FCC C2PC Test Report

FCC ID	:	**I88EMG3425Q10A**
Equipment	:	**Simultaneous Dual-Band Wireless AC2200 Gigabit Ethernet Gateway**
Model No.	:	**EMG3425-Q10A**
Brand Name	:	**ZyXEL**
Applicant	:	**ZyXEL Communications Corporation**
Address	:	**No. 2, Gongye E. 9th Road, Hsinchu Science Park, Hsinchu, Taiwan.**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Dec. 19, 2017**
Tested Date	:	**Dec. 19, 2017 ~ Feb. 21, 2018**

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

Table of Contents

Release Record

Report No.	Version	Description	Issued Date
FR570601-07AN	Rev. 01	Initial issue	Mar. 09, 2018

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.461MHz 30.87 (Margin -15.80dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 11650.00MHz 53.86 (Margin -0.14dB) - AV	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: ***Non-beamforming mode*** 5725-5850MHz: 29.50 ***Beamforming mode*** 5725-5850MHz: 27.52	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 is a FCC Class II Permissive Change report (C2PC).

This report is issued as a supplementary report to original ICC report no. FR570601AN. The modifications are concerned with following items:

- ✧ 2.4G Power amplifier is changed.
- ✧ Increase output power of 5725 ~ 5850 MHz to comply with new emission limits by software setting.
- ✧ 2nd source components into power portion of Non-RF part: 12V(Q1), 5V(L4, L5) and 1.2V(L17).
- ✧ Remove one adapter.

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**
5725-5850	a	5745-5825	149-165 [5]	4	6-54 Mbps
5725-5850	n (HT20)	5745-5825	149-165 [5]	4	MCS 0-31
5725-5850	n (HT40)	5755-5795	151-159 [2]	4	MCS 0-31
5725-5850	ac (VHT20)	5745-5825	149-165 [5]	4	MCS 0-9
5725-5850	ac (VHT40)	5755-5795	151-159 [2]	4	MCS 0-9
5725-5850	ac (VHT80)	5775	155 [1]	4	MCS 0-9
Note 1: RF output power specifies that Maximum Conducted Output Power. Note 2: 802.11a/n/ac uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM modulation. Note 3: 802.11ac supports beamforming function.					

1.1.2 Antenna Details

Ant. No.	Type	Operating Frequency / Gain (dBi)		Connector
		2.4GHz	5GHz	
1	Dipole	1.53	1.92	UFL

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	AC adapter	Brand Name: APD Model Name: WA-36A12FU Power Rating: I/P: 100-240Vac, 50-60Hz, 0.9A Max O/P: 12Vdc, 3A Power Line: DC 1.5m non-shielded cable with one core
2	RJ45 cable	1.0m non-shielded cable w/o core.

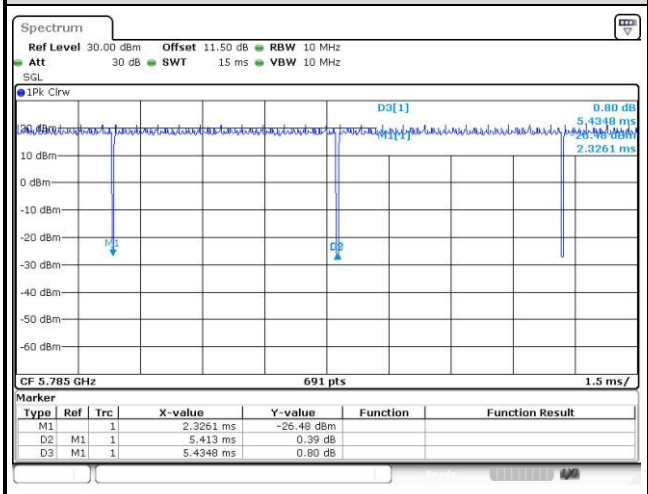
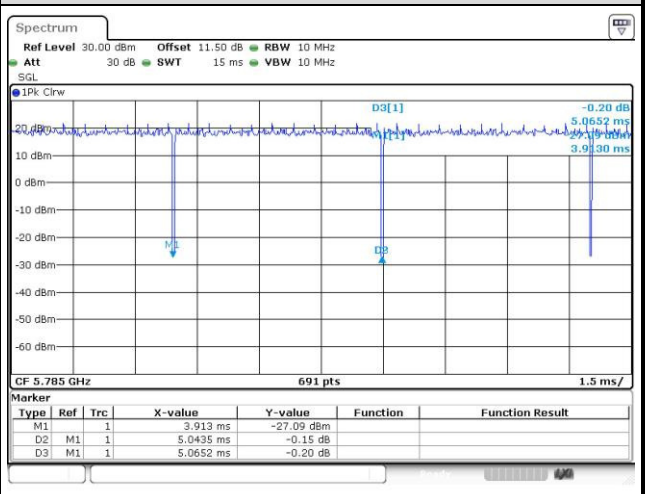
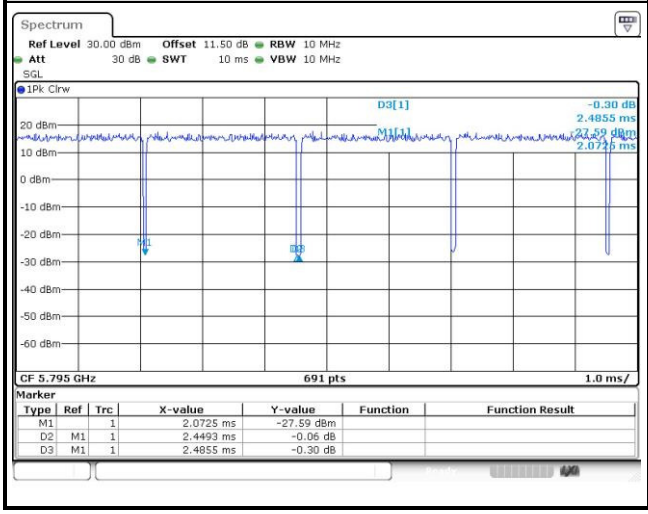
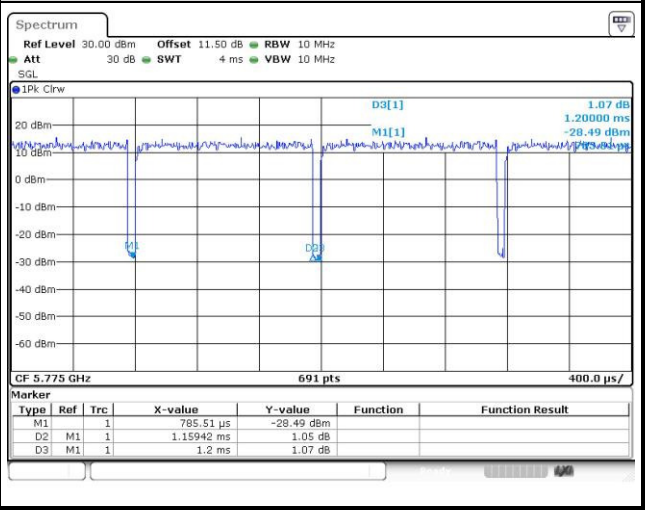
1.1.5 Channel List

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	---	---

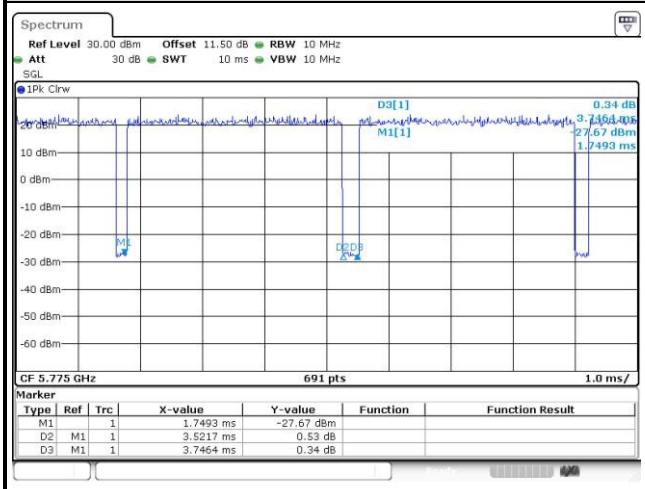
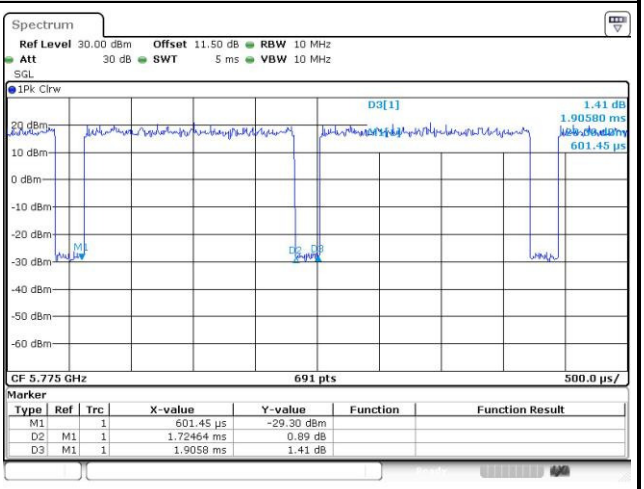
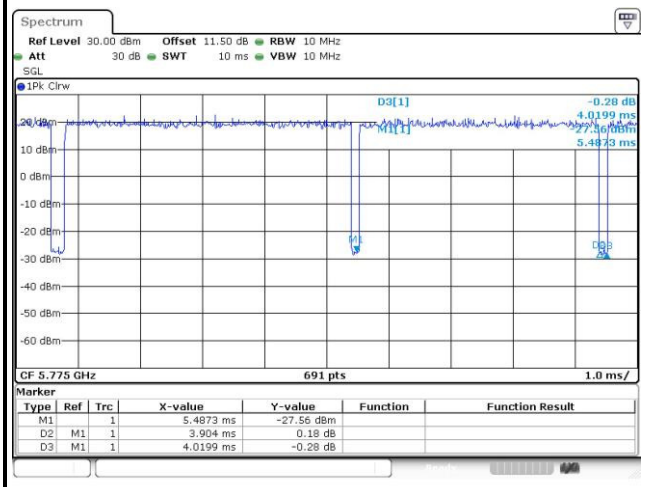
1.1.6 Test Tool and Duty Cycle

Test Tool	Hyperterminal, V5.1			
Duty Cycle and Duty Factor	Mode	Non-beamforming		Beamforming	
		Duty cycle (%)	Duty factor (dB)	Duty cycle (%)	Duty factor (dB)
	11a	99.60%	0.02	---	---
	VHT20	99.57%	0.02	94.00%	0.27
	VHT40	98.54%	0.06	90.49%	0.43
	VHT80	96.62%	0.15	97.12%	0.13

Non-beamforming mode

11a	VHT20
	
VHT40	**VHT80**
	

Beamforming mode

VHT20	VHT40
	
VHT80	**--**
	--

1.1.7 Power Setting

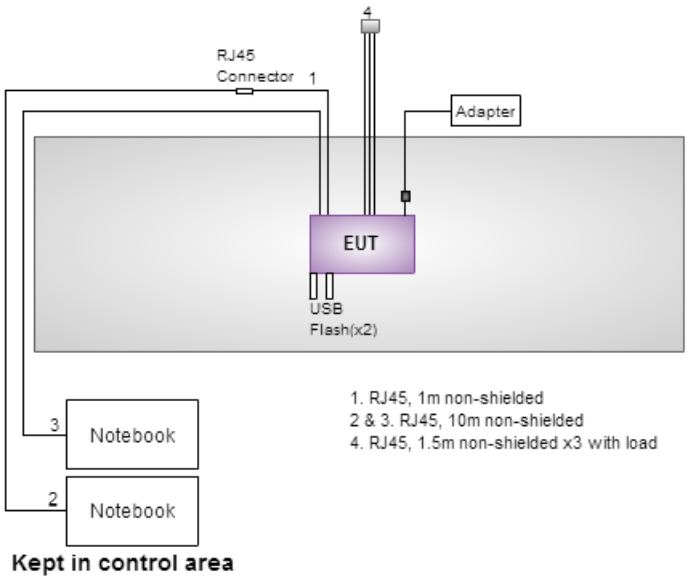
For Frequency band 5725~5850 MHz			
Modulation Mode	Test Frequency (MHz)	Power Set	
		Non-Beamforming	Beamforming
11a	5745	25	---
11a	5785	25	---
11a	5825	25	---
HT20	5745	25	---
HT20	5785	25	---
HT20	5825	25	---
HT40	5755	25	---
HT40	5795	25	---
VHT20	5745	25	22
VHT20	5785	25	22
VHT20	5825	25	22
VHT40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

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Signal cable / Length (m)**
1	Notebook	DELL	Latitude E6440	DoC	RJ45, 10m non-shielded.
2	Notebook	DELL	Latitude E6440	DoC	RJ45, 10m non-shielded.
3	USB Flash	Kingston	DTSE9	---	---
4	USB Flash	Kingston	DTSE9	---	---
5	Load	ICC	---	---	RJ45, 1.5m(x3) non-shielded.

1.3 Test Setup Chart

Test Setup Diagram



1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Feb. 21, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	Agilent	N9038A	MY53290044	Sep. 26, 2017	Sep. 25, 2018
LISN	R&S	ENV216	101579	Feb. 13, 2018	Feb. 12, 2019
RF Cable-CON	EMC	EMCCFD300-BM-BM-6000	50821	Dec. 18, 2017	Dec. 17, 2018
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 3 / (03CH03-WS)				
Tested Date	Dec. 19, 2017 ~ Jan. 17, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 04, 2017	Dec. 03, 2018
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-685	Apr. 28, 2017	Apr. 27, 2018
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1206	Feb. 09, 2017	Feb. 08, 2018
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 07, 2017	Dec. 06, 2018
Preamplifier	EMC	EMC02325	980187	Sep. 04, 2017	Sep. 03, 2018
Preamplifier	Agilent	83017A	MY53270014	Aug. 21, 2017	Aug. 20, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF cable-3M	HUBER+SUHNER	SUCOFLEX104	MY22620/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-8M	HUBER+SUHNER	SUCOFLEX104	MY32487/4	Nov. 27, 2017	Nov. 26, 2018
RF cable-1M	HUBER+SUHNER	SUCOFLEX104	MY22624/4	Nov. 27, 2017	Nov. 26, 2018
LF cable-0.8M	EMC	EMC8D-NM-NM-800	EMC8D-NM-NM-800-001	Nov. 27, 2017	Nov. 26, 2018
LF cable-3M	EMC	EMC8D-NM-NM-3000	131103	Nov. 27, 2017	Nov. 26, 2018
LF cable-13M	EMC	EMC8D-NM-NM-13000	131104	Nov. 27, 2017	Nov. 26, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Feb. 14, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Mar. 15, 2017	Mar. 14, 2018
TEMP&HUMIDITY CHAMBER	GIANT FORCE	GCT-225-40-SP-SD	MAF1212-002	Nov. 27, 2017	Nov. 26, 2018
Power Meter	Anritsu	ML2495A	1241002	Oct. 16, 2017	Oct. 15, 2018
Power Sensor	Anritsu	MA2411B	1207366	Oct. 16, 2017	Oct. 15, 2018
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 01, 2017	Nov. 30, 2018
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 v02r01
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	21°C / 58%	Alex Tsai
Radiated Emissions	03CH03-WS	23-24°C / 62-66%	Aska Huang Brad Wu
RF Conducted	TH01-WS	22°C / 63%	Brad Wu

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

2.2 The Worst Test Modes and Channel Details

Non-beamforming mode

For Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5785	6 Mbps	--
Radiated Emissions ≤1GHz	11a	5785	6 Mbps	--
RF Output Power	11a HT20 HT40 VHT20 VHT40 VHT80	5745 / 5785 / 5825 5745 / 5785 / 5825 5755 / 5795 5745 / 5785 / 5825 5755 / 5795 5775	6 Mbps MCS 0 MCS 0 MCS 0 MCS 0 MCS 0	--
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a VHT20 VHT40 VHT80	5745 / 5785 / 5825 5745 / 5785 / 5825 5755 / 5795 5775	6 Mbps MCS 0 MCS 0 MCS 0	--
Frequency Stability	Un-modulation	5785	---	--

Beamforming mode

For Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	VHT20	5825	MCS 0	--
Radiated Emissions ≤1GHz	VHT20	5825	MCS 0	--
RF Output Power	VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0	--
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	VHT20 VHT40 VHT80	5745 / 5785 / 5825 5755 / 5795 5775	MCS 0 MCS 0 MCS 0	--

