TEST REPORT

Applicant Name:	Sosmart Spa (SoyMomo SA)
Address:	Ricardo Lyon 1688, Providencia, Santiago, Chile, 92101
Report Number:	2401X37662E-RF-00A
FCC ID:	2A4WI-SPACE3

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Smart Watch
Model No.:	Space 3.0
Multiple Model(s) No.:	N/A
Trade Mark:	Space 3.0
Date Received:	2024/09/06
Issue Date:	2024/12/16

Test Result:	Pass▲

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

Prepared and Checked By:

Gala Liu
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.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401X37662E-RF-00A	Original Report	2024/12/16

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Smart Watch
Tested Model	Space 3.0
Multiple Model(s)	N/A
Frequency Range	2412-2462MHz
Maximum Conducted Peak Output Power	17.90dBm
Modulation Technique	DSSS,OFDM
Antenna Specification#	-1.53dBi (provided by the applicant)
Voltage Range	DC 3.80V from Li-ion Battery or DC5V from Adapter
Sample serial number	2RB5-1 for Conducted and Radiated Emissions Test 2RB5-6 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Model: XY-0033B Input: 100-240V~50/60Hz 0.15A Max Output: 5.0V, 1000mA

Objective

This test report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules.

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

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

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		±5%
RF output power, conducted		0.72 dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz~150 kHz	3.94dB(k=2, 95% level of confidence)
	150 kHz ~30MHz	3.84dB(k=2, 95% level of confidence)
Radiated Emissions	9kHz - 30MHz	3.30dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	4.48dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	4.55dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	4.85dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.05dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.35dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.44dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.16dB(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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

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

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

EUT was testing in engineering mode and the power level was provided by applicant.

The device was tested with the worst case was performed as below:

Mode	Data rate	Power Level#		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	9	9	9
802.11g	6Mbps	11	11	11
802.11n20	MCS0	11	11	11
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.				

Support Equipment List and Details

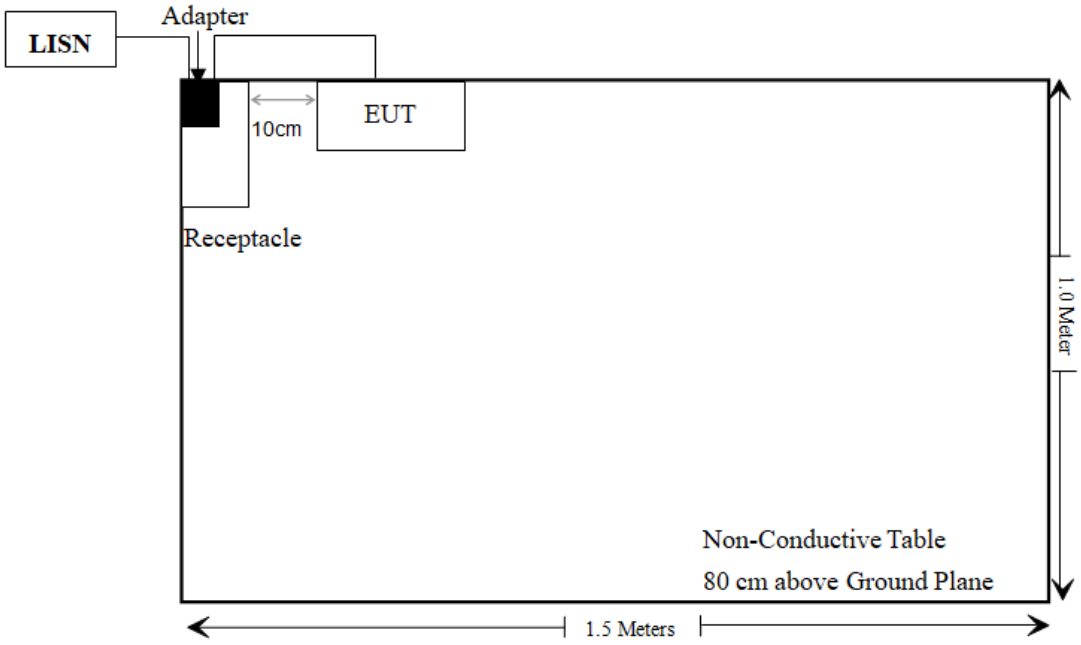
Manufacturer	Description	Model	Serial Number
Unknown	Receptacle	Unknown	Unknown

External I/O Cable

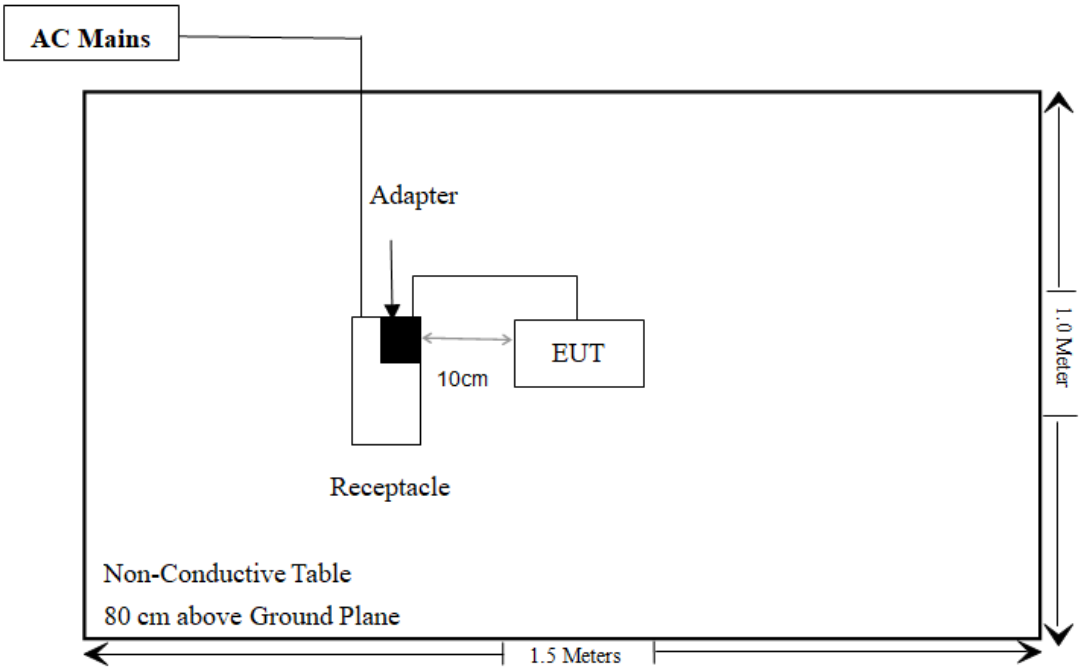
Cable Description	Length (m)	From Port	To
Un-shielding Detachable DC Cable	0.7	EUT	Adapter
Un-shielded Un-detachable AC Cable	1.5	Receptacle	LISN/AC Main

Block Diagram of Test Setup

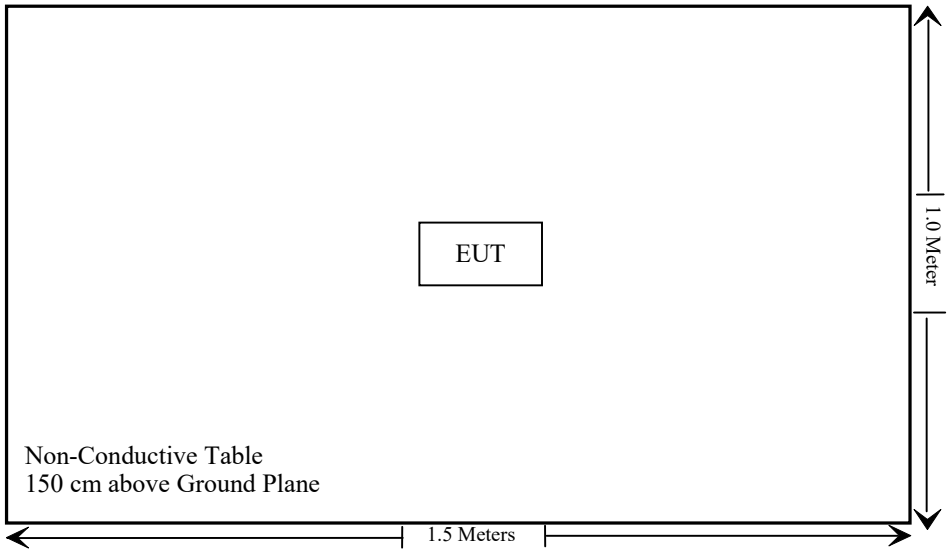
For Conducted Emissions:



For Radiated Emissions below 1GHz:



For Radiated Emissions above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1) & §2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant
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	LISN	ENV216	101613	2024/01/16	2025/01/15
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2024/05/21	2025/05/20
Unknown	CE Cable	Unknown	UF A210B-1-0720-504504	2024/05/21	2025/05/20
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	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	735	2024/06/18	2025/06/17
Unknown	RF Cable	UFA147	219661	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

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Tonscend	RF control Unit	JS0806-2	19D8060154	2024/08/06	2025/08/05
ANRITSU	Microwave peak power sensor	MA24418A	12622	2024/05/21	2025/05/20
Rohde &Schwarz	Spectrum Analyzer	FSV40	101473	2024/01/16	2025/01/15
MARCONI	10dB Attenuator	6534/3	2942	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).

FCC§15.247 (i), §1.1307 (b) (1) &§2.1093 – RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to KDB 447498 D01 General RF Exposure Guidance

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Measurement Result

For worst case:

Face Up:

Mode	Frequency (MHz)	Max tune-up conducted power# (dBm)	Max tune-up conducted power# (mW)	Distance (mm)	Calculated value	Threshold (1-g SAR)	SAR Test Exclusion
Wi-Fi	2412-2462	10.4	10.96	10	1.7	3.0	Yes

Limb Worn:

Mode	Frequency (MHz)	Max tune-up conducted power# (dBm)	Max tune-up conducted power# (mW)	Distance (mm)	Calculated value	Threshold (10-g extremity SAR)	SAR Test Exclusion
Wi-Fi	2412-2462	10.4	10.96	5	3.4	7.5	Yes

Result: Compliant.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

Antenna Connector Construction

The EUT has an internal antenna arrangement, which was permanently attached and the antenna gain# is -1.53dBi, fulfill the requirement of this section. Please refer to the EUT photos.

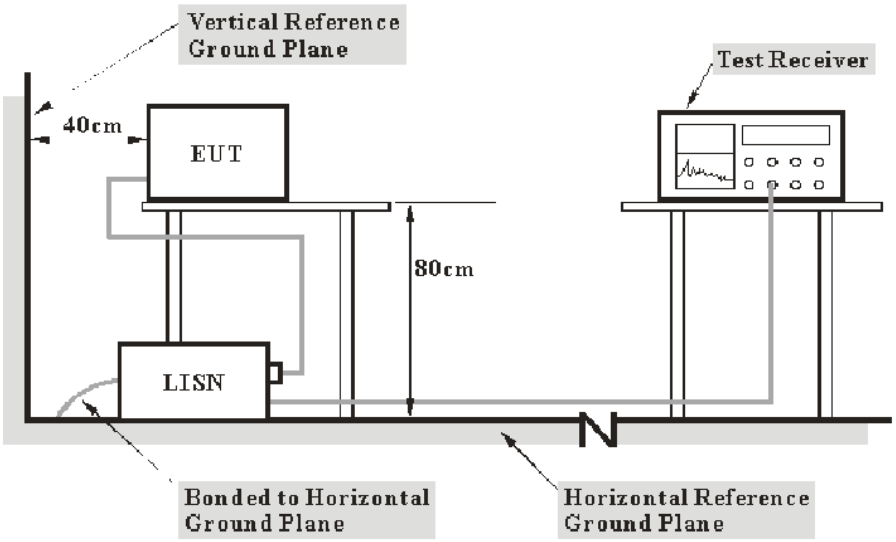
Result: Compliant

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

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 limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

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

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

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

Test Procedure

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

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).

Test Data

Environmental Conditions

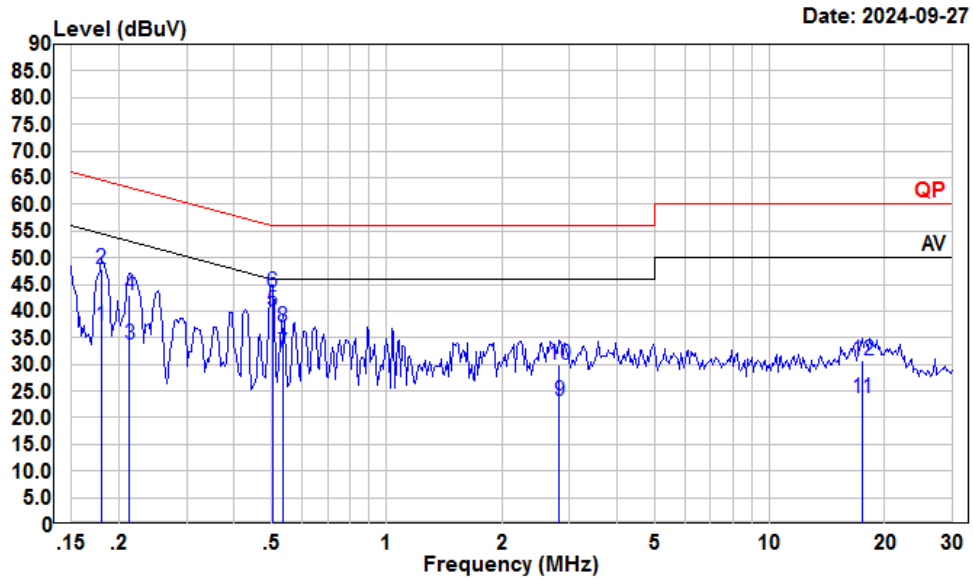
Temperature:	26 ℃
Relative Humidity:	72 %
ATM Pressure:	101 kPa

The testing was performed by Macy Shi on 2024-09-27.

EUT operation mode: Transmitting

2.4G Wi-Fi: *(Maximum output power mode, 802.11g Middle channel)*

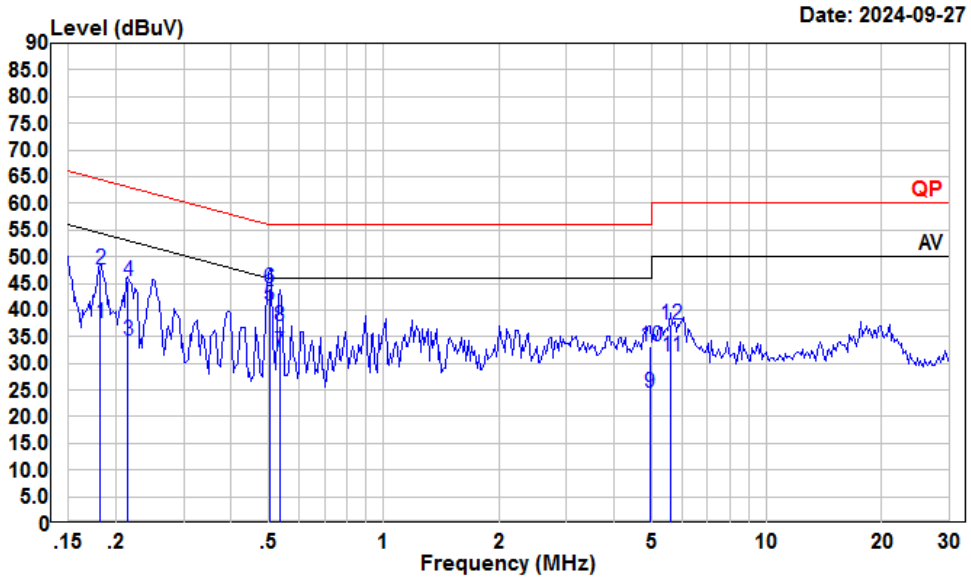
AC 120V/60 Hz, Line



Condition: Line
Project : 2401X37662E-RF
tester : Macy.shi
Note : 2.4G Transmitting

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.180	16.40	37.34	10.84	10.10	54.50	-17.16	Average
2	0.180	26.89	47.83	10.84	10.10	64.50	-16.67	QP
3	0.213	12.81	33.68	10.78	10.09	53.10	-19.42	Average
4	0.213	22.08	42.95	10.78	10.09	63.10	-20.15	QP
5	0.502	19.26	39.90	10.50	10.14	46.00	-6.10	Average
6	0.502	22.85	43.49	10.50	10.14	56.00	-12.51	QP
7	0.535	11.50	32.13	10.50	10.13	46.00	-13.87	Average
8	0.535	16.30	36.93	10.50	10.13	56.00	-19.07	QP
9	2.824	2.45	23.08	10.45	10.18	46.00	-22.92	Average
10	2.824	9.36	29.99	10.45	10.18	56.00	-26.01	QP
11	17.475	2.71	23.67	10.76	10.20	50.00	-26.33	Average
12	17.475	9.70	30.66	10.76	10.20	60.00	-29.34	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401X37662E-RF
tester : Macy.shi
Note : 2.4G Transmitting

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.182	16.88	37.45	10.47	10.10	54.42	-16.97	Average
2	0.182	26.92	47.49	10.47	10.10	64.42	-16.93	QP
3	0.215	13.88	34.39	10.42	10.09	53.01	-18.62	Average
4	0.215	24.85	45.36	10.42	10.09	63.01	-17.65	QP
5	0.502	19.93	40.77	10.70	10.14	46.00	-5.23	Average
6	0.502	23.33	44.17	10.70	10.14	56.00	-11.83	QP
7	0.535	11.30	32.13	10.70	10.13	46.00	-13.87	Average
8	0.535	16.20	37.03	10.70	10.13	56.00	-18.97	QP
9	4.952	3.72	24.41	10.51	10.18	46.00	-21.59	Average
10	4.952	12.56	33.25	10.51	10.18	56.00	-22.75	QP
11	5.623	10.48	31.24	10.58	10.18	50.00	-18.76	Average
12	5.623	16.51	37.27	10.58	10.18	60.00	-22.73	QP

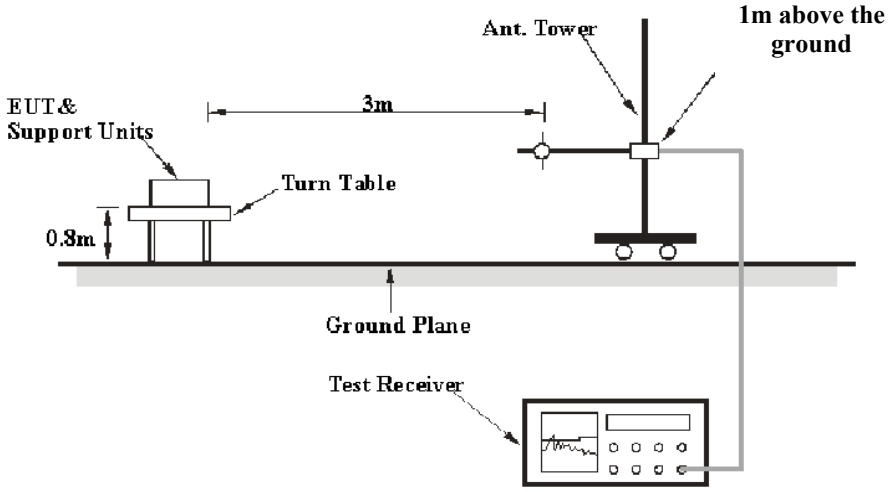
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

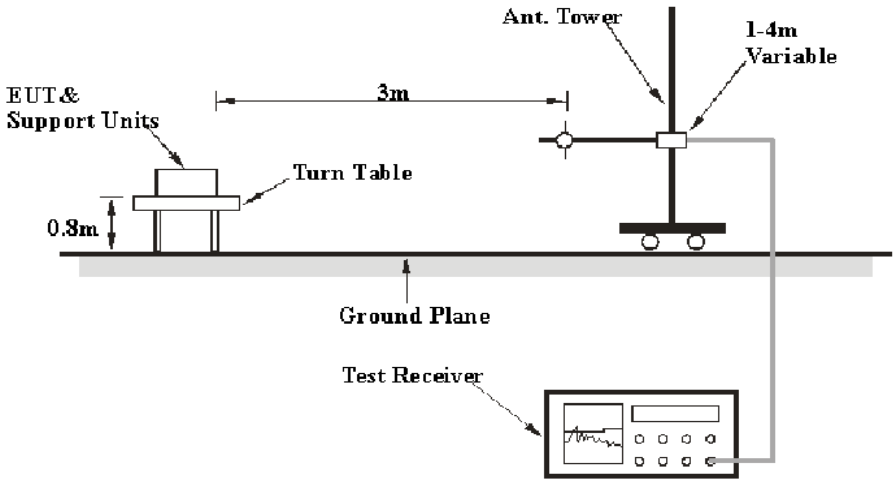
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

