

FCC PART 15.247

TEST REPORT

For

Compex Systems Pte Ltd

178 Paya Lebar Road #05-05 Singapore 409030

FCC ID: TK4WLW518H25

Report Type: Original Report	Product Name: WiFi 6 (802.11ax) 2×2 MU-MIMO Dual Band Module
Report Number:	<u>RKSA240703001-00B</u>
Report Date:	<u>2025-02-18</u>
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240703001-00B	R1V1	2025-03-11	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Compex Systems Pte Ltd
Tested Model	WLW518H25-V
Product Name	WiFi 6 (802.11ax) 2×2 MU-MIMO Dual Band Module
Power Supply	DC 3.3 V
RF Function:	2.4G Wi-Fi
Operating Band/Frequency:	2412~2462 MHz(802.11b/g/n20/ax20), 2422~2452 MHz(802.11n40/ax40)
Maximum Output Power:	802.11b: 18.74 dBm 802.11g: 16.98 dBm 802.11n20: 19.61 dBm 802.11n40: 18.21 dBm 802.11ax20: 20.59 dBm 802.11ax40: 17.65 dBm
Channel Number:	11(802.11b/g/n20/ax20), 7(802.11n40/ax40)
Channel Separation:	5 MHz
Modulation Type:	DSSS, OFDM, OFDMA
Antenna Type:	Omni Antenna
★Maximum Antenna Gain:	4.5 dBi

Note: The maximum antenna gain is provided by the applicant.

All measurement and test data in this report was gathered from production sample serial number: RKSA240703001-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-07-03.)

Objective

This report is prepared for *Compex Systems Pte Ltd* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions' rules.

The tests were performed in order to determine Compliant with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and FCC 558074 D01 15.247 Meas Guidance v05r02.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	9 kHz~150 kHz	3.8dB
	150 kHz~30 MHz	3.4dB
	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0℃
Humidity		6%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu Province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN5055.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

Channel List for Wi-Fi:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	7	2442
2	2417	8	2447
3	2422	9	2452
4	2427	10	2457
5	2432	11	2462
6	2437	/	/

1: For 802.11b, 802.11g, 802.11ax-HE20 mode, EUT was tested with Channel 1, 6 and 11.
For 802.11n-HT40 and 802.11ax-HE40 mode, EUT was tested with Channel 3, 6 and 9.

2. 802.11b/g supports SISOmode, 802.11n20/n40/ax20/ax40 supports SISO, MIMO mode and beamforming mode.

3. For radiated emission, according to pretest, the worst case for 802.11n20/n40/ax20/ax40 are MIMO mode. So 802.11n20/n40/ax20/ax40 MIMO mode test data were recorded in the report.

4. The applicant provided two different antennas with the same antenna type, and the antenna with high antenna gain was selected for radiated emissions.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test tool: Putty

Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data rate	★Power Level					
		Low Channel		Middle Channel		High Channel	
		Chain 0	Chain 1	Chain 0	Chain 1	Chain 0	Chain 1
802.11b	1Mbps	36	36	36	36	36	36
802.11g	6Mbps	34	34	32	34	34	32
802.11n-HT20	MCS0	32	32	32	32	32	32
802.11n-HT40	MCS0	28	28	28	28	28	28
802.11ax-HE20	MCS0	36	36	36	36	32	32
802.11ax-HE40	MCS0	28	28	28	28	28	28

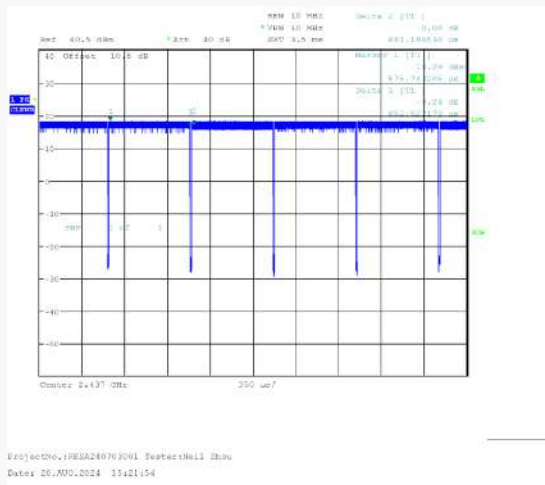
Note:

1. The power level was declared by the applicant.

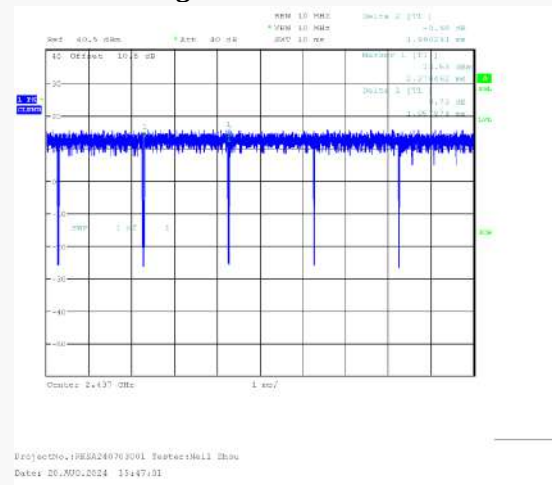
Duty Cycle:

Chain 0:

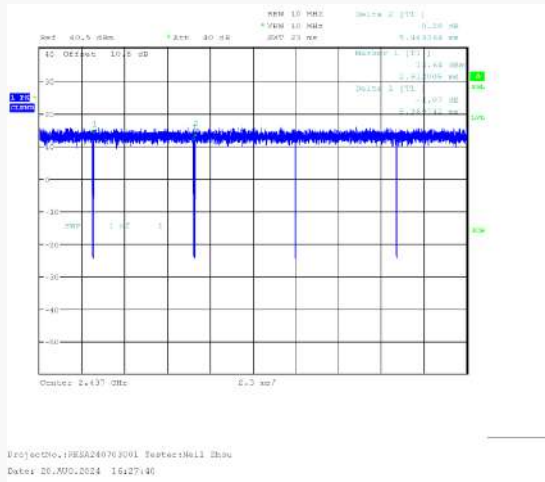
802.11b Mode Middle Channel



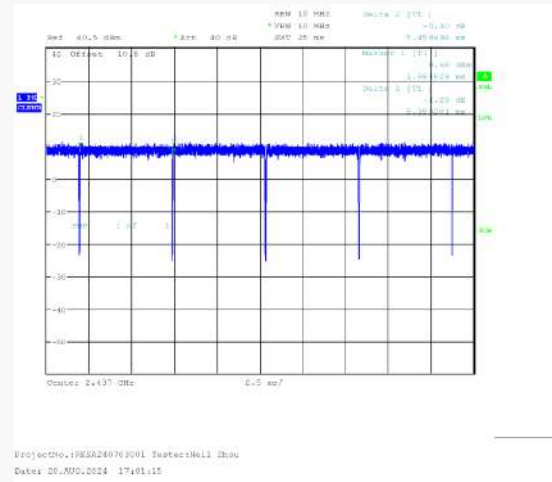
802.11g Mode Middle Channel



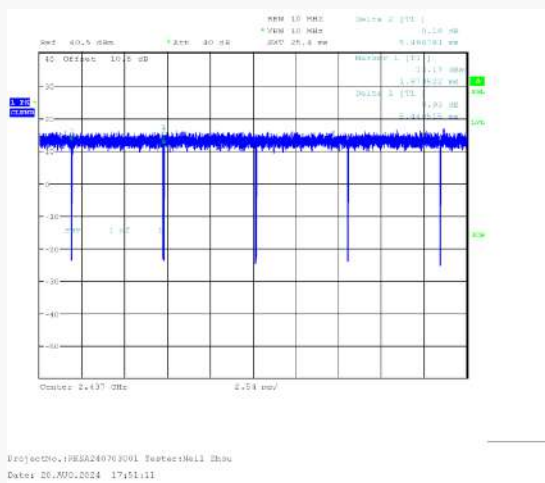
802.11n-HT20 Mode Middle Channel



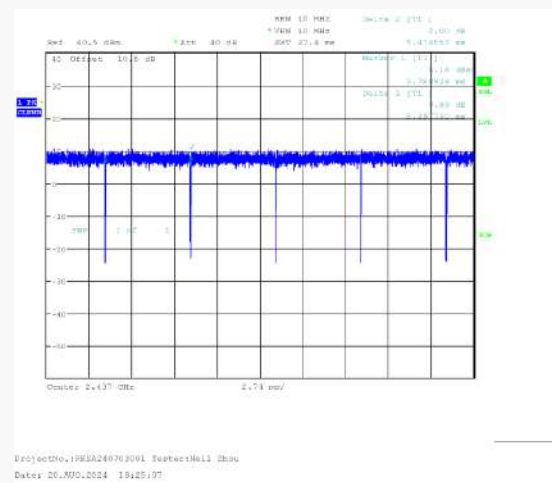
802.11n-HT40 Mode Middle Channel



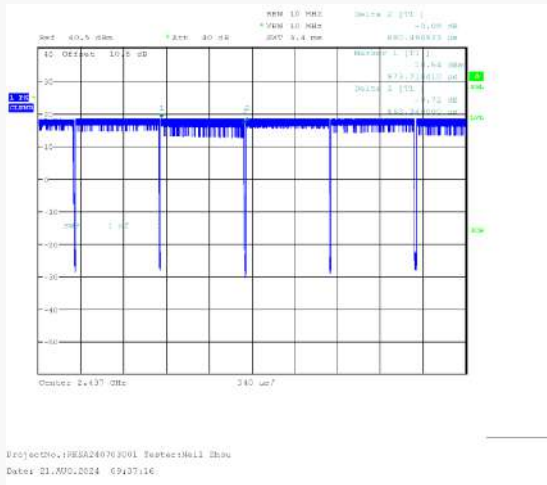
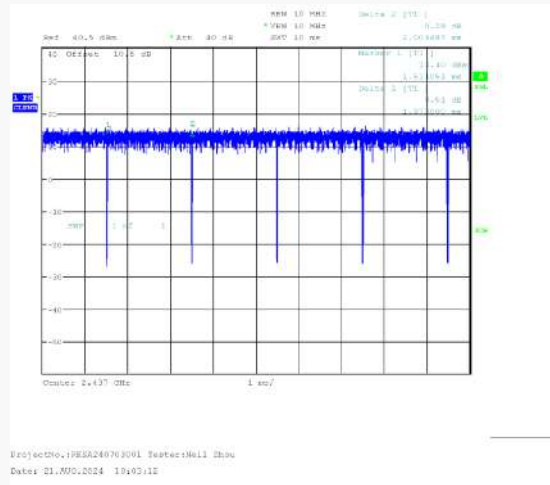
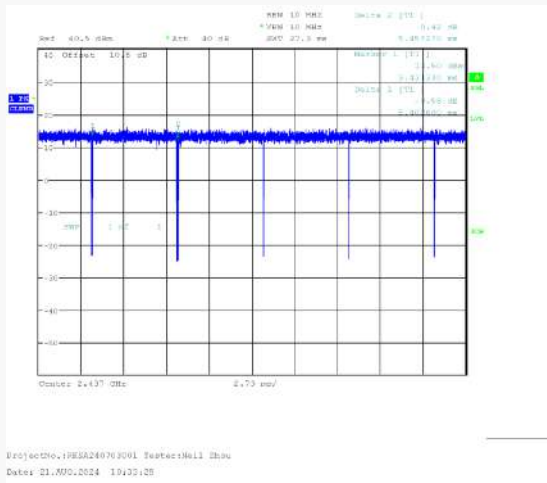
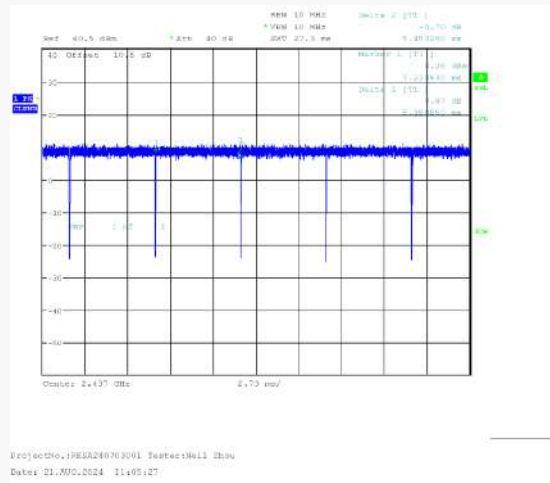
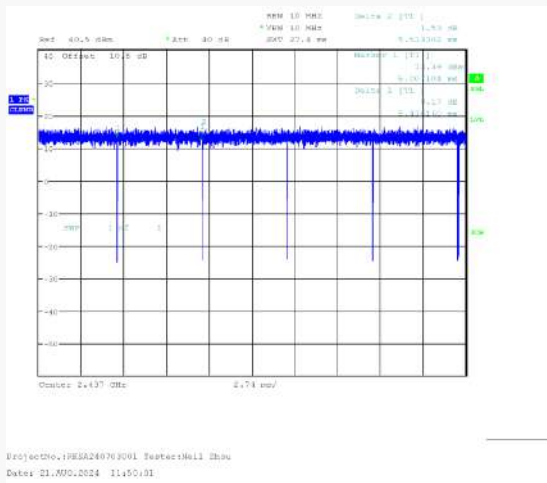
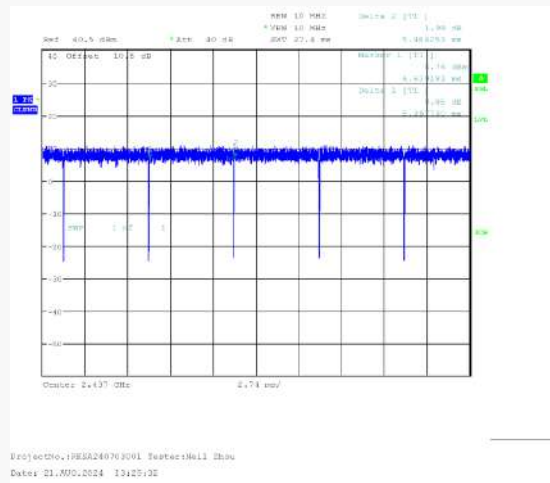
802.11ax-HE20 Mode Middle Channel



802.11ax-HE40 Mode Middle Channel



Chain 1:

802.11b Mode Middle Channel**802.11g Mode Middle Channel****802.11n-HT20 Mode Middle Channel****802.11n-HT40 Mode Middle Channel****802.11ax-HE20 Mode Middle Channel****802.11ax-HE40 Mode Middle Channel**

Test Mode	Channel	Duty Cycle(%)	Ton(ms)	Ton+off(ms)	10log(1/x)
802.11b chain 0	2437	95.89	0.653	0.681	0.18
802.11g chain 0	2437	98.39	1.958	1.990	/
802.11n20 chain 0	2437	98.66	5.370	5.443	/
802.11n40 chain 0	2437	98.00	5.350	5.459	/
802.11ax20 chain 0	2437	99.13	5.449	5.497	/
802.11ax40 chain 0	2437	98.56	5.398	5.477	/
802.11b chain 1	2437	97.50	0.663	0.680	0.11
802.11g chain 1	2437	98.50	1.973	2.003	/
802.11n20 chain 1	2437	99.01	5.403	5.457	/
802.11n40 chain 1	2437	98.33	5.359	5.450	/
802.11ax20 chain 1	2437	98.60	5.436	5.513	/
802.11ax40 chain 1	2437	98.40	5.398	5.486	/

Support Equipment List and Details

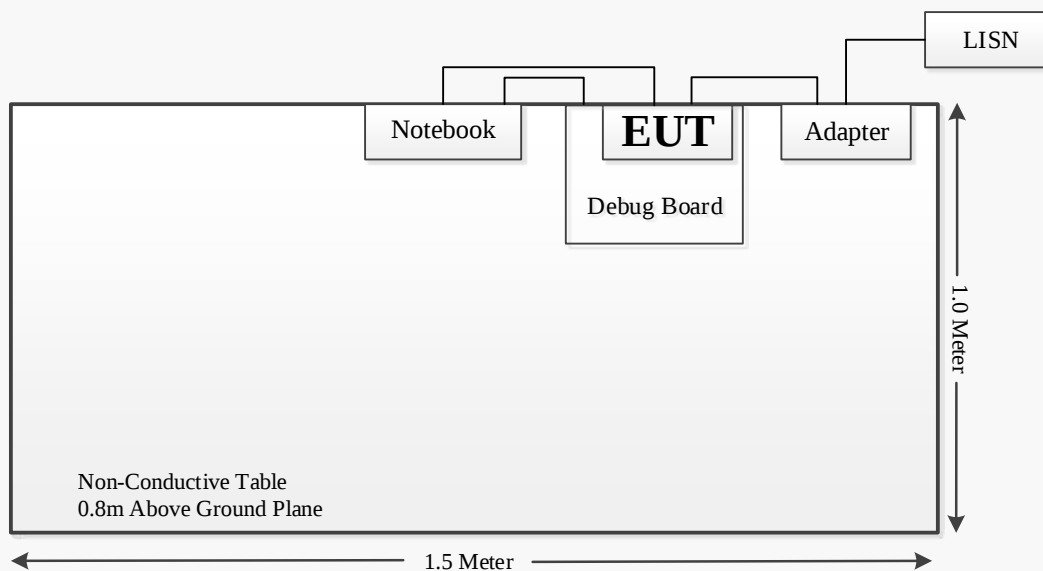
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	Y700P	PF2B7PL5
MEAN WELL ENTERPRISES CO.,LTD.	Adapter	SGA40U12	/
/	Debug Board	/	/

External I/O Cable

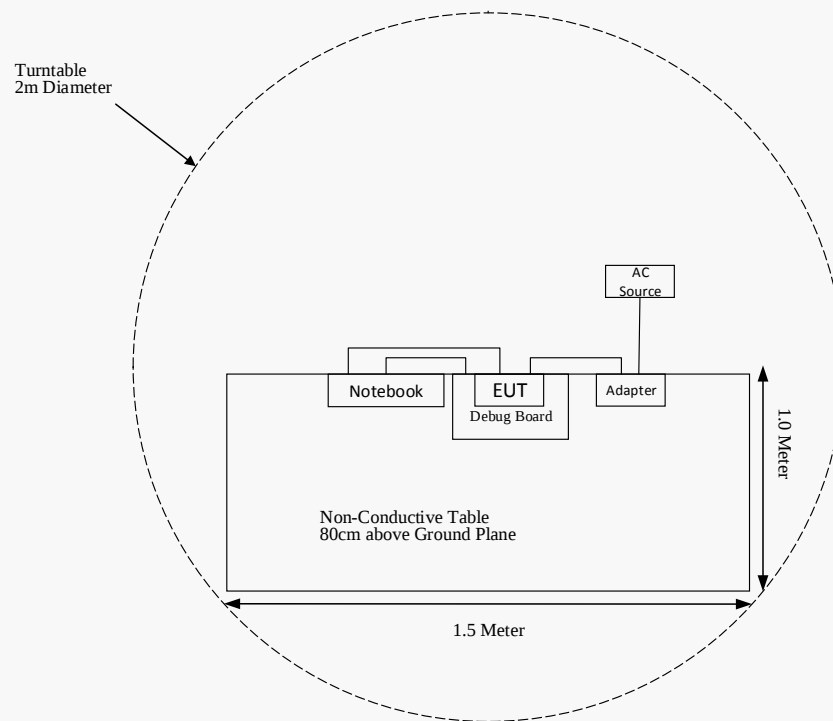
Cable Description	Length(m)	From Port	To Port
Power Cable 1	2.0	AC Source/LISN	Adapter
Power Cable 2	1.0	Adapter	EUT
RS485 Serial Cable	1.5	Notebook	Debug Board
USB Cable	1.0	EUT	Notebook

Block Diagram of Test Setup

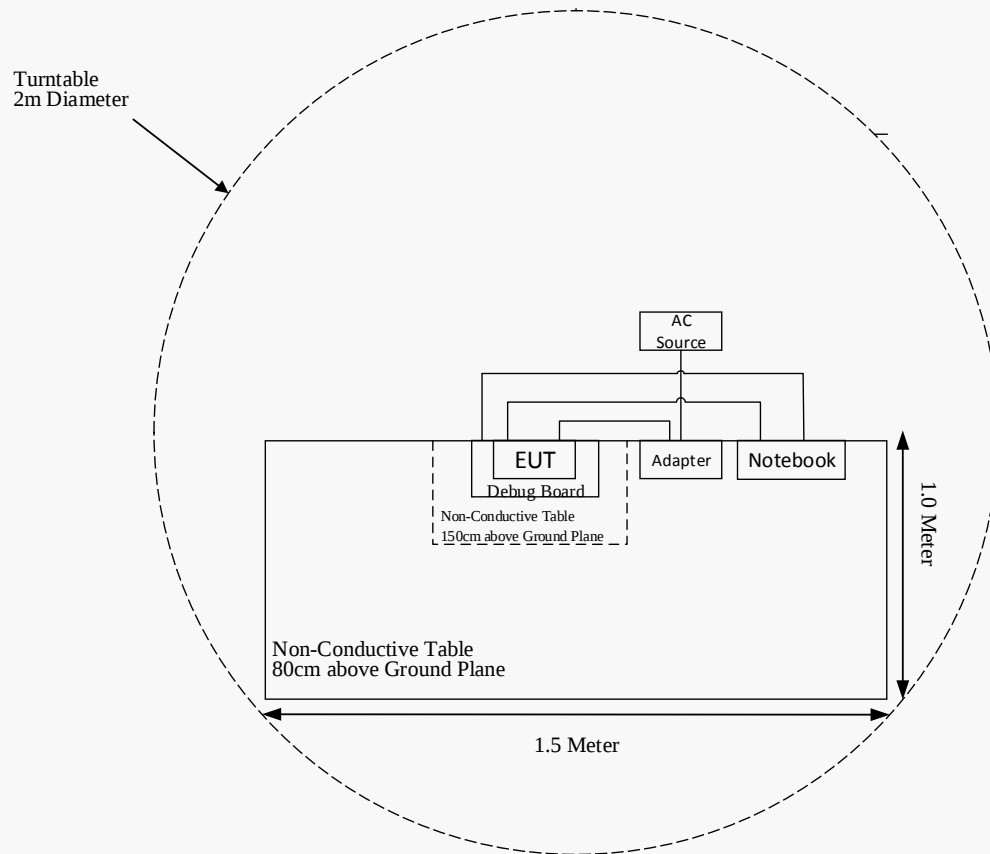
For Conducted Emissions:



For Radiated Emissions(Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (I), §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber 1#)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2024-04-23	2025-04-22
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2023-11-11	2024-11-10
BACL	Active Loop Antenna	1313-1A	4041511	2024-11-22	2027-11-21
Narda	6dB Attenuator	771-6	10690812-2-1	2023-01-12	2026-01-11
Sonoma Instrument	Amplifier	310N	171205	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-8	008	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-9	009	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2024-04-23	2025-04-22
Rohde & Schwarz	Test Software	EMC32	100361	N/A	N/A
Radiated Emission Test (Chamber 2#)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2024-06-27	2025-06-26
ETS-LINDGREN	Horn Antenna	3116	2516	2023-12-08	2024-12-07
A.H.Systems, inc	Amplifier	PAM-0118P	512	2024-04-25	2025-04-24
EM Electronics Corporation	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2024-04-23	2025-04-22
Narda	Attenuator	20dB	020	2024-04-23	2025-04-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-13	013	2024-04-23	2025-04-22
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Anritsu	Power Sensor	MA24418A	12621	2024-04-23	2025-04-22
Narda	Attenuator	10dB	N/A	2024-04-23	2025-04-22
XHFDZ	RG316 Coaxial Cable	SMA-316	XHF-1175	Each time	N/A

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §1.1310 & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to subpart §2.1091 and subpart §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minutes)
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz; * = Plane-wave equivalent power density;

According to §1.1310 and §2.1091 RF exposure is calculated.

Calculated Formulary

Predication of MPE limit at a given distance

$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator, the power gain factor, is normally numeric gain;

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

For simultaneously transmit system, the calculated power density should comply with:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1$$

Calculated Data:

Mode	Frequency Range (MHz)	Maximum Antenna Gain		★Tune-up Output Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)	MPE ratio
		(dBi)	(numeric)	(dBm)	(mW)				
2.4G Wi-Fi	2412-2462	4.5	2.82	21.0	125.89	20	0.0706	1.0	0.0706
5G Wi-Fi	5150-5250	7.0	5.01	20.0	100	20	0.0997	1.0	0.0998
	5250-5350	7.0	5.01	20.0	100	20	0.0997	1.0	0.0998
	5470-5725	7.0	5.01	21.0	125.89	20	0.1255	1.0	0.1256
	5725-5850	7.0	5.01	20.0	100	20	0.0997	1.0	0.0998

The 2.4G Wi-Fi & 5G Wi-Fi can be transmitting simultaneously, So

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0706 + 0.1256 = 0.1962 \leq 1.0$$

Note:

1. For the above tune up power were declared by the manufacturer.

Result: The device meet FCC MPE at 20 cm distance.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 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 user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine Compliant with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

- a. Antenna must be permanently attached to the unit.
- b. Antenna must use a unique type of connector to attach to the EUT.
- c. Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

Antenna use a unique type of connector to attach to the EUT, fulfill the requirement of this section. Please refer to the EUT photos.

Function	Antenna Model	Antenna Type	Chain	Maximum Antenna Gain (dBi)
2.4 G Wi-Fi	PIC04-220080	Omni Antenna	Chain 0	4.5
			Chain 1	4.5
	ET04VSABA	Omni Antenna	Chain 0	4.0
			Chain 1	4.0

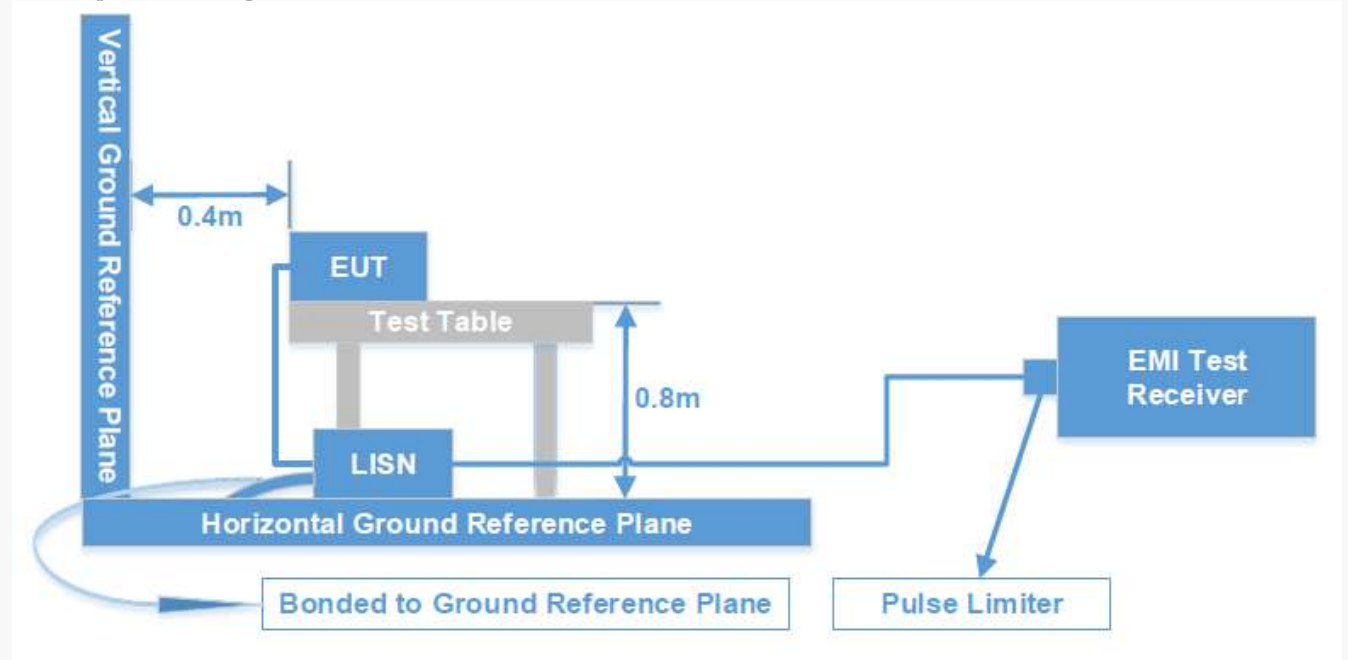
Result: Compliant.

