FCC Test Report

FCC ID	:	**MXF-C4000BG**
Equipment	:	**Residential Gateway Products**
Model No.	:	**C4000BG**
Brand Name	:	**CenturyLink**
Applicant	:	**Gemtek Technology Co., Ltd.**
Address	:	**No. 15-1 Zhonghua Road, Hsinchu Industrial Park, Hukou, Hsinchu, Taiwan, 30352.**
Standard	:	**47 CFR FCC Part 15.407**
Received Date	:	**Aug. 22, 2020**
Tested Date	:	**Sep. 18 ~ Oct. 20, 2020**

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
FR082201AN	Rev. 01	Initial issue	Dec. 15, 2020

Summary of Test Results

FCC Rules	Test Items	Measured	Result
15.207	Conducted Emissions	[dBuV]: 1.043MHz 40.72 (Margin -15.28dB) - QP	Pass
15.407(b) 15.209	Radiated Emissions	[dBuV/m at 3m]: 5150.00MHz 53.87 (Margin -0.13dB) - 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*** 5150~5250MHz: 29.77 5725~5850MHz: 29.79 ***Beamforming mode*** 5150~5250MHz: 29.66 5725~5850MHz: 29.15	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

Declaration of Conformity:
The test results with all measurement uncertainty excluded are presented in accordance with the regulation limits or requirements declared by manufacturers.
Comments and Explanations:
The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

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 5725-5850	a	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	6-54 Mbps
5150-5250 5725-5850	n (HT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-15
5150-5250 5725-5850	n (HT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-15
5150-5250 5725-5850	ac (VHT20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-9
5150-5250 5725-5850	ac (VHT80)	5210 5775	42 [1] 155 [1]	2	MCS 0-9
5150-5250 5725-5850	ax (HE20)	5180-5240 5745-5825	36-48 [4] 149-165 [5]	2	MCS 0-11
5150-5250 5725-5850	ax (HE40)	5190-5230 5755-5795	38-46 [2] 151-159 [2]	2	MCS 0-11
5150-5250 5725-5850	ax (HE80)	5210 5775	42 [1] 155 [1]	2	MCS 0-11
Note 1: The device supports OFDM/OFDMA- BPSK, QPSK, 16QAM, 64QAM, 256QAM and 1024QAM modulation. Note 2: 802.11an / ac / ax supports beamforming function.					

1.1.2 Antenna Details

Ant. No.	Model	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)				
				2400~2483.5	5150~5250	5250~5350	5470~5725	5725~5850
1	G_Ant1	Panel	UFL	1.75	1.83	2.29	2.93	2.73
2	G_Ant2	Panel	UFL	2.55	3.05	3.91	4.99	4.6

1.1.3 Power Supply Type of Equipment under Test (EUT)

Power Supply Type	12 Vdc from AC adapter

1.1.4 Accessories

Accessories		
No.	**Equipment**	**Description**
1	AC adapter 1	Brand: LEI Model: ML30B1120250-A1 I/P: 100-120Vac, 50/60Hz, 0.8A O/P: 12Vdc, 2.5A Power Line: 1.8m non-shielded without core
2	AC adapter 2	Brand: MOSO Model: MSS-V2500WR120-030E0-US I/P: 100-240Vac, 50 / 60Hz, 1.0A O/P: 12Vdc, 2.5A Power Line: 1.8m non-shielded without core
3	RJ45 (WAN) (White)	1.7m non-shielded without core
4	RJ 45 (LAN) (Yellow)	1.7m non-shielded without core
5	RJ11 (Green)	3.6m non-shielded without core

1.1.5 Channel List

802.11a / n HT20 / ac VHT20 / ax HE20		802.11n HT40 / ac VHT40 / ax HE40	
Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
36	5180	38	5190
40	5200	46	5230
44	5220	151	5755
48	5240	159	5795
149	5745	**802.11ac VHT80 / ax HE80**	
153	5765	42	5210
157	5785	155	5775
161	5805	-	-
165	5825	-	-

1.1.6 Test Tool and Duty Cycle

Test Tool	Intel DUT GUI, Version: V610.26		
Duty Cycle and Duty Factor	**Mode**	**Duty Cycle (%)**	**Duty Factor (dB)**
	11a	100.00%	0.00
	ax (HE20)	100.00%	0.00
	ax (HE40)	100.00%	0.00
	ax (HE80)	100.00%	0.00

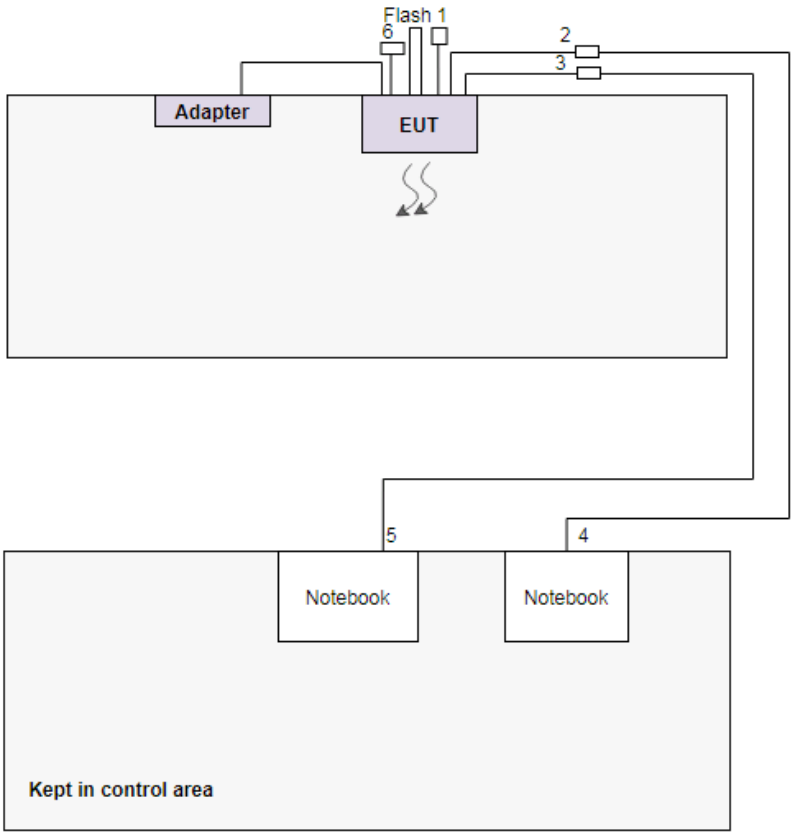
1.1.7 Power Index of Test Tool

Modulation Mode	Test Frequency (MHz)	Power Index	
		Non- beamforming	Beamforming
11a	5180	24	---
11a	5200	28	---
11a	5240	26	---
11a	5745	26.5	---
11a	5785	26.5	---
11a	5825	26.5	---
VHT20	5180	23	23
VHT20	5200	27.5	27.5
VHT20	5240	26	26
VHT20	5745	26.5	26
VHT20	5785	26.5	26
VHT20	5825	26.5	26
VHT40	5190	20.5	20.5
VHT40	5230	25	25
VHT40	5755	27	26.5
VHT40	5795	27.5	27
VHT80	5210	19.5	19.5
VHT80	5775	22.5	22.5
ax (HE20)	5180	23	23
ax (HE20)	5200	27.5	27.5
ax (HE20)	5240	26	26
ax (HE20)	5745	26.5	26
ax (HE20)	5785	26.5	26
ax (HE20)	5825	26.5	26
ax (HE40)	5190	20.5	20.5
ax (HE40)	5230	25	25
ax (HE40)	5755	27	26.5
ax (HE40)	5795	27.5	27
ax (HE80)	5210	19.5	19.5
ax (HE80)	5775	22.5	22.5

1.2 Local Support Equipment List

Support Equipment List					
No.	**Equipment**	**Brand**	**Model**	**FCC ID**	**Remarks**
1	WAN (White)	---	---	---	Provided by applicant.
2	LAN (Yellow)	---	---	---	Provided by applicant.
3	RJ45	ICC	RJ45-10m	---	---
4	RJ45	ICC	RJ45-10m	---	---
5	RJ45	ICC	RJ45-1.3m	---	---
6	RJ45	ICC	RJ45-1.3m	---	---
7	RJ11 (Green)	---	---	---	Provided by applicant.
8	RJ45 Connector	ICC	RJ45 Connector	---	---
9	RJ45 Connector	ICC	RJ45 Connector	---	---
10	RJ45 Load	ICC	---	---	---
11	RJ11 Load	ICC	---	---	---
12	Notebook	DELL	Latitude E6430	DoC	---
13	Notebook	DELL	Latitude E6440	DoC	---
14	USB 3.0 Flash	Transcend	JetFlash 700	---	---
14	RJ45	ICC	RJ45-1.3m	---	---

1.3 Test Setup Chart

Test Setup Diagram


No.	Signal cable / Length (m)
1	RJ45, 1m (x3) non-shielded with load
2	RJ45, 1.7m non-shielded
3	RJ45, 1.7m non-shielded
4	RJ45, 10m non-shielded
5	RJ45, 10m non-shielded
6	RJ11, 3.6m non-shielded with load

1.4 The Equipment List

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Test Date	Oct. 19, 2020				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Receiver	R&S	ESR3	101658	Dec. 12, 2019	Dec. 11, 2020
LISN	R&S	ENV216	101579	Mar. 12, 2020	Mar. 11, 2021
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Oct. 22, 2019	Oct. 21, 2020
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission below 1GHz				
Test Site	966 chamber1 / (03CH01-WS)				
Test Date	Oct. 20, 2020				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 17, 2019	Dec. 16, 2020
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 10, 2020	Jul. 09, 2021
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 12, 2019	Dec. 11, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 06, 2020	Oct. 05, 2021
Preamplifier	EMC	EMC02325	980225	Jul. 03, 2020	Jul. 02, 2021
Preamplifier	Agilent	83017A	MY39501308	Sep. 26, 2020	Sep. 25, 2021
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 06, 2020	Oct. 05, 2021
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 06, 2020	Oct. 05, 2021
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 06, 2020	Oct. 05, 2021
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 06, 2020	Oct. 05, 2021
LF cable 11M	EMC	EMCCFD400-NW-NW-11000	200801	Oct. 06, 2020	Oct. 05, 2021
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 Site	966 chamber1 / (03CH01-WS)				
Test Date	Sep. 18 ~ Sep. 23, 2020				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Dec. 17, 2019	Dec. 16, 2020
Receiver	R&S	ESR3	101657	Feb. 14, 2020	Feb. 13, 2021
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jul. 10, 2020	Jul. 09, 2021
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Dec. 12, 2019	Dec. 11, 2020
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Nov. 15, 2019	Nov. 14, 2020
Loop Antenna	R&S	HFH2-Z2	100330	Nov. 13, 2019	Nov. 12, 2020
Loop Antenna Cable	KOAX KABEL	101354-BW	101354-BW	Oct. 07, 2019	Oct. 06, 2020
Preamplifier	EMC	EMC02325	980225	Jul. 03, 2020	Jul. 02, 2021
Preamplifier	Agilent	83017A	MY39501308	Oct. 08, 2019	Oct. 07, 2020
Preamplifier	EMC	EMC184045B	980192	Jul. 21, 2020	Jul. 20, 2021
RF Cable	EMC	EMC104-SM-SM-8000	181106	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Oct. 07, 2019	Oct. 06, 2020
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Oct. 07, 2019	Oct. 06, 2020
LF cable 1M	EMC	EMCCFD400-NM-NM-1000	160502	Oct. 07, 2019	Oct. 06, 2020
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Oct. 07, 2019	Oct. 06, 2020
LF cable 11M	EMC	EMCCFD400-NW-NW-11000	200801	Aug. 13, 2020	Aug. 12, 2021
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)				
Test Date	Sep. 21 ~ Oct. 20, 2020				
Instrument	**Brand**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101063	Apr. 30, 2020	Apr. 29, 2021
Power Meter	Anritsu	ML2495A	1241002	Oct. 23, 2019	Oct. 22, 2020
Power Sensor	Anritsu	MA2411B	1207366	Oct. 23, 2019	Oct. 22, 2020
AC POWER SOURCE	APC	AFC-500W	F312060012	Dec. 02, 2019	Dec. 01, 2020
Measurement Software	Sporton	SENSE-15247_DTS	V5.9	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

1.5 Test Standards

47 CFR FCC Part 15.407
ANSI C63.10-2013

1.6 Reference Guidance

FCC KDB 412172 D01 Determining ERP and EIRP v01r01
FCC KDB 662911 D01 Multiple Transmitter Output v02r01
FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

1.7 Deviation from Test Standard and Measurement Procedure

None

1.8 Measurement Uncertainty

The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)

Measurement Uncertainty	
Parameters	**Uncertainty**
Bandwidth	±34.130 Hz
Conducted power	±0.808 dB
Frequency error	$\pm 1 \times 10^{-9}$
Power density	±0.583 dB
Conducted emission	±2.715 dB
AC conducted emission	±2.92 dB
Radiated emission ≤ 1GHz	±3.41 dB
Radiated emission > 1GHz	±4.59 dB
Time	±0.1%
Temperature	±0.4 °C

2 Test Configuration

2.1 Testing Facility

Test Laboratory	International Certification Corp.
Test Site	CO01-WS, 03CH01-WS, TH01-WS
Address of Test Site	No. 3-1, Lane 6, Wen San 3rd St., Kwei Shan District, Tao Yuan City 333, Taiwan, R.O.C.

- FCC Designation No.: TW2732
- FCC site registration No.: 181692
- ISED#: 10807A
- CAB identifier: TW2732

2.2 The Worst Test Modes and Channel Details

Frequency band 5150~5250 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5200	6 Mbps	Non-beamforming
Radiated Emissions ≤1GHz	11a	5200	6 Mbps	Non-beamforming
RF Output Power	11a	5180 / 5200 / 5240	6 Mbps	Non-beamforming
	VHT20	5180 / 5200 / 5240	MCS 0	
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
RF Output Power	VHT20	5180 / 5200 / 5240	MCS 0	Beamforming
	VHT40	5190 / 5230	MCS 0	
	VHT80	5210	MCS 0	
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth Peak Power Spectral Density	11a	5180 / 5200 / 5240	6 Mbps	Non-beamforming
	ax HE20	5180 / 5200 / 5240	MCS 0	
	ax HE40	5190 / 5230	MCS 0	
	ax HE80	5210	MCS 0	
Frequency Stability	Un-modulation	5200	---	Non-beamforming

NOTE:

1. Adapter 1 (Brand: LEI) and Adapter 2 (Brand: MOSO) had been covered during the pretest.
   The worst adapter is **Adapter 2 (Brand: MOSO)**, and only its data was record in this test report for conducted emissions test.
2. Adapter 1 (Brand: LEI) and Adapter 2 (Brand: MOSO) had been covered during the pretest. The worst adapter is **Adapter 1 (Brand: LEI)**, and only its data was record in this test report for radiated emissions test.
3. Non-beamforming and beamforming mode had been covered during the pretest. The worst mode is Non-beamforming thus Non-beamforming is tested for all test items.

Frequency band 5725-5850 MHz				
Test item	**Modulation Mode**	**Test Frequency (MHz)**	**Data Rate (Mbps) / MCS**	**Test Configuration**
Conducted Emissions	11a	5745	6 Mbps	Non-beamforming
Radiated Emissions ≤1GHz	11a	5745	6 Mbps	Non-beamforming
RF Output Power	11a	5745 / 5785 / 5825	6 Mbps	Non-beamforming
	VHT20	5745 / 5785 / 5825	MCS 0	
	VHT40	5775 / 5795	MCS 0	
	VHT80	5775	MCS 0	
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
RF Output Power	VHT20	5745 / 5785 / 5825	MCS 0	Beamforming
	VHT40	5775 / 5795	MCS 0	
	VHT80	5775	MCS 0	
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
Radiated Emissions >1GHz Emission Bandwidth 6dB bandwidth Peak Power Spectral Density	11a	5745 / 5785 / 5825	6 Mbps	Non-beamforming
	ax HE20	5745 / 5785 / 5825	MCS 0	
	ax HE40	5755 / 5795	MCS 0	
	ax HE80	5775	MCS 0	
Frequency Stability	Un-modulation	5785	---	Non-beamforming

NOTE:

1. Adapter 1 (Brand: LEI) and Adapter 2 (Brand: MOSO) had been covered during the pretest.
   The worst adapter is **Adapter 2 (Brand: MOSO)**, and only its data was record in this test report for conducted emissions test.
2. Adapter 1 (Brand: LEI) and Adapter 2 (Brand: MOSO) had been covered during the pretest. The worst adapter is **Adapter 1 (Brand: LEI)**, and only its data was record in this test report for radiated emissions test.
3. Non-beamforming and beamforming mode had been covered during the pretest. The worst mode is Non-beamforming thus Non-beamforming is tested for all test items.

3 Transmitter Test Results

3.1 Conducted Emissions

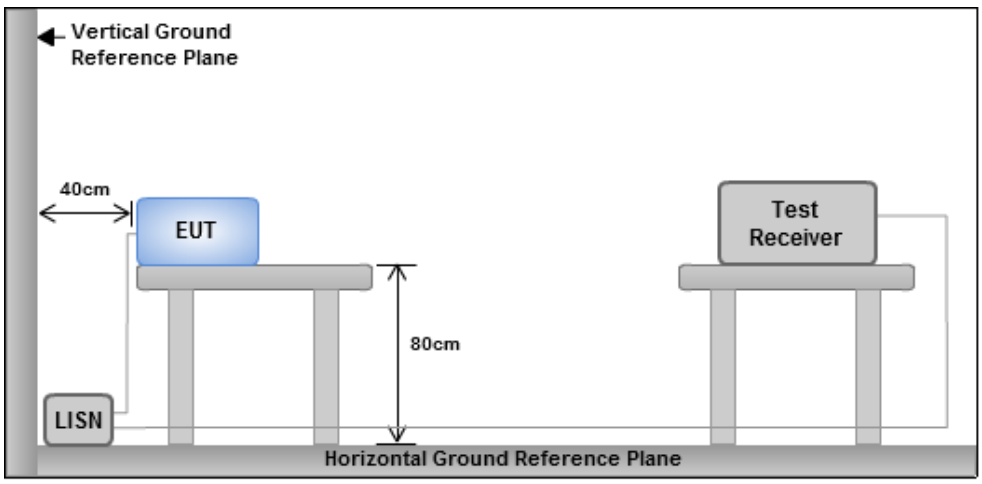
3.1.1 Limit of Conducted Emissions

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



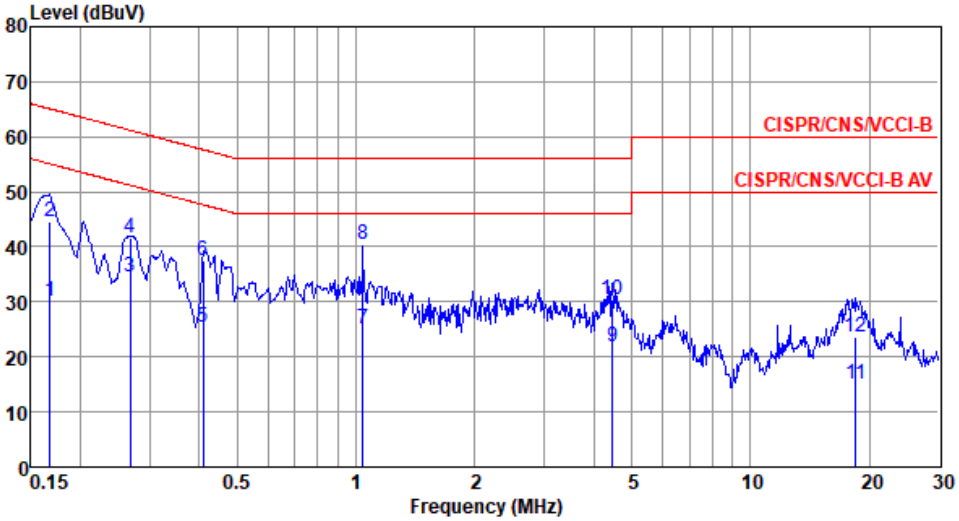
Note: 1. Support units were connected to second LISN.

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		

Test by : Alex Tsai Temperature: 24°C Humidity: 63%

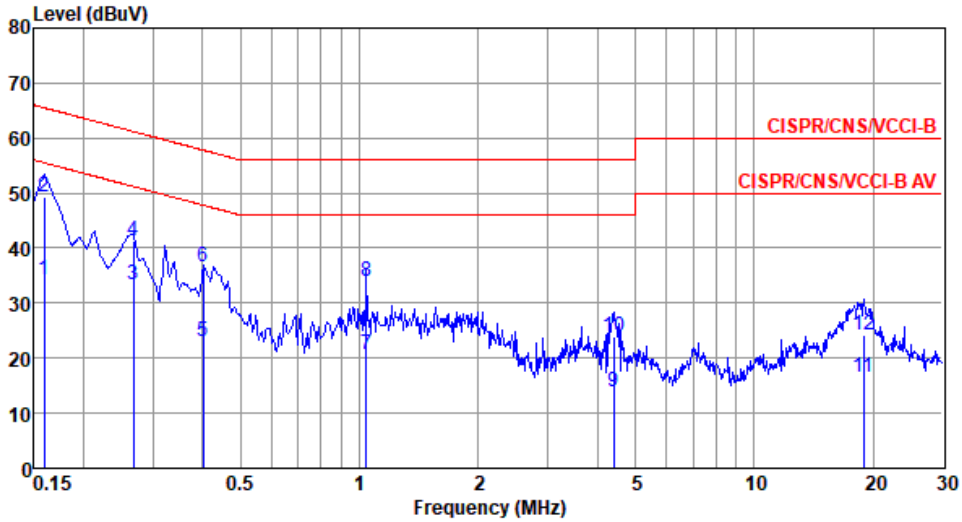


	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.168	30.12	55.08	-24.96	20.26	9.64	0.05	Average
2	0.168	44.57	65.08	-20.51	34.71	9.64	0.05	QP
3	0.267	34.58	51.20	-16.62	24.67	9.63	0.07	Average
4	0.267	41.55	61.20	-19.65	31.64	9.63	0.07	QP
5	0.410	25.52	47.64	-22.12	15.56	9.63	0.08	Average
6	0.410	37.43	57.64	-20.21	27.47	9.63	0.08	QP
7	1.043	24.96	46.00	-21.04	14.89	9.63	0.12	Average
8*	1.043	40.54	56.00	-15.46	30.47	9.63	0.12	QP
9	4.478	21.87	46.00	-24.13	11.55	9.65	0.30	Average
10	4.478	30.54	56.00	-25.46	20.22	9.65	0.30	QP
11	18.524	14.99	50.00	-35.01	4.06	9.72	0.64	Average
12	18.524	23.50	60.00	-36.50	12.57	9.72	0.64	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		

Test by : Alex Tsai Temperature: 24°C Humidity: 63%

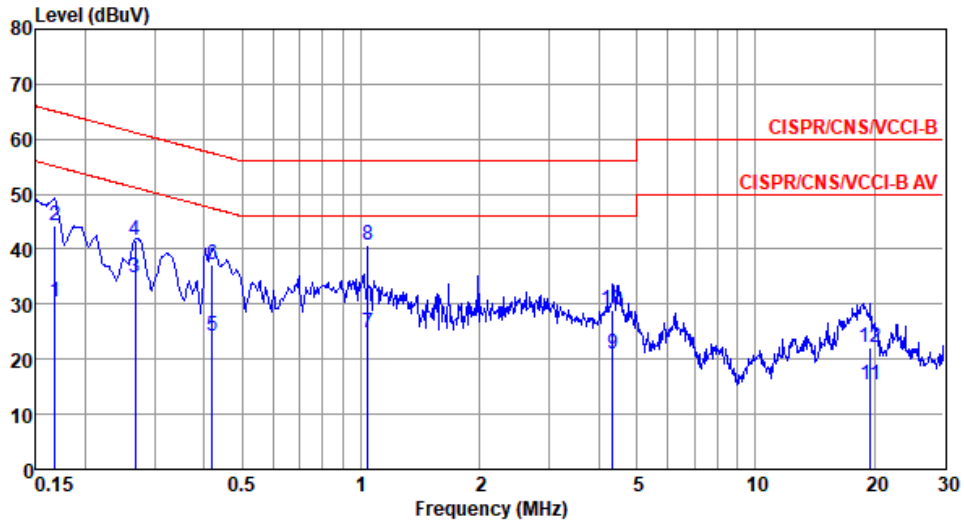


	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	34.17	55.52	-21.35	24.33	9.66	0.05	Average
2*	0.159	49.34	65.52	-16.18	39.50	9.66	0.05	QP
3	0.267	33.38	51.20	-17.82	23.50	9.65	0.07	Average
4	0.267	41.31	61.20	-19.89	31.43	9.65	0.07	QP
5	0.402	22.94	47.81	-24.87	13.04	9.65	0.08	Average
6	0.402	36.48	57.81	-21.33	26.58	9.65	0.08	QP
7	1.043	20.58	46.00	-25.42	10.61	9.65	0.12	Average
8	1.043	34.08	56.00	-21.92	24.11	9.65	0.12	QP
9	4.407	13.88	46.00	-32.12	3.63	9.68	0.30	Average
10	4.407	23.99	56.00	-32.01	13.74	9.68	0.30	QP
11	18.920	16.59	50.00	-33.41	5.62	9.83	0.65	Average
12	18.920	24.16	60.00	-35.84	13.19	9.83	0.65	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)	5745
Power Phase	Line		