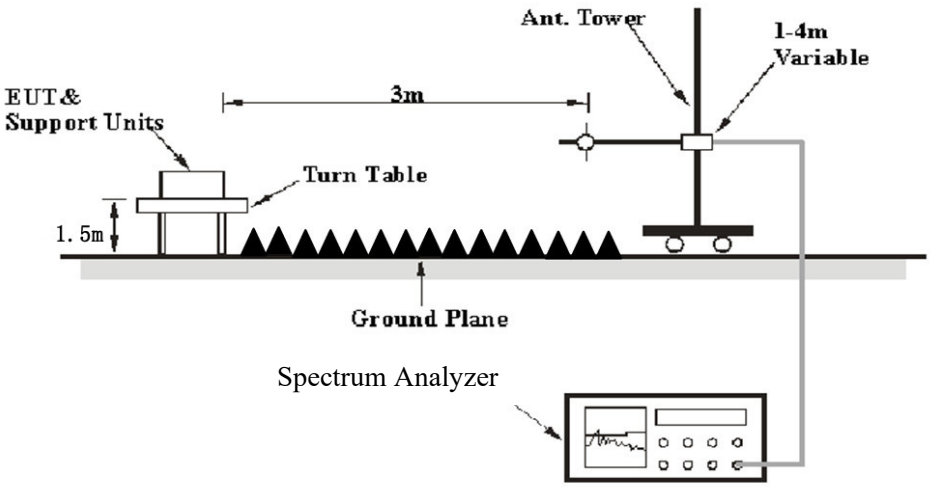
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



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

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:

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

Test Data

Environmental Conditions

Temperature:	22~25 ℃
Relative Humidity:	50~54 %
ATM Pressure:	101 kPa

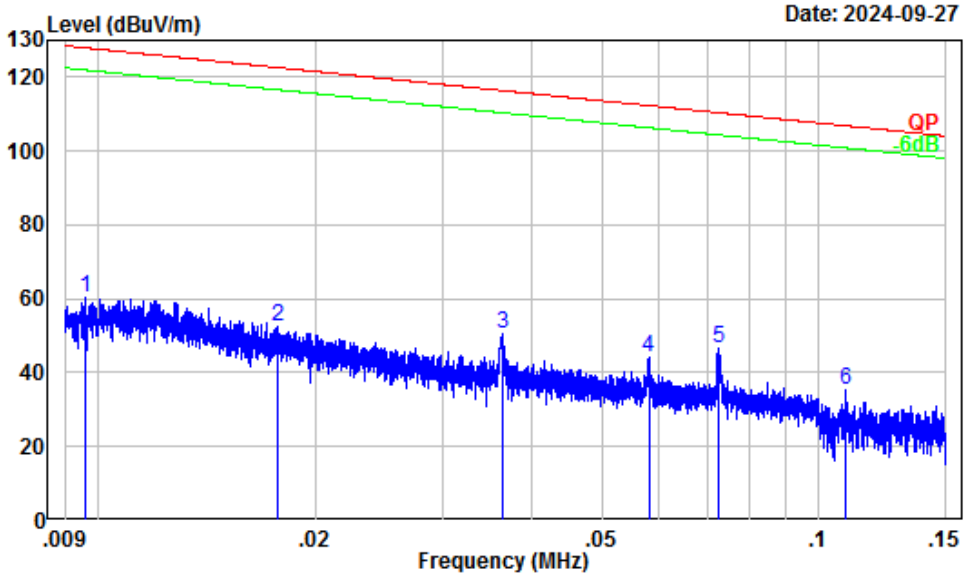
The testing was performed by Anson Su on 2024-09-27 for below 1GHz and Zenos Qiao on 2024-09-25 for above 1GHz.

EUT operation mode: Transmitting

Note: Pre-scan in the X, Y and Z axes of orientation, the worst case Z-axis of orientation was recorded.

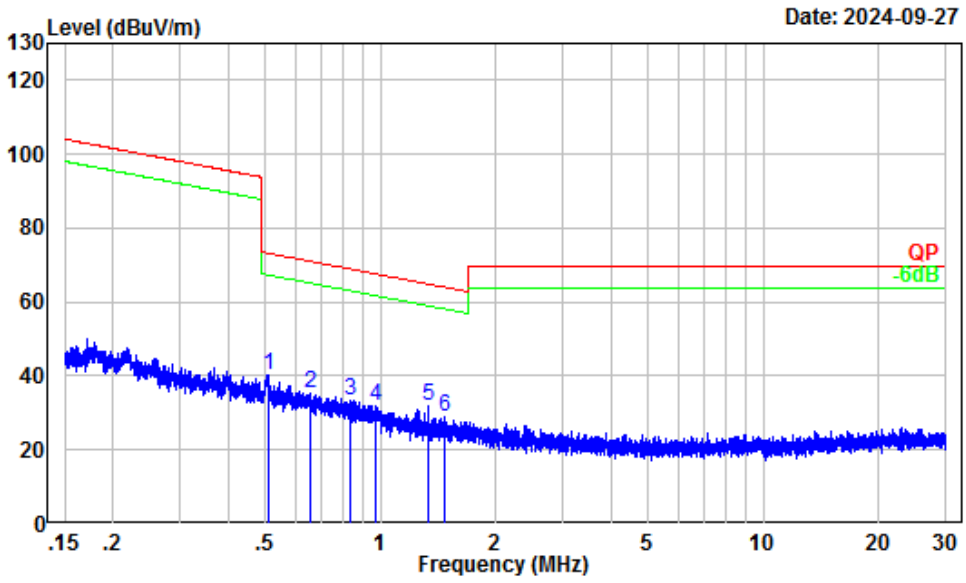
9 kHz-30MHz: Parallel (worst case)

2.4G Wi-Fi *(Maximum output power mode, 802.11g Middle channel)*



Site : Chamber A
Condition : 3m
Project Number: 2401X37662E-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	38.00	22.18	60.18	127.95	-67.77	Peak
2	0.02	33.75	18.89	52.64	122.64	-70.00	Peak
3	0.04	26.07	24.31	50.38	116.38	-66.00	Peak
4	0.06	21.98	21.94	43.92	112.32	-68.40	Peak
5	0.07	20.05	26.44	46.49	110.40	-63.91	Peak
6	0.11	16.63	18.47	35.10	106.85	-71.75	Peak

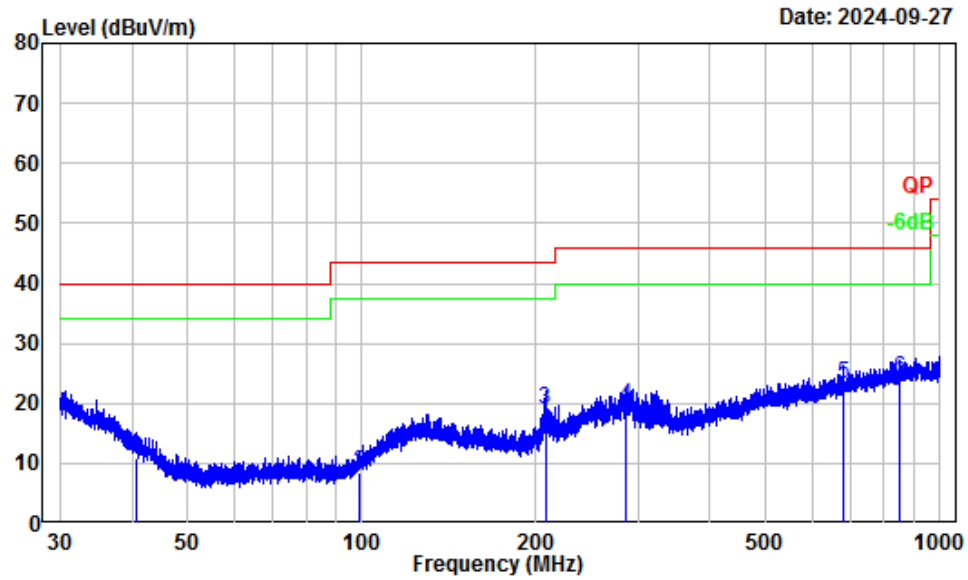


Site : Chamber A
Condition : 3m
Project Number: 2401X37662E-RF
Test Mode : 2.4G WIFI Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.51	3.35	37.05	40.40	73.43	-33.03	Peak
2	0.66	1.59	33.93	35.52	71.18	-35.66	Peak
3	0.84	-0.39	33.94	33.55	69.04	-35.49	Peak
4	0.98	-1.42	33.11	31.69	67.68	-35.99	Peak
5	1.33	-2.75	34.57	31.82	64.91	-33.09	Peak
6	1.48	-3.25	32.31	29.06	64.02	-34.96	Peak

30MHz-1GHz: *(Maximum output power mode, 802.11g Middle channel)*

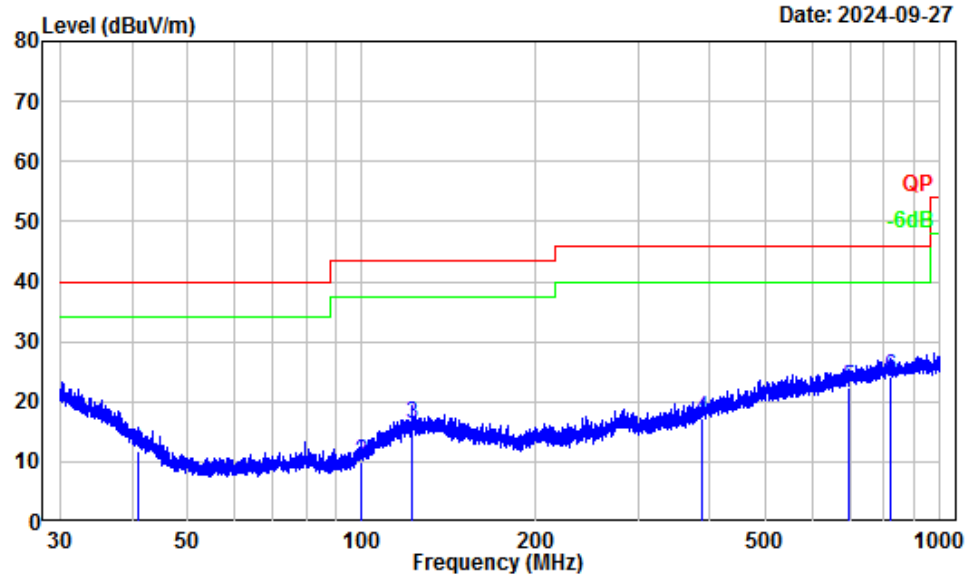
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401X37662E-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	40.77	-12.91	23.86	10.95	40.00	-29.05	QP
2	98.75	-16.28	24.68	8.40	43.50	-35.10	QP
3	207.49	-13.74	32.76	19.02	43.50	-24.48	QP
4	286.61	-11.22	30.85	19.63	46.00	-26.37	QP
5	682.65	-3.69	26.96	23.27	46.00	-22.73	QP
6	854.40	-1.72	25.95	24.23	46.00	-21.77	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401X37662E-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	40.86	-12.98	24.80	11.82	40.00	-28.18	QP
2	99.62	-16.01	25.99	9.98	43.50	-33.52	QP
3	122.35	-11.20	27.43	16.23	43.50	-27.27	QP
4	387.99	-8.93	26.00	17.07	46.00	-28.93	QP
5	696.25	-3.53	25.93	22.40	46.00	-23.60	QP
6	818.83	-2.03	26.16	24.13	46.00	-21.87	QP

1-25 GHz:

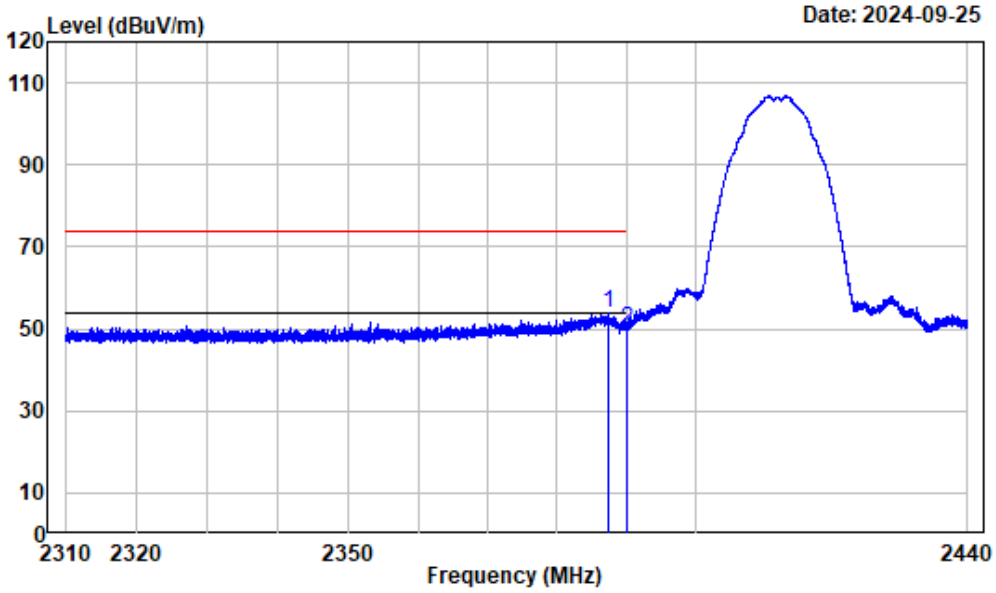
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11b							
Low Channel 2412MHz							
4824.00	50.21	PK	H	2.45	52.66	74	-21.34
4824.00	43.98	AV	H	2.45	46.43	54	-7.57
4824.00	50.55	PK	V	2.45	53.00	74	-21.00
4824.00	44.24	AV	V	2.45	46.69	54	-7.31
Middle Channel 2437MHz							
4874.00	49.54	PK	H	2.56	52.10	74	-21.90
4874.00	43.33	AV	H	2.56	45.89	54	-8.11
4874.00	50.78	PK	V	2.56	53.34	74	-20.66
4874.00	44.49	AV	V	2.56	47.05	54	-6.95
High Channel 2462MHz							
4924.00	51.48	PK	H	2.63	54.11	74	-19.89
4924.00	47.05	AV	H	2.63	49.68	54	-4.32
4924.00	52.59	PK	V	2.63	55.22	74	-18.78
4924.00	48.34	AV	V	2.63	50.97	54	-3.03
802.11g							
Low Channel 2412MHz							
4824.00	57.42	PK	H	2.45	59.87	74	-14.13
4824.00	44.30	AV	H	2.45	46.75	54	-7.25
4824.00	58.05	PK	V	2.45	60.50	74	-13.50
4824.00	44.78	AV	V	2.45	47.23	54	-6.77
Middle Channel 2437MHz							
4874.00	56.36	PK	H	2.56	58.92	74	-15.08
4874.00	43.25	AV	H	2.56	45.81	54	-8.19
4874.00	57.09	PK	V	2.56	59.65	74	-14.35
4874.00	44.32	AV	V	2.56	46.88	54	-7.12
High Channel 2462MHz							
4924.00	59.84	PK	H	2.63	62.47	74	-11.53
4924.00	47.22	AV	H	2.63	49.85	54	-4.15
4924.00	60.65	PK	V	2.63	63.28	74	-10.72
4924.00	48.13	AV	V	2.63	50.76	54	-3.24

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11n20							
Low Channel 2412MHz							
4824.00	58.59	PK	H	2.45	61.04	74	-12.96
4824.00	43.67	AV	H	2.45	46.12	54	-7.88
4824.00	59.72	PK	V	2.45	62.17	74	-11.83
4824.00	43.96	AV	V	2.45	46.41	54	-7.59
Middle Channel 2437MHz							
4874.00	56.27	PK	H	2.56	58.83	74	-15.17
4874.00	42.40	AV	H	2.56	44.96	54	-9.04
4874.00	57.45	PK	V	2.56	60.01	74	-13.99
4874.00	43.38	AV	V	2.56	45.94	54	-8.06
High Channel 2462MHz							
4924.00	59.09	PK	H	2.63	61.72	74	-12.28
4924.00	46.17	AV	H	2.63	48.80	54	-5.20
4924.00	60.48	PK	V	2.63	63.11	74	-10.89
4924.00	47.25	AV	V	2.63	49.88	54	-4.12

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

Test plots for Band Edge Measurements (Radiated):

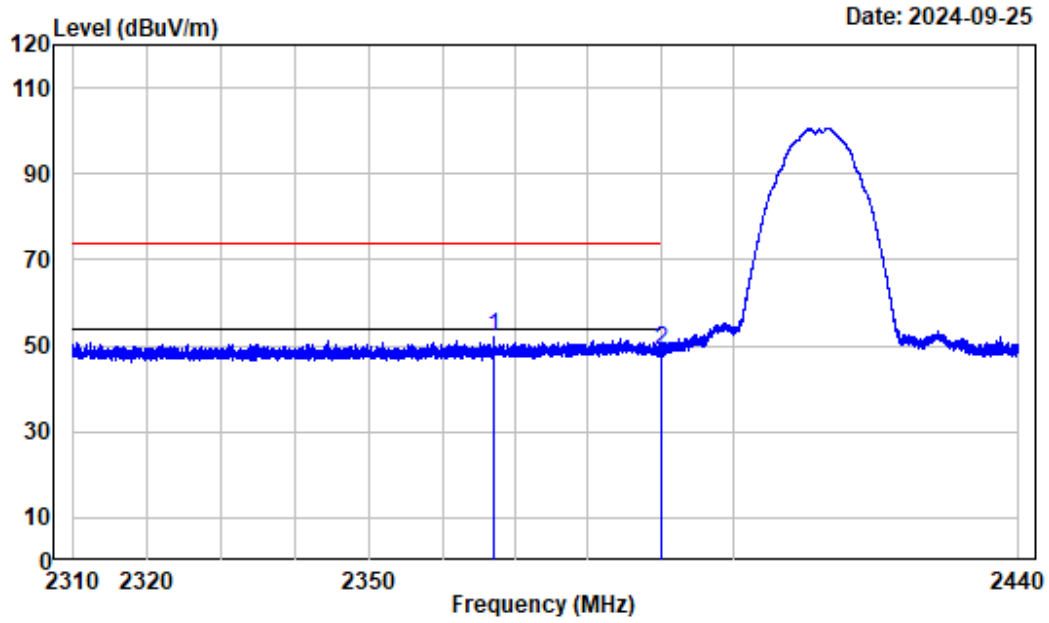
802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2387.278	-3.19	56.87	53.68	74.00	-20.32	peak
2	2390.000	-3.20	53.23	50.03	74.00	-23.97	Peak

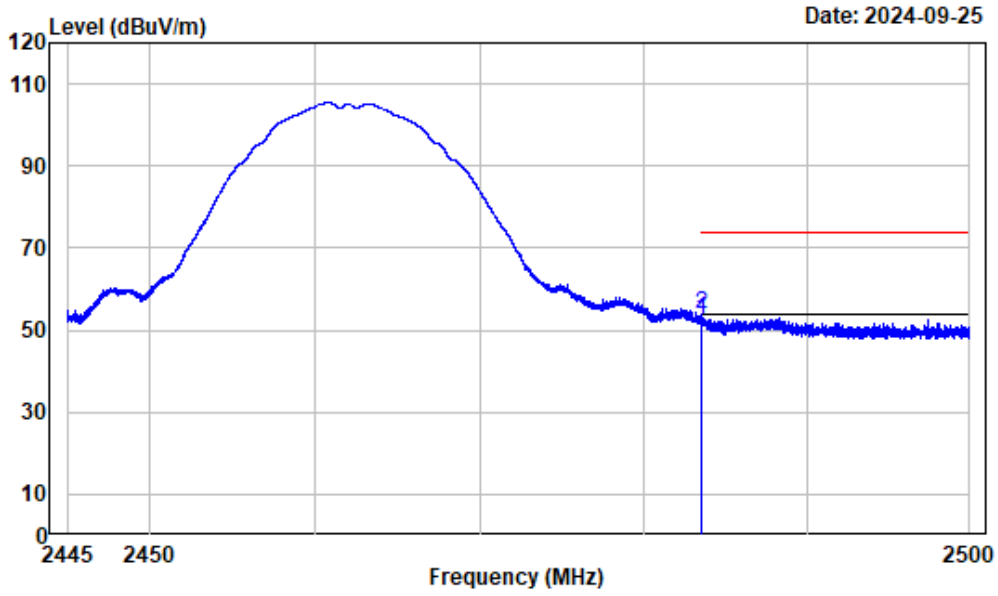
802.11b			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2367.012	-3.16	55.21	52.05	74.00	-21.95	peak
2	2390.000	-3.20	52.01	48.81	74.00	-25.19	Peak