3 Transmitter Test Results

3.1 Conducted Emissions

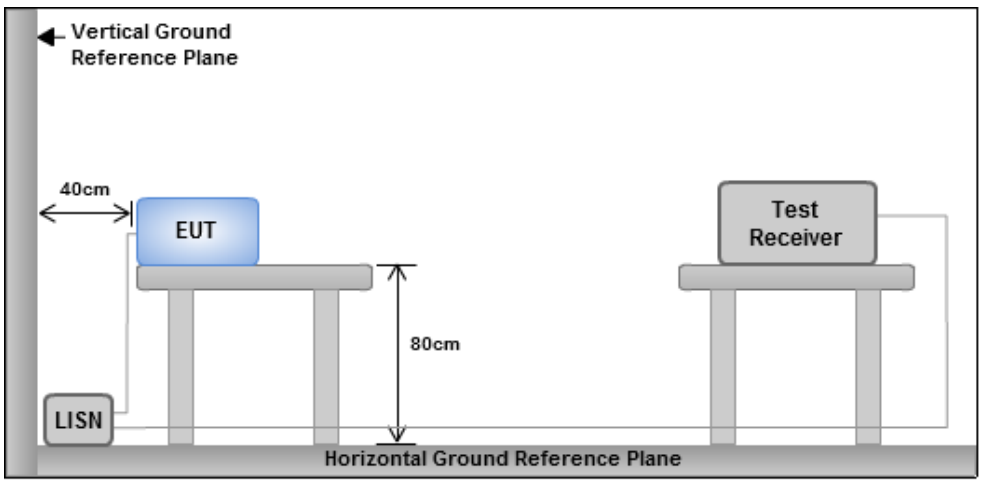
3.1.1 Limit of Conducted Emissions

Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Test Procedures

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

3.1.3 Test Setup



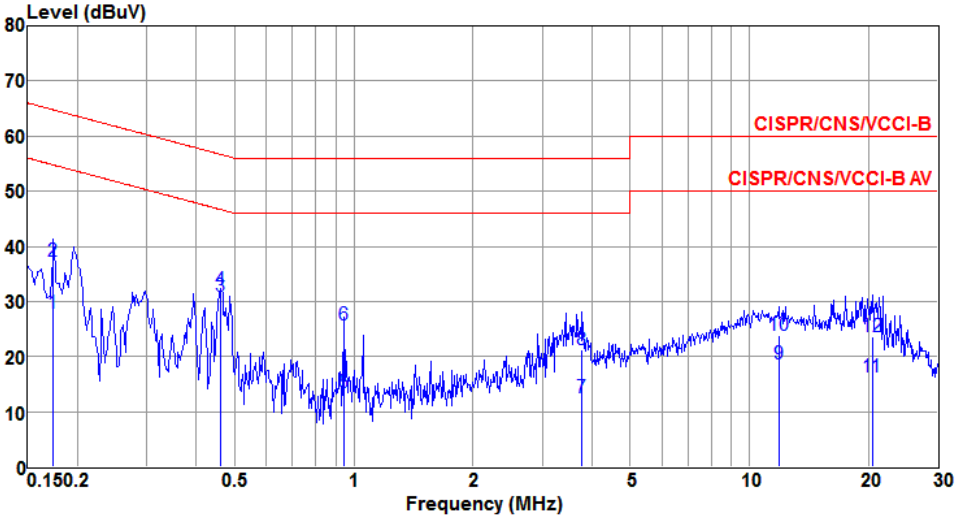
Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes

3.1.4 Test Result of Conducted Emissions

Non-beamforming mode

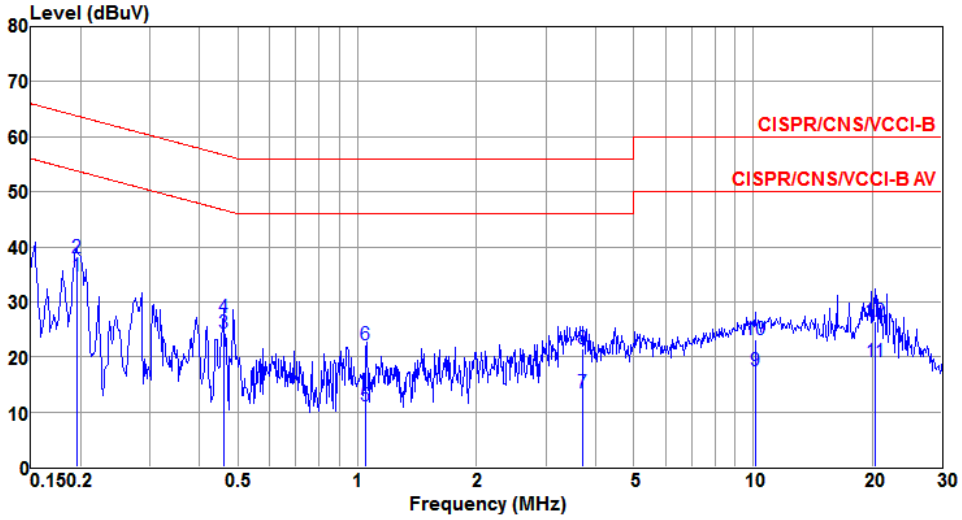
Modulation	11a	Test Freq. (MHz)	5785
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.174	27.95	54.77	-26.82	18.20	9.73	0.02	Average
2	0.174	37.37	64.77	-27.40	27.62	9.73	0.02	QP
3@	0.461	30.87	46.67	-15.80	21.12	9.73	0.02	Average
4	0.461	32.22	56.67	-24.45	22.47	9.73	0.02	QP
5	0.945	13.41	46.00	-32.59	3.65	9.73	0.03	Average
6	0.945	25.74	56.00	-30.26	15.98	9.73	0.03	QP
7	3.779	12.54	46.00	-33.46	2.58	9.75	0.21	Average
8	3.779	21.15	56.00	-34.85	11.19	9.75	0.21	QP
9	11.870	18.54	50.00	-31.46	8.45	9.77	0.32	Average
10	11.870	23.90	60.00	-36.10	13.81	9.77	0.32	QP
11	20.486	16.38	50.00	-33.62	6.32	9.71	0.35	Average
12	20.486	23.60	60.00	-36.40	13.54	9.71	0.35	QP

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

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

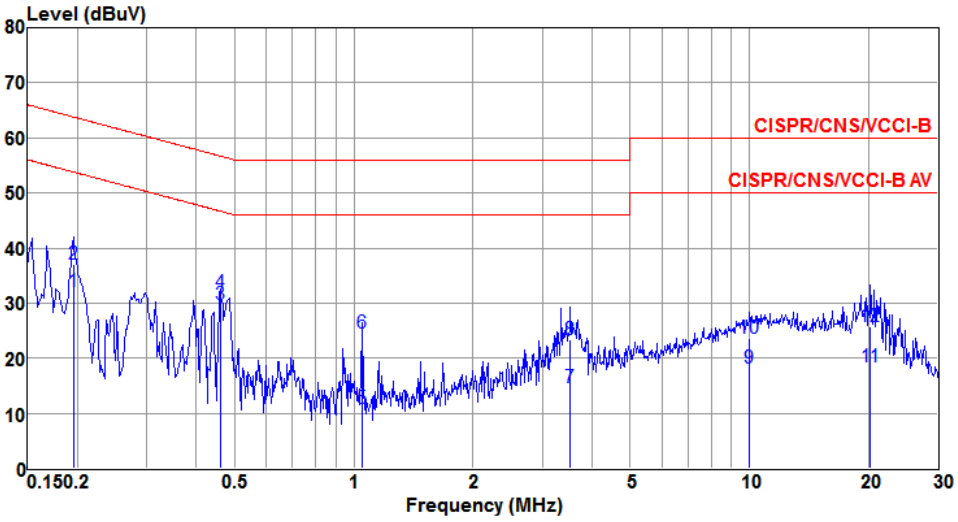


	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1@	0.195	34.78	53.80	-19.02	25.08	9.67	0.03	Average
2	0.195	37.89	63.80	-25.91	28.19	9.67	0.03	QP
3	0.459	24.42	46.71	-22.29	14.73	9.67	0.02	Average
4	0.459	27.10	56.71	-29.61	17.41	9.67	0.02	QP
5	1.046	11.04	46.00	-34.96	1.34	9.67	0.03	Average
6	1.046	22.28	56.00	-33.72	12.58	9.67	0.03	QP
7	3.720	13.56	46.00	-32.44	3.66	9.69	0.21	Average
8	3.720	21.41	56.00	-34.59	11.51	9.69	0.21	QP
9	10.125	17.56	50.00	-32.44	7.49	9.75	0.32	Average
10	10.125	23.13	60.00	-36.87	13.06	9.75	0.32	QP
11	20.377	19.21	50.00	-30.79	9.04	9.83	0.34	Average
12	20.377	26.35	60.00	-33.65	16.18	9.83	0.34	QP

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

Beamforming mode

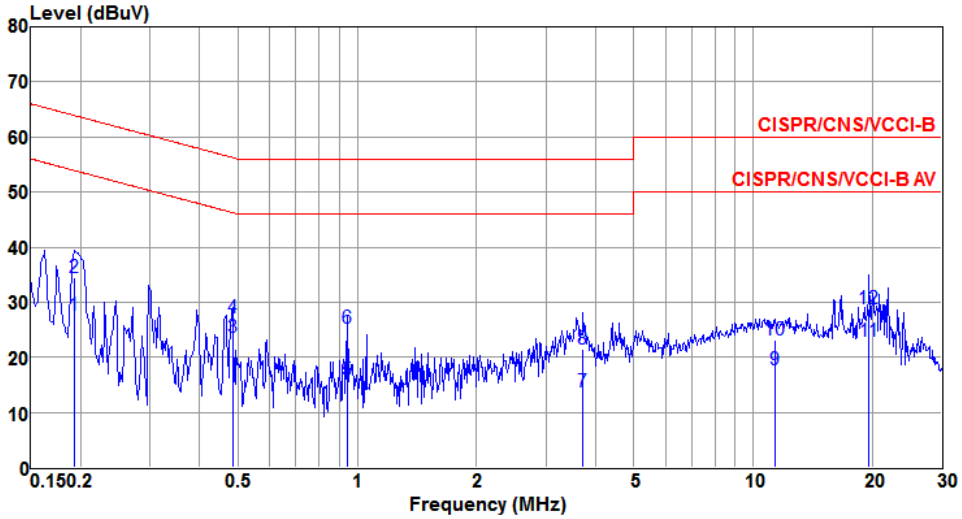
Modulation	VHT20	**Test Freq. (MHz)**	5825
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.195	32.03	53.80	-21.77	22.27	9.73	0.03	Average
2	0.195	37.02	63.80	-26.78	27.26	9.73	0.03	QP
3@	0.459	29.79	46.71	-16.92	20.04	9.73	0.02	Average
4	0.459	31.75	56.71	-24.96	22.00	9.73	0.02	QP
5	1.049	10.89	46.00	-35.11	1.13	9.73	0.03	Average
6	1.049	24.45	56.00	-31.55	14.69	9.73	0.03	QP
7	3.528	14.60	46.00	-31.40	4.65	9.75	0.20	Average
8	3.528	23.27	56.00	-32.73	13.32	9.75	0.20	QP
9	10.019	18.09	50.00	-31.91	7.99	9.78	0.32	Average
10	10.019	23.64	60.00	-36.36	13.54	9.78	0.32	QP
11	20.270	18.46	50.00	-31.54	8.40	9.72	0.34	Average
12	20.270	25.80	60.00	-34.20	15.74	9.72	0.34	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)	5825
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.192	27.67	53.93	-26.26	17.97	9.67	0.03	Average
2	0.192	34.57	63.93	-29.36	24.87	9.67	0.03	QP
3@	0.484	23.55	46.27	-22.72	13.86	9.67	0.02	Average
4	0.484	27.08	56.27	-29.19	17.39	9.67	0.02	QP
5	0.947	15.82	46.00	-30.18	6.12	9.67	0.03	Average
6	0.947	25.29	56.00	-30.71	15.59	9.67	0.03	QP
7	3.720	13.60	46.00	-32.40	3.70	9.69	0.21	Average
8	3.720	21.42	56.00	-34.58	11.52	9.69	0.21	QP
9	11.377	17.60	50.00	-32.40	7.52	9.76	0.32	Average
10	11.377	23.16	60.00	-36.84	13.08	9.76	0.32	QP
11	19.635	22.84	50.00	-27.16	12.67	9.83	0.34	Average
12	19.635	28.76	60.00	-31.24	18.59	9.83	0.34	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

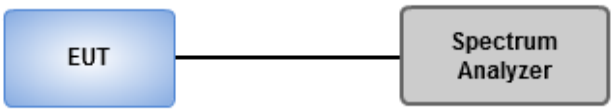
Occupied Bandwidth

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

6dB Bandwidth

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

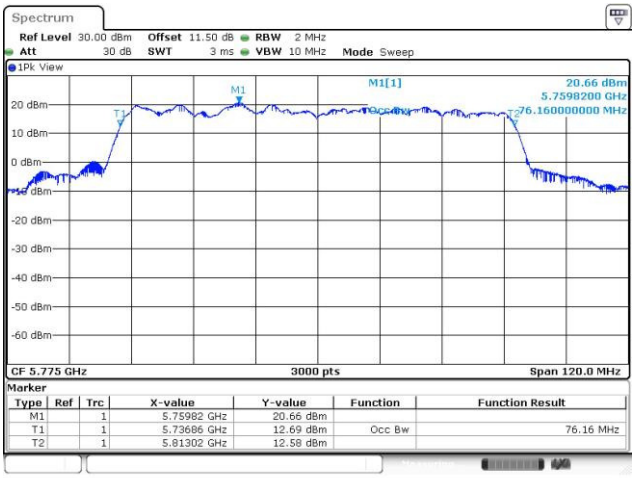
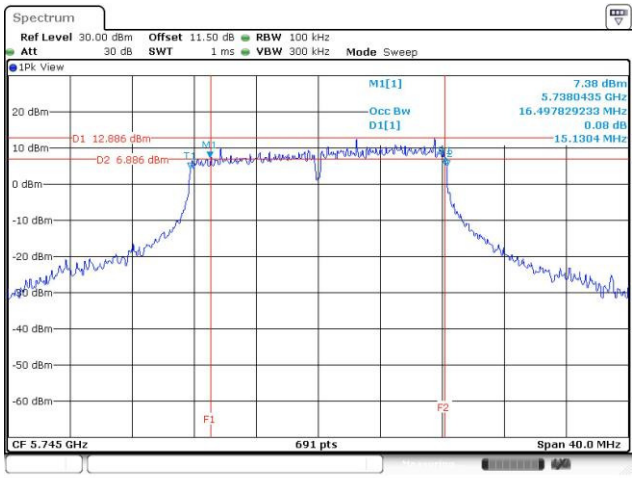
3.2.3 Test Setup



3.2.4 Test Result of Emission Bandwidth

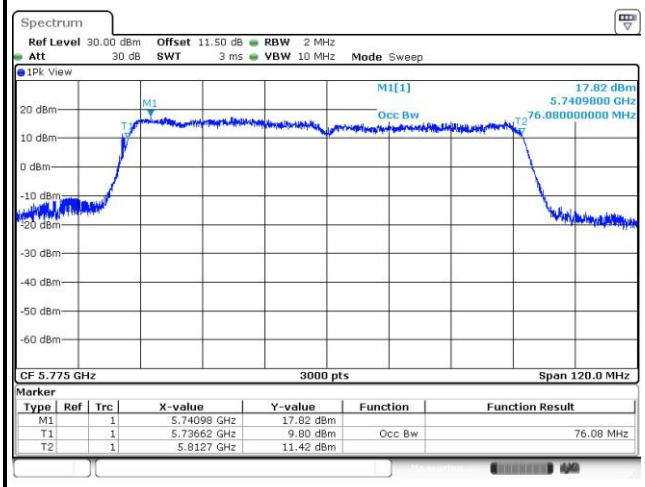
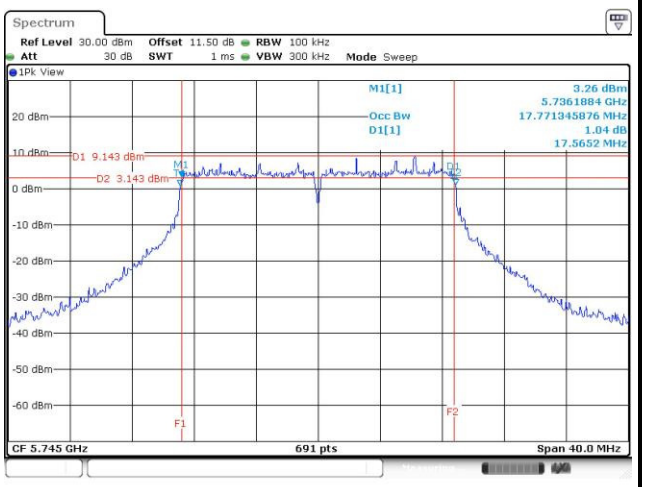
Non-beamforming mode

