FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

AUDIO PRO AB

MULTICONNECTED WIRELESS LOUDSPEAKER

Model Number: ADDON C10 MkII

FCC ID: 2AGNC-C10MKII

Prepared for:	AUDIO PRO AB
	Garnisonsgatan 52, 25466, Helsingborg, Sweden
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
Tel: 86-769-83081888-808	

Report Number:	ESTE-R2101116
Date of Test:	Nov. 10, 2020~Jan. 22, 2021
Date of Report:	Jan. 25, 2021

TABLE OF CONTENTS

Description Page

TEST REPORT VERIFICATION....3
1. GENERAL INFORMATION....5
1.1. Description of Device (EUT)....5
1.2. The antenna information for EUT....6
2. SUMMARY OF TEST....7
2.1. Summary of test result....7
2.2. Test Facilities....8
2.3. Measurement uncertainty for EST Technology Co., Ltd....9
2.4. Assistant equipment used for test....9
2.5. Block Diagram....9
2.6. Test Mode....10
2.7. Channel List....12
2.8. Power Setting of Test Software....13
2.9. Duty Cycle of Test Signal....14
2.10. Test Equipment List....18
3. 6DB BANDWIDTH &26DB BANDWIDTH & 99% OCCUPIED BANDWIDTH....20
3.1. Limit....20
3.2. Test Setup....20
3.3. Spectrum Analyzer Setting....20
3.4. Test Procedure....21
3.5. Test Result....22
3.6. Test Result....24
4. MAXIMUM CONDUCTED OUTPUT POWER....44
4.1. Limit....44
4.2. Test Setup....44
4.3. Test Procedure....44
4.4. Test Result....45
5. PEAK POWER SPECTRAL DENSITY....46
5.1. Limit....46
5.2. Test Setup....46
5.3. Spectrum Analyzer Setting....46
5.4. Test Procedure....46
5.5. Test Result....47
6. UNWANTED EMISSIONS AND BAND EDGE....60
6.1. Limit....60
6.2. Test Setup....61
6.3. Spectrum Analyzer Setting....62
6.4. Test Procedure....63
6.5. Test Result....64
7. FREQUENCY STABILITY....93
7.1. Limit....93
7.2. Test Setup....93
7.3. Spectrum Analyzer Setting....93
7.4. Test Procedure....94

7.5. Test Result 95
8. AC POWER LINE CONDUCTED EMISSIONS 97
8.1. Limit 97
8.2. Test Setup 97
8.3. Spectrum Analyzer Setting 97
8.4. Test Procedure 97
8.5. Test Result 98
9. ANTENNA REQUIREMENTS 102
9.1. Limit 102
9.2. Test Result 102
10. TEST SETUP PHOTO 103
11. EUT PHOTO 105

EST Technology Co., Ltd.

Applicant: **Address:**	AUDIO PRO AB Garnisonsgatan 52, 25466, Helsingborg, Sweden		
Manufacturer: **Address:**	AUDIO PRO AB Garnisonsgatan 52, 25466, Helsingborg, Sweden		
E.U.T:	MULTICONNECTED WIRELESS LOUDSPEAKER		
Model Number:	ADDON C10 MkII		
Power Supply:	AC 100-240V, 50/60Hz		
Trade Name:	audio pro	Serial No.:	------
Date of Receipt:	Nov. 10, 2020	Date of Test:	Nov. 10, 2020~Jan. 22, 2021
Test Specification:	FCC Part 15 Subpart E 15.407 ANSI C63.10:2013 FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01		
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart E requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. **Date:** Jan. 25, 2021		

Prepared by:	Reviewed by:	Approved by:
Ring Yang	Seven Wang	
Ring Yang / Assistant	Seven Wang / Engineer	Iceman Hu / Manager

Other Aspects:
None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

FCC ID	:	2AGNC-C10MKII
Product Name	:	MULTICONNECTED WIRELESS LOUDSPEAKER
Model Number	:	ADDON C10 MkII
Software Version	:	V0125
Hardware Version	:	AV 1.3
Operation frequency	:	U-NII-1: 5150 MHz~5250 MHz U-NII-3: 5725 MHz~5850 MHz
Number of channel	:	U-NII-1: IEEE 802.11a / n HT20 / ac VHT20: 4 Channels; IEEE 802.11n HT40 / ac VHT40: 2 Channels; IEEE 802.11ac VHT80: 1 Channel. U-NII-3: IEEE 802.11a / n HT20 / ac VHT20: 5 Channels; IEEE 802.11n HT40 / ac VHT40: 2 Channels; IEEE 802.11ac VHT80: 1 Channel.
Modulation	:	OFDM(QPSK, BPSK, 16-QAM, 64-QAM,256-QAM)
Transmit Data Rate	:	IEEE 802.11a: 54, 48, 36, 24, 18, 12, 9, 6Mbps; IEEE 802.11n: up 150Mbps; IEEE 802.11ac: up to 433.3Mbps;
Channels Spacing	:	IEEE 802.11a: 20MHz; IEEE 802.11n HT20: 20MHz; IEEE 802.11n HT40: 40MHz; IEEE 802.11ac VHT20: 20MHz; IEEE 802.11ac VHT40: 40MHz; IEEE 802.11ac VHT80: 80MHz;
Transmit Power	:	U-NII-1 IEEE 802.11a: 19.21dBm IEEE 802.11n HT20: 16.08dBm IEEE 802.11n HT40: 14.70dBm IEEE 802.11ac VHT20: 15.99dBm IEEE 802.11ac VHT40: 14.60dBm IEEE 802.11ac VHT80: 13.49dBm U-NII-3 IEEE 802.11a: 19.90dBm IEEE 802.11n HT20: 22.35dBm IEEE 802.11n HT40: 21.62dBm IEEE 802.11ac VHT20: 21.27dBm IEEE 802.11ac VHT40: 21.64dBm IEEE 802.11ac VHT80: 19.18dBm
Sample Type	:	Prototype production

Note:

For a more detailed features description, please refer to the manufacturer’s specifications or the user's manual.

1.2. The antenna information for EUT

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Internal	N/A	2
2	N/A	N/A	Internal	N/A	2

Remark:

(1) The EUT can work as CDD mode in IEEE 802.11n and IEEE 802.11ac,and can operate with one spatial stream.
According to KDB 662911 F 2) f) (i):
Directional gain=2dBi+10×log(2/1)dB=5.01dBi＜6dBi
So,the output power limit and power spectral density no need to be reduced.

(2) After pre-test all antenna configurations,the worst case configuration as list below.

ANT No. / TX Mode	SISO Configuration	MIMO Configuration
IEEE 802.11a	ANT 1 and Ant 2	/
IEEE 802.11n HT20	/	ANT1+ANT2
IEEE 802.11n HT40	/	ANT1+ANT2
IEEE 802.11ac VHT20	/	ANT1+ANT2
IEEE 802.11ac VHT40	/	ANT1+ANT2
IEEE 802.11ac VHT80	/	ANT1+ANT2

2. SUMMARY OF TEST

2.1. Summary of test result

Report Section	Description of Test Item	FCC Standard Section	Results
3	6dB Bandwidth &26dB Bandwidth & 99% Occupied Bandwidth	15.407(a) 15.407(e)	PASS
4	Maximum Conducted Output Power	15.407(a)	PASS
5	Peak Power Spectral Density	15.407(a)	PASS
6	Unwanted Emissions and Band Edge	15.205 15.209 15.407(b)	PASS
7	Frequency Stability	15.407(g)	PASS
8	AC Power Line Conducted Emissions	15.207 15.407(b)(6)	PASS
9	Antenna Requirement	15.203	PASS

Note:

(1) “N/A” denotes test is not applicable in this test report

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA
Registration No.: L5288
This Certificate is valid until: November 12, 2023

Certificated by FCC, USA
Designation Number: CN1215
This Certificate is valid until: January 31, 2022

Certificated by A2LA, USA
Registration No.: 4366.01
This Certificate is valid until: January 31, 2022

Certificated by Industry Canada
CAB identifier No.: CN0035
This Certificate is valid until: January 31, 2022

Certificated by VCCI, Japan
Registration No.:C-14103; T-20073; R-13663;
R-20103; G-20097
Date of registration: Apr. 20, 2020
This Certificate is valid until: Apr. 19, 2023

Certificated by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018

Certificated by Intertek
Registration No.: 2011-RTL-L2-64
Date of registration: November 08, 2018

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty for EST Technology Co., Ltd.

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.54dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.62
Uncertainty for Radiation Emission test (1GHz to 18GHz)	4.86
Uncertainty for spurious emissions test (18GHz to 40GHz)	4.67
Uncertainty for radio frequency	7×10-8
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB
Temperature	±0.6°C
Humidity	±4.0 %
Volatage DC	±1.0%
Volatage (AC, <10KHz)	±1.5%

Note:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

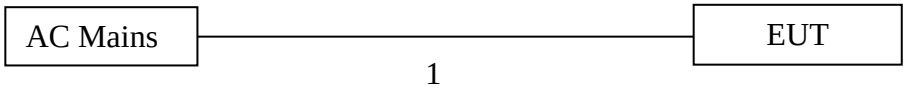
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	1.8m	AC Cable

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground.



AC 120V/60Hz

(EUT: MULTICONNECTED WIRELESS LOUDSPEAKER)

2.6. Test Mode

Pre-scan has been combined all possible modulations and date rates to determine the worst case test mode,the worst case test mode was selected for the final test as listed below.

Test Item	Test Mode	Channel	Modulation	Data rate
6dB Bandwidth	IEEE 802.11a	149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	155	OFDM	MCS0
26dB Bandwidth	IEEE 802.11a	36/40/48	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48	OFDM	MCS0
	IEEE 802.11n HT40	38/46	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46	OFDM	MCS0
	IEEE 802.11ac VHT80	42	OFDM	MCS0
99% Occupied Bandwidth	IEEE 802.11a	36/40/48/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/155	OFDM	MCS0
Maximum Conducted Output Power	IEEE 802.11a	36/40/48/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/155	OFDM	MCS0

Peak Power Spectral Density	IEEE 802.11a	36/40/48/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/155	OFDM	MCS0
Unwanted Emissions and Band Edge(Above 1GHz)	IEEE 802.11a	36/40/48/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/155	OFDM	MCS0
Unwanted Emissions Below 1GHz	IEEE 802.11a	36	OFDM	6Mbps
Frequency Stability	Unmodulation	36/149	N/A	N/A
AC Power Line Conducted Emissions	IEEE 802.11a	36	OFDM	6Mbps

Note:

1. In radiated measurement,the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7. Channel List

Band	Mode	Channel	Frequency (MHz)
U-NII-1	IEEE 802.11a & n HT20 & ac VHT20	36	5180
		40	5200
		48	5240
	IEEE 802.11n HT40 & ac VHT40	38	5190
		46	5230
	IEEE 802.11ac VHT80	42	5210
U-NII-3	IEEE 802.11a & n HT20 & ac VHT20	149	5745
		157	5785
		165	5825
	IEEE 802.11n HT40 & ac VHT40	151	5755
		159	5795
	IEEE 802.11ac VHT80	155	5775

2.8. Power Setting of Test Software

Software Name	Mtool 2.0.0.7		
U-NII-1			
Frequency(MHz)	5180	5200	5240
IEEE 802.11a Setting	Default	Default	Default
IEEE 802.11n HT20 Setting	10	10	10
IEEE 802.11ac VHT20 Setting	10	10	10
Frequency(MHz)	5190	5230	
IEEE 802.11n HT40 Setting	10	10	
IEEE 802.11ac VHT40 Setting	10	10	
Frequency(MHz)	5210		
IEEE 802.11ac VHT80 Setting	10		
U-NII-3			
Frequency(MHz)	5745	5785	5825
IEEE 802.11a Setting	Default	Default	Default
IEEE 802.11n HT20 Setting	Default	Default	Default
IEEE 802.11ac VHT20 Setting	Default	Default	Default
Frequency(MHz)	5755	5795	
IEEE 802.11n HT40 Setting	Default	Default	
IEEE 802.11ac VHT40 Setting	Default	Default	
Frequency(MHz)	5775		
IEEE 802.11ac VHT80 Setting	Default		

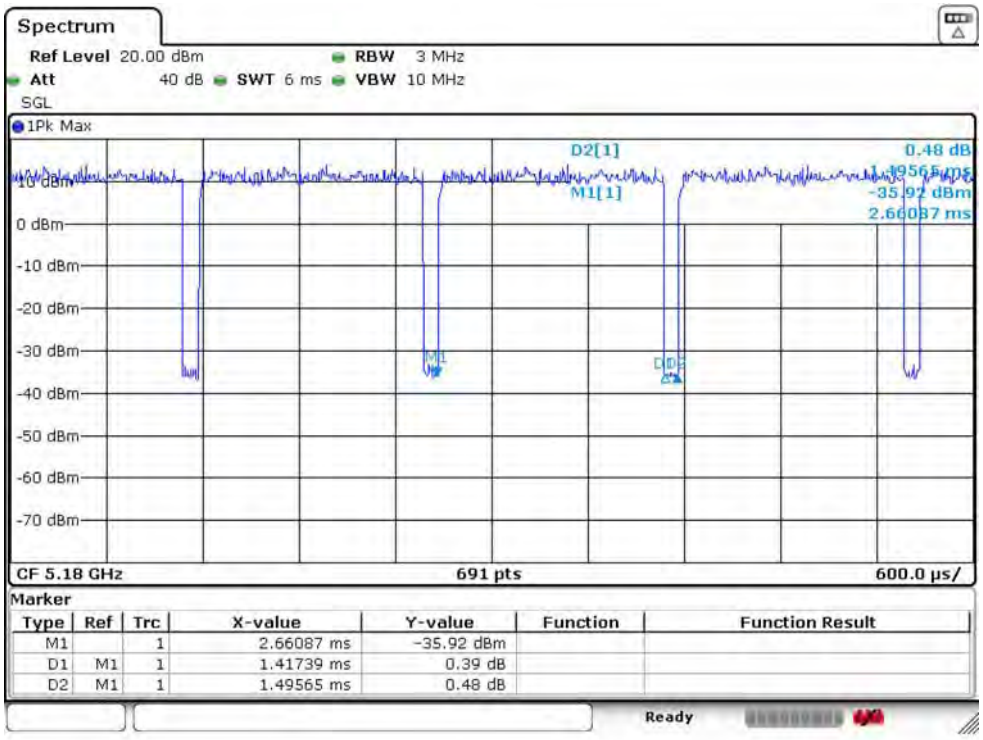
2.9. Duty Cycle of Test Signal

Temperature	23℃	Relative Humidity		45%	Test Voltage		AC 120V/60Hz
Mode	Frequency (MHz)	On time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T (Hz)	VBW Setting (dB)
IEEE 802.11a	5180	1.41739	1.49565	94.77	0.23	706	706
IEEE 802.11n HT20	5180	1.33043	1.40870	94.44	0.25	752	752
IEEE 802.11ac VHT20	5190	1.33043	1.41739	93.86	0.27	752	752
IEEE 802.11n HT40	5180	0.66957	0.74783	89.54	0.48	1493	1493
IEEE 802.11ac VHT40	5190	0.67826	0.75652	89.66	0.47	1474	1474
IEEE 802.11ac VHT80	5210	0.33913	0.41739	81.25	0.90	2949	2949

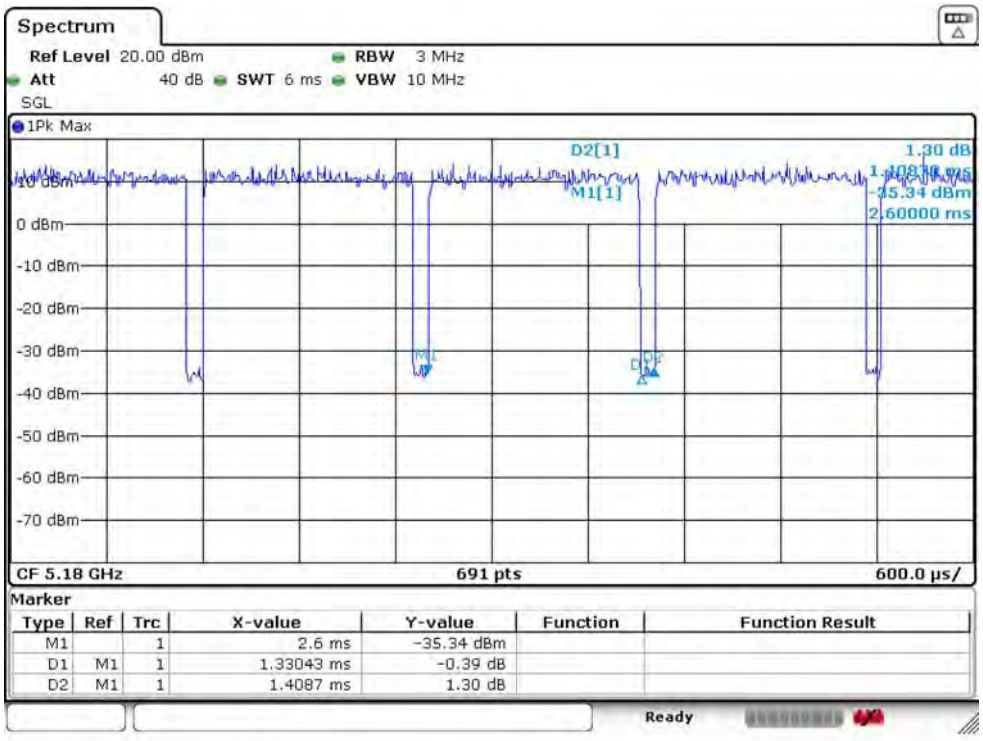
Note:

1. Duty Cycle=On Time/Total Time×100%.
2. Duty Factor=10×Log(1/Duty Cycle).
3. If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
4. If duty cycle≥98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor.
5. The on-time time is transmission duration(T).
6. The VBW Setting is use for RMS measurement in unwanted emissions and band edge(Above 1GHz) test.

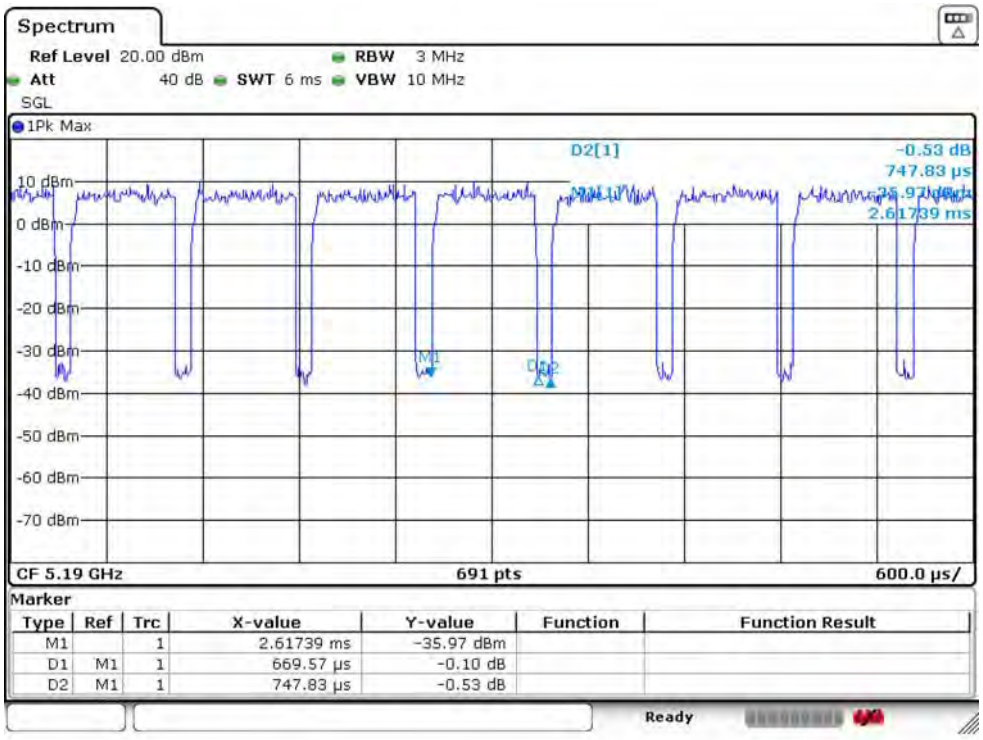
IEEE 802.11a 5180MHz



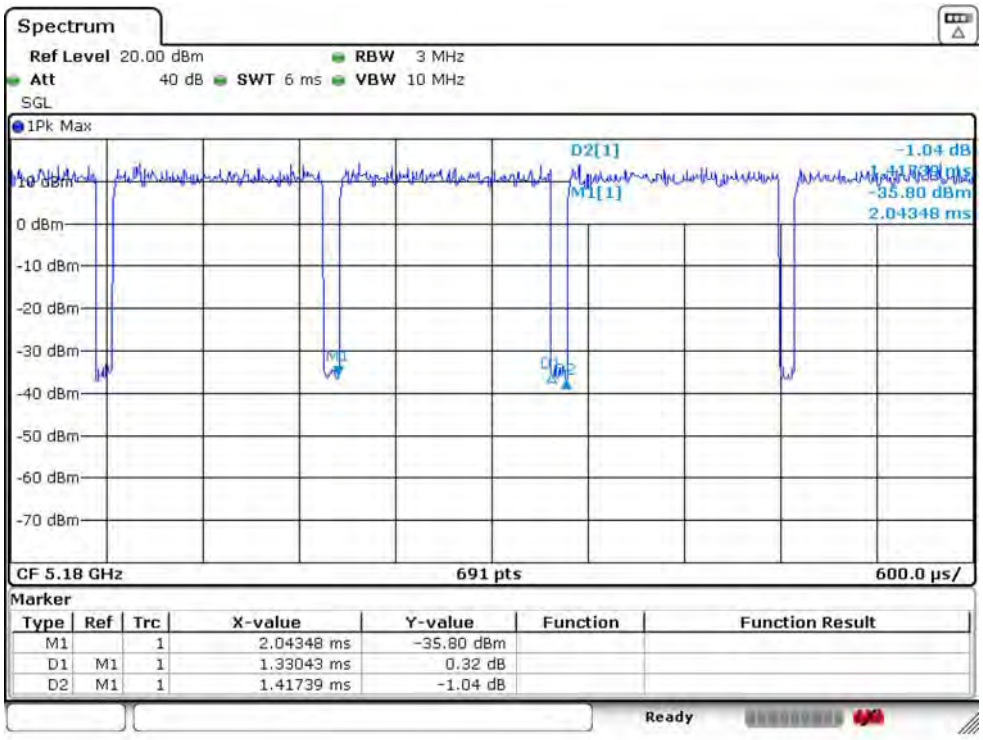
IEEE 802.11n HT20 5180MHz



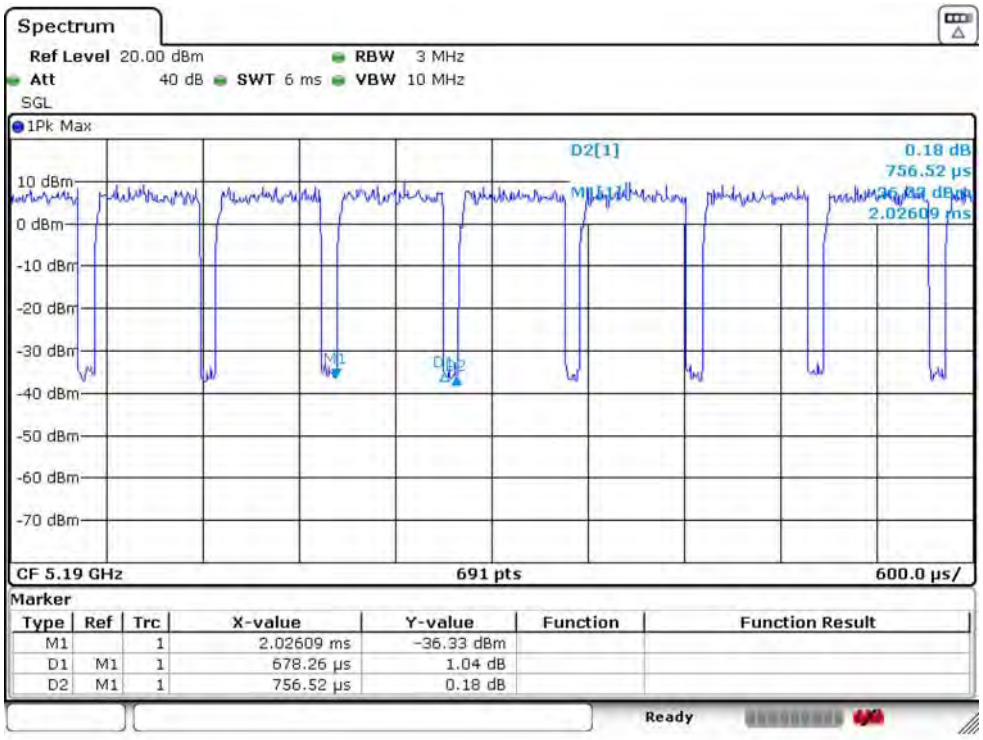
IEEE 802.11n HT40 5190MHz



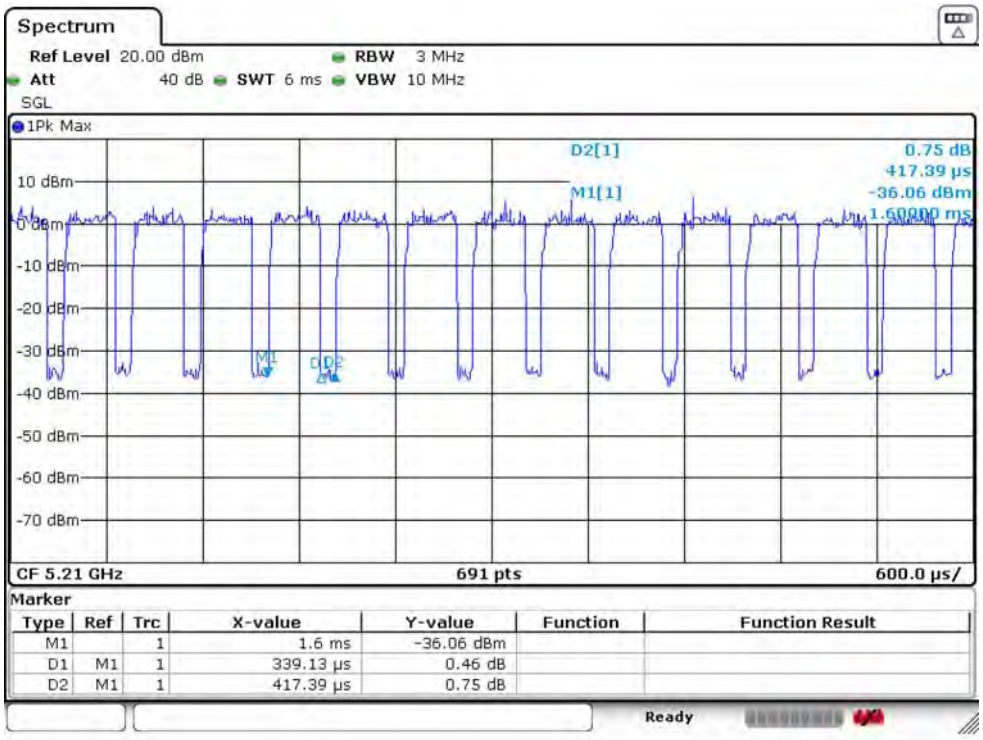
IEEE 802.11ac VHT20 5180MHz



IEEE 802.11ac VHT40 5190MHz



IEEE 802.11ac VHT80 5210MHz



2.10. Test Equipment List

For AC power conducted emissions test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	EST-E001	LISAI	June 13,20	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E002	LISAI	June 13,20	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

For radiated emissions test(9KHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 13,20	1 Year
Active Loop Antenna	SCHWAREBECK	FMZB 1519B	EST-E054	LISAI	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	N/A	EST-001	N/A	N/A	N/A	N/A

For radiated emissions test(30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 13,20	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

For radiated emissions test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZBECK	BBHA 9120 D	EST-E031	LISAI	June 13,20	1 Year
Signal Amplifier	SCHWARZBECK	BBV9718	EST-E032	LISAI	June 13,20	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 13,20	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 8997	Rohde &Schwarz	/	/	/	/	/
Open Switch and Control Unit	Rohde &Schwarz	OSP-B157WB	EST-E036	LISAI	June 13,20	1Year
Signal and Spectrum Analyzer	Rohde &Schwarz	FSV	EST-E037	LISAI	June 13,20	1 Year
Signal Generator	Rohde &Schwarz	SMB100A	EST-E038	LISAI	June 13,20	1 Year
Vector Signal Generator	Rohde &Schwarz	SMBV100A	EST-E039	LISAI	June 13,20	1Year
Test Software	Rohde &Schwarz	WMS32	V10.50.00	N/A	N/A	N/A
Temperature controller	Terchy	MHQ	EST-E101	LISAI	June 13,20	1 Year

3. 6DB BANDWIDTH &26DB BANDWIDTH & 99% OCCUPIED BANDWIDTH

3.1. Limit

Band	Frequency (MHz)	Test Item	Limit
U-NII-1	5150-5250	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-2A	5250-5350	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-2C	5470-5725	26dB Bandwidth&99% Occupied Bandwidth	N/A
U-NII-3	5725-5850	6dB Bandwidth&99% Occupied Bandwidth	6dB Bandwidth≥500KHz

3.2. Test Setup

3.3. Spectrum Analyzer Setting

6dB Bandwidth	
Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	40MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

26dB Bandwidth	
Spectrum Parameters	Setting
RBW	approximately 1% of the emission bandwidth
VBW	＞RBW
Span	40MHz(20MHz Bandwidth mode) 60MHz(40MHz Bandwidth mode) 120MHz(80MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth	
Spectrum Parameters	Setting
RBW	1% to 5% of the OBW
VBW	approximately three times the RBW
Span	between 1.5 times and 5.0 times the OBW
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

3.4. Test Procedure

For 26dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, measure the maximum width of the emission that is 26 dB down from the peak of the emission.Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

For 6dB Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, 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.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

For 99% Occupied Bandwidth Measurement :

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the 99% power bandwidth function to measure bandwidth.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

3.5. Test Result

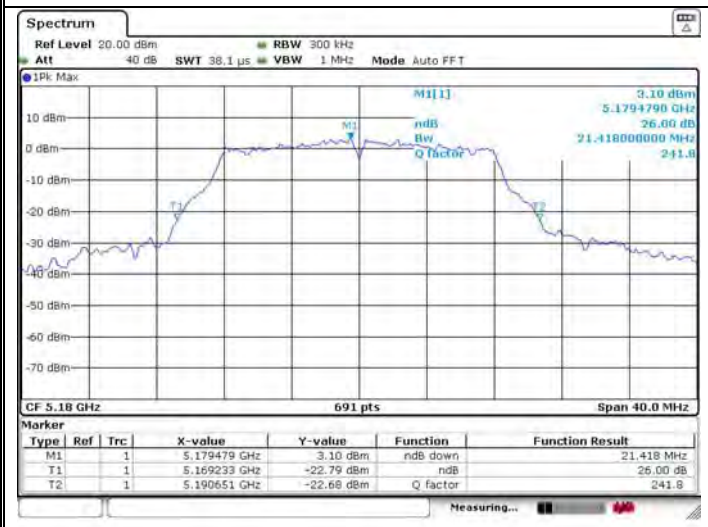
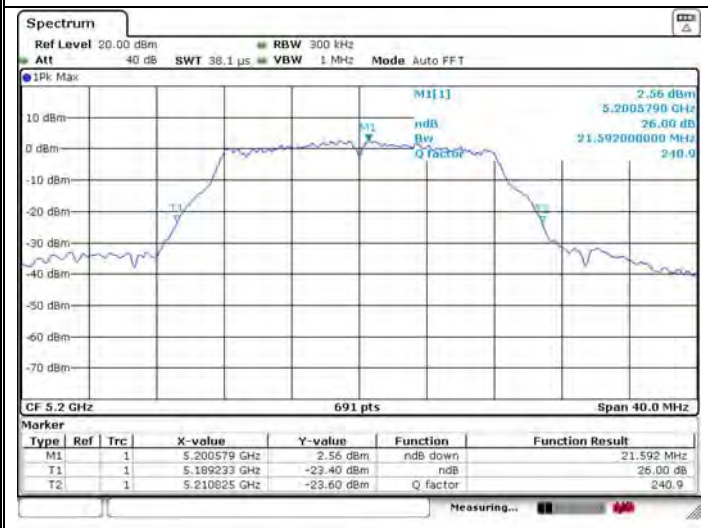
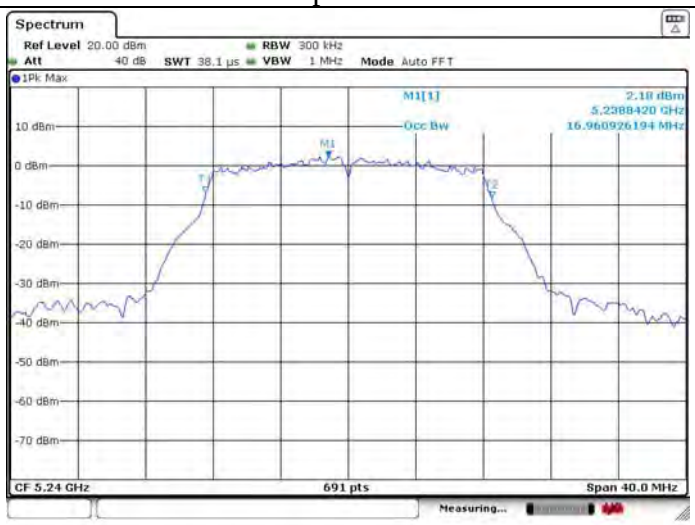
Temperature	23℃	Relative Humidity		45%		Test Voltage	AC 120V/60Hz
26dB Bandwidth&99% Occupied Bandwidth							
AND	Test Mode	Fre (MHz)	26dB Bandwidth (MHz)		99% Occupied Bandwidth （MHz）		Calculate Power Limit (W)	Calculate Power Limit (dBm)
			Ant 1	Ant 2	Ant 1	Ant 2		
U-NII-1	IEEE 802.11a	5180	21.418	21.476	16.961	16.961		
		5200	21.592	21.360	16.845	16.787		
		5240	21.476	21.476	16.961	16.903		
	IEEE 802.11n HT20	5180	21.881	21.650	18.003	18.003		
		5200	21.476	21.592	18.003	17.945		
		5240	21.650	21.592	17.945	18.061		
	IEEE 802.11ac VHT20	5180	21.534	21.708	18.003	18.003		
		5200	21.476	21.302	17.945	18.003		
		5240	21.418	21.360	17.829	17.887		
	IEEE 802.11n HT40	5190	40.116	40.289	36.816	36.816		
		5230	40.029	40.203	36.700	36.816		
	IEEE 802.11ac VHT40	5190	40.203	40.203	36.816	36.700		
		5230	40.116	40.203	36.816	36.700		
	IEEE 802.11ac VHT80	5210	81.970	81.970	75.716	75.716		

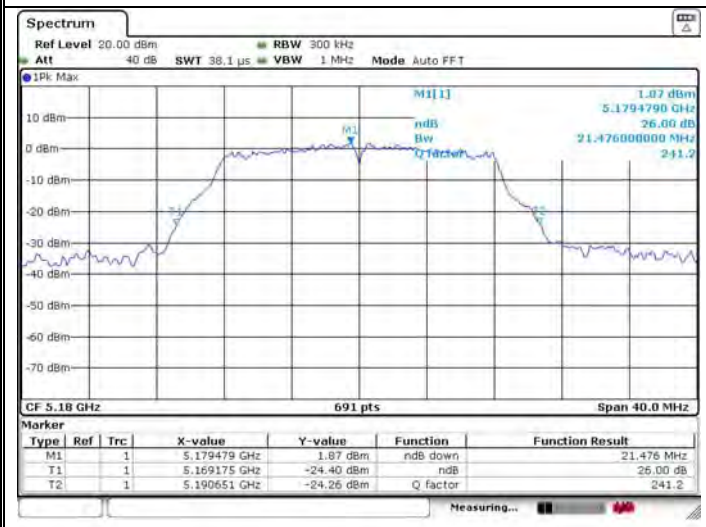
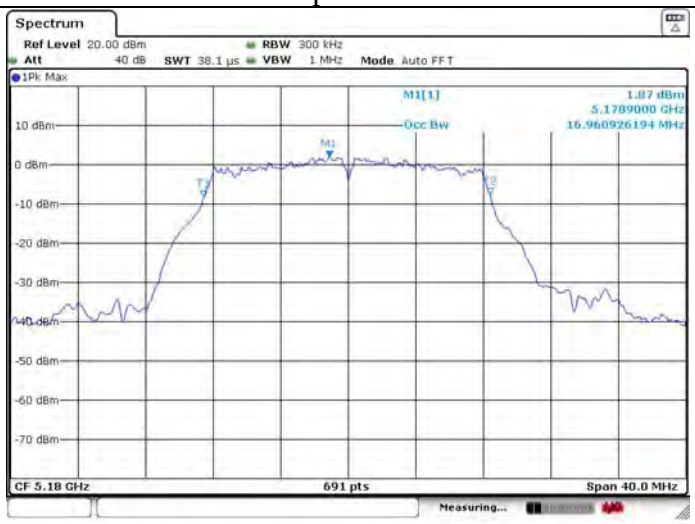
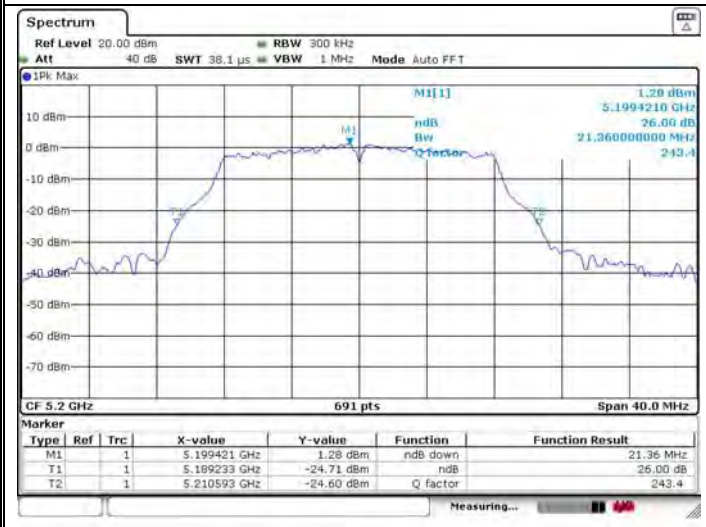
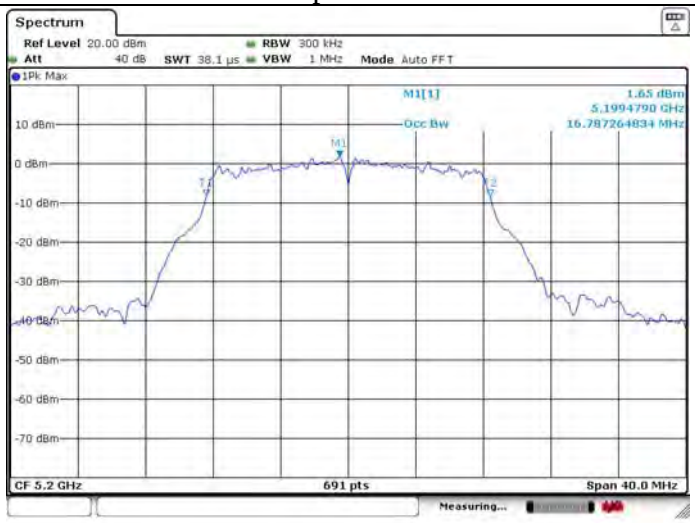
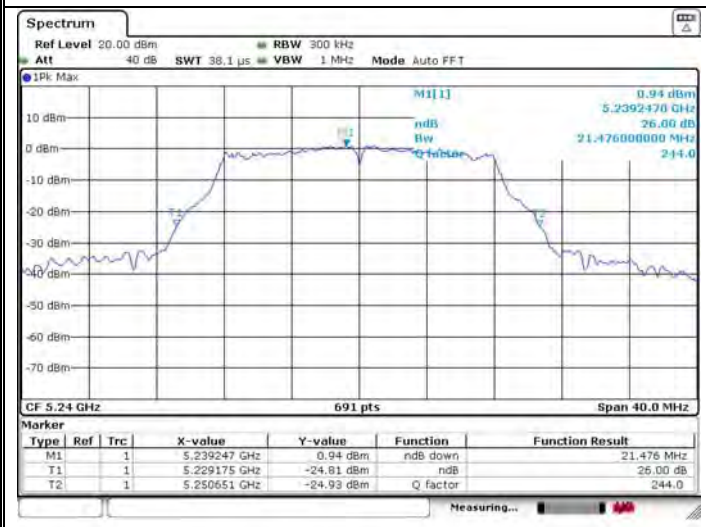
Temperature	23℃	Relative Humidity		45%	Test Voltage	AC 120V/60Hz	
6dB Bandwidth&99% Occupied Bandwidth							
BAND	Test Mode	Fre (MHz)	6dB Bandwidth (MHz)		99% Occupied Bandwidth（MHz）		6dB BW Min Limit (MHz)	Result
			Ant 1	Ant 2	Ant 1	Ant 2		
U-NII-3	IEEE 802.11a	5745	16.308	16.320	16.903	16.961	0.5	PASS
		5785	16.312	16.316	16.961	17.019	0.5	PASS
		5825	16.308	16.308	16.961	17.019	0.5	PASS
	IEEE 802.11n HT20	5745	17.552	17.552	18.003	17.945	0.5	PASS
		5785	17.552	17.552	18.003	18.119	0.5	PASS
		5825	17.540	17.548	18.177	18.061	0.5	PASS
	IEEE 802.11ac VHT20	5745	17.720	17.708	17.945	17.945	0.5	PASS
		5785	17.700	17.712	17.945	17.945	0.5	PASS
		5825	17.724	17.712	18.003	17.945	0.5	PASS
	IEEE 802.11n HT40	5755	36.265	36.290	36.932	36.932	0.5	PASS
		5795	36.245	36.270	36.816	36.932	0.5	PASS
	IEEE 802.11ac VHT40	5755	36.255	36.255	36.816	36.816	0.5	PASS
		5795	36.280	36.240	36.816	36.816	0.5	PASS
	IEEE 802.11ac VHT80	5775	75.470	75.630	75.890	75.890	0.5	PASS

