



TEST REPORT

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District, Shenzhen, China

Product Name: FJDynamics AT2 Max Auto Steer System

FCC ID: 2BLLH-AT2MAX

47 CFR Part 15, Subpart C (15.247)

Standard(s): ANSI C63.10-2013

KDB 558074 D01 15.247 Meas Guidance v05r02

Report Number: 2402A108252E-RF-00C

Report Date: 2025/1/22

The above device has been tested and found compliant with the requirement of the relative standards by Bay Area Compliance Laboratories Corp. (Dongguan).

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CONTENTS

DOCUMENT REVISION HISTORY	
1. GENERAL INFORMATION ······	
1.1 PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)······	
1.2 ACCESSORY INFORMATION	
1.3 Antenna Information Detail [▲] ······	5
1.4 EQUIPMENT MODIFICATIONS ·····	5
2. SUMMARY OF TEST RESULTS ·····	6
3. DESCRIPTION OF TEST CONFIGURATION	7
3.1 OPERATION FREQUENCY DETAIL ·····	7
3.2 EUT OPERATION CONDITION	
3.3 SUPPORT EQUIPMENT LIST AND DETAILS	7
3.4 SUPPORT CABLE LIST AND DETAILS	
3.5 BLOCK DIAGRAM OF TEST SETUP·····	8
3.6 TEST FACILITY ·····	9
3.7 MEASUREMENT UNCERTAINTY	9
4. REQUIREMENTS AND TEST PROCEDURES ······	10
4.1 AC LINE CONDUCTED EMISSIONS·····	10
4.1.1 Applicable Standard ······	
4.1.2 EUT Setup	11
4.1.3 EMI Test Receiver Setup·····	11
4.1.4 Test Procedure	
4.1.5 Corrected Amplitude & Margin Calculation 4.1.6 Test Result	····· 12
4.2 RADIATION SPURIOUS EMISSIONS	
4.2.1 Applicable Standard · · · · · · · · · · · · · · · · · · ·	13
4.2.3 EMI Test Receiver & Spectrum Analyzer Setup	15
4.2.4 Test Procedure	15
4.2.5 Corrected Result& Margin Calculation	16
4.2.6 Test Result	
4.3.1 Applicable Standard 4.3.2 EUT Setup	······ [7/
4.3.3 Test Procedure · · · · · · · · · · · · · · · · · · ·	17
4.3.4 Test Result ·····	17
4.4 99% OCCUPIED BANDWIDTH·····	18
4.4.1 EUT Setup·····	18
4.4.2 Test Procedure · · · · · · · · · · · · · · · · · · ·	18
4.4.3 Test Result	18
4.5 MAXIMUM CONDUCTED OUTPUT POWER · · · · · · · · · · · · · · · · · · ·	
4.5.1 Applicable Standard · · · · · · · · · · · · · · · · · · ·	19
4.5.2 EUT Setup····	19

4.5.3 Test Procedure · · · · · · · · · · · · · · · · · · ·	19
4.5.4 Test Result	
4.6 MAXIMUM POWER SPECTRAL DENSITY	
4.6.1 Applicable Standard · · · · · · · · · · · · · · · · · · ·	20
4.6.2 EUT Setup·····	20
4.6.3 Test Procedure · · · · · · · · · · · · · · · · · · ·	
4.6.4 Test Result	
4.7 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE ·····	
4.7.1 Applicable Standard · · · · · · · · · · · · · · · · · · ·	21
4.7.2 EUT Setup	21
4.7.3 Test Procedure · · · · · · · · · · · · · · · · · · ·	
4.7.4 Test Result	
4.8 DUTY CYCLE ·····	
4.8.1 EUT Setup	22
4.8.2 Test Procedure · · · · · · · · · · · · · · · · · · ·	22
4.8.3 Judgment	22
4.9 ANTENNA REQUIREMENT ·····	
4.9.1 Applicable Standard · · · · · · · · · · · · · · · · · · ·	23
4.9.2 Judgment · · · · · · · · · · · · · · · · · · ·	23
5. Test DATA AND RESULTS ·····	24
5.1 AC LINE CONDUCTED EMISSIONS	
5.2 RADIATION SPURIOUS EMISSIONS	25
5.3 6DB EMISSION BANDWIDTH ·····	56
5.4 99% OCCUPIED BANDWIDTH·····	
5.5 MAXIMUM CONDUCTED OUTPUT POWER ······	62
5.6 POWER SPECTRAL DENSITY	63
5.7 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE ······	
5.8 DUTY CYCLE ·····	72
EXHIBIT A - EUT PHOTOGRAPHS ······	
FYHIRIT R - TEST SETUP PHOTOGRAPHS	

DOCUMENT REVISION HISTORY

Revision Number	vision Number Report Number Description of Revision		Date of Revision
1.0	2402A108252E-RF-00C	Original Report	2025/1/22

1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Name:	FJDynamics AT2 Max Auto Steer System
Trade Name	FJDynamics
EUT Model:	AT2 Max
Operation Frequency:	2412-2462MHz (802.11b/g/n ht20) 2422-2452MHz (802.11n ht40)
Maximum Peak Output Power (Conducted):	27.88 dBm
Modulation Type:	802.11b: DSSS-DBPSK, DQPSK, CCK 802.11g/n: OFDM-BPSK, QPSK, 16QAM, 64QAM
Rated Input Voltage:	DC 9-36V, Typical Voltage: DC 12V
Serial Number:	2VH2-1(for Radiated Emissions Test) 2VH2-2(for RF Conducted Test)
EUT Received Date:	2024/12/3
EUT Received Status:	Good

1.2 Accessory Information

Accessory Description	Manufacturer	Model	Parameters
Control Terminal	FJDynamics	AT2 Max	Power Supply: 9~36VDC
GNSS Receiver	FJDynamics	/	Operating Voltage: 9~36VDC
Electric Steering Wheel	FJDynamics	/	Power Supply: 12VDC or 24VDC
Power Wiring Harness (With Switch Key)	FJDynamics	/	Unshielded without ferrite, 4.5Meter
Main Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.0Meter
Spare Main Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.5Meter
GNSS Receiver Wiring Harness	FJDynamics	/	Unshielded without ferrite, 4.0Meter
Attitude Sensor (With Wiring Harness)	FJDynamics	/	Unshielded without ferrite, 3.0Meter
Attitude Sensor Extension Wiring Harness	FJDynamics	/	Unshielded without ferrite, 2.0Meter
Radio Antenna (With Coaxial Harness)	FJDynamics	/	Unshielded without ferrite, 4.0Meter

1.3 Antenna Information Detail▲

Antenna	Antenna Type	input impedance (Ohm)	Frequency Range	Antenna Gain
Antenna 1(Chain 0)	FPC	FPC 50		4.9dBi
Antenna 2(Chain 1)	1) FPC 50 2.4-2.5GHz 6.3dBi			
The design of compliance with §15.203:				
Unit uses a permanently attached antenna.				
Unit uses a unique coupling to the intentional radiator.				
Unit was professionally installed, and installer shall be responsible for verifying that the correct				

1.4 Equipment Modifications

No modifications are made to the EUT during all test items.

antenna is employed with the unit.

2. SUMMARY OF TEST RESULTS

Standard(s) Section	Test Items	Result
§15.207(a)	AC Line Conducted Emissions	Not Applicable
§15.205, §15.209, §15.247(d)	Radiated Spurious Emissions	Compliant
§15.247 (a)(2)	Minimum 6 dB Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.203	Antenna Requirement	Compliant

Not Applicable: The EUT is a vehicle-mounted device, not applicable for this test item.

Note 1: For Radiated Spurious Emissions 9kHz~ 1GHz and 18GHz~25GHz, the maximum output power mode and channel was tested.

3. DESCRIPTION OF TEST CONFIGURATION

3.1 Operation Frequency Detail

The device supports SISO in all modes, and MIMO 2T2R in 802.11n mode, per pretest, 2T2R mode was the worst mode and reported for 802.11n mode.

For 802.11b/g/n ht20:

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 802.11n ht40:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	7	2442
4	2427	8	2447
5	2432	9	2452
6	2437	/	/

Note: The above frequencies in bold were performed the test.

3.2 EUT Operation Condition

The EUT was configured for testing in Engineering Mode, which was provided by the manufacturer.

The EUT configuration as below:

EUT Exercise Software: ADB exe

EUI Exercise Software. ADD.cxc					
The software was provided by manufacturer. The maximum power was configured as below, that was provided by the manufacturer \(\) :					
Power Level Setting					
Test Modes	Data Rate	Lowest Channel	Middle Channel	Highest Channel	
802.11b	1Mbps	default	default	default	
802.11g	6Mbps default default default				
802.11n ht20	MCS0	default	default	default	
802.11n ht40	MCS0	default	default	default	

The above are the worst-case data rates, which are determined for each mode based upon investigations by measuring the average power and PSD across all data rates, bandwidths, and modulations.

3.3 Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DK	DC Source	DK-60V50A	T-08-EE140
SANDisk	USB Flash Disk	16G	BL201026115 B
FJDynamics	Wired Camera	FJ-WC01	Unknown

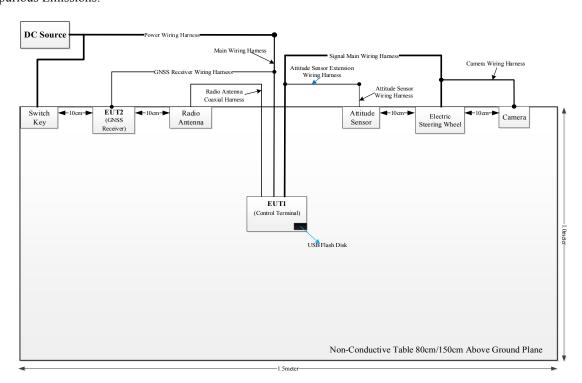
Report Template Version: FCC-Wi-Fi-V1.2

3.4 Support Cable List and Details

Cable Description	Shielding Cable	Ferrite Core	Length (m)	From Port	То
Power Wiring Harness (With Switch Key)	No	No	4.5	DC Source	Main Wiring Harness
Main Wiring Harness	No	No	2	Main Wiring Harness	EUT1 (Control Terminal)
Main Wiring Harness	No	No	2.0	Main wiring Harness	GNSS Receiver Wiring Harness
GNSS Receiver Wiring Harness	No	No	4	GNSS Receiver Wiring Harness	EUT2 (GNSS Receiver)
Spare Main Wiring Harness	No	No	2.5	EUT1 (Control Terminal)	Electric Steering Wheel Wiring Harness / Attitude Sensor Extension Wiring Harness / Camera Wiring Harness / Electric Steering Wheel
Attitude Sensor Extension Wiring Harness	No	No	2	Spare Main Wiring Harness	Attitude Sensor Wiring Harness
Attitude Sensor Wiring Harness	No	No	3	Attitude Sensor Extension Wiring Harness	Attitude Sensor
Camera Wiring Harness	No	No	2	Spare Main Wiring Harness	Wired Camera
Radio Antenna Coaxial Harness	Yes	No	4.5	EUT1 (Control Terminal)	Radio Antenna

3.5 Block Diagram of Test Setup

Spurious Emissions:



3.6 Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.12, Pulong East 1st Road, Tangxia Town, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 829273, the FCC Designation No.: CN5044.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0022.

