

FCC PART 15E TEST REPORT FOR CERTIFICATION
On Behalf of

EXPRESS LUCK INDUSTRIAL (SHENZHEN) LIMITED

IEEE 802.11b/g/n/a/ac 2T2R USB WiFi Module Integrated BT 2.1+EDR/4.2/5.0

Model Number: EL.MT7668BUN-WF

FCC ID: 2AWY6-ELMT7668BUN

Prepared for:	EXPRESS LUCK INDUSTRIAL (SHENZHEN) LIMITED
	Floor1, Workshop1, NO.88, South Baotong Road, Xikeng Community,
	Yuanshan Street, Longgang District, Shenzhen, Guangdong, China
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
	Tel: 86-769-83081888-808

Report Number:	ESTE-R2109047
Date of Test:	Aug. 09~Sep. 03, 2021
Date of Report:	Sep. 06, 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	7
2. SUMMARY OF TEST	8
2.1. Summary of test result.....	8
2.2. Test Facilities	9
2.3. Measurement uncertainty for EST Technology Co., Ltd.	10
2.4. Assistant equipment used for test	10
2.5. Block Diagram	10
2.6. Test Mode.....	11
2.7. Channel List	13
2.8. Power Setting of Test Software	14
2.9. Duty Cycle of Test Signal	15
2.10. Test Equipment List	19
3. 6dB BANDWIDTH & 26dB BANDWIDTH & 99% OCCUPIED BANDWIDTH.....	21
3.1. Limit	21
3.2. Test Setup	21
3.3. Spectrum Analyzer Setting.....	21
3.4. Test Procedure	22
3.5. Test Result	23
3.6. Test Result	25
4. MAXIMUM CONDUCTED OUTPUT POWER	46
4.1. Limit	46
4.2. Test Setup	46
4.3. Test Procedure	46
4.4. Test Result	47
5. PEAK POWER SPECTRAL DENSITY	49
5.1. Limit	49
5.2. Test Setup	49
5.3. Spectrum Analyzer Setting.....	49
5.4. Test Procedure	49
5.5. Test Result	50
6. UNWANTED EMISSIONS AND BAND EDGE	76
6.1. Limit	76
6.2. Test Setup	77
6.3. Spectrum Analyzer Setting.....	78
6.4. Test Procedure	79
6.5. Test Result	80
7. FREQUENCY STABILITY	120
7.1. Limit	120
7.2. Test Setup	120
7.3. Spectrum Analyzer Setting.....	120
7.4. Test Procedure	121

7.5. Test Result..... 122

8. AC POWER LINE CONDUCTED EMISSIONS126

8.1. Limit 126

8.2. Test Setup 126

8.3. Spectrum Analyzer Setting..... 126

8.4. Test Procedure..... 126

8.5. Test Result..... 127

9. ANTENNA REQUIREMENTS131

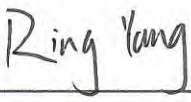
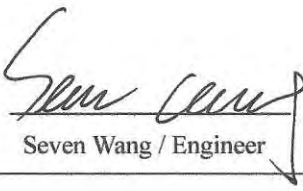
9.1. Limit 131

9.2. Test Result..... 131

10. TEST SETUP PHOTO.....132

11. EUT PHOTO.....134

EST Technology Co., Ltd.

Applicant:	EXPRESS LUCK INDUSTRIAL (SHENZHEN) LIMITED		
Address:	Floor1, Workshop1, NO.88, South Baotong Road, Xikeng Community, Yuanshan Street, Longgang District, Shenzhen, Guangdong, China		
Manufacturer:	EXPRESS LUCK INDUSTRIAL (SHENZHEN) LIMITED		
Address:	Floor1, Workshop1, NO.88, South Baotong Road, Xikeng Community, Yuanshan Street, Longgang District, Shenzhen, Guangdong, China		
E.U.T:	IEEE 802.11b/g/n/a/ac 2T2R USB WiFi Module Integrated BT 2.1+ EDR/4.2/5.0		
Model Number:	EL.MT7668BUN-WF		
Power Supply:	DC 3.3V		
Trade Name:	-----	Serial No.:	-----
Date of Receipt:	Aug. 09, 2021	Date of Test:	Aug. 09~Sep. 03, 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: Sep. 06, 2021		
Prepared by:	Reviewed by:	Approved by:	
 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	:	2AWY6-ELMT7668BUN
Product Name	:	IEEE 802.11b/g/n/a/ac 2T2R USB WiFi Module Integrated BT 2.1+ EDR/4.2/5.0
Model Number	:	EL.MT7668BUN-WF
Software Version	:	N/A
Hardware Version	:	EL.MT7668BUN-WF
Operation frequency	:	U-NII-1: 5150 MHz~5250 MHz U-NII-2A: 5250 MHz~5350 MHz U-NII-2C: 5470 MHz~5725 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-2A: 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-2C: IEEE 802.11a / n HT20 / ac VHT20: 11 Channels; IEEE 802.11n HT40 / ac VHT40: 5 Channels; IEEE 802.11ac VHT80: 2 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 300Mbps; IEEE 802.11ac: up to 866.6Mbps;
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: 12.51dBm IEEE 802.11n HT20: 11.92dBm IEEE 802.11n HT40: 11.49dBm IEEE 802.11ac VHT20: 11.73dBm IEEE 802.11ac VHT40: 10.65dBm IEEE 802.11ac VHT80: 9.27dBm
		U-NII-2A	IEEE 802.11a: 13.24dBm IEEE 802.11n HT20: 12.46dBm IEEE 802.11n HT40: 12.40dBm IEEE 802.11ac VHT20: 12.41dBm IEEE 802.11ac VHT40: 11.41dBm IEEE 802.11ac VHT80: 10.10dBm
		U-NII-2C	IEEE 802.11a: 13.09dBm IEEE 802.11n HT20: 12.97dBm IEEE 802.11n HT40: 13.06dBm IEEE 802.11ac VHT20: 12.76dBm IEEE 802.11ac VHT40: 12.08dBm IEEE 802.11ac VHT80: 10.15dBm
		U-NII-3	IEEE 802.11a: 12.72dBm IEEE 802.11n HT20: 12.65dBm IEEE 802.11n HT40: 12.89dBm IEEE 802.11ac VHT20: 12.90dBm IEEE 802.11ac VHT40: 11.87dBm IEEE 802.11ac VHT80: 10.41dBm
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	-	-	external	-	3.47
2	-	-	external	-	3.47

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):

$$\text{Directional gain} = 3.47\text{dBi} + 10 \times \log(2/1)\text{dB} = 6.48\text{dBi} > 6\text{dBi}$$

So, the output power limit and power spectral density should be reduced.

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

TX Mode \ ANT No.	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)(9)	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	1.08dB
Uncertainty for Power density test	0.26dB
Temperature	$\pm 0.6^{\circ}\text{C}$
Humidity	$\pm 4.0\%$
Volatage DC	$\pm 1.0\%$
Volatage (AC, <10KHz)	$\pm 1.5\%$

Note:

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

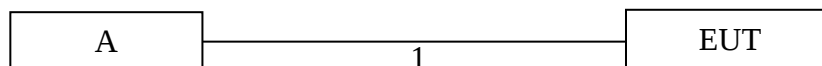
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	Notebook	-	E485	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	0.2m	DC 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.



(EUT: IEEE 802.11b/g/n/a/ac 2T2R USB WiFi Module Integrated BT 2.1+EDR/4.2/5.0)

2.6. Test Mode

Pre-scan has been combined all possible modulations and data 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	36/40/48/52/60/64/100/116/140	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/118/134	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/118/134	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122	OFDM	MCS0
99% Occupied Bandwidth	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Maximum Conducted Output Power	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0

Peak Power Spectral Density	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Unwanted Emissions and Band Edge(Above 1GHz)	IEEE 802.11a	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	6Mbps
	IEEE 802.11n HT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11n HT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT20	36/40/48/52/60/64/100/116/140/149/157/165	OFDM	MCS0
	IEEE 802.11ac VHT40	38/46/54/62/102/118/134/151/159	OFDM	MCS0
	IEEE 802.11ac VHT80	42/58/106/122/155	OFDM	MCS0
Unwanted Emissions Below 1GHz	IEEE 802.11a	100	OFDM	6Mbps
Frequency Stability	Unmodulation	36/64/100/149	N/A	N/A
AC Power Line Conducted Emissions	IEEE 802.11a	100	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
		44	5220
		48	5240
	IEEE 802.11n HT40 & ac VHT40	38	5190
		46	5230
	IEEE 802.11ac VHT80	42	5210
U-NII-2A	IEEE 802.11a & n HT20 & ac VHT20	52	5260
		56	5280
		60	5300
		64	5320
	IEEE 802.11n HT40 & ac VHT40	54	5270
		62	5310
	IEEE 802.11ac VHT80	58	5290
U-NII-2C	IEEE 802.11a & n HT20 & ac VHT20	100	5500
		104	5520
		108	5540
		112	5560
		116	5580
		120	5600
		124	5620
		128	5640
		132	5660
		136	5680
		140	5700
	IEEE 802.11n HT40 & ac VHT40	102	5510
		110	5550
		118	5590
		126	5630
		134	5670
	IEEE 802.11ac VHT80	106	5530
		122	5610
U-NII-3	IEEE 802.11a & n HT20 & ac VHT20	149	5745
		153	5765
		157	5785
		161	5805
		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	QAS_TooL_Dbg		
U-NII-1			
Frequency(MHz)	5180	5200	5240
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)	5190	5230	
IEEE 802.11n HT40 Setting	Default	Default	
IEEE 802.11ac VHT40 Setting	Default	Default	
Frequency(MHz)	5210		
IEEE 802.11ac VHT80 Setting	Default		
U-NII-2A			
Frequency(MHz)	5260	5300	5320
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)	5270	5310	
IEEE 802.11n HT40 Setting	Default	Default	
IEEE 802.11ac VHT40 Setting	Default	Default	
Frequency(MHz)	5290		
IEEE 802.11ac VHT80 Setting	Default		
U-NII-2C			
Frequency(MHz)	5500	5580	5700
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)	5510	5590	5670
IEEE 802.11n HT40 Setting	Default	Default	Default
IEEE 802.11ac VHT40 Setting	Default	Default	Default
Frequency(MHz)	5530	5610	
IEEE 802.11ac VHT80 Setting	Default	Default	
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		

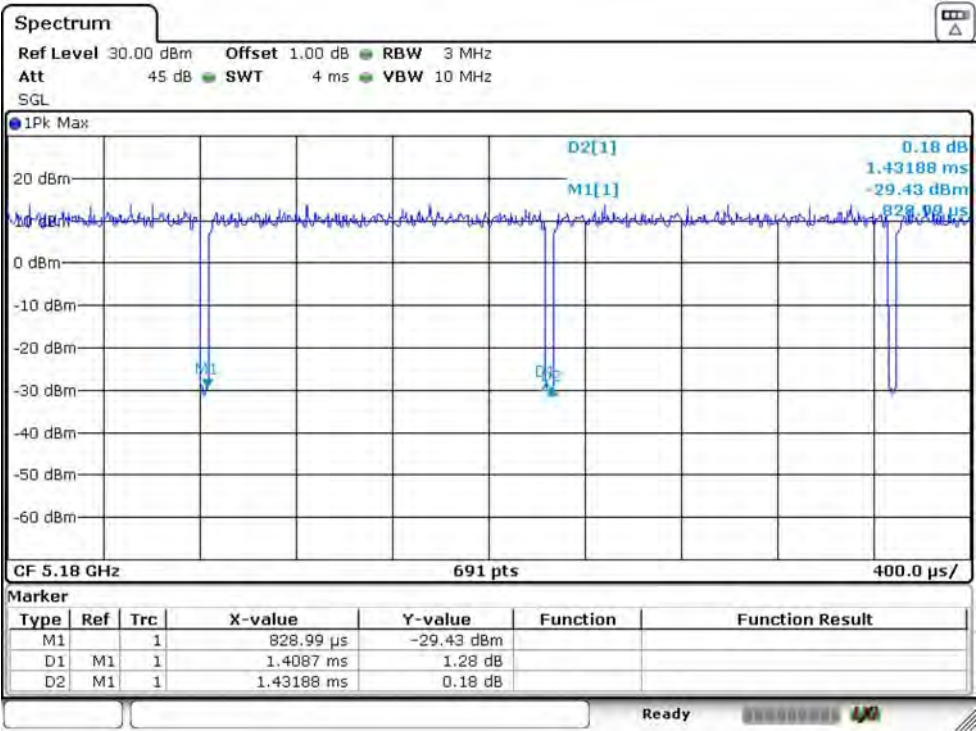
2.9. Duty Cycle of Test Signal

Temperature	25℃	Relative Humidity		58%	Test Voltage		DC 3.3V
Mode	Frequency (MHz)	On time (ms)	Total Time (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T (Hz)	VBW Setting (dB)
IEEE 802.11a	5180	1.40870	1.43188	98.38	0.00	10	1952
IEEE 802.11n HT20	5180	1.31594	1.33913	98.27	0.00	10	1952
IEEE 802.11ac VHT20	5190	0.69565	0.71884	96.77	0.14	1438	1952
IEEE 802.11n HT40	5180	0.66087	0.68696	96.20	0.17	1513	1952
IEEE 802.11ac VHT40	5190	0.36087	0.38696	93.26	0.30	2771	1952
IEEE 802.11ac VHT80	5210	1.08695	1.56522	69.44	1.58	920	1952

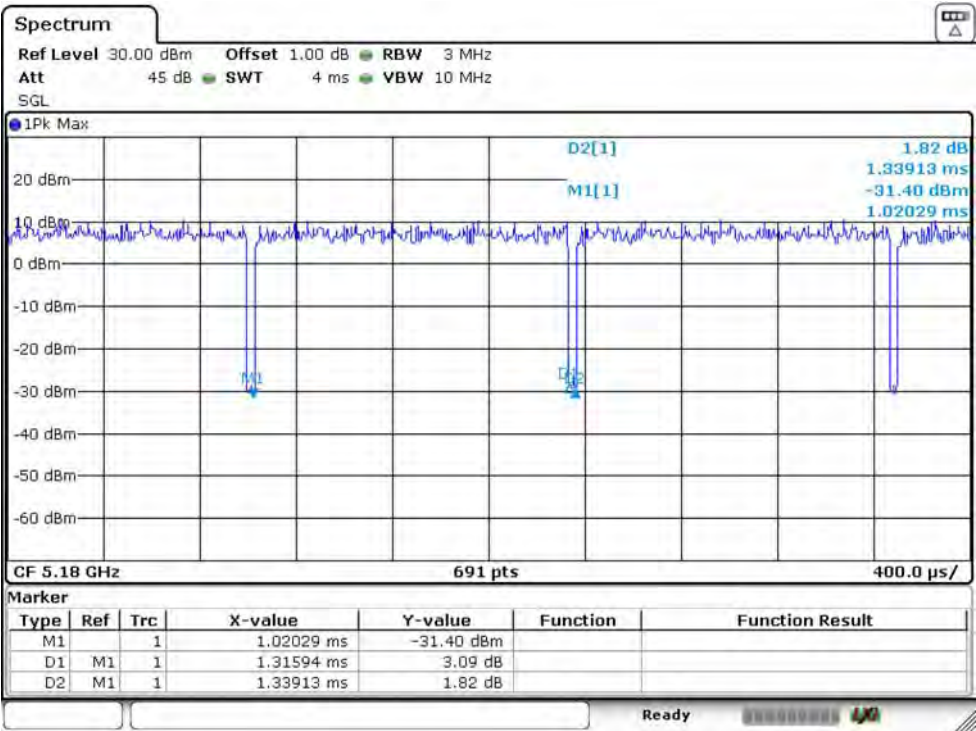
Note:

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.

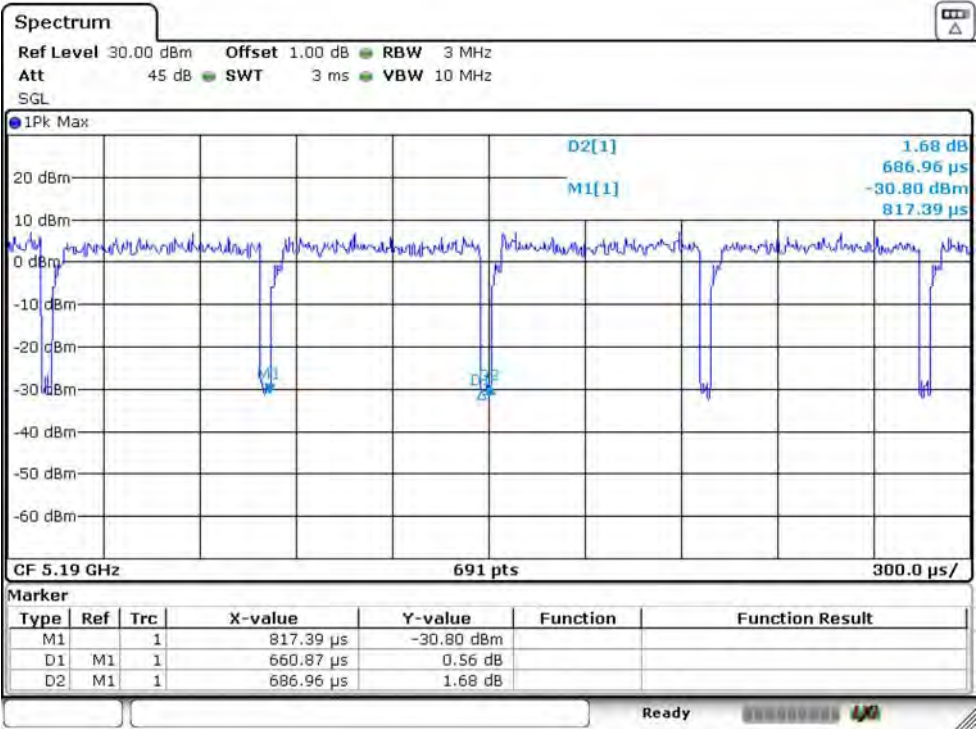
IEEE 802.11a 5180MHz



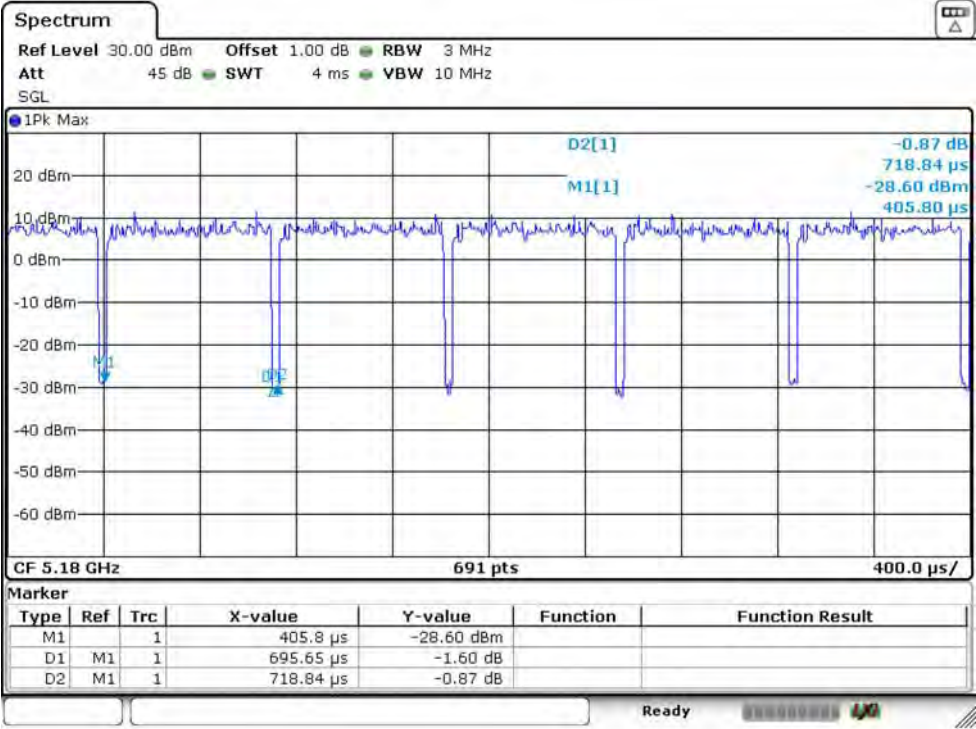
IEEE 802.11n HT20 5180MHz



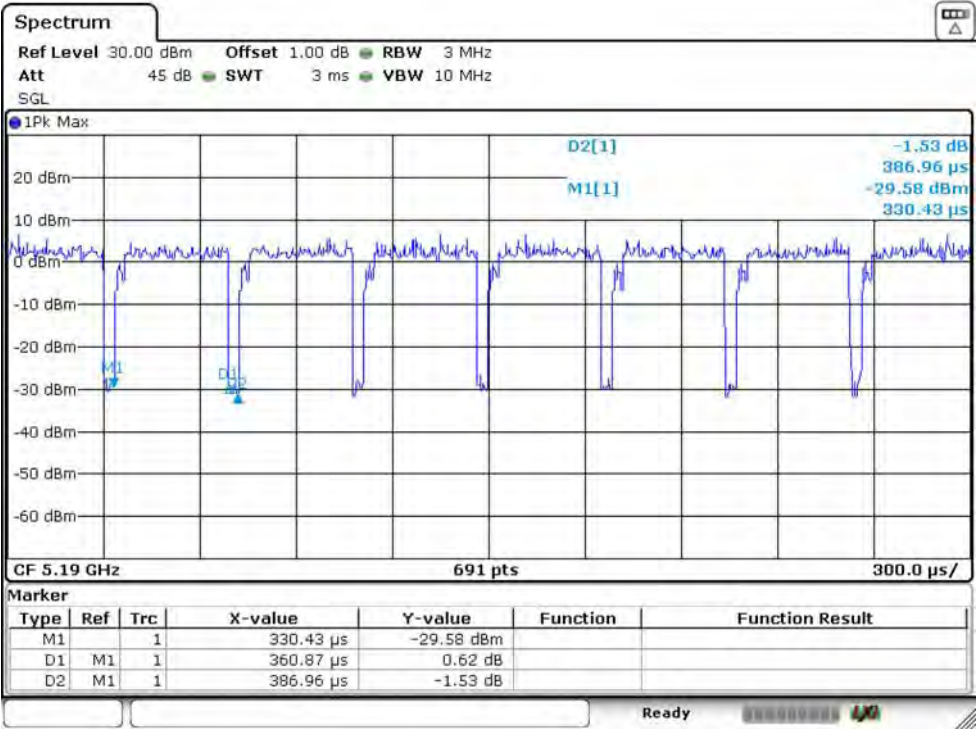
IEEE 802.11n HT40 5190MHz



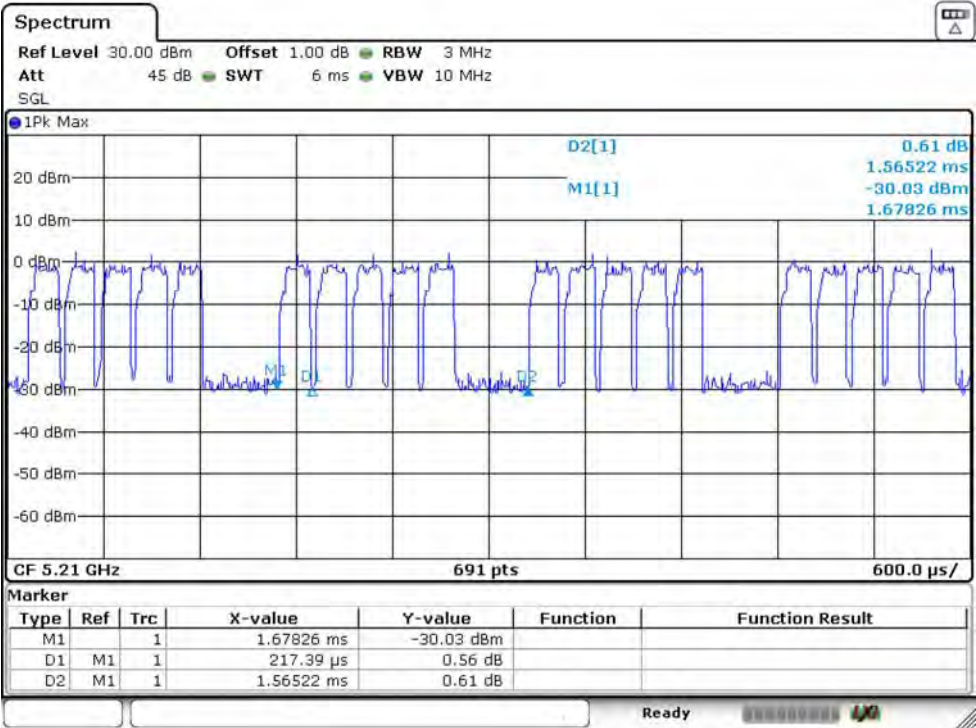
IEEE 802.11ac VHT20 5180MHz



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 13,21	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E002	LISAI	June 13,21	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 13,21	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 13,21	1 Year
Active Loop Antenna	SCHWARZB ECK	FMZB 1519B	EST-E054	LISAI	June 13,21	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 13,21	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 13,21	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	SCHWARZB ECK	BBHA 9120 D	EST-E031	LISAI	June 13,21	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	EST-E032	LISAI	June 13,21	1 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	EST-E069	LISAI	July 19,21	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

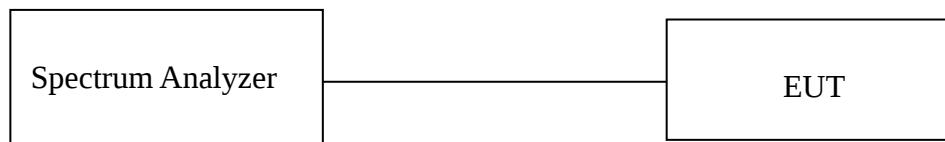
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
TS 8997	Rohde & Schwarz	/	/	/	/	/
Open Switch and Control Unit	Rohde & Schwarz	OSP-B157WB	EST-E036	LISAI	June 13,21	1 Year
Signal and Spectrum Analyzer	Rohde & Schwarz	FSV	EST-E037	LISAI	June 13,21	1 Year
Signal Generator	Rohde & Schwarz	SMB100A	EST-E038	LISAI	June 13,21	1 Year
Vector Signal Generator	Rohde & Schwarz	SMBV100A	EST-E039	LISAI	June 13,21	1 Year
Test Software	Rohde & Schwarz	WMS32	V10.50.00	N/A	N/A	N/A
Temperature controller	Terchy	MHQ	EST-E101	LISAI	June 13,21	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 $\geq$ 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 :

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- 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%.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

For 6dB Bandwidth Measurement :

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 3.3.
- Set the EUT transmit continuously with maximum output power.
- 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.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

For 99% Occupied Bandwidth Measurement :

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

3.5. Test Result

Temperature	25℃	Relative Humidity		58%	Test Voltage	DC 3.3V
26dB Bandwidth&99% Occupied Bandwidth						
AND	Test Mode	Fre (MHz)	26dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Calcul ate Power Limit (W)	Calculate Power Limit (dBm)
U-NII-1	IEEE 802.11a	5180	19.740	16.787		
		5200	19.797	16.845		
		5240	19.740	16.845		
	IEEE 802.11n HT20	5180	20.029	17.656		
		5200	20.087	17.656		
		5240	20.203	17.656		
	IEEE 802.11ac VHT20	5180	20.029	17.656		
		5200	20.203	17.656		
		5240	20.029	17.598		
	IEEE 802.11n HT40	5190	40.376	36.353		
		5230	40.116	36.585		
	IEEE 802.11ac VHT40	5190	40.463	36.353		
		5230	40.376	36.353		
	IEEE 802.11ac VHT80	5210	80.410	75.890		
U-NII-2A	IEEE 802.11a	5260	19.740	16.787	0.2500	23.98
		5300	19.797	16.845	0.2500	23.98
		5320	19.682	16.961	0.2500	23.98
	IEEE 802.11n HT20	5260	20.087	17.713	0.2500	23.98
		5300	20.029	17.713	0.2500	23.98
		5320	20.029	17.713	0.2500	23.98
	IEEE 802.11ac VHT20	5260	20.376	17.713	0.2500	23.98
		5300	20.203	17.598	0.2500	23.98
		5320	20.203	17.713	0.2500	23.98
	IEEE 802.11n HT40	5270	40.203	36.237	0.2500	23.98
		5310	40.289	36.353	0.2500	23.98
	IEEE 802.11ac VHT40	5270	40.289	36.585	0.2500	23.98
		5310	40.029	36.469	0.2500	23.98
	IEEE 802.11ac VHT80	5290	80.580	75.890	0.2500	23.98

Temperature	25℃	Relative Humidity		58%	Test Voltage	DC 3.3V
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)
U-NII-2C	IEEE 802.11a	5500	19.797	16.729	0.2500	23.98
		5580	19.855	16.845	0.2500	23.98
		5700	19.855	16.787	0.2500	23.98
	IEEE 802.11n HT20	5500	20.029	17.656	0.2500	23.98
		5580	20.029	17.713	0.2500	23.98
		5700	20.087	17.713	0.2500	23.98
	IEEE 802.11ac VHT20	5500	20.203	17.713	0.2500	23.98
		5580	20.087	17.829	0.2500	23.98
		5700	20.087	17.656	0.2500	23.98
	IEEE 802.11n HT40	5510	40.203	36.469	0.2500	23.98
		5590	40.203	36.469	0.2500	23.98
		5670	40.289	36.700	0.2500	23.98
	IEEE 802.11ac VHT40	5510	40.203	36.237	0.2500	23.98
		5590	39.855	36.469	0.2500	23.98
		5670	40.376	36.469	0.2500	23.98
	IEEE 802.11ac VHT80	5530	80.580	75.716	0.2500	23.98
		5610	80.060	75.716	0.2500	23.98

Temperature	25℃	Relative Humidity		58%	Test Voltage	DC 3.3V
6dB Bandwidth&99% Occupied Bandwidth						
BAND	Test Mode	Fre (MHz)	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	6dB BW Min Limit (MHz)	Result
U-NII-3	IEEE 802.11a	5745	15.127	16.903	0.5	PASS
		5785	15.127	16.729	0.5	PASS
		5825	15.115	16.787	0.5	PASS
	IEEE 802.11n HT20	5745	16.306	17.713	0.5	PASS
		5785	16.306	17.771	0.5	PASS
		5825	16.290	17.771	0.5	PASS
	IEEE 802.11ac VHT20	5745	16.254	17.598	0.5	PASS
		5785	16.278	17.656	0.5	PASS
		5825	16.262	17.598	0.5	PASS
	IEEE 802.11n HT40	5755	35.692	36.585	0.5	PASS
		5795	35.109	36.585	0.5	PASS
	IEEE 802.11ac VHT40	5755	35.109	36.700	0.5	PASS
		5795	35.109	36.469	0.5	PASS
	IEEE 802.11ac VHT80	5775	75.892	75.369	0.5	PASS

Note :

- 1、 For Band U-NII-2A and U-NII-2C,the maximum conducted output power limit is 250mw or $11+10 \times \log B$, 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.
- 2、 only the worst case (Antenna 1) data filling in the test report.

3.6. Test Result

U-NII-1 IEEE 802.11a 5180MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-1 IEEE 802.11a 5200MHz

26dB Bandwidth

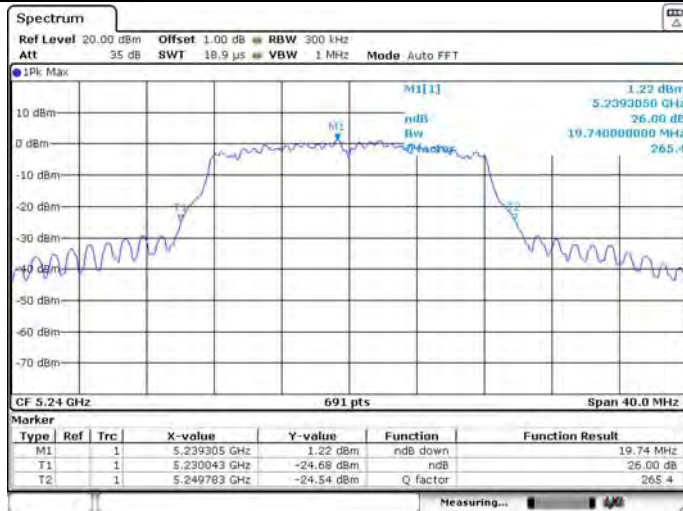


99% Occupied Bandwidth



U-NII-1 IEEE 802.11a 5240MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-1 IEEE 802.11n HT20 5180MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-1 IEEE 802.11n HT20 5200MHz

26dB Bandwidth

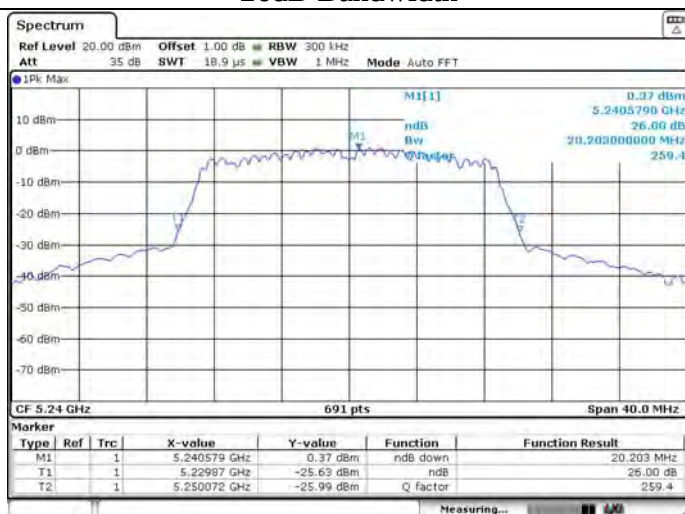


99% Occupied Bandwidth



U-NII-1 IEEE 802.11n HT20 5240MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT20 5180MHz

