

FCC PART 15.247

TEST REPORT

For

Zhejiang ULIRVISION Technology Co., Ltd.

8F/9F/10F/17F, Block C, No. 581 Huoju Avenue, Puyan Street, Binjiang District, 310000,
Hangzhou Zhejiang, China

FCC ID: 2BE6SHW0004

Report Type:

Original Report

Product Name:

Thermal Imaging Riflescopes

Report Number: RHZ240809001-00B

Report Date: 2024-12-02

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

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S.Government.

TABLE OF CONTENTS

REPORT REVISION HISTORY.....	4
GENERAL INFORMATION.....	5
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....	5
OBJECTIVE	6
TEST METHODOLOGY	6
MEASUREMENT UNCERTAINTY	6
TEST FACILITY	6
SYSTEM TEST CONFIGURATION.....	7
DESCRIPTION OF TEST CONFIGURATION	7
EQUIPMENT MODIFICATIONS	7
EUT EXERCISE SOFTWARE	8
SUPPORT EQUIPMENT LIST AND DETAILS	10
EXTERNAL I/O CABLE.....	10
BLOCK DIAGRAM OF TEST SETUP	10
SUMMARY OF TEST RESULTS	12
TEST EQUIPMENT LIST	13
FCC §15.203 - ANTENNA REQUIREMENT.....	14
APPLICABLE STANDARD	14
ANTENNA CONNECTOR CONSTRUCTION	14
FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS.....	15
APPLICABLE STANDARD	15
TEST SYSTEM SETUP.....	15
EMI TEST RECEIVER SETUP.....	15
TEST PROCEDURE	16
TEST RESULTS SUMMARY	16
TEST DATA: SEE APPENDIX	16
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS.....	17
APPLICABLE STANDARD	17
TEST SYSTEM SETUP.....	17
EMI TEST RECEIVER SETUP.....	19
TEST PROCEDURE	19
TEST RESULTS SUMMARY	19
TEST DATA: SEE APPENDIX	19
FCC §15.247(A) (2) - 6 DB EMISSION BANDWIDTH.....	20
APPLICABLE STANDARD	20
TEST PROCEDURE	20
TEST DATA: SEE APPENDIX	20
FCC §15.247(B) (3) - MAXIMUM CONDUCTED OUTPUT POWER	21
APPLICABLE STANDARD	21
TEST PROCEDURE	21
TEST DATA: SEE APPENDIX	21
FCC §15.247(D) – 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	22
APPLICABLE STANDARD	22
TEST PROCEDURE	22
TEST DATA: SEE APPENDIX	22

FCC §15.247(E) - POWER SPECTRAL DENSITY	23
APPLICABLE STANDARD	23
TEST PROCEDURE	23
TEST DATA: SEE APPENDIX	23
APPENDIX - TEST DATA	24
ENVIRONMENTAL CONDITIONS & TEST INFORMATION	24
AC LINE CONDUCTED EMISSIONS	25
SPURIOUS EMISSIONS	27
6 dB EMISSION BANDWIDTH	59
OCCUPIED BANDWIDTH	62
POWER SPECTRAL DENSITY	65
TRANSMITTER OUTPUT POWER MEASUREMENT	68
OUT OF BAND EMISSIONS	69
EUT PHOTOGRAPHS	71
TEST SETUP PHOTOGRAPHS	72

REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RHZ240809001-00B	R1V1	2024-12-02	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Zhejiang ULIRVISION Technology Co., Ltd.
Tested Model:	EL335
Series Model:	EL350, EL360D, EL635, EL650, EL660D, EL950, EL960D
Model differences:	model name, IR resolution and Lens, see declaration letter for detail
Product Name:	Thermal Imaging Riflescopes
Power Supply:	DC 5V from adapter or DC 3.6V from battery
RF Function:	2.4G Wi-Fi
Operating Band/Frequency:	2.4G Wi-Fi: 2412~2462 MHz(802.11b/g/n20)
Maximum Peak Output Power:	802.11b: 16.511 dBm 802.11g: 23.084 dBm 802.11n20: 23.374 dBm
Channel Number:	11(802.11b/g/n20)
Channel Separation:	5 MHz
Modulation Type:	DSSS, OFDM
Antenna Type:	FPC Antenna
★Maximum Antenna Gain:	1.95 dBi

Adapter Information:

Model: PS10S050K2000UU

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

Output: 5.0V, 2.0A, 10.0W

Note: 1.The maximum antenna gain was declared by the manufacturer.

2.According the different, we choose EL335 for full test and other models for Spurious Emissions below 1GHz test.

All measurement and test data in this report was gathered from production samples serial number:

RHZ240809001-1(Model:EL335),RHZ240809001-2(Model:EL350),RHZ240809001-3(Model:EL360D),
RHZ240809001-4(Model:EL635), RHZ240809001-5(Model:EL650), RHZ240809001-6(Model:EL660D),
RHZ240809001-7(Model:EL950), RHZ240809001-8(Model:EL960D) (Assigned by the BACL (Kunshan).

The EUT was received on 2024-08-09.)

Objective

This report is prepared for *Zhejiang ULIRVISION Technology 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 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: ADB

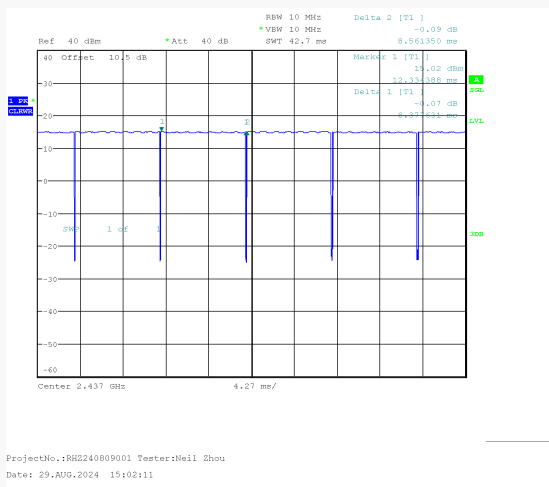
Pre-scan with all the data rates, and the worst case was performed as below:

Mode	Data Rate	Channel	★Power Level
802.11b	1 Mbps	2412	default
		2437	default
		2462	default
802.11g	6 Mbps	2412	default
		2437	default
		2462	default
802.11n-HT20	MCS0	2412	default
		2437	default
		2462	default

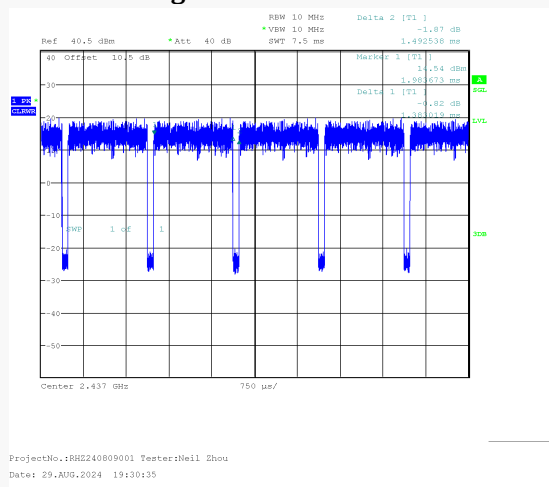
Note: The power level was declared by the applicant.

Duty Cycle:

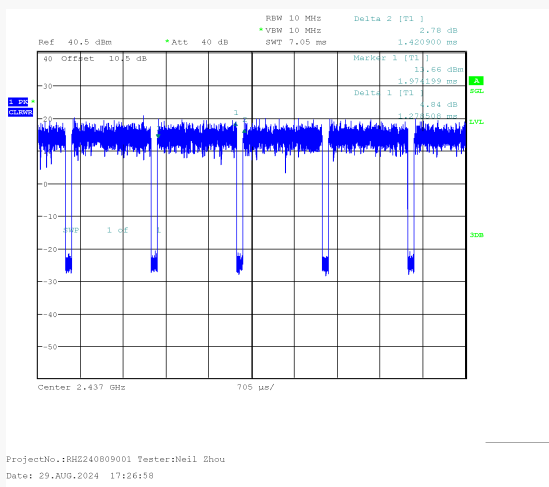
802.11b Mode Middle Channel



802.11g Mode Middle Channel



802.11n-HT20 Mode Middle Channel



Mode	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
b_2437MHz	8.378	8.561	97.86	0.09
g_2437MHz	1.383	1.493	92.63	0.33
n20_2437MHz	1.279	1.421	90.01	0.46

Duty Cycle = Ton/(Ton+Toff)*100%

Support Equipment List and Details

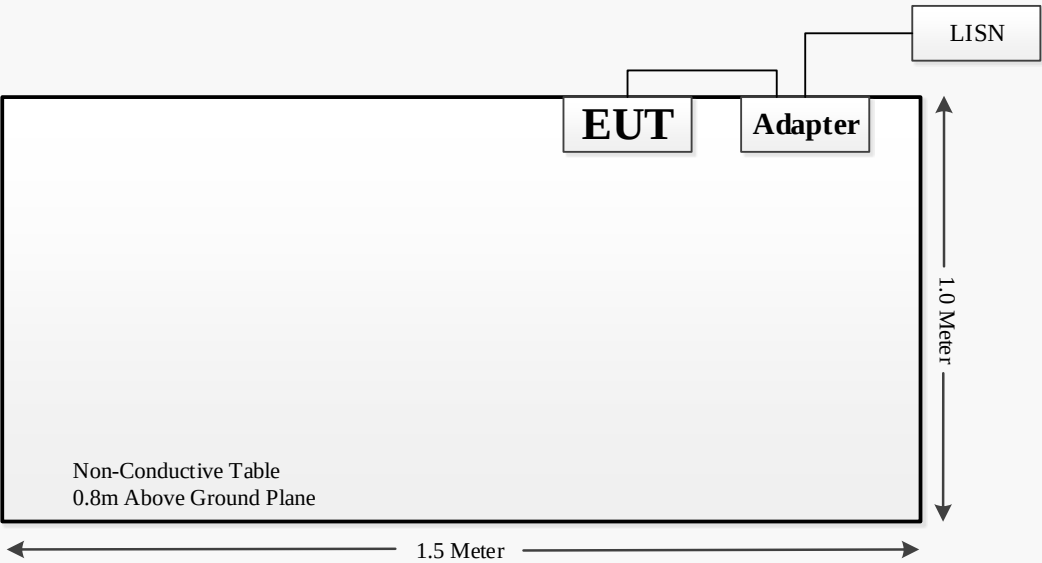
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

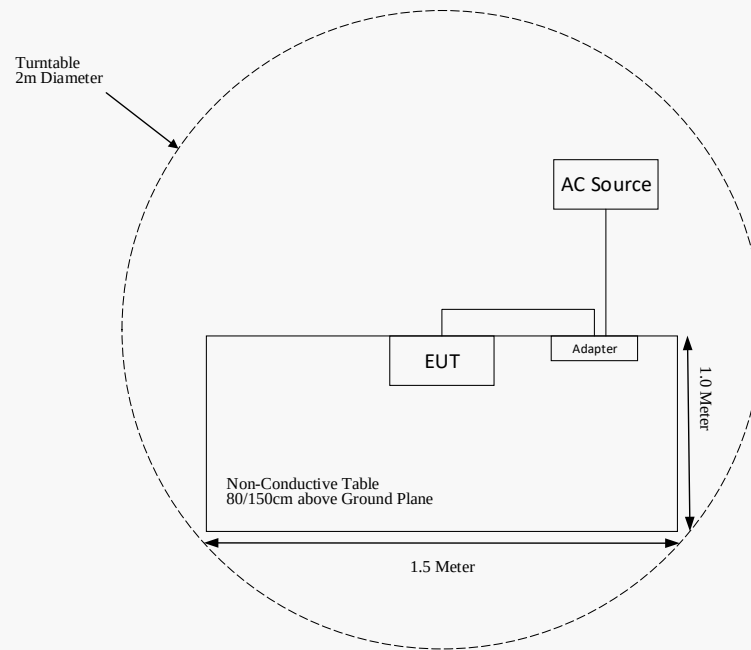
Cable Description	Length (m)	From Port	To
Power Cable 1	1.0	Adapter	LISN/AC Source
Power Cable 2	1.0	EUT	Adapter

Block Diagram of Test Setup

For Conducted Emissions:



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



SUMMARY OF TEST RESULTS

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

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test (Chamber #1)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2024-04-23	2025-04-22
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2023-11-11	2024-11-10
Sunol Sciences	Hybrid Antenna	JB3	A090314-1	2024-11-08	2025-11-07
ETS-LINDGREN	Loop Antenna	6512	108100	2023-11-09	2024-11-08
ETS-LINDGREN	Loop Antenna	6512	108100	2024-11-03	2025-11-02
Narda	6dB Attenuator	773-6	10690812-2-1	2023-11-11	2024-11-10
Narda	6dB Attenuator	773-6	10690812-2-1	2024-11-08	2025-11-07
Sonoma Instrument	Amplifier	310N	171205	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-8	008	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-9	009	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2024-04-23	2025-04-22
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207	2024-04-25	2025-04-24
ETS-LINDGREN	Horn Antenna	3115	9207-3900	2024-06-27	2025-06-26
ETS-LINDGREN	Horn Antenna	3116	2516	2023-12-08	2024-12-07
A.H.Systems, inc	Amplifier	PAM-0118P	512	2024-04-25	2025-04-24
EM Electronics Corporation	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2024-04-25	2025-04-24
Narda	Attenuator	20dB	020	2024-04-25	2025-04-24
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-25	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
Anritsu	Power Sensor	MA24418A	12621	2024-04-23	2025-04-22
Narda	Attenuator	10dB	N/A	2024-04-23	2025-04-22
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	101746	2024-04-23	2025-04-22
Rohde & Schwarz	LISN	ENV216	101115	2024-04-23	2025-04-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse Limiter	ESH3-Z2	0357.8810.54	2024-04-23	2025-04-22
MICRO-COAX	Coaxial Cable	Cable-15	015	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 §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 antenna for 2.4G Wi-Fi, and the antenna gain is 1.95 dBi, which is permanently attached to the unit, fulfill the requirement of this section. Please refer to the EUT photos.

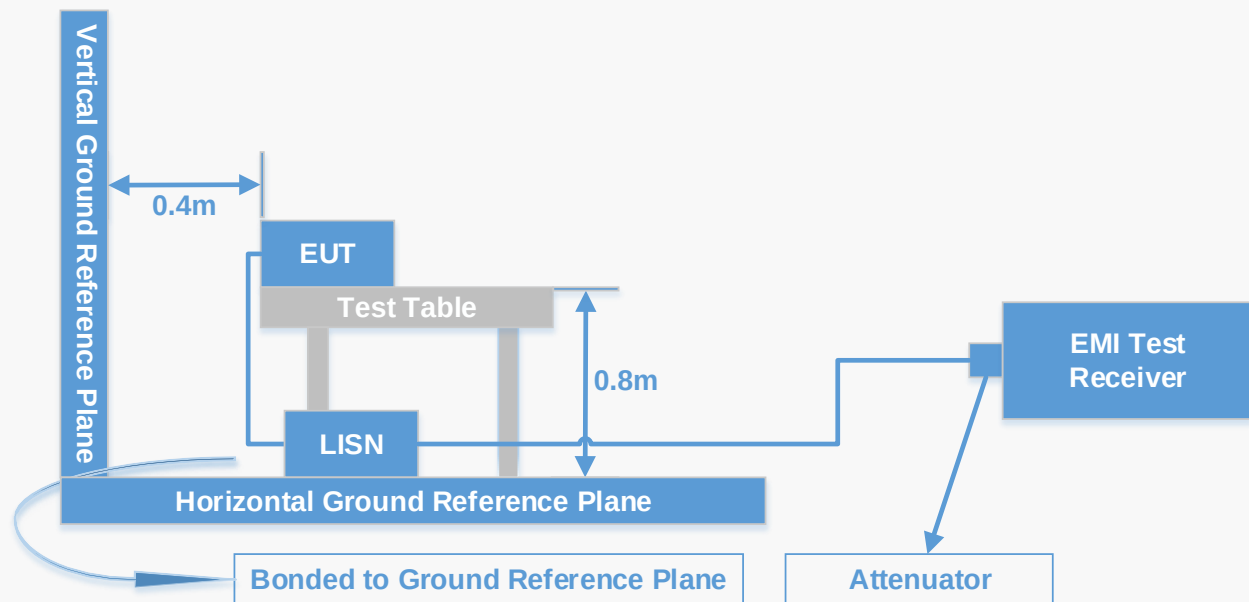
Result: Compliant.

