FCC Test Report

FCC ID	:	**2ABLK-814G-1**
Equipment	:	**GigaHub**
Model No.	:	**814G-1**
Brand Name	:	**Calix Inc.**
Applicant	:	**Calix Inc.**
Address	:	**1035 N. McDowell Blvd. Petaluma, CA 94954**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Nov. 30, 2017**
Tested Date	:	**Nov. 30, 2017 ~ Jan. 23, 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
FR7N3003AN	Rev. 01	Initial issue	Feb. 05, 2018

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 0.375MHz 42.40 (Margin -5.99dB) - AV	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 10480.00MHz 68.00 (Margin -0.20dB) - PK	Pass
15.407(a)	Emission Bandwidth	Meet the requirement of limit	Pass
15.407(e)	6dB bandwidth	Meet the requirement of limit	Pass
15.407(a)	RF Output Power	Max Power [dBm]: 5150-5250MHz: 27.11 5725-5850MHz: 29.46	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.	**Model**	**Type**	**Connector**	**Operating Frequencies (MHz) / Antenna Gain (dBi)**		
				2400~2483.5	**5150~5250**	**5725~5850**
1	PCB antenna	Dipole	IPEX	3.6	---	---
2	PCB antenna	Dipole	IPEX	4.0	---	---
3	PCB antenna	Dipole	IPEX	---	3.6	2.0
4	PCB antenna	Dipole	IPEX	---	4.1	3.8

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: AMIGO Model: AMS157-1202500FU (US) AMS157-1202500FV (EU) I/P: 100-240Vac, 50-60Hz, 1A O/P: 12Vdc, 2.5A Power line: 1.3m non-shielded without core
2	RJ45 cable	1.5m non-shielded without core
3	RJ11 cable	1.5m non-shielded without 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	PUTTY, V0.6		
Duty Cycle and Duty Factor	**Mode**	**Duty cycle (%)**	**Duty factor (dB)**
	11a	94.67%	0.24
	VHT20	95.07%	0.22
	VHT40	85.55%	0.68
	VHT80	75.32%	1.23

1.1.7 Power Setting

For Frequency band 5150-5250 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5180	24/22
11a	5200	30/29
11a	5240	30/28
HT20	5180	22/20
HT20	5200	30/28
HT20	5240	28/26
HT40	5190	17/15
HT40	5230	28/26
VHT20	5180	22/20
VHT20	5200	30/28
VHT20	5240	28/26
VHT40	5190	17/15
VHT40	5230	28/26
VHT80	5210	15/13

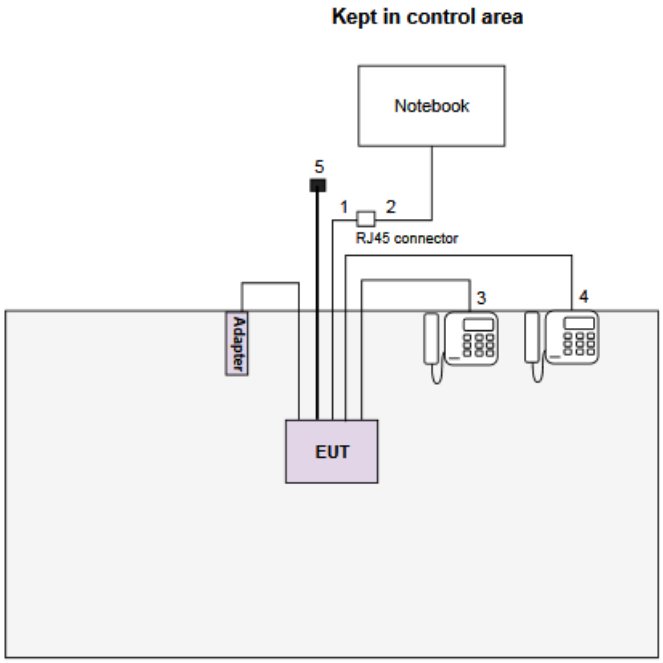
For Frequency band 5725~5850 MHz		
Modulation Mode	**Test Frequency (MHz)**	**Power Set**
11a	5745	34/34
11a	5785	35/35
11a	5825	40/33
HT20	5745	33/34
HT20	5785	35/34
HT20	5825	40/33
HT40	5755	35/36
HT40	5795	43/41
VHT20	5745	33/34
VHT20	5785	35/34
VHT20	5825	40/33
VHT40	5755	35/36
VHT40	5795	43/41
VHT80	5775	30/29

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	Telephone	HTT	HTT-806	---	RJ11, 1.5m non-shielded.
3	Telephone	HTT	HTT-806	---	RJ11, 1.5m non-shielded.

1.3 Test Setup Chart

Test Setup Diagram



1. RJ45, 1.5m non-shielded
2. RJ45, 10m non-shielded
3-4. RJ11, 1.5m non-shielded
5. RJ45, 1m(x3) non-shielded with load

1.4 The Equipment List

Test Item	Radiated Emission below 1GHz test				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Nov. 30, 2017				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101658	Nov. 20, 2017	Nov. 19, 2018
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 25, 2017	Jul. 24, 2018
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2017	Nov. 12, 2018
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Dec. 09, 2016	Dec. 08, 2017
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2017	Oct. 05, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	16052	Dec. 09, 2016	Dec. 08, 2017
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 09, 2016	Dec. 08, 2017
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 09, 2016	Dec. 08, 2017
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission above 1GHz test				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	Jan. 08 ~ Jan. 09, 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
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 20, 2017	Dec. 19, 2018
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 23, 2017	Nov. 22, 2018
Preamplifier	EMC	EMC02325	980225	Jul. 28, 2017	Jul. 27, 2018
Preamplifier	Agilent	83017A	MY39501308	Oct. 06, 2017	Oct. 05, 2018
Preamplifier	EMC	EMC184045B	980192	Aug. 22, 2017	Aug. 21, 2018
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 07, 2017	Dec. 06, 2018
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 07, 2017	Dec. 06, 2018
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 07, 2017	Dec. 06, 2018
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Jan. 22, 2018				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101657	Jan. 05, 2018	Jan. 04, 2019
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 13, 2017	Nov. 12, 2018
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	RF Conducted				
Test Site	(TH01-WS)				
Tested Date	Jan. 22 ~ Jan. 23, 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	±5.63 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	03CH01-WS	22-25°C / 64-66%	Akun Chung Roger Lu
RF Conducted	TH01-WS	20°C / 63%	Brad Wu

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- IC site registration No.: 10807A-1

2.2 The Worst Test Modes and Channel Details

For Frequency band 5150-5250 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5200	6 Mbps	---
Radiated Emissions ≤1GHz	11a	5200	6 Mbps	---
RF Output Power	11a	5180 / 5200 / 5240	6 Mbps	---
	HT20	5180 / 5200 / 5240	MCS 0	
	HT40	5190 / 5230	MCS 0	
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240	6 Mbps	---
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
Frequency Stability	Un-modulation	5200	---	---

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

3 Transmitter Test Results

3.1 Conducted Emissions

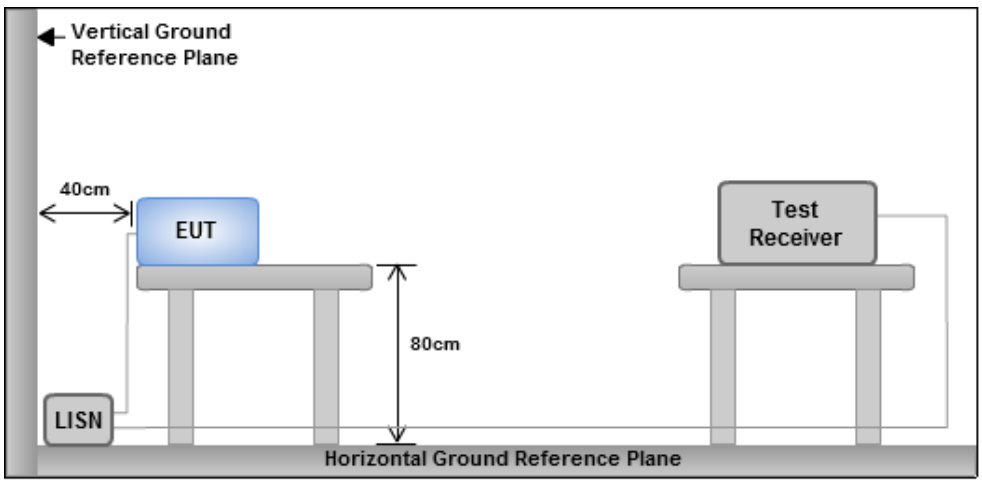
3.1.1 Limit of Conducted Emissions

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

3.1.2 Test Procedures

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

3.1.3 Test Setup

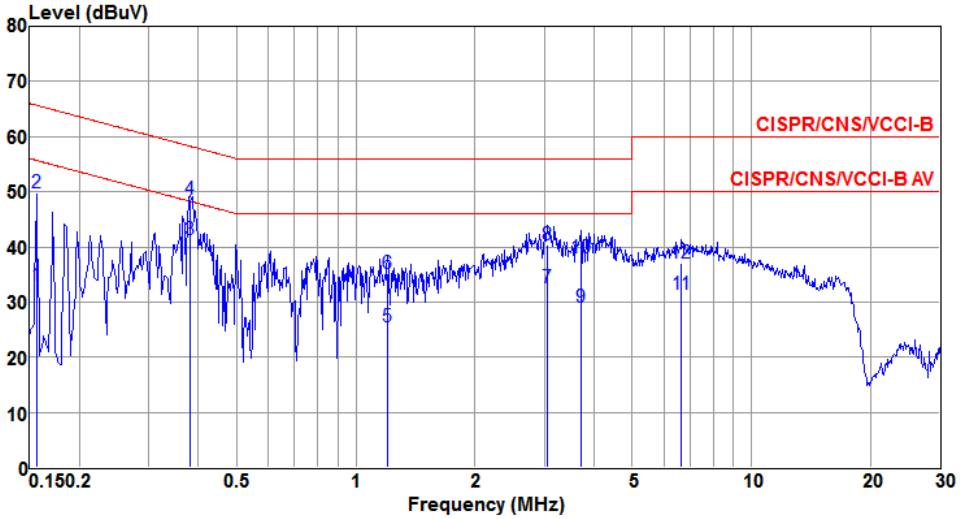


Note: 1. Support units were connected to second LISN.

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

3.1.4 Test Result of Conducted Emissions

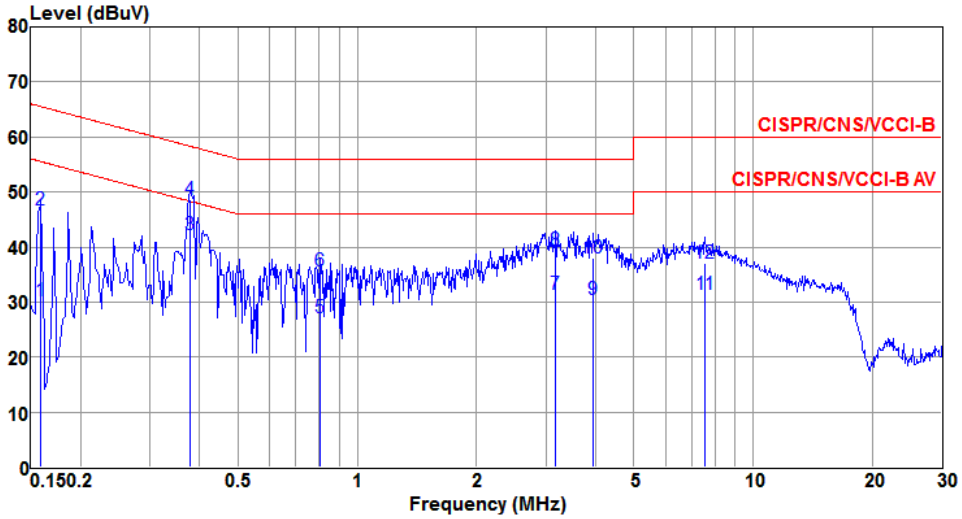
Modulation	11a	Test Freq. (MHz)	5200
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.156	32.95	55.69	-22.74	32.67	0.27	0.01	Average
2	0.156	49.75	65.69	-15.94	49.47	0.27	0.01	QP
3@	0.381	41.35	48.25	-6.90	40.99	0.34	0.02	Average
4	0.381	48.66	58.25	-9.59	48.30	0.34	0.02	QP
5	1.203	25.39	46.00	-20.61	24.94	0.40	0.05	Average
6	1.203	35.13	56.00	-20.87	34.68	0.40	0.05	QP
7	3.041	32.56	46.00	-13.44	31.94	0.45	0.17	Average
8	3.041	40.28	56.00	-15.72	39.66	0.45	0.17	QP
9	3.700	28.97	46.00	-17.03	28.29	0.47	0.21	Average
10	3.700	37.94	56.00	-18.06	37.26	0.47	0.21	QP
11	6.662	31.35	50.00	-18.65	30.54	0.53	0.28	Average
12	6.662	37.17	60.00	-22.83	36.36	0.53	0.28	QP

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

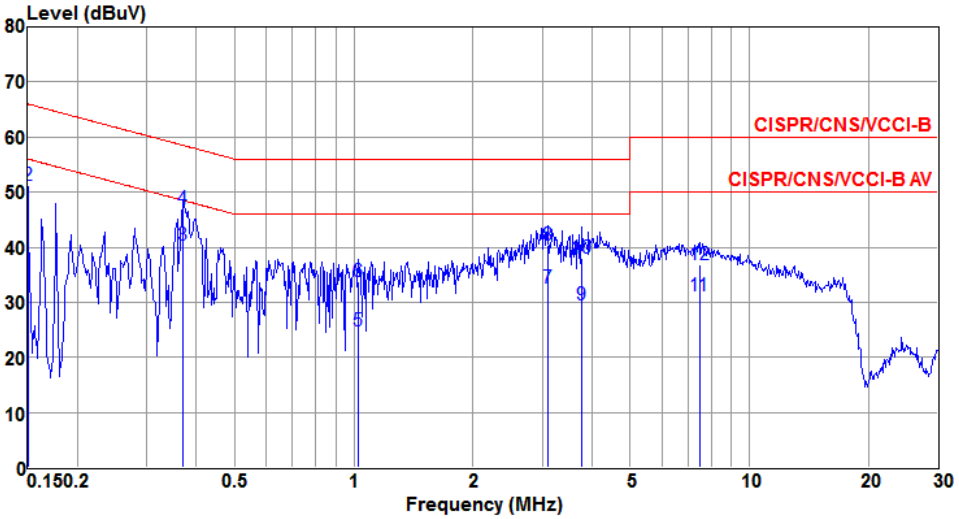
Modulation	11a	Test Freq. (MHz)	5200
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	30.18	55.52	-25.34	30.03	0.14	0.01	Average
2	0.159	46.78	65.52	-18.74	46.63	0.14	0.01	QP
3@	0.377	42.33	48.34	-6.01	42.12	0.19	0.02	Average
4	0.377	48.53	58.34	-9.81	48.32	0.19	0.02	QP
5	0.804	27.23	46.00	-18.77	26.96	0.24	0.03	Average
6	0.804	35.71	56.00	-20.29	35.44	0.24	0.03	QP
7	3.173	31.46	46.00	-14.54	30.94	0.34	0.18	Average
8	3.173	39.37	56.00	-16.63	38.85	0.34	0.18	QP
9	3.943	30.44	46.00	-15.56	29.87	0.35	0.22	Average
10	3.943	38.12	56.00	-17.88	37.55	0.35	0.22	QP
11	7.566	31.38	50.00	-18.62	30.66	0.43	0.29	Average
12	7.566	36.98	60.00	-23.02	36.26	0.43	0.29	QP