26dB Bandwidth

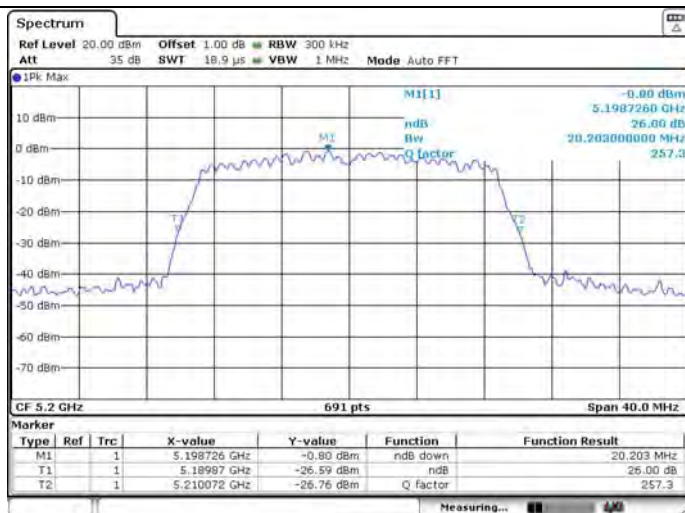


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT20 5200MHz

26dB Bandwidth

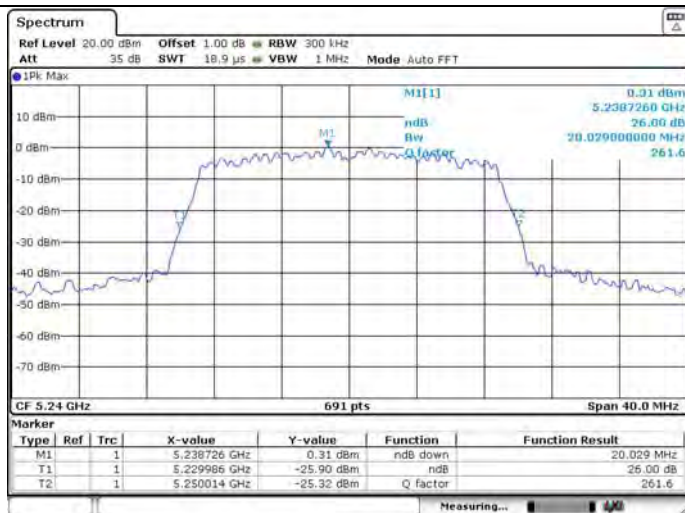


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT20 5240MHz

26dB Bandwidth

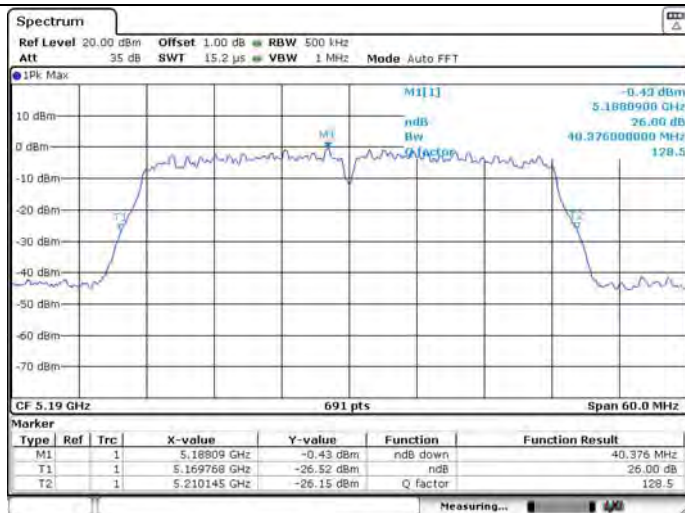


99% Occupied Bandwidth



U-NII-1 IEEE 802.11n HT40 5190MHz

26dB Bandwidth

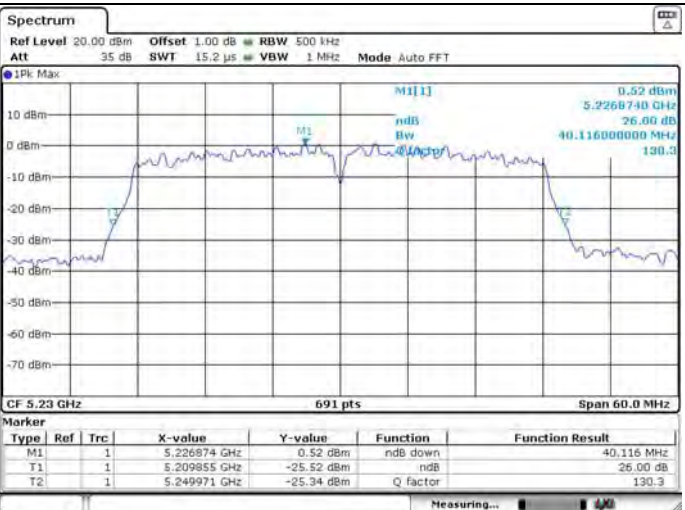


99% Occupied Bandwidth



U-NII-1 IEEE 802.11n HT40 5230MHz

26dB Bandwidth

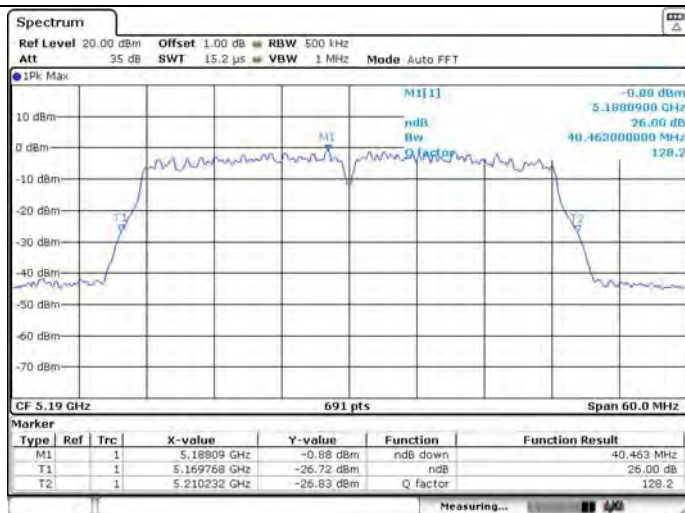


99% Occupied Bandwidth



U-NII-1 IEEE 802.11ac VHT40 5190MHz

26dB Bandwidth



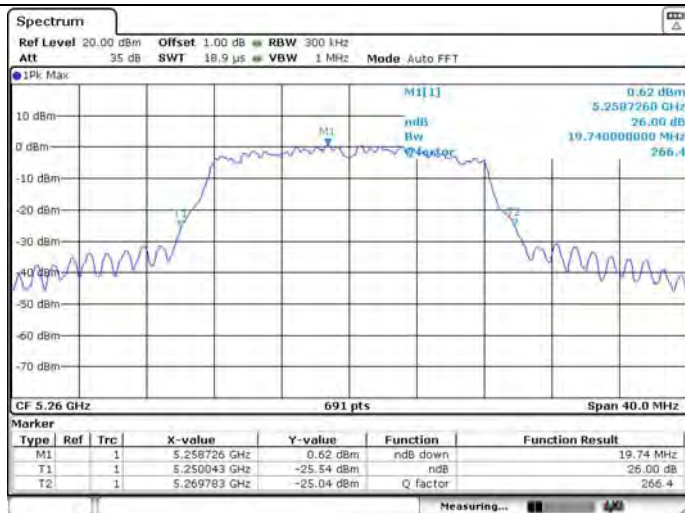
99% Occupied Bandwidth





U-NII-2A IEEE 802.11a 5260MHz

26dB Bandwidth

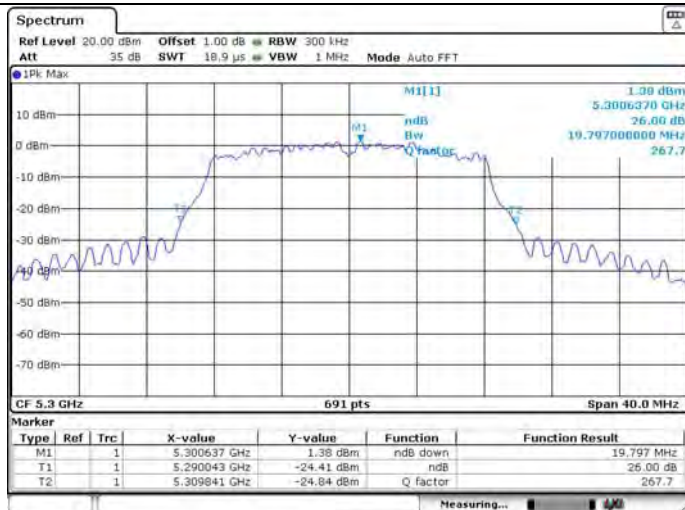


99% Occupied Bandwidth



U-NII-2A IEEE 802.11a 5300MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2A IEEE 802.11a 5320MHz

26dB Bandwidth



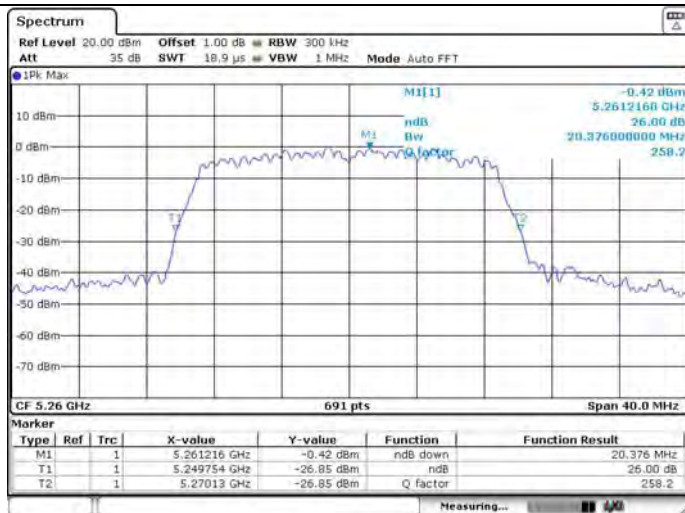
99% Occupied Bandwidth



U-NII-2A IEEE 802.11n HT20 5260MHz**26dB Bandwidth****99% Occupied Bandwidth****U-NII-2A IEEE 802.11n HT20 5300MHz****26dB Bandwidth****99% Occupied Bandwidth****U-NII-2A IEEE 802.11n HT20 5320MHz****26dB Bandwidth****99% Occupied Bandwidth**

U-NII-2A IEEE 802.11ac VHT20 5260MHz

26dB Bandwidth

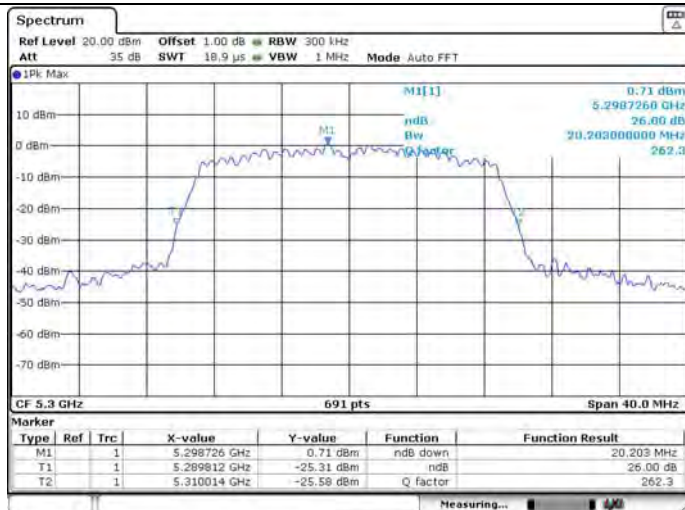


99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT20 5300MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT20 5320MHz

26dB Bandwidth

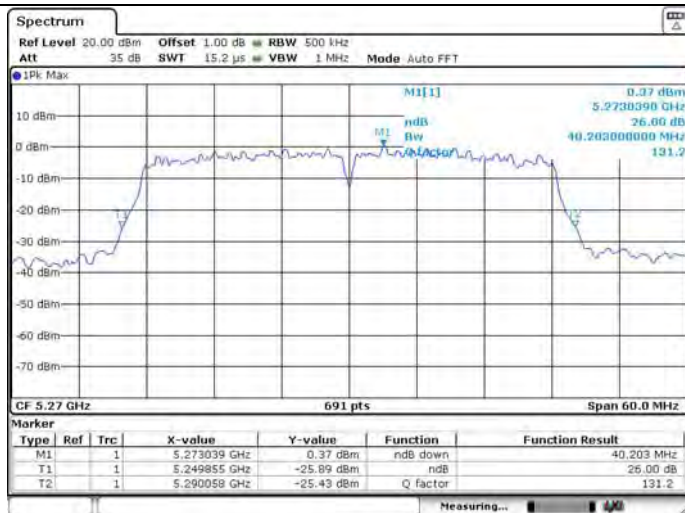


99% Occupied Bandwidth



U-NII-2A IEEE 802.11n HT40 5270MHz

26dB Bandwidth

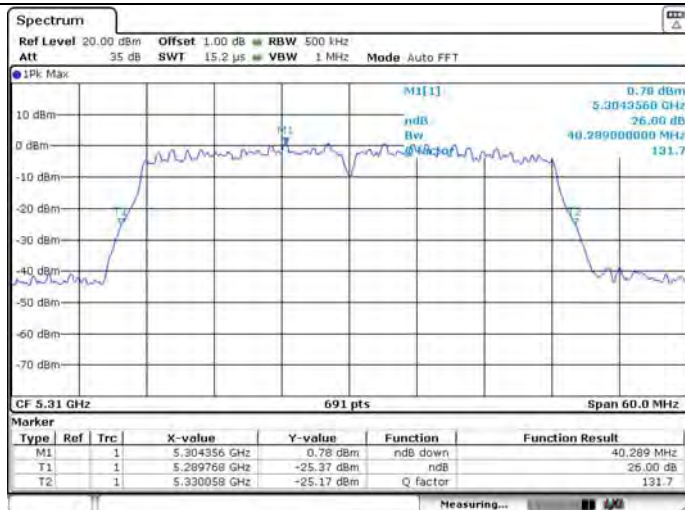


99% Occupied Bandwidth



U-NII-2A IEEE 802.11n HT40 5310MHz

26dB Bandwidth

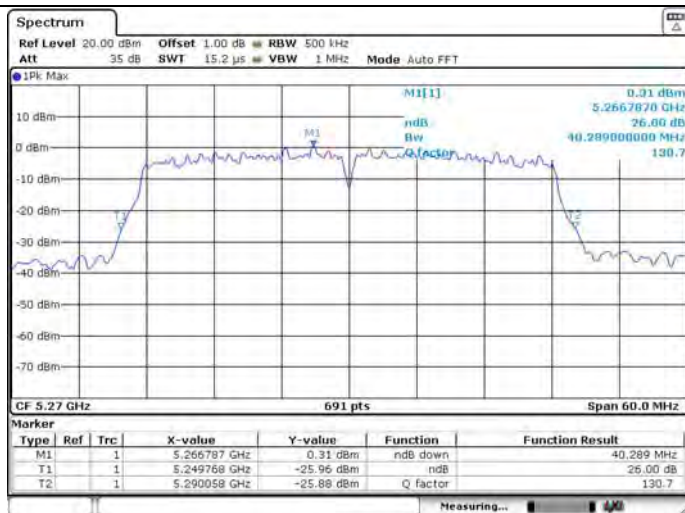


99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT40 5270MHz

26dB Bandwidth



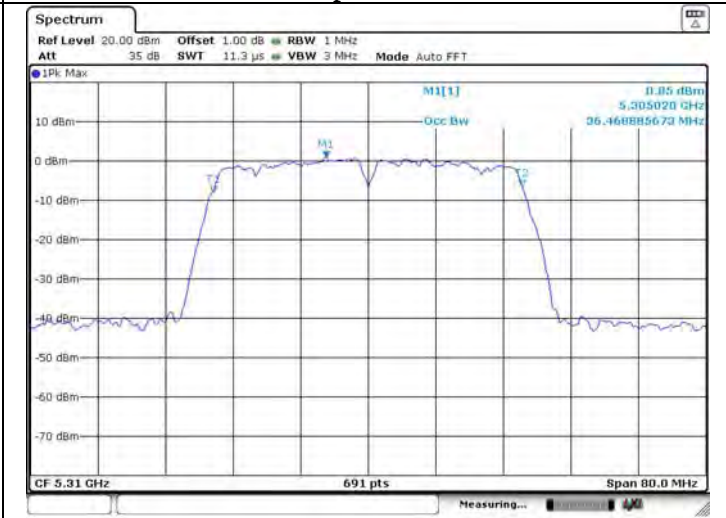
99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT40 5310MHz

26dB Bandwidth

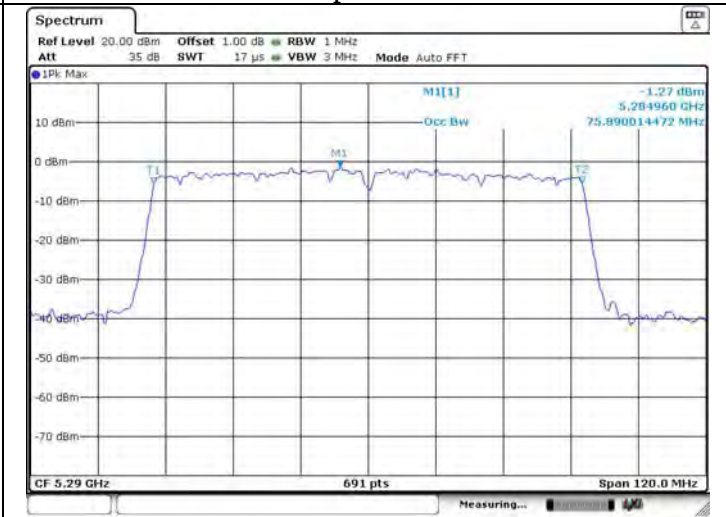
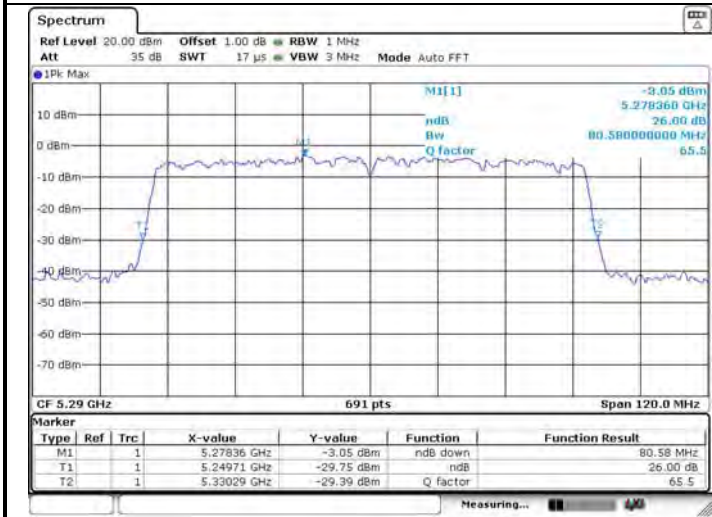
99% Occupied Bandwidth



U-NII-2A IEEE 802.11ac VHT80 5290MHz

26dB Bandwidth

99% Occupied Bandwidth



U-NII-2C IEEE 802.11a 5500MHz

26dB Bandwidth

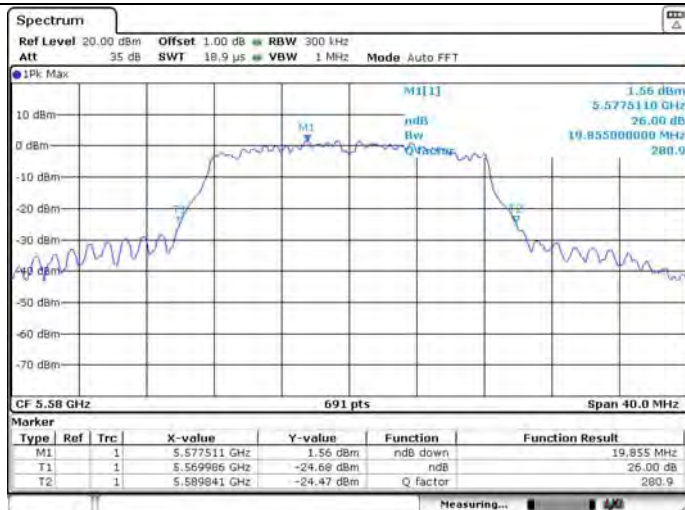


99% Occupied Bandwidth



U-NII-2C IEEE 802.11a 5580MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11a 5700MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT20 5500MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT20 5580MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT20 5700MHz

26dB Bandwidth

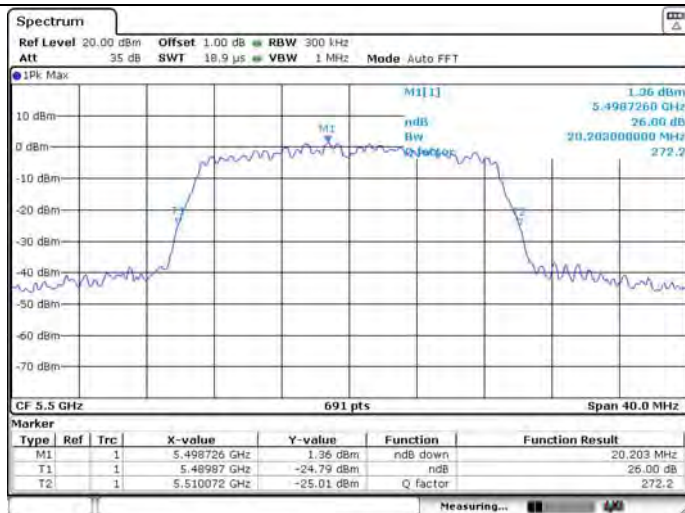


99% Occupied Bandwidth



U-NII-2C IEEE 802.11ac VHT20 5500MHz

26dB Bandwidth

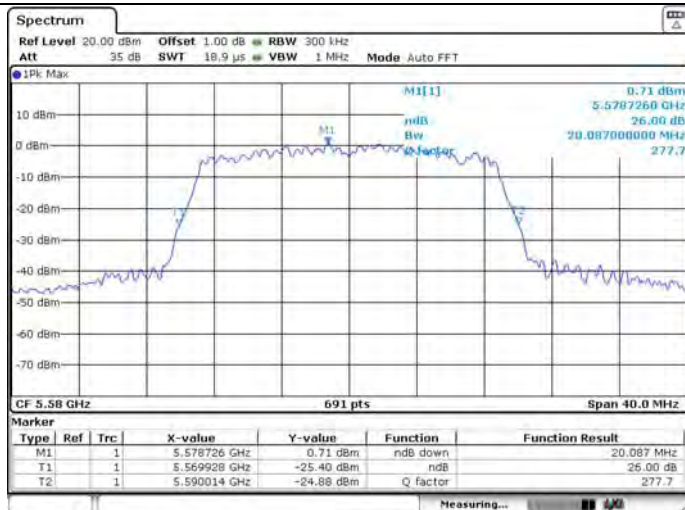


99% Occupied Bandwidth



U-NII-2C IEEE 802.11ac VHT20 5580MHz

26dB Bandwidth



99% Occupied Bandwidth



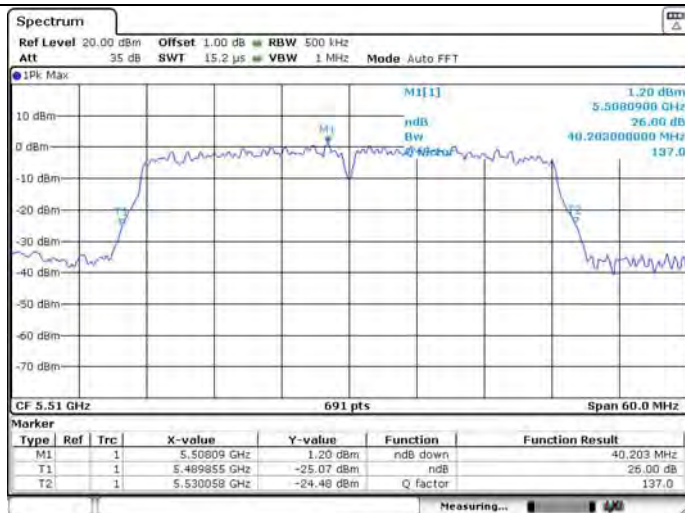
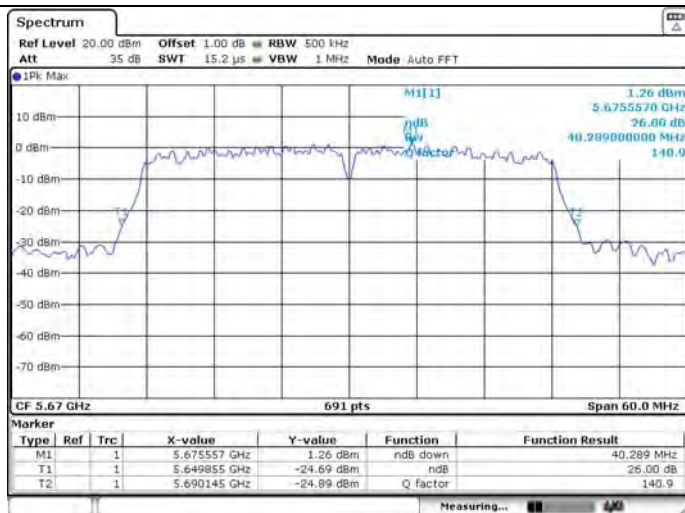
U-NII-2C IEEE 802.11ac VHT20 5700MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11n HT40 5510MHz**26dB Bandwidth****99% Occupied Bandwidth****U-NII-2C IEEE 802.11n HT40 5590MHz****26dB Bandwidth****99% Occupied Bandwidth****U-NII-2C IEEE 802.11n HT40 5670MHz****26dB Bandwidth****99% Occupied Bandwidth**

U-NII-2C IEEE 802.11ac VHT40 5510MHz

26dB Bandwidth



99% Occupied Bandwidth



U-NII-2C IEEE 802.11ac VHT40 5590MHz

26dB Bandwidth



99% Occupied Bandwidth



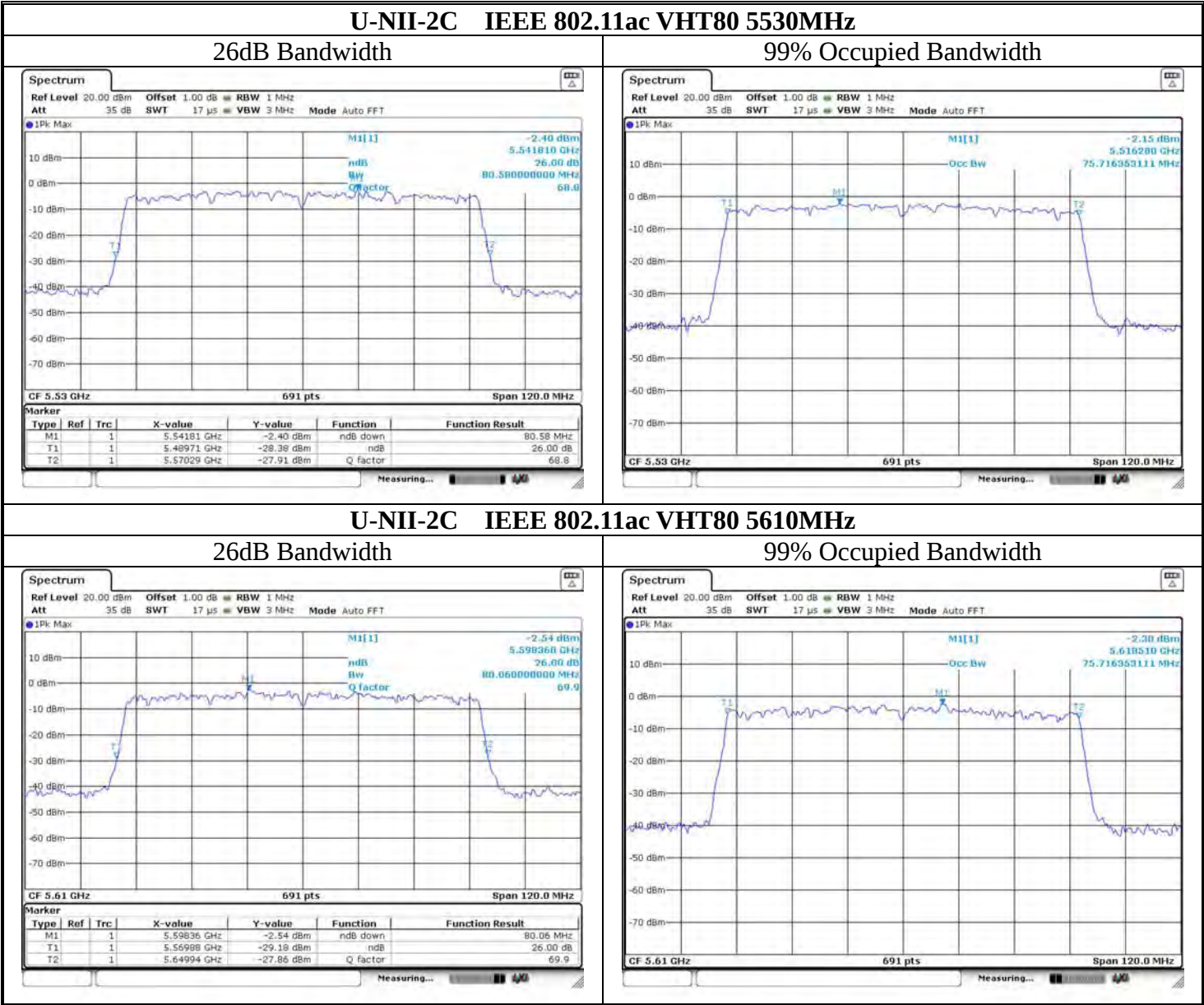
U-NII-2C IEEE 802.11ac VHT40 5670MHz

26dB Bandwidth



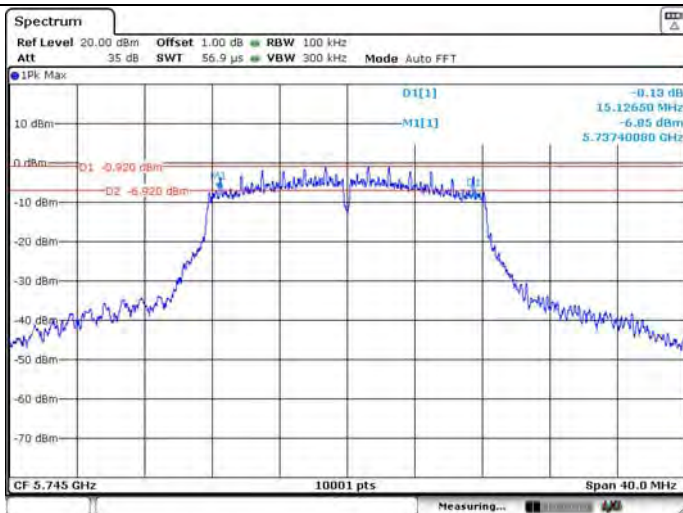
99% Occupied Bandwidth





U-NII-3 IEEE 802.11a 5745MHz

6dB Bandwidth

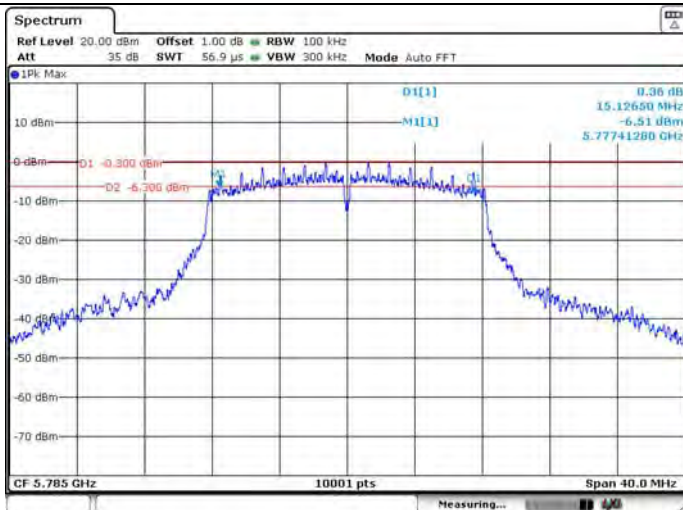


99% Occupied Bandwidth



U-NII-3 IEEE 802.11a 5785MHz

6dB Bandwidth

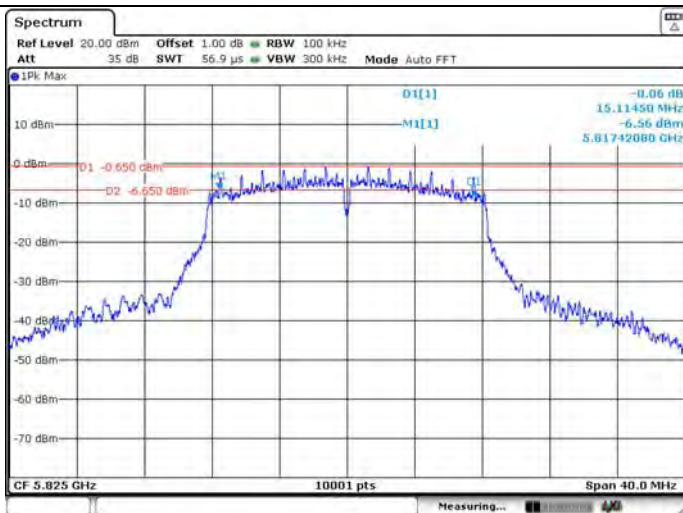


99% Occupied Bandwidth



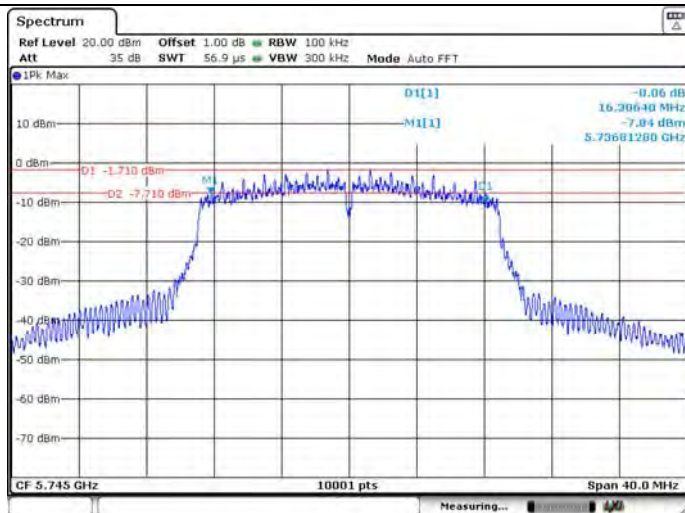
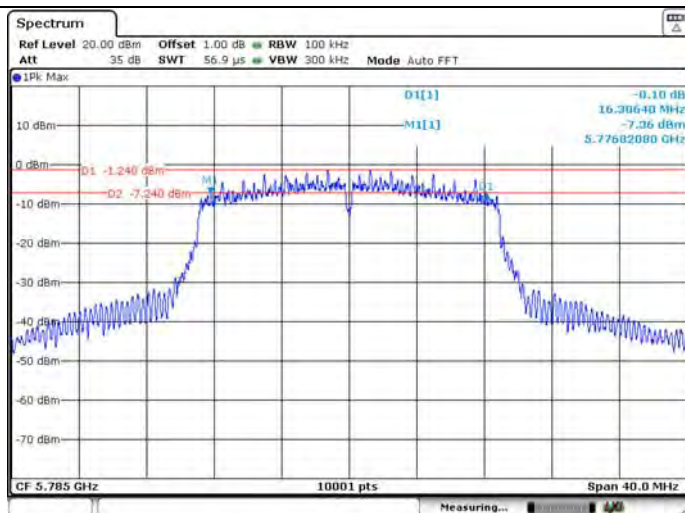
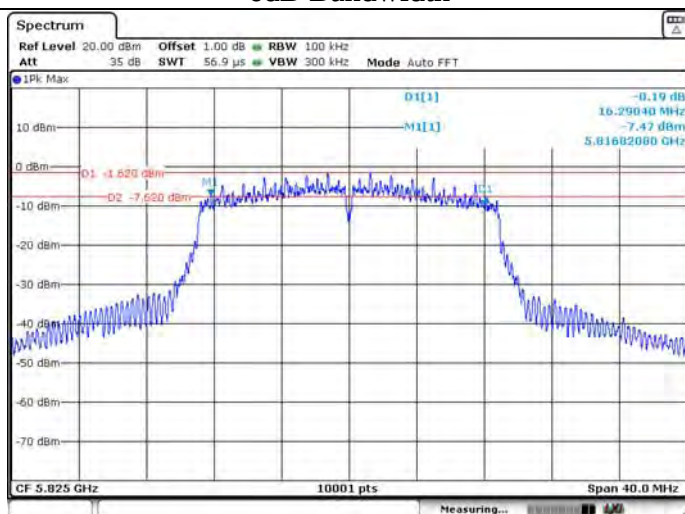
U-NII-3 IEEE 802.11a 5825MHz

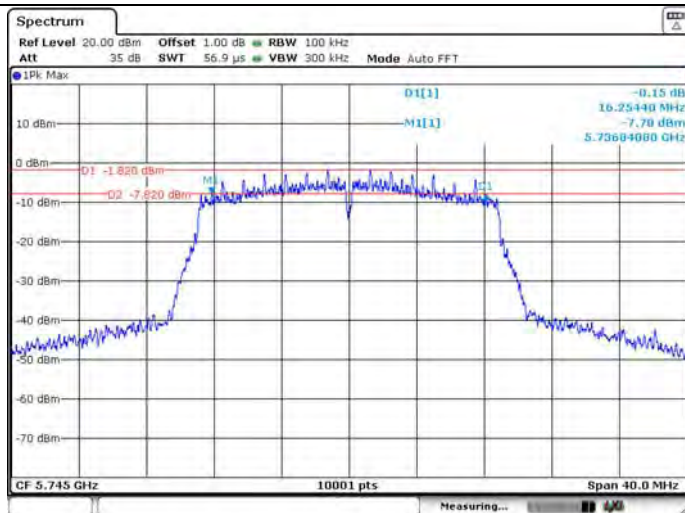
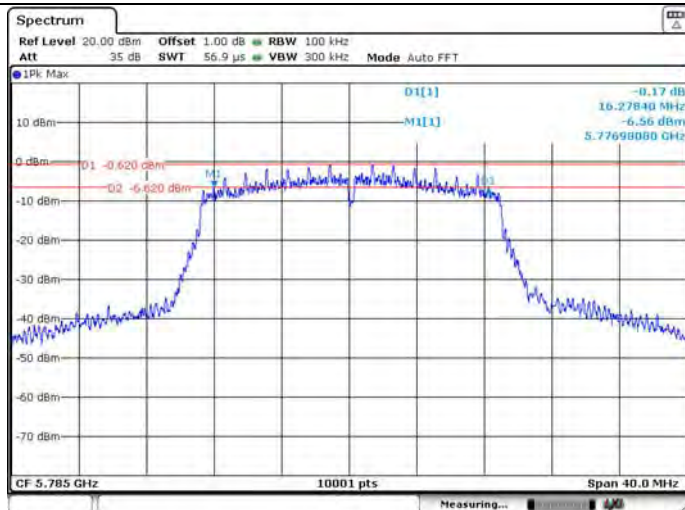
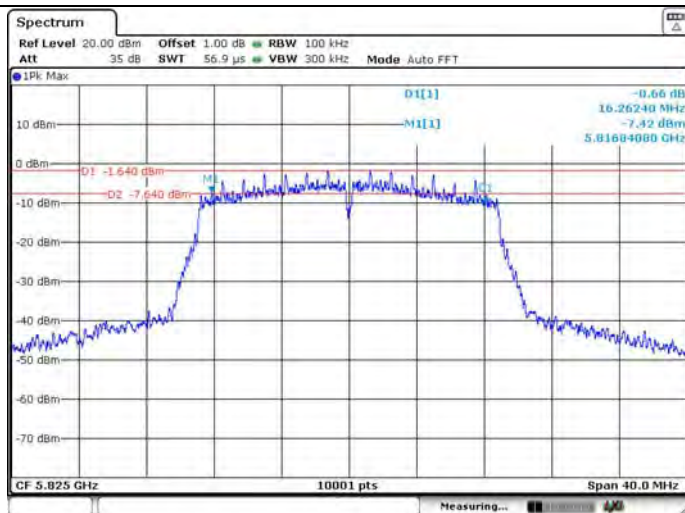
6dB Bandwidth

