

# TEST REPORT

Report No.: SHE20040045-02IE

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**Applicant** : Shenzhen UniStrong Science & Technology Co.,Ltd.  
**Address of Applicant** : B,4-4Factory, Zhengcheng Road, Fuyong Baoan District, Shenzhen, China

**Product Name** : Rugged android tablet  
**Model No.** : UT56  
**Sample No.** : E20040045-01#01;  
E20040045-01#05  
**FCC ID** : 2AOPD-UT56  
**ISED Number** : 11546A-UT56

**Standards** : FCC CFR47 Part 15, Subpart E  
RSS-Gen (Issue 5, March 2019)  
RSS-247 (Issue 2, February 2017)

**Date of Receipt** : 2020-04-14  
**Date of Test** : 2020-04-27 ~ 2020-07-09  
**Date of Issue** : 2020-07-15

**Remark:**

*This report details the results of the testing carried out on one sample, the results contained in this report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.*

Prepared by: Jennifer Zhou  
(Jennifer Zhou)

Reviewed by: Jesse  
(Jesse)

Approved by: Guoyou Chi  
(Authorized signatory: Guoyou Chi)

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## Revision Record

Version	Date	Revisions	Revised By
1.0	2019-11-01	Original	--

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## 1 General Information

### 1.1 Testing Laboratory

Company Name	ICAS Testing Technology Services (Shanghai) Co., Ltd.
Address	155 Pingbei Rd, Minhang District, Shanghai, China
Telephone	0086 21-51682999
Fax	0086 21-54711112
Homepage	www.icasiso.com

### 1.2 Details of Application

Company Name	Shenzhen UniStrong Science & Technology Co.,Ltd.
Address	B,4-4Factory, Zhengcheng Road, Fuyong Baoan District, Shenzhen, China
Contact Person	Lili Zheng
Telephone	+86-21-54467182
Email	ll.zheng@unistrong.com

### 1.3 Details of EUT

Product Name	Rugged android Tablet
Brand Name	Unistrong
Model No.	UT56
FCC ID	2AOPD-UT56
ISED Number	11546A-UT56
Mode of Operation	WLAN 802.11a/n(HT20/40)/ac(HT20/40/80)
Frequency Range	Band I: 5150 MHz ~ 5250 MHz Band IV: 5725 MHz ~ 5850 MHz
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Channel Bandwidth	802.11a: 20MHz 802.11n: 20MHz, 40MHz 802.11ac: 20MHz, 40MHz, 80MHz
Antenna Type	Internal Antenna
Antenna Gain	-3.1 dBi
Extreme Temperature Range	-10°C ~ +55°C
Test Voltage	DC 3.8V
Extreme Voltage	Low Voltage: DC 3.4V High Voltage: DC 4.35V
Product Type	Mobile and portable for FCC standard Indoor for IC standard

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## 1.4 Test Methodology

47 CFR Part 15, Subpart C (10-1-16 Edition)	Miscellaneous Wireless Communications Services
KDB Publication 789033 D02 v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
KDB Publication 662911 D01 v02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band (e.g., MIMO, Smart Antenna, etc)
RSS-Gen (Issue 5, March 2019)	General Requirements for Compliance of Radio Apparatus
RSS-247 (Issue 2, February 2017)	Digital Transmission Systems (DTSS), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices
ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

### Note(s):

All test items were verified and recorded according to the standards and without any addition/deviation/exclusion during the test.

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## 2 Test Condition

### 2.1 Environmental conditions

Temperature (°C)	18-25
Humidity (%RH)	40-65
Barometric Pressure (mbar)	960-1060

### 2.2 Equipment List

Name of Equipment	Manufacturer	Model	Serial No.	Cal. Due Date
Spectrum Analyzer	Keysight	N9020B	MY59260184	2021-07-28
Spectrum Analyzer	Rohde & Schwarz	FSV40N	101450	2021-06-24
EMI Test Receiver	Rohde & Schwarz	ESPI3	100173	2021-06-19
EMI Test Receiver	Rohde & Schwarz	ESR 7	101911	2021-06-19
V-network	SCHWARZBECK	NSLK 8127	8127-902	2021-02-20
Wideband Radio Communication Tester	Rohde & Schwarz	CMW 500	100687	2021-08-22
Broadband Antenna	SCHWARZBECK	VULB9163	9163-1037	2021-06-06
Horn Antenna-18G	SCHWARZBECK	BBHA9120D	9120D-1775	2021-06-06
Loop Antenna	SCHWARZBECK	FMZB 1513	N/A	2021-03-19
Horn Antenna-40G	YINGLIAN	LB-180400-KF	N/A	2021-07-26
EMC chamber 9*6*6 (L*W*H)	CHANGNING	966	N/A	2023-06-26
Shielded Enclosure 8*5*4 (L*W*H)	CHANGNING	854	N/A	2023-08-28
Test Software	BL	BL410_E	N/A	N/A

### 2.3 Measurement Uncertainty

Parameter	Frequency	Uncertainty
Antenna Port Conducted Emission	< 1GHz	± 1.5 dB
	> 1GHz	± 1.5 dB
Radiated Emission	30 MHz – 1 GHz	± 3 dB
	> 1GHz	± 3 dB

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## 3 Test Set-up and Operation Modes

### 3.1 Details of Test Mode

Using test software was control EUT work in continuous transmitter and receiver mode. Select test channel as below:

For 802.11a/n(HT20), 802.11ac(VHT20)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH36)	5180MHz	The lowest channel(CH149)	5745MHz
The middle channel(CH44)	5220MHz	The middle channel(CH157)	5785MHz
The highest channel(CH48)	5240MHz	The highest channel(CH165)	5825MHz

For 802.11n(HT40), 802.11ac(VHT40)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH38)	5190MHz	The lowest channel(CH151)	5755MHz
The highest channel(CH46)	5230MHz	The highest channel(CH159)	5795MHz

For 802.11ac(VHT80)

Band I (5150 – 5250 MHz)		Band IV (5725 – 5850 MHz)	
Channel	Frequency	Channel	Frequency
The lowest channel(CH42)	5210MHz	The lowest channel(CH155)	5775MHz

Through Pre-scan under all rate at lowest channel, the data rate as below table described is the worst case, so we choose these data rate for test.

Type	Data rate
802.11a	48Mbps
802.11n(HT20), 802.11ac(VHT20)	MCS7
802.11n(HT40), 802.11ac(VHT40)	MCS3
802.11ac(VHT80)	MCS0

The basic operation modes are:

- A. On
  - 1. WLAN mode
    - a. Transmitting
    - b. Receiving
- B. Standby

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C. Off

## 3.2 Special Accessories and Auxiliary Equipment

Description	Manufacturer	Model No.	Serial No.
N/A	N/A	N/A	N/A

## 3.3 Support Software

Description	Manufacturer	Software Name
N/A	N/A	N/A



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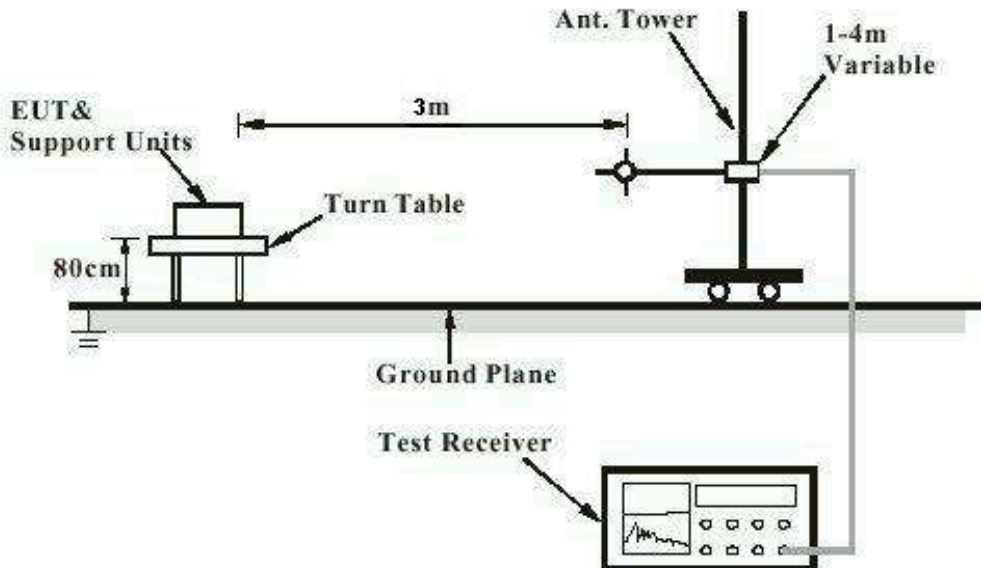
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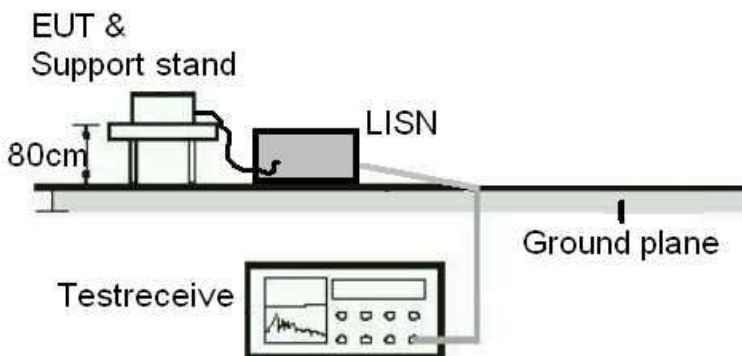
## 3.4 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test



Note: Measurements above 1GHz are done with a table height of 1.5m. In addition, there is RF absorbing material on the floor of the test site for above 1GHz measurement.

Diagram of Measurement Equipment Configuration for Conduction Measurement



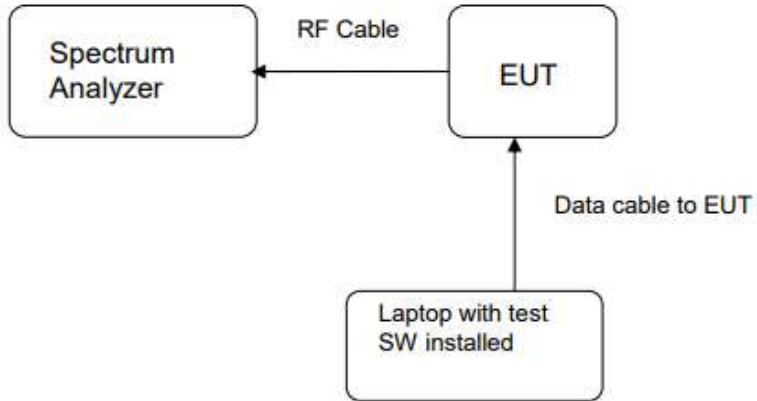
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## Diagram of Measurement Equipment Configuration for Transmitter Measurement



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## 4 Test Results

### 4.1 Transmitter Requirement & Test Suites

#### 4.1.1 Antenna Requirement

RESULT:

**PASS**

Test standard : FCC Part 15.407(a), 15.203  
RSS-247 6.2

Requirement : The use of approved antennas only with directional gains that do not exceed 6 dBi

According to the manufacturer declaration, the EUT has an antenna with a directional gain of -3.10 dBi. The antenna is an internal antenna with no possibility of replacement with a non-approved antenna by the end-user.

Therefore, the EUT is considered to comply with this provision.

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## 4.1.2 Peak Output Power and E.I.R.P

RESULT:

**PASS**

Test standard : FCC Part 15.407(a)  
 RSS-247 6.2

Requirement : ANSI C63.10-2013, KDB 789033

Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High

Operation Mode : A.1.a

Ambient temperature : 25°C

Relative humidity : 52%

**Table 1: Peak Output Power**  
 Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	Measured Peak Output Power		FCC Limit (mW)
		(dBm)	(mW)	
802.11a	5180	14.56	28.58	250
	5220	14.56	28.58	
	5240	14.53	28.38	
802.11n(HT20)	5180	14.49	28.12	
	5220	14.43	27.73	
	5240	14.46	27.93	
802.11ac(VHT20)	5180	14.40	27.54	
	5220	14.45	27.86	
	5240	14.42	27.67	
802.11n(HT40)	5190	14.19	26.24	
	5230	14.10	25.70	
802.11ac(VHT40)	5190	14.14	25.94	
	5230	14.11	25.76	
802.11ac(VHT80)	5210	13.89	24.49	

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Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	Measured Peak Output Power		FCC Limit (W)
		(dBm)	(mW)	
802.11a	5745	13.15	20.65	1
	5785	12.73	18.75	
	5825	13.14	20.61	
802.11n(HT20)	5745	13.07	20.28	
	5785	12.59	18.16	
	5825	13.05	20.18	
802.11ac(VHT20)	5745	13.05	20.18	
	5785	12.60	18.20	
	5825	13.09	20.37	
802.11n(HT40)	5755	12.58	18.11	
	5795	12.58	18.11	
802.11ac(VHT40)	5755	12.60	18.20	
	5795	12.54	17.95	
802.11ac(VHT80)	5775	12.09	16.18	

**Table 2: E.I.R.P**

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	E.I.R.P		IC Limit (mW)
		(dBm)	(mW)	
802.11a	5180	11.46	14.00	200 mW or 10 dBm + 10log B, which is less
	5220	11.46	14.00	
	5240	11.43	13.90	
802.11n(HT20)	5180	11.39	13.77	
	5220	11.33	13.58	
	5240	11.36	13.68	
802.11ac(VHT20)	5180	11.30	13.49	
	5220	11.35	13.65	
	5240	11.32	13.55	
802.11n(HT40)	5190	11.09	12.85	
	5230	11.00	12.59	
802.11ac(VHT40)	5190	11.04	12.71	
	5230	11.01	12.62	
802.11ac(VHT80)	5210	10.79	11.99	

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Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	E.I.R.P		FCC Limit (mW)
		(dBm)	(mW)	
802.11a	5745	10.05	10.12	200 mW or 10 dBm + 10log B, which is less
	5785	9.63	9.18	
	5825	10.04	10.09	
802.11n(HT20)	5745	9.97	9.93	
	5785	9.49	8.89	
	5825	9.95	9.89	
802.11ac(VHT20)	5745	9.95	9.89	
	5785	9.50	8.91	
	5825	9.99	9.98	
802.11n(HT40)	5755	9.48	8.87	
	5795	9.48	8.87	
802.11ac(VHT40)	5755	9.50	8.91	
	5795	9.44	8.79	
802.11ac(VHT80)	5775	8.99	7.93	

Note:

B is the 99% emissions bandwidth in MHz.

5G BAND1 antenna peak gain is -3.10

5G BAND4 antenna peak gain is -3.10

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## 4.1.3 26dB Bandwidth and 99% Bandwidth

RESULT:

**PASS**

Test standard : FCC Part 15.407(a)  
RSS-247 6.2  
Requirement : ANSI C63.10-2013, KDB 789033  
Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High  
Operation Mode : A.1.a  
Ambient temperature : 25°C  
Relative humidity : 52%

**Table 3: 26dB Bandwidth and 99% Bandwidth**

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	5180	20.31	17.107
	5220	20.37	17.035
	5240	20.31	17.022
802.11n(HT20)	5180	20.76	17.976
	5220	20.80	17.928
	5240	20.77	17.936
802.11ac(VHT20)	5180	20.65	17.953
	5220	20.77	17.959
	5240	20.69	17.926
802.11n(HT40)	5190	40.73	36.152
	5230	40.72	36.081
802.11ac(VHT40)	5190	40.54	36.128
	5230	40.64	36.020
802.11ac(VHT80)	5210	83.90	75.148