3.7 Measurement Uncertainty

Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
RF output power, conducted	±0.61dB
Power Spectral Density, conducted	±0.61 dB
Unwanted Emissions, radiated	9kHz~30MHz: 3.3dB, 30MHz~200MHz: 4.55 dB,200MHz~1GHz: 5.92 dB,1GHz~6GHz: 4.98 dB, 6GHz~18GHz: 5.89 dB, 18GHz~26.5GHz:5.47 dB, 26.5GHz~40GHz:5.63 dB
Unwanted Emissions, conducted	±2.47 dB
Temperature	±1°C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.11 dB (150 kHz to 30 MHz)

4. REQUIREMENTS AND TEST PROCEDURES

4.1 AC Line Conducted Emissions

4.1.1 Applicable Standard

FCC§15.207(a).

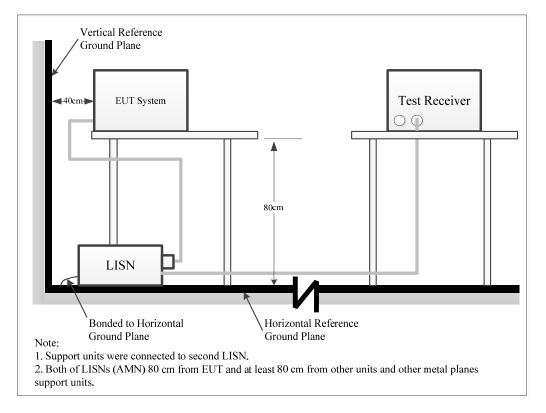
(a) Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

	Conducted limit (dBµV)	
Frequency of emission (MHz)	Quasi-peak	Average
	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

^{*}Decreases with the logarithm of the frequency.

- (b) The limit shown in paragraph (a) of this section shall not apply to carrier current systems operating as intentional radiators on frequencies below 30 MHz. In lieu thereof, these carrier current systems shall be subject to the following standards:
- (1) For carrier current system containing their fundamental emission within the frequency band 535-1705 kHz and intended to be received using a standard AM broadcast receiver: no limit on conducted emissions.
- (2) For all other carrier current systems: $1000 \,\mu\text{V}$ within the frequency band 535-1705 kHz, as measured using a 50 $\mu\text{H}/50$ ohms LISN.
- (3) Carrier current systems operating below 30 MHz are also subject to the radiated emission limits in §15.205, §15.209, §15.221,§15.223, or §15.227, as appropriate.
- (c) Measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Devices that include, or make provisions for, the use of battery chargers which permit operating while charging, AC adapters or battery eliminators or that connect to the AC power lines indirectly, obtaining their power through another device which is connected to the AC power lines, shall be tested to demonstrate compliance with the conducted limits.

4.1.2 EUT Setup



The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10cm.

The adapter or EUT was connected to the main LISN with a 120 V/60 Hz AC power source.

4.1.3 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30MHz.

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

Frequency Range	IF B/W		
150 kHz – 30 MHz	9 kHz		

4.1.4 Test Procedure

The frequency and amplitude of the six highest ac power-line conducted emissions relative to the limit, measured over all the current-carrying conductors of the EUT power cords, and the operating frequency or frequency to which the EUT is tuned (if appropriate), should be reported, unless such emissions are more than 20 dB below the limit. AC power-line conducted emissions measurements are to be separately carried out only on each of the phase ("hot") line(s) and (if used) on the neutral line(s), but not on the ground[protective earth] line(s). If less than six emission frequencies are within 20 dB of the limit, then the noise level of the measuring instrument at representative frequencies should be reported. The specific conductor of the power-line cord for each of the reported emissions should be identified. Measure the six highest emissions with respect to the limit on each current-carrying conductor of each power cord associated with the EUT (but not the power cords of associated or peripheral equipment that are part of the test configuration). Then, report the six highest emissions with respect to the limit from among all the measurements identifying the frequency and specific current-carrying conductor identified with the emission. The six highest emissions should be reported for each of the current-carrying conductors, or the six highest emissions may be reported over all the current-carrying conductors.

4.1.5 Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Reading + Factor Factor=attenuation caused by cable loss + voltage division factor of AMN

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit - Result

4.1.6 Test Result

Please refer to section 5.1.

4.2 Radiation Spurious Emissions

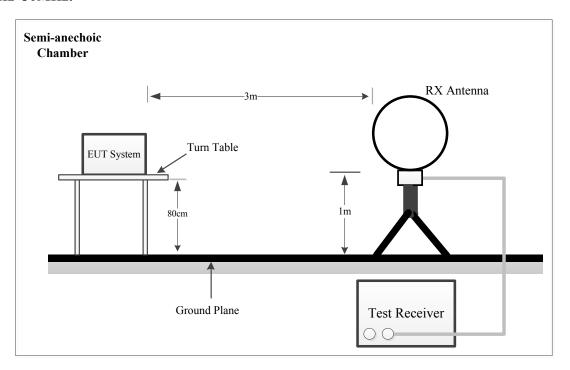
4.2.1 Applicable Standard

FCC §15.247 (d);

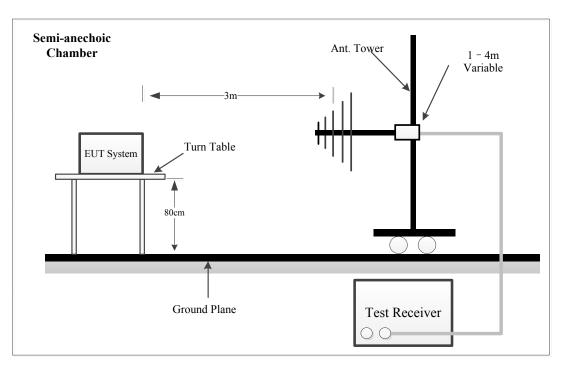
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance 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)).

4.2.2 EUT Setup

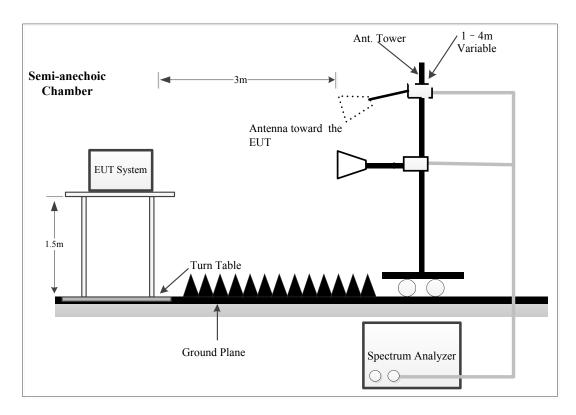
9kHz~30MHz:



30MHz~1GHz:



Above 1GHz:



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

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

The spacing between the peripherals was 10cm.

For 9kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

4.2.3 EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

9kHz-1000MHz:

Frequency Range	Measurement	RBW	Video B/W	IF B/W	Detector
9 kHz – 150 kHz	QP/AV	300Hz	1 kHz	200 Hz	QP/AV
150 kHz – 30 MHz	QP/AV	10 kHz	30 kHz	9 kHz	QP/AV
30MHz – 1000 MHz	PK	100 kHz	300 kHz	/	PK
	QP	/	/	120kHz	QP

1GHz-25GHz:

Pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	PK	Any	1MHz	3 MHz
Avo	DV	>98%	1MHz	5kHz
Ave.	PK	<98%	1MHz	1/T, not less than 5kHz

Final measurement for emission identified during the pre-scan:

Measurement	Detector	Duty cycle	RBW	Video B/W
PK	PK	Any	1MHz	3 MHz
Avo	PK	>98%	1MHz	10 Hz
Ave.		<98%	1MHz	1/T

Note: T is minimum transmission duration

4.2.4 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 9 kHz -1 GHz, except 9-90 kHz, 110-490 kHz, employing an average detector, peak and Average detection modes for frequencies above 1 GHz.

If the maximized peak measured value is under the QP/Average limit by more than 6dB, then it is unnecessary to perform an QP/Average measurement.

4.2.5 Corrected Result& Margin Calculation

The basic equation is as follows:

Result = Reading + Factor Factor= Antenna Factor + Cable Loss- Amplifier Gain

The "Margin" column of the following data tables indicates the degree of compliance within the applicable limit. The equation for margin calculation is as follows:

Margin = Limit - Result

4.2.6 Test Result

Please refer to section 5.2.

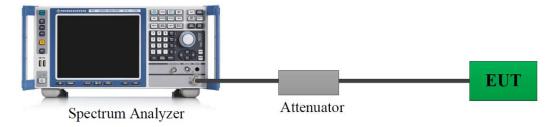
4.3 Minimum 6 dB Emission Bandwidth

4.3.1 Applicable Standard

FCC §15.247 (a)(2)

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.

4.3.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.3.3 Test Procedure

According to ANSI C63.10-2013 Section 11.8

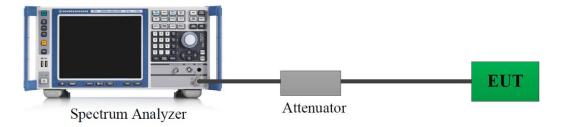
- a) Set RBW = 100 kHz.
- b) Set the video bandwidth (VBW) $\geq 3 \times RBW$.
- c) Detector = Peak.
- d) Trace mode = \max hold.
- e) Sweep = auto couple.
- f) Allow the trace to stabilize.
- g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.3.4 Test Result

Please refer to section 5.3.

4.4 99% Occupied Bandwidth

4.4.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.4.2 Test Procedure

According to ANSI C63.10-2013 Section 6.9.3

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data maybe reported in addition to the plot(s).

4.4.3 Test Result

Please refer to section 5.4.

4.5 Maximum Conducted Output Power

4.5.1 Applicable Standard

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, compliance 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.

4.5.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.5.3 Test Procedure

According to ANSI C63.10-2013 Section 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.

