TEST REPORT

Applicant Name:	Shenzhen Youmi Intelligent Technology Co., Ltd.
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Report Number:	2401Y99438E-RFC
FCC ID:	2ATZ4-GA20N2
IC:	26074-GA20N2

Test Standard (s)

FCC PART 15.247; RSS-GEN ISSUE 5, FEBRUARY 2021 AMENDMENT 2;
RSS-247 ISSUE 3, AUGUST 2023

Sample Description

Product Type:	Smart phone
Model No.:	PG4RBG100
Multiple Model(s) No.:	FCC: PG4RB100A
Trade Mark:	UMIDIGI
Date Received:	2024-10-17
Issue Date:	2024-12-05

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Jim Cheng
RF Engineer

Approved By:

Nancy Wang
RF Supervisor

Note: The information marked# is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.
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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401Y99438E-RFC	Original Report	2024-12-05

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

HVIN	G20-615-U4
FVIN	UMIDIGI_G100_V1.0
Product	Smart phone
Tested Model	PG4RBG100
Multiple Model(s) No.	FCC: PG4RB100A
Frequency Range	2412~2462MHz
Maximum Conducted Output Peak Power	15.98dBm
Modulation Technique	DSSS, OFDM
Antenna Specification#	1.38dBi (provided by the applicant)
Voltage Range	DC 5V/9V/12V charging from Adapter or DC 3.89V from battery
Sample serial number	2SY1-4 for Conducted and Radiated Emissions Test 2SY1-1 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: QZ-02002AC00 Input: AC100-240V, 50/60Hz, 0.5A Output: DC 5.0V, 3.0A(15.0W) or DC 9.0V, 2.22A or DC 12.0V, 1.67A(20.0W Max.)
Note: The Multiple models are electrically identical with the test model except for model name and sales channels. Please refer to the declaration letter# for more detail, which was provided by manufacturer.	

Objective

This report is in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209, 15.247 rules and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023 of the Innovation, Science and Economic Development Canada rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices and RSS-GEN Issue 5, February 2021 Amendment 2 and RSS-247 Issue 3, August 2023.

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		109.2kHz(k=2, 95% level of confidence)
RF output power, conducted		0.86dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz~150 kHz	3.63dB(k=2, 95% level of confidence)
	150 kHz ~30MHz	3.66dB(k=2, 95% level of confidence)
Radiated Emissions	0.009MHz~30MHz	3.60dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	5.32dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	5.43dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	5.77dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.73dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.34dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.40dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.64dB(k=2, 95% level of confidence)
Temperature		±1℃
Humidity		±1%
Supply voltages		±0.4%

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

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, 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. : 715558, the FCC Designation No. : CN5045.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0023.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 2.4GHz Wi-Fi mode, total 11 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432	/	/
6	2437	/	/
7	2442	/	/

802.11b, 802.11g and 802.11n-HT20 mode was tested with Channel 1, 6 and 11.
802.11n-HT40 mode was tested with Channel 3, 6 and 9.

EUT Exercise Software

Exercise Software#		N/A		
Mode	Data rate	Power Level#		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	5	5	5
802.11g	6Mbps	5	5	5
802.11n20	MCS0	5	5	5
802.11n40	MCS0	5	5	5
Note: The worst-case data rates are determined to be as follows for each mode based upon inverstigation by measuring the power and PSD across all data rates bandwidths, and modulations.				

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

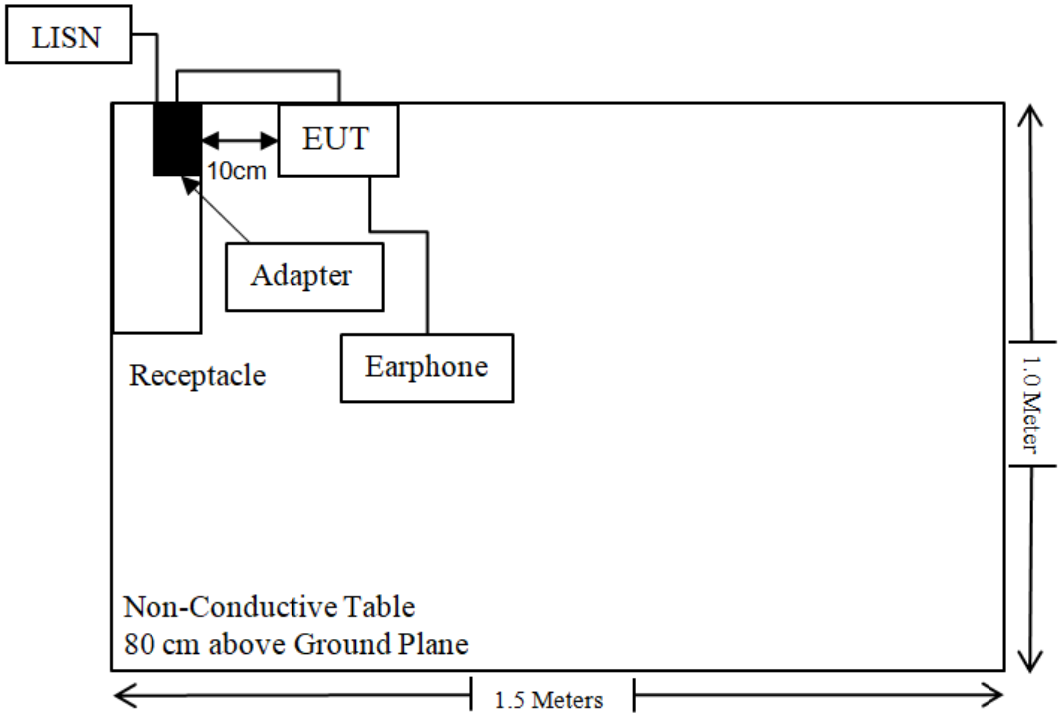
Manufacturer	Description	Model	Serial Number
unknown	Earphone	unknown	unknown
unknown	Receptacle	unknown	unknown

External I/O Cable

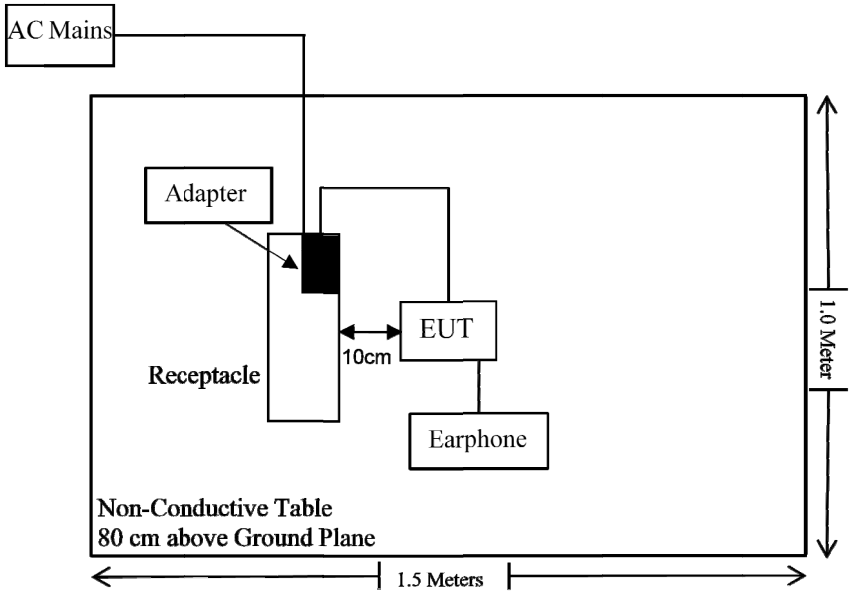
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	0.8	EUT	Adapter
Shielded Un-detachable AC Cable	1.5	Receptacle	LISN/AC Mains
Un-shielding Detachable Audio Cable	1.0	Earphone	EUT

Block Diagram of Test Setup

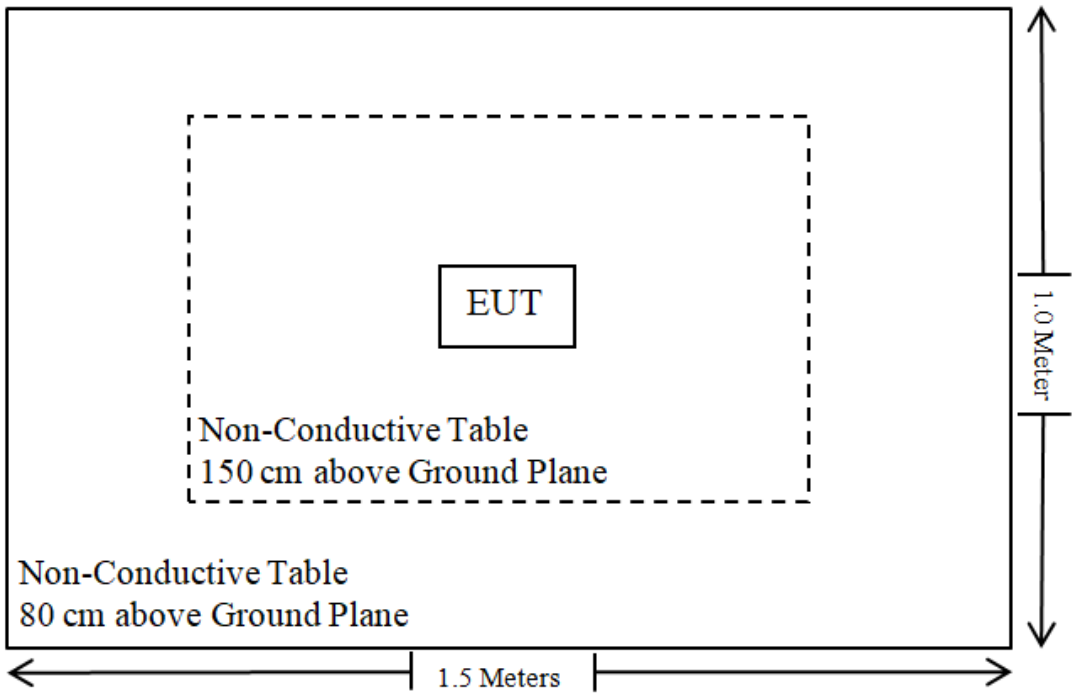
For Conducted Emissions:



For Radiated Emissions below 1GHz:



For Radiated Emissions above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	RSS Rules	Description of Test	Result
§15.203	RSS-Gen §6.8	Antenna Requirement	Compliant
§15.207 (a)	RSS-Gen §8.8	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	RSS-GEN § 8.10 & RSS-247 § 5.5	Spurious Emissions	Compliant
§15.247 (a)(2)	RSS- Gen§6.7 RSS-247 § 5.2 (a)	99% Occupied Bandwidth & 6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	RSS-247 § 5.4(d)	Maximum Conducted Output Power	Compliant
§15.247(d)	RSS-247 § 5.5	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	RSS-247 § 5.2 (b)	Power Spectral Density	Compliant
C63.10 §11.6	C63.10 §11.6	Duty Cycle	/

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESCI	101120	2024/01/16	2025/01/15
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2024/05/21	2025/05/20
Rohde & Schwarz	LISN	ENV216	101613	2024/01/16	2025/01/15
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2024/05/21	2025/05/20
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber Cable 1	F-03-EM236	2024/06/18	2025/06/17
Unknown	Cable	XH500C	J-10M-A	2024/06/18	2025/06/17
BACL	Active Loop Antenna	1313-1A	4031911	2024/05/14	2027/05/13
Unknown	Cable	2Y194	0735	2024/05/21	2025/05/20
Unknown	Cable	PNG214	1354	2024/05/21	2025/05/20
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Rohde&Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2024/06/18	2025/06/17
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	0735	2024/06/18	2025/06/17
Unknown	RF Cable	UFA147	219661	2024/06/18	2025/06/17
Unknown	RF Cable	XH750A-N	J-10M	2024/06/18	2025/06/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	2024/06/18	2025/06/17
A.H.System	Pre-amplifier	PAM-1840VH	190	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2024/06/18	2025/06/17
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
RF Conducted Test					
ANRITSU	Microwave peak power sensor	MA24418A	12622	2024/05/21	2025/05/20
Rohde&Schwarz	Spectrum Analyzer	FSV40-N	102259	2024/01/16	2025/01/15
Unknown	10dB Attenuator	Unknown	F-03-EM190	2024/06/27	2025/06/26

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

REQUIREMENTS AND TEST PROCEDURES

AC Line Conducted Emissions

Applicable Standard

FCC § 15.207 (a) & RSS-GEN §8.8

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μH / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for Compliant with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

Table 4 - AC Power Lines Conducted Emission Limits

Frequency range (MHz)	Conducted limit (dBμV)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56[1]	56 to 46[1]
0.5 – 5	56	46
5 – 30	60	50

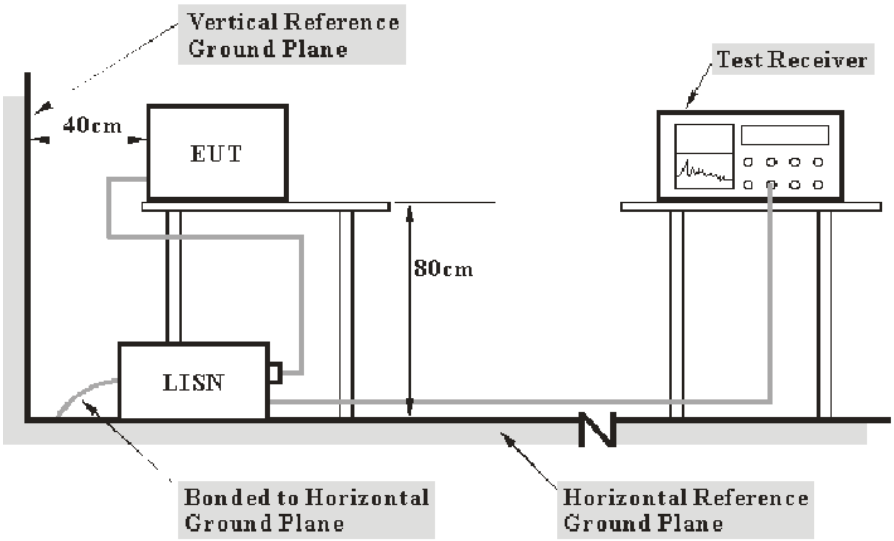
Note 1: The level decreases linearly with the logarithm of the frequency.

For an EUT with a permanent or detachable antenna operating between 150 kHz and 30 MHz, the AC power-line conducted emissions must be measured using the following configurations:

(a) Perform the AC power-line conducted emissions test with the antenna connected to determine Compliant with the limits of table 4 outside the transmitter's fundamental emission band.

(b) Retest with a dummy load instead of the antenna to determine Compliant with the limits of table 4 within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network that simulates the antenna in the fundamental frequency band.

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 & RSS-247/RSS-Gen limits.

The spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

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

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

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

Test Procedure

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

All final data was recorded in the Quasi-peak and average detection mode.

Factor & Over Limit Calculation

The factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

Factor = LISN VDF + Cable Loss

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

Over Limit = level – Limit
Level= reading level+ Factor

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

Spurious Emissions

Applicable Standard

FCC §15.247 (d); §15.209; §15.205;

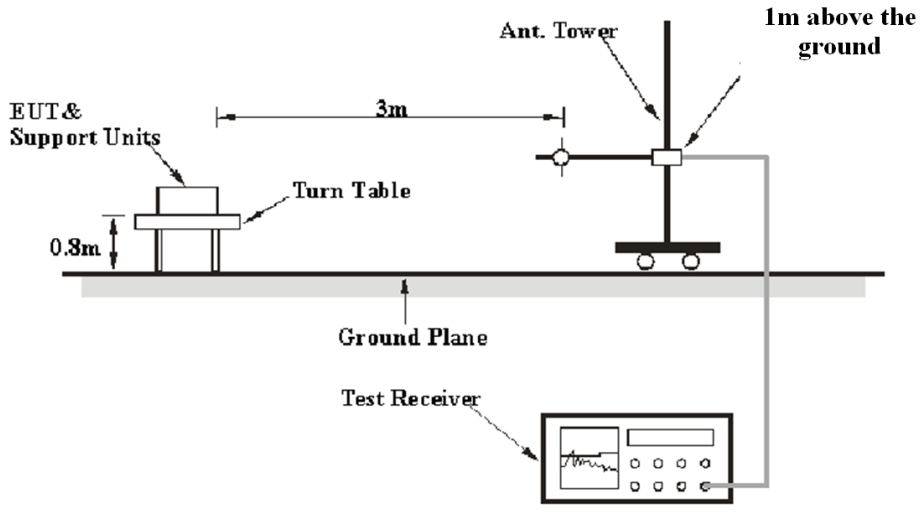
According to RSS-GEN § 8.10 & RSS-247 § 5.5

Restricted frequency bands, identified in table 7, are designated primarily for safety-of-life services (distress calling and certain aeronautical activities), certain satellite downlinks, radio astronomy and some government uses. Except where otherwise indicated, the following conditions related to the restricted frequency bands apply:(a) The transmit frequency, including fundamental components of modulation, of licence-exempt radio apparatus shall not fall within the restricted frequency bands listed in table 7 except for apparatus compliant with RSS-287, Emergency Position Indicating Radio Beacons (EPIRB), Emergency Locator Transmitters (ELT), Personal Locator Beacons (PLB), and Maritime Survivor Locator Devices (MSLD).(b) Unwanted emissions that fall into restricted frequency bands listed in table 7 shall comply with the limits specified in table 5 and table 6.(c) Unwanted emissions that do not fall within the restricted frequency bands listed in table 7 shall comply either with the limits specified in the applicable RSS or with those specified in table 5 and table 6.

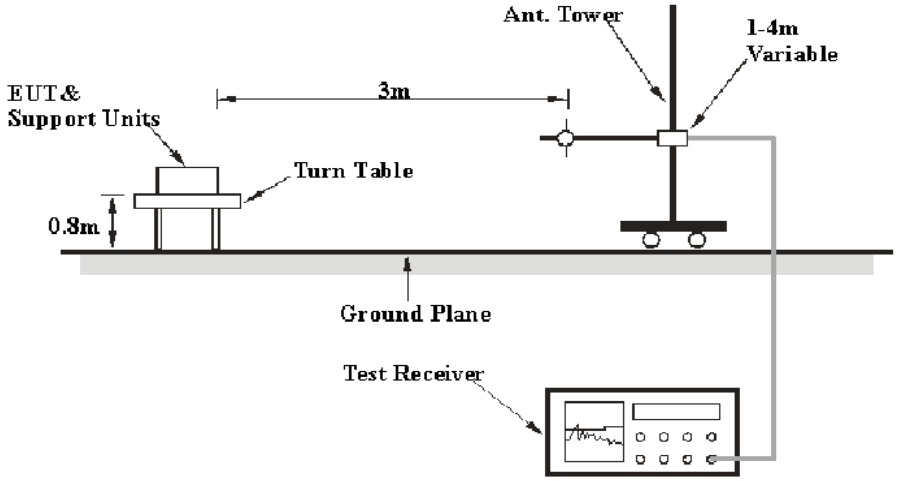
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates Compliant with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

EUT Setup

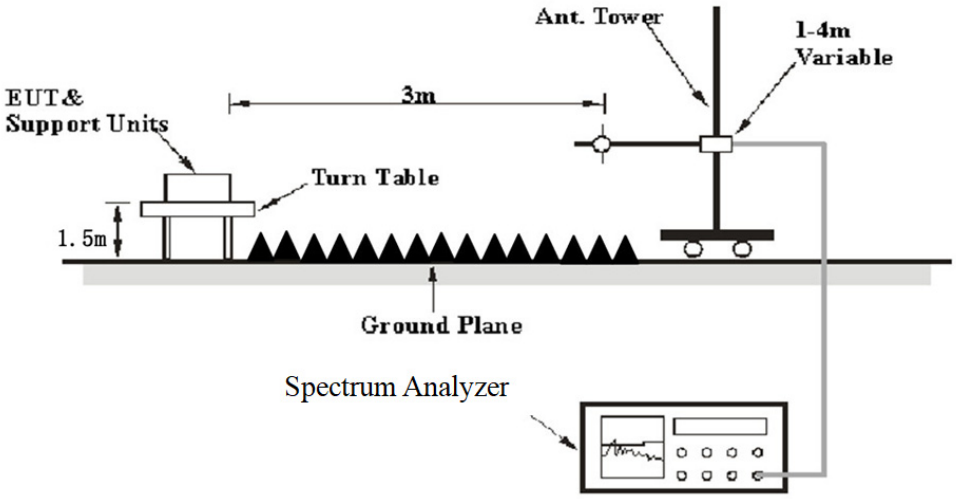
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



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

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

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:

9 kHz-1GHz:

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

1-25GHz:
Pre-scan

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>98%	1MHz	5 kHz
	<98%	1MHz	≥1/Ton, not less than 5 kHz

Final measurement for emission identified during pre-scan

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>98%	1MHz	10 Hz
	<98%	1MHz	≥1/Ton

Note: Ton is minimum transmission duration

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

Test Procedure

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

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

Factor & Over Limit/Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

Factor = Antenna Factor + Cable Loss - Amplifier Gain

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

Over Limit/Margin = Level/Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

99% Occupied Bandwidth & 6 dB Emission Bandwidth

Applicable Standard

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

The occupied bandwidth or the "99% emission bandwidth" is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the "6 dB bandwidth" is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated 6 dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

Test Procedure

Test Method: ANSI C63.10-2013 section 11.8&6.9.3

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

The following conditions shall be observed for measuring the occupied bandwidth and 6 dB bandwidth:
• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

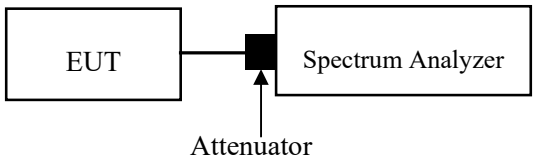
• The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / 6 dB bandwidth if the device is not transmitting continuously.

• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / 6 dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in Compliant with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level 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, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



Maximum Conducted Output Power

Applicable Standard

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

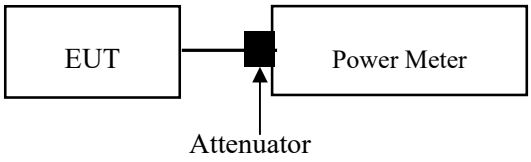
For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

As an alternative to a peak power measurement, Compliant can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling 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 transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

Test Method: ANSI C63.10-2013 section 11.9.1.3 & 11.9.2.3.2

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



Note: A short RF cable with low cable loss connected to the EUT antenna port, which was provided by client or lab, the cable loss was add with offset into test equipment, the total offset consists of attenuator and/or RF cable and/or power splitter loss

100 kHz Bandwidth of Frequency Band Edge

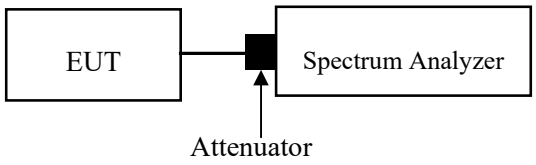
Applicable Standard

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

Test Procedure

Test Method: ANSI C63.10-2013 section 11.11

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



Power Spectral Density

Applicable Standard

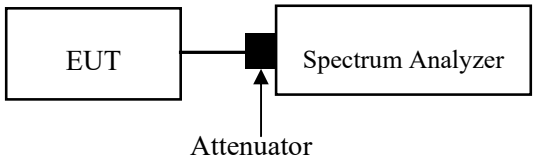
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than8 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 section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

Test Procedure

Test Method: 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 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ [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.



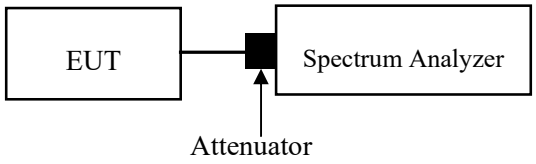
Note: A short RF cable with low cable loss connected to the EUT antenna port, which was provided by client or lab, the cable loss was add with offset into test equipment, the total offset consists of attenuator and/or RF cable and/or power splitter loss

Duty Cycle

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 OFF times of the transmitted signal:
1) Set the center frequency of the instrument to the center frequency of the transmission.
2) Set RBW ≥ OBW if possible; otherwise, set RBW to the largest available value.
3) Set VBW ≥ 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 ≤ 16.7 μs.)