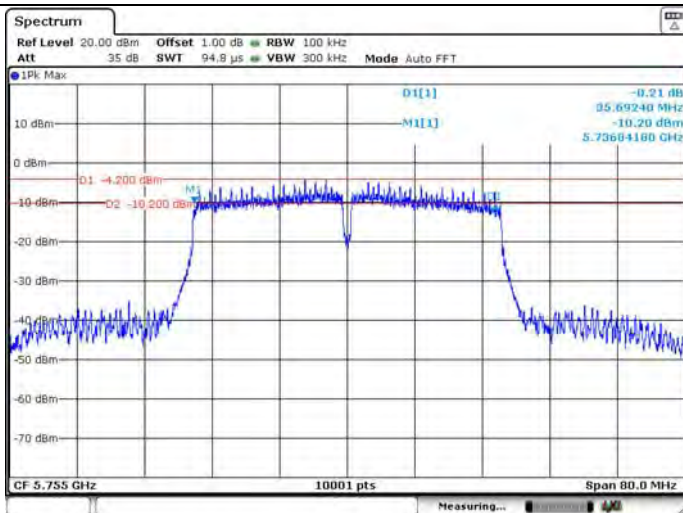
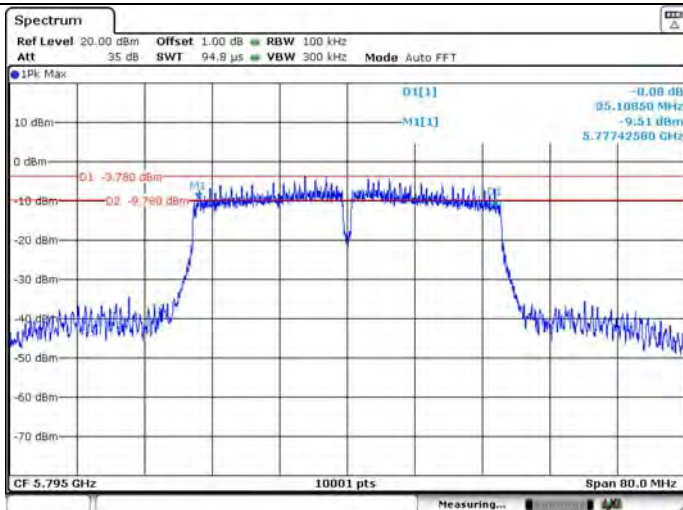
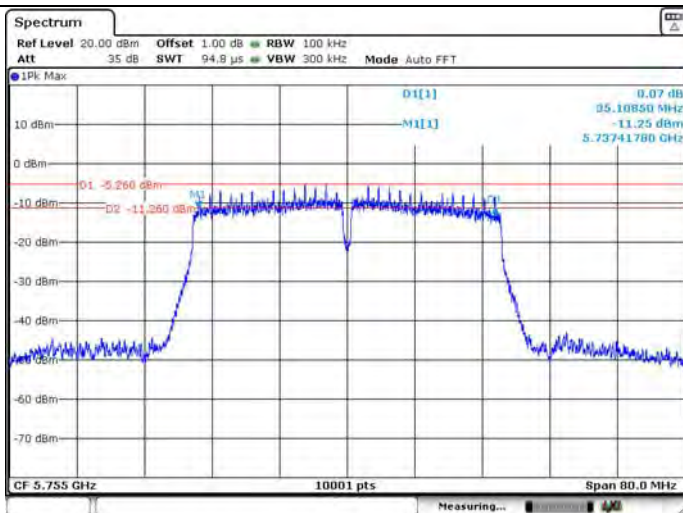


99% Occupied Bandwidth



U-NII-3 IEEE 802.11n HT20 5745MHz**6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11n HT20 5785MHz****6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11n HT20 5825MHz****6dB Bandwidth****99% Occupied Bandwidth**

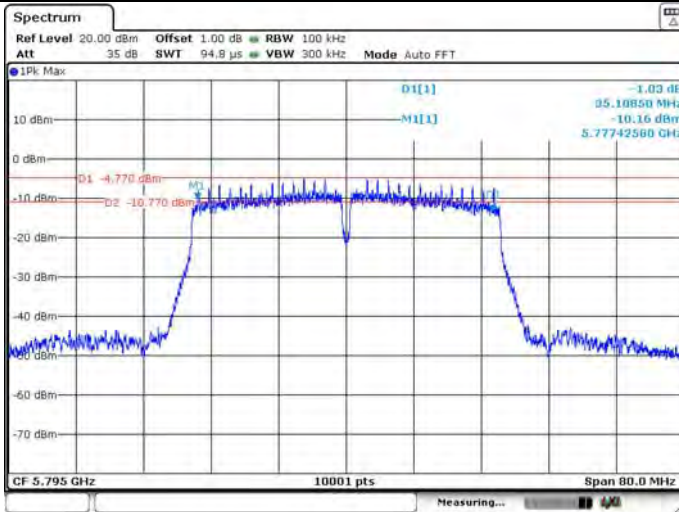
U-NII-3 IEEE 802.11ac VHT20 5745MHz**6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11ac VHT20 5785MHz****6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11ac VHT20 5825MHz****6dB Bandwidth****99% Occupied Bandwidth**

U-NII-3 IEEE 802.11n HT40 5755MHz**6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11n HT40 5795MHz****6dB Bandwidth****99% Occupied Bandwidth****U-NII-3 IEEE 802.11ac VHT40 5755MHz****6dB Bandwidth****99% Occupied Bandwidth**

U-NII-3 IEEE 802.11ac VHT40 5795MHz

6dB Bandwidth

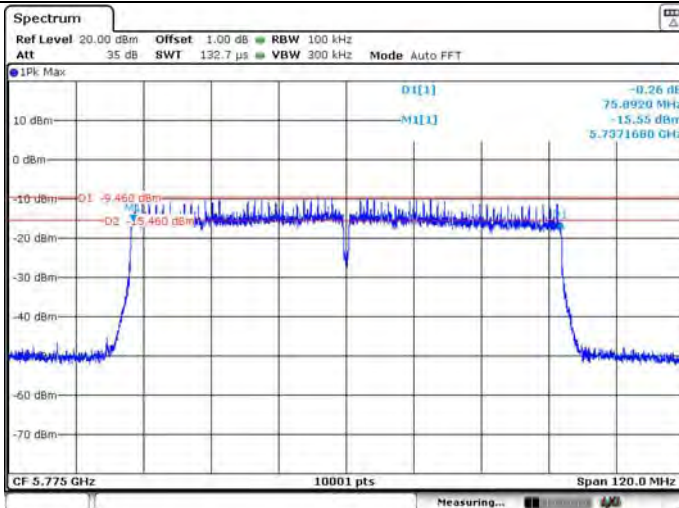
99% Occupied Bandwidth



U-NII-3 IEEE 802.11ac VHT80 5775MHz

6dB Bandwidth

99% Occupied Bandwidth



4. MAXIMUM CONDUCTED OUTPUT POWER

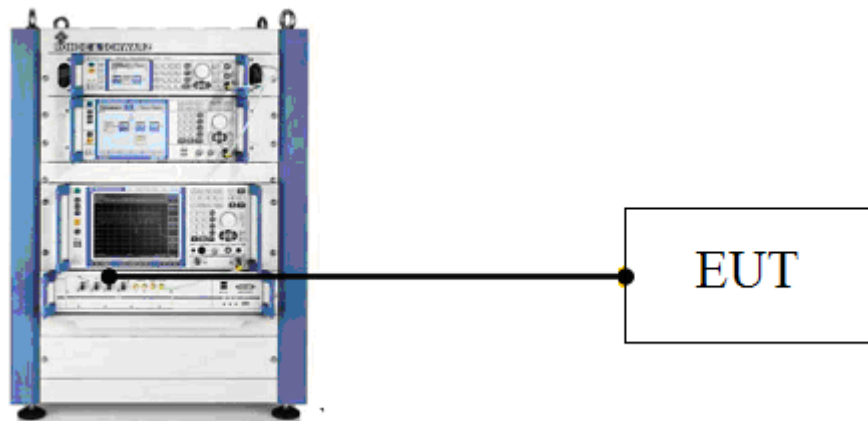
4.1. Limit

Band	EUT Type	Limit
U-NII-1	Outdoor Access Point	1W(30dBm) (Max. e.i.r.p $\leq 125\text{mW}$ 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 $11\text{dBm} + 10 \log B$, Which is lesser. (B is 26dB Bandwidth in MHz)
U-NII-2C	All Device	250mW(23.98dBm) or $11\text{dBm} + 10 \log B$, 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

- Connect EUT antenna terminal to the OSP-B157WB with RF cable.
- Set the EUT transmit continuously with maximum output power.
- 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.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

4.4. Test Result

Temperature	25℃	Relative Humidity			58%	Test Voltage	DC 3.3V	
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	11.99	11.51	0.0158	11.99	23.98	PASS
		5200	11.58	11.04	0.0144	11.58	23.98	PASS
		5240	12.51	11.61	0.0178	12.51	23.98	PASS
	IEEE 802.11n HT20	5180	8.82	8.04	0.01399	11.46	23.98	PASS
		5200	8.62	7.71	0.01318	11.20	23.98	PASS
		5240	9.51	8.21	0.01556	11.92	23.98	PASS
	IEEE 802.11ac VHT20	5180	8.22	7.84	0.01271	11.04	23.98	PASS
		5200	8.08	7.53	0.01210	10.83	23.98	PASS
		5240	9.21	8.17	0.01489	11.73	23.98	PASS
	IEEE 802.11n HT40	5190	8.17	7.80	0.01259	11.00	23.98	PASS
		5230	8.91	8.01	0.01410	11.49	23.98	PASS
	IEEE 802.11ac VHT40	5190	7.71	6.80	0.01069	10.29	23.98	PASS
		5230	8.30	6.87	0.01162	10.65	23.98	PASS
	IEEE 802.11ac VHT80	5210	6.81	5.63	0.00845	9.27	23.98	PASS
U-NII-2A	IEEE 802.11a	5260	12.85	11.70	0.01925	12.85	23.95	PASS
		5300	11.92	11.76	0.01555	11.92	23.97	PASS
		5320	13.24	12.00	0.02109	13.24	23.94	PASS
	IEEE 802.11n HT20	5260	9.98	8.53	0.01707	12.32	23.98	PASS
		5300	10.04	8.40	0.01701	12.31	23.98	PASS
		5320	10.16	8.60	0.01763	12.46	23.98	PASS
	IEEE 802.11ac VHT20	5260	9.67	8.29	0.01600	12.04	23.98	PASS
		5300	9.83	8.24	0.01629	12.12	23.98	PASS
		5320	10.11	8.54	0.01740	12.41	23.98	PASS
	IEEE 802.11n HT40	5270	9.88	6.76	0.01447	11.61	23.98	PASS
		5310	10.11	8.52	0.01738	12.40	23.98	PASS
	IEEE 802.11ac VHT40	5270	8.99	7.35	0.01335	11.26	23.98	PASS
		5310	9.25	7.35	0.01385	11.41	23.98	PASS
	IEEE 802.11ac VHT80	5290	7.89	6.09	0.01022	10.10	23.98	PASS

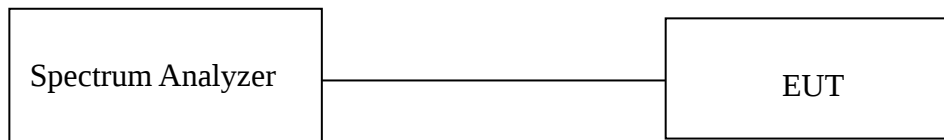
BAND	Test Mode	Fre (MHz)	Conducted AVG Output Power (dBm)		Total Conducted Output Power (W)	Total Conducted Output Power (dBm)	Limit (dBm)	Result
			Ant 1	Ant 2				
U-NII-2C	IEEE 802.11a	5500	12.62	12.11	0.01830	12.62	23.97	PASS
		5580	13.09	12.33	0.02035	13.09	23.98	PASS
		5700	11.87	12.33	0.01710	12.33	23.98	PASS
	IEEE 802.11n HT20	5500	9.71	9.38	0.01801	12.56	23.98	PASS
		5580	10.22	9.67	0.01979	12.97	23.98	PASS
		5700	9.05	9.69	0.01734	12.39	23.98	PASS
	IEEE 802.11ac VHT20	5500	9.65	9.22	0.01759	12.45	23.98	PASS
		5580	10.10	9.36	0.01887	12.76	23.98	PASS
		5700	8.86	9.59	0.01679	12.25	23.98	PASS
	IEEE 802.11n HT40	5510	9.43	9.21	0.01711	12.33	23.98	PASS
		5590	9.55	9.19	0.01731	12.38	23.98	
		5670	10.35	9.74	0.02024	13.06	23.98	PASS
	IEEE 802.11ac VHT40	5510	8.65	8.20	0.01394	11.44	23.98	PASS
		5590	8.68	8.08	0.01381	11.40	23.98	PASS
		5670	9.41	8.69	0.01613	12.08	23.98	PASS
	IEEE 802.11ac VHT80	5530	7.39	6.88	0.01036	10.15	23.98	
		5610	7.34	6.59	0.00999	9.99	23.98	PASS
U-NII-3	IEEE 802.11a	5745	11.63	12.05	0.01603	12.05	30.00	PASS
		5785	12.54	12.72	0.01872	12.72	30.00	PASS
		5825	11.86	12.01	0.01587	12.01	30.00	PASS
	IEEE 802.11n HT20	5745	8.78	9.51	0.01648	12.17	30.00	PASS
		5785	9.08	10.13	0.01840	12.65	30.00	PASS
		5825	8.96	9.38	0.01655	12.19	30.00	PASS
	IEEE 802.11ac VHT20	5745	8.78	9.32	0.01611	12.07	30.00	PASS
		5785	9.71	10.06	0.01950	12.90	30.00	PASS
		5825	8.99	9.22	0.01629	12.12	30.00	PASS
	IEEE 802.11n HT40	5755	9.17	9.73	0.01764	12.47	30.00	PASS
		5795	9.69	10.07	0.01947	12.89	30.00	PASS
	IEEE 802.11ac VHT40	5755	8.42	8.82	0.01457	11.63	30.00	PASS
		5795	8.72	9.01	0.01540	11.87	30.00	PASS
	IEEE 802.11ac VHT80	5775	7.26	7.54	0.01100	10.41	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	$\geq 2 \times \text{SPAN/RBW}$
Detector	RMS(power averaging)
Trace Average	≥ 100 traces

5.4. Test Procedure

- Connect EUT antenna terminal to the spectrum analyzer with RF cable.
- Spectrum analyzer setting parameters in accordance with section 5.3.
- Set the EUT transmit continuously with maximum output power.
- Allow trace to stabilize, use the marker-to-peak function to set the marker to the average of the emission.
- If the duty cycle of test signal $< 98\%$, the result = max measured value + $10 \times \log(1/\text{duty cycle})$;
If the duty cycle of test signal $\geq 98\%$, the result = max measured value.
- Repeat above procedures until all modes and channels were measured.
- Record the results in the test report.

5.5. Test Result

Temperature		25℃	Relative Humidity		58%	Test Voltage	DC 3.3V	
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	0.62	0.77	0.00	0.77	10.52	PASS
		5200	1.25	1.00	0.00	1.25	10.52	PASS
		5240	2.24	1.58	0.00	2.24	10.52	PASS
	IEEE 802.11n HT20	5180	-1.98	-2.20	0.00	0.92	10.52	PASS
		5200	-1.52	-2.48	0.00	1.04	10.52	PASS
		5240	-0.42	-1.25	0.00	2.20	10.52	PASS
	IEEE 802.11ac VHT20	5180	-2.16	-2.81	0.14	0.68	10.52	PASS
		5200	-1.85	-2.67	0.14	0.91	10.52	PASS
		5240	-0.79	-1.75	0.14	1.91	10.52	PASS
	IEEE 802.11n HT40	5190	-5.00	-5.84	0.17	-2.22	10.52	PASS
		5230	-4.20	-4.99	0.17	-1.40	10.52	PASS
	IEEE 802.11ac VHT40	5190	-6.01	-6.69	0.30	-3.02	10.52	PASS
		5230	-5.10	-5.59	0.30	-2.02	10.52	PASS
U-NII-2A	IEEE 802.11a	5210	-9.88	-10.86	1.58	-5.75	10.52	PASS
		5260	2.14	1.35	0.00	2.14	10.52	PASS
		5300	3.00	1.80	0.00	3	10.52	PASS
	IEEE 802.11n HT20	5320	3.11	2.31	0.00	3.11	10.52	PASS
		5260	-0.42	-1.79	0.00	1.96	10.52	PASS
		5300	0.22	-1.21	0.00	2.57	10.52	PASS
	IEEE 802.11ac VHT20	5320	0.42	-0.76	0.00	2.88	10.52	PASS
		5260	-0.75	-2.24	0.14	1.72	10.52	PASS
		5300	-0.06	-1.51	0.14	2.43	10.52	PASS
	IEEE 802.11n HT40	5320	0.05	-0.97	0.14	2.72	10.52	PASS
		5270	-3.94	-5.08	0.17	-1.29	10.52	PASS
	IEEE 802.11ac VHT40	5310	-3.02	-4.38	0.17	-0.47	10.52	PASS
		5270	-4.78	-5.91	0.30	-1.99	10.52	PASS
	IEEE 802.11ac VHT80	5310	-4.02	-5.23	0.30	-1.27	10.52	PASS
		5290	-8.82	-10.16	1.58	-4.84	10.52	PASS

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-3C	IEEE 802.11a	5500	2.34	2.02	0.00	2.34	10.52	PASS
		5580	2.46	1.91	0.00	2.46	10.52	PASS
		5700	1.25	1.94	0.00	1.94	10.52	PASS
	IEEE 802.11n HT20	5500	-0.55	-0.52	0.00	2.48	10.52	PASS
		5580	-0.24	-0.27	0.00	2.76	10.52	PASS
		5700	-1.42	-0.28	0.00	2.20	10.52	PASS
	IEEE 802.11ac VHT20	5500	-0.69	-0.78	0.14	2.42	10.52	PASS
		5580	-0.36	-0.83	0.14	2.56	10.52	PASS
		5700	-1.45	-0.85	0.14	2.01	10.52	PASS
	IEEE 802.11n HT40	5510	-3.77	-3.86	0.17	-0.64	10.52	PASS
		5590	-4.16	-3.99	0.17	-0.90	10.52	PASS
		5670	-3.69	-3.83	0.17	-0.58	10.52	PASS
	IEEE 802.11ac VHT40	5510	-4.76	-4.54	0.30	-1.34	10.52	PASS
		5590	-4.95	-5.05	0.30	-1.69	10.52	PASS
		5670	-4.92	-4.75	0.30	-1.52	10.52	PASS
	IEEE 802.11ac VHT80	5530	-9.07	-9.23	1.58	-4.56	10.52	PASS
		5610	-9.33	-9.63	1.58	-4.88	10.52	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	-0.90	-0.48	0.00	-0.48	29.52	PASS
		5785	-0.23	0.26	0.00	0.26	29.52	PASS
		5825	-0.73	-0.55	0.00	-0.55	29.52	PASS
	IEEE 802.11n HT20	5745	-3.74	-2.81	0.00	-0.24	29.52	PASS
		5785	-2.47	-2.53	0.00	0.51	29.52	PASS
		5825	-2.86	-2.72	0.00	0.22	29.52	PASS
	IEEE 802.11ac VHT20	5745	-3.84	-3.03	0.14	-0.26	29.52	PASS
		5785	-2.85	-2.87	0.14	0.29	29.52	PASS
		5825	-3.16	-2.83	0.14	0.16	29.52	PASS
	IEEE 802.11n HT40	5755	-6.89	-6.08	0.17	-3.29	29.52	PASS
		5795	-5.82	-5.81	0.17	-2.64	29.52	PASS
	IEEE 802.11ac VHT40	5755	-7.63	-6.91	0.30	-3.94	29.52	PASS
		5795	-6.97	-6.48	0.30	-3.40	29.52	PASS
	IEEE 802.11ac VHT80	5775	-11.74	-11.26	1.58	-6.90	29.52	PASS