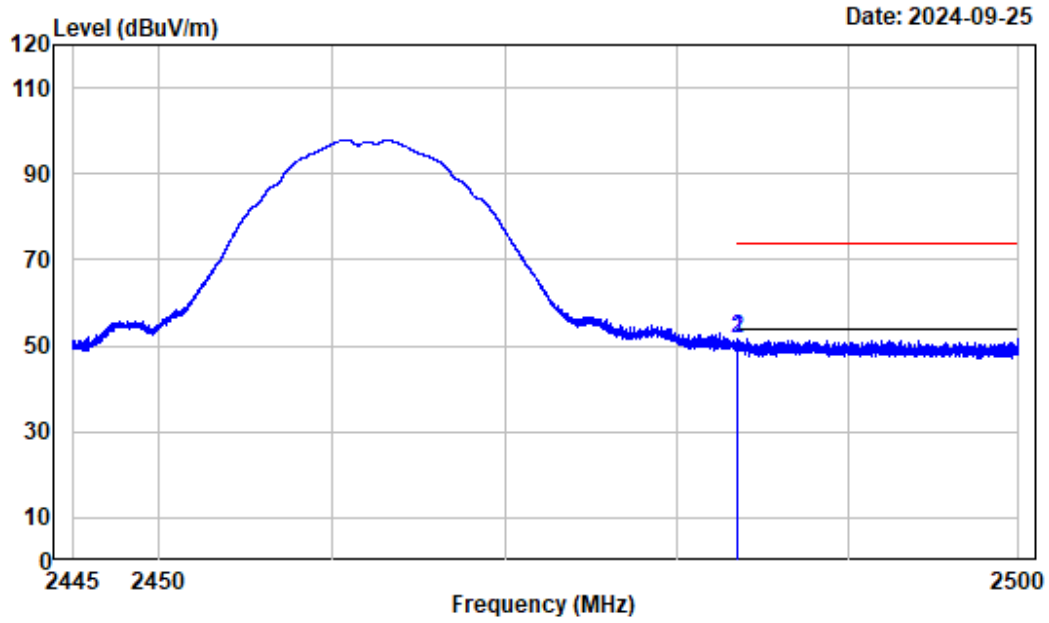
802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	55.63	52.46	74.00	-21.54	Peak
2	2483.532	-3.17	57.13	53.96	74.00	-20.04	peak

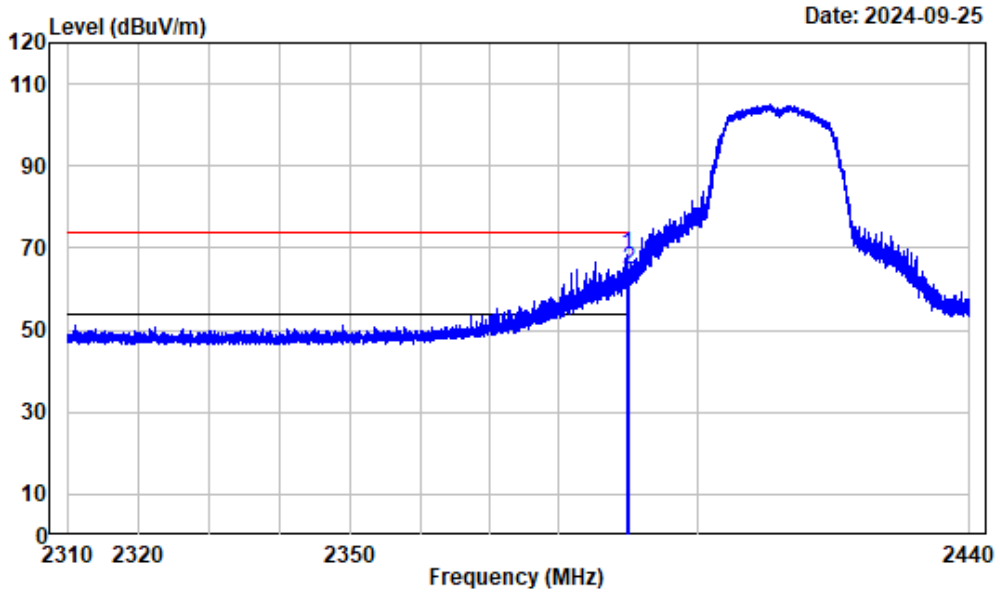
802.11b			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	54.91	51.74	74.00	-22.26	peak
2	2483.532	-3.17	54.91	51.74	74.00	-22.26	peak

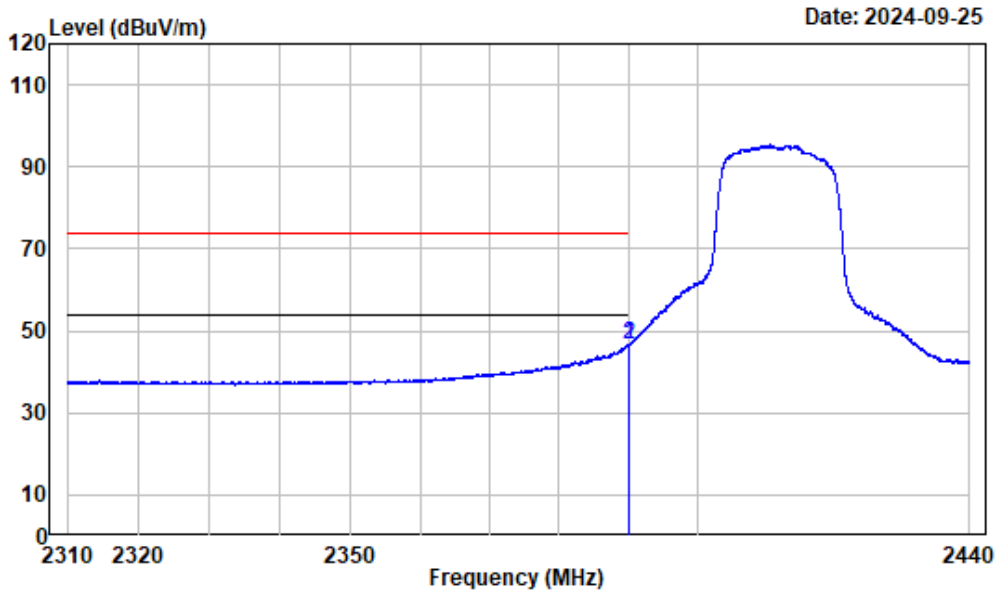
802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal-Peak**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2389.944	-3.20	71.53	68.33	74.00	-5.67	peak
2	2390.000	-3.20	68.06	64.86	74.00	-9.14	Peak

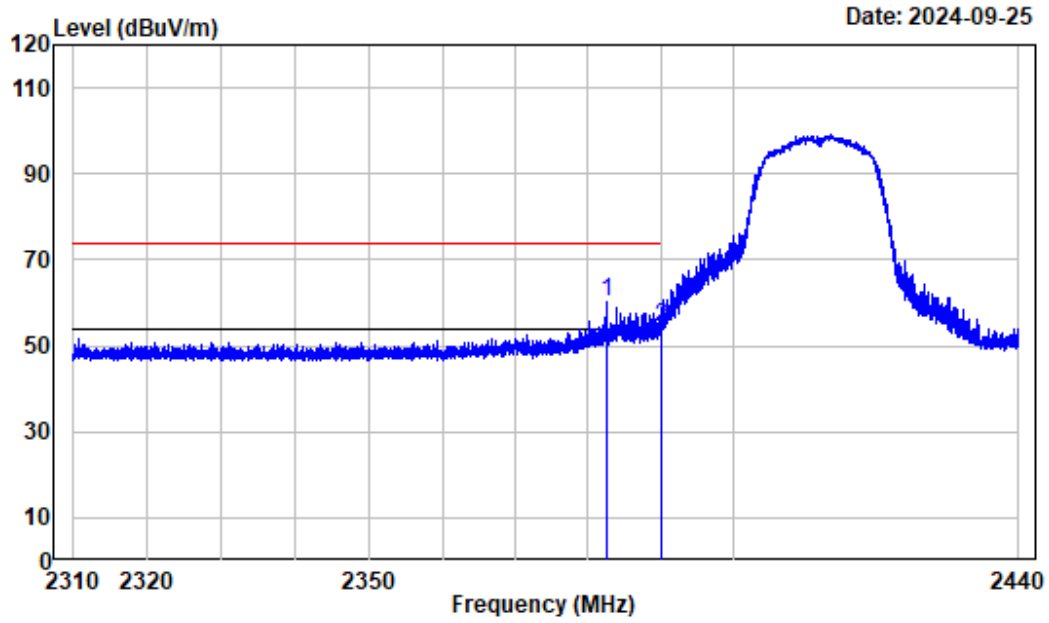
802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal-Average**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2412_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.976	-3.20	49.97	46.77	54.00	-7.23	Average
2	2390.000	-3.20	49.81	46.61	54.00	-7.39	Average

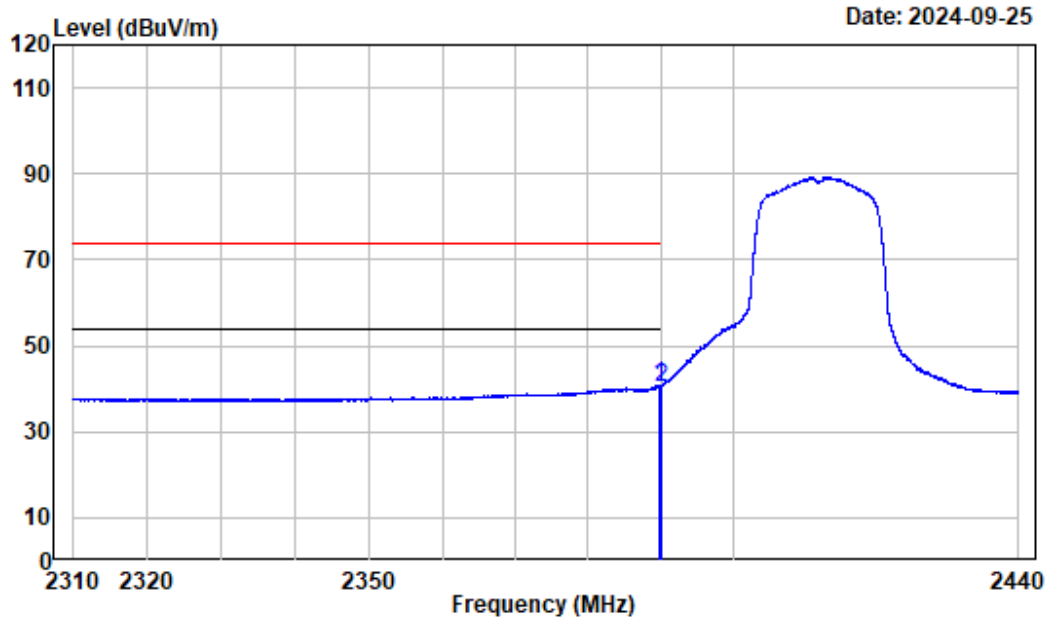
802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical-Peak**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2382.646	-3.20	63.64	60.44	74.00	-13.56	peak
2	2390.000	-3.20	57.40	54.20	74.00	-19.80	Peak

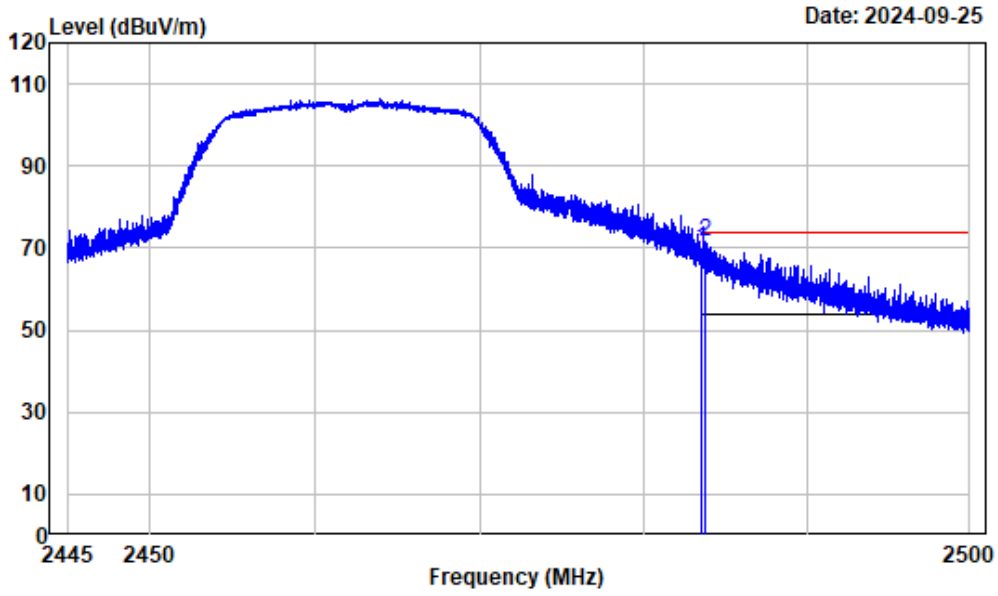
802.11g			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical-Average**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2412_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.895	-3.20	44.07	40.87	54.00	-13.13	Average
2	2390.000	-3.20	43.72	40.52	54.00	-13.48	Average

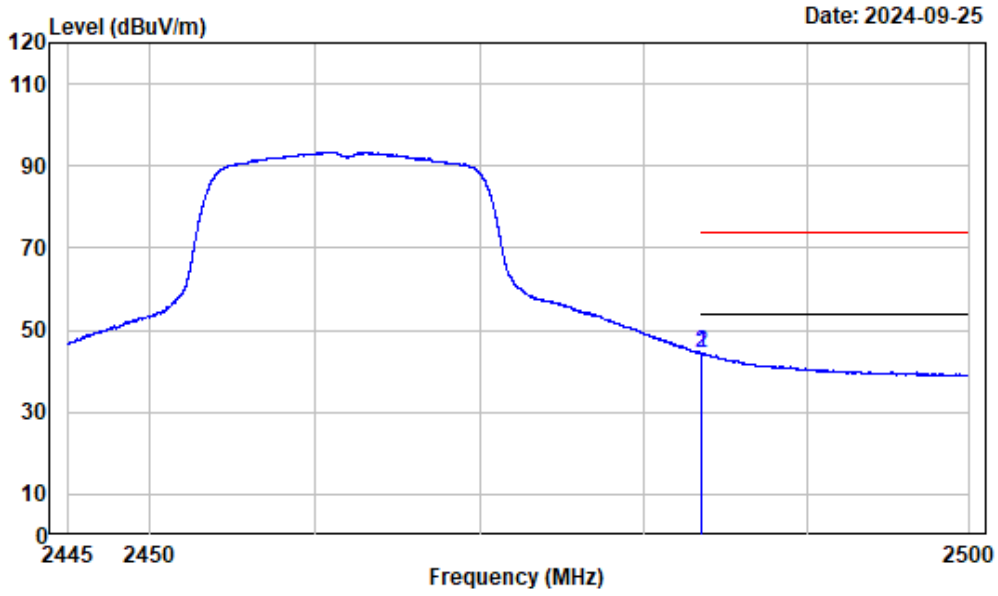
802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal-Peak**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	73.09	69.92	74.00	-4.08	Peak
2	2483.718	-3.17	74.81	71.64	74.00	-2.36	peak

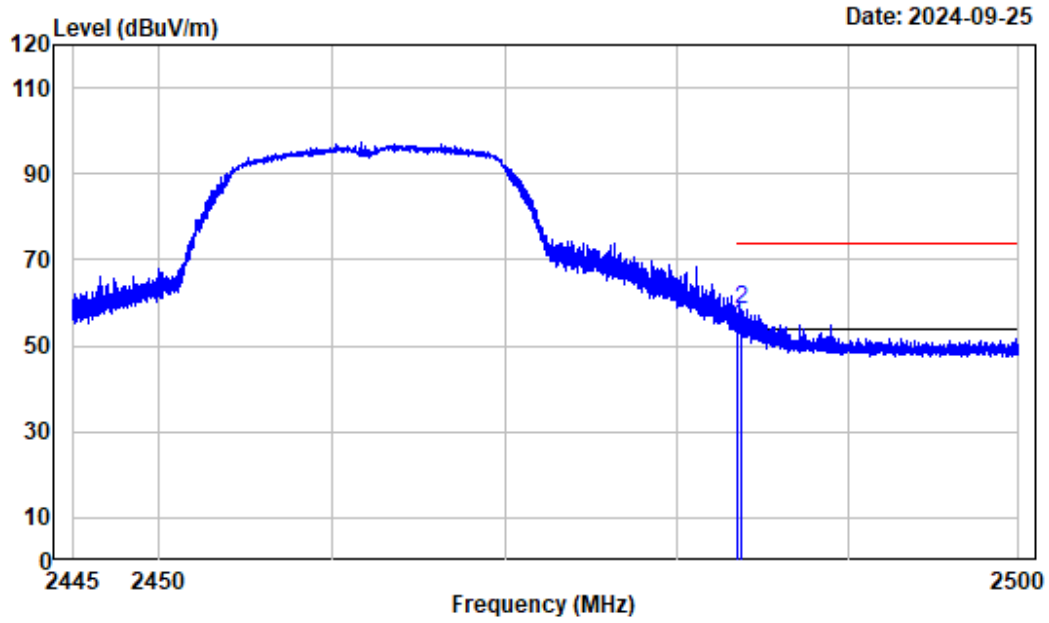
802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal-Average**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	47.44	44.27	54.00	-9.73	Average
2	2483.560	-3.17	47.47	44.30	54.00	-9.70	Average

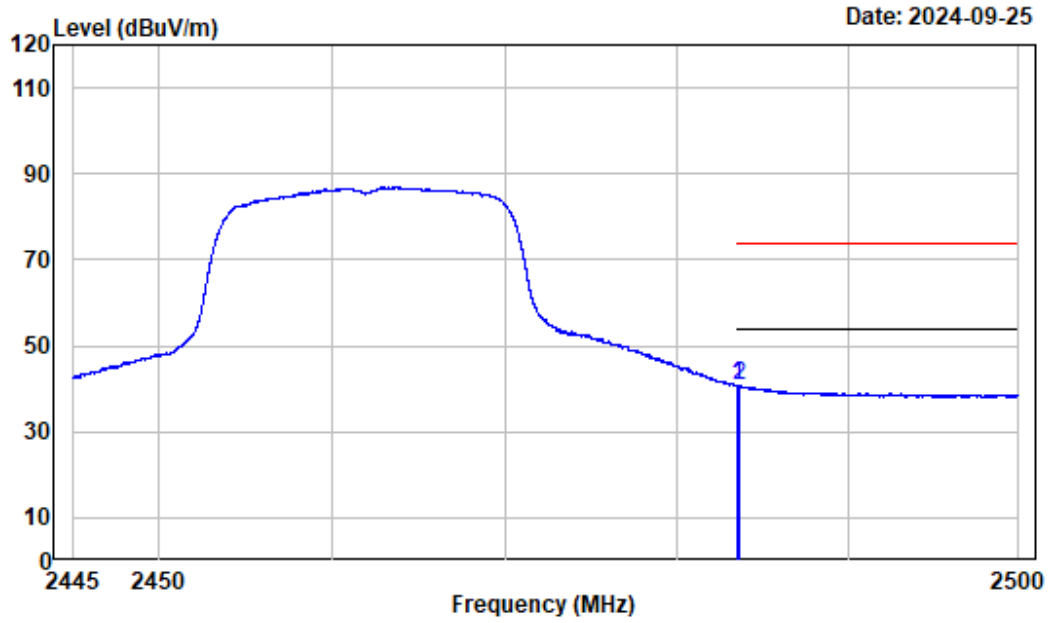
802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical-Peak**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	57.57	54.40	74.00	-19.60	Peak
2	2483.711	-3.17	61.77	58.60	74.00	-15.40	peak