ANTENNA REQUIREMENT

Applicable Standard

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

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

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

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the Compliant of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

For licence-exempt equipment with detachable antennas, the user manual shall also contain the following notice in a conspicuous location:

This radio transmitter [enter the device's ISED certification number] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Immediately following the above notice, the manufacturer shall provide a list of all antenna types which can be used with the transmitter, indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna type.

Antenna Connector Construction

The EUT has an internal antenna arrangement which was permanently attached for Wi-Fi and the antenna gain# is 1.38dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Antenna Gain#	Impedance	Frequency Range
FPC	1.38dBi	50Ω	2.4-2.5GHz

Result: Compliant

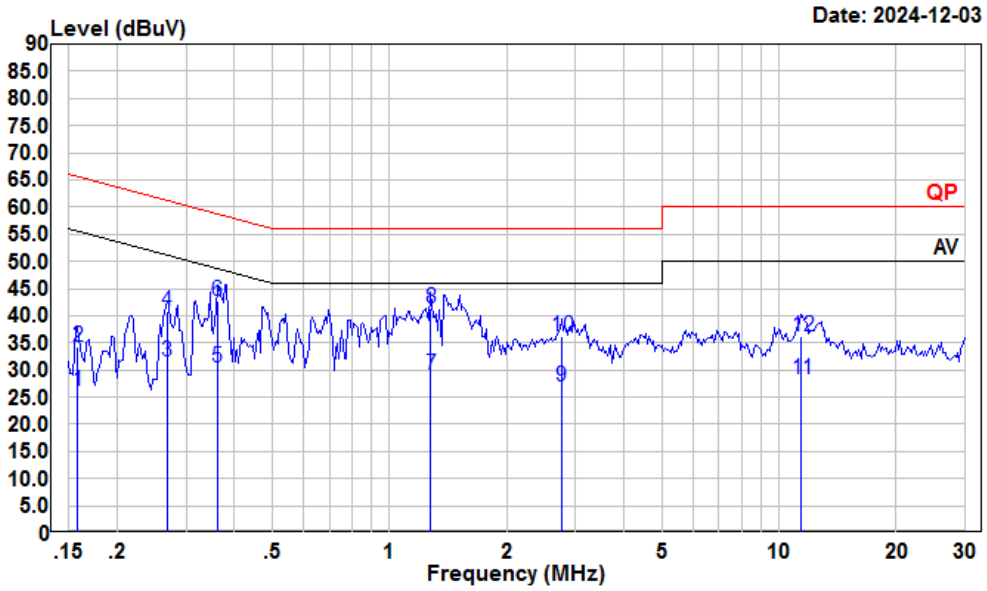
TEST DATA AND RESULTS

AC Line Conducted Emissions

Environmental Conditions

Temperature (℃)	24	**Relative Humidity (%)**	55
ATM Pressure (kPa)	101	**Test engineer**	Macy shi
Test date	2024/12/03		
EUT operation mode	Transmitting(Maximum output power mode, 802.11n-HT20 Mode Middle Channel)		

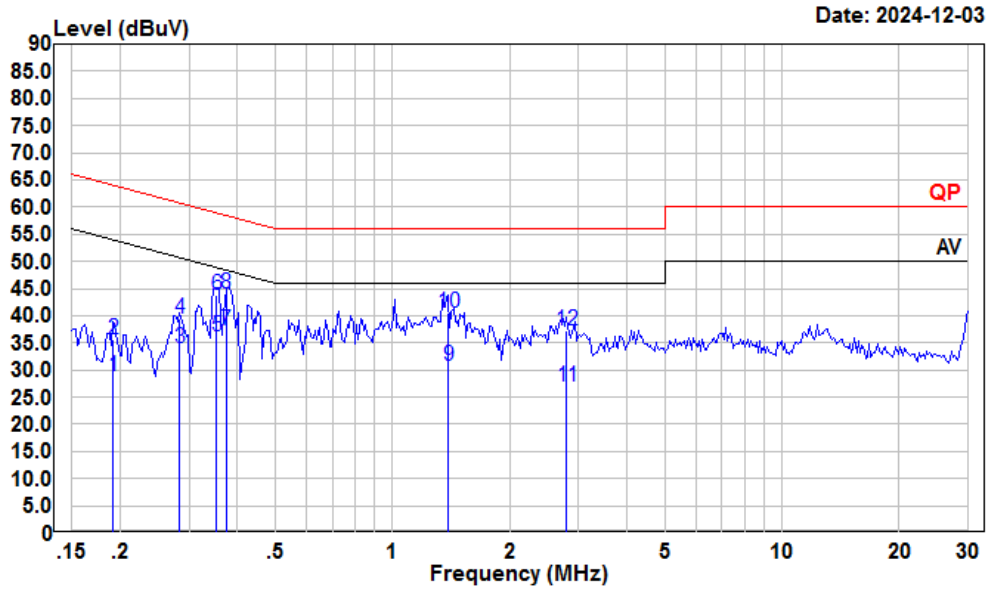
AC 120V 60 Hz, Line



Condition: Line
Project : 2401Y99438E-RF
tester : Macy.shi
Note : Transmitting
Detector : RBW:9KHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.158	5.18	26.18	10.88	10.12	55.56	-29.38	Average
2	0.158	13.34	34.34	10.88	10.12	65.56	-31.22	QP
3	0.269	10.82	31.61	10.70	10.09	51.16	-19.55	Average
4	0.269	20.00	40.79	10.70	10.09	61.16	-20.37	QP
5	0.361	9.76	30.49	10.61	10.12	48.69	-18.20	Average
6	0.361	21.94	42.67	10.61	10.12	58.69	-16.02	QP
7	1.276	8.41	29.03	10.47	10.15	46.00	-16.97	Average
8	1.276	20.83	41.45	10.47	10.15	56.00	-14.55	QP
9	2.765	6.27	26.91	10.46	10.18	46.00	-19.09	Average
10	2.765	15.41	36.05	10.46	10.18	56.00	-19.95	QP
11	11.438	7.38	28.19	10.60	10.21	50.00	-21.81	Average
12	11.438	15.44	36.25	10.60	10.21	60.00	-23.75	QP

AC 120V 60 Hz, Neutral



Condition: Neutral
Project : 2401Y99438E-RF
tester : Macy.shi
Note : Transmitting
Detector : RBW:9KHz VBW:Auto SWT:Auto

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.191	8.19	28.71	10.43	10.09	53.98	-25.27	Average
2	0.191	15.00	35.52	10.43	10.09	63.98	-28.46	QP
3	0.283	13.44	34.05	10.51	10.10	50.72	-16.67	Average
4	0.283	18.77	39.38	10.51	10.10	60.72	-21.34	QP
5	0.354	15.37	36.08	10.59	10.12	48.87	-12.79	Average
6	0.354	23.02	43.73	10.59	10.12	58.87	-15.14	QP
7	0.373	16.49	37.20	10.60	10.11	48.43	-11.23	Average
8	0.373	23.48	44.19	10.60	10.11	58.43	-14.24	QP
9	1.388	9.95	30.76	10.66	10.15	46.00	-15.24	Average
10	1.388	19.66	40.47	10.66	10.15	56.00	-15.53	QP
11	2.794	6.28	26.86	10.40	10.18	46.00	-19.14	Average
12	2.794	16.66	37.24	10.40	10.18	56.00	-18.76	QP

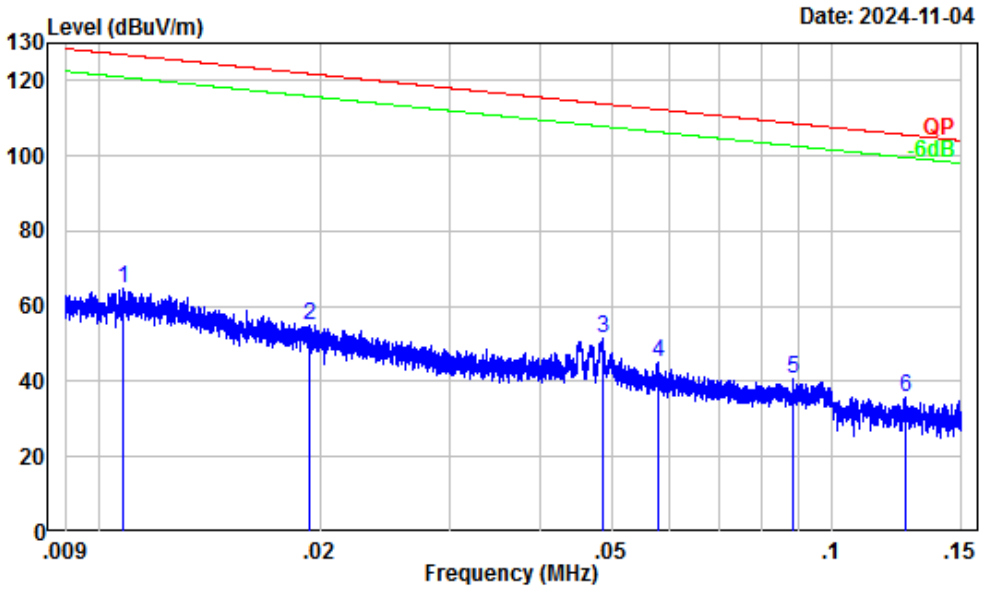
Spurious Emissions

Environmental Conditions

Temperature (℃)	24-25	**Relative Humidity (%)**	50-55
ATM Pressure (kPa):	101	**Test engineer:**	Anson Su&Karl Xu
Test date:	2024/11/4- 2024/11/19		
EUT operation mode:	Below 1GHz: Transmitting(Maximum output power mode, 802.11n-HT20 Mode Middle Channel) Above 1GHz: Transmitting		
Note:	After pre-scan in the X, Y and Z axes of orientation, the worst case z-axis of orientation were recorded. The spurious emission from 9 kHz-30MHz of IC RSS-Gen standard, the unit of final result on the test plots are dBμV/m, so the limit should be added by 51,5 dB from dBμA/m to dBμV/m. For the radiated spurious emission below 30MHz, only the worst case (perpendicular) was recorded.		

Below 1GHz:

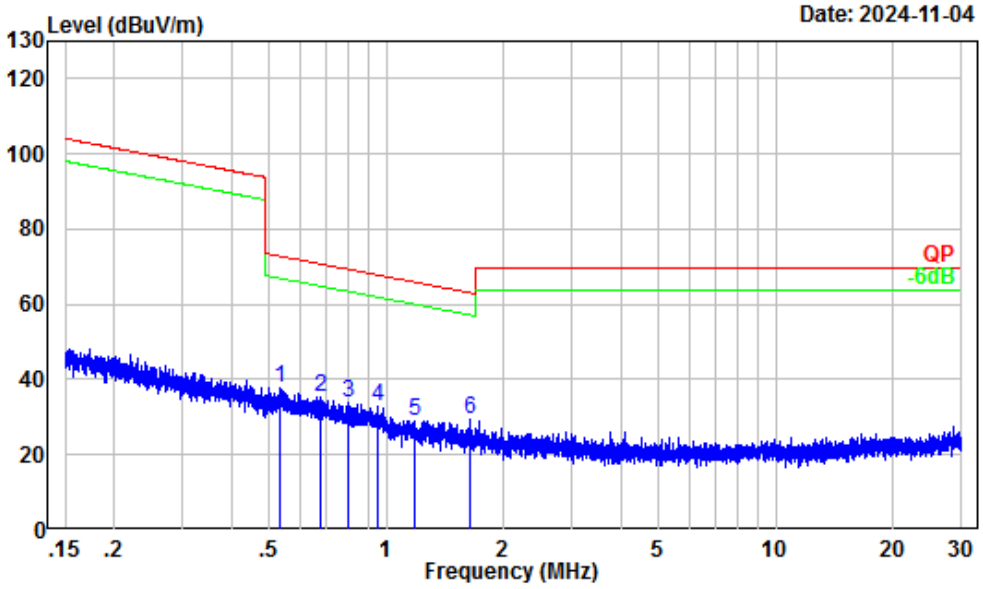
9kHz-150kHz



Site : Chamber A
Condition : 3m
Project Number: 2401Y99438E-RF
Test Mode : 2.4G WIFI Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.01	37.28	27.40	64.68	126.94	-62.26	Peak
2	0.02	32.92	22.25	55.17	121.87	-66.70	Peak
3	0.05	23.38	28.32	51.70	113.87	-62.17	Peak
4	0.06	21.99	23.22	45.21	112.34	-67.13	Peak
5	0.09	18.20	22.50	40.70	108.67	-67.97	Peak
6	0.13	15.85	20.12	35.97	105.61	-69.64	Peak

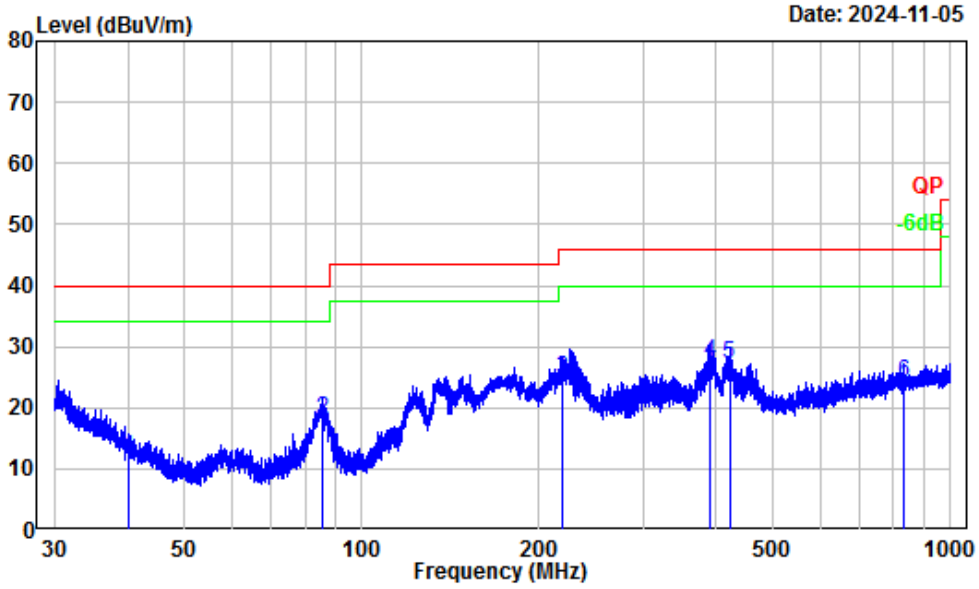
150kHz-30MHz



Site : Chamber A
Condition : 3m
Project Number: 2401Y99438E-RF
Test Mode : 2.4G Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.53	3.11	34.68	37.79	73.09	-35.30	Peak
2	0.68	1.33	33.78	35.11	70.89	-35.78	Peak
3	0.80	-0.10	34.00	33.90	69.46	-35.56	Peak
4	0.95	-1.25	34.35	33.10	67.89	-34.79	Peak
5	1.19	-2.23	31.30	29.07	65.97	-36.90	Peak
6	1.64	-3.80	33.04	29.24	63.10	-33.86	Peak

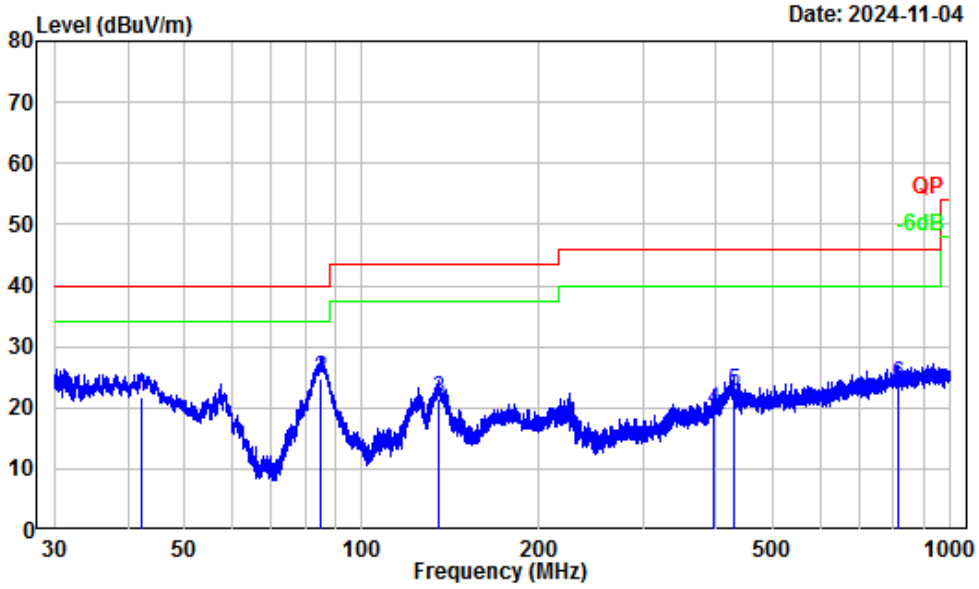
30MHz-1GHz_Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401Y99438E-RF
Test Mode : 2.4G WIFI Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.06	-12.42	24.23	11.81	40.00	-28.19	QP
2	85.79	-18.09	36.13	18.04	40.00	-21.96	QP
3	219.17	-14.20	39.10	24.90	46.00	-21.10	QP
4	391.24	-8.82	36.27	27.45	46.00	-18.55	QP
5	421.13	-7.93	35.07	27.14	46.00	-18.86	QP
6	832.95	-1.87	25.94	24.07	46.00	-21.93	QP

30MHz-1GHz_Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401Y99438E-RF
Test Mode : 2.4G WIFI Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.28	-14.07	35.86	21.79	40.00	-18.21	QP
2	85.04	-18.08	42.75	24.67	40.00	-15.33	QP
3	134.62	-11.46	32.86	21.40	43.50	-22.10	QP
4	397.29	-8.54	28.31	19.77	46.00	-26.23	QP
5	427.83	-7.84	30.47	22.63	46.00	-23.37	QP
6	817.04	-2.04	25.83	23.79	46.00	-22.21	QP

Above 1GHz:

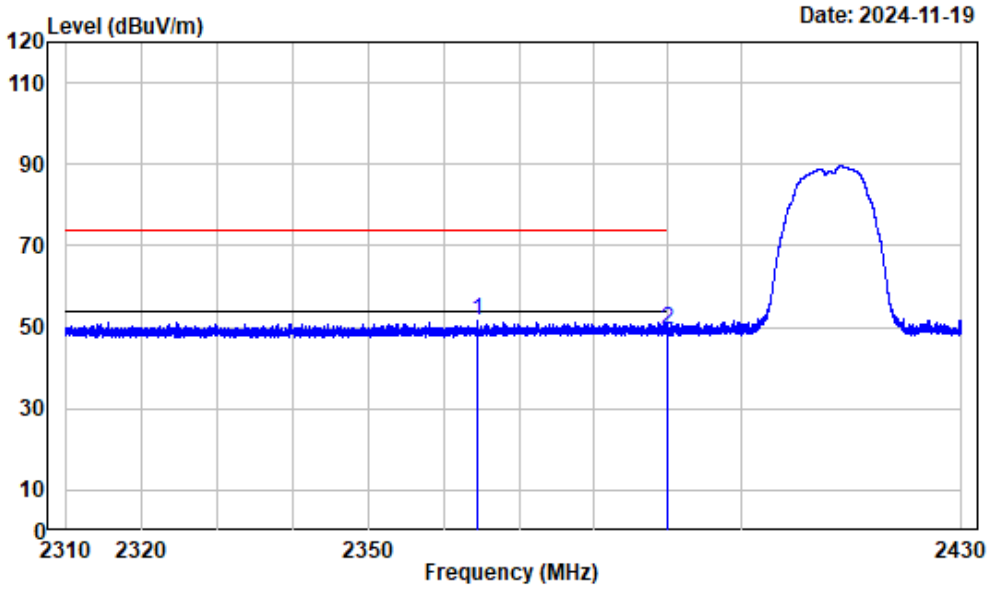
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/Ave					
802.11b							
Low Channel							
4824	46.76	PK	H	2.45	49.21	74	-24.79
4824	32.44	AV	H	2.45	34.89	54	-19.11
4824	46.5	PK	V	2.45	48.95	74	-25.05
4824	32.81	AV	V	2.45	35.26	54	-18.74
Middle Channel							
4874	46.78	PK	H	2.56	49.34	74	-24.66
4874	32.41	AV	H	2.56	34.97	54	-19.03
4874	46.52	PK	V	2.56	49.08	74	-24.92
4874	32.43	AV	V	2.56	34.99	54	-19.01
High Channel							
4924	46.8	PK	H	2.63	49.43	74	-24.57
4924	32.38	AV	H	2.63	35.01	54	-18.99
4924	46.56	PK	V	2.63	49.19	74	-24.81
4924	32.35	AV	V	2.63	34.98	54	-19.02
802.11g							
Low Channel							
4824	46.28	PK	H	2.45	48.73	74	-25.27
4824	33.13	AV	H	2.45	35.58	54	-18.42
4824	46.06	PK	V	2.45	48.51	74	-25.49
4824	33.65	AV	V	2.45	36.1	54	-17.9
Middle Channel							
4874	46.55	PK	H	2.56	49.11	74	-24.89
4874	33.28	AV	H	2.56	35.84	54	-18.16
4874	46.17	PK	V	2.56	48.73	74	-25.27
4874	33.71	AV	V	2.56	36.27	54	-17.73
High Channel							
4924	47.47	PK	H	2.63	50.1	74	-23.9
4924	33.52	AV	H	2.63	36.15	54	-17.85
4924	46.54	PK	V	2.63	49.17	74	-24.83
4924	33.95	AV	V	2.63	36.58	54	-17.42

802.11n20							
Low Channel							
4824	46.98	PK	H	2.45	49.43	74	-24.57
4824	33.31	AV	H	2.45	35.76	54	-18.24
4824	46.92	PK	V	2.45	49.37	74	-24.63
4824	33.26	AV	V	2.45	35.71	54	-18.29
Middle Channel							
4874	46.95	PK	H	2.56	49.51	74	-24.49
4874	33.46	AV	H	2.56	36.02	54	-17.98
4874	46.81	PK	V	2.56	49.37	74	-24.63
4874	33.34	AV	V	2.56	35.9	54	-18.1
High Channel							
4924	46.91	PK	H	2.63	49.54	74	-24.46
4924	33.91	AV	H	2.63	36.54	54	-17.46
4924	46.78	PK	V	2.63	49.41	74	-24.59
4924	33.48	AV	V	2.63	36.11	54	-17.89
802.11n40							
Low Channel							
4844	46.31	PK	H	2.47	48.78	74	-25.22
4844	33.72	AV	H	2.47	36.19	54	-17.81
4844	46.72	PK	V	2.47	49.19	74	-24.81
4844	33.74	AV	V	2.47	36.21	54	-17.79
Middle Channel							
4874	46.58	PK	H	2.56	49.14	74	-24.86
4874	33.81	AV	H	2.56	36.37	54	-17.63
4874	46.81	PK	V	2.56	49.37	74	-24.63
4874	33.92	AV	V	2.56	36.48	54	-17.52
High Channel							
4904	47.78	PK	H	2.64	50.42	74	-23.58
4904	33.99	AV	H	2.64	36.63	54	-17.37
4904	46.89	PK	V	2.64	49.53	74	-24.47
4904	34.09	AV	V	2.64	36.73	54	-17.27

Note:
Corrected Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Corrected Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.

