TEST REPORT

Applicant Name:	QUEST USA CORP
Address:	495 Flatbush Ave, Brooklyn, NY 11225, USA
Report Number:	2401Z62182E-RF-00
FCC ID:	2AJQ7DONGLE

Test Standard (s)

FCC PART 15.249

Sample Description

Product Type:	IJOY TRANSLUCENT WIRELESS KEYBOARD WITH DONGLE
Model No.:	IJAST477-FB
Multiple Model(s) No.:	IJ10389-FB, IJ10390-FB
Trade Mark:	IJOY
Date Received:	2024/11/12
Issue Date:	2025/01/15

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 "▼".

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401Z62182E-RF-00	Original Report	2025/01/15

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	IJOY TRANSLUCENT WIRELESS KEYBOARD WITH DONGLE
Tested Model	IJAST477-FB
Multiple Model(s)	IJ10389-FB, IJ10390-FB
Frequency Range	2402-2480MHz
Maximum E-field strength	81.75 dBuV/m@3m
Modulation Technique	GFSK
Antenna Specification[#]	3.55dBi (provided by the applicant)
Voltage Range	DC 5.0V from USB
Sample serial number	2U6B-1 (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A
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 test report is in accordance with Part 2-Subpart J, and Part 15-Subparts A and C of the Federal Communication Commissions 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 15.249 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.

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 Frequency		56.6Hz(k=2, 95% level of confidence)
RF output power, conducted		0.86dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.60dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz-150kHz	3.63dB(k=2, 95% level of confidence)
	150kHz-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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing by manufacturer.

Frequency Channel List[#]:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	16	2432	31	2462
2	2404	17	2434	32	2464
3	2406	18	2436	33	2466
4	2408	19	2438	34	2468
5	2410	20	2440	35	2470
6	2412	21	2442	26	2472
7	2414	22	2444	37	2474
8	2416	23	2446	38	2476
9	2418	24	2448	39	2478
10	2420	25	2450	40	2480
11	2422	26	2452	/	/
12	2424	27	2454	/	/
13	2426	28	2456	/	/
14	2428	29	2458	/	/
15	2430	30	2460	/	/

Note: Test on Channel 1, 20 and 40.

EUT Exercise Software

"FCC test tool .exe V 2.4"[#] exercise software was used and the power level is 0[#]. The software and power level was provided by the applicant.

Equipment Modifications

No modifications were made to the unit tested.

Support Equipment List and Details

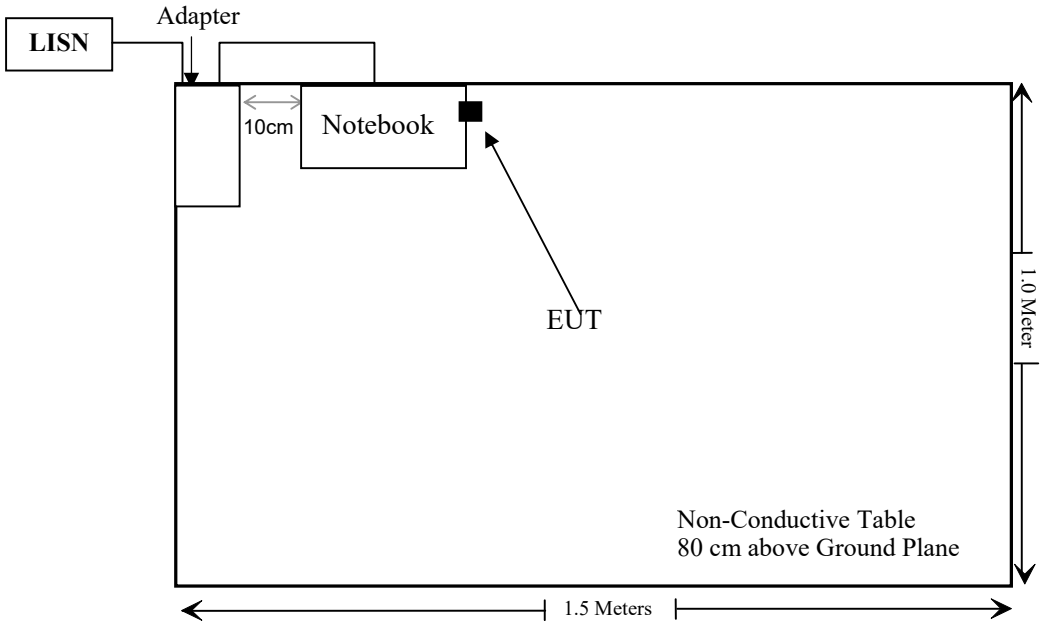
Manufacturer	Description	Model	Serial Number
DELL	Notebook	Latitude E6410	11429208685
DELL	Adapter	Unknown	Unknown

