



FCC PART 15.247

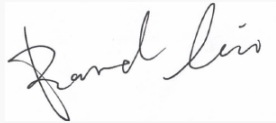

TEST REPORT

For

Waylens Inc.

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

FCC ID: 2AKAF-CAM17

Report Type: Original Report	Product Name: AI Recorder I
Report Number:	<u>RSHA240530002-00B</u>
Report Date:	<u>2024-07-30</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.

TABLE OF CONTENTS

REPORT REVISION HISTORY.....	4
GENERAL INFORMATION.....	5
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
OBJECTIVE	5
TEST METHODOLOGY	6
MEASUREMENT UNCERTAINTY	6
TEST FACILITY	6
SYSTEM TEST CONFIGURATION.....	7
DESCRIPTION OF TEST CONFIGURATION	7
EQUIPMENT MODIFICATIONS	7
EUT EXERCISE SOFTWARE	8
SUPPORT EQUIPMENT LIST AND DETAILS	12
EXTERNAL I/O CABLE.....	12
BLOCK DIAGRAM OF TEST SETUP	12
SUMMARY OF TEST RESULTS	14
TEST EQUIPMENT LIST	15
FCC §15.203 - ANTENNA REQUIREMENT.....	16
APPLICABLE STANDARD	16
ANTENNA CONNECTOR CONSTRUCTION	16
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS.....	17
APPLICABLE STANDARD	17
TEST SYSTEM SETUP.....	17
EMI TEST RECEIVER SETUP.....	18
TEST PROCEDURE	19
TEST RESULTS SUMMARY.....	19
TEST DATA: SEE APPENDIX	19
FCC §15.247(A) (2) - 6 DB EMISSION BANDWIDTH.....	20
APPLICABLE STANDARD	20
TEST PROCEDURE	20
TEST DATA: SEE APPENDIX	20
FCC §15.247(B) (3) - MAXIMUM CONDUCTED OUTPUT POWER	21
APPLICABLE STANDARD	21
TEST PROCEDURE	21
TEST DATA: SEE APPENDIX	21
FCC §15.247(D) – 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	22
APPLICABLE STANDARD	22
TEST PROCEDURE	22
TEST DATA: SEE APPENDIX	22
FCC §15.247(E) - POWER SPECTRAL DENSITY.....	23
APPLICABLE STANDARD	23
TEST PROCEDURE	23
TEST DATA: SEE APPENDIX	23
FCC §1.1310 & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)	24
APPLICABLE STANDARD	24
CALCULATED FORMULARY:.....	24
Appendix - TEST DATA.....	26
ENVIRONMENTAL CONDITIONS & TEST INFORMATION.....	26

SPURIOUS EMISSIONS	27
6 DB EMISSION BANDWIDTH	54
OCCUPIED BANDWIDTH	63
POWER SPECTRAL DENSITY	72
TRANSMITTER OUTPUT POWER MEASUREMENT	81
EUT PHOTOGRAPHS	89
TEST SETUP PHOTOGRAPHS	90

REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RSHA240530002-00B	R1V1	2024-07-30	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Waylens Inc.
Tested Model	CAM17
Product Name	AI Recorder I
Power Supply	DC 12V or DC 3.7V from battery
RF Function:	2.4G Wi-Fi; BLE
Operating Band/Frequency:	2.4G Wi-Fi: 2412~2462 MHz(802.11b/g/n20), 2422~2452 MHz(802.11n40) BLE(1Mbps): 2402-2480 MHz
Maximum Peak Output Power:	2.4G Wi-Fi: 802.11b: 20.39 dBm 802.11g: 23.65 dBm 802.11n20: 23.55 dBm 802.11n40: 23.74 dBm BLE(1Mbps): 3.70 dBm
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:	2.4G Wi-Fi /BLE: FPC Antenna
★Maximum Antenna Gain:	2.4G Wi-Fi /BLE: 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: RSHA240530002-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-05-30.)

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°C
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

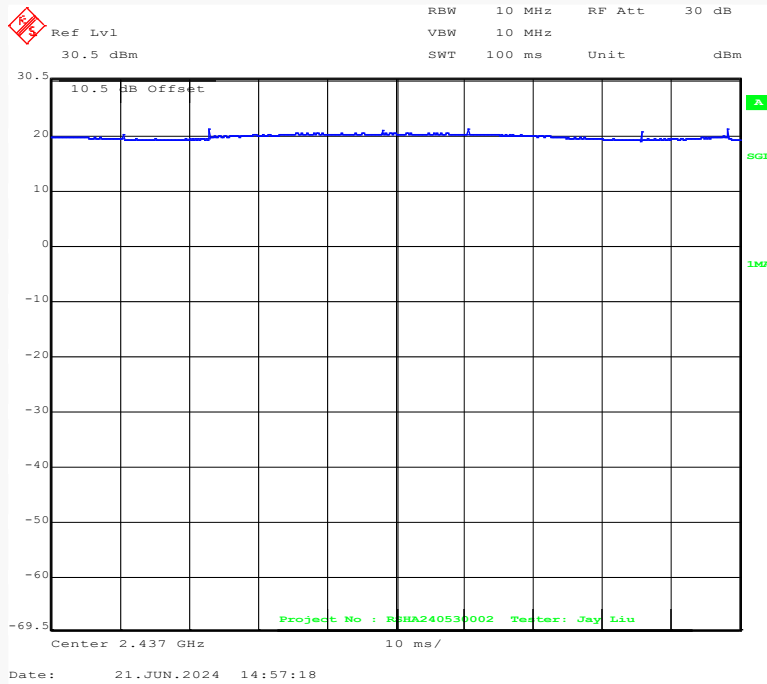
Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data Rate	★Power Level
802.11b	1 Mbps	44
802.11g	6 Mbps	44
802.11n-HT20	MCS0	44
802.11n-HT40	MCS0	44
BLE(1Mbps)	1Mbps	30

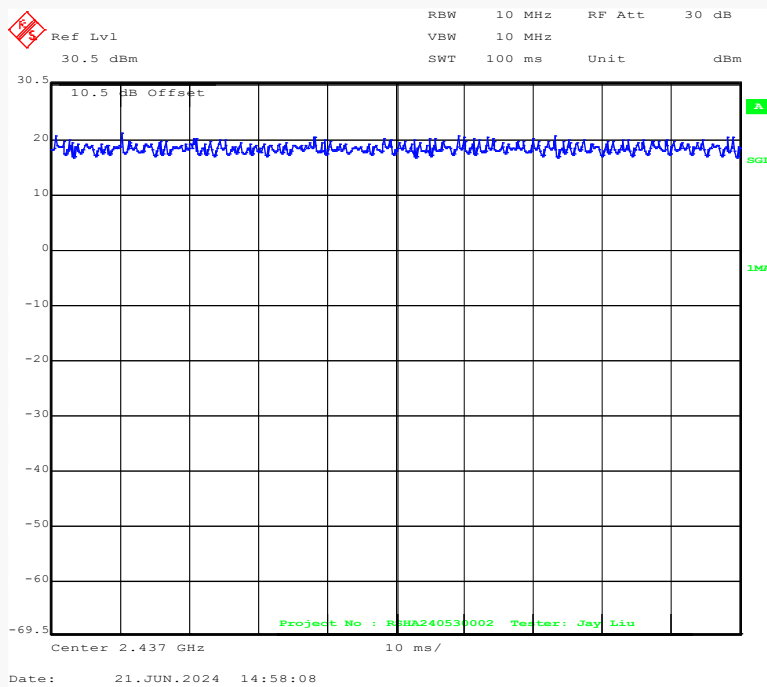
Note: The power level was declared by the applicant.

Duty Cycle:

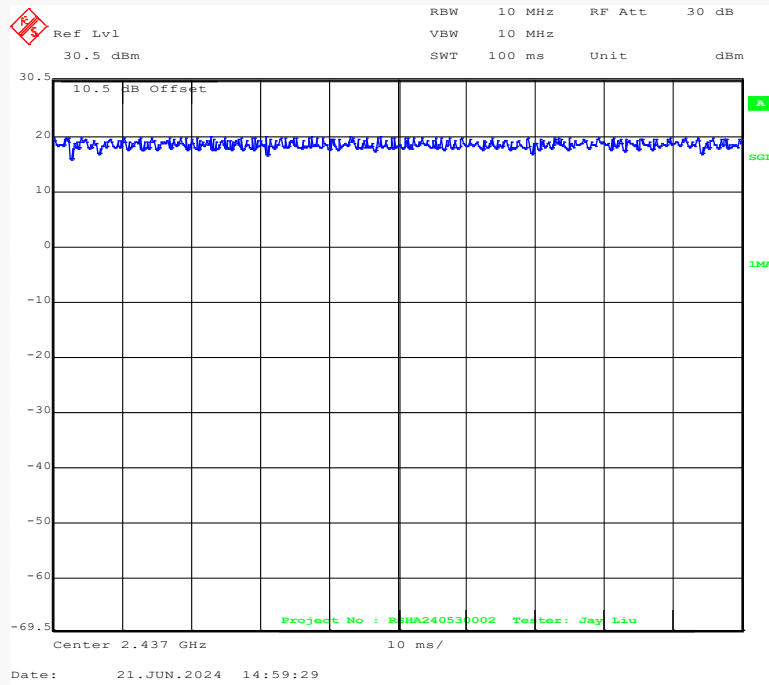
802.11b Mode Middle Channel



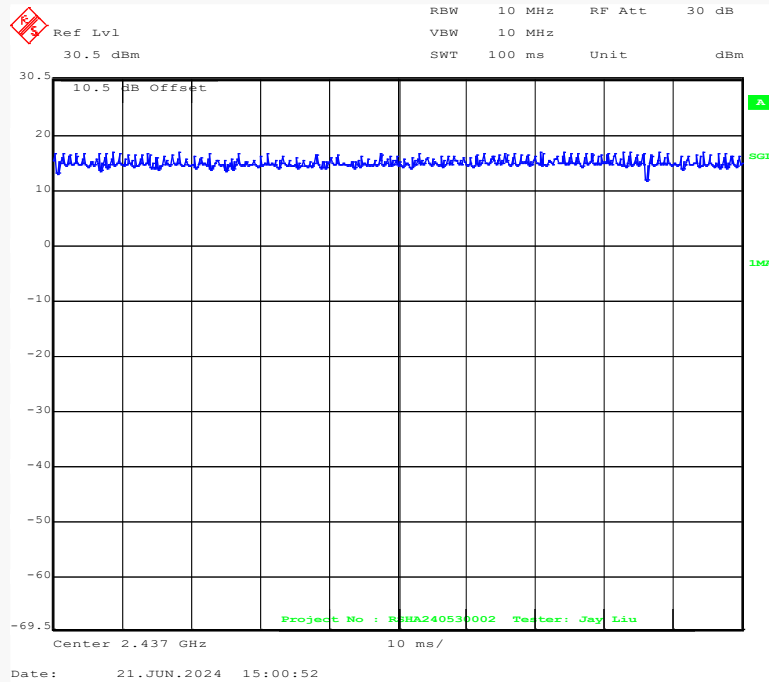
802.11g Mode Middle Channel



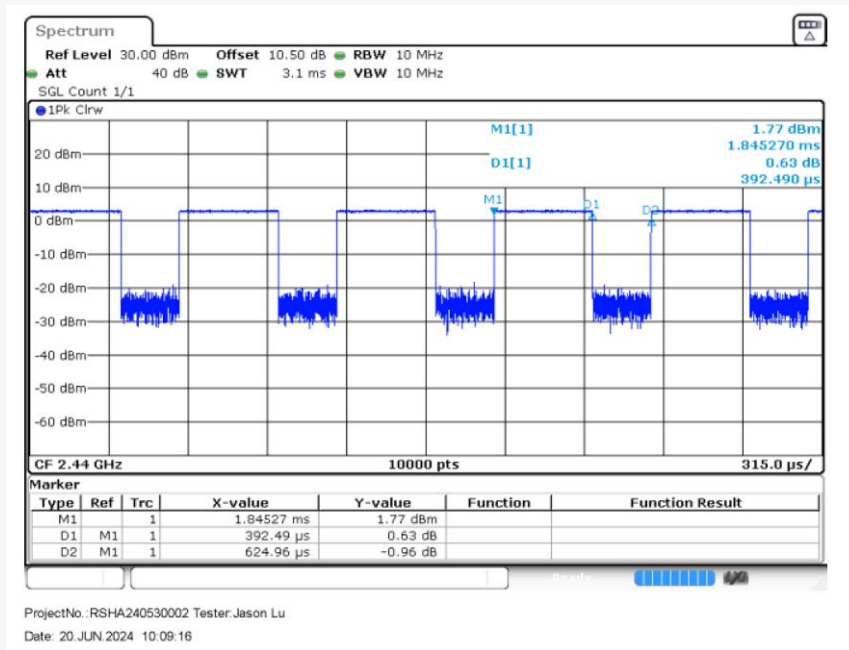
802.11n-HT20 Mode Middle Channel



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)	62.72	0.392	0.625	2.03

Note: “x” means the Duty Cycle.

Support Equipment List and Details

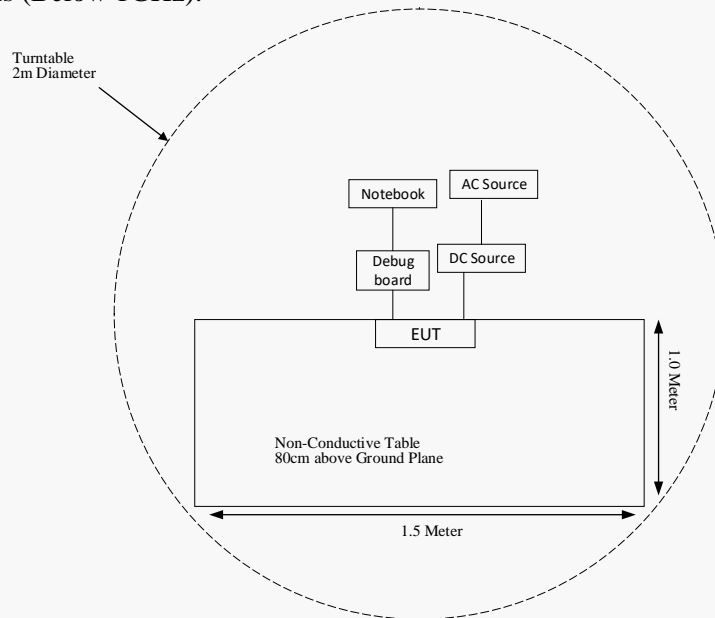
Manufacturer	Description	Model	Serial Number
Shenzhen Zhaoxin Electronic Instrument Equipment Co., Ltd.	DC Source	PS-6005D	18P6005D10724
/	Debug board	/	/
DELL	Notebook	015K3N	00190-098-766-241

External I/O Cable

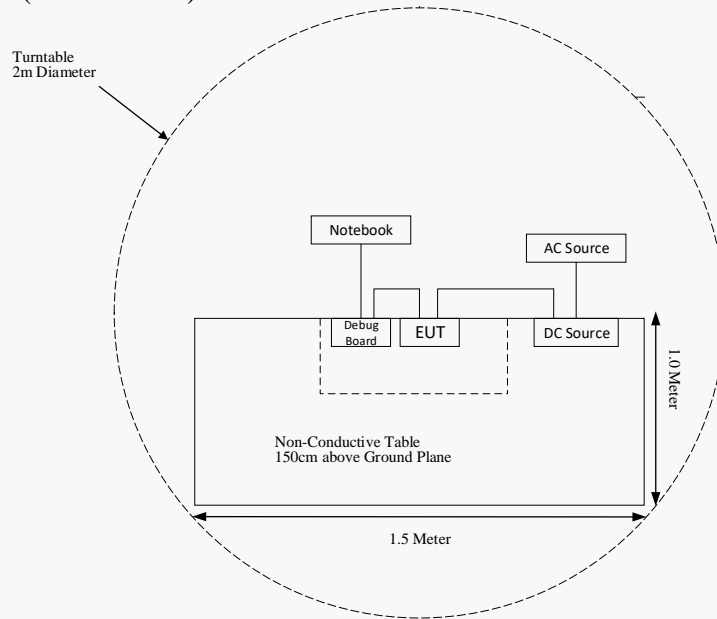
Cable Description	Length (m)	From Port	To
Power Cable 1	1.5	EUT	DC Source
Power Cable 2	1.0	DC Source	AC Source
USB Cable 1	0.2	EUT	Debug board
USB Cable 2	5.0	Debug board	Notebook

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
§15.247 (I), §1.1310 & §2.1091	Maximum Permissible Exposure (MPE)	Compliant

Note: The EUT is a vehicular equipment.