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

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	RBW	VBW
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

During the conducted emission test, the EUT was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Level & Over Limit Calculation

The Level is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)

Level (dBμV) = Read level (dBμV) + Factor (dB)

The “**Over Limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit of 7 dB means the emission is 7 dB above the limit. The equation for Over Limit calculation is as follows:

Over Limit (dB) = Level (dBμV) - Limit (dBμV)

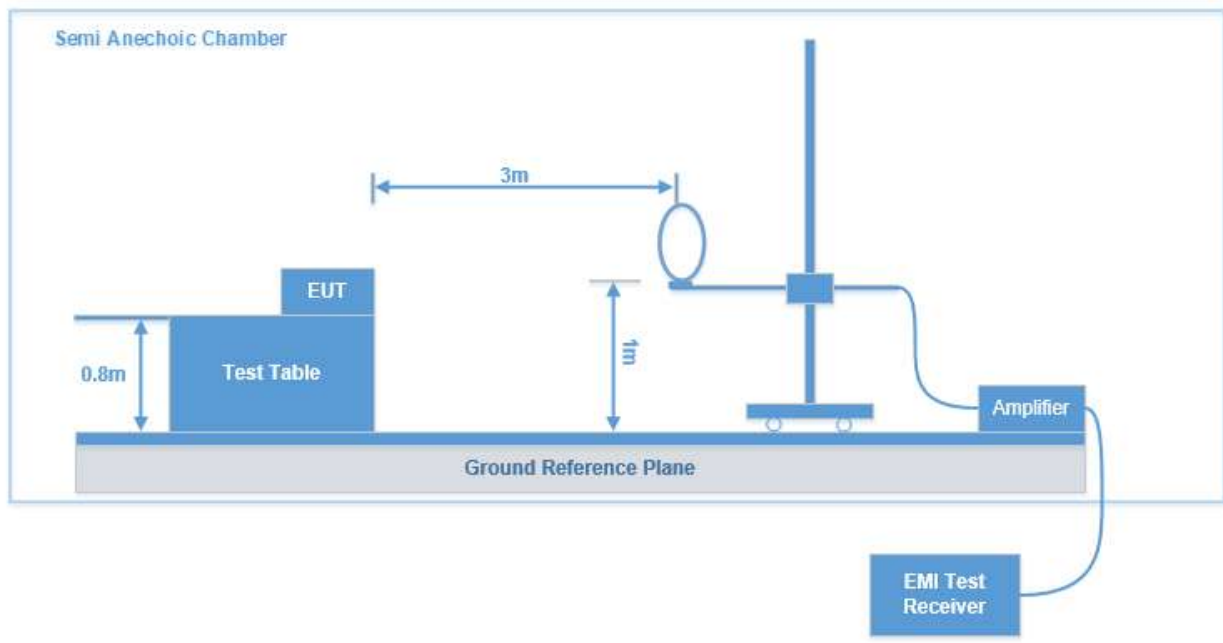
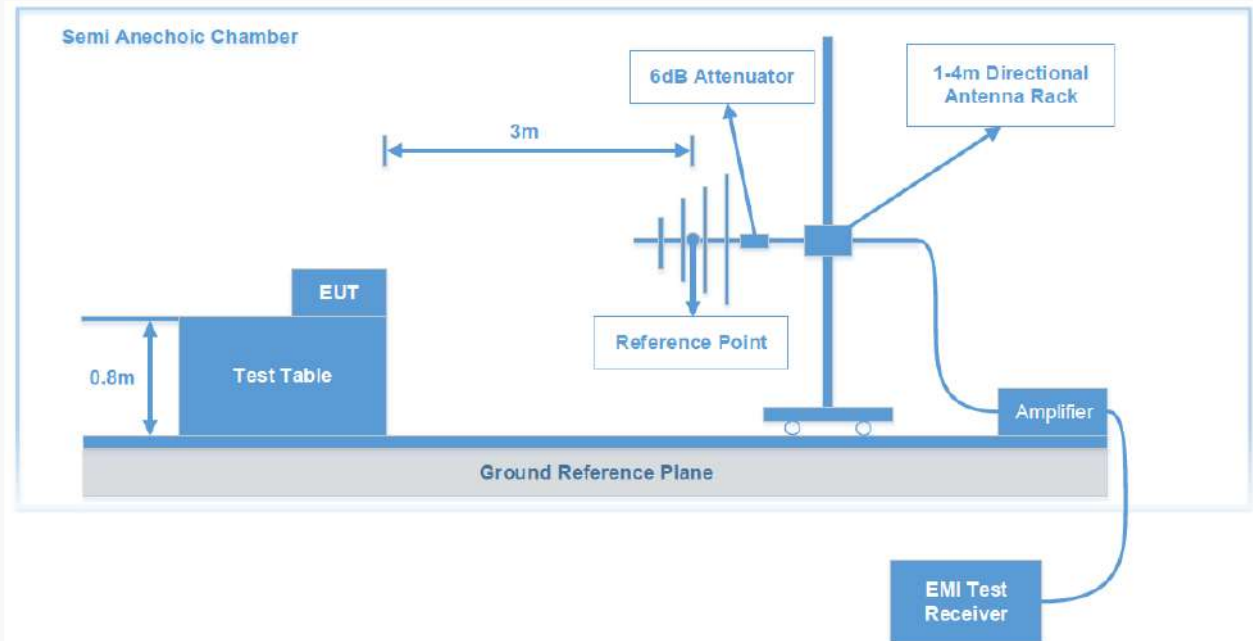
Test Results Summary

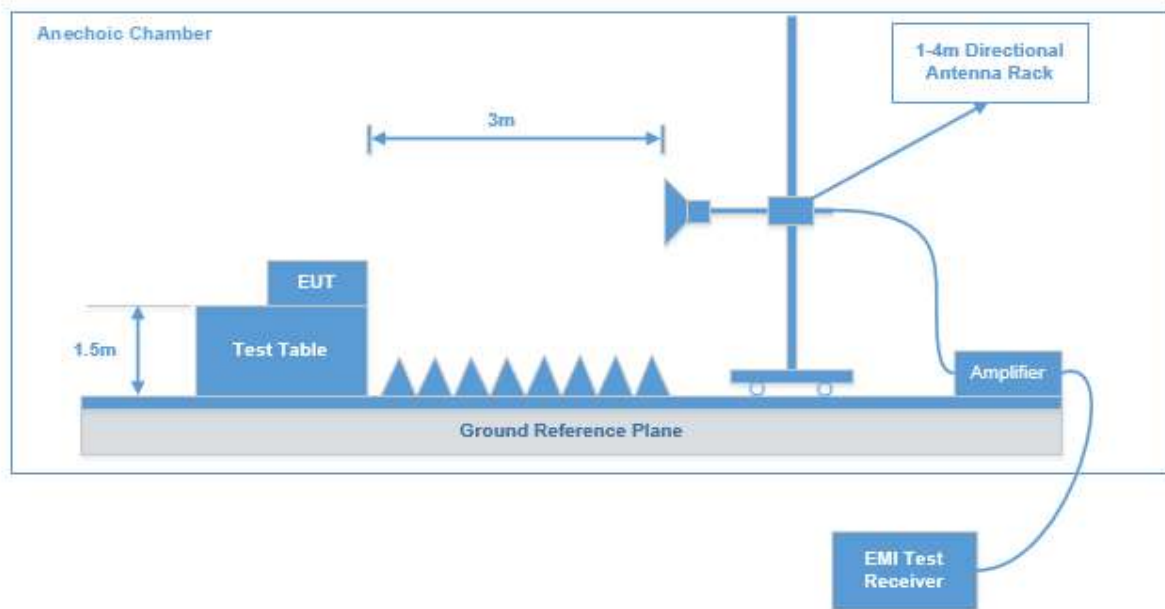
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data: See Appendix

FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS**Applicable Standard**

FCC §15.247 (d); §15.209; §15.205;

Test System Setup**9 kHz-30 MHz:****30 MHz-1 GHz:**

Above 1 GHz:

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.247 limits.

EMI Test Receiver Setup

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

Frequency Range	RBW	VBW	IF B/W	Measurement
9 kHz - 150 kHz	200 Hz	1 kHz	200 Hz	QP/Average
150 kHz - 30 MHz	9 kHz	30 kHz	9 kHz	QP/ Average
30 MHz - 1000 MHz	100 kHz	300 kHz	/	Peak
	/	/	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	/	Average

For 9 kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

Test Procedure

According to ANSI C63.10-2013 clause 6.5, 6.6 and 6.7.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude (dB μ V/m) = Meter Reading (dB μ V) + Corrected factor (dB/m)

Corrected factor (dB/m) = Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin (dB) = Limit (dB μ V/m) – Corrected Amplitude (dB μ V/m)

Note: The QuasiPeak (dB μ V/m), MaxPeak (dB μ V/m), Average (dB μ V/m) which shown in the data table are all Corrected Amplitude.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

Test Data: See Appendix

FCC §15.247(A) (2) - 6 DB EMISSION BANDWIDTH

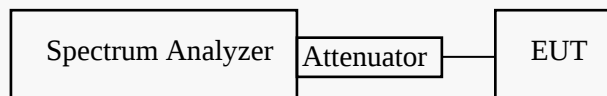
Applicable Standard

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.8.1

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 * \text{RBW}$.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. 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.



Test Data: See Appendix

FCC §15.247(B) (3) - MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

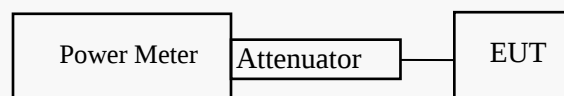
According to ANSI C63.10-2013 sub-clause 11.9.1.3

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.

11.9.2.3.2 Method AVGPM-G

Method AVGPM-G is a measurement using a gated RF average power meter. Alternatively, 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.



Test Data: See Appendix

FCC §15.247(D) – 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

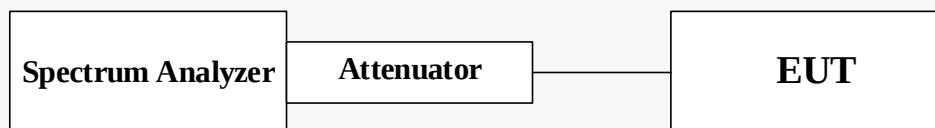
Applicable Standard

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates Compliant with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

According to ANSI C63.10-2013 sub-clause 6.10.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



FCC §15.247(E) - POWER SPECTRAL DENSITY

Applicable Standard

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

Test Procedure

According to ANSI C63.10-2013 sub-clause 11.10.2

The following procedure shall be used if maximum peak conducted output power was used to determine Compliant, and it is optional if the maximum conducted (average) output power was used to determine Compliant:

1. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
2. Set the VBW $\geq 3 * \text{RBW}$.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



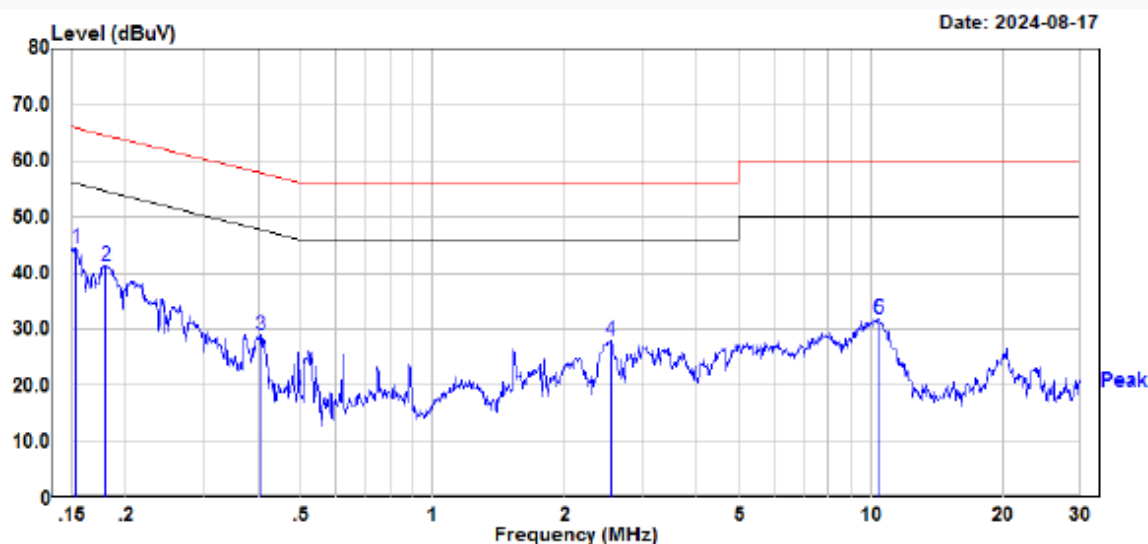
A

APPENDIX - TEST DATA

Environmental Conditions & Test Information

Test Item:	AC LINE CONDUCTED EMISSIONS	RADIATED EMISSIONS				Duty Cycle
		9 kHz-30 MHz	30MHz-1GHz	1 GHz – 18 GHz	18 GHz - 25 GHz	
Test Date:	2024-08-17	2025-01-15	2024-08-05	2024-08-13 to 2024-08-15	2024-09-10	2024-08-20 to 2024-08-21
Temperature:	24.1 °C	24.1°C	26.7 °C	24.3-25.7 °C	24.5°C	24.7-25.1 °C
Relative Humidity:	46 %	48 %	35 %	41-47 %	52 %	50-55 %
ATM Pressure:	100.7 kPa	103.6 kPa	100.7kPa	100.1-100.7kPa	101.0kPa	100.3- 100.6kPa
Test Result:	Pass	Pass	Pass	Pass	Pass	Pass
Test Engineer:	Leah Li	Jerry Yan	Grace Luo	Hugh Wu	Hugh Wu	Neil Zhou

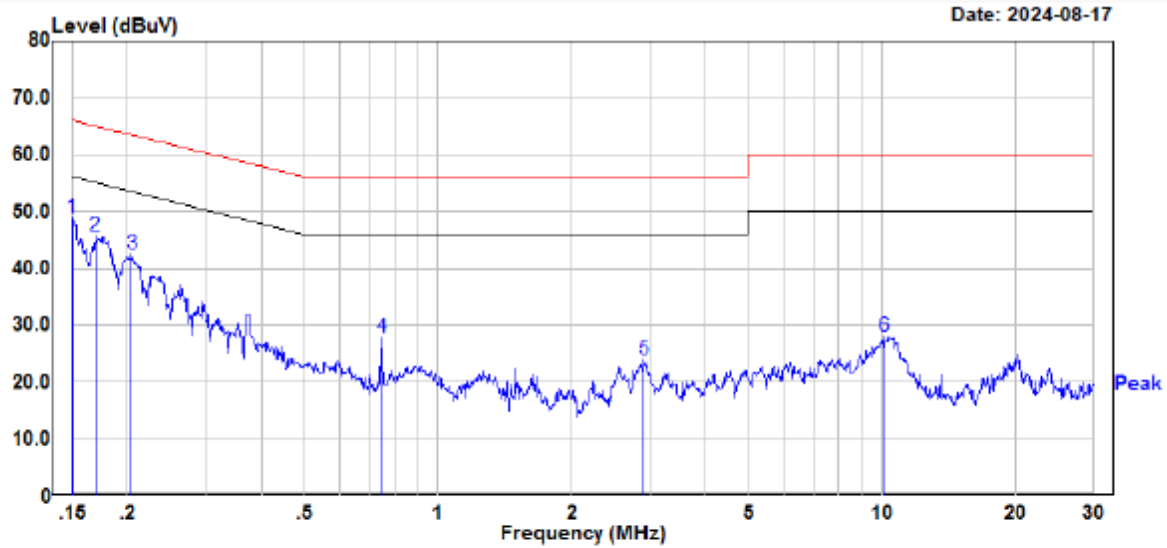
Test Item:	6 DB EMISSION BANDWIDTH	MAXIMUM CONDUCTED OUTPUT POWER	100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	POWER SPECTRAL DENSITY
Test Date:	2024-08-20 to 2024- 08-21	2024-08-17	2024-08-20 to 2024-08- 21	2024-08-20 to 2024-08- 21
Temperature:	19.8-22.3 °C	24.1 °C	24.7-25.1 °C	24.7-25.1 °C
Relative Humidity:	46-55 %	46 %	50-55 %	50-55 %
ATM Pressure:	100.6-101.2kPa	100.7 kPa	100.3-100.6kPa	100.3-100.6kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Leah Li	Neil Zhou	Neil Zhou

AC LINE CONDUCTED EMISSIONS*EUT operation mode: (Transmitting in maximum output power chain 0+ Chain1 ax20 mode and low channel)***Line:**

Site : CE
Condition : PART 15.207
: DET:Peak
Project No. : RKSA240703001
Model : WLW518H25-V
Phase : L
Voltage : 120V/60Hz
Mode : 2.4G WIFI
Test Equipment : ENV216,ESR
Temperature : 24.1℃
Humidity : 46%
Atmospheric pressure: 100.7kPa
Test Engineer : Leah Li

	Freq	Read		Limit	Over	
	MHz	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.154	24.33	20.05	44.38	65.79	-21.41 Peak
2	0.179	21.31	20.06	41.37	64.51	-23.14 Peak
3	0.406	9.00	20.12	29.12	57.72	-28.60 Peak
4	2.545	7.84	20.16	28.00	56.00	-28.00 Peak
5	10.428	12.09	19.89	31.98	60.00	-28.02 Peak
6	10.428	12.09	19.89	31.98	60.00	-28.02 Peak

Neutral:



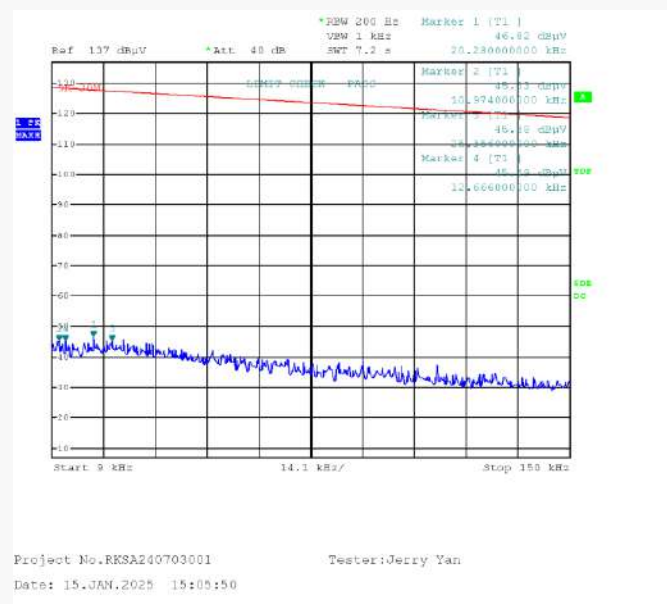
Site : CE
Condition : PART 15.207
: DET:Peak
Project No. : RKSA240703001
Model : WLW518H25-V
Phase : N
Voltage : 120V/60Hz
Mode : 2.4G WIFI
Test Equipment : ENV216,ESR
Temperature : 24.1℃
Humidity : 46%
Atmospheric pressure: 100.7kPa
Test Engineer : Leah Li

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	28.83	20.05	48.88	66.00	-17.12	Peak
2	0.169	25.62	20.05	45.67	65.01	-19.34	Peak
3	0.204	22.38	20.06	42.44	63.43	-20.99	Peak
4	0.747	7.94	19.95	27.89	56.00	-28.11	Peak
5	2.911	3.81	20.18	23.99	56.00	-32.01	Peak
6	10.121	8.11	19.91	28.02	60.00	-31.98	Peak

SPURIOUS EMISSIONS

EUT operation mode: Transmitting

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

9 kHz-30 MHz: (Transmitting in maximum output power chain 0+ Chain1 ax20 mode and low channel)**Parallel(worst case)****9kHz-150kHz****150kHz-30MHz****9kHz-150kHz**

Frequency (kHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
20.28	46.82	PK	49.92	121.46	74.64
10.97	45.33	PK	55.75	126.78	81.45
25.36	45.38	PK	48.50	119.52	74.14
12.67	45.49	PK	54.67	125.55	80.06

150kHz-30MHz

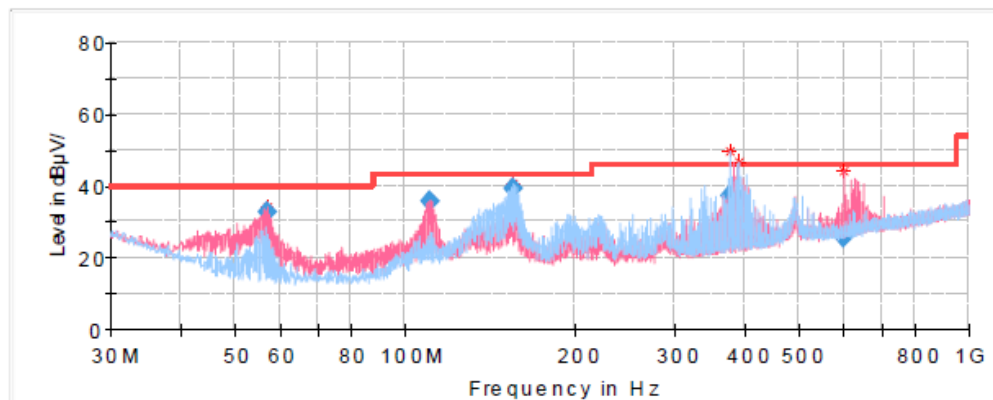
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15	47.91	PK	50.90	104.08	56.17
0.99	39.08	PK	17.60	67.69	28.61
3.79	34.30	PK	17.15	69.54	35.24
6.30	31.49	PK	7.08	69.54	38.05

For Wi-Fi Mode:**30MHz-1GHz:** (Transmitting in maximum output power ax20 mode)

Chain 0+chain 1:

Low Channel: 2412 MHz**Common Information**

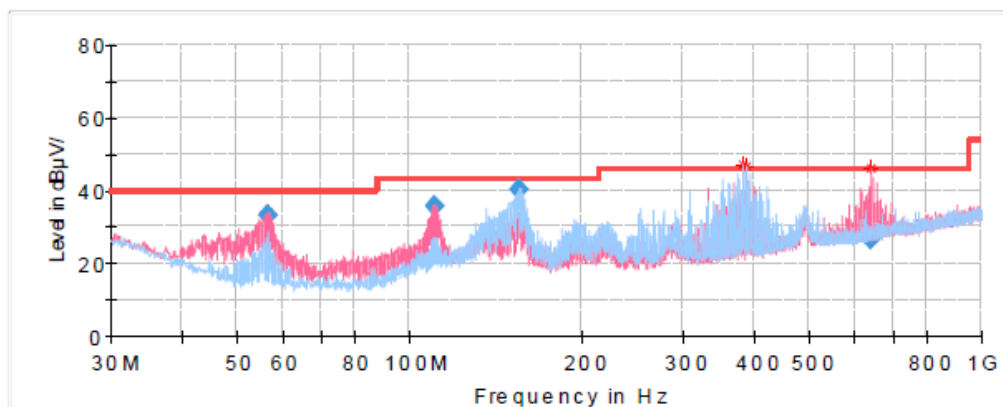
Project No:	RKSA240703001
EUT Model:	WLW518H25-V
Test Mode:	Transmitting in 802.11ax20 mode low channel
Standard:	FCC Part 15.205 & FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	26.7°C
Humidity:	35%
Barometric Pressure:	100.7kPa
Test Engineer:	Grace Luo
Test Date:	2024/8/5

**Final_Result**

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
57.038750	32.70	40.00	7.30	V	-17.2
110.995000	35.95	43.50	7.55	V	-12.5
155.736250	39.08	43.50	4.42	H	-12.0
378.605100	37.31	46.00	8.69	H	-8.5
392.427100	35.99	46.00	10.01	H	-8.2
600.491250	25.67	46.00	20.33	V	-4.2

Middle Channel: 2437 MHz**Common Information**

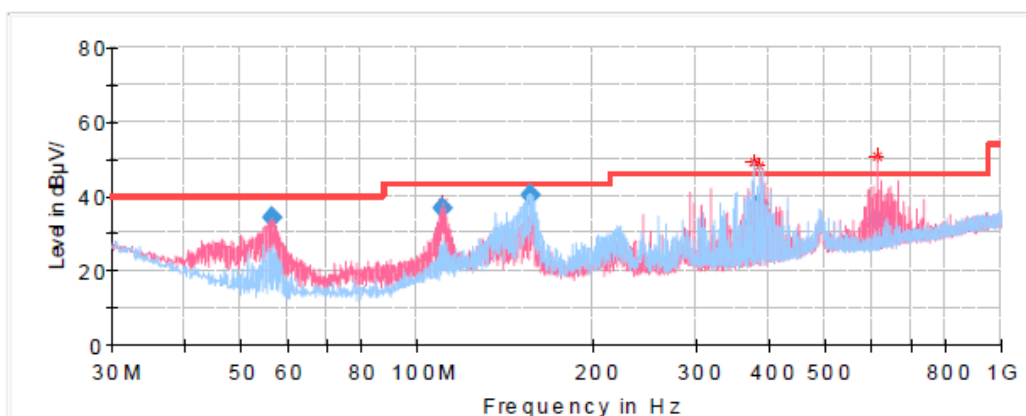
Project No:	RKSA240703001
EUT Model:	WLW518H25-V
Test Mode:	Transmitting in 802.11ax20 mode middle channel
Standard:	FCC Part 15.205 & FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	26.7°C
Humidity:	35%
Barometric Pressure:	100.7kPa
Test Engineer:	Grace Luo
Test Date:	2024/8/5

**Final Result**

Frequency (MHz)	QuasiPeak (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Pol	Corr. (dB/m)
56.677700	33.16	40.00	6.84	V	-17.3
110.740350	35.65	43.50	7.85	V	-12.5
156.161500	40.30	43.50	3.20	H	-12.0
381.533850	34.20	46.00	11.80	H	-8.5
389.088650	33.32	46.00	12.68	H	-8.3
640.771800	26.44	46.00	19.56	V	-3.3

High Channel: 2462 MHz**Common Information**

Project No:	RKSA240703001
EUT Model:	WLW518H25-V
Test Mode:	Transmitting in 802.11ax20 mode high channel
Standard:	FCC Part 15.205 & FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	26.7°C
Humidity:	35%
Barometric Pressure:	100.7kPa
Test Engineer:	Grace Luo
Test Date:	2024/8/5

**Final Result**

Frequency (MHz)	QuasiPeak (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Pol	Corr. (dB/m)
56.699900	34.25	40.00	5.75	V	-17.3
110.752500	36.92	43.50	6.58	V	-12.5
156.585000	40.48	43.50	3.02	H	-12.0
378.149850	32.53	46.00	13.47	H	-8.5
386.432000	37.77	46.00	8.23	H	-8.3
616.262000	33.49	46.00	12.51	V	-3.9

1GHz-18GHz:

Chain 0:

802.11b Mode:**Low Channel: 2412 MHz****Common Information**

Project No.:

RKSA240703001

Test Mode:

Transmitting in 802.11b mode 2412 channel

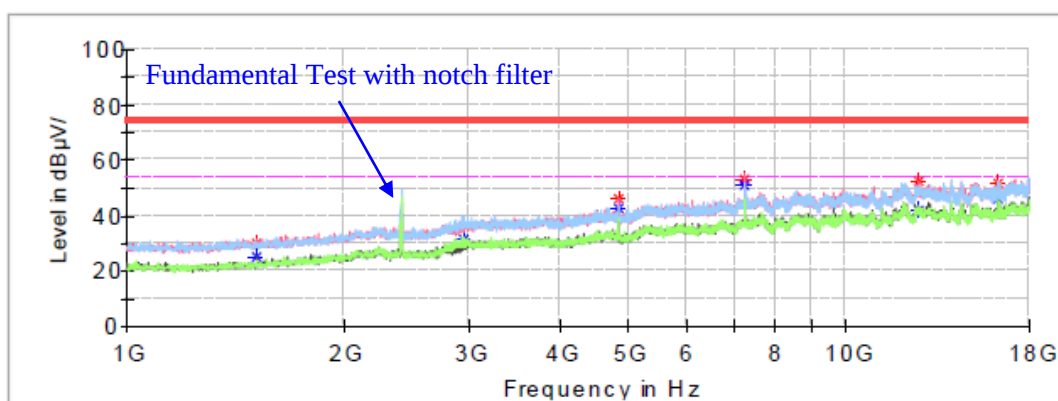
Standard:

FCC Part 15.205&FCC Part 15.209&FCC Part 15.247

Test Engineer:

Hugh Wu

Full Spectrum

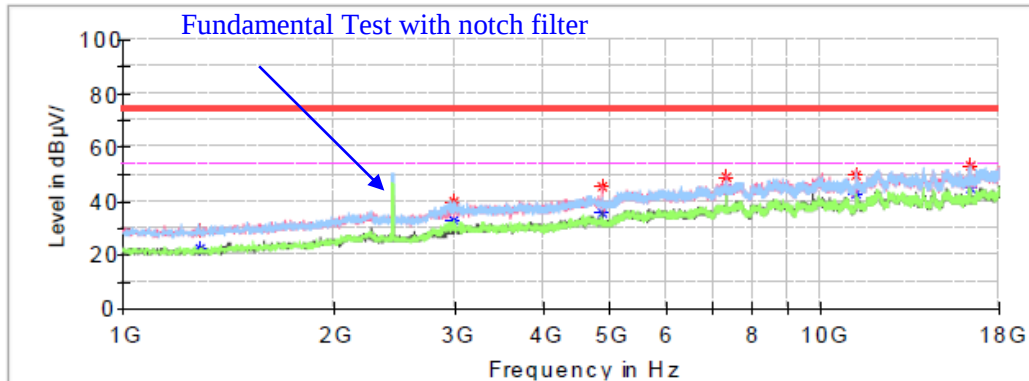
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1516.800000	---	25.10	54.00	28.90	H	-14.6
1516.800000	30.09	---	74.00	43.91	H	-14.6
2943.100000	36.30	---	74.00	37.70	V	-8.6
2943.100000	---	31.40	54.00	22.60	V	-8.6
4823.300000	---	42.92	54.00	11.08	V	-3.1
4823.300000	46.09	---	74.00	27.91	V	-3.1
7237.300000	53.05	---	74.00	20.95	H	3.2
7237.300000	---	50.94	54.00	3.06	H	3.2
12633.100000	---	42.07	54.00	11.93	V	9.7
12633.100000	52.79	---	74.00	21.21	V	9.7
16347.600000	51.77	---	74.00	22.23	H	10.4
16347.600000	---	45.89	54.00	8.11	H	10.4

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11b mode 2437 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Hugh Wu

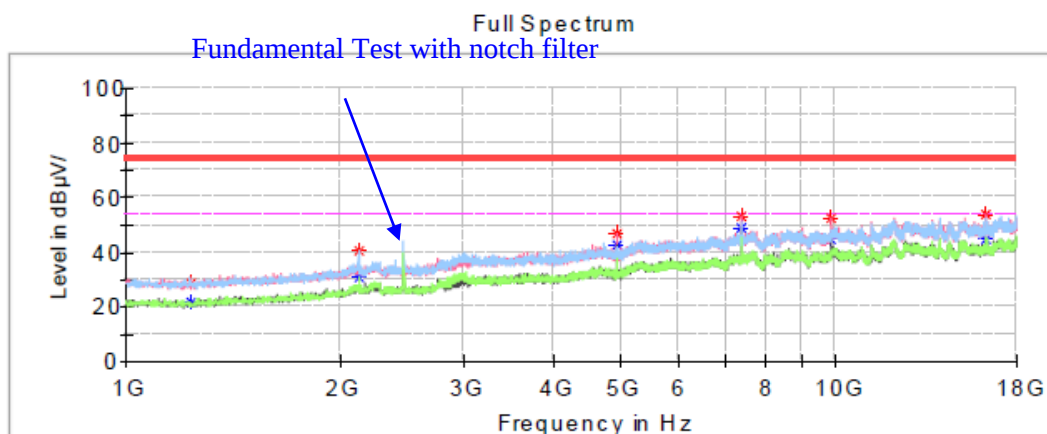
Full Spectrum

**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1285.600000	---	22.71	54.00	31.29	V	-15.0
1285.600000	28.53	---	74.00	45.47	V	-15.0
2982.200000	---	33.05	54.00	20.95	H	-8.5
2982.200000	40.02	---	74.00	33.98	H	-8.5
4874.300000	---	35.77	54.00	18.23	V	-2.9
4874.300000	45.25	---	74.00	28.75	V	-2.9
7312.100000	---	44.89	54.00	9.11	V	3.4
7312.100000	48.96	---	74.00	25.04	V	3.4
11208.500000	---	42.42	54.00	11.58	V	8.0
11208.500000	49.95	---	74.00	24.05	V	8.0
16354.400000	---	44.59	54.00	9.41	H	10.4
16354.400000	53.03	---	74.00	20.97	H	10.4

High Channel: 2462 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11b mode 2462 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Hugh Wu

**Critical Freqs**

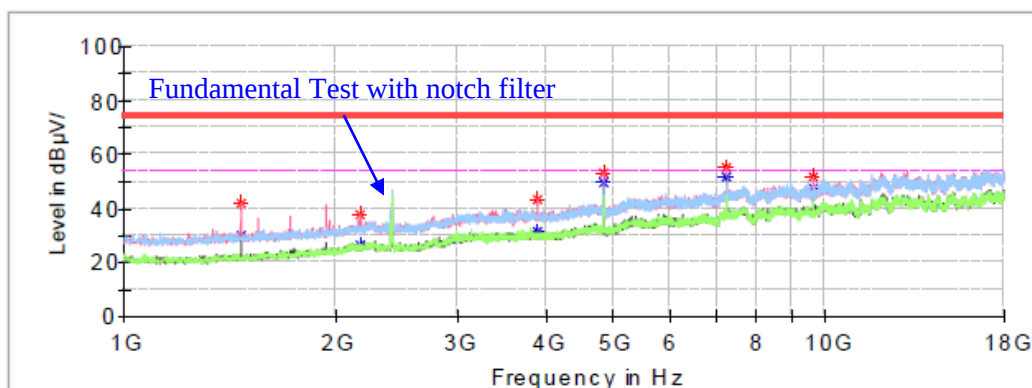
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1234.600000	28.49	---	74.00	45.51	V	-15.1
1234.600000	---	21.97	54.00	32.03	V	-15.1
2128.800000	---	30.56	54.00	23.44	H	-11.3
2128.800000	40.70	---	74.00	33.30	H	-11.3
4923.600000	---	42.60	54.00	11.40	V	-2.7
4923.600000	46.91	---	74.00	27.09	V	-2.7
7386.900000	---	49.16	54.00	4.84	V	3.6
7386.900000	53.12	---	74.00	20.88	V	3.6
9848.500000	---	44.69	54.00	9.31	V	6.6
9848.500000	52.58	---	74.00	21.42	V	6.6
16306.800000	---	44.66	54.00	9.34	V	10.3
16306.800000	53.65	---	74.00	20.35	V	10.3

Chain 1:

802.11b Mode:**Low Channel: 2412 MHz****Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11b mode 2412 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

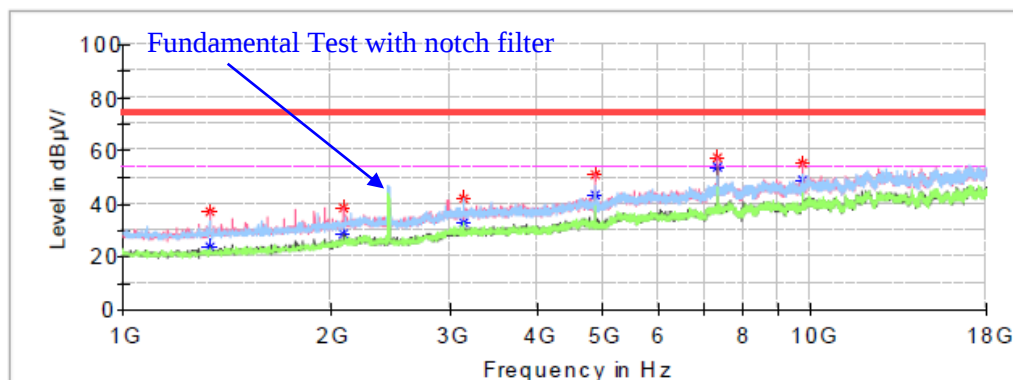
Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1470.900000	---	30.27	54.00	23.73	V	-14.8
1470.900000	41.76	---	74.00	32.24	V	-14.8
2176.400000	---	26.36	54.00	27.64	V	-11.2
2176.400000	37.70	---	74.00	36.30	V	-11.2
3896.800000	---	31.58	54.00	22.42	V	-6.0
3896.800000	43.70	---	74.00	30.30	V	-6.0
4823.300000	---	49.46	54.00	4.54	V	-3.1
4823.300000	52.90	---	74.00	21.10	V	-3.1
7237.300000	55.22	---	74.00	18.78	V	3.2
7237.300000	---	51.93	54.00	2.07	V	3.2
9647.900000	---	47.36	54.00	6.64	H	5.9
9647.900000	51.94	---	74.00	22.06	H	5.9

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11b mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

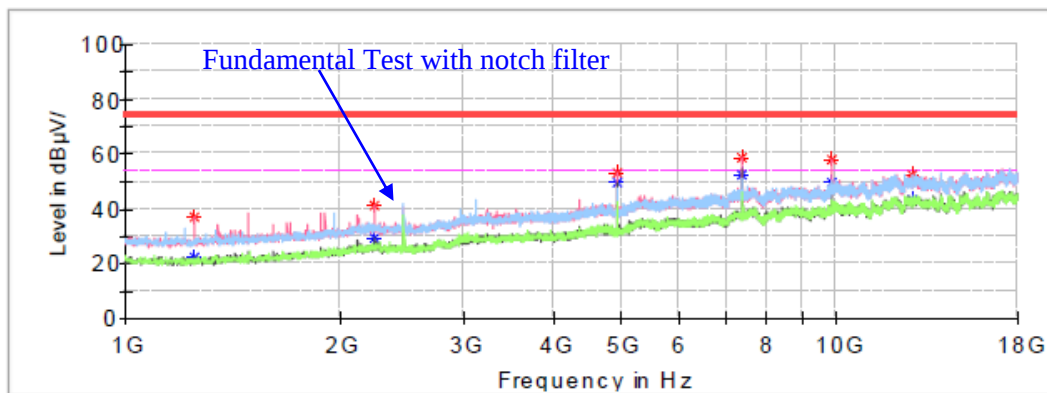
Full Spectrum**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1338.300000	---	23.72	54.00	30.28	V	-15.0
1338.300000	37.20	---	74.00	36.80	V	-15.0
2098.200000	38.14	---	74.00	35.86	V	-11.4
2098.200000	---	28.53	54.00	25.47	V	-11.4
3126.700000	42.26	---	74.00	31.74	H	-7.9
3126.700000	---	32.97	54.00	21.03	H	-7.9
4872.600000	---	43.68	54.00	10.32	V	-2.9
4872.600000	50.99	---	74.00	23.01	V	-2.9
7310.400000	57.60	---	74.00	16.40	V	3.4
7310.400000	---	53.69	54.00	0.31	V	3.4
9748.200000	---	49.27	54.00	4.73	V	6.3
9748.200000	55.01	---	74.00	18.99	V	6.3

High Channel: 2462 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11b mode 2462 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Klein Zhu

Full Spectrum

**Critical_Freqs**

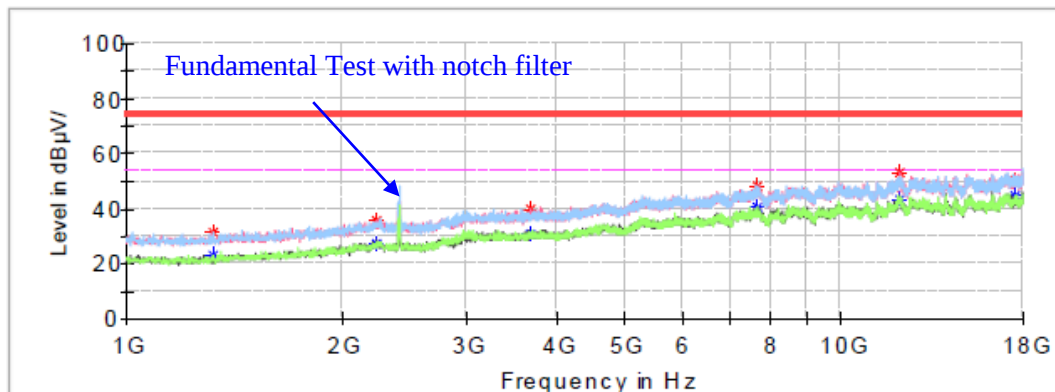
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1249.900000	36.82	---	74.00	37.18	V	-15.1
1249.900000	---	22.14	54.00	31.86	V	-15.1
2235.900000	41.52	---	74.00	32.48	V	-11.0
2235.900000	---	29.55	54.00	24.45	V	-11.0
4923.600000	---	49.45	54.00	4.55	V	-2.7
4923.600000	53.12	---	74.00	20.88	V	-2.7
7385.200000	---	52.70	54.00	1.30	V	3.6
7385.200000	58.42	---	74.00	15.58	V	3.6
9848.500000	---	49.74	54.00	4.26	V	6.6
9848.500000	57.86	---	74.00	16.14	V	6.6
12779.300000	---	43.51	54.00	10.49	H	9.7
12779.300000	52.79	---	74.00	21.21	H	9.7

Chain 0:

802.11g Mode:**Low Channel: 2412 MHz****Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11g mode 2412 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum

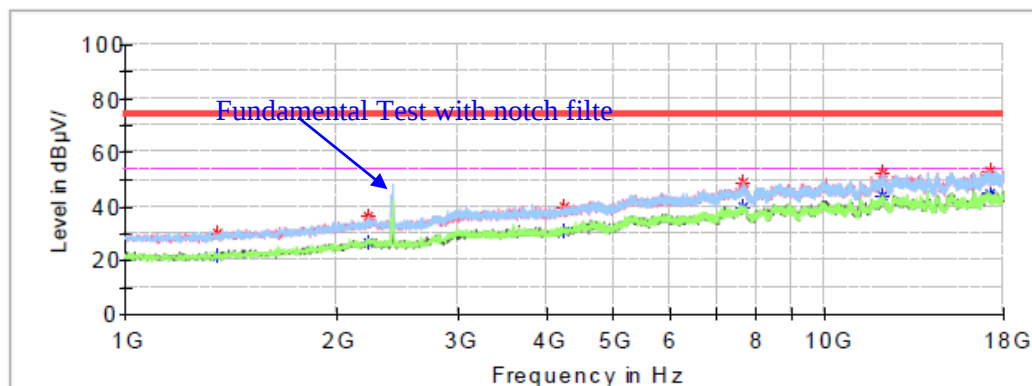
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1319.600000	31.20	---	74.00	42.80	V	-15.0
1319.600000	---	22.94	54.00	31.06	V	-15.0
2244.400000	35.98	---	74.00	38.02	V	-11.0
2244.400000	---	27.07	54.00	26.93	V	-11.0
3687.700000	---	30.75	54.00	23.25	V	-6.2
3687.700000	40.07	---	74.00	33.93	V	-6.2
7643.600000	48.56	---	74.00	25.44	V	3.9
7643.600000	---	40.64	54.00	13.36	V	3.9
12118.000000	---	43.53	54.00	10.47	V	9.1
12118.000000	52.84	---	74.00	21.16	V	9.1
17573.300000	50.68	---	74.00	23.32	H	11.6
17573.300000	---	44.76	54.00	9.24	H	11.6

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11g mode 2437 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Hugh Wu

Full Spectrum

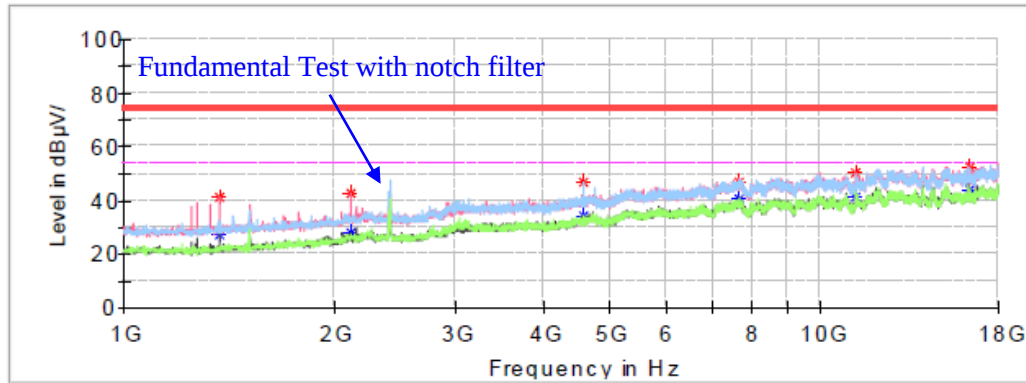
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1358.700000	---	21.86	54.00	32.14	V	-14.9
1358.700000	30.02	---	74.00	43.98	V	-14.9
2222.300000	---	26.82	54.00	27.18	H	-11.0
2222.300000	36.69	---	74.00	37.31	H	-11.0
4252.100000	---	30.89	54.00	23.11	V	-5.1
4252.100000	39.87	---	74.00	34.13	V	-5.1
7638.500000	---	39.96	54.00	14.04	H	3.9
7638.500000	48.70	---	74.00	25.30	H	3.9
12124.800000	---	43.86	54.00	10.14	H	9.1
12124.800000	52.44	---	74.00	21.56	H	9.1
17185.700000	---	44.58	54.00	9.42	H	12.0
17185.700000	53.35	---	74.00	20.65	H	12.0

High Channel: 2462 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11g mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1372.300000	---	26.96	54.00	27.04	V	-14.9
1372.300000	41.27	---	74.00	32.73	V	-14.9
2115.200000	42.38	---	74.00	31.62	V	-11.4
2115.200000	---	28.25	54.00	25.75	V	-11.4
4571.700000	---	33.95	54.00	20.05	H	-4.0
4571.700000	46.55	---	74.00	27.45	H	-4.0
7640.200000	47.19	---	74.00	26.81	V	3.9
7640.200000	---	40.28	54.00	13.72	V	3.9
11210.200000	---	41.22	54.00	12.78	V	8.0
11210.200000	50.34	---	74.00	23.66	V	8.0
16354.400000	---	43.72	54.00	10.28	V	10.4
16354.400000	52.27	---	74.00	21.73	V	10.4

Chain 1:

802.11g Mode:**Low Channel: 2412 MHz**

Common Information

Project No.:

RKSA240703001

Test Mode:

Transmitting in 802.11g mode 2412 channel

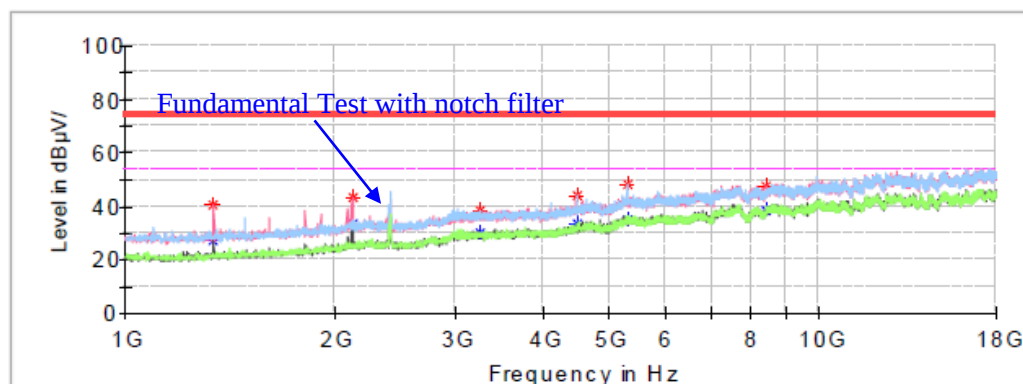
Standard:

FCC Part 15.205&FCC Part 15.209&FCC Part 15.247

Test Engineer:

Klein Zhu

Full Spectrum

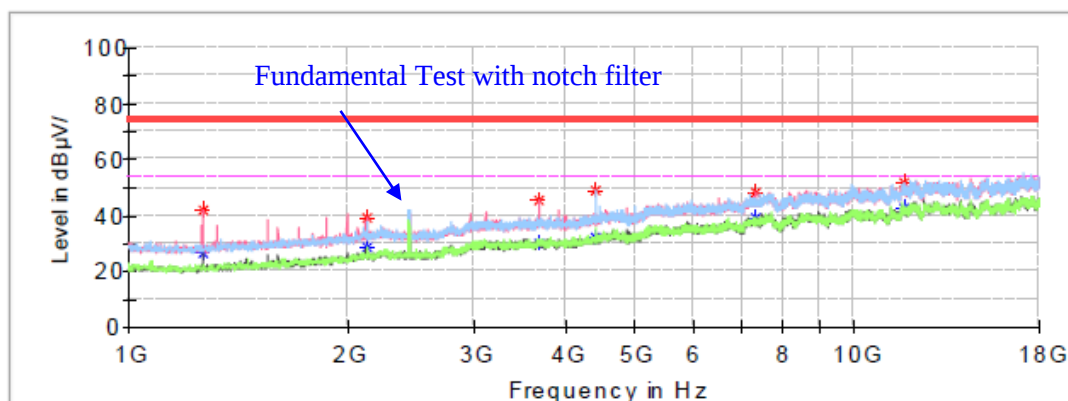


Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1341.700000	---	27.59	54.00	26.41	V	-15.0
1341.700000	40.56	---	74.00	33.44	V	-15.0
2125.400000	---	33.57	54.00	20.43	V	-11.3
2125.400000	43.40	---	74.00	30.60	V	-11.3
3252.500000	---	29.83	54.00	24.17	H	-7.4
3252.500000	38.70	---	74.00	35.30	H	-7.4
4488.400000	---	33.78	54.00	20.22	H	-4.3
4488.400000	44.16	---	74.00	29.84	H	-4.3
5289.100000	---	34.64	54.00	19.36	H	-1.2
5289.100000	48.38	---	74.00	25.62	H	-1.2
8405.200000	---	38.32	54.00	15.68	V	5.1
8405.200000	47.68	---	74.00	26.32	V	5.1

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11g mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

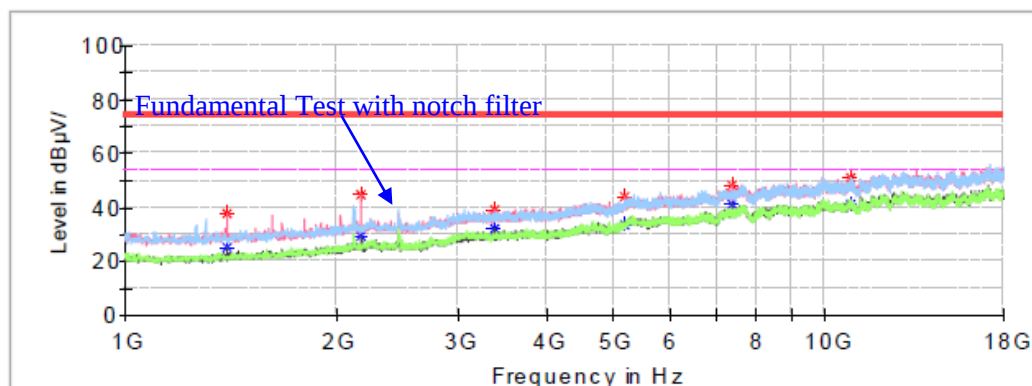
Full Spectrum**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1266.900000	42.07	---	74.00	31.93	V	-15.1
1266.900000	---	26.68	54.00	27.32	V	-15.1
2127.100000	---	28.97	54.00	25.03	V	-11.3
2127.100000	38.97	---	74.00	35.03	V	-11.3
3680.900000	---	30.21	54.00	23.79	V	-6.2
3680.900000	45.19	---	74.00	28.81	V	-6.2
4405.100000	---	31.87	54.00	22.13	H	-4.6
4405.100000	49.04	---	74.00	24.96	H	-4.6
7308.700000	---	39.50	54.00	14.50	V	3.4
7308.700000	48.59	---	74.00	25.41	V	3.4
11737.200000	---	42.37	54.00	11.63	H	8.9
11737.200000	51.83	---	74.00	22.17	H	8.9

High Channel: 2462 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11g mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1397.800000	---	25.21	54.00	28.79	V	-14.9
1397.800000	37.47	---	74.00	36.53	V	-14.9
2171.300000	---	29.37	54.00	24.63	V	-11.2
2171.300000	44.71	---	74.00	29.29	V	-11.2
3371.500000	---	32.04	54.00	21.96	V	-6.9
3371.500000	39.18	---	74.00	34.82	V	-6.9
5187.100000	---	33.29	54.00	20.71	V	-1.6
5187.100000	43.71	---	74.00	30.29	V	-1.6
7388.600000	---	40.92	54.00	13.08	V	3.6
7388.600000	48.42	---	74.00	25.58	V	3.6
10911.000000	---	41.45	54.00	12.55	H	7.3
10911.000000	50.93	---	74.00	23.07	H	7.3

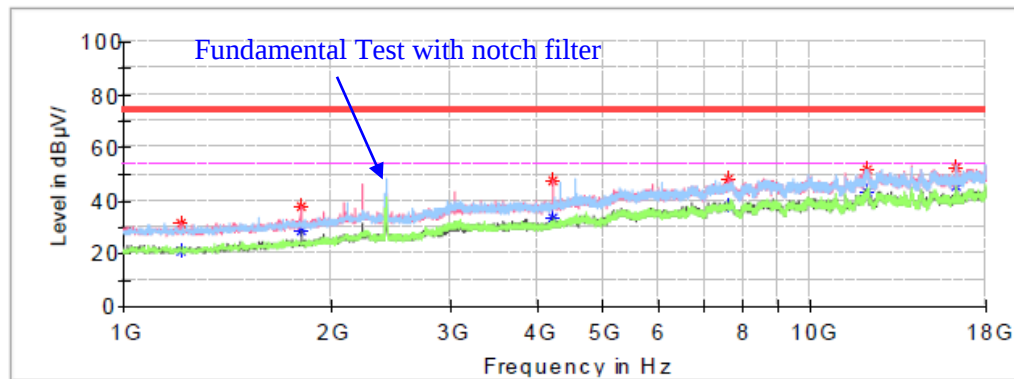
MIMO (Chain 0+chain 1):
802.11n-HT20 Mode:

Low Channel : 2412 MHz

Common Information

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11n20 mode 2412 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum

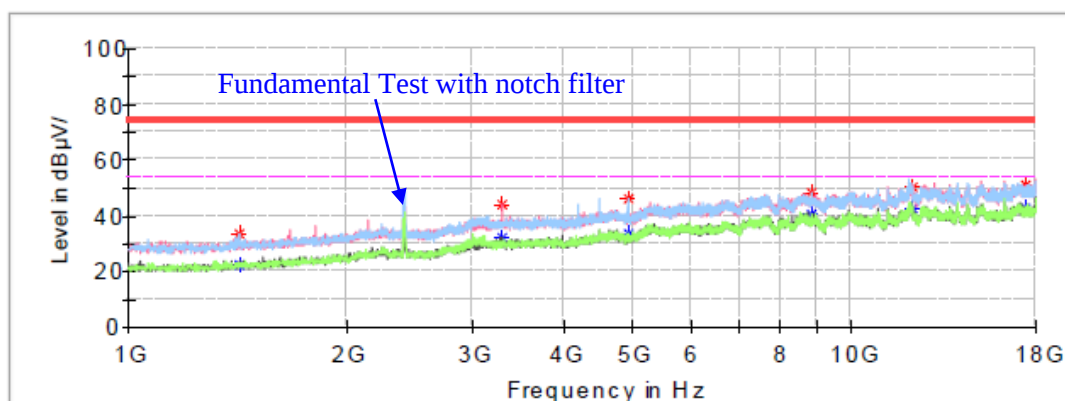


Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1210.800000	---	20.99	54.00	33.01	V	-15.2
1210.800000	31.30	---	74.00	42.70	V	-15.2
1814.300000	37.67	---	74.00	36.33	V	-12.9
1814.300000	---	28.99	54.00	25.01	V	-12.9
4216.400000	---	33.87	54.00	20.13	V	-5.2
4216.400000	47.88	---	74.00	26.12	V	-5.2
7585.800000	---	37.71	54.00	16.29	H	3.9
7585.800000	48.03	---	74.00	25.97	H	3.9
12070.400000	---	43.65	54.00	10.35	V	9.1
12070.400000	51.49	---	74.00	22.51	V	9.1
16301.700000	---	45.55	54.00	8.45	V	10.2
16301.700000	52.39	---	74.00	21.61	V	10.2

Middle Channel: 2437 MHz**Common Information**

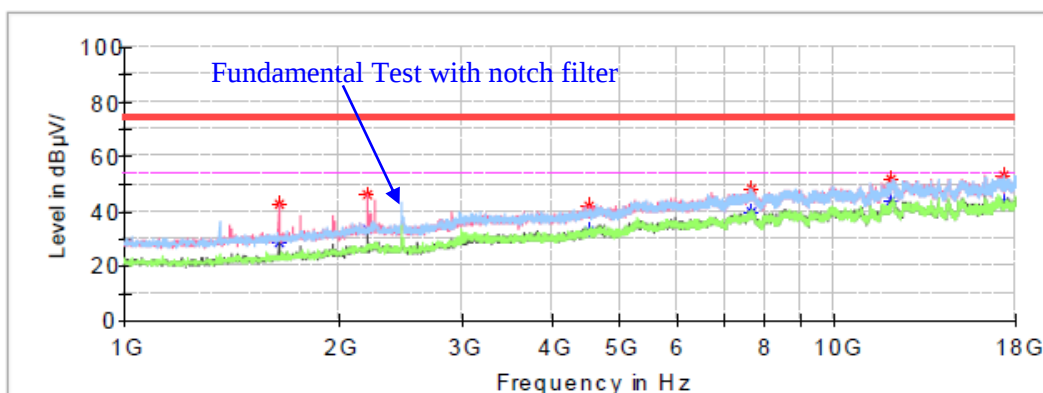
Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n20 mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1419.900000	---	22.54	54.00	31.46	H	-14.8
1419.900000	33.74	---	74.00	40.26	H	-14.8
3291.600000	---	32.27	54.00	21.73	V	-7.2
3291.600000	43.93	---	74.00	30.07	V	-7.2
4910.000000	---	33.46	54.00	20.54	H	-2.8
4910.000000	46.00	---	74.00	28.00	H	-2.8
8799.600000	---	40.26	54.00	13.74	V	5.4
8799.600000	48.00	---	74.00	26.00	V	5.4
12175.800000	---	42.37	54.00	11.63	V	9.2
12175.800000	50.47	---	74.00	23.53	V	9.2
17486.600000	---	42.35	54.00	11.65	V	11.6
17486.600000	51.31	---	74.00	22.69	V	11.6