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)

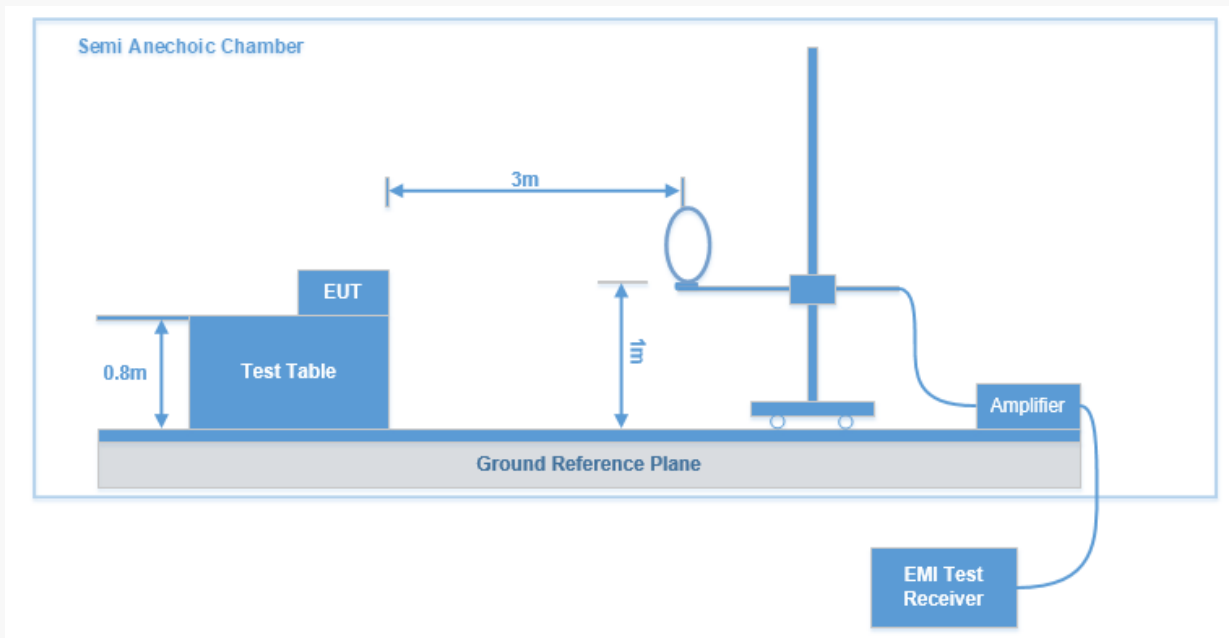
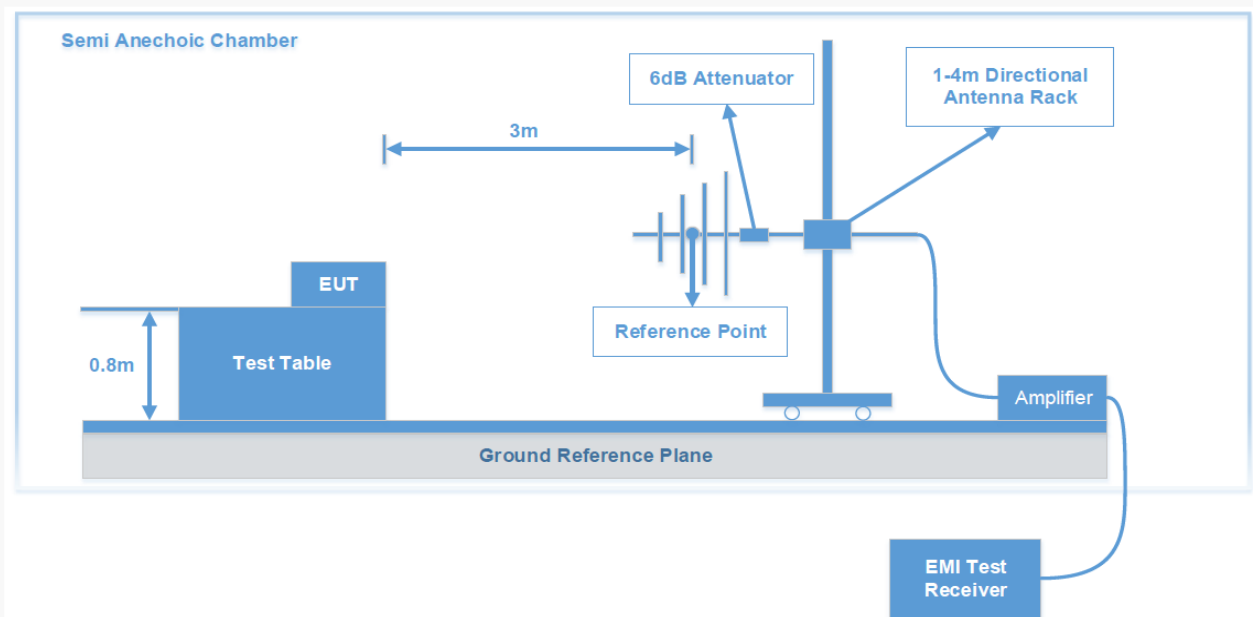
Test Results Summary

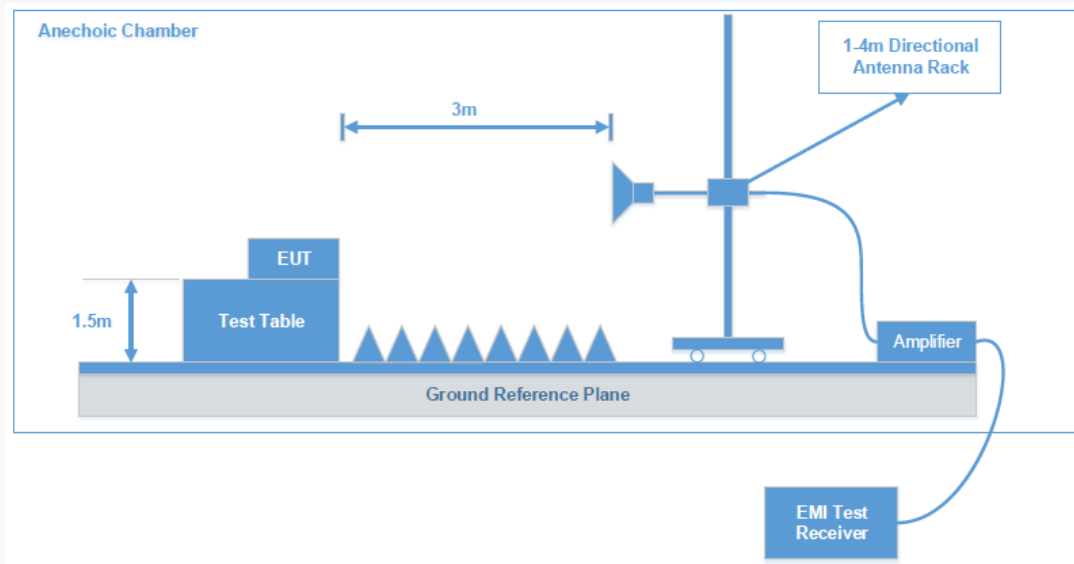
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

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**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

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.

For the spurious emission below 30MHz, the limit was convert from dBμA/m to dBμV/m by adding 51.5 dB.

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)

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

Test Results Summary

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

Test Data: See Appendix

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

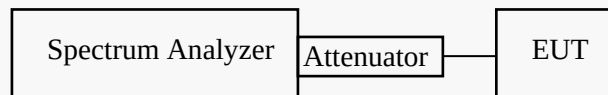
Applicable Standard

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

Test Procedure

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

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



Test Data: See Appendix

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

Applicable Standard

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

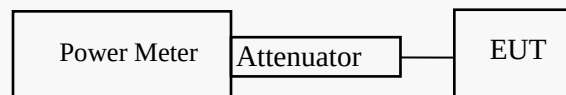
Test Procedure

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

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

11.9.2.3.2 Method AVGPM-G

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



Test Data: See Appendix

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

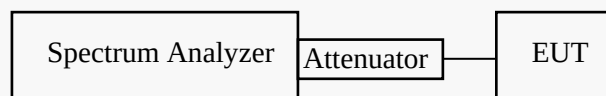
Applicable Standard

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

Test Procedure

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

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



Test Data: See Appendix

FCC §15.247(E) - POWER SPECTRAL DENSITY

Applicable Standard

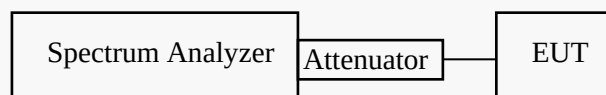
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of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



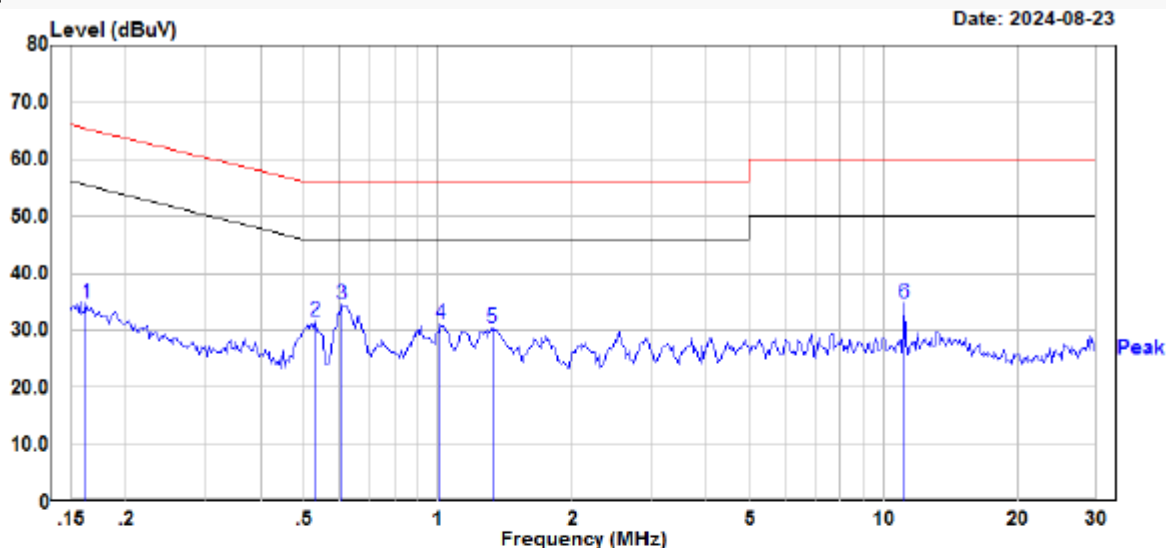
Test Data: See Appendix

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:	2024-08-23	2024-08-24 to 2024-11-19	2024-11-21	2024-09-13
Temperature:	25.5 °C	19.2 °C - 25.5 °C	24.9 °C	25.3 °C
Relative Humidity:	45 %	40 % - 52 %	43 %	52 %
ATM Pressure:	100.8 kPa	100.5 kPa – 102.9 kPa	102.8 kPa	100.4 kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Richard Wen	Grace Luo & Jerry Yan	Destine Hu	Hugh Wu

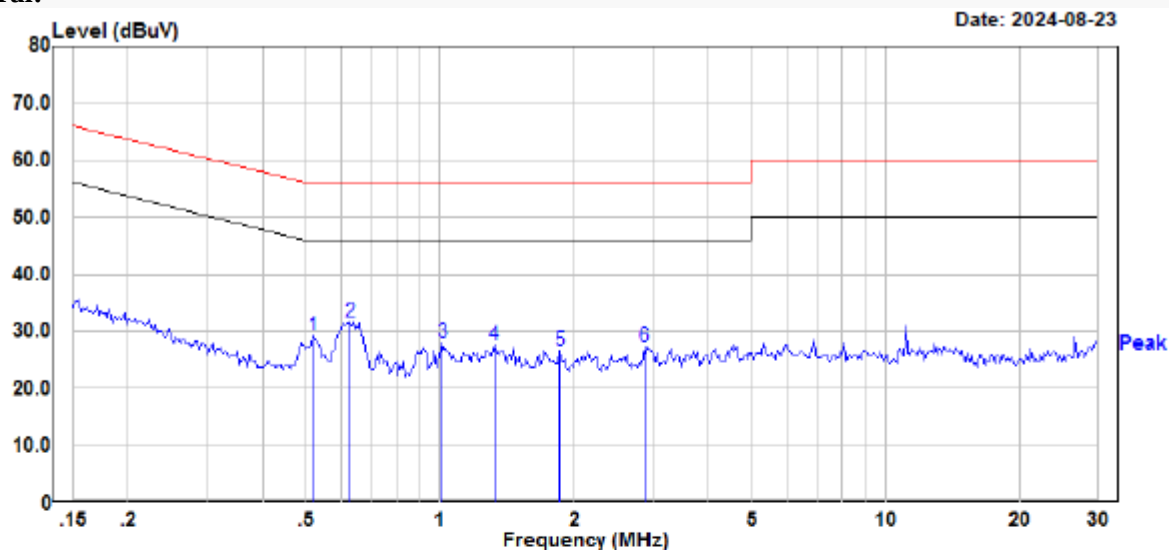
Test Item:	6 DB EMISSION BANDWIDTH	OCCUPIED BANDWIDTH	POWER SPECTRAL DENSITY	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS	DUTY CYCLE
Test Date:	2024-08-29	2024-08-29	2024-08-29	2024-08-24	2024-08-29	2024-08-29
Temperature:	26 °C	26 °C	26 °C	25.5 °C	26 °C	26 °C
Relative Humidity:	52 %	52 %	52 %	52 %	52 %	52 %
ATM Pressure:	100.5 kPa	100.5 kPa	100.5 kPa	100.5 kPa	100.5 kPa	100.5 kPa
Test Result:	Pass	Pass	Pass	Pass	Pass	/
Test Engineer:	Neil Zhou	Neil Zhou	Neil Zhou	Jason Lu	Neil Zhou	Neil Zhou

AC LINE CONDUCTED EMISSIONS*EUT operation mode: Transmitting in maximum output power mode 802.11n-HT20 mode high channel***Line:**

Site : CE
Condition : limit\FCC PART 15.207
: DET:Peak
Project No. : RHZ240809001
Model : EL335
Phase : L
Voltage : 120V/60Hz
Mode : 2.4Gwifi
Test Equipment : ENV216,ESR
Temperature : 25.5℃
Humidity : 45%
Atmospheric pressure: 100.8kPa
Test Engineer : Richard Wen

	Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.162	14.81	20.11	34.92	65.34	-30.42 Peak
2	0.530	11.49	20.12	31.61	56.00	-24.39 Peak
3	0.609	14.52	20.09	34.61	56.00	-21.39 Peak
4	1.012	11.35	19.73	31.08	56.00	-24.92 Peak
5	1.323	10.48	19.89	30.37	56.00	-25.63 Peak
6	11.102	14.99	19.93	34.92	60.00	-25.08 Peak

Neutral:



Site : CE
 Condition : limit\FCC PART 15.207
 : DET:Peak
 Project No. : RHZ240809001
 Model : EL335
 Phase : N
 Voltage : 120V/60Hz
 Mode : 2.4Gwifi
 Test Equipment : ENV216,ESR
 Temperature : 25.5℃
 Humidity : 45%
 Atmospheric pressure: 100.8kPa
 Test Engineer : Richard Wen

		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.520	9.10	20.12	29.22	56.00	-26.78	Peak
2	0.628	11.56	20.09	31.65	56.00	-24.35	Peak
3	1.012	8.21	19.73	27.94	56.00	-28.06	Peak
4	1.323	7.58	19.89	27.47	56.00	-28.53	Peak
5	1.855	6.51	20.11	26.62	56.00	-29.38	Peak
6	2.873	6.99	20.22	27.21	56.00	-28.79	Peak

SPURIOUS EMISSIONS

Test Result: Compliant

EUT operation mode: Transmitting

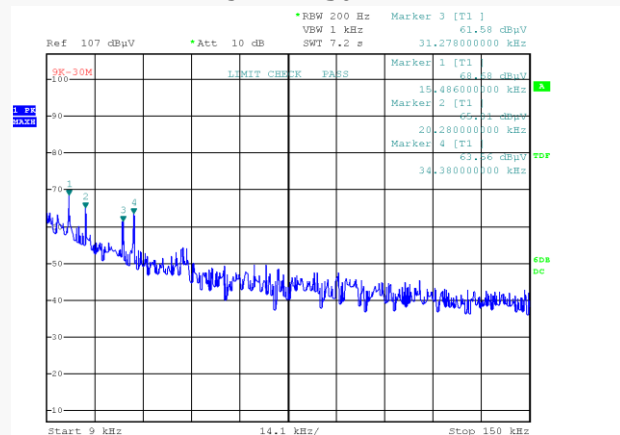
After pre-scan in the X, Y and Z axes of orientation, the worst case in the X axes of orientation is below:

9 kHz-30MHz: (Transmitting in maximum output power mode 802.11n-HT20 mode high channel)

Parallel worst case

EL335

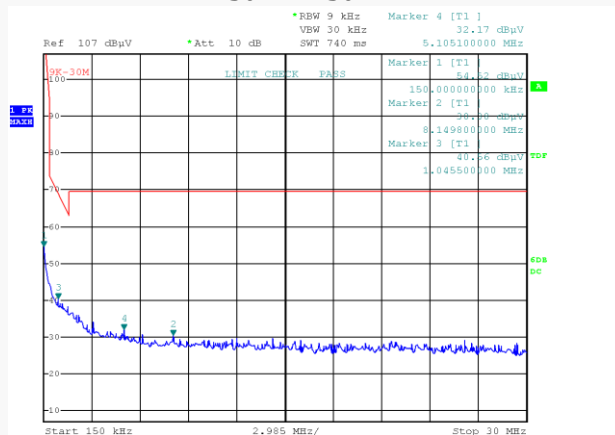
9 kHz-150 kHz



Project No. RHZ240809001
 Date: 24.AUG.2024 21:18:19

Tester: Grace Luo

150 kHz-30MHz



Project No. RHZ240809001
 Date: 24.AUG.2024 21:11:59

Tester: Grace Luo

9 kHz-150 kHz

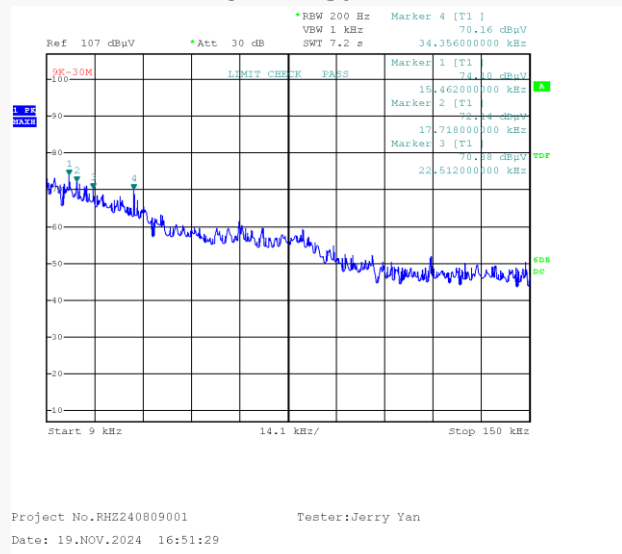
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015486	68.68	PK	52.87	123.81	55.13
0.02028	65.01	PK	49.92	121.46	56.45
0.031278	61.58	PK	46.87	117.70	56.12
0.03438	63.56	PK	46.06	116.88	53.32

150 kHz-30MHz

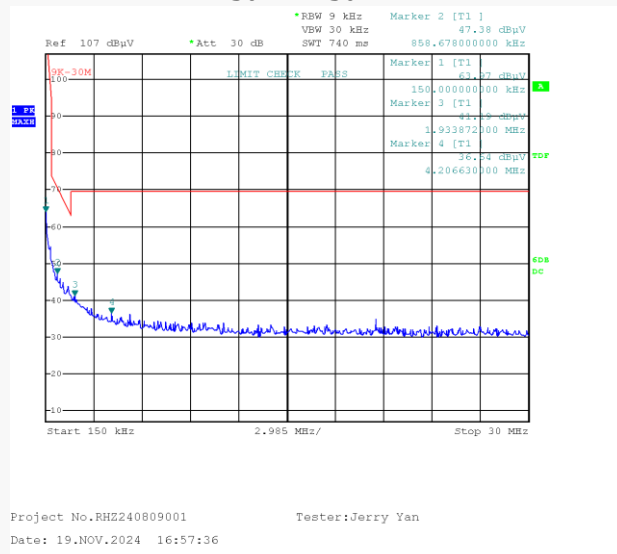
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	54.52	PK	50.90	104.08	49.56
8.14980	30.88	PK	6.34	69.54	38.66
1.04550	40.56	PK	1.99	67.22	26.66
5.10510	32.17	PK	8.18	69.54	37.37

EL350

9 kHz-150 kHz



150 kHz-30MHz



9 kHz-150 kHz

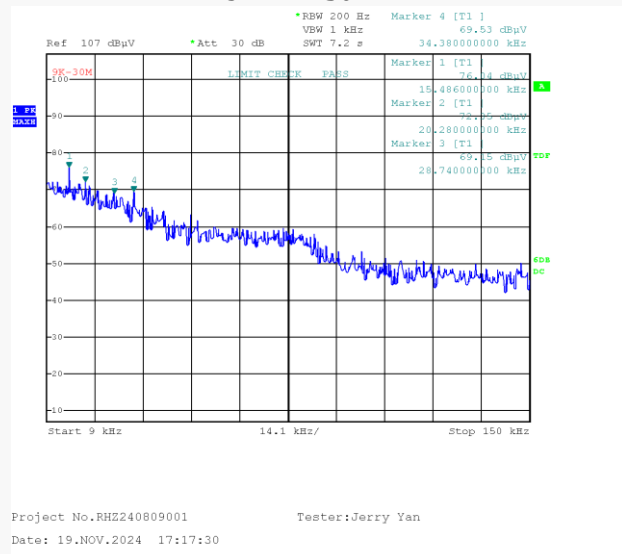
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015462	74.1	PK	52.89	123.82	49.72
0.017718	72.14	PK	51.45	122.64	50.50
0.022512	70.38	PK	49.30	120.56	50.18
0.034356	70.16	PK	46.07	116.88	46.72

150 kHz-30MHz

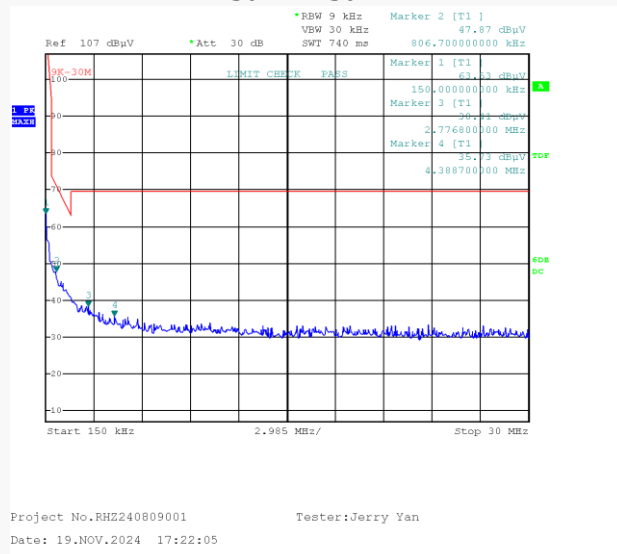
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	63.97	PK	50.90	104.08	40.11
0.85867	47.38	PK	18.96	68.93	21.55
1.93387	41.19	PK	13.54	69.54	28.35
4.20663	36.64	PK	16.79	69.54	32.90

EL360D

9 kHz-150 kHz



150 kHz-30MHz



9 kHz-150 kHz

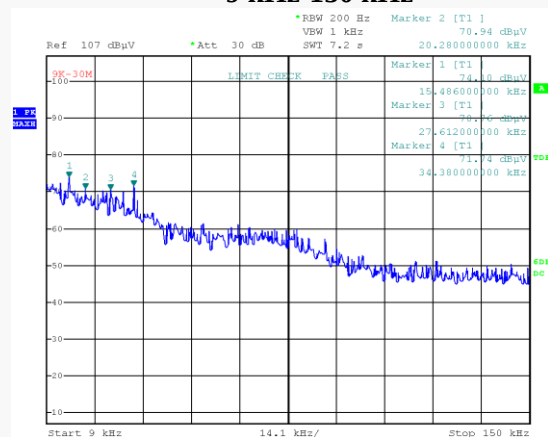
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015486	76.04	PK	52.87	123.81	47.77
0.02028	72.35	PK	49.92	121.46	49.11
0.02874	69.15	PK	47.55	118.43	49.28
0.03438	69.53	PK	46.06	116.88	47.35

150 kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	63.53	PK	50.90	104.08	40.55
0.80670	47.87	PK	19.50	69.47	21.60
2.77680	38.41	PK	11.14	69.54	31.13
4.38870	35.73	PK	14.84	69.54	33.81

EL635

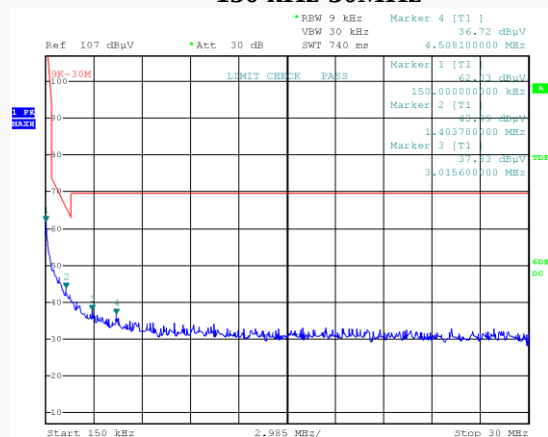
9 kHz-150 kHz



Project No. RHZ240809001
 Date: 19.NOV.2024 17:35:56

Tester: Jerry Yan

150 kHz-30MHz



Project No. RHZ240809001
 Date: 19.NOV.2024 17:40:50

Tester: Jerry Yan

9 kHz-150 kHz

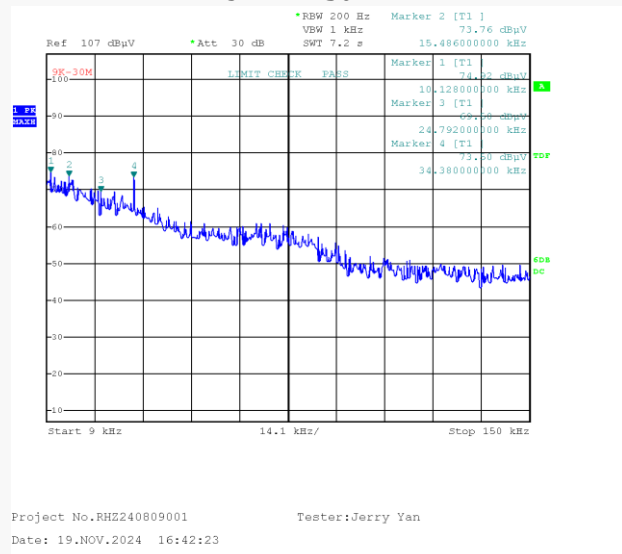
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015486	74.1	PK	52.87	123.81	49.71
0.02028	70.94	PK	49.92	121.46	50.52
0.027612	70.76	PK	47.87	118.78	48.02
0.03438	71.74	PK	46.06	116.88	45.14

150 kHz-30MHz

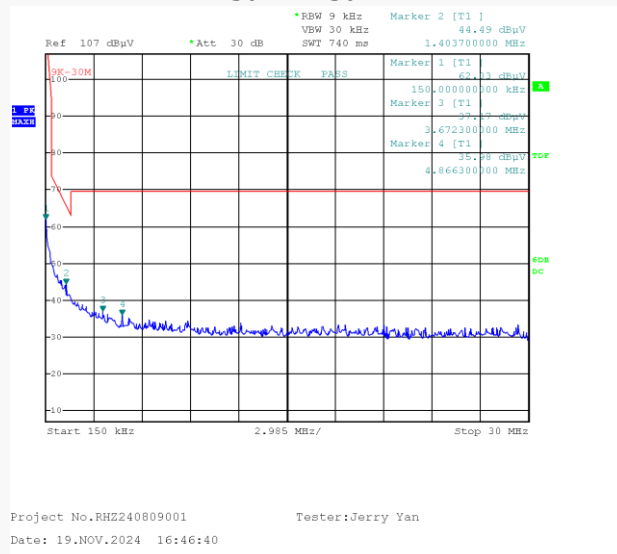
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	62.03	PK	50.90	104.08	42.05
1.40370	43.99	PK	6.65	64.66	20.67
3.01560	37.83	PK	10.34	69.54	31.71
4.50810	36.72	PK	13.56	69.54	32.82

EL650

9 kHz-150 kHz



150 kHz-30MHz



9 kHz-150 kHz

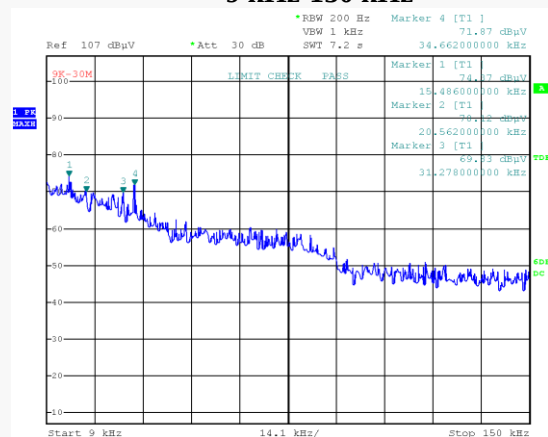
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.010128	74.92	PK	56.28	127.49	52.57
0.015486	73.76	PK	52.87	123.81	50.05
0.024792	69.5	PK	48.66	119.72	50.22
0.03438	73.5	PK	46.06	116.88	43.38

150 kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	62.03	PK	50.90	104.08	42.05
1.40370	44.49	PK	6.65	64.66	20.17
3.67230	37.17	PK	42.52	69.54	32.37
4.86630	35.98	PK	9.73	69.54	33.56

EL660D

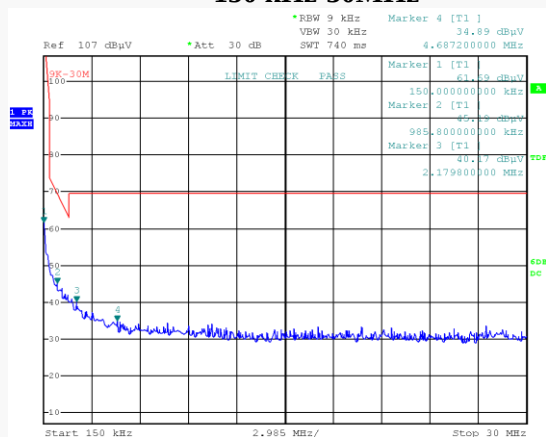
9 kHz-150 kHz



Project No. RHZ240809001
Date: 19.NOV.2024 17:02:26

Tester: Jerry Yan

150 kHz-30MHz



Project No. RHZ240809001
Date: 19.NOV.2024 17:05:50

Tester: Jerry Yan

9 kHz-150 kHz

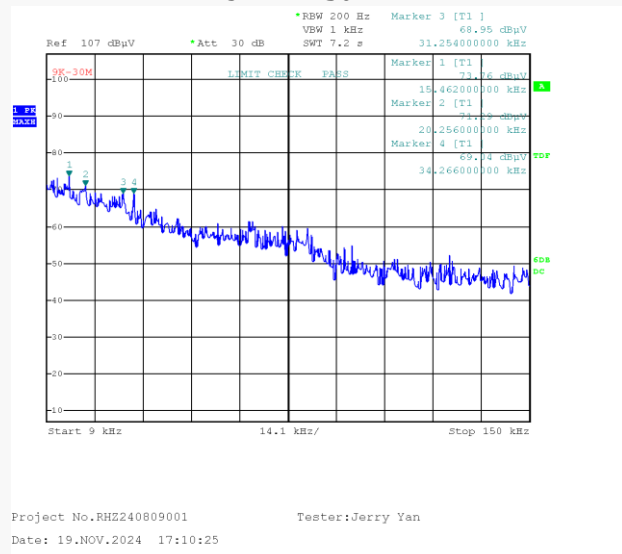
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015486	74.37	PK	52.87	123.81	49.44
0.020562	70.12	PK	49.84	121.34	51.22
0.031278	69.83	PK	46.87	117.70	47.87
0.034662	71.87	PK	45.99	116.81	44.94

150 kHz-30MHz

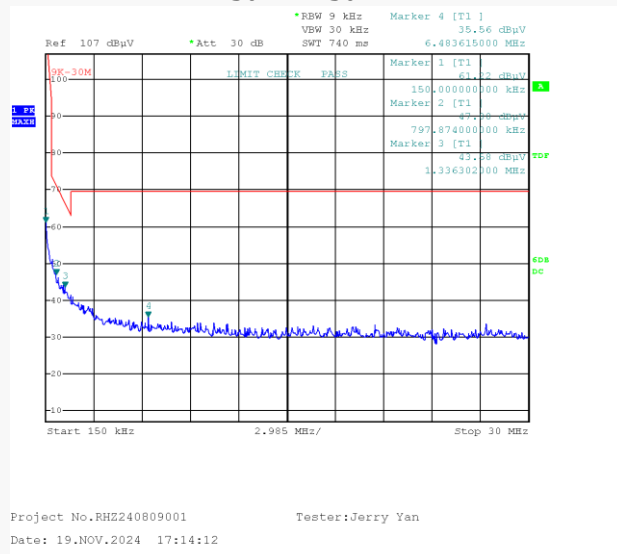
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	61.69	PK	50.90	104.08	42.39
0.98580	45.19	PK	17.65	67.73	22.54
2.17980	40.17	PK	13.65	69.54	29.37
4.68720	34.89	PK	11.65	69.54	34.65

