

FCC 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 : Mar. 18, 2016
Tested Date : Mar. 29 ~ Apr. 24, 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:



Gary Chang / Manager



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Release Record

Report No.	Version	Description	Issued Date
FR632301AN	Rev. 01	Initial issue	May 31, 2016

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.385MHz 38.11 (Margin -10.06dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5150.00MHz 52.73 (Margin -1.27dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: 5150-5250MHz: 25.39 5725-5850MHz: 25.43	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]	2	6-54 Mbps
5150-5250	n (HT20)	5180-5240	36-48 [4]	2	MCS 0-15
5150-5250	n (HT40)	5190-5230	38-46 [2]	2	MCS 0-15
5150-5250	ac (VHT20)	5180-5240	36-48 [4]	2	MCS 0-9
5150-5250	ac (VHT40)	5190-5230	38-46 [2]	2	MCS 0-9
5150-5250	ac (VHT80)	5210	42 [1]	2	MCS 0-9

Note 1: RF output power specifies that Maximum Conducted Output Power.
 Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

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]	2	6-54 Mbps
5725-5850	n (HT20)	5745-5825	149-165 [5]	2	MCS 0-15
5725-5850	n (HT40)	5755-5795	151-159 [2]	2	MCS 0-15
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	2	MCS 0-9
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	2	MCS 0-9
5725-5850	ac (VHT80)	5775	155 [1]	2	MCS 0-9

Note 1: RF output power specifies that Maximum Conducted Output Power.
 Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation.

1.1.2 Antenna Details

Ant. No.	Type	Operating Frequency (MHz) / Gain (dBi)			Connector
		2400~2483.5	5150~5250	5725~5850	
1	PIFA	3	4.5	5.5	IPEX

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12Vdc from AC adapter
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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

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

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

1.1.6 Test Tool and Duty Cycle

Test Tool	QSPR		
Duty Cycle and Duty Factor	Mode	Duty cycle (%)	Duty factor (dB)
	11a	96.91%	0.14
	VHT20	88.92%	0.51
	VHT40	78.97%	1.03
	VHT80	84.48%	0.73

1.1.7 Power Setting

For Frequency band 5150-5250 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5180	19.5
11a	5200	25
11a	5240	20
HT20	5180	18
HT20	5200	25
HT20	5240	20.5
HT40	5190	16
HT40	5230	19.5
VHT20	5180	18
VHT20	5200	25
VHT20	5240	20.5
VHT40	5190	16
VHT40	5230	19.5
VHT80	5210	15.5

For Frequency band 5725~5850 MHz		
Modulation Mode	Test Frequency (MHz)	Power Set
11a	5745	25
11a	5785	25
11a	5825	25
HT20	5745	25
HT20	5785	25
HT20	5825	25
HT40	5755	25
HT40	5795	25
VHT20	5745	25
VHT20	5785	25
VHT20	5825	25
VHT40	5755	25
VHT40	5795	25
VHT80	5775	22

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Apr. 20, 2016				
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)				
Tested Date	Mar. 29 ~ Apr. 15, 2016				
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
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)				
Tested Date	Apr. 18 ~ Apr. 24, 2016				
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 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 ≤ 1 GHz	± 3.66 dB
Radiated emission > 1 GHz	± 5.63 dB
Time	$\pm 0.1\%$
Temperature	± 0.6 °C

2 Test Configuration

2.1 Testing Condition

Test Item	Test Site	Ambient Condition	Tested By
AC Conduction	CO01-WS	20°C / 59%	Howard Huang
Radiated Emissions	03CH01-WS	21-24°C / 61-62%	Vincent Yeh Felix Sung
RF Conducted	TH01-WS	21°C / 69%	Anderson Hong

➤ 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	VHT20	5200	MCS 0	---
Radiated Emissions ≤1GHz	VHT20	5200	MCS 0	---
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 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.				

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	11a	5745 / 5785 / 5825	6 Mbps	---
Emission Bandwidth	VHT20	5745 / 5785 / 5825	MCS 0	
6dB bandwidth	VHT40	5755 / 5795	MCS 0	
Peak Power Spectral Density	VHT80	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	---
Note: 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

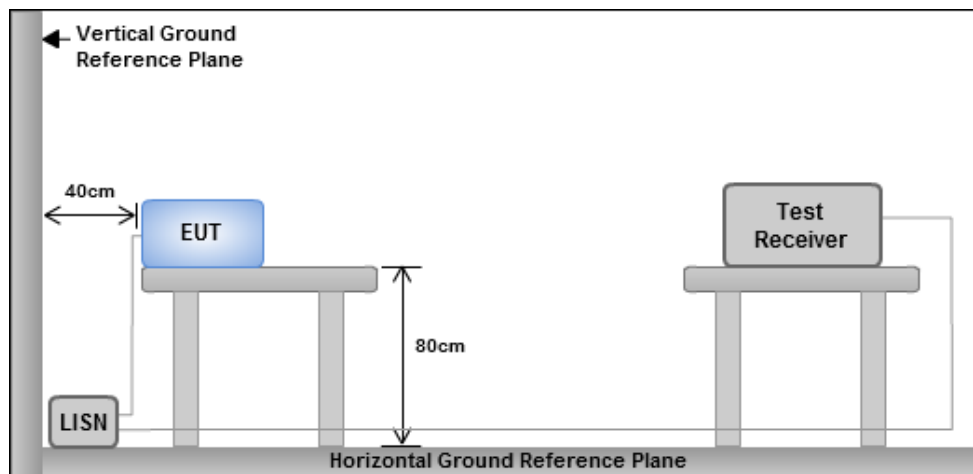
Conducted Emissions Limit		
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50

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.

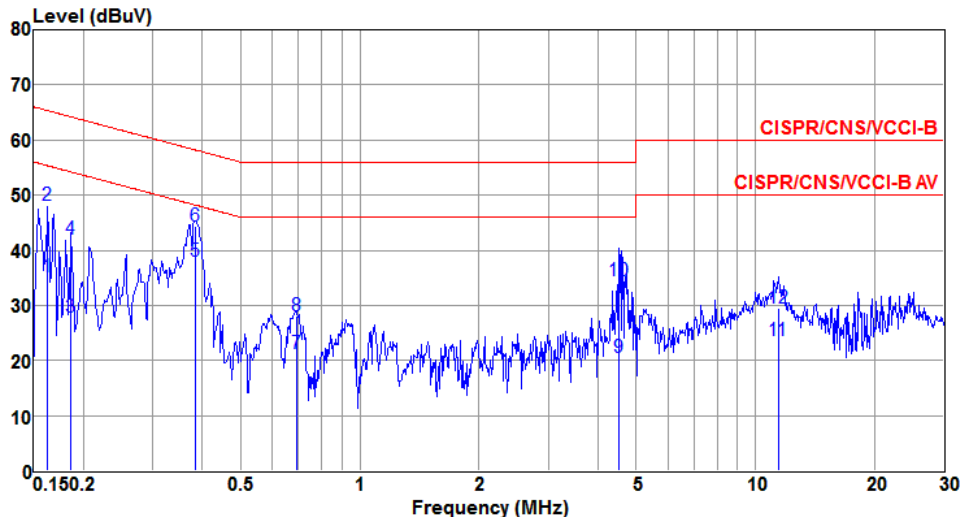
3.1.3 Test Setup



- 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

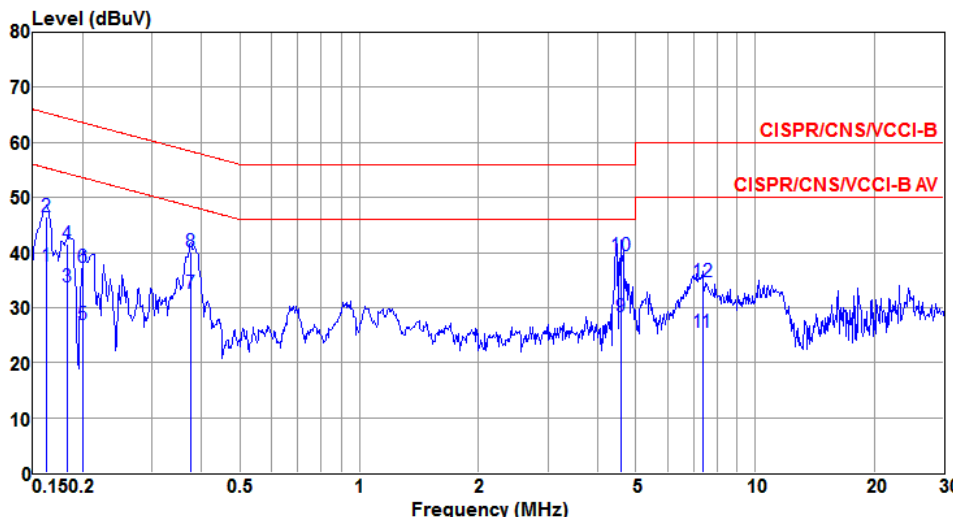
Modulation	VHT20	Test Freq. (MHz)	5200
Power Phase	Line		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.162	35.17	55.34	-20.17	34.42	0.73	0.02	Average
2	0.162	48.15	65.34	-17.19	47.40	0.73	0.02	QP
3	0.186	27.90	54.20	-26.30	27.48	0.40	0.02	Average
4	0.186	41.99	64.20	-22.21	41.57	0.40	0.02	QP
5@	0.385	38.11	48.17	-10.06	37.90	0.18	0.03	Average
6	0.385	44.41	58.17	-13.76	44.20	0.18	0.03	QP
7	0.690	21.24	46.00	-24.76	21.06	0.13	0.05	Average
8	0.690	27.98	56.00	-28.02	27.80	0.13	0.05	QP
9	4.501	20.49	46.00	-25.51	20.06	0.31	0.12	Average
10	4.501	34.38	56.00	-21.62	33.95	0.31	0.12	QP
11	11.438	23.71	50.00	-26.29	22.84	0.69	0.18	Average
12	11.438	29.53	60.00	-30.47	28.66	0.69	0.18	QP

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

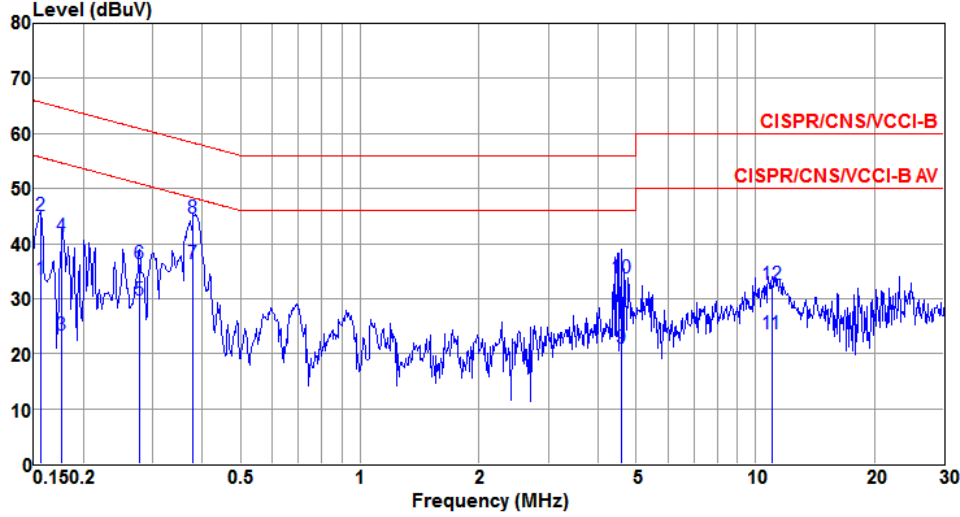
Modulation	VHT20	Test Freq. (MHz)	5200
Power Phase	Neutral		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.162	37.58	55.34	-17.76	36.88	0.68	0.02	Average
2	0.162	46.59	65.34	-18.75	45.89	0.68	0.02	QP
3	0.183	33.69	54.33	-20.64	33.26	0.41	0.02	Average
4	0.183	41.64	64.33	-22.69	41.21	0.41	0.02	QP
5	0.201	26.85	53.58	-26.73	26.59	0.24	0.02	Average
6	0.201	37.36	63.58	-26.22	37.10	0.24	0.02	QP
7	0.375	32.49	48.39	-15.90	32.32	0.14	0.03	Average
8	0.375	40.12	58.39	-18.27	39.95	0.14	0.03	QP
9	4.574	28.40	46.00	-17.60	27.56	0.71	0.13	Average
10	4.574	39.33	56.00	-16.67	38.49	0.71	0.13	QP
11	7.368	25.59	50.00	-24.41	24.85	0.59	0.15	Average
12	7.368	34.76	60.00	-25.24	34.02	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).

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

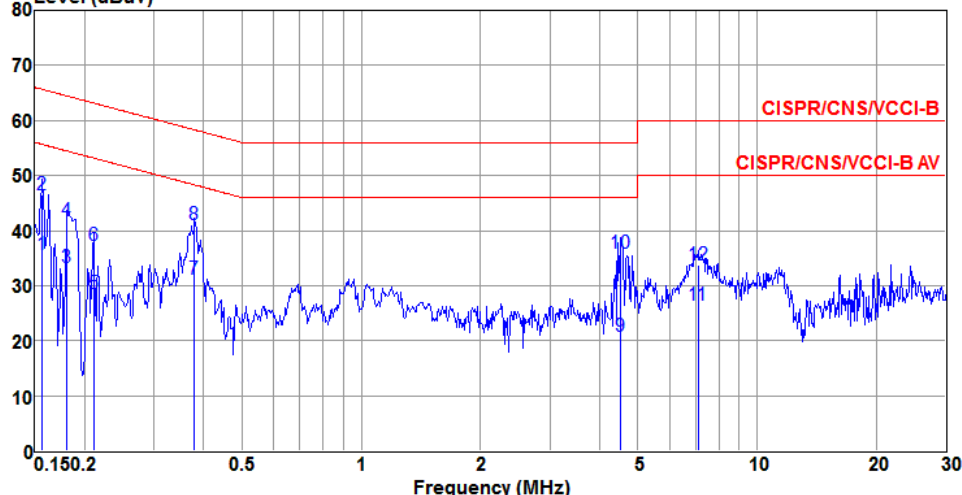


	Freq MHz	Level dBUV	Limit Line dBUV	Over Limit dB	Read Level dBUV	LISN factor dB	cable loss dB	Remark
1	0.156	33.59	55.65	-22.06	32.75	0.82	0.02	Average
2	0.156	45.13	65.65	-20.52	44.29	0.82	0.02	QP
3	0.177	23.38	54.64	-31.26	22.82	0.54	0.02	Average
4	0.177	41.40	64.64	-23.24	40.84	0.54	0.02	QP
5	0.277	29.74	50.90	-21.16	29.50	0.22	0.02	Average
6	0.277	36.39	60.90	-24.51	36.15	0.22	0.02	QP
7@	0.379	36.26	48.30	-12.04	36.04	0.19	0.03	Average
8	0.379	44.69	58.30	-13.61	44.47	0.19	0.03	QP
9	4.598	20.95	46.00	-25.05	20.50	0.32	0.13	Average
10	4.598	33.83	56.00	-22.17	33.38	0.32	0.13	QP
11	11.021	23.69	50.00	-26.31	22.84	0.68	0.17	Average
12	11.021	32.66	60.00	-27.34	31.81	0.68	0.17	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		

Level (dBuV)



	Freq	Level	Limit	Over	Read	LISN	cable	
	MHz	dBuV	Line	Limit	Level	factor	loss	Remark
			dBuV	dB	dBuV	dB	dB	
1	0.156	35.59	55.65	-20.06	34.81	0.76	0.02	Average
2	0.156	46.52	65.65	-19.13	45.74	0.76	0.02	QP
3	0.181	33.37	54.46	-21.09	32.90	0.45	0.02	Average
4	0.181	41.71	64.46	-22.75	41.24	0.45	0.02	QP
5	0.211	28.56	53.18	-24.62	28.31	0.23	0.02	Average
6	0.211	37.35	63.18	-25.83	37.10	0.23	0.02	QP
7@	0.379	31.27	48.30	-17.03	31.10	0.14	0.03	Average
8	0.379	41.18	58.30	-17.12	41.01	0.14	0.03	QP
9	4.501	20.86	46.00	-25.14	20.03	0.71	0.12	Average
10	4.501	35.91	56.00	-20.09	35.08	0.71	0.12	QP
11	7.100	26.54	50.00	-23.46	25.80	0.60	0.14	Average
12	7.100	33.66	60.00	-26.34	32.92	0.60	0.14	QP

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

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

3.2 Emission Bandwidth

3.2.1 Limit of Emission bandwidth

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

3.2.2 Test Procedures

26dB Bandwidth

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

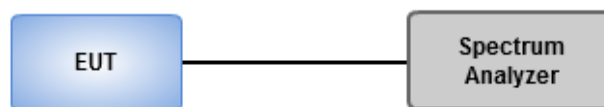
Occupied Bandwidth

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

6dB Bandwidth

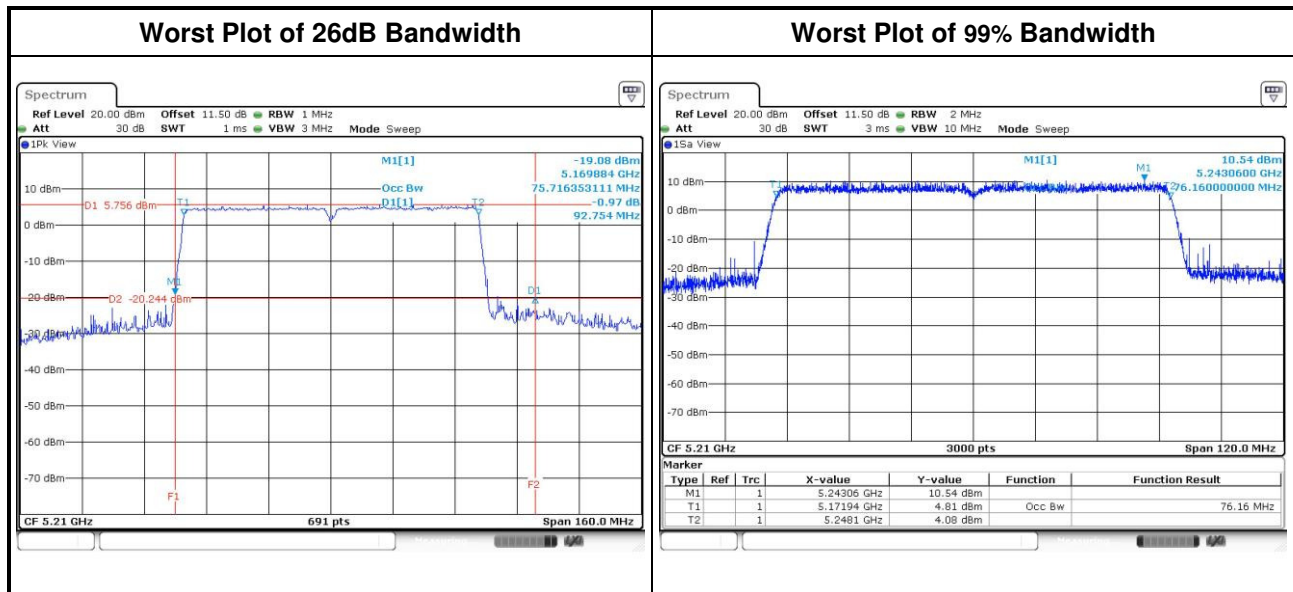
1. Set RBW = 100kHz, VBW = 300kHz
2. Detector = Peak, Trace mode = max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB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

3.2.3 Test Setup



3.2.4 Test Result of Emission Bandwidth

For Frequency band 5150-5250 MHz										
Emission Bandwidth										
Mode	N _{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
11a	2	5180	39.78	37.61	---	---	17.16	16.87	---	---
11a	2	5200	45.07	44.64	---	---	21.03	19.77	---	---
11a	2	5240	41.88	37.61	---	---	17.35	17.67	---	---
VHT20	2	5180	32.32	27.68	---	---	17.75	17.71	---	---
VHT20	2	5200	47.39	44.28	---	---	20.95	20.11	---	---
VHT20	2	5240	44.42	43.48	---	---	18.10	18.28	---	---
VHT40	2	5190	40.70	40.58	---	---	36.38	36.32	---	---
VHT40	2	5230	64.93	60.58	---	---	37.00	36.70	---	---
VHT80	2	5210	92.75	83.48	---	---	76.16	76.12	---	---

