中认信通
CHINA CERTIFICATION ICT CO., LTD (DONGGUAN)

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **AudioCodes Ltd.**

Address: 1 Hayarden Street, Airport City, Lod, Israel

FCC ID: **XAK-RXPADA**

Product Name: **Touch Console device**

Standard(s): **47 CFR Part 15, Subpart E(15.407)**
ANSI C63.10-2013
KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

The above device has been tested and found compliant with the requirement of the relative standards by China Certification ICT Co., Ltd (Dongguan)

Report Number: **CR230748428-00D**

Date Of Issue: **2023/9/19**

Reviewed By: **Calvin Chen**

Title: RF Engineer

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Test Facility

The Test site used by China Certification ICT Co., Ltd (Dongguan) to collect test data is located on the No. 113, Pingkang Road, Dalang Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 442868, the FCC Designation No. : CN1314.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0123.

Declarations

China Certification ICT Co., Ltd (Dongguan) is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol "▲". Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
1.0	CR230748428-00D	Original Report	2023/9/19

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

1.1.1 General:

EUT Name:	Touch Console device
Trade Name:	audiocodes
EUT Model:	RX-PAD
Operation Frequency:	Band1: 5180-5240 MHz (802.11a/n ht20/ac vht20) 5190-5230 MHz(802.11n ht40/ac vht40) 5210 MHz(802.11ac vht80) Band2: 5260-5320 MHz (802.11a/n ht20/ac vht20) 5270-5310 MHz(802.11n ht40/ac vht40) 5290 MHz(802.11ac vht80) Band3: 5500-5700 MHz (802.11a/n ht20/ac vht20) 5510-5670 MHz(802.11n ht40/ac vht40) 5530-5610MHz(802.11ac vht80) Band4: 5745-5825 MHz (802.11a/n ht20/ac vht20) 5755-5795 MHz(802.11n ht40/ac vht40) 5775 MHz(802.11ac vht80)
Maximum Average Output Power (Conducted):	12.54 dBm (5150-5250 MHz), 13.27 dBm (5250-5350 MHz), 12.52 dBm (5470-5725 MHz),12.29 dBm (5725-5850 MHz)
Modulation Type:	802.11a/n/ac:OFDM-BPSK, QPSK, 16QAM, 64QAM,256QAM
Rated Input Voltage:	DC 12V from Adapter or DC 48V from POE
Serial Number:	RF: 27V5-1;CE/RE: 27V5-2
EUT Received Date:	2023/7/8
EUT Received Status:	Good
Note: Conducted Emissions Test only performed at POE power supply since the worst is mode: POE power supply per test for DSS report. Note: Radiated Emissions Test for 30MHz-1GHz only performed at adapter power supply since the worst is mode: adapter power supply per test for DSS report.	

1.1.2 Operation Frequency Detail:

For 802.11a/n ht20/ac vht20:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725 MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
36	**5180**	**52**	**5260**	**100**	**5500**	**149**	**5745**
40	**5200**	**56**	**5280**	104	5520	153	5765
44	5220	60	5300	108	5540	**157**	**5785**
48	**5240**	**64**	**5320**	112	5560	161	5805
/	/	/	/	**116**	**5580**	**165**	**5825**
/	/	/	/	120	5600	/	/
/	/	/	/	124	5620	/	/
/	/	/	/	128	5640	/	/
/	/	/	/	132	5660	/	/
/	/	/	/	136	5680	/	/
/	/	/	/	**140**	**5700**	/	/
Per section 15.31(m), the above in bold frequencies were performed the test.							

For 802.11n ht40/ac vht40:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725 MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
38	**5190**	**54**	**5270**	**102**	**5510**	**151**	**5755**
46	**5230**	**62**	**5310**	**110**	**5550**	**159**	**5795**
/	/	/	/	118	5590	/	/
/	/	/	/	126	5630	/	/
/	/	/	/	**134**	**5670**	/	/
Per section 15.31(m), the above in bold frequencies were performed the test.							

For 802.11ac vht80:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725 MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
42	**5210**	**58**	**5290**	**106**	**5530**	**155**	**5755**
/	/	/	/	**122**	**5610**	/	/
Per section 15.31(m), the below frequencies were performed the test as below:							
42	**5210**	**58**	**5290**	**106**	**5530**	**155**	**5755**
/	**/**	**/**	**/**	**122**	**5610**	**/**	**/**

1.1.3 Antenna Information Detail▲:

Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
FPC	50	5150~5250MHz	2.94dBi
		5250-5350MHz	2.94dBi
		5470-5725MHz	2.94dBi
		5725~5850MHz	2.94dBi
The Method of §15.203 Compliance: ☒Antenna was permanently attached to the unit. ☐Antenna use a unique type of connector to attach to the EUT. ☐Unit was professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.			

Accessory Information:

Accessory Description	Manufacturer	Model	Parameters
N/A	N/A	N/A	N/A

1.2 Description of Test Configuration

1.2.1 EUT Operation Condition:

EUT Operation Mode:	The system was configured for testing in Engineering Mode, which was provided by the manufacturer.
Equipment Modifications:	No
EUT Exercise Software:	SecureCRT.exe

The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer▲:

5150-5250 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting
802.11a	Lowest	5180	6Mbps	**16**
	Middle	5200	6Mbps	**16**
	Highest	5240	6Mbps	**16**
802.11ac vht20	Lowest	5180	MCS0	**16**
	Middle	5200	MCS0	**16**
	Highest	5240	MCS0	**16**
802.11ac vht40	Lowest	5190	MCS0	**13**
	Highest	5230	MCS0	**13**
802.11ac vht80	Middle	5210	MCS0	**11**

5250-5350 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting
802.11a	Lowest	5260	6Mbps	**16**
	Middle	5280	6Mbps	**16**
	Highest	5320	6Mbps	**16**
802.11ac vht20	Lowest	5260	MCS0	**16**
	Middle	5280	MCS0	**16**
	Highest	5320	MCS0	**16**
802.11ac vht40	Lowest	5270	MCS0	**13**
	Highest	5310	MCS0	**13**
802.11ac vht80	Middle	5290	MCS0	**11**

5470-5725MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting**
802.11a	Lowest	5500	6Mbps	**14**
	Middle	5580	6Mbps	**14**
	Highest	5700	6Mbps	**14**
802.11ac vht20	Lowest	5500	MCS0	**14**
	Middle	5580	MCS0	**14**
	Highest	5700	MCS0	**14**
802.11ac vht40	Lowest	5510	MCS0	**12**
	Highest	5550	MCS0	**12**
	Lowest	5670	MCS0	**12**
802.11ac vht80	Lowest	5530	MCS0	**10**
	Middle	5610	MCS0	**10**
5725-5850 MHz Band:				
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting**
802.11a	Lowest	5745	6Mbps	**16**
	Middle	5785	6Mbps	**16**
	Highest	5825	6Mbps	**16**
802.11ac vht20	Lowest	5745	MCS0	**16**
	Middle	5785	MCS0	**16**
	Highest	5825	MCS0	**16**
802.11ac vht40	Lowest	5755	MCS0	**16**
	Highest	5795	MCS0	**16**
802.11ac vht80	Middle	5775	MCS0	**16**

Note:
The system support 802.11a/n ht20/n ht40/ac vht20/ac vht40/ac vht80, the 802.11 n ht20/n ht40 were reduced since the identical parameters with 802.11ac vht20 and vht40.
The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations.

1.2.2 Support Equipment List and Details

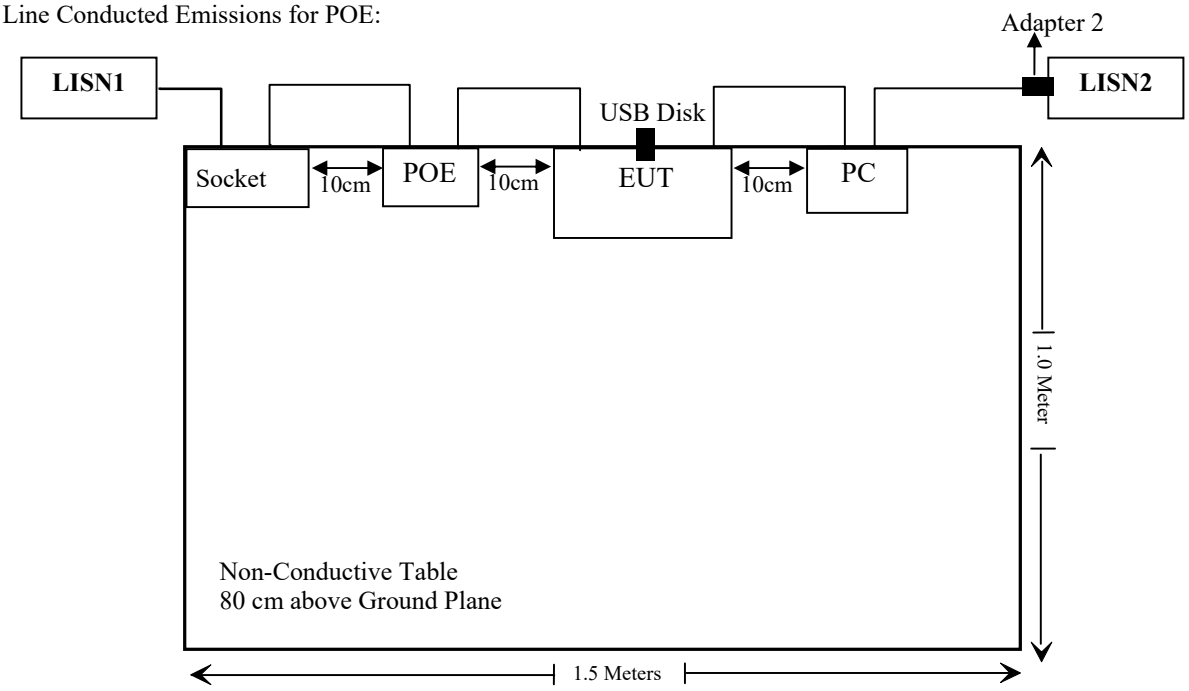
Manufacturer	Description	Model	Serial Number
Yealink	POE	YLPOE30	Unknown
AudioCodes	PC	Unknown	Unknown
AudioCodes	Adapter 1	Unknown	Unknown
AudioCodes	Adapter 2	Unknown	Unknown
Unknown	USB Disk	Unknown	Unknown

1.2.3 Support Cable List and Details

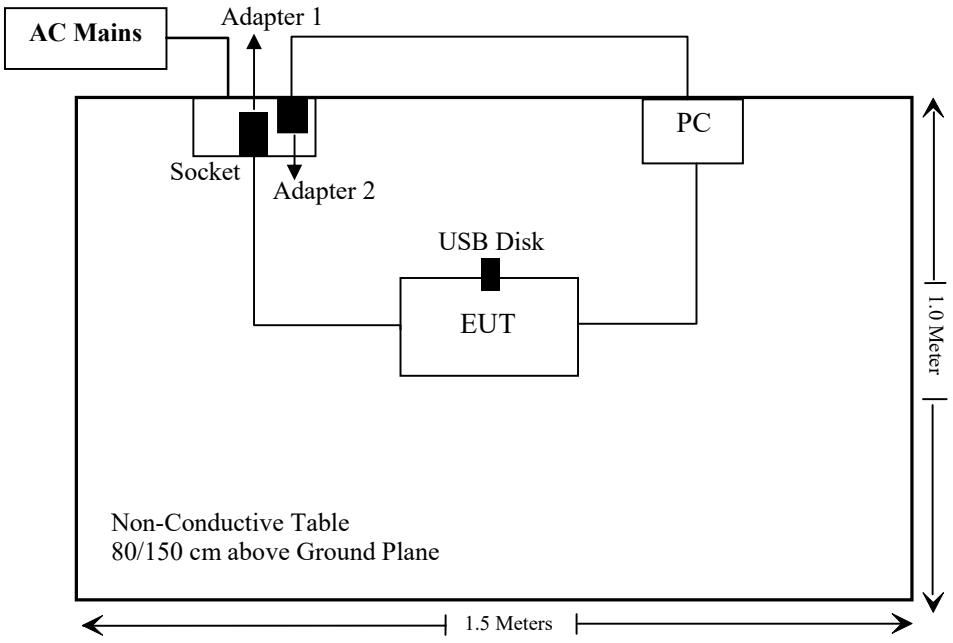
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
AC Cable	NO	NO	1.2	Socket	LISN1/AC Mains
DC Cable	NO	NO	1.5	Adapter 1	EUT
DC Cable	NO	NO	1.5	Adapter 2	PC
AC Cable	NO	NO	1.5	POE	Socket
RJ45 Cable	NO	NO	1.5	POE	EUT
HDMI Cable	NO	NO	1.0	PC	EUT

1.2.4 Block Diagram of Test Setup

AC Line Conducted Emissions for POE:



Spurious emissions for adapter:



1.3 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	30M~200MHz: 4.15 dB,200M~1GHz: 5.61 dB,1G~6GHz: 5.14 dB, 6G~18GHz: 5.93 dB,18G~26.5G:5.47 dB,26.5G~40G:5.63 dB
Unwanted Emissions, conducted	±1.26 dB
Temperature	±1℃
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	2.8 dB (150 kHz to 30 MHz)

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC line conducted emissions	Compliant
FCC§15.205& §15.209 &§15.407(b)	Radiated Spurious Emissions	Compliant
FCC§15.407(a) (e)	Emission Bandwidth	Compliant
FCC§15.407(a)	Maximum Conducted Output Power	Compliant
FCC§15.407 (a)	Power Spectral Density	Compliant
§15.203	Antenna Requirement	Compliant
§1.1307	RF Exposure Evaluation	Compliant

3. REQUIREMENTS AND TEST PROCEDURES

3.1 AC Line Conducted Emissions

3.1.1 Applicable Standard

FCC§15.207(a).

(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBμV)	
Frequency of emission (MHz)	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

(b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:

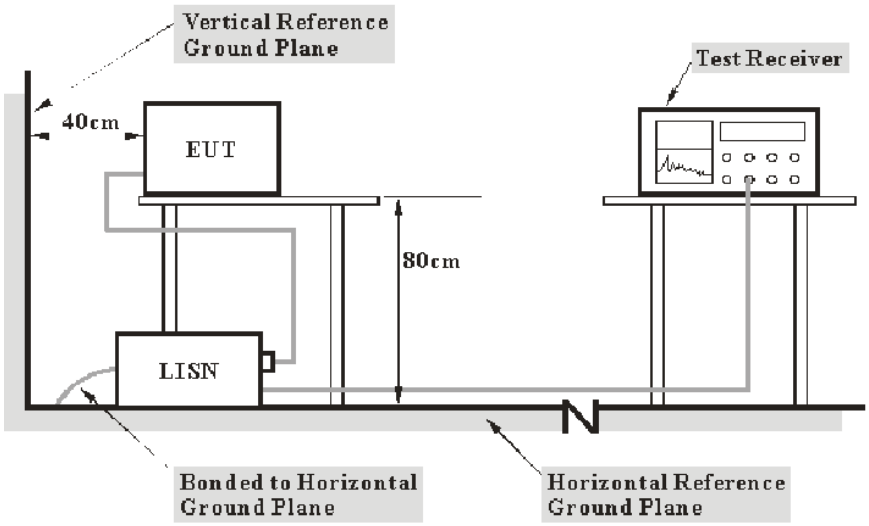
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(2) For all other carrier current systems: 1000 μV within the frequency band 535-1705 kHz, as measured using a 50 μH/50 ohms LISN.

(3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221, §15.223, or §15.227, as appropriate.

(c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtainig their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

3.1.2 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

3.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

3.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground [protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

3.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor
Factor = attenuation caused by cable loss + voltage division factor of AMN

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

3.2 Radiation Spurious Emissions

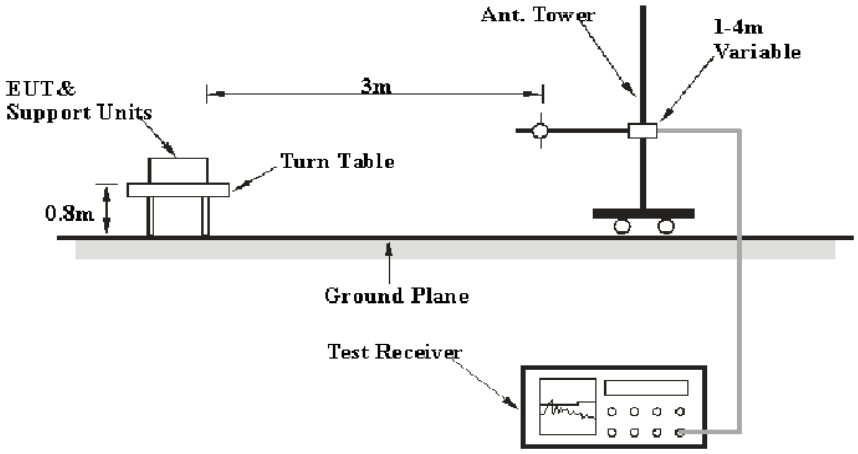
3.2.1 Applicable Standard

FCC §15.407 (b);

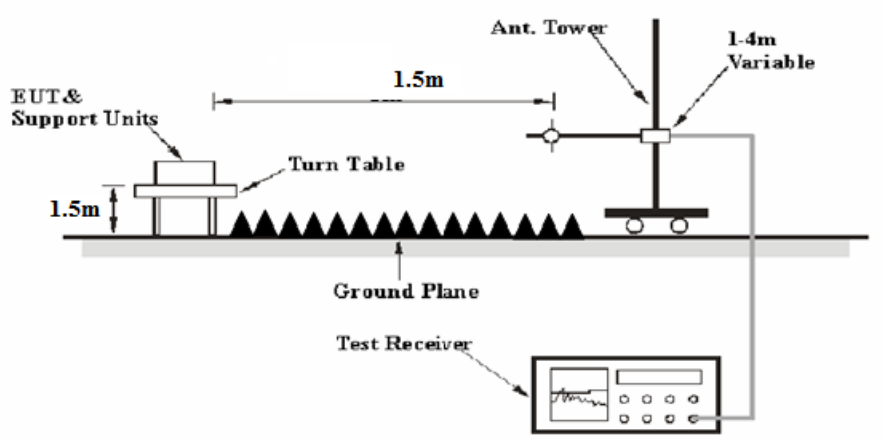
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 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 solely in the 5.725-5.850 GHz band:
(i) All emissions shall be limited to a level of – 27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
(ii) Devices certified before March 2, 2017 with antenna gain greater than 10 dBi may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease by March 2, 2018. Devices certified before March 2, 2018 with antenna gain of 10 dBi or less may demonstrate compliance with the emission limits in § 15.247(d), but manufacturing, marketing and importing of devices certified under this alternative must cease before March 2, 2020.
(8) The emission measurements shall be performed using a minimum resolution bandwidth of 1 MHz. A lower resolution bandwidth may be employed near the band edge, when necessary, provided the measured energy is integrated to show the total power over 1 MHz.
(9) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in § 15.207.
(10) The provisions of § 15.205 apply to intentional radiators operating under this section.
(11) When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the upper and lower frequency band edges as the design of the equipment permits.
(c) The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization a description of how this requirement is met.

3.2.2 EUT Setup

Below 1GHz:



1-40 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was FCC 15.209, FCC 15.407 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

3.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 40 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

30MHz-1000MHz:

Measurement	RBW	Video B/W	IF B/W
QP	120 kHz	300 kHz	120kHz

1GHz- 40GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>98%	1MHz	10 Hz
	<98%	1MHz	≥1/T

Note: T is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

3.2.4 Test Procedure

During the radiated emission test, the adapter was connected to the first AC floor outlet.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1GHz, peak and Average detection modes for frequencies above 1GHz.

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, emission shall be computed as: E [dBμV/m] = EIRP[dBm] + 95.2, for d = 3 meters.

According to C63.10, the above 1G test result shall be extrapolated to the specified distance using an extrapolation Factor of 20dB/decade from 3m to 1.5m
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

All emissions under the average limit and under the noise floor have not recorded in the report.

3.2.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Factor = Antenna Factor + Cable Loss- Amplifier Gain

For 30MHz-1GHz:
Result = Reading + Factor

For 1GHz-40GHz
Result = Reading + Factor-Distance extrapolation Factor

The "**Margin**" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit – Result

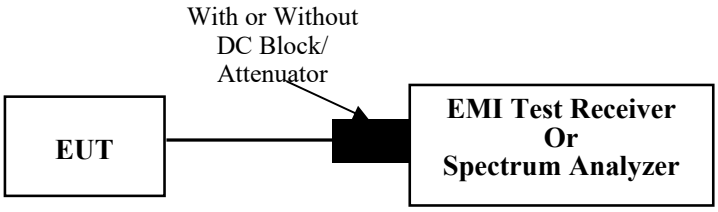
3.3 Emission Bandwidth

3.3.1 Applicable Standard

FCC §15.407 (a),(h)
(h)(2) Radar Detection Function of Dynamic Frequency Selection (DFS). U-NII devices operating with any part of its 26 dB emission bandwidth in the 5.25-5.35 GHz and 5.47-5.725 GHz bands shall employ a DFS radar detection mechanism to detect the presence of radar systems and to avoid co-channel operation with radar systems.

FCC §15.407 (e)
Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

3.3.2 EUT Setup



3.3.3 Test Procedure

26dB Emission Bandwidth:

According to ANSI C63.10-2013 Section 12.4.1

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = peak.
d) Trace mode = max hold
e) 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%.

6 dB emission bandwidth:

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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.
Note: The automatic bandwidth measurement capability of a spectrum analyzer or EMI receiver may be employed if it implements the functionality described in this section. For devices that use channel aggregation refer to III.A and III.C for determining emission bandwidth.

99% Occupied Bandwidth:

According to ANSI C63.10-2013 Section 12.4.2&6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission.
The following procedure shall be used for measuring 99% power bandwidth:
a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
d) Step a) through step c) might require iteration to adjust within the specified range.
e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

3.4 Maximum Conducted Output Power

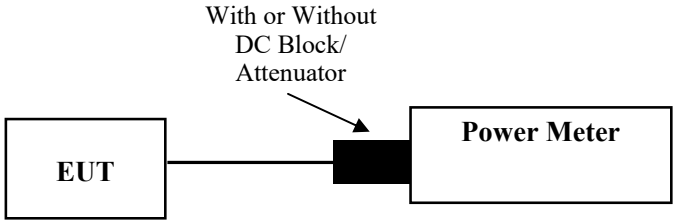
3.4.1 Applicable Standard

FCC §15.407(a) (1)(iv)
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (3)(i)
For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.4.2 EUT Setup



3.4.3 Test Procedure

According to ANSI C63.10-2013 Section 12.3.3.1

Method PM-G is measurement using a gated RF average power meter.
Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

3.5 Maximum Power Spectral Density

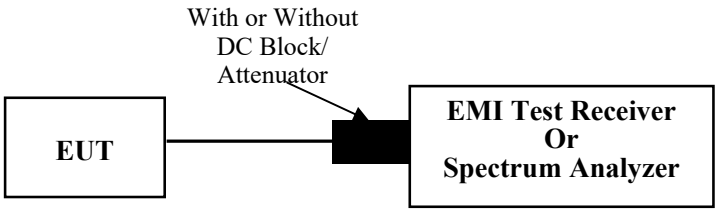
3.5.1 Applicable Standard

FCC §15.407(a) (1)(iv)
For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (2)
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

FCC §15.407(a) (3)(i)
For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

3.5.2 EUT Setup



3.5.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01

Duty cycle ≥98%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-1 should be applied.

Duty cycle <98%, duty cycle variations are less than ±2%

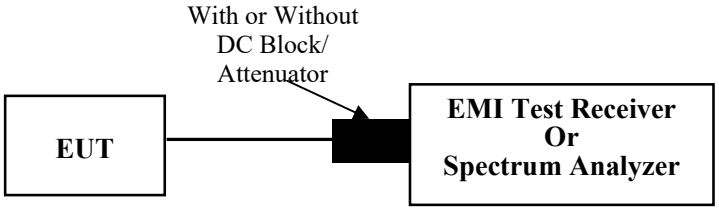
KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 should be applied.

Duty cycle <98%, duty cycle variations exceed ±2%

KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-3 should be applied.

3.7 Duty Cycle

3.7.1 EUT Setup



3.7.2 Test Procedure

According to ANSI C63.10-2013 Section 12.2

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ RBW. Set detector = peak or average.
4) The zero-span measurement method shall not be used unless both RBW and VBW are > 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if T ≤ 16.7 μs.)

3.8 Antenna Requirement

3.8.1 Applicable Standard

FCC §15.203

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.

3.8.2 Judgment

Result: Compliant. Please refer to the Antenna Information detail in Section 1.

