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

ACCREDITED
TESTING LABORATORY
CERTIFICATE # 6356.01

TEST REPORT

Applicant: **Xunison Inc**

Address: 11720 Amber Park Dr. Suite 160 Atlanta, GA 30009 United States

FCC ID: **2BAT3D60**

Product Name: **Xunison Hub**

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

Report Number: **CR230205020-00C**

Date Of Issue: **2023/5/9**

Reviewed By: **Sun Zhong**

Sun Zhong

Title: Manager

Test Laboratory: **China Certification ICT Co., Ltd (Dongguan)**
No. 113, Pingkang Road, Dalang Town, Dongguan,
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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	CR230205020-00C	Original Report	2023/5/9

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

1.1.1 General:

EUT Name:	Xunison Hub
EUT Model:	D60 5G
Operation Frequency:	5180-5240 MHz (802.11a/n ht20/ac vht20/ax hew20) 5190-5230 MHz(802.11n ht40/ac vht40/ax hew40) 5210 MHz(802.11ac vht80/ax hew80) 5260-5320 MHz (802.11a/n ht20/ac vht20/ax hew20) 5270-5310 MHz(802.11n ht40/ac vht40/ax hew40) 5290 MHz(802.11ac vht80/ax hew80) 5250MHz(802.11ac vht160/ax hew160) 5500-5720 MHz (802.11a/n ht20/ac vht20/ax hew20) 5510-5710 MHz(802.11n ht40/ac vht40/ax hew40) 5530-5690 MHz(802.11ac vht80/ax hew80) 5570MHz(802.11ac vht160/ax hew160) 5745-5825 MHz (802.11a/n ht20/ac vht20/ax hew20) 5755-5795 MHz(802.11n ht40/ac vht40/ax hew40) 5775 MHz(802.11ac vht80/ax hew80)
Maximum Average Output Power (Conducted):	21.46 dBm (5150-5250 MHz) 19.82 dBm (5250-5350 MHz) 21.79 dBm (5470-5725 MHz) 22.58 dBm (5725-5850 MHz)
Modulation Type:	802.11a/n/ac:OFDM-BPSK, QPSK, 16QAM, 64QAM 802.11ax: OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Rated Input Voltage:	DC 12V from Adapter
Serial Number:	2OKI
EUT Received Date:	2023/2/10
EUT Received Status:	Good

1.1.2 Operation Frequency Detail:

For 802.11a/n ht20/ac vht20/ax hew20:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725MHz 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**	/	/
/	/	/	/	**144**	**5720**	/	/
Per section 15.31(m), the above in bold frequencies were performed the test.							

For 802.11n ht40/ac vht40/ax hew40:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725MHz 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**	/	/
/	/	/	/	**142**	**5710**	/	/
Per section 15.31(m), the above in bold frequencies were performed the test.							

For 802.11ac vht80/ax hew80:

5150-5250MHz Band		5250-5350 MHz Band		5470-5725MHz Band		5725-5850MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
42	**5210**	**58**	**5290**	**106**	**5530**	**155**	**5775**
/	/	/	/	**122**	**5610**	/	/
/	/	/	/	**138**	**5690**	/	/
Per section 15.31(m), the above in bold frequencies were performed the test.							

For 802.11ac vht160/ax hew160:

5150-5250MHz Band~5250-5350 MHz Band		5470-5725MHz Band	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
50	**5250**	**114**	**5570**
Per section 15.31(m), the above in bold frequencies were performed the test.			

Note: Additional channels cross the band 5470-5725MHz and 5725-5850 MHz, Conducted output power/ Power Spectral Density/bandwidth test with the additional channel to compliance with stricter limit of the two bands (5470-5725MHz more stricter).

1.1.3 Antenna Information Detail▲:

Antenna Chain	Manufacturer	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
5G Chain 0 (ANT 3)	Dongguan UB Electronic Co., Ltd	PCB	50	5150-5250MHz	3.88 dBi
				5250-5350MHz	2.94 dBi
				5470-5725MHz	4.62 dBi
				5725-5850 MHz	4.93 dBi
5G Chain 1 (ANT 4)				5150-5250MHz	2.86 dBi
				5250-5350MHz	2.46 dBi
				5470-5725MHz	4.11 dBi
				5725-5850 MHz	4.01 dBi
5G Chain 2 (ANT 5)				5150-5250MHz	**5.48 dBi**
				5250-5350MHz	**5.53 dBi**
				5470-5725MHz	**6.74 dBi**
				5725-5850 MHz	**6.64 dBi**
5G Chain 3 (ANT 6)				5150-5250MHz	4.18 dBi
				5250-5350MHz	4.38 dBi
				5470-5725MHz	5.43 dBi
				5725-5850 MHz	5.11dBi

The Method of §15.203 Compliance:

☒Antenna must be permanently attached to the unit.

☐Antenna must use a unique type of connector to attach to the EUT.

☐Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

1.1.4 Accessory Information:

Accessory Description	Manufacturer	Model
Adapter 1#	Shenzhen RuiDe Electronic Industrial Co., Ltd.	RD1202000-C55-154MG
Adapter 2#	SHENZHEN FUSHIGANG TECHNOLOGY CO.,LTD.	AS2406A-1202000US
Adapter 3#	SHENZHEN FUSHIGANG TECHNOLOGY CO.,LTD.	AS2406A-1202000DM
Note: only Adapter 2 was tested for this report since it is the worst per test for DTS report.		

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

For 802.11a/n/ac:

EUT Exercise Software:	EA1303C TEST.xtt

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			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11a	Lowest	5180	6Mbps	17	15.5	17	17
	Middle	5200	6Mbps	17	15.5	17	17
	Highest	5240	6Mbps	17	15.5	17	17
802.11n ht20	Lowest	5180	MCS0	18	16.5	18	18
	Middle	5200	MCS0	18	16.5	18	18
	Highest	5240	MCS0	18	16.5	18	18
802.11n ht40	Lowest	5190	MCS0	18	16.5	18	18
	Highest	5230	MCS0	18	16.5	18	18
802.11ac vht80	Middle	5210	MCS0	16	14	16	16

5250-5350 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11a	Lowest	5260	6Mbps	10.5	8.5	10.5	10.5
	Middle	5280	6Mbps	10.5	8.5	10.5	10.5
	Highest	5320	6Mbps	10.5	8.5	10.5	10.5
802.11n ht20	Lowest	5260	MCS0	11.5	8.5	11.5	11.5
	Middle	5280	MCS0	11.5	8.5	11.5	11.5
	Highest	5320	MCS0	11.5	8.5	11.5	11.5
802.11n ht40	Lowest	5270	MCS0	14	11	14	14
	Highest	5310	MCS0	14	11	14	14
802.11ac vht80	Middle	5290	MCS0	15	12	15	15

Cross Band 5150-5250 MHz&5250-5350 MHz Band:

802.11ac vht160	Middle	5250	MCS0	14	11	14	14

5470-5725 MHz Band:							
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting**			
				Chain 0	**Chain 1**	**Chain 2**	**Chain 3**
802.11a	Lowest	5500	6Mbps	12	10	11.5	12
	Middle	5580	6Mbps	11	9	11	11.5
	Highest	5700	6Mbps	10.5	8	10	11
	Cross	5720	6Mbps	10	8	10	11
802.11n ht20	Lowest	5500	MCS0	12	10.5	12	12
	Middle	5580	MCS0	11	9.5	12	12
	Highest	5700	MCS0	9	8	10	11
	Cross	5720	MCS0	9	8	11	11
802.11n ht40	Lowest	5510	MCS0	14	13	15	14.5
	Highest	5550	MCS0	14	12	15	14.5
	Highest	5670	MCS0	11.5	10	13	13
	Cross	5710	MCS0	11.5	10	13	13
802.11ac vht80	Lowest	5530	MCS0	18	16.5	18	18
	Middle	5610	MCS0	18	14.5	18	18
	Cross	5690	MCS0	18	14	18	18
802.11ac vht160	Middle	5570	MCS0	18	14	18	18
5725-5850 MHz Band:							
Test Modes	**Test Channels**	**Test Frequency (MHz)**	**Data rate**	**Power Level Setting**			
				Chain 0	**Chain 1**	**Chain 2**	**Chain 3**
802.11a	Lowest	5745	6Mbps	18	15	18	18
	Middle	5785	6Mbps	18	15	18	18
	Highest	5825	6Mbps	18	15	18	18
802.11n ht20	Lowest	5745	MCS0	16	15	18	18
	Middle	5785	MCS0	16	15	18	18
	Highest	5825	MCS0	16.5	15	18	18
802.11n ht40	Lowest	5755	MCS0	17	15	18	18
	Highest	5795	MCS0	17	15	18	18
802.11ac vht80	Middle	5775	MCS0	17	14	18	18

Note:
The system support 802.11a/n ht20/n ht40/ac vht20/vht40/ vht80/vht160, the vht20/vht40 were reduced since the identical parameters with 802.11n ht20 and ht40.
The device supports SISO and MIMO in all modes, per pretest, 4T4R mode was the worst mode and reported.
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.

For 802.11ax:

EUT Exercise Software:	WIFI_OFDMA_Test.xtt

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			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11ax hew20	Lowest	5180	MCS0	14	13	15.5	13.5
	Middle	5200	MCS0	14	13	15.5	13.5
	Highest	5240	MCS0	13.5	12.5	15	13.5
802.11ax hew40	Lowest	5190	MCS0	18	17	18	18
	Highest	5230	MCS0	18	17	18	18
802.11ax hew80	Middle	5210	MCS0	16	15	16	16

5250-5350 MHz Band:

Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11ax hew20	Lowest	5260	6Mbps	8	7.5	8	8
	Middle	5280	6Mbps	8	7	8	8
	Highest	5320	6Mbps	8	7	8	8
802.11ax hew40	Lowest	5270	MCS0	11.5	10	12	12
	Highest	5310	MCS0	11	9	12	11
802.11ax hew80	Middle	5290	MCS0	12.5	10.5	12.5	12.5

Cross Band 5150-5250 MHz&5250-5350 MHz Band:

802.11ax hew160	Middle	5250	MCS0	11	10	12	12

5470-5725 MHz Band:							
Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11ax hew20	Lowest	5500	6Mbps	8	6	8	8.5
	Middle	5580	6Mbps	8.5	6	8.5	9
	Highest	5700	6Mbps	9	7	8	8
	Cross	5720	6Mbps	9.5	7.5	8.5	8
802.11ax hew40	Lowest	5510	MCS0	11	10	12	12
	Highest	5550	MCS0	12	10.5	12	12
	Highest	5670	MCS0	10	8	11	10.5
	Cross	5710	MCS0	10	8	10.5	10.5
802.11ax hew80	Lowest	5530	MCS0	13.5	10.5	13.5	13
	Middle	5610	MCS0	13.5	10.5	13.5	12.5
	Cross	5690	MCS0	11.5	9	11.5	11.5
802.11ax hew160	Middle	5570	MCS0	12.5	9.5	11.5	11.5
5725-5850 MHz Band:							
Test Modes	Test Channels	Test Frequency (MHz)	Data rate	Power Level Setting			
				Chain 0	Chain 1	Chain 2	Chain 3
802.11ax hew20	Lowest	5745	6Mbps	18	18	18	18
	Middle	5785	6Mbps	19	19	19	19
	Highest	5825	6Mbps	19	19	19	19
802.11ax hew40	Lowest	5755	MCS0	18	18	18	18
	Highest	5795	MCS0	19	19	19	19
802.11ax hew80	Middle	5775	MCS0	18	18	18	18

Note:
The device supports SISO and MIMO in all modes, per pretest, 4T4R mode was the worst mode and reported.
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.
All different Tone and RU index configurations was pretested, because of the power output was approximate, only the minimum and maximum RU configurations was reported.

1.2.2 Support Equipment List and Details

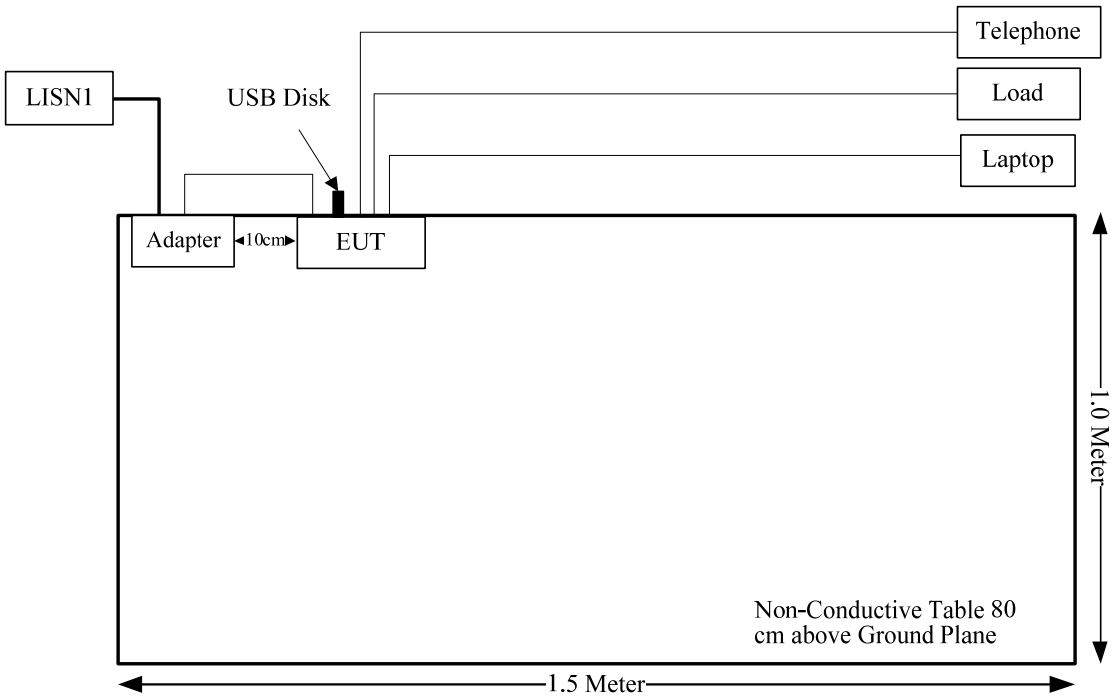
Manufacturer	Description	Model	Serial Number
Lenovo	Laptop	T460S	60PDTEK8
Unknown	Load	Load-1	Load-1
HP	USB Disk	HPFD206W-32	PAA6902271
VICTORIA	Telephone	VICTORIA-2011	EMZBPH21103002

1.2.3 Support Cable List and Details

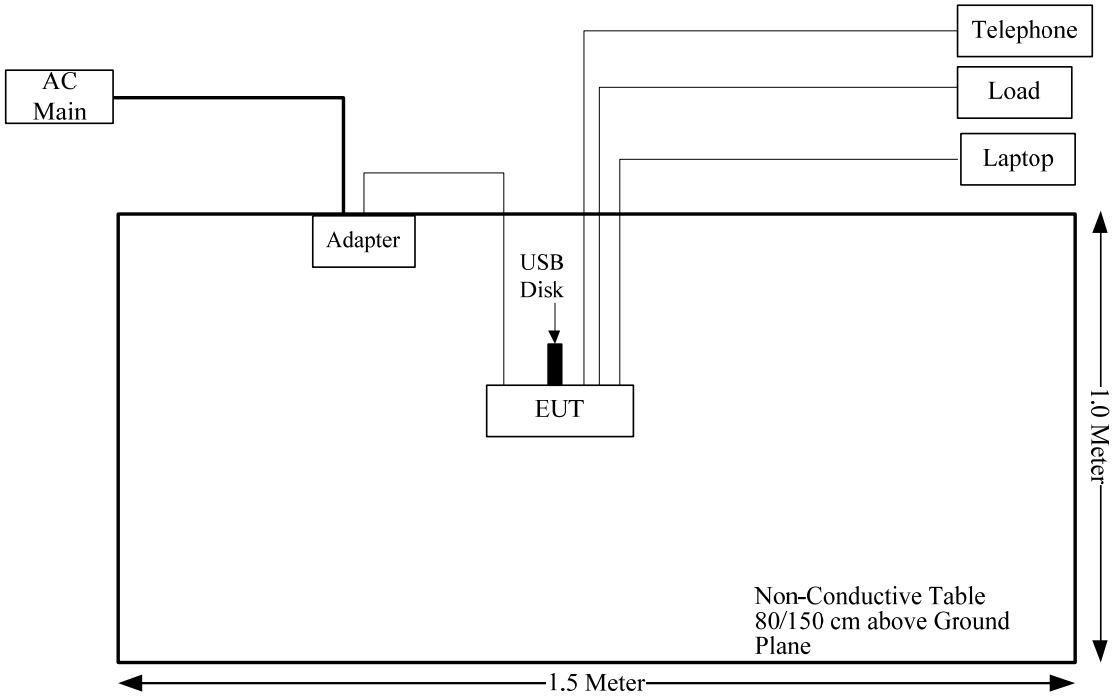
Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
RJ45 Cable	Yes	No	5	EUT	Laptop
RJ45 Cable	Yes	No	5	EUT	Load
DC Cable	No	No	1.2	Adapter	EUT
RJ11 Cable	No	No	10	Telephone	EUT

1.2.4 Block Diagram of Test Setup

AC line conducted emissions:



Spurious Emissions:



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
FCC§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)	Conducted Transmitter Output Power	Compliant
FCC§15.407 (a)	Power Spectral Density	Compliant
FCC§15.203	Antenna Requirement	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:

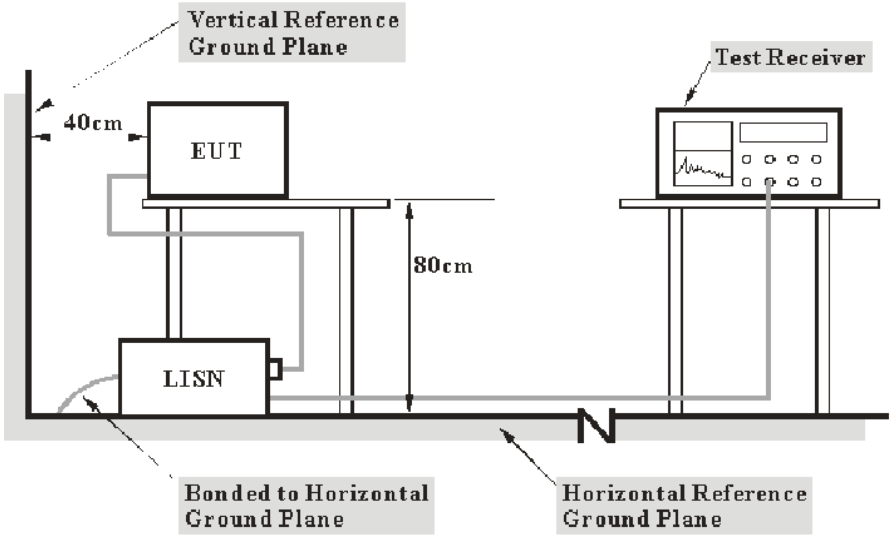
(1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.

(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

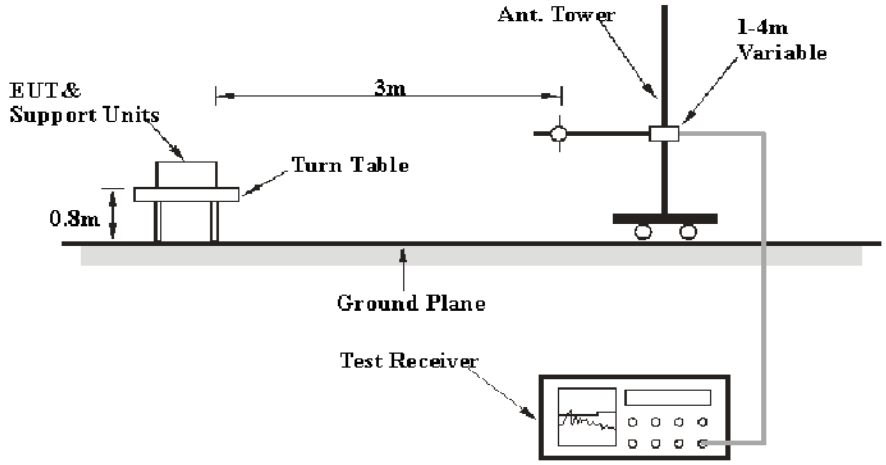
3.2.1 Applicable Standard

FCC §15.407 (b);

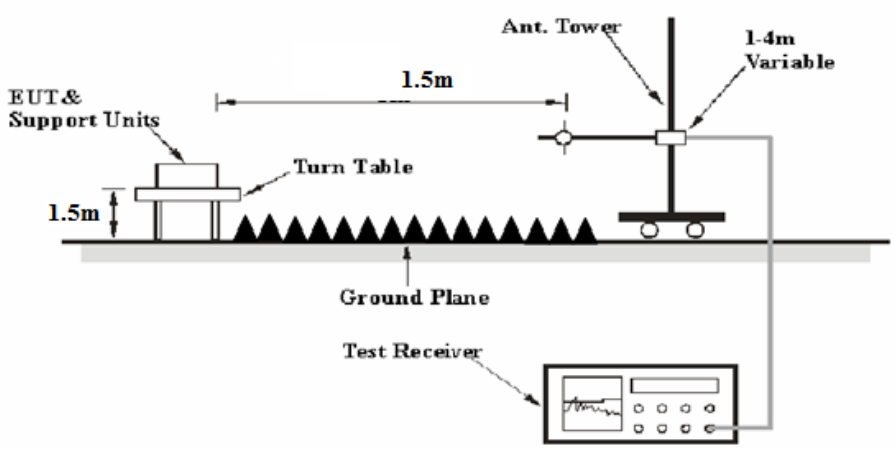
Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:
(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 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)

(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.

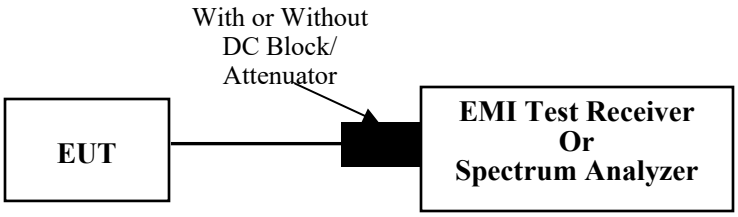
FCC §15.407 (e)

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.

FCC §15.407 (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.

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

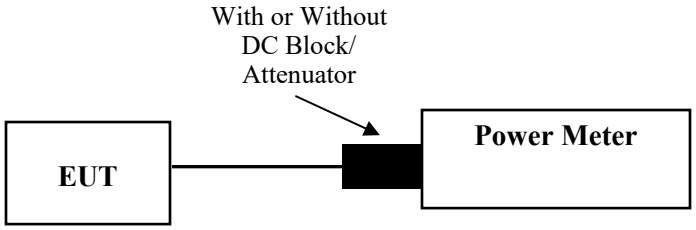
FCC §15.407(a) (1)

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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 12.3.3.2

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

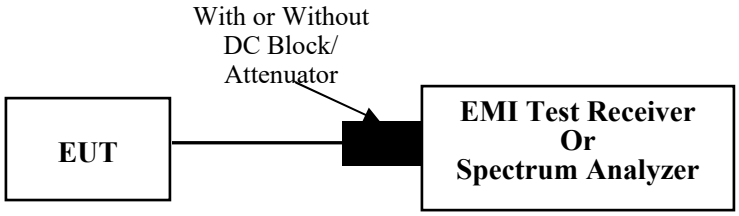
FCC §15.407(a) (1)

(ii) For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 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 **Alternative** should be applied.

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

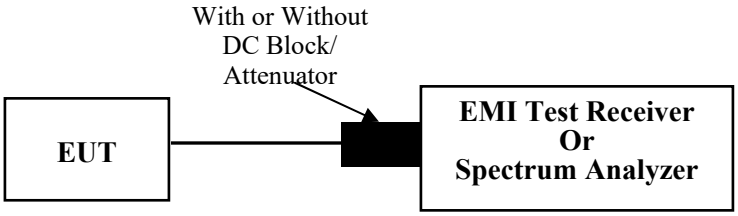
KDB 789033 D02 General UNII Test Procedures New Rules v02r01 Method SA-2 **Alternative** should be applied.