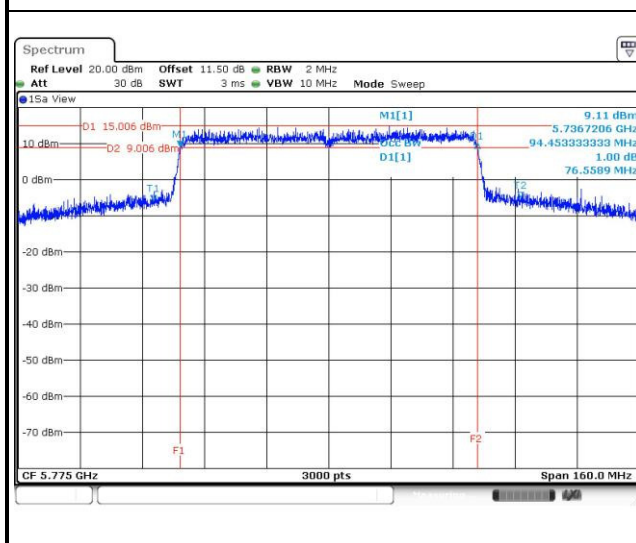


For Frequency band 5725-5850 MHz

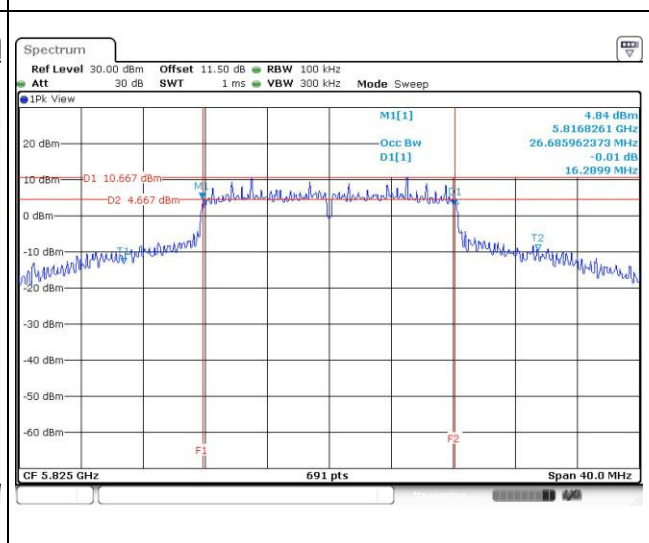
Emission Bandwidth

Mode	N _{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				6dB BW Limit (MHz)
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	
11a	2	5745	31.55	28.52	---	---	16.35	16.35	---	---	0.5
11a	2	5785	31.59	29.04	---	---	16.35	16.35	---	---	0.5
11a	2	5825	26.40	30.09	---	---	16.35	16.29	---	---	0.5
VHT20	2	5745	32.20	29.63	---	---	17.16	17.62	---	---	0.5
VHT20	2	5785	32.52	30.13	---	---	17.22	17.57	---	---	0.5
VHT20	2	5825	30.59	27.24	---	---	17.57	16.70	---	---	0.5
VHT40	2	5755	62.93	57.49	---	---	36.41	36.41	---	---	0.5
VHT40	2	5795	60.40	55.41	---	---	36.41	36.41	---	---	0.5
VHT80	2	5775	93.23	94.45	---	---	75.36	75.36	---	---	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

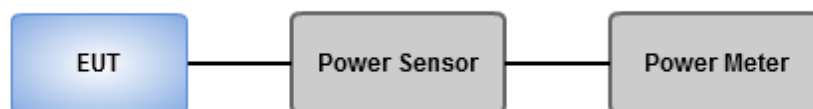
Frequency Band (MHz)		Limit
☐	5250 ~ 5350	250mW or 11dBm+10 log B
☐	5470 ~ 5725	250mW or 11dBm+10 log B
☒	5725 ~ 5850	1 W

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	2	5180	19.69	19.20	---	---	176.287	22.46	30.00
11a	2	5200	22.51	22.22	---	---	344.963	25.38	30.00
11a	2	5240	20.02	19.69	---	---	193.572	22.87	30.00
HT20	2	5180	18.24	17.68	---	---	125.294	20.98	30.00
HT20	2	5200	22.42	22.13	---	---	337.887	25.29	30.00
HT20	2	5240	20.15	19.98	---	---	203.055	23.08	30.00
HT40	2	5190	16.41	15.78	---	---	81.596	19.12	30.00
HT40	2	5230	19.63	19.24	---	---	175.779	22.45	30.00
VHT20	2	5180	18.33	17.80	---	---	128.333	21.08	30.00
VHT20	2	5200	22.56	22.2	---	---	346.260	25.39	30.00
VHT20	2	5240	20.29	20.05	---	---	208.063	23.18	30.00
VHT40	2	5190	16.53	15.90	---	---	83.882	19.24	30.00
VHT40	2	5230	19.76	19.37	---	---	181.121	22.58	30.00
VHT80	2	5210	15.76	15.17	---	---	70.556	18.49	30.00

For Frequency band 5725-5850 MHz									
Mode	N _{TX}	Freq. (MHz)	Conducted Power (dBm)				Total Power (mW)	Total Power (dBm)	Limit (dBm)
			Chain 0	Chain 1	Chain 2	Chain 3			
11a	2	5745	22.11	21.63	---	---	308.101	24.89	30.00
11a	2	5785	22.18	21.54	---	---	307.757	24.88	30.00
11a	2	5825	22.25	21.43	---	---	306.876	24.87	30.00
HT20	2	5745	22.38	21.71	---	---	321.233	25.07	30.00
HT20	2	5785	22.57	22.06	---	---	341.412	25.33	30.00
HT20	2	5825	22.19	21.73	---	---	314.513	24.98	30.00
HT40	2	5755	21.14	21.52	---	---	271.923	24.34	30.00
HT40	2	5795	22.22	21.73	---	---	315.661	24.99	30.00
VHT20	2	5745	22.49	21.83	---	---	329.824	25.18	30.00
VHT20	2	5785	22.71	22.1	---	---	348.819	25.43	30.00
VHT20	2	5825	22.29	21.84	---	---	322.190	25.08	30.00
VHT40	2	5755	22.21	21.65	---	---	312.559	24.95	30.00
VHT40	2	5795	22.34	21.87	---	---	325.211	25.12	30.00
VHT80	2	5775	20.55	20.04	---	---	214.426	23.31	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 $\geq 10 * (\text{number of points in sweep}) * (\text{total on/off period of the transmitted signal})$.
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add $10 \log(1/x)$, where x is the duty cycle.

For 5725 ~ 5850 MHz

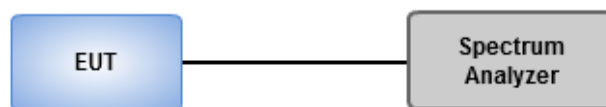
☐ Method SA-1

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 $\geq 10 * (\text{number of points in sweep}) * (\text{total on/off period of the transmitted signal})$.
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add $10 \log(1/x)$, where x is the duty cycle.

3.4.3 Test Setup

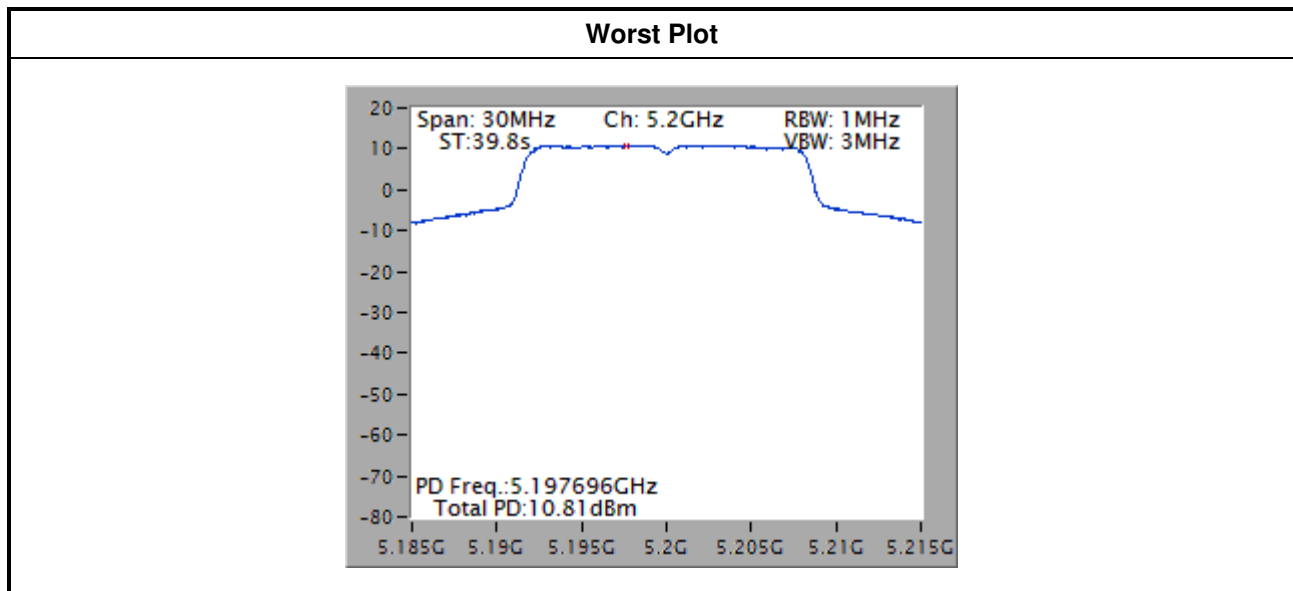


3.4.4 Test Result of Peak Power Spectral Density

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	2	5180	8.41	0.14	8.55	15.49
11a	2	5200	10.81	0.14	10.95	15.49
11a	2	5240	8.86	0.14	9.00	15.49
VHT20	2	5180	6.44	0.51	6.95	15.49
VHT20	2	5200	10.36	0.51	10.87	15.49
VHT20	2	5240	8.29	0.51	8.80	15.49
VHT40	2	5190	1.10	1.03	2.13	15.49
VHT40	2	5230	4.31	1.03	5.34	15.49
VHT80	2	5210	-2.39	0.73	-1.66	15.49

Note:

1. D.F is duty factor.
2. Test results are bin-by-bin summing measured value of each TX port.
3. Directional gain = $4.5 + 10 \cdot \log(2/1) = 7.51 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $17 \text{ dBm} - (7.51 \text{ dBi} - 6 \text{ dBi}) = 15.49 \text{ dBm}$.

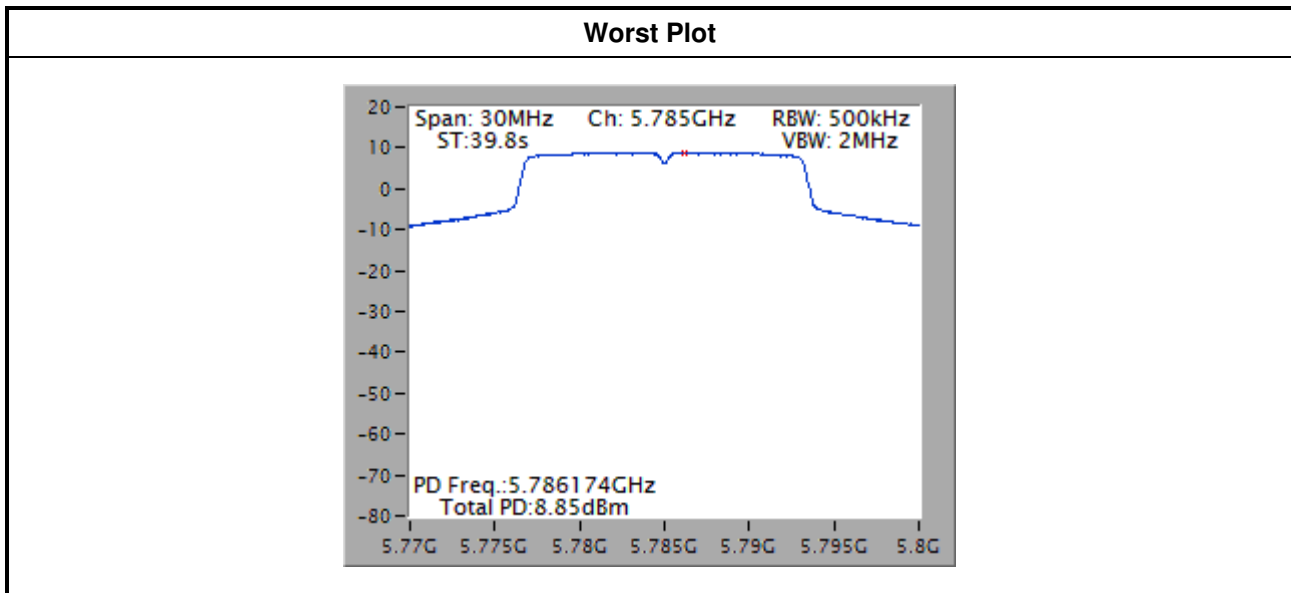


Note: The plot without duty factor

For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm/500kHz)			
Modulation Mode	N _{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
11a	2	5745	8.80	0.14	8.94	27.49
11a	2	5785	8.85	0.14	8.99	27.49
11a	2	5825	8.47	0.14	8.61	27.49
VHT20	2	5745	8.36	0.51	8.87	27.49
VHT20	2	5785	8.41	0.51	8.92	27.49
VHT20	2	5825	7.99	0.51	8.50	27.49
VHT40	2	5755	4.98	1.03	6.01	27.49
VHT40	2	5795	4.75	1.03	5.78	27.49
VHT80	2	5775	0.32	0.73	1.05	27.49

Note:

1. D.F is duty factor.
2. Test results are bin-by-bin summing measured value of each TX port.
3. Directional gain = $5.5 + 10 \cdot \log(2/1) = 8.51 \text{ dBi} > 6 \text{ dBi}$.
Limit shall be reduced to $30 \text{ dBm} - (8.51 \text{ dBi} - 6 \text{ dBi}) = 27.49 \text{ dBm}$.



Note: The 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	
5.15 - 5.25 GHz	e.i.r.p. -27 dBm [68.2 dBuV/m@3m]	
5.725 - 5.850 GHz	☒	15.407(b)(4)(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see § 15.205(c))

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

3.5.2 Test Procedures

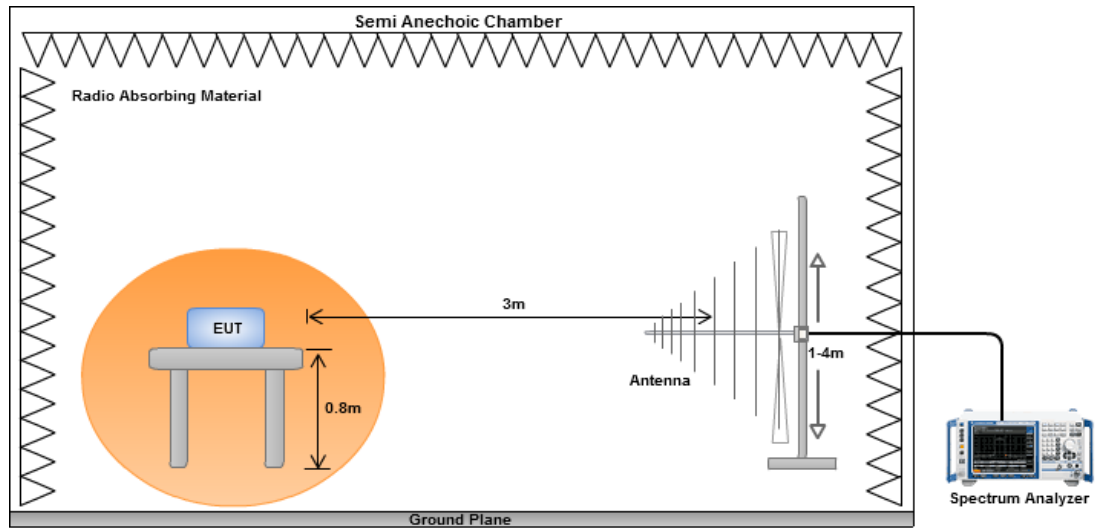
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

Note:

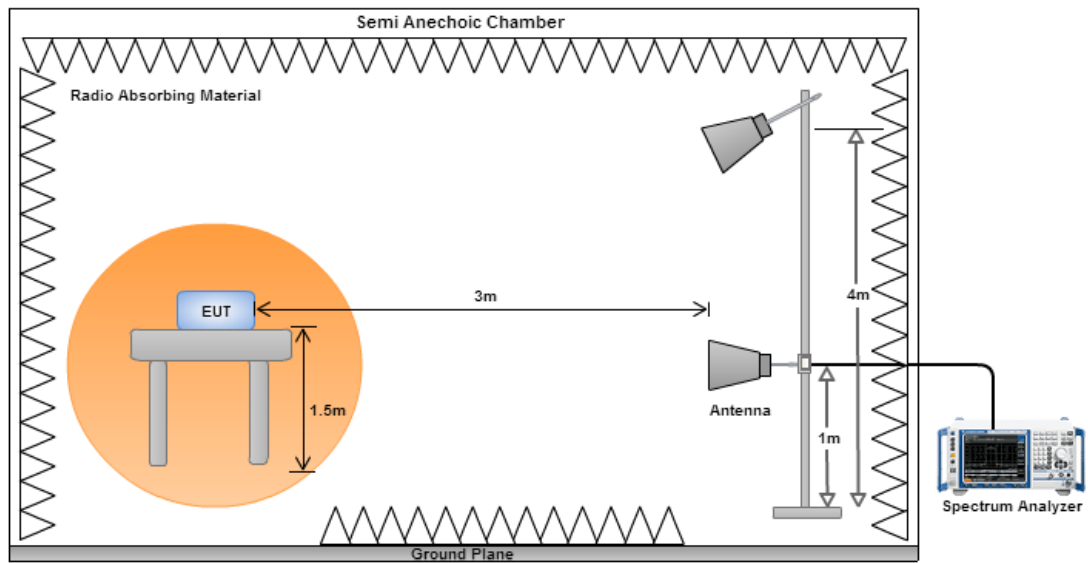
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