For Frequency band 5725-5850 MHz											
Emission Bandwidth											
Mode	N_{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)
11a	4	5745	17.06	16.95	17.22	16.98	16.41	15.13	16.41	16.41	0.5
11a	4	5785	17.04	17.03	17.35	17.10	16.35	16.29	16.41	16.41	0.5
11a	4	5825	16.98	17.12	17.34	17.08	16.41	16.41	16.35	16.29	0.5
VHT20	4	5745	18.06	18.11	18.32	18.28	17.62	17.57	17.22	17.57	0.5
VHT20	4	5785	18.08	18.17	18.43	18.36	17.62	17.57	17.74	17.57	0.5
VHT20	4	5825	18.07	18.26	18.43	18.38	17.57	17.57	17.57	17.57	0.5
VHT40	4	5755	36.78	37.12	36.84	37.36	35.83	35.59	35.25	36.17	0.5
VHT40	4	5795	37.06	37.00	36.80	37.38	36.41	35.59	34.55	36.41	0.5
VHT80	4	5775	76.16	75.56	75.92	76.16	75.13	75.13	75.13	75.13	0.5

Worst Plot of 99% Bandwidth	Wors Plots of 6dB Bandwidth
	

Beamforming mode

For Frequency band 5725-5850 MHz											
Emission Bandwidth											
Mode	N_{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)
VHT20	4	5745	18.25	18.18	18.23	18.27	17.62	17.57	17.62	17.62	0.5
VHT20	4	5785	18.59	18.42	18.53	18.35	17.62	17.62	17.68	17.57	0.5
VHT20	4	5825	18.42	18.32	18.28	18.39	17.57	17.62	17.68	17.57	0.5
VHT40	4	5755	37.22	37.34	37.46	37.54	36.52	36.17	36.17	36.41	0.5
VHT40	4	5795	37.28	37.16	37.30	37.40	35.94	36.52	36.52	36.17	0.5
VHT80	4	5775	76.08	75.36	75.40	75.80	75.36	75.83	75.36	75.13	0.5

Worst Plots of 99% Bandwidth	Worst Plots of 6dB Bandwidth
	

3.3 RF Output Power

3.3.1 Limit of RF Output Power

The maximum conducted output power over the frequency band of operation shall not exceed 1 W

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

Non-beamforming mode

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	4	5745	23.68	23.34	23.35	23.42	885.178	29.47	30.00
11a	4	5785	23.76	23.12	23.32	23.68	890.929	29.50	30.00
11a	4	5825	23.81	23.32	23.24	23.45	887.392	29.48	30.00
HT20	4	5745	23.52	23.06	22.91	23.28	835.455	29.22	30.00
HT20	4	5785	23.39	23.21	23.16	23.45	856.008	29.32	30.00
HT20	4	5825	23.44	23.08	23.04	23.11	830.053	29.19	30.00
HT40	4	5755	23.48	23.11	23.19	23.42	855.723	29.32	30.00
HT40	4	5795	23.52	23.06	23.03	23.18	836.086	29.22	30.00
VHT20	4	5745	23.66	23.14	23.05	23.41	859.454	29.34	30.00
VHT20	4	5785	23.52	23.35	23.28	23.54	879.935	29.44	30.00
VHT20	4	5825	23.56	23.22	23.19	23.25	856.678	29.33	30.00
VHT40	4	5755	23.60	23.23	23.31	23.58	881.788	29.45	30.00
VHT40	4	5795	23.68	23.13	23.15	23.32	860.256	29.35	30.00
VHT80	4	5775	23.84	23.24	23.18	23.55	887.400	29.48	30.00

Beamforming mode

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			
VHT20	4	5745	21.44	21.31	21.22	20.94	531.122	27.25	28.06
VHT20	4	5785	21.31	21.25	21.53	20.78	530.466	27.25	28.06
VHT20	4	5825	21.62	21.82	21.34	21.18	564.630	27.52	28.06
VHT40	4	5755	21.64	21.29	21.81	21.03	558.938	27.47	28.06
VHT40	4	5795	21.31	21.52	21.47	20.89	540.138	27.33	28.06
VHT80	4	5775	21.29	21.35	21.20	20.66	519.283	27.15	28.06

Note:

1. Directional gain = 1.92+10* log(4/1) = 7.94 dBi > 6 dBi.
   Limit shall be reduced to 30 dBm – (7.94 dBi – 6 dBi) = 28.06 dBm.

3.4 Peak Power Spectral Density

3.4.1 Limit of Peak Power Spectral Density

The maximum power spectral density shall not exceed 30 dBm in any 500 kHz band.

3.4.2 Test Procedures

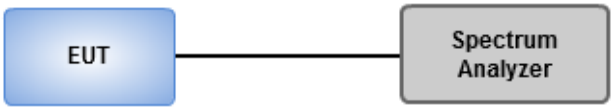
☒ Method SA-1 (Non- Beamforming: 802.11a/VHT20/VHT40)

1. Set RBW = 500 kHz, VBW = 2 MHz, Sweep time = auto, Detector = RMS.
2. Trace average 100 traces.
3. Use the peak marker function to determine the maximum amplitude level.

☒ Method SA-2 Alternative (Non- Beamforming: VHT80 / Beamforming: 11ac VHT20/VHT40/VHT80)

1. Set RBW = 500 kHz, VBW = 2 MHz, Detector = RMS.
2. Set sweep time ≥ 10 * (number of points in sweep) * (total on/off period of the transmitted signal).
3. Perform a single sweep.
4. Use the peak marker function to determine the maximum amplitude level.
5. Add 10 log(1/x), where x is the duty cycle.

3.4.3 Test Setup



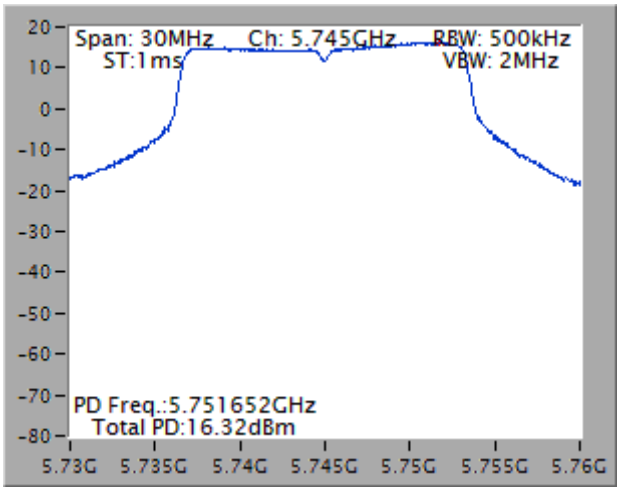
3.4.4 Test Result of Peak Power Spectral Density

Non-beamforming mode

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	4	5745	16.32	0.00	16.32	28.06
11a	4	5785	15.96	0.00	15.96	28.06
11a	4	5825	15.32	0.00	15.32	28.06
VHT20	4	5745	16.07	0.00	16.07	28.06
VHT20	4	5785	15.62	0.00	15.62	28.06
VHT20	4	5825	15.34	0.00	15.34	28.06
VHT40	4	5755	12.66	0.00	12.66	28.06
VHT40	4	5795	12.18	0.00	12.18	28.06
VHT80	4	5775	10.11	0.15	10.26	28.06

Note:
1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = 1.92+10* log(4/1) = 7.94 dBi
   Limit shall be reduced to 30 dBm – (7.94 dBi – 6 dBi) = 28.06 dBm.

Worst Plot

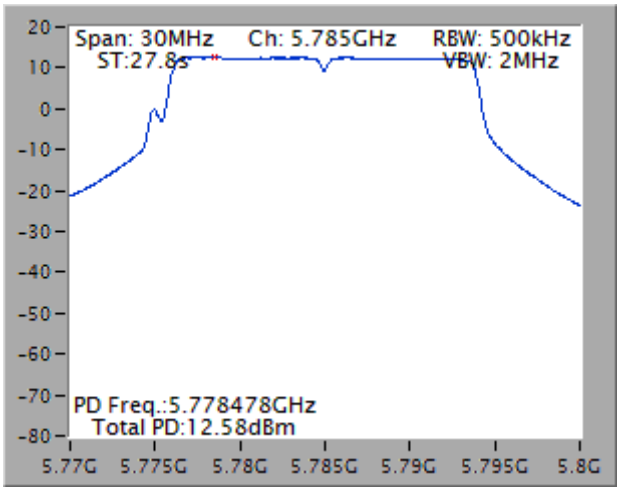


Beamforming mode

For Frequency band 5725-5850 MHz						
Condition			Peak Power Spectral Density (dBm/500kHz)			
Modulation Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/500kHz)	Duty Factor (dB)	PPSD with D.F (dBm/500kHz)	PPSD Limit (dBm/500kHz)
VHT20	4	5745	12.12	0.27	12.39	28.06
VHT20	4	5785	12.58	0.27	12.85	28.06
VHT20	4	5825	11.66	0.27	11.93	28.06
VHT40	4	5755	9.47	0.43	9.90	28.06
VHT40	4	5795	9.61	0.43	10.04	28.06
VHT80	4	5775	7.07	0.13	7.20	28.06

Note:
1. D.F is duty factor.
2. Test result is bin-by-bin summing measured value of each TX port.
3. Directional gain = 1.92+10* log(4/1) = 7.94 dBi
   Limit shall be reduced to 30 dBm – (7.94 dBi – 6 dBi) = 28.06 dBm.

Worst Plot



3.5 Transmitter Radiated and Band Edge Emissions

3.5.1 Limit of Transmitter Radiated and Band Edge Emissions

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

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

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

Un-restricted band emissions above 1GHz Limit		
Operating Band	**Limit**	
5.725 - 5.850 GHz	☒	15.407(b)(4)(i) All emissions shall be limited to a level of −27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
	☐	15.407(b)(4)(ii) ,compliance with the emission limits in § 15.247(d) Shall be at least 30dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power,. Attenuation below the general limits specified in §15.209(a) is not required. In addition,radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see § 15.205(c))
Note 1: Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).		

3.5.2 Test Procedures

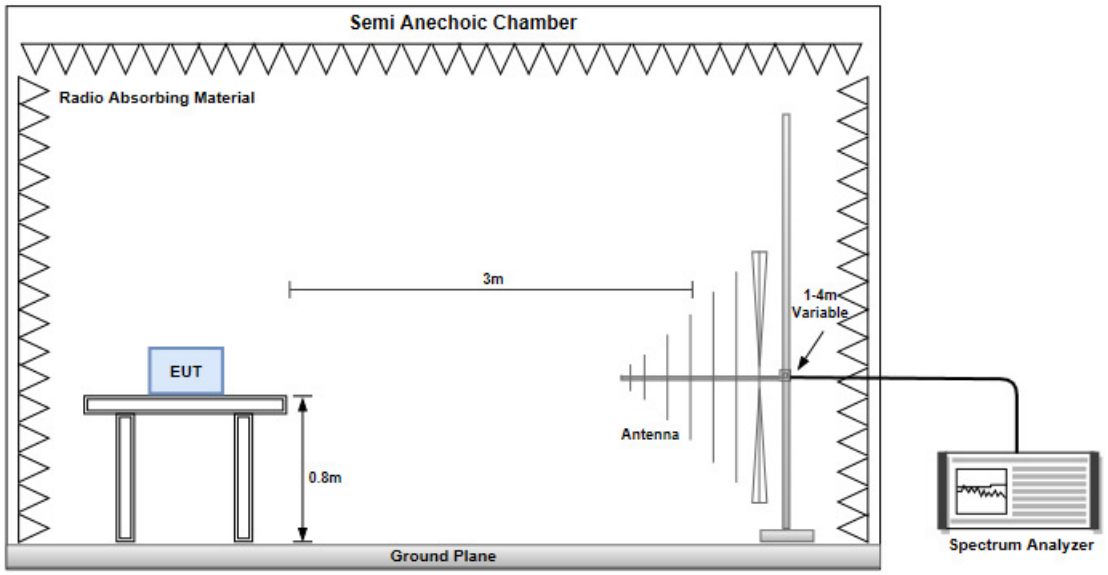
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

Note:

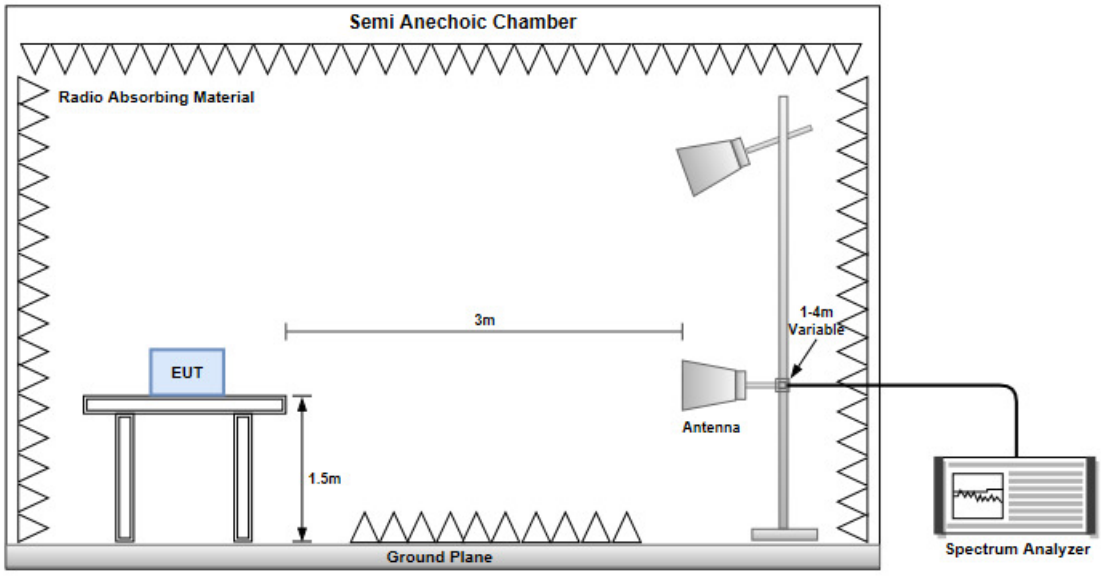
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



