FCC PART 15.247

TEST REPORT

For

Zhejiang Sunseeker Industrial Co., Ltd.

Jinde Road 988, Jiangdong Industrial Park, Jinhua, Zhejiang, China

FCC ID: 2BFD7-AP6212

Report Type:	**Product Name:**
Original Report	2.4G Wi-Fi&Bluetooth module

Report Number:	RKSA240816002-00A
Report Date:	2024-11-21
Reviewed By:	Bard Liu
Approved By:	Kyle Xu
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu Province, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240816002-00A	R1V1	2024-11-21	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant	Zhejiang Sunseeker Industrial Co., Ltd.
Product Name	2.4G Wi-Fi&Bluetooth module
Tested Model	AP6212
Series Model:	AP6212A
Model Difference:	Model name
Power Supply	DC 3.0~3.8V(Typical：DC 3.3 V)
RF Function:	2.4G Wi-Fi; BLE
Operating Band/Frequency:	2.4G Wi-Fi:2412~2462 MHz(802.11b/g/n20) BLE(1Mbps): 2402-2480 MHz
Maximum Peak Output Power:	2.4G Wi-Fi: 802.11b: 18.672 dBm 802.11g: 24.210 dBm 802.11n20: 23.858 dBm BLE(1Mbps): 6.09 dBm
Channel Number:	2.4G Wi-Fi:11(802.11b/g/n20) 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:	Dipole Antenna
★Maximum Antenna Gain:	2.37 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: RKSA240816002-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-08-16.)

Objective

This report is prepared for *Zhejiang Sunseeker Industrial 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℃
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.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

RF test software: Xshell

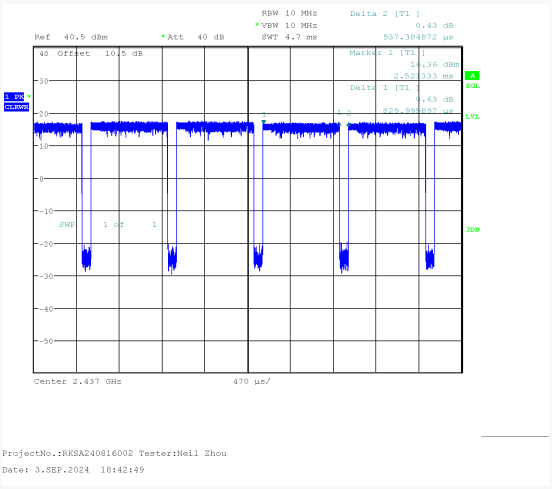
Pre-scan with all the data rates, and the worst case was performed as below:

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

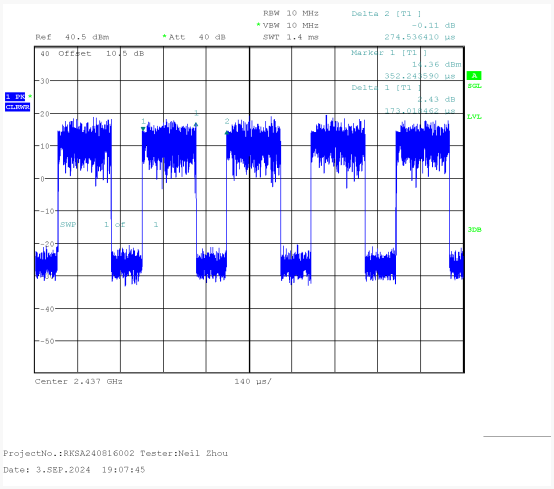
Note: The power level was declared by the applicant.

Duty Cycle:

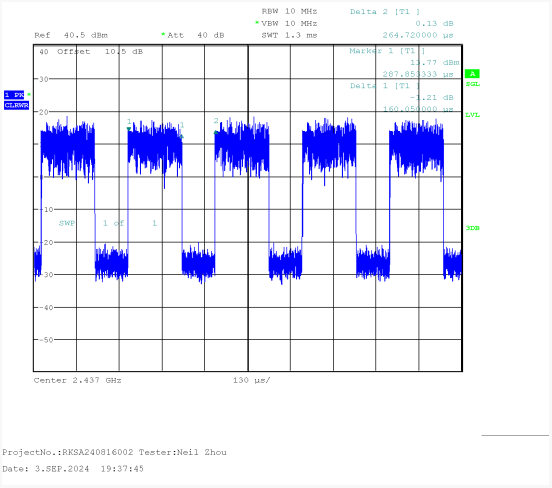
802.11b Mode Middle Channel



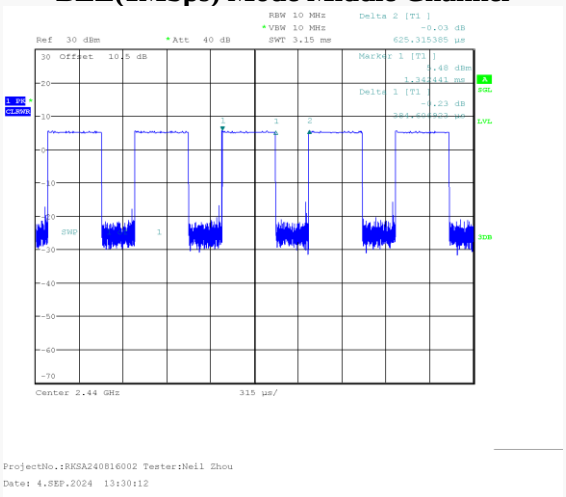
802.11g Mode Middle Channel



802.11n-HT20 Mode Middle Channel



BLE(1Mbps) Mode Middle Channel



Mode	Duty Cycle (%)	Ton(ms)	Ton+off(ms)	10log(1/x)
802.11b	88.58	0.830	0.937	0.53
802.11g	62.91	0.173	0.275	2.01
802.11n-HT20	60.38	0.160	0.265	2.19
BLE(1Mbps)	61.60	0.385	0.625	2.10

Note: “x” means the Duty Cycle.

Support Equipment List and Details

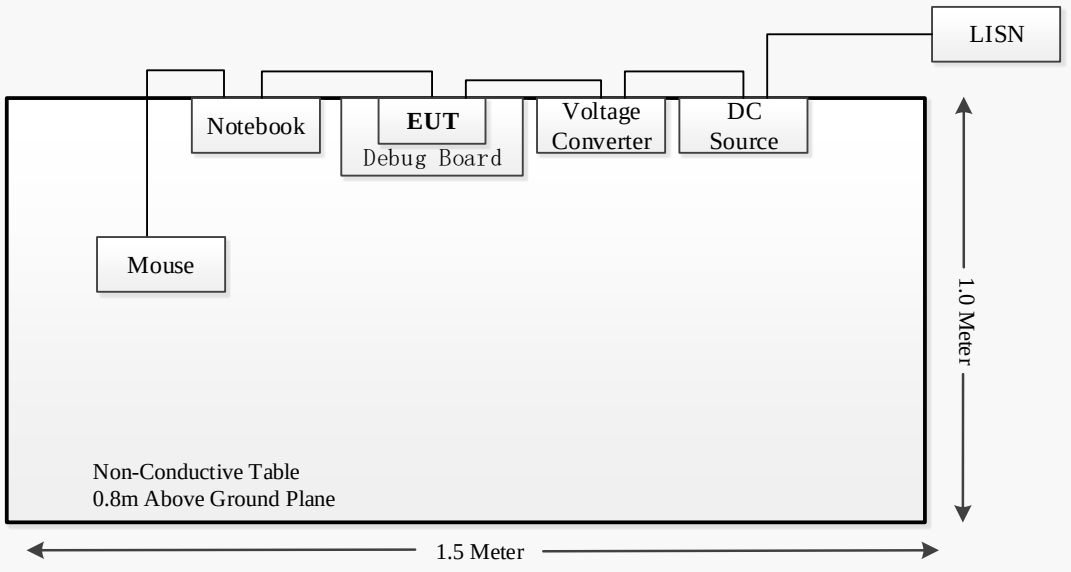
Manufacturer	Description	Model	Serial Number
Lenovo	Notebook	Y700P	PF2B7PL5
/	Debug board	/	/
Shenzhen Zhaoxin Electronic Instrument Equipment Co., Ltd.	DC Source	PS-6005D	18P6005D10724
Logitech	Mouse	M-U0026	HS529HB
/	Voltage converter	/	/

External I/O Cable

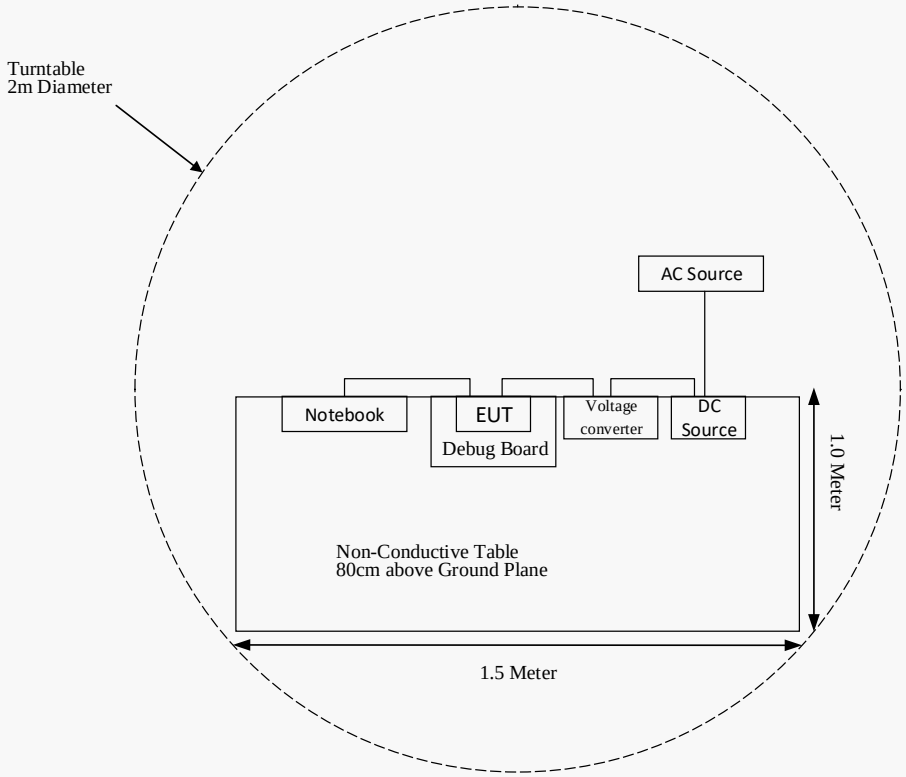
Cable Description	Length (m)	From Port	To
Data Cable	1.0	Debug board	Notebook
Power Cable 1	1.0	Voltage converter	DC Source/Adapter
Power Cable 2	1.0	DC Source	AC Source/LISN
Power Cable 3	0.5	Debug board	Voltage converter

Block Diagram of Test Setup

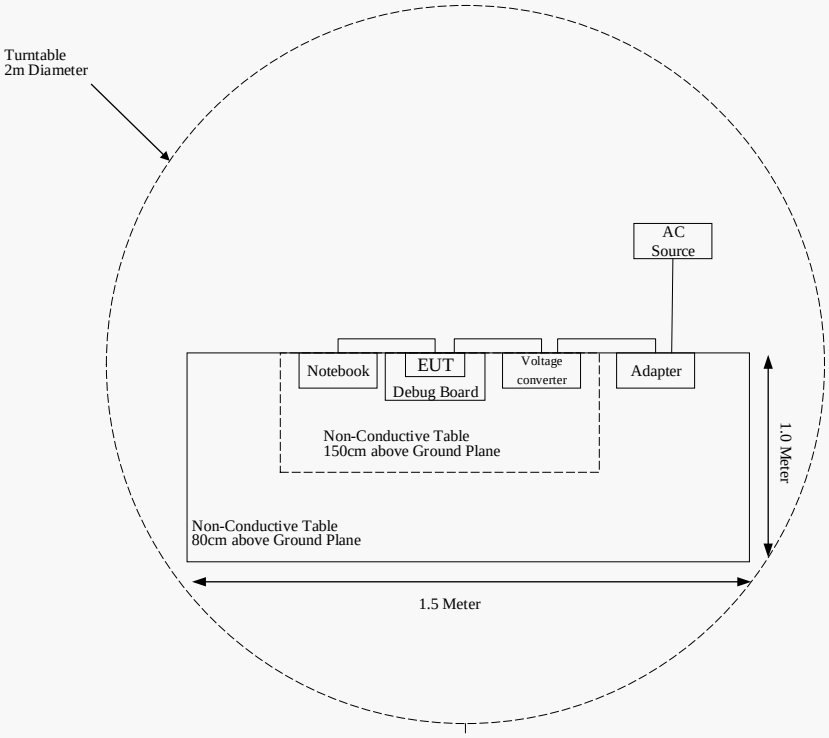
For Conducted Emissions:



For Radiated Emissions (Below 1GHz):



For Radiated Emissions (Above 1 GHz):



SUMMARY OF TEST RESULTS

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

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber #1)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2024-04-23	2025-04-22
Sunol Sciences	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
ETS-LINDGREN	Loop Antenna	6512	108100	2024-11-03	2025-11-02
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	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9207-3900	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
EM Electronics Corporation	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2024-04-25	2025-04-24
Narda	Attenuator	20dB	020	2024-04-23	2025-04-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-13	013	2024-04-25	2025-04-24
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Narda	Attenuator	10dB	010	2024-04-25	2025-04-24
Anritsu	Power Sensor	MA24418A	12621	2024-04-23	2025-04-22
Unknown	RF Cable	RF Cable C01	C01	Each Time	N/A
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	101746	2024-04-23	2025-04-22
Narda	Attenuator	10 dB	N/A	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-15	015	2024-04-23	2025-04-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	LISN	ENV216	101130	2024-04-23	2025-04-22

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

Applicable Standard

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

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

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

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

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

Calculated Formulary

Predication of MPE limit at a given distance
$S = PG/4\pi R^2$ = power density (in appropriate units, e.g. mW/cm^2);
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);

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)
		(dBi)	(numeric)	(dBm)	(mW)			
2.4G Wi-Fi	2412-2462	2.37	1.73	24.5	281.84	20	0.0970	1.0
BLE	2402-2480	2.37	1.73	6.5	4.47	20	0.0015	1.0
Classic BT	2402-2480	2.37	1.73	7.5	5.62	20	0.0019	1.0

Note:
1. For the above tune up power were declared by the manufacturer.
2. WiFi and BT/BLE cannot transmit simultaneously.

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

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine Compliant with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

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

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

Antenna Connector Construction

The EUT has a dipole antenna for 2.4G Wi-Fi & BLE, and the antenna gain is 2.37 dBi, which use a unique type of connector to attach to the EUT, fulfill the requirement of this section. Please refer to the EUT photos.

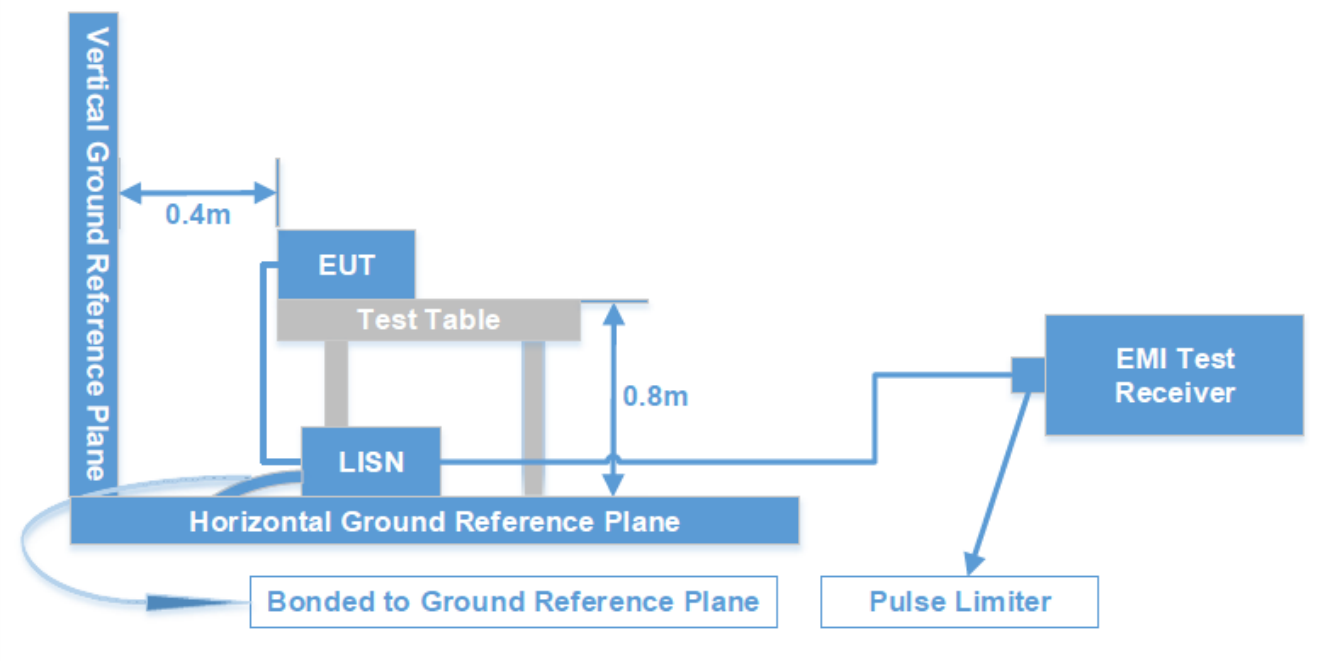
Result: Compliant.