- a) Set the EUT in transmitting mode.
- b) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to test equipment.
- c) Add a correction factor to the display.
- d) Set the power meter to test peak output power, record the result.

According to ANSI C63.10-2013 Section 11.9.2.3.2

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.

4.5.4 Test Result

Please refer to section 5.5.

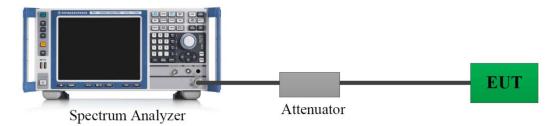
4.6 Maximum Power Spectral Density

4.6.1 Applicable Standard

FCC §15.247 (e)

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.

4.6.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.6.3 Test Procedure

According to ANSI C63.10-2013 Section 11.10.2

- a) Set analyzer center frequency to DTS channel center frequency.
- b) Set the span to 1.5 times the DTS bandwidth.
- c) Set the RBW to $3 \text{ kHz} \le \text{RBW} \le 100 \text{ kHz}$.
- d) Set the VBW \geq [3 · RBW].
- e) Detector = peak.
- f) Sweep time = auto couple.
- g) Trace mode = max hold.
- h) Allow trace to fully stabilize.
- i) Use the peak marker function to determine the maximum amplitude level within the RBW.
- j) If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

4.6.4 Test Result

Please refer to section 5.6.

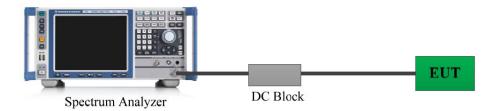
4.7 100 kHz Bandwidth of Frequency Band Edge

4.7.1 Applicable Standard

FCC §15.247 (d);

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 compliance 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)).

4.7.2 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.7.3 Test Procedure

According to ANSI C63.10-2013 Section 11.11

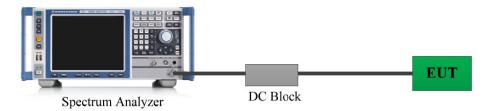
- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW \geq [3 \times RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level. Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) is attenuated by at least the minimum requirements specified in 11.11. Report the three highest emissions relative to the limit.

4.7.4 Test Result

Please refer to section 5.7.

4.8 Duty Cycle

4.8.1 EUT Setup



A short RF cable with low cable loss connected to the EUT antenna port, which was provided by manufacturer. The insert loss of this RF cable/attenuator was offset into the setting of test equipment.

4.8.2 Test Procedure

According to ANSI C63.10-2013 Section 11.6

The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFFtimes of the transmitted signal:

- 1) Set the center frequency of the instrument to the center frequency of the transmission.
- 2) Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value.
- 3) Set $VBW \ge RBW$. Set detector = peak or average.
- 4) The zero-span measurement method shall not be used unless both RBW and VBW are> 50/T and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \le 16.7$ µs.)

4.8.3 Judgment

Report Only. Please refer to section 5.8.

4.9 Antenna Requirement

4.9.1 Applicable Standard

FCC §15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or§15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

4.9.2 Judgment

Compliant. Please refer to the Antenna Information detail in Section 1.3.

5. Test DATA AND RESULTS

5.1 AC Line Conducted Emissions

Not Applicable

Report Template Version: FCC-Wi-Fi-V1.2

5.2 Radiation Spurious Emissions

1)9kHz - 1GHz

Serial Number:	2VH2-1	Test Date:	2024/12/19
Test Site:	Chamber A	Test Mode:	Transmitting
Tester:	Jayce Wang	Test Result:	Pass

Environmental Conditions:						
Temperature: $(^{\circ}\mathbb{C})$	20.9	Relative Humidity: (%)	30	ATM Pressure: (kPa)	102.5	

Test Equipment List and Details:

Test Equipment List and Details.								
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date			
EMCO	Passive Loop Antenna	6512	9706-1206	2023/10/25	2026/10/24			
Sunol Sciences	Hybrid Antenna	JB3	A060611-2	2024/4/16	2027/4/15			
Narda	Coaxial Attenuator	757C-6dB	34010	2024/4/16	2027/4/15			
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2024/7/1	2025/6/30			
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2024/7/1	2025/6/30			
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2024/7/1	2025/6/30			
Sonoma	Amplifier	310N	372193	2024/8/16	2025/8/15			
R&S	EMI Test Receiver	ESR3	102453	2024/8/26	2025/8/25			
Audix	Test Software	E3	191218 V9	N/A	N/A			

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Please refer to the below table and plots.

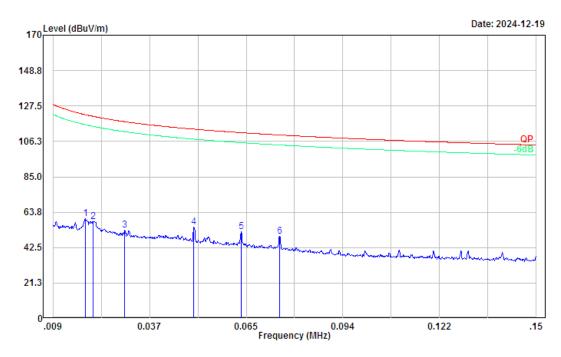
After pre-scan in the X, Y and Z axes of orientation, the worst case is referred to table and plots.

Note: The maximum output power mode and channel: 802.11n ht40 mode Middle Channel was tested.

9kHz~30MHz

Three antenna orientations (parallel, perpendicular, and ground-parallel) were measured, the worst orientations were below:

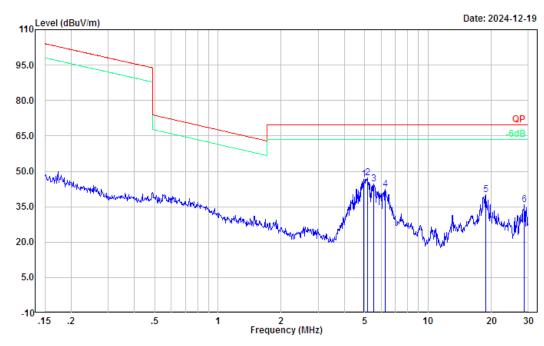
Project No.: 2402A108252E-RF Serial No.: 2VH2-1
Polarization: Parallel Tester: Jayce Wang
Test Mode: Transmitting
: RBW:300Hz,VBW:1kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	0.019	10.40	49.36	59.76	122.22	62.46	Peak
2	0.021	9.31	48.81	58.12	121.23	63.11	Peak
3	0.030	6.22	46.74	52.96	118.06	65.10	Peak
4	0.050	11.22	43.41	54.63	113.60	58.97	Peak
5	0.064	11.02	41.15	52.17	111.48	59.31	Peak
6	0.075	9.95	39.24	49.19	110.09	60.90	Peak

Project No.: 2402A108252E-RF Polarization: Parallel Test Mode: Transmitting : RBW:10kHz,VBW:30kHz

Serial No.: 2VH2-1 Tester: Jayce Wang

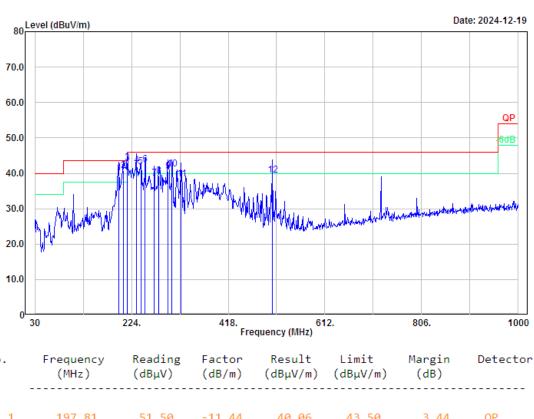


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	4.926	40.82	5.79	46.61	69.54	22.93	Peak
2	5.139	41.76	5.61	47.37	69.54	22.17	Peak
3	5.505	39.40	5.37	44.77	69.54	24.77	Peak
4	6.252	37.46	5.04	42.50	69.54	27.04	Peak
5	18.820	36.50	3.45	39.95	69.54	29.59	Peak
6	28.755	32.44	3.47	35.91	69.54	33.63	Peak

30MHz-1GHz

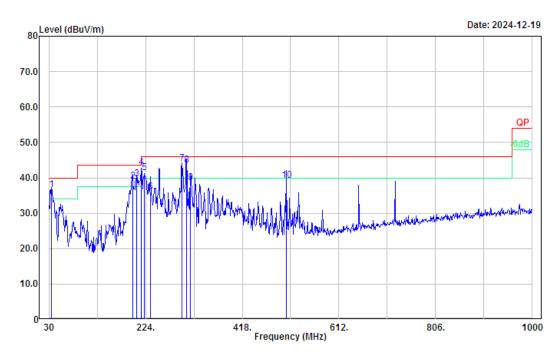
Project No.: 2402A108252E-RF Serial No.: 2VH2-1
Polarization: Horizontal Tester: Jayce Wang
Test Mode: Transmitting

: RBW:100kHz,VBW:300kHz



No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detecto
1	197.81	51.50	-11.44	40.06	43.50	3.44	QP
2	207.51	51.90	-11.09	40.81	43.50	2.69	QР
3	215.27	54.01	-10.98	43.03	43.50	0.47	QP
4	233.70	53.41	-11.18	42.23	46.00	3.77	QP
5	242.43	53.09	-11.28	41.81	46.00	4.19	QP
6	251.16	53.80	-11.23	42.57	46.00	3.43	QP
7	269.59	49.01	-10.51	38.50	46.00	7.50	QP
8	278.32	49.49	-10.29	39.20	46.00	6.80	QP
9	296.75	49.90	-9.41	40.49	46.00	5.51	QP
10	305.48	50.20	-9.07	41.13	46.00	4.87	QР
11	323.91	46.85	-8.45	38.40	46.00	7.60	QP
12	507.24	43.60	-4.20	39.40	46.00	6.60	QР

Project No.: 2402A108252E-RF Serial No.: 2VH2-1 Polarization: Vertical Test Mode: Transmitting : RBW:100kHz,VBW:300kHz Tester: Jayce Wang



No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	35.82	44.30	-7.67	36.63	40.00	3.37	QP
2	197.81	50.50	-11.44	39.06	43.50	4.44	QP
3	206.54	50.71	-11.11	39.60	43.50	3.90	QP
4	215.27	54.00	-10.98	43.02	43.50	0.48	QP
5	222.06	52.40	-10.96	41.44	46.00	4.56	QP
6	233.70	47.11	-11.18	35.93	46.00	10.07	QP
7	296.75	53.40	-9.41	43.99	46.00	2.01	QP
8	306.45	52.69	-9.03	43.66	46.00	2.34	QP
9	314.21	47.31	-8.79	38.52	46.00	7.48	QP
10	507.24	43.40	-4.20	39.20	46.00	6.80	QP