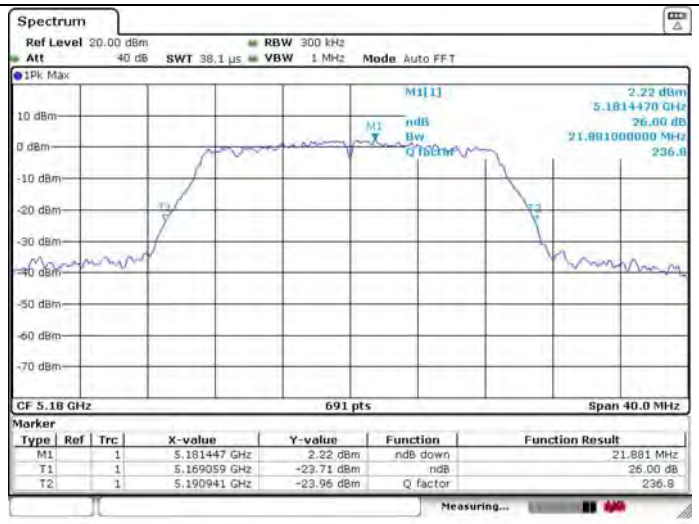
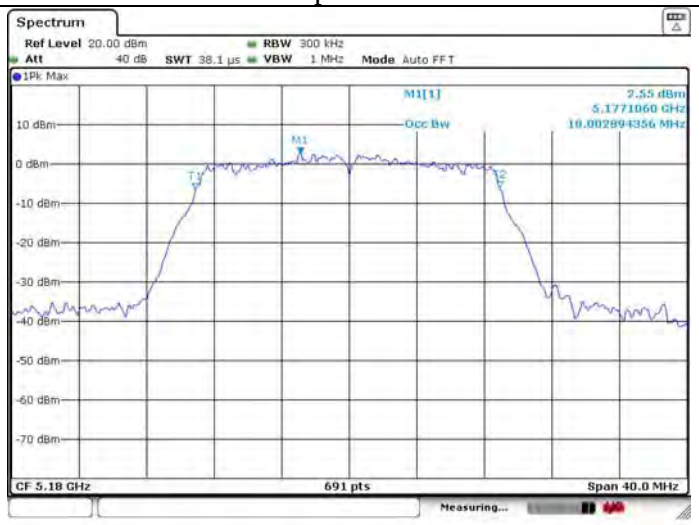
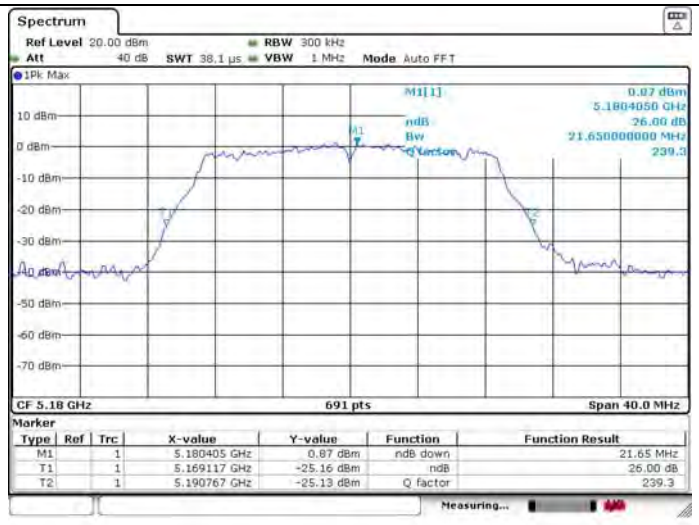
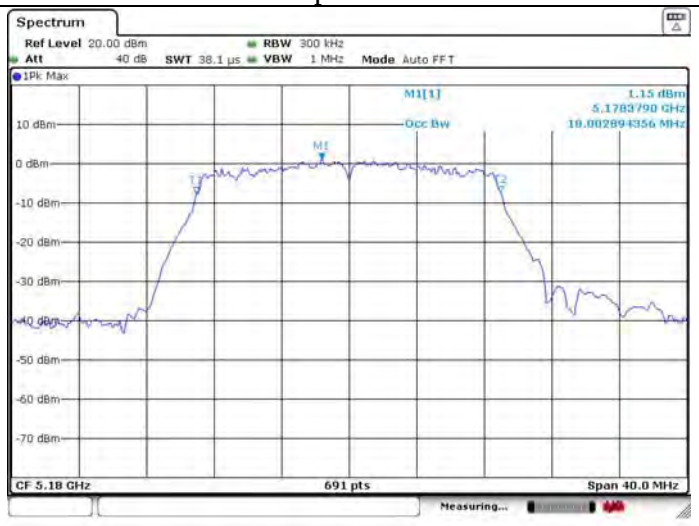
Note :

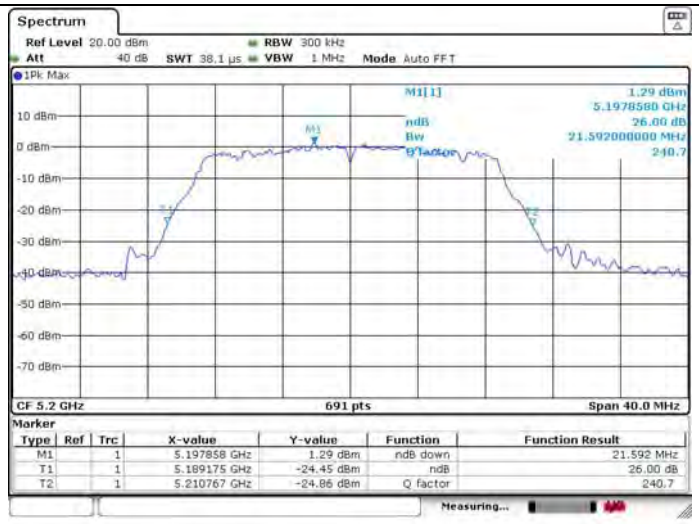
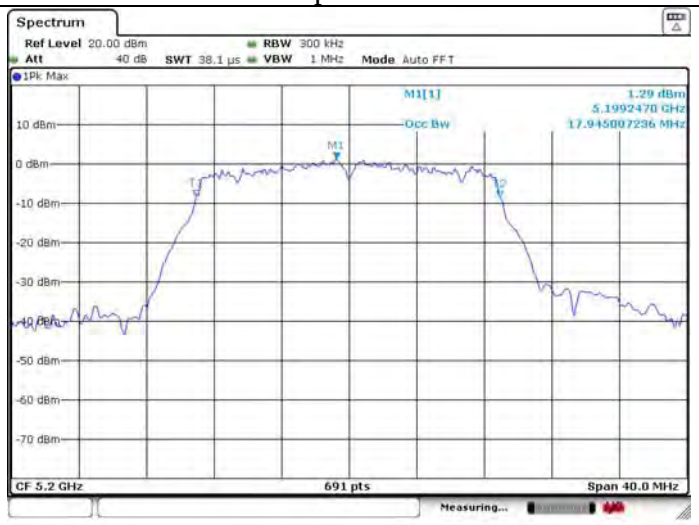
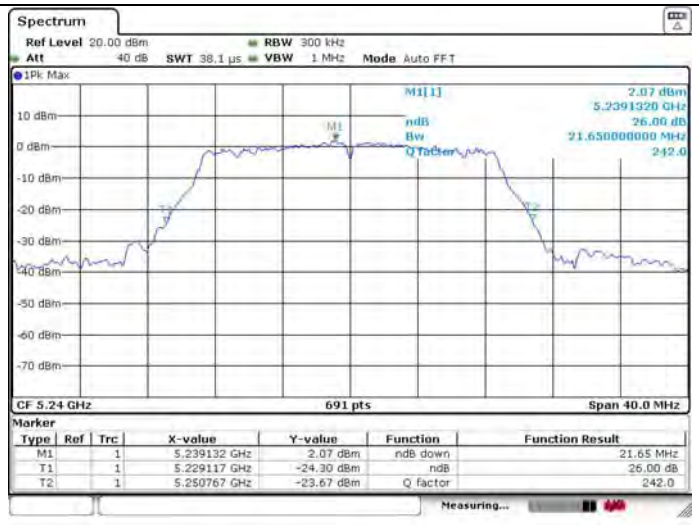
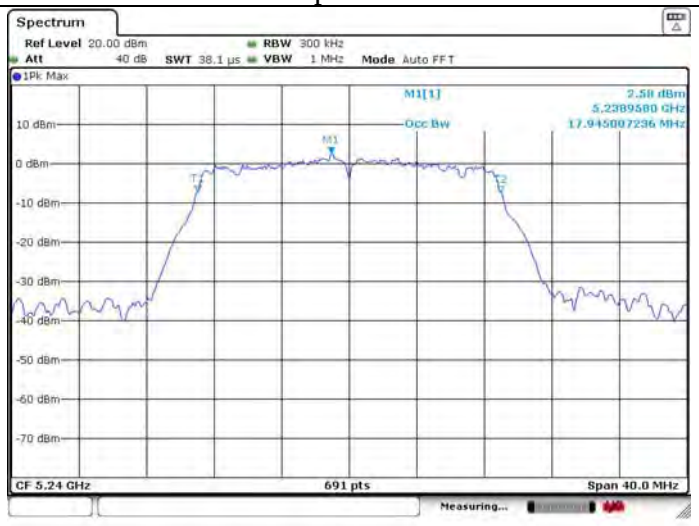
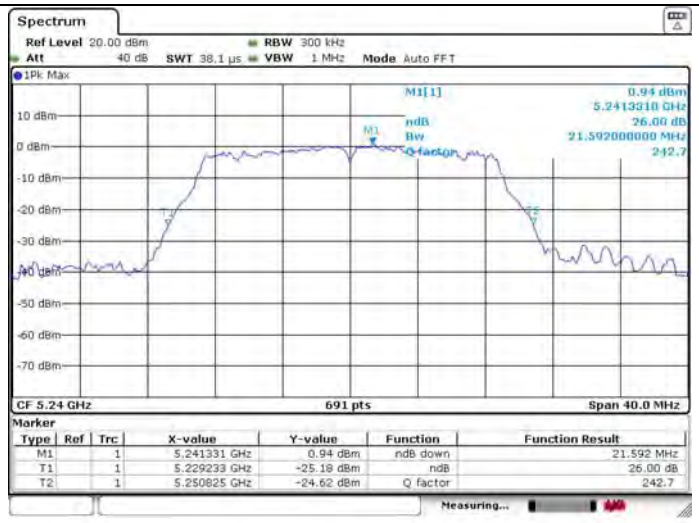
For Band U-NII-2A and U-NII-2C,the maximum conducted output power limit is 250mw or 11+10×Log B, which is lesser,where B is the 26dB Bandwidth in MHz.So in this section,the maximum conducted output power limit can calculate with 26dB Bandwidth.

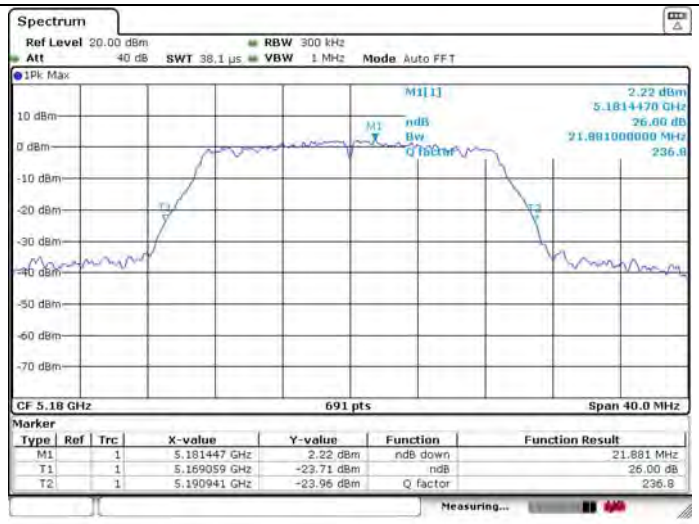
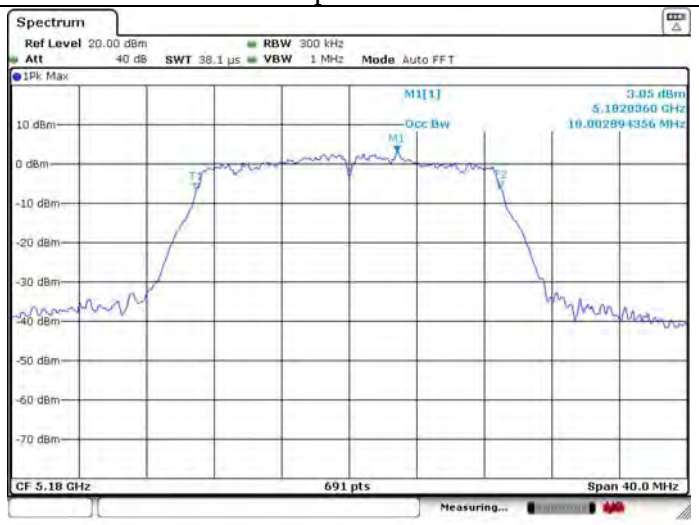
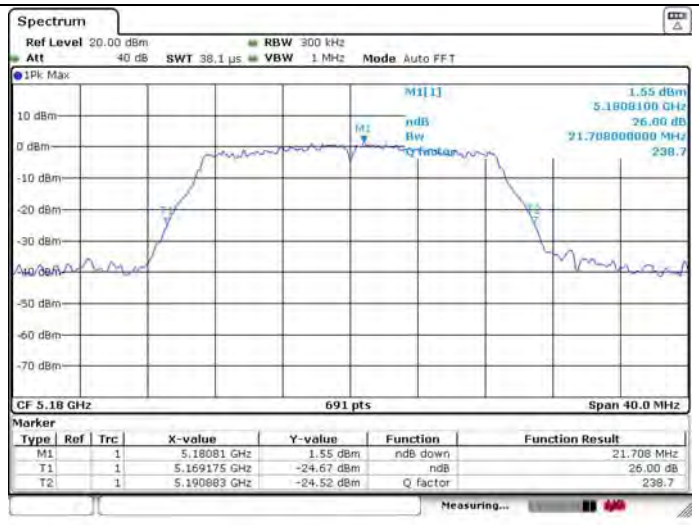
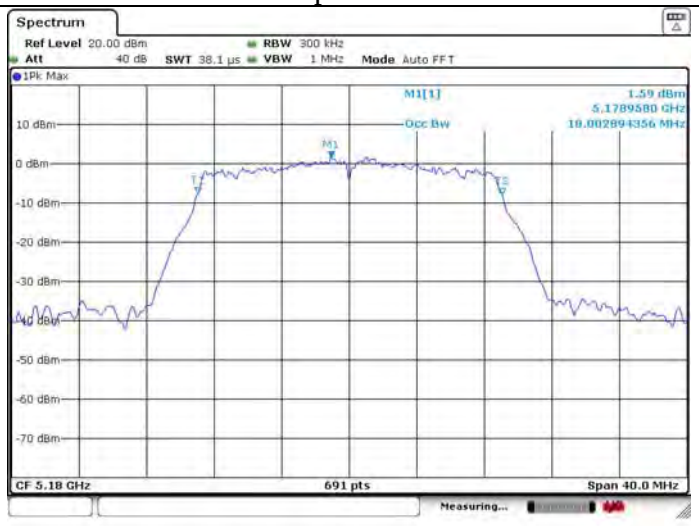
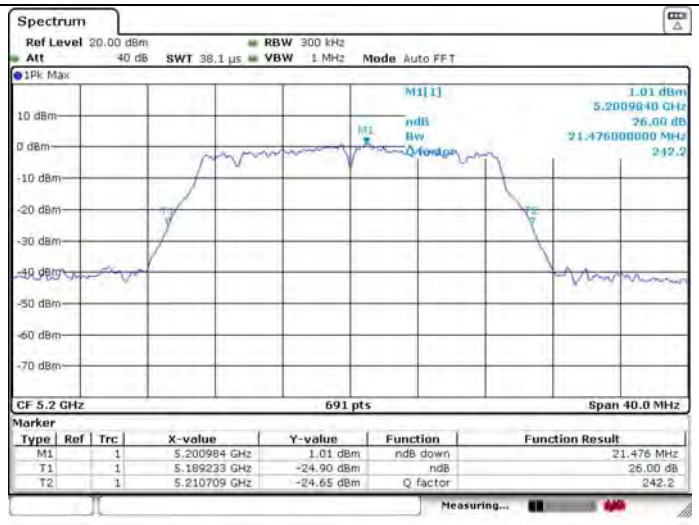
3.6. Test Result

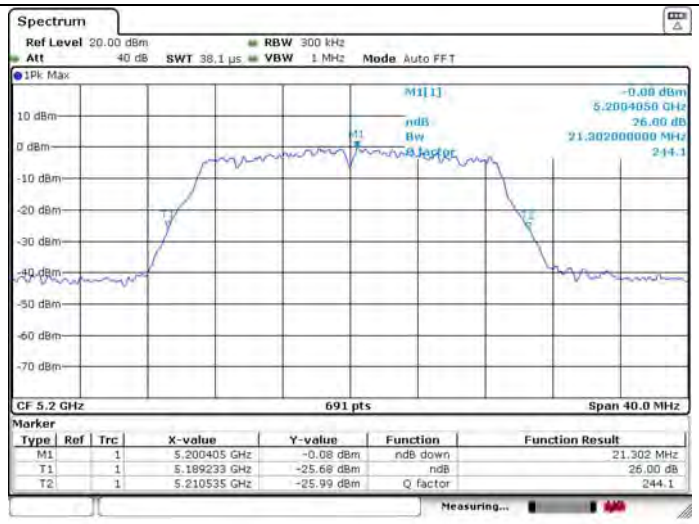
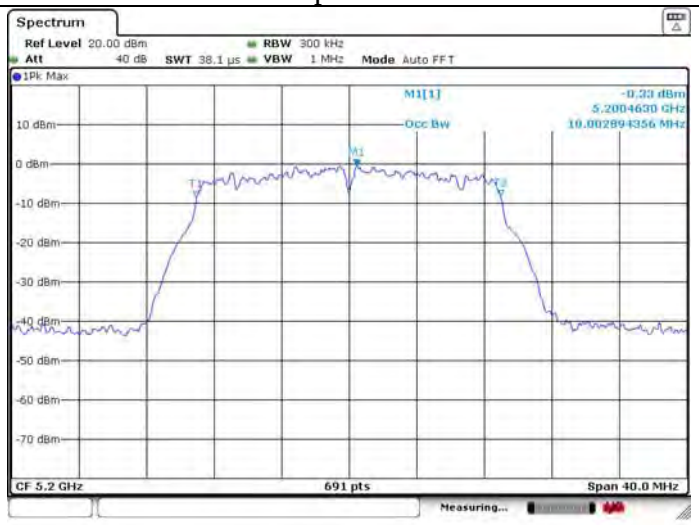
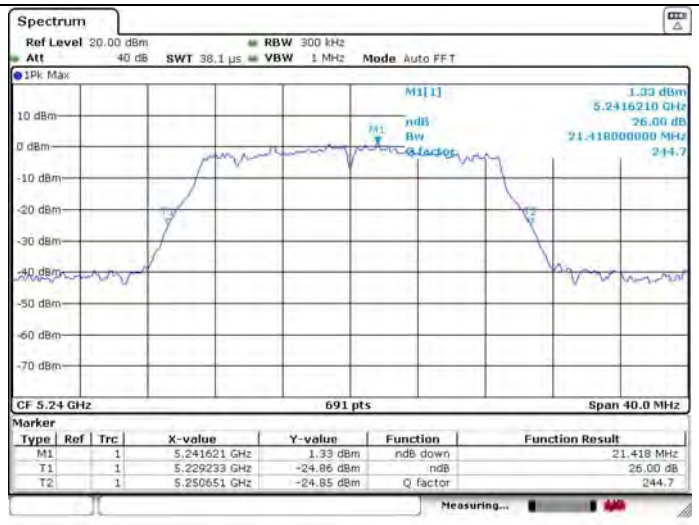
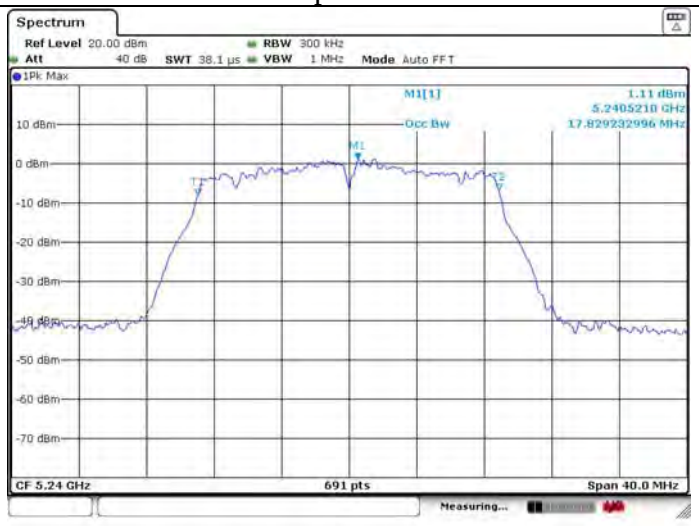
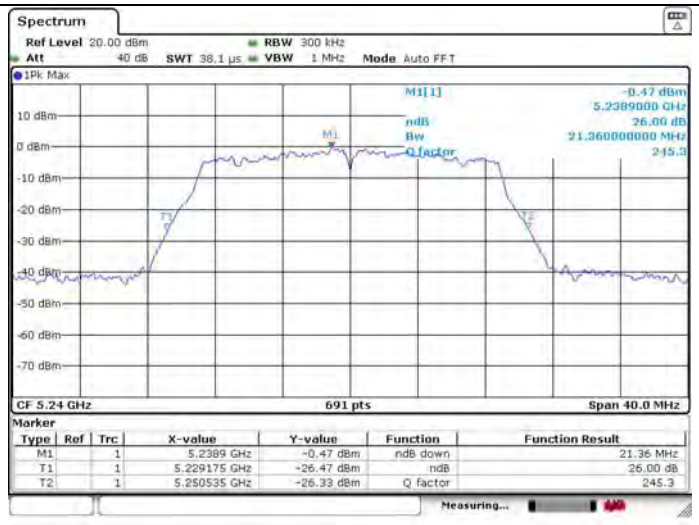
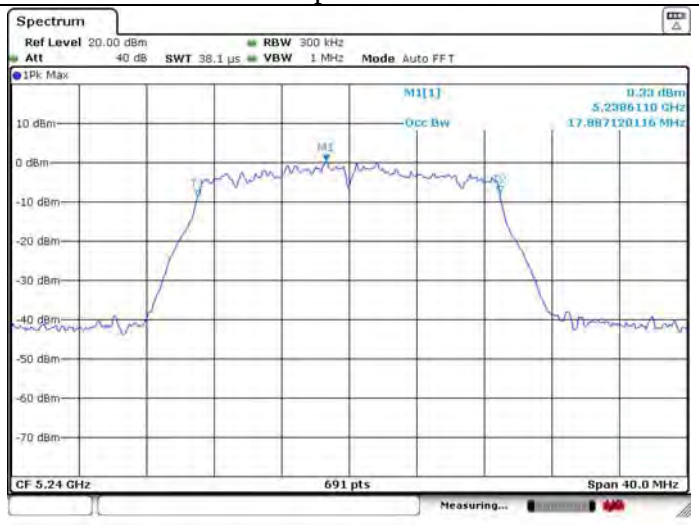
U-NII-1 IEEE 802.11a 5180MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11a 5200MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11a 5240MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

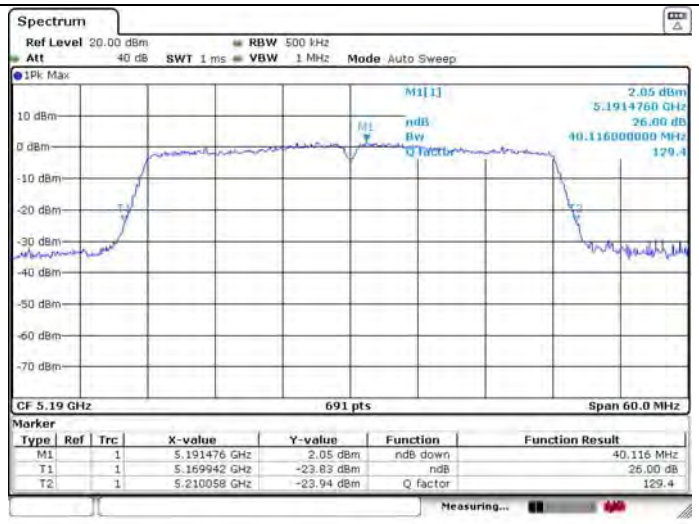
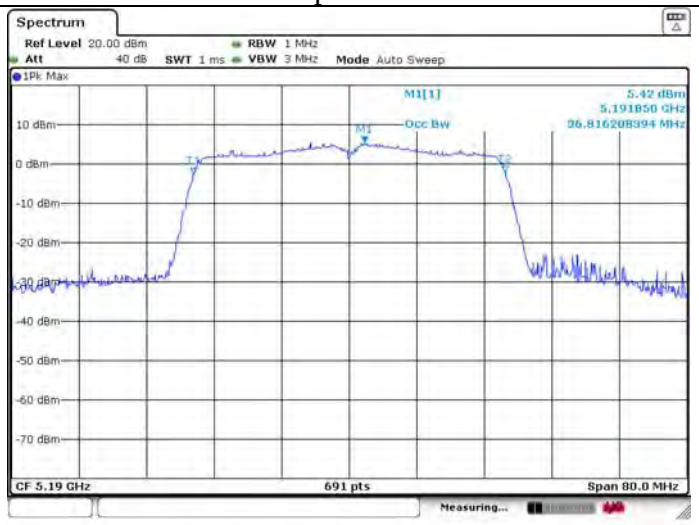
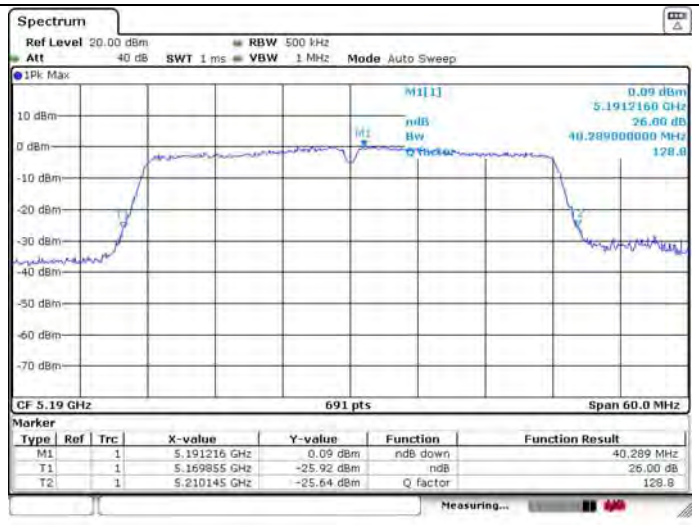
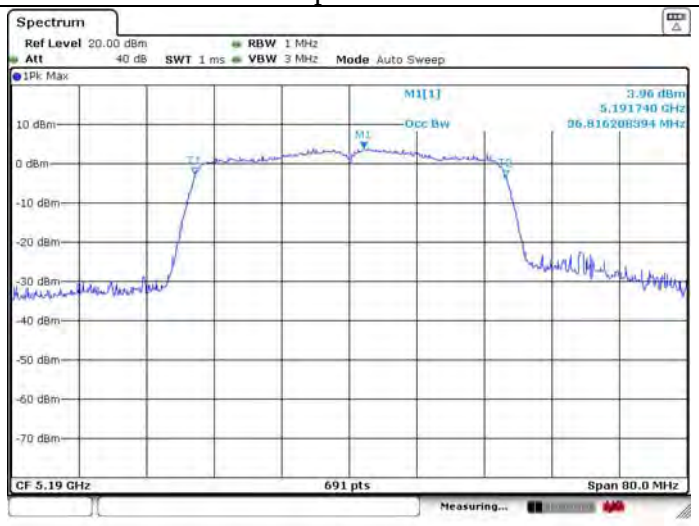
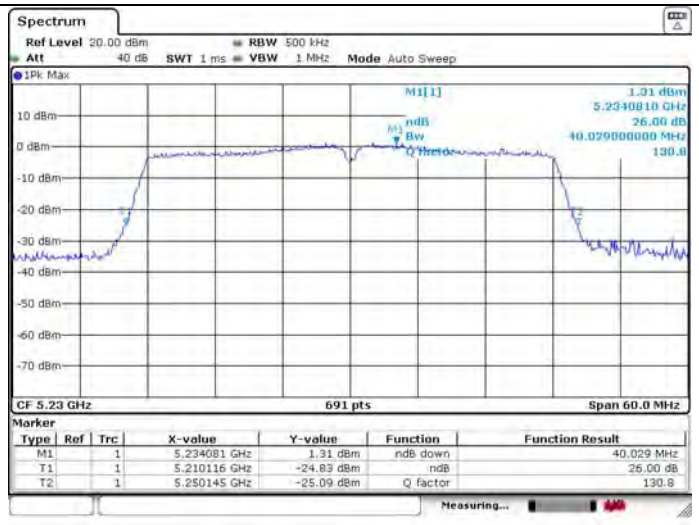
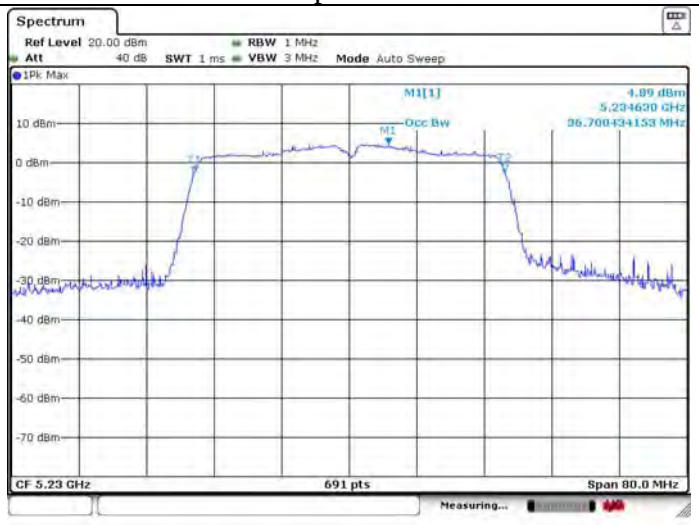
U-NII-1 IEEE 802.11a 5180MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11a 5200MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11a 5240MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

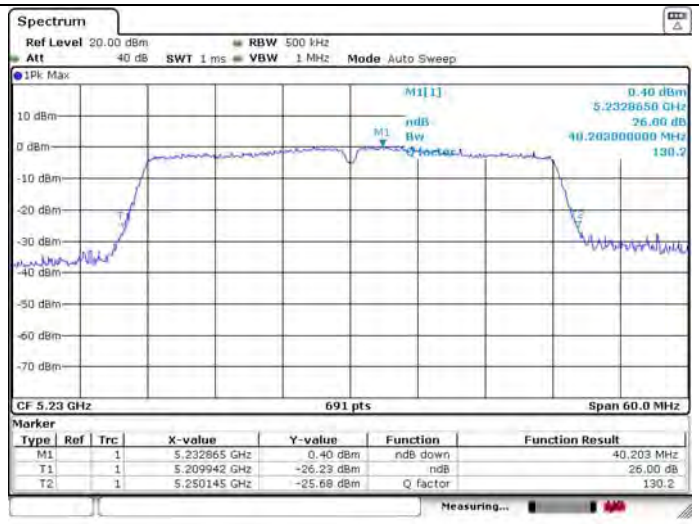
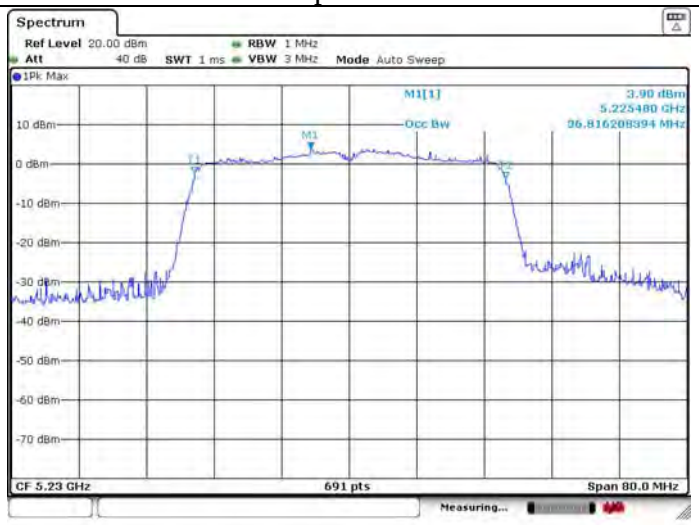
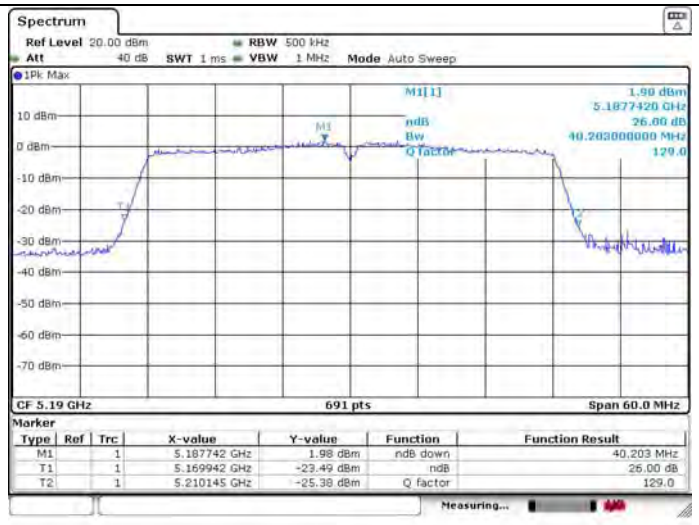
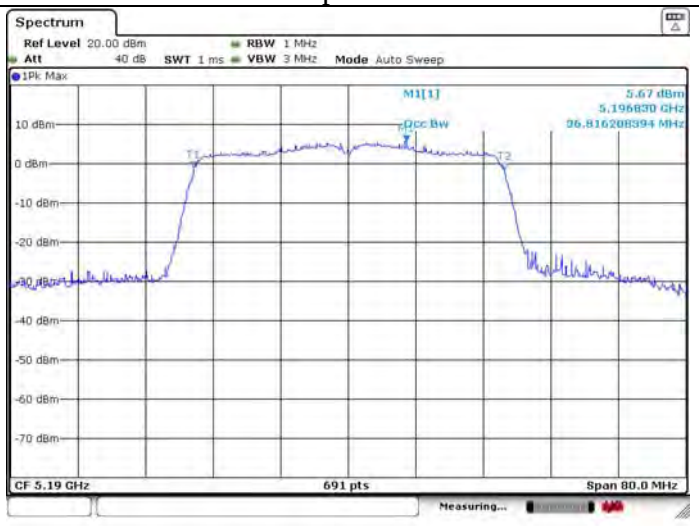
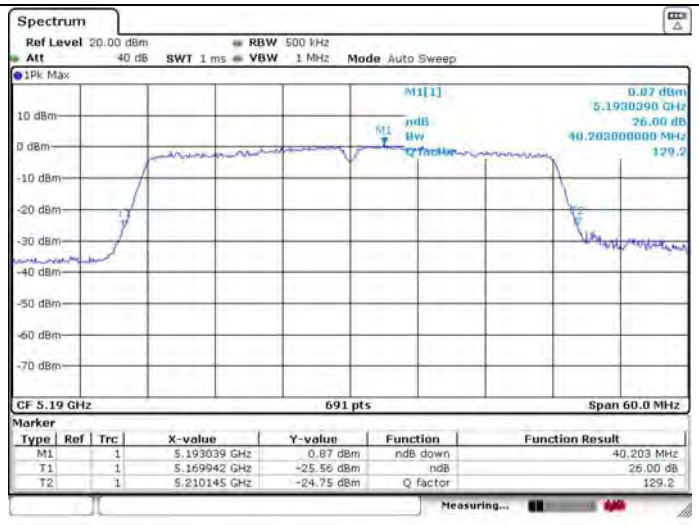
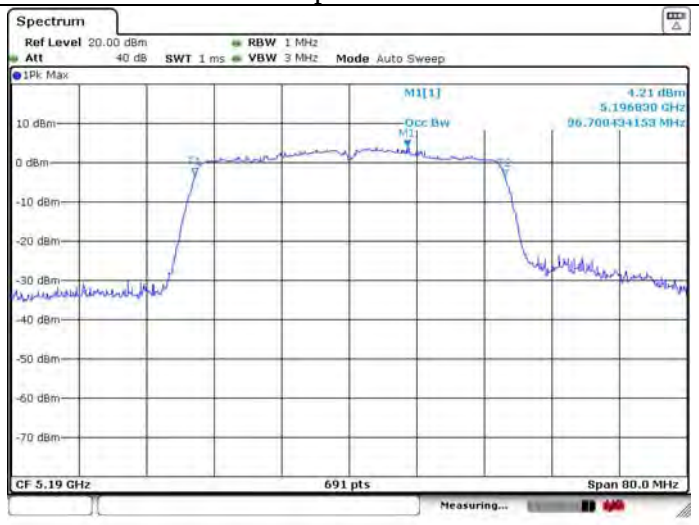
U-NII-1 IEEE 802.11n HT20 5180MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5180MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5200MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

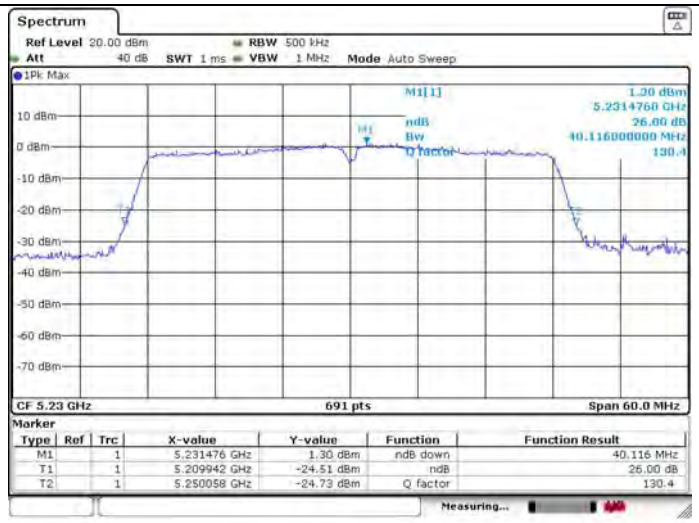
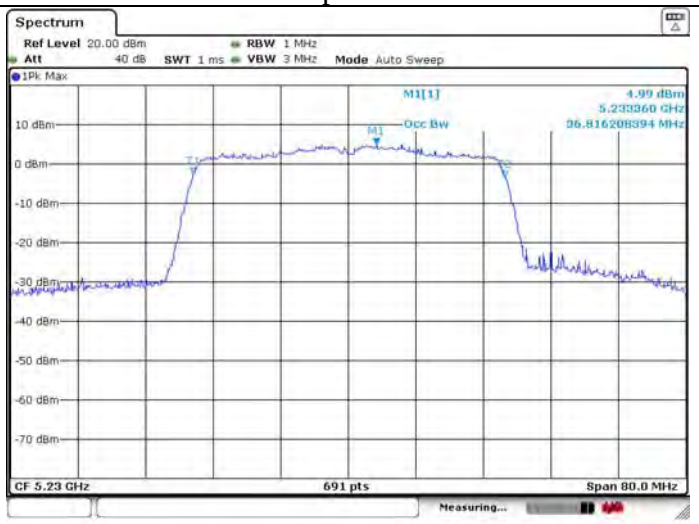
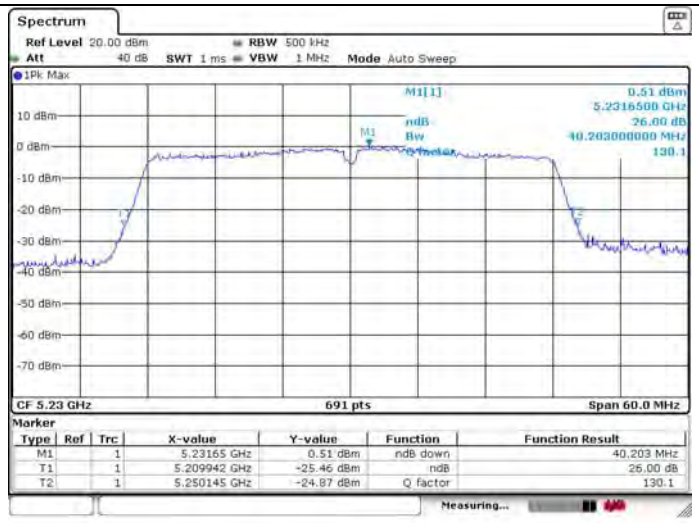
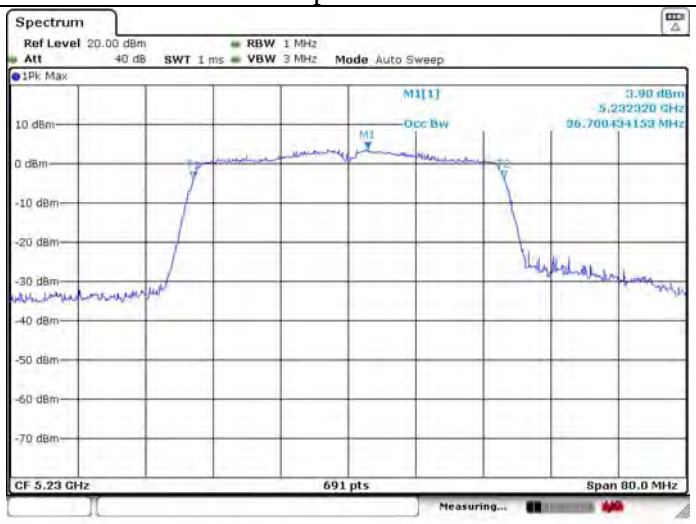
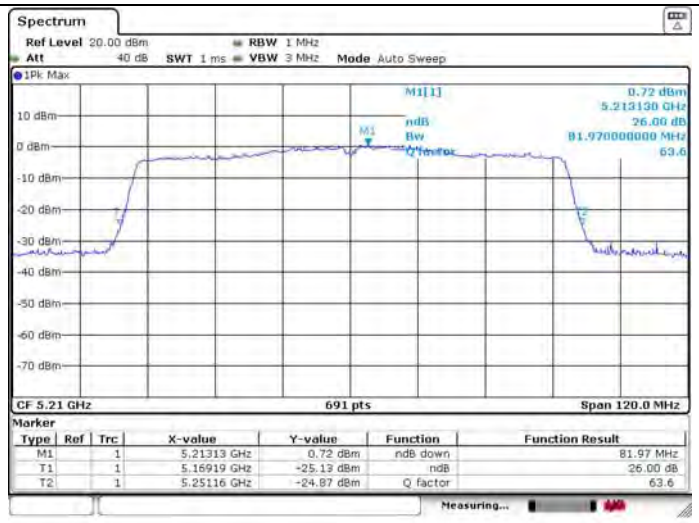
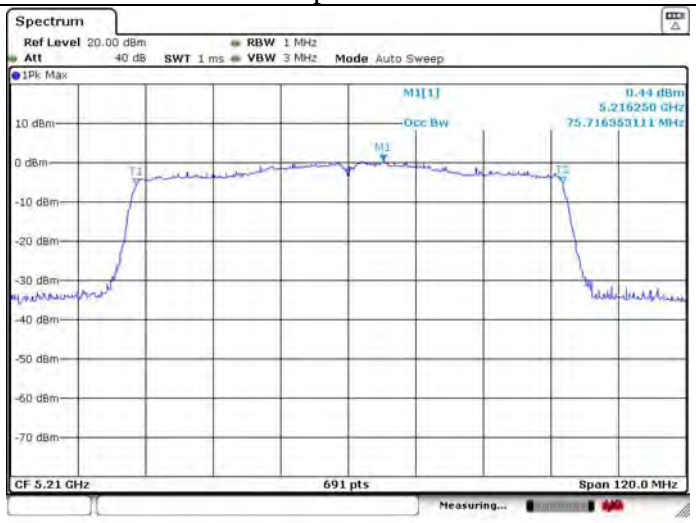
U-NII-1 IEEE 802.11n HT20 5200MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5240MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT20 5240MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