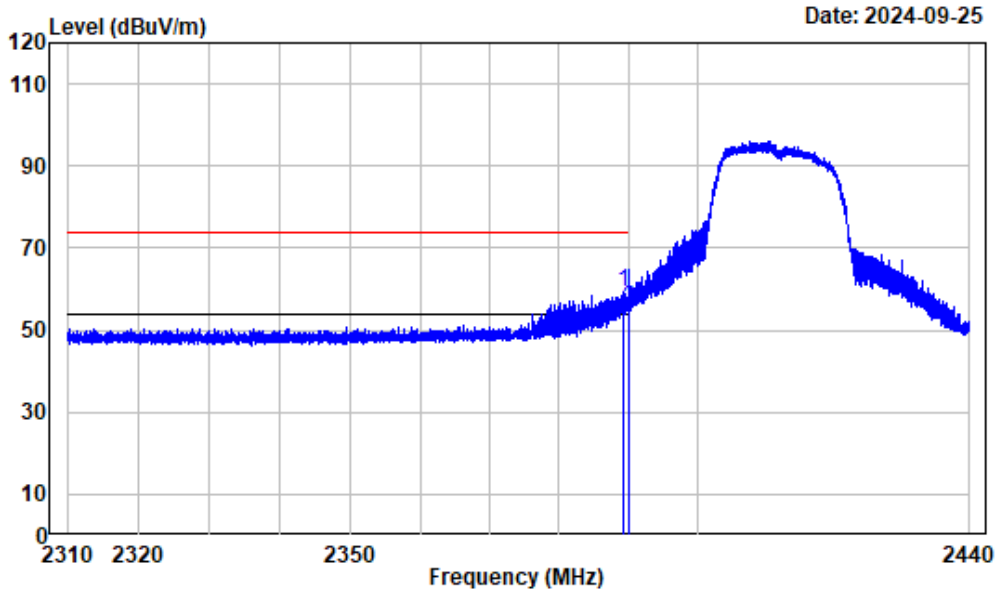
802.11g			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical-Average**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	43.84	40.67	54.00	-13.33	Average
2	2483.601	-3.17	44.04	40.87	54.00	-13.13	Average

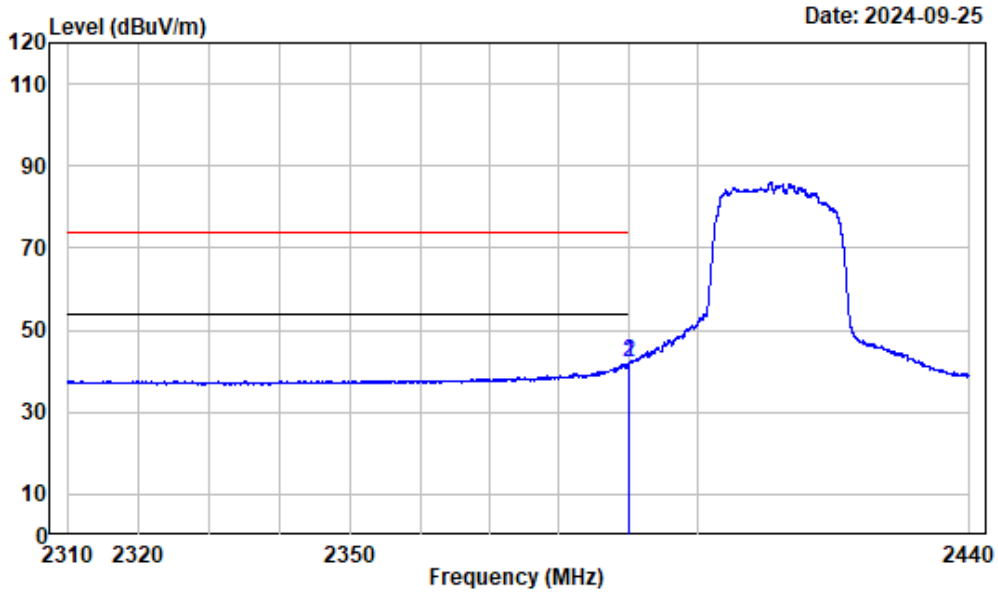
802.11n20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal-Peak**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2389.359	-3.20	62.46	59.26	74.00	-14.74	peak
2	2390.000	-3.20	58.41	55.21	74.00	-18.79	Peak

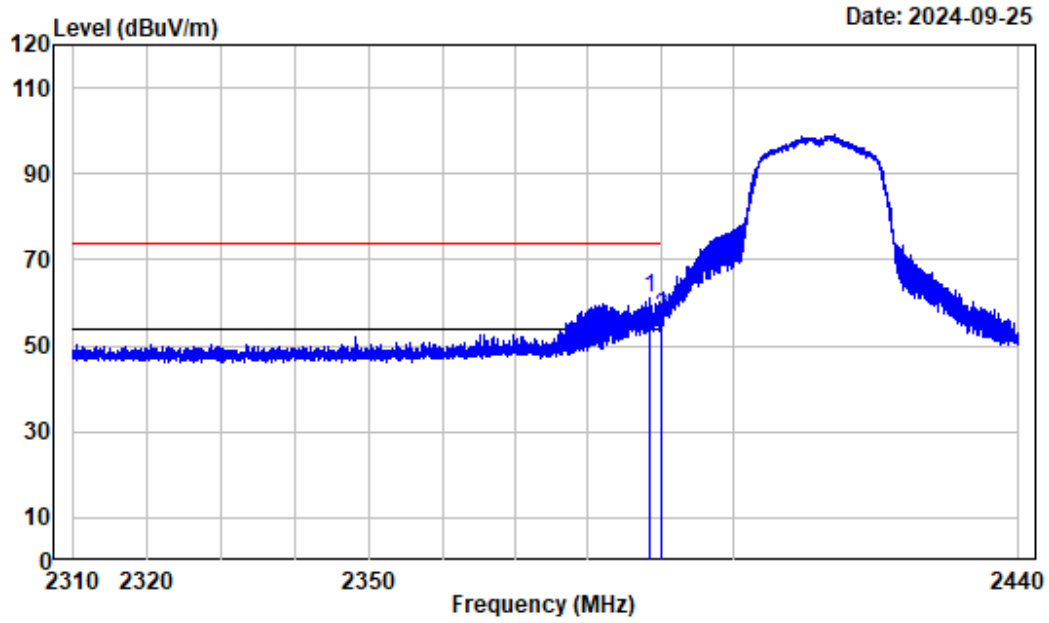
802.11n20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Horizontal-Average**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2412_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.992	-3.20	45.10	41.90	54.00	-12.10	Average
2	2390.000	-3.20	45.10	41.90	54.00	-12.10	Average

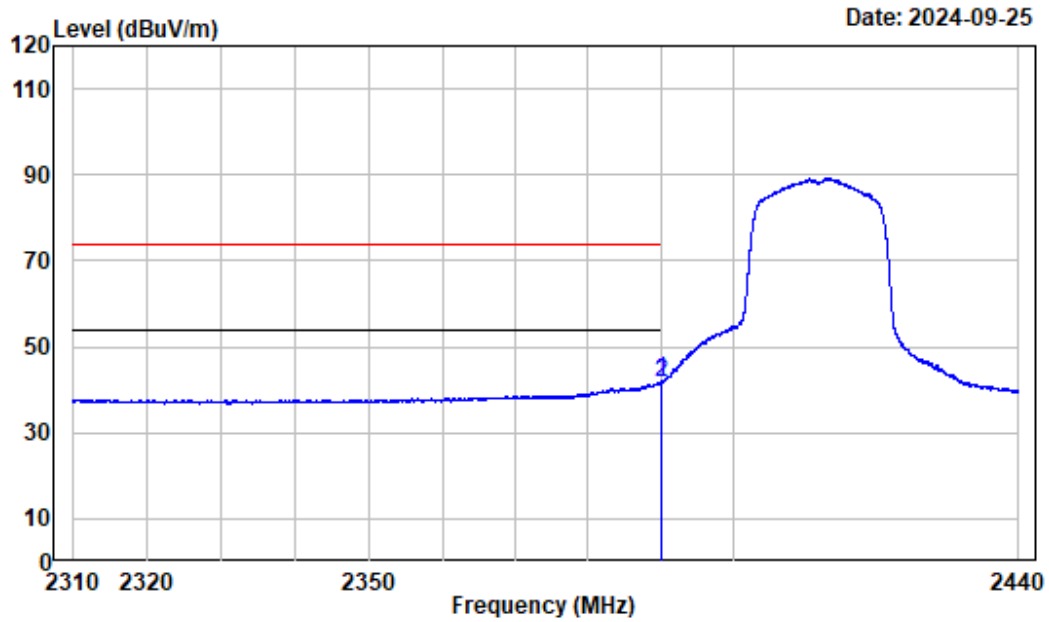
802.11n20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical-Peak**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	2388.514	-3.20	64.47	61.27	74.00	-12.73	peak
2	2390.000	-3.20	59.83	56.63	74.00	-17.37	Peak

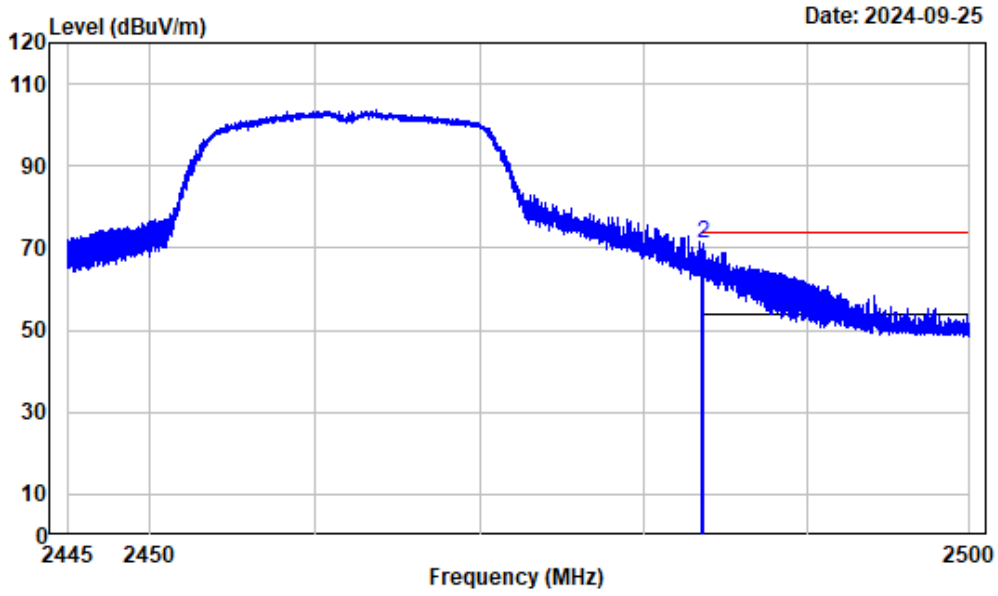
802.11n20			
Test Channel:	**2412MHz**	**Ant. Polar. :**	**Vertical-Average**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2412_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.976	-3.20	45.11	41.91	54.00	-12.09	Average
2	2390.000	-3.20	45.05	41.85	54.00	-12.15	Average

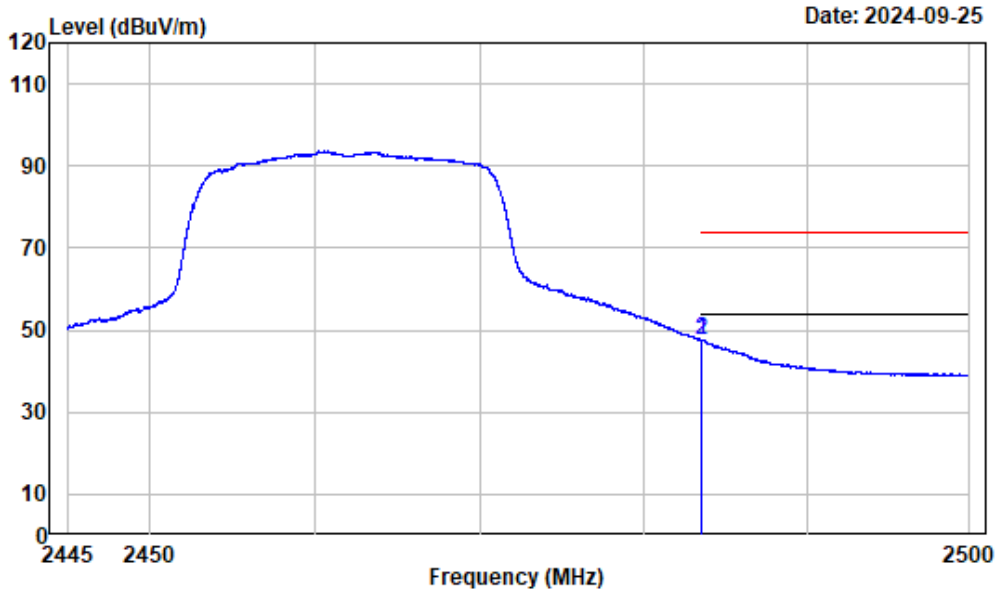
802.11n20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal-Peak**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	67.83	64.66	74.00	-9.34	Peak
2	2483.608	-3.17	74.34	71.17	74.00	-2.83	peak

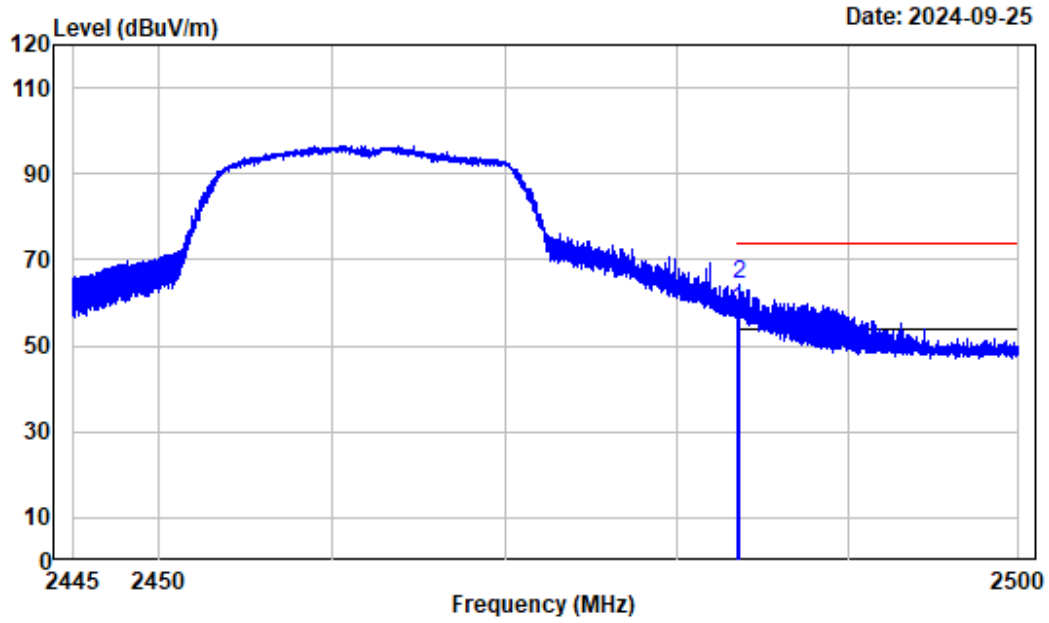
802.11n20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal-Average**



Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	50.77	47.60	54.00	-6.40	Average
2	2483.512	-3.17	50.87	47.70	54.00	-6.30	Average

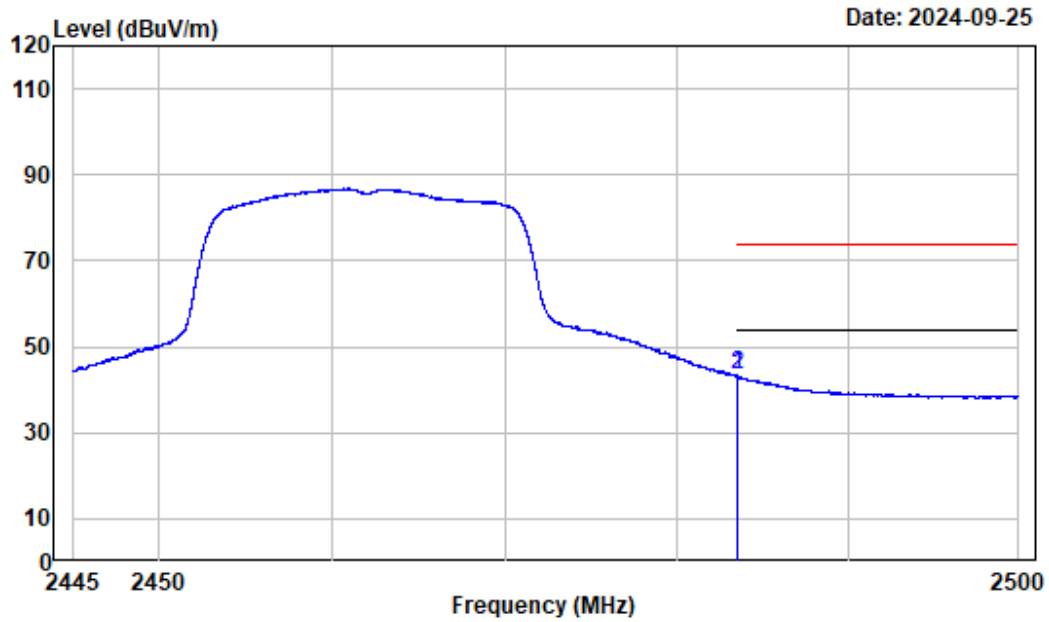
802.11n20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical-Peak**



Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	61.61	58.44	74.00	-15.56	Peak
2	2483.697	-3.17	67.32	64.15	74.00	-9.85	peak

802.11n20			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical-Average**

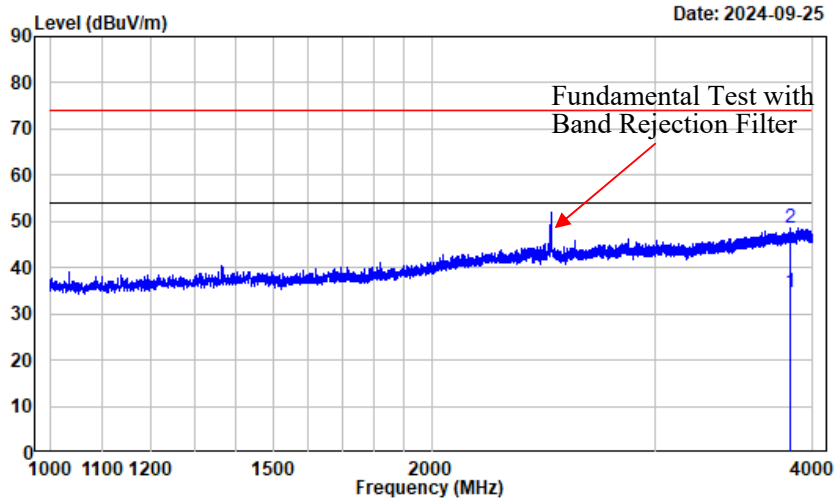


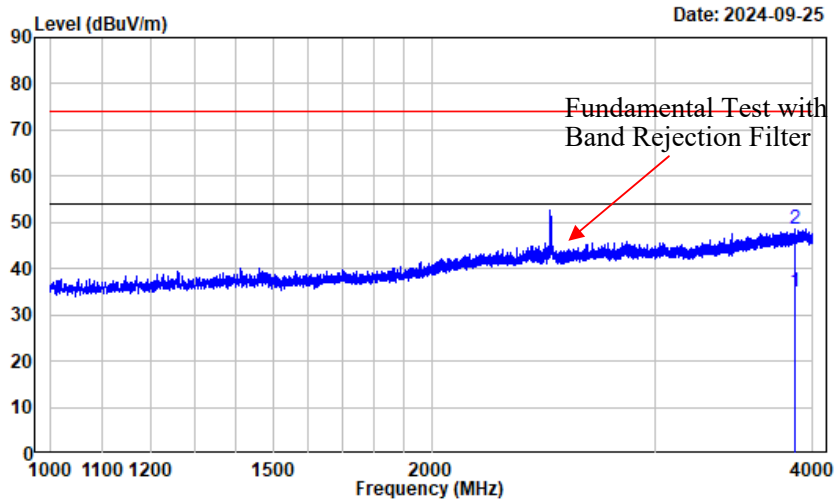
Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.500	-3.17	46.48	43.31	54.00	-10.69	Average
2	2483.519	-3.17	46.61	43.44	54.00	-10.56	Average