2) 1-25GHz:

Serial Number:	2VH2-1		Test Date:	2025/1/2~2025/1/11			
Test Site:	Chamber B		Test Mode:	Transmitting			
Tester:	Nat Zhou		Test Result:	Pass			
Environmental Conditions:							
Temperature: $(^{\circ}\mathbb{C})$	20.1~21.1	Relative Humidity: (%)	27~37	ATM Pressure: (kPa)	101.2~102.4		

Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
ETS-Lindgren	Horn Antenna	3115	000 527 35	2023/9/7	2026/9/6
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2023/2/22	2026/2/21
Xinhang Macrowave	Coaxial Cable	XH750A-N/J- SMA/J-10M	20231117004 #0001	2024/11/17	2025/11/16
Xinhang Macrowave	Coaxial Cable	XH360A-2.92/J- 2.92/J-6M-A	20231208001 #0001	2024/12/9	2025/12/8
АН	Preamplifier	PAM-0118P	469	2024/4/15	2025/4/14
АН	Preamplifier	PAM-1840VH	191	2024/9/5	2025/9/4
R&S	Spectrum Analyzer	FSV40	101944	2024/9/6	2025/9/5
Audix	Test Software	E3	191218 V9	N/A	N/A
Decentest	Multiplex Switch Test Control Set & Filter Switch Unit	DT7220SCU & DT7220FCU	DC79902 & DC79905	2024/8/27	2025/8/26

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

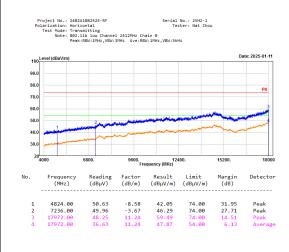
After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

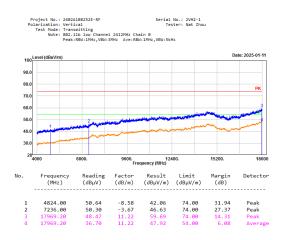
Test Plots for 1GHz ~18GHz:

Chain 0:

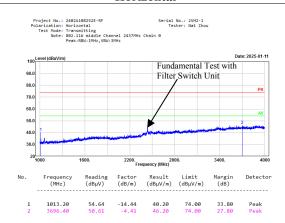


No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
1	2126.80	54.60	-10.54	44.06	74.00	29.94	Peak
2	3902.80	50.29	-3.63	46.66	74.00	27.34	Peak

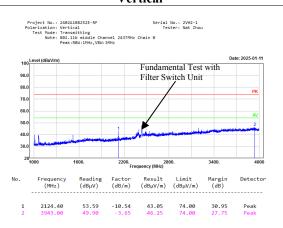


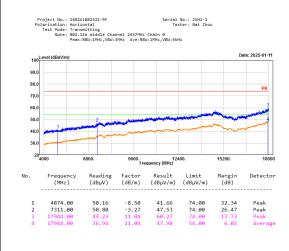


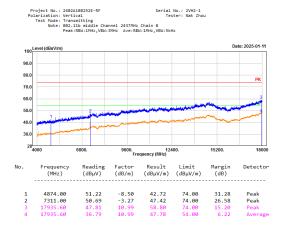
802.11b, Chain 0, Middle Channel, 2437MHz, Horizontal



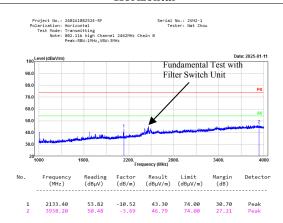
802.11b, Chain 0, Middle Channel, 2437MHz, Vertical



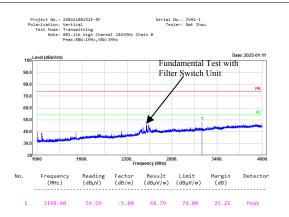




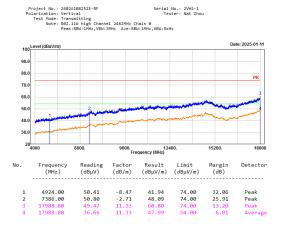
802.11b, Chain 0, High Channel, 2462MHz, Horizontal



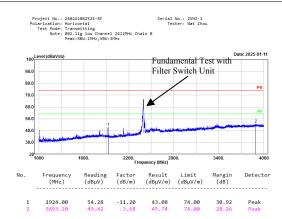
802.11b, Chain 0, High Channel, 2462MHz, Vertical



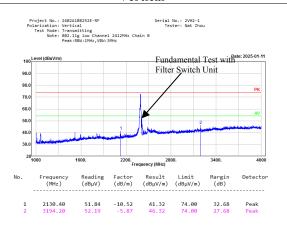


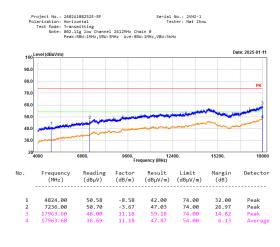


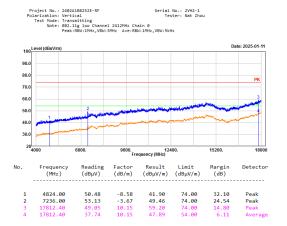
802.11g, Chain 0, Low Channel, 2412MHz, Horizontal



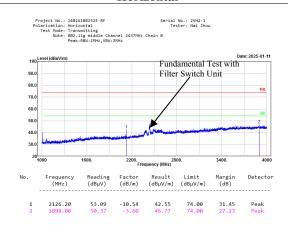
802.11g, Chain 0, Low Channel, 2412MHz, Vertical



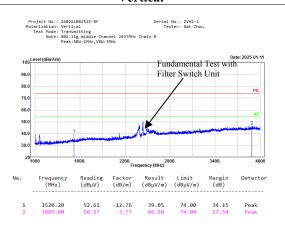


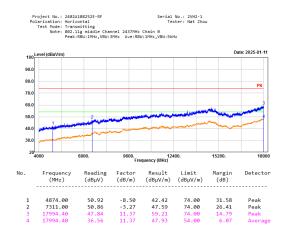


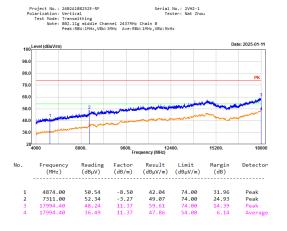
802.11g, Chain 0, Middle Channel, 2437MHz, Horizontal



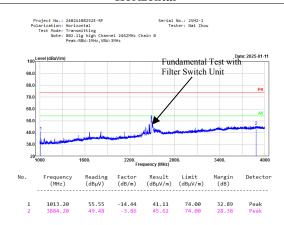
802.11g, Chain 0, Middle Channel, 2437MHz, Vertical



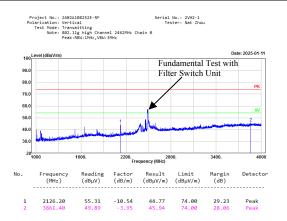


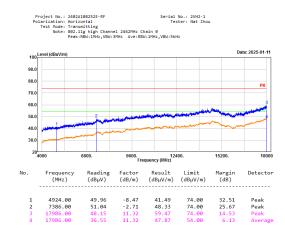


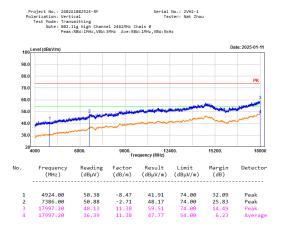
802.11g, Chain 0, High Channel, 2462MHz, Horizontal



802.11g, Chain 0, High Channel, 2462MHz, Vertical

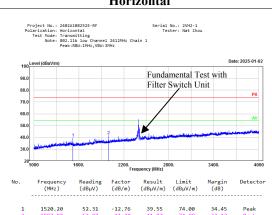




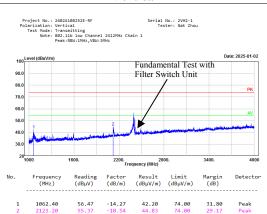


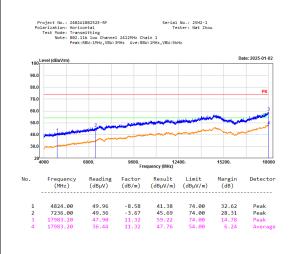
Chain 1:

802.11b, Chain 1, Low Channel, 2412MHz, Horizontal



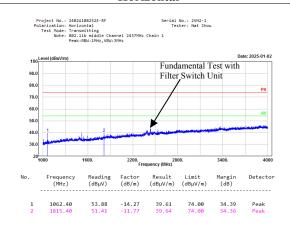
802.11b, Chain 1, Low Channel, 2412MHz, Vertical



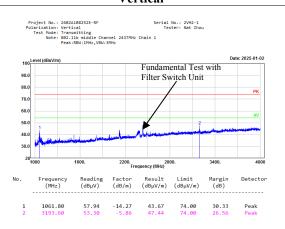


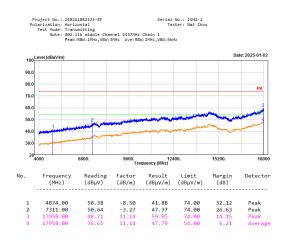


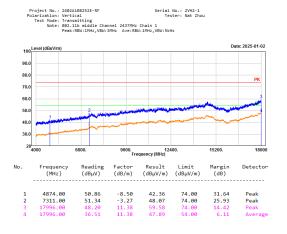
802.11b, Chain 1, Middle Channel, 2437MHz, Horizontal



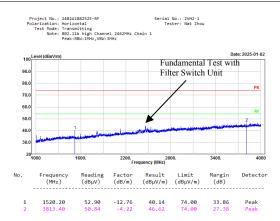
802.11b, Chain 1, Middle Channel, 2437MHz, Vertical



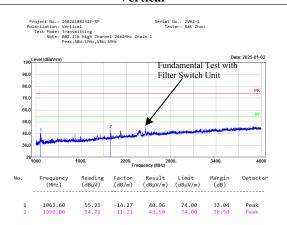


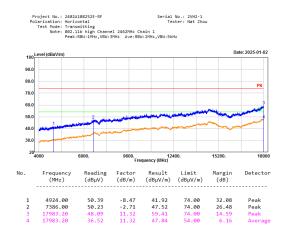


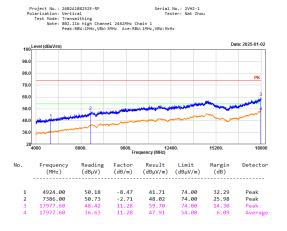
802.11b, Chain 1, High Channel, 2462MHz, Horizontal