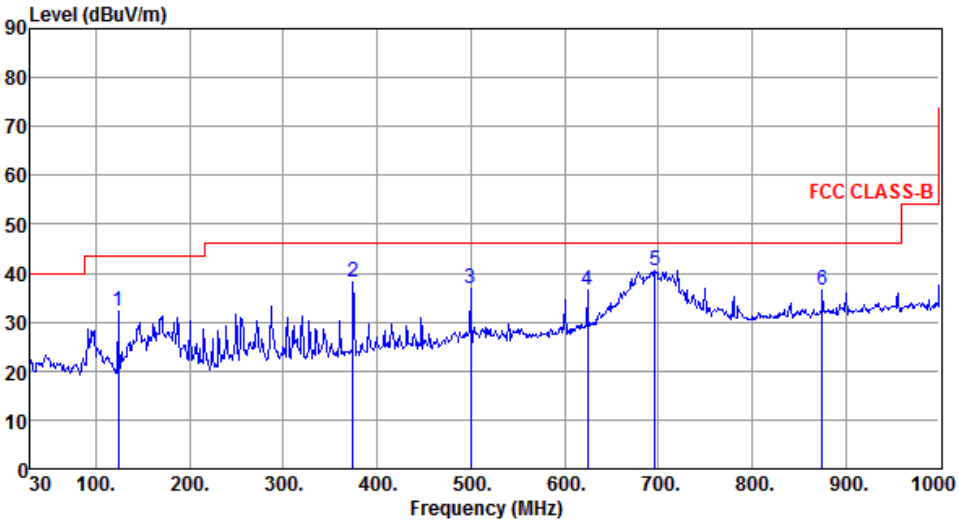
Radiated Emissions above 1 GHz



Non-beamforming mode

3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

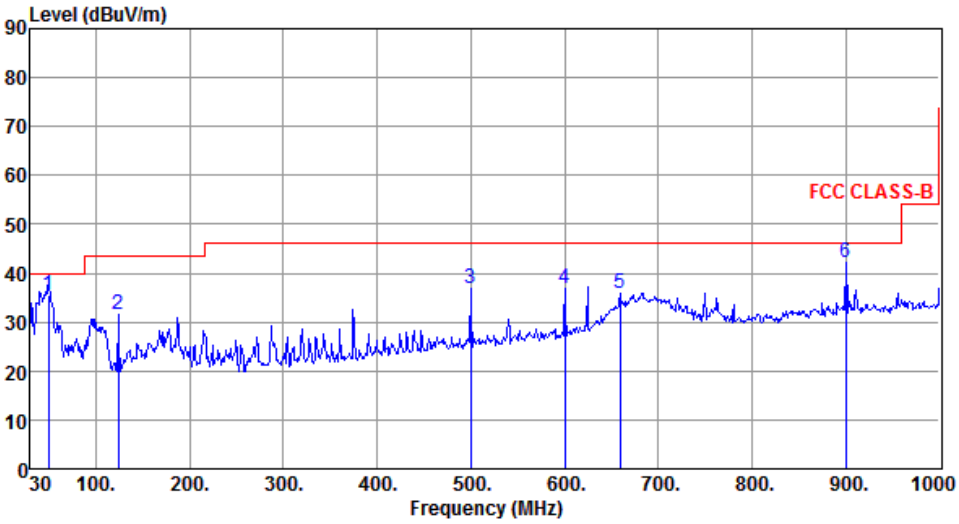
Modulation	11a	**Test Freq. (MHz)**	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	32.32	43.50	-11.18	42.49	-10.17	Peak	---	---
2	374.35	38.16	46.00	-7.84	43.86	-5.70	Peak	---	---
3	499.48	36.76	46.00	-9.24	39.60	-2.84	Peak	---	---
4	624.61	36.66	46.00	-9.34	37.06	-0.40	Peak	---	---
5	696.39	40.64	46.00	-5.36	39.94	0.70	Peak	---	---
6	874.87	36.57	46.00	-9.43	32.84	3.73	Peak	---	---

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

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

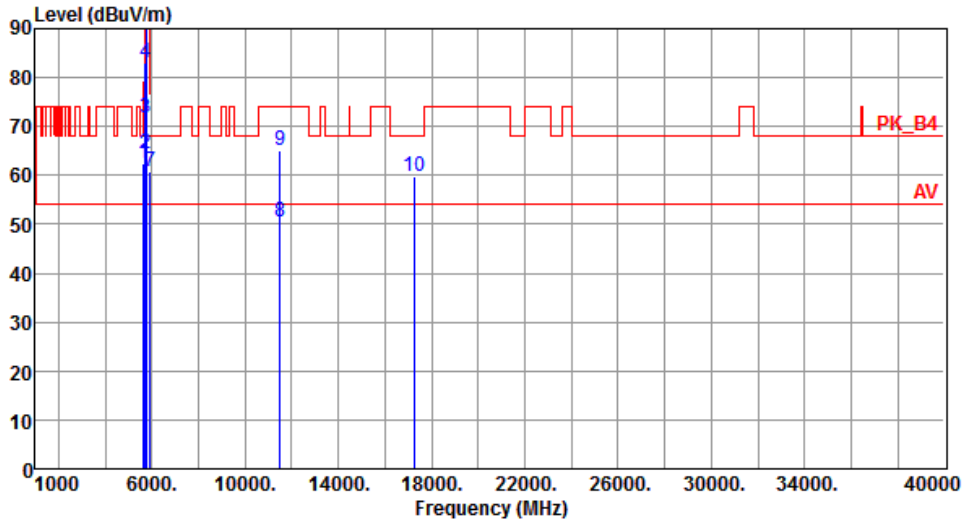


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	49.68	35.47	40.00	-4.53	43.14	-7.67	QP	100	5
2	124.09	31.45	43.50	-12.05	41.62	-10.17	Peak	---	---
3	499.48	36.91	46.00	-9.09	39.75	-2.84	Peak	---	---
4	600.36	37.01	46.00	-8.99	37.69	-0.68	Peak	---	---
5	659.53	35.86	46.00	-10.14	35.82	0.04	Peak	---	---
6	900.09	42.19	46.00	-3.81	37.96	4.23	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

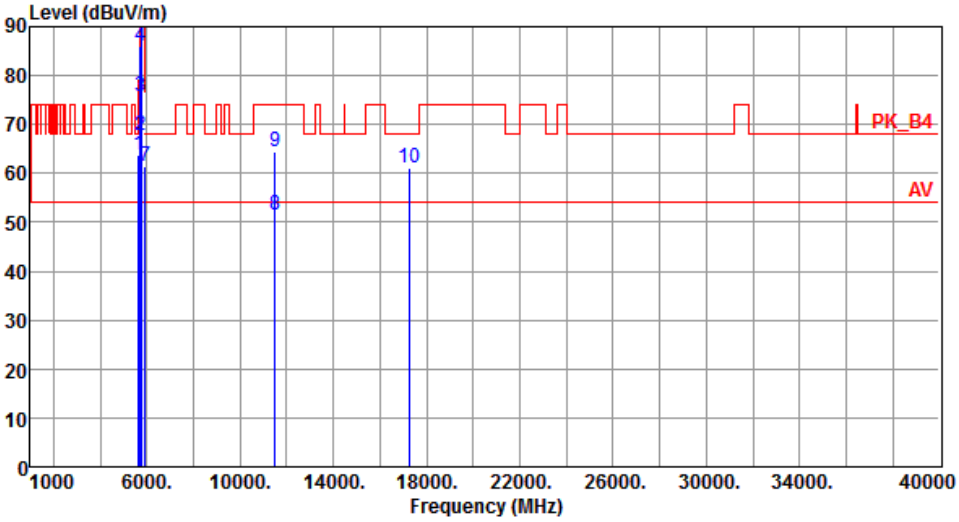
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.53	68.20	-5.67	55.73	6.80	Peak	205	153
2		5700.00	64.49	105.20	-40.71	57.61	6.88	Peak	205	153
3		5720.00	71.65	110.80	-39.15	64.74	6.91	Peak	205	153
4		5725.00	82.97	122.20	-39.23	76.06	6.91	Peak	205	153
5	*	5745.00	109.56			102.62	6.94	Average	205	153
6	*	5745.00	120.11			113.17	6.94	Peak	205	153
7		5925.00	60.91	68.20	-7.29	53.70	7.21	Peak	205	153
8		11490.00	50.37	54.00	-3.63	33.78	16.59	Average	198	174
9		11490.00	65.11	74.00	-8.89	48.52	16.59	Peak	198	174
10		17235.00	59.83	68.20	-8.37	41.26	18.57	Peak	100	181

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

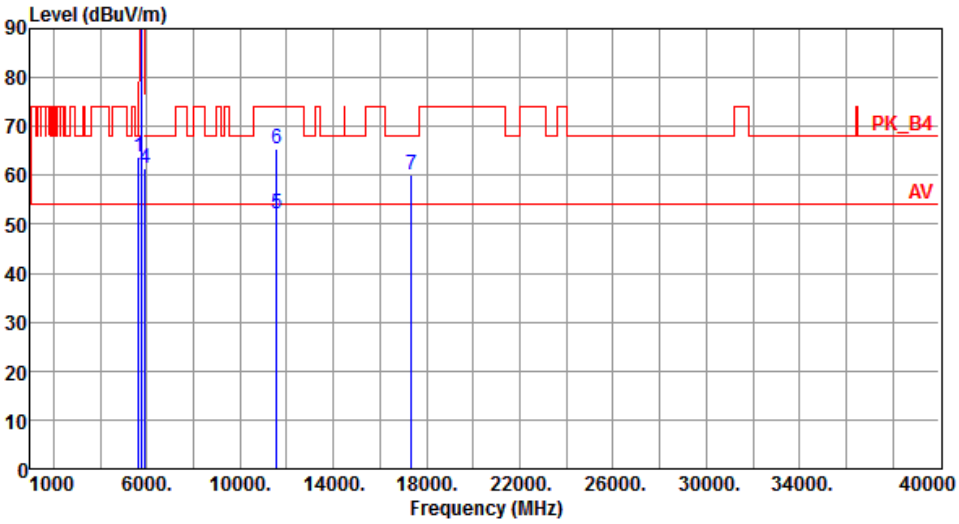
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.71	68.20	-4.49	56.91	6.80	Peak	100	237
2		5700.00	67.80	105.20	-37.40	60.92	6.88	Peak	100	237
3		5720.00	75.57	110.80	-35.23	68.66	6.91	Peak	100	237
4		5725.00	86.03	122.20	-36.17	79.12	6.91	Peak	100	237
5	*	5745.00	112.14			105.20	6.94	Average	100	237
6	*	5745.00	122.21			115.27	6.94	Peak	100	237
7		5925.00	61.32	68.20	-6.88	54.11	7.21	Peak	100	237
8		11490.00	51.56	54.00	-2.44	34.97	16.59	Average	235	149
9		11490.00	64.51	74.00	-9.49	47.92	16.59	Peak	235	149
10		17235.00	60.95	68.20	-7.25	42.38	18.57	Peak	100	216

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

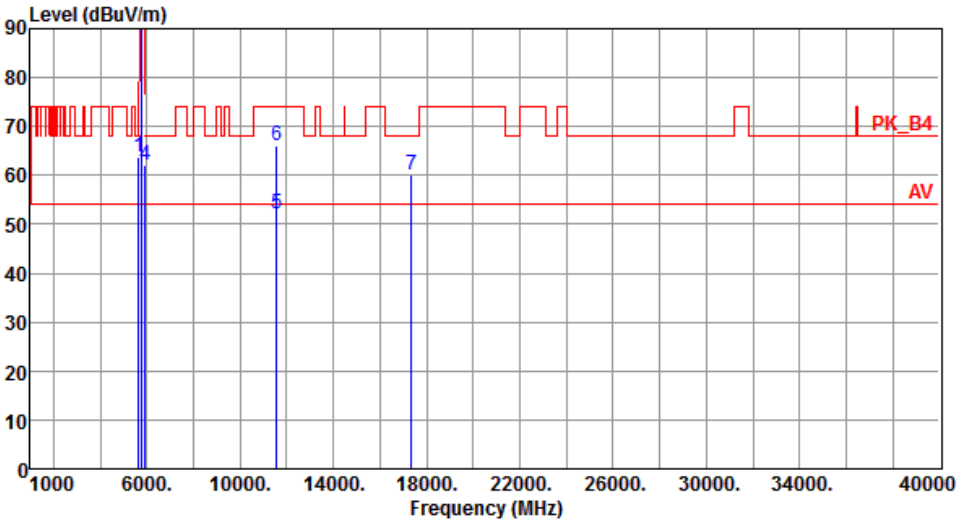
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.62	68.20	-4.58	56.82	6.80	Peak	200	152
2	*	5785.00	109.10			102.09	7.01	Average	200	152
3	*	5785.00	119.59			112.58	7.01	Peak	200	152
4		5925.00	61.46	68.20	-6.74	54.25	7.21	Peak	200	152
5		11570.00	52.30	54.00	-1.70	35.81	16.49	Average	197	178
6		11570.00	65.49	74.00	-8.51	49.00	16.49	Peak	197	178
7		17355.00	60.07	68.20	-8.13	41.13	18.94	Peak	100	188

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

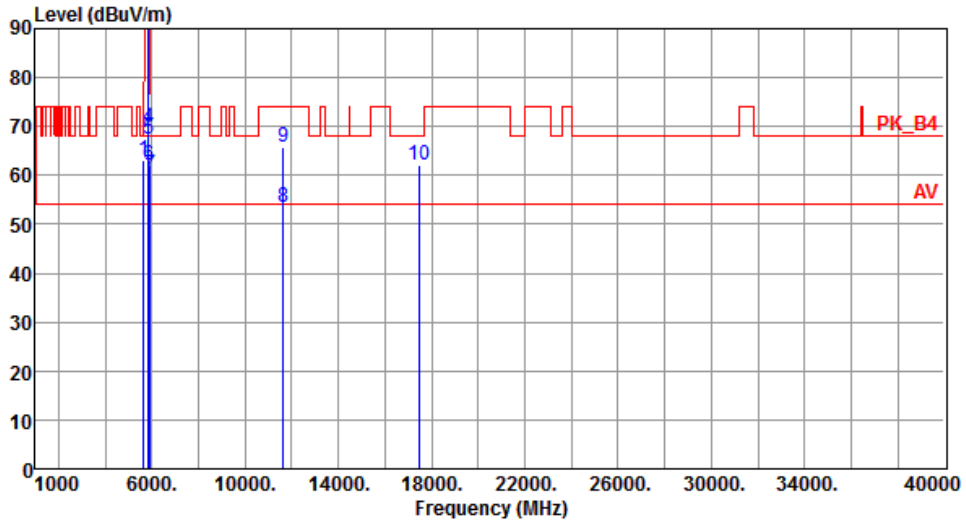
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.90	68.20	-4.30	57.10	6.80	Peak	100	234
2	*	5785.00	111.24			104.23	7.01	Average	100	234
3	*	5785.00	121.31			114.30	7.01	Peak	100	234
4		5925.00	62.06	68.20	-6.14	54.85	7.21	Peak	100	234
5		11570.00	52.15	54.00	-1.85	35.66	16.49	Average	231	151
6		11570.00	66.03	74.00	-7.97	49.54	16.49	Peak	231	151
7		17355.00	60.16	68.20	-8.04	41.22	18.94	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).
Note 3:"*" is Peak / Average value of fundamental frequency

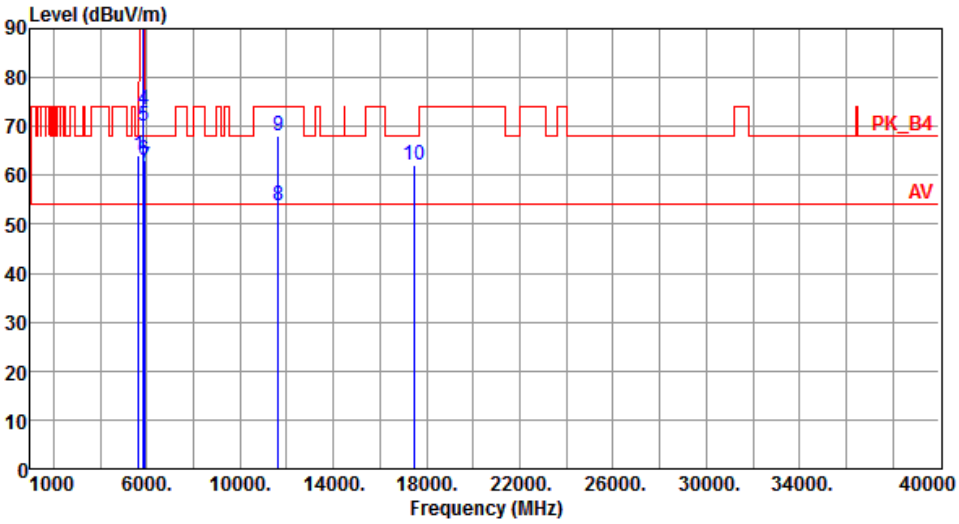
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.20	68.20	-5.00	56.40	6.80	Peak	195	153
2	*	5825.00	108.36			101.29	7.07	Average	195	153
3	*	5825.00	118.72			111.65	7.07	Peak	195	153
4		5850.00	69.75	122.20	-52.45	62.65	7.10	Peak	195	153
5		5855.00	67.49	110.80	-43.31	60.37	7.12	Peak	195	153
6		5875.00	62.27	105.20	-42.93	55.13	7.14	Peak	195	153
7		5925.00	60.22	68.20	-7.98	53.01	7.21	Peak	195	153
8		11650.00	53.37	54.00	-0.63	37.00	16.37	Average	197	179
9		11650.00	65.73	74.00	-8.27	49.36	16.37	Peak	197	179
10		17475.00	61.97	68.20	-6.23	42.65	19.32	Peak	100	164