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Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
802.11a	5745	20.34	17.041
	5785	20.46	17.035
	5825	20.52	17.007
802.11n(HT20)	5745	20.62	17.962
	5785	20.70	17.955
	5825	20.83	17.956
802.11ac(VHT20)	5745	20.65	17.953
	5785	20.77	17.959
	5825	20.69	17.926
802.11n(HT40)	5755	40.78	36.098
	5795	40.68	36.136
802.11ac(VHT40)	5755	40.54	36.128
	5795	40.64	36.020
802.11ac(VHT80)	5775	83.65	75.023



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Figure 1: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5180MHz



Figure 2: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5220MHz



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Figure 3: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5240MHz



Figure 4: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5180MHz



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Figure 5: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5220MHz



Figure 6: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5240MHz



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Figure 7: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5180MHz



Figure 8: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5220MHz





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Figure 9: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5240MHz



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Figure 10: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5190MHz



Figure 11: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5230MHz



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Figure 12: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5190MHz



Figure 13: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5230MHz



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Figure 14: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT80), 5210MHz



Figure 15: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5745MHz





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Figure 16: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5785MHz



Figure 17: 26dB Bandwidth and 99% Bandwidth, 802.11a, 5825MHz



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Figure 18: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5745MHz



Figure 19: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5785MHz



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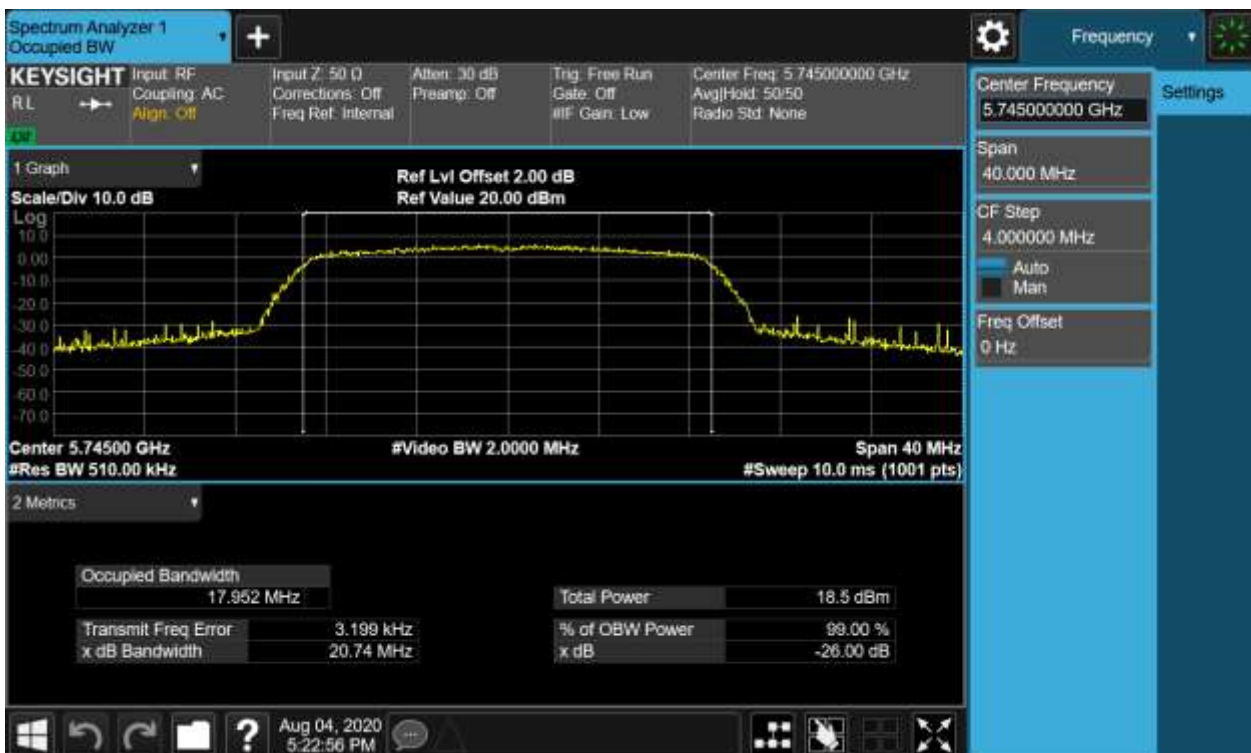
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Figure 20: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT20), 5825MHz



Figure 21: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5745MHz



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Figure 22: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5785MHz



Figure 23: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT20), 5825MHz





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Figure 24: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5755MHz

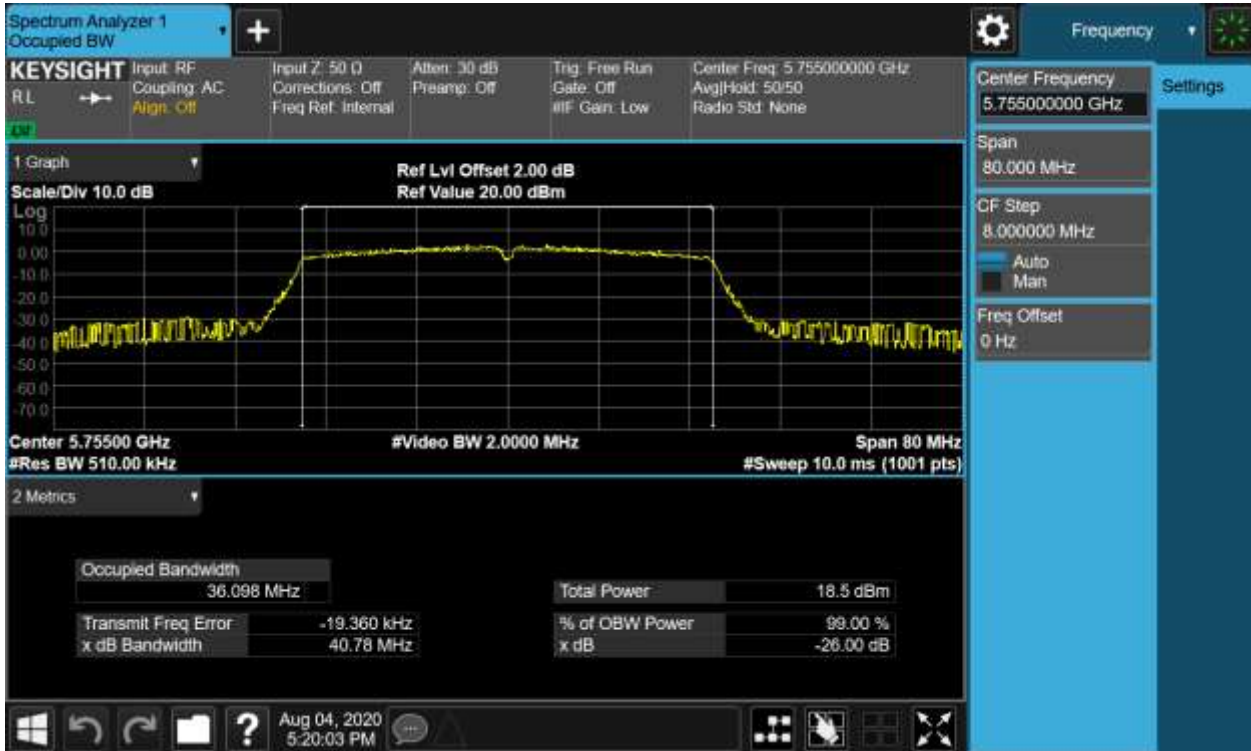


Figure 25: 26dB Bandwidth and 99% Bandwidth, 802.11n(HT40), 5795MHz



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Figure 26: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5755MHz



Figure 27: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT40), 5785MHz



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Figure 28: 26dB Bandwidth and 99% Bandwidth, 802.11ac(VHT80), 5775MHz



Note : 26dB bandwidth RBW is approximately 1% of the emission bandwidth. Based on the spectrum character, use the RBW close to 1% of bandwidth as far as possible.