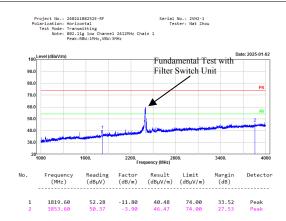
802.11b, Chain 1, High Channel, 2462MHz, Vertical



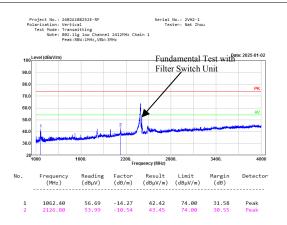


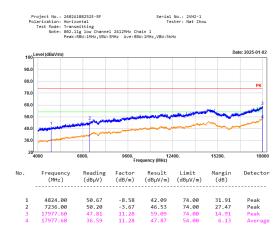


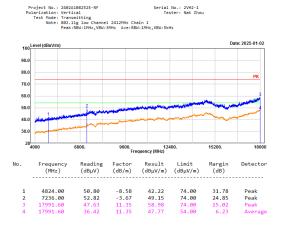
802.11g, Chain 1, Low Channel, 2412MHz, Horizontal



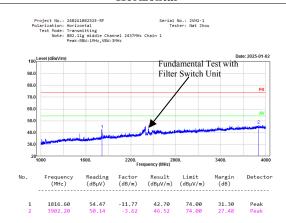
802.11g, Chain 1, Low Channel, 2412MHz, Vertical



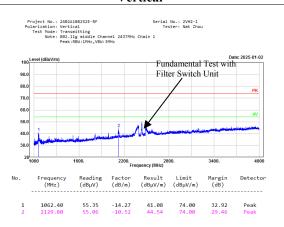


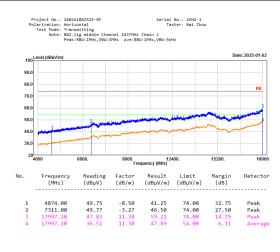


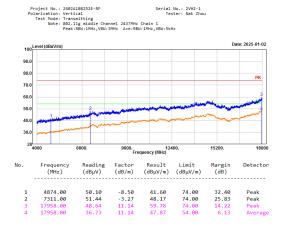
802.11g, Chain 1, Middle Channel, 2437MHz, Horizontal



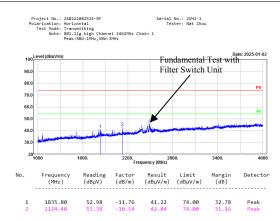
802.11g, Chain 1, Middle Channel, 2437MHz, Vertical



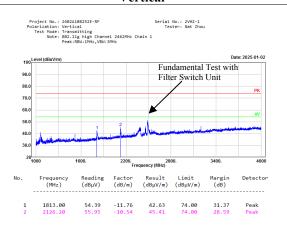


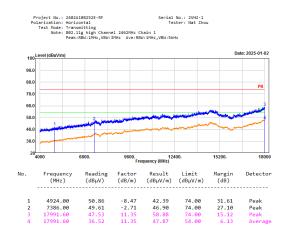


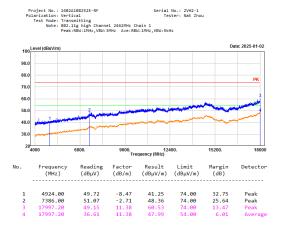
802.11g, Chain 1, High Channel, 2462MHz, Horizontal



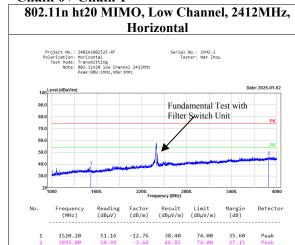
802.11g, Chain 1, High Channel, 2462MHz, Vertical



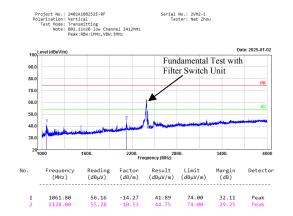


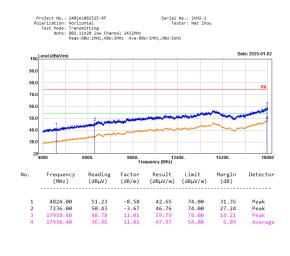


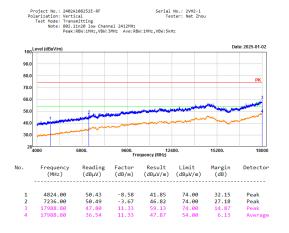
Chain 0+ Chain 1



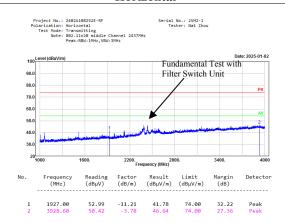
802.11n ht20 MIMO, Low Channel, 2412MHz, Vertical



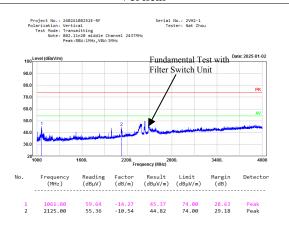


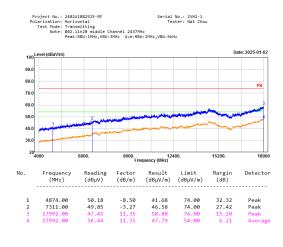


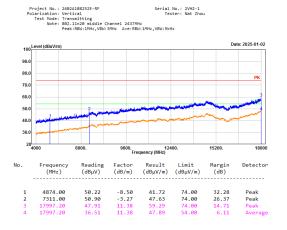
802.11n ht20 MIMO, Middle Channel, 2437MHz, Horizontal



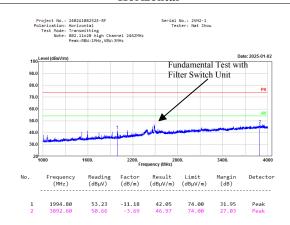
802.11n ht20 MIMO, Middle Channel, 2437MHz, Vertical



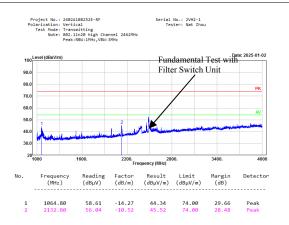


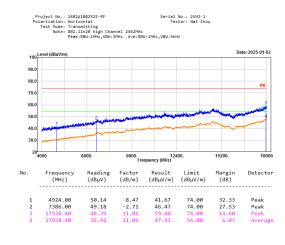


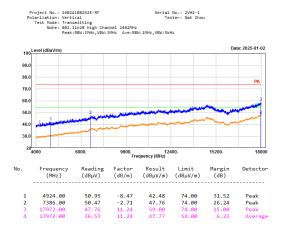
802.11n ht20 MIMO, High Channel, 2462MHz, Horizontal



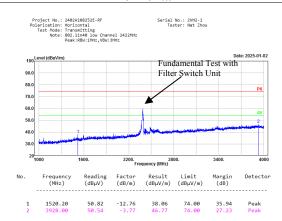
802.11n ht20 MIMO, High Channel, 2462MHz, Vertical



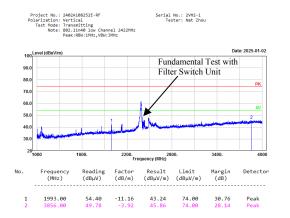


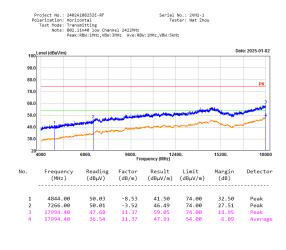


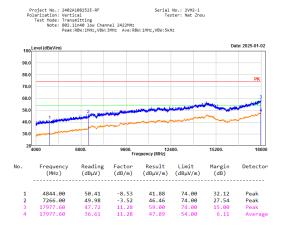
802.11n ht40 MIMO, Low Channel, 2422MHz, Horizontal



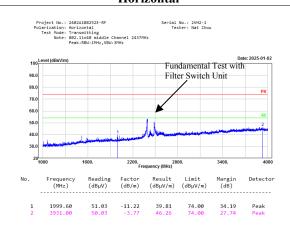
802.11n ht40 MIMO, Low Channel, 2422MHz, Vertical



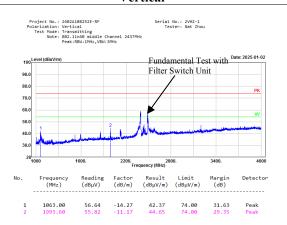


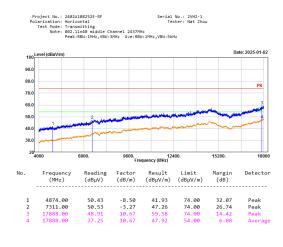


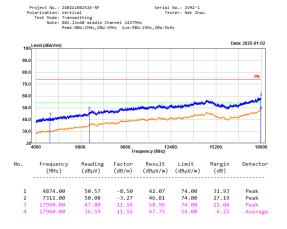
802.11n ht40 MIMO, Middle Channel, 2437MHz, Horizontal



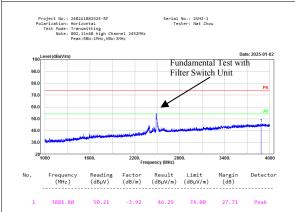
802.11n ht40 MIMO, Middle Channel, 2437MHz, Vertical



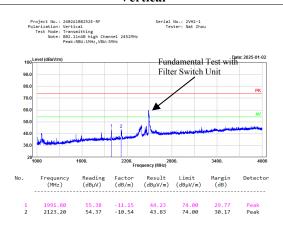




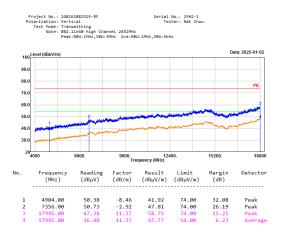
802.11n ht40 MIMO, High Channel, 2452MHz, Horizontal



802.11n ht40 MIMO, High Channel, 2452MHz, Vertical

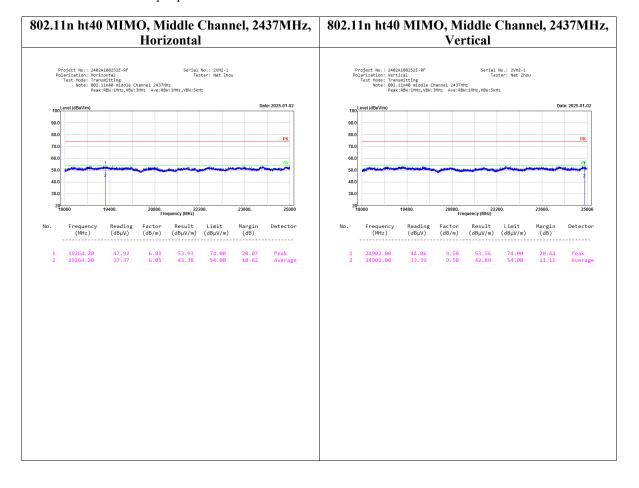






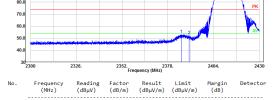
Test plots for 18GHz~25GHz:

Note: The maximum output power mode and channel: 802.11n ht40 middle channel was tested.