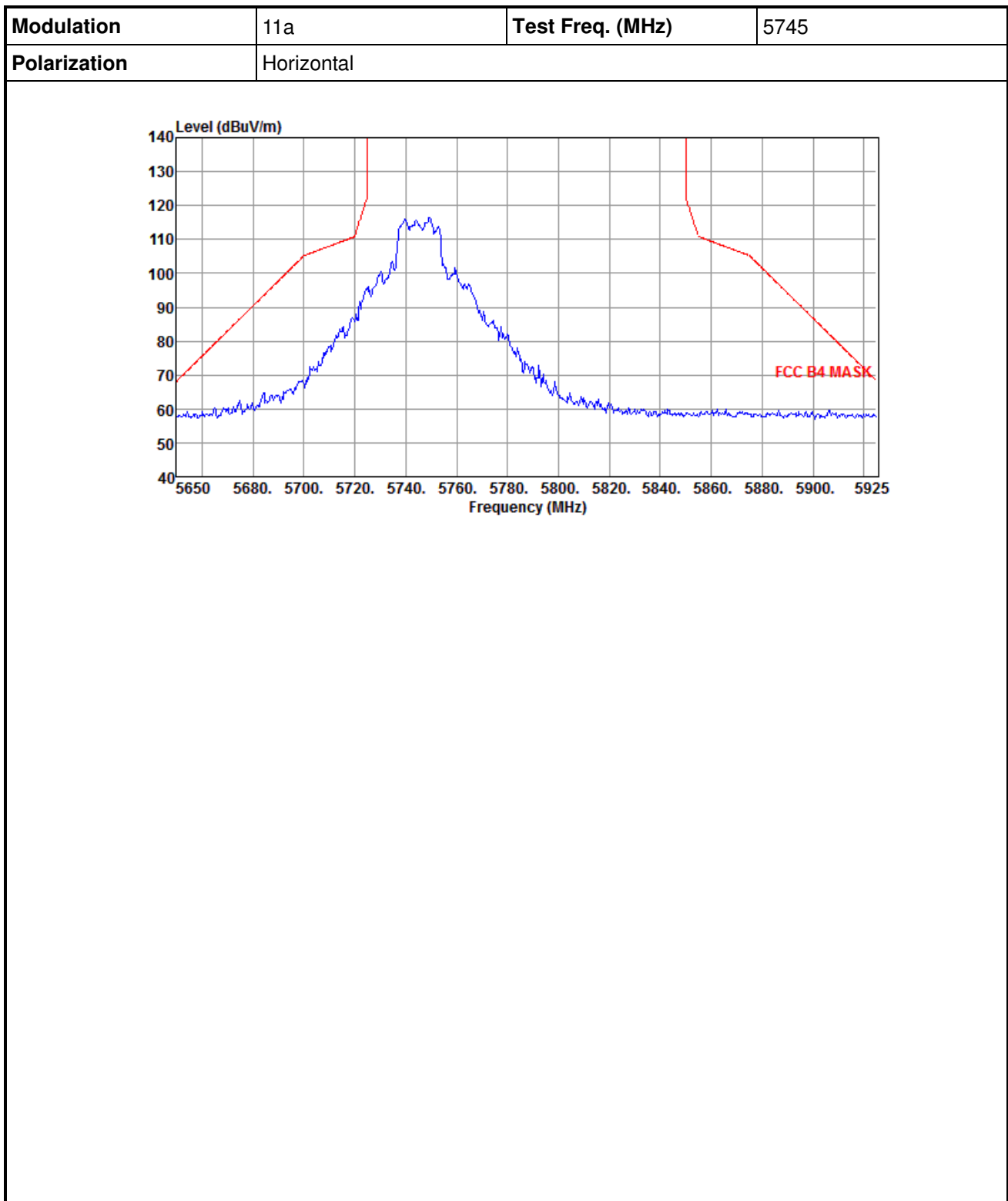
Radiated Emissions below 1 GHz

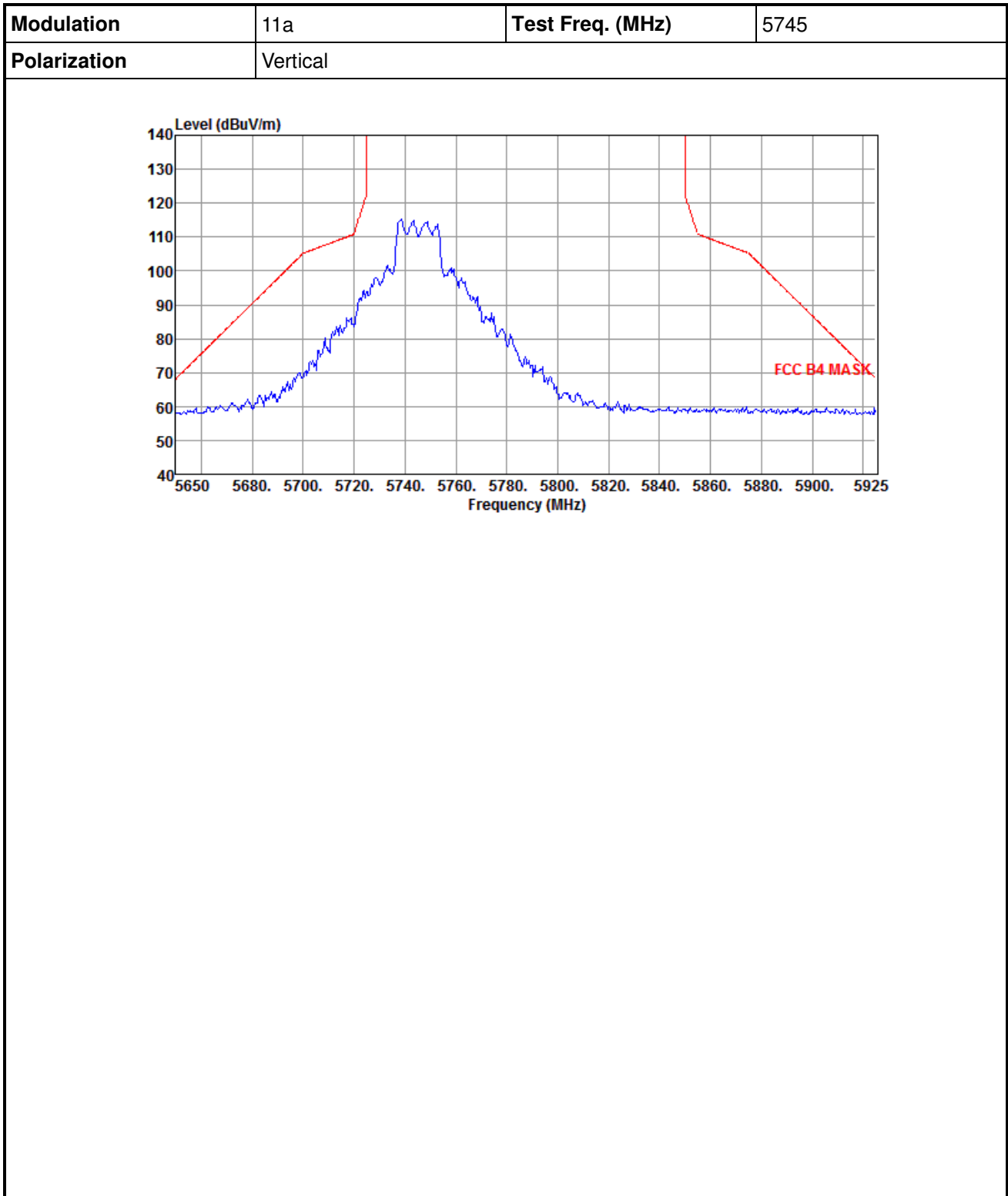


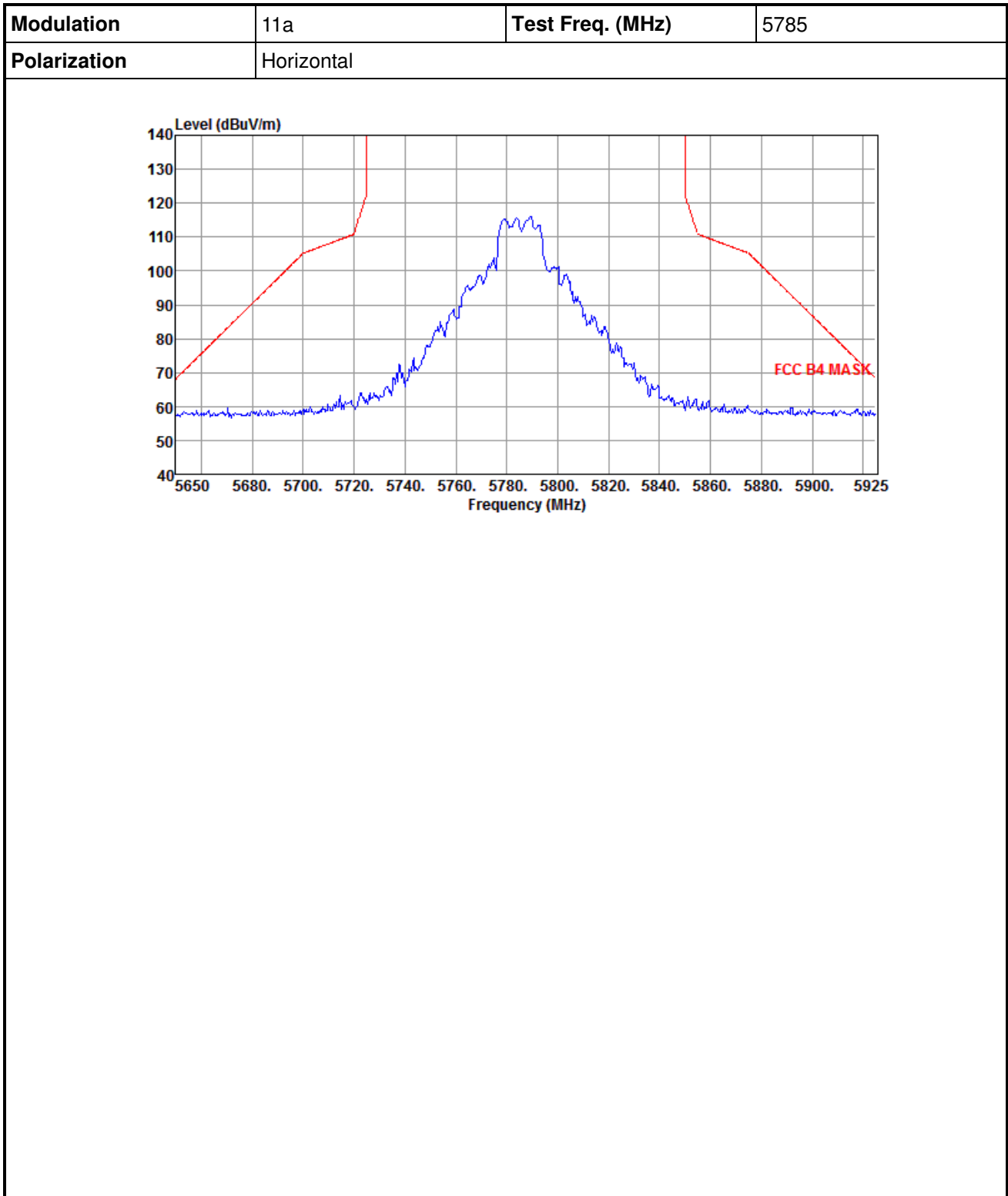
Radiated Emissions above 1 GHz

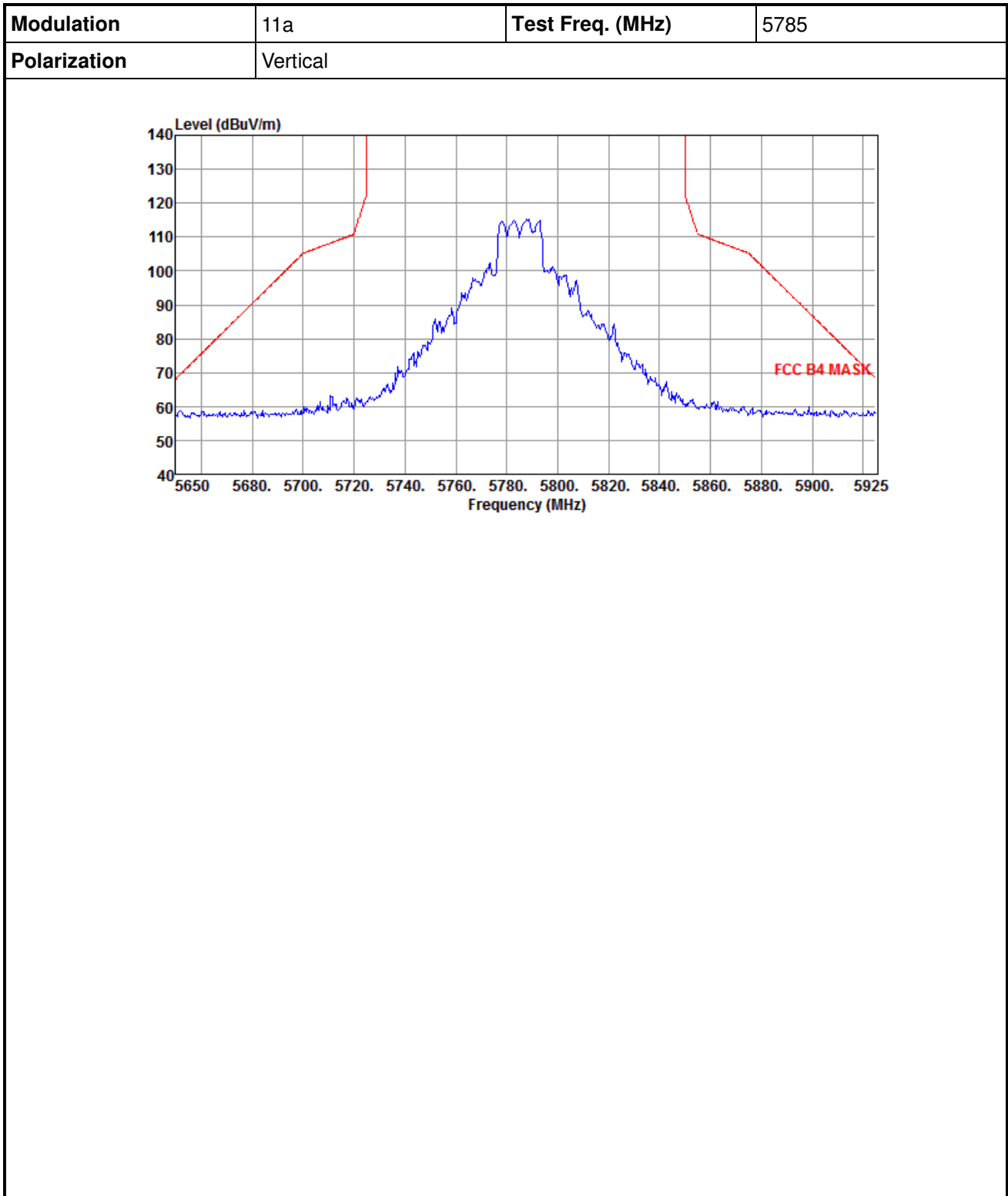


3.5.4 Transmitter Radiated Band Edge for 11a

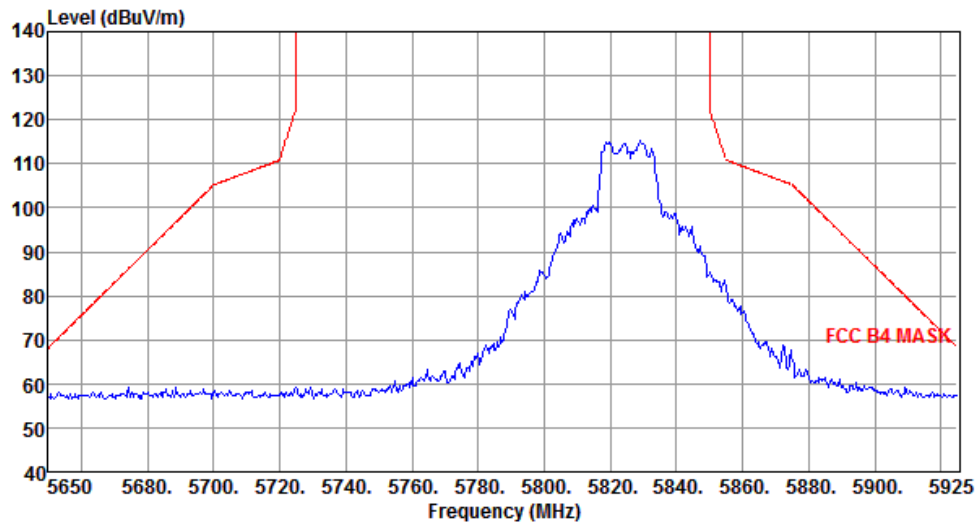