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	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	2024-04-23	2025-04-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
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
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
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	2024-04-25	2025-04-24
SELECTOR	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
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	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	FSV40-N	103298	2024-04-24	2025-04-23
Rohde & Schwarz	Spectrum Analyzer	FSIQ26	100048	2024-04-24	2025-04-23
Narda	Attenuator	10dB	010	2024-04-23	2025-04-22
Anritsu	Power Sensor	MA24418A	12621	2023-09-27	2024-09-26

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

Result: Compliant.

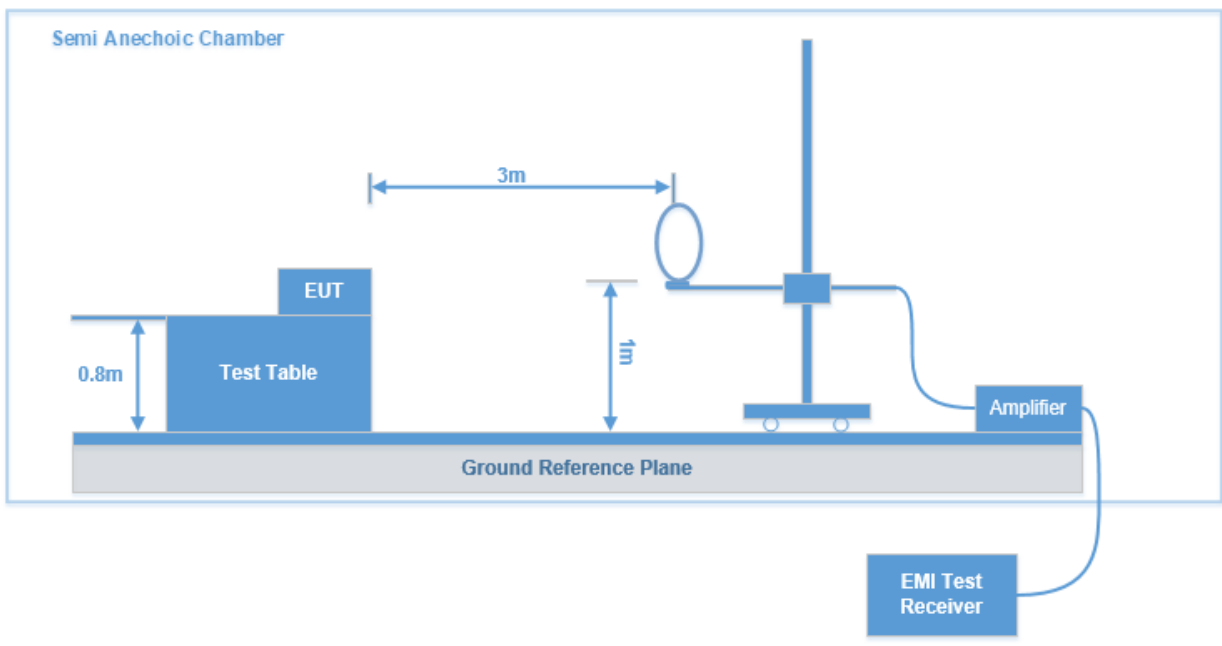
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

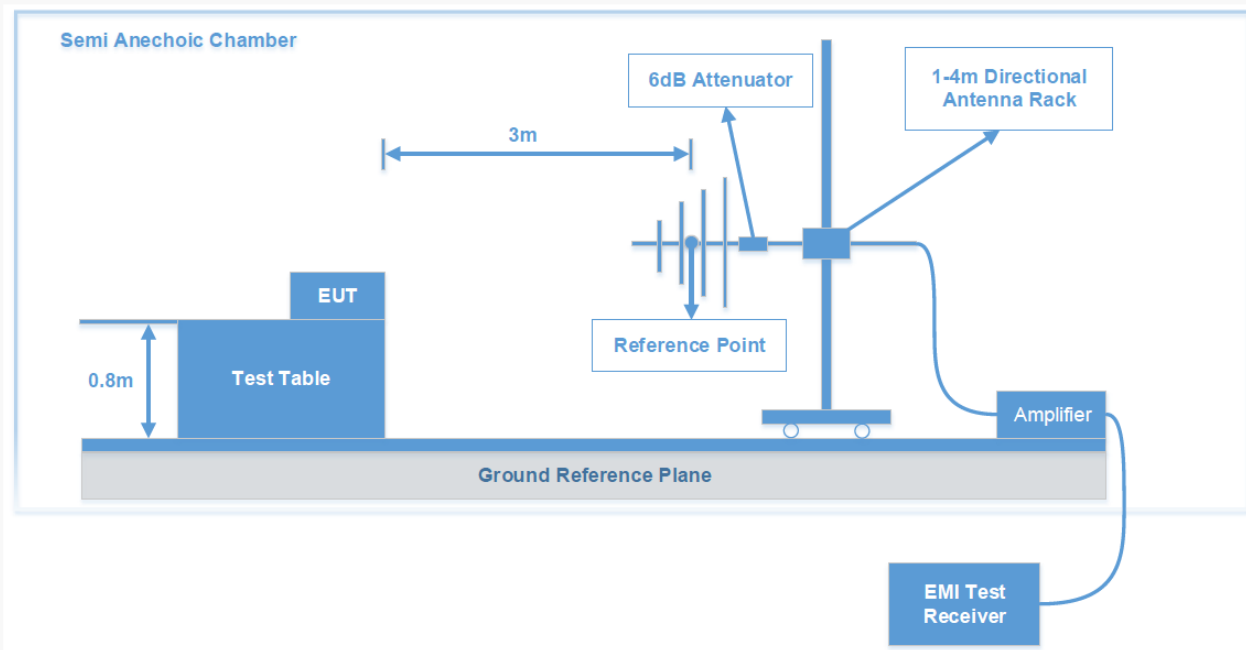
FCC §15.247 (d); §15.209; §15.205;

Test System Setup

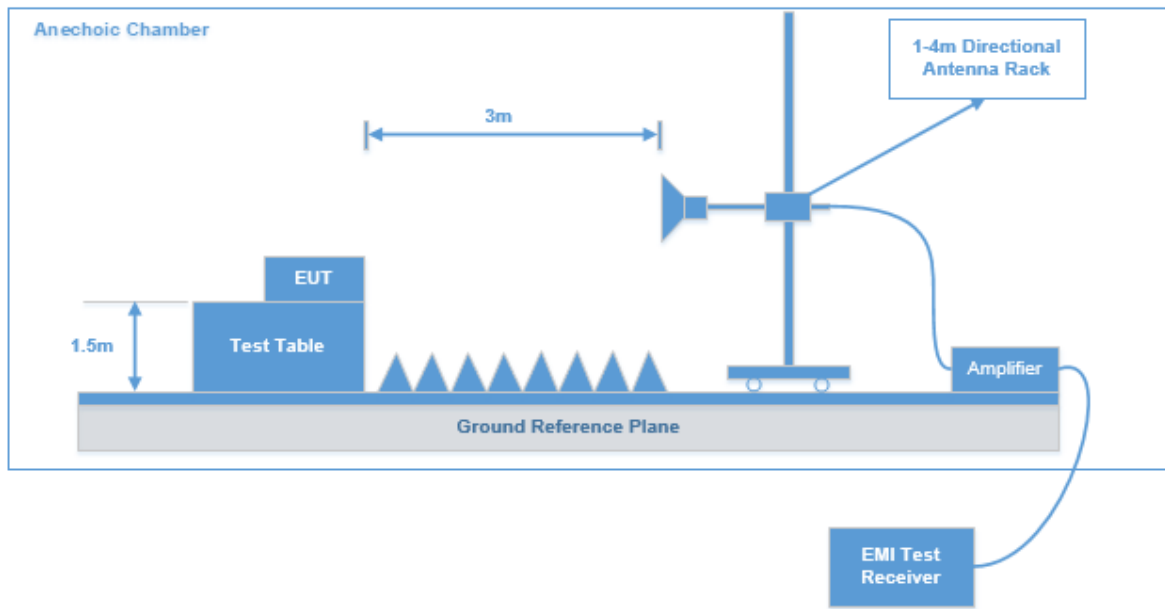
9 kHz-30MHz:



30MHz-1GHz:



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.

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.

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) + 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)

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

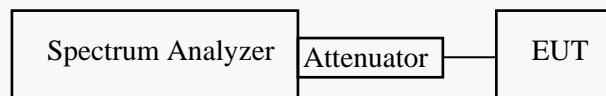
Applicable Standard

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

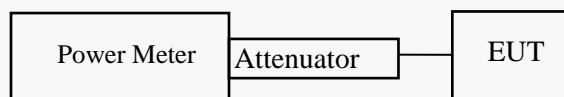
For 2.4G Wi-Fi:

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.

11.9.2.3.2 Method AVGPM-G

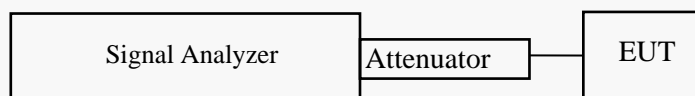
Method AVGPM-G is a measurement using a gated RF average power meter. Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level.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



For BLE:

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

1. Set the RBW \geq DTS bandwidth.
2. Set VBW $\geq 3 \times$ RBW.
3. Set span $\geq 3 \times$ 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

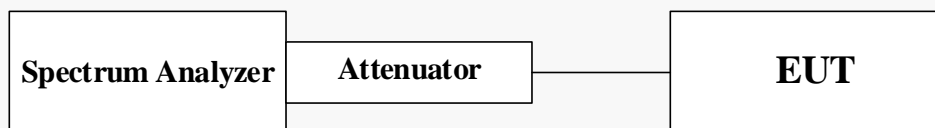
Applicable Standard

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.



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

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.



Test Data: See Appendix

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

Applicable Standard

According to subpart 15.247 (i) and subpart 1.1310, 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

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

Calculated Formulary:

Predication of MPE limit at a given distance

S = PG/4 π R² = 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:

$$\sum_i \frac{S_i}{S_{Limit,i}} \leq 1.0$$

Calculated Data:

Mode	Frequency Range (MHz)	Antenna Gain		Tune-up Output Power★		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)	MPE radio
		(dBi)	(numeric)	(dBm)	(mW)				
2.4G WIFI	2412~2462	2.93	1.96	24.0	251.19	20	0.0979	1.0	0.0979
BLE	2402-2480	2.93	1.96	4.0	2.51	20	0.0010	1.0	0.0010
BT	2402-2480	2.93	1.96	7.50	5.62	20	0.0022	1.0	0.0022
LTE Band 2	1850-1910	3.01	2.00	25.0	316.23	20	0.1258	1.0	0.1258
LTE Band 4	1710-1755	1.59	1.44	25.0	316.23	20	0.0906	1.0	0.0906
LTE Band 5	824-849	0.05	1.01	25.0	316.23	20	0.0636	0.5493	0.1158
LTE Band 12	699-716	-3.80	0.42	25.0	316.23	20	0.0262	0.4660	0.0562
LTE Band 17	704-716	-3.80	0.42	25.0	316.23	20	0.0262	0.4693	0.0558
LTE Band 66	1710-1780	1.84	1.53	25.0	316.23	20	0.0962	1.0	0.0962

Note:

1. For the above tune up power were declared by the manufacturer.
2. The devices contain certified WWAN Module, FCC ID: 2AKAF-MDM01
3. 2.4G Wi-Fi , LTE can transmit simultaneously (worst case) .

$$\sum_i \frac{S_i}{S_{Limit,i}} = 0.0979 + 0.1258 = 0.2237 < 1.0$$

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

Appendix - TEST DATA

Environmental Conditions & Test Information

Test Item:	DUTY CYCLE	
Test Date:	2024-06-20	2024-06-21
Temperature:	15.9 °C	20.3 °C
Relative Humidity:	45 %	52 %
ATM Pressure:	101.6kPa	101.1kPa
Test Result:	/	/
Test Engineer:	Jason Lu	Jay Liu

Test Item:	UNWANTED EMISSIONS & RESTRICTED FREQUENCY BANDS			6 DB EMISSION BANDWIDTH
	9kHz - 1GHz	1 GHz – 18 GHz	18 GHz – 25 GHz	
Test Date:	2024-06-11	2024-06-11	2024-06-28	2024-06-19~2024-06-20
Temperature:	24.5 °C	24.5 °C	25.5 °C	15.7~15.9 °C
Relative Humidity:	57 %	57 %	52 %	48~45 %
ATM Pressure:	100.6 kPa	100.6 kPa	100.5 kPa	100.4~101.6 kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Leah Li	Klein Zhu& Hugh Wu	Hugh Wu	Jason Lu

Test Item:	OCCUPIED BANDWIDTH	POWER SPECTRAL DENSITY	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS
Test Date:	2024-06-19~2024-06-20	2024-06-19~2024-07-18	2024-06-20	2024-06-19~2024-06-20
Temperature:	15.7~15.9 °C	15.7~20.6 °C	15.9 °C	15.7~15.9 °C
Relative Humidity:	48~45 %	48~47 %	45 %	48~45 %
ATM Pressure:	100.4~101.6 kPa	100.4~102.5 kPa	101.6 kPa	100.4~101.6 kPa
Test Result:	/	Pass	Pass	Pass
Test Engineer:	Jason Lu	Jason Lu	Jason Lu	Jason Lu

SPURIOUS EMISSIONS

Test Result: Compliant

EUT operation mode: Transmitting

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

9 kHz-30MHz: (Transmitting in maximum output power mode 802.11n-HT40 low channel)

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

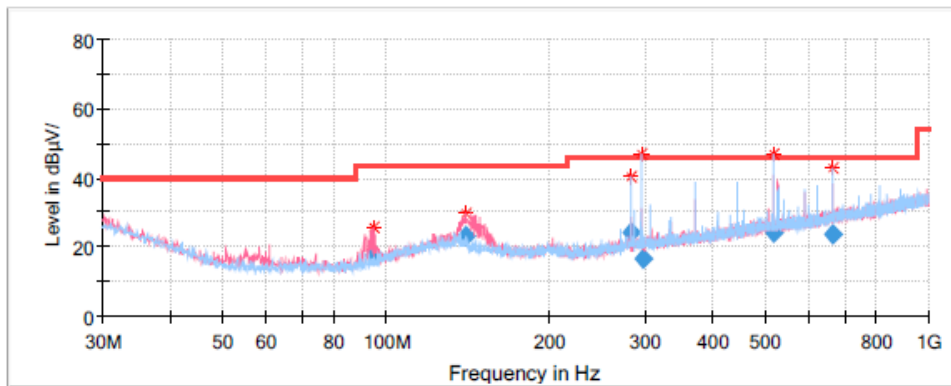
For Wi-Fi Mode:

30MHz-1GHz (802.11n-HT40 mode is worst case) :

Low channel: 2422MHz

Common Information

Project No:	RSHA240530002
EUT Model:	CAM17
Test Mode:	2.4G WIFI
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI, JB3, 310N
Temperature:	24.5°C
Humidity:	57%
Barometric Pressure:	100.6kPa
Test Engineer:	Leah Li
Test Date:	2024/6/11