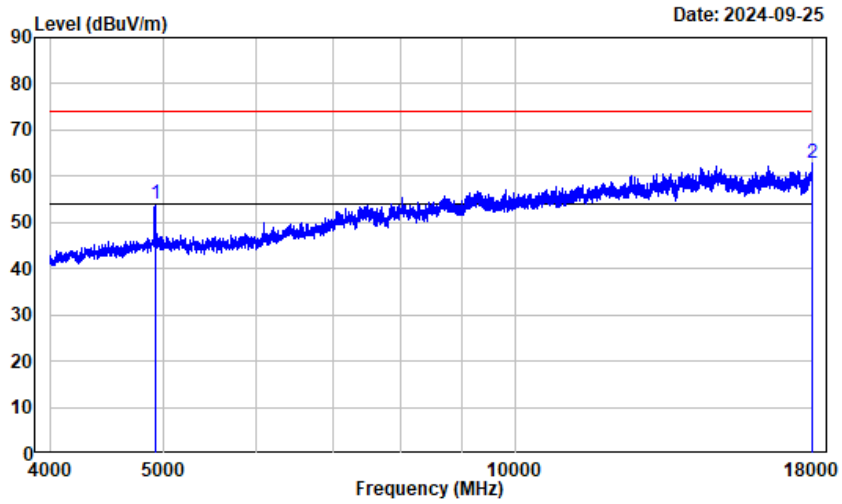
1-18GHz (*Listed with the worst harmonic margin test plots***):**

802.11b

Horizontal	
1-4GHz	 Condition : Horizontal Project No.: 2401X37662E-RF Tester : Zenos Qiao 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 3840.250 -0.78 35.27 34.49 54.00 -19.51 Average 2 3840.250 -0.78 49.29 48.51 74.00 -25.49 Peak

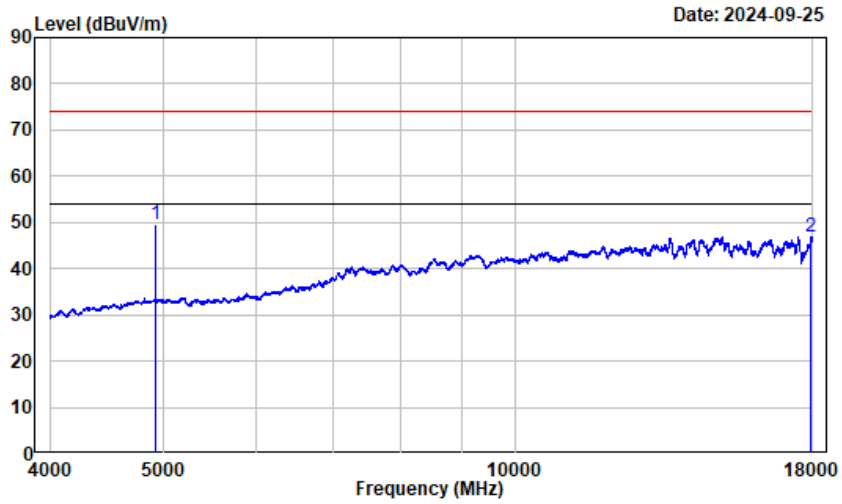
Vertical	
1-4GHz	 Condition : Vertical Project No.: 2401X37662E-RF Tester : Zenos Qiao Note : 2.4GWiFi-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3876.250	-0.65	35.48	34.83	54.00	-19.17	Average
2	3876.250	-0.66	49.26	48.60	74.00	-25.40	Peak

Horizontal-Peak	
4-18GHz	 Condition : Horizontal Project No.: 2401X37662E-RF Tester : Zenos Qiao 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 | 4924.000 | 2.63 | 51.48 | 54.11 | 74.00 | -19.89 | Peak | | 2 | 17965.000 | 24.38 | 38.34 | 62.72 | 74.00 | -11.28 | Peak |

Horizontal-Average

4-18GHz



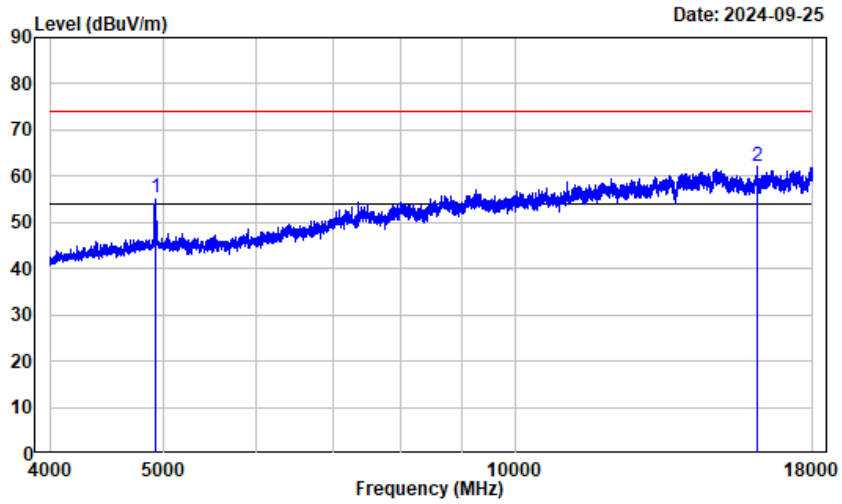
Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-b-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	47.05	49.68	54.00	-4.32	Average
2	17954.490	24.30	22.42	46.72	54.00	-7.28	Average

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

Vertical-Peak

4-18GHz

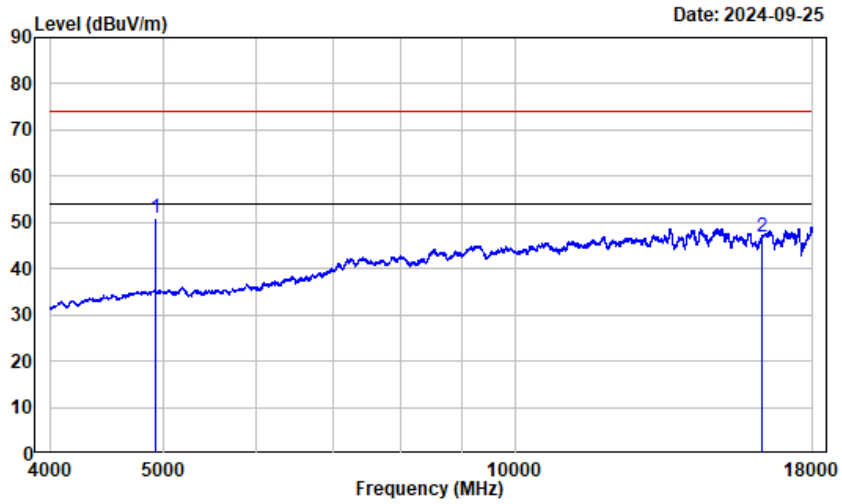


Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-b-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	52.59	55.22	74.00	-18.78	Peak
2	16113.500	13.95	48.19	62.14	74.00	-11.86	Peak

Vertical-Average

4-18GHz

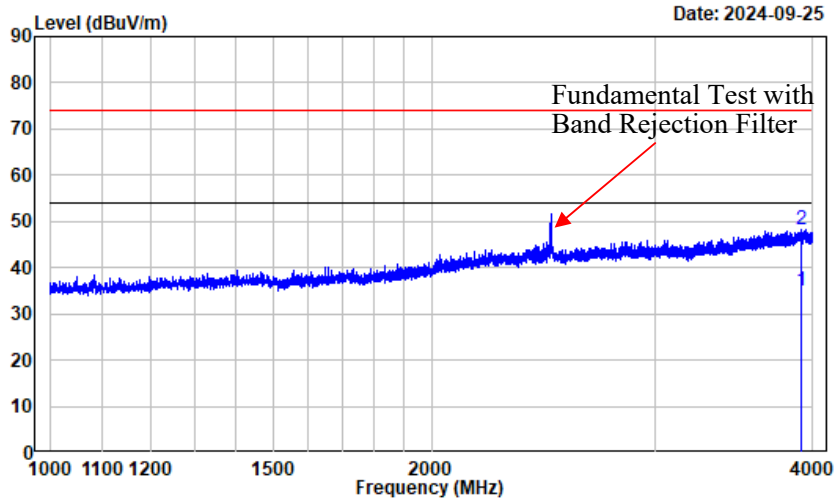


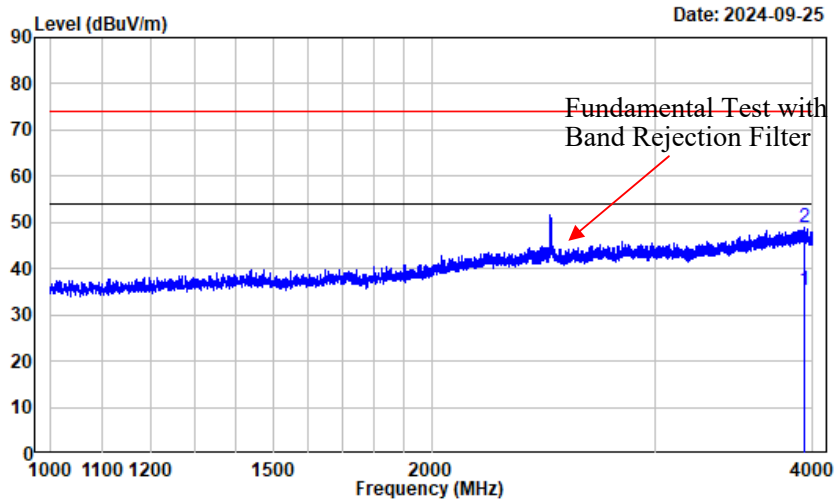
Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-b-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.116	2.63	48.34	50.97	54.00	-3.03	Average
2	16305.790	15.08	31.96	47.04	54.00	-6.96	Average

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

802.11g

Horizontal	
1-4GHz	 Condition : Horizontal Project No.: 2401X37662E-RF Tester : Zenos Qiao Note : 2.4GWiFi-g-2462 Freq / Factor / Read Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 3919.750 -0.38 35.32 34.94 54.00 -19.06 Average 2 3919.750 -0.38 48.66 48.28 74.00 -25.72 Peak

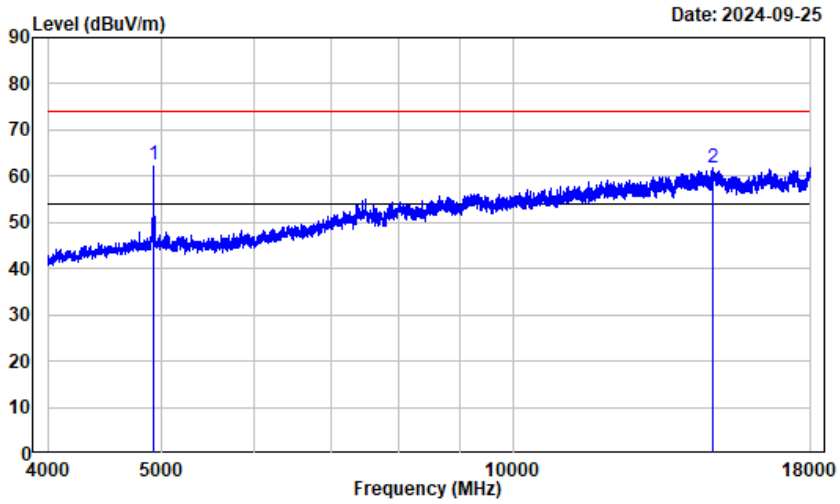
Vertical	
1-4GHz	

Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
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	3943.750	-0.22	35.58	35.36	54.00	-18.64	Average
2	3943.750	-0.22	49.29	49.07	74.00	-24.93	Peak

Horizontal-Peak

4-18GHz

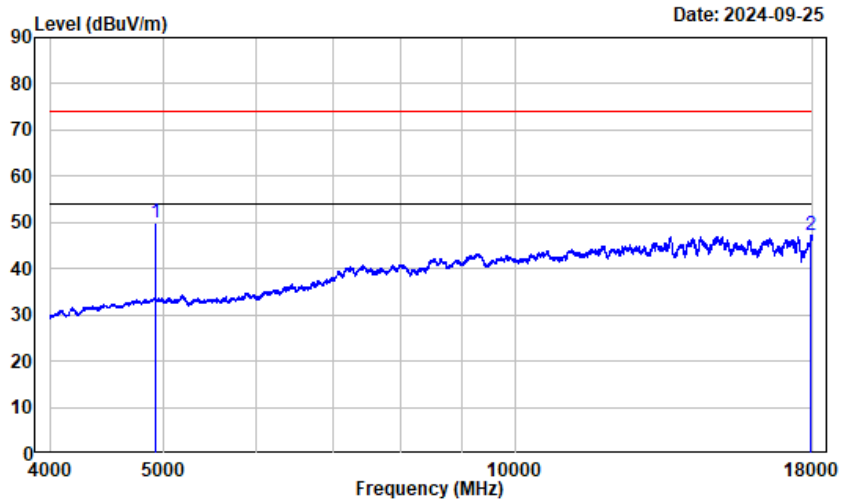


Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	59.84	62.47	74.00	-11.53	Peak
2	14844.750	16.77	44.98	61.75	74.00	-12.25	Peak

Horizontal-Average

4-18GHz



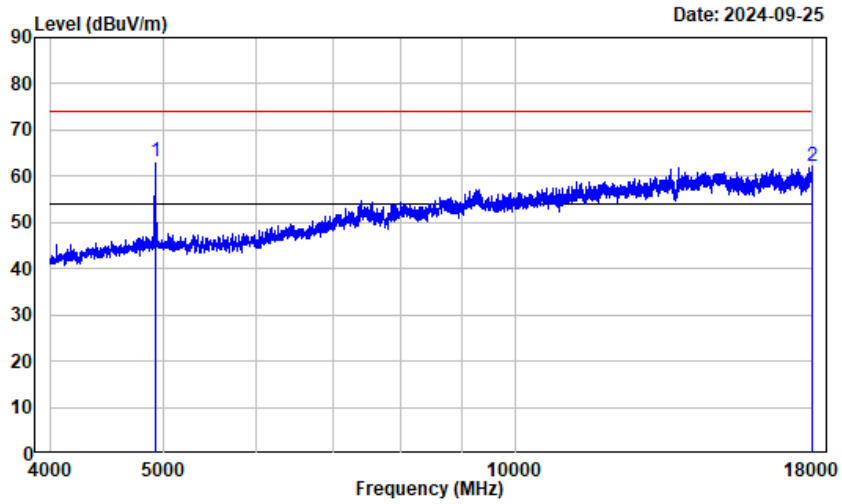
Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	47.22	49.85	54.00	-4.15	Average
2	17947.490	24.24	23.06	47.30	54.00	-6.70	Average

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

Vertical-Peak

4-18GHz

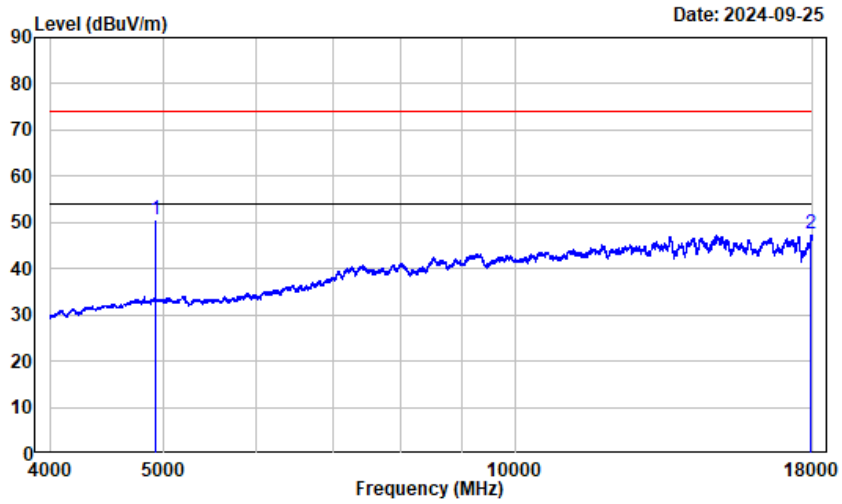


Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	60.65	63.28	74.00	-10.72	Peak
2	17984.250	24.51	37.64	62.15	74.00	-11.85	Peak

Vertical-Average

4-18GHz

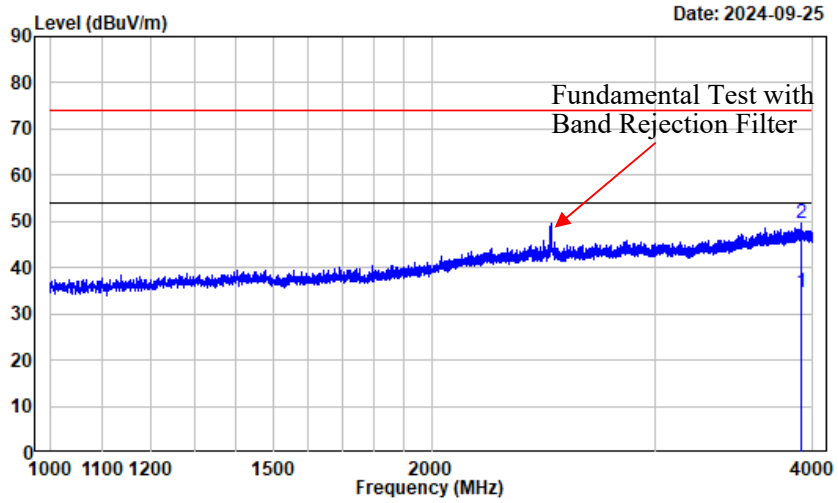


Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-g-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	48.13	50.76	54.00	-3.24	Average
2	17954.490	24.30	23.23	47.53	54.00	-6.47	Average

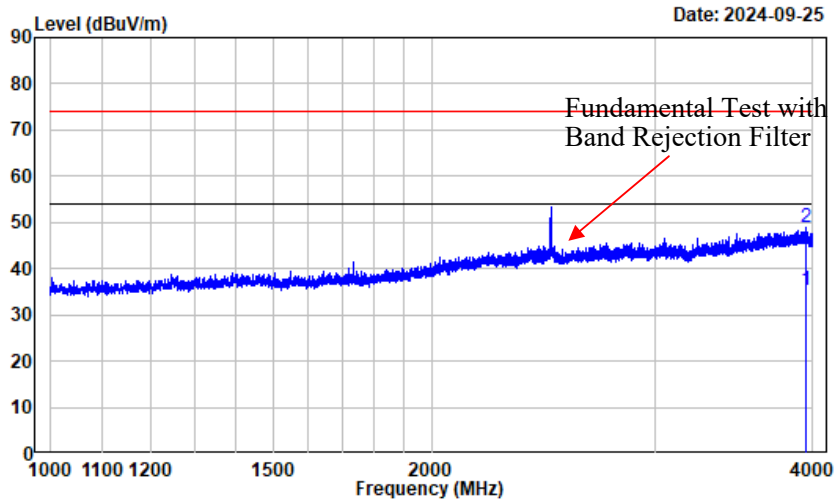
Note: Spectrum Analyzer Setting: RBW=1MHz, VBW=5kHz

