

FCC PART 15.247

TEST REPORT

For

Feitian Technologies Co., Ltd.

Floor 17th, Tower B, Huizhi Mansion, No.9 Xueqing Road, Haidian District, Beijing, China

FCC ID:ZD3FTF310P

Report Type: Original Report	Product Name: Android POS Terminal
Report Number: RKSA240112001-00B	
Report Date: 2024-05-15	
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S.Government.

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240112001-00B	R1V1	2024-05-15	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Feitian Technologies Co., Ltd.
Tested Model	F310 P
Series Model:	F310
Model Difference:	Model name, see the declaration letter for details
Product Name	Android POS Terminal
Power Supply	DC 3.8V from battery or DC 5V charging by adapter
RF Function:	2.4G Wi-Fi; BLE
Maximum Peak Output Power:	2.4G Wi-Fi: 802.11b: 18.01 dBm 802.11g: 21.81 dBm 802.11n20: 21.41 dBm 802.11n40: 21.52 dBm BLE(1Mbps): -1.24 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:	2.4G Wi-Fi /BLE: FPC Antenna
★Maximum Antenna Gain:	2.4G Wi-Fi /BLE: 3.24 dBi

Adapter Information

Model: TEKA-UCA20US

Input: 100-240V~50/60Hz, 0.35A MAX

Output: 5.0V, 2.0A

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: RKSA240112001-1 (with 5000mA battery) (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-01-12.)

Objective

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

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

Test Methodology

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

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	9 kHz~150 kHz	3.8dB
	150 kHz~30 MHz	3.4dB
	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0°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: QRCT 4

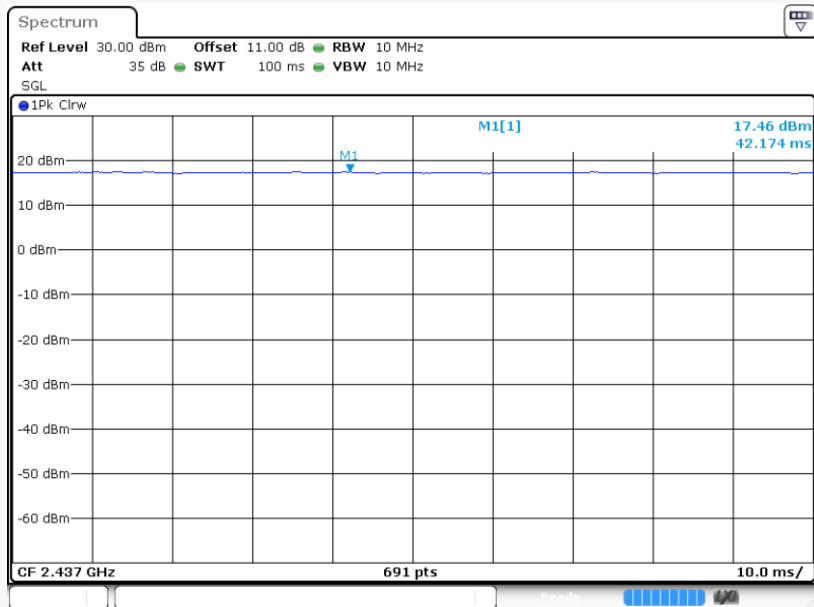
Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data Rate	★Power Level
802.11b	1 Mbps	18
802.11g	6 Mbps	18
802.11n-HT20	MCS0	14
802.11n-HT40	MCS0	14
BLE(1Mbps)	1Mbps	Default

Note: The power level was declared by the applicant.

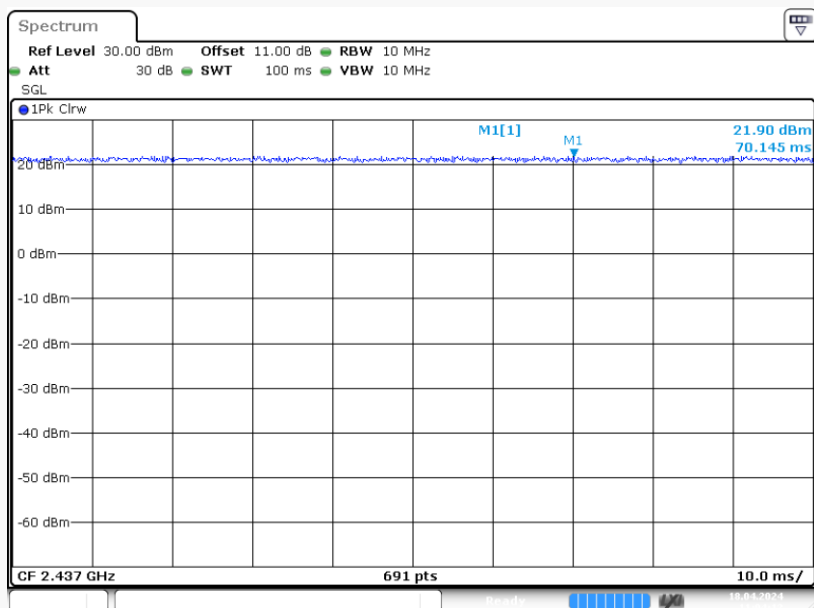
Duty Cycle:

802.11b Mode Middle Channel



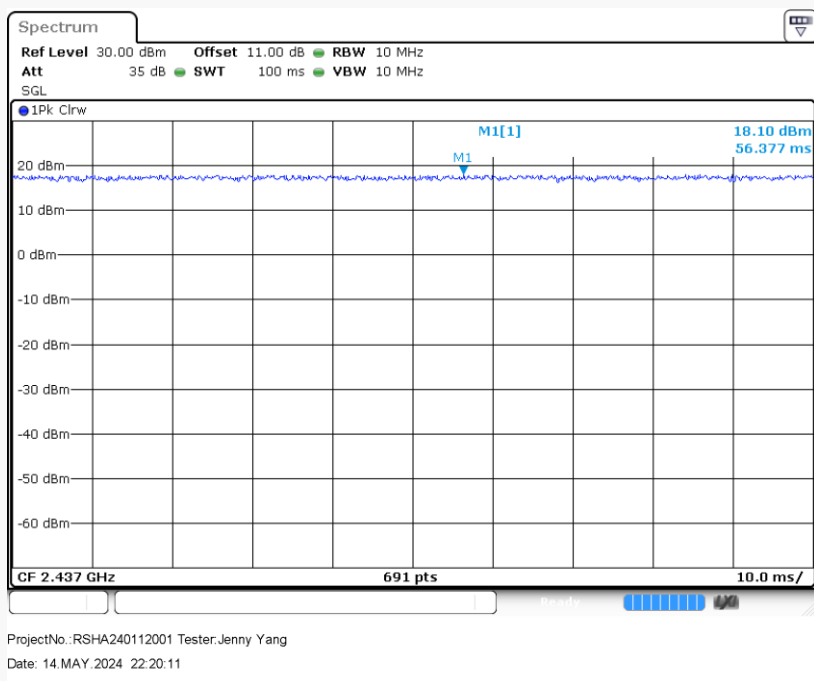
ProjectNo.:RSHA240112001 Tester:Jenny Yang
 Date: 14.MAY.2024 22:15:48

802.11g Mode Middle Channel

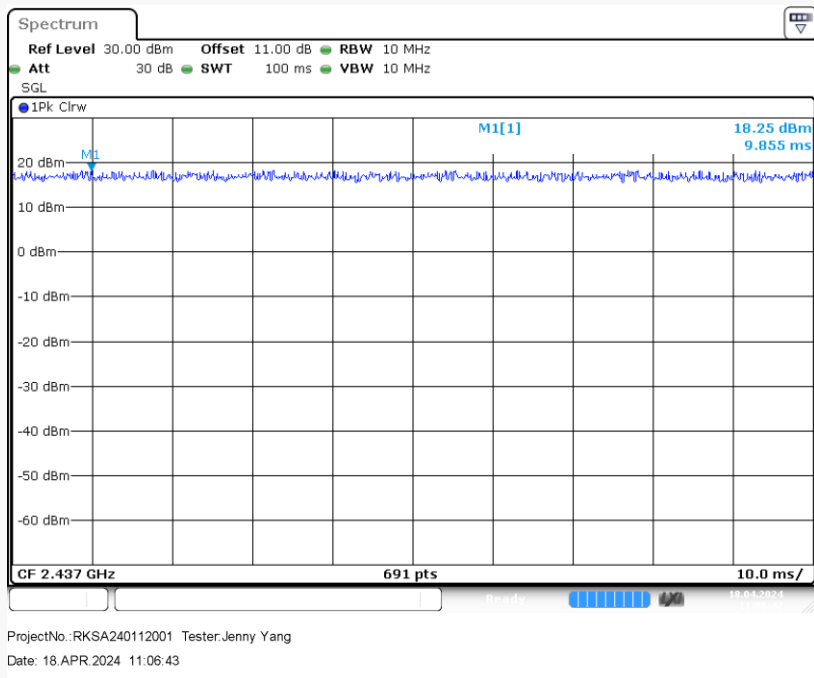


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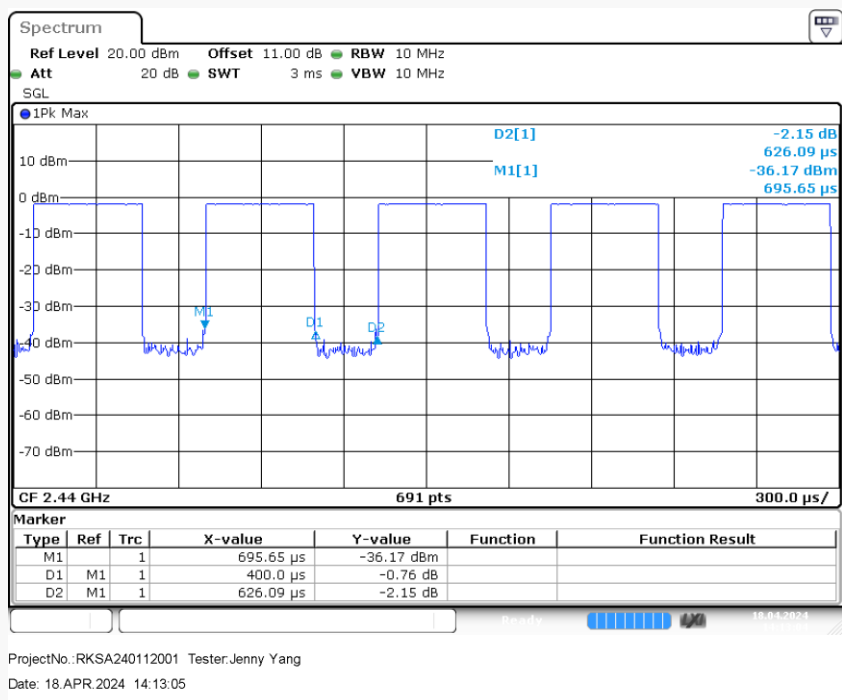
802.11n-HT20 Mode Middle Channel



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)	63.90	0.400	0.626	1.94

Note: “x” means the Duty Cycle.

Support Equipment List and Details

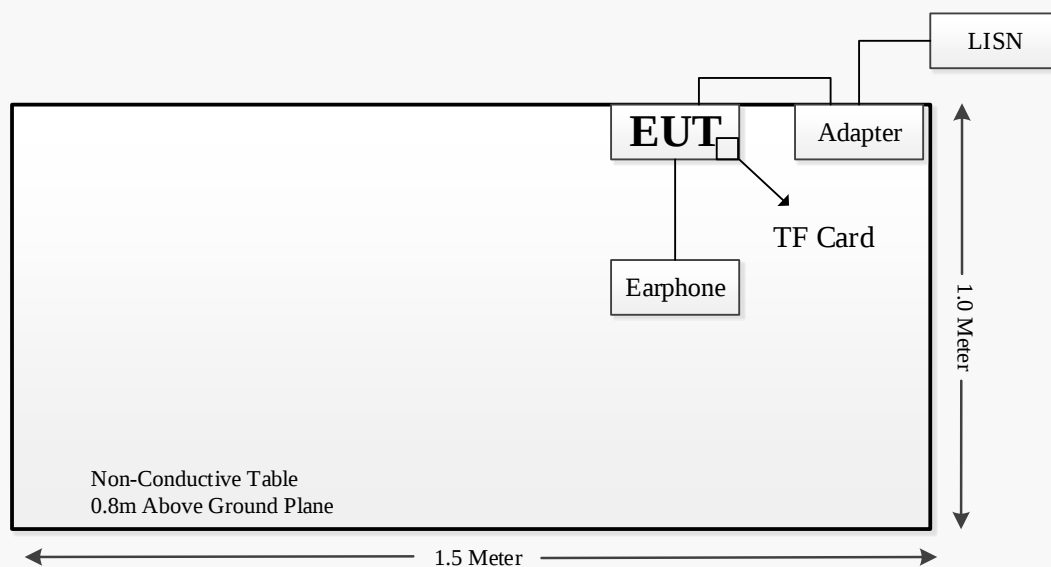
Manufacturer	Description	Model	Serial Number
Unknown	Earphone	Unknown	Unknown
Unknown	TF Card	Unknown	Unknown

External I/O Cable

Cable Description	Length (m)	From Port	To
Power Cable	1.0	AC Source/LISN	Adapter
USB Cable	1.5	Adapter	EUT
Audio Cable	1.0	EUT	Earphone

Block Diagram of Test Setup

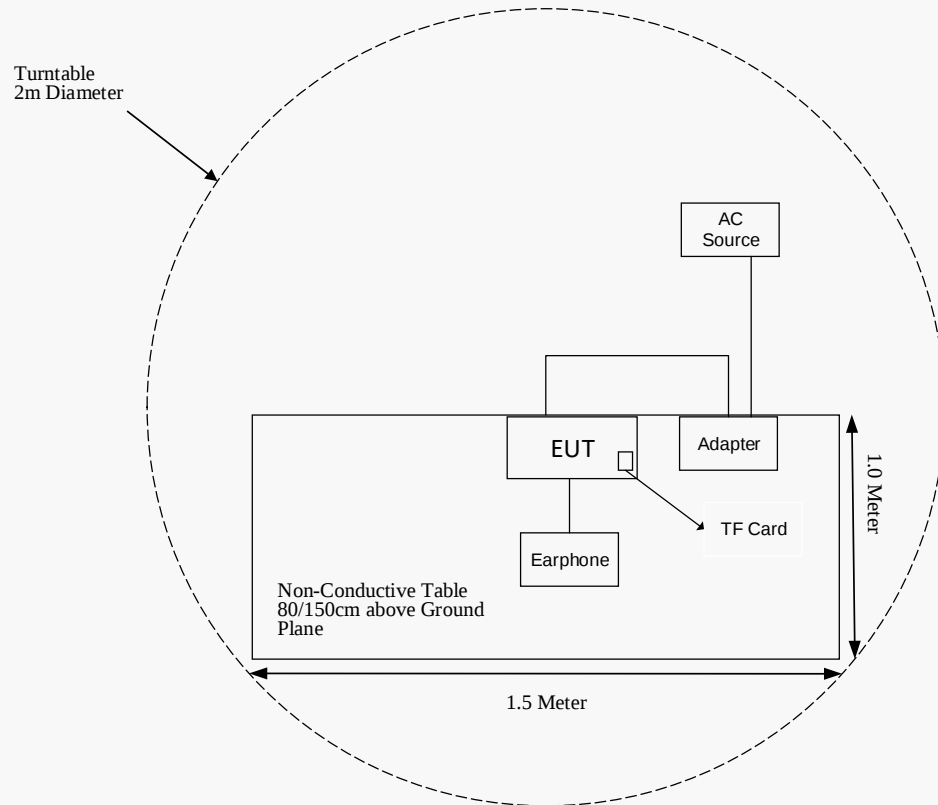
For Conducted Emissions:



Block Diagram of Test Setup

For Radiated Emissions (Below 1GHz&Above 1 GHz):

EUT on Non-Conductive Table 80 or 150cm above Ground Plane



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307(b)(1)& §2.1093	RF EXPOSURE	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber #1)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	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	Signal Analyzer	FSV40	101116	2023-05-23	2024-05-22
Narda	Attenuator	10dB	010	2023-05-23	2024-05-22
Anritsu	Power Sensor	MA24418A	12621	2023-09-27	2024-09-26
XHFDZ	RG178 Coaxial Cable	SMA-178	XHF-1102	Each time	N/A
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2023-07-28	2024-07-27
Rohde & Schwarz	LISN	ENV216	101115	2023-05-23	2024-05-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3-Z2	100552	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-15	015	2023-05-23	2024-05-22

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

FCC §1.1307(b) & §2.1093 - RF EXPOSURE

Applicable Standard

According to §15.247(i) and §1.1310, systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB447498 D01 General RF Exposure Guidance v06:

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW}) / (\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where

- $f(\text{GHz})$ is the RF channel transmit frequency in GHz
- Power and distance are rounded to the nearest mW and mm before calculation
- The result is rounded to one decimal place for comparison
- 3.0 and 7.5 are referred to as the numeric thresholds in the step 2 below

The test exclusions are applicable only when the minimum test separation distance is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum test separation distance is < 5 mm, a distance of 5 mm according to 5) in section 4.1 is applied to determine SAR test exclusion.

Measurement Result

BLE mode:

Mode	Frequency Range (MHz)	Max Tune-up Conducted Power		Calculated Distance (mm)	Calculated Value	Threshold (1-g SAR)	SAR Test Exclusion
		(dBm)	(mW)				
BLE	2402-2480	-1.0	0.79	5.0	0.3	3.0	Yes

Result: So the standalone SAR evaluation is not necessary.

For **Wi-Fi mode**, please refer to the SAR report: RKSA240112001-20B.

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 3.24 dBi, which is permanently attached to the unit, fulfill the requirement of this section. Please refer to the EUT photos.

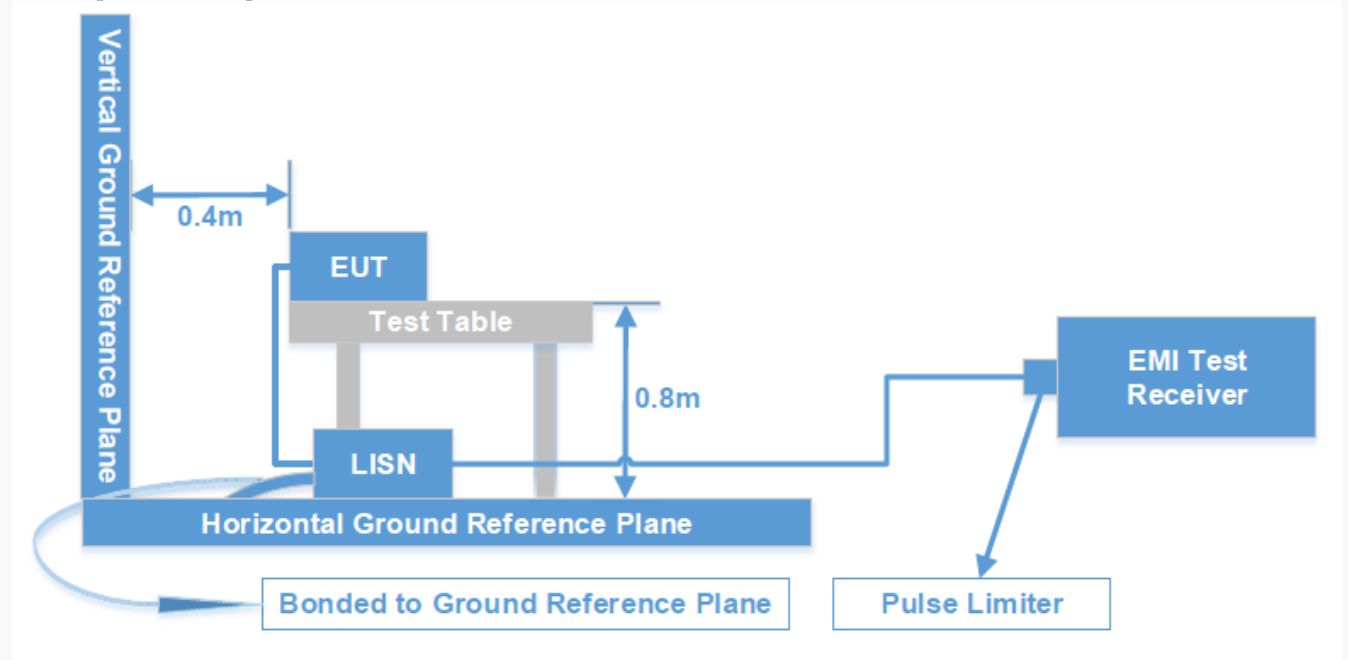
Result: Compliant.

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

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

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

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

Level & Over Limit Calculation

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

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

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

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

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

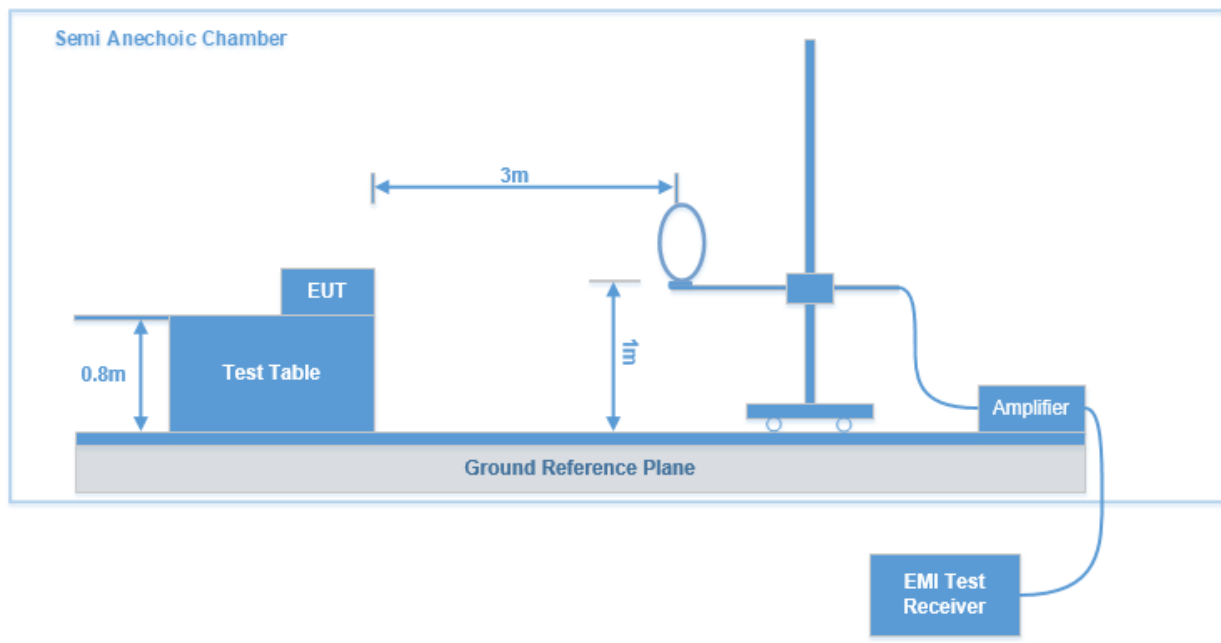
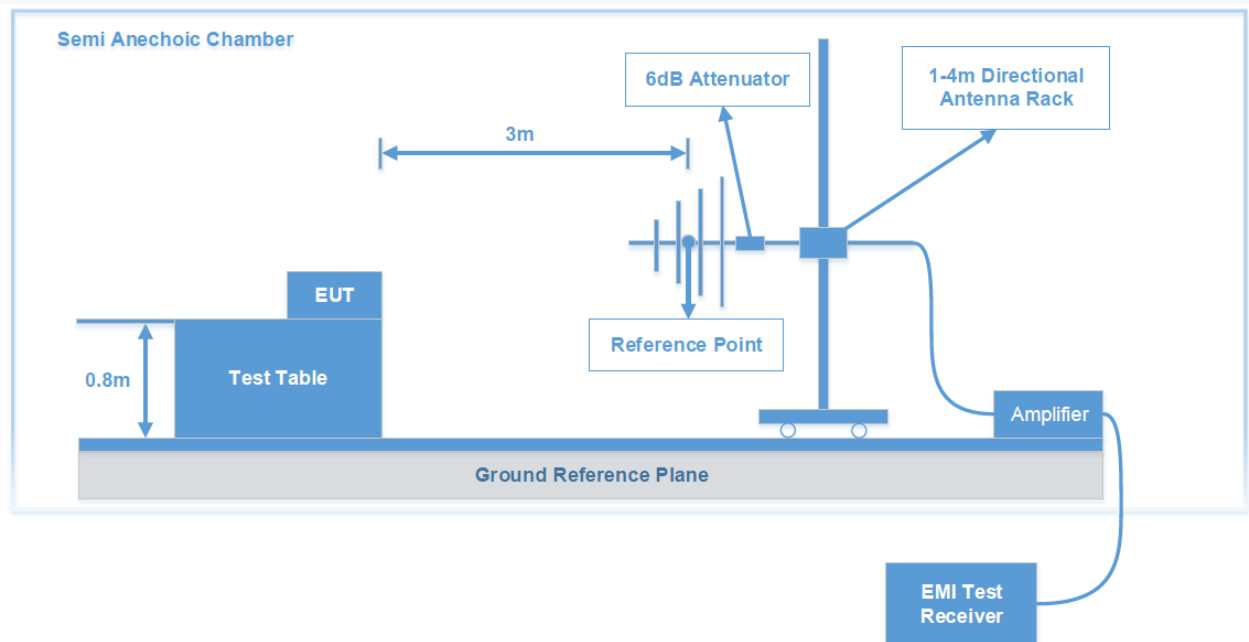
Test Results Summary

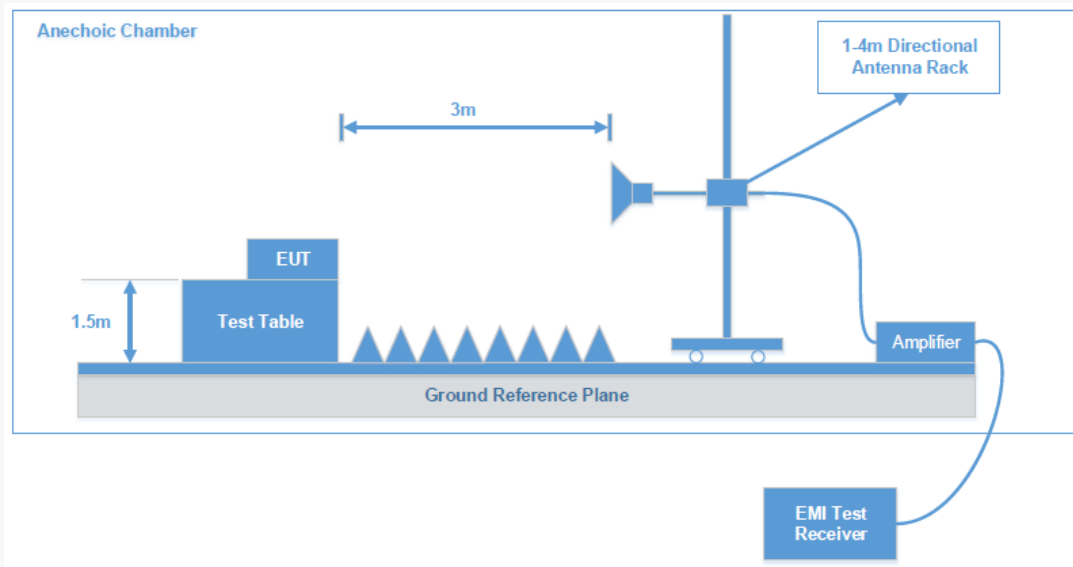
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data: See Appendix

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

FCC §15.247 (d); §15.209; §15.205;

Test System Setup**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.

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

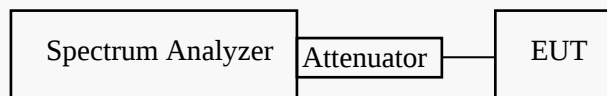
Applicable Standard

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

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

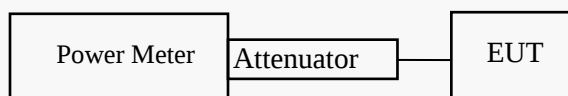
The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall use a fast-responding diode detector.