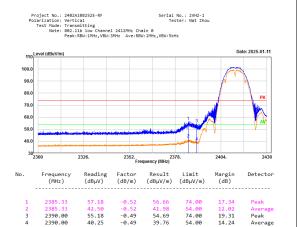


Test plots for Bandedge:

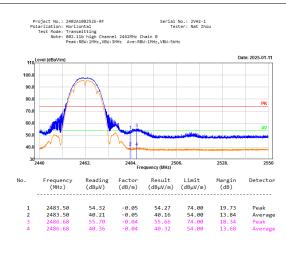
802.11b, Chain 0, Low Channel, Bandedge, Horizontal Project No.: 2402A168252E-RF Serial No.: 2VH2-1 Tester: Nat Zhou Note: 8802.11b low Channel 24129Mt Chain 0 Peak: RBM: 13Mt, VBM: 3MHz Tol. Lovel (UBuVim) Date: 2025-01-11



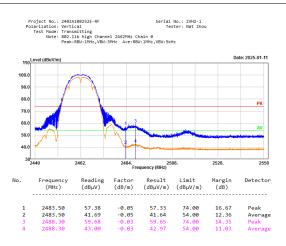
802.11b, Chain 0, Low Channel, Bandedge, Vertical



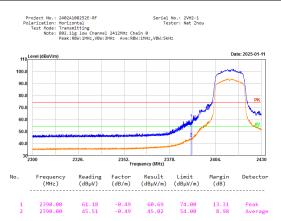
802.11b, Chain 0, High Channel, Bandedge, Horizontal



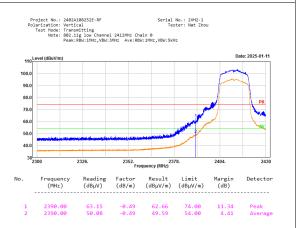
802.11b, Chain 0, High Channel, Bandedge, Vertical



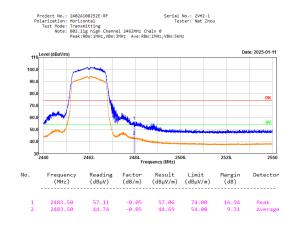
802.11g, Chain 0, Low Channel, Bandedge, Horizontal



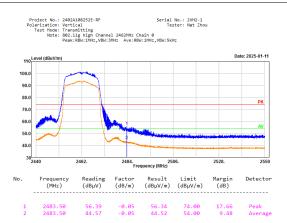
802.11g, Chain 0, Low Channel, Bandedge, Vertical



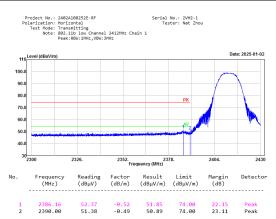
802.11g, Chain 0, High Channel, Bandedge, Horizontal



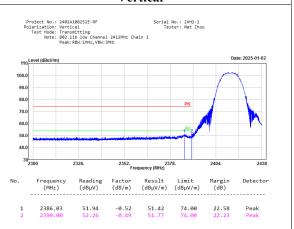
802.11g, Chain 0, High Channel, Bandedge, Vertical



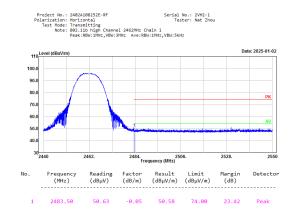
802.11b, Chain 1, Low Channel, Bandedge, Horizontal



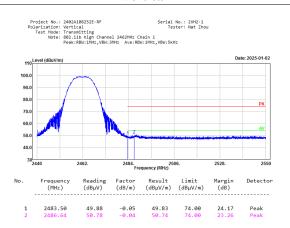
802.11b, Chain 1, Low Channel, Bandedge, Vertical



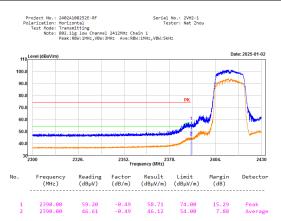
802.11b, Chain 1, High Channel, Bandedge, Horizontal



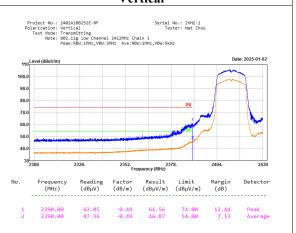
802.11b, Chain 1, High Channel, Bandedge, Vertical



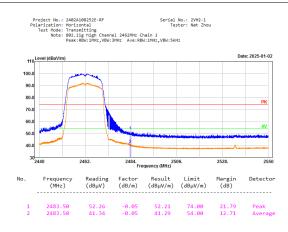
802.11g, Chain 1, Low Channel, Bandedge, Horizontal



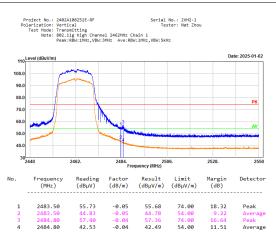
802.11g, Chain 1, Low Channel, Bandedge, Vertical



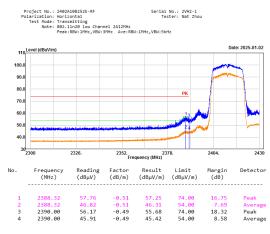
802.11g, Chain 1, High Channel, Bandedge, Horizontal



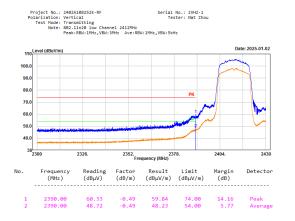
802.11g, Chain 1, High Channel, Bandedge, Vertical



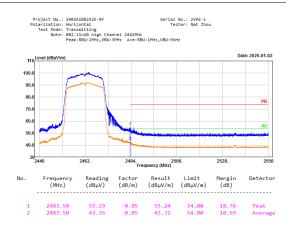
802.11n ht20 MIMO, Low Channel, Bandedge, Horizontal



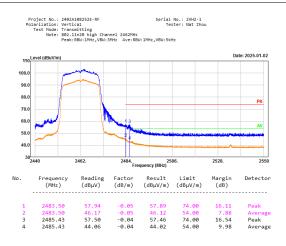
802.11n ht20 MIMO, Low Channel, Bandedge, Vertical



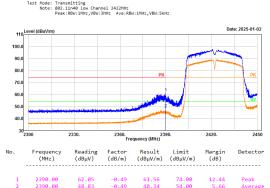
802.11n ht20 MIMO, High Channel, Bandedge, Horizontal



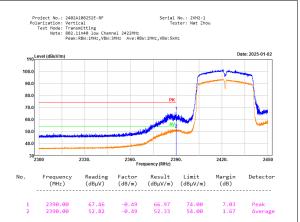
802.11n ht20 MIMO, High Channel, Bandedge, Vertical



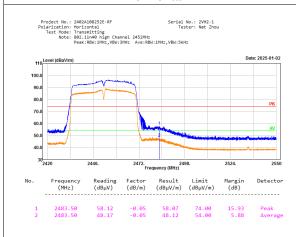
802.11n ht40 MIMO, Low Channel, Bandedge, Horizontal Project No.: 2402A180252E-RF Polarization: Norizontal Serial No.: 2442-1 Tester: Nat Zhou Tester: Nat Zhou



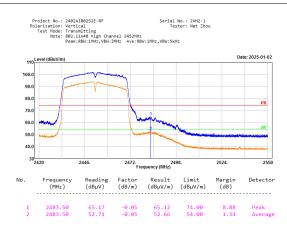
802.11n ht40 MIMO, Low Channel, Bandedge, Vertical



802.11n ht40 MIMO, High Channel, Bandedge, Horizontal



802.11n ht40 MIMO, High Channel, Bandedge, Vertical



5.3 6dB Emission Bandwidth

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	Pass

Environmental Conditions:

Temperature:		Relative		ATM	
(9C).	23.8	Humidity:	41	Pressure:	101.7
(C):		(%)		(kPa)	

Test Equipment List and Details:

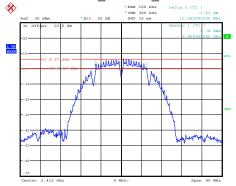
Manufacturer	Description	Model	Serial	Calibration	Calibration
Manufacturer	Description	Model	Number	Date Due Date	Due Date
R&S	Spectrum Analyzer	FSU 26	200445	2024/04/01	2025/03/31
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK- 6G-10dB	F-08- EM509	2024/06/07	2025/06/06

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

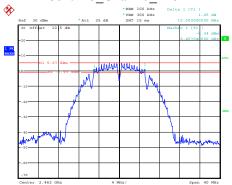
Test Modes	Test Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (MHz)
	2412	10.08	0.5
802.11b	2437	10.00	0.5
	2462	10.00	0.5
	2412	15.28	0.5
802.11g	2437	15.20	0.5
	2462	15.76	0.5
	2412	15.20	0.5
802.11n ht20	2437	14.16	0.5
	2462	15.04	0.5
	2422	34.08	0.5
802.11n ht40	2437	35.36	0.5
	2452	34.08	0.5
Note: Test only was perfor	med at Chain 0.		