802.11n20

Horizontal	
1-4GHz	

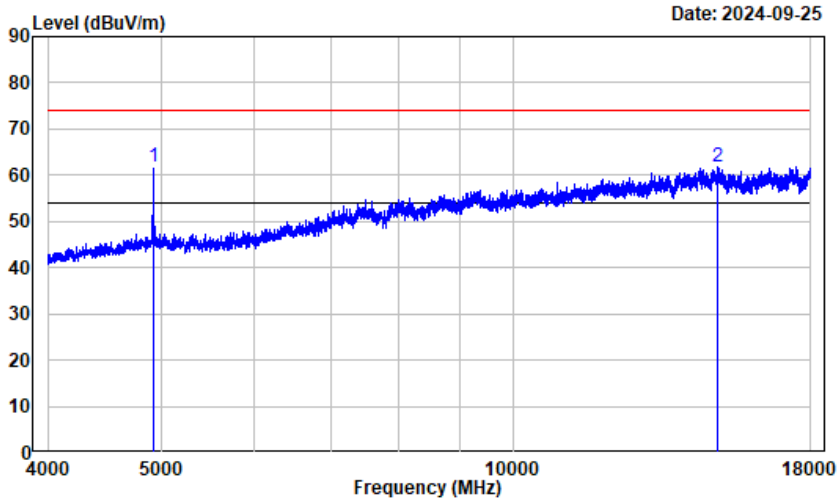
Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3921.625	-0.37	35.18	34.81	54.00	-19.19	Average
2	3921.625	-0.37	49.83	49.46	74.00	-24.54	Peak

Vertical	
1-4GHz	 Condition : Vertical Project No.: 2401X37662E-RF Tester : Zenos Qiao 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 | 3946.750 | -0.20 | 35.55 | 35.35 | 54.00 | -18.65 | Average | | 2 | 3946.750 | -0.20 | 49.00 | 48.80 | 74.00 | -25.20 | Peak |

Horizontal-Peak

4-18GHz

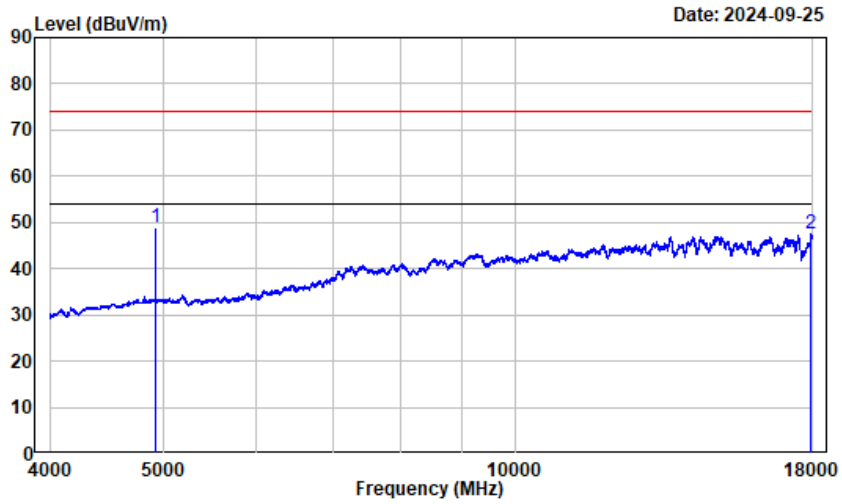


Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	59.09	61.72	74.00	-12.28	Peak
2	14993.500	16.34	45.55	61.89	74.00	-12.11	Peak

Horizontal-Average

4-18GHz



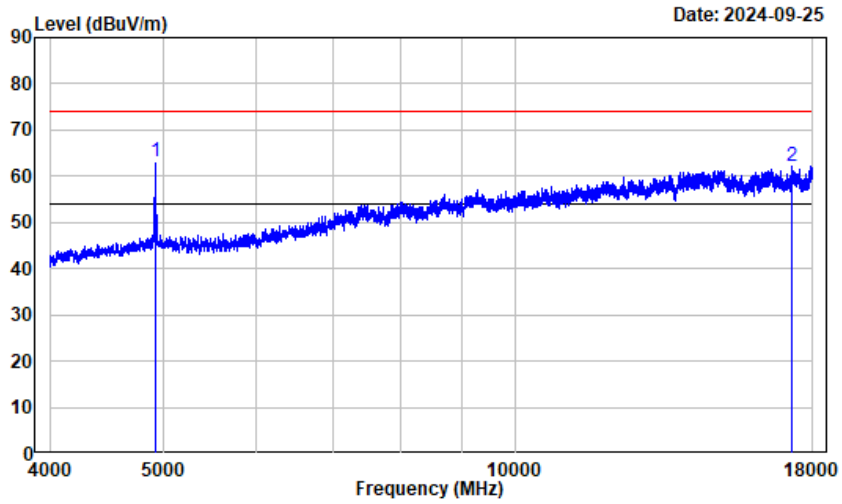
Condition : Horizontal
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	46.17	48.80	54.00	-5.20	Average
2	17954.490	24.30	23.14	47.44	54.00	-6.56	Average

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

Vertical-Peak

4-18GHz

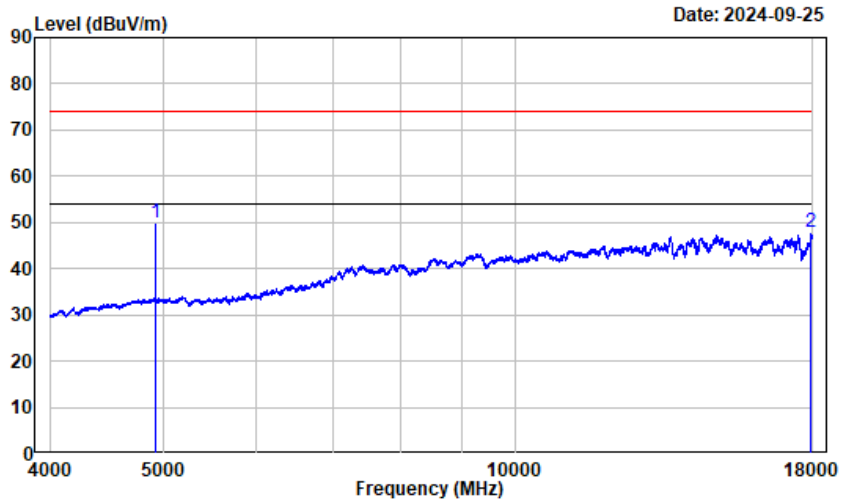


Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	60.48	63.11	74.00	-10.89	Peak
2	17280.750	19.20	42.99	62.19	74.00	-11.81	Peak

Vertical-Average

4-18GHz

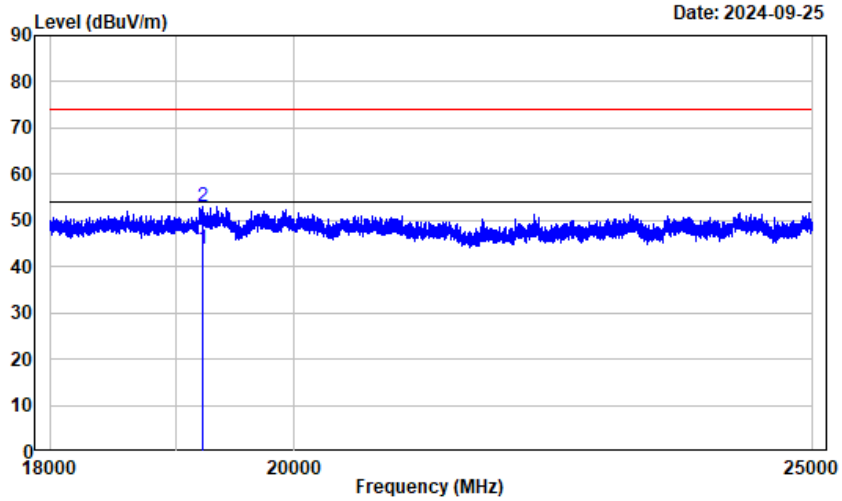


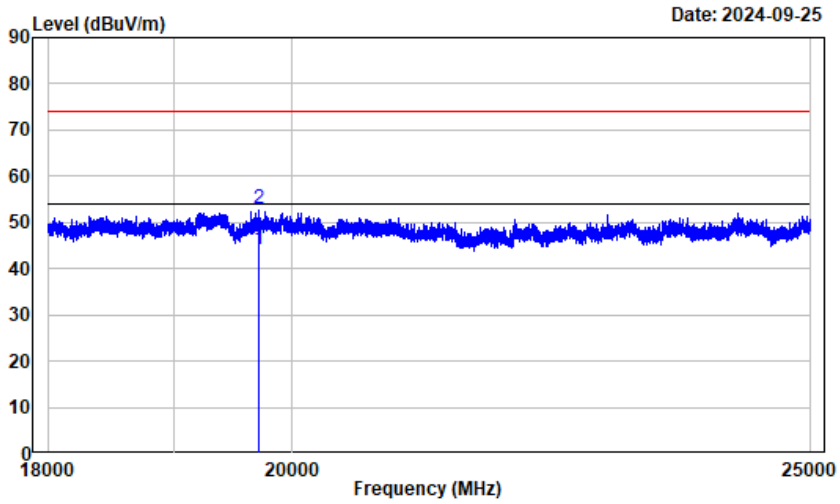
Condition : Vertical
Project No.: 2401X37662E-RF
Tester : Zenos Qiao
Note : 2.4GWiFi-n20-2462_AV

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	47.25	49.88	54.00	-4.12	Average
2	17936.990	24.17	23.69	47.86	54.00	-6.14	Average

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

18-25GHz (*Only with worst case margin mode plot***):**

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: 2401X37662E-RF Tester : Zenos Qiao Note : 2.4GWiFi-b-2462 Freq / Read Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 19228.650 15.29 28.52 43.81 54.00 -10.19 Average 2 19228.650 15.29 37.70 52.99 74.00 -21.01 Peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: 2401X37662E-RF Tester : Zenos Qiao Note : 2.4GWiFi-b-2462 Freq / Factor / Read Level / Limit Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 19716.960 15.40 28.85 44.25 54.00 -9.75 Average 2 19716.960 15.40 37.71 53.11 74.00 -20.89 Peak

FCC §15.247(a) (2) - 6 dB EMISSION BANDWIDTH

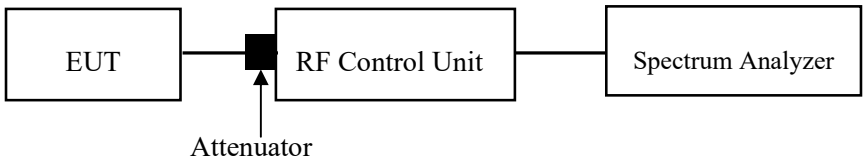
Applicable Standard

According to FCC §15.247(a) (2)
Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.8.1 & Clause 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.



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.

Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	55~56 %
ATM Pressure:	101 kPa

The testing was performed by Tom Tan from 2024-09-23 to 202-10-10.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

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

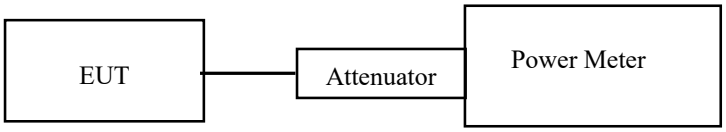
Applicable Standard

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

Test Procedure

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

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



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.

Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	55~56 %
ATM Pressure:	101 kPa

The testing was performed by Tom Tan from 2024-09-23 to 202-10-10.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

FCC §15.247(d) - 100 kHz BANDWIDTH OF FREQUENCY BAND EDGE

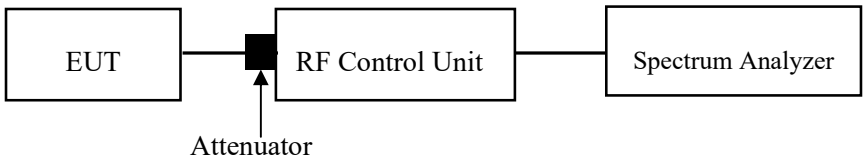
Applicable Standard

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

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.11

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



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.

Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	55~56 %
ATM Pressure:	101 kPa

The testing was performed by Tom Tan from 2024-09-23 to 202-10-10.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

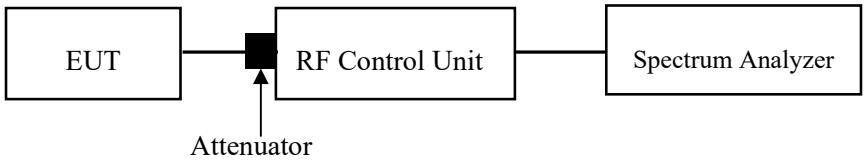
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of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

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.10.2

Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.

1. Set the RBW to: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3×RBW.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.



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.

Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	55~56 %
ATM Pressure:	101 kPa

The testing was performed by Tom Tan from 2024-09-23 to 202-10-10.

EUT operation mode: Transmitting

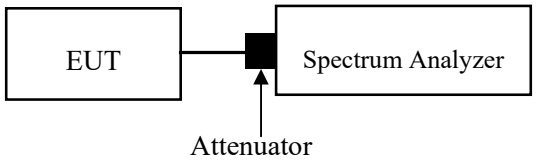
Test Result: Compliant. Please refer to the Appendix.

C63.10 §11.6- 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.)



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.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101 kPa

The testing was performed by Tom Tan on 202-10-10.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

EUT PHOTOGRAPHS

Please refer to the attachment 2401X37662E-RF External photo and 2401X37662E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401X37662E-RFA Test Setup photo.

APPENDIX

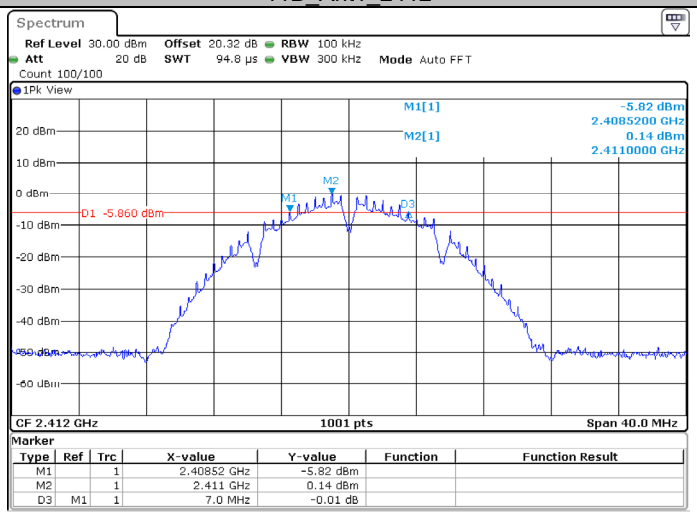
Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.00	2408.52	2415.52	0.5	PASS
		2437	6.56	2433.96	2440.52	0.5	PASS
		2462	7.04	2458.48	2465.52	0.5	PASS
11G	Ant1	2412	14.48	2404.44	2418.92	0.5	PASS
		2437	15.08	2429.48	2444.56	0.5	PASS
		2462	11.28	2455.72	2467.00	0.5	PASS
11N20SISO	Ant1	2412	15.08	2404.48	2419.56	0.5	PASS
		2437	16.32	2428.48	2444.80	0.5	PASS
		2462	16.04	2454.48	2470.52	0.5	PASS

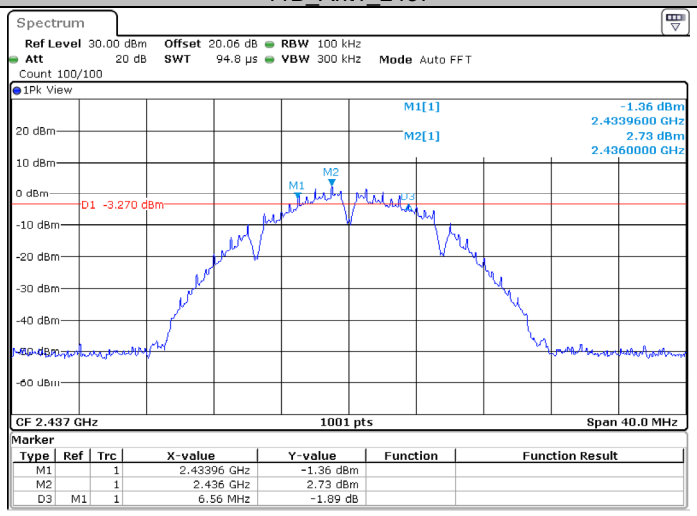
Test Graphs

11B_Ant1_2412



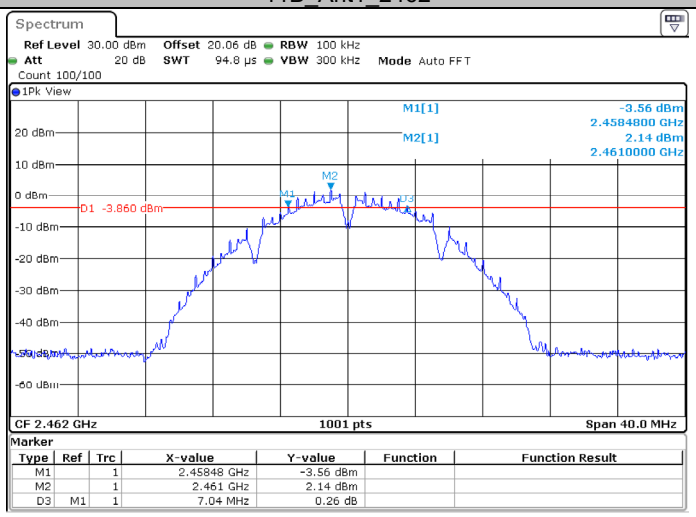
ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:16:38

11B_Ant1_2437



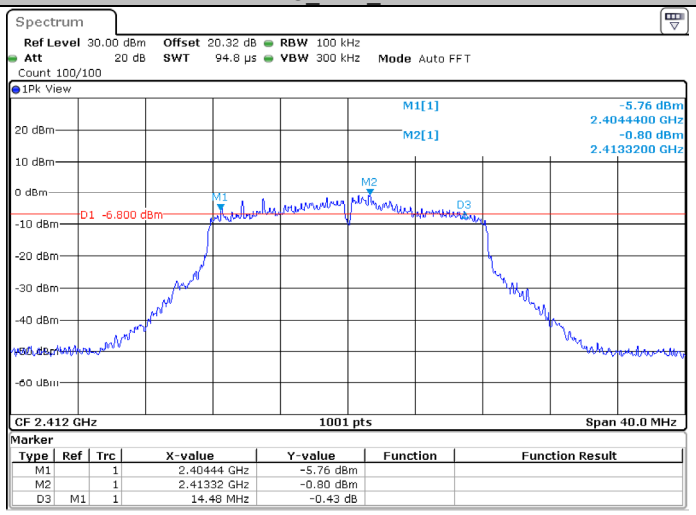
ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:19:07

11B_Ant1_2462



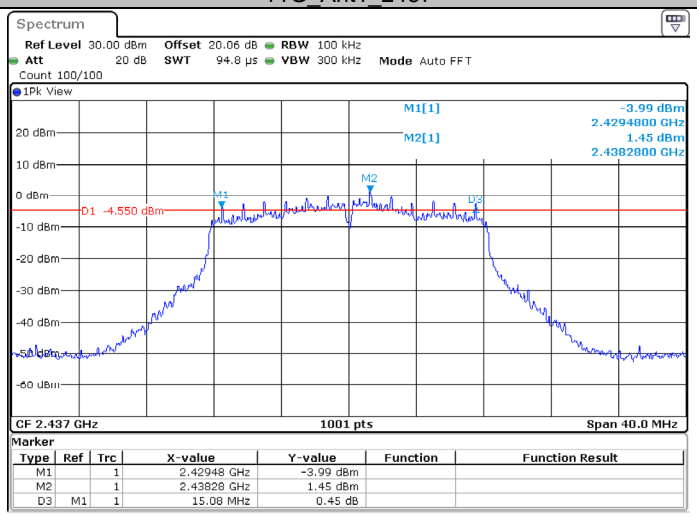
ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:21:14

11G_Ant1_2412



ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:23:07

11G_Ant1_2437

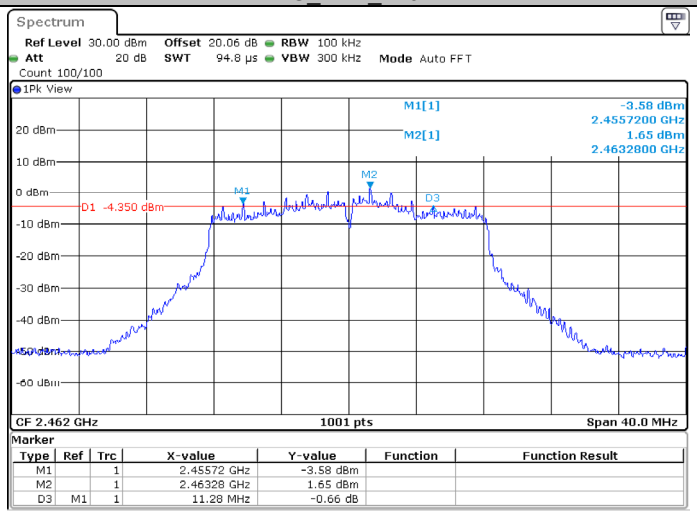


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.42948 GHz	-3.99 dBm		
M2		1	2.43828 GHz	1.45 dBm		
D3	M1	1	15.08 MHz	0.45 dB		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:24:55