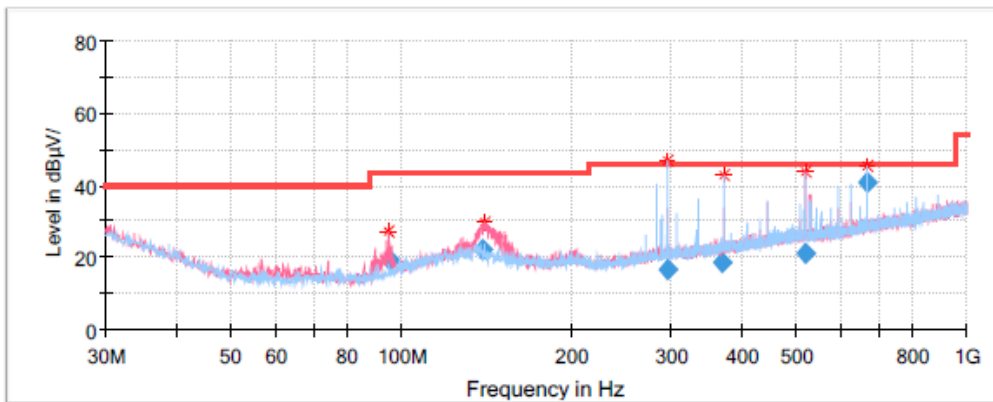
Final Result

Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
94.990000	17.78	43.50	25.72	V	-15.9
140.610750	23.21	43.50	20.29	V	-11.4
282.713500	24.32	46.00	21.68	H	-10.6
297.797000	16.80	46.00	29.20	H	-10.5
519.785250	23.97	46.00	22.03	H	-5.2
668.510850	23.58	46.00	22.42	H	-2.7

Middle channel: 2437MHz

Common Information

Project No: RSHA240530002
 EUT Model: CAM17
 Test Mode: 2.4G WIFI
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Equipment: ESCI, JB3, 310N
 Temperature: 24.5°C
 Humidity: 57%
 Barometric Pressure: 100.6kPa
 Test Engineer: Leah Li
 Test Date: 2024/6/11



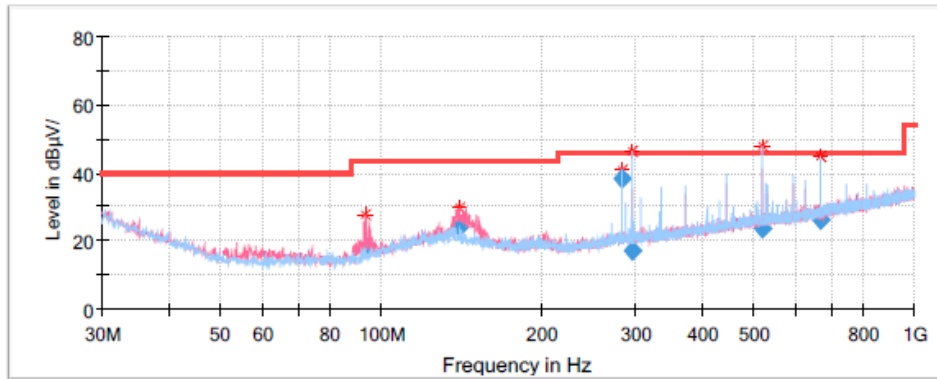
Final Result

Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
95.294100	19.36	43.50	24.14	V	-15.6
139.657700	22.21	43.50	21.29	V	-11.4
295.566500	16.63	46.00	29.37	H	-10.5
369.948450	18.64	46.00	27.36	H	-8.7
518.204250	21.22	46.00	24.78	V	-5.2
667.568850	40.62	46.00	5.38	H	-2.7

High Channel: 2452MHz

Common Information

Project No: RSHA240530002
 EUT Model: CAM17
 Test Mode: 2.4G WIFI
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Equipment: ESCI, JB3, 310N
 Temperature: 24.5°C
 Humidity: 57%
 Barometric Pressure: 100.6kPa
 Test Engineer: Leah Li
 Test Date: 2024/6/11



Final Result

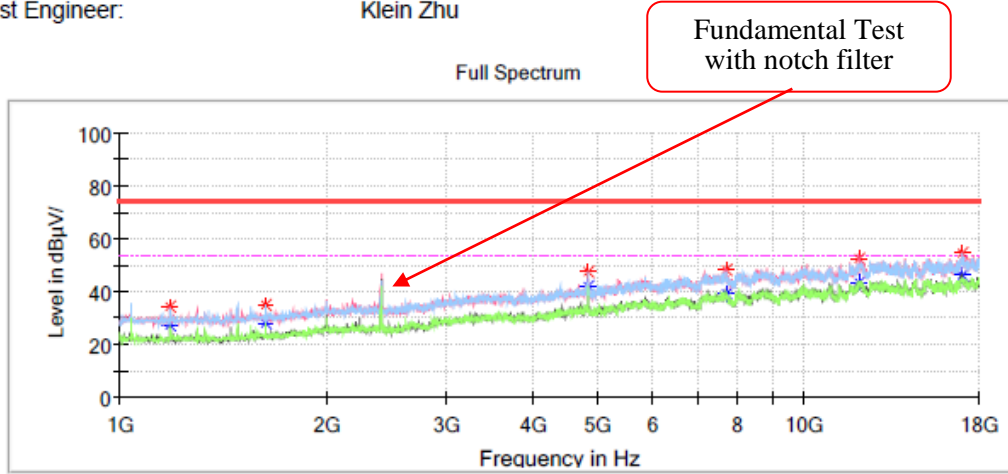
Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
94.101200	18.12	43.50	25.38	V	-15.9
140.241750	24.16	43.50	19.34	V	-11.4
282.620500	38.49	46.00	7.51	H	-10.6
295.988600	17.32	46.00	28.68	H	-10.5
519.437550	23.73	46.00	22.27	H	-5.2
667.930350	26.38	46.00	19.62	H	-2.7

**1GHz-18GHz:
802.11b Mode:**

Low Channel: 2412MHz

Common Information

Project No.: RSHA240530002
 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



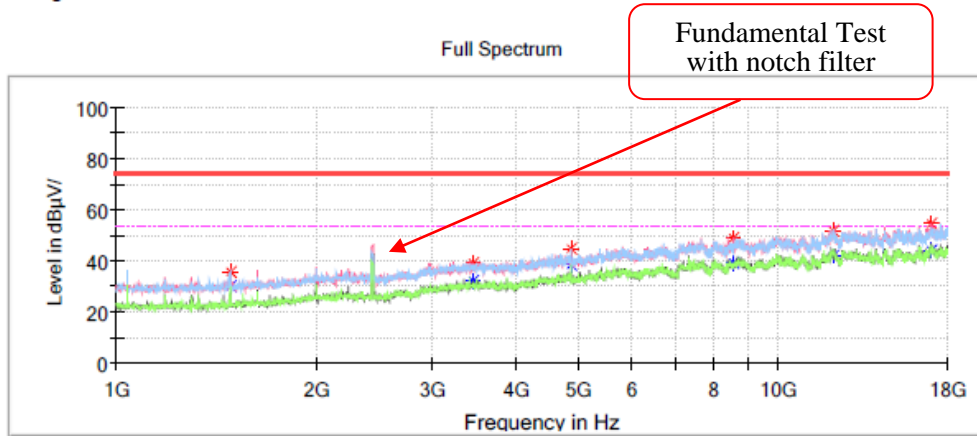
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	27.17	54.00	26.83	V	-15.2
1185.300000	34.47	---	74.00	39.53	V	-15.2
1630.700000	---	28.25	54.00	25.75	V	-13.9
1630.700000	35.02	---	74.00	38.98	V	-13.9
4823.300000	---	42.16	54.00	11.84	H	-3.1
4823.300000	47.49	---	74.00	26.51	H	-3.1
7696.300000	---	38.90	54.00	15.10	V	3.9
7696.300000	47.99	---	74.00	26.01	V	3.9
12063.600000	---	43.17	54.00	10.83	V	9.1
12063.600000	52.34	---	74.00	21.66	V	9.1
17025.900000	---	46.36	54.00	7.64	V	12.2
17025.900000	54.45	---	74.00	19.55	V	12.2

Middle Channel: 2437MHz

Common Information

Project No.: RSHA240530002
 Test Mode: 2.4G WIFI 802.11b mode of middle channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Klein Zhu



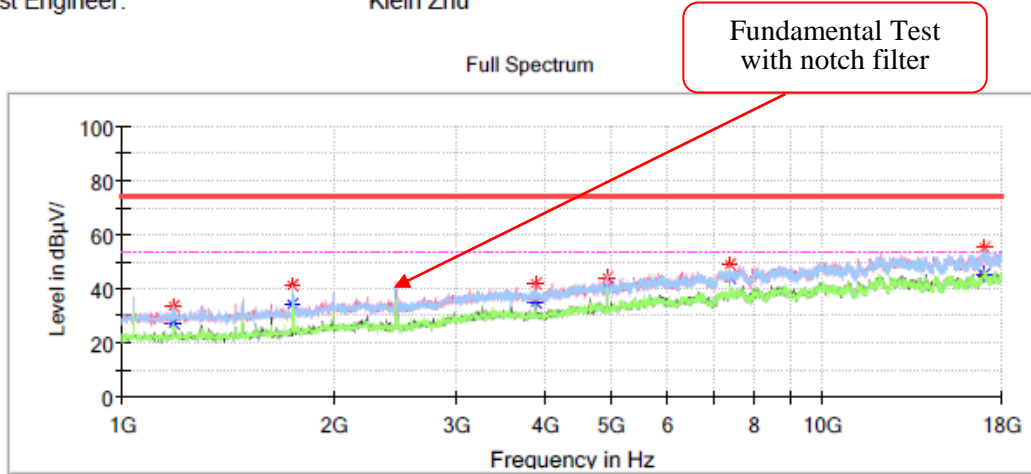
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1482.800000	35.99	---	74.00	38.01	H	-14.8
1482.800000	---	29.99	54.00	24.01	H	-14.8
3454.800000	---	32.16	54.00	21.84	V	-6.5
3454.800000	38.88	---	74.00	35.12	V	-6.5
4872.600000	44.49	---	74.00	29.51	H	-2.9
4872.600000	---	38.53	54.00	15.47	H	-2.9
8568.400000	48.62	---	74.00	25.38	V	5.4
8568.400000	---	39.46	54.00	14.54	V	5.4
12136.700000	---	41.91	54.00	12.09	H	9.2
12136.700000	52.09	---	74.00	21.91	H	9.2
17017.400000	---	44.00	54.00	10.00	V	12.3
17017.400000	54.41	---	74.00	19.59	V	12.3

High Channel: 2462MHz

Common Information

Project No.: RSHA240530002
 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)
1185.300000	---	27.38	54.00	26.62	H	-15.2
1185.300000	33.80	---	74.00	40.20	H	-15.2
1744.600000	---	34.01	54.00	19.99	H	-13.3
1744.600000	41.22	---	74.00	32.78	H	-13.3
3886.600000	---	34.73	54.00	19.27	V	-6.0
3886.600000	42.17	---	74.00	31.83	V	-6.0
4923.600000	---	40.31	54.00	13.69	H	-2.7
4923.600000	44.32	---	74.00	29.68	H	-2.7
7383.500000	---	44.09	54.00	9.91	V	3.6
7383.500000	48.95	---	74.00	25.05	V	3.6
17056.500000	---	45.29	54.00	8.71	V	12.2
17056.500000	55.04	---	74.00	18.96	V	12.2

802.11g Mode

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
Low Channel: 2412 MHz						
1294.100000	---	26.26	54.00	27.74	H	-15.0
1294.100000	34.02	---	74.00	39.98	H	-15.0
3322.200000	---	30.79	54.00	23.21	V	-7.1
3322.200000	39.99	---	74.00	34.01	V	-7.1
8605.800000	---	38.74	54.00	15.26	H	5.4
8605.800000	49.74	---	74.00	24.26	H	5.4
14008.400000	---	44.22	54.00	9.78	H	9.8
14008.400000	51.80	---	74.00	22.20	H	9.8
16303.400000	54.38	---	74.00	19.62	V	10.2
16303.400000	---	44.55	54.00	9.45	V	10.2
17600.500000	51.04	---	74.00	22.96	H	11.6
17600.500000	---	46.23	54.00	7.77	H	11.6
Middle Channel: 2437 MHz						
1333.200000	34.06	---	74.00	39.94	V	-15.0
1333.200000	---	25.61	54.00	28.39	V	-15.0
4427.200000	42.52	---	74.00	31.48	H	-4.5
4427.200000	---	32.69	54.00	21.31	H	-4.5
7143.800000	---	38.08	54.00	15.92	H	3.0
7143.800000	46.95	---	74.00	27.05	H	3.0
11201.700000	48.91	---	74.00	25.09	V	7.9
11201.700000	---	40.78	54.00	13.22	V	7.9
14487.800000	52.29	---	74.00	21.71	H	9.4
14487.800000	---	43.94	54.00	10.06	H	9.4
17059.900000	---	44.05	54.00	9.95	H	12.2
17059.900000	53.23	---	74.00	20.77	H	12.2
High Channel: 2462 MHz						
1482.800000	34.92	---	74.00	39.08	H	-14.8
1482.800000	---	27.30	54.00	26.70	H	-14.8
3310.300000	---	29.93	54.00	24.07	H	-7.1
3310.300000	38.36	---	74.00	35.64	H	-7.1
4938.900000	42.23	---	74.00	31.77	V	-2.7
4938.900000	---	31.89	54.00	22.11	V	-2.7
10081.400000	---	39.30	54.00	14.70	H	7.1
10081.400000	49.79	---	74.00	24.21	H	7.1
14001.600000	51.28	---	74.00	22.72	V	9.8
14001.600000	---	44.53	54.00	9.47	V	9.8
16310.200000	---	44.57	54.00	9.43	H	10.3
16310.200000	54.11	---	74.00	19.89	H	10.3