U-NII-1 IEEE 802.11a 5180MHz

ANT 1

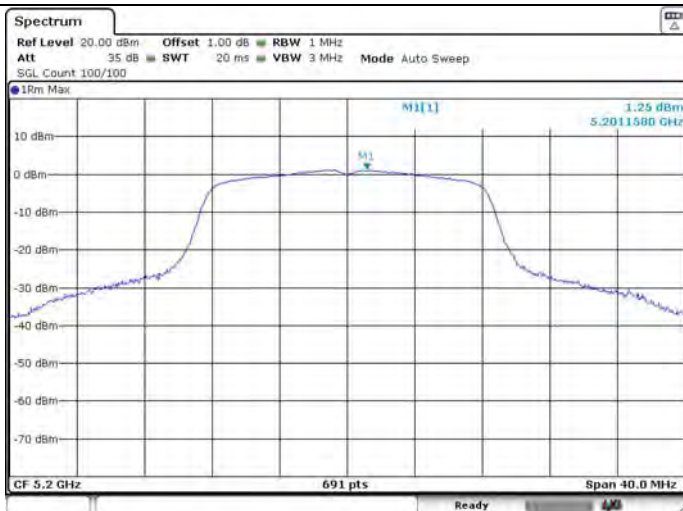


ANT 2



U-NII-1 IEEE 802.11a 5200MHz

ANT 1



ANT 2



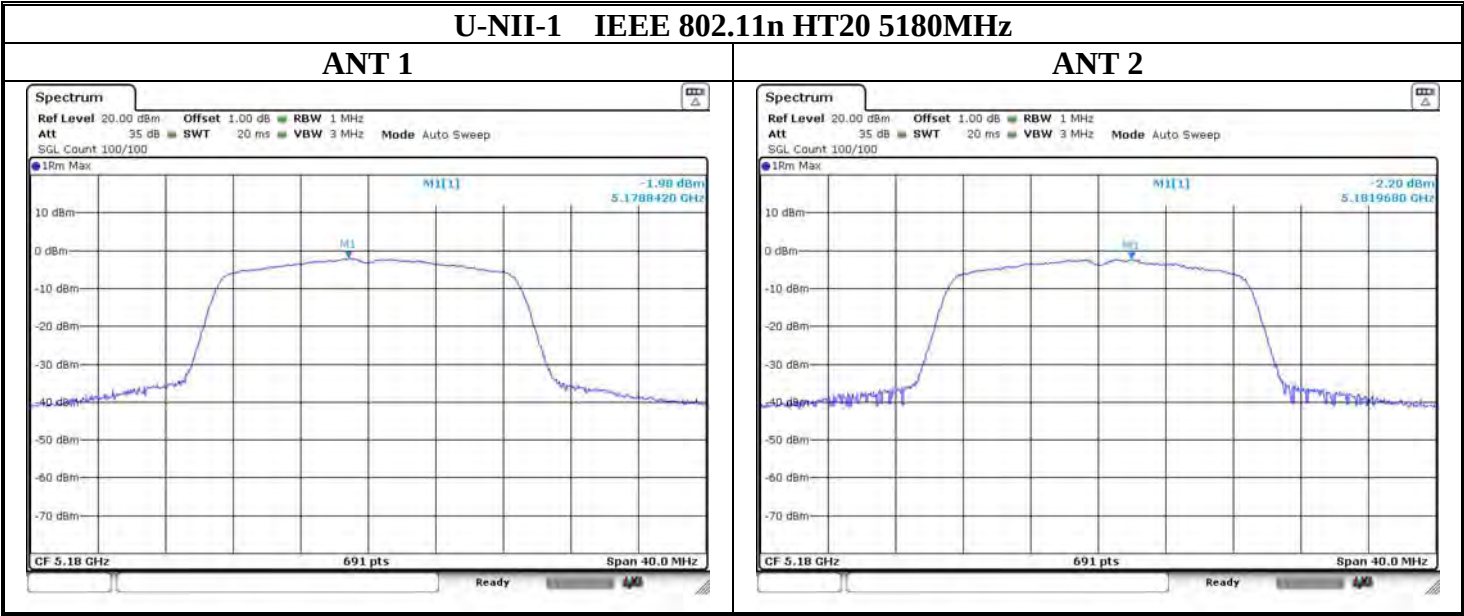
U-NII-1 IEEE 802.11a 5240MHz

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

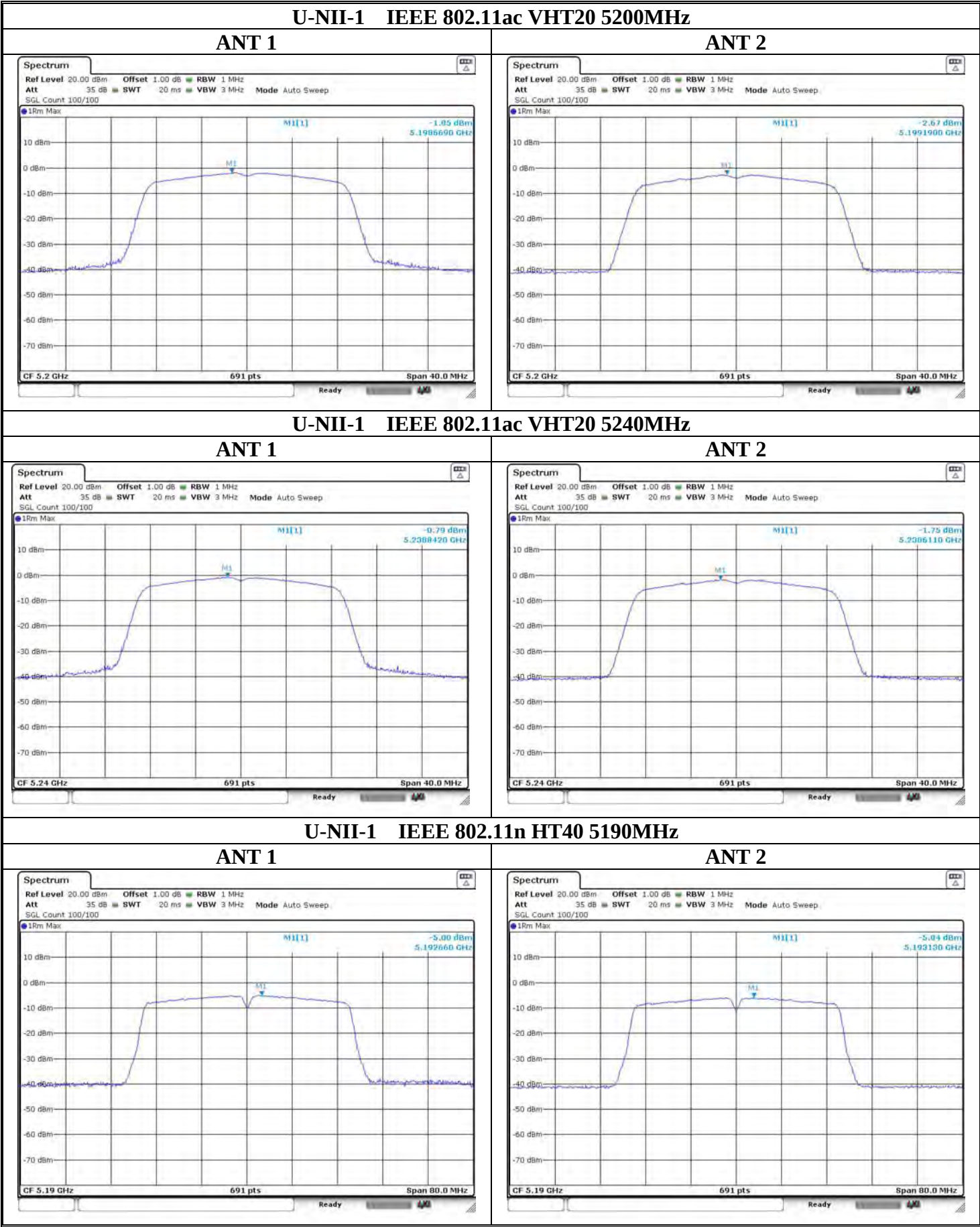


U-NII-1 IEEE 802.11ac VHT20 5180MHz

ANT 1

ANT 2





U-NII-1 IEEE 802.11n HT40 5230MHz

ANT 1

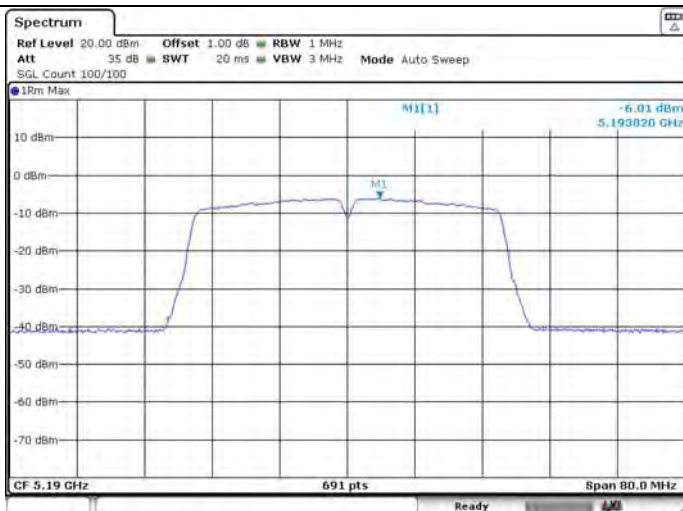


ANT 2



U-NII-1 IEEE 802.11ac VHT40 5190MHz

ANT 1



ANT 2



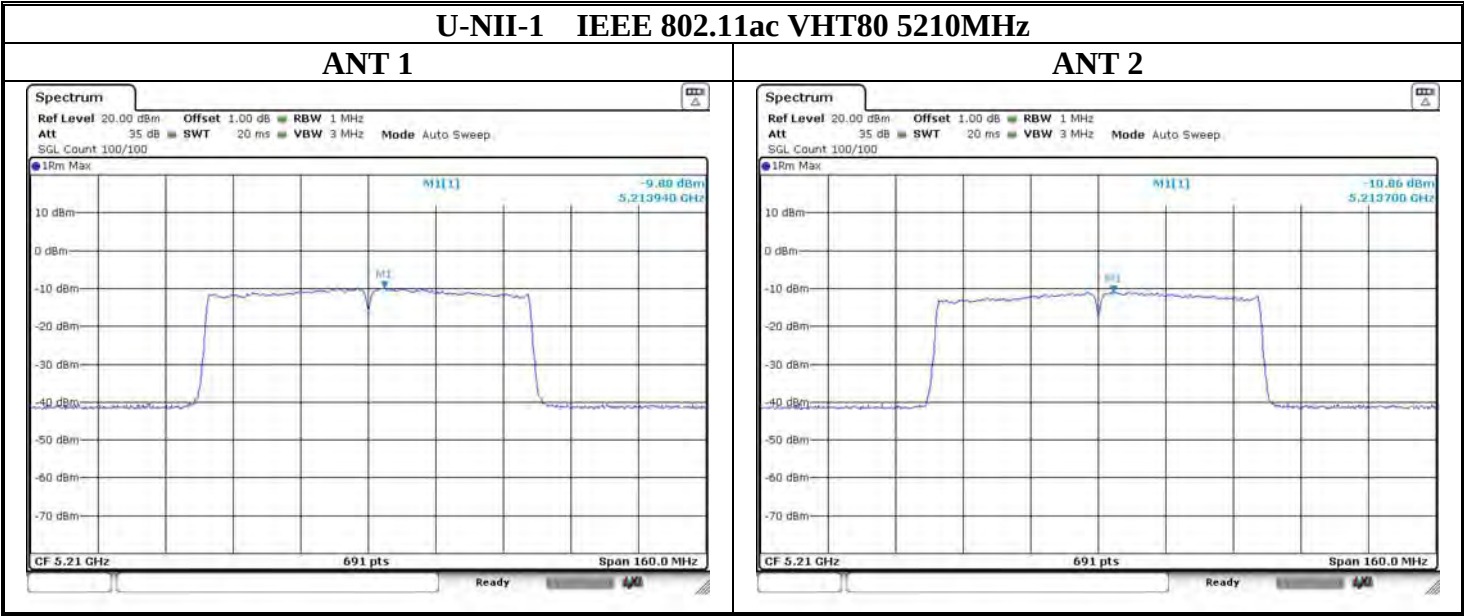
U-NII-1 IEEE 802.11ac VHT40 5230MHz

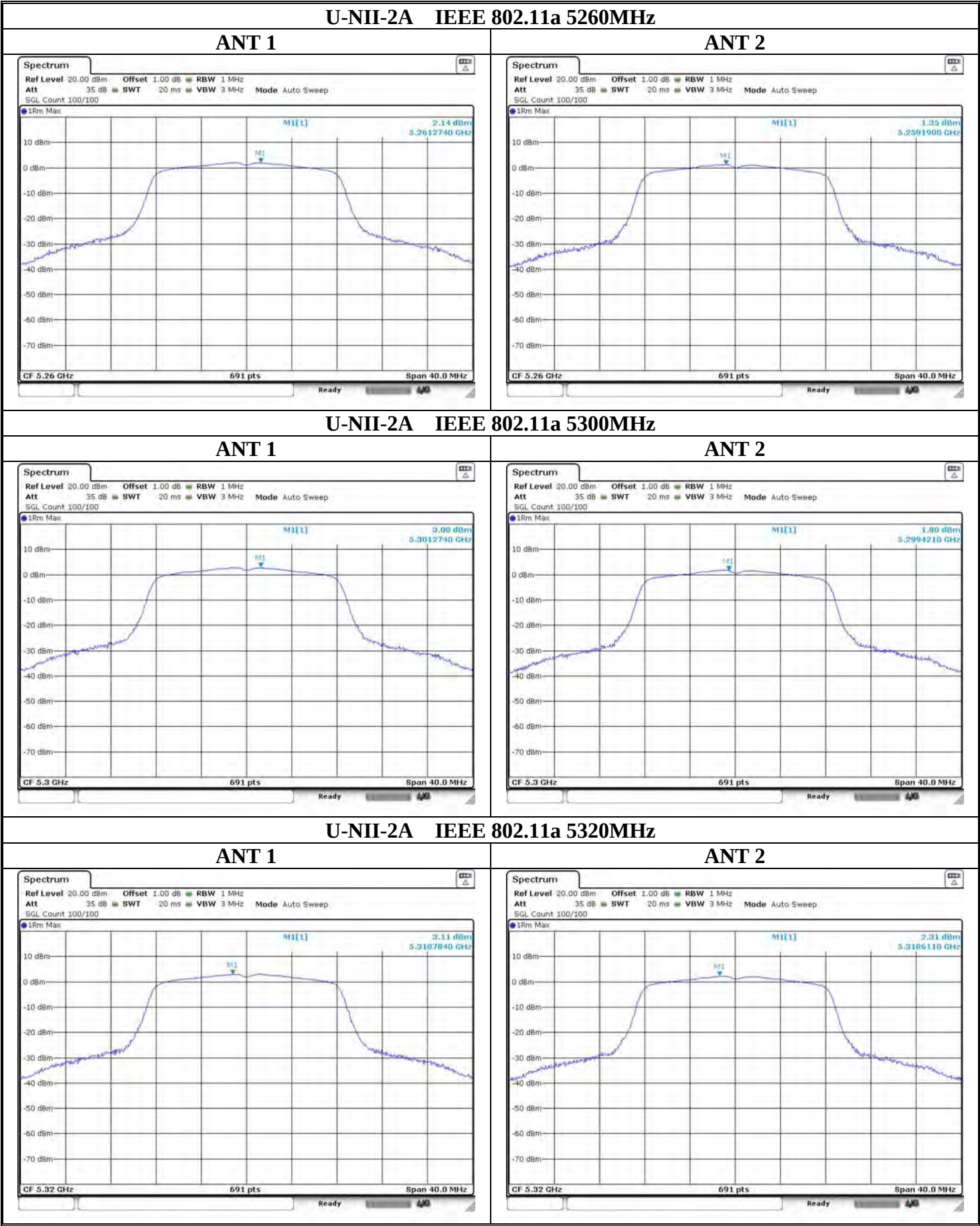
ANT 1

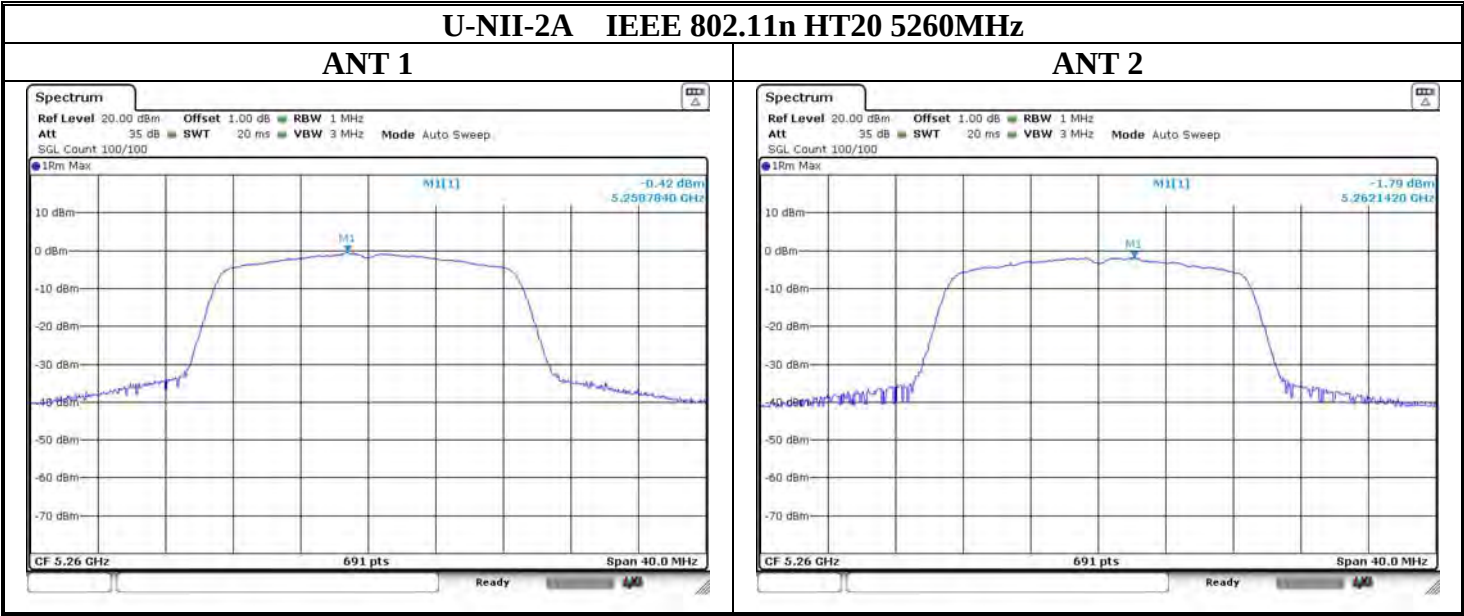


ANT 2









U-NII-2A IEEE 802.11n HT20 5300MHz

ANT 1

ANT 2



U-NII-2A IEEE 802.11n HT20 5320MHz

ANT 1

ANT 2



U-NII-2A IEEE 802.11ac VHT20 5260MHz

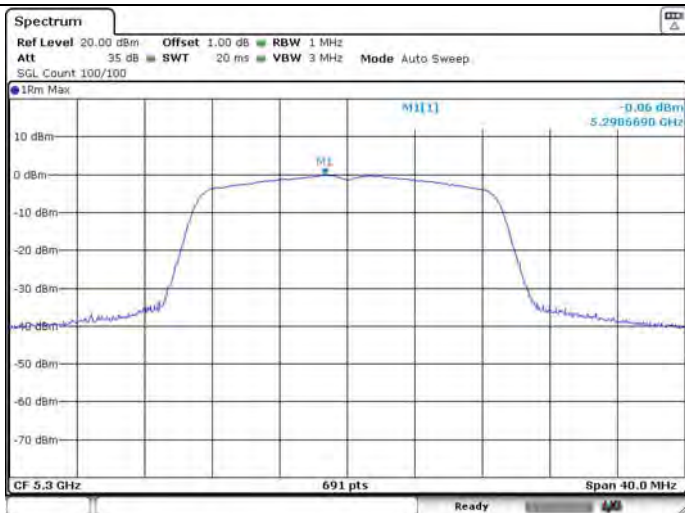
ANT 1

ANT 2



U-NII-2A IEEE 802.11ac VHT20 5300MHz

ANT 1



ANT 2



U-NII-2A IEEE 802.11ac VHT20 5320MHz

ANT 1



ANT 2

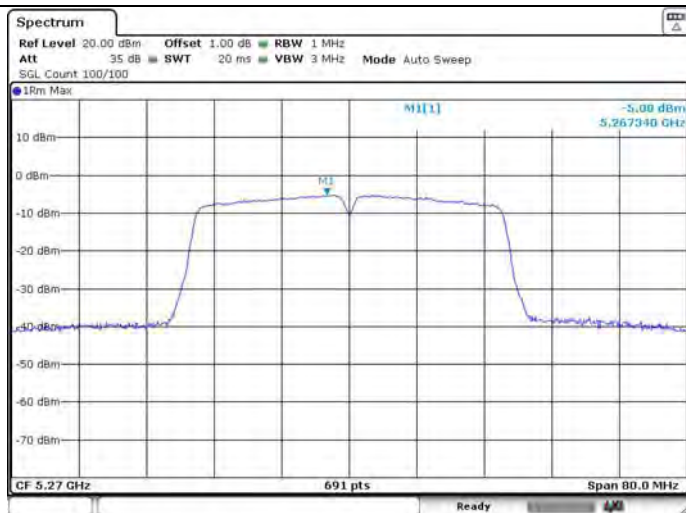


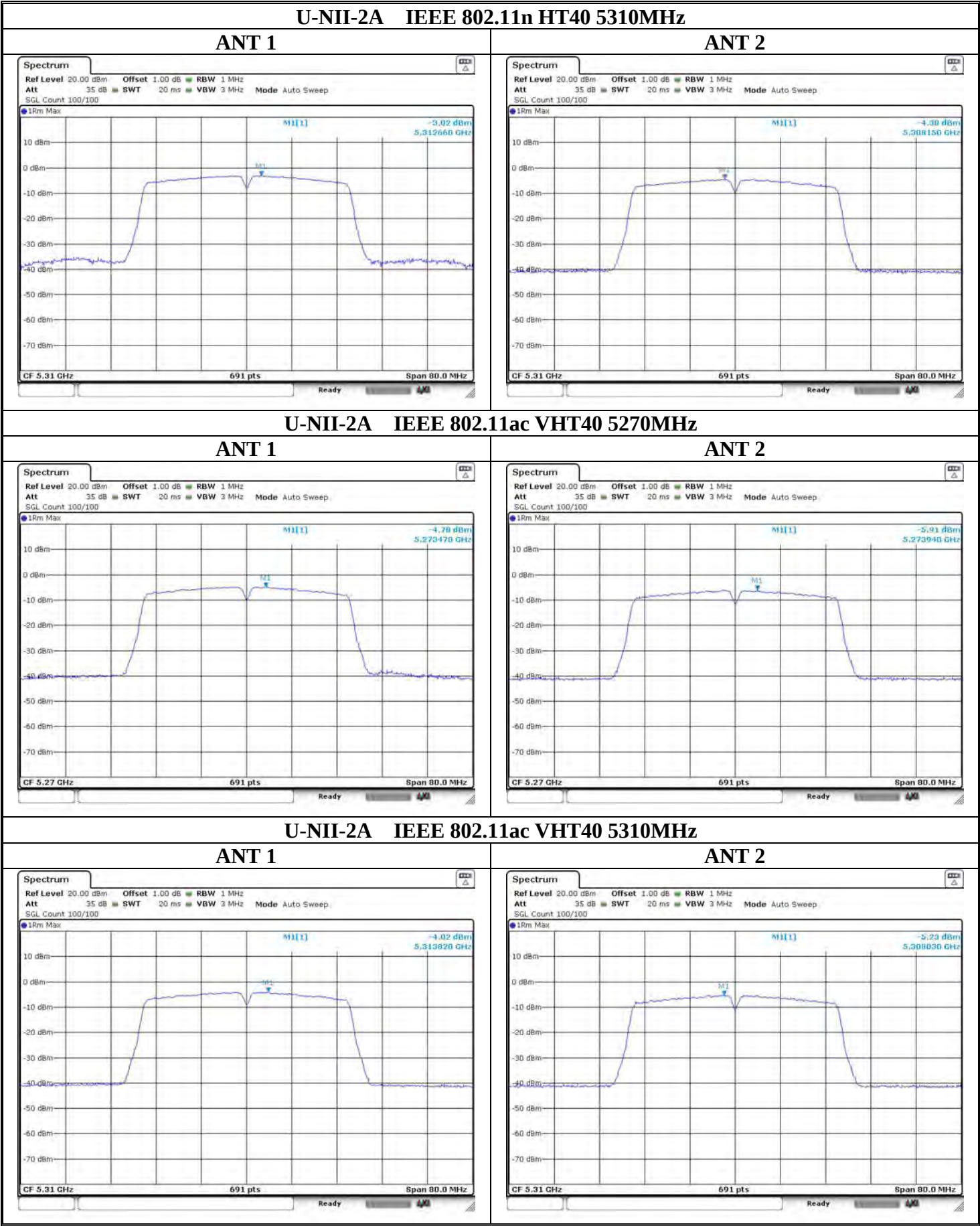
U-NII-2A IEEE 802.11n HT40 5270MHz

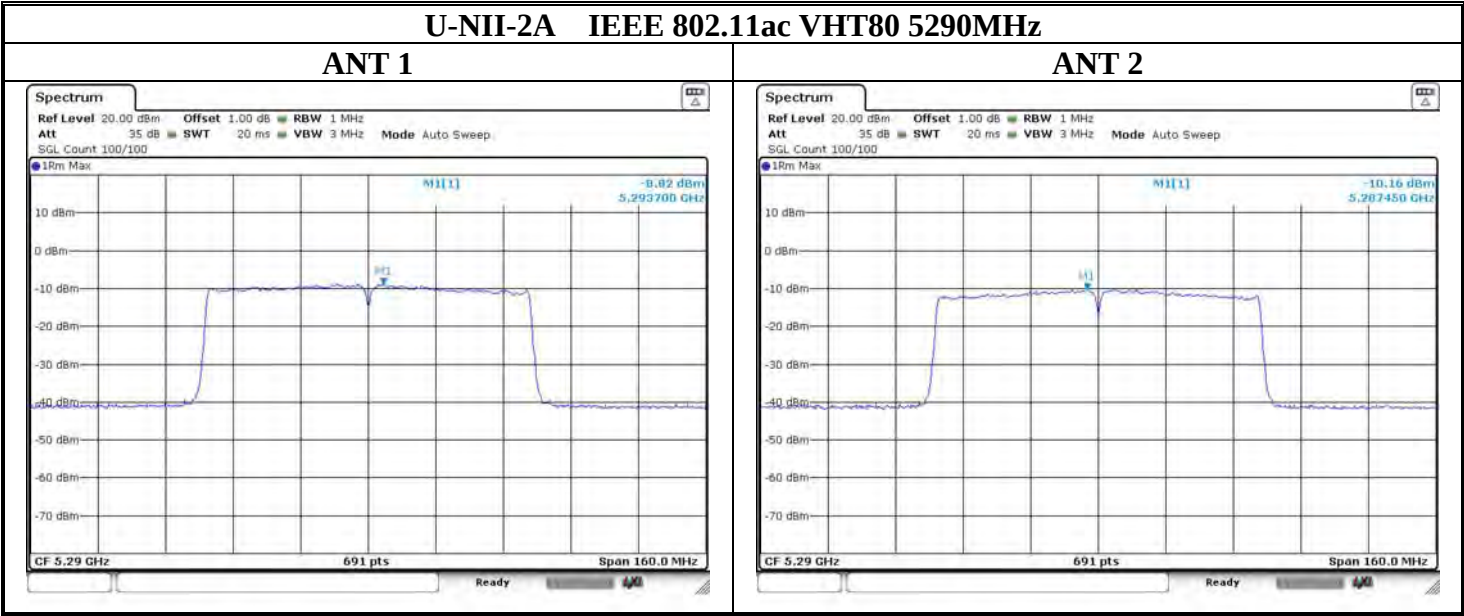
ANT 1

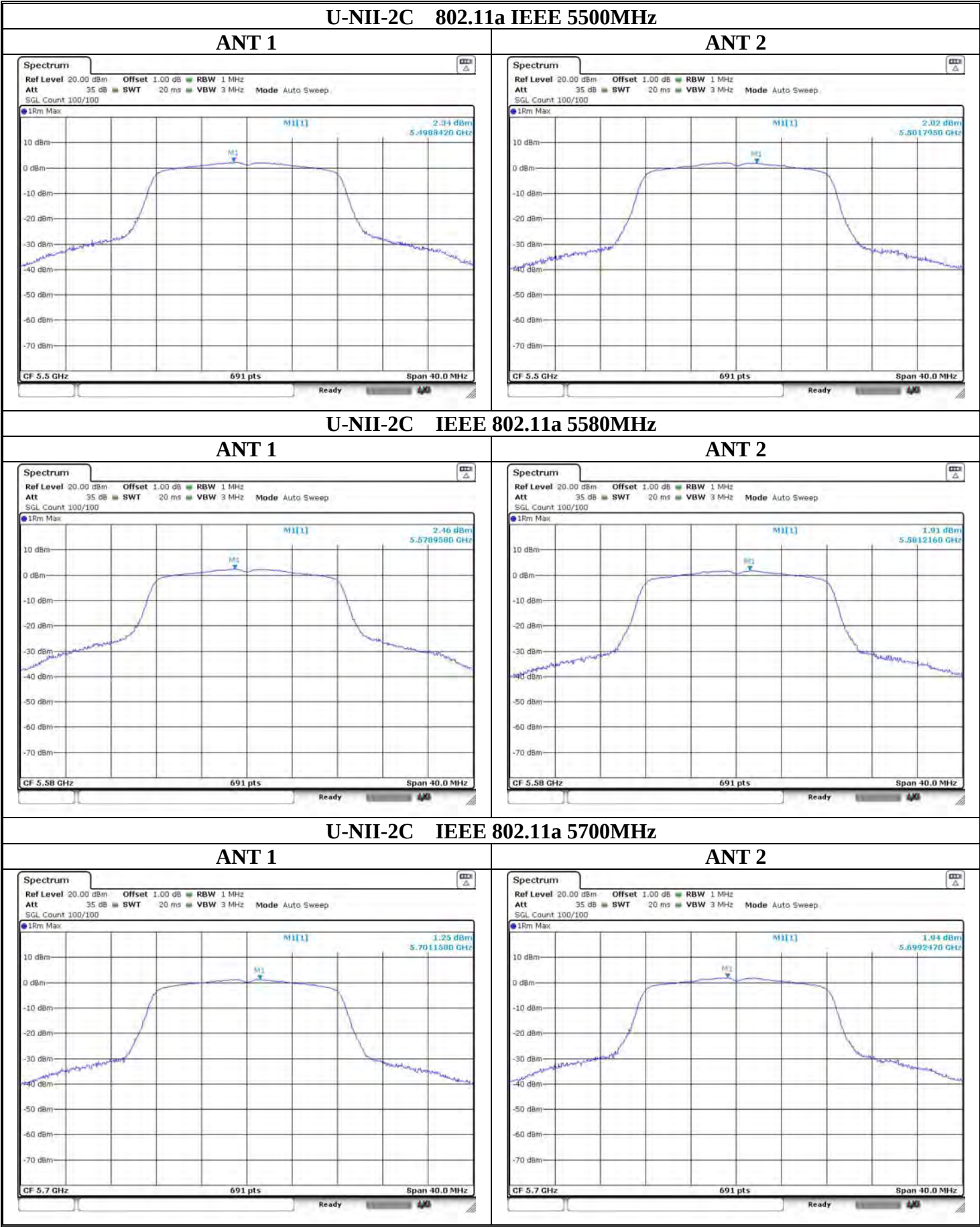


ANT 2



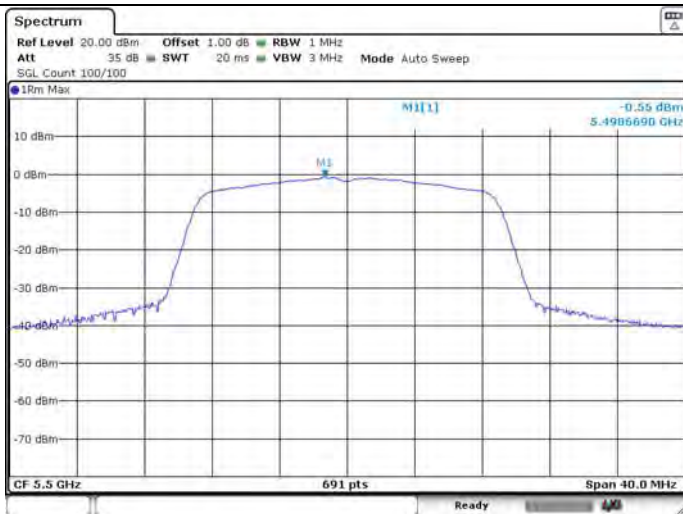






U-NII-2C IEEE 802.11n HT20 5500MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11n HT20 5580MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11n HT20 5700MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11ac VHT20 5500MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11ac VHT20 5580MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11ac VHT20 5700MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11n HT40 5510MHz

ANT 1

ANT 2



U-NII-2C IEEE 802.11n HT40 5590MHz

ANT 1

ANT 2



U-NII-2C IEEE 802.11n HT40 5670MHz

ANT 1

ANT 2



U-NII-2C IEEE 802.11ac VHT40 5510MHz

ANT 1



ANT 2



U-NII-2C IEEE 802.11ac VHT40 5590MHz

ANT 1



ANT 2



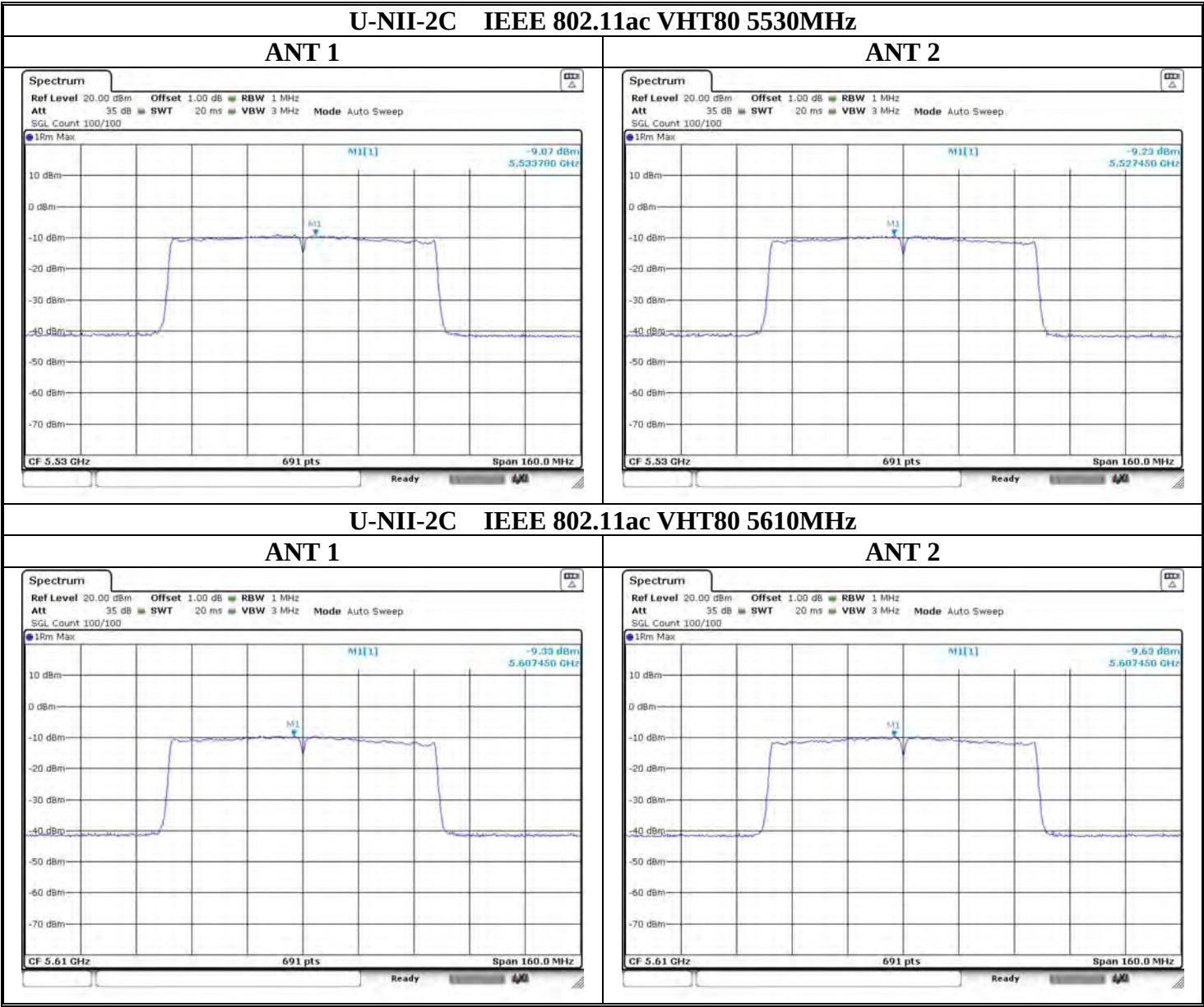
U-NII-2C IEEE 802.11ac VHT40 5670MHz

ANT 1



ANT 2





U-NII-3 IEEE 802.11a 5745MHz

ANT 1



ANT 2



U-NII-3 IEEE 802.11a 5785MHz

ANT 1



ANT 2



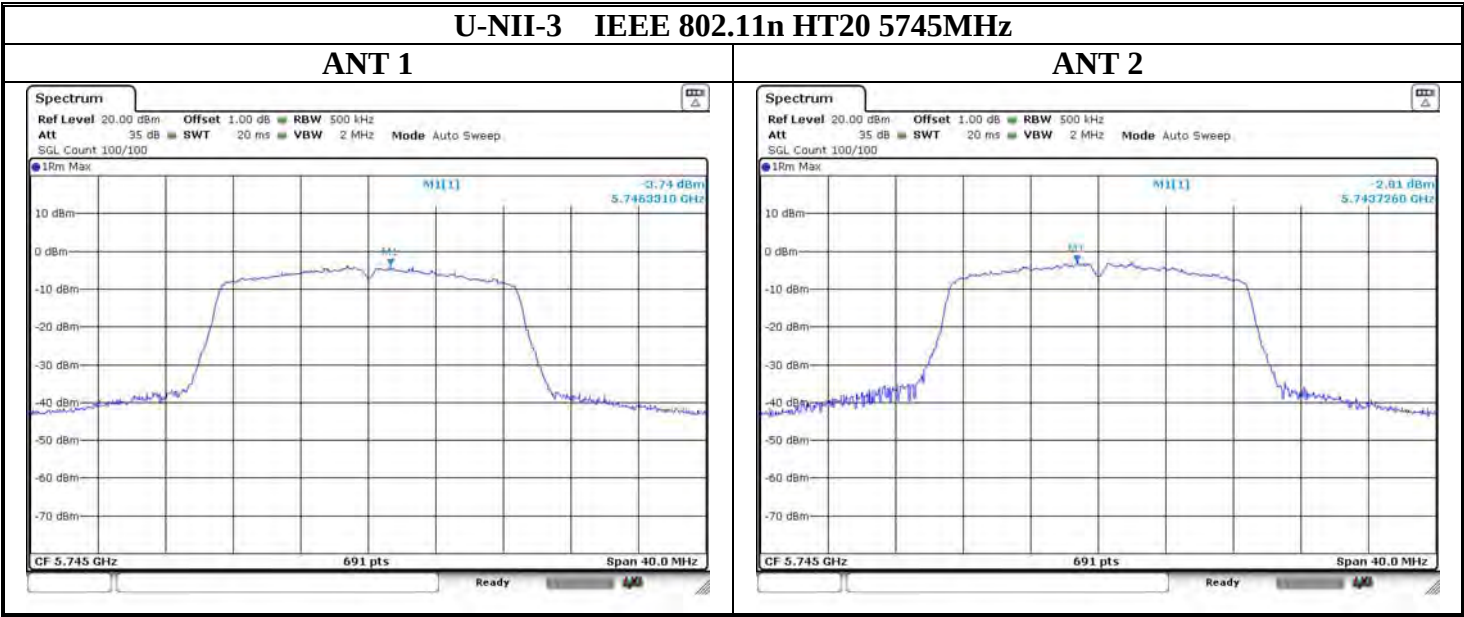
U-NII-3 IEEE 802.11a 5825MHz

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

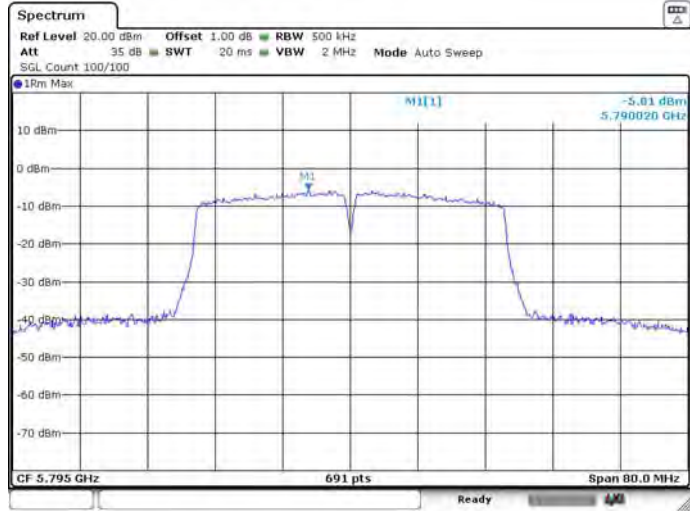


U-NII-3 IEEE 802.11n HT40 5795MHz

ANT 1



ANT 2

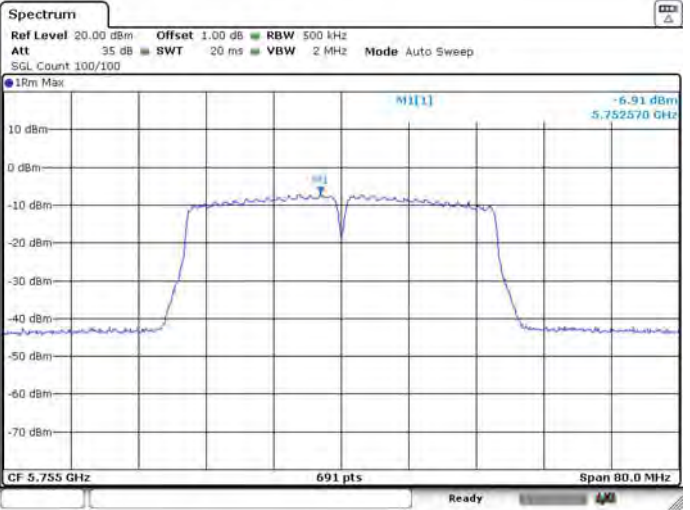


U-NII-3 IEEE 802.11ac VHT40 5755MHz

ANT 1



ANT 2



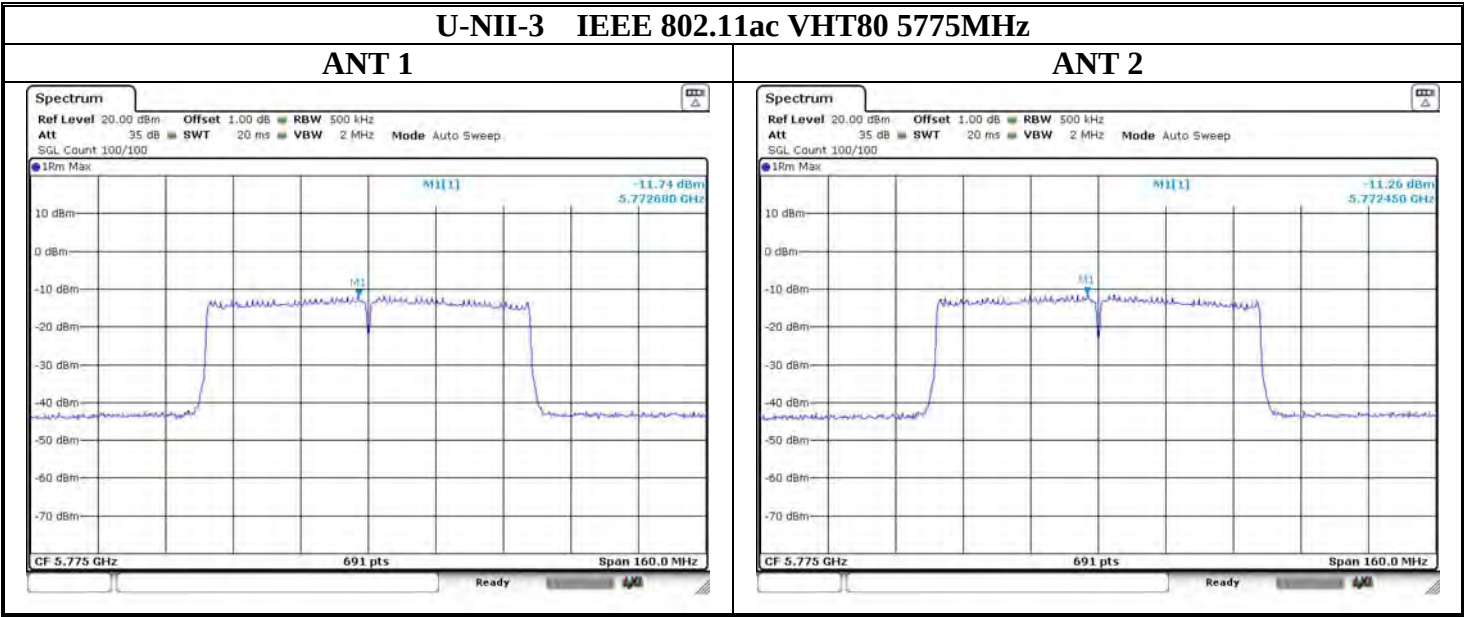
U-NII-3 IEEE 802.11ac VHT40 5795MHz

ANT 1



ANT 2





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(μ V/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

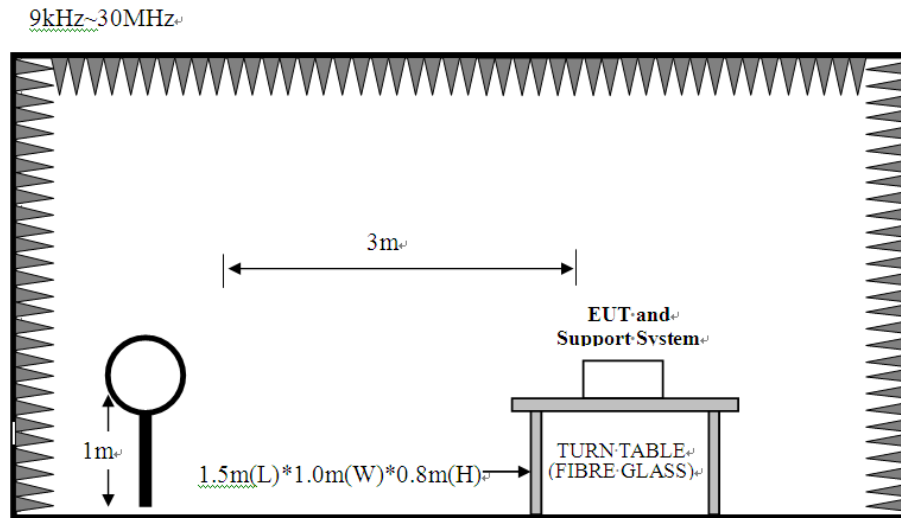
MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 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)

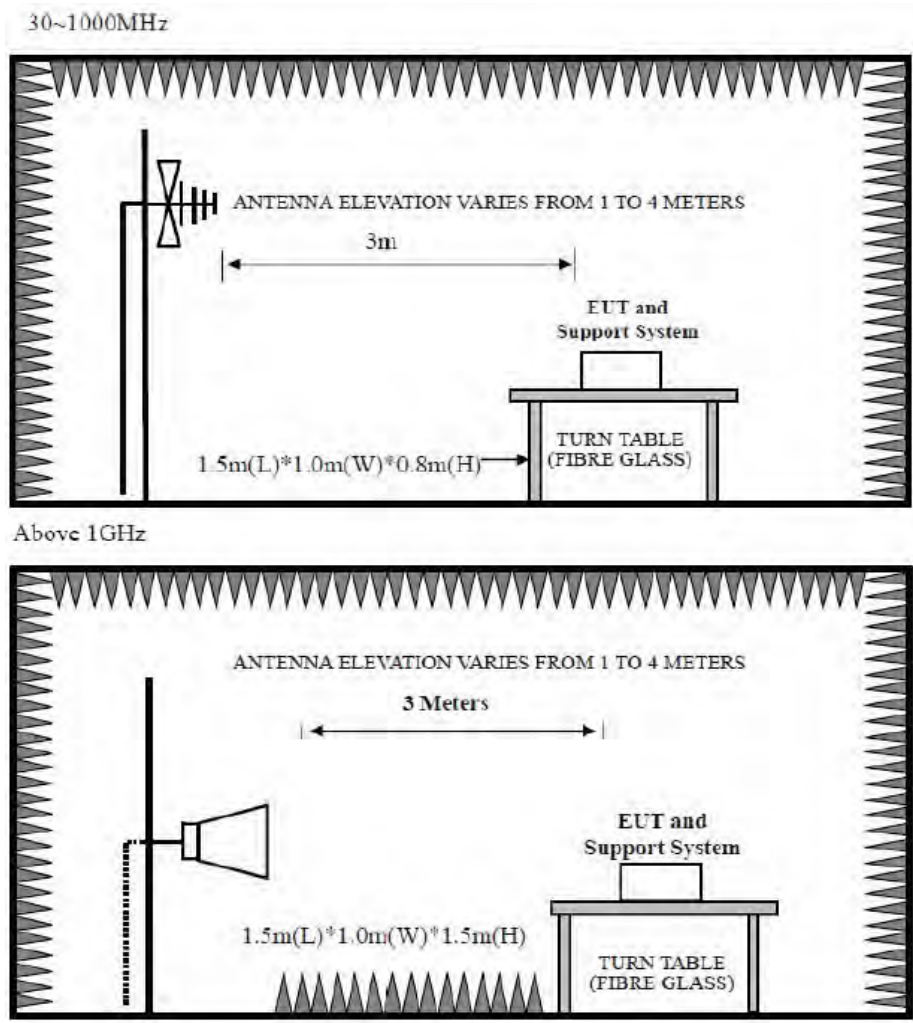
Note:

1. $\text{dB}\mu\text{V/m} = 20 \log(\mu\text{V/m})$
2. Above 1GHz the formula is used to convert the EIRP to field strength

$$E[\text{dB}\mu\text{V/m}] = \text{EIRP}[\text{dBm}] - 20 \log(d[\text{m}]) + 104.77,$$
 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($\text{dB}\mu\text{V/m}$)= $\text{EIRP}-20\log(3)+104.77=\text{EIRP}+95.2$

6.2. Test Setup





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 $\geq 98\%$, VBW=10Hz Duty cycle $< 98\%$, VBW $\geq 1/T$ 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

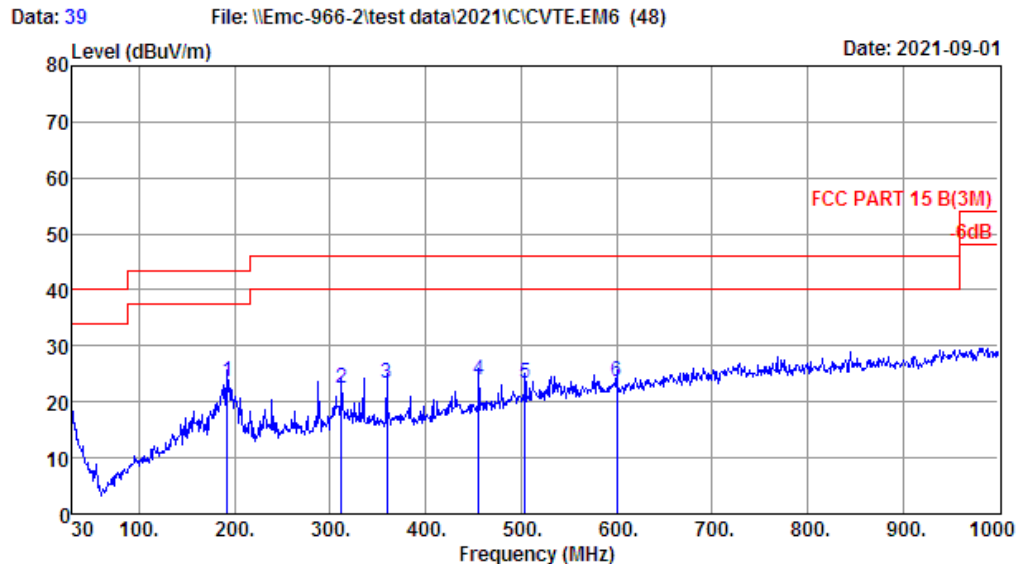
- EUT was placed on a turn table, which is 0.8 meter high above ground for below 1GHz test, and which is 1.5 meter high above ground for above 1GHz test.
- EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower.
- Set the EUT transmit continuously with maximum output power.
- The turn table can rotate 360 degrees to determine the position of the maximum emission level.
- 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.
- Spectrum analyzer setting parameters in accordance with section 6.3.
- Repeat above procedures until all channels were measured.
- 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



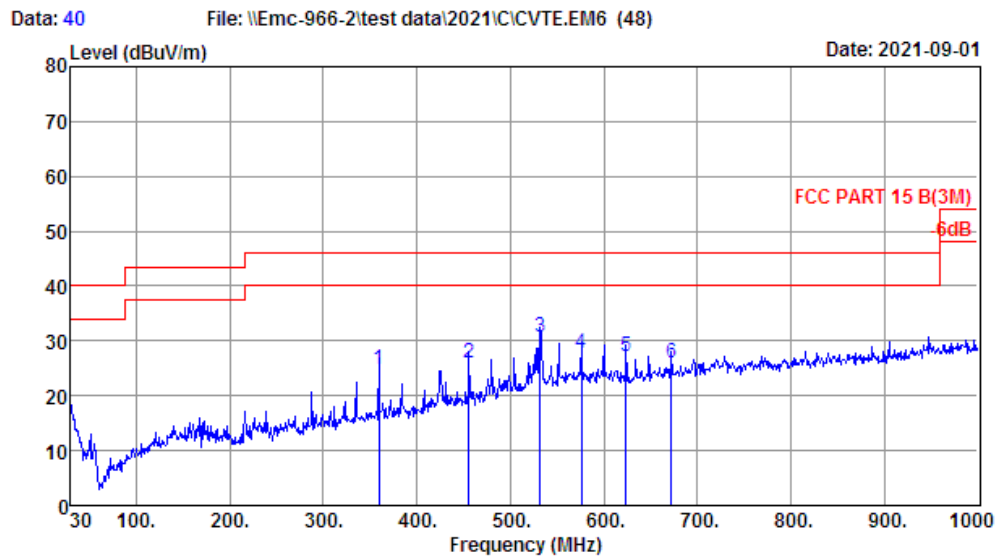
Site no. : 2# 966 chamber Data no. : 39
 Dis. / Ant. : 3m 47018 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 B(3M)
 Env. / Ins. : Temp:20.9℃;Humi:47.5%;Press:101.78kPa
 Engineer : Blank
 EUT : IEEE 802.11b/g/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 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	191.99	8.96	1.09	13.71	23.76	43.50	19.74	QP
2	312.27	14.02	1.65	6.63	22.30	46.00	23.70	QP
3	359.80	15.60	1.89	5.70	23.19	46.00	22.81	QP
4	455.83	17.28	2.21	4.45	23.94	46.00	22.06	QP
5	504.33	18.42	2.31	2.48	23.21	46.00	22.79	QP
6	600.36	20.20	2.54	0.89	23.63	46.00	22.37	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.