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

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

Frequency Range	RBW	VBW
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

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

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

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

Level & Over Limit Calculation

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

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Level (dBμV) = Read level (dBμV) + Factor (dB)

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

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

Test Results Summary

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

Test Data: See Appendix

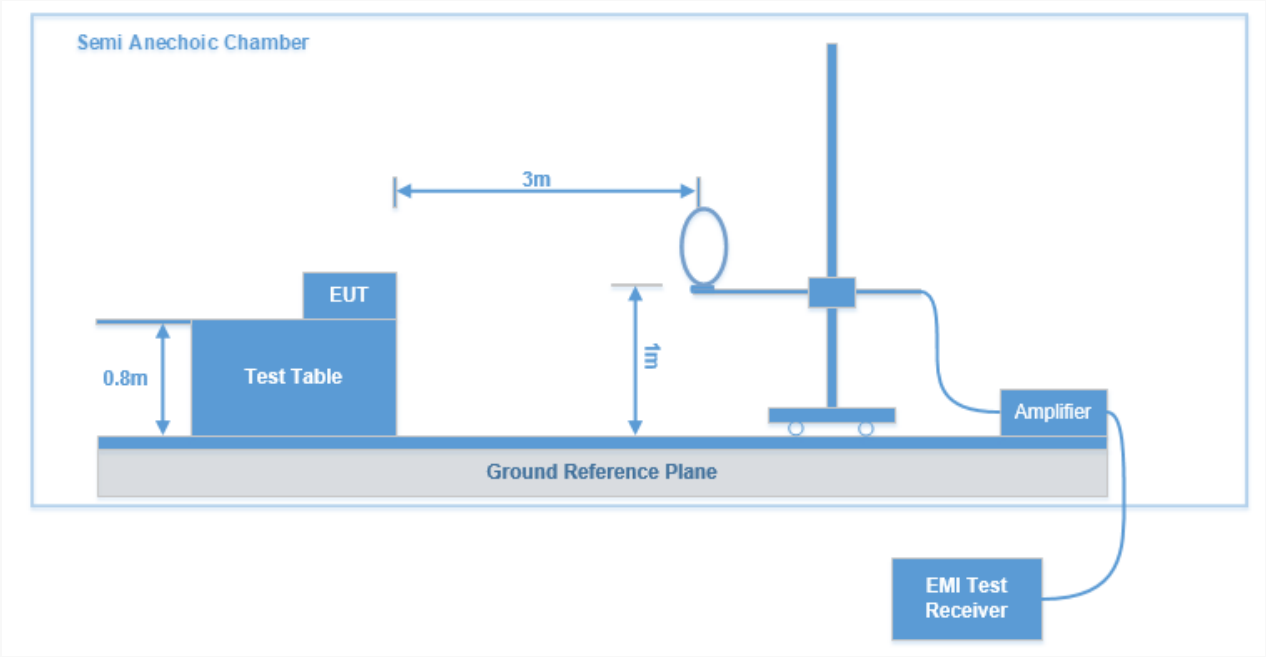
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

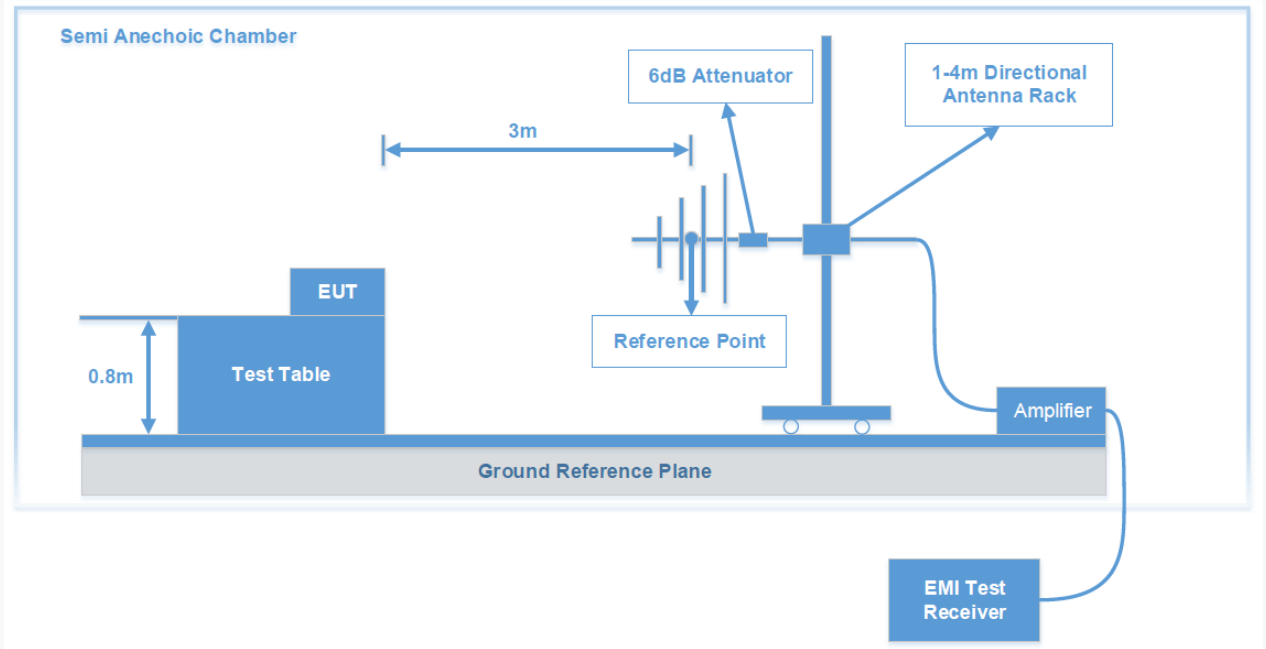
FCC §15.247 (d); §15.209; §15.205;

Test System Setup

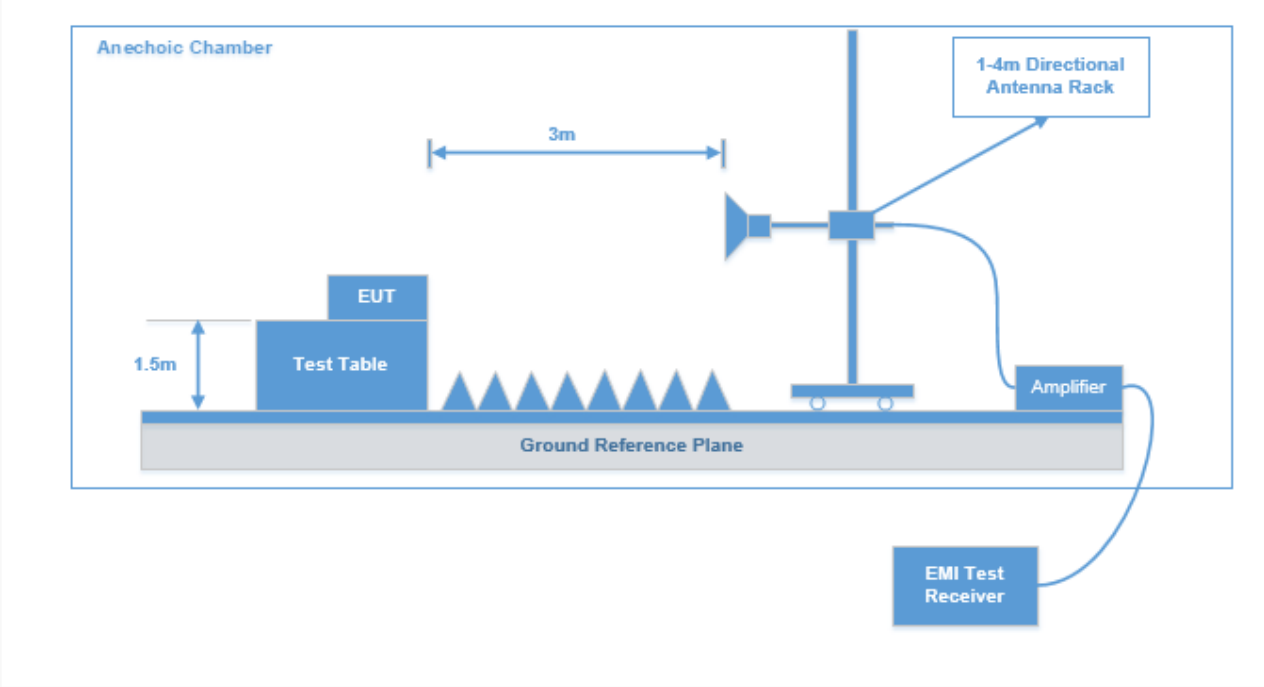
9 kHz-30 MHz:



30 MHz-1 GHz:



Above 1 GHz:



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

EMI Test Receiver Setup

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

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

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 (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)

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

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

Test Results Summary

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

Test Data: See Appendix

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

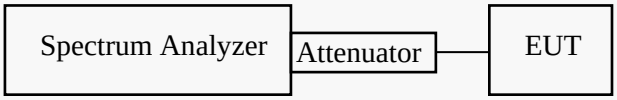
Applicable Standard

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

Test Procedure

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

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 * RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



Test Data: See Appendix

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

Applicable Standard

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

Test Procedure

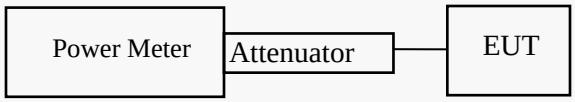
For 2.4G Wi-Fi:

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

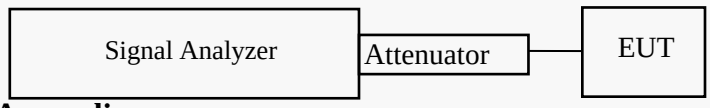
Method AVGPM-G is a measurement using a gated RF average power meter. Alternatively, measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. 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 ≥ DTS bandwidth.
2. Set VBW ≥ 3 x RBW.
3. Set span ≥ 3 x 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

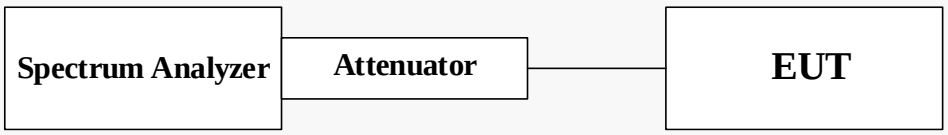
Applicable Standard

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

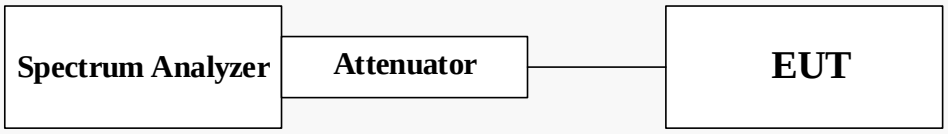
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of 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: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3*RBW.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



Test Data: See Appendix

APPENDIX - TEST DATA

Environmental Conditions & Test Information

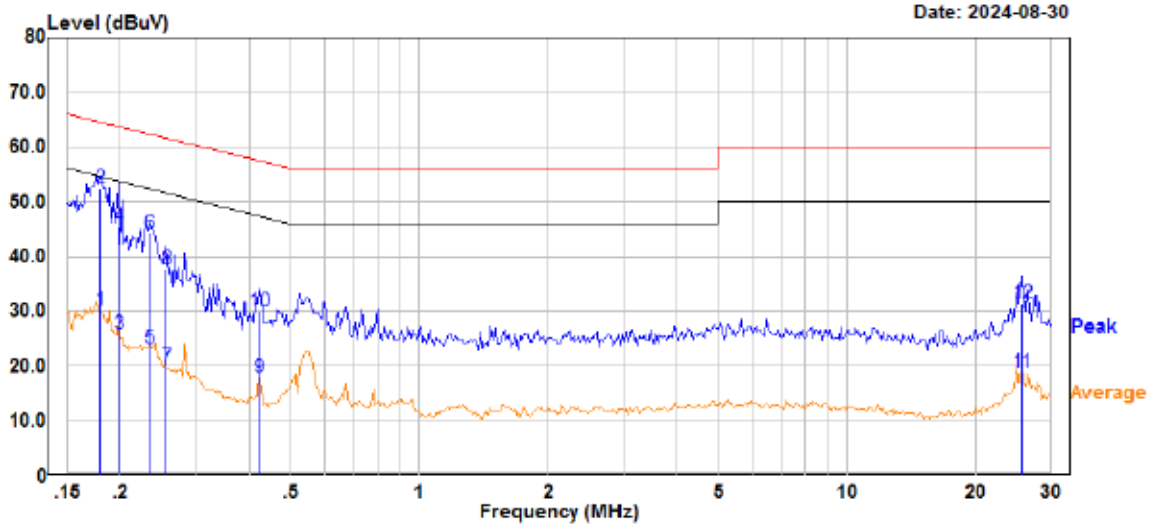
Test Item:	AC LINE CONDUCTED EMISSIONS	RADIATED EMISSIONS				Duty Cycle
		9 kHz-30 MHz	30MHz-1GHz	1 GHz – 18 GHz	18 GHz - 25 GHz	
Test Date:	2024-08-30	2024-09-06 to 2024-11-12	2024-09-06	2024-09-07 to 2024-09-10	2024-09-13	2024-09-03~2024-09-04
Temperature:	24.4 ℃	24.3-25.7 ℃	25.4 ℃	24.3-25.7 ℃	24.5℃	24.3 ℃ ~24.7 ℃
Relative Humidity:	44 %	44-56%	44 %	47-51 %	52 %	47%~51 %
ATM Pressure:	100.8. kPa	101.2-102.1kPa	101.2 kPa	101.0-101.2kPa	101.0kPa	100.3kPa~ 100.7 kPa
Test Result:	Pass	Pass	Pass	Pass	Pass	/
Test Engineer:	Richard Wen	Jerry Yan & Grace Luo	Grace Luo	Destine Hu	Hugh Wu	Neil Zhou

Test Item:	6 DB EMISSION BANDWIDTH	OCCUPIED BANDWIDTH	MAXIMUM CONDUCTED OUTPUT POWER	100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	POWER SPECTRAL DENSITY
Test Date:	2024-09-04 to 2024-11-21	2024-09-04 to 2024-11-21	2024-09-04	2024-09-03 to 2024-11-21	2024-09-03 to 2024-09-04
Temperature:	24.7-25.1 ℃	24.7-25.1 ℃	24.7 ℃	24.3-25.1 ℃	24.3-24.7 ℃
Relative Humidity:	47-51 %	47-51 %	51 %	47-51 %	47-51 %
ATM Pressure:	101.1-102.8kPa	101.1-102.8kPa	100.7 kPa	100.3-102.8kPa	100.3-101.1kPa
Test Result:	Pass	Pass	Pass	Pass	Pass
Test Engineer:	Neil Zhou	Neil Zhou	Neil Zhou	Neil Zhou	Neil Zhou

AC LINE CONDUCTED EMISSIONS

For Wi-Fi Mode:

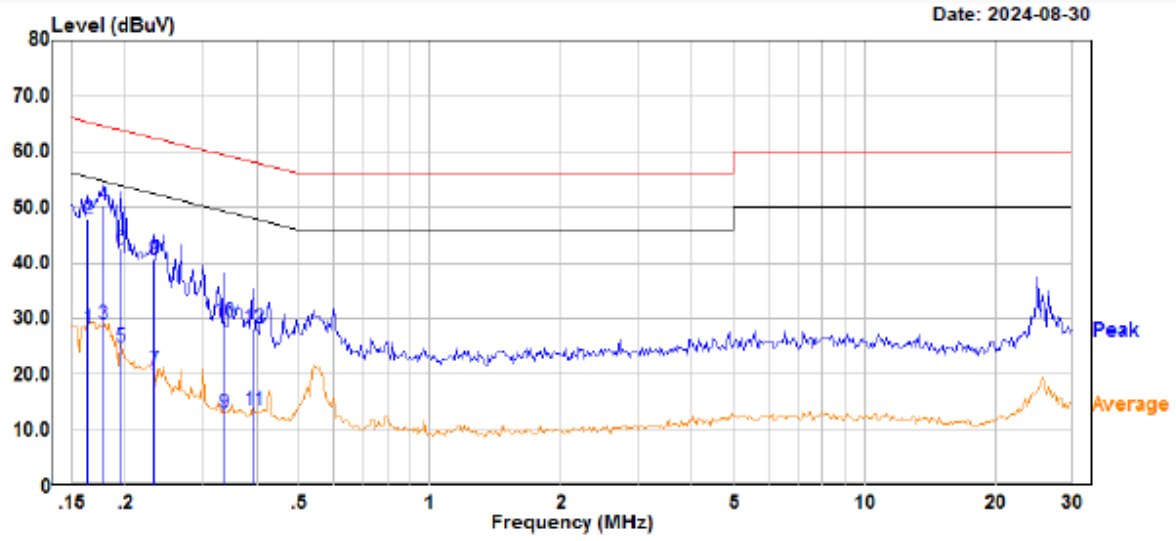
EUT operation mode: Transmitting in maximum output power 802.11g mode middle channel



Trace: 1

```
Site                  : CE
Condition             : limit\CE limit\FCC Part 15.207
                      : DET:Peak
Project No.           : RKSA240816002
Model                 : AP6212
Phase                 : L
Voltage               : 120V/60Hz
Mode                  : 2.4G WIFI
Test Equipment        : ENV216,ESR
Temperature           : 24.4℃
Humidity              : 44%
Atmospheric pressure: 100.8kPa
Test Engineer         : Richard Wen
```

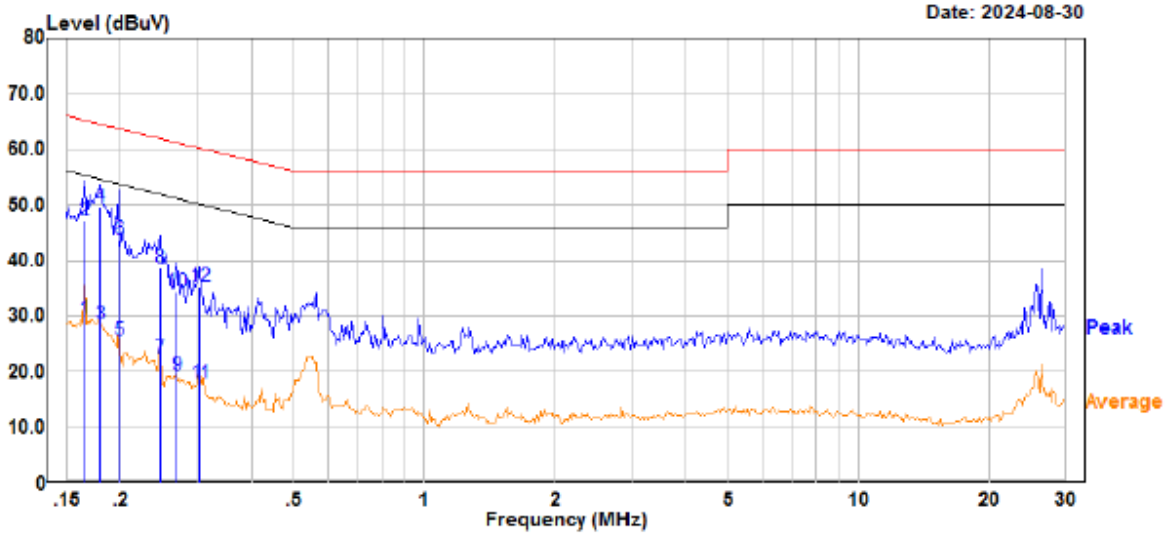
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.179	10.15	20.12	30.27	54.51	-24.24	Average
2	0.179	32.27	20.12	52.39	64.51	-12.12	QP
3	0.198	5.74	20.11	25.85	53.69	-27.84	Average
4	0.198	25.45	20.11	45.56	63.69	-18.13	QP
5	0.235	3.01	20.13	23.14	52.28	-29.14	Average
6	0.235	24.10	20.13	44.23	62.28	-18.05	QP
7	0.257	-0.26	20.14	19.88	51.54	-31.66	Average
8	0.257	17.57	20.14	37.71	61.54	-23.83	QP
9	0.422	-2.24	20.21	17.97	47.41	-29.44	Average
10	0.422	9.79	20.21	30.00	57.41	-27.41	QP
11	25.589	-0.92	19.82	18.90	50.00	-31.10	Average
12	25.589	11.62	19.82	31.44	60.00	-28.56	QP