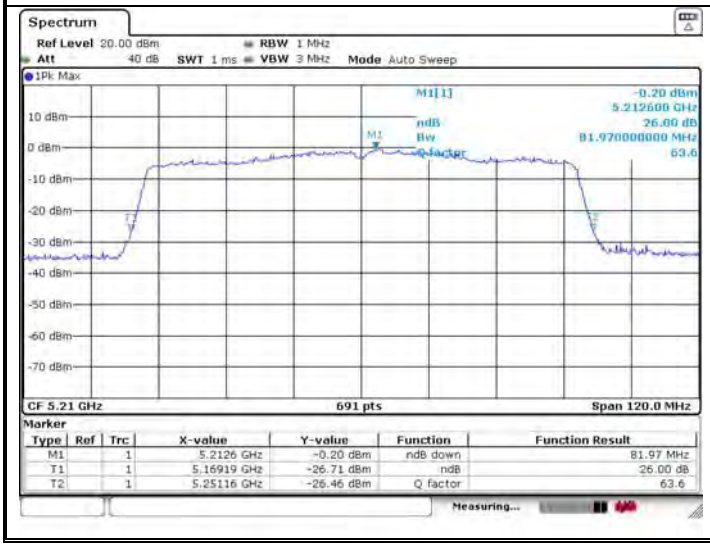
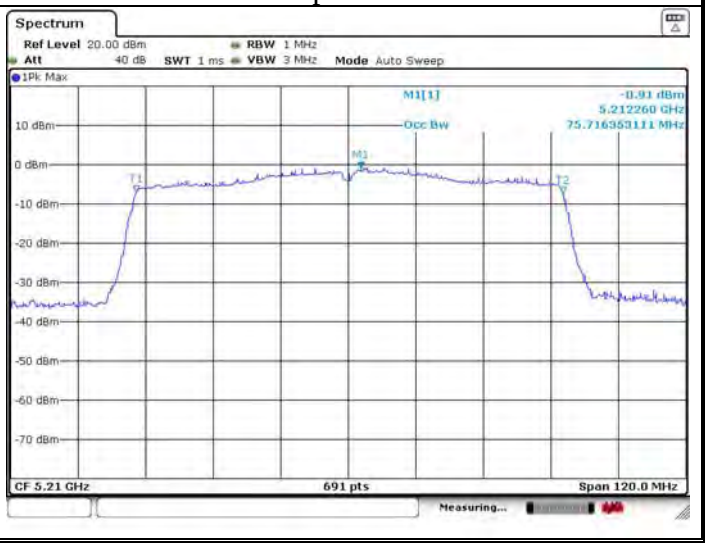
U-NII-1 IEEE 802.11ac VHT20 5180MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5180MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5200MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

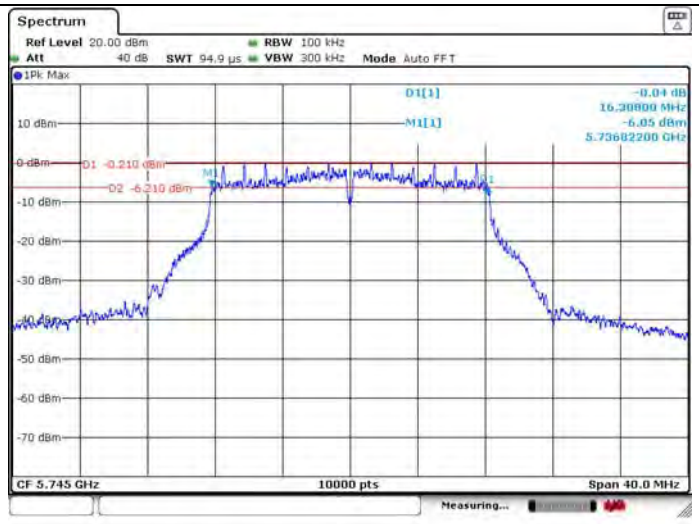
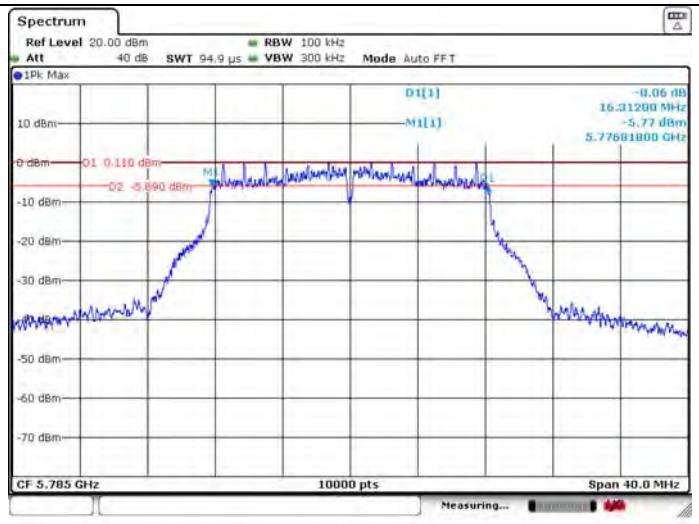
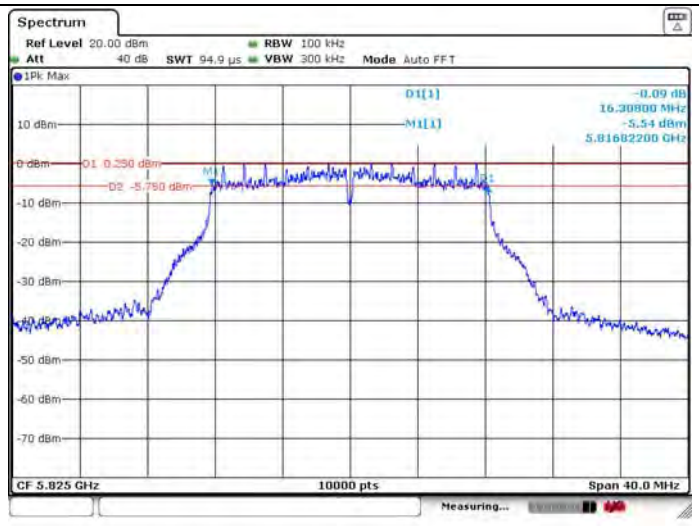
U-NII-1 IEEE 802.11ac VHT20 5200MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5240MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT20 5240MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

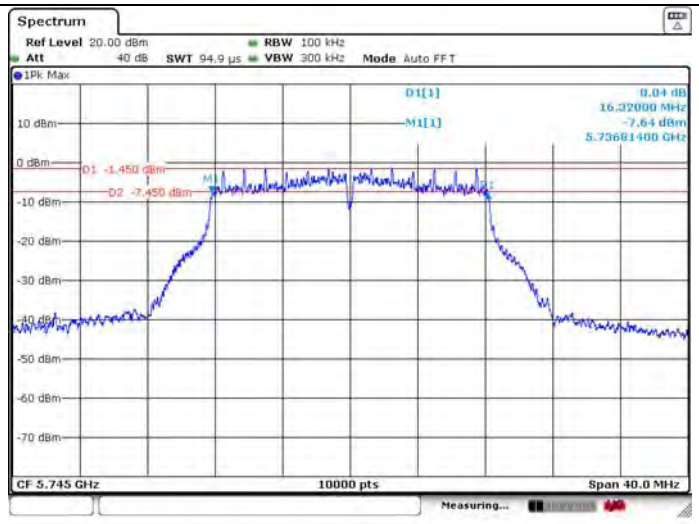
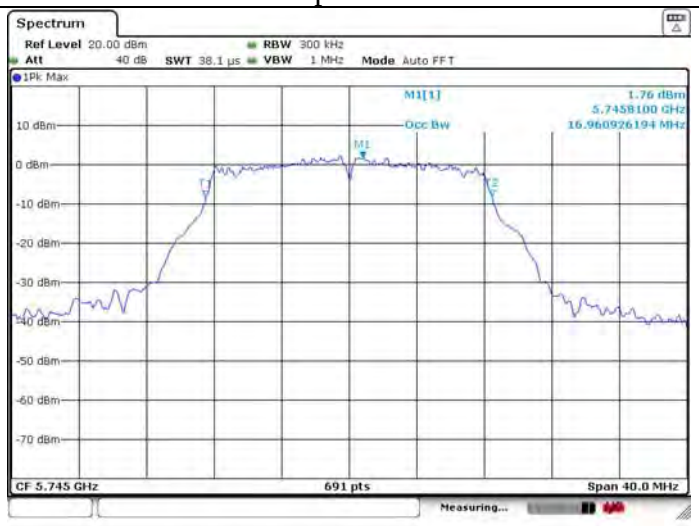
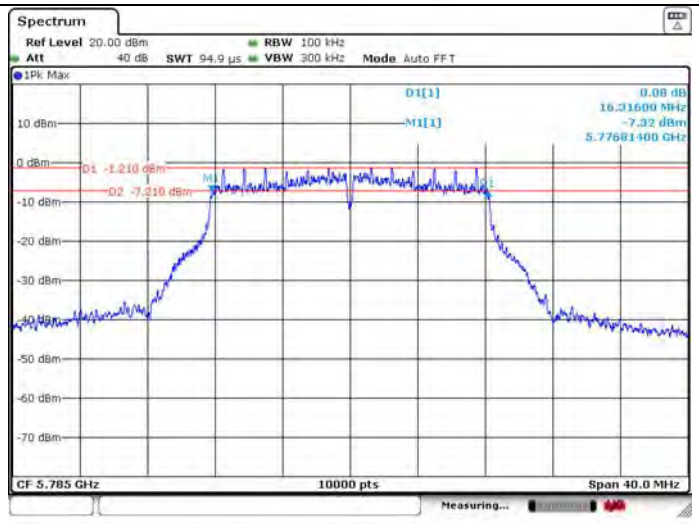
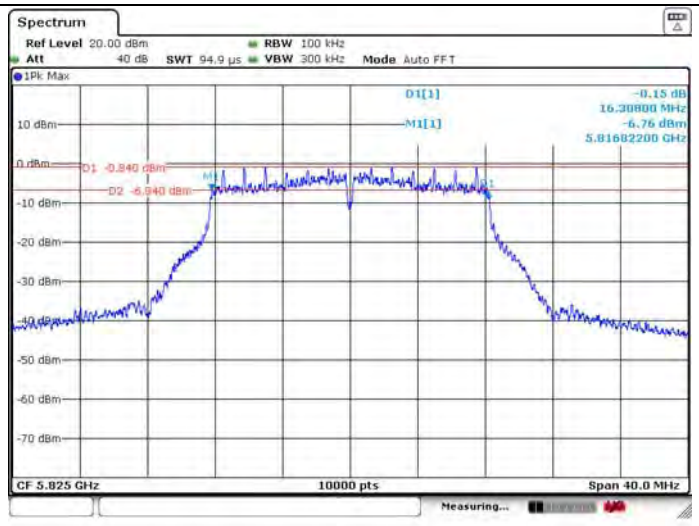
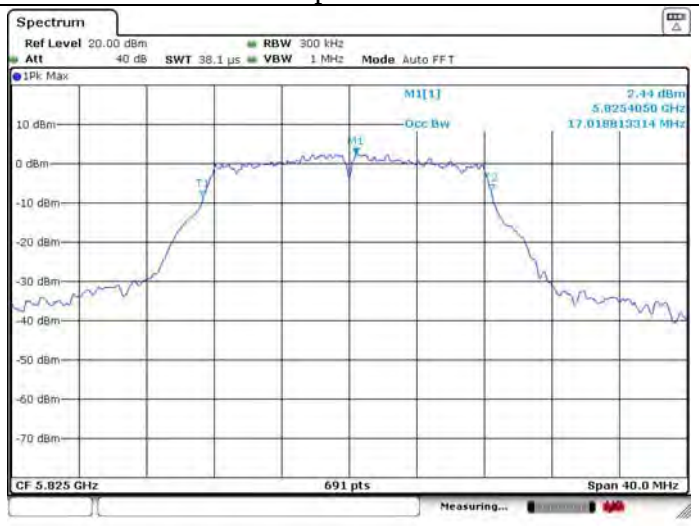
U-NII-1 IEEE 802.11n HT40 5190MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT40 5190MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11n HT40 5230MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

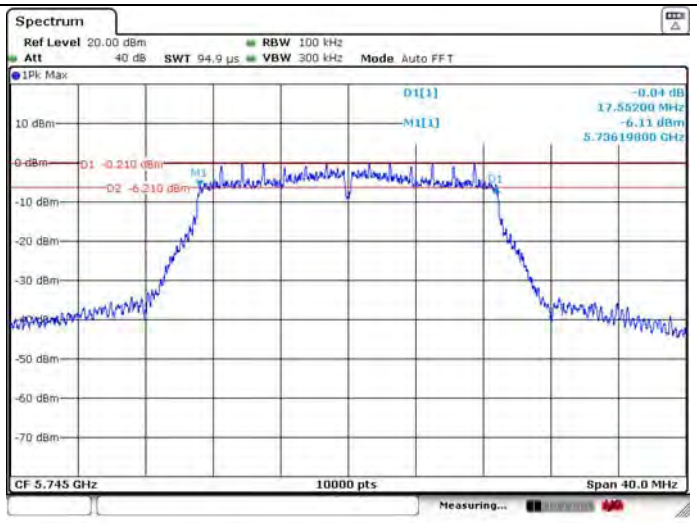
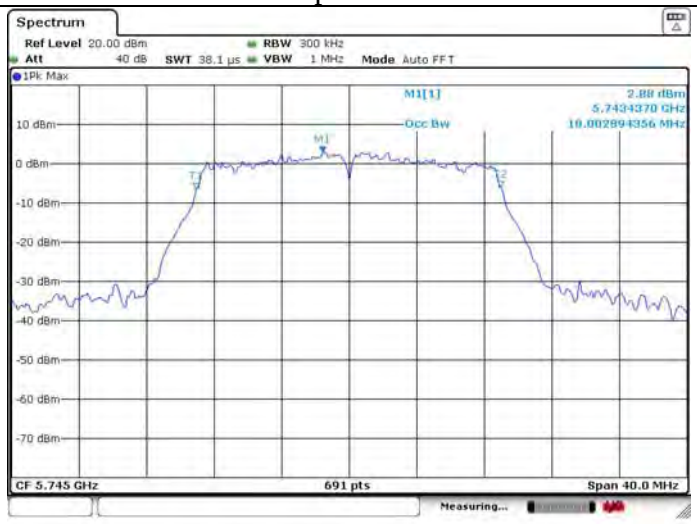
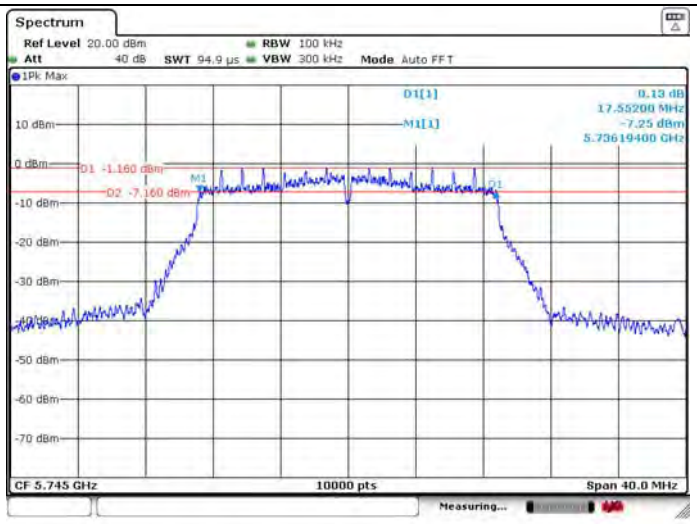
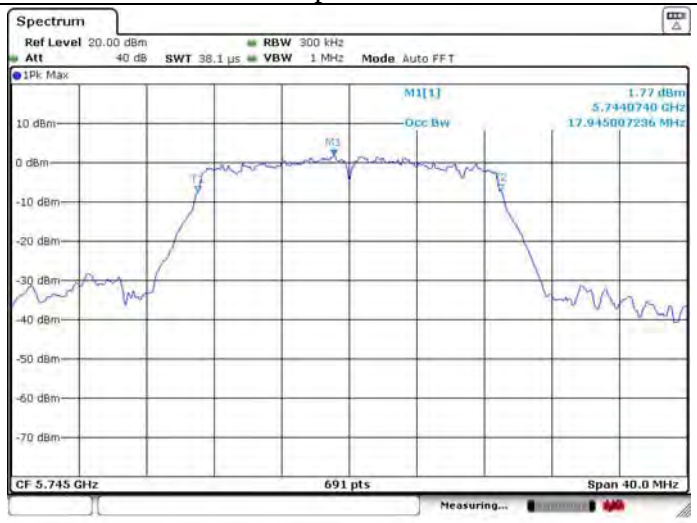
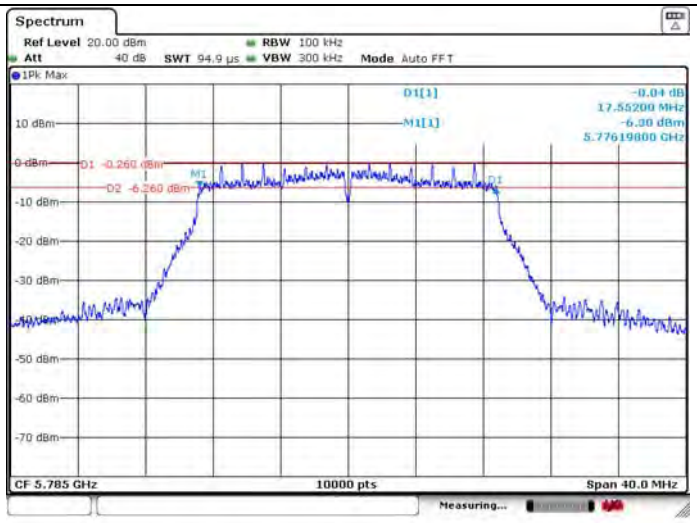
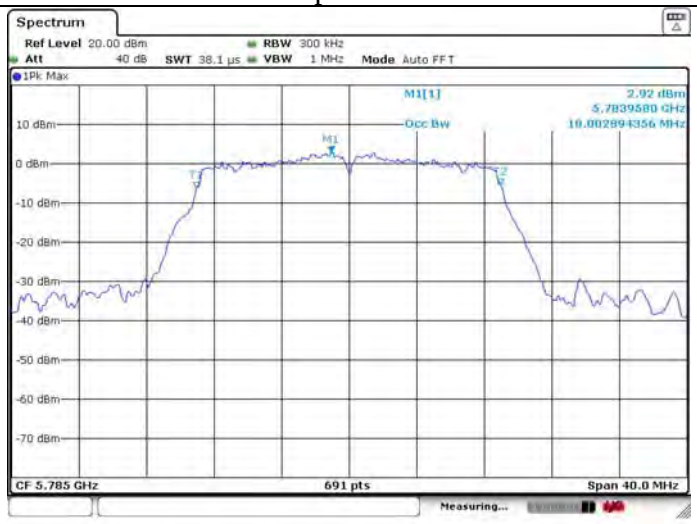
U-NII-1 IEEE 802.11n HT40 5230MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT40 5190MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT40 5190MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

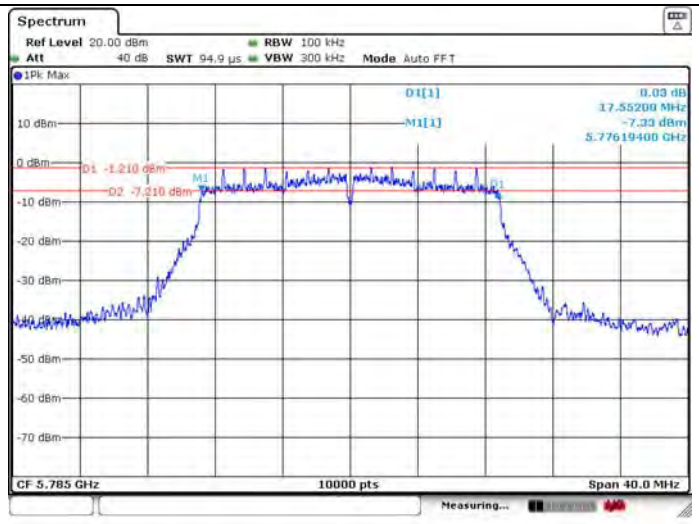
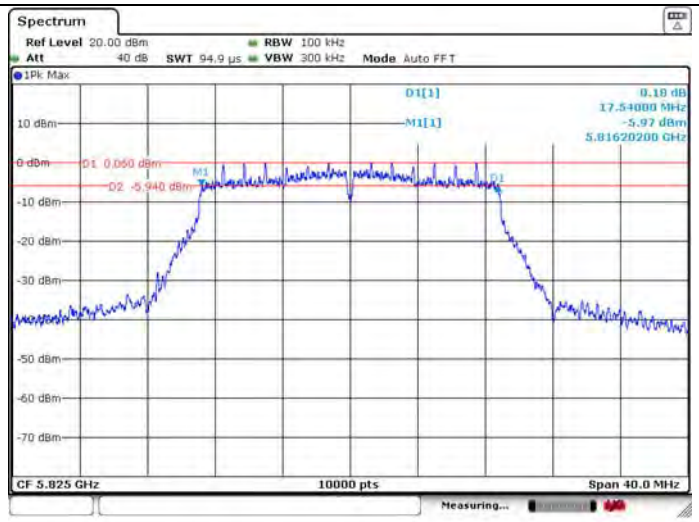
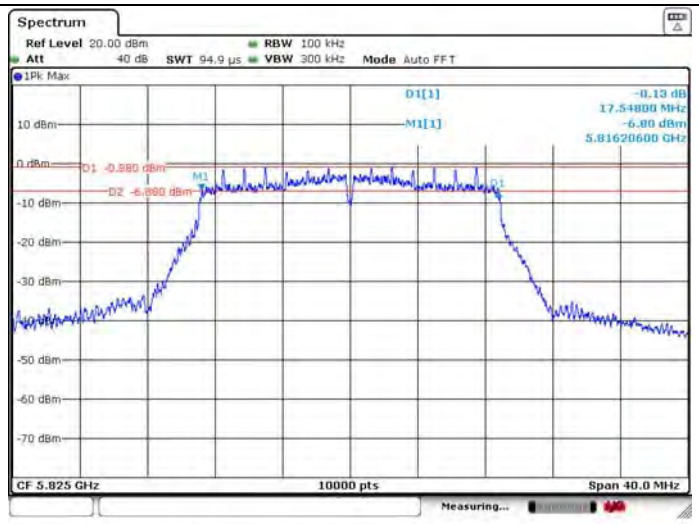
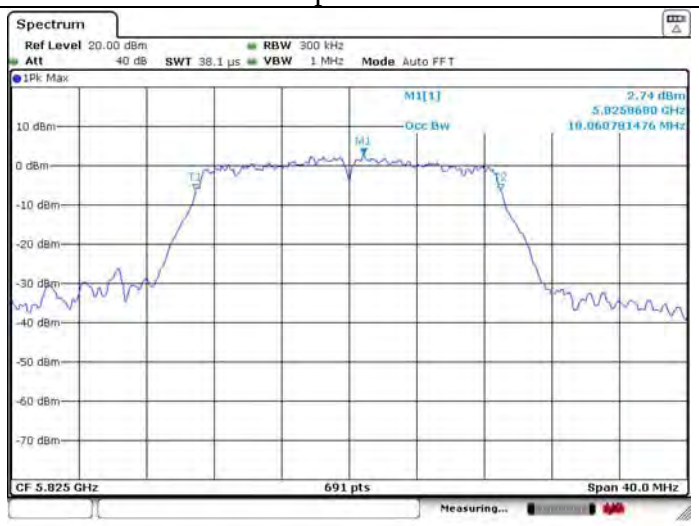
U-NII-1 IEEE 802.11ac VHT40 5230MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT40 5230MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	
U-NII-1 IEEE 802.11ac VHT80 5210MHz_Ant 1	
26dB Bandwidth	99% Occupied Bandwidth
	

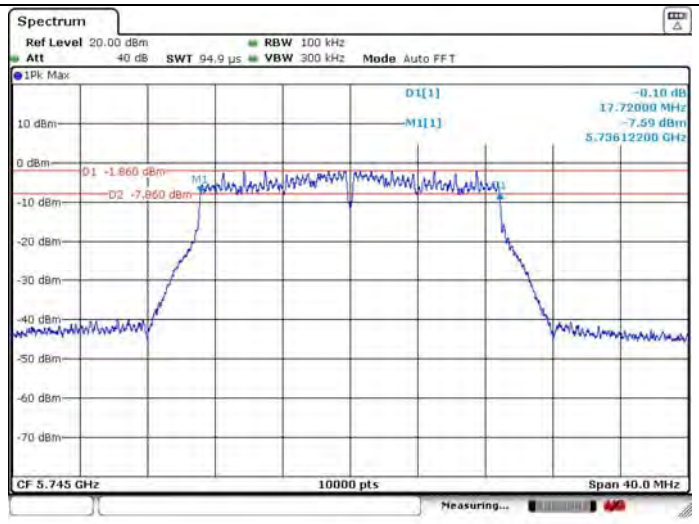
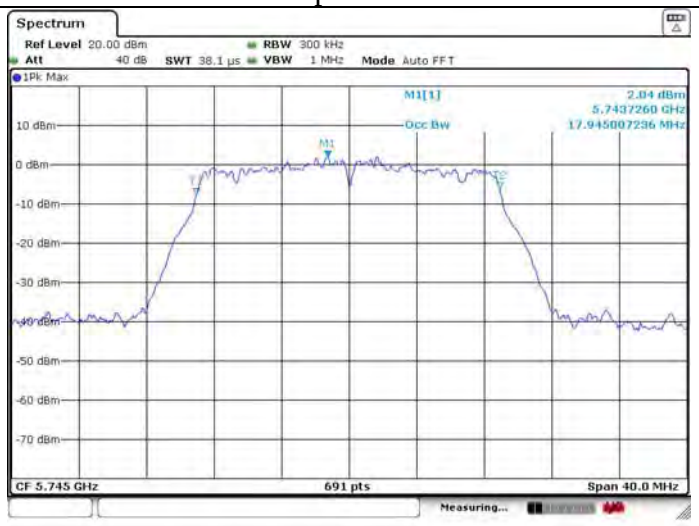
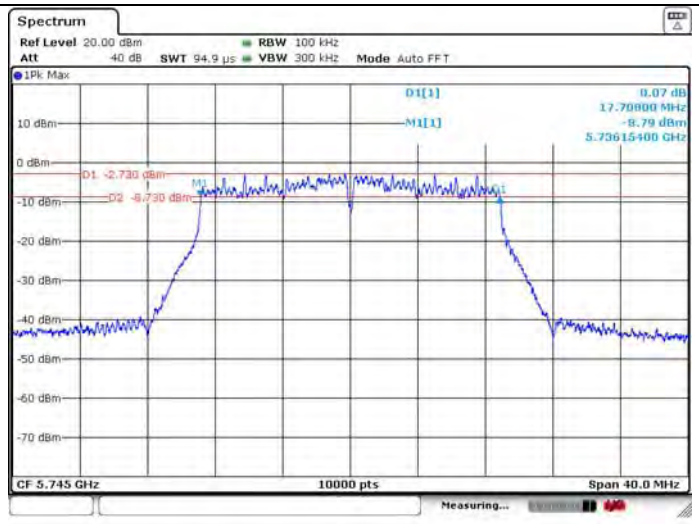
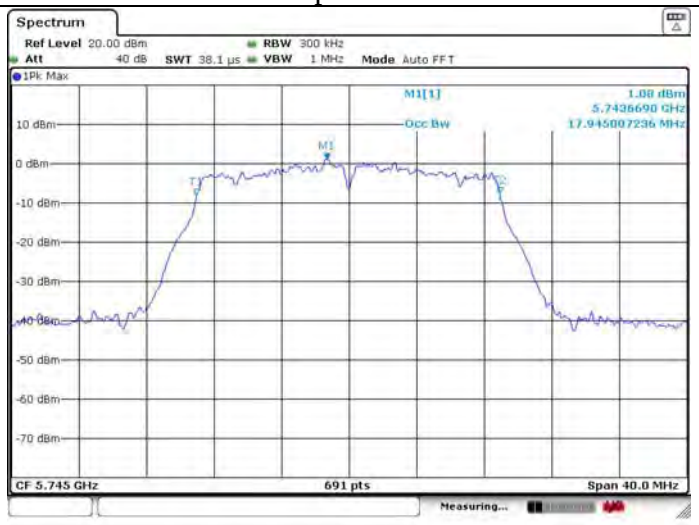
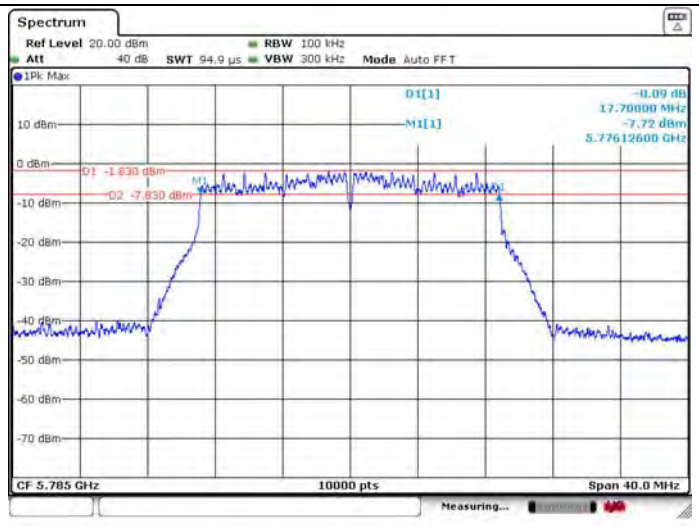
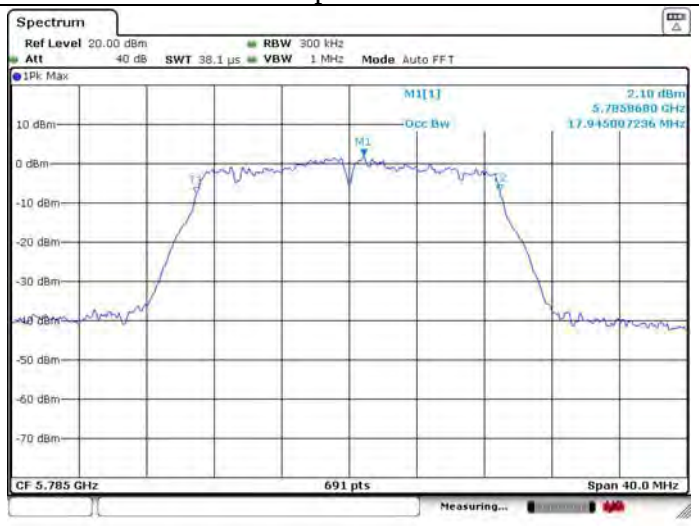
U-NII-1 IEEE 802.11ac VHT80 5210MHz_Ant 2	
26dB Bandwidth	99% Occupied Bandwidth
	

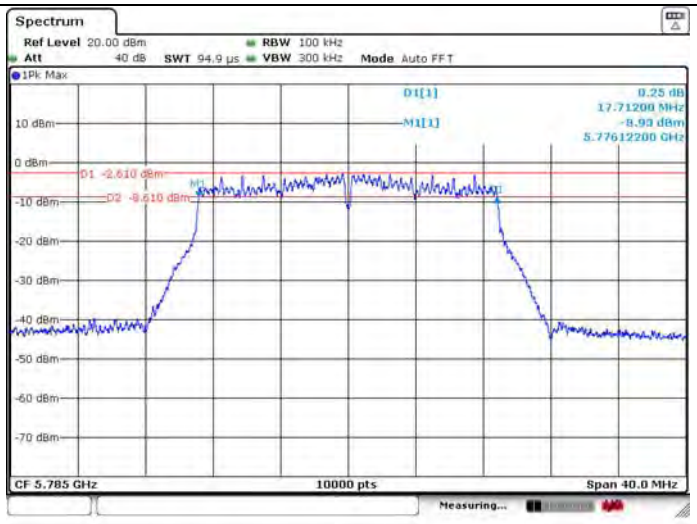
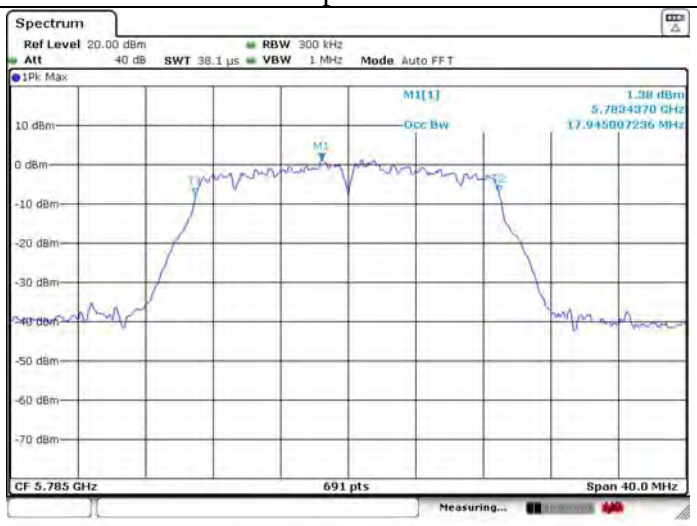
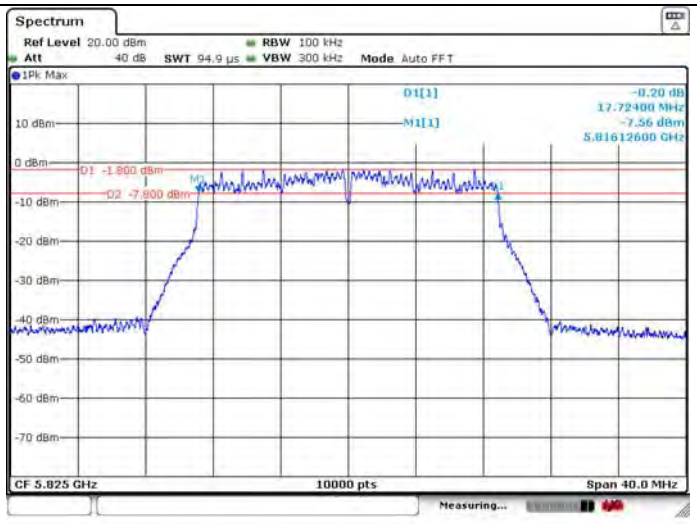
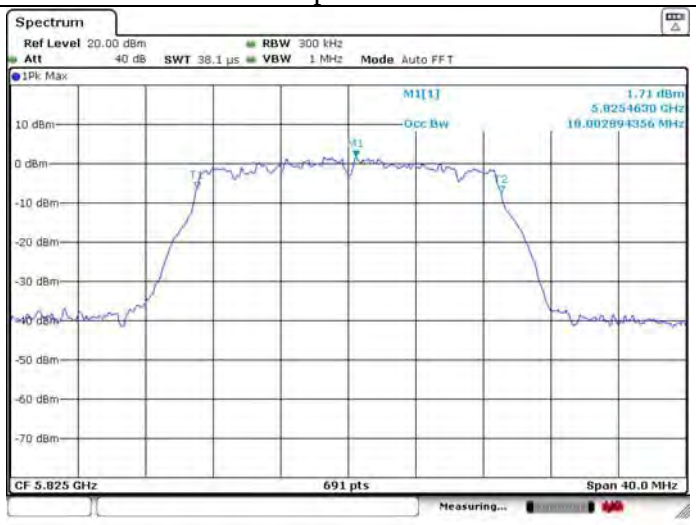
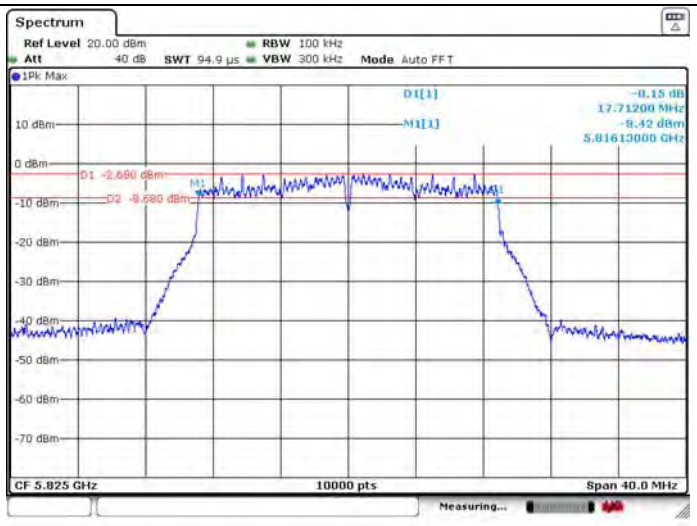
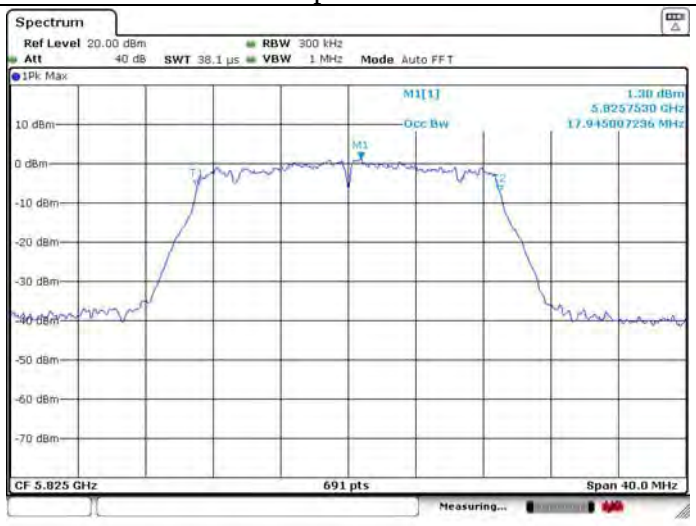
U-NII-3 IEEE 802.11a 5745MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11a 5785MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11a 5825MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	

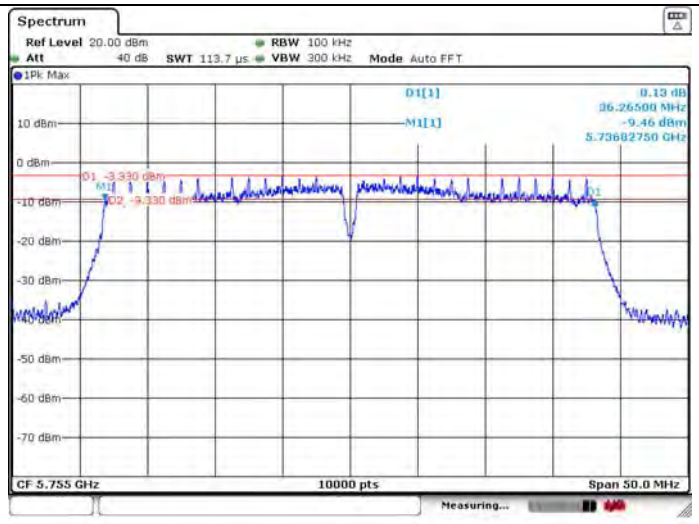
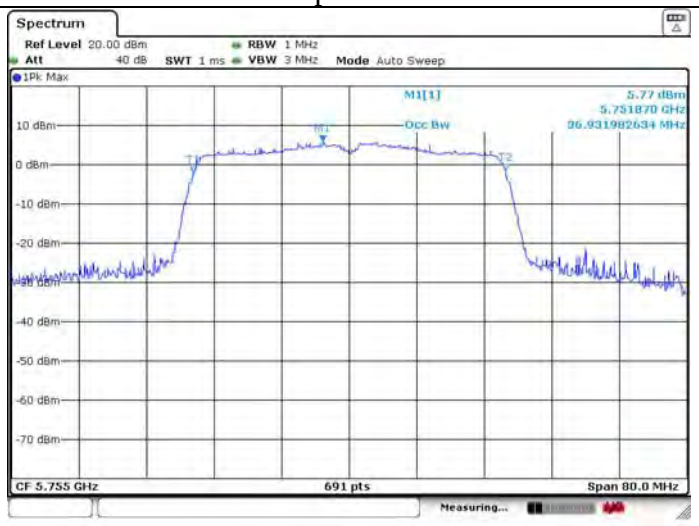
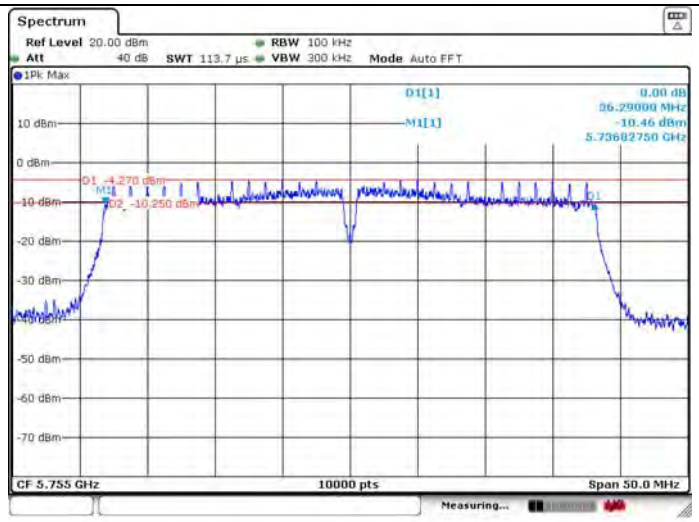
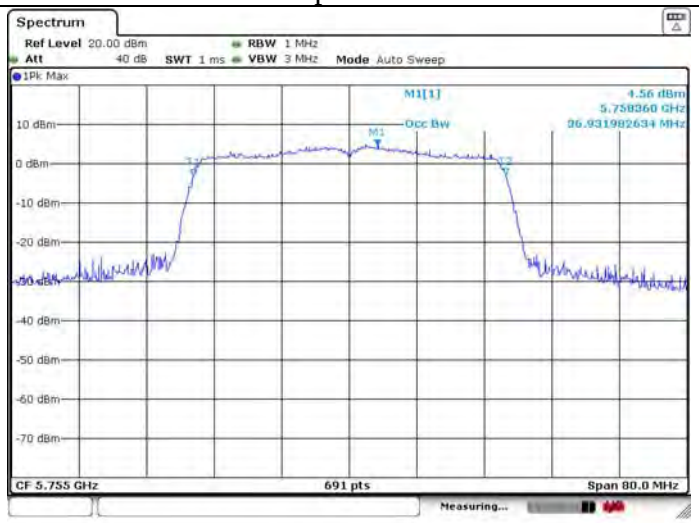
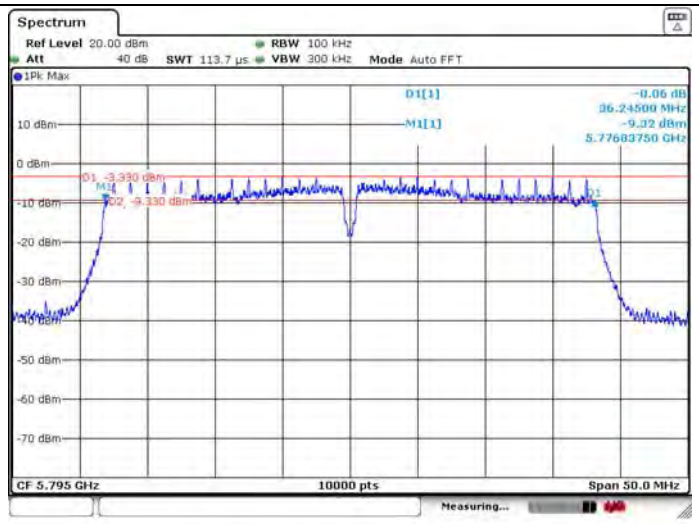
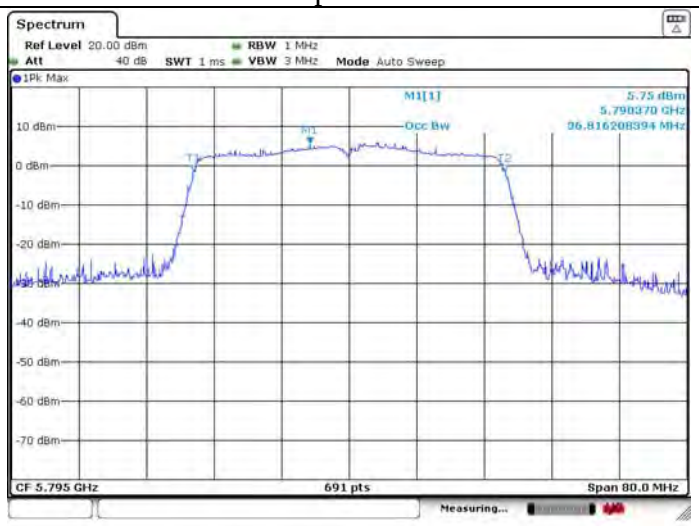
U-NII-3 IEEE 802.11a 5745MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11a 5785MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11a 5825MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	