Test by : Alex Tsai Temperature: 24°C Humidity: 63%

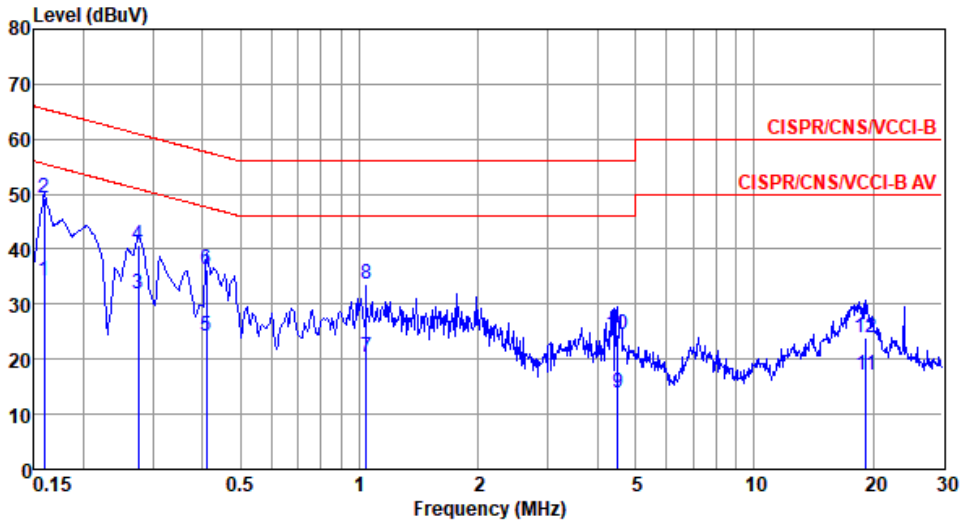


	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.168	30.47	55.08	-24.61	20.61	9.64	0.05	Average
2	0.168	44.39	65.08	-20.69	34.53	9.64	0.05	QP
3	0.267	34.91	51.20	-16.29	25.00	9.63	0.07	Average
4	0.267	41.77	61.20	-19.43	31.86	9.63	0.07	QP
5	0.419	24.20	47.46	-23.26	14.24	9.63	0.08	Average
6	0.419	37.26	57.46	-20.20	27.30	9.63	0.08	QP
7	1.043	24.78	46.00	-21.22	14.71	9.63	0.12	Average
8*	1.043	40.72	56.00	-15.28	30.65	9.63	0.12	QP
9	4.338	20.81	46.00	-25.19	10.49	9.65	0.30	Average
10	4.338	28.78	56.00	-27.22	18.46	9.65	0.30	QP
11	19.532	15.33	50.00	-34.67	4.36	9.72	0.65	Average
12	19.532	22.06	60.00	-37.94	11.09	9.72	0.65	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)	5745
Power Phase	Neutral		

Test by : Alex Tsai Temperature: 24°C Humidity: 63%



	Freq	Level	Limit Line	Over Limit	Read Level	LISN factor	cable loss	Remark
	MHz	dBuV	dBuV	dB	dBuV	dB	dB	
1	0.159	34.31	55.52	-21.21	24.47	9.66	0.05	Average
2*	0.159	49.18	65.52	-16.34	39.34	9.66	0.05	QP
3	0.276	31.88	50.94	-19.06	22.00	9.65	0.07	Average
4	0.276	40.79	60.94	-20.15	30.91	9.65	0.07	QP
5	0.410	24.29	47.64	-23.35	14.39	9.65	0.08	Average
6	0.410	36.24	57.64	-21.40	26.34	9.65	0.08	QP
7	1.043	20.43	46.00	-25.57	10.46	9.65	0.12	Average
8	1.043	33.64	56.00	-22.36	23.67	9.65	0.12	QP
9	4.501	13.99	46.00	-32.01	3.74	9.68	0.30	Average
10	4.501	24.41	56.00	-31.59	14.16	9.68	0.30	QP
11	19.224	17.04	50.00	-32.96	6.06	9.83	0.65	Average
12	19.224	23.88	60.00	-36.12	12.90	9.83	0.65	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.

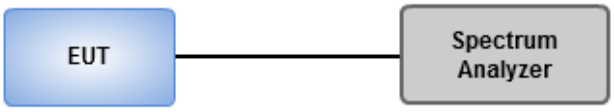
Occupied Bandwidth

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

Ambient Condition	22 ~ 25°C / 65 ~ 68%	Tested By	Aska Huang

Summary

Mode	Max-N dB (Hz)	Max-OBW (Hz)	ITU-Code	Min-N dB (Hz)	Min-OBW (Hz)
5.15-5.25GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	37.681M	20.897M	20M9D1D	22.536M	16.556M
802.11ax HEW20_Nss1,(MCS0)_2TX	39.058M	19.103M	19M1D1D	21.232M	18.929M
802.11ax HEW40_Nss1,(MCS0)_2TX	44.638M	38.09M	38M1D1D	41.449M	37.858M
802.11ax HEW80_Nss1,(MCS0)_2TX	83.768M	77.8M	77M8D1D	83.478M	77.8M
5.725-5.85GHz	-	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	16.594M	21.65M	21M6D1D	16.449M	18.466M
802.11ax HEW20_Nss1,(MCS0)_2TX	19.13M	20.724M	20M7D1D	18.986M	19.45M
802.11ax HEW40_Nss1,(MCS0)_2TX	38.261M	39.363M	39M4D1D	38.116M	38.437M
802.11ax HEW80_Nss1,(MCS0)_2TX	78.261M	77.8M	77M8D1D	78.261M	77.569M

Max-N dB = Maximum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Max-OBW = Maximum 99% occupied bandwidth;
Min-N dB = Minimum 6dB down bandwidth for 5.725-5.85GHz band / Maximum 26dB down bandwidth for other band;
Min-OBW = Minimum 99% occupied bandwidth;

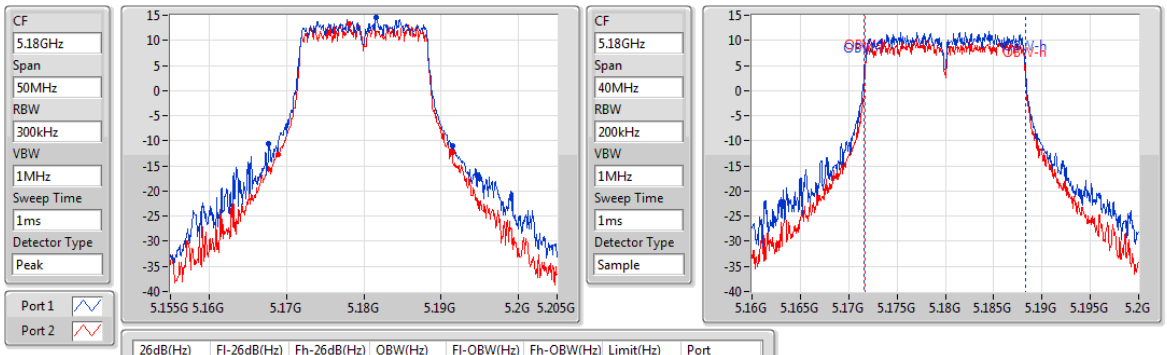
Result

Mode	Result	Limit (Hz)	Port 1 -N dB (Hz)	Port 1 -OBW (Hz)	Port 2 -N dB (Hz)	Port 2 -OBW (Hz)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.768M	16.671M	22.536M	16.556M
5200MHz	Pass	Inf	37.681M	20.897M	30.435M	16.845M
5240MHz	Pass	Inf	35.072M	17.945M	30.725M	16.961M
5745MHz	Pass	500k	16.594M	19.971M	16.449M	21.65M
5785MHz	Pass	500k	16.522M	20.26M	16.449M	19.624M
5825MHz	Pass	500k	16.522M	18.524M	16.449M	18.466M
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5180MHz	Pass	Inf	23.986M	19.045M	22.826M	18.987M
5200MHz	Pass	Inf	39.058M	19.103M	21.232M	18.929M
5240MHz	Pass	Inf	30.435M	19.045M	30.87M	18.987M
5745MHz	Pass	500k	19.13M	20.492M	19.13M	20.724M
5785MHz	Pass	500k	19.13M	19.508M	19.058M	19.74M
5825MHz	Pass	500k	18.986M	19.45M	19.13M	19.45M
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5190MHz	Pass	Inf	43.478M	37.974M	41.449M	37.858M
5230MHz	Pass	Inf	44.638M	38.09M	42.609M	38.09M
5755MHz	Pass	500k	38.261M	38.437M	38.261M	38.784M
5795MHz	Pass	500k	38.116M	38.553M	38.116M	39.363M
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-
5210MHz	Pass	Inf	83.768M	77.8M	83.478M	77.8M
5775MHz	Pass	500k	78.261M	77.8M	78.261M	77.569M

Port X-N dB = Port **X** 6dB down bandwidth for 5.725-5.85GHz band / 26dB down bandwidth for other band
Port X-OBW = Port **X** 99% occupied bandwidth;

802.11a_Nss1,(6Mbps)_2TX EBW

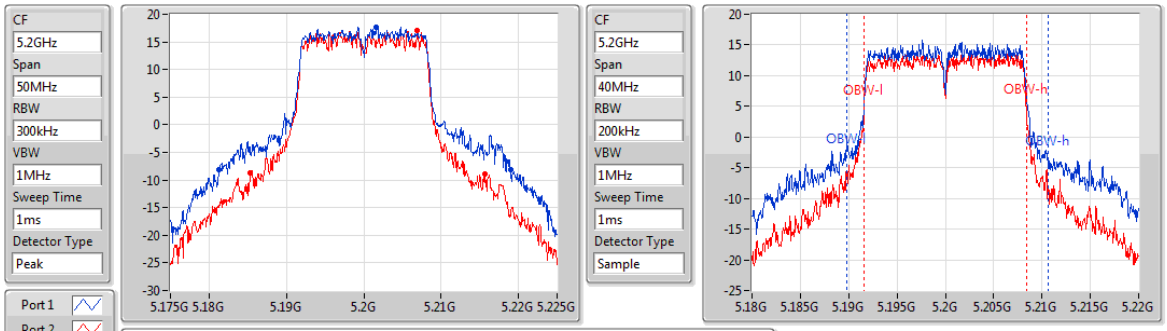
5180MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
23.768M	5.167681G	5.191449G	16.671M	5.171606G	5.188278G	Inf	1
22.536M	5.168913G	5.191449G	16.556M	5.171722G	5.188278G	Inf	2

802.11a_Nss1,(6Mbps)_2TX EBW

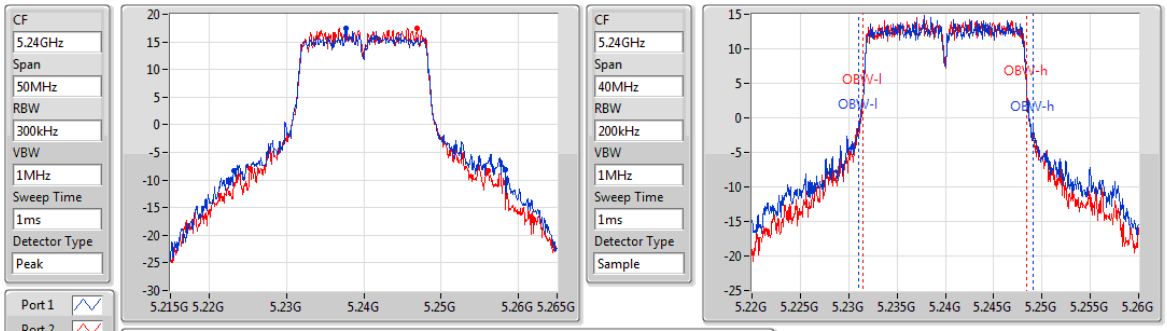
5200MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
37.681M	5.181304G	5.218986G	20.897M	5.189754G	5.210651G	Inf	1
30.435M	5.18529G	5.215725G	16.845M	5.191548G	5.208394G	Inf	2

802.11a_Nss1,(6Mbps)_2TX EBW

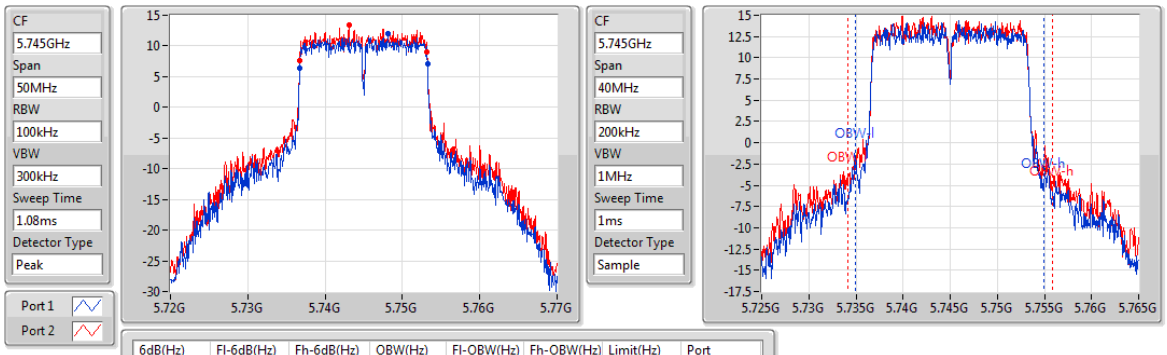
5240MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
35.072M	5.223188G	5.258261G	17.945M	5.231085G	5.24903G	Inf	1
30.725M	5.225362G	5.256087G	16.961M	5.231491G	5.248452G	Inf	2

802.11a_Nss1,(6Mbps)_2TX EBW

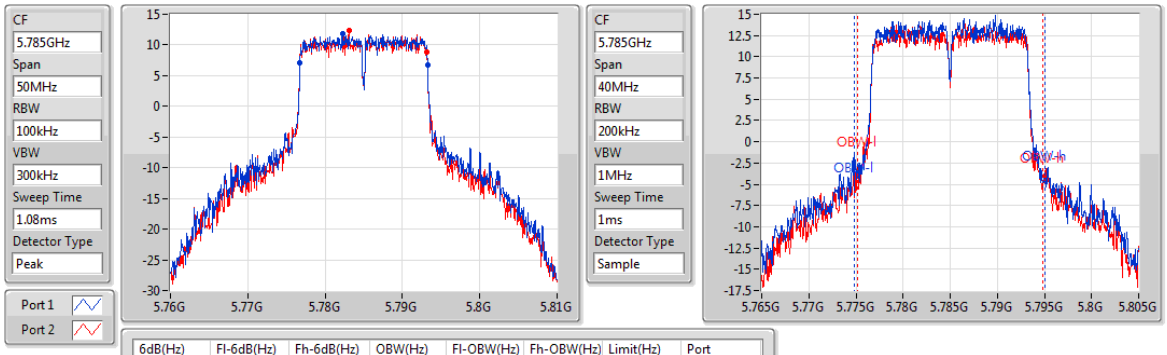
5745MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.594M	5.736667G	5.753261G	19.971M	5.734986G	5.754957G	500k	1
16.449M	5.736739G	5.753188G	21.65M	5.734175G	5.755825G	500k	2

802.11a_Nss1,(6Mbps)_2TX EBW

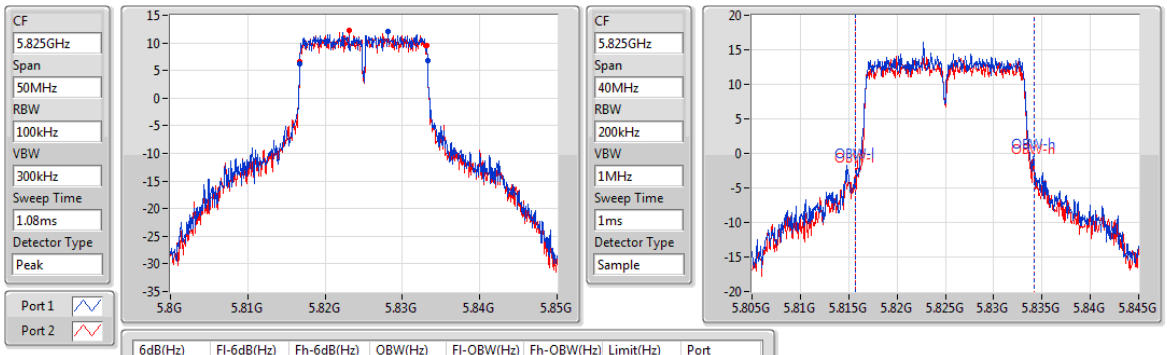
5785MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.522M	5.776739G	5.793261G	20.26M	5.774812G	5.795072G	500k	1
16.449M	5.776739G	5.793188G	19.624M	5.775217G	5.794841G	500k	2

802.11a_Nss1,(6Mbps)_2TX EBW

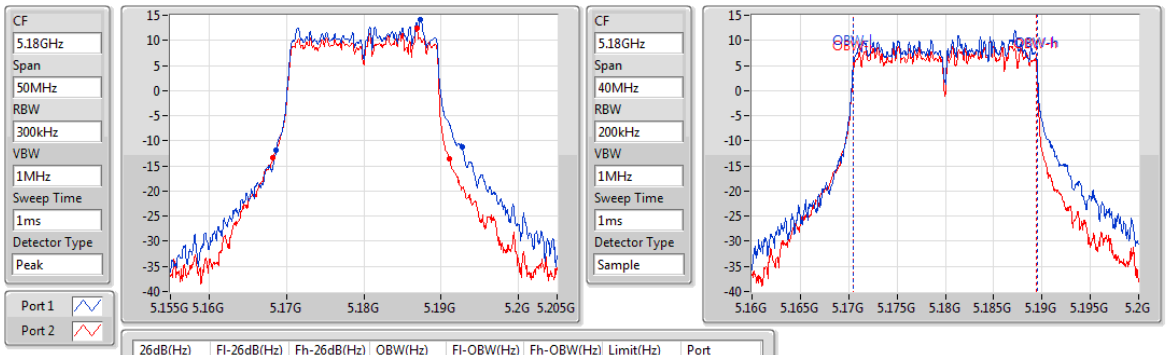
5825MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
16.522M	5.816739G	5.833261G	18.524M	5.81568G	5.834204G	500k	1
16.449M	5.816739G	5.833188G	18.466M	5.815738G	5.834204G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

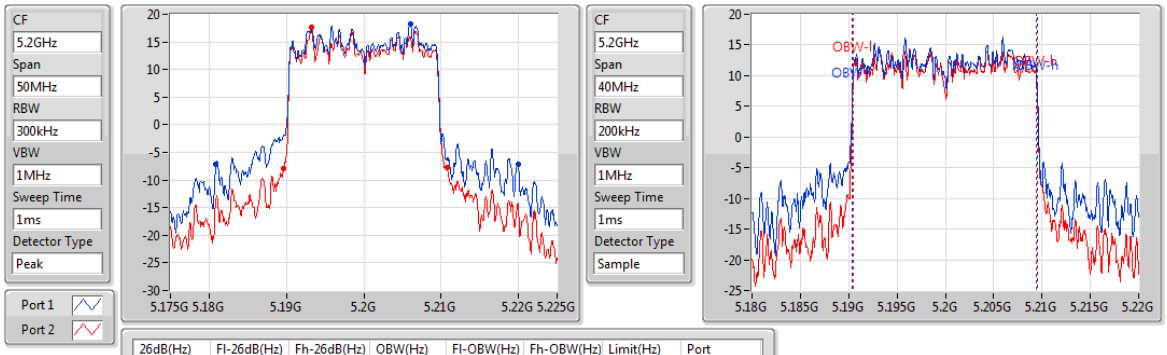
5180MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
23.986M	5.168696G	5.192681G	19.045M	5.170449G	5.189493G	Inf	1
22.826M	5.168261G	5.191087G	18.987M	5.170449G	5.189436G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

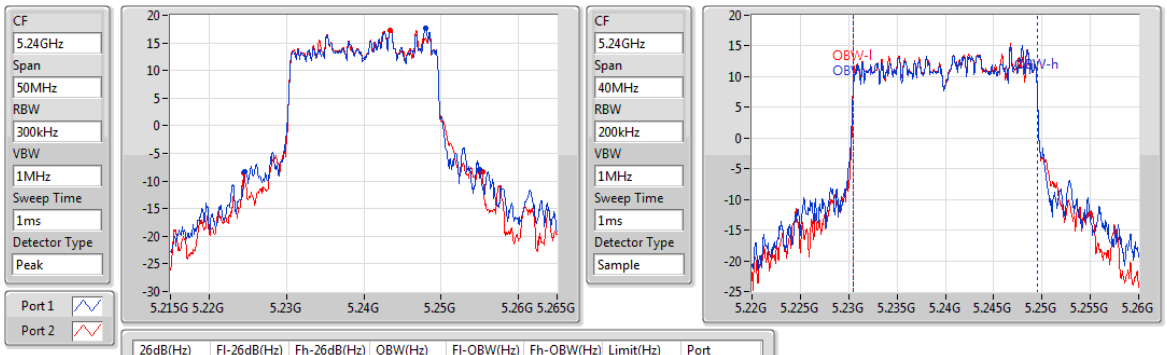
5200MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
39.058M	5.18087G	5.219928G	19.103M	5.190391G	5.209493G	Inf	1
21.232M	5.189565G	5.210797G	18.929M	5.190507G	5.209436G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

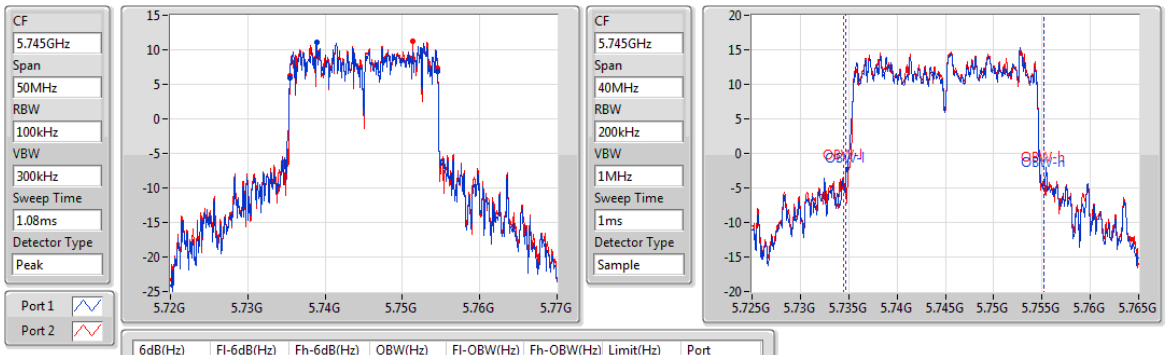
5240MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
30.435M	5.224565G	5.255G	19.045M	5.230449G	5.249493G	Inf	1
30.87M	5.224493G	5.255362G	18.987M	5.230507G	5.249493G	Inf	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