Support Cable Descriptions

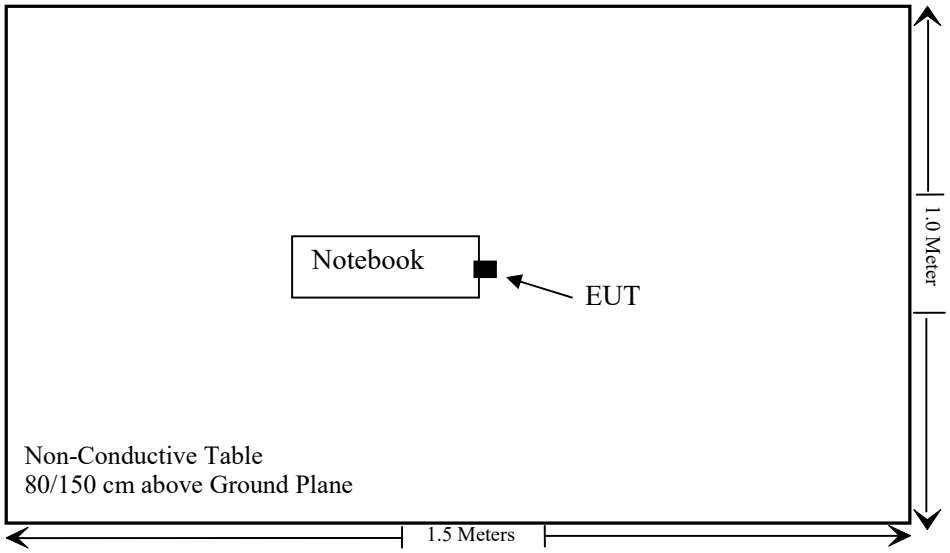
Cable Description	Length (m)	From/Port	To
Unshielded Un-detachable Cable	1.0	Adapter	LISN
Unshielded Un-detachable Cable	0.8	Adapter	Notebook

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emission:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307(b)(3)(i)(A) &§2.1093	RF Exposure	Compliant
§15.203	Antenna Requirement	Compliant
§15.207(a)	Conduction Emissions	Compliant
15.205, §15.209, §15.249(d)	Radiated Emissions& Outside of Band Emission	Compliant
§15.215 (c)	20 dB Bandwidth	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emissions 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 Emissions 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
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
A.H.System	Preamplifier	PAM-0118P	489	2024/11/15	2025/11/14
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	735	2024/12/04	2025/12/03
Unknown	RF Cable	UFA147	219661	2024/12/04	2025/12/03
JD	Multiplex Switch Test Control Set	DT7220SCU	DS79903	2024/09/09	2025/09/08
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

*** 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).

§1.1307(b)(3)(i)(A)&§2.1093 –RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (3), 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 D04 Interim General RF Exposure Guidance V01

1-mw Test Exemption:

Per § 1.1307(b)(3)(i)(A), a single RF source is exempt RF device (from the requirement to show data demonstrating compliance to RF exposure limits, as previously mentioned) if the available maximum time-averaged power is no more than 1 mW, regardless of separation distance. This exemption applies to all operating configurations and exposure conditions, for the frequency range 100 kHz to 100 GHz, regardless of fixed, mobile, or portable device exposure conditions. This is a standalone exemption, and it cannot be applied in conjunction with any other test exemption.