EST Technology

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



Site no. : 2# 966 chamber Data no. : 40
Dis. / Ant. : 3m 47018 Ant. pol. : VERTICAL
Limit : FCC PART 15 B(3M)
Env. / Ins. : Temp:20.9°C;Humi:47.5%;Press:101.78kPa
Engineer : Blank
EUT : IEEE 802.11b/g/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
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	359.80	15.60	1.89	7.23	24.72	46.00	21.28	QP
2	455.83	17.28	2.21	6.49	25.98	46.00	20.02	QP
3	531.49	18.99	2.38	9.20	30.57	46.00	15.43	QP
4	576.11	19.96	2.49	5.24	27.69	46.00	18.31	QP
5	623.64	20.74	2.64	3.75	27.13	46.00	18.87	QP
6	672.14	21.50	2.79	1.70	25.99	46.00	20.01	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

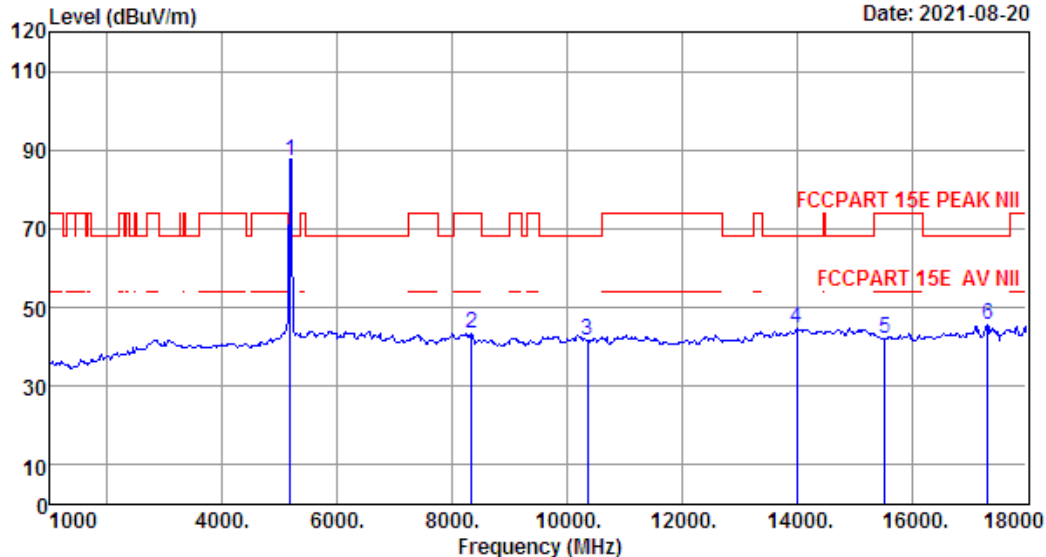
EST Technology

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

Data: 31

File: \\Emc-966-1\test data\2021\RF\S\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 31
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a 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	86.22	87.31	68.20	-19.11	Peak
2	8344.00	36.90	5.39	34.73	35.82	43.38	74.00	30.62	Peak
3	10360.00	39.27	5.99	34.31	30.55	41.50	68.20	26.70	Peak
4	14005.00	41.10	6.53	34.30	31.26	44.59	68.20	23.61	Peak
5	15540.00	40.31	6.46	34.39	29.87	42.25	74.00	31.75	Peak
6	17320.00	43.48	7.74	34.37	28.75	45.60	68.20	22.60	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.

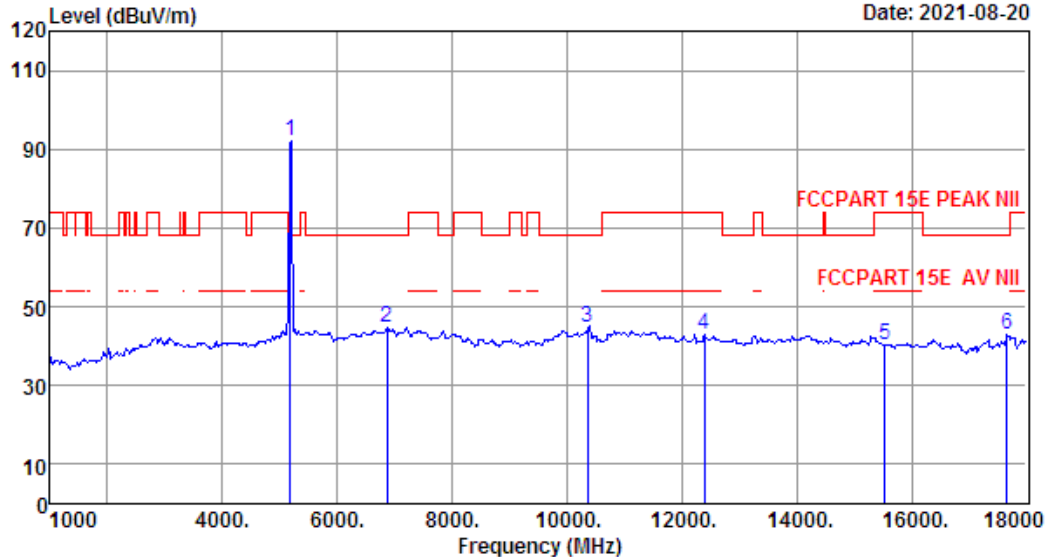
EST Technology

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

Data: 32

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 32
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	90.90	91.99	68.20	-23.79	Peak
2	6865.00	35.47	5.02	34.73	39.11	44.87	68.20	23.33	Peak
3	10360.00	39.27	5.99	34.31	33.87	44.82	68.20	23.38	Peak
4	12390.00	39.71	6.15	34.64	31.55	42.77	74.00	31.23	Peak
5	15540.00	40.31	6.46	34.39	28.02	40.40	74.00	33.60	Peak
6	17660.00	46.19	8.02	34.33	23.05	42.93	68.20	25.27	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.

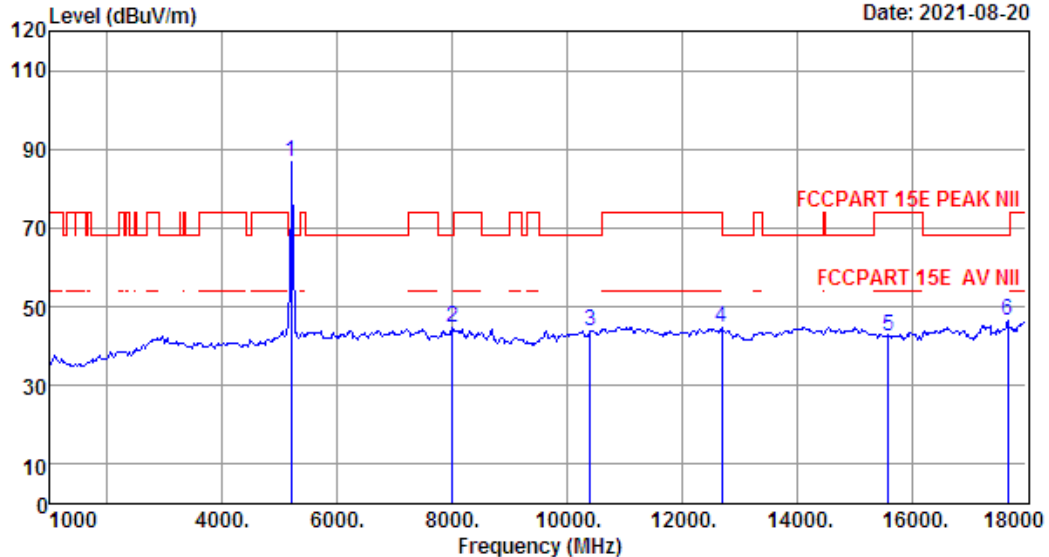
EST Technology

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

Data: 33

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



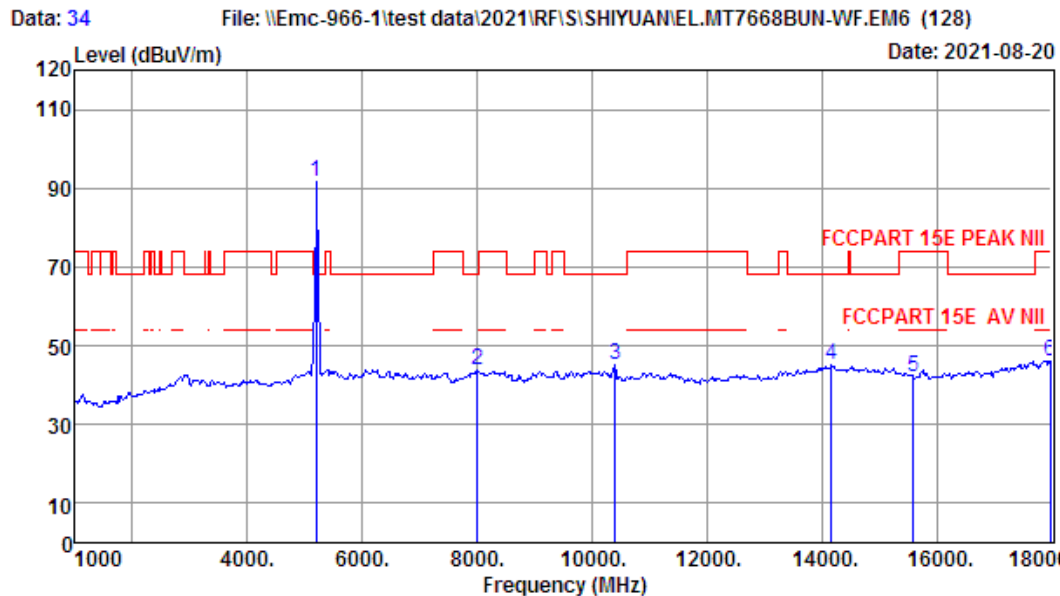
Site no. : 1# 966 Chamber Data no. : 33
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	85.70	86.85	68.20	-18.65	Peak
2	8004.00	36.90	5.82	34.90	36.92	44.74	68.20	23.46	Peak
3	10400.00	39.31	5.99	34.32	32.88	43.86	68.20	24.34	Peak
4	12696.00	39.55	6.23	34.52	33.31	44.57	74.00	29.43	Peak
5	15600.00	40.24	6.53	34.36	30.22	42.63	74.00	31.37	Peak
6	17677.00	46.32	8.03	34.33	26.34	46.36	68.20	21.84	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. : 34
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5200MHz

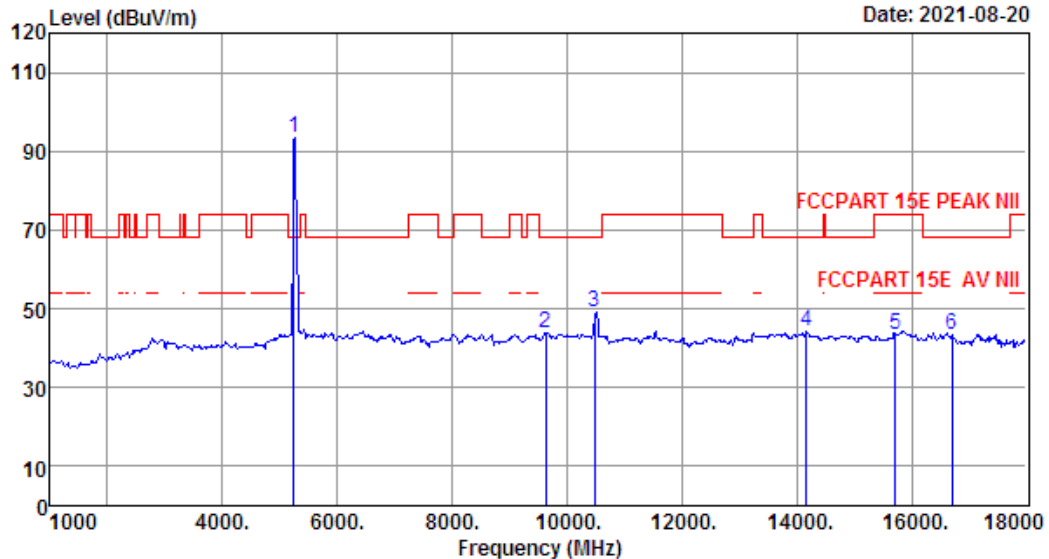
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5200.00	32.24	3.53	34.62	90.45	91.60	68.20	-23.40	Peak
2	8004.00	36.90	5.82	34.90	36.19	44.01	68.20	24.19	Peak
3	10400.00	39.31	5.99	34.32	34.22	45.20	68.20	23.00	Peak
4	14175.00	41.07	6.66	34.35	31.72	45.10	68.20	23.10	Peak
5	15600.00	40.24	6.53	34.36	29.81	42.22	74.00	31.78	Peak
6	17983.00	48.76	8.23	34.30	23.51	46.20	74.00	27.80	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

Data: 35 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 35
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5240MHz

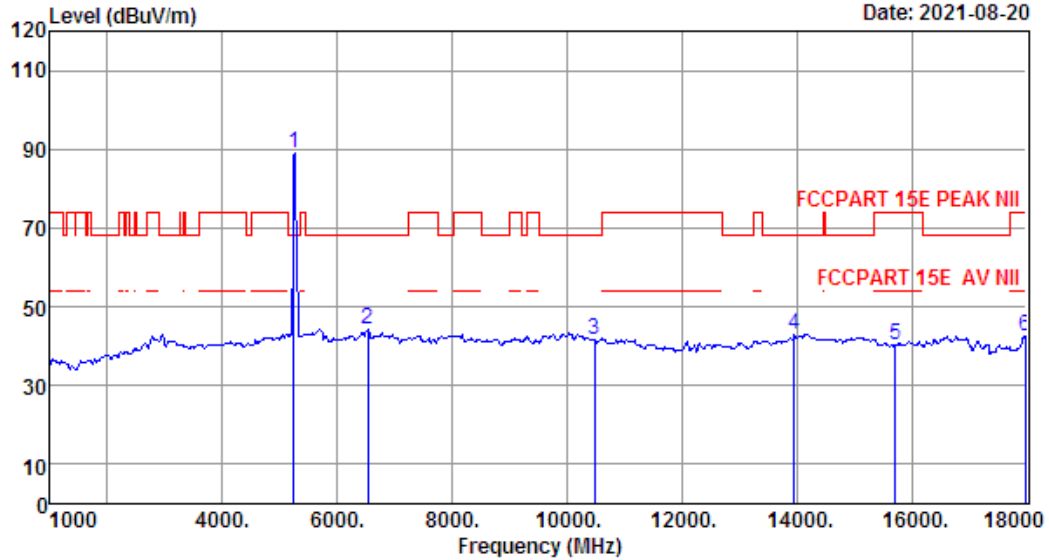
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5240.00	32.31	3.55	34.61	92.25	93.50	68.20	-25.30	Peak
2	9636.00	38.18	5.61	34.27	34.50	44.02	68.20	24.18	Peak
3	10480.00	39.39	6.02	34.35	38.00	49.06	68.20	19.14	Peak
4	14175.00	41.07	6.66	34.35	30.99	44.37	68.20	23.83	Peak
5	15720.00	40.10	6.65	34.31	31.18	43.62	74.00	30.38	Peak
6	16708.00	40.58	7.24	34.34	29.91	43.39	68.20	24.81	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

Data: 36 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



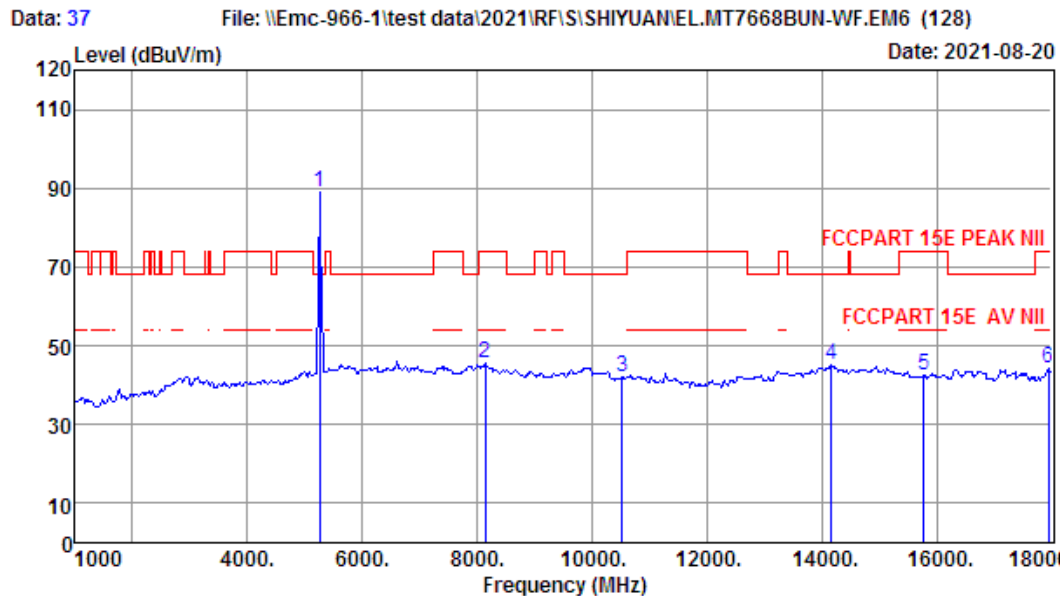
Site no. : 1# 966 Chamber Data no. : 36
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	87.60	88.85	68.20	-20.65	Peak
2	6525.00	34.64	4.73	34.56	39.28	44.09	68.20	24.11	Peak
3	10480.00	39.39	6.02	34.35	30.39	41.45	68.20	26.75	Peak
4	13954.00	41.01	6.51	34.31	29.76	42.97	68.20	25.23	Peak
5	15720.00	40.10	6.65	34.31	27.69	40.13	74.00	33.87	Peak
6	17983.00	48.76	8.23	34.30	20.02	42.71	74.00	31.29	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. : 37
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5260MHz

	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	5260.00	32.39	3.57	34.59	87.61	88.98	68.20	-20.78	Peak
2	8140.00	36.90	5.65	34.83	37.77	45.49	74.00	28.51	Peak
3	10520.00	39.43	6.02	34.36	31.08	42.17	68.20	26.03	Peak
4	14175.00	41.07	6.66	34.35	31.75	45.13	68.20	23.07	Peak
5	15780.00	40.05	6.69	34.29	29.87	42.32	74.00	31.68	Peak
6	17949.00	48.49	8.21	34.31	21.91	44.30	74.00	29.70	Peak

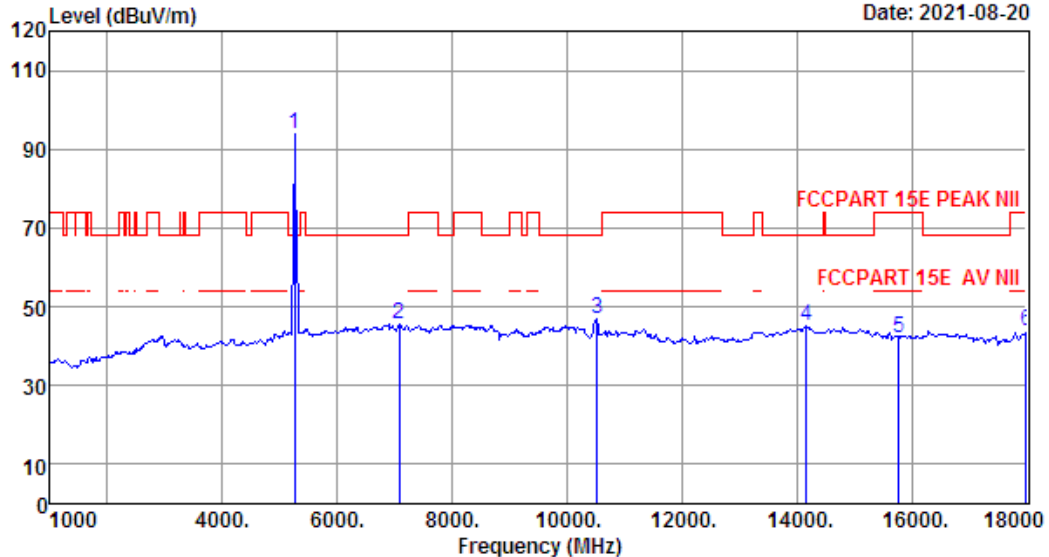
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

EST Technology

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

Data: 38 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 38
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5260MHz

	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	5260.00	32.39	3.57	34.59	92.38	93.75	68.20	-25.55	Peak
2	7086.00	35.97	5.15	34.81	39.30	45.61	68.20	22.59	Peak
3	10520.00	39.43	6.02	34.36	36.06	47.15	68.20	21.05	Peak
4	14175.00	41.07	6.66	34.35	31.67	45.05	68.20	23.15	Peak
5	15780.00	40.05	6.69	34.29	29.77	42.22	74.00	31.78	Peak
6	18000.00	48.90	8.24	34.30	21.18	44.02	74.00	29.98	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.

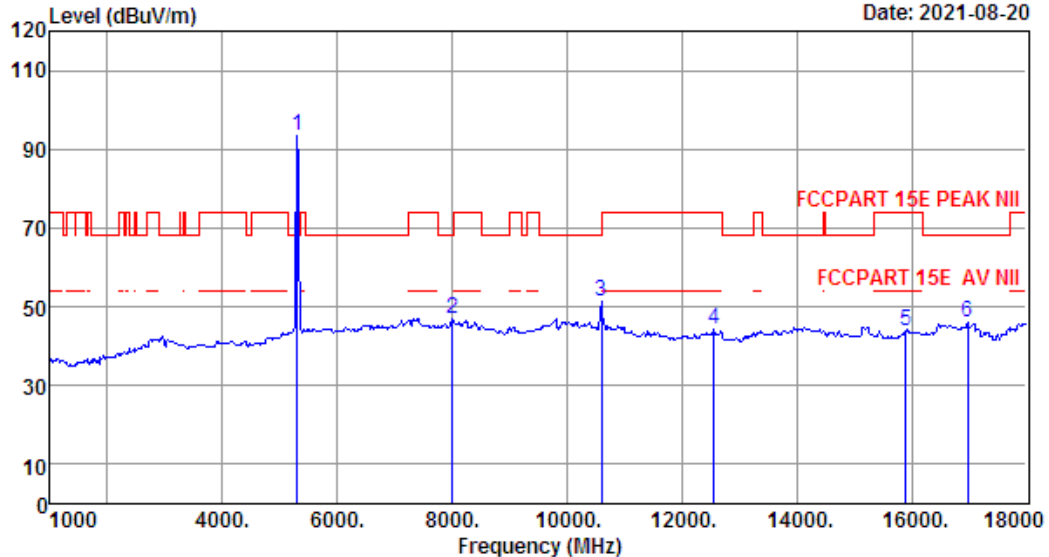
EST Technology

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

Data: 39

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



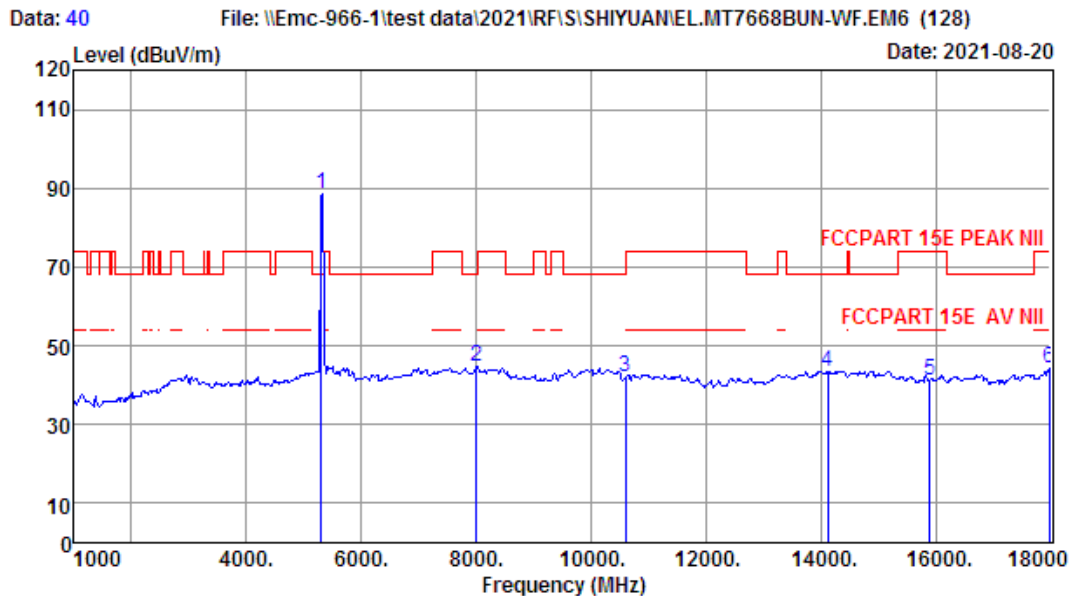
Site no. : 1# 966 Chamber Data no. : 39
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5300MHz

	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	5300.00	32.46	3.59	34.58	91.90	93.37	68.20	-25.17	Peak
2	8004.00	36.90	5.82	34.90	39.16	46.98	68.20	21.22	Peak
3	10600.00	39.51	6.04	34.38	40.10	51.27	68.20	16.93	Peak
4	12560.00	39.62	6.22	34.58	33.11	44.37	74.00	29.63	Peak
5	15900.00	39.91	6.81	34.24	31.36	43.84	74.00	30.16	Peak
6	16980.00	40.88	7.41	34.40	32.05	45.94	68.20	22.26	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. : 40
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5300MHz

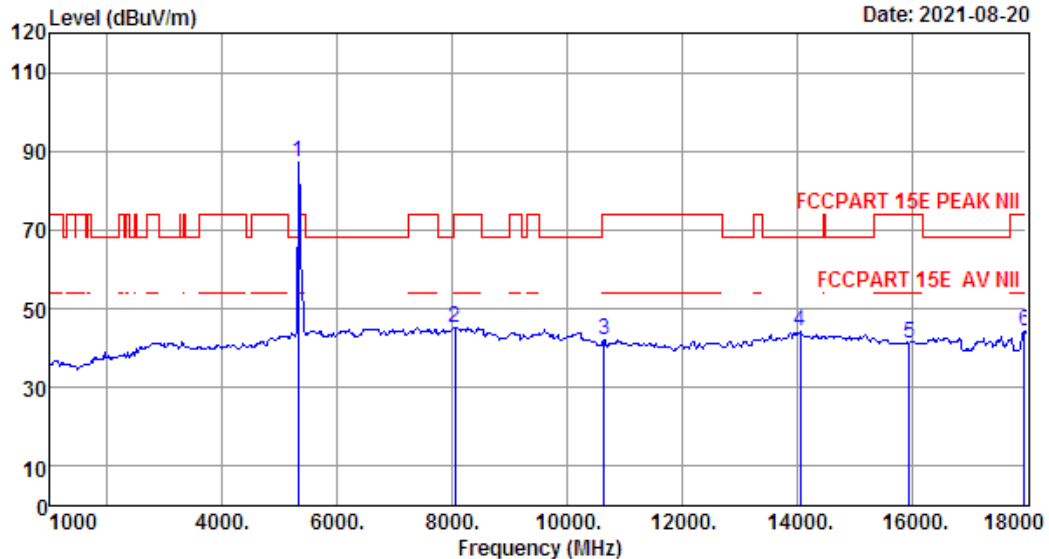
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5300.00	32.46	3.59	34.58	87.02	88.49	68.20	-20.29	Peak
2	8004.00	36.90	5.82	34.90	37.12	44.94	68.20	23.26	Peak
3	10600.00	39.51	6.04	34.38	30.75	41.92	68.20	26.28	Peak
4	14124.00	41.08	6.62	34.34	30.25	43.61	68.20	24.59	Peak
5	15900.00	39.91	6.81	34.24	28.92	41.40	74.00	32.60	Peak
6	17983.00	48.76	8.23	34.30	21.73	44.42	74.00	29.58	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

Data: 41 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 41
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5320MHz

	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	5320.00	32.50	3.60	34.57	85.84	87.37	68.20	-19.17	Peak
2	8055.00	36.90	5.75	34.87	37.52	45.30	74.00	28.70	Peak
3	10640.00	39.54	6.04	34.39	31.02	42.21	74.00	31.79	Peak
4	14056.00	41.09	6.57	34.32	30.92	44.26	68.20	23.94	Peak
5	15960.00	39.84	6.88	34.21	28.71	41.22	74.00	32.78	Peak
6	17966.00	48.63	8.22	34.30	21.84	44.39	74.00	29.61	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.

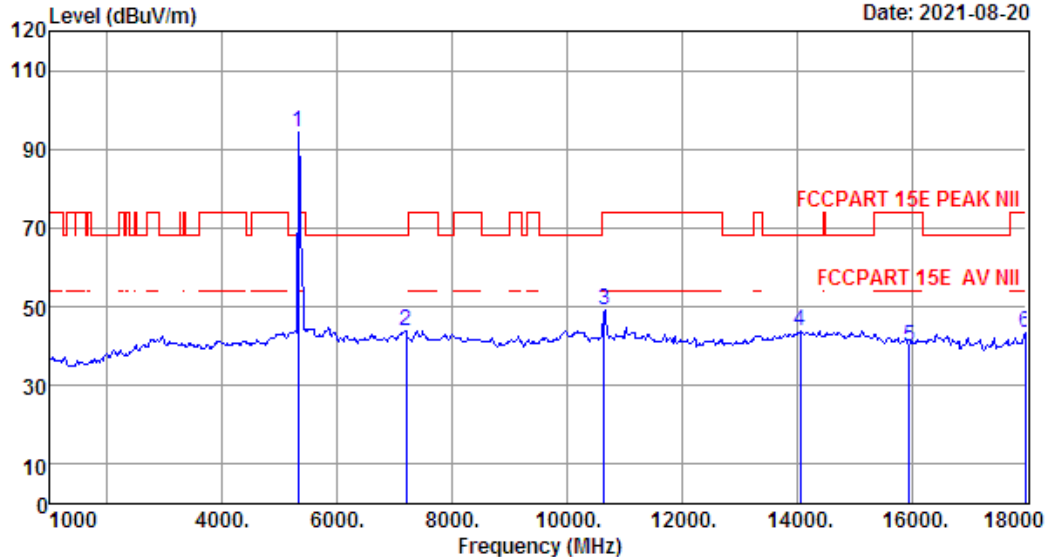
EST Technology

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

Data: 42

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 42
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5320MHz

	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	5320.00	32.50	3.60	34.57	92.60	94.13	68.20	-25.93	Peak
2	7205.00	36.21	5.19	34.82	37.40	43.98	68.20	24.22	Peak
3	10640.00	39.54	6.04	34.39	38.07	49.26	74.00	24.74	Peak
4	14056.00	41.09	6.57	34.32	30.38	43.72	68.20	24.48	Peak
5	15960.00	39.84	6.88	34.21	27.35	39.86	74.00	34.14	Peak
6	17983.00	48.76	8.23	34.30	20.54	43.23	74.00	30.77	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.

