FCC PART 15.247

TEST REPORT

For

Waylens Inc.

2711 Centerville Road - Suite 400, Wilmington, Delaware, United States 19808

FCC ID: 2AKAF-CAM15

Report Type:	**Product Name:**
Original Report	AI Recorder I

Report Number:	RSHA240229004-00B
Report Date:	2024-06-04
Reviewed By:	Jenny Yang
Approved By:	Kyle Xu
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu Province, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RSHA240229004-00B	R1V1	2024-06-04	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Waylens Inc.
Tested Model	CAM15
Product Name	AI Recorder I
Power Supply	DC 12V
RF Function:	2.4G Wi-Fi; BLE
Maximum Peak Output Power:	2.4G Wi-Fi: 802.11b: 18.90 dBm 802.11g: 22.62 dBm 802.11n20:21.93 dBm 802.11n40: 22.73 dBm BLE(1Mbps): -16.79 dBm
Operating Band/Frequency:	2.4G Wi-Fi: 2412~2462 MHz(802.11b/g/n20), 2422~2452 MHz(802.11n40) BLE(1Mbps): 2402-2480 MHz
Channel Number:	2.4G Wi-Fi:11(802.11b/g/n20), 7(802.11n40) BLE: 40
Channel Separation:	2.4G Wi-Fi: 5 MHz BLE: 2 MHz
Modulation Type:	2.4G Wi-Fi: DSSS, OFDM BLE: GFSK
Antenna Type:	FPC Antenna
★Maximum Antenna Gain:	2.93 dBi

Note: The Maximum Antenna Gain was declared by the manufacturer.

All measurement and test data in this report was gathered from production sample serial number: RSHA240229004-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-02-29.)

Objective

This report is prepared for *Waylens Inc.* 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, 15.209 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 BLE mode:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470
7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454	/	/
13	2428	27	2456	/	/

EUT was tested with channel 0, 19 and 39.

Channel List for Wi-Fi Mode:

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	/	/

For 802.11b, 802.11g and 802.11n-HT20 mode, EUT was tested with Channel 1, 6 and 11.
For 802.11n-HT40 mode, EUT was tested with Channel 3, 6 and 9.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test software: xshell 4

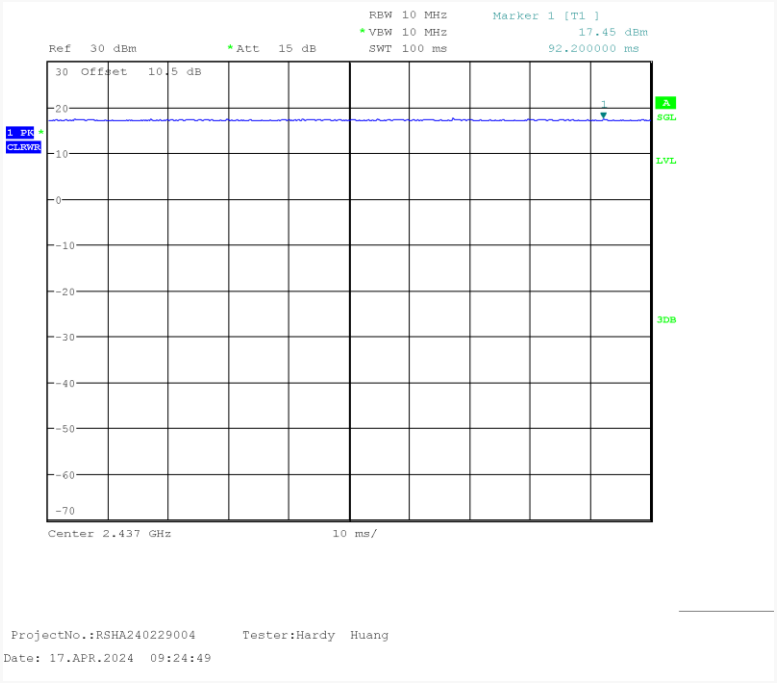
Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data Rate	★Power Level
802.11b	1 Mbps	16
802.11g	6 Mbps	16
802.11n-HT20	MCS0	17
802.11n-HT40	MCS0	17
BLE(1Mbps)	1Mbps	Default

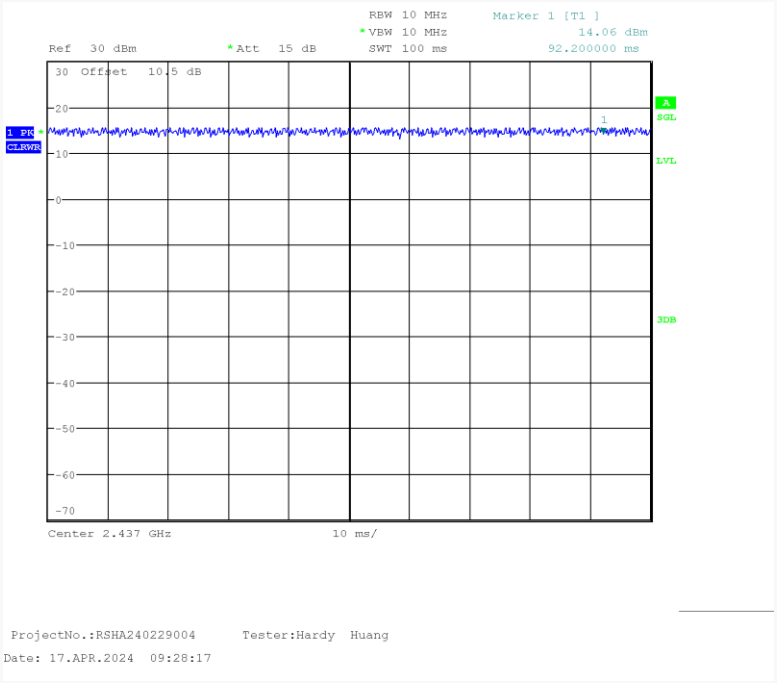
Note: The power level was declared by the applicant.

Duty Cycle:

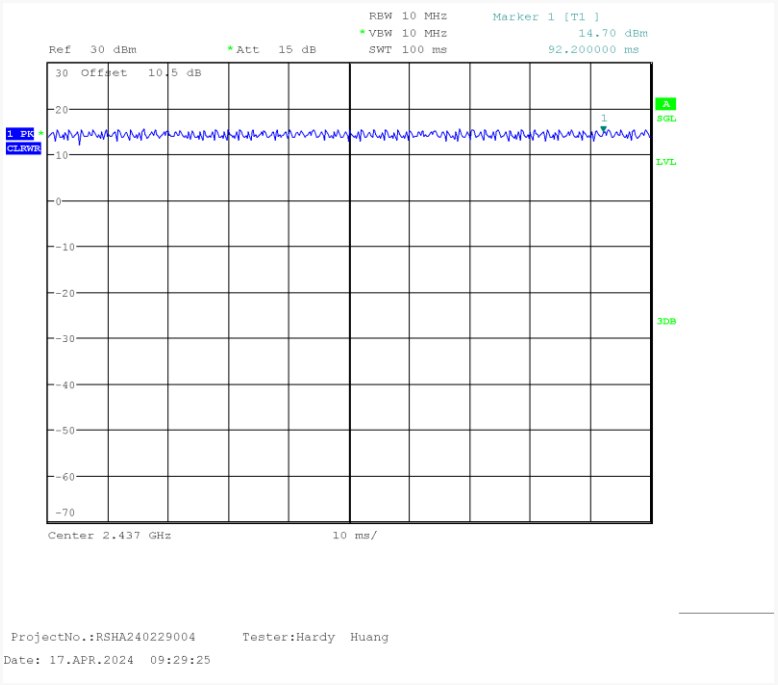
802.11b Mode Middle Channel



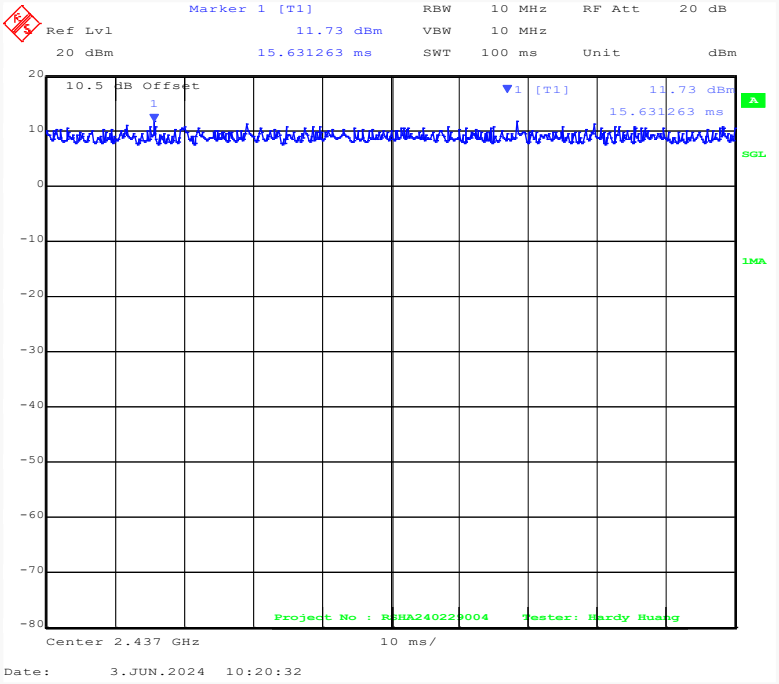
802.11g Mode Middle Channel



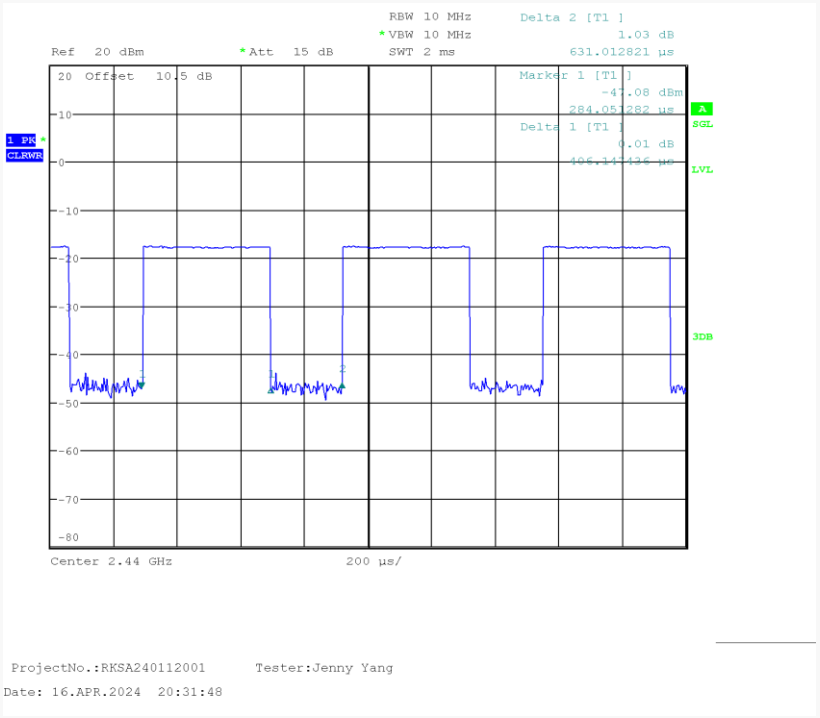
802.11n-HT20 Mode Middle Channel



802.11n-HT40 Mode Middle Channel



BLE(1Mbps) Mode Middle Channel



Mode	Duty Cycle (%)	Ton(ms)	Ton+off(ms)	10log(1/x)
802.11b	100	100	100	0
802.11g	100	100	100	0
802.11n-HT20	100	100	100	0
802.11n-HT40	100	100	100	0
BLE(1Mbps)	64.34	0.406	0.631	1.92

Note: “x” means the Duty Cycle.

Support Equipment List and Details

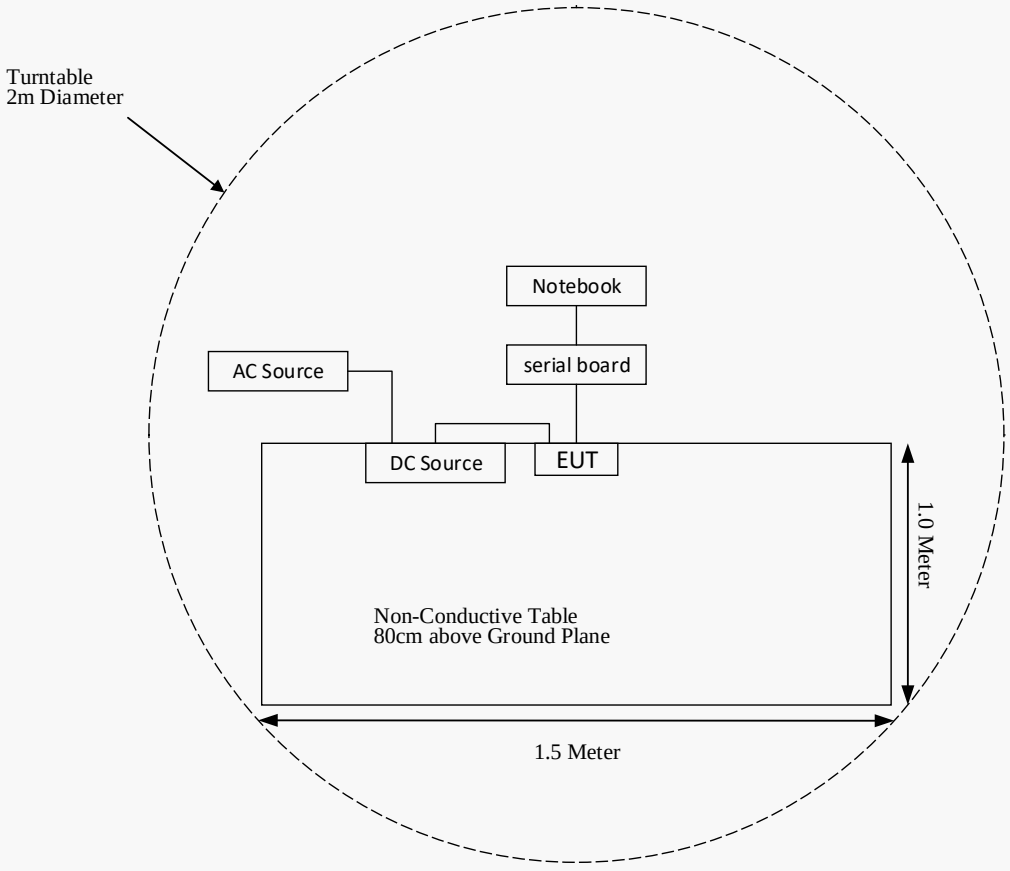
Manufacturer	Description	Model	Serial Number
ZHAOXIN	DC Source	PS-6005D	18P6005D10724
ZHAOXIN	DC Source	RXN-605D	DC002
Unknown	Serial board	Unknown	Unknown
DELL	Notebook	E6410	3094742521

External I/O Cable

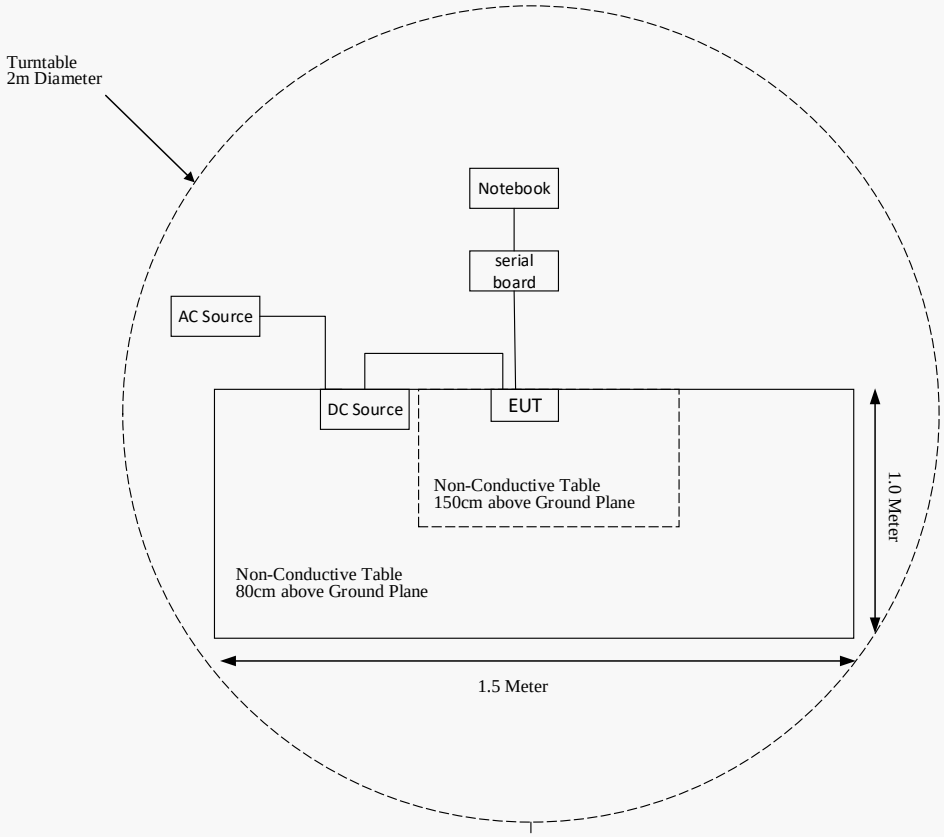
Cable Description	Length (m)	From Port	To Port
Power Cable 1	3.0	DC Source	EUT
Power Cable 2	1.5	DC Source	AC Source
Data Cable	0.1	EUT	Serial board
USB Cable	8.0	Serial board	Notebook

Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1GHz):



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Not Applicable (See Note)
§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

Note: The equipment is used on the vehicle.

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	2023-05-23	2024-05-22
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2023-11-11	2024-11-10
Narda	6dB Attenuator	773-6	10690812-2-1	2023-11-11	2024-11-10
ETS-LINDGREN	Loop Antenna	6512	108100	2023-11-09	2024-11-08
Sonoma Instrument	Pre-amplifier	310N	171205	2023-05-23	2024-05-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-9	009	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2023-05-23	2024-05-22
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2023-05-19	2024-05-18
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2023-12-02	2024-12-01
ETS-LINDGREN	Horn Antenna	3116	2516	2023-12-08	2024-12-07
A.H.Systems, inc	Amplifier	PAM-0118P	512	2023-05-23	2024-05-22
SELECTOR	Amplifier	EM18G40G	060726	2023-05-23	2024-05-22
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2023-08-05	2024-08-04
Narda	Attenuator	10dB	010	2023-08-15	2024-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-11	011	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-12	012	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-13	013	2023-05-23	2024-05-22
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2023-05-23	2024-05-22
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Narda	Attenuator	10dB	010	2023-05-23	2024-05-22
Narda	Attenuator	10dB	010	2024-05-23	2025-05-22
Anritsu	Power Sensor	MA24418A	12621	2023-09-27	2024-09-26
XHFDZ	RG178 Coaxial Cable	SMA-178	XHF-1102	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 §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

The EUT has an FPC for 2.4G Wi-Fi & BLE, and the antenna gain is 2.93 dBi, which is permanently attached to the unit, fulfill the requirement of this section. Please refer to the EUT photos.

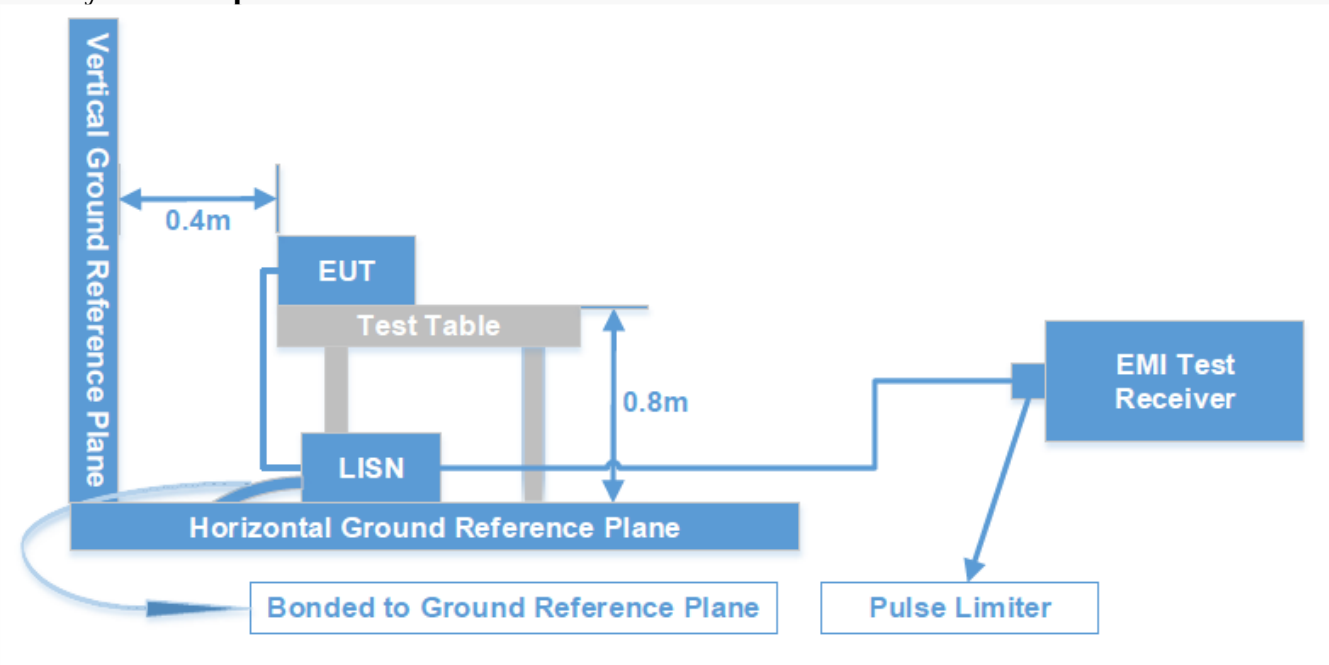
Result: Compliant.