High Channel : 2462 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n20 mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1647.700000	---	28.79	54.00	25.21	V	-13.8
1647.700000	42.96	---	74.00	31.04	V	-13.8
2201.900000	---	33.26	54.00	20.74	V	-11.1
2201.900000	45.86	---	74.00	28.14	V	-11.1
4527.500000	---	33.08	54.00	20.92	V	-4.2
4527.500000	41.89	---	74.00	32.11	V	-4.2
7647.000000	---	40.11	54.00	13.89	V	3.9
7647.000000	48.15	---	74.00	25.85	V	3.9
12055.100000	---	43.82	54.00	10.18	V	9.0
12055.100000	51.42	---	74.00	22.58	V	9.0
17394.800000	---	43.37	54.00	10.63	H	11.7
17394.800000	52.85	---	74.00	21.15	H	11.7

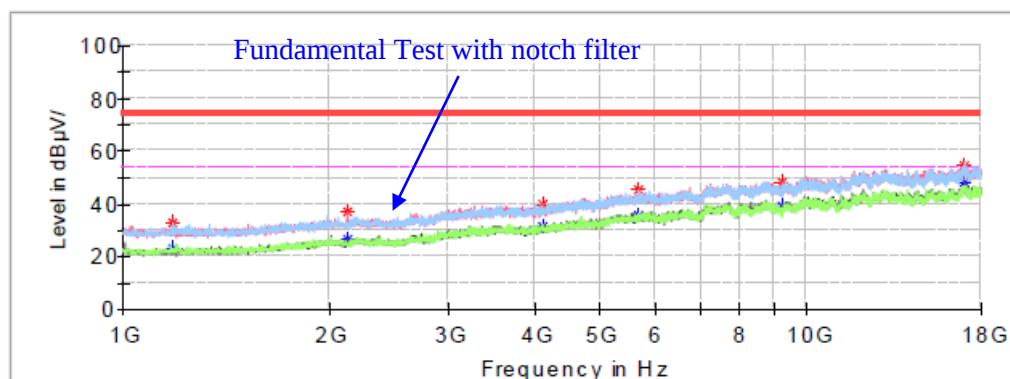
MIMO (Chain 0+chain 1):
802.11n-HT40 Mode:

Low Channel : 2422 MHz

Common Information

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11n40 mode 2422 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Destine Hu

Full Spectrum

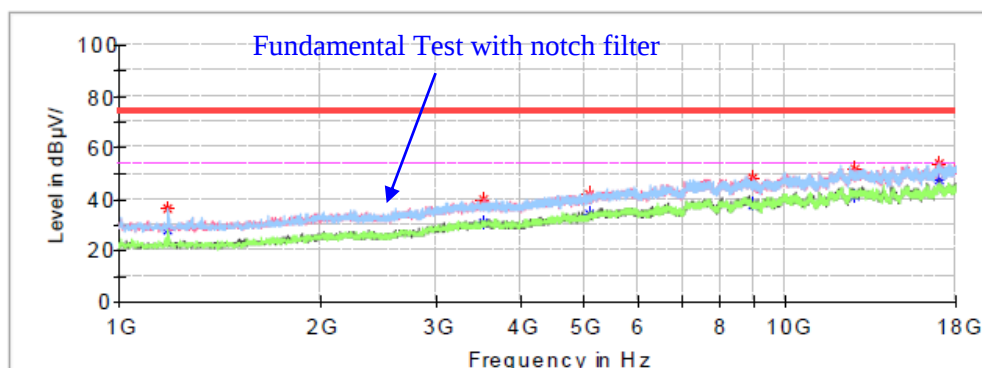


Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1183.600000	32.84	---	74.00	41.16	H	-15.2
1183.600000	---	22.85	54.00	31.15	H	-15.2
2130.500000	37.27	---	74.00	36.73	V	-11.3
2130.500000	---	26.27	54.00	27.73	V	-11.3
4117.800000	---	31.35	54.00	22.65	V	-5.5
4117.800000	39.66	---	74.00	34.34	V	-5.5
5675.000000	45.54	---	74.00	28.46	H	-0.2
5675.000000	---	35.35	54.00	18.65	H	-0.2
9219.500000	---	39.06	54.00	14.94	V	5.4
9219.500000	48.27	---	74.00	25.73	V	5.4
16986.800000	54.37	---	74.00	19.63	V	12.2
16986.800000	---	48.48	54.00	5.52	V	12.2

Middle Channel: 2437 MHz**Common Information**

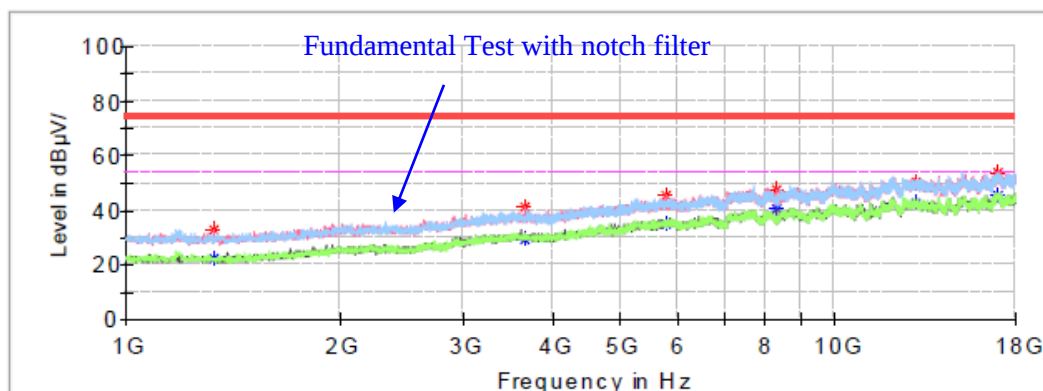
Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n40 mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Destine Hu

Full Spectrum**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	36.21	---	74.00	37.79	H	-15.2
1185.300000	---	28.04	54.00	25.96	H	-15.2
3527.900000	---	31.07	54.00	22.93	V	-6.3
3527.900000	39.69	---	74.00	34.31	V	-6.3
5091.900000	---	34.57	54.00	19.43	H	-2.1
5091.900000	41.83	---	74.00	32.17	H	-2.1
8940.700000	---	37.49	54.00	16.51	H	5.4
8940.700000	48.31	---	74.00	25.69	H	5.4
12716.400000	---	41.57	54.00	12.43	V	9.7
12716.400000	51.99	---	74.00	22.01	V	9.7
17070.100000	---	47.78	54.00	6.22	V	12.2
17070.100000	53.71	---	74.00	20.29	V	12.2

High Channel : 2452 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11n40 mode 2452 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Destine Hu

Full Spectrum**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1329.800000	33.12	---	74.00	40.88	V	-15.0
1329.800000	---	22.04	54.00	31.96	V	-15.0
3650.300000	41.45	---	74.00	32.55	V	-6.2
3650.300000	---	29.71	54.00	24.29	V	-6.2
5771.900000	45.32	---	74.00	28.68	H	-0.1
5771.900000	---	35.09	54.00	18.91	H	-0.1
8287.900000	47.38	---	74.00	26.62	V	4.8
8287.900000	---	40.25	54.00	13.75	V	4.8
12998.600000	---	42.60	54.00	11.40	H	9.7
12998.600000	50.67	---	74.00	23.33	H	9.7
16990.200000	53.73	---	74.00	20.27	V	12.3
16990.200000	---	45.16	54.00	8.84	V	12.3

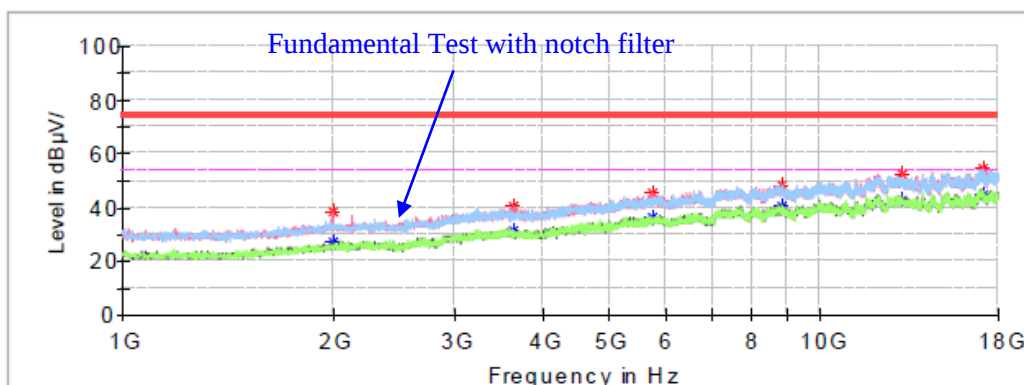
MIMO (Chain 0+Chain 1):
802.11ax20 Mode:

Low Channel : 2412 MHz

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11ax20 mode 2412 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Destine Hu

Full Spectrum

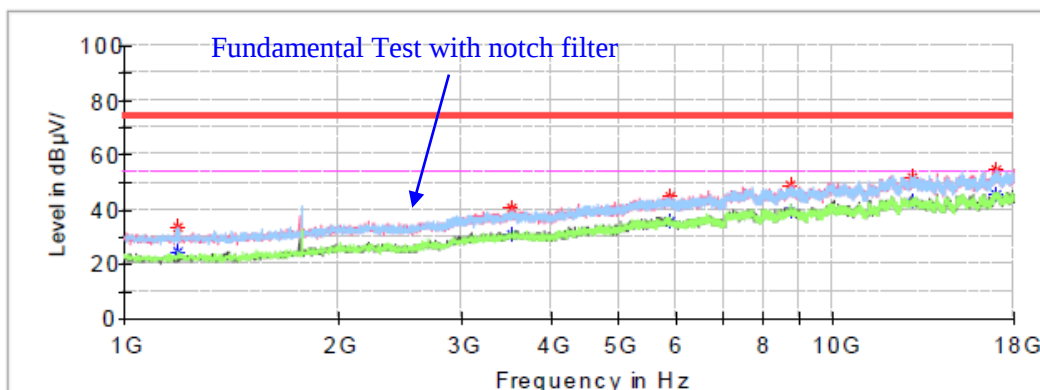


Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1997.900000	---	27.27	54.00	26.73	V	-11.8
1997.900000	38.60	---	74.00	35.40	V	-11.8
3638.400000	---	31.59	54.00	22.41	V	-6.2
3638.400000	40.25	---	74.00	33.75	V	-6.2
5758.300000	---	36.25	54.00	17.75	V	-0.1
5758.300000	45.53	---	74.00	28.47	V	-0.1
8799.600000	---	40.62	54.00	13.38	H	5.4
8799.600000	48.45	---	74.00	25.55	H	5.4
13087.000000	---	42.82	54.00	11.18	V	9.7
13087.000000	52.46	---	74.00	21.54	V	9.7
17110.900000	---	44.45	54.00	9.55	V	12.1
17110.900000	54.22	---	74.00	19.78	V	12.1

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11ax20 mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Destine Hu

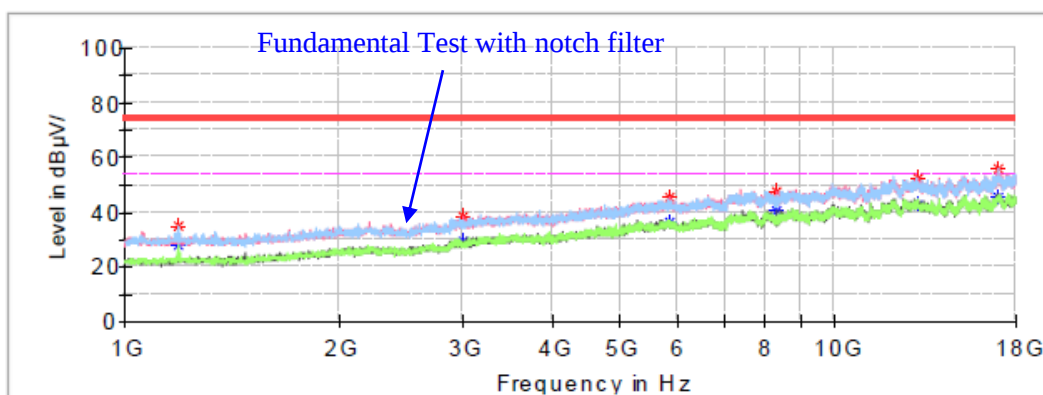
Full Spectrum**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1192.100000	---	24.21	54.00	29.79	H	-15.2
1192.100000	33.68	---	74.00	40.32	H	-15.2
3531.300000	---	31.01	54.00	22.99	H	-6.3
3531.300000	40.40	---	74.00	33.60	H	-6.3
5909.600000	44.90	---	74.00	29.10	V	0.0
5909.600000	---	35.89	54.00	18.11	V	0.0
8704.400000	---	39.12	54.00	14.88	V	5.4
8704.400000	49.18	---	74.00	24.82	V	5.4
12993.500000	---	42.92	54.00	11.08	H	9.7
12993.500000	51.88	---	74.00	22.12	H	9.7
17068.400000	---	45.55	54.00	8.45	H	12.2
17068.400000	54.69	---	74.00	19.31	H	12.2

High Channel : 2462 MHz**Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11ax20 mode 2462 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Destine Hu

Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1187.000000	---	27.72	54.00	26.28	H	-15.2
1187.000000	34.69	---	74.00	39.31	H	-15.2
2990.700000	---	29.55	54.00	24.45	V	-8.5
2990.700000	38.38	---	74.00	35.62	V	-8.5
5875.600000	---	36.59	54.00	17.41	V	-0.1
5875.600000	45.11	---	74.00	28.89	V	-0.1
8287.900000	---	40.72	54.00	13.28	V	4.8
8287.900000	47.41	---	74.00	26.59	V	4.8
13115.900000	---	42.64	54.00	11.36	H	9.7
13115.900000	52.58	---	74.00	21.42	H	9.7
17008.900000	---	45.57	54.00	8.43	V	12.3
17008.900000	55.91	---	74.00	18.09	V	12.3

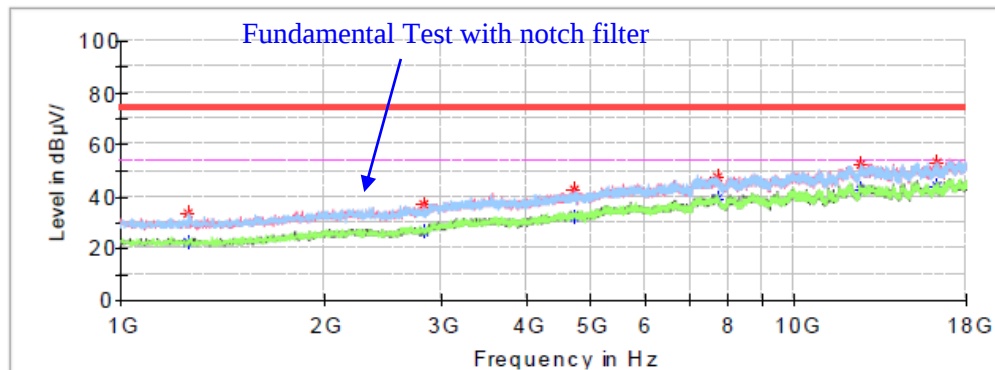
MIMO (Chain 0+Chain 1):
802.11ax40 Mode:

Low Channel : 2422 MHz

Common Information

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11ax40 mode 2422 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Destine Hu

Full Spectrum



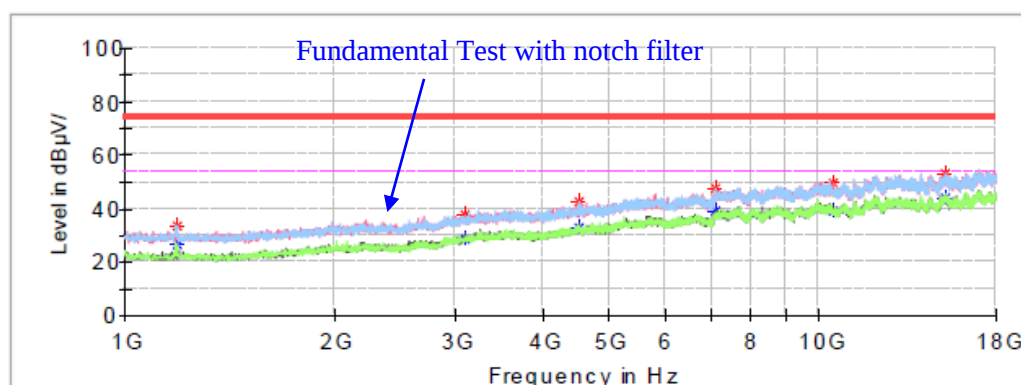
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1256.700000	---	22.40	54.00	31.60	H	-15.1
1256.700000	33.56	---	74.00	40.44	H	-15.1
2815.600000	---	26.69	54.00	27.31	V	-9.1
2815.600000	37.17	---	74.00	36.83	V	-9.1
4704.300000	---	32.45	54.00	21.55	H	-3.5
4704.300000	42.84	---	74.00	31.16	H	-3.5
7698.000000	---	39.00	54.00	15.00	V	3.9
7698.000000	47.66	---	74.00	26.34	V	3.9
12531.100000	---	42.45	54.00	11.55	H	9.7
12531.100000	52.13	---	74.00	21.87	H	9.7
16345.900000	---	43.95	54.00	10.05	V	10.4
16345.900000	53.17	---	74.00	20.83	V	10.4

Middle Channel: 2437 MHz**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11ax40 mode 2437 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Destine Hu

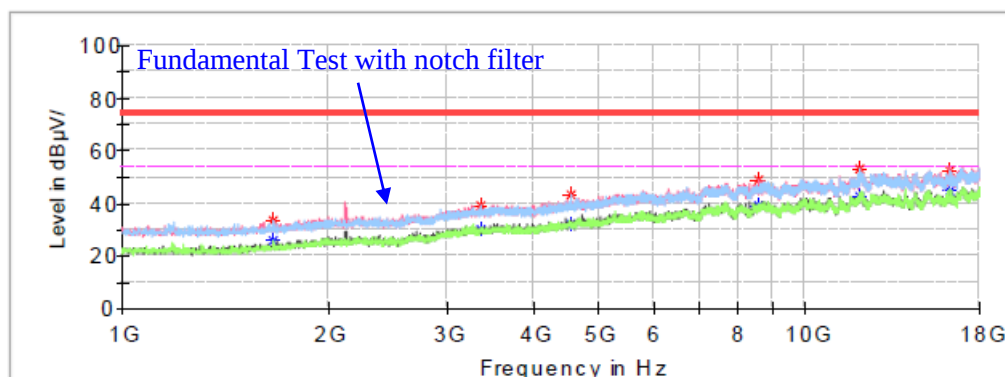
Full Spectrum

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1188.700000	---	26.41	54.00	27.59	H	-15.2
1188.700000	33.26	---	74.00	40.74	H	-15.2
3087.600000	---	28.76	54.00	25.24	H	-8.1
3087.600000	37.82	---	74.00	36.18	H	-8.1
4503.700000	---	32.73	54.00	21.27	V	-4.2
4503.700000	43.00	---	74.00	31.00	V	-4.2
7103.000000	---	38.90	54.00	15.10	H	2.9
7103.000000	47.63	---	74.00	26.37	H	2.9
10489.400000	---	39.28	54.00	14.72	V	7.1
10489.400000	49.40	---	74.00	24.60	V	7.1
15210.300000	---	44.38	54.00	9.62	V	9.5
15210.300000	53.26	---	74.00	20.74	V	9.5

High Channel : 2452 MHz**Common Information**

Project No.: RKSA240703001
 Test Mode: Transmitting in 802.11ax40 mode 2452 channel
 Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
 Test Engineer: Destine Hu

Full Spectrum**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1668.100000	---	25.58	54.00	28.42	H	-13.7
1668.100000	33.27	---	74.00	40.73	H	-13.7
3359.600000	---	29.93	54.00	24.07	V	-6.9
3359.600000	39.39	---	74.00	34.61	V	-6.9
4541.100000	---	32.22	54.00	21.78	H	-4.1
4541.100000	43.53	---	74.00	30.47	H	-4.1
8563.300000	---	39.00	54.00	15.00	V	5.4
8563.300000	48.67	---	74.00	25.33	V	5.4
12055.100000	---	42.96	54.00	11.04	V	9.0
12055.100000	52.89	---	74.00	21.11	V	9.0
16306.800000	---	44.51	54.00	9.49	H	10.3
16306.800000	52.19	---	74.00	21.81	H	10.3

Note:

802.11n20/n40/ax20/ax40 can support beamforming mode, according to KDB 662911 D01, Clause 3(a)(iii), The emission should be added array gain($10 \cdot \lg N = 10 \cdot \lg 2 = 3.01 \text{ dB}$) to the result, because the margins for 802.11n/ax mode are more than 3.01dB, So beamforming mode can meet the requirements of spurious emissions.

Restricted bands emissions:

Note:

1. Corrected Factor (dB/m) = Antenna factor (RX) (dB/m) + Cable Loss (dB) – Amplifier Factor (dB)

Corrected Amplitude (dBμV/m) = Corrected Factor (dB/m) + Reading (dBμV)

Margin (dB) = Limit (dBμV/m) – Corrected Amplitude (dBμV/m)

Chain 0:

802.11b Mode:**Common Information**

Project No.:

RKSA240703001

Test Mode:

Transmitting in 802.11b mode 2412 channel

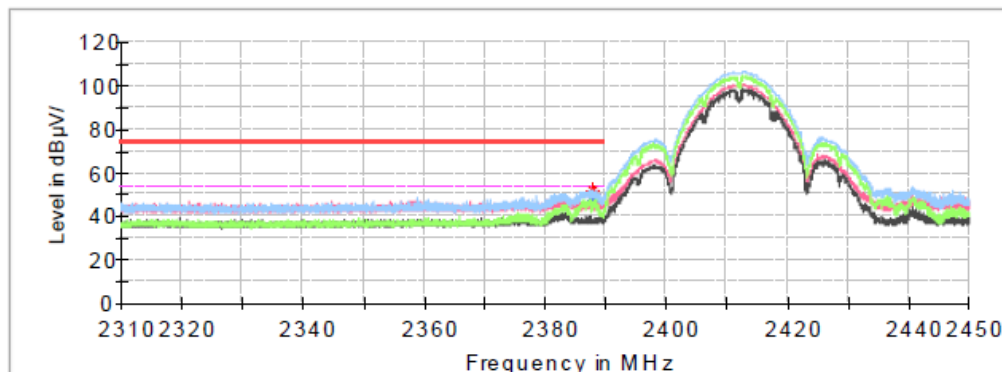
Standard:

FCC Part 15.205&FCC Part 15.209&FCC Part 15.247

Test Engineer:

Hugh Wu

Full Spectrum

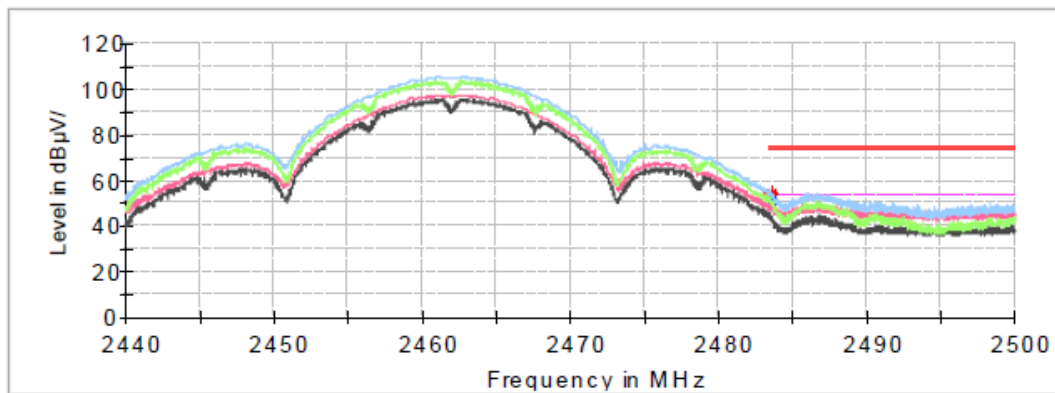
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2387.966000	52.21	---	74.00	21.79	H	-0.6
2387.966000	---	47.04	54.00	6.96	H	-0.6
2388.204000	50.76	---	74.00	23.24	H	-0.6
2388.204000	---	47.99	54.00	6.01	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11b mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



Critical Freqs

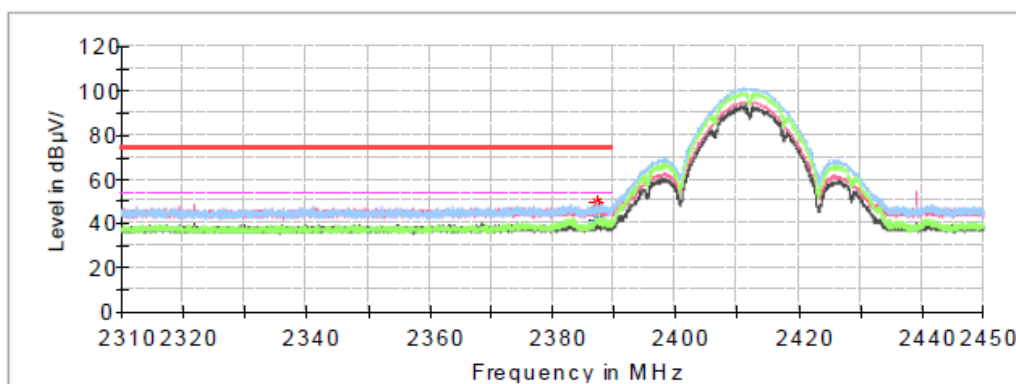
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.518000	53.73	---	74.00	20.27	H	-0.3
2483.518000	---	50.91	54.00	3.09	H	-0.3
2483.554000	---	51.53	54.00	2.47	H	-0.3
2483.554000	54.54	---	74.00	19.46	H	-0.3

Chain 1:

802.11b Mode:**Common Information**

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11b mode 2412 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

Full Spectrum

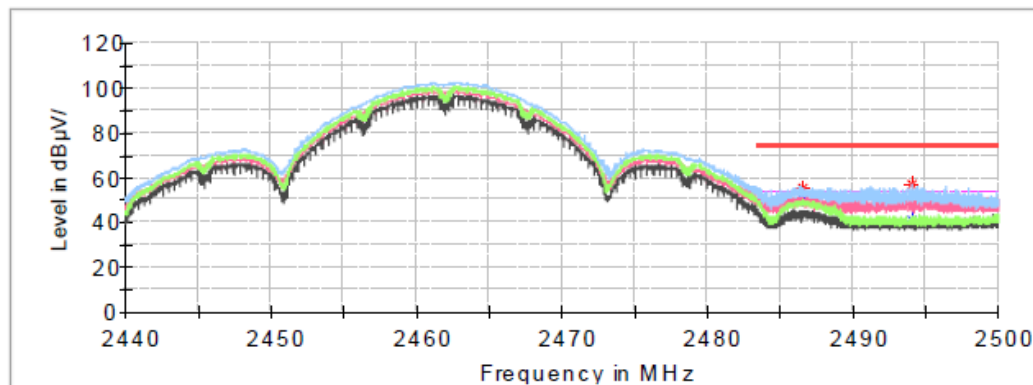
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2387.350000	49.22	---	74.00	24.78	H	-0.6
2387.350000	---	42.19	54.00	11.81	H	-0.6
2387.518000	48.07	---	74.00	25.93	H	-0.6
2387.518000	---	44.15	54.00	9.85	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11b mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

Full Spectrum



Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2486.500000	---	50.00	54.00	4.00	H	-0.2
2486.500000	55.21	---	74.00	18.79	H	-0.2
2494.054000	---	41.42	54.00	12.58	H	-0.2
2494.054000	56.66	---	74.00	17.34	H	-0.2