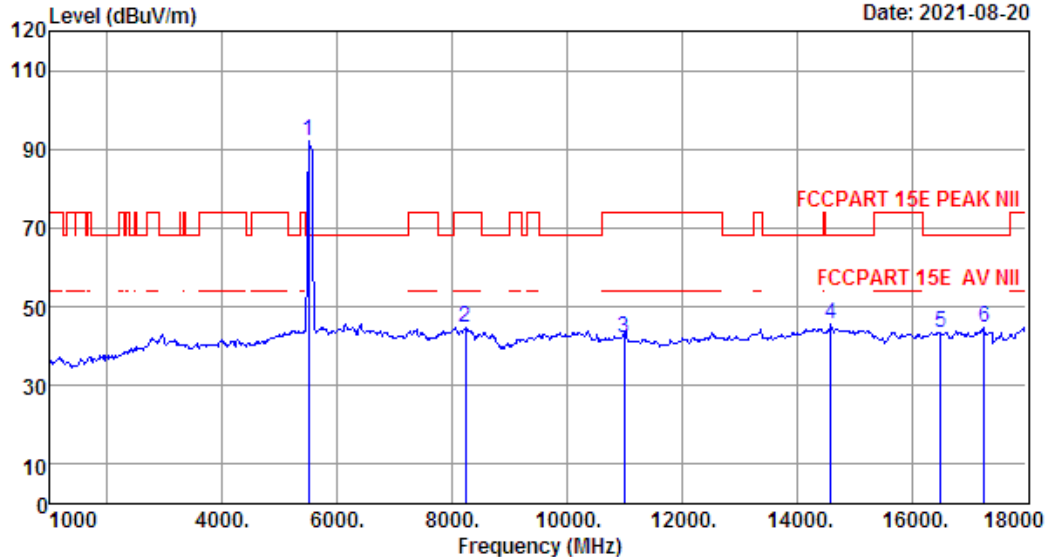
EST Technology

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

Data: 43

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



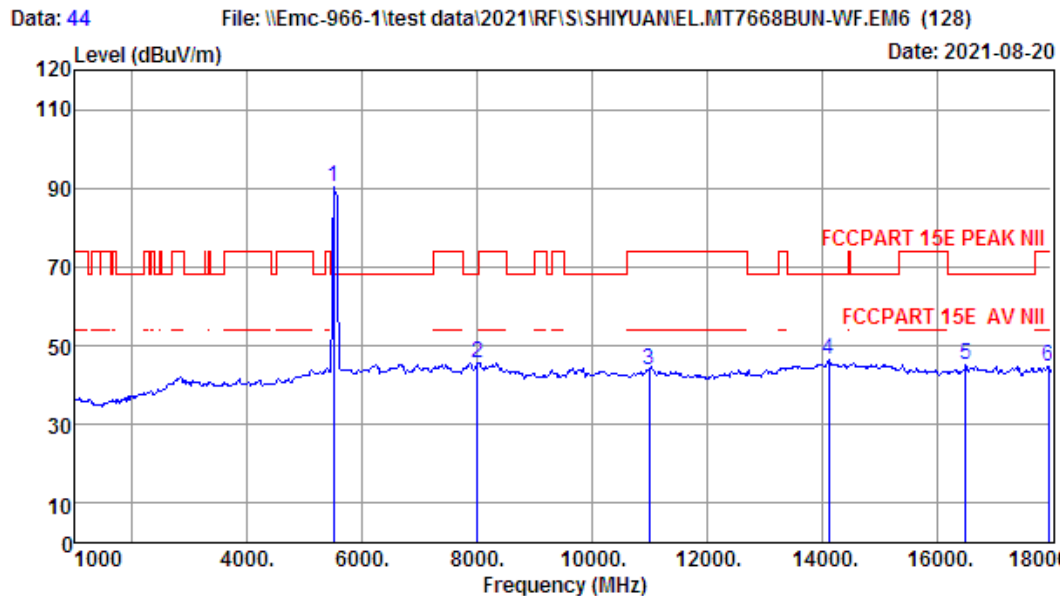
Site no. : 1# 966 Chamber Data no. : 43
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5500MHz

	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	5500.00	32.90	3.71	34.50	89.88	91.99	68.20	-23.79	Peak
2	8225.00	36.90	5.54	34.79	37.07	44.72	74.00	29.28	Peak
3	11000.00	39.90	6.11	34.50	30.66	42.17	74.00	31.83	Peak
4	14600.00	40.98	6.88	34.48	32.10	45.48	68.20	22.72	Peak
5	16500.00	40.36	7.12	34.30	30.09	43.27	68.20	24.93	Peak
6	17269.00	43.07	7.69	34.37	28.46	44.85	68.20	23.35	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. : 44
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5500MHz

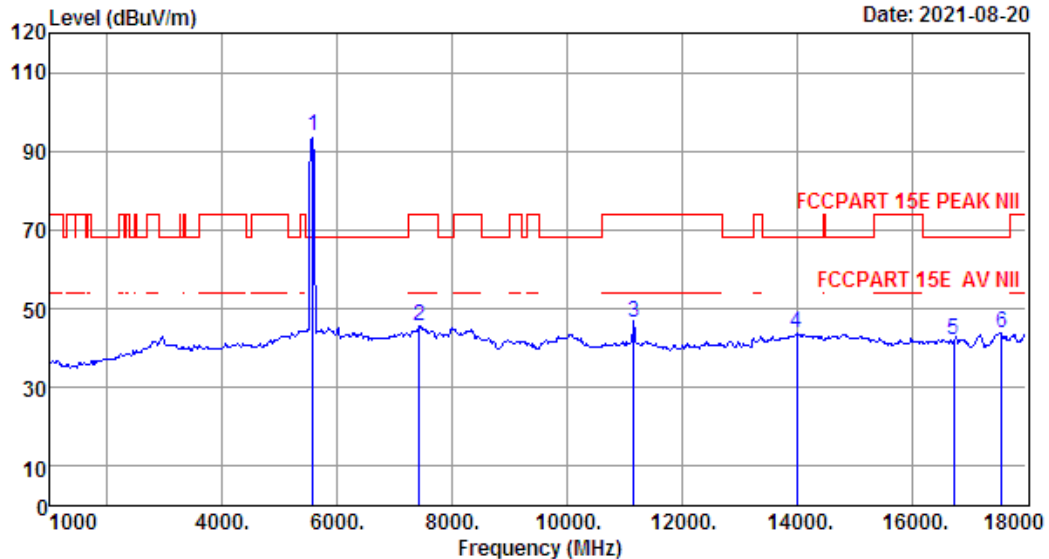
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5500.00	32.90	3.71	34.50	88.39	90.50	68.20	-22.30	Peak
2	8004.00	36.90	5.82	34.90	37.97	45.79	68.20	22.41	Peak
3	11000.00	39.90	6.11	34.50	32.25	43.76	74.00	30.24	Peak
4	14124.00	41.08	6.62	34.34	32.96	46.32	68.20	21.88	Peak
5	16500.00	40.36	7.12	34.30	31.86	45.04	68.20	23.16	Peak
6	17949.00	48.49	8.21	34.31	22.37	44.76	74.00	29.24	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

Data: 45 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 45
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5580MHz

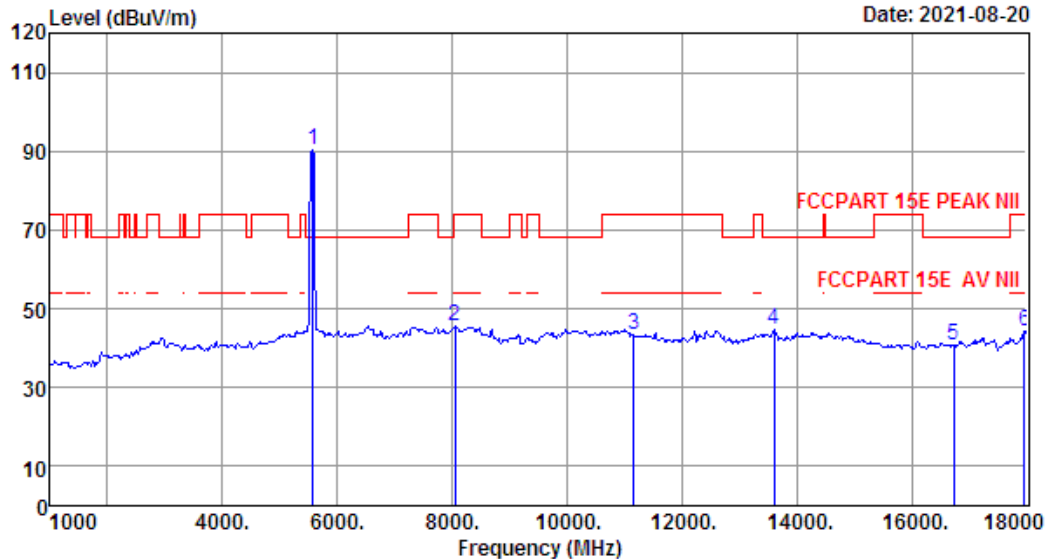
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5580.00	32.89	3.79	34.47	91.64	93.85	68.20	-25.65	Peak
2	7426.00	36.66	5.25	34.84	38.63	45.70	74.00	28.30	Peak
3	11160.00	39.90	6.12	34.55	35.00	46.47	74.00	27.53	Peak
4	14005.00	41.10	6.53	34.30	30.36	43.69	68.20	24.51	Peak
5	16740.00	40.62	7.26	34.35	28.35	41.88	68.20	26.32	Peak
6	17575.00	45.51	7.96	34.34	24.92	44.05	68.20	24.15	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

Data: 46 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 46
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5580MHz

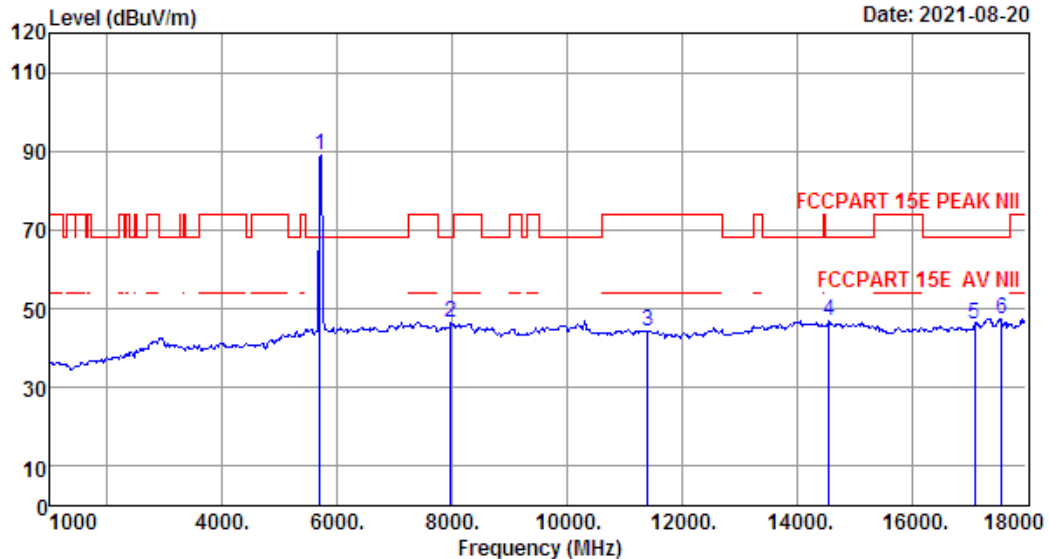
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5580.00	32.89	3.79	34.47	88.30	90.51	68.20	-22.31	Peak
2	8055.00	36.90	5.75	34.87	37.76	45.54	74.00	28.46	Peak
3	11160.00	39.90	6.12	34.55	32.00	43.47	74.00	30.53	Peak
4	13614.00	40.44	6.38	34.34	32.08	44.56	68.20	23.64	Peak
5	16740.00	40.62	7.26	34.35	27.06	40.59	68.20	27.61	Peak
6	17966.00	48.63	8.22	34.30	21.69	44.24	74.00	29.76	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

Data: 47 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 47
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5700MHz

	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	5700.00	32.86	3.94	34.42	86.56	88.94	68.20	-20.74	Peak
2	7970.00	36.89	5.78	34.90	38.64	46.41	68.20	21.79	Peak
3	11400.00	39.90	6.14	34.62	32.79	44.21	74.00	29.79	Peak
4	14566.00	40.99	6.89	34.47	33.35	46.76	68.20	21.44	Peak
5	17100.00	41.71	7.52	34.39	31.04	45.88	68.20	22.32	Peak
6	17575.00	45.51	7.96	34.34	28.38	47.51	68.20	20.69	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.

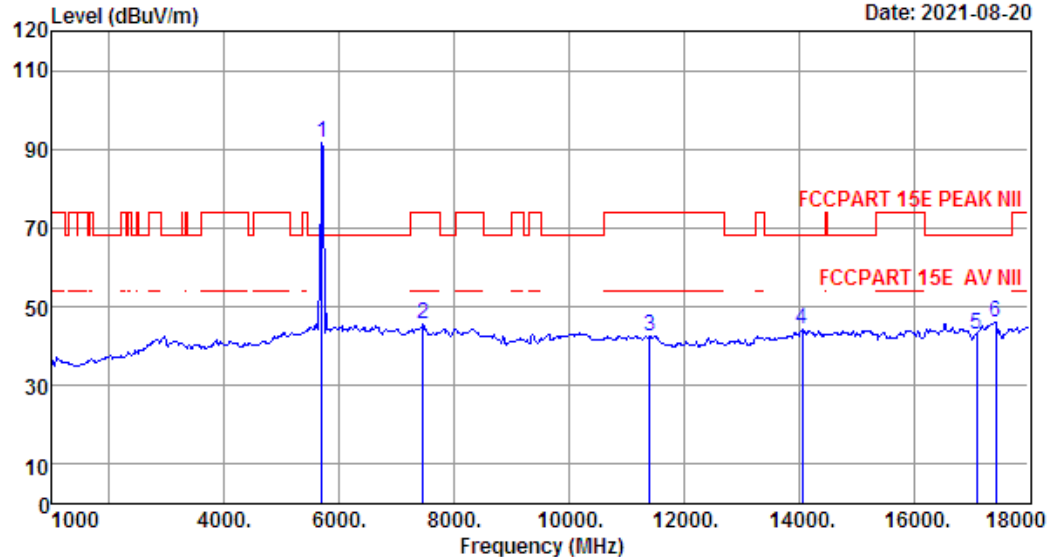
EST Technology

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

Data: 48

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 48
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5700MHz

	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	5700.00	32.86	3.94	34.42	89.20	91.58	68.20	-23.38	Peak
2	7460.00	36.73	5.26	34.85	38.47	45.61	74.00	28.39	Peak
3	11400.00	39.90	6.14	34.62	31.15	42.57	74.00	31.43	Peak
4	14056.00	41.09	6.57	34.32	30.77	44.11	68.20	24.09	Peak
5	17100.00	41.71	7.52	34.39	28.10	42.94	68.20	25.26	Peak
6	17439.00	44.43	7.85	34.36	28.25	46.17	68.20	22.03	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.

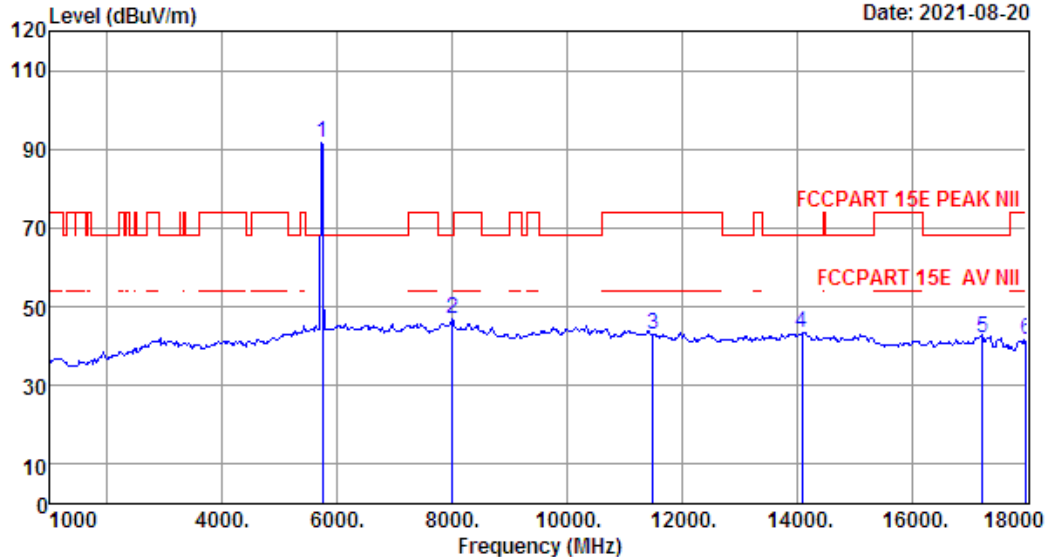
EST Technology

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

Data: 49

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 49
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5745MHz

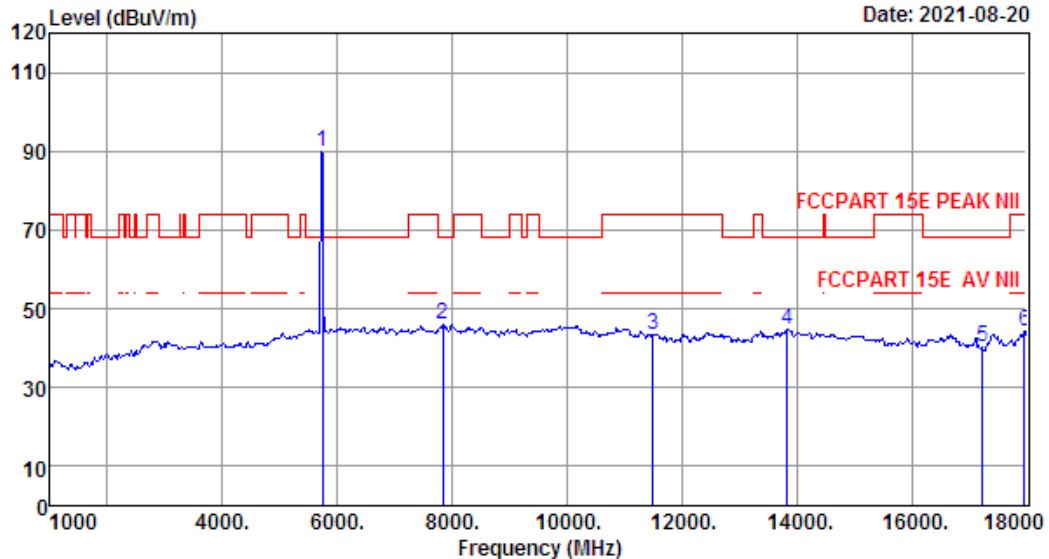
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5745.00	32.85	4.00	34.40	89.39	91.84	68.20	-23.64	Peak
2	8004.00	36.90	5.82	34.90	39.07	46.89	68.20	21.31	Peak
3	11490.00	39.90	6.15	34.65	31.45	42.85	74.00	31.15	Peak
4	14090.00	41.08	6.59	34.33	30.12	43.46	68.20	24.74	Peak
5	17235.00	42.80	7.65	34.38	25.90	41.97	68.20	26.23	Peak
6	18000.00	48.90	8.24	34.30	18.89	41.73	74.00	32.27	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

Data: 50 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 50
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5745MHz

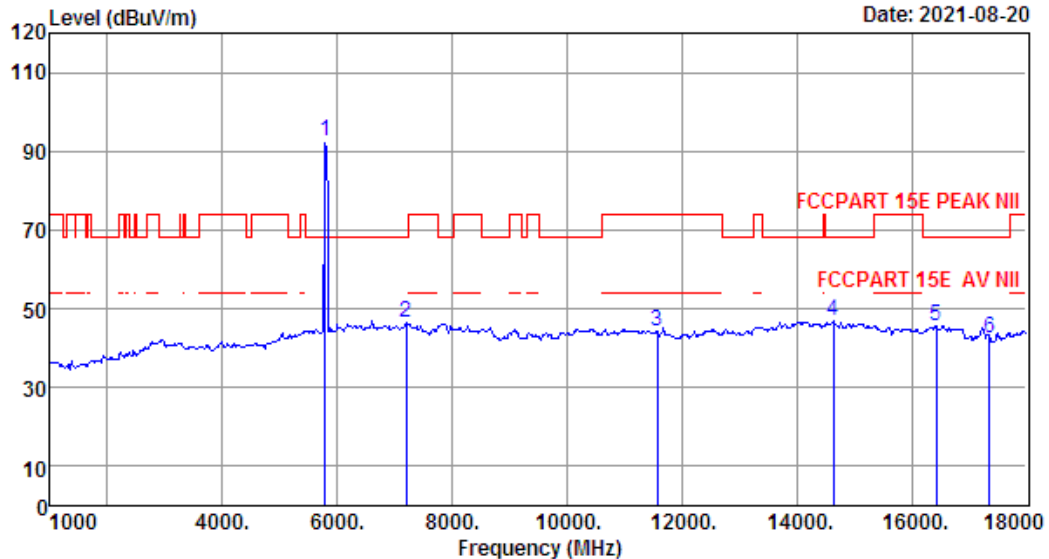
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5745.00	32.85	4.00	34.40	87.38	89.83	68.20	-21.63	Peak
2	7834.00	36.87	5.64	34.88	38.30	45.93	68.20	22.27	Peak
3	11490.00	39.90	6.15	34.65	31.82	43.22	74.00	30.78	Peak
4	13835.00	40.81	6.46	34.32	31.90	44.85	68.20	23.35	Peak
5	17235.00	42.80	7.65	34.38	24.12	40.19	68.20	28.01	Peak
6	17966.00	48.63	8.22	34.30	21.90	44.45	74.00	29.55	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

Data: 51 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 51
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a TX 5785MHz

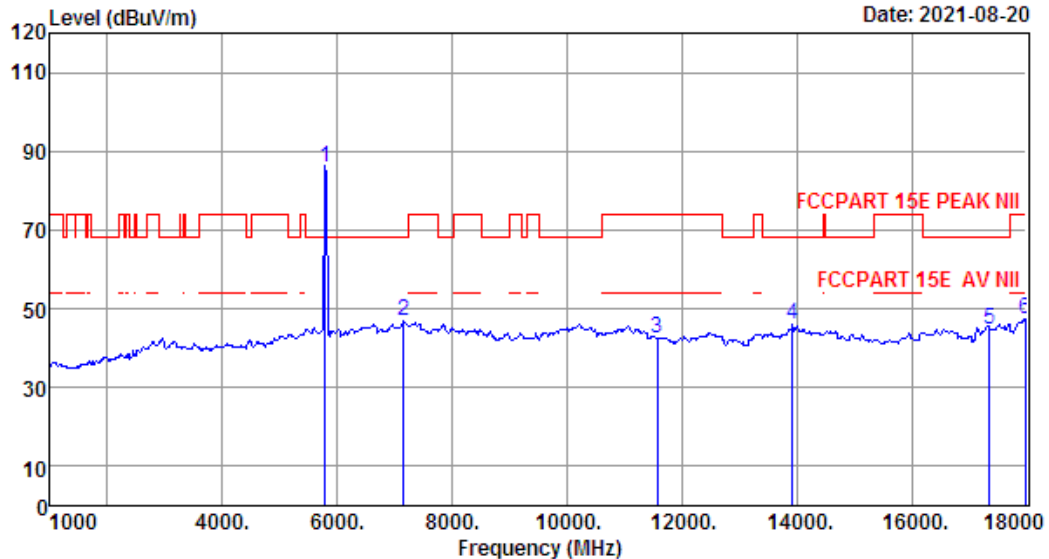
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5785.00	32.84	4.05	34.39	89.85	92.35	68.20	-24.15	Peak
2	7205.00	36.21	5.19	34.82	39.85	46.43	68.20	21.77	Peak
3	11570.00	39.90	6.12	34.67	33.11	44.46	74.00	29.54	Peak
4	14634.00	40.97	6.88	34.49	33.41	46.77	68.20	21.43	Peak
5	16436.00	40.28	7.09	34.29	32.68	45.76	68.20	22.44	Peak
6	17355.00	43.75	7.77	34.36	25.21	42.37	68.20	25.83	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

Data: 52 File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128) Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 52
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a 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	83.61	86.11	68.20	-17.91	Peak
2	7154.00	36.11	5.17	34.82	40.34	46.80	68.20	21.40	Peak
3	11570.00	39.90	6.12	34.67	30.94	42.29	74.00	31.71	Peak
4	13920.00	40.96	6.50	34.31	32.80	45.95	68.20	22.25	Peak
5	17355.00	43.75	7.77	34.36	27.45	44.61	68.20	23.59	Peak
6	17983.00	48.76	8.23	34.30	24.88	47.57	74.00	26.43	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.

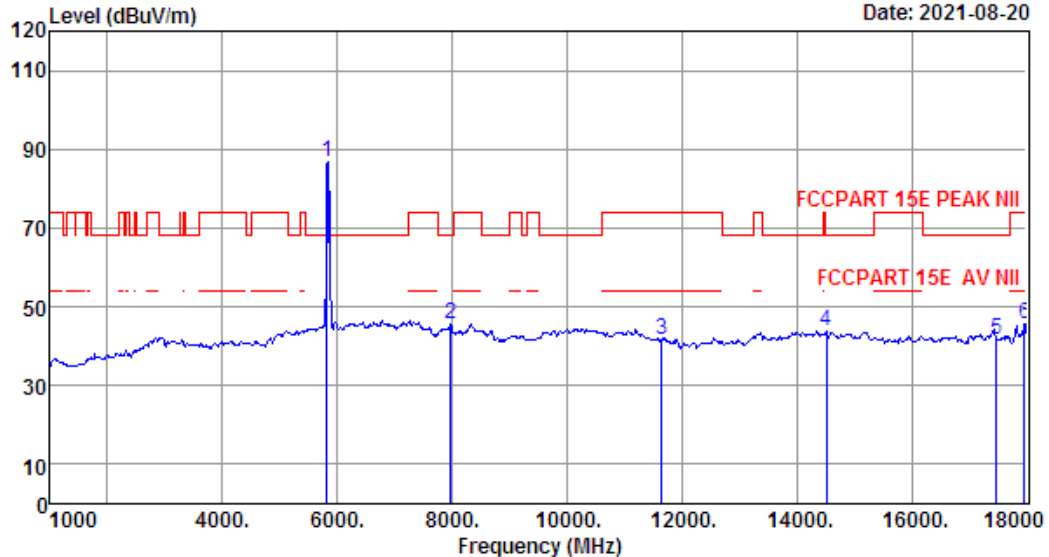
EST Technology

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

Data: 53

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



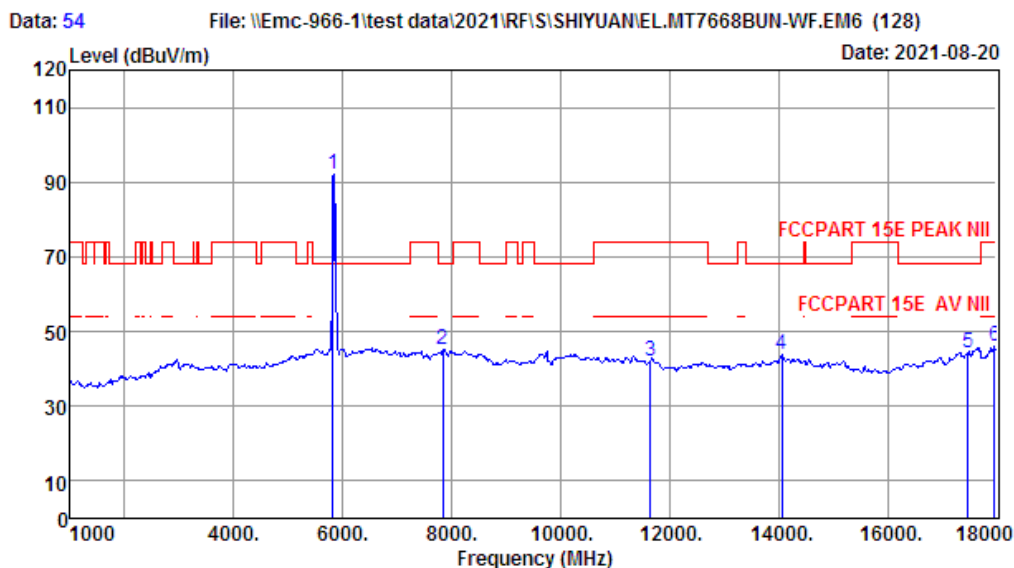
Site no. : 1# 966 Chamber Data no. : 53
Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
Limit : FCCPART 15E PEAK NII
Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
Engineer : DUO
EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
Module Integrated BT 2.1+EDR/4.2/5.0
Power : DC 5V From PC
M/N : EL.MT7668BUN-WF
Test Mode : IEEE 802.11a 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	84.08	86.65	68.20	-18.45	Peak
2	7970.00	36.89	5.78	34.90	38.03	45.80	68.20	22.40	Peak
3	11650.00	39.90	6.08	34.69	30.21	41.50	74.00	32.50	Peak
4	14515.00	41.00	6.90	34.45	30.22	43.67	68.20	24.53	Peak
5	17475.00	44.70	7.89	34.35	23.36	41.60	68.20	26.60	Peak
6	17966.00	48.63	8.22	34.30	23.27	45.82	74.00	28.18	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. : 54
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9'; Humi:62%; Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	89.44	92.01	68.20	-23.81	Peak
2	7834.00	36.87	5.64	34.88	37.60	45.23	68.20	22.97	Peak
3	11650.00	39.90	6.08	34.69	30.76	42.05	74.00	31.95	Peak
4	14056.00	41.09	6.57	34.32	30.50	43.84	68.20	24.36	Peak
5	17475.00	44.70	7.89	34.35	25.82	44.06	68.20	24.14	Peak
6	17966.00	48.63	8.22	34.30	23.30	45.85	74.00	28.15	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

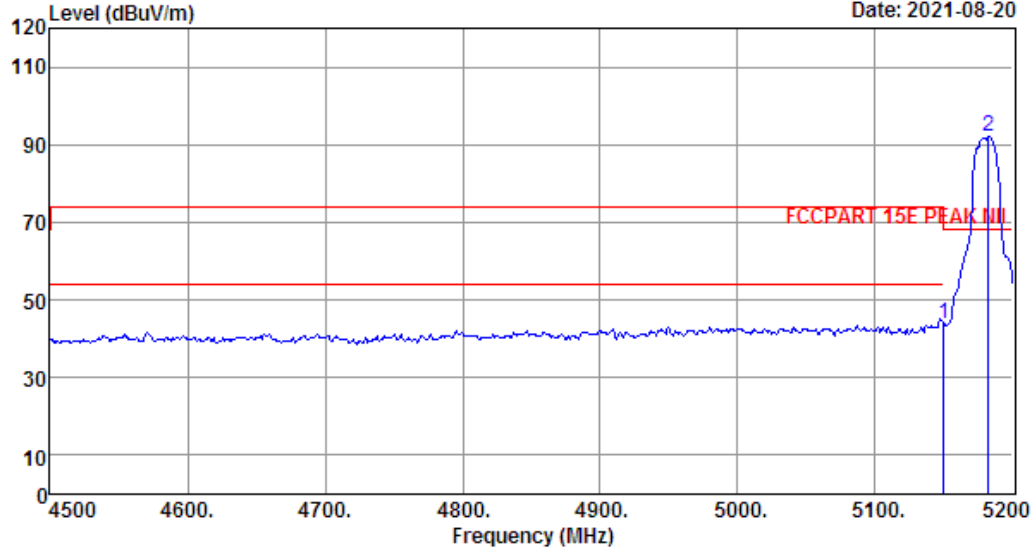
EST Technology

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

Data: 55

File: \\Emc-966-1\test data\2021\RF\SI\SHIYUAN\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 55
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	42.76	43.75	68.20	24.45	Peak
2	5182.50	32.20	3.52	34.63	90.90	91.99	68.20	-23.79	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.

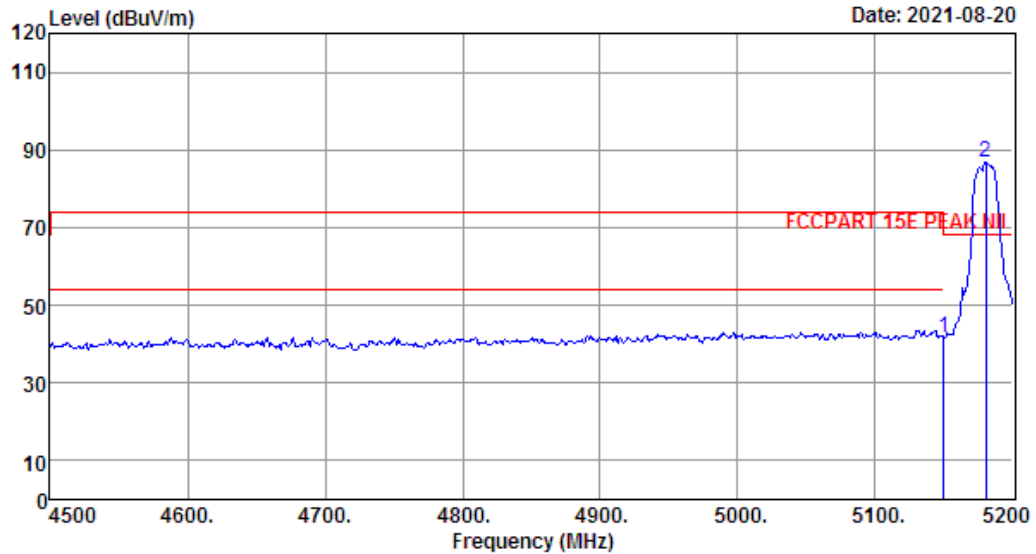
EST Technology

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

Data: 56

File: \\Emc-966-1\\test data\\2021\\RF\\S\\SHIYUAN\\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 56
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a 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	40.73	41.72	68.20	26.48	Peak
2	5180.40	32.20	3.52	34.63	85.70	86.79	68.20	-18.59	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.

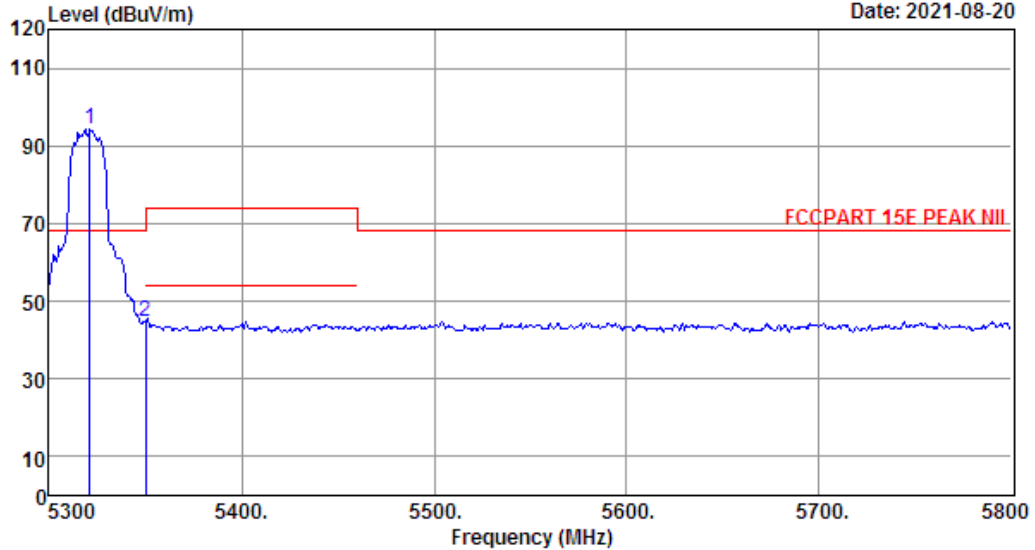
EST Technology

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

Data: 57

File: \\Emc-966-1\\test data\\2021\\RF\\S\\SHIYUAN\\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 57
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5320MHz

	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	5321.00	32.50	3.60	34.57	92.67	94.20	68.20	-26.00	Peak
2	5350.00	32.57	3.62	34.56	43.08	44.71	68.20	23.49	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.

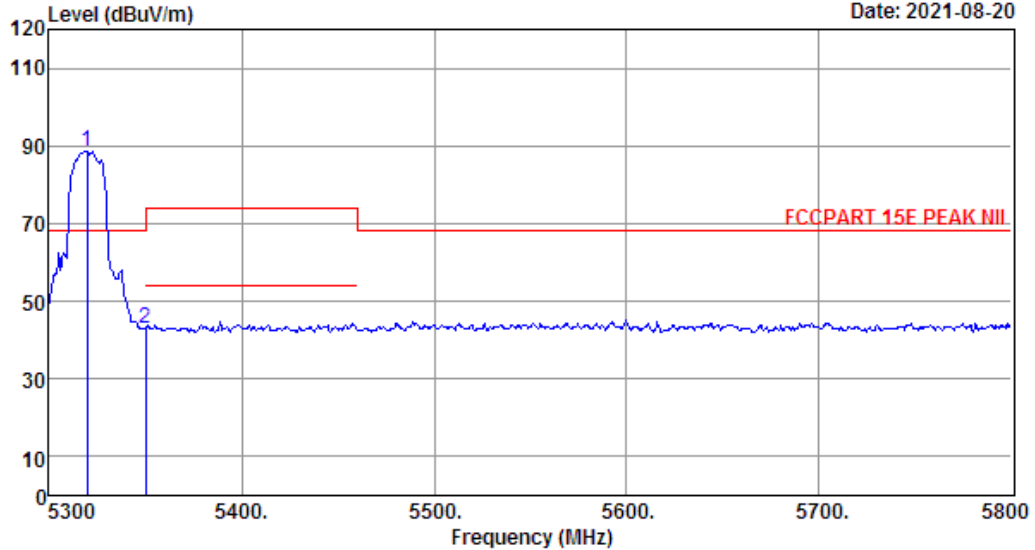
EST Technology

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

Data: 58

File: \\Emc-966-1\\test data\\2021\\RF\\S\\SHIYUAN\\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



Site no. : 1# 966 Chamber Data no. : 58
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5320MHz

	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	5320.00	32.50	3.60	34.57	87.09	88.62	68.20	-20.42	Peak
2	5350.00	32.57	3.62	34.56	41.40	43.03	68.20	25.17	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.