Test Result

For worst case:

Frequency (MHz)	Maximum EIRP (dBuV/m@3m)	Maximum EIRP (dBm)	Maximum ERP		1-mW test Exemption
			(dBm)	(mW)	
2402-2480	81.75	-13.45	-15.60	0.028	Yes

Note: EIRP = E-Field – 95.2 @3m
ERP(dBm) = EIRP(dBm)-2.15

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 one internal antenna which was permanently attached and the antenna gain# is 3.55dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Antenna Gain#	Impedance	Frequency Range
PCB	3.55dBi	50Ω	2402-2480MHz

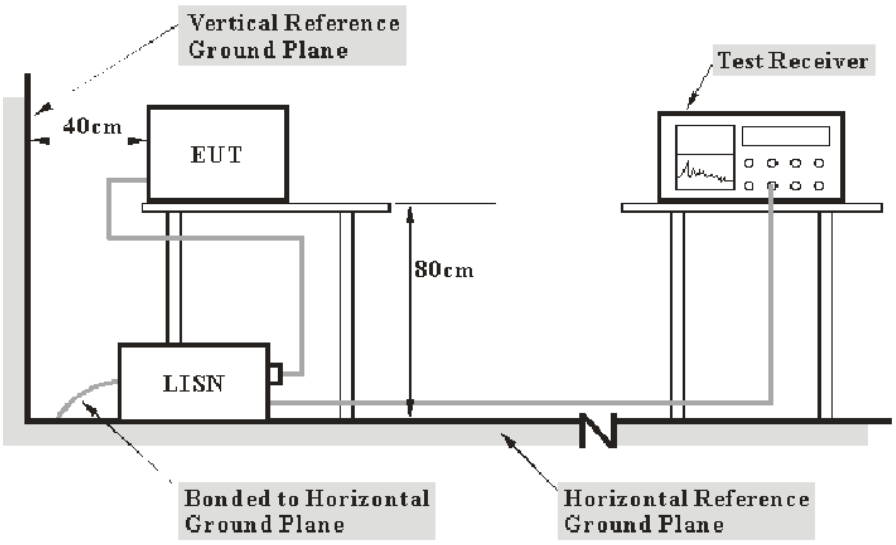
Result: Compliant.

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

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 measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

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

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

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

Test Procedure

During the conducted emission test, the adapter 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 calculation is as follows:

Over Limit = Level – Limit
Level = Read Level + Factor

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

Test Data

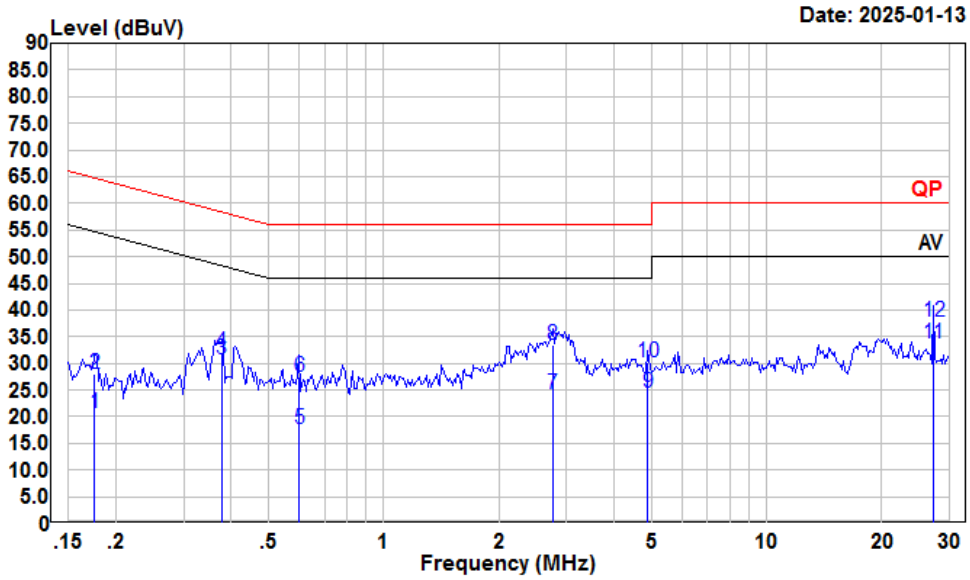
Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	52 %
ATM Pressure:	101.2 kPa

The testing was performed by Macy Shi on 2025-01-13.