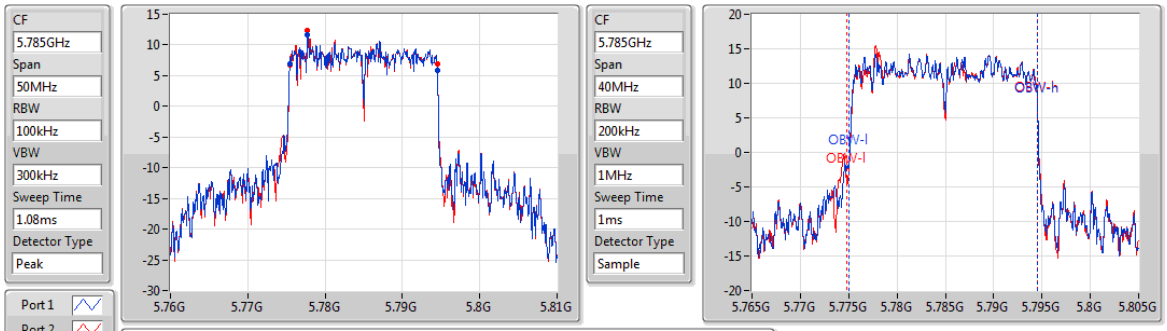
5745MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.13M	5.735435G	5.754565G	20.492M	5.734696G	5.755188G	500k	1
19.13M	5.735435G	5.754565G	20.724M	5.734465G	5.755188G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

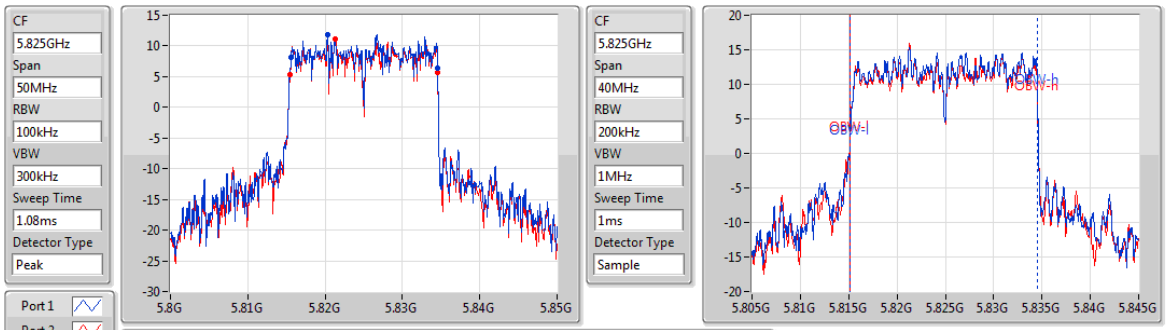
5785MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
19.13M	5.775435G	5.794565G	19.508M	5.775043G	5.794551G	500k	1
19.058M	5.775435G	5.794493G	19.74M	5.774812G	5.794551G	500k	2

802.11ax HEW20_Nss1,(MCS0)_2TX **EBW**

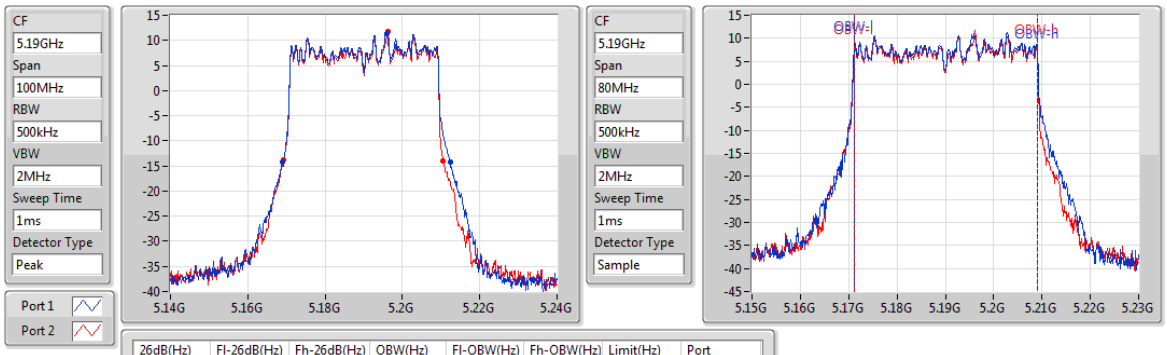
5825MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
18.986M	5.81558G	5.834565G	19.45M	5.815101G	5.834551G	500k	1
19.13M	5.815435G	5.834565G	19.45M	5.815101G	5.834551G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

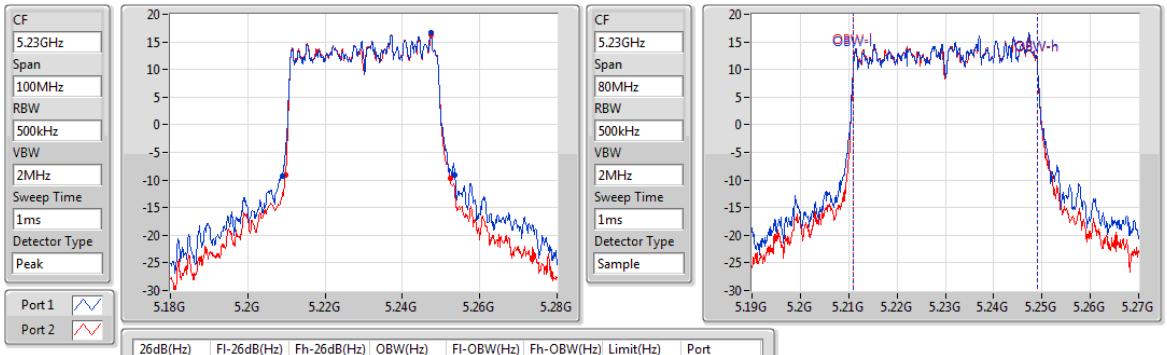
5190MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
43.478M	5.168841G	5.212319G	37.974M	5.171129G	5.209103G	Inf	1
41.449M	5.16913G	5.21058G	37.858M	5.171129G	5.208987G	Inf	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

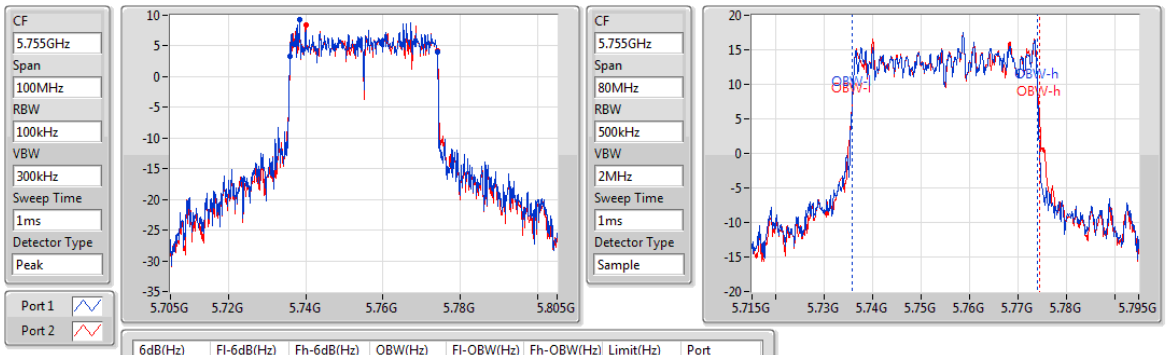
5230MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
44.638M	5.208986G	5.253623G	38.09M	5.211013G	5.249103G	Inf	1
42.609M	5.20971G	5.252319G	38.09M	5.211013G	5.249103G	Inf	2

802.11ax HEW40_Nss1,(MCS0)_2TX **EBW**

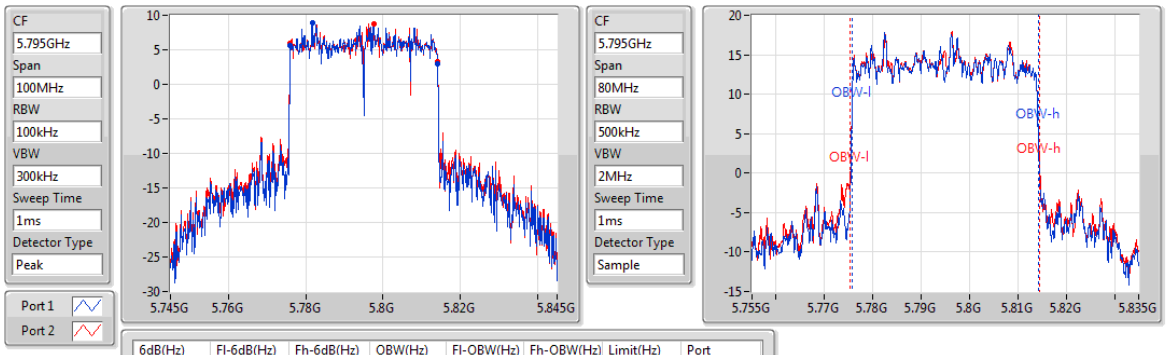
5755MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.261M	5.73587G	5.77413G	38.437M	5.735666G	5.774103G	500k	1
38.261M	5.73587G	5.77413G	38.784M	5.735666G	5.77445G	500k	2

802.11ax HEW40_Nss1,(MCS0)_2TX EBW

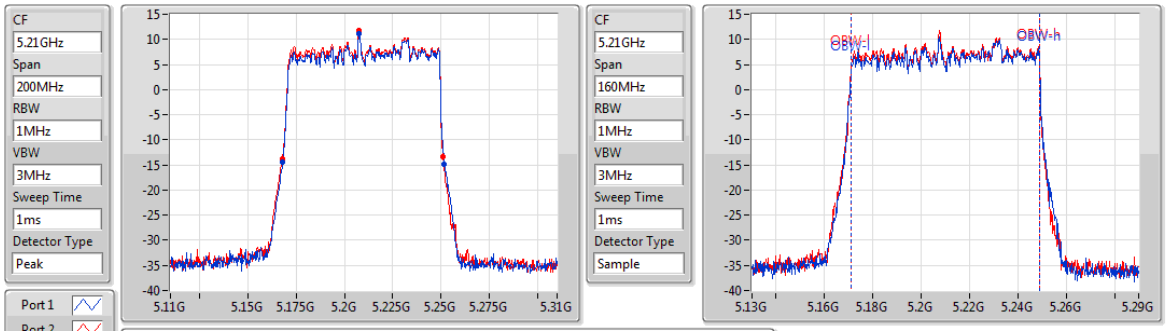
5795MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
38.116M	5.776014G	5.81413G	38.553M	5.775666G	5.814219G	500k	1
38.116M	5.776014G	5.81413G	39.363M	5.775203G	5.814566G	500k	2

802.11ax HEW80_Nss1,(MCS0)_2TX EBW

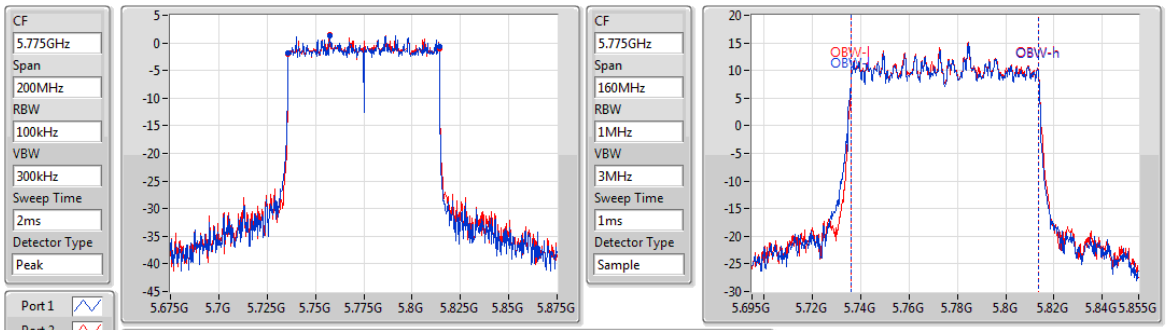
5210MHz



26dB(Hz)	Fl-26dB(Hz)	Fh-26dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
83.768M	5.167971G	5.251739G	77.8M	5.1711G	5.2489G	Inf	1
83.478M	5.167681G	5.251159G	77.8M	5.1711G	5.2489G	Inf	2

802.11ax HEW80_Nss1,(MCS0)_2TX EBW

5775MHz



6dB(Hz)	Fl-6dB(Hz)	Fh-6dB(Hz)	OBW(Hz)	Fl-OBW(Hz)	Fh-OBW(Hz)	Limit(Hz)	Port
78.261M	5.73587G	5.81413G	77.8M	5.735868G	5.813669G	500k	1
78.261M	5.73587G	5.81413G	77.569M	5.7361G	5.813669G	500k	2

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

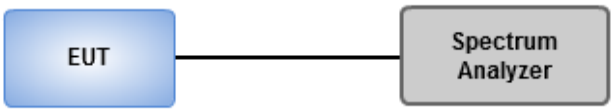
Frequency Band (MHz)		**Limit**
☒	5725 ~ 5850	Conducted Power: 1 W
Note: “B” is the 26dB emission bandwidth in MHz.		

3.3.2 Test Procedures

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

Measurements 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

Ambient Condition	22 ~ 25°C / 65 ~ 68%	Tested By	Aska Huang

Non-beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	29.77	0.94842	32.82	1.91426
802.11ac VHT20_Nss1,(MCS0)_2TX	29.71	0.93541	32.76	1.88799
802.11ac VHT40_Nss1,(MCS0)_2TX	28.68	0.73790	31.73	1.48936
802.11ac VHT80_Nss1,(MCS0)_2TX	22.46	0.17620	25.51	0.35563
802.11ax HEW20_Nss1,(MCS0)_2TX	29.74	0.94189	32.79	1.90108
802.11ax HEW40_Nss1,(MCS0)_2TX	28.73	0.74645	31.78	1.50661
802.11ax HEW80_Nss1,(MCS0)_2TX	22.53	0.17906	25.58	0.36141
5.725-5.85GHz	-	-	-	-
802.11a_Nss1,(6Mbps)_2TX	29.79	0.95280	34.39	2.74789
802.11ac VHT20_Nss1,(MCS0)_2TX	29.67	0.92683	34.27	2.67301
802.11ac VHT40_Nss1,(MCS0)_2TX	29.51	0.89331	34.11	2.57632
802.11ac VHT80_Nss1,(MCS0)_2TX	25.56	0.35975	30.16	1.03753
802.11ax HEW20_Nss1,(MCS0)_2TX	29.73	0.93972	34.33	2.71019
802.11ax HEW40_Nss1,(MCS0)_2TX	29.55	0.90157	34.15	2.60016
802.11ax HEW80_Nss1,(MCS0)_2TX	25.59	0.36224	30.19	1.04472

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.05	23.72	22.95	26.36	30.00	29.41	36.00
5200MHz	Pass	3.05	27.24	26.21	29.77	30.00	32.82	36.00
5240MHz	Pass	3.05	26.17	26.42	29.31	30.00	32.36	36.00
5745MHz	Pass	4.60	26.63	26.92	29.79	30.00	34.39	36.00
5785MHz	Pass	4.60	26.55	26.6	29.59	30.00	34.19	36.00
5825MHz	Pass	4.60	26.75	26.34	29.56	30.00	34.16	36.00
802.11ac VHT20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.05	22.96	21.86	25.46	30.00	28.51	36.00
5200MHz	Pass	3.05	27.28	26.02	29.71	30.00	32.76	36.00
5240MHz	Pass	3.05	26.05	26.25	29.16	30.00	32.21	36.00
5745MHz	Pass	4.60	26.28	26.73	29.52	30.00	34.12	36.00
5785MHz	Pass	4.60	26.62	26.37	29.51	30.00	34.11	36.00
5825MHz	Pass	4.60	26.63	26.68	29.67	30.00	34.27	36.00
802.11ac VHT40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	3.05	20.38	19.93	23.17	30.00	26.22	36.00
5230MHz	Pass	3.05	25.62	25.71	28.68	30.00	31.73	36.00
5755MHz	Pass	4.60	26.52	26.46	29.50	30.00	34.10	36.00
5795MHz	Pass	4.60	26.49	26.51	29.51	30.00	34.11	36.00
802.11ac VHT80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	3.05	19.15	19.73	22.46	30.00	25.51	36.00
5775MHz	Pass	4.60	22.41	22.68	25.56	30.00	30.16	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	3.05	23.04	21.89	25.51	30.00	28.56	36.00
5200MHz	Pass	3.05	27.32	26.04	29.74	30.00	32.79	36.00
5240MHz	Pass	3.05	26.12	26.33	29.24	30.00	32.29	36.00
5745MHz	Pass	4.60	26.32	26.77	29.56	30.00	34.16	36.00
5785MHz	Pass	4.60	26.63	26.38	29.52	30.00	34.12	36.00
5825MHz	Pass	4.60	26.71	26.72	29.73	30.00	34.33	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	3.05	20.41	19.97	23.21	30.00	26.26	36.00
5230MHz	Pass	3.05	25.69	25.75	28.73	30.00	31.78	36.00
5755MHz	Pass	4.60	26.59	26.49	29.55	30.00	34.15	36.00

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
5795MHz	Pass	4.60	26.53	26.53	29.54	30.00	34.14	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	3.05	19.19	19.82	22.53	30.00	25.58	36.00
5775MHz	Pass	4.60	22.44	22.71	25.59	30.00	30.19	36.00

DG = Directional Gain;**Port X** = Port X output power

Beamforming mode

Summary

Mode	Total Power (dBm)	Total Power (W)	EIRP (dBm)	EIRP (W)
5.15-5.25GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	29.63	0.91833	35.10	3.23594
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	28.64	0.73114	34.11	2.57632
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	22.35	0.17179	27.82	0.60534
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	29.66	0.92470	35.13	3.25837
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	28.67	0.73621	34.14	2.59418
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	22.45	0.17579	27.92	0.61944
5.725-5.85GHz	-	-	-	-
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	29.08	0.80910	35.81	3.81066
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	28.97	0.78886	35.70	3.71535
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	25.45	0.35075	32.18	1.65196
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	29.15	0.82224	35.88	3.87258
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	29.06	0.80538	35.79	3.79315
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	25.53	0.35727	32.26	1.68267

Result

Mode	Result	DG (dBi)	Port 1 (dBm)	Port 2 (dBm)	Total Power (dBm)	Power Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)
802.11ac VHT20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.47	22.86	21.81	25.38	30.00	30.85	36.00
5200MHz	Pass	5.47	27.15	26.01	29.63	30.00	35.10	36.00
5240MHz	Pass	5.47	26.02	26.15	29.10	30.00	34.57	36.00
5745MHz	Pass	6.73	25.75	26.12	28.95	29.27	35.68	36.00
5785MHz	Pass	6.73	26.11	25.93	29.03	29.27	35.76	36.00
5825MHz	Pass	6.73	26.02	26.11	29.08	29.27	35.81	36.00
802.11ac VHT40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	5.47	20.25	19.89	23.08	30.00	28.55	36.00
5230MHz	Pass	5.47	25.58	25.67	28.64	30.00	34.11	36.00
5755MHz	Pass	6.73	25.96	25.93	28.96	29.27	35.69	36.00
5795MHz	Pass	6.73	25.93	25.99	28.97	29.27	35.70	36.00
802.11ac VHT80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	5.47	19.05	19.62	22.35	30.00	27.82	36.00
5775MHz	Pass	6.73	22.31	22.57	25.45	29.27	32.18	36.00
802.11ax HEW20-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.47	22.96	21.75	25.41	30.00	30.88	36.00
5200MHz	Pass	5.47	27.18	26.05	29.66	30.00	35.13	36.00
5240MHz	Pass	5.47	26.05	26.28	29.18	30.00	34.65	36.00
5745MHz	Pass	6.73	25.83	26.12	28.99	29.27	35.72	36.00
5785MHz	Pass	6.73	26.15	25.97	29.07	29.27	35.80	36.00
5825MHz	Pass	6.73	26.09	26.18	29.15	29.27	35.88	36.00
802.11ax HEW40-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	5.47	20.31	19.91	23.12	30.00	28.59	36.00
5230MHz	Pass	5.47	25.62	25.69	28.67	30.00	34.14	36.00
5755MHz	Pass	6.73	26.02	25.98	29.01	29.27	35.74	36.00
5795MHz	Pass	6.73	26.07	26.02	29.06	29.27	35.79	36.00
802.11ax HEW80-BF_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	5.47	19.11	19.75	22.45	30.00	27.92	36.00
5775MHz	Pass	6.73	22.38	22.65	25.53	29.27	32.26	36.00

DG = Directional Gain, **Port X** = Port X output power

For 5.15 ~ 5.25 GHz , Directional Gain =10 * log((10$^{1.83/20}$+10$^{3.05/20}$)^2/2) =5.47 dBi;

For 5.725 ~ 5.85 GHz, Directional Gain =10 * log((10$^{2.73/20}$+10$^{4.6/20}$)^2/2) =6.73 dBi > 6 dBi, limit shall be reduced to 30 dBm – (6.73 dBi – 6 dBi) = 29.27 dBm;

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**
☒	5725 ~ 5850	30 dBm /500 kHz

3.4.2 Test Procedures

For 5150 ~ 5250 MHz

Duty cycle ≥ 98 %

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.