Site : CE
Condition : limit\CE limit\FCC Part 15.207
: DET:Peak
Project No. : RKSA240816002
Model : AP6212
Phase : N
Voltage : 120V/60Hz
Mode : 2.4G WIFI
Test Equipment : ENV216,ESR
Temperature : 24.4℃
Humidity : 44%
Atmospheric pressure: 100.8kPa
Test Engineer : Richard Wen

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.164	8.15	20.11	28.26	55.26	-27.00	Average
2	0.164	27.80	20.11	47.91	65.26	-17.35	QP
3	0.178	8.91	20.12	29.03	54.60	-25.57	Average
4	0.178	30.25	20.12	50.37	64.60	-14.23	QP
5	0.194	4.73	20.11	24.84	53.85	-29.01	Average
6	0.194	22.47	20.11	42.58	63.85	-21.27	QP
7	0.232	0.65	20.12	20.77	52.37	-31.60	Average
8	0.232	20.43	20.12	40.55	62.37	-21.82	QP
9	0.336	-7.21	20.18	12.97	49.31	-36.34	Average
10	0.336	9.36	20.18	29.54	59.31	-29.77	QP
11	0.393	-6.63	20.20	13.57	47.99	-34.42	Average
12	0.393	8.12	20.20	28.32	57.99	-29.67	QP

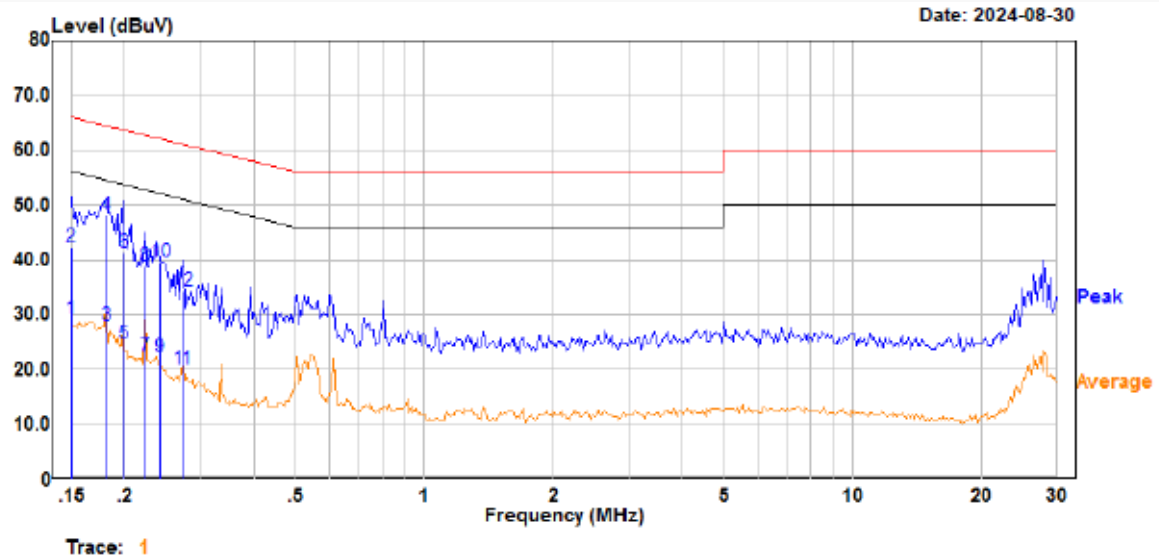
For BLE Mode: *（Transmitting in maximum output power mode high channel）*



Trace: 1

Site : CE
Condition : limit\CE limit\FCC Part 15.207
: DET:Peak
Project No. : RKSA240816002
Model : AP6212
Phase : L
Voltage : 120V/60Hz
Mode : BLE 1M
Test Equipment : ENV216,ESR
Temperature : 24.4℃
Humidity : 44%
Atmospheric pressure: 100.8kPa
Test Engineer : Richard Wen

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.166	9.42	20.11	29.53	55.17	-25.64	Average
2	0.166	27.14	20.11	47.25	65.17	-17.92	QP
3	0.179	8.50	20.12	28.62	54.51	-25.89	Average
4	0.179	29.50	20.12	49.62	64.51	-14.89	QP
5	0.198	5.52	20.11	25.63	53.69	-28.06	Average
6	0.198	23.56	20.11	43.67	63.69	-20.02	QP
7	0.247	2.10	20.13	22.23	51.87	-29.64	Average
8	0.247	18.47	20.13	38.60	61.87	-23.27	QP
9	0.270	-0.81	20.15	19.34	51.13	-31.79	Average
10	0.270	14.30	20.15	34.45	61.13	-26.68	QP
11	0.304	-2.38	20.17	17.79	50.14	-32.35	Average
12	0.304	15.12	20.17	35.29	60.14	-24.85	QP



Trace: 1

Site : CE
Condition : limit\CE limit\FCC Part 15.207
: DET:Peak
Project No. : RKSA240816002
Model : AP6212
Phase : N
Voltage : 120V/60Hz
Mode : BLE 1M
Test Equipment : ENV216,ESR
Temperature : 24.4℃
Humidity : 44%
Atmospheric pressure: 100.8kPa
Test Engineer : Richard Wen

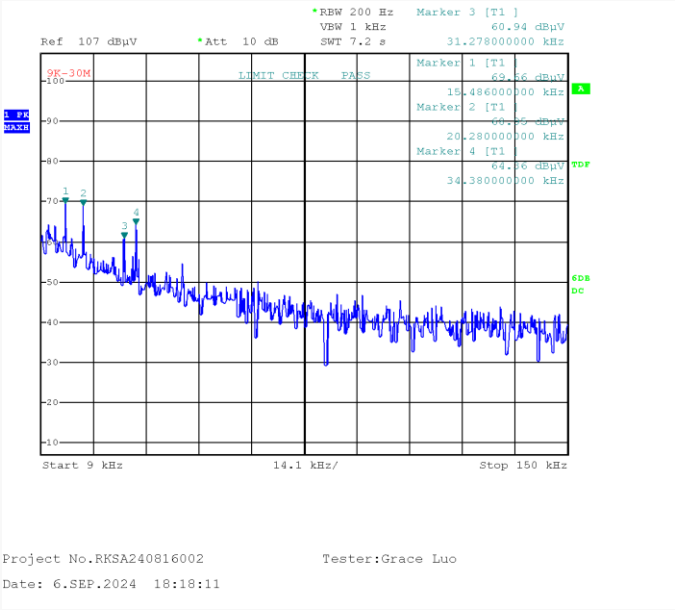
	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.150	9.10	20.12	29.22	56.00	-26.78	Average
2	0.150	22.08	20.12	42.20	66.00	-23.80	QP
3	0.181	7.93	20.12	28.05	54.43	-26.38	Average
4	0.181	27.87	20.12	47.99	64.43	-16.44	QP
5	0.198	4.46	20.11	24.57	53.69	-29.12	Average
6	0.198	21.15	20.11	41.26	63.69	-22.43	QP
7	0.223	2.38	20.13	22.51	52.70	-30.19	Average
8	0.223	18.68	20.13	38.81	62.70	-23.89	QP
9	0.242	2.16	20.13	22.29	52.04	-29.75	Average
10	0.242	19.62	20.13	39.75	62.04	-22.29	QP
11	0.272	-0.18	20.15	19.97	51.05	-31.08	Average
12	0.272	14.24	20.15	34.39	61.05	-26.66	QP

SPURIOUS EMISSIONS

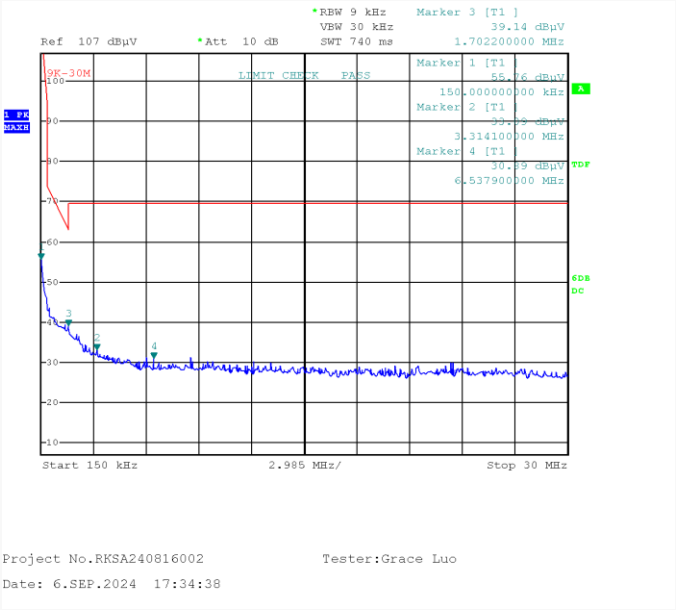
Test Result: Compliant
EUT operation mode: Transmitting
After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

For Wi-Fi Mode:
9 kHz-30 MHz: (*Transmitting in maximum output power 802.11g mode middle channel)*
Parallel(worst case)

9kHz-150kHz



150kHz-30MHz



9kHz-150kHz

Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.015486	69.66	PK	52.87	123.81	54.15
0.02028	68.95	PK	49.92	121.46	52.51
0.031278	60.94	PK	46.87	117.70	56.76
0.03438	64.36	PK	46.06	116.88	52.52

150kHz-30MHz

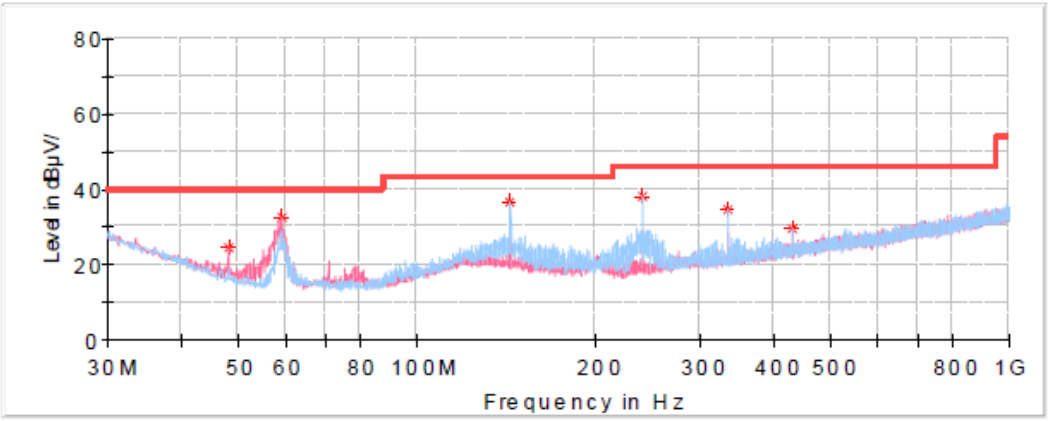
Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.15000	55.76	PK	50.90	104.08	48.32
3.31410	33.99	PK	12.96	69.54	35.55
1.70220	39.14	PK	10.53	62.98	23.84
6.53790	30.39	PK	6.99	69.54	39.15

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

Low channel: 2412MHz

Common Information

Project No:	RKSA240816002
EUT Model:	AP6212
Test Mode:	Transmitting in 802.11g mode low channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	25.4℃
Humidity:	44%
Barometric Pressure:	101.2kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/6



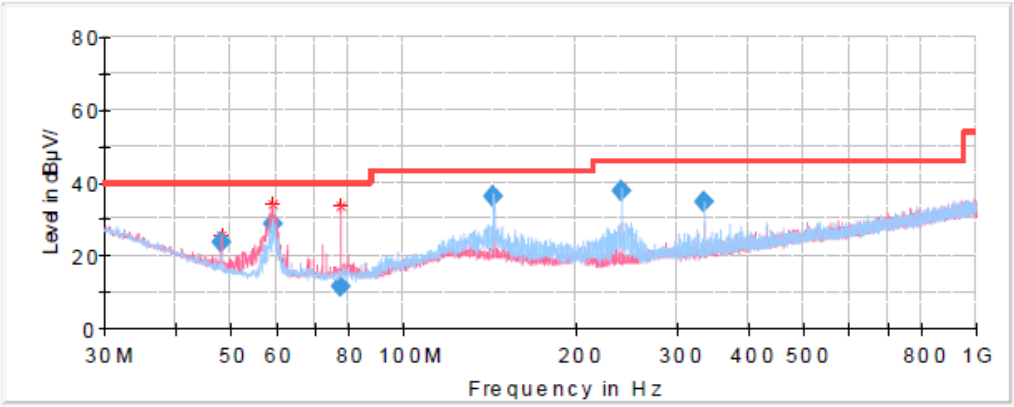
Critical_Freqs

Frequency (MHz)	MaxPeak (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Pol	Corr. (dB/m)
47.945000	24.85	40.00	15.15	V	-15.7
59.100000	32.60	40.00	7.40	V	-17.5
143.975000	36.73	43.50	6.77	H	-11.6
240.005000	38.12	46.00	7.88	H	-12.6
336.035000	34.53	46.00	11.47	H	-9.6
432.065000	29.56	46.00	16.44	H	-7.1

Middle channel: 2437MHz

Common Information

Project No:	RKSA240816002
EUT Model:	AP6212
Test Mode:	Transmitting in 802.11g mode middle channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	25.4℃
Humidity:	44%
Barometric Pressure:	101.2kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/6



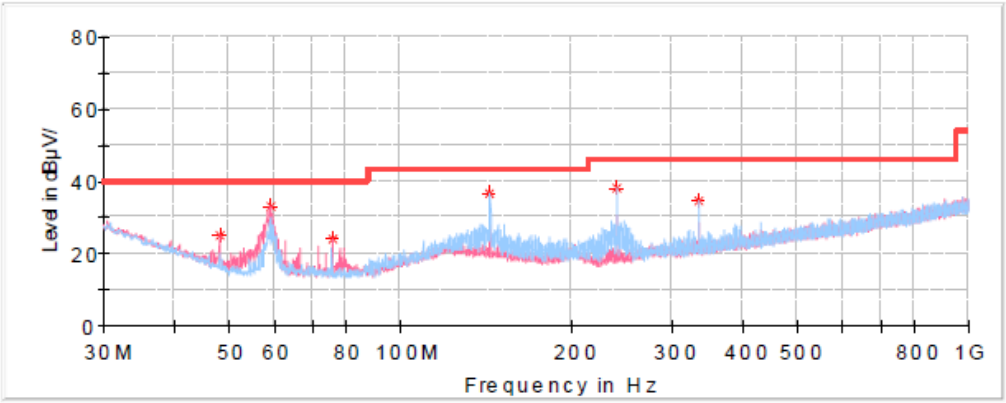
Final_Result

Frequency (MHz)	QuasiPeak (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Pol	Corr. (dB/m)
47.998400	23.56	40.00	16.44	V	-15.7
59.099050	28.45	40.00	11.55	V	-17.5
77.893000	11.58	40.00	28.42	V	-17.3
144.003800	36.40	43.50	7.10	H	-11.6
240.027200	37.67	46.00	8.33	H	-12.6
336.014900	34.48	46.00	11.52	H	-9.6

High Channel: 2462MHz

Common Information

Project No:	RKSA240816002
EUT Model:	AP6212
Test Mode:	Transmitting in 802.11g mode high channel
Standard:	FCC Part 15.205 &FCC Part 15.209&FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	25.4℃
Humidity:	44%
Barometric Pressure:	101.2kPa
Test Engineer:	Grace Luo
Test Date:	2024/9/6



Critical_Freqs

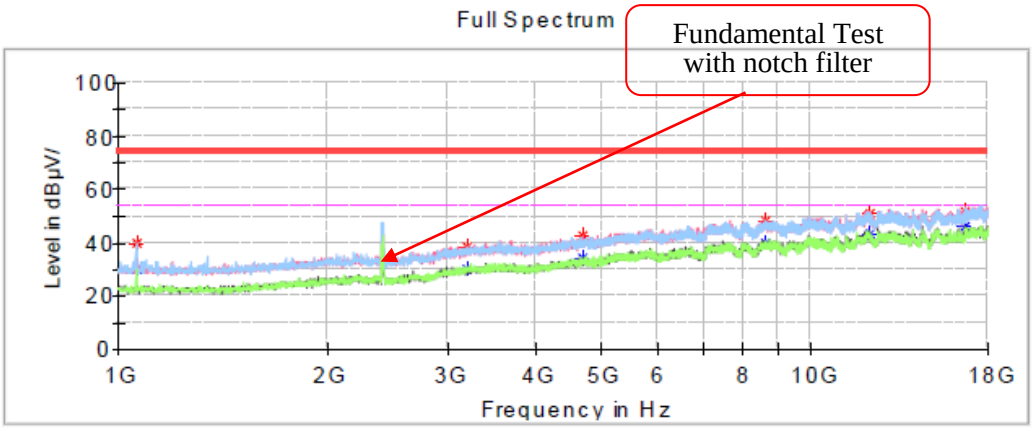
Frequency (MHz)	MaxPeak (dBu V/m)	Limit (dBu V/m)	Margin (dB)	Pol	Corr. (dB/m)
47.945000	25.27	40.00	14.73	V	-15.7
59.100000	33.18	40.00	6.82	V	-17.5
75.832500	24.22	40.00	15.78	V	-17.2
143.975000	36.97	43.50	6.53	H	-11.6
240.005000	38.23	46.00	7.77	H	-12.6
336.035000	34.84	46.00	11.16	H	-9.6

1GHz-18GHz:
802.11b Mode:

Low Channel: 2412MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11b mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