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

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: N/A

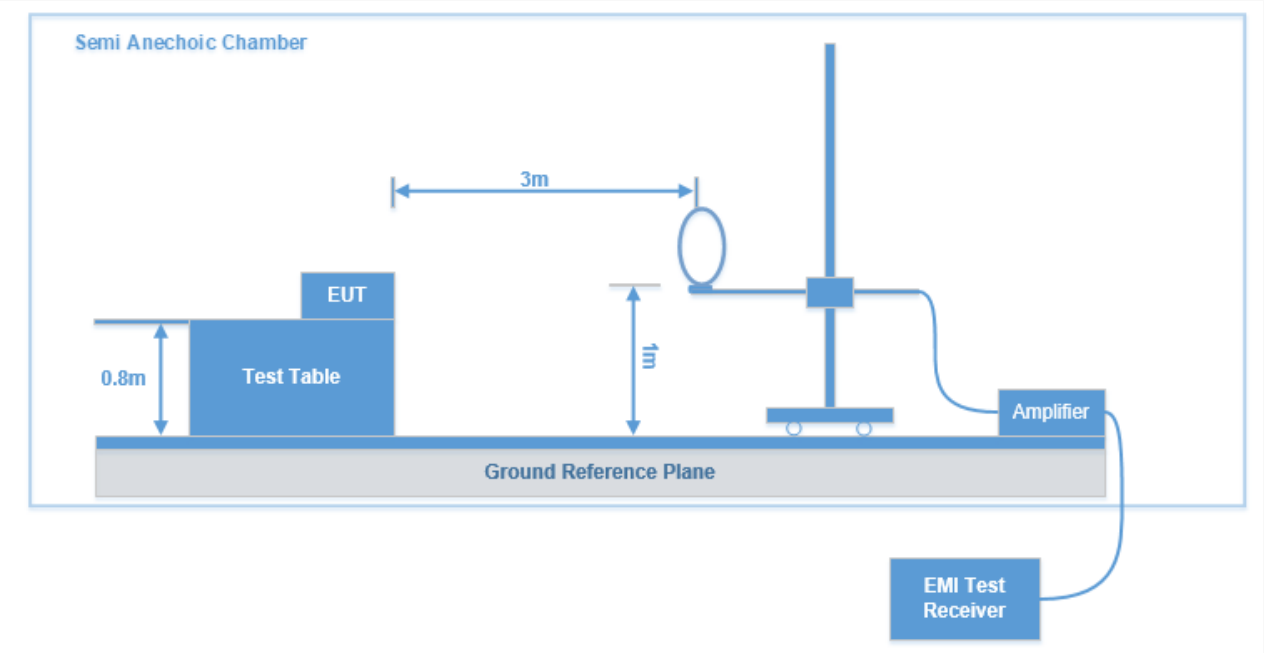
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

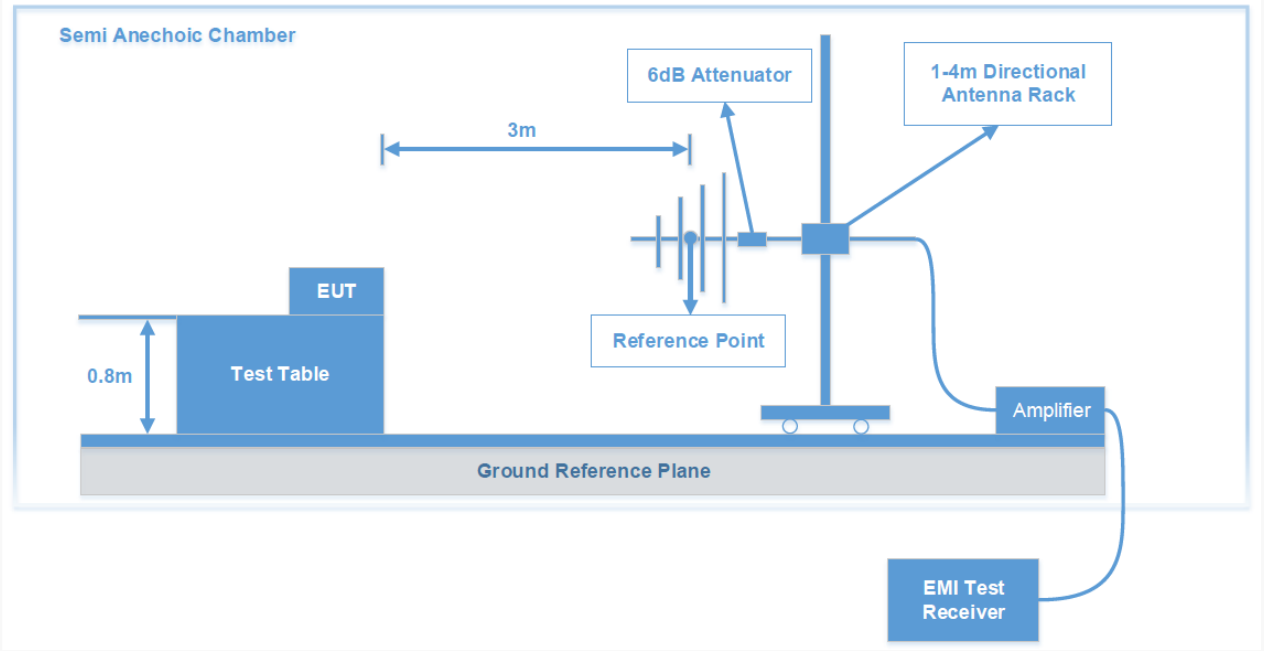
FCC §15.247 (d); §15.209; §15.205;

Test System Setup

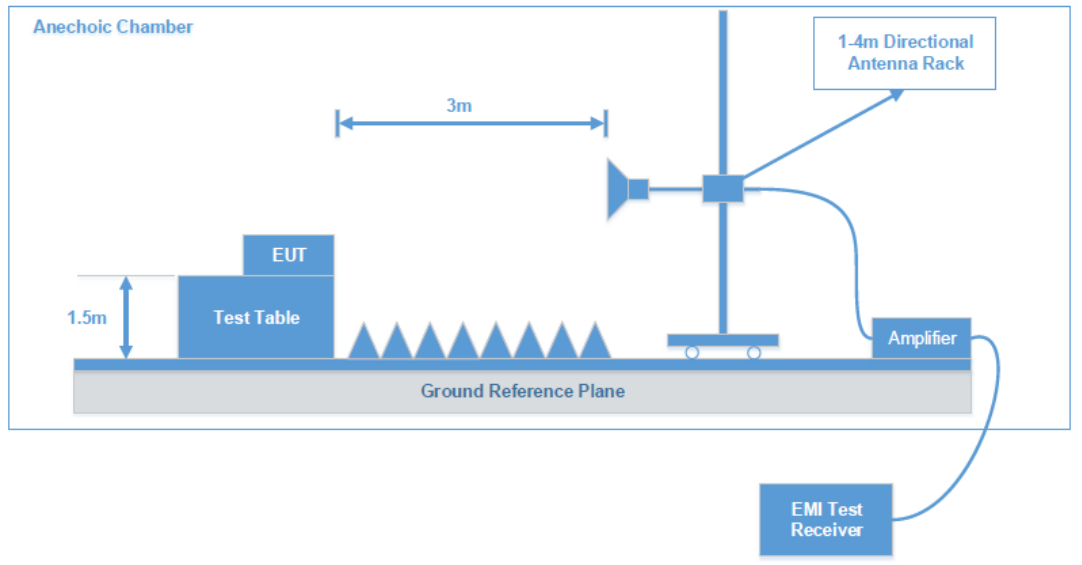
9k - 30MHz:



30 MHz - 1 GHz:



Above 1GHz:



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

The system was investigated from 9 kHz to 25 GHz.

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

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.

9kHz-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.

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 (dBμV/m) = Meter Reading (dBμV) + 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 (dBμV/m) – Corrected Amplitude (dBμV/m)

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

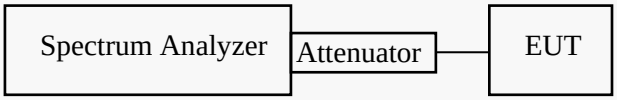
Applicable Standard

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) ≥ 3 * 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

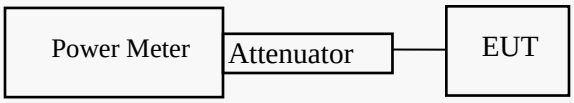
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, Compliant with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted 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.

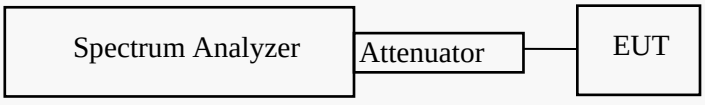
1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



According to ANSI C63.10-2013 sub-clause 11.9.1.1

For BLE:

1. Set the RBW ≥ DTS bandwidth.
2. Set VBW ≥ 3 * RBW.
3. Set span ≥ 3 * RBW
4. Sweep time = auto couple.
5. Detector = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use peak marker function to determine the peak amplitude level.



Test Data: See Appendix

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

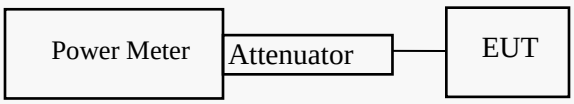
Applicable Standard

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

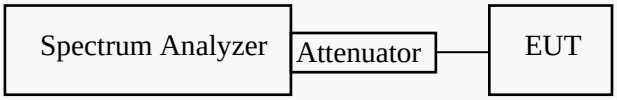
According to ANSI C63.10-2013 sub-clause 6.10.

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.



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

6. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
7. 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.
8. 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.
9. 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.
10. Repeat above procedures until all measured frequencies were complete.



Test Data: See Appendix

FCC §15.247(E) - POWER SPECTRAL DENSITY

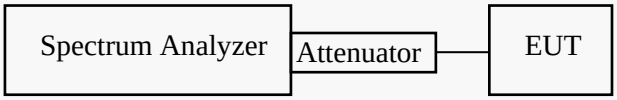
Applicable Standard

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

1. Set the RBW to: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3*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.



Test Data: See Appendix

Appendix - TEST DATA

Environmental Conditions & Test Information

Test Item:	RADIATED EMISSIONS	
	9 kHz-1 GHz	1 GHz -25 GHz
Test Date:	2024-03-27	2024-03-08 to 2024-04-23
Temperature:	16.4 ℃	20.3-22.5 ℃
Relative Humidity:	51 %	48-52 %
ATM Pressure:	102.2 kPa	101.5-102.6 kPa
Test Result:	Pass	Pass
Test Engineer:	Leah Li	Peter Wang & Klein Zhu

Test Item:	6 DB EMISSION BANDWIDTH	POWER SPECTRAL DENSITY	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS
Test Date:	2024-03-20	2024-03-20	2024-03-20	2024-03-20
Temperature:	21.7 ℃	21.7 ℃	21.7 ℃	21.7 ℃
Relative Humidity:	43 %	43 %	43 %	43 %
ATM Pressure:	101.6kPa	101.6kPa	101.6kPa	101.6kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Hardy Huang	Hardy Huang	Hardy Huang	Hardy Huang

SPURIOUS EMISSIONS

Test Result: Compliant

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

9 kHz-30MHz: *(Transmitting in maximum output power mode and channel)*

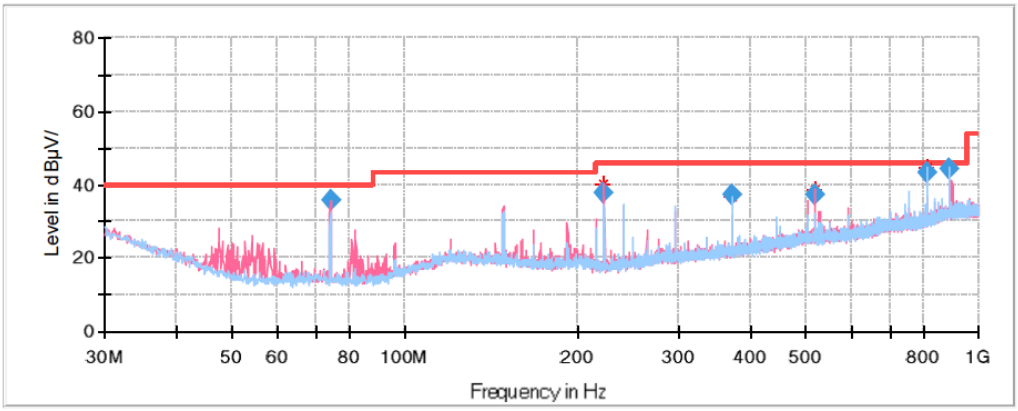
The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

For Wi-Fi Mode:
30-1GHz（*Transmitting in maximum output power mode 802.11n40*）**:**

Low channel: 2422MHz

Common Information

Project No:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n40 Mode of Low Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



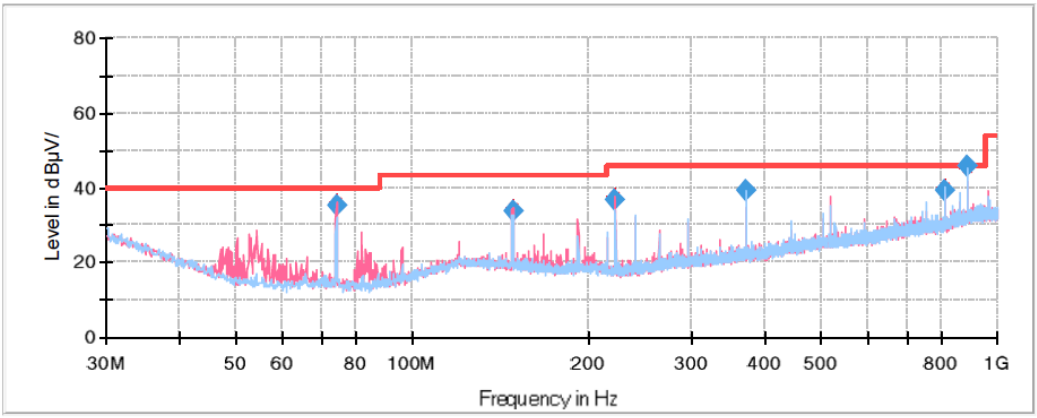
Final_Result

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	35.72	40.00	4.28	V	-17.1
222.420000	37.53	46.00	8.47	V	-13.7
370.830000	37.33	46.00	8.67	H	-9.3
519.240000	37.42	46.00	8.58	V	-5.6
815.940000	43.04	46.00	2.96	H	-1.0
890.140000	44.46	46.00	1.54	H	1.1

Middle channel: 2437MHz

Common Information

Project No:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n40 Mode of Middle Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



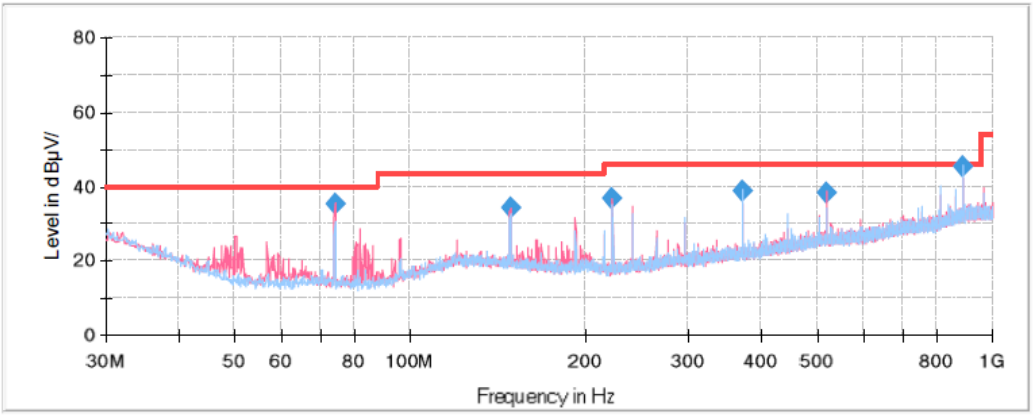
Final_Result

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	35.43	40.00	4.57	V	-17.1
148.340000	33.85	43.50	9.65	V	-12.0
222.420000	36.67	46.00	9.33	V	-13.7
370.830000	39.04	46.00	6.96	H	-9.3
815.940000	39.48	46.00	6.52	H	-1.0
890.140000	45.86	46.00	0.14	H	1.1

High Channel: 2452MHz

Common Information

Project No:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n40 Mode of High Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



Final_Result

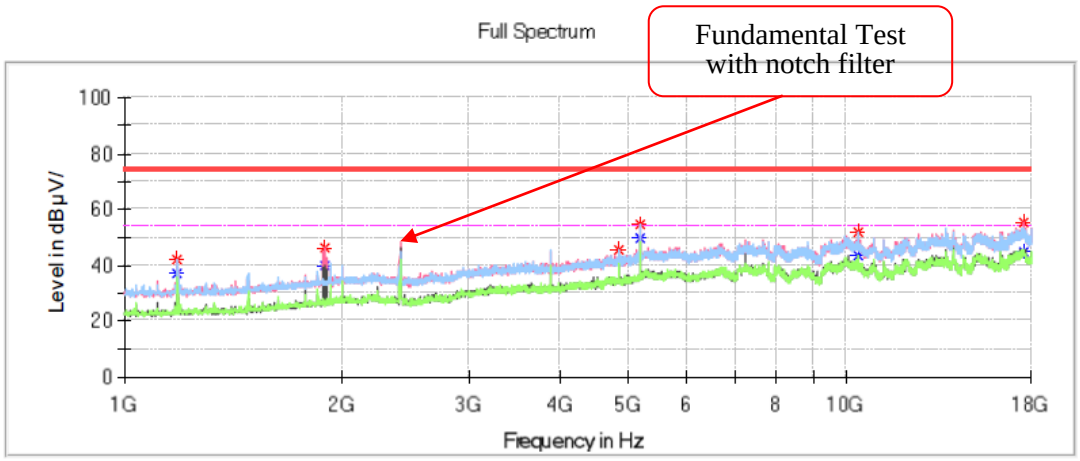
Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	35.30	40.00	4.70	V	-17.1
148.340000	34.03	43.50	9.47	V	-12.0
222.540000	36.89	46.00	9.11	V	-13.7
370.830000	38.81	46.00	7.19	H	-9.3
519.240000	38.08	46.00	7.92	V	-5.6
890.140000	45.20	46.00	0.80	H	1.1

1GHz-18GHz:
802.11b Mode:

Low Channel: 2412MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



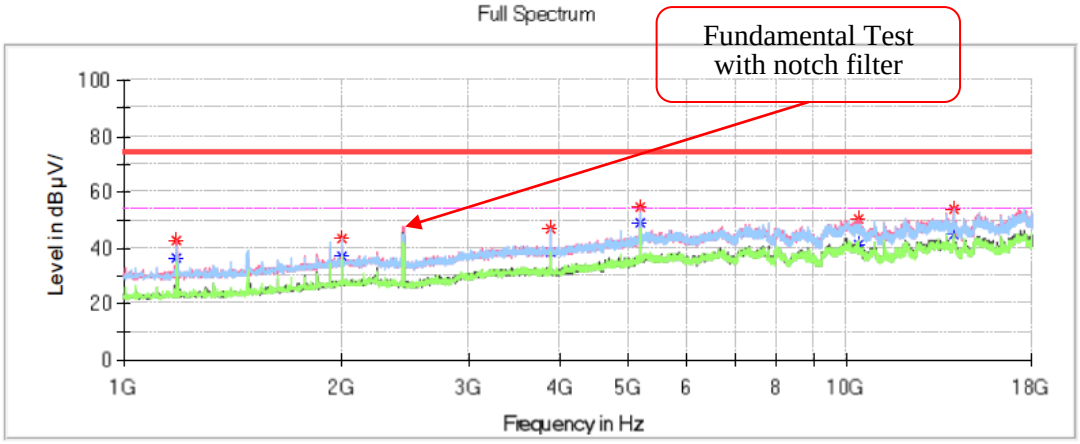
Critical_Freqs

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	---	36.72	54.00	17.28	V	-14.9
1185.300000	41.87	---	74.00	32.13	H	-14.9
1890.800000	---	39.90	54.00	14.10	V	-11.3
1890.800000	46.25	---	74.00	27.75	V	-11.3
4823.300000	45.73	---	74.00	28.27	H	-2.1
4823.300000	---	41.01	54.00	12.99	V	-2.1
5183.700000	---	49.57	54.00	4.43	V	-0.5
5183.700000	54.78	---	74.00	19.22	V	-0.5
10367.000000	51.93	---	74.00	22.07	H	7.4
10367.000000	---	43.14	54.00	10.86	V	7.4
17551.200000	---	44.78	54.00	9.22	H	13.4
17551.200000	54.92	---	74.00	19.08	V	13.4

Middle Channel: 2437MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



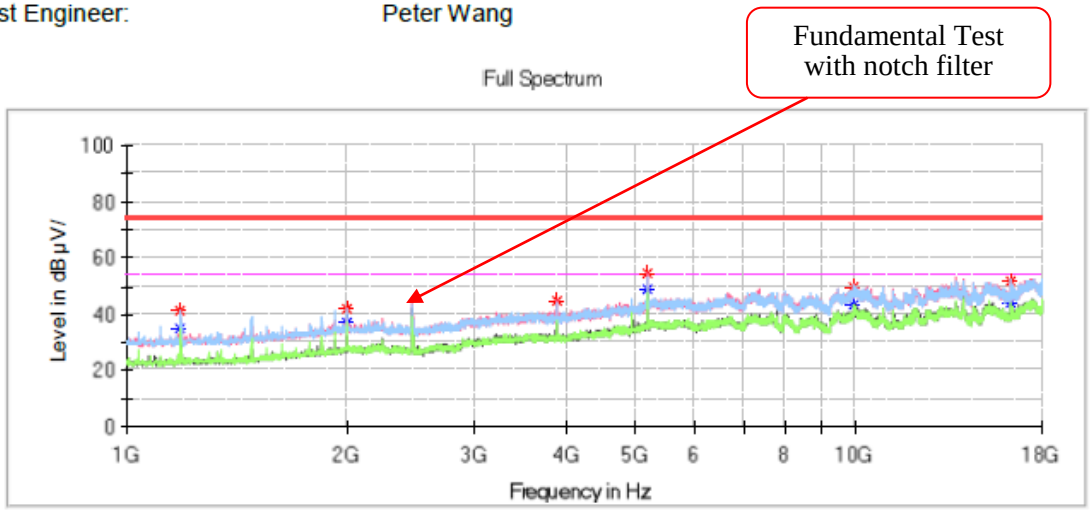
Critical_Freqs

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	---	36.53	54.00	17.47	V	-14.9
1185.300000	42.67	---	74.00	31.33	V	-14.9
2001.300000	---	36.82	54.00	17.18	H	-10.6
2001.300000	43.13	---	74.00	30.87	H	-10.6
3886.600000	---	38.72	54.00	15.28	H	-5.3
3886.600000	46.91	---	74.00	27.09	H	-5.3
5183.700000	54.65	---	74.00	19.35	V	-0.5
5183.700000	---	48.85	54.00	5.15	V	-0.5
10368.700000	---	41.31	54.00	12.69	V	7.4
10368.700000	50.31	---	74.00	23.69	V	7.4
14003.300000	---	44.90	54.00	9.10	V	10.5
14003.300000	53.84	---	74.00	20.16	H	10.5