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

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

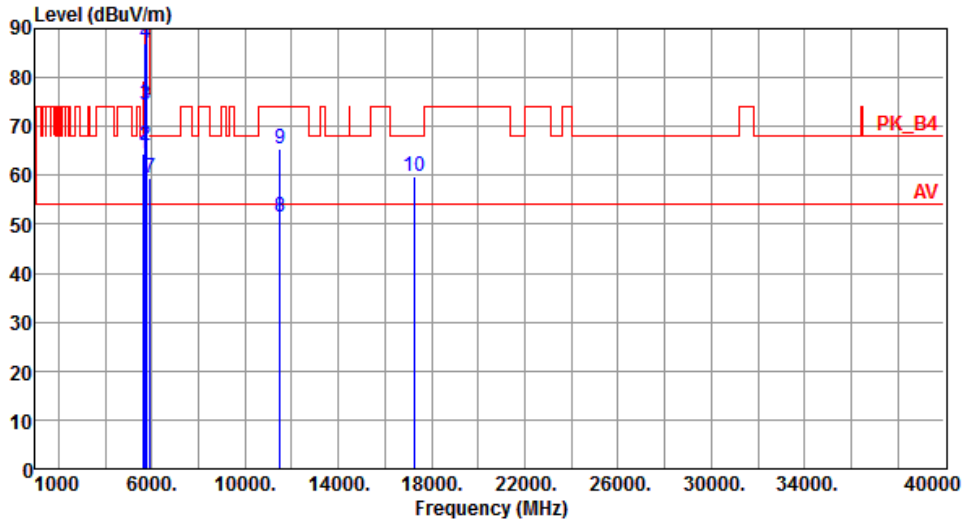


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.94	68.20	-4.26	57.14	6.80	Peak	100	236
2	*	5825.00	110.73			103.66	7.07	Average	100	236
3	*	5825.00	120.70			113.63	7.07	Peak	100	236
4		5850.00	73.33	122.20	-48.87	66.23	7.10	Peak	100	236
5		5855.00	70.05	110.80	-40.75	62.93	7.12	Peak	100	236
6		5875.00	63.26	105.20	-41.94	56.12	7.14	Peak	100	236
7		5925.00	61.73	68.20	-6.47	54.52	7.21	Peak	100	236
8		11650.00	53.86	54.00	-0.14	37.49	16.37	Average	208	154
9		11650.00	67.95	74.00	-6.05	51.58	16.37	Peak	208	154
10		17475.00	62.03	68.20	-6.17	42.71	19.32	Peak	100	168

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

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

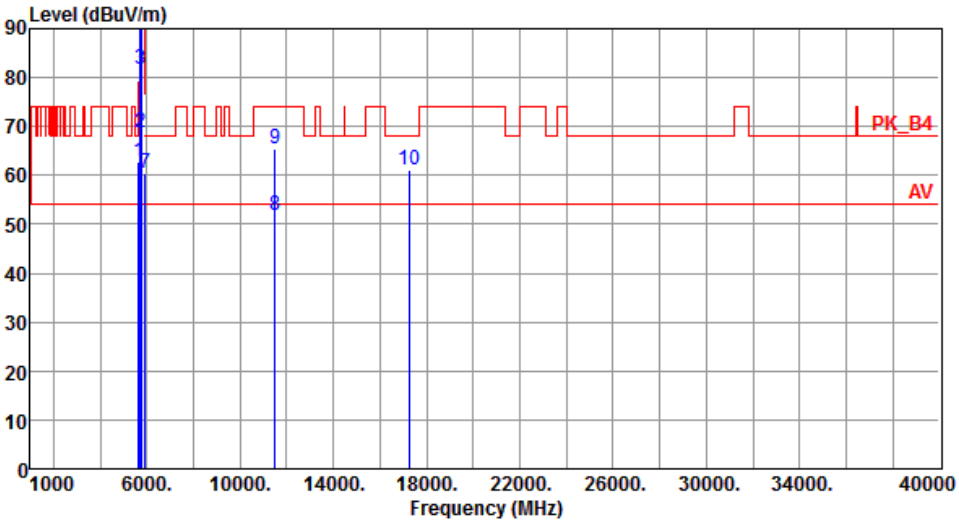
Modulation	VHT20	**Test Freq. (MHz)**	5745
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	64.34	68.20	-3.86	57.54	6.80	Peak	203	152
2		5700.00	66.17	105.20	-39.03	59.29	6.88	Peak	203	152
3		5720.00	74.53	110.80	-36.27	67.62	6.91	Peak	203	152
4		5725.00	86.97	122.20	-35.23	80.06	6.91	Peak	203	152
5	*	5745.00	109.60			102.66	6.94	Average	203	152
6	*	5745.00	120.60			113.66	6.94	Peak	203	152
7		5925.00	59.35	68.20	-8.85	52.14	7.21	Peak	203	152
8		11490.00	51.42	54.00	-2.58	34.83	16.59	Average	213	179
9		11490.00	65.41	74.00	-8.59	48.82	16.59	Peak	213	179
10		17235.00	59.91	68.20	-8.29	41.34	18.57	Peak	100	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).
Note 3:"*" is Peak / Average value of fundamental frequency

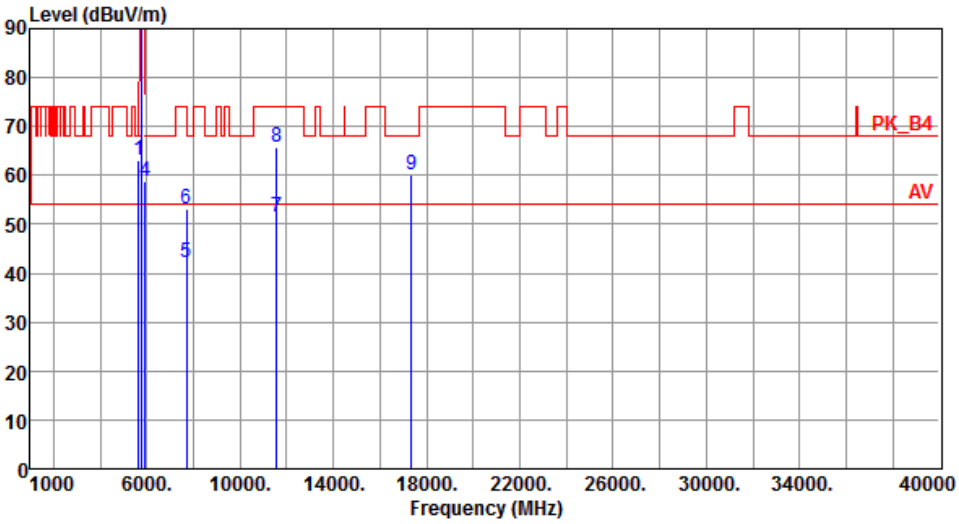
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.66	68.20	-5.54	55.86	6.80	Peak	100	236
2		5700.00	68.66	105.20	-36.54	61.78	6.88	Peak	100	236
3		5720.00	81.79	110.80	-29.01	74.88	6.91	Peak	100	236
4		5725.00	91.64	122.20	-30.56	84.73	6.91	Peak	100	236
5	*	5745.00	111.99			105.05	6.94	Average	100	236
6	*	5745.00	122.47			115.53	6.94	Peak	100	236
7		5925.00	60.54	68.20	-7.66	53.33	7.21	Peak	100	236
8		11490.00	51.85	54.00	-2.15	35.26	16.59	Average	208	155
9		11490.00	65.35	74.00	-8.65	48.76	16.59	Peak	208	155
10		17235.00	61.11	68.20	-7.09	42.54	18.57	Peak	100	198

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

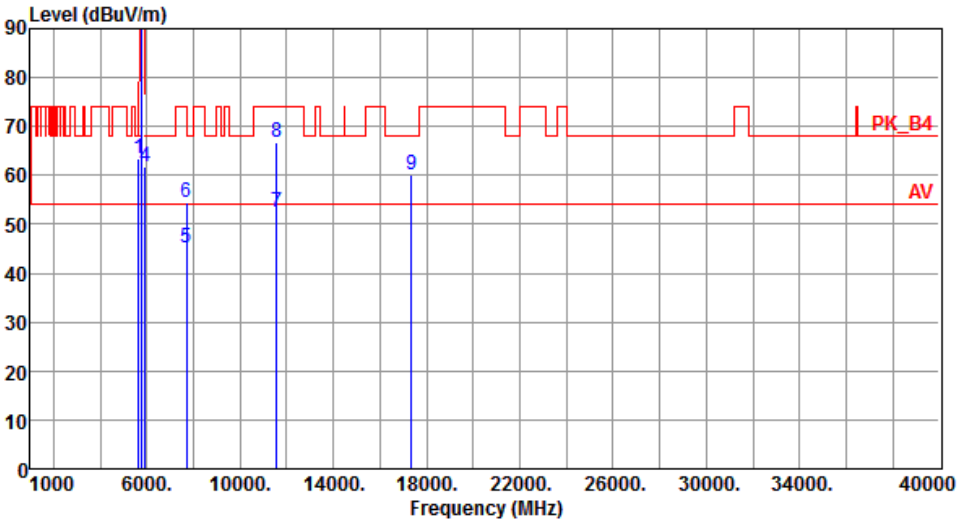
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



		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	63.09	68.20	-5.11	56.29	6.80	Peak	181	151
2	*	5785.00	108.23			101.22	7.01	Average	181	151
3	*	5785.00	119.47			112.46	7.01	Peak	181	151
4		5925.00	58.90	68.20	-9.30	51.69	7.21	Peak	181	151
5		7713.00	42.10	54.00	-11.90	30.69	11.41	Average	100	161
6		7713.00	53.12	74.00	-20.88	41.71	11.41	Peak	100	161
7		11570.00	51.50	54.00	-2.50	35.01	16.49	Average	194	178
8		11570.00	65.77	74.00	-8.23	49.28	16.49	Peak	194	178
9		17355.00	60.02	68.20	-8.18	41.08	18.94	Peak	100	175

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

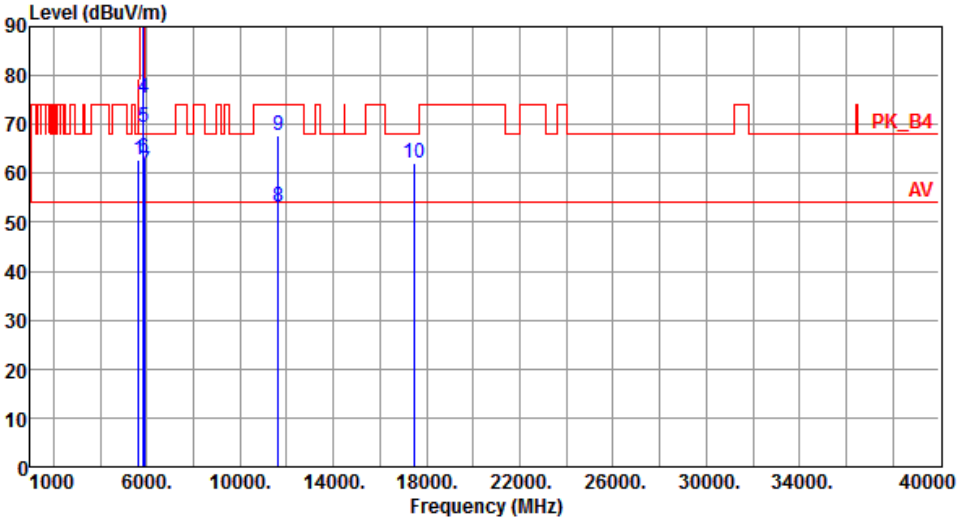
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.56	68.20	-4.64	56.76	6.80	Peak	104	343
2	*	5785.00	110.64			103.63	7.01	Average	104	343
3	*	5785.00	121.11			114.10	7.01	Peak	104	343
4		5925.00	61.84	68.20	-6.36	54.63	7.21	Peak	104	343
5		7713.00	45.02	54.00	-8.98	33.61	11.41	Average	100	200
6		7713.00	54.59	74.00	-19.41	43.18	11.41	Peak	100	200
7		11570.00	52.43	54.00	-1.57	35.94	16.49	Average	210	220
8		11570.00	66.63	74.00	-7.37	50.14	16.49	Peak	210	220
9		17355.00	60.07	68.20	-8.13	41.13	18.94	Peak	100	212

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

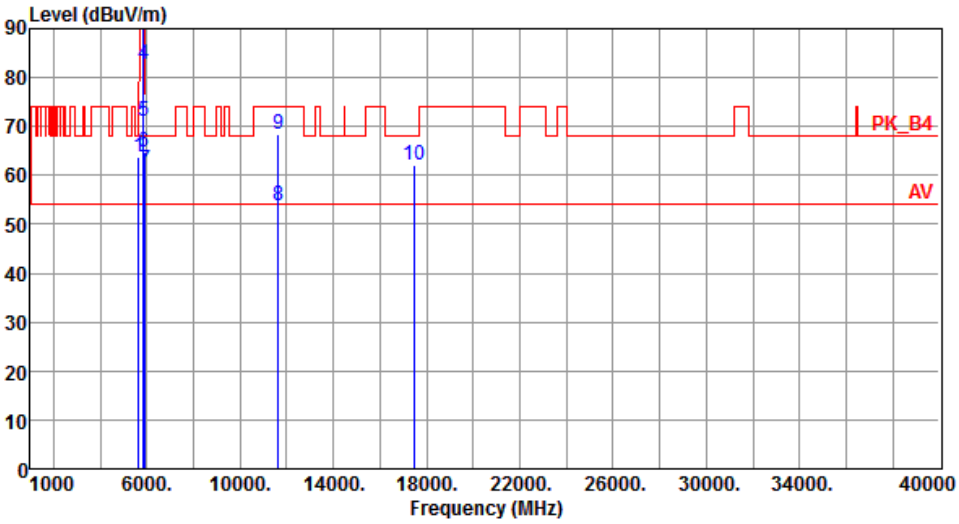
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



		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	62.63	68.20	-5.57	55.83	6.80	Peak	198	153
2	*	5825.00	108.21			101.14	7.07	Average	198	153
3	*	5825.00	119.22			112.15	7.07	Peak	198	153
4		5850.00	75.25	122.20	-46.95	68.15	7.10	Peak	198	153
5		5855.00	69.27	110.80	-41.53	62.15	7.12	Peak	198	153
6		5875.00	63.16	105.20	-42.04	56.02	7.14	Peak	198	153
7		5925.00	60.51	68.20	-7.69	53.30	7.21	Peak	198	153
8		11650.00	52.97	54.00	-1.03	36.60	16.37	Average	194	179
9		11650.00	67.60	74.00	-6.40	51.23	16.37	Peak	194	179
10		17475.00	62.12	68.20	-6.08	42.80	19.32	Peak	100	174

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

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

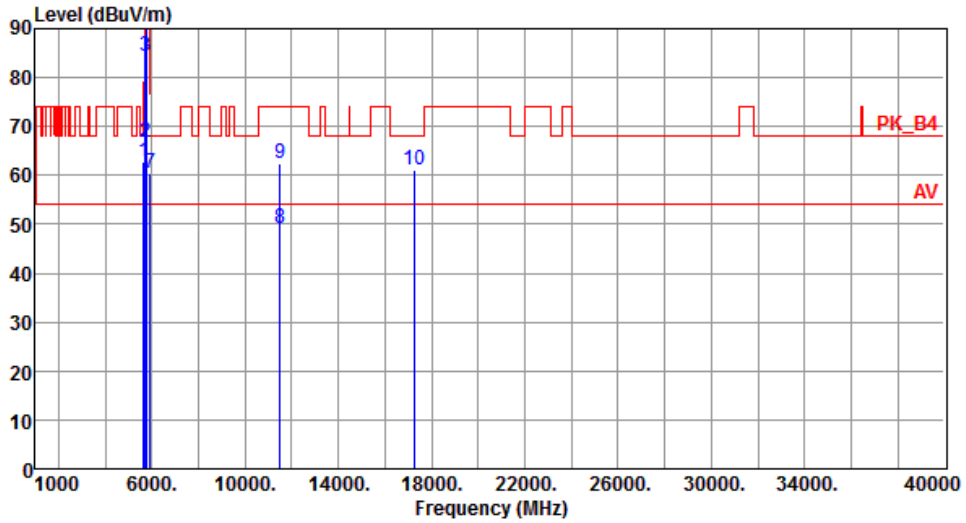


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.87	68.20	-4.33	57.07	6.80	Peak	100	237
2	*	5825.00	110.53			103.46	7.07	Average	100	237
3	*	5825.00	120.95			113.88	7.07	Peak	100	237
4		5850.00	82.60	122.20	-39.60	75.50	7.10	Peak	100	237
5		5855.00	71.04	110.80	-39.76	63.92	7.12	Peak	100	237
6		5875.00	64.90	105.20	-40.30	57.76	7.14	Peak	100	237
7		5925.00	61.24	68.20	-6.96	54.03	7.21	Peak	100	237
8		11650.00	53.86	54.00	-0.14	37.49	16.37	Average	207	153
9		11650.00	68.45	74.00	-5.55	52.08	16.37	Peak	207	153
10		17475.00	62.17	68.20	-6.03	42.85	19.32	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).
Note 3:"*" is Peak / Average value of fundamental frequency