802.11n20 Mode

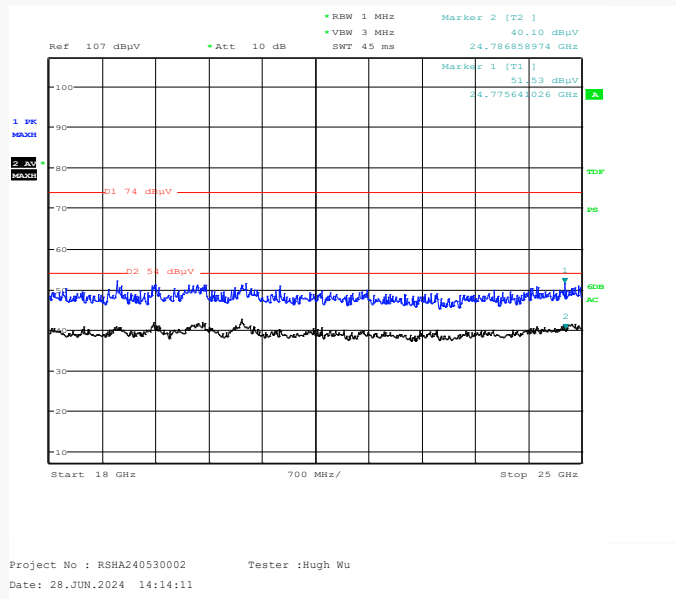
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
Low Channel: 2412 MHz						
1482.800000	34.77	---	74.00	39.23	H	-14.8
1482.800000	---	27.35	54.00	26.65	H	-14.8
4704.300000	42.86	---	74.00	31.14	H	-3.5
4704.300000	---	33.04	54.00	20.96	H	-3.5
8053.300000	47.41	---	74.00	26.59	H	4.1
8053.300000	---	38.71	54.00	15.29	H	4.1
11269.700000	51.18	---	74.00	22.82	V	8.1
11269.700000	---	40.79	54.00	13.21	V	8.1
14486.100000	52.33	---	74.00	21.67	H	9.4
14486.100000	---	43.25	54.00	10.75	H	9.4
17116.000000	---	44.03	54.00	9.97	V	12.1
17116.000000	53.63	---	74.00	20.37	V	12.1
Middle Channel: 2437 MHz						
1482.800000	33.29	---	74.00	40.71	V	-14.8
1482.800000	---	27.29	54.00	26.71	V	-14.8
4298.000000	---	33.43	54.00	20.57	H	-4.9
4298.000000	41.66	---	74.00	32.34	H	-4.9
6309.100000	46.40	---	74.00	27.60	H	0.3
6309.100000	---	35.74	54.00	18.26	H	0.3
12101.000000	51.37	---	74.00	22.63	H	9.1
12101.000000	---	43.05	54.00	10.95	H	9.1
14489.500000	51.88	---	74.00	22.12	V	9.4
14489.500000	---	44.28	54.00	9.72	V	9.4
17612.400000	---	44.49	54.00	9.51	H	11.6
17612.400000	54.41	---	74.00	19.59	H	11.6
High Channel: 2462 MHz						
1226.100000	---	22.81	54.00	31.19	H	-15.1
1226.100000	30.58	---	74.00	43.42	H	-15.1
3595.900000	39.13	---	74.00	34.87	H	-6.3
3595.900000	---	29.80	54.00	24.20	H	-6.3
8906.700000	48.27	---	74.00	25.73	V	5.4
8906.700000	---	39.00	54.00	15.00	V	5.4
11662.400000	---	40.84	54.00	13.16	H	8.9
11662.400000	49.12	---	74.00	24.88	H	8.9
15239.200000	51.65	---	74.00	22.35	V	9.6
15239.200000	---	42.47	54.00	11.53	V	9.6
17569.900000	---	44.08	54.00	9.92	H	11.6
17569.900000	53.82	---	74.00	20.18	H	11.6

802.11n40 Mode

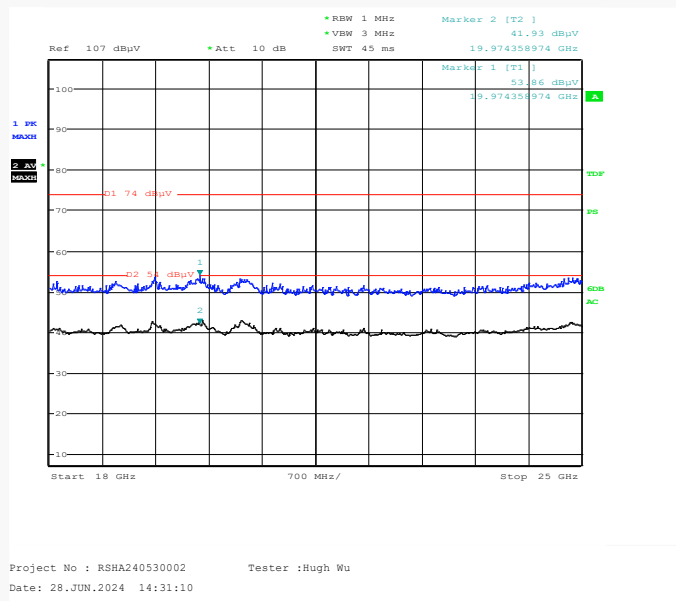
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
Low Channel: 2422MHz						
1294.100000	32.92	---	74.00	41.08	H	-15.0
1294.100000	---	27.37	54.00	26.63	H	-15.0
3422.500000	40.54	---	74.00	33.46	V	-6.7
3422.500000	---	31.59	54.00	22.41	V	-6.7
6389.000000	45.84	---	74.00	28.16	H	0.4
6389.000000	---	36.79	54.00	17.21	H	0.4
8820.000000	47.65	---	74.00	26.35	V	5.4
8820.000000	---	40.42	54.00	13.58	V	5.4
14001.600000	53.05	---	74.00	20.95	H	9.8
14001.600000	---	44.95	54.00	9.05	H	9.8
17059.900000	---	44.41	54.00	9.59	H	12.2
17059.900000	54.62	---	74.00	19.38	H	12.2
Middle Channel: 2437 MHz						
1482.800000	35.08	---	74.00	38.92	H	-14.8
1482.800000	---	28.00	54.00	26.00	H	-14.8
3395.300000	---	30.02	54.00	23.98	V	-6.8
3395.300000	38.97	---	74.00	35.03	V	-6.8
4527.500000	42.25	---	74.00	31.75	V	-4.2
4527.500000	---	33.78	54.00	20.22	V	-4.2
8049.900000	47.46	---	74.00	26.54	V	4.1
8049.900000	---	38.83	54.00	15.17	V	4.1
14052.600000	53.02	---	74.00	20.98	V	9.8
14052.600000	---	43.08	54.00	10.92	V	9.8
17085.400000	---	44.79	54.00	9.21	H	12.2
17085.400000	54.81	---	74.00	19.19	H	12.2
High Channel: 2452 MHz						
1482.800000	36.43	---	74.00	37.57	H	-14.8
1482.800000	---	29.23	54.00	24.77	H	-14.8
5448.900000	---	36.46	54.00	17.54	V	-0.5
5448.900000	43.69	---	74.00	30.31	V	-0.5
7730.300000	49.13	---	74.00	24.87	V	3.9
7730.300000	---	38.33	54.00	15.67	V	3.9
12706.200000	---	43.00	54.00	11.00	H	9.7
12706.200000	52.43	---	74.00	21.57	H	9.7
15278.300000	53.27	---	74.00	20.73	V	9.6
15278.300000	---	44.19	54.00	9.81	V	9.6
17151.700000	51.85	---	74.00	22.15	V	12.1
17151.700000	---	46.81	54.00	7.19	V	12.1

18GHz-25GHz: Transmitting in maximum output power 802.11n-HT40 mode low channel

Horizontal



Vertical



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

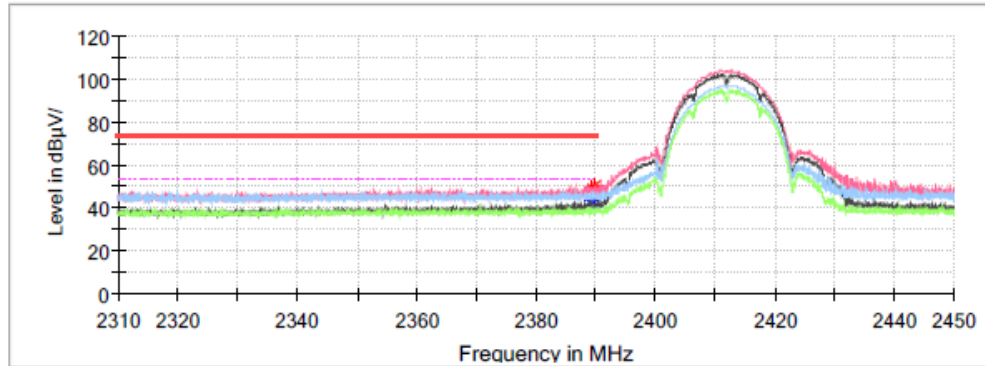
Band Edge:
802.11b Mode:

Low Channel

Common Information

Project No.: RSHA240530002
 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: Hugh Wu

Full Spectrum



Critical_Freqs

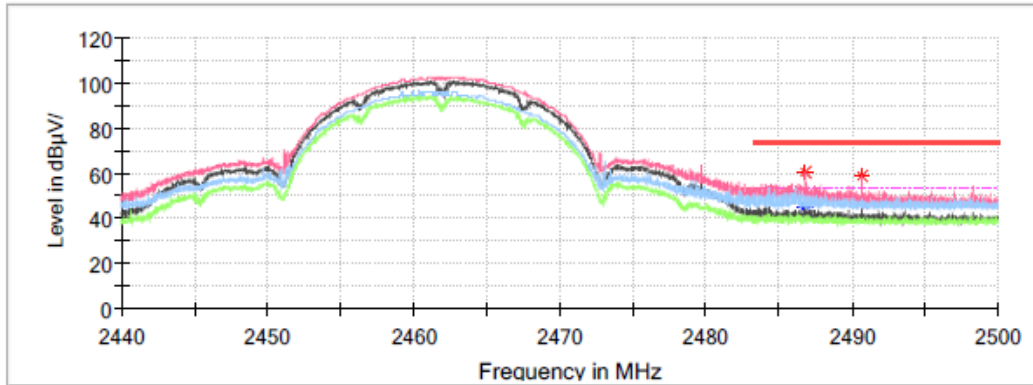
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.436000	49.12	--	74.00	24.88	V	-0.6
2389.436000	--	43.40	54.00	10.60	V	-0.6
2389.982000	50.33	--	74.00	23.67	V	-0.6
2389.982000	--	40.88	54.00	13.12	V	-0.6

High Channel

Common Information

Project No.: RSHA240530002
 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

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)
2486.782000	60.54	---	74.00	13.46	V	-0.2
2486.782000	---	45.55	54.00	8.45	V	-0.2
2490.724000	58.47	---	74.00	15.53	V	-0.2
2490.724000	---	47.17	54.00	6.83	V	-0.2

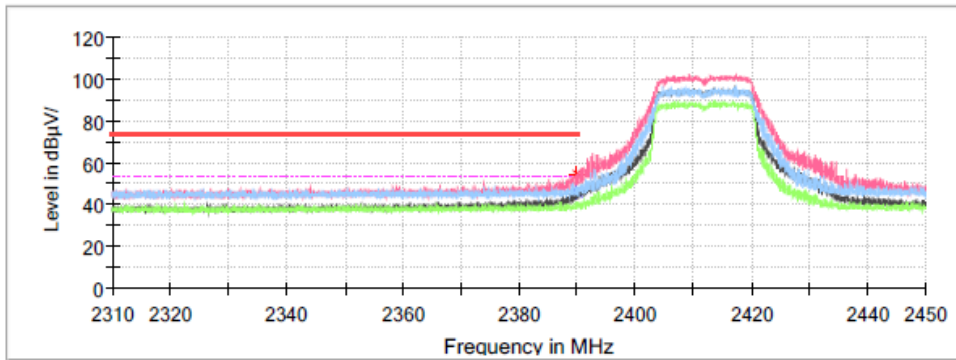
802.11g Mode :

Low Channel

Common Information

Project No.: RSHA240530002
 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: Hugh Wu

Full Spectrum



Critical Freqs

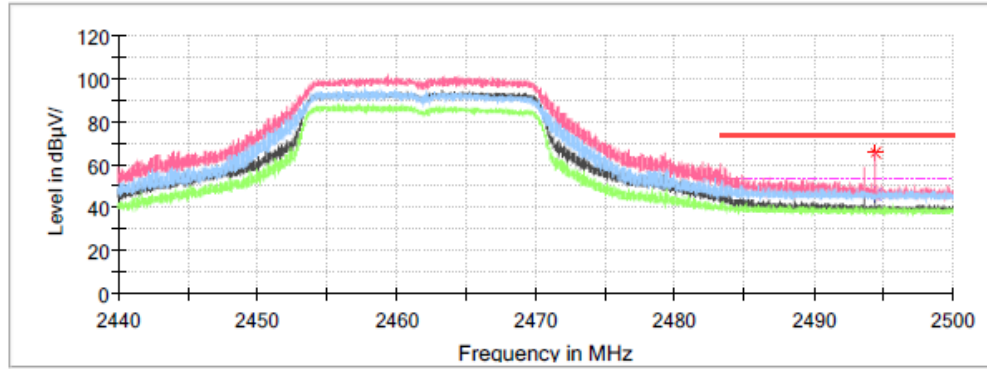
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.982000	---	46.25	54.00	7.75	V	-0.6
2389.982000	54.37	---	74.00	19.63	V	-0.6

High Channel

Common Information

Project No.: RSHA240530002
 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: 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)
2494.384000	--	46.32	54.00	7.68	V	-0.2
2494.384000	65.70	--	74.00	8.30	V	-0.2

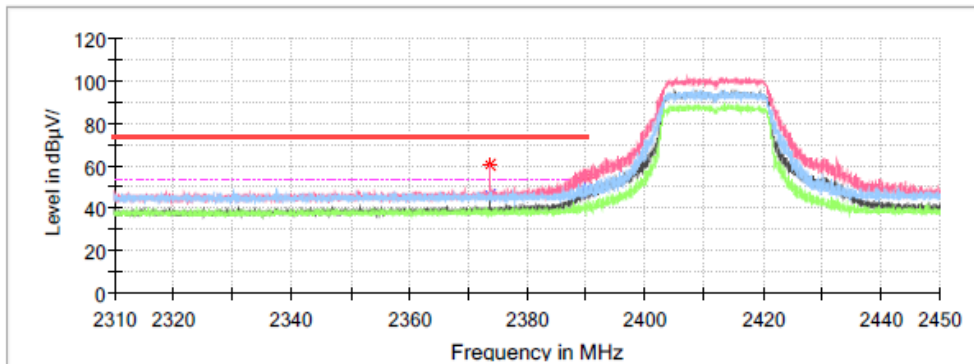
802.11n-HT20 Mode:

Low Channel

Common Information

Project No.: RSHA240530002
 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: Hugh Wu

Full Spectrum



Critical Freqs

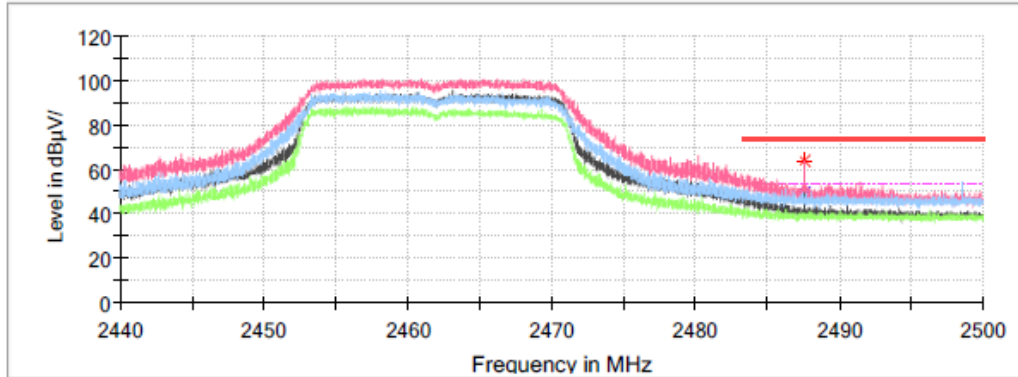
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2373.686000	60.58	---	74.00	13.42	V	-0.6
2373.686000	---	46.03	54.00	7.97	V	-0.6
2389.842000	54.89	---	74.00	19.11	V	-0.6
2389.842000	---	49.00	54.00	5.00	V	-0.6

High Channel

Common Information

Project No.: RSHA240530002
 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: 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)
2487.622000	---	49.23	54.00	4.77	V	-0.2
2487.622000	63.70	---	74.00	10.30	V	-0.2

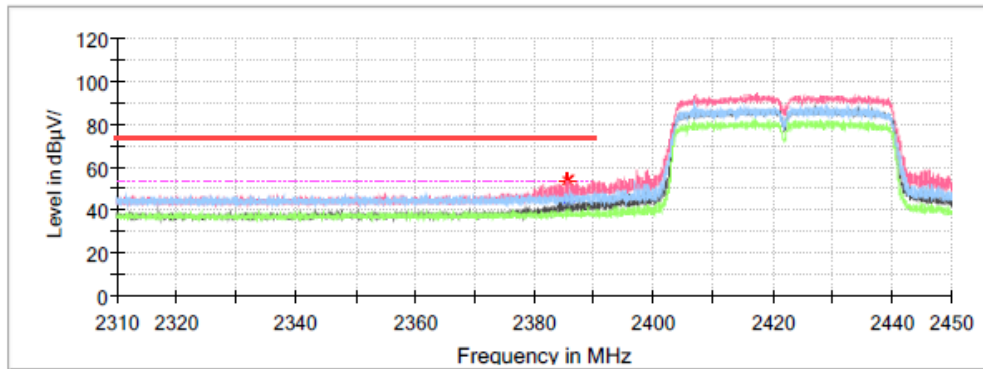
802.11n-HT40 Mode:

Low Channel

Common Information

Project No.: RSHA240530002
 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: Hugh Wu

Full Spectrum



Critical_Freqs

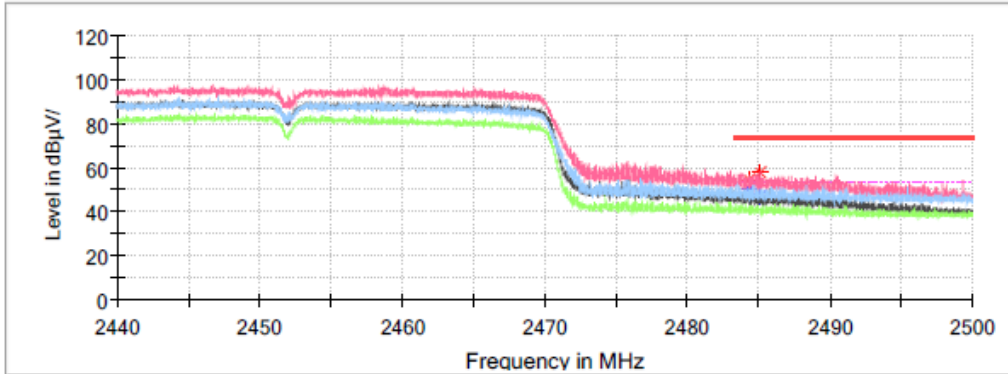
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2385.446000	53.92	---	74.00	20.08	V	-0.6
2385.446000	---	44.78	54.00	9.22	V	-0.6
2385.698000	53.76	---	74.00	20.24	V	-0.6
2385.698000	---	45.93	54.00	8.07	V	-0.6

High Channel

Common Information

Project No.: RSHA240530002
 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: 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)
2484.382000	54.18	---	74.00	19.82	V	-0.3
2484.382000	---	49.94	54.00	4.06	V	-0.3
2485.138000	---	46.67	54.00	7.33	V	-0.3
2485.138000	57.59	---	74.00	16.41	V	-0.3

For BLE Mode:

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

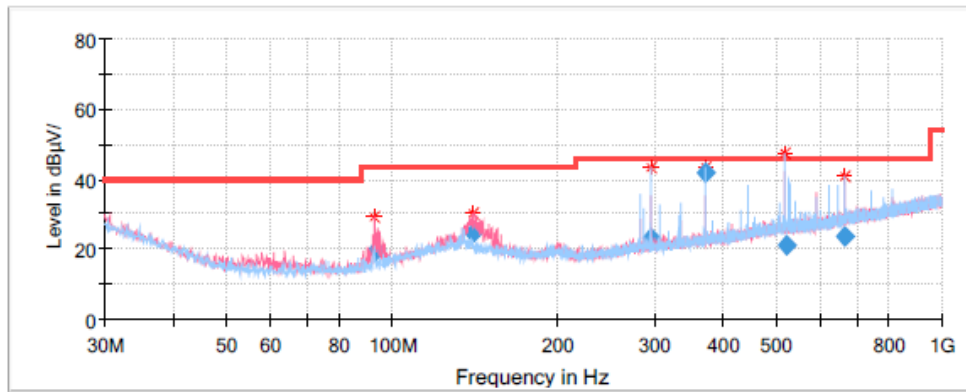
The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

30MHz-1GHz

Low Channel: 2402MHz

Common Information

Project No: RSHA240530002
 EUT Model: CAM17
 Test Mode: BLE 1M
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Equipment: ESCI, JB3, 310N
 Temperature: 24.5°C
 Humidity: 57%
 Barometric Pressure: 100.6kPa
 Test Engineer: Leah Li
 Test Date: 2024/6/11



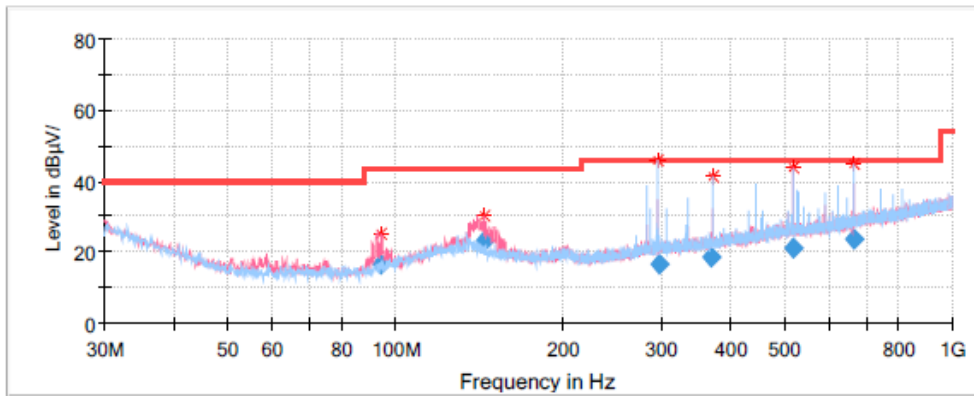
Final Result

Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
93.822500	19.64	43.50	23.86	V	-16.0
140.467250	24.54	43.50	18.96	V	-11.4
296.871200	23.25	46.00	22.75	H	-10.5
370.861050	41.57	46.00	4.43	H	-8.7
520.343850	21.31	46.00	24.69	H	-5.2
666.744750	23.69	46.00	22.31	H	-2.7

Middle Channel: 2440MHz

Common Information

Project No: RSHA240530002
 EUT Model: CAM17
 Test Mode: BLE 1M
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Equipment: ESCI, JB3, 310N
 Temperature: 24.5°C
 Humidity: 57%
 Barometric Pressure: 100.6kPa
 Test Engineer: Leah Li
 Test Date: 2024/6/11



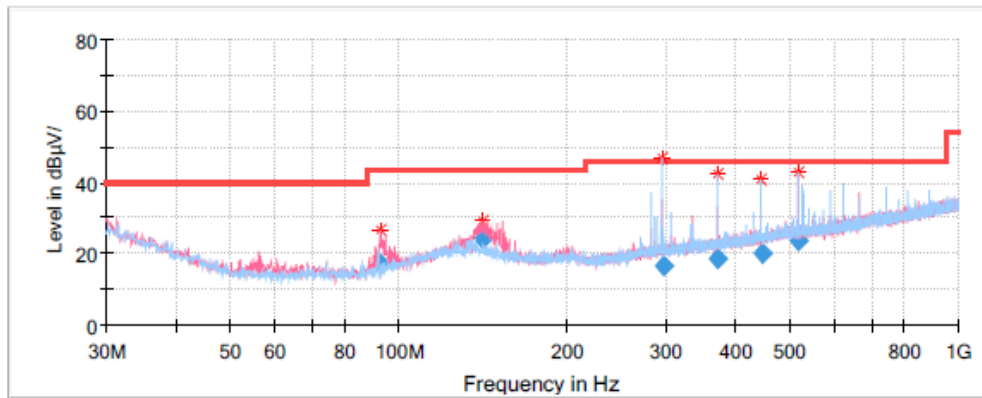
Final Result

Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
94.503650	16.46	43.50	27.04	V	-15.8
144.076150	23.16	43.50	20.34	V	-11.6
297.039200	16.65	46.00	29.35	H	-10.5
370.169850	18.50	46.00	27.50	H	-8.7
518.277150	21.16	46.00	24.84	V	-5.2
666.715650	23.55	46.00	22.45	H	-2.7

High Channel: 2480MHz

Common Information

Project No: RSHA240530002
 EUT Model: CAM17
 Test Mode: BLE 1M
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Equipment: ESCI, JB3, 310N
 Temperature: 24.5°C
 Humidity: 57%
 Barometric Pressure: 100.6kPa
 Test Engineer: Leah Li
 Test Date: 2024/6/11



Final Result

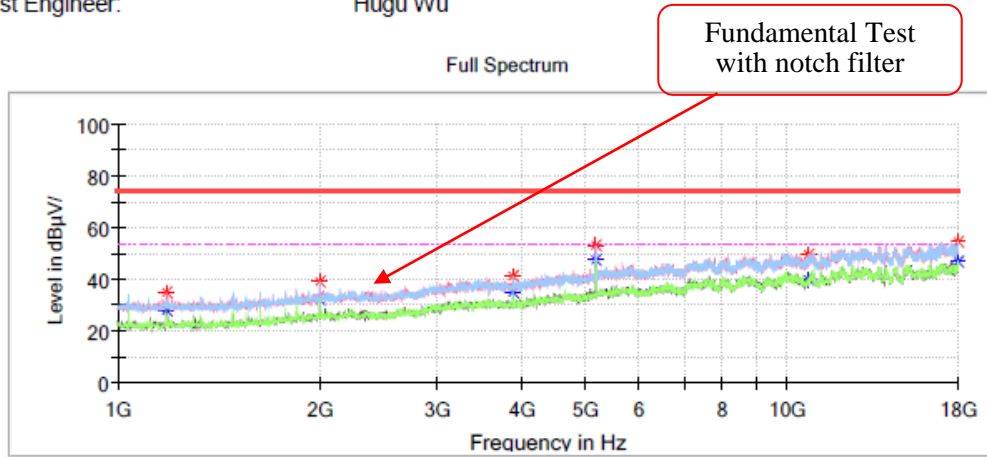
Frequency (MHz)	Corrected Amplitude QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Pol	Corr. (dB/m)
92.949950	16.88	43.50	26.62	V	-16.2
141.300000	23.96	43.50	19.54	V	-11.4
297.896300	16.63	46.00	29.37	H	-10.5
371.957250	18.73	46.00	27.27	H	-8.7
445.675650	20.21	46.00	25.79	H	-6.8
518.765250	23.40	46.00	22.60	V	-5.2

1GHz-18GHz:

Low Channel: 2402MHz

Common Information

Project No.: RSHA240530002
 Test Mode: BLE mode of low channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugu Wu



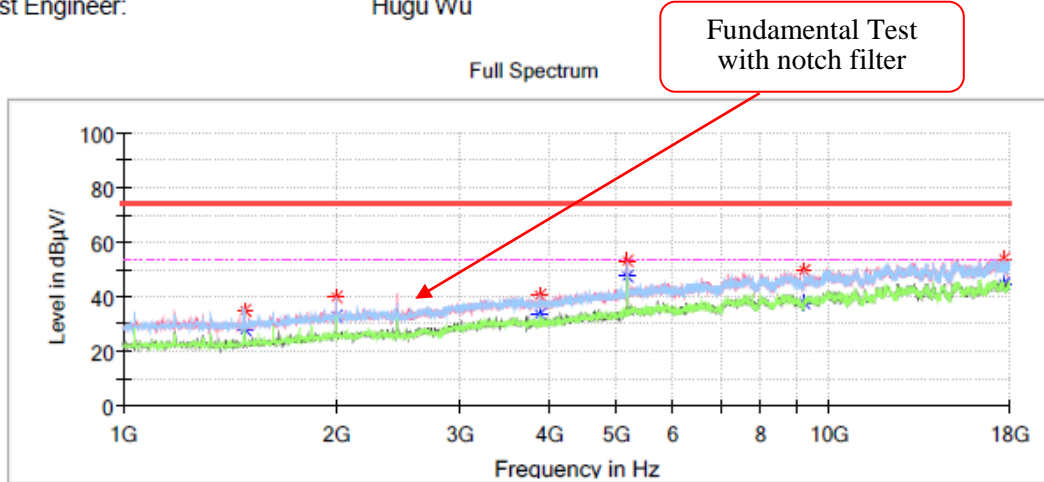
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	28.22	54.00	25.78	V	-15.2
1185.300000	34.72	---	74.00	39.28	V	-15.2
2001.300000	---	32.26	54.00	21.74	H	-11.7
2001.300000	38.89	---	74.00	35.11	H	-11.7
3886.600000	---	34.91	54.00	19.09	H	-6.0
3886.600000	41.42	---	74.00	32.58	H	-6.0
5183.700000	---	47.49	54.00	6.51	H	-1.7
5183.700000	53.21	---	74.00	20.79	H	-1.7
10727.400000	49.61	---	74.00	24.39	H	7.2
10727.400000	---	39.55	54.00	14.45	H	7.2
18000.000000	---	46.52	54.00	7.48	H	12.0
18000.000000	54.22	---	74.00	19.78	H	12.0

Middle Channel: 2440MHz

Common Information

Project No.: RSHA240530002
 Test Mode: BLE mode of Middle channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugu Wu



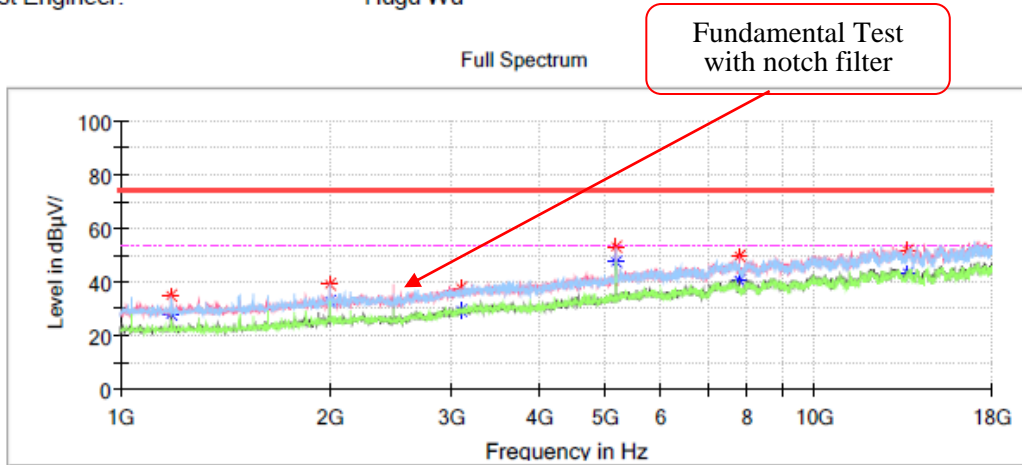
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1482.800000	---	27.99	54.00	26.01	H	-14.8
1482.800000	34.73	---	74.00	39.27	H	-14.8
2001.300000	---	32.59	54.00	21.41	H	-11.7
2001.300000	40.15	---	74.00	33.85	H	-11.7
3886.600000	40.58	---	74.00	33.42	H	-6.0
3886.600000	---	33.61	54.00	20.39	H	-6.0
5183.700000	---	47.77	54.00	6.23	V	-1.7
5183.700000	53.03	---	74.00	20.97	V	-1.7
9233.100000	49.61	---	74.00	24.39	V	5.4
9233.100000	---	37.81	54.00	16.19	V	5.4
17648.100000	---	44.92	54.00	9.08	V	11.7
17648.100000	54.04	---	74.00	19.96	V	11.7

High Channel: 2480MHz

Common Information

Project No.: RSHA240530002
 Test Mode: BLE mode of high channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugu Wu