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

11.9.2.3.2 Method AVGPM-G

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

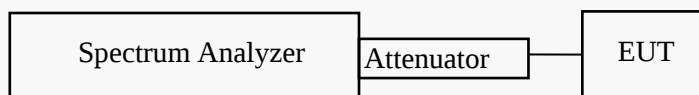
Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter,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



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

For BLE:

1. Set the RBW $\geq$ DTS bandwidth.
2. Set VBW $\geq 3 * \text{RBW}$.
3. Set span $\geq 3 * \text{RBW}$
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

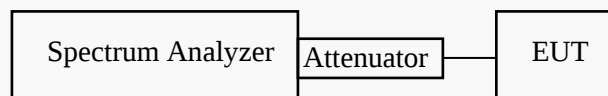
Applicable Standard

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

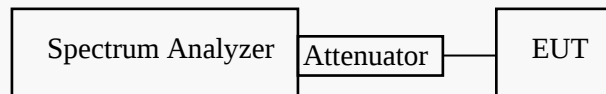
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of 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.



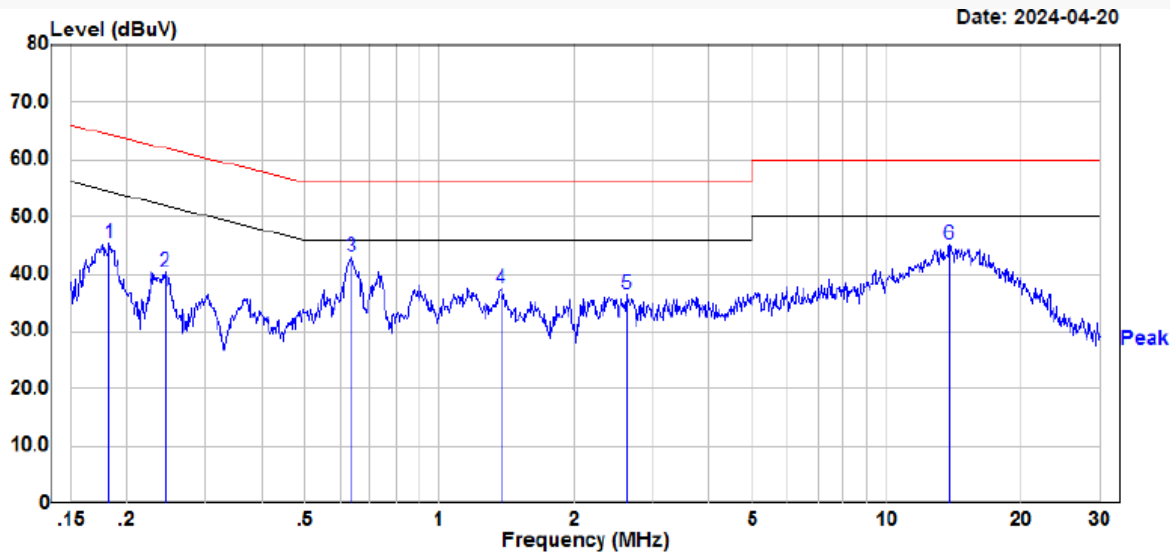
Test Data: See Appendix

Appendix - TEST DATA

Environmental Conditions & Test Information

Test Item:	AC LINE CONDUCTED EMISSIONS	RADIATED EMISSIONS		
		9 kHz-1 GHz	1 GHz - 18 GHz	18 GHz -25 GHz
Test Date:	2024-04-20	2024-04-01 to 2024-04-19	2024-03-29 to 2024-04-03	2024-05-15
Temperature:	16.1 °C	17.4-19.2 °C	16.0-20.3 °C	22.5 °C
Relative Humidity:	50 %	57-58 %	48-52 %	45 %
ATM Pressure:	102.3 kPa	101.1-101.5 kPa	100.8-101.5kPa	101.6 kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Frank Liu	Leah Li	Peter Wang	Hugh Wu

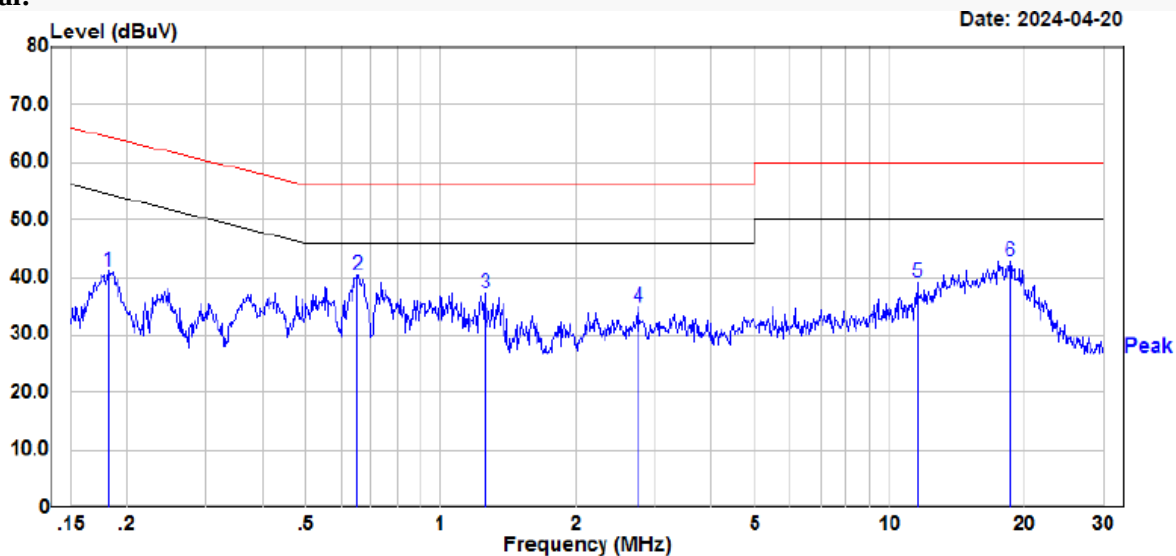
Test Item:	6 DB EMISSION BANDWIDTH	OCCUPIED BANDWIDTH	POWER SPECTRAL DENSITY	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS	DUTY CYCLE
Test Date:	2024-03-16 to 2024-04-18	2024-03-16 to 2024-04-18	2024-03-16 to 2024-04-18	2024-04-18	2024-03-16 to 2024-04-18	2024-04-18& 2024-05-14
Temperature:	21.7-22.3 °C	21.7-22.3 °C	21.7-22.3 °C	21.7 °C	21.7-22.3 °C	21.7~22.5°C
Relative Humidity:	43-46 %	43-46 %	43-46 %	43 %	43-46 %	43-46 %
ATM Pressure:	101.6-101.7kPa	101.6-101.7kPa	101.6- 101.7kPa	101.6kPa	101.6- 101.7kPa	101.6- 101.7kPa
Test Result:	Pass	/	Pass	Pass	Pass	/
Test Engineer:	Jenny Yang	Jenny Yang	Jenny Yang	Jenny yang	Jenny Yang	Jenny Yang

AC LINE CONDUCTED EMISSIONS**For Wi-Fi Mode:***EUT operation mode: Transmitting in maximum output power mode 802.11g mode Middle channel***Line:**

Site : CE
Condition : FCC Part 15.207
: DET:Peak
Project : RKSA240112001
Model : F310 P
Phase : L
Voltage : 120V/60Hz
Mode : 2.4G WIFI
Test Equipment : ENV216, ESR
Temperature : 16.1°C
Humidity : 50%
Atmospheric pressure: 102.3kPa
Test Engineer : Frank Liu

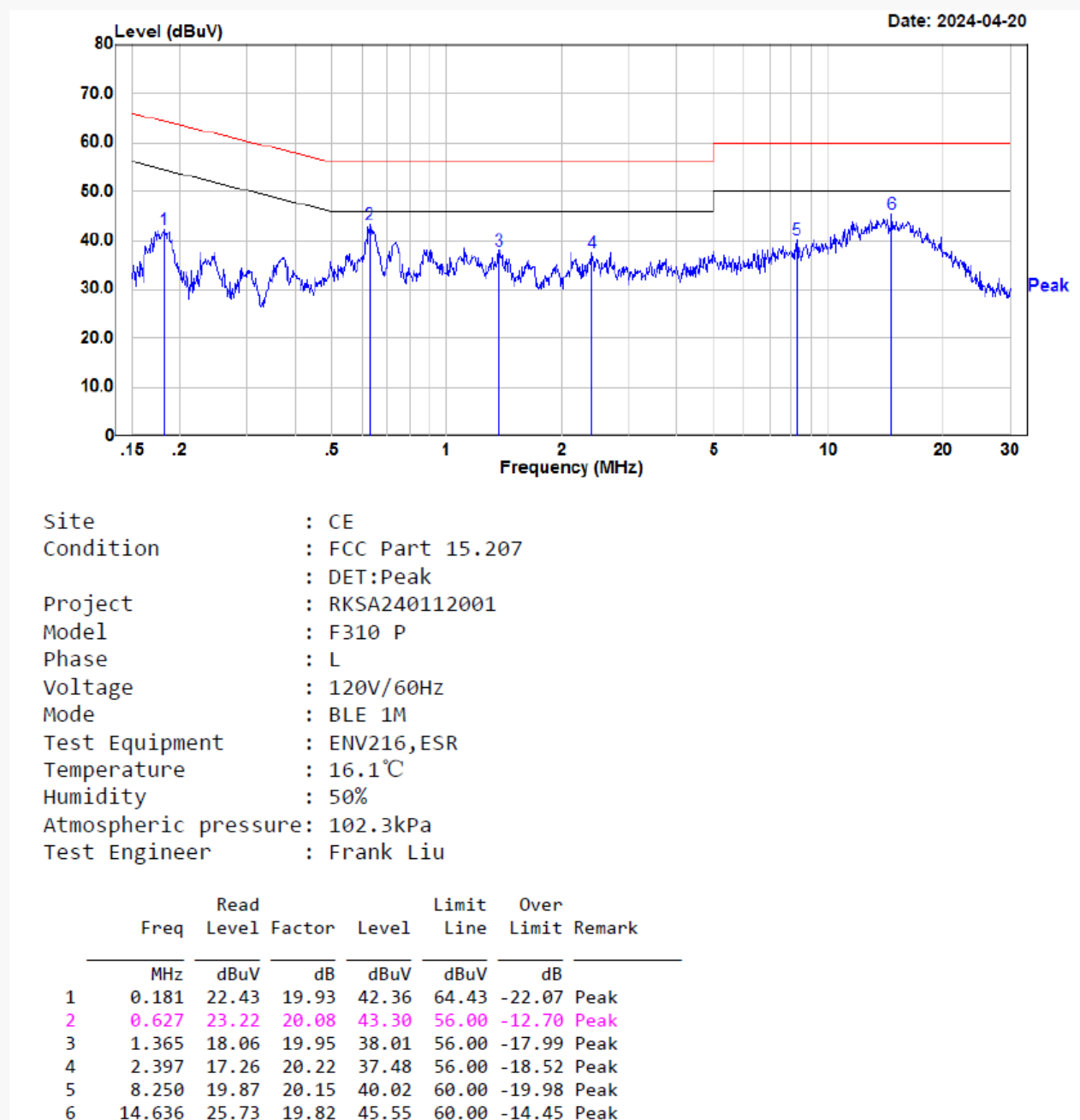
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.182	25.63	19.93	45.56	64.39	-18.83	Peak
2	0.243	20.42	19.98	40.40	61.98	-21.58	Peak
3	0.633	22.85	20.08	42.93	56.00	-13.07	Peak
4	1.372	17.47	19.95	37.42	56.00	-18.58	Peak
5	2.622	16.20	20.24	36.44	56.00	-19.56	Peak
6	13.786	25.29	19.85	45.14	60.00	-14.86	Peak

Neutral:

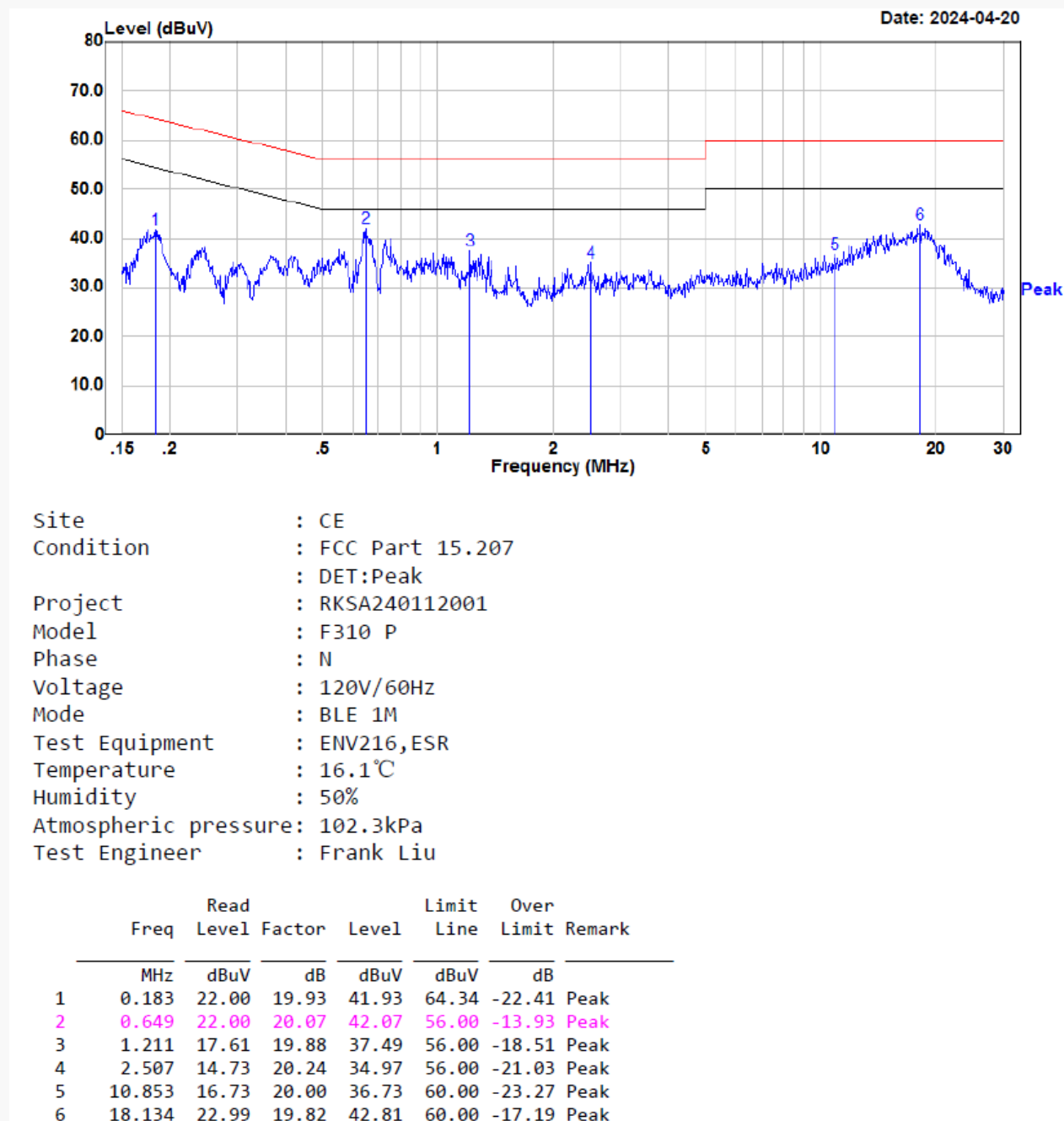


Site : CE
Condition : FCC Part 15.207
: DET:Peak
Project : RKSA240112001
Model : F310 P
Phase : N
Voltage : 120V/60Hz
Mode : 2.4G WIFI
Test Equipment : ENV216,ESR
Temperature : 16.1°C
Humidity : 50%
Atmospheric pressure: 102.3kPa
Test Engineer : Frank Liu

		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBUV	dB	dBUV	dBUV	dB	
1	0.181	21.06	19.93	40.99	64.43	-23.44	Peak
2	0.653	20.38	20.07	40.45	56.00	-15.55	Peak
3	1.254	17.22	19.90	37.12	56.00	-18.88	Peak
4	2.742	14.47	20.24	34.71	56.00	-21.29	Peak
5	11.521	19.09	19.96	39.05	60.00	-20.95	Peak
6	18.591	23.08	19.82	42.90	60.00	-17.10	Peak

For BLE Mode:*EUT operation mode: Transmitting in maximum output power mode High channel***Line**

Neutral



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 Y 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.

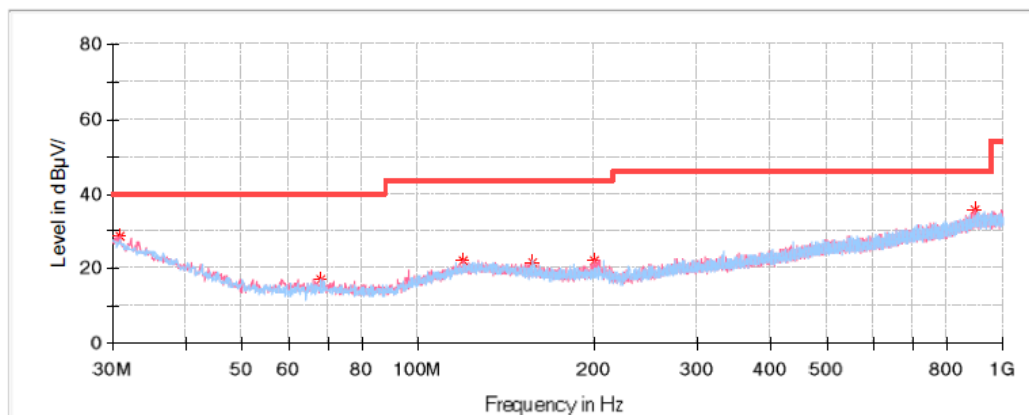
For Wi-Fi Mode:

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

Low channel: 2412MHz

Common Information

Project No:	RKSA240112001
Test Mode:	Transmitting in 802.11g mode low channel
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li

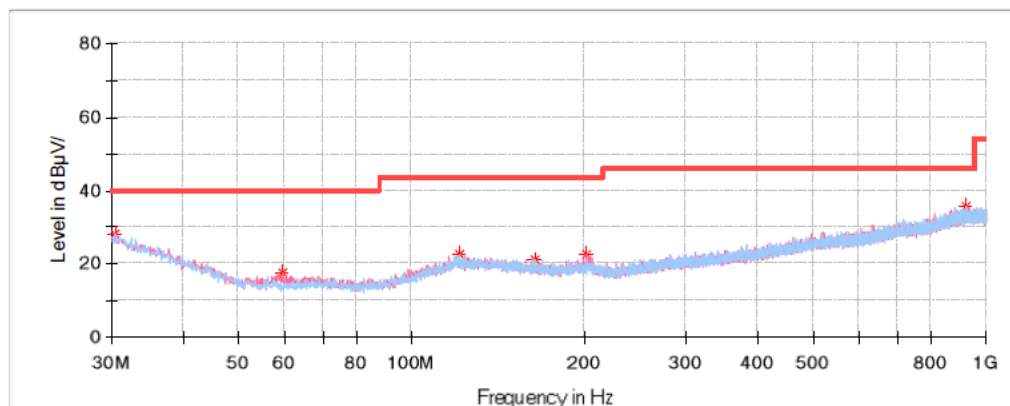


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.848750	28.58	40.00	11.42	V	-5.0
68.193750	17.27	40.00	22.73	H	-16.9
119.603750	22.28	43.50	21.22	V	-11.3
156.827500	21.56	43.50	21.94	H	-12.4
199.992500	22.27	43.50	21.23	V	-12.5
891.966250	35.89	46.00	10.11	V	1.1

Middle channel: 2437MHz**Common Information**

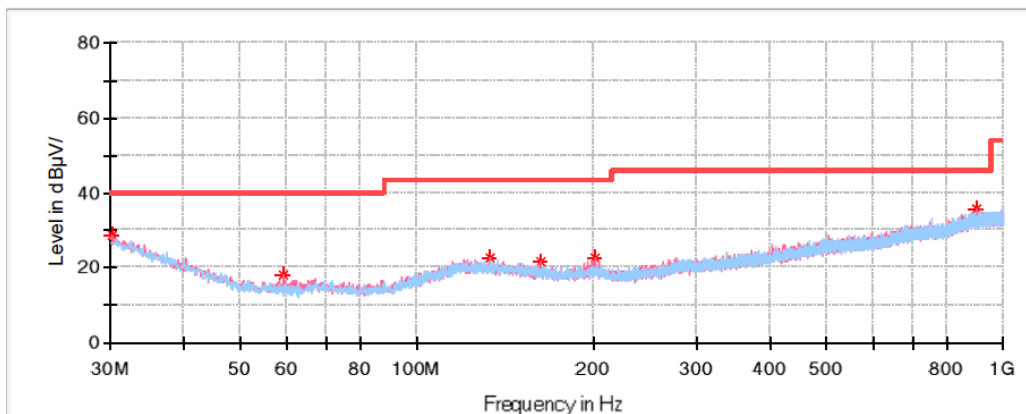
Project No: RKSA240112001
Test Mode: Transmitting in 802.11g mode middle channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical_Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.485000	28.33	40.00	11.67	V	-4.8
59.585000	17.73	40.00	22.27	V	-17.5
120.937500	22.54	43.50	20.96	V	-11.2
163.860000	21.21	43.50	22.29	H	-12.7
201.205000	22.68	43.50	20.82	V	-12.6
922.157500	35.51	46.00	10.49	H	1.4

High Channel: 2462MHz**Common Information**

Project No: RKSA240112001
Test Mode: Transmitting in 802.11g mode high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical_Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.121250	28.85	40.00	11.15	V	-4.5
59.100000	18.04	40.00	21.96	V	-17.4
132.941250	22.40	43.50	21.10	V	-11.4
162.768750	21.63	43.50	21.87	V	-12.7
201.811250	22.67	43.50	20.83	V	-12.6
901.060000	35.49	46.00	10.51	V	1.3

1GHz-18GHz:**802.11b Mode:****Low Channel: 2412MHz****Common Information**

Project No.:

RKSA240112001

Test Mode:

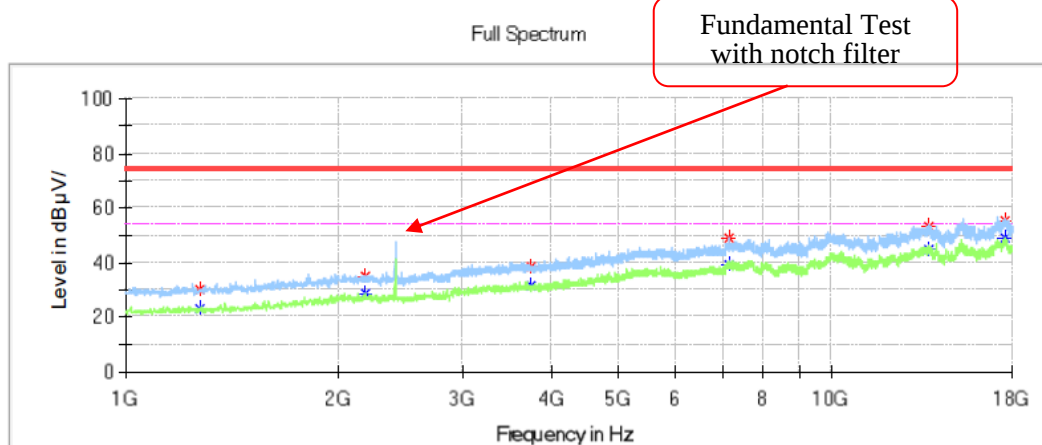
802.11b Mode of Low Channel

Standard:

FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Engineer:

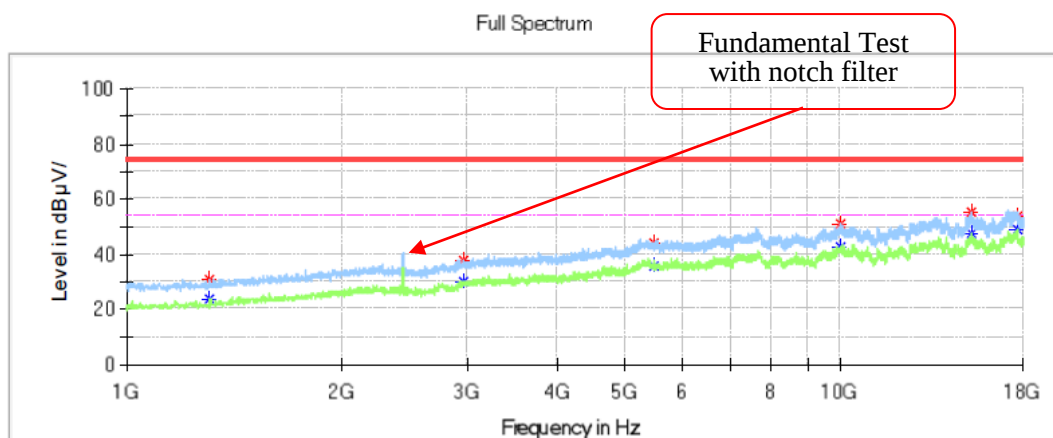
Peter Wang

**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)
1275.400000	---	23.08	54.00	30.92	H	-14.6
1275.400000	30.16	---	74.00	43.84	H	-14.6
2184.900000	---	28.53	54.00	25.47	H	-10.3
2184.900000	34.92	---	74.00	39.08	H	-10.3
3748.900000	38.22	---	74.00	35.78	H	-5.6
3748.900000	---	31.41	54.00	22.59	H	-5.6
7135.300000	49.15	---	74.00	24.85	H	3.9
7135.300000	---	39.07	54.00	14.93	H	3.9
13705.800000	53.35	---	74.00	20.65	H	10.8
13705.800000	---	44.69	54.00	9.31	H	10.8
17605.600000	55.09	---	74.00	18.91	V	13.2
17605.600000	---	48.98	54.00	5.02	V	13.2

Middle Channel: 2437MHz**Common Information**

Project No.: RKSA240112001
 Test Mode: 802.11b Mode of Middle 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)
1307.700000	---	23.82	54.00	30.18	V	-14.5
1307.700000	30.55	---	74.00	43.45	V	-14.5
2953.300000	37.72	---	74.00	36.28	H	-8.2
2953.300000	---	30.07	54.00	23.93	H	-8.2
5457.400000	43.78	---	74.00	30.22	H	0.7
5457.400000	---	35.83	54.00	18.17	H	0.7
9991.300000	50.82	---	74.00	23.18	H	7.8
9991.300000	---	42.37	54.00	11.63	H	7.8
15252.800000	54.98	---	74.00	19.02	H	11.0
15252.800000	---	47.23	54.00	6.77	H	11.0
17614.100000	54.06	---	74.00	19.94	H	13.1
17614.100000	---	48.66	54.00	5.34	H	13.1

High Channel: 2462MHz**Common Information**

Project No.:

RKSA240112001

Test Mode:

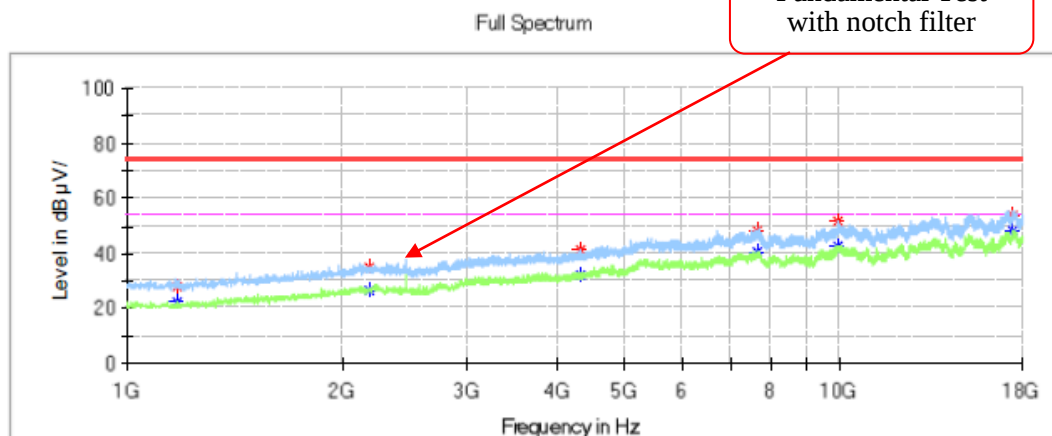
802.11b Mode of High Channel

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)
1178.500000	28.02	---	74.00	45.98	V	-15.0
1178.500000	---	22.17	54.00	31.83	V	-15.0
2183.200000	34.67	---	74.00	39.33	H	-10.3
2183.200000	---	26.44	54.00	27.56	H	-10.3
4320.100000	41.46	---	74.00	32.54	H	-4.2
4320.100000	---	31.89	54.00	22.11	H	-4.2
7662.300000	48.10	---	74.00	25.90	H	4.1
7662.300000	---	40.37	54.00	13.63	H	4.1
9930.100000	51.86	---	74.00	22.14	H	7.6
9930.100000	---	42.91	54.00	11.09	H	7.6
17469.600000	53.90	---	74.00	20.10	H	13.5
17469.600000	---	48.46	54.00	5.54	H	13.5