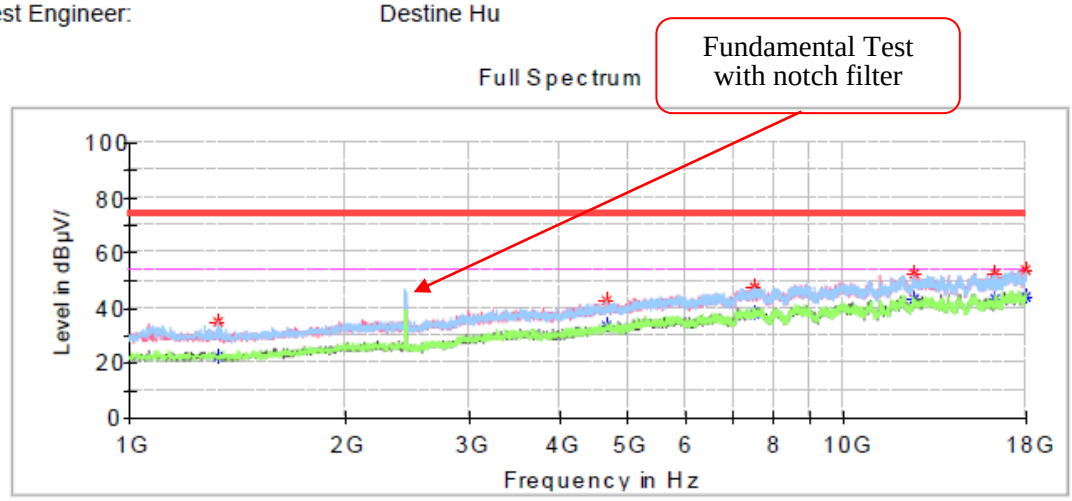
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1061.200000	39.53	---	74.00	34.47	H	-15.4
1061.200000	---	29.86	54.00	24.14	H	-15.4
3186.200000	---	29.87	54.00	24.13	H	-7.7
3186.200000	38.43	---	74.00	35.57	H	-7.7
4689.000000	42.58	---	74.00	31.42	V	-3.6
4689.000000	---	34.02	54.00	19.98	V	-3.6
8602.400000	48.28	---	74.00	25.72	V	5.4
8602.400000	---	40.14	54.00	13.86	V	5.4
12175.800000	50.82	---	74.00	23.18	H	9.2
12175.800000	---	43.52	54.00	10.48	H	9.2
16753.900000	51.45	---	74.00	22.55	V	11.5
16753.900000	---	46.35	54.00	7.65	V	11.5

Middle Channel: 2437MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11b mode 2437 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



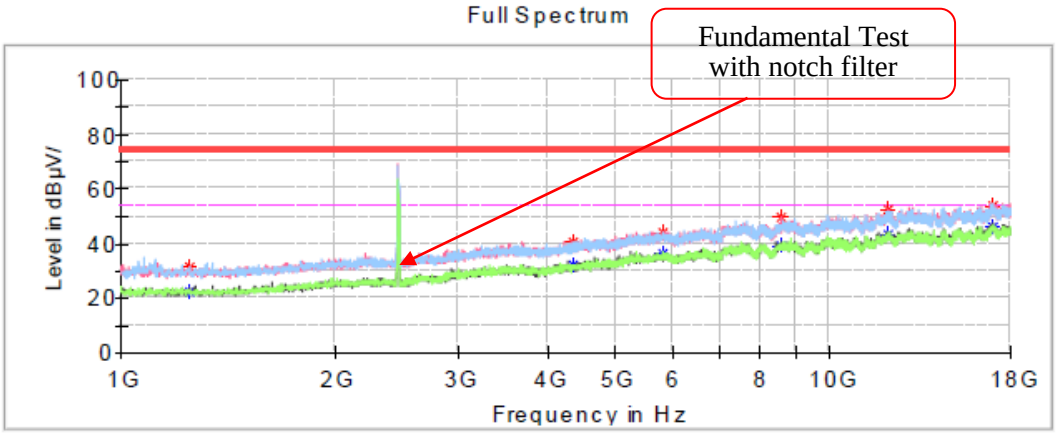
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1326.400000	35.08	---	74.00	38.92	H	-15.0
1326.400000	---	22.63	54.00	31.37	H	-15.0
4658.400000	42.90	---	74.00	31.10	H	-3.7
4658.400000	---	33.28	54.00	20.72	H	-3.7
7521.200000	47.21	---	74.00	26.79	H	3.9
7521.200000	---	37.49	54.00	16.51	H	3.9
12524.300000	52.65	---	74.00	21.35	V	9.7
12524.300000	---	43.14	54.00	10.86	V	9.7
16306.800000	52.53	---	74.00	21.47	V	10.3
16306.800000	---	43.57	54.00	10.43	V	10.3
18000.000000	---	44.29	54.00	9.71	V	12.0
18000.000000	54.08	---	74.00	19.92	V	12.0

High Channel: 2462MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11b mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



Critical_Freqs

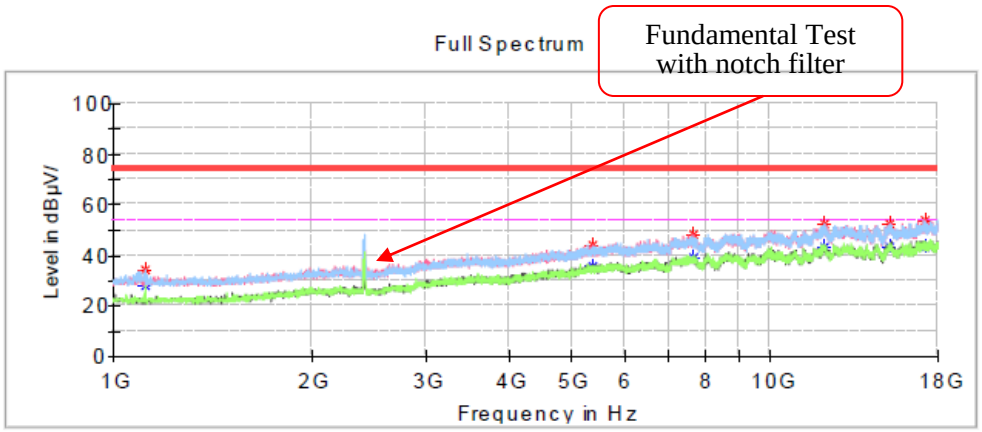
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1248.200000	---	22.58	54.00	31.42	V	-15.1
1248.200000	31.27	---	74.00	42.73	V	-15.1
4337.100000	---	32.42	54.00	21.58	H	-4.8
4337.100000	40.54	---	74.00	33.46	H	-4.8
5817.800000	---	36.08	54.00	17.92	H	-0.1
5817.800000	44.15	---	74.00	29.85	H	-0.1
8544.600000	---	39.35	54.00	14.65	V	5.4
8544.600000	49.31	---	74.00	24.69	V	5.4
12129.900000	---	43.08	54.00	10.92	H	9.1
12129.900000	52.46	---	74.00	21.54	H	9.1
17044.600000	---	46.01	54.00	7.99	V	12.2
17044.600000	53.99	---	74.00	20.01	V	12.2

802.11g Mode:

Low Channel: 2412MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11g mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



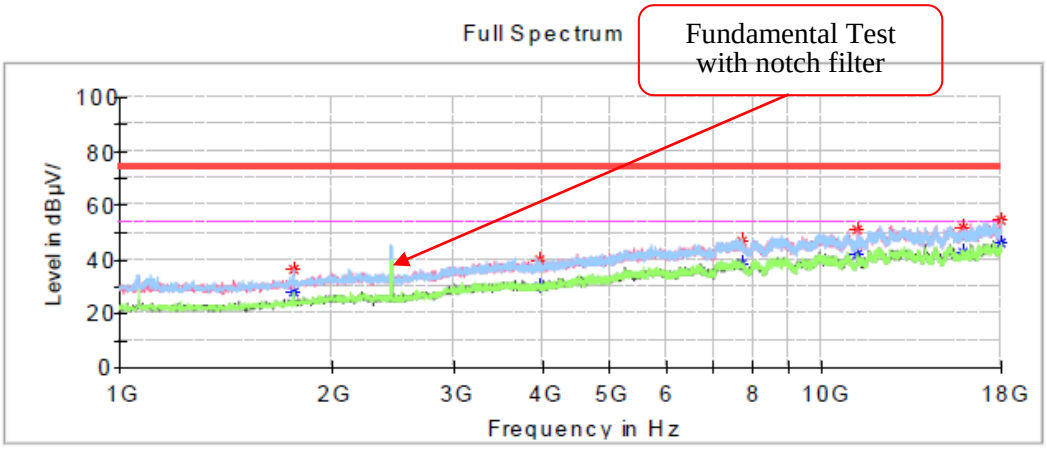
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1117.300000	33.94	---	74.00	40.06	H	-15.3
1117.300000	---	27.80	54.00	26.20	H	-15.3
5382.600000	44.14	---	74.00	29.86	V	-0.8
5382.600000	---	35.74	54.00	18.26	V	-0.8
7653.800000	48.34	---	74.00	25.66	V	3.9
7653.800000	---	39.26	54.00	14.74	V	3.9
12123.100000	52.66	---	74.00	21.34	H	9.1
12123.100000	---	43.26	54.00	10.74	H	9.1
15249.400000	52.69	---	74.00	21.31	V	9.6
15249.400000	---	43.09	54.00	10.91	V	9.6
17190.800000	---	43.70	54.00	10.30	H	12.0
17190.800000	54.17	---	74.00	19.83	H	12.0

Middle Channel: 2437MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11g mode 2437 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



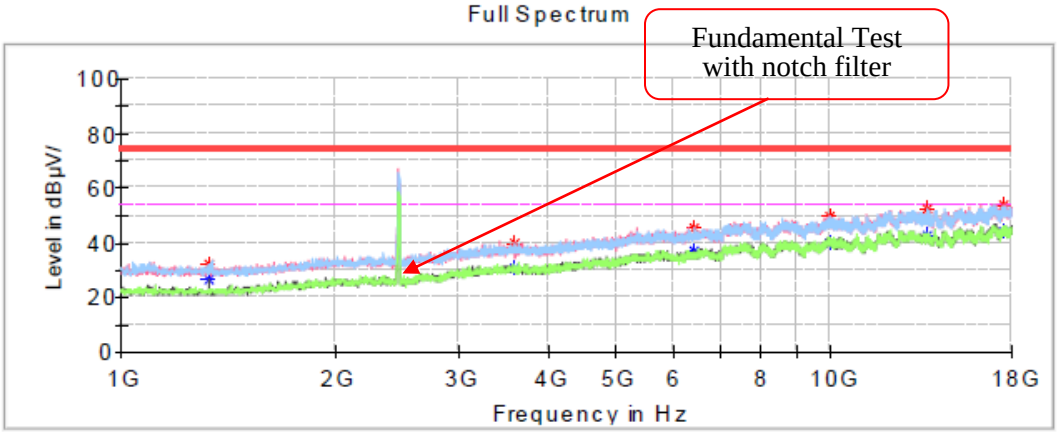
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1765.000000	36.32	---	74.00	37.68	H	-13.1
1765.000000	---	28.26	54.00	25.74	H	-13.1
3963.100000	39.93	---	74.00	34.07	H	-5.9
3963.100000	---	29.84	54.00	24.16	H	-5.9
7699.700000	47.01	---	74.00	26.99	V	3.9
7699.700000	---	38.12	54.00	15.88	V	3.9
11201.700000	51.11	---	74.00	22.89	V	7.9
11201.700000	---	41.77	54.00	12.23	V	7.9
15890.300000	51.50	---	74.00	22.50	V	9.5
15890.300000	---	42.51	54.00	11.49	V	9.5
18000.000000	---	45.91	54.00	8.09	H	12.0
18000.000000	54.58	---	74.00	19.42	H	12.0

High Channel: 2462MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11g mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



Critical_Freqs

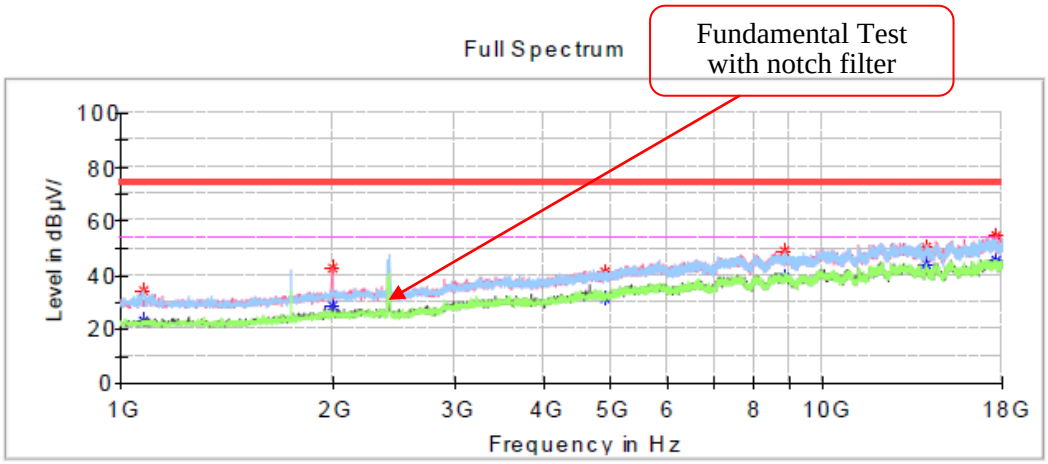
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1329.800000	---	26.89	54.00	27.11	V	-15.0
1329.800000	32.18	---	74.00	41.82	V	-15.0
3597.600000	---	31.11	54.00	22.89	H	-6.3
3597.600000	39.58	---	74.00	34.42	H	-6.3
6434.900000	---	37.20	54.00	16.80	V	0.5
6434.900000	45.71	---	74.00	28.29	V	0.5
10008.300000	---	40.00	54.00	14.00	H	7.2
10008.300000	49.41	---	74.00	24.59	H	7.2
13717.700000	---	42.77	54.00	11.23	H	9.7
13717.700000	52.55	---	74.00	21.45	H	9.7
17576.700000	---	44.32	54.00	9.68	V	11.6
17576.700000	53.51	---	74.00	20.49	V	11.6

802.11n-HT20 Mode :

Low Channel: 2412MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11n20 mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



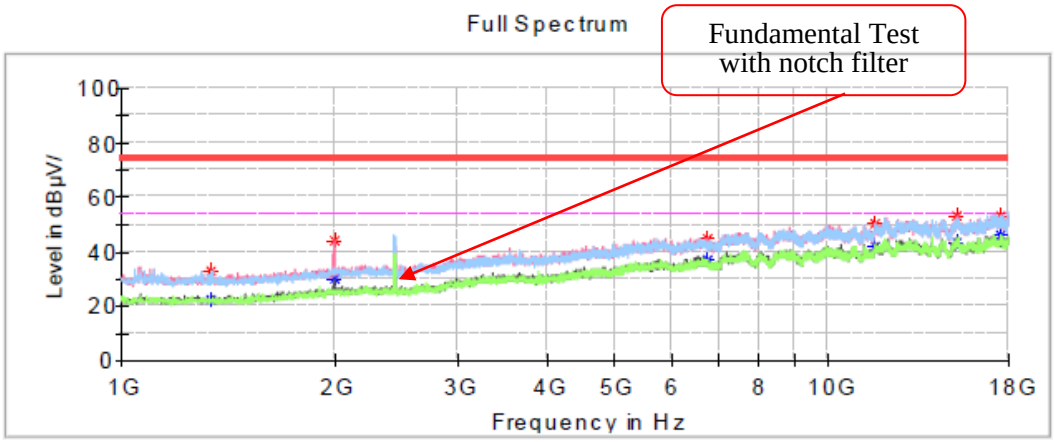
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1078.200000	34.44	---	74.00	39.56	H	-15.3
1078.200000	---	23.10	54.00	30.90	H	-15.3
1997.900000	42.80	---	74.00	31.20	H	-11.8
1997.900000	---	28.80	54.00	25.20	H	-11.8
4893.000000	40.91	---	74.00	33.09	V	-2.8
4893.000000	---	31.79	54.00	22.21	V	-2.8
8797.900000	---	39.03	54.00	14.97	V	5.4
8797.900000	48.66	---	74.00	25.34	V	5.4
14001.600000	50.35	---	74.00	23.65	V	9.8
14001.600000	---	43.84	54.00	10.16	V	9.8
17614.100000	---	45.32	54.00	8.68	V	11.6
17614.100000	54.74	---	74.00	19.26	V	11.6

Middle Channel: 2437MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11n20 mode 2437 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



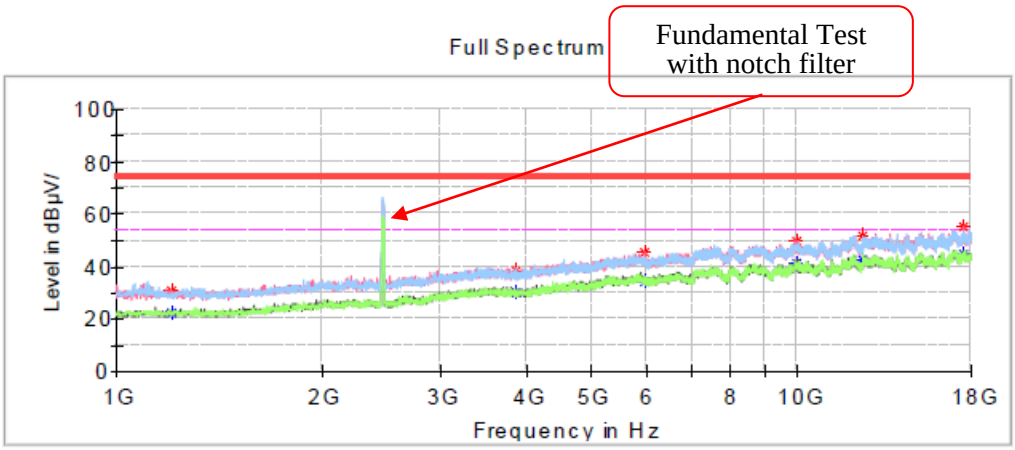
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1340.000000	---	22.28	54.00	31.72	H	-15.0
1340.000000	33.03	---	74.00	40.97	H	-15.0
1997.900000	43.87	---	74.00	30.13	V	-11.8
1997.900000	---	29.88	54.00	24.12	V	-11.8
6737.500000	45.06	---	74.00	28.94	H	1.5
6737.500000	---	37.32	54.00	16.68	H	1.5
11648.800000	50.45	---	74.00	23.55	V	8.9
11648.800000	---	41.95	54.00	12.05	V	8.9
15242.600000	52.95	---	74.00	21.05	V	9.6
15242.600000	---	43.70	54.00	10.30	V	9.6
17547.800000	52.87	---	74.00	21.13	H	11.6
17547.800000	---	46.24	54.00	7.76	H	11.6

High Channel: 2462MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11n20 mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