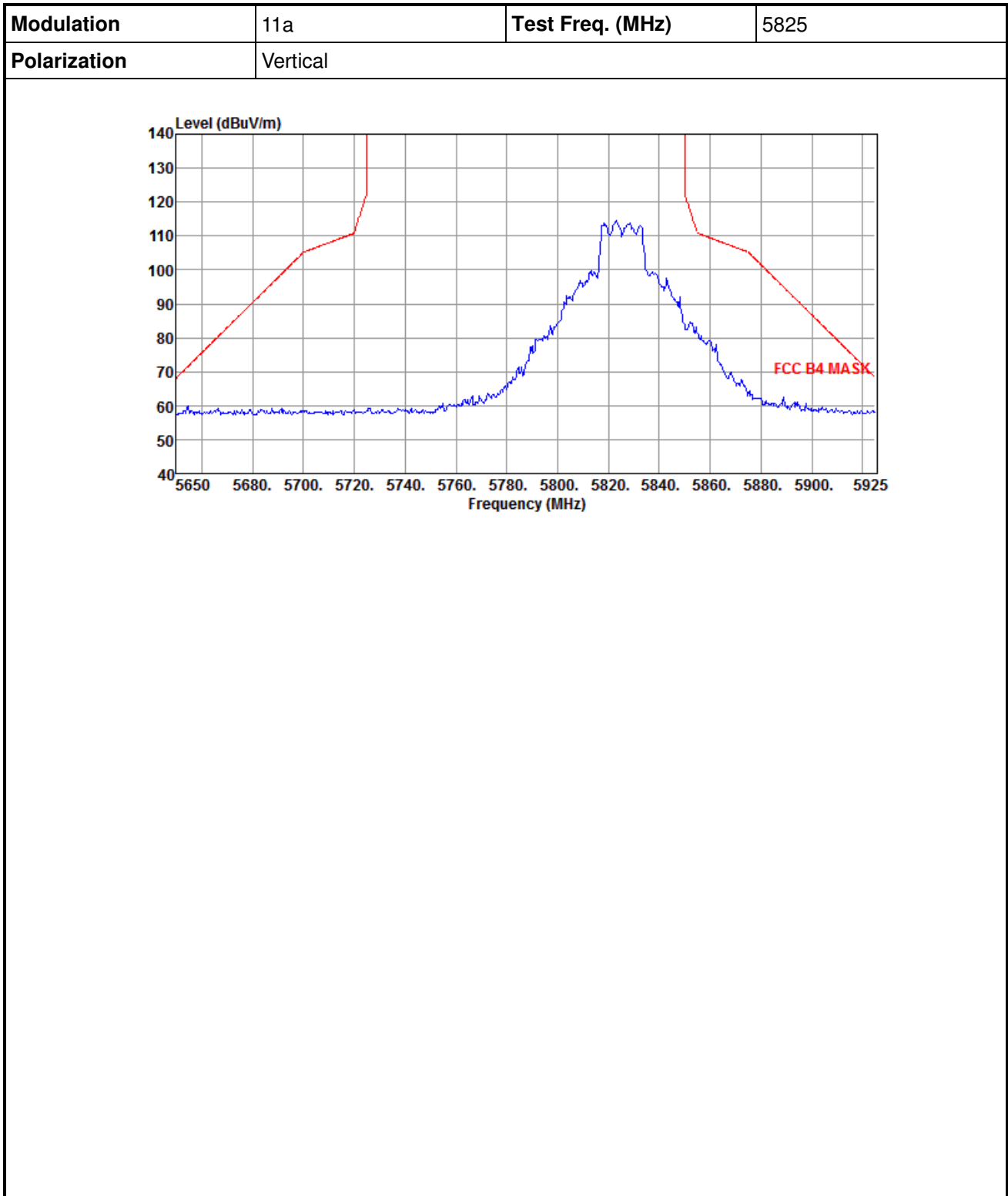




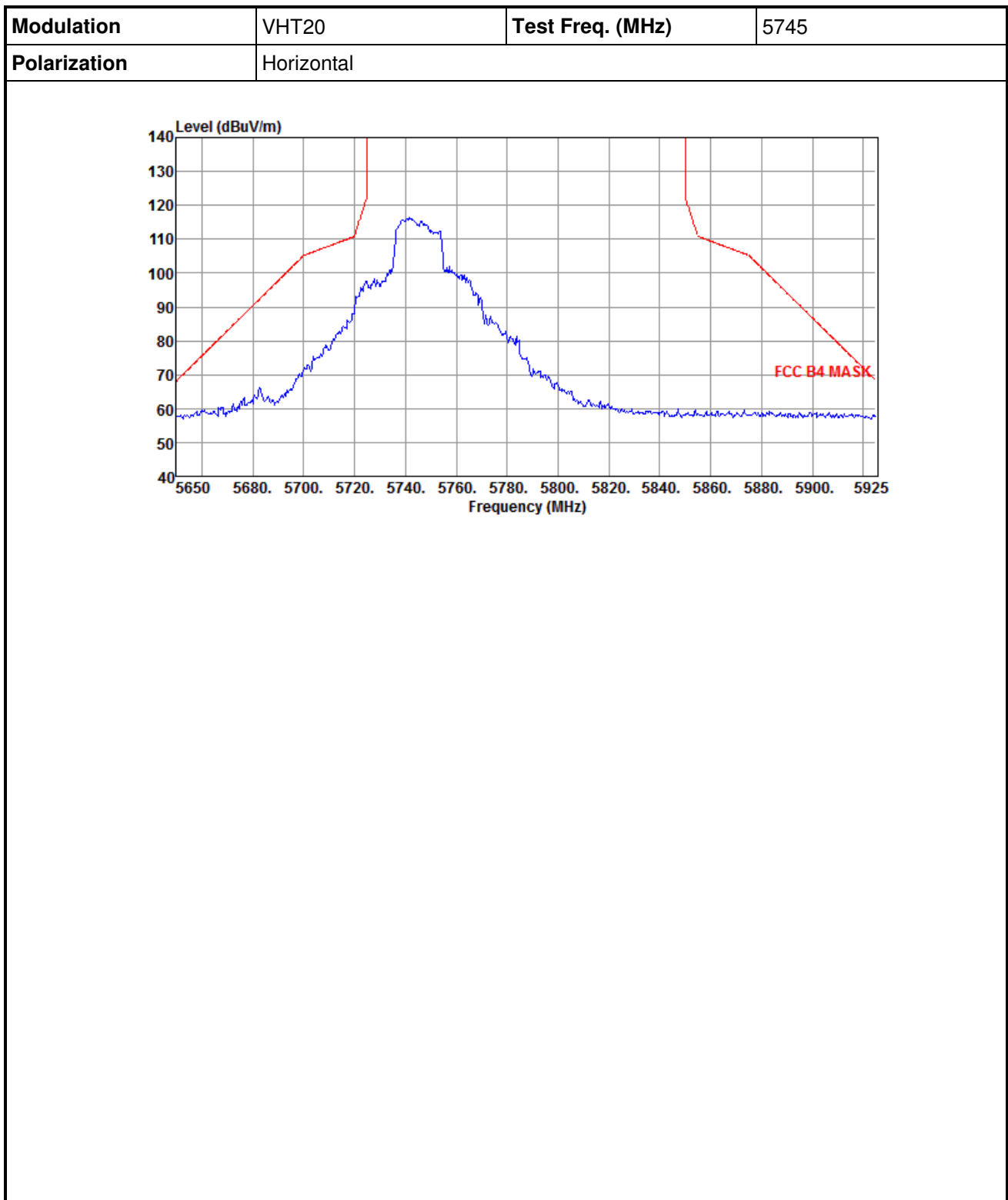


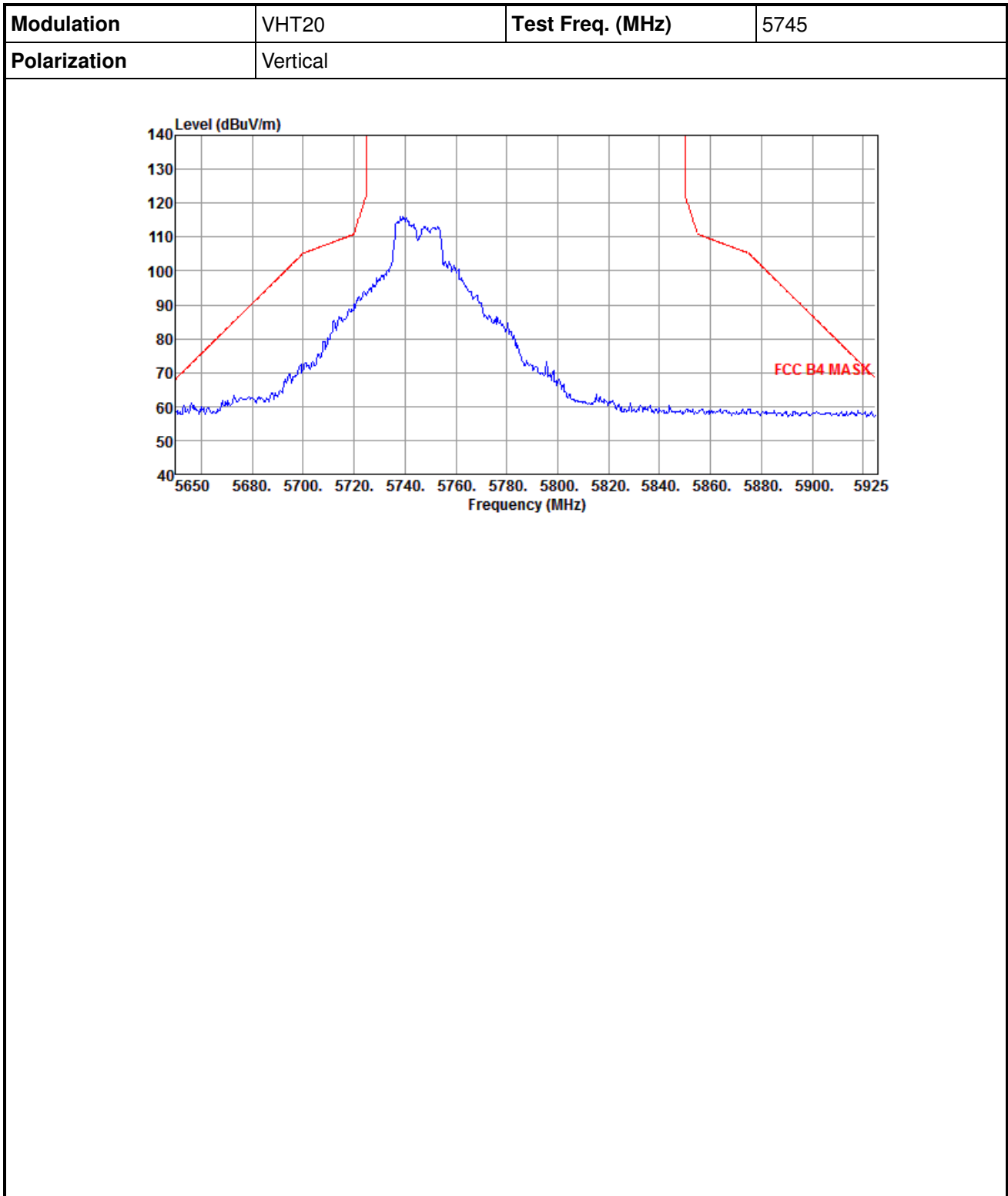
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		

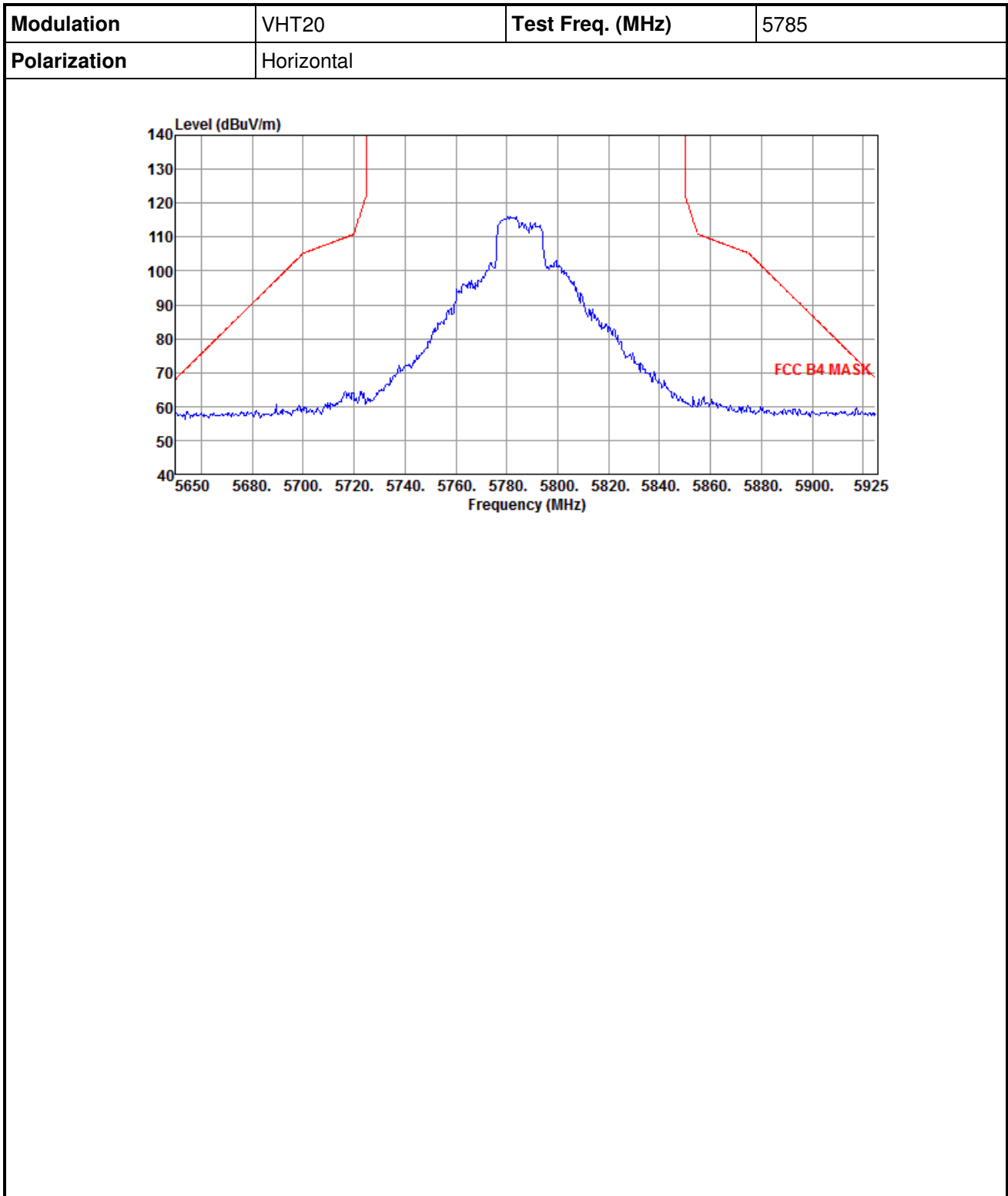


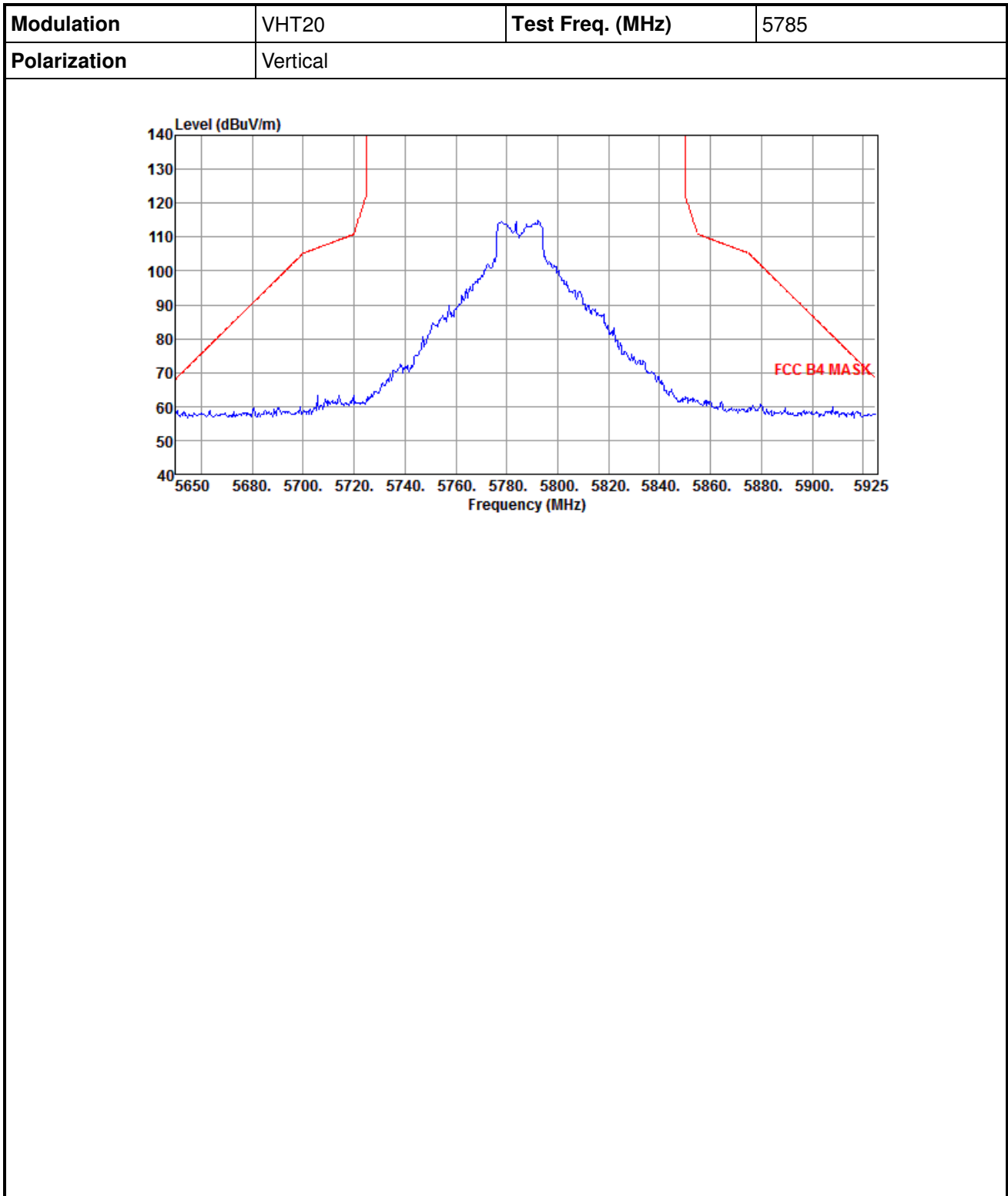


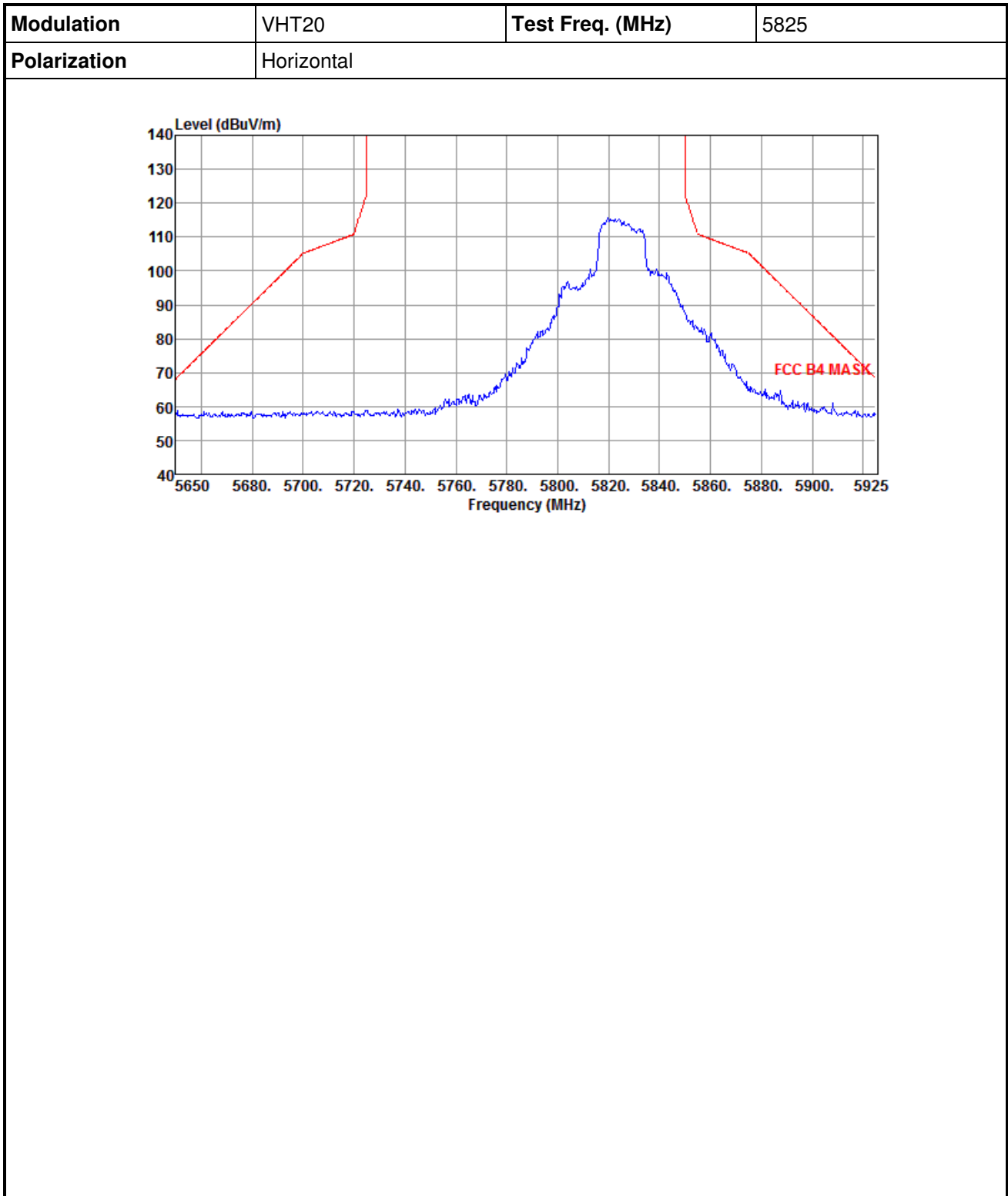
3.5.5 Transmitter Radiated Band Edge for VHT20