High Channel: 2462MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



Critical_Freqs

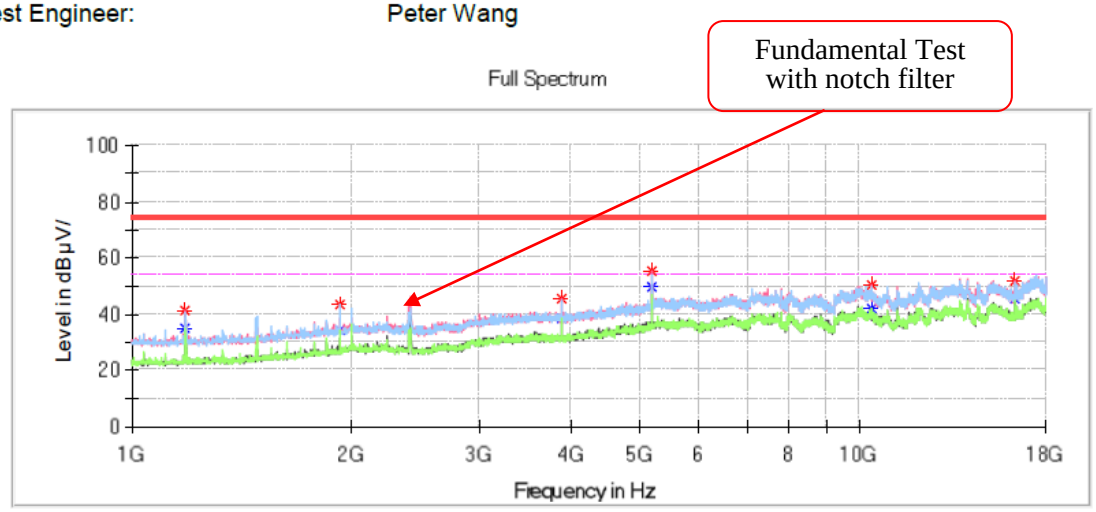
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	35.11	54.00	18.89	H	-14.9
1185.300000	41.10	---	74.00	32.90	H	-14.9
2001.300000	---	36.82	54.00	17.18	H	-10.6
2001.300000	42.05	---	74.00	31.95	H	-10.6
3886.600000	---	38.72	54.00	15.28	V	-5.3
3886.600000	44.41	---	74.00	29.59	V	-5.3
5183.700000	---	48.94	54.00	5.06	V	-0.5
5183.700000	54.62	---	74.00	19.38	V	-0.5
9947.100000	---	43.19	54.00	10.81	H	7.6
9947.100000	49.75	---	74.00	24.25	H	7.6
16301.700000	---	44.08	54.00	9.92	H	9.7
16301.700000	52.02	---	74.00	21.98	H	9.7

802.11g Mode:

Low Channel: 2412MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



Critical_Freqs

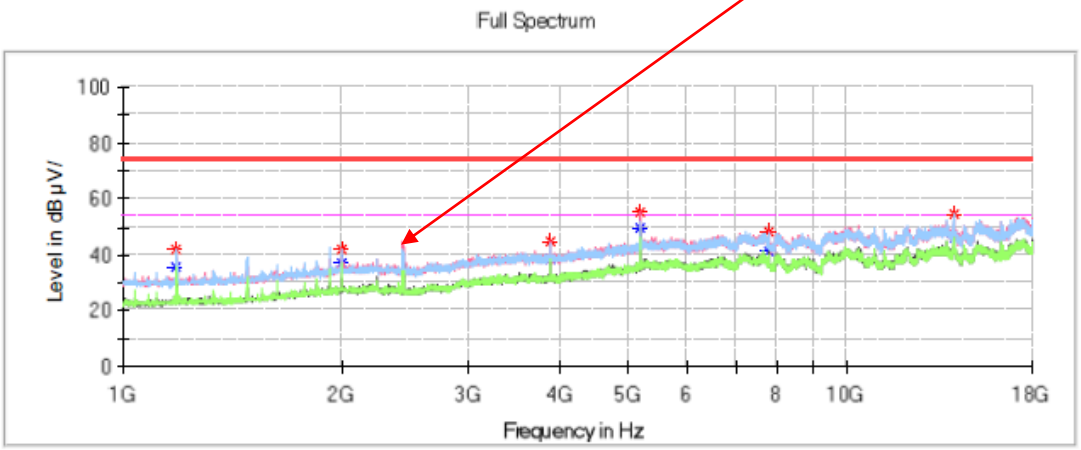
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	34.98	54.00	19.02	H	-14.9
1185.300000	41.45	---	74.00	32.55	V	-14.9
1928.200000	---	34.57	54.00	19.43	H	-11.1
1928.200000	43.62	---	74.00	30.38	H	-11.1
3886.600000	---	38.78	54.00	15.22	H	-5.3
3886.600000	45.23	---	74.00	28.77	V	-5.3
5183.700000	---	49.44	54.00	4.56	V	-0.5
5183.700000	55.54	---	74.00	18.46	V	-0.5
10367.000000	---	42.21	54.00	11.79	H	7.4
10367.000000	50.11	---	74.00	23.89	V	7.4
16301.700000	---	45.18	54.00	8.82	V	9.7
16301.700000	51.65	---	74.00	22.35	V	9.7

Middle Channel: 2437MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



Critical_Freqs

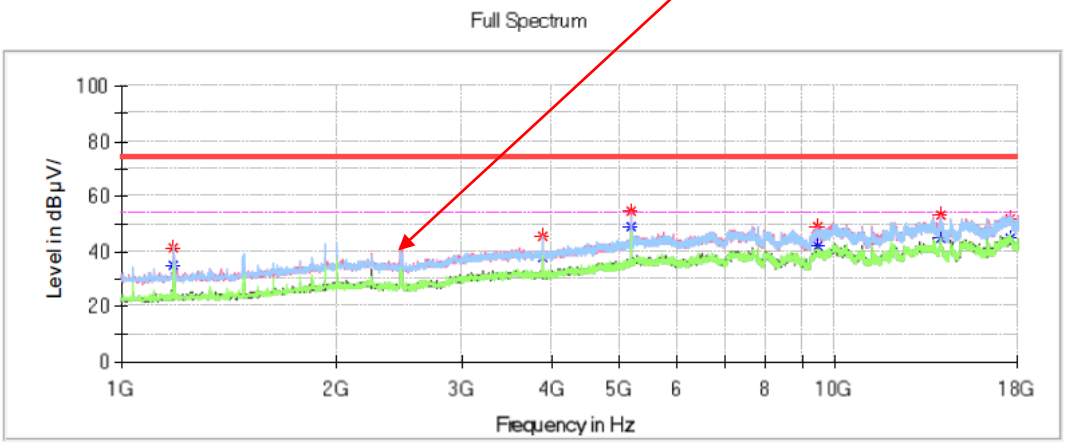
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	35.36	54.00	18.64	H	-14.9
1185.300000	41.74	---	74.00	32.26	H	-14.9
2001.300000	41.68	---	74.00	32.32	H	-10.6
2001.300000	---	36.99	54.00	17.01	H	-10.6
3886.600000	---	38.39	54.00	15.61	H	-5.3
3886.600000	44.75	---	74.00	29.25	V	-5.3
5183.700000	---	49.74	54.00	4.26	V	-0.5
5183.700000	54.95	---	74.00	19.05	V	-0.5
7774.500000	---	41.58	54.00	12.42	V	4.0
7774.500000	48.46	---	74.00	25.54	V	4.0
14001.600000	---	45.82	54.00	8.18	H	10.5
14001.600000	54.64	---	74.00	19.36	H	10.5

High Channel: 2462MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



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	41.55	---	74.00	32.45	V	-14.9
1185.300000	---	35.07	54.00	18.93	H	-14.9
3886.600000	45.28	---	74.00	28.72	H	-5.3
3886.600000	---	37.94	54.00	16.06	V	-5.3
5183.700000	---	49.18	54.00	4.82	V	-0.5
5183.700000	54.56	---	74.00	19.44	V	-0.5
9425.200000	---	41.80	54.00	12.20	V	5.8
9425.200000	48.72	---	74.00	25.28	V	5.8
14001.600000	---	45.07	54.00	8.93	V	10.5
14001.600000	53.02	---	74.00	20.98	V	10.5
17541.000000	---	44.81	54.00	9.19	V	13.4
17541.000000	52.01	---	74.00	21.99	V	13.4

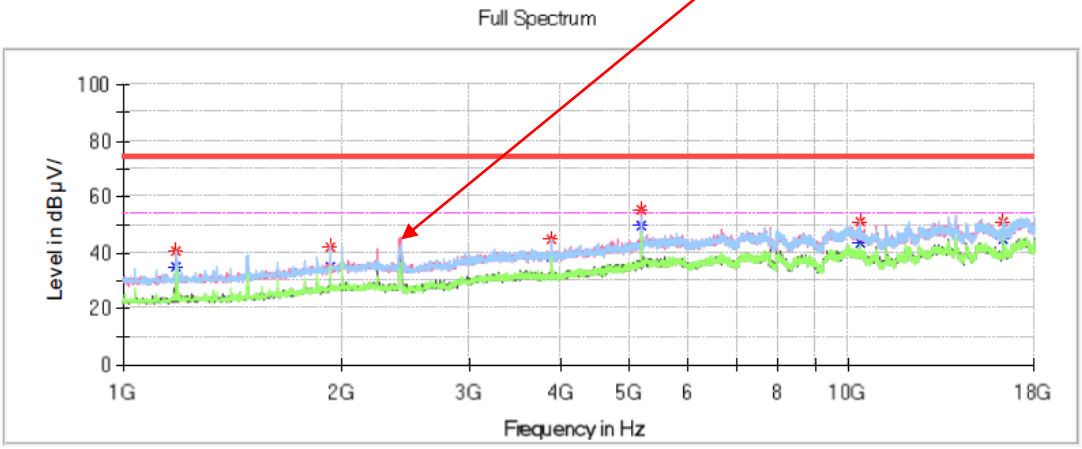
802.11n-HT20 Mode :

Low Channel: 2412MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



Critical_Freqs

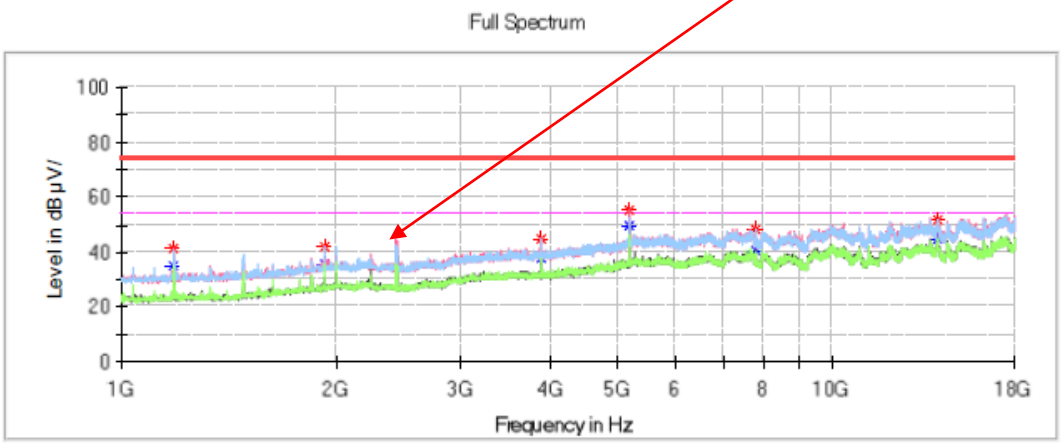
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	40.65	---	74.00	33.35	H	-14.9
1185.300000	---	35.05	54.00	18.95	H	-14.9
1928.200000	42.28	---	74.00	31.72	H	-11.1
1928.200000	---	35.06	54.00	18.94	H	-11.1
3886.600000	45.07	---	74.00	28.93	H	-5.3
3886.600000	---	38.66	54.00	15.34	H	-5.3
5183.700000	55.27	---	74.00	18.73	V	-0.5
5183.700000	---	49.66	54.00	4.34	V	-0.5
10367.000000	50.84	---	74.00	23.16	V	7.4
10367.000000	---	43.51	54.00	10.49	V	7.4
16306.800000	50.77	---	74.00	23.23	H	9.7
16306.800000	---	44.48	54.00	9.52	V	9.7

Middle Channel: 2437MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



Critical_Freqs

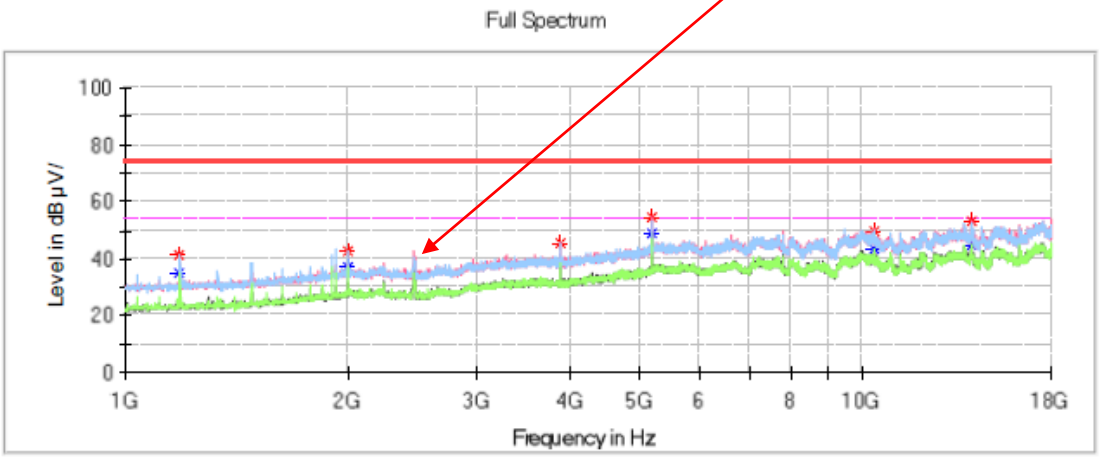
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	35.11	54.00	18.89	H	-14.9
1185.300000	41.26	---	74.00	32.74	V	-14.9
1928.200000	---	35.43	54.00	18.57	H	-11.1
1928.200000	42.28	---	74.00	31.72	H	-11.1
3886.600000	---	38.05	54.00	15.95	H	-5.3
3886.600000	44.73	---	74.00	29.27	V	-5.3
5183.700000	---	49.79	54.00	4.21	V	-0.5
5183.700000	55.46	---	74.00	18.54	V	-0.5
7774.500000	---	40.63	54.00	13.37	V	4.0
7774.500000	48.26	---	74.00	25.74	H	4.0
14003.300000	---	44.57	54.00	9.43	V	10.5
14003.300000	51.97	---	74.00	22.03	H	10.5

High Channel: 2462MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



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	---	34.95	54.00	19.05	H	-14.9
1185.300000	40.97	---	74.00	33.03	H	-14.9
2001.300000	---	36.95	54.00	17.05	H	-10.6
2001.300000	42.76	---	74.00	31.24	H	-10.6
3886.600000	---	38.73	54.00	15.27	H	-5.3
3886.600000	45.63	---	74.00	28.37	H	-5.3
5183.700000	---	49.16	54.00	4.84	V	-0.5
5183.700000	54.40	---	74.00	19.60	V	-0.5
10367.000000	---	43.10	54.00	10.90	H	7.4
10367.000000	49.82	---	74.00	24.18	H	7.4
14001.600000	---	44.49	54.00	9.51	V	10.5
14001.600000	53.00	---	74.00	21.00	V	10.5

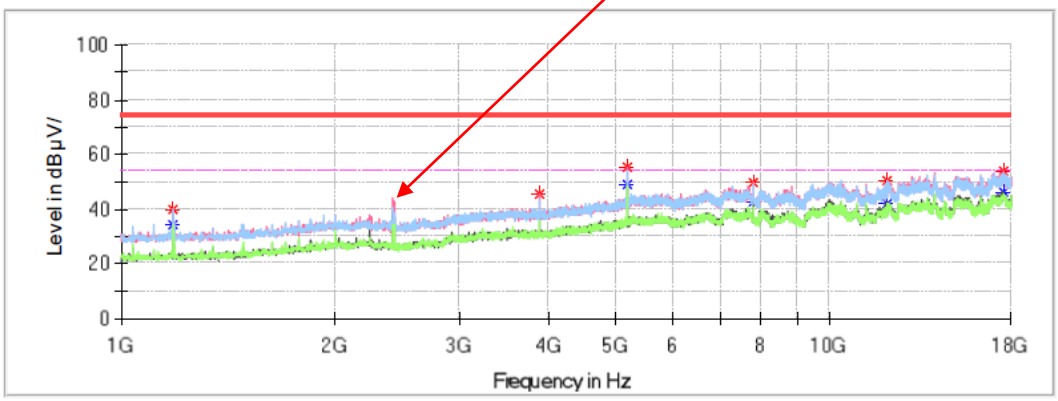
802.11n-HT40 Mode :

Low Channel: 2422MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



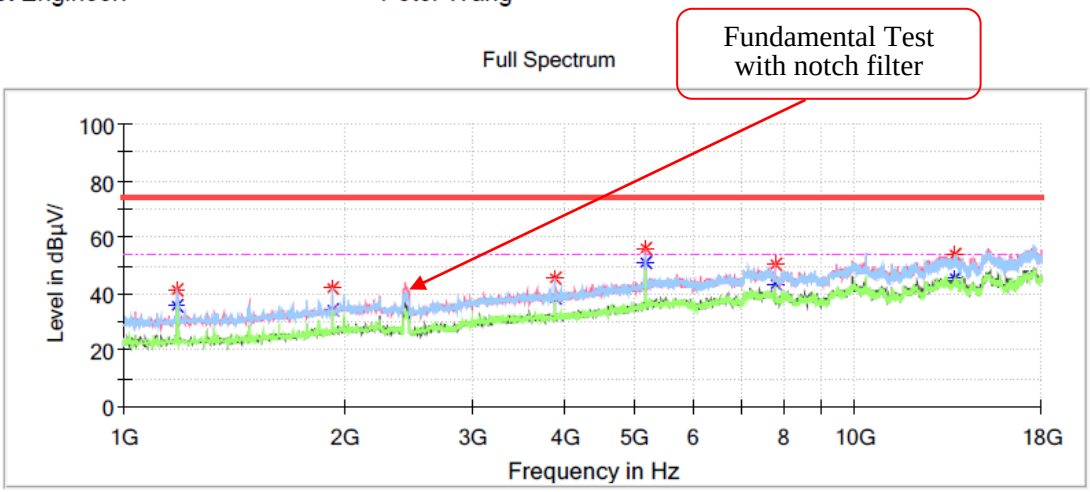
Critical_Freqs

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	---	34.44	54.00	19.56	H	-14.9
1185.300000	39.73	---	74.00	34.27	H	-14.9
3886.600000	---	38.00	54.00	16.00	V	-5.3
3886.600000	45.31	---	74.00	28.69	V	-5.3
5183.700000	---	48.65	54.00	5.35	V	-0.5
5183.700000	55.30	---	74.00	18.70	V	-0.5
7774.500000	---	42.57	54.00	11.43	V	4.0
7774.500000	49.43	---	74.00	24.57	V	4.0
12055.100000	---	41.83	54.00	12.17	V	7.0
12055.100000	50.26	---	74.00	23.74	H	7.0
17576.700000	---	45.82	54.00	8.18	V	13.3
17576.700000	54.01	---	74.00	19.99	V	13.3

Middle Channel: 2437MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



Critical_Freqs

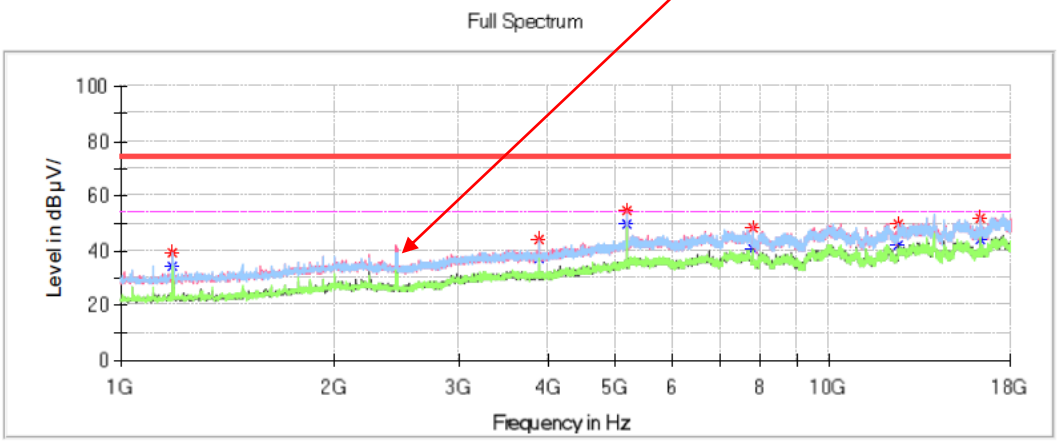
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	35.68	54.00	18.32	H	-14.9
1185.300000	41.30	---	74.00	32.70	H	-14.9
1928.200000	---	33.97	54.00	20.03	H	-11.1
1928.200000	42.19	---	74.00	31.81	H	-11.1
3886.600000	---	38.55	54.00	15.45	V	-5.3
3886.600000	45.25	---	74.00	28.75	V	-5.3
5183.700000	---	50.79	54.00	3.21	V	-0.5
5183.700000	56.15	---	74.00	17.85	V	-0.5
7774.500000	50.40	---	74.00	23.60	V	4.0
7774.500000	---	43.30	54.00	10.70	V	4.0
13729.600000	---	45.12	54.00	8.88	H	10.8
13729.600000	53.62	---	74.00	20.38	H	10.8

High Channel: 2452MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G Wi-Fi
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Fundamental Test with notch filter



