460.00	50.59	54.00	-3.41	45.81	4.78	Average	265	102
4	5460.00	69.35	74.00	-4.65	64.57	4.78	Peak	265	102
5	5470.00	50.74	54.00	-3.26	45.95	4.79	Average	265	102
6	5470.00	69.58	74.00	-4.42	64.79	4.79	Peak	265	102
7	11060.00	46.59	54.00	-7.41	31.48	15.11	Average	155	149
8	11060.00	56.73	74.00	-17.27	41.62	15.11	Peak	155	149
9	16590.00	46.60	54.00	-7.40	29.88	16.72	Average	122	250
10	16590.00	60.58	74.00	-13.42	43.86	16.72	Peak	122	250

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).

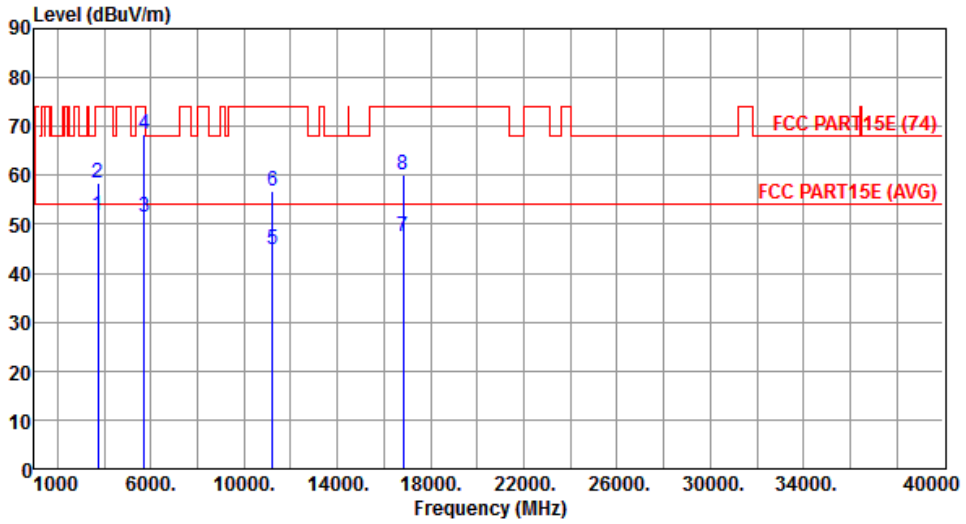
Modulation	VHT80	Test Freq. (MHz)	5610
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3740.00	48.35	54.00	-5.65	47.69	0.66	Average	103	220
2	3740.00	56.37	74.00	-17.63	55.71	0.66	Peak	103	220
3	5725.00	52.40	54.00	-1.60	47.31	5.09	Average	100	72
4	5725.00	71.89	74.00	-2.11	66.80	5.09	Peak	100	72
5	11220.00	44.75	54.00	-9.25	29.48	15.27	Average	115	242
6	11220.00	56.70	74.00	-17.30	41.43	15.27	Peak	115	242
7	16830.00	47.38	54.00	-6.62	29.79	17.59	Average	133	140
8	16830.00	60.86	74.00	-13.14	43.27	17.59	Peak	133	140

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).

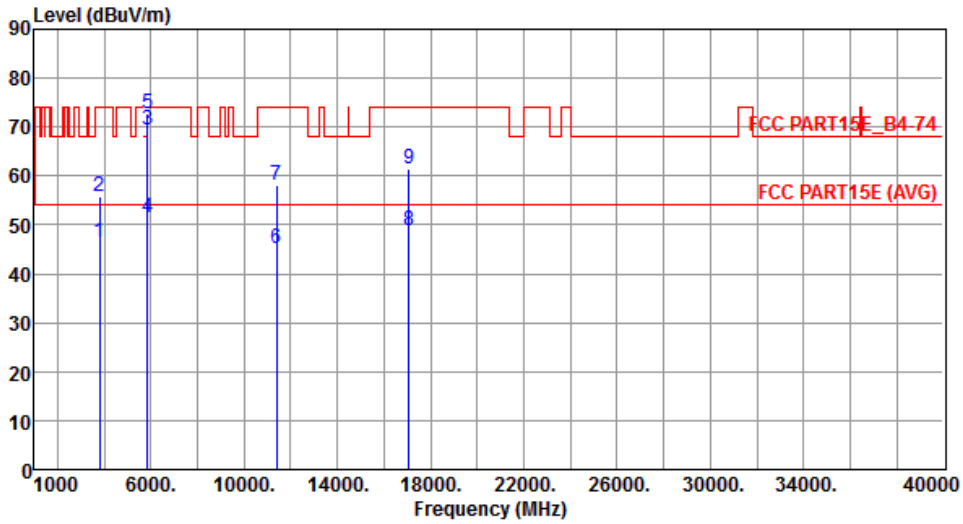
Modulation	VHT80	Test Freq. (MHz)	5610
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3740.00	51.97	54.00	-2.03	51.31	0.66	Average	329	170
2	3740.00	58.51	74.00	-15.49	57.85	0.66	Peak	329	170
3	5725.00	51.43	54.00	-2.57	46.34	5.09	Average	100	308
4	5725.00	68.35	74.00	-5.65	63.26	5.09	Peak	100	308
5	11220.00	44.88	54.00	-9.12	29.61	15.27	Average	163	241
6	11220.00	56.74	74.00	-17.26	41.47	15.27	Peak	163	241
7	16830.00	47.35	54.00	-6.65	29.76	17.59	Average	112	74
8	16830.00	60.26	74.00	-13.74	42.67	17.59	Peak	112	74

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).