4. Test DATA AND RESULTS

4.1 AC Line Conducted Emissions

Serial Number:	27V5-2	Test Date:	2023/08/29
Test Site:	CE	Test Mode:	Transmitting Maximum output power mode (802.11a 5320Mhz)
Tester:	David Huang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.5	Relative Humidity: (%)	60	ATM Pressure: (kPa)	100.1

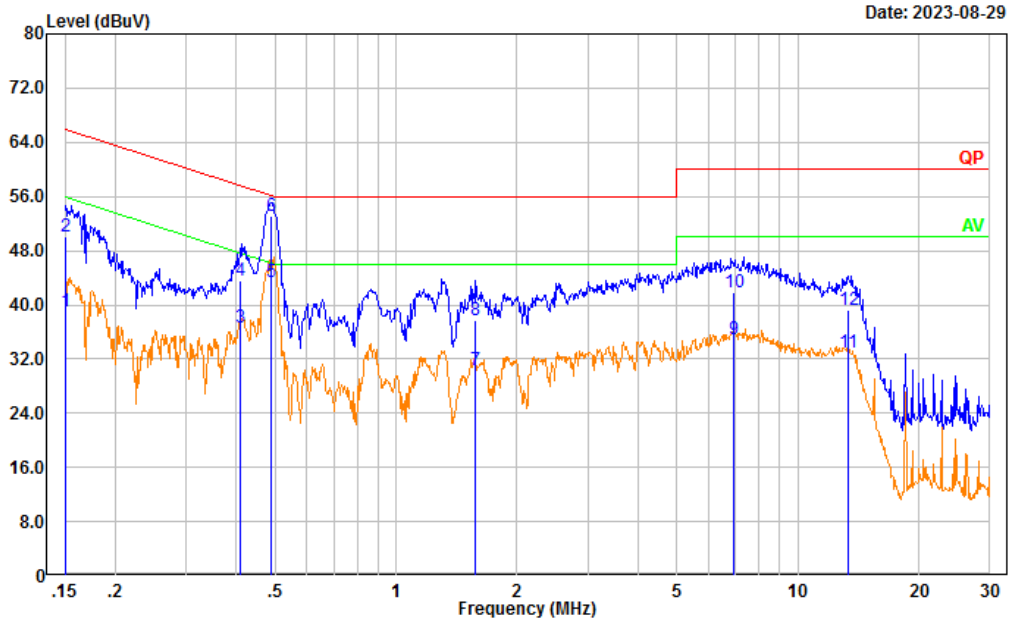
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV216	101134	2023/03/31	2024/03/30
R&S	EMI Test Receiver	ESR3	102726	2023/03/31	2024/03/30
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2023/08/06	2024/08/05
Audix	Test Software	E3	190306 (V9)	N/A	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

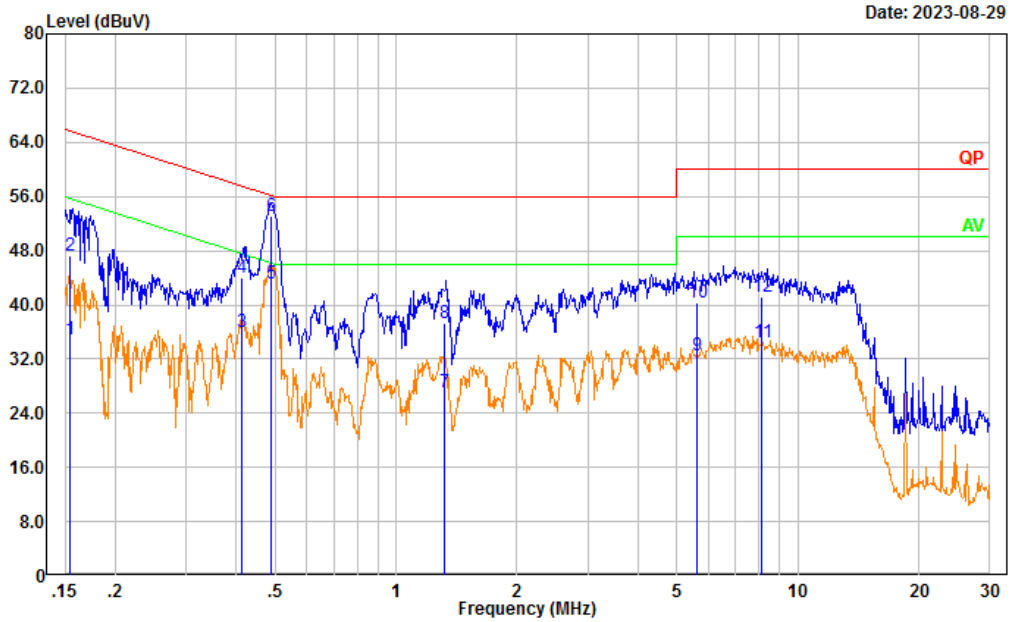
Test Data:

Test Mode: Transmitting
Port: Line
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.151	29.42	9.61	39.03	55.95	16.92	Average
2	0.151	40.52	9.61	50.13	65.95	15.82	QP
3	0.409	26.93	9.61	36.54	47.66	11.12	Average
4	0.409	33.96	9.61	43.57	57.66	14.09	QP
5	0.487	33.78	9.61	43.39	46.22	2.83	Average
6	0.487	43.60	9.61	53.21	56.22	3.01	QP
7	1.577	20.74	9.63	30.37	46.00	15.63	Average
8	1.577	28.15	9.63	37.78	56.00	18.22	QP
9	6.895	25.35	9.66	35.01	50.00	14.99	Average
10	6.895	32.25	9.66	41.91	60.00	18.09	QP
11	13.313	23.23	9.68	32.91	50.00	17.09	Average
12	13.313	29.54	9.68	39.22	60.00	20.78	QP

Test Mode: Transmitting
Port: neutral
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.154	25.39	9.61	35.00	55.76	20.76	Average
2	0.154	37.71	9.61	47.32	65.76	18.44	QP
3	0.415	26.29	9.61	35.90	47.55	11.65	Average
4	0.415	34.40	9.61	44.01	57.55	13.54	QP
5	0.489	33.61	9.61	43.22	46.18	2.96	Average
6	0.489	43.56	9.61	53.17	56.18	3.01	QP
7	1.322	17.59	9.62	27.21	46.00	18.79	Average
8	1.322	27.69	9.62	37.31	56.00	18.69	QP
9	5.589	22.82	9.66	32.48	50.00	17.52	Average
10	5.589	30.60	9.66	40.26	60.00	19.74	QP
11	8.128	24.87	9.67	34.54	50.00	15.46	Average
12	8.128	31.50	9.67	41.17	60.00	18.83	QP

4.2 Radiation Spurious Emissions

Serial Number:	27V5-2	Test Date:	30MHz-1GHz:2023/8/29 1GHZ-25GHz: 2023/8/3
Test Site:	966-2,966-1	Test Mode:	Transmitting
Tester:	Hugo Huo, Mack Huang	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	25.3~29.3	Relative Humidity: (%)	53~65	ATM Pressure: (kPa)	99.7~99.9

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
30MHz-1GHz					
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2023/3/31	2024/3/30
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2023/7/16	2024/7/15
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2023/7/16	2024/7/15
Sonoma	Amplifier	310N	186165	2023/7/16	2024/7/15
Audix	Test Software	E3	201021 (V9)	N/A	N/A
1GHZ-25GHz					
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
R&S	Spectrum Analyzer	FSV40	101591	2023/3/31	2024/3/30
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022/8/7	2023/8/6
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022/8/7	2023/8/6
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/9	2023/11/8
Audix	Test Software	E3	201021 (V9)	N/A	N/A
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021/2/5	2024/2/4
Quinstar	Preamplifier	QLW-18405536-JO	15964001005	2022/9/16	2023/9/15
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2022/8/7	2023/8/6
E-Microwave	Band Rejection Filter	2400-2483.5MHz	OE01902424	2022/8/7	2023/8/6
Mini Circuits	High Pass Filter	VHF-6010+	31119	2022/8/7	2023/8/6
PASTERNACK	Horn Antenna	PE9850/2F-20	072001	2021/2/5	2024/2/4

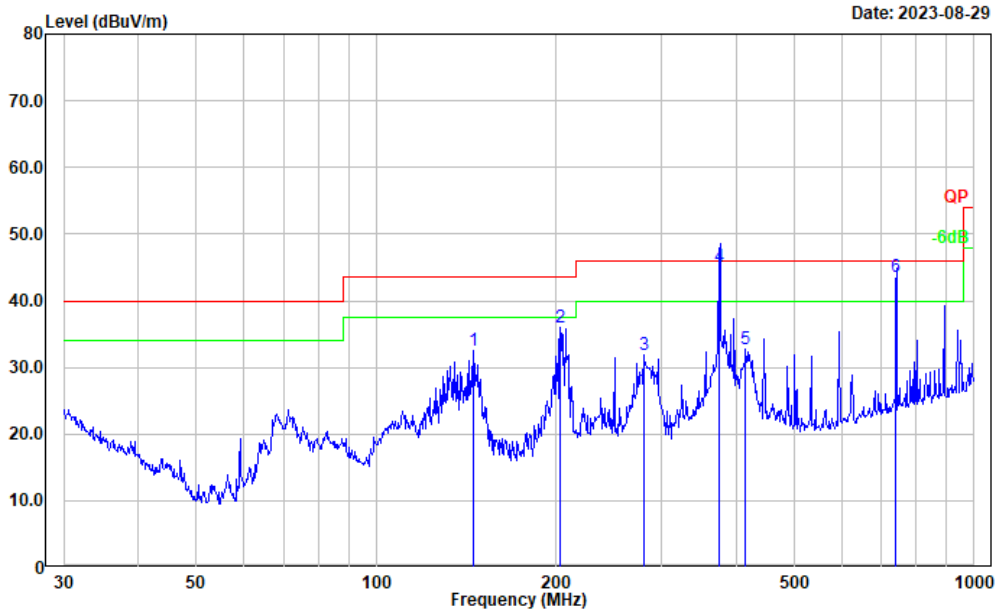
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Please refer to the below table and plots.

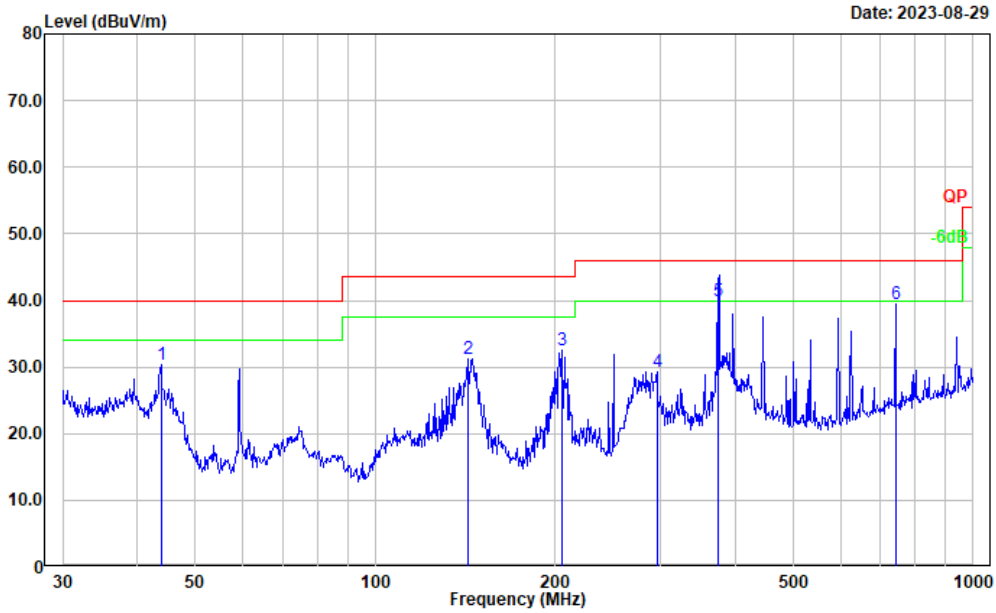
1) 30MHz-1GHz (Maximum output power mode 802.11a 5320MHz)

Test Mode: Transmitting
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	145.351	44.44	-11.95	32.49	43.50	11.01	Peak
2	203.523	48.34	-12.32	36.02	43.50	7.48	Peak
3	280.024	43.44	-11.66	31.78	46.00	14.22	Peak
4	375.037	54.44	-9.33	45.11	46.00	0.89	QP
5	414.722	40.80	-8.16	32.64	46.00	13.36	Peak
6	740.717	46.41	-2.94	43.47	46.00	2.53	QP

Test Mode: Transmitting
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	43.812	43.98	-13.56	30.42	40.00	9.58	Peak
2	142.824	43.14	-11.91	31.23	43.50	12.27	Peak
3	205.675	44.99	-12.37	32.62	43.50	10.88	Peak
4	296.184	39.92	-10.73	29.19	46.00	16.81	Peak
5	375.052	49.13	-9.33	39.80	46.00	6.20	QP
6	742.259	42.49	-2.93	39.56	46.00	6.44	Peak

2) 1GHz-40GHz:

For adapter power supply:

5150-5250MHz:
802.11a:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				5180	MHz		
5150.000	32.52	PK	H	38.64	65.14	74.00	8.86
5150.000	17.83	AV	H	38.64	50.45	54.00	3.55
5150.000	32.40	PK	V	38.64	65.02	74.00	8.98
5150.000	17.71	AV	V	38.64	50.33	54.00	3.67
10360.000	47.09	PK	H	19.18	60.25	68.20	7.95
10360.000	46.87	PK	V	19.18	60.03	68.20	8.17
Middle Channel:				5200	MHz		
10400.000	47.39	PK	H	19.16	60.53	68.20	7.67
10400.000	47.14	PK	V	19.16	60.28	68.20	7.92
High Channel:				5240	MHz		
5350.000	28.48	PK	H	39.03	61.49	74.00	12.51
5350.000	13.89	AV	H	39.03	46.90	54.00	7.10
5350.000	28.36	PK	V	39.03	61.37	74.00	12.63
5350.000	13.77	AV	V	39.03	46.78	54.00	7.22
10480.000	48.15	PK	H	18.86	60.99	68.20	7.21
10480.000	47.92	PK	V	18.86	60.76	68.20	7.44

802.11ac20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5180 MHz							
5150.000	32.71	PK	H	38.64	65.33	74.00	8.67
5150.000	17.96	AV	H	38.64	50.58	54.00	3.42
5150.000	32.59	PK	V	38.64	65.21	74.00	8.79
5150.000	17.84	AV	V	38.64	50.46	54.00	3.54
10360.000	47.21	PK	H	19.18	60.37	68.20	7.83
10360.000	46.99	PK	V	19.18	60.15	68.20	8.05
Middle Channel: 5200 MHz							
10400.000	47.52	PK	H	19.16	60.66	68.20	7.54
10400.000	47.30	PK	V	19.16	60.44	68.20	7.76
High Channel: 5240 MHz							
5350.000	29.66	PK	H	39.03	62.67	74.00	11.33
5350.000	14.02	AV	H	39.03	47.03	54.00	6.97
5350.000	28.49	PK	V	39.03	61.50	74.00	12.50
5350.000	13.90	AV	V	39.03	46.91	54.00	7.09
10480.000	48.27	PK	H	18.86	61.11	68.20	7.09
10480.000	48.04	PK	V	18.86	60.88	68.20	7.32

802.11ac40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5190 MHz							
5150.000	32.10	PK	H	38.64	64.72	74.00	9.28
5150.000	18.35	AV	H	38.64	50.97	54.00	3.03
5150.000	31.92	PK	V	38.64	64.54	74.00	9.46
5150.000	18.21	AV	V	38.64	50.83	54.00	3.17
10380.000	47.21	PK	H	19.17	60.36	68.20	7.84
10380.000	46.99	PK	V	19.17	60.14	68.20	8.06
High Channel: 5230 MHz							
5350.000	29.32	PK	H	39.03	62.33	74.00	11.67
5350.000	14.61	AV	H	39.03	47.62	54.00	6.38
5350.000	28.84	PK	V	39.03	61.85	74.00	12.15
5350.000	14.49	AV	V	39.03	47.50	54.00	6.50
10460.000	47.88	PK	H	18.94	60.80	68.20	7.40
10460.000	47.66	PK	V	18.94	60.58	68.20	7.62

802.11ac80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Middle Channel: 5210 MHz							
5150.000	32.25	PK	H	38.64	64.87	74.00	9.13
5150.000	18.38	AV	H	38.64	51.00	54.00	3.00
5150.000	32.13	PK	V	38.64	64.75	74.00	9.25
5150.000	18.27	AV	V	38.64	50.89	54.00	3.11
5350.000	29.28	PK	H	39.03	62.29	74.00	11.71
5350.000	15.22	AV	H	39.03	48.23	54.00	5.77
5350.000	29.15	PK	V	39.03	62.16	74.00	11.84
5350.000	15.09	AV	V	39.03	48.10	54.00	5.90
10420.000	47.27	PK	H	19.09	60.34	68.20	7.86
10420.000	47.04	PK	V	19.09	60.11	68.20	8.09

Note:
Result = Reading + Factor- Distance extrapolation Factor
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

5250-5350MHz

802.11a:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				5260	MHz		
5150.000	31.16	PK	H	38.64	63.78	74.00	10.22
5150.000	17.34	AV	H	38.64	49.96	54.00	4.04
5150.000	31.03	PK	V	38.64	63.65	74.00	10.35
5150.000	17.22	AV	V	38.64	49.84	54.00	4.16
10520.000	47.53	PK	H	18.93	60.44	68.20	7.76
10520.000	47.30	PK	V	18.93	60.21	68.20	7.99
Middle Channel:				5280	MHz		
10560.000	48.09	PK	H	19.20	61.27	68.20	6.93
10560.000	47.88	PK	V	19.20	61.06	68.20	7.14
High Channel:				5320	MHz		
5350.000	30.78	PK	H	39.03	63.79	74.00	10.21
5350.000	16.14	AV	H	39.03	49.15	54.00	4.85
5350.000	30.66	PK	V	39.03	63.67	74.00	10.33
5350.000	16.02	AV	V	39.03	49.03	54.00	4.97
10640.000	48.07	PK	H	19.50	61.55	74.00	12.45
10640.000	34.62	AV	H	19.50	48.10	54.00	5.90
10640.000	47.85	PK	V	19.50	61.33	74.00	12.67
10640.000	34.44	AV	V	19.50	47.92	54.00	6.08

802.11ac20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5260 MHz							
5150.000	31.37	PK	H	38.64	63.99	74.00	10.01
5150.000	17.52	AV	H	38.64	50.14	54.00	3.86
5150.000	31.26	PK	V	38.64	63.88	74.00	10.12
5150.000	17.39	AV	V	38.64	50.01	54.00	3.99
10520.000	47.62	PK	H	18.93	60.53	68.20	7.67
10520.000	47.43	PK	V	18.93	60.34	68.20	7.86
Middle Channel: 5280 MHz							
10560.000	48.15	PK	H	19.20	61.33	68.20	6.87
10560.000	47.94	PK	V	19.20	61.12	68.20	7.08
High Channel: 5320 MHz							
5350.000	31.07	PK	H	39.03	64.08	74.00	9.92
5350.000	16.31	AV	H	39.03	49.32	54.00	4.68
5350.000	30.96	PK	V	39.03	63.97	74.00	10.03
5350.000	16.20	AV	V	39.03	49.21	54.00	4.79
10640.000	48.18	PK	H	19.50	61.66	74.00	12.34
10640.000	34.77	AV	H	19.50	48.25	54.00	5.75
10640.000	47.96	PK	V	19.50	61.44	74.00	12.56
10640.000	34.59	AV	V	19.50	48.07	54.00	5.93

802.11ac40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				5270	MHz		
5150.000	31.66	PK	H	38.64	64.28	74.00	9.72
5150.000	18.15	AV	H	38.64	50.77	54.00	3.23
5150.000	31.54	PK	V	38.64	64.16	74.00	9.84
5150.000	18.03	AV	V	38.64	50.65	54.00	3.35
10540.000	47.60	PK	H	19.07	60.65	68.20	7.55
10540.000	47.41	PK	V	19.07	60.46	68.20	7.74
High Channel:				5310	MHz		
5350.000	33.19	PK	H	39.03	66.20	74.00	7.80
5350.000	17.97	AV	H	39.03	50.98	54.00	3.02
5350.000	33.04	PK	V	39.03	66.05	74.00	7.95
5350.000	17.85	AV	V	39.03	50.86	54.00	3.14
10620.000	47.90	PK	H	19.49	61.37	74.00	12.63
10620.000	34.96	AV	H	19.49	48.43	54.00	5.57
10620.000	47.67	PK	V	19.49	61.14	74.00	12.86
10620.000	34.78	AV	V	19.49	48.25	54.00	5.75

802.11ac80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Middle Channel: 5290 MHz							
5150.000	31.73	PK	H	38.64	64.35	74.00	9.65
5150.000	18.29	AV	H	38.64	50.91	54.00	3.09
5150.000	31.61	PK	V	38.64	64.23	74.00	9.77
5150.000	18.17	AV	V	38.64	50.79	54.00	3.21
5350.000	32.70	PK	H	39.03	65.71	74.00	8.29
5350.000	17.95	AV	H	39.03	50.96	54.00	3.04
5350.000	32.58	PK	V	39.03	65.59	74.00	8.41
5350.000	17.82	AV	V	39.03	50.83	54.00	3.17
10580.000	47.64	PK	H	19.34	60.96	68.20	7.24
10580.000	47.45	PK	V	19.34	60.77	68.20	7.43

Note:
Result = Reading + Factor- Distance extrapolation Factor
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

5470-5725MHz:

802.11a:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5500 MHz							
5470.000	31.68	PK	H	39.27	64.93	68.20	3.27
5470.000	31.47	PK	V	39.27	64.72	68.20	3.48
11000.000	47.08	PK	H	19.83	60.89	74.00	13.11
11000.000	33.34	AV	H	19.83	47.15	54.00	6.85
11000.000	46.92	PK	V	19.83	60.73	74.00	13.27
11000.000	33.16	AV	V	19.83	46.97	54.00	7.03
Middle Channel: 5580 MHz							
11160.000	47.09	PK	H	19.97	61.04	74.00	12.96
11160.000	33.56	AV	H	19.97	47.51	54.00	6.49
11160.000	46.93	PK	V	19.97	60.88	74.00	13.12
11160.000	33.38	AV	V	19.97	47.33	54.00	6.67
High Channel: 5700 MHz							
5725.000	31.37	PK	H	39.48	64.83	68.20	3.37
5725.000	31.10	PK	V	39.48	64.56	68.20	3.64
11400.000	46.34	PK	H	20.93	61.25	74.00	12.75
11400.000	32.88	AV	H	20.93	47.79	54.00	6.21
11400.000	46.17	PK	V	20.93	61.08	74.00	12.92
11400.000	32.70	AV	V	20.93	47.61	54.00	6.39

802.11ac20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5500 MHz							
5470.000	31.85	PK	H	39.27	65.10	68.20	3.10
5470.000	31.62	PK	V	39.27	64.87	68.20	3.33
11000.000	47.22	PK	H	19.83	61.03	74.00	12.97
11000.000	33.40	AV	H	19.83	47.21	54.00	6.79
11000.000	47.01	PK	V	19.83	60.82	74.00	13.18
11000.000	33.29	AV	V	19.83	47.10	54.00	6.90
Middle Channel: 5580 MHz							
11160.000	47.20	PK	H	19.97	61.15	74.00	12.85
11160.000	33.63	AV	H	19.97	47.58	54.00	6.42
11160.000	47.09	PK	V	19.97	61.04	74.00	12.96
11160.000	33.44	AV	V	19.97	47.39	54.00	6.61
High Channel: 5700 MHz							
5725.000	31.58	PK	H	39.48	65.04	68.20	3.16
5725.000	31.37	PK	V	39.48	64.83	68.20	3.37
11400.000	46.46	PK	H	20.93	61.37	74.00	12.63
11400.000	32.98	AV	H	20.93	47.89	54.00	6.11
11400.000	46.27	PK	V	20.93	61.18	74.00	12.82
11400.000	32.80	AV	V	20.93	47.71	54.00	6.29

802.11ac40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5510 MHz							
5470.000	31.88	PK	H	39.27	65.13	68.20	3.07
5470.000	31.69	PK	V	39.27	64.94	68.20	3.26
11020.000	46.92	PK	H	19.85	60.75	74.00	13.25
11020.000	33.77	AV	H	19.85	47.60	54.00	6.40
11020.000	46.71	PK	V	19.85	60.54	74.00	13.46
11020.000	33.55	AV	V	19.85	47.38	54.00	6.62
Middle Channel: 5550 MHz							
11100.000	46.56	PK	H	19.95	60.49	74.00	13.51
11100.000	33.40	AV	H	19.95	47.33	54.00	6.67
11100.000	46.35	PK	V	19.95	60.28	74.00	13.72
11100.000	33.18	AV	V	19.95	47.11	54.00	6.89
High Channel: 5670 MHz							
5725.000	29.67	PK	H	39.48	63.13	68.20	5.07
5725.000	29.46	PK	V	39.48	62.92	68.20	5.28
11340.000	46.14	PK	H	20.77	60.89	74.00	13.11
11340.000	33.02	AV	H	20.77	47.77	54.00	6.23
11340.000	45.95	PK	V	20.77	60.70	74.00	13.30
11340.000	32.83	AV	V	20.77	47.58	54.00	6.42