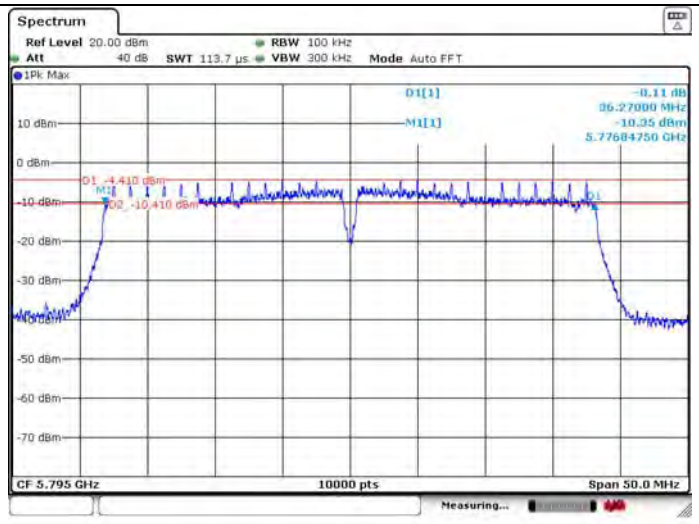
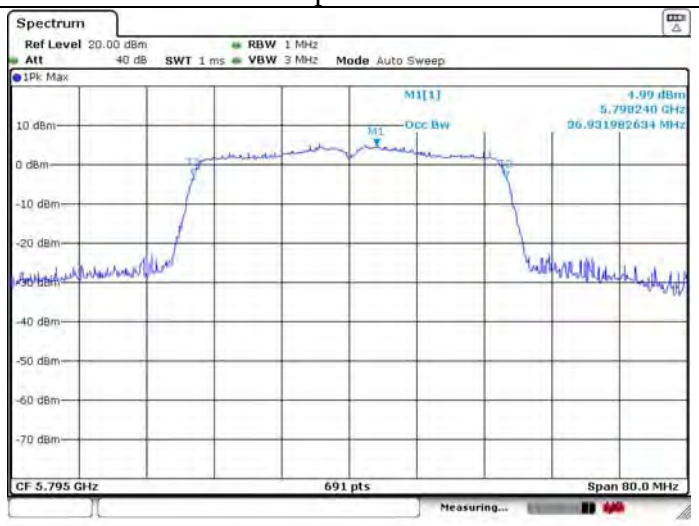
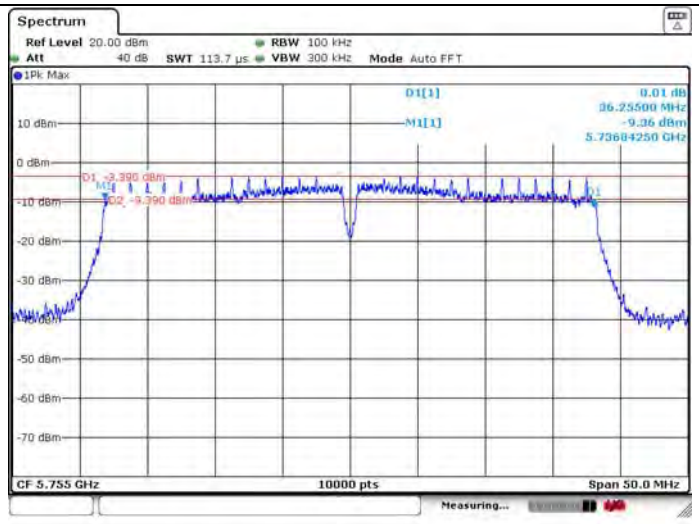
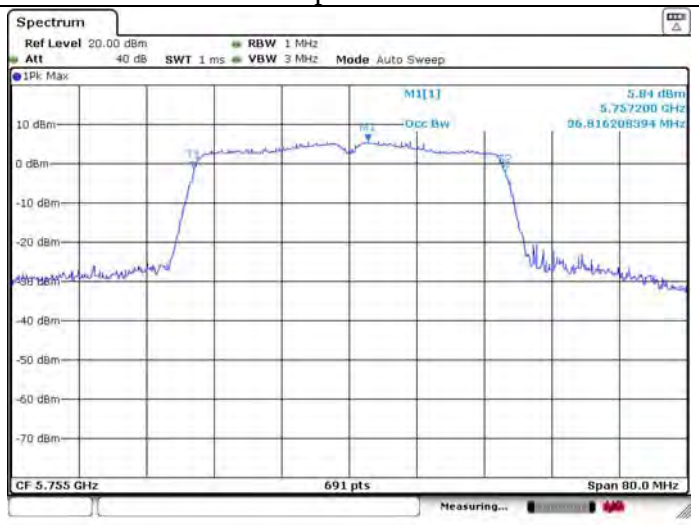
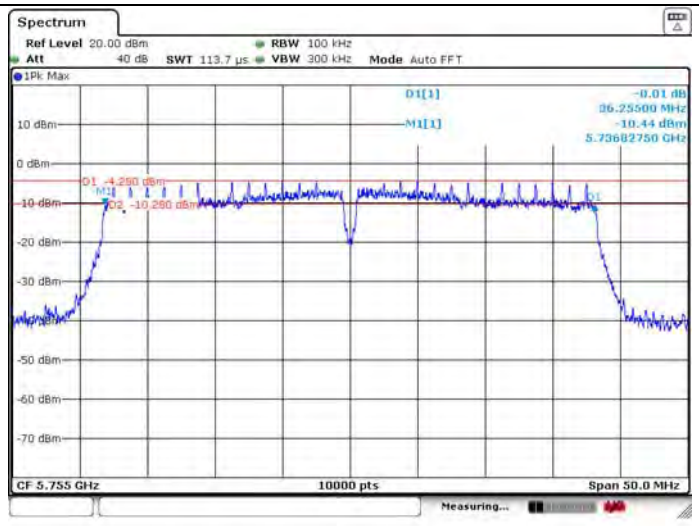
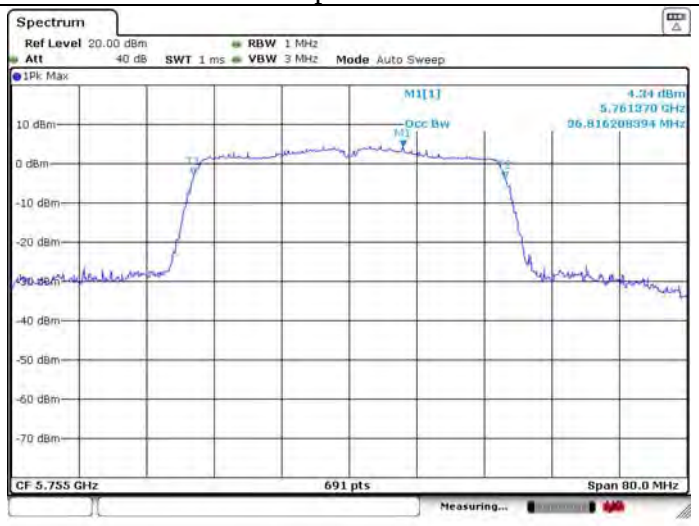
U-NII-3 IEEE 802.11n HT20 5745MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT20 5745MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT20 5785MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	

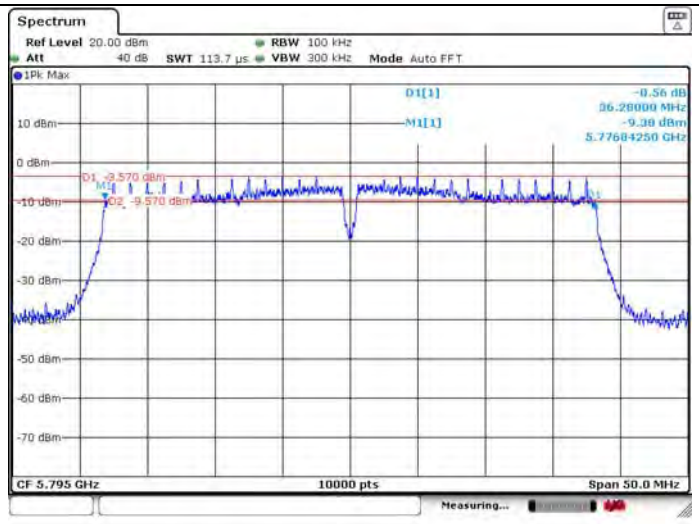
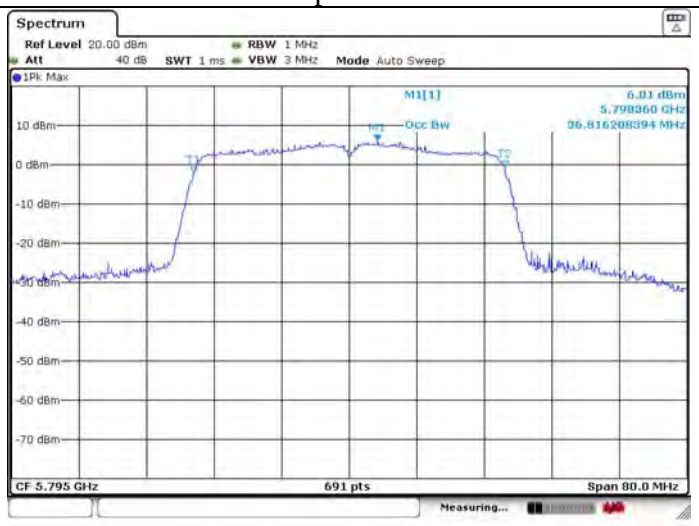
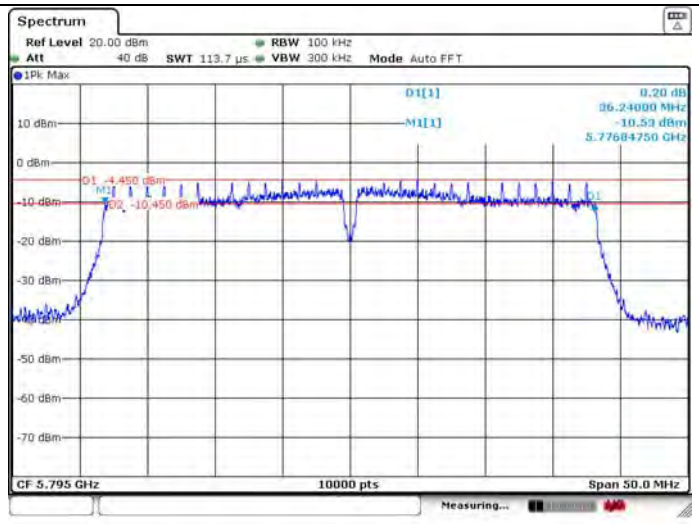
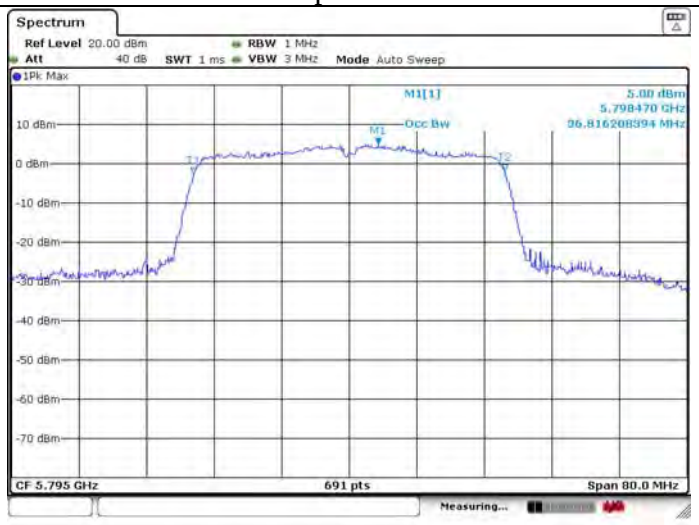
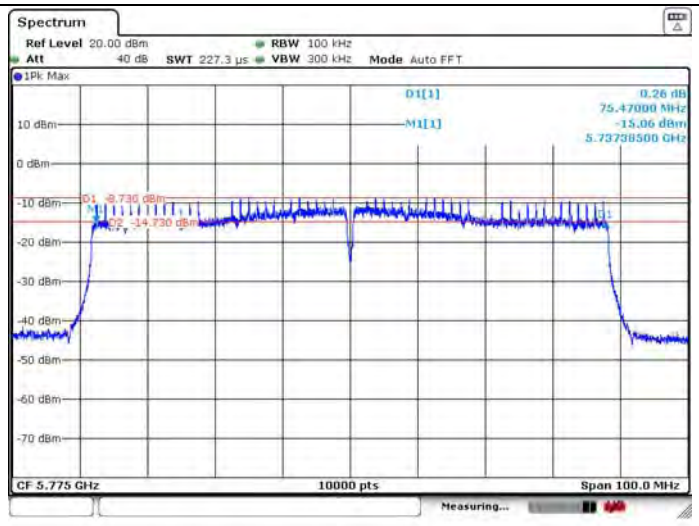
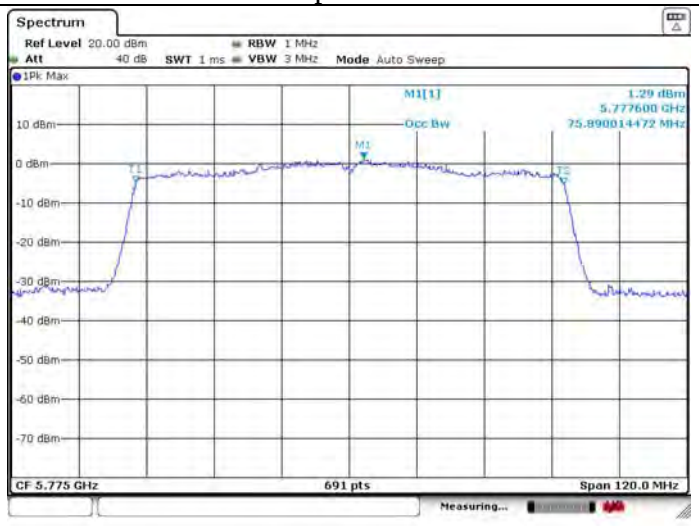
U-NII-3 IEEE 802.11n HT20 5785MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT20 5825MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT20 5825MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	

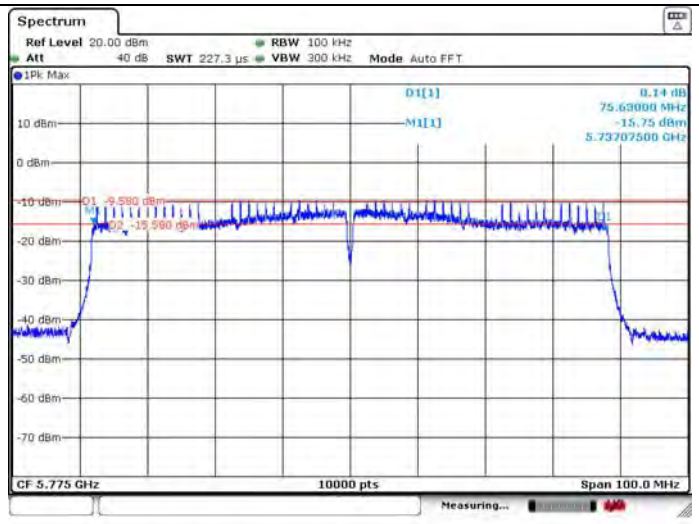
U-NII-3 IEEE 802.11ac VHT20 5745MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT20 5745MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT20 5785MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11ac VHT20 5785MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT20 5825MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT20 5825MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11n HT40 5755MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT40 5755MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11n HT40 5795MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11n HT40 5795MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT40 5755MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT40 5755MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11ac VHT40 5795MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT40 5795MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	
U-NII-3 IEEE 802.11ac VHT80 5775MHz_Ant 1	
6dB Bandwidth	99% Occupied Bandwidth
	

U-NII-3 IEEE 802.11ac VHT80 5775MHz_Ant 2	
6dB Bandwidth	99% Occupied Bandwidth
	

4. MAXIMUM CONDUCTED OUTPUT POWER

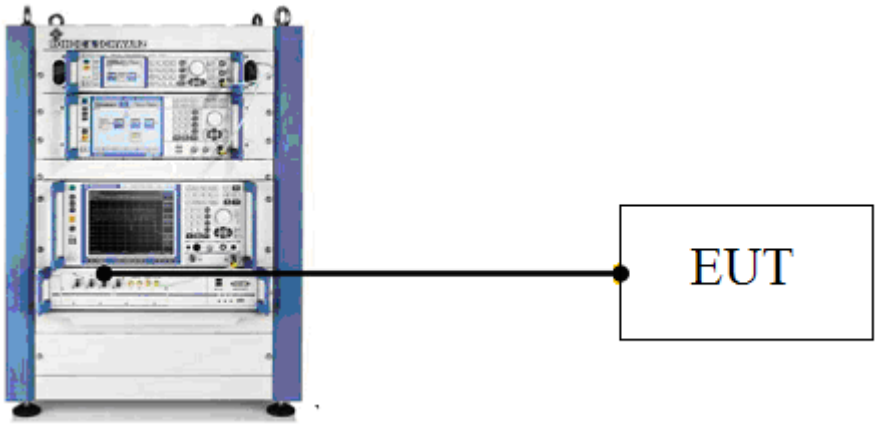
4.1. Limit

Band	EUT Type	Limit
U-NII-1	Outdoor Access Point	1W(30dBm) (Max. e.i.r.p≦125mW at any elevation angle above 30 degrees as measured from the horizon)
	Indoor Access Point	1W(30dBm)
	Fixed point-to-point Access Point	1W(30dBm)
	Mobile and Portable Client Device	250mW(23.98dBm)
U-NII-2A	All Device	250mW(23.98dBm) or 11dBm+10 log B,Which is lesser. (B is 26dB Bandwidth in MHz)
U-NII-2C	All Device	250mW(23.98dBm) or 11dBm+10 log B,Which is lesser. (B is 26dB Bandwidth in MHz)
U-NII-3	All Device	1W(30dBm)

Note:

For the Band U-NII-2A and U-NII-2C,the maximum conducted output power limit calculate result refer to section 3.5.

4.2. Test Setup



4.3. Test Procedure

a. Connect EUT antenna terminal to the OSP-B157WB with RF cable.
b. Set the EUT transmit continuously with maximum output power.
c. Through the test software in TS8897 to control 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. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.
d. Repeat above procedures until all modes and channels were measured.
e. Record the results in the test report.

4.4. Test Result

Temperature	23℃	Relative Humidity			45%	Test Voltage	AC 120V/60Hz	
BAND	Test Mode	Fre (MHz)	Conducted AVG Output Power (dBm)		Total Conducted Output Power (W)	Total Conducted Output Power (dBm)	Limit (dBm)	Result
			Ant 1	Ant 2				
U-NII-1	IEEE 802.11a	5180	19.21	18.17	0.0834	19.21	23.98	PASS
		5200	18.99	17.74	0.0793	18.99	23.98	PASS
		5240	18.75	17.54	0.0750	18.75	23.98	PASS
	IEEE 802.11n HT20	5180	13.80	12.19	0.04055	16.08	23.98	PASS
		5200	13.46	12.05	0.03821	15.82	23.98	PASS
		5240	12.86	11.94	0.03495	15.43	23.98	PASS
	IEEE 802.11ac VHT20	5180	13.66	12.17	0.03971	15.99	23.98	PASS
		5200	12.41	10.82	0.02950	14.70	23.98	PASS
		5240	11.87	10.66	0.02702	14.32	23.98	PASS
	IEEE 802.11n HT40	5190	12.42	10.82	0.02954	14.70	23.98	PASS
		5230	11.71	10.64	0.02641	14.22	23.98	PASS
	IEEE 802.11ac VHT40	5190	12.06	11.06	0.02883	14.60	23.98	PASS
		5230	11.74	10.76	0.02684	14.29	23.98	PASS
	IEEE 802.11ac VHT80	5210	10.89	10.03	0.02234	13.49	23.98	PASS

BAND	Test Mode	Fre (MHz)	Conducted AVG Output Power (dBm)		Total Conducted Output Power (W)	Total Conducted Output Power (dBm)	Limit (dBm)	Result
			Ant 1	Ant 2				
U-NII-3	IEEE 802.11a	5745	19.53	18.31	0.08974	19.53	30.00	PASS
		5785	19.78	18.40	0.09506	19.78	30.00	PASS
		5825	19.96	18.71	0.09908	19.96	30.00	PASS
	IEEE 802.11n HT20	5745	19.78	18.62	0.16784	22.25	30.00	PASS
		5785	19.44	19.24	0.17185	22.35	30.00	PASS
		5825	19.75	18.70	0.16854	22.27	30.00	PASS
	IEEE 802.11ac VHT20	5745	18.57	17.23	0.12479	20.96	30.00	PASS
		5785	18.29	17.40	0.12241	20.88	30.00	PASS
		5825	18.55	17.94	0.13384	21.27	30.00	PASS
	IEEE 802.11n HT40	5755	18.94	18.07	0.14246	21.54	30.00	PASS
		5795	19.08	18.08	0.14518	21.62	30.00	PASS
	IEEE 802.11ac VHT40	5755	19.12	18.07	0.14578	21.64	30.00	PASS
		5795	18.95	18.03	0.14206	21.52	30.00	PASS
	IEEE 802.11ac VHT80	5775	16.43	15.89	0.08277	19.18	30.00	PASS

5. PEAK POWER SPECTRAL DENSITY

5.1. Limit

Band	EUT Type	Limit
U-NII-1	Outdoor Access Point	17dBm/MHz
	Indoor Access Point	17dBm/MHz
	Fixed point-to-point Access Point	17dBm/MHz
	Mobile and Portable Client Device	11dBm/MHz
U-NII-2A	All Device	11dBm/MHz
U-NII-2C	All Device	11dBm/MHz
U-NII-3	All Device	30dBm/500KHz

5.2. Test Setup

5.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	1MHz(For U-NII-1&U-NII-2A&U-NII-2C) 500KHz(For U-NII-3)
VBW	3MHz(For U-NII-1&U-NII-2A&U-NII-2C) 2MHz(For U-NII-3)
Span	encompass the entire 26 dB EBW or 99% OBW of the signal
Sweep Time	Auto
Number of Sweep Point	≥2×SPAN/RBW
Detector	RMS(power averaging)
Trace Average	≥100 traces

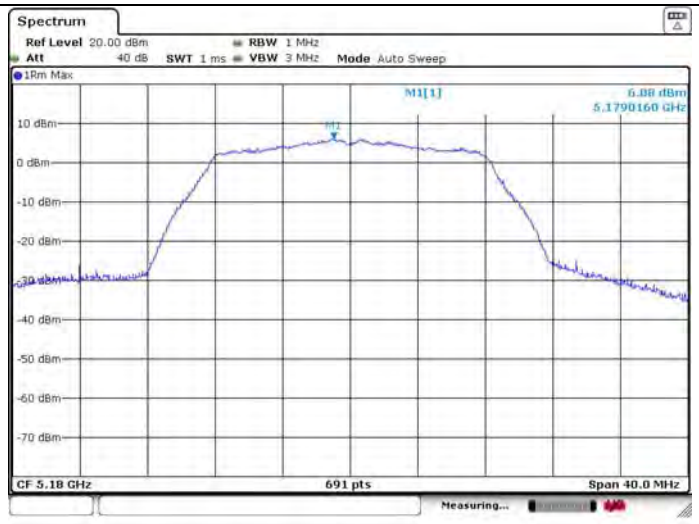
5.4. Test Procedure

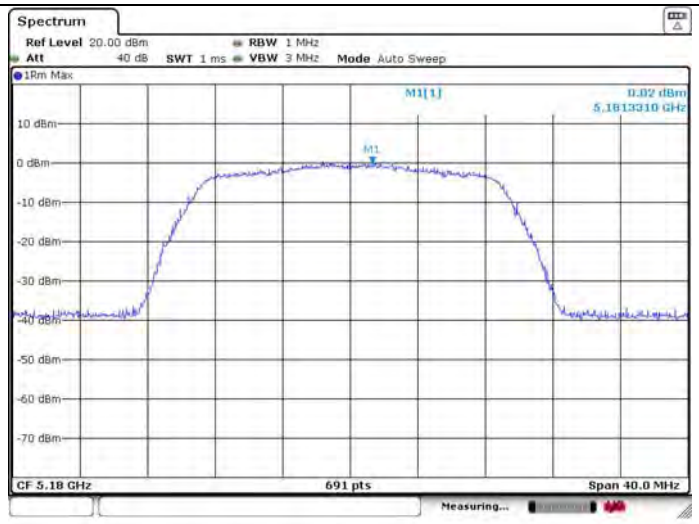
a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 5.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the marker-to-peak function to set the marker to the average of the emission.
e. If the duty cycle of test siganl＜98%,the result=max measured value+10×log(1/duty cycle);
If the duty cycle of test siganl≥98%,the esult=max measured value.
f. Repeat above procedures until all modes and channels were measured.
g. Record the results in the test report.

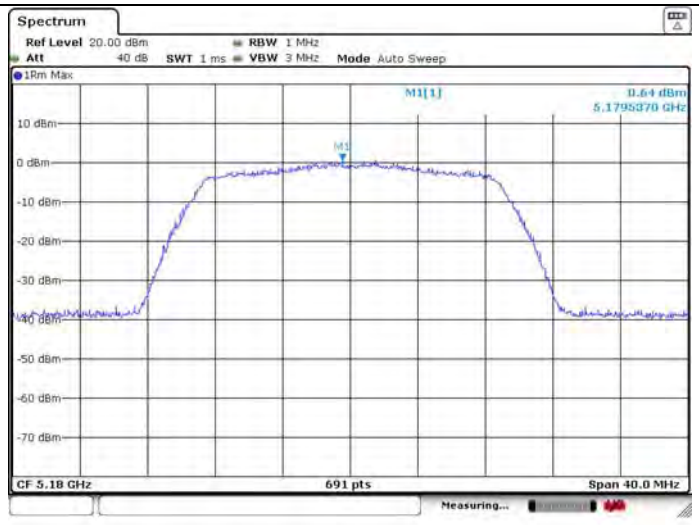
5.5. Test Result

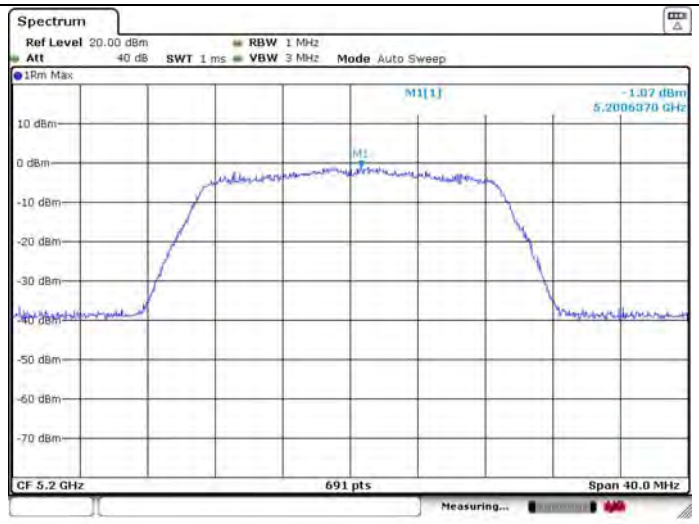
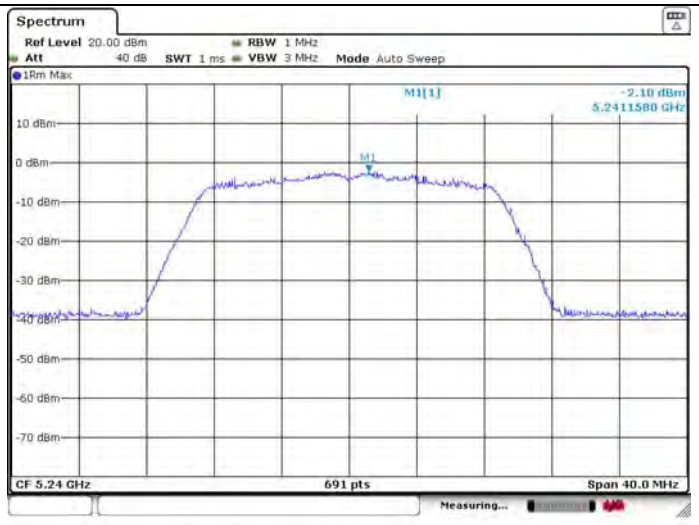
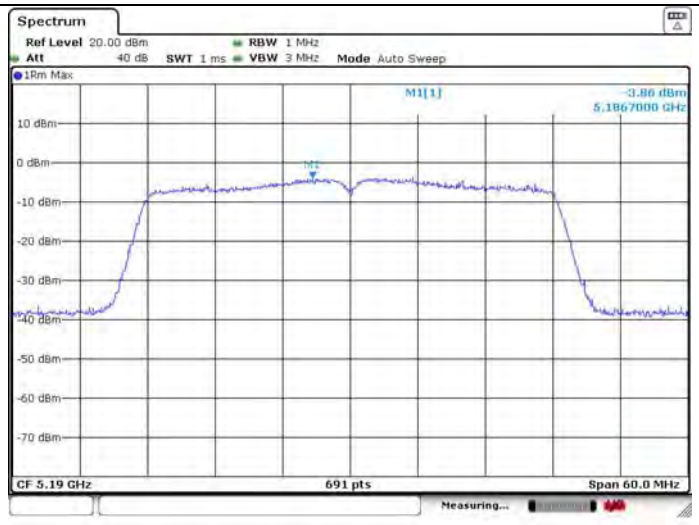
Temperature		23℃	Relative Humidity		45%	Test Voltage	AC 120V/60Hz	
BAND	Test Mode	Fre (MHz)	Power Density (dBm/MHz)		Duty Factor (dB)	Total Power Density (dBm/MHz)	Limit (dBm/MHz)	Result
			Ant 1	Ant 2				
U-NII-1	IEEE 802.11a	5180	6.08	4.68	0.23	6.31	11.00	PASS
		5200	5.94	4.59	0.23	6.17	11.00	PASS
		5240	5.45	4.30	0.23	5.68	11.00	PASS
	IEEE 802.11n HT20	5180	0.02	-0.50	0.25	3.03	11.00	PASS
		5200	0.46	-1.09	0.25	3.01	11.00	PASS
		5240	0.27	-1.60	0.25	2.69	11.00	PASS
	IEEE 802.11ac VHT20	5180	0.64	-0.90	0.27	3.22	11.00	PASS
		5200	-1.07	-2.11	0.27	1.73	11.00	PASS
		5240	-1.23	-2.10	0.27	1.64	11.00	PASS
	IEEE 802.11n HT40	5190	-3.86	-5.31	0.48	-1.03	11.00	PASS
		5230	-4.50	-5.68	0.48	-1.56	11.00	PASS
	IEEE 802.11ac VHT40	5190	-4.13	-5.74	0.47	-1.38	11.00	PASS
		5230	-4.78	-5.25	0.47	-1.52	11.00	PASS
	IEEE 802.11ac VHT80	5210	-7.55	-9.52	0.90	-4.51	11.00	PASS

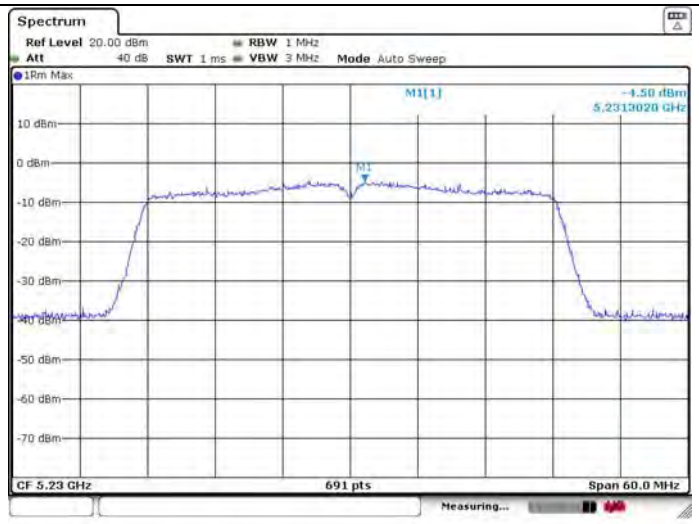
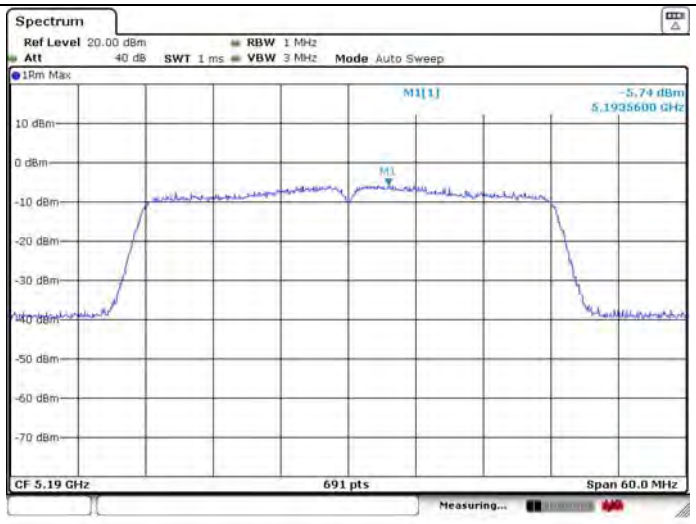
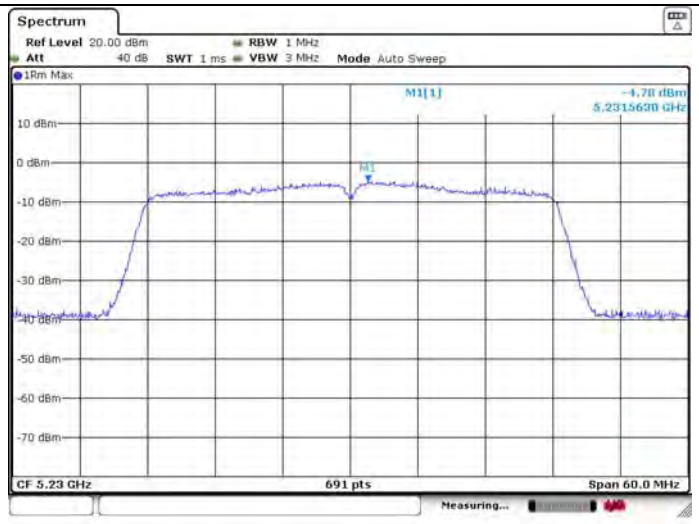
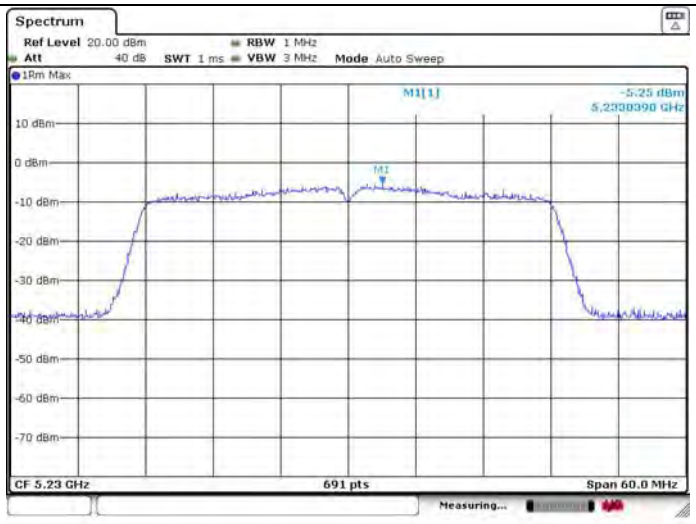
BAND	Test Mode	Fre (MHz)	Power Density (dBm/500KHz)		Duty Factor (dB)	Total Power Density (dBm/500KHz)	Limit (dBm/500KHz)	Result
			Ant 1	Ant 2				
U-NII-3	IEEE 802.11a	5745	4.82	3.74	0.23	5.05	30.00	PASS
		5785	4.79	3.70	0.23	5.02	30.00	PASS
		5825	5.05	4.26	0.23	5.28	30.00	PASS
	IEEE 802.11n HT20	5745	4.52	3.53	0.25	7.31	30.00	PASS
		5785	4.41	3.66	0.25	7.31	30.00	PASS
		5825	4.88	4.07	0.25	7.75	30.00	PASS
	IEEE 802.11ac VHT20	5745	4.05	2.84	0.27	6.77	30.00	PASS
		5785	4.02	3.10	0.27	6.87	30.00	PASS
		5825	3.81	3.31	0.27	6.85	30.00	PASS
	IEEE 802.11n HT40	5755	0.80	0.41	0.48	4.10	30.00	PASS
		5795	1.43	0.51	0.48	4.48	30.00	PASS
	IEEE 802.11ac VHT40	5755	0.89	-0.24	0.47	3.85	30.00	PASS
		5795	1.46	0.46	0.47	4.47	30.00	PASS
	IEEE 802.11ac VHT80	5775	-4.43	-4.85	0.90	-0.72	30.00	PASS

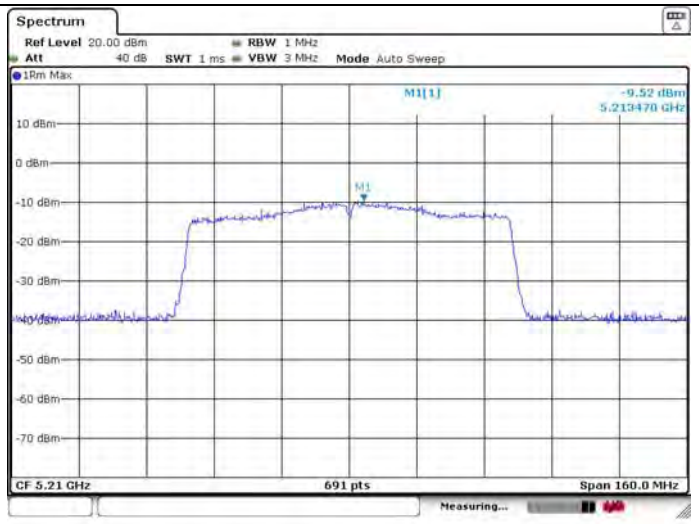
U-NII-1 IEEE 802.11a 5180MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11a 5200MHz	
ANT 1	
	
U-NII-1 IEEE 802.11a 5240MHz	
ANT 1	**ANT 2**
	

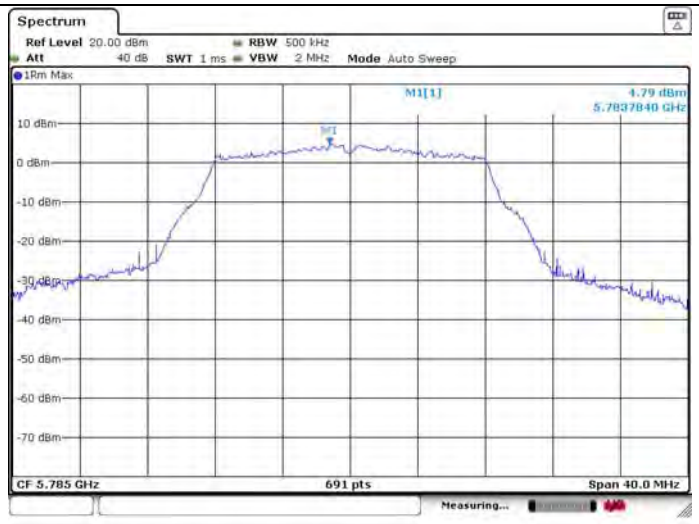
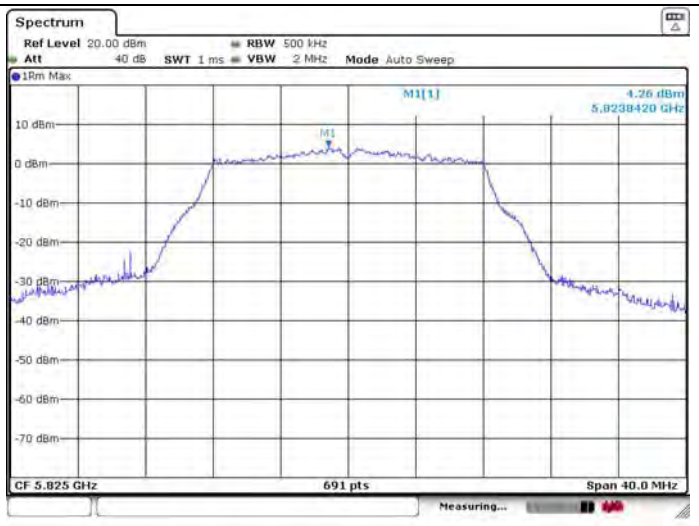
U-NII-1 IEEE 802.11n HT20 5180MHz	
ANT 1	**ANT 2**
	

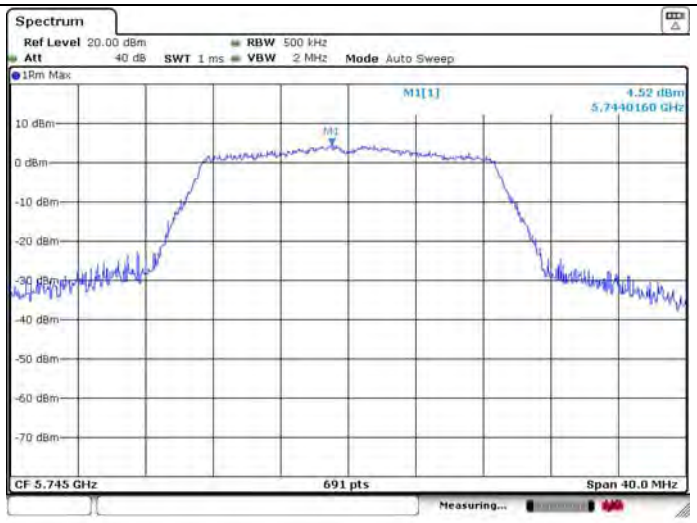
U-NII-1 IEEE 802.11n HT20 5200MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11n HT20 5240MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11ac VHT20 5180MHz	
ANT 1	**ANT 2**
	