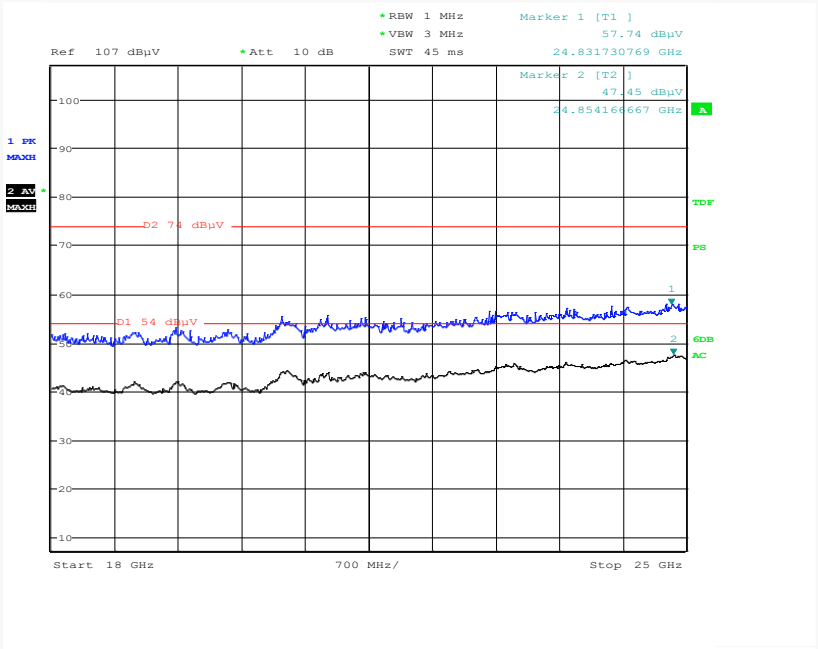
Critical_Freqs

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	---	34.15	54.00	19.85	H	-14.9
1185.300000	39.34	---	74.00	34.66	H	-14.9
3886.600000	---	36.77	54.00	17.23	H	-5.3
3886.600000	43.89	---	74.00	30.11	V	-5.3
5183.700000	---	49.34	54.00	4.66	V	-0.5
5183.700000	54.69	---	74.00	19.31	V	-0.5
7774.500000	---	40.90	54.00	13.10	V	4.0
7774.500000	48.46	---	74.00	25.54	V	4.0
12503.900000	---	41.64	54.00	12.36	V	8.5
12503.900000	49.94	---	74.00	24.06	H	8.5
16301.700000	---	44.09	54.00	9.91	H	9.7
16301.700000	52.08	---	74.00	21.92	H	9.7

18GHz-25GHz:

Transmitting in 802.11n40 mode middle channel is worst case

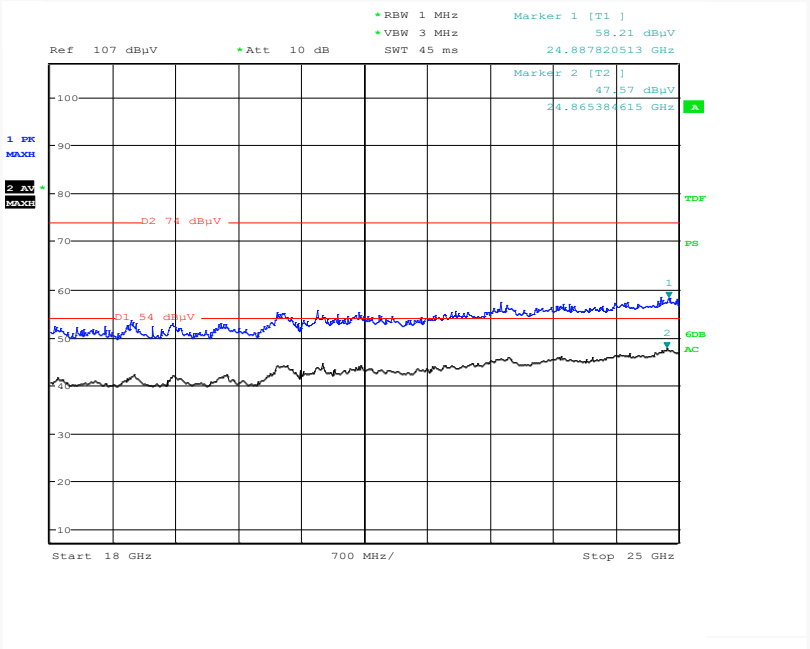
Horizontal



Project No.: RSHA240229004 Tester: Peter Wang

Date: 23.APR.2024 10:02:47

Vertical



Project No.: RSHA240229004 Tester: Peter Wang

Date: 23.APR.2024 10:17:34

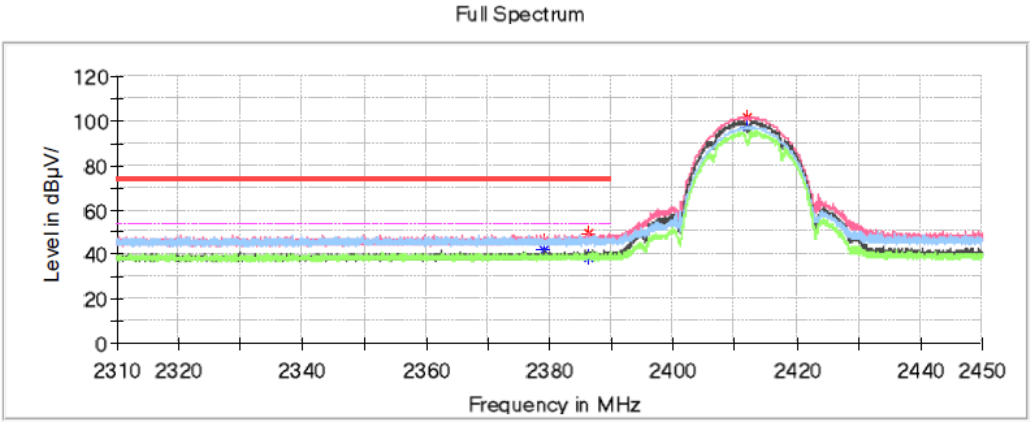
Note: The test distance is 3m. The limit is 74dBµV/m(Peak) and 54dBµV/m(Average).

Band Edge:
802.11b Mode:

Low Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11b mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



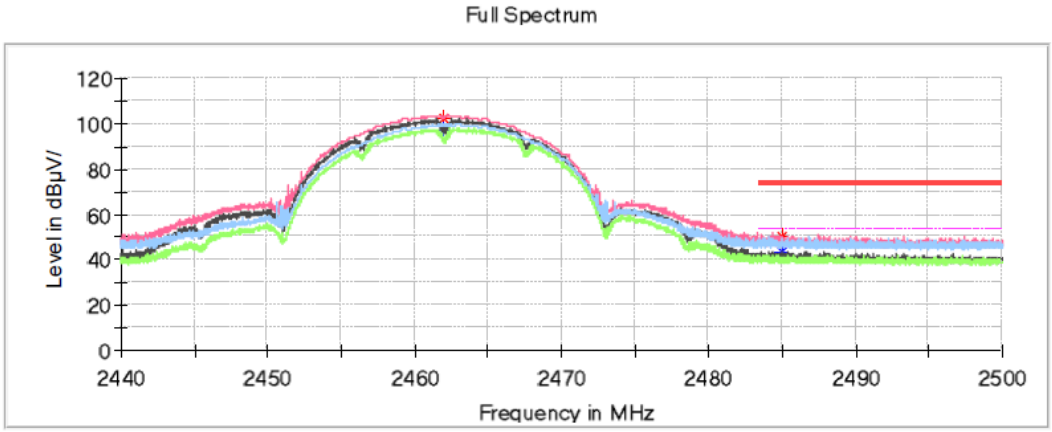
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2379.230000	---	41.90	54.00	12.10	V	0.0
2379.230000	46.20	---	74.00	27.80	V	0.0
2386.356000	---	39.01	54.00	14.99	V	0.1
2386.356000	49.91	---	74.00	24.09	V	0.1
2411.836000	---	97.11	---	---	V	0.1
2411.836000	101.33	---	---	---	V	0.1

High Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11b mode of high channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



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)
2461.960000	102.79	---	---	---	V	0.2
2461.960000	---	97.16	---	---	V	0.2
2485.036000	50.54	---	74.00	23.46	V	0.2
2485.036000	---	43.74	54.00	10.26	V	0.2

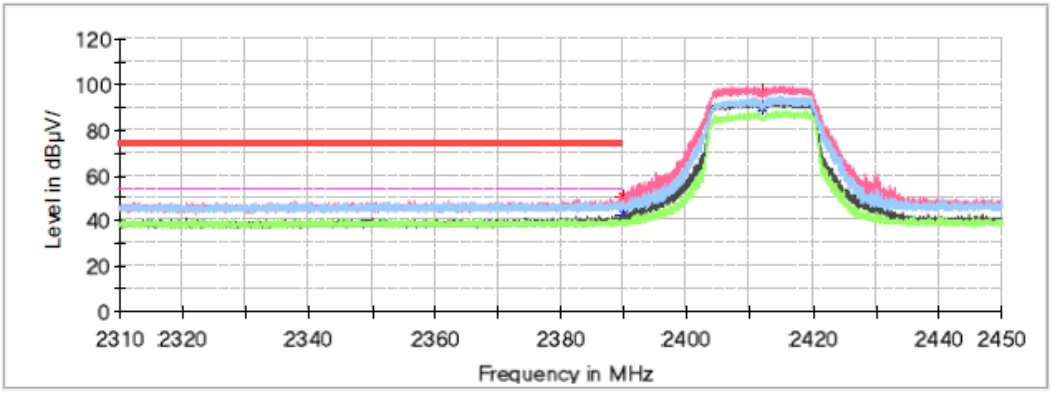
802.11g Mode :

Low Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11g Mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Full Spectrum



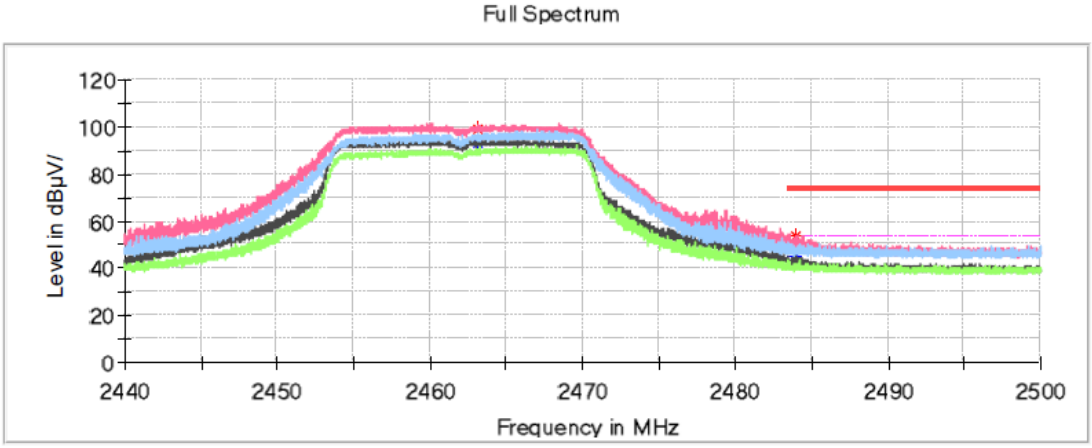
Critical_Freqs

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	50.30	---	74.00	23.70	V	0.1
2389.954000	---	42.98	54.00	11.02	V	0.1
2411.892000	---	89.59	---	---	V	0.1
2411.892000	96.53	---	---	---	V	0.1

High Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11g Mode of high channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



Critical_Freqs

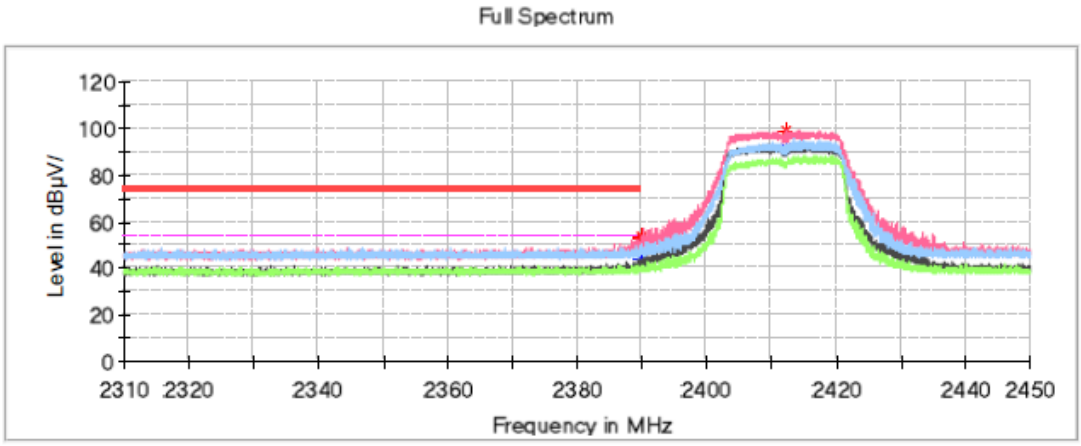
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2463.088000	99.09	---	---	---	V	0.2
2463.088000	---	93.50	---	---	V	0.2
2483.956000	53.44	---	74.00	20.56	V	0.2
2483.956000	---	45.69	54.00	8.31	V	0.2

802.11n-HT20 Mode:

Low Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n20 Mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



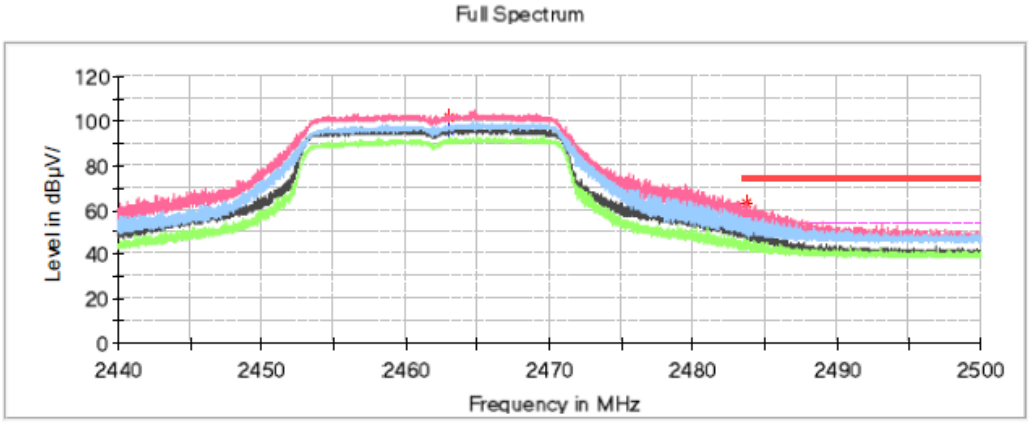
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.940000	---	43.83	54.00	10.17	V	0.1
2389.940000	53.17	---	74.00	20.83	V	0.1
2389.982000	---	41.70	54.00	12.30	V	0.1
2389.982000	53.85	---	74.00	20.15	V	0.1
2412.354000	---	91.46	---	---	V	0.1
2412.354000	99.32	---	---	---	V	0.1

High Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n20 Mode of high channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



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)
2462.956000	---	95.84	---	---	V	0.2
2462.956000	101.49	---	---	---	V	0.2
2483.740000	---	52.73	54.00	1.27	V	0.2
2483.740000	63.01	---	74.00	10.99	V	0.2

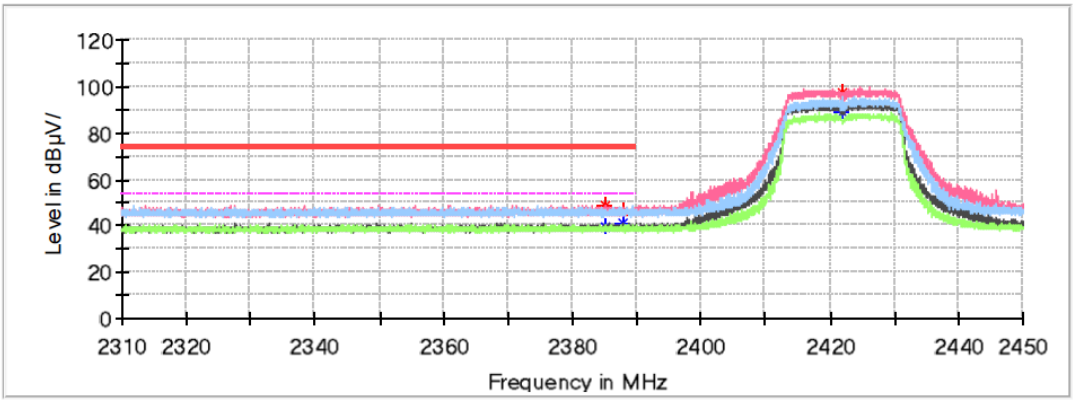
802.11n-HT40 Mode:

Low Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n40 Mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang

Full Spectrum



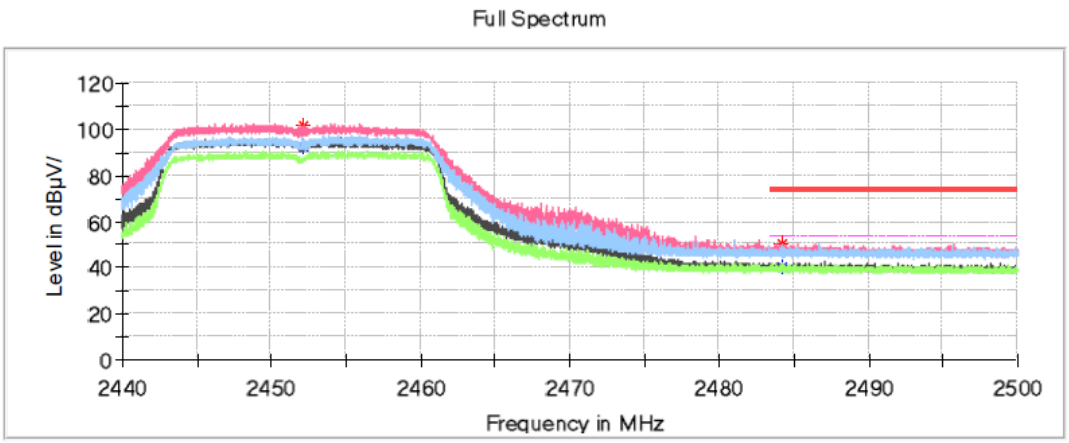
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2385.082000	---	39.74	54.00	14.26	V	0.1
2385.082000	48.92	---	74.00	25.08	V	0.1
2387.742000	---	41.44	54.00	12.56	V	0.1
2387.742000	46.03	---	74.00	27.97	V	0.1
2422.056000	---	88.98	---	---	V	0.1
2422.056000	97.67	---	---	---	V	0.1

High Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	2.4G WiFi 802.11n40 Mode of high channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Peter Wang



Critical_Freqs

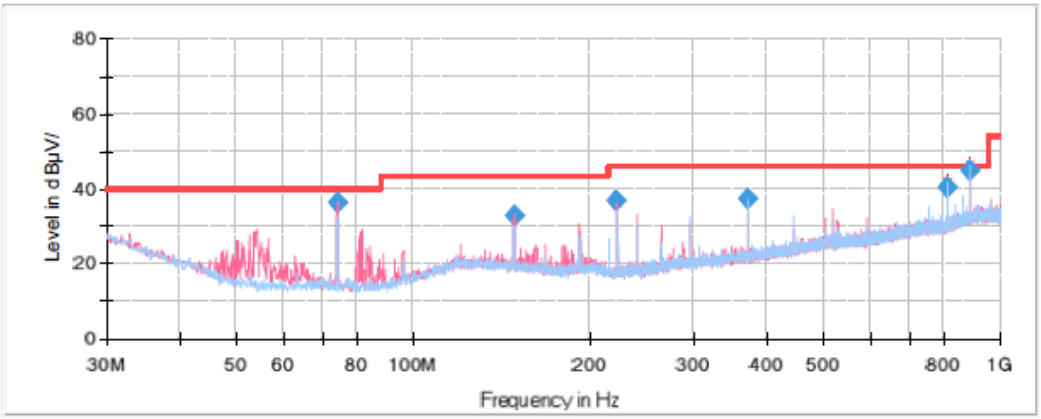
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2452.096000	---	92.58	---	---	V	0.2
2452.096000	101.31	---	---	---	V	0.2
2484.220000	---	40.46	54.00	13.54	V	0.2
2484.220000	50.75	---	74.00	23.25	V	0.2

For BLE Mode:
30MHz-1GHz

Low Channel: 2402MHz

Common Information

Project No:	RSHA240229004
Test Mode:	BLE 1M Mode of Low Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



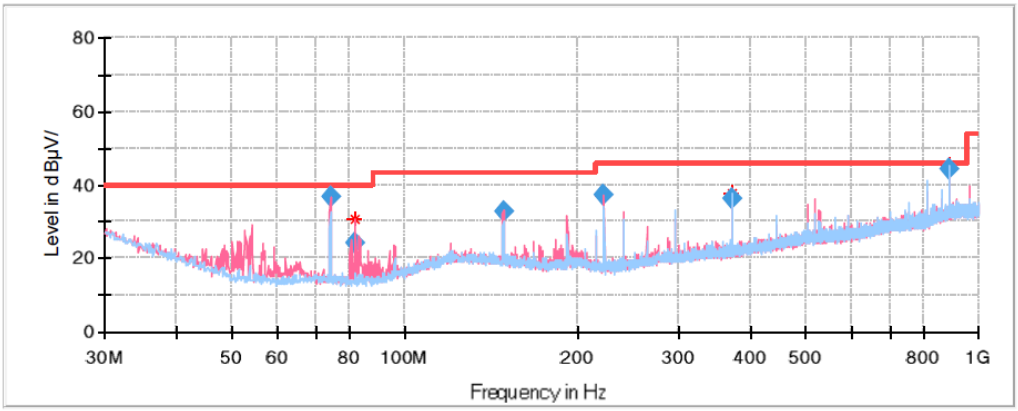
Final_Result

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	36.30	40.00	3.70	V	-17.1
148.340000	32.64	43.50	10.86	V	-12.0
222.540000	36.69	46.00	9.31	V	-13.7
370.830000	37.24	46.00	8.76	H	-9.3
815.940000	40.28	46.00	5.72	H	-1.0
890.140000	44.67	46.00	1.33	H	1.1

Middle Channel: 2440MHz

Common Information

Project No:	RSHA240229004
Test Mode:	BLE 1M Mode of Middle Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



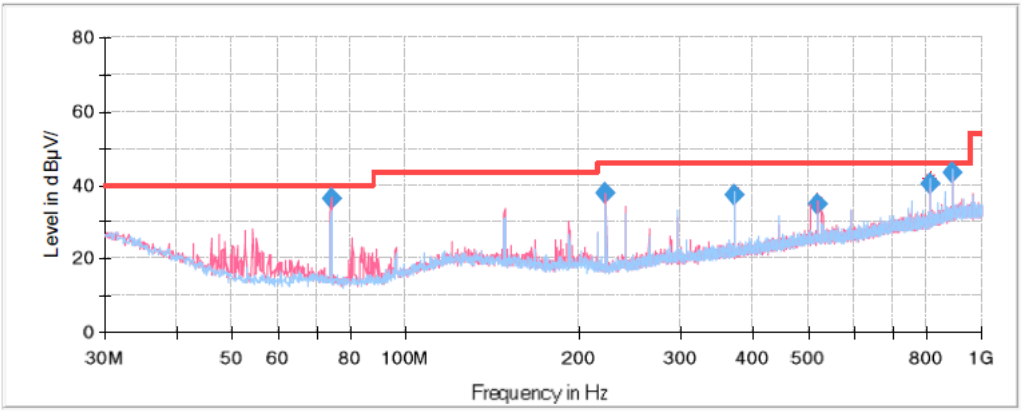
Final_Result

Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	36.50	40.00	3.50	V	-17.1
82.010000	23.97	40.00	16.03	V	-17.5
148.340000	32.72	43.50	10.78	V	-12.0
222.420000	36.99	46.00	9.01	V	-13.7
370.830000	36.31	46.00	9.69	H	-9.3
890.140000	44.17	46.00	1.83	H	1.1