Test plots

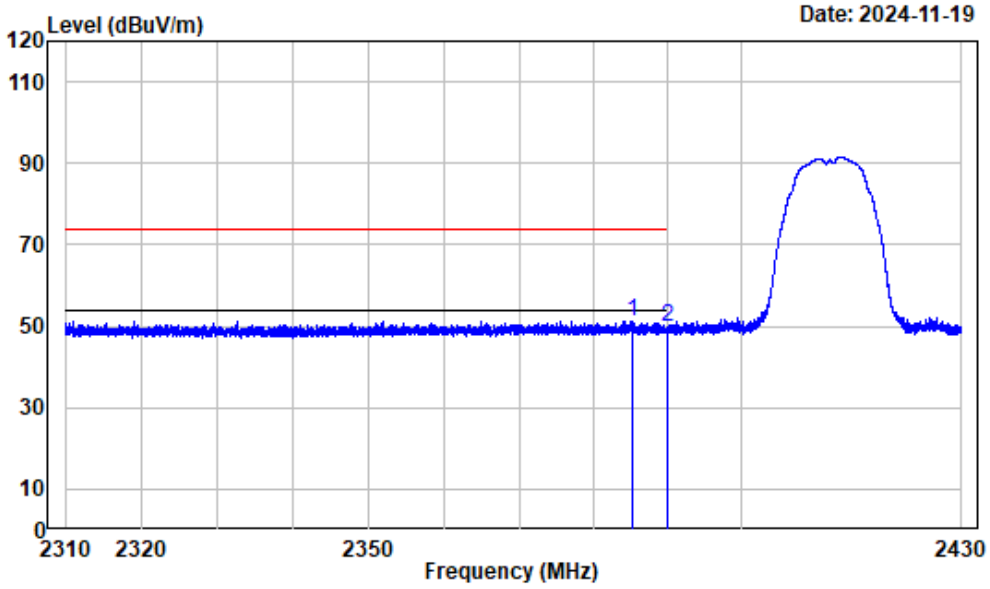
Left Band edge_Horizontal_802.11b



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2364.517	-3.17	54.69	51.52	74.00	-22.48	Peak
2	2390.000	-3.20	52.53	49.33	74.00	-24.67	Peak

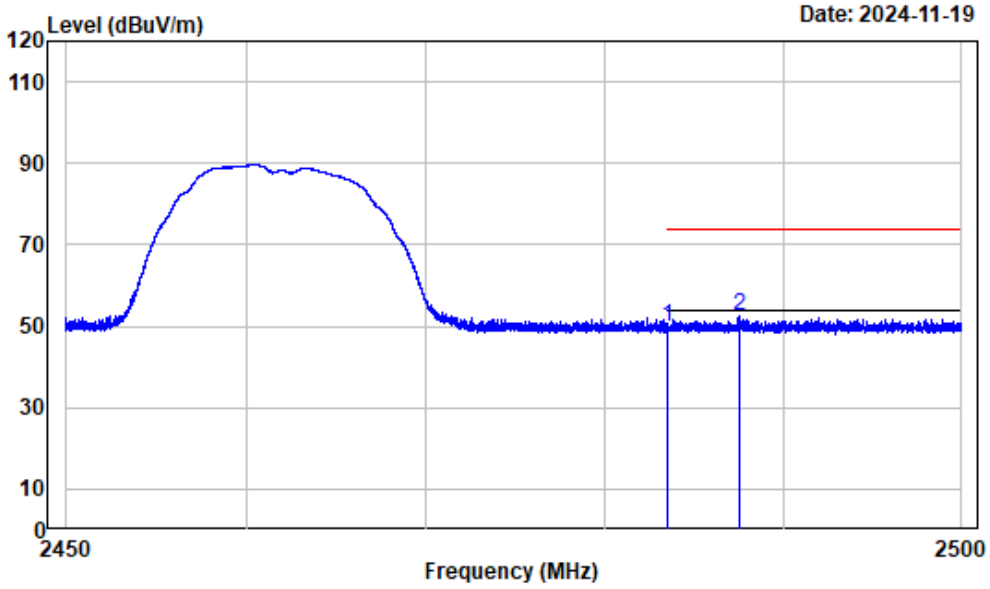
Left Band edge_Vertical_802.11b



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2385.129	-3.19	54.46	51.27	74.00	-22.73	Peak
2	2390.000	-3.20	52.92	49.72	74.00	-24.28	Peak

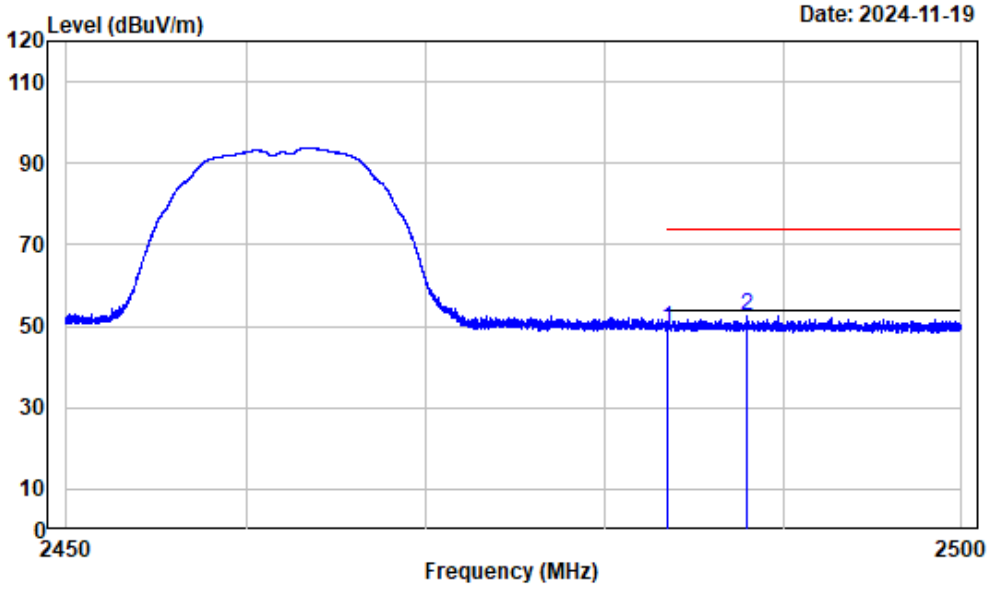
Right Band edge_Horizontal_802.11b



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	52.91	49.74	74.00	-24.26	Peak
2	2487.536	-3.18	55.61	52.43	74.00	-21.57	Peak

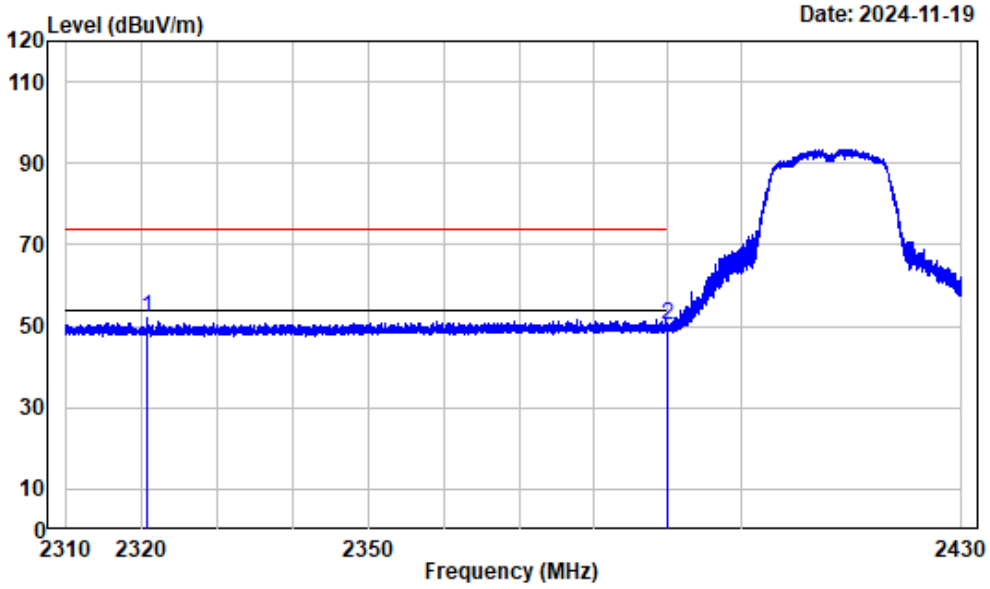
Right Band edge_Vertical_802.11b



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	52.64	49.47	74.00	-24.53	Peak
2	2487.980	-3.18	55.90	52.72	74.00	-21.28	Peak

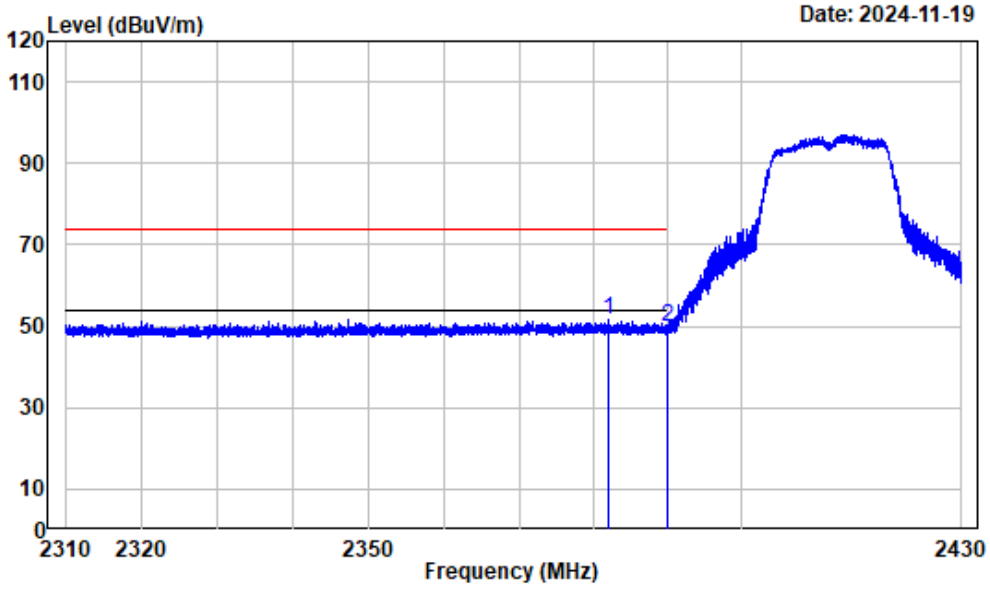
Left Band edge_Horizontal_802.11g



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2320.801	-3.11	55.03	51.92	74.00	-22.08	Peak
2	2390.000	-3.20	53.31	50.11	74.00	-23.89	Peak

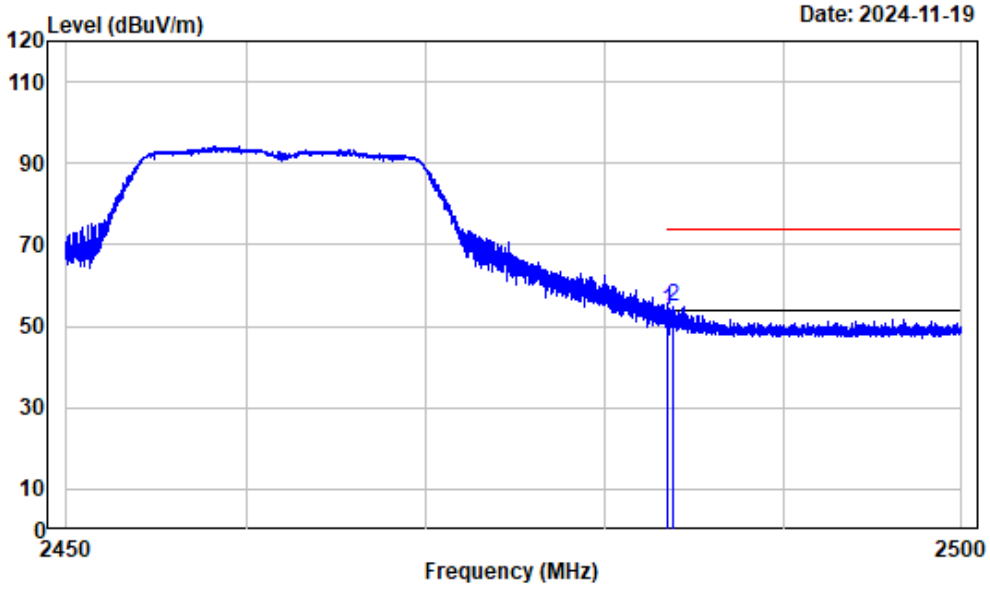
Left Band edge_Vertical_802.11g



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2381.994	-3.19	54.78	51.59	74.00	-22.41	Peak
2	2390.000	-3.20	52.97	49.77	74.00	-24.23	Peak

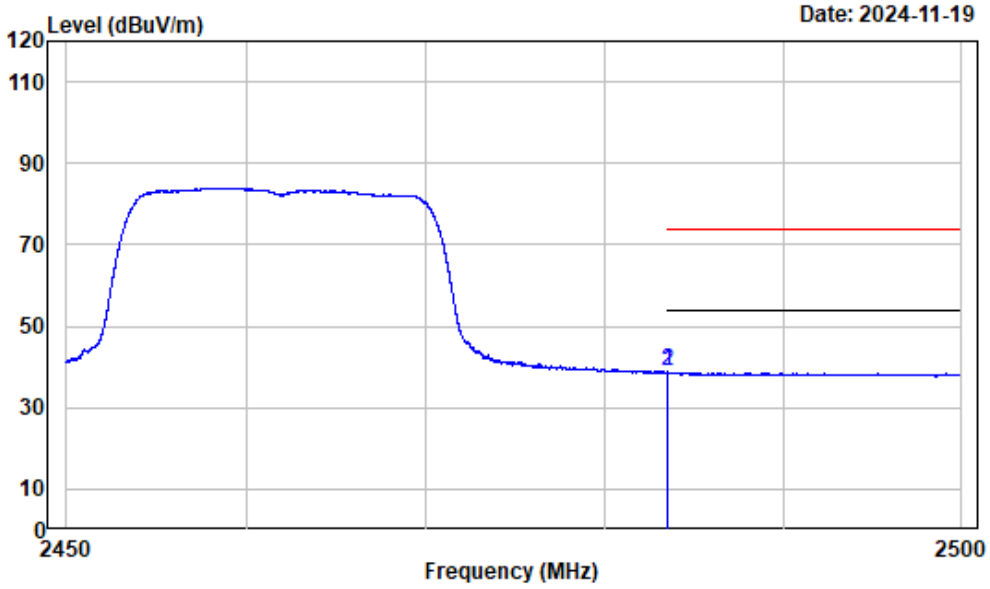
Right Band edge_Horizontal_Peak_802.11g



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	57.03	53.86	74.00	-20.14	Peak
2	2483.842	-3.17	58.08	54.91	74.00	-19.09	peak

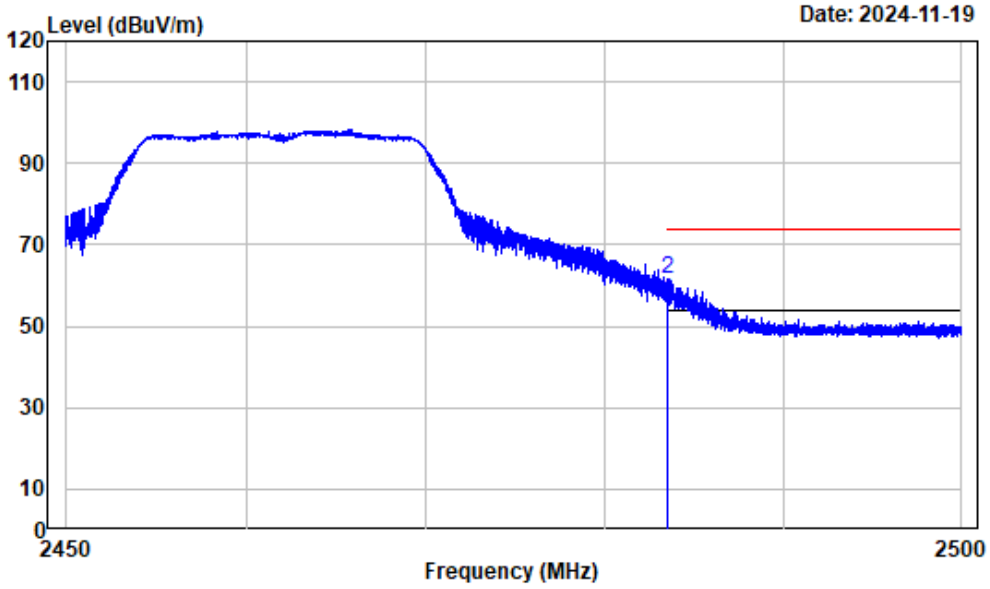
Right Band edge_Horizontal_Average_802.11g



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	41.90	38.73	54.00	-15.27	Average
2	2483.504	-3.17	41.91	38.74	54.00	-15.26	Average

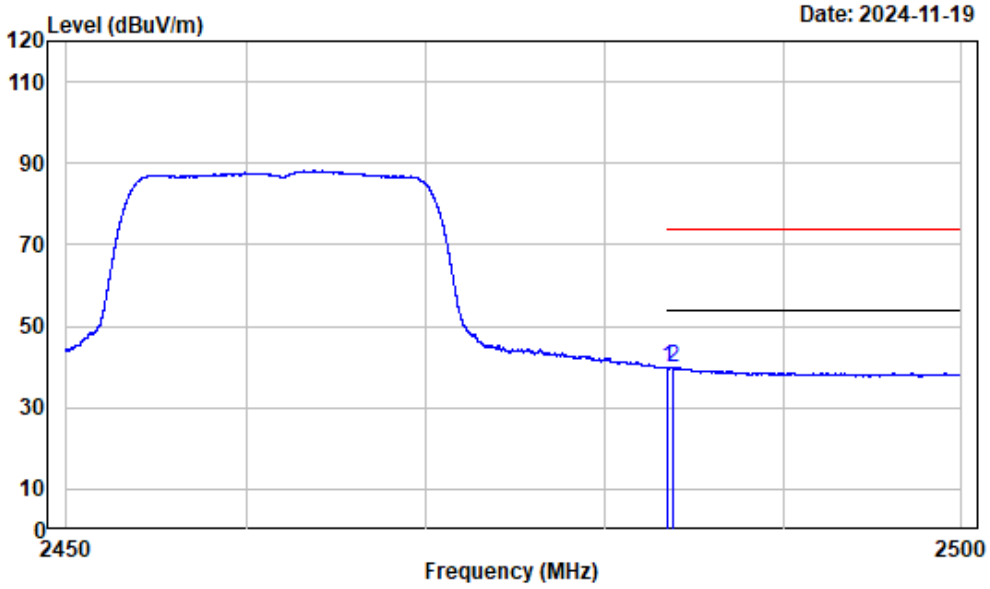
Right Band edge_Vertical_Peak_802.11g



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	59.54	56.37	74.00	-17.63	Peak
2	2483.529	-3.17	64.89	61.72	74.00	-12.28	Peak

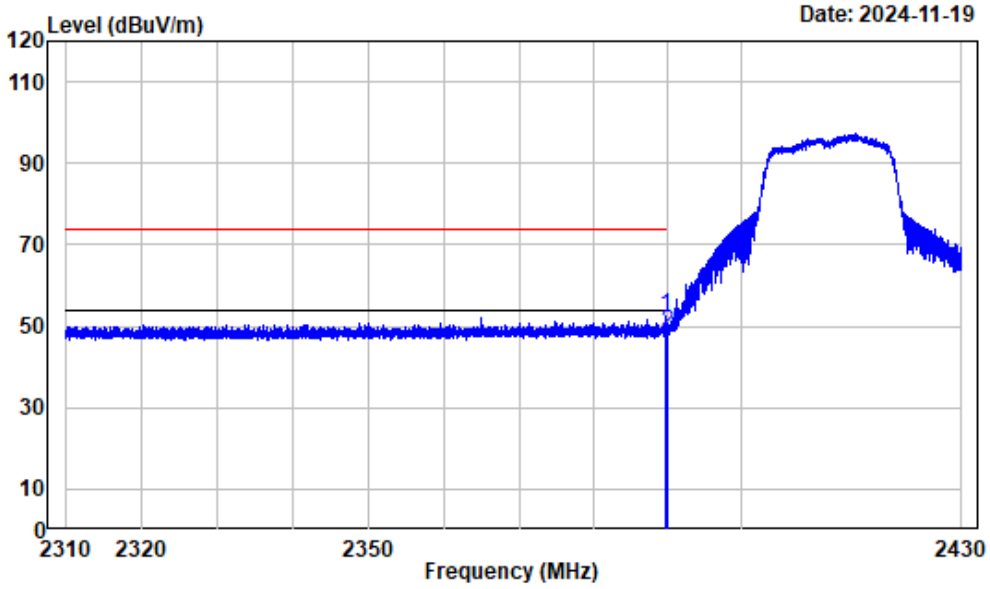
Right Band edge_Vertical_Average_802.11g



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	42.98	39.81	54.00	-14.19	Average
2	2483.754	-3.17	43.05	39.88	54.00	-14.12	Average

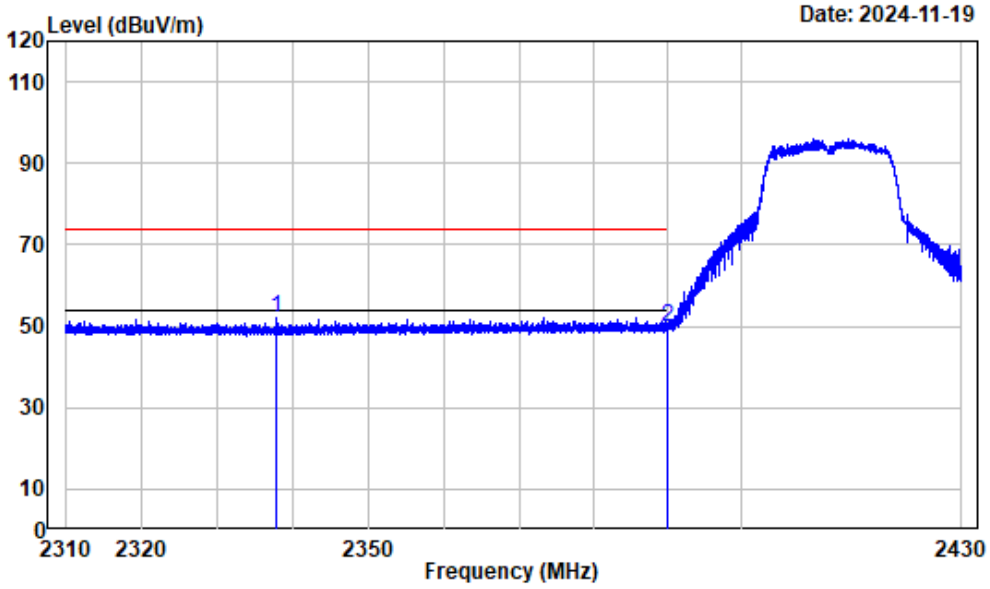
Left Band edge_Horizontal_802.11n-HT20



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.810	-3.20	55.68	52.48	74.00	-21.52	peak
2	2390.000	-3.20	51.78	48.58	74.00	-25.42	Peak

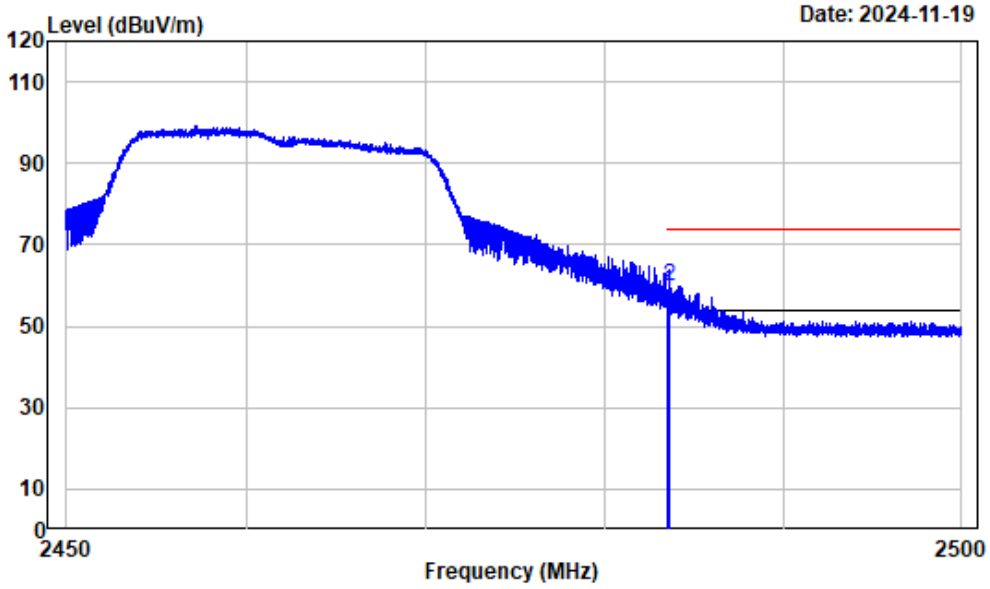
Left Band edge_Vertical_802.11n-HT20



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2337.693	-3.14	55.24	52.10	74.00	-21.90	Peak
2	2390.000	-3.20	52.94	49.74	74.00	-24.26	Peak