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## 4.1.4 6dB Bandwidth

RESULT:

PASS

Test standard : FCC Part 15.407(e)  
RSS-247 6.2  
Requirement : ANSI C63.10-2013, KDB 789033  
Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High  
Operation Mode : A.1.a  
Ambient temperature : 25°C  
Relative humidity : 52%

Table 4: 6dB Bandwidth

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11a	5745	15.42	0.5
	5785	15.77	
	5825	15.47	
802.11n(HT20)	5745	15.22	
	5785	15.52	
	5825	16.07	
802.11ac(VHT20)	5745	15.27	
	5785	15.17	
	5825	15.52	
802.11n(HT40)	5755	35.12	
	5795	30.12	
802.11ac(VHT40)	5755	35.17	
	5795	35.17	
802.11ac(VHT80)	5775	75.17	



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Figure 29: 6dB Bandwidth, 802.11a, 5745MHz



Figure 30: 6dB Bandwidth, 802.11a, 5785MHz



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Figure 31: 6dB Bandwidth, 802.11a, 5825MHz



Figure 32: 6dB Bandwidth, 802.11n(HT20), 5745MHz



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Figure 33: 6dB Bandwidth, 802.11n(HT20), 5785MHz



Figure 34: 6dB Bandwidth, 802.11n(HT20), 5825MHz







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Figure 37: 6dB Bandwidth, 802.11ac(VHT20), 5825MHz



Figure 38: 6dB Bandwidth, 802.11n(HT40), 5755MHz



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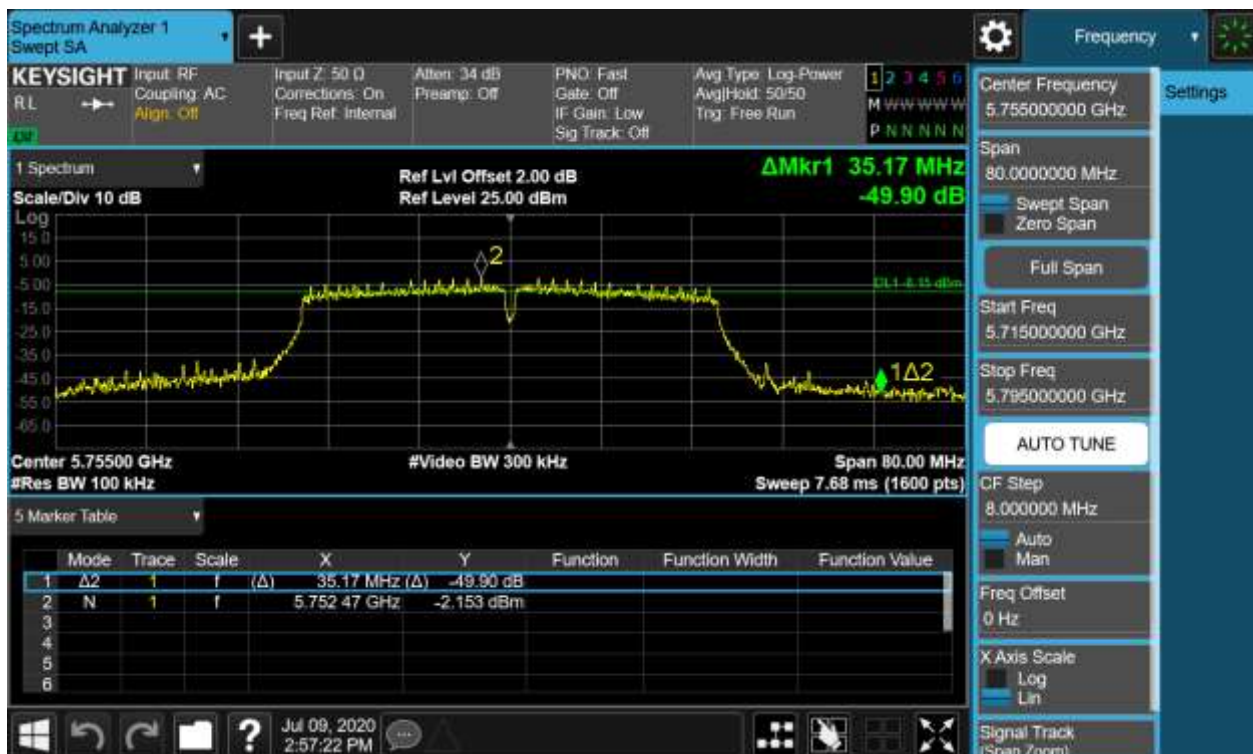
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Figure 39: 6dB Bandwidth, 802.11n(HT40), 5795MHz



Figure 40: 6dB Bandwidth, 802.11ac(VHT40), 5755MHz







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## 4.1.5 Power Spectral Density

RESULT:

**PASS**

Test standard : FCC Part 15.407(a)  
 RSS-247 6.2  
 Requirement : ANSI C63.10-2013, KDB 789033  
 Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High  
 Operation Mode : A.1.a  
 Ambient temperature : 25°C  
 Relative humidity : 52%

**Table 5: Power Spectral Density**

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	PSD (dBm/MHz)	FCC Limit (dBm/MHz)
802.11a	5180	9.328	11
	5220	9.822	
	5240	10.202	
802.11n(HT20)	5180	8.651	
	5220	9.591	
	5240	8.808	
802.11ac(VHT20)	5180	9.048	
	5220	9.663	
	5240	10.511	
802.11n(HT40)	5190	6.234	
	5230	5.992	
802.11ac(VHT40)	5190	6.004	
	5230	6.224	
802.11ac(VHT80)	5210	2.871	

Band IV (5725 – 5850 MHz)

Test Mode	Test Channel (MHz)	PSD (dBm/MHz)	FCC Limit (dBm/MHz)
802.11a	5745	9.349	30
	5785	9.708	
	5825	9.358	



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802.11n(HT20)	5745	9.170	
	5785	7.740	
	5825	8.499	
802.11ac(VHT20)	5745	8.904	
	5785	8.250	
	5825	9.213	
802.11n(HT40)	5755	5.280	
	5795	5.427	
802.11ac(VHT40)	5755	5.769	
	5795	5.308	
802.11ac(VHT80)	5775	-1.216	

Band I (5150 – 5250 MHz)

Test Mode	Test Channel (MHz)	EIRP PSD (dBm/MHz)	IC Limit (dBm/MHz)
802.11a	5180	6.228	10
	5220	6.722	
	5240	7.102	
802.11n(HT20)	5180	5.551	
	5220	6.491	
	5240	5.708	
802.11ac(VHT20)	5180	5.948	
	5220	6.563	
	5240	7.411	
802.11n(HT40)	5190	3.134	
	5230	2.892	
802.11ac(VHT40)	5190	2.904	
	5230	3.124	
802.11ac(VHT80)	5210	-0.229	

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Figure 43: Power Spectral Density, 802.11a, 5180MHz