High Channel: 2480MHz

Common Information

Project No:	RSHA240229004
Test Mode:	BLE 1M Mode of High Channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li



Final_Result

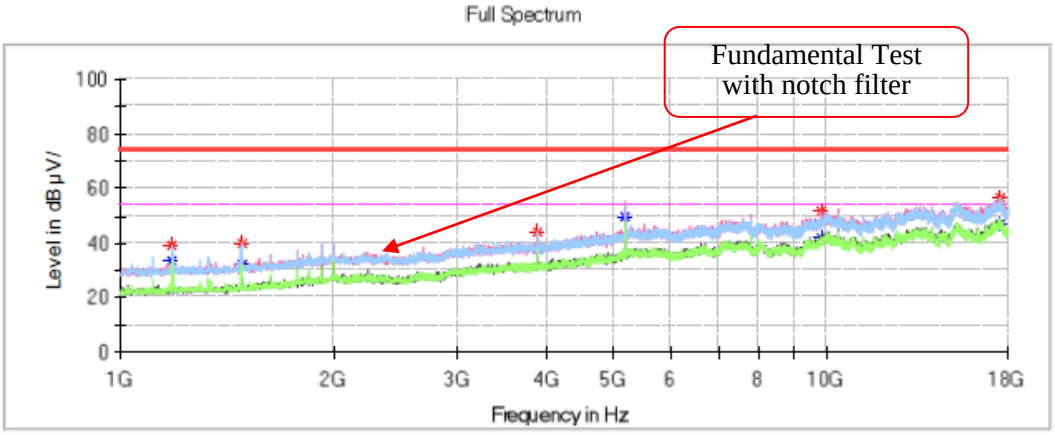
Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
74.130000	36.27	40.00	3.73	V	-17.1
222.540000	37.76	46.00	8.24	V	-13.7
370.830000	37.01	46.00	8.99	H	-9.3
519.240000	34.91	46.00	11.09	V	-5.6
815.940000	40.13	46.00	5.87	H	-1.0
890.140000	43.32	46.00	2.68	H	1.1

1GHz-18GHz:

Low Channel: 2402MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	BLE mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



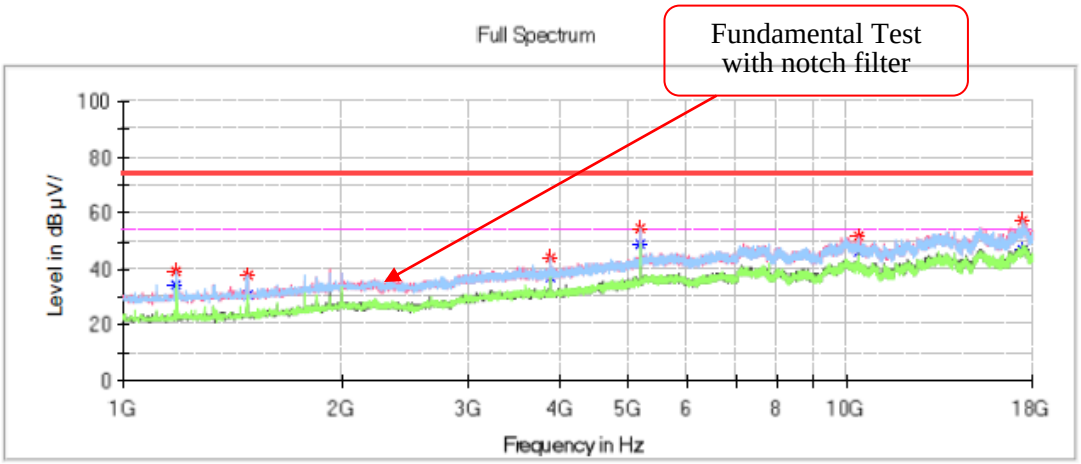
Critical_Freqs

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	39.08	---	74.00	34.92	H	-14.9
1185.300000	---	33.29	54.00	20.71	H	-14.9
1482.800000	40.11	---	74.00	33.89	H	-14.0
1482.800000	---	32.18	54.00	21.82	H	-14.0
3886.600000	44.35	---	74.00	29.65	H	-5.3
3886.600000	---	37.66	54.00	16.34	H	-5.3
5183.700000	---	49.68	54.00	4.32	H	-0.5
9829.800000	---	42.03	54.00	11.97	V	7.3
9829.800000	51.75	---	74.00	22.25	V	7.3
17522.300000	---	46.81	54.00	7.19	H	13.5
17522.300000	56.72	---	74.00	17.28	H	13.5

Middle Channel: 2440MHz

Common Information

Project No.:	RSHA240229004
Test Mode:	BLE mode of middle channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



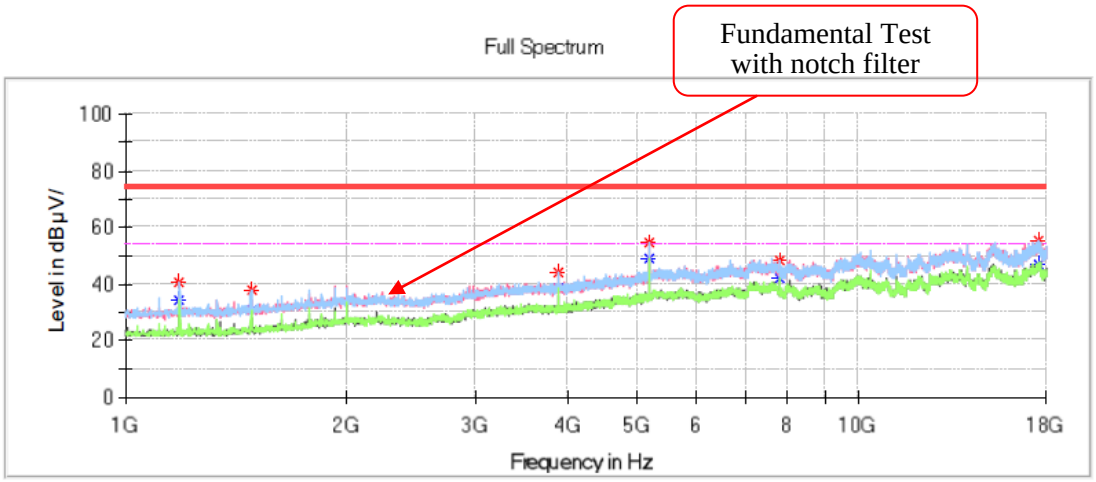
Critical_Freqs

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	39.47	---	74.00	34.53	H	-14.9
1185.300000	---	34.44	54.00	19.56	H	-14.9
1482.800000	---	30.77	54.00	23.23	H	-14.0
1482.800000	37.50	---	74.00	36.50	H	-14.0
3886.600000	44.08	---	74.00	29.92	H	-5.3
3886.600000	---	37.15	54.00	16.85	H	-5.3
5183.700000	---	48.75	54.00	5.25	H	-0.5
5183.700000	54.74	---	74.00	19.26	H	-0.5
10367.000000	---	45.93	54.00	8.07	V	7.4
10367.000000	51.81	---	74.00	22.19	V	7.4
17425.400000	---	46.83	54.00	7.17	H	13.4
17425.400000	57.18	---	74.00	16.82	H	13.4

High Channel: 2480MHz

Common Information

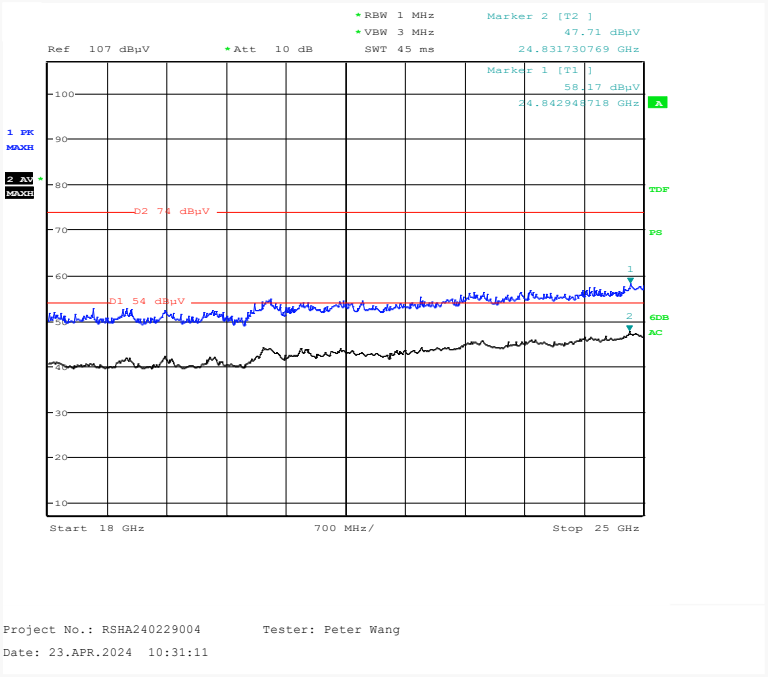
Project No.:	RSHA240229004
Test Mode:	BLE mode of High channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



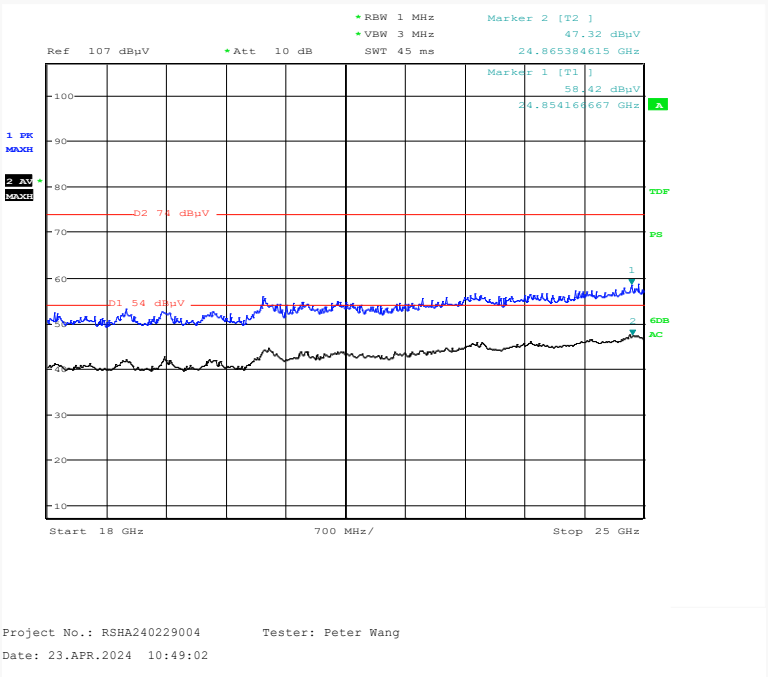
Critical_Freqs

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	40.37	---	74.00	33.63	H	-14.9
1185.300000	---	34.30	54.00	19.70	H	-14.9
1482.800000	37.94	---	74.00	36.06	H	-14.0
1482.800000	---	30.91	54.00	23.09	H	-14.0
3886.600000	44.19	---	74.00	29.81	H	-5.3
3886.600000	---	38.12	54.00	15.88	H	-5.3
5183.700000	---	48.98	54.00	5.02	H	-0.5
5183.700000	54.74	---	74.00	19.26	H	-0.5
7774.500000	---	41.76	54.00	12.24	H	4.0
7774.500000	48.48	---	74.00	25.52	H	4.0
17541.000000	---	46.85	54.00	7.15	V	13.4
17541.000000	55.47	---	74.00	18.53	V	13.4

18GHz-25GHz: *（Middle channel worst）*
Horizontal:



Vertical:



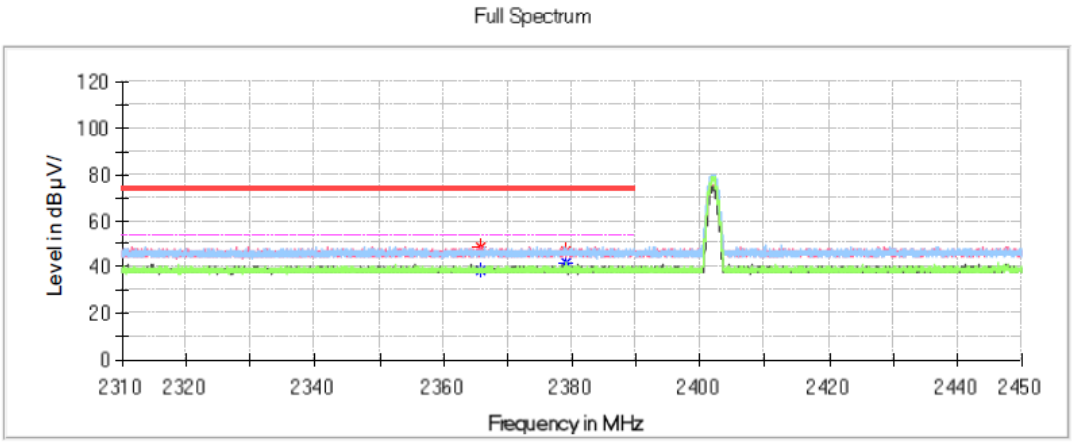
Note: The test distance is 3m. The limit is 74dBµV/m(Peak) and 54dBµV/m(Average).

Band Edge:

Low Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	BLE mode of low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Klein Zhu



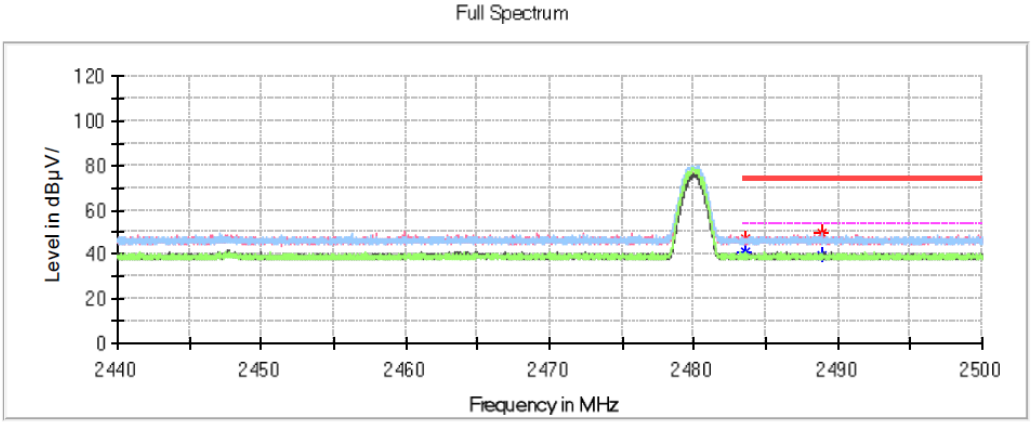
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2365.916000	49.07	---	74.00	24.93	V	0.0
2365.916000	---	38.79	54.00	15.21	V	0.0
2379.160000	47.31	---	74.00	26.69	H	0.0
2379.160000	---	41.61	54.00	12.39	H	0.0

High Channel

Common Information

Project No.:	RSHA240229004
Test Mode:	BLE mode of high channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part15.209
Test Engineer:	Klein Zhu



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	46.66	---	74.00	27.34	H	0.2
2483.518000	---	41.08	54.00	12.92	H	0.2
2488.918000	49.14	---	74.00	24.86	H	0.2
2488.918000	---	39.81	54.00	14.19	V	0.2

6 dB EMISSION BANDWIDTH

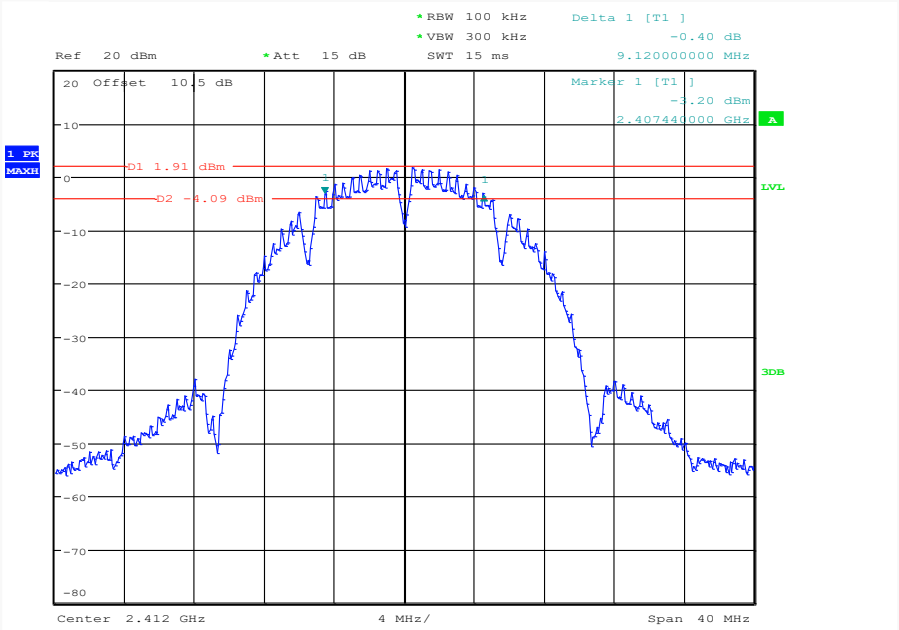
Test Result: Compliant.

EUT operation mode: Transmitting

For Wi-Fi Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b Mode			
Low	2412	9.12	≥0.5
Middle	2437	9.52	≥0.5
High	2462	10.00	≥0.5
802.11g Mode			
Low	2412	16.48	≥0.5
Middle	2437	16.48	≥0.5
High	2462	16.32	≥0.5
802.11n-HT20 Mode			
Low	2412	17.52	≥0.5
Middle	2437	17.60	≥0.5
High	2462	17.36	≥0.5
802.11n-HT40 Mode			
Low	2422	35.52	≥0.5
Middle	2437	35.52	≥0.5
High	2452	35.68	≥0.5

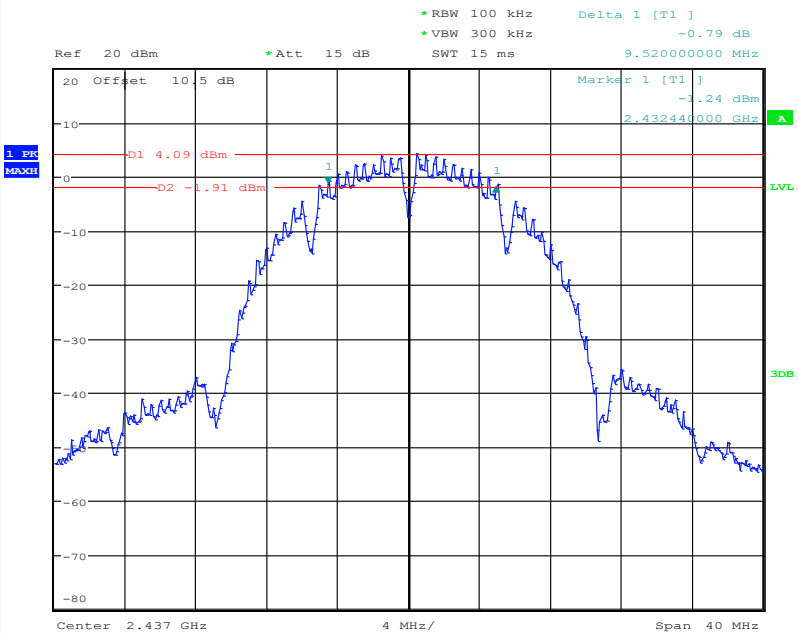
802.11b Mode Low Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:11:04

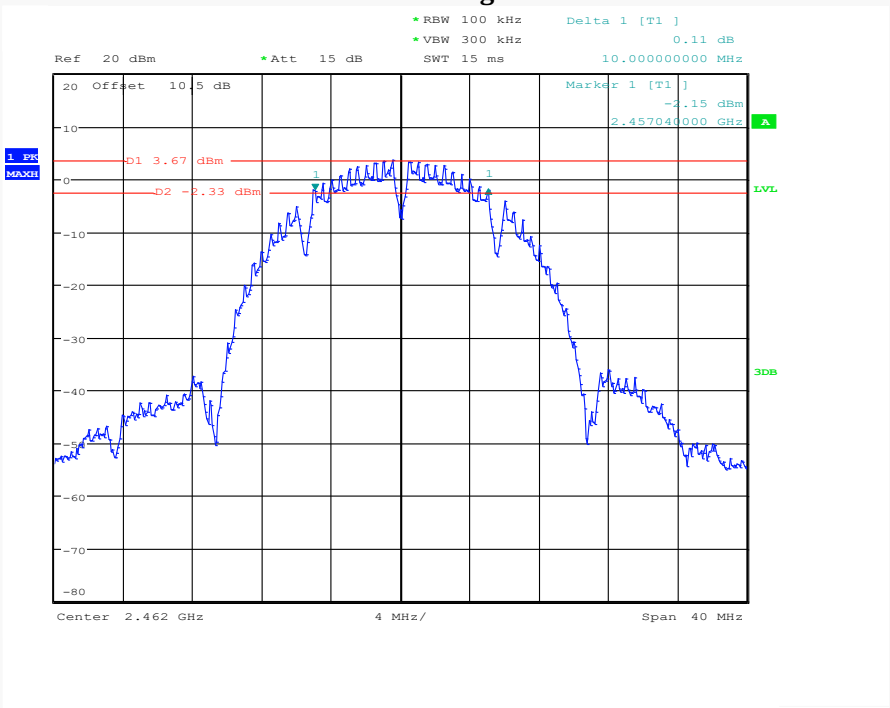
802.11b Mode Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:15:26

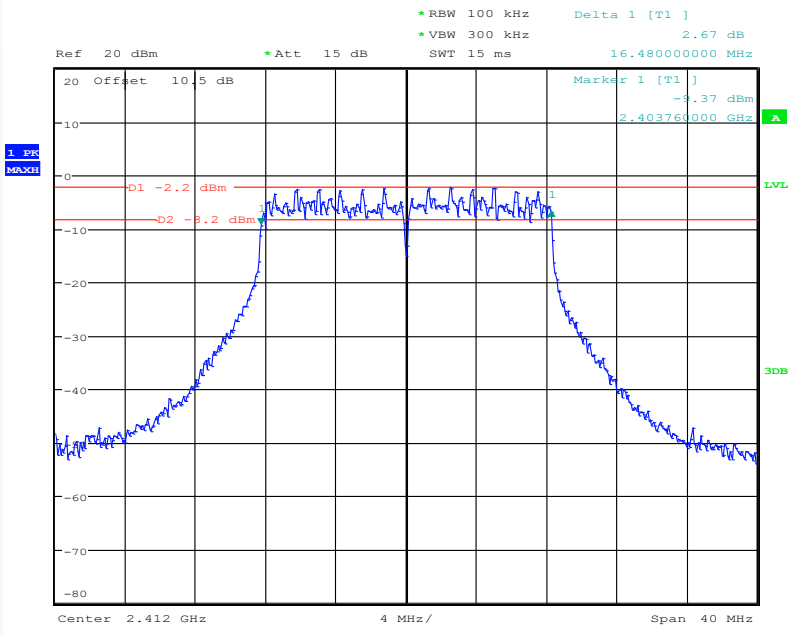
802.11b Mode High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:20:54