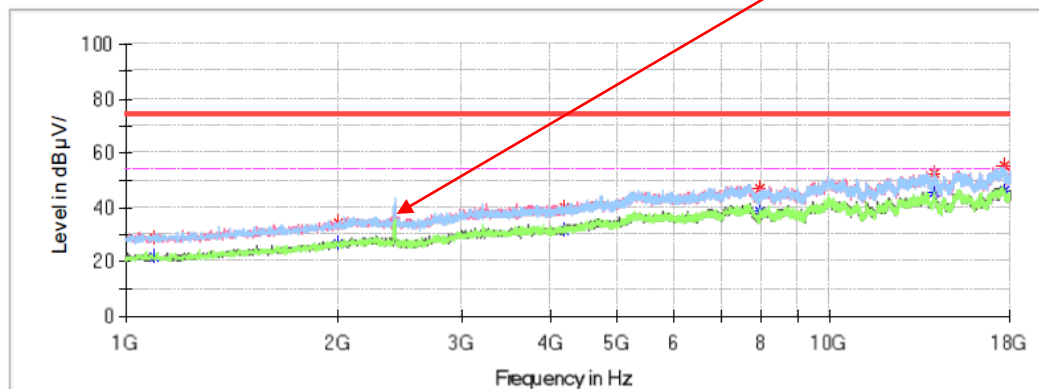
802.11g Mode:**Low Channel: 2412MHz****Common Information**

Project No.:
Test Mode:
Standard:
Test Engineer:

RKSA240112001
802.11g Mode of Low Channel
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Peter Wang

Fundamental Test
with notch filter

Full Spectrum

**Critical_Freqs**

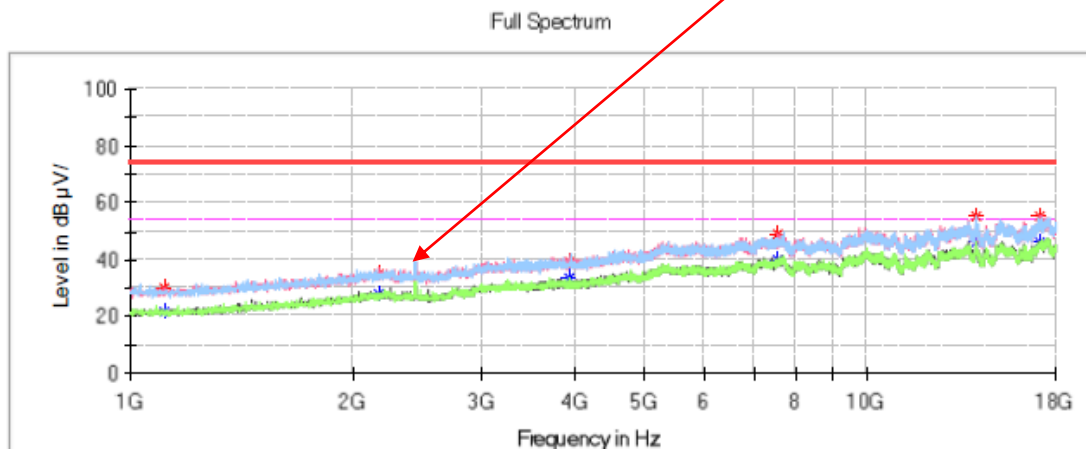
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1095.200000	---	21.47	54.00	32.53	V	-15.2
1095.200000	28.72	---	74.00	45.28	V	-15.2
2006.400000	---	26.53	54.00	27.47	V	-10.6
2006.400000	34.43	---	74.00	39.57	V	-10.6
4192.600000	39.90	---	74.00	34.10	V	-4.6
4192.600000	---	31.69	54.00	22.31	V	-4.6
7953.000000	46.95	---	74.00	27.05	V	3.9
7953.000000	---	38.68	54.00	15.32	V	3.9
14001.600000	52.31	---	74.00	21.69	H	10.5
14001.600000	---	45.42	54.00	8.58	H	10.5
17615.800000	---	45.84	54.00	8.16	H	13.1
17615.800000	55.02	---	74.00	18.98	H	13.1

Middle Channel: 2437MHz**Common Information**

Project No.:
Test Mode:
Standard:
Test Engineer:

RKSA240112001
802.11g Mode of Middle Channel
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
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)
1110.500000	30.20	---	74.00	43.80	V	-15.2
1110.500000	---	22.02	54.00	31.98	V	-15.2
2166.200000	35.28	---	74.00	38.72	H	-10.3
2166.200000	---	27.66	54.00	26.34	H	-10.3
3949.500000	39.11	---	74.00	34.89	H	-5.2
3949.500000	---	33.48	54.00	20.52	H	-5.2
7555.200000	49.29	---	74.00	24.71	V	4.1
7555.200000	---	39.77	54.00	14.23	V	4.1
14001.600000	55.31	---	74.00	18.69	H	10.5
14001.600000	---	45.97	54.00	8.03	H	10.5
17093.900000	---	45.99	54.00	8.01	H	12.6
17093.900000	55.51	---	74.00	18.49	H	12.6

High Channel: 2462MHz**Common Information**

Project No.:

RKSA240112001

Test Mode:

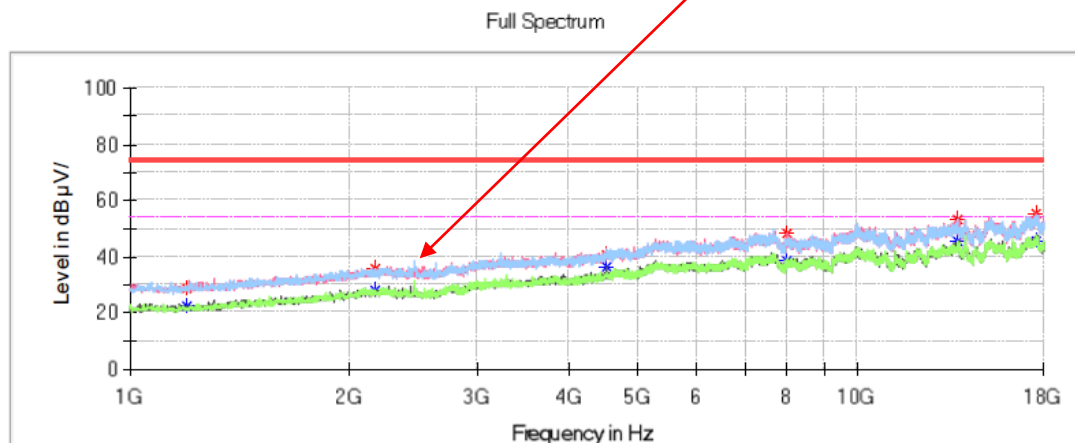
802.11g Mode of High Channel

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)
1200.600000	28.91	---	74.00	45.09	V	-14.9
1200.600000	---	22.47	54.00	31.53	V	-14.9
2171.300000	35.59	---	74.00	38.41	H	-10.3
2171.300000	---	28.03	54.00	25.97	H	-10.3
4512.200000	40.63	---	74.00	33.37	V	-3.7
4512.200000	---	36.33	54.00	17.67	V	-3.7
7987.000000	48.32	---	74.00	25.68	V	3.8
7987.000000	---	38.43	54.00	15.57	V	3.8
13676.900000	52.84	---	74.00	21.16	H	10.8
13676.900000	---	45.53	54.00	8.47	H	10.8
17525.700000	---	45.57	54.00	8.43	V	13.5
17525.700000	55.26	---	74.00	18.74	V	13.5

802.11n-HT20 Mode :

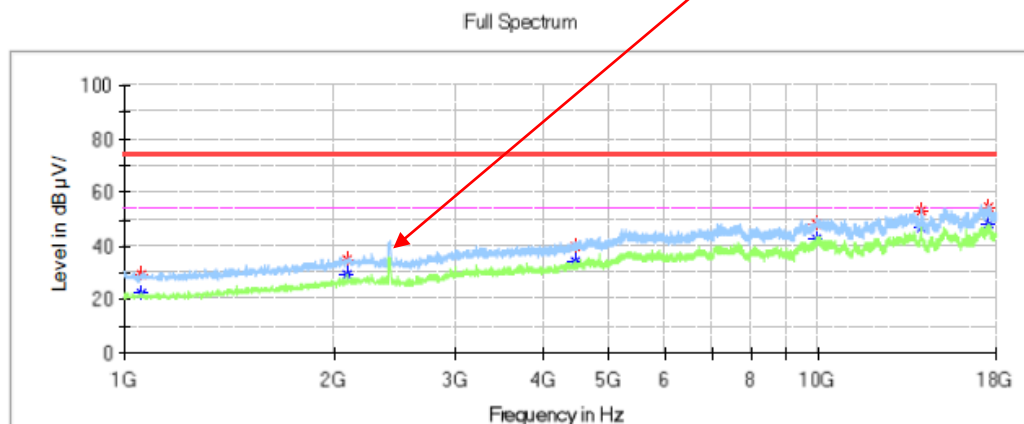
Low Channel: 2412MHz

Common Information

Project No.:
Test Mode:
Standard:
Test Engineer:

RKSA240112001
802.11n20 Mode of Low Channel
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Peter Wang

Fundamental Test
with notch filter

**Critical Freqs**

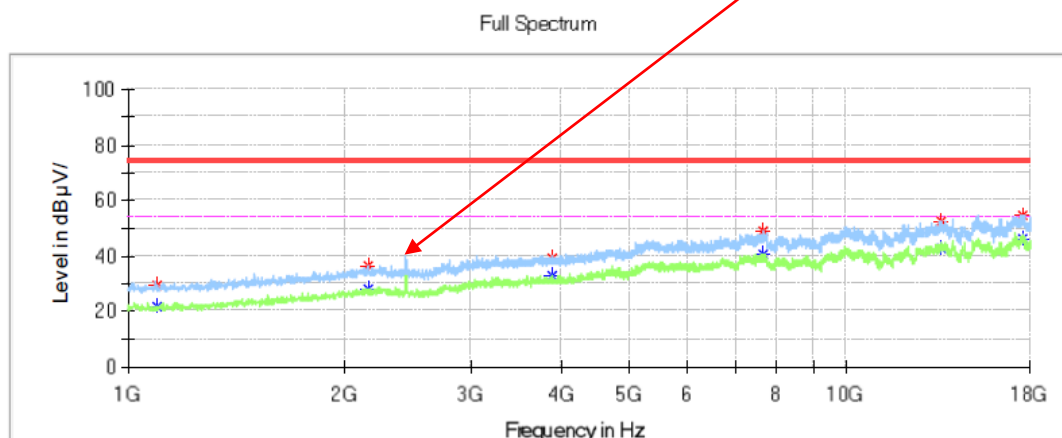
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1054.400000	29.03	---	74.00	44.97	V	-15.3
1054.400000	---	22.09	54.00	31.91	V	-15.3
2089.700000	34.82	---	74.00	39.18	H	-10.4
2089.700000	---	29.43	54.00	24.57	H	-10.4
4462.900000	40.06	---	74.00	33.94	H	-3.9
4462.900000	---	34.37	54.00	19.63	H	-3.9
9925.000000	48.24	---	74.00	25.76	H	7.6
9925.000000	---	42.54	54.00	11.46	H	7.6
14005.000000	53.43	---	74.00	20.57	H	10.5
14005.000000	---	47.14	54.00	6.86	H	10.5
17573.300000	54.40	---	74.00	19.60	H	13.3
17573.300000	---	48.18	54.00	5.82	H	13.3

Middle Channel: 2437MHz**Common Information**

Project No.:
Test Mode:
Standard:
Test Engineer:

RKSA240112001
802.11n20 Mode of Middle Channel
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
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)
1098.600000	29.47	---	74.00	44.53	V	-15.2
1098.600000	---	21.99	54.00	32.01	V	-15.2
2152.600000	36.32	---	74.00	37.68	H	-10.3
2152.600000	---	28.27	54.00	25.73	H	-10.3
3890.000000	38.83	---	74.00	35.17	H	-5.3
3890.000000	---	32.65	54.00	21.35	H	-5.3
7655.500000	48.74	---	74.00	25.26	H	4.1
7655.500000	---	40.72	54.00	13.28	H	4.1
13500.100000	---	42.96	54.00	11.04	H	11.0
13500.100000	52.38	---	74.00	21.62	H	11.0
17590.300000	---	46.17	54.00	7.83	H	13.2
17590.300000	54.88	---	74.00	19.12	H	13.2

High Channel: 2462MHz**Common Information**

Project No.:

RKSA240112001

Test Mode:

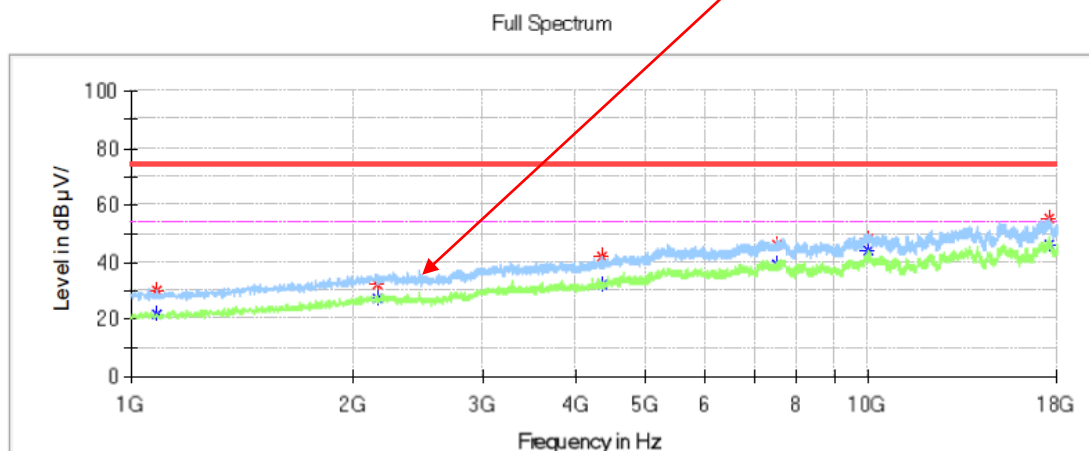
802.11n20 Mode of High Channel

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)
1083.300000	30.12	---	74.00	43.88	H	-15.3
1083.300000	---	21.91	54.00	32.09	H	-15.3
2164.500000	---	27.22	54.00	26.78	H	-10.3
2164.500000	32.02	---	74.00	41.98	H	-10.3
4342.200000	41.93	---	74.00	32.07	H	-4.2
4342.200000	---	32.12	54.00	21.88	H	-4.2
7524.600000	45.94	---	74.00	28.06	H	4.2
7524.600000	---	39.32	54.00	14.68	H	4.2
9972.600000	48.04	---	74.00	25.96	H	7.7
9972.600000	---	43.85	54.00	10.15	H	7.7
17563.100000	---	46.46	54.00	7.54	H	13.4
17563.100000	55.32	---	74.00	18.68	H	13.4

802.11n-HT40 Mode :

Low Channel: 2422MHz

Common Information

Project No.:

RKSA240112001

Test Mode:

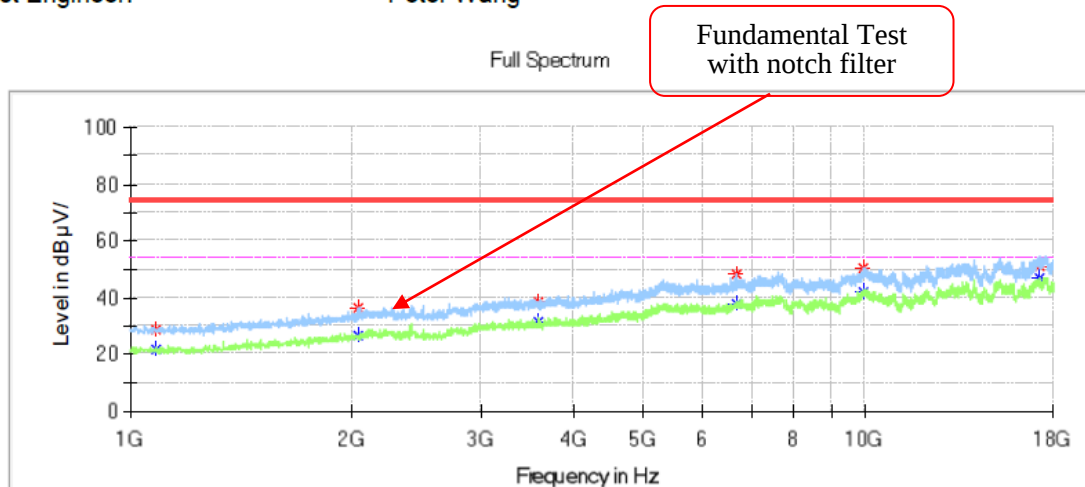
802.11n40 Mode of Low Channel

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)
1086.700000	28.79	---	74.00	45.21	H	-15.2
1086.700000	---	21.84	54.00	32.16	H	-15.2
2035.300000	36.06	---	74.00	37.94	H	-10.5
2035.300000	---	26.67	54.00	27.33	H	-10.5
3589.100000	38.60	---	74.00	35.40	H	-5.9
3589.100000	---	31.68	54.00	22.32	H	-5.9
6655.900000	48.20	---	74.00	25.80	H	1.8
6655.900000	---	38.07	54.00	15.93	H	1.8
9942.000000	50.10	---	74.00	23.90	H	7.6
9942.000000	---	42.28	54.00	11.72	H	7.6
17185.700000	51.17	---	74.00	22.83	H	12.8
17185.700000	---	47.15	54.00	6.85	H	12.8

Middle Channel: 2437MHz**Common Information**

Project No.:

RKSA240112001

Test Mode:

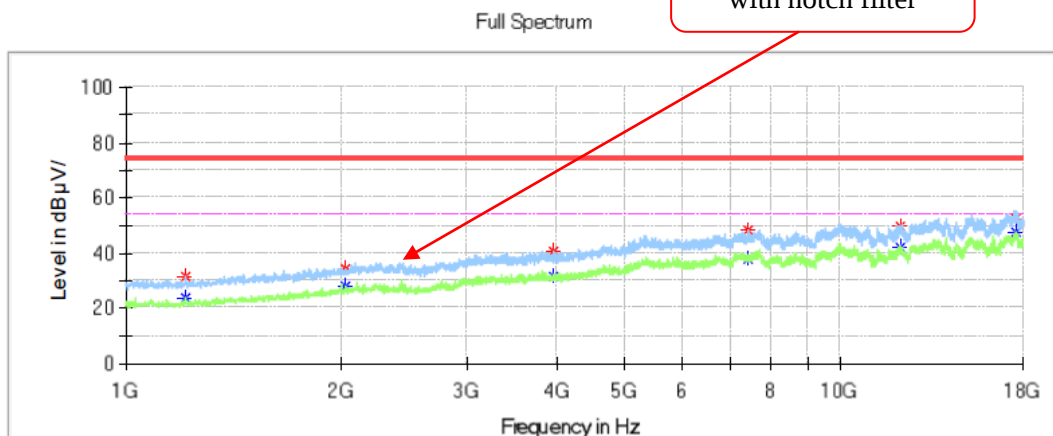
802.11n40 Mode of Middle Channel

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)
1210.800000	31.21	---	74.00	42.79	V	-14.8
1210.800000	---	23.43	54.00	30.57	V	-14.8
2031.900000	34.37	---	74.00	39.63	H	-10.5
2031.900000	---	27.94	54.00	26.06	H	-10.5
3956.300000	40.30	---	74.00	33.70	H	-5.1
3956.300000	---	31.52	54.00	22.48	H	-5.1
7432.800000	48.01	---	74.00	25.99	H	4.1
7432.800000	---	37.54	54.00	16.46	H	4.1
12077.200000	49.49	---	74.00	24.51	H	7.1
12077.200000	---	41.83	54.00	12.17	H	7.1
17554.600000	52.70	---	74.00	21.30	H	13.4
17554.600000	---	47.53	54.00	6.47	H	13.4

High Channel: 2452MHz**Common Information**

Project No.:

RKSA240112001

Test Mode:

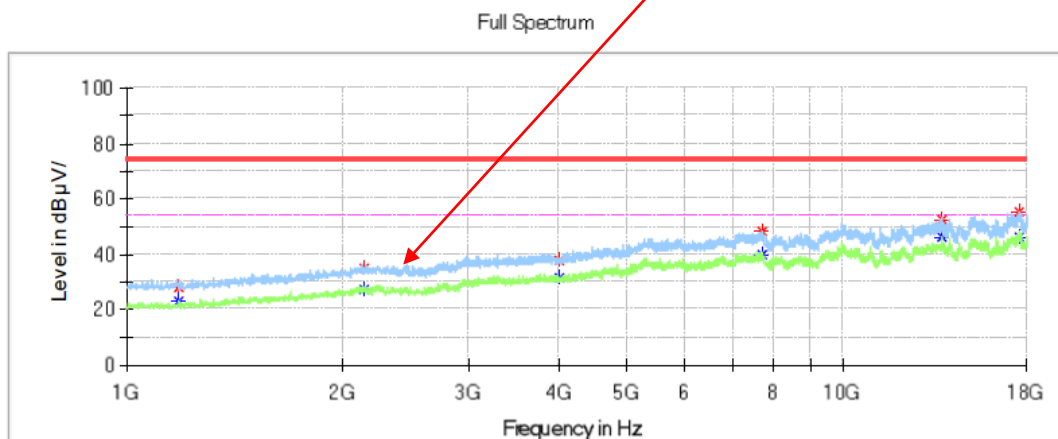
802.11n40 Mode of High Channel

Standard:

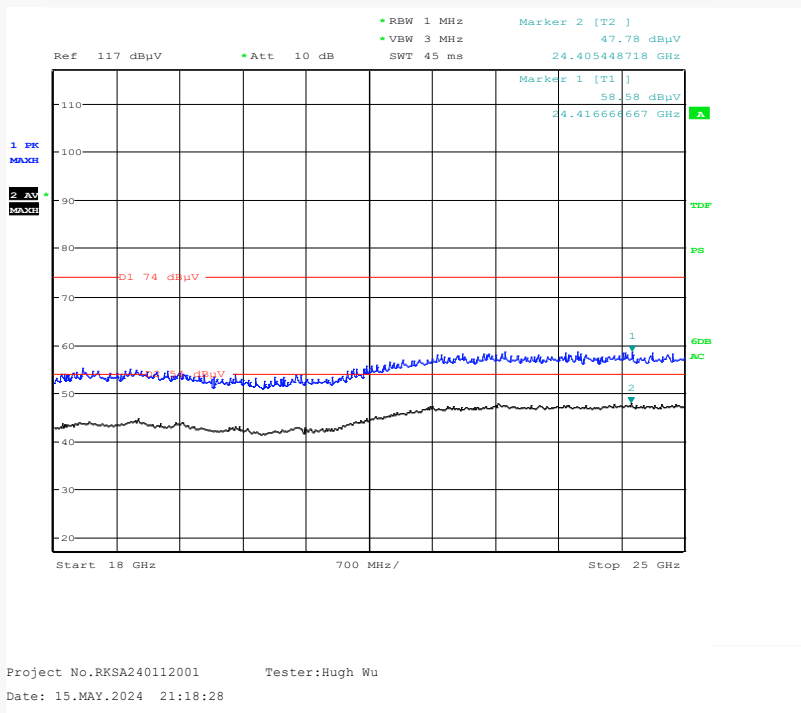
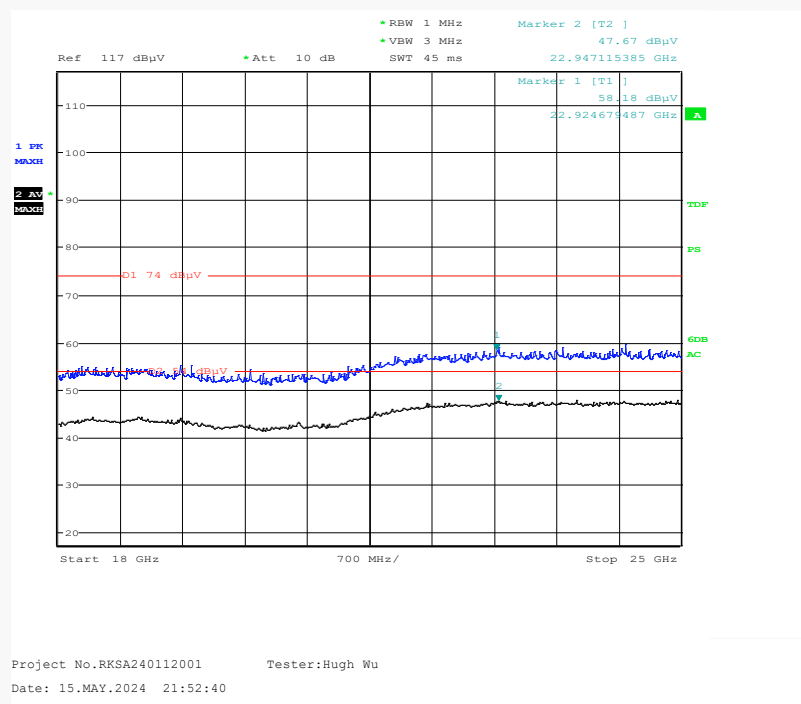
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Engineer:

Peter Wang

Fundamental Test
with notch filter**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB µV/m)	Average (dB µV/m)	Limit (dB µV/m)	Margin (dB)	Pol	Corr. (dB/m)
1183.600000	27.72	---	74.00	46.28	H	-14.9
1183.600000	---	23.36	54.00	30.64	H	-14.9
2142.400000	34.75	---	74.00	39.25	H	-10.3
2142.400000	---	27.57	54.00	26.43	H	-10.3
4012.400000	37.59	---	74.00	36.41	H	-5.0
4012.400000	---	31.40	54.00	22.60	H	-5.0
7709.900000	48.21	---	74.00	25.79	H	4.0
7709.900000	---	40.06	54.00	13.94	H	4.0
13680.300000	52.71	---	74.00	21.29	H	10.8
13680.300000	---	46.21	54.00	7.79	H	10.8
17612.400000	---	46.50	54.00	7.50	V	13.2
17612.400000	55.22	---	74.00	18.78	V	13.2

18GHz-25GHz:**Transmitting in 802.11g mode middle channel is worst case****Horizontal****Vertical**

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

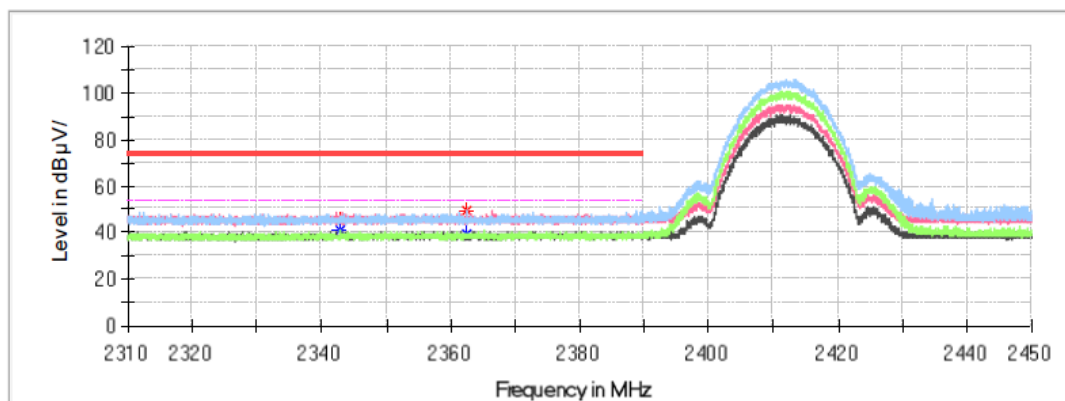
Band Edge:
802.11b Mode:

Low Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11b 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

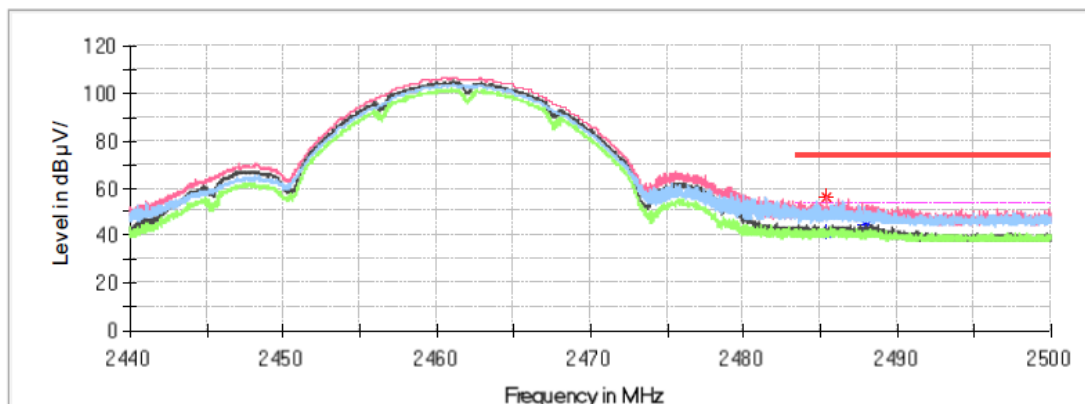
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2342.998000	45.51	---	74.00	28.49	H	0.0
2342.998000	---	41.01	54.00	12.99	H	0.0
2362.444000	49.41	---	74.00	24.59	H	0.0
2362.444000	---	39.32	54.00	14.68	V	0.0

High Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11b mode of high 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)
2485.414000	56.26	---	74.00	17.74	V	0.2
2485.414000	---	41.44	54.00	12.56	V	0.2
2487.964000	49.09	---	74.00	24.91	V	0.2
2487.964000	---	44.64	54.00	9.36	V	0.2

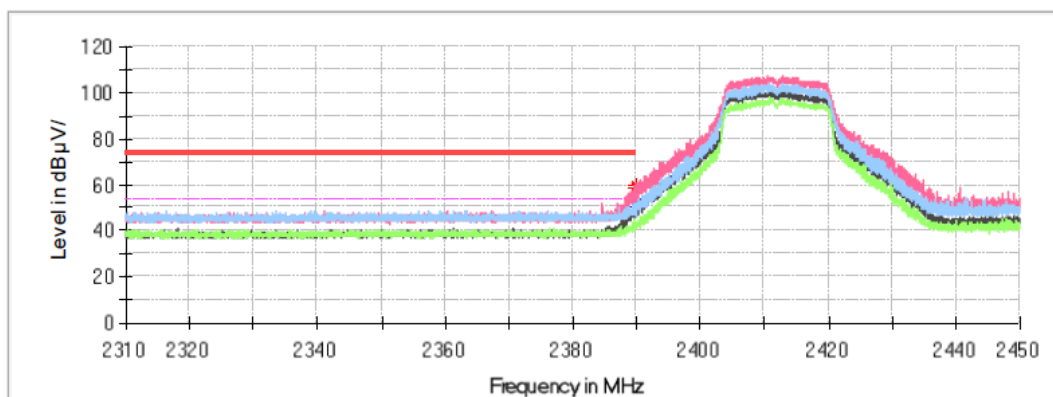
802.11g Mode :

Low Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 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

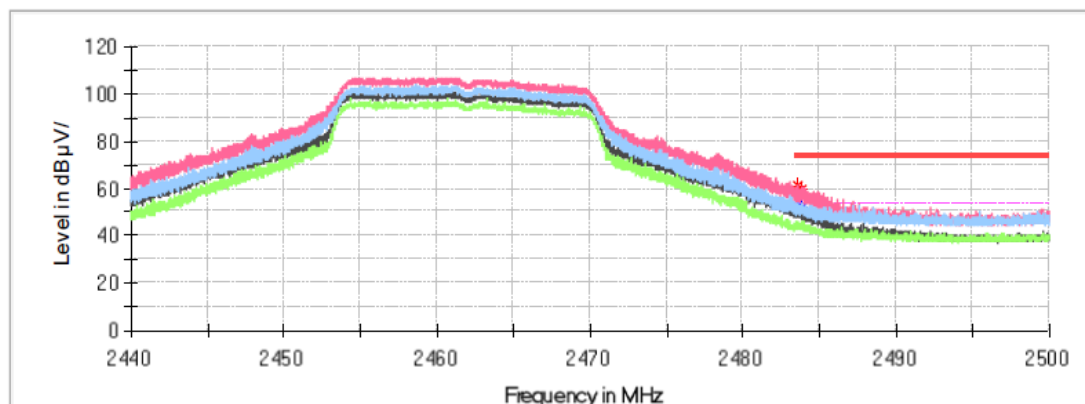
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.828000	59.92	---	74.00	14.08	V	0.1
2389.828000	---	50.20	54.00	3.80	V	0.1
2389.940000	58.70	---	74.00	15.30	V	0.1
2389.940000	---	51.66	54.00	2.34	V	0.1

High Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11g mode of high 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)
2483.584000	61.36	---	74.00	12.64	V	0.2
2483.584000	---	52.10	54.00	1.90	V	0.2
2483.782000	59.61	---	74.00	14.39	V	0.2
2483.782000	---	52.24	54.00	1.76	V	0.2

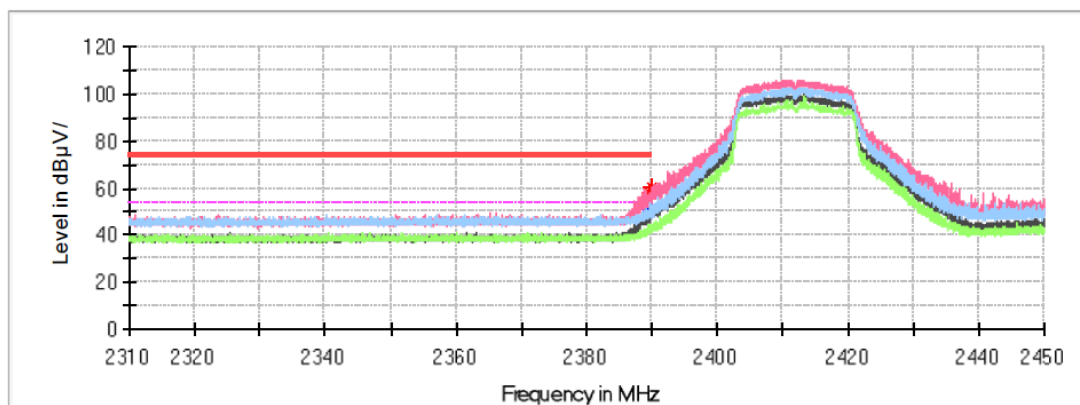
802.11n-HT20 Mode:

Low Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11n20 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

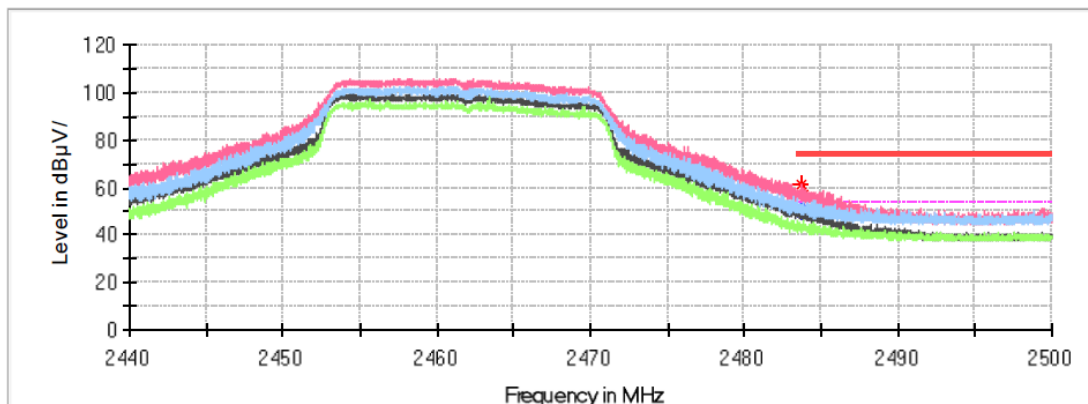
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.688000	---	51.25	54.00	2.75	V	0.1
2389.688000	57.90	---	74.00	16.10	V	0.1
2389.842000	---	50.43	54.00	3.57	V	0.1
2389.842000	60.41	---	74.00	13.59	V	0.1

High Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11n20 mode of high 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)
2483.698000	---	49.17	54.00	4.83	V	0.2
2483.698000	60.97	---	74.00	13.03	V	0.2
2483.818000	---	51.19	54.00	2.81	V	0.2
2483.818000	57.12	---	74.00	16.88	V	0.2

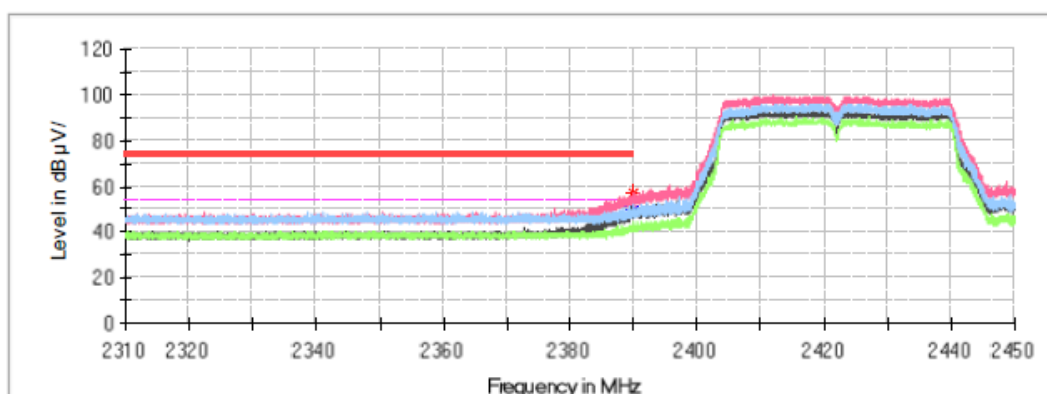
802.11n-HT40 Mode:

Low Channel

Common Information

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 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



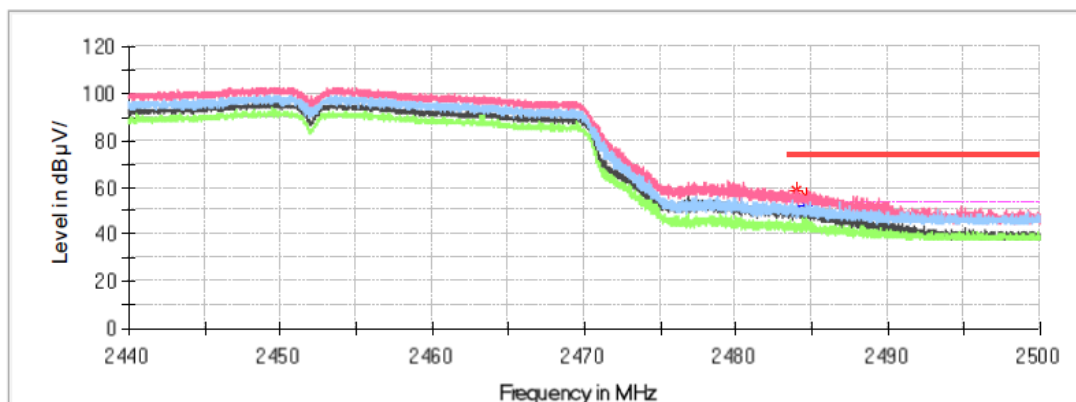
Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2389.506000	---	50.85	54.00	3.15	V	0.1
2389.506000	52.89	---	74.00	21.11	V	0.1
2389.982000	---	49.36	54.00	4.64	V	0.1
2389.982000	56.98	---	74.00	17.02	V	0.1

High Channel**Common Information**

Project No.: RKSA240112001
Test Mode: 2.4G Wi-Fi 802.11n40 mode of high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Peter Wang

Full Spectrum

**Critical_Freqs**

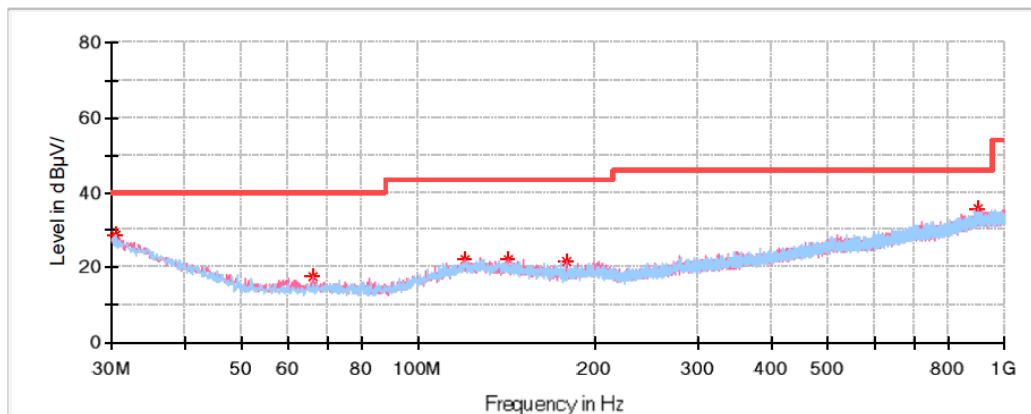
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.992000	---	50.69	54.00	3.31	V	0.2
2483.992000	59.00	---	74.00	15.00	V	0.2
2484.664000	---	51.71	54.00	2.29	V	0.2
2484.664000	56.28	---	74.00	17.72	V	0.2

**For BLE Mode:
30MHz-1GHz**

Low Channel: 2402MHz

Common Information

Project No: RKSA240112001
Test Mode: Transmitting in BLE 1M mode low channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

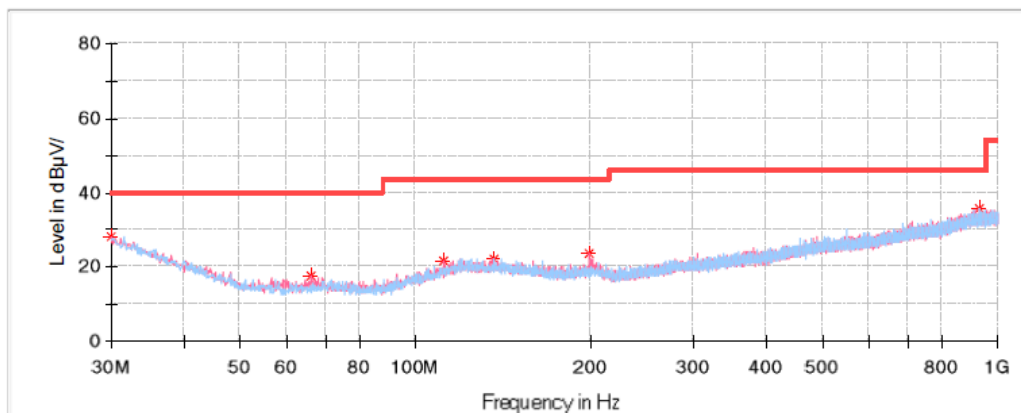


Critical Freqs

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.485000	28.72	40.00	11.28	H	-4.8
66.011250	17.40	40.00	22.60	V	-17.1
120.210000	22.26	43.50	21.24	V	-11.2
142.762500	22.33	43.50	21.17	V	-11.7
179.016250	21.55	43.50	21.95	V	-13.2
904.333750	35.62	46.00	10.38	V	1.3

Middle Channel: 2440MHz**Common Information**

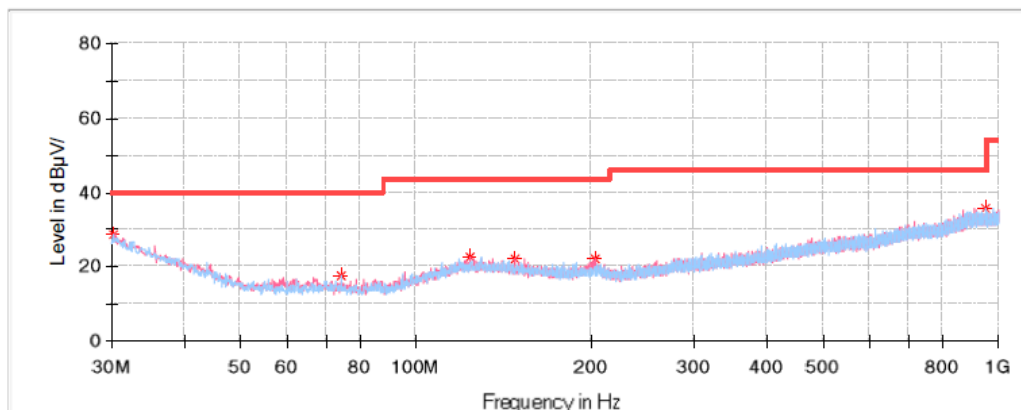
Project No: RKSA240112001
Test Mode: Transmitting in BLE 1M mode middle channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical_Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.000000	28.33	40.00	11.67	V	-4.4
66.253750	17.39	40.00	22.61	V	-17.0
111.965000	21.47	43.50	22.03	V	-12.6
136.215000	22.36	43.50	21.14	H	-11.5
199.143750	23.45	43.50	20.05	V	-12.6
927.492500	35.89	46.00	10.11	H	1.4

High Channel: 2480MHz**Common Information**

Project No: RKSA240112001
Test Mode: Transmitting in BLE 1M mode high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical_Freqs**

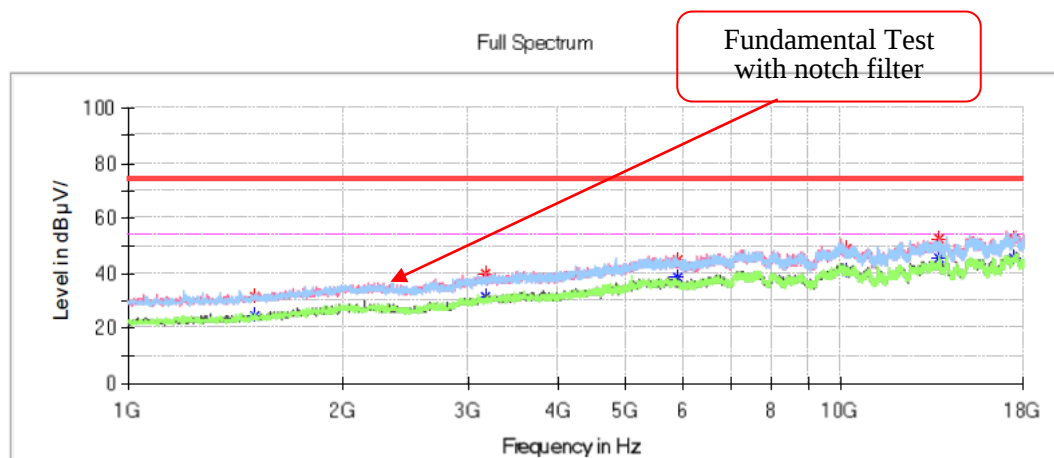
Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.121250	28.72	40.00	11.28	H	-4.5
74.377500	17.48	40.00	22.52	H	-17.1
123.726250	22.55	43.50	20.95	V	-11.3
147.855000	22.36	43.50	21.14	V	-11.9
202.417500	22.00	43.50	21.50	V	-12.7
950.287500	35.66	46.00	10.34	H	1.5

1GHz-18GHz:

Low Channel: 2402MHz

Common Information

Project No.: RKSA240112001
 Test Mode: BLE 1M Mode of Low Channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Peter Wang

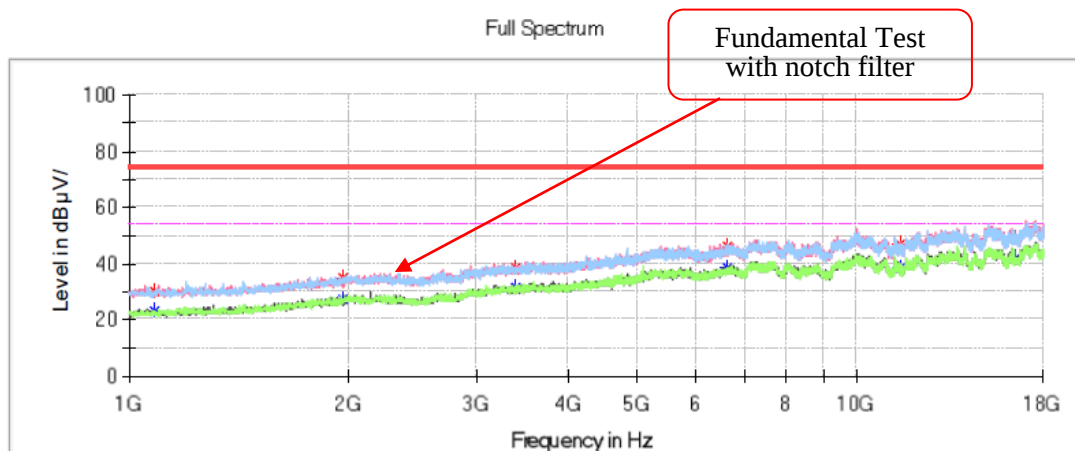


Critical_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1508.300000	---	24.18	54.00	29.82	H	-13.9
1508.300000	31.56	---	74.00	42.44	H	-13.9
3179.400000	---	31.13	54.00	22.87	V	-7.3
3179.400000	40.04	---	74.00	33.96	V	-7.3
5887.500000	---	38.62	54.00	15.38	V	0.3
5887.500000	44.64	---	74.00	29.36	V	0.3
10151.100000	---	40.75	54.00	13.25	H	7.6
10151.100000	49.15	---	74.00	24.85	H	7.6
13680.300000	---	45.53	54.00	8.47	V	10.8
13680.300000	52.36	---	74.00	21.64	V	10.8
17432.200000	---	45.46	54.00	8.54	V	13.4
17432.200000	52.79	---	74.00	21.21	V	13.4

Middle Channel: 2440MHz**Common Information**

Project No.: RKSA240112001
 Test Mode: BLE 1M Mode of Middle Channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Peter Wang

**Critical_Freqs**

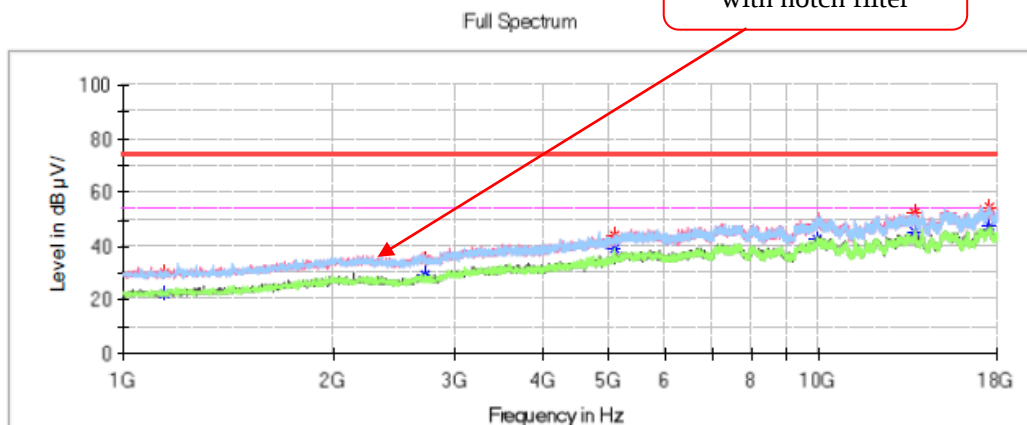
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1081.600000	---	23.26	54.00	30.74	V	-15.3
1081.600000	30.12	---	74.00	43.88	V	-15.3
1969.000000	---	27.03	54.00	26.97	V	-10.8
1969.000000	34.80	---	74.00	39.20	V	-10.8
3402.100000	---	31.69	54.00	22.31	H	-6.5
3402.100000	38.41	---	74.00	35.59	H	-6.5
6635.500000	---	38.40	54.00	15.60	V	1.6
6635.500000	45.84	---	74.00	28.16	V	1.6
11468.600000	---	38.53	54.00	15.47	H	7.3
11468.600000	47.01	---	74.00	26.99	H	7.3
16459.800000	---	42.01	54.00	11.99	V	10.2
16459.800000	49.13	---	74.00	24.87	V	10.2

High Channel: 2480MHz**Common Information**

Project No.:
Test Mode:
Standard:
Test Engineer:

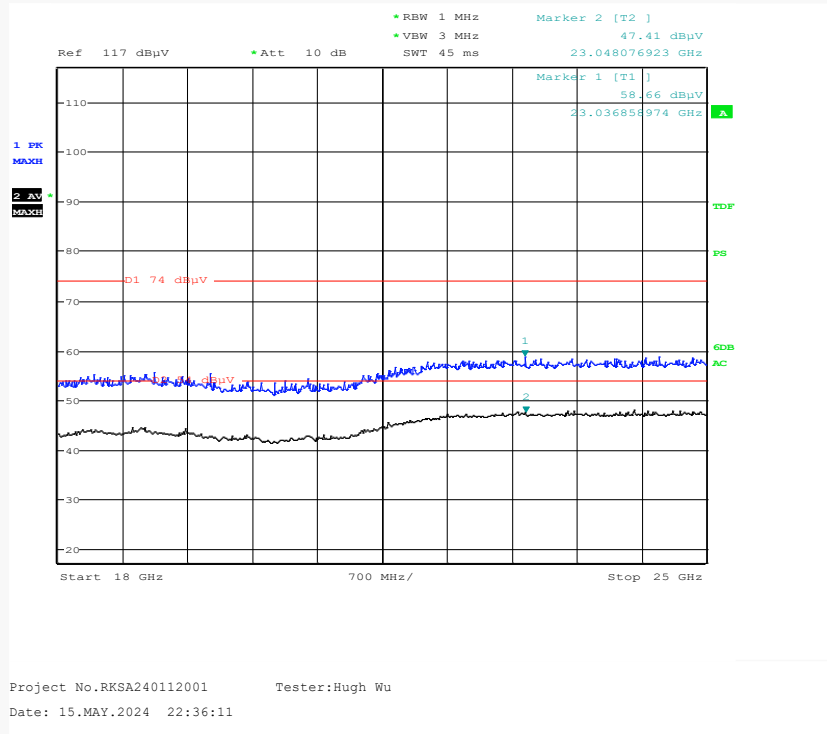
RKSA240112001
BLE 1M Mode of High Channel
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Peter Wang

Fundamental Test
with notch filter

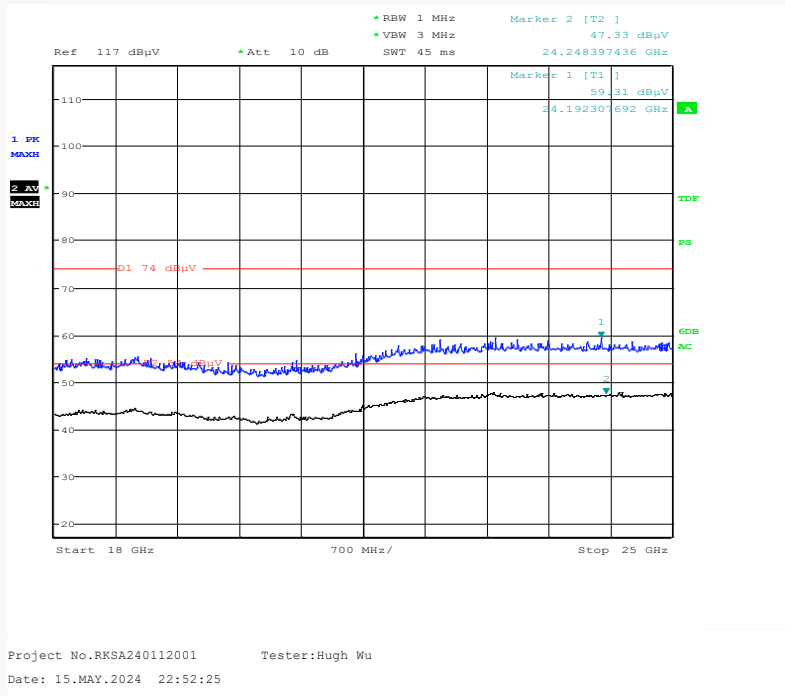
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1146.200000	---	22.63	54.00	31.37	V	-15.1
1146.200000	30.22	---	74.00	43.78	V	-15.1
2713.600000	---	29.48	54.00	24.52	V	-9.0
2713.600000	35.31	---	74.00	38.69	V	-9.0
5091.900000	---	39.38	54.00	14.62	H	-0.8
5091.900000	43.92	---	74.00	30.08	H	-0.8
9901.200000	---	42.79	54.00	11.21	V	7.5
9901.200000	48.44	---	74.00	25.56	V	7.5
13680.300000	---	45.53	54.00	8.47	V	10.8
13680.300000	52.36	---	74.00	21.64	V	10.8
17537.600000	---	47.70	54.00	6.30	V	13.5
17537.600000	54.22	---	74.00	19.78	V	13.5

18GHz-25GHz:
Middle channel worst
Horizontal:



Vertical:

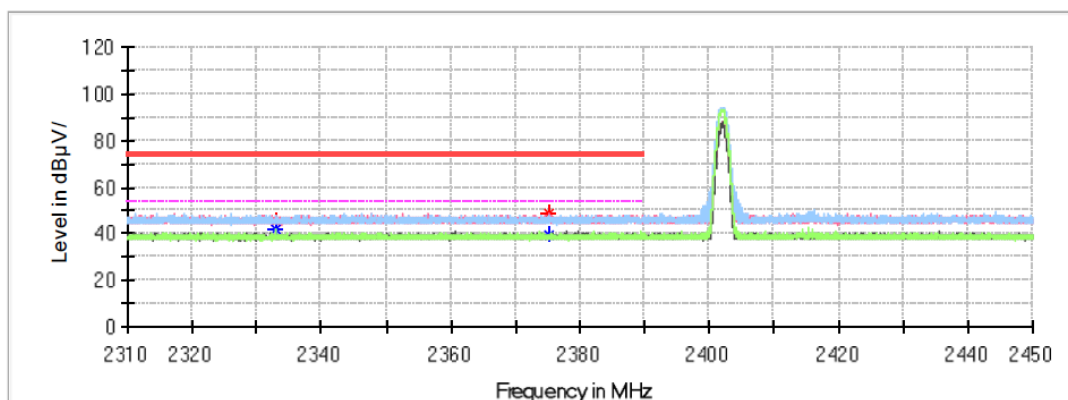


Note: The test distance is 3m. The limit is 74dBμV/m(Peak) and 54dBμV/m(Average).