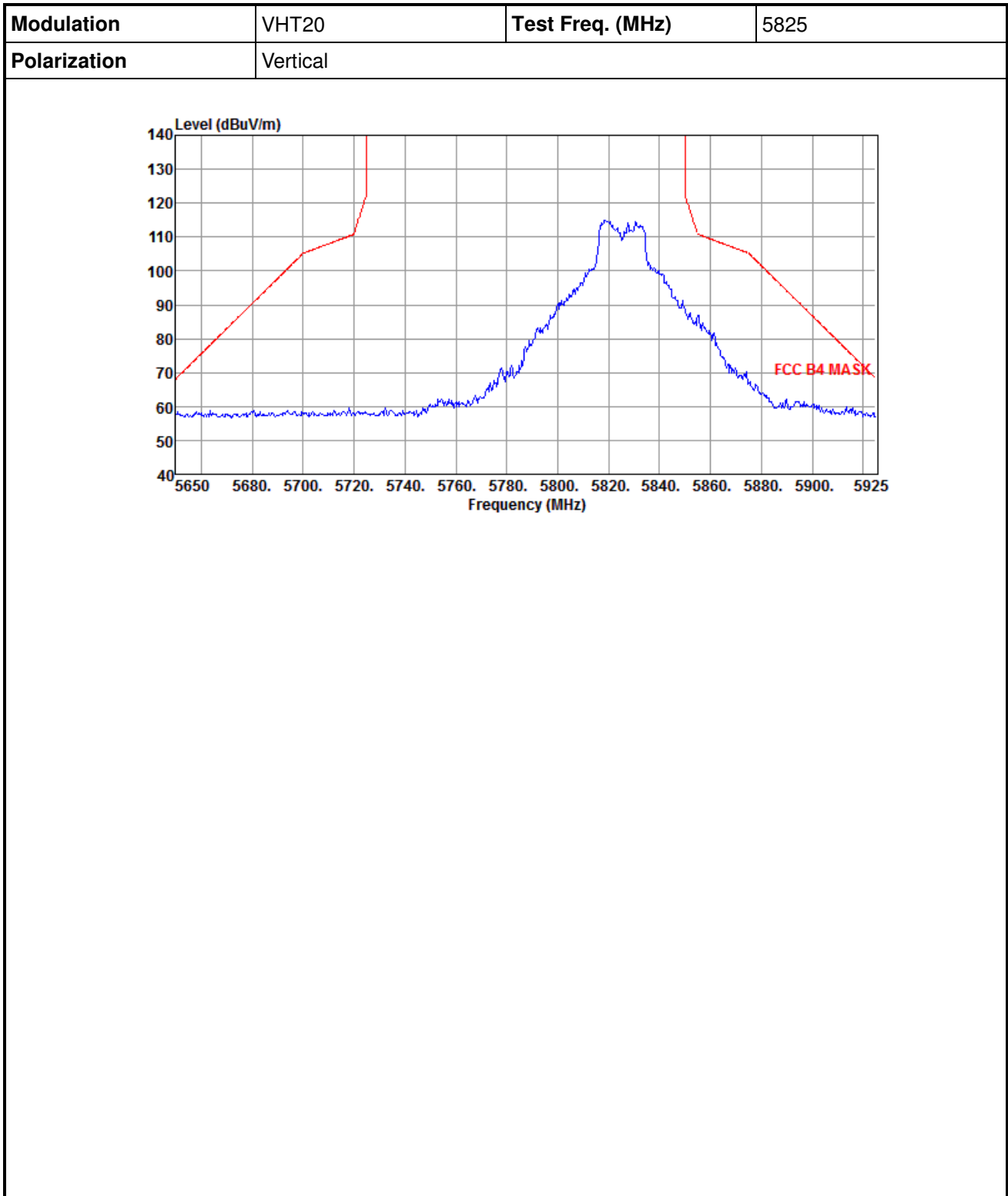




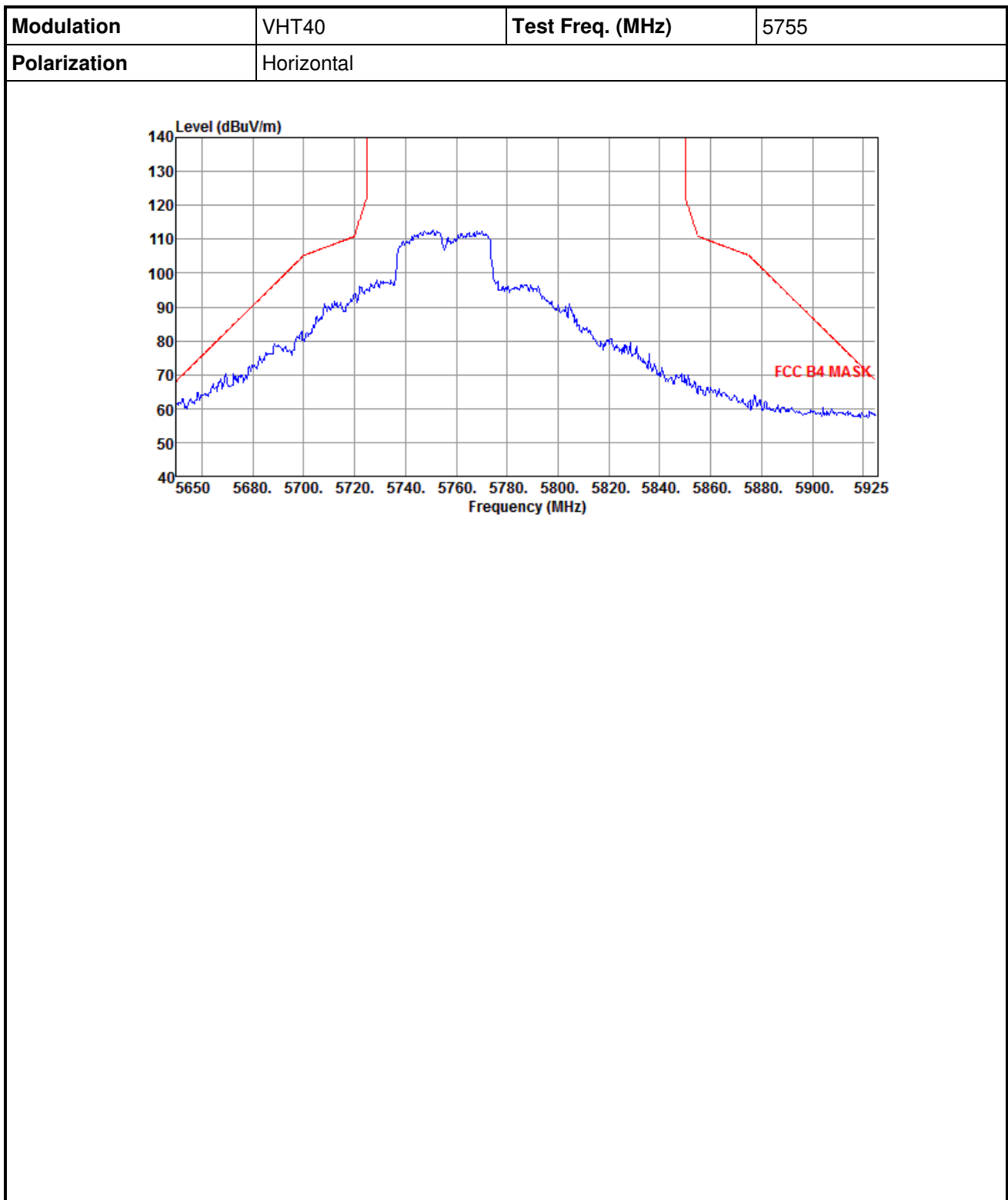


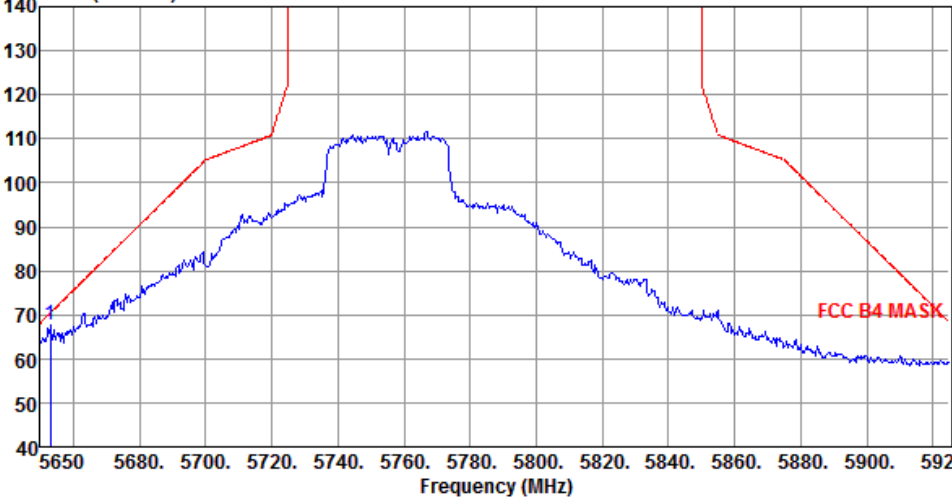


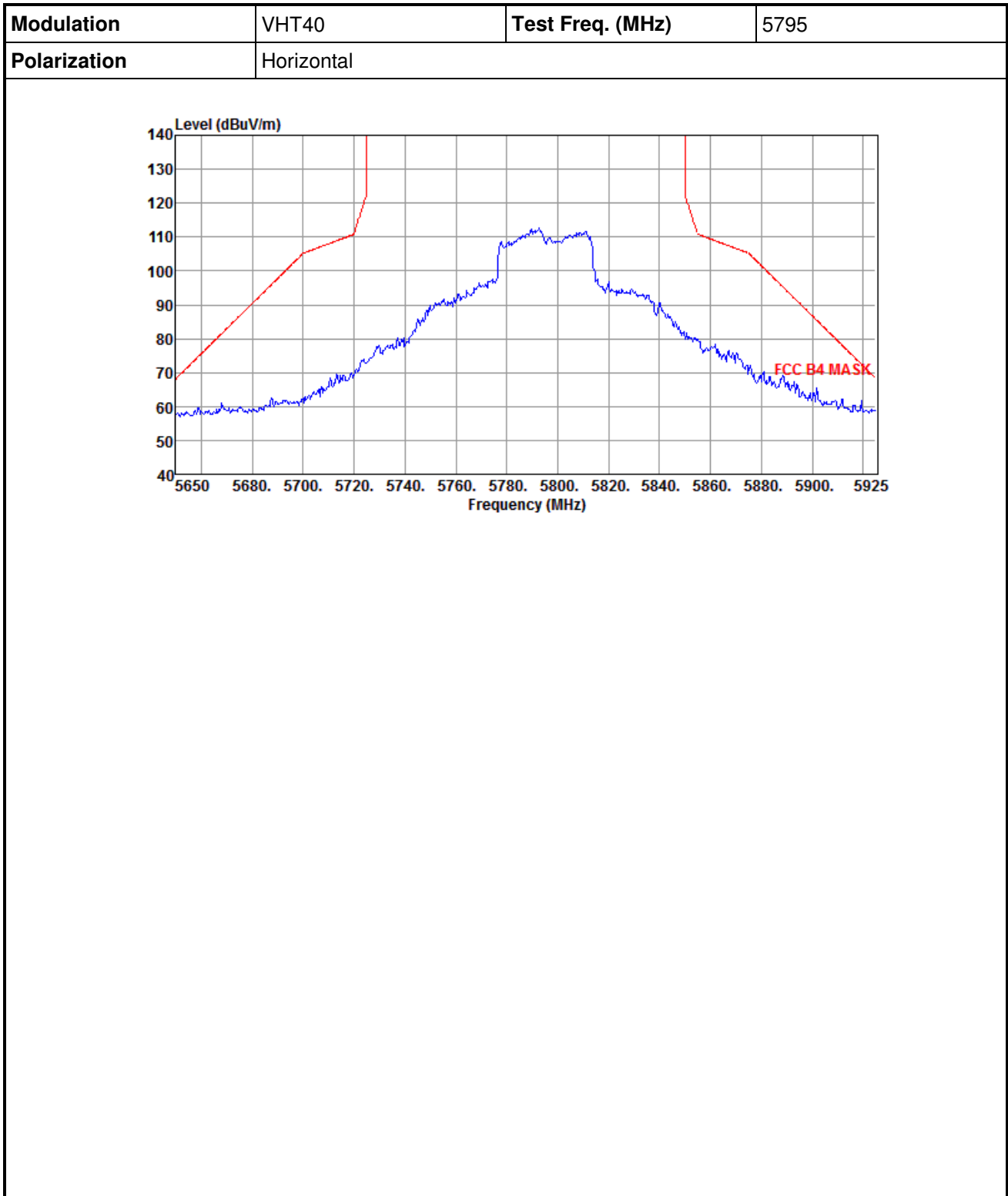


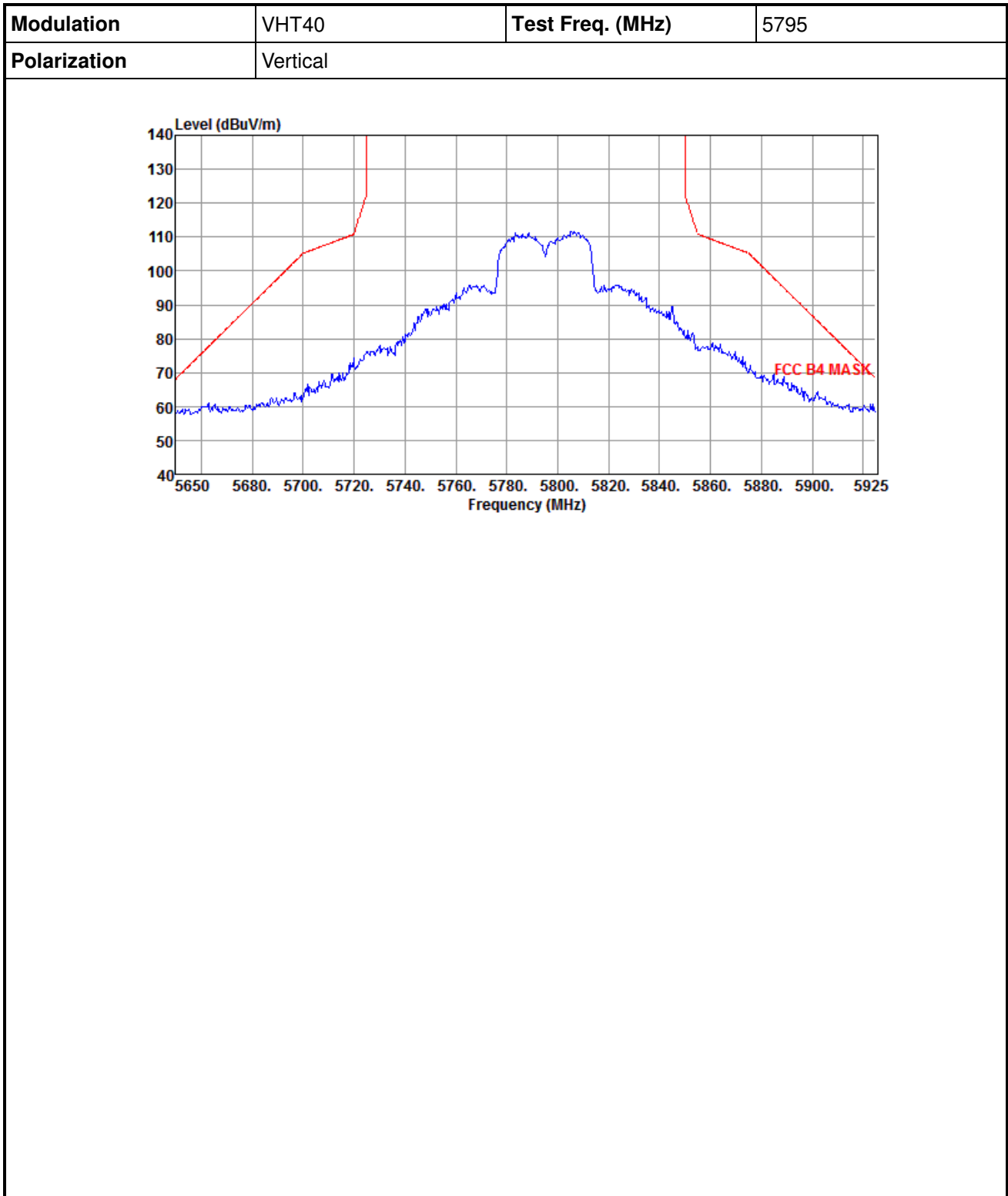


3.5.6 Transmitter Radiated Band Edge for VHT40

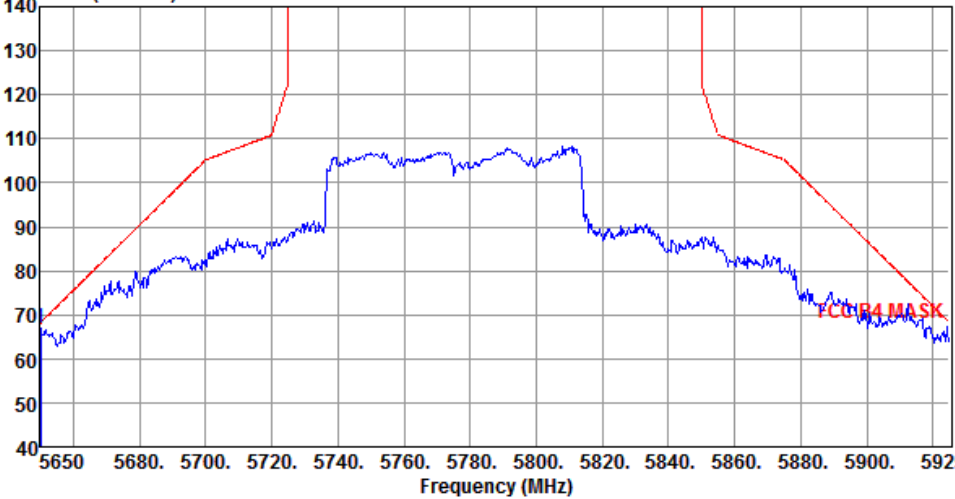


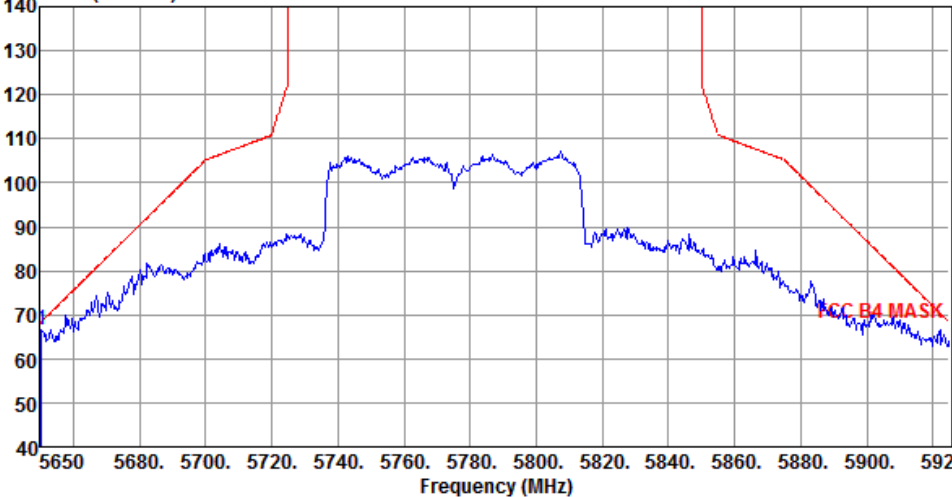
Modulation	VHT40	Test Freq. (MHz)	5755																										
Polarization	Vertical																												
Level (dBuV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5653.04</td><td>67.54</td><td>70.45</td><td>-2.91</td><td>62.54</td><td>5.00</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).											Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5653.04	67.54	70.45	-2.91	62.54	5.00	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																				
1	5653.04	67.54	70.45	-2.91	62.54	5.00	Peak	---	---																				





3.5.7 Transmitter Radiated Band Edge for VHT80

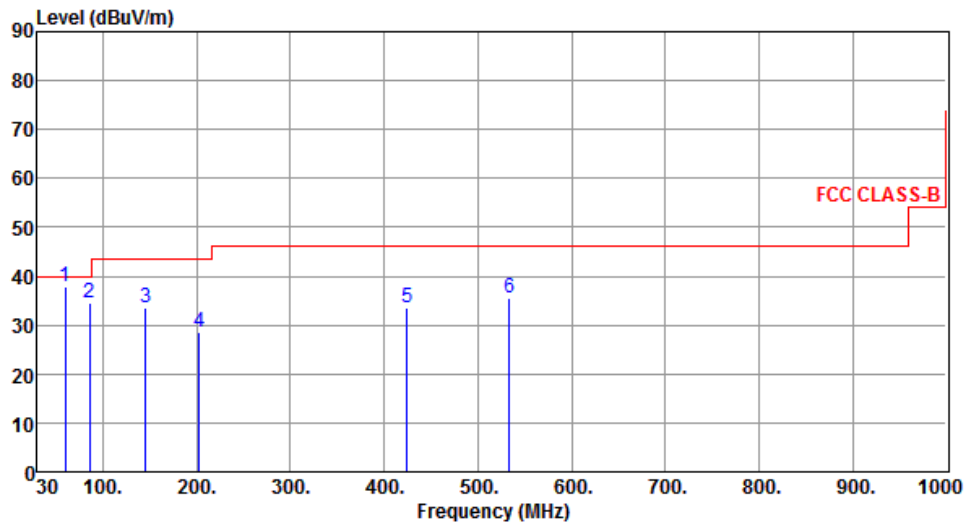
Modulation	VHT80	Test Freq. (MHz)	5775																										
Polarization	Horizontal																												
Level (dBuV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5650.00</td><td>66.99</td><td>68.20</td><td>-1.21</td><td>61.99</td><td>5.00</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).											Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5650.00	66.99	68.20	-1.21	61.99	5.00	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																				
1	5650.00	66.99	68.20	-1.21	61.99	5.00	Peak	---	---																				

Modulation	VHT80	Test Freq. (MHz)	5775																										
Polarization	Vertical																												
Level (dBuV/m)  Frequency (MHz) <table><thead><tr><th></th><th>Freq. MHz</th><th>Emission level dBuV/m</th><th>Limit dBuV/m</th><th>Margin dB</th><th>SA reading dBuV</th><th>Factor dB</th><th>Remark</th><th>ANT High cm</th><th>Turn Table deg</th></tr></thead><tbody><tr><td>1</td><td>5650.28</td><td>66.56</td><td>68.40</td><td>-1.84</td><td>61.56</td><td>5.00</td><td>Peak</td><td>---</td><td>---</td></tr></tbody></table> Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB) *Factor includes antenna factor , cable loss and amplifier gain Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).											Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg	1	5650.28	66.56	68.40	-1.84	61.56	5.00	Peak	---	---
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg																				
1	5650.28	66.56	68.40	-1.84	61.56	5.00	Peak	---	---																				

3.5.8 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		
Level (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	59.66	37.85	40.00	-2.15	55.32	-17.47	QP	100	15
2	85.41	34.62	40.00	-5.38	56.81	-22.19	Peak	---	---
3	145.36	33.52	43.50	-9.98	50.36	-16.84	Peak	---	---
4	202.53	28.65	43.50	-14.85	47.95	-19.30	Peak	---	---
5	424.53	33.62	46.00	-12.38	46.43	-12.81	Peak	---	---
6	533.37	35.41	46.00	-10.59	46.10	-10.69	Peak	---	---