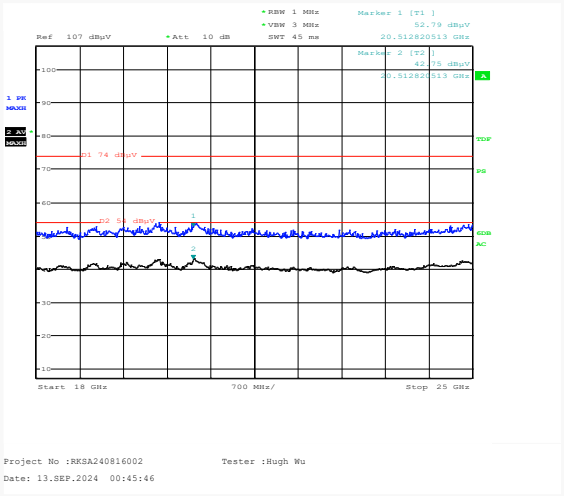


Critical_Freqs

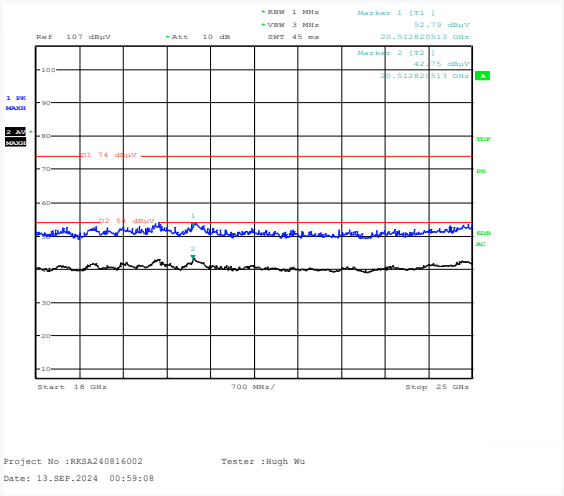
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1207.400000	---	22.14	54.00	31.86	V	-15.2
1207.400000	30.83	---	74.00	43.17	V	-15.2
3857.700000	---	29.92	54.00	24.08	H	-6.0
3857.700000	38.74	---	74.00	35.26	H	-6.0
5969.100000	---	34.59	54.00	19.41	H	0.0
5969.100000	45.14	---	74.00	28.86	H	0.0
9984.500000	49.89	---	74.00	24.11	V	7.1
9984.500000	---	41.20	54.00	12.80	V	7.1
12520.900000	---	42.33	54.00	11.67	V	9.7
12520.900000	52.05	---	74.00	21.95	V	9.7
17581.800000	---	45.00	54.00	9.00	V	11.6
17581.800000	54.90	---	74.00	19.10	V	11.6

18GHz-25GHz: Transmitting in maximum output power 802.11g mode middle channel

Horizontal



Vertical



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

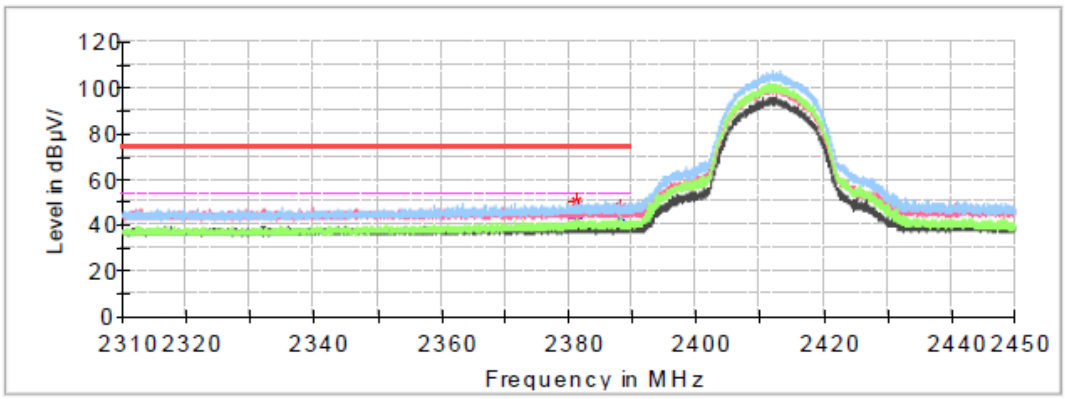
Band Edge:
802.11b Mode:

Low Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11b mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum



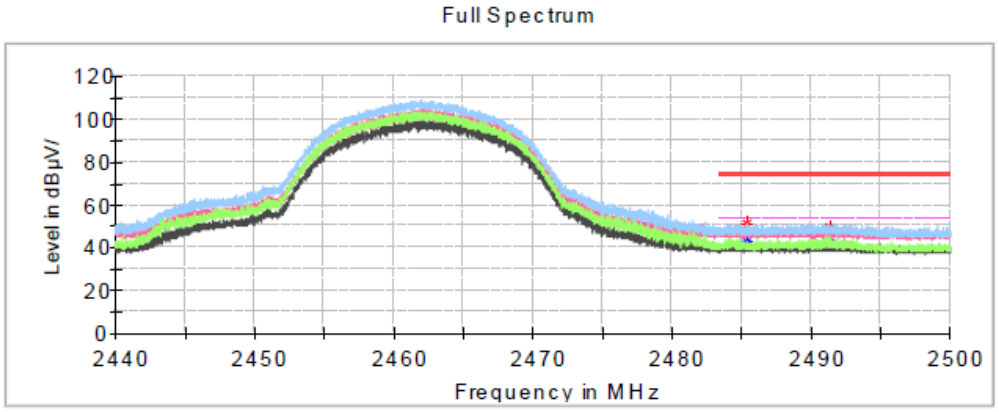
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2381.246000	50.53	---	74.00	23.47	H	-0.6
2381.246000	---	42.88	54.00	11.12	H	-0.6
2388.106000	48.10	---	74.00	25.90	H	-0.6
2388.106000	---	43.50	54.00	10.50	H	-0.6

High Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11b mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



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)
2485.354000	51.42	---	74.00	22.58	H	-0.2
2485.354000	---	42.46	54.00	11.54	H	-0.2
2491.282000	49.58	---	74.00	24.42	H	-0.2
2491.282000	---	45.50	54.00	8.50	H	-0.2

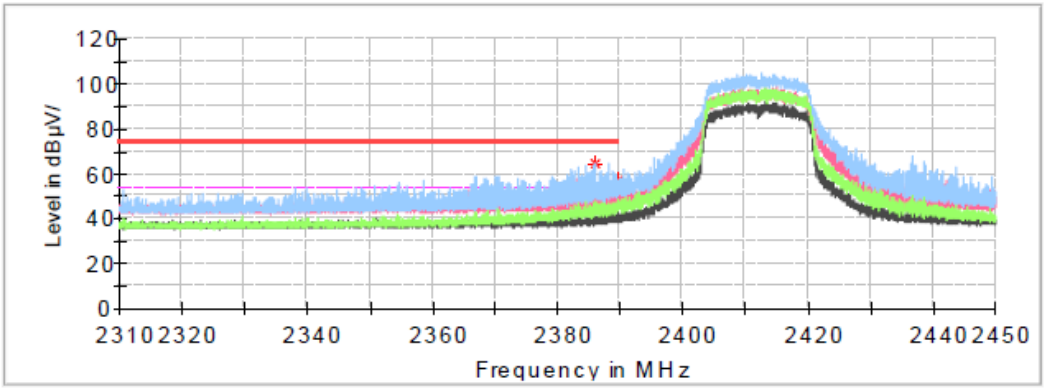
802.11g Mode :

Low Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11g mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum



Critical_Freqs

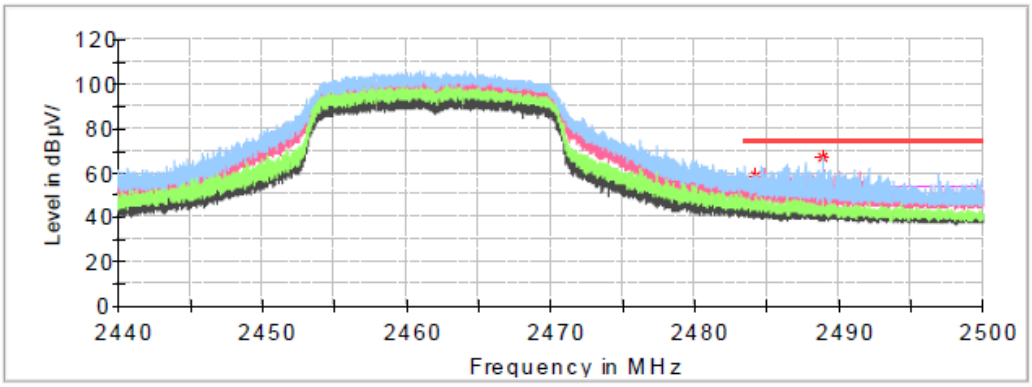
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2385.908000	64.69	---	74.00	9.31	H	-0.6
2385.908000	---	48.21	54.00	5.79	H	-0.6
2389.548000	56.81	---	74.00	17.19	H	-0.6
2389.548000	---	48.51	54.00	5.49	H	-0.6

High Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11g mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum



Critical_Freqs

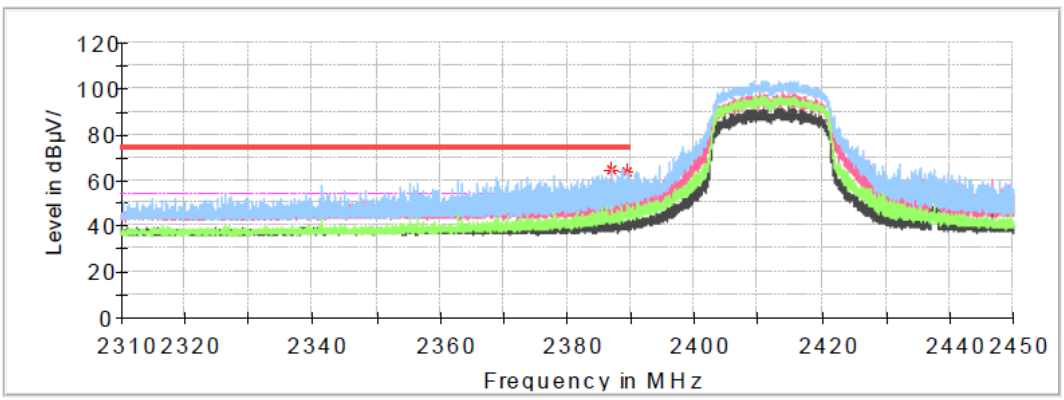
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2484.166000	58.94	---	74.00	15.06	H	-0.3
2484.166000	---	49.17	54.00	4.83	H	-0.3
2488.840000	66.76	---	74.00	7.24	H	-0.2
2488.840000	---	47.34	54.00	6.66	H	-0.2

802.11n-HT20 Mode:

Low Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11n20 mode 2412 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



Critical_Freqs

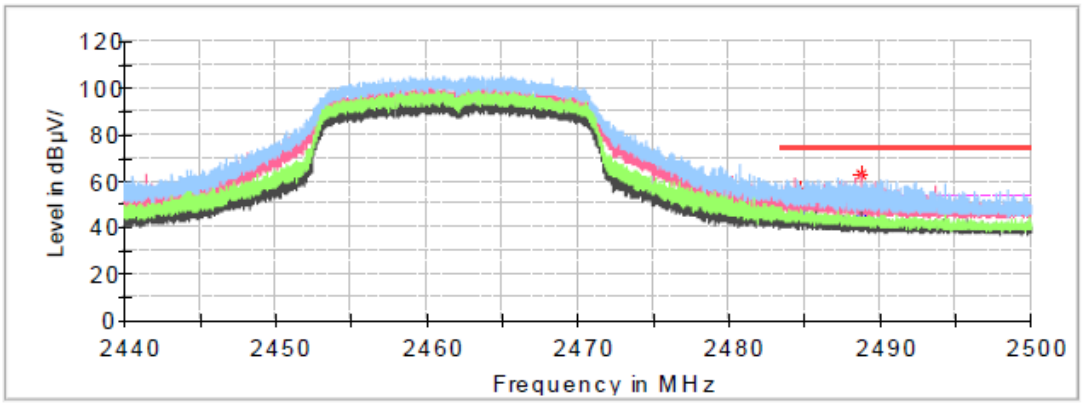
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2387.000000	64.91	---	74.00	9.09	H	-0.6
2387.000000	---	46.52	54.00	7.48	H	-0.6
2389.394000	63.95	---	74.00	10.05	H	-0.6
2389.394000	---	49.40	54.00	4.60	H	-0.6

High Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	Transmitting in 802.11n20 mode 2462 channel
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum

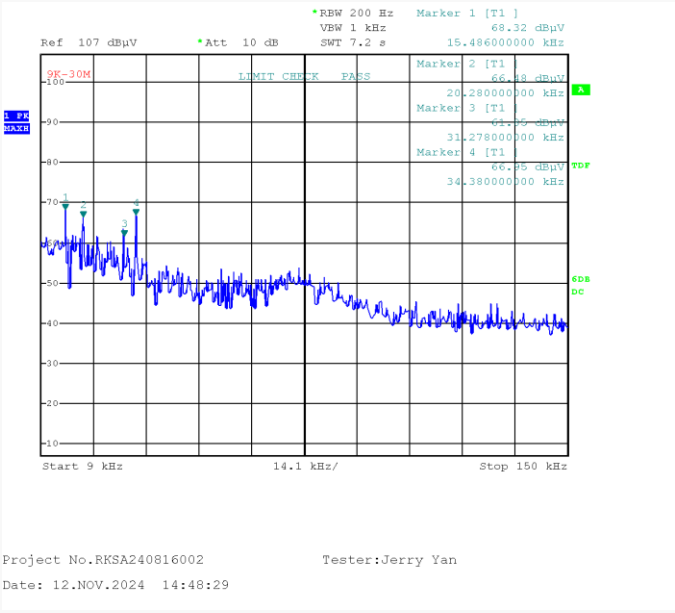


Critical_Freqs

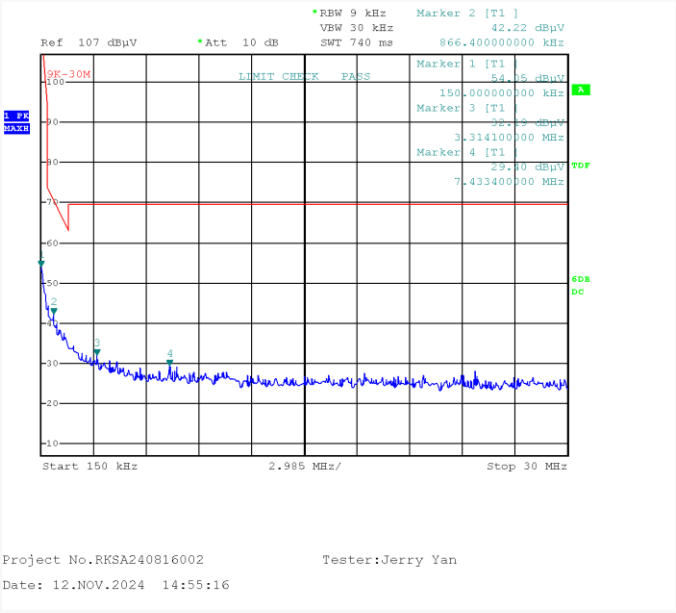
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2484.730000	56.25	---	74.00	17.75	H	-0.3
2484.730000	---	48.21	54.00	5.79	H	-0.3
2488.714000	62.72	---	74.00	11.28	V	-0.2
2488.714000	---	47.03	54.00	6.97	V	-0.2

For BLE Mode:
9 kHz-30 MHz: (*Transmitting in maximum output power mode high channel)*
Parallel(worst case)

9kHz-150kHz



150kHz-30MHz



9kHz-150kHz

Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.015486	68.32	PK	52.87	123.81	55.49
0.02028	66.48	PK	49.92	121.46	54.98
0.031278	61.35	PK	46.87	117.70	56.35
0.03438	66.95	PK	46.06	116.88	49.93

150kHz-30MHz

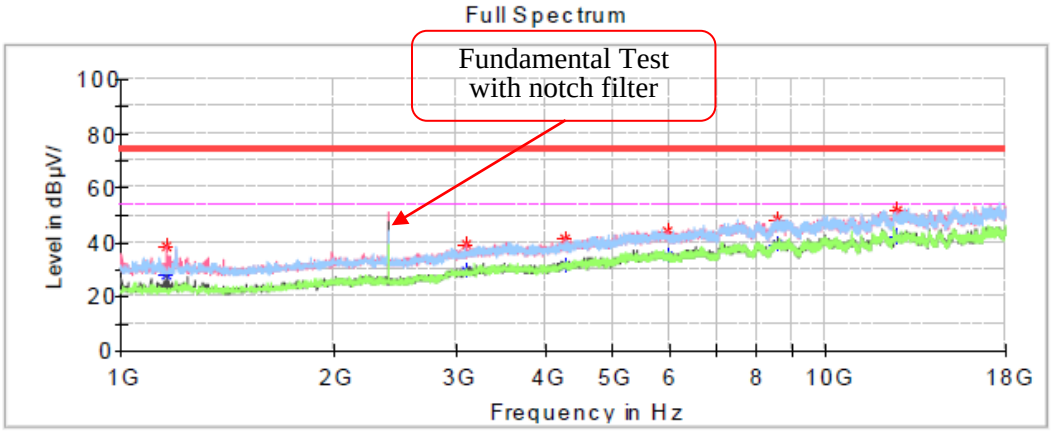
Frequency (MHz)	Corrected Amplitude (dBµV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBµV/m) @3m	Margin (dB)
0.15000	54.05	PK	50.90	104.08	50.03
0.86640	42.22	PK	18.88	68.85	26.63
3.31410	32.19	PK	12.96	69.54	37.35
7.43340	29.4	PK	6.63	69.54	40.14

30MHz-1GHz

Low Channel: 2402MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	BLE 1M
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