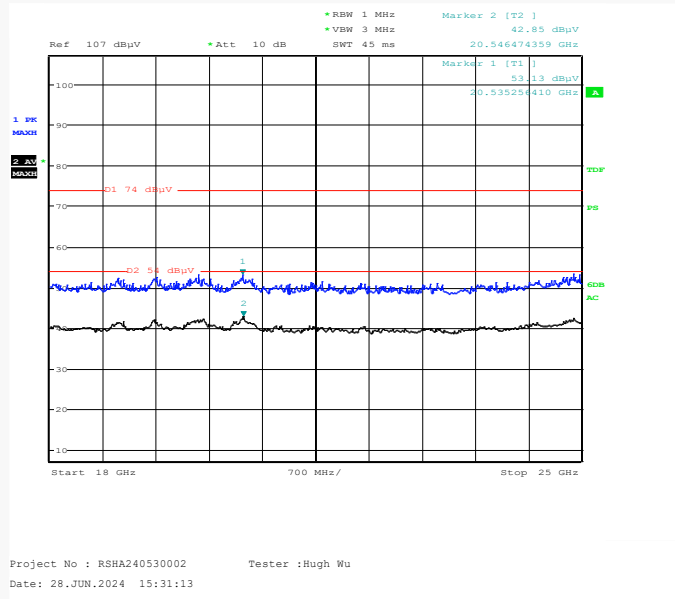
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1185.300000	---	27.74	54.00	26.26	V	-15.2
1185.300000	34.86	---	74.00	39.14	V	-15.2
2001.300000	---	32.53	54.00	21.47	H	-11.7
2001.300000	39.06	---	74.00	34.94	H	-11.7
3091.000000	---	29.65	54.00	24.35	V	-8.0
3091.000000	38.05	---	74.00	35.95	V	-8.0
5183.700000	53.20	---	74.00	20.80	V	-1.7
5183.700000	---	47.88	54.00	6.12	V	-1.7
7776.200000	---	40.73	54.00	13.27	V	3.9
7776.200000	49.65	---	74.00	24.35	V	3.9
13595.300000	---	43.41	54.00	10.59	V	9.6
13595.300000	51.89	---	74.00	22.11	V	9.6

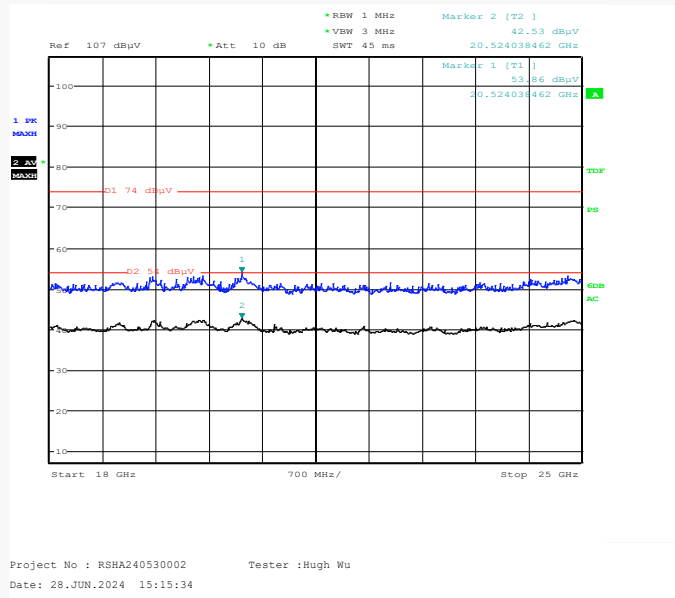
18GHz-25GHz:

Transmitting in maximum output power BLE mode high channel

Horizontal:



Vertical:



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

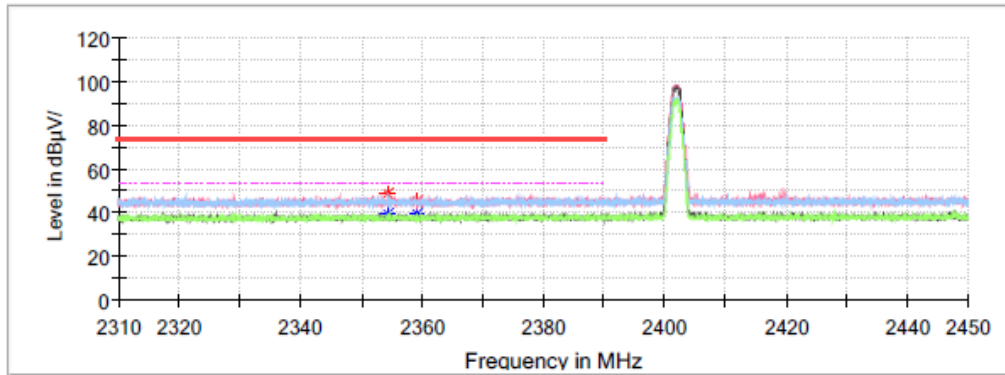
Band Edge:

Low Channel

Common Information

Project No.: RSHA240530002
 Test Mode: BLE mode of low channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugu Wu

Full Spectrum



Critical_Freqs

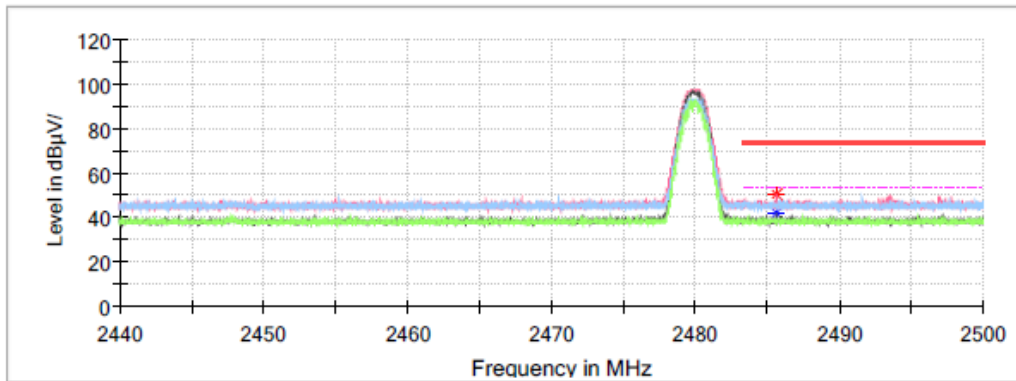
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2354.478000	48.28	---	74.00	25.72	H	-0.7
2354.478000	---	39.20	54.00	14.80	H	-0.7
2359.308000	45.23	---	74.00	28.77	V	-0.7
2359.308000	---	39.86	54.00	14.14	V	-0.7

High Channel

Common Information

Project No.: RSHA240530002
 Test Mode: BLE mode of High channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugu 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)
2485.660000	---	42.17	54.00	11.83	V	-0.2
2485.660000	50.76	---	74.00	23.24	V	-0.2

6 dB EMISSION BANDWIDTH

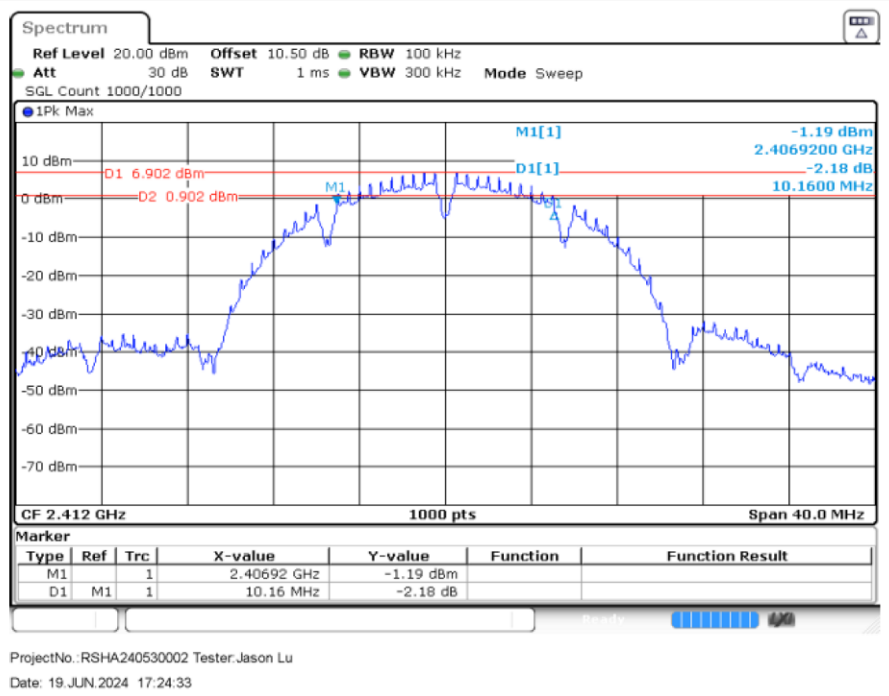
Test Result: Compliant.

EUT operation mode: Transmitting

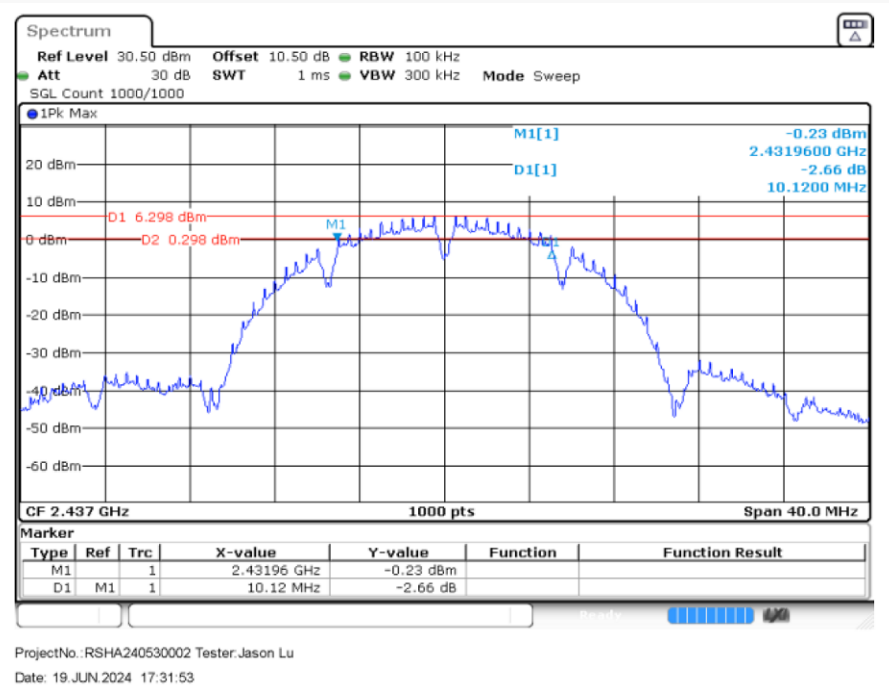
For Wi-Fi Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b Mode			
Low	2412	10.16	≥0.5
Middle	2437	10.12	≥0.5
High	2462	9.64	≥0.5
802.11g Mode			
Low	2412	16.44	≥0.5
Middle	2437	16.44	≥0.5
High	2462	16.44	≥0.5
802.11n-HT20 Mode			
Low	2412	17.64	≥0.5
Middle	2437	17.64	≥0.5
High	2462	17.64	≥0.5
802.11n-HT40 Mode			
Low	2422	35.36	≥0.5
Middle	2437	35.36	≥0.5
High	2452	35.44	≥0.5