Duty cycle < 98 %

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

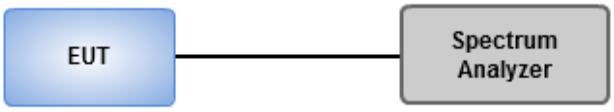
Duty cycle ≥ 98 %

1. Set RBW = 500 kHz, 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.

Duty cycle < 98 %

1. Set RBW = 500 kHz, 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.

3.4.3 Test Setup



3.4.4 Test Result of Peak Power Spectral Density

Ambient Condition	22 ~ 25°C / 65 ~ 68%	Tested By	Aska Huang

Summary

Mode	PD (dBm/RBW)	EIRP PD (dBm/RBW)
5.15-5.25GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	16.51	21.98
802.11ax HEW20_Nss1,(MCS0)_2TX	16.20	21.67
802.11ax HEW40_Nss1,(MCS0)_2TX	12.44	17.91
802.11ax HEW80_Nss1,(MCS0)_2TX	2.78	8.25
5.725-5.85GHz	-	-
802.11a_Nss1,(6Mbps)_2TX	14.72	21.45
802.11ax HEW20_Nss1,(MCS0)_2TX	15.58	22.31
802.11ax HEW40_Nss1,(MCS0)_2TX	11.68	18.41
802.11ax HEW80_Nss1,(MCS0)_2TX	4.91	11.64

RBW = 500kHz for 5.725-5.85GHz band / 1MHz for other band;

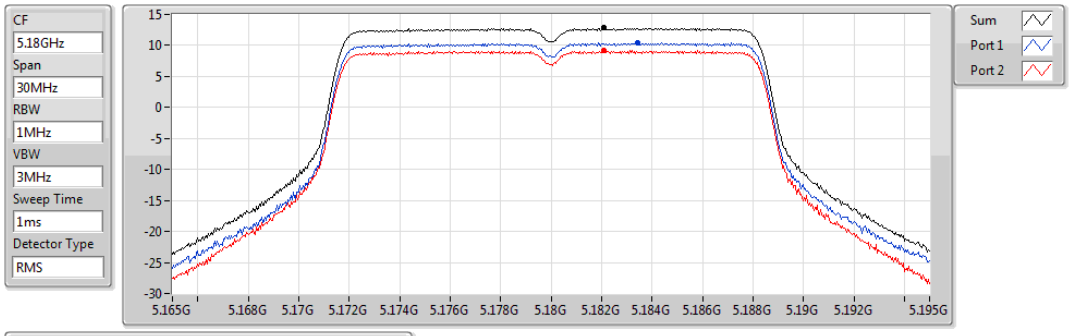
Result

Mode	Result	DG (dBi)	Port 1 (dBm/RBW)	Port 2 (dBm/RBW)	PD (dBm/RBW)	PD Limit (dBm/RBW)	EIRP PD (dBm/RBW)	EIRP PD Limit (dBm/RBW)
802.11a_Nss1,(6Mbps)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.47	10.41	9.25	12.83	17.00	18.30	23.00
5200MHz	Pass	5.47	14.06	13.01	16.51	17.00	21.98	23.00
5240MHz	Pass	5.47	12.94	13.39	16.10	17.00	21.57	23.00
5745MHz	Pass	6.73	11.48	12.15	14.72	29.27	21.45	36.00
5785MHz	Pass	6.73	11.60	11.40	14.43	29.27	21.16	36.00
5825MHz	Pass	6.73	11.66	11.19	14.34	29.27	21.07	36.00
802.11ax HEW20_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5180MHz	Pass	5.47	9.73	8.44	11.88	17.00	17.35	23.00
5200MHz	Pass	5.47	13.92	12.62	16.20	17.00	21.67	23.00
5240MHz	Pass	5.47	12.21	12.90	15.57	17.00	21.04	23.00
5745MHz	Pass	6.73	12.24	12.88	15.58	29.27	22.31	36.00
5785MHz	Pass	6.73	11.59	12.37	14.89	29.27	21.62	36.00
5825MHz	Pass	6.73	12.23	11.85	14.72	29.27	21.45	36.00
802.11ax HEW40_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5190MHz	Pass	5.47	3.91	3.98	6.91	17.00	12.38	23.00
5230MHz	Pass	5.47	9.34	9.60	12.44	17.00	17.91	23.00
5755MHz	Pass	6.73	8.42	8.59	11.37	29.27	18.10	36.00
5795MHz	Pass	6.73	8.51	9.15	11.68	29.27	18.41	36.00
802.11ax HEW80_Nss1,(MCS0)_2TX	-	-	-	-	-	-	-	-
5210MHz	Pass	5.47	-0.04	-0.00	2.78	17.00	8.25	23.00
5775MHz	Pass	6.73	1.49	2.27	4.91	29.27	11.64	36.00

DG = Directional Gain; **RBW** = 500kHz for 5.725-5.85GHz band / 1MHz for other band;
PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; **Port X** = Port X power density;
For 5.15 ~ 5.25 GHz , Directional Gain =10 * log((10$^{1.83/20}$+10$^{3.05/20}$)^2/2) =5.47 dBi;
For 5.725 ~ 5.85 GHz, Directional Gain =10 * log((10$^{2.73/20}$+10$^{4.6/20}$)^2/2) =6.73 dBi > 6 dBi, limit shall be reduced to 30 dBm – (6.73 dBi – 6 dBi) = 29.27 dBm;

802.11a_Nss1,(6Mbps)_2TX **PSD**

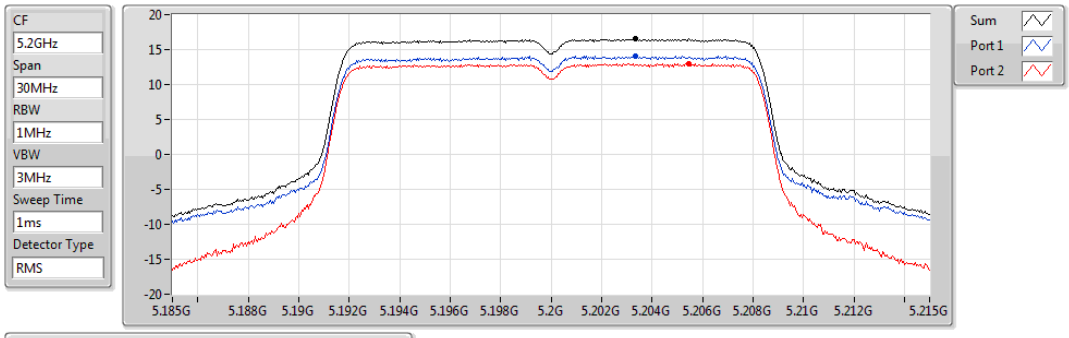
5180MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.83	12.83	10.41	9.25

802.11a_Nss1,(6Mbps)_2TX **PSD**

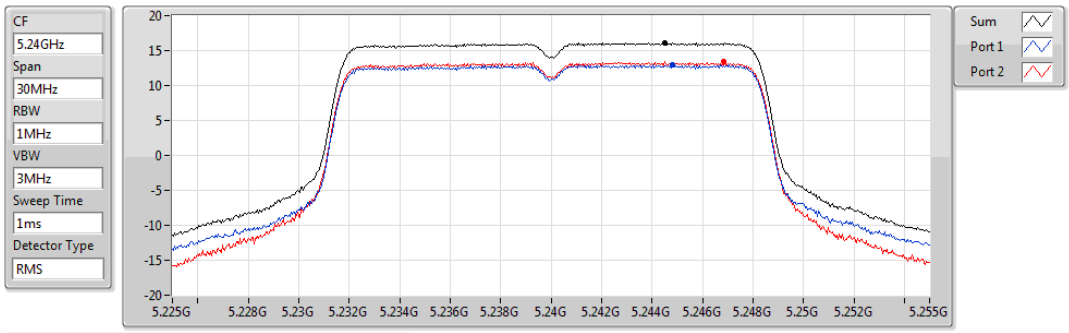
5200MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
16.51	16.51	14.06	13.01

802.11a_Nss1,(6Mbps)_2TX **PSD**

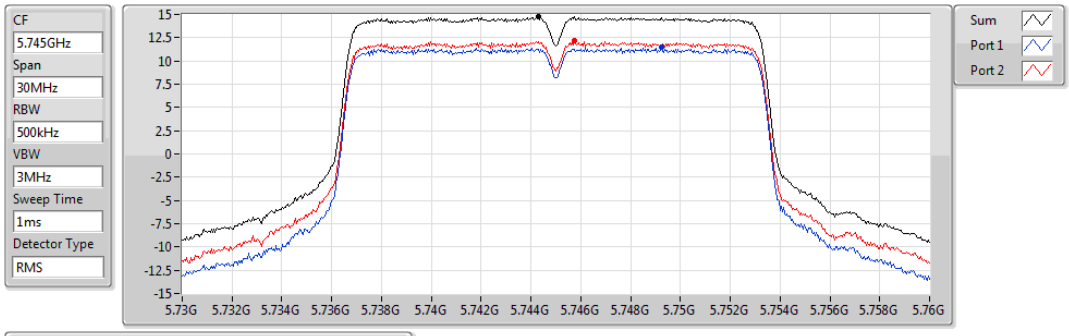
5240MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
16.10	16.10	12.94	13.39

802.11a_Nss1,(6Mbps)_2TX **PSD**

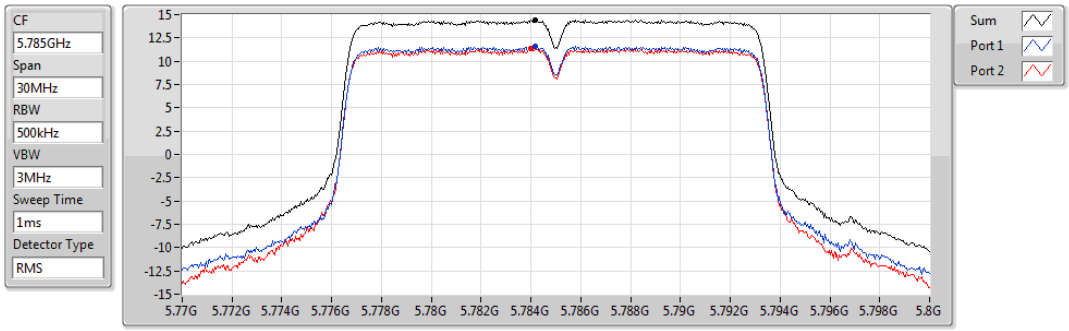
5745MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.72	14.72	11.48	12.15

802.11a_Nss1,(6Mbps)_2TX **PSD**

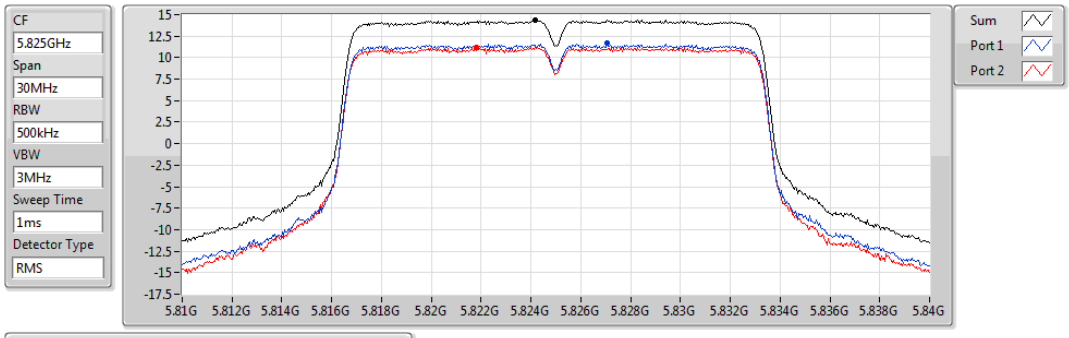
5785MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.43	14.43	11.60	11.40

802.11a_Nss1,(6Mbps)_2TX **PSD**

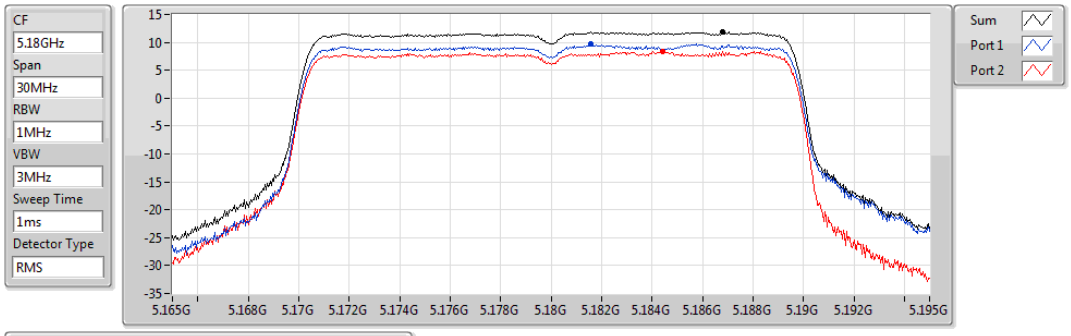
5825MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.34	14.34	11.66	11.19

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

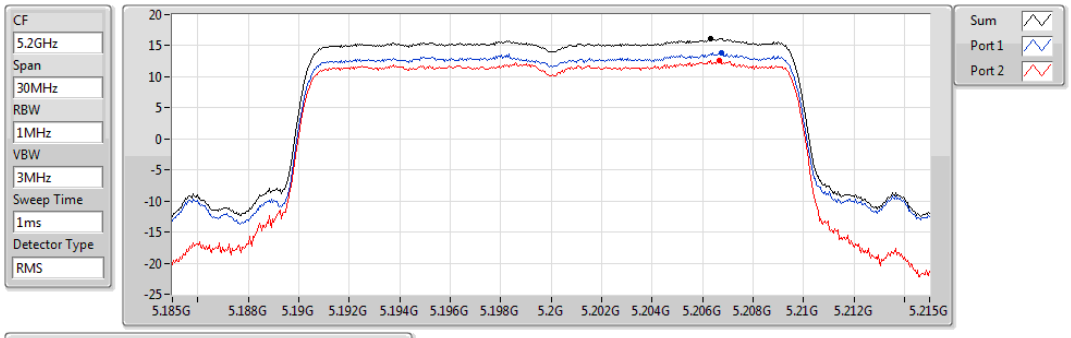
5180MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.88	11.88	9.73	8.44

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

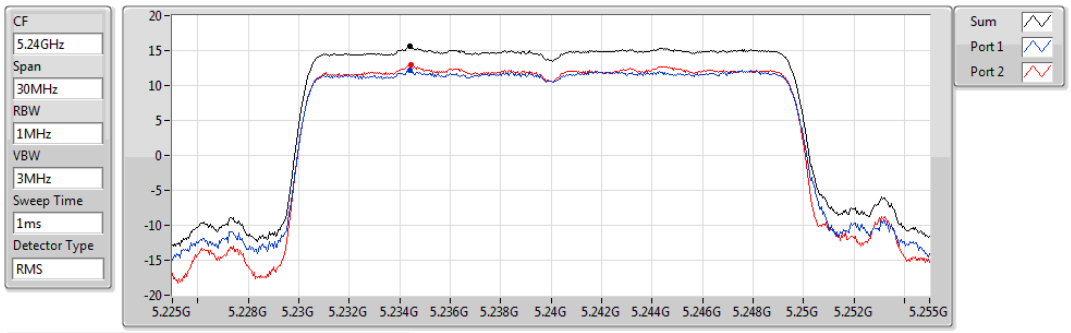
5200MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
16.20	16.20	13.92	12.62

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

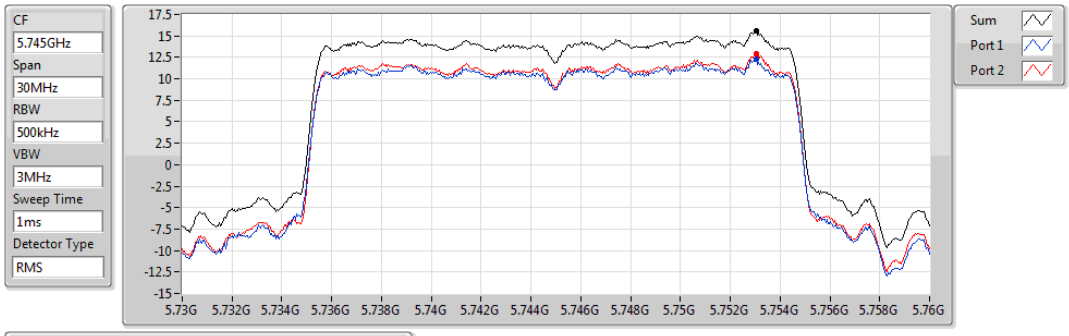
5240MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.57	15.57	12.21	12.90

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

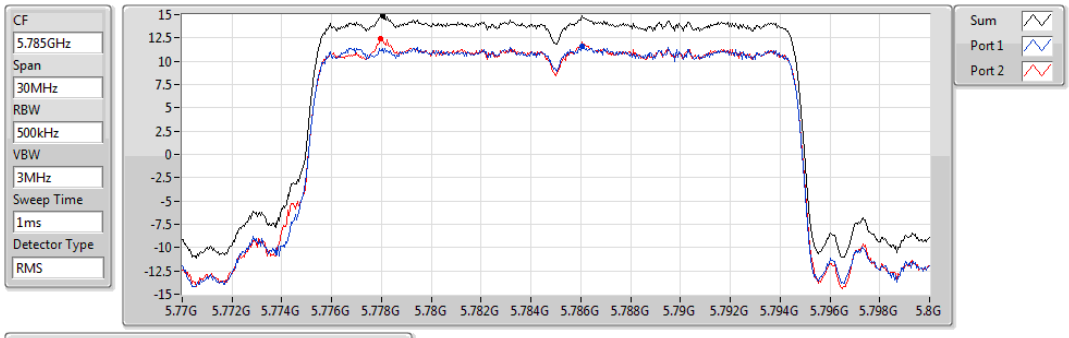
5745MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
15.58	15.58	12.24	12.88

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

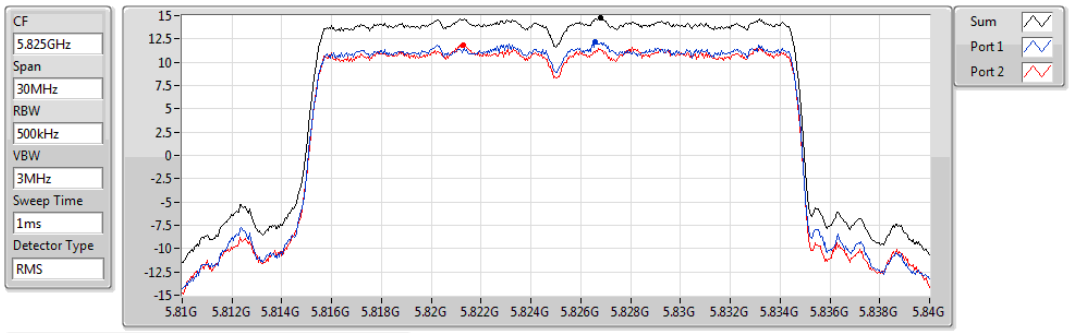
5785MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.89	14.89	11.59	12.37

802.11ax HEW20_Nss1,(MCS0)_2TX **PSD**

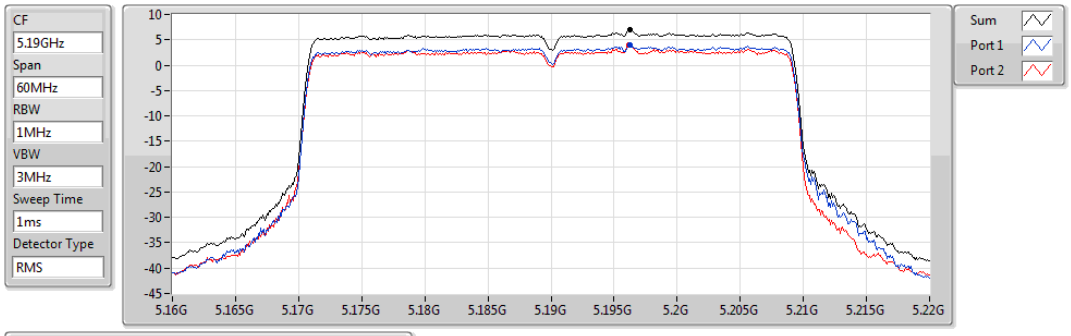
5825MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
14.72	14.72	12.23	11.85

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

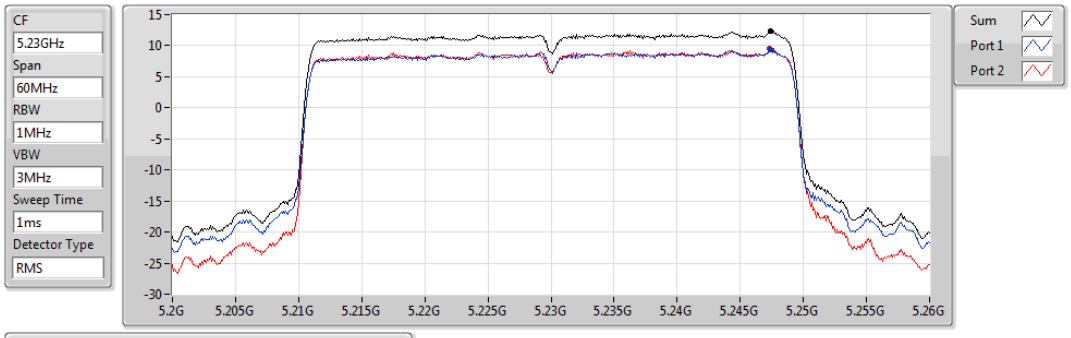
5190MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
6.91	6.91	3.91	3.98

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

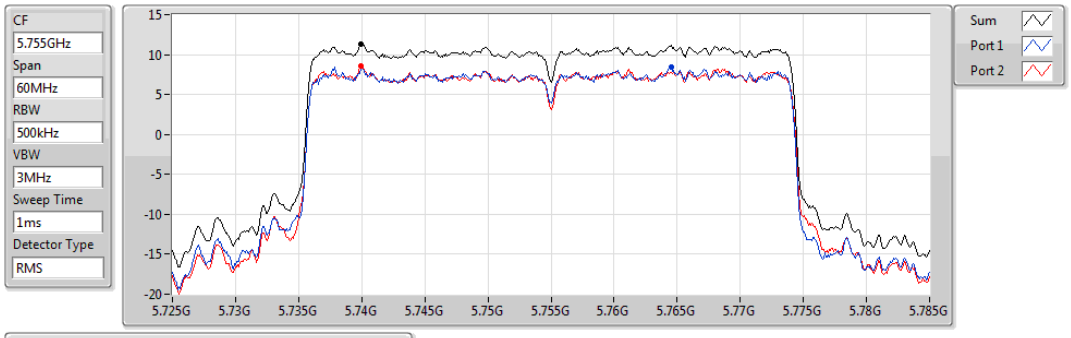
5230MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
12.44	12.44	9.34	9.60

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

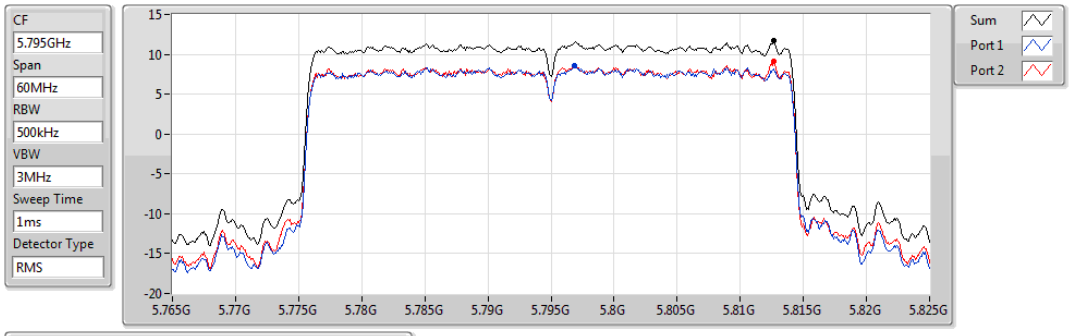
5755MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.37	11.37	8.42	8.59

802.11ax HEW40_Nss1,(MCS0)_2TX **PSD**

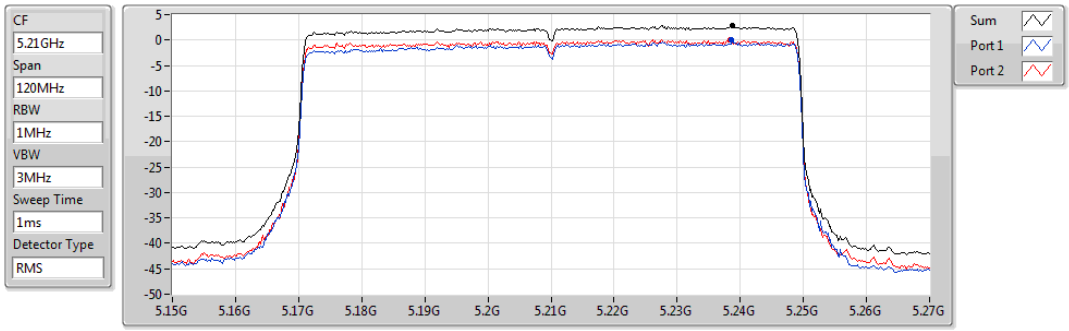
5795MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
11.68	11.68	8.51	9.15

802.11ax HEW80_Nss1,(MCS0)_2TX **PSD**

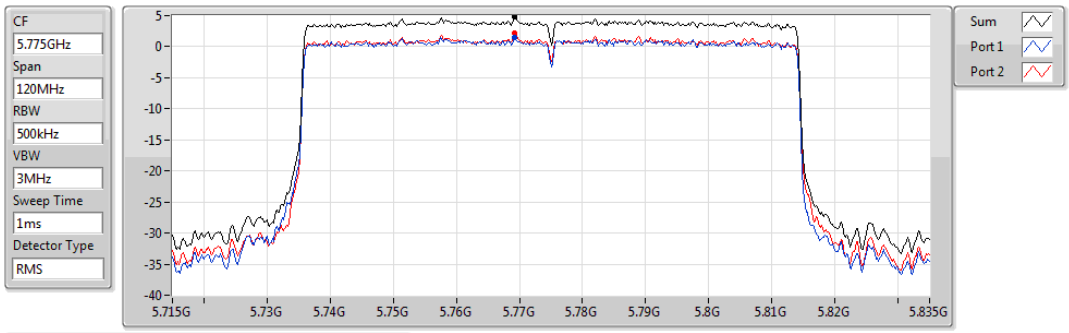
5210MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
2.78	2.78	-0.04	-0.00

802.11ax HEW80_Nss1,(MCS0)_2TX **PSD**

5775MHz



Sum	PD	Port 1	Port 2
(dBm/RBW)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
4.91	4.91	1.49	2.27

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	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.