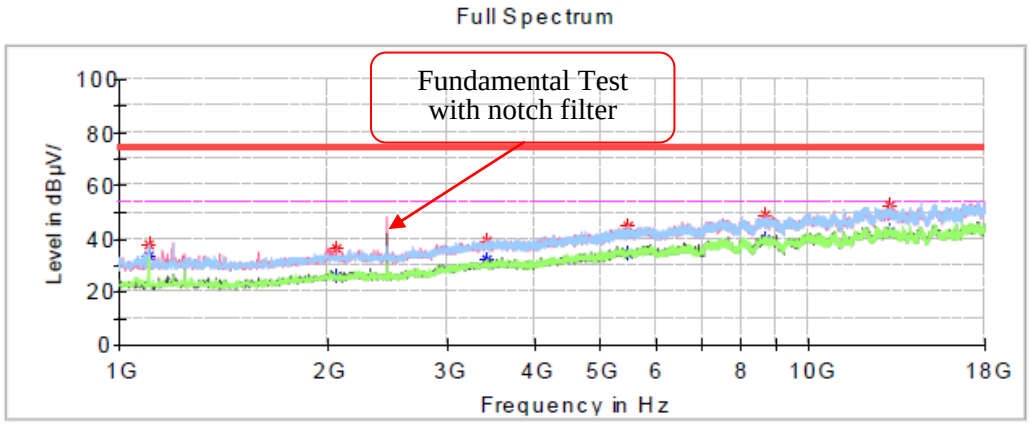
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1159.800000	---	28.17	54.00	25.83	V	-15.2
1159.800000	38.13	---	74.00	35.87	V	-15.2
3092.700000	---	29.39	54.00	24.61	V	-8.0
3092.700000	38.89	---	74.00	35.11	V	-8.0
4258.900000	---	31.69	54.00	22.31	V	-5.1
4258.900000	41.52	---	74.00	32.48	V	-5.1
5957.200000	---	34.91	54.00	19.09	H	0.0
5957.200000	44.39	---	74.00	29.61	H	0.0
8554.800000	---	39.15	54.00	14.85	H	5.4
8554.800000	47.99	---	74.00	26.01	H	5.4
12626.300000	---	42.04	54.00	11.96	V	9.7
12626.300000	52.07	---	74.00	21.93	V	9.7

Middle Channel: 2440MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	BLE 1M
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu



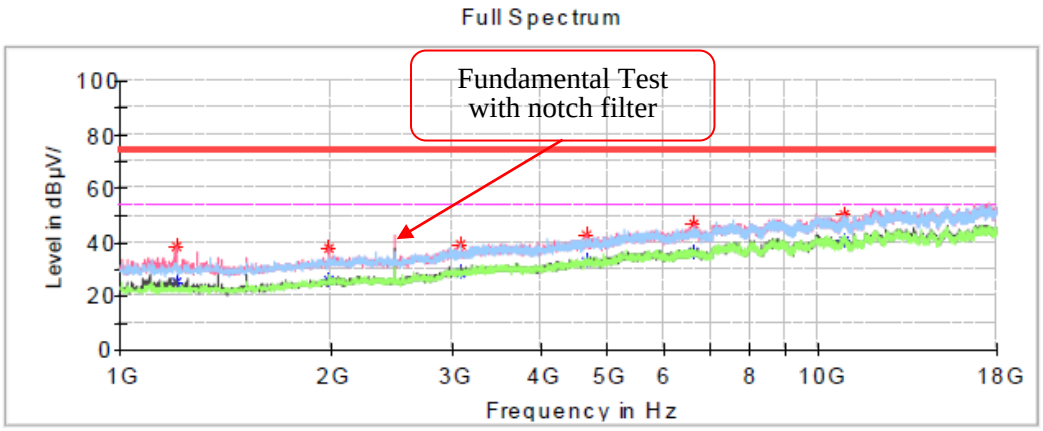
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1102.000000	---	33.75	54.00	20.25	H	-15.3
1102.000000	38.10	---	74.00	35.90	H	-15.3
2062.500000	---	25.57	54.00	28.43	V	-11.5
2062.500000	36.21	---	74.00	37.79	V	-11.5
3414.000000	---	31.99	54.00	22.01	V	-6.7
3414.000000	39.48	---	74.00	34.52	V	-6.7
5484.600000	---	34.54	54.00	19.46	H	-0.4
5484.600000	44.47	---	74.00	29.53	H	-0.4
8667.000000	---	39.74	54.00	14.26	H	5.4
8667.000000	48.80	---	74.00	25.20	H	5.4
13088.700000	---	42.70	54.00	11.30	V	9.7
13088.700000	52.18	---	74.00	21.82	V	9.7

High Channel: 2480MHz

Common Information

Project No.:	RKSA240816002
Test Mode:	BLE 1M
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

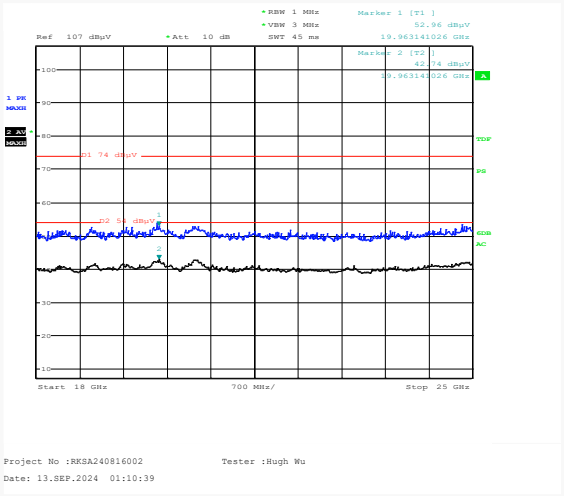


Critical_Freqs

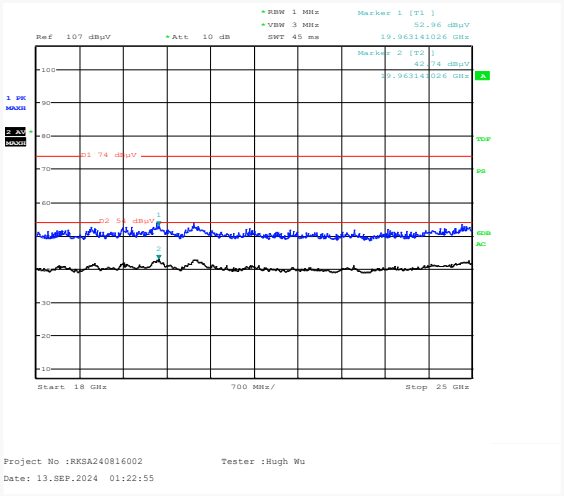
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1202.300000	---	25.10	54.00	28.90	V	-15.2
1202.300000	38.37	---	74.00	35.63	V	-15.2
1992.800000	---	26.11	54.00	27.89	H	-11.8
1992.800000	37.62	---	74.00	36.38	H	-11.8
3075.700000	---	28.60	54.00	25.40	H	-8.1
3075.700000	39.00	---	74.00	35.00	H	-8.1
4646.500000	---	32.84	54.00	21.16	H	-3.7
4646.500000	42.38	---	74.00	31.62	H	-3.7
6621.900000	---	36.38	54.00	17.62	V	1.0
6621.900000	46.55	---	74.00	27.45	V	1.0
10860.000000	---	40.64	54.00	13.36	V	7.3
10860.000000	50.62	---	74.00	23.38	V	7.3

18GHz-25GHz: *Transmitting in maximum output power mode high channel*

Horizontal



Vertical



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

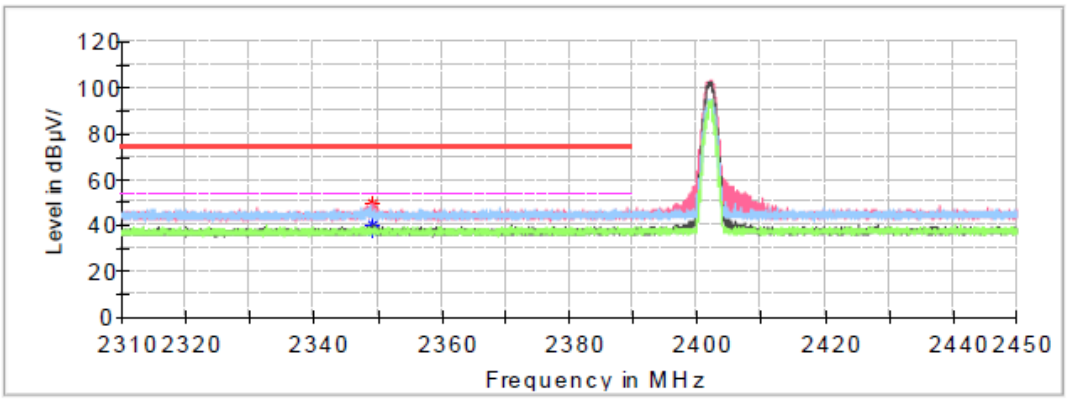
Band Edge:

Low Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	BLE 1M
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum



Critical_Freqs

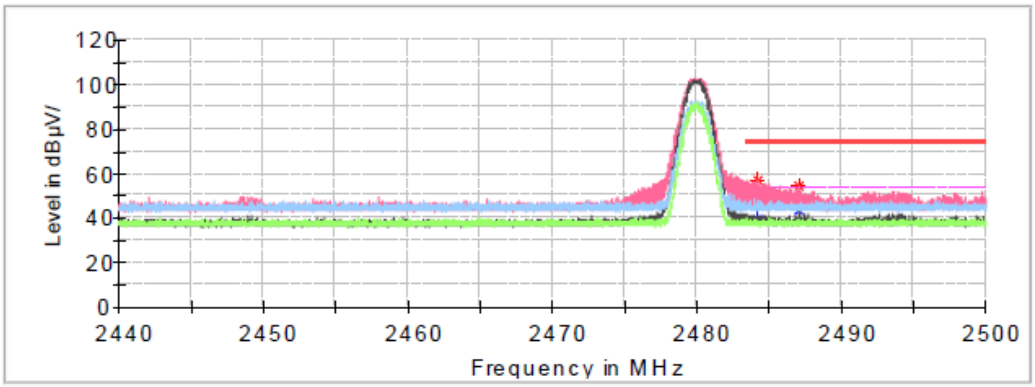
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2349.088000	49.47	---	74.00	24.53	V	-0.7
2349.088000	---	37.49	54.00	16.51	V	-0.7
2349.256000	45.61	---	74.00	28.39	H	-0.7
2349.256000	---	40.04	54.00	13.96	H	-0.7

High Channel

Common Information

Project No.:	RKSA240816002
Test Mode:	BLE 1M
Standard:	FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
Test Engineer:	Destine Hu

Full Spectrum



Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2484.256000	56.68	---	74.00	17.32	V	-0.3
2484.256000	---	39.27	54.00	14.73	V	-0.3
2487.130000	54.89	---	74.00	19.11	V	-0.2
2487.130000	---	43.75	54.00	10.25	V	-0.2

6 dB EMISSION BANDWIDTH

Test Result: Compliant.

EUT operation mode: Transmitting

For Wi-Fi Mode:

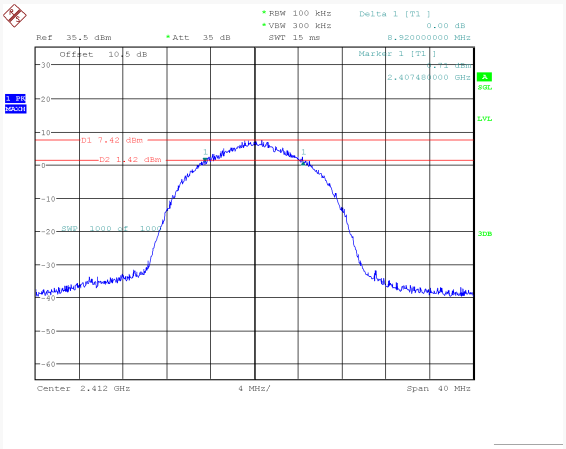
Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)	Result
802.11b Mode				
Low	2412	8.920	≥0.5	Pass
Middle	2437	9.160	≥0.5	Pass
High	2462	8.600	≥0.5	Pass
802.11g Mode				
Low	2412	15.720	≥0.5	Pass
Middle	2437	15.840	≥0.5	Pass
High	2462	16.040	≥0.5	Pass
802.11n-HT20 Mode				
Low	2412	15.800	≥0.5	Pass
Middle	2437	16.440	≥0.5	Pass
High	2462	16.360	≥0.5	Pass

For BLE Mode:

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)	Result
Low	2402	0.716	≥0.5	Pass
Middle	2440	0.720	≥0.5	Pass
High	2480	0.716	≥0.5	Pass

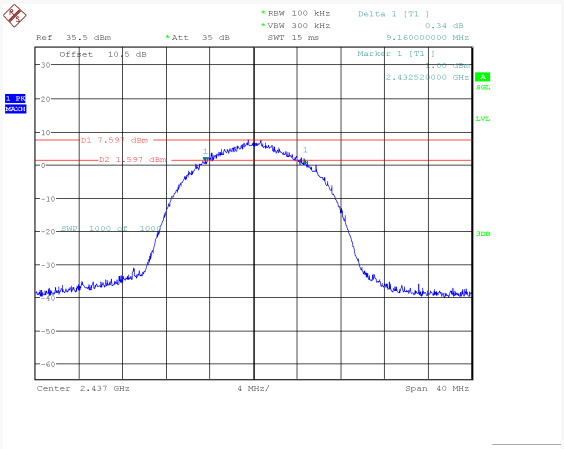
For Wi-Fi Mode:

802.11b Mode Low Channel



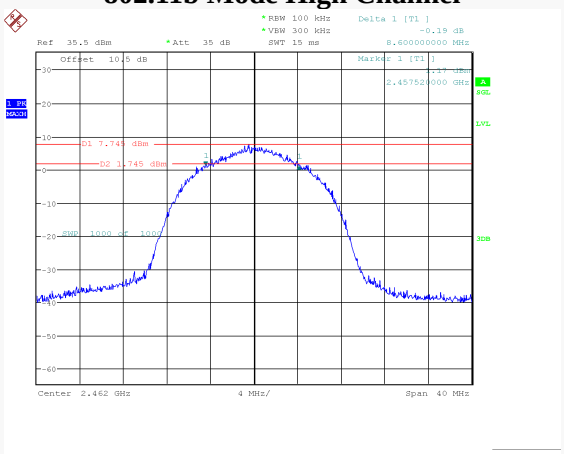
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:24:18

802.11b Mode Middle Channel



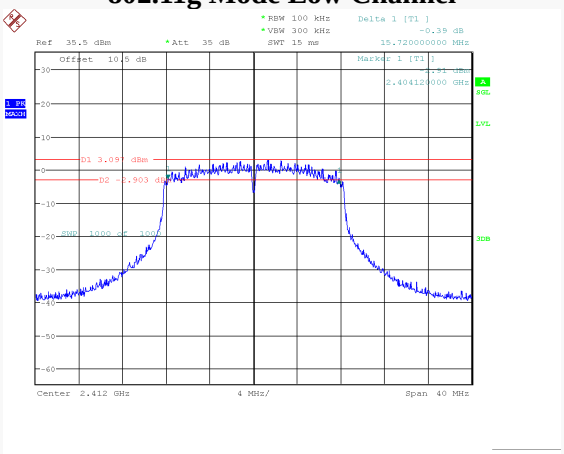
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:27:30

802.11b Mode High Channel



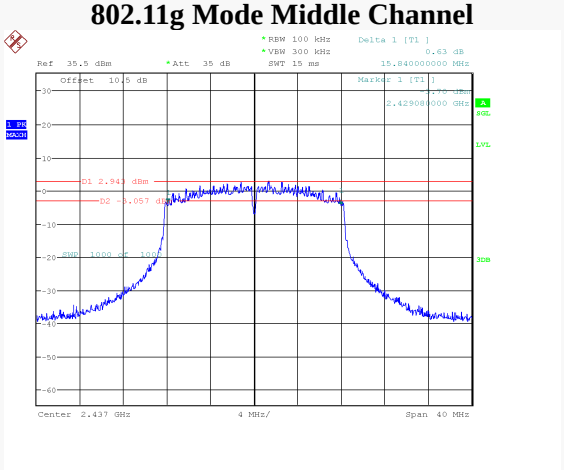
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:30:51

802.11g Mode Low Channel



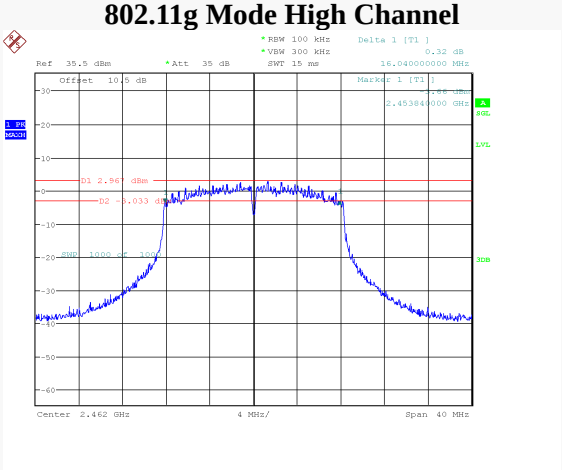
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:33:12

802.11g Mode Middle Channel



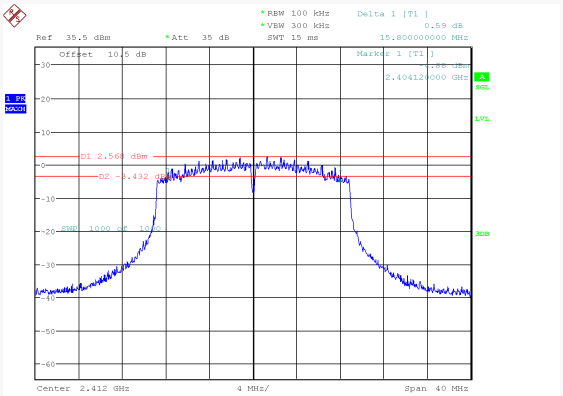
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:35:16

802.11g Mode High Channel



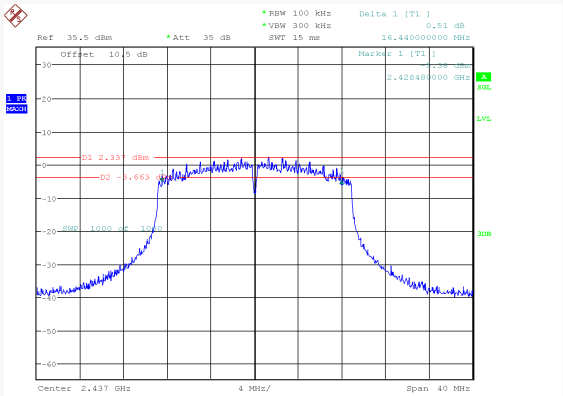
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:38:03

802.11n-HT20 Mode Low Channel



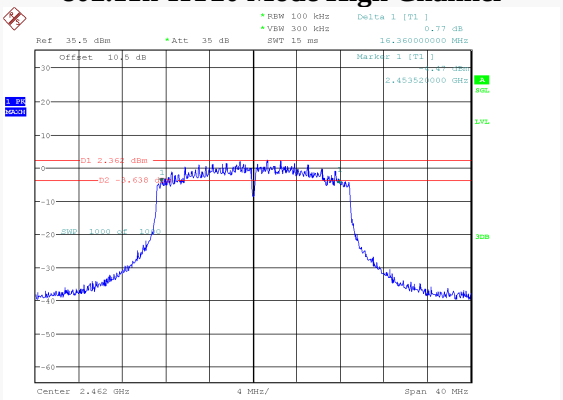
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:43:10