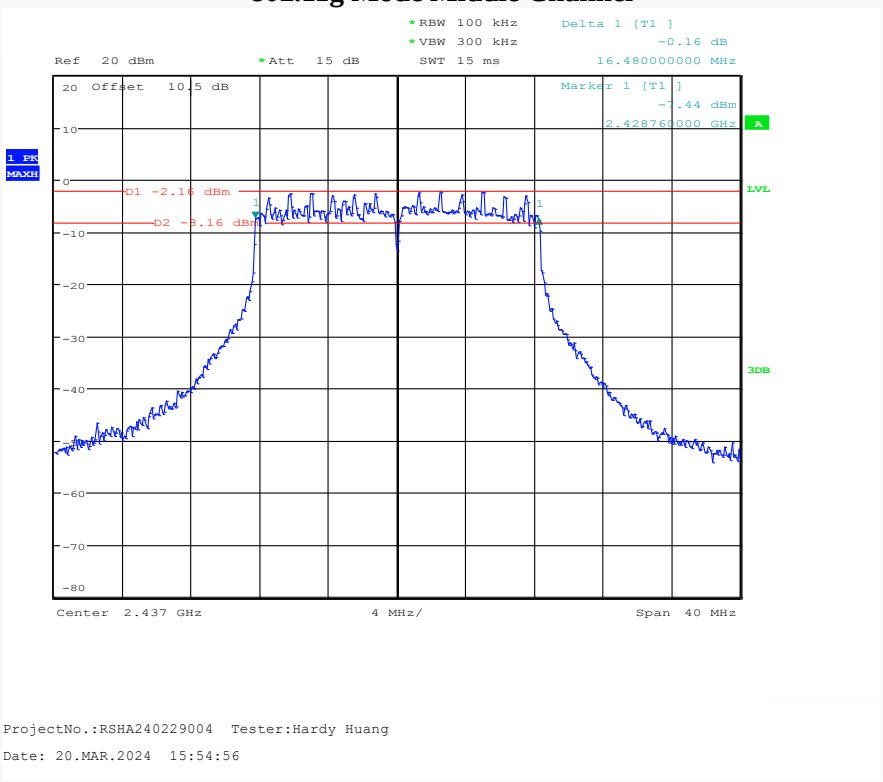
802.11g Mode Low Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:52:03

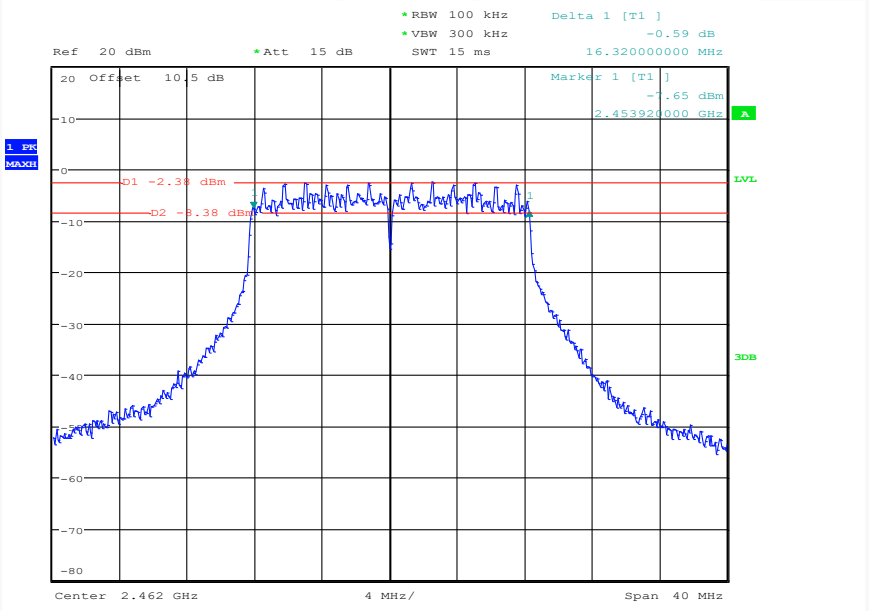
802.11g Mode Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:54:56

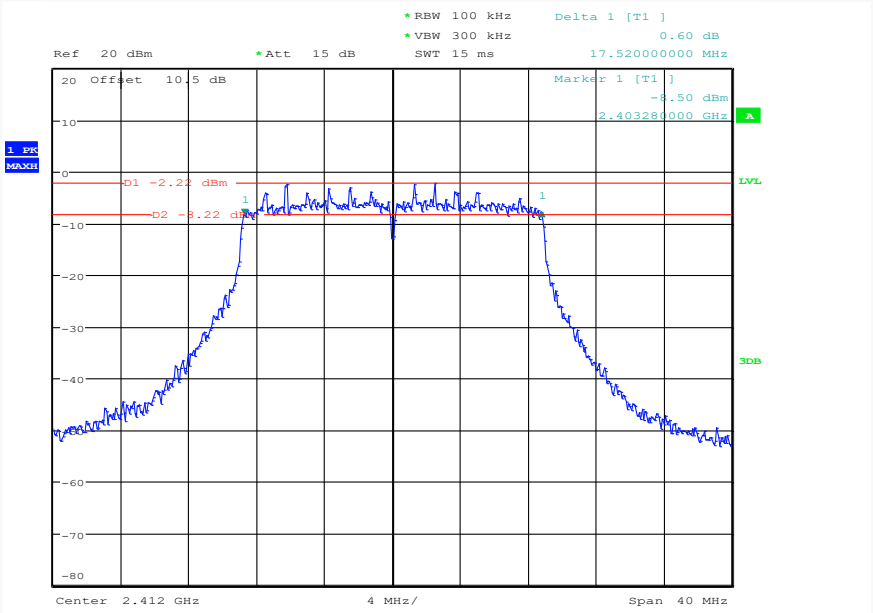
802.11g Mode High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

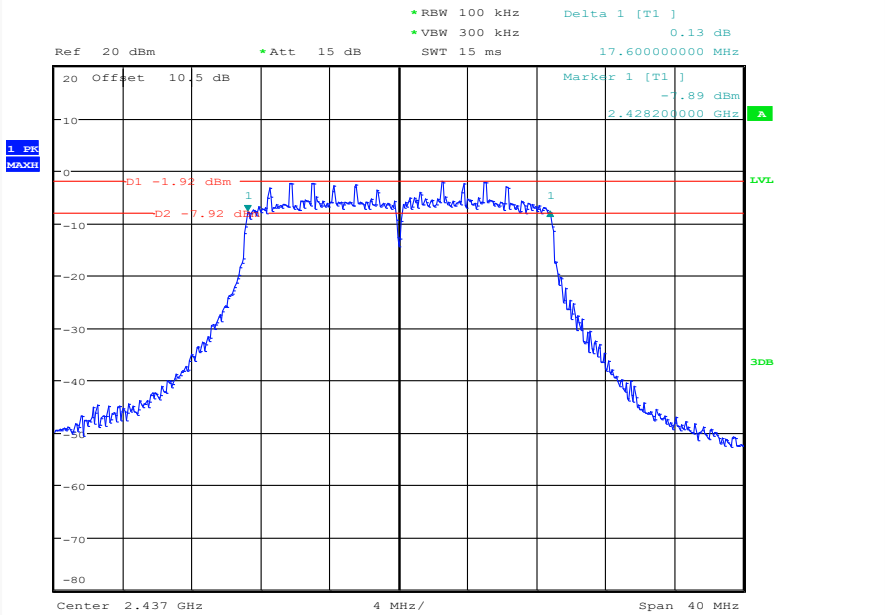
Date: 20.MAR.2024 15:58:30

802.11n-HT20 Mode Low Channel



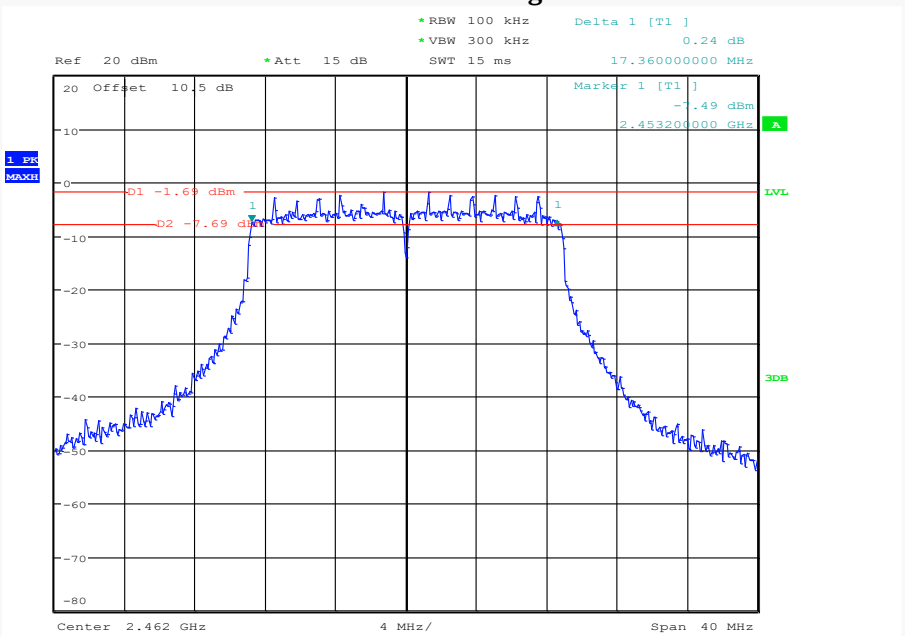
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 18:00:57

802.11n-HT20 Mode Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 17:58:04

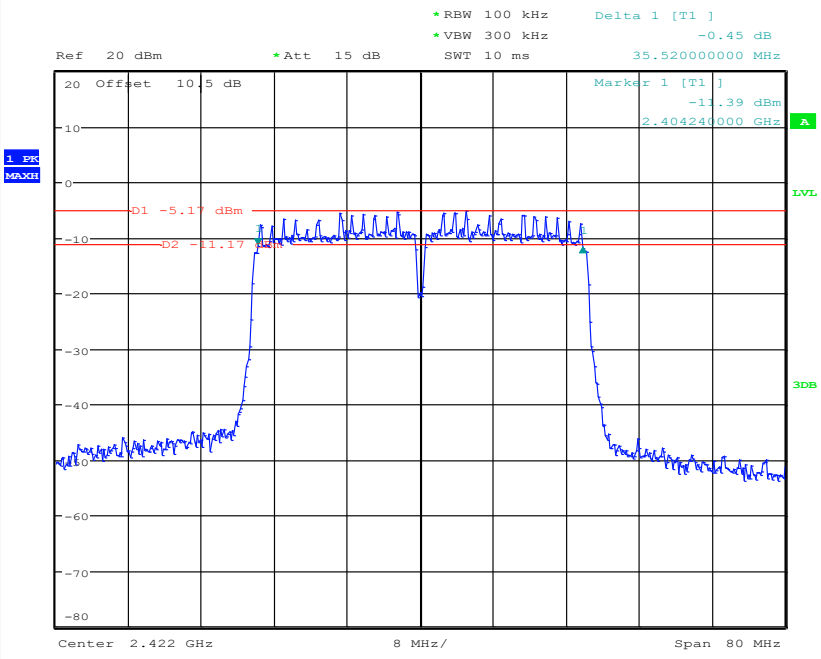
802.11n-HT20 Mode High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 17:54:52

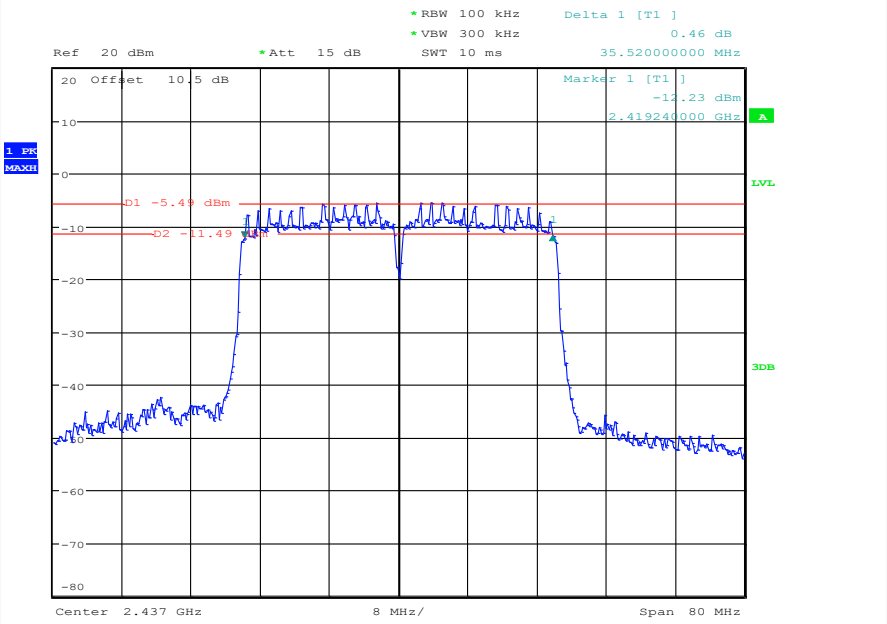
802.11n-HT40 Mode Low Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:05:57

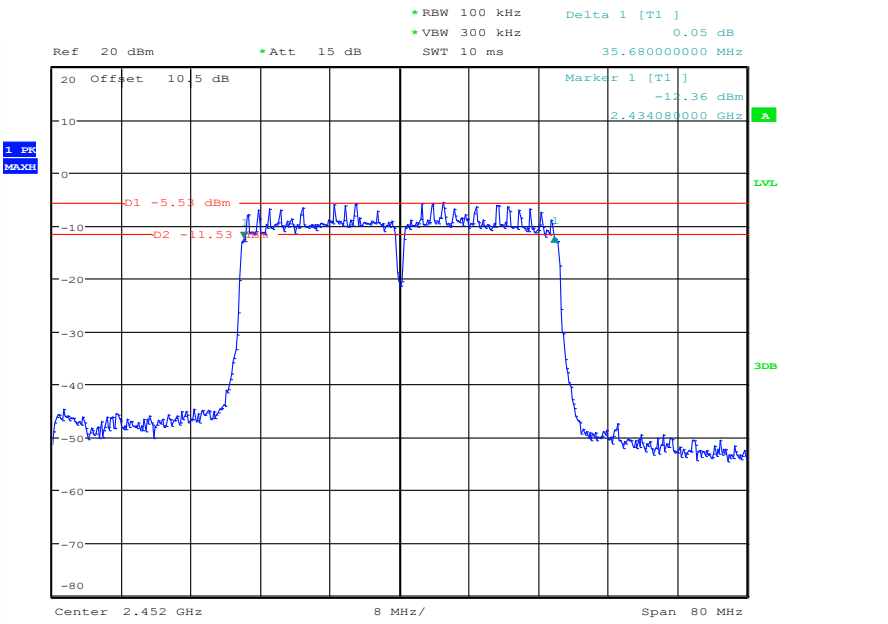
802.11n-HT40 Mode Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:09:20

802.11n-HT40 Mode High Channel



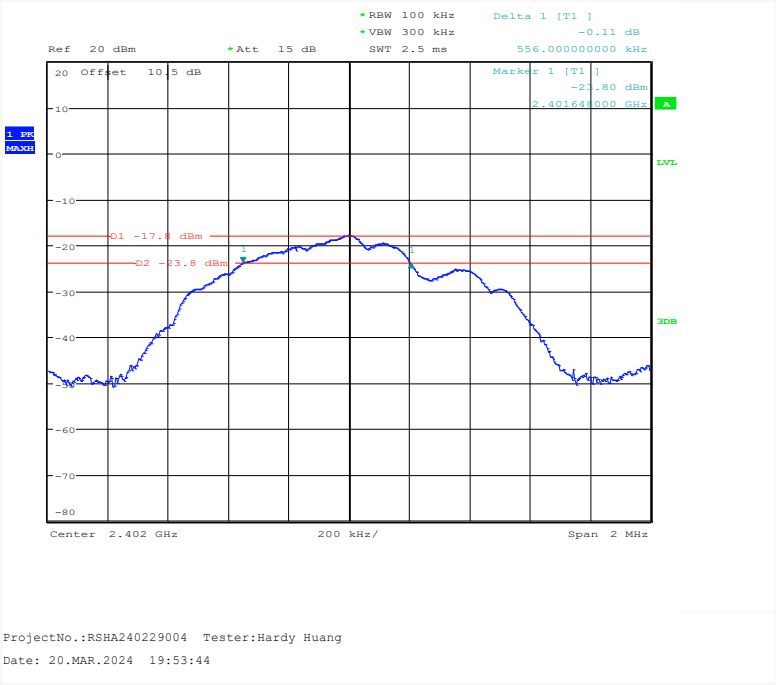
ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:13:31

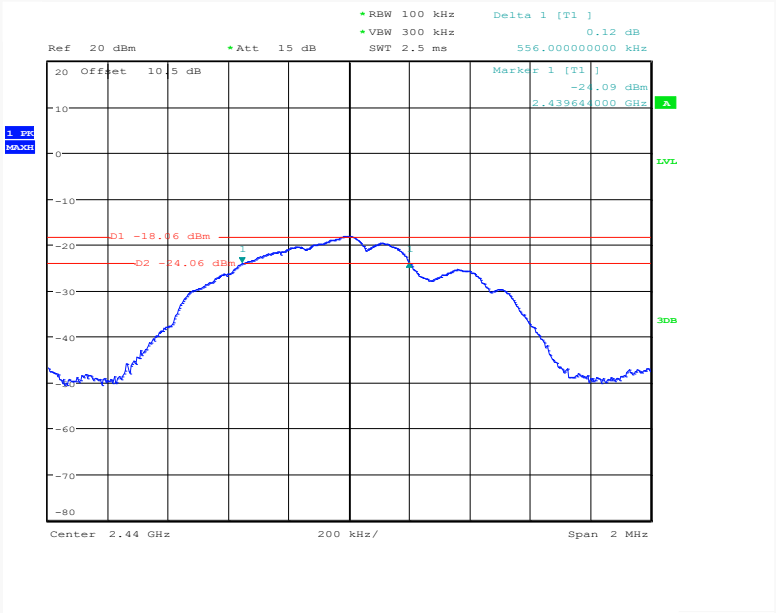
For BLE Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2402	0.556	≥0.5
Middle	2440	0.556	≥0.5
High	2480	0.560	≥0.5

Low Channel



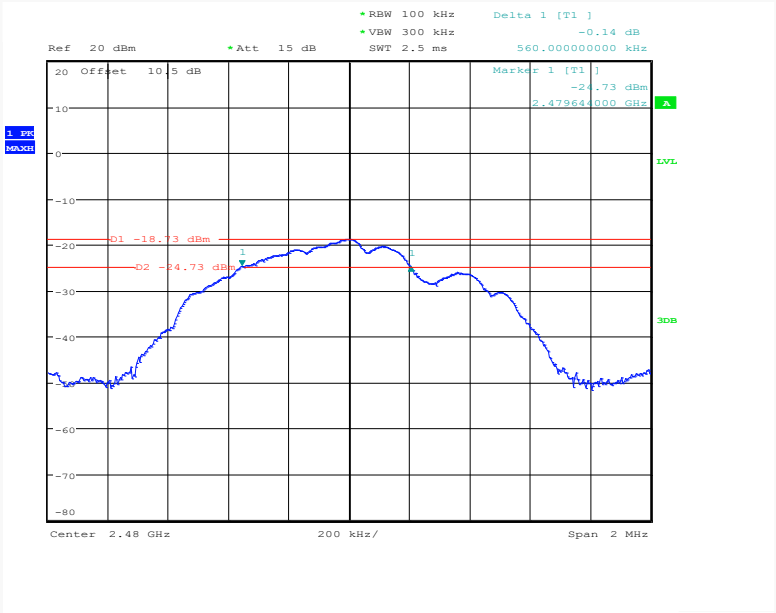
Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 19:56:39

High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 19:58:40

POWER SPECTRAL DENSITY

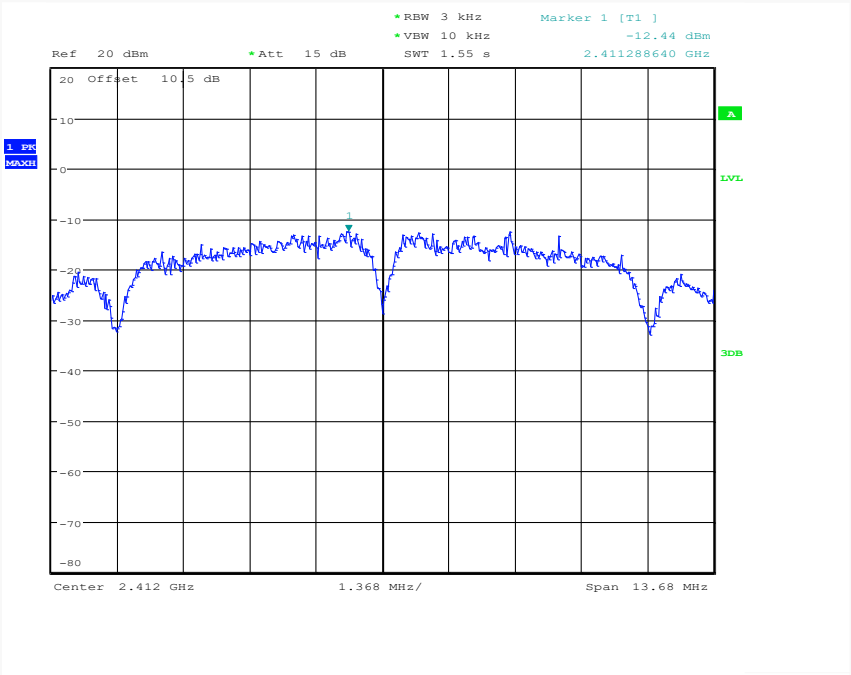
Test Result: Compliant.