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

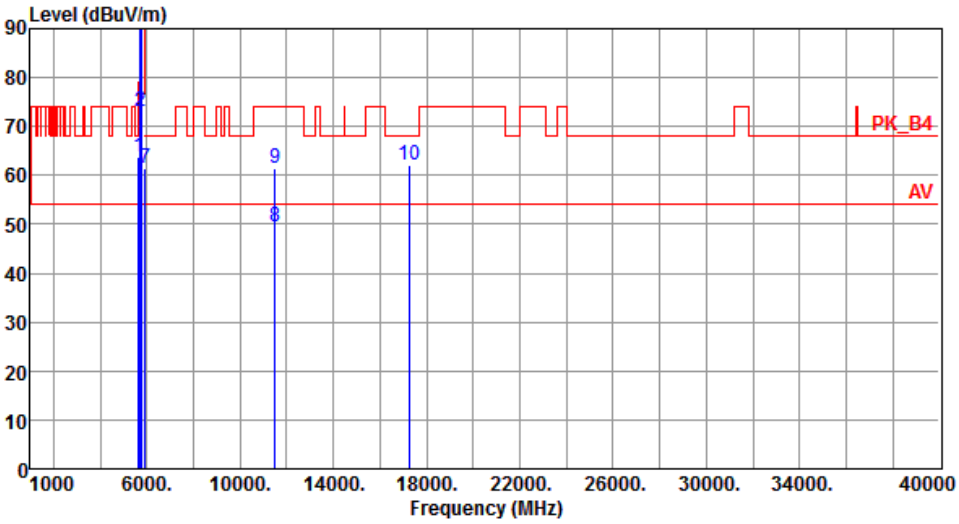
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.64	68.20	-5.56	55.84	6.80	Peak	205	154
2		5700.00	66.66	105.20	-38.54	59.78	6.88	Peak	205	154
3		5720.00	84.35	110.80	-26.45	77.44	6.91	Peak	205	154
4		5725.00	88.67	122.20	-33.53	81.76	6.91	Peak	205	154
5	*	5755.00	106.29			99.32	6.97	Average	205	154
6	*	5755.00	116.66			109.69	6.97	Peak	205	154
7		5925.00	60.49	68.20	-7.71	53.28	7.21	Peak	205	154
8		11510.00	49.09	54.00	-4.91	32.51	16.58	Average	212	181
9		11510.00	62.52	74.00	-11.48	45.94	16.58	Peak	212	181
10		17265.00	61.26	68.20	-6.94	42.60	18.66	Peak	100	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).
Note 3:"*" is Peak / Average value of fundamental frequency

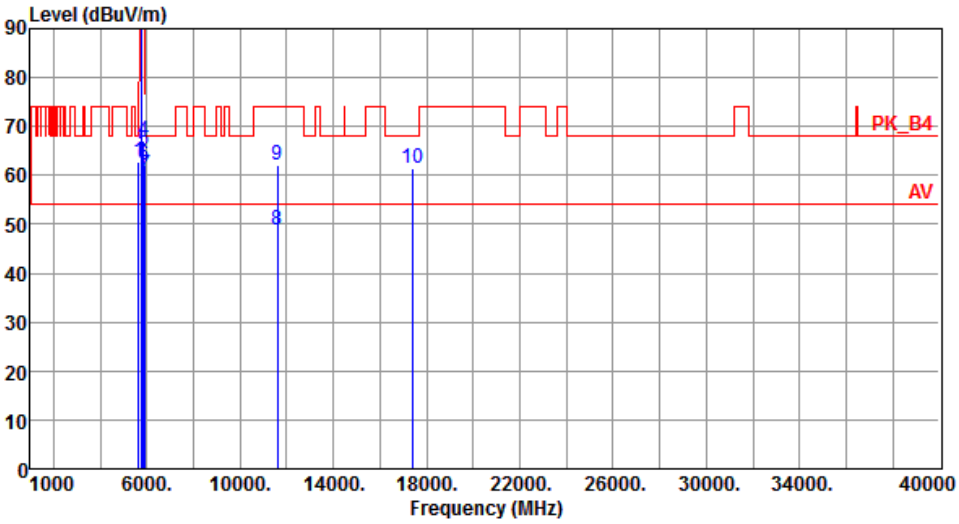
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.89	68.20	-4.31	57.09	6.80	Peak	100	237
2		5700.00	73.02	105.20	-32.18	66.14	6.88	Peak	100	237
3		5720.00	91.54	110.80	-19.26	84.63	6.91	Peak	100	237
4		5725.00	93.21	122.20	-28.99	86.30	6.91	Peak	100	237
5	*	5755.00	108.83			101.86	6.97	Average	100	237
6	*	5755.00	119.21			112.24	6.97	Peak	100	237
7		5925.00	61.48	68.20	-6.72	54.27	7.21	Peak	100	237
8		11510.00	49.47	54.00	-4.53	32.89	16.58	Average	214	152
9		11510.00	61.42	74.00	-12.58	44.84	16.58	Peak	214	152
10		17265.00	62.15	68.20	-6.05	43.49	18.66	Peak	100	228

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

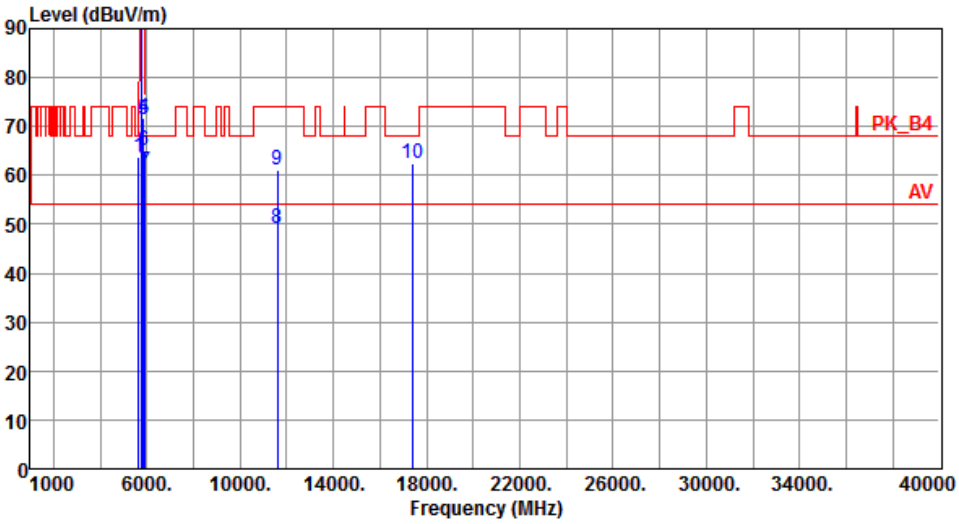
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



		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	62.70	68.20	-5.50	55.90	6.80	Peak	208	154
2	*	5795.00	105.85			98.82	7.03	Average	208	154
3	*	5795.00	116.58			109.55	7.03	Peak	208	154
4		5850.00	67.02	122.20	-55.18	59.92	7.10	Peak	208	154
5		5855.00	65.10	110.80	-45.70	57.98	7.12	Peak	208	154
6		5875.00	62.11	105.20	-43.09	54.97	7.14	Peak	208	154
7		5925.00	60.06	68.20	-8.14	52.85	7.21	Peak	208	154
8		11590.00	48.90	54.00	-5.10	32.44	16.46	Average	203	195
9		11590.00	62.24	74.00	-11.76	45.78	16.46	Peak	203	195
10		17385.00	61.49	68.20	-6.71	42.45	19.04	Peak	100	177

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

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		

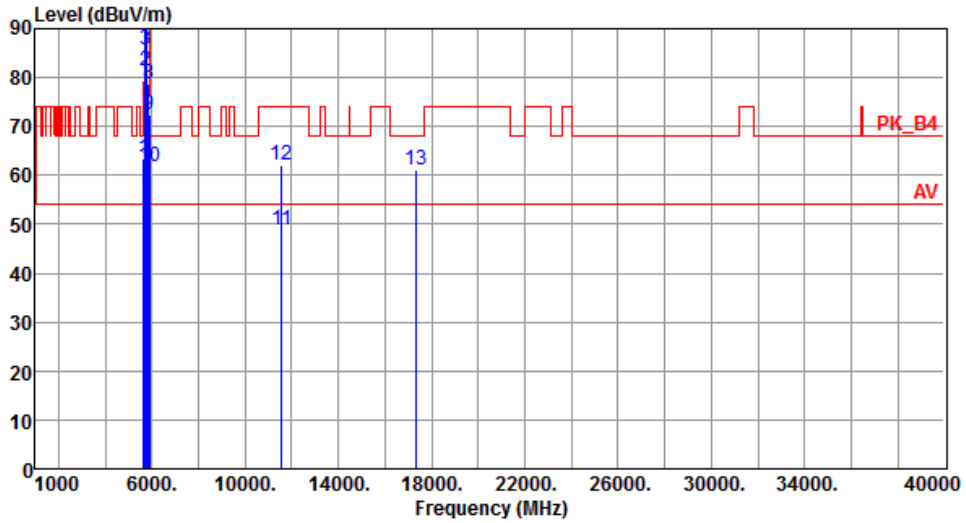


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.80	68.20	-4.40	57.00	6.80	Peak	100	236
2	*	5795.00	108.03			101.00	7.03	Average	100	236
3	*	5795.00	118.59			111.56	7.03	Peak	100	236
4		5850.00	71.88	122.20	-50.32	64.78	7.10	Peak	100	236
5		5855.00	71.44	110.80	-39.36	64.32	7.12	Peak	100	236
6		5875.00	65.26	105.20	-39.94	58.12	7.14	Peak	100	236
7		5925.00	60.77	68.20	-7.43	53.56	7.21	Peak	100	236
8		11590.00	49.20	54.00	-4.80	32.74	16.46	Average	209	161
9		11590.00	61.15	74.00	-12.85	44.69	16.46	Peak	209	161
10		17385.00	62.39	68.20	-5.81	43.35	19.04	Peak	100	236

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

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

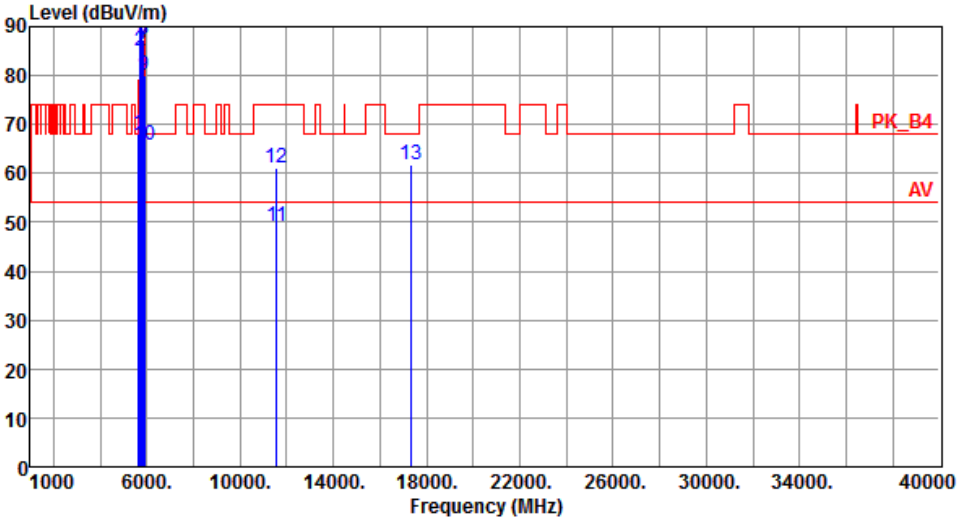
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.50	68.20	-4.70	56.70	6.80	Peak	189	151
2		5700.00	81.27	105.20	-23.93	74.39	6.88	Peak	189	151
3		5720.00	85.83	110.80	-24.97	78.92	6.91	Peak	189	151
4		5725.00	89.67	122.20	-32.53	82.76	6.91	Peak	189	151
5	*	5775.00	104.31			97.31	7.00	Average	189	151
6	*	5775.00	114.68			107.68	7.00	Peak	189	151
7		5850.00	60.74	122.20	-61.46	53.64	7.10	Peak	189	151
8		5855.00	78.65	110.80	-32.15	71.53	7.12	Peak	189	151
9		5875.00	72.26	105.20	-32.94	65.12	7.14	Peak	189	151
10		5925.00	61.89	68.20	-6.31	54.68	7.21	Peak	189	151
11		11550.00	48.80	54.00	-5.20	32.28	16.52	Average	210	211
12		11550.00	62.05	74.00	-11.95	45.53	16.52	Peak	210	211
13		17325.00	61.13	68.20	-7.07	42.28	18.85	Peak	100	165

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

Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Vertical		



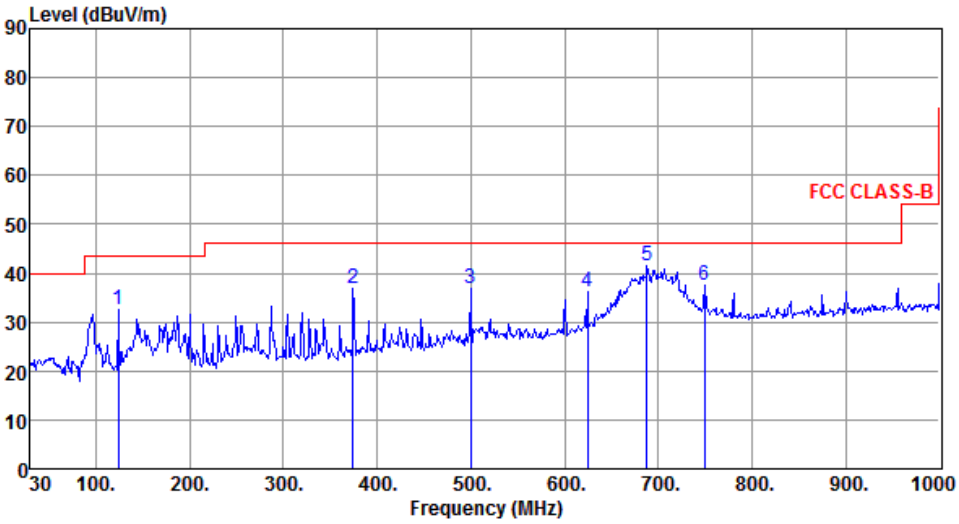
		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	67.96	68.20	-0.24	61.16	6.80	Peak	100	232
2		5700.00	85.13	105.20	-20.07	78.25	6.88	Peak	100	232
3		5720.00	90.19	110.80	-20.61	83.28	6.91	Peak	100	232
4		5725.00	95.60	122.20	-26.60	88.69	6.91	Peak	100	232
5	*	5775.00	107.29			100.29	7.00	Average	100	232
6	*	5775.00	116.82			109.82	7.00	Peak	100	232
7		5850.00	86.32	122.20	-35.88	79.22	7.10	Peak	100	232
8		5855.00	87.20	110.80	-23.60	80.08	7.12	Peak	100	232
9		5875.00	79.99	105.20	-25.21	72.85	7.14	Peak	100	232
10		5925.00	65.60	68.20	-2.60	58.39	7.21	Peak	100	232
11		11550.00	49.05	54.00	-4.95	32.53	16.52	Average	213	172
12		11550.00	61.01	74.00	-12.99	44.49	16.52	Peak	213	172
13		17325.00	61.93	68.20	-6.27	43.08	18.85	Peak	100	229