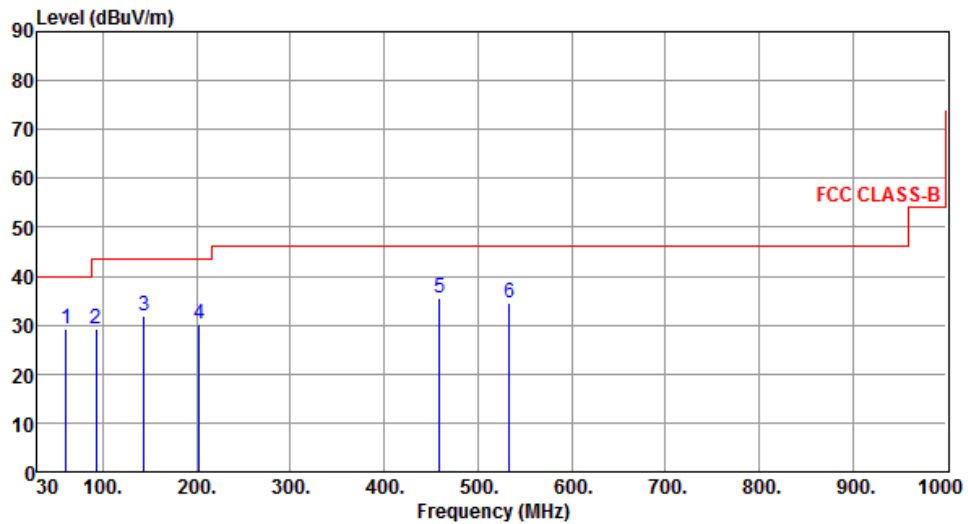
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)

*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	61.04	29.22	40.00	-10.78	46.92	-17.70	Peak	---	---
2	93.05	29.37	43.50	-14.13	51.85	-22.48	Peak	---	---
3	143.49	31.94	43.50	-11.56	48.82	-16.88	Peak	---	---
4	202.66	30.32	43.50	-13.18	49.62	-19.30	Peak	---	---
5	458.74	35.51	46.00	-10.49	47.49	-11.98	Peak	---	---
6	533.43	34.42	46.00	-11.58	45.11	-10.69	Peak	---	---

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

*Factor includes antenna factor , cable loss and amplifier gain

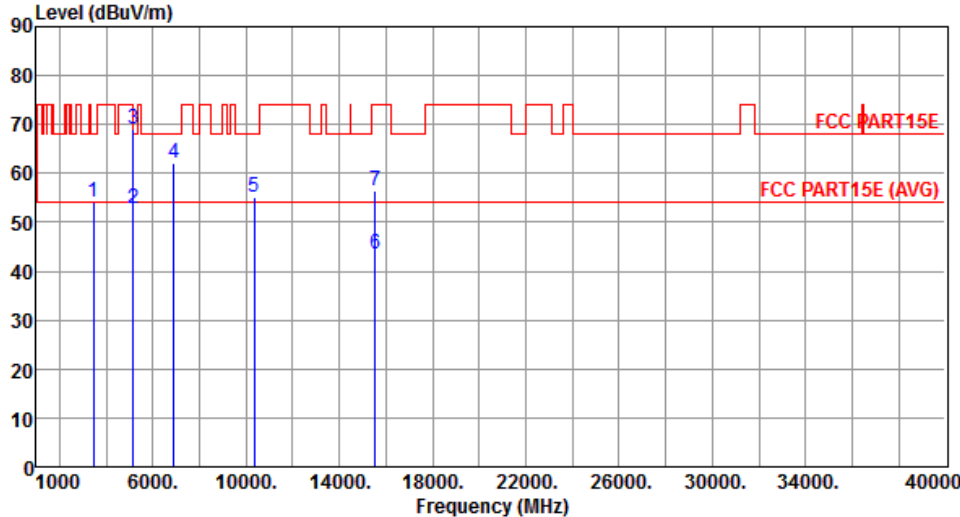
Note 2: Margin (dB) = Emission level (dBUV/m) – Limit (dBUV/m).

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

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

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

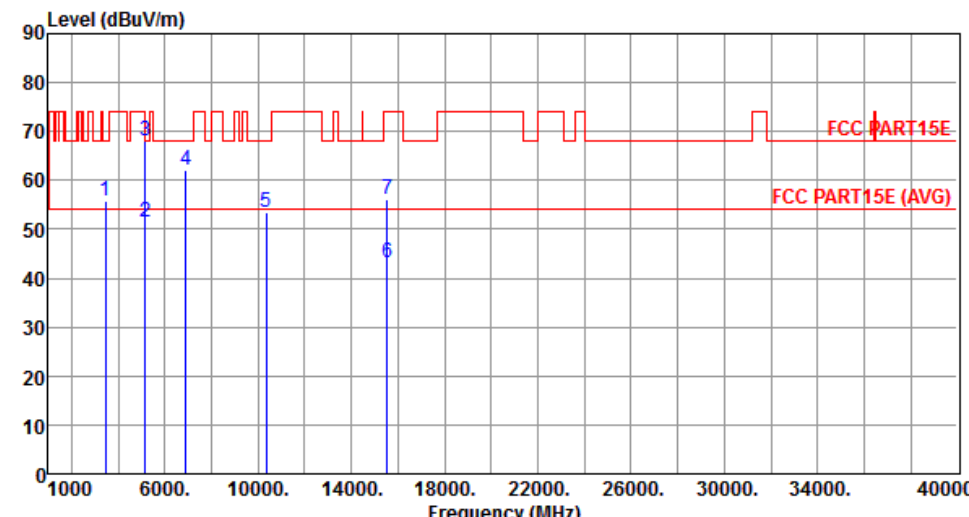
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3453.00	54.10	68.20	-14.10	54.21	-0.11	Peak	248	255
2	5150.00	52.73	54.00	-1.27	48.33	4.40	Average	100	310
3	5150.00	69.16	74.00	-4.84	64.76	4.40	Peak	100	310
4	6906.00	61.97	68.20	-6.23	54.23	7.74	Peak	111	313
5	10360.00	55.06	68.20	-13.14	40.86	14.20	Peak	166	212
6	15540.00	43.46	54.00	-10.54	28.35	15.11	Average	222	189
7	15540.00	56.46	74.00	-17.54	41.35	15.11	Peak	222	189

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		

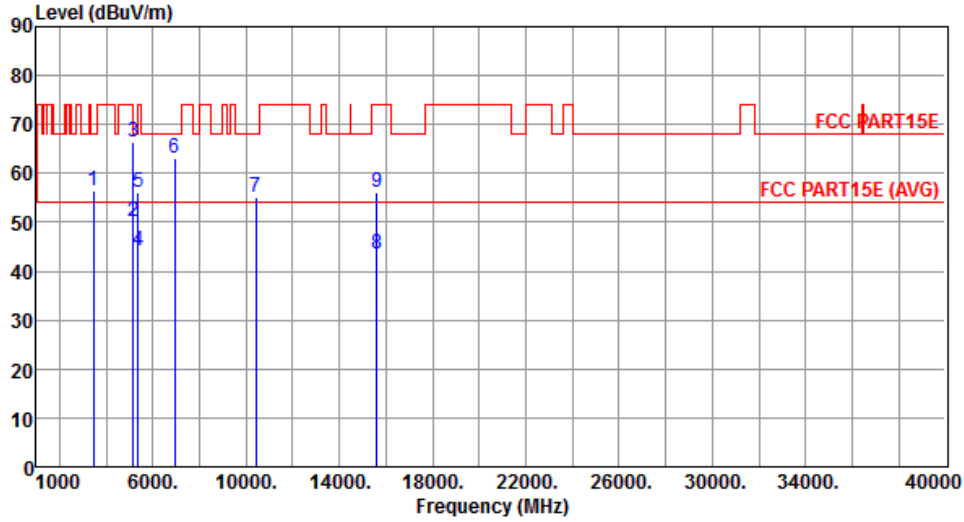


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3453.00	55.72	68.20	-12.48	55.83	-0.11	Peak	383	199
2	5150.00	51.61	54.00	-2.39	47.21	4.40	Average	351	16
3	5150.00	68.21	74.00	-5.79	63.81	4.40	Peak	351	16
4	6906.00	62.14	68.20	-6.06	54.40	7.74	Peak	302	16
5	10360.00	53.63	68.20	-14.57	39.43	14.20	Peak	222	188
6	15540.00	43.32	54.00	-10.68	28.21	15.11	Average	166	251
7	15540.00	56.14	74.00	-17.86	41.03	15.11	Peak	166	251

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		
Level (dBuV/m)			

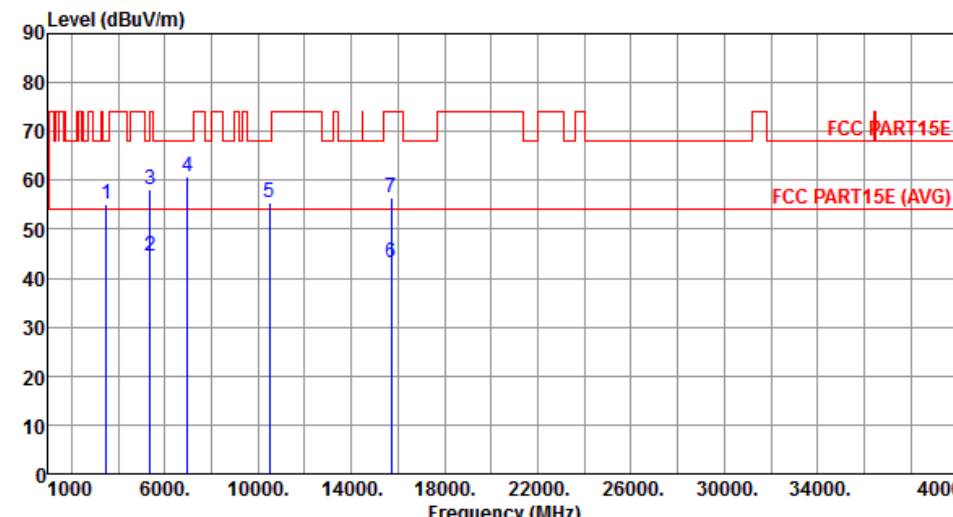
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3466.00	56.46	68.20	-11.74	56.55	-0.09	Peak	381	183
2	5150.00	50.26	54.00	-3.74	45.86	4.40	Average	391	3
3	5150.00	66.28	74.00	-7.72	61.88	4.40	Peak	391	3
4	5350.00	44.20	54.00	-9.80	39.56	4.64	Average	374	43
5	5350.00	56.20	74.00	-17.80	51.56	4.64	Peak	374	43
6	6933.00	63.18	68.20	-5.02	55.41	7.77	Peak	311	29
7	10400.00	55.16	68.20	-13.04	40.88	14.28	Peak	222	165
8	15600.00	43.46	54.00	-10.54	28.44	15.02	Average	188	321
9	15600.00	56.21	74.00	-17.79	41.19	15.02	Peak	188	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	Horizontal		

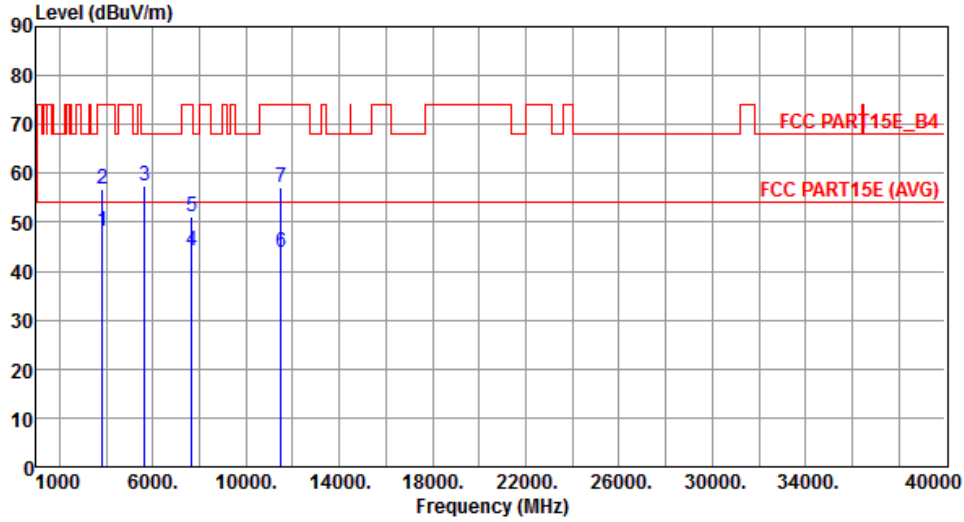


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3493.00	55.17	68.20	-13.03	55.22	-0.05	Peak	111	256
2	5350.00	44.51	54.00	-9.49	39.87	4.64	Average	100	65
3	5350.00	57.98	74.00	-16.02	53.34	4.64	Peak	100	65
4	6986.00	60.72	68.20	-7.48	52.88	7.84	Peak	111	256
5	10480.00	55.38	68.20	-12.82	40.95	14.43	Peak	156	255
6	15720.00	43.14	54.00	-10.86	28.27	14.87	Average	212	38
7	15720.00	56.31	74.00	-17.69	41.44	14.87	Peak	212	38

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		
Level (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	3830.00	48.07	54.00	-5.93	47.12	0.95	Average	223	229
2	3830.00	56.79	74.00	-17.21	55.84	0.95	Peak	223	229
3	5649.90	57.43	68.20	-10.77	52.43	5.00	Peak	233	74
4	7659.00	44.12	54.00	-9.88	35.33	8.79	Average	215	76
5	7659.00	51.22	74.00	-22.78	42.43	8.79	Peak	215	76
6	11490.00	43.88	54.00	-10.12	28.35	15.53	Average	100	266
7	11490.00	57.06	74.00	-16.94	41.53	15.53	Peak	100	266

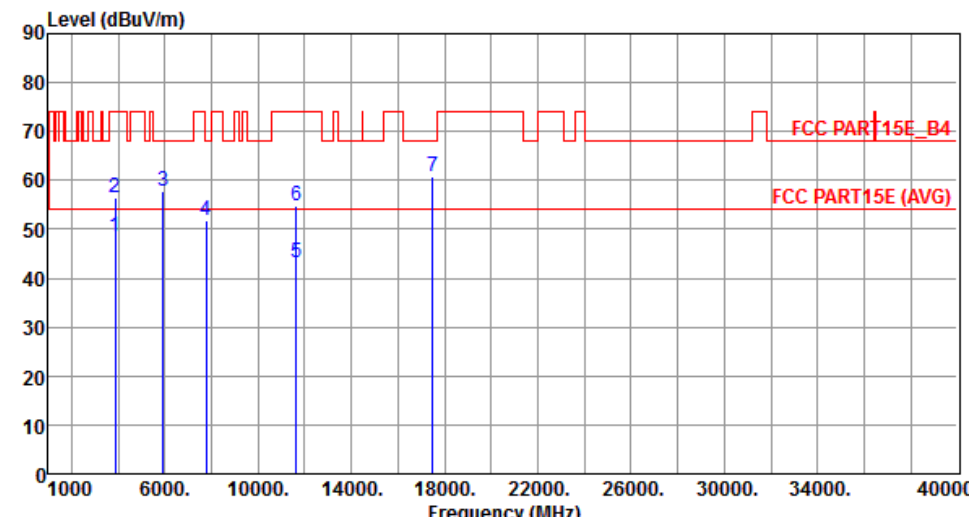
Note 1: Emission Level (dBuV/m) = SA Reading (dBuV/m) + Factor* (dB)
*Factor includes antenna factor , cable loss and amplifier gain
Note 2: Margin (dB) = Emission level (dBuV/m) – Limit (dBuV/m).

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

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

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

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



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3883.00	48.46	54.00	-5.54	47.32	1.14	Average	245	248
2	3883.00	56.62	74.00	-17.38	55.48	1.14	Peak	245	248
3	5925.10	57.82	68.20	-10.38	52.48	5.34	Peak	239	80
4	7766.00	51.84	68.20	-16.36	43.15	8.69	Peak	100	198
5	11650.00	43.26	54.00	-10.74	28.17	15.09	Average	221	183
6	11650.00	54.86	74.00	-19.14	39.77	15.09	Peak	221	183
7	17475.00	60.93	68.20	-7.27	41.38	19.55	Peak	188	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).

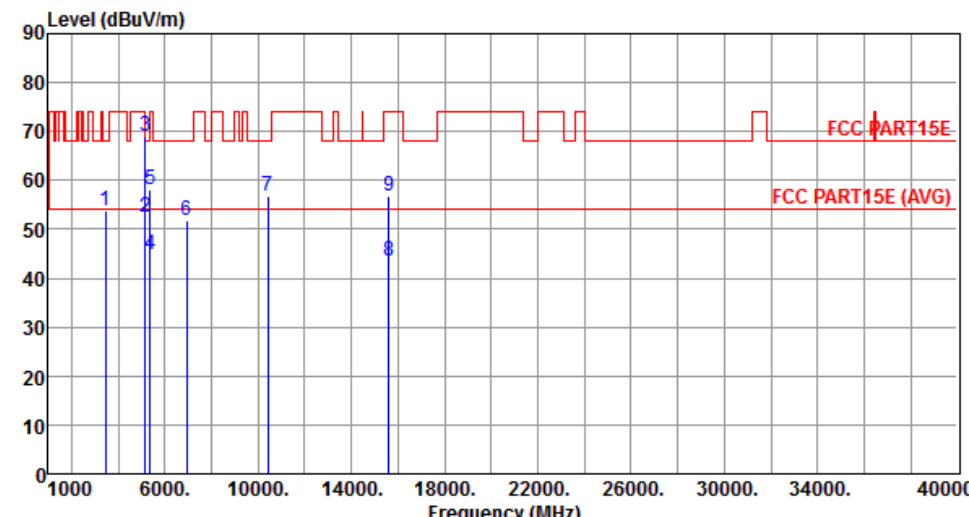
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Vertical		
 			

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

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

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

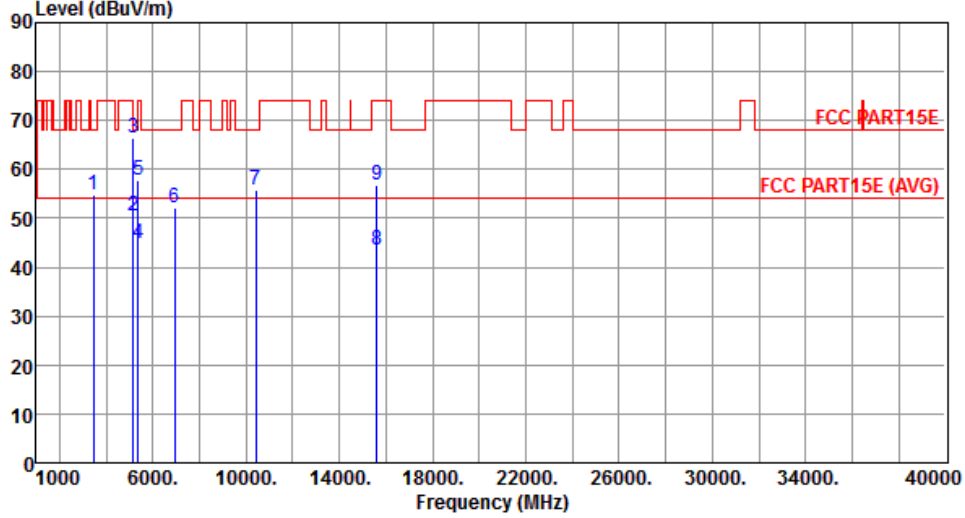
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3466.00	53.79	68.20	-14.41	53.88	-0.09	Peak	100	131
2	5150.00	52.60	54.00	-1.40	48.20	4.40	Average	100	74
3	5150.00	68.94	74.00	-5.06	64.54	4.40	Peak	100	74
4	5350.00	44.81	54.00	-9.19	40.17	4.64	Average	100	297
5	5350.00	58.01	74.00	-15.99	53.37	4.64	Peak	100	297
6	6933.00	51.72	68.20	-16.48	43.95	7.77	Peak	100	17
7	10400.00	56.91	68.20	-11.29	42.63	14.28	Peak	113	242
8	15600.00	43.51	54.00	-10.49	28.49	15.02	Average	100	211
9	15600.00	56.89	74.00	-17.11	41.87	15.02	Peak	100	211