Band Edge:**Low Channel****Common Information**

Project No.: RKSA240112001
Test Mode: BLE 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**

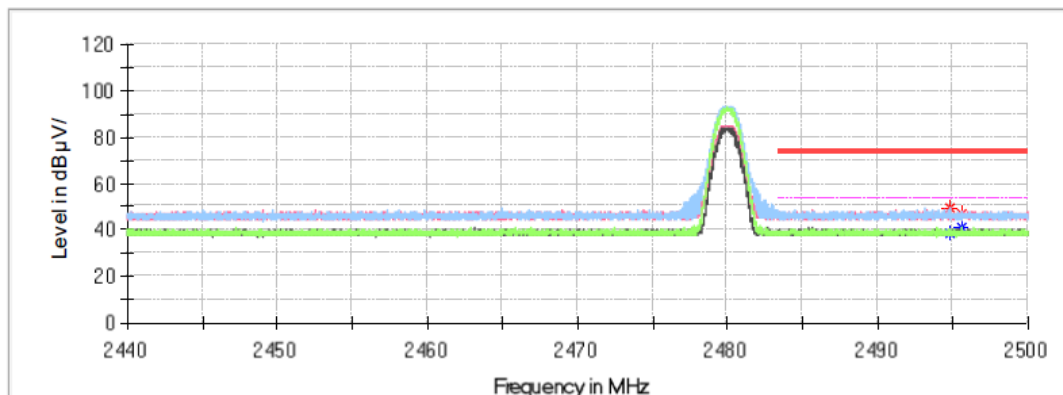
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2333.002000	---	42.03	54.00	11.97	H	0.0
2333.002000	45.29	---	74.00	28.71	H	0.0
2375.142000	---	39.78	54.00	14.22	V	0.0
2375.142000	48.74	---	74.00	25.26	V	0.0

High Channel

Common Information

Project No.: RKSA240112001
Test Mode: BLE mode of high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Peter Wang

Full Spectrum



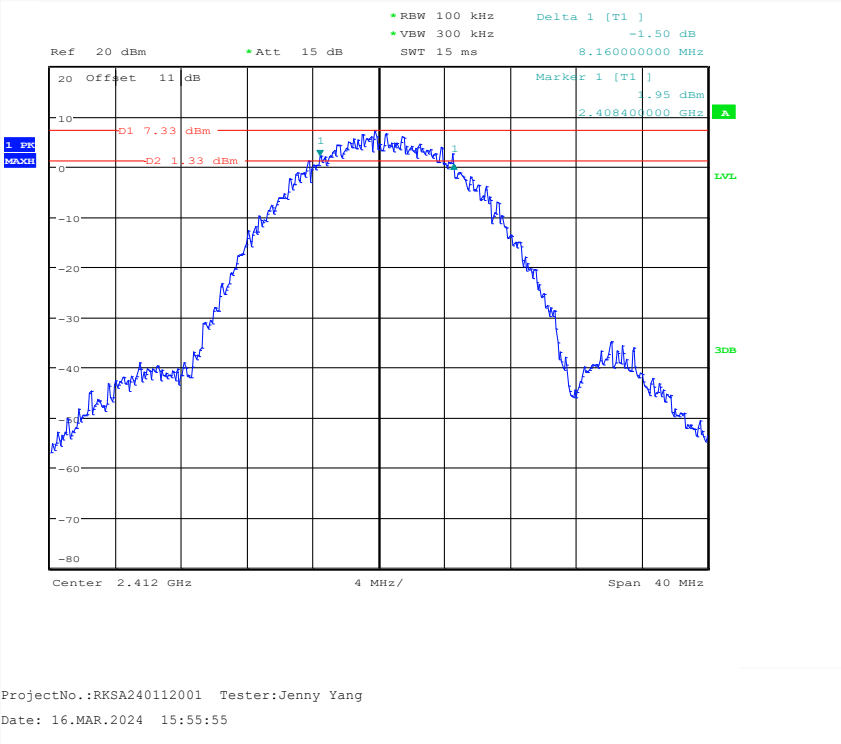
Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2494.780000	49.38	---	74.00	24.62	H	0.2
2494.780000	---	38.76	54.00	15.24	V	0.2
2495.650000	47.35	---	74.00	26.65	H	0.2
2495.650000	---	40.91	54.00	13.09	H	0.2

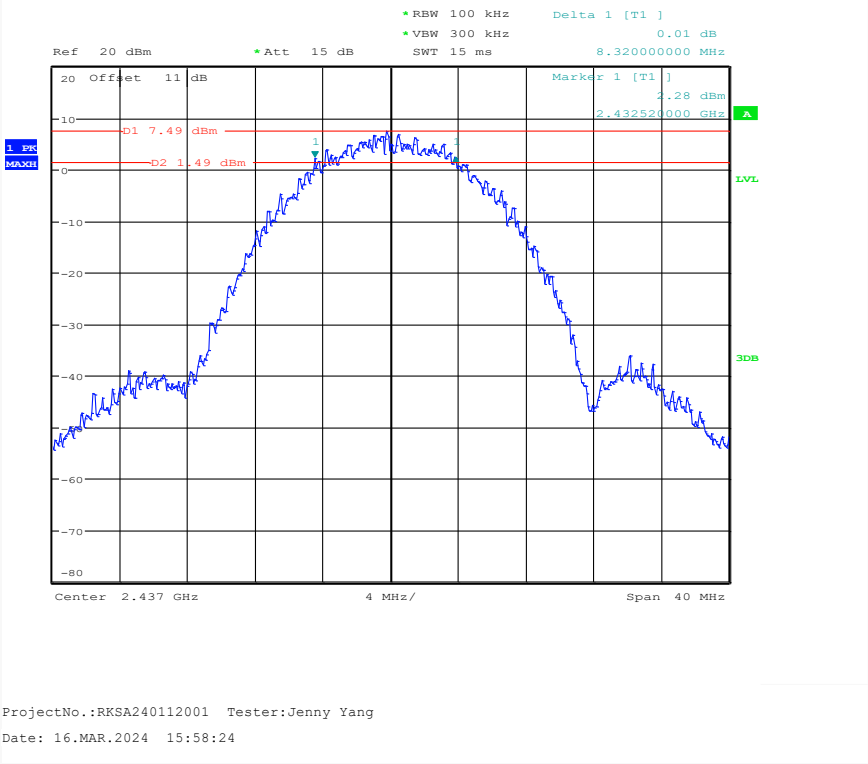
6 dB EMISSION BANDWIDTH**Test Result:** Compliant.*EUT operation mode: Transmitting***For Wi-Fi Mode:**

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b Mode			
Low	2412	8.16	≥ 0.5
Middle	2437	8.32	≥ 0.5
High	2462	8.32	≥ 0.5
802.11g Mode			
Low	2412	16.56	≥ 0.5
Middle	2437	16.48	≥ 0.5
High	2462	16.48	≥ 0.5
802.11n-HT20 Mode			
Low	2412	17.60	≥ 0.5
Middle	2437	17.76	≥ 0.5
High	2462	17.68	≥ 0.5
802.11n-HT40 Mode			
Low	2422	36.48	≥ 0.5
Middle	2437	36.48	≥ 0.5
High	2452	36.48	≥ 0.5

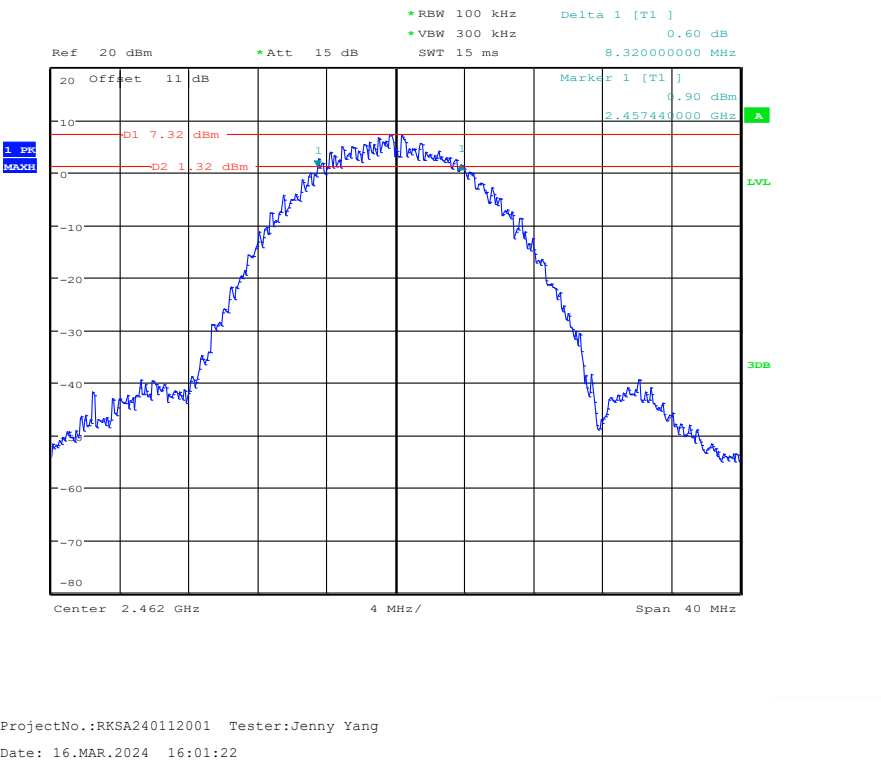
802.11b Mode Low Channel



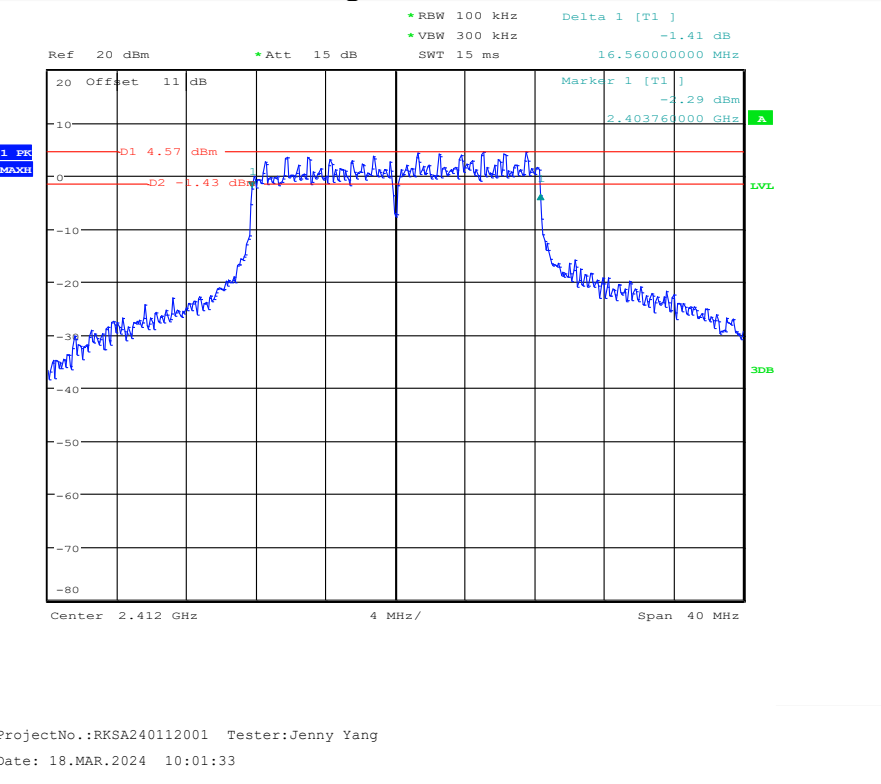
802.11b Mode Middle Channel



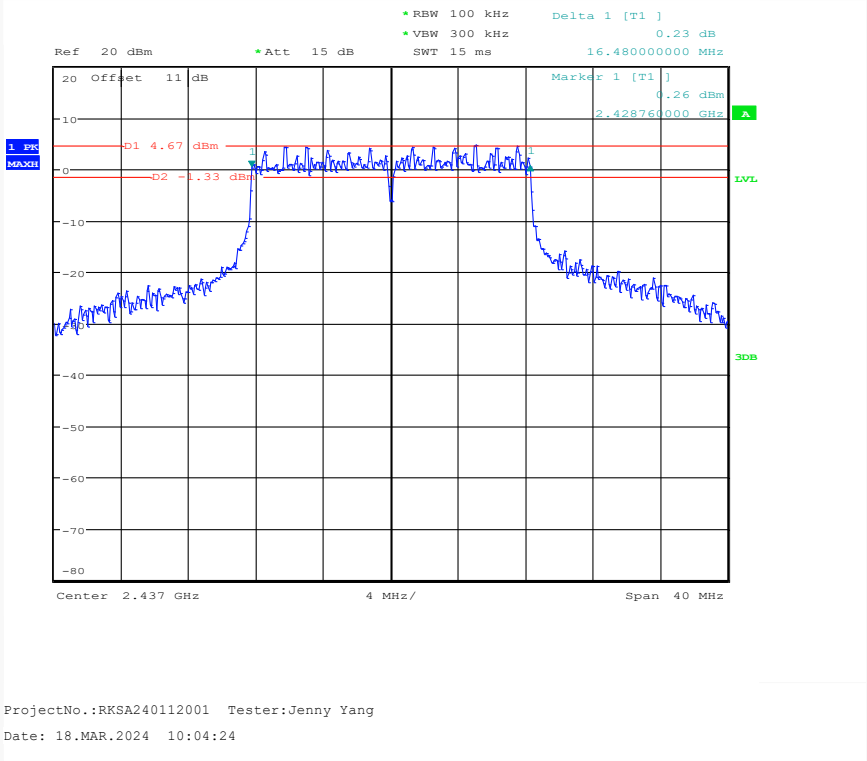
802.11b Mode High Channel



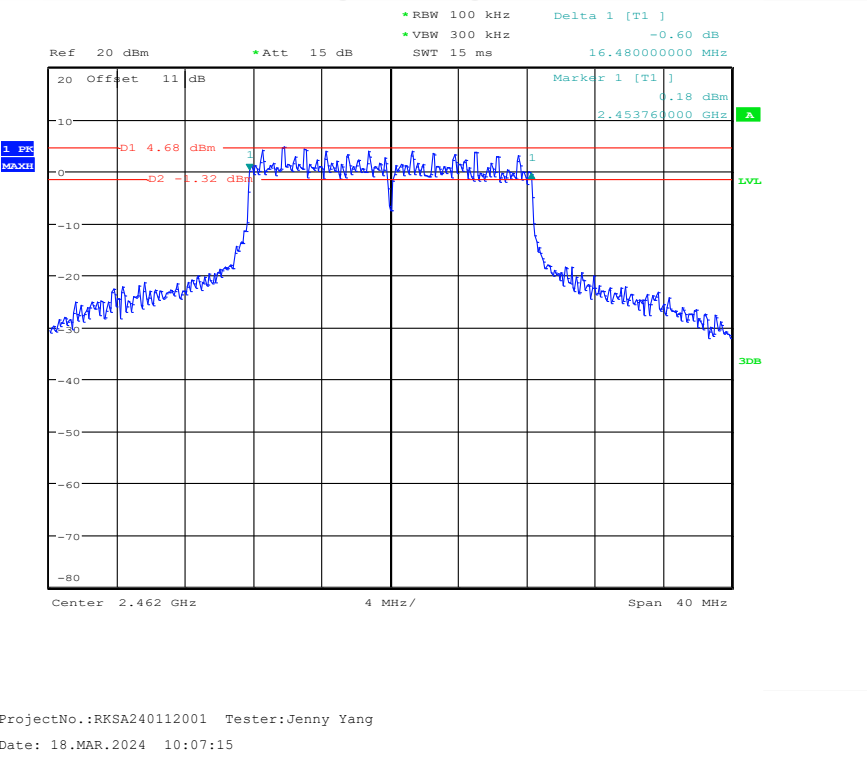
802.11g Mode Low Channel



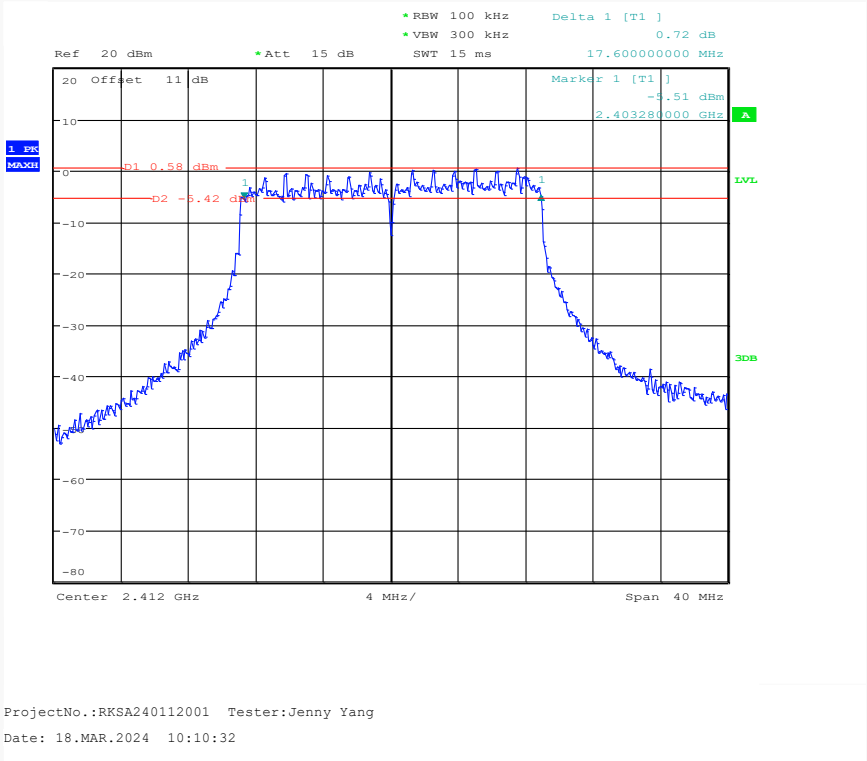
802.11g Mode Middle Channel



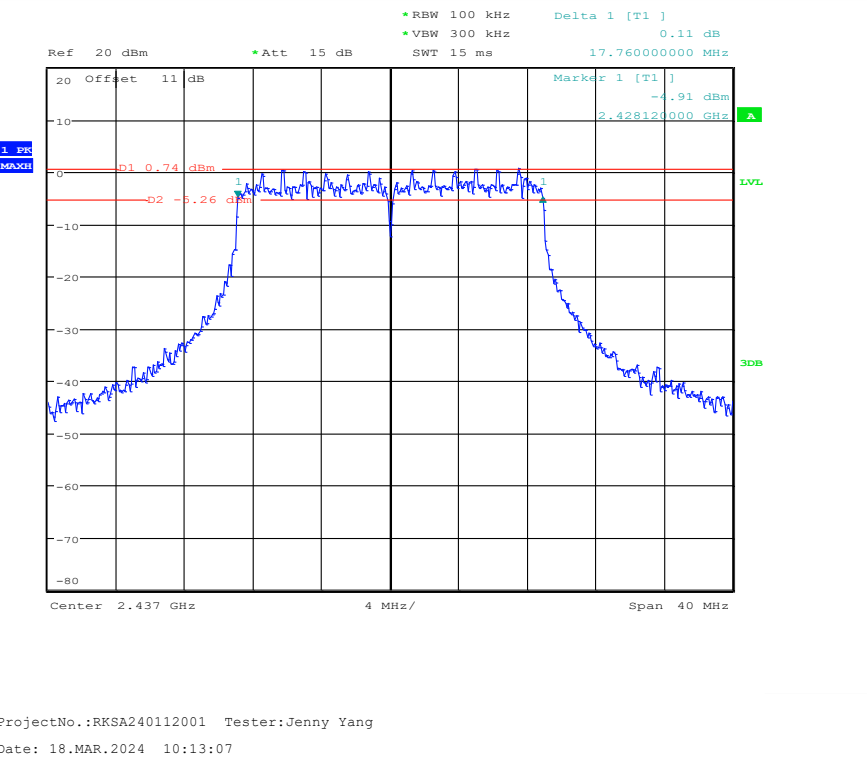
802.11g Mode High Channel



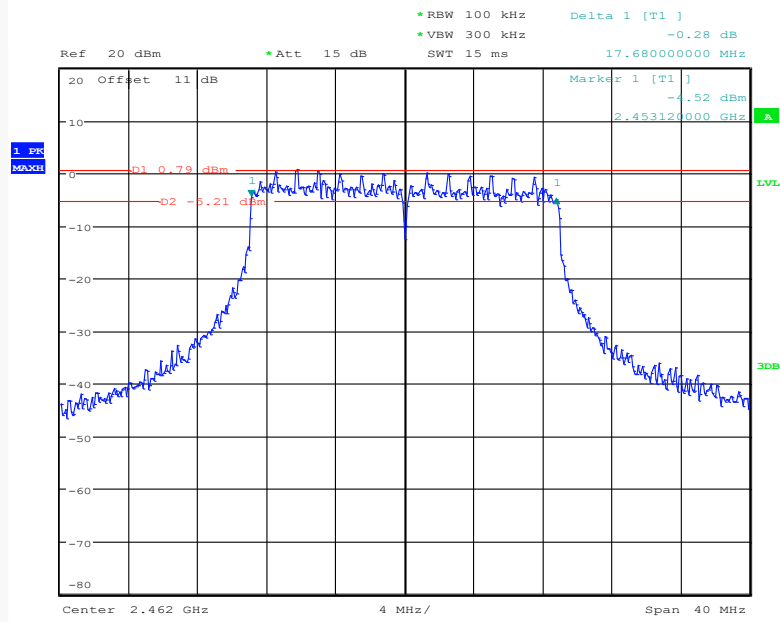
802.11n-HT20 Mode Low Channel



802.11n-HT20 Mode Middle Channel

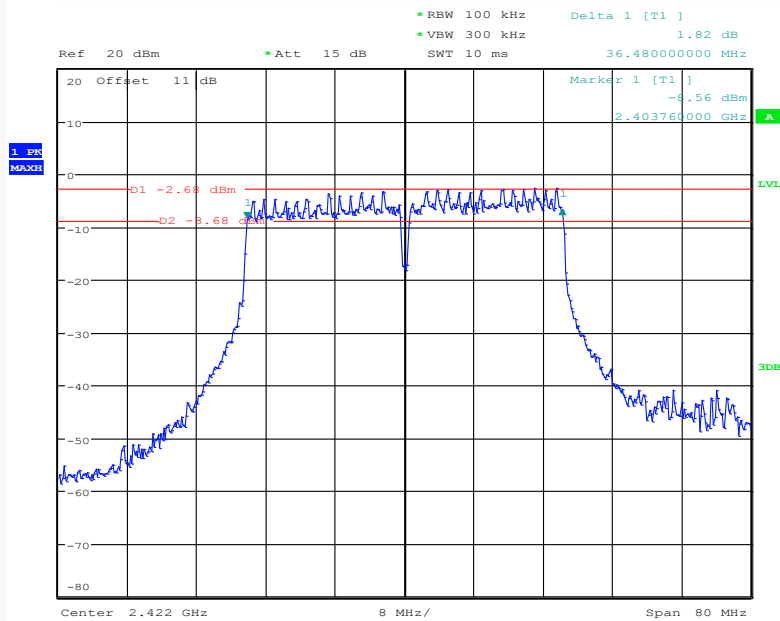


802.11n-HT20 Mode High Channel



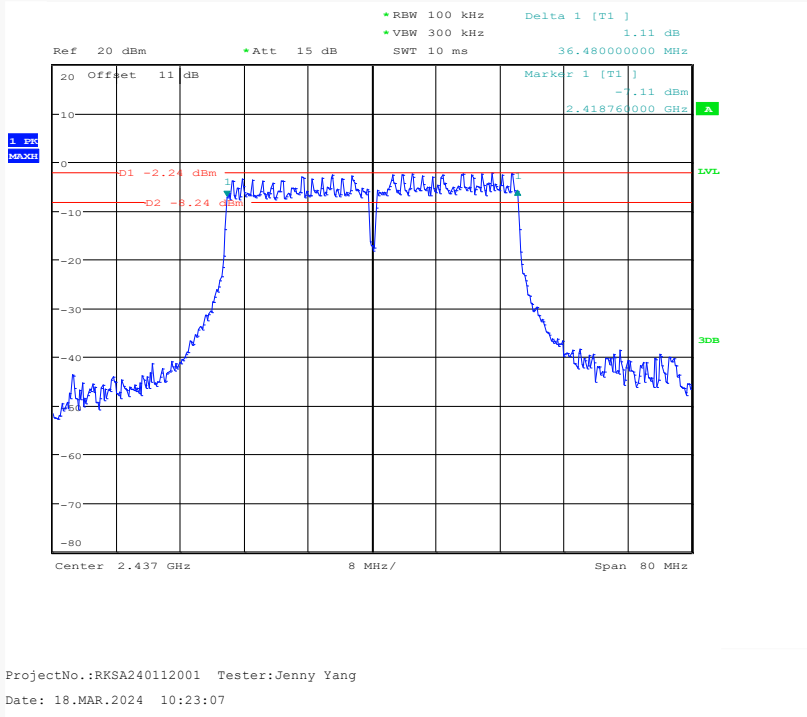
ProjectNo.:RKSA240112001 Tester:Jenny Yang
 Date: 18.MAR.2024 10:15:46