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

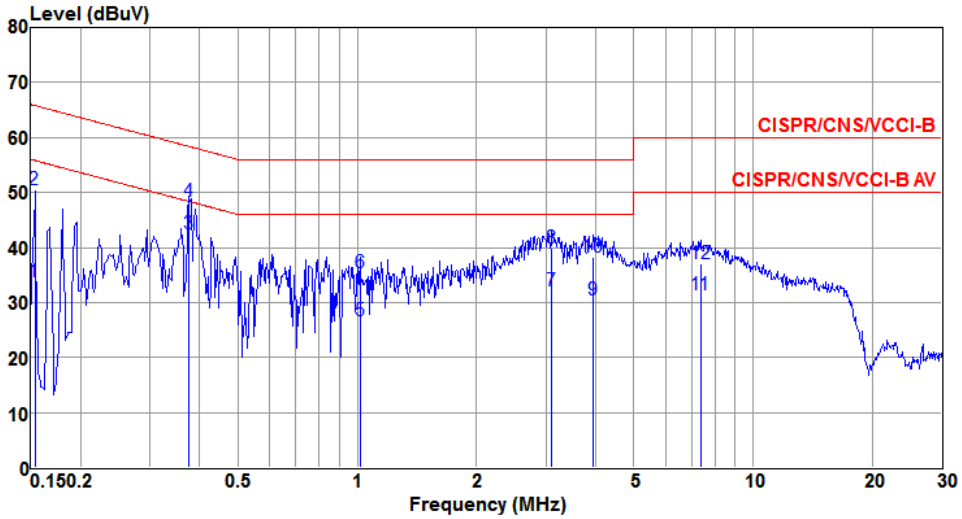
Modulation	VHT40	Test Freq. (MHz)	5795
Power Phase	Line		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.150	34.62	56.00	-21.38	34.34	0.27	0.01	Average
2	0.150	51.31	66.00	-14.69	51.03	0.27	0.01	QP
3@	0.369	40.46	48.52	-8.06	40.11	0.33	0.02	Average
4	0.369	46.88	58.52	-11.64	46.53	0.33	0.02	QP
5	1.027	24.67	46.00	-21.33	24.25	0.39	0.03	Average
6	1.027	33.81	56.00	-22.19	33.39	0.39	0.03	QP
7	3.090	32.49	46.00	-13.51	31.85	0.46	0.18	Average
8	3.090	40.25	56.00	-15.75	39.61	0.46	0.18	QP
9	3.759	29.43	46.00	-16.57	28.75	0.47	0.21	Average
10	3.759	37.94	56.00	-18.06	37.26	0.47	0.21	QP
11	7.486	31.17	50.00	-18.83	30.34	0.54	0.29	Average
12	7.486	36.75	60.00	-23.25	35.92	0.54	0.29	QP

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

Modulation	VHT40	Test Freq. (MHz)	5795
Power Phase	Neutral		



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.153	33.81	55.82	-22.01	33.66	0.14	0.01	Average
2	0.153	50.49	65.82	-15.33	50.34	0.14	0.01	QP
3@	0.375	42.40	48.39	-5.99	42.19	0.19	0.02	Average
4	0.375	48.41	58.39	-9.98	48.20	0.19	0.02	QP
5	1.016	26.70	46.00	-19.30	26.41	0.26	0.03	Average
6	1.016	35.31	56.00	-20.69	35.02	0.26	0.03	QP
7	3.107	32.15	46.00	-13.85	31.63	0.34	0.18	Average
8	3.107	39.82	56.00	-16.18	39.30	0.34	0.18	QP
9	3.943	30.56	46.00	-15.44	29.99	0.35	0.22	Average
10	3.943	38.16	56.00	-17.84	37.59	0.35	0.22	QP
11	7.368	31.34	50.00	-18.66	30.63	0.42	0.29	Average
12	7.368	37.07	60.00	-22.93	36.36	0.42	0.29	QP

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

3.2 Emission Bandwidth

3.2.1 Limit of Emission bandwidth

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

3.2.2 Test Procedures

26dB Bandwidth

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

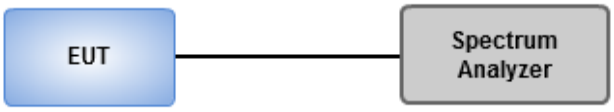
Occupied Bandwidth

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

6dB Bandwidth

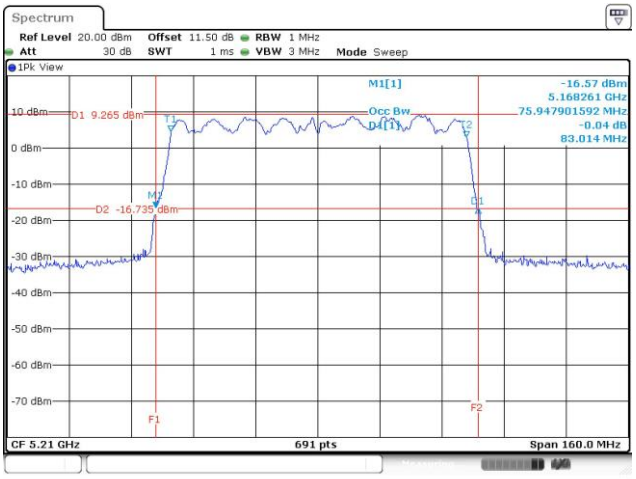
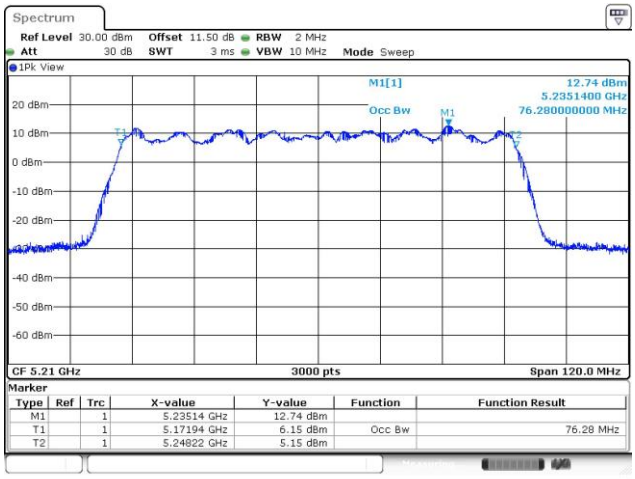
1. Set RBW = 100kHz, VBW = 300kHz
2. Detector = Peak,Trace mode = max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB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

3.2.3 Test Setup

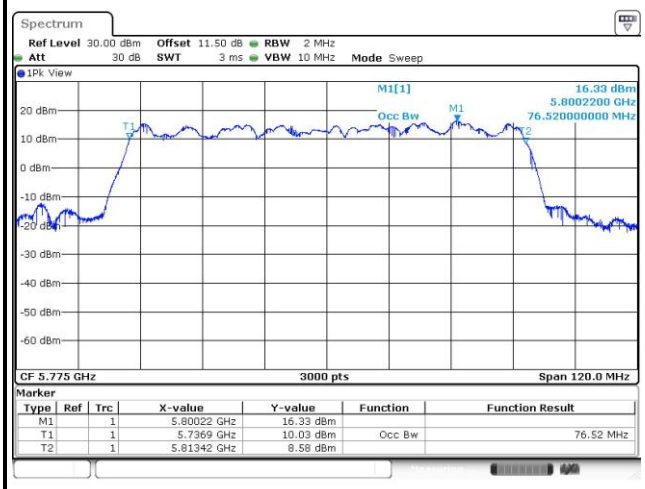
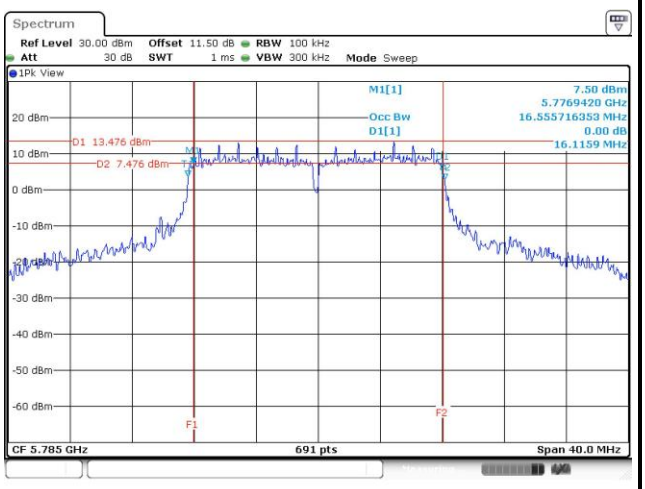


3.2.4 Test Result of Emission Bandwidth

For Frequency band 5150-5250 MHz										
Emission Bandwidth										
Mode	N_{TX}	Freq. (MHz)	26dB Bandwidth (MHz)				99% Bandwidth (MHz)			
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3
11a	2	5180	21.04	22.20	---	---	16.72	16.75	---	---
11a	2	5200	24.64	24.64	---	---	16.82	16.89	---	---
11a	2	5240	26.55	21.57	---	---	16.91	16.87	---	---
VHT20	2	5180	21.10	21.45	---	---	17.79	17.72	---	---
VHT20	2	5200	21.51	22.20	---	---	17.85	17.78	---	---
VHT20	2	5240	22.26	22.20	---	---	17.87	17.76	---	---
VHT40	2	5190	44.06	44.06	---	---	37.04	37.02	---	---
VHT40	2	5230	49.51	44.87	---	---	37.14	37.10	---	---
VHT80	2	5210	82.78	83.01	---	---	76.24	76.28	---	---

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

For Frequency band 5725-5850 MHz											
Emission Bandwidth											
Mode	N_{TX}	Freq. (MHz)	OBW Bandwidth (MHz)				6dB Bandwidth (MHz)				
			Chain 0	Chain 1	Chain 2	Chain 3	Chain 0	Chain 1	Chain 2	Chain 3	6dB BW Limit (MHz)
11a	2	5745	16.95	16.91	---	---	16.29	16.35	---	---	0.5
11a	2	5785	17.07	17.18	---	---	16.29	16.12	---	---	0.5
11a	2	5825	17.10	17.40	---	---	16.29	16.35	---	---	0.5
VHT20	2	5745	17.78	17.79	---	---	16.93	16.64	---	---	0.5
VHT20	2	5785	17.89	17.95	---	---	16.52	16.70	---	---	0.5
VHT20	2	5825	17.96	18.09	---	---	16.81	16.58	---	---	0.5
VHT40	2	5755	37.64	37.42	---	---	35.83	35.59	---	---	0.5
VHT40	2	5795	40.18	40.52	---	---	35.83	35.48	---	---	0.5
VHT80	2	5775	76.52	76.52	---	---	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
☐	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	21.04	21.15	---	---	257.374	24.11	30.00
11a	2	5200	23.98	24.21	---	---	513.668	27.11	30.00
11a	2	5240	23.84	24.16	---	---	502.718	27.01	30.00
HT20	2	5180	19.71	19.52	---	---	183.077	22.63	30.00
HT20	2	5200	23.74	23.82	---	---	477.583	26.79	30.00
HT20	2	5240	22.93	23.18	---	---	404.306	26.07	30.00
HT40	2	5190	17.46	17.48	---	---	111.694	20.48	30.00
HT40	2	5230	23.15	23.19	---	---	414.987	26.18	30.00
VHT20	2	5180	19.83	19.65	---	---	188.418	22.75	30.00
VHT20	2	5200	23.86	23.94	---	---	490.963	26.91	30.00
VHT20	2	5240	23.06	23.31	---	---	416.591	26.20	30.00
VHT40	2	5190	17.58	17.61	---	---	114.956	20.61	30.00
VHT40	2	5230	23.28	23.31	---	---	427.103	26.31	30.00
VHT80	2	5210	17.12	16.88	---	---	100.276	20.01	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	23.65	23.68	---	---	465.085	26.68	30.00
11a	2	5785	24.62	24.71	---	---	585.536	27.68	30.00
11a	2	5825	23.92	23.89	---	---	491.510	26.92	30.00
HT20	2	5745	23.04	23.21	---	---	410.784	26.14	30.00
HT20	2	5785	24.23	24.08	---	---	520.709	27.17	30.00
HT20	2	5825	24.06	24.04	---	---	508.196	27.06	30.00
HT40	2	5755	24.81	24.65	---	---	594.434	27.74	30.00
HT40	2	5795	26.36	26.31	---	---	860.077	29.35	30.00
VHT20	2	5745	23.16	23.34	---	---	422.789	26.26	30.00
VHT20	2	5785	24.36	24.22	---	---	537.139	27.30	30.00
VHT20	2	5825	24.18	24.12	---	---	520.044	27.16	30.00
VHT40	2	5755	24.94	24.76	---	---	611.115	27.86	30.00
VHT40	2	5795	26.48	26.42	---	---	883.162	29.46	30.00
VHT80	2	5775	21.61	21.47	---	---	285.159	24.55	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
☐	Client devices	11 dBm / MHz

Frequency Band (MHz)		**Limit**
☐	5250 ~ 5350	11 dBm / MHz
☐	5470 ~ 5725	11 dBm / MHz
☒	5725 ~ 5850	30 dBm / 500 kHz

3.4.2 Test Procedures

For 5150 ~ 5250 MHz

☐ Method SA-1

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

☒ Method SA-2 Alternative

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

For 5725 ~ 5850 MHz

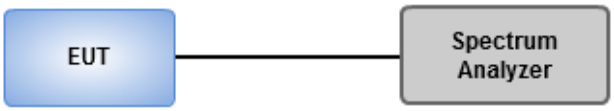
☐ Method SA-1

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

☒ Method SA-2 Alternative

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

3.4.3 Test Setup

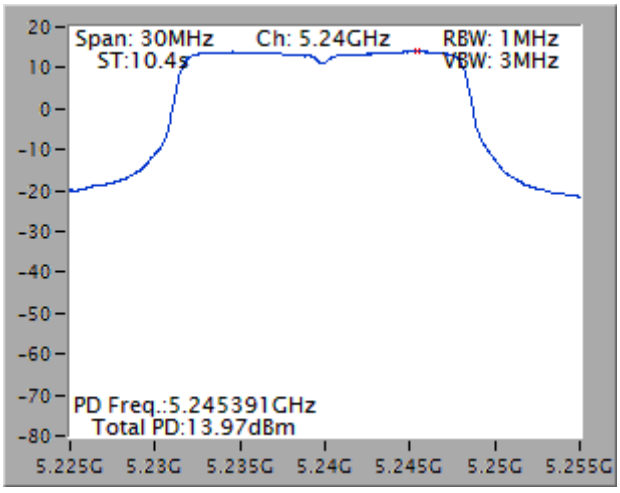


3.4.4 Test Result of Peak Power Spectral Density

For Frequency band 5150-5250 MHz						
Condition			Peak Power Spectral Density (dBm/MHz)			
Modulation Mode	N_{TX}	Freq. (MHz)	PPSD w/o D.F (dBm/MHz)	Duty Factor (dB)	PPSD with D.F (dBm/MHz)	PPSD Limit (dBm/MHz)
11a	2	5180	10.17	0.24	10.41	16.14
11a	2	5200	13.70	0.24	13.94	16.14
11a	2	5240	13.97	0.24	14.21	16.14
VHT20	2	5180	9.97	0.22	10.19	16.14
VHT20	2	5200	13.41	0.22	13.63	16.14
VHT20	2	5240	13.69	0.22	13.91	16.14
VHT40	2	5190	4.24	0.68	4.92	16.14
VHT40	2	5230	9.49	0.68	10.17	16.14
VHT80	2	5210	0.86	1.23	2.09	16.14

Note:
1. D.F is duty factor.
2. Test results are bin-by-bin summing measured value of each TX port.
3. Directional gain = 10 * log((10$^{3.6/20}$+10$^{4.1/20}$)^2/2) = 6.86 dBi > 6 dBi
   Limit shall be reduced to 17 dBm – (6.86 dBi – 6 dBi) = 16.14 dBm

Worst Plot

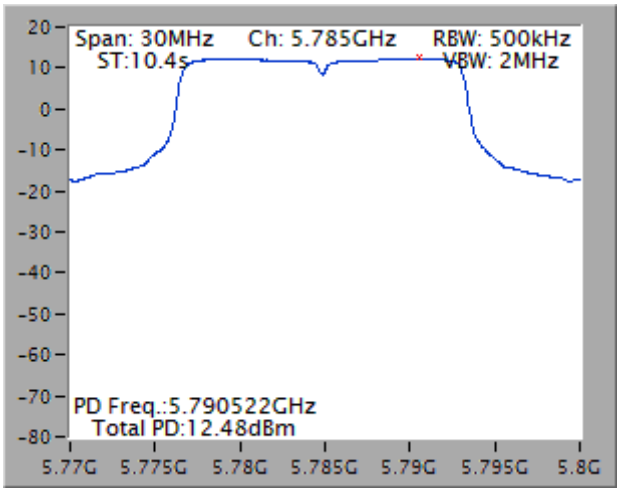


Note: Worst plot is w/o duty factor.

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	11.83	0.24	12.07	30.00
11a	2	5785	12.48	0.24	12.72	30.00
11a	2	5825	12.26	0.24	12.50	30.00
VHT20	2	5745	11.24	0.22	11.46	30.00
VHT20	2	5785	11.97	0.22	12.19	30.00
VHT20	2	5825	11.91	0.22	12.13	30.00
VHT40	2	5755	9.09	0.68	9.77	30.00
VHT40	2	5795	10.82	0.68	11.50	30.00
VHT80	2	5775	3.64	1.23	4.87	30.00

Note:
1. D.F is duty factor.
2. Test results are bin-by-bin summing measured value of each TX port.