802.11ac80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5530 MHz							
5470.000	31.92	PK	H	39.27	65.17	68.20	3.03
5470.000	31.69	PK	V	39.27	64.94	68.20	3.26
11060.000	46.72	PK	H	19.90	60.60	74.00	13.40
11060.000	33.81	AV	H	19.90	47.69	54.00	6.31
11060.000	46.53	PK	V	19.90	60.41	74.00	13.59
11060.000	33.60	AV	V	19.90	47.48	54.00	6.52
High Channel: 5610 MHz							
5725.000	29.33	PK	H	39.48	62.79	68.20	5.41
5725.000	28.94	PK	V	39.48	62.40	68.20	5.80
11220.000	47.31	PK	H	20.13	61.42	74.00	12.58
11220.000	34.40	AV	H	20.13	48.51	54.00	5.49
11220.000	47.12	PK	V	20.13	61.23	74.00	12.77
11220.000	34.18	AV	V	20.13	48.29	54.00	5.71

Note:
Result = Reading + Factor- Distance extrapolation Factor
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

5725-5850MHz:

802.11a:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				5745	MHz		
5650.000	29.52	PK	H	39.49	62.99	68.20	5.21
5700.000	29.63	PK	H	39.51	63.12	105.20	42.08
5720.000	38.63	PK	H	39.49	72.10	110.80	38.70
5725.000	44.55	PK	H	39.48	78.01	122.20	44.19
5650.000	28.02	PK	V	39.49	61.49	68.20	6.71
5700.000	29.19	PK	V	39.51	62.68	105.20	42.52
5720.000	36.79	PK	V	39.49	70.26	110.80	40.54
5725.000	42.61	PK	V	39.48	76.07	122.20	46.13
11490.000	45.75	PK	H	20.67	60.40	74.00	13.60
11490.000	32.88	AV	H	20.67	47.53	54.00	6.47
11490.000	45.57	PK	V	20.67	60.22	74.00	13.78
11490.000	32.72	AV	V	20.67	47.37	54.00	6.63
Middle Channel:				5785	MHz		
11570.000	46.06	PK	H	20.83	60.87	74.00	13.13
11570.000	33.12	AV	H	20.83	47.93	54.00	6.07
11570.000	45.84	PK	V	20.83	60.65	74.00	13.35
11570.000	32.91	AV	V	20.83	47.72	54.00	6.28
High Channel:				5825	MHz		
5850.000	38.79	PK	H	39.49	72.26	122.20	49.94
5855.000	34.84	PK	H	39.51	68.33	110.80	42.47
5875.000	31.17	PK	H	39.60	64.75	105.20	40.45
5925.000	29.64	PK	H	39.68	63.30	68.20	4.90
5850.000	37.30	PK	V	39.49	70.77	122.20	51.43
5855.000	33.59	PK	V	39.51	67.08	110.80	43.72
5875.000	30.65	PK	V	39.60	64.23	105.20	40.97
5925.000	29.43	PK	V	39.68	63.09	68.20	5.11
11650.000	45.77	PK	H	21.07	60.82	74.00	13.18
11650.000	32.71	AV	H	21.07	47.76	54.00	6.24
11650.000	45.58	PK	V	21.07	60.63	74.00	13.37
11650.000	32.53	AV	V	21.07	47.58	54.00	6.42

802.11ac20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745 MHz							
5650.000	29.47	PK	H	39.49	62.94	68.20	5.26
5700.000	30.03	PK	H	39.51	63.52	105.20	41.68
5720.000	39.71	PK	H	39.49	73.18	110.80	37.62
5725.000	45.64	PK	H	39.48	79.10	122.20	43.10
5650.000	28.32	PK	V	39.49	61.79	68.20	6.41
5700.000	29.51	PK	V	39.51	63.00	105.20	42.20
5720.000	37.77	PK	V	39.49	71.24	110.80	39.56
5725.000	43.52	PK	V	39.48	76.98	122.20	45.22
11490.000	45.88	PK	H	20.67	60.53	74.00	13.47
11490.000	32.95	AV	H	20.67	47.60	54.00	6.40
11490.000	45.70	PK	V	20.67	60.35	74.00	13.65
11490.000	32.76	AV	V	20.67	47.41	54.00	6.59
Middle Channel: 5785 MHz							
11570.000	46.17	PK	H	20.83	60.98	74.00	13.02
11570.000	33.23	AV	H	20.83	48.04	54.00	5.96
11570.000	45.99	PK	V	20.83	60.80	74.00	13.20
11570.000	33.04	AV	V	20.83	47.85	54.00	6.15
High Channel: 5825 MHz							
5850.000	40.21	PK	H	39.49	73.68	122.20	48.52
5855.000	35.80	PK	H	39.51	69.29	110.80	41.51
5875.000	31.72	PK	H	39.60	65.30	105.20	39.90
5925.000	29.79	PK	H	39.68	63.45	68.20	4.75
5850.000	38.31	PK	V	39.49	71.78	122.20	50.42
5855.000	34.95	PK	V	39.51	68.44	110.80	42.36
5875.000	31.18	PK	V	39.60	64.76	105.20	40.44
5925.000	29.66	PK	V	39.68	63.32	68.20	4.88
11650.000	45.90	PK	H	21.07	60.95	74.00	13.05
11650.000	32.78	AV	H	21.07	47.83	54.00	6.17
11650.000	45.71	PK	V	21.07	60.76	74.00	13.24
11650.000	32.59	AV	V	21.07	47.64	54.00	6.36

802.11ac40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel:				5755	MHz		
5650.000	29.63	PK	H	39.49	63.10	68.20	5.10
5700.000	33.30	PK	H	39.51	66.79	105.20	38.41
5720.000	44.23	PK	H	39.49	77.70	110.80	33.10
5725.000	47.67	PK	H	39.48	81.13	122.20	41.07
5650.000	28.50	PK	V	39.49	61.97	68.20	6.23
5700.000	32.69	PK	V	39.51	66.18	105.20	39.02
5720.000	43.03	PK	V	39.49	76.50	110.80	34.30
5725.000	45.76	PK	V	39.48	79.22	122.20	42.98
11510.000	45.92	PK	H	20.67	60.57	74.00	13.43
11510.000	33.27	AV	H	20.67	47.92	54.00	6.08
11510.000	45.70	PK	V	20.67	60.35	74.00	13.65
11510.000	33.11	AV	V	20.67	47.76	54.00	6.24
High Channel:				5795	MHz		
5850.000	34.21	PK	H	39.49	67.68	122.20	54.52
5855.000	32.68	PK	H	39.51	66.17	110.80	44.63
5875.000	31.51	PK	H	39.60	65.09	105.20	40.11
5925.000	30.00	PK	H	39.68	63.66	68.20	4.54
5850.000	33.58	PK	V	39.49	67.05	122.20	55.15
5855.000	32.19	PK	V	39.51	65.68	110.80	45.12
5875.000	31.11	PK	V	39.60	64.69	105.20	40.51
5925.000	29.86	PK	V	39.68	63.52	68.20	4.68
11590.000	46.18	PK	H	20.88	61.04	74.00	12.96
11590.000	33.55	AV	H	20.88	48.41	54.00	5.59
11590.000	45.99	PK	V	20.88	60.85	74.00	13.15
11590.000	33.36	AV	V	20.88	48.22	54.00	5.78

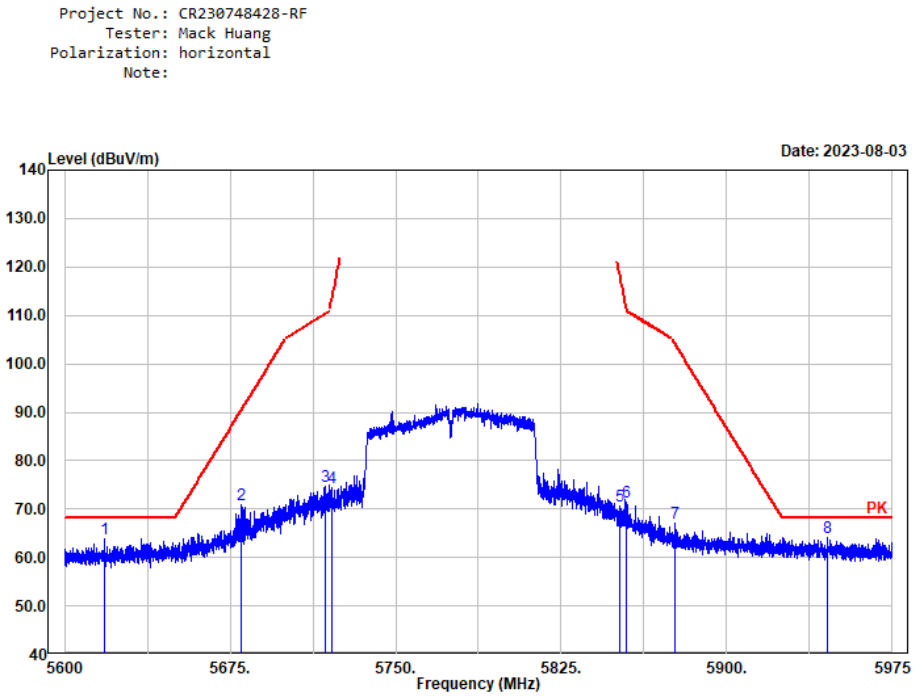
802.11ac80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Middle Channel: 5775 MHz							
5650.000	29.52	PK	H	39.49	62.99	68.20	5.21
5700.000	38.15	PK	H	39.51	71.64	105.20	33.56
5720.000	41.82	PK	H	39.49	75.29	110.80	35.51
5725.000	44.61	PK	H	39.48	78.07	122.20	44.13
5650.000	28.83	PK	V	39.49	62.30	68.20	5.90
5700.000	36.62	PK	V	39.51	70.11	105.20	35.09
5720.000	39.65	PK	V	39.49	73.12	110.80	37.68
5725.000	42.87	PK	V	39.48	76.33	122.20	45.87
5850.000	41.12	PK	H	39.49	74.59	122.20	47.61
5855.000	38.19	PK	H	39.51	71.68	110.80	39.12
5875.000	33.87	PK	H	39.60	67.45	105.20	37.75
5925.000	30.64	PK	H	39.68	64.30	68.20	3.90
5850.000	39.30	PK	V	39.49	72.77	122.20	49.43
5855.000	36.67	PK	V	39.51	70.16	110.80	40.64
5875.000	33.17	PK	V	39.60	66.75	105.20	38.45
5925.000	30.46	PK	V	39.68	64.12	68.20	4.08
11550.000	46.31	PK	H	20.78	61.07	74.00	12.93
11550.000	34.16	AV	H	20.78	48.92	54.00	5.08
11550.000	46.12	PK	V	20.78	60.88	74.00	13.12
11550.000	33.98	AV	V	20.78	48.74	54.00	5.26

Note:
Result = Reading + Factor- Distance extrapolation Factor
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

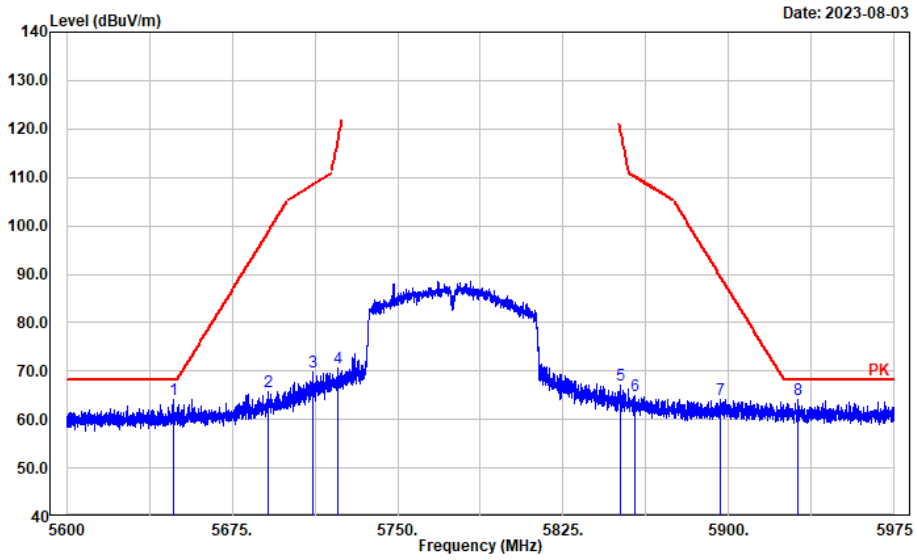
Worst Test plots for Band Edge Measurements (Radiated)

802.11ac vht80			
Test Channel:	**5775MHz**	**Ant. Polar. :**	**Horizontal**

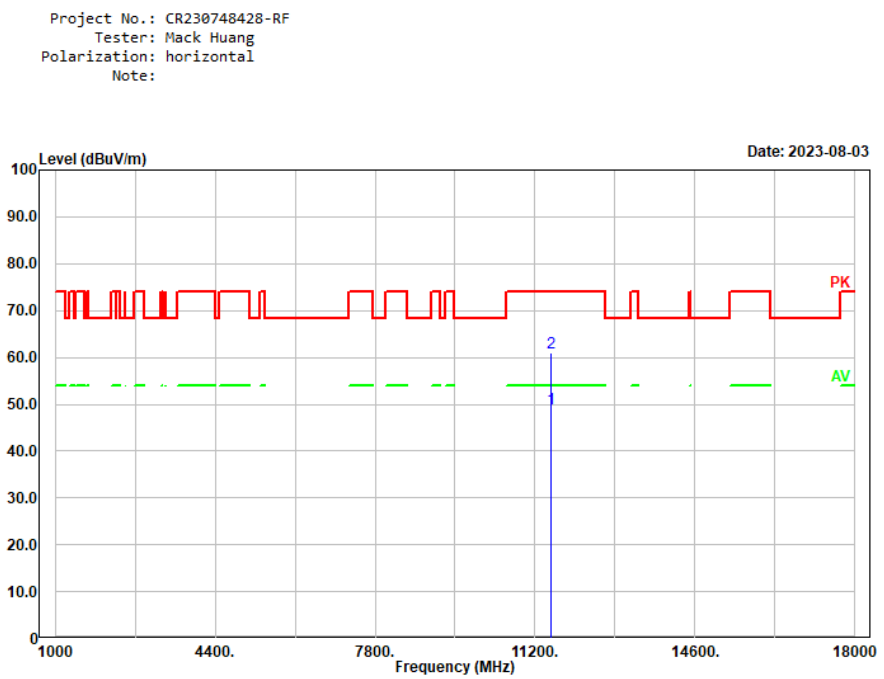


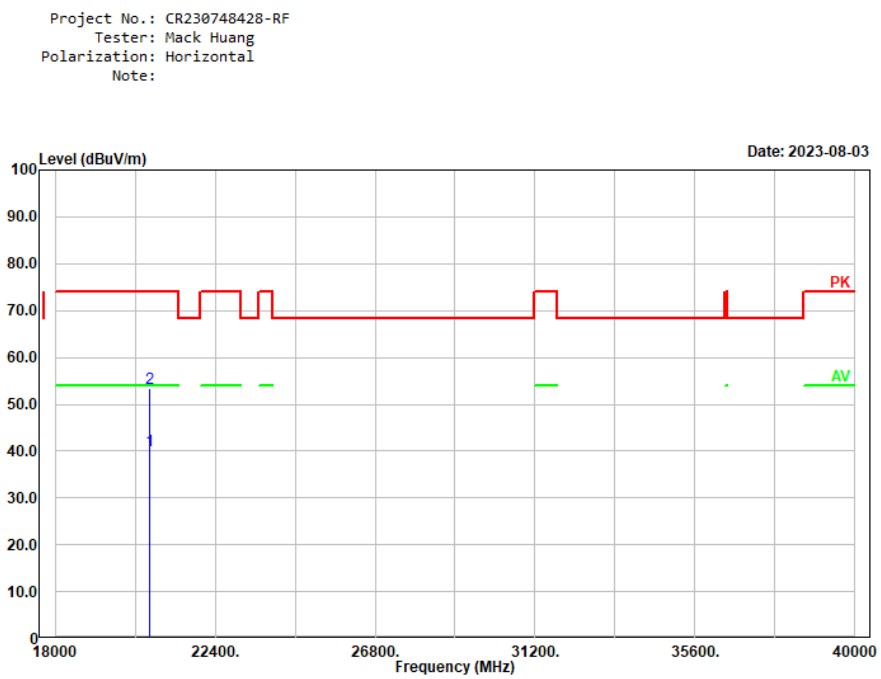
802.11ac vht80			
Test Channel:	**5775MHz**	**Ant. Polar. :**	**Vertical**

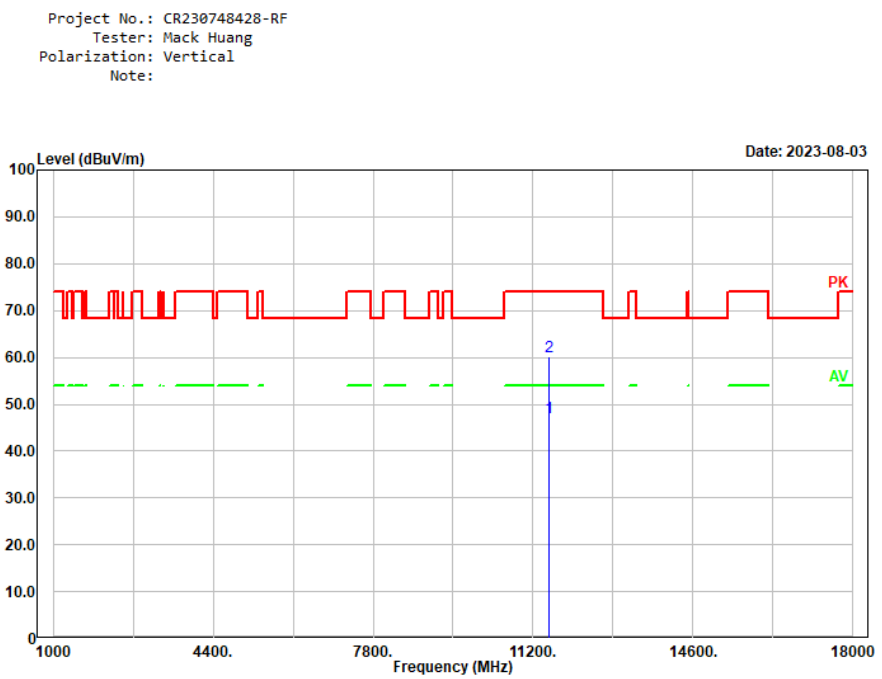
Project No.: CR230748428-RF
Tester: Mack Huang
Polarization: Vertical
Note:

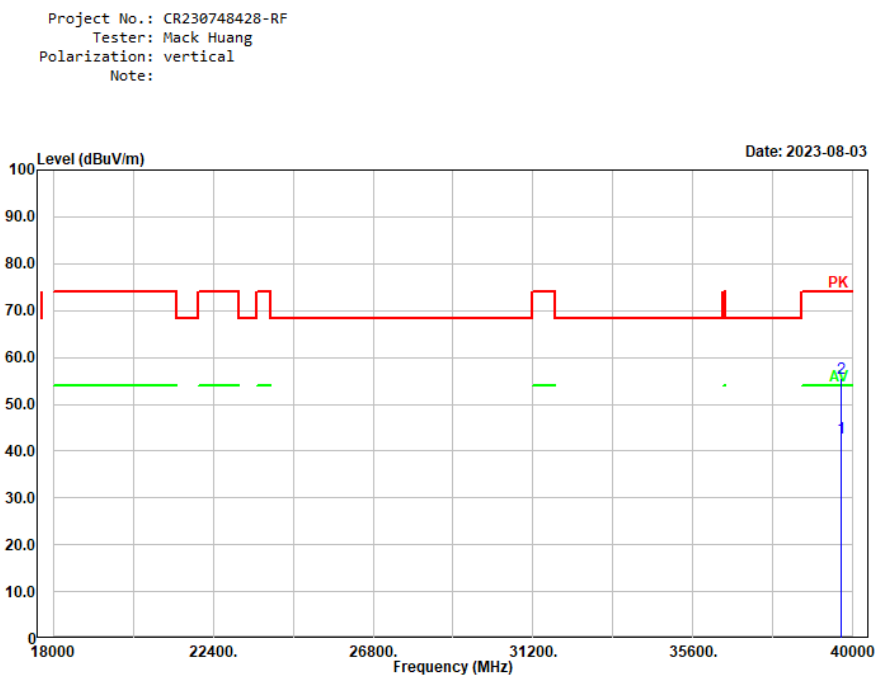


Listed with the worst harmonic margin test plot (802.11ac VHT80 5775MHz)

Horizontal	
1-18GHz	

Horizontal	
18-40GHz	

Vertical	
1-18GHz	

Vertical	
18-40GHz	

4.3 Emission Bandwidth:

Serial Number:	27V5-1	Test Date:	2023/7/13-2023/7/24
Test Site:	RF	Test Mode:	Transmitting
Tester:	Gary Ling	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	23.8-25.3	Relative Humidity: (%)	54-62	ATM Pressure: (kPa)	100.2-100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200445	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180	22.24	17.36
	5200	22.88	17.24
	5240	22.04	17.24
802.11ac vht20	5180	27.12	18.44
	5200	24.76	18.36
	5240	26.24	18.40
802.11ac vht40	5190	40.64	36.48
	5230	40.64	36.48
802.11ac vht80	5210	82.40	76.00
Note: the 99% Occupied Bandwidth have not fall into the band 5250-5350MHz, please refer to the test plots of 99% Occupied Bandwidth			

5250-5350 MHz:

Test Modes	Test Frequency (MHz)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5260	22.20	17.32
	5280	23.00	17.24
	5320	22.16	17.28
802.11ac vht20	5260	23.72	18.40
	5280	26.88	18.40
	5320	27.92	18.40
802.11ac vht40	5270	40.56	36.40
	5310	40.48	36.40
802.11ac vht80	5290	82.40	76.00

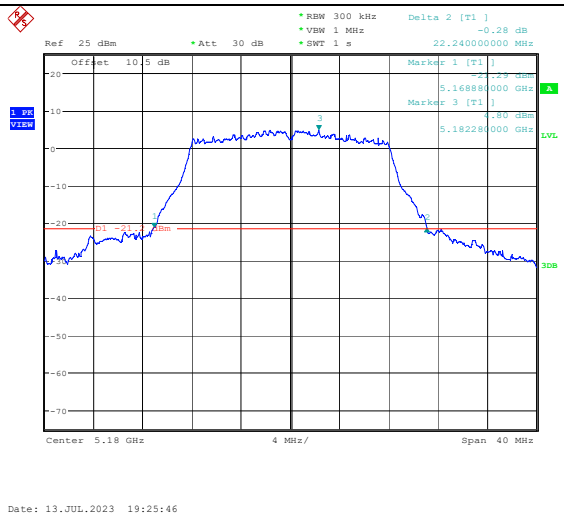
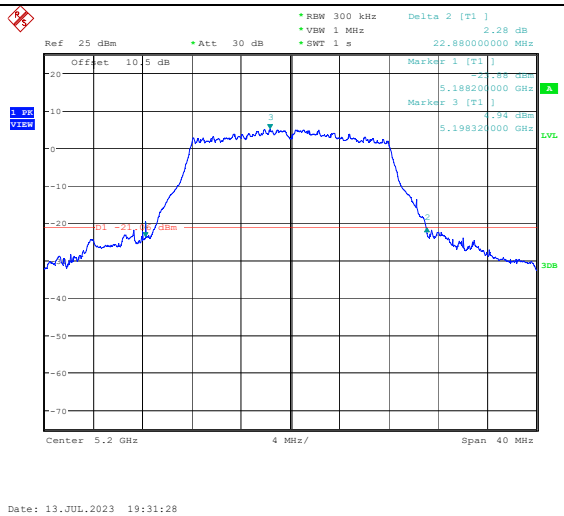
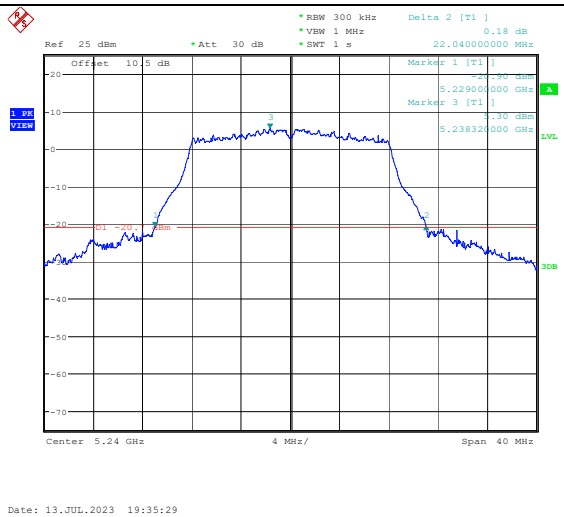
5470-5725 MHz:

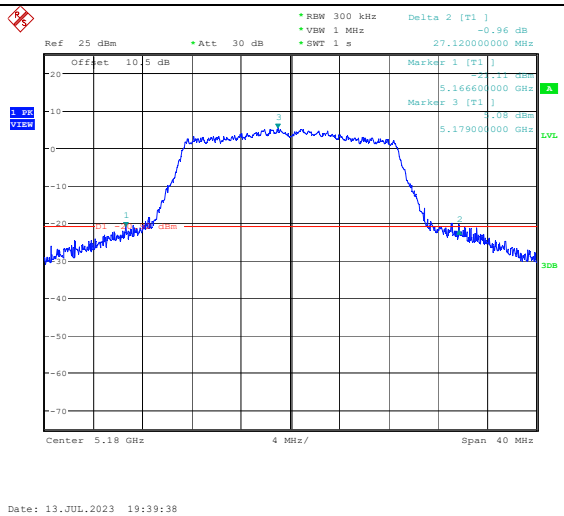
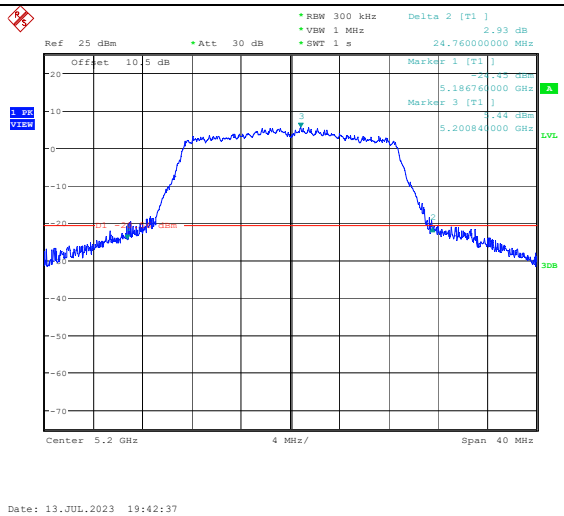
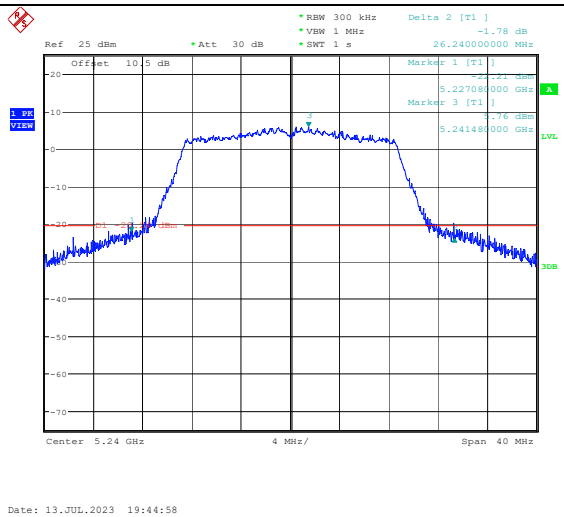
Test Modes	Test Frequency (MHz)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5500	21.76	17.16
	5580	21.84	17.16
	5700	21.84	17.20
802.11ac vht20	5500	23.20	18.32
	5580	22.60	18.32
	5700	22.96	18.32
802.11ac vht40	5510	40.40	36.40
	5550	40.40	36.40
	5670	40.56	36.48
802.11ac vht80	5530	82.56	75.84
	5610	82.24	75.84

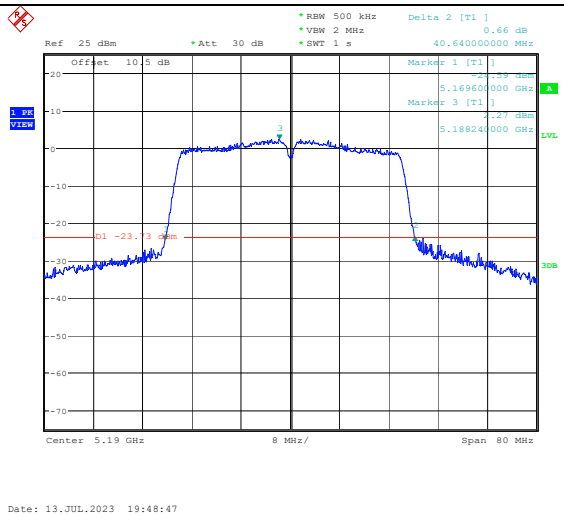
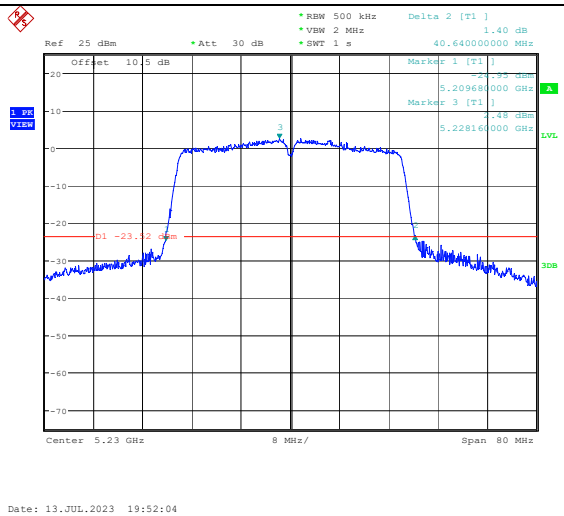
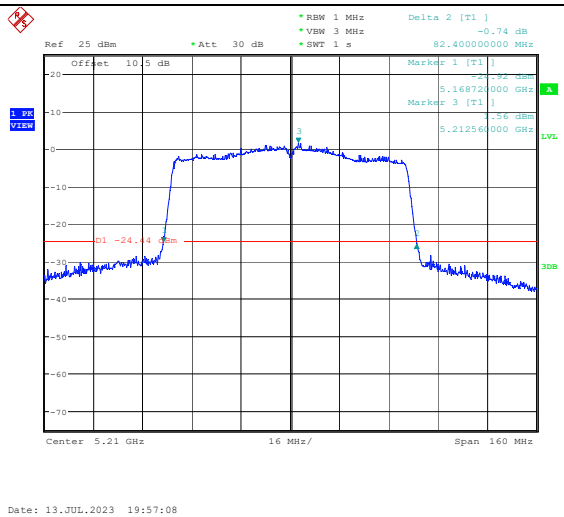
5725-5850 MHz:

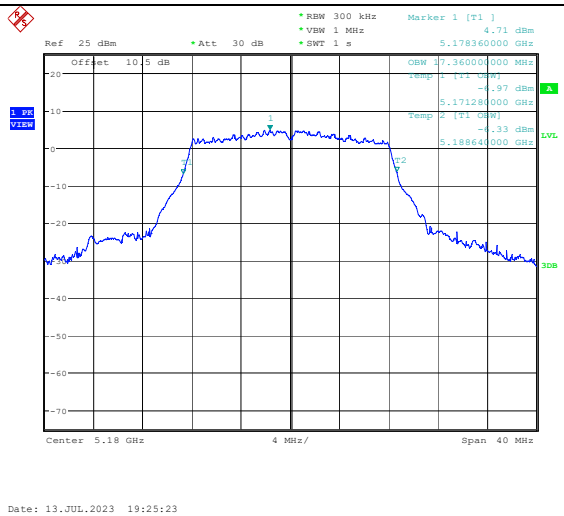
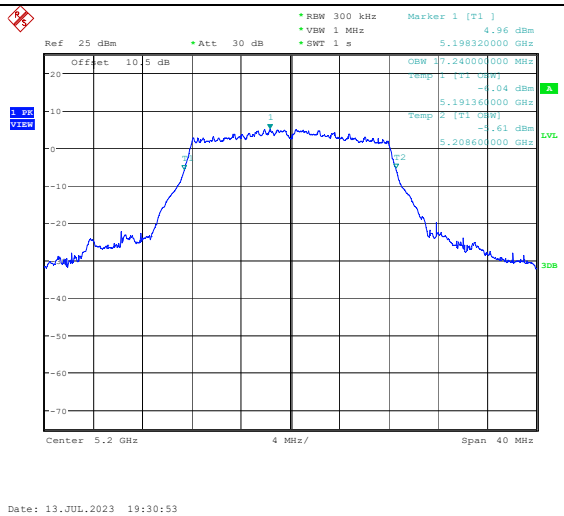
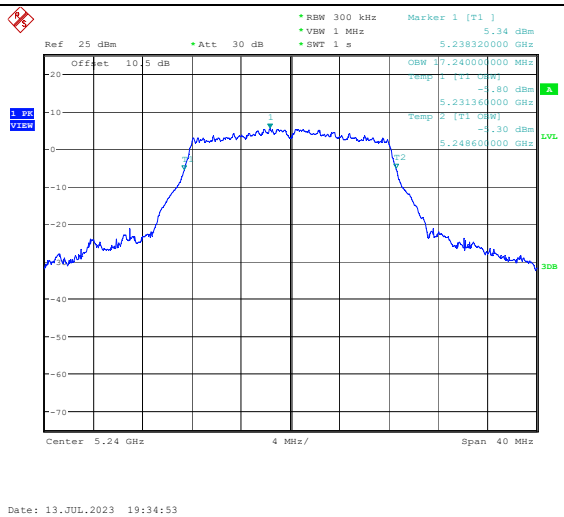
Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5745	16.40	17.40
	5785	16.36	17.44
	5825	16.36	17.52
802.11ac vht20	5745	17.60	18.68
	5785	17.60	18.60
	5825	17.64	18.56
802.11ac vht40	5755	35.92	37.04
	5795	36.00	37.04
802.11ac vht80	5775	75.36	76.48
Note:6dB Emission Bandwidth Limit: ≥0.5 MHz the 99% Occupied Bandwidth have not fall into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.			

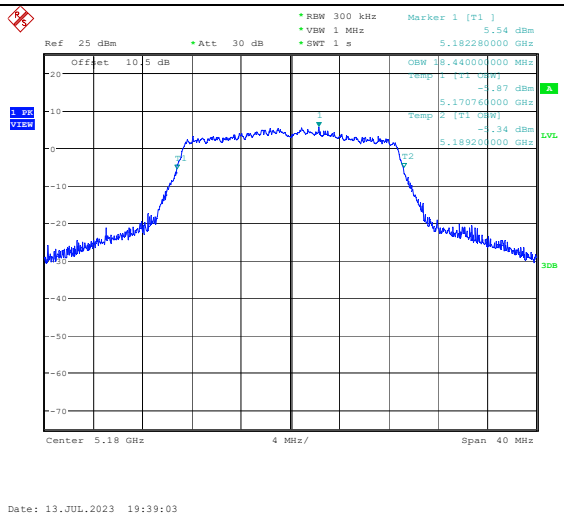
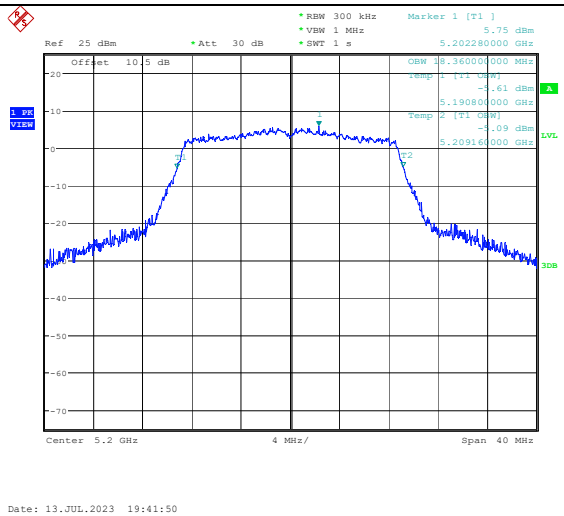
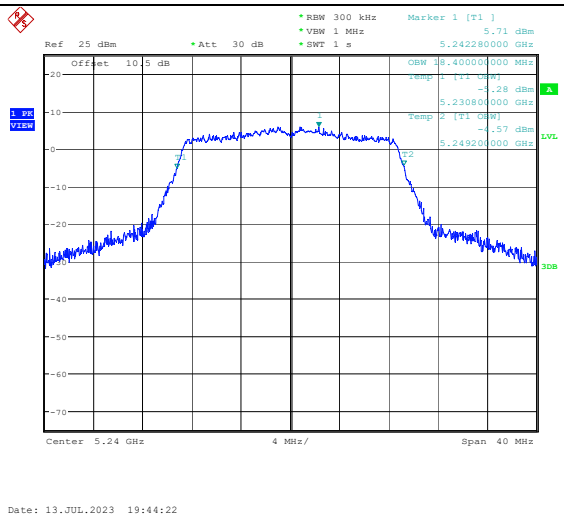
5150-5250MHz:

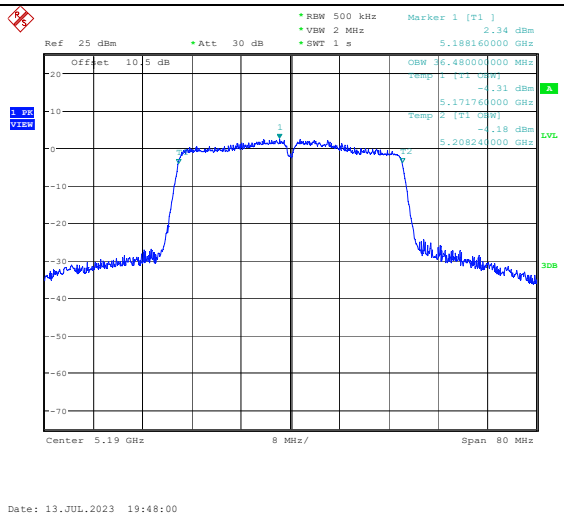
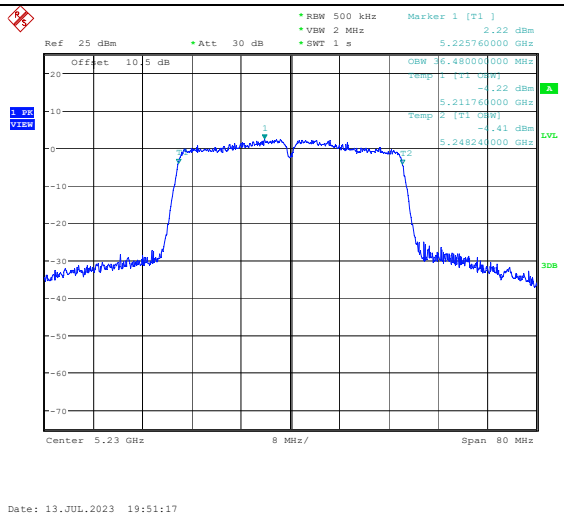
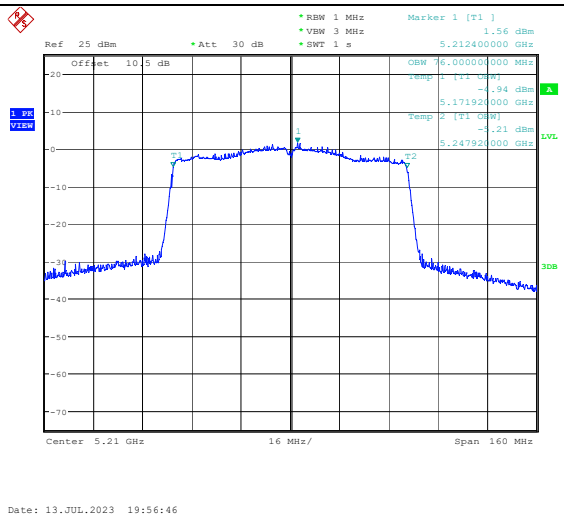
26dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

26dB Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

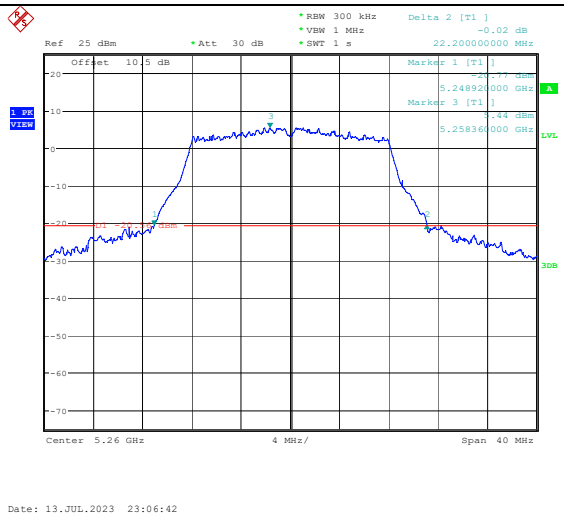
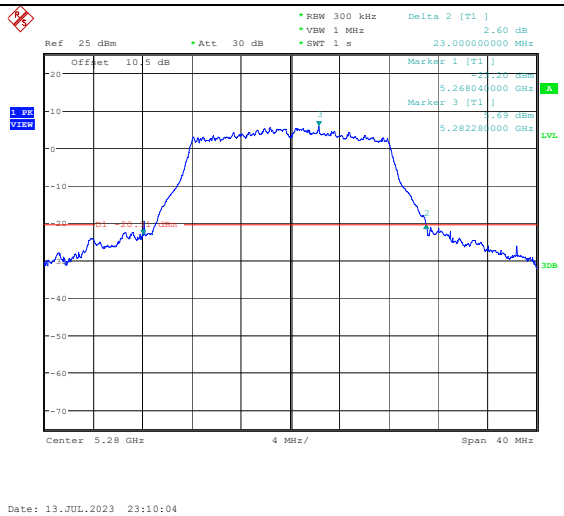
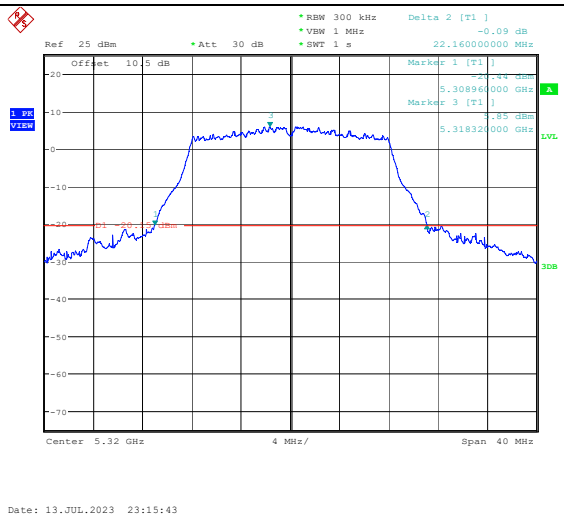
26dB Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

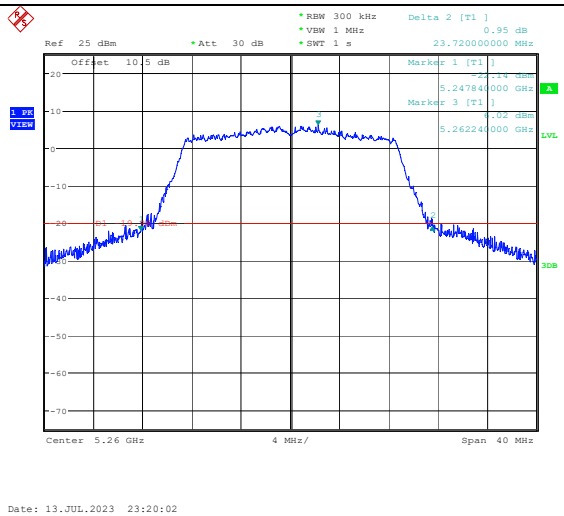
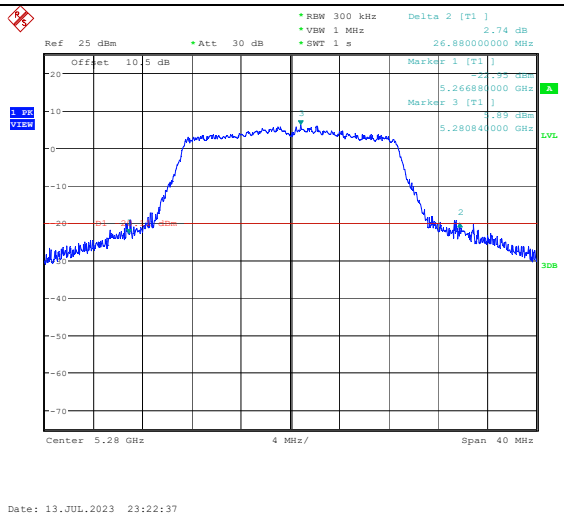
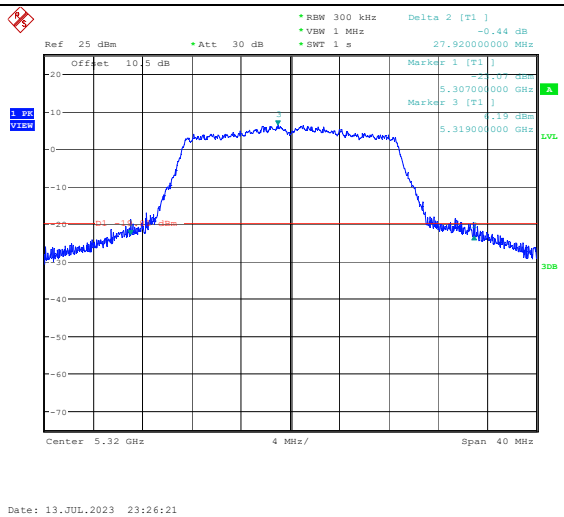
99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

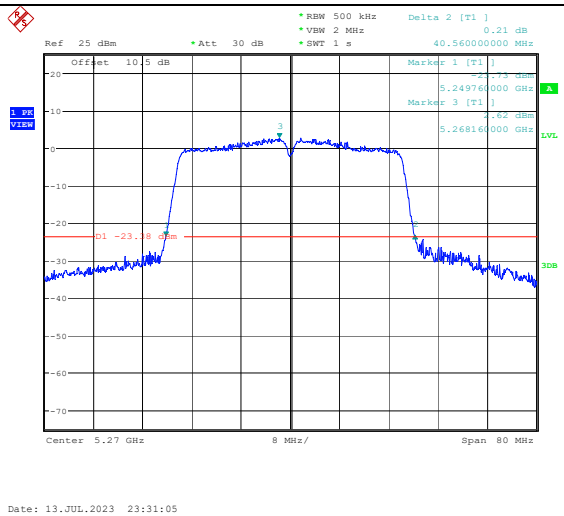
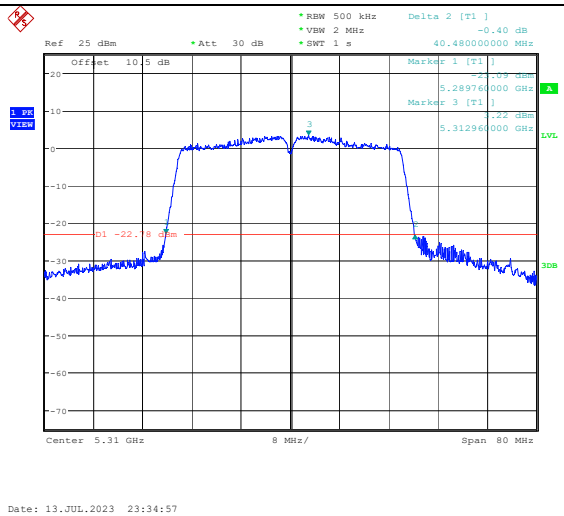
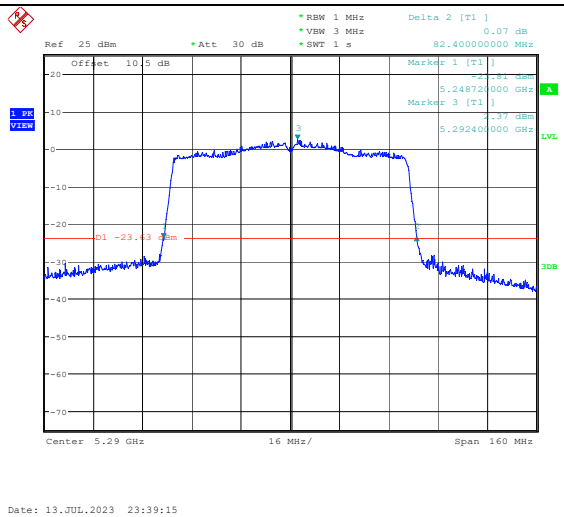
99% Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