EUT operation mode: Transmitting

For Wi-Fi Mode:

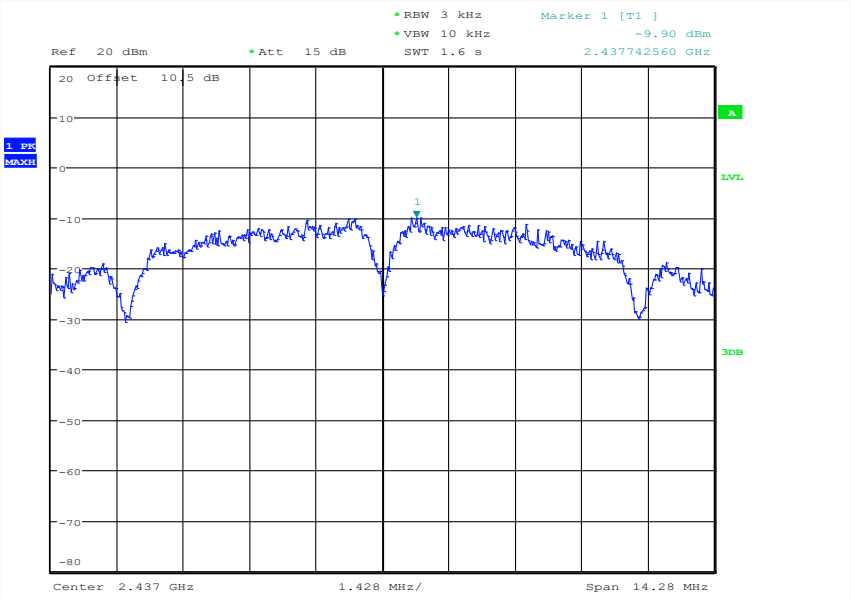
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b Mode			
Low	2412	-12.44	≤8
Middle	2437	-9.90	≤8
High	2462	-9.83	≤8
802.11g Mode			
Low	2412	-17.85	≤8
Middle	2437	-16.01	≤8
High	2462	-17.67	≤8
802.11n-HT20 mode			
Low	2412	-16.31	≤8
Middle	2437	-16.40	≤8
High	2462	-16.01	≤8
802.11n-HT40 mode			
Low	2422	-18.89	≤8
Middle	2437	-19.53	≤8
High	2452	-19.58	≤8

802.11b Low Channel



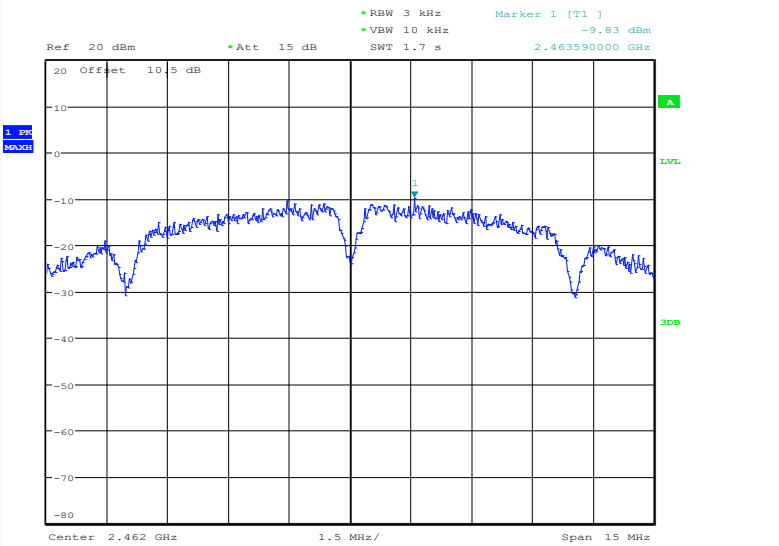
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:11:57

802.11b Middle Channel



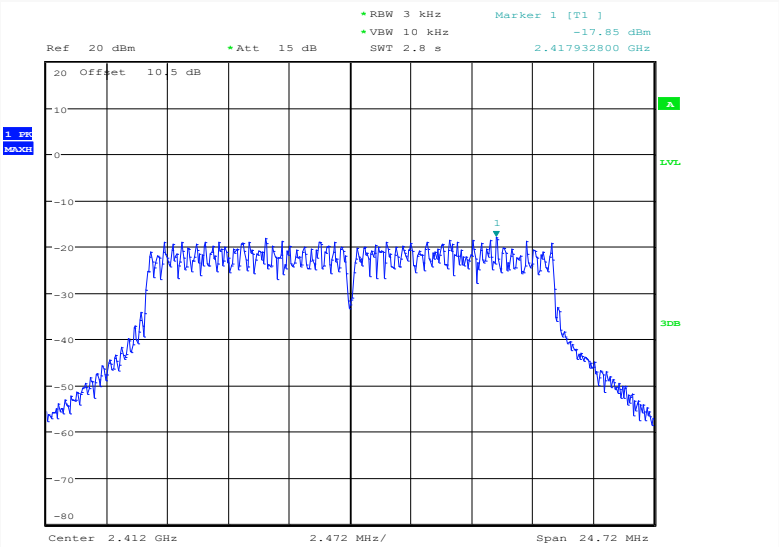
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:16:27

802.11b High Channel



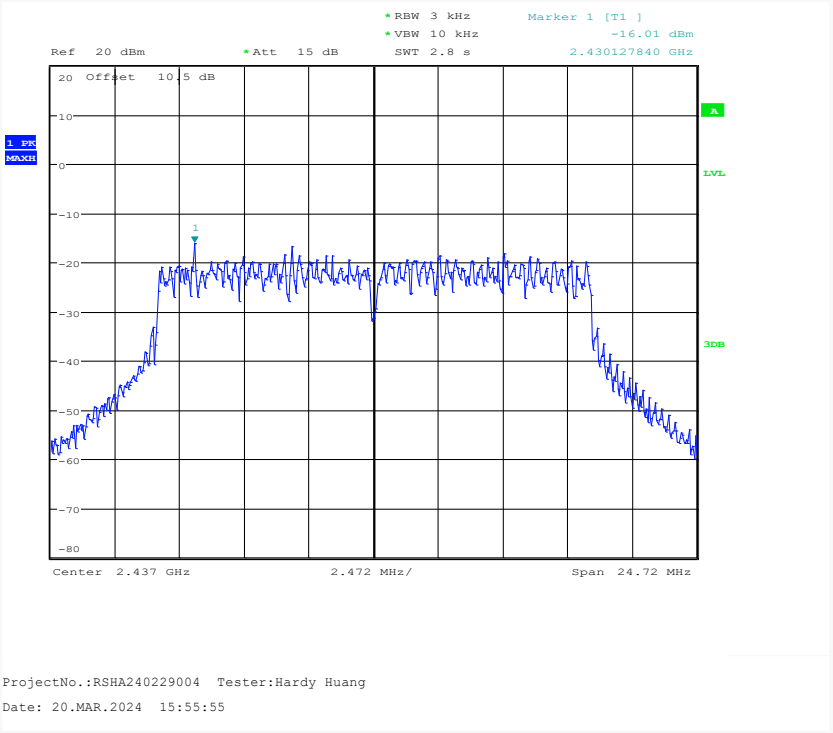
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:21:48

802.11g Low Channel



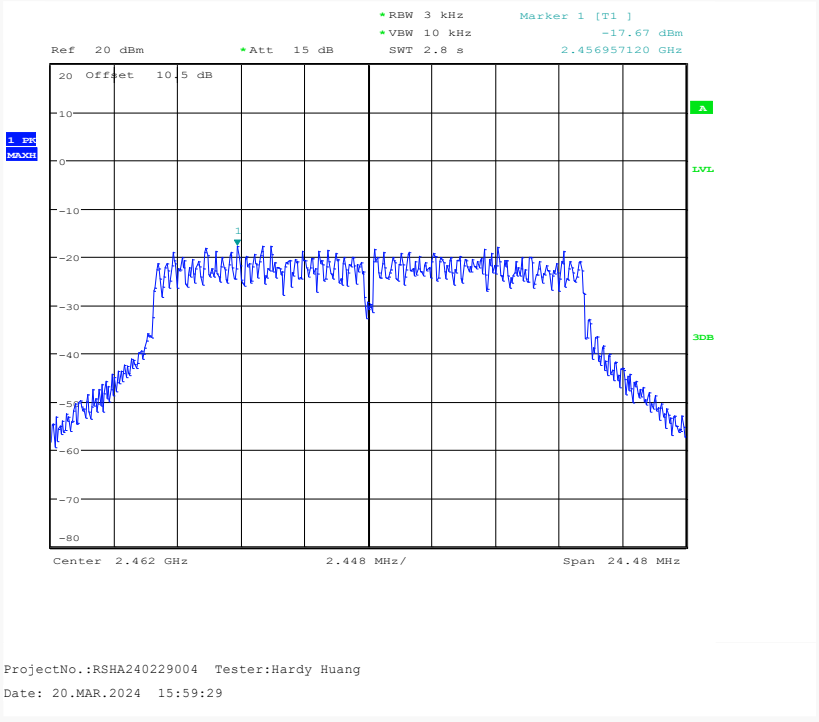
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:53:02

802.11g Middle Channel



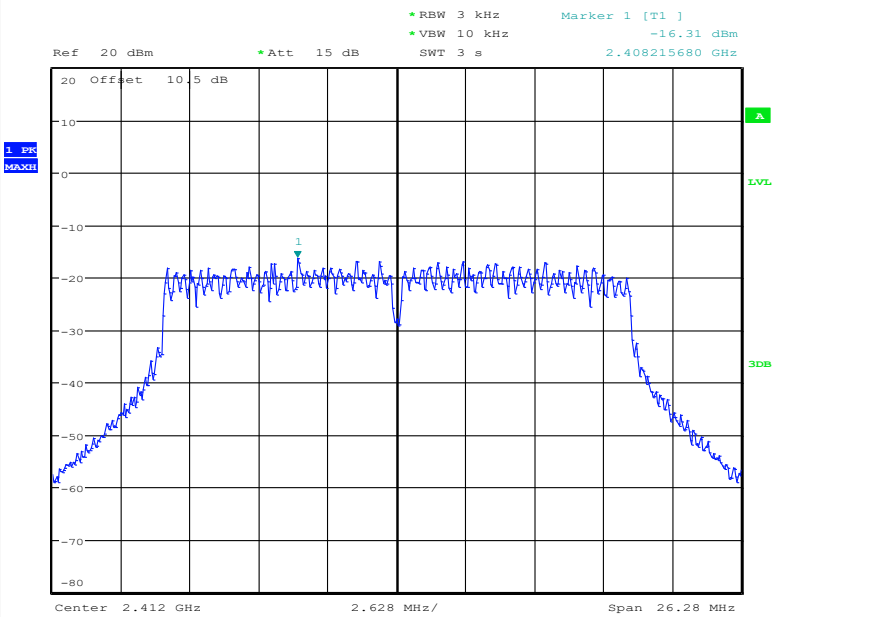
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:55:55

802.11g High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 15:59:29

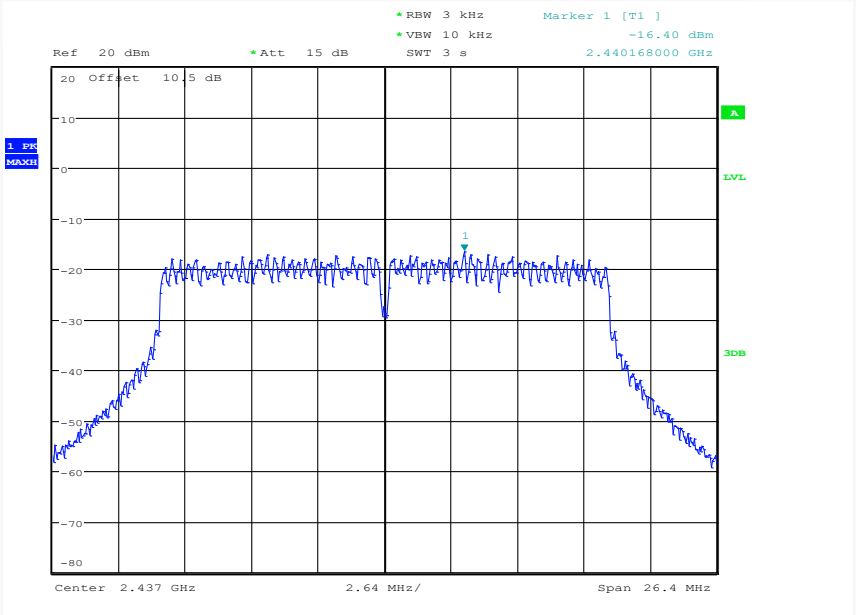
802.11n-HT20 Low Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:02:07

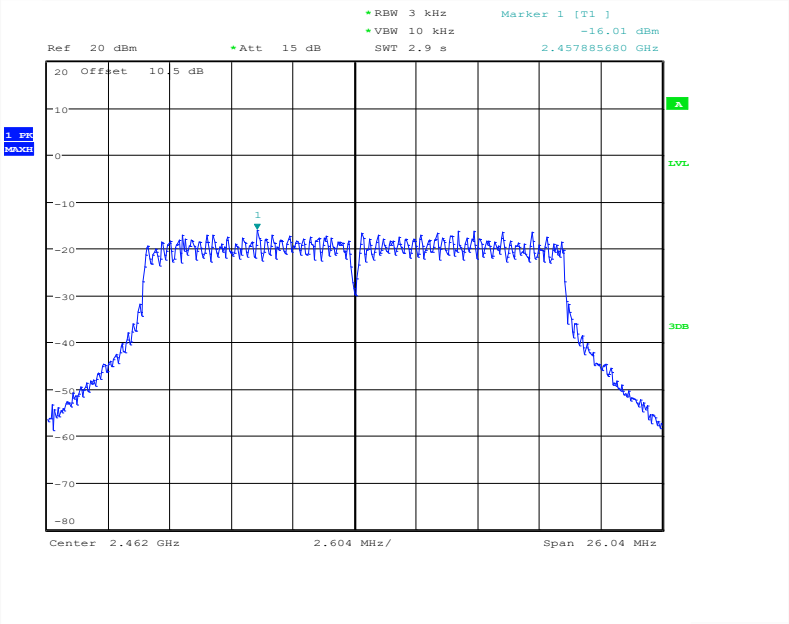
802.11n-HT20 Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 17:59:17

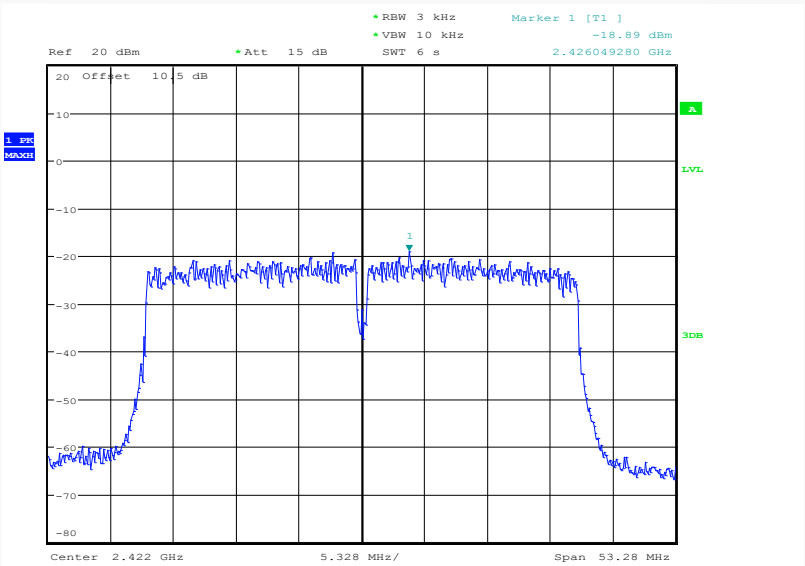
802.11n-HT20 High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 17:56:01

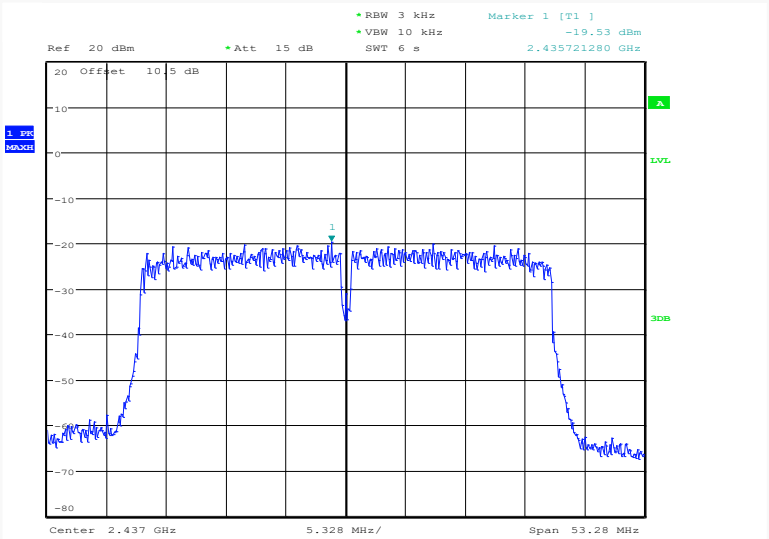
802.11n-HT40 Low Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:07:37

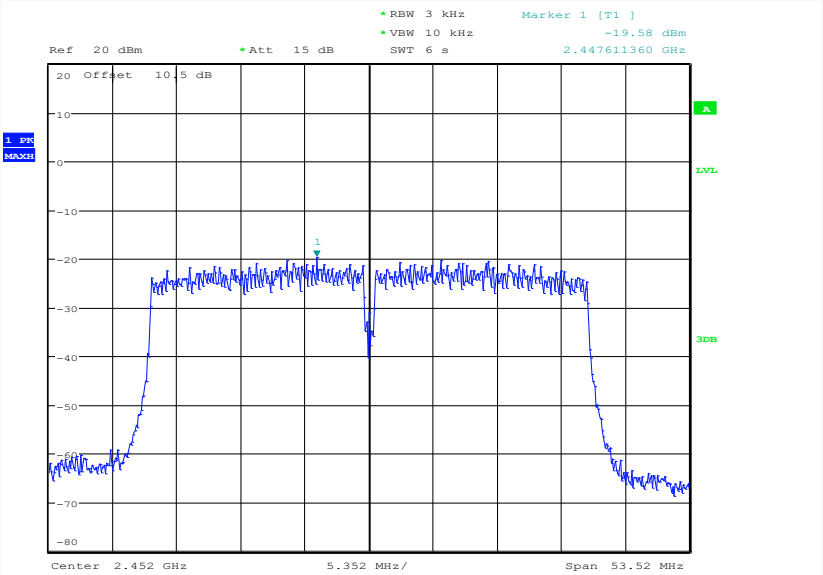
802.11n-HT40 Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:10:55

802.11n-HT40 High Channel



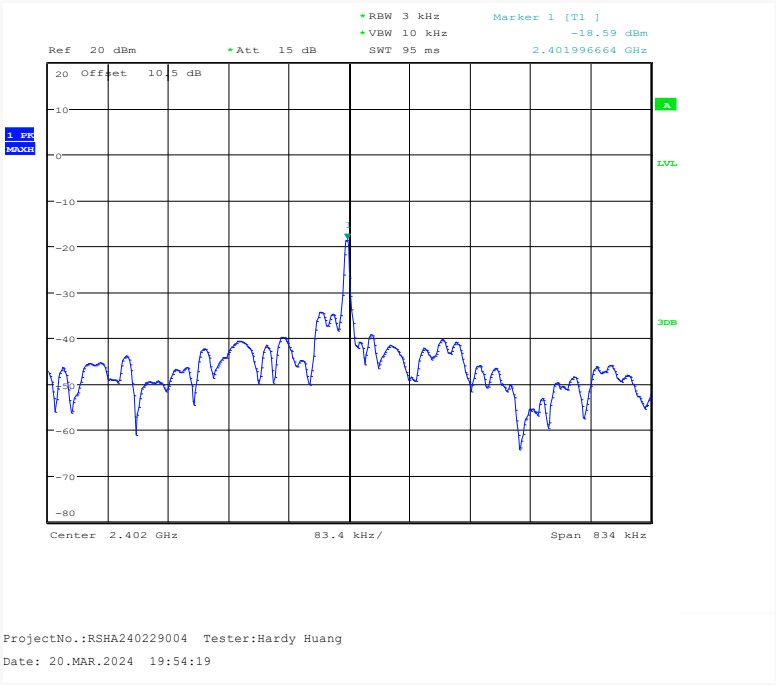
ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:14:51

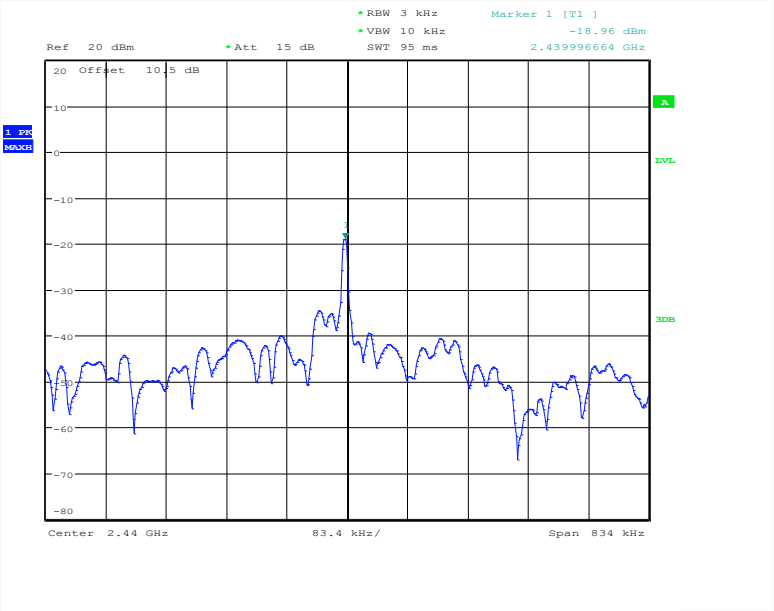
For BLE Mode:

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
Low	2402	-18.59	≤8
Middle	2440	-18.96	≤8
High	2480	-19.60	≤8