Worst Plot



Note: Worst plot is w/o 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

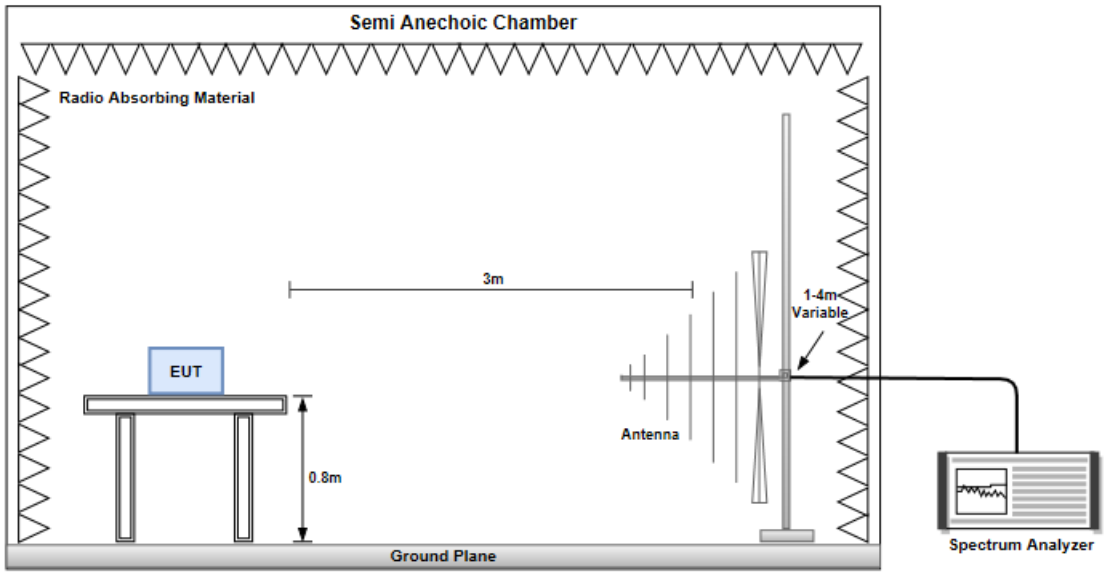
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

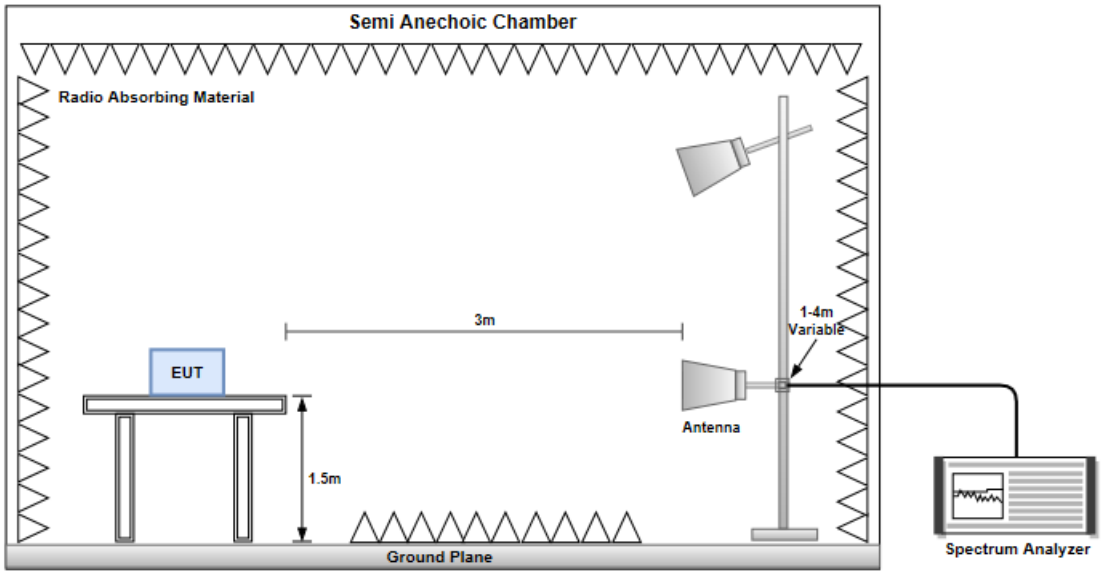
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz

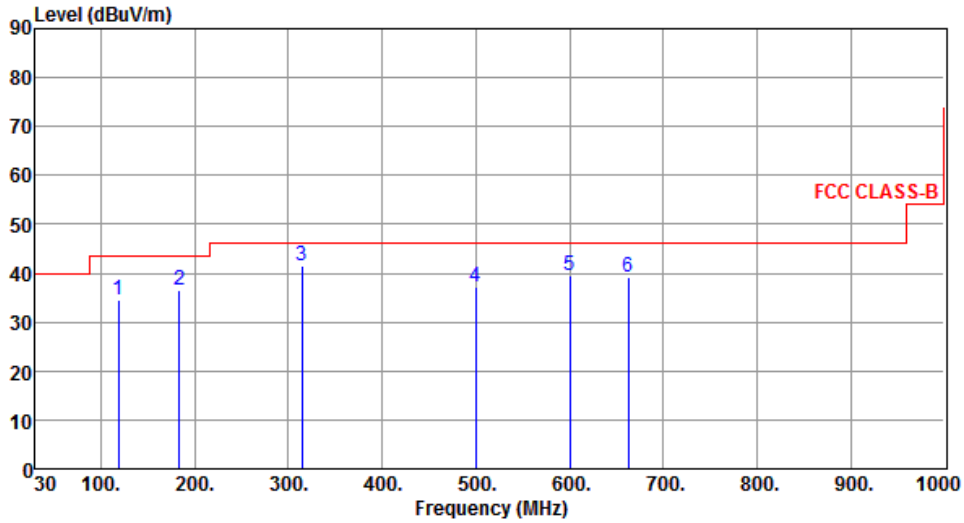


Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

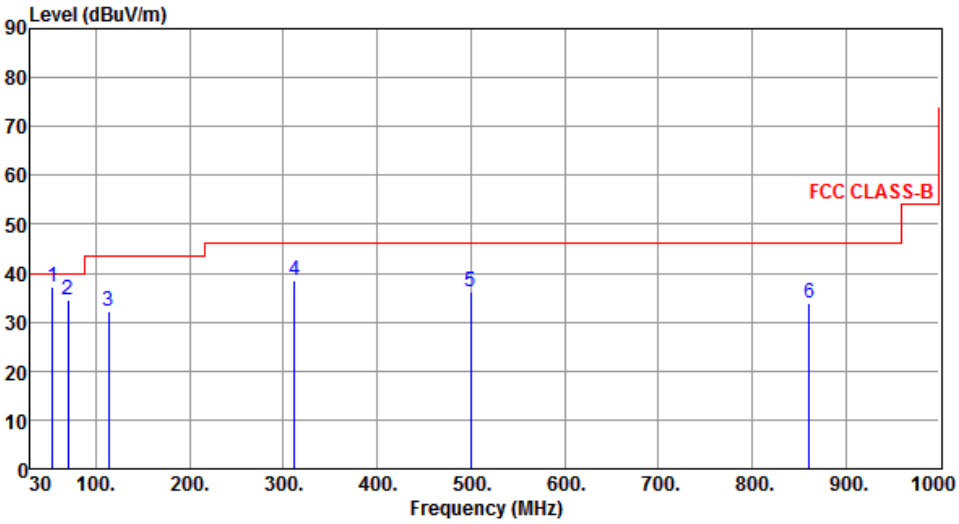
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	118.47	34.49	43.50	-9.01	45.24	-10.75	Peak	---	---
2	183.35	36.48	43.50	-7.02	46.56	-10.08	Peak	---	---
3	314.32	41.58	46.00	-4.42	48.88	-7.30	Peak	---	---
4	499.48	37.29	46.00	-8.71	40.14	-2.85	Peak	---	---
5	600.21	39.51	46.00	-6.49	40.23	-0.72	Peak	---	---
6	662.36	39.15	46.00	-6.85	39.12	0.03	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.

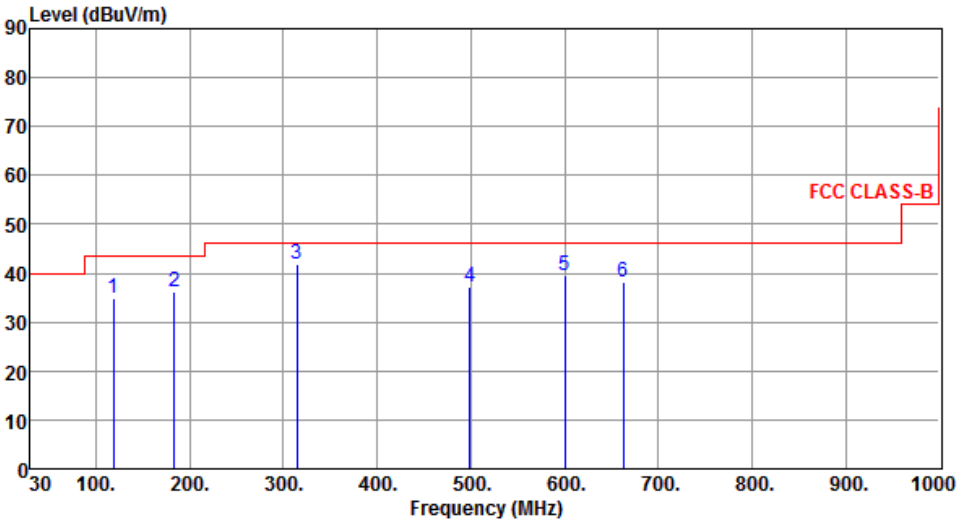
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	53.71	37.23	40.00	-2.77	45.25	-8.02	QP	100	185
2	70.24	34.57	40.00	-5.43	45.39	-10.82	Peak	---	---
3	113.41	32.21	43.50	-11.29	43.42	-11.21	Peak	---	---
4	312.27	38.69	46.00	-7.31	46.05	-7.36	Peak	---	---
5	499.48	36.25	46.00	-9.75	39.10	-2.85	Peak	---	---
6	860.98	33.97	46.00	-12.03	30.60	3.37	Peak	---	---

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

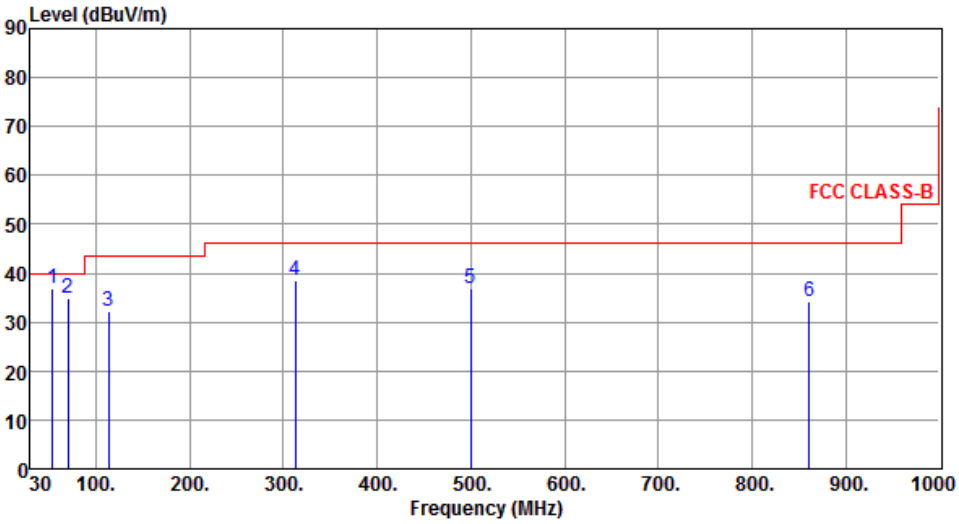
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	118.41	34.83	43.50	-8.67	45.58	-10.75	Peak	---	---
2	183.38	36.21	43.50	-7.29	46.29	-10.08	Peak	---	---
3	314.32	41.81	46.00	-4.19	49.11	-7.30	Peak	---	---
4	499.35	37.29	46.00	-8.71	40.14	-2.85	Peak	---	---
5	600.57	39.51	46.00	-6.49	40.22	-0.71	Peak	---	---
6	662.49	38.14	46.00	-7.86	38.11	0.03	Peak	---	---

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

Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Vertical		

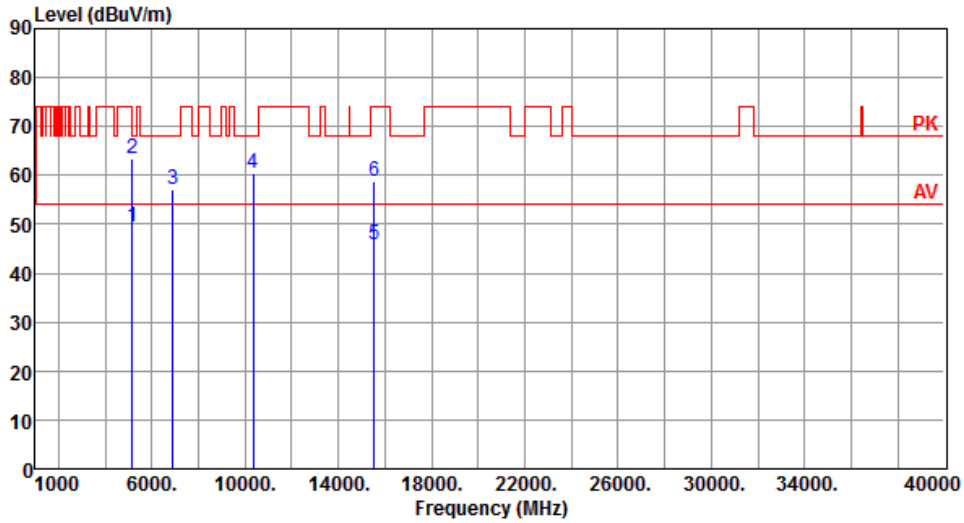


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	53.47	36.82	40.00	-3.18	44.82	-8.00	QP	100	188
2	70.45	34.74	40.00	-5.26	45.61	-10.87	Peak	---	---
3	113.38	32.23	43.50	-11.27	43.45	-11.22	Peak	---	---
4	312.34	38.37	46.00	-7.63	45.73	-7.36	Peak	---	---
5	499.59	36.74	46.00	-9.26	39.59	-2.85	Peak	---	---
6	861.35	34.24	46.00	-11.76	30.86	3.38	Peak	---	---

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

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

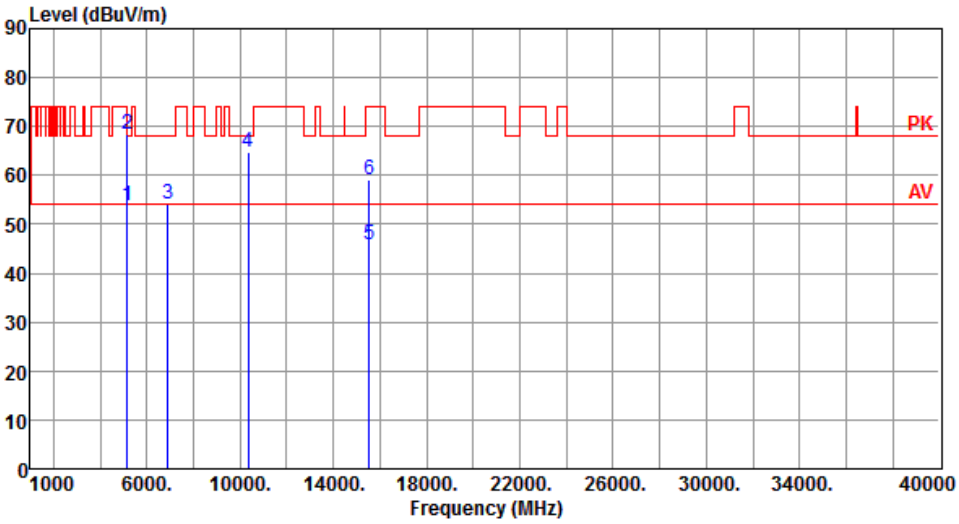
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.41	54.00	-4.59	45.13	4.28	Average	119	73
2	5150.00	63.36	74.00	-10.64	59.08	4.28	Peak	119	73
3	6906.66	56.99	68.20	-11.21	49.52	7.47	Peak	165	275
4	10360.00	60.40	68.20	-7.80	46.80	13.60	Peak	295	226
5	15540.00	45.79	54.00	-8.21	31.12	14.67	Average	100	20
6	15540.00	58.65	74.00	-15.35	43.98	14.67	Peak	100	20