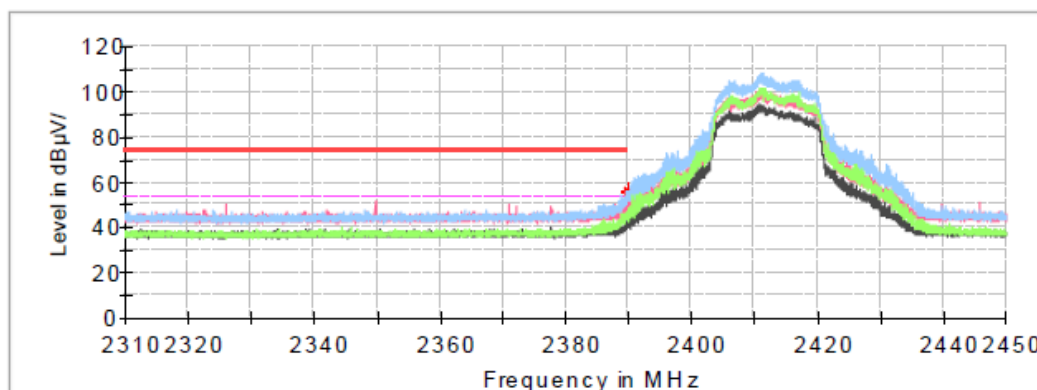
Chain 0:

802.11g Mode:

Common Information

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11g mode 2412 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum



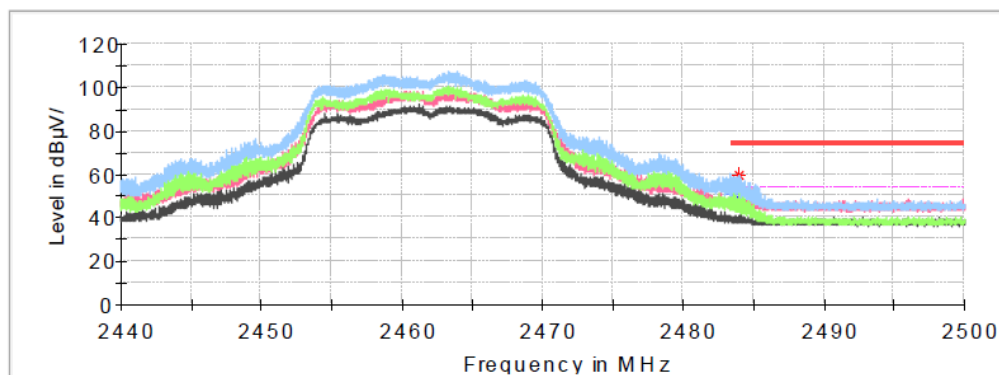
Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.926000	56.52	---	74.00	17.48	H	-0.6
2389.926000	---	44.72	54.00	9.28	H	-0.6
2389.996000	55.23	---	74.00	18.77	H	-0.6
2389.996000	---	48.54	54.00	5.46	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11g mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



Critical_Freqs

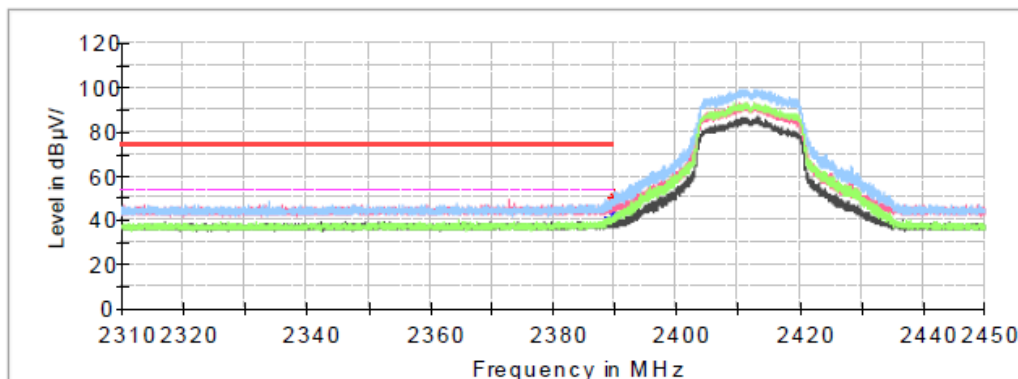
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.626000	---	51.06	54.00	2.94	H	-0.3
2483.626000	56.29	---	74.00	17.71	H	-0.3
2484.028000	---	48.76	54.00	5.24	H	-0.3
2484.028000	59.47	---	74.00	14.53	H	-0.3

Chain 1:

802.11g Mode:**Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11g mode 2412 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Klein Zhu

Full Spectrum

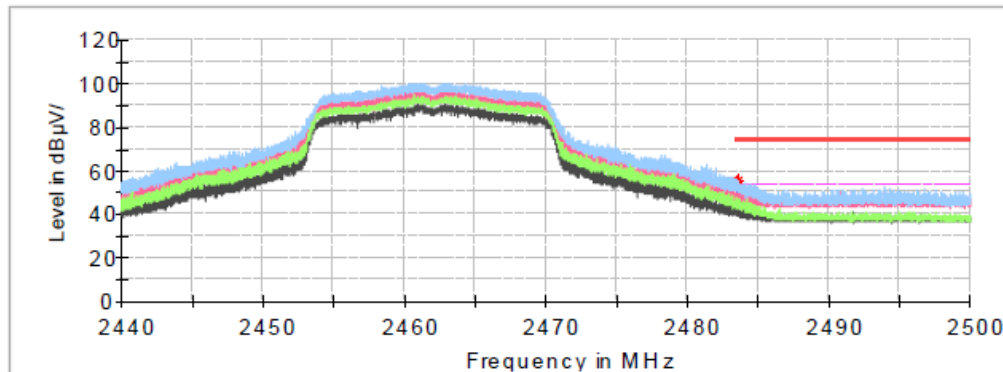
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.674000	---	41.80	54.00	12.20	H	-0.6
2389.674000	47.76	---	74.00	26.24	H	-0.6
2389.926000	---	41.77	54.00	12.23	H	-0.6
2389.926000	50.09	---	74.00	23.91	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11g mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Klein Zhu

Full Spectrum



Critical_Freqs

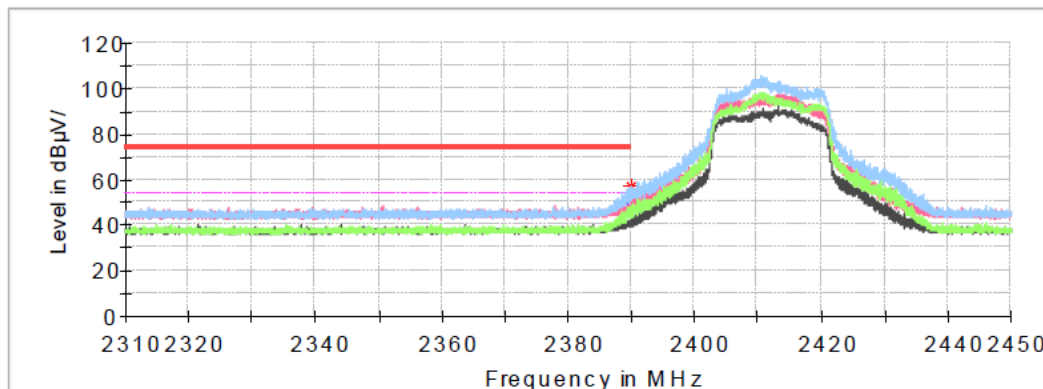
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.512000	54.19	---	74.00	19.81	H	-0.3
2483.512000	---	47.78	54.00	6.22	H	-0.3
2483.626000	55.50	---	74.00	18.50	H	-0.3
2483.626000	---	46.86	54.00	7.14	H	-0.3

MIMO (Chain 0+Chain 1):**802.11n20 Mode:**

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n20 mode 2412 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



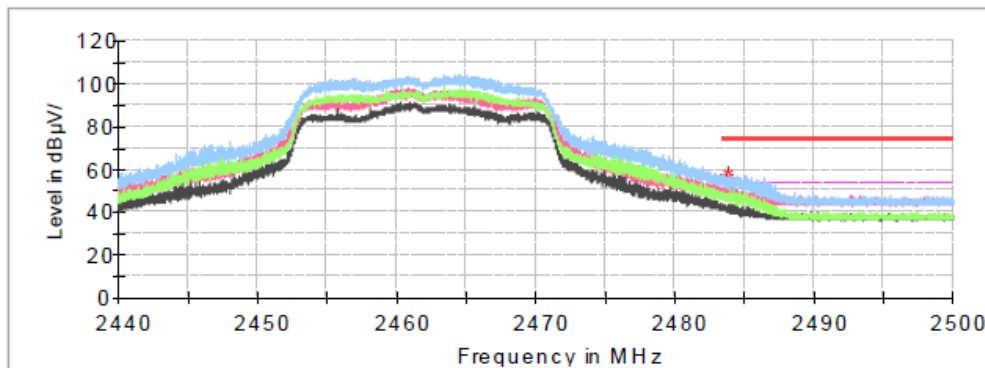
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.954000	---	48.24	54.00	5.76	H	-0.6
2389.954000	57.02	---	74.00	16.98	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n20 mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



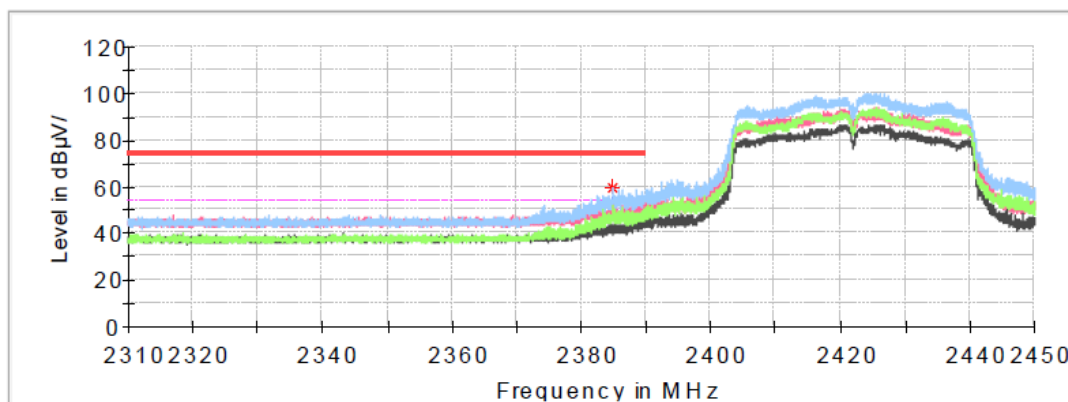
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.854000	58.10	---	74.00	15.90	H	-0.3
2483.854000	---	48.13	54.00	5.87	H	-0.3
2483.968000	54.48	---	74.00	19.52	H	-0.3
2483.968000	---	50.80	54.00	3.20	H	-0.3

MIMO (Chain 0+Chain 1):
802.11n40 Mode:**Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11n40 mode 2422 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum

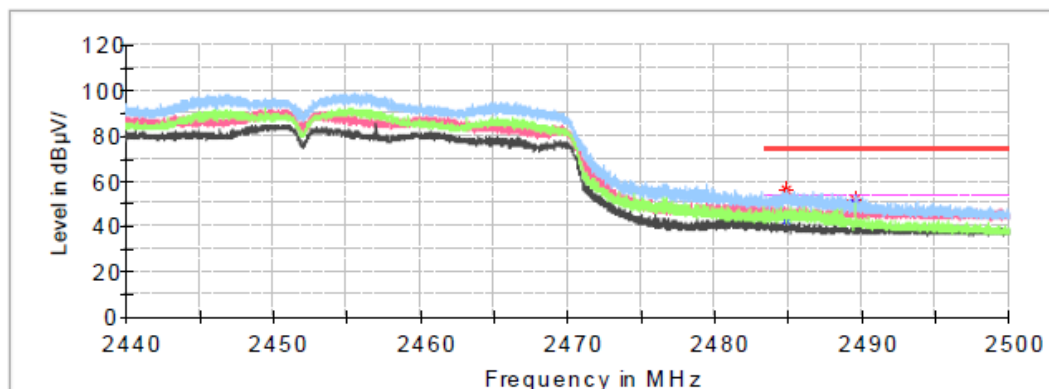
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2384.816000	---	50.79	54.00	3.21	H	-0.6
2384.816000	59.34	---	74.00	14.66	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11n40 mode 2452 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



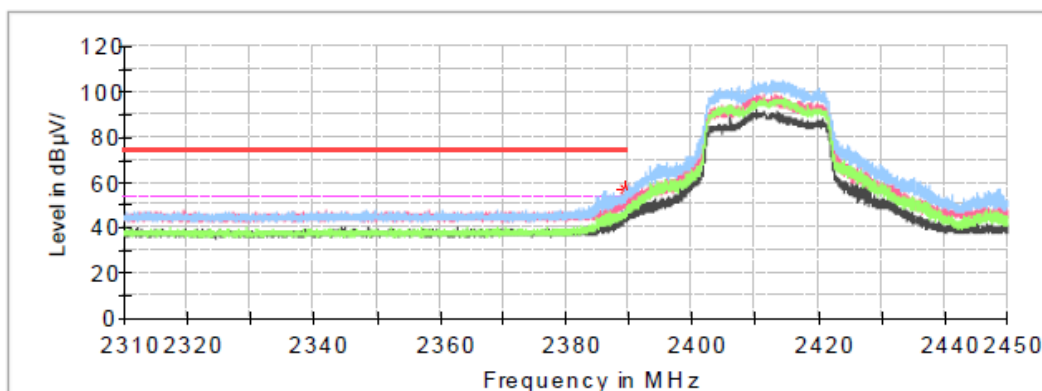
Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2484.820000	56.38	---	74.00	17.62	H	-0.3
2484.820000	---	43.09	54.00	10.91	H	-0.3
2489.488000	52.07	---	74.00	21.93	H	-0.2
2489.488000	---	49.95	54.00	4.05	H	-0.2

MIMO (Chain 0+Chain 1):
802.11ax20 Mode:**Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11ax20 mode 2412 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum

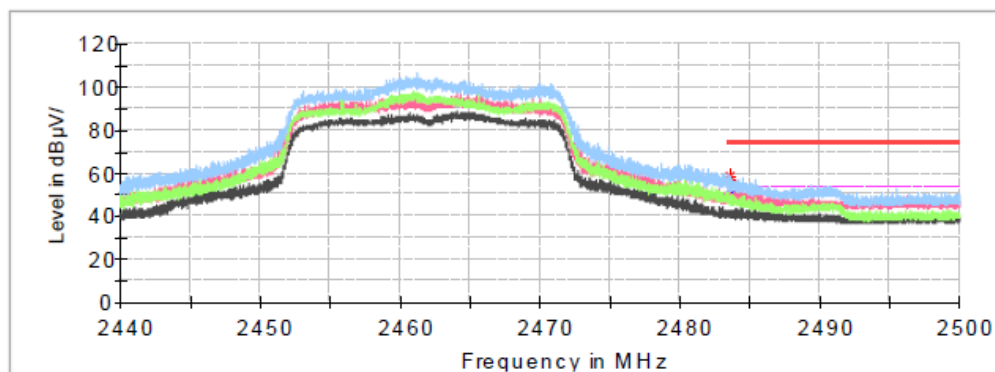
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.394000	57.43	---	74.00	16.57	H	-0.6
2389.394000	---	46.45	54.00	7.55	H	-0.6
2389.912000	54.56	---	74.00	19.44	H	-0.6
2389.912000	---	50.01	54.00	3.99	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11ax20 mode 2462 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum



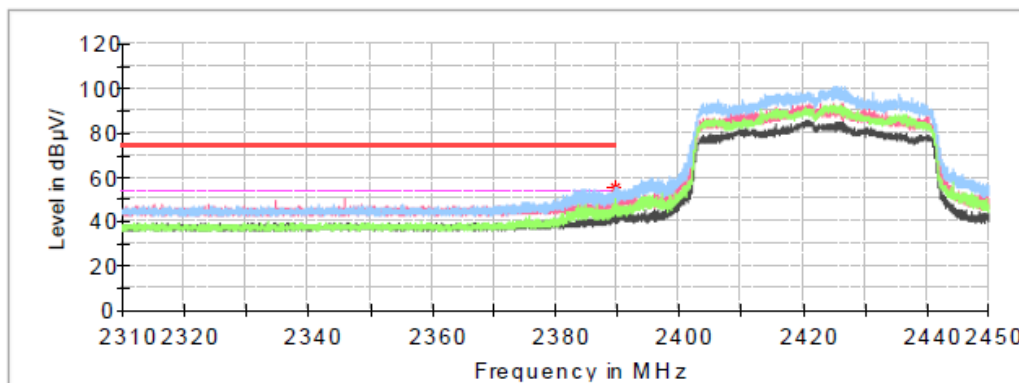
Critical_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.572000	59.14	---	74.00	14.86	H	-0.3
2483.572000	---	49.21	54.00	4.79	H	-0.3
2483.710000	55.70	---	74.00	18.30	H	-0.3
2483.710000	---	50.52	54.00	3.48	H	-0.3

MIMO (Chain 0+Chain 1):
802.11ax40 Mode:**Common Information**

Project No.:	RKSA240703001
Test Mode:	Transmitting in 802.11ax40 mode 2422 channel
Standard:	FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer:	Hugh Wu

Full Spectrum

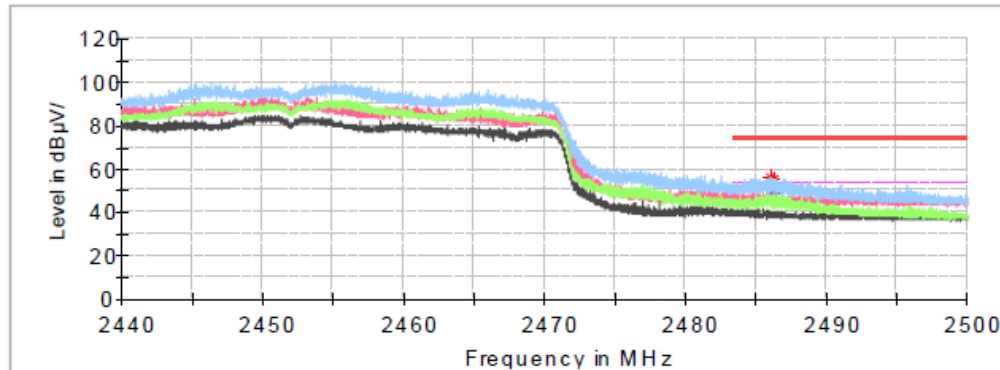
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.520000	---	50.12	54.00	3.88	H	-0.6
2389.520000	55.32	---	74.00	18.68	H	-0.6

Common Information

Project No.: RKSA240703001
Test Mode: Transmitting in 802.11ax40 mode 2452 channel
Standard: FCC Part 15.205&FCC Part 15.209&FCC Part 15.247
Test Engineer: Hugh Wu

Full Spectrum

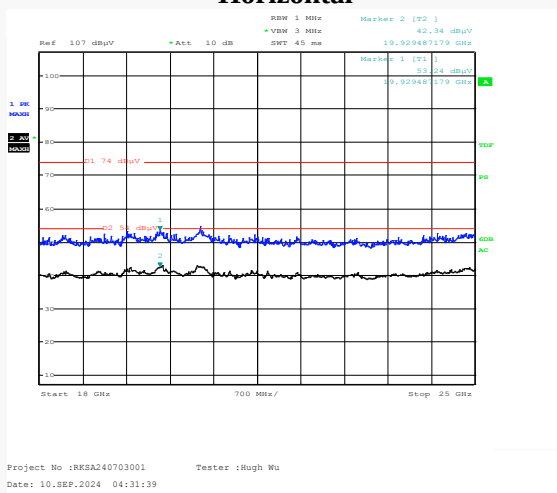
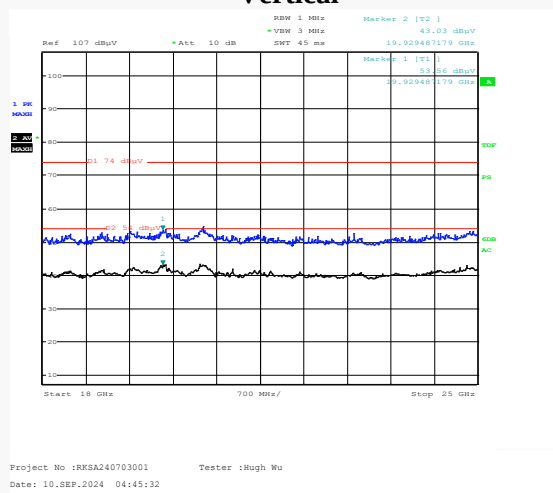


Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2486.092000	55.84	---	74.00	18.16	H	-0.2
2486.092000	---	46.94	54.00	7.06	H	-0.2
2486.278000	55.04	---	74.00	18.96	H	-0.2
2486.278000	---	48.47	54.00	5.53	H	-0.2

Note:

802.11n20/n40/ax20/ax40 can support beamforming mode, according to KDB 662911 D01, Clause 3(a)(iii), The emission should be added array gain($10 \cdot \lg N = 10 \cdot \lg 2 = 3.01 \text{ dB}$) to the result, because the margins for 802.11n/ax mode are more than 3.01dB, So beamforming mode can meet the requirements of out-of-band emissions.

18GHz-25GHz:**MIMO (Chain 0+Chain 1):***Transmitting in maximum output power ax20 mode and low channel***Horizontal****Vertical**

Note: The test distance is 3m. The limit is 74dBμV/m(Peak) and 54dBμV/m(Average).

802.11n20/n40/ax20/ax40 can support beamforming mode, according to KDB 662911 D01, Clause 3(a)(iii), The emission should be added array gain($10 \cdot \lg N = 10 \cdot \lg 2 = 3.01\text{dB}$) to the result, because the margins for 802.11n/ax mode are more than 3.01dB, So beamforming mode can meet the requirements of spurious emissions.

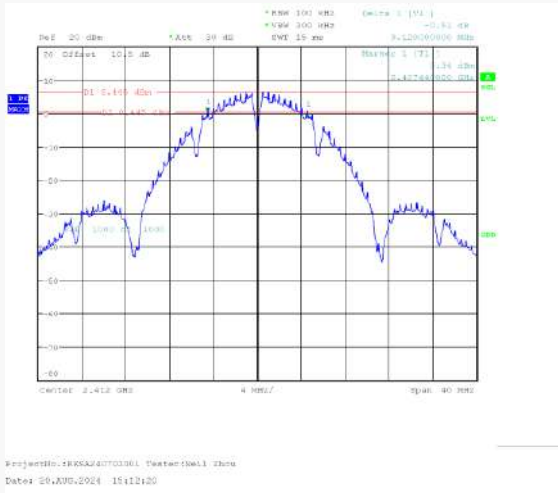
Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
19929.49	53.56	---	80	26.44	V	12.08
19929.49	---	43.03	60	16.97	V	12.08
19929.49	53.24	---	80	26.76	H	12.08
19929.49	---	42.34	60	17.66	H	12.08

6 DB EMISSION BANDWIDTH*EUT operation mode: Transmitting***Test Result:** Pass

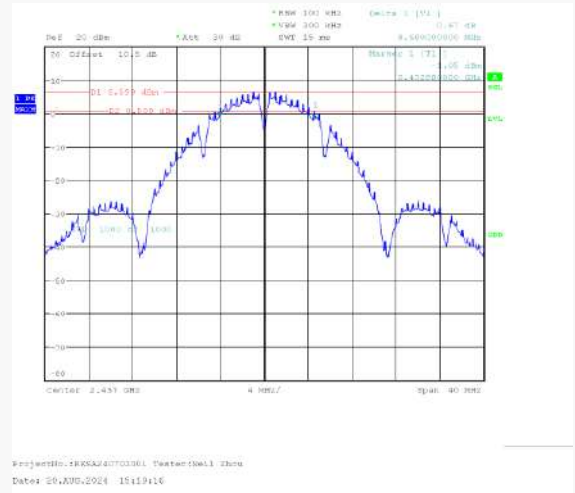
Test Mode	Channel (MHz)	DTS Bandwidth (MHz)		Limit (MHz)	Verdict
		Chain 0	Chain 1		
802.11b	2412	9.120	9.120	0.5	PASS
	2437	8.680	8.640	0.5	PASS
	2462	8.160	9.120	0.5	PASS
802.11g	2412	15.160	15.160	0.5	PASS
	2437	15.120	15.160	0.5	PASS
	2462	15.160	15.200	0.5	PASS
802.11n-HT20	2412	15.160	15.160	0.5	PASS
	2437	15.120	15.160	0.5	PASS
	2462	15.120	15.160	0.5	PASS
802.11n-HT40	2422	30.240	31.440	0.5	PASS
	2437	31.520	31.520	0.5	PASS
	2452	32.640	33.920	0.5	PASS
802.11ax-HE20	2412	15.200	15.160	0.5	PASS
	2437	15.160	15.120	0.5	PASS
	2462	15.200	15.200	0.5	PASS
802.11ax-HE40	2422	32.800	34.000	0.5	PASS
	2437	32.720	32.720	0.5	PASS
	2452	33.920	32.800	0.5	PASS

Chain 0:

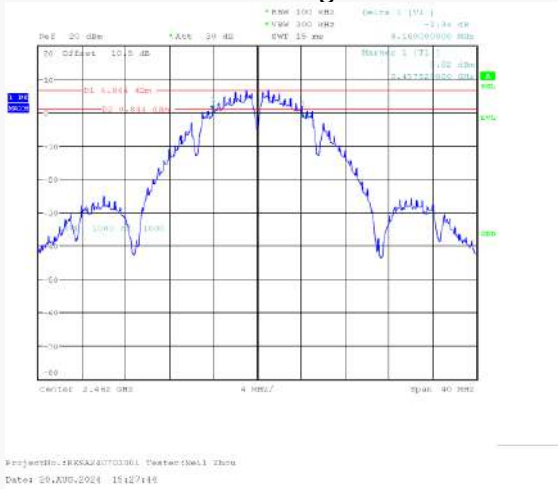
802.11b Mode Low Channel



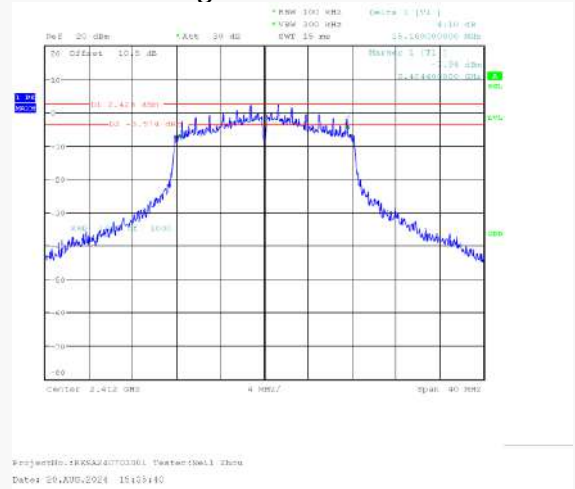
802.11b Mode Middle Channel



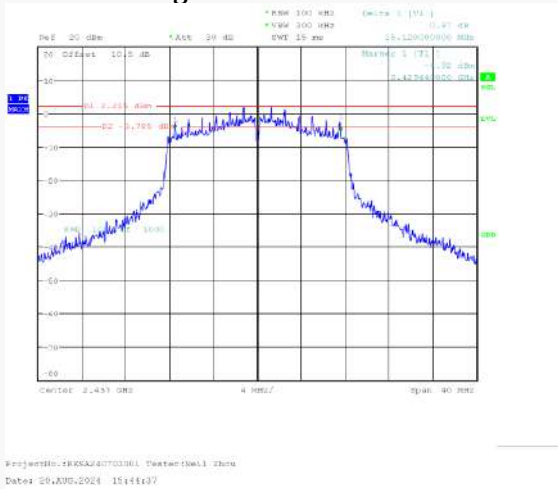
802.11b Mode High Channel



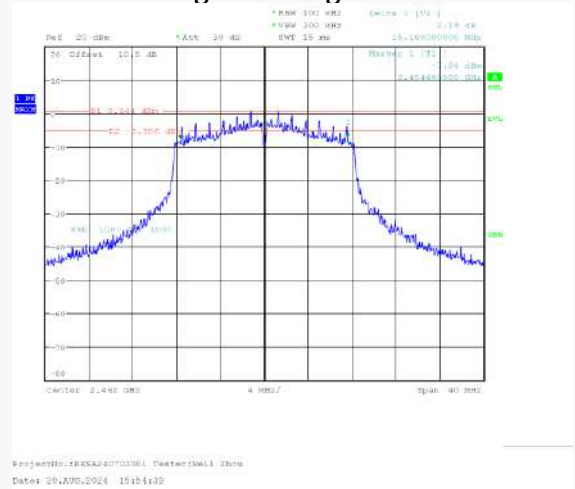
802.11g Mode Low Channel



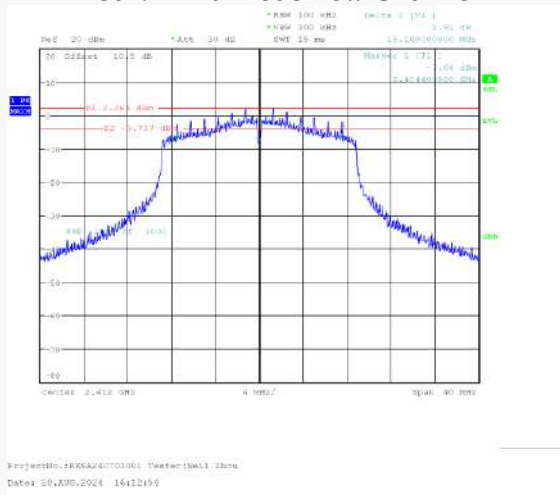
802.11g Mode Middle Channel



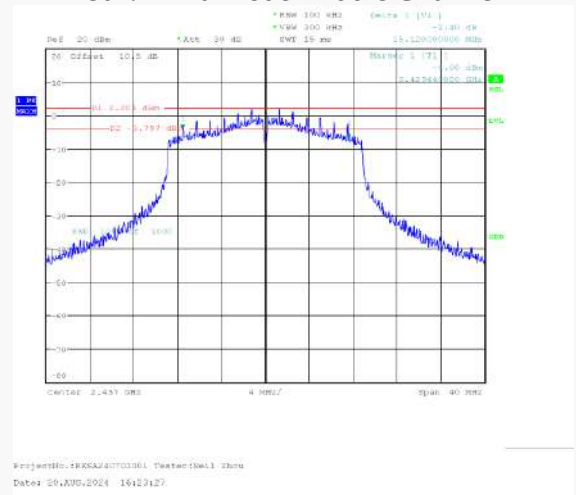
802.11g Mode High Channel



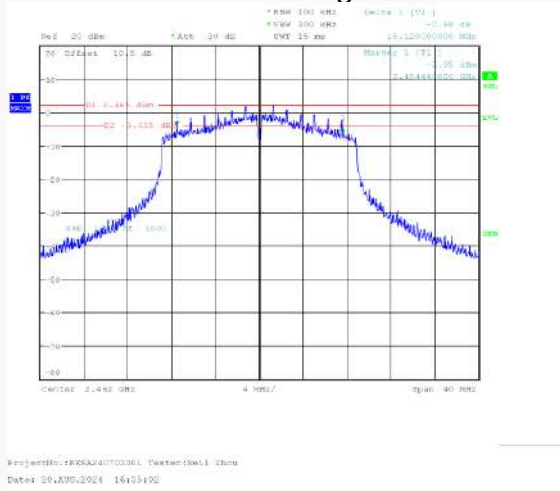
802.11n20 Mode Low Channel



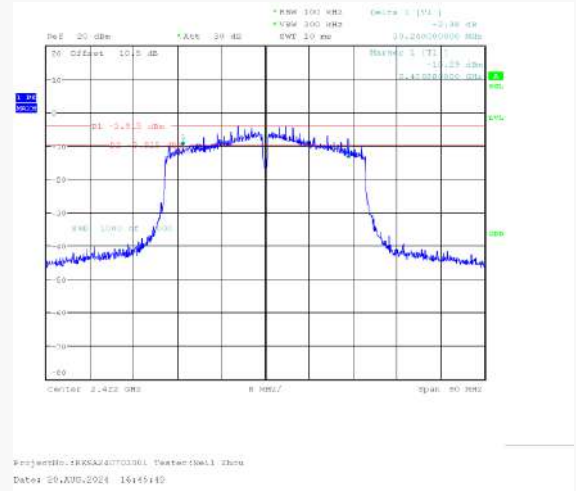
802.11n20 Mode Middle Channel



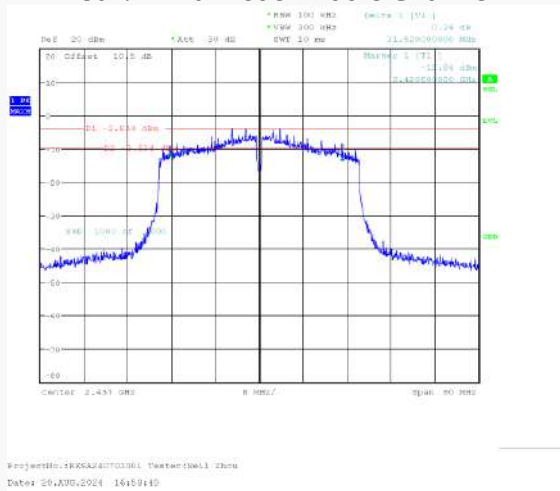
802.11n20 Mode High Channel



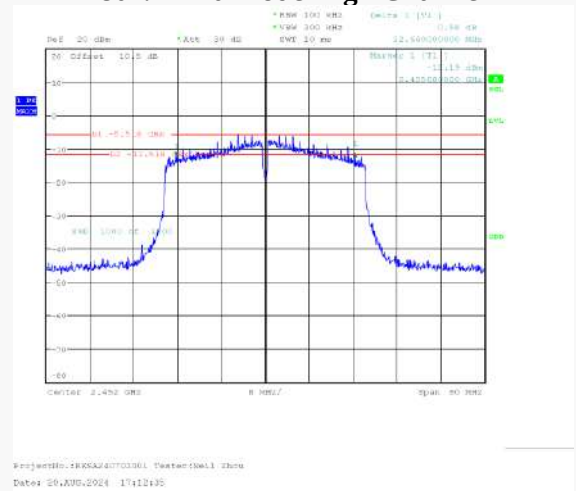
802.11n40 Mode Low Channel



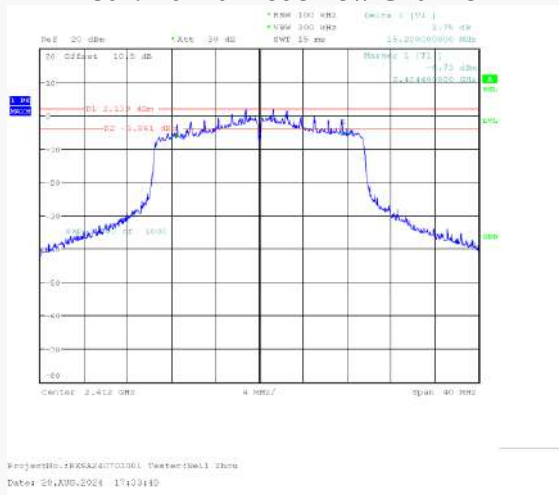
802.11n40 Mode Middle Channel



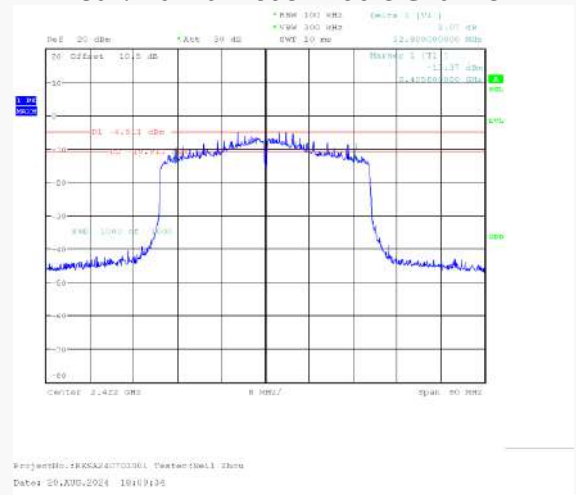
802.11n40 Mode High Channel



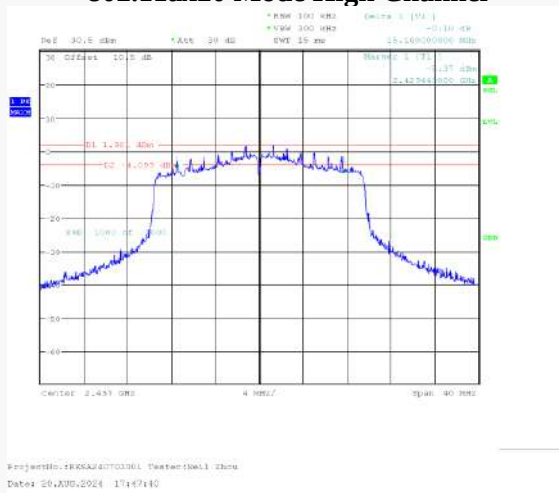
802.11ax20 Mode Low Channel



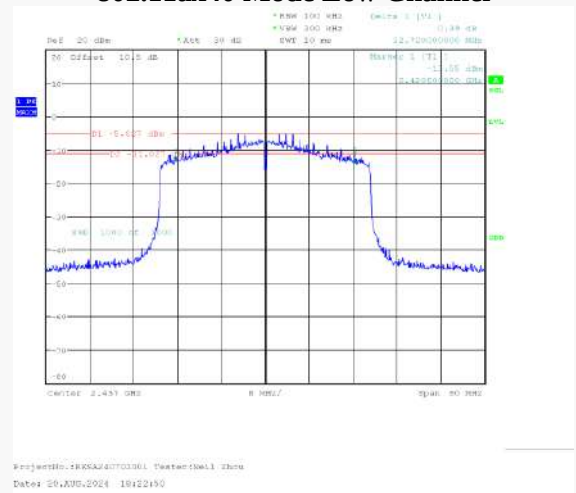
802.11ax20 Mode Middle Channel



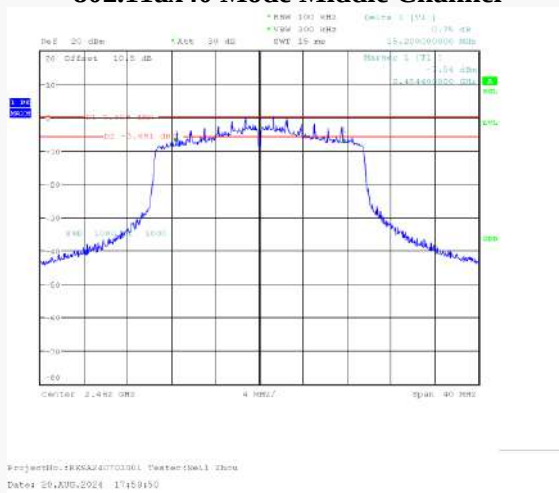
802.11ax20 Mode High Channel



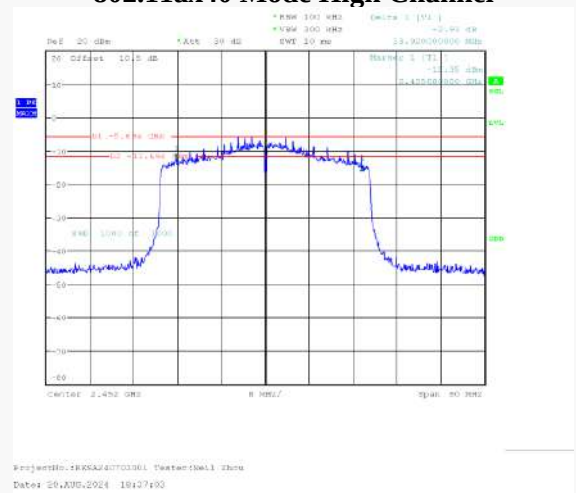
802.11ax40 Mode Low Channel



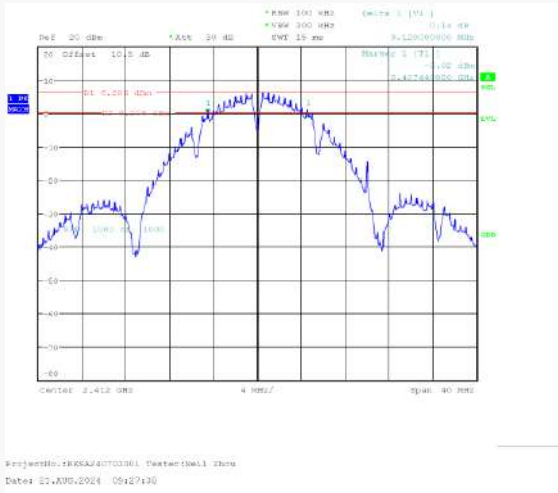
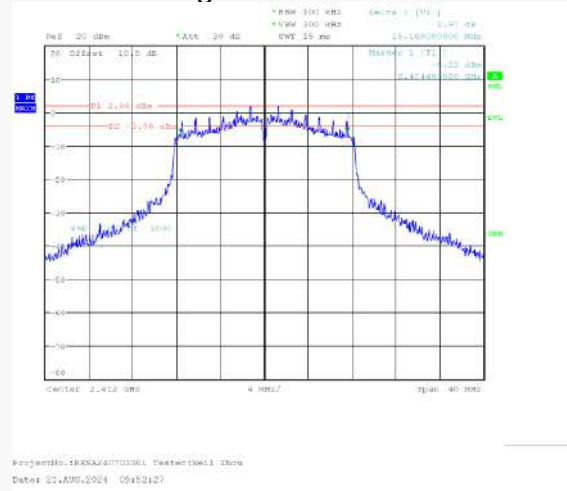
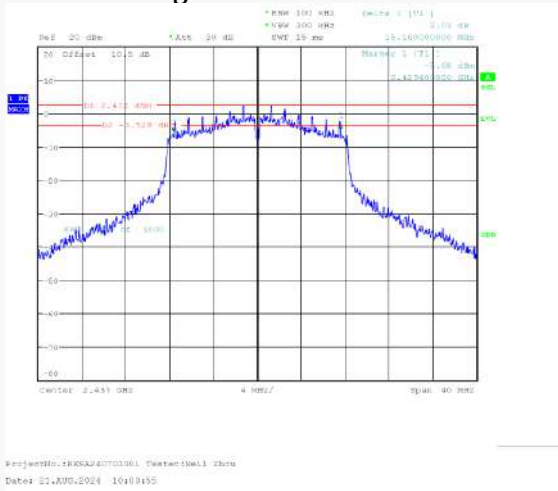
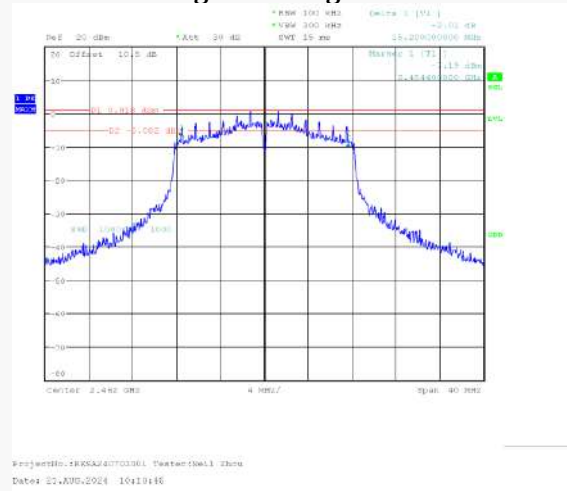
802.11ax40 Mode Middle Channel



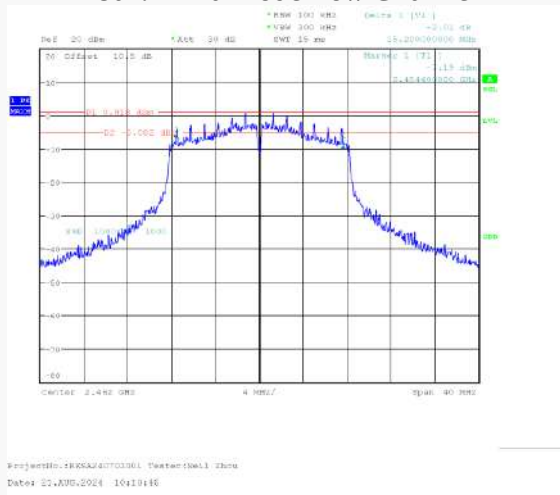
802.11ax40 Mode High Channel



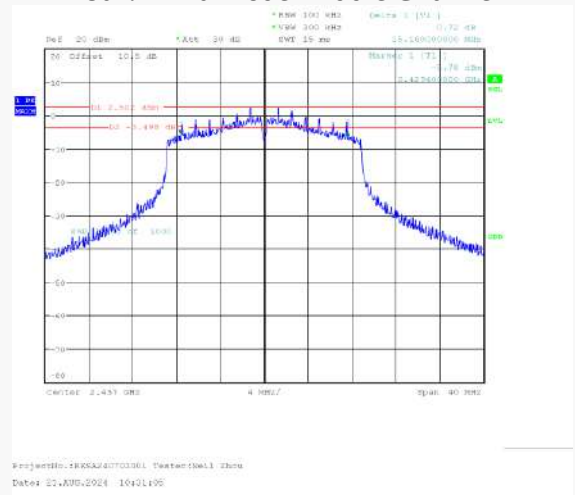
Chain 1:

802.11b Mode Low Channel**802.11b Mode Middle Channel****802.11b Mode High Channel****802.11g Mode Low Channel****802.11g Mode Middle Channel****802.11g Mode High Channel**

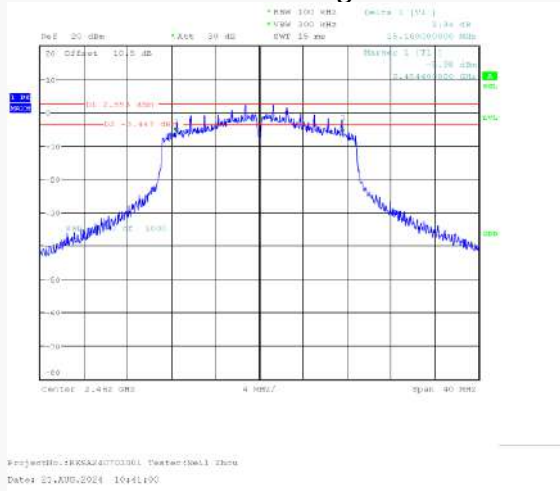
802.11n20 Mode Low Channel



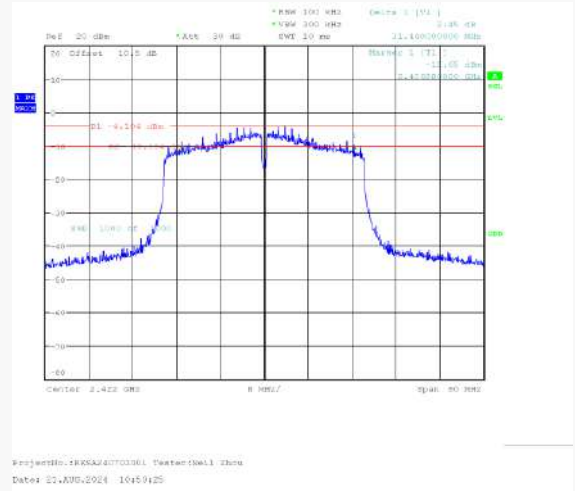
802.11n20 Mode Middle Channel



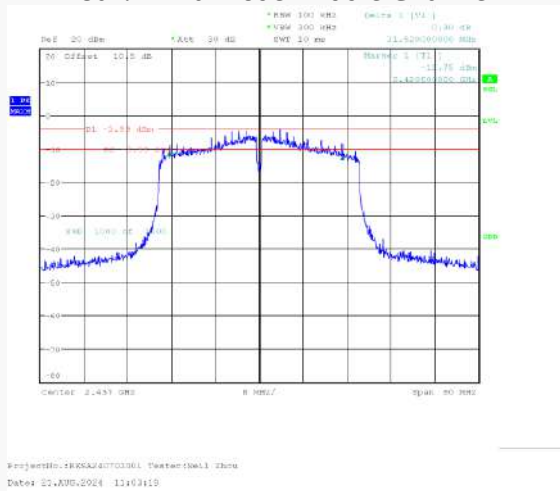
802.11n20 Mode High Channel



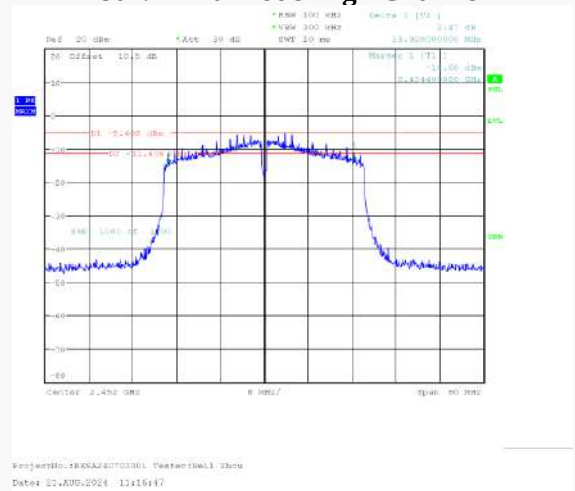
802.11n40 Mode Low Channel



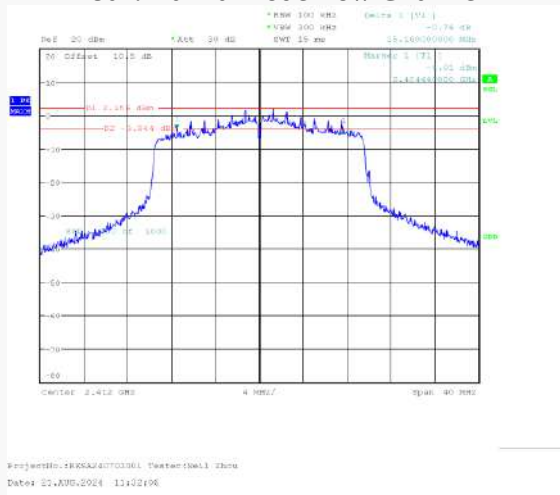
802.11n40 Mode Middle Channel



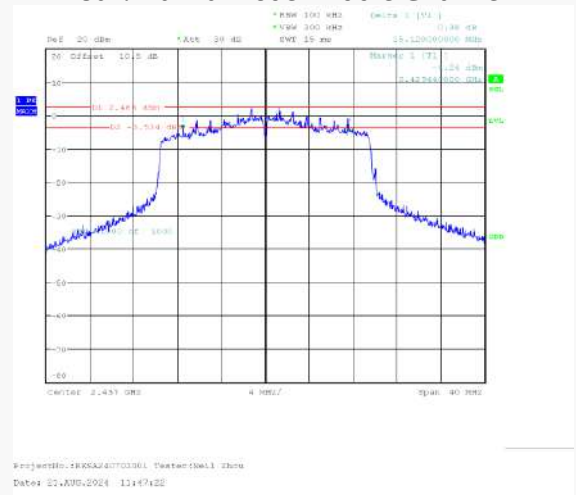
802.11n40 Mode High Channel



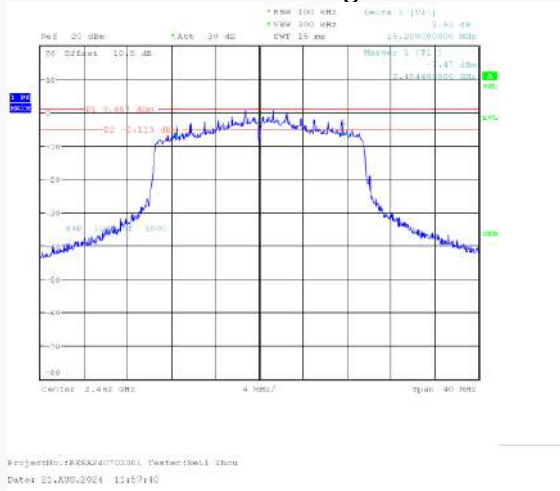
802.11ax20 Mode Low Channel



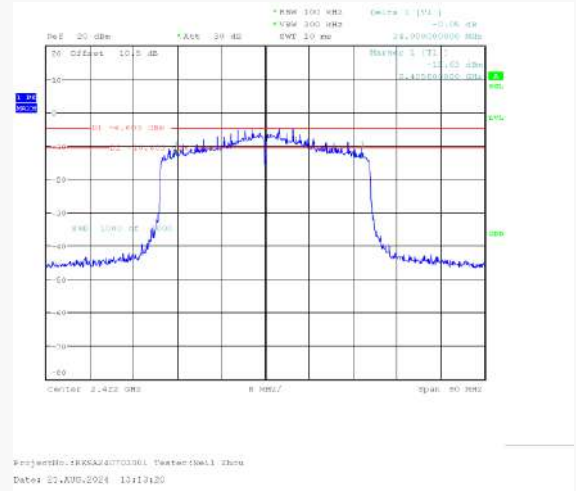
802.11ax20 Mode Middle Channel



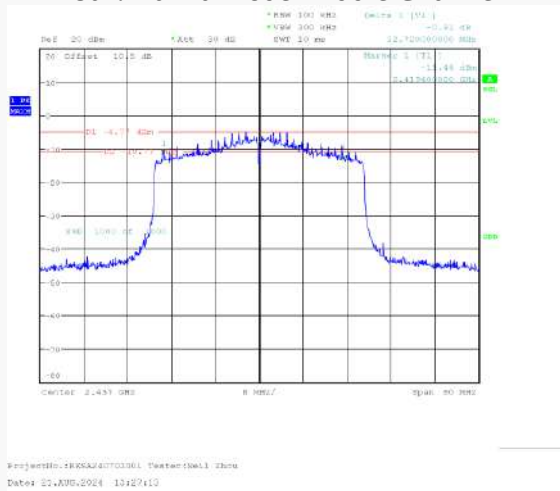
802.11ax20 Mode High Channel



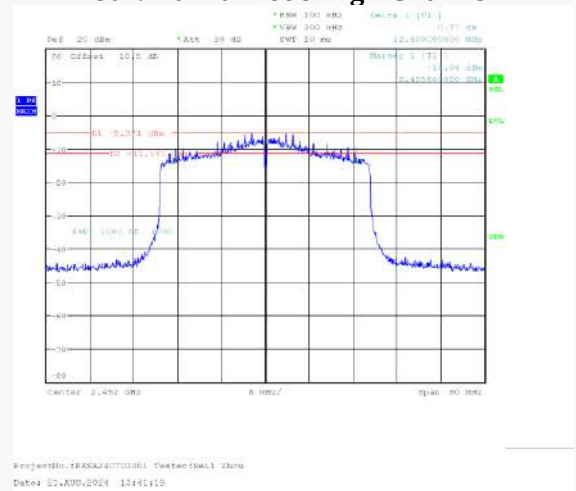
802.11ax40 Mode Low Channel



802.11ax40 Mode Middle Channel



802.11ax40 Mode High Channel



MAXIMUM CONDUCTED OUTPUT POWER*EUT operation mode: MIMO(CDD) Transmitting & Beamforming Transmitting*

Test Mode	Channel (MHz)	Maximum Conducted Peak Output Power (dBm)			Limit (dBm)	Verdict
		Chain 0	Chain 1	Total		
802.11b	2412	18.51	18.62	/	≤30.00	PASS
	2437	18.44	18.74	/	≤30.00	PASS
	2462	18.45	18.68	/	≤30.00	PASS
802.11g	2412	16.68	16.81	/	≤30.00	PASS
	2437	16.58	16.98	/	≤30.00	PASS
	2462	15.12	15.44	/	≤30.00	PASS
802.11n-HT20	2412	16.52	16.68	19.61	≤30.00	PASS
	2437	16.33	16.59	19.47	≤30.00	PASS
	2462	16.31	16.52	19.43	≤30.00	PASS
802.11n-HT40	2422	15.12	15.27	18.21	≤30.00	PASS
	2437	15.09	15.25	18.18	≤30.00	PASS
	2452	13.84	14.07	16.97	≤30.00	PASS
802.11ax-HE20	2412	17.48	17.67	20.59	≤30.00	PASS
	2437	17.43	17.61	20.53	≤30.00	PASS
	2462	15.83	15.78	18.82	≤30.00	PASS
802.11ax-HE40	2422	14.44	14.71	17.59	≤30.00	PASS
	2437	14.31	14.76	17.65	≤30.00	PASS
	2452	13.91	14.03	16.98	≤30.00	PASS

Note:

The measure-and-sum technique shall be used for measuring in-band transmit power of a device. Total power is the sum of the conducted power levels measured at the various output ports.

The maximum antenna gain is 4.5 dBi, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;

So: Directional gain = $G_{ANT} + \text{Array Gain} = 4.5 \text{ dBi} < 6 \text{ dBi}$, no RF outpower limit was reduced.