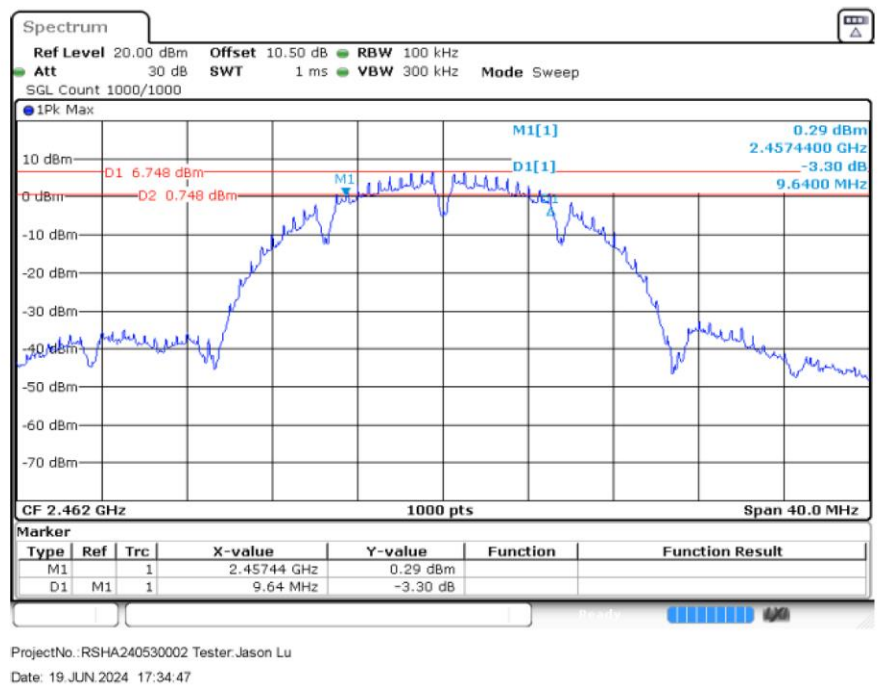
802.11b Mode Low Channel



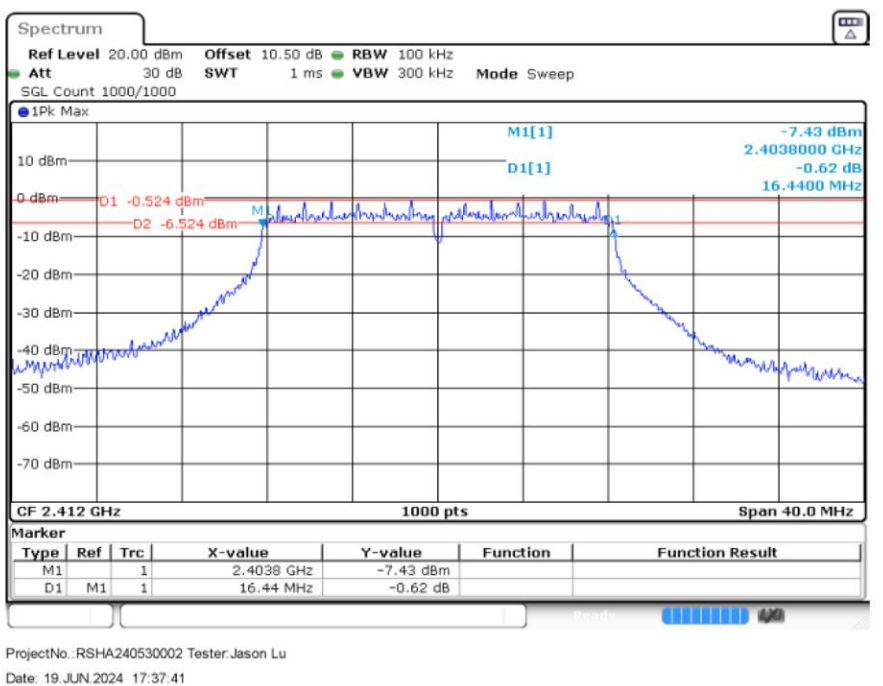
802.11b Mode Middle Channel



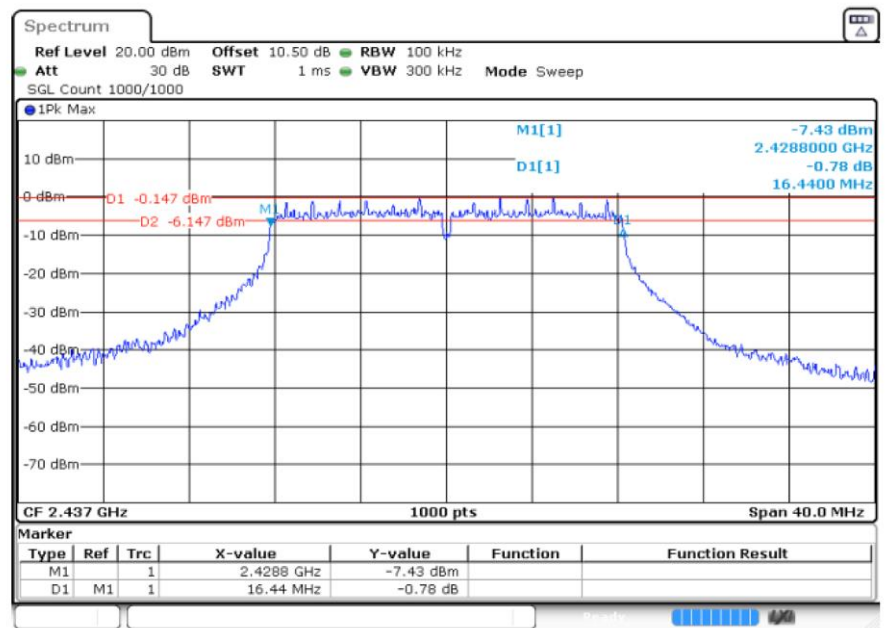
802.11b Mode High Channel



802.11g Mode Low Channel

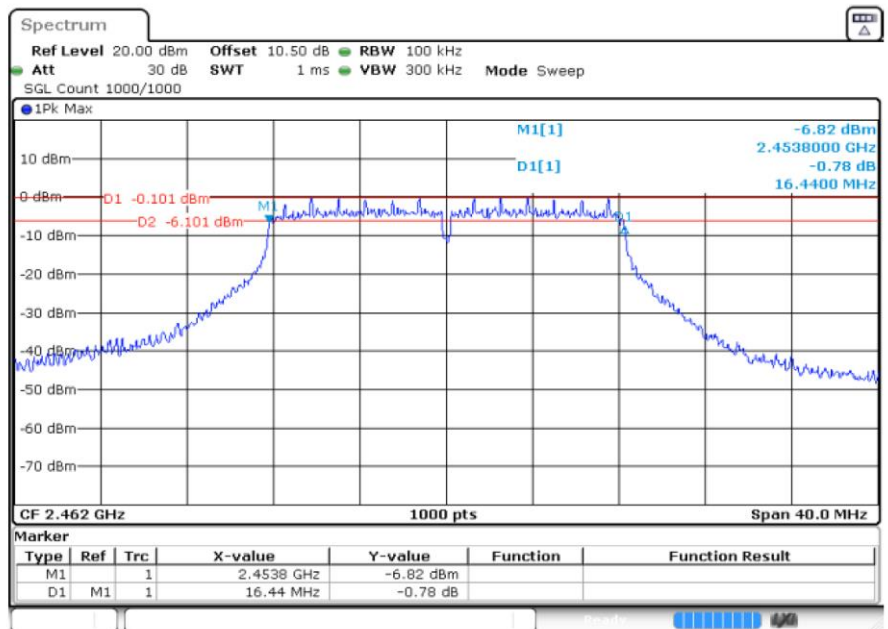


802.11g Mode Middle Channel



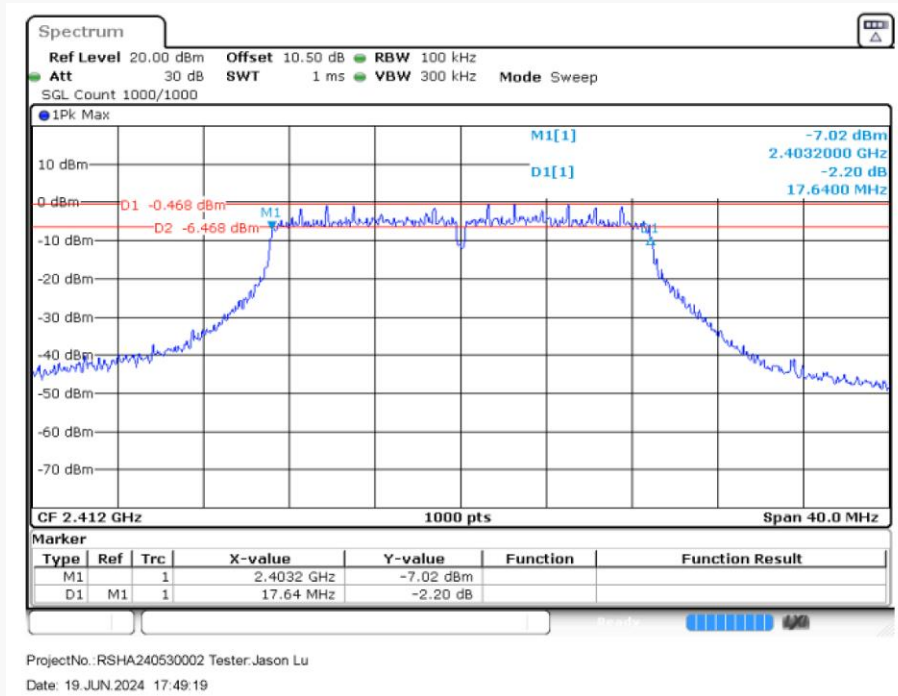
ProjectNo.: RSHA240530002 Tester: Jason Lu
 Date: 19 JUN 2024 17:43:02

802.11g Mode High Channel

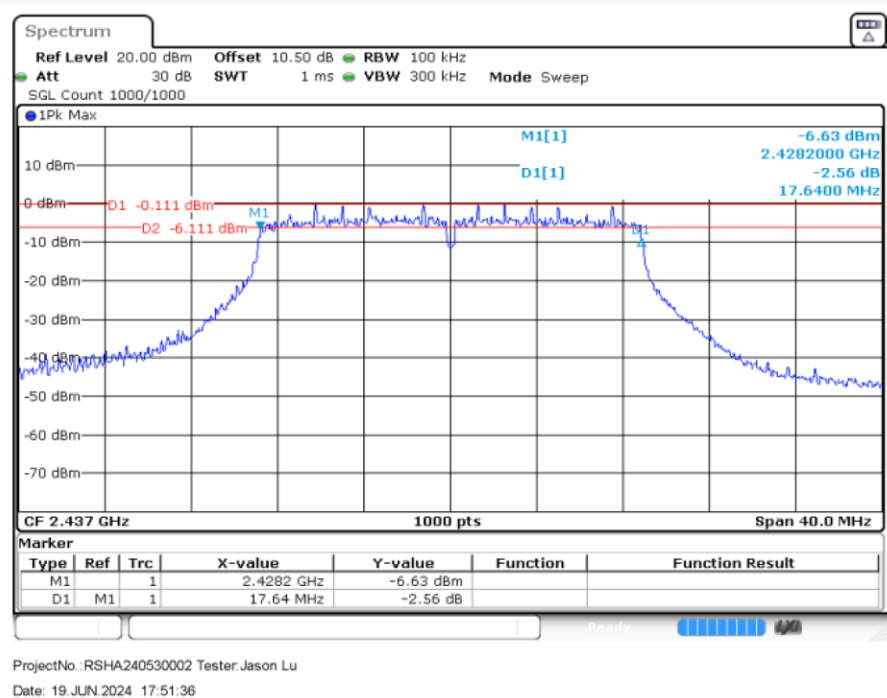


ProjectNo.: RSHA240530002 Tester: Jason Lu
 Date: 19 JUN 2024 17:45:24

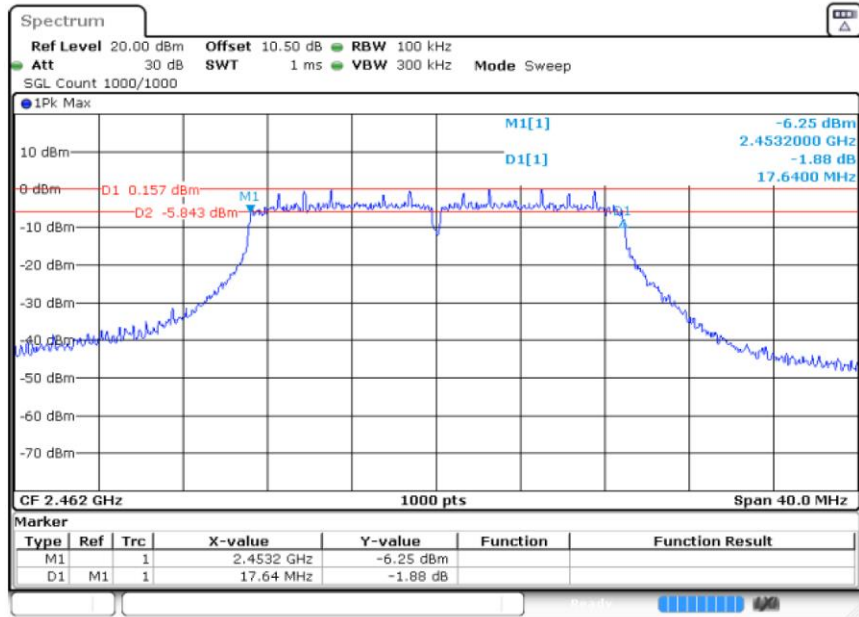
802.11n-HT20 Mode Low Channel



802.11n-HT20 Mode Middle Channel

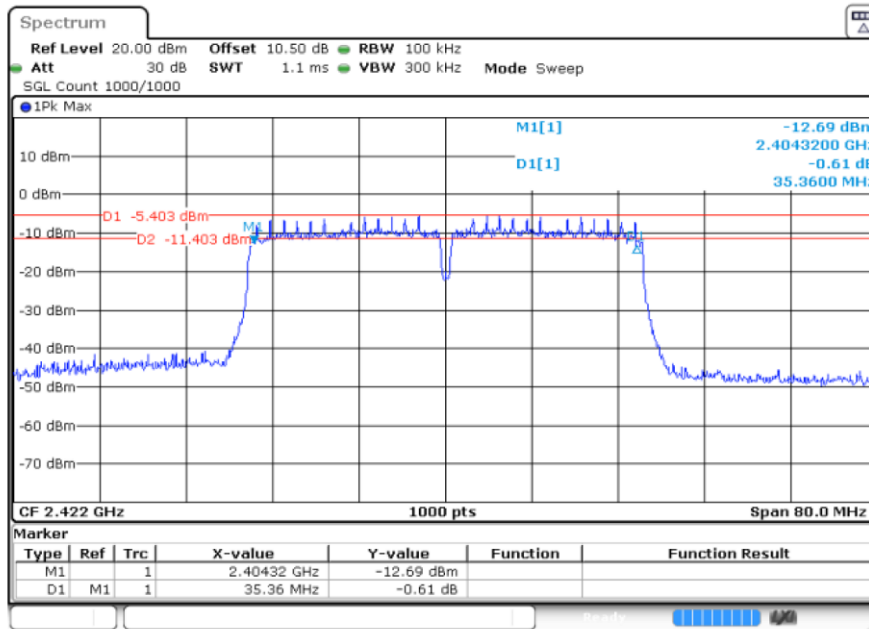


802.11n-HT20 Mode High Channel



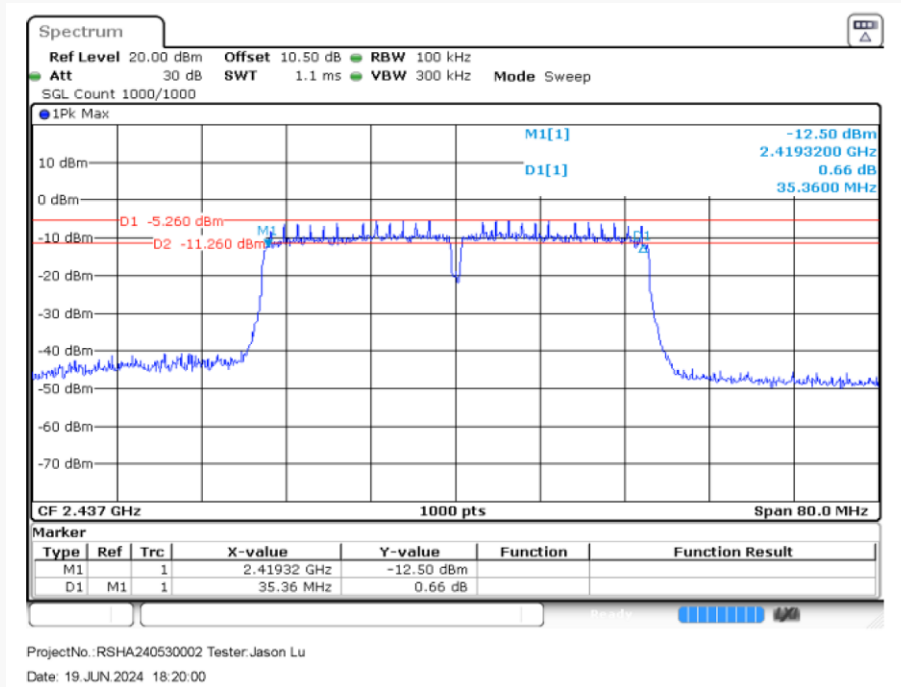
ProjectNo.: RSHA240530002 Tester: Jason Lu
 Date: 19 JUN 2024 17:58:44