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

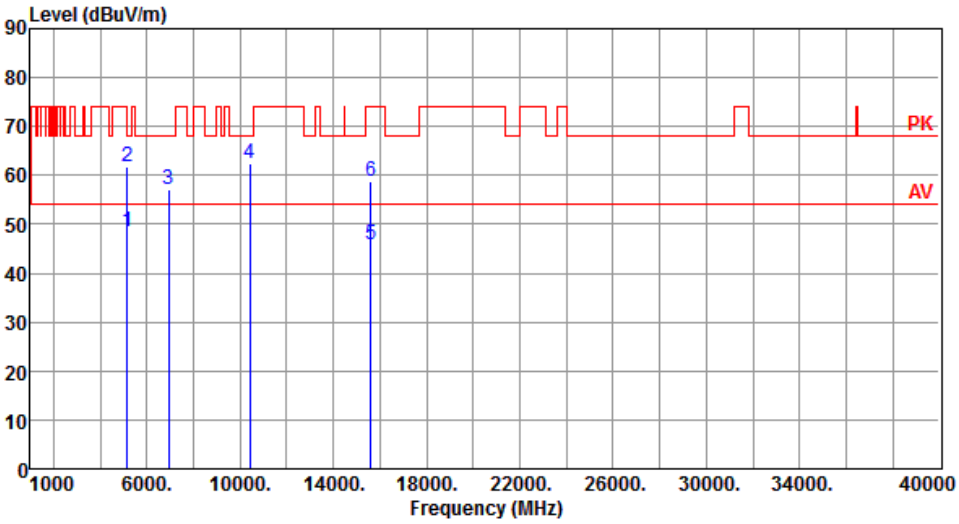
Modulation	11a	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.78	54.00	-0.22	49.50	4.28	Average	126	5
2	5150.00	68.51	74.00	-5.49	64.23	4.28	Peak	126	5
3	6906.66	53.98	68.20	-14.22	46.51	7.47	Peak	185	5
4	10360.00	64.73	68.20	-3.47	51.13	13.60	Peak	125	224
5	15540.00	45.85	54.00	-8.15	31.18	14.67	Average	100	60
6	15540.00	59.25	74.00	-14.75	44.58	14.67	Peak	100	60

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

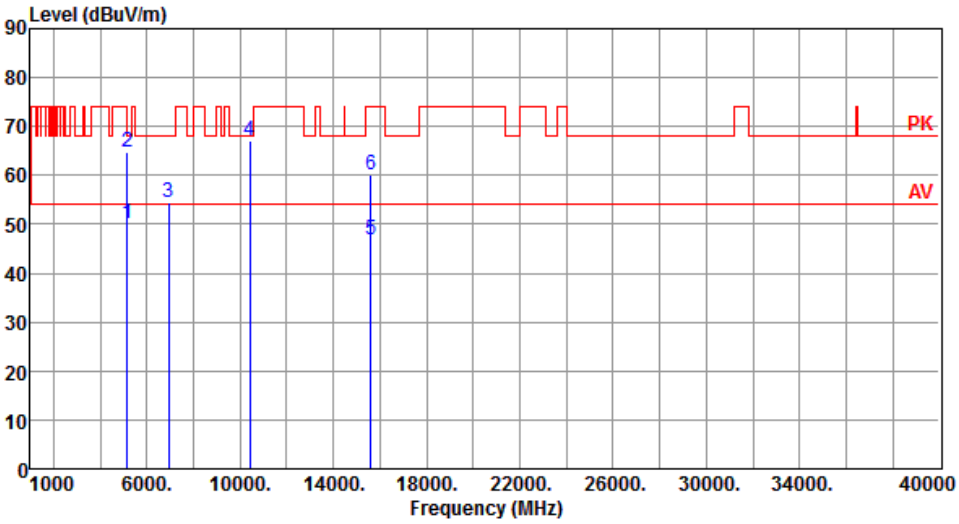
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.64	54.00	-5.36	44.36	4.28	Average	154	322
2	5150.00	61.63	74.00	-12.37	57.35	4.28	Peak	154	322
3	6933.33	57.14	68.20	-11.06	49.66	7.48	Peak	169	280
4	10400.00	62.52	68.20	-5.68	48.88	13.64	Peak	298	228
5	15600.00	45.83	54.00	-8.17	31.25	14.58	Average	100	50
6	15600.00	58.70	74.00	-15.30	44.12	14.58	Peak	100	50

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

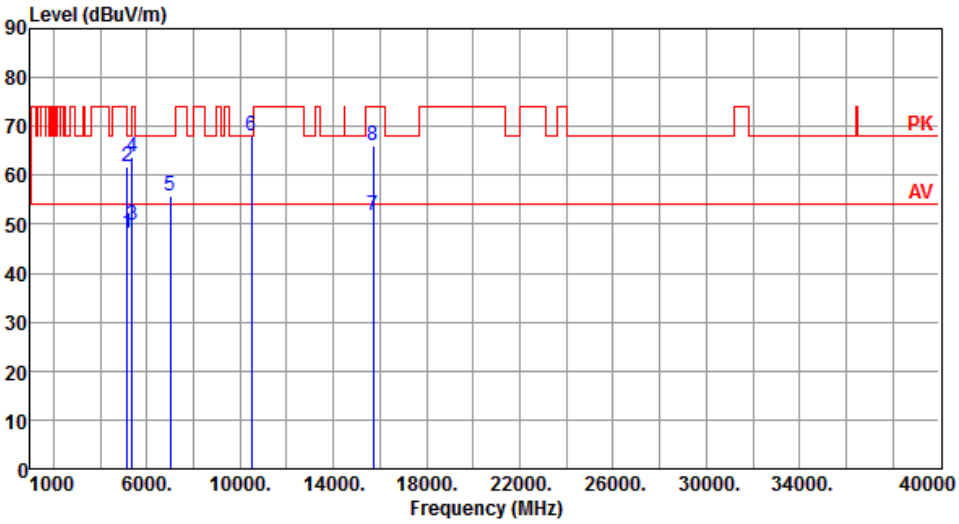
Modulation	11a	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.15	54.00	-3.85	45.87	4.28	Average	100	10
2	5150.00	64.64	74.00	-9.36	60.36	4.28	Peak	100	10
3	6933.33	54.54	68.20	-13.66	47.06	7.48	Peak	184	7
4	10400.00	67.18	68.20	-1.02	53.54	13.64	Peak	131	226
5	15600.00	46.92	54.00	-7.08	32.34	14.58	Average	167	240
6	15600.00	60.09	74.00	-13.91	45.51	14.58	Peak	167	240

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).

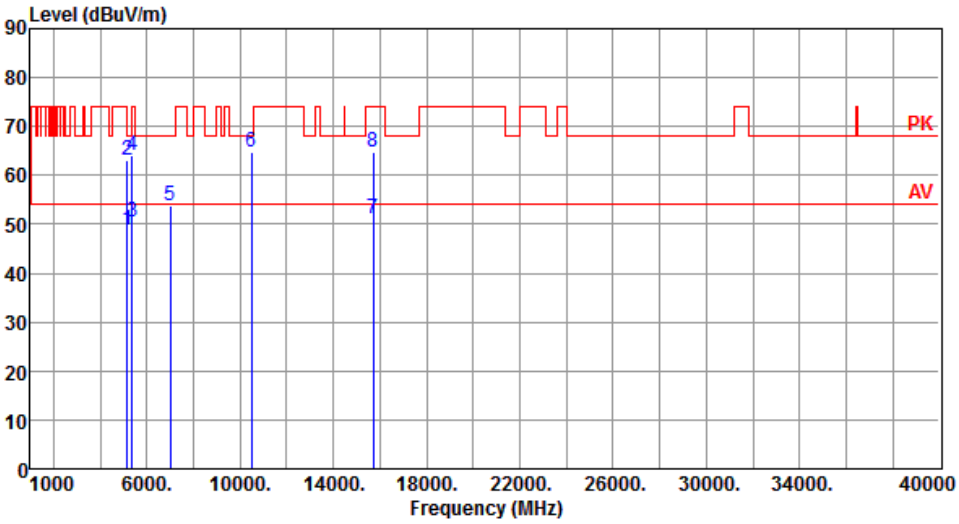
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.03	54.00	-5.97	43.75	4.28	Average	127	233
2	5150.00	61.70	74.00	-12.30	57.42	4.28	Peak	127	233
3	5350.00	49.74	54.00	-4.26	45.30	4.44	Average	127	233
4	5350.00	63.90	74.00	-10.10	59.46	4.44	Peak	127	233
5	6986.66	55.74	68.20	-12.46	48.21	7.53	Peak	168	278
6	10480.00	68.00	68.20	-0.20	54.30	13.70	Peak	249	214
7	15720.00	51.82	54.00	-2.18	37.40	14.42	Average	101	200
8	15720.00	66.17	74.00	-7.83	51.75	14.42	Peak	101	200

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

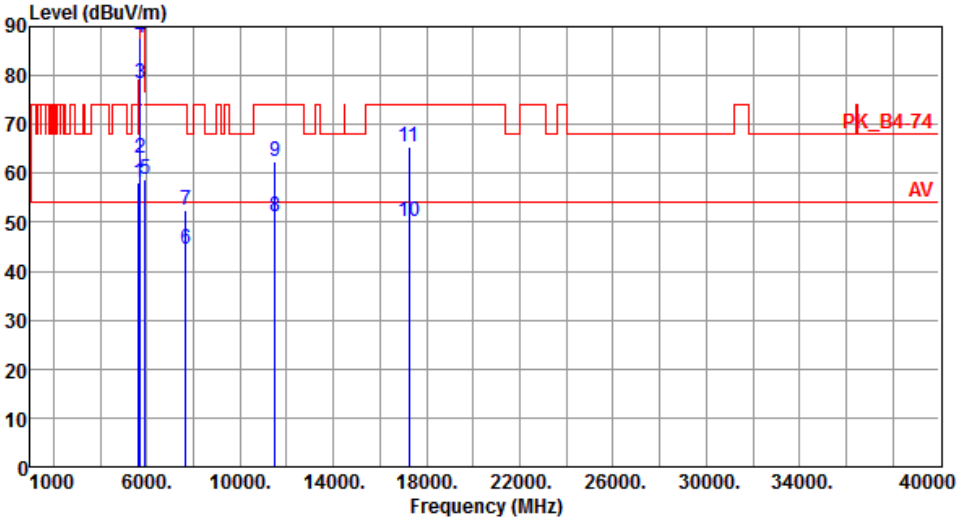
Modulation	11a	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.79	54.00	-5.21	44.51	4.28	Average	175	6
2	5150.00	62.94	74.00	-11.06	58.66	4.28	Peak	175	6
3	5350.00	50.41	54.00	-3.59	45.97	4.44	Average	175	6
4	5350.00	64.07	74.00	-9.93	59.63	4.44	Peak	175	6
5	6986.66	53.76	68.20	-14.44	46.23	7.53	Peak	185	5
6	10480.00	64.84	68.20	-3.36	51.14	13.70	Peak	210	224
7	15720.00	51.01	54.00	-2.99	36.59	14.42	Average	283	244
8	15720.00	64.62	74.00	-9.38	50.20	14.42	Peak	283	244

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

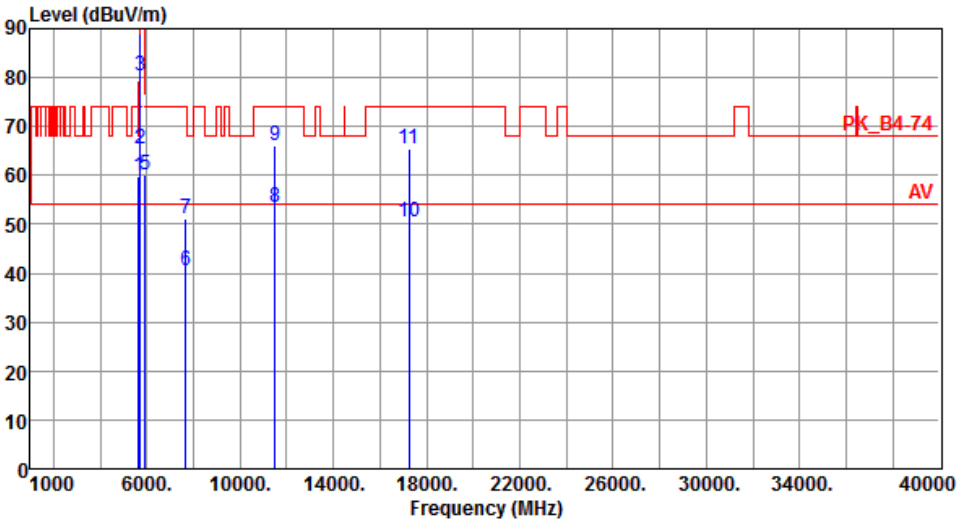
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	58.26	68.20	-9.94	53.53	4.73	Peak	271	115
2	5700.00	63.06	105.20	-42.14	58.25	4.81	Peak	271	115
3	5720.00	78.48	110.80	-32.32	73.64	4.84	Peak	271	115
4	5725.00	87.77	122.20	-34.43	82.93	4.84	Peak	271	115
5	5925.00	58.68	68.20	-9.52	53.55	5.13	Peak	271	115
6	7660.00	44.40	54.00	-9.60	35.78	8.62	Average	221	83
7	7660.00	52.39	74.00	-21.61	43.77	8.62	Peak	221	83
8	11490.00	51.11	54.00	-2.89	37.00	14.11	Average	112	333
9	11490.00	62.57	74.00	-11.43	48.46	14.11	Peak	112	333
10	17235.00	50.18	54.00	-3.82	32.24	17.94	Average	100	317
11	17235.00	65.35	74.00	-8.65	47.41	17.94	Peak	100	317

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

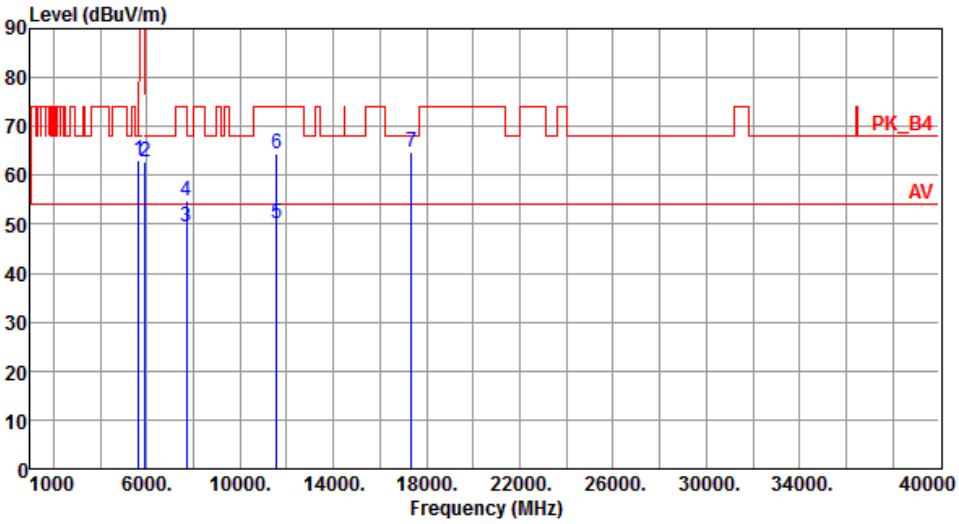
Modulation	11a	Test Freq. (MHz)	5745
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.74	68.20	-8.46	55.01	4.73	Peak	262	166
2	5700.00	65.39	105.20	-39.81	60.58	4.81	Peak	262	166
3	5720.00	80.30	110.80	-30.50	75.46	4.84	Peak	262	166
4	5725.00	89.09	122.20	-33.11	84.25	4.84	Peak	262	166
5	5925.00	60.21	68.20	-7.99	55.08	5.13	Peak	262	166
6	7660.00	40.67	54.00	-13.33	32.05	8.62	Average	100	106
7	7660.00	51.07	74.00	-22.93	42.45	8.62	Peak	100	106
8	11490.00	53.57	54.00	-0.43	39.46	14.11	Average	169	223
9	11490.00	66.13	74.00	-7.87	52.02	14.11	Peak	169	223
10	17235.00	50.50	54.00	-3.50	32.56	17.94	Average	100	90
11	17235.00	65.50	74.00	-8.50	47.56	17.94	Peak	100	90