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:	2OKI	Test Date:	2023/05/04
Test Site:	CE	Test Mode:	Transmitting (802.11a 4Tx 5875MHz was the worst)
Tester:	David Huang	Test Result:	Pass

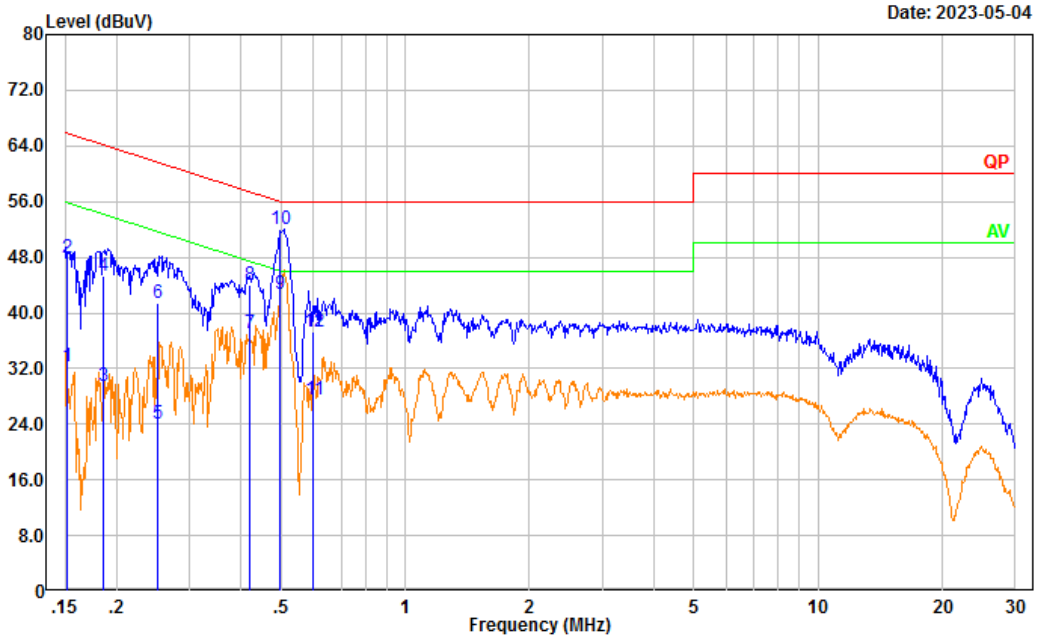
Environmental Conditions:					
Temperature: (℃)	25.3	Relative Humidity: (%)	70	ATM Pressure: (kPa)	101.3

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	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UTIFLEX	C-0200-01	2022/08/07	2023/08/06
Audix	Test Software	E3	190306 (V9)	N/A	N/A

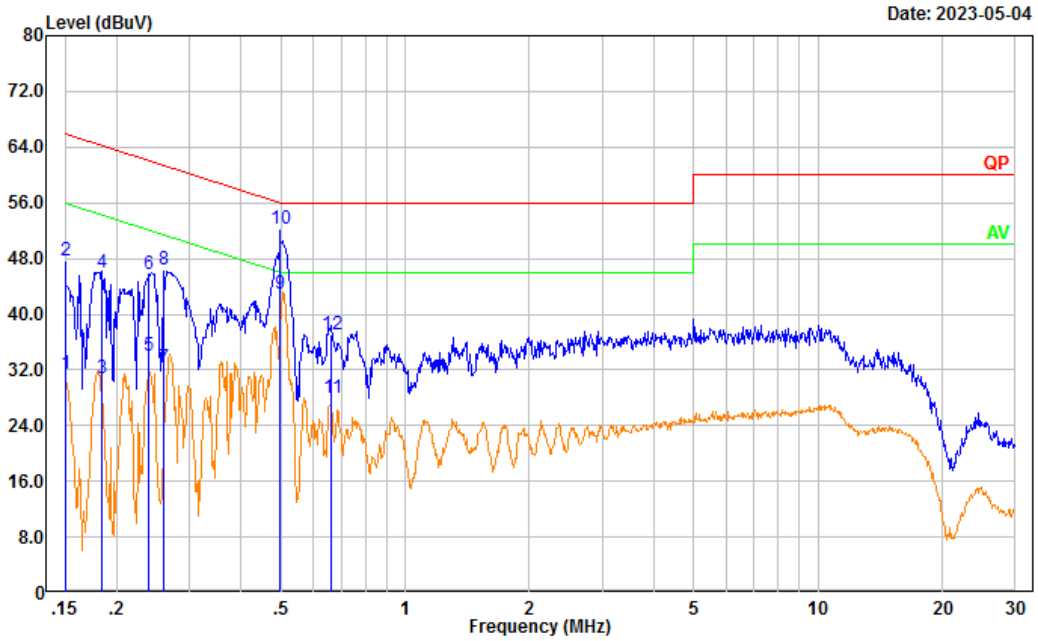
** Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).*

Test Mode: Transmitting
Port: Line
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB)	Result (dBµV)	Limit (dBµV)	Margin (dB)	Detector
1	0.151	22.74	9.61	32.35	55.92	23.57	Average
2	0.151	38.20	9.61	47.81	65.92	18.11	QP
3	0.185	19.87	9.61	29.48	54.24	24.76	Average
4	0.185	35.69	9.61	45.30	64.24	18.94	QP
5	0.252	14.42	9.61	24.03	51.68	27.65	Average
6	0.252	31.74	9.61	41.35	61.68	20.33	QP
7	0.420	27.38	9.61	36.99	47.45	10.46	Average
8	0.420	34.43	9.61	44.04	57.45	13.41	QP
9	0.496	33.15	9.61	42.76	46.06	3.30	Average
10	0.496	42.51	9.61	52.12	56.06	3.94	QP
11	0.599	17.88	9.62	27.50	46.00	18.50	Average
12	0.599	27.74	9.62	37.36	56.00	18.64	QP

Test Mode: Transmitting
Port: neutral
Note:



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB)	Result (dBμV)	Limit (dBμV)	Margin (dB)	Detector
1	0.151	21.80	9.61	31.41	55.94	24.53	Average
2	0.151	38.11	9.61	47.72	65.94	18.22	QP
3	0.184	21.17	9.61	30.78	54.32	23.54	Average
4	0.184	36.27	9.61	45.88	64.32	18.44	QP
5	0.238	24.44	9.61	34.05	52.15	18.10	Average
6	0.238	36.21	9.61	45.82	62.15	16.33	QP
7	0.259	22.74	9.61	32.35	51.46	19.11	Average
8	0.259	36.83	9.61	46.44	61.46	15.02	QP
9	0.496	33.38	9.61	42.99	46.07	3.08	Average
10	0.496	42.72	9.61	52.33	56.07	3.74	QP
11	0.664	18.43	9.62	28.05	46.00	17.95	Average
12	0.664	27.54	9.62	37.16	56.00	18.84	QP

4.2 Radiation Spurious Emissions

Serial Number:	2OKI	Test Date:	2023/03/16~2023/03/21
Test Site:	966-1,966-2	Test Mode:	Transmitting
Tester:	Mack Huang, Carl Xue	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	24.9~25.8	Relative Humidity: (%)	51~61	ATM Pressure: (kPa)	100.6~101.2

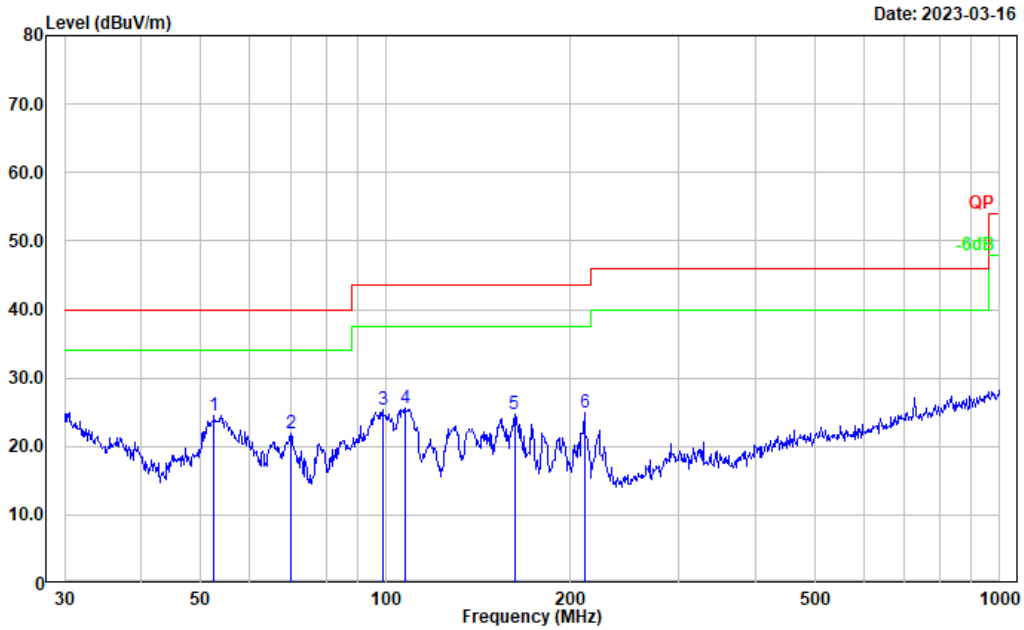
Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB6	A082520-5	2020/10/19	2023/10/18
R&S	EMI Test Receiver	ESR3	102724	2022/07/15	2023/07/14
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0470-02	2022/07/17	2023/07/16
TIMES MICROWAVE	Coaxial Cable	LMR-600-UltraFlex	C-0780-01	2022/07/17	2023/07/16
Sonoma	Amplifier	310N	186165	2022/07/17	2023/07/16
ETS-Lindgren	Horn Antenna	3115	9912-5985	2020/10/13	2023/10/12
R&S	Spectrum Analyzer	FSV40	101591	2022/07/15	2023/07/14
MICRO-COAX	Coaxial Cable	UFA210A-1-1200-70U300	217423-008	2022/08/07	2023/08/06
MICRO-COAX	Coaxial Cable	UFA210A-1-2362-300300	235780-001	2022/08/07	2023/08/06
Mini	Pre-amplifier	ZVA-183-S+	5969001149	2022/11/09	2023/11/08
Audix	Test Software	E3	201021 (V9)	N/A	N/A
PASTERNACK	Horn Antenna	PE9852/2F-20	112002	2021/02/05	2024/02/04
AH	Preamplifier	PAM-1840VH	190	2022/11/09	2023/11/08
MICRO-COAX	Coaxial Cable	UFB142A-1-2362-200200	235772-001	2022/08/07	2023/08/06
E-Microwave	Band Rejection Filter	5150-5850MHz	OE01902423	2022/08/07	2023/08/06
Mini Circuits	High Pass Filter	VHF-6010+	31119	2022/08/07	2023/08/06
PASTERNACK	Horn Antenna	PE9850/2F-20	072001	2021/02/05	2024/02/04

** 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).*

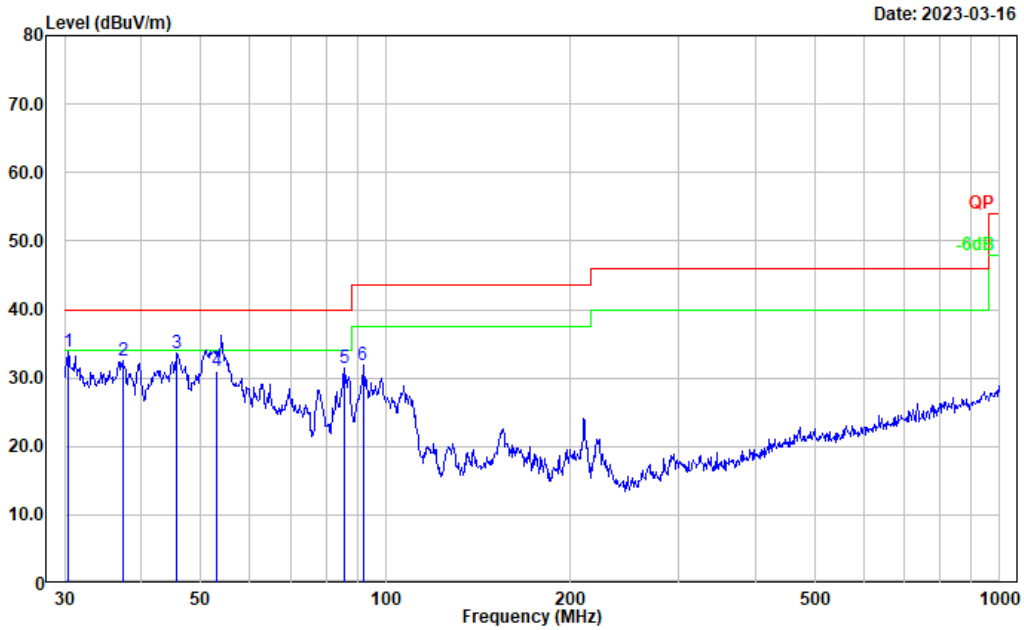
1) 30MHz-1GHz(802.11a 4Tx 5745 MHz was the worst)

Test Mode: transmitting
Polarization: horizontal
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	52.575	41.74	-17.22	24.52	40.00	15.48	Peak
2	70.090	38.36	-16.47	21.89	40.00	18.11	Peak
3	98.833	39.95	-14.59	25.36	43.50	18.14	Peak
4	107.510	38.36	-12.80	25.56	43.50	17.94	Peak
5	162.041	37.00	-12.25	24.75	43.50	18.75	Peak
6	210.786	37.47	-12.49	24.98	43.50	18.52	Peak

Test Mode: transmitting
Polarization: vertical
Note:



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector
1	30.424	37.79	-3.93	33.86	40.00	6.14	Peak
2	37.285	41.70	-9.22	32.48	40.00	7.52	Peak
3	45.535	48.14	-14.55	33.59	40.00	6.41	Peak
4	53.183	48.23	-17.24	30.99	40.00	9.01	QP
5	85.598	48.66	-17.15	31.51	40.00	8.49	Peak
6	91.816	48.46	-16.50	31.96	43.50	11.54	Peak

2) 1GHz-40GHz(4Tx was the worst):
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: 5180MHz							
5150.000	31.89	PK	V	38.64	64.51	74.00	9.49
5150.000	17.77	AV	V	38.64	50.39	54.00	3.61
10360.000	47.23	PK	V	19.18	60.39	68.20	7.81
15540.000	35.78	PK	V	22.44	52.20	74.00	21.80
15540.000	23.39	AV	V	22.44	39.81	54.00	14.19
Middle Channel: 5200 MHz							
10400.000	46.12	PK	V	19.16	59.26	68.20	8.94
15600.000	36.58	PK	V	22.41	52.97	74.00	21.03
15600.000	24.29	AV	V	22.41	40.68	54.00	13.32
High Channel: 5240 MHz							
5350.000	28.45	PK	V	39.03	61.46	74.00	12.54
5350.000	14.23	AV	V	39.03	47.24	54.00	6.76
10480.000	46.74	PK	V	18.86	59.58	68.20	8.62
15720.000	36.24	PK	V	22.28	52.50	74.00	21.50
15720.000	24.12	AV	V	22.28	40.38	54.00	13.62

802.11n ht20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5180MHz							
5150.000	31.58	PK	V	38.64	64.20	74.00	9.80
5150.000	17.14	AV	V	38.64	49.76	54.00	4.24
10360.000	46.24	PK	V	19.18	59.40	68.20	8.80
15540.000	35.13	PK	V	22.44	51.55	74.00	22.45
15540.000	23.07	AV	V	22.44	39.49	54.00	14.51
Middle Channel: 5200 MHz							
10400.000	46.89	PK	V	19.16	60.03	68.20	8.17
15600.000	36.28	PK	V	22.41	52.67	74.00	21.33
15600.000	24.14	AV	V	22.41	40.53	54.00	13.47
High Channel: 5240 MHz							
5350.000	27.45	PK	V	39.03	60.46	74.00	13.54
5350.000	13.74	AV	V	39.03	46.75	54.00	7.25
10480.000	47.77	PK	V	18.86	60.61	68.20	7.59
15720.000	37.46	PK	V	22.28	53.72	74.00	20.28
15720.000	25.23	AV	V	22.28	41.49	54.00	12.51

802.11ax hew20(maximum RU configurations was the worst)**:**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5180MHz							
5150.000	31.79	PK	V	38.64	64.41	74.00	9.59
5150.000	18.33	AV	V	38.64	50.95	54.00	3.05
10360.000	46.65	PK	V	19.18	59.81	68.20	8.39
15540.000	35.12	PK	V	22.44	51.54	74.00	22.46
15540.000	23.06	AV	V	22.44	39.48	54.00	14.52
Middle Channel: 5200 MHz							
10400.000	46.59	PK	V	19.16	59.73	68.20	8.47
15600.000	36.28	PK	V	22.41	52.67	74.00	21.33
15600.000	24.14	AV	V	22.41	40.53	54.00	13.47
High Channel: 5240 MHz							
5350.000	28.04	PK	V	39.03	61.05	74.00	12.95
5350.000	13.46	AV	V	39.03	46.47	54.00	7.53
10480.000	46.66	PK	V	18.86	59.50	68.20	8.70
15720.000	37.46	PK	V	22.28	53.72	74.00	20.28
15720.000	25.23	AV	V	22.28	41.49	54.00	12.51

802.11n ht40:

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	34.59	PK	V	38.64	67.21	74.00	6.79
5150.000	18.17	AV	V	38.64	50.79	54.00	3.21
10380.000	46.33	PK	V	19.17	59.48	68.20	8.72
15570.000	36.38	PK	V	22.43	52.79	74.00	21.21
15570.000	24.19	AV	V	22.43	40.60	54.00	13.40
High Channel: 5230 MHz							
5350.000	28.39	PK	V	39.03	61.40	74.00	12.60
5350.000	12.78	AV	V	39.03	45.79	54.00	8.21
10460.000	46.44	PK	V	18.94	59.36	68.20	8.84
15690.000	37.78	PK	V	22.29	54.05	74.00	19.95
15690.000	25.39	AV	V	22.29	41.66	54.00	12.34

802.11ax hew40(maximum RU configurations was the worst**):**

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	34.78	PK	V	38.64	67.40	74.00	6.60
5150.000	18.12	AV	V	38.64	50.74	54.00	3.26
10380.000	46.52	PK	V	19.17	59.67	68.20	8.53
15570.000	36.48	PK	V	22.43	52.89	74.00	21.11
15570.000	24.24	AV	V	22.43	40.65	54.00	13.35
High Channel: 5230 MHz							
5350.000	28.46	PK	V	39.03	61.47	74.00	12.53
5350.000	13.74	AV	V	39.03	46.75	54.00	7.25
10460.000	46.85	PK	V	18.94	59.77	68.20	8.43
15690.000	37.42	PK	V	22.29	53.69	74.00	20.31
15690.000	25.21	AV	V	22.29	41.48	54.00	12.52

802.11ac vht80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	32.12	PK	V	38.64	64.74	74.00	9.26
5150.000	17.87	AV	V	38.64	50.49	54.00	3.51
5350.000	28.43	PK	V	39.03	61.44	74.00	12.56
5350.000	13.98	AV	V	39.03	46.99	54.00	7.01
10420.000	46.22	PK	V	19.09	59.29	68.20	8.91
15630.000	36.84	PK	V	22.37	53.19	74.00	20.81
15630.000	24.42	AV	V	22.37	40.77	54.00	13.23

802.11ax hew80(maximum RU configurations was the worst**):**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	32.46	PK	V	38.64	65.08	74.00	8.92
5150.000	17.29	AV	V	38.64	49.91	54.00	4.09
5350.000	27.89	PK	V	39.03	60.90	74.00	13.10
5350.000	14.11	AV	V	39.03	47.12	54.00	6.88
10420.000	46.75	PK	V	19.09	59.82	68.20	8.38
15630.000	37.12	PK	V	22.37	53.47	74.00	20.53
15630.000	25.06	AV	V	22.37	41.41	54.00	12.59

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: 5260MHz							
5150.000	32.12	PK	V	38.64	64.74	74.00	9.26
5150.000	17.85	AV	V	38.64	50.47	54.00	3.53
10520.000	48.07	PK	V	18.93	60.98	68.20	7.22
15780.000	36.66	PK	V	22.26	52.90	74.00	21.10
15780.000	24.33	AV	V	22.26	40.57	54.00	13.43
Middle Channel: 5280 MHz							
10560.000	48.16	PK	V	19.20	61.34	68.20	6.86
15840.000	37.24	PK	V	22.34	53.56	74.00	20.44
15840.000	25.12	AV	V	22.34	41.44	54.00	12.56
High Channel: 5320 MHz							
5350.000	32.89	PK	V	39.03	65.90	74.00	8.10
5350.000	17.63	AV	V	39.03	50.64	54.00	3.36
10640.000	47.37	PK	V	19.50	60.85	74.00	13.15
10640.000	34.56	AV	V	19.50	48.04	54.00	5.96
15960.000	37.12	PK	V	22.22	53.32	74.00	20.68
15960.000	25.06	AV	V	22.22	41.26	54.00	12.74

802.11n ht20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5260MHz							
5150.000	31.48	PK	V	38.64	64.10	74.00	9.90
5150.000	17.44	AV	V	38.64	50.06	54.00	3.94
10520.000	47.58	PK	V	18.93	60.49	68.20	7.71
15780.000	36.24	PK	V	22.26	52.48	74.00	21.52
15780.000	24.12	AV	V	22.26	40.36	54.00	13.64
Middle Channel: 5280 MHz							
10560.000	48.23	PK	V	19.20	61.41	68.20	6.79
15840.000	37.46	PK	V	22.34	53.78	74.00	20.22
15840.000	25.23	AV	V	22.34	41.55	54.00	12.45
High Channel: 5320 MHz							
5350.000	30.46	PK	V	39.03	63.47	74.00	10.53
5350.000	16.37	AV	V	39.03	49.38	54.00	4.62
10640.000	47.69	PK	V	19.50	61.17	74.00	12.83
10640.000	34.58	AV	V	19.50	48.06	54.00	5.94
15960.000	37.11	PK	V	22.22	53.31	74.00	20.69
15960.000	25.06	AV	V	22.22	41.26	54.00	12.74

802.11ax hew20(maximum RU configurations was the worst**):**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5260MHz							
5150.000	29.46	PK	V	38.64	62.08	74.00	11.92
5150.000	15.34	AV	V	38.64	47.96	54.00	6.04
10520.000	47.58	PK	V	18.93	60.49	68.20	7.71
15780.000	37.34	PK	V	22.26	53.58	74.00	20.42
15780.000	25.17	AV	V	22.26	41.41	54.00	12.59
Middle Channel: 5280 MHz							
10560.000	47.49	PK	V	19.20	60.67	68.20	7.53
15840.000	36.48	PK	V	22.34	52.80	74.00	21.20
15840.000	24.24	AV	V	22.34	40.56	54.00	13.44
High Channel: 5320 MHz							
5350.000	38.31	PK	V	39.03	71.32	74.00	2.68
5350.000	18.46	AV	V	39.03	51.47	54.00	2.53
10640.000	48.19	PK	V	19.50	61.67	74.00	12.33
10640.000	35.18	AV	V	19.50	48.66	54.00	5.34
15960.000	37.15	PK	V	22.22	53.35	74.00	20.65
15960.000	25.08	AV	V	22.22	41.28	54.00	12.72

802.11n ht40:

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	30.78	PK	V	38.64	63.40	74.00	10.60
5150.000	17.43	AV	V	38.64	50.05	54.00	3.95
10540.000	47.59	PK	V	19.07	60.64	68.20	7.56
15810.000	37.42	PK	V	22.28	53.68	74.00	20.32
15810.000	25.21	AV	V	22.28	41.47	54.00	12.53
High Channel: 5310 MHz							
5350.000	33.46	PK	V	39.03	66.47	74.00	7.53
5350.000	16.45	AV	V	39.03	49.46	54.00	4.54
10620.000	48.35	PK	V	19.49	61.82	74.00	12.18
10620.000	35.18	AV	V	19.49	48.65	54.00	5.35
15930.000	37.42	PK	V	22.33	53.73	74.00	20.27
15930.000	25.21	AV	V	22.33	41.52	54.00	12.48

802.11ax hew40(maximum RU configurations was the worst)**:**

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	29.47	PK	V	38.64	62.09	74.00	11.91
5150.000	16.58	AV	V	38.64	49.20	54.00	4.80
10540.000	47.24	PK	V	19.07	60.29	68.20	7.91
15810.000	36.58	PK	V	22.28	52.84	74.00	21.16
15810.000	24.29	AV	V	22.28	40.55	54.00	13.45
High Channel: 5310 MHz							
5350.000	38.44	PK	V	39.03	71.45	74.00	2.55
5350.000	18.56	AV	V	39.03	51.57	54.00	2.43
10620.000	48.77	PK	V	19.49	62.24	74.00	11.76
10620.000	35.18	AV	V	19.49	48.65	54.00	5.35
15930.000	37.46	PK	V	22.33	53.77	74.00	20.23
15930.000	25.23	AV	V	22.33	41.54	54.00	12.46

802.11ac vht80:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	29.89	PK	V	38.64	62.51	74.00	11.49
5150.000	16.57	AV	V	38.64	49.19	54.00	4.81
5350.000	37.56	PK	V	39.03	70.57	74.00	3.43
5350.000	19.47	AV	V	39.03	52.48	54.00	1.52
10580.000	46.62	PK	V	19.34	59.94	68.20	8.26
15870.000	37.46	PK	V	22.39	53.83	74.00	20.17
15870.000	25.23	AV	V	22.39	41.60	54.00	12.40

802.11ax hew80(maximum RU configurations was the worst)**:**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	30.12	PK	V	38.64	62.74	74.00	11.26
5150.000	16.79	AV	V	38.64	49.41	54.00	4.59
5350.000	38.24	PK	V	39.03	71.25	74.00	2.75
5350.000	18.39	AV	V	39.03	51.40	54.00	2.60
10580.000	47.67	PK	V	19.34	60.99	68.20	7.21
15870.000	36.68	PK	V	22.39	53.05	74.00	20.95
15870.000	24.34	AV	V	22.39	40.71	54.00	13.29

802.11ac vht160:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	32.13	PK	V	38.64	64.75	74.00	9.25
5150.000	17.58	AV	V	38.64	50.20	54.00	3.80
5350.000	34.75	PK	V	39.03	67.76	74.00	6.24
5350.000	18.69	AV	V	39.03	51.70	54.00	2.30
10500.000	46.47	PK	V	18.79	59.24	68.20	8.96
15750.000	36.58	PK	V	22.27	52.83	74.00	21.17
15750.000	24.29	AV	V	22.27	40.54	54.00	13.46

802.11ax hew160(maximum RU configurations was the worst**):**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5150.000	31.12	PK	V	38.64	63.74	74.00	10.26
5150.000	17.74	AV	V	38.64	50.36	54.00	3.64
5350.000	35.78	PK	V	39.03	68.79	74.00	5.21
5350.000	18.46	AV	V	39.03	51.47	54.00	2.53
10500.000	47.61	PK	V	18.79	60.38	68.20	7.82
15750.000	37.32	PK	V	22.27	53.57	74.00	20.43
15750.000	25.16	AV	V	22.27	41.41	54.00	12.59

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: 5500MHz							
5470.000	28.78	PK	V	39.27	62.03	68.20	6.17
11000.000	46.45	PK	V	19.83	60.26	74.00	13.74
11000.000	33.23	AV	V	19.83	47.04	54.00	6.96
16500.000	35.01	PK	V	22.73	51.72	68.20	16.48
Middle Channel: 5580 MHz							
11160.000	46.39	PK	V	19.97	60.34	74.00	13.66
11160.000	33.20	AV	V	19.97	47.15	54.00	6.85
16740.000	34.56	PK	V	23.68	52.22	68.20	15.98
High Channel: 5700 MHz							
5725.000	32.38	PK	V	39.48	65.84	68.20	2.36
11400.000	46.74	PK	V	20.93	61.65	74.00	12.35
11400.000	33.37	AV	V	20.93	48.28	54.00	5.72
17100.000	35.09	PK	V	26.19	55.26	68.20	12.94

802.11n ht20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5500MHz							
5470.000	28.78	PK	V	39.27	62.03	68.20	6.17
11000.000	46.45	PK	V	19.83	60.26	74.00	13.74
11000.000	33.23	AV	V	19.83	47.04	54.00	6.96
16500.000	35.01	PK	V	22.73	51.72	68.20	16.48
Middle Channel: 5580 MHz							
11160.000	46.39	PK	V	19.97	60.34	74.00	13.66
11160.000	33.20	AV	V	19.97	47.15	54.00	6.85
16740.000	34.56	PK	V	23.68	52.22	68.20	15.98
High Channel: 5700 MHz							
5725.000	32.38	PK	V	39.48	65.84	68.20	2.36
11400.000	46.74	PK	V	20.93	61.65	74.00	12.35
11400.000	33.37	AV	V	20.93	48.28	54.00	5.72
17100.000	35.09	PK	V	26.19	55.26	68.20	12.94

802.11ax hew20(maximum RU configurations was the worst)**:**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5500MHz							
5470.000	30.47	PK	V	39.27	63.72	68.20	4.48
11000.000	45.63	PK	V	19.83	59.44	74.00	14.56
11000.000	33.32	AV	V	19.83	47.13	54.00	6.87
16500.000	35.11	PK	V	22.73	51.82	68.20	16.38
Middle Channel: 5580 MHz							
11160.000	46.25	PK	V	19.97	60.20	74.00	13.80
11160.000	33.13	AV	V	19.97	47.08	54.00	6.92
16740.000	34.38	PK	V	23.68	52.04	68.20	16.16
High Channel: 5700 MHz							
5725.000	31.56	PK	V	39.48	65.02	68.20	3.18
11400.000	46.07	PK	V	20.93	60.98	74.00	13.02
11400.000	33.04	AV	V	20.93	47.95	54.00	6.05
17100.000	35.11	PK	V	26.19	55.28	68.20	12.92

802.11n ht40:

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	31.07	PK	V	39.27	64.32	68.20	3.88
11020.000	45.86	PK	V	19.85	59.69	74.00	14.31
11020.000	32.43	AV	V	19.85	46.26	54.00	7.74
16530.000	34.56	PK	V	23.02	51.56	68.20	16.64
Middle Channel: 5550 MHz							
11100.000	46.37	PK	V	19.95	60.30	74.00	13.70
11100.000	33.19	AV	V	19.95	47.12	54.00	6.88
16650.000	35.27	PK	V	23.65	52.90	68.20	15.30
High Channel: 5670 MHz							
5725.000	30.11	PK	V	39.48	63.57	68.20	4.63
11340.000	46.21	PK	V	20.77	60.96	74.00	13.04
11340.000	33.11	AV	V	20.77	47.86	54.00	6.14
17010.000	34.59	PK	V	25.56	54.13	68.20	14.07

802.11ax hew40(maximum RU configurations was the worst)**:**

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	33.56	PK	V	39.27	66.81	68.20	1.39
11020.000	46.58	PK	V	19.85	60.41	74.00	13.59
11020.000	33.29	AV	V	19.85	47.12	54.00	6.88
16530.000	35.20	PK	V	23.02	52.20	68.20	16.00
Middle Channel: 5550 MHz							
11100.000	46.74	PK	V	19.95	60.67	74.00	13.33
11100.000	33.37	AV	V	19.95	47.30	54.00	6.70
16650.000	34.46	PK	V	23.65	52.09	68.20	16.11
High Channel: 5670 MHz							
5725.000	31.29	PK	V	39.48	64.75	68.20	3.45
11340.000	46.64	PK	V	20.77	61.39	74.00	12.61
11340.000	33.32	AV	V	20.77	48.07	54.00	5.93
17010.000	35.30	PK	V	25.56	54.84	68.20	13.36