Low Channel

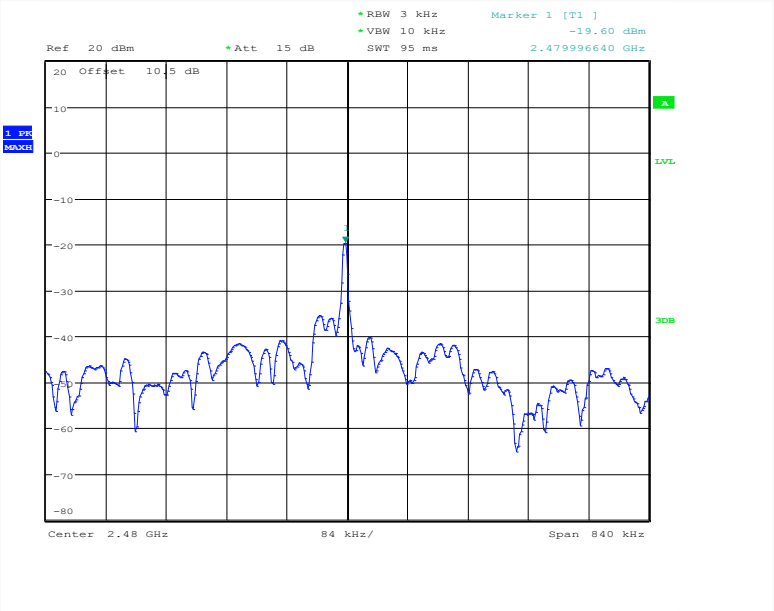


Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 19:57:12

High Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 19:59:13

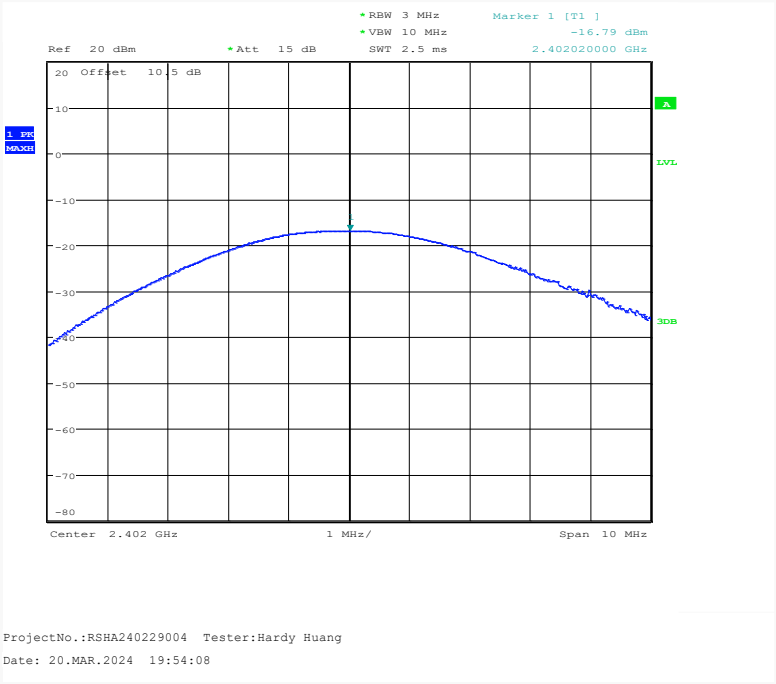
TRANSMITTER OUTPUT POWER MEASUREMENT

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
802.11b Mode			
Low	2412	18.71	≤30
Middle	2437	18.82	≤30
High	2462	18.90	≤30
802.11g Mode			
Low	2412	21.92	≤30
Middle	2437	21.94	≤30
High	2462	22.62	≤30
802.11n-HT20 Mode			
Low	2412	21.61	≤30
Middle	2437	21.93	≤30
High	2462	21.93	≤30
802.11n-HT40 Mode			
Low	2422	21.98	≤30
Middle	2437	22.73	≤30
High	2452	22.27	≤30

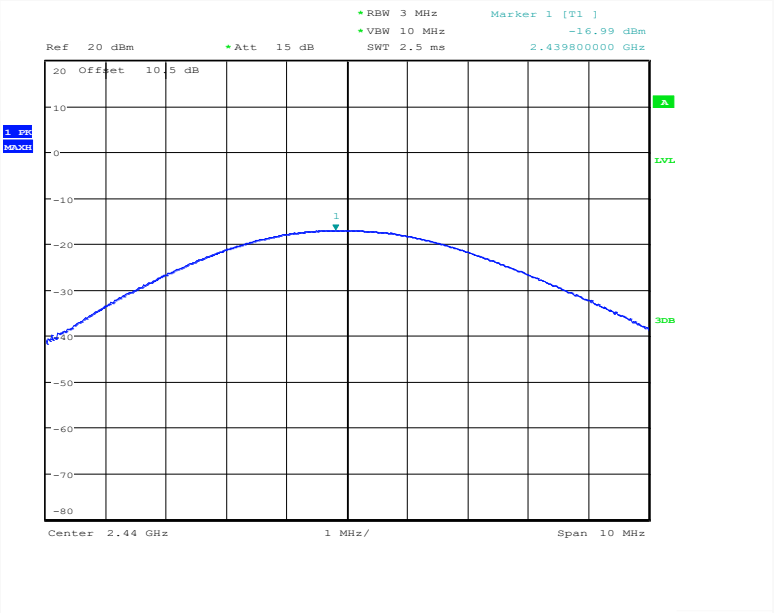
BLE Mode:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
Low	2402	-16.79	≤30
Middle	2440	-16.99	≤30
High	2480	-17.55	≤30

Low Channel

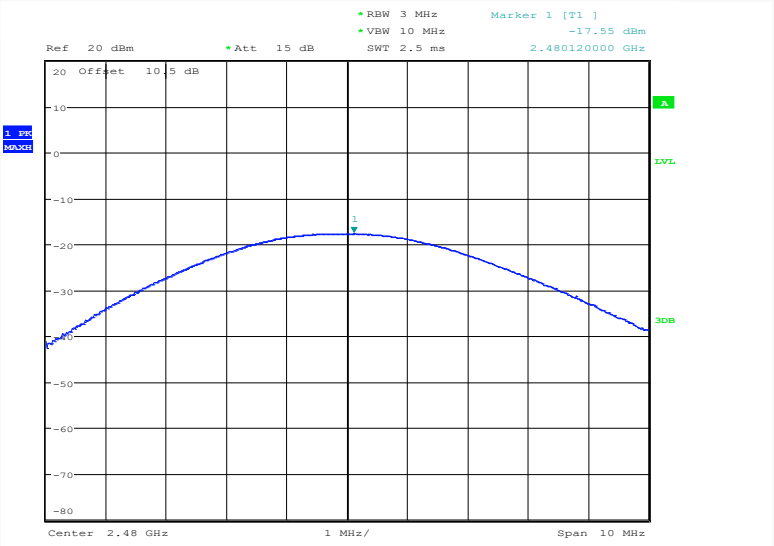


Middle Channel



ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 19:57:04

High Channel



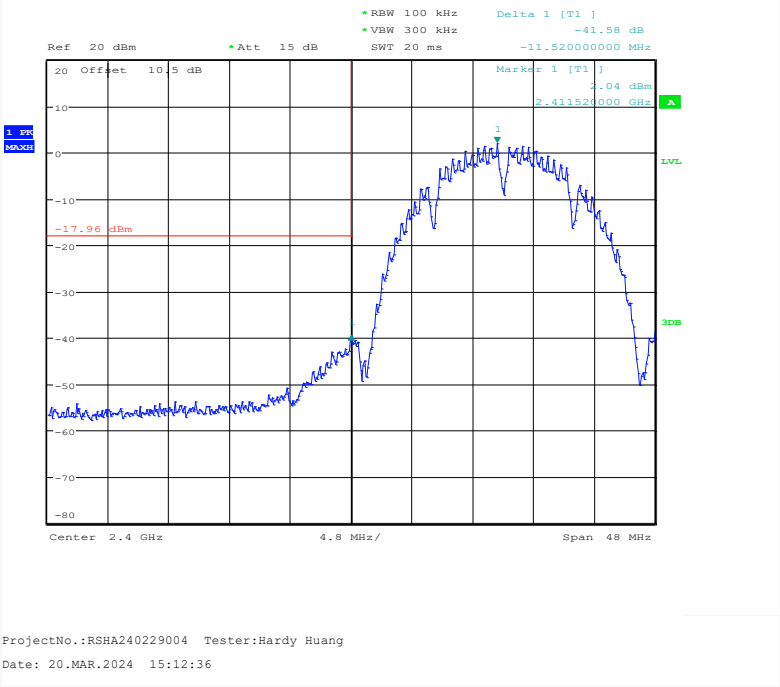
ProjectNo.:RSHA240229004 Tester:Hardy Huang
Date: 20.MAR.2024 19:59:05

OUT OF BAND EMISSIONS

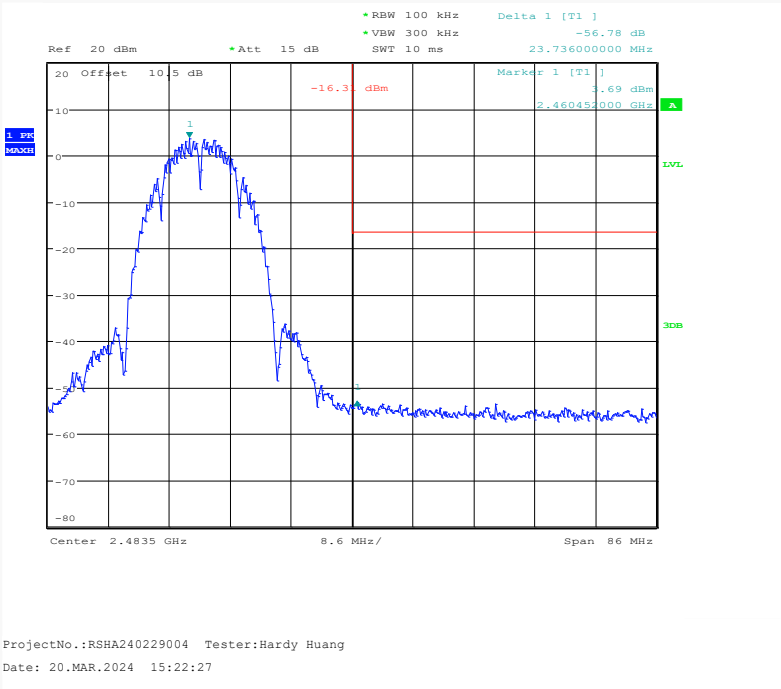
EUT operation mode: Transmitting

For Wi-Fi Mode:

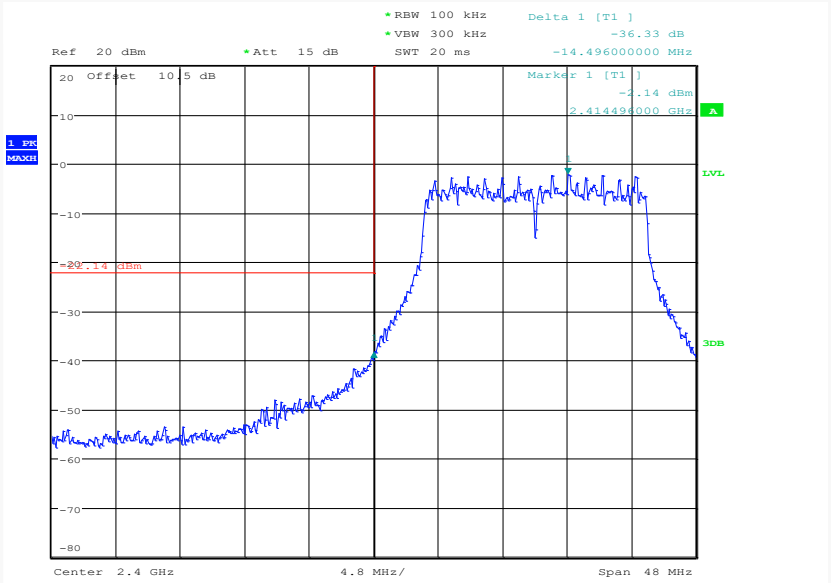
802.11b Mode Left Side



802.11b Mode Right Side



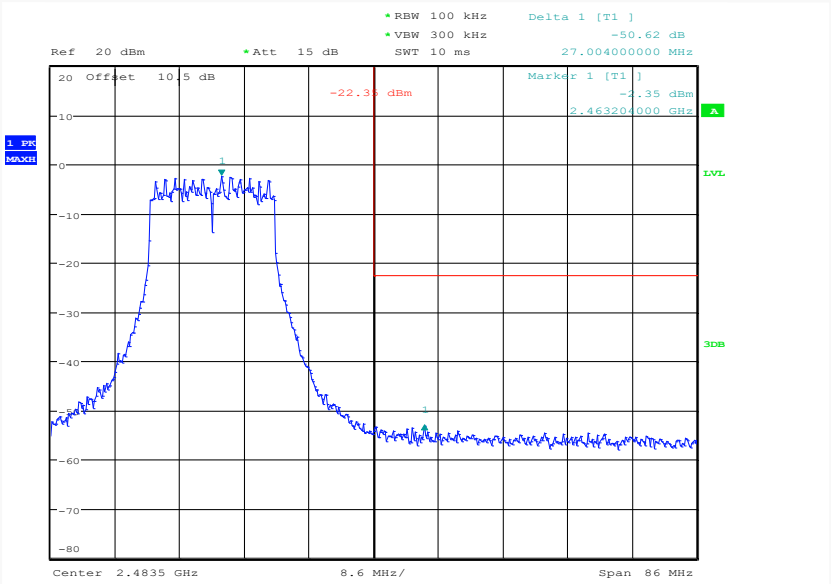
802.11g Mode Left Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 15:53:41

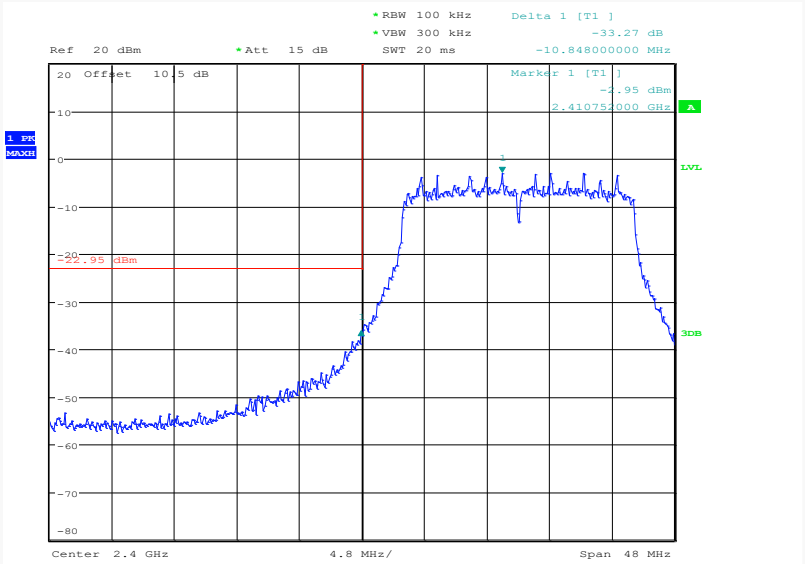
802.11g Mode Right Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 16:00:08

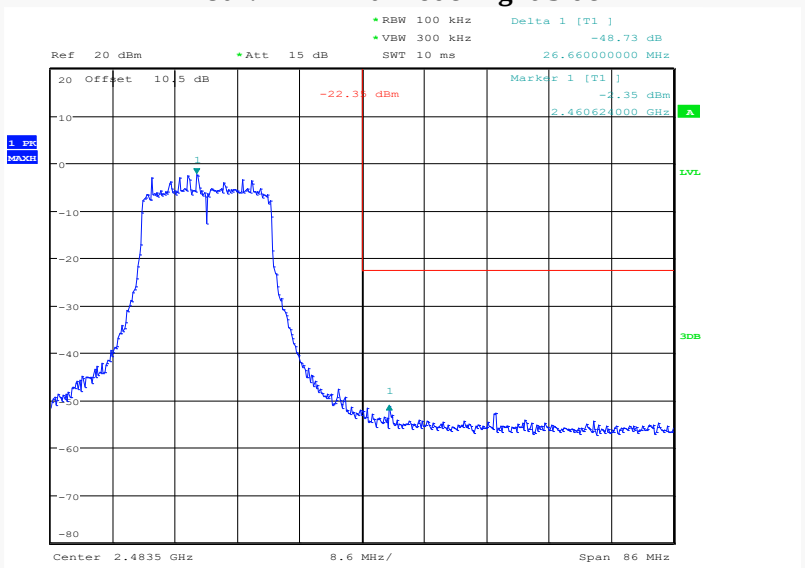
802.11n-HT20 Mode Left Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:02:50

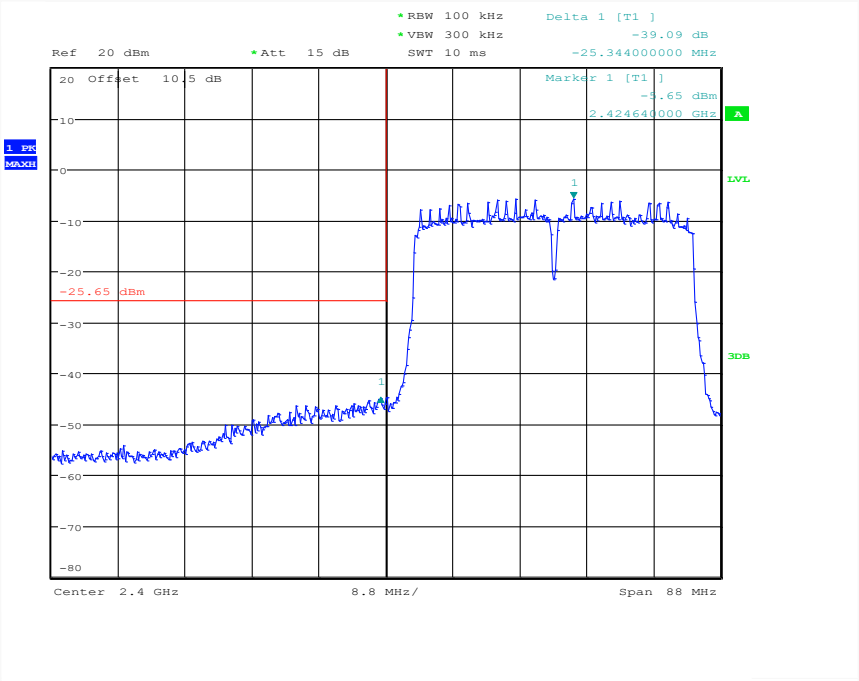
802.11n-HT20 Mode Right Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 17:56:42

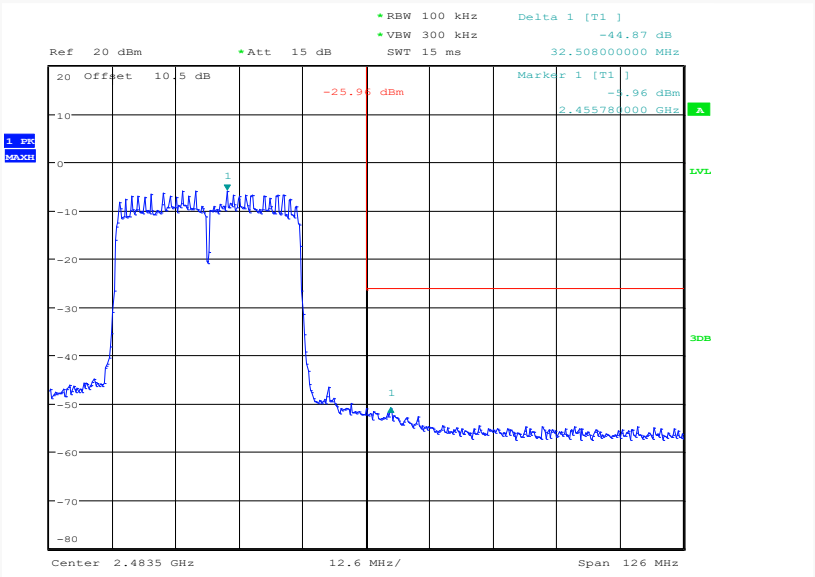
802.11n-HT40 Mode Right Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:08:16

802.11n-HT40 Mode Right Side

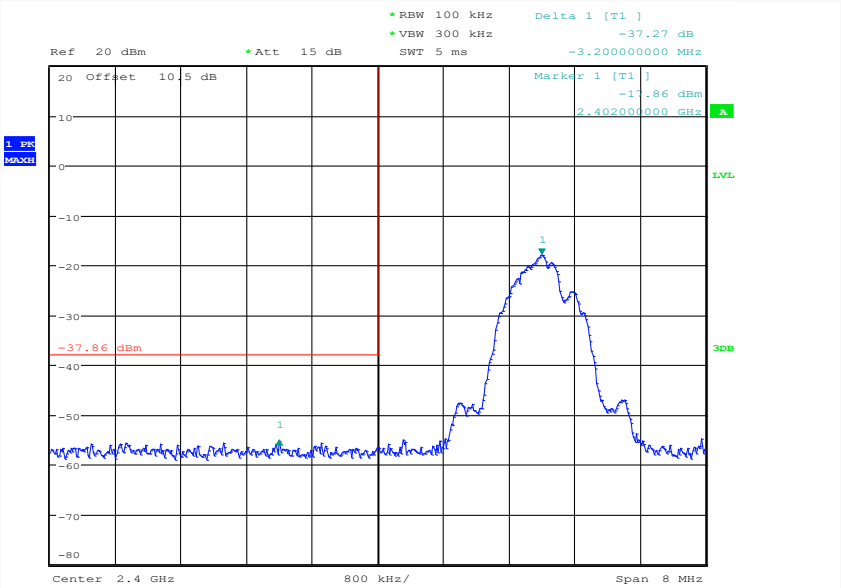


ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 18:15:31

BLE 1Mbps:

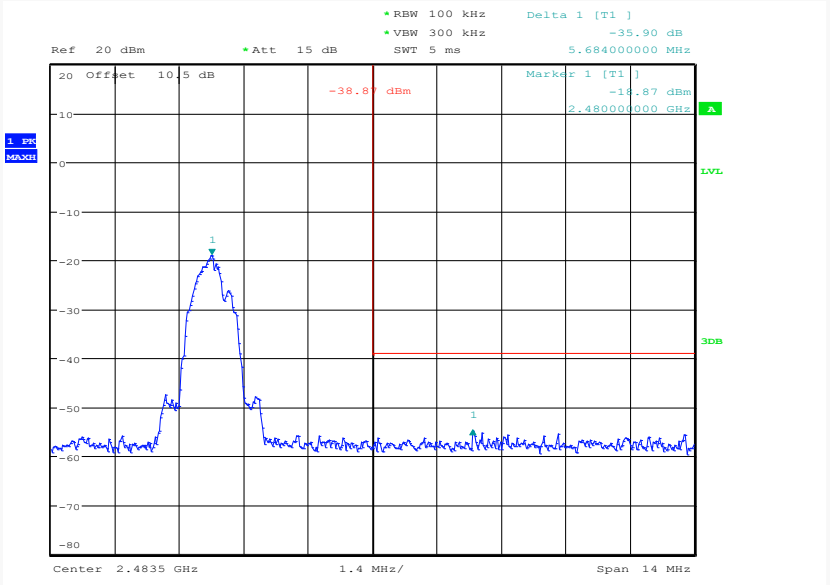
Left Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 19:55:01

Right Side



ProjectNo.:RSHA240229004 Tester:Hardy Huang

Date: 20.MAR.2024 19:59:52

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 *******