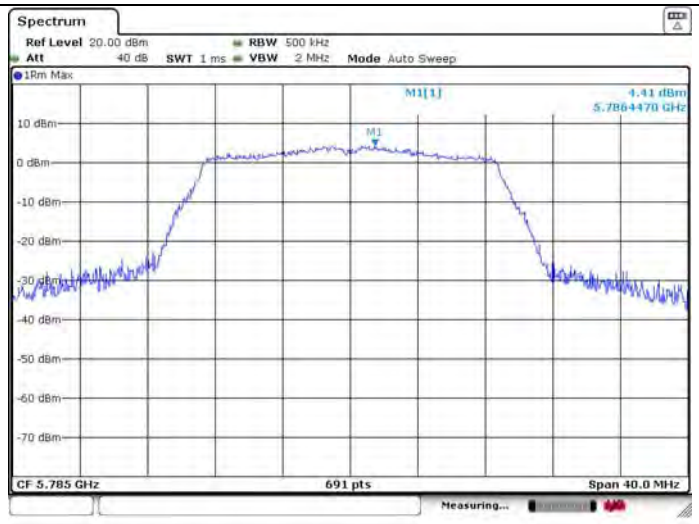
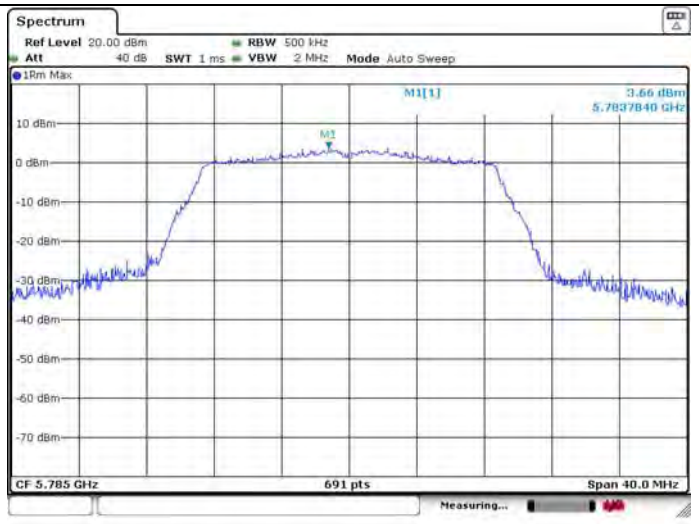
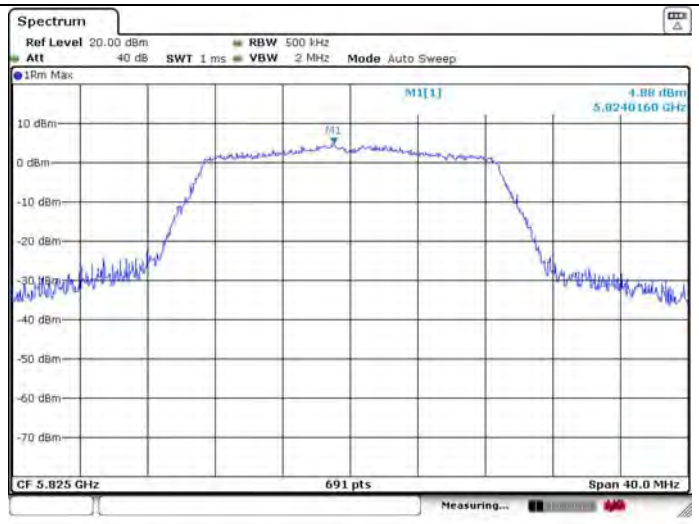
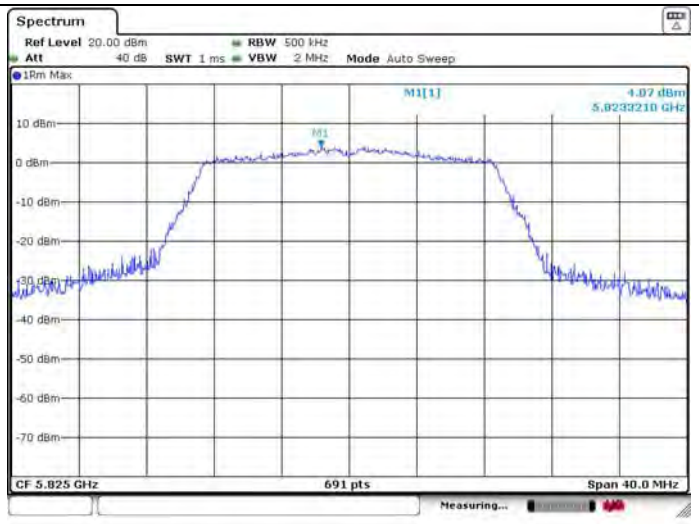
U-NII-1 IEEE 802.11ac VHT20 5200MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11ac VHT20 5240MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11n HT40 5190MHz	
ANT 1	**ANT 2**
	

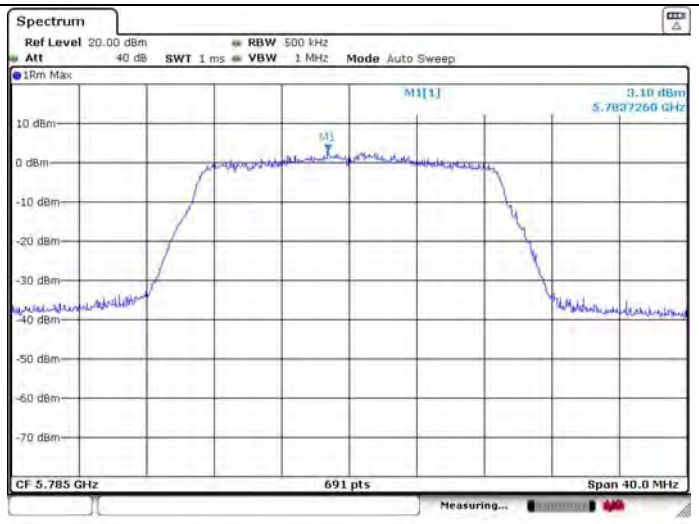
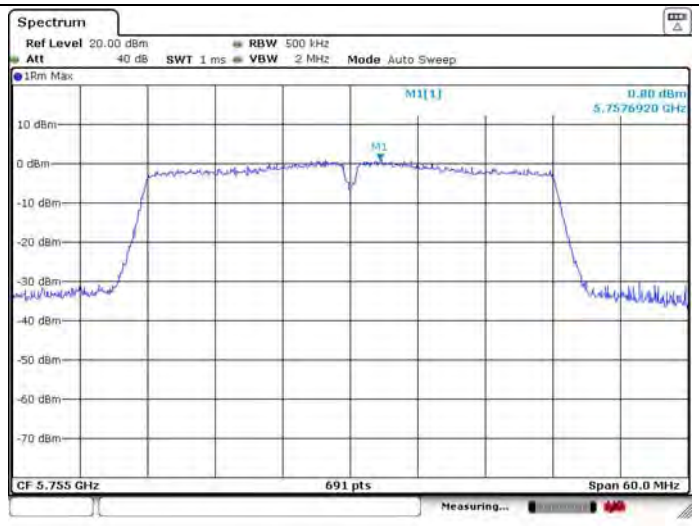
U-NII-1 IEEE 802.11n HT40 5230MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11ac VHT40 5190MHz	
ANT 1	**ANT 2**
	
U-NII-1 IEEE 802.11ac VHT40 5230MHz	
ANT 1	**ANT 2**
	

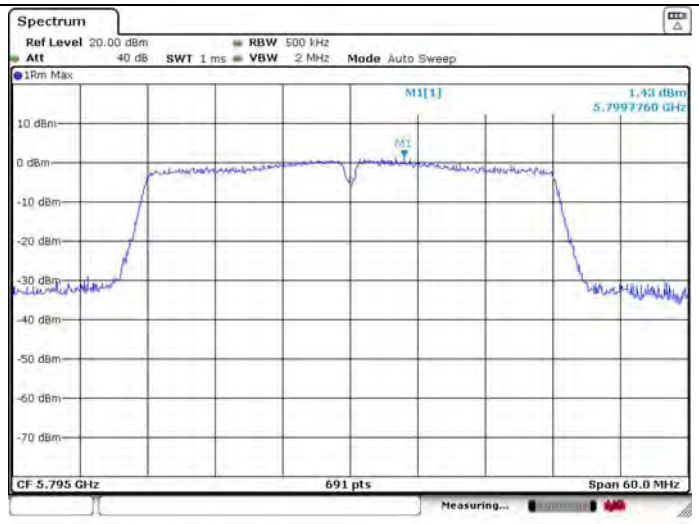
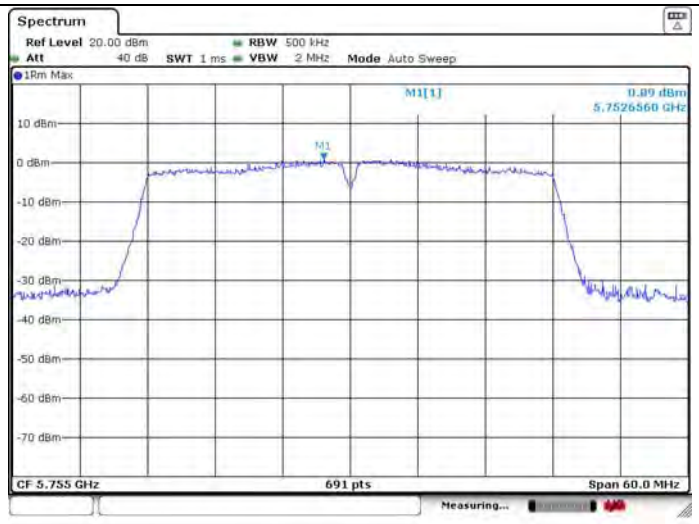
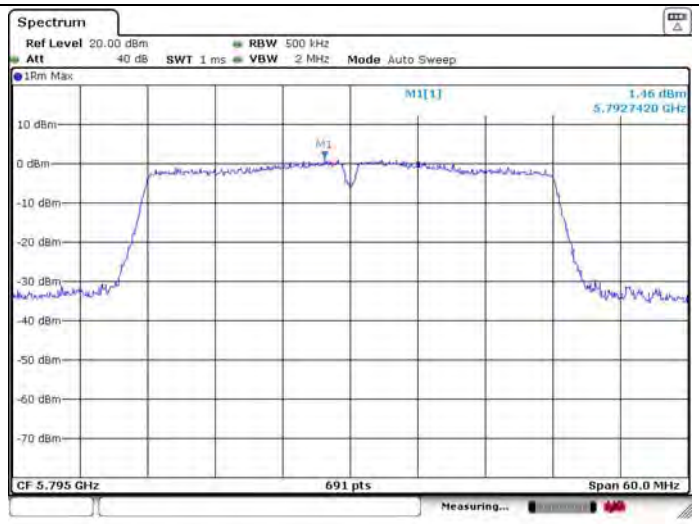
U-NII-1 IEEE 802.11ac VHT80 5210MHz	
ANT 1	**ANT 2**
	

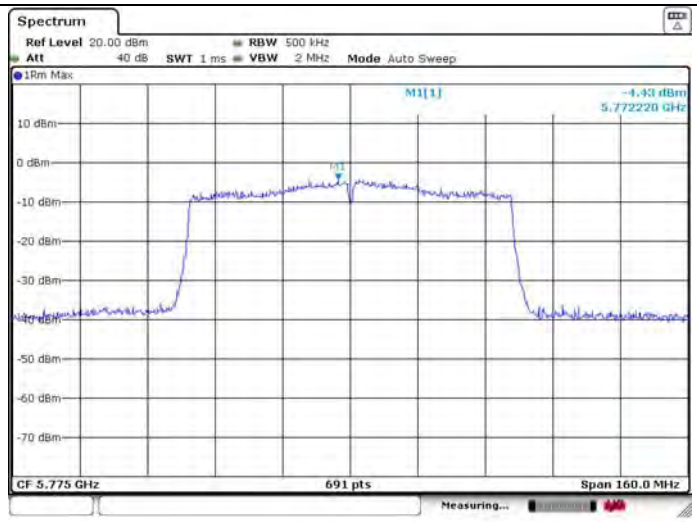
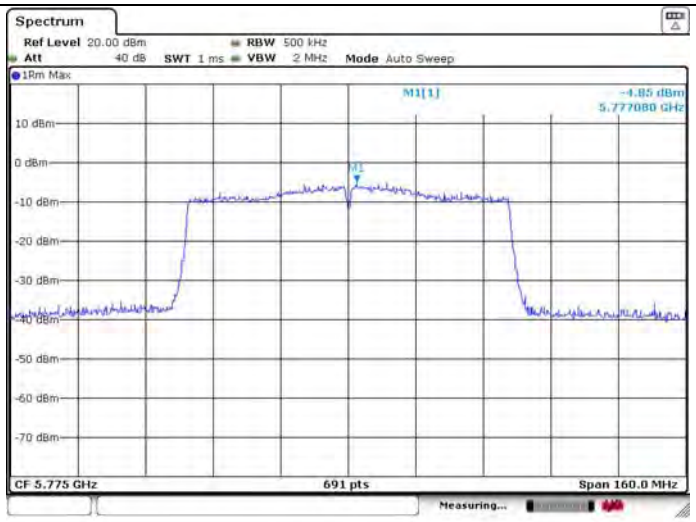
U-NII-3 IEEE 802.11a 5745MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11a 5785MHz	
ANT 1	
	
U-NII-3 IEEE 802.11a 5825MHz	
ANT 1	**ANT 2**
	

U-NII-3 IEEE 802.11n HT20 5745MHz	
ANT 1	**ANT 2**
	

U-NII-3 IEEE 802.11n HT20 5785MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11n HT20 5825MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11ac VHT20 5745MHz	
ANT 1	**ANT 2**
	

U-NII-3 IEEE 802.11ac VHT20 5785MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11ac VHT20 5825MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11n HT40 5755MHz	
ANT 1	**ANT 2**
	

U-NII-3 IEEE 802.11n HT40 5795MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11ac VHT40 5755MHz	
ANT 1	**ANT 2**
	
U-NII-3 IEEE 802.11ac VHT40 5795MHz	
ANT 1	**ANT 2**
	

U-NII-3 IEEE 802.11ac VHT80 5775MHz	
ANT 1	**ANT 2**
	

6. UNWANTED EMISSIONS AND BAND EDGE

6.1. Limit

The maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band: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.

The unwanted emissions which fall in Restricted bands shall not exceed the field strength levels specified in the following table:

15.209 Radiated emission limits

Frequency (MHz)	Field Strength(μV/m)	Distance(m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

15.205 Restricted frequency band

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])

Note：

1. dBμV/m=20Log(μV/m)
2. Above 1GHz the formula is used to convert the EIRP to field strength

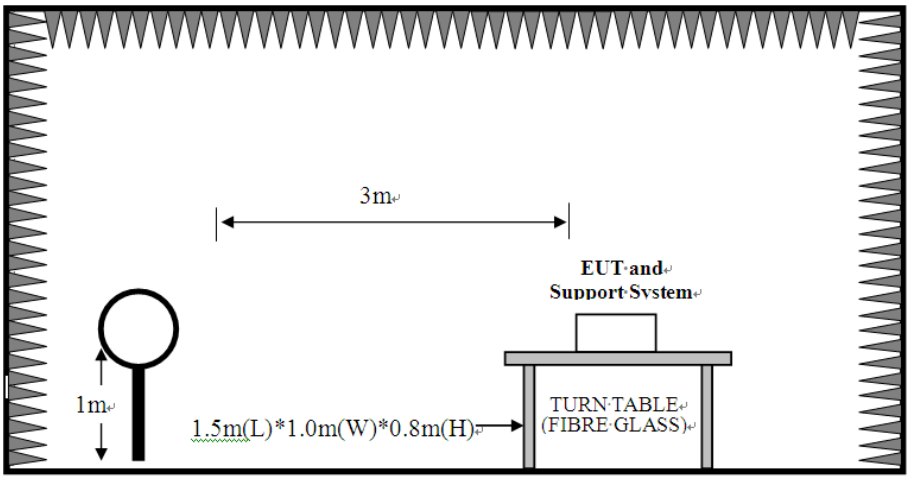
   E[dBμV/m] = EIRP[dBm] – 20 log (d[m]) + 104.77,

   where E is field strength and d is distance at which the field strength limit is specified in the applicable requirements.

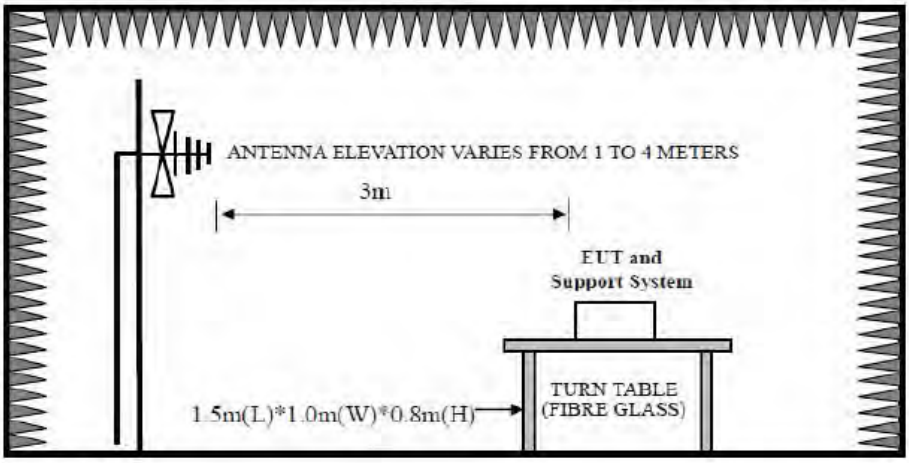
   for example,3m field strength(dBμV/m)=EIRP-20log(3)+104.77=EIRP+95.2

6.2. Test Setup

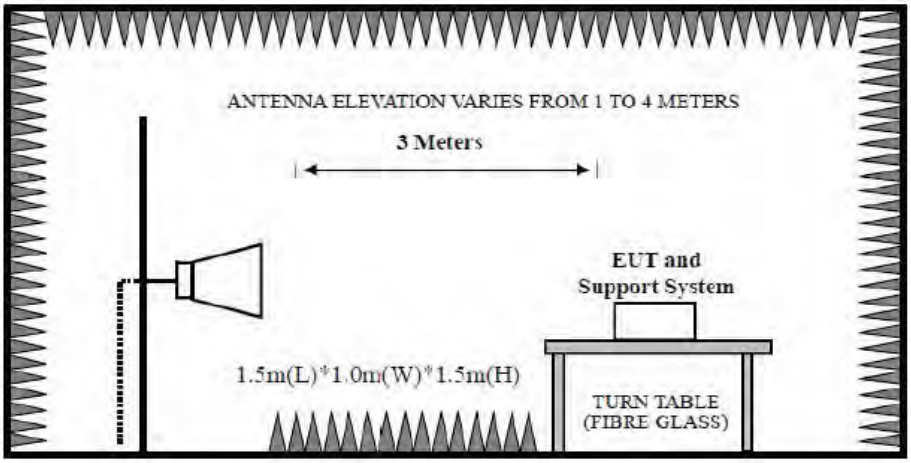
9kHz~30MHz



30~1000MHz



Above 1GHz



6.3. Spectrum Analyzer Setting

For 9KHz-150KHz

Spectrum Parameters	Setting
RBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
VBW	300Hz(for Peak&AVG)/CISPR 200Hz(for QP)
Start frequency	9KHz
Stop frequency	150KHz
Sweep Time	Auto
Detector	PEAK/QP/AVG
Trace Mode	Max Hold

Note : For 9KHz-90KHz&110KHz-150KHz,the detector is average,other frequency is CISPR QP detector.

For 150KHz-30MHz

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

Note : For 150KHz-490KHz,the detector is average,other frequency is CISPR QP detector.

For 30MHz-1GHz

Spectrum Parameters	Setting
RBW	120KHz
VBW	300KHz
Start frequency	30MHz
Stop frequency	1GHz
Sweep Time	Auto
Detector	QP
Trace Mode	Max Hold

For Above 1GHz

Spectrum Parameters	Setting	
RBW	1MHz	
VBW	PEAK Measurement	AVG Measurement
	3MHz	Duty cycle≥98%,VBW=10Hz Duty cycle＜98%,VBW≥1/T Video bandwidth mode=RMS (power averaging)
Start frequency	1GHz	
Stop frequency	25GHz	
Sweep Time	Auto	
Detector	PEAK	
Trace Mode	Max Hold	

Note : T is the on-time time of the duty cycle,when EUT transmit continuously with maximum output power,unit is seconds. reference section 2.7 for the on-time time.

6.4. Test Procedure

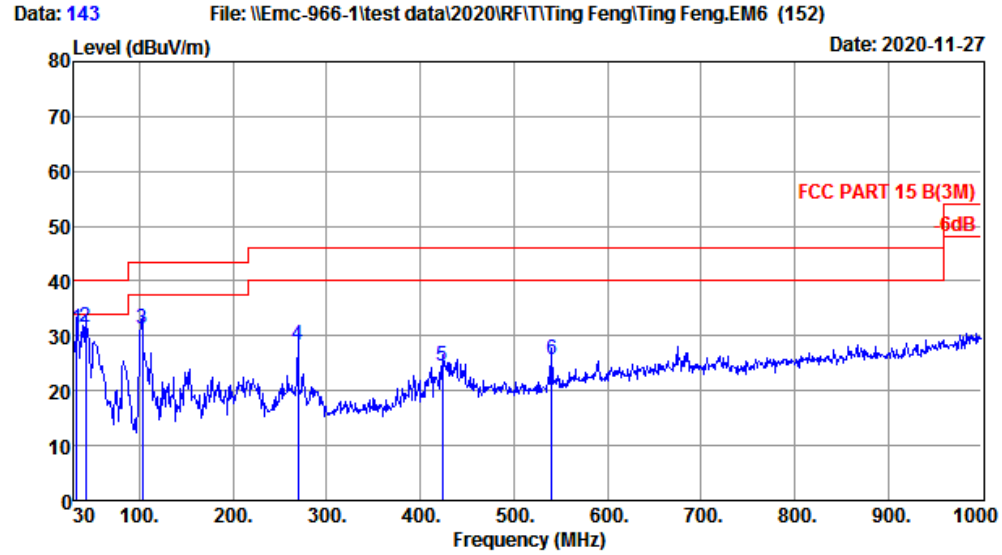
a. EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
b. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
c. Set the EUT transmit continuously with maximum output power.
d. The turn table can rotate 360 degrees to determine the position of the maximum emission level.
e. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.
f. Spectrum analyzer setting parameters in accordance with section 6.3.
g. Repeat above procedures until all channels were measured.
h. Record the results in the test report.

6.5. Test Result

Radiated Emissions Below 1GHz

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



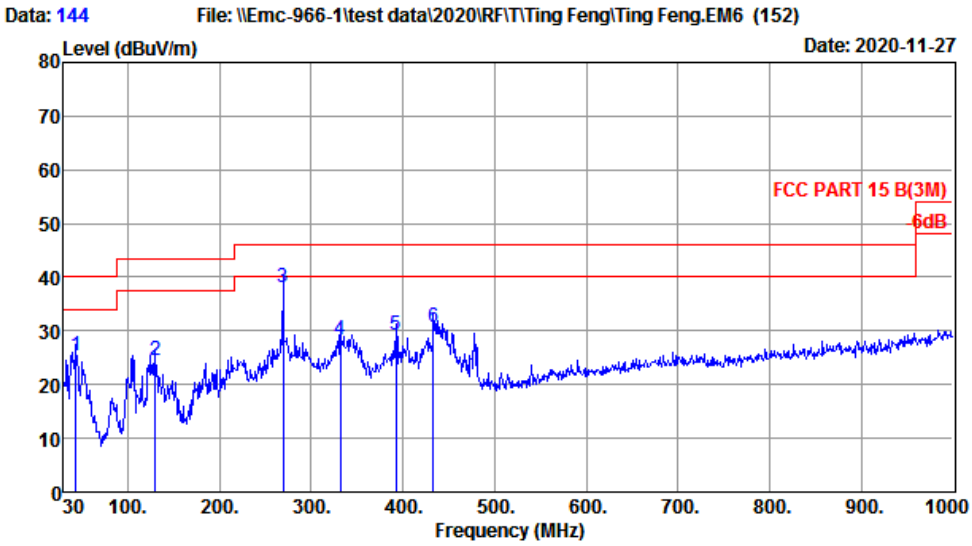

```
Site no.      : 1# 966 Chamber              Data no.  : 143
Dis. / Ant.   : 3m   37062                  Ant. pol. : VERTICAL
Limit         : FCC PART 15 B(3M)
Env. / Ins.   : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer      : Carlos
EUT           : MULTICONNECTED WIRELESS LOUDSPEAKER
Power         : AC 120V/60Hz
M/N           : ADDON C10 MkII
Test Mode     : TX Mode
```

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	32.91	16.20	0.16	15.04	31.40	40.00	8.60	QP
2	42.61	11.00	0.24	20.40	31.64	40.00	8.36	QP
3	102.75	10.00	0.88	20.35	31.23	43.50	12.27	QP
4	269.59	13.00	1.73	13.54	28.27	46.00	17.73	QP
5	423.82	16.78	2.27	5.41	24.46	46.00	21.54	QP
6	540.22	19.10	2.80	3.81	25.71	46.00	20.29	QP

```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official limit are not reported.
```

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



Site no. : 1# 966 Chamber Data no. : 144
Dis. / Ant. : 3m 37062 Ant. pol. : HORIZONTAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa
Engineer : Carlos
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : TX Mode

	Freq. (MHz)	ANT Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	43.58	10.50	0.24	14.74	25.48	40.00	14.52	QP
2	129.91	11.70	0.98	11.69	24.37	43.50	19.13	QP
3	269.59	13.00	1.73	23.46	38.19	46.00	7.81	QP
4	331.67	14.62	2.00	11.85	28.47	46.00	17.53	QP
5	392.78	16.20	2.13	11.03	29.36	46.00	16.64	QP
6	433.52	16.90	2.35	11.38	30.63	46.00	15.37	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

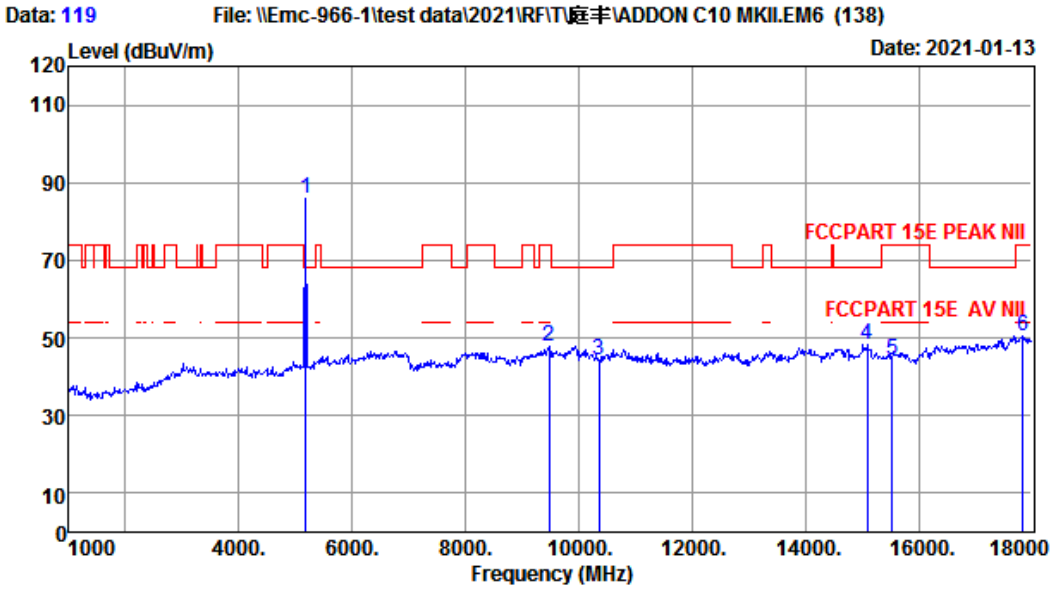
Note:

1. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All channels had been pre-test,only the worst case was reported.

Radiated Emissions Above 1G

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



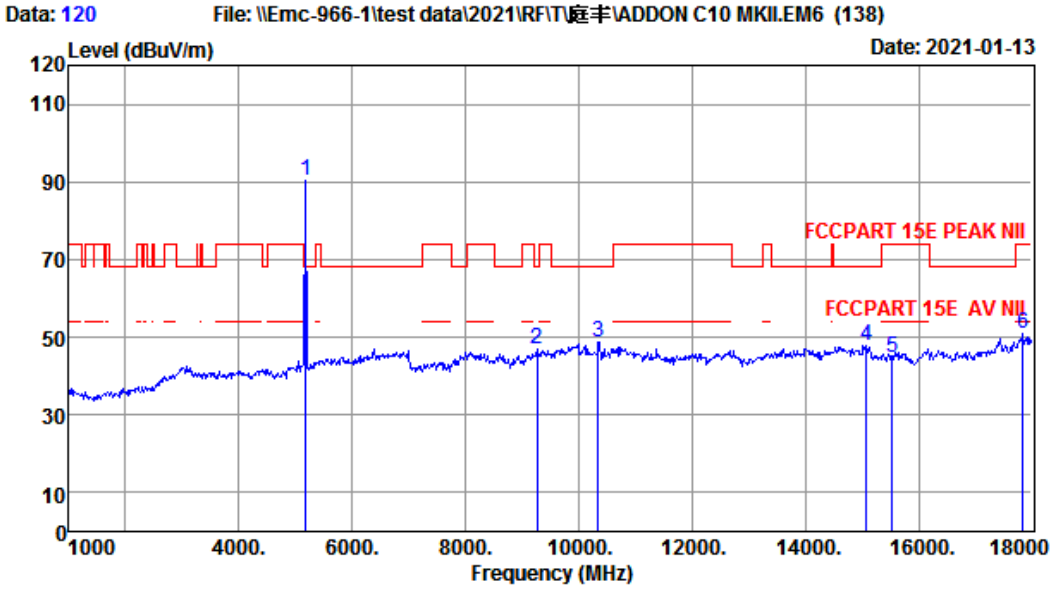
Site no. : 1# 966 Chamber Data no. : 119
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5180MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5180.00	32.20	3.52	34.63	84.67	85.76	68.20	-17.56	Peak
2	9483.00	37.87	5.49	34.30	38.63	47.69	74.00	26.31	Peak
3	10360.00	39.27	5.99	34.31	33.52	44.47	68.20	23.73	Peak
4	15093.00	40.81	6.74	34.57	35.26	48.24	68.20	19.96	Peak
5	15540.00	40.31	6.46	34.39	31.90	44.28	74.00	29.72	Peak
6	17847.00	47.68	8.14	34.32	28.86	50.36	74.00	23.64	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



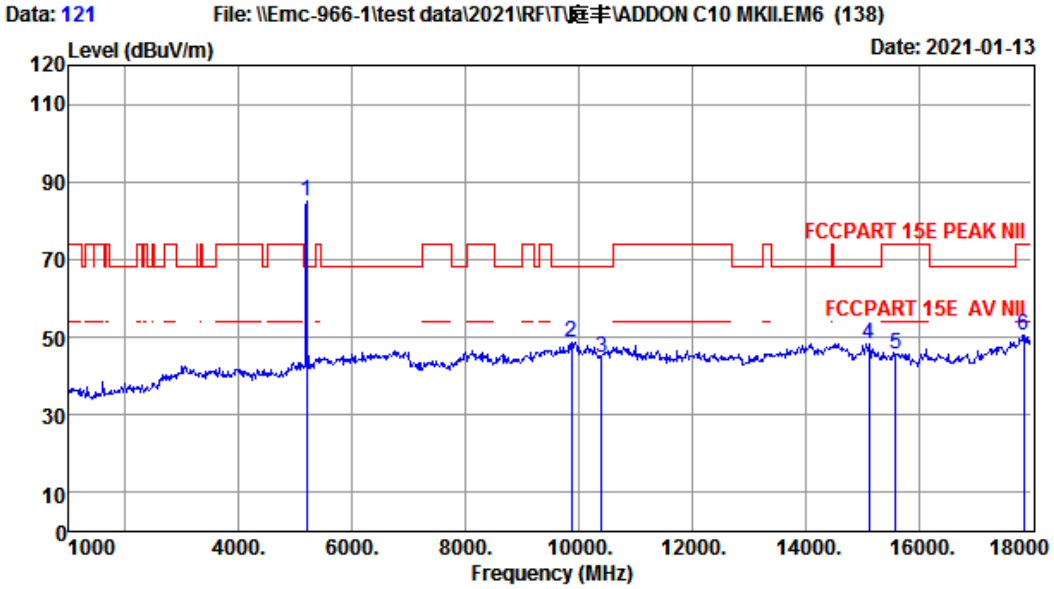
Site no. : 1# 966 Chamber Data no. : 120
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5180MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5182.00	32.20	3.52	34.63	89.38	90.47	68.20	-22.27	Peak
2	9262.00	37.42	5.40	34.35	38.60	47.07	68.20	21.13	Peak
3	10350.00	39.26	5.98	34.31	37.85	48.78	68.20	19.42	Peak
4	15076.00	40.82	6.76	34.57	34.65	47.66	68.20	20.54	Peak
5	15535.00	40.31	6.46	34.39	32.48	44.86	74.00	29.14	Peak
6	17847.00	47.68	8.14	34.32	29.24	50.74	74.00	23.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



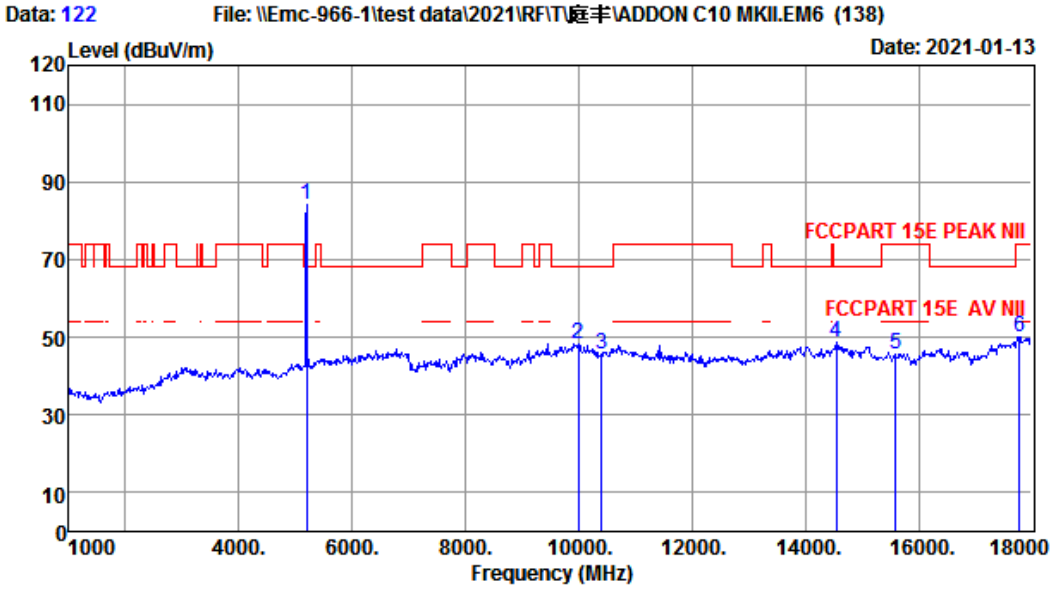
Site no. : 1# 966 Chamber Data no. : 121
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5200MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5200.00	32.24	3.53	34.62	83.73	84.88	68.20	-16.68	Peak
2	9874.00	38.66	5.80	34.22	38.55	48.79	68.20	19.41	Peak
3	10400.00	39.31	5.99	34.32	33.69	44.67	68.20	23.53	Peak
4	15127.00	40.77	6.72	34.55	35.44	48.38	68.20	19.82	Peak
5	15600.00	40.24	6.53	34.36	33.22	45.63	74.00	28.37	Peak
6	17864.00	47.82	8.15	34.31	28.67	50.33	74.00	23.67	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



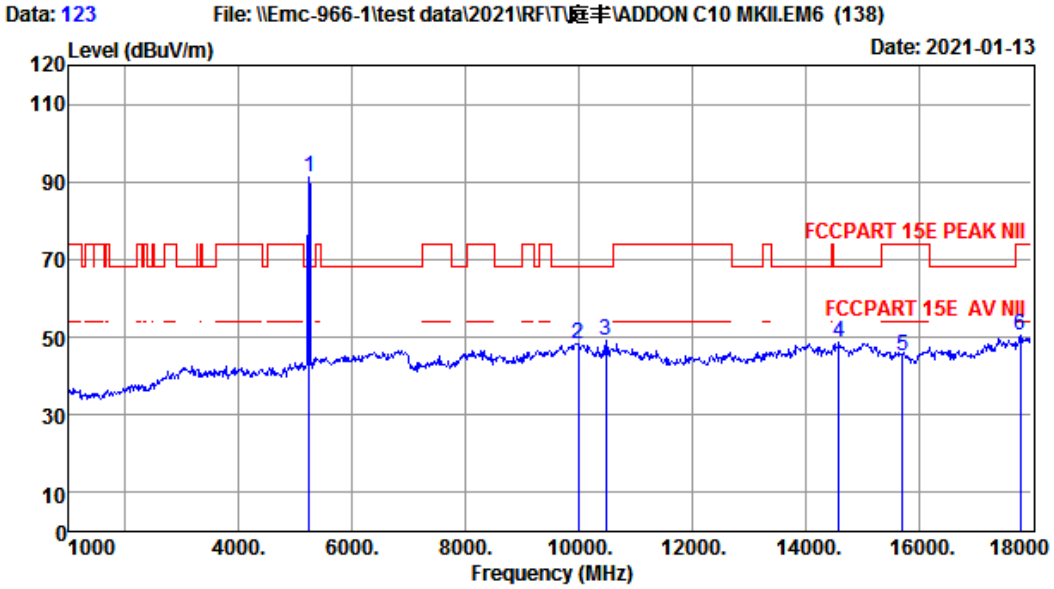
Site no. : 1# 966 Chamber Data no. : 122
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5200MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5200.00	32.24	3.53	34.62	82.87	84.02	68.20	-15.82	Peak
2	9993.00	38.90	5.89	34.20	37.89	48.48	68.20	19.72	Peak
3	10400.00	39.31	5.99	34.32	34.52	45.50	68.20	22.70	Peak
4	14549.00	40.99	6.89	34.46	35.12	48.54	68.20	19.66	Peak
5	15600.00	40.24	6.53	34.36	32.99	45.40	74.00	28.60	Peak
6	17779.00	47.14	8.10	34.32	29.02	49.94	74.00	24.06	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



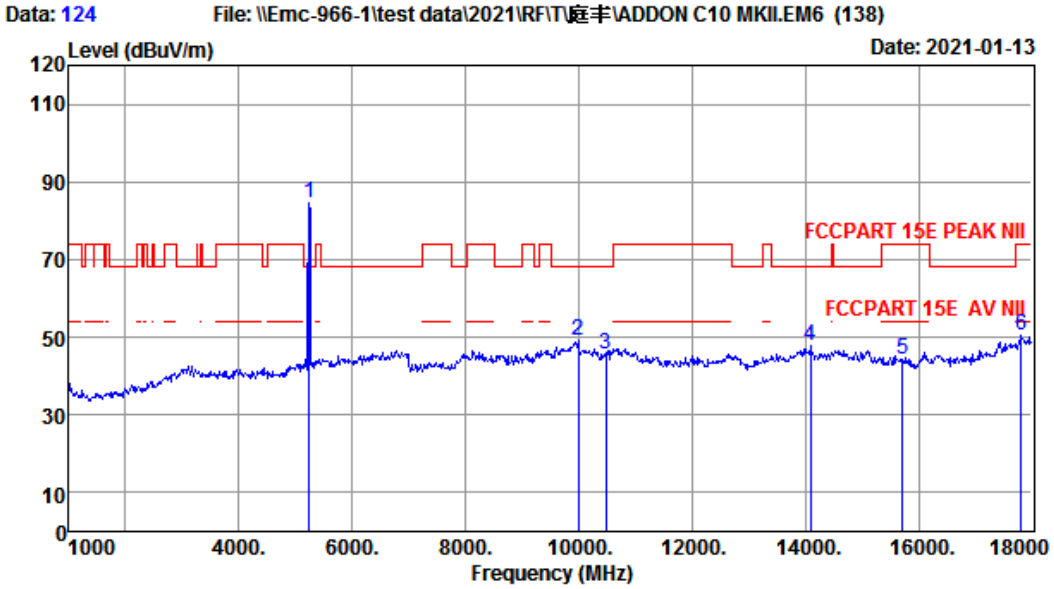
Site no. : 1# 966 Chamber Data no. : 123
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5240MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5240.00	32.31	3.55	34.61	90.16	91.41	68.20	-23.21	Peak
2	9993.00	38.90	5.89	34.20	37.75	48.34	68.20	19.86	Peak
3	10480.00	39.39	6.02	34.35	38.04	49.10	68.20	19.10	Peak
4	14600.00	40.98	6.88	34.48	35.28	48.66	68.20	19.54	Peak
5	15720.00	40.10	6.65	34.31	32.67	45.11	74.00	28.89	Peak
6	17796.00	47.27	8.11	34.32	29.32	50.38	74.00	23.62	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



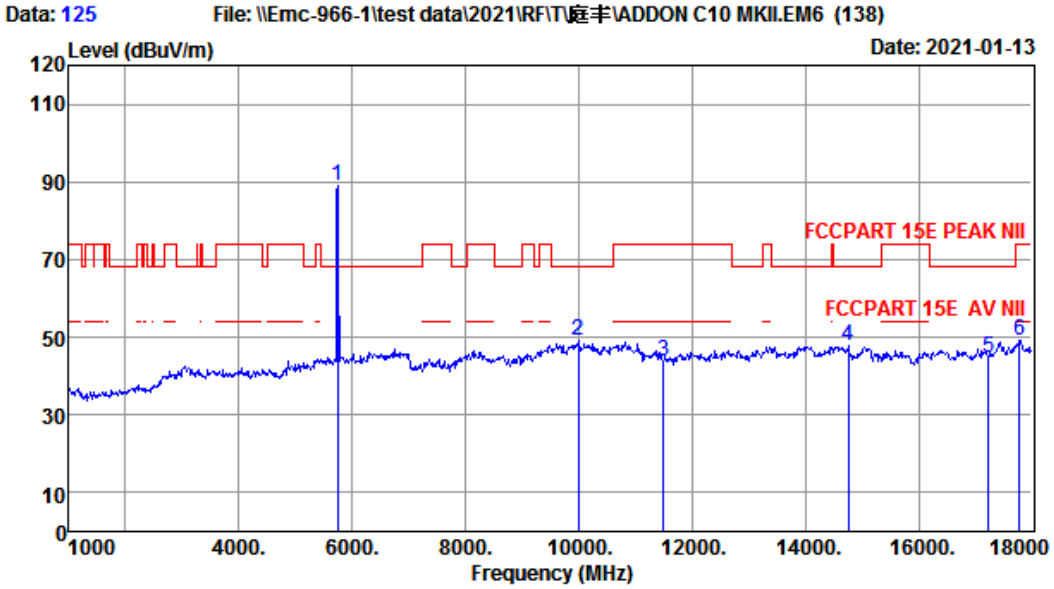

```
Site no.      : 1# 966 Chamber              Data no.  : 124
Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : VERTICAL
Limit         : FCCPART 15E PEAK NII
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : MULTICONNECTED WIRELESS LOUDSPEAKER
Power         : AC 120V/60Hz
M/N           : ADDON C10 MkII
Test Mode     : IEEE 802.11N20 TX 5240MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5240.00	32.31	3.55	34.61	83.40	84.65	68.20	-16.45	Peak
2	9993.00	38.90	5.89	34.20	38.58	49.17	68.20	19.03	Peak
3	10480.00	39.39	6.02	34.35	34.69	45.75	68.20	22.45	Peak
4	14090.00	41.08	6.59	34.33	34.34	47.68	68.20	20.52	Peak
5	15720.00	40.10	6.65	34.31	31.74	44.18	74.00	29.82	Peak
6	17813.00	47.41	8.12	34.32	29.28	50.49	74.00	23.51	Peak