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

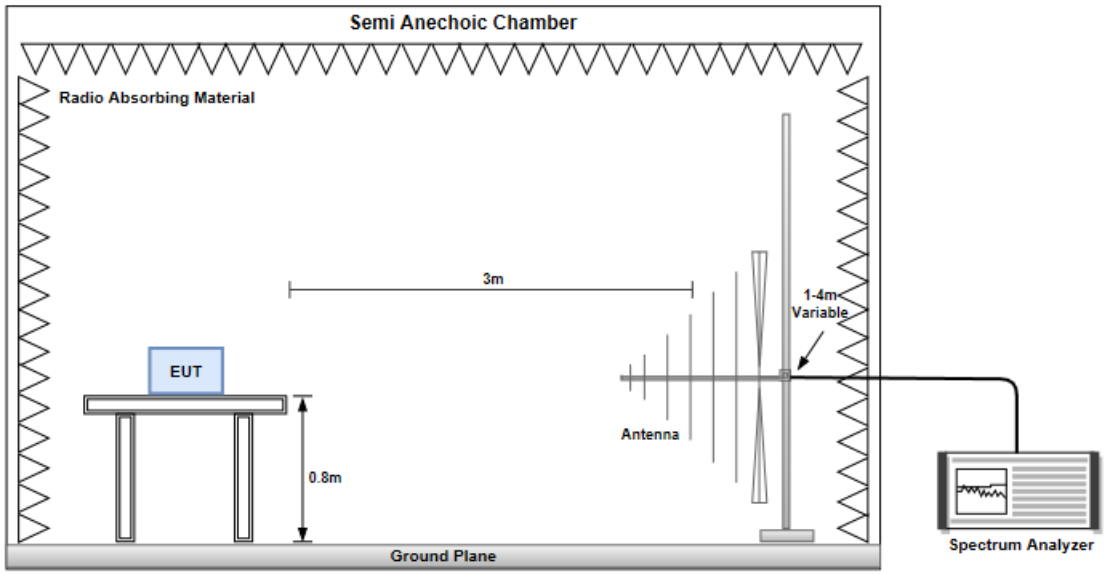
1. Measurement is made at a semi-anechoic chamber that incorporates a turntable allowing a EUT rotation of 360°. A continuously-rotating, remotely-controlled turntable is installed at the test site to support the EUT and facilitate determination of the direction of maximum radiation for each EUT emission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

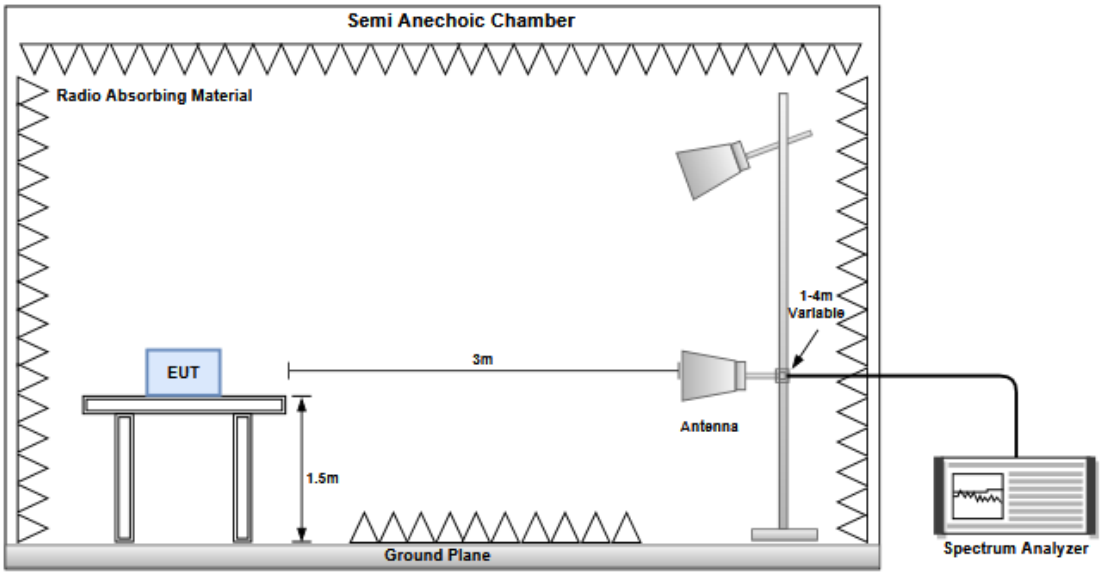
1. 120kHz measurement bandwidth of test receiver and Quasi-peak detector is for radiated emission below 1GHz.
2. RBW=1MHz, VBW=3MHz and Peak detector is for peak measured value of radiated emission above 1GHz.
3. RBW=1MHz, VBW=1/T and Peak detector is for average measured value of radiated emission above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

3.5.3 Test Setup

Radiated Emissions below 1 GHz



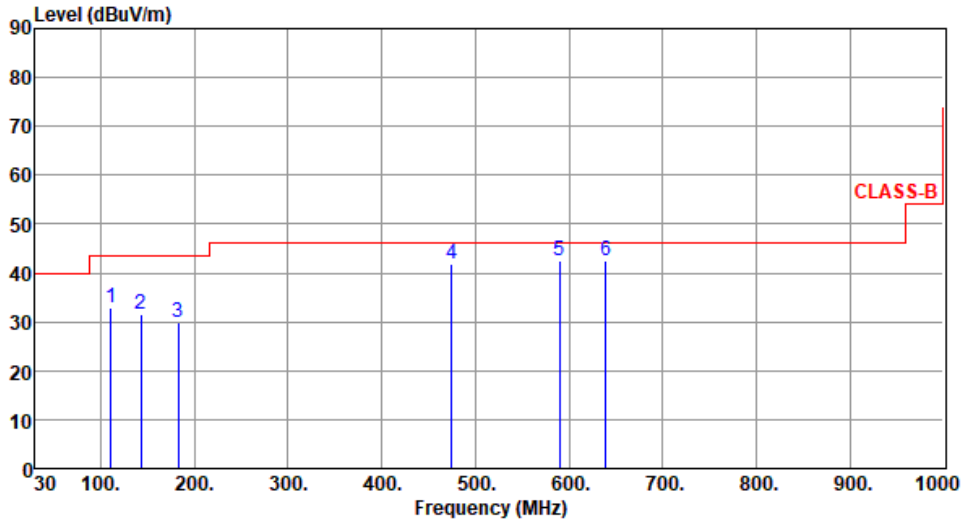
Radiated Emissions above 1 GHz



3.5.4 Transmitter Radiated Unwanted Emissions (Below 1GHz)

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

Test By :Akun Chung Temperature(℃):22 Humidity(%):67

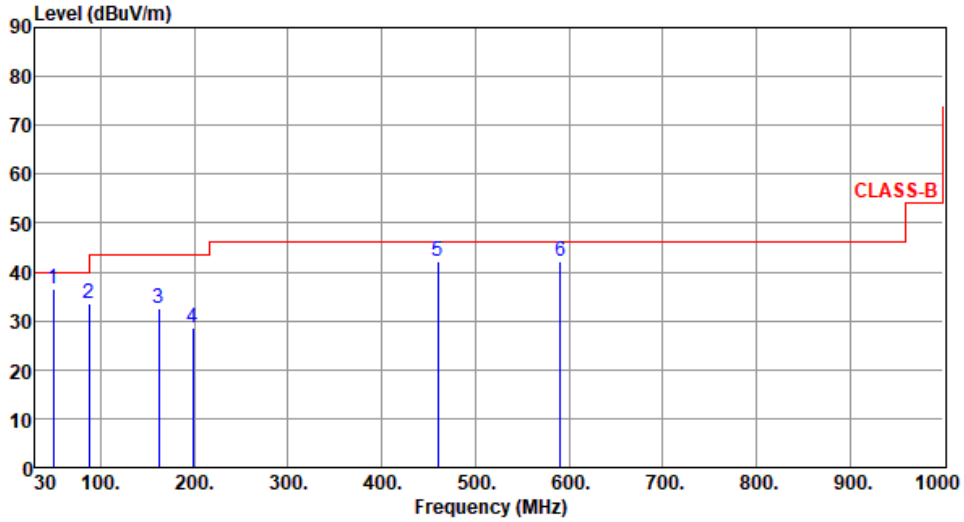


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	111.22	32.84	43.50	-10.66	44.62	-11.78	Peak	---	---
2	142.52	31.47	43.50	-12.03	40.47	-9.00	Peak	---	---
3	183.18	29.99	43.50	-13.51	40.68	-10.69	Peak	---	---
4	474.33	41.92	46.00	-4.08	45.70	-3.78	Peak	---	---
5	590.12	42.65	46.00	-3.35	43.95	-1.30	QP	147	139
6	639.33	42.54	46.00	-3.46	42.81	-0.27	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		

Test By :Akun Chung Temperature(℃):22 Humidity(%):67

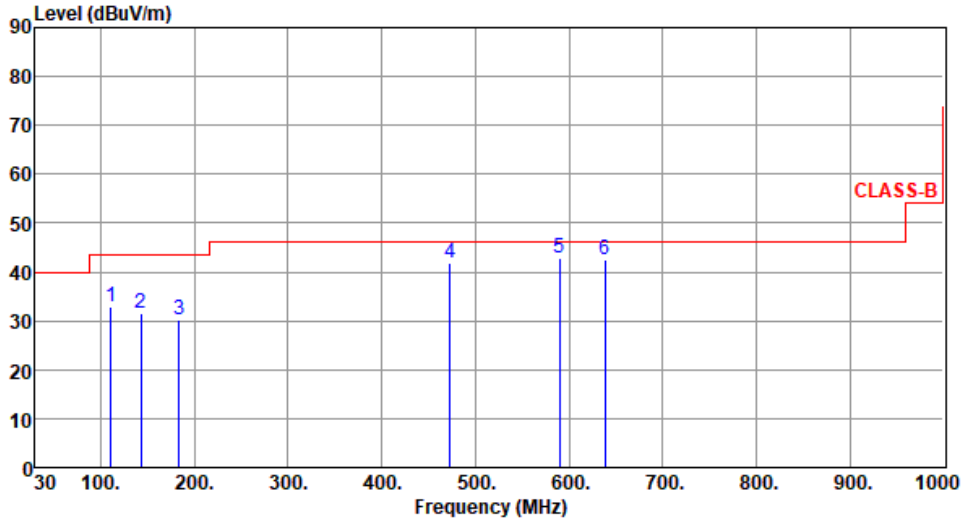


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	49.52	36.56	40.00	-3.44	44.99	-8.43	QP	100	152
2	87.15	33.62	40.00	-6.38	48.11	-14.49	Peak	---	---
3	161.85	32.60	43.50	-10.90	41.52	-8.92	Peak	---	---
4	198.63	28.64	43.50	-14.86	40.58	-11.94	Peak	---	---
5	459.85	42.05	46.00	-3.95	46.16	-4.11	Peak	---	---
6	591.22	42.22	46.00	-3.78	43.50	-1.28	QP	100	137

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)	5745
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):22 Humidity(%):67

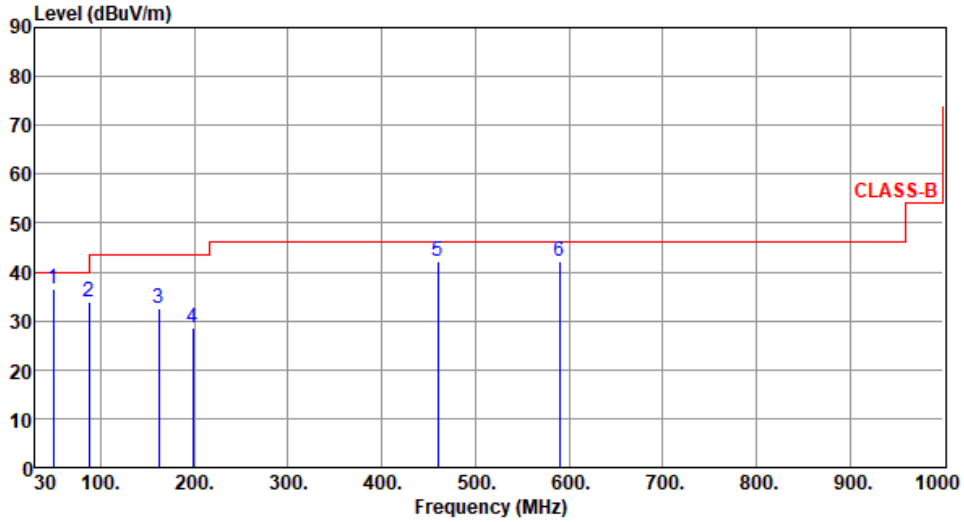


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	110.51	33.00	43.50	-10.50	44.80	-11.80	Peak	---	---
2	142.52	31.62	43.50	-11.88	40.62	-9.00	Peak	---	---
3	183.26	30.12	43.50	-13.38	40.82	-10.70	Peak	---	---
4	473.29	41.99	46.00	-4.01	45.79	-3.80	Peak	---	---
5	590.00	42.81	46.00	-3.19	44.11	-1.30	QP	143	135
6	638.19	42.64	46.00	-3.36	42.95	-0.31	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)	5745
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):22 Humidity(%):67



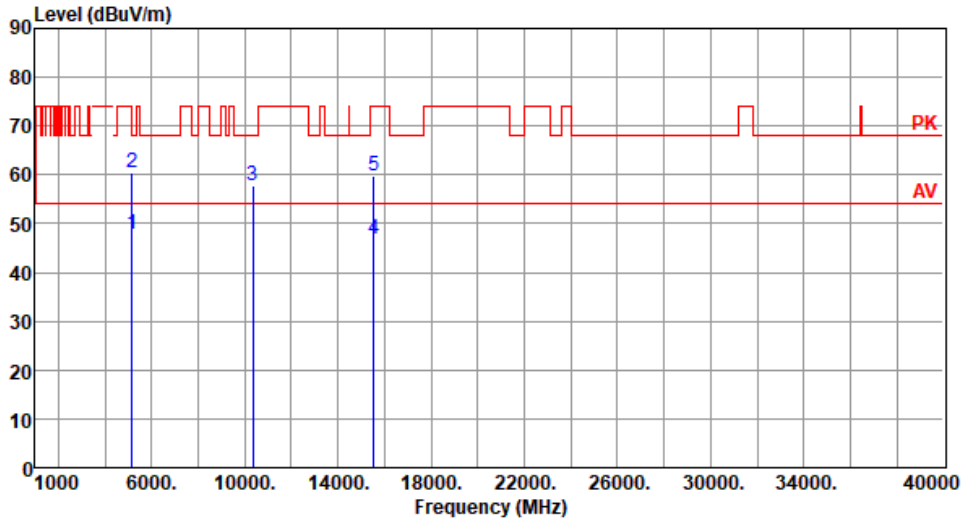
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	49.40	36.62	40.00	-3.38	45.07	-8.45	QP	100	153
2	87.23	33.73	40.00	-6.27	48.22	-14.49	Peak	---	---
3	161.92	32.65	43.50	-10.85	41.57	-8.92	Peak	---	---
4	198.78	28.70	43.50	-14.80	40.64	-11.94	Peak	---	---
5	459.71	42.11	46.00	-3.89	46.22	-4.11	Peak	---	---
6	590.10	42.33	46.00	-3.67	43.63	-1.30	QP	100	136

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		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

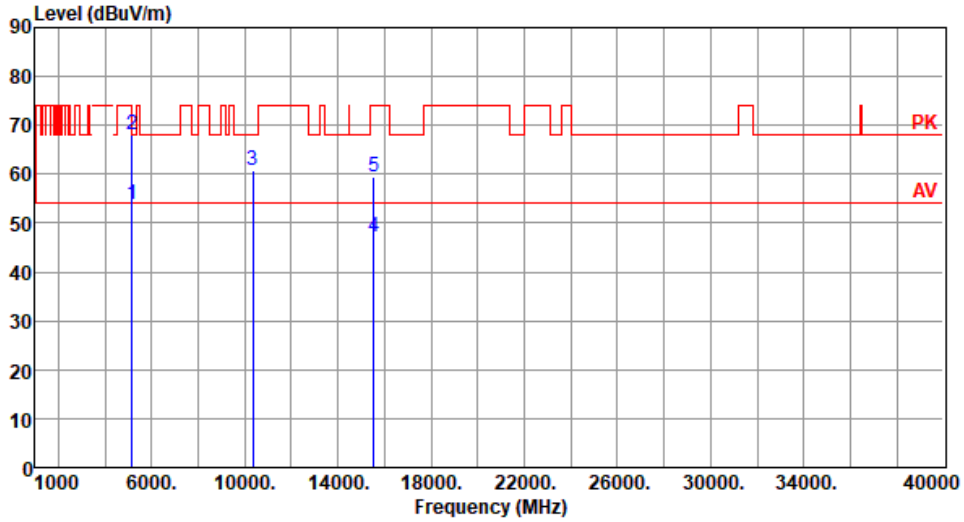


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.96	54.00	-6.04	43.32	4.64	Average	135	110
2	5150.00	60.59	74.00	-13.41	55.95	4.64	Peak	135	110
3	10360.00	57.85	68.20	-10.35	43.66	14.19	Peak	100	353
4	15540.00	46.92	54.00	-7.08	32.01	14.91	Average	100	22
5	15540.00	59.92	74.00	-14.08	45.01	14.91	Peak	100	22

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		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

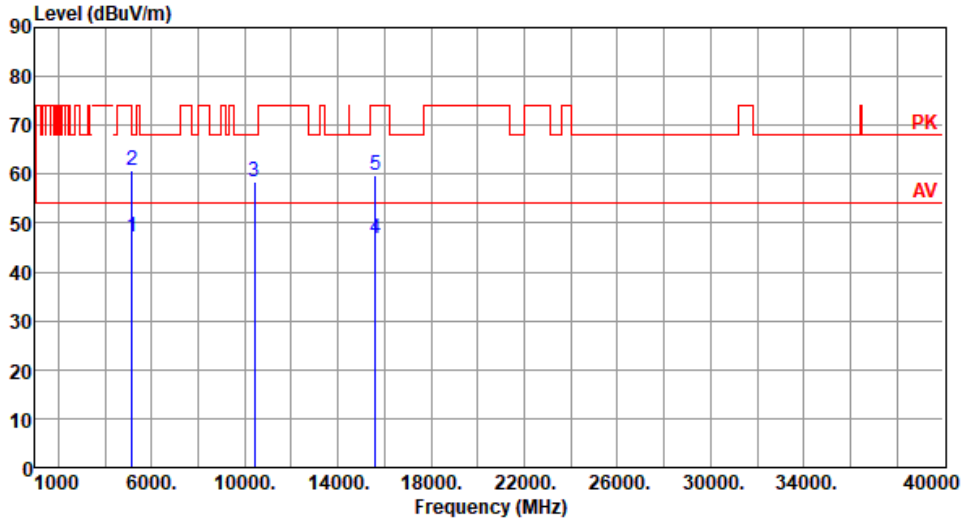


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.78	54.00	-0.22	49.14	4.64	Average	205	255
2	5150.00	68.09	74.00	-5.91	63.45	4.64	Peak	205	255
3	10360.00	60.61	68.20	-7.59	46.42	14.19	Peak	170	240
4	15540.00	47.19	54.00	-6.81	32.28	14.91	Average	100	26
5	15540.00	59.36	74.00	-14.64	44.45	14.91	Peak	100	26

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		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

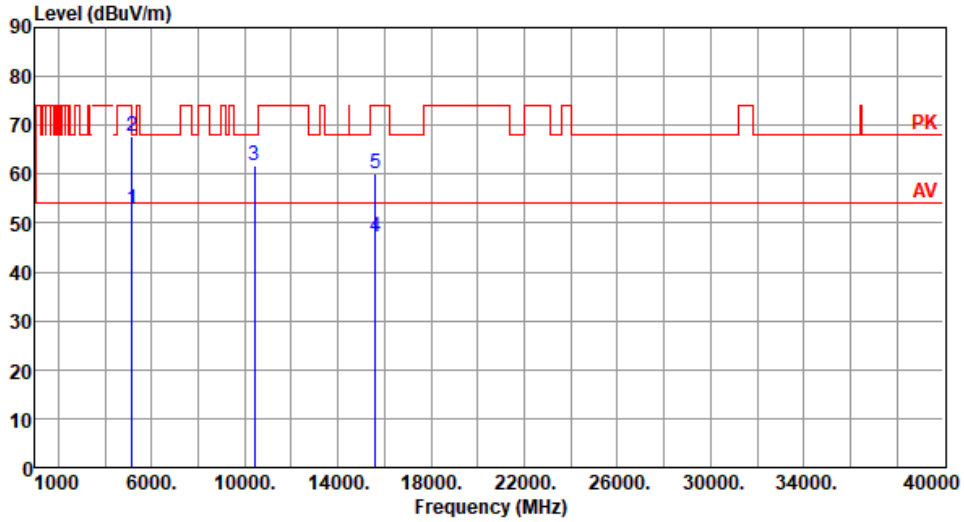


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.32	54.00	-6.68	42.68	4.64	Average	135	109
2	5150.00	60.89	74.00	-13.11	56.25	4.64	Peak	135	109
3	10400.00	58.57	68.20	-9.63	44.27	14.30	Peak	100	355
4	15600.00	46.82	54.00	-7.18	32.18	14.64	Average	100	20
5	15600.00	59.83	74.00	-14.17	45.19	14.64	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)	5200
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

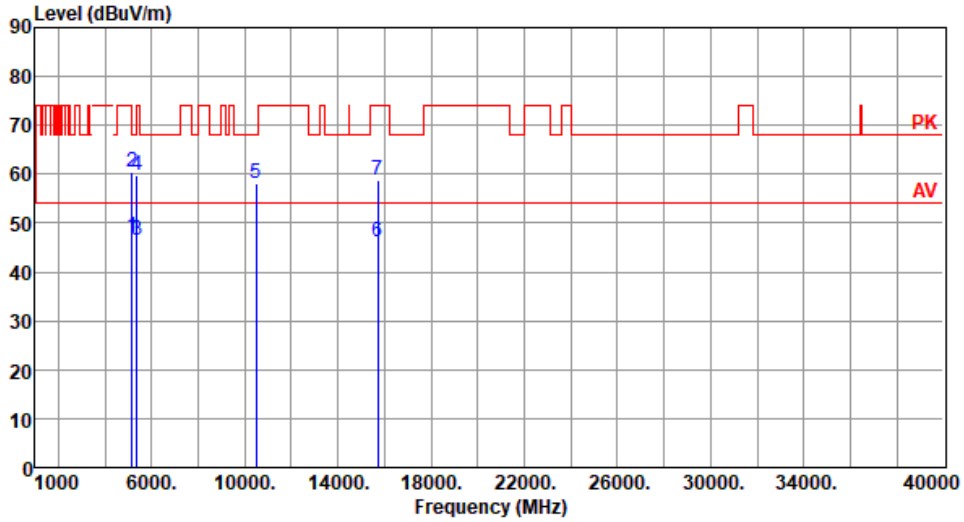


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	52.95	54.00	-1.05	48.31	4.64	Average	242	258
2	5150.00	67.66	74.00	-6.34	63.02	4.64	Peak	242	258
3	10400.00	61.64	68.20	-6.56	47.34	14.30	Peak	172	239
4	15600.00	47.06	54.00	-6.94	32.42	14.64	Average	100	22
5	15600.00	60.22	74.00	-13.78	45.58	14.64	Peak	100	22

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		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

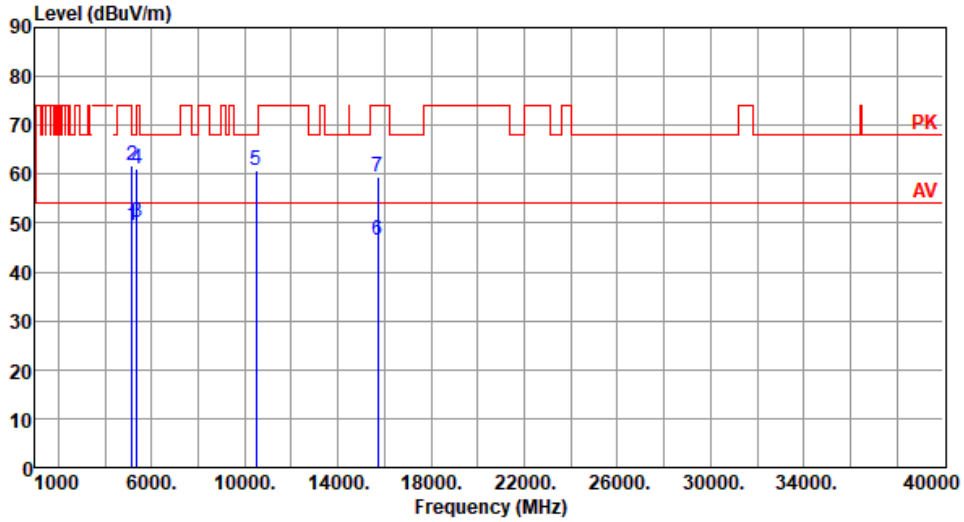


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.28	54.00	-6.72	42.64	4.64	Average	132	111
2	5150.00	60.51	74.00	-13.49	55.87	4.64	Peak	132	111
3	5350.00	46.63	54.00	-7.37	42.69	3.94	Average	131	111
4	5350.00	59.67	74.00	-14.33	55.73	3.94	Peak	131	111
5	10480.00	58.21	68.20	-9.99	43.75	14.46	Peak	100	351
6	15720.00	46.05	54.00	-7.95	31.84	14.21	Average	100	22
7	15720.00	58.66	74.00	-15.34	44.45	14.21	Peak	100	22