11G_Ant1_2462

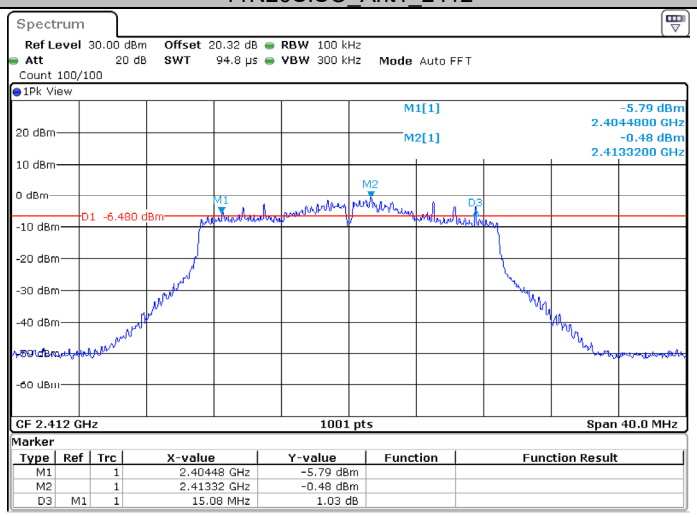


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45572 GHz	-3.58 dBm		
M2		1	2.46328 GHz	1.65 dBm		
D3	M1	1	11.28 MHz	-0.66 dB		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:26:44

11N20SISO_Ant1_2412



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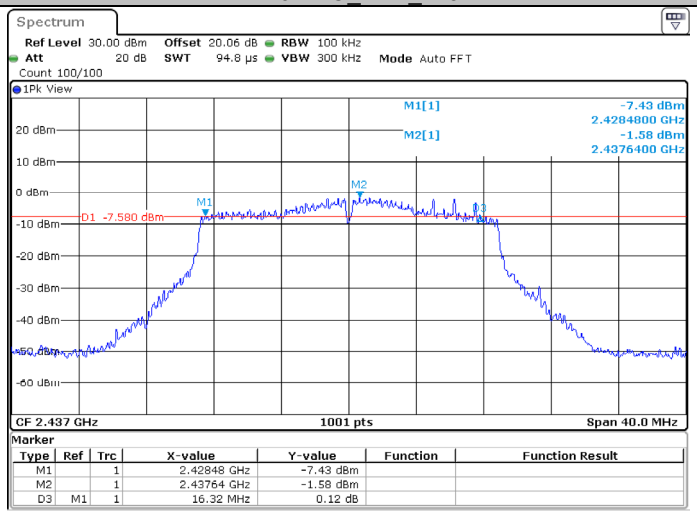
Date: 10.OCT.2024 00:29:46

11N20SISO_Ant1_2437



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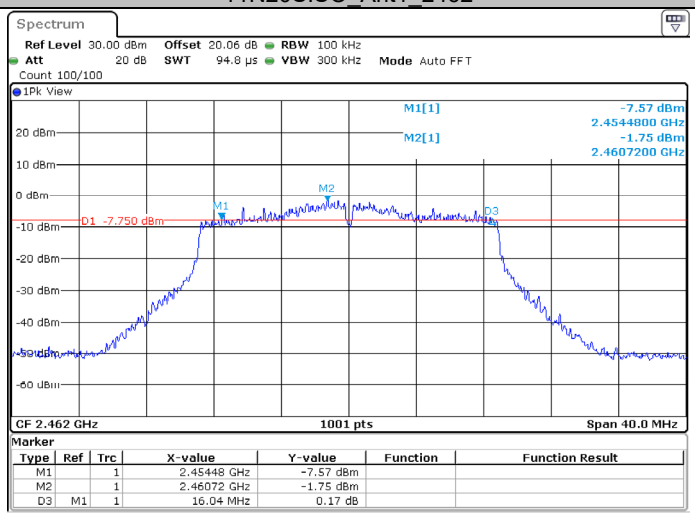
Date: 10.OCT.2024 00:31:25

11N20SISO_Ant1_2462



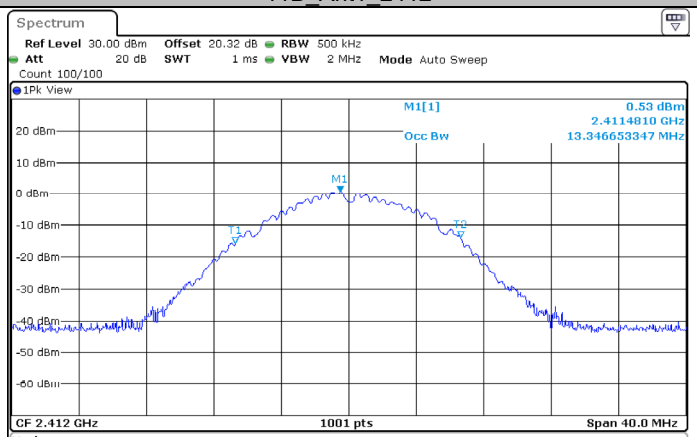
Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	13.347	2405.2867	2418.6334	---	---
		2437	13.187	2430.4066	2443.5934	---	---
		2462	13.187	2455.3666	2468.5534	---	---
11G	Ant1	2412	16.384	2403.8082	2420.1918	---	---
		2437	16.424	2428.8082	2445.2318	---	---
		2462	16.424	2453.8082	2470.2318	---	---
11N20SISO	Ant1	2412	17.662	2403.1688	2420.8312	---	---
		2437	17.662	2428.1688	2445.8312	---	---
		2462	17.662	2453.2088	2470.8711	---	---

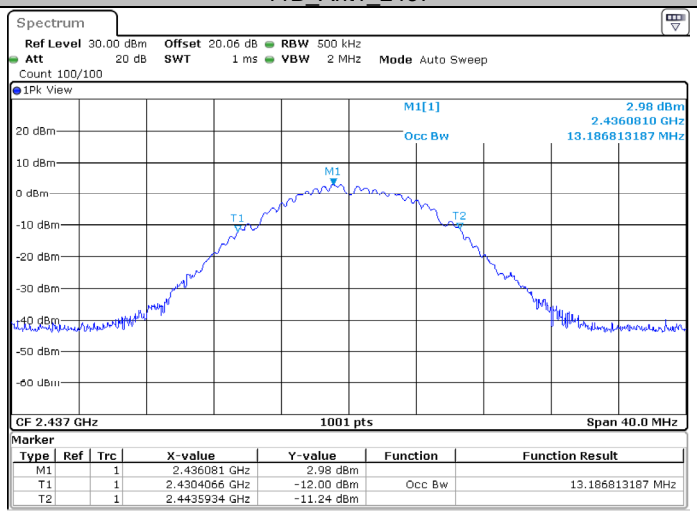
Test Graphs

11B_Ant1_2412



ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:16:44

11B_Ant1_2437



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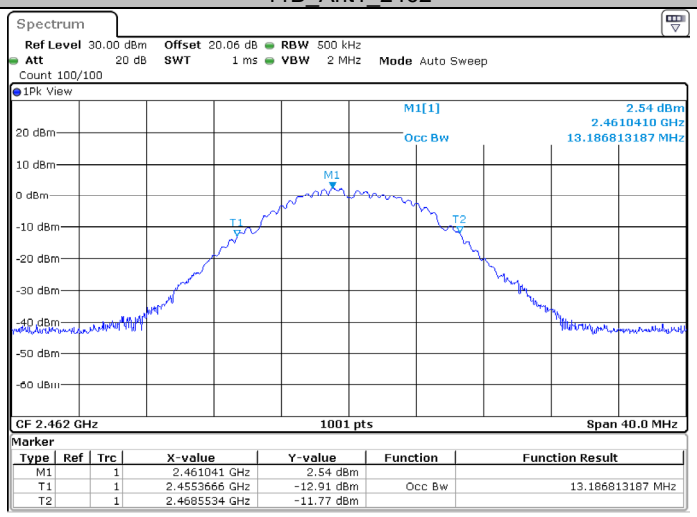
Date: 10.OCT.2024 00:19:12

11B_Ant1_2462



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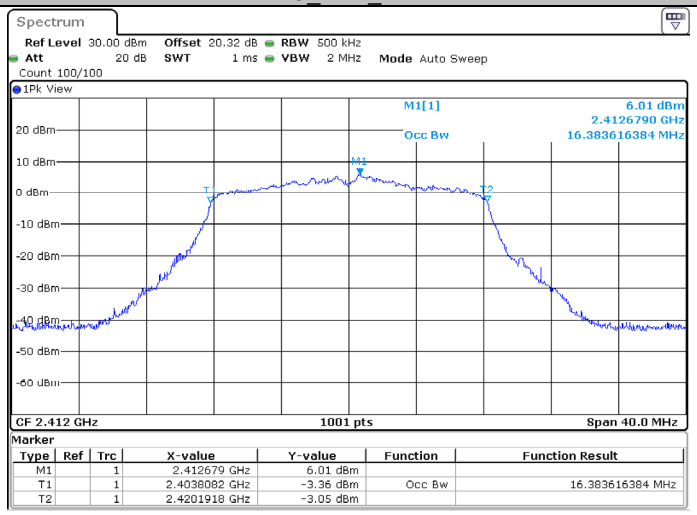
Date: 10.OCT.2024 00:21:20

11G_Ant1_2412



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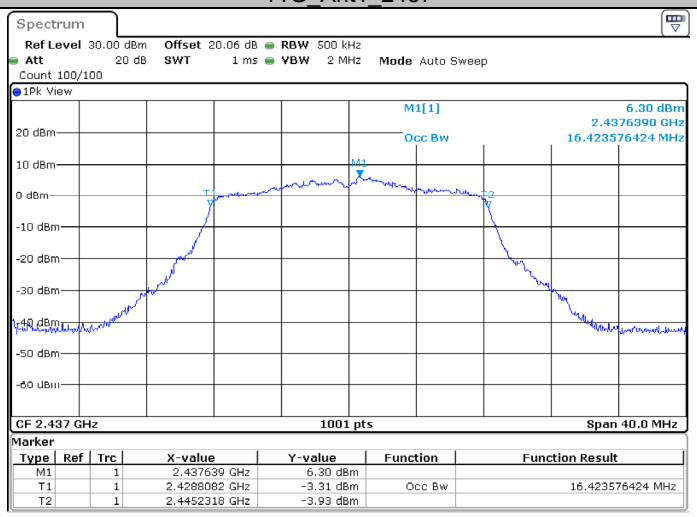
Date: 10.OCT.2024 00:23:13

11G_Ant1_2437



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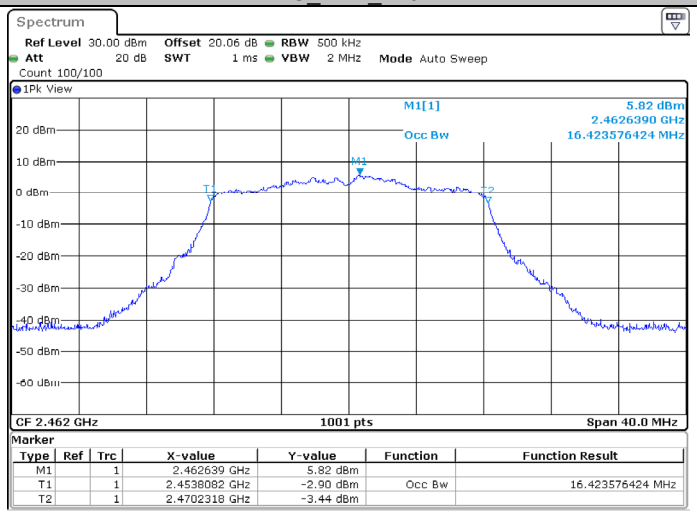
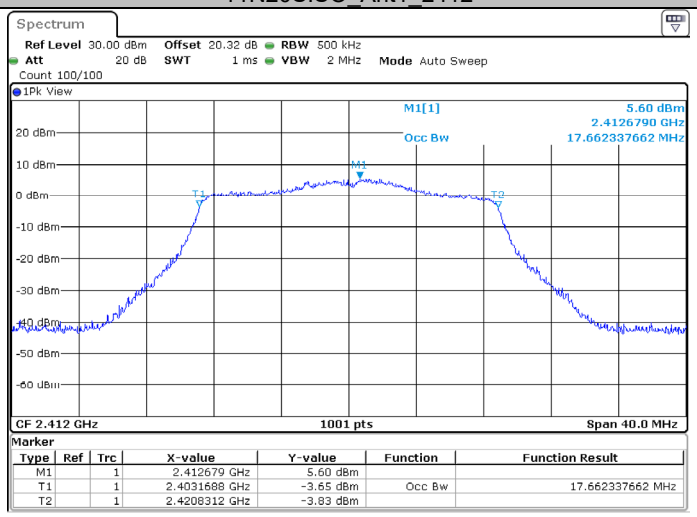
Date: 10.OCT.2024 00:25:01

11G_Ant1_2462



ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:26:50

11N20SISO_Ant1_2412



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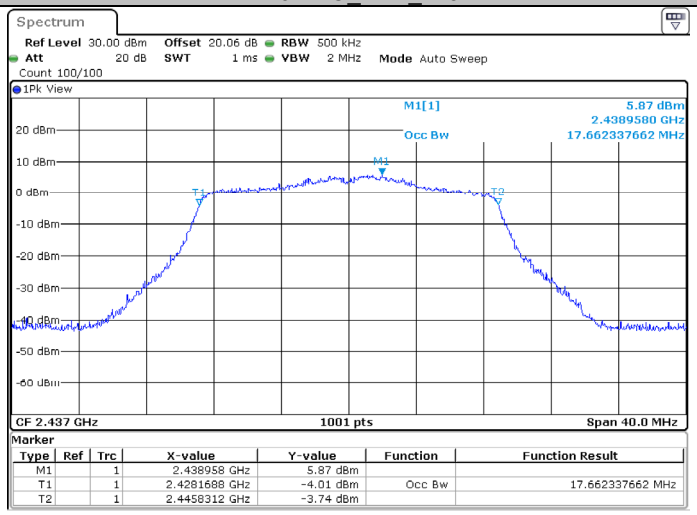
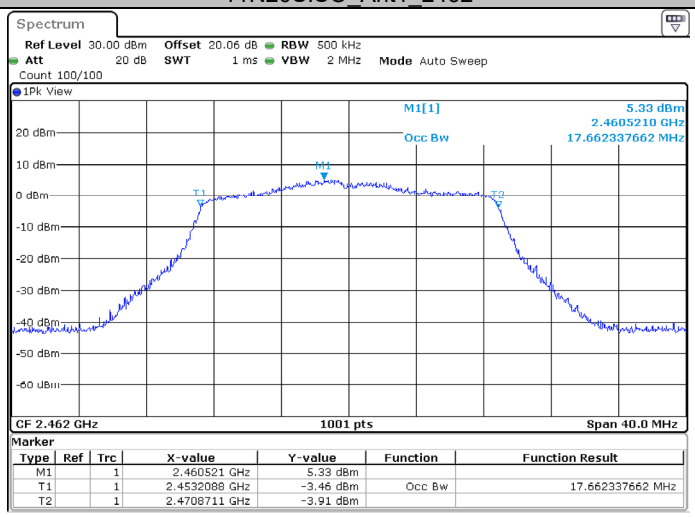
Date: 10.OCT.2024 00:29:52

11N20SISO_Ant1_2437



ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:31:30

11N20SISO_Ant1_2462



Appendix C: Maximum conducted output power

Test Result

Test Mode	Antenna	Frequency [MHz]	Average Power[dBm]	Peak Power [dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	9.94	12.90	≤30.00	PASS
		2437	10.04	13.18	≤30.00	PASS
		2462	9.81	12.85	≤30.00	PASS
11G	Ant1	2412	10.13	17.67	≤30.00	PASS
		2437	10.29	17.90	≤30.00	PASS
		2462	10.15	17.66	≤30.00	PASS
11N20SISO	Ant1	2412	9.78	17.61	≤30.00	PASS
		2437	9.95	17.82	≤30.00	PASS
		2462	9.61	17.46	≤30.00	PASS

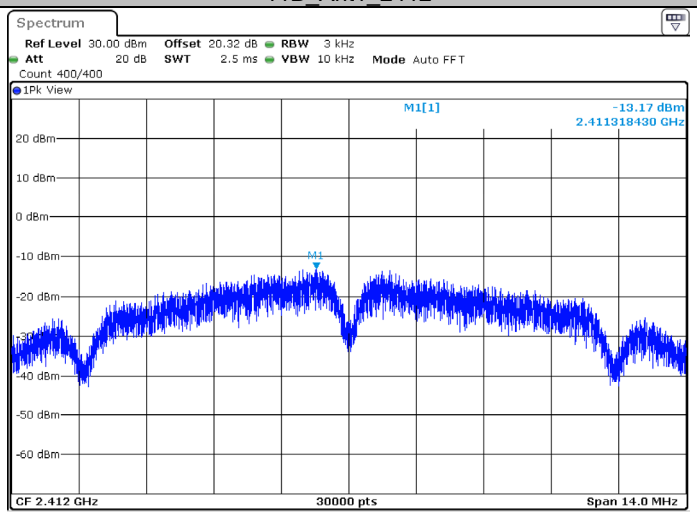
Appendix D: Maximum power spectral density

Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-13.17	≤8.00	PASS
		2437	-12.76	≤8.00	PASS
		2462	-13.30	≤8.00	PASS
11G	Ant1	2412	-13.52	≤8.00	PASS
		2437	-13.21	≤8.00	PASS
		2462	-13.67	≤8.00	PASS
11N20SISO	Ant1	2412	-12.77	≤8.00	PASS
		2437	-11.06	≤8.00	PASS
		2462	-12.21	≤8.00	PASS

Test Graphs

11B_Ant1_2412



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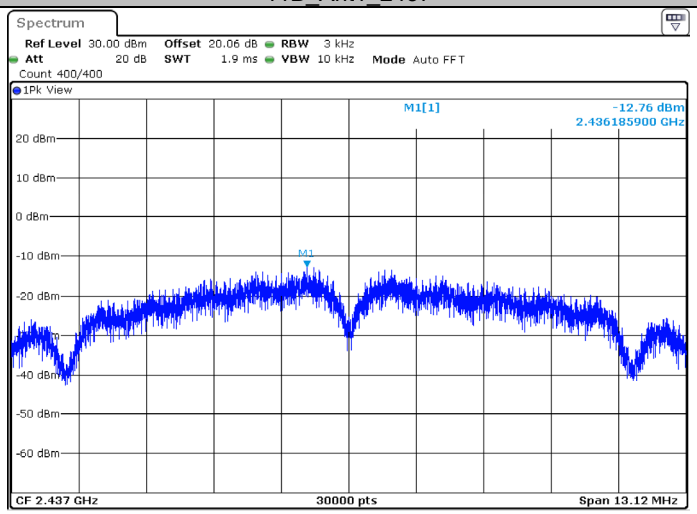
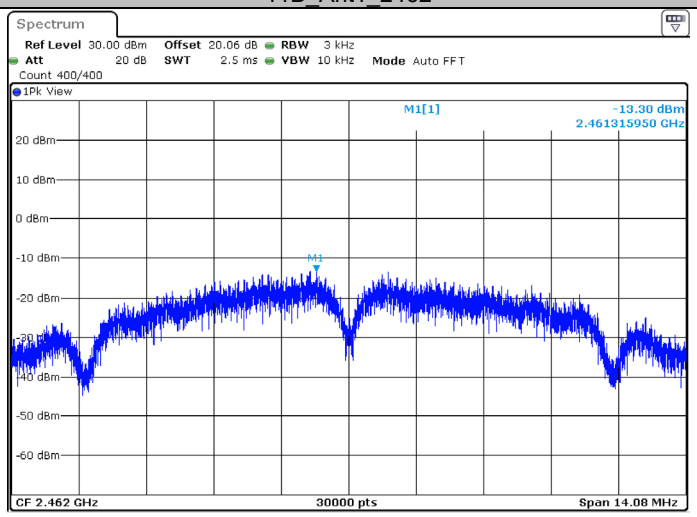
Date: 10.OCT.2024 00:18:16