```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official
            limit are not reported.
```

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



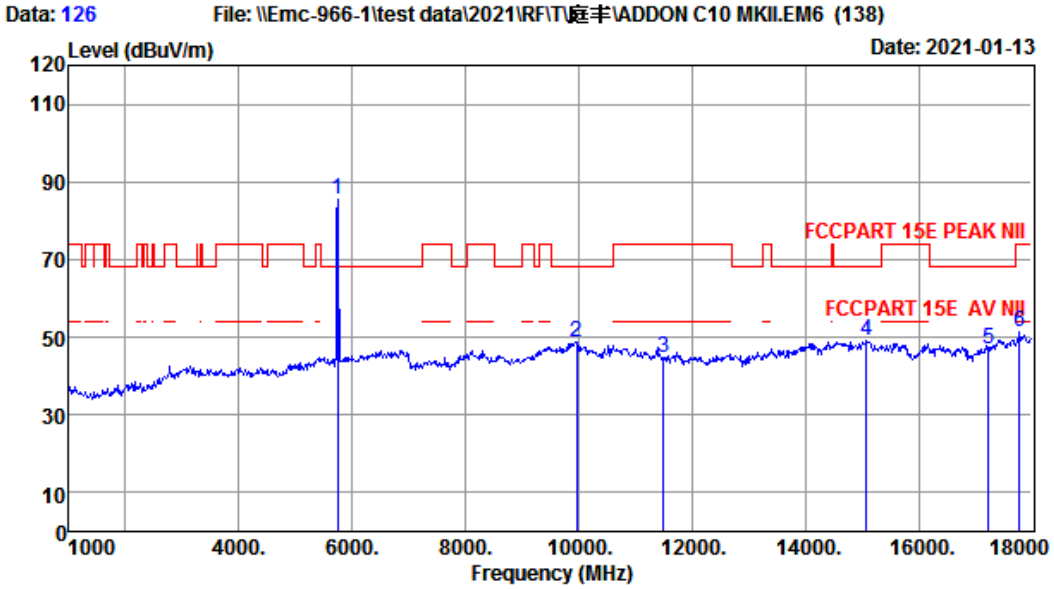
Site no. : 1# 966 Chamber Data no. : 125
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5745MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5745.00	32.85	4.00	34.40	86.54	88.99	68.20	-20.79	Peak
2	9993.00	38.90	5.89	34.20	38.58	49.17	68.20	19.03	Peak
3	11490.00	39.90	6.15	34.65	32.34	43.74	74.00	30.26	Peak
4	14753.00	40.95	6.86	34.52	34.73	48.02	68.20	20.18	Peak
5	17235.00	42.80	7.65	34.38	28.49	44.56	68.20	23.64	Peak
6	17779.00	47.14	8.10	34.32	28.28	49.20	74.00	24.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



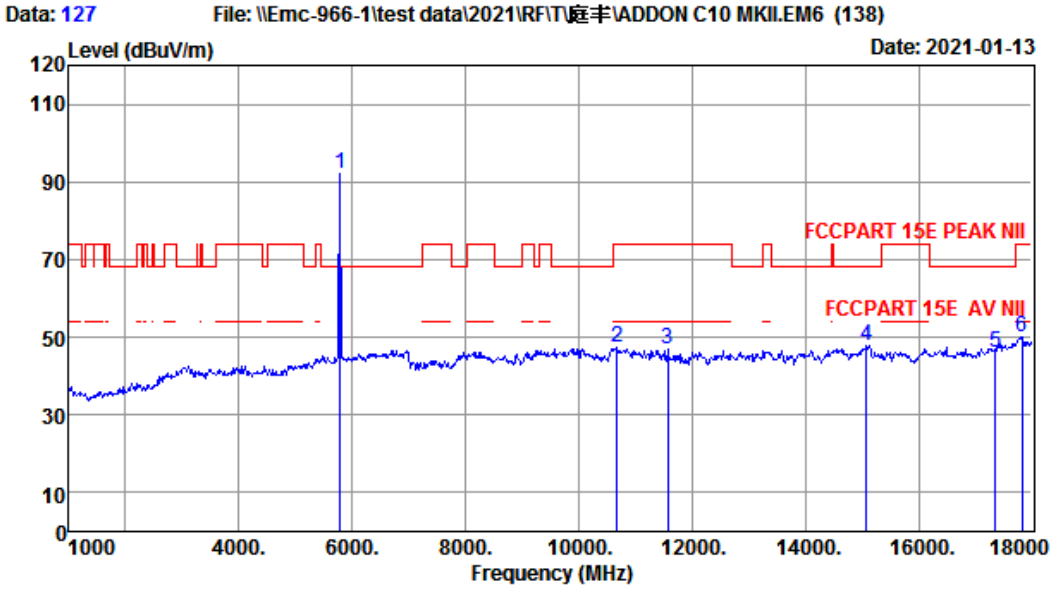
Site no. : 1# 966 Chamber Data no. : 126
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5745MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5745.00	32.85	4.00	34.40	83.19	85.64	68.20	-17.44	Peak
2	9959.00	38.83	5.86	34.21	38.38	48.86	68.20	19.34	Peak
3	11490.00	39.90	6.15	34.65	33.29	44.69	74.00	29.31	Peak
4	15076.00	40.82	6.76	34.57	36.23	49.24	68.20	18.96	Peak
5	17235.00	42.80	7.65	34.38	31.06	47.13	68.20	21.07	Peak
6	17779.00	47.14	8.10	34.32	30.33	51.25	74.00	22.75	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



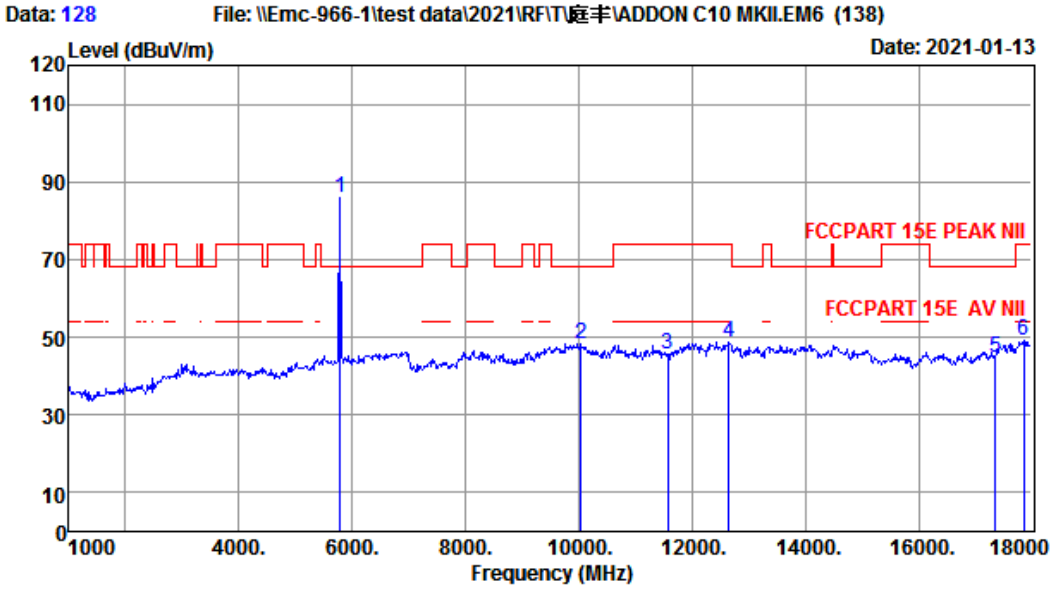
Site no. : 1# 966 Chamber Data no. : 127
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5785MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5785.00	32.84	4.05	34.39	89.61	92.11	68.20	-23.91	Peak
2	10673.00	39.58	6.05	34.40	35.95	47.18	74.00	26.82	Peak
3	11570.00	39.90	6.12	34.67	35.56	46.91	74.00	27.09	Peak
4	15076.00	40.82	6.76	34.57	34.86	47.87	68.20	20.33	Peak
5	17355.00	43.75	7.77	34.36	28.71	45.87	68.20	22.33	Peak
6	17830.00	47.54	8.13	34.32	28.80	50.15	74.00	23.85	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



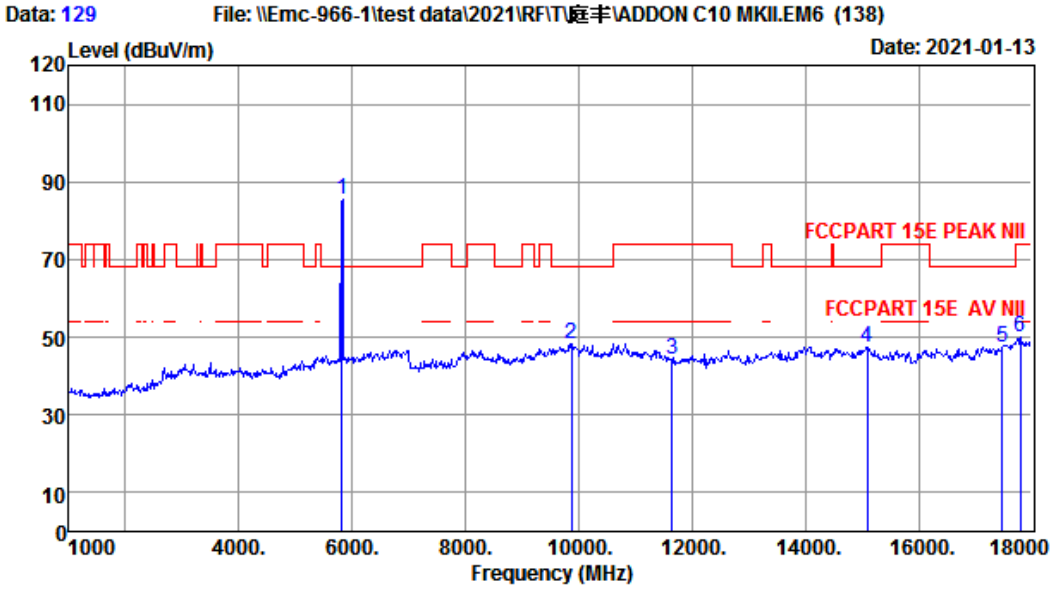
Site no. : 1# 966 Chamber Data no. : 128
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5785MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5785.00	32.84	4.05	34.39	83.30	85.80	68.20	-17.60	Peak
2	10044.00	38.95	5.90	34.22	37.78	48.41	68.20	19.79	Peak
3	11570.00	39.90	6.12	34.67	34.35	45.70	74.00	28.30	Peak
4	12645.00	39.58	6.23	34.54	37.25	48.52	74.00	25.48	Peak
5	17355.00	43.75	7.77	34.36	27.68	44.84	68.20	23.36	Peak
6	17864.00	47.82	8.15	34.31	27.64	49.30	74.00	24.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



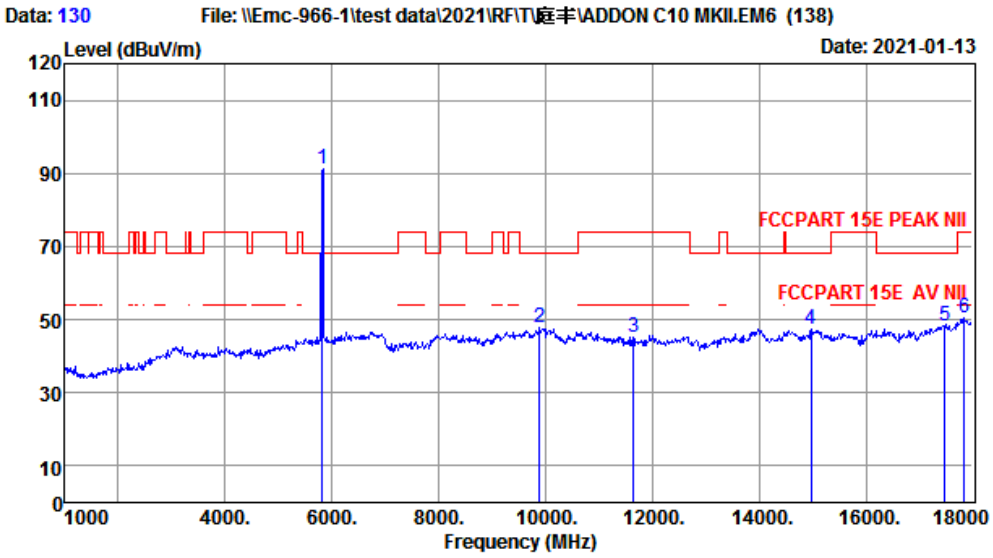
Site no. : 1# 966 Chamber Data no. : 129
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5825MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5825.00	32.83	4.11	34.37	82.79	85.36	68.20	-17.16	Peak
2	9874.00	38.66	5.80	34.22	38.23	48.47	68.20	19.73	Peak
3	11650.00	39.90	6.08	34.69	33.21	44.50	74.00	29.50	Peak
4	15093.00	40.81	6.74	34.57	34.55	47.53	68.20	20.67	Peak
5	17475.00	44.70	7.89	34.35	29.06	47.30	68.20	20.90	Peak
6	17796.00	47.27	8.11	34.32	29.14	50.20	74.00	23.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878




```
Site no.      : 1# 966 Chamber              Data no.  : 130
Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : HORIZONTAL
Limit         : FCCPART 15E PEAK NII
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : MULTICONNECTED WIRELESS LOUDSPEAKER
Power         : AC 120V/60Hz
M/N           : ADDON C10 MkII
Test Mode     : IEEE 802.11N20 TX 5825MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5825.00	32.83	4.11	34.37	88.51	91.08	68.20	-22.88	Peak
2	9891.00	38.69	5.81	34.22	37.52	47.80	68.20	20.40	Peak
3	11650.00	39.90	6.08	34.69	33.96	45.25	74.00	28.75	Peak
4	14974.00	40.91	6.82	34.59	34.25	47.39	68.20	20.81	Peak
5	17475.00	44.70	7.89	34.35	29.87	48.11	68.20	20.09	Peak
6	17847.00	47.68	8.14	34.32	29.05	50.55	74.00	23.45	Peak

```
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
         2. Margin= Limit - Emission Level.
         3. The emission levels that are 20dB below the official
            limit are not reported.
```

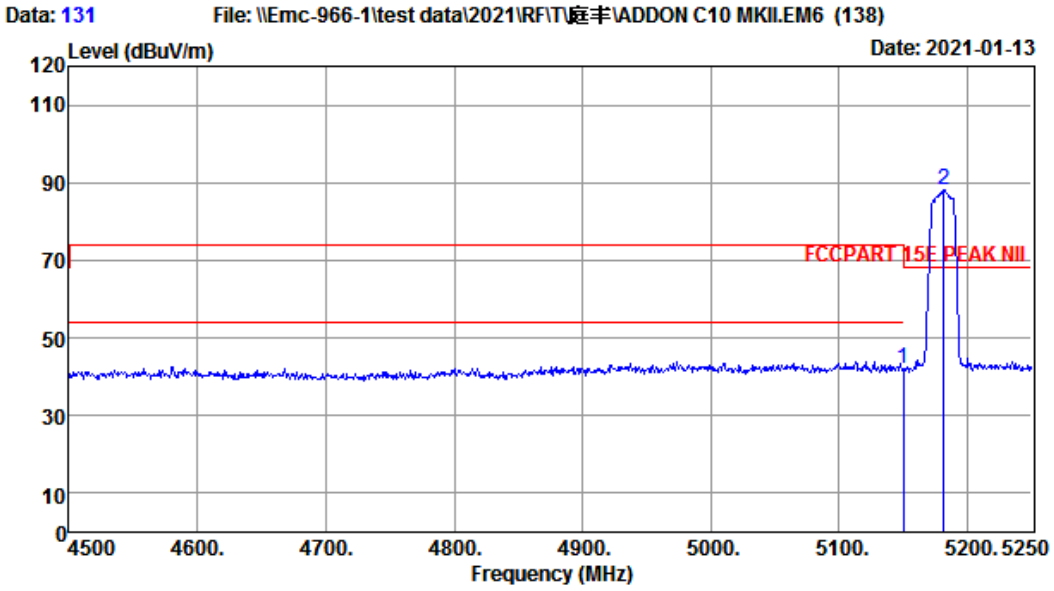
Note:

1. The amplitude of 18GHz to 25GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Radiated Band Edge

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



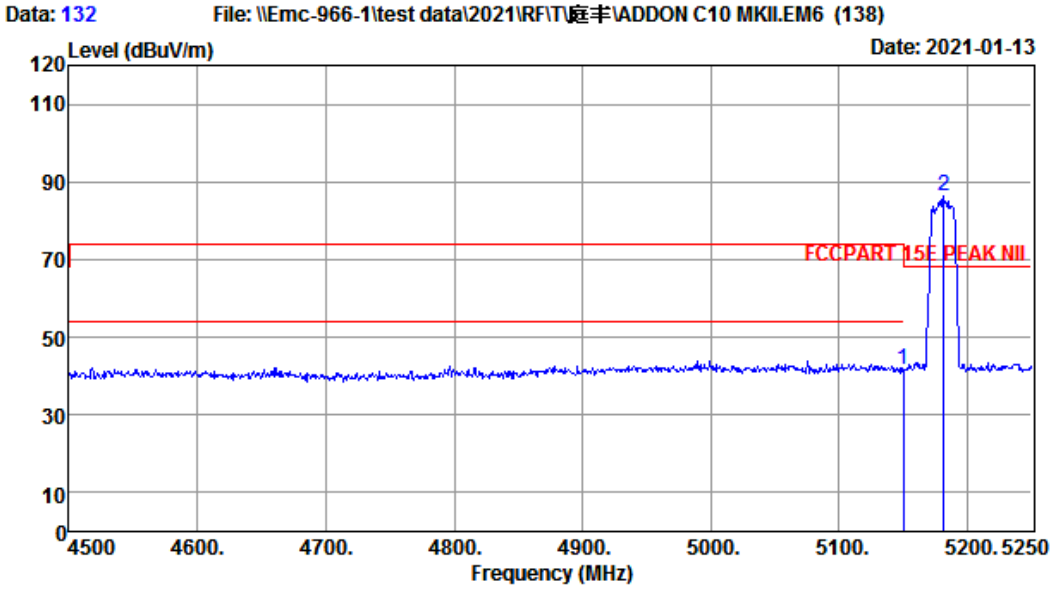
Site no. : 1# 966 Chamber Data no. : 131
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5180MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5150.00	32.13	3.50	34.64	41.23	42.22	68.20	25.98	Peak
2	5181.75	32.20	3.52	34.63	87.02	88.11	68.20	-19.91	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



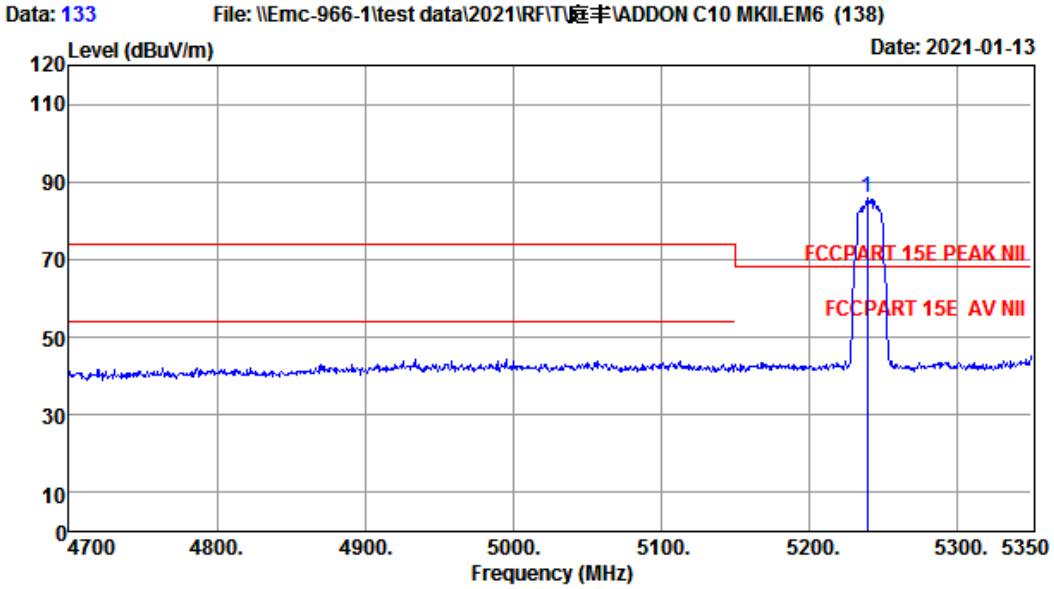
Site no. : 1# 966 Chamber Data no. : 132
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5180MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5150.00	32.13	3.50	34.64	40.57	41.56	68.20	26.64	Peak
2	5181.75	32.20	3.52	34.63	85.20	86.29	68.20	-18.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



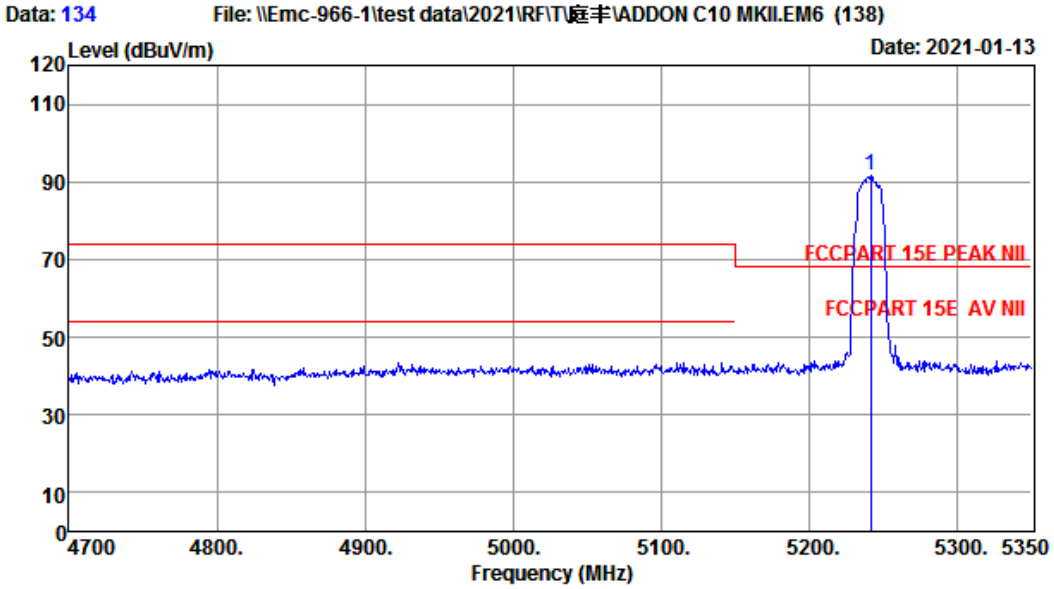
Site no. : 1# 966 Chamber Data no. : 133
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5240MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5238.85	32.31	3.55	34.61	84.54	85.79	68.20	-17.59	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



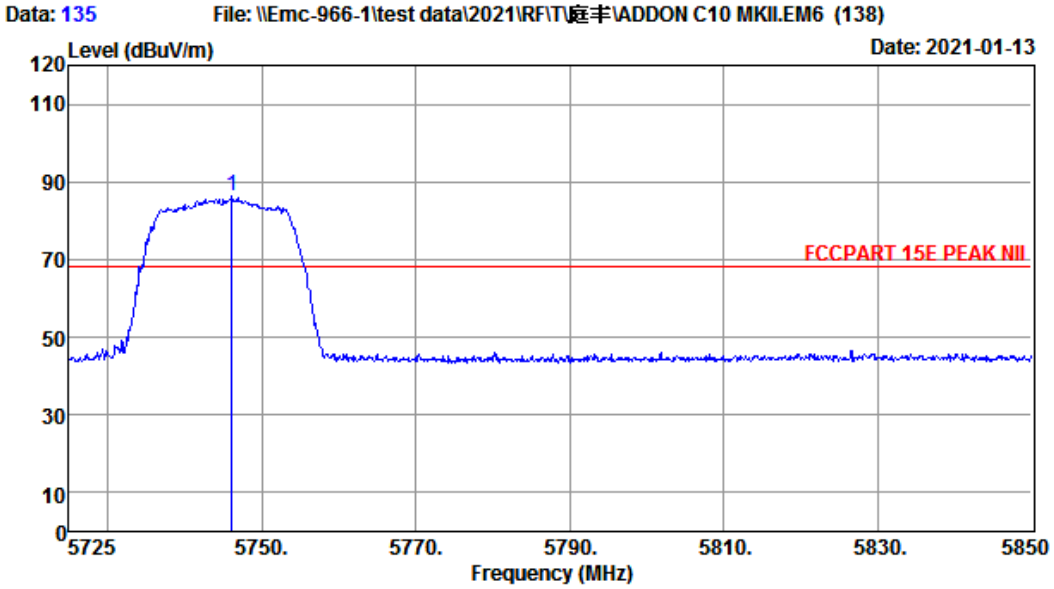
Site no. : 1# 966 Chamber Data no. : 134
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5240MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5241.45	32.31	3.55	34.61	90.34	91.59	68.20	-23.39	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



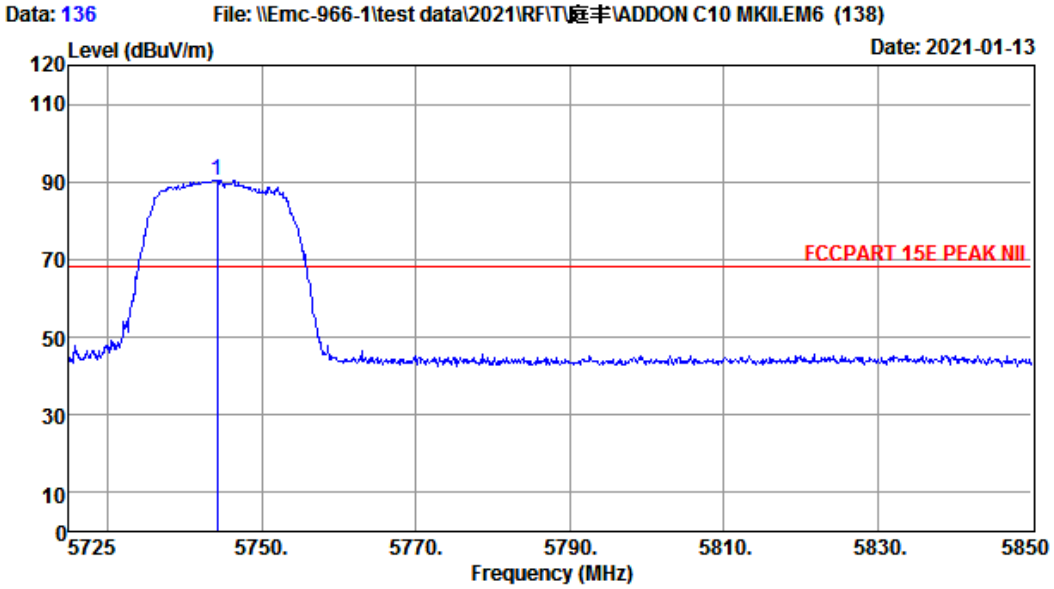
Site no. : 1# 966 Chamber Data no. : 135
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5745MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5746.13	32.85	4.00	34.40	83.69	86.14	68.20	-17.94	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



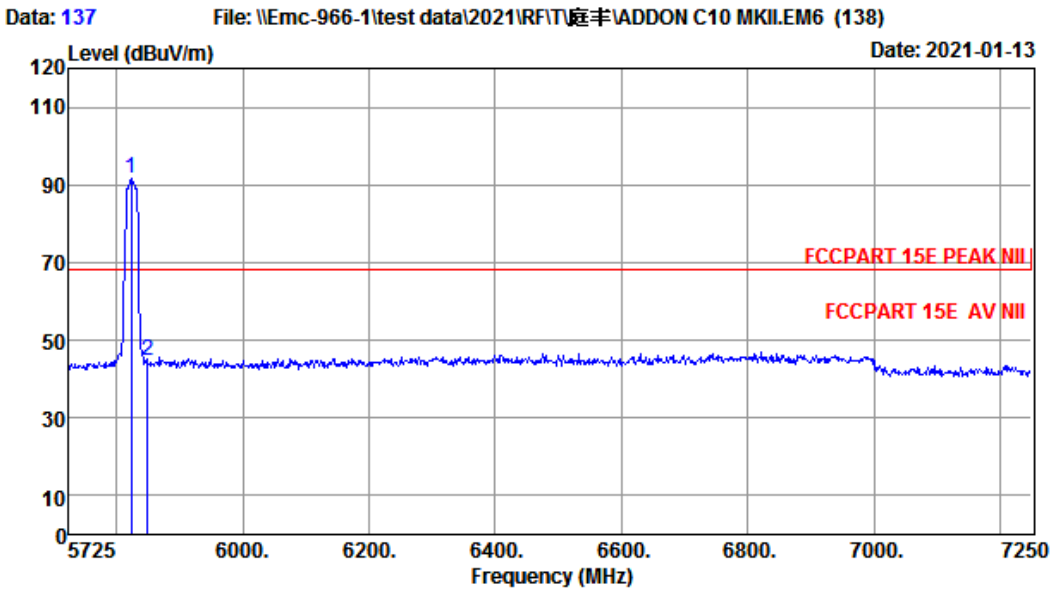
Site no. : 1# 966 Chamber Data no. : 136
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5745MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5744.25	32.85	4.00	34.40	88.02	90.47	68.20	-22.27	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



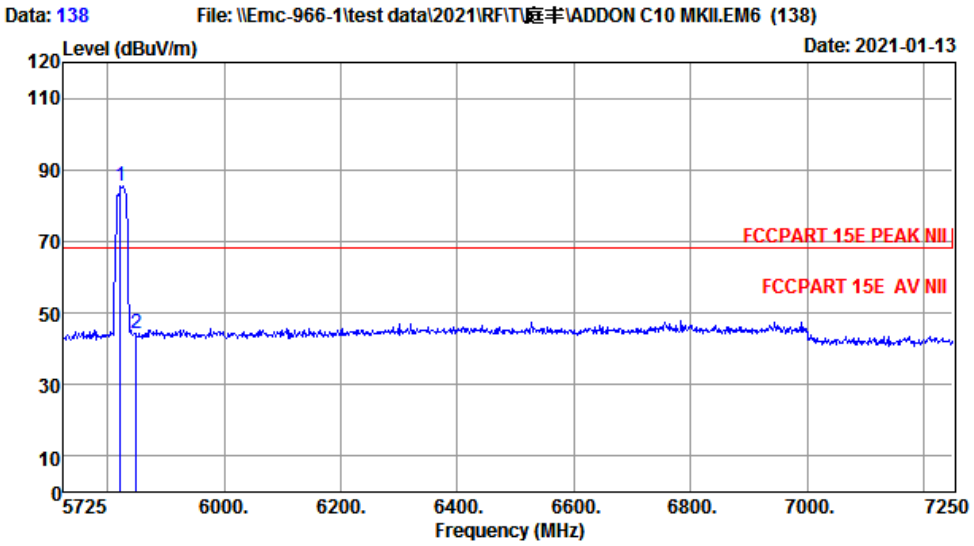
Site no. : 1# 966 Chamber Data no. : 137
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer : Pablo
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : IEEE 802.11N20 TX 5825MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5824.13	32.83	4.11	34.37	89.05	91.62	68.20	-23.42	Peak
2	5850.00	32.83	4.13	34.36	41.99	44.59	68.20	23.61	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878




```
Site no.      : 1# 966 Chamber              Data no.  : 138
Dis. / Ant.   : 3m   ANT9120D 1-18G         Ant. pol. : VERTICAL
Limit         : FCCPART 15E PEAK NII
Env. / Ins.   : Temp:21.2';Humi:50.5%;Press:101.52kPa
Engineer      : Pablo
EUT           : MULTICONNECTED WIRELESS LOUDSPEAKER
Power         : AC 120V/60Hz
M/N           : ADDON C10 MkII
Test Mode     : IEEE 802.11N20 TX 5825MHz
```

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5822.60	32.83	4.11	34.37	82.96	85.53	68.20	-17.33	Peak
2	5850.00	32.83	4.13	34.36	41.67	44.27	68.20	23.93	Peak

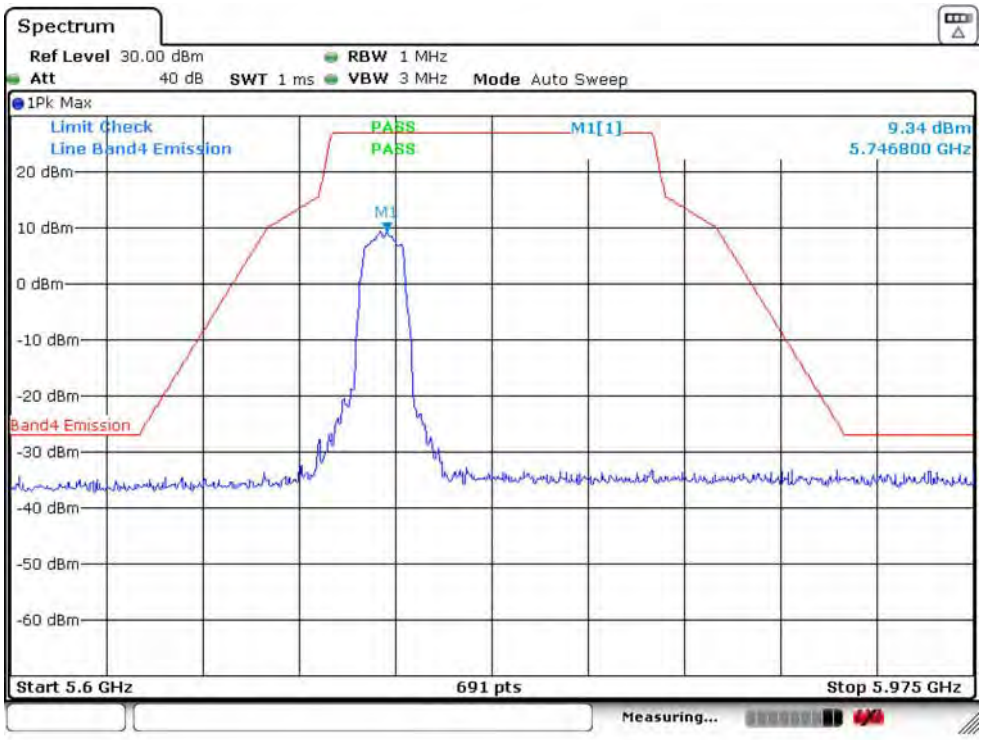
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
2. Margin= Limit - Emission Level.
3. The emission levels that are 20dB below the official limit are not reported.

Note:

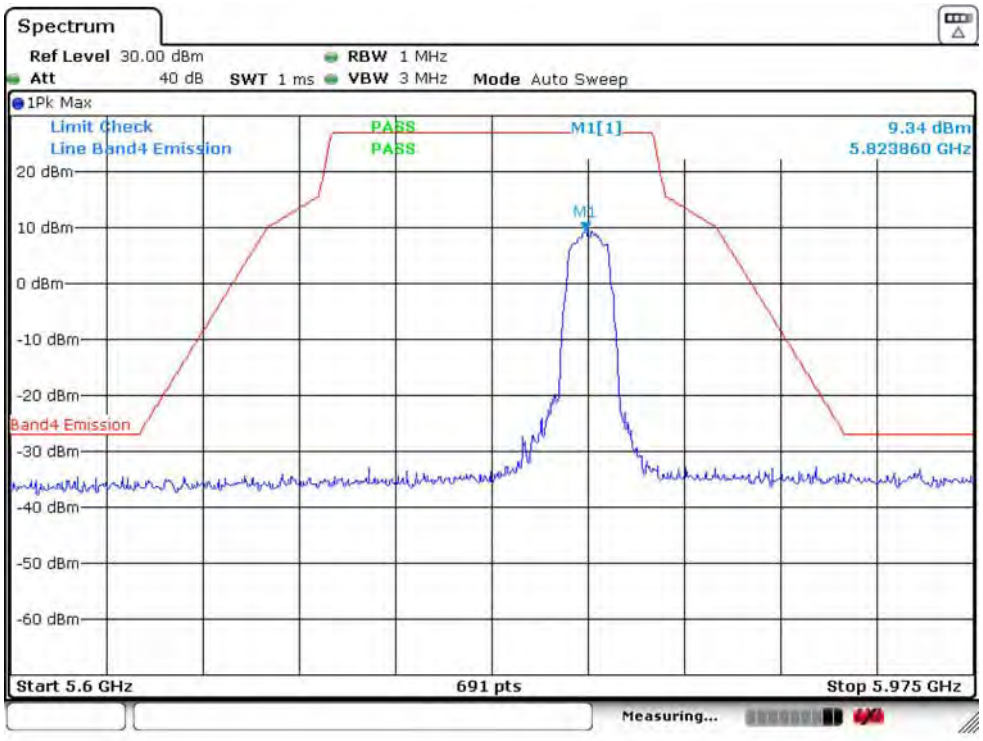
1. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test, only Low/Middle/High Channel of the worst case modulation mode was reported