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		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

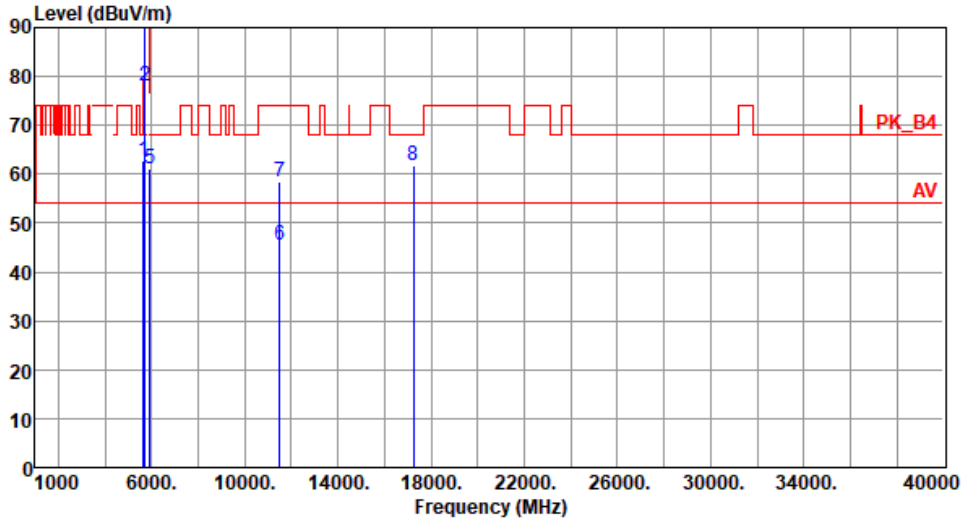


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.54	54.00	-4.46	44.90	4.64	Average	221	254
2	5150.00	61.66	74.00	-12.34	57.02	4.64	Peak	221	254
3	5350.00	50.00	54.00	-4.00	46.06	3.94	Average	221	254
4	5350.00	61.19	74.00	-12.81	57.25	3.94	Peak	221	254
5	10480.00	60.91	68.20	-7.29	46.45	14.46	Peak	178	240
6	15720.00	46.38	54.00	-7.62	32.17	14.21	Average	100	25
7	15720.00	59.61	74.00	-14.39	45.40	14.21	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	11a	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

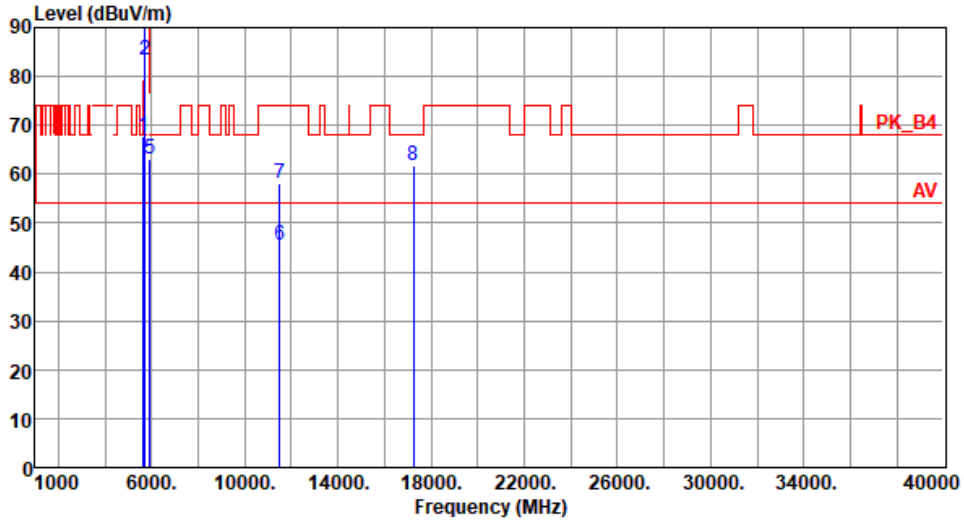


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.76	68.20	-5.44	58.22	4.54	Peak	205	255
2	5700.00	77.99	105.20	-27.21	73.31	4.68	Peak	205	255
3	5720.00	94.31	110.80	-16.49	89.50	4.81	Peak	205	255
4	5725.00	98.23	122.20	-23.97	93.38	4.85	Peak	205	255
5	5925.00	61.03	68.20	-7.17	55.60	5.43	Peak	205	255
6	11490.00	45.37	54.00	-8.63	30.74	14.63	Average	100	43
7	11490.00	58.30	74.00	-15.70	43.67	14.63	Peak	100	43
8	17235.00	61.61	68.20	-6.59	43.85	17.76	Peak	100	67

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

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

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

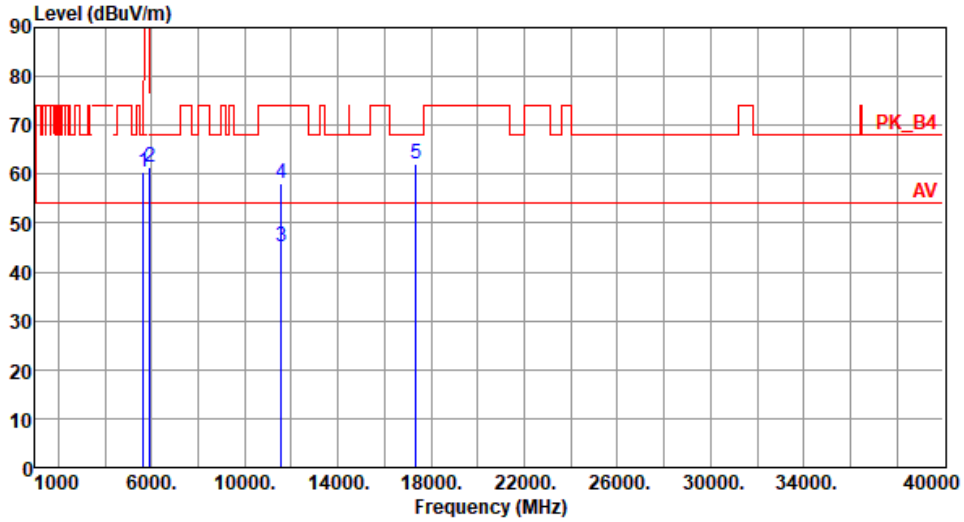


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.88	68.20	-0.32	63.34	4.54	Peak	194	240
2	5700.00	83.44	105.20	-21.76	78.76	4.68	Peak	194	240
3	5720.00	99.51	110.80	-11.29	94.70	4.81	Peak	194	240
4	5725.00	103.61	122.20	-18.59	98.76	4.85	Peak	194	240
5	5925.00	63.24	68.20	-4.96	57.81	5.43	Peak	194	240
6	11490.00	45.47	54.00	-8.53	30.84	14.63	Average	100	20
7	11490.00	58.25	74.00	-15.75	43.62	14.63	Peak	100	20
8	17235.00	61.76	68.20	-6.44	44.00	17.76	Peak	100	40

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		

Test By :Roger Lu Temperature(℃):25 Humidity(%):61

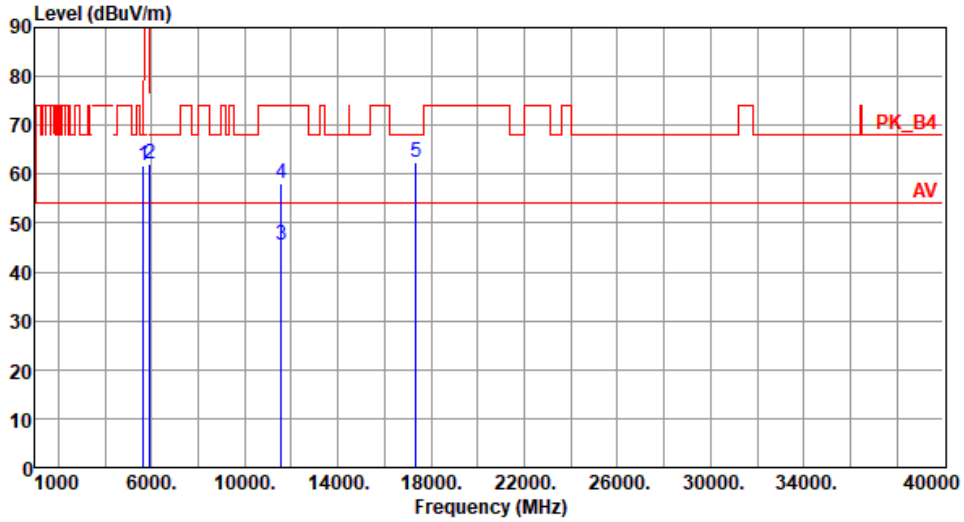


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.49	68.20	-7.71	55.95	4.54	Peak	207	250
2	5925.00	61.46	68.20	-6.74	56.03	5.43	Peak	207	250
3	11570.00	45.13	54.00	-8.87	30.63	14.50	Average	100	40
4	11570.00	58.07	74.00	-15.93	43.57	14.50	Peak	100	40
5	17355.00	62.10	68.20	-6.10	43.74	18.36	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)**	5785
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):25 Humidity(%):61

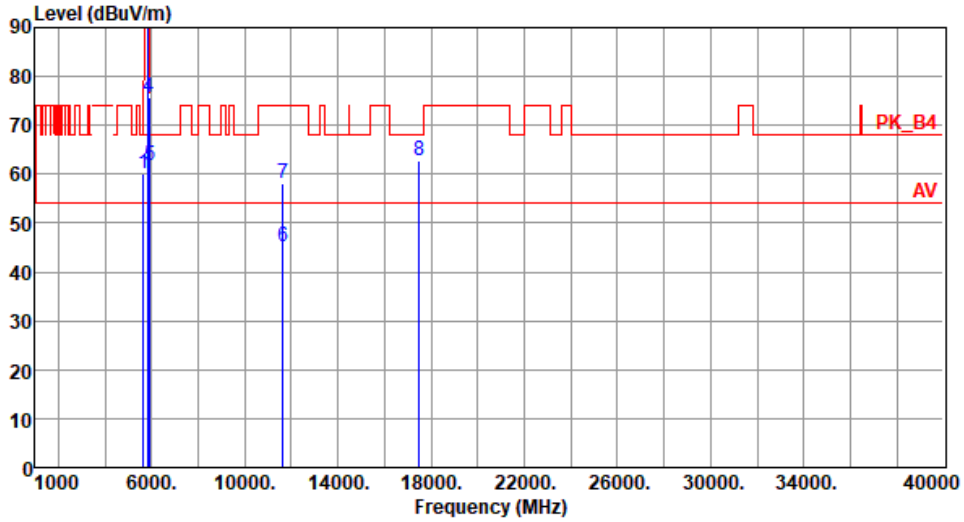


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.78	68.20	-6.42	57.24	4.54	Peak	199	245
2	5925.00	62.11	68.20	-6.09	56.68	5.43	Peak	199	245
3	11570.00	45.44	54.00	-8.56	30.94	14.50	Average	100	30
4	11570.00	58.26	74.00	-15.74	43.76	14.50	Peak	100	30
5	17355.00	62.37	68.20	-5.83	44.01	18.36	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)	5825
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

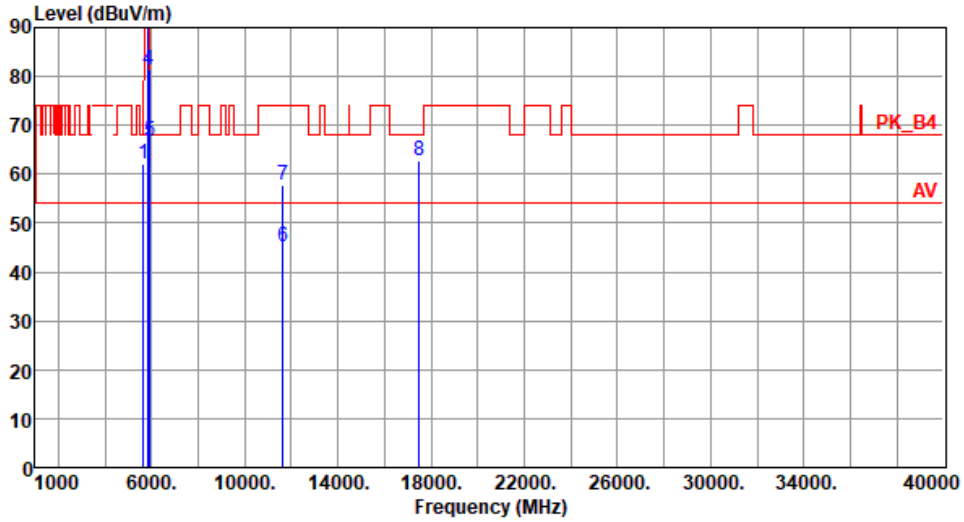


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.04	68.20	-8.16	55.50	4.54	Peak	200	241
2	5850.00	94.90	122.20	-27.30	89.45	5.45	Peak	200	241
3	5855.00	88.95	110.80	-21.85	83.51	5.44	Peak	200	241
4	5875.00	75.82	105.20	-29.38	70.38	5.44	Peak	200	241
5	5925.00	61.69	68.20	-6.51	56.26	5.43	Peak	200	241
6	11650.00	45.15	54.00	-8.85	30.94	14.21	Average	100	155
7	11650.00	58.04	74.00	-15.96	43.83	14.21	Peak	100	155
8	17475.00	62.67	68.20	-5.53	43.81	18.86	Peak	100	57

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

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

Test By :Roger Lu Temperature(℃):23 Humidity(%):63



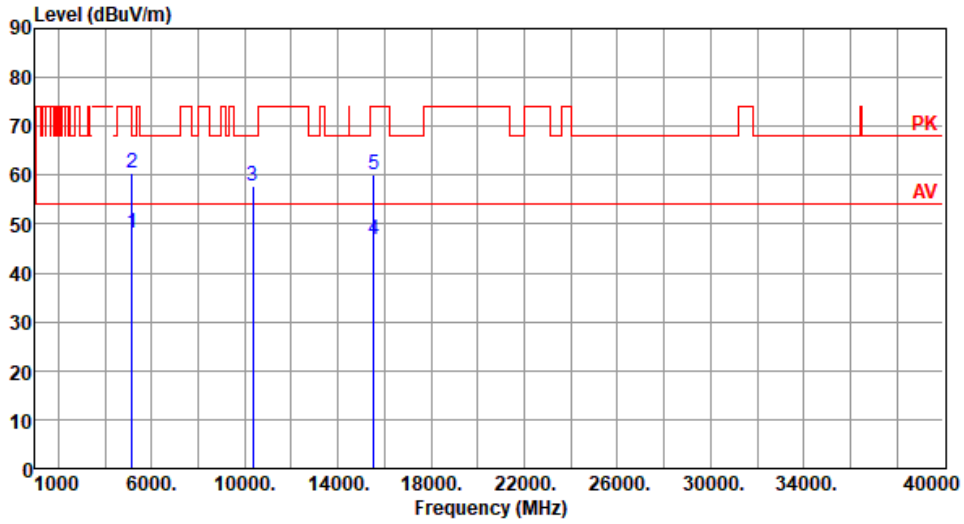
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.01	68.20	-6.19	57.47	4.54	Peak	195	236
2	5850.00	100.06	122.20	-22.14	94.61	5.45	Peak	195	236
3	5855.00	95.09	110.80	-15.71	89.65	5.44	Peak	195	236
4	5875.00	81.23	105.20	-23.97	75.79	5.44	Peak	195	236
5	5925.00	66.92	68.20	-1.28	61.49	5.43	Peak	195	236
6	11650.00	45.01	54.00	-8.99	30.80	14.21	Average	100	70
7	11650.00	57.93	74.00	-16.07	43.72	14.21	Peak	100	70
8	17475.00	62.67	68.20	-5.53	43.81	18.86	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).

3.5.6 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE20)

Modulation	ax (HE20)	Test Freq. (MHz)	5180
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

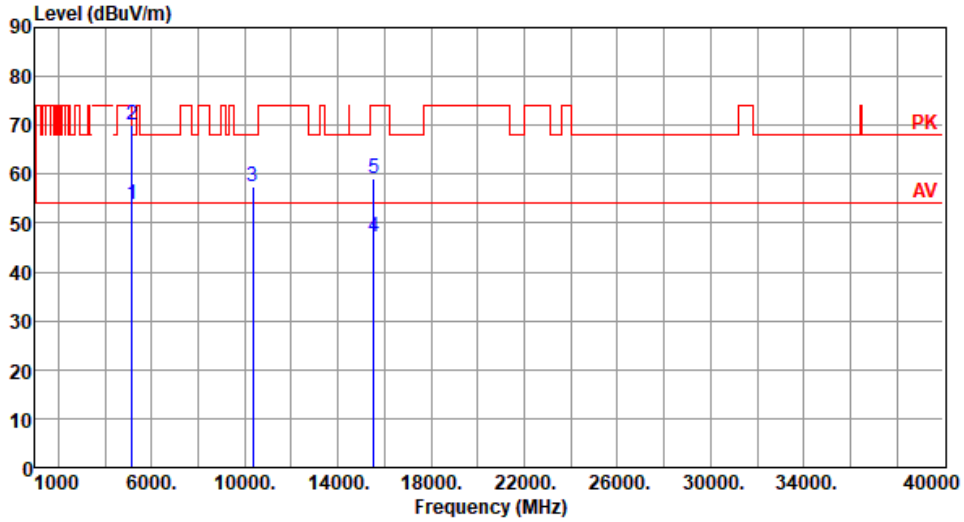


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.27	54.00	-5.73	43.63	4.64	Average	135	111
2	5150.00	60.51	74.00	-13.49	55.87	4.64	Peak	135	111
3	10360.00	57.71	68.20	-10.49	43.52	14.19	Peak	100	351
4	15540.00	46.88	54.00	-7.12	31.97	14.91	Average	100	25
5	15540.00	60.05	74.00	-13.95	45.14	14.91	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	ax (HE20)	**Test Freq. (MHz)**	5180
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

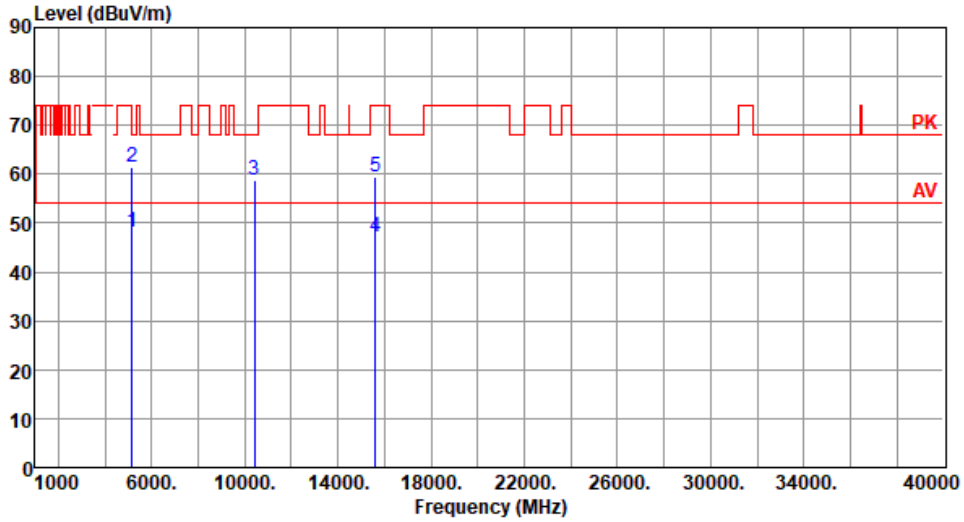


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.84	54.00	-0.16	49.20	4.64	Average	207	258
2	5150.00	70.18	74.00	-3.82	65.54	4.64	Peak	207	258
3	10360.00	57.61	68.20	-10.59	43.42	14.19	Peak	150	211
4	15540.00	47.01	54.00	-6.99	32.10	14.91	Average	100	25
5	15540.00	59.26	74.00	-14.74	44.35	14.91	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	ax (HE20)	**Test Freq. (MHz)**	5200
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

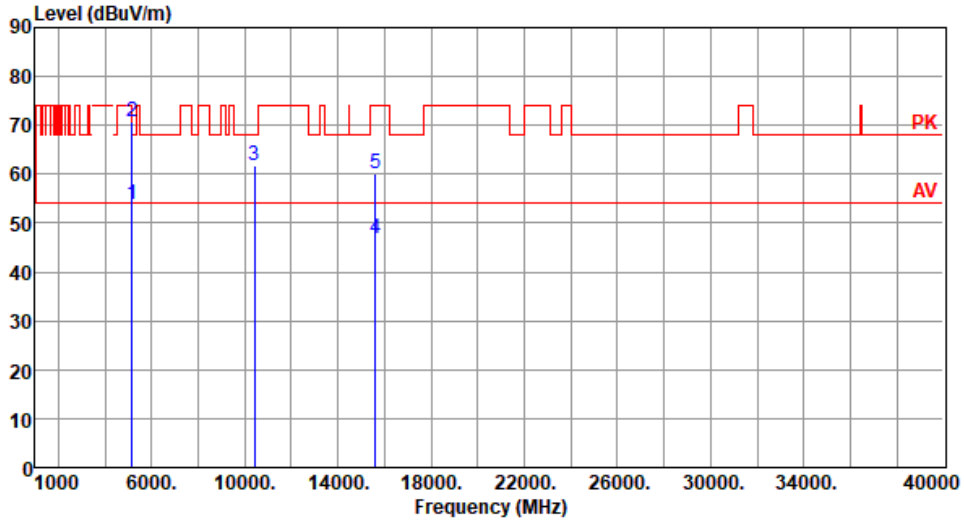


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.05	54.00	-5.95	43.41	4.64	Average	132	111
2	5150.00	61.36	74.00	-12.64	56.72	4.64	Peak	132	111
3	10400.00	58.68	68.20	-9.52	44.38	14.30	Peak	100	351
4	15600.00	46.99	54.00	-7.01	32.35	14.64	Average	100	26
5	15600.00	59.58	74.00	-14.42	44.94	14.64	Peak	100	15

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	ax (HE20)	Test Freq. (MHz)	5200
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

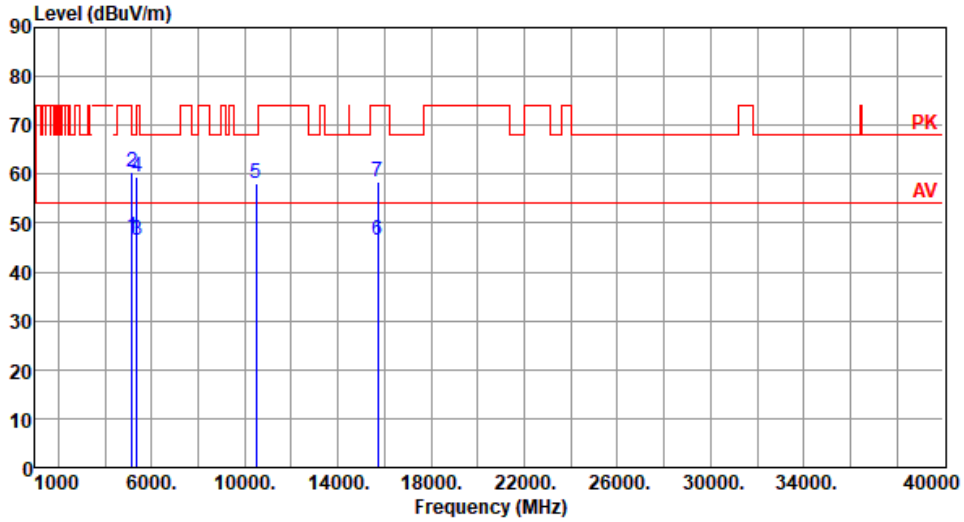


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.75	54.00	-0.25	49.11	4.64	Average	208	262
2	5150.00	70.65	74.00	-3.35	66.01	4.64	Peak	208	262
3	10400.00	61.86	68.20	-6.34	47.56	14.30	Peak	165	241
4	15600.00	46.85	54.00	-7.15	32.21	14.64	Average	100	25
5	15600.00	60.11	74.00	-13.89	45.47	14.64	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	ax (HE20)	Test Freq. (MHz)	5240
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