802.11ac vht80:

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	33.75	PK	V	39.27	67.00	68.20	1.20
11060.000	45.78	PK	V	19.90	59.66	74.00	14.34
11060.000	33.39	AV	V	19.90	47.27	54.00	6.73
16590.000	35.28	PK	V	23.59	52.85	68.20	15.35
High Channel:5610 MHz							
5725.000	31.26	PK	V	39.48	64.72	68.20	3.48
11220.000	47.11	PK	V	20.13	61.22	74.00	12.78
11220.000	34.06	AV	V	20.13	48.17	54.00	5.83
16830.000	34.73	PK	V	24.13	52.84	68.20	15.36

802.11ax hew80(maximum RU configurations was the worst)**:**

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	33.25	PK	V	39.27	66.50	68.20	1.70
11060.000	45.63	PK	V	19.90	59.51	74.00	14.49
11060.000	33.32	AV	V	19.90	47.20	54.00	6.80
16590.000	34.45	PK	V	23.59	52.02	68.20	16.18
High Channel:5610 MHz							
5725.000	30.77	PK	V	39.48	64.23	68.20	3.97
11220.000	46.21	PK	V	20.13	60.32	74.00	13.68
11220.000	33.10	AV	V	20.13	47.21	54.00	6.79
16830.000	35.52	PK	V	24.13	53.63	68.20	14.57

802.11ac vht160:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5470.000	33.56	PK	V	39.27	66.81	68.20	1.39
5725.000	31.19	PK	V	39.48	64.65	68.20	3.55
11140.000	46.56	PK	V	19.97	60.51	74.00	13.49
11140.000	33.28	AV	V	19.97	47.23	54.00	6.77
16710.000	34.61	PK	V	23.63	52.22	68.20	15.98

802.11ax hew160(maximum RU configurations was the worst**):**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5470.000	33.49	PK	V	39.27	66.74	68.20	1.46
5725.000	31.52	PK	V	39.48	64.98	68.20	3.22
11140.000	46.78	PK	V	19.97	60.73	74.00	13.27
11140.000	33.39	AV	V	19.97	47.34	54.00	6.66
16710.000	35.41	PK	V	23.63	53.02	68.20	15.18

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: 5745MHz							
5725.000	35.34	PK	V	39.48	68.80	122.20	53.40
5720.000	30.12	PK	V	39.49	63.59	110.80	47.21
5700.000	28.46	PK	V	39.51	61.95	105.20	43.25
5650.000	28.68	PK	V	39.49	62.15	68.20	6.05
11490.000	46.13	PK	V	20.67	60.78	74.00	13.22
11490.000	33.07	AV	V	20.67	47.72	54.00	6.28
17235.000	35.23	PK	V	26.76	55.97	68.20	12.23
Middle Channel: 5785 MHz							
11570.000	45.78	PK	V	20.83	60.59	74.00	13.41
11570.000	32.39	AV	V	20.83	47.20	54.00	6.80
17355.000	34.78	PK	V	27.74	56.50	68.20	11.70
High Channel: 5825 MHz							
5850.000	33.47	PK	V	39.49	66.94	122.20	55.26
5855.000	31.69	PK	V	39.51	65.18	110.80	45.62
5875.000	30.74	PK	V	39.60	64.32	105.20	40.88
5925.000	30.16	PK	V	39.68	63.82	68.20	4.38
11650.000	45.63	PK	V	21.07	60.68	74.00	13.32
11650.000	32.32	AV	V	21.07	47.37	54.00	6.63
17475.000	34.41	PK	V	28.61	57.00	68.20	11.20

802.11n ht20:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745MHz							
5725.000	34.89	PK	V	39.48	68.35	122.20	53.85
5720.000	30.32	PK	V	39.49	63.79	110.80	47.01
5700.000	29.45	PK	V	39.51	62.94	105.20	42.26
5650.000	28.37	PK	V	39.49	61.84	68.20	6.36
11490.000	45.78	PK	V	20.67	60.43	74.00	13.57
11490.000	32.39	AV	V	20.67	47.04	54.00	6.96
17235.000	34.12	PK	V	26.76	54.86	68.20	13.34
Middle Channel: 5785 MHz							
11570.000	45.69	PK	V	20.83	60.50	74.00	13.50
11570.000	32.35	AV	V	20.83	47.16	54.00	6.84
17355.000	35.03	PK	V	27.74	56.75	68.20	11.45
High Channel: 5825 MHz							
5850.000	34.12	PK	V	39.49	67.59	122.20	54.61
5855.000	32.33	PK	V	39.51	65.82	110.80	44.98
5875.000	30.78	PK	V	39.60	64.36	105.20	40.84
5925.000	30.04	PK	V	39.68	63.70	68.20	4.50
11650.000	45.58	PK	V	21.07	60.63	74.00	13.37
11650.000	32.29	AV	V	21.07	47.34	54.00	6.66
17475.000	34.37	PK	V	28.61	56.96	68.20	11.24

802.11ax hew20(maximum RU configurations was the worst)**:**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5745MHz							
5725.000	34.42	PK	V	39.48	67.88	122.20	54.32
5720.000	31.11	PK	V	39.49	64.58	110.80	46.22
5700.000	29.58	PK	V	39.51	63.07	105.20	42.13
5650.000	28.49	PK	V	39.49	61.96	68.20	6.24
11490.000	45.78	PK	V	20.67	60.43	74.00	13.57
11490.000	32.39	AV	V	20.67	47.04	54.00	6.96
17235.000	36.17	PK	V	26.76	56.91	68.20	11.29
Middle Channel: 5785 MHz							
11570.000	45.65	PK	V	20.83	60.46	74.00	13.54
11570.000	32.32	AV	V	20.83	47.13	54.00	6.87
17355.000	35.71	PK	V	27.74	57.43	68.20	10.77
High Channel: 5825 MHz							
5850.000	36.07	PK	V	39.49	69.54	122.20	52.66
5855.000	33.46	PK	V	39.51	66.95	110.80	43.85
5875.000	31.20	PK	V	39.60	64.78	105.20	40.42
5925.000	30.10	PK	V	39.68	63.76	68.20	4.44
11650.000	45.63	PK	V	21.07	60.68	74.00	13.32
11650.000	32.32	AV	V	21.07	47.37	54.00	6.63
17475.000	34.79	PK	V	28.61	57.38	68.20	10.82

802.11n ht40:

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5755 MHz							
5725.000	39.36	PK	V	39.48	72.82	122.20	49.38
5720.000	37.12	PK	V	39.49	70.59	110.80	40.21
5700.000	31.12	PK	V	39.51	64.61	105.20	40.59
5650.000	28.74	PK	V	39.49	62.21	68.20	5.99
11510.000	46.13	PK	V	20.67	60.78	74.00	13.22
11510.000	33.07	AV	V	20.67	47.72	54.00	6.28
17265.000	35.09	PK	V	26.94	56.01	68.20	12.19
High Channel: 5795 MHz							
5850.000	32.45	PK	V	39.49	65.92	122.20	56.28
5855.000	31.17	PK	V	39.51	64.66	110.80	46.14
5875.000	31.05	PK	V	39.60	64.63	105.20	40.57
5925.000	30.10	PK	V	39.68	63.76	68.20	4.44
11590.000	46.29	PK	V	20.88	61.15	74.00	12.85
11590.000	33.15	AV	V	20.88	48.01	54.00	5.99
17385.000	34.47	PK	V	28.07	56.52	68.20	11.68

802.11ax hew40(maximum RU configurations was the worst**):**

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
Low Channel: 5755 MHz							
5725.000	41.23	PK	V	39.48	74.69	122.20	47.51
5720.000	39.12	PK	V	39.49	72.59	110.80	38.21
5700.000	32.58	PK	V	39.51	66.07	105.20	39.13
5650.000	29.17	PK	V	39.49	62.64	68.20	5.56
11510.000	45.69	PK	V	20.67	60.34	74.00	13.66
11510.000	32.35	AV	V	20.67	47.00	54.00	7.00
17265.000	34.11	PK	V	26.94	55.03	68.20	13.17
High Channel: 5795 MHz							
5850.000	34.23	PK	V	39.49	67.70	122.20	54.50
5855.000	33.17	PK	V	39.51	66.66	110.80	44.14
5875.000	31.20	PK	V	39.60	64.78	105.20	40.42
5925.000	30.12	PK	V	39.68	63.78	68.20	4.42
11590.000	46.74	PK	V	20.88	61.60	74.00	12.40
11590.000	33.37	AV	V	20.88	48.23	54.00	5.77
17385.000	35.58	PK	V	28.07	57.63	68.20	10.57

802.11ac vht80:

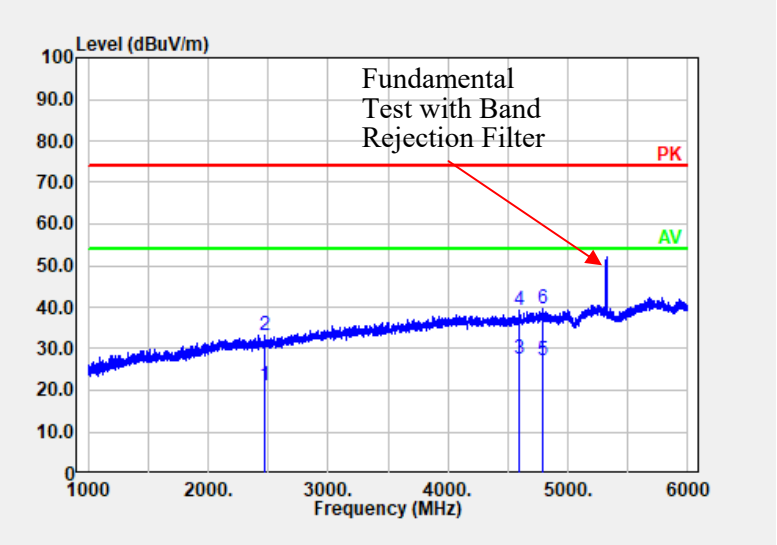
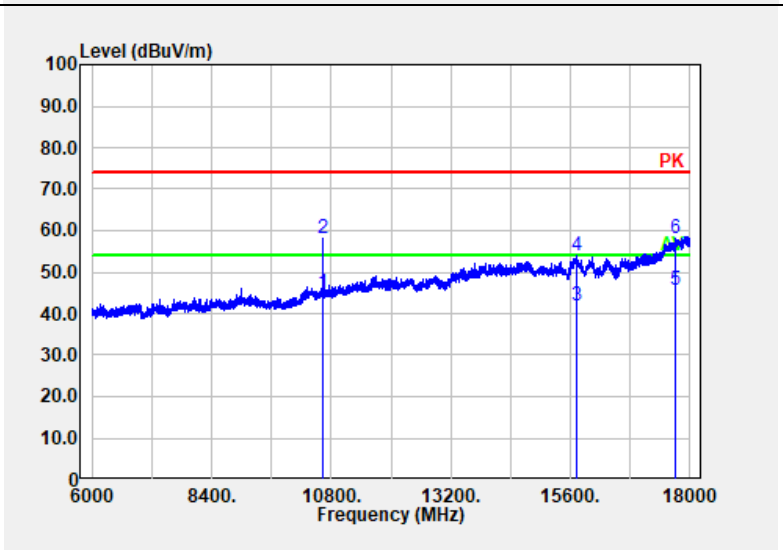
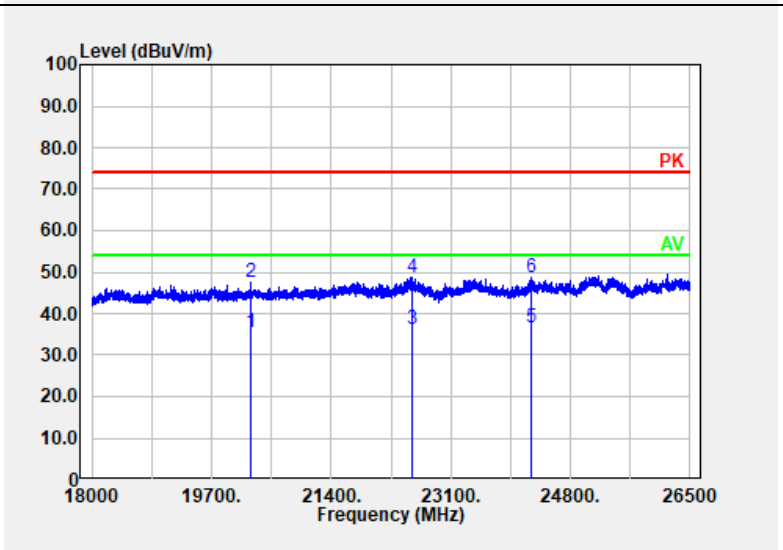
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5725.000	39.41	PK	V	39.48	72.87	122.20	49.33
5720.000	37.10	PK	V	39.49	70.57	110.80	40.23
5700.000	31.03	PK	V	39.51	64.52	105.20	40.68
5650.000	28.46	PK	V	39.49	61.93	68.20	6.27
5850.000	34.35	PK	V	39.49	67.82	122.20	54.38
5855.000	32.15	PK	V	39.51	65.64	110.80	45.16
5875.000	31.01	PK	V	39.60	64.59	105.20	40.61
5925.000	30.23	PK	V	39.68	63.89	68.20	4.31
11550.000	46.21	PK	V	20.78	60.97	74.00	13.03
11550.000	33.11	AV	V	20.78	47.87	54.00	6.13
17325.000	35.06	PK	V	27.41	56.45	68.20	11.75

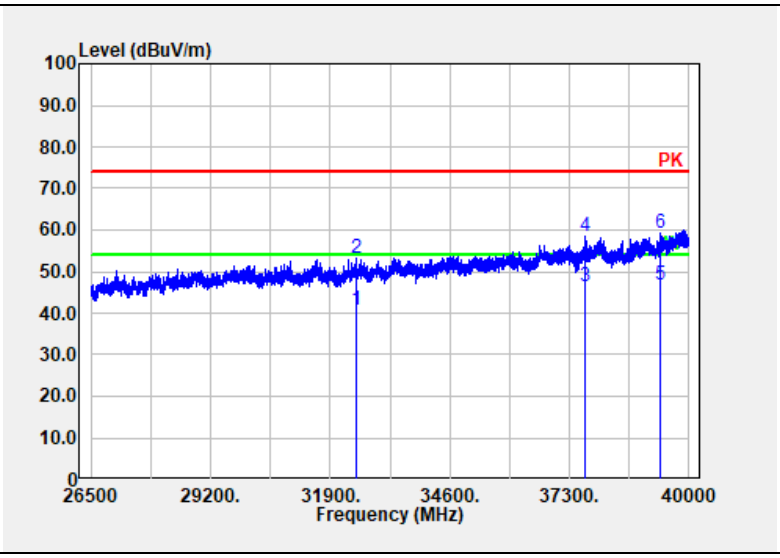
802.11ax hew80(maximum RU configurations was the worst)**:**

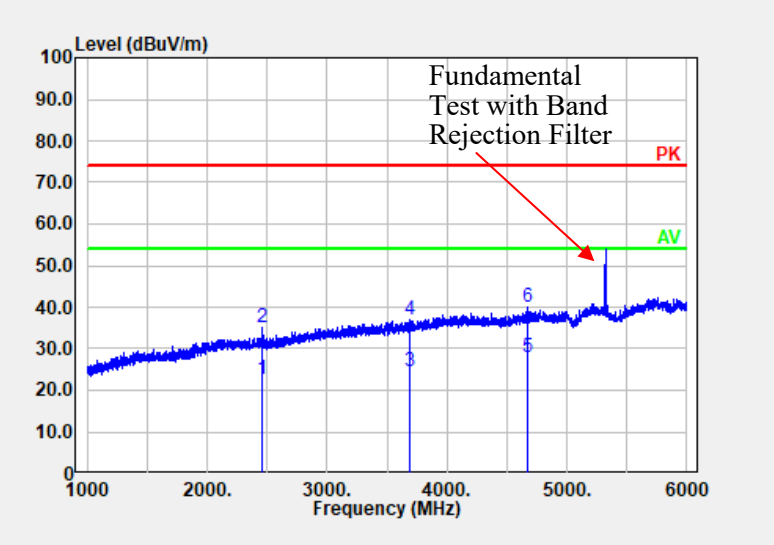
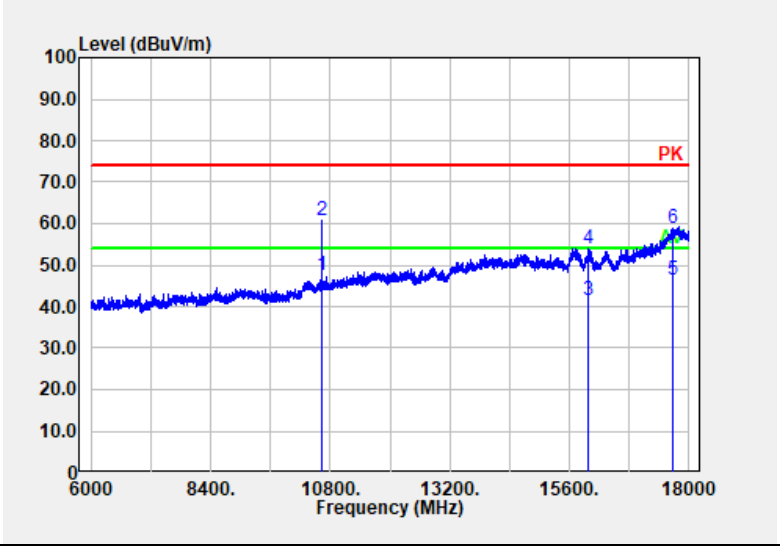
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	Detector					
5725.000	40.22	PK	V	39.48	73.68	122.20	48.52
5720.000	39.04	PK	V	39.49	72.51	110.80	38.29
5700.000	34.28	PK	V	39.51	67.77	105.20	37.43
5650.000	29.32	PK	V	39.49	62.79	68.20	5.41
5850.000	35.26	PK	V	39.49	68.73	122.20	53.47
5855.000	34.41	PK	V	39.51	67.90	110.80	42.90
5875.000	31.17	PK	V	39.60	64.75	105.20	40.45
5925.000	30.53	PK	V	39.68	64.19	68.20	4.01
11550.000	46.88	PK	V	20.78	61.64	74.00	12.36
11550.000	33.44	AV	V	20.78	48.20	54.00	5.80
17325.000	36.02	PK	V	27.41	57.41	68.20	10.79

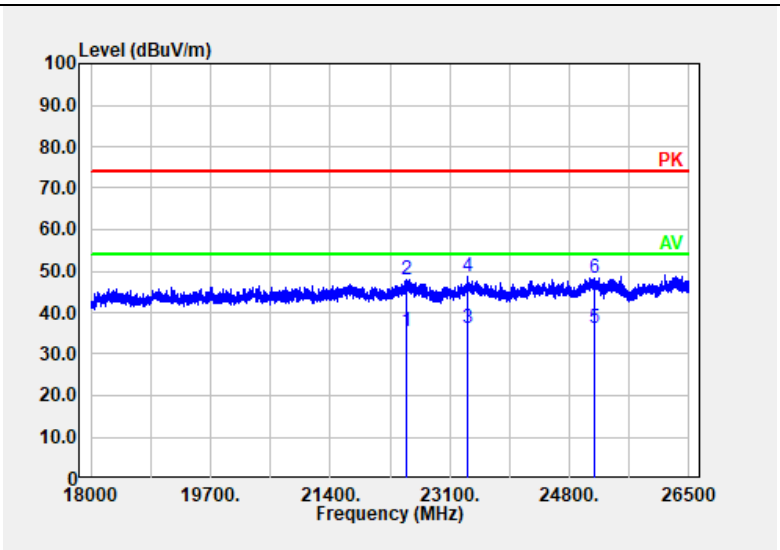
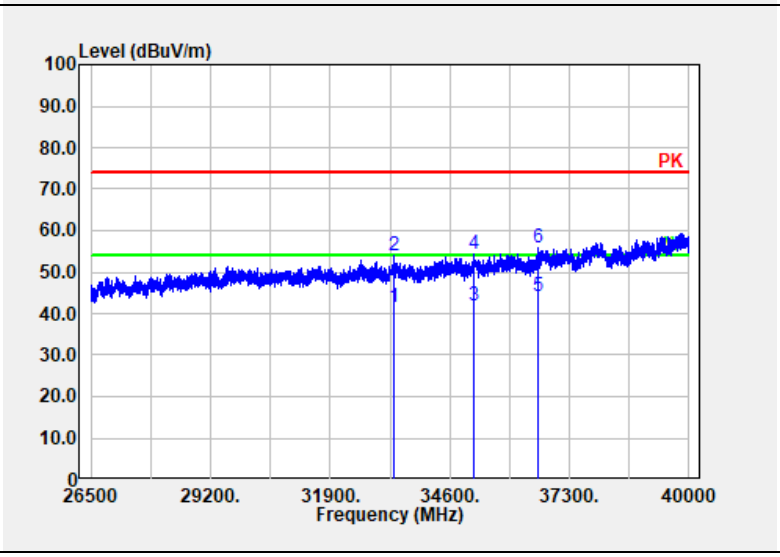
Note:
Result = Reading + Factor- Distance extrapolation Factor
Distance extrapolation Factor =20 log (specific distance [3m]/test distance [1.5m]) dB= 6.02 dB

Worst Test plots(802.11ax hew20 5320MHz was the worst)

Horizontal		
1-6GHz		
6-18GHz		
18-26.5GHz		

26.5-40GHz	

Vertical	
1-6GHz	
6-18GHz	

18-26.5GHz		
26.5-40GHz		

4.3 Emission Bandwidth:

Serial Number:	2OKI	Test Date:	2023/03/17~2023/05/05
Test Site:	RF	Test Mode:	Transmitting
Tester:	Julie Tan	Test Result:	Pass

Environmental Conditions:					
Temperature: (℃)	23.4~25.9	Relative Humidity: (%)	45~69	ATM Pressure: (kPa)	100.4~101.4

Test Equipment List and Details:
(FSU26 was used in 2023/4/13~2023/4/14)

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101943	2022/07/25	2023/07/24
YINSAIGE	Coaxial Cable	SS402	SJ0100004	Each time	N/A
Mini-Circuits	DC Block	BLK-18-S+	1554404	Each time	N/A
R&S	Spectrum Analyzer	FSU26	200445	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)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5180	20.720	16.687
	5200	20.640	16.687
	5240	20.800	16.687
802.11n ht20	5180	21.920	17.804
	5200	21.920	17.884
	5240	21.920	17.884
802.11n ht40	5190	39.200	36.248
	5230	39.520	36.248
802.11ac vht80	5210	90.560	76.327
802.11ax hew20	5180	22.452	19.200
	5200	22.571	19.200
	5240	22.571	19.200
802.11ax hew40	5190	41.029	37.943
	5230	41.143	37.943
802.11ax hew80	5210	83.702	77.436

Note:
Test only was performed at Chain 0.
For 802.11ax, only the maximum RU was tested.
The 99% Occupied Bandwidth have not fallen 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	20.560	16.687
	5280	20.720	16.687
	5320	20.960	16.687
802.11n ht20	5260	22.080	17.884
	5280	22.160	17.884
	5320	22.320	17.964
802.11n ht40	5270	39.360	36.088
	5310	39.520	36.088
802.11ac vht80	5290	89.280	76.008
802.11ac vht160	5250	175.990	155.848
802.11ax hew20	5260	22.997	19.231
	5280	22.821	19.231
	5320	22.692	19.231
802.11ax hew40	5270	41.106	37.949
	5310	41.000	37.821
802.11ax hew80	5290	83.431	76.986
802.11ax hew160	5250	166.381	155.385
Note: Test only was performed at Chain 0. For 802.11ax, only the maximum RU was tested.			

5470-5725 MHz:

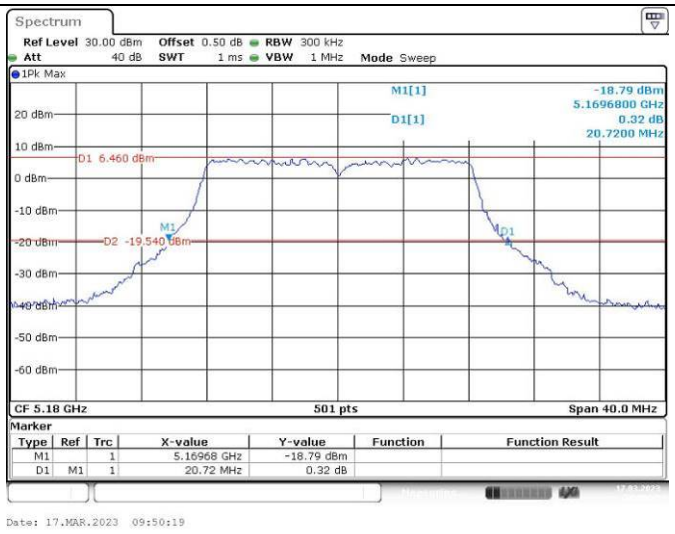
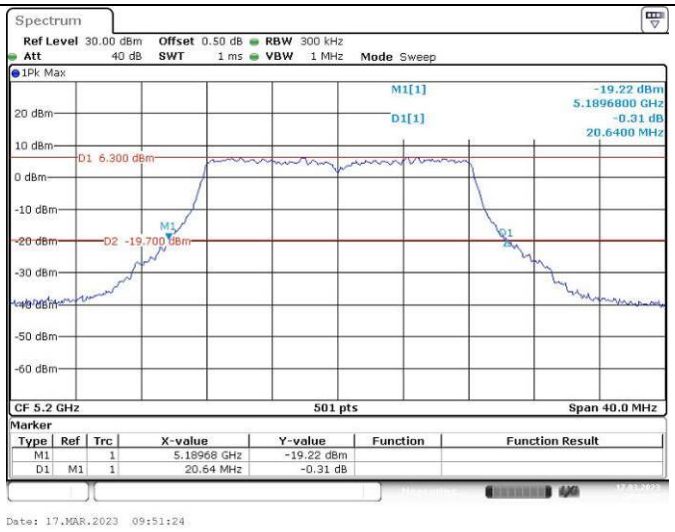
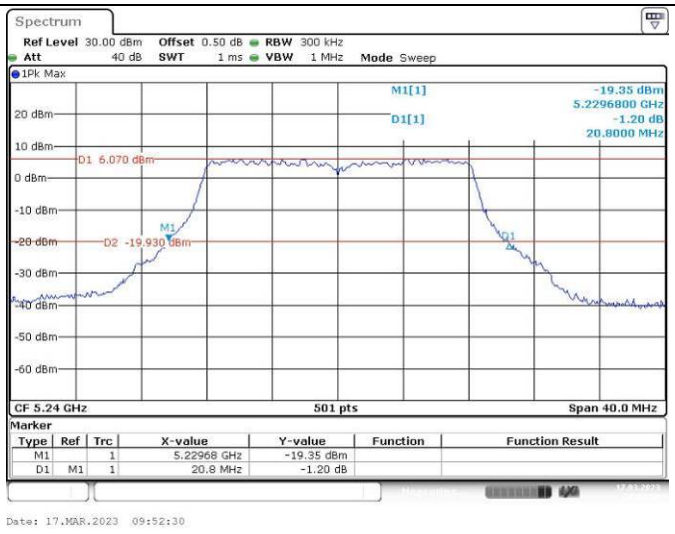
Test Modes	Test Frequency (MHz)	26 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5500	20.720	16.687
	5580	20.560	16.687
	5700	20.960	16.687
	5720	20.966	16.687
802.11n ht20	5500	21.840	17.804
	5580	22.000	17.884
	5700	21.120	17.804
	5720	21.117	17.725
802.11n ht40	5510	39.360	36.088
	5550	39.200	35.928
	5670	39.680	36.088
	5710	39.370	36.248
802.11ac vht80	5530	90.880	76.327
	5610	91.090	76.327
	5690	92.480	76.327
802.11ac vht160	5570	176.570	155.848
802.11ax hew20	5500	22.612	19.200
	5580	22.212	19.200
	5700	21.891	19.120
	5720	22.051	19.040
802.11ax hew40	5510	42.115	37.821
	5550	42.010	37.949
	5670	41.481	37.692
	5710	41.577	37.692
802.11ax hew80	5530	83.365	77.436
	5610	82.766	76.923
	5690	83.202	77.436
802.11ax hew160	5570	168.173	155.385
Note: Test only was performed at Chain 0. For 802.11ax, only the maximum RU was tested.			