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		



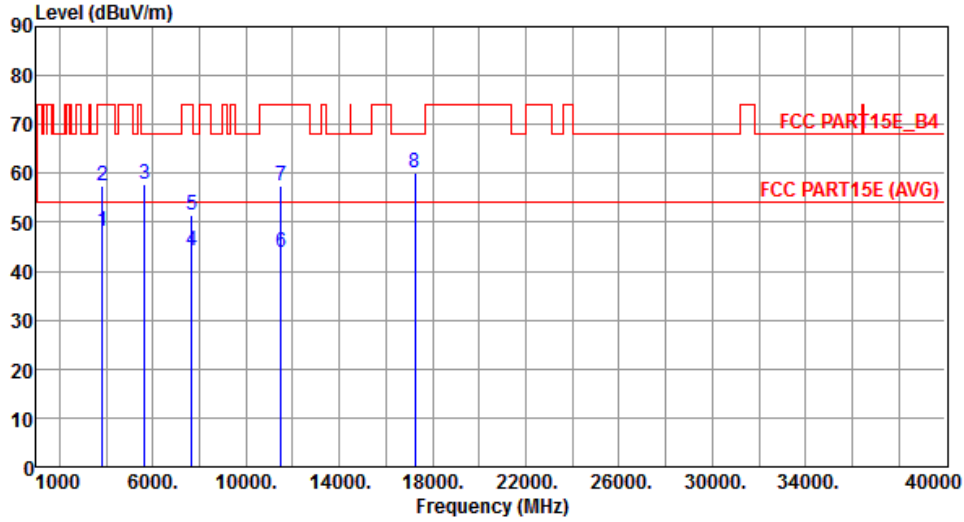
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3466.00	54.76	68.20	-13.44	54.85	-0.09	Peak	108	162
2	5150.00	50.40	54.00	-3.60	46.00	4.40	Average	100	313
3	5150.00	66.58	74.00	-7.42	62.18	4.40	Peak	100	313
4	5350.00	44.73	54.00	-9.27	40.09	4.64	Average	100	313
5	5350.00	57.94	74.00	-16.06	53.30	4.64	Peak	100	313
6	6933.00	52.06	68.20	-16.14	44.29	7.77	Peak	105	356
7	10400.00	55.87	68.20	-12.33	41.59	14.28	Peak	100	196
8	15600.00	43.45	54.00	-10.55	28.43	15.02	Average	100	114
9	15600.00	56.71	74.00	-17.29	41.69	15.02	Peak	100	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	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		
Level (dBuV/m) <			

Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		
Level (dBuV/m)			

Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		

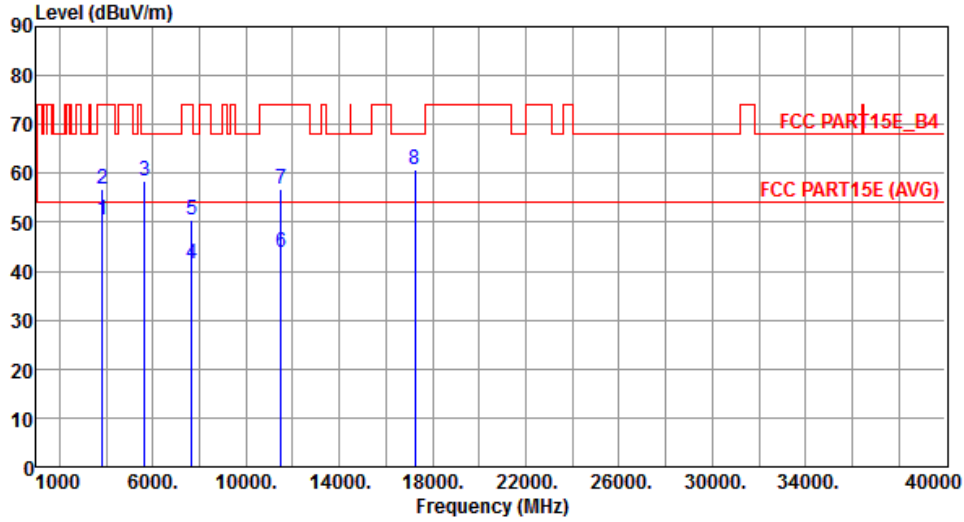


The graph displays the emission level in dBuV/m against frequency in MHz. The y-axis ranges from 0 to 90 dBuV/m, and the x-axis ranges from 1000 to 40000 MHz. A red line represents the FCC Part 15E (AVG) limit at approximately 55 dBuV/m. A red step-like line represents the FCC Part 15E_B4 limit, which varies between 60 and 75 dBuV/m. Blue vertical lines with markers 1 through 8 indicate specific test points. Below the graph is a table summarizing the data for these points.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3830.00	48.20	54.00	-5.80	47.25	0.95	Average	222	227
2	3830.00	57.30	74.00	-16.70	56.35	0.95	Peak	222	227
3	5649.90	57.89	68.20	-10.31	52.89	5.00	Peak	100	281
4	7659.00	44.03	54.00	-9.97	35.24	8.79	Average	217	51
5	7659.00	51.35	74.00	-22.65	42.56	8.79	Peak	217	51
6	11490.00	43.99	54.00	-10.01	28.46	15.53	Average	100	254
7	11490.00	57.38	74.00	-16.62	41.85	15.53	Peak	100	254
8	17235.00	60.24	68.20	-7.96	41.37	18.87	Peak	100	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).

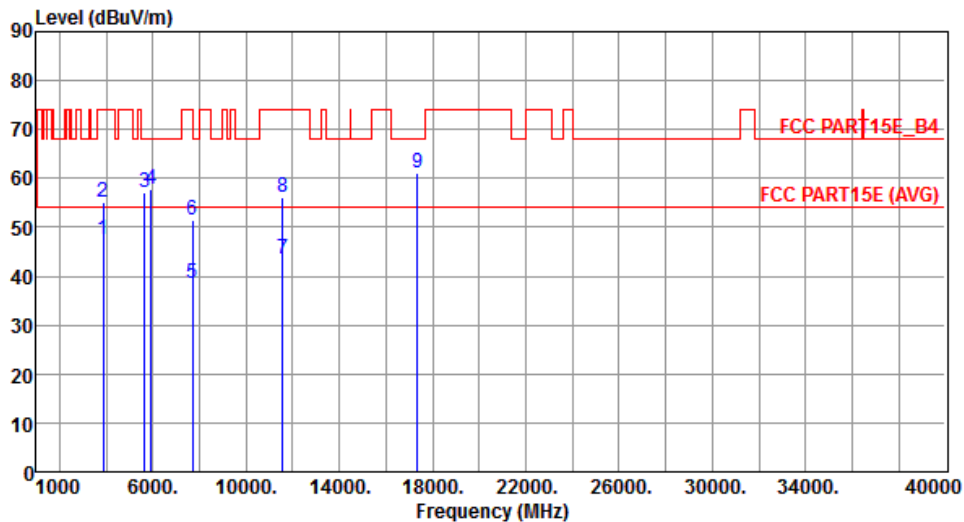
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3830.00	50.53	54.00	-3.47	49.58	0.95	Average	100	183
2	3830.00	56.64	74.00	-17.36	55.69	0.95	Peak	100	183
3	5649.90	58.43	68.20	-9.77	53.43	5.00	Peak	225	271
4	7659.00	41.63	54.00	-12.37	32.84	8.79	Average	322	153
5	7659.00	50.32	74.00	-23.68	41.53	8.79	Peak	322	153
6	11490.00	43.77	54.00	-10.23	28.24	15.53	Average	100	264
7	11490.00	56.77	74.00	-17.23	41.24	15.53	Peak	100	264
8	17235.00	60.87	68.20	-7.33	42.00	18.87	Peak	100	163

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

Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		

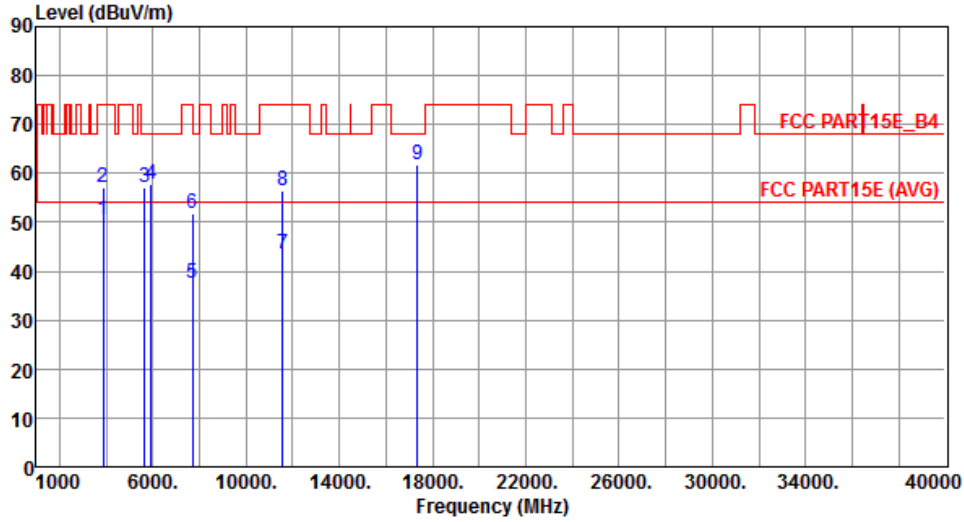


The graph displays the emission level in dBuV/m across a frequency range from 1000 to 40000 MHz. Two red lines represent the FCC Part 15E limits: a stepped line for FCC PART15E_B4 and a horizontal line for FCC PART15E (AVG) at approximately 55 dBuV/m. Nine test points are marked with blue vertical lines and numbered 1 through 9. The corresponding data is provided in the table below.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3856.00	47.65	54.00	-6.35	46.61	1.04	Average	249	226
2	3856.00	55.11	74.00	-18.89	54.07	1.04	Peak	249	226
3	5649.90	57.11	68.20	-11.09	52.11	5.00	Peak	100	283
4	5925.10	57.76	68.20	-10.44	52.42	5.34	Peak	100	283
5	7713.00	38.37	54.00	-15.63	29.63	8.74	Average	100	268
6	7713.00	51.36	74.00	-22.64	42.62	8.74	Peak	100	268
7	11570.00	43.59	54.00	-10.41	28.26	15.33	Average	100	128
8	11570.00	55.98	74.00	-18.02	40.65	15.33	Peak	100	128
9	17355.00	61.17	68.20	-7.03	41.96	19.21	Peak	100	274

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

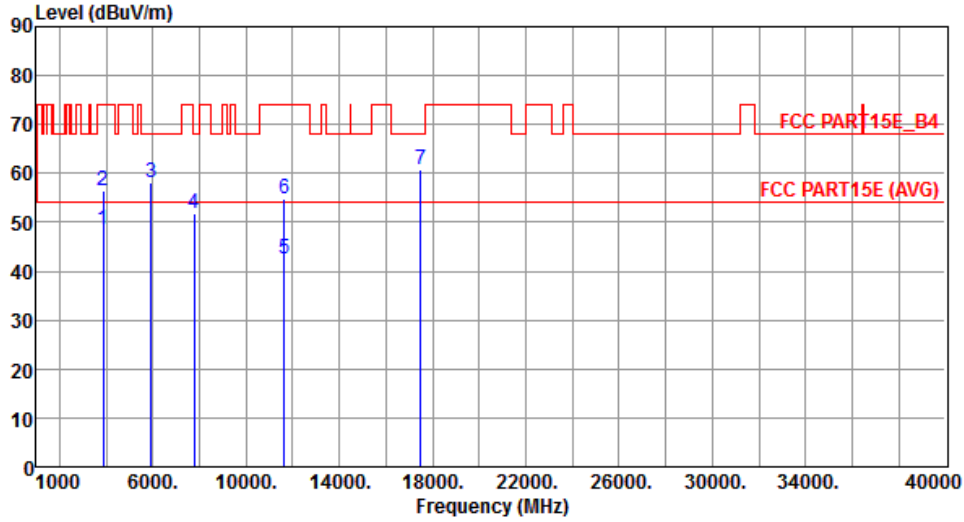
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3856.00	50.35	54.00	-3.65	49.31	1.04	Average	100	183
2	3856.00	56.97	74.00	-17.03	55.93	1.04	Peak	100	183
3	5649.90	57.23	68.20	-10.97	52.23	5.00	Peak	100	329
4	5925.10	57.72	68.20	-10.48	52.38	5.34	Peak	100	329
5	7713.00	37.67	54.00	-16.33	28.93	8.74	Average	100	328
6	7713.00	51.70	74.00	-22.30	42.96	8.74	Peak	100	328
7	11570.00	43.62	54.00	-10.38	28.29	15.33	Average	100	89
8	11570.00	56.31	74.00	-17.69	40.98	15.33	Peak	100	89
9	17355.00	61.73	68.20	-6.47	42.52	19.21	Peak	100	173

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).

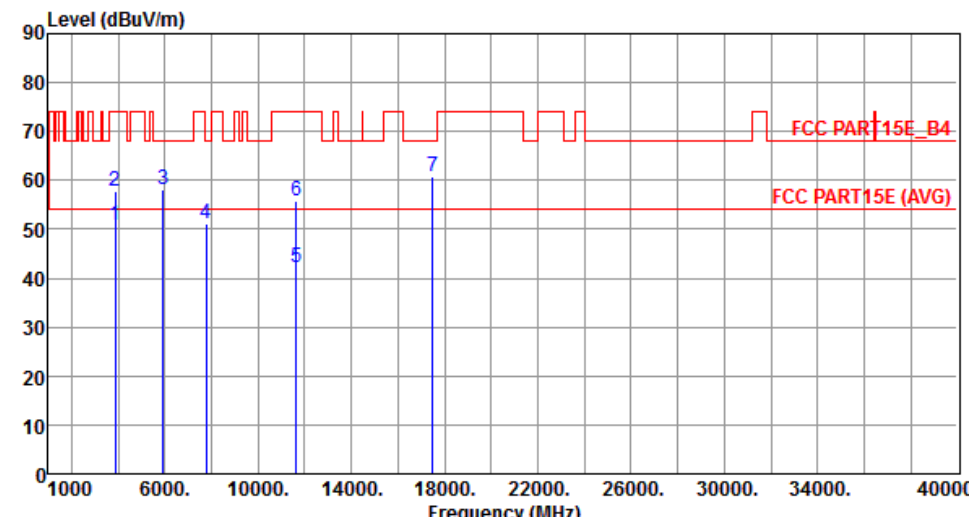
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3883.00	48.57	54.00	-5.43	47.43	1.14	Average	248	239
2	3883.00	56.40	74.00	-17.60	55.26	1.14	Peak	248	239
3	5925.10	57.96	68.20	-10.24	52.62	5.34	Peak	241	77
4	7766.00	51.74	68.20	-16.46	43.05	8.69	Peak	110	314
5	11650.00	42.62	54.00	-11.38	27.53	15.09	Average	100	182
6	11650.00	54.94	74.00	-19.06	39.85	15.09	Peak	100	182
7	17475.00	60.91	68.20	-7.29	41.36	19.55	Peak	100	238

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	3883.00	50.77	54.00	-3.23	49.63	1.14	Average	100	185
2	3883.00	57.63	74.00	-16.37	56.49	1.14	Peak	100	185
3	5925.10	58.02	68.20	-10.18	52.68	5.34	Peak	100	317
4	7766.00	51.25	68.20	-16.95	42.56	8.69	Peak	100	248
5	11650.00	42.29	54.00	-11.71	27.20	15.09	Average	100	285
6	11650.00	55.78	74.00	-18.22	40.69	15.09	Peak	100	285
7	17475.00	60.80	68.20	-7.40	41.25	19.55	Peak	100	148

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).

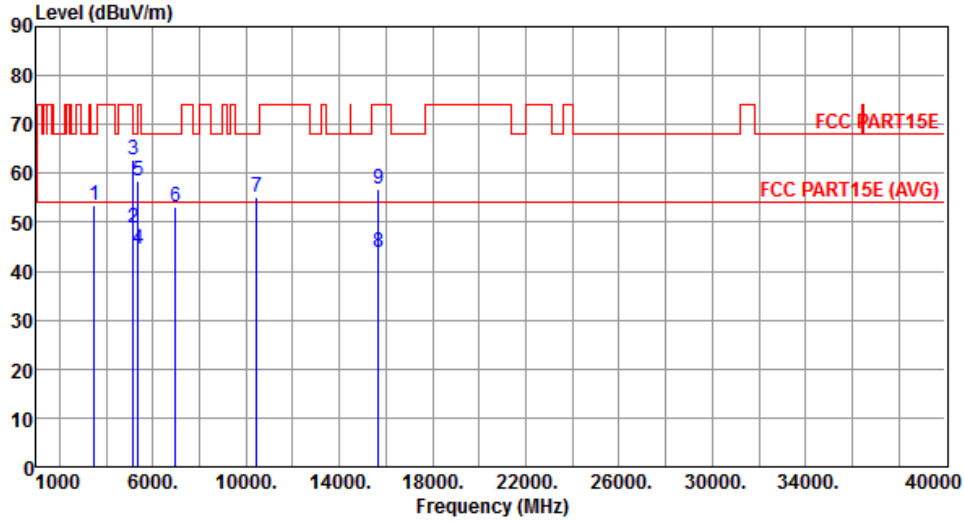
3.5.11 Transmitter Radiated Unwanted Emissions (Above 1GHz) for VHT40

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

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

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

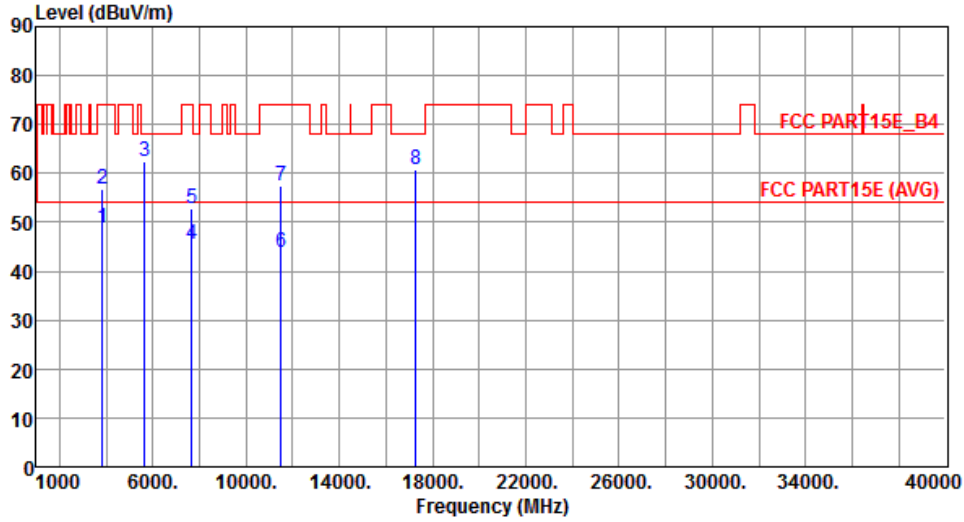
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3492.00	53.56	68.20	-14.64	53.61	-0.05	Peak	100	156
2	5150.00	48.97	54.00	-5.03	44.57	4.40	Average	232	99
3	5150.00	62.76	74.00	-11.24	58.36	4.40	Peak	232	99
4	5350.00	44.53	54.00	-9.47	39.89	4.64	Average	232	102
5	5350.00	58.47	74.00	-15.53	53.83	4.64	Peak	232	102
6	6973.00	53.15	68.20	-15.05	45.32	7.83	Peak	201	356
7	10460.00	55.22	68.20	-12.98	40.82	14.40	Peak	100	238
8	15690.00	43.86	54.00	-10.14	28.95	14.91	Average	100	166
9	15690.00	56.76	74.00	-17.24	41.85	14.91	Peak	100	166

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

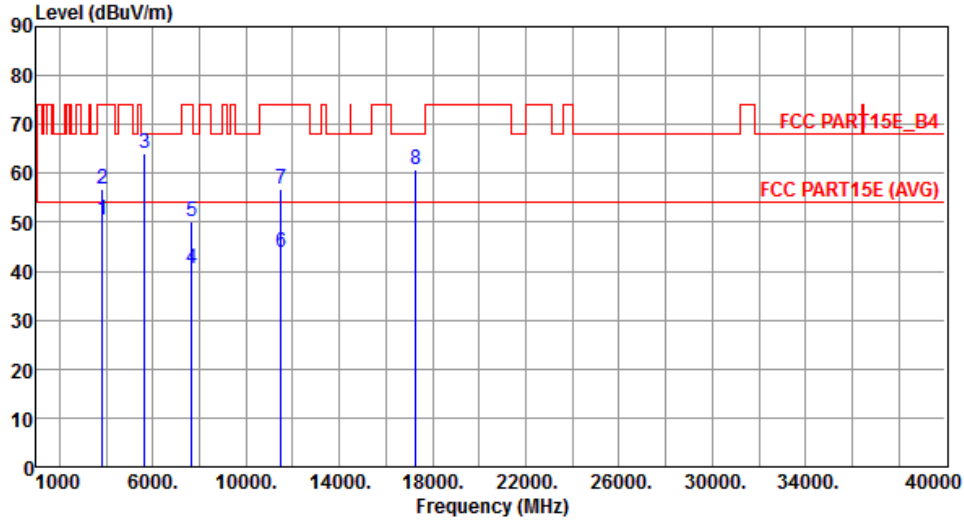
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3836.00	48.81	54.00	-5.19	47.84	0.97	Average	219	228
2	3836.00	56.73	74.00	-17.27	55.76	0.97	Peak	219	228
3	5649.90	62.55	68.20	-5.65	57.55	5.00	Peak	246	73
4	7673.00	45.57	54.00	-8.43	36.79	8.78	Average	222	253
5	7673.00	52.73	74.00	-21.27	43.95	8.78	Peak	222	253
6	11510.00	43.75	54.00	-10.25	28.24	15.51	Average	100	164
7	11510.00	57.33	74.00	-16.67	41.82	15.51	Peak	100	164
8	17265.00	60.76	68.20	-7.44	41.79	18.97	Peak	100	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).