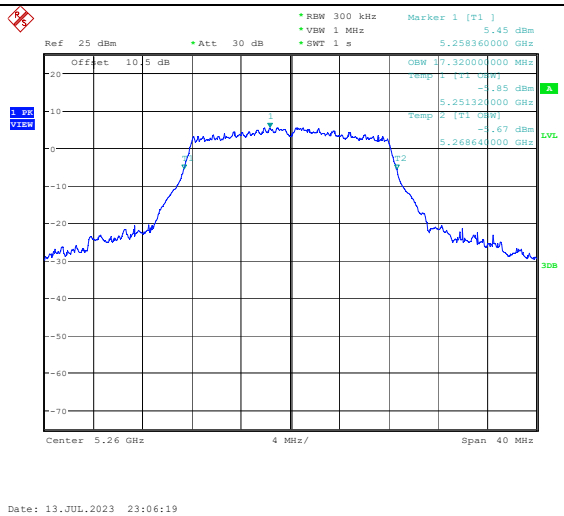
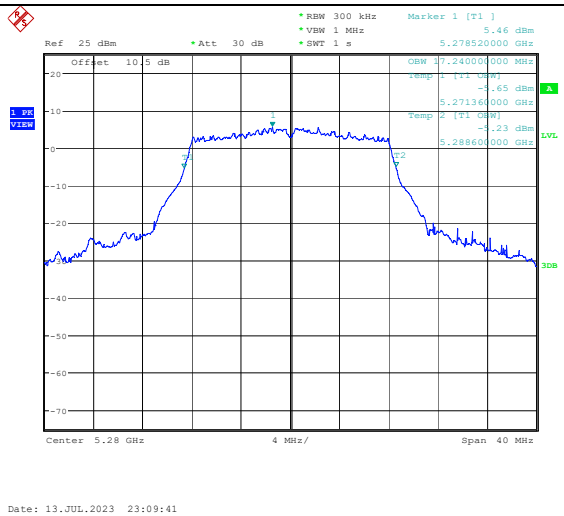
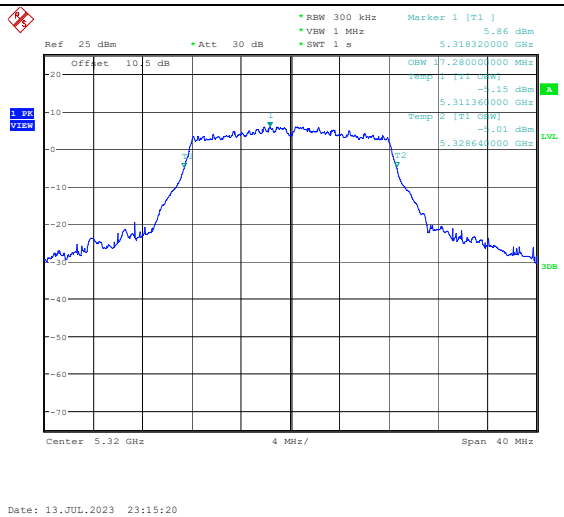
99% Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

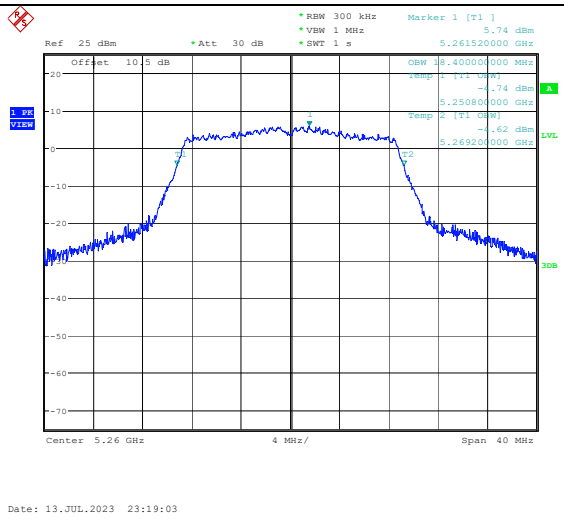
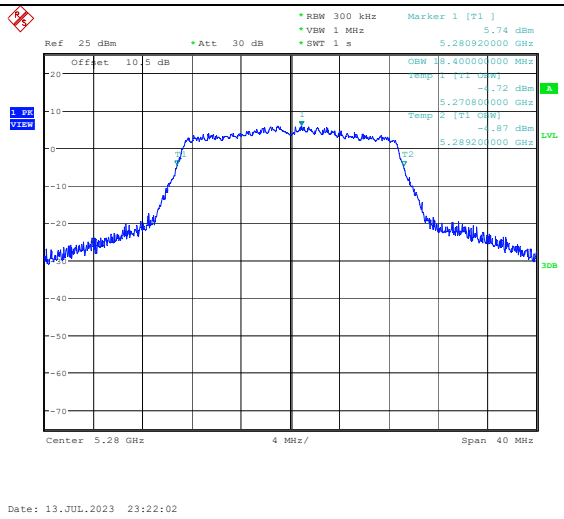
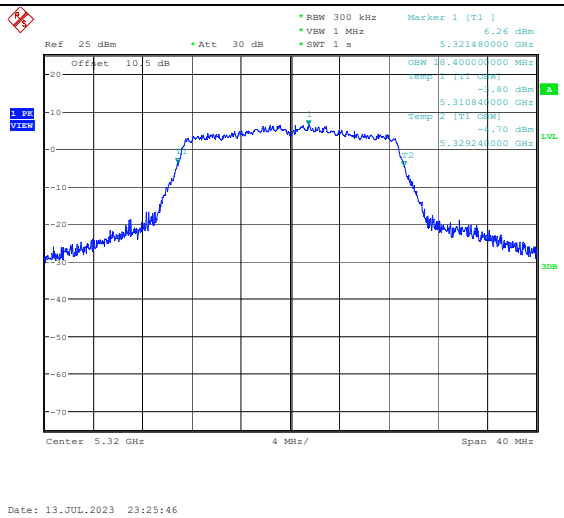
5250-5350MHz:

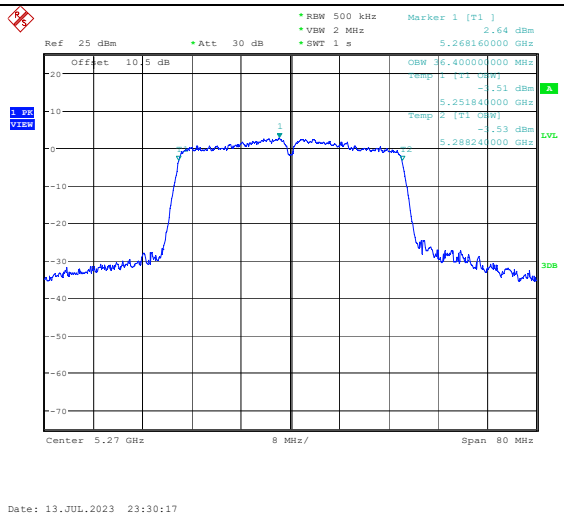
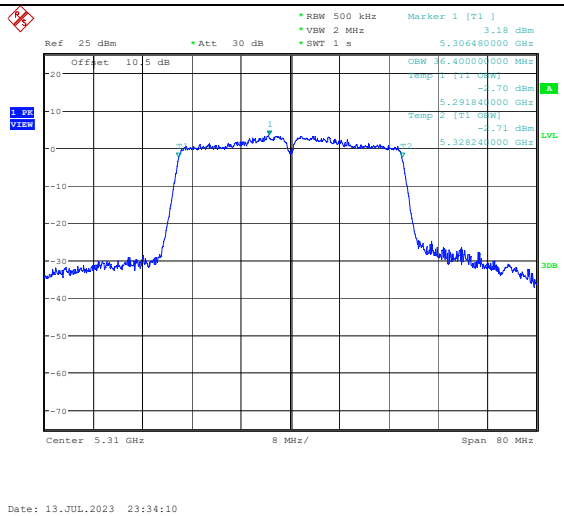
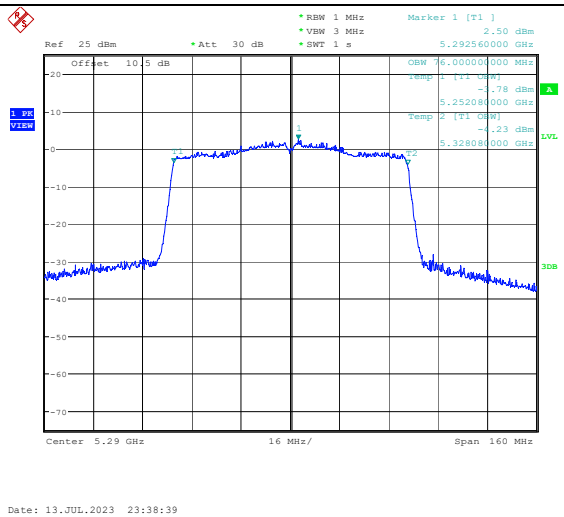
26dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

26dB Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

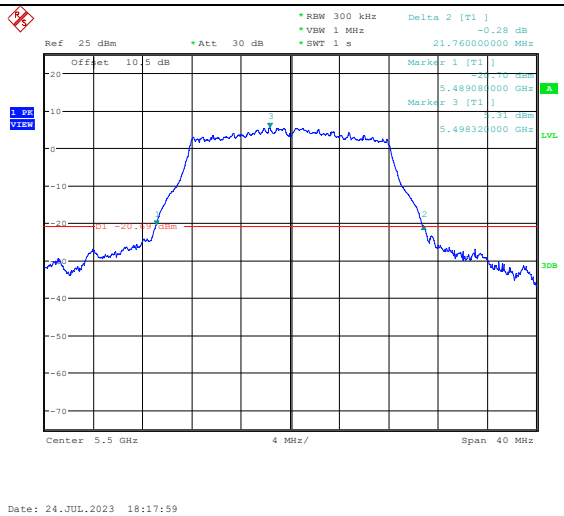
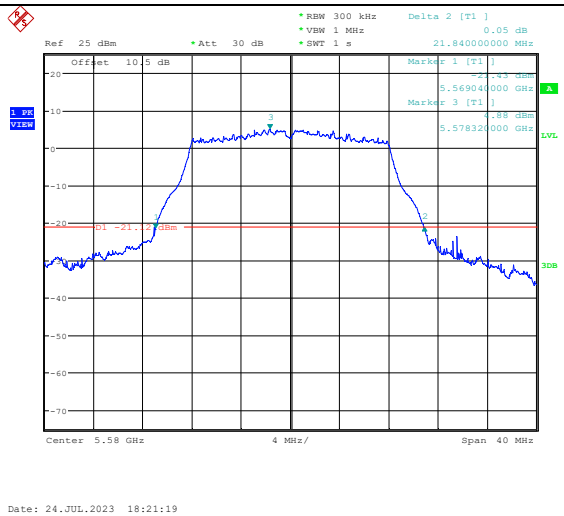
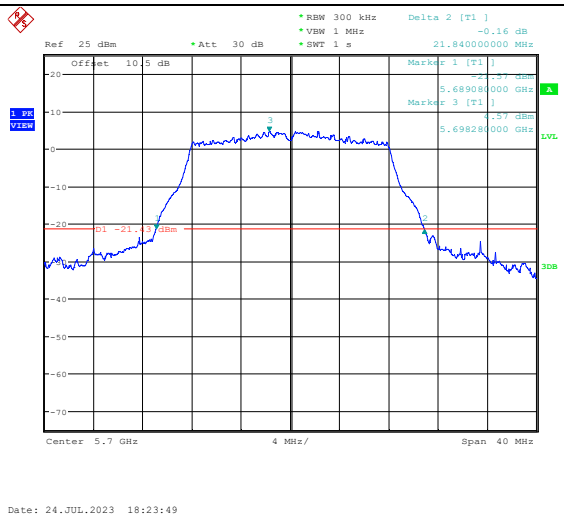
26dB Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

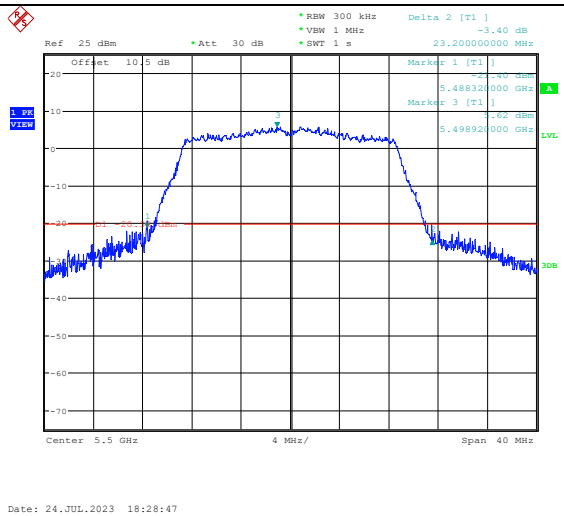
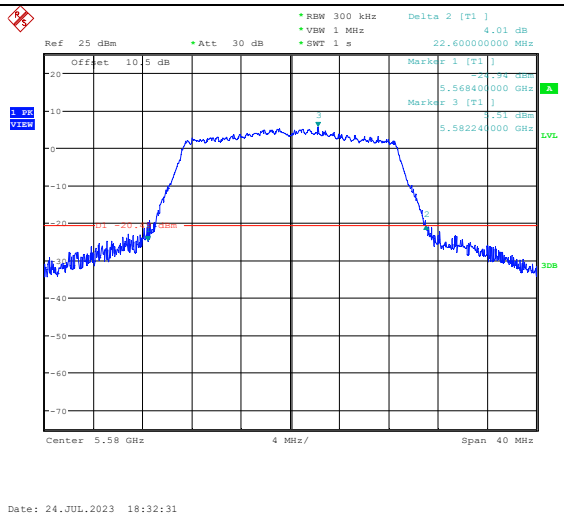
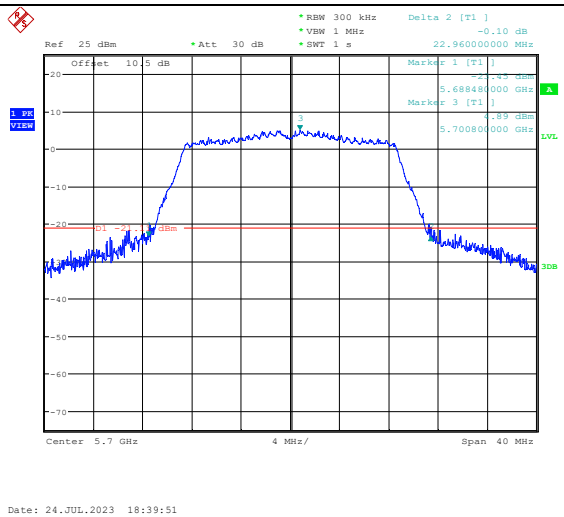
99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

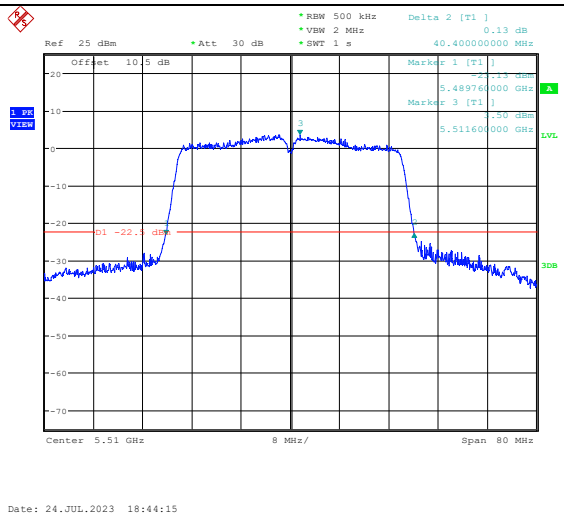
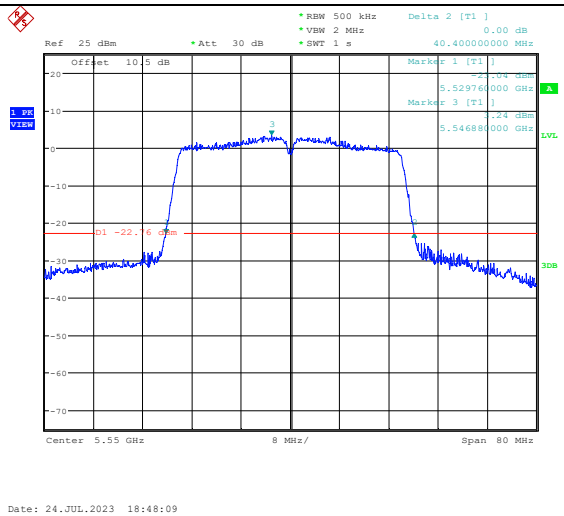
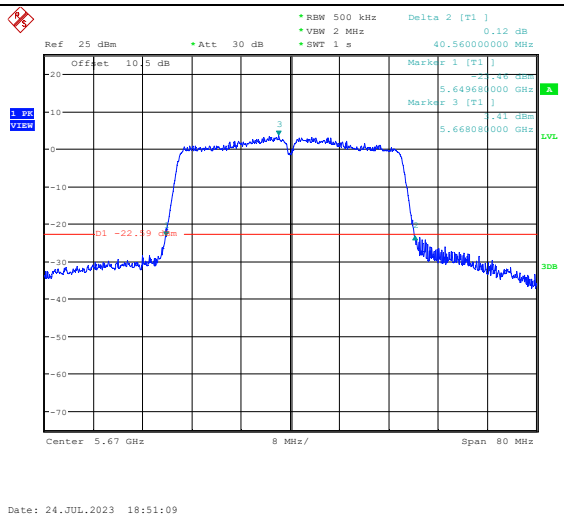
99% Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

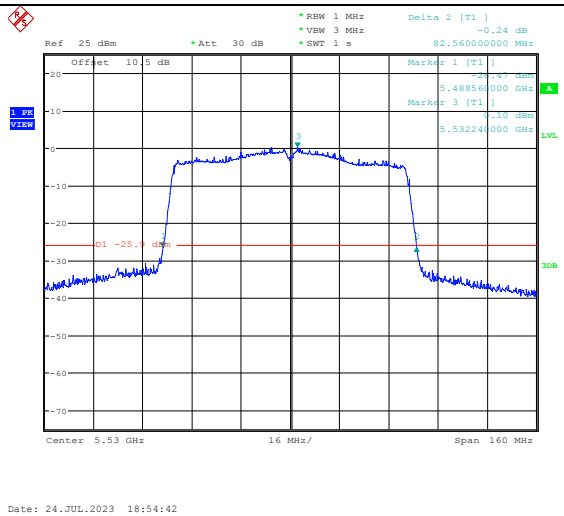
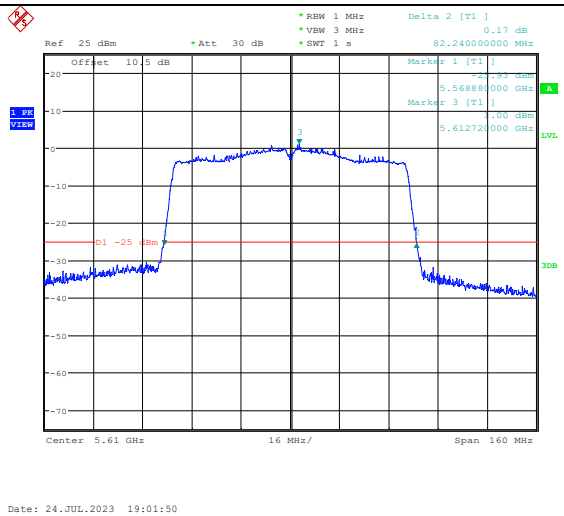
99% Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

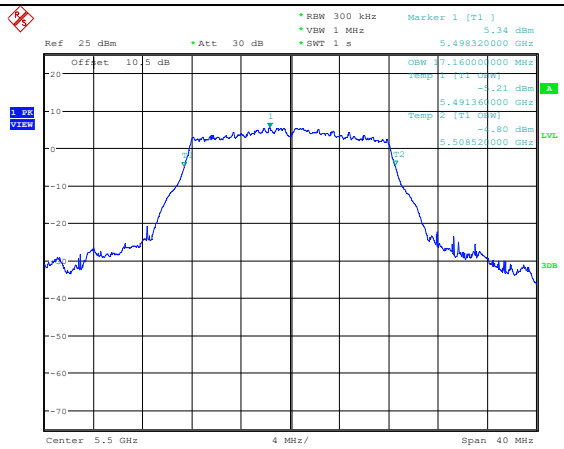
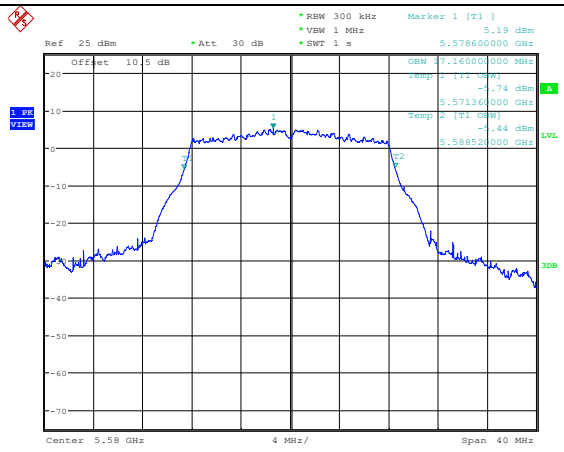
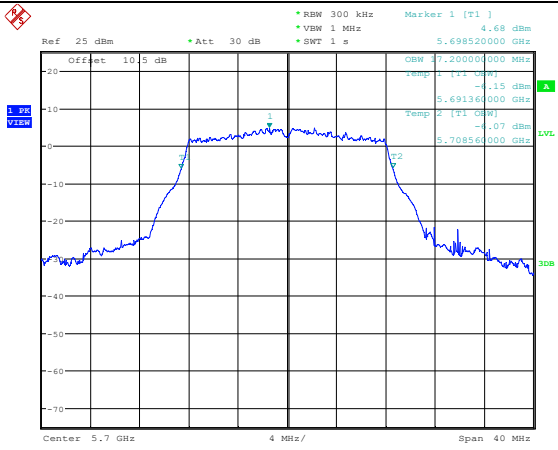
5470-5725MHz:

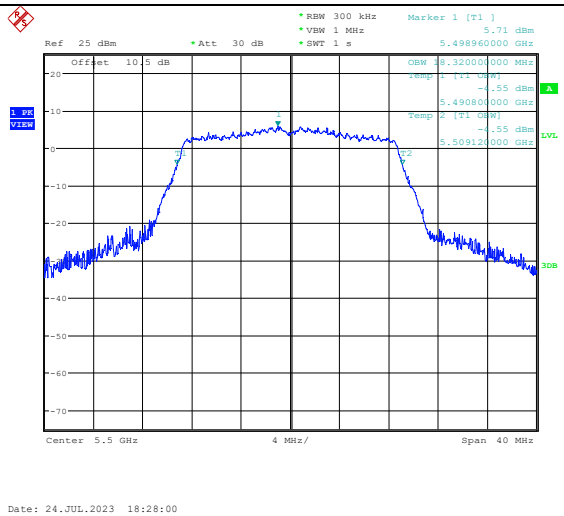
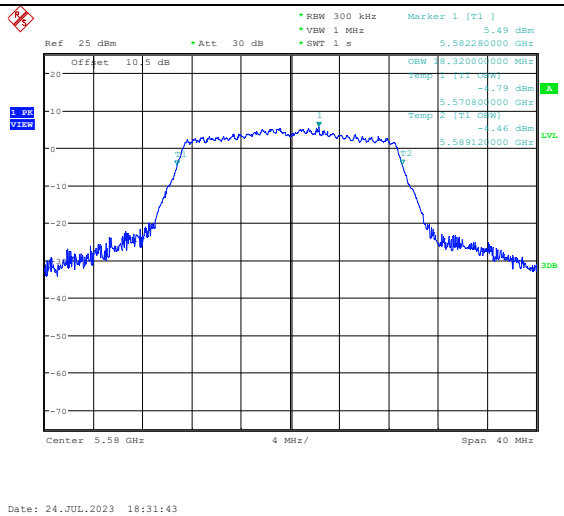
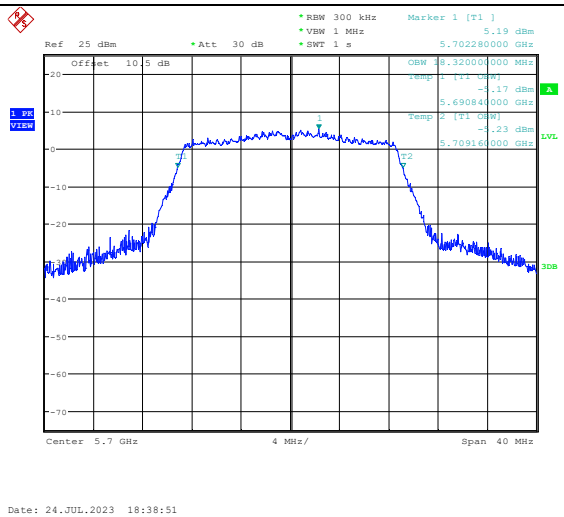
26dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