Band Edge

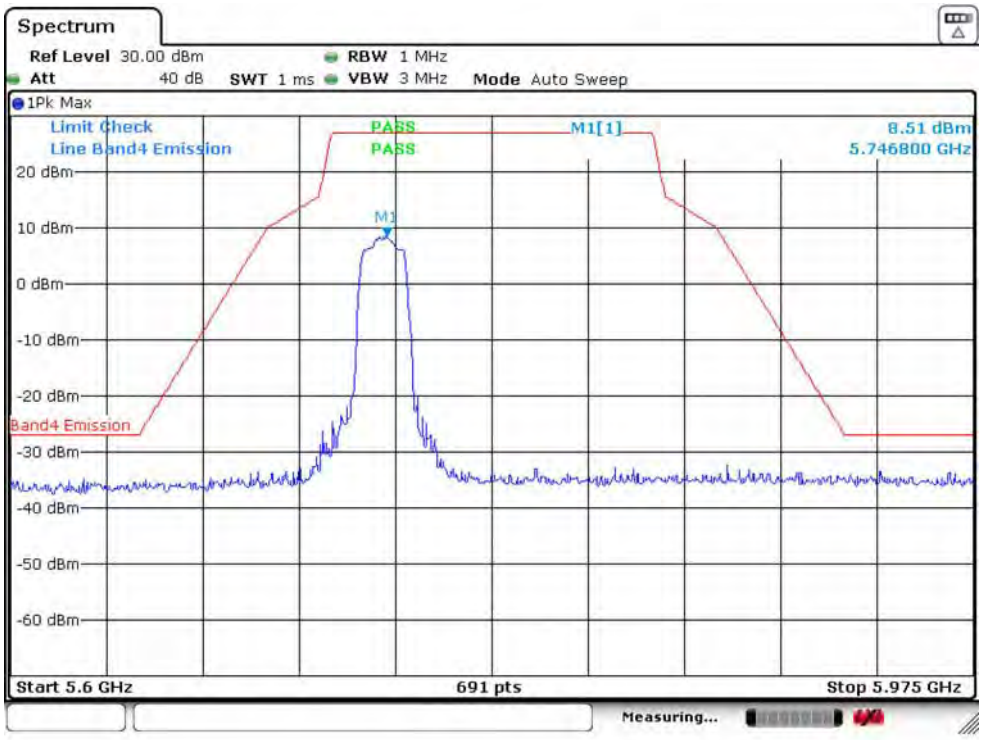
IEEE 802.11a 5745 MHz



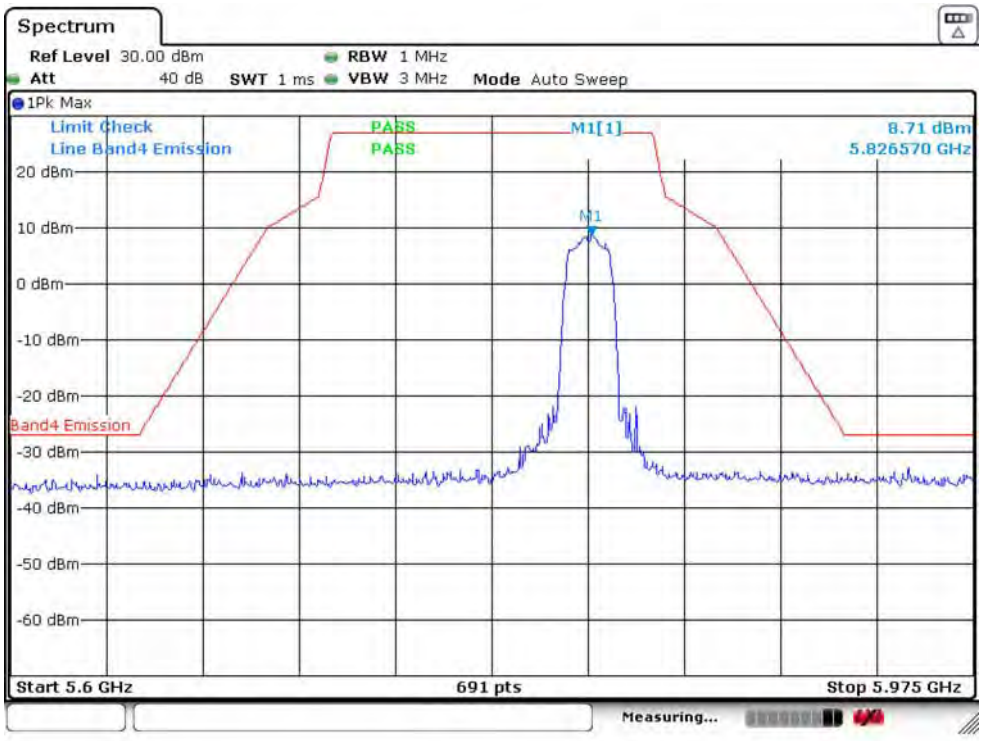
IEEE 802.11a 5825 MHz



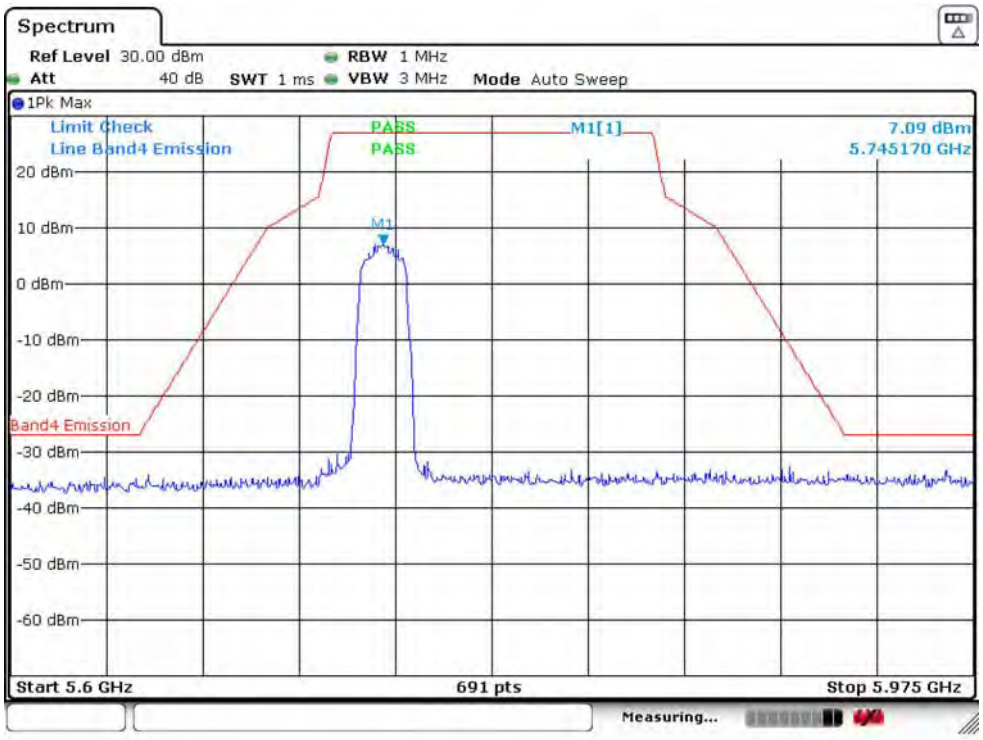
IEEE 802.11n HT20 5745 MHz



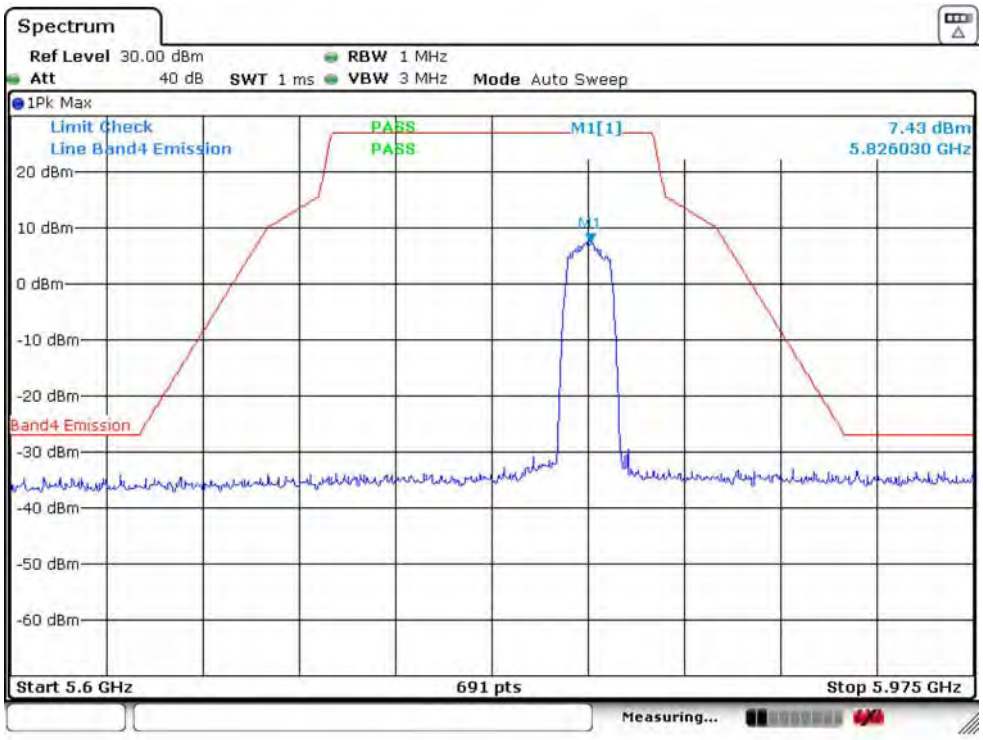
IEEE 802.11n HT20 5825 MHz



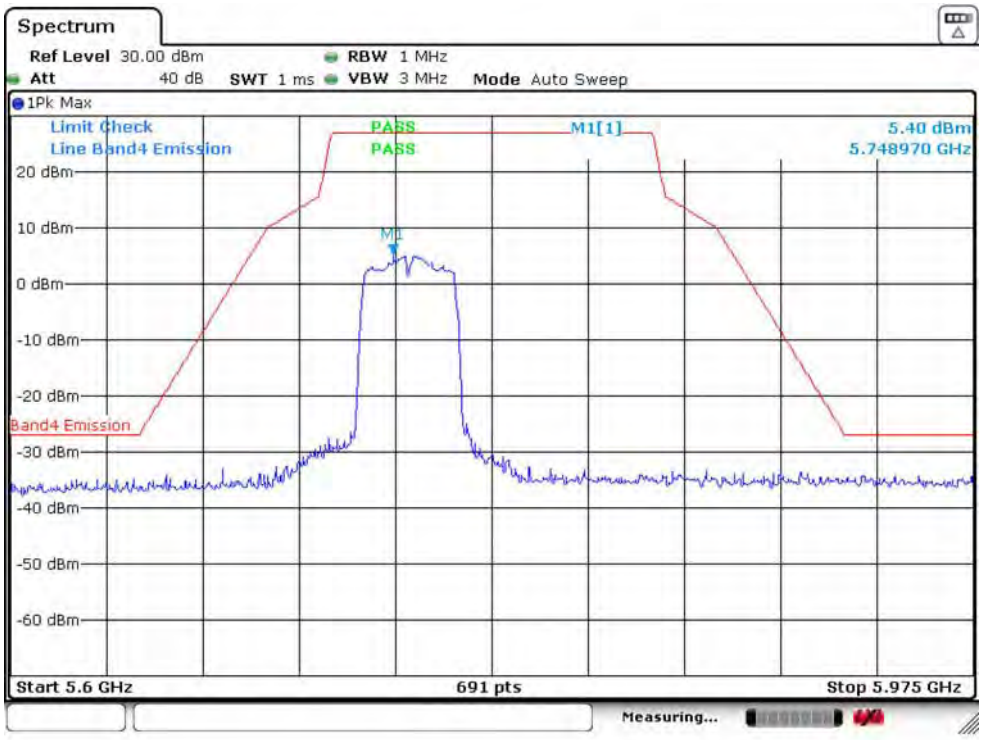
IEEE 802.11ac VHT20 5745 MHz



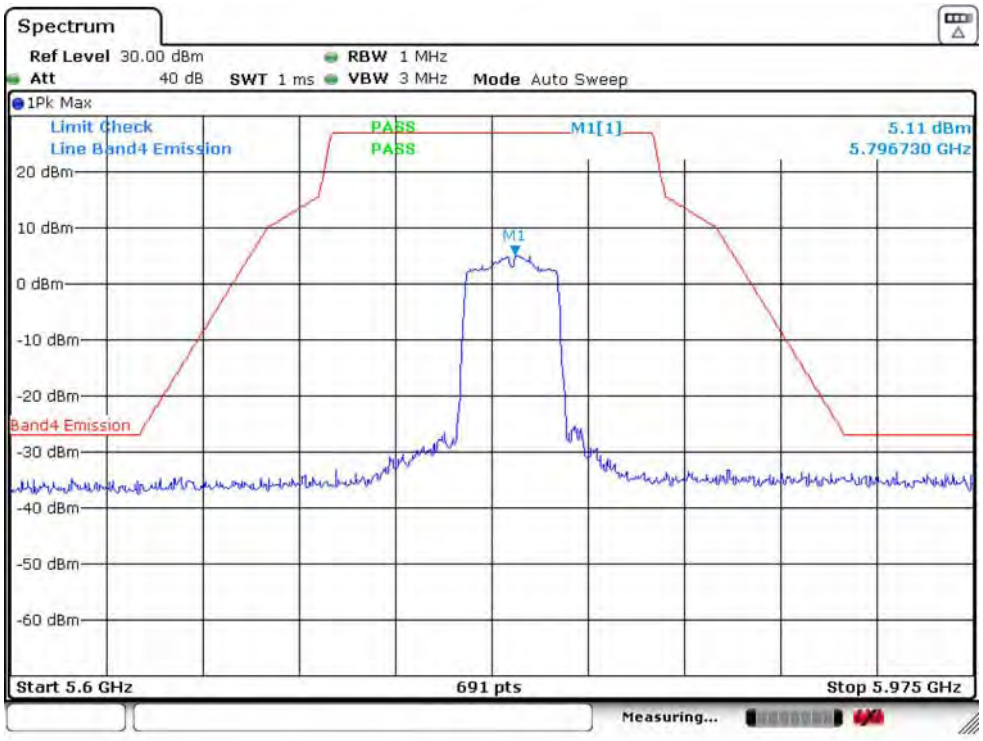
IEEE 802.11ac VHT20 5825 MHz



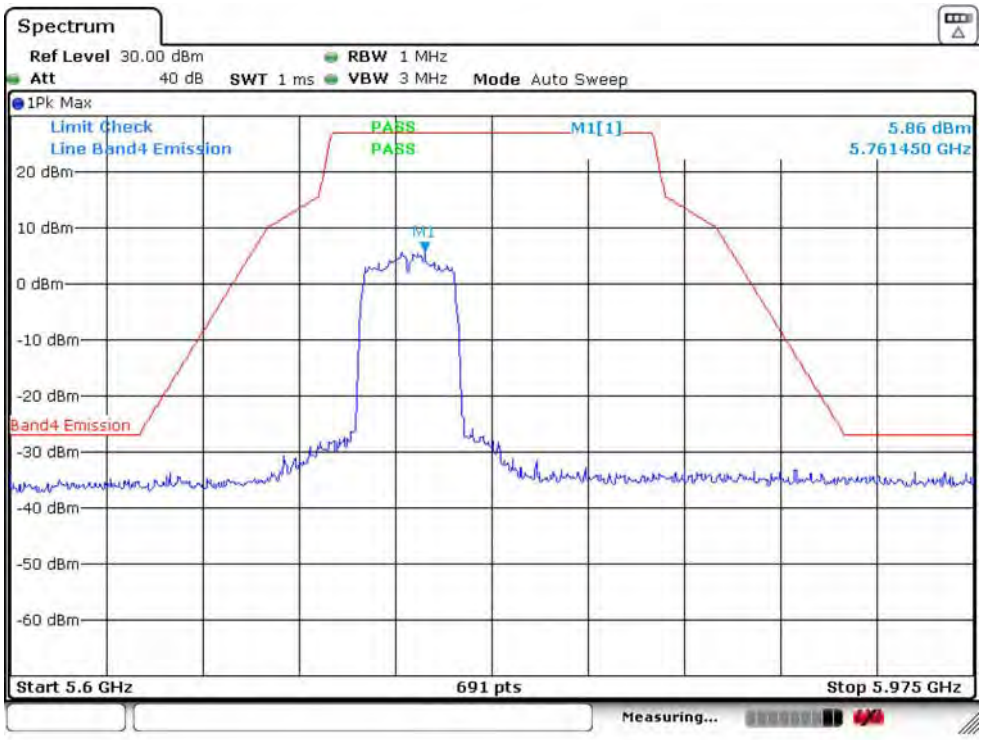
IEEE 802.11n HT40 5755 MHz



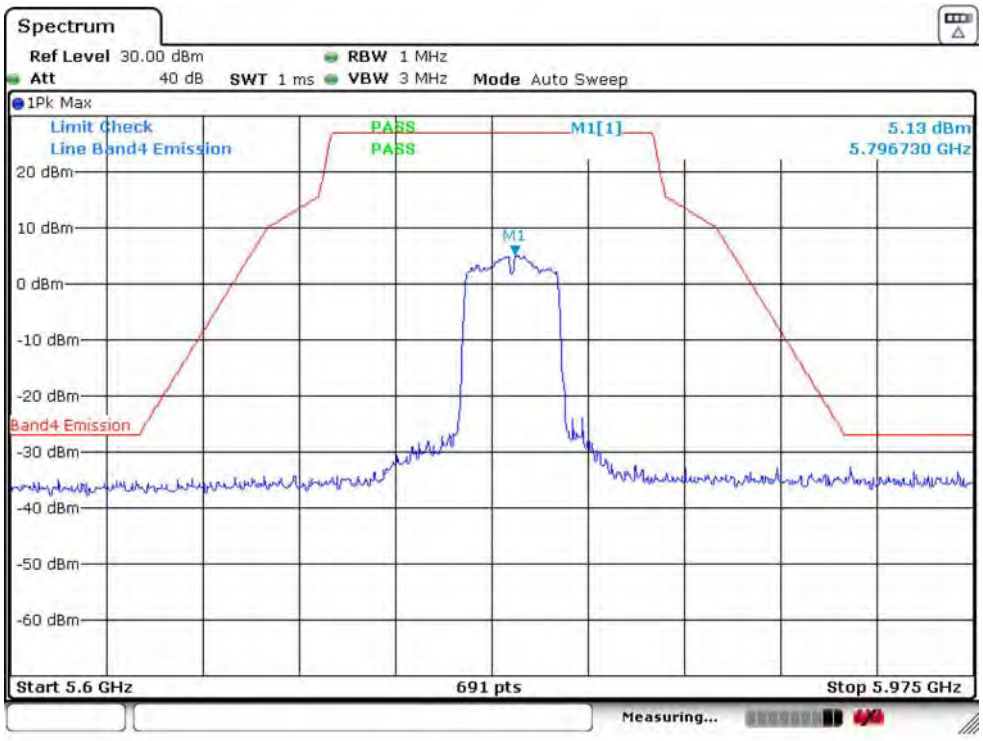
IEEE 802.11n HT40 5795 MHz



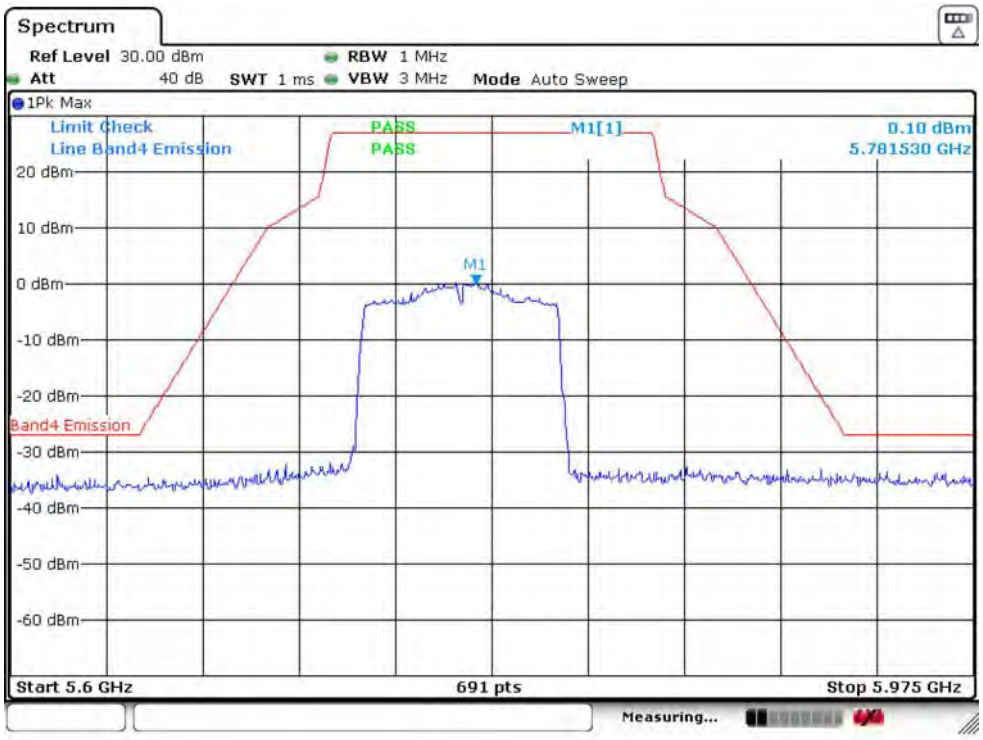
IEEE 802.11ac VHT40 5755 MHz



IEEE 802.11ac VHT40 5795 MHz



IEEE 802.11ac VHT80 5775 MHz



All modulations are all tested ,only worse case is reported

18000MHz-40000MHz

Pass

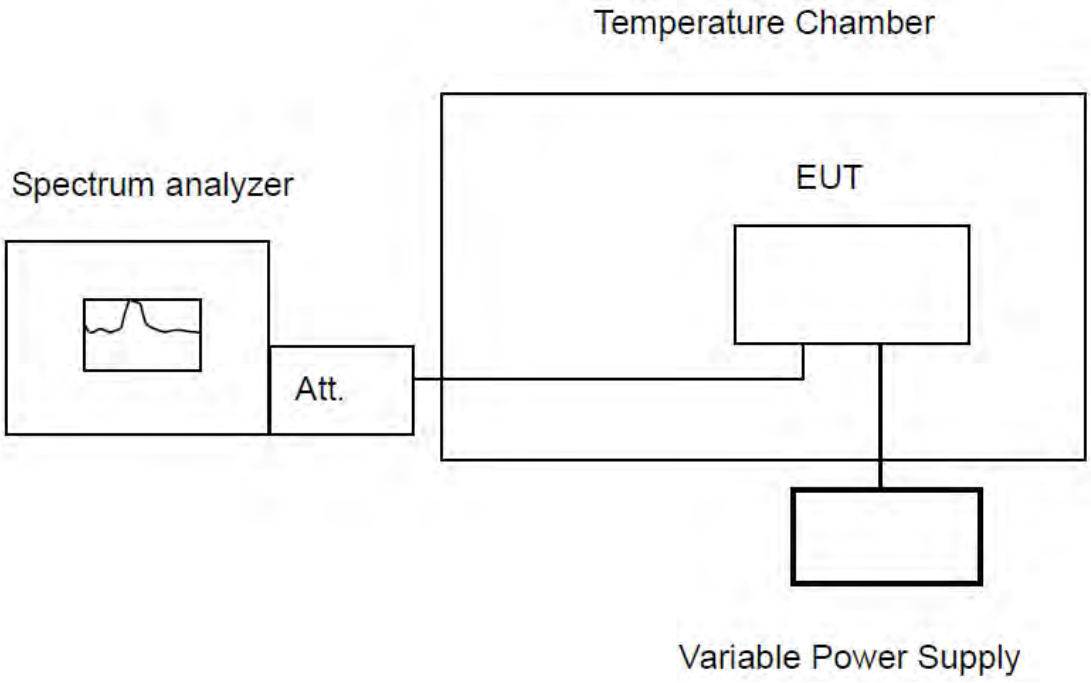
Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

7. FREQUENCY STABILITY

7.1. Limit

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 operational description.

7.2. Test Setup



7.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	10KHz
VBW	10KHz
Span	200KHz
Sweep Time	Auto
Detector	PEAK
Trace Mode	Max Hold

7.4. Test Procedure

For measurement frequency stability under temperature variation :

a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
b. Turn the EUT OFF and place it inside the environmental temperature chamber.
c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
d. Spectrum analyzer setting parameters in accordance with section 7.3.
e. Set the temperature control on the chamber to the Specified temperature and allow the oscillator heater and the chamber temperature to stabilize.
f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
g. Record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized.
h. Repeat step d through step f to measured the temperature form -20℃ to +50℃ in 10℃ steps.

For frequency stability under voltage variation:

a. Supply the EUT with a nominal ac voltage or install a new or fully charged battery in the EUT.
b. Turn the EUT OFF and place it inside the environmental temperature chamber.
c. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
d. Spectrum analyzer setting parameters in accordance with section 7.3.
e. Unless otherwise specified, set the temperature control on the chamber to the ambient room temperature (+15℃ to +25℃) and allow the oscillator heater and the chamber temperature to stabilize.
f. Turn the EUT ON with the rated voltage, and the EUT transmit continuously with maximum output power.
g. Record the operating frequency.
h. Repeat step d through step f to measured the varied from 85% to 115% of the rated voltage.

7.5. Test Result

Frequency (MHz)	Voltage (V)	Temperature (℃)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5180	120	50	0	5179.9723610	-5.34
			2	5179.9724400	-5.32
			5	5179.9720520	-5.40
			10	5179.9725290	-5.30
	120	40	0	5179.9728490	-5.24
			2	5179.9724960	-5.31
			5	5179.9720430	-5.40
			10	5179.9726060	-5.29
	120	30	0	5179.9724650	-5.32
			2	5179.9727890	-5.25
			5	5179.9723140	-5.34
			10	5179.9729450	-5.22
	120	20	0	5179.9722680	-5.35
			2	5179.9728810	-5.24
			5	5179.9720460	-5.40
			10	5179.9729790	-5.22
	120	10	0	5179.9725230	-5.30
			2	5179.9725530	-5.30
			5	5179.9723700	-5.33
			10	5179.9721200	-5.38
	120	0	0	5179.9729260	-5.23
			2	5179.9723930	-5.33
			5	5179.9726010	-5.29
			10	5179.9726290	-5.28
	120	-10	0	5179.9727350	-5.26
			2	5179.9728500	-5.24
			5	5179.9729130	-5.23
			10	5179.9723270	-5.34
	120	-20	0	5179.9725570	-5.30
			2	5179.9721080	-5.38
			5	5179.9726480	-5.28
			10	5179.9729610	-5.22
	120	20	/	5179.9727260	-5.27
	102	20	/	5179.9729350	-5.22
	138	20	/	5179.9722100	-5.36
	MAX Frquency Error(ppm)				**-5.22**

Frequency (MHz)	Voltage (V)	Temperature (℃)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5745	120	50	0	5744.9855190	-2.52
			2	5744.9859960	-2.44
			5	5744.9859940	-2.44
			10	5744.9854760	-2.53
	120	40	0	5744.9856180	-2.50
			2	5744.9857910	-2.47
			5	5744.9853640	-2.55
			10	5744.9853800	-2.54
	120	30	0	5744.9853500	-2.55
			2	5744.9853980	-2.54
			5	5744.9853980	-2.54
			10	5744.9852030	-2.58
	120	20	0	5744.9858390	-2.46
			2	5744.9856550	-2.50
			5	5744.9856490	-2.50
			10	5744.9855070	-2.52
	120	10	0	5744.9858620	-2.46
			2	5744.9851340	-2.59
			5	5744.9857540	-2.48
			10	5744.9851770	-2.58
	120	0	0	5744.9859910	-2.44
			2	5744.9852460	-2.57
			5	5744.9853100	-2.56
			10	5744.9857220	-2.49
	120	-10	0	5744.9853010	-2.56
			2	5744.9852730	-2.56
			5	5744.9857570	-2.48
			10	5744.9854660	-2.53
	120	-20	0	5744.9853460	-2.55
			2	5744.9852640	-2.57
			5	5744.9851440	-2.59
			10	5744.9851470	-2.59
	120	20	/	5744.9850560	-2.60
	102	20	/	5744.9853580	-2.55
	138	20	/	5744.9857720	-2.48
	MAX Frquency Error(ppm)				**-2.44**

8. AC POWER LINE CONDUCTED EMISSIONS

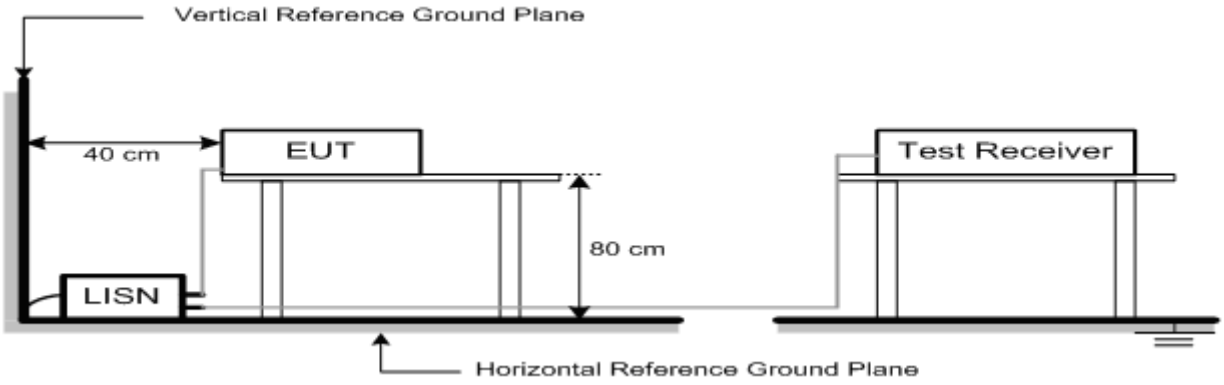
8.1. Limit

Frequency			Maximum RF Line Voltage	
			Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz	~	500kHz	66 ~ 56*	56 ~ 46*
500kHz	~	5MHz	56	46
5MHz	~	30MHz	60	50

Notes:

1. * Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

8.2. Test Setup



8.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	9KHz
VBW	9KHz
Start frequency	150KHz
Stop frequency	30MHz
Sweep Time	Auto
Detector	QP/AVG
Trace Mode	Max Hold

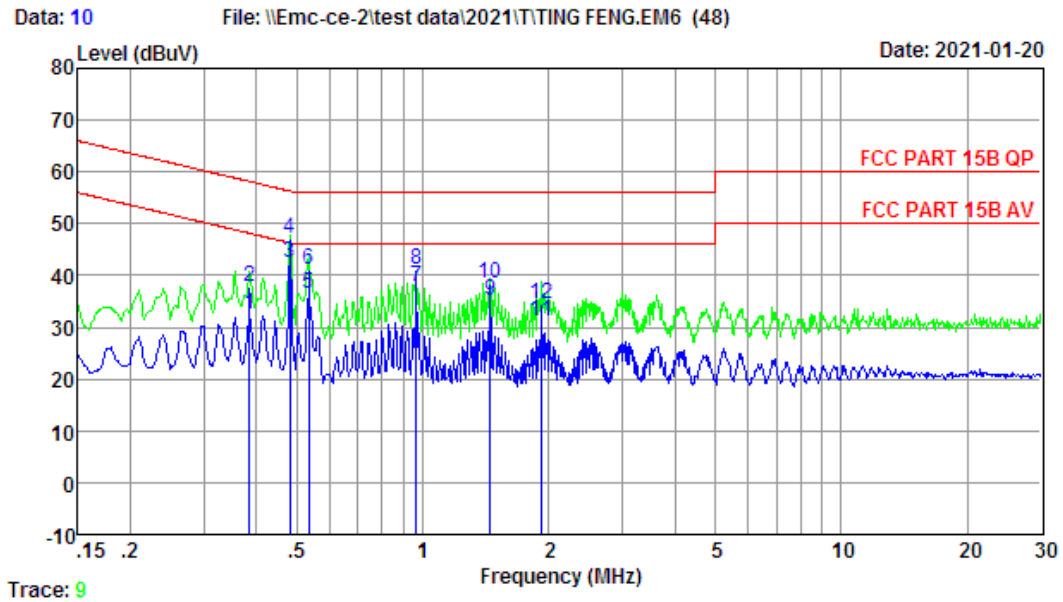
8.4. Test Procedure

a. The EUT was placed on a non-metallic table, 80cm above the ground plane.
b. The EUT Power connected to the power mains through a line impedance stabilization network.
c. Provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs).
d. Set the EUT transmit continuously with maximum output power.
e. Spectrum analyzer setting parameters in accordance with section 8.3.
f. The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.
g. Record the results in the test report.

8.5. Test Result

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



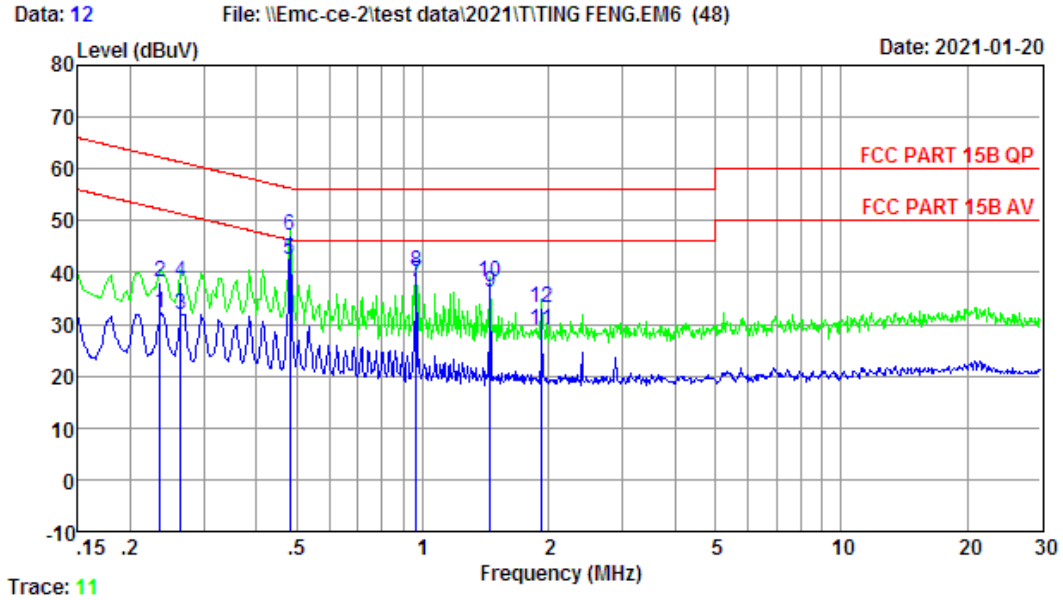
Site no : 2#CE Shield Room Data no. : 10
Env. / Ins. : Temp:23.5℃ Humi:56% Press:101.80kPa LINE Phase : NEUTRAL
Limit : FCC PART 15B QP
Engineer : MRS
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 240V/60Hz
M/N : ADDON C10 MkII
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.39	9.68	9.92	13.04	32.64	48.17	15.53	Average
2	0.39	9.68	9.92	18.37	37.97	58.17	20.20	QP
3	0.48	9.70	9.92	22.73	42.35	46.32	3.97	Average
4	0.48	9.70	9.92	27.57	47.19	56.32	9.13	QP
5	0.53	9.70	9.92	16.87	36.49	46.00	9.51	Average
6	0.53	9.70	9.92	21.65	41.27	56.00	14.73	QP
7	0.96	9.76	9.94	18.26	37.96	46.00	8.04	Average
8	0.96	9.76	9.94	21.42	41.12	56.00	14.88	QP
9	1.45	9.77	9.95	15.53	35.25	46.00	10.75	Average
10	1.45	9.77	9.95	18.68	38.40	56.00	17.60	QP
11	1.93	9.79	9.96	11.46	31.21	46.00	14.79	Average
12	1.93	9.79	9.96	14.62	34.37	56.00	21.63	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



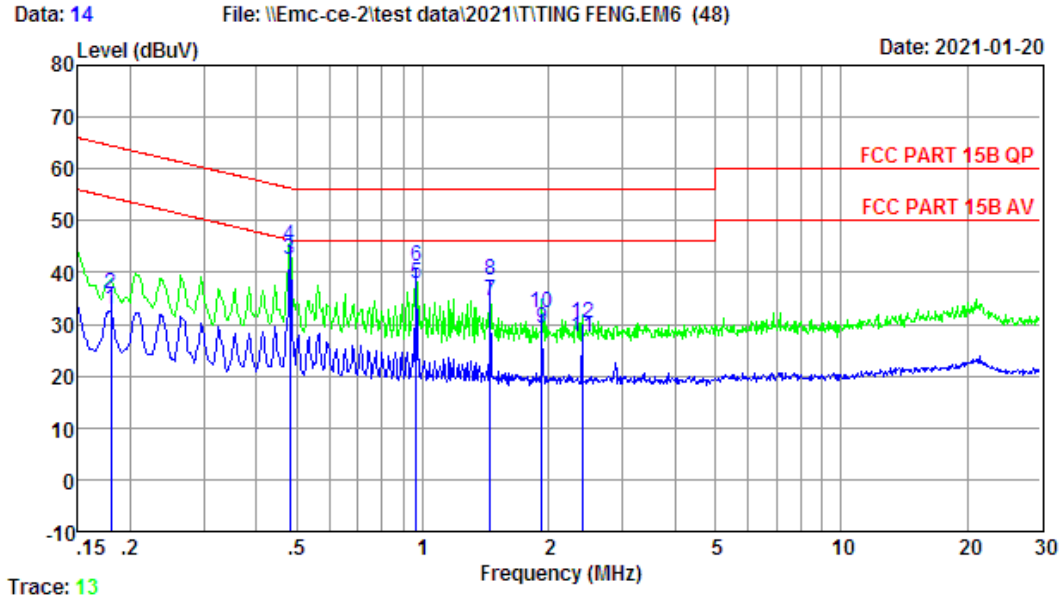
Site no : 2#CE Shield Room Data no. : 12
Env. / Ins. : Temp:23.5℃ Humi:56% Press:101.80kPa LINE Phase : LINE
Limit : FCC PART 15B QP
Engineer : MRS
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 240V/60Hz
M/N : ADDON C10 MkII
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.24	9.71	9.92	12.39	32.02	52.26	20.24	Average
2	0.24	9.71	9.92	18.48	38.11	62.26	24.15	QP
3	0.26	9.72	9.92	12.33	31.97	51.29	19.32	Average
4	0.26	9.72	9.92	18.53	38.17	61.29	23.12	QP
5	0.48	9.78	9.92	22.78	42.48	46.32	3.84	Average
6	0.48	9.78	9.92	27.55	47.25	56.32	9.07	QP
7	0.96	9.89	9.94	18.16	37.99	46.00	8.01	Average
8	0.96	9.89	9.94	20.34	40.17	56.00	15.83	QP
9	1.45	9.87	9.95	16.42	36.24	46.00	9.76	Average
10	1.45	9.87	9.95	18.37	38.19	56.00	17.81	QP
11	1.93	9.84	9.96	9.22	29.02	46.00	16.98	Average
12	1.93	9.84	9.96	13.45	33.25	56.00	22.75	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



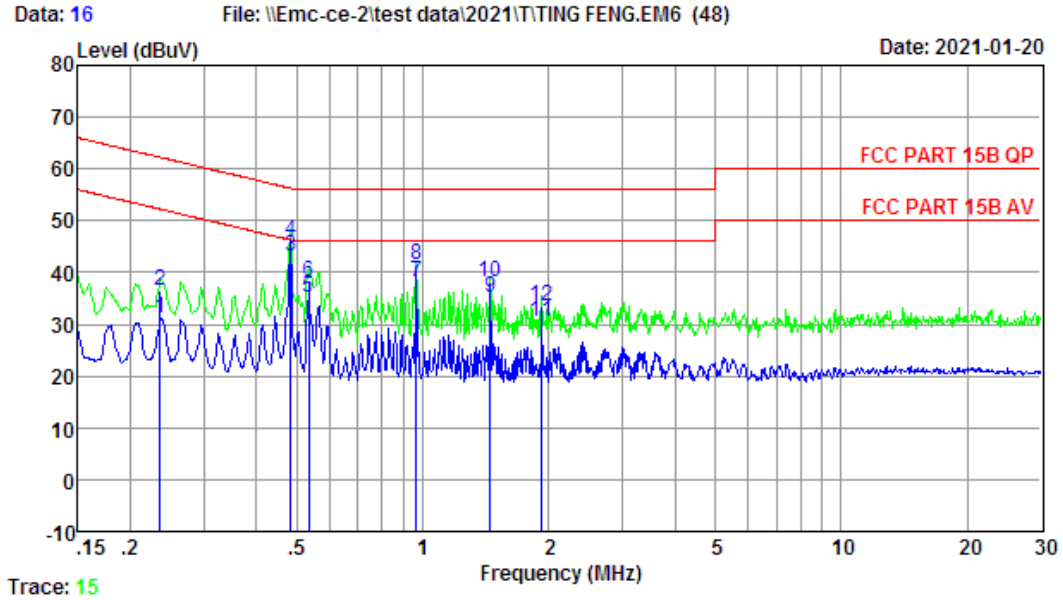
Site no : 2#CE Shield Room Data no. : 14
Env. / Ins. : Temp:23.5℃ Humi:56% Press:101.80kPa LINE Phase : LINE
Limit : FCC PART 15B QP
Engineer : MRS
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.18	9.69	9.77	13.39	32.85	54.50	21.65	Average
2	0.18	9.69	9.77	16.47	35.93	64.50	28.57	QP
3	0.48	9.78	9.92	22.65	42.35	46.32	3.97	Average
4	0.48	9.78	9.92	25.58	45.28	56.32	11.04	QP
5	0.96	9.89	9.94	18.09	37.92	46.00	8.08	Average
6	0.96	9.89	9.94	21.35	41.18	56.00	14.82	QP
7	1.45	9.87	9.95	14.68	34.50	46.00	11.50	Average
8	1.45	9.87	9.95	18.76	38.58	56.00	17.42	QP
9	1.93	9.84	9.96	9.33	29.13	46.00	16.87	Average
10	1.93	9.84	9.96	12.49	32.29	56.00	23.71	QP
11	2.41	9.86	9.96	7.55	27.37	46.00	18.63	Average
12	2.41	9.86	9.96	10.24	30.06	56.00	25.94	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

EST Technology

Chilingxiang, Qishantou, Santun,
Houjie, Dongguan,Guangdong,China
Tel:+86-769-83081888
Fax:+86-769-83081878



Site no : 2#CE Shield Room Data no. : 16
Env. / Ins. : Temp:23.5℃ Humi:56% Press:101.80kPa LINE Phase : NEUTRAL
Limit : FCC PART 15B QP
Engineer : MRS
EUT : MULTICONNECTED WIRELESS LOUDSPEAKER
Power : AC 120V/60Hz
M/N : ADDON C10 MkII
Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	0.24	9.65	9.92	11.59	31.16	52.26	21.10	Average
2	0.24	9.65	9.92	16.79	36.36	62.26	25.90	QP
3	0.48	9.70	9.92	23.41	43.03	46.27	3.24	Average
4	0.48	9.70	9.92	26.57	46.19	56.27	10.08	QP
5	0.53	9.70	9.92	15.60	35.22	46.00	10.78	Average
6	0.53	9.70	9.92	18.44	38.06	56.00	17.94	QP
7	0.96	9.76	9.94	18.53	38.23	46.00	7.77	Average
8	0.96	9.76	9.94	21.62	41.32	56.00	14.68	QP
9	1.45	9.77	9.95	15.41	35.13	46.00	10.87	Average
10	1.45	9.77	9.95	18.58	38.30	56.00	17.70	QP
11	1.93	9.79	9.96	10.85	30.60	46.00	15.40	Average
12	1.93	9.79	9.96	13.75	33.50	56.00	22.50	QP

Remarks: 1. Emission Level= LISN Factor + Cable Loss + Reading.
2. Margin=Limit - Emission Level.
3. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

9. ANTENNA REQUIREMENTS

9.1. Limit

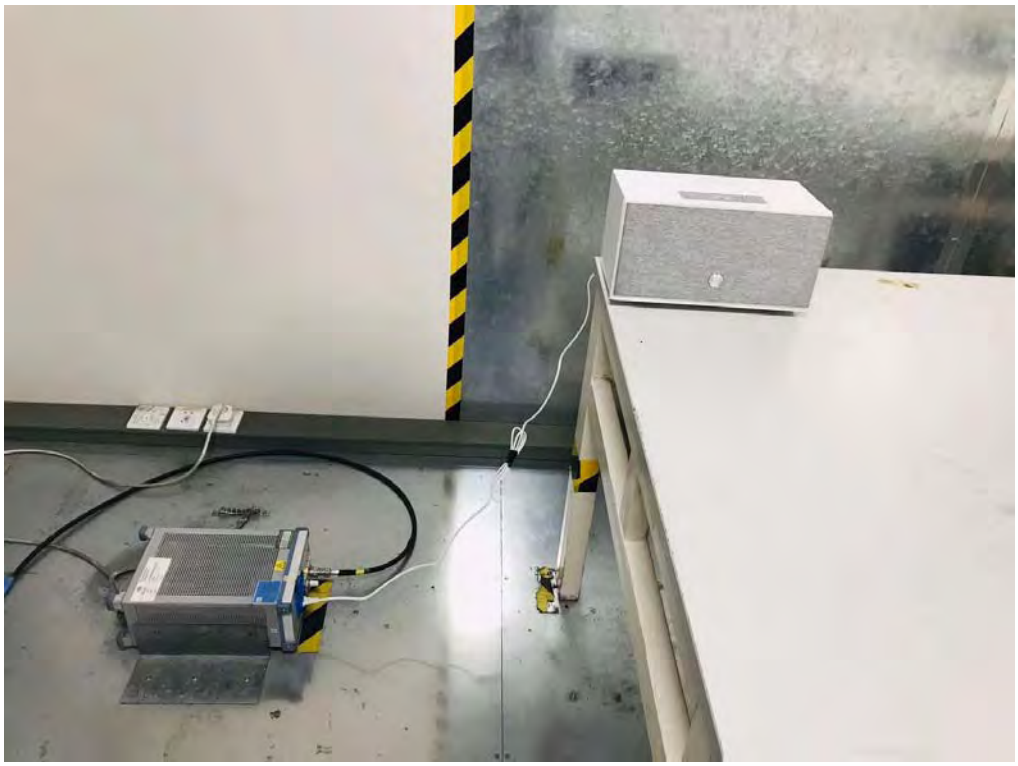
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

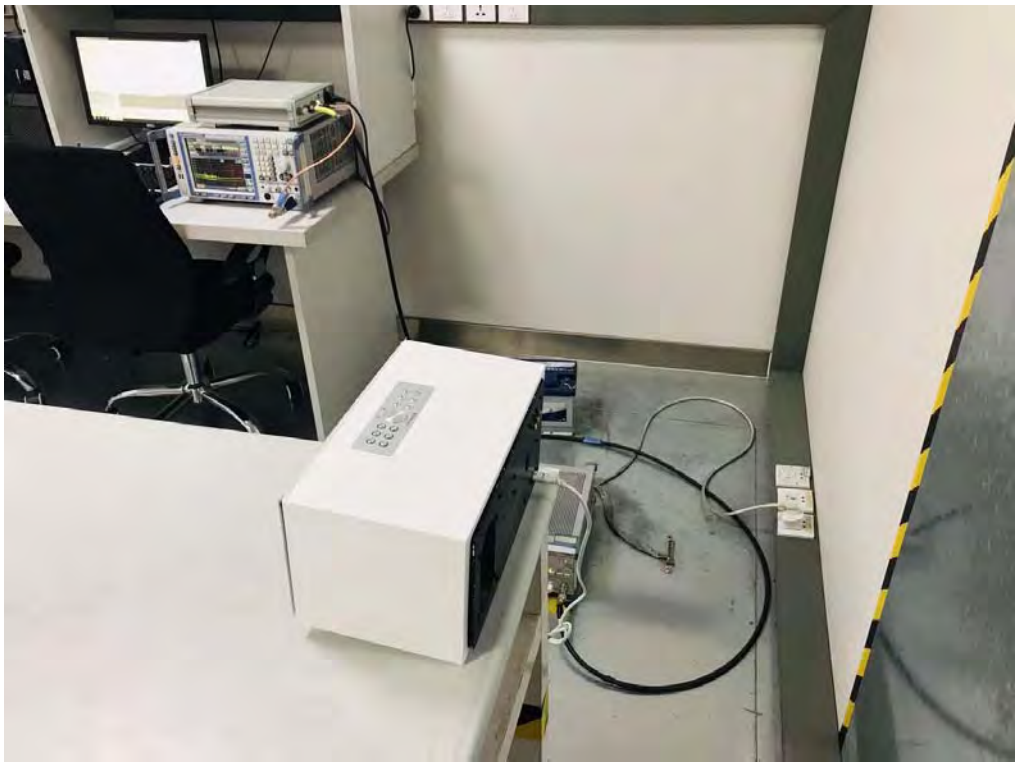
9.2. Test Result

The antennas used for this product is internal antenna ,so compliance with antenna requirements.
(Please refer to the EUT photo for details)