802.11n-HT40 Mode Low Channel

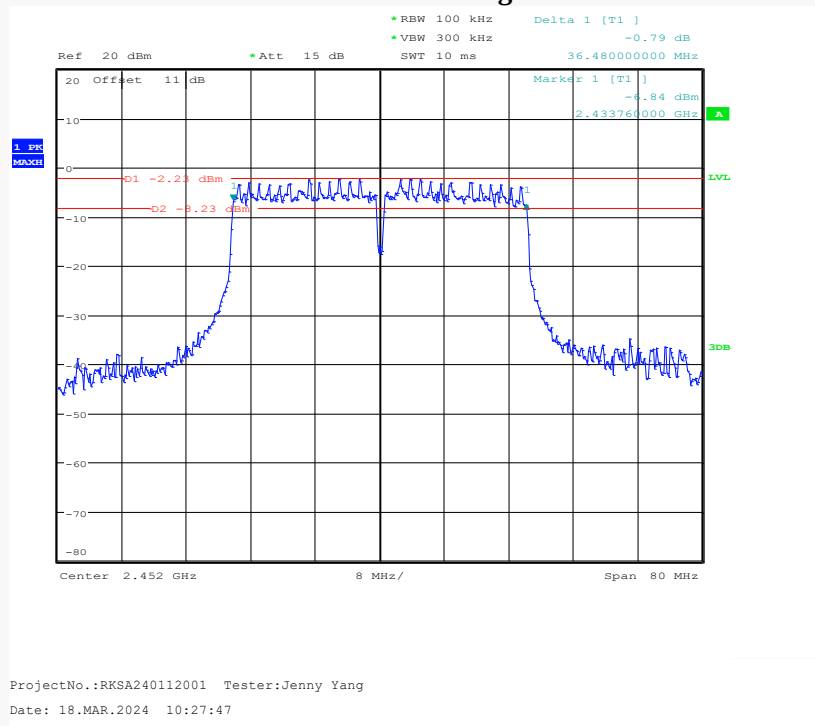


ProjectNo.:RKSA240112001 Tester:Jenny Yang
 Date: 18.MAR.2024 10:19:28

802.11n-HT40 Mode Middle Channel

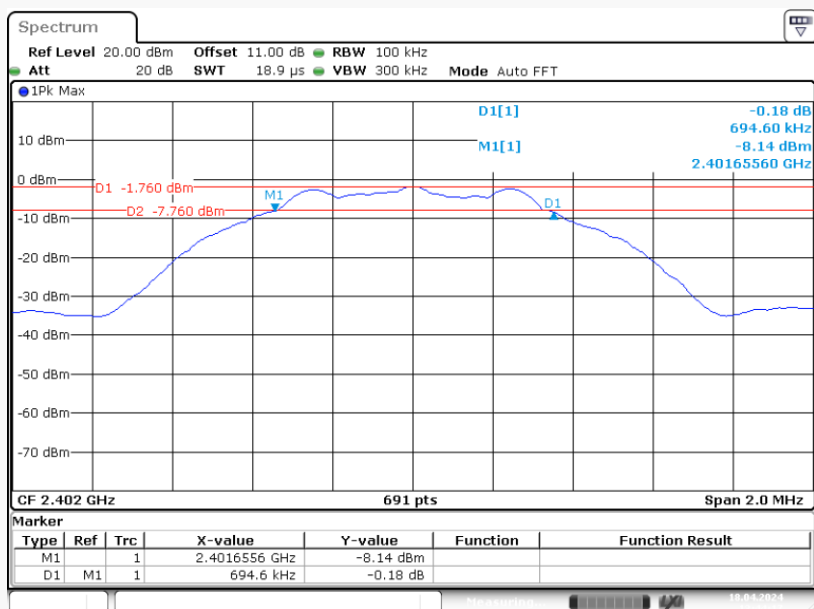


802.11n-HT40 Mode High Channel



For BLE Mode:

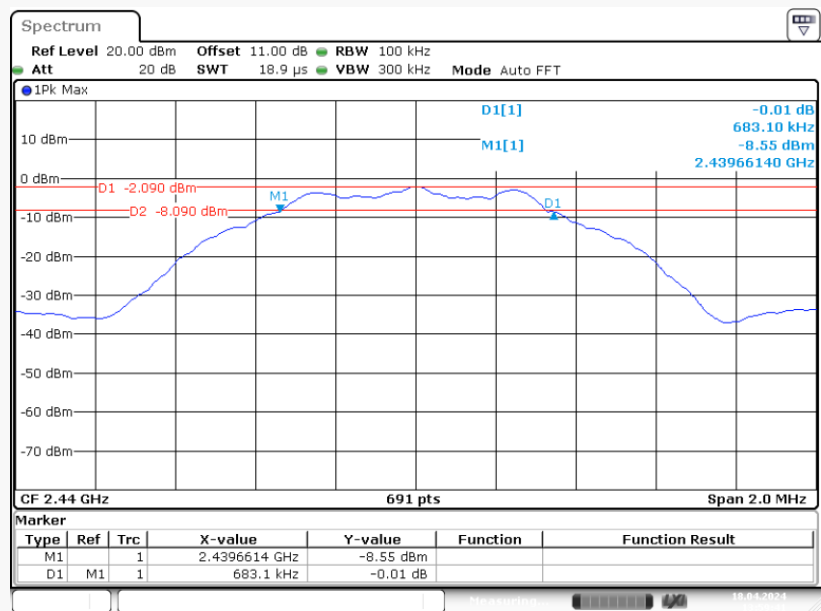
Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
Low	2402	0.695	≥ 0.5
Middle	2440	0.683	≥ 0.5
High	2480	0.674	≥ 0.5

Low Channel

ProjectNo.: RKSA240112001 Tester: Jenny Yang

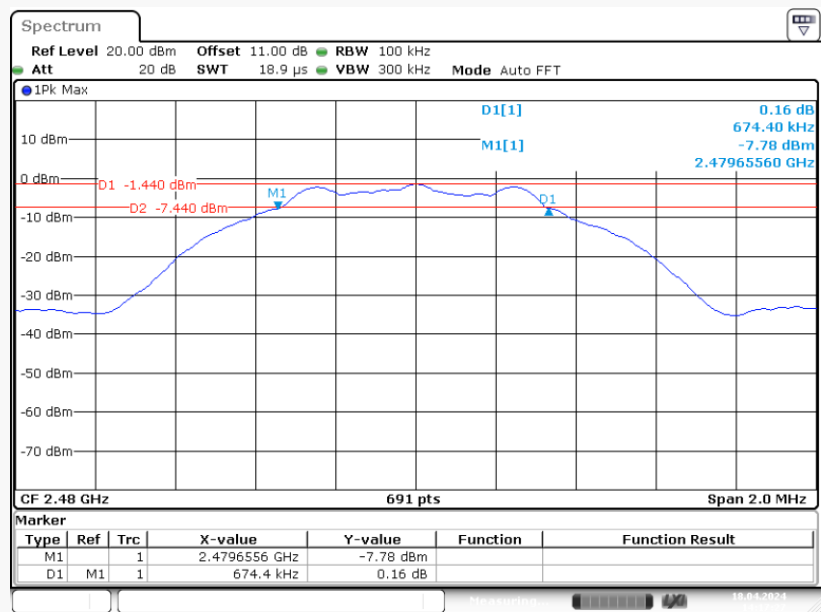
Date: 18.APR.2024 13:44:18

Middle Channel



ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR.2024 13:59:42

High Channel



ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR.2024 14:17:27

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

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b Mode		
Low	2412	13.600
Middle	2437	13.680
High	2462	13.680
802.11g Mode		
Low	2412	17.520
Middle	2437	17.440
High	2462	17.360
802.11n-HT20 mode		
Low	2412	18.000
Middle	2437	18.000
High	2462	18.000
802.11n-HT40 mode		
Low	2422	36.800
Middle	2437	36.640
High	2452	36.64

* RBW 300 kHz
 * VBW 1 MHz
 SWT 2.5 ms
 Marker 1 [T1]
 10.54 dBm
 2.412560000 GHz

Ref 20 dBm
 * Att 15 dB
 20 Offset 11 dB

1.98 MHz

1
 -4.46 dBm
 2.405360000 GHz
 Temp 1 [T1]

2
 -3.30 dBm
 2.418960000 GHz
 Temp 2 [T1]

3dB

Center 2.412 GHz
 4 MHz/
 Span 40 MHz

ProjectNo.:RKSA240112001 Tester:Jenny Yang
 Date: 16.MAR.2024 15:56:07

1. PR
MAX

Ref 20 dBm Att 15 dB RBW 300 kHz VBW 1 MHz SWT 2.5 ms Marker 1 [T1] 10.71 dBm

20 Offset 11 dB

OBW 13.68000000 MHz
Temp 1 [T1 OBW] -4.19 dBm

2.430200000 GHz
Temp 2 [T1 OBW] -0.02 dBm

2.443880000 GHz

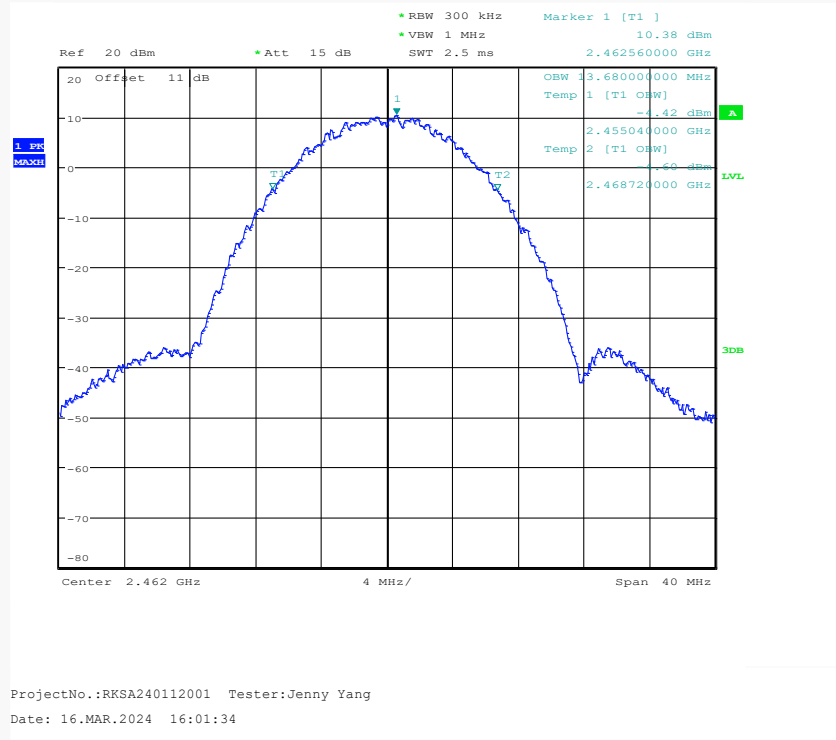
3dB

Center 2.437 GHz 4 MHz/ Span 40 MHz

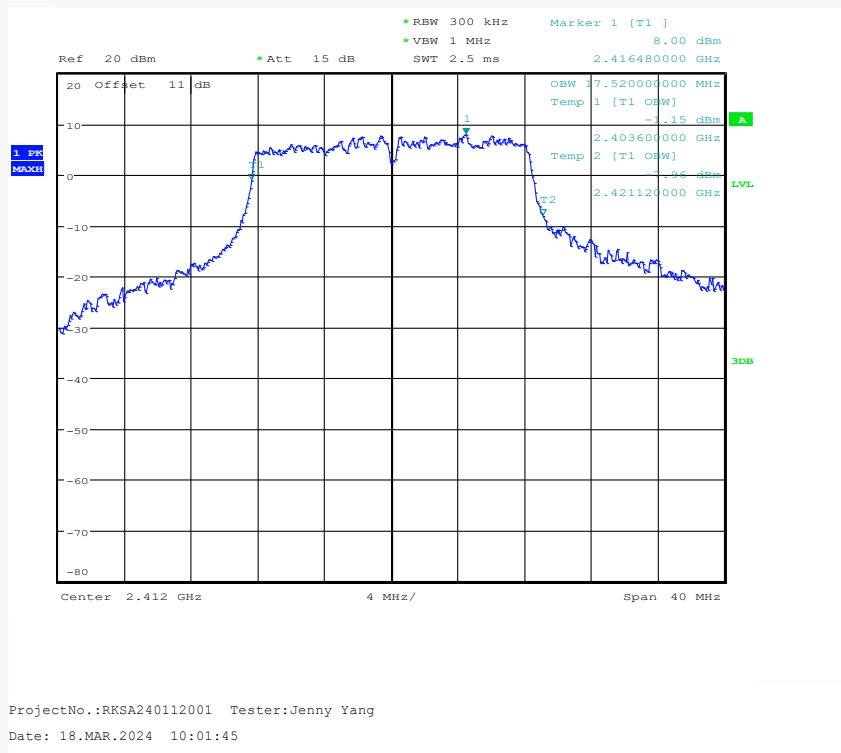
ProjectNo.:RKSA240112001 Tester:Jenny Yang

Date: 16.MAR.2024 15:58:36

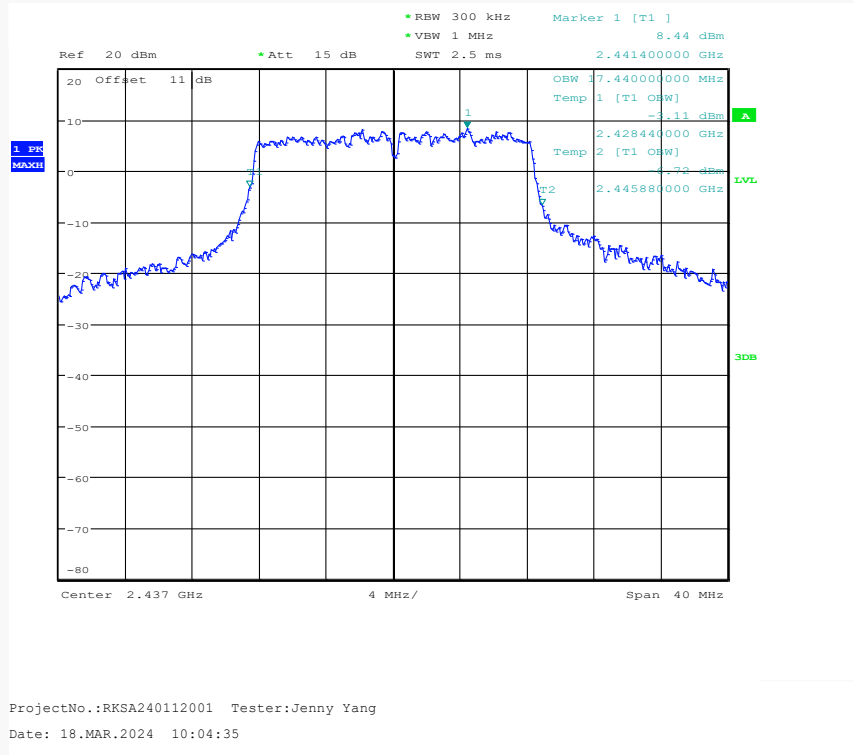
802.11b Mode High Channel



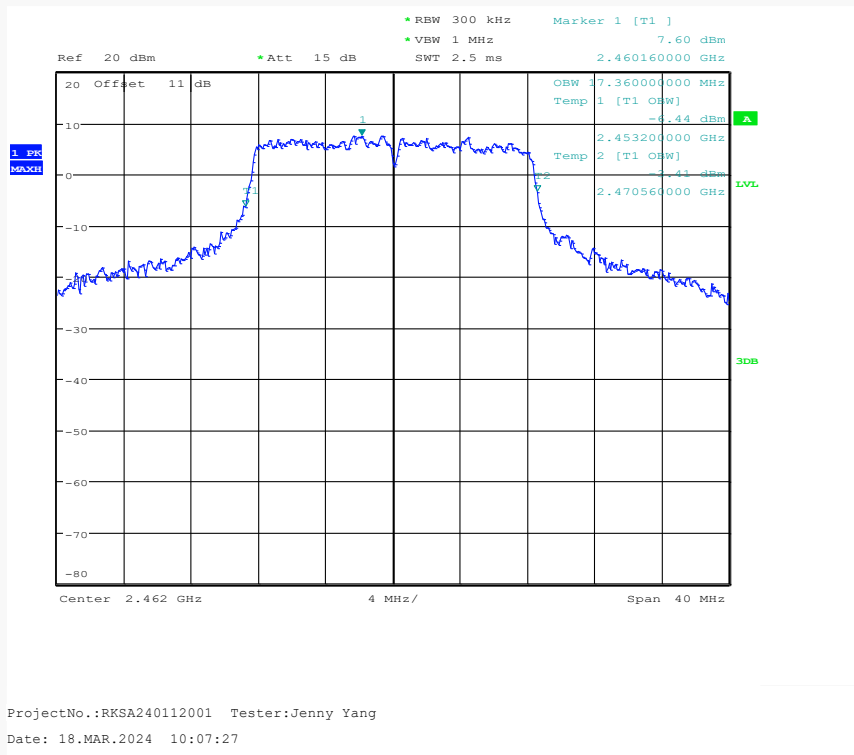
802.11g Mode Low Channel



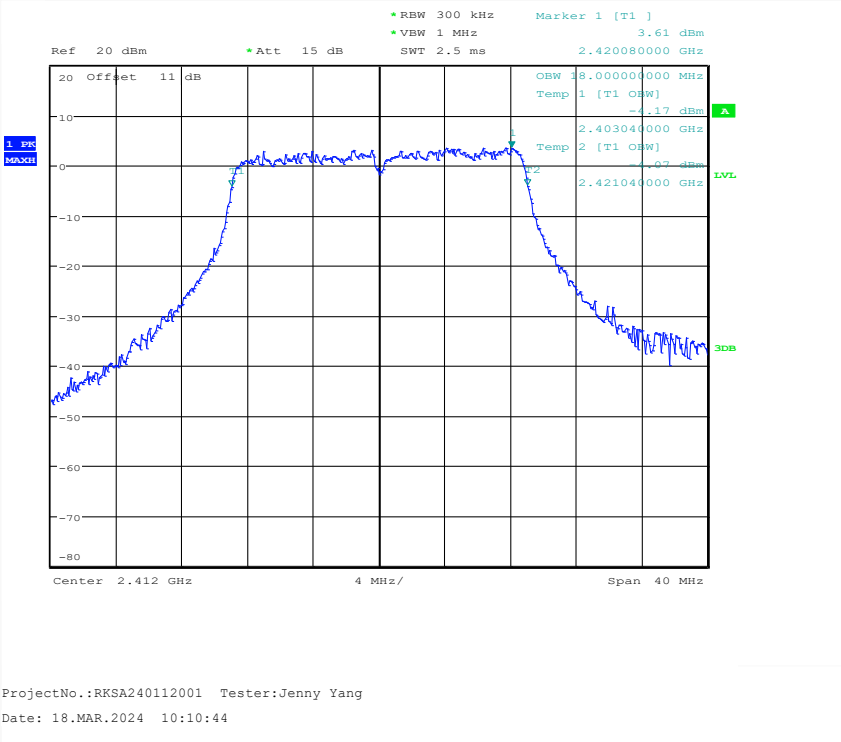
802.11g Mode Middle Channel



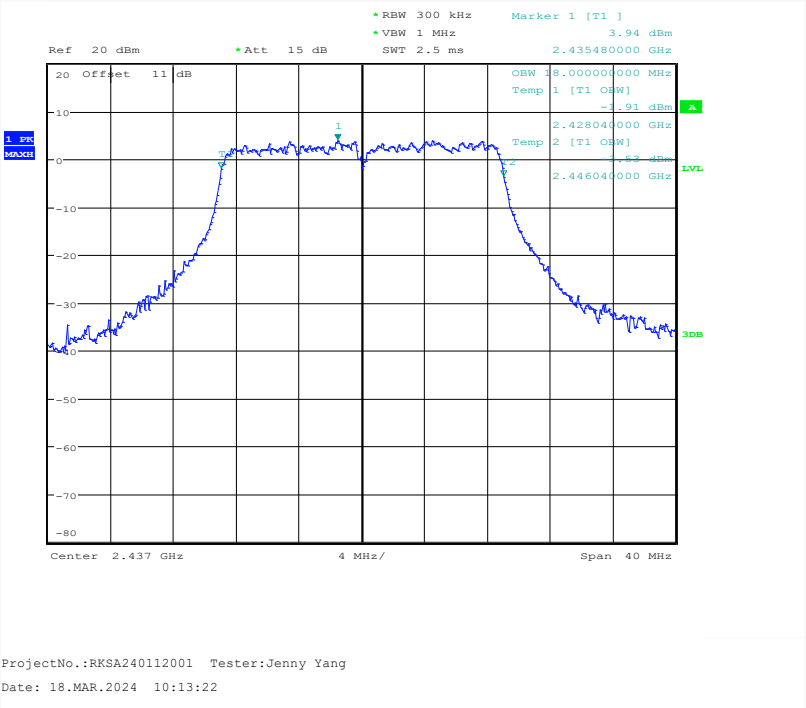
802.11g Mode High Channel



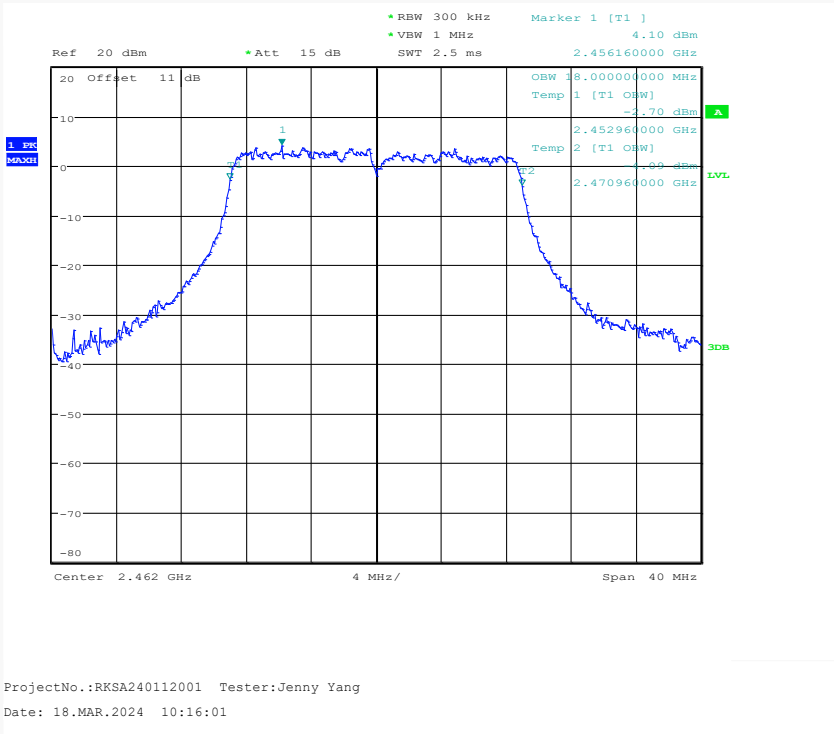
802.11n-HT20 Mode Low Channel



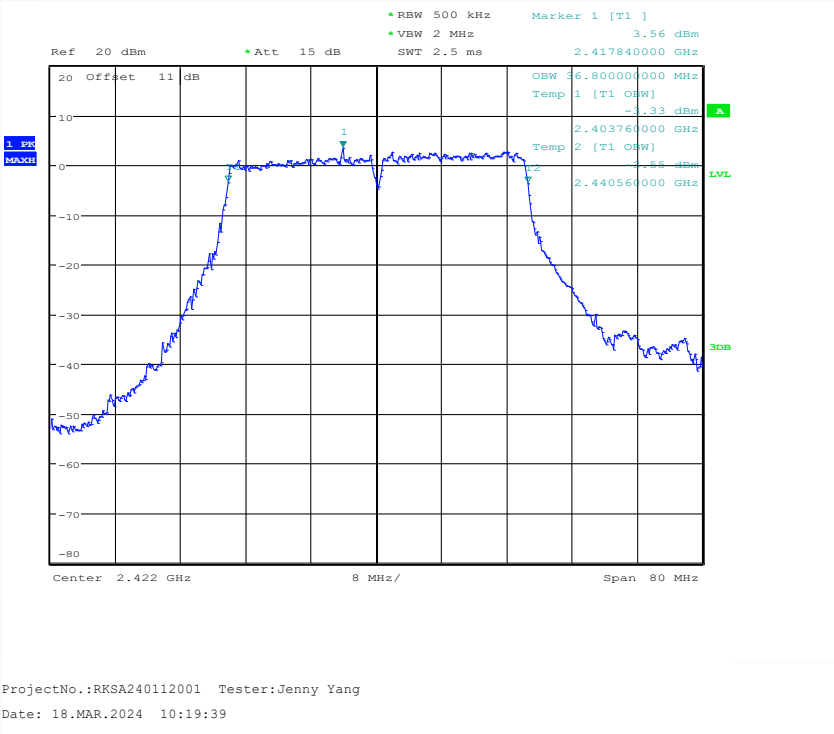
802.11n-HT20 Mode Middle Channel



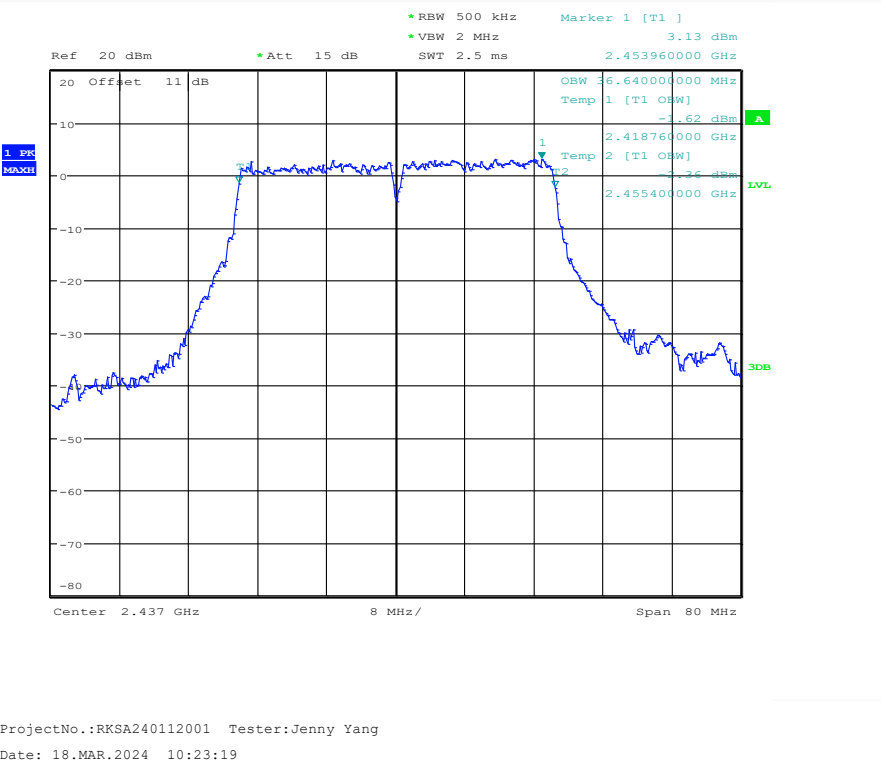
802.11n-HT20 Mode High Channel



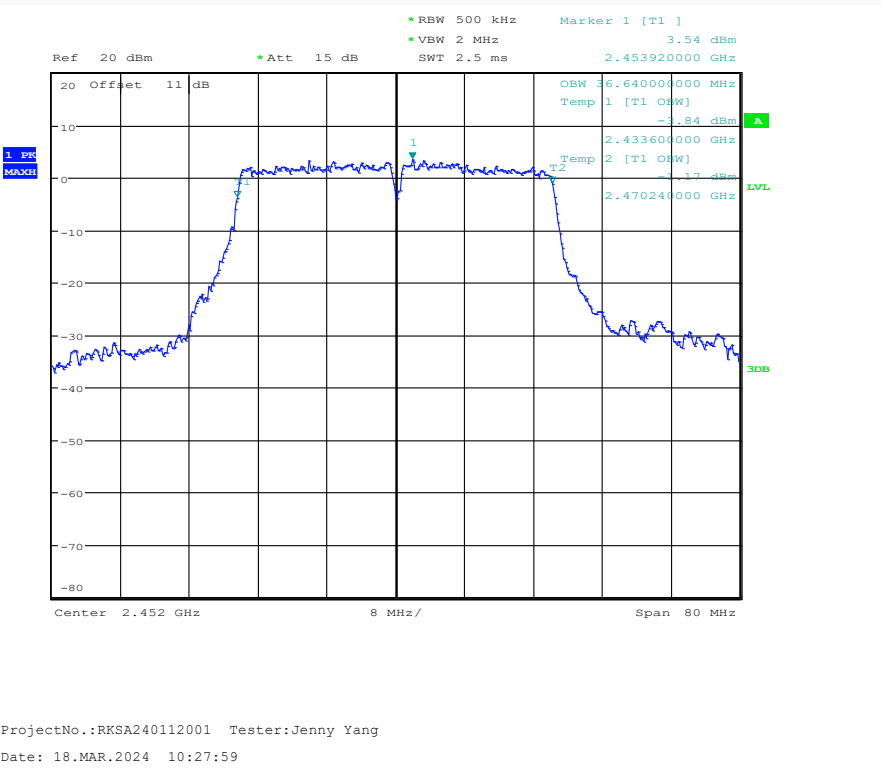
802.11n-HT40 Mode Low Channel



802.11n-HT40 Mode Middle Channel

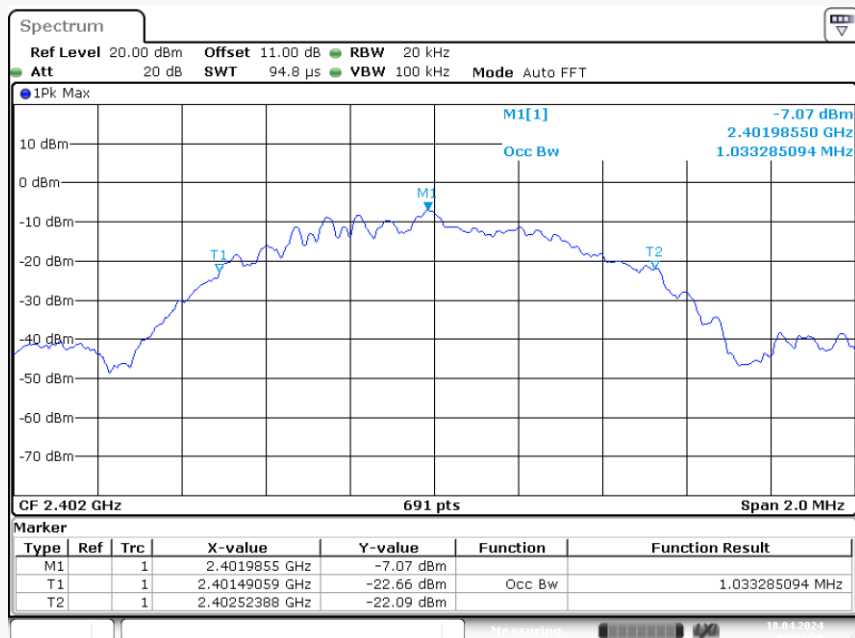


802.11n-HT40 Mode High Channel



For BLE Mode:

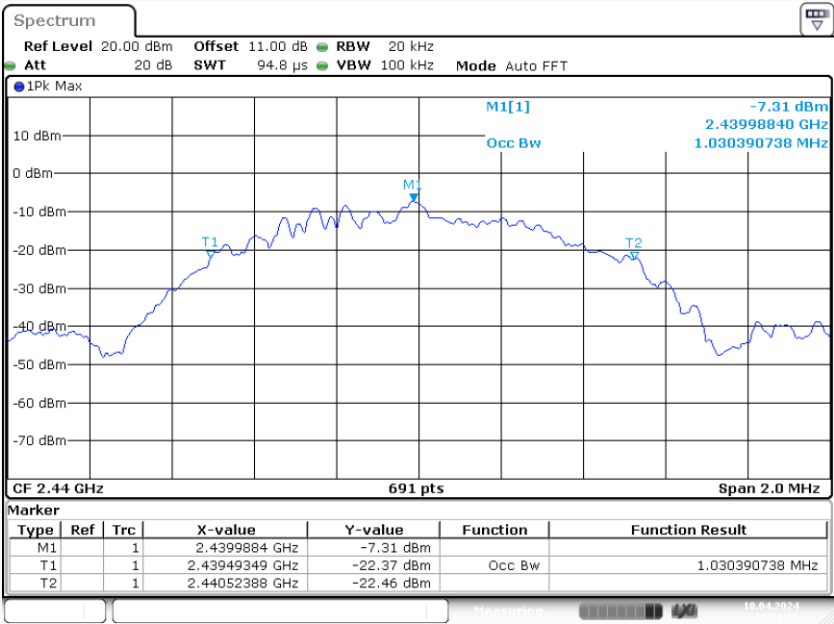
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2402	1.033
Middle	2440	1.030
High	2480	1.030

Low Channel

ProjectNo.: RKSA240112001 Tester: Jenny Yang

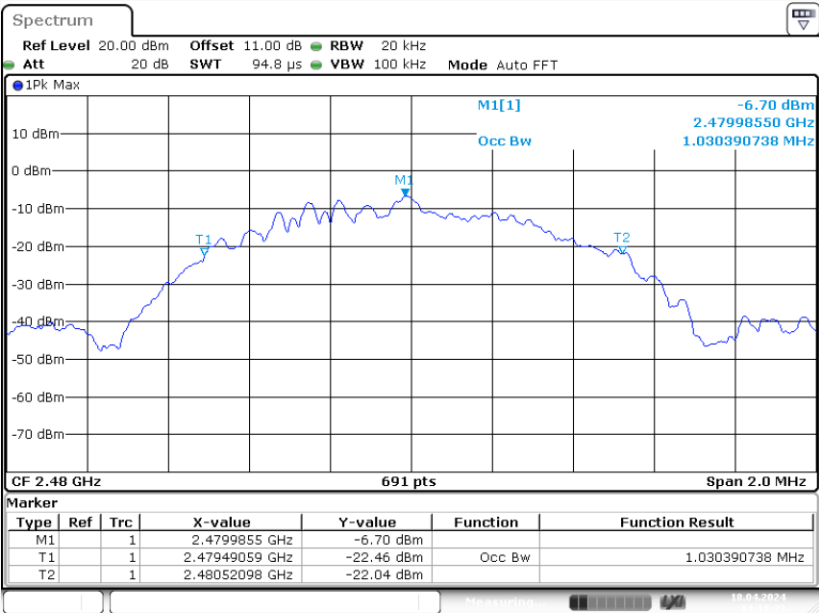
Date: 18 APR 2024 13:42:00

Middle Channel



ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR.2024 14:01:07

High Channel

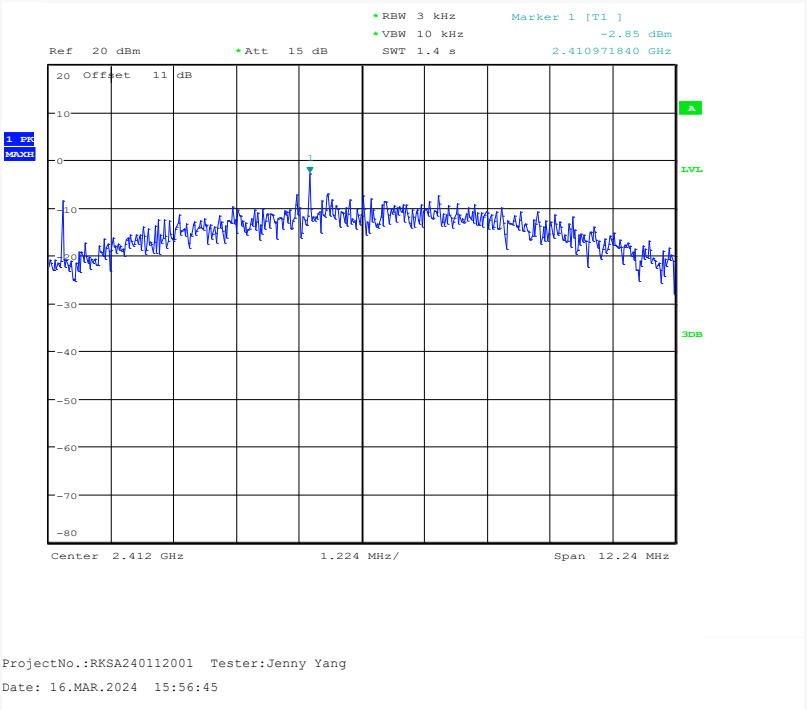


ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR.2024 14:18:33

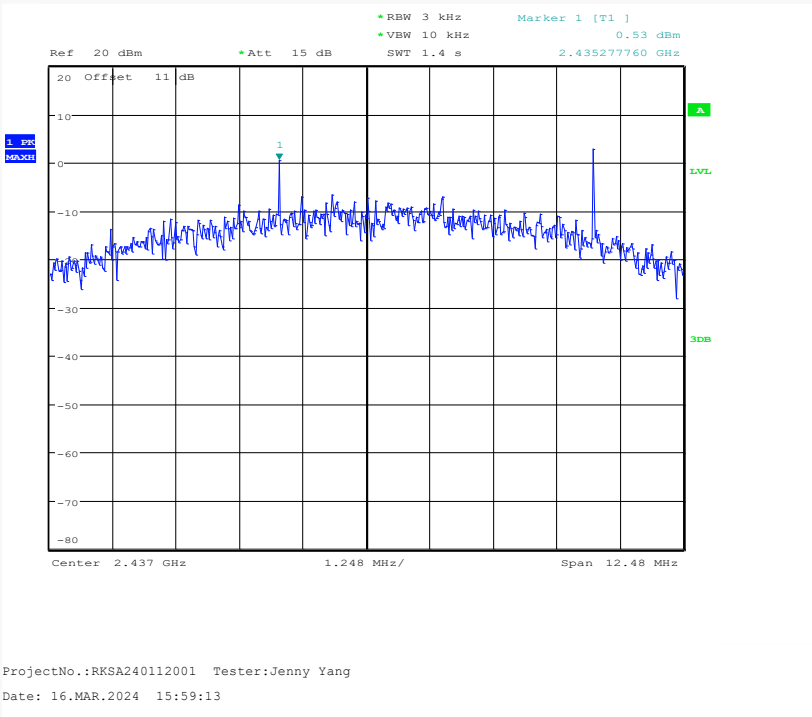
POWER SPECTRAL DENSITY**Test Result:** Compliant.*EUT operation mode: Transmitting***For Wi-Fi Mode:**

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b Mode			
Low	2412	-2.85	≤ 8
Middle	2437	0.53	≤ 8
High	2462	0.92	≤ 8
802.11g Mode			
Low	2412	-9.96	≤ 8
Middle	2437	-10.46	≤ 8
High	2462	-10.55	≤ 8
802.11n-HT20 mode			
Low	2412	-12.50	≤ 8
Middle	2437	-13.58	≤ 8
High	2462	-13.88	≤ 8
802.11n-HT40 mode			
Low	2422	-15.62	≤ 8
Middle	2437	-15.12	≤ 8
High	2452	-15.31	≤ 8

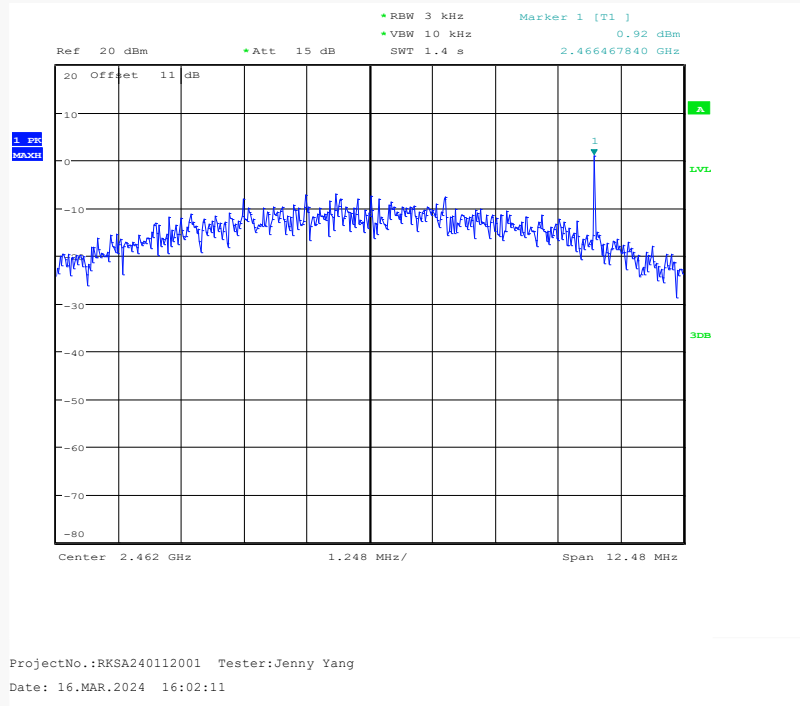
802.11b Low Channel



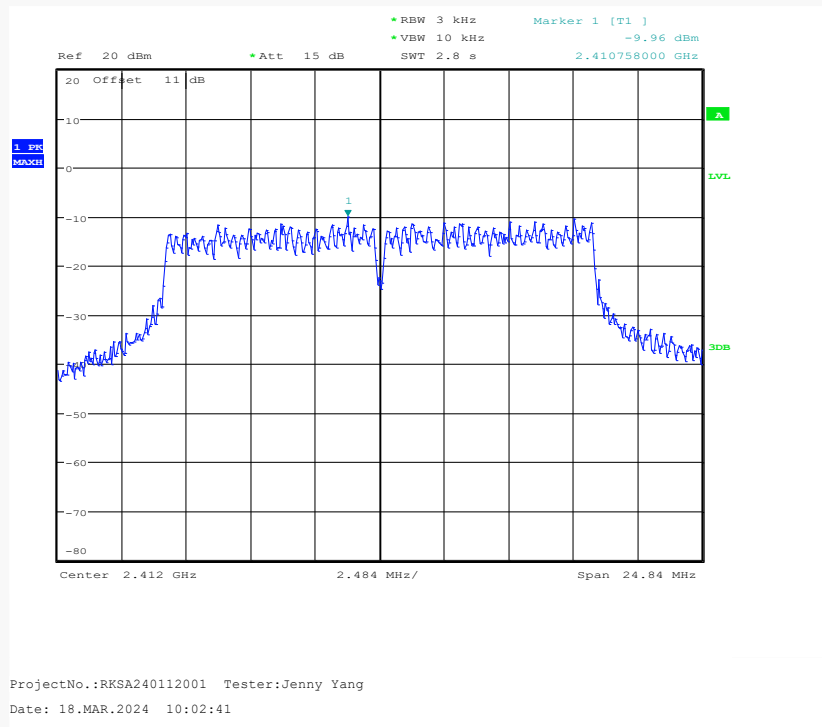
802.11b Middle Channel



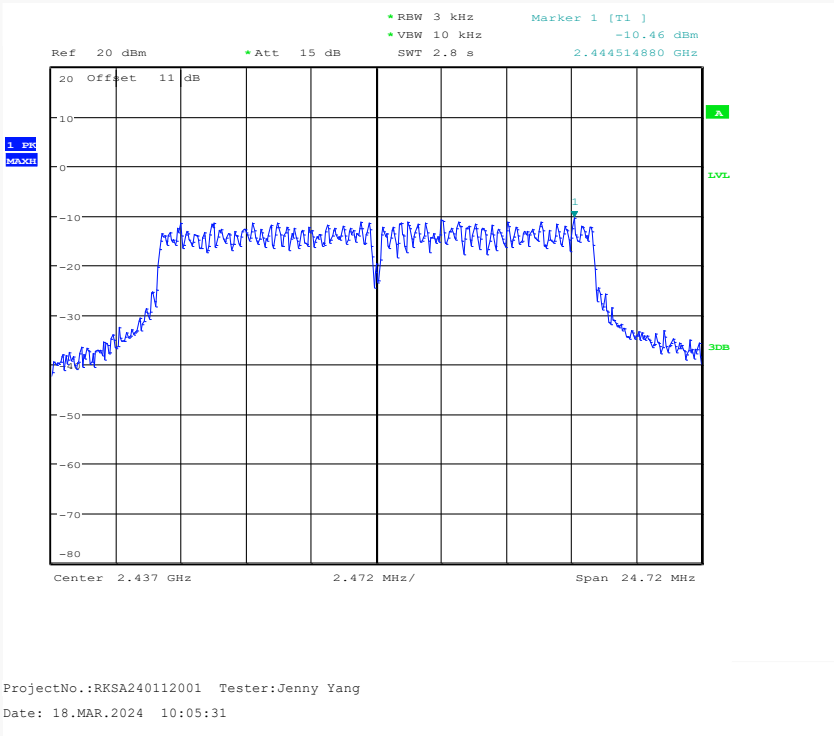
802.11b High Channel



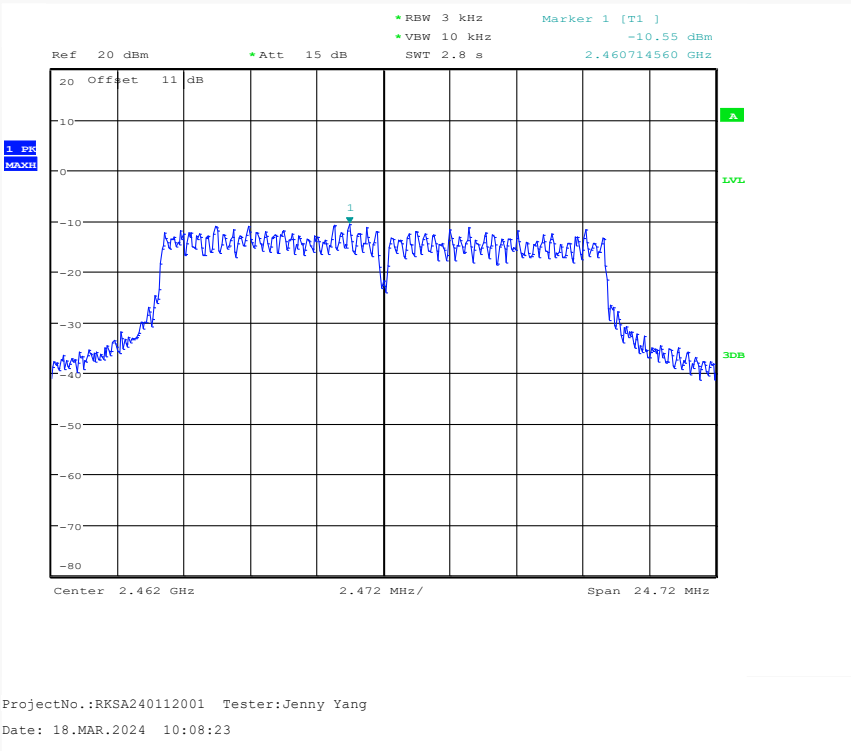
802.11g Low Channel



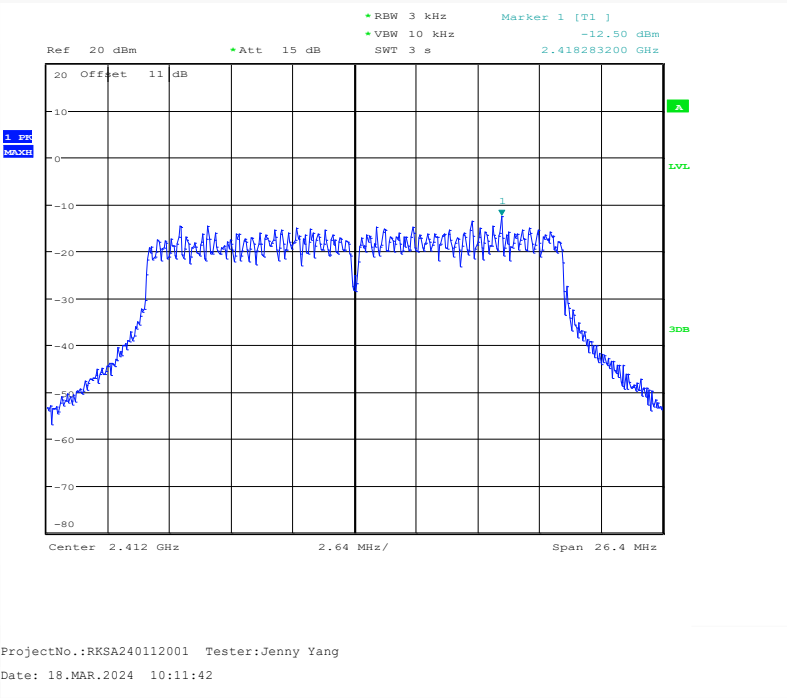
802.11g Middle Channel



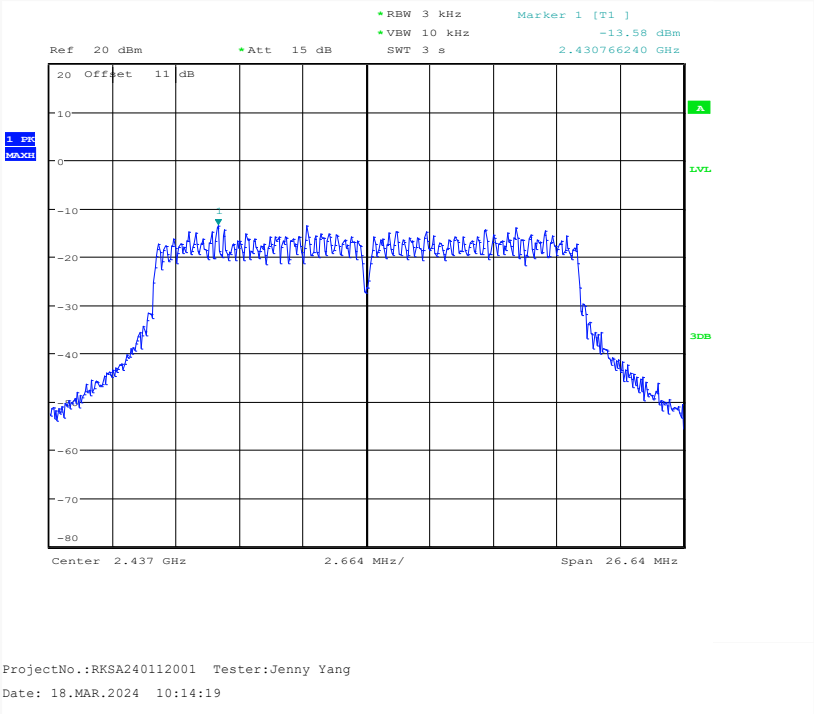
802.11g High Channel



802.11n-HT20 Low Channel



802.11n-HT20 Middle Channel



ProjectNo.:RKSA240112001 Tester:Jenny Yang

Date: 18.MAR.2024 10:16:29

Ref 20 dBm Att 15 dB RBW 3 kHz VBW 10 kHz SWT 6.2 s
 Marker 1 [T1] -15.62 dBm 2.439510400 GHz

20 Offset 11 dB
 10
 0
 -10
 -20
 -30
 -40
 -50
 -60
 -70
 -80

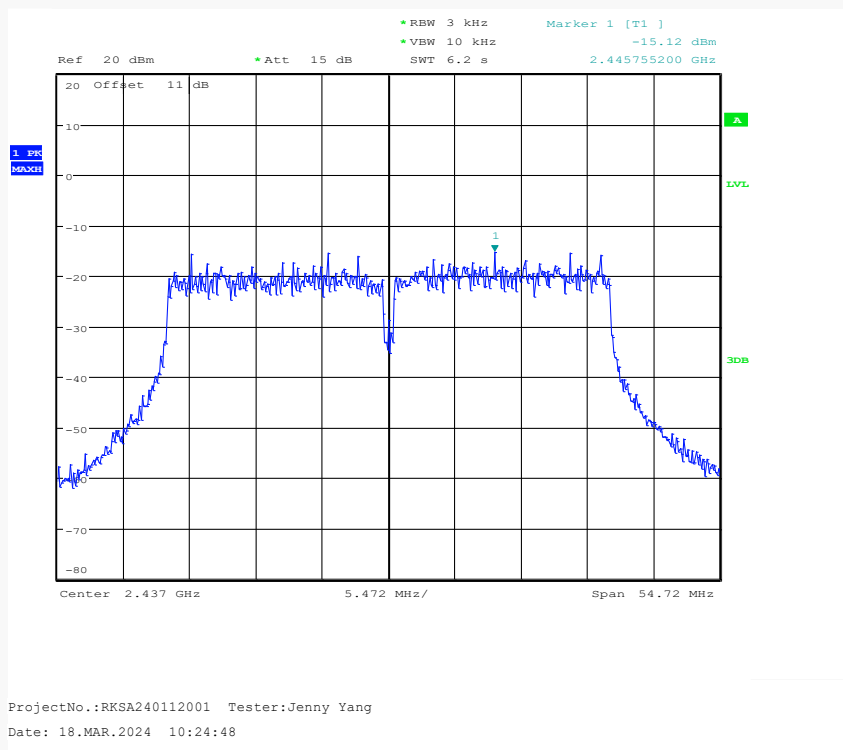
1 dB
 MAGN

A
 IZL
 3DB

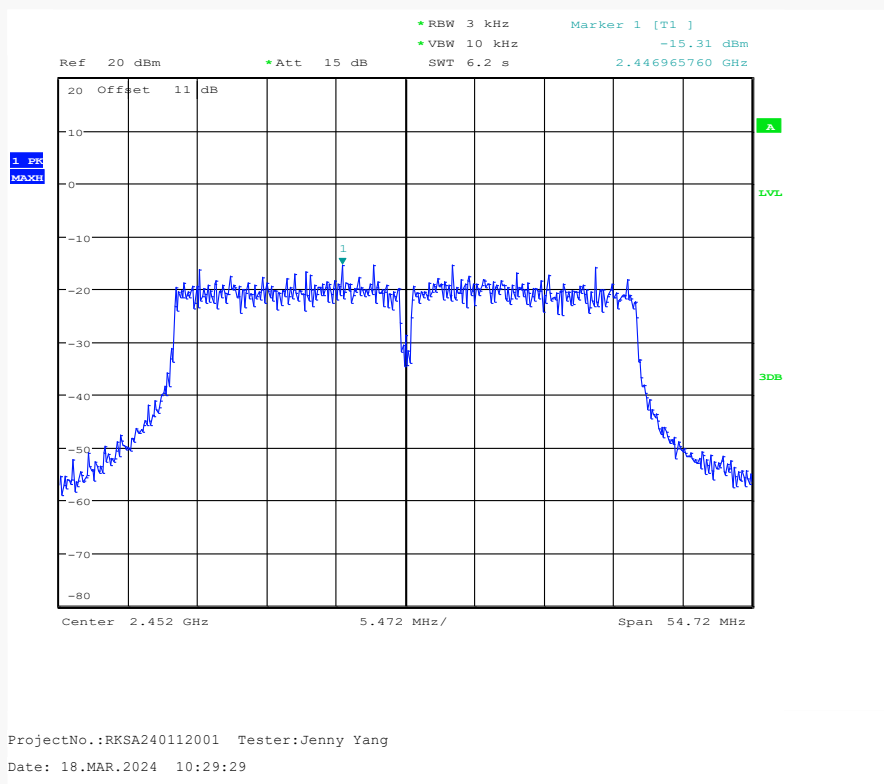
Center 2.422 GHz 5.472 MHz/
 Span 54.72 MHz