EUT operation mode: Transmitting (Maximum output power mode, low channel)

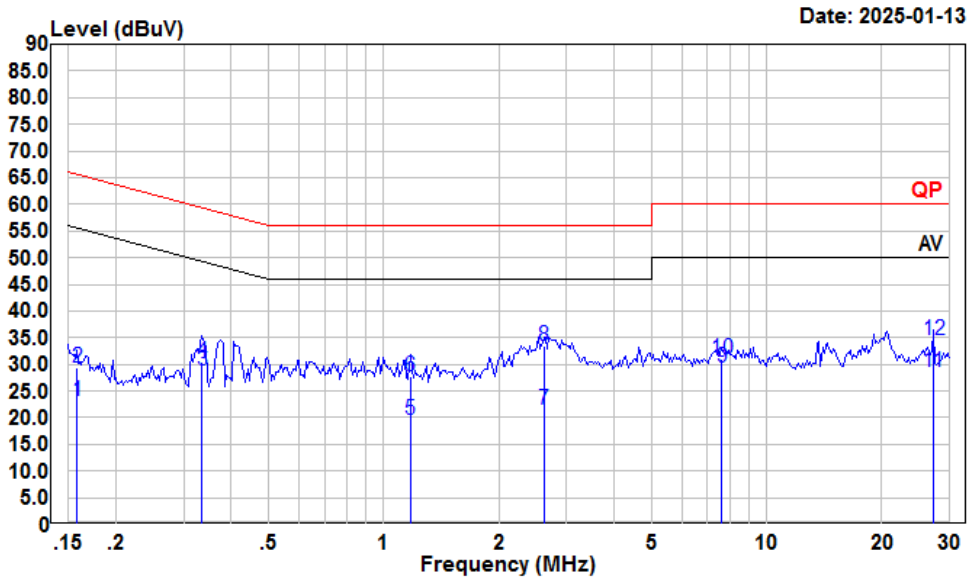
AC 120V/60 Hz, Line



Condition: Line
Project : 2401Z62182E-RF
tester : Macy.shi Note:Transmitting
Setting : 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	0.176	0.24	20.74	10.40	10.10	54.68	-33.94	Average
2	0.176	7.59	28.09	10.40	10.10	64.68	-36.59	QP
3	0.377	10.35	30.72	10.26	10.11	48.34	-17.62	Average
4	0.377	11.83	32.20	10.26	10.11	58.34	-26.14	QP
5	0.601	-2.67	17.76	10.31	10.12	46.00	-28.24	Average
6	0.601	7.10	27.53	10.31	10.12	56.00	-28.47	QP
7	2.765	3.66	24.19	10.35	10.18	46.00	-21.81	Average
8	2.765	12.97	33.50	10.35	10.18	56.00	-22.50	QP
9	4.900	3.71	24.36	10.47	10.18	46.00	-21.64	Average
10	4.900	9.65	30.30	10.47	10.18	56.00	-25.70	QP
11	27.271	12.95	33.77	10.62	10.20	50.00	-16.23	Average
12	27.271	16.95	37.77	10.62	10.20	60.00	-22.23	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401Z62182E-RF
tester : Macy.shi Note:Transmitting
Setting : RBW:9kHz VBW:Auto SWT:Auto