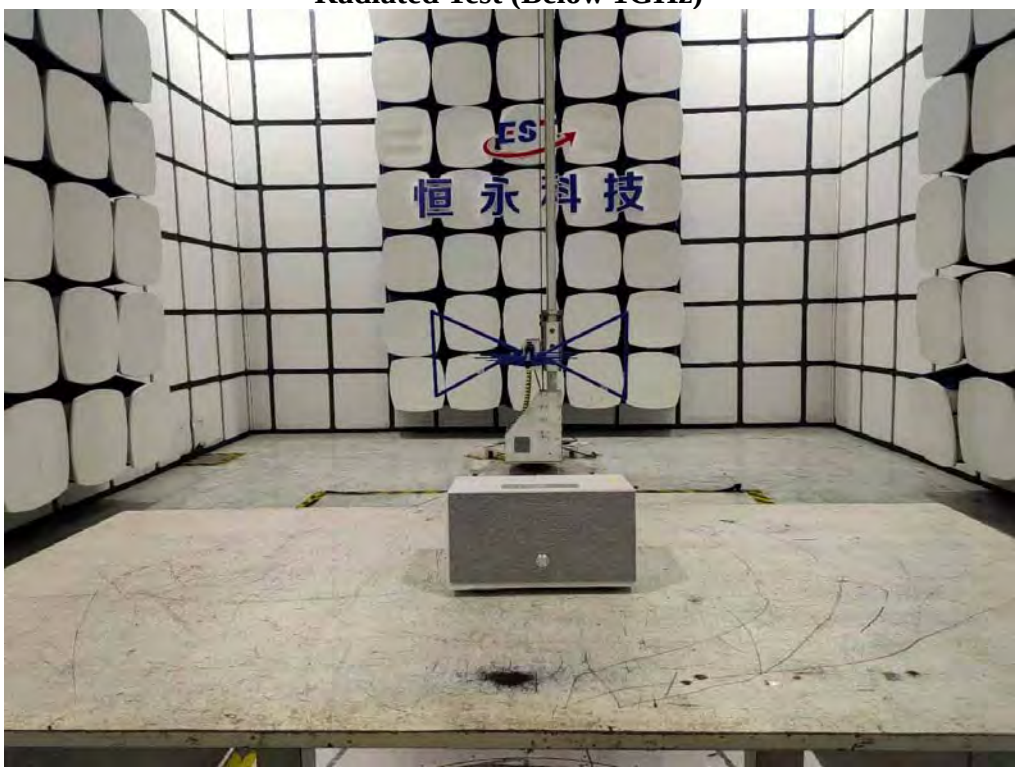
10. TEST SETUP PHOTO

Conducted Test

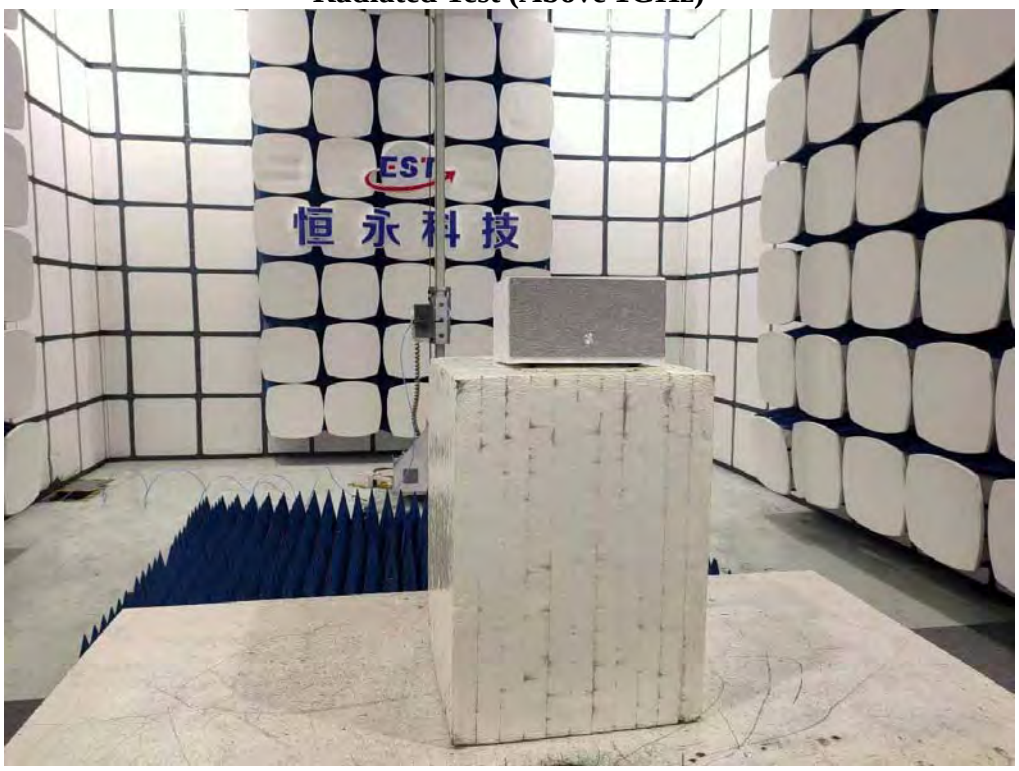




Radiated Test (Below 1GHz)



Radiated Test (Above 1GHz)



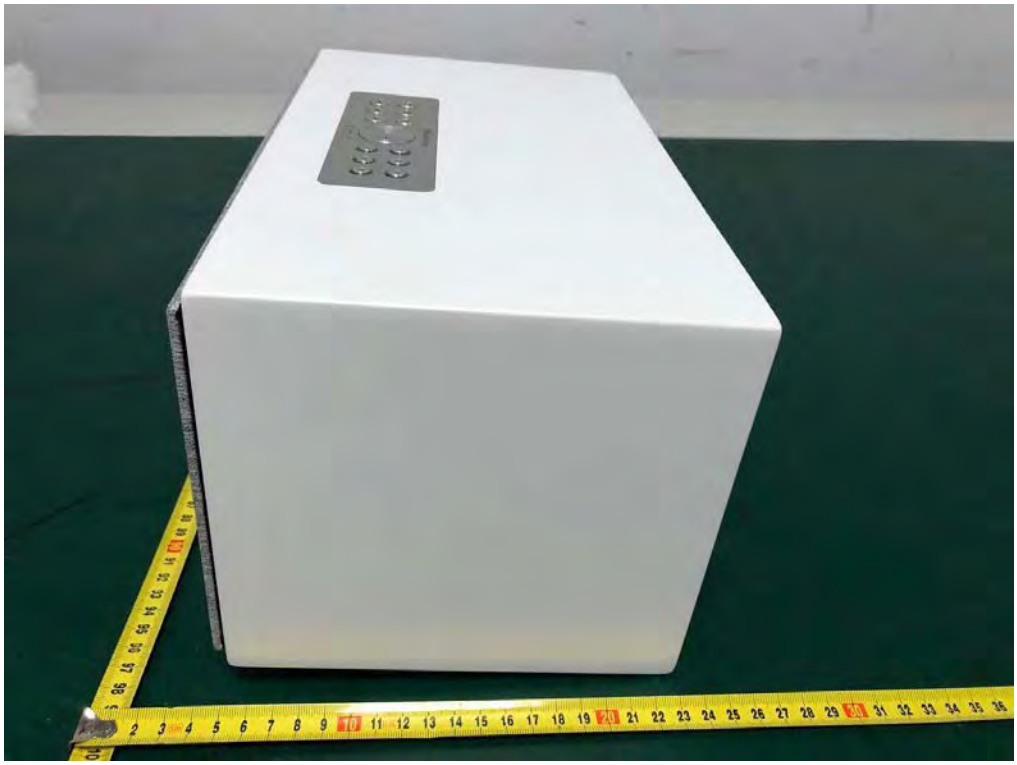
11. EUT PHOTO

External Photos

M/N: ADDON C10 MkII

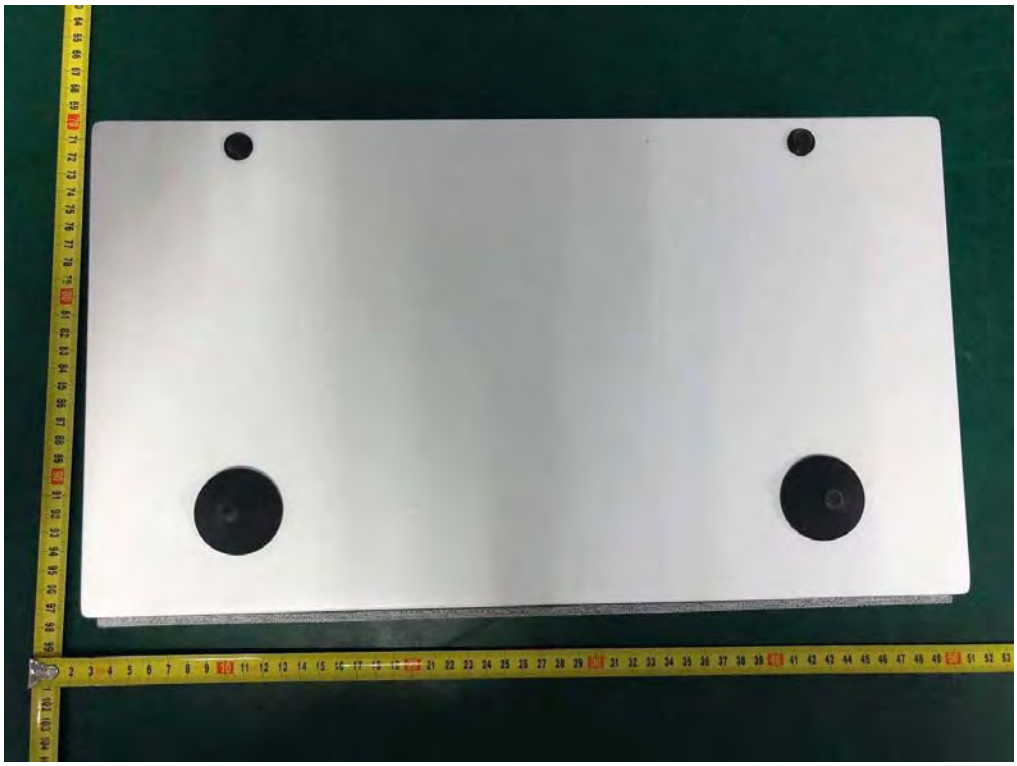
External Photos

M/N: ADDON C10 MkII



External Photos

M/N: ADDON C10 MkII

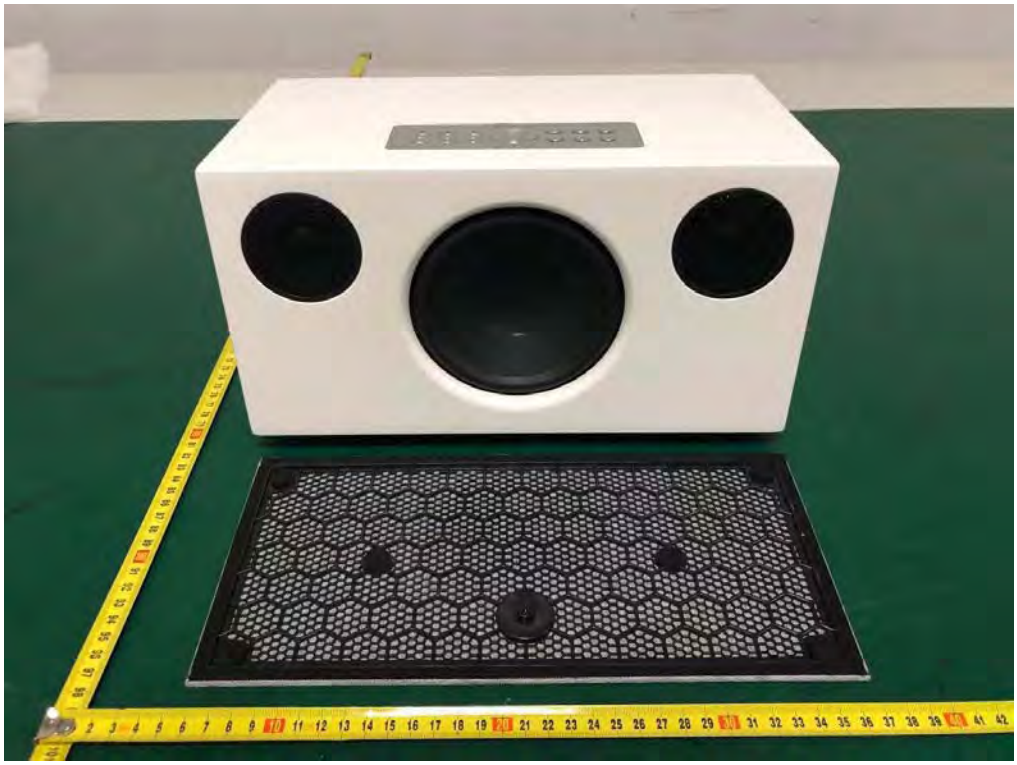


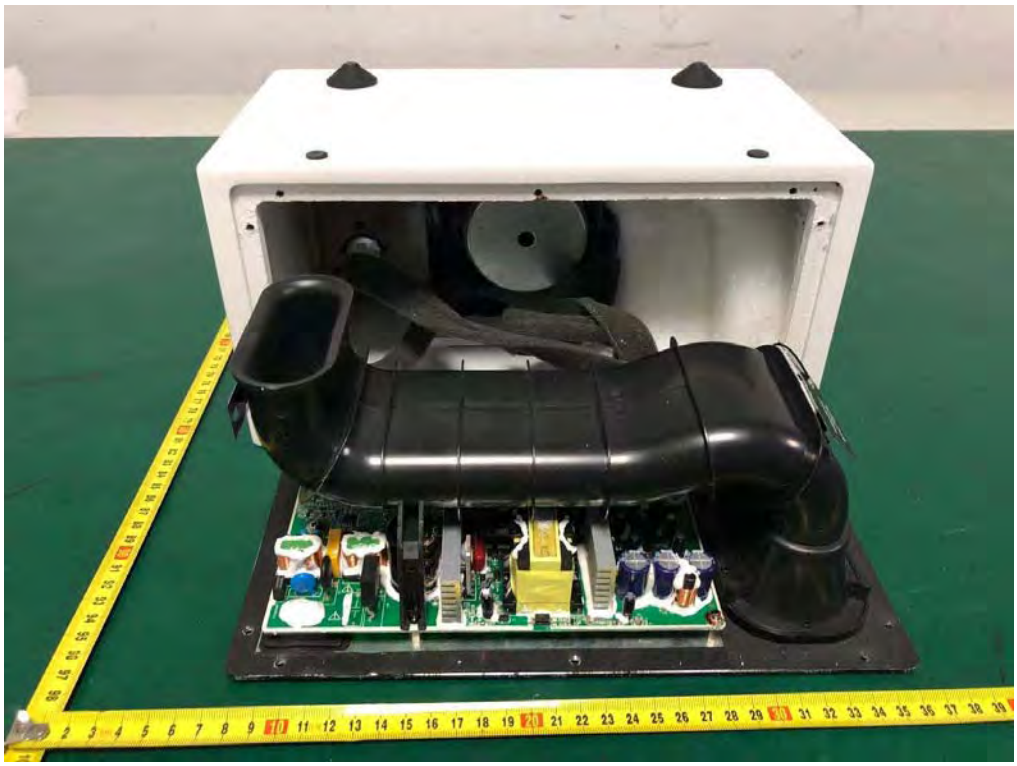
External Photos

M/N: ADDON C10 MkII

Internal Photos

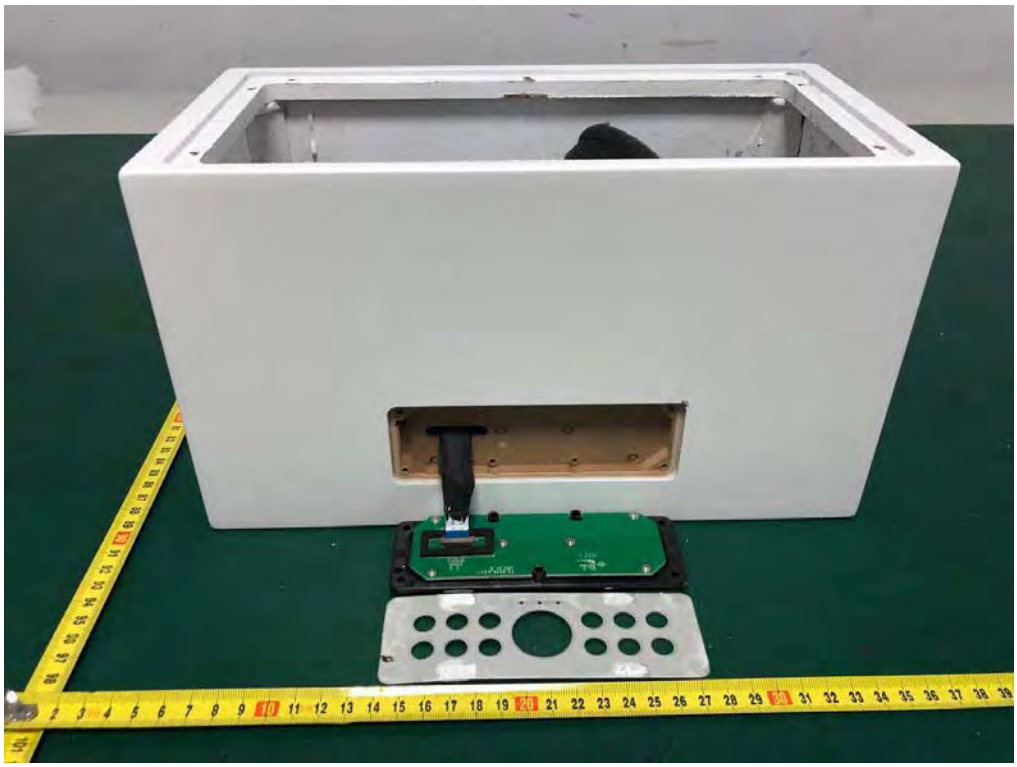
M/N: ADDON C10 MkII





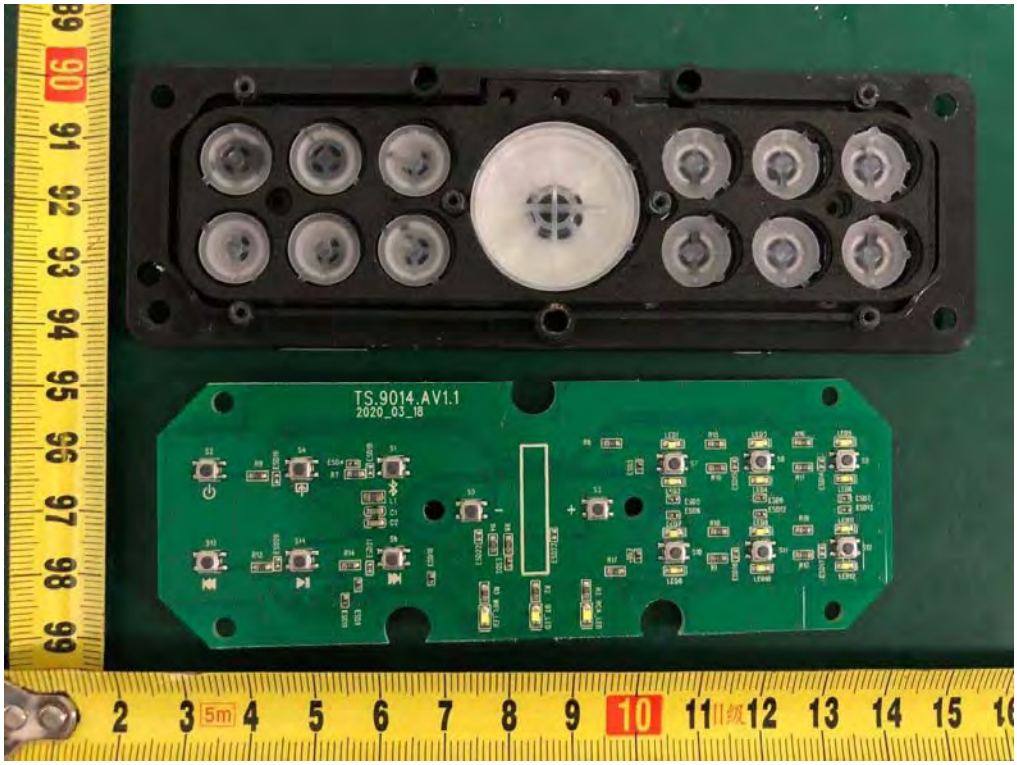
Internal Photos

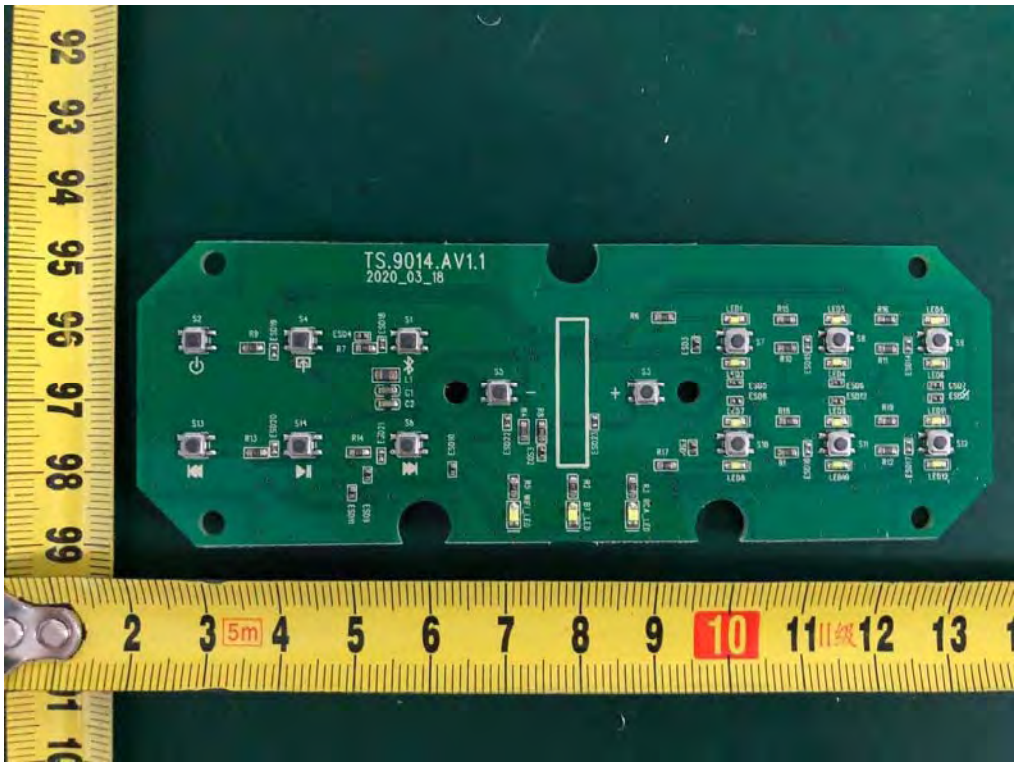
M/N: ADDON C10 MkII



Internal Photos

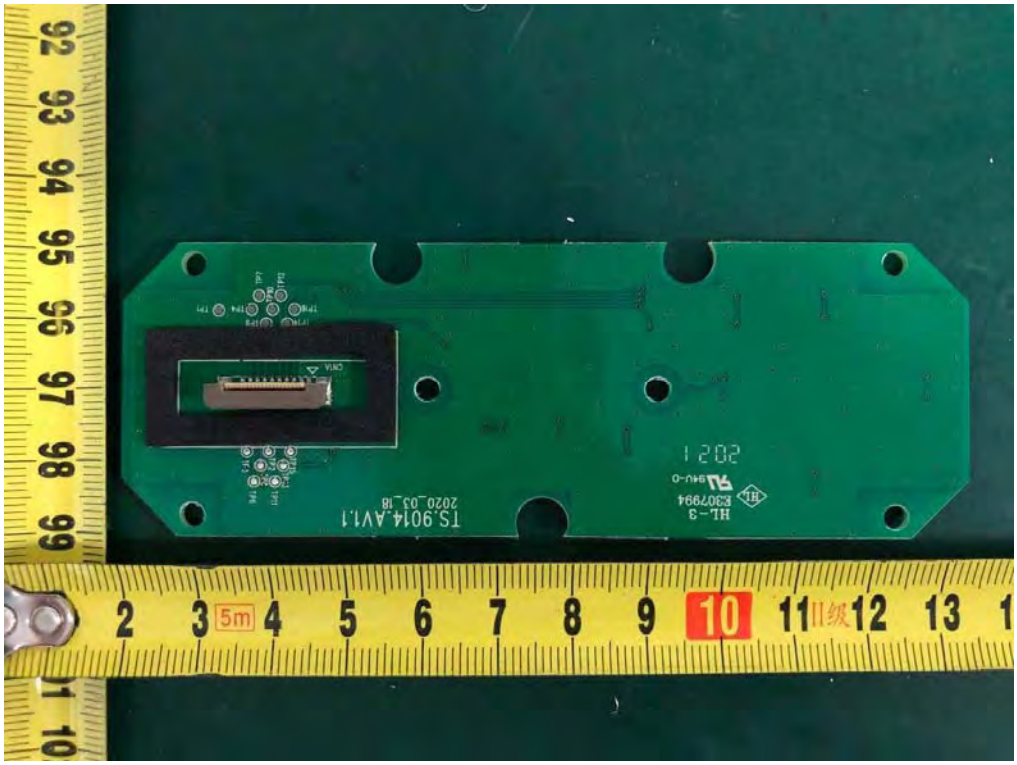
M/N: ADDON C10 MkII

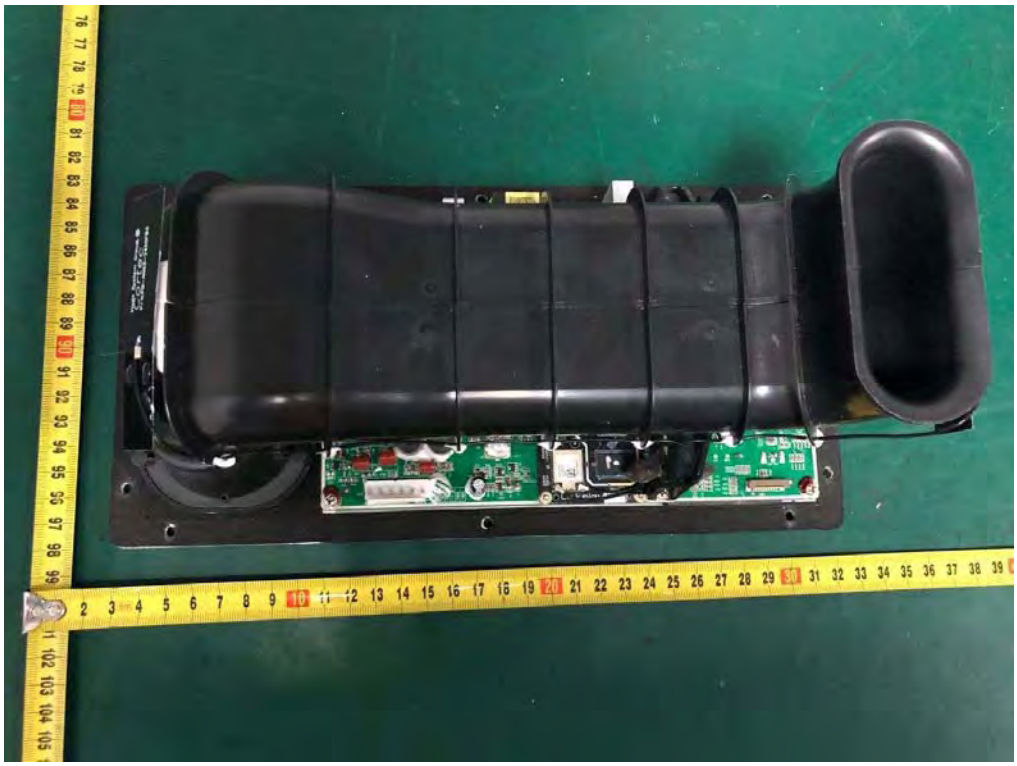




Internal Photos

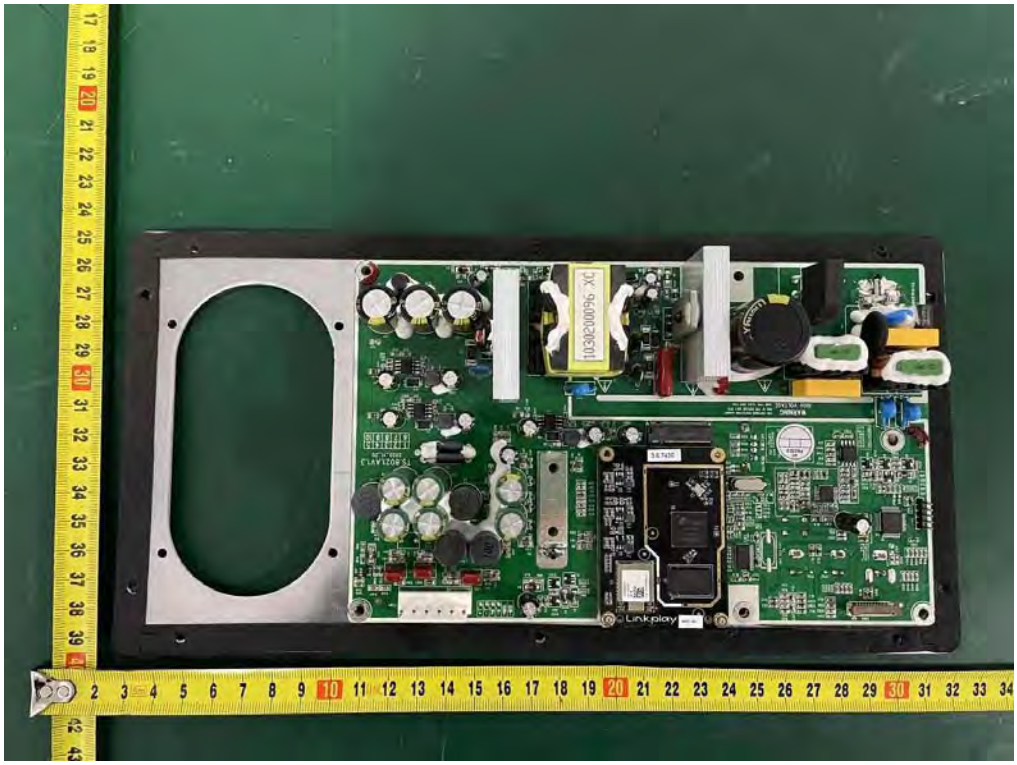
M/N: ADDON C10 MkII

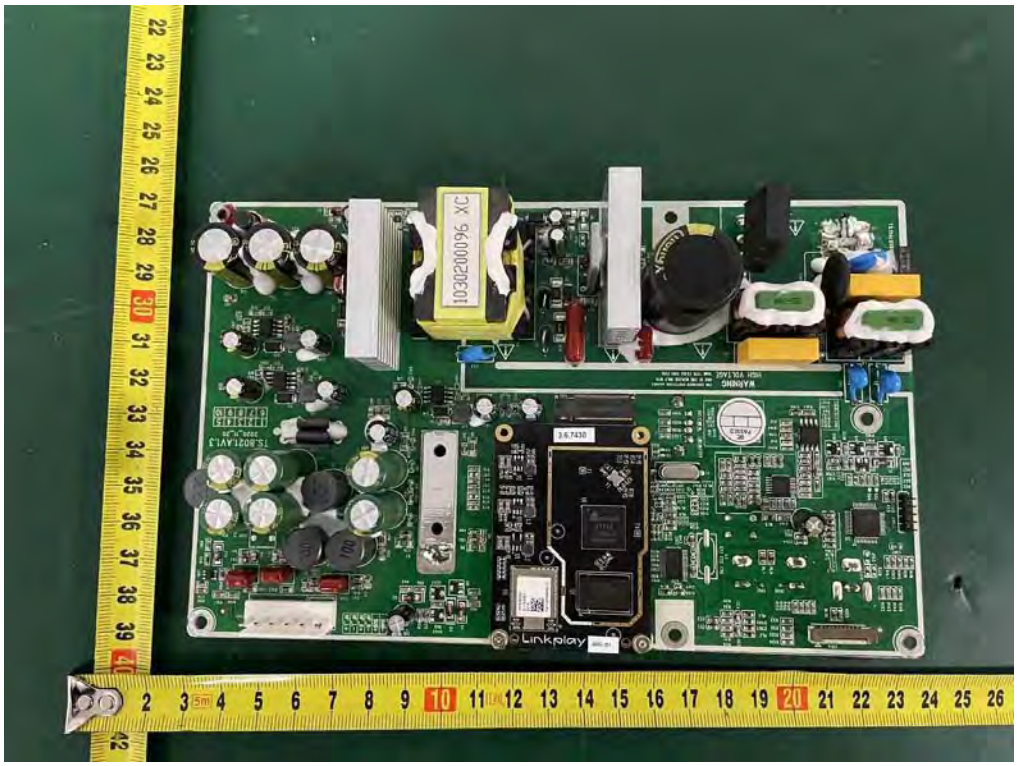




Internal Photos

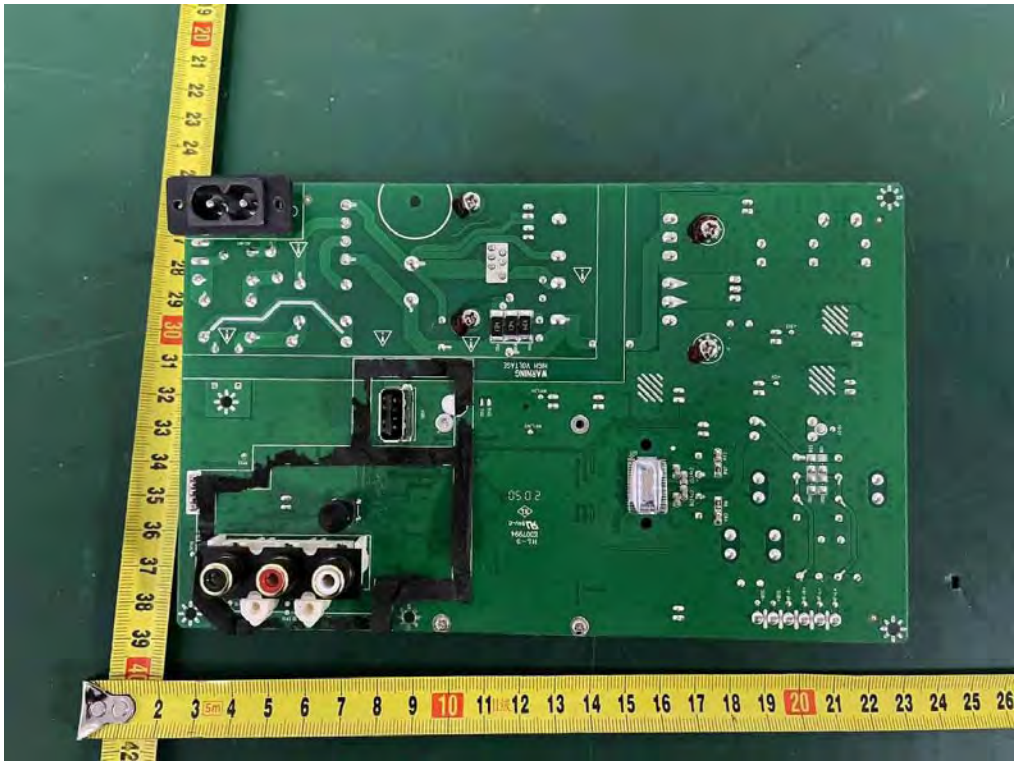
M/N: ADDON C10 MkII

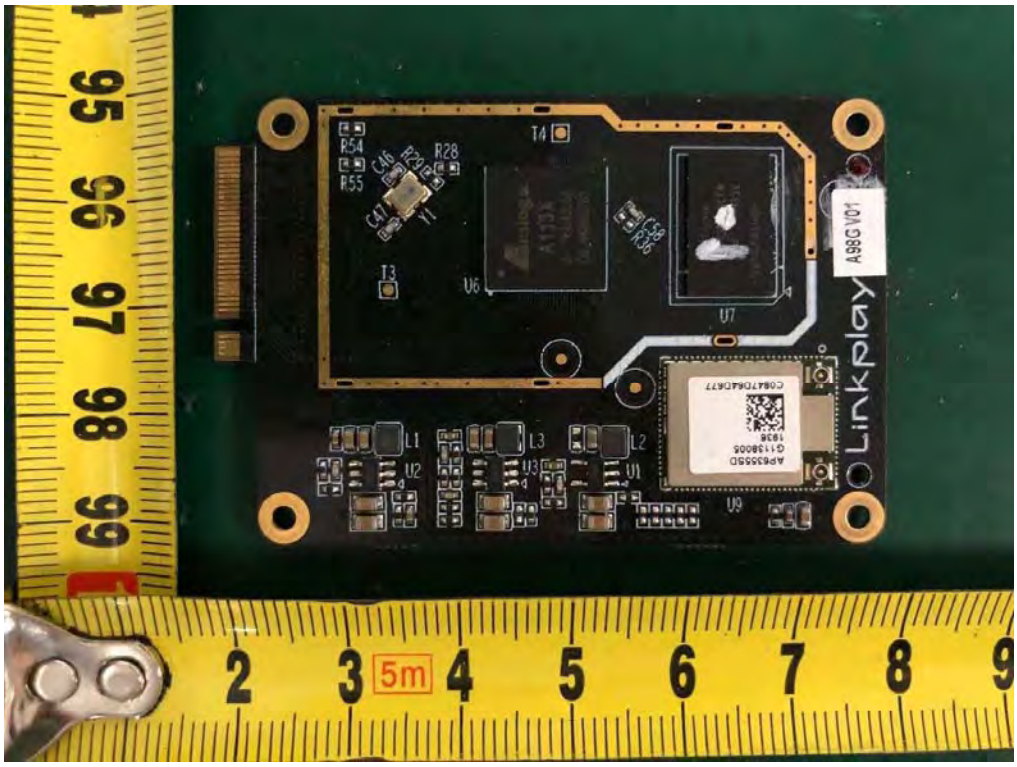




Internal Photos

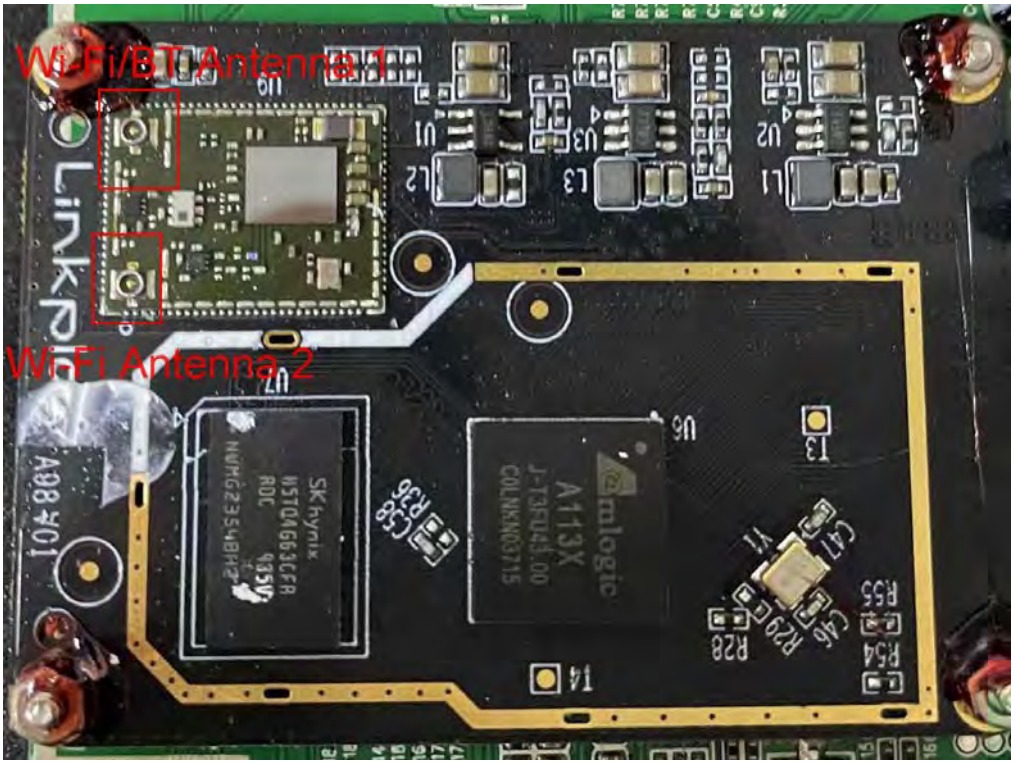
M/N: ADDON C10 MkII

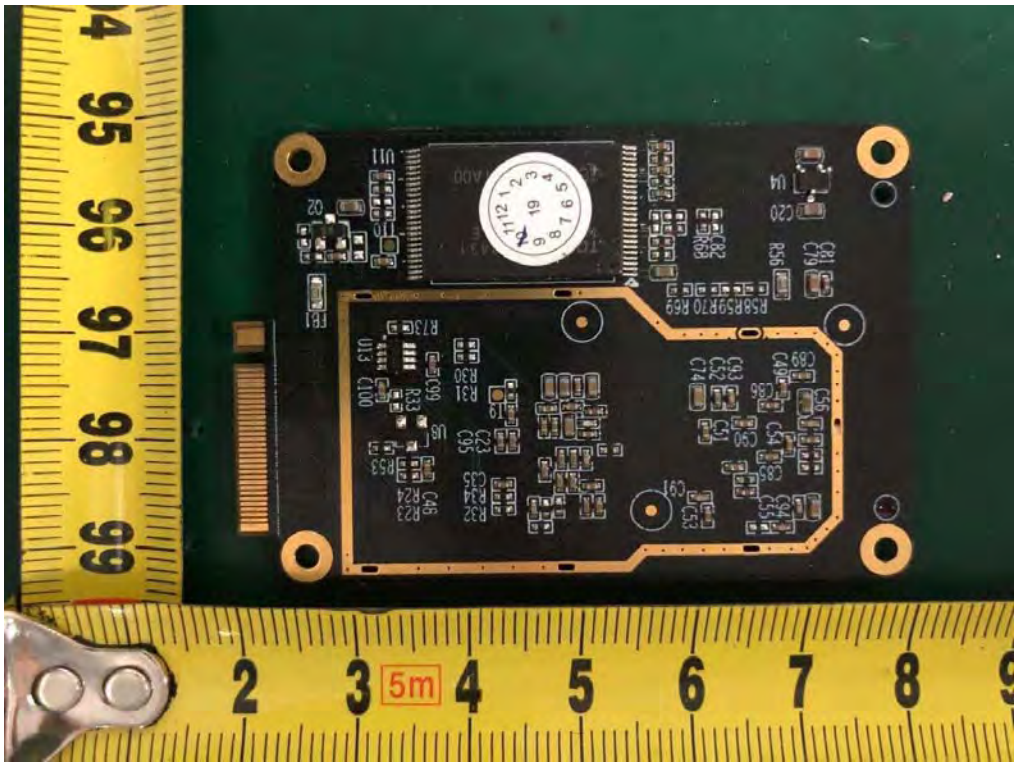




Internal Photos

M/N: ADDON C10 MkII





Internal Photos

M/N: ADDON C10 MkII

Wi-Fi Antenna 2

Wi-Fi/ Bluetooth Antenna 1

End of Test Report