Figure 44: Power Spectral Density, 802.11a, 5220MHz



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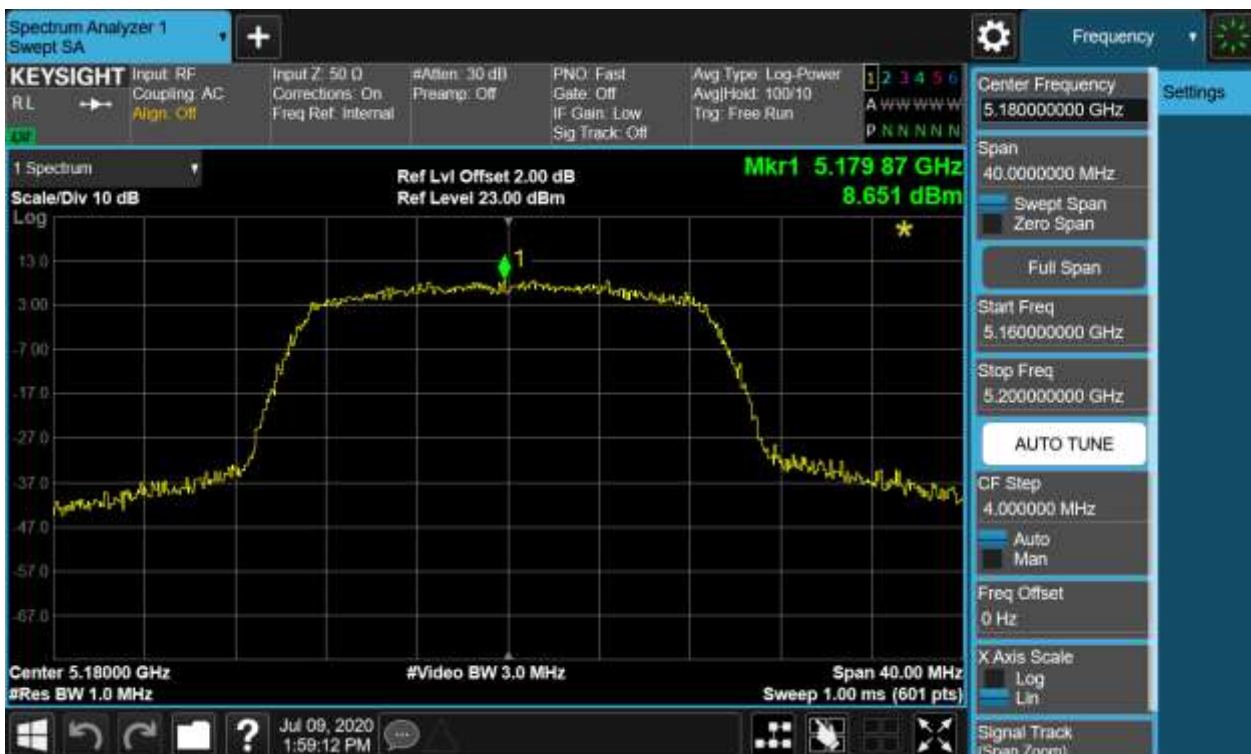
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Figure 45: Power Spectral Density, 802.11a, 5240MHz



Figure 46: Power Spectral Density, 802.11n(HT20), 5180MHz



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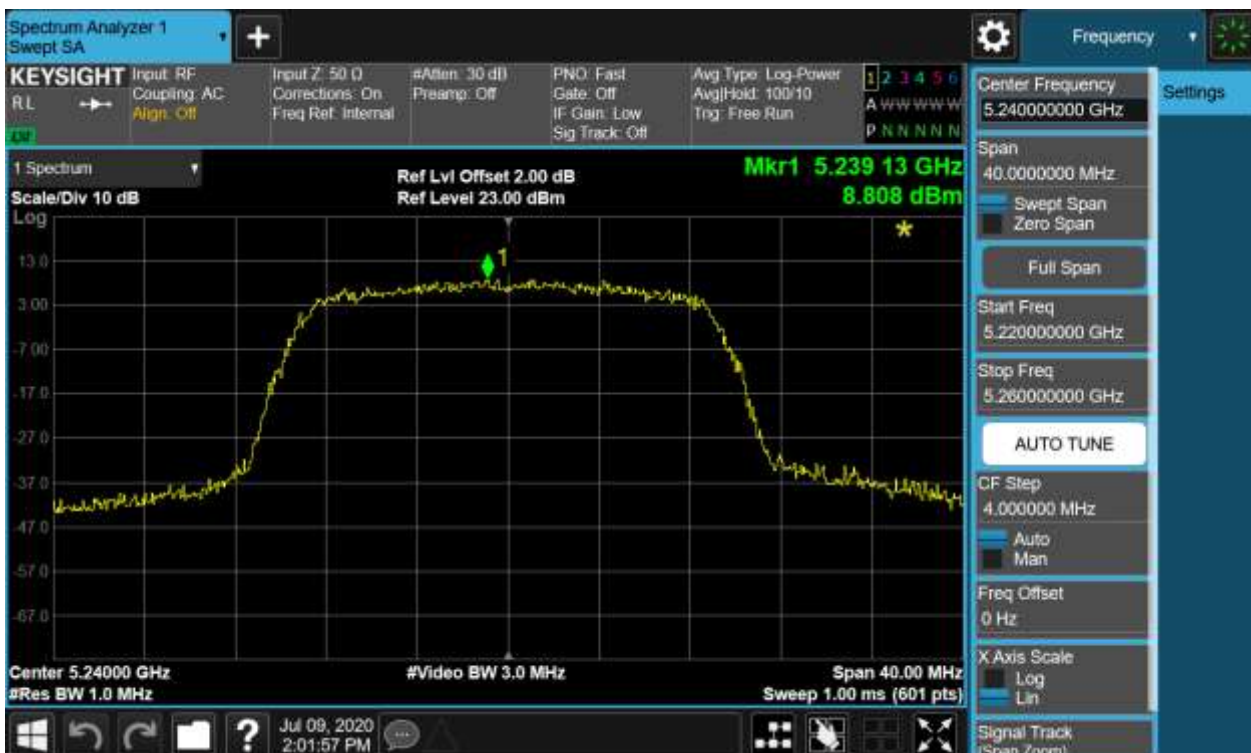
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Figure 47: Power Spectral Density, 802.11n(HT20), 5220MHz



Figure 48: Power Spectral Density, 802.11n(HT20), 5240MHz





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Figure 49: Power Spectral Density, 802.11ac(VHT20), 5180MHz

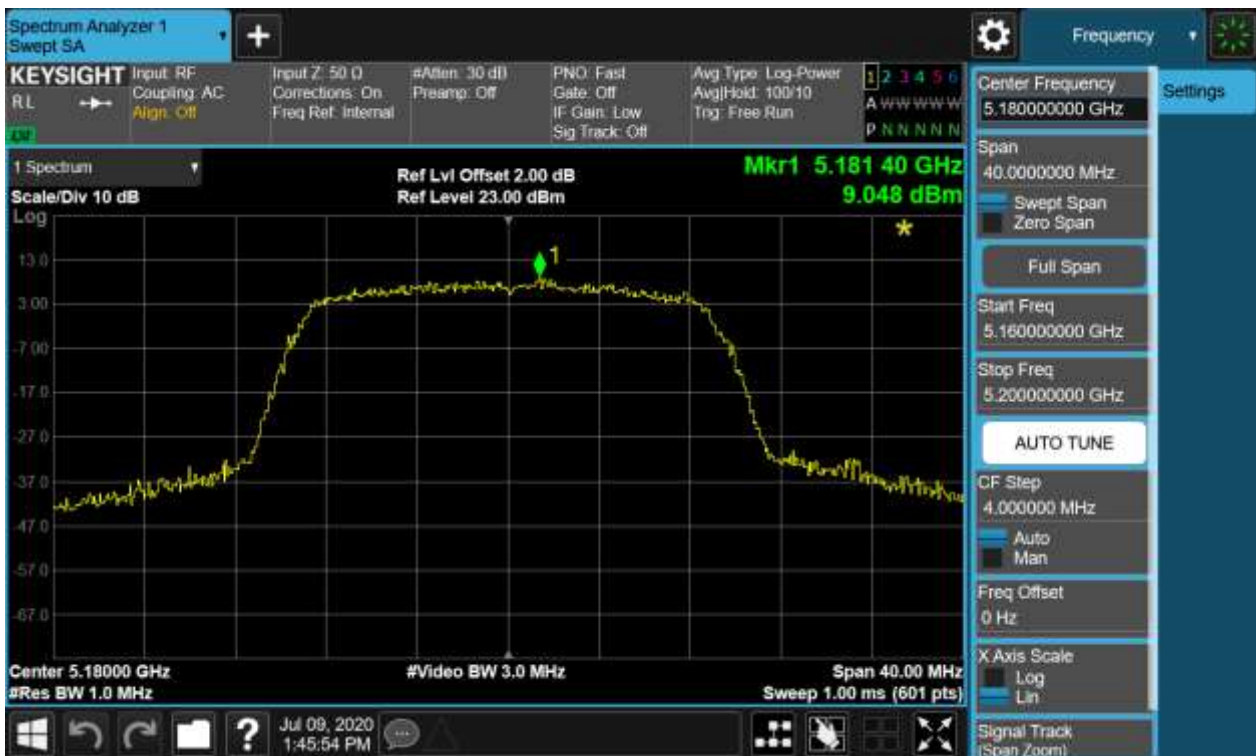


Figure 50: Power Spectral Density, 802.11ac(VHT20), 5220MHz

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Figure 51: Power Spectral Density, 802.11ac(VHT20), 5240MHz