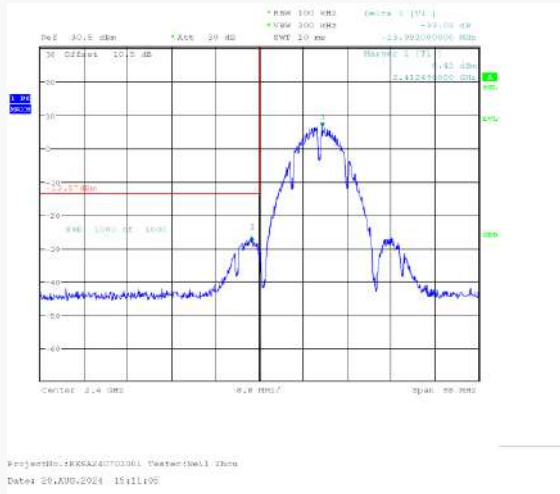
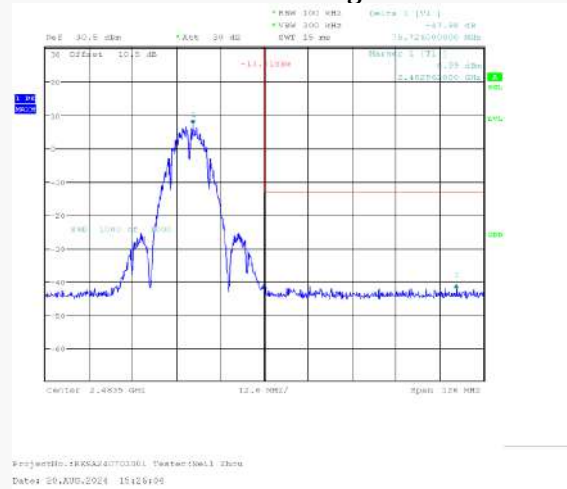
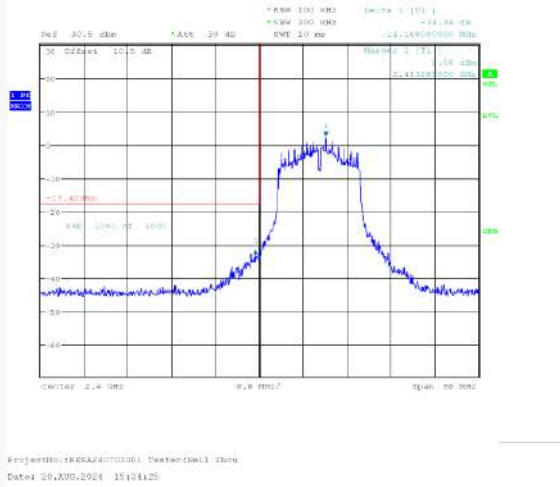
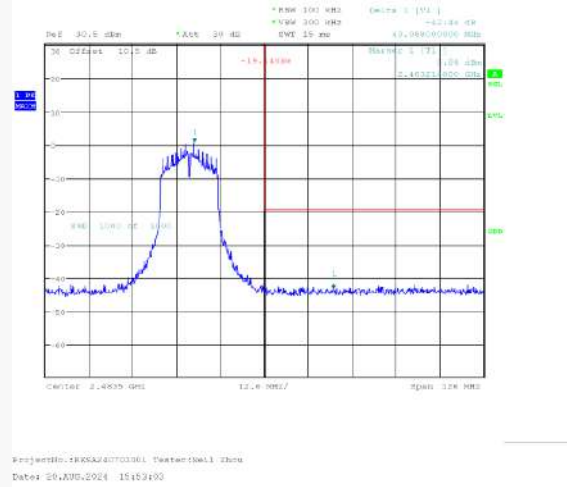
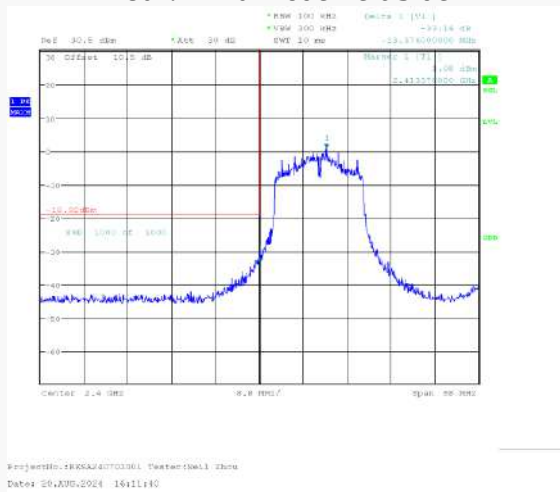
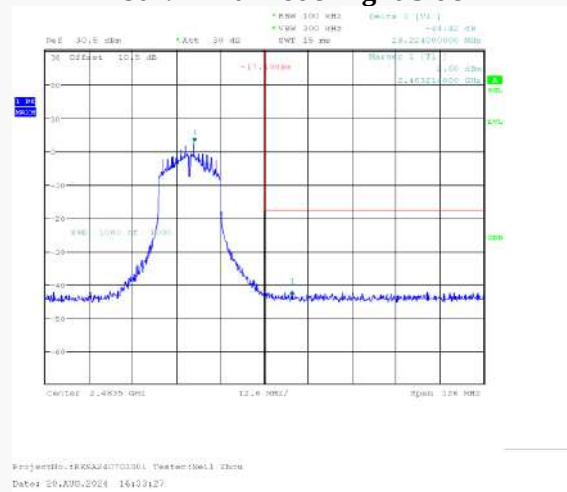
100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

EUT operation mode: Transmitting

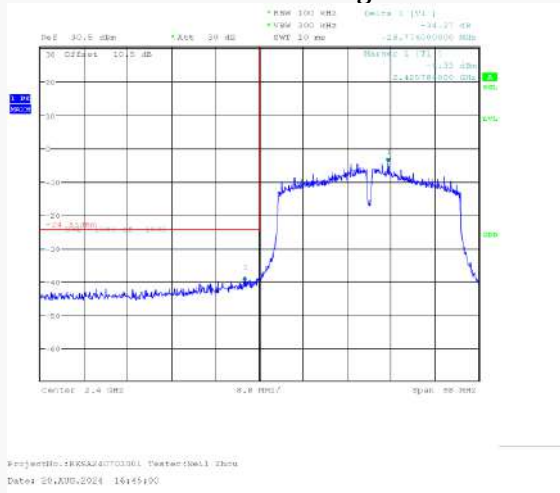
Test Result: Compliant

For Wi-Fi Mode:

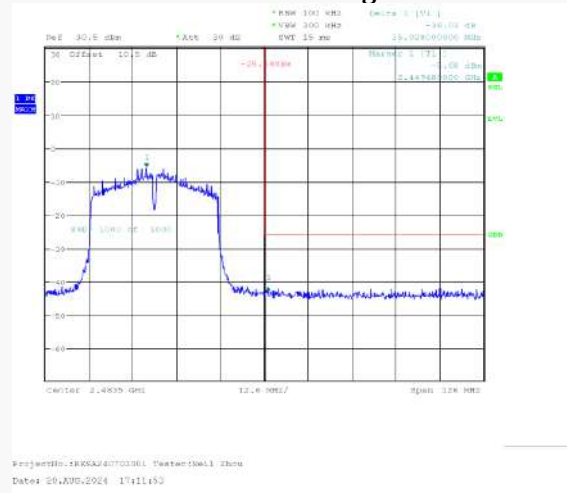
Chain 0:

802.11b Mode Left Side**802.11b Mode Right Side****802.11g Mode Left Side****802.11g Mode Right Side****802.11n20 Mode Left Side****802.11n20 Mode Right Side**

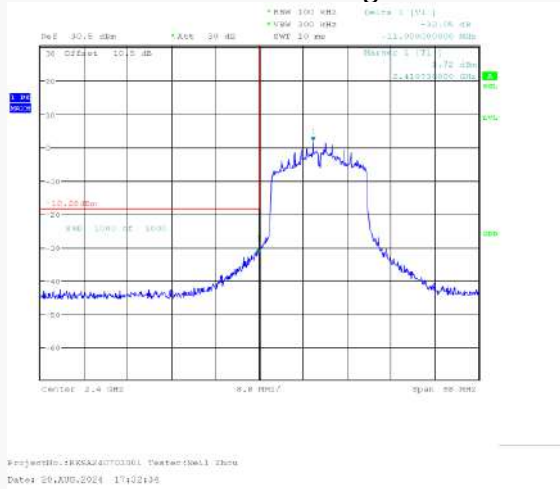
802.11n40 Mode Right Side



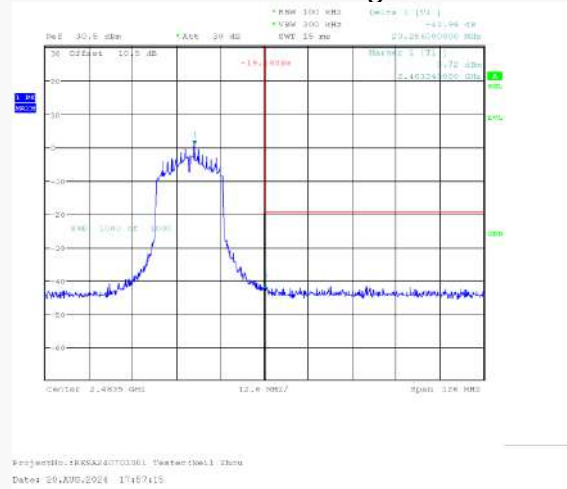
802.11n40 Mode Right Side



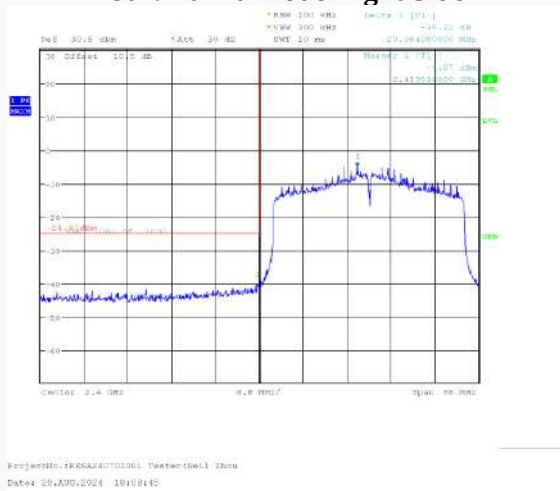
802.11ax20 Mode Right Side



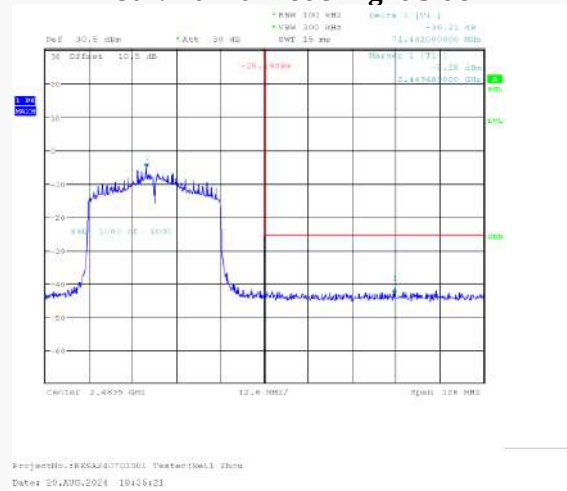
802.11ax20 Mode Right Side



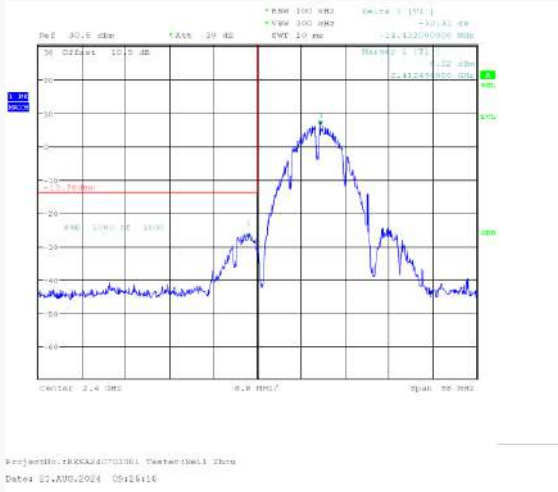
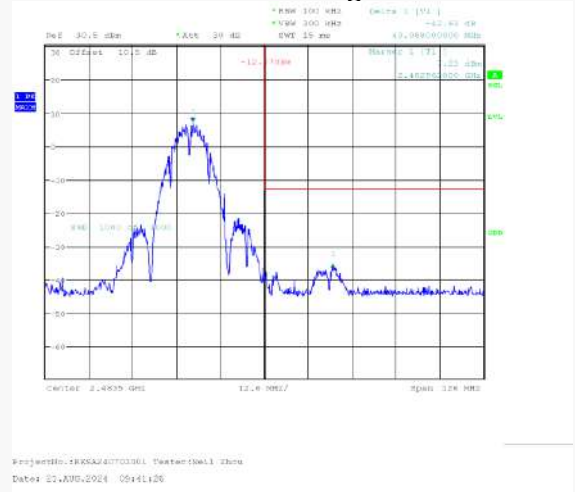
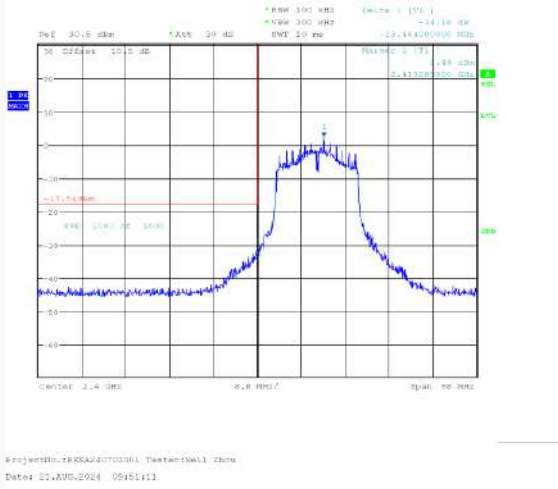
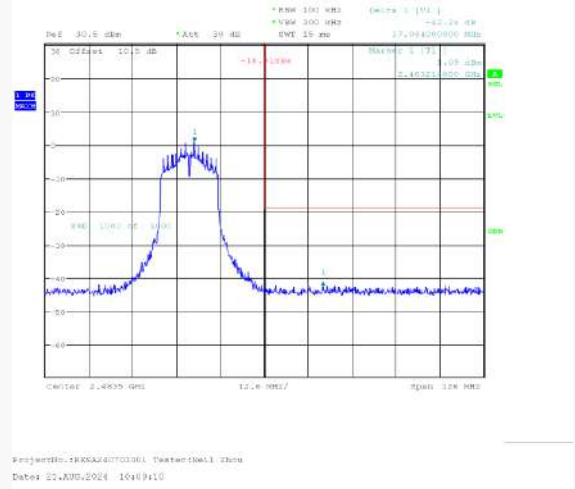
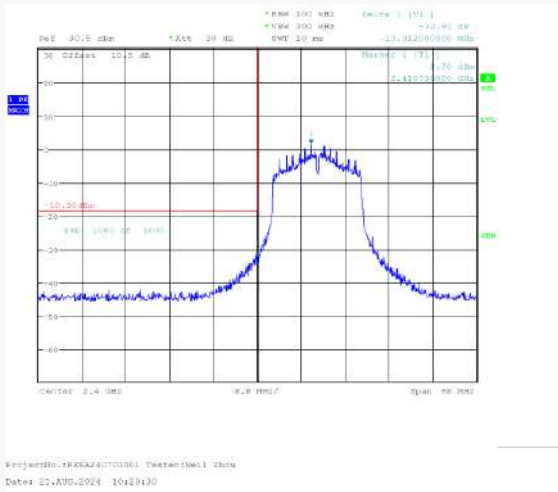
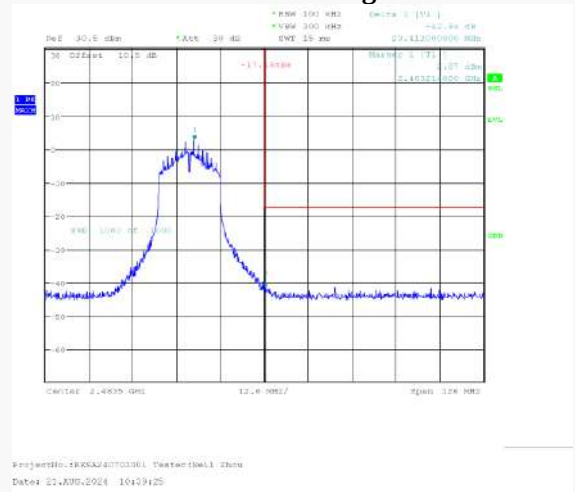
802.11ax40 Mode Right Side



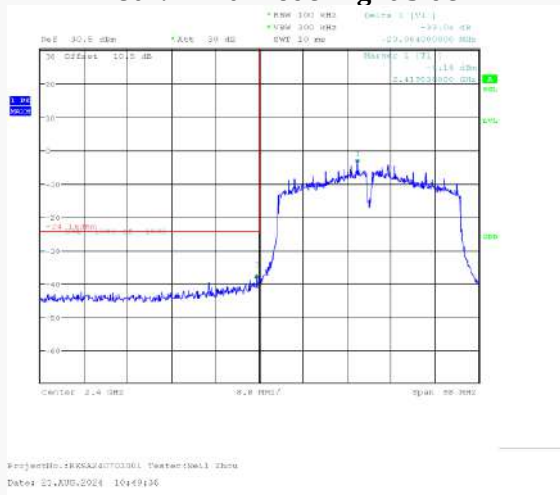
802.11ax40 Mode Right Side



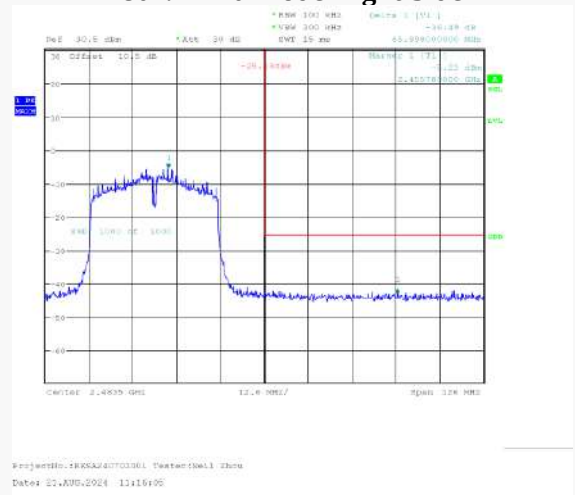
Chain 1:

802.11b Mode Left Side**802.11b Mode Right Side****802.11g Mode Left Side****802.11g Mode Right Side****802.11n20 Mode Left Side****802.11n20 Mode Right Side**

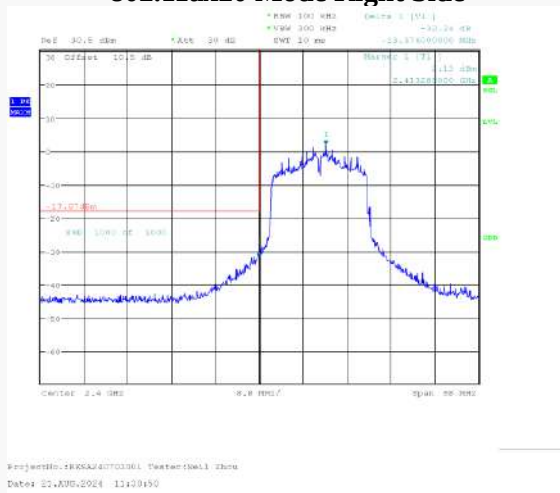
802.11n40 Mode Right Side



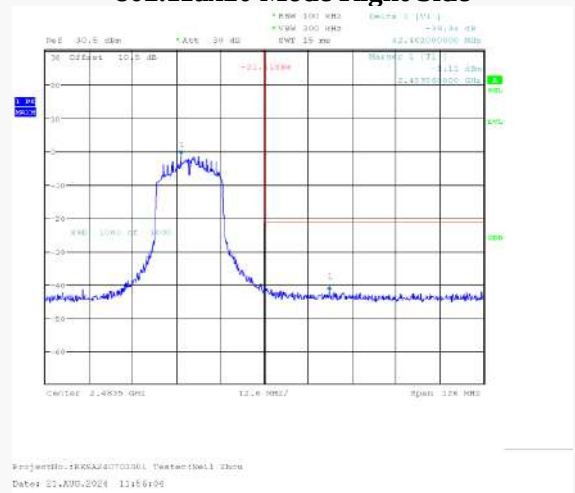
802.11n40 Mode Right Side



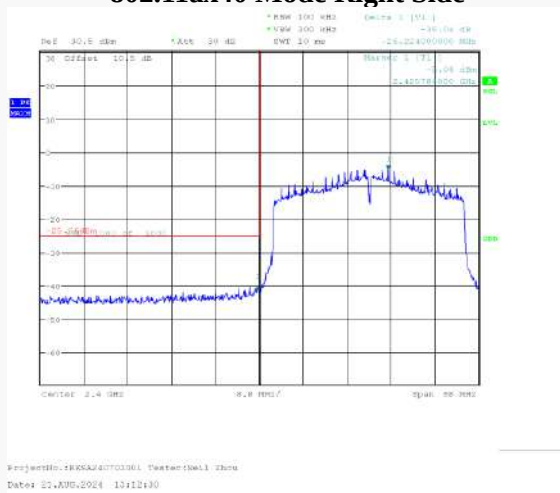
802.11ax20 Mode Right Side



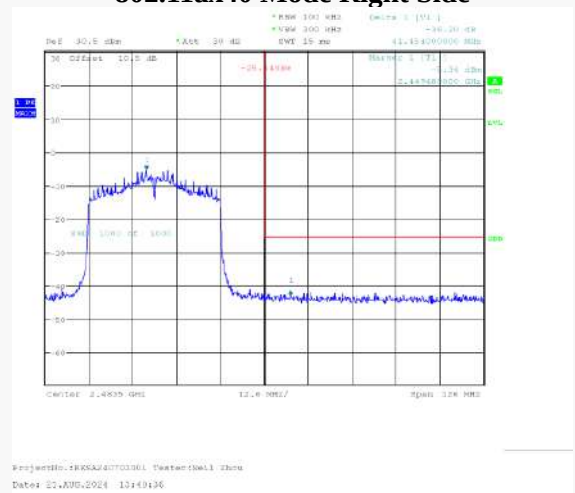
802.11ax20 Mode Right Side



802.11ax40 Mode Right Side



802.11ax40 Mode Right Side



POWER SPECTRAL DENSITY*EUT operation mode: MIMO Transmitting & Beamforming Transmitting***Test Result:** Pass

Test Mode	Channel (MHz)	Power Spectral Density (dBm/3kHz)			Limit (dBm/3kHz)	Verdict
		Chain 0	Chain 1	Total PSD		
802.11b	2412	-5.17	-5.37	/	≤ 6.49	PASS
	2437	-5.78	-5.69	/	≤ 6.49	PASS
	2462	-6.08	-5.89	/	≤ 6.49	PASS
802.11g	2412	-12.18	-12.58	/	≤ 6.49	PASS
	2437	-12.87	-11.57	/	≤ 6.49	PASS
	2462	-14.58	-13.40	/	≤ 6.49	PASS
802.11n-HT20	2412	-11.31	-11.31	-8.30	≤ 6.49	PASS
	2437	-10.51	-11.23	-7.84	≤ 6.49	PASS
	2462	-11.76	-10.98	-8.34	≤ 6.49	PASS
802.11n-HT40	2422	16.84	-16.67	16.84	≤ 6.49	PASS
	2437	-16.61	-16.15	-13.36	≤ 6.49	PASS
	2452	-18.32	-17.54	-14.90	≤ 6.49	PASS
802.11ax-HE20	2412	-12.20	-12.18	-9.18	≤ 6.49	PASS
	2437	-12.24	-12.22	-9.22	≤ 6.49	PASS
	2462	-13.76	-13.54	-10.64	≤ 6.49	PASS
802.11ax-HE40	2422	-17.95	-17.28	-14.59	≤ 6.49	PASS
	2437	-18.38	-18.11	-15.23	≤ 6.49	PASS
	2452	-18.70	-18.87	-15.77	≤ 6.49	PASS

Note:

1. The maximum antenna gain is 4.5 dBi. The device employed Cyclic Delay Diversity (CDD) for 802.11MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

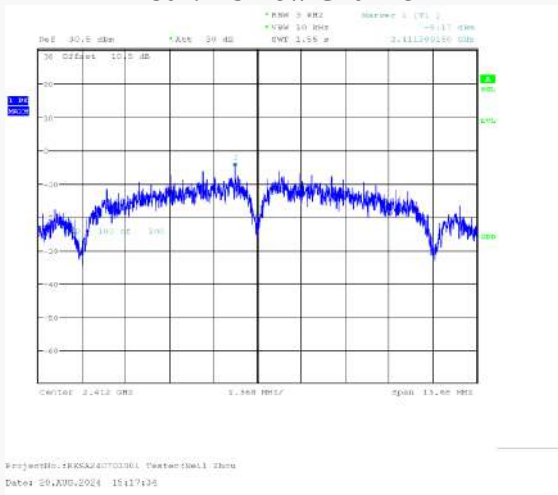
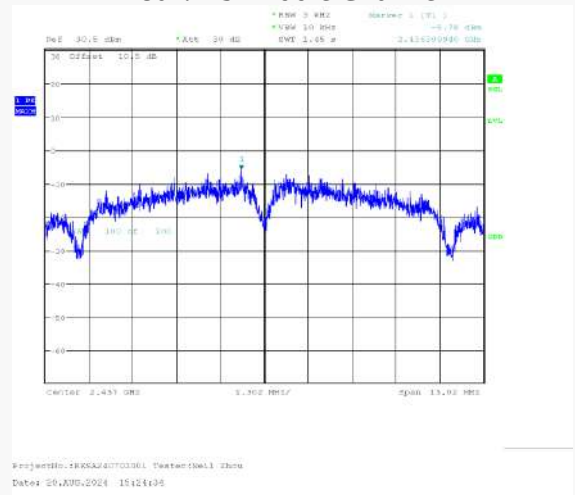
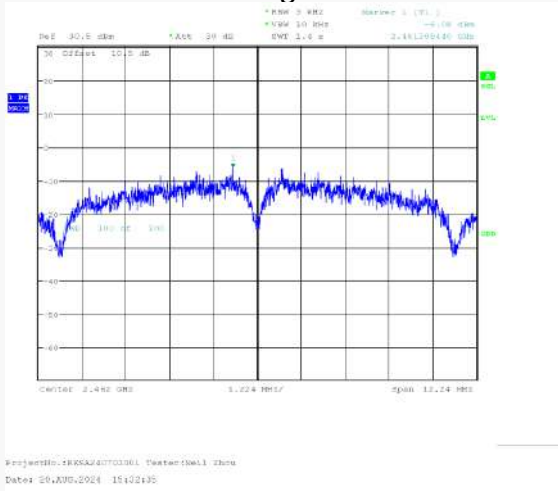
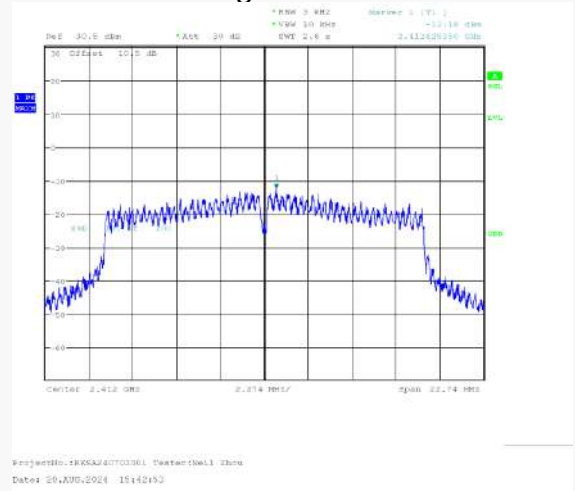
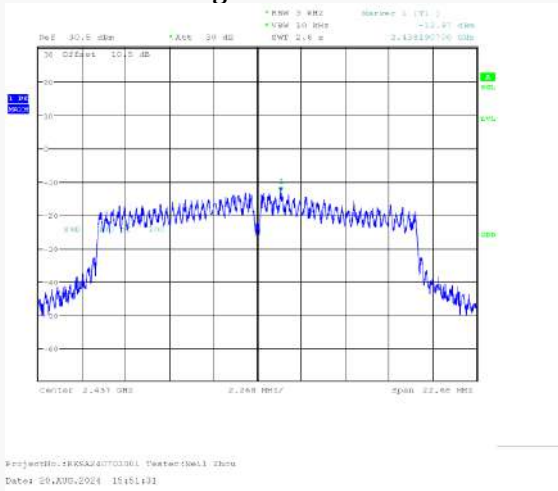
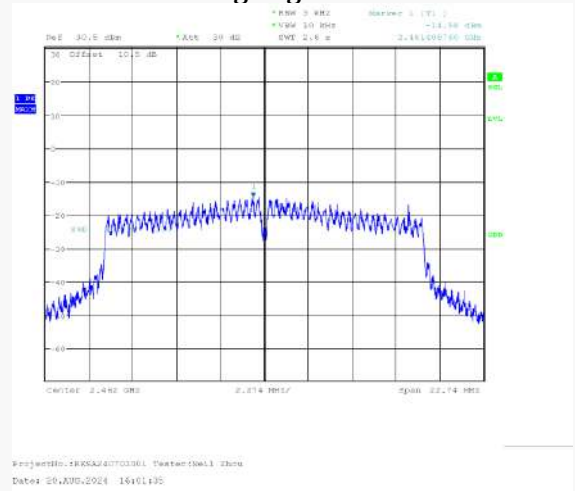
Array Gain = $10 \cdot \log(N_{\text{ANT}}/N_{\text{SS}})$ dB.