802.11n-HT20 Mode Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:45:58

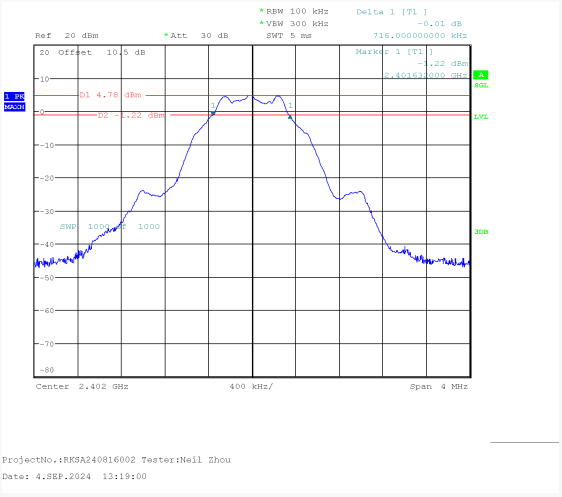
802.11n-HT20 Mode High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:48:43

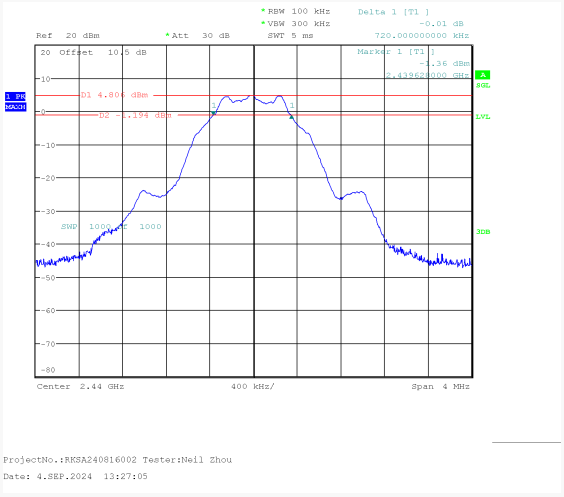
For BLE Mode:

Low Channel



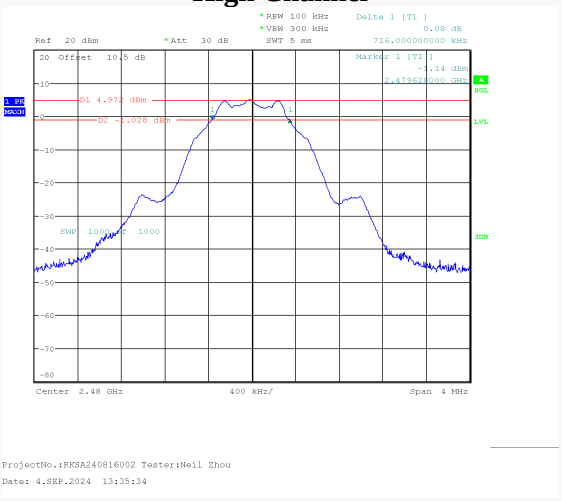
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:19:00

Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:27:05

High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:35:34

OCCUPIED BANDWIDTH

EUT operation mode: Transmitting

For Wi-Fi Mode:

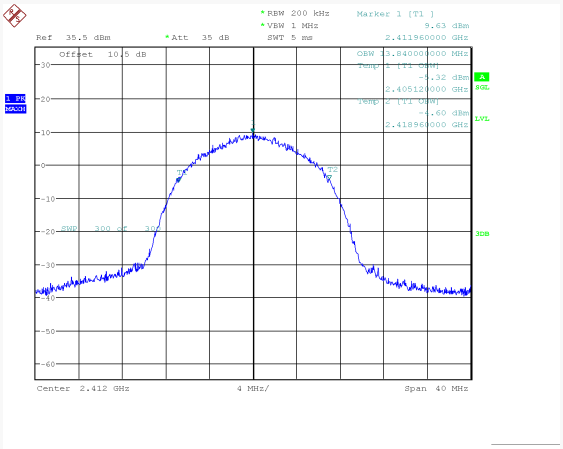
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b Mode		
Low	2412	13.840
Middle	2437	13.840
High	2462	13.840
802.11g Mode		
Low	2412	16.360
Middle	2437	16.360
High	2462	16.400
802.11n-HT20 mode		
Low	2412	17.520
Middle	2437	17.520
High	2462	17.560

For BLE Mode:

Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2402	1.062
Middle	2440	1.056
High	2480	1.056

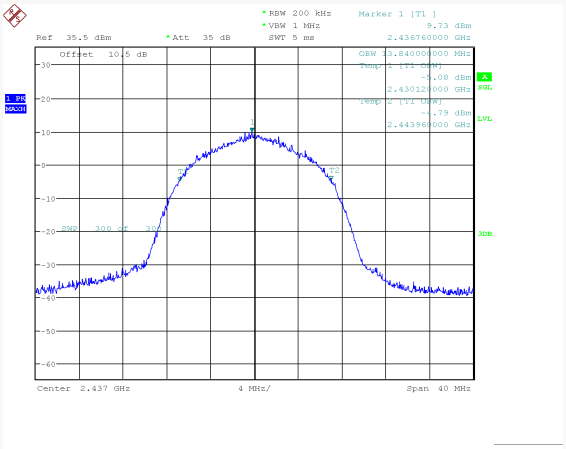
For Wi-Fi Mode:

802.11b Mode Low Channel



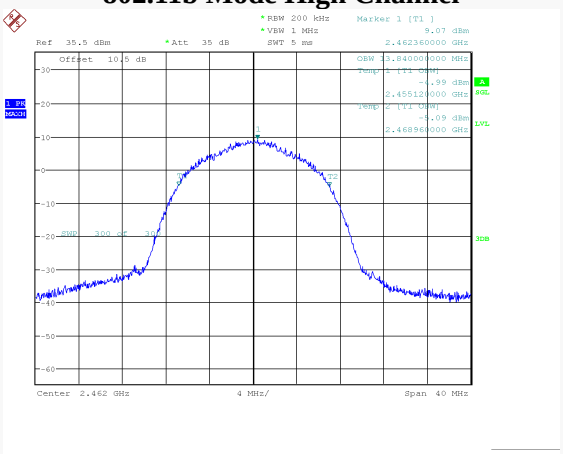
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:23:02

802.11b Mode Middle Channel



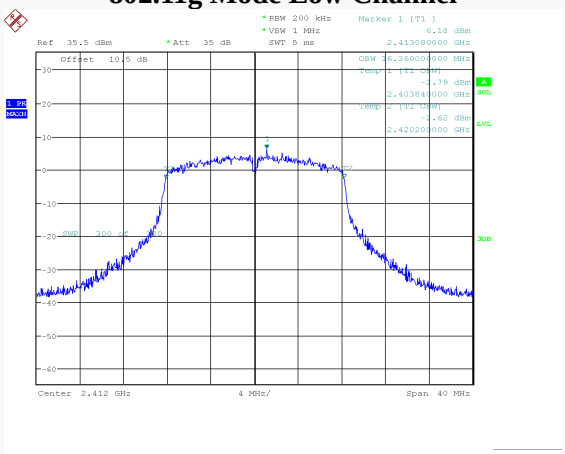
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:26:28

802.11b Mode High Channel



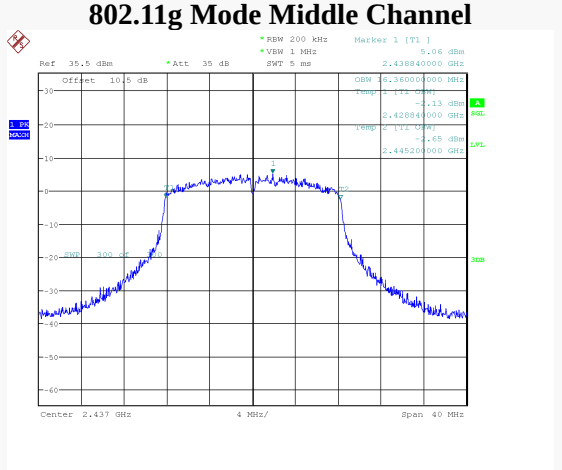
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:29:16

802.11g Mode Low Channel



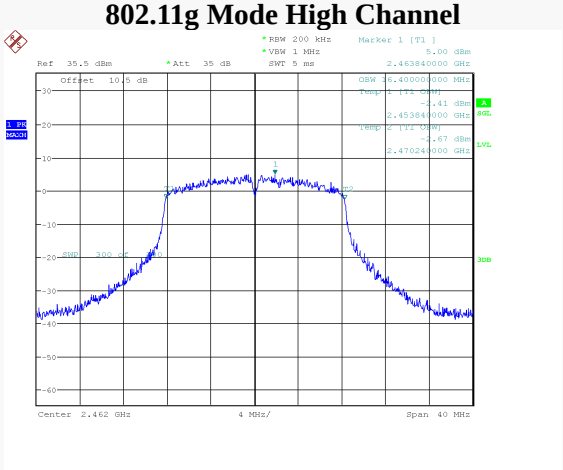
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:31:57

802.11g Mode Middle Channel



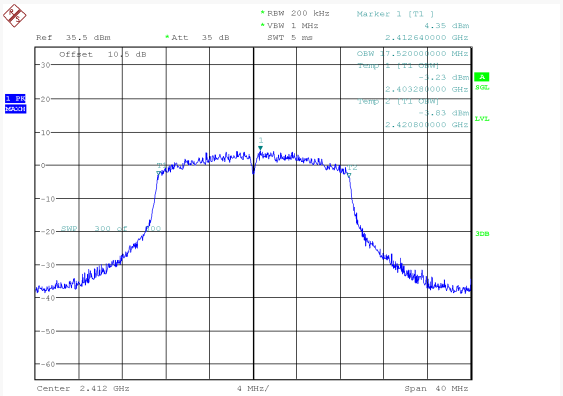
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:34:10

802.11g Mode High Channel



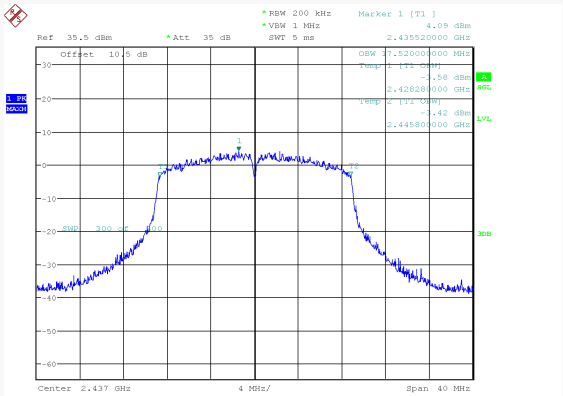
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:36:23

802.11n-HT20 Mode Low Channel



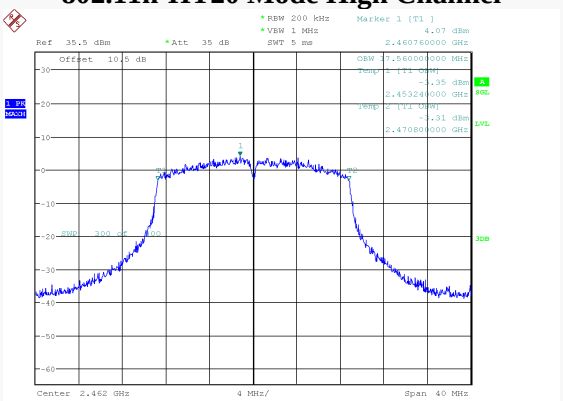
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:41:49

802.11n-HT20 Mode Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:44:50

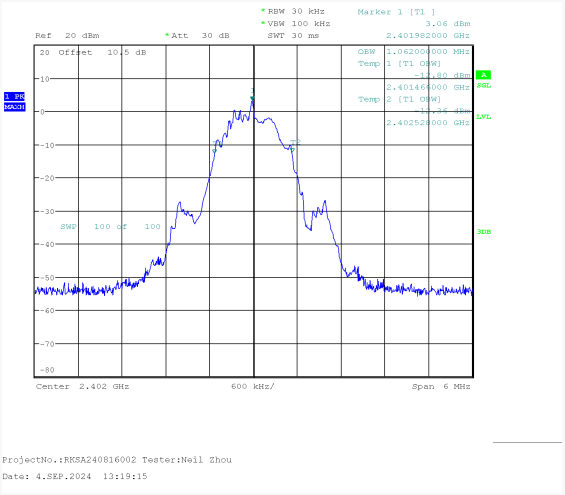
802.11n-HT20 Mode High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 21.NOV.2024 09:47:03

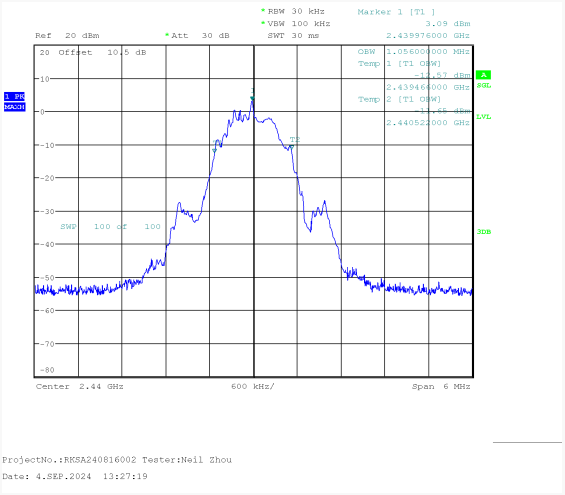
For BLE Mode:

Low Channel



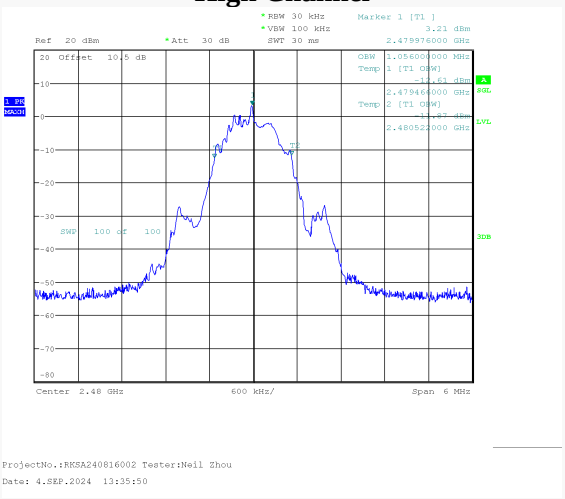
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:19:15

Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:27:19

High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:35:50

MAXIMUM CONDUCTED OUTPUT POWER

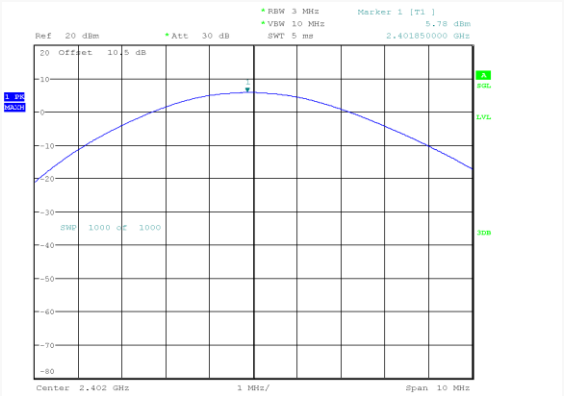
For Wi-Fi Mode:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)
	802.11b Mode		
Low	2412	18.365	≤30
Middle	2437	18.584	≤30
High	2462	18.672	≤30
	802.11g Mode		
Low	2412	24.131	≤30
Middle	2437	24.210	≤30
High	2462	24.153	≤30
	802.11n-HT20 Mode		
Low	2412	23.422	≤30
Middle	2437	23.760	≤30
High	2462	23.858	≤30

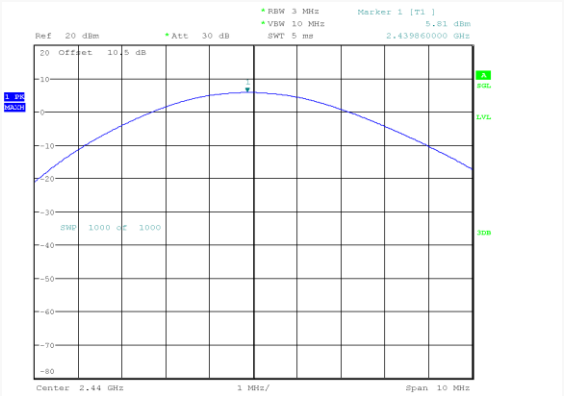
BLE Mode:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Peak Output Power Limit (dBm)
Low	2402	5.78	≤30
Middle	2440	5.81	≤30
High	2480	6.09	≤30

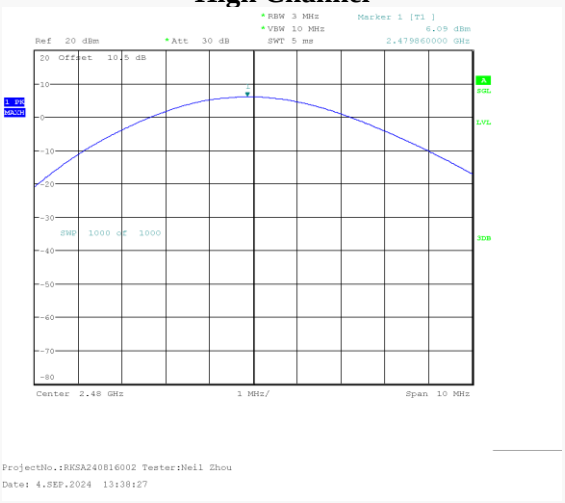
Low Channel



Middle Channel



High Channel



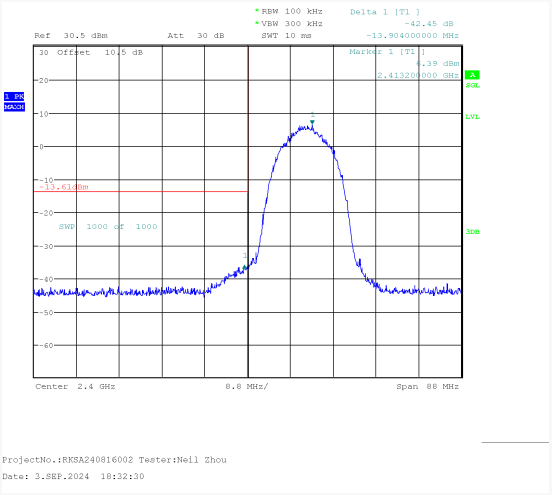
100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