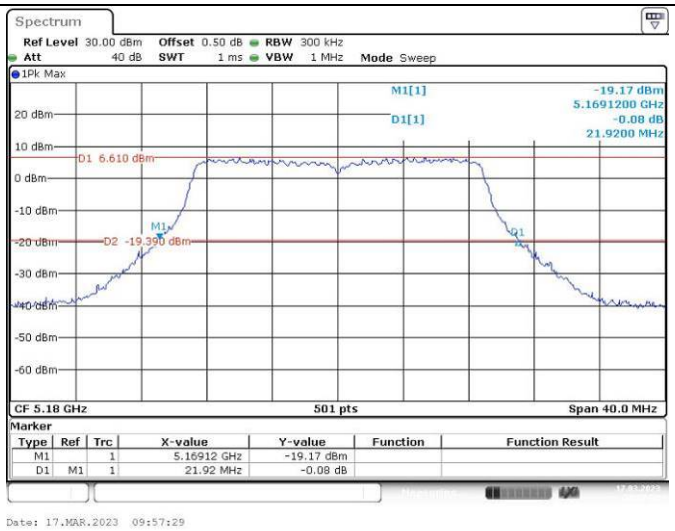
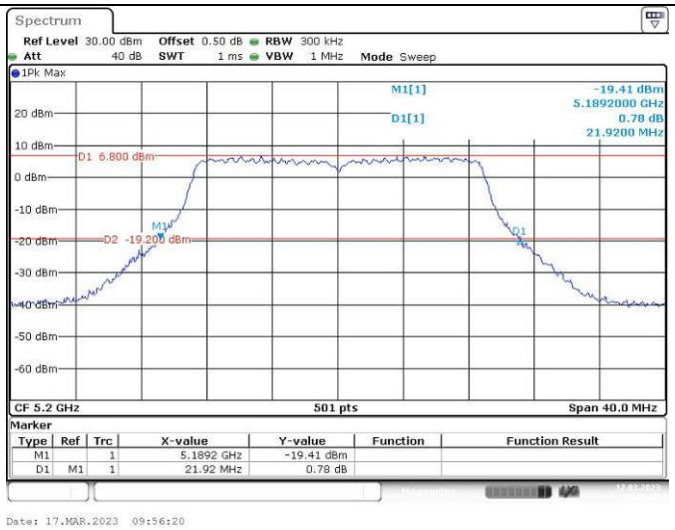
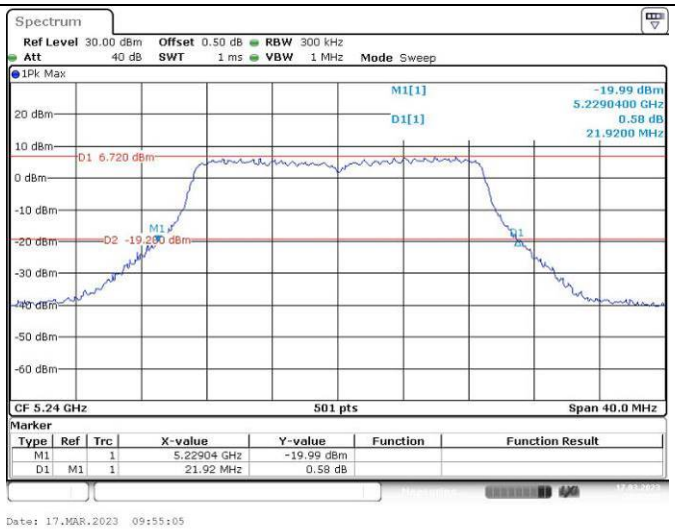
5725-5850 MHz:

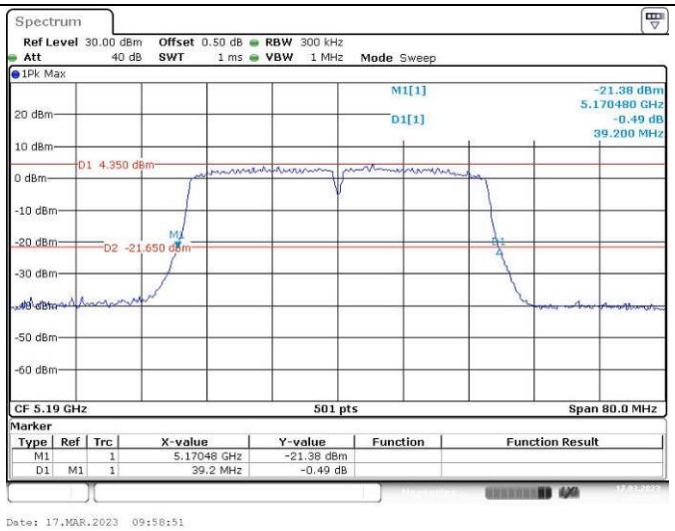
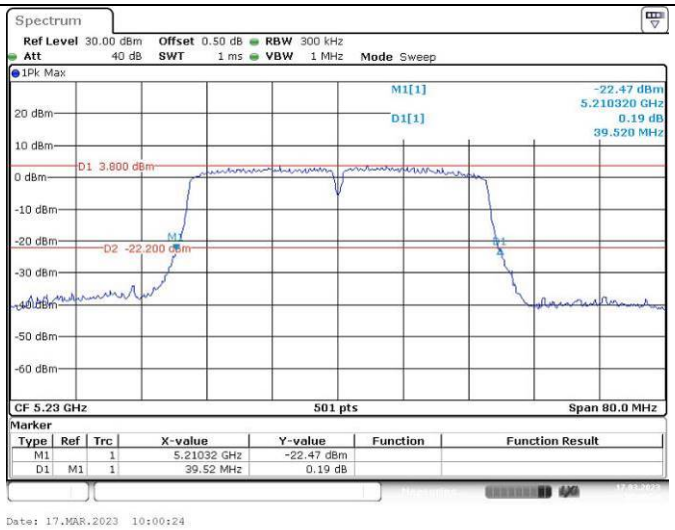
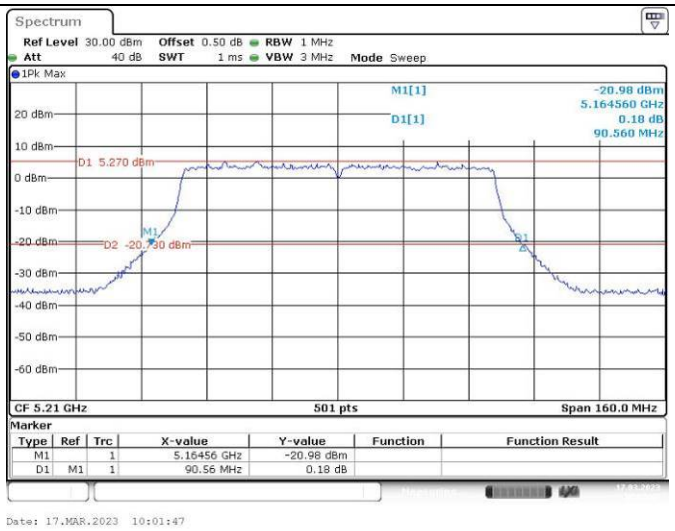
Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)
802.11a	5745	16.498	16.845
	5785	16.440	16.614
	5825	16.440	16.556
802.11n ht20	5745	16.560	17.725
	5785	16.480	17.725
	5825	17.760	17.964
802.11n ht40	5755	33.600	36.088
	5795	32.000	36.088
802.11ac vht80	5775	76.160	76.647
802.11ax hew20	5745	19.141	19.167
	5785	19.192	19.167
	5825	19.192	19.167
802.11ax hew40	5755	36.103	37.821
	5795	35.577	37.821
802.11ax hew80	5775	75.462	77.179

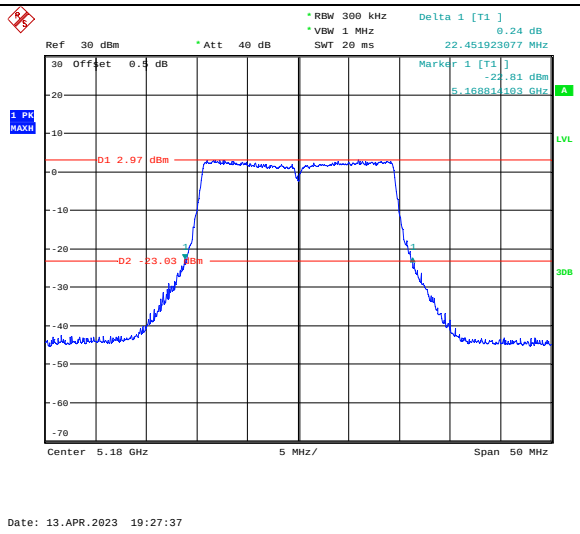
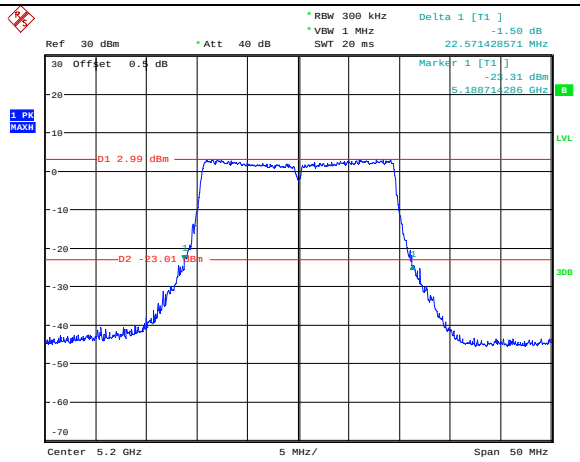
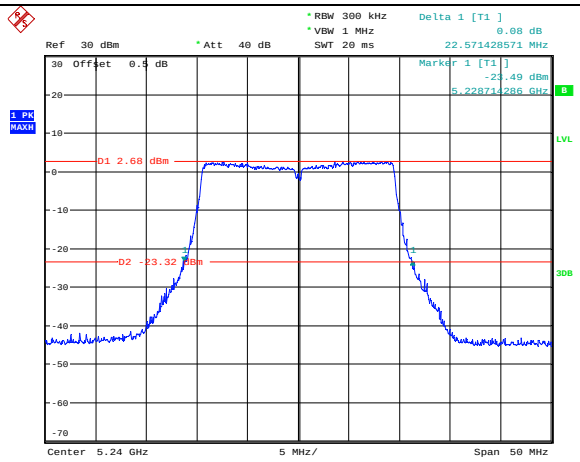
Note:
6dB Emission Bandwidth Limit: ⩾0.5 MHz
Test only was performed at Chain 0.
For 802.11ax, only the maximum RU was tested.
The 99% Occupied Bandwidth have not fallen into the band 5470-5725MHz, please refer to the test plots of 99% Occupied Bandwidth.

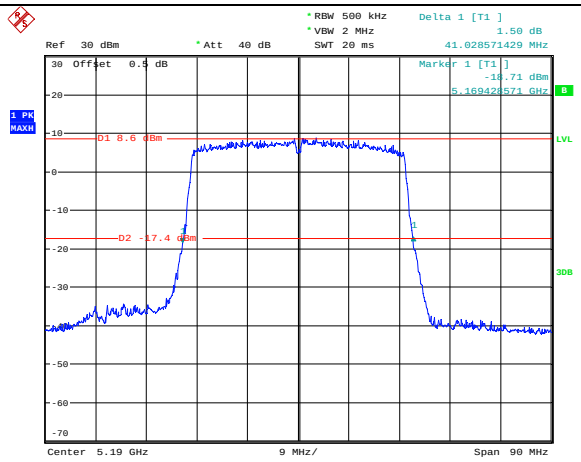
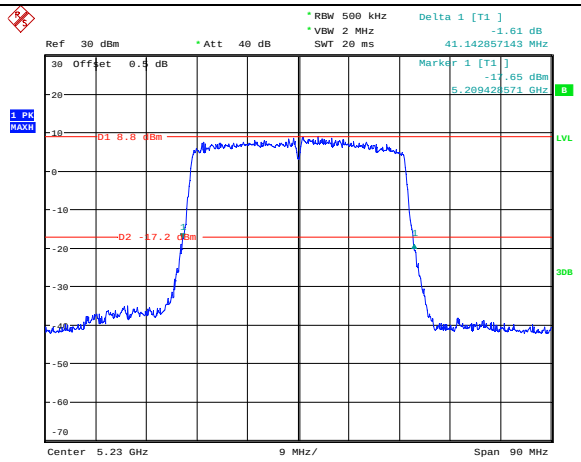
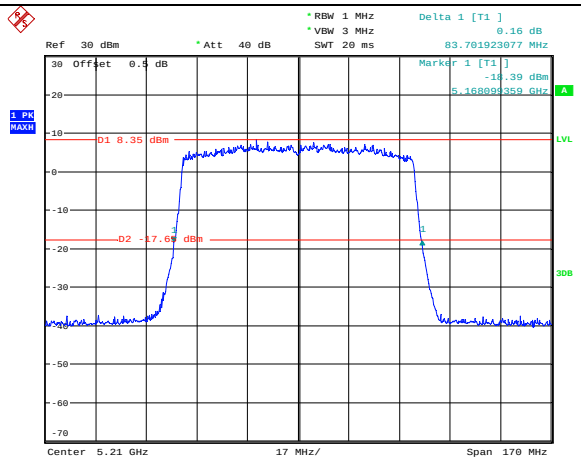
5150-5250MHz:

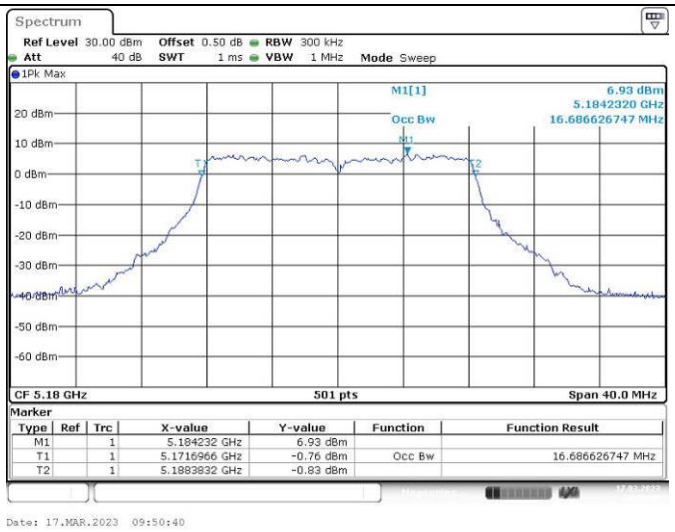
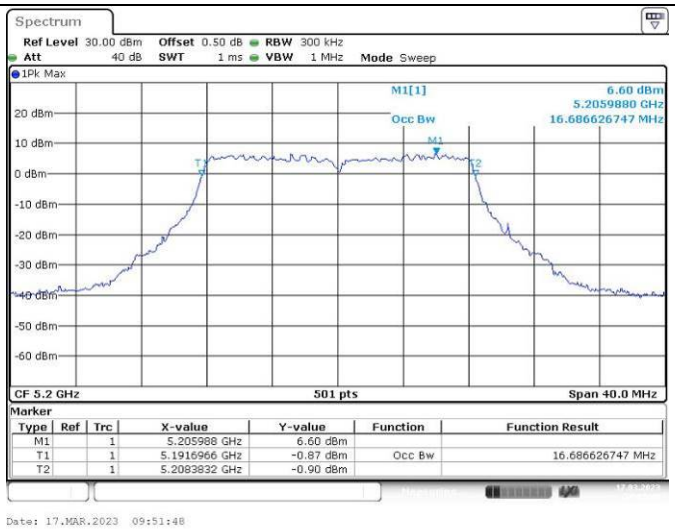
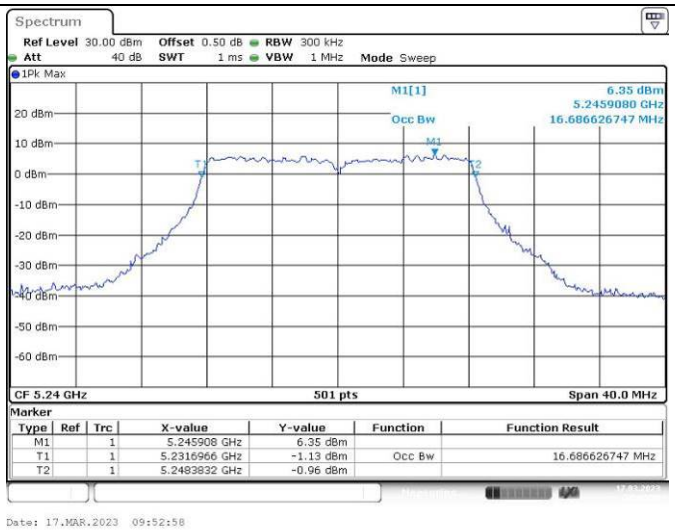
26dB Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

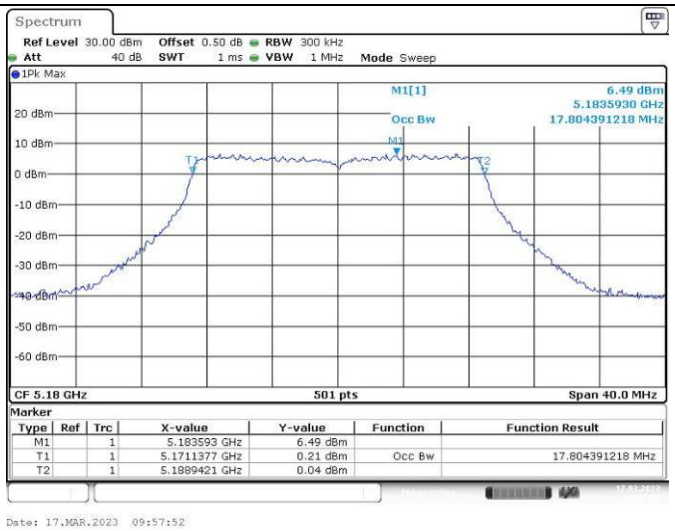
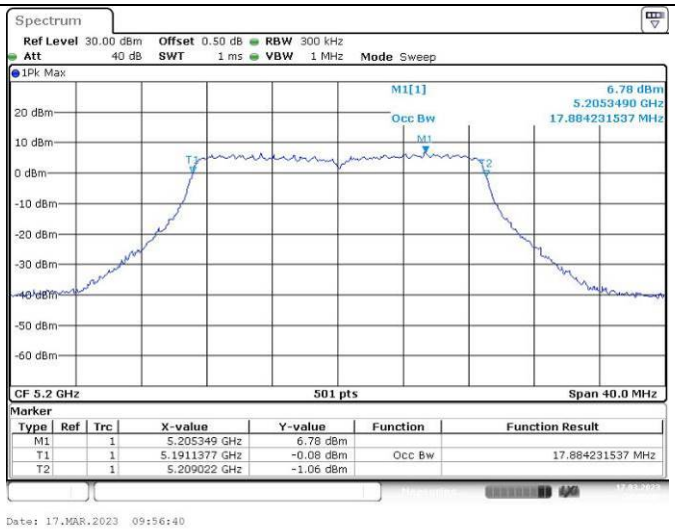
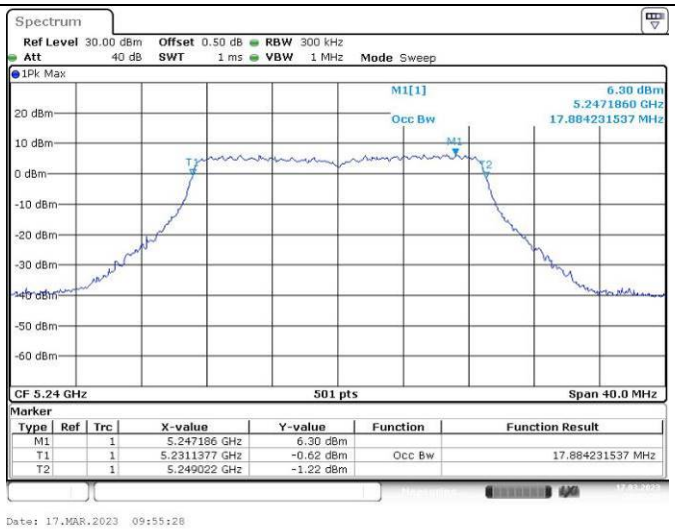
26dB Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel	

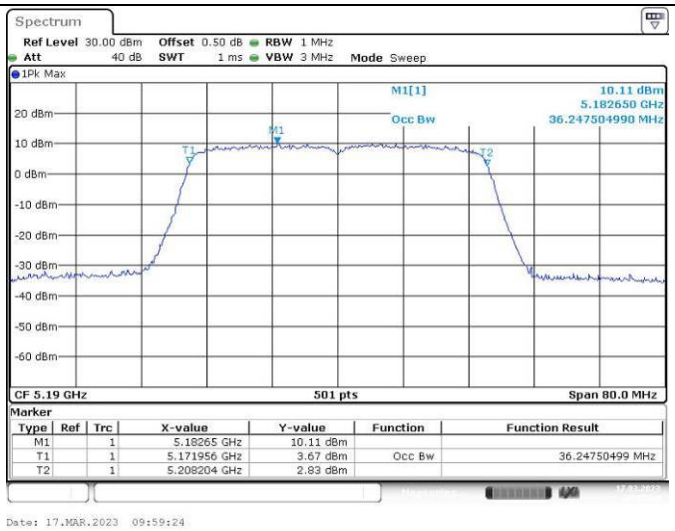
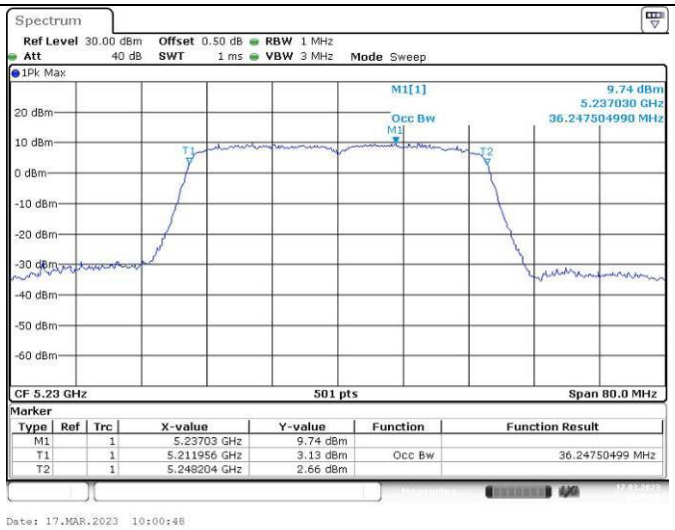
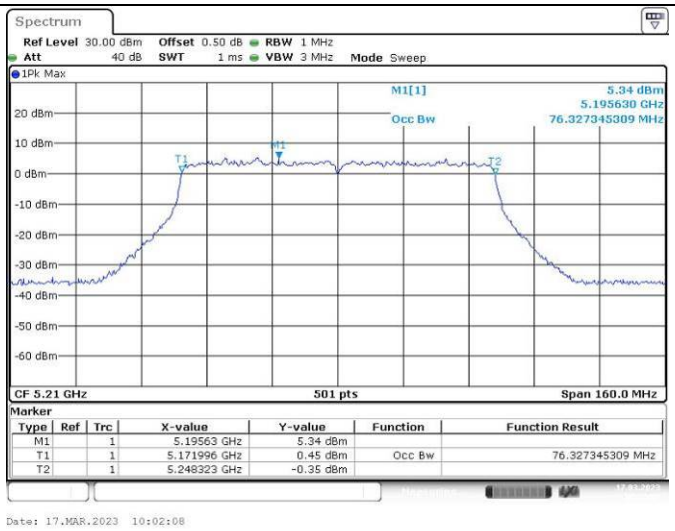
26dB Emission Bandwidth	
802.11n ht40 Lowest Channel	
802.11n ht40 Highest Channel	
802.11ac vht80 Middle Channel	

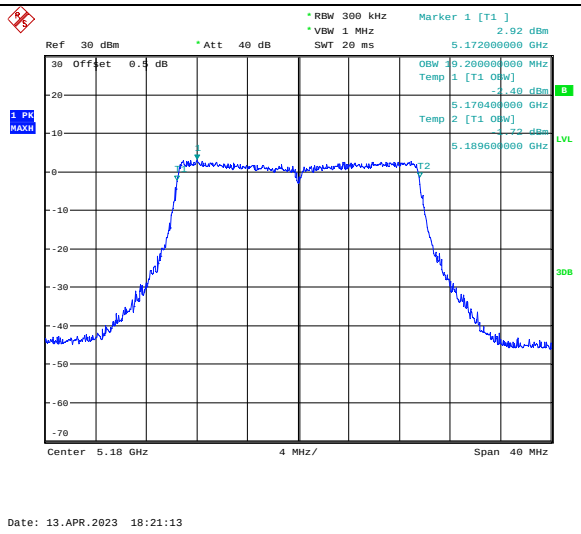
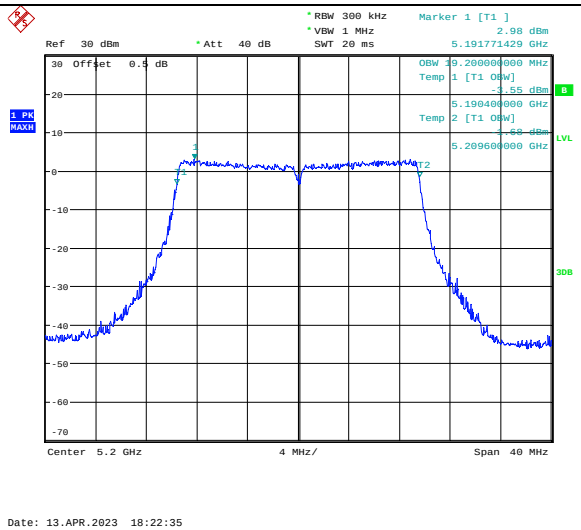
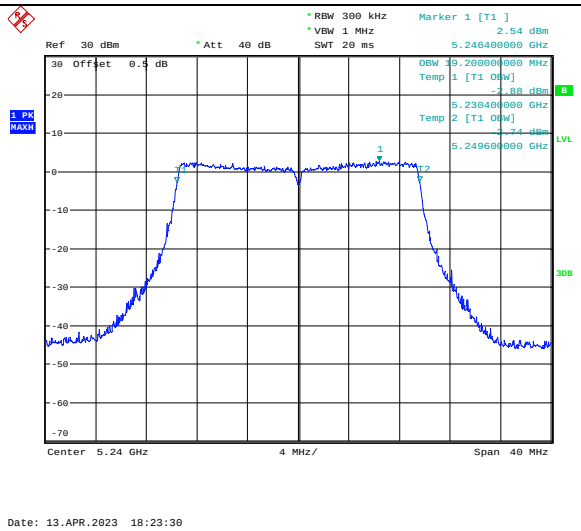
26dB Emission Bandwidth	
802.11ax hew20 Lowest Channel	
802.11ax hew20 Middle Channel	
802.11ax hew20 Highest Channel	