Figure 52: Power Spectral Density, 802.11n(HT40), 5190MHz



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Figure 53: Power Spectral Density, 802.11n(HT40), 5230MHz



Figure 54: Power Spectral Density, 802.11ac(VHT40), 5190MHz





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Figure 55: Power Spectral Density, 802.11ac(VHT40), 5230MHz



Figure 56: Power Spectral Density, 802.11ac(VHT80), 5210MHz



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Figure 57: Power Spectral Density, 802.11a, 5745MHz



Figure 58: Power Spectral Density, 802.11a, 5785MHz



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Figure 59: Power Spectral Density, 802.11a, 5825MHz



Figure 60: Power Spectral Density, 802.11n(HT20), 5745MHz





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Figure 61: Power Spectral Density, 802.11n(HT20), 5785MHz

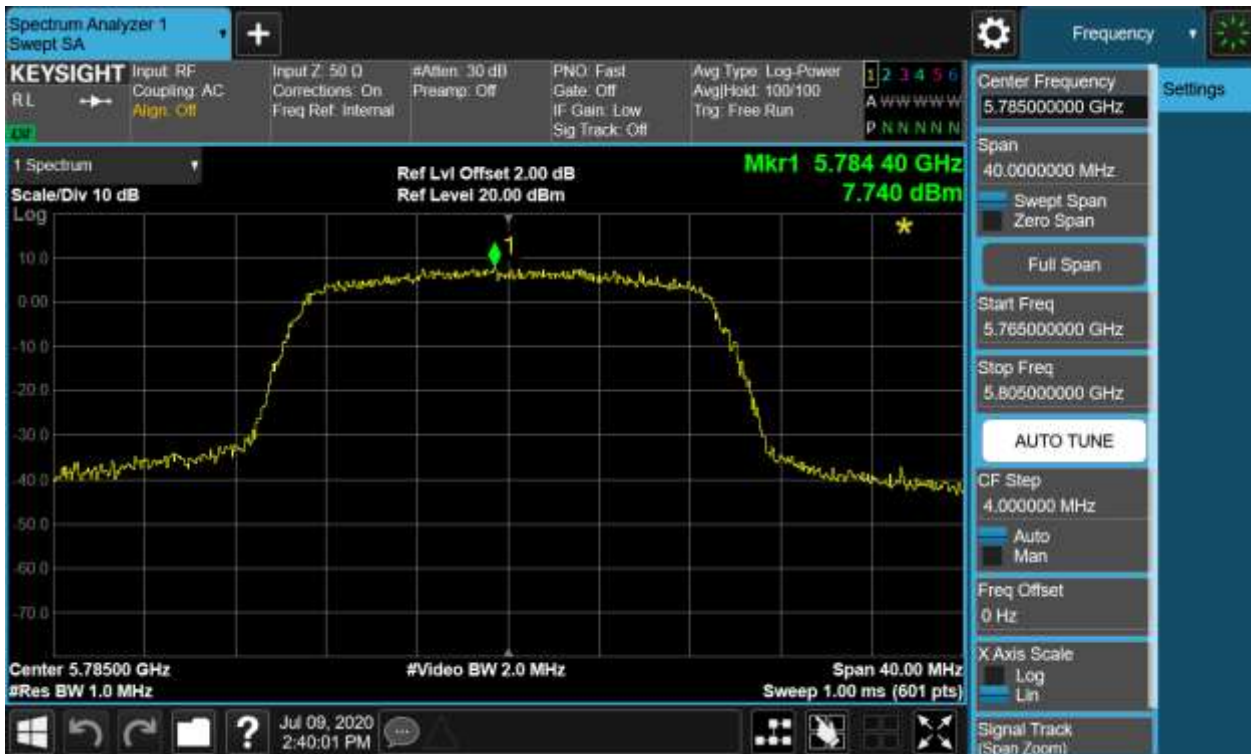
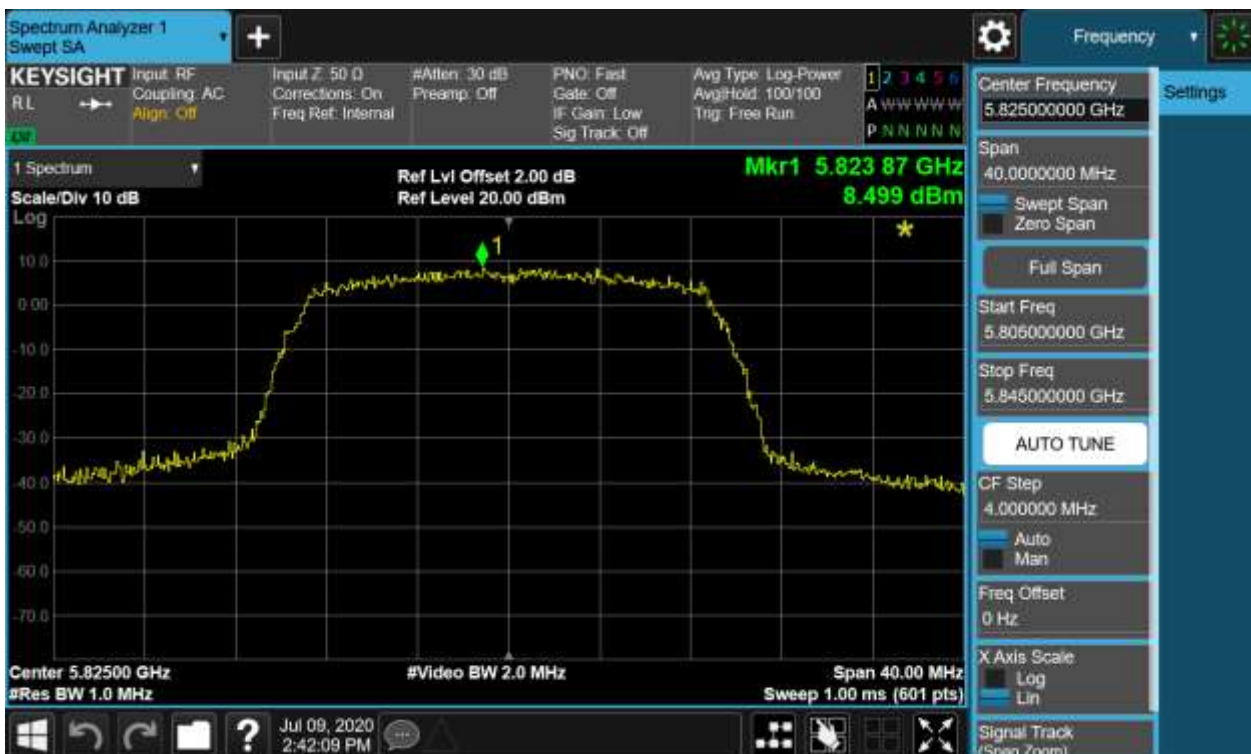


Figure 62: Power Spectral Density, 802.11n(HT20), 5825MHz



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Figure 63: Power Spectral Density, 802.11ac(VHT20), 5745MHz



Figure 64: Power Spectral Density, 802.11ac(VHT20), 5785MHz



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Figure 65: Power Spectral Density, 802.11ac(VHT20), 5825MHz