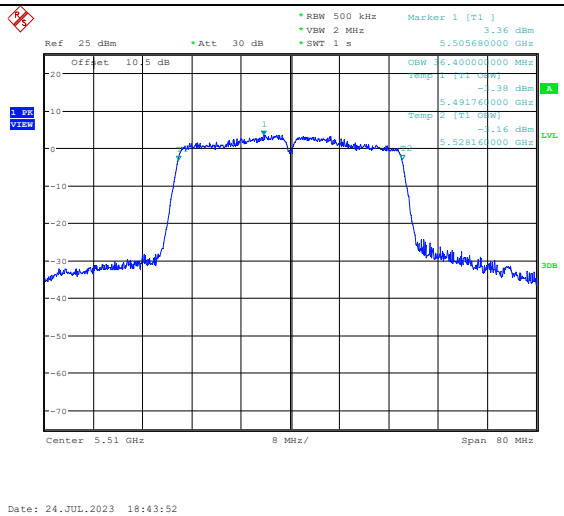
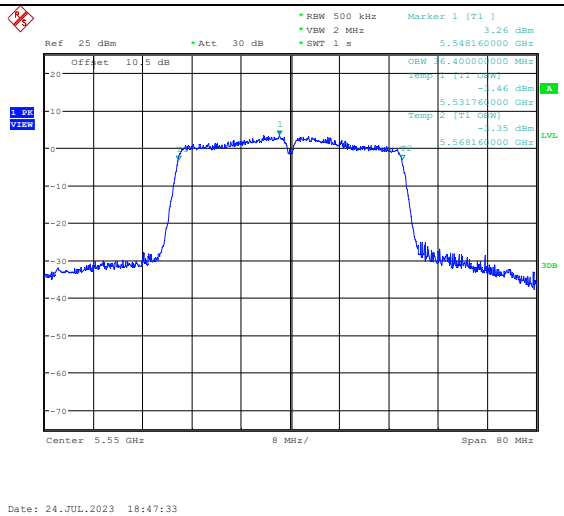
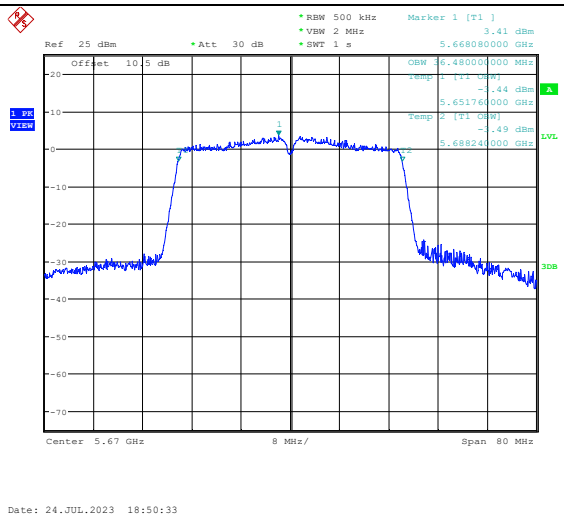
26dB Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

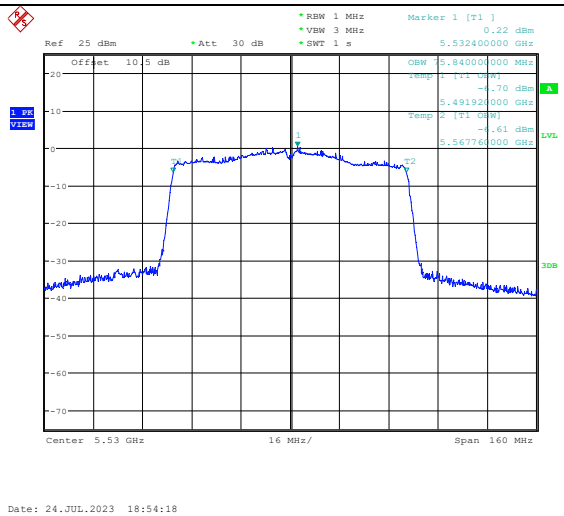
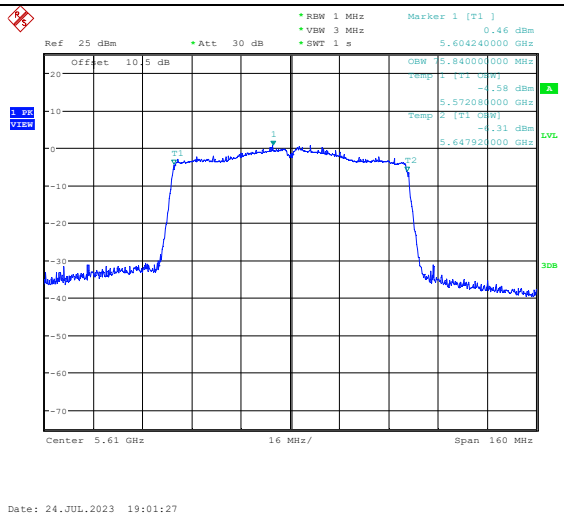
26dB Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Middle Channel	
802.11ac vht40 Highest Channel	

26dB Emission Bandwidth	
802.11ac vht80 Lowest Channel	
802.11ac vht80 Highest Channel	

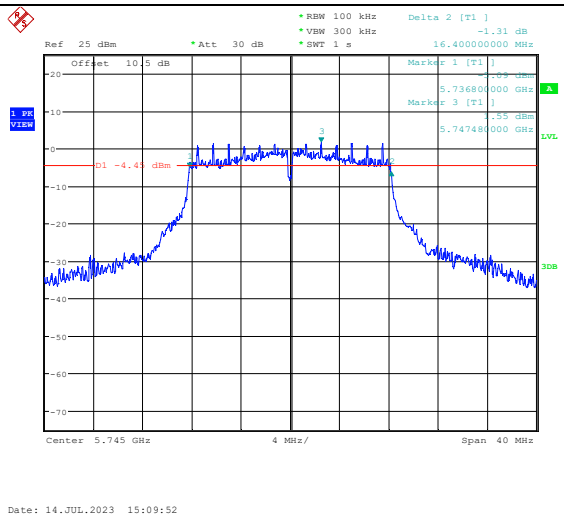
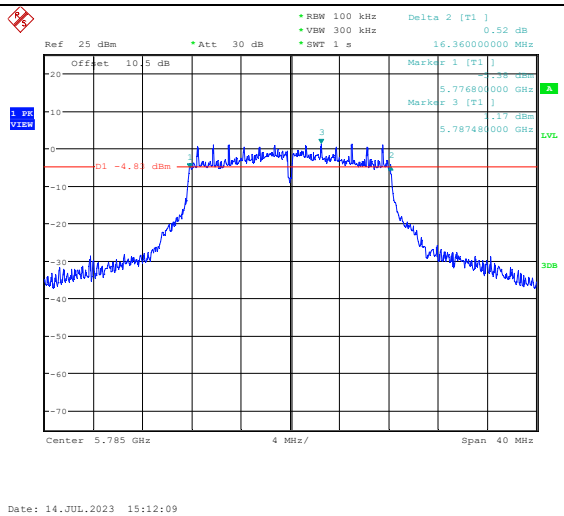
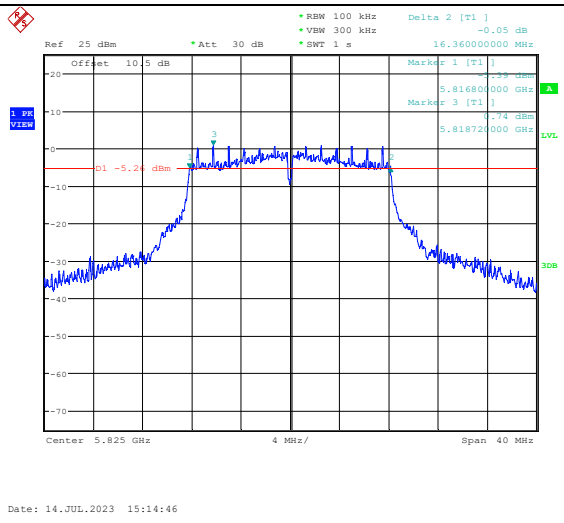
99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

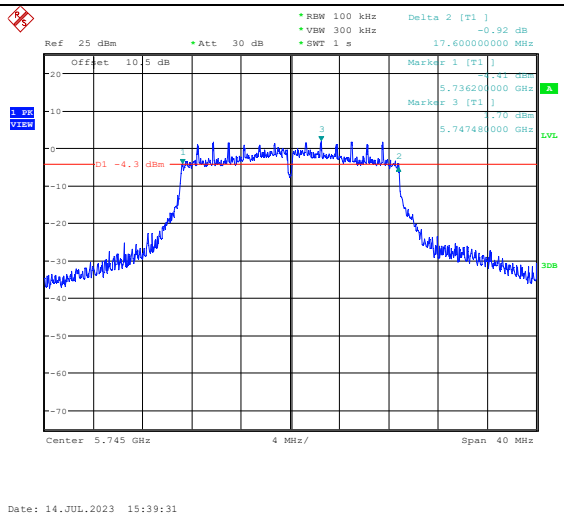
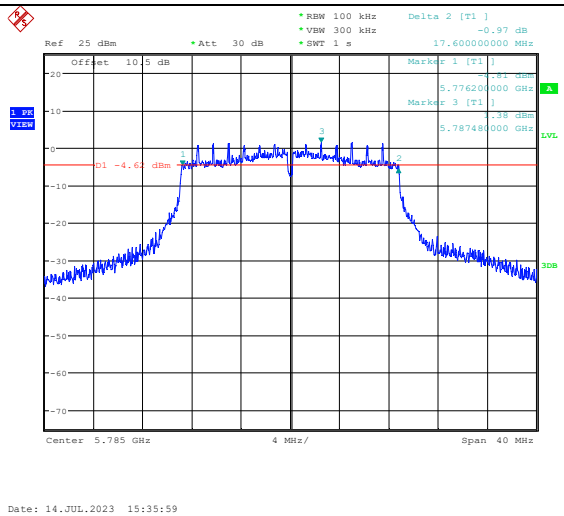
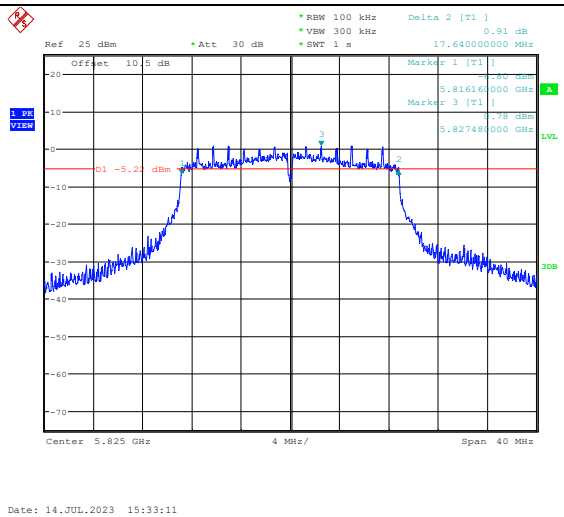
99% Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

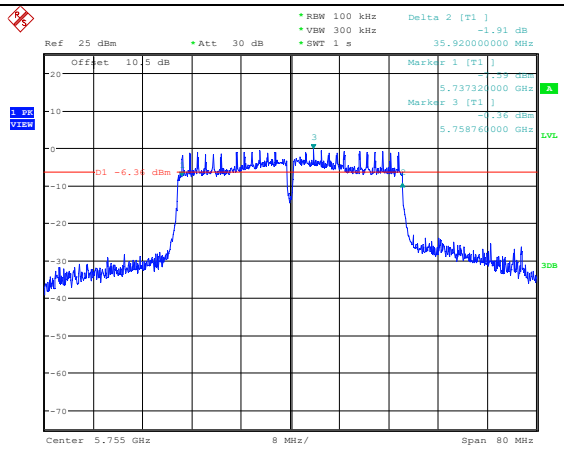
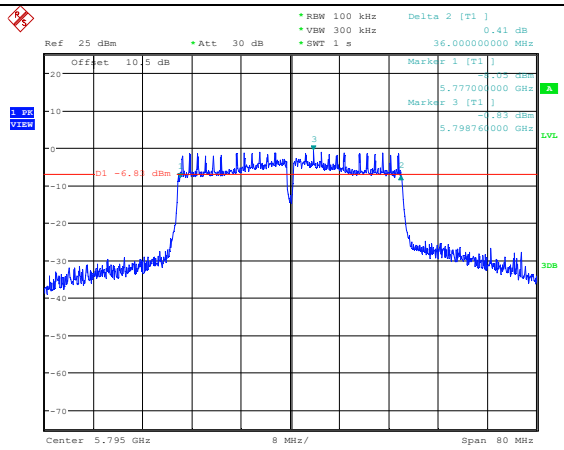
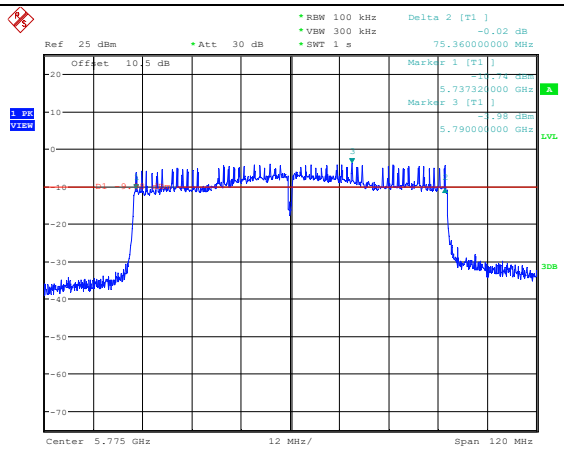
99% Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Middle Channel	
802.11ac vht40 Highest Channel	

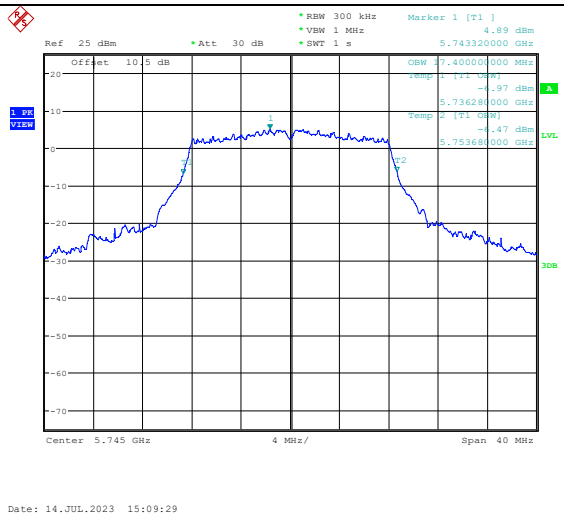
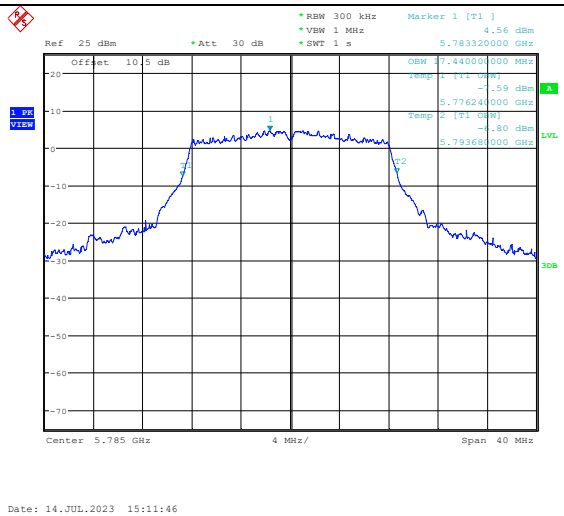
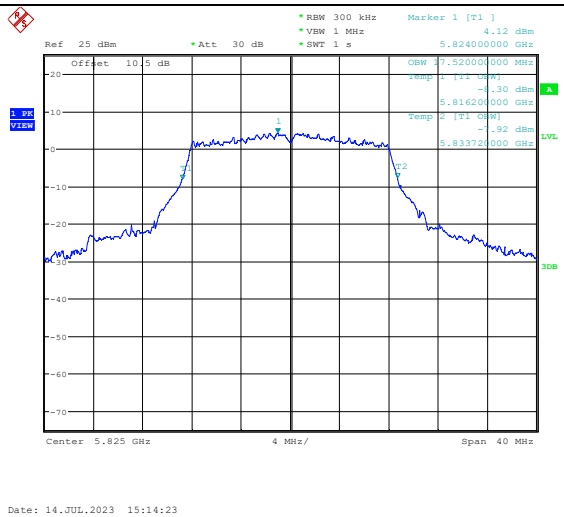
99% Emission Bandwidth	
802.11ac vht80 Lowest Channel	
802.11ac vht80 Highest Channel	

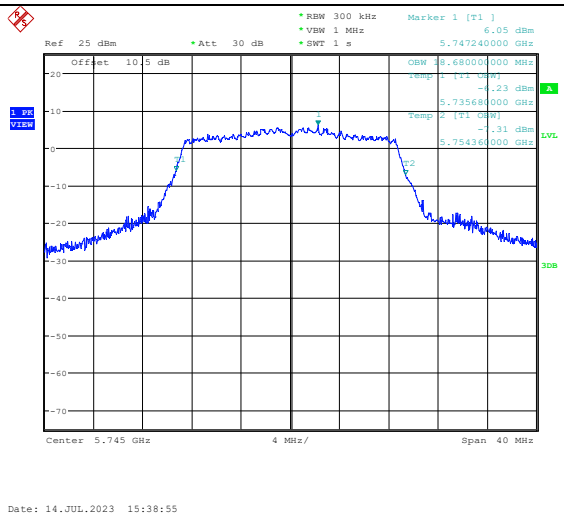
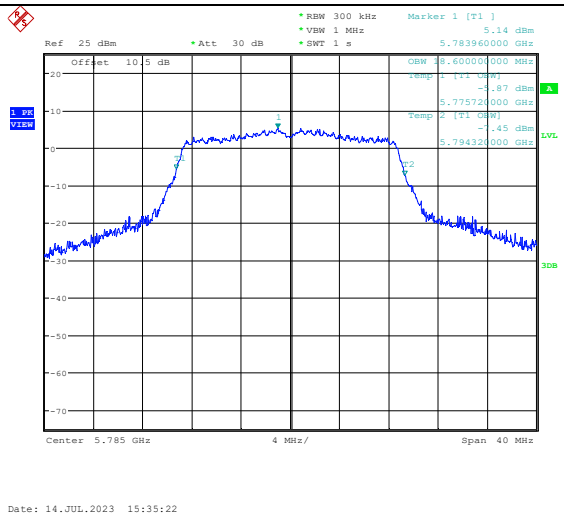
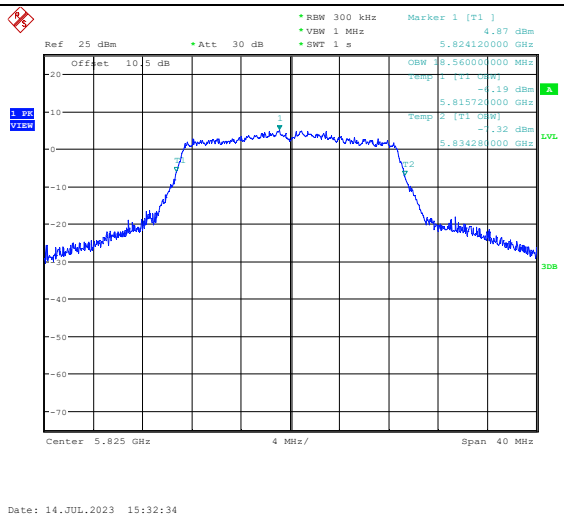
5725-5850MHz:

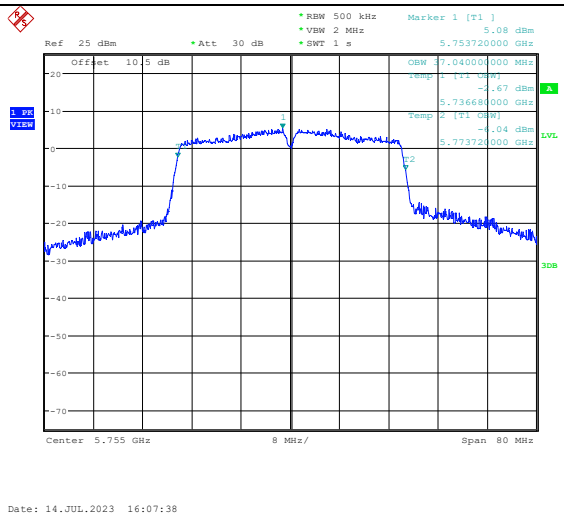
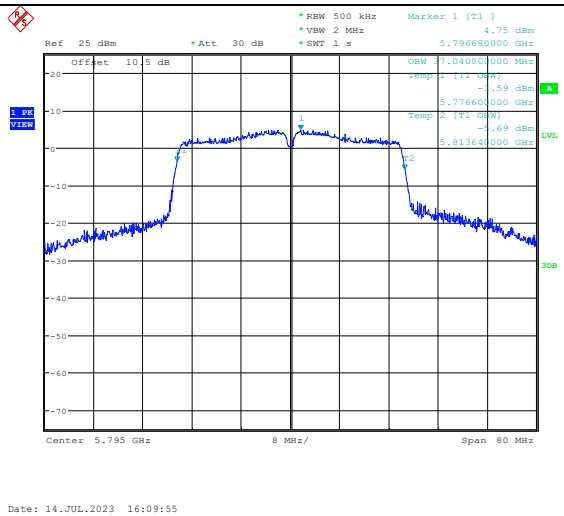
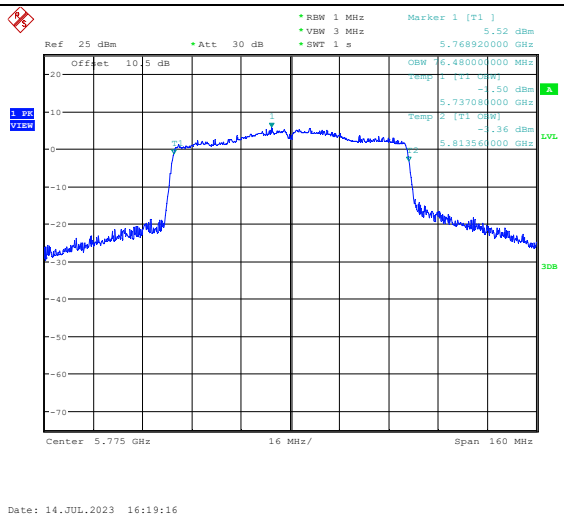
6dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

6dB Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

6dB Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

99% Emission Bandwidth	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

99% Emission Bandwidth	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

4.4 Maximum Conducted Output Power:

Serial Number:	27V5-1	Test Date:	2023/7/13-2023/7/24
Test Site:	RF	Test Mode:	Transmitting
Tester:	Gary Ling	Test Result:	PASS

Environmental Conditions:					
Temperature: (℃)	23.8-25.3	Relative Humidity: (%)	54-62	ATM Pressure: (kPa)	100.2-100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A
Agilent	USB Average Power Sensor	U2001H	MY50000432	2023/3/31	2024/3/30

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)	
		Result	Limit
802.11a	5180	12.15	24
	5200	12.22	24
	5240	**12.54**	24
802.11ac vht20	5180	11.82	24
	5200	11.91	24
	5240	12.20	24
802.11ac vht40	5190	9.41	24
	5230	9.54	24
802.11ac vht80	5210	6.82	24
Note: The device is a client device.			

5250-5350 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)	
		Result	Limit
802.11a	5260	12.52	24
	5280	12.67	24
	5320	**13.27**	24
802.11ac vht20	5260	12.33	24
	5280	12.35	24
	5320	12.90	24
802.11ac vht40	5270	9.67	24
	5310	10.20	24
802.11ac vht80	5290	7.71	24

5470-5725 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)	
		Result	Limit
802.11a	5500	**12.52**	24
	5580	12.28	24
	5700	11.94	24
802.11ac vht20	5500	12.00	24
	5580	11.76	24
	5700	11.34	24
802.11ac vht40	5510	10.44	24
	5550	10.14	24
	5670	9.92	24
802.11ac vht80	5530	5.51	24
	5610	5.86	24

5725-5850 MHz:

Test Modes	Test Frequency (MHz)	Max. Conducted Average Output Power(dBm)	
		Result	Limit
802.11a	5745	**12.29**	30
	5785	11.94	30
	5825	11.55	30
802.11ac vht20	5745	11.96	30
	5785	11.62	30
	5825	11.28	30
802.11ac vht40	5755	12.13	30
	5795	11.99	30
802.11ac vht80	5775	11.17	30

4.5 Maximum power spectral density:

Serial Number:	27V5-1	Test Date:	2023/7/13-2023/7/24
Test Site:	RF	Test Mode:	Transmitting
Tester:	Gary Ling	Test Result:	PASS

Environmental Conditions:					
Temperature: (℃)	23.8-25.3	Relative Humidity: (%)	54-62	ATM Pressure: (kPa)	100.2-100.5

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200445	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

5150-5250 MHz:

Test Modes	Test Frequency (MHz)	Reading (dBm/MHz)	Duty Cycle Factor (dB)	Maximum Power Spectral Density (dBm/MHz)	
				Result	Limit
802.11a	5180	2.10	0.30	2.40	11
	5200	2.17	0.30	2.47	11
	5240	2.53	0.30	2.83	11
802.11ac vht20	5180	1.60	0.32	1.92	11
	5200	1.54	0.32	1.86	11
	5240	2.01	0.32	2.33	11
802.11ac vht40	5190	-3.84	0.63	-3.21	11
	5230	-3.59	0.63	-2.96	11
802.11ac vht80	5210	-9.31	1.17	-8.14	11

Note:
The device is a client device.
Duty cycle ≥98%, method ANSI C63.10-2013 Section 12.3.2.2 was used.
Duty cycle <98%, and duty cycle variations are less than ±2%,method ANSI C63.10-2013 Section 12.3.2.4was used.
Duty cycle <98%, and duty cycle variations exceed ±2%, method ANSI C63.10-2013 Section 12.3.2.6.
For Duty cycle<98%, and Duty cycle be considered to be constant(variations areless than ±2%), the duty cycle factor was added into the result.