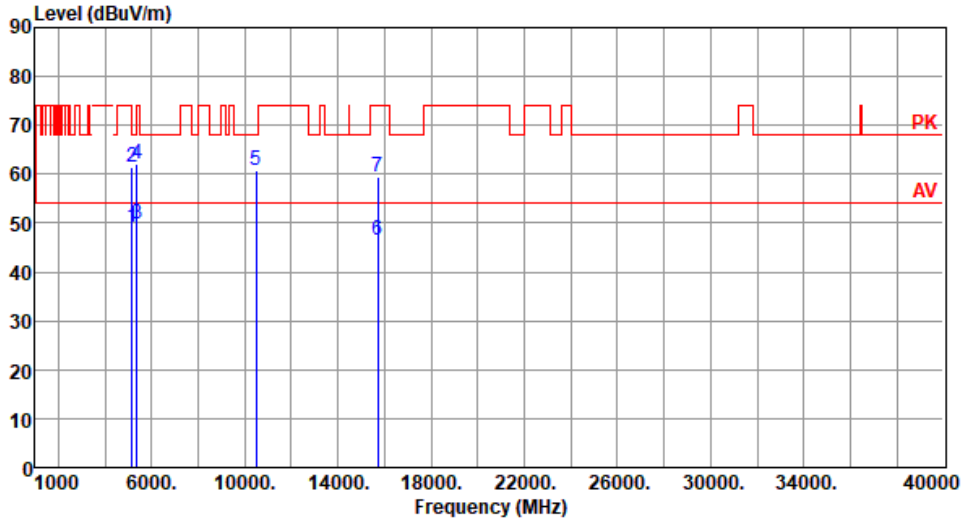


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.09	54.00	-6.91	42.45	4.64	Average	130	115
2	5150.00	60.59	74.00	-13.41	55.95	4.64	Peak	130	115
3	5350.00	46.56	54.00	-7.44	42.62	3.94	Average	130	115
4	5350.00	59.57	74.00	-14.43	55.63	3.94	Peak	130	115
5	10480.00	58.01	68.20	-10.19	43.55	14.46	Peak	100	348
6	15720.00	46.34	54.00	-7.66	32.13	14.21	Average	100	26
7	15720.00	58.44	74.00	-15.56	44.23	14.21	Peak	100	26

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	ax (HE20)	**Test Freq. (MHz)**	5240
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

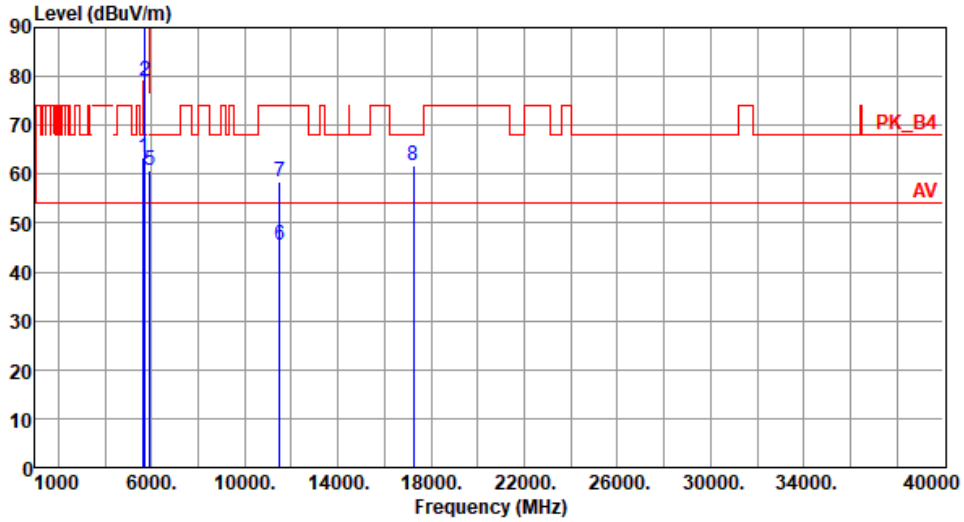


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	49.30	54.00	-4.70	44.66	4.64	Average	225	259
2	5150.00	61.29	74.00	-12.71	56.65	4.64	Peak	225	259
3	5350.00	49.90	54.00	-4.10	45.96	3.94	Average	225	259
4	5350.00	62.01	74.00	-11.99	58.07	3.94	Peak	225	259
5	10480.00	60.77	68.20	-7.43	46.31	14.46	Peak	176	235
6	15720.00	46.48	54.00	-7.52	32.27	14.21	Average	100	26
7	15720.00	59.47	74.00	-14.53	45.26	14.21	Peak	100	26

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	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

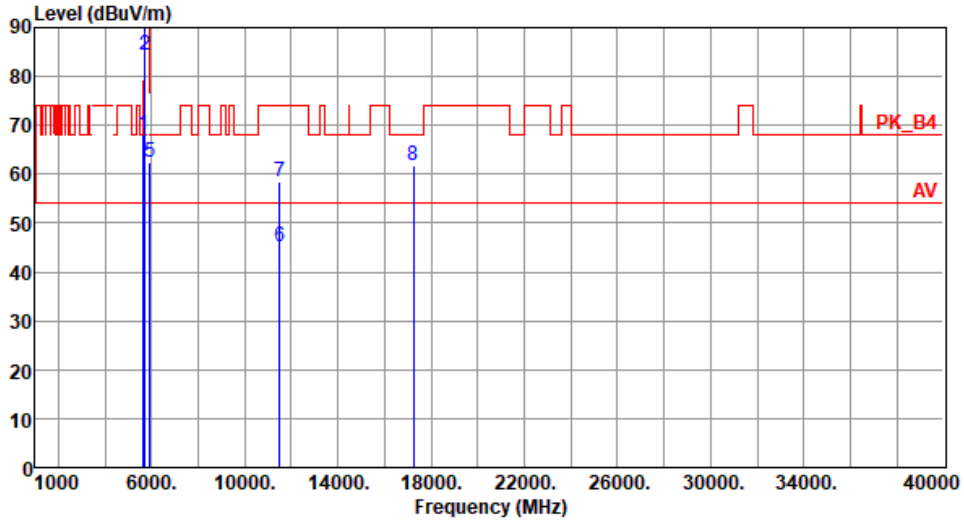


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	63.35	68.20	-4.85	58.81	4.54	Peak	202	256
2	5700.00	79.12	105.20	-26.08	74.44	4.68	Peak	202	256
3	5720.00	94.42	110.80	-16.38	89.61	4.81	Peak	202	256
4	5725.00	98.35	122.20	-23.85	93.50	4.85	Peak	202	256
5	5925.00	60.91	68.20	-7.29	55.48	5.43	Peak	202	256
6	11490.00	45.42	54.00	-8.58	30.79	14.63	Average	100	55
7	11490.00	58.44	74.00	-15.56	43.81	14.63	Peak	100	55
8	17235.00	61.74	68.20	-6.46	43.98	17.76	Peak	100	57

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

Modulation	ax (HE20)	Test Freq. (MHz)	5745
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

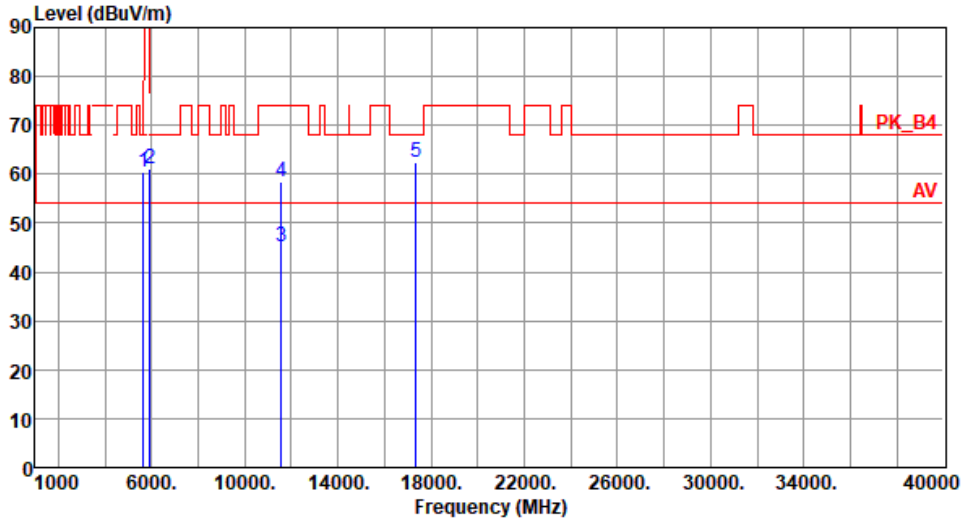


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	67.94	68.20	-0.26	63.40	4.54	Peak	196	244
2	5700.00	84.44	105.20	-20.76	79.76	4.68	Peak	196	244
3	5720.00	99.76	110.80	-11.04	94.95	4.81	Peak	196	244
4	5725.00	104.71	122.20	-17.49	99.86	4.85	Peak	196	244
5	5925.00	62.45	68.20	-5.75	57.02	5.43	Peak	196	244
6	11490.00	45.31	54.00	-8.69	30.68	14.63	Average	100	30
7	11490.00	58.30	74.00	-15.70	43.67	14.63	Peak	100	30
8	17235.00	61.86	68.20	-6.34	44.10	17.76	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	ax (HE20)	**Test Freq. (MHz)**	5785
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

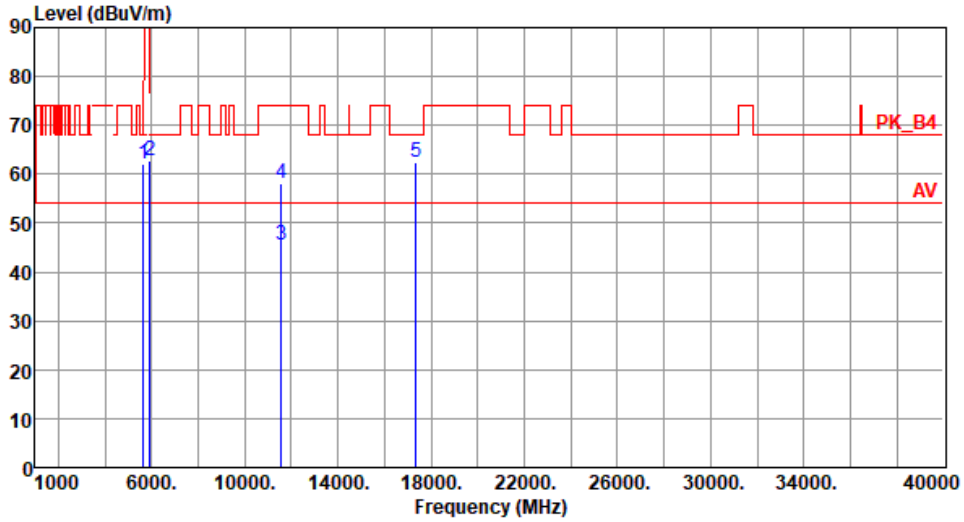


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.56	68.20	-7.64	56.02	4.54	Peak	205	245
2	5925.00	61.22	68.20	-6.98	55.79	5.43	Peak	205	245
3	11570.00	45.29	54.00	-8.71	30.79	14.50	Average	100	36
4	11570.00	58.31	74.00	-15.69	43.81	14.50	Peak	100	36
5	17355.00	62.28	68.20	-5.92	43.92	18.36	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).

Modulation	ax (HE20)	Test Freq. (MHz)	5785
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

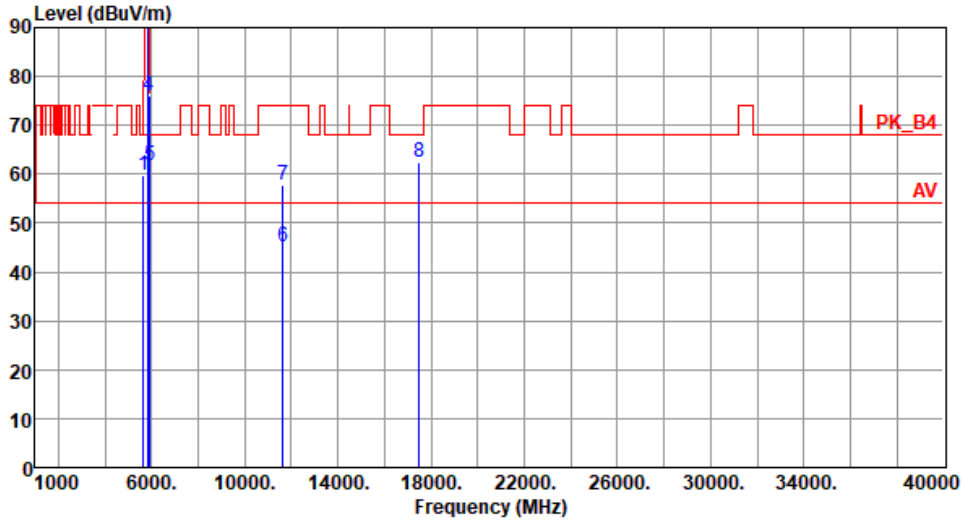


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.99	68.20	-6.21	57.45	4.54	Peak	199	243
2	5925.00	62.62	68.20	-5.58	57.19	5.43	Peak	199	243
3	11570.00	45.36	54.00	-8.64	30.86	14.50	Average	100	45
4	11570.00	58.23	74.00	-15.77	43.73	14.50	Peak	100	45
5	17355.00	62.34	68.20	-5.86	43.98	18.36	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	ax (HE20)	Test Freq. (MHz)	5825
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

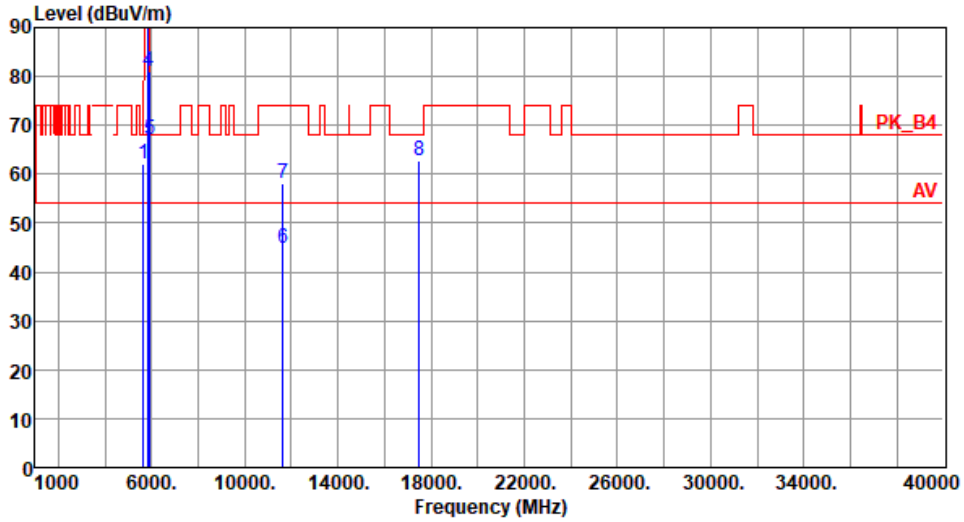


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	59.88	68.20	-8.32	55.34	4.54	Peak	202	236
2	5850.00	94.94	122.20	-27.26	89.49	5.45	Peak	202	236
3	5855.00	88.85	110.80	-21.95	83.41	5.44	Peak	202	236
4	5875.00	76.03	105.20	-29.17	70.59	5.44	Peak	202	236
5	5925.00	61.90	68.20	-6.30	56.47	5.43	Peak	202	236
6	11650.00	45.21	54.00	-8.79	31.00	14.21	Average	100	143
7	11650.00	57.90	74.00	-16.10	43.69	14.21	Peak	100	143
8	17475.00	62.57	68.20	-5.63	43.71	18.86	Peak	100	51

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	ax (HE20)	Test Freq. (MHz)	5825
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63



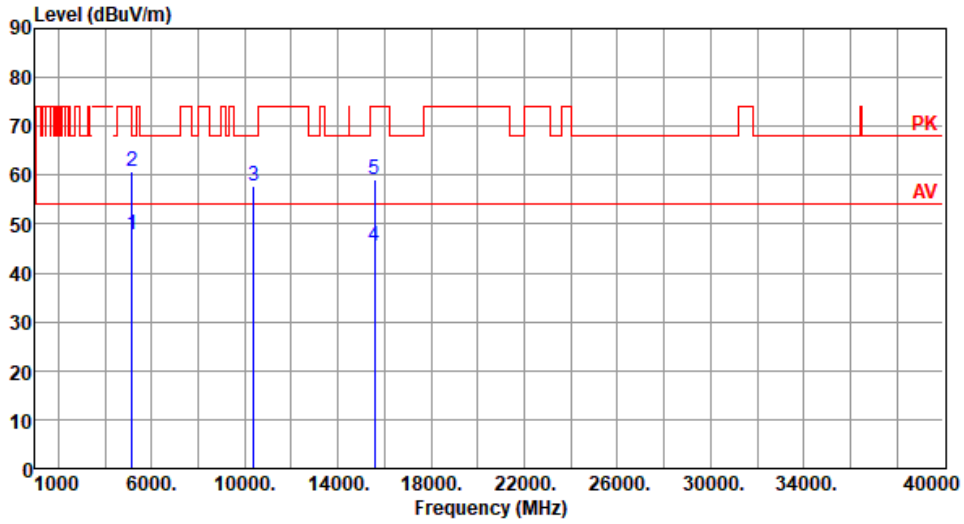
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	62.10	68.20	-6.10	57.56	4.54	Peak	198	241
2	5850.00	100.17	122.20	-22.03	94.72	5.45	Peak	198	241
3	5855.00	94.94	110.80	-15.86	89.50	5.44	Peak	198	241
4	5875.00	81.09	105.20	-24.11	75.65	5.44	Peak	198	241
5	5925.00	67.02	68.20	-1.18	61.59	5.43	Peak	198	241
6	11650.00	44.93	54.00	-9.07	30.72	14.21	Average	100	60
7	11650.00	58.07	74.00	-15.93	43.86	14.21	Peak	100	60
8	17475.00	62.60	68.20	-5.60	43.74	18.86	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).

3.5.7 Transmitter Radiated Unwanted Emissions (Above 1GHz) for ax (HE40)

Modulation	ax (HE40)	Test Freq. (MHz)	5190
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

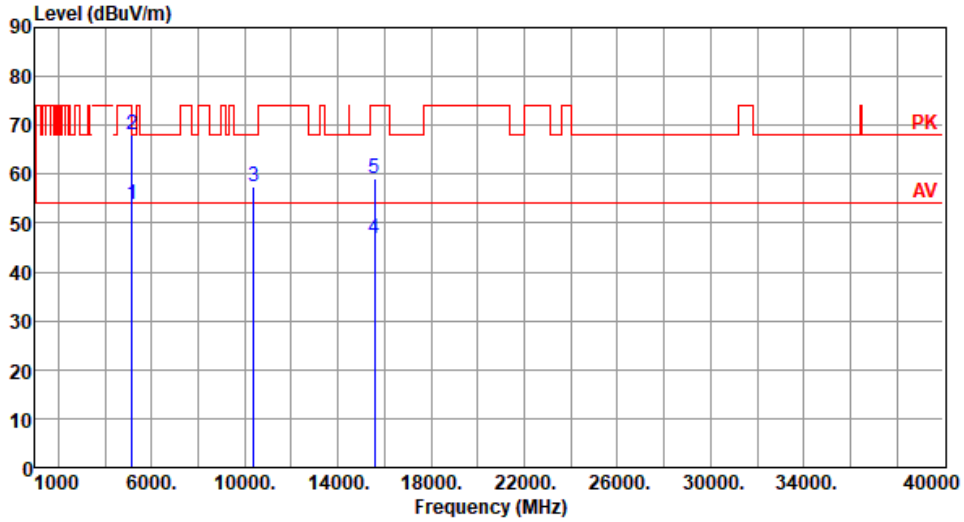


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.97	54.00	-6.03	43.33	4.64	Average	131	110
2	5150.00	60.86	74.00	-13.14	56.22	4.64	Peak	131	110
3	10380.00	57.92	68.20	-10.28	43.68	14.24	Peak	100	41
4	15570.00	45.36	54.00	-8.64	30.58	14.78	Average	100	142
5	15570.00	58.95	74.00	-15.05	44.17	14.78	Peak	100	166

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

Modulation	ax (HE40)	Test Freq. (MHz)	5190
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

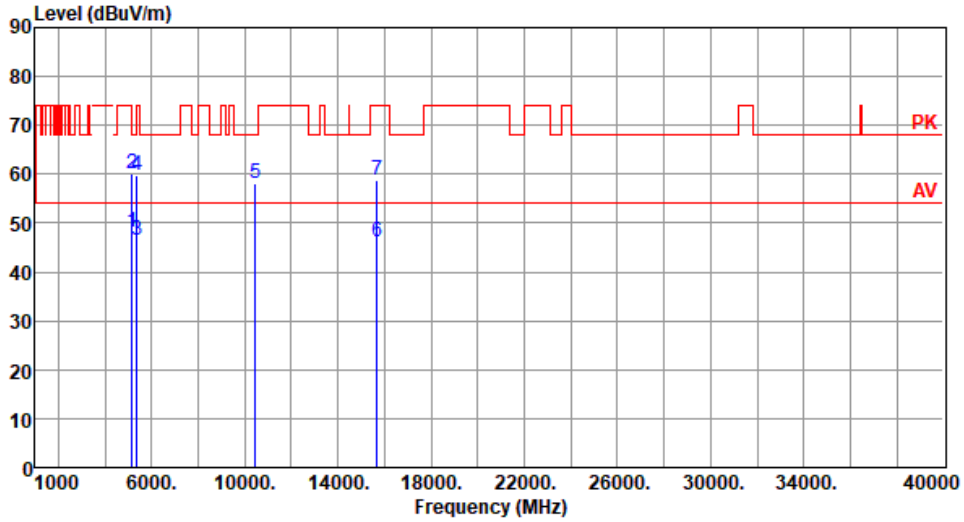


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.87	54.00	-0.13	49.23	4.64	Average	206	267
2	5150.00	68.12	74.00	-5.88	63.48	4.64	Peak	206	267
3	10380.00	57.61	68.20	-10.59	43.37	14.24	Peak	100	153
4	15570.00	46.92	54.00	-7.08	32.14	14.78	Average	100	153
5	15570.00	58.95	74.00	-15.05	44.17	14.78	Peak	100	166

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

Modulation	ax (HE40)	Test Freq. (MHz)	5230
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

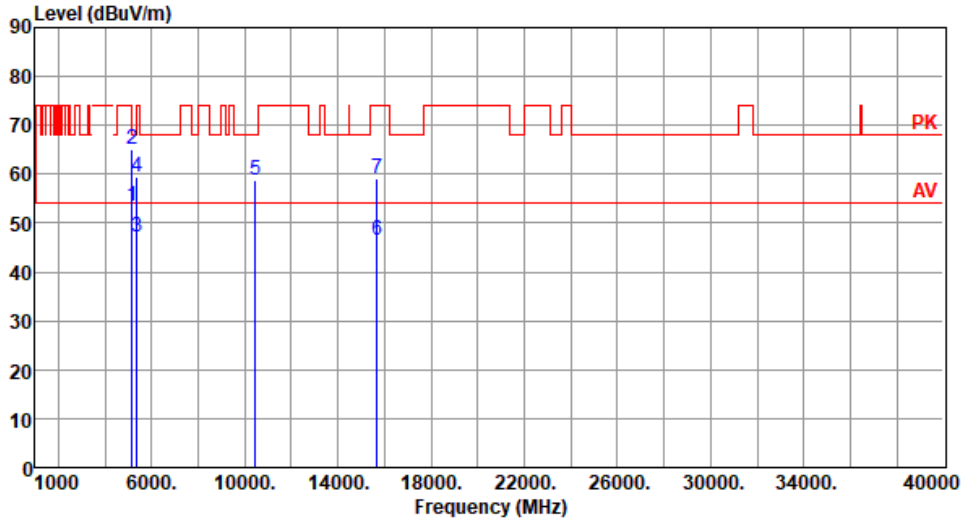


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	48.19	54.00	-5.81	43.55	4.64	Average	132	108
2	5150.00	59.99	74.00	-14.01	55.35	4.64	Peak	132	108
3	5350.00	46.63	54.00	-7.37	42.69	3.94	Average	132	108
4	5350.00	59.83	74.00	-14.17	55.89	3.94	Peak	132	108
5	10460.00	58.03	68.20	-10.17	43.61	14.42	Peak	100	55
6	15690.00	46.23	54.00	-7.77	31.97	14.26	Average	100	43
7	15690.00	58.73	74.00	-15.27	44.47	14.26	Peak	100	43