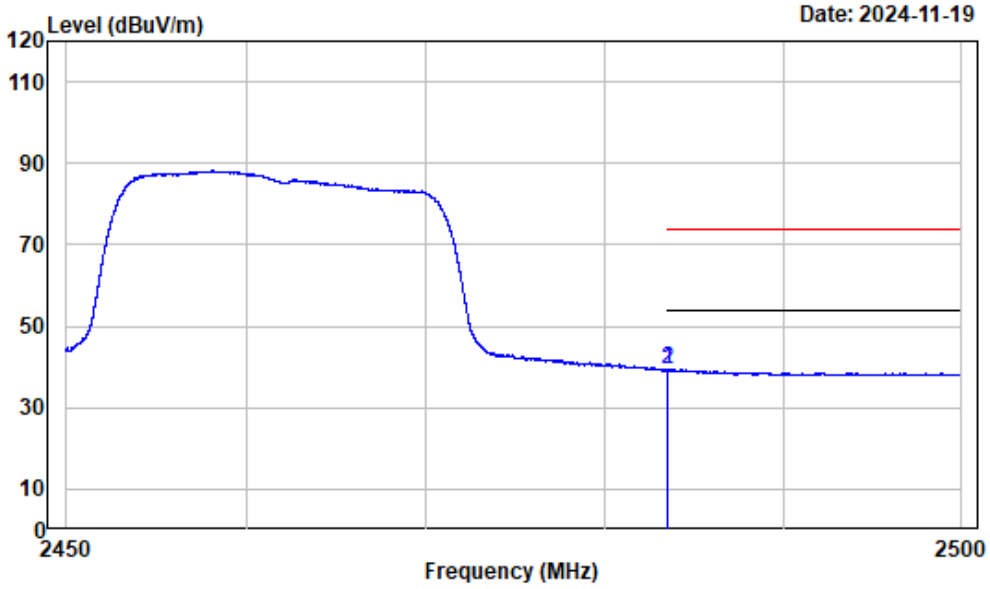
Right Band edge_Horizontal_Peak_802.11n-HT20



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	61.74	58.57	74.00	-15.43	Peak
2	2483.585	-3.17	63.02	59.85	74.00	-14.15	peak

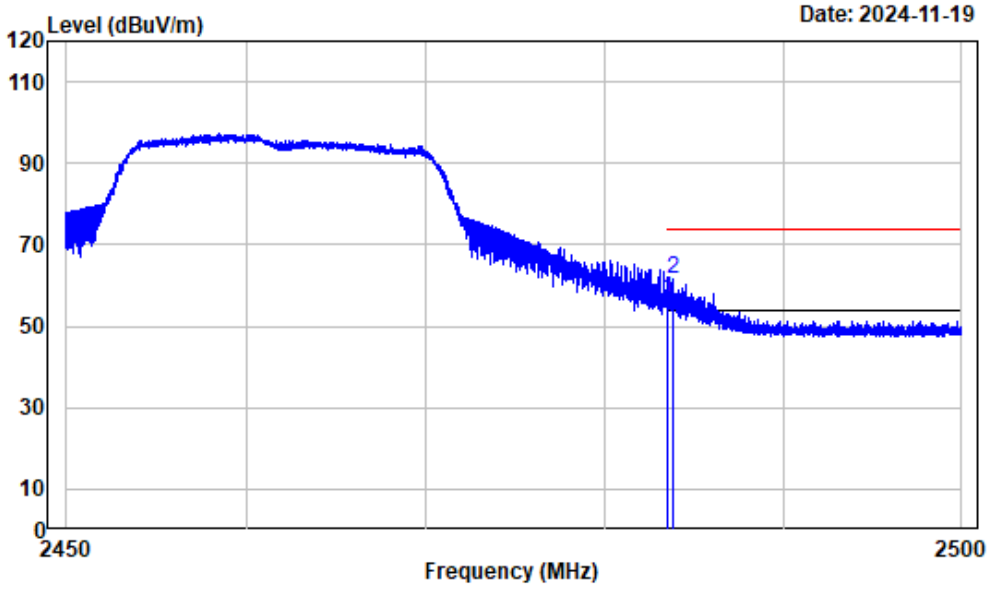
Right Band edge_Horizontal_Average_802.11n-HT20



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	42.52	39.35	54.00	-14.65	Average
2	2483.517	-3.17	42.61	39.44	54.00	-14.56	Average

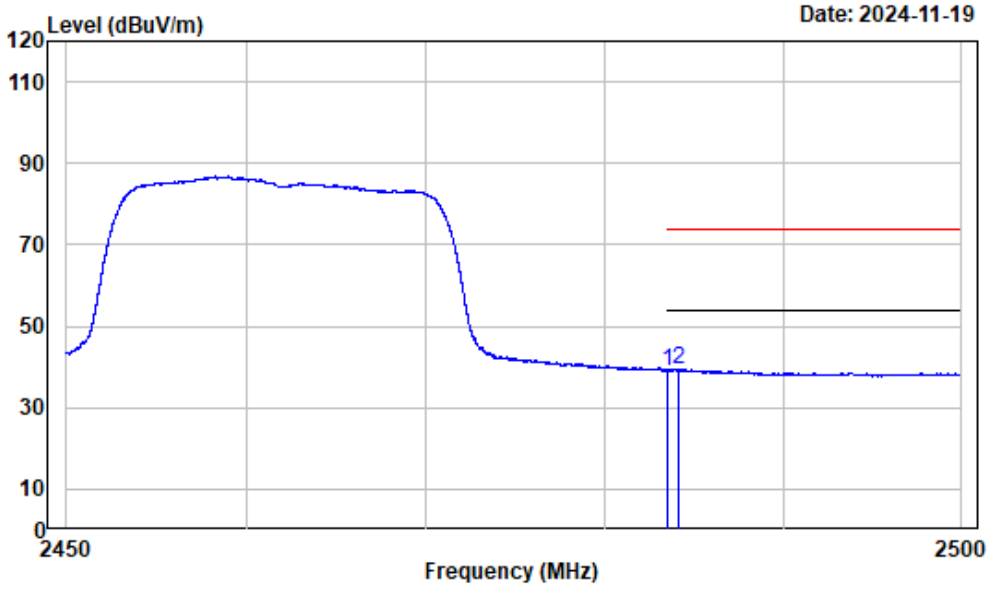
Right Band edge_Vertical_Peak_802.11n-HT20



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	59.97	56.80	74.00	-17.20	Peak
2	2483.842	-3.17	64.97	61.80	74.00	-12.20	peak

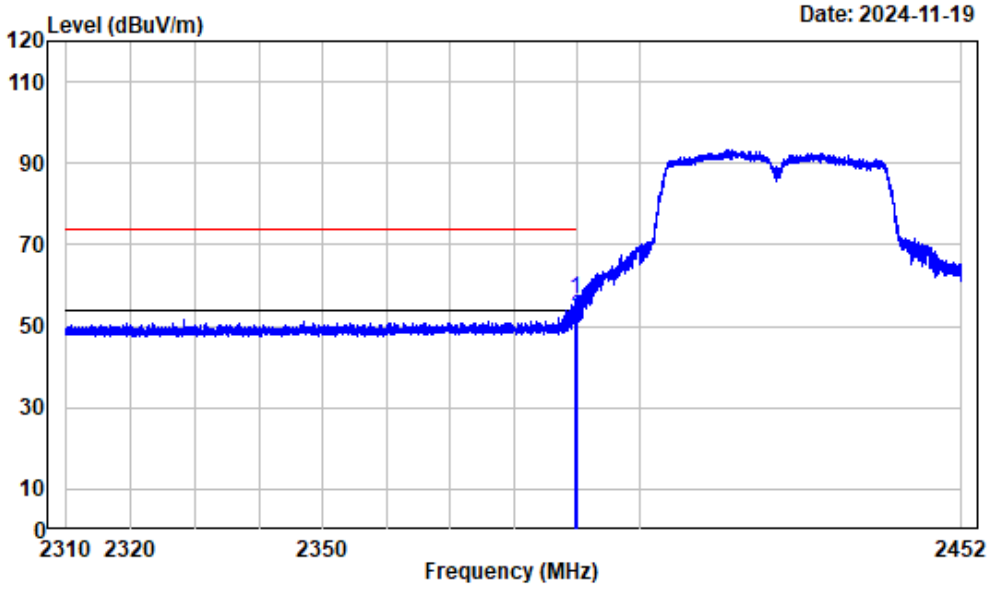
Right Band edge_Vertical_Average_802.11n-HT20



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	42.32	39.15	54.00	-14.85	Average
2	2484.111	-3.17	42.57	39.40	54.00	-14.60	Average

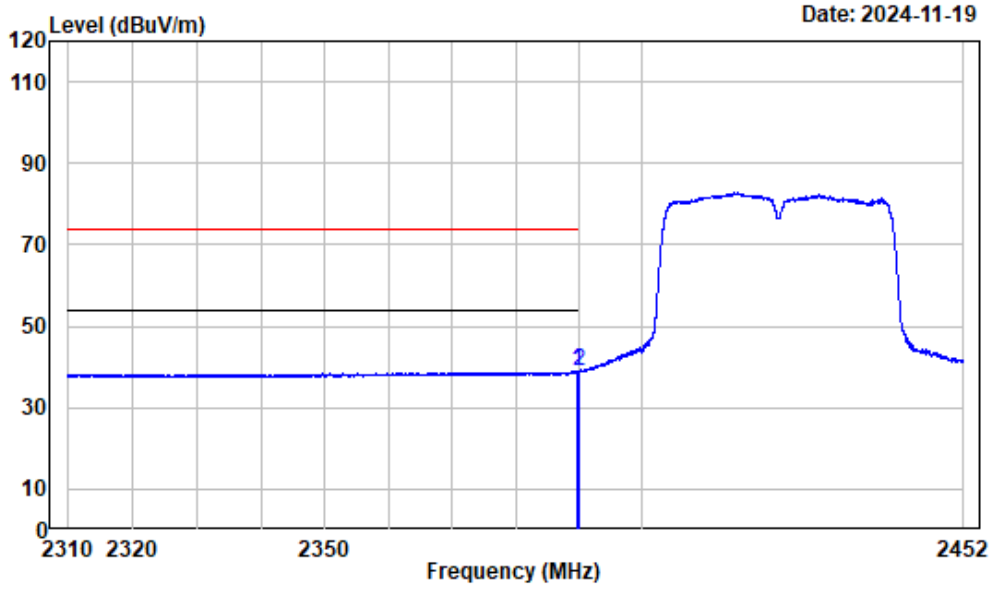
Left Band edge_Horizontal_Peak_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2422

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.849	-3.20	59.70	56.50	74.00	-17.50	Peak
2	2390.000	-3.20	55.36	52.16	74.00	-21.84	Peak

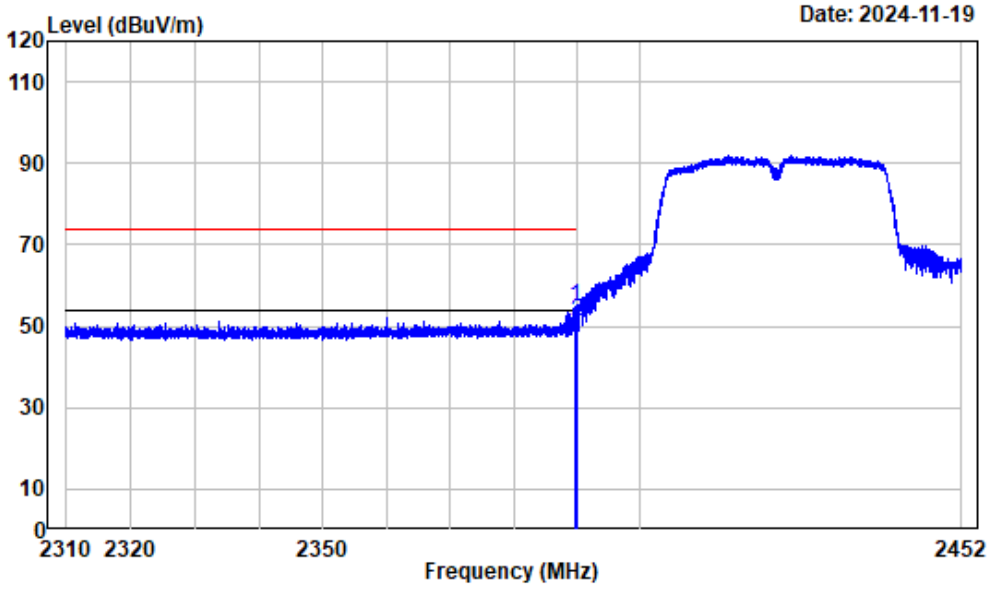
Left Band edge_Horizontal _Average_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2422

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.708	-3.20	42.36	39.16	54.00	-14.84	Average
2	2390.000	-3.20	42.10	38.90	54.00	-15.10	Average

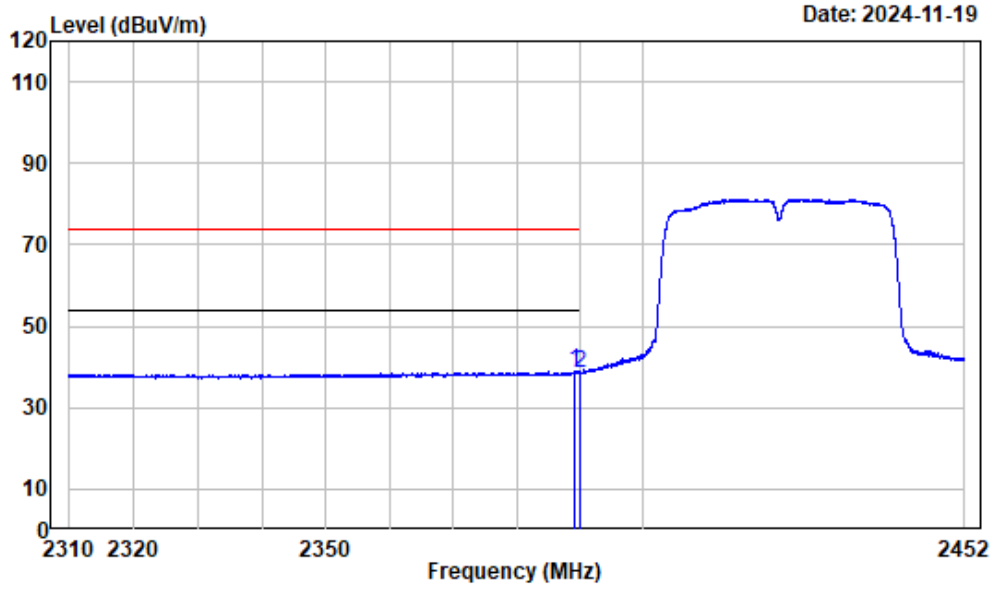
Left Band edge_Vertical_Peak_802.11n-HT40



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2422

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.779	-3.20	57.95	54.75	74.00	-19.25	peak
2	2390.000	-3.20	54.20	51.00	74.00	-23.00	Peak

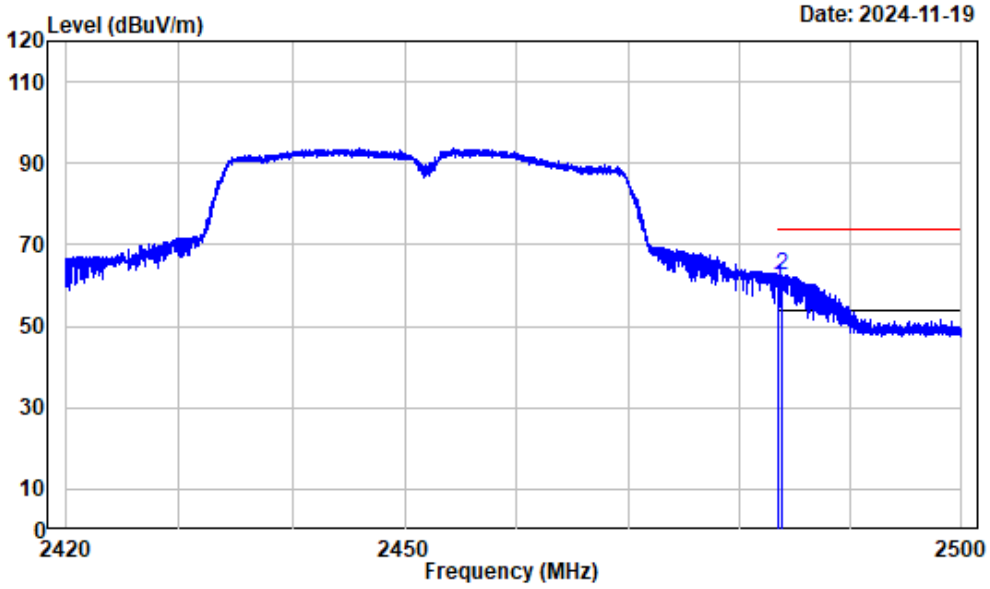
Left Band edge_Vertical_Average_802.11n-HT40



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2422

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.246	-3.20	42.09	38.89	54.00	-15.11	Average
2	2390.000	-3.20	41.68	38.48	54.00	-15.52	Average

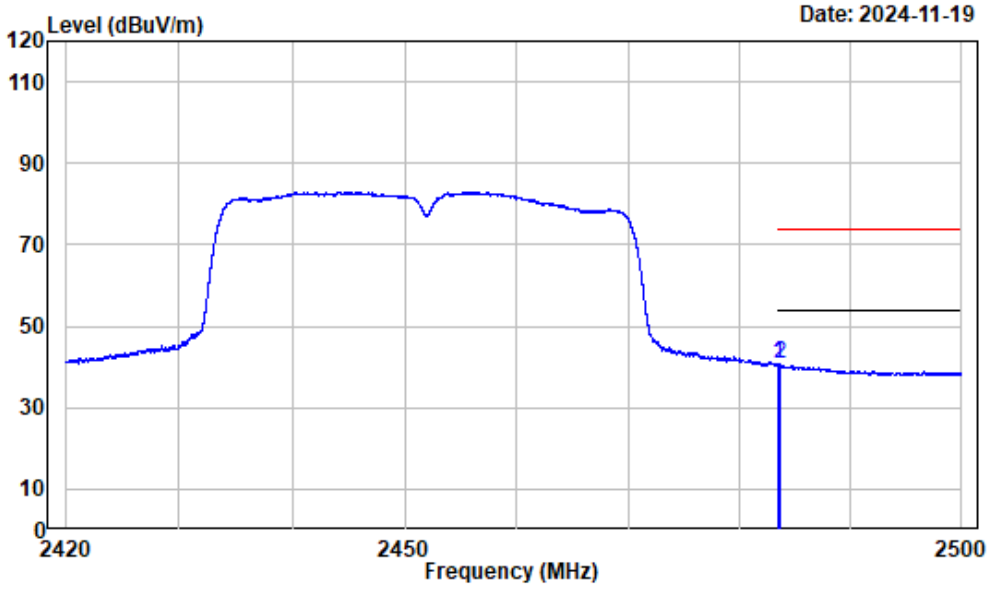
Right Band edge_Horizontal_Peak_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	62.85	59.68	74.00	-14.32	Peak
2	2483.788	-3.17	65.85	62.68	74.00	-11.32	peak

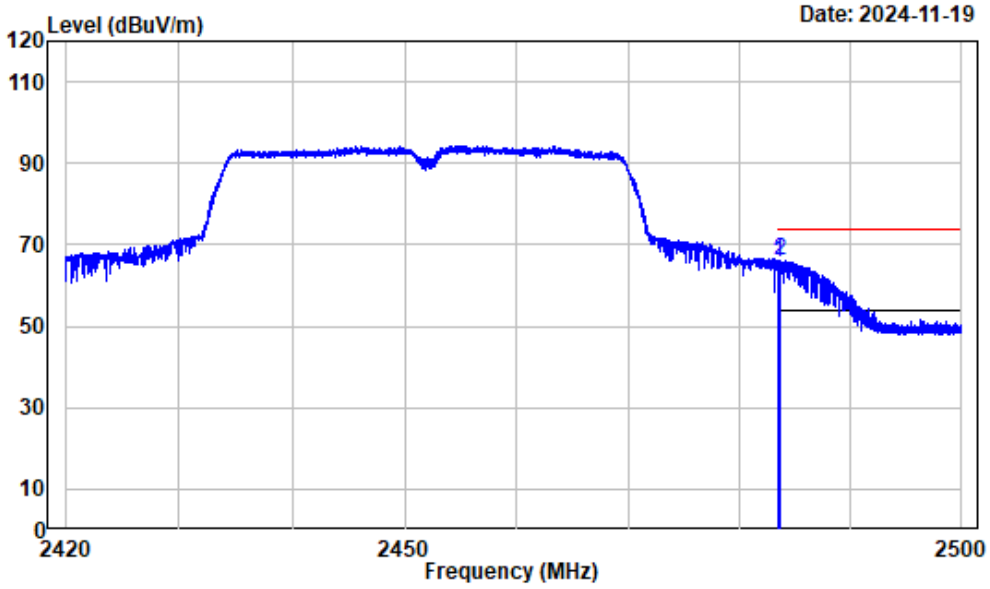
Right Band edge_Horizontal_Average_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	43.87	40.70	54.00	-13.30	Average
2	2483.528	-3.17	44.09	40.92	54.00	-13.08	Average

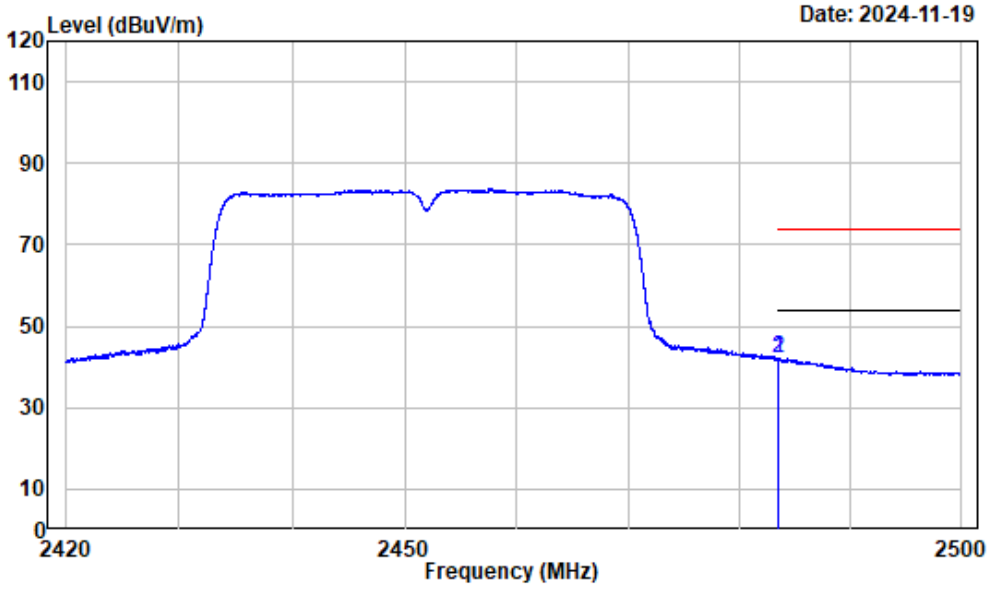
Right Band edge_Vertical_Peak_802.11n-HT40