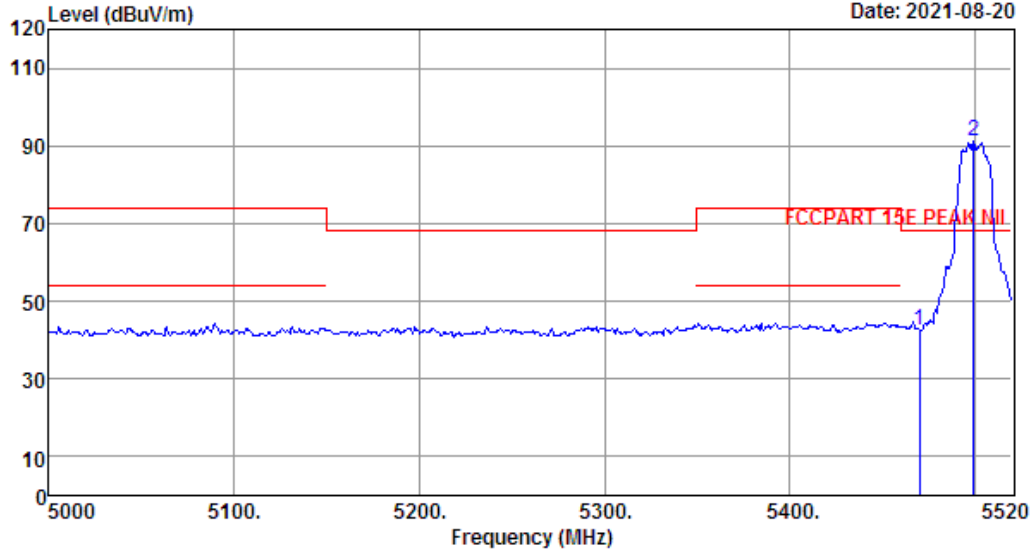
EST Technology

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

Data: 59

File: \\Emc-966-1\\test data\\2021\\RF\\S\\SHIYUAN\\EL.MT7668BUN-WF.EM6 (128)

Date: 2021-08-20



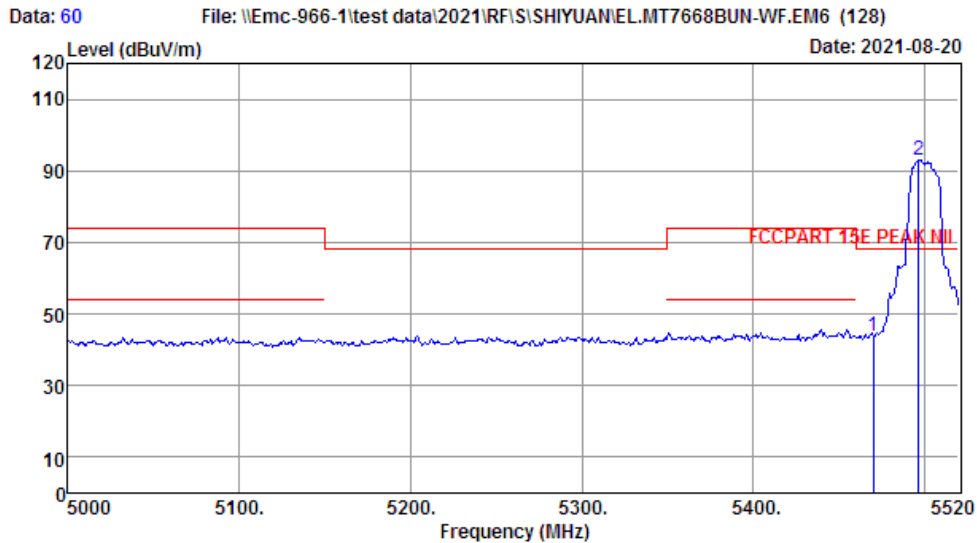
Site no. : 1# 966 Chamber Data no. : 59
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : HORIZONTAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5500MHz

	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	5470.00	32.83	3.69	34.51	40.70	42.71	68.20	25.49	Peak
2	5499.20	32.90	3.71	34.50	88.90	91.01	68.20	-22.81	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. : 60
 Dis. / Ant. : 3m ANT9120D 1-18G Ant. pol. : VERTICAL
 Limit : FCCPART 15E PEAK NII
 Env. / Ins. : Temp:24.9';Humi:62%;Press:101.52kPa
 Engineer : DUO
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC
 M/N : EL.MT7668BUN-WF
 Test Mode : IEEE 802.11a TX 5500MHz

	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	5470.00	32.83	3.69	34.51	41.95	43.96	68.20	24.24	Peak
2	5496.60	32.90	3.71	34.50	90.87	92.98	68.20	-24.78	Peak

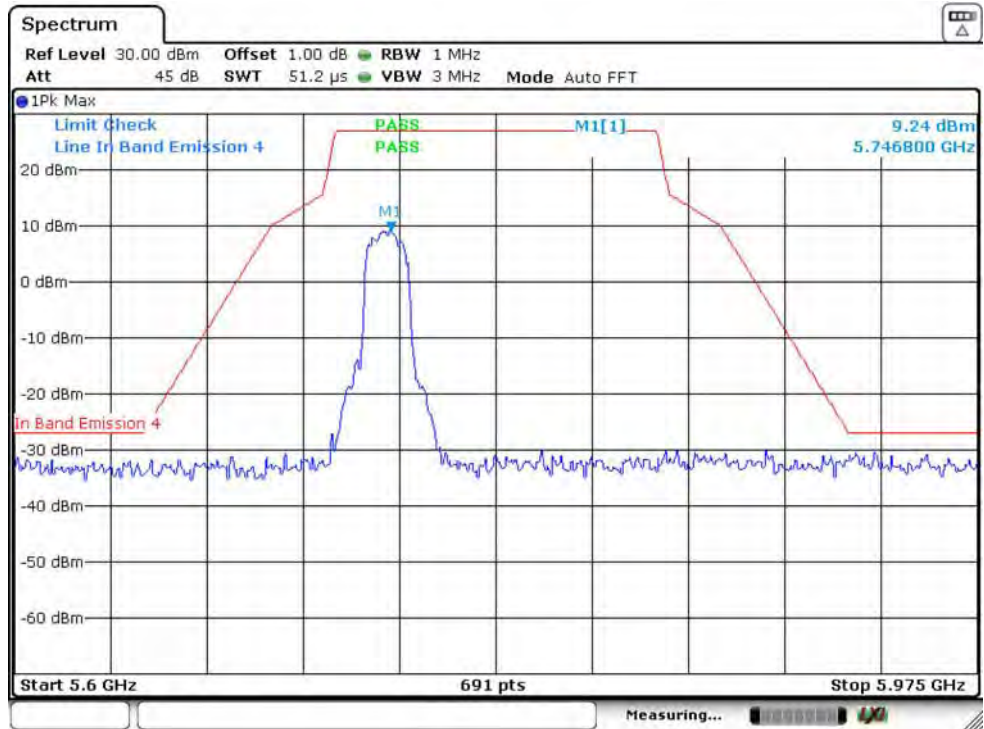
Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.
 2. Margin= Limit - Emission Level.
 3. The emission levels that are 20dB below the official limit are not reported.

Note:

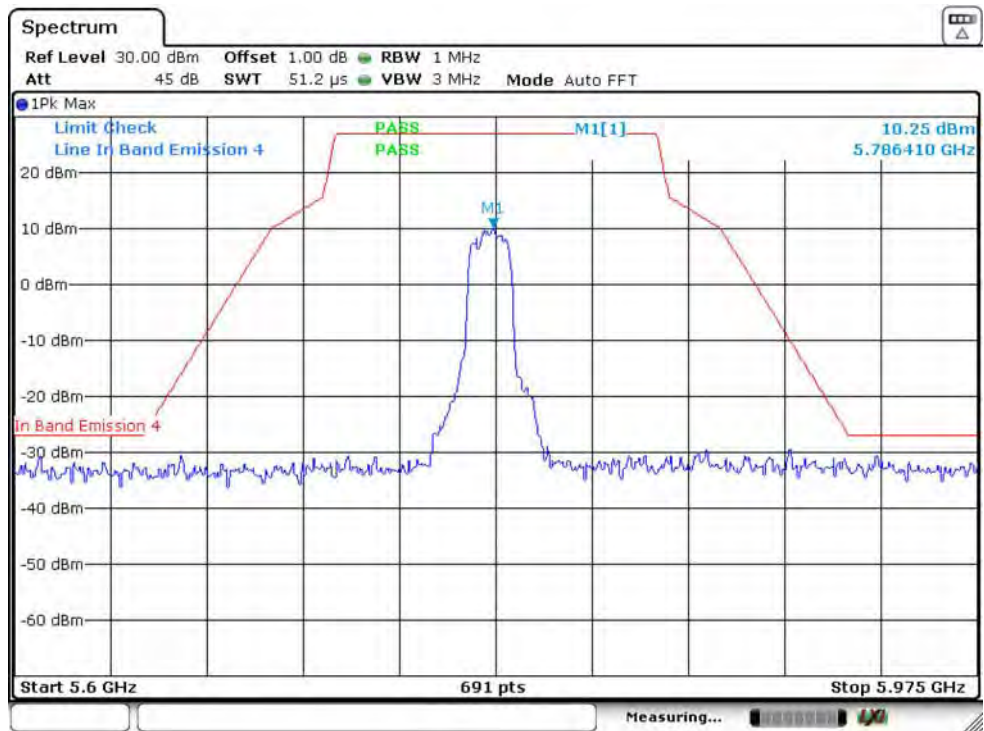
1. The amplitude of 18GHz to 40GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. All test mode had been pre-test, only Low/Middle/High Channel of the worst case modulation mode was reported

Band Edge

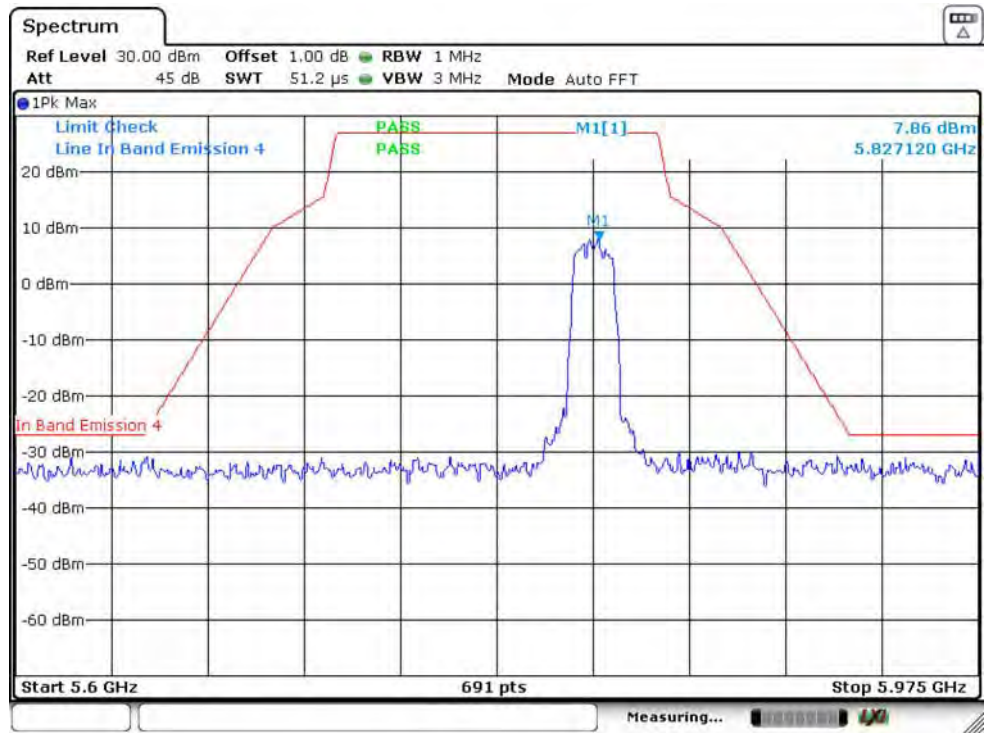
IEEE 802.11a 5745MHz



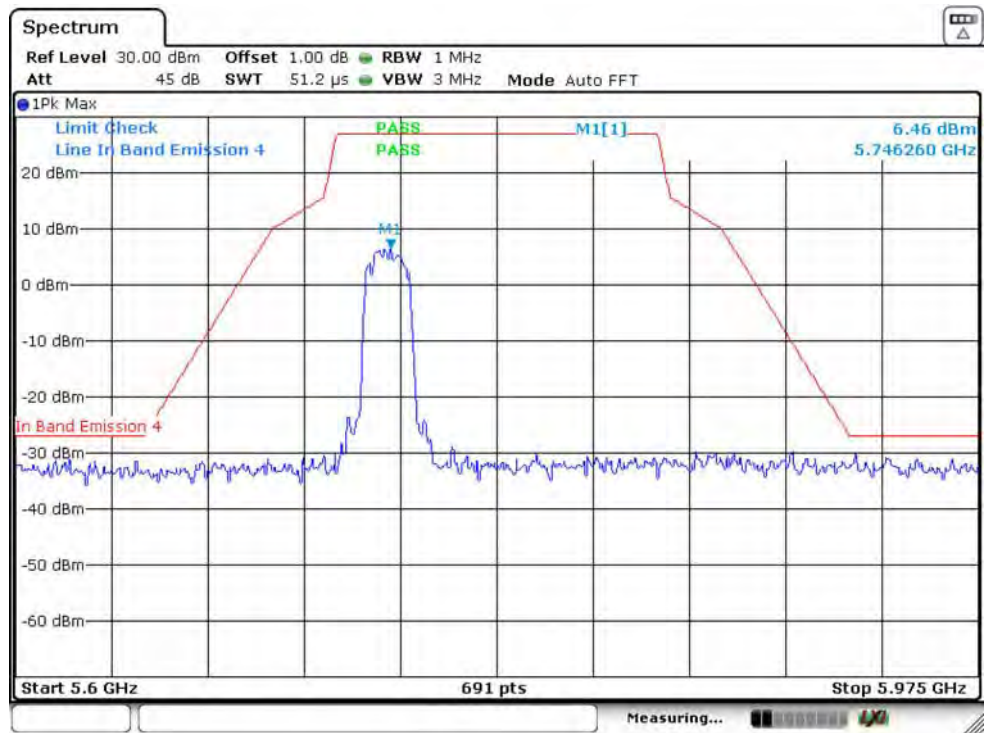
IEEE 802.11a 5785MHz



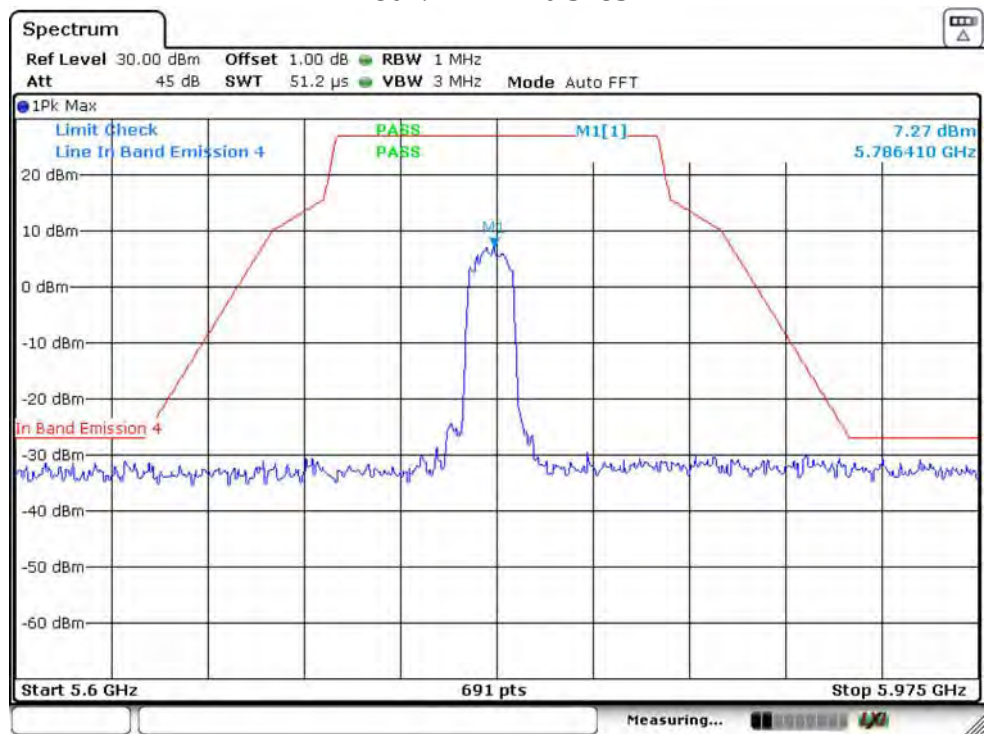
IEEE 802.11a 5825MHz



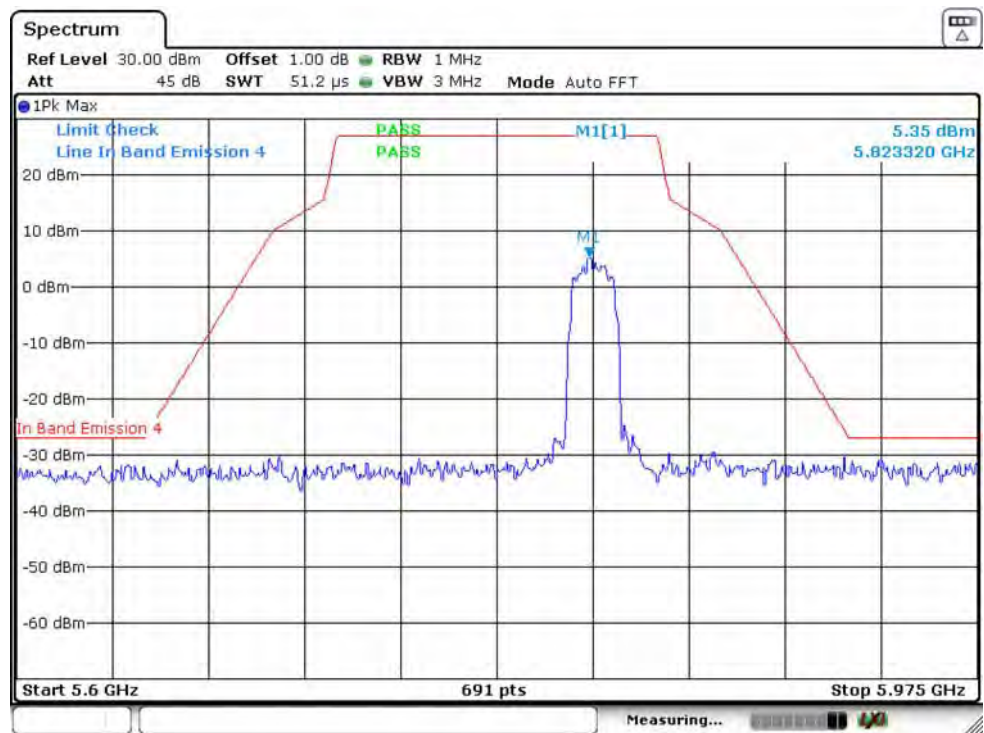
IEEE 802.11n HT20 5745MHz



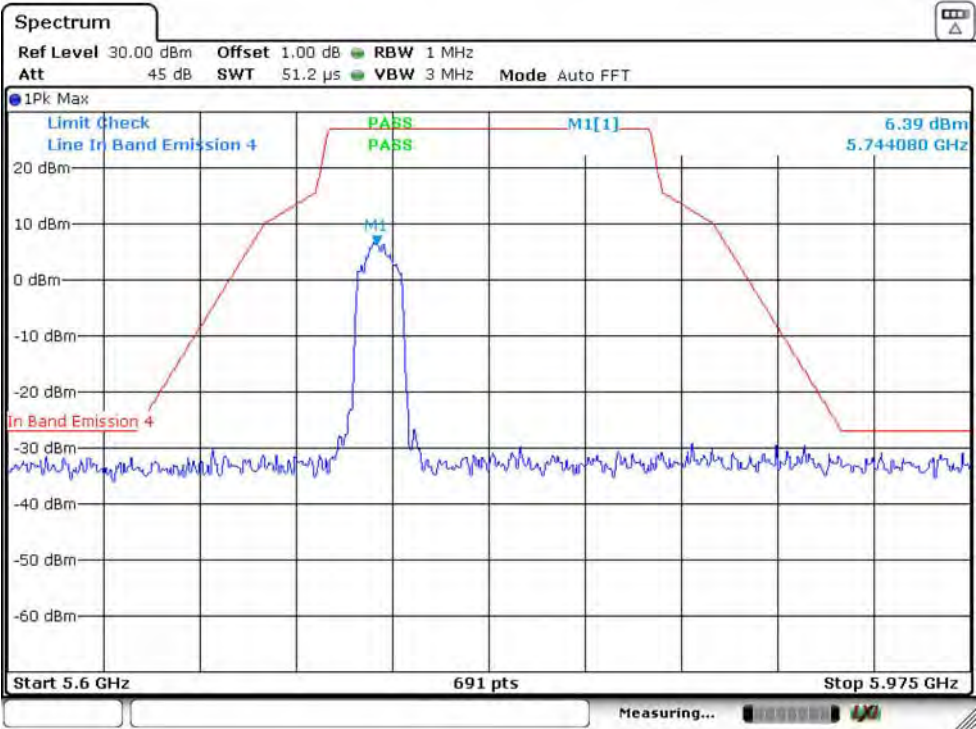
IEEE 802.11n HT20 5785MHz



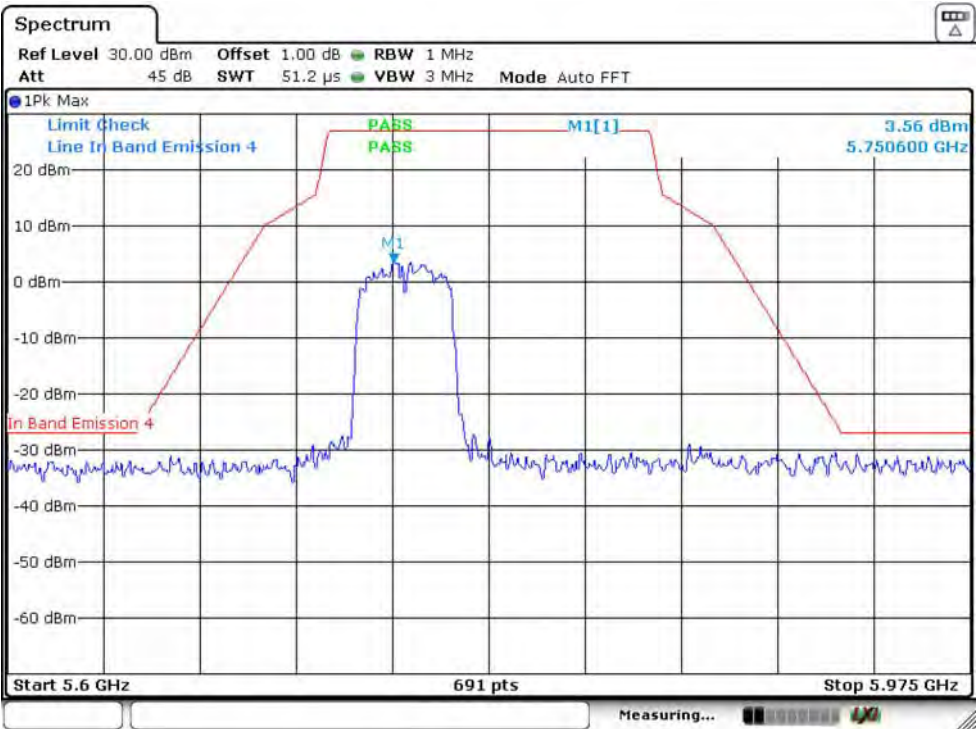
IEEE 802.11n HT20 5825MHz



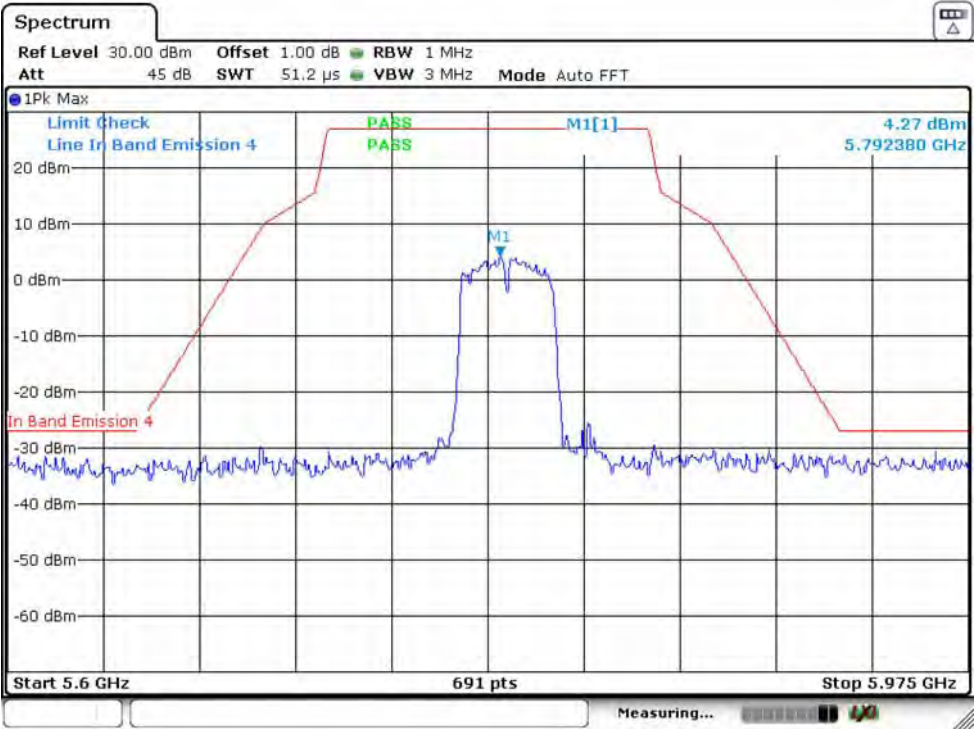
IEEE 802.11ac VHT20 5745MHz



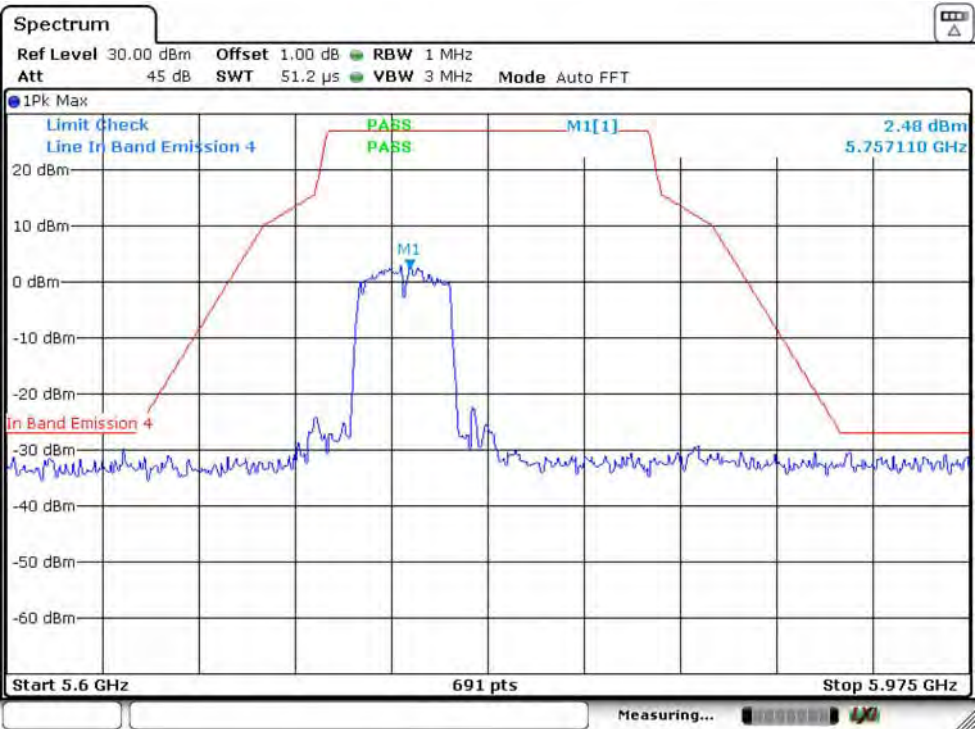
IEEE 802.11n HT40 5755MHz



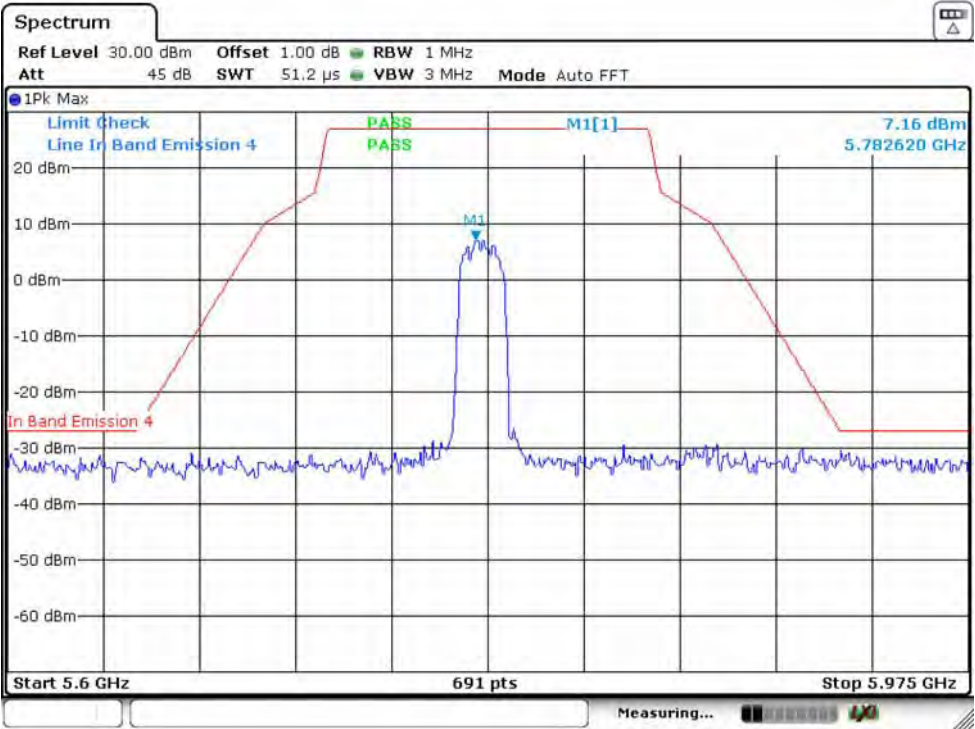
IEEE 802.11n HT40 5795MHz



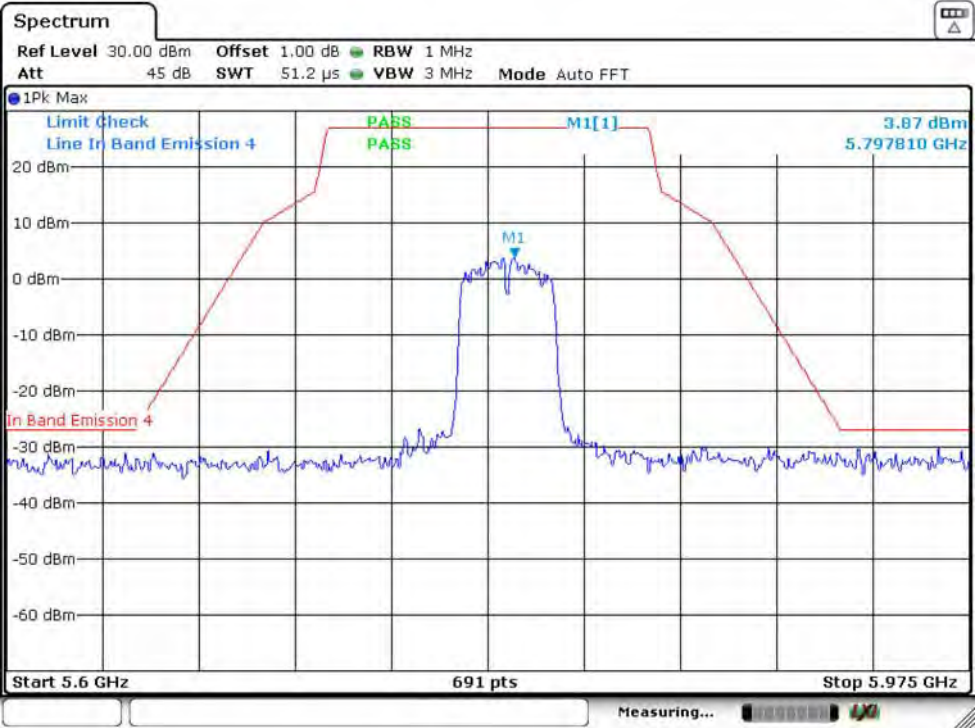
IEEE 802.11ac VHT40 5755MHz



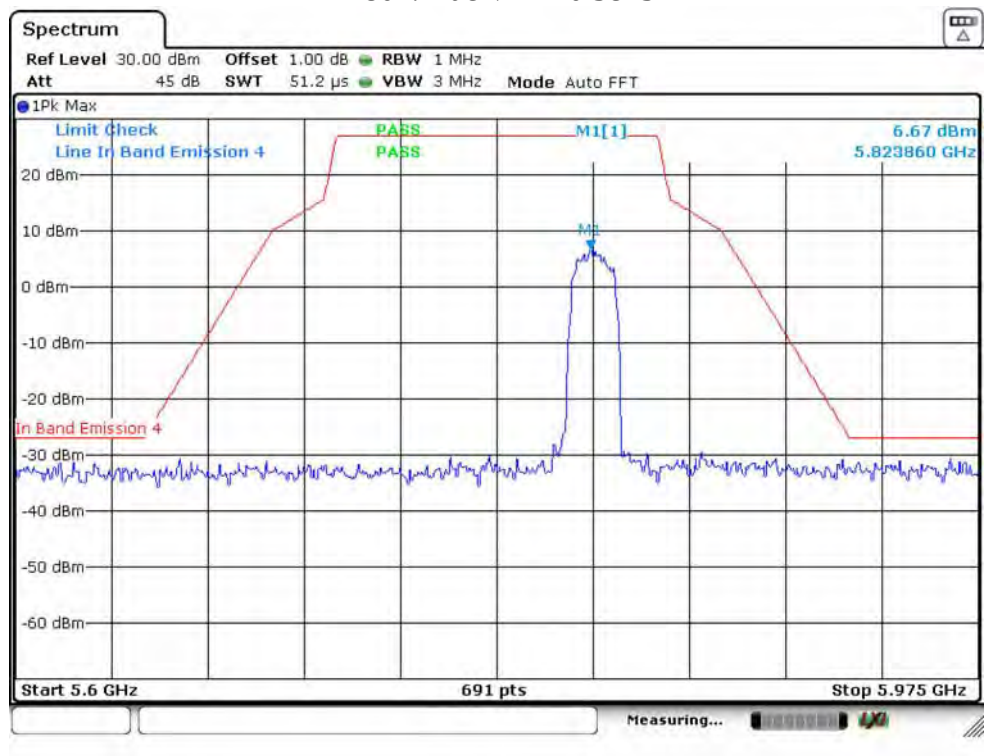
IEEE 802.11ac VHT40 5785MHz



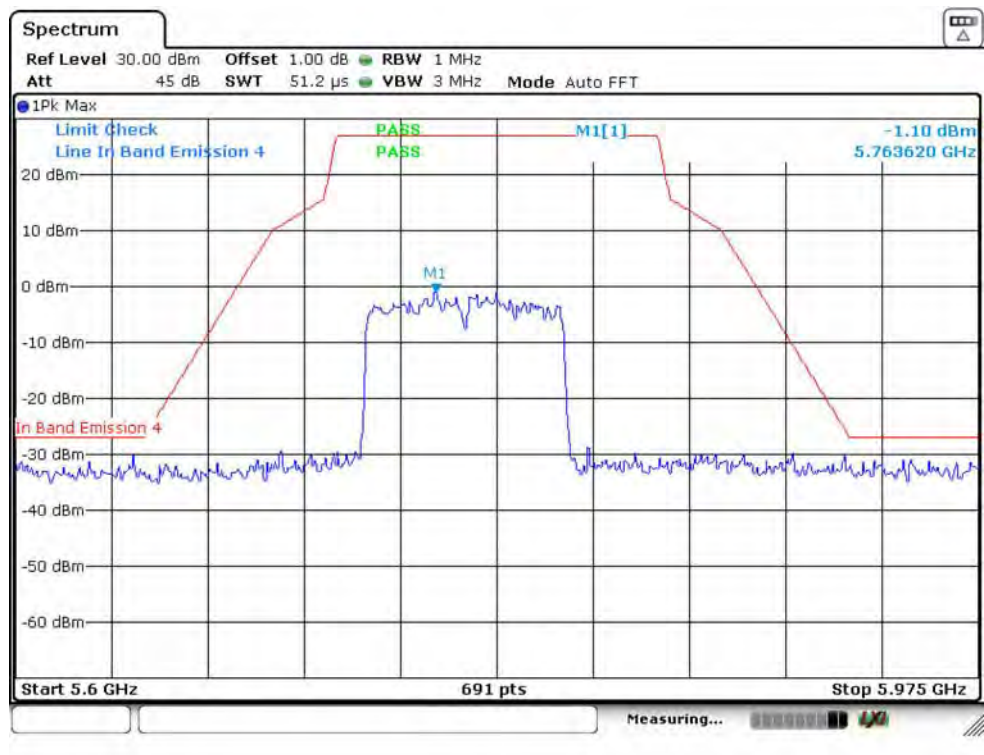
IEEE 802.11ac VHT40 5795MHz



IEEE 802.11ac VHT40 5825MHz



IEEE 802.11ac VHT80 5775MHz



All modulations are all tested ,only worse case is reported

18000MHz-40000MHz

Pass

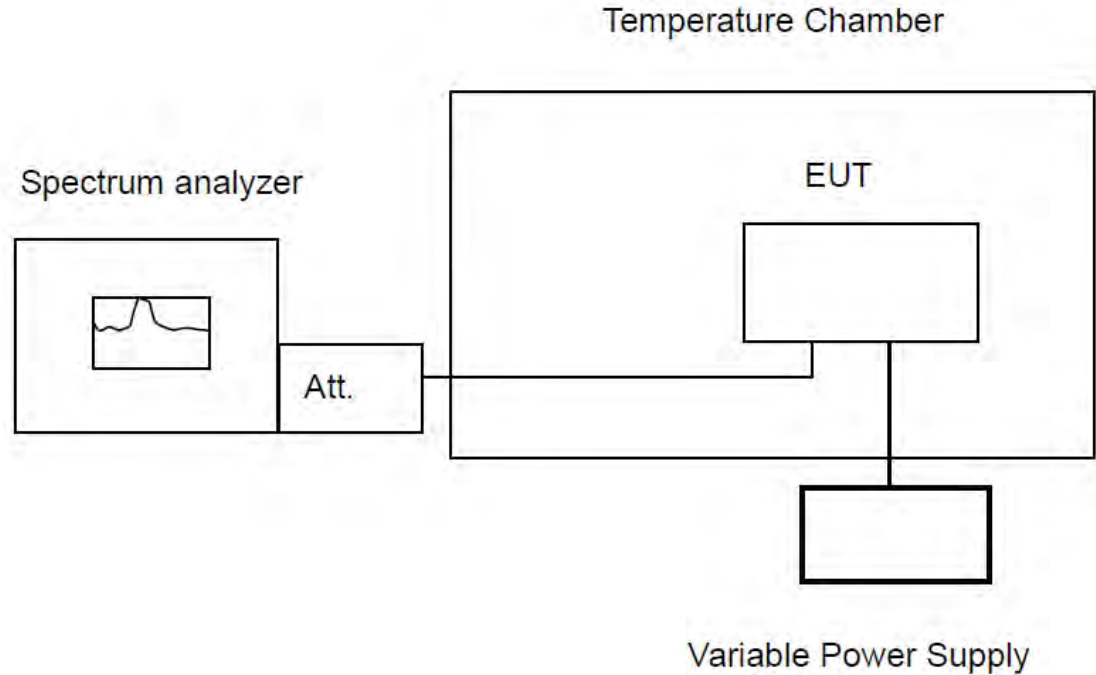
Note: The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