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

Beamforming mode

3.5.9 Transmitter Radiated Unwanted Emissions (Below 1GHz)

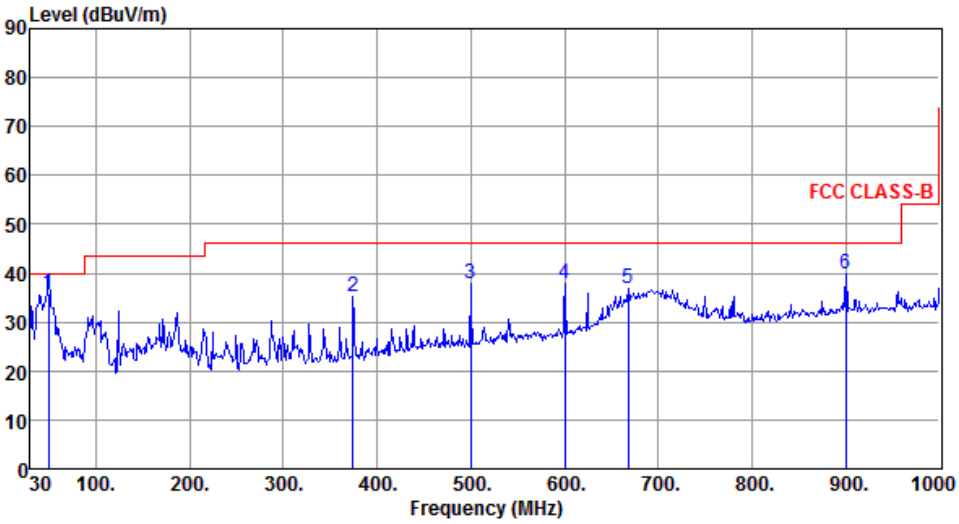
Modulation	VHT20	**Test Freq. (MHz)**	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	124.09	32.41	43.50	-11.09	42.63	-10.22	Peak	---	---
2	374.35	37.02	46.00	-8.98	42.73	-5.71	Peak	---	---
3	499.48	36.79	46.00	-9.21	39.79	-3.00	Peak	---	---
4	624.61	36.11	46.00	-9.89	36.41	-0.30	Peak	---	---
5	687.66	41.42	46.00	-4.58	40.86	0.56	Peak	---	---
6	749.74	37.62	46.00	-8.38	35.58	2.04	Peak	---	---

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

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

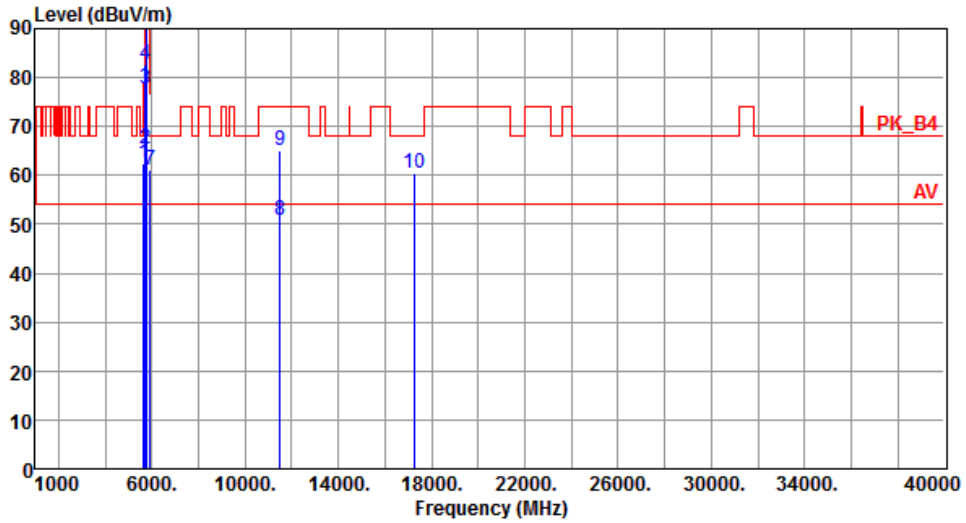


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	49.68	35.77	40.00	-4.23	43.65	-7.88	QP	100	3
2	374.35	35.34	46.00	-10.66	41.05	-5.71	Peak	---	---
3	499.48	37.84	46.00	-8.16	40.84	-3.00	Peak	---	---
4	600.36	37.76	46.00	-8.24	38.38	-0.62	Peak	---	---
5	668.26	36.84	46.00	-9.16	36.56	0.28	Peak	---	---
6	900.09	39.90	46.00	-6.10	35.80	4.10	Peak	---	---

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

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

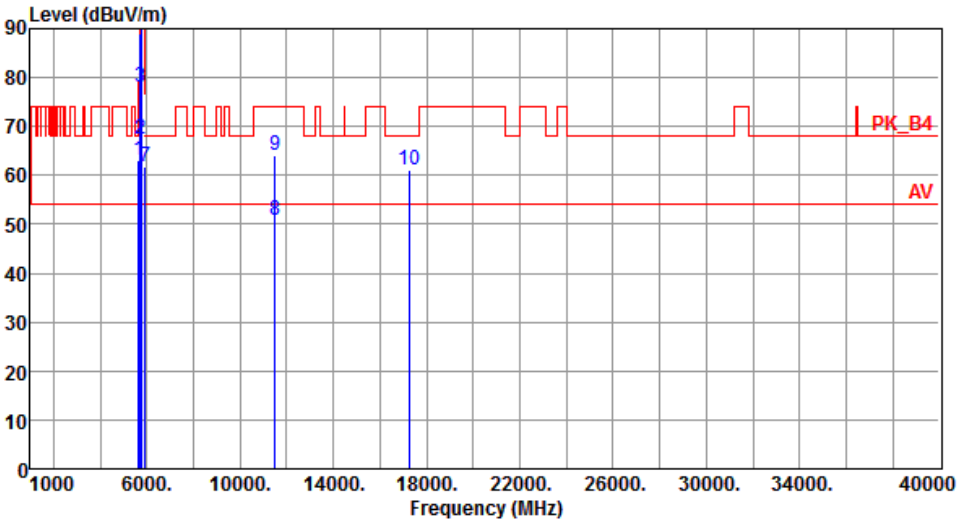
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.28	68.20	-5.92	55.48	6.80	Peak	158	156
2		5700.00	65.48	105.20	-39.72	58.60	6.88	Peak	158	156
3		5720.00	77.81	110.80	-32.99	70.90	6.91	Peak	158	156
4		5725.00	82.76	122.20	-39.44	75.85	6.91	Peak	158	156
5	*	5745.00	108.15			101.21	6.94	Average	158	156
6	*	5745.00	119.80			112.86	6.94	Peak	158	156
7		5925.00	61.17	68.20	-7.03	53.96	7.21	Peak	158	156
8		11490.00	50.77	54.00	-3.23	34.18	16.59	Average	207	178
9		11490.00	65.14	74.00	-8.86	48.55	16.59	Peak	207	178
10		17235.00	60.56	68.20	-7.64	41.99	18.57	Peak	100	55

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

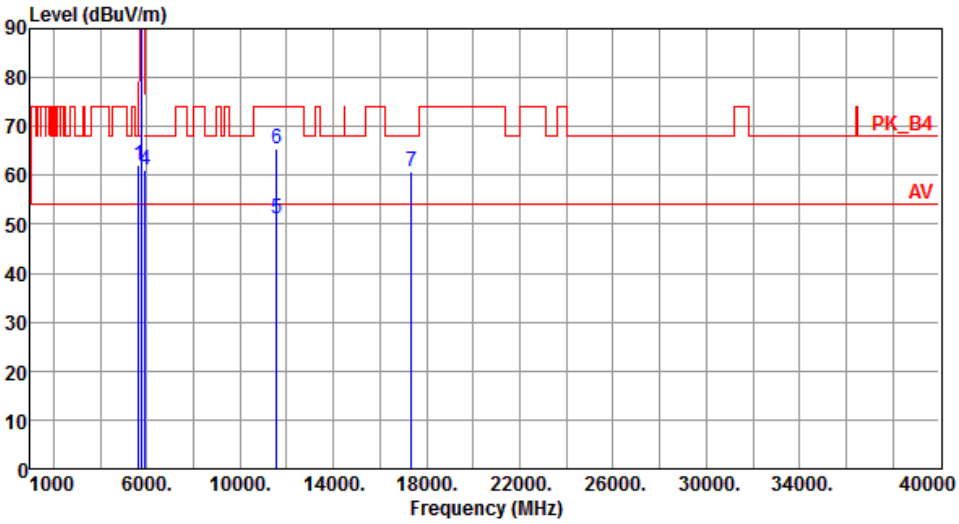
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.12	68.20	-5.08	56.32	6.80	Peak	124	314
2		5700.00	67.58	105.20	-37.62	60.70	6.88	Peak	124	314
3		5720.00	78.03	110.80	-32.77	71.12	6.91	Peak	124	314
4		5725.00	88.86	122.20	-33.34	81.95	6.91	Peak	124	314
5	*	5745.00	110.25			103.31	6.94	Average	124	314
6	*	5745.00	121.91			114.97	6.94	Peak	124	314
7		5925.00	61.89	68.20	-6.31	54.68	7.21	Peak	124	314
8		11490.00	50.75	54.00	-3.25	34.16	16.59	Average	212	216
9		11490.00	64.11	74.00	-9.89	47.52	16.59	Peak	212	216
10		17235.00	60.96	68.20	-7.24	42.39	18.57	Peak	100	112

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

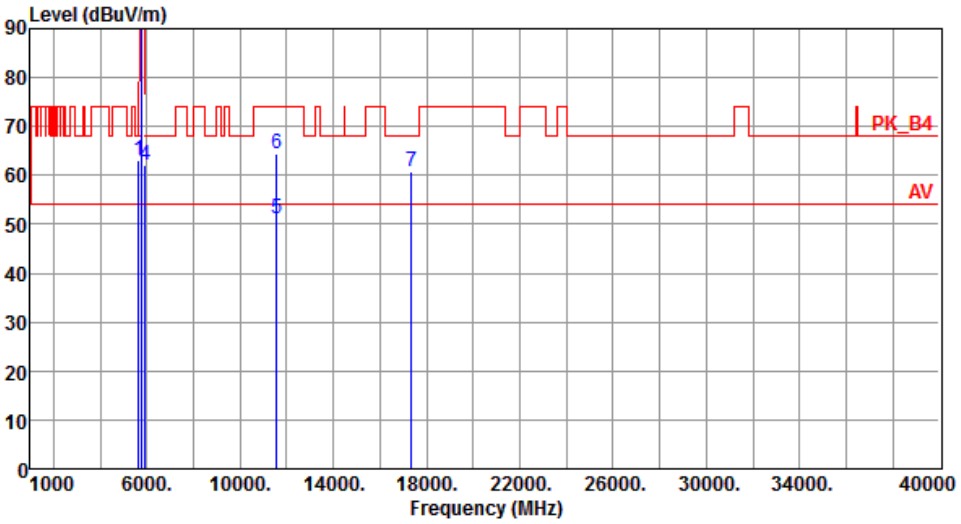
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



		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	62.15	68.20	-6.05	55.35	6.80	Peak	159	155
2	*	5785.00	107.94			100.93	7.01	Average	159	155
3	*	5785.00	119.64			112.63	7.01	Peak	159	155
4		5925.00	61.14	68.20	-7.06	53.93	7.21	Peak	159	155
5		11570.00	50.98	54.00	-3.02	34.49	16.49	Average	208	175
6		11570.00	65.36	74.00	-8.64	48.87	16.49	Peak	208	175
7		17355.00	60.68	68.20	-7.52	41.74	18.94	Peak	100	64

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

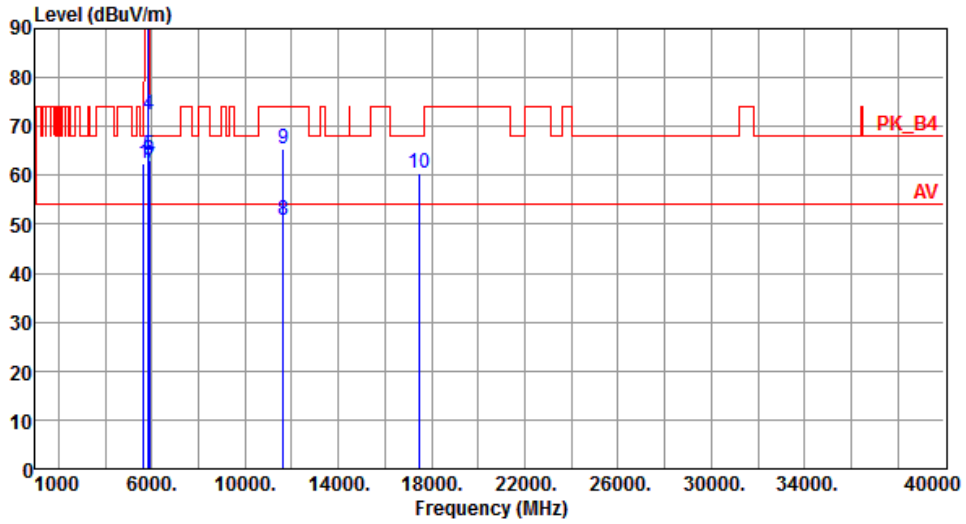
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.19	68.20	-5.01	56.39	6.80	Peak	124	315
2	*	5785.00	110.06			103.05	7.01	Average	124	315
3	*	5785.00	121.84			114.83	7.01	Peak	124	315
4		5925.00	61.96	68.20	-6.24	54.75	7.21	Peak	124	315
5		11570.00	51.04	54.00	-2.96	34.55	16.49	Average	212	211
6		11570.00	64.35	74.00	-9.65	47.86	16.49	Peak	212	211
7		17355.00	60.82	68.20	-7.38	41.88	18.94	Peak	100	109

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

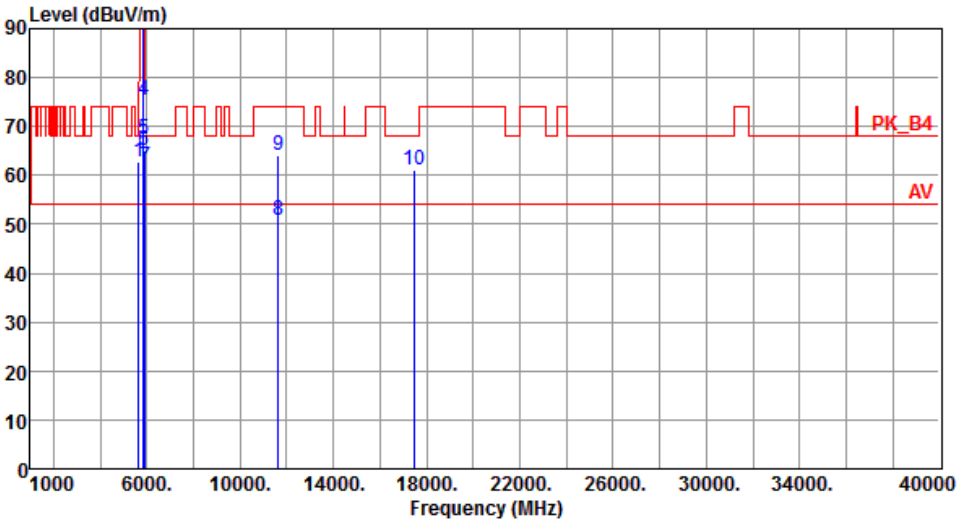
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



		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	62.34	68.20	-5.86	55.54	6.80	Peak	161	154
2	*	5825.00	107.48			100.41	7.07	Average	161	154
3	*	5825.00	119.12			112.05	7.07	Peak	161	154
4		5850.00	72.49	122.20	-49.71	65.39	7.10	Peak	161	154
5		5855.00	64.21	110.80	-46.59	57.09	7.12	Peak	161	154
6		5875.00	63.19	105.20	-42.01	56.05	7.14	Peak	161	154
7		5925.00	61.68	68.20	-6.52	54.47	7.21	Peak	161	154
8		11650.00	50.84	54.00	-3.16	34.47	16.37	Average	208	178
9		11650.00	65.29	74.00	-8.71	48.92	16.37	Peak	208	178
10		17475.00	60.52	68.20	-7.68	41.20	19.32	Peak	100	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).
Note 3:"*" is Peak / Average value of fundamental frequency

Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Vertical		

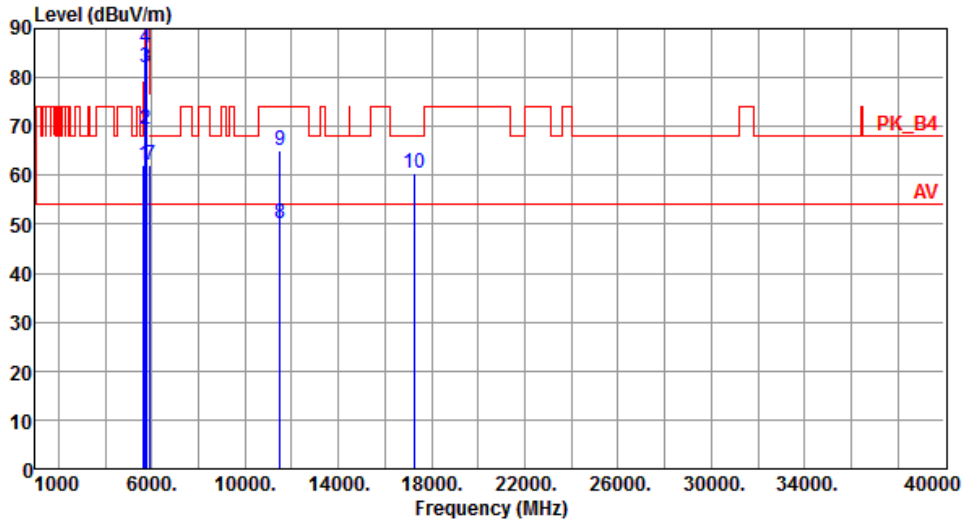


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.61	68.20	-5.59	55.81	6.80	Peak	122	350
2	*	5825.00	109.46			102.39	7.07	Average	122	350
3	*	5825.00	121.22			114.15	7.07	Peak	122	350
4		5850.00	75.30	122.20	-46.90	68.20	7.10	Peak	122	350
5		5855.00	67.36	110.80	-43.44	60.24	7.12	Peak	122	350
6		5875.00	65.26	105.20	-39.94	58.12	7.14	Peak	122	350
7		5925.00	61.77	68.20	-6.43	54.56	7.21	Peak	122	350
8		11650.00	50.87	54.00	-3.13	34.50	16.37	Average	218	138
9		11650.00	64.05	74.00	-9.95	47.68	16.37	Peak	218	138
10		17475.00	60.96	68.20	-7.24	41.64	19.32	Peak	100	102