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	68.91	65.74	74.00	-8.26	Peak
2	2483.678	-3.17	69.21	66.04	74.00	-7.96	peak

Right Band edge_Vertical_Average_802.11n-HT40

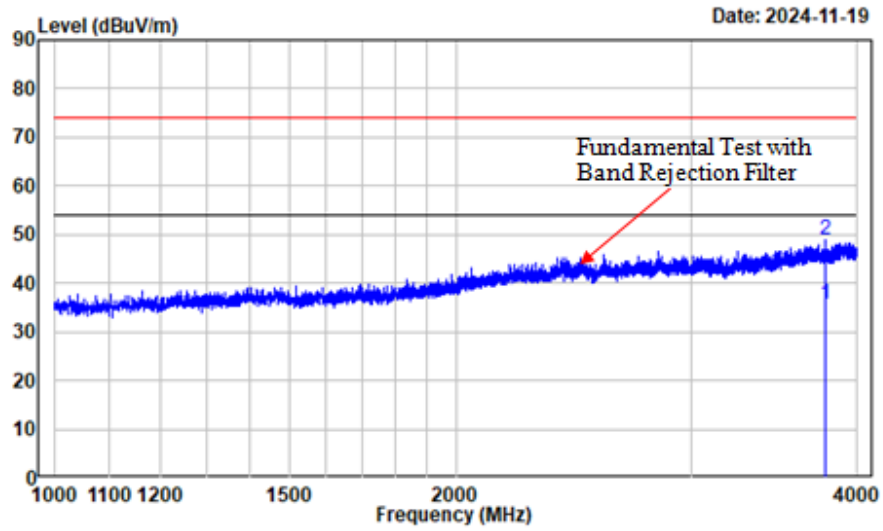


Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.498	-3.17	45.25	42.08	54.00	-11.92	Average
2	2483.500	-3.17	45.25	42.08	54.00	-11.92	Average

Listed with the worst harmonic margin test plot:

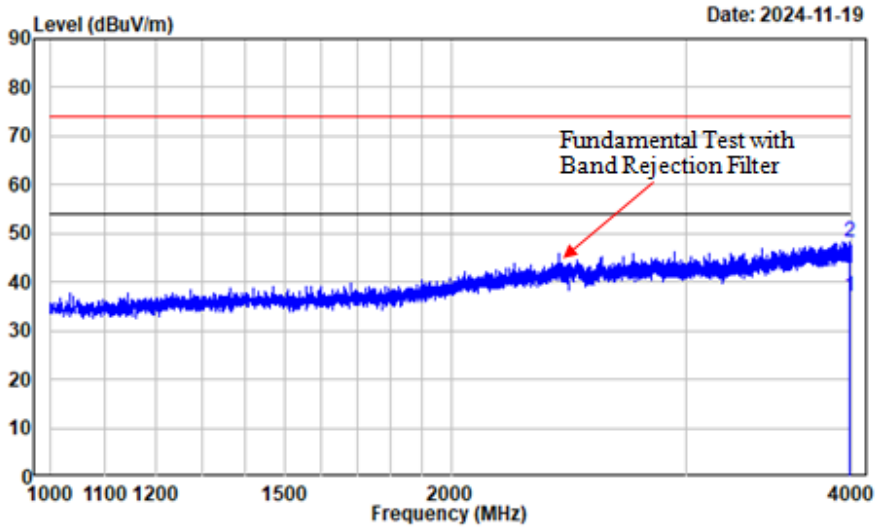
1-4GHz_Horizontal_802.11b



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3784.348	-0.79	36.38	35.59	54.00	-18.41	Average
2	3784.348	-0.79	49.71	48.92	74.00	-25.08	Peak

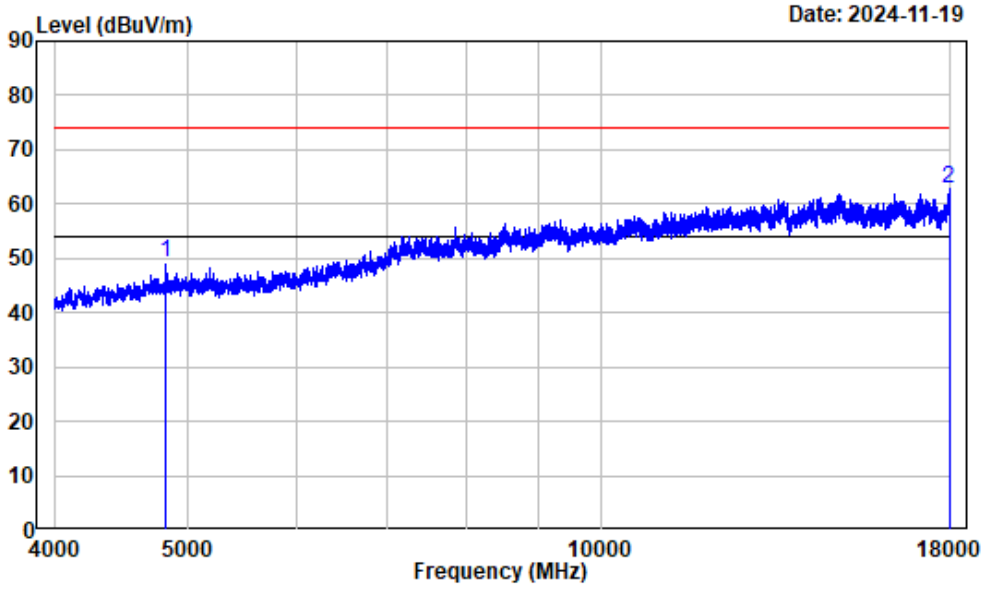
1-4GHz_Vertical_802.11b



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3987.624	-0.20	37.08	36.88	54.00	-17.12	Average
2	3987.624	-0.20	48.52	48.32	74.00	-25.68	Peak

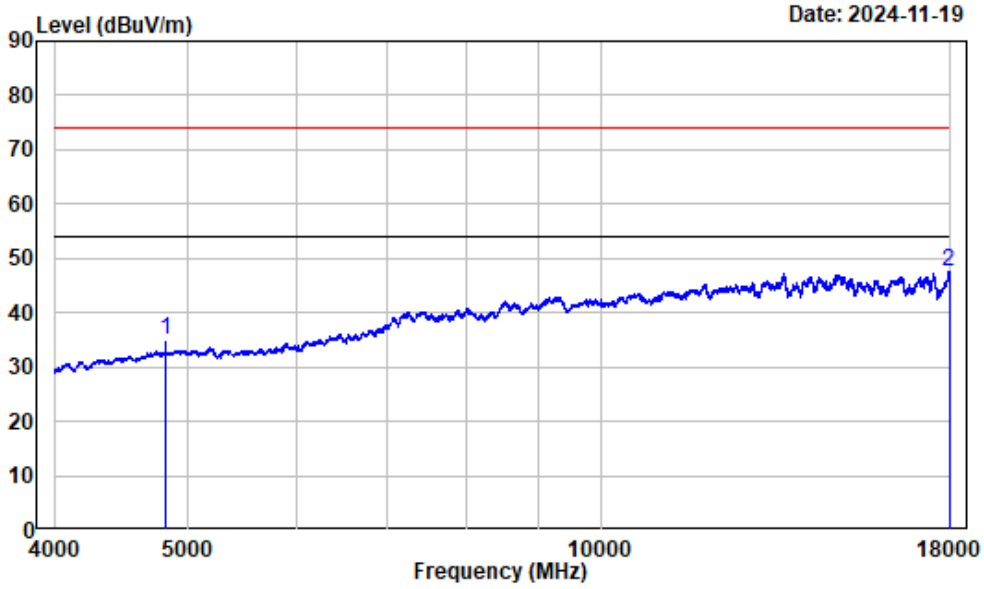
4-18GHz_Horizontal_Peak_802.11b



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	2.45	46.76	49.21	74.00	-24.79	Peak
2	17956.240	24.31	38.50	62.81	74.00	-11.19	Peak

4-18GHz_Horizontal_Average_802.11b

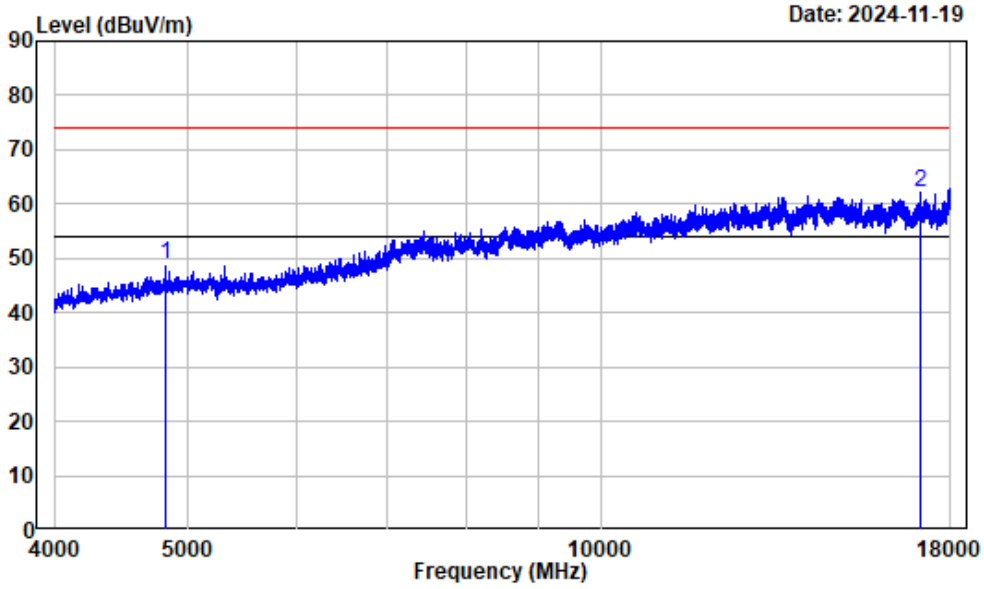


Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	2.45	32.44	34.89	54.00	-19.11	Average
2	17956.240	24.31	23.35	47.66	54.00	-6.34	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

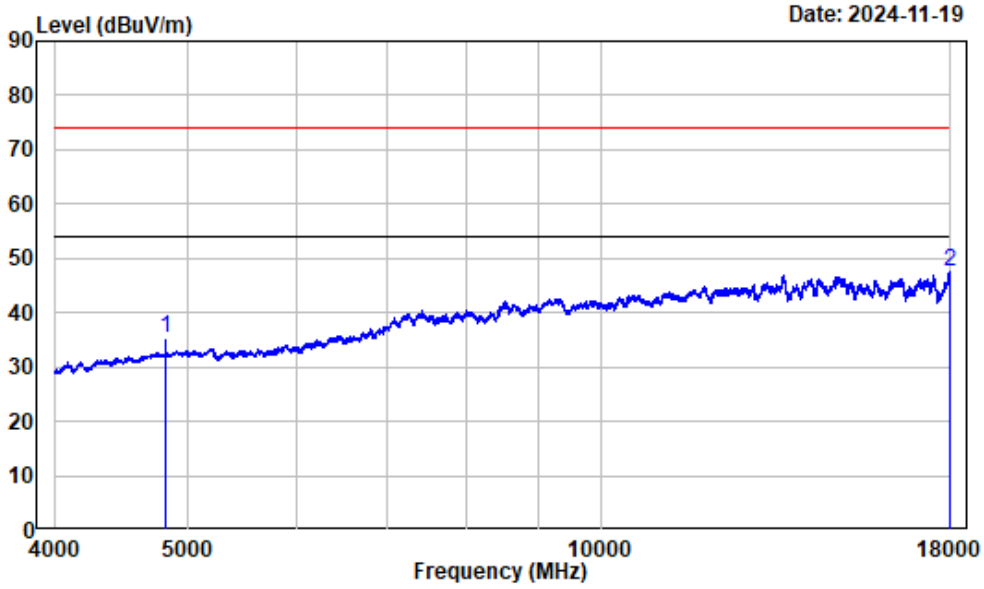
4-18GHz_Vertical_Peak_802.11b



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	2.45	46.50	48.95	74.00	-25.05	Peak
2	17116.140	18.12	44.17	62.29	74.00	-11.71	Peak

4-18GHz_Vertical_Average_802.11b

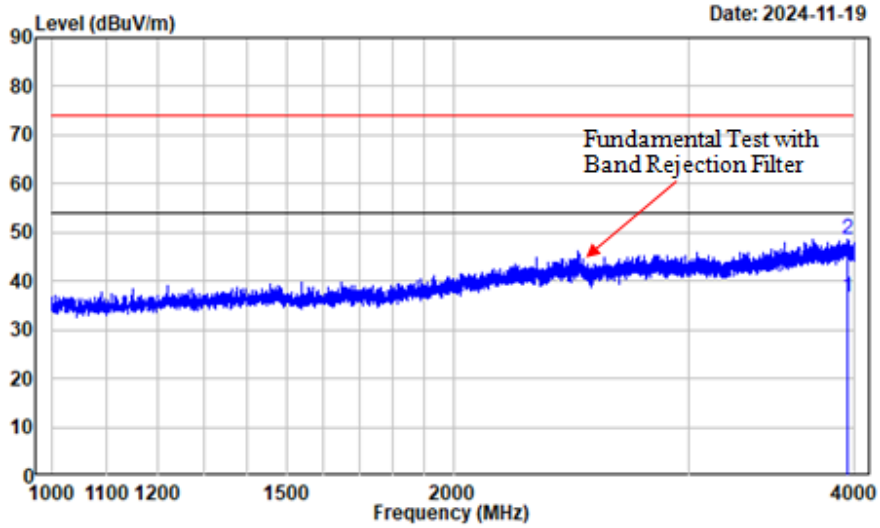


Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_b_2412

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4824.000	2.45	32.81	35.26	54.00	-18.74	Average
2	17959.740	24.34	23.17	47.51	54.00	-6.49	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

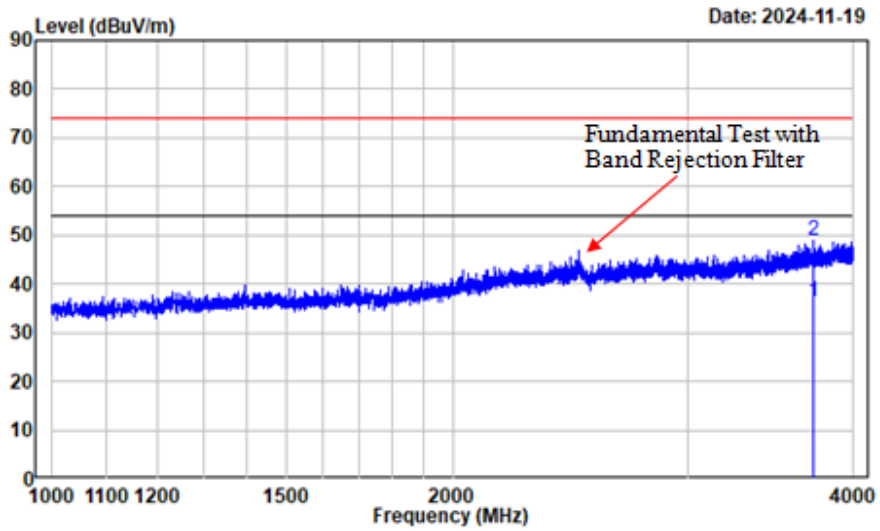
1-4GHz_Horizontal_802.11g



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3954.244	-0.17	36.81	36.64	54.00	-17.36	Average
2	3954.244	-0.17	48.85	48.68	74.00	-25.32	Peak

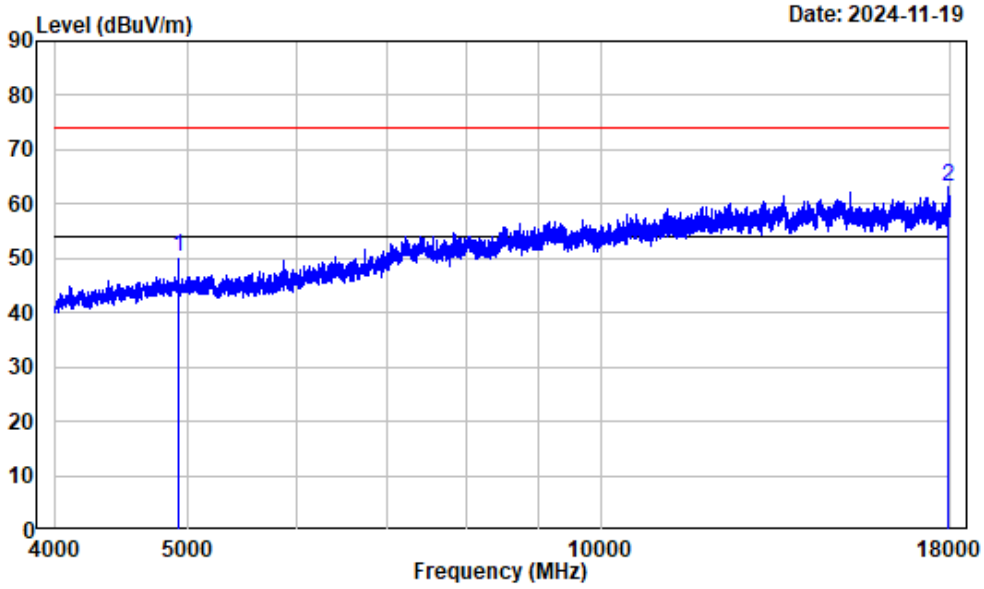
1-4GHz_Vertical_802.11g



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3736.342	-0.97	37.34	36.37	54.00	-17.63	Average
2	3736.342	-0.97	49.77	48.80	74.00	-25.20	Peak

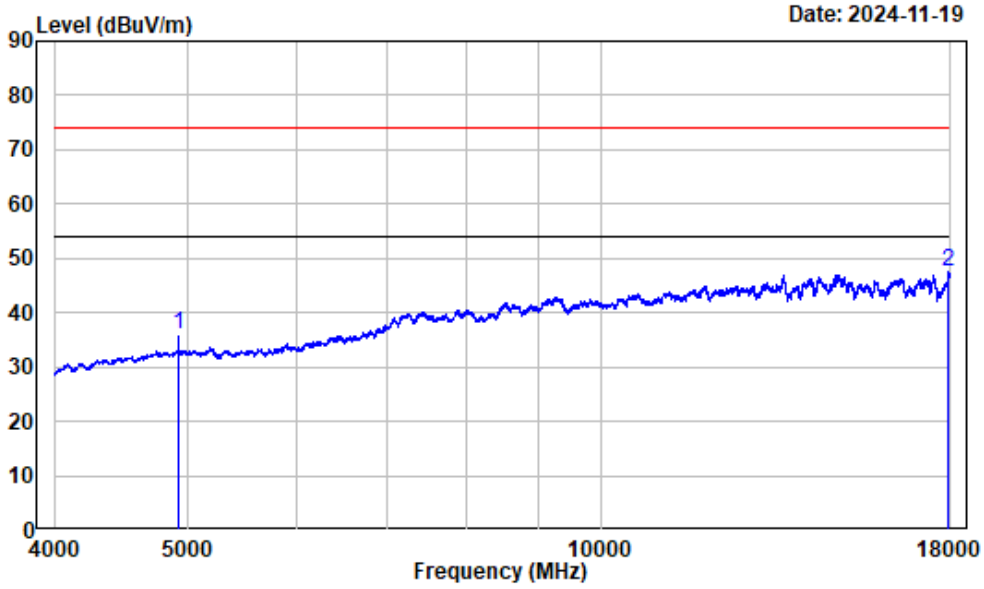
4-18GHz_Horizontal_Peak_802.11g



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	47.47	50.10	74.00	-23.90	Peak
2	17947.490	24.24	38.83	63.07	74.00	-10.93	Peak

4-18GHz_Horizontal_Average_802.11g

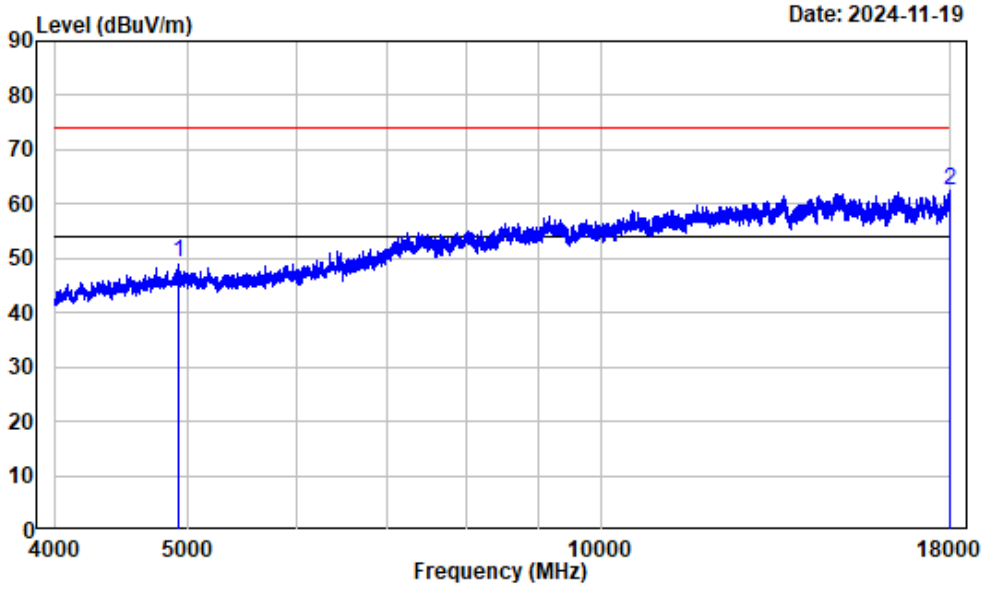


Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	33.52	36.15	54.00	-17.85	Average
2	17954.490	24.30	23.19	47.49	54.00	-6.51	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

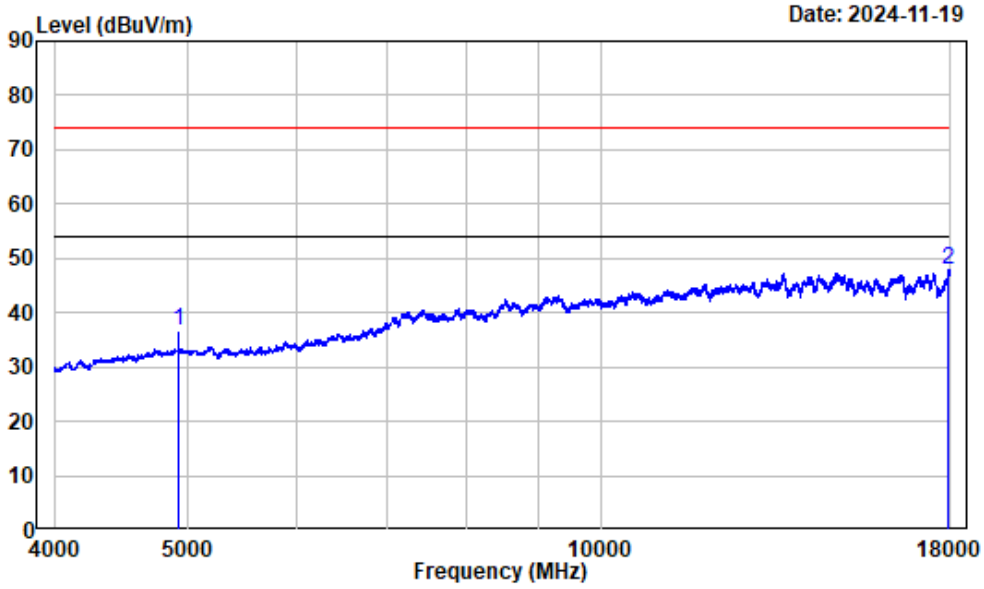
4-18GHz_Vertical_Peak_802.11g



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.54	49.17	74.00	-24.83	Peak
2	17966.750	24.39	37.98	62.37	74.00	-11.63	Peak