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

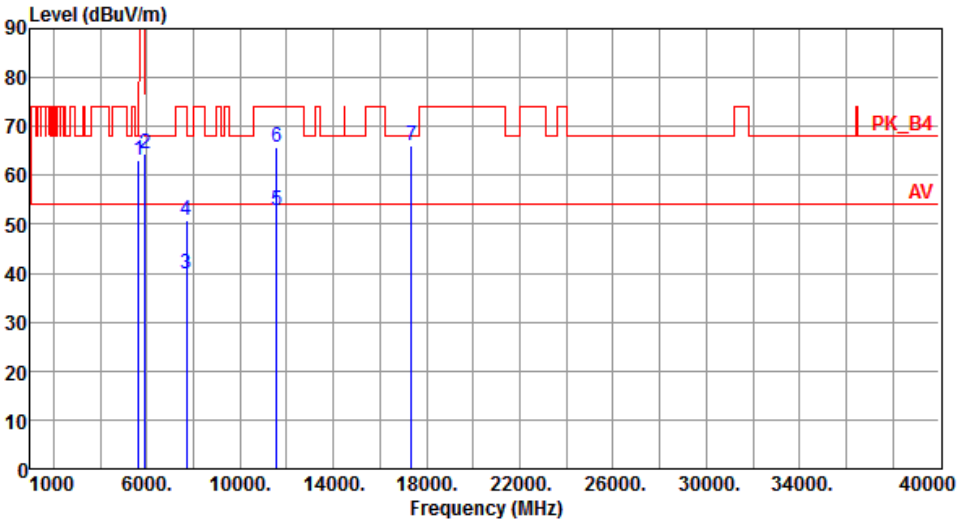
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	63.24	68.20	-4.96	58.51	4.73	Peak	169	275
2	5925.00	62.88	68.20	-5.32	57.75	5.13	Peak	169	275
3	7713.00	49.38	54.00	-4.62	40.68	8.70	Average	173	78
4	7713.00	54.68	74.00	-19.32	45.98	8.70	Peak	173	78
5	11570.00	50.09	54.00	-3.91	36.11	13.98	Average	110	325
6	11570.00	64.31	74.00	-9.69	50.33	13.98	Peak	110	325
7	17355.00	64.82	68.20	-3.38	46.57	18.25	Peak	100	282

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

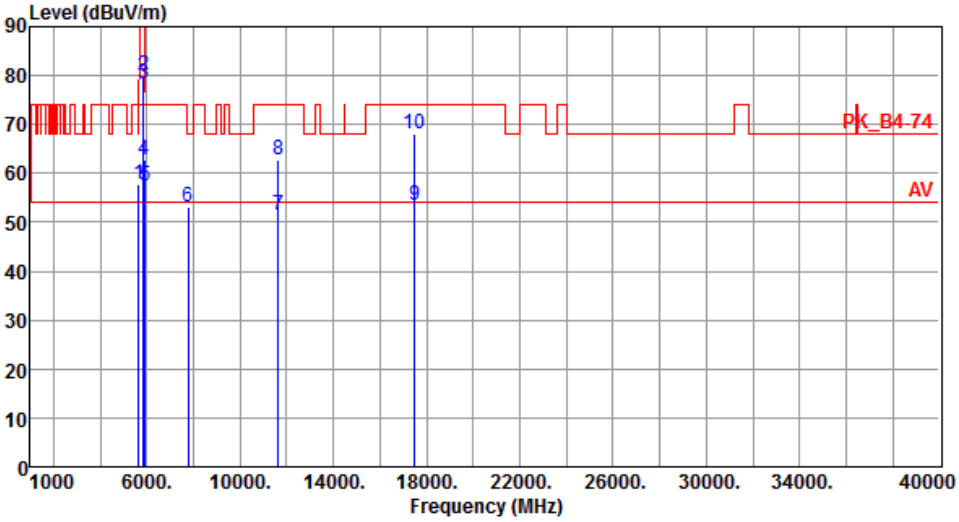
Modulation	11a	Test Freq. (MHz)	5785
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	63.07	68.20	-5.13	58.34	4.73	Peak	167	9
2	5925.00	64.50	68.20	-3.70	59.37	5.13	Peak	167	9
3	7713.00	39.89	54.00	-14.11	31.19	8.70	Average	100	105
4	7713.00	50.78	74.00	-23.22	42.08	8.70	Peak	100	105
5	11570.00	52.66	54.00	-1.34	38.68	13.98	Average	346	262
6	11570.00	65.72	74.00	-8.28	51.74	13.98	Peak	346	262
7	17355.00	65.99	68.20	-2.21	47.74	18.25	Peak	346	262

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

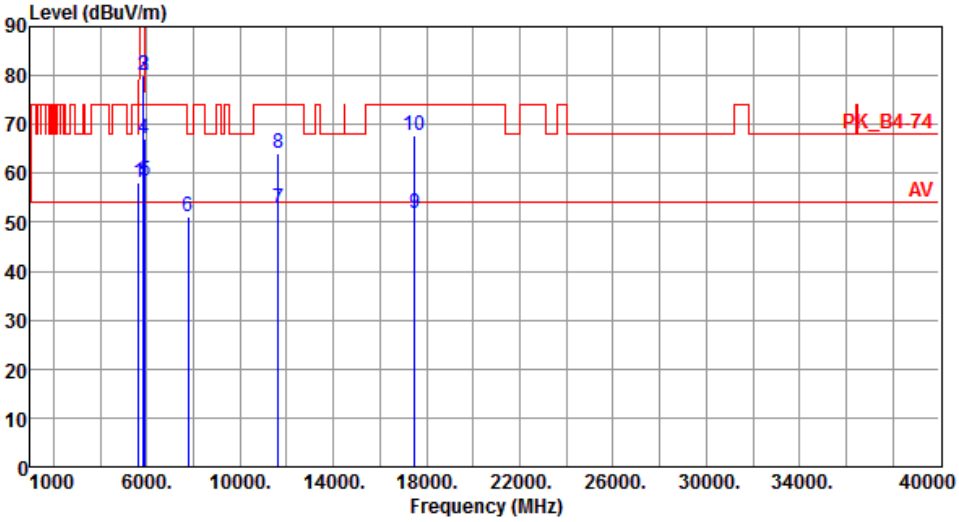
Modulation	11a	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	57.76	68.20	-10.44	53.03	4.73	Peak	296	92
2	5850.00	80.00	122.20	-42.20	74.96	5.04	Peak	296	92
3	5855.00	78.27	110.80	-32.53	73.23	5.04	Peak	296	92
4	5875.00	62.61	105.20	-42.59	57.54	5.07	Peak	296	92
5	5925.00	57.51	68.20	-10.69	52.38	5.13	Peak	296	92
6	7767.00	53.08	68.20	-15.12	44.30	8.78	Peak	195	82
7	11650.00	51.31	54.00	-2.69	37.48	13.83	Average	100	330
8	11650.00	62.74	74.00	-11.26	48.91	13.83	Peak	100	330
9	17475.00	53.38	54.00	-0.62	34.83	18.55	Average	105	230
10	17475.00	68.18	74.00	-5.82	49.63	18.55	Peak	105	230

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

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

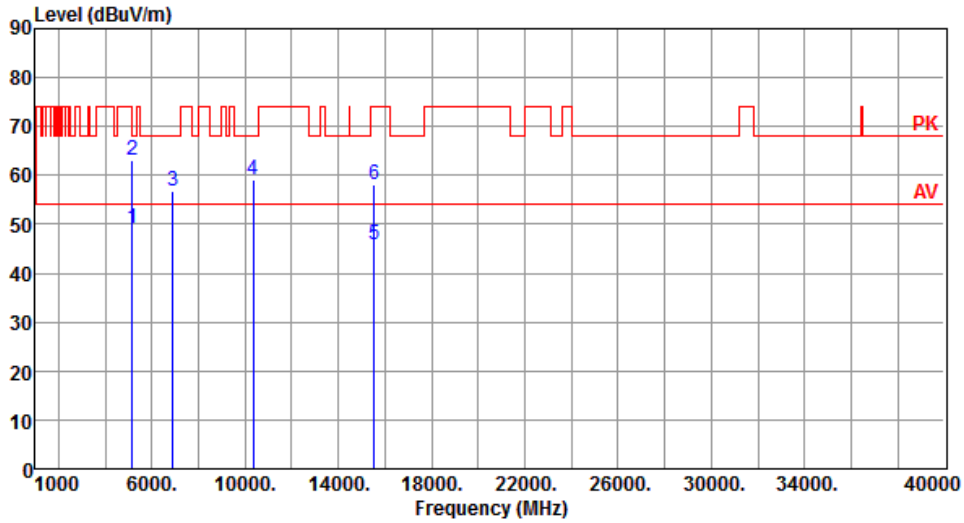


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	58.16	68.20	-10.04	53.43	4.73	Peak	260	171
2	5850.00	80.14	122.20	-42.06	75.10	5.04	Peak	260	171
3	5855.00	80.04	110.80	-30.76	75.00	5.04	Peak	260	171
4	5875.00	67.24	105.20	-37.96	62.17	5.07	Peak	260	171
5	5925.00	58.44	68.20	-9.76	53.31	5.13	Peak	260	171
6	7767.00	51.14	68.20	-17.06	42.36	8.78	Peak	170	222
7	11650.00	52.89	54.00	-1.11	39.06	13.83	Average	170	222
8	11650.00	63.96	74.00	-10.04	50.13	13.83	Peak	170	222
9	17475.00	51.96	54.00	-2.04	33.41	18.55	Average	104	232
10	17475.00	67.85	74.00	-6.15	49.30	18.55	Peak	104	232

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

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

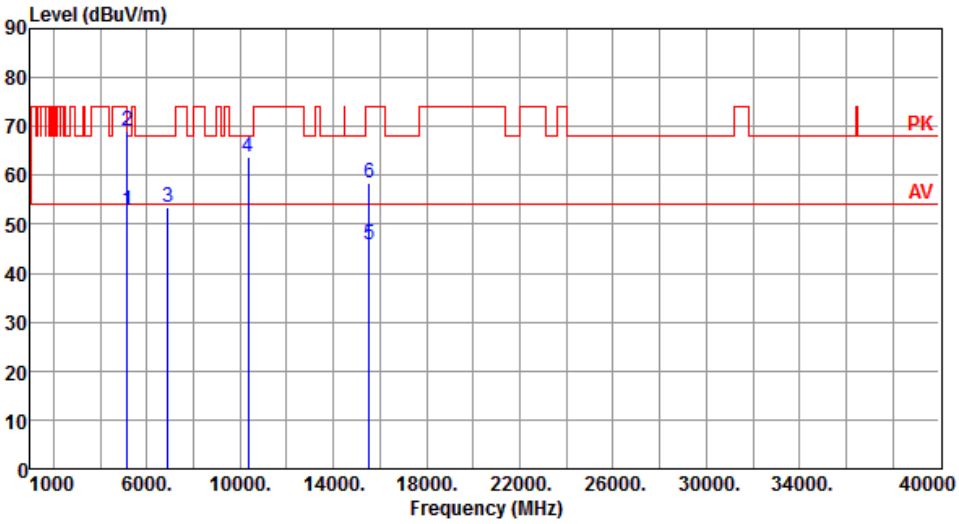
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.22	54.00	-4.78	44.94	4.28	Average	143	228
2	5150.00	63.04	74.00	-10.96	58.76	4.28	Peak	143	228
3	6906.66	56.91	68.20	-11.29	49.44	7.47	Peak	164	273
4	10360.00	59.27	68.20	-8.93	45.67	13.60	Peak	294	230
5	15540.00	45.89	54.00	-8.11	31.22	14.67	Average	100	25
6	15540.00	58.22	74.00	-15.78	43.55	14.67	Peak	100	25

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

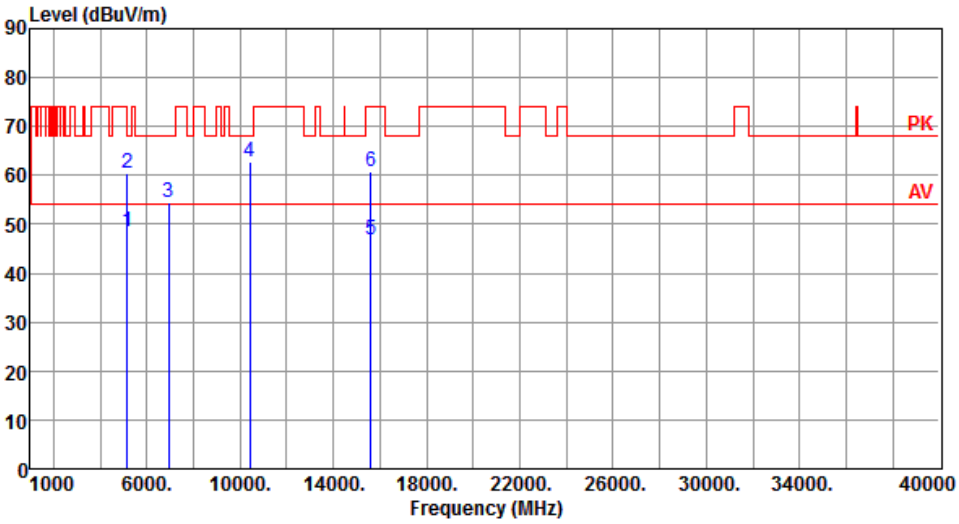
Modulation	VHT20	Test Freq. (MHz)	5180
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	52.78	54.00	-1.22	48.50	4.28	Average	142	7
2	5150.00	69.02	74.00	-4.98	64.74	4.28	Peak	142	7
3	6906.66	53.32	68.20	-14.88	45.85	7.47	Peak	180	9
4	10360.00	63.62	68.20	-4.58	50.02	13.60	Peak	122	221
5	15540.00	45.89	54.00	-8.11	31.22	14.67	Average	100	50
6	15540.00	58.52	74.00	-15.48	43.85	14.67	Peak	100	50

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

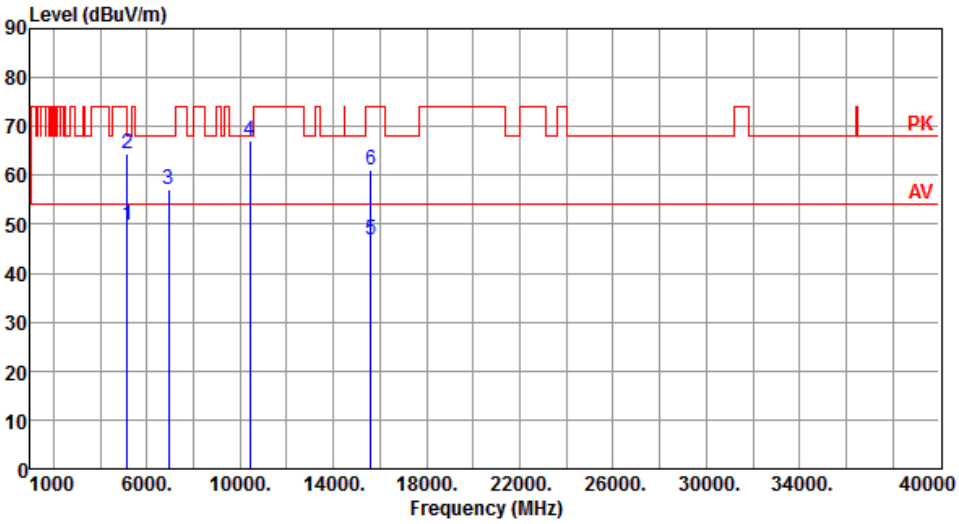
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.40	54.00	-5.60	44.12	4.28	Average	132	257
2	5150.00	60.49	74.00	-13.51	56.21	4.28	Peak	132	257
3	6933.33	54.61	68.20	-13.59	47.13	7.48	Peak	165	275
4	10400.00	62.74	68.20	-5.46	49.10	13.64	Peak	243	212
5	15600.00	46.69	54.00	-7.31	32.11	14.58	Average	100	345
6	15600.00	60.86	74.00	-13.14	46.28	14.58	Peak	100	345

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

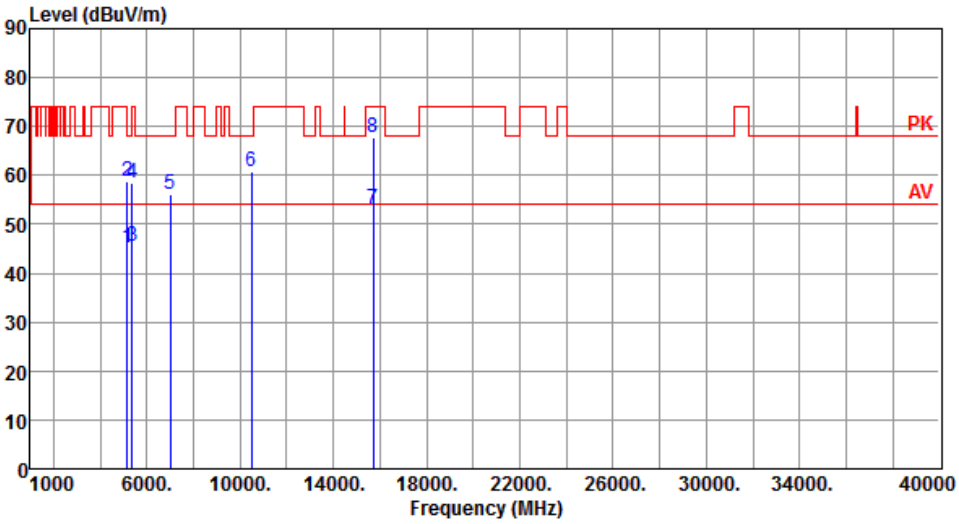
Modulation	VHT20	Test Freq. (MHz)	5200
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.94	54.00	-4.06	45.66	4.28	Average	175	8
2	5150.00	64.50	74.00	-9.50	60.22	4.28	Peak	175	8
3	6933.33	56.98	68.20	-11.22	49.50	7.48	Peak	169	6
4	10400.00	66.96	68.20	-1.24	53.32	13.64	Peak	129	225
5	15600.00	46.79	54.00	-7.21	32.21	14.58	Average	100	243
6	15600.00	60.94	74.00	-13.06	46.36	14.58	Peak	100	243