26dB Emission Bandwidth	
802.11ax hew40 Lowest Channel	 Date: 13.APR.2023 17:49:39
802.11ax hew40 Highest Channel	 Date: 13.APR.2023 17:51:35
802.11ax hew80 Middle Channel	 Date: 13.APR.2023 20:13:10

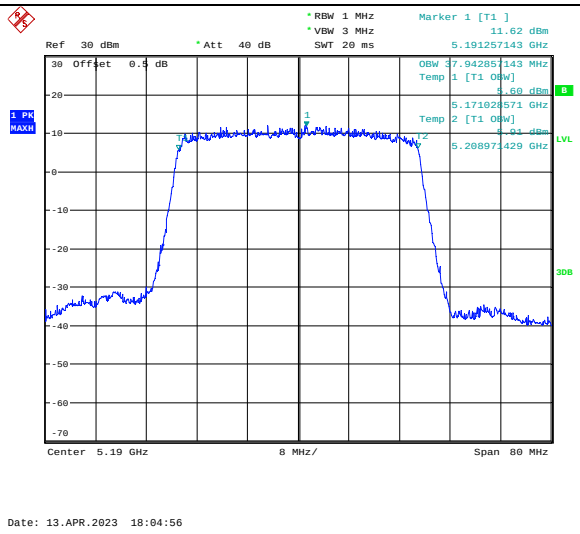
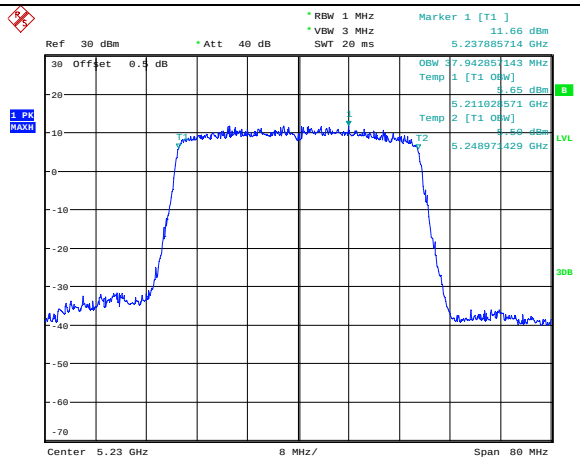
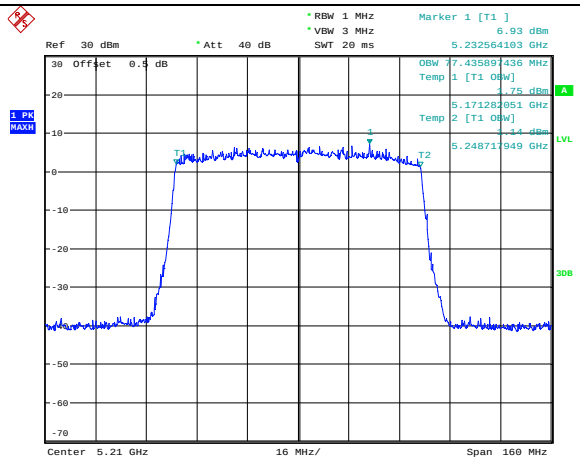
99% Emission Bandwidth	
802.11a Lowest Channel	
802.11a Middle Channel	
802.11a Highest Channel	

99% Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel	

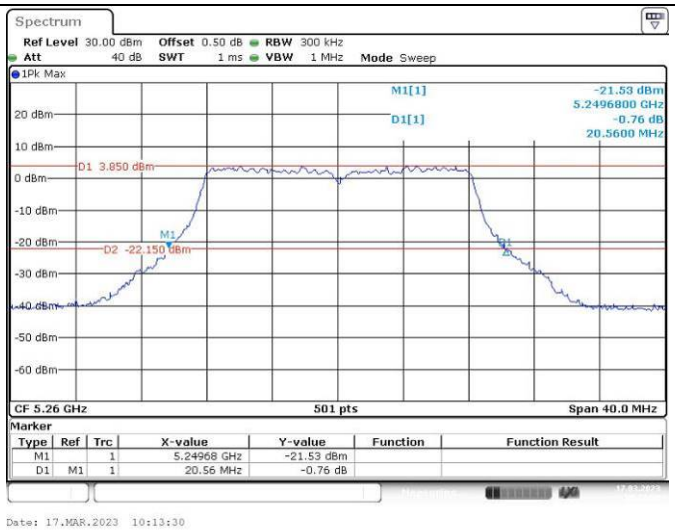
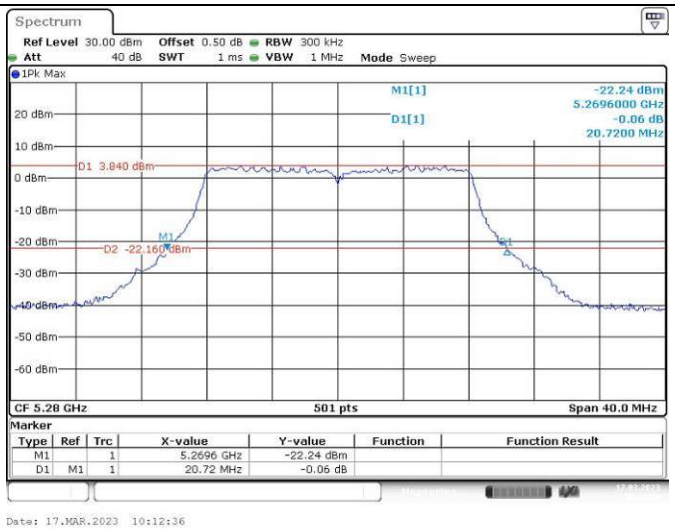
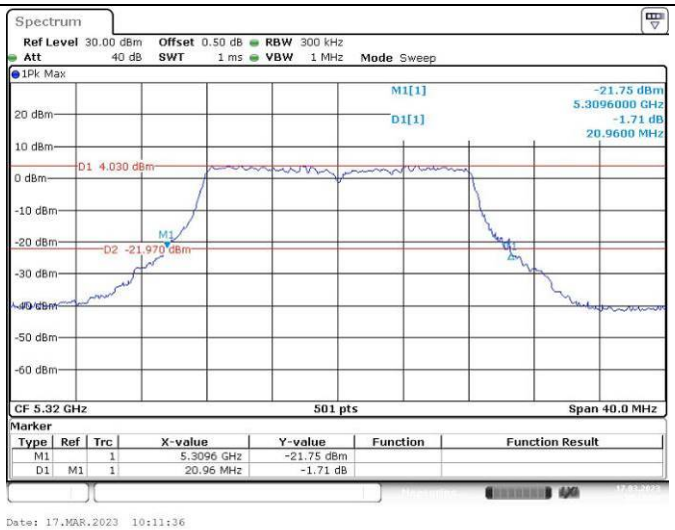
99% Emission Bandwidth	
802.11n ht40 Lowest Channel	
802.11n ht40 Highest Channel	
802.11ac vht80 Middle Channel	

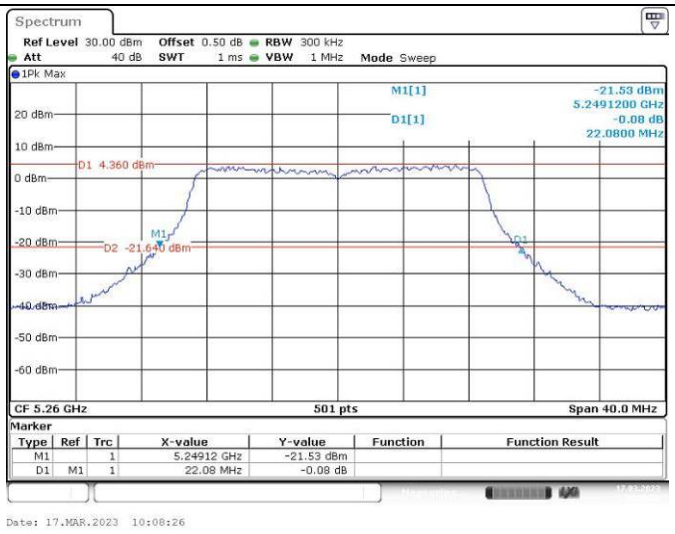
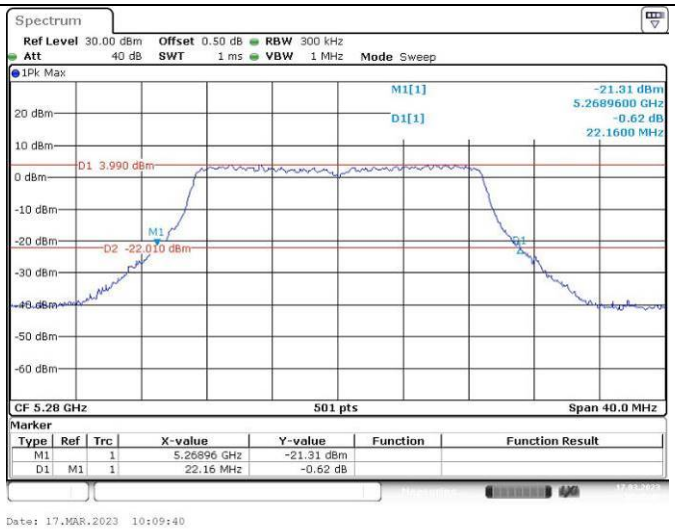
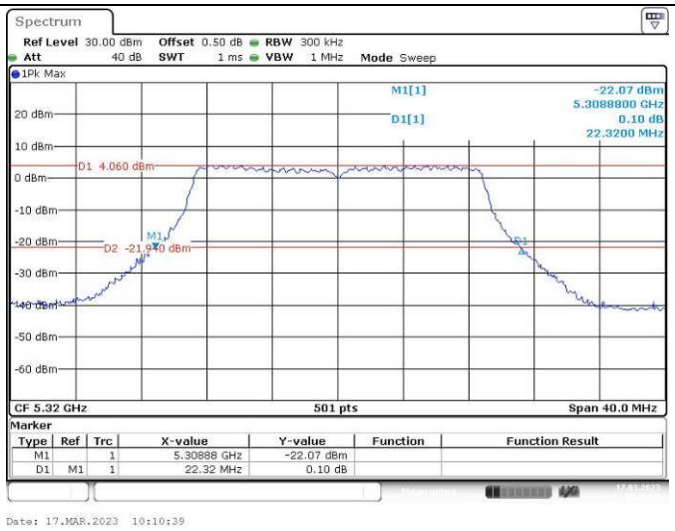
99% Emission Bandwidth	
802.11ax hew20 Lowest Channel	
802.11ax hew20 Middle Channel	
802.11ax hew20 Highest Channel	

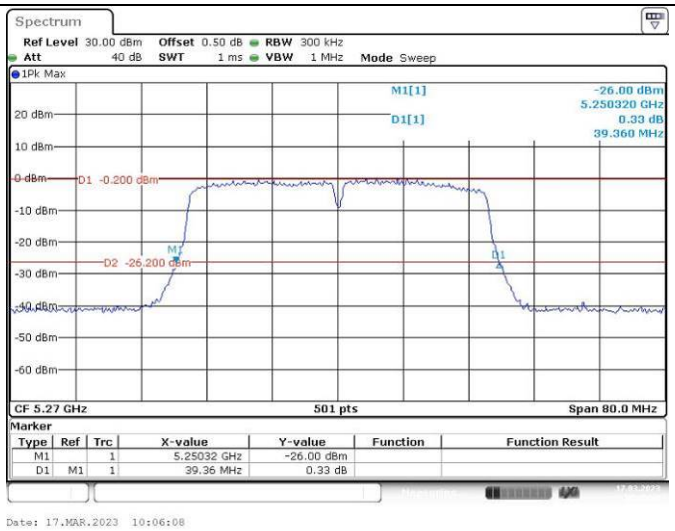
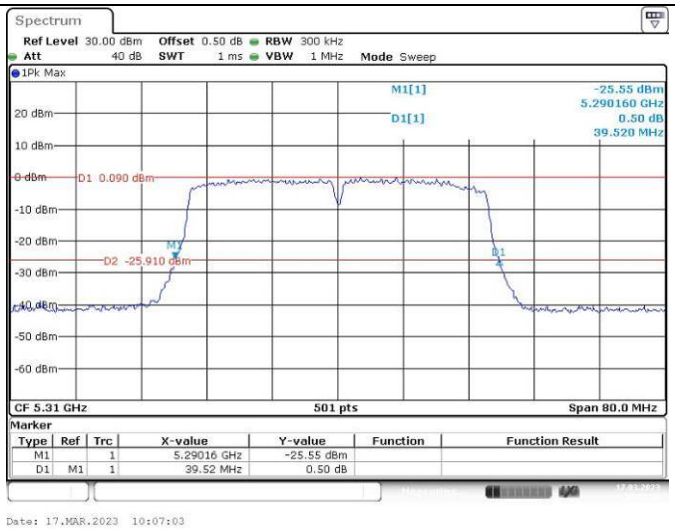
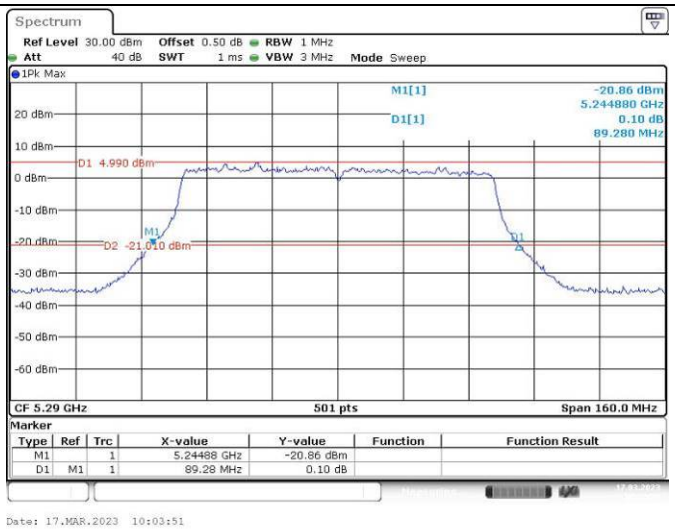
99% Emission Bandwidth

802.11ax hew40 Lowest Channel	
802.11ax hew40 Highest Channel	
802.11ax hew80 Middle Channel	

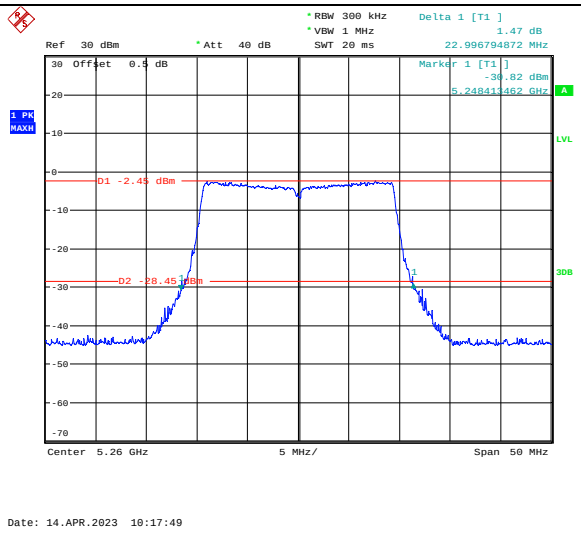
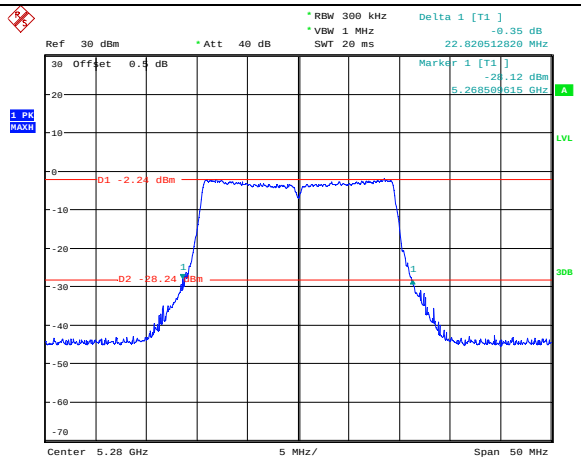
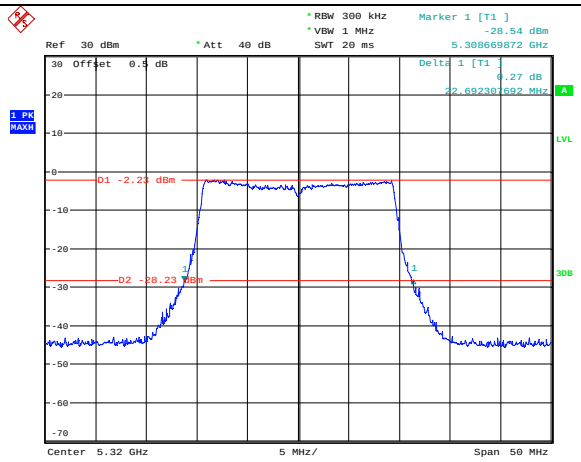
5250-5350MHz:

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

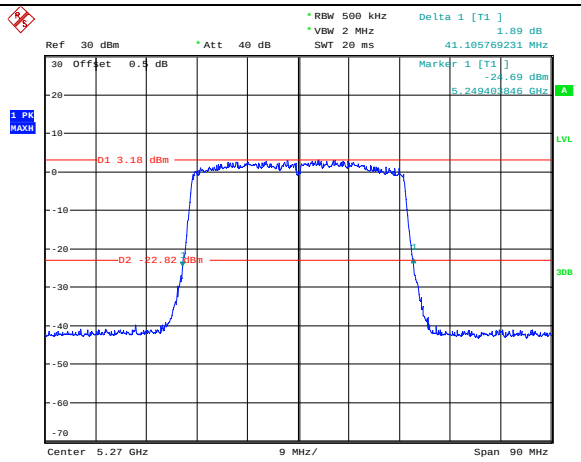
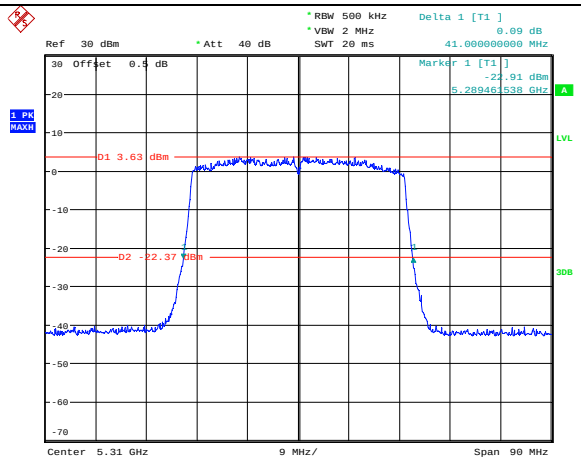
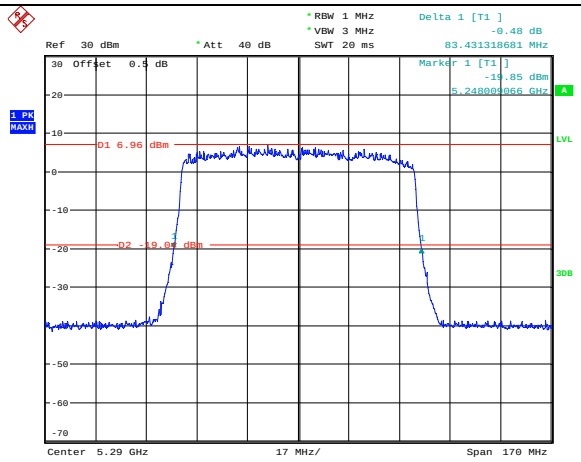
26dB Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel	

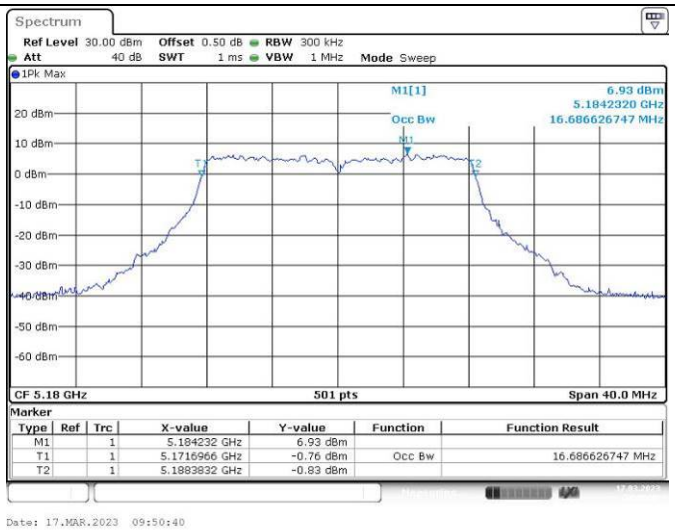
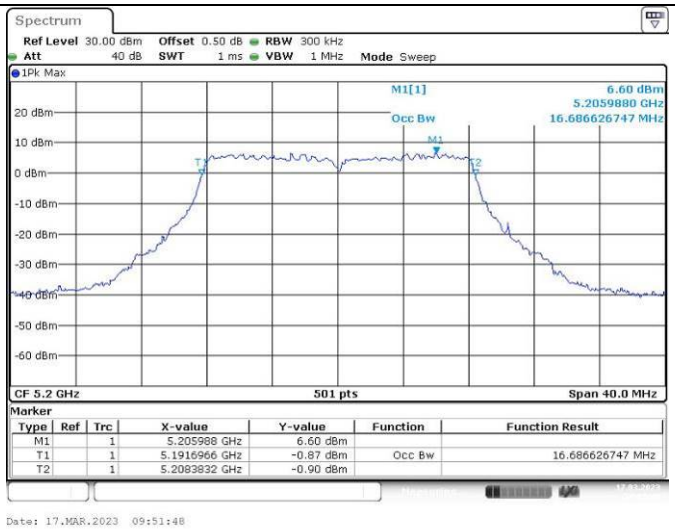
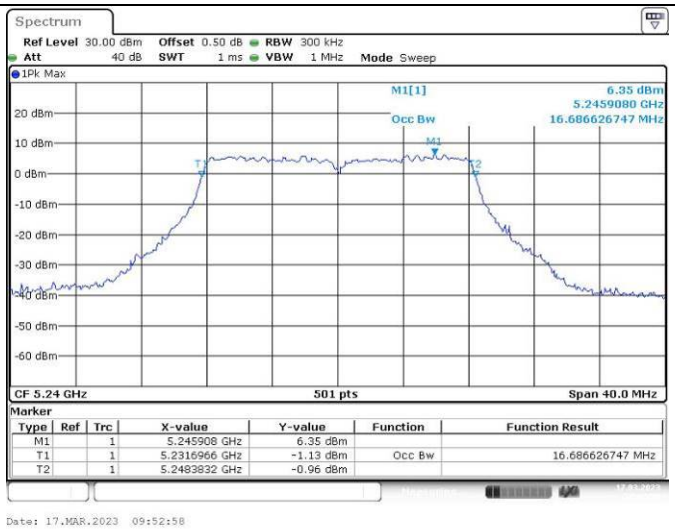
26dB Emission Bandwidth	
802.11n ht40 Lowest Channel	
802.11n ht40 Highest Channel	
802.11ac vht80 Middle Channel	

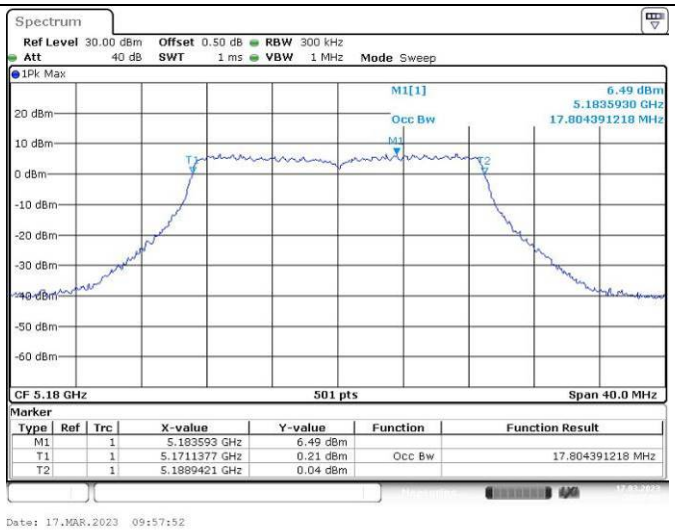
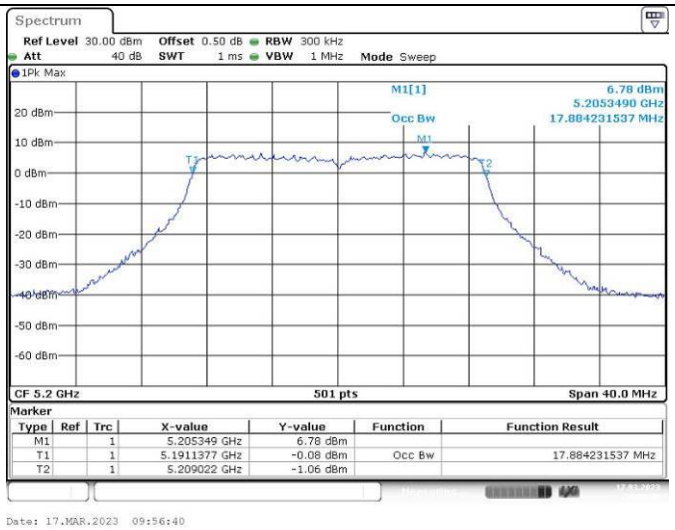
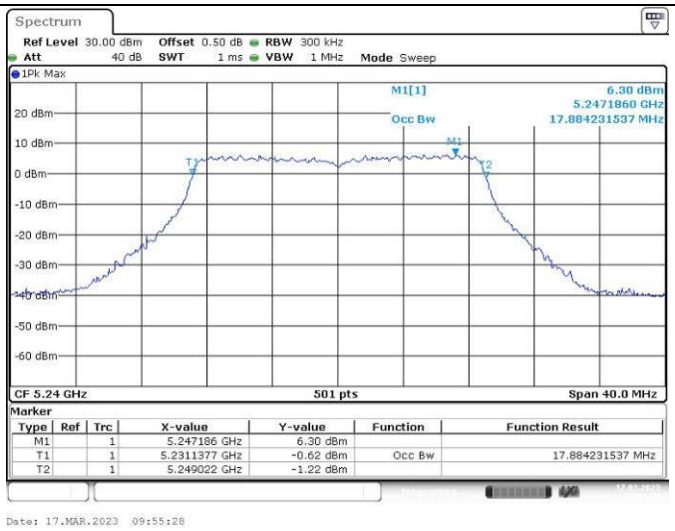
26dB Emission Bandwidth

802.11ax hew20 Lowest Channel	
802.11ax hew20 Middle Channel	
802.11ax hew20 Highest Channel	

26dB Emission Bandwidth

802.11ax hew40 Lowest Channel	
802.11ax hew40 Highest Channel	
802.11ax hew80 Middle Channel	