ProjectNo.:RKSA240112001 Tester:Jenny Yang
 Date: 18.MAR.2024 10:21:09

802.11n-HT40 Middle Channel

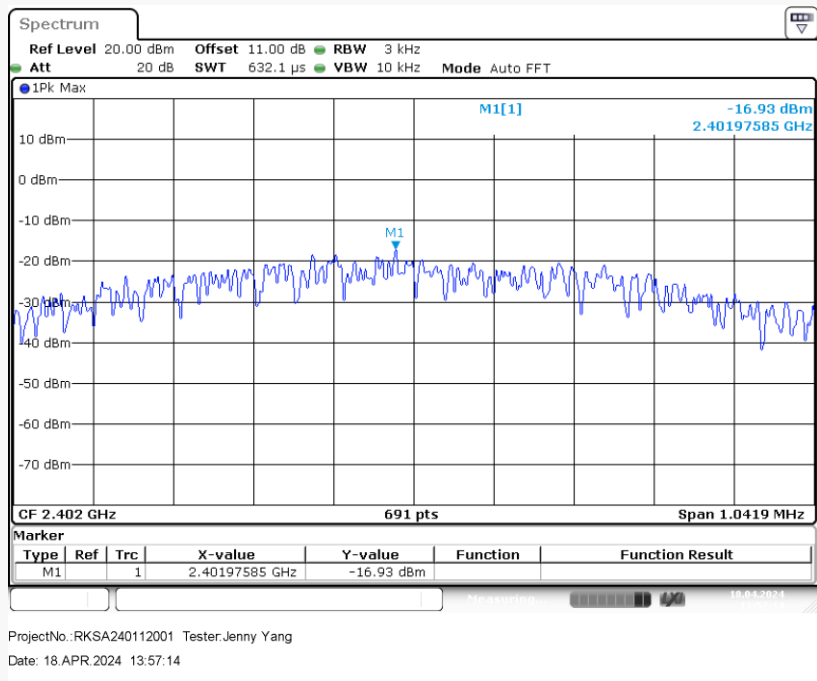


802.11n-HT40 High Channel

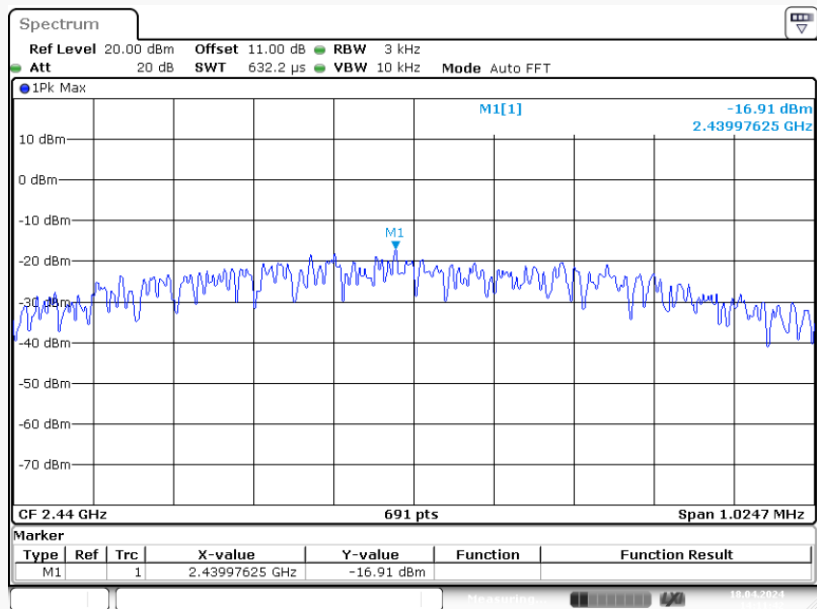


For BLE Mode:

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
Low	2402	-16.93	≤8
Middle	2440	-16.91	≤8
High	2480	-16.23	≤8

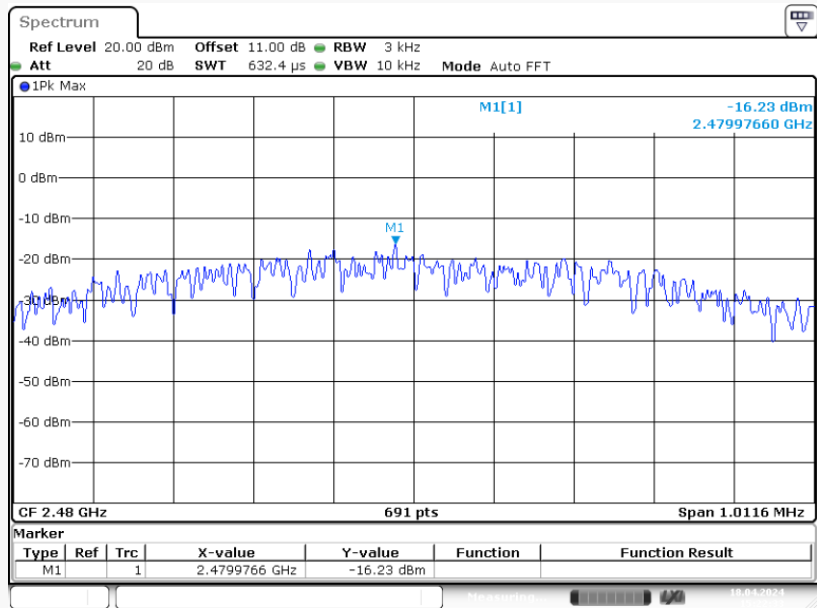
Low Channel

Middle Channel



ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR 2024 14:11:42

High Channel



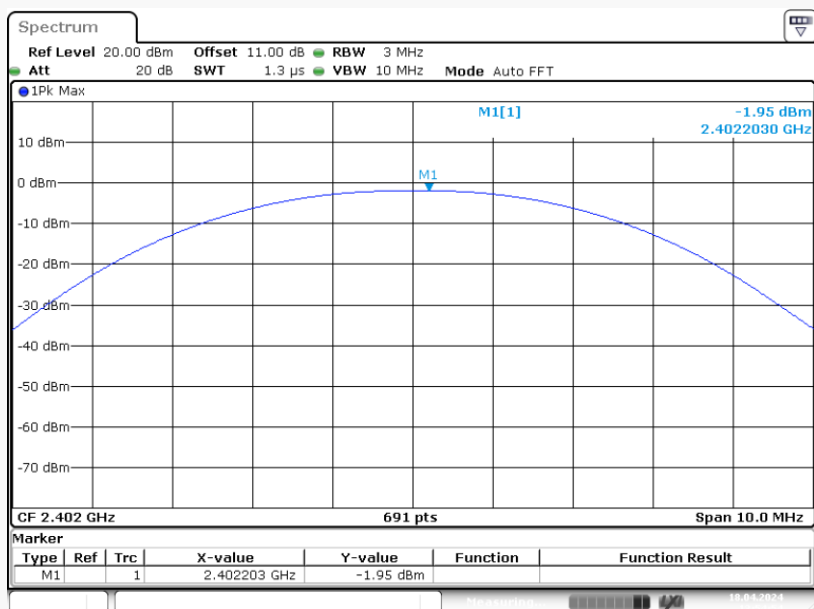
ProjectNo.:RKSA240112001 Tester:Jenny Yang
Date: 18.APR 2024 15:22:33

TRANSMITTER OUTPUT POWER MEASUREMENT

Channel	Frequency (MHz)	Max Conducted Average Output Power (dBm)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
802.11b Mode				
Low	2412	14.88	17.62	≤30
Middle	2437	15.29	18.01	≤30
High	2462	14.91	17.65	≤30
802.11g Mode				
Low	2412	14.80	21.51	≤30
Middle	2437	15.30	21.81	≤30
High	2462	14.83	21.52	≤30
802.11n-HT20 Mode				
Low	2412	11.01	20.96	≤30
Middle	2437	11.60	21.41	≤30
High	2462	11.19	21.14	≤30
802.11n-HT40 Mode				
Low	2422	9.83	21.00	≤30
Middle	2437	10.57	21.33	≤30
High	2452	10.56	21.52	≤30

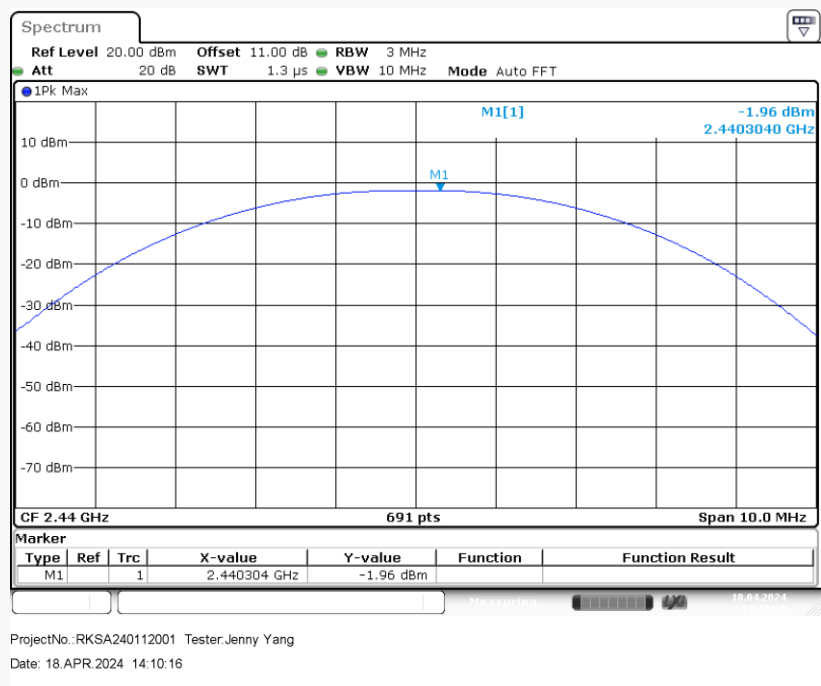
BLE Mode:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
Low	2402	-1.95	≤30
Middle	2440	-1.96	≤30
High	2480	-1.24	≤30

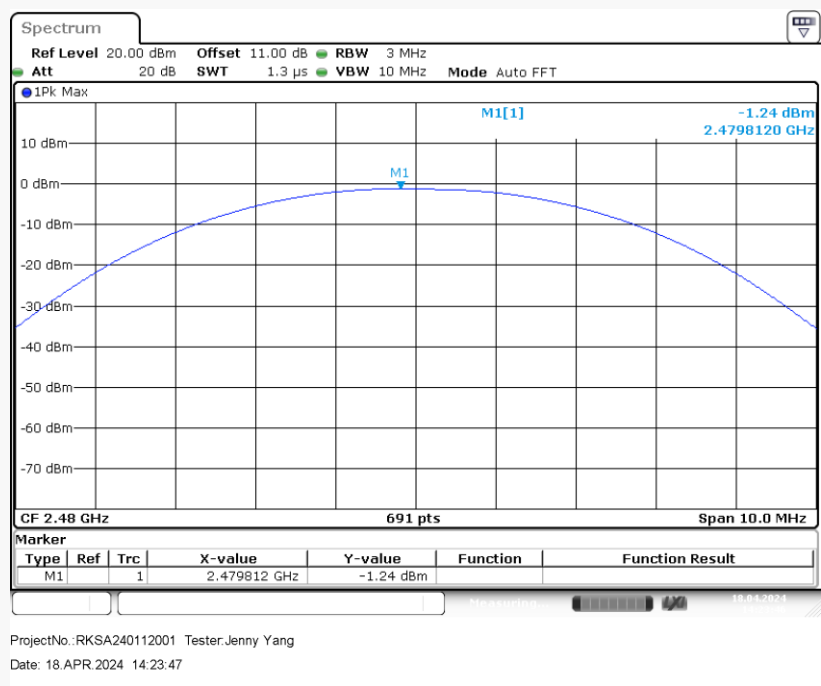
Low Channel

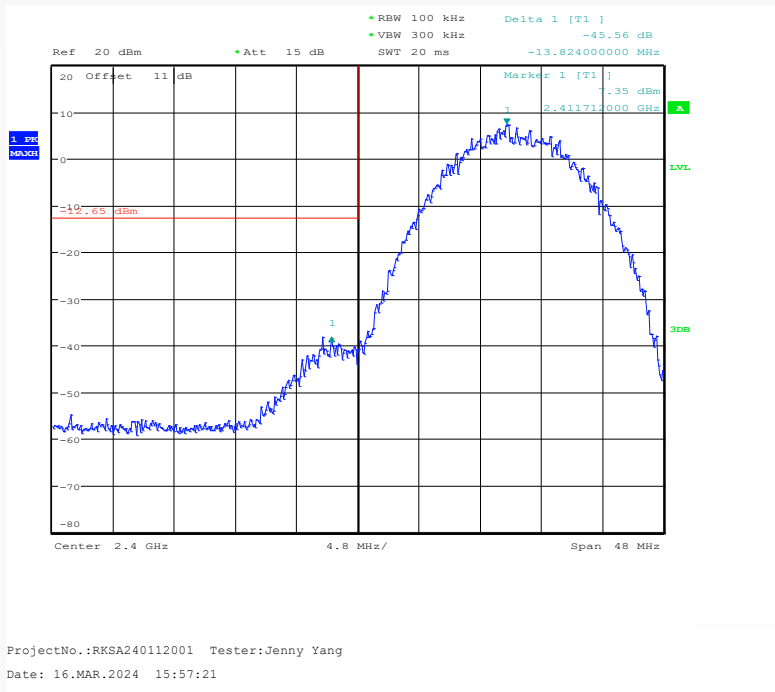
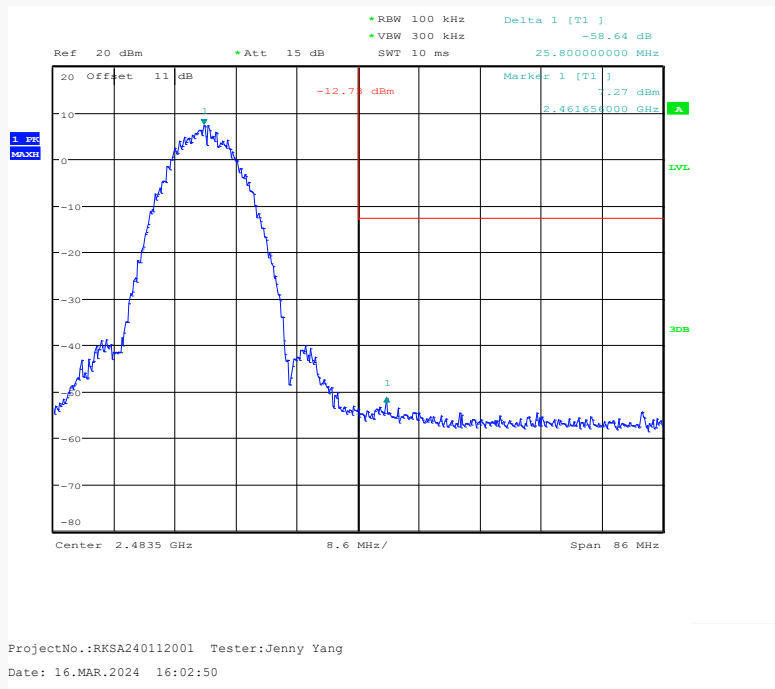
ProjectNo.: RKSA240112001 Tester: Jenny Yang
Date: 18.APR.2024 13:54:54

Middle Channel

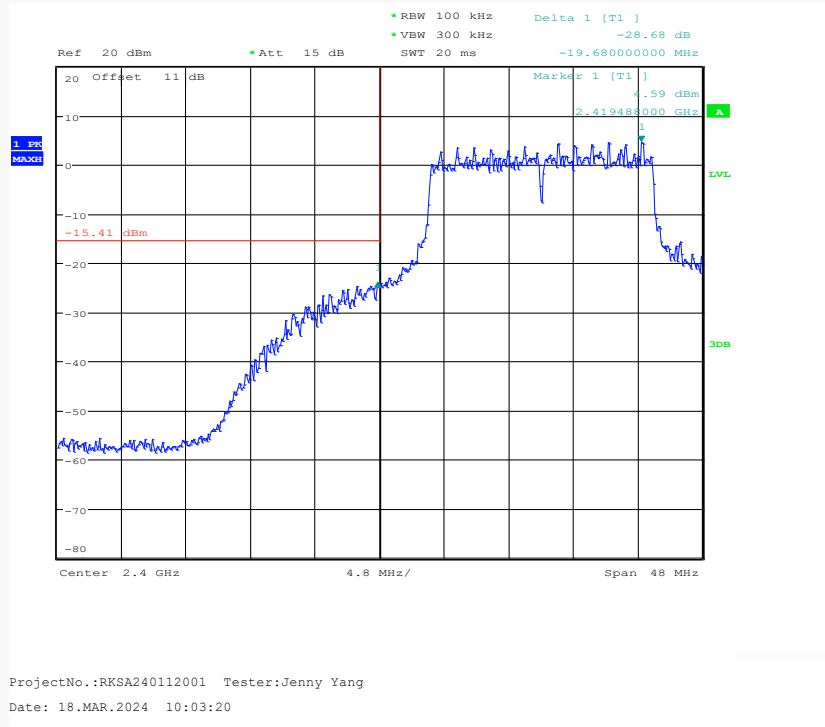


High Channel

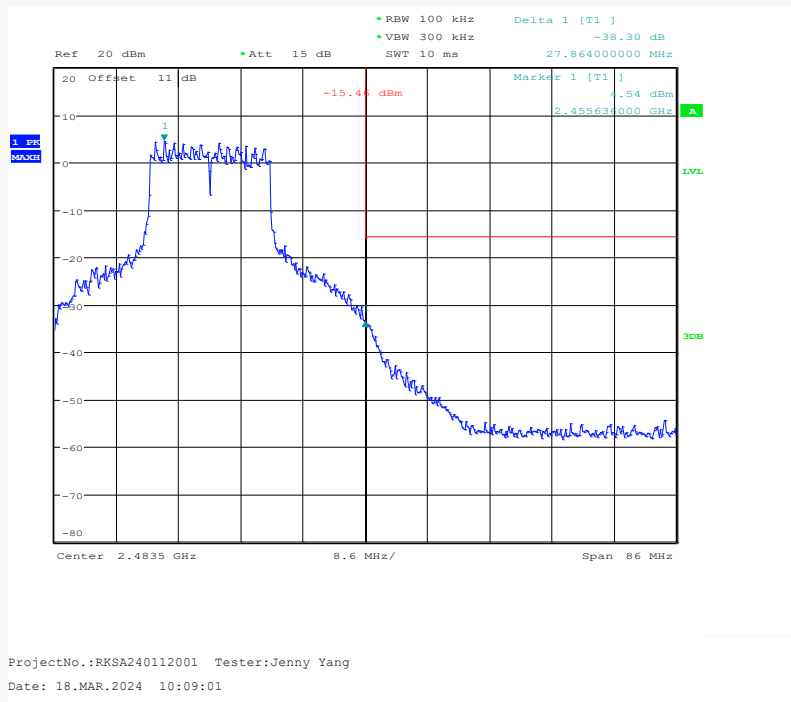


OUT OF BAND EMISSIONS*EUT operation mode: Transmitting***For Wi-Fi Mode:****802.11b Mode Left Side****802.11b Mode Right Side**

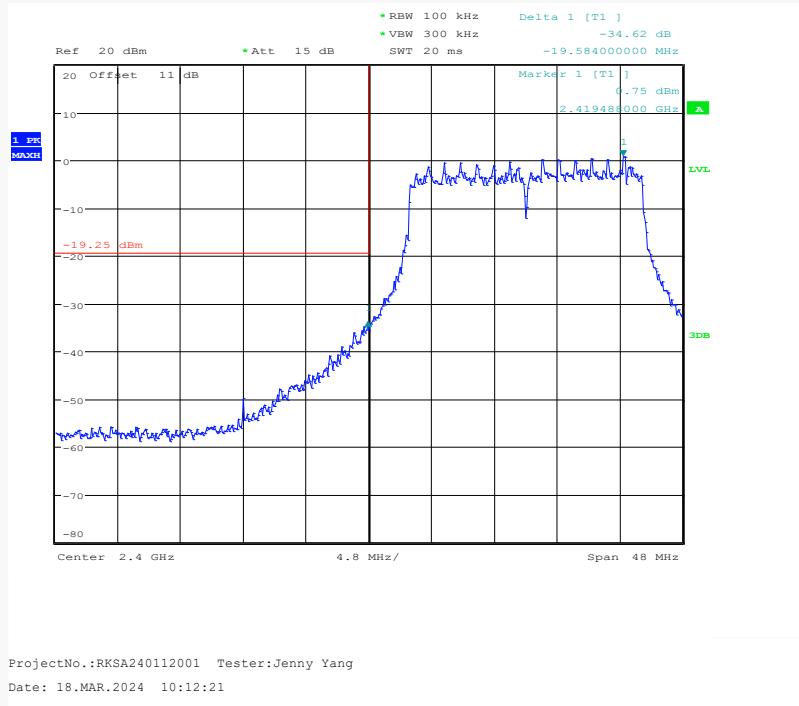
802.11g Mode Left Side



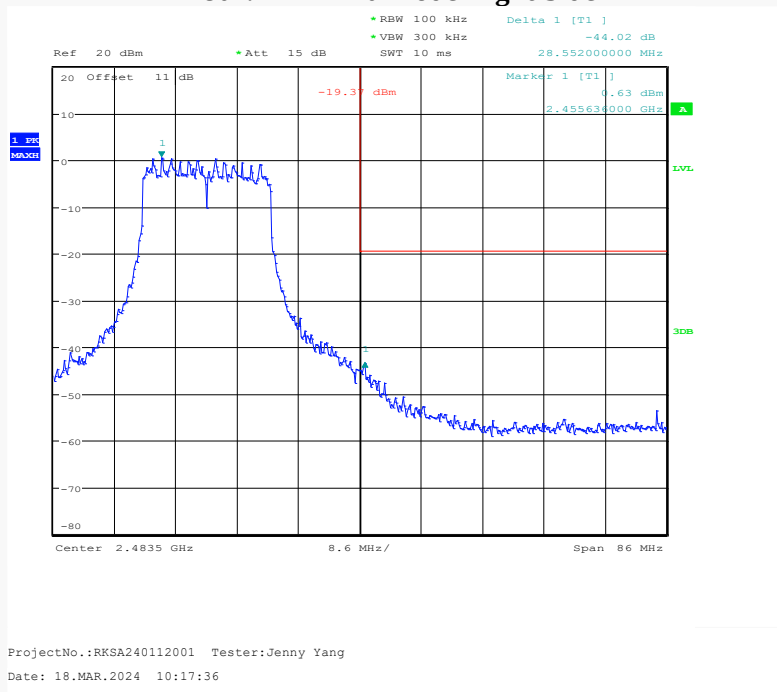
802.11g Mode Right Side



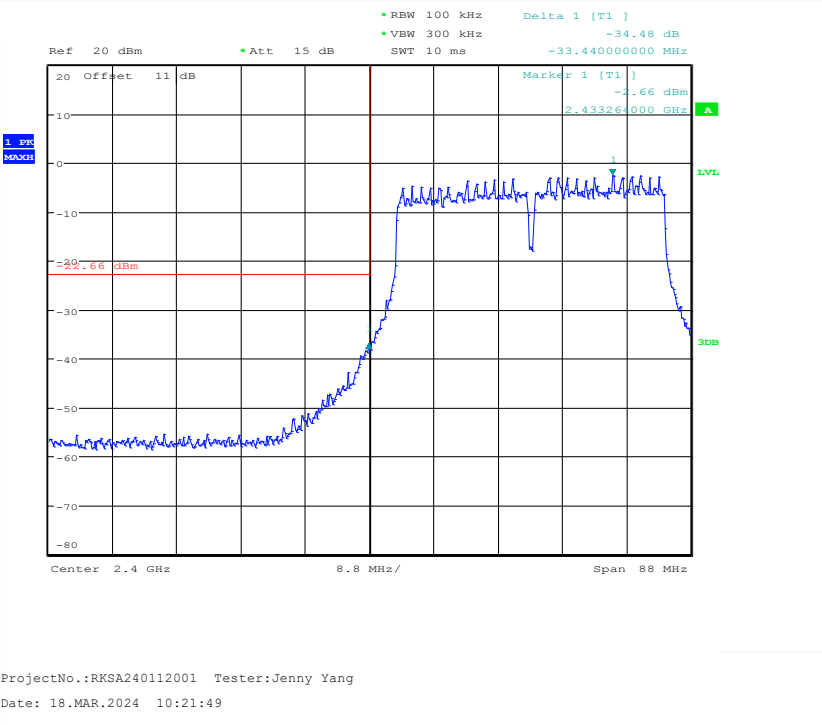
802.11n-HT20 Mode Left Side



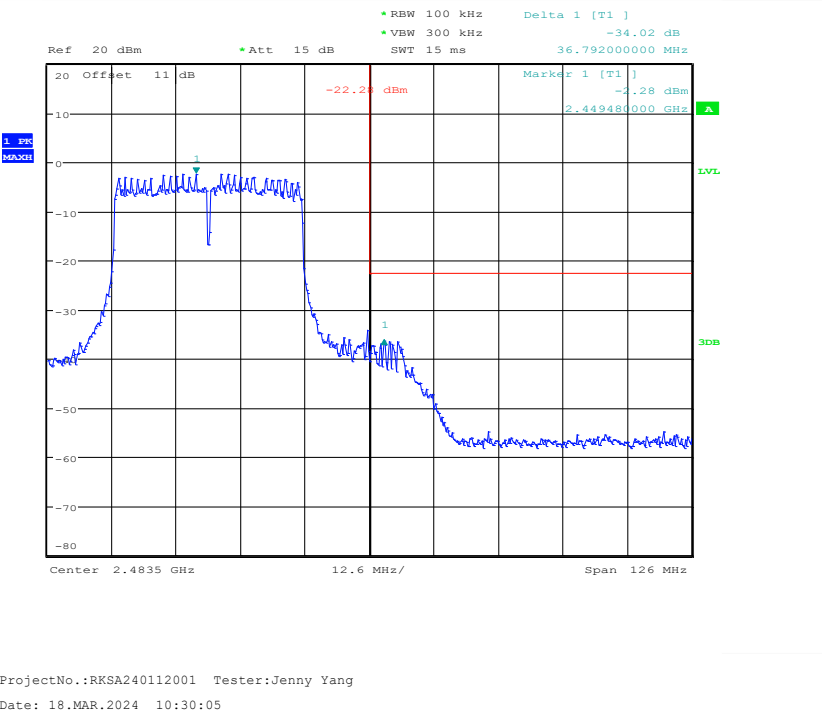
802.11n-HT20 Mode Right Side



802.11n-HT40 Mode Right Side

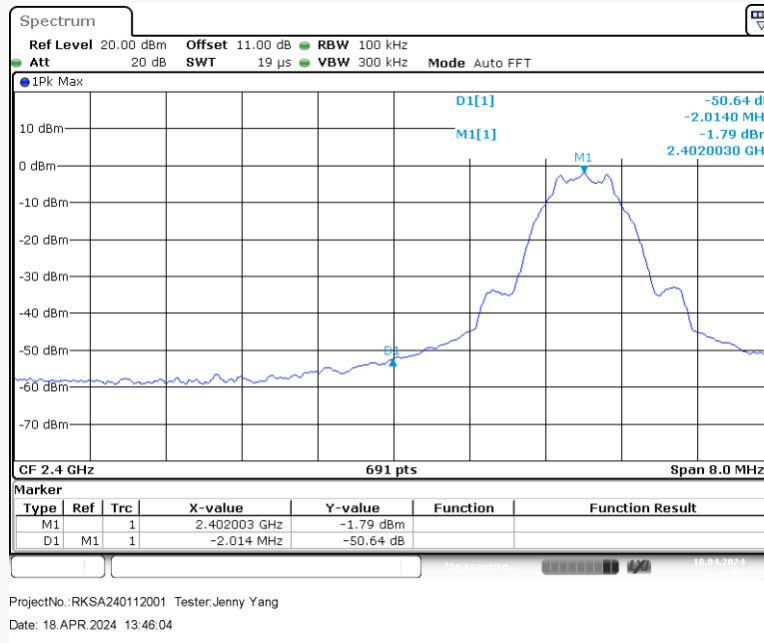


802.11n-HT40 Mode Right Side

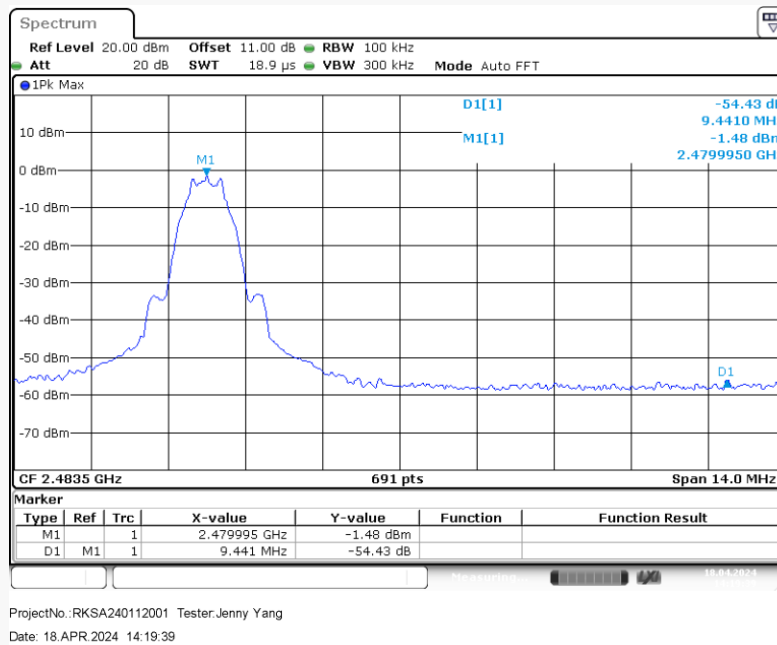


BLE 1Mbps:

Left Side



Right Side



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 *******