4-18GHz_Vertical_Average_802.11g

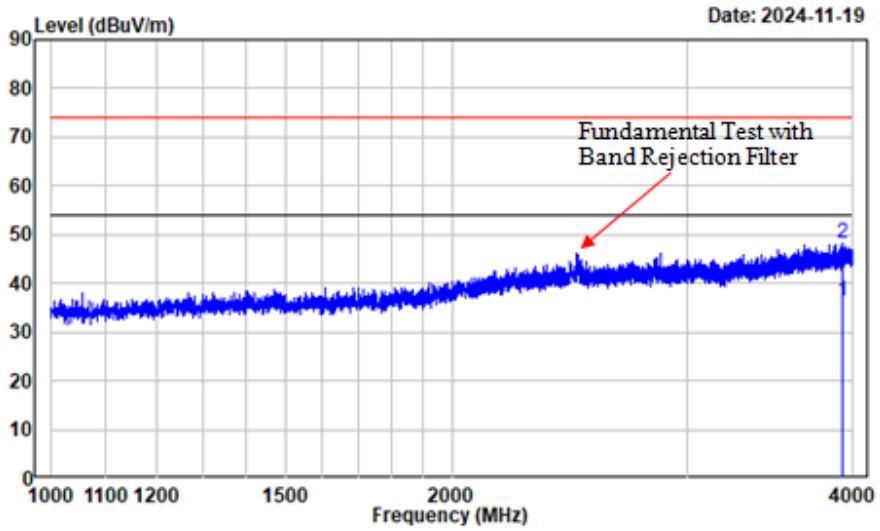


Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_g_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	33.95	36.58	54.00	-17.42	Average
2	17940.490	24.19	23.59	47.78	54.00	-6.22	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

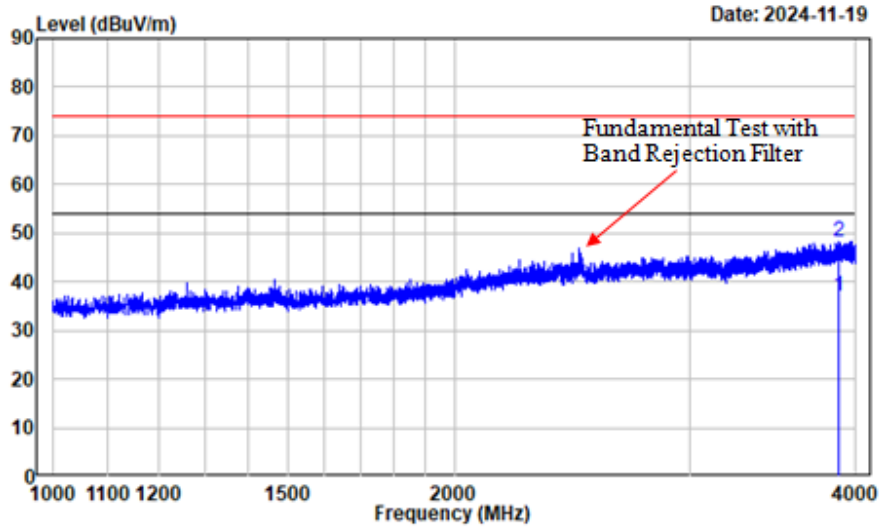
1-4GHz_Horizontal_802.11n-HT20



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3925.741	-0.34	36.53	36.19	54.00	-17.81	Average
2	3925.741	-0.34	48.42	48.08	74.00	-25.92	Peak

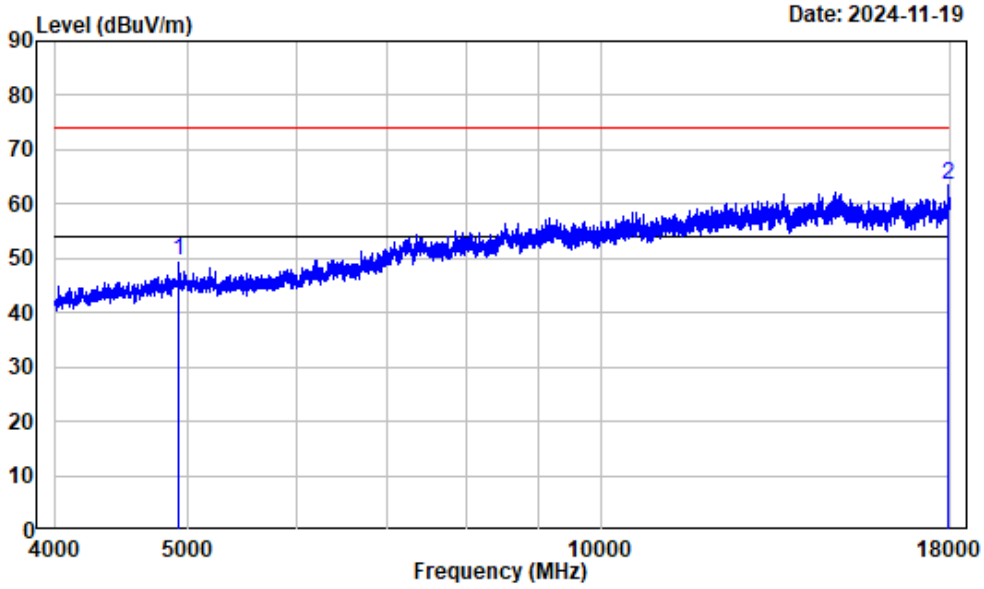
1-4GHz_Vertical_802.11n-HT20



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3885.986	-0.60	37.78	37.18	54.00	-16.82	Average
2	3885.986	-0.60	48.94	48.34	74.00	-25.66	Peak

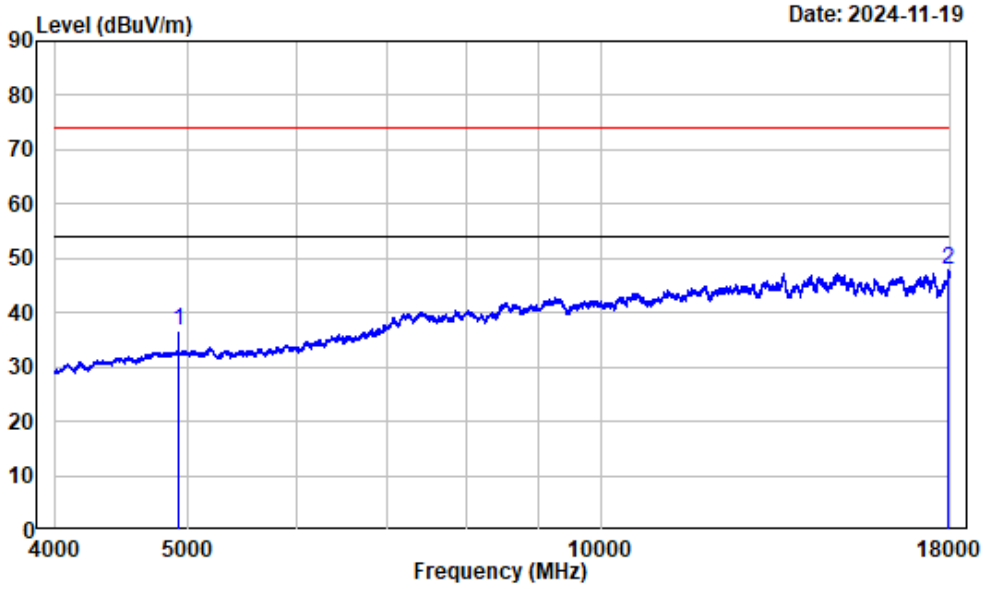
4-18GHz_Horizontal_Peak_802.11n-HT20



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.91	49.54	74.00	-24.46	Peak
2	17933.490	24.14	39.20	63.34	74.00	-10.66	Peak

4-18GHz_Horizontal_Average_802.11n-HT20

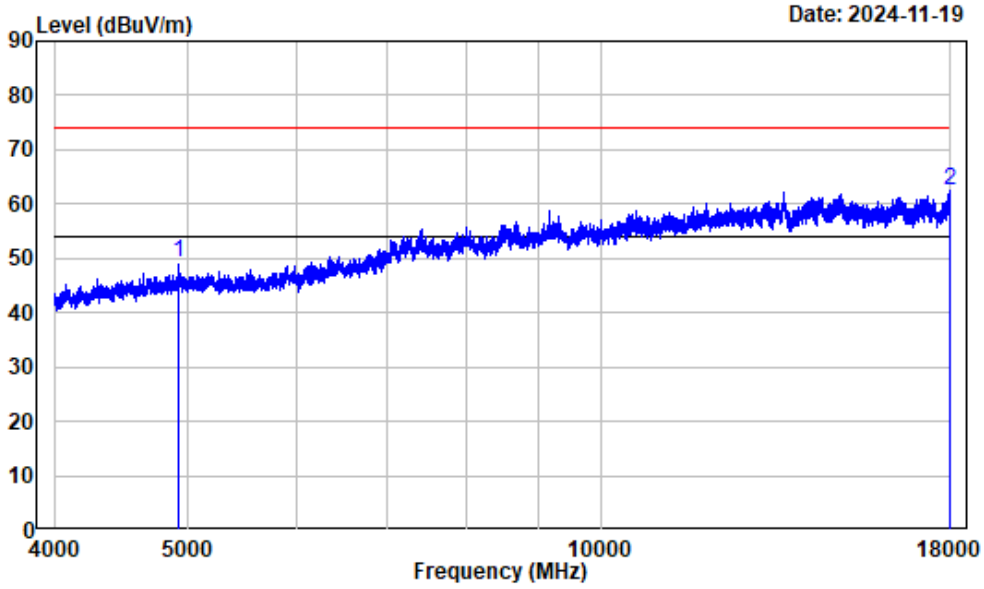


Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	33.91	36.54	54.00	-17.46	Average
2	17954.490	24.30	23.49	47.79	54.00	-6.21	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

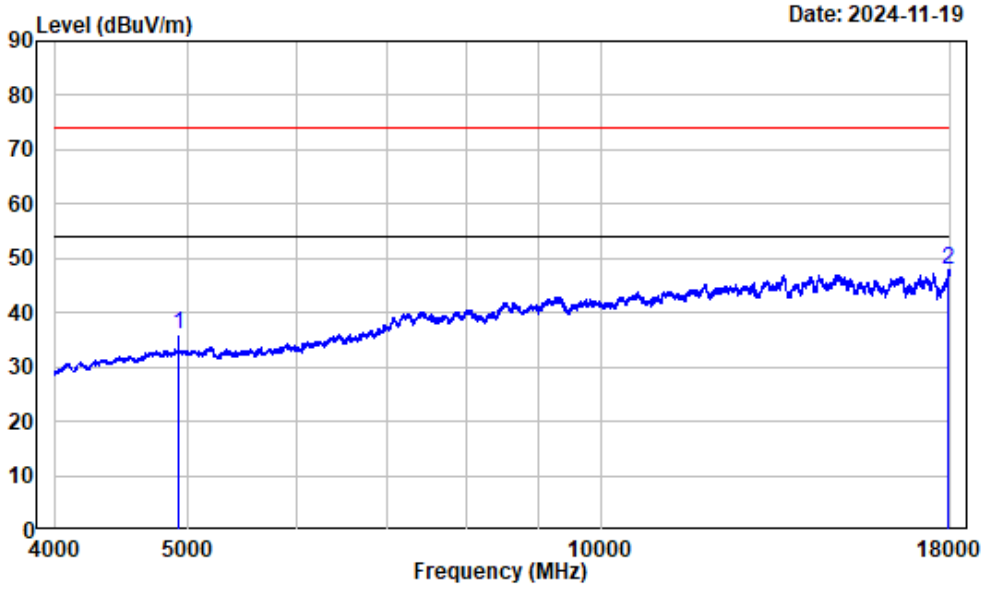
4-18GHz_Vertical_Peak_802.11n-HT20



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.78	49.41	74.00	-24.59	Peak
2	17993.000	24.57	37.77	62.34	74.00	-11.66	Peak

4-18GHz_Vertical_Average_802.11n-HT20

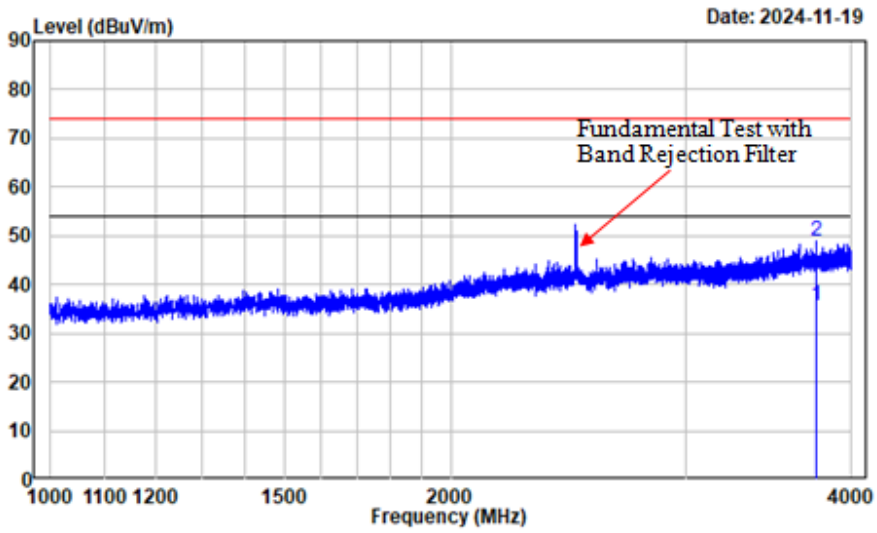


Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n20_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	33.48	36.11	54.00	-17.89	Average
2	17943.990	24.22	23.51	47.73	54.00	-6.27	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

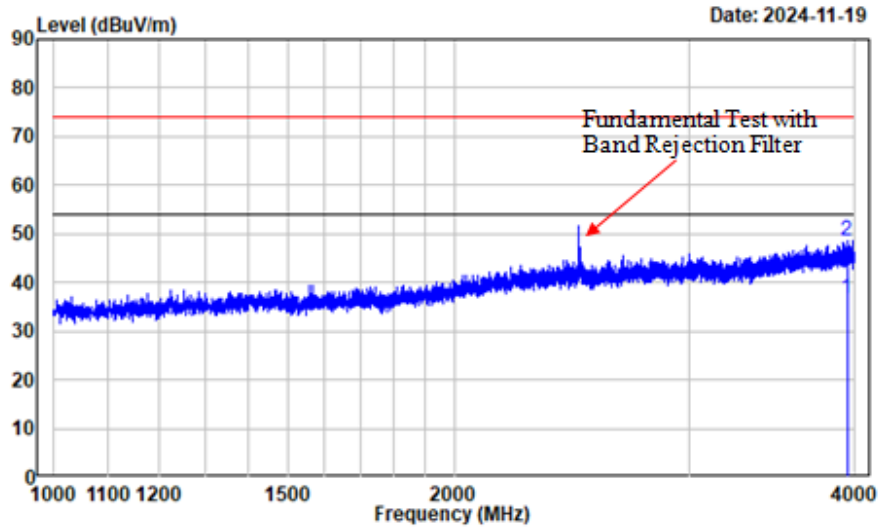
1-4GHz_Horizontal_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3762.970	-0.85	36.60	35.75	54.00	-18.25	Average
2	3762.970	-0.85	49.68	48.83	74.00	-25.17	Peak

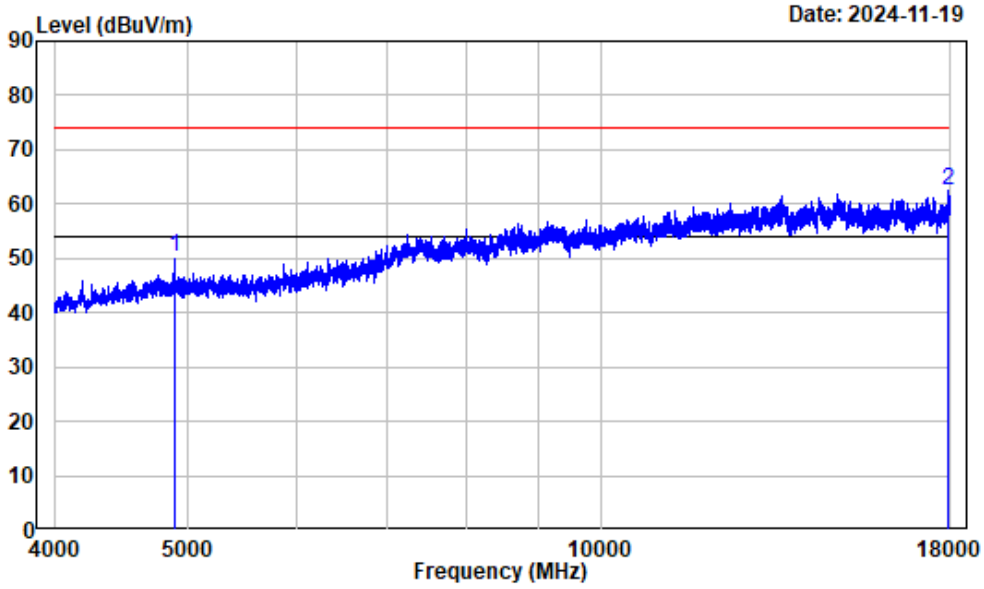
1-4GHz_Vertical_802.11n-HT40



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3945.993	-0.20	36.99	36.79	54.00	-17.21	Average
2	3945.993	-0.20	48.84	48.64	74.00	-25.36	Peak

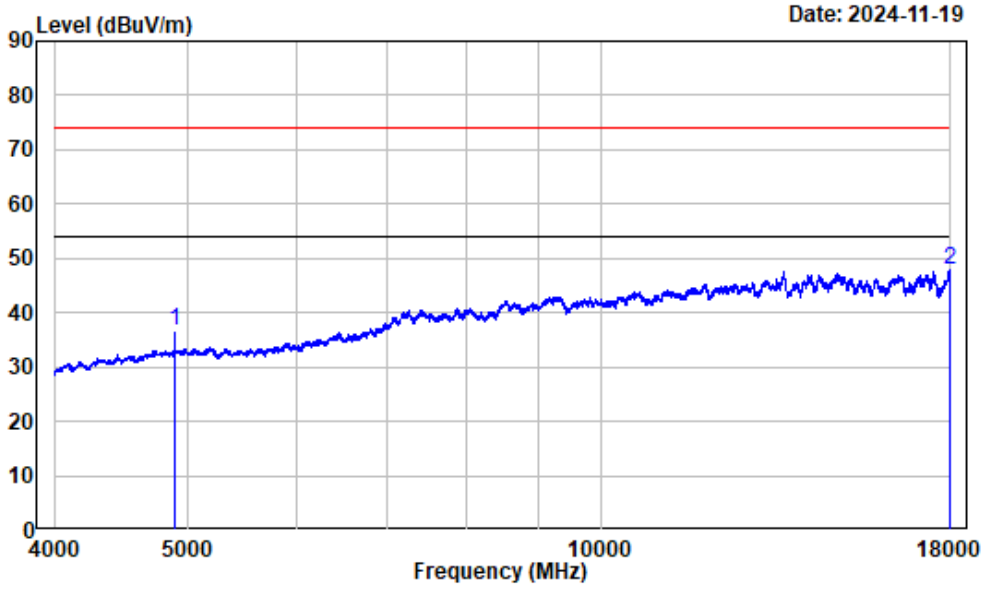
4-18GHz_Horizontal_Peak_802.11n-HT40



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4904.000	2.64	47.78	50.42	74.00	-23.58	Peak
2	17936.990	24.17	38.15	62.32	74.00	-11.68	Peak

4-18GHz_Horizontal_Average_802.11n-HT40

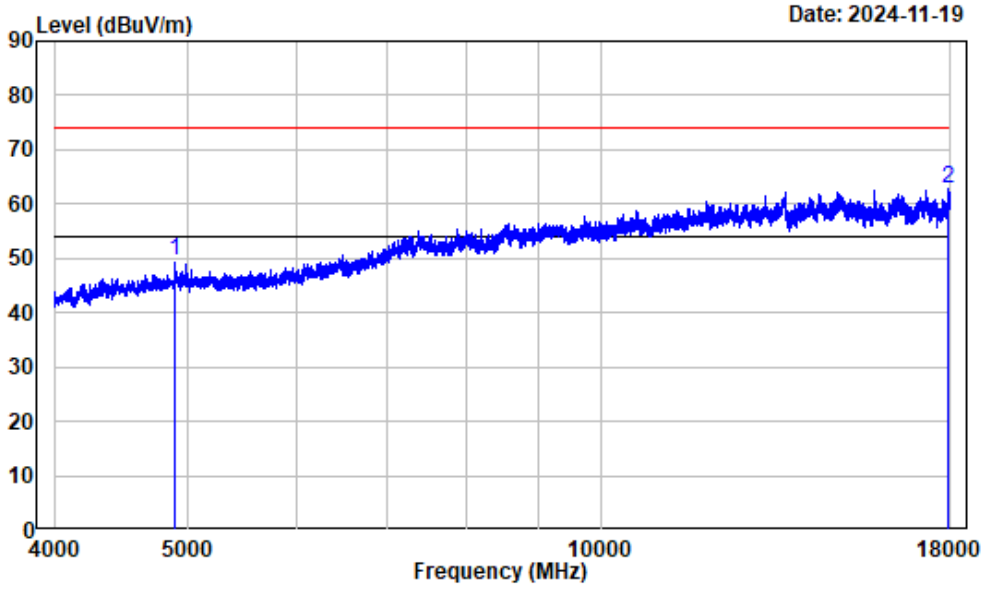


Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4904.000	2.64	33.99	36.63	54.00	-17.37	Average
2	17959.740	24.34	23.40	47.74	54.00	-6.26	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

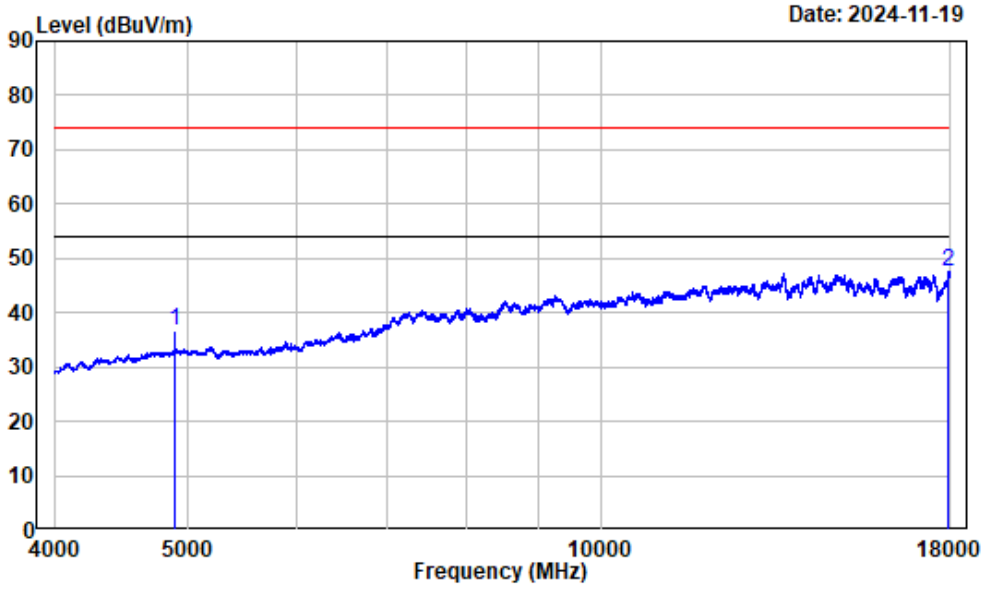
4-18GHz_Vertical_Peak_802.11n-HT40



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4904.000	2.64	46.89	49.53	74.00	-24.47	Peak
2	17928.240	24.11	38.66	62.77	74.00	-11.23	Peak