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

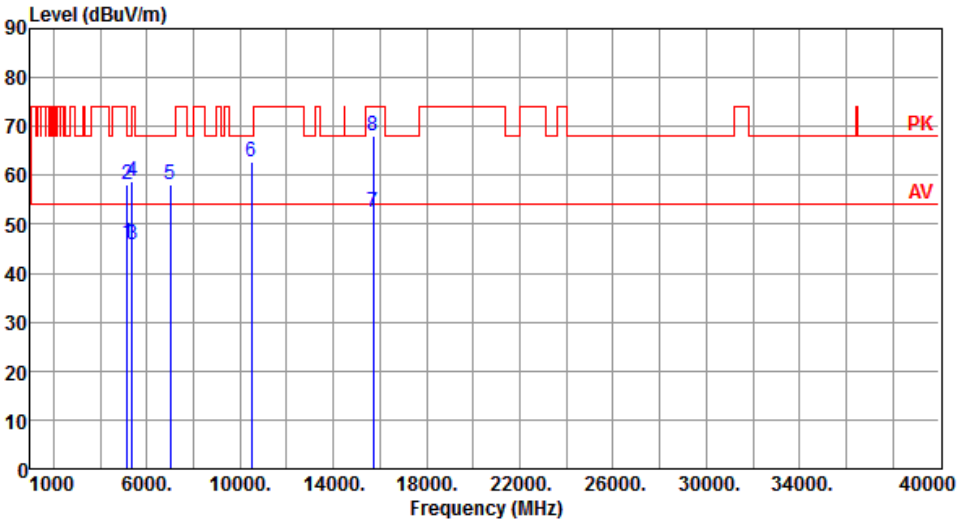
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	45.02	54.00	-8.98	40.74	4.28	Average	322	135
2	5150.00	58.91	74.00	-15.09	54.63	4.28	Peak	322	135
3	5350.00	45.42	54.00	-8.58	40.98	4.44	Average	322	135
4	5350.00	58.31	74.00	-15.69	53.87	4.44	Peak	322	135
5	6987.00	56.18	68.20	-12.02	48.65	7.53	Peak	100	256
6	10480.00	60.94	68.20	-7.26	47.24	13.70	Peak	145	341
7	15720.00	53.24	54.00	-0.76	38.82	14.42	Average	262	24
8	15720.00	67.60	74.00	-6.40	53.18	14.42	Peak	262	24

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

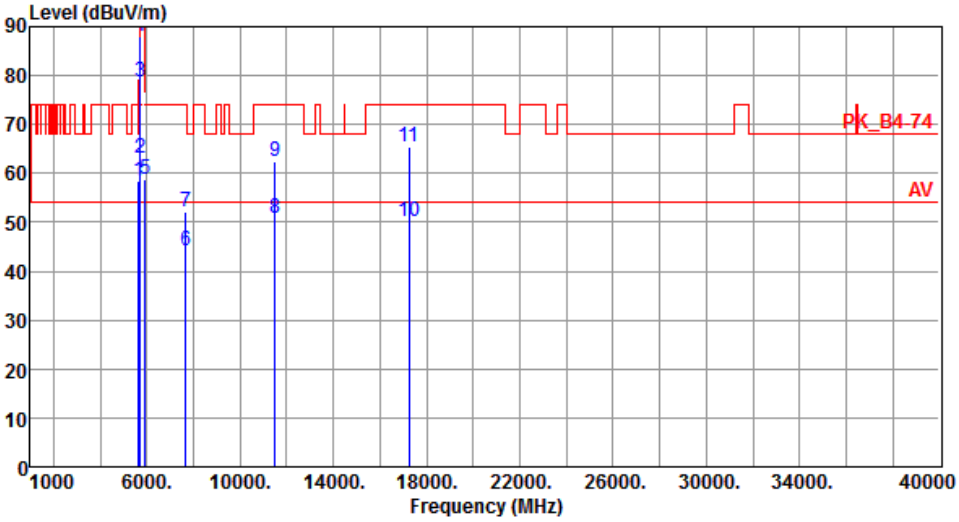
Modulation	VHT20	Test Freq. (MHz)	5240
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	46.11	54.00	-7.89	41.83	4.28	Average	100	18
2	5150.00	58.03	74.00	-15.97	53.75	4.28	Peak	100	18
3	5350.00	45.92	54.00	-8.08	41.48	4.44	Average	100	18
4	5350.00	58.71	74.00	-15.29	54.27	4.44	Peak	100	18
5	6987.00	58.26	68.20	-9.94	50.73	7.53	Peak	100	11
6	10480.00	62.78	68.20	-5.42	49.08	13.70	Peak	125	233
7	15720.00	52.61	54.00	-1.39	38.19	14.42	Average	186	243
8	15720.00	67.98	74.00	-6.02	53.56	14.42	Peak	186	243

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

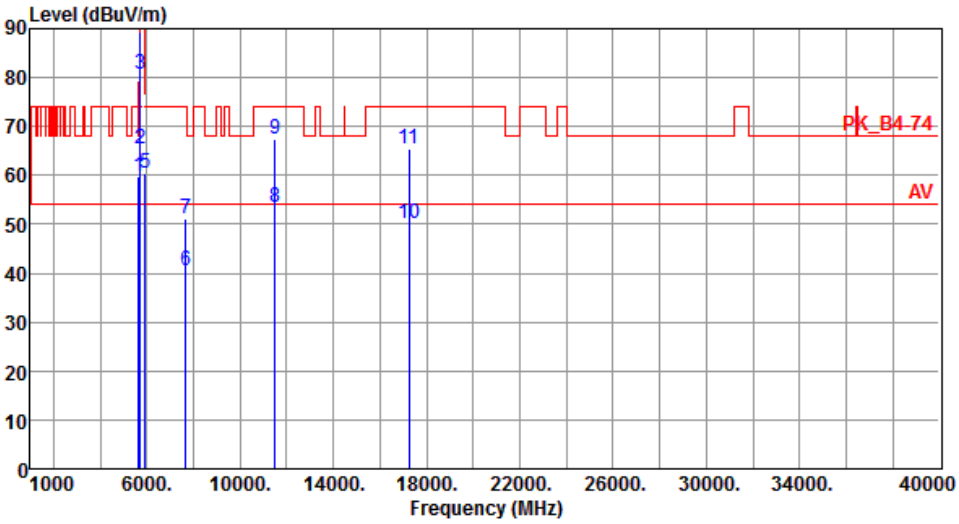
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Horizontal		



	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	58.34	68.20	-9.86	53.61	4.73	Peak	271	116
2	5700.00	63.25	105.20	-41.95	58.44	4.81	Peak	271	116
3	5720.00	78.59	110.80	-32.21	73.75	4.84	Peak	271	116
4	5725.00	87.96	122.20	-34.24	83.12	4.84	Peak	271	116
5	5925.00	58.87	68.20	-9.33	53.74	5.13	Peak	271	116
6	7660.00	44.25	54.00	-9.75	35.63	8.62	Average	219	86
7	7660.00	52.24	74.00	-21.76	43.62	8.62	Peak	219	86
8	11490.00	50.94	54.00	-3.06	36.83	14.11	Average	121	329
9	11490.00	62.31	74.00	-11.69	48.20	14.11	Peak	121	329
10	17235.00	50.29	54.00	-3.71	32.35	17.94	Average	100	315
11	17235.00	65.48	74.00	-8.52	47.54	17.94	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).

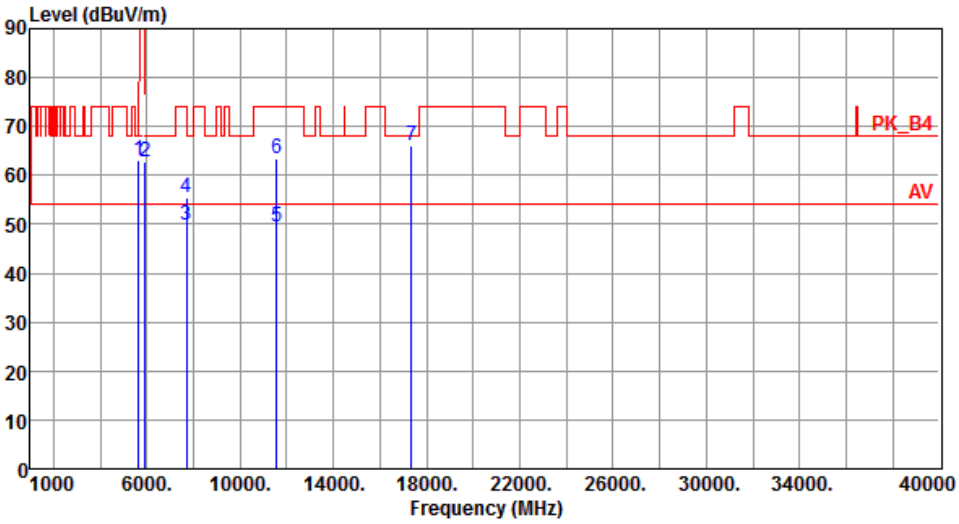
Modulation	VHT20	Test Freq. (MHz)	5745
Polarization	Vertical		



	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	59.89	68.20	-8.31	55.16	4.73	Peak	261	163
2	5700.00	65.47	105.20	-39.73	60.66	4.81	Peak	261	163
3	5720.00	80.62	110.80	-30.18	75.78	4.84	Peak	261	163
4	5725.00	89.25	122.20	-32.95	84.41	4.84	Peak	261	163
5	5925.00	60.46	68.20	-7.74	55.33	5.13	Peak	261	163
6	7660.00	40.52	54.00	-13.48	31.90	8.62	Average	100	114
7	7660.00	51.26	74.00	-22.74	42.64	8.62	Peak	100	114
8	11490.00	53.33	54.00	-0.67	39.22	14.11	Average	165	223
9	11490.00	67.36	74.00	-6.64	53.25	14.11	Peak	165	223
10	17235.00	50.16	54.00	-3.84	32.22	17.94	Average	100	95
11	17235.00	65.32	74.00	-8.68	47.38	17.94	Peak	100	95

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

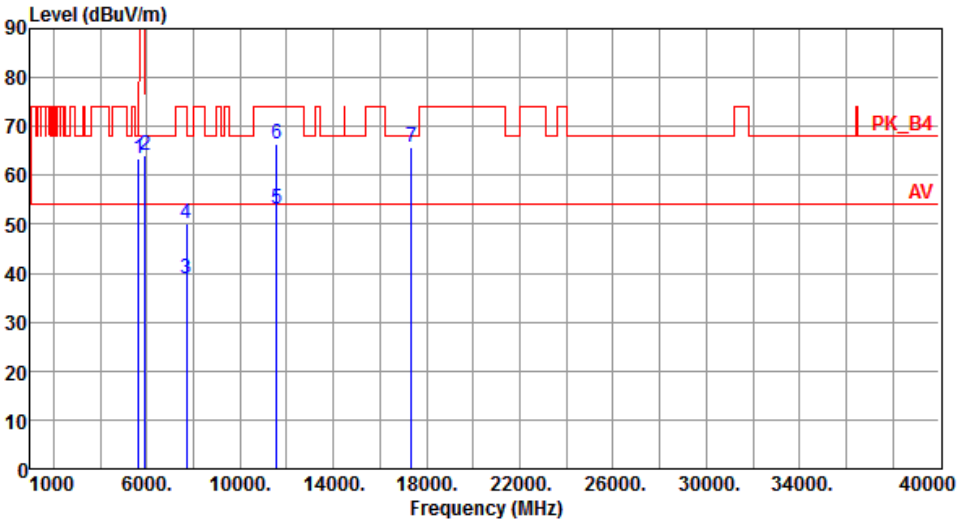
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	63.05	68.20	-5.15	58.32	4.73	Peak	125	236
2	5925.00	62.65	68.20	-5.55	57.52	5.13	Peak	125	236
3	7713.33	49.92	54.00	-4.08	41.22	8.70	Average	176	79
4	7713.33	55.34	74.00	-18.66	46.64	8.70	Peak	176	79
5	11570.00	49.65	54.00	-4.35	35.67	13.98	Average	101	320
6	11570.00	63.49	74.00	-10.51	49.51	13.98	Peak	101	320
7	17355.00	66.21	68.20	-1.99	47.96	18.25	Peak	118	311

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

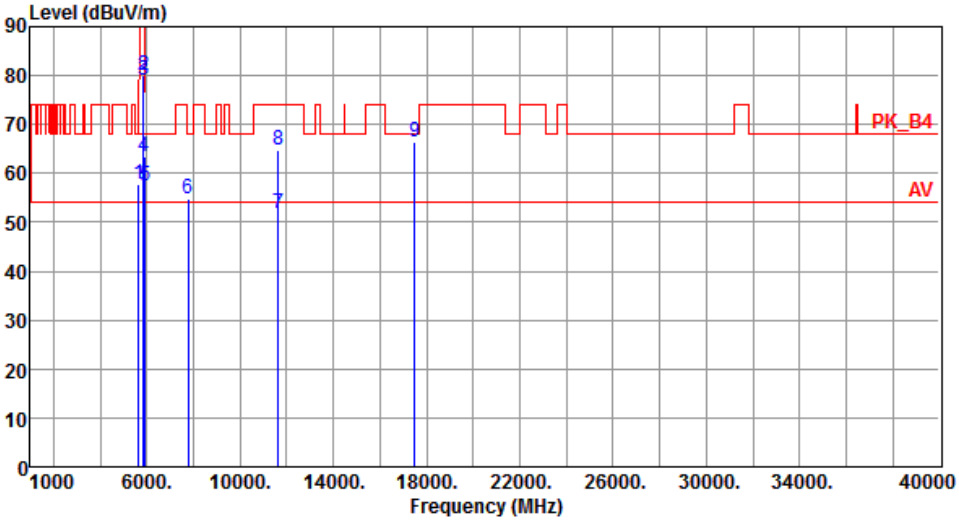
Modulation	VHT20	Test Freq. (MHz)	5785
Polarization	Vertical		



	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	63.49	68.20	-4.71	58.76	4.73	Peak	151	8
2	5925.00	64.21	68.20	-3.99	59.08	5.13	Peak	151	8
3	7713.33	39.02	54.00	-14.98	30.32	8.70	Average	100	107
4	7713.33	50.13	74.00	-23.87	41.43	8.70	Peak	100	107
5	11570.00	53.07	54.00	-0.93	39.09	13.98	Average	345	258
6	11570.00	66.41	74.00	-7.59	52.43	13.98	Peak	345	258
7	17355.00	65.85	68.20	-2.35	47.60	18.25	Peak	296	288

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).