EL950

9 kHz-150 kHz



150 kHz-30MHz

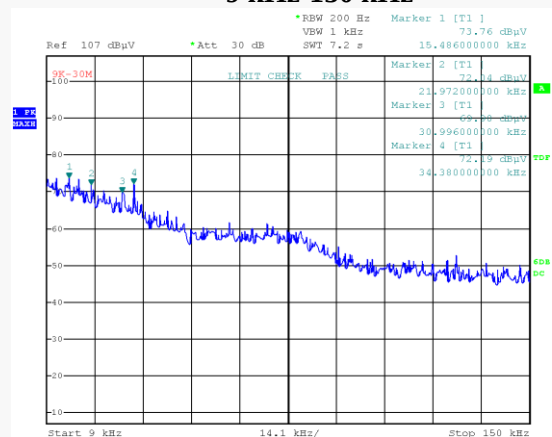


9 kHz-150 kHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015462	73.76	PK	52.89	123.82	50.06
0.020256	71.29	PK	49.93	121.47	50.18
0.031254	68.95	PK	46.87	117.71	48.76
0.034266	69.04	PK	46.09	116.91	47.87

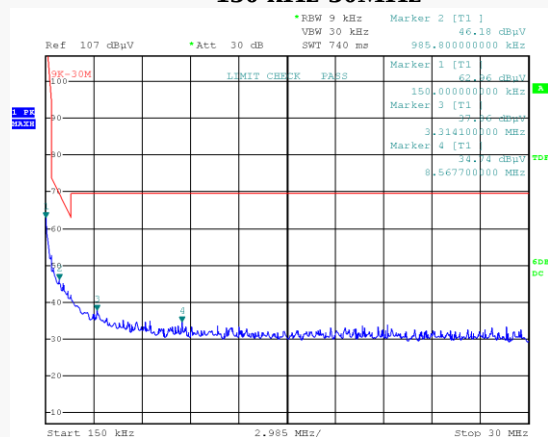
150 kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	61.22	PK	50.90	104.08	42.86
0.79787	47.00	PK	19.59	69.57	22.57
1.33630	43.58	PK	5.77	65.09	21.51
6.48362	35.56	PK	7.01	65.94	30.38

EL960D**9 kHz-150 kHz**

Project No. RHZ240809001
 Date: 19.NOV.2024 17:26:42

Tester: Jerry Yan

150 kHz-30MHz

Project No. RHZ240809001
 Date: 19.NOV.2024 17:31:33

Tester: Jerry Yan

9 kHz-150 kHz

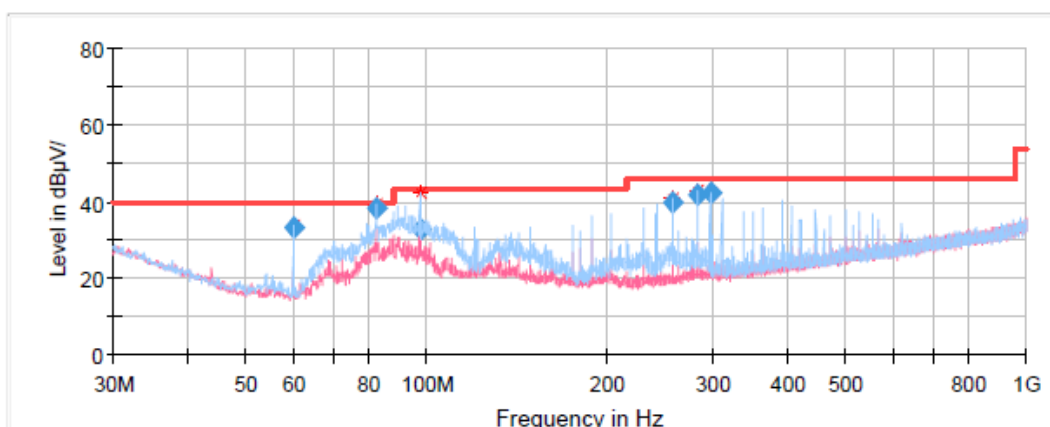
Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.015486	73.76	PK	52.87	123.81	50.05
0.021972	72.04	PK	49.45	120.77	48.73
0.030996	69.9	PK	46.94	117.78	47.88
0.03438	72.19	PK	46.06	116.88	44.69

150 kHz-30MHz

Frequency (MHz)	Corrected Amplitude (dBμV/m) @3m	Detector PK/QP/Ave.	Corrected Factor (dB/m)	Limit (dBμV/m) @3m	Margin (dB)
0.15000	62.96	PK	50.90	104.08	41.12
0.98580	46.18	PK	17.65	67.73	21.55
3.31410	37.86	PK	12.96	69.54	31.68
8.56770	34.74	PK	6.17	69.54	34.80

**30MHz-1GHz (Transmitting in maximum output power mode 802.11n-HT20 mode high channel):
EL335****High Channel: 2462MHz****Common Information**

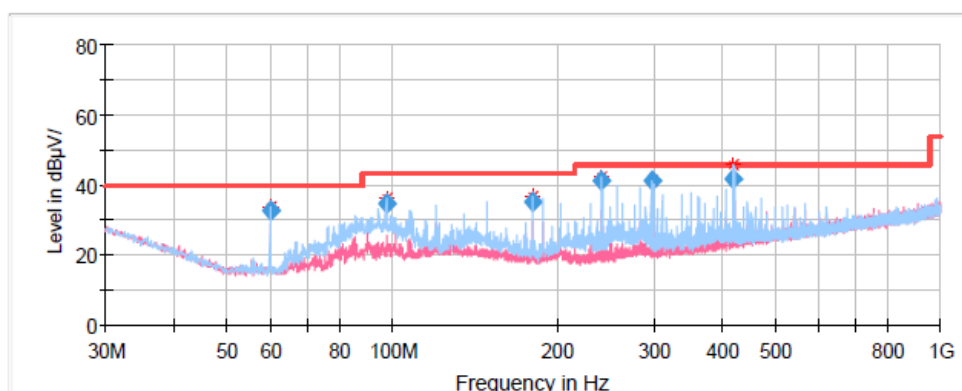
Project No:	RHZ240809001
EUT Model:	EL335
Test Mode:	Transmitting in 802.11n20 mode High channel
Standard:	FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment:	ESCI, JB3, 310N
Temperature:	19.2°C
Humidity:	52%
Barometric Pressure:	102.9kPa
Test Engineer:	Jerry Yan
Test Date:	2024/11/19

**Final Result**

Frequency (MHz)	QuasiPeak (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
59.991650	32.98	40.00	7.02	H	-17.1
82.497950	38.22	40.00	1.78	H	-17.1
97.634650	32.83	43.50	10.67	H	-14.9
256.504000	39.99	46.00	6.01	H	-12.0
283.492950	41.61	46.00	4.39	H	-10.4
297.001200	42.10	46.00	3.90	H	-10.3

EL350**High Channel: 2462MHz****Common Information**

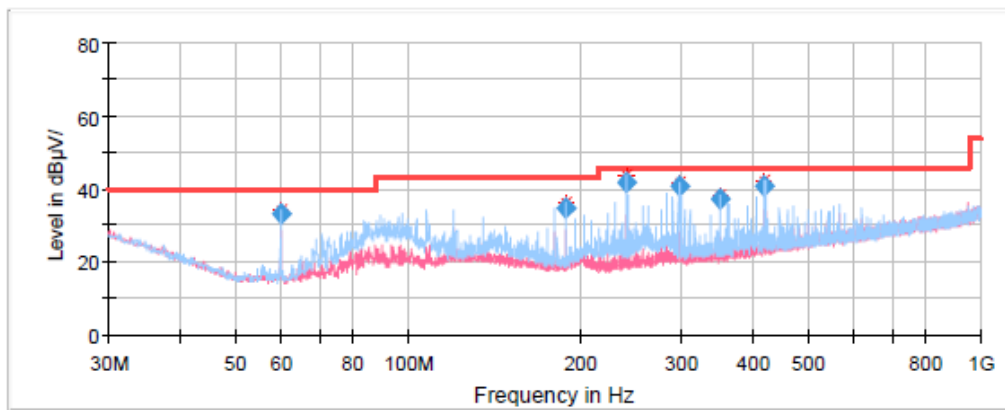
Project No: RHZ240809001
EUT Model: EL350
Test Mode: Transmitting in 802.11n-HT20 mode high channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 52%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2024/11/19

**Final Result**

Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
59.998550	32.52	40.00	7.48	H	-17.1
97.498700	34.90	43.50	8.60	H	-15.0
180.006050	35.24	43.50	8.26	H	-12.9
239.996600	41.38	46.00	4.62	H	-12.2
297.000900	41.14	46.00	4.86	H	-10.3
419.983800	41.80	46.00	4.20	H	-7.5

EL360D**High Channel: 2462MHz****Common Information**

Project No: RHZ240809001
EUT Model: EL360D
Test Mode: Transmitting in 802.11n-HT20 mode high channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 52%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2024/11/19

**Final Result**

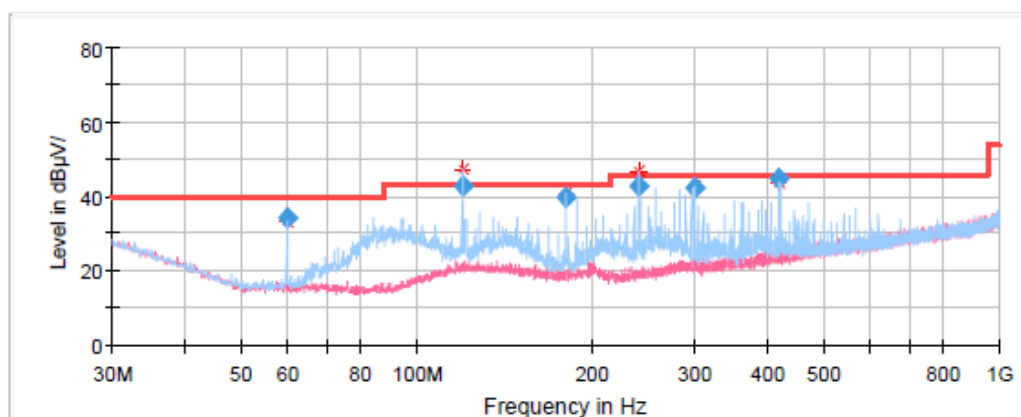
Sss	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
60.003650	33.02	40.00	6.98	H	-17.1
188.991150	34.90	43.50	8.60	H	-12.5
239.989400	41.64	46.00	4.36	H	-12.2
297.013800	40.74	46.00	5.26	H	-10.3
350.994350	37.29	46.00	8.71	H	-9.1
420.009900	40.66	46.00	5.34	H	-7.5

EL635

High Channel: 2462MHz

Common Information

Project No: RHZ240809001
EUT Model: EL635
Test Mode: Transmitting in 802.11n-HT20 mode high channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 52%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2024/11/19

**Final Result**

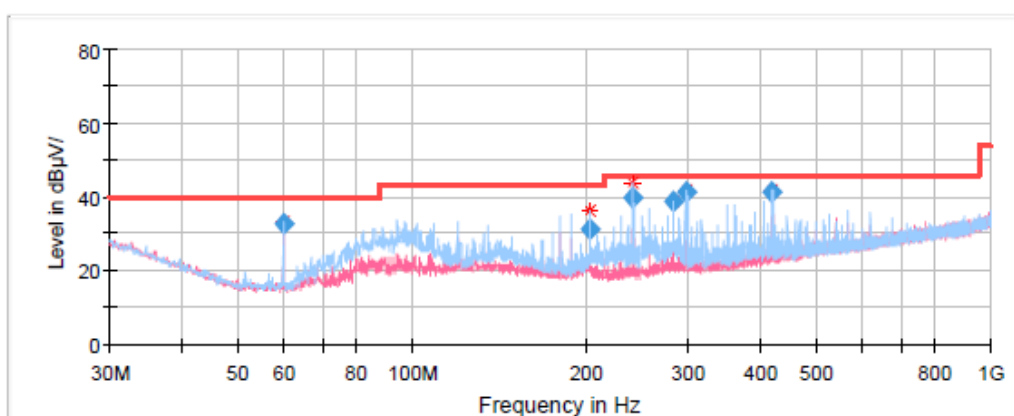
Frequency (MHz)	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
59.999150	34.24	40.00	5.76	H	-17.1
120.011000	42.86	43.50	0.64	H	-10.9
179.999150	39.77	43.50	3.73	H	-12.9
240.000500	43.00	46.00	3.00	H	-12.2
299.983500	42.44	46.00	3.56	H	-10.3
419.988900	44.94	46.00	1.06	H	-7.5

EL650

High Channel: 2462MHz

Common Information

Project No: RHZ240809001
EUT Model: EL650
Test Mode: Transmitting in 802.11n-HT20 mode high channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 52%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2024/11/19

**Final Result**

Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
60.001250	32.57	40.00	7.43	H	-17.1
202.475700	31.17	43.50	12.33	H	-12.2
239.990600	39.50	46.00	6.50	H	-12.2
283.486050	38.57	46.00	7.43	H	-10.4
296.988300	41.04	46.00	4.96	H	-10.3
419.994000	41.01	46.00	4.99	H	-7.5

EL660D

High Channel: 2462MHz

Common Information

Project No:

EUT Model:

Test Mode:

Standard:

Test Equipment:

Temperature:

Humidity:

Barometric Pressure:

Test Engineer:

Test Date:

RHZ240809001

EL660D

Transmitting in 802.11n-HT20 mode high channel

FCC Part 15.205 & FCC Part 15.209&FCC Part 15.247

ESCI, JB3, 310N

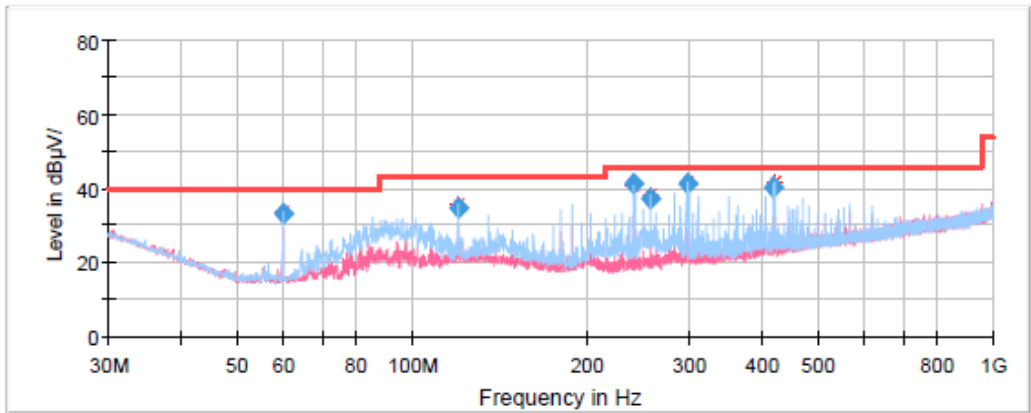
19.2℃

52%

102.9kPa

Jerry Yan

2024/11/19



Final Result

Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
59.994650	33.02	40.00	6.98	H	-17.1
120.012500	34.57	43.50	8.93	H	-10.9
240.012800	41.31	46.00	4.69	H	-12.2
256.488400	37.19	46.00	8.81	H	-12.0
296.998800	41.17	46.00	4.83	H	-10.3
419.975150	40.30	46.00	5.70	H	-7.5

EL950

High Channel: 2462MHz

Common Information

Project No:

EUT Model:

Test Mode:

Standard:

Test Equipment:

Temperature:

Humidity:

Barometric Pressure:

Test Engineer:

Test Date:

RHZ240809001

EL950

Transmitting in 802.11n-HT20 mode high channel

FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247

ESCI, JB3, 310N

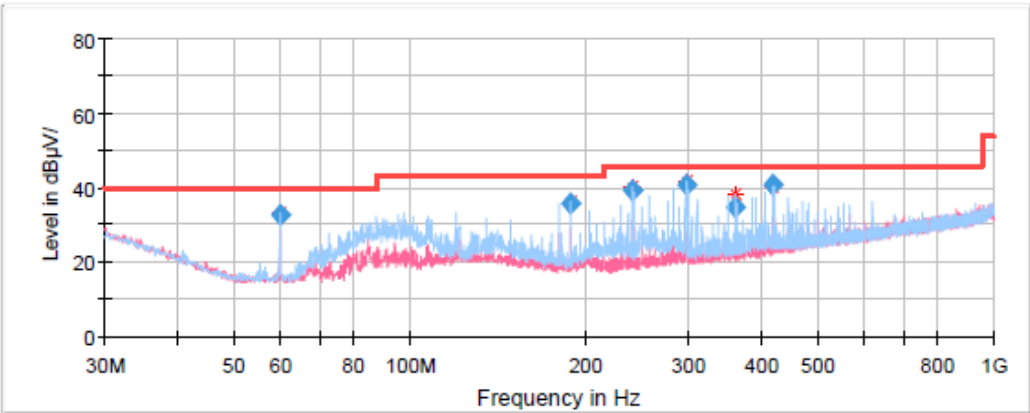
19.2°C

52%

102.9kPa

Jerry Yan

2024/11/19

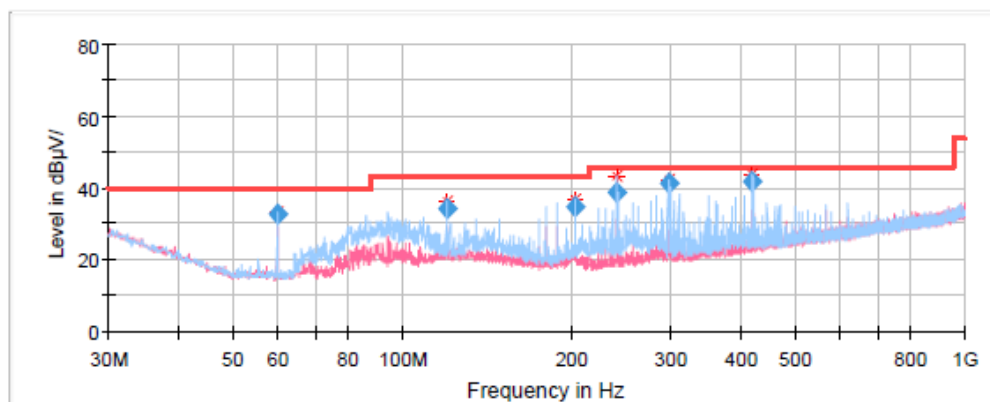


Final Result

s	QuasiPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
59.988050	32.71	40.00	7.29	H	-17.1
189.002550	35.60	43.50	7.90	H	-12.5
240.006500	39.07	46.00	6.93	H	-12.2
297.007800	40.70	46.00	5.30	H	-10.3
360.001950	34.62	46.00	11.38	H	-8.9
419.963700	40.59	46.00	5.41	H	-7.5

EL960D**High Channel: 2462MHz****Common Information**

Project No: RHZ240809001
EUT Model: EL960D
Test Mode: Transmitting in 802.11n-HT20 mode high channel
Standard: FCC Part 15.205 & FCC Part 15.209 & FCC Part 15.247
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 52%
Barometric Pressure: 102.9kPa
Test Engineer: Jerry Yan
Test Date: 2024/11/19

**Final Result**

Frequency (MHz)	QuasiPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
60.011150	32.74	40.00	7.26	H	-17.1
120.016100	34.38	43.50	9.12	H	-10.9
202.512000	34.49	43.50	9.01	H	-12.2
239.978900	38.55	46.00	7.45	H	-12.2
296.995200	41.15	46.00	4.85	H	-10.3
419.993400	41.52	46.00	4.48	H	-7.5

1GHz-18GHz:
802.11b Mode:

Low Channel: 2412MHz

Common Information

Project No.:

RHZ240809001

Test Mode:

Transmitting in 802.11b mode 2412 channel

Standard:

FCC Part 15.247&FCC Part 15.205&FCC Part 15.209

Receiver Setting:

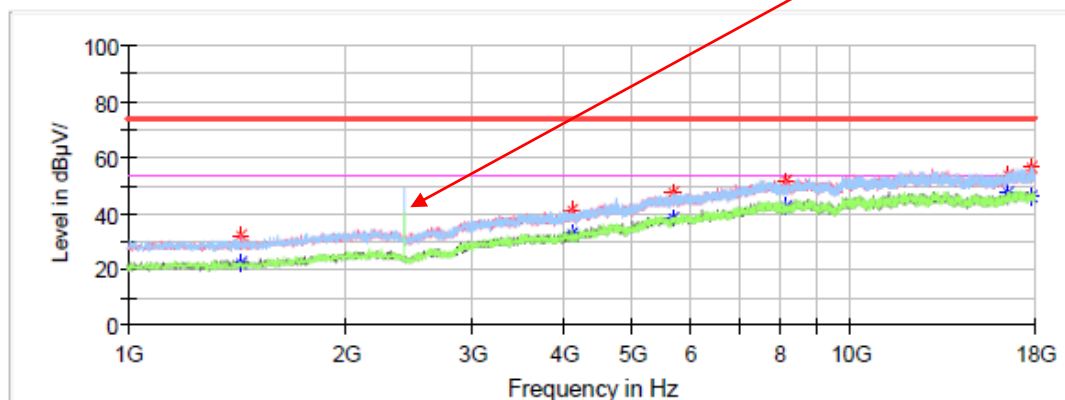
RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto

Test Engineer:

Destine Hu

Fundamental Test
with notch filter

Full Spectrum

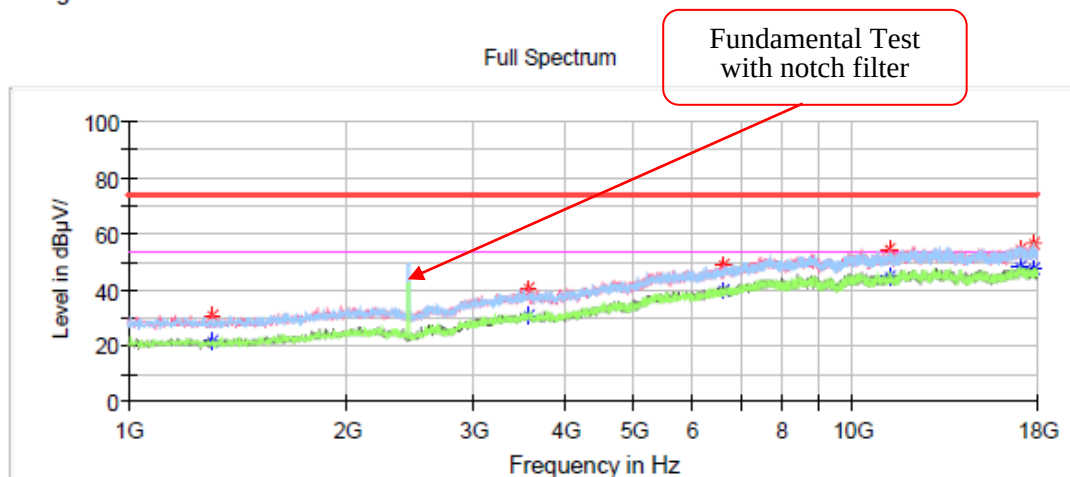


Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1436.900000	---	22.44	54.00	31.56	V	-14.8
1436.900000	32.00	---	74.00	42.00	V	-14.8
4107.600000	---	32.76	54.00	21.24	H	-5.6
4107.600000	41.41	---	74.00	32.59	H	-5.6
5673.300000	---	38.44	54.00	15.56	V	-0.2
5673.300000	47.90	---	74.00	26.10	V	-0.2
8145.100000	---	42.71	54.00	11.29	H	4.4
8145.100000	51.87	---	74.00	22.13	H	4.4
16495.500000	53.95	---	74.00	20.05	V	10.8
16495.500000	---	47.81	54.00	6.19	V	10.8
17831.700000	56.39	---	74.00	17.61	H	11.8
17831.700000	---	46.10	54.00	7.90	H	11.8

Middle Channel: 2437MHz**Common Information**

Project No.: RHZ240809001
 Test Mode: Transmitting in 802.11b mode 2437 channel
 Standard: FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
 Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
 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)
1307.700000	---	22.02	54.00	31.98	V	-15.0
1307.700000	30.57	---	74.00	43.43	V	-15.0
3572.100000	---	30.68	54.00	23.32	V	-6.3
3572.100000	40.78	---	74.00	33.22	V	-6.3
6621.900000	---	39.82	54.00	14.18	V	1.0
6621.900000	49.00	---	74.00	25.00	V	1.0
11245.900000	---	44.45	54.00	9.55	V	8.1
11245.900000	54.40	---	74.00	19.60	V	8.1
17027.600000	---	47.92	54.00	6.08	H	12.2
17027.600000	54.20	---	74.00	19.80	H	12.2
17785.800000	56.79	---	74.00	17.21	H	11.8
17785.800000	---	47.31	54.00	6.69	H	11.8

High Channel: 2462MHz**Common Information**

Project No.:

RHZ240809001

Test Mode:

Transmitting in 802.11b mode 2462 channel

Standard:

FCC Part 15.247&FCC Part 15.205&FCC Part 15.209

Receiver Setting:

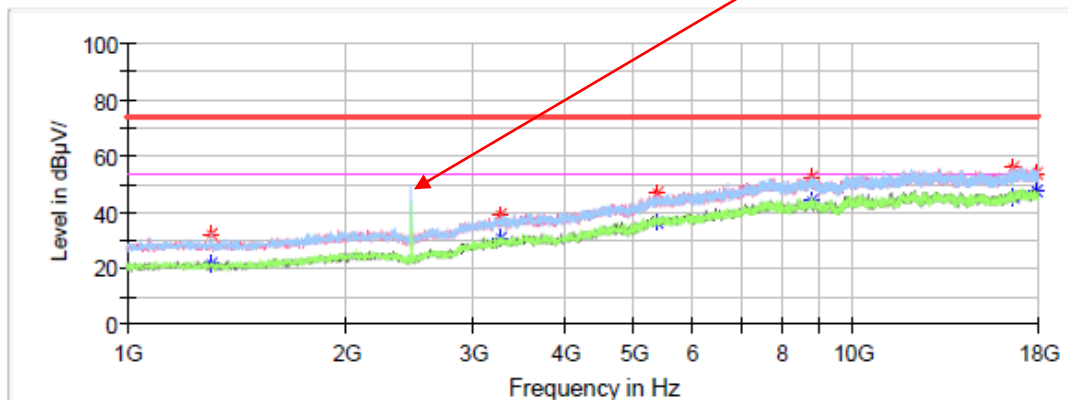
RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto

Test Engineer:

Destine Hu

Fundamental Test
with notch filter

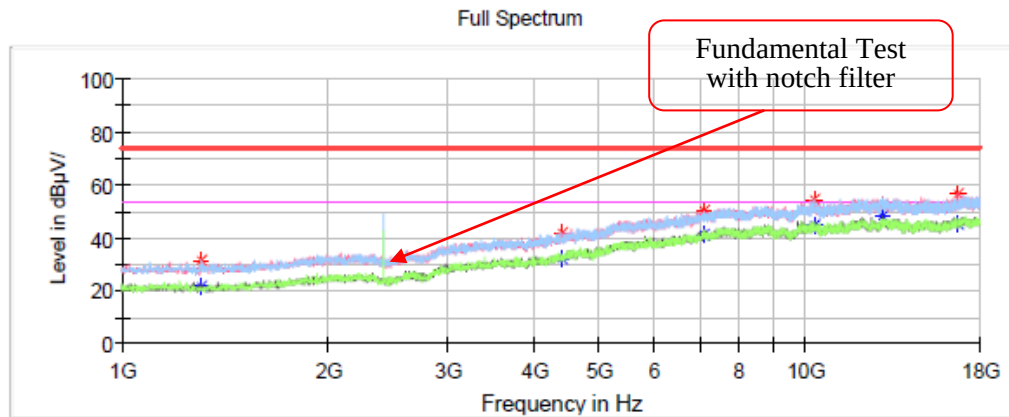
Full Spectrum

**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)
1306.000000	---	21.34	54.00	32.66	H	-15.0
1306.000000	32.08	---	74.00	41.92	H	-15.0
3278.000000	---	30.70	54.00	23.30	V	-7.3
3278.000000	39.19	---	74.00	34.81	V	-7.3
5374.100000	---	36.40	54.00	17.60	H	-0.9
5374.100000	46.89	---	74.00	27.11	H	-0.9
8748.600000	---	43.93	54.00	10.07	H	5.4
8748.600000	52.42	---	74.00	21.58	H	5.4
16599.200000	55.99	---	74.00	18.01	V	11.1
16599.200000	---	45.15	54.00	8.85	V	11.1
17918.400000	53.80	---	74.00	20.20	V	11.9
17918.400000	---	47.89	54.00	6.11	V	11.9

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

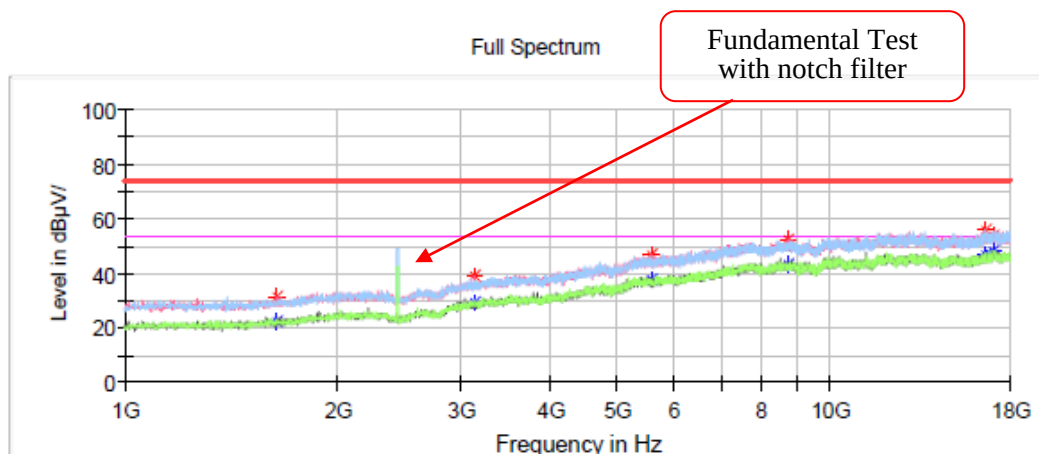
Project No.: RHZ240809001
 Test Mode: Transmitting in 802.11g mode 2412 channel
 Standard: FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
 Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
 Test Engineer: Destine Hu

**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)
1307.700000	31.31	---	74.00	42.69	H	-15.0
1307.700000	---	21.96	54.00	32.04	H	-15.0
4415.300000	42.10	---	74.00	31.90	V	-4.5
4415.300000	---	32.30	54.00	21.70	V	-4.5
7092.800000	50.02	---	74.00	23.98	V	2.9
7092.800000	---	40.93	54.00	13.07	V	2.9
10319.400000	---	44.94	54.00	9.06	H	7.1
10319.400000	54.56	---	74.00	19.44	H	7.1
12974.800000	52.26	---	74.00	21.74	H	9.7
12974.800000	---	47.95	54.00	6.05	H	9.7
16668.900000	---	45.52	54.00	8.48	V	11.3
16668.900000	56.35	---	74.00	17.65	V	11.3

Middle Channel: 2437MHz**Common Information**

Project No.: RHZ240809001
 Test Mode: Transmitting in 802.11g mode 2437 channel
 Standard: FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
 Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
 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)
1646.000000	---	22.32	54.00	31.68	H	-13.9
1646.000000	31.62	---	74.00	42.38	H	-13.9
3135.200000	---	29.23	54.00	24.77	V	-7.9
3135.200000	39.05	---	74.00	34.95	V	-7.9
5561.100000	---	38.00	54.00	16.00	H	-0.3
5561.100000	46.99	---	74.00	27.01	H	-0.3
8718.000000	---	43.45	54.00	10.55	V	5.4
8718.000000	52.58	---	74.00	21.42	V	5.4
16563.500000	---	46.84	54.00	7.16	H	11.0
16563.500000	55.83	---	74.00	18.17	H	11.0
16990.200000	---	47.96	54.00	6.04	H	12.3
16990.200000	54.17	---	74.00	19.83	H	12.3

High Channel: 2462MHz**Common Information**

Project No.:

RHZ240809001

Test Mode:

Transmitting in 802.11g mode 2462 channel

Standard:

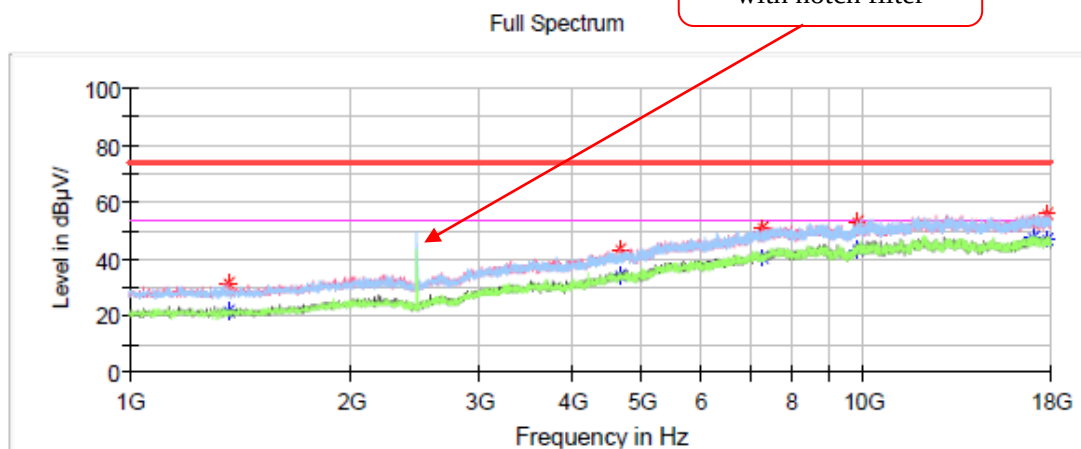
FCC Part 15.247&FCC Part 15.205&FCC Part 15.209

Receiver Setting:

RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto

Test Engineer:

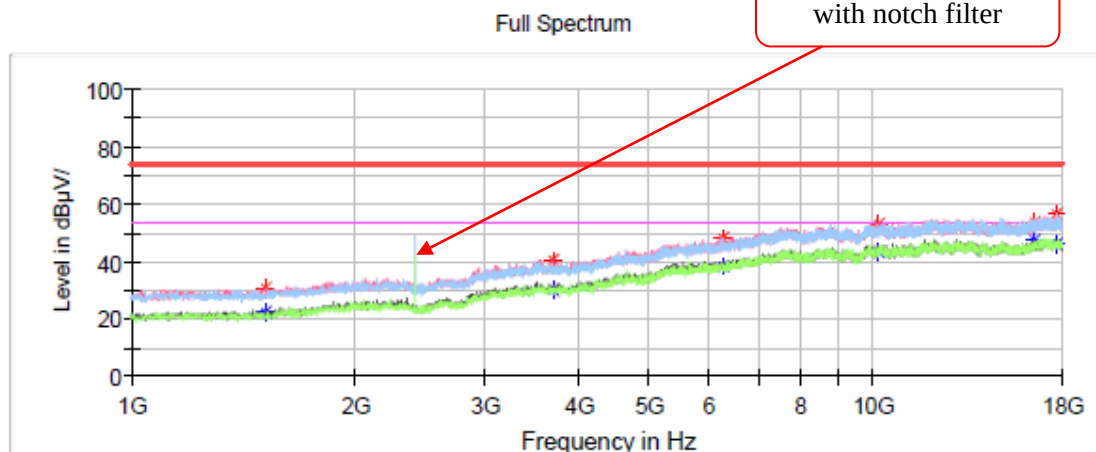
Destine Hu

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)
1362.100000	---	21.43	54.00	32.57	H	-14.9
1362.100000	31.24	---	74.00	42.76	H	-14.9
4665.200000	---	34.13	54.00	19.87	V	-3.7
4665.200000	43.04	---	74.00	30.96	V	-3.7
7278.100000	---	40.77	54.00	13.23	H	3.3
7278.100000	50.97	---	74.00	23.03	H	3.3
9829.800000	---	43.59	54.00	10.41	H	6.6
9829.800000	53.26	---	74.00	20.74	H	6.6
17056.500000	---	47.83	54.00	6.17	H	12.2
17056.500000	52.79	---	74.00	21.21	H	12.2
17772.200000	55.71	---	74.00	18.29	V	11.8
17772.200000	---	46.69	54.00	7.31	V	11.8

802.11n-HT20 Mode :**Low Channel: 2412MHz****Common Information**

Project No.: RHZ240809001
 Test Mode: Transmitting in 802.11n20 mode 2412 channel
 Standard: FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
 Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
 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)
1513.400000	30.88	---	74.00	43.12	V	-14.6
1513.400000	---	22.03	54.00	31.97	V	-14.6
3708.100000	40.59	---	74.00	33.41	V	-6.2
3708.100000	---	30.36	54.00	23.64	V	-6.2
6271.700000	48.43	---	74.00	25.57	H	0.3
6271.700000	---	38.28	54.00	15.72	H	0.3
10149.400000	---	43.16	54.00	10.84	V	7.2
10149.400000	53.23	---	74.00	20.77	V	7.2
16488.700000	53.70	---	74.00	20.30	V	10.7
16488.700000	---	47.81	54.00	6.19	V	10.7
17707.600000	---	45.86	54.00	8.14	H	11.7
17707.600000	56.56	---	74.00	17.44	H	11.7

Middle Channel: 2437MHz**Common Information**

Project No.:

RHZ240809001

Test Mode:

Transmitting in 802.11n20 mode 2437 channel

Standard:

FCC Part 15.247&FCC Part 15.205&FCC Part 15.209

Receiver Setting:

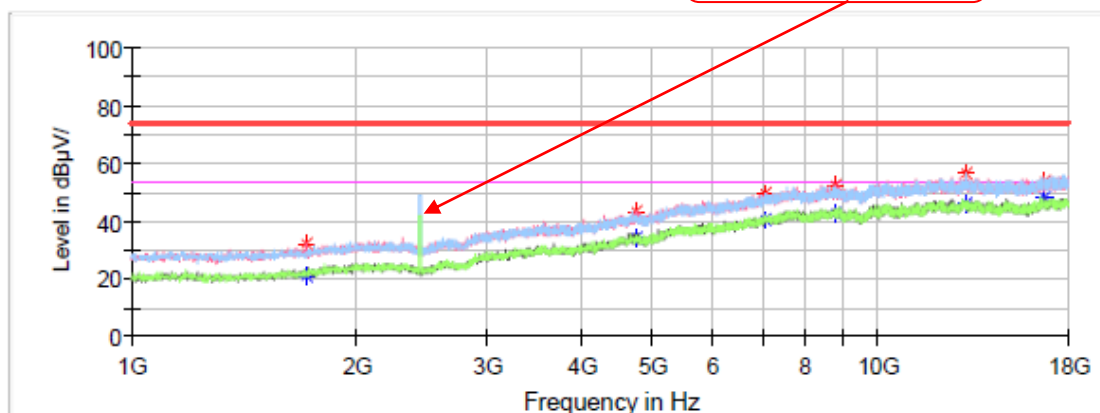
RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto

Test Engineer:

Destine Hu

Fundamental Test
with notch filter

Full Spectrum

**Critical Freqs**

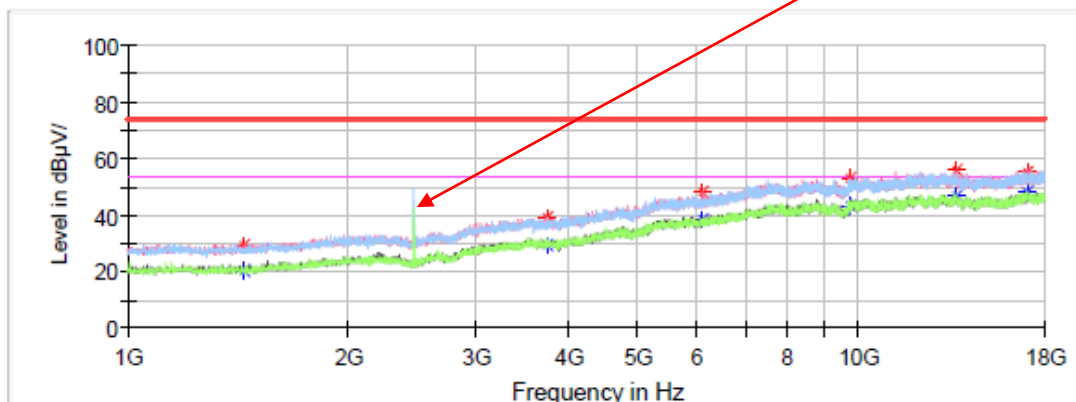
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1717.400000	---	21.24	54.00	32.76	V	-13.4
1717.400000	31.98	---	74.00	42.02	V	-13.4
4755.300000	---	34.12	54.00	19.88	V	-3.3
4755.300000	43.67	---	74.00	30.33	V	-3.3
7048.600000	---	40.55	54.00	13.45	H	2.8
7048.600000	49.53	---	74.00	24.47	H	2.8
8770.700000	---	42.77	54.00	11.23	H	5.4
8770.700000	52.19	---	74.00	21.81	H	5.4
13083.600000	56.31	---	74.00	17.69	H	9.7
13083.600000	---	46.30	54.00	7.70	H	9.7
16753.900000	53.69	---	74.00	20.31	V	11.5
16753.900000	---	47.96	54.00	6.04	V	11.5

High Channel: 2462MHz**Common Information**

Project No.: RHZ240809001
 Test Mode: Transmitting in 802.11n20 mode 2462 channel
 Standard: FCC Part 15.247&FCC Part 15.205&FCC Part 15.209
 Receiver Setting: RBW: 1MHz, VBW: 3MHz, Sweep Time: Auto
 Test Engineer: Destine Hu

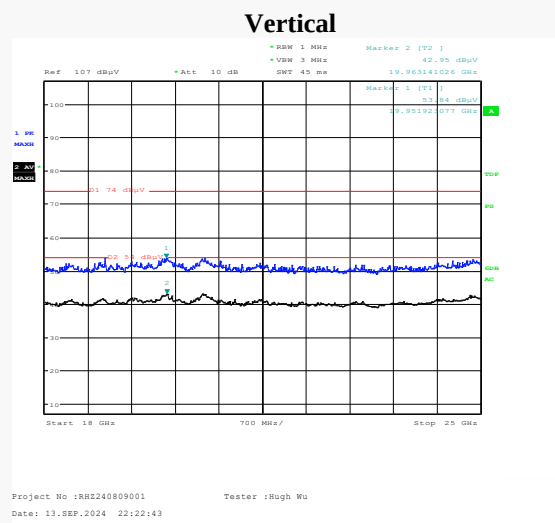
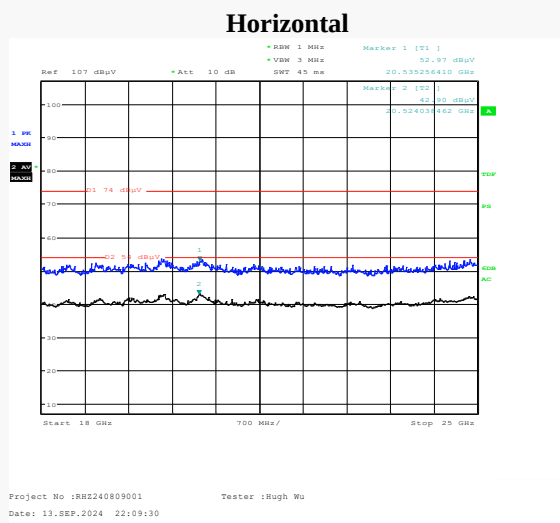
Fundamental Test
with notch filter

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)
1445.400000	---	19.98	54.00	34.02	V	-14.8
1445.400000	29.69	---	74.00	44.31	V	-14.8
3747.200000	---	29.43	54.00	24.57	H	-6.1
3747.200000	38.87	---	74.00	35.13	H	-6.1
6111.900000	---	38.43	54.00	15.57	V	0.1
6111.900000	48.22	---	74.00	25.78	V	0.1
9749.900000	---	43.23	54.00	10.77	V	6.3
9749.900000	53.03	---	74.00	20.97	V	6.3
13590.200000	---	46.88	54.00	7.12	V	9.6
13590.200000	56.07	---	74.00	17.93	V	9.6
17037.800000	---	47.94	54.00	6.06	H	12.2
17037.800000	55.14	---	74.00	18.86	H	12.2

18GHz-25GHz: Transmitting in 802.11b mode middle channel is worst case

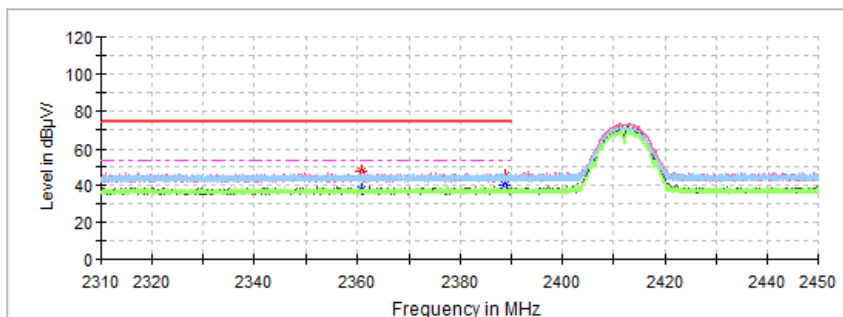


Note: The test distance is 3m. The limit is 74dBμV/m(Peak) and 54dBμV/m(Average).

Restricted Bands Emission:**802.11b Mode:****Low Channel****Common Information**

Project No.: RHZ240809001
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**

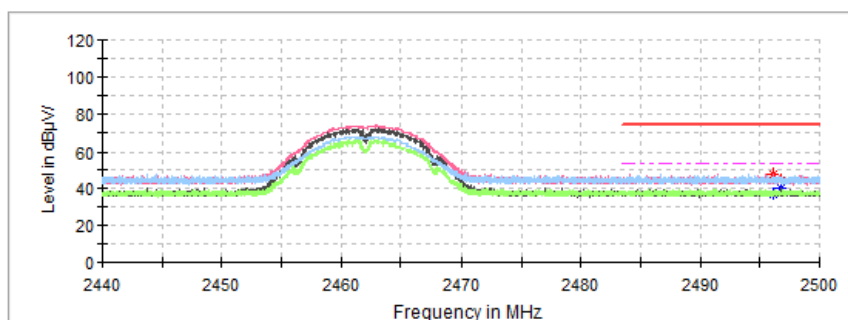
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	PoI	Corr. (dB/m)
2361.072000	47.42	---	74.00	26.58	H	-0.7
2361.072000	---	37.86	54.00	16.14	H	-0.7
2388.680000	45.29	---	74.00	28.71	H	-0.6
2388.680000	---	40.47	54.00	13.53	H	-0.6

High Channel

Common Information

Project No.: RHZ240809001
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

Full Spectrum



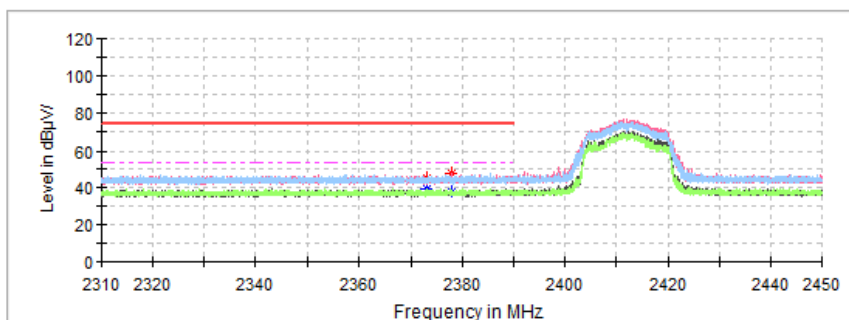
Critical_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2496.064000	47.99	---	74.00	26.01	V	-0.2
2496.064000	---	36.90	54.00	17.10	V	-0.2
2496.772000	44.20	---	74.00	29.80	H	-0.2
2496.772000	---	39.89	54.00	14.11	H	-0.2

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

Project No.: RHZ240809001
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**

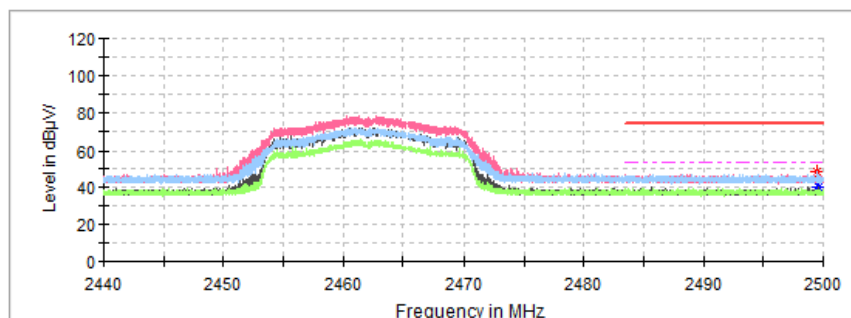
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2373.126000	45.23	---	74.00	28.77	H	-0.6
2373.126000	---	39.79	54.00	14.21	H	-0.6
2377.970000	47.51	---	74.00	26.49	V	-0.6
2377.970000	---	37.46	54.00	16.54	V	-0.6