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

99% Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel	

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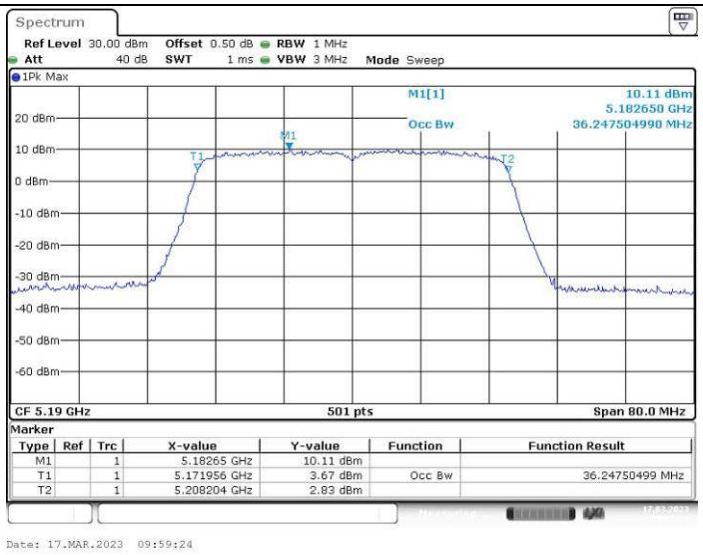
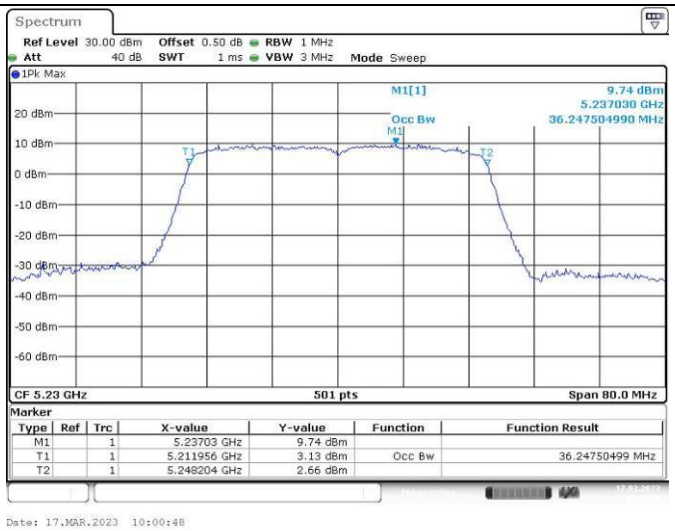
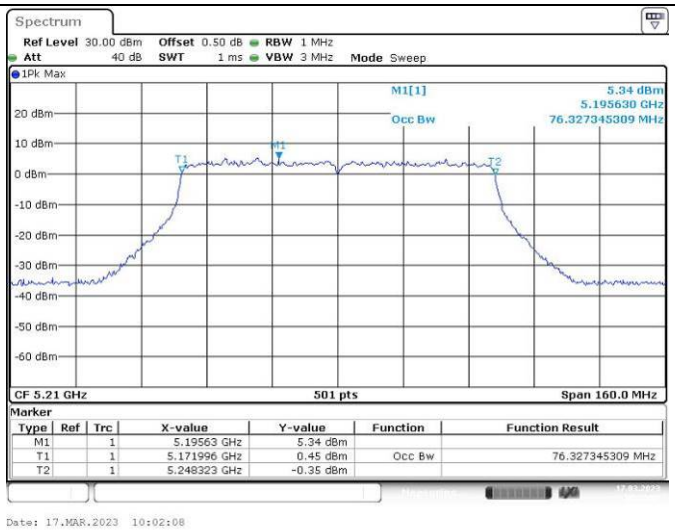
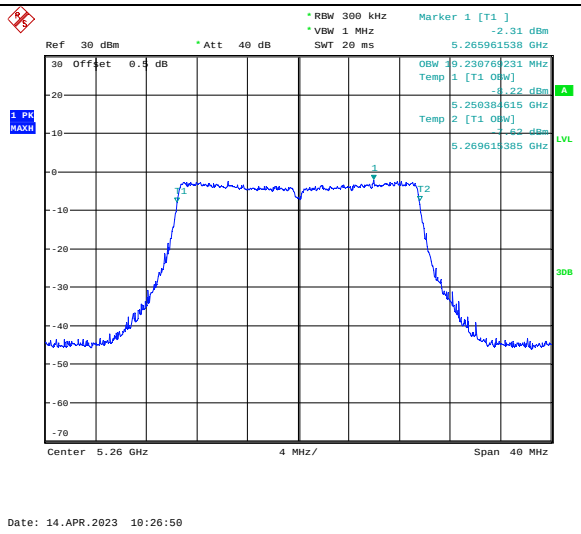
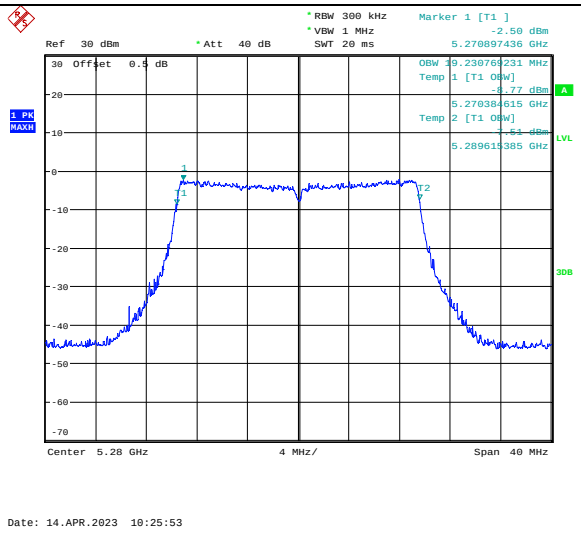
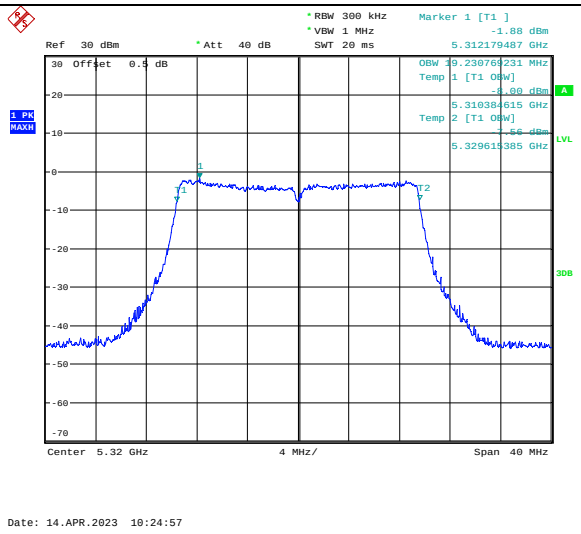
802.11n ht40 Lowest Channel	
802.11n ht40 Highest Channel	
802.11ac vht80 Middle Channel	

99% Emission Bandwidth	
802.11ax hew20 Lowest Channel	
802.11ax hew20 Middle Channel	
802.11ax hew20 Highest Channel	

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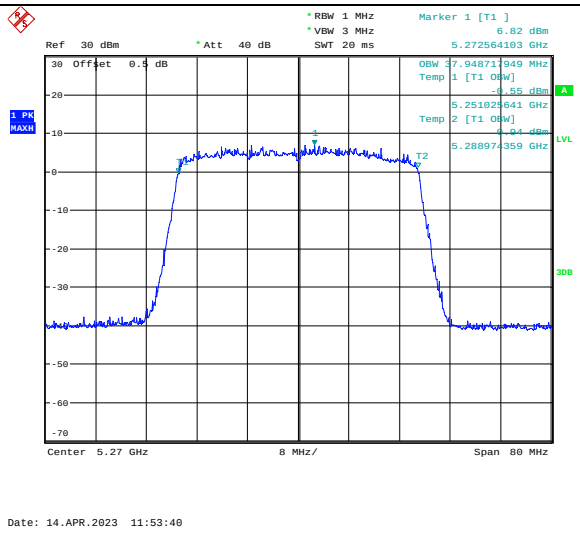
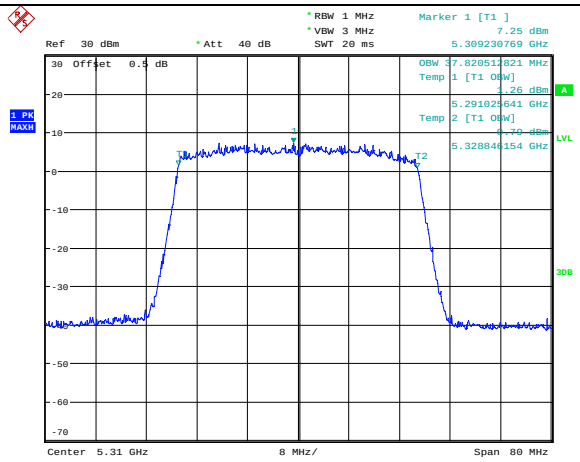
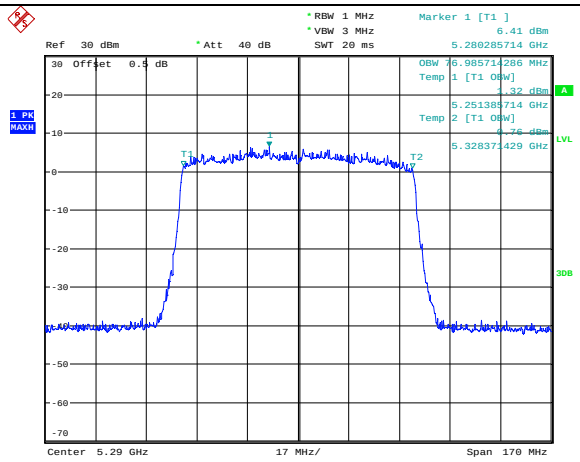
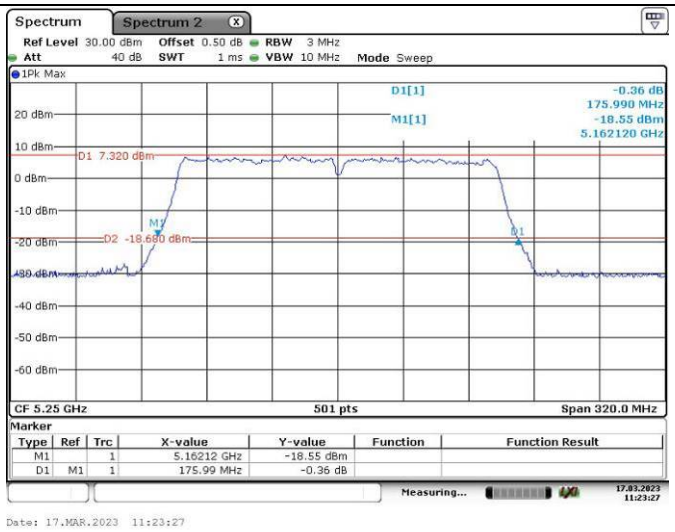
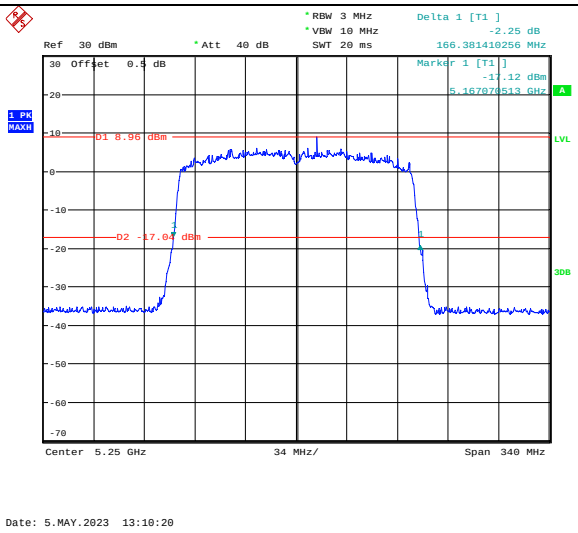
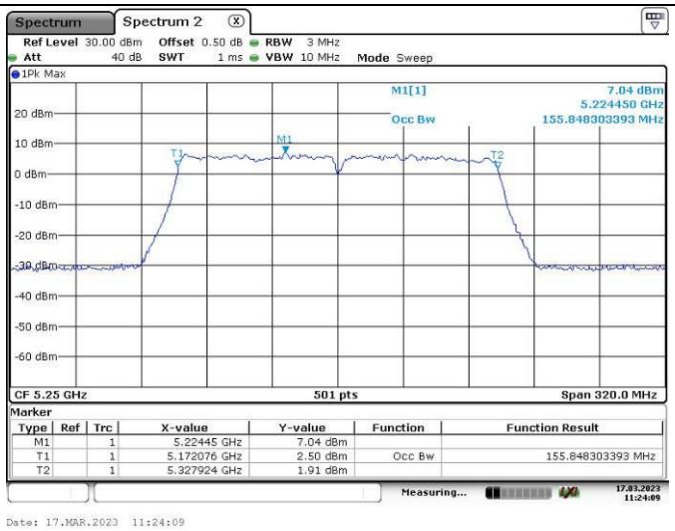
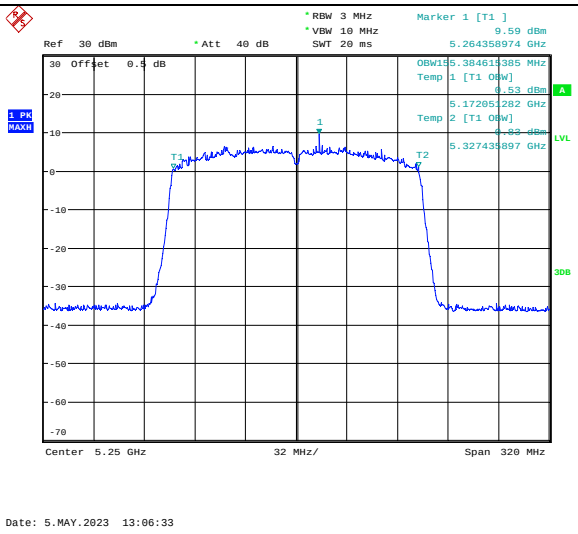
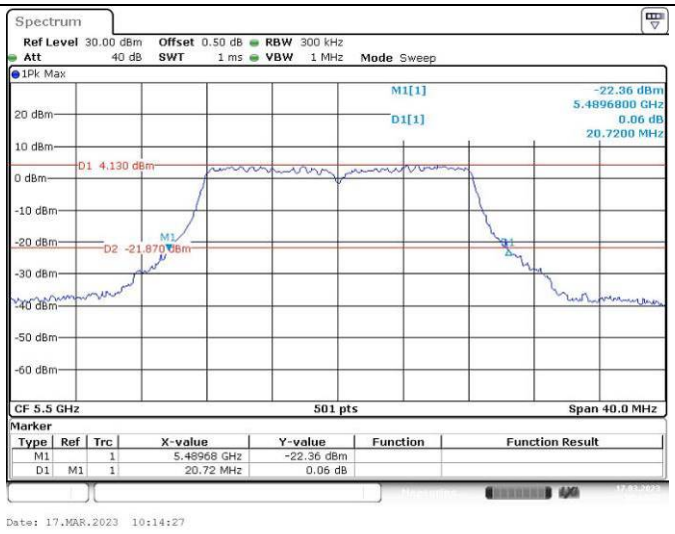
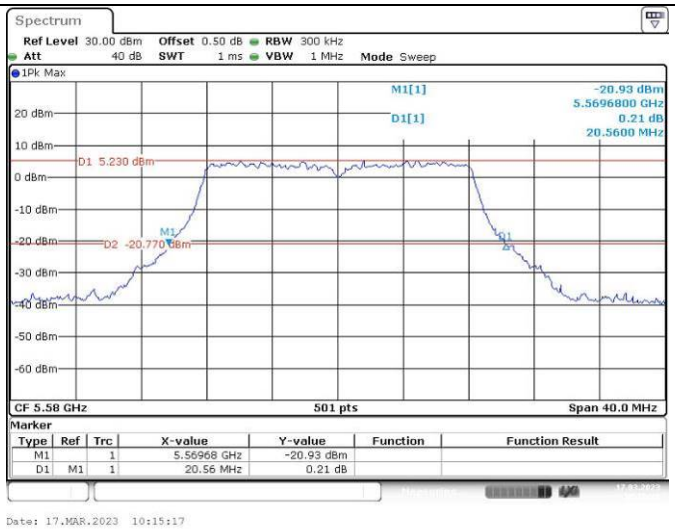
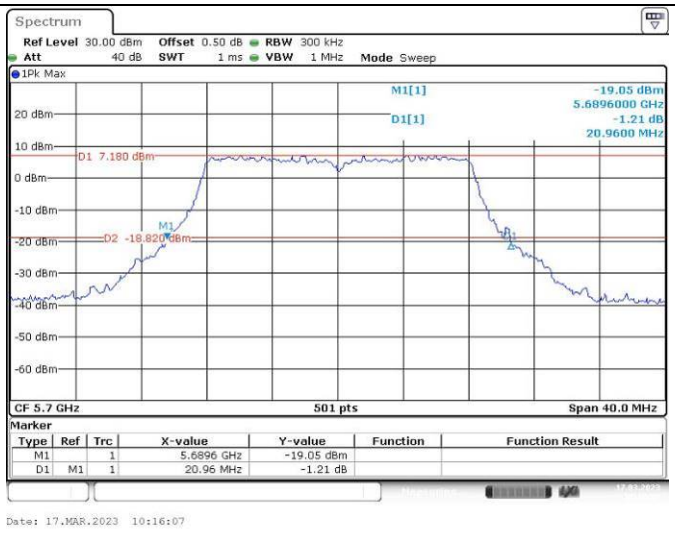
802.11ax hew40 Lowest Channel	
802.11ax hew40 Highest Channel	
802.11ax hew80 Middle Channel	

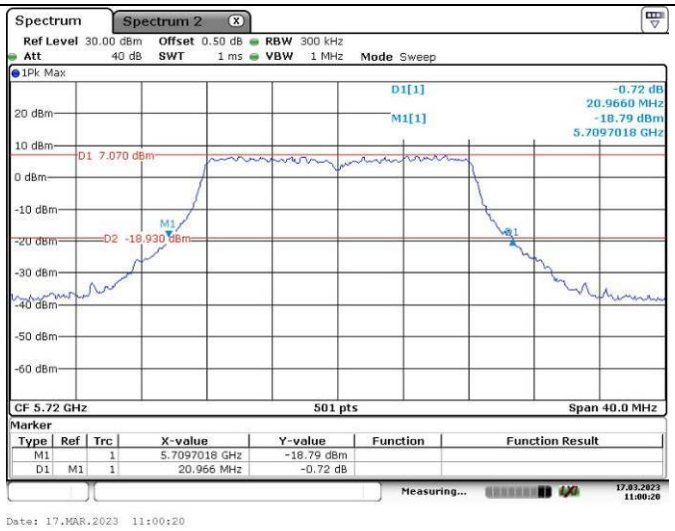
5150-5250 MHz &5250-5350 MHz:

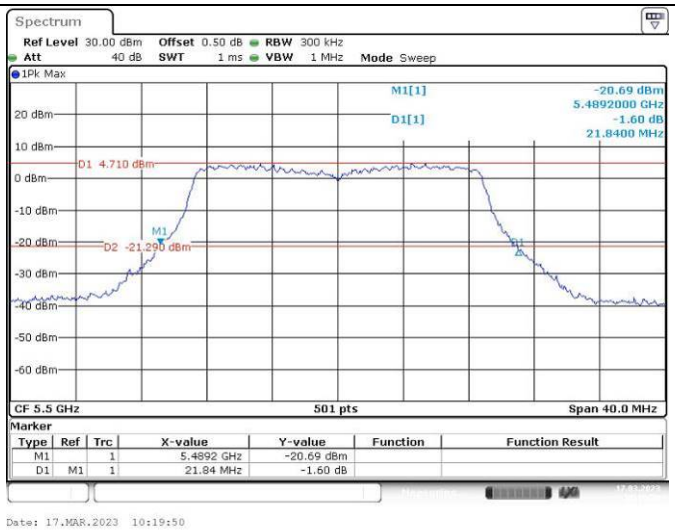
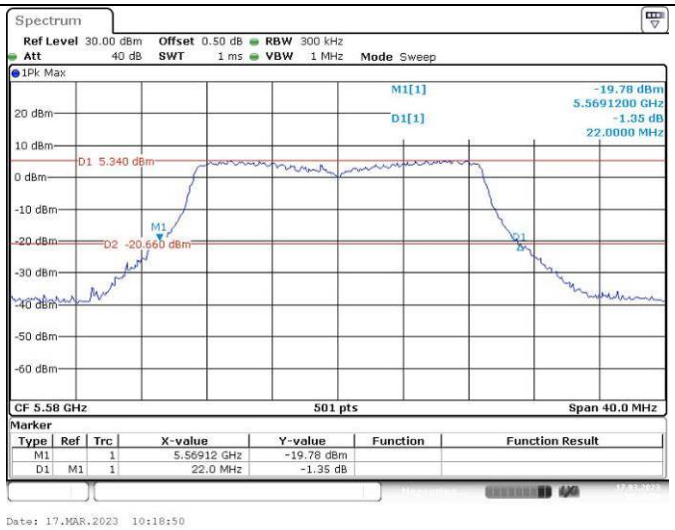
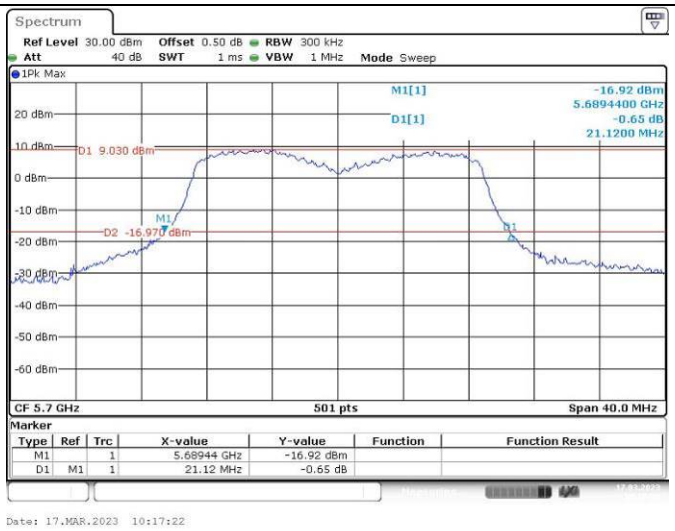
26dB Emission Bandwidth	
802.11ac vht160 Middle Channel	
802.11ax hew160 Middle Channel	

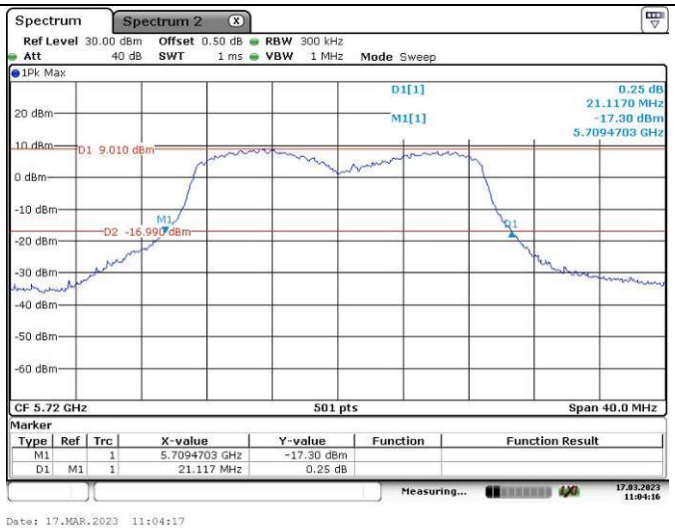
99% Emission Bandwidth	
802.11ac vht160 Middle Channel	
802.11ax hew160 Middle Channel	

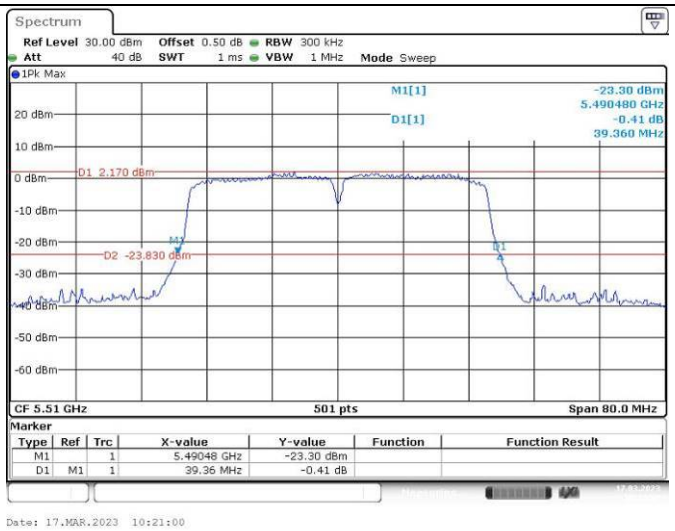
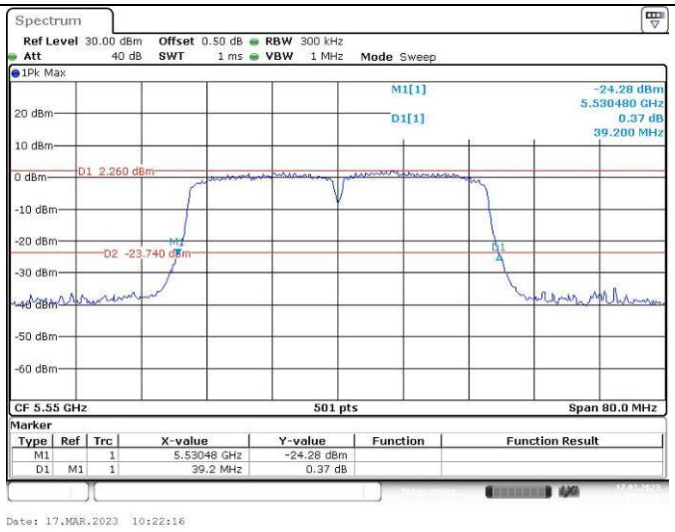
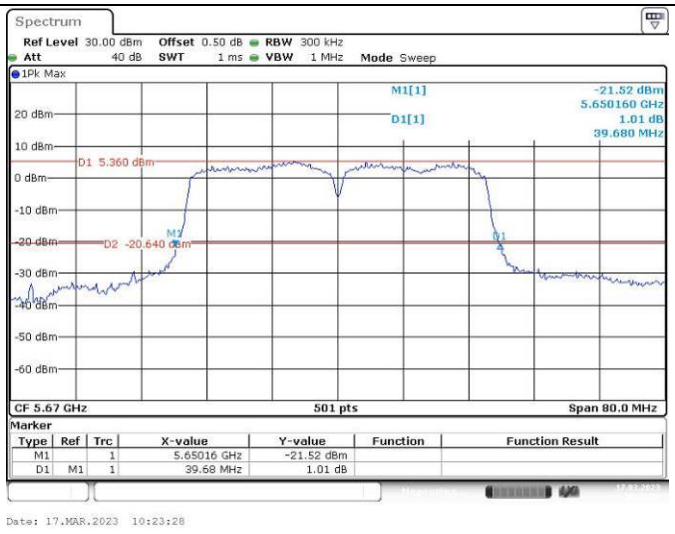
5470-5725MHz:

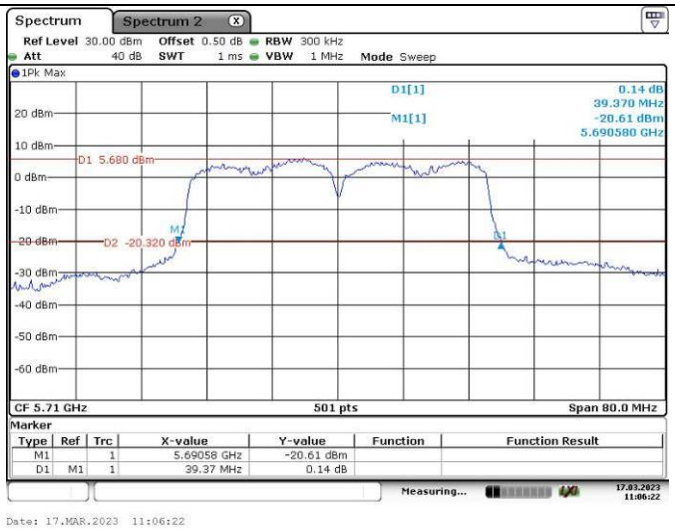
26dB Emission Bandwidth	
802.11a 5500MHz	
802.11a 5580MHz	
802.11a 5700MHz	