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

Modulation	ax (HE40)	Test Freq. (MHz)	5230
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

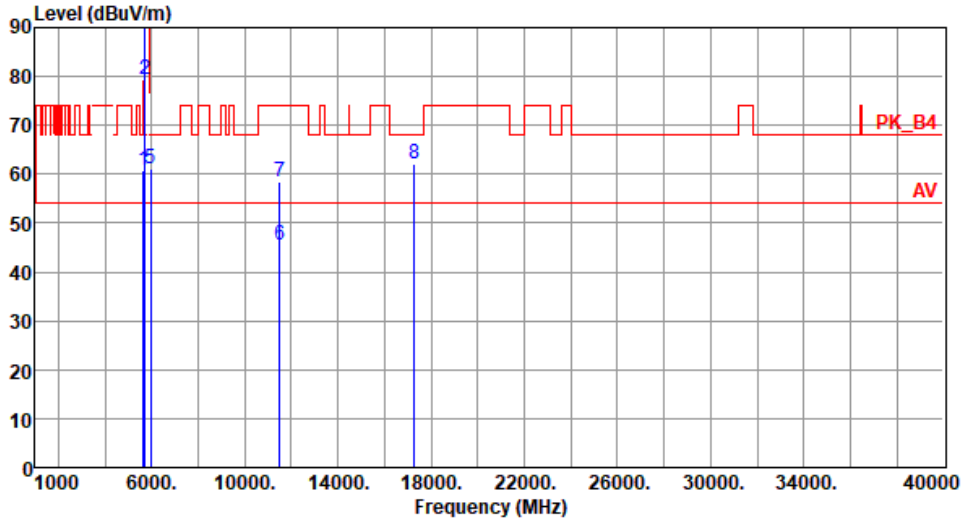


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.59	54.00	-0.41	48.95	4.64	Average	213	256
2	5150.00	65.15	74.00	-8.85	60.51	4.64	Peak	213	256
3	5350.00	47.07	54.00	-6.93	43.13	3.94	Average	213	256
4	5350.00	59.59	74.00	-14.41	55.65	3.94	Peak	213	256
5	10460.00	58.78	68.20	-9.42	44.36	14.42	Peak	100	240
6	15690.00	46.43	54.00	-7.57	32.17	14.26	Average	100	30
7	15690.00	59.11	74.00	-14.89	44.85	14.26	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	ax (HE40)	**Test Freq. (MHz)**	5755
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

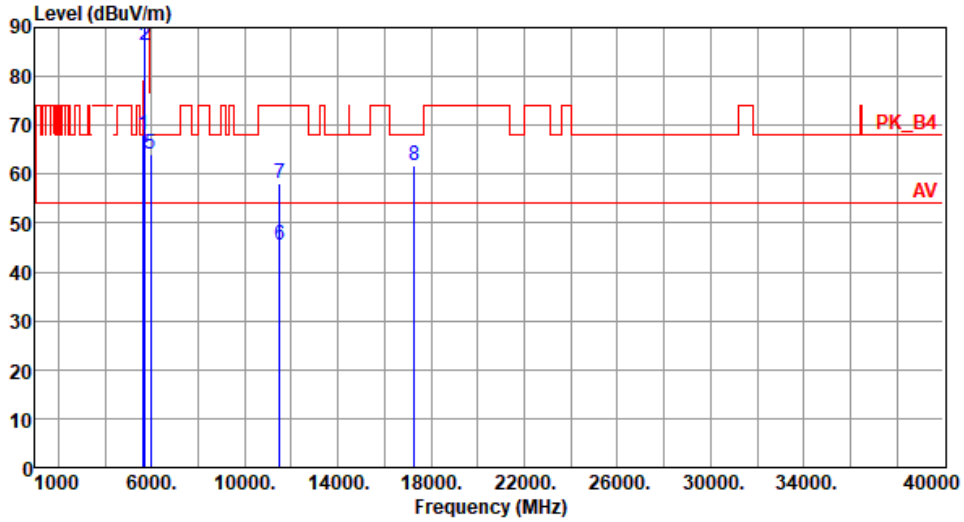


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.88	68.20	-7.32	56.34	4.54	Peak	225	332
2	5700.00	79.39	105.20	-25.81	74.71	4.68	Peak	225	332
3	5720.00	90.30	110.80	-20.50	85.49	4.81	Peak	225	332
4	5725.00	91.48	122.20	-30.72	86.63	4.85	Peak	225	332
5	5950.00	61.24	68.20	-6.96	55.82	5.42	Peak	225	332
6	11510.00	45.60	54.00	-8.40	30.99	14.61	Average	100	45
7	11510.00	58.42	74.00	-15.58	43.81	14.61	Peak	100	45
8	17265.00	62.08	68.20	-6.12	44.21	17.87	Peak	100	71

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	ax (HE40)	Test Freq. (MHz)	5755
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

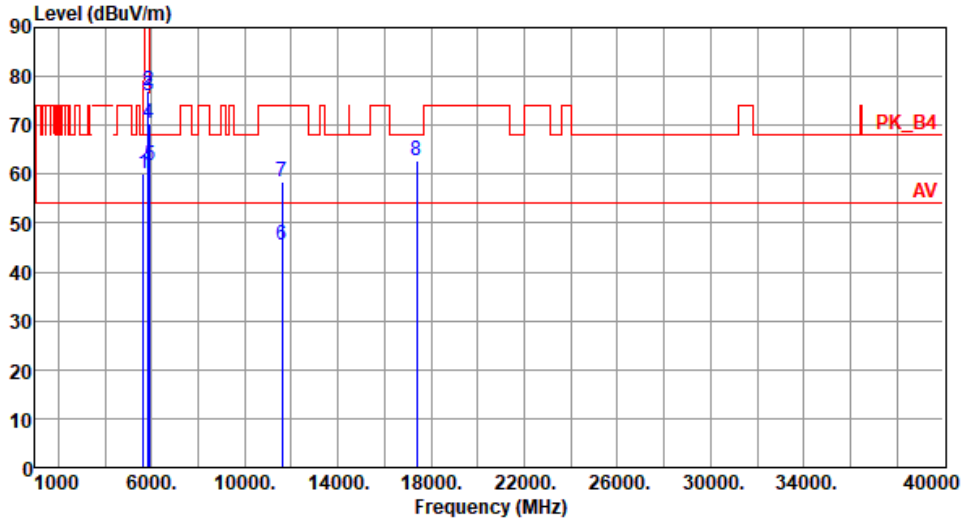


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	68.01	68.20	-0.19	63.47	4.54	Peak	220	241
2	5700.00	86.39	105.20	-18.81	81.71	4.68	Peak	220	241
3	5720.00	97.47	110.80	-13.33	92.66	4.81	Peak	220	241
4	5725.00	98.25	122.20	-23.95	93.40	4.85	Peak	220	241
5	5950.00	64.05	68.20	-4.15	58.63	5.42	Peak	220	241
6	11510.00	45.53	54.00	-8.47	30.92	14.61	Average	100	31
7	11510.00	58.25	74.00	-15.75	43.64	14.61	Peak	100	31
8	17265.00	61.85	68.20	-6.35	43.98	17.87	Peak	100	54

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	ax (HE40)	Test Freq. (MHz)	5795
Polarization	Horizontal		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63

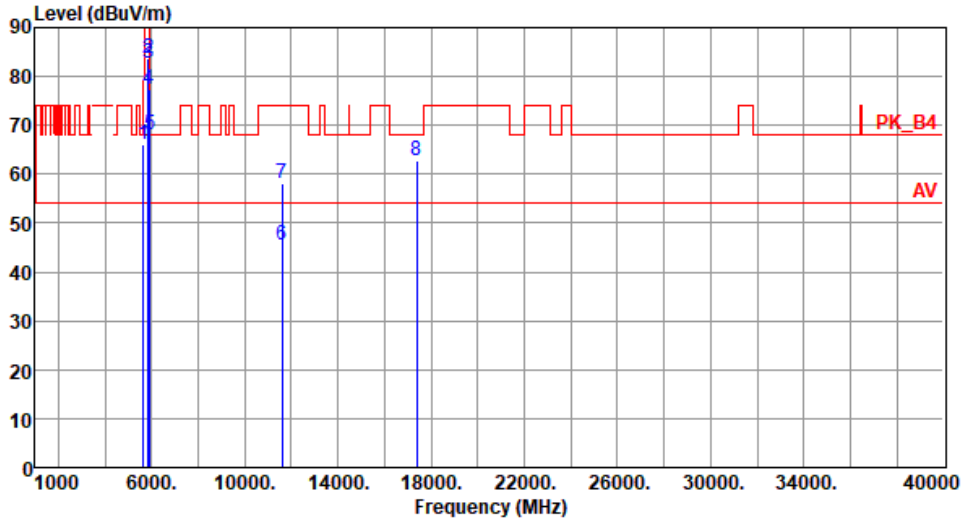


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	60.26	68.20	-7.94	55.72	4.54	Peak	215	333
2	5850.00	77.04	122.20	-45.16	71.59	5.45	Peak	215	333
3	5855.00	75.91	110.80	-34.89	70.47	5.44	Peak	215	333
4	5875.00	70.33	105.20	-34.87	64.89	5.44	Peak	215	333
5	5925.00	61.79	68.20	-6.41	56.36	5.43	Peak	215	333
6	11590.00	45.36	54.00	-8.64	30.90	14.46	Average	100	152
7	11590.00	58.32	74.00	-15.68	43.86	14.46	Peak	100	152
8	17385.00	62.62	68.20	-5.58	44.06	18.56	Peak	100	42

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	ax (HE40)	Test Freq. (MHz)	5795
Polarization	Vertical		

Test By :Roger Lu Temperature(℃):23 Humidity(%):63



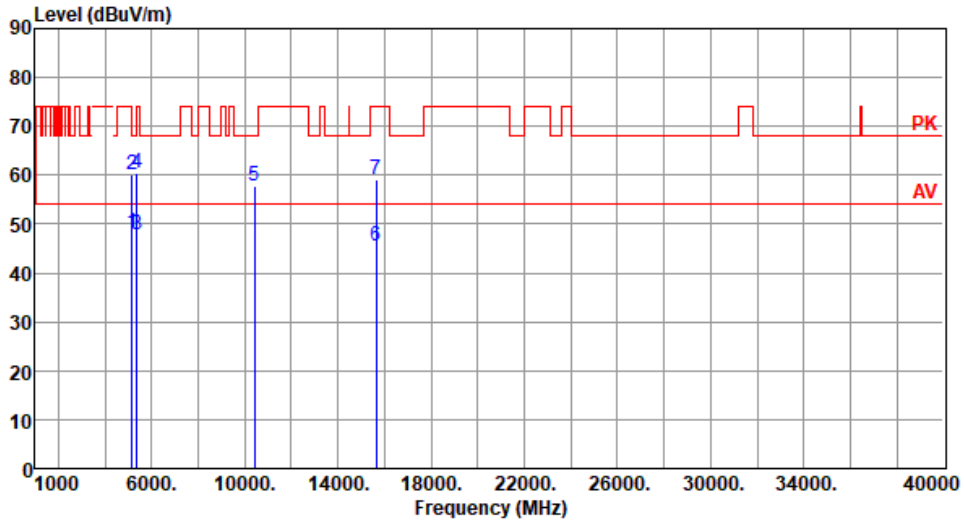
	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	66.08	68.20	-2.12	61.54	4.54	Peak	210	230
2	5850.00	83.61	122.20	-38.59	78.16	5.45	Peak	210	230
3	5855.00	82.62	110.80	-28.18	77.18	5.44	Peak	210	230
4	5875.00	77.49	105.20	-27.71	72.05	5.44	Peak	210	230
5	5925.00	67.97	68.20	-0.23	62.54	5.43	Peak	210	230
6	11590.00	45.41	54.00	-8.59	30.95	14.46	Average	100	156
7	11590.00	58.22	74.00	-15.78	43.76	14.46	Peak	100	156
8	17385.00	62.62	68.20	-5.58	44.06	18.56	Peak	100	42

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 ax (HE80)

Modulation	ax (HE80)	Test Freq. (MHz)	5210
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

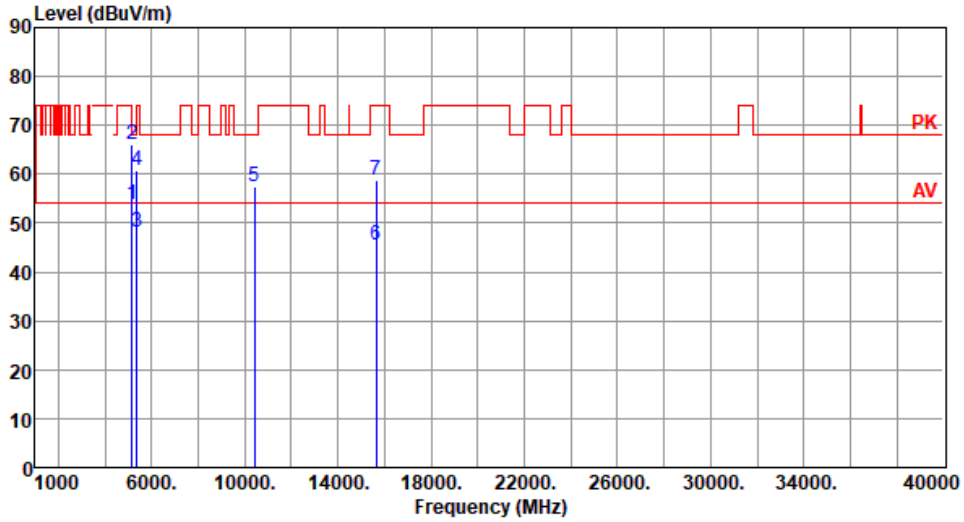


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	47.99	54.00	-6.01	43.35	4.64	Average	111	135
2	5150.00	60.02	74.00	-13.98	55.38	4.64	Peak	111	135
3	5350.00	47.73	54.00	-6.27	43.79	3.94	Average	111	135
4	5350.00	60.57	74.00	-13.43	56.63	3.94	Peak	111	135
5	10420.00	57.70	68.20	-10.50	43.36	14.34	Peak	100	165
6	15630.00	45.66	54.00	-8.34	31.15	14.51	Average	100	75
7	15630.00	58.99	74.00	-15.01	44.48	14.51	Peak	100	75

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	ax (HE80)	Test Freq. (MHz)	5210
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

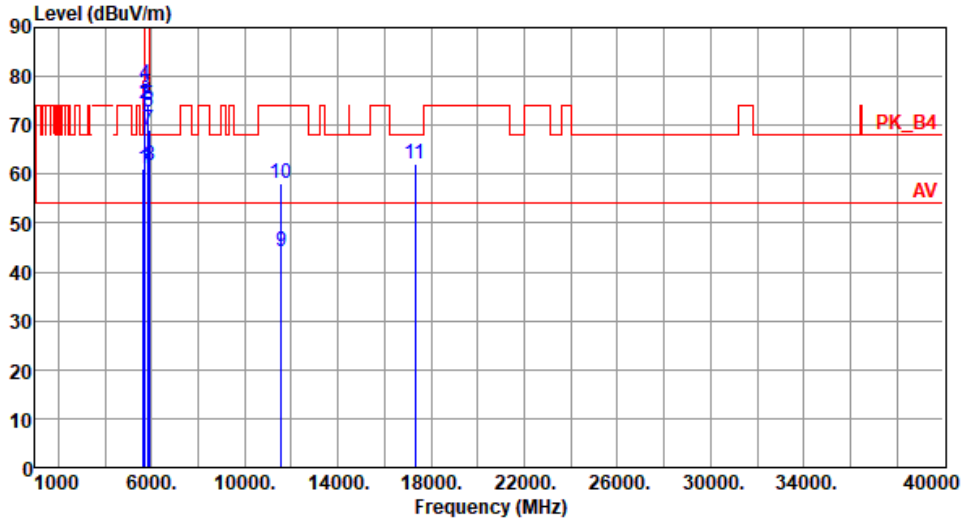


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5150.00	53.86	54.00	-0.14	49.22	4.64	Average	231	257
2	5150.00	65.93	74.00	-8.07	61.29	4.64	Peak	231	257
3	5350.00	48.04	54.00	-5.96	44.10	3.94	Average	231	257
4	5350.00	60.94	74.00	-13.06	57.00	3.94	Peak	231	257
5	10420.00	57.56	68.20	-10.64	43.22	14.34	Peak	100	168
6	15630.00	45.39	54.00	-8.61	30.88	14.51	Average	100	55
7	15630.00	58.77	74.00	-15.23	44.26	14.51	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).

Modulation	ax (HE80)	Test Freq. (MHz)	5775
Polarization	Horizontal		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63

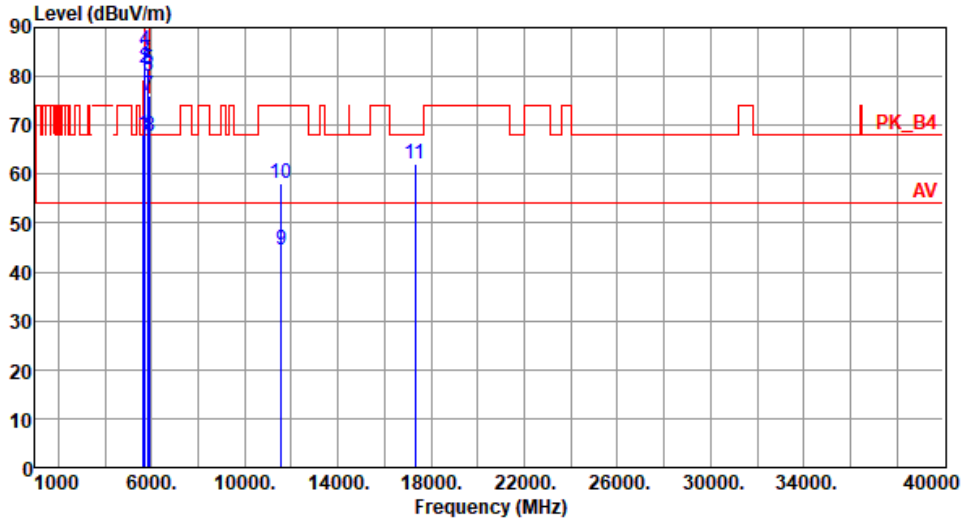


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	5650.00	61.17	68.20	-7.03	56.63	4.54	Peak	225	328
2	5700.00	74.29	105.20	-30.91	69.61	4.68	Peak	225	328
3	5720.00	76.32	110.80	-34.48	71.51	4.81	Peak	225	328
4	5725.00	78.37	122.20	-43.83	73.52	4.85	Peak	225	328
5	5850.00	74.10	122.20	-48.10	68.65	5.45	Peak	225	328
6	5855.00	72.80	110.80	-38.00	67.36	5.44	Peak	225	328
7	5875.00	69.01	105.20	-36.19	63.57	5.44	Peak	225	328
8	5925.00	61.83	68.20	-6.37	56.40	5.43	Peak	225	328
9	11550.00	44.32	54.00	-9.68	29.79	14.53	Average	100	56
10	11550.00	58.07	74.00	-15.93	43.54	14.53	Peak	100	56
11	17325.00	61.94	68.20	-6.26	43.77	18.17	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).

Modulation	ax (HE80)	Test Freq. (MHz)	5775
Polarization	Vertical		

Test By :Akun Chung Temperature(℃):23 Humidity(%):63



	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	68.01	68.20	-0.19	63.47	4.54	Peak	217	232
2	5700.00	81.59	105.20	-23.61	76.91	4.68	Peak	217	232
3	5720.00	83.43	110.80	-27.37	78.62	4.81	Peak	217	232
4	5725.00	85.30	122.20	-36.90	80.45	4.85	Peak	217	232
5	5850.00	81.44	122.20	-40.76	75.99	5.45	Peak	217	232
6	5855.00	79.93	110.80	-30.87	74.49	5.44	Peak	217	232
7	5875.00	76.21	105.20	-28.99	70.77	5.44	Peak	217	232
8	5925.00	67.67	68.20	-0.53	62.24	5.43	Peak	217	232
9	11550.00	44.58	54.00	-9.42	30.05	14.53	Average	100	43
10	11550.00	58.12	74.00	-15.88	43.59	14.53	Peak	100	43
11	17325.00	62.10	68.20	-6.10	43.93	18.17	Peak	100	58

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

3.6 Frequency Stability

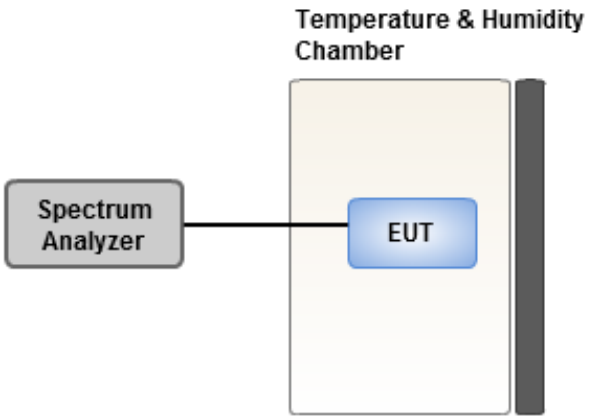
3.6.1 Limit of Frequency Stability

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

3.6.2 Test Procedures

1. The EUT is installed in an environment test chamber with external power source.
2. Set the chamber to operate at 20 centigrade and external power source to output at nominal voltage of EUT.
3. A sufficient stabilization period at each temperature is used prior to each frequency measurement.
4. When temperature is stabled, measure the frequency stability.
5. The test shall be performed under normal and extreme condition for temperature and voltage.

3.6.3 Test Setup



3.6.4 Test Result of Frequency Stability

Ambient Condition	22 ~ 25°C / 65 ~ 68%	Tested By	Aska Huang

Frequency: 5200 MHz	Frequency Drift (ppm)			
Temperature (°C)	0 minute	2 minutes	5 minutes	10 minutes
T20°CVmax	-1.58	-1.91	-1.40	-1.46
T20°CVmin	-2.28	-1.72	-2.18	-2.22
T50°CVnom	-7.03	-7.60	-7.10	-6.92
T40°CVnom	-5.10	-4.98	-4.76	-4.89
T30°CVnom	-2.82	-3.50	-2.50	-2.69
T20°CVnom	-1.69	-1.87	-2.07	-1.71
T10°CVnom	-1.18	-1.71	-1.62	-1.14
T0°CVnom	-1.33	-1.01	-1.14	-0.88
T-10°CVnom	2.16	2.56	2.77	1.94
T-20°CVnom	4.02	3.79	4.37	4.00
T-30°CVnom	6.66	5.81	6.09	6.92
Vnom [V]: 120		Vmax [V]: 138		Vmin [V]: 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	-1.36	-1.26	-0.85	-1.14
T20°CVmin	-1.32	-1.19	-0.95	-1.80
T50°CVnom	-5.87	-6.08	-5.96	-5.69
T40°CVnom	-4.50	-4.67	-4.16	-4.39
T30°CVnom	-2.21	-2.04	-1.82	-2.42
T20°CVnom	-1.30	-0.72	-0.80	-1.79
T10°CVnom	-1.45	-1.05	-1.23	-1.94
T0°CVnom	-1.32	-0.97	-1.03	-0.78
T-10°CVnom	1.75	2.15	1.83	1.52
T-20°CVnom	4.18	4.47	4.81	4.50
T-30°CVnom	5.74	5.87	6.23	5.85
Vnom [V]: 120		Vmax [V]: 138		Vmin [V]: 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==