EUT operation mode: Transmitting

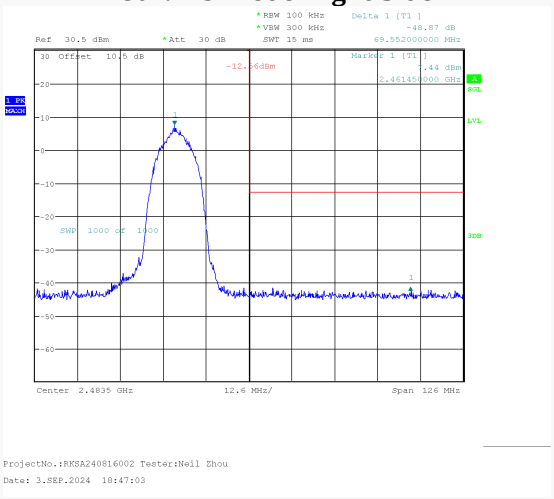
Test Result: Compliant

For Wi-Fi Mode:

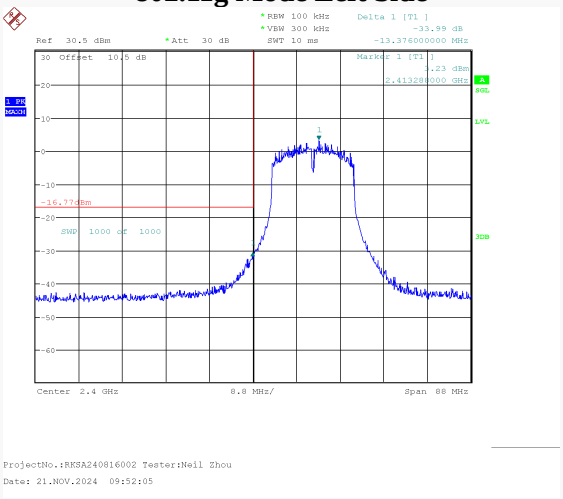
802.11b Mode Left Side



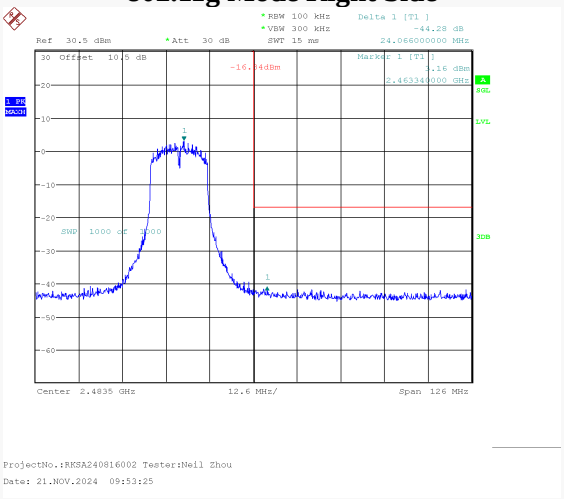
802.11b Mode Right Side



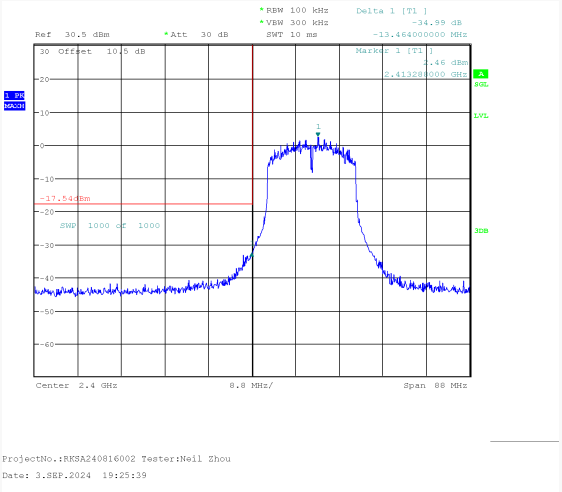
802.11g Mode Left Side



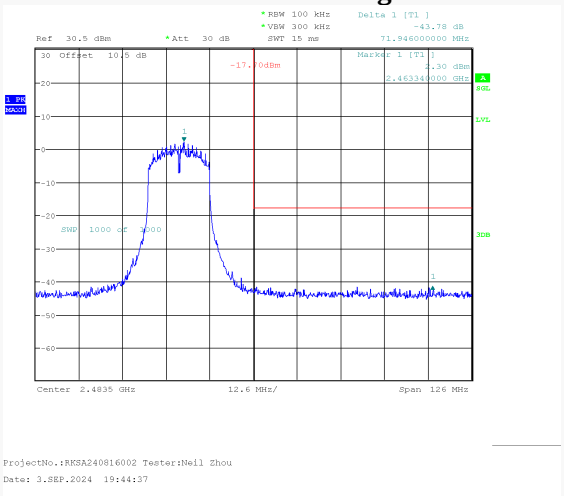
802.11g Mode Right Side



802.11n-HT20 Mode Left Side

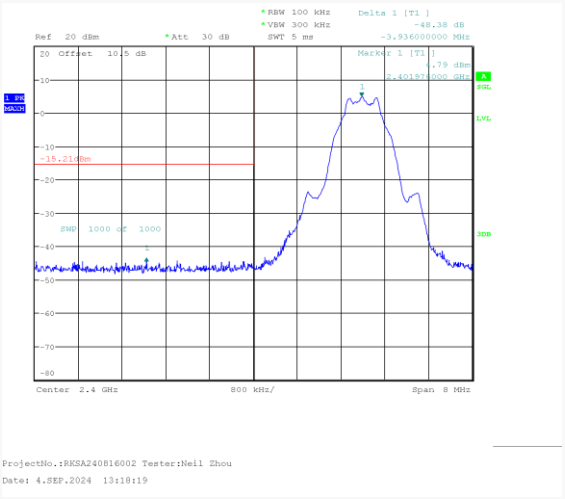


802.11n-HT20 Mode Right Side

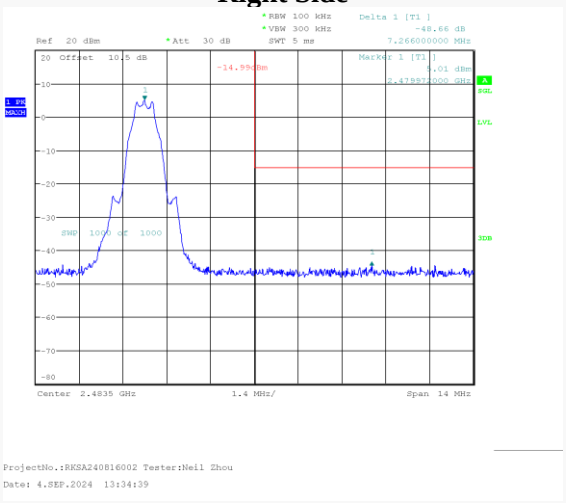


BLE 1Mbps:

Left Side



Right Side



POWER SPECTRAL DENSITY

Test Result: Compliant.

EUT operation mode: Transmitting

For Wi-Fi Mode:

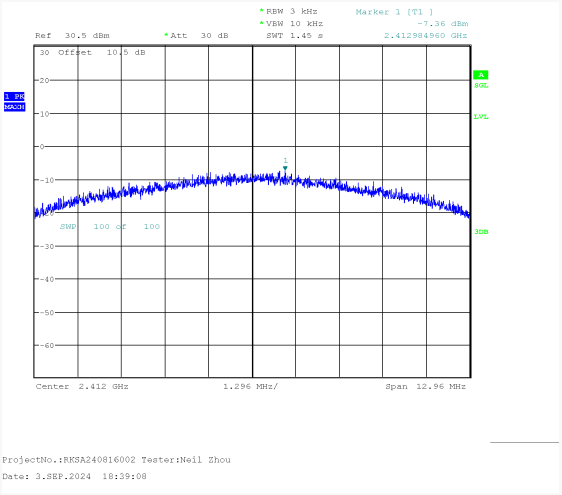
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
802.11b Mode				
Low	2412	-7.36	≤8	Pass
Middle	2437	-7.27	≤8	Pass
High	2462	-7.57	≤8	Pass
802.11g Mode				
Low	2412	-11.37	≤8	Pass
Middle	2437	-10.96	≤8	Pass
High	2462	-10.75	≤8	Pass
802.11n-HT20 mode				
Low	2412	-11.98	≤8	Pass
Middle	2437	-11.91	≤8	Pass
High	2462	-11.90	≤8	Pass

For BLE Mode:

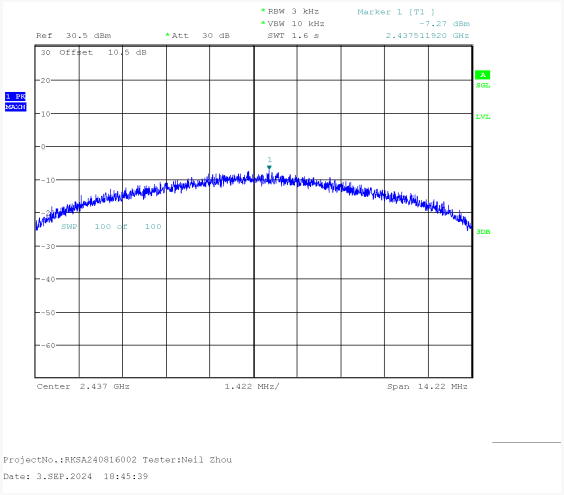
Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low	2402	-8.50	≤8	Pass
Middle	2440	-8.50	≤8	Pass
High	2480	-8.37	≤8	Pass

For Wi-Fi Mode:

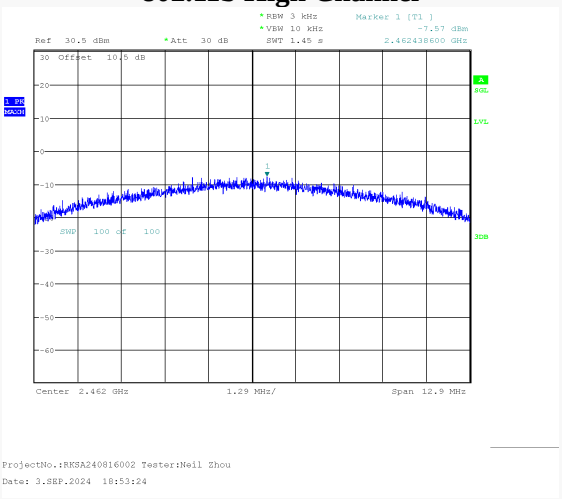
802.11b Low Channel



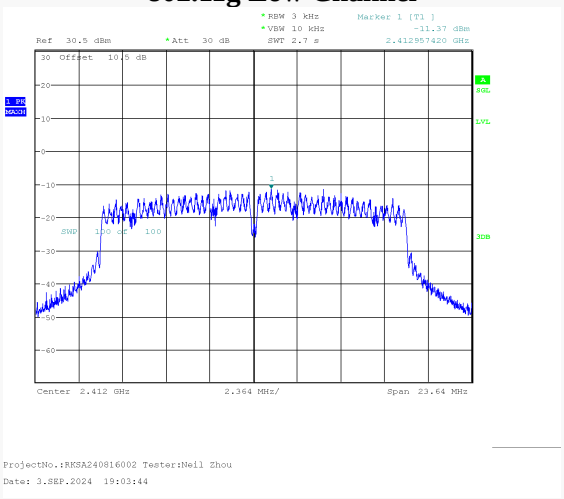
802.11b Middle Channel



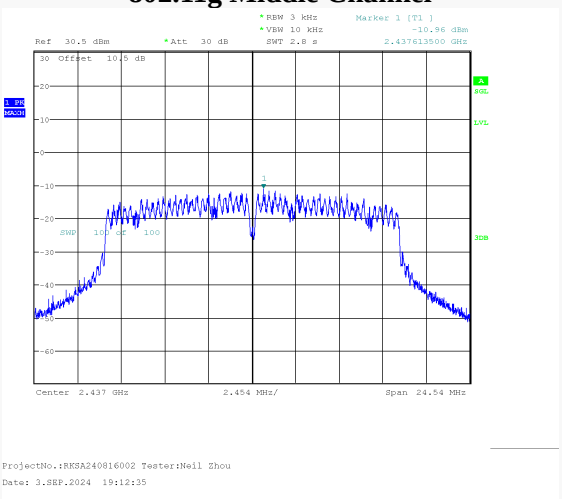
802.11b High Channel



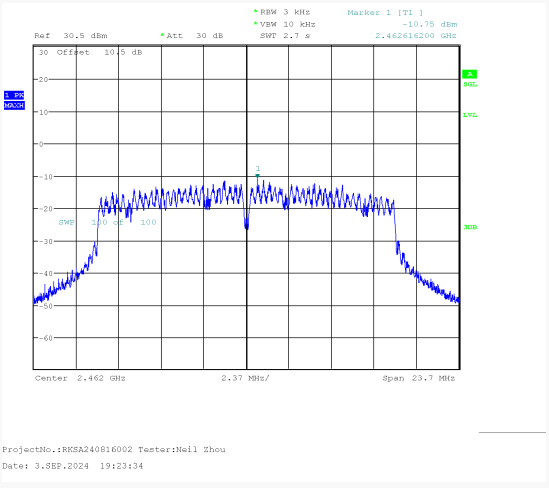
802.11g Low Channel



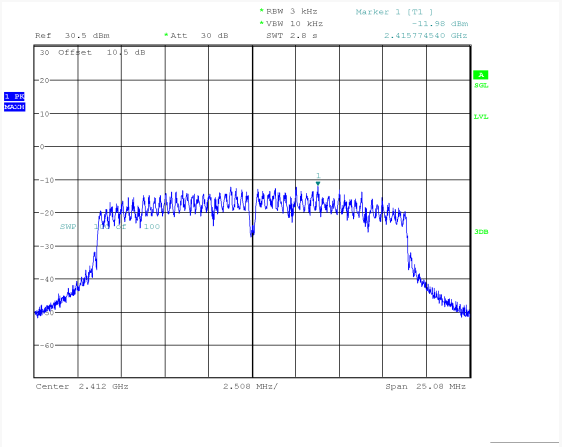
802.11g Middle Channel



802.11g High Channel

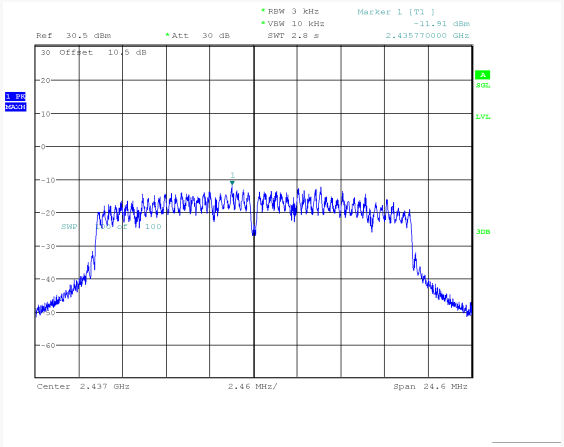


802.11n-HT20 Low Channel



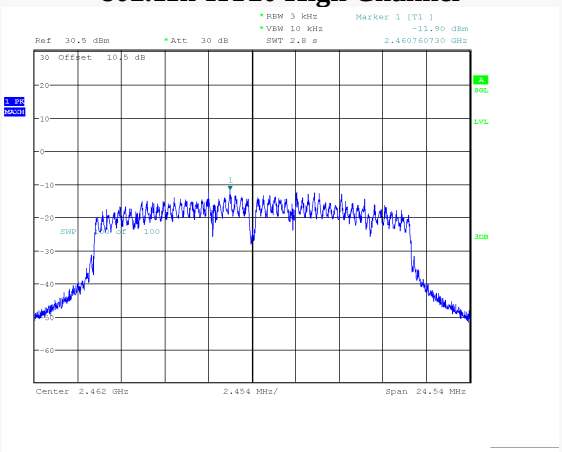
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 3.SEP.2024 19:34:04

802.11n-HT20 Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 3.SEP.2024 19:42:35

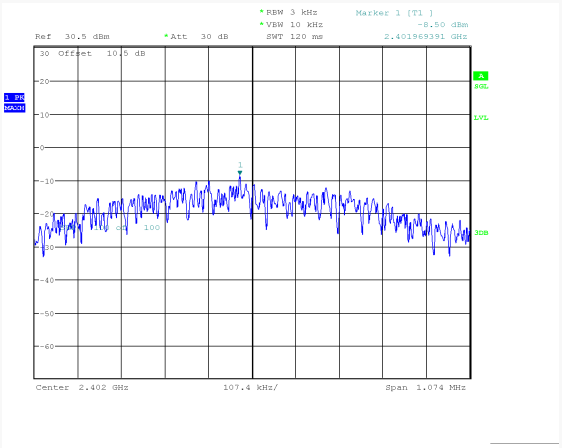
802.11n-HT20 High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 3.SEP.2024 19:53:28

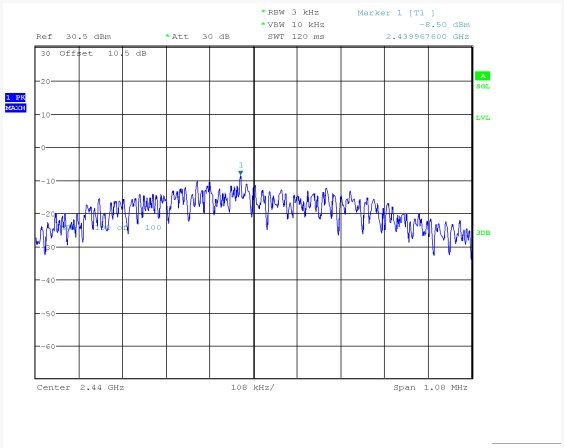
For BLE Mode:

Low Channel



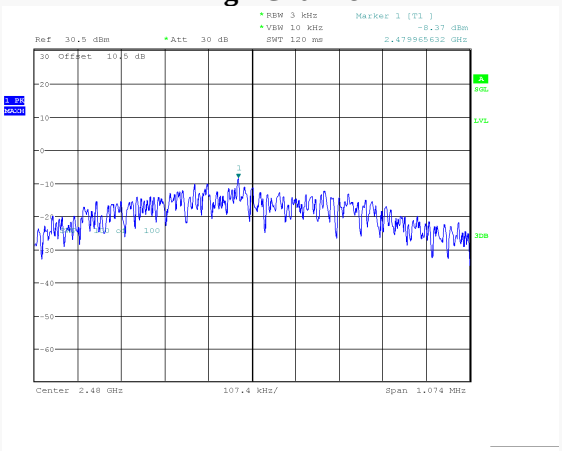
ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:23:56

Middle Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:32:13

High Channel



ProjectNo.:RKSA240816002 Tester:Neil Zhou
Date: 4.SEP.2024 13:38:50

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 *******