High Channel

Common Information

Project No.: RHZ240809001
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)
2499.436000	48.64	---	74.00	25.36	H	-0.2
2499.436000	---	38.49	54.00	15.51	H	-0.2
2499.574000	44.80	---	74.00	29.20	V	-0.2
2499.574000	---	40.55	54.00	13.45	V	-0.2

802.11n-HT20 Mode:

Low Channel

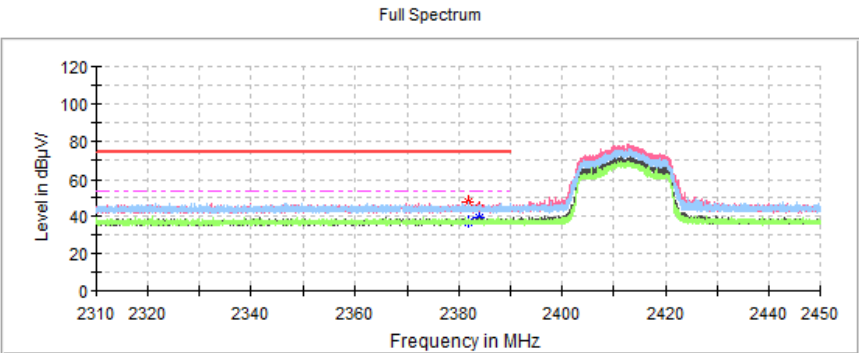
Common Information

Project No.: RHZ240809001

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



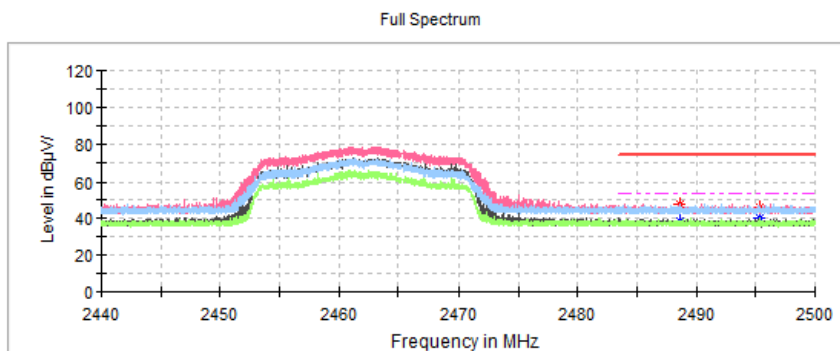
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2381.960000	47.66	---	74.00	26.34	H	-0.6
2381.960000	---	37.20	54.00	16.80	H	-0.6
2383.962000	44.61	---	74.00	29.39	V	-0.6
2383.962000	---	39.49	54.00	14.51	V	-0.6

High Channel

Common Information

Project No.: RHZ240809001
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



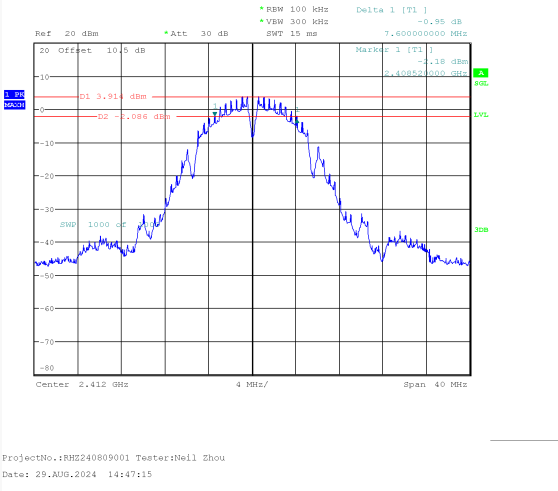
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2488.624000	48.05	---	74.00	25.95	H	-0.2
2488.624000	---	38.26	54.00	15.74	H	-0.2
2495.380000	45.82	---	74.00	28.18	V	-0.2
2495.380000	---	40.34	54.00	13.66	V	-0.2

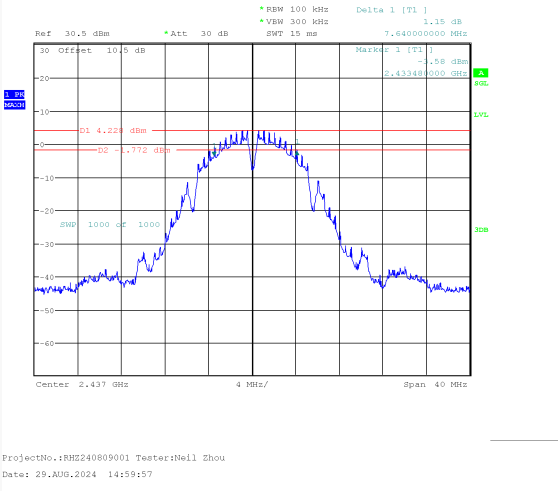
6 dB EMISSION BANDWIDTH**Test Result:** Compliant.*EUT operation mode: Transmitting*

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	Limit (MHz)
802.11b Mode			
Low	2412	7.600	≥ 0.5
Middle	2437	7.640	≥ 0.5
High	2462	7.640	≥ 0.5
802.11g Mode			
Low	2412	15.560	≥ 0.5
Middle	2437	15.560	≥ 0.5
High	2462	15.240	≥ 0.5
802.11n-HT20 Mode			
Low	2412	15.680	≥ 0.5
Middle	2437	15.400	≥ 0.5
High	2462	15.240	≥ 0.5

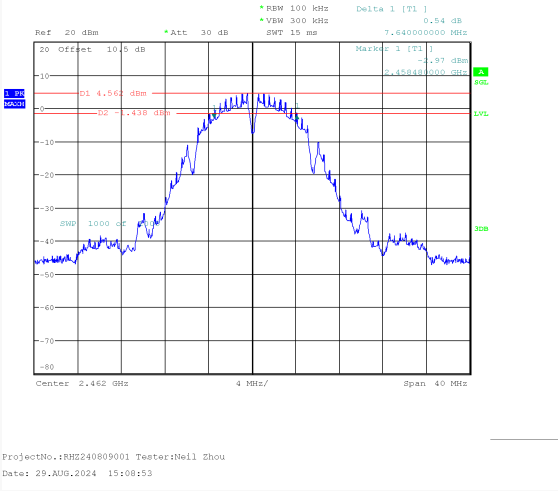
802.11b Mode Low Channel



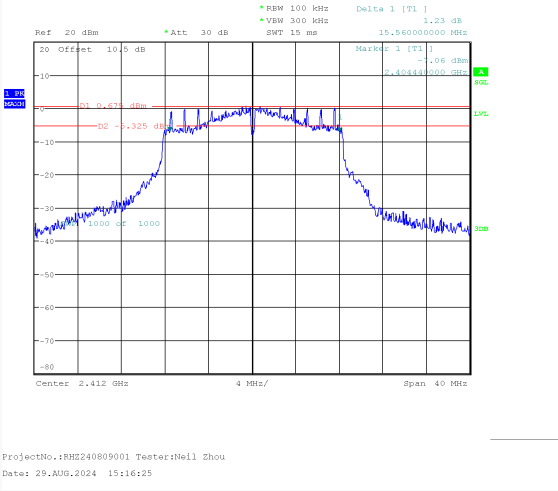
802.11b Mode Middle Channel



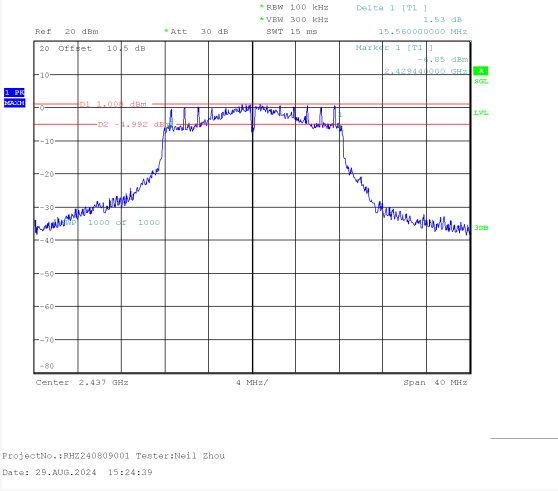
802.11b Mode High Channel



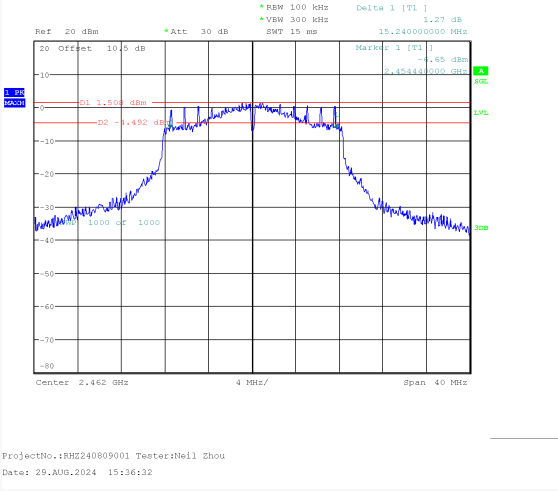
802.11g Mode Low Channel



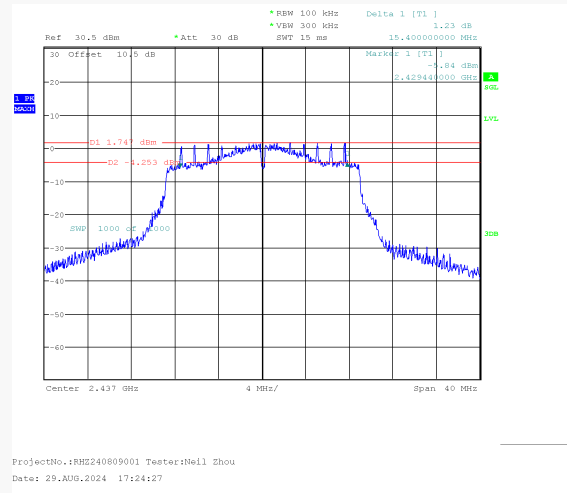
802.11g Mode Middle Channel



802.11g Mode High Channel



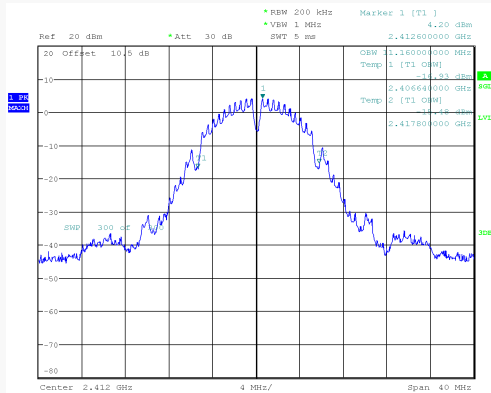
802.11n-HT20 Mode Middle Channel

[illegible]

OCCUPIED BANDWIDTH*EUT operation mode: Transmitting*

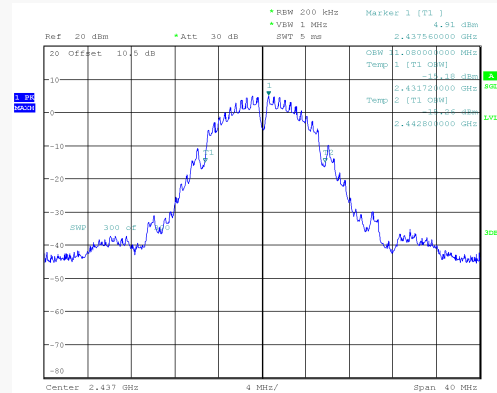
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
802.11b Mode		
Low	2412	11.160
Middle	2437	11.080
High	2462	11.200
802.11g Mode		
Low	2412	16.560
Middle	2437	16.600
High	2462	16.480
802.11n-HT20 mode		
Low	2412	17.680
Middle	2437	17.640
High	2462	17.600

802.11b Mode Low Channel



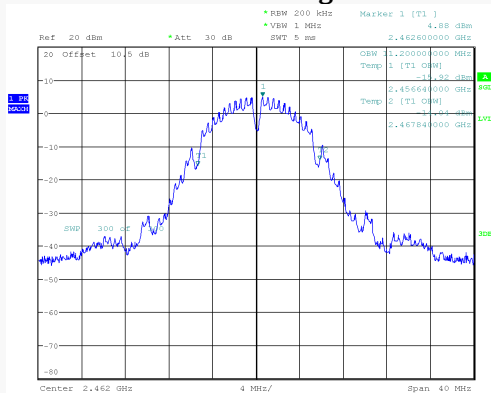
ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 14:47:45

802.11b Mode Middle Channel



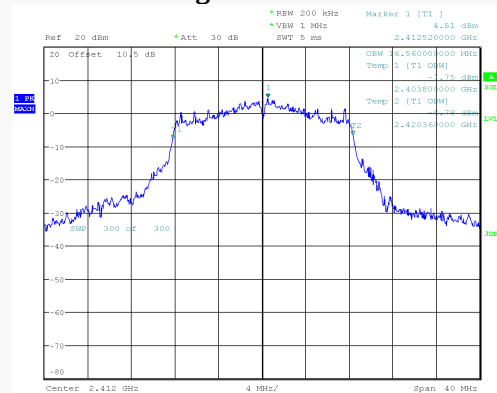
ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 15:00:22

802.11b Mode High Channel



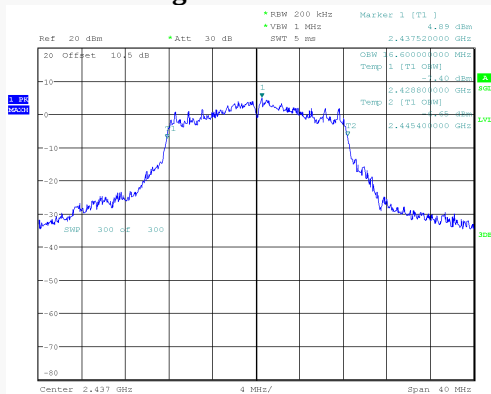
ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 15:09:29

802.11g Mode Low Channel



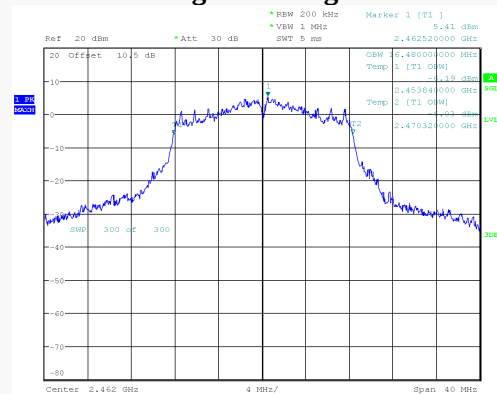
ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 15:16:55

802.11g Mode Middle Channel



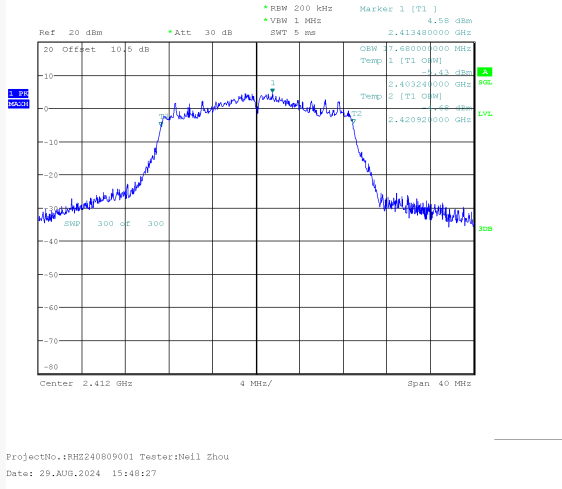
ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 15:25:04