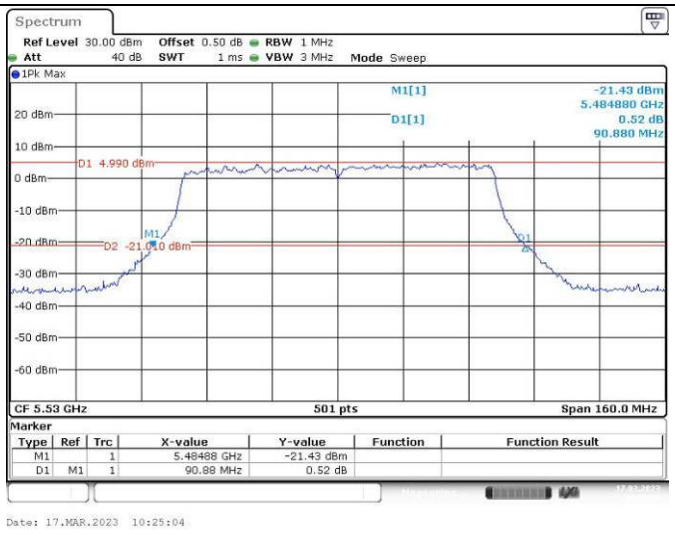
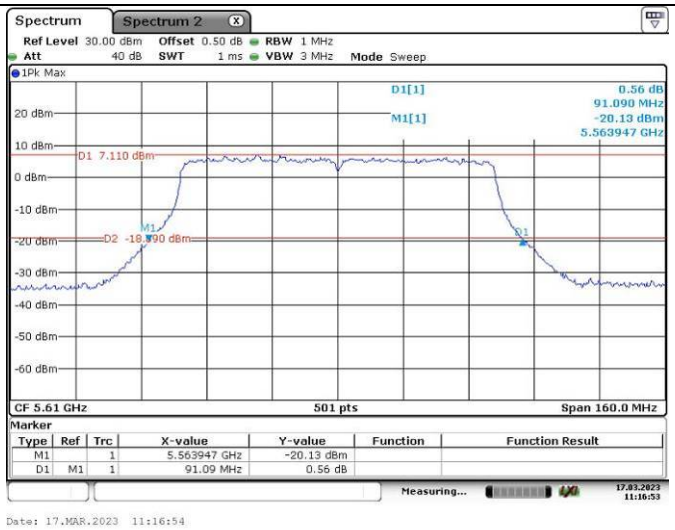
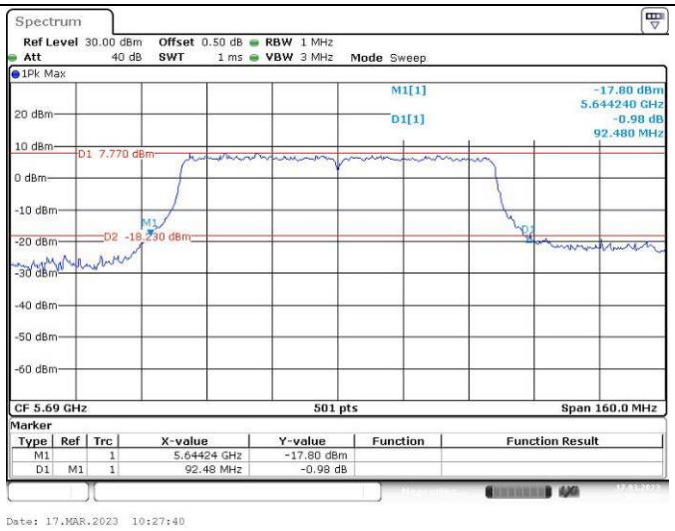
802.11a 5720MHz	

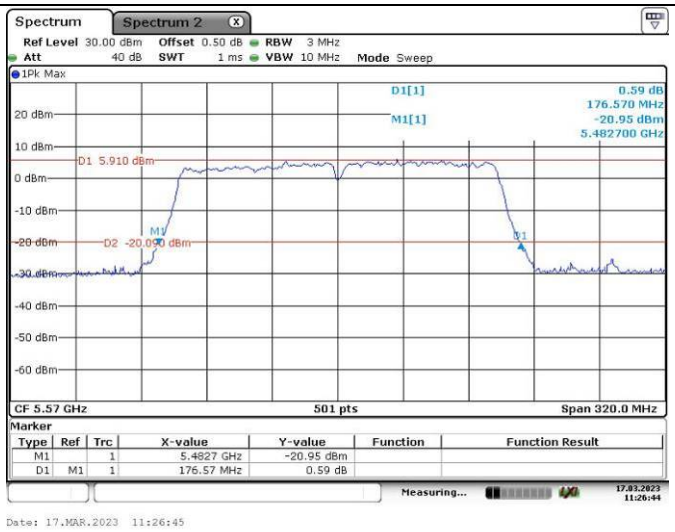
26dB Emission Bandwidth	
802.11n ht20 5500MHz	
802.11n ht20 5580MHz	
802.11n ht20 5700MHz	

802.11n ht20 5720MHz	

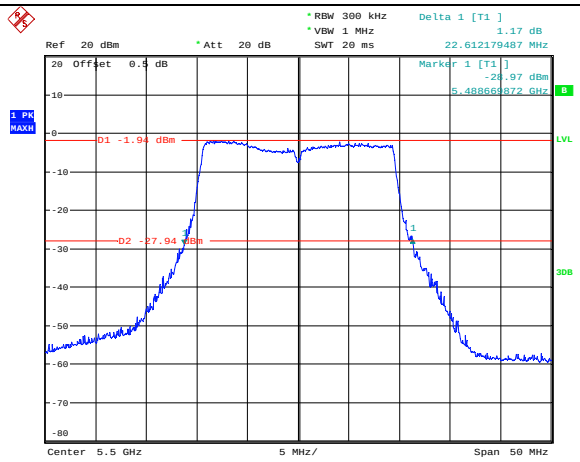
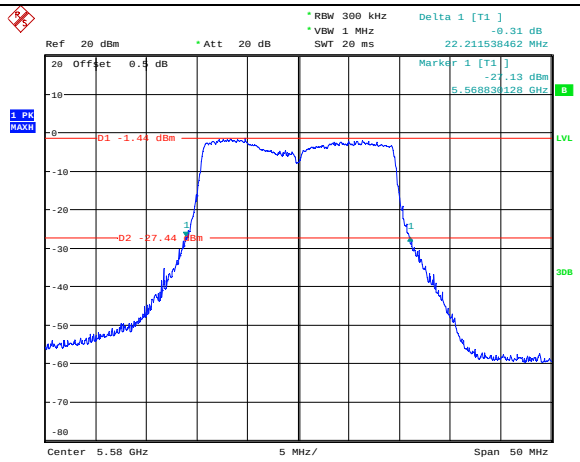
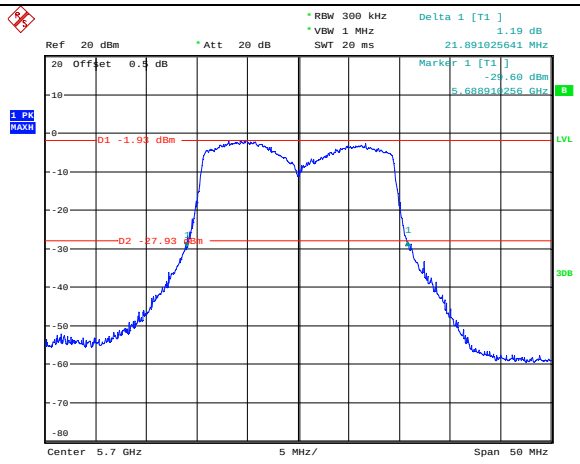
26dB Emission Bandwidth	
802.11n ht40 5510MHz	
802.11n ht40 5550MHz	
802.11n ht40 5670MHz	

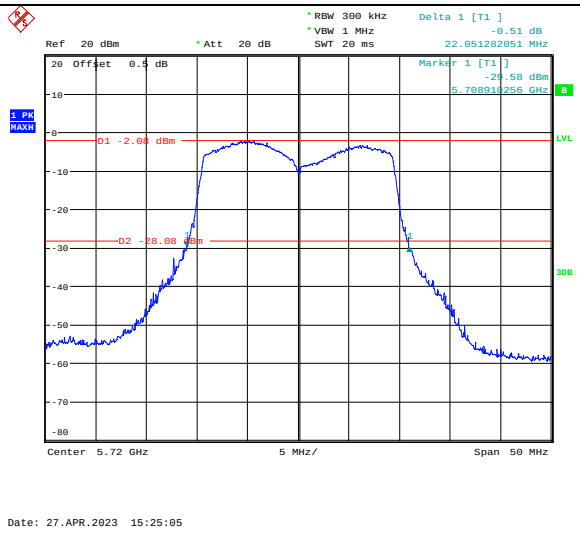
802.11n ht40 5710MHz	

26dB Emission Bandwidth	
802.11ac vht80 5530MHz	
802.11ac vht80 5610MHz	
802.11ac vht80 5690MHz	

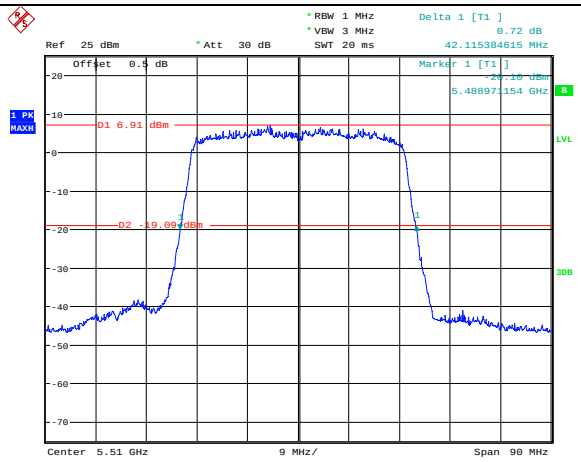
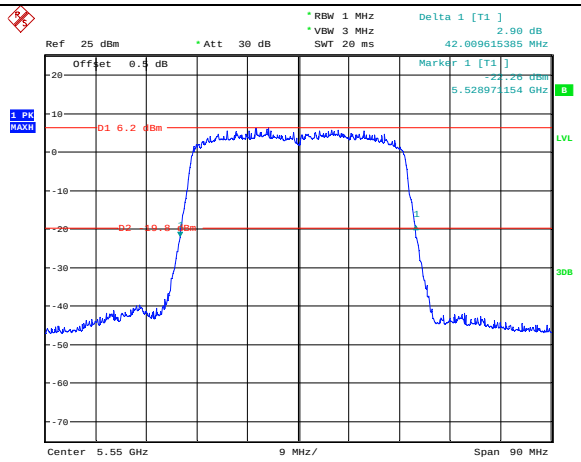
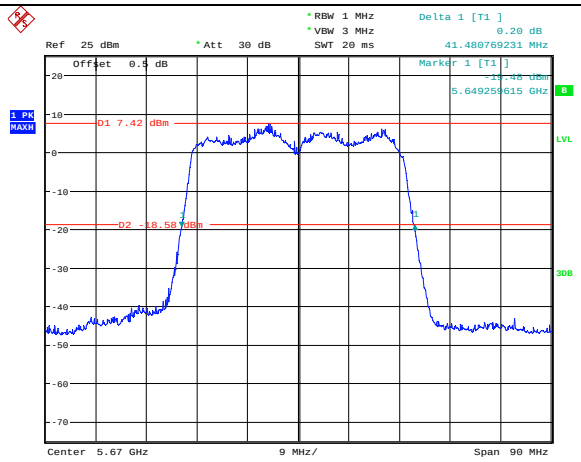
26dB Emission Bandwidth	
802.11ac vht160 5570MHz	

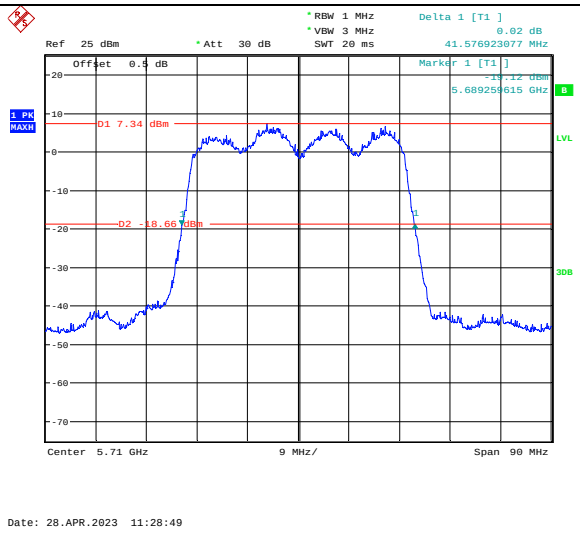
26dB Emission Bandwidth

802.11ax hew20 5500MHz	
802.11ax hew20 5580MHz	
802.11ax hew20 5700MHz	

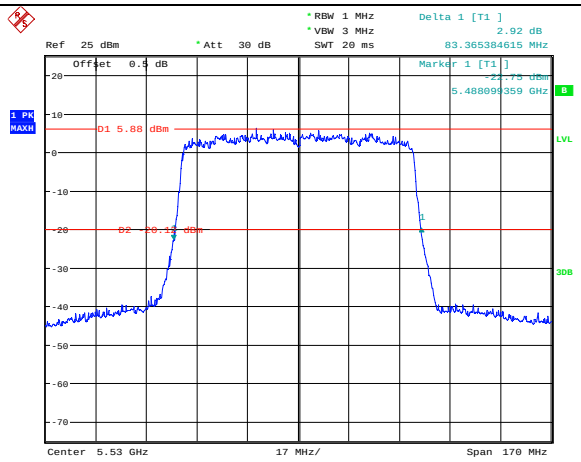
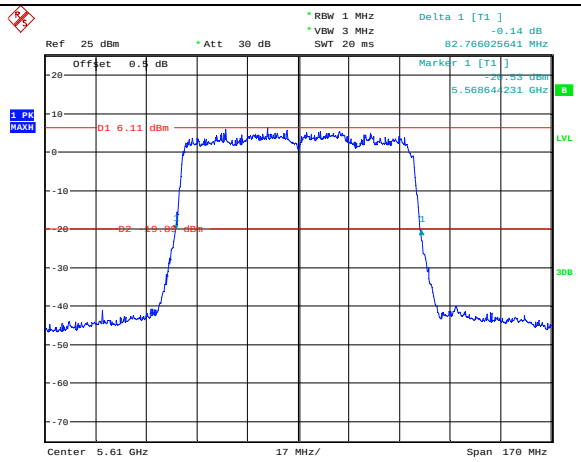
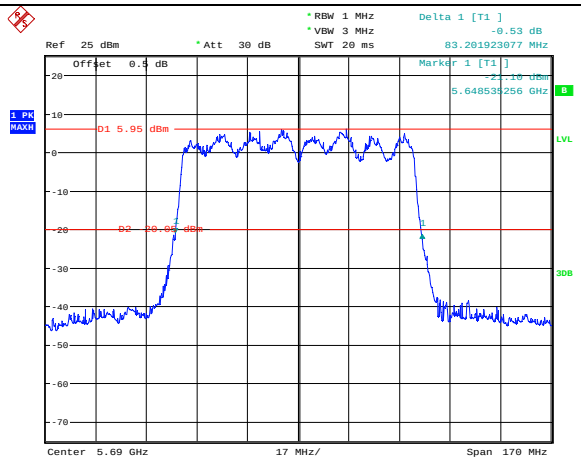
802.11ax hew20 5720MHz	

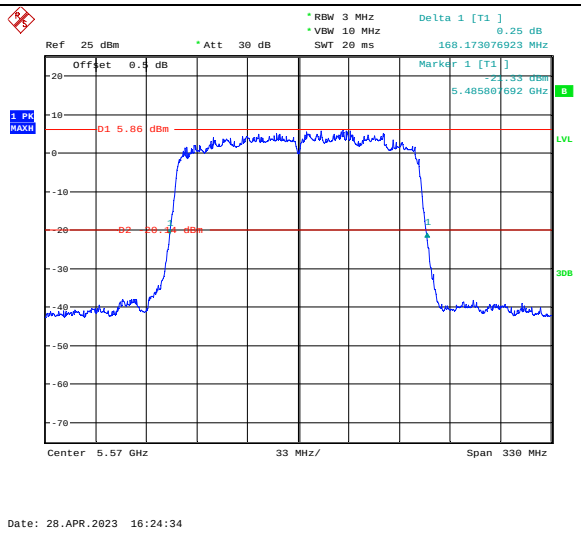
26dB Emission Bandwidth

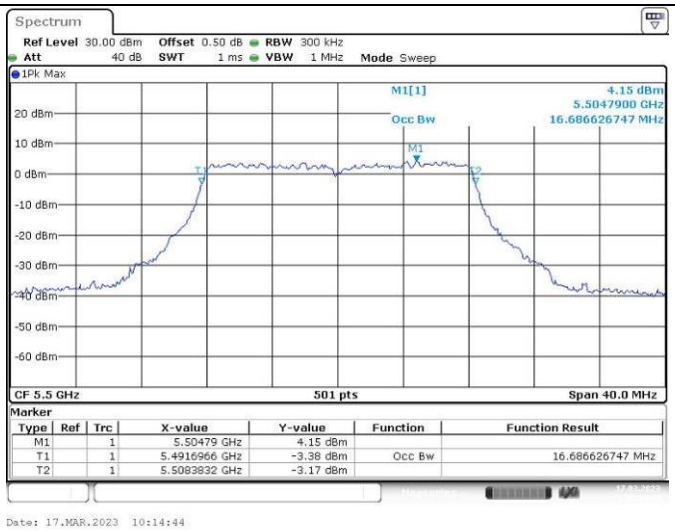
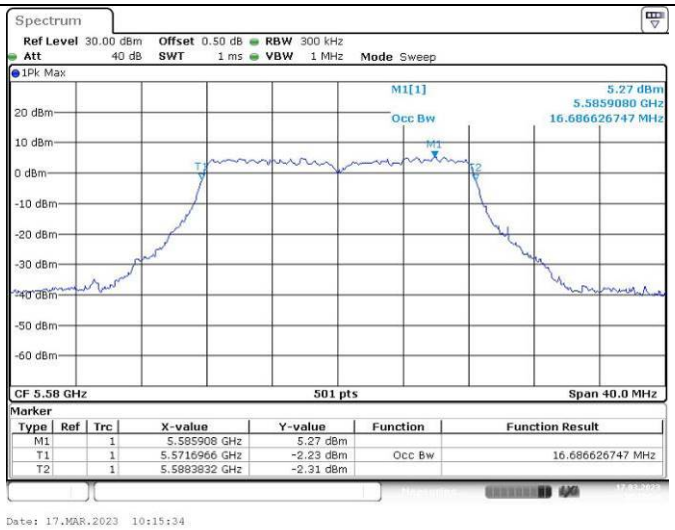
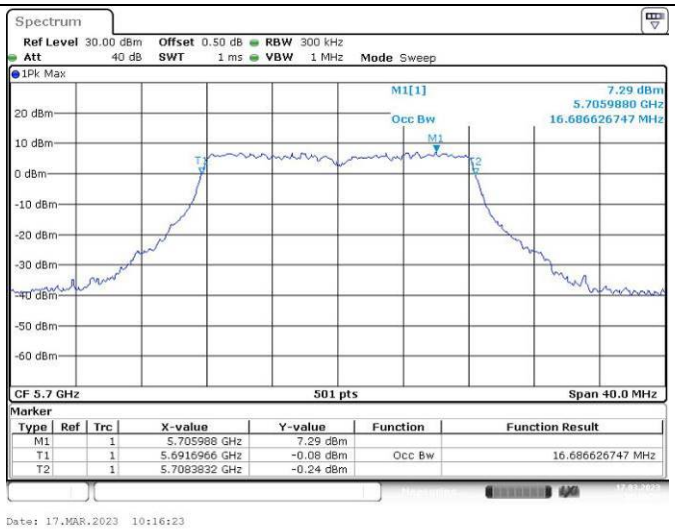
802.11ax hew40 5510MHz	 Date: 28.APR.2023 11:23:05
802.11ax hew40 5550MHz	 Date: 28.APR.2023 11:25:57
802.11ax hew40 5670MHz	 Date: 28.APR.2023 11:27:30

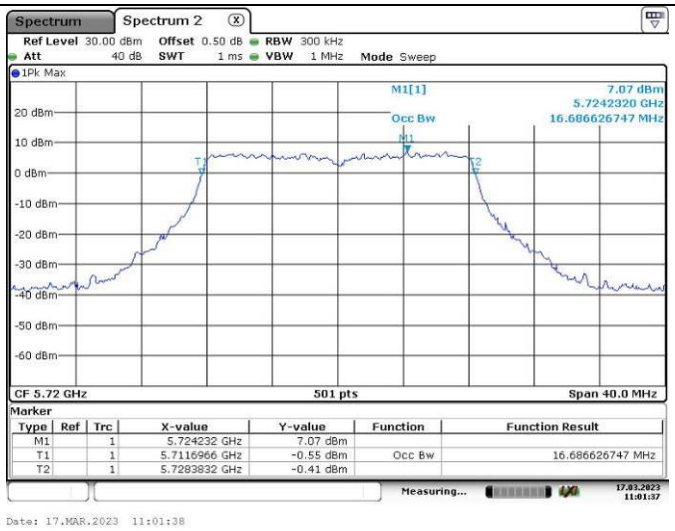
802.11ax hew40 5710MHz	

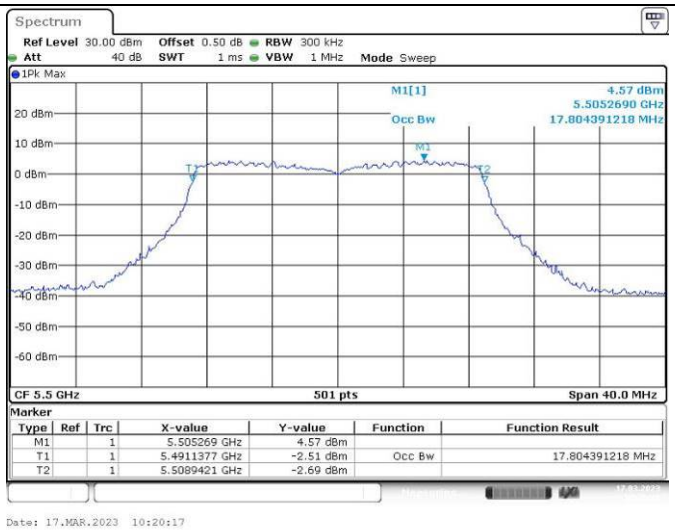
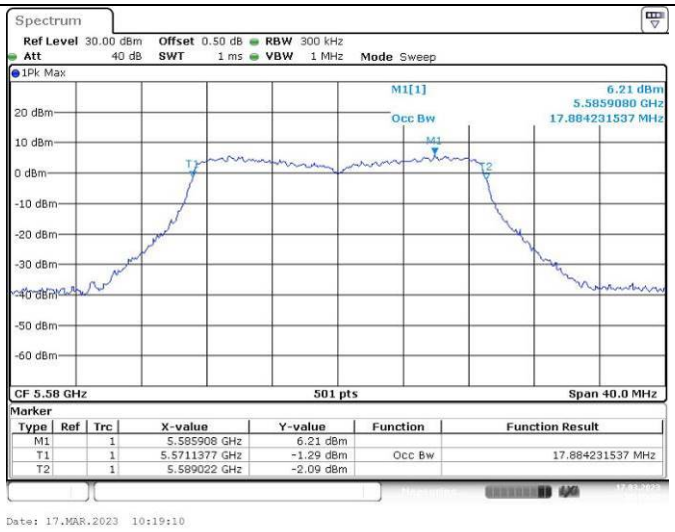
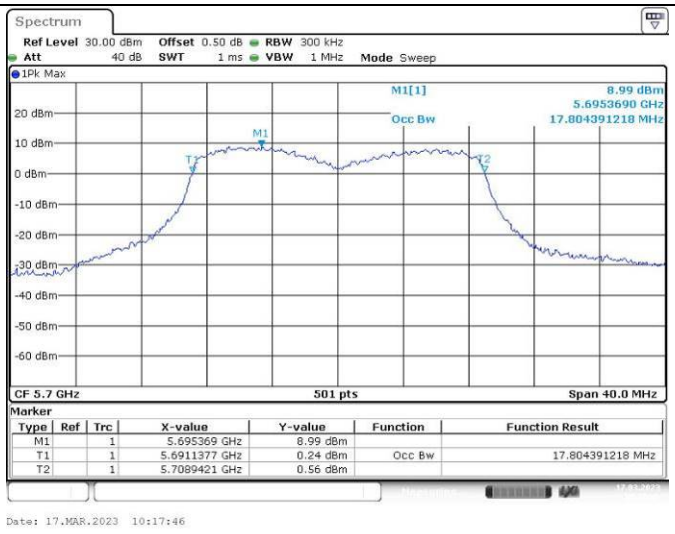
26dB Emission Bandwidth

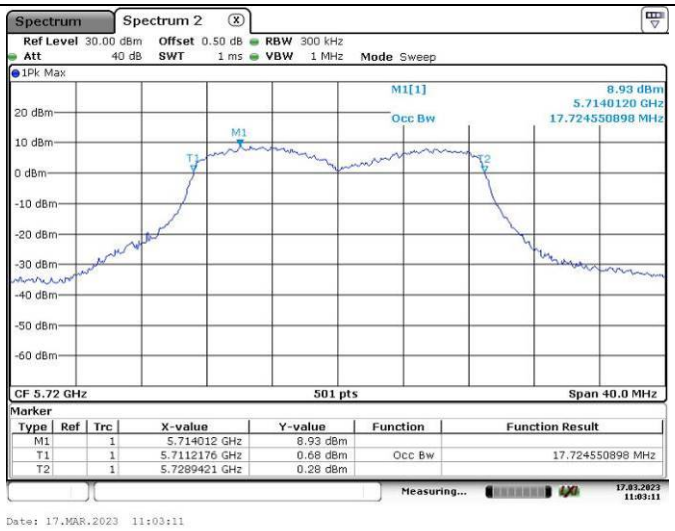
802.11ax hew80 5530MHz	
802.11ax hew80 5610MHz	
802.11ax hew80 5690MHz	