11B_Ant1_2437

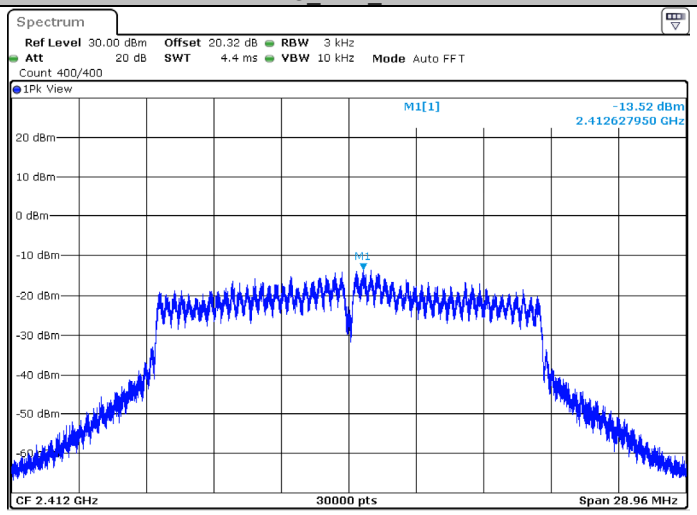


ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:19:32

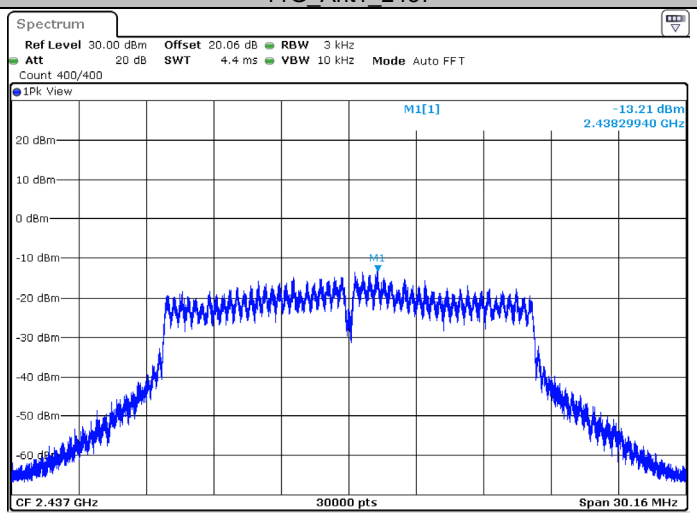
11B_Ant1_2462



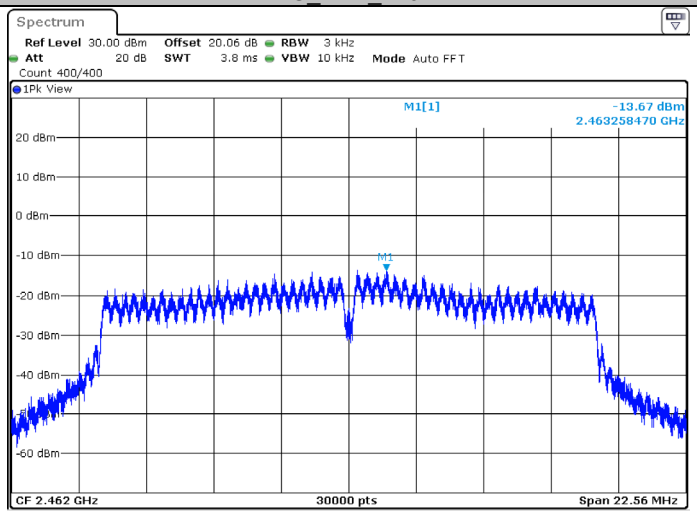
11G_Ant1_2412



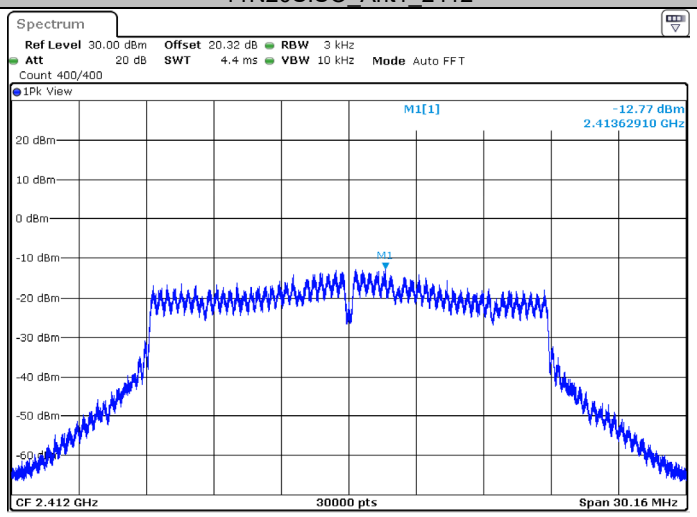
11G_Ant1_2437



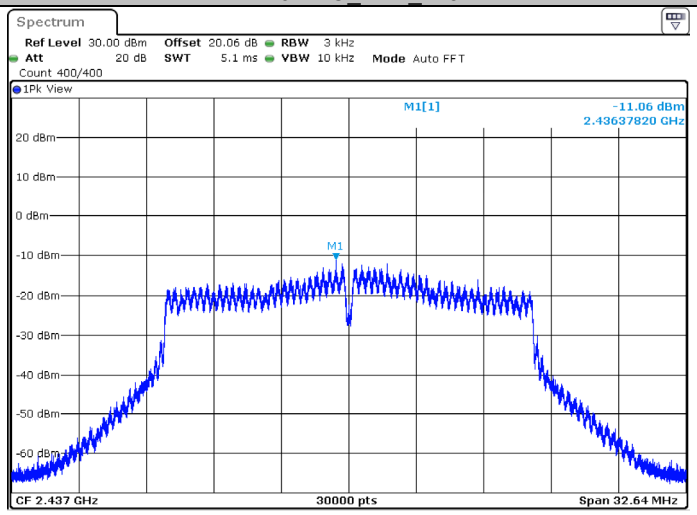
11G_Ant1_2462



11N20SISO_Ant1_2412



11N20SISO_Ant1_2437



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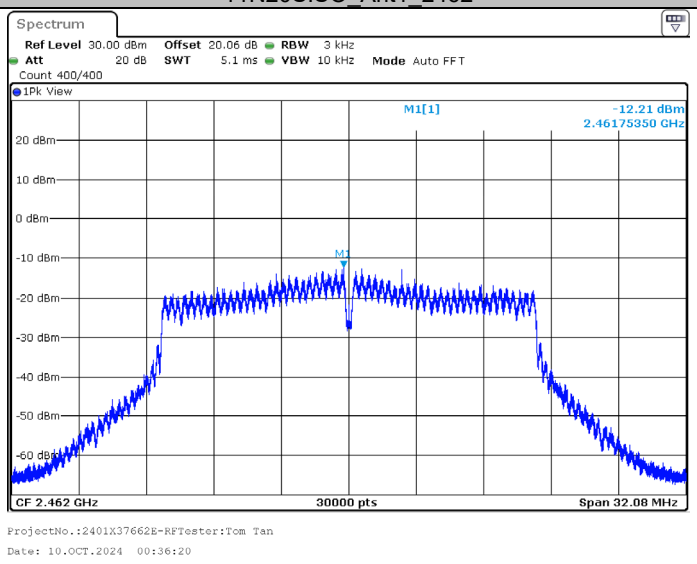
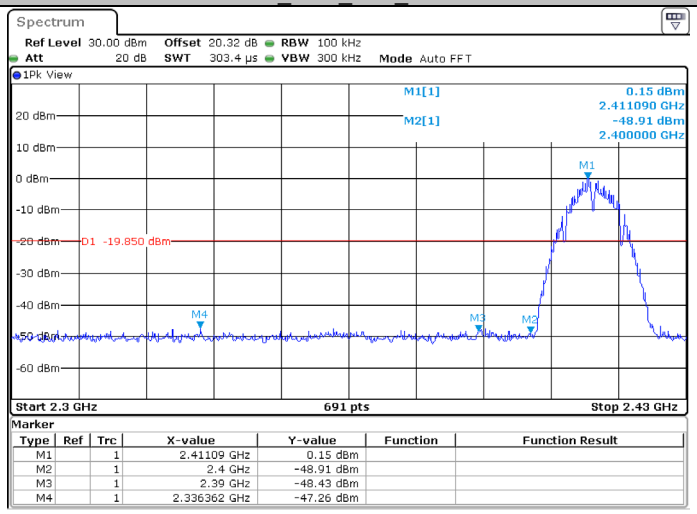


Appendix E: Band edge measurements

Test Graphs

11B_Ant1_Low_2412

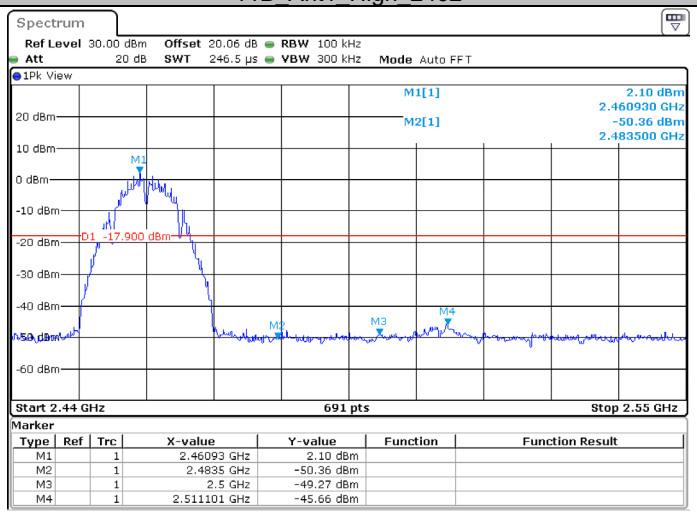


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41109 GHz	0.15 dBm		
M2		1	2.4 GHz	-48.91 dBm		
M3		1	2.39 GHz	-48.43 dBm		
M4		1	2.336362 GHz	-47.26 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:17:13

11B_Ant1_High_2462

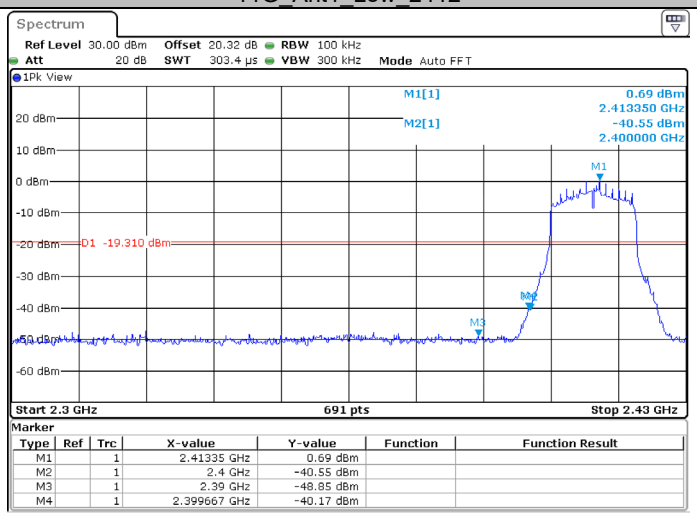


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46093 GHz	2.10 dBm		
M2		1	2.4835 GHz	-50.36 dBm		
M3		1	2.5 GHz	-49.27 dBm		
M4		1	2.511101 GHz	-45.66 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:21:49

11G_Ant1_Low_2412

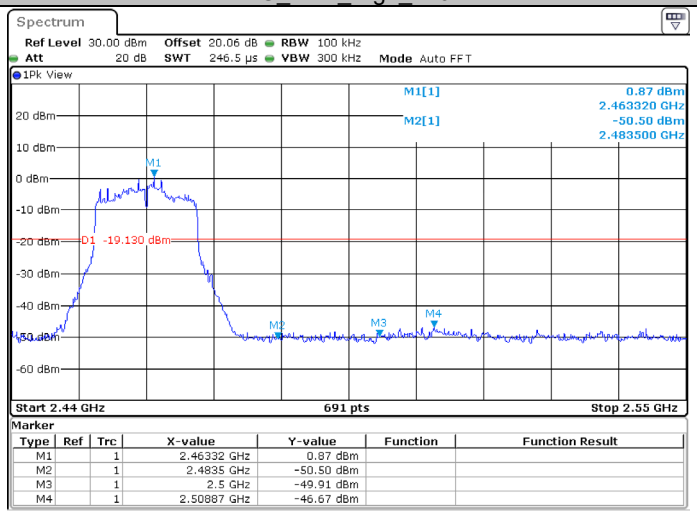


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41335 GHz	0.69 dBm		
M2		1	2.4 GHz	-40.55 dBm		
M3		1	2.39 GHz	-48.85 dBm		
M4		1	2.399667 GHz	-40.17 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:23:42

11G_Ant1_High_2462

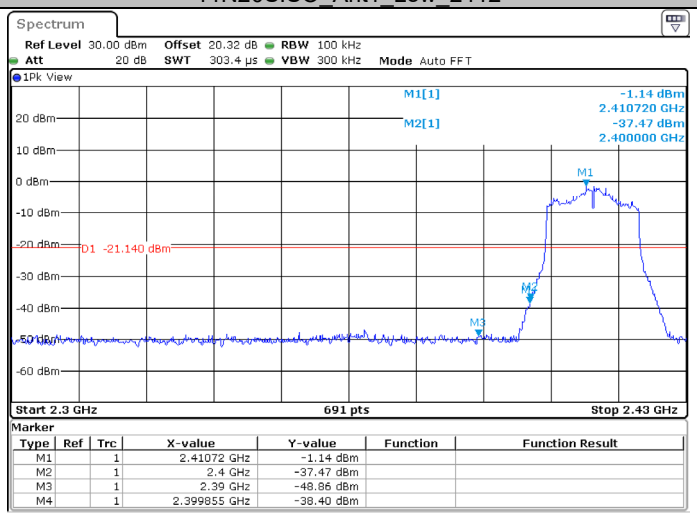


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46332 GHz	0.87 dBm		
M2		1	2.4835 GHz	-50.50 dBm		
M3		1	2.5 GHz	-49.91 dBm		
M4		1	2.50887 GHz	-46.67 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:27:19

11N20SISO_Ant1_Low_2412

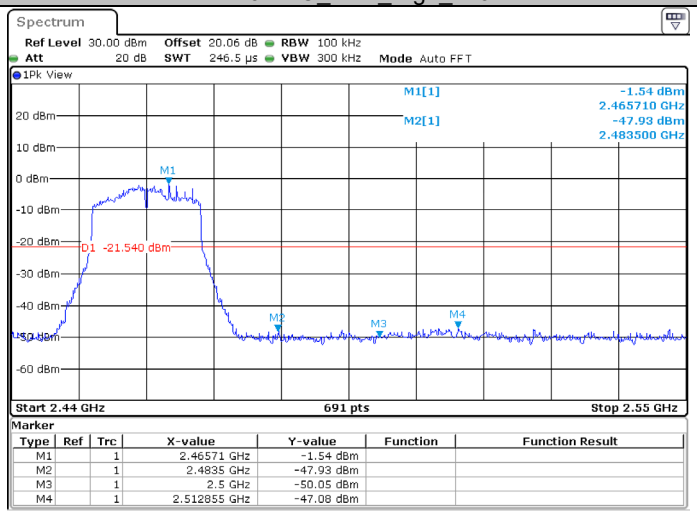


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41072 GHz	-1.14 dBm		
M2		1	2.4 GHz	-37.47 dBm		
M3		1	2.39 GHz	-48.86 dBm		
M4		1	2.399855 GHz	-38.40 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:30:21

11N20SISO_Ant1_High_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46571 GHz	-1.54 dBm		
M2		1	2.4835 GHz	-47.93 dBm		
M3		1	2.5 GHz	-50.05 dBm		
M4		1	2.512855 GHz	-47.08 dBm		

ProjectNo.:2401X37662E-RFTester:Tom Tan
Date: 10.OCT.2024 00:34:13

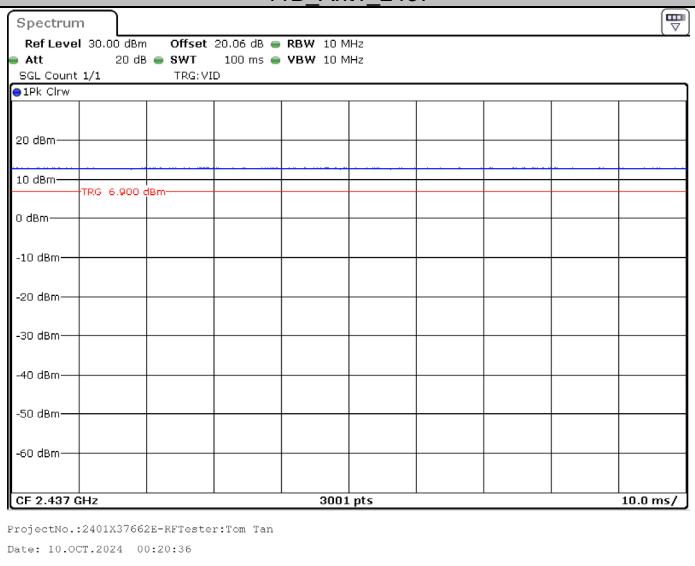
Appendix F: Duty Cycle

Test Result

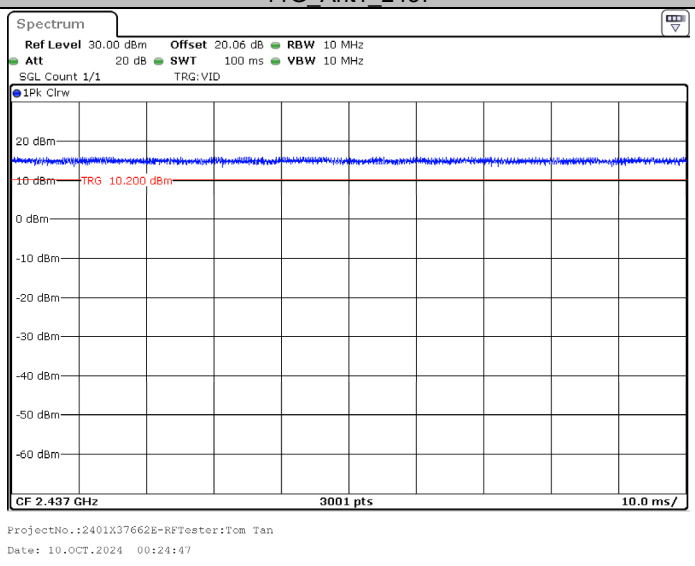
Test Mode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T[Hz]	VBW Setting [Hz]
11B	Ant1	2437	100.00	100.00	100.00	/	10
11G	Ant1	2437	100.00	100.00	100.00	/	10
11N20SISO	Ant1	2437	100.00	100.00	100.00	/	10

Test Graphs

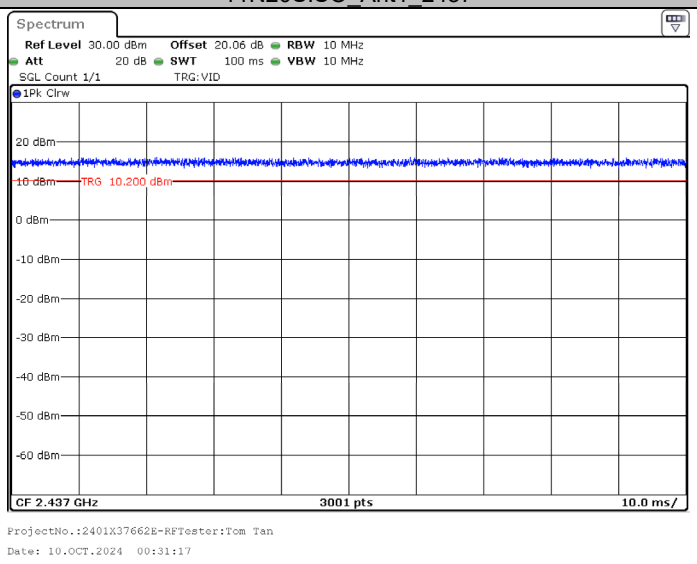
11B_Ant1_2437



11G_Ant1_2437



11N20SISO_Ant1_2437



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