802.11b_Chain 0_2412MHz



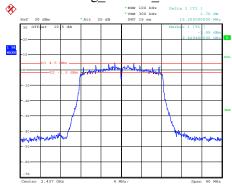
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:07:11

802.11b_Chain 0_2462MHz



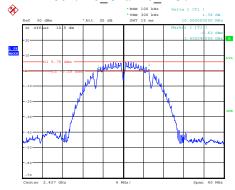
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:13:22

802.11g_Chain 0_2437MHz



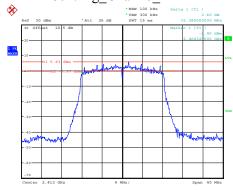
ProjectNo.:2402A108252E-RF Tester:Rini Yar

802.11b_Chain 0_2437MHz



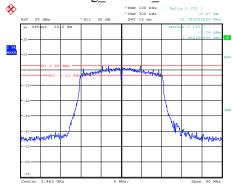
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:11:08

802.11g_Chain 0_2412MHz



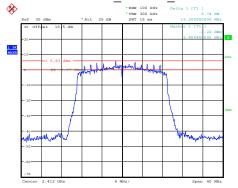
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:15:08

802.11g_Chain 0_2462MHz



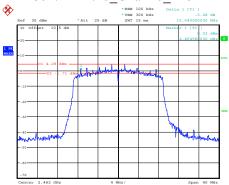
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 0_2412MHz



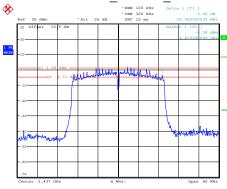
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 0_2462MHz



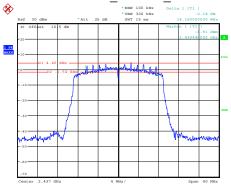
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:23:28

802.11n ht40_Chain 0_2437MHz



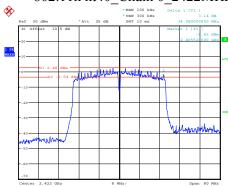
ProjectNo.:2402A108252E-RF Tester:Rini Yar

802.11n ht20_Chain 0_2437MHz



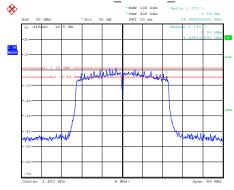
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht40_Chain 0_2422MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:25:18

802.11n ht40_Chain 0_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yar

5.4 99% Occupied Bandwidth

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	/

Environmental Conditions:

(°C): (kPa)

Test Equipment List and Details:

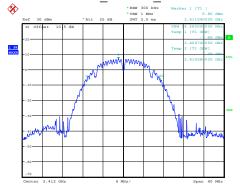
Manufaatuuau	Description	Model	Serial	Calibration	Calibration
Manufacturer	Description	Model	Number	Date	Due Date
R&S	Spectrum Analyzer	FSU 26	200445	2024/04/01	2025/03/31
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK- 6G-10dB	F-08- EM509	2024/06/07	2025/06/06

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

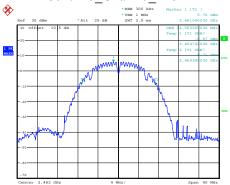
Test Modes	Test Channel	Test Frequency (MHz)	99% Occupied Bandwidth (MHz)
	Lowest	2412	14.56
802.11b	Middle	2437	14.56
	Highest	2462	14.56
	Lowest	2412	16.32
802.11g	Middle	2437	16.32
	Highest	2462	16.32
	Lowest	2412	17.44
802.11n ht20	Middle	2437	17.52
	Highest	2462	17.52
	Lowest	2422	35.84
802.11n ht40	Middle	2437	36.00
	Highest	2452	35.84
Note: Test only was perform	med at Chain 0.		

802.11b_Chain 0_2412MHz



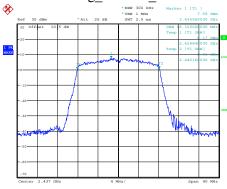
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:07:27

802.11b_Chain 0_2462MHz



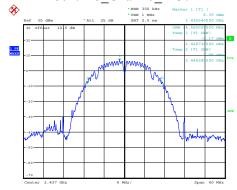
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:13:34

802.11g_Chain 0_2437MHz



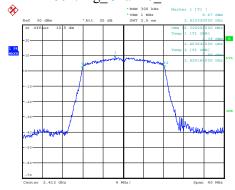
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11b_Chain 0_2437MHz



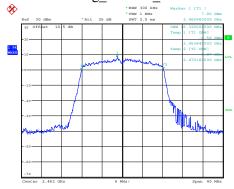
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:11:20

802.11g_Chain 0_2412MHz



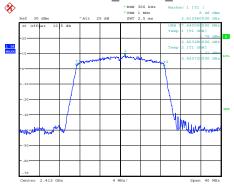
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:15:24

802.11g_Chain 0_2462MHz



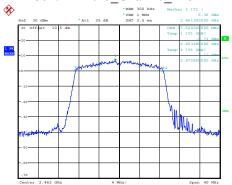
ProjectNo.:2402A108252E-RF Tester:Rini Yar

802.11n ht20_Chain 0_2412MHz



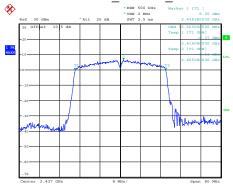
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 0_2462MHz



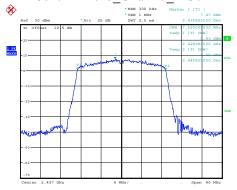
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:23:41

802.11n ht40_Chain 0_2437MHz



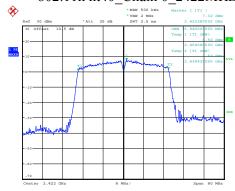
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 0_2437MHz



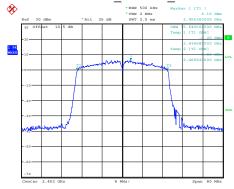
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht40_Chain 0_2422MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:25:31

802.11n ht40_Chain 0_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yar

5.5 Maximum Conducted Output Power

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C): Relative Humidity: (%) 41 ATM Pressure: (kPa)	101.7
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK- 6G-10dB	F-08- EM509	2024/06/07	2025/06/06
Anritsu	Microwave Peak Power Sensor	MA24418A	12618	2024/09/04	2025/09/03

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Test Data.		Maximum	Conducted Peak Out	tnut Power	
Test Modes	Test Frequency	Wiaximum	Maximum Conducted Peak Output Power (dBm)		
	(MHz)	Chain 0	Chain 1	Total	(dBm)
	2412	19.91	21.26	/	29.7
802.11b	2437	20.22	21.23	/	29.7
	2462	19.89	21.16	/	29.7
	2412	23.95	25.76	/	29.7
802.11g	2437	23.12	25.82	/	29.7
	2462	23.01	25.51	/	29.7
	2412	23.71	25.48	27.69	29.7
802.11n ht20	2437	23.53	25.22	27.47	29.7
	2462	23.41	25.34	27.49	29.7
	2422	23.32	25.35	27.46	29.7
802.11n ht40	2437	23.53	25.89	27.88	29.7
	2452	23.01	25.65	27.54	29.7

Note: The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power measurements on IEEE 802.11 devices:

Array Gain = 0 dB (i.e., no array gain) for NANT ≤ 4

Array Gain – 0 ub	(i.c., no array gam)	IUI INAINI <u>></u> 4			
Antenna Gain:	6.30	dBi	Directional gain:	6.30	dBi

Note:

1. Directional gain = 6.3 dBi > 6 dBi. the maximum output power limit should be reduced (6.3 -6) dB= 0.3 dB. 2. for MIMO mode, Total Power (Chain 0+1) = $10*log [(10^{Power Chain 0/10}) + (10^{Power Chain 1/10})]$.

5.6 Power Spectral Density

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	Pass

Environmental Conditions:

Temperature: (°C): Relative Humidity: (%) 41 ATM Pressure: (kPa)	101.7
---	-------

Test Equipment List and Details:

Manufacturer	Description	Model	Serial	Calibration	Calibration
Manufacturer	Description	Model	Number	Date	Due Date
R&S	Spectrum Analyzer	FSU 26	200445	2024/04/01	2025/03/31
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK-6G- 10dB	F-08-EM509	2024/06/07	2025/06/06

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Test Modes	Test Frequency	Maxim	Limit		
	(MHz)	Chain 0	Chain 1	Total	(dBm/3kHz)
	2412	-7.92	-6.54	/	7.7
802.11b	2437	-5.88	-6.35	/	7.7
	2462	-8.77	-6.93	/	7.7
	2412	-8.86	-5.38	/	7.7
802.11g	2437	-9.03	-4.6	/	7.7
	2462	-10.18	-6.92	/	7.7
	2412	-8.93	-6.05	-4.25	4.7
802.11n ht20	2437	-9.5	-6.35	-4.64	4.7
	2462	-9.91	-6.12	-4.60	4.7
	2422	-12.34	-10.6	-8.37	4.7
802.11n ht40	2437	-12.09	-8.59	-6.99	4.7
Nista	2452	-13.13	-9.25	-7.76	4.7

Note:

The device employed Cyclic Delay Diversity (CDD) for 802.11 MIMO transmitting, per KDB 662911 D01 Multiple Transmitter Output v02r01, for power spectral density (PSD) measurements on the devices:

Array Gain = $10 \log (NANT/NSS) dB$

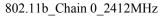
Antenna Gain:	6.30	dBi	Directional Gain:	9.30	dBi

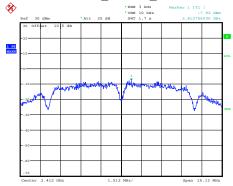
Note:

^{1.} for MIMO mode; Directional gain = 9.3dBi > 6 dBi. the MIMO transmitting maximum power spectral density limit should be reduced (9.3 - 6) dB = 3.3 dB.

^{2.} for SISO mode, the max. antenna gain is greater than 6 dBi, Directional gain = 6.3dBi > 6 dBi. the maximum power spectral density limit for SISO mode should be reduced (6.3 -6) dB= 0.3 dB. 3. for MIMO mode, Total PSD (Chain 0+1) = $10*\log \left[(10^{\text{PSD Chain 0/10}}) + (10^{\text{PSD Chain 1/10}}) \right]$.