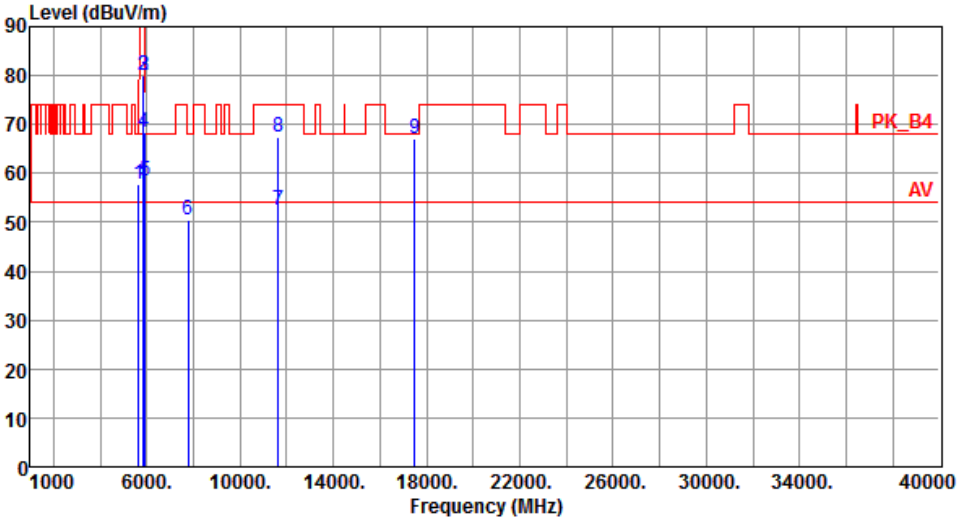
Modulation	VHT20	Test Freq. (MHz)	5825
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	57.85	68.20	-10.35	53.12	4.73	Peak	131	241
2	5850.00	80.05	122.20	-42.15	75.01	5.04	Peak	131	241
3	5855.00	79.03	110.80	-31.77	73.99	5.04	Peak	131	241
4	5875.00	63.32	105.20	-41.88	58.25	5.07	Peak	131	241
5	5925.00	57.58	68.20	-10.62	52.45	5.13	Peak	131	241
6	7766.66	54.65	68.20	-13.55	45.87	8.78	Peak	191	82
7	11650.00	51.79	54.00	-2.21	37.96	13.83	Average	100	330
8	11650.00	64.85	74.00	-9.15	51.02	13.83	Peak	100	330
9	17475.00	66.57	68.20	-1.63	48.02	18.55	Peak	114	314

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		

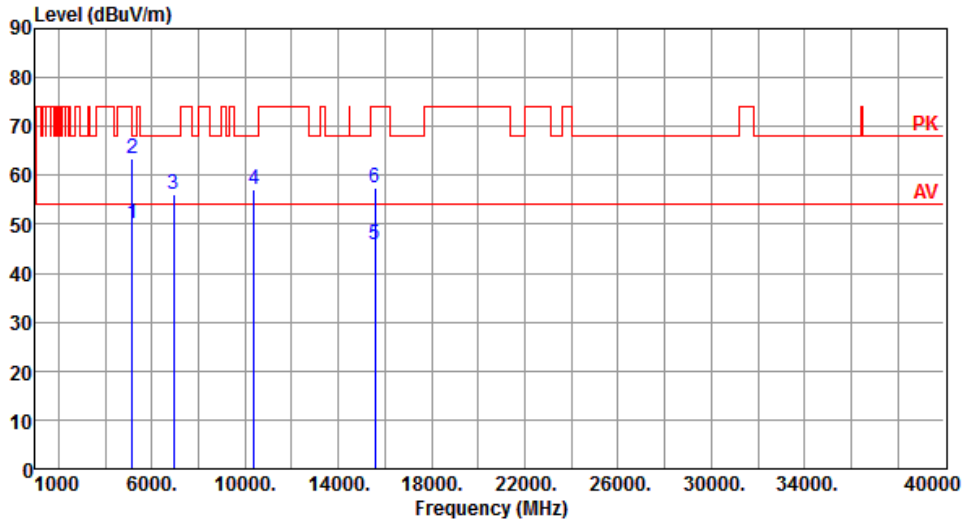


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	57.95	68.20	-10.25	53.22	4.73	Peak	166	8
2	5850.00	80.14	122.20	-42.06	75.10	5.04	Peak	166	8
3	5855.00	80.02	110.80	-30.78	74.98	5.04	Peak	166	8
4	5875.00	68.29	105.20	-36.91	63.22	5.07	Peak	166	8
5	5925.00	58.42	68.20	-9.78	53.29	5.13	Peak	166	8
6	7766.66	50.33	68.20	-17.87	41.55	8.78	Peak	100	95
7	11650.00	52.61	54.00	-1.39	38.78	13.83	Average	331	272
8	11650.00	67.44	74.00	-6.56	53.61	13.83	Peak	331	272
9	17475.00	67.19	68.20	-1.01	48.64	18.55	Peak	240	234

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

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

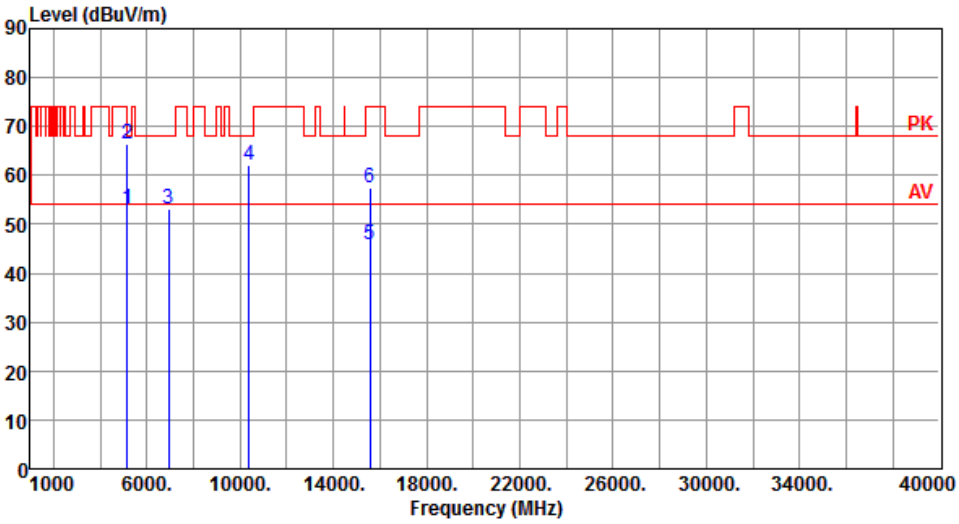
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.28	54.00	-3.72	46.00	4.28	Average	177	233
2	5150.00	63.36	74.00	-10.64	59.08	4.28	Peak	177	233
3	6920.00	56.19	68.20	-12.01	48.71	7.48	Peak	165	275
4	10380.00	57.17	68.20	-11.03	43.55	13.62	Peak	285	227
5	15570.00	45.89	54.00	-8.11	31.27	14.62	Average	100	145
6	15570.00	57.45	74.00	-16.55	42.83	14.62	Peak	100	145

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

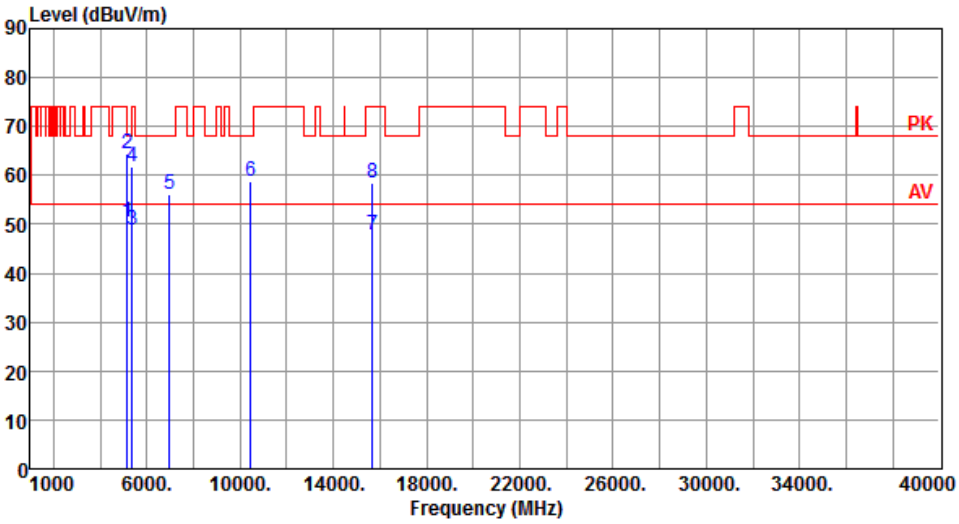
Modulation	VHT40	Test Freq. (MHz)	5190
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.27	54.00	-0.73	48.99	4.28	Average	107	8
2	5150.00	66.44	74.00	-7.56	62.16	4.28	Peak	107	8
3	6920.00	52.99	68.20	-15.21	45.51	7.48	Peak	183	9
4	10380.00	62.13	68.20	-6.07	48.51	13.62	Peak	125	219
5	15570.00	45.93	54.00	-8.07	31.31	14.62	Average	100	150
6	15570.00	57.56	74.00	-16.44	42.94	14.62	Peak	100	150

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

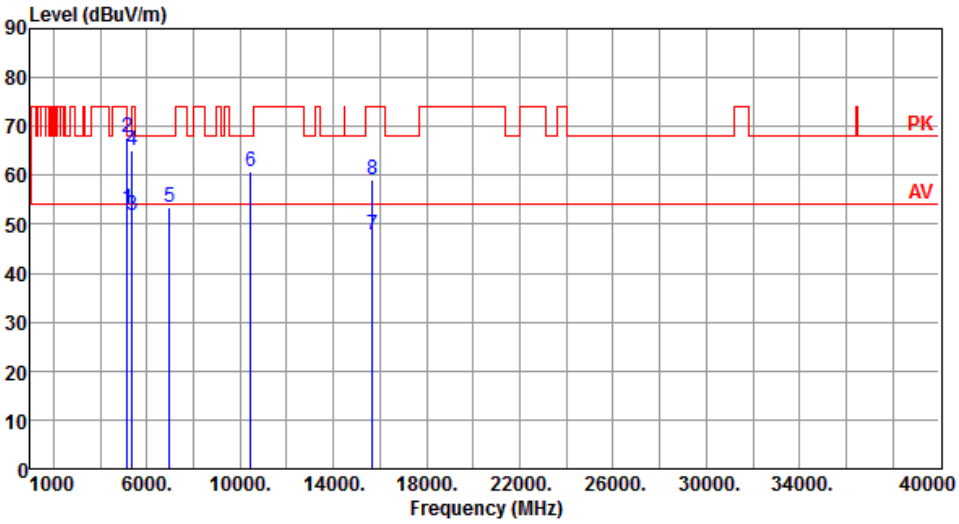
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.49	54.00	-3.51	46.21	4.28	Average	126	238
2	5150.00	64.51	74.00	-9.49	60.23	4.28	Peak	126	238
3	5350.00	48.69	54.00	-5.31	44.25	4.44	Average	126	238
4	5350.00	61.88	74.00	-12.12	57.44	4.44	Peak	126	238
5	6973.33	56.07	68.20	-12.13	48.55	7.52	Peak	100	254
6	10460.00	58.82	68.20	-9.38	45.15	13.67	Peak	144	344
7	15690.00	47.67	54.00	-6.33	33.21	14.46	Average	255	30
8	15690.00	58.44	74.00	-15.56	43.98	14.46	Peak	255	30

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

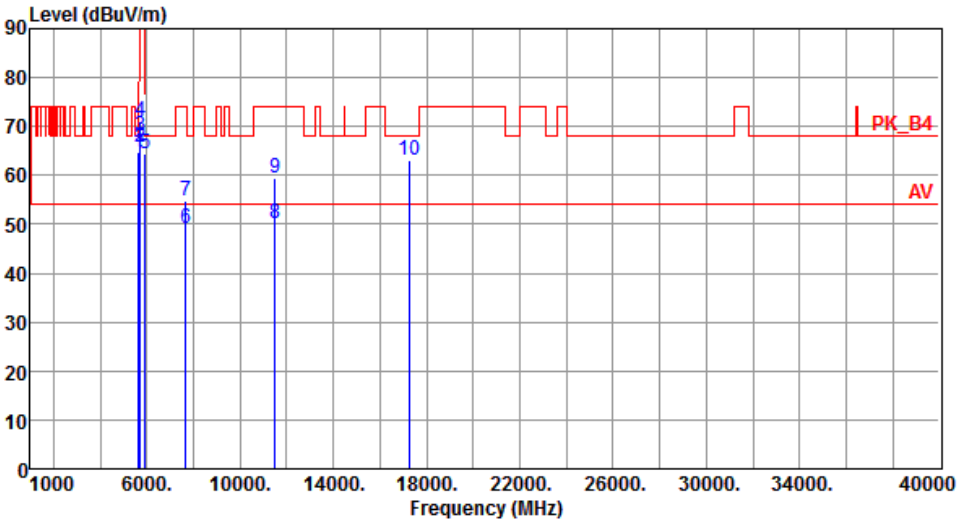
Modulation	VHT40	Test Freq. (MHz)	5230
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.14	54.00	-0.86	48.86	4.28	Average	116	10
2	5150.00	67.67	74.00	-6.33	63.39	4.28	Peak	116	10
3	5350.00	51.95	54.00	-2.05	47.51	4.44	Average	116	10
4	5350.00	65.13	74.00	-8.87	60.69	4.44	Peak	116	10
5	6973.33	53.51	68.20	-14.69	45.99	7.52	Peak	174	15
6	10460.00	60.84	68.20	-7.36	47.17	13.67	Peak	124	225
7	15690.00	47.94	54.00	-6.06	33.48	14.46	Average	188	250
8	15690.00	58.97	74.00	-15.03	44.51	14.46	Peak	188	250

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

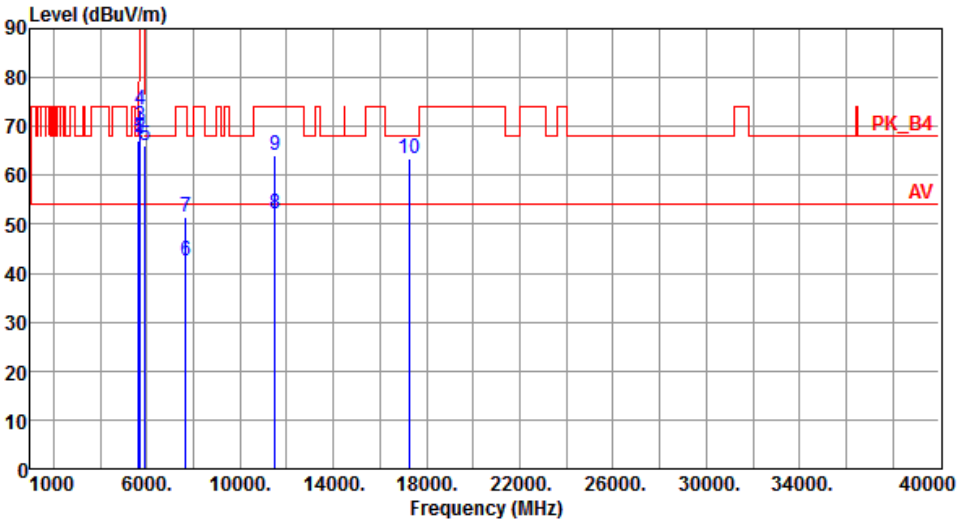
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Horizontal		



	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	64.77	68.20	-3.43	60.04	4.73	Peak	128	243
2	5700.00	65.82	105.20	-39.38	61.01	4.81	Peak	128	243
3	5720.00	68.16	110.80	-42.64	63.32	4.84	Peak	128	243
4	5725.00	71.16	122.20	-51.04	66.32	4.84	Peak	128	243
5	5925.00	64.35	68.20	-3.85	59.22	5.13	Peak	128	243
6	7673.33	49.07	54.00	-4.93	40.43	8.64	Average	198	78
7	7673.33	54.77	74.00	-19.23	46.13	8.64	Peak	198	78
8	11510.00	50.07	54.00	-3.93	35.98	14.09	Average	100	319
9	11510.00	59.32	74.00	-14.68	45.23	14.09	Peak	100	319
10	17265.00	63.00	68.20	-5.20	44.98	18.02	Peak	100	30

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).

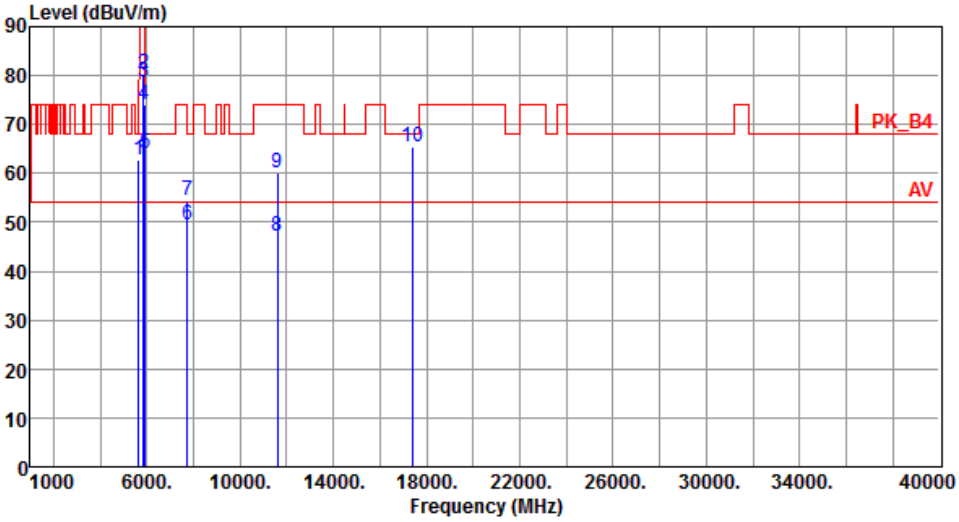
Modulation	VHT40	Test Freq. (MHz)	5755
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.07	68.20	-1.13	62.34	4.73	Peak	161	10
2	5700.00	67.89	105.20	-37.31	63.08	4.81	Peak	161	10
3	5720.00	70.12	110.80	-40.68	65.28	4.84	Peak	161	10
4	5725.00	73.25	122.20	-48.95	68.41	4.84	Peak	161	10
5	5925.00	66.00	68.20	-2.20	60.87	5.13	Peak	161	10
6	7673.33	42.65	54.00	-11.35	34.01	8.64	Average	170	11
7	7673.33	51.62	74.00	-22.38	42.98	8.64	Peak	170	11
8	11510.00	52.07	54.00	-1.93	37.98	14.09	Average	346	264
9	11510.00	64.07	74.00	-9.93	49.98	14.09	Peak	346	264
10	17265.00	63.27	68.20	-4.93	45.25	18.02	Peak	100	25

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).