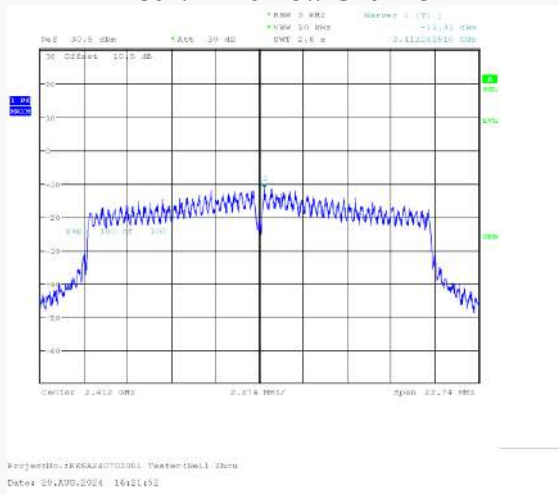
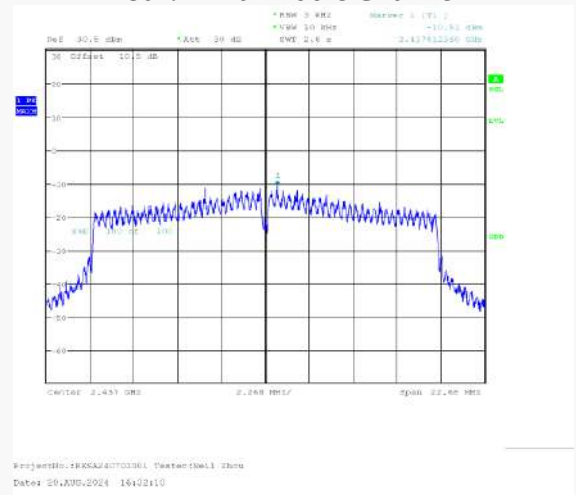
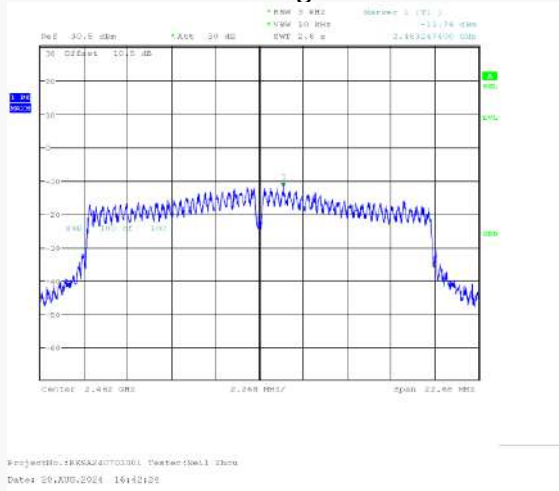
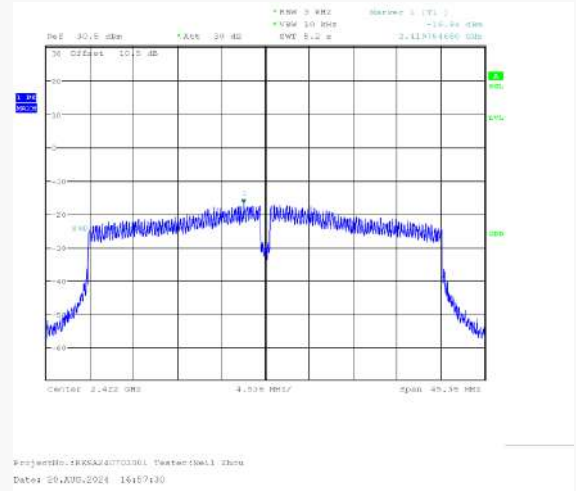
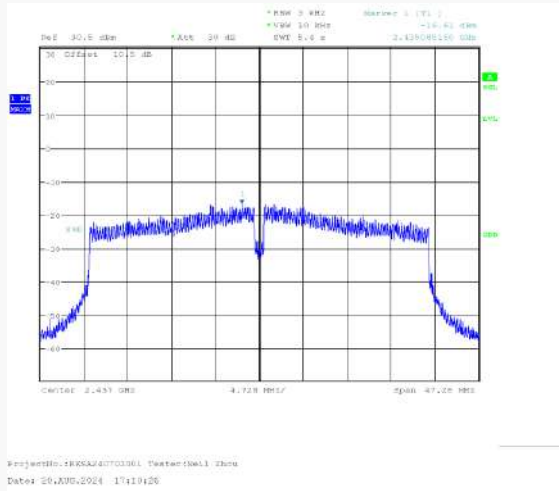
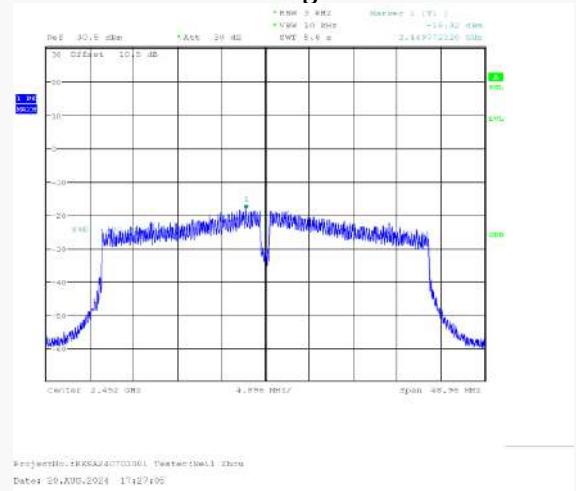
Directional gain = $G_{\text{ANT}} + \text{Array Gain} = 4.5 + 10 \cdot \log(2/1) = 7.51 > 6\text{dBi}$, so PSD limit was reduced 1.51dB.

2. The maximum antenna gain is 4.5 dBi. The device can employed *Beamforming Transmitting*, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

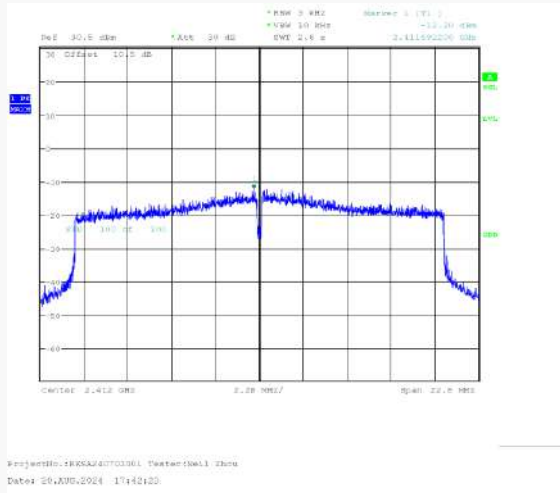
Directional gain = $G_{\text{ANT}} + 10 \cdot \lg N_{\text{ANT}} = 4.5 + 10 \cdot \lg(2) = 7.51 > 6\text{dBi}$, so PSD limit was reduced 1.51dB.

Chain 0:

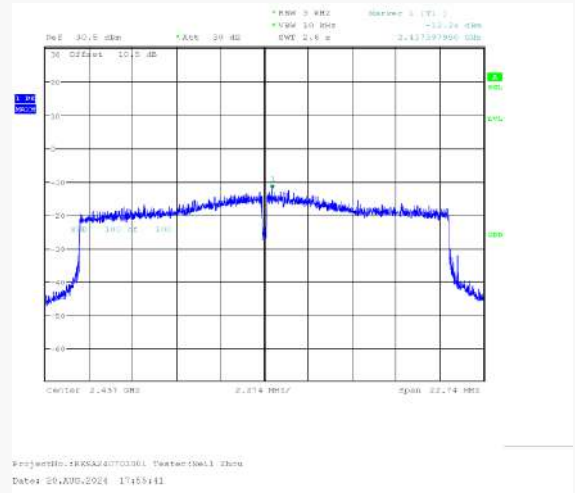
802.11b Low Channel**802.11b Middle Channel****802.11b High Channel****802.11g Low Channel****802.11g Middle Channel****802.11g High Channel**

802.11n20 Low Channel**802.11n20 Middle Channel****802.11n20 High Channel****802.11n40 Low Channel****802.11n40 Middle Channel****802.11n40 High Channel**

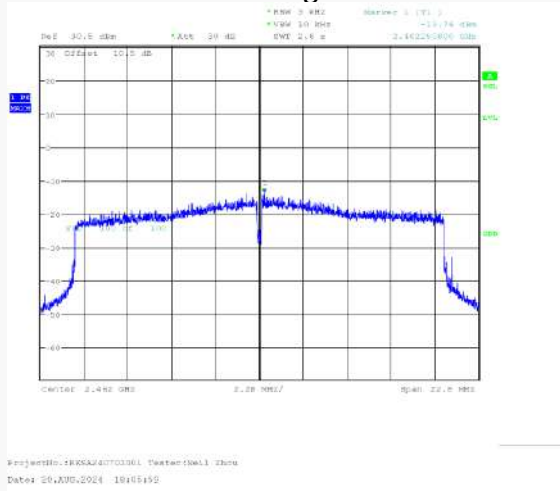
802.11ax20 Low Channel



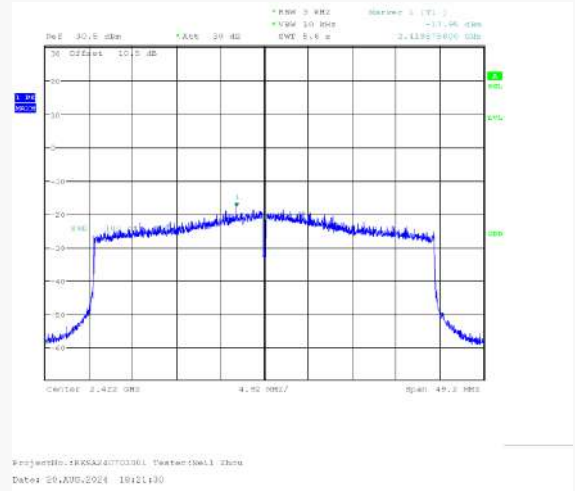
802.11ax20 Middle Channel



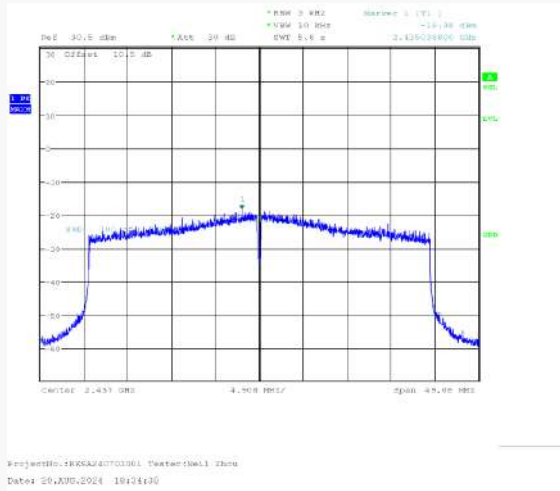
802.11ax20 High Channel



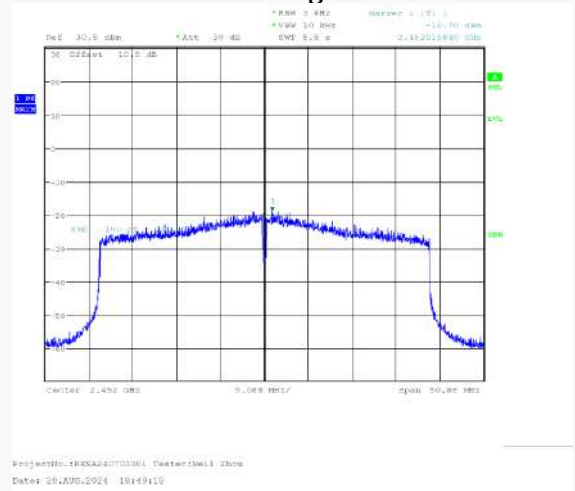
802.11ax40 Low Channel



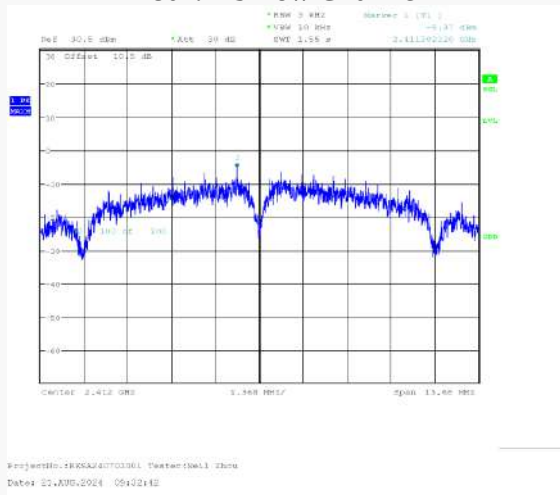
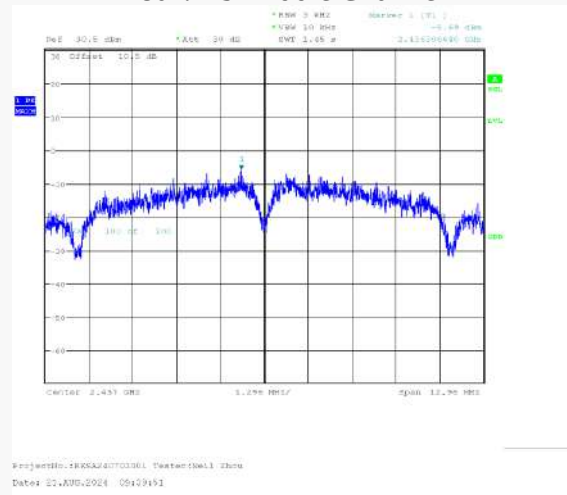
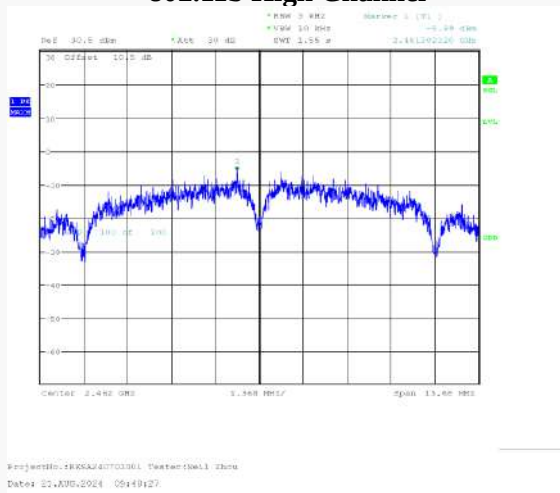
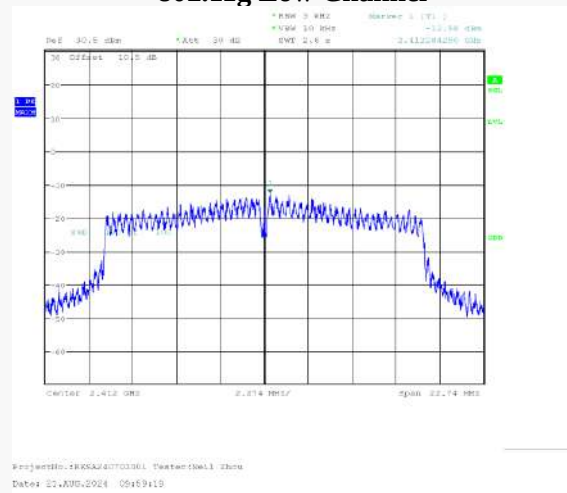
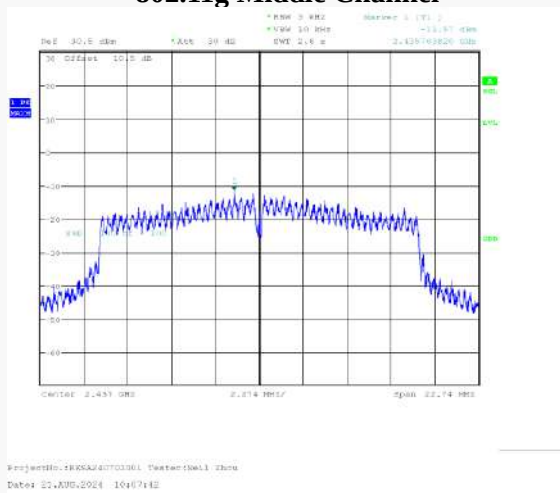
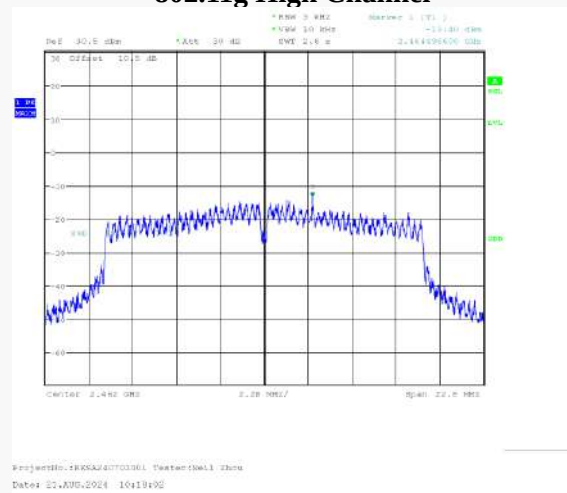
802.11ax40 Middle Channel

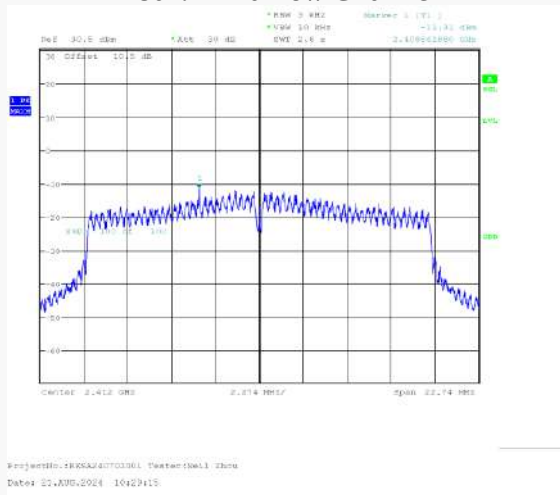
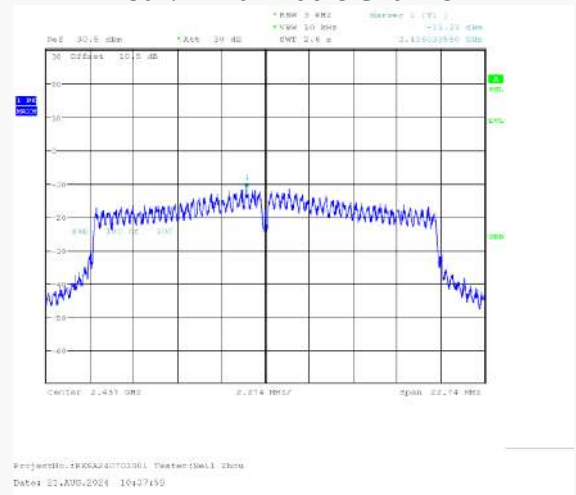
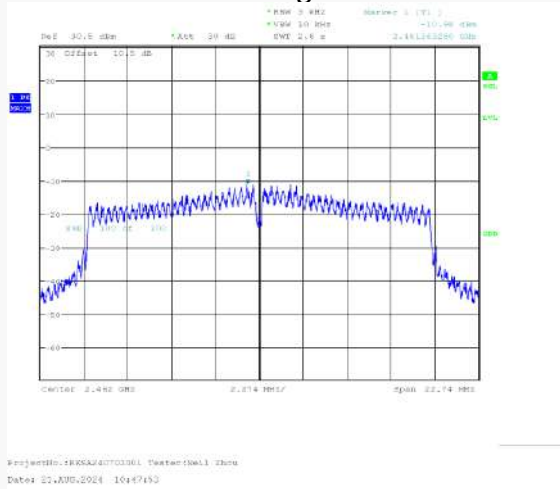
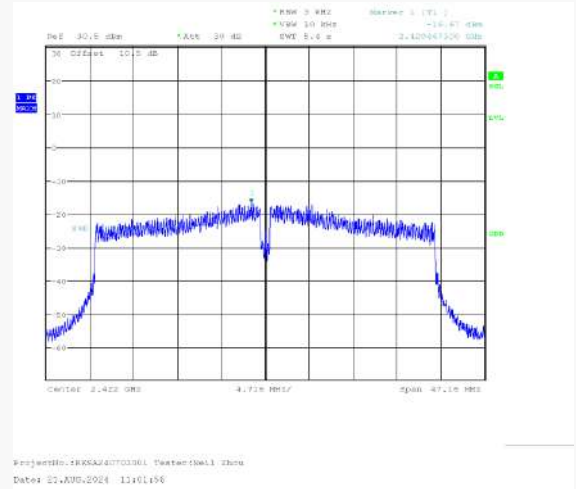
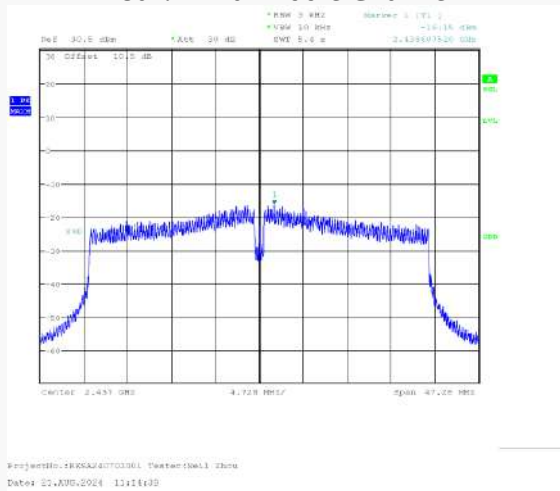
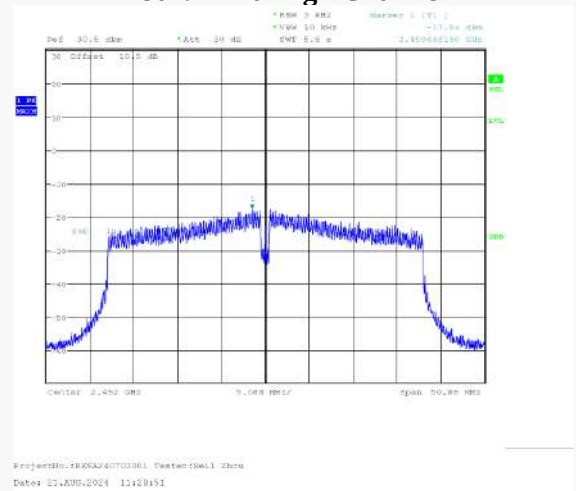


802.11ax40 High Channel

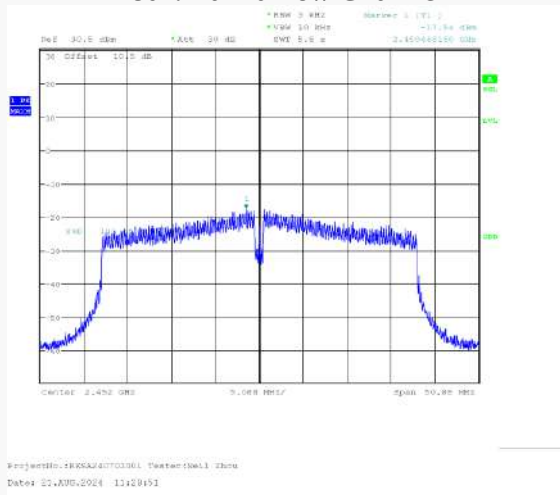


Chain 1:

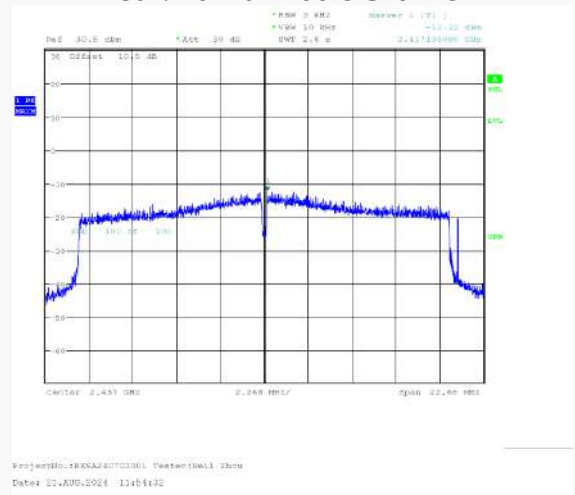
802.11b Low Channel**802.11b Middle Channel****802.11b High Channel****802.11g Low Channel****802.11g Middle Channel****802.11g High Channel**

802.11n20 Low Channel**802.11n20 Middle Channel****802.11n20 High Channel****802.11n40 Low Channel****802.11n40 Middle Channel****802.11n40 High Channel**

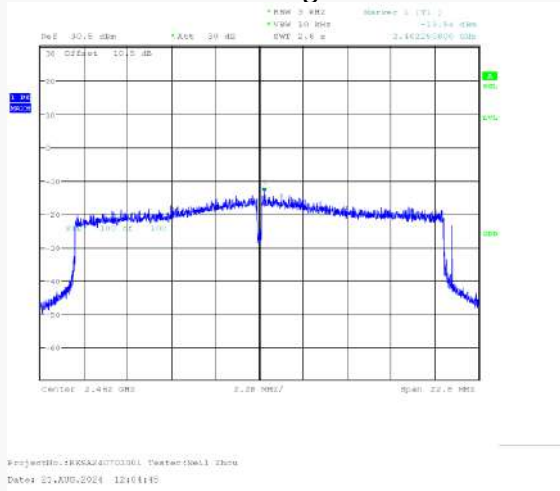
802.11ax20 Low Channel



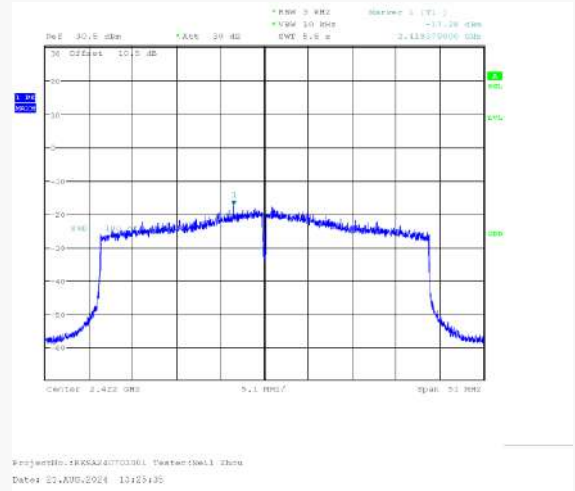
802.11ax20 Middle Channel



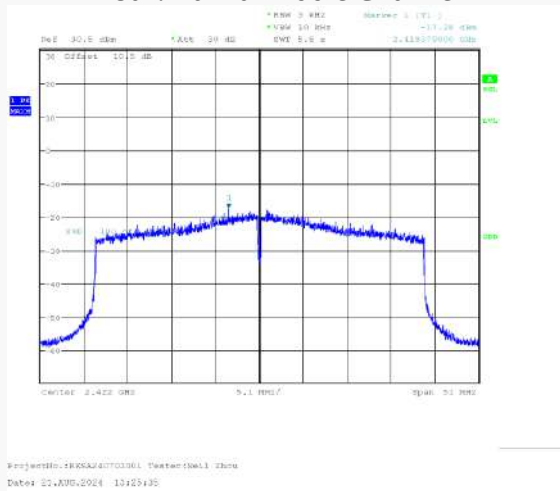
802.11ax20 High Channel



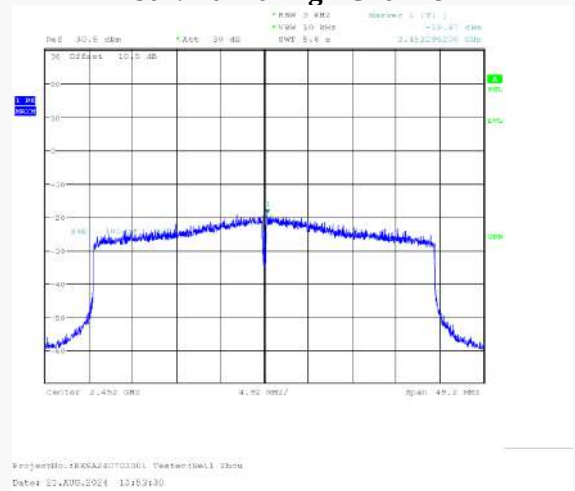
802.11ax40 Low Channel



802.11ax40 Middle Channel



802.11ax40 High Channel



EUT PHOTOGRAPHS

Please refer to the attachment EXHIBIT A - EUT EXTERNAL PHOTOGRAPHS and EXHIBIT B_EUT INTERNAL PHOTOGRAPHS

TEST SETUP PHOTOGRAPHS

Please refer to the attachment EXHIBIT C - TEST SETUP PHOTOGRAPHS.

Declarations

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with “★”.
2. The test data was only valid for the test sample(s).
3. This report is valid only with a valid digital signature. The digital signature may be available only under the Adobe software above version 7.0.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor $k=2$ with the 95.45% confidence interval.

******* END OF REPORT *******