4-18GHz_Vertical_Average_802.11n-HT40

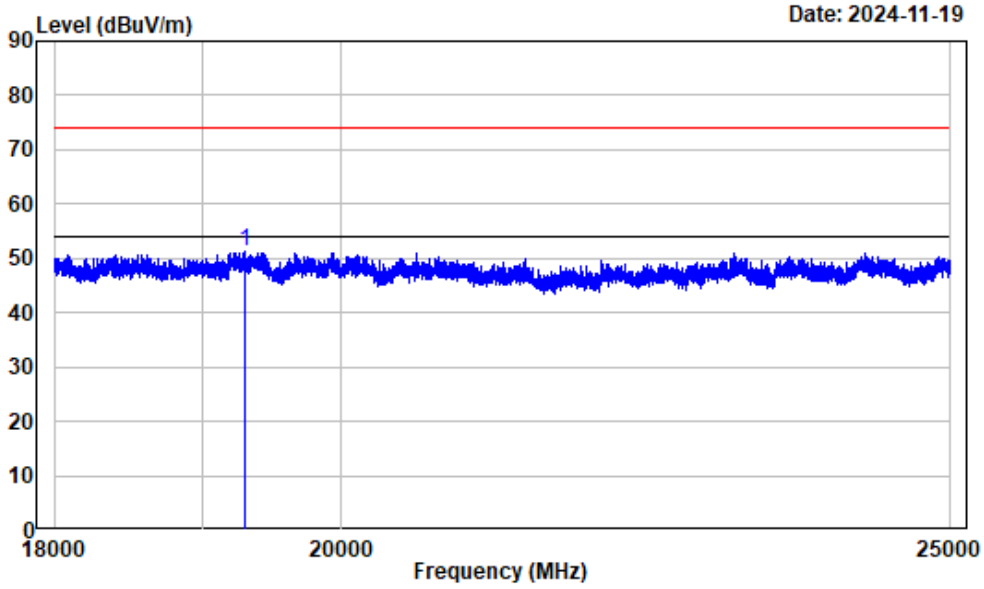


Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4904.000	2.64	34.09	36.73	54.00	-17.27	Average
2	17950.990	24.28	23.32	47.60	54.00	-6.40	Average

Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

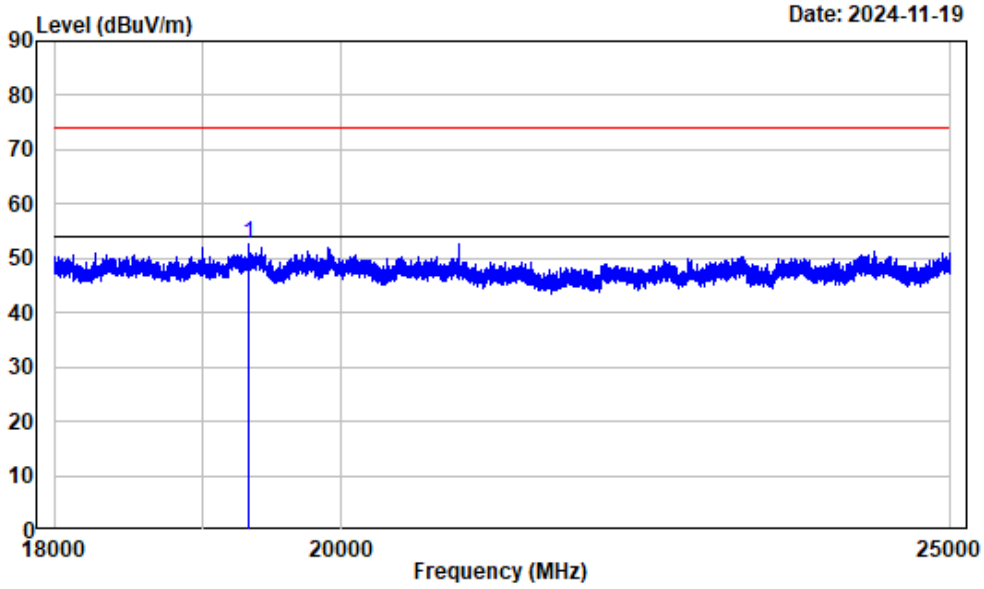
18-25GHz_Horizontal



Condition : Horizontal
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19307.410	15.20	35.97	51.17	74.00	-22.83	Peak

18-25GHz_Vertical



Condition : Vertical
Project Number: 2401Y99438E-RF
Tester : Karl Xu
Note : 2.4GWiFi_n40_2452

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19324.920	15.16	37.46	52.62	74.00	-21.38	Peak

6dB Emission Bandwidth

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/10/31
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

Environmental Conditions:

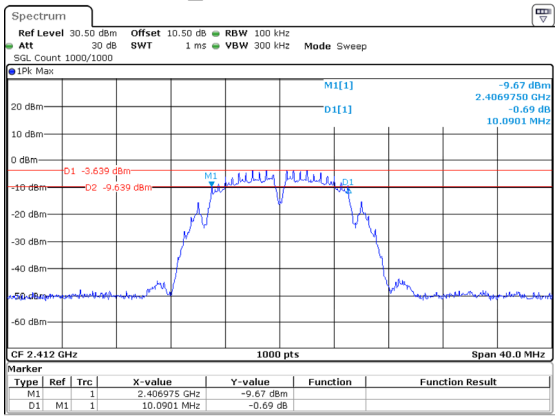
Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

Test Data:

Mode	Test Frequency (MHz)	Result (MHz)	Limit (MHz)	Verdict
802.11b	2412	10.090	≥0.5	Pass
	2437	10.130	≥0.5	Pass
	2462	10.130	≥0.5	Pass
802.11g	2412	16.136	≥0.5	Pass
	2437	16.336	≥0.5	Pass
	2462	16.376	≥0.5	Pass
802.11n20	2412	16.376	≥0.5	Pass
	2437	16.817	≥0.5	Pass
	2462	17.057	≥0.5	Pass
802.11n40	2422	35.315	≥0.5	Pass
	2437	**35.716**	≥0.5	Pass
	2452	35.315	≥0.5	Pass

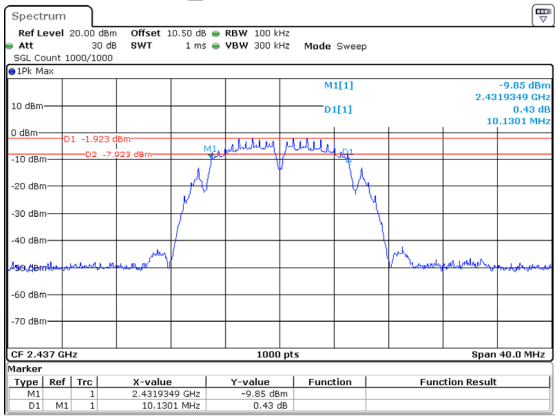
2412~2462

802.11b_2412MHz 10.090MHz



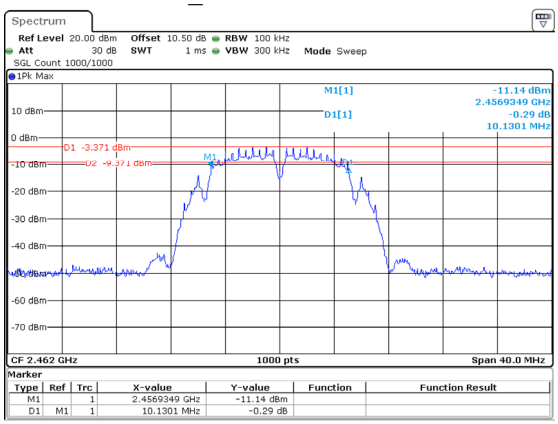
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 02:08:56

802.11b_2437MHz 10.130MHz



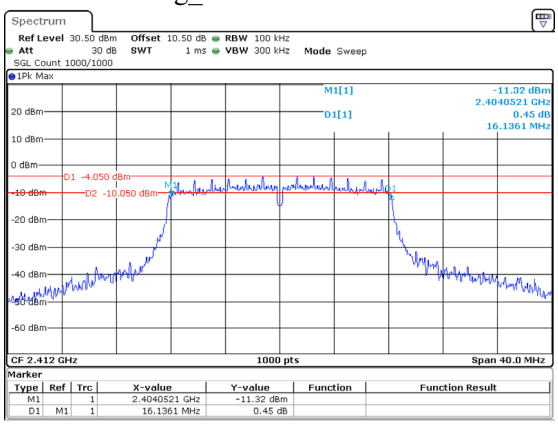
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 02:06:41

802.11b_2462MHz 10.130MHz



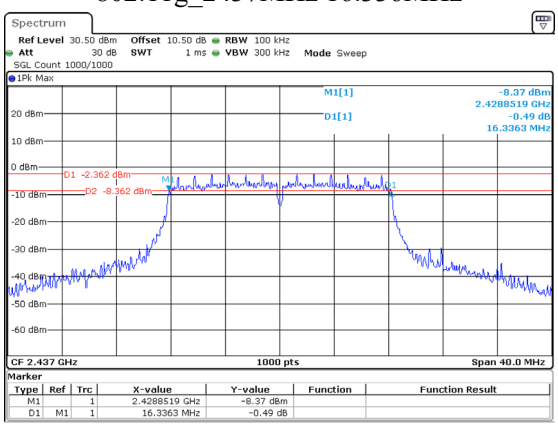
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 02:11:51

802.11g_2412MHz 16.136MHz



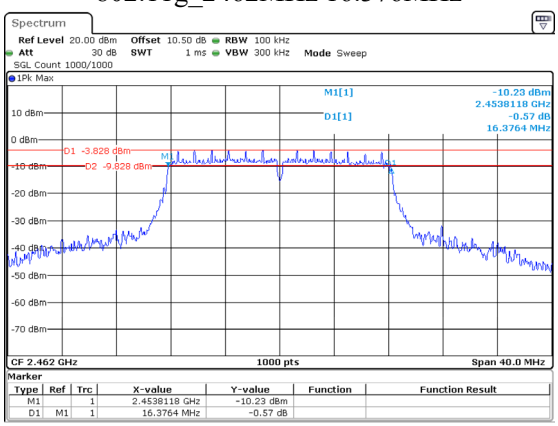
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:28:23

802.11g_2437MHz 16.336MHz



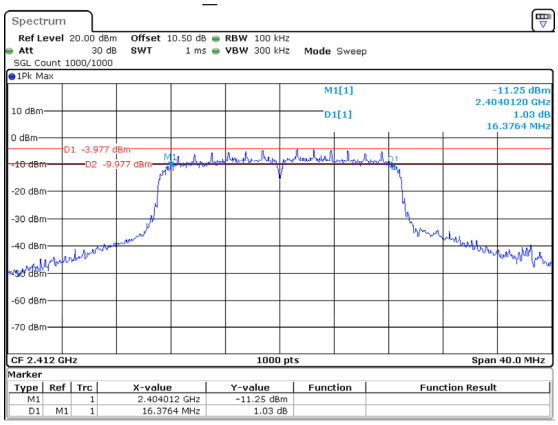
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:29:52

802.11g_2462MHz 16.376MHz



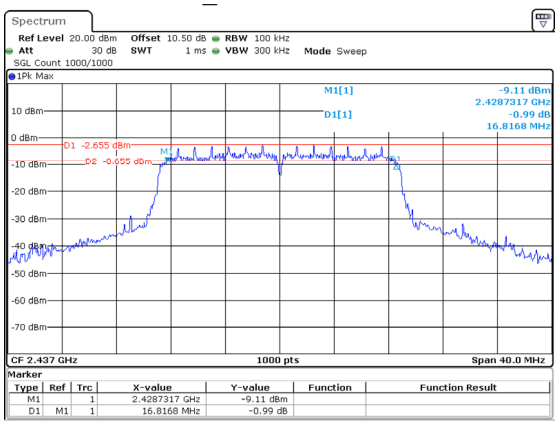
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:54:12

802.11n20_2412MHz 16.376MHz



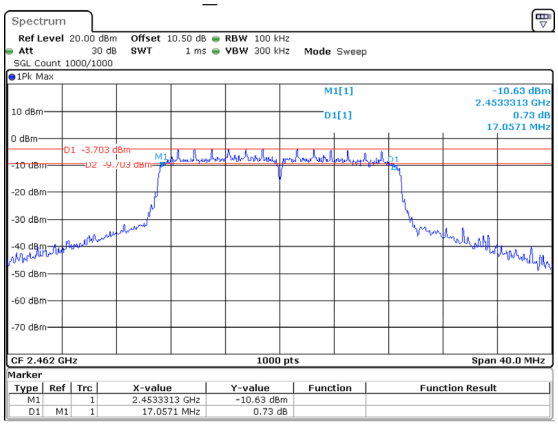
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:09:20

802.11n20_2437MHz 16.817MHz



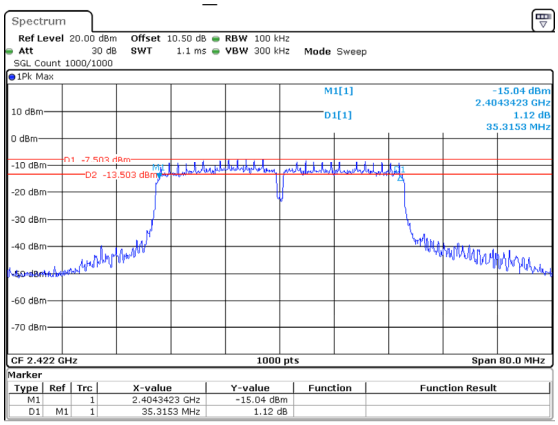
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:05:16

802.11n20_2462MHz 17.057MHz



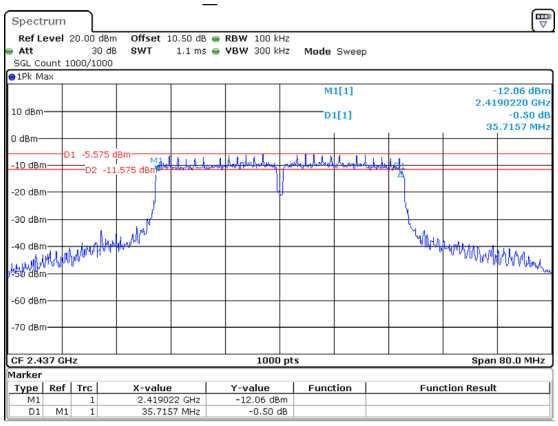
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:06:11

802.11n40_2422MHz 35.315MHz



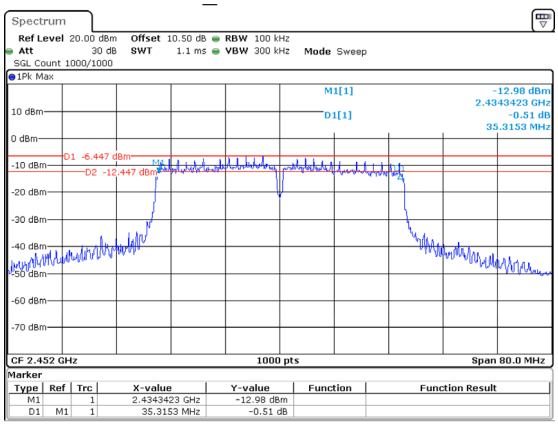
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:06:35

802.11n40_2437MHz 35.716MHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:08:10

802.11n40_2452MHz 35.315MHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 18:07:20

99% Occupied Bandwidth

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/11/20
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	N/A

Environmental Conditions:

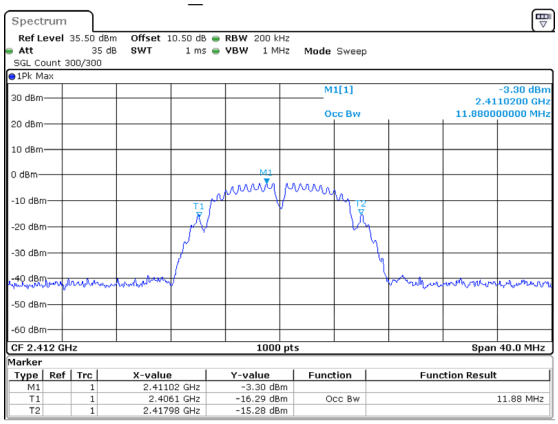
Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

Test Data:

Mode	Test Frequency (MHz)	99% OBW (MHz)
802.11b	2412	11.880
	2437	11.960
	2462	12.040
802.11g	2412	16.360
	2437	16.480
	2462	16.480
802.11n20	2412	17.440
	2437	17.560
	2462	17.560
802.11n40	2422	**36.240**
	2437	**36.240**
	2452	36.160

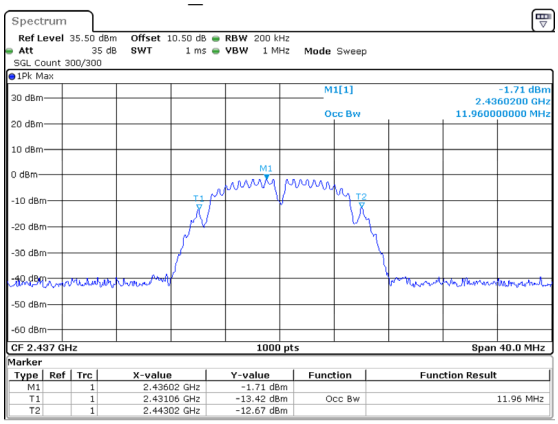
2412~2462

802.11b_2412MHz 11.880MHz



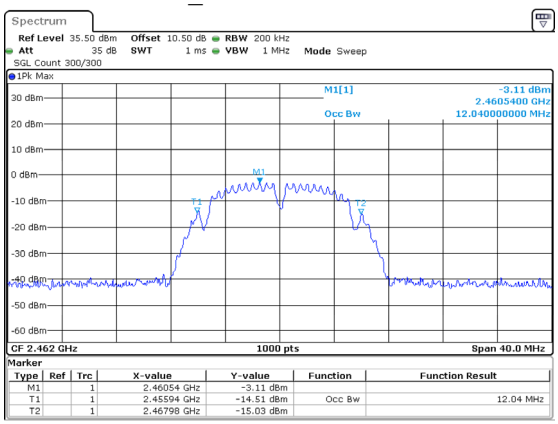
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:09:57

802.11b_2437MHz 11.960MHz



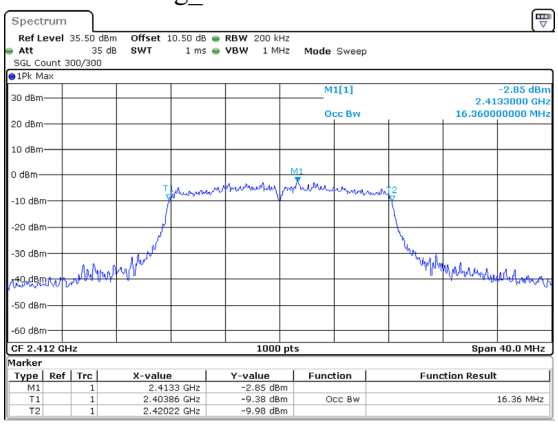
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:09:12

802.11b_2462MHz 12.040MHz



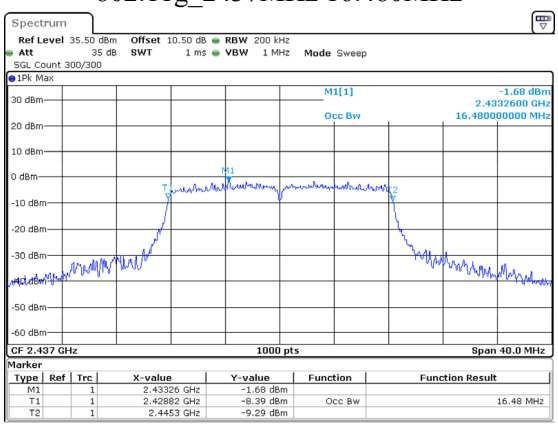
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:10:21

802.11g_2412MHz 16.360MHz



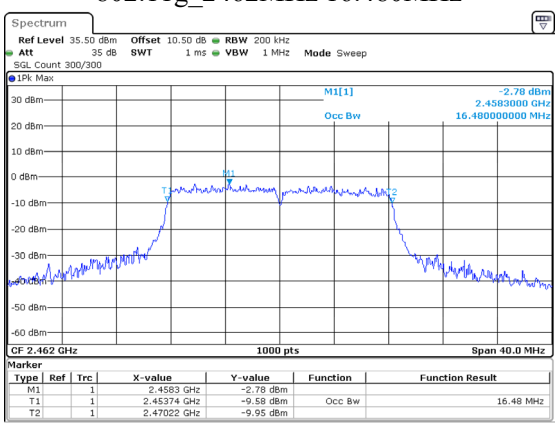
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:05:21

802.11g_2437MHz 16.480MHz



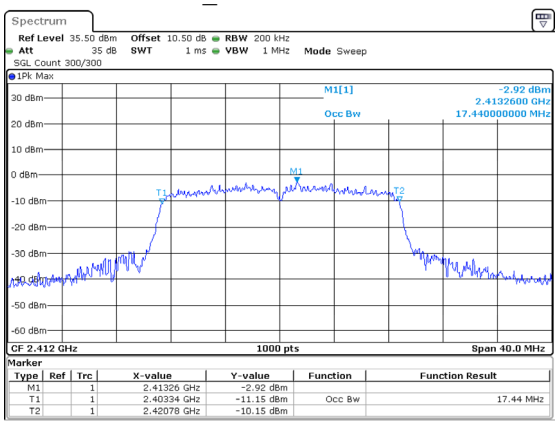
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:05:44

802.11g_2462MHz 16.480MHz



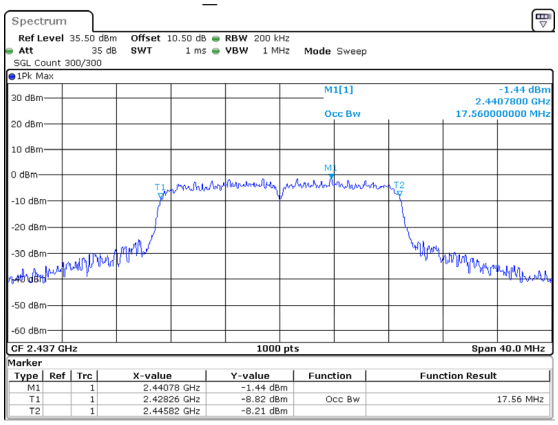
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:06:09

802.11n20_2412MHz 17.440MHz



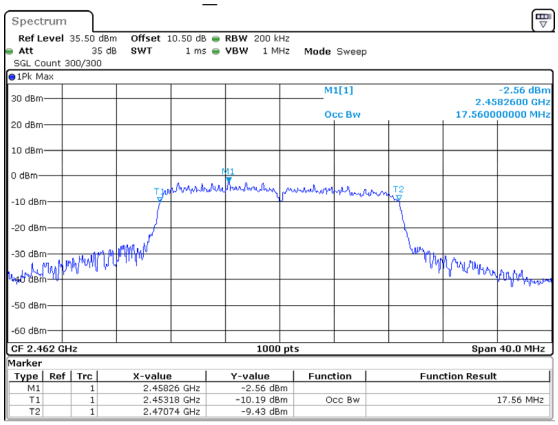
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:06:44

802.11n20_2437MHz 17.560MHz



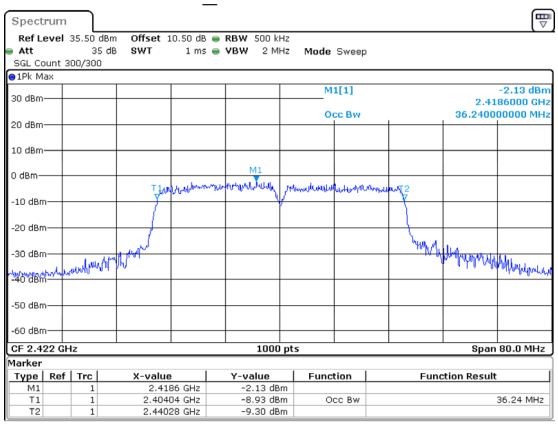
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:07:06

802.11n20_2462MHz 17.560MHz



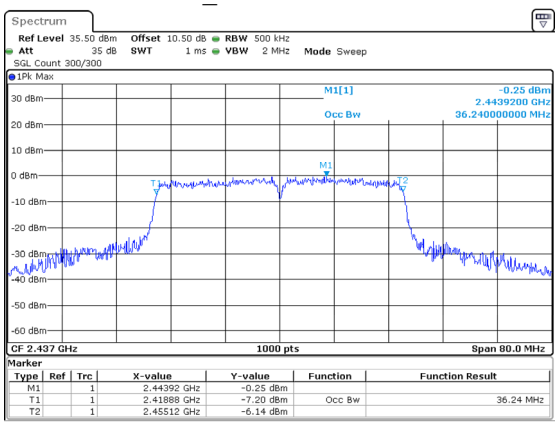
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:07:36