802.11g Mode High Channel

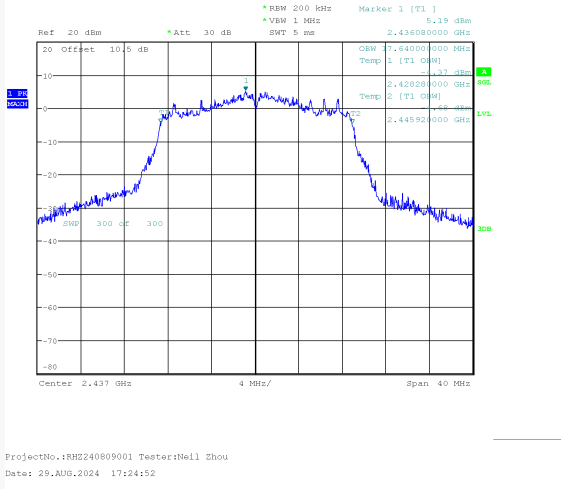


ProjectNo.:RHZ240809001 Tester:Neil Zhou
Date: 29.AUG.2024 15:37:08

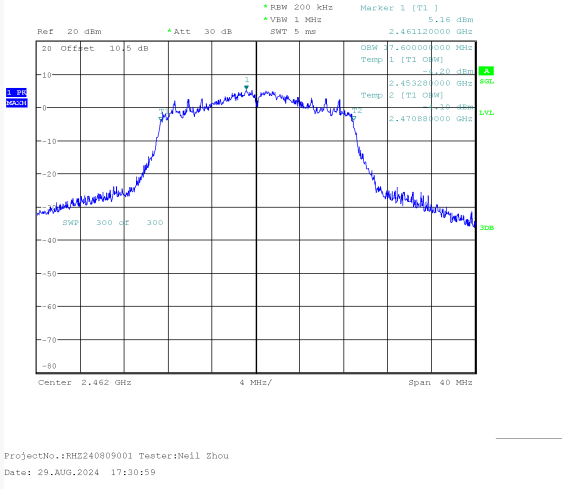
802.11n-HT20 Mode Low Channel



802.11n-HT20 Mode Middle Channel



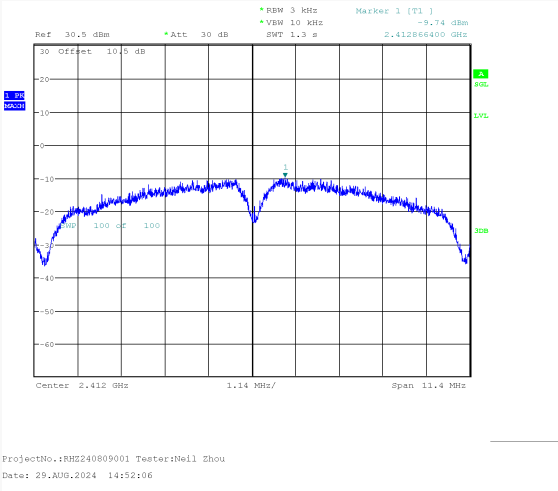
802.11n-HT20 Mode High Channel



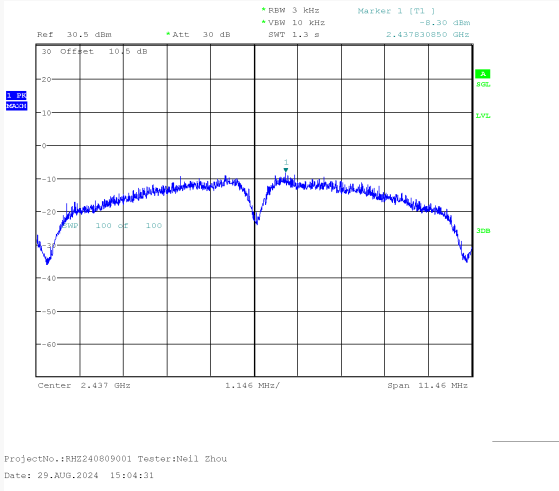
POWER SPECTRAL DENSITY**Test Result:** Compliant.*EUT operation mode: Transmitting*

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
802.11b Mode			
Low	2412	-9.74	≤ 8
Middle	2437	-8.30	≤ 8
High	2462	-8.56	≤ 8
802.11g Mode			
Low	2412	-10.48	≤ 8
Middle	2437	-10.18	≤ 8
High	2462	-9.65	≤ 8
802.11n-HT20 mode			
Low	2412	-9.36	≤ 8
Middle	2437	-9.08	≤ 8
High	2462	-8.85	≤ 8

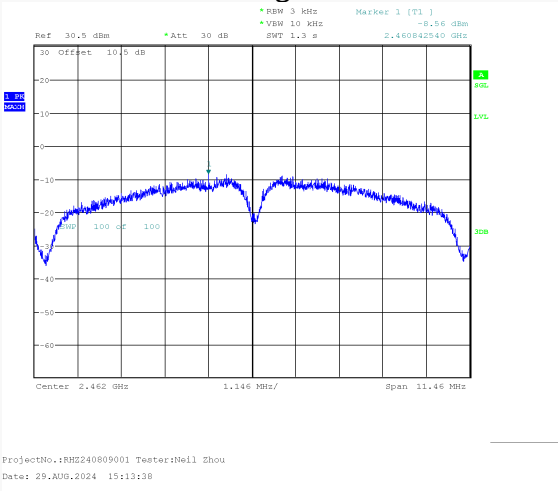
802.11b Low Channel



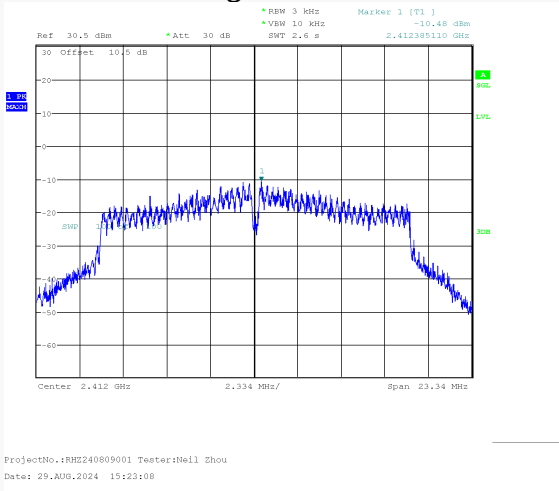
802.11b Middle Channel



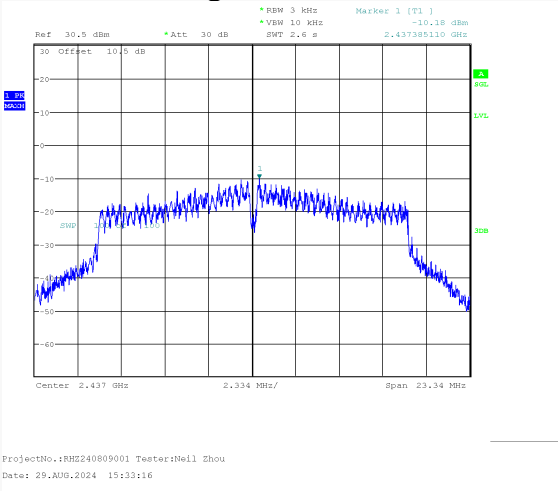
802.11b High Channel



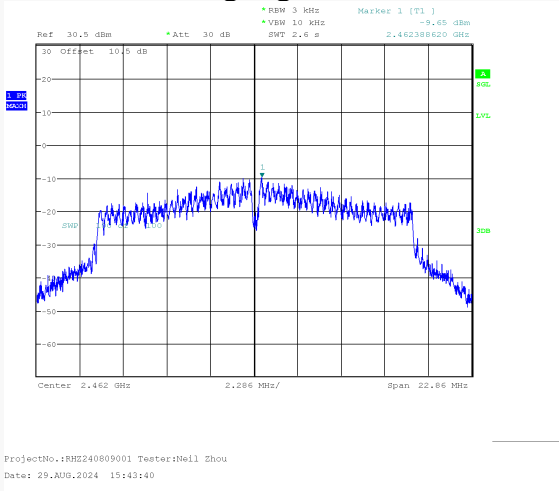
802.11g Low Channel



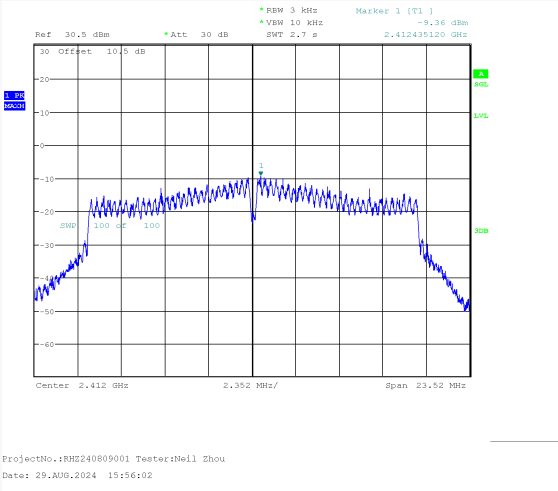
802.11g Middle Channel



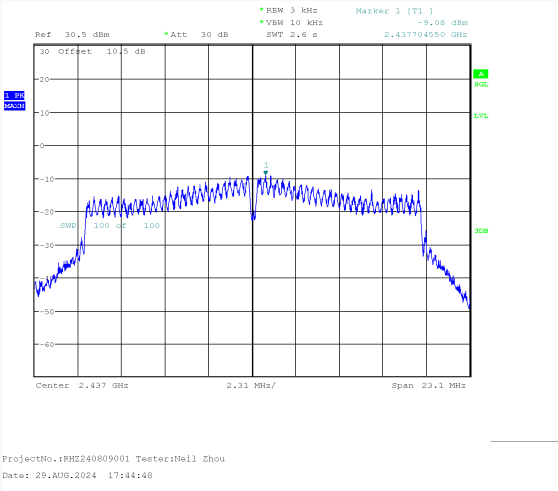
802.11g High Channel



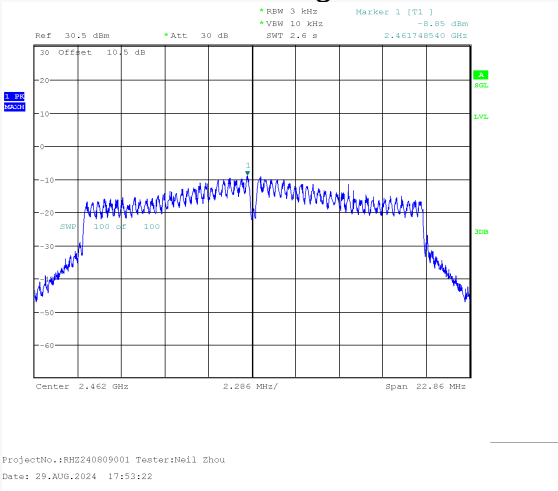
802.11n-HT20 Low Channel



802.11n-HT20 Middle Channel



802.11n-HT20 High Channel



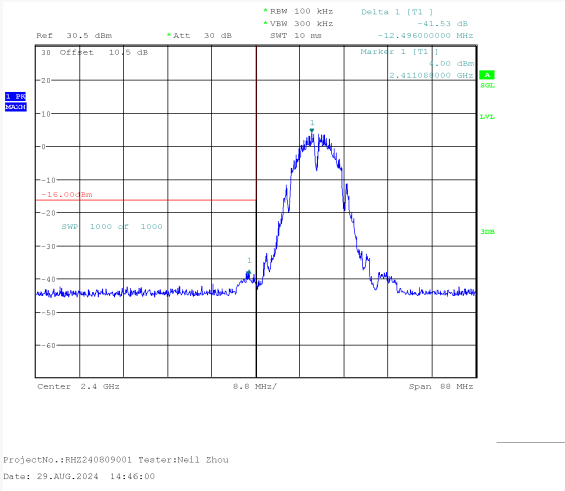
TRANSMITTER OUTPUT POWER MEASUREMENT

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Max Conducted Average Output Power (dBm)	Limit (dBm)
802.11b Mode				
Low	2412	15.664	12.345	≤30
Middle	2437	16.179	12.806	≤30
High	2462	16.511	13.187	≤30
802.11g Mode				
Low	2412	22.019	12.571	≤30
Middle	2437	22.549	13.125	≤30
High	2462	23.084	13.524	≤30
802.11n-HT20 Mode				
Low	2412	22.211	13.065	≤30
Middle	2437	22.724	13.478	≤30
High	2462	23.374	14.059	≤30

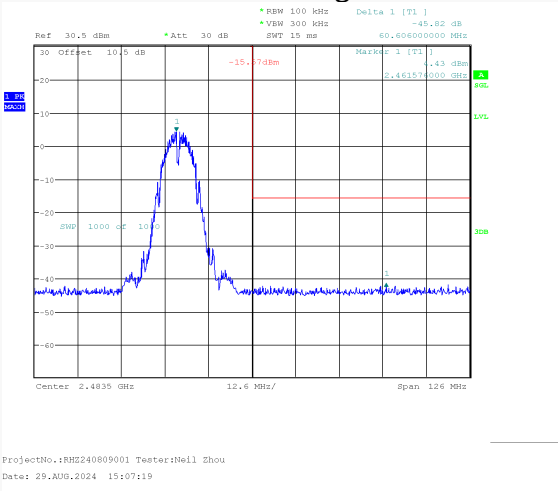
OUT OF BAND EMISSIONS

Mode	Value (dB)	Limit (dB)	Result
b_2412MHz	41.53	20	Pass
b_2462MHz	45.82	20	Pass
g_2412MHz	28.33	20	Pass
g_2462MHz	38.49	20	Pass
n20_2412MHz	28.73	20	Pass
n20_2462MHz	39.84	20	Pass

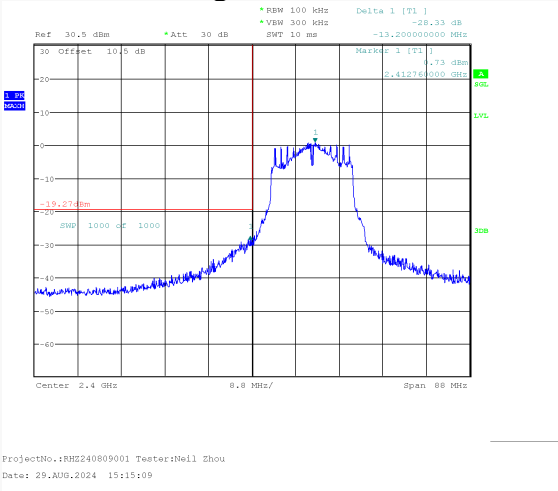
EUT operation mode: Transmitting
802.11b Mode Left Side



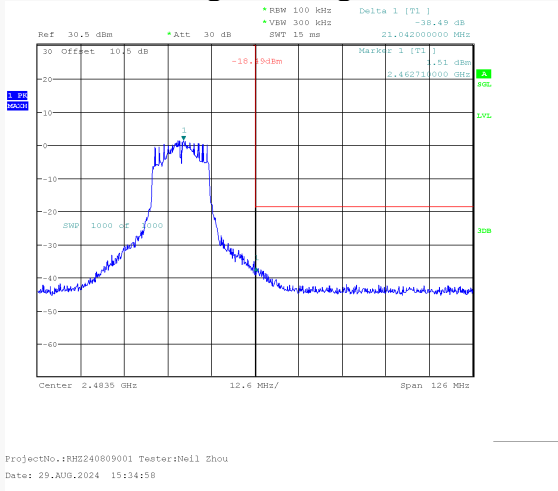
802.11b Mode Right Side



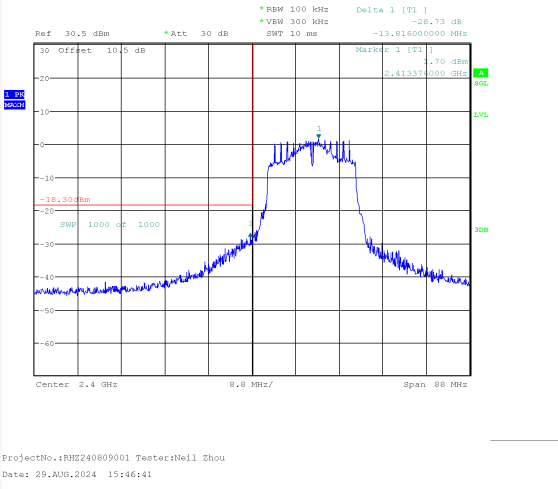
802.11g Mode Left Side



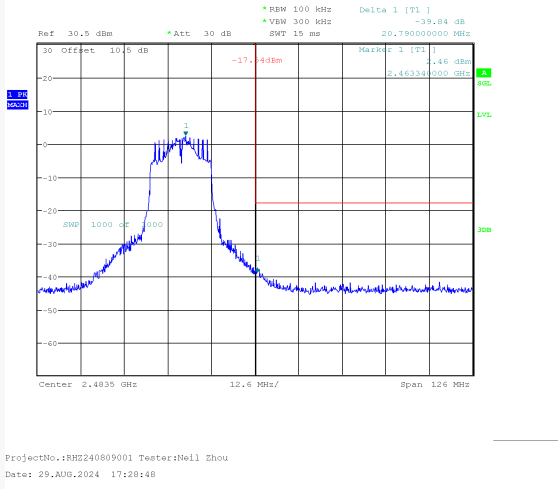
802.11g Mode Right Side



802.11n-HT20 Mode Left Side



802.11n-HT20 Mode Right Side



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 *******