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°C to $+50^{\circ}\text{C}$ in 10°C 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 ($+15^{\circ}\text{C}$ to $+25^{\circ}\text{C}$) 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 (°C)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5180	120	50	0	5180.0765220	14.77
			2	5180.0839920	16.21
			5	5180.0895210	17.28
			10	5180.0949910	18.34
	120	40	0	5180.0901120	17.40
			2	5180.0791400	15.28
			5	5180.0862100	16.64
			10	5180.0888540	17.15
	120	30	0	5180.0792580	15.30
			2	5180.0945510	18.25
			5	5180.0903260	17.44
			10	5180.0923300	17.82
	120	20	0	5180.0853800	16.48
			2	5180.0771890	14.90
			5	5180.0826910	15.96
			10	5180.0810490	15.65
	120	10	0	5180.0916620	17.70
			2	5180.0934080	18.03
			5	5180.0933880	18.03
			10	5180.0933080	18.01
	120	0	0	5180.0823010	15.89
			2	5180.0808910	15.62
			5	5180.0874460	16.88
			10	5180.0943350	18.21
	120	-10	0	5180.0807030	15.58
			2	5180.0833670	16.09
			5	5180.0888990	17.16
			10	5180.0779460	15.05
	120	-20	0	5180.0853320	16.47
			2	5180.0923060	17.82
			5	5180.0930140	17.96
			10	5180.0909960	17.57
	120	20	/	5180.0895710	17.29
	102	20	/	5180.0840890	16.23
	138	20	/	5180.0881360	17.01
	MAX Frquency Error(ppm)				18.34

Frequency (MHz)	Voltage (V)	Temperature (°C)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5320	120	50	0	5320.0779930	14.66
			2	5320.0899910	16.92
			5	5320.0999300	18.78
			10	5320.1049900	19.73
	120	40	0	5320.0907360	17.06
			2	5320.1038570	19.52
			5	5320.1032950	19.42
			10	5320.0932200	17.52
	120	30	0	5320.0789790	14.85
			2	5320.0820770	15.43
			5	5320.0936010	17.59
			10	5320.0861800	16.20
	120	20	0	5320.0839480	15.78
			2	5320.0995830	18.72
			5	5320.1047500	19.69
			10	5320.0847860	15.94
	120	10	0	5320.0803170	15.10
			2	5320.0783010	14.72
			5	5320.0928040	17.44
			10	5320.1023130	19.23
	120	0	0	5320.0913170	17.16
			2	5320.0988060	18.57
			5	5320.0813150	15.28
			10	5320.0927190	17.43
	120	-10	0	5320.1013560	19.05
			2	5320.1036640	19.49
			5	5320.0867160	16.30
			10	5320.1027500	19.31
	120	-20	0	5320.0875060	16.45
			2	5320.0810310	15.23
			5	5320.0955470	17.96
			10	5320.0831840	15.64
	120	20	/	5320.0964800	18.14
	102	20	/	5320.0886700	16.67
	138	20	/	5320.0961940	18.08
MAX Frquency Error(ppm)					19.73

Frequency (MHz)	Voltage (V)	Temperature (°C)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5500	120	50	0	5500.1039900	18.91
			2	5500.1229880	22.36
			5	5500.1319870	24.00
			10	5500.1435160	26.09
	120	40	0	5500.1058240	19.24
			2	5500.1190490	21.65
			5	5500.1176790	21.40
			10	5500.1223080	22.24
	120	30	0	5500.1407490	25.59
			2	5500.1219060	22.16
			5	5500.1140020	20.73
			10	5500.1216050	22.11
	120	20	0	5500.1432810	26.05
			2	5500.1433120	26.06
			5	5500.1342320	24.41
			10	5500.1318630	23.98
	120	10	0	5500.1125670	20.47
			2	5500.1194680	21.72
			5	5500.1434500	26.08
			10	5500.1222140	22.22
	120	0	0	5500.1216070	22.11
			2	5500.1158040	21.06
			5	5500.1054900	19.18
			10	5500.1394510	25.35
	120	-10	0	5500.1342380	24.41
			2	5500.1187990	21.60
			5	5500.1327770	24.14
			10	5500.1078580	19.61
	120	-20	0	5500.1231150	22.38
			2	5500.1414890	25.73
			5	5500.1085400	19.73
			10	5500.1372230	24.95
	120	20	/	5500.1204760	21.90
	102	20	/	5500.1101820	20.03
	138	20	/	5500.1118940	20.34
	MAX Frquency Error(ppm)				

Frequency (MHz)	Voltage (V)	Temperature (°C)	Time (minutes)	Measurement Value (MHz)	Frequency Error (ppm)
5745	120	50	0	5745.1345160	23.41
			2	5745.1315160	22.89
			5	5745.1319870	22.97
			10	5745.0799920	13.92
	120	40	0	5745.0849190	14.78
			2	5745.1225760	21.34
			5	5745.1057460	18.41
			10	5745.1312680	22.85
	120	30	0	5745.1068400	18.60
			2	5745.1263160	21.99
			5	5745.1272190	22.14
			10	5745.0978070	17.02
	120	20	0	5745.0844150	14.69
			2	5745.1116640	19.44
			5	5745.1138720	19.82
			10	5745.1222620	21.28
	120	10	0	5745.0878830	15.30
			2	5745.1258720	21.91
			5	5745.1209240	21.05
			10	5745.0889030	15.47
	120	0	0	5745.1313100	22.86
			2	5745.0933480	16.25
			5	5745.0802120	13.96
			10	5745.0800320	13.93
	120	-10	0	5745.1197860	20.85
			2	5745.0865500	15.07
			5	5745.1178740	20.52
			10	5745.0980410	17.07
	120	-20	0	5745.1003780	17.47
			2	5745.1182580	20.58
			5	5745.0907410	15.79
			10	5745.1135190	19.76
	120	20	/	5745.0871820	15.18
	102	20	/	5745.1040450	18.11
	138	20	/	5745.1057800	18.41
MAX Frquency Error(ppm)					23.41

8. AC POWER LINE CONDUCTED EMISSIONS

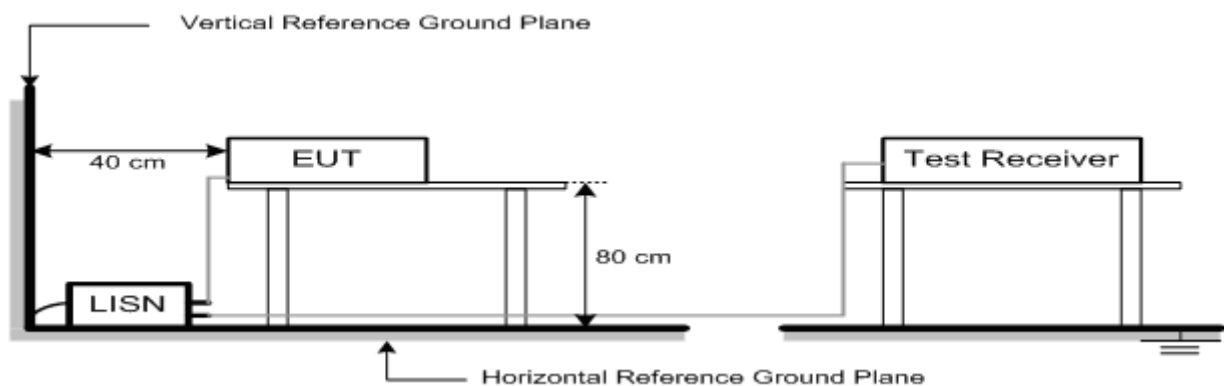
8.1. Limit

Frequency			Maximum RF Line Voltage	
			Quasi-Peak Level dB(μ V)	Average Level dB(μ V)
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

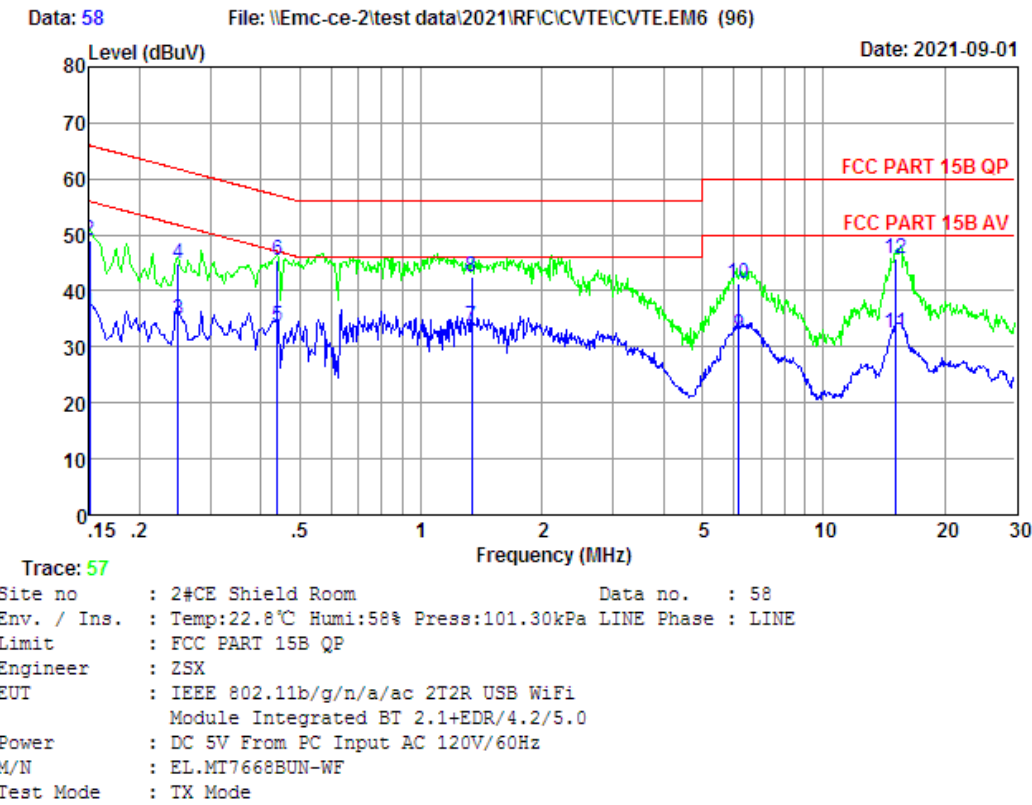
8.4. Test Procedure

- 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



	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.1500	9.82	9.69	16.38	35.89	56.00	20.11	Average
2	0.1500	9.82	9.69	29.45	48.96	66.00	17.04	QP
3	0.2495	9.73	9.92	15.33	34.98	51.78	16.80	Average
4	0.2495	9.73	9.92	25.17	44.82	61.78	16.96	QP
5	0.4397	9.85	9.92	13.90	33.67	47.07	13.40	Average
6	0.4397	9.85	9.92	25.64	45.41	57.07	11.66	QP
7	1.3379	9.89	9.95	13.87	33.71	46.00	12.29	Average
8	1.3379	9.89	9.95	22.78	42.62	56.00	13.38	QP
9	6.1534	9.90	10.03	12.21	32.14	50.00	17.86	Average
10	6.1534	9.90	10.03	21.52	41.45	60.00	18.55	QP
11	15.1457	9.86	10.12	12.39	32.37	50.00	17.63	Average
12	15.1457	9.86	10.12	25.74	45.72	60.00	14.28	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.

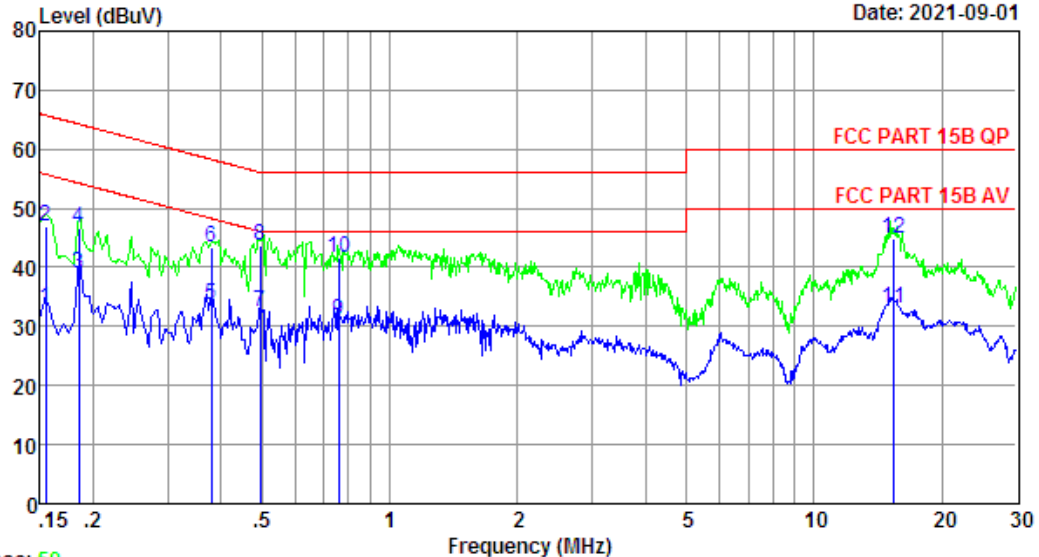
EST Technology

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

Data: 60

File: \\Emc-ce-2\test data\2021\RFIC\CVTE\CVTE.EM6 (96)

Date: 2021-09-01



Trace: 59
 Site no : 2#CE Shield Room Data no. : 60
 Env. / Ins. : Temp:22.8℃ Humi:58% Press:101.30kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : ZSX
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC Input AC 120V/60Hz
 M/N : EL.MT7668BUN-WF
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.1548	9.78	9.69	13.64	33.11	55.74	22.63	Average
2	0.1548	9.78	9.69	27.57	47.04	65.74	18.70	QP
3	0.1854	9.72	9.77	19.48	38.97	54.24	15.27	Average
4	0.1854	9.72	9.77	27.13	46.62	64.24	17.62	QP
5	0.3791	9.74	9.92	14.09	33.75	48.30	14.55	Average
6	0.3791	9.74	9.92	23.62	43.28	58.30	15.02	QP
7	0.4941	9.76	9.92	12.68	32.36	46.10	13.74	Average
8	0.4941	9.76	9.92	23.95	43.63	56.10	12.47	QP
9	0.7589	9.81	9.93	11.17	30.91	46.00	15.09	Average
10	0.7589	9.81	9.93	21.86	41.60	56.00	14.40	QP
11	15.3883	10.13	10.13	12.71	32.97	50.00	17.03	Average
12	15.3883	10.13	10.13	24.51	44.77	60.00	15.23	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.

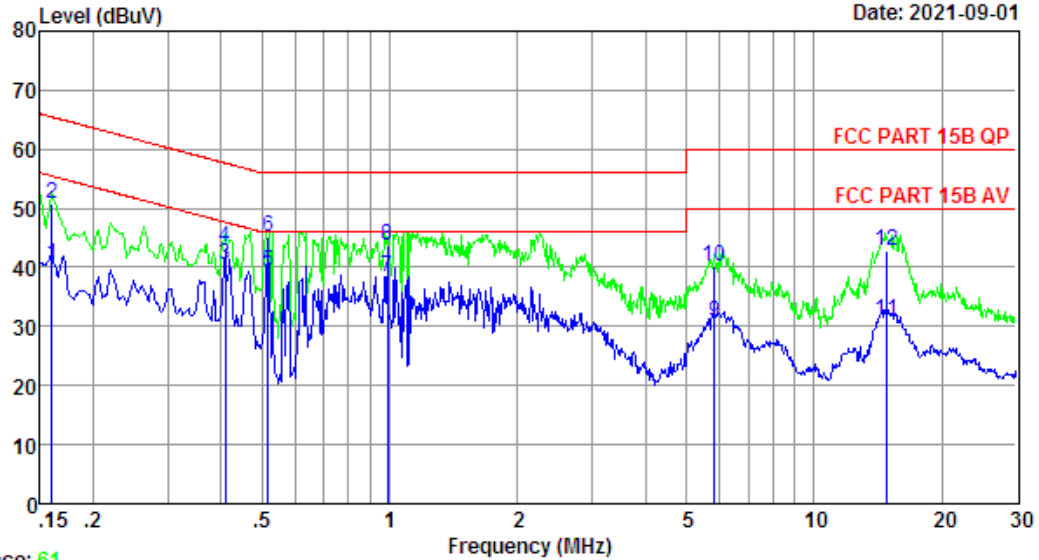
EST Technology

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

Data: 62

File: \\Emc-ce-2\test data\2021\RFIC\CVTE\CVTE.EM6 (96)

Date: 2021-09-01



Trace: 61
 Site no : 2#CE Shield Room Data no. : 62
 Env. / Ins. : Temp:22.8℃ Humi:58% Press:101.30kPa LINE Phase : LINE
 Limit : FCC PART 15B QP
 Engineer : ZSX
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC Input AC 240V/60Hz
 M/N : EL.MT7668BUN-WF
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.1598	9.82	9.69	21.02	40.53	55.47	14.94	Average
2	0.1598	9.82	9.69	31.18	50.69	65.47	14.78	QP
3	0.4105	9.85	9.92	20.65	40.42	47.64	7.22	Average
4	0.4105	9.85	9.92	23.67	43.44	57.64	14.20	QP
5	0.5155	9.84	9.92	19.57	39.33	46.00	6.67	Average
6	0.5155	9.84	9.92	25.39	45.15	56.00	10.85	QP
7	0.9891	9.94	9.94	18.55	38.43	46.00	7.57	Average
8	0.9891	9.94	9.94	23.82	43.70	56.00	12.30	QP
9	5.8358	9.89	10.02	10.69	30.60	50.00	19.40	Average
10	5.8358	9.89	10.02	20.15	40.06	60.00	19.94	QP
11	14.8281	9.86	10.12	11.05	31.03	50.00	18.97	Average
12	14.8281	9.86	10.12	22.92	42.90	60.00	17.10	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.

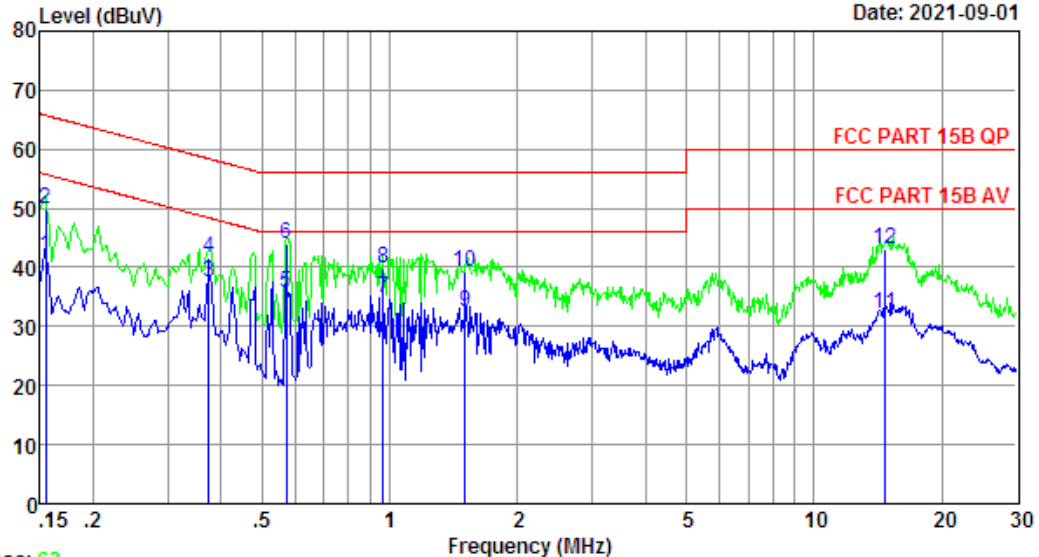
EST Technology

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

Data: 64

File: \\Emc-ce-2\test data\2021\RFIC\CVTE\CVTE.EM6 (96)

Date: 2021-09-01



Trace: 63

Site no : 2#CE Shield Room Data no. : 64
 Env. / Ins. : Temp:22.8℃ Humi:58% Press:101.30kPa LINE Phase : NEUTRAL
 Limit : FCC PART 15B QP
 Engineer : ZSX
 EUT : IEEE 802.11b/g/n/a/ac 2T2R USB WiFi
 Module Integrated BT 2.1+EDR/4.2/5.0
 Power : DC 5V From PC Input AC 240V/60Hz
 M/N : EL.MT7668BUN-WF
 Test Mode : TX Mode

	Freq. (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBUV)	Emission Level (dBUV)	Limits (dBUV)	Margin (dB)	Remark
1	0.1548	9.78	9.69	22.35	41.82	55.74	13.92	Average
2	0.1548	9.78	9.69	30.35	49.82	65.74	15.92	QP
3	0.3751	9.74	9.92	17.96	37.62	48.39	10.77	Average
4	0.3751	9.74	9.92	21.84	41.50	58.39	16.89	QP
5	0.5701	9.75	9.92	16.15	35.82	46.00	10.18	Average
6	0.5701	9.75	9.92	24.25	43.92	56.00	12.08	QP
7	0.9633	9.83	9.94	15.17	34.94	46.00	11.06	Average
8	0.9633	9.83	9.94	20.18	39.95	56.00	16.05	QP
9	1.5033	9.86	9.96	12.76	32.58	46.00	13.42	Average
10	1.5033	9.86	9.96	19.55	39.37	56.00	16.63	QP
11	14.7497	10.13	10.12	11.87	32.12	50.00	17.88	Average
12	14.7497	10.13	10.12	22.96	43.21	60.00	16.79	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

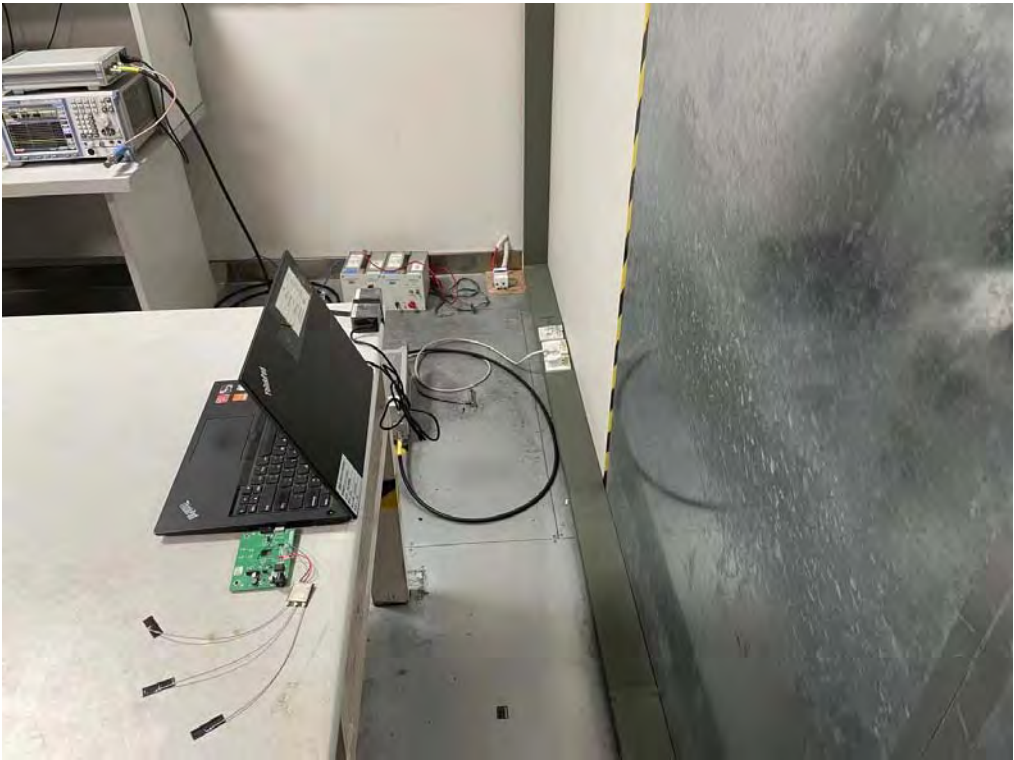
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply 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

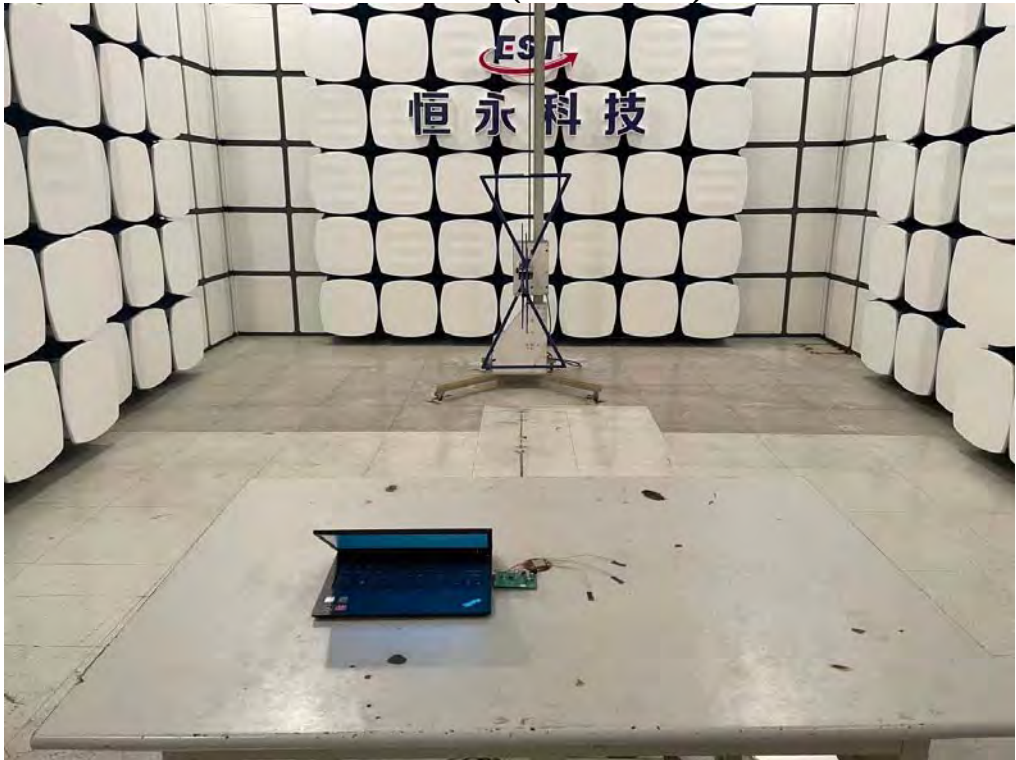
The antennas used for this product is internal antenna ,so compliance with antenna requirements.
(Please refer to the EUT photo for details)

10. TEST SETUP PHOTO

Conducted Test



Radiated Test (Below 1GHz)

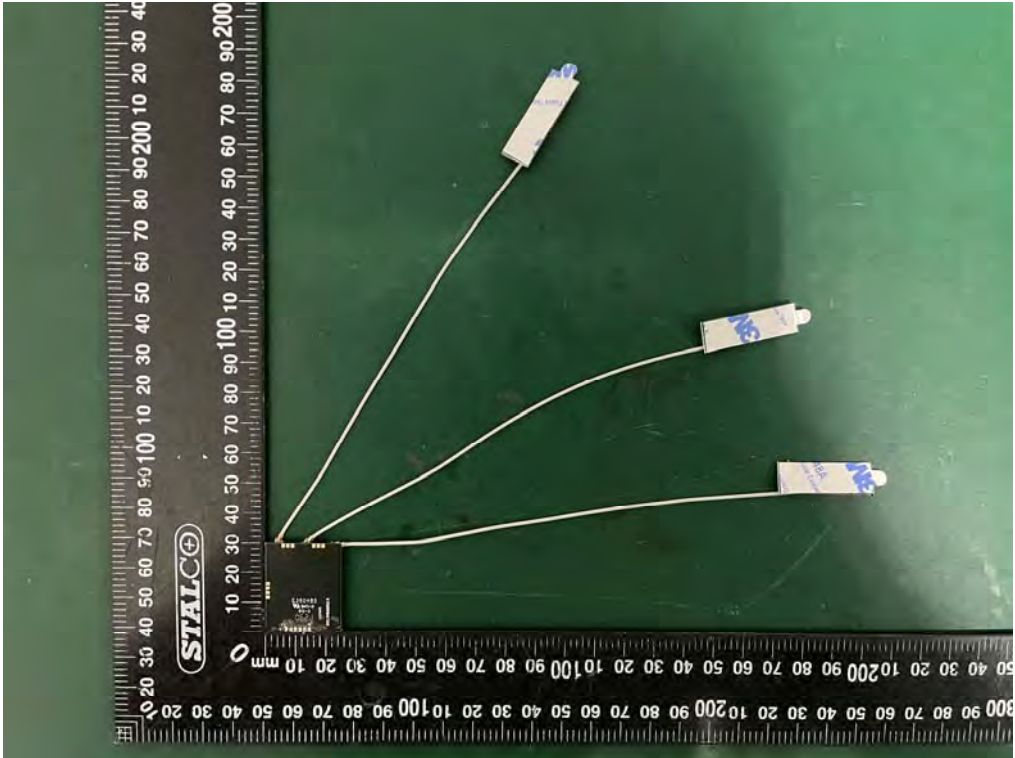
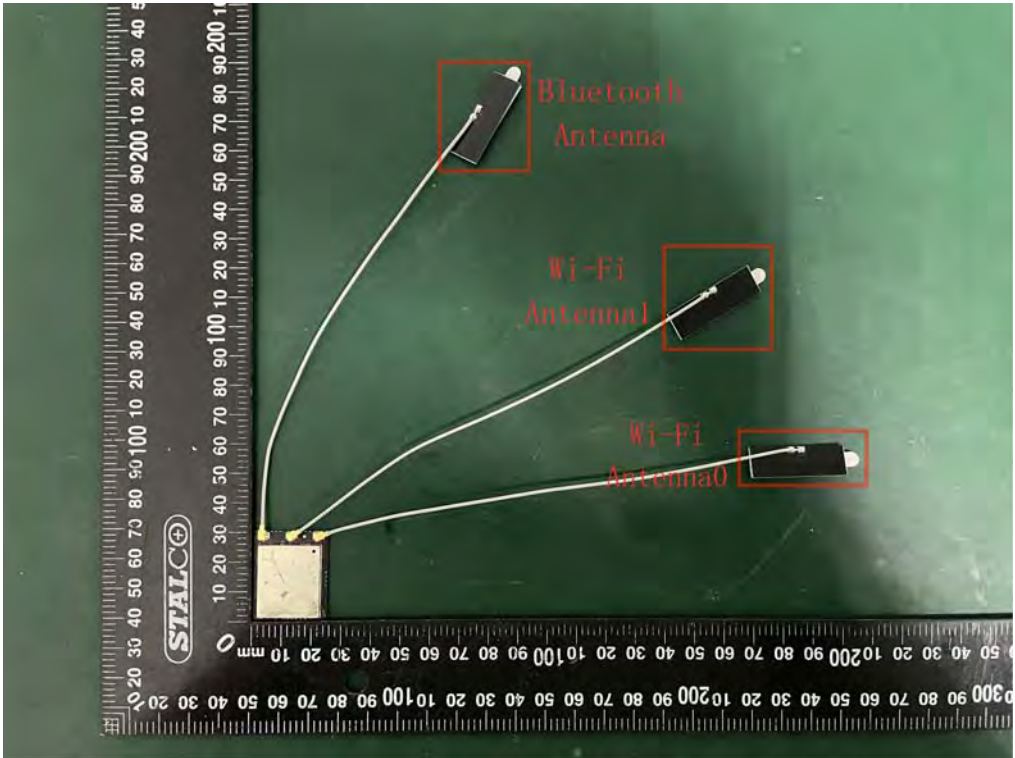


Radiated Test (Above 1GHz)

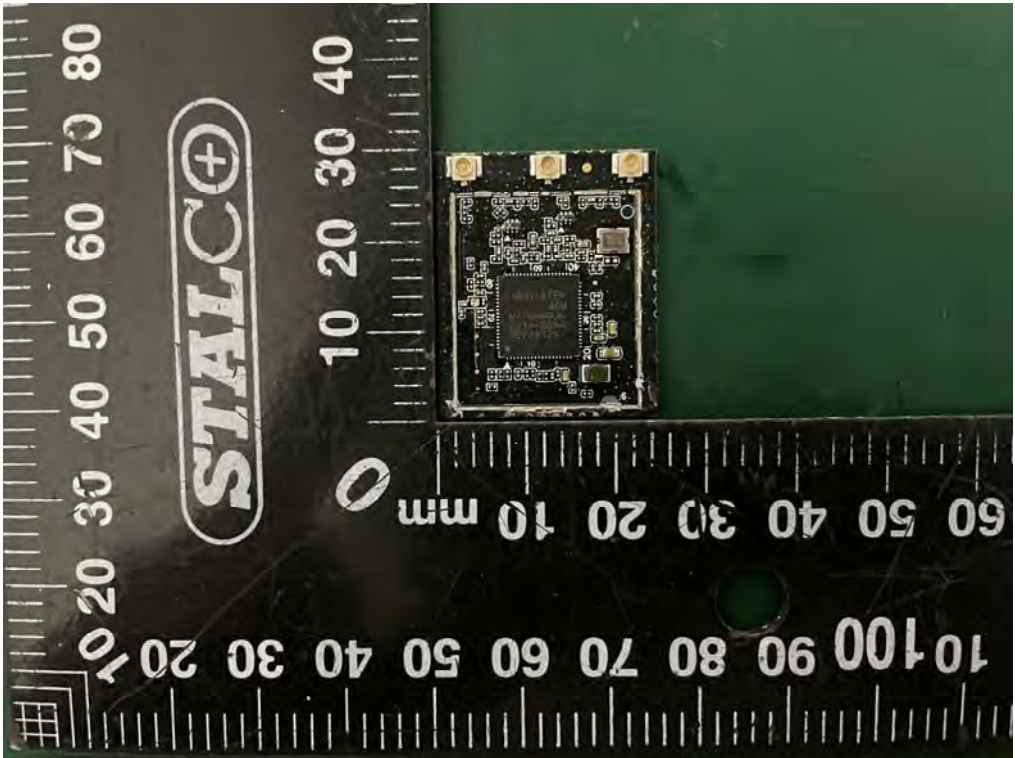
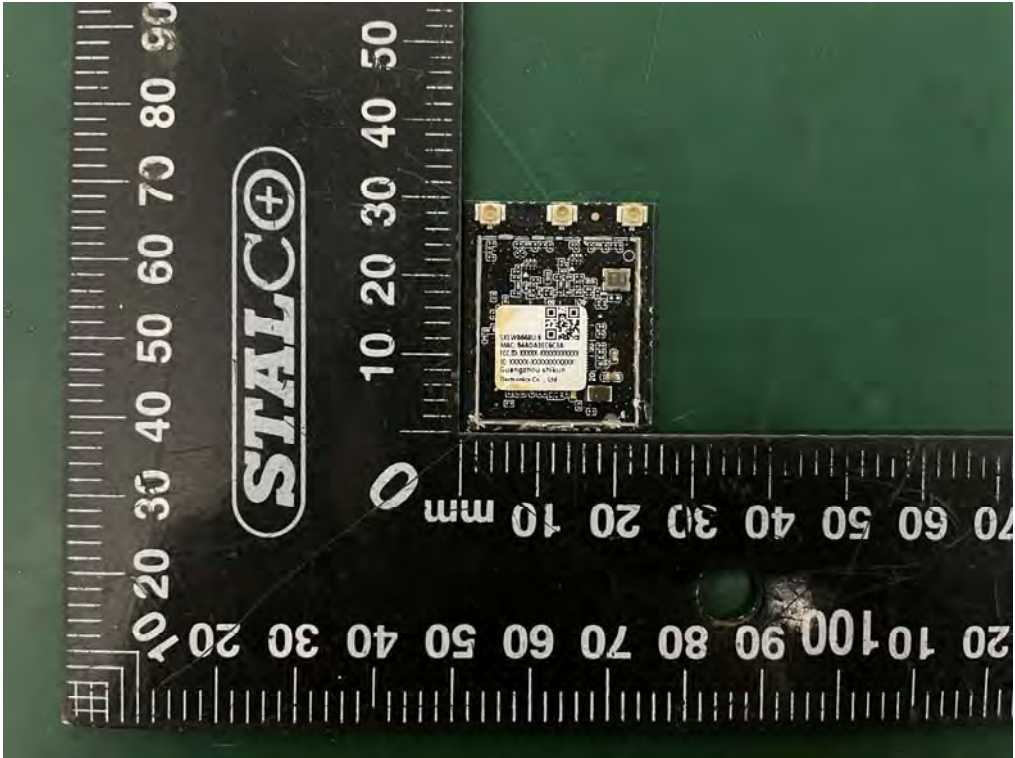


11. EUT PHOTO

External Photos
M/N: EL.MT7668BUN-WF



Internal photos
M/N: EL.MT7668BUN-WF



Internal photos
M/N: EL.MT7668BUN-WF



End of Test Report