802.11n40_2422MHz 36.240MHz



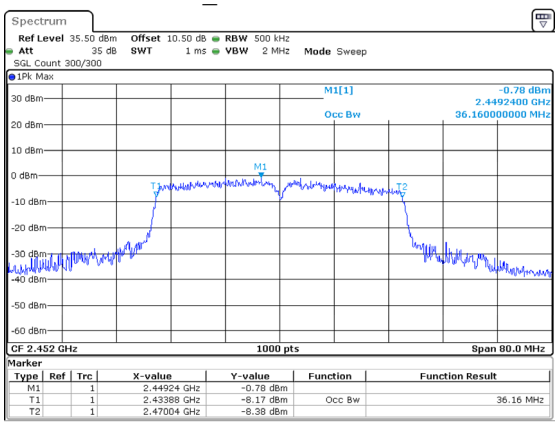
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:07:56

802.11n40_2437MHz 36.240MHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:08:15

802.11n40_2452MHz 36.160MHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 20.NOV.2024 18:08:37

Maximum Conducted Output Power

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/11/10
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

Environmental Conditions:

Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

Test Data:

Mode	Test Frequency (MHz)	Peak Output Power(dBm)	Average Output Power(dBm)	Limit (dBm)	EIRP (dBm)	EIRP limit (dBm)	Verdict
802.11b	2412	8.58	5.67	30	9.96	36	Pass
	2437	10.01	7.12	30	11.39	36	Pass
	2462	9.27	6.30	30	10.65	36	Pass
802.11g	2412	14.18	6.60	30	15.56	36	Pass
	2437	15.85	8.13	30	17.23	36	Pass
	2462	15.17	7.57	30	16.55	36	Pass
802.11n20	2412	14.29	6.37	30	15.67	36	Pass
	2437	**15.98**	8.20	30	17.36	36	Pass
	2462	15.29	7.34	30	16.67	36	Pass
802.11n40	2422	13.68	5.46	30	15.06	36	Pass
	2437	15.83	7.43	30	17.21	36	Pass
	2452	14.43	6.16	30	15.81	36	Pass

Power Spectral Density

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/11/10
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

Environmental Conditions:

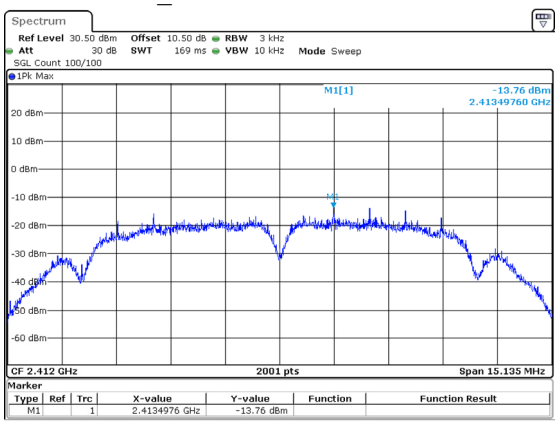
Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

Test Data:

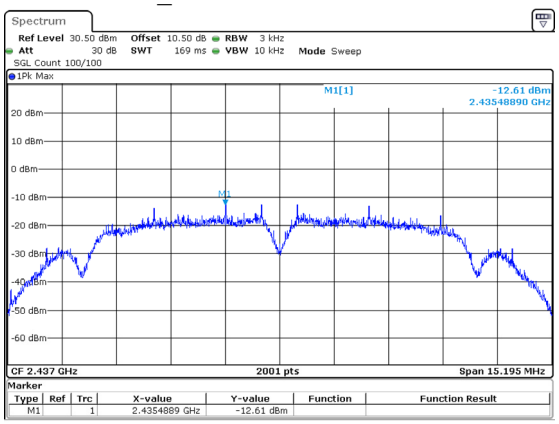
Mode	Test Frequency (MHz)	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	2412	-13.76	8	Pass
	2437	**-12.61**	8	Pass
	2462	-13.13	8	Pass
802.11g	2412	-17.99	8	Pass
	2437	-16.92	8	Pass
	2462	-17.16	8	Pass
802.11n20	2412	-17.24	8	Pass
	2437	-16.90	8	Pass
	2462	-16.89	8	Pass
802.11n40	2422	-21.13	8	Pass
	2437	-20.31	8	Pass
	2452	-21.11	8	Pass

2412~2462

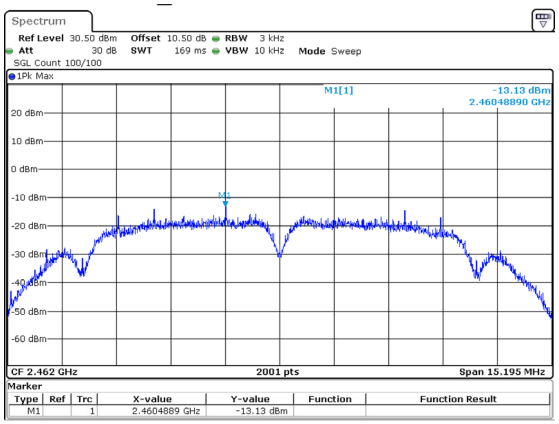
802.11b_2412MHz -13.76dBm/3kHz



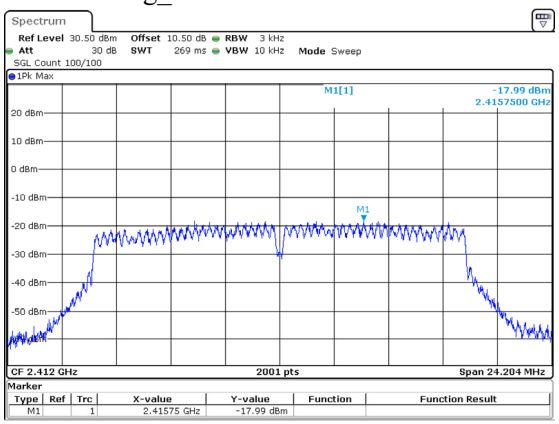
802.11b_2437MHz -12.61dBm/3kHz



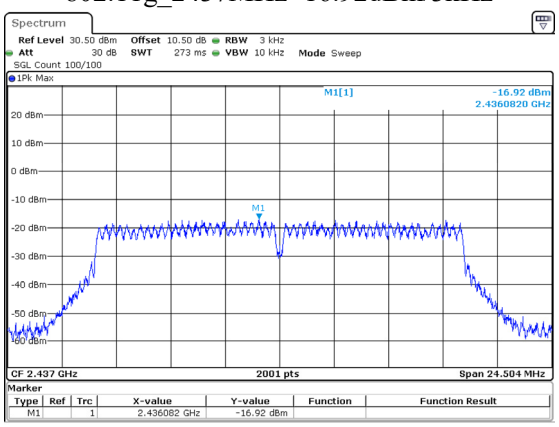
802.11b_2462MHz -13.13dBm/3kHz



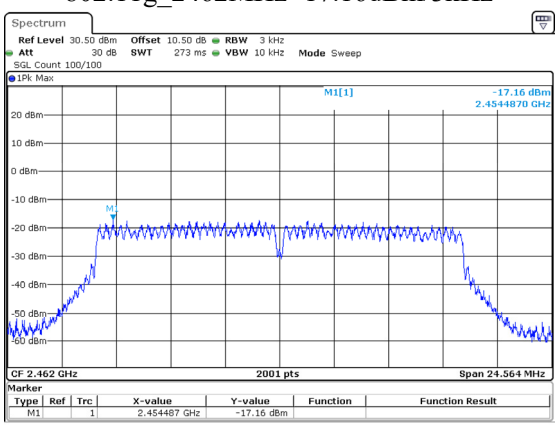
802.11g_2412MHz -17.99dBm/3kHz



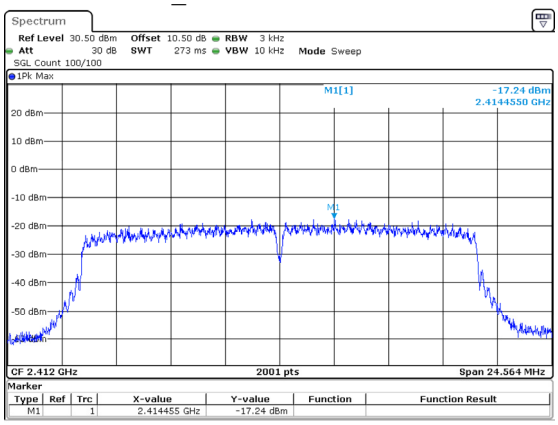
802.11g_2437MHz -16.92dBm/3kHz



802.11g_2462MHz -17.16dBm/3kHz

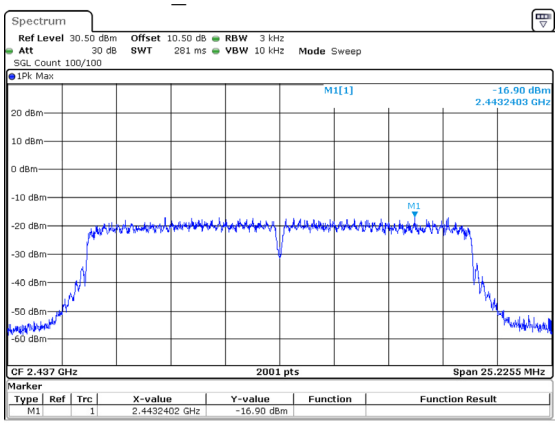


802.11n20_2412MHz -17.24dBm/3kHz



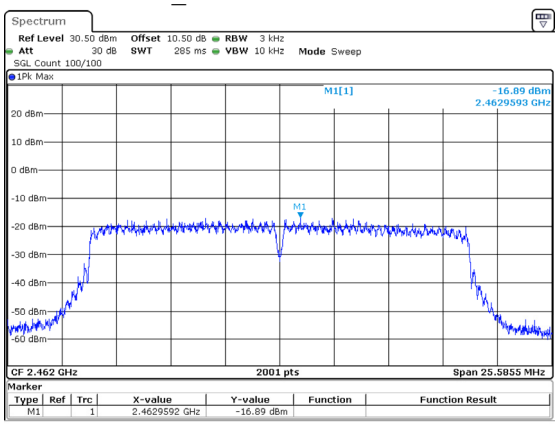
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:04:25

802.11n20_2437MHz -16.90dBm/3kHz



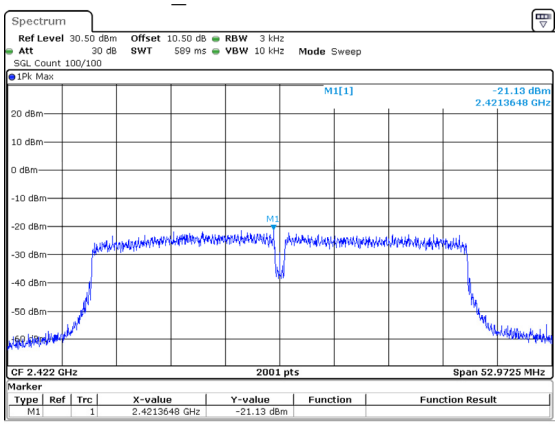
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:05:22

802.11n20_2462MHz -16.89dBm/3kHz



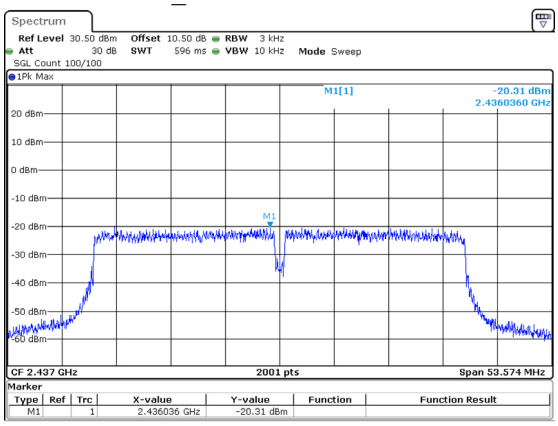
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:07:16

802.11n40_2422MHz -21.13dBm/3kHz



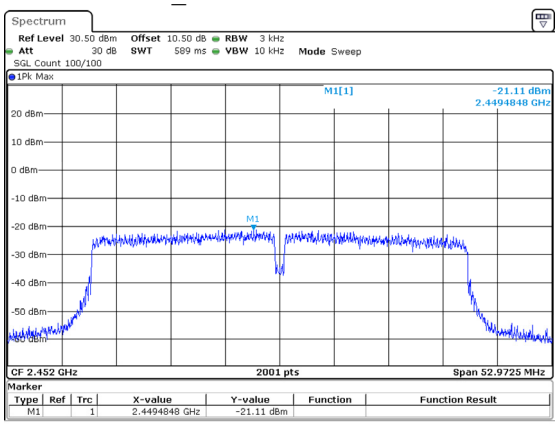
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:08:59

802.11n40_2437MHz -20.31dBm/3kHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:11:03

802.11n40_2452MHz -21.11dBm/3kHz



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 10.NOV.2024 22:13:20

100 kHz Bandwidth of Frequency Band Edge

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/10/31
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	Pass

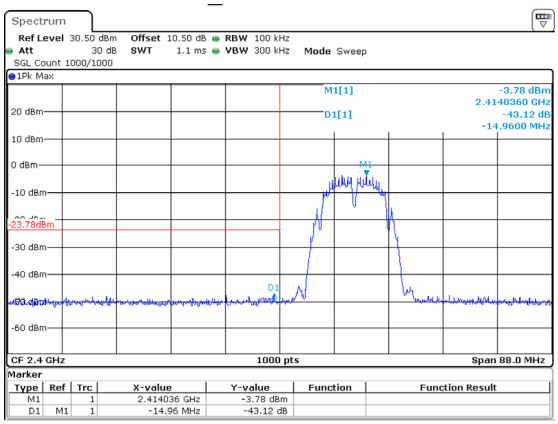
Environmental Conditions:

Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

Test Data:

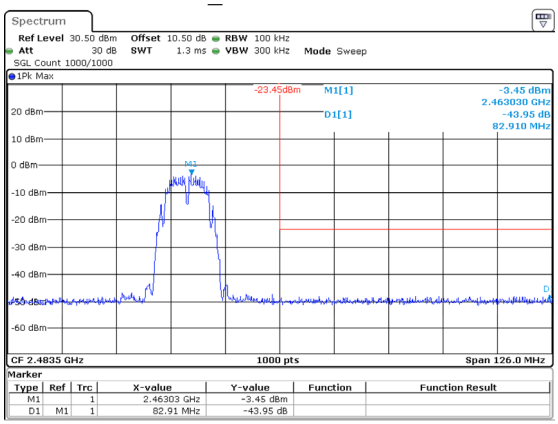
2412~2462

802.11b_2412MHz 43.12dB



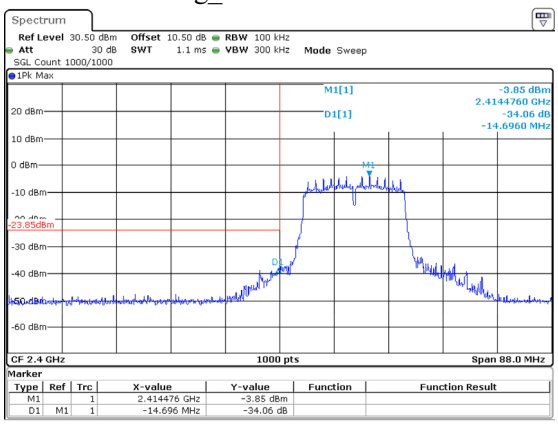
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:15:11

802.11b_2462MHz 43.95dB



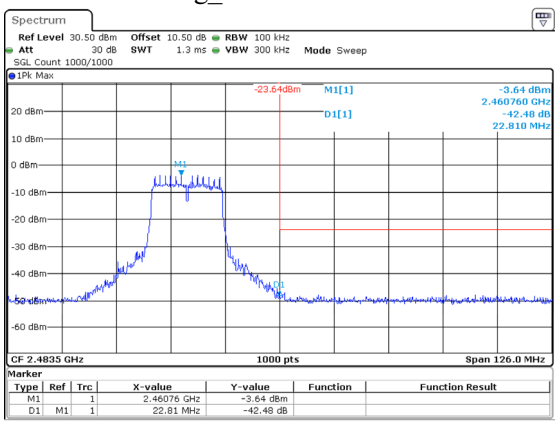
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:15:50

802.11g_2412MHz 34.06dB



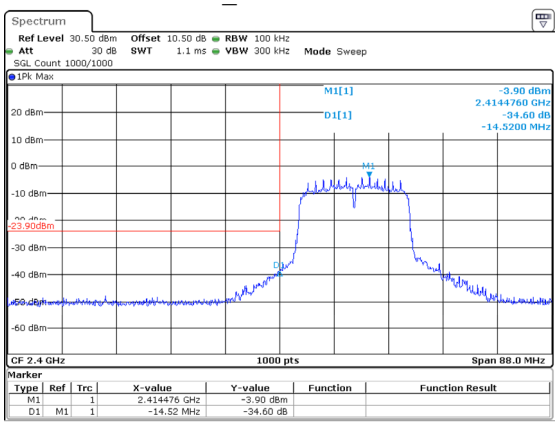
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:16:25

802.11g_2462MHz 42.48dB



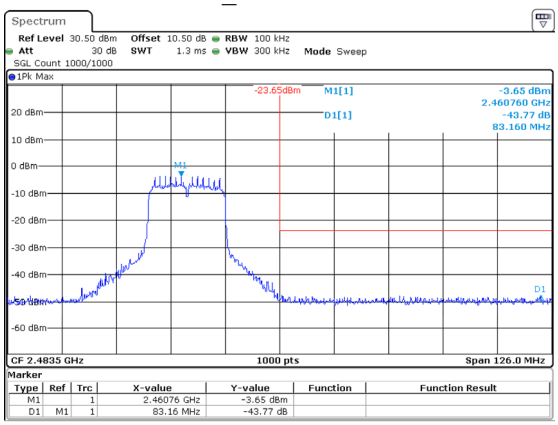
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:18:22

802.11n20_2412MHz 34.60dB



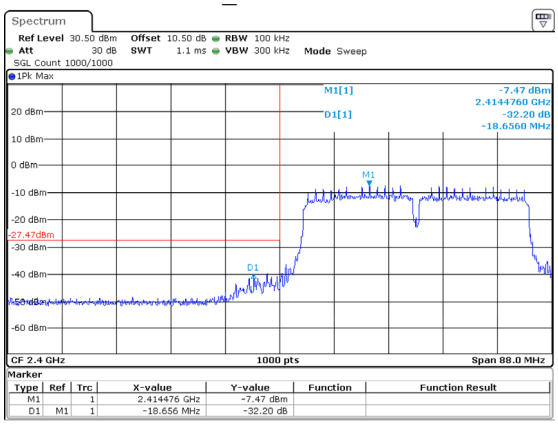
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:18:56

802.11n20_2462MHz 43.77dB



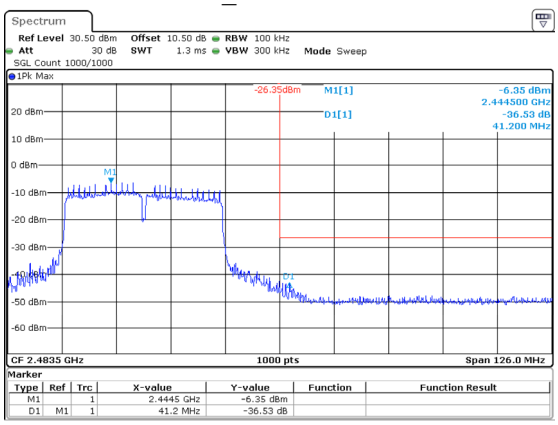
ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:19:36

802.11n40_2422MHz 32.20dB



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:20:14

802.11n40_2452MHz 36.53dB



ProjectNo.:2401Y99438E-RF Tester:Allen Bai
Date: 31.OCT.2024 03:20:53

Duty Cycle

Test Information:

Sample No.:	2SY1-1	**Test Date:**	2024/11/10
Test Site:	RF	**Test Mode:**	Transmitting
Tester:	Allen Bai	**Test Result:**	N/A

Environmental Conditions:

Temperature: (°C):	25	**Relative Humidity: (%)**	46	**ATM Pressure: (kPa)**	101

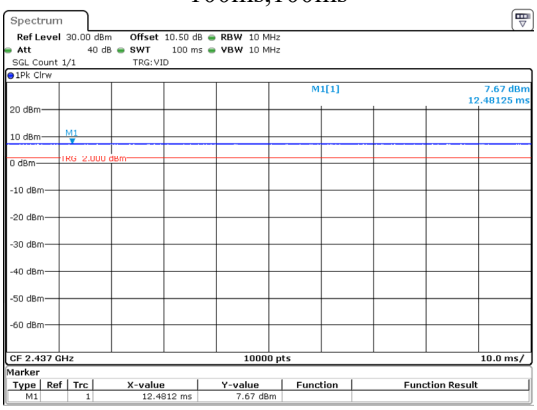
Test Data:

Mode	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
802.11b	2437	**100**	100	100	0	NA	0.010
802.11g	2437	**100**	100	100	0	NA	0.010
802.11n20	2437	**100**	100	100	0	NA	0.010
802.11n40	2437	**100**	100	100	0	NA	0.010

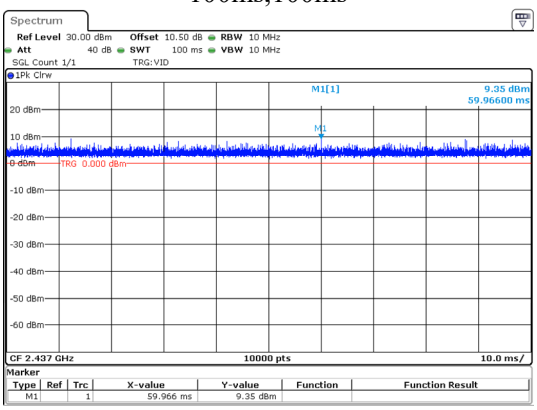
Duty Cycle = Ton/(Ton+Toff)*100%

2412~2462

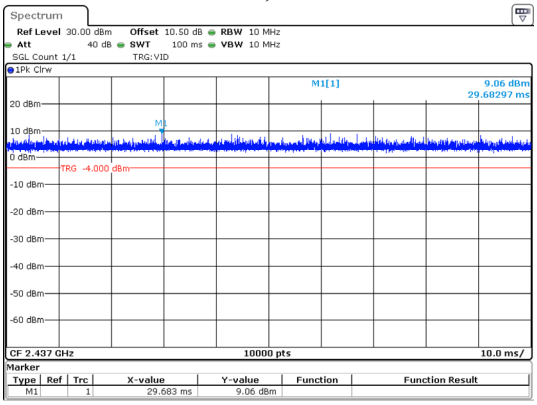
802.11b_2437MHz
100ms,100ms



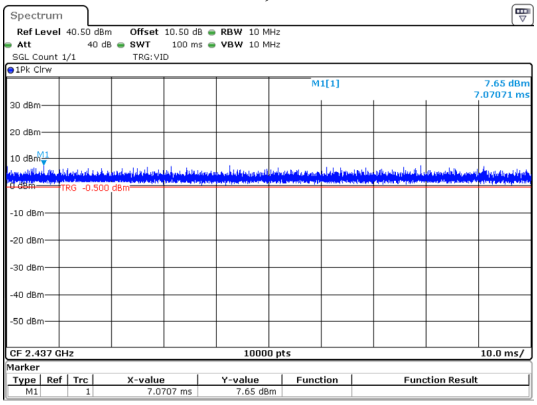
802.11g_2437MHz
100ms,100ms



802.11n20_2437MHz
100ms,100ms



802.11n40_2437MHz
100ms,100ms



EUT PHOTOGRAPHS

Please refer to the attachment 2401Y99438E-RF External photo and 2401Y99438E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401Y99438E-RFC Test Setup photo.

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