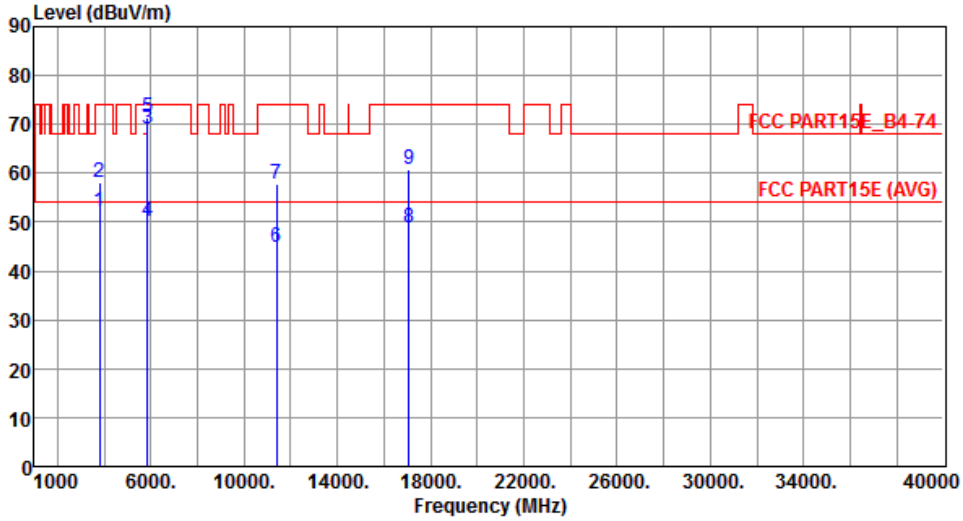
Modulation	VHT80	Test Freq. (MHz)	5690
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3794.00	46.56	54.00	-7.44	45.73	0.83	Average	129	222
2	3794.00	55.76	74.00	-18.24	54.93	0.83	Peak	129	222
3	5850.00	69.51	78.20	-8.69	64.25	5.26	Peak	123	75
4	5860.00	51.34	54.00	-2.66	46.07	5.27	Average	123	75
5	5860.00	72.83	74.00	-1.17	67.56	5.27	Peak	123	75
6	11380.00	45.18	54.00	-8.82	29.76	15.42	Average	134	83
7	11380.00	58.27	74.00	-15.73	42.85	15.42	Peak	134	83
8	17070.00	48.85	54.00	-5.15	30.43	18.42	Average	136	142
9	17070.00	61.28	74.00	-12.72	42.86	18.42	Peak	136	142

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

Modulation	VHT80	Test Freq. (MHz)	5690
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	3794.00	52.15	54.00	-1.85	51.32	0.83	Average	304	176
2	3794.00	58.12	74.00	-15.88	57.29	0.83	Peak	304	176
3	5850.00	68.95	78.20	-9.25	63.69	5.26	Peak	108	308
4	5860.00	50.28	54.00	-3.72	45.01	5.27	Average	108	308
5	5860.00	71.43	74.00	-2.57	66.16	5.27	Peak	108	308
6	11380.00	44.98	54.00	-9.02	29.56	15.42	Average	156	192
7	11380.00	57.87	74.00	-16.13	42.45	15.42	Peak	156	192
8	17070.00	48.89	54.00	-5.11	30.47	18.42	Average	135	147
9	17070.00	60.91	74.00	-13.09	42.49	18.42	Peak	135	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

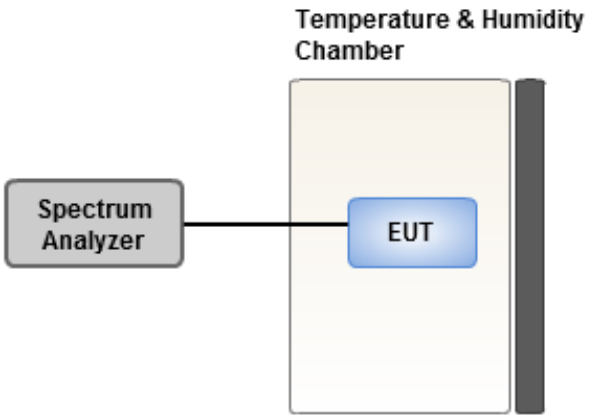
3.6.1 Limit of Frequency Stability

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 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°CVmax	1.19	1.28	1.24	1.60
T20°CVmin	1.72	2.02	1.84	1.27
T50°CVnom	1.95	1.85	1.93	1.45
T40°CVnom	1.92	1.84	1.89	1.47
T30°CVnom	2.60	2.97	2.93	2.18
T20°CVnom	4.37	4.73	4.74	4.34
T10°CVnom	3.80	4.21	3.92	4.21
T0°CVnom	3.77	3.86	3.79	3.64
T-10°CVnom	2.84	2.73	3.31	2.83
T-20°CVnom	2.59	2.44	2.53	2.68
T-30°CVnom	2.73	3.10	3.49	3.47
Vnom [Vac]: 120		Vmax [Vac]: 138		Vmin [Vac]: 102
Tnom [°C]: 20		Tmax [°C]: 50		Tmin [°C]: -30

4 Test laboratory information

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

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

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

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 District, Tao Yuan City 333, Taiwan, R.O.C.	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

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

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Email: ICC_Service@icertifi.com.tw

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