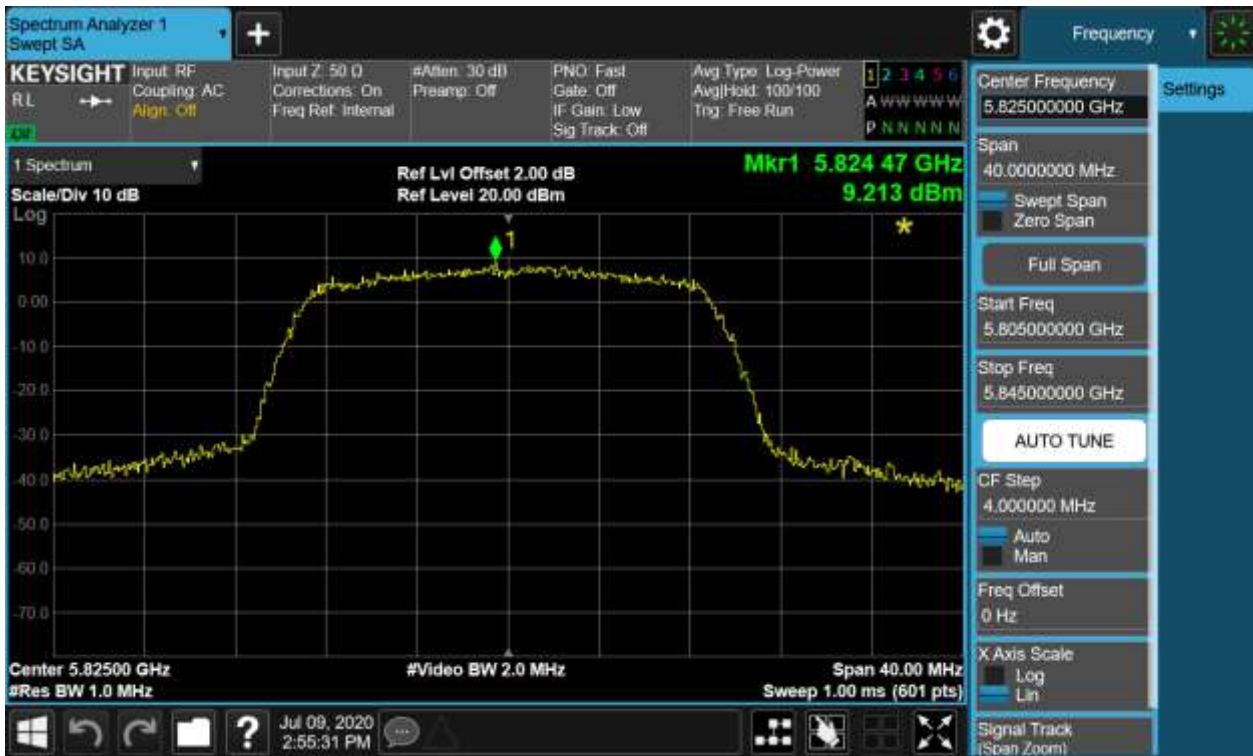


Figure 66: Power Spectral Density, 802.11n(HT40), 5755MHz



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Figure 67: Power Spectral Density, 802.11n(HT40), 5795MHz



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Figure 68: Power Spectral Density, 802.11ac(VHT40), 5755MHz



Figure 69: Power Spectral Density, 802.11ac(VHT40), 5785MHz



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Figure 70: Power Spectral Density, 802.11ac(VHT80), 5775MHz



## 4.1.6 Undesirable Emission

RESULT:

PASS

Test standard : FCC Part 15.407(b), 15.209  
 RSS-247 6.2  
 Requirement : ANSI C63.10-2013, KDB 789033  
 Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High  
 Operation Mode : A.1.a  
 Ambient temperature : 25°C  
 Relative humidity : 52%

Notes:

Test plots please refer to the annex document "WLAN 5GHz-TX CSE EXHIBIT A of SHE20040045-02IE".

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## 4.1.7 Spurious Emission

**RESULT:**

**PASS**

Test standard : FCC Part 15.407(b)  
RSS-247 6.2  
Requirement : ANSI C63.10-2013  
Kind of test site : 3m Semi-Anechoic Chamber

### Test setup

Test Channel : Low/Middle/High  
Operation Mode : A  
Ambient temperature : 25°C  
Relative humidity : 52%

Notes:

*Test plots please refer to the annex document "WIFI5GHz-TX EXHIBIT A of SHE20040045-02IE"*

1. For 9 kHz ~ 30 MHz, the amplitude of spurious emissions that are attenuated by more than 20dB below the permissible. The value has no need to be reported.
2. The spurious above 18GHz is noise only and 20dB below the limit. The value has no need to be reported.
3. The EUT is working in the Normal link mode below 1 GHz.

## 4.1.8 Band Edge (Restricted-band band-edge)

**RESULT:**

**PASS**

Test standard : FCC Part 15.407(b)  
RSS-247 6.2  
Requirement : ANSI C63.10-2013, KDB 789033  
Kind of test site : 3m Semi-Anechoic Chamber

### Test setup

Test Channel : Low/Middle/High  
Operation Mode : A.1  
Ambient temperature : 25°C  
Relative humidity : 52%

Notes:

*Test plots please refer to the annex document "WIFI5GHz-TX EXHIBIT A of SHE20040045-02IE"*

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## 4.1.9 Frequency Stability

RESULT:

PASS

Test standard : FCC Part 15.407(g)  
 Kind of test site : Shielded room

### Test setup

Test Channel : Low/Middle/High  
 Operation Mode : A.1  
 Ambient temperature : 25°C  
 Relative humidity : 52%

**Table 6: Frequency Stability**

Band I (5150 – 5250 MHz):

Voltage vs. Frequency Stability (5180MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Temp (°C)	Voltage (V)			
20	4.35 V	5180.0026	5.02	±20
	3.80 V	5180.0015	2.90	
	3.40 V	5180.0017	3.28	

Temperature vs. Frequency Stability (5180MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Voltage (V)	Temp (°C)			
3.8 V	-30	--	--	±20
	-20	--	--	
	-10	5180.0024	4.63	
	0	5180.0021	4.05	
	10	5180.0019	3.67	
	20	5180.0018	3.47	
	30	5180.0026	5.02	
	40	5180.0021	4.05	
	50	5180.0019	3.67	

Note:

The all configurations were tested respectively, but only the worst channel shown here.

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Band IV (5725 – 5850 MHz):

Voltage vs. Frequency Stability (5745MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Temp (°C)	Voltage (V)			
20	4.35 V	5745.0023	4.00	±20
	3.80 V	5745.0019	3.31	
	3.40 V	5745.0021	3.66	

Temperature vs. Frequency Stability (5745MHz)

Test Conditions		Frequency (MHz)	Max. Deviation (ppm)	Limit (ppm)
Voltage (V)	Temp (°C)			
3.8 V	-30	--	--	±20
	-20	--	--	
	-10	5745.0025	4.35	
	0	5745.0026	4.53	
	10	5745.0021	3.66	
	20	5745.0023	4.00	
	30	5745.0029	5.05	
	40	5745.0026	4.53	
	50	5745.0027	4.70	

Note:

The all configurations were tested respectively, but only the worst channel shown here.



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## 4.2 Mains Emissions

### 4.2.1 Conducted Emission on AC Mains

RESULT:

**PASS**

Test standard : FCC Part 15.207

RSS-Gen 8.8

Requirement : ANSI C63.10-2013

Kind of test site : Shielded room

#### Test setup

Input Voltage : AC 120V, 60Hz; AC 240V, 50Hz

Operation Mode : Normal Link

Earthing : Not Connected

Ambient temperature : 25°C

Relative humidity : 52%

For details refer to following test plot.