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

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

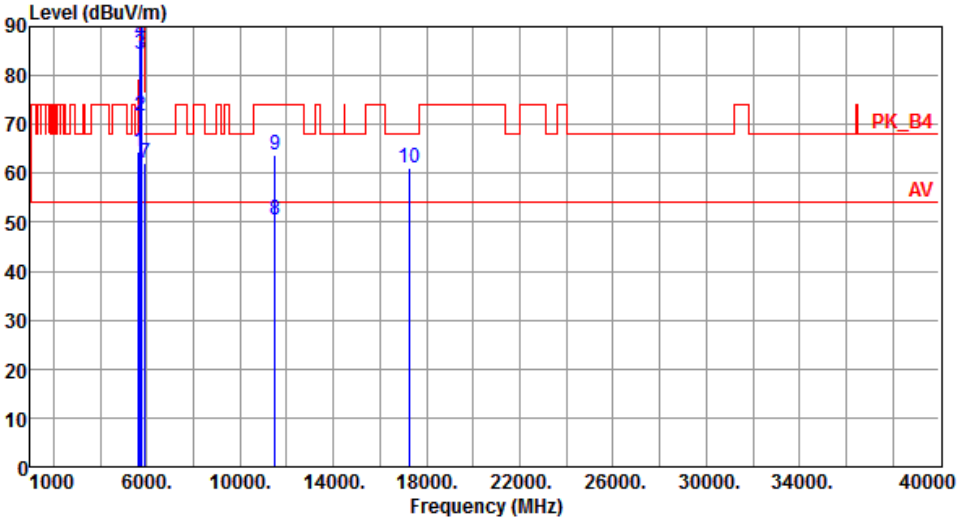
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.18	68.20	-6.02	55.38	6.80	Peak	159	154
2		5700.00	69.45	105.20	-35.75	62.57	6.88	Peak	159	154
3		5720.00	82.16	110.80	-28.64	75.25	6.91	Peak	159	154
4		5725.00	86.08	122.20	-36.12	79.17	6.91	Peak	159	154
5	*	5755.00	105.48			98.51	6.97	Average	159	154
6	*	5755.00	117.51			110.54	6.97	Peak	159	154
7		5925.00	62.04	68.20	-6.16	54.83	7.21	Peak	159	154
8		11510.00	50.21	54.00	-3.79	33.63	16.58	Average	207	168
9		11510.00	64.93	74.00	-9.07	48.35	16.58	Peak	207	168
10		17265.00	60.42	68.20	-7.78	41.76	18.66	Peak	100	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).
Note 3:"*" is Peak / Average value of fundamental frequency

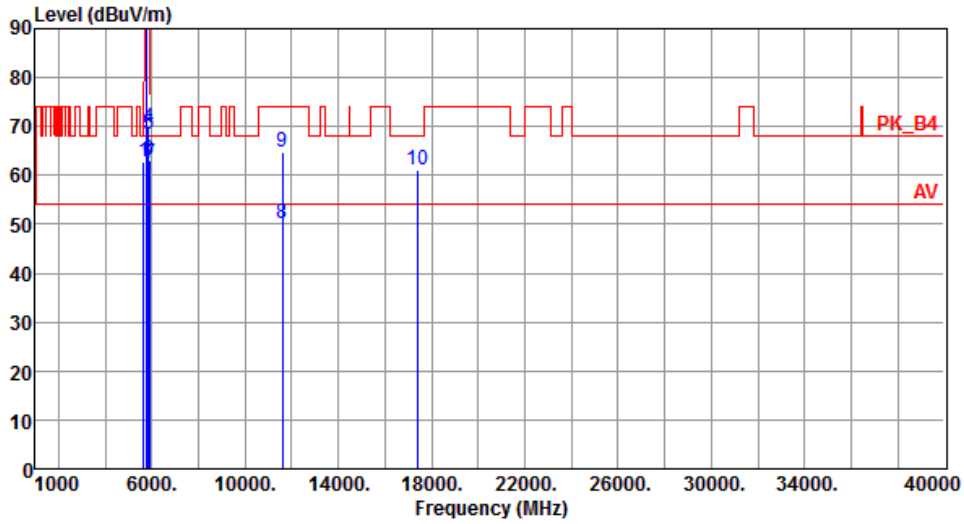
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	64.35	68.20	-3.85	57.55	6.80	Peak	124	342
2		5700.00	71.88	105.20	-33.32	65.00	6.88	Peak	124	342
3		5720.00	84.35	110.80	-26.45	77.44	6.91	Peak	124	342
4		5725.00	87.17	122.20	-35.03	80.26	6.91	Peak	124	342
5	*	5755.00	107.61			100.64	6.97	Average	124	342
6	*	5755.00	119.64			112.67	6.97	Peak	124	342
7		5925.00	62.17	68.20	-6.03	54.96	7.21	Peak	124	342
8		11510.00	50.42	54.00	-3.58	33.84	16.58	Average	212	214
9		11510.00	63.85	74.00	-10.15	47.27	16.58	Peak	212	214
10		17265.00	60.96	68.20	-7.24	42.30	18.66	Peak	100	115

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

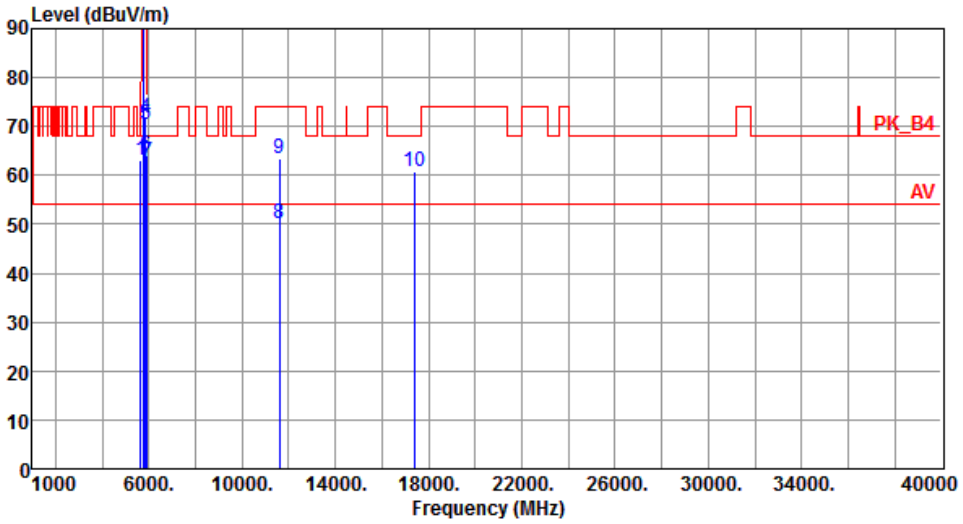
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



		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	62.84	68.20	-5.36	56.04	6.80	Peak	161	155
2	*	5795.00	105.86			98.83	7.03	Average	161	155
3	*	5795.00	117.64			110.61	7.03	Peak	161	155
4		5850.00	69.88	122.20	-52.32	62.78	7.10	Peak	161	155
5		5855.00	68.45	110.80	-42.35	61.33	7.12	Peak	161	155
6		5875.00	63.22	105.20	-41.98	56.08	7.14	Peak	161	155
7		5925.00	62.48	68.20	-5.72	55.27	7.21	Peak	161	155
8		11590.00	50.26	54.00	-3.74	33.80	16.46	Average	208	183
9		11590.00	64.89	74.00	-9.11	48.43	16.46	Peak	208	183
10		17385.00	60.96	68.20	-7.24	41.92	19.04	Peak	100	68

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

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		

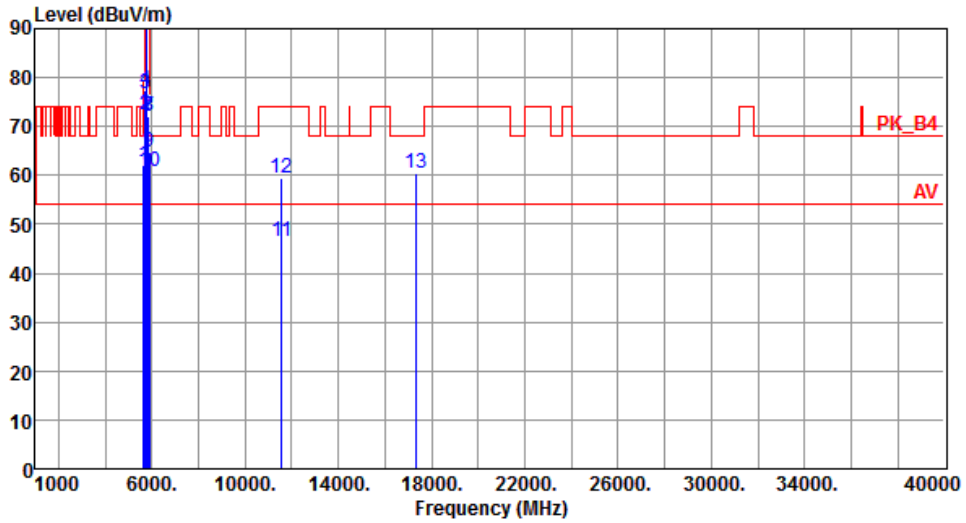


		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	63.01	68.20	-5.19	56.21	6.80	Peak	122	340
2	*	5795.00	108.01			100.98	7.03	Average	122	340
3	*	5795.00	119.95			112.92	7.03	Peak	122	340
4		5850.00	71.81	122.20	-50.39	64.71	7.10	Peak	122	340
5		5855.00	70.36	110.80	-40.44	63.24	7.12	Peak	122	340
6		5875.00	64.25	105.20	-40.95	57.11	7.14	Peak	122	340
7		5925.00	62.67	68.20	-5.53	55.46	7.21	Peak	122	340
8		11590.00	50.16	54.00	-3.84	33.70	16.46	Average	218	135
9		11590.00	63.44	74.00	-10.56	46.98	16.46	Peak	218	135
10		17385.00	60.82	68.20	-7.38	41.78	19.04	Peak	100	106

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

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

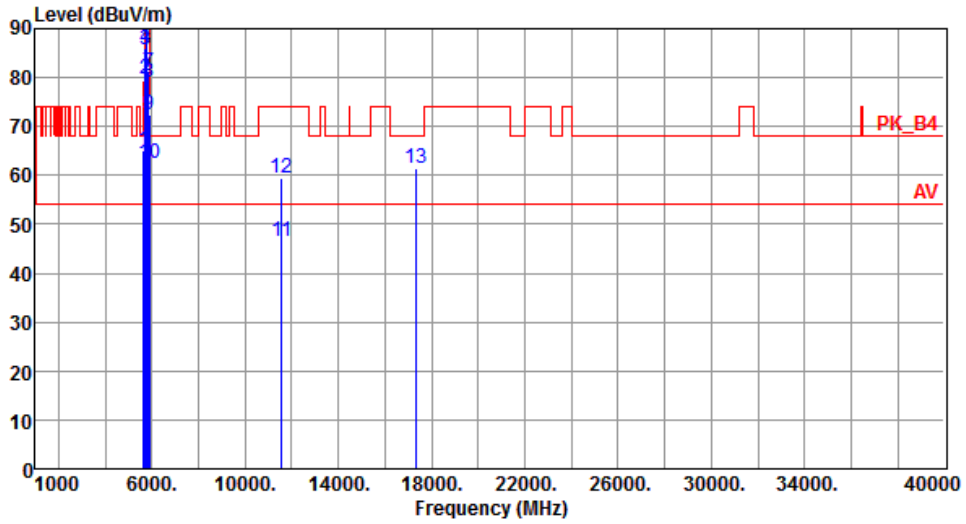
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



		Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1		5650.00	62.23	68.20	-5.97	55.43	6.80	Peak	156	182
2		5700.00	72.42	105.20	-32.78	65.54	6.88	Peak	156	182
3		5720.00	76.83	110.80	-33.97	69.92	6.91	Peak	156	182
4		5725.00	77.48	122.20	-44.72	70.57	6.91	Peak	156	182
5	*	5775.00	101.91			94.91	7.00	Average	156	182
6	*	5775.00	113.48			106.48	7.00	Peak	156	182
7		5850.00	72.21	122.20	-49.99	65.11	7.10	Peak	156	182
8		5855.00	72.03	110.80	-38.77	64.91	7.12	Peak	156	182
9		5875.00	64.80	105.20	-40.40	57.66	7.14	Peak	156	182
10		5925.00	60.86	68.20	-7.34	53.65	7.21	Peak	156	182
11		11550.00	46.50	54.00	-7.50	29.98	16.52	Average	170	142
12		11550.00	59.30	74.00	-14.70	42.78	16.52	Peak	170	142
13		17325.00	60.57	68.20	-7.63	41.72	18.85	Peak	100	168

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

Modulation	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		5650.00	65.19	68.20	-3.01	58.39	6.80	Peak	116	238
2		5700.00	79.56	105.20	-25.64	72.68	6.88	Peak	116	238
3		5720.00	85.67	110.80	-25.13	78.76	6.91	Peak	116	238
4		5725.00	86.11	122.20	-36.09	79.20	6.91	Peak	116	238
5	*	5775.00	104.53			97.53	7.00	Average	116	238
6	*	5775.00	116.51			109.51	7.00	Peak	116	238
7		5850.00	81.03	122.20	-41.17	73.93	7.10	Peak	116	238
8		5855.00	79.02	110.80	-31.78	71.90	7.12	Peak	116	238
9		5875.00	72.42	105.20	-32.78	65.28	7.14	Peak	116	238
10		5925.00	62.34	68.20	-5.86	55.13	7.21	Peak	116	238
11		11550.00	46.41	54.00	-7.59	29.89	16.52	Average	117	229
12		11550.00	59.43	74.00	-14.57	42.91	16.52	Peak	117	229
13		17325.00	61.54	68.20	-6.66	42.69	18.85	Peak	100	36

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

3.6 Frequency Stability

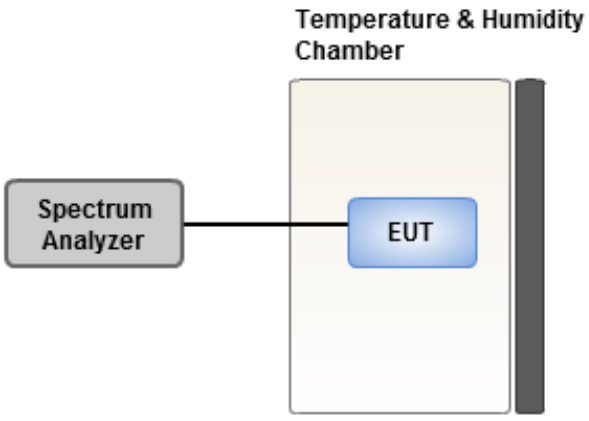
3.6.1 Limit of Frequency Stability

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: 5785 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	4.49	4.54	4.33	4.30
T20°CVmin	3.63	3.90	3.62	4.05
T50°CVnom	3.60	3.27	4.03	4.04
T40°CVnom	3.57	3.76	3.30	4.05
T30°CVnom	2.91	2.77	2.53	2.59
T20°CVnom	2.29	2.34	2.49	2.70
T10°CVnom	2.15	2.01	2.93	2.50
T0°CVnom	3.00	3.07	3.06	3.40
T-10°CVnom	1.92	2.54	1.87	2.39
T-20°CVnom	1.08	0.79	1.02	1.21
T-30°CVnom	1.16	1.83	1.48	1.77
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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