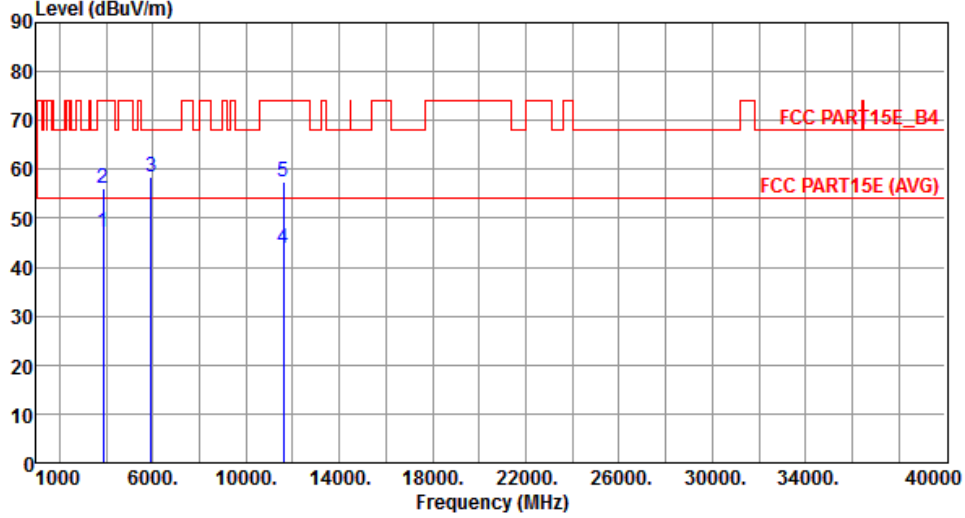
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3836.00	50.50	54.00	-3.50	49.53	0.97	Average	100	182
2	3836.00	56.65	74.00	-17.35	55.68	0.97	Peak	100	182
3	5649.90	64.16	68.20	-4.04	59.16	5.00	Peak	100	319
4	7673.00	40.55	54.00	-13.45	31.77	8.78	Average	169	241
5	7673.00	50.20	74.00	-23.80	41.42	8.78	Peak	169	241
6	11510.00	43.77	54.00	-10.23	28.26	15.51	Average	100	145
7	11510.00	56.77	74.00	-17.23	41.26	15.51	Peak	100	145
8	17265.00	60.71	68.20	-7.49	41.74	18.97	Peak	100	98

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).

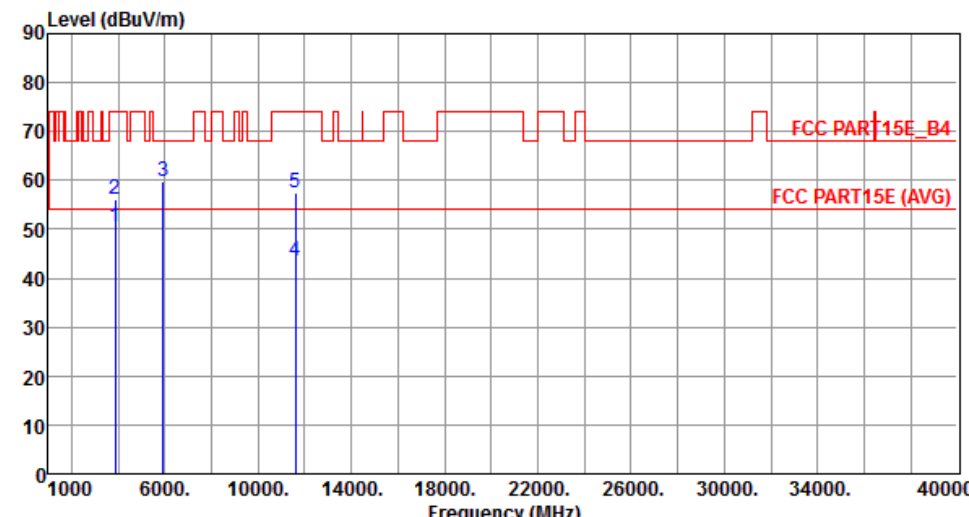
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3862.00	47.18	54.00	-6.82	46.12	1.06	Average	180	256
2	3862.00	56.17	74.00	-17.83	55.11	1.06	Peak	180	256
3	5925.10	58.36	68.20	-9.84	53.02	5.34	Peak	100	283
4	11590.00	43.84	54.00	-10.16	28.57	15.27	Average	166	293
5	11590.00	57.53	74.00	-16.47	42.26	15.27	Peak	166	293

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		

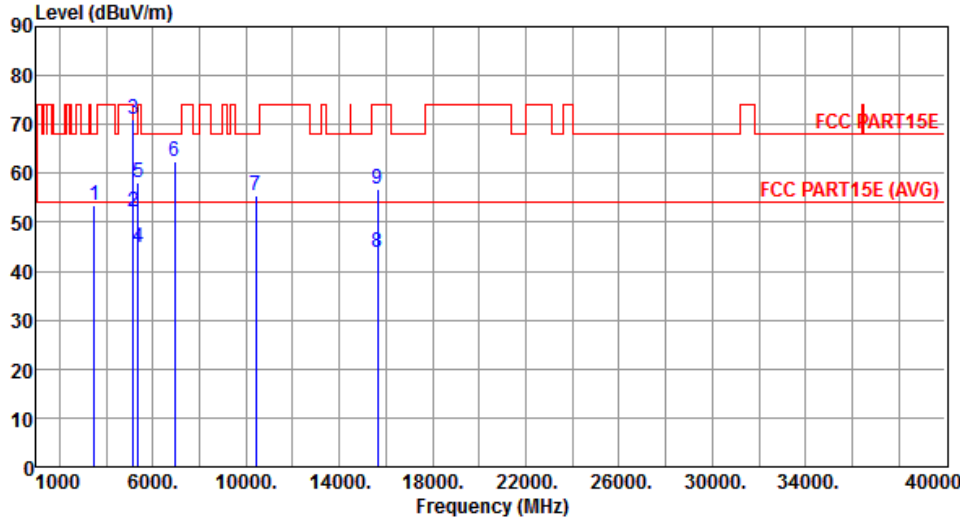


	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3862.00	50.45	54.00	-3.55	49.39	1.06	Average	344	197
2	3862.00	56.19	74.00	-17.81	55.13	1.06	Peak	344	197
3	5925.10	59.92	68.20	-8.28	54.58	5.34	Peak	100	320
4	11590.00	43.61	54.00	-10.39	28.34	15.27	Average	222	186
5	11590.00	57.39	74.00	-16.61	42.12	15.27	Peak	222	186

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).

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

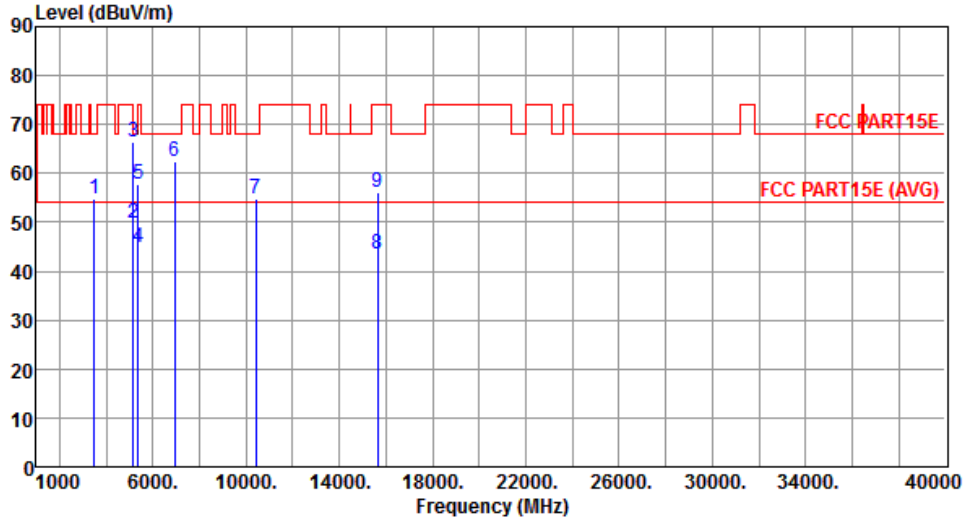
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3472.00	53.63	68.20	-14.57	53.71	-0.08	Peak	100	189
2	5150.00	52.15	54.00	-1.85	47.75	4.40	Average	100	395
3	5150.00	71.20	74.00	-2.80	66.80	4.40	Peak	100	395
4	5350.00	44.97	54.00	-9.03	40.33	4.64	Average	100	295
5	5350.00	58.08	74.00	-15.92	53.44	4.64	Peak	100	295
6	6946.00	62.31	68.20	-5.89	54.52	7.79	Peak	100	312
7	10420.00	55.54	68.20	-12.66	41.22	14.32	Peak	100	196
8	15630.00	43.86	54.00	-10.14	28.87	14.99	Average	100	302
9	15630.00	56.75	74.00	-17.25	41.76	14.99	Peak	100	302

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		

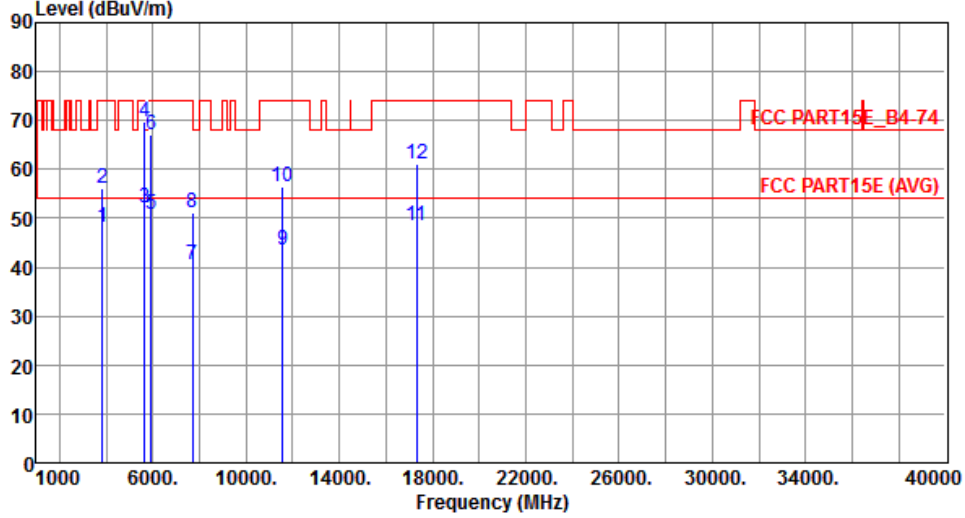


The graph displays the emission level in dBuV/m against frequency in MHz. The y-axis ranges from 0 to 90 dBuV/m, and the x-axis ranges from 1000 to 40000 MHz. A red line represents the FCC PART15E limit, and a blue line represents the test results. The test results show several peaks, with the highest peak at 15630 MHz reaching 56.29 dBuV/m. The graph also includes a table of test results below it.

	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3472.00	54.73	68.20	-13.47	54.81	-0.08	Peak	100	161
2	5150.00	49.76	54.00	-4.24	45.36	4.40	Average	122	308
3	5150.00	66.38	74.00	-7.62	61.98	4.40	Peak	122	308
4	5350.00	44.73	54.00	-9.27	40.09	4.64	Average	122	308
5	5350.00	57.79	74.00	-16.21	53.15	4.64	Peak	122	308
6	6946.00	62.56	68.20	-5.64	54.77	7.79	Peak	100	353
7	10420.00	54.87	68.20	-13.33	40.55	14.32	Peak	100	89
8	15630.00	43.61	54.00	-10.39	28.62	14.99	Average	100	187
9	15630.00	56.29	74.00	-17.71	41.30	14.99	Peak	100	187

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).

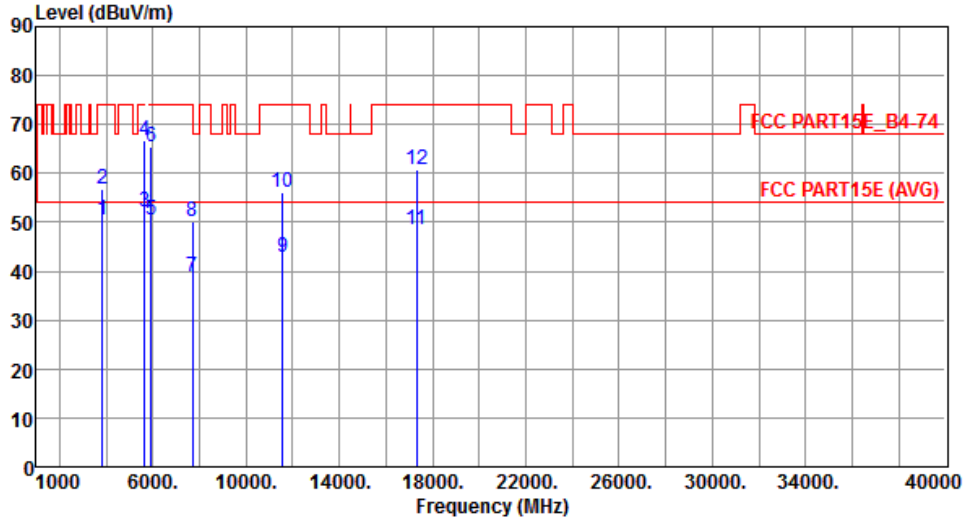
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



	Freq. MHz	Emission level dBUV/m	Limit dBUV/m	Margin dB	SA reading dBUV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3849.00	48.04	54.00	-5.96	47.03	1.01	Average	257	238
2	3849.00	56.13	74.00	-17.87	55.12	1.01	Peak	257	238
3	5649.90	52.11	54.00	-1.89	47.11	5.00	Average	100	276
4	5649.90	69.71	74.00	-4.29	64.71	5.00	Peak	100	276
5	5927.00	50.89	54.00	-3.11	45.56	5.33	Average	100	276
6	5927.00	67.20	74.00	-6.80	61.87	5.33	Peak	100	276
7	7699.00	40.37	54.00	-13.63	31.61	8.76	Average	100	97
8	7699.00	51.16	74.00	-22.84	42.40	8.76	Peak	100	97
9	11550.00	43.55	54.00	-10.45	28.15	15.40	Average	100	203
10	11550.00	56.32	74.00	-17.68	40.92	15.40	Peak	100	203
11	17325.00	48.51	54.00	-5.49	29.38	19.13	Average	100	318
12	17325.00	61.03	74.00	-12.97	41.90	19.13	Peak	100	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	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	3849.00	50.61	54.00	-3.39	49.60	1.01	Average	100	183
2	3849.00	56.91	74.00	-17.09	55.90	1.01	Peak	100	183
3	5649.90	52.04	54.00	-1.96	47.04	5.00	Average	100	316
4	5649.90	66.66	74.00	-7.34	61.66	5.00	Peak	100	316
5	5927.00	50.45	54.00	-3.55	45.12	5.33	Average	100	315
6	5927.00	65.39	74.00	-8.61	60.06	5.33	Peak	100	315
7	7699.00	38.90	54.00	-15.10	30.14	8.76	Average	134	330
8	7699.00	50.08	74.00	-23.92	41.32	8.76	Peak	134	330
9	11550.00	42.94	54.00	-11.06	27.54	15.40	Average	100	129
10	11550.00	56.06	74.00	-17.94	40.66	15.40	Peak	100	129
11	17325.00	48.48	54.00	-5.52	29.35	19.13	Average	100	315
12	17325.00	60.79	74.00	-13.21	41.66	19.13	Peak	100	315

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

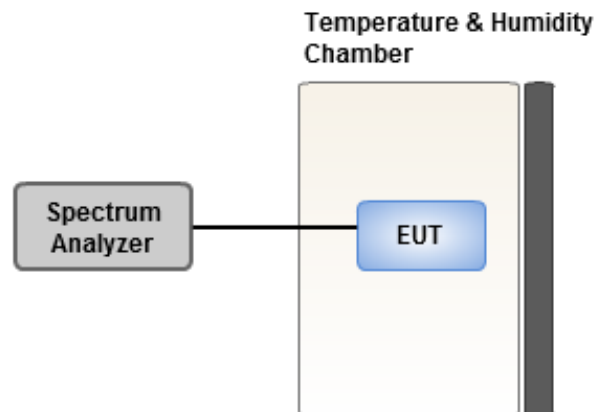
3.6.1 Limit of Frequency Stability

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: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	1.45	1.19	1.56	1.03
T20°C Vmin	0.36	0.01	0.38	0.64
T50°C Vnom	0.52	0.33	0.63	0.16
T40°C Vnom	0.04	-0.20	-0.26	0.83
T30°C Vnom	0.52	0.84	0.57	0.92
T20°C Vnom	0.31	0.51	0.60	0.32
T10°C Vnom	0.00	-0.07	0.23	-0.25
T0°C Vnom	0.54	0.08	-0.35	0.05
T-10°C Vnom	0.68	1.12	0.29	0.95
T-20°C Vnom	-0.17	0.48	0.15	0.90
T-30°C Vnom	0.04	-0.28	0.69	0.25
Vnom [Vac]: 120	Vmax [Vac]: 138		Vmin [Vac]: 102	
Tnom [°C]: 20	Tmax [°C]: 50		Tmin [°C]: -30	

Frequency: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°C Vmax	2.13	1.60	2.45	2.27
T20°C Vmin	1.38	1.26	1.51	1.29
T50°C Vnom	1.05	0.86	0.91	1.47
T40°C Vnom	0.88	0.91	0.97	0.85
T30°C Vnom	0.09	0.08	0.62	0.89
T20°C Vnom	0.61	-0.09	0.44	0.05
T10°C Vnom	0.30	0.64	0.94	0.46
T0°C Vnom	0.65	0.66	0.64	0.58
T-10°C Vnom	0.19	0.76	0.55	0.39
T-20°C Vnom	0.42	0.88	0.50	0.53
T-30°C Vnom	0.64	0.98	1.03	0.75
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, it is our definitive objective is to institute long term, trust-based associations with our clients. The expectation we set up with our clients is based on outstanding service, practical expertise and devotion to a certified value structure. Our passion is to grant our clients with best EMC / RF services by oriented knowledgeable and accommodating staff.

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

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Kwei Shan Site II

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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

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Email: ICC_Service@icertifi.com.tw

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