5250-5350 MHz:

Test Modes	Test Frequency(MHz)	Reading(dBm/MHz)	Duty Cycle Factor(dB)	Maximum Power Spectral Density(dBm/MHz)	
				Result	Limit
802.11a	5260	2.53	0.30	2.83	11
	5280	2.66	0.30	2.96	11
	5320	3.27	0.30	3.57	11
802.11ac vht20	5260	2.04	0.32	2.36	11
	5280	2.24	0.32	2.56	11
	5320	2.78	0.32	3.10	11
802.11ac vht40	5270	-3.55	0.63	-2.92	11
	5310	-2.99	0.63	-2.36	11
802.11ac vht80	5290	-8.12	1.17	-6.95	11

Note:
The device is a client device.
Duty cycle ≥98%, method ANSI C63.10-2013 Section 12.3.2.2 was used.
Duty cycle <98%, and duty cycle variations are less than ±2%,method ANSI C63.10-2013 Section 12.3.2.4was used.
Duty cycle <98%, and duty cycle variations exceed ±2%, method ANSI C63.10-2013 Section 12.3.2.6.
For Duty cycle<98%, and Duty cycle be considered to be constant(variations areless than ±2%), the duty cycle factor was added into the result

5470-5725 MHz:

Test Modes	Test Frequency (MHz)	Reading (dBm/MHz)	Duty Cycle Factor (dB)	Maximum Power Spectral Density (dBm/MHz)	
				Result	Limit
802.11a	5500	2.53	0.30	2.83	11
	5580	2.17	0.30	2.47	11
	5700	2.01	0.30	2.31	11
802.11ac vht20	5500	1.83	0.32	2.15	11
	5580	1.43	0.32	1.75	11
	5700	1.11	0.32	1.43	11
802.11ac vht40	5510	-2.76	0.63	-2.13	11
	5550	-3.06	0.63	-2.43	11
	5670	-2.96	0.63	-2.33	11
802.11ac vht80	5530	-10.67	1.17	-9.50	11
	5610	-10.11	1.17	-8.94	11

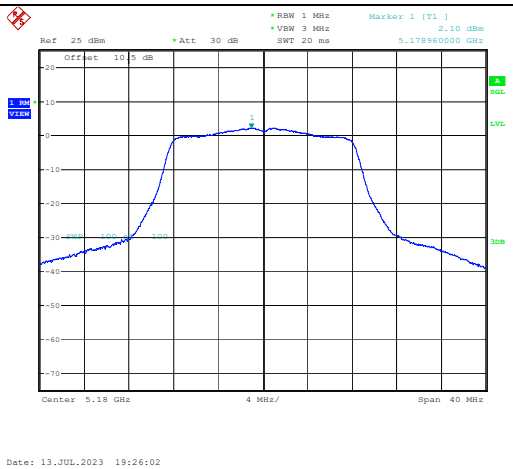
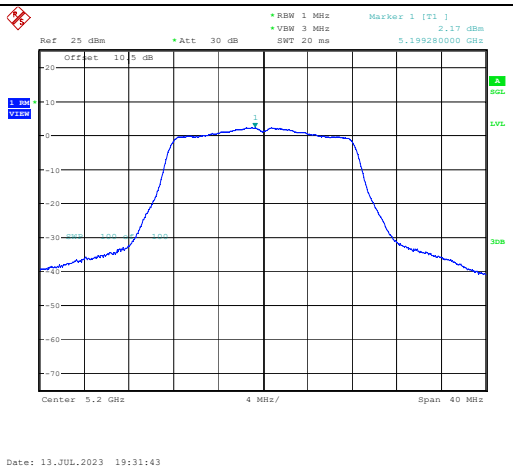
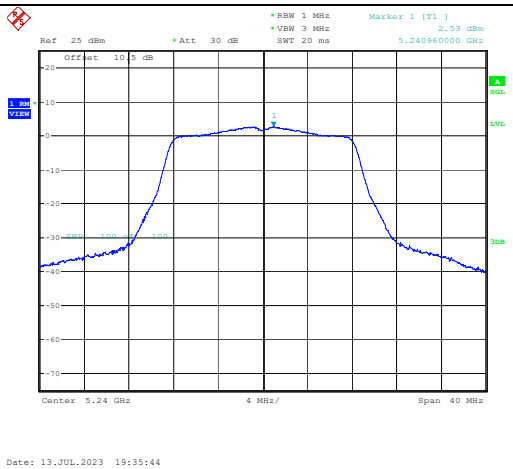
Note:
The device is a client device.
Duty cycle ≥98%, method ANSI C63.10-2013 Section 12.3.2.2 was used.
Duty cycle <98%, and duty cycle variations are less than ±2%,method ANSI C63.10-2013 Section 12.3.2.4was used.
Duty cycle <98%, and duty cycle variations exceed ±2%, method ANSI C63.10-2013 Section 12.3.2.6.
For Duty cycle<98%, and Duty cycle be considered to be constant(variations areless than ±2%), the duty cycle factor was added into the result.

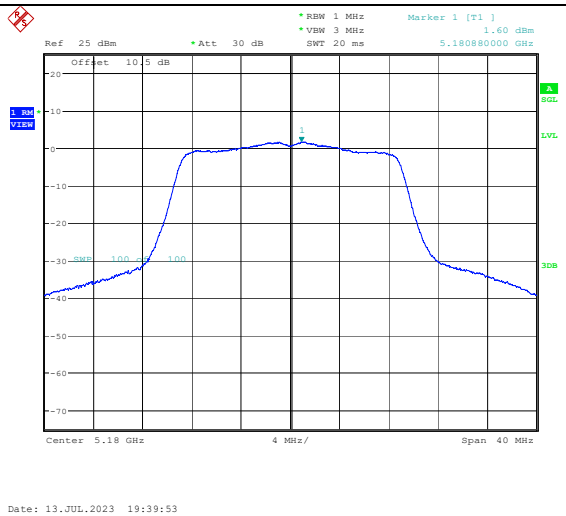
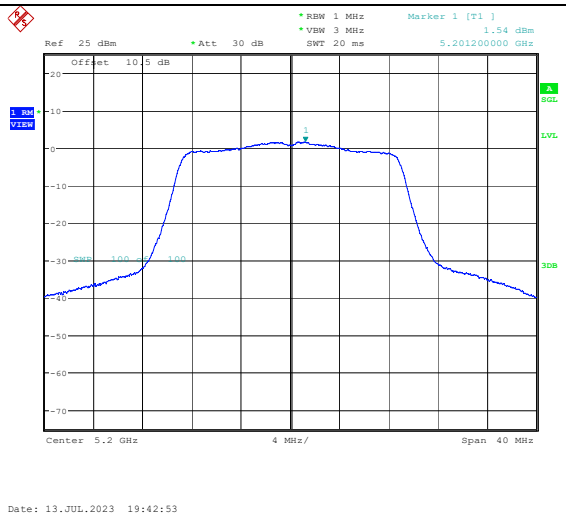
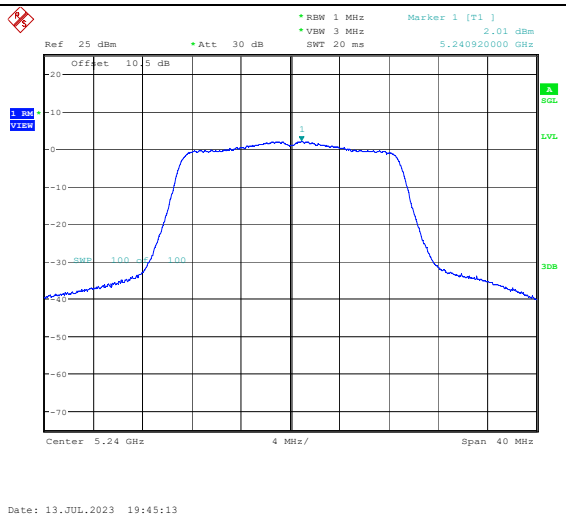
5725-5850MHz:

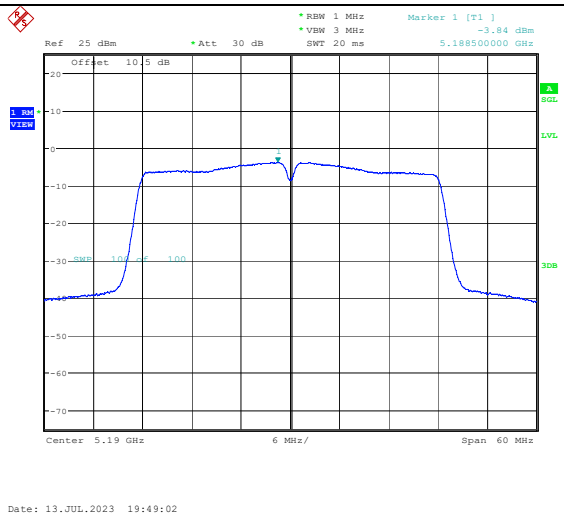
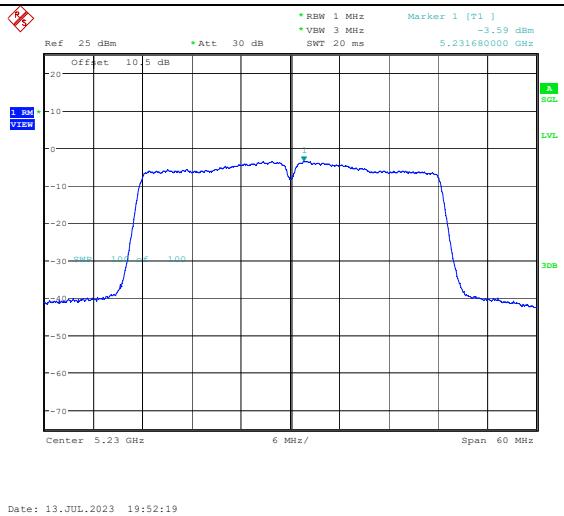
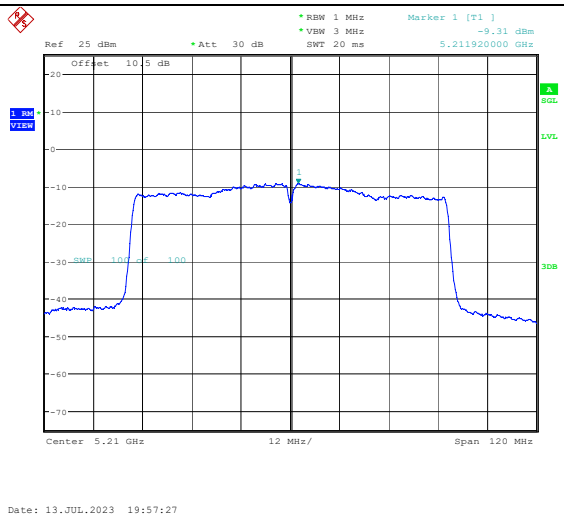
Test Modes	Test Frequency (MHz)	Reading (dBm/500kHz)	Duty Cycle Factor (dB)	Maximum Power Spectral Density (dBm/500kHz)	
				Result	Limit
802.11a	5745	-0.52	0.30	-0.22	30
	5785	-0.76	0.30	-0.46	30
	5825	-1.28	0.30	-0.98	30
802.11ac vht20	5745	-0.98	0.32	-0.66	30
	5785	-1.17	0.32	-0.85	30
	5825	-1.68	0.32	-1.36	30
802.11ac vht40	5755	-3.92	0.63	-3.29	30
	5795	-4.10	0.63	-3.47	30
802.11ac vht80	5775	-7.70	1.17	-6.53	30

Note:
Duty cycle ≥98%, method ANSI C63.10-2013 Section 12.3.2.2 was used.
Duty cycle <98%, and duty cycle variations are less than ±2%,method ANSI C63.10-2013 Section 12.3.2.4was used.
Duty cycle <98%, and duty cycle variations exceed ±2%, method ANSI C63.10-2013 Section 12.3.2.6.
For Duty cycle<98%, and Duty cycle be considered to be constant(variations areless than ±2%), the duty cycle factor was added into the result.

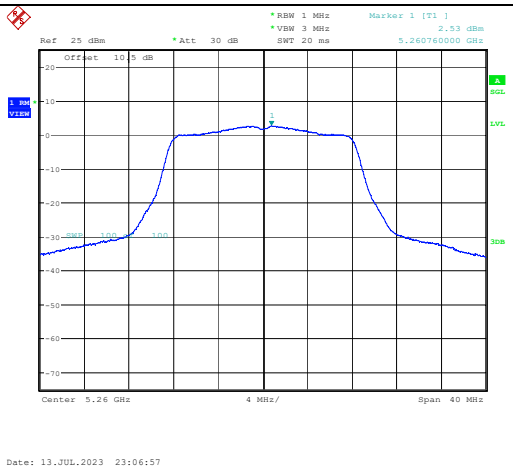
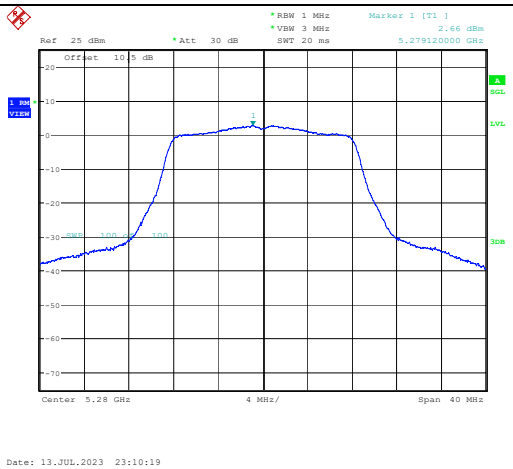
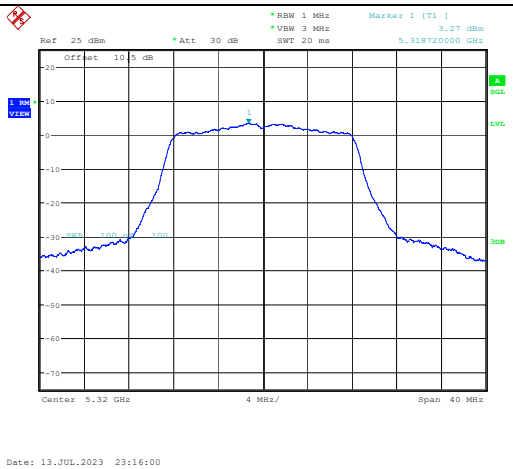
5150-5250MHz:

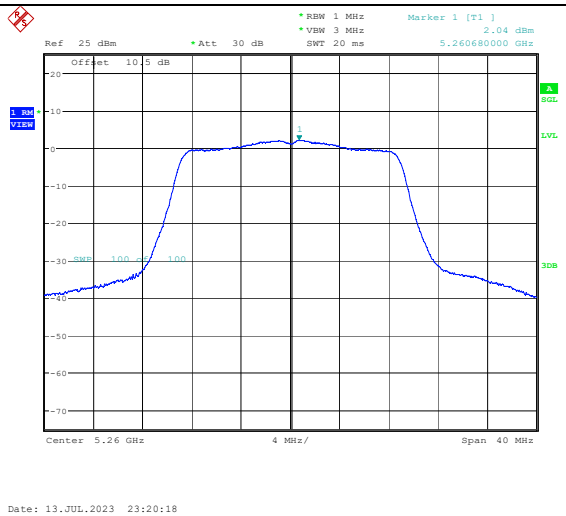
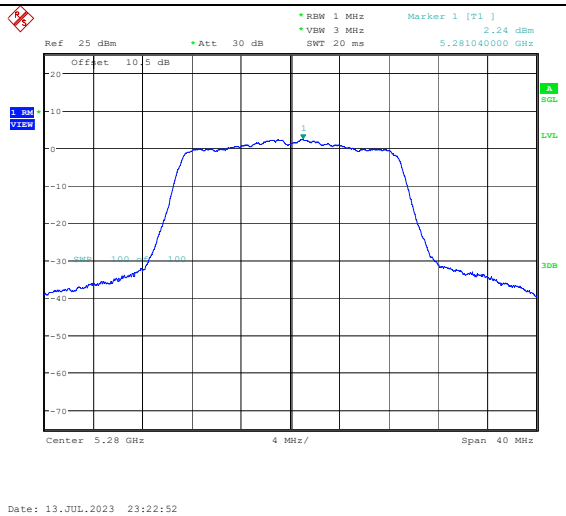
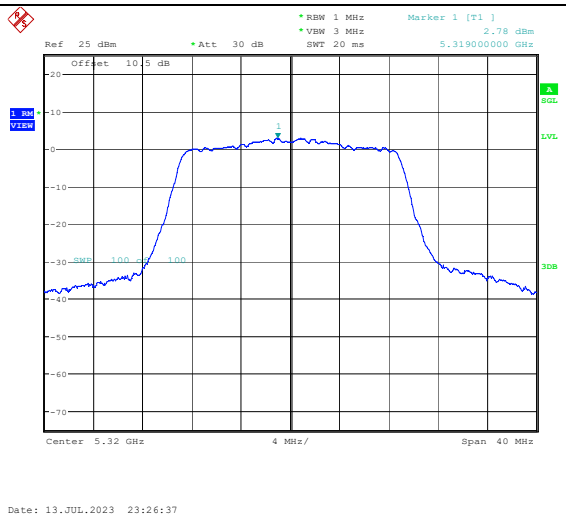
Maximum power spectral density	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

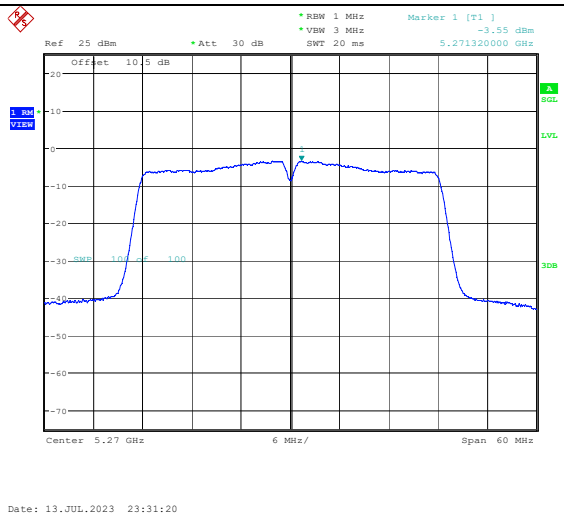
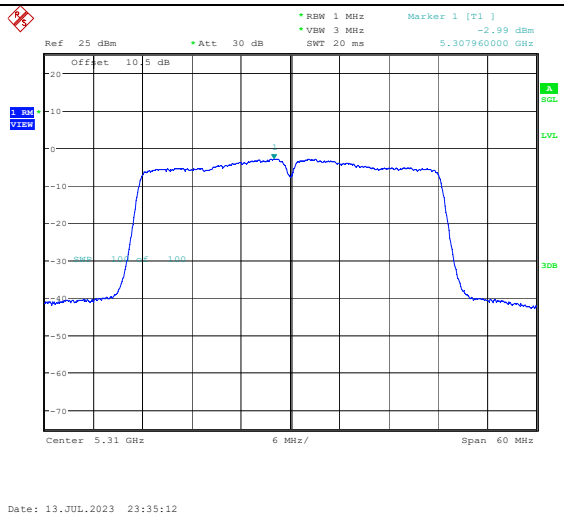
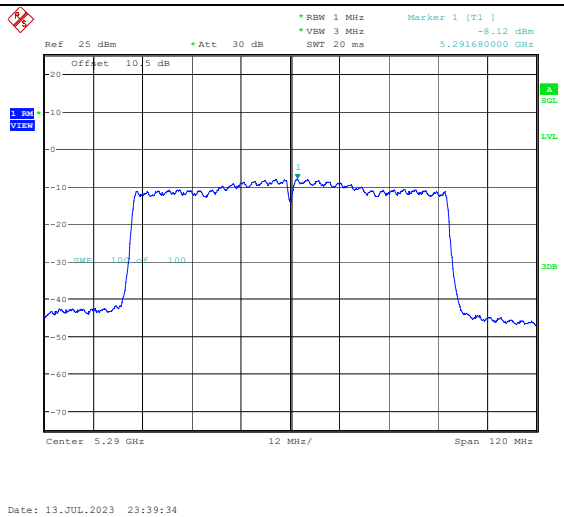
Maximum power spectral density	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

Maximum power spectral density	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

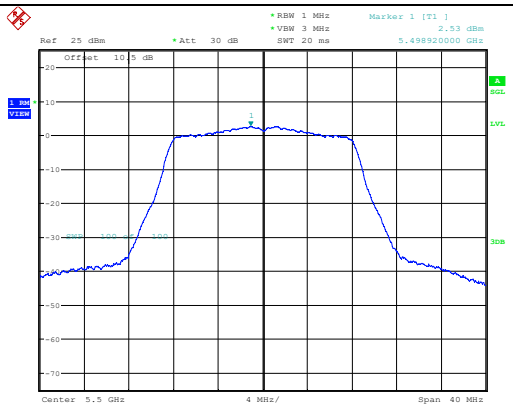
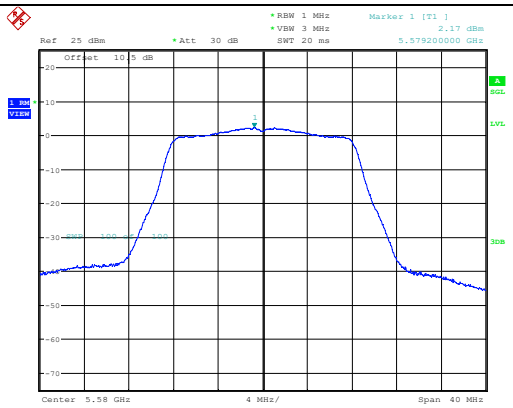
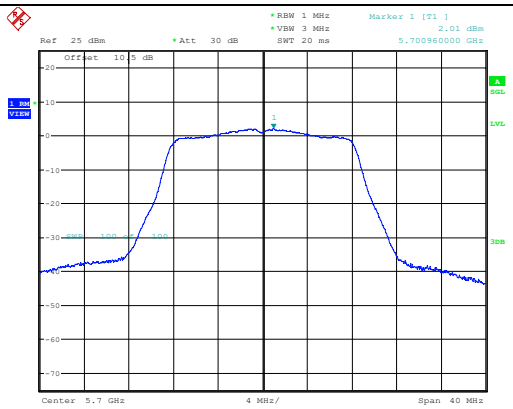
5250-5350 MHz:

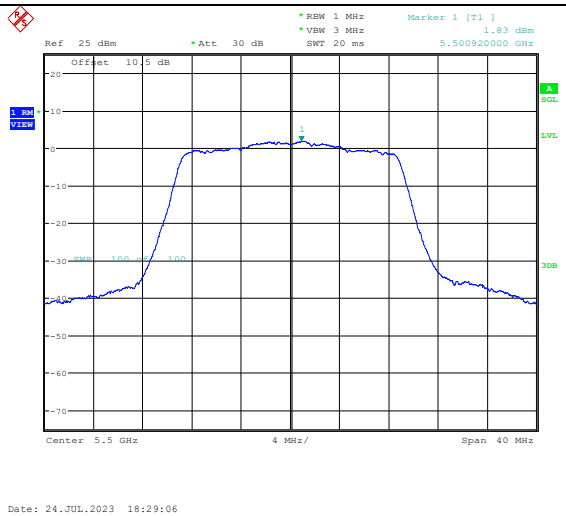
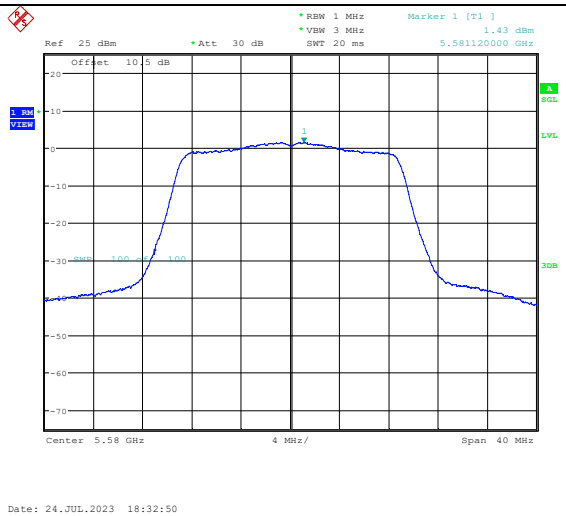
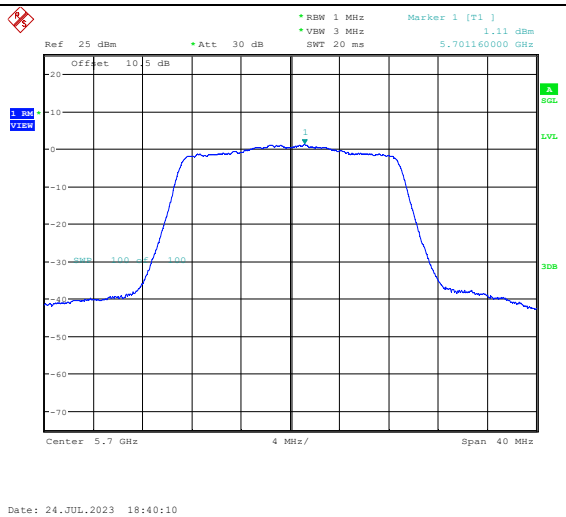
Maximum power spectral density	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

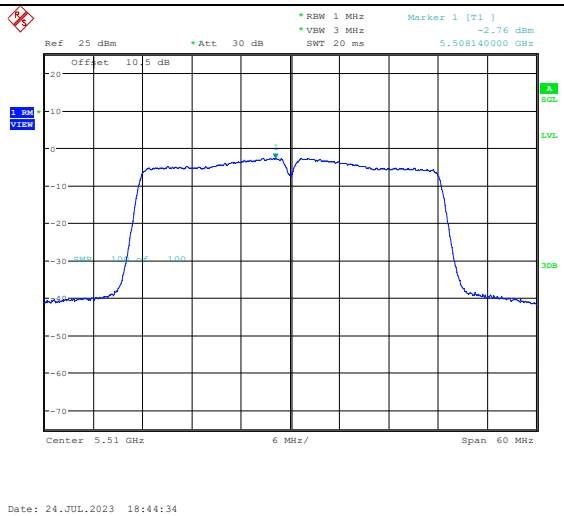
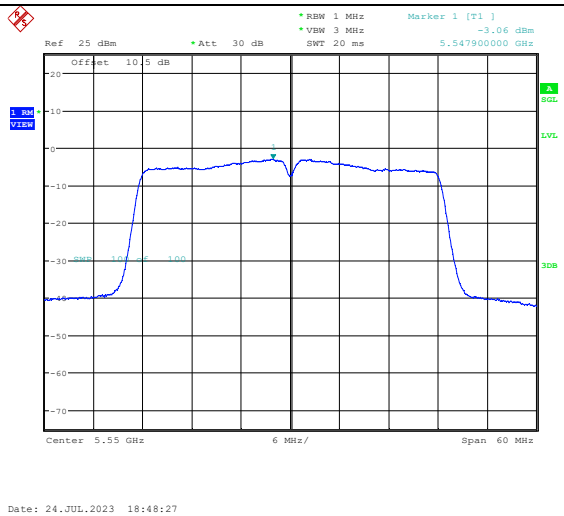
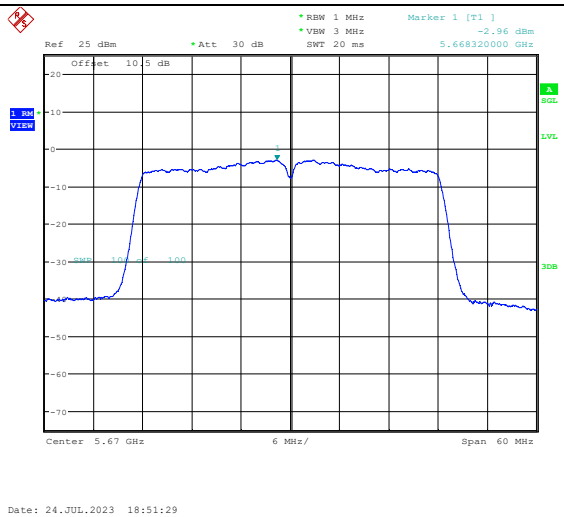
Maximum power spectral density	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

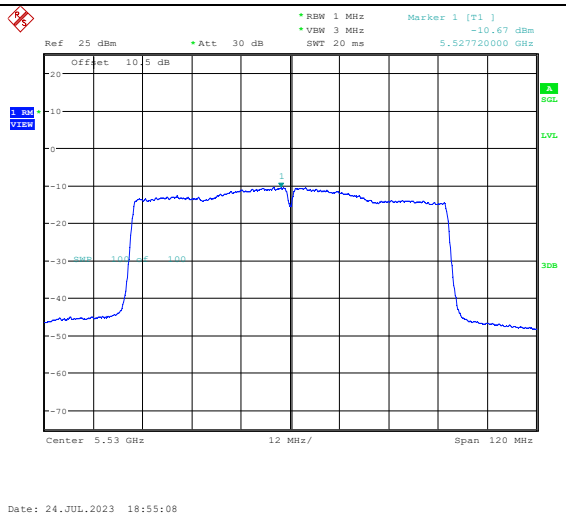
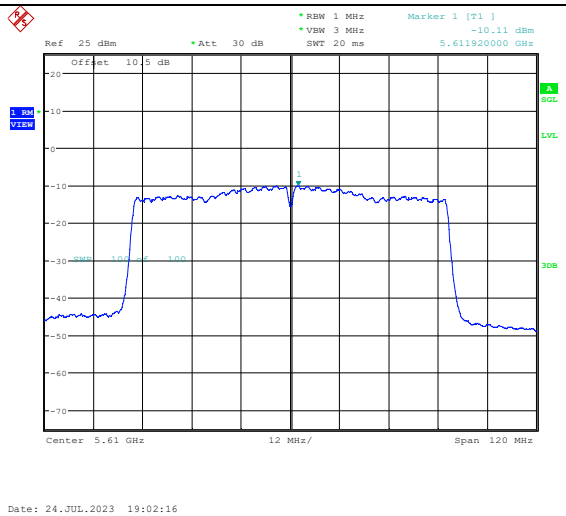
Maximum power spectral density	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

5470-5725MHz:

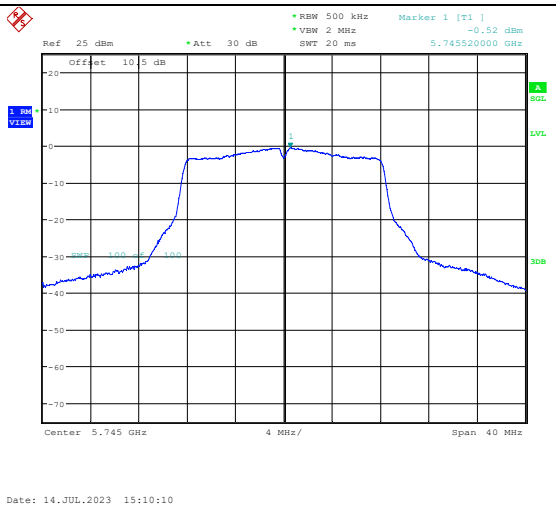
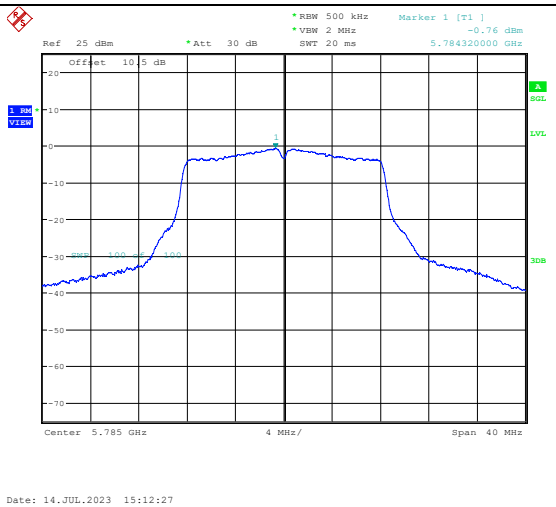
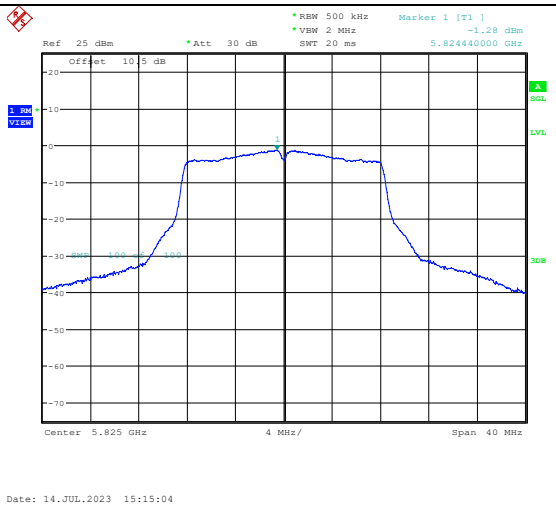
Maximum power spectral density	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

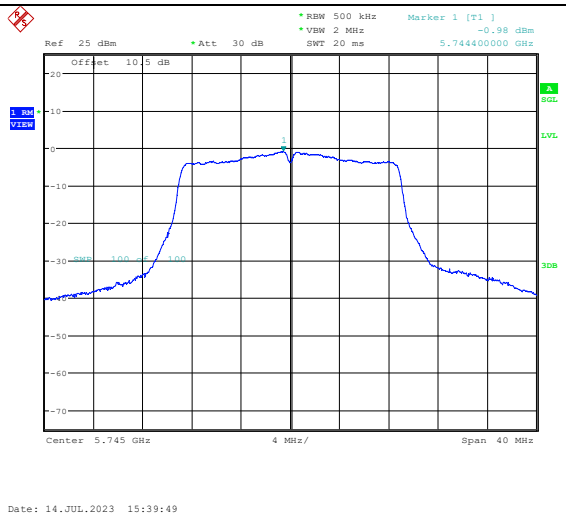
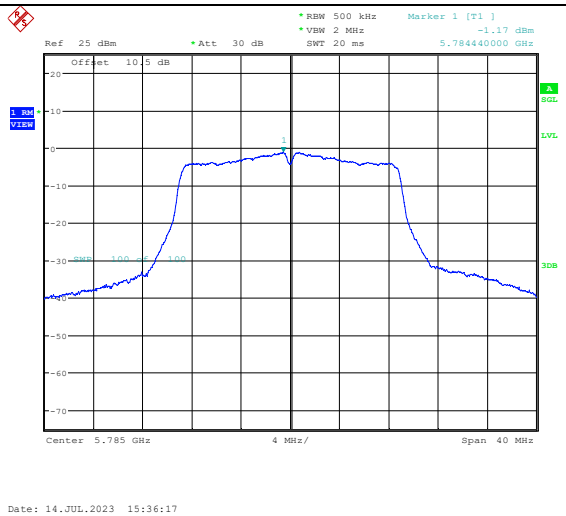
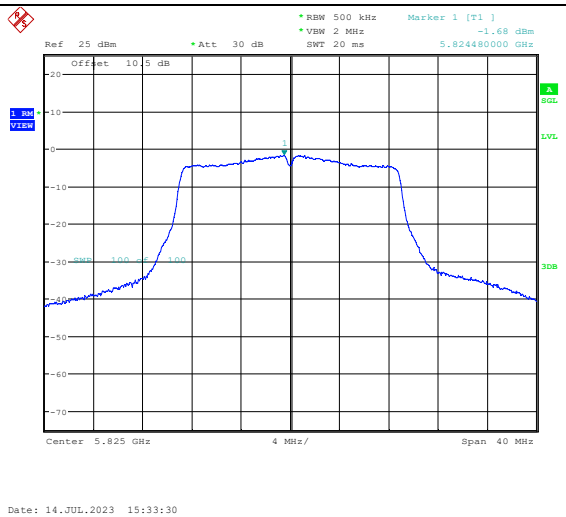
Maximum power spectral density	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

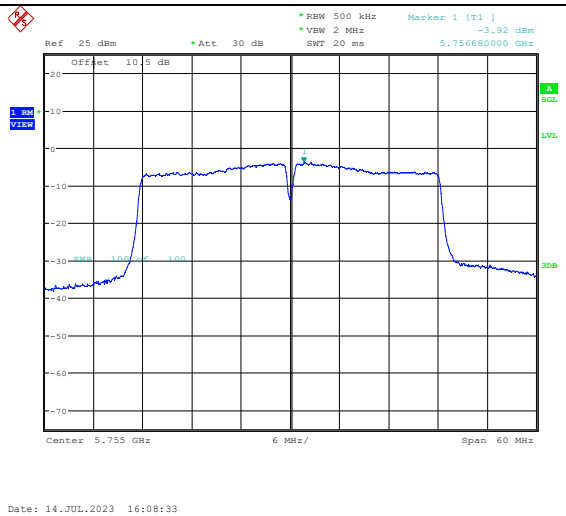
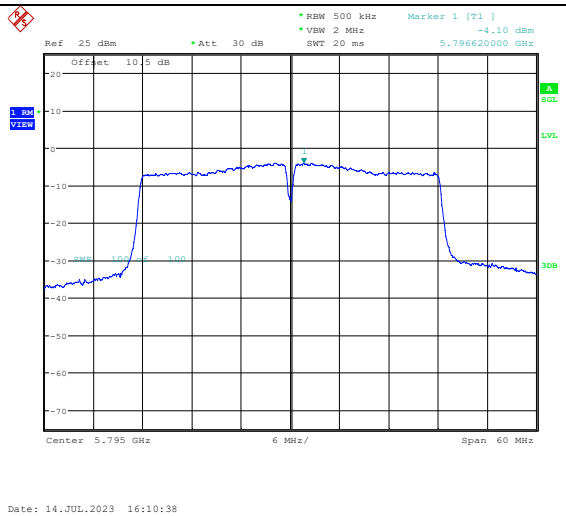
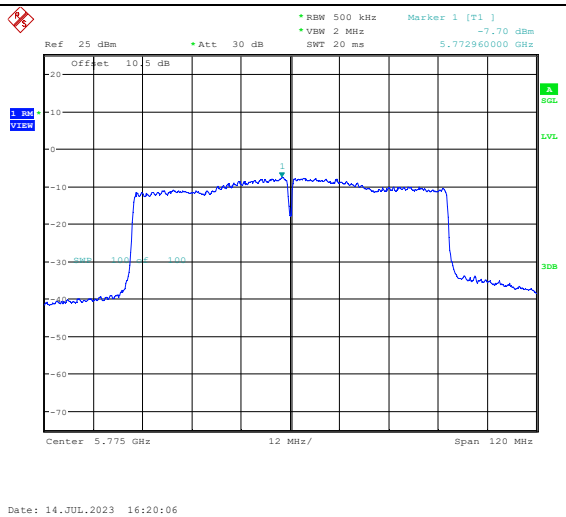
Maximum power spectral density	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Middle Channel	
802.11ac vht40 Highest Channel	

Maximum power spectral density	
802.11ac vht80 Lowest Channel	
802.11ac vht80 Highest Channel	

5725-5850MHz

Maximum power spectral density	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

Maximum power spectral density	
802.11ac vht20 Lowest Channel	
802.11ac vht20 Middle Channel	
802.11ac vht20 Highest Channel	

Maximum power spectral density	
802.11ac vht40 Lowest Channel	
802.11ac vht40 Highest Channel	
802.11ac vht80 Middle Channel	

4.6 Duty Cycle:

Serial Number:	27V5-1	Test Date:	2023/7/24
Test Site:	RF	Test Mode:	Transmitting
Tester:	Gary Ling	Test Result:	N/A

Environmental Conditions:					
Temperature: (℃)	23.8	Relative Humidity: (%)	54	ATM Pressure: (kPa)	100.5

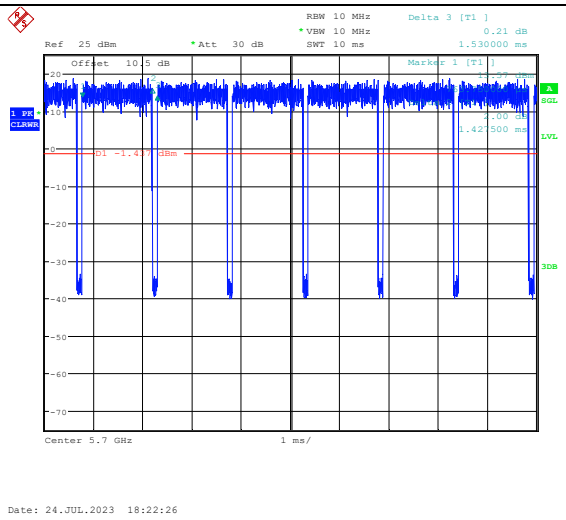
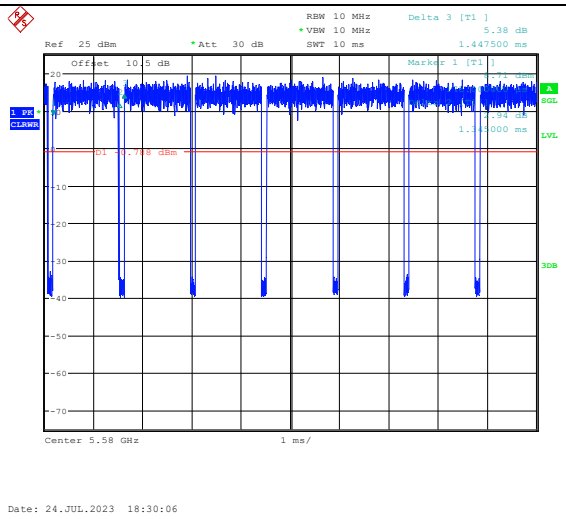
Test Equipment List and Details:

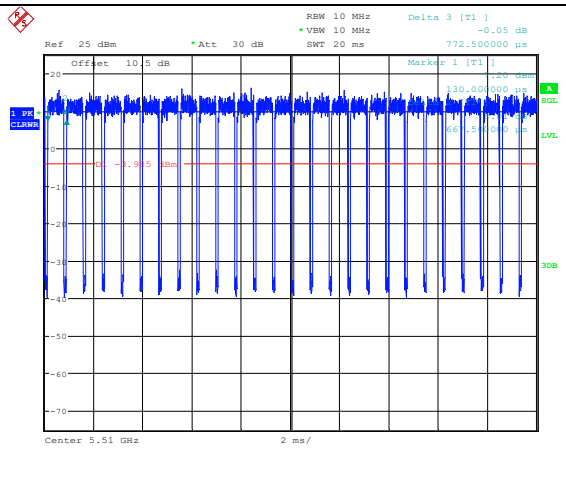
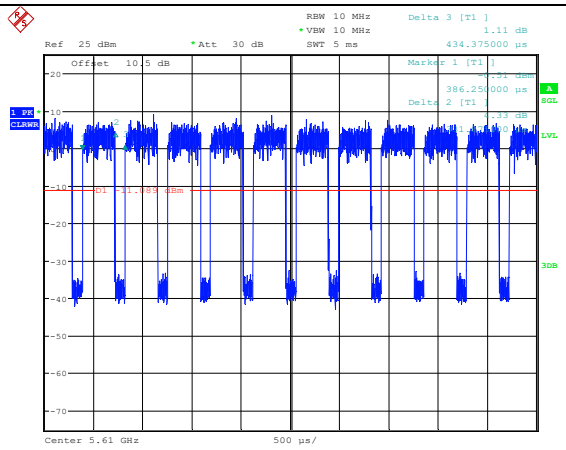
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	200445	2023/3/31	2024/3/30
zhuoxiang	Coaxial Cable	SMA-178	211002	Each time	N/A
eastsheep	Coaxial Attenuator	2W-SMA-JK-18G	21060302	Each time	N/A

** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Data:

Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	Duty Cycle Factor (dB)	1/T (Hz)	VBW Setting (kHz)
802.11a	1.4275	1.53	93.30	0.30	701	1
802.11ac vht20	1.345	1.4475	92.92	0.32	743	1
802.11ac vht40	0.6675	0.7725	86.41	0.63	1498	3
802.11ac vht80	0.3319	0.4344	76.40	1.17	3013	5

Duty Cycle	
802.11a	
Duty Cycle	
802.11ac vht20	

802.11ac vht40	
802.11ac vht80	

5. RF EXPOSURE EVALUATION

5.1 Simultaneous Transmission with both MPE-based

5.1.1 Applicable Standard

According to §1.1307(b)(3)(i)

(C) Or using Table 1 and the minimum separation distance (R in meters) from the body of a nearby person for the frequency (f in MHz) at which the source operates, the ERP (watts) is no more than the calculated value prescribed for that frequency. For the exemption in Table 1 to apply, R must be at least $\lambda/2\pi$, where λ is the free-space operating wavelength in meters. If the ERP of a single RF source is not easily obtained, then the available maximum time-averaged power may be used in lieu of ERP if the physical dimensions of the radiating structure(s) do not exceed the electrical length of $\lambda/4$ or if the antenna gain is less than that of a half-wave dipole (1.64 linear value).

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1 \qquad (1)$$

Where:

a = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(B) of this section for P_{th}, including existing exempt transmitters and those being added.

b = number of fixed, mobile, or portable RF sources claiming exemption using paragraph (b)(3)(i)(C) of this section for Threshold ERP, including existing exempt transmitters and those being added.

c = number of existing fixed, mobile, or portable RF sources with known evaluation for the specified minimum distance including existing evaluated transmitters.

P_i = the available maximum time-averaged power or the ERP, whichever is greater, for fixed, mobile, or portable RF source *i* at a distance between 0.5 cm and 40 cm (inclusive).

$P_{th,i}$ = the exemption threshold power (P_{th}) according to paragraph (b)(3)(i)(B) of this section for fixed, mobile, or portable RF source *i*.

ERP_j = the ERP of fixed, mobile, or portable RF source *j*.

$ERP_{th,j}$ = exemption threshold ERP for fixed, mobile, or portable RF source *j*, at a distance of at least $\lambda/2\pi$ according to the applicable formula of paragraph (b)(3)(i)(C) of this section.

$Evaluated_k$ = the maximum reported SAR or MPE of fixed, mobile, or portable RF source *k* either in the device or at the transmitter site from an existing evaluation at the location of exposure.

$Exposure\ Limit_k$ = either the general population/uncontrolled maximum permissible exposure (MPE) or specific absorption rate (SAR) limit for each fixed, mobile, or portable RF source *k*, as applicable from § 1.1310 of this chapter.

5.1.2 Measurement Result

Radio	Frequency (MHz)	λ /2 Π (mm)	Distance (mm)	Exemption ERP (mW)	Maximum Conducted Power including Tune-up Tolerance (dBm)	Antenna Gain (dBi)	ERP	
							dBm	mW
BDR/EDR	2402-2480	19.88	200	768	8.0	2.46	8.31	6.78
BLE	2402-2480	19.88	200	768	3.0	2.46	3.31	2.14
2.4G WLAN	2412-2462	19.80	200	768	21.5	2.46	21.81	151.71
5.2G WLAN	5180-5230	9.22	200	768	13.0	2.94	13.79	23.93
5.3G WLAN	5260-5320	9.08	200	768	13.5	2.94	14.29	26.85
5.6G WLAN	5500-5700	8.68	200	768	13.0	2.94	13.79	23.93
5.8G WLAN	5745-5825	8.31	200	768	12.5	2.94	13.29	21.33

Note:
The Maximum Conducted Power including Tune-up Tolerance was declared by manufacturer.
The BT, 2.4G WLAN and 5.2G WLAN can transmit simultaneously.

$$\sum_{i=1}^{a}\frac{P_i}{P_{\mathrm{th},i}}+\sum_{j=1}^{b}\frac{ERP_j}{ERP_{\mathrm{th},j}}+\sum_{k=1}^{c}\frac{Evaluated_k}{Exposure\ Limit_k}$$

$= P_{BT}/ P_{th} + P_{2.4G\ WLAN}/ P_{th} + P_{5.3G\ WLAN}/P_{th}$

$=6.78/768 + 151.71/768 + 26.85/768$

$=0.241$

< 1.0

Result: The device compliant the MPE-Based Exemption at 20cm distances.

6. EUT PHOTOGRAPHS

Please refer to the attachment CR230748428-EXP EUT EXTERNAL PHOTOGRAPHS and CR230748428-INP EUT INTERNAL PHOTOGRAPHS

7. TEST SETUP PHOTOGRAPHS

Please refer to the attachment CR230748428-00D-TSP TEST SETUP PHOTOGRAPHS.

===== END OF REPORT =====