802.11n-HT40 Mode Low Channel

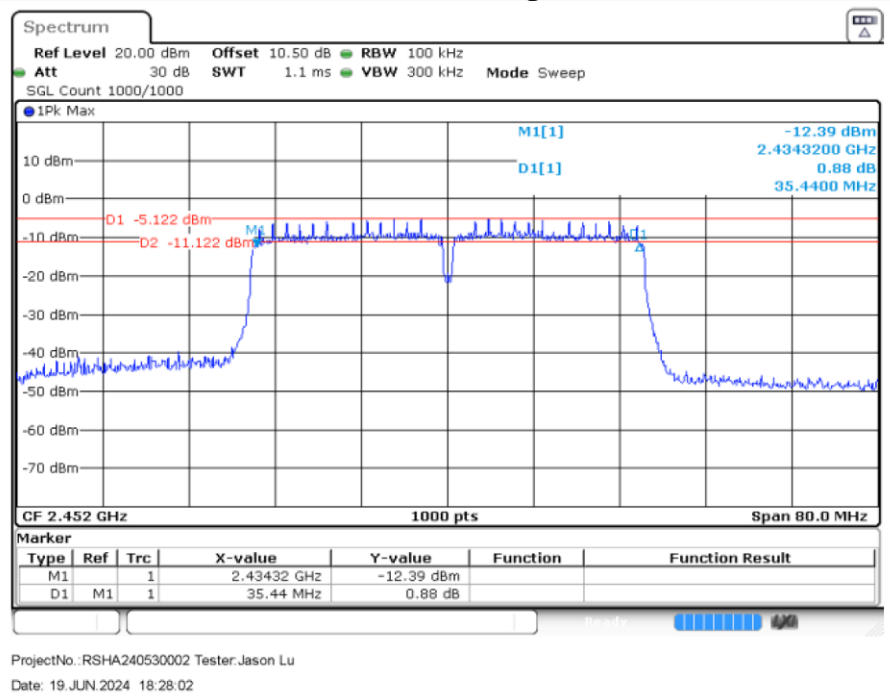


ProjectNo.: RSHA240530002 Tester: Jason Lu
 Date: 19 JUN 2024 18:11:31

802.11n-HT40 Mode Middle Channel



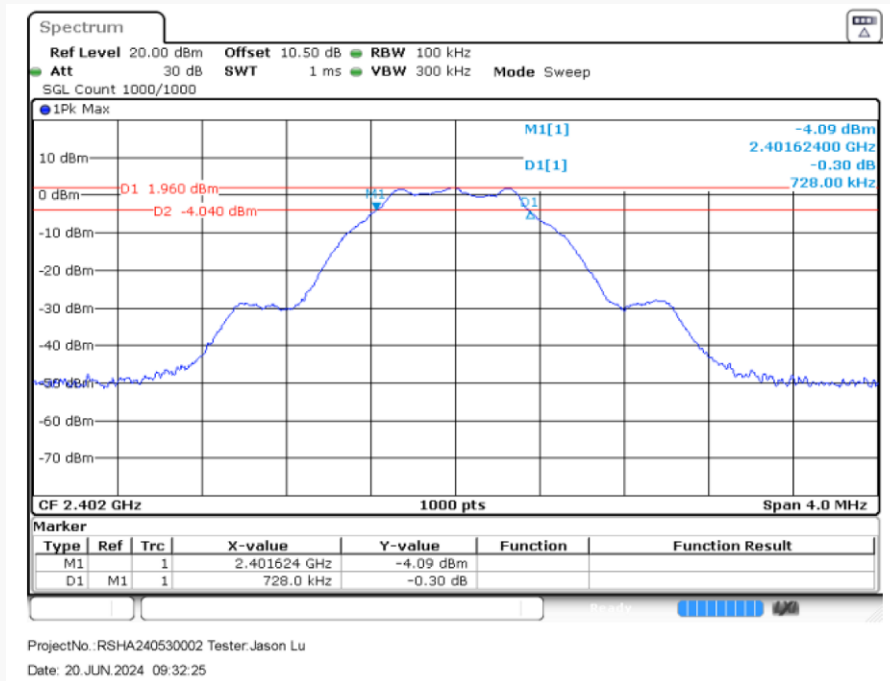
802.11n-HT40 Mode High Channel



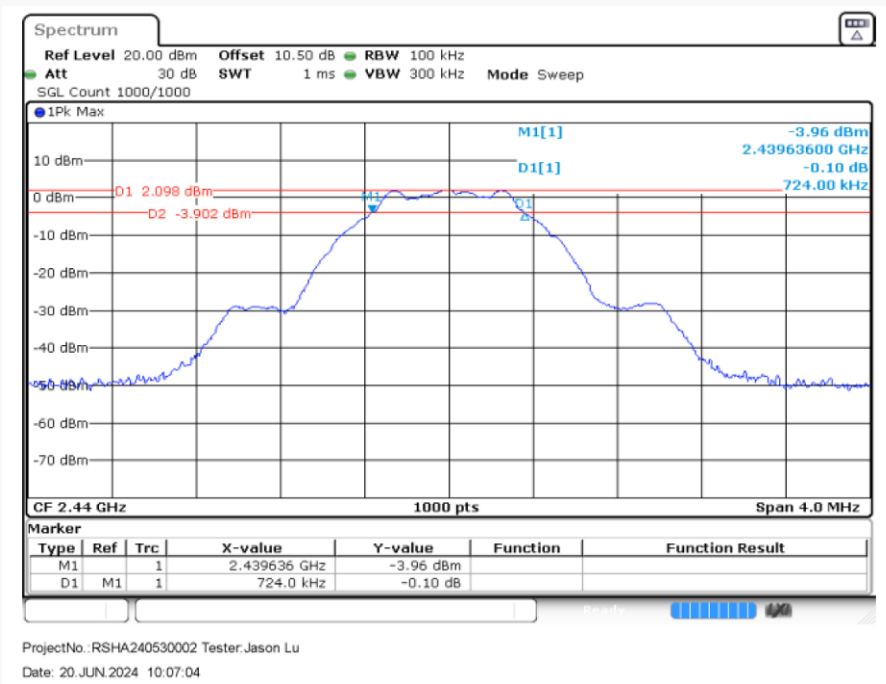
For BLE Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2402	0.728	≥0.5
Middle	2440	0.724	≥0.5
High	2480	0.732	≥0.5

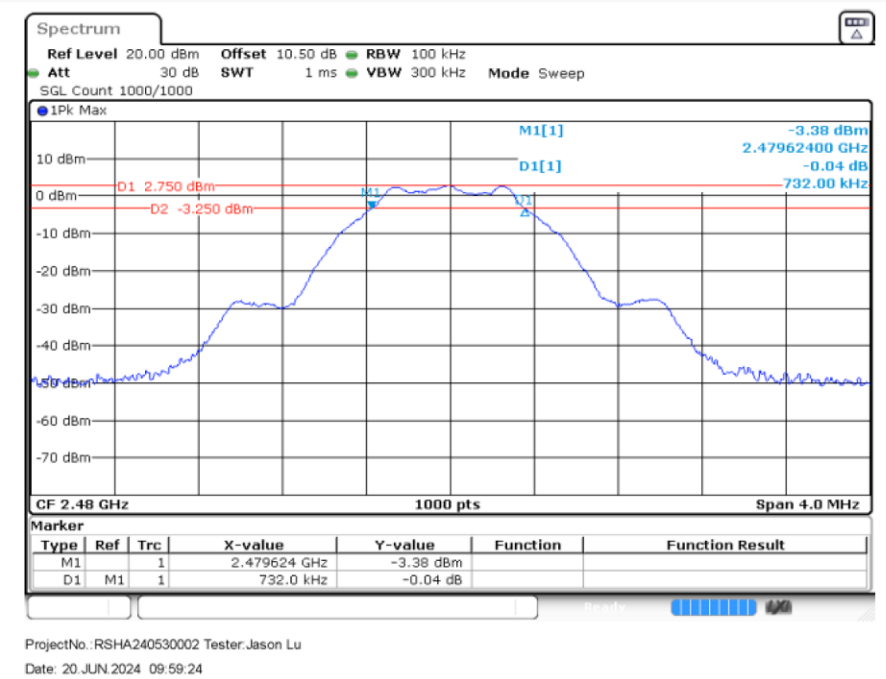
Low Channel



Middle Channel



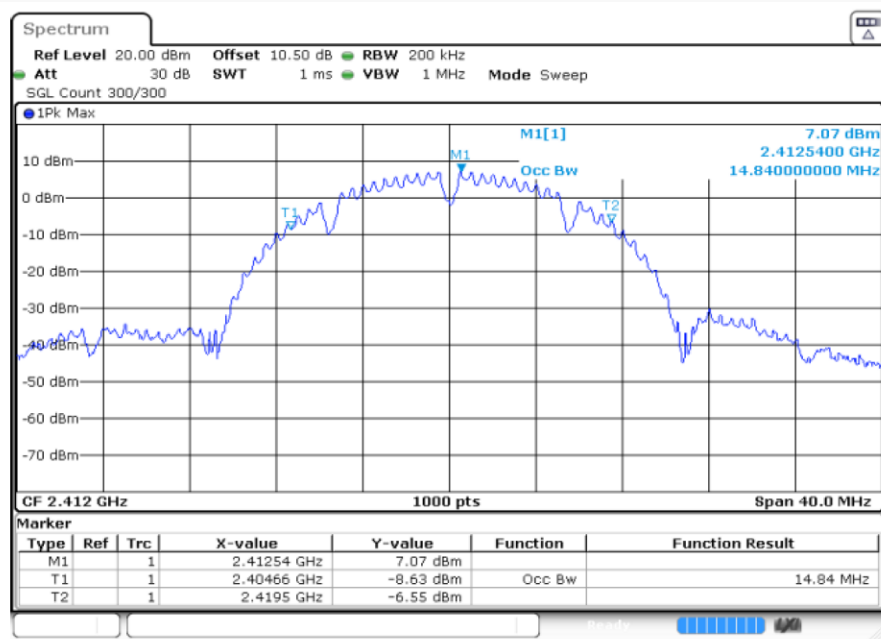
High Channel



OCCUPIED BANDWIDTH*EUT operation mode: Transmitting***For Wi-Fi Mode:**

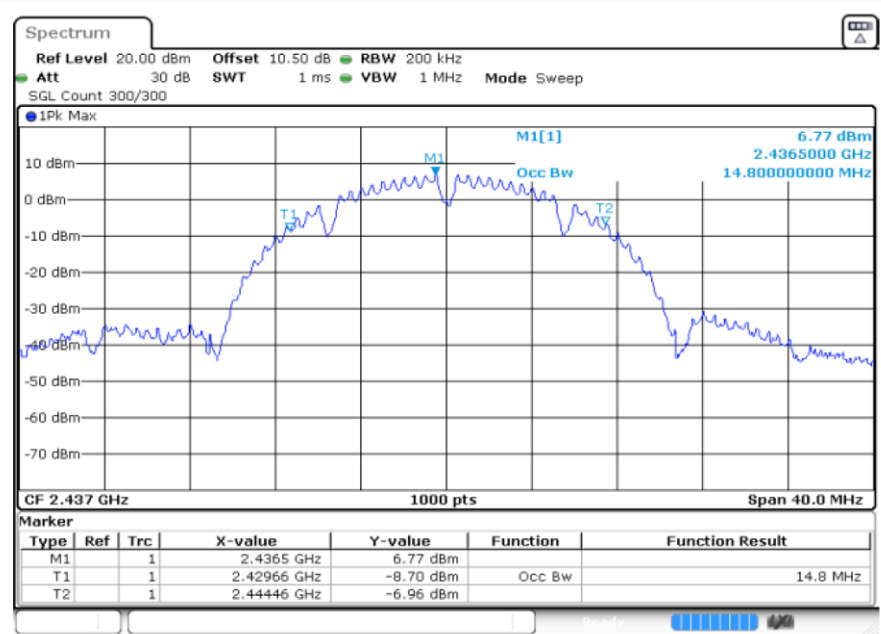
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b Mode		
Low	2412	14.84
Middle	2437	14.80
High	2462	14.84
802.11g Mode		
Low	2412	16.60
Middle	2437	16.60
High	2462	16.60
802.11n-HT20 mode		
Low	2412	17.76
Middle	2437	17.76
High	2462	17.76
802.11n-HT40 mode		
Low	2422	35.92
Middle	2437	36.00
High	2452	36.00

802.11b Mode Low Channel



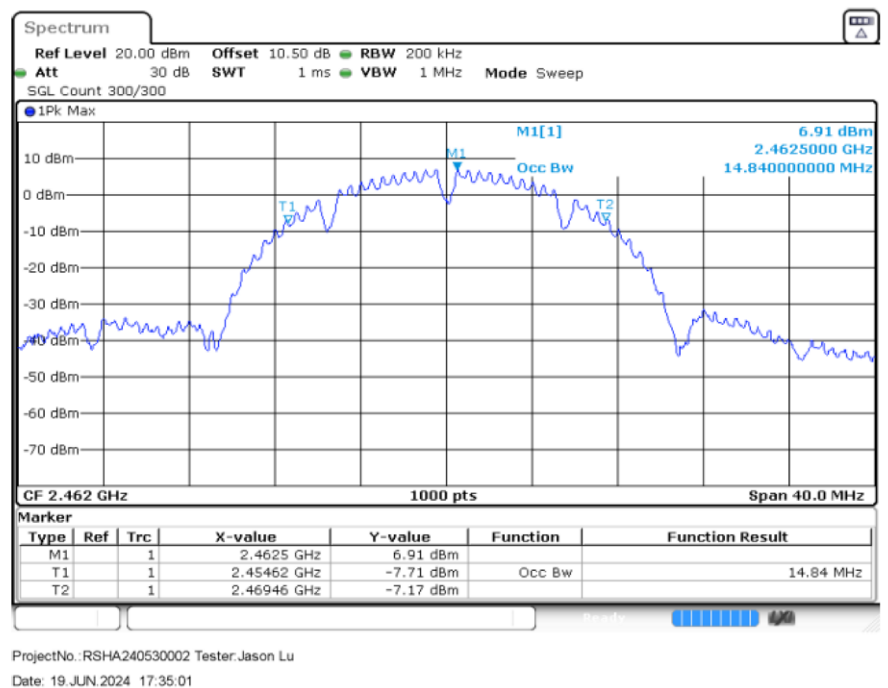
ProjectNo.:RSHA240530002 Tester:Jason Lu
 Date: 19 JUN 2024 17:24:48

802.11b Mode Middle Channel

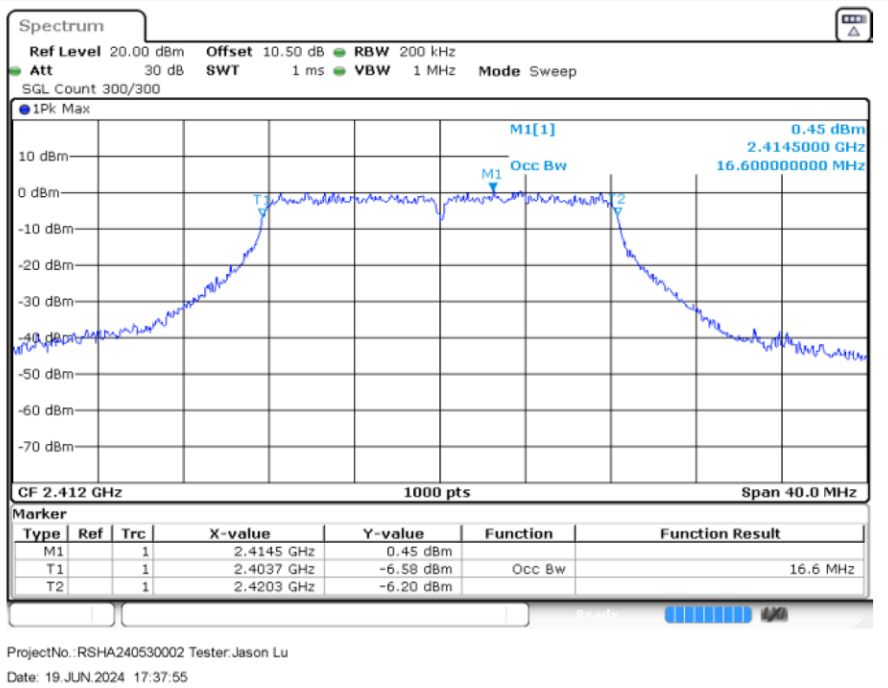


ProjectNo.:RSHA240530002 Tester:Jason Lu
 Date: 19 JUN 2024 17:32:07

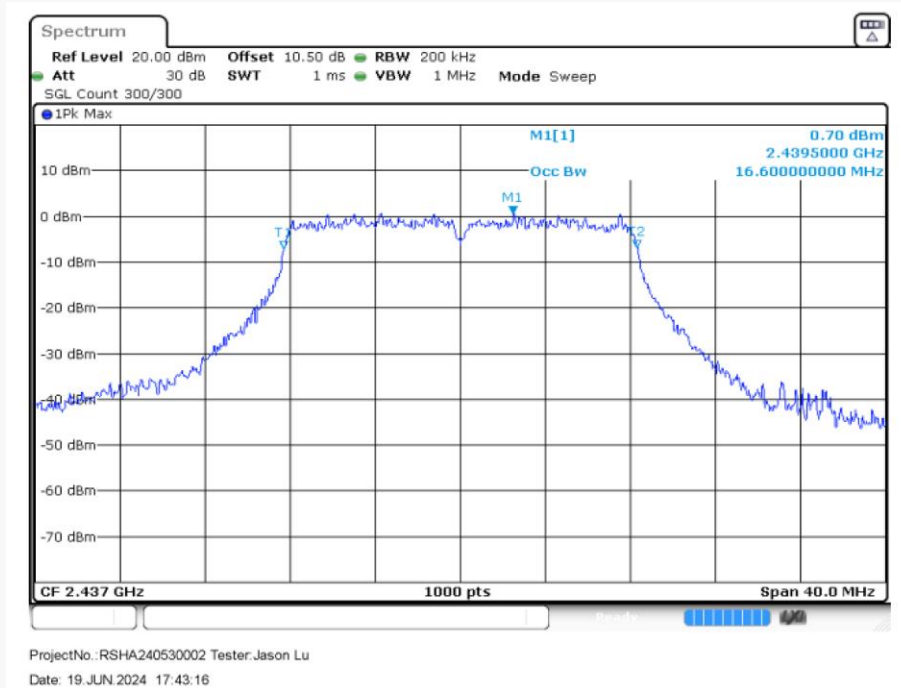
802.11b Mode High Channel



802.11g Mode Low Channel



802.11g Mode Middle Channel



802.11g Mode High Channel