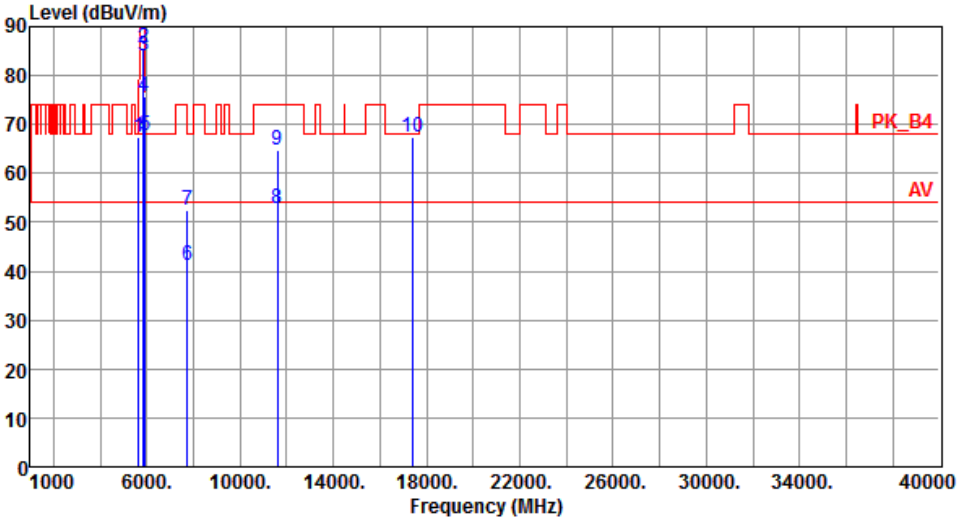
Modulation	VHT40	Test Freq. (MHz)	5795
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.84	68.20	-5.36	58.11	4.73	Peak	173	286
2	5850.00	80.40	122.20	-41.80	75.36	5.04	Peak	173	286
3	5855.00	78.73	110.80	-32.07	73.69	5.04	Peak	173	286
4	5875.00	74.04	105.20	-31.16	68.97	5.07	Peak	173	286
5	5925.00	64.25	68.20	-3.95	59.12	5.13	Peak	173	286
6	7726.66	49.47	54.00	-4.53	40.75	8.72	Average	182	88
7	7726.66	54.52	74.00	-19.48	45.80	8.72	Peak	182	88
8	11590.00	47.29	54.00	-6.71	33.35	13.94	Average	100	317
9	11590.00	59.99	74.00	-14.01	46.05	13.94	Peak	100	317
10	17385.00	65.42	68.20	-2.78	47.09	18.33	Peak	100	288

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		

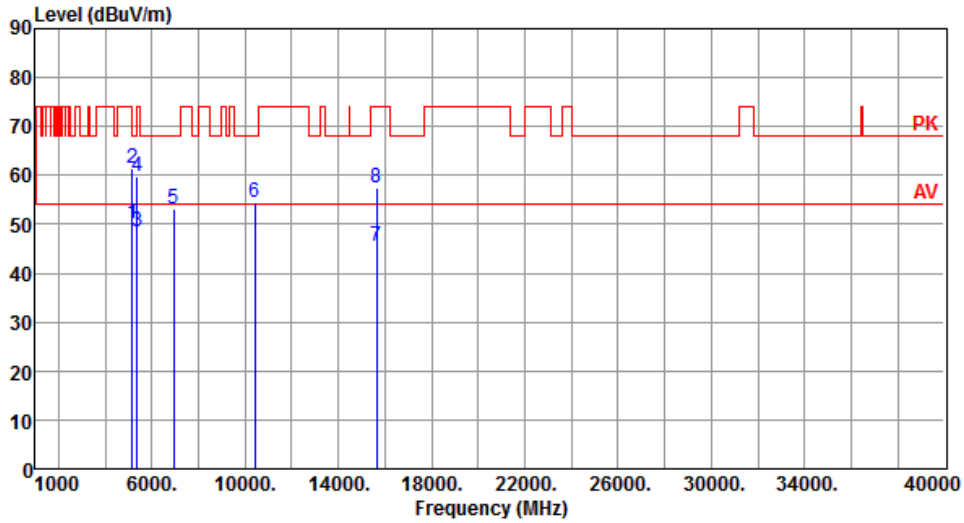


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.35	68.20	-0.85	62.62	4.73	Peak	139	9
2	5850.00	85.70	122.20	-36.50	80.66	5.04	Peak	139	9
3	5855.00	83.97	110.80	-26.83	78.93	5.04	Peak	139	9
4	5875.00	75.82	105.20	-29.38	70.75	5.07	Peak	139	9
5	5925.00	67.83	68.20	-0.37	62.70	5.13	Peak	139	9
6	7726.66	41.23	54.00	-12.77	32.51	8.72	Average	100	104
7	7726.66	52.51	74.00	-21.49	43.79	8.72	Peak	100	104
8	11590.00	52.75	54.00	-1.25	38.81	13.94	Average	346	270
9	11590.00	64.62	74.00	-9.38	50.68	13.94	Peak	346	270
10	17385.00	67.52	68.20	-0.68	49.19	18.33	Peak	218	235

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

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

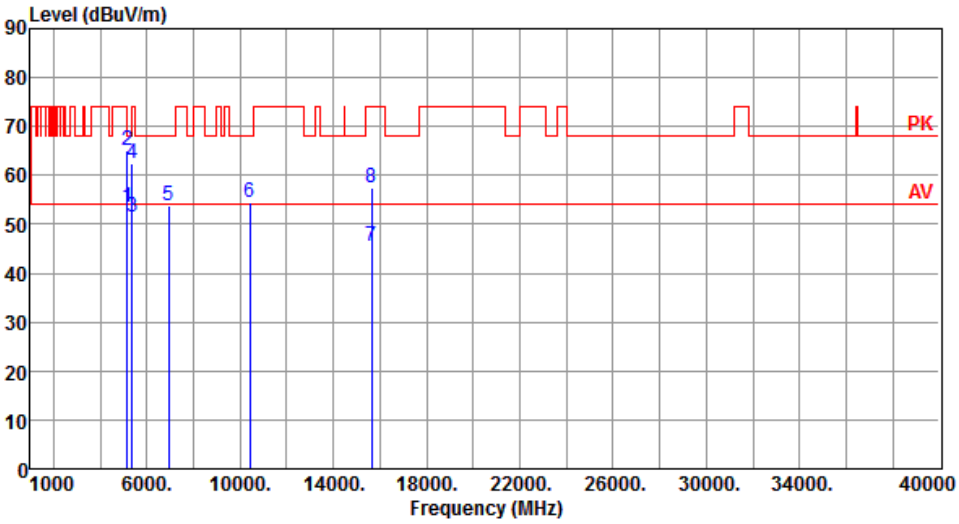
Modulation	VHT80	Test Freq. (MHz)	5210
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	50.16	54.00	-3.84	45.88	4.28	Average	256	229
2	5150.00	61.58	74.00	-12.42	57.30	4.28	Peak	256	229
3	5350.00	48.55	54.00	-5.45	44.11	4.44	Average	256	229
4	5350.00	59.64	74.00	-14.36	55.20	4.44	Peak	256	229
5	6946.66	53.01	68.20	-15.19	45.51	7.50	Peak	185	78
6	10420.00	54.30	68.20	-13.90	40.64	13.66	Peak	100	30
7	15630.00	45.65	54.00	-8.35	31.11	14.54	Average	100	70
8	15630.00	57.40	74.00	-16.60	42.86	14.54	Peak	100	70

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

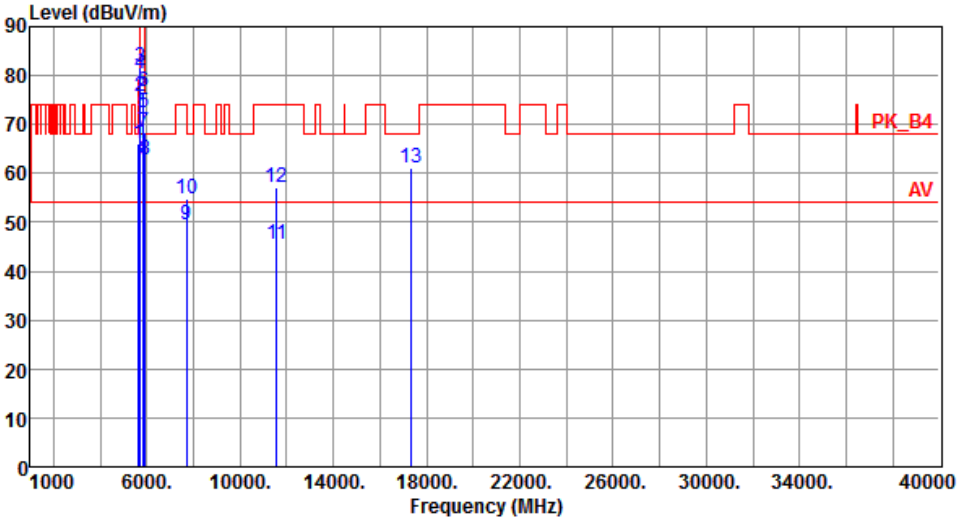
Modulation	VHT80	**Test Freq. (MHz)**	5210
Polarization	Vertical		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.50	54.00	-0.50	49.22	4.28	Average	108	12
2	5150.00	65.25	74.00	-8.75	60.97	4.28	Peak	108	12
3	5350.00	51.31	54.00	-2.69	46.87	4.44	Average	108	12
4	5350.00	62.31	74.00	-11.69	57.87	4.44	Peak	108	12
5	6946.66	53.73	68.20	-14.47	46.23	7.50	Peak	174	10
6	10420.00	54.61	68.20	-13.59	40.95	13.66	Peak	100	40
7	15630.00	45.65	54.00	-8.35	31.11	14.54	Average	100	90
8	15630.00	57.42	74.00	-16.58	42.88	14.54	Peak	100	90

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).

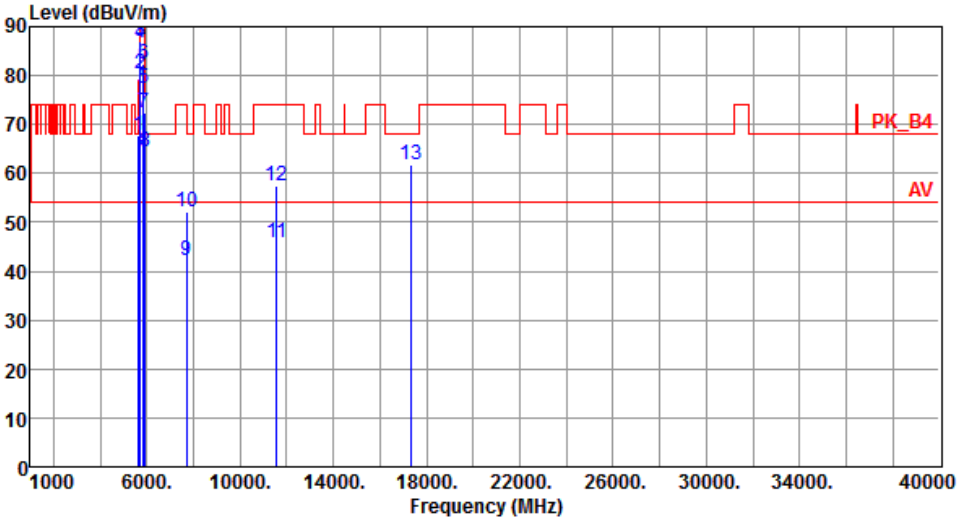
Modulation	VHT80	Test Freq. (MHz)	5775
Polarization	Horizontal		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	66.03	68.20	-2.17	61.30	4.73	Peak	192	282
2	5700.00	75.64	105.20	-29.56	70.83	4.81	Peak	192	282
3	5720.00	81.54	110.80	-29.26	76.70	4.84	Peak	192	282
4	5725.00	80.39	122.20	-41.81	75.55	4.84	Peak	192	282
5	5850.00	72.28	122.20	-49.92	67.24	5.04	Peak	192	282
6	5855.00	76.78	110.80	-34.02	71.74	5.04	Peak	192	282
7	5875.00	68.36	105.20	-36.84	63.29	5.07	Peak	192	282
8	5925.00	62.85	68.20	-5.35	57.72	5.13	Peak	192	282
9	7700.00	49.61	54.00	-4.39	40.93	8.68	Average	179	80
10	7700.00	54.66	74.00	-19.34	45.98	8.68	Peak	179	80
11	11550.00	45.37	54.00	-8.63	31.36	14.01	Average	100	40
12	11550.00	56.98	74.00	-17.02	42.97	14.01	Peak	100	40
13	17325.00	61.01	68.20	-7.19	42.84	18.17	Peak	100	35

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	5650.00	67.85	68.20	-0.35	63.12	4.73	Peak	156	10
2	5700.00	80.42	105.20	-24.78	75.61	4.81	Peak	156	10
3	5720.00	87.15	110.80	-23.65	82.31	4.84	Peak	156	10
4	5725.00	86.71	122.20	-35.49	81.87	4.84	Peak	156	10
5	5850.00	77.36	122.20	-44.84	72.32	5.04	Peak	156	10
6	5855.00	82.29	110.80	-28.51	77.25	5.04	Peak	156	10
7	5875.00	72.46	105.20	-32.74	67.39	5.07	Peak	156	10
8	5925.00	64.51	68.20	-3.69	59.38	5.13	Peak	156	10
9	7700.00	42.07	54.00	-11.93	33.39	8.68	Average	172	13
10	7700.00	52.09	74.00	-21.91	43.41	8.68	Peak	172	13
11	11550.00	45.91	54.00	-8.09	31.90	14.01	Average	100	263
12	11550.00	57.36	74.00	-16.64	43.35	14.01	Peak	100	263
13	17325.00	61.61	68.20	-6.59	43.44	18.17	Peak	100	80

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

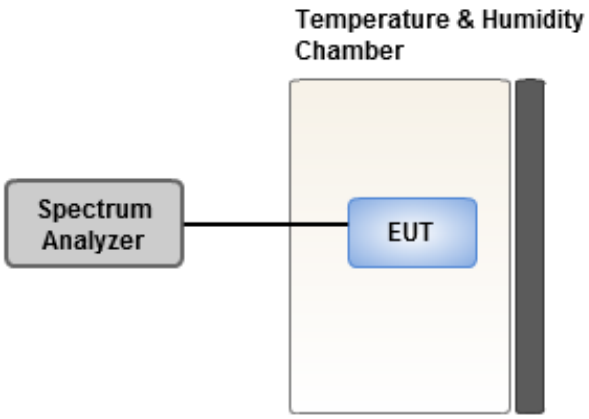
3.6.1 Limit of Frequency Stability

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°CVmax	5.81	6.27	6.24	5.98
T20°CVmin	4.71	5.21	4.82	4.69
T50°CVnom	4.04	4.37	4.36	4.27
T40°CVnom	4.47	4.48	4.65	4.82
T30°CVnom	2.64	2.74	2.98	2.62
T20°CVnom	3.04	2.69	3.43	3.52
T10°CVnom	3.92	4.02	4.14	4.15
T0°CVnom	3.82	3.90	4.30	4.25
T-10°CVnom	1.88	2.67	2.68	1.85
T-20°CVnom	1.49	1.82	1.48	2.10
T-30°CVnom	0.49	1.00	0.12	0.97
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°CVmax	4.97	5.50	5.42	5.44
T20°CVmin	4.21	4.74	4.57	4.32
T50°CVnom	3.46	3.76	3.88	3.24
T40°CVnom	3.77	3.62	3.81	3.97
T30°CVnom	2.44	2.42	2.70	2.49
T20°CVnom	2.04	2.02	1.59	2.41
T10°CVnom	2.34	2.76	2.07	2.96
T0°CVnom	2.66	3.06	2.89	2.41
T-10°CVnom	1.62	1.66	1.89	1.97
T-20°CVnom	1.40	1.01	2.13	1.57
T-30°CVnom	0.64	1.16	1.10	0.71
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.

Tel: 886-3-271-8666
Fax: 886-3-318-0155
Email: ICC_Service@icertifi.com.tw

==END==