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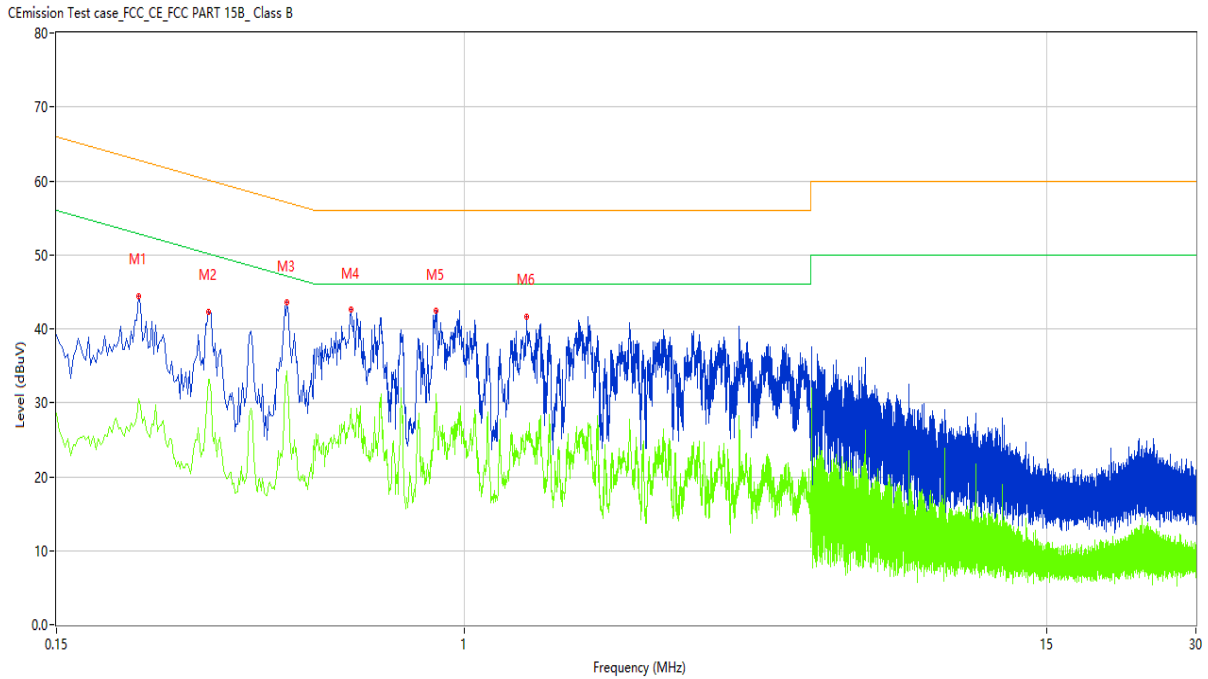
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Note:

The all configurations were tested respectively, but only the worst configuration shown here.

**Figure 71: Conducted Emission on AC Mains, L Phase**



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.220	44.37	10.14	62.82	-18.45	Peak	L	Pass
1*	0.220	38.98	10.14	62.82	-23.84	QP	L	Pass
1**	0.220	30.61	10.14	52.82	-22.21	AV	L	Pass
2	0.304	42.94	10.14	60.13	-17.19	Peak	L	Pass
2*	0.304	40.32	10.14	60.13	-19.81	QP	L	Pass
2**	0.304	33.19	10.14	50.13	-16.94	AV	L	Pass
3	0.438	43.94	10.15	57.10	-13.16	Peak	L	Pass
3*	0.438	41.47	10.15	57.10	-15.63	QP	L	Pass
3**	0.438	34.36	10.15	47.10	-12.74	AV	L	Pass
4	0.590	43.94	10.15	56.00	-12.06	Peak	L	Pass
4*	0.590	38.56	10.15	56.00	-17.44	QP	L	Pass
4**	0.590	29.27	10.15	46.00	-16.73	AV	L	Pass
5	0.876	43.43	10.15	56.00	-12.57	Peak	L	Pass
5*	0.876	38.59	10.15	56.00	-17.41	QP	L	Pass
5**	0.876	31.15	10.15	46.00	-14.85	AV	L	Pass
6	1.336	42.50	10.16	56.00	-13.50	Peak	L	Pass
6*	1.336	35.47	10.16	56.00	-20.53	QP	L	Pass
6**	1.336	26.07	10.16	46.00	-19.93	AV	L	Pass

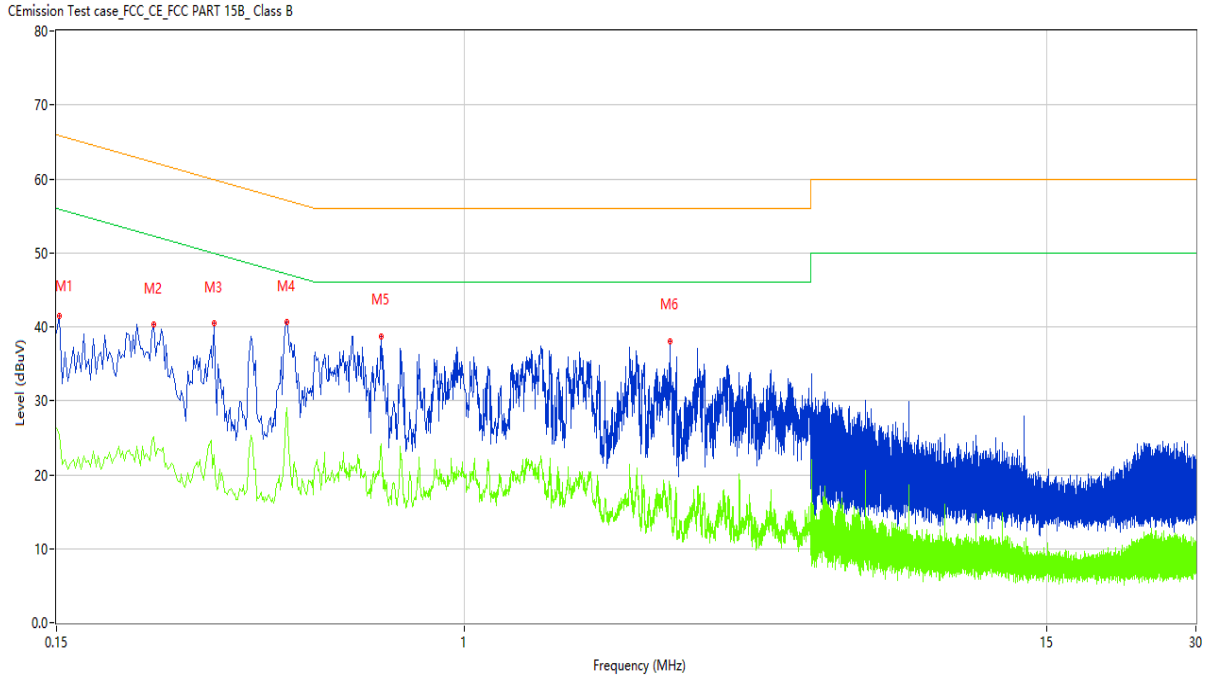
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**Figure 72: Conducted Emission on AC Mains, N Phase**



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Over Limit (dB)	Detector	Line	Verdict
1	0.150	42.83	10.15	66.00	-23.17	Peak	N	Pass
1*	0.150	34.29	10.15	66.00	-31.71	QP	N	Pass
1**	0.150	26.34	10.15	56.00	-29.66	AV	N	Pass
2	0.236	41.98	10.14	62.24	-20.26	Peak	N	Pass
2*	0.236	35.41	10.14	62.24	-26.83	QP	N	Pass
2**	0.236	25.17	10.14	52.24	-27.07	AV	N	Pass
3	0.312	39.87	10.14	59.92	-20.05	Peak	N	Pass
3*	0.312	33.56	10.14	59.92	-26.36	QP	N	Pass
3**	0.312	22.71	10.14	49.92	-27.21	AV	N	Pass
4	0.438	41.80	10.15	57.10	-15.30	Peak	N	Pass
4*	0.438	38.59	10.15	57.10	-18.51	QP	N	Pass
4**	0.438	29.09	10.15	47.10	-18.01	AV	N	Pass
5	0.678	39.79	10.15	56.00	-16.21	Peak	N	Pass
5*	0.678	33.73	10.15	56.00	-22.27	QP	N	Pass
5**	0.678	24.20	10.15	46.00	-21.80	AV	N	Pass
6	2.604	36.37	10.20	56.00	-19.63	Peak	N	Pass
6*	2.604	30.71	10.20	56.00	-25.29	QP	N	Pass
6**	2.604	18.32	10.20	46.00	-27.68	AV	N	Pass

\*\*\*End of the report\*\*\*