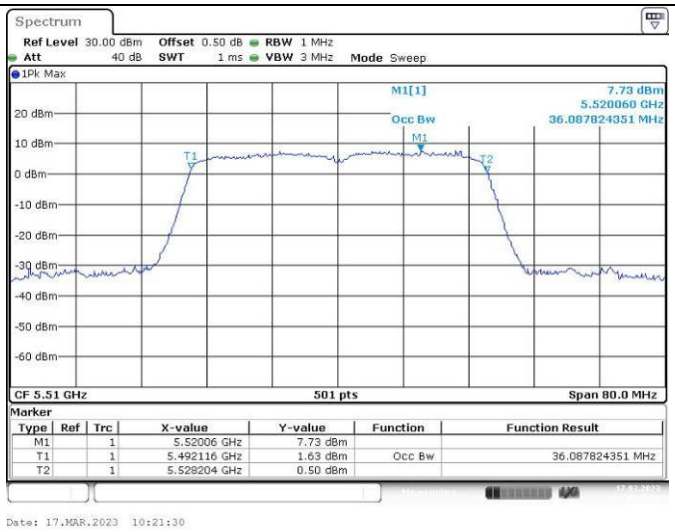
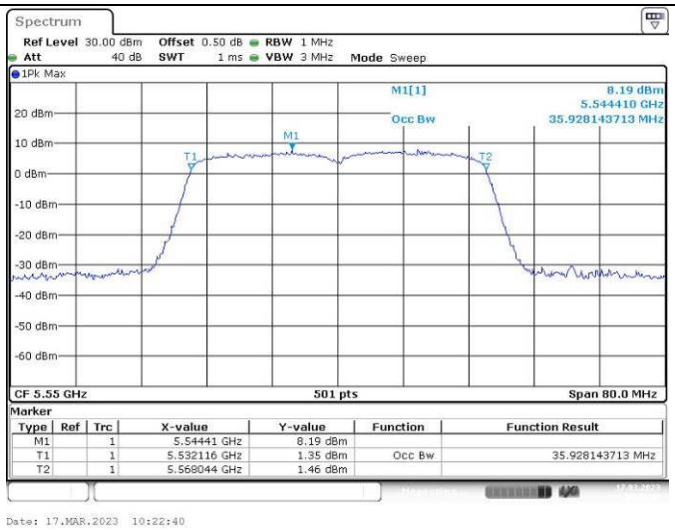
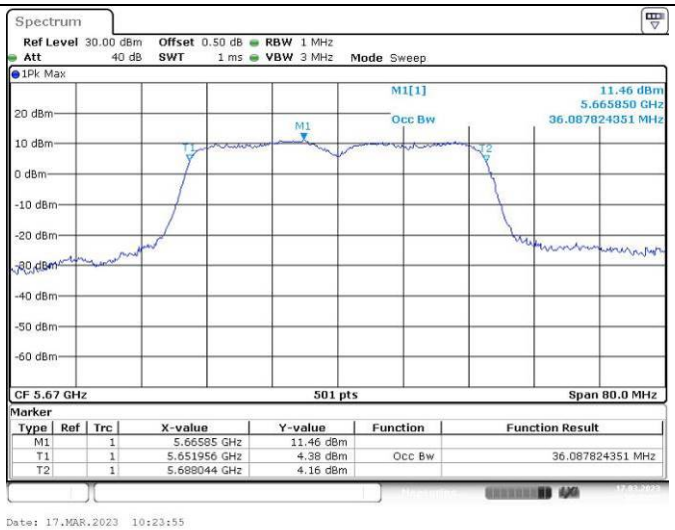
26dB Emission Bandwidth	
802.11ax hew160 5570MHz	

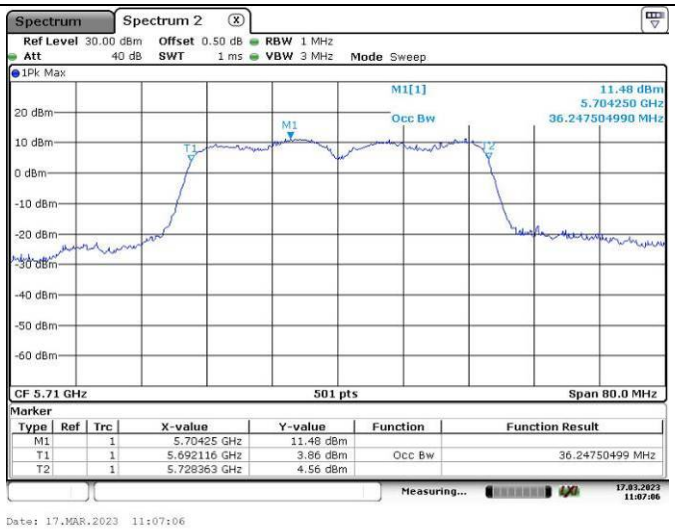
99% Emission Bandwidth	
802.11a 5500MHz	
802.11a 5580MHz	
802.11a 5700MHz	

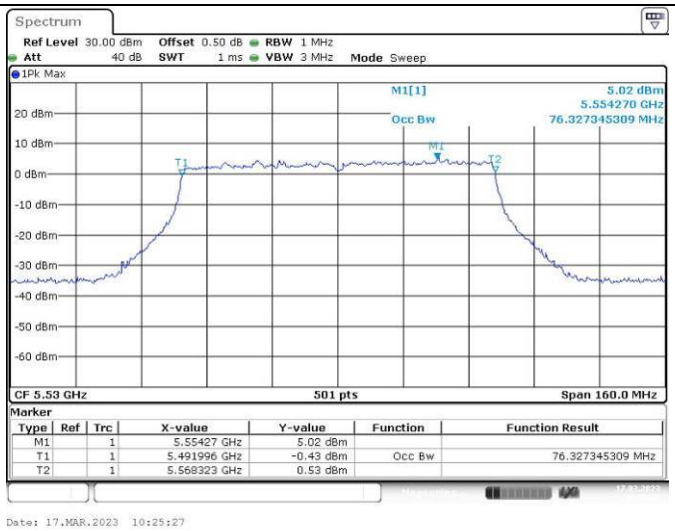
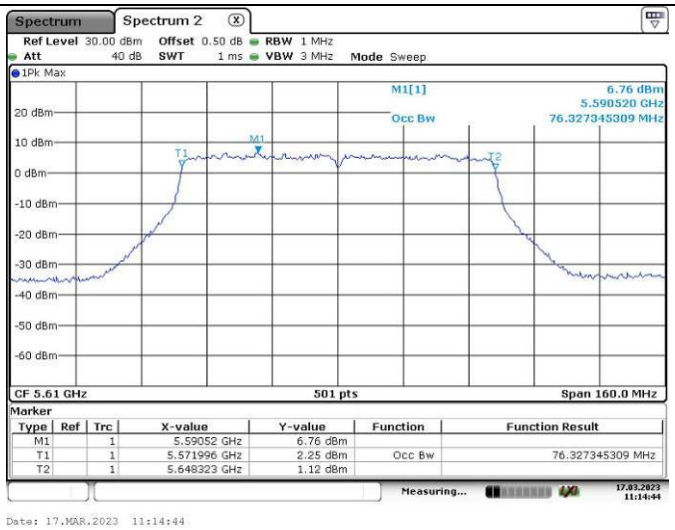
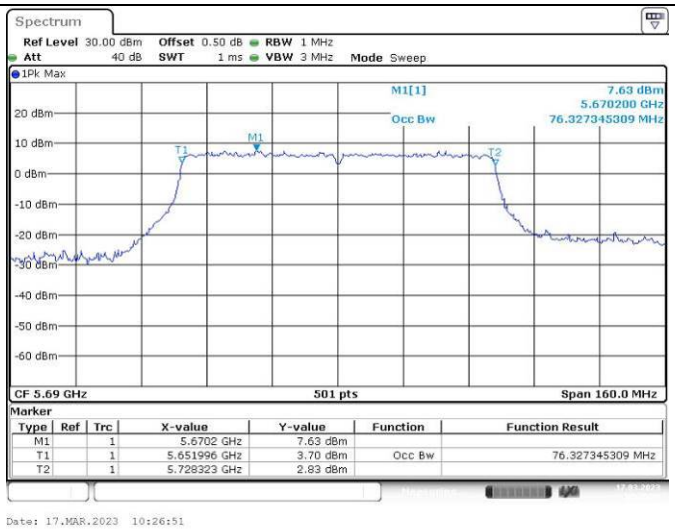
802.11a 5720MHz	

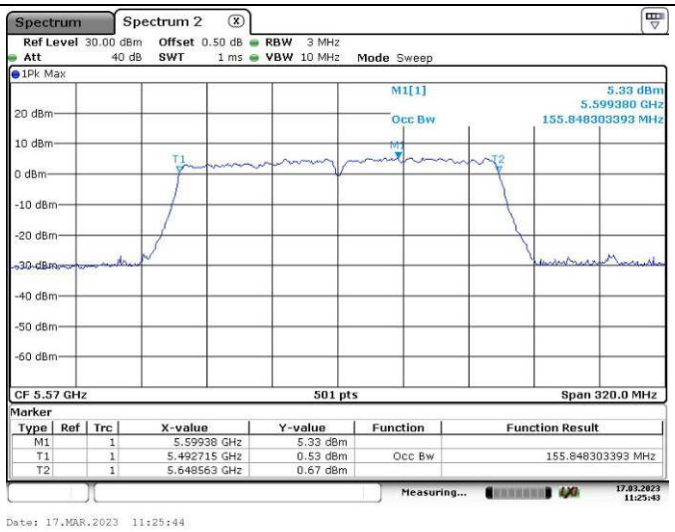
99% Emission Bandwidth	
802.11n ht20 5500MHz	
802.11n ht20 5580MHz	
802.11n ht20 5700MHz	

802.11n ht20 5720MHz	

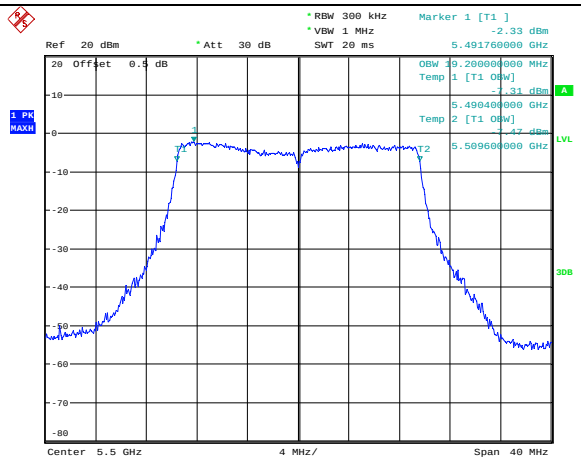
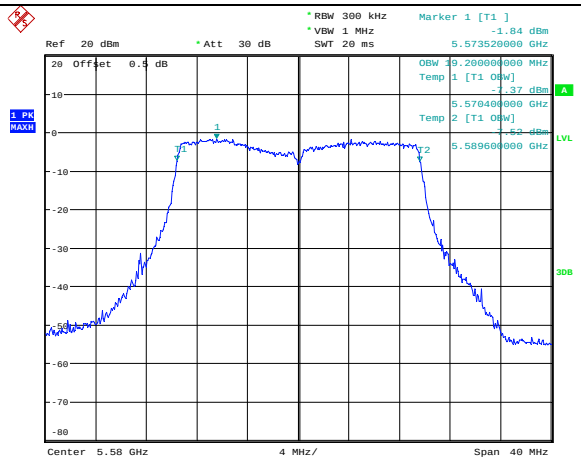
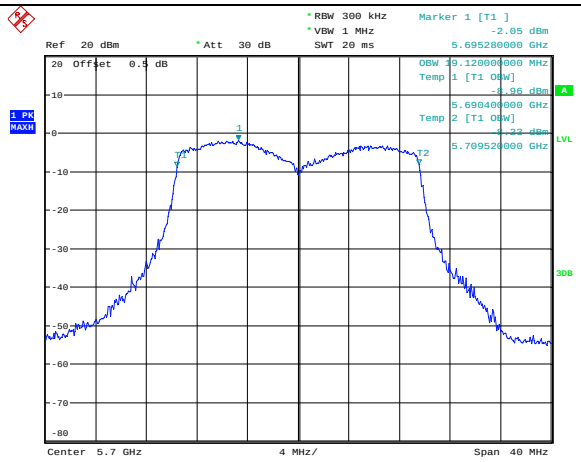
99% Emission Bandwidth	
802.11n ht40 5510MHz	
802.11n ht40 5550MHz	
802.11n ht40 5670MHz	

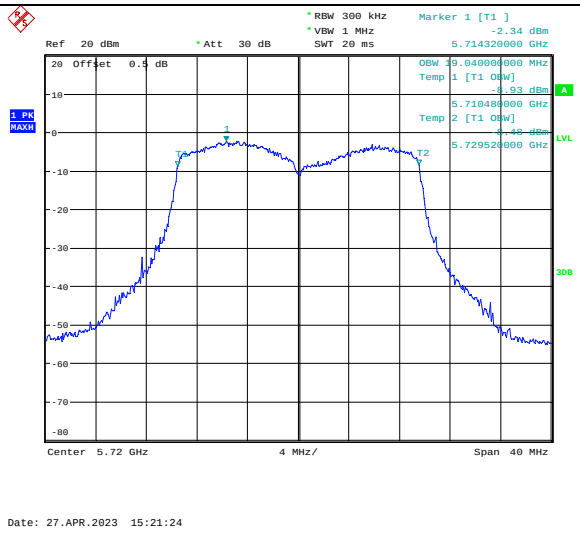
8802.11n ht40 5710MHz	

99% Emission Bandwidth	
802.11ac vht80 5530MHz	
802.11ac vht80 5610MHz	
802.11ac vht80 5690MHz	

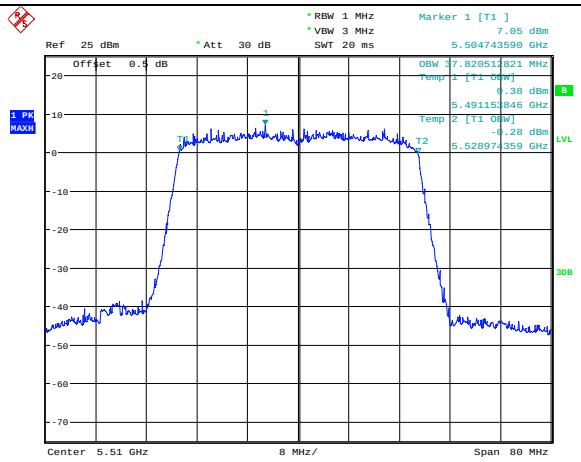
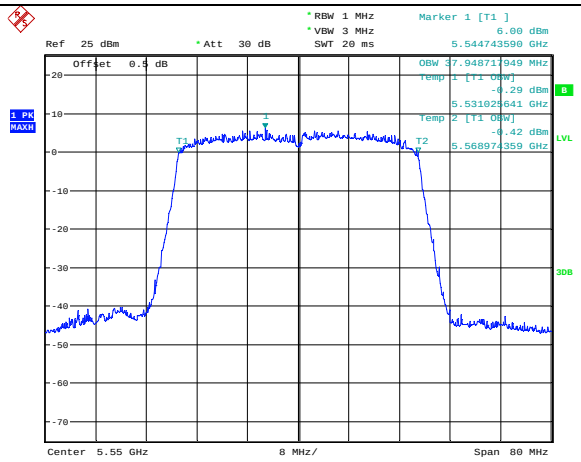
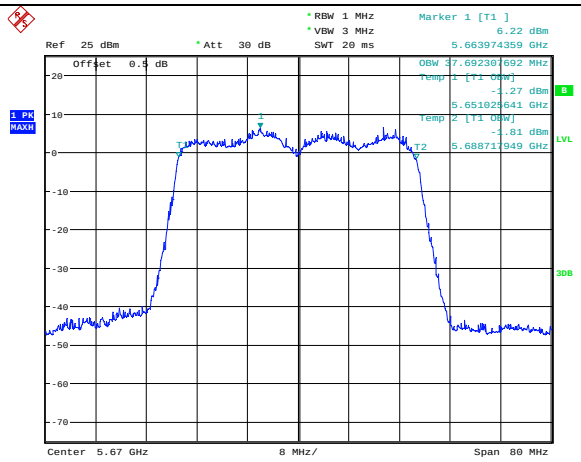
99% Emission Bandwidth	
802.11ac vht160 5570MHz	

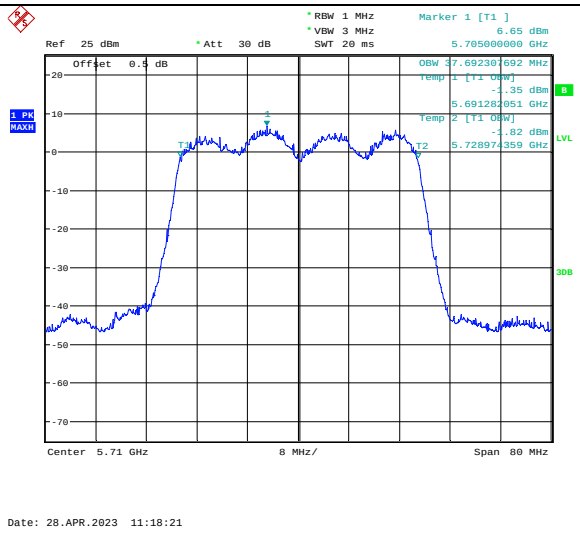
99% Emission Bandwidth

802.11ax hew20 5500MHz	
802.11ax hew20 5580MHz	
802.11ax hew20 5700MHz	

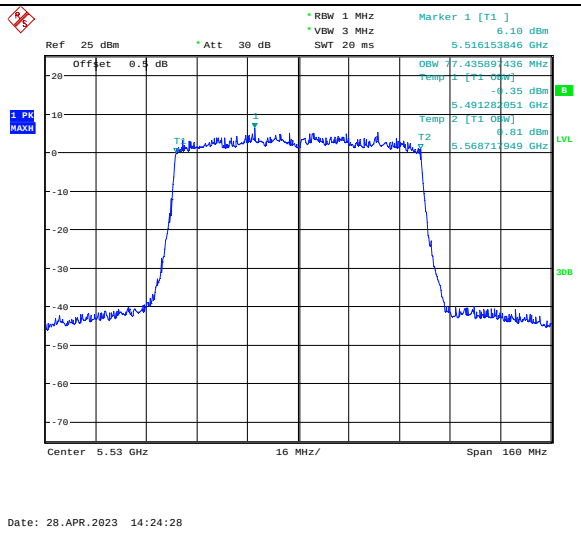
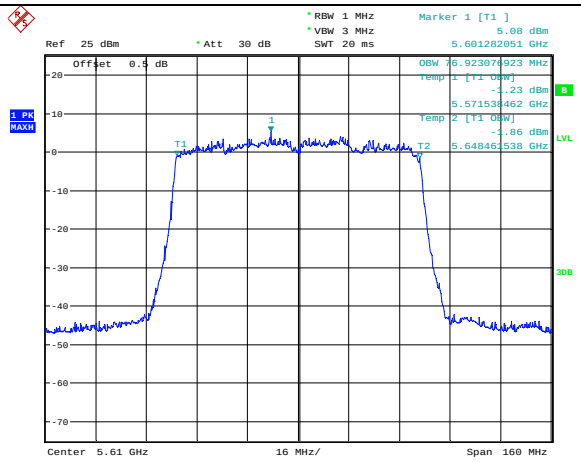
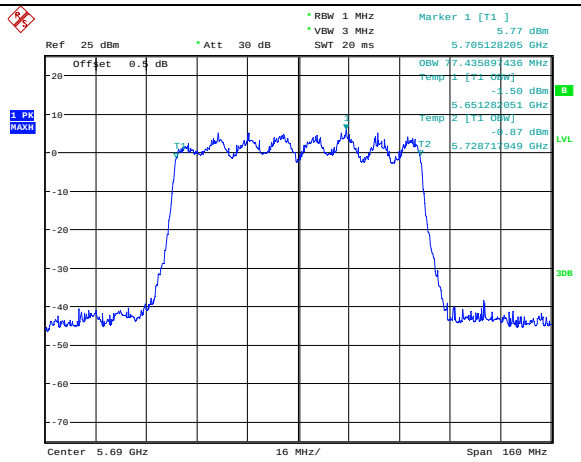
802.11ax hew20 5720MHz	

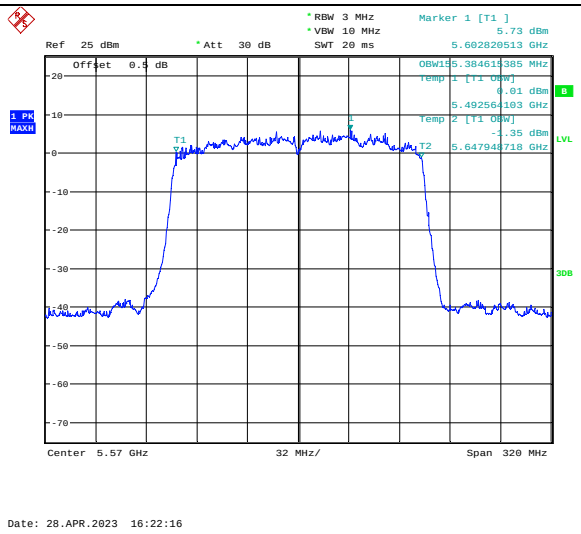
99% Emission Bandwidth

802.11ax hew40 5510MHz	
802.11ax hew40 5550MHz	
802.11ax hew40 5670MHz	

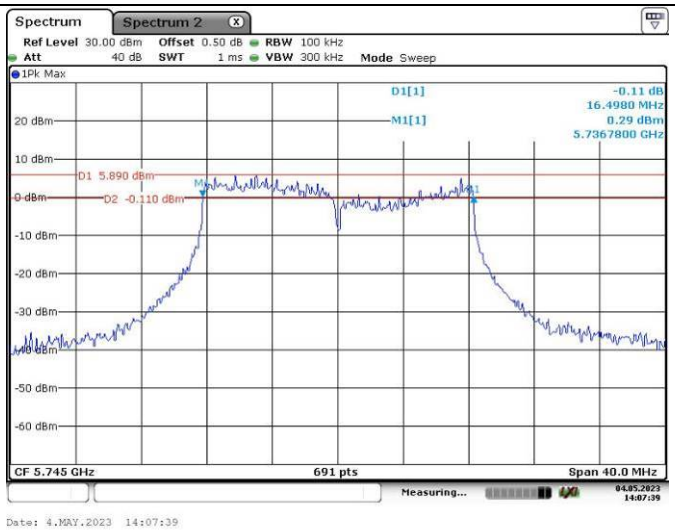
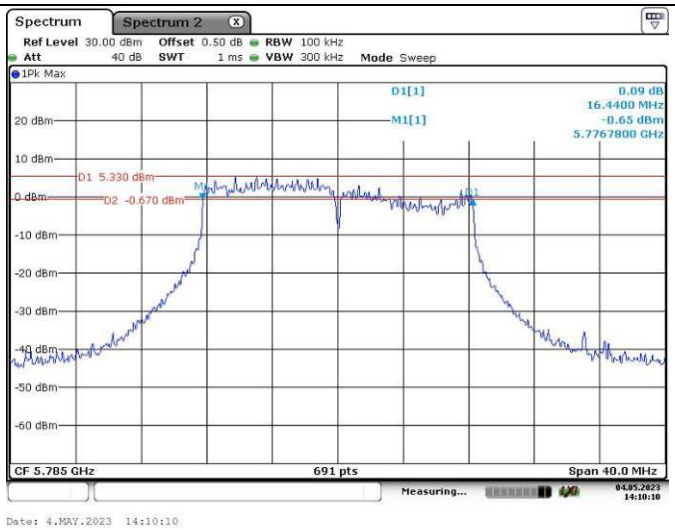
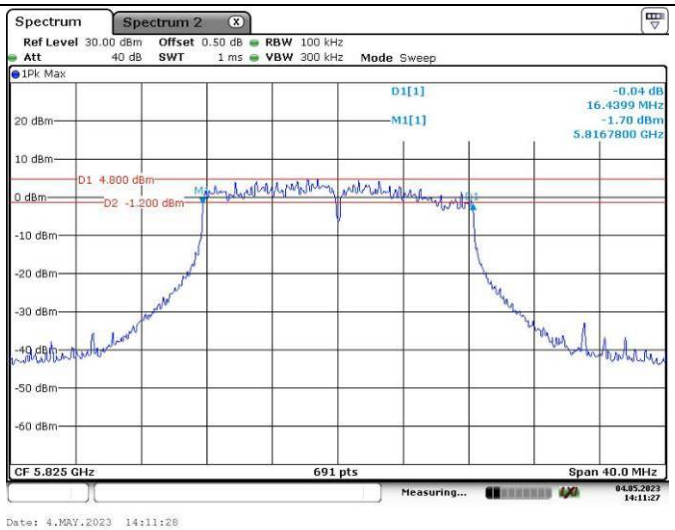
802.11ax hew40 5710MHz	

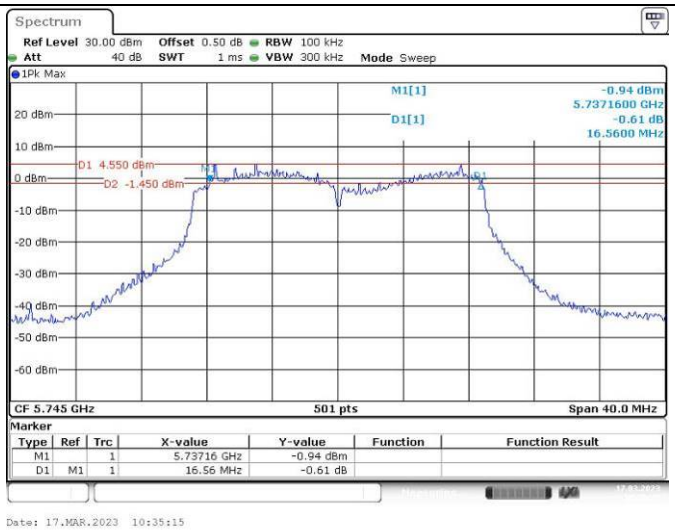
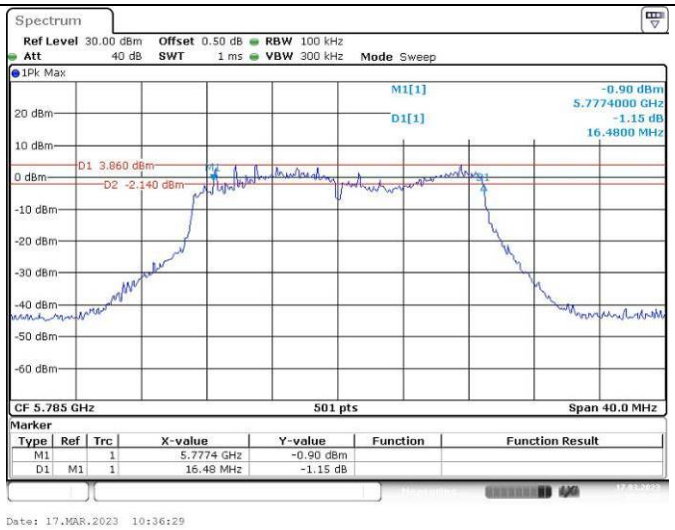
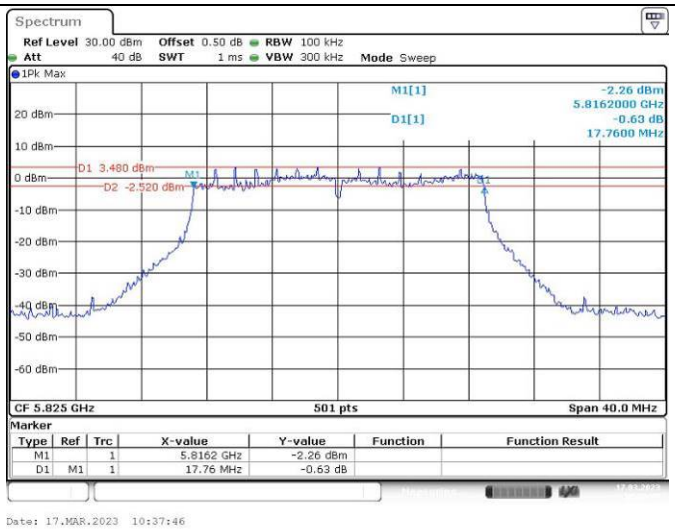
99% Emission Bandwidth

802.11ax hew80 5530MHz	
802.11ax hew80 5610MHz	
802.11ax hew80 5690MHz	

99% Emission Bandwidth	
802.11ax hew160 5570MHz	

5725-5850MHz:

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

6dB Emission Bandwidth	
802.11n ht20 Lowest Channel	
802.11n ht20 Middle Channel	
802.11n ht20 Highest Channel