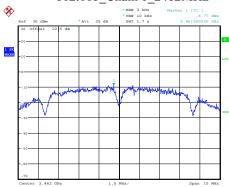
Chain 0





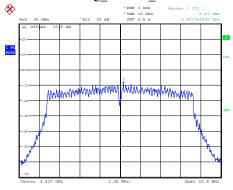
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:07:50

802.11b_Chain 0_2462MHz



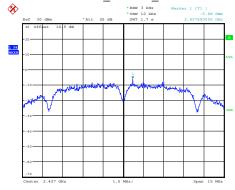
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:13:57

802.11g_Chain 0_2437MHz



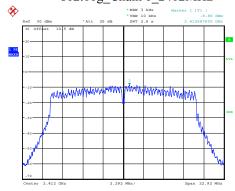
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11b_Chain 0_2437MHz



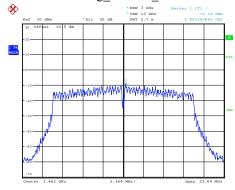
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:11:49

802.11g_Chain 0_2412MHz



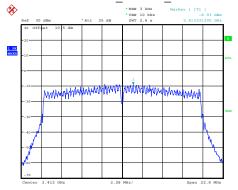
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:15:56

802.11g_Chain 0_2462MHz



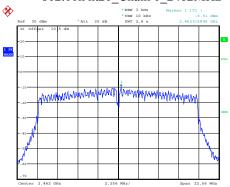
ProjectNo.:2402A108252E-RF Tester:Rini Yar

802.11n ht20_Chain 0_2412MHz



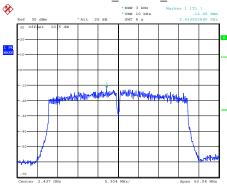
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:20:44

802.11n ht20_Chain 0_2462MHz



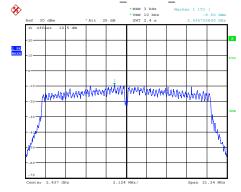
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:24:13

802.11n ht40_Chain 0_2437MHz



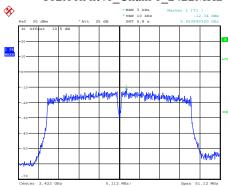
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 0_2437MHz



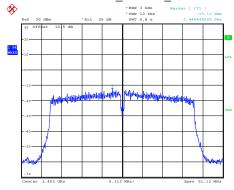
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:22:44

802.11n ht40_Chain 0_2422MHz



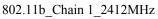
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:26:15

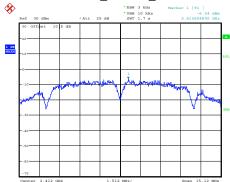
802.11n ht40_Chain 0_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan

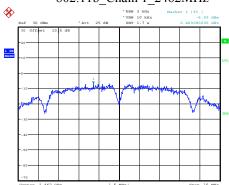
Chain 1





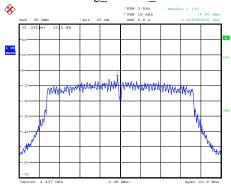
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:41:20

802.11b_Chain 1_2462MHz



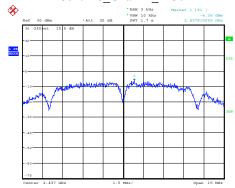
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:43:24

802.11g Chain 1 2437MHz



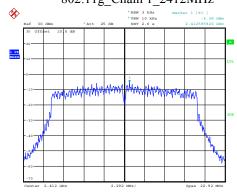
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:45:46

802.11b_Chain 1_2437MHz



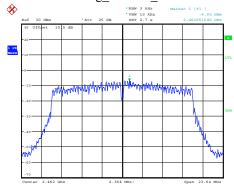
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:42:24

802.11g_Chain 1_2412MHz



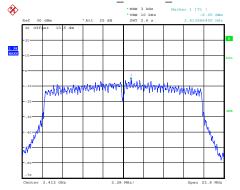
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:44:46

802.11g Chain 1 2462MHz



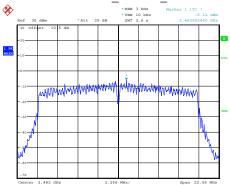
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:46:44

802.11n ht20_Chain 1_2412MHz



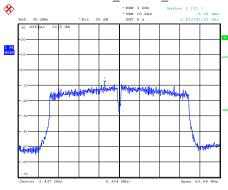
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:48:47

802.11n ht20_Chain 1_2462MHz



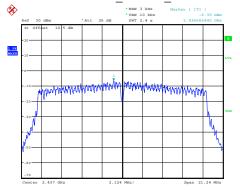
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:50:32

802.11n ht40_Chain 1_2437MHz



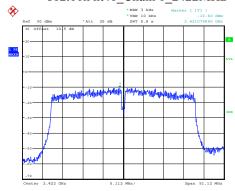
ProjectNo.:2402A108252E-RF Tester:Rini Yan

802.11n ht20_Chain 1_2437MHz



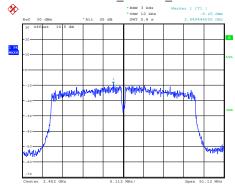
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:49:51

802.11n ht40_Chain 1_2422MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:52:15

802.11n ht40_Chain 1_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan

5.7 100 kHz Bandwidth of Frequency Band Edge

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	Pass

Environmental Conditions:

(°C): (kPa)

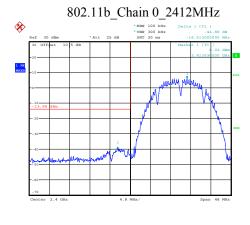
Test Equipment List and Details:

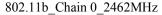
Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU 26	200445	2024/04/01	2025/03/31
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK- 6G-10dB	F-08- EM509	2024/06/07	2025/06/06

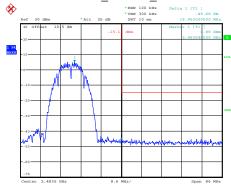
^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

Chain 0

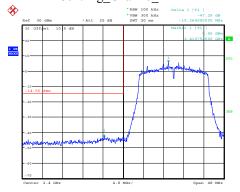






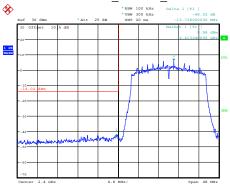
ProjectNo.:2402A108252E-RF Tester:Rini Yar

802.11g_Chain 0_2412MHz



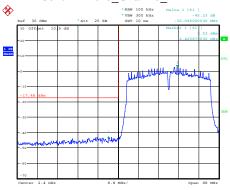
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:16:08

802.11n ht20_Chain 0_2412MHz



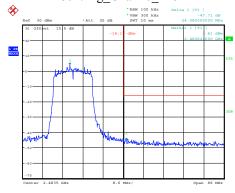
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:20:56

802.11n ht40_Chain 0_2422MHz



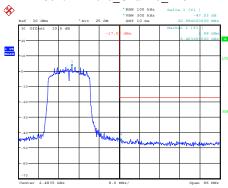
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:26:27

802.11g_Chain 0_2462MHz



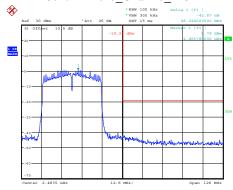
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:19:17

802.11n ht20_Chain 0_2462MHz



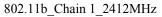
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:24:29

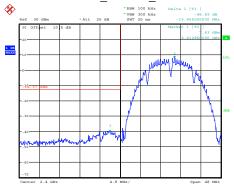
802.11n ht40_Chain 0_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:30:36

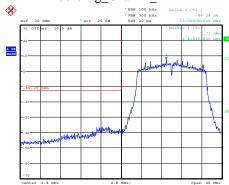
Chain 1





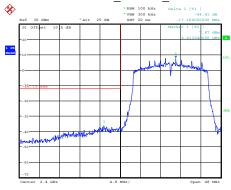
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:41:33

802.11g_Chain 1_2412MHz



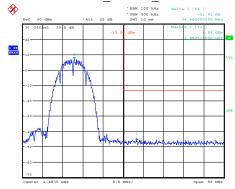
ProjectNo.:2402A108252E-RF Tester:Rini Yar Date: 8.JAN.2025 13:44:59

802.11n ht20 Chain 1 2412MHz



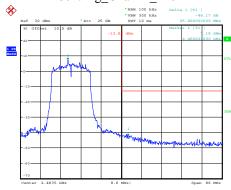
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:49:00

802.11b_Chain 1_2462MHz



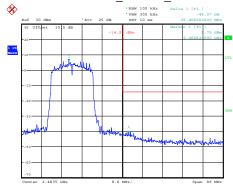
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:43:40

802.11g_Chain 1_2462MHz



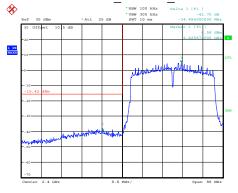
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:46:57

802.11n ht20 Chain 1 2462MHz



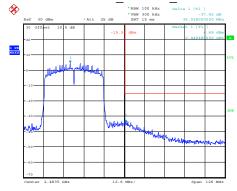
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:50:45

802.11n ht40_Chain 1_2422MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:52:28

802.11n ht40_Chain 1_2452MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:55:22

5.8 Duty Cycle

Test Information:

Serial No.:	2VH2-2	Test Date:	2025/01/08
Test Site:	RF	Test Mode:	Transmitting
Tester:	Rini Yan	Test Result:	/

Environmental Conditions:

(°C): (kPa)

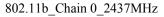
Test Equipment List and Details:

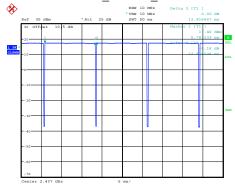
Manufacturer	Description	Model	Serial	Calibration	Calibration
Manufacturer	Description	Model	Number	Date	Due Date
R&S	Spectrum Analyzer	FSU 26	200445	2024/04/01	2025/03/31
Unknown	Coaxial Cable	C-SJSJ-50	C-0060-02	2024/06/01	2025/05/31
Eastsheep	Coaxial Attenuator	2W-SMA-JK- 6G-10dB	F-08- EM509	2024/06/07	2025/06/06

^{*} Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data:

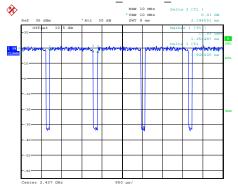
Test Modes	Ton (ms)	Ton+off (ms)	Duty cycle (%)	1/T (Hz)	VBW Setting (kHz)	Duty Factor (dB)
802.11b	12.516	12.917	96.90	80	0.1	0.14
802.11g	2.072	2.289	90.52	483	0.5	0.43
802.11n ht20	1.928	2.145	89.88	519	1	0.46
802.11n ht40	0.952	1.161	82.00	1050	3	0.86
Note: Test only was performed at Chain 0.						





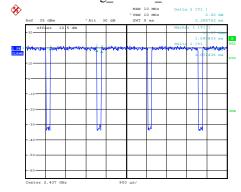
ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 11:57:56

802.11n ht20_Chain 0_2437MHz



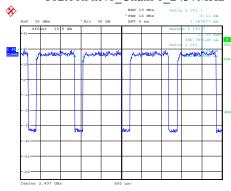
ProjectNo.:2402A108252E-RF Tester:Rini Yas Date: 8.JAN.2025 13:03:57

802.11g_Chain 0_2437MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:01:58

802.11n ht40_Chain 0_2437MHz



ProjectNo.:2402A108252E-RF Tester:Rini Yan Date: 8.JAN.2025 13:05:46

EXHIBIT A - EUT PHOTOGRAPHS

Please refer to the attachment 2402A108252E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2402A108252E-RF-INP EUT INTERNAL PHOTOGRAPHS.

Report Template Version: FCC-Wi-Fi-V1.2 Page 74 of 75

Page 75 of 75

EXHIBIT B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2402A108252E-RF-00C-TSP TEST SETUP PHOTOGRAPHS.

***** END OF REPORT *****

Report Template Version: FCC-Wi-Fi-V1.2