	Freq	Read Level	LISN Level	Cable Factor	Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.158	2.82	23.21	10.27	10.12	55.56	-32.35	Average
2	0.158	8.88	29.27	10.27	10.12	65.56	-36.29	QP
3	0.336	7.97	28.80	10.71	10.12	49.31	-20.51	Average
4	0.336	9.72	30.55	10.71	10.12	59.31	-28.76	QP
5	1.172	-0.76	19.63	10.25	10.14	46.00	-26.37	Average
6	1.172	7.38	27.77	10.25	10.14	56.00	-28.23	QP
7	2.622	1.18	21.57	10.22	10.17	46.00	-24.43	Average
8	2.622	13.13	33.52	10.22	10.17	56.00	-22.48	QP
9	7.646	8.68	29.32	10.45	10.19	50.00	-20.68	Average
10	7.646	10.40	31.04	10.45	10.19	60.00	-28.96	QP
11	27.271	8.01	28.49	10.28	10.20	50.00	-21.51	Average
12	27.271	14.01	34.49	10.28	10.20	60.00	-25.51	QP

FCC§15.205, §15.209 & §15.249(d) - RADIATED EMISSIONS

Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

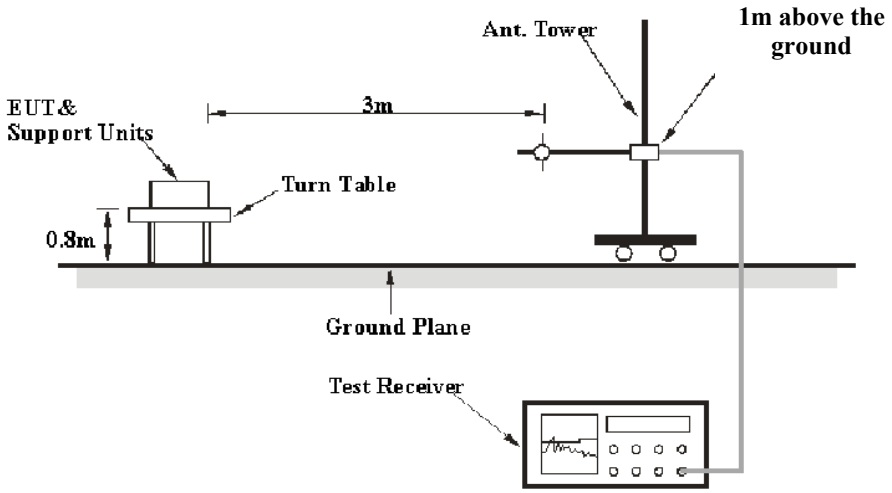
Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

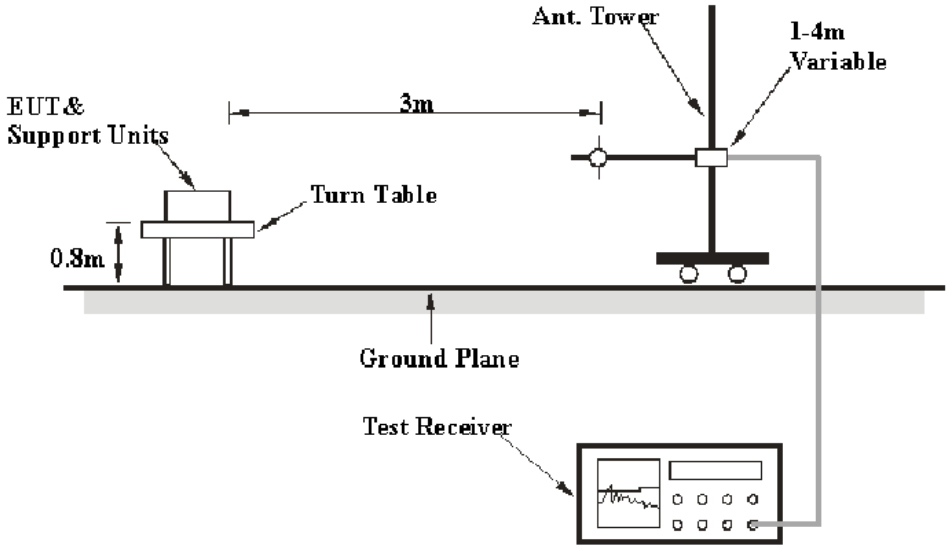
As per FCC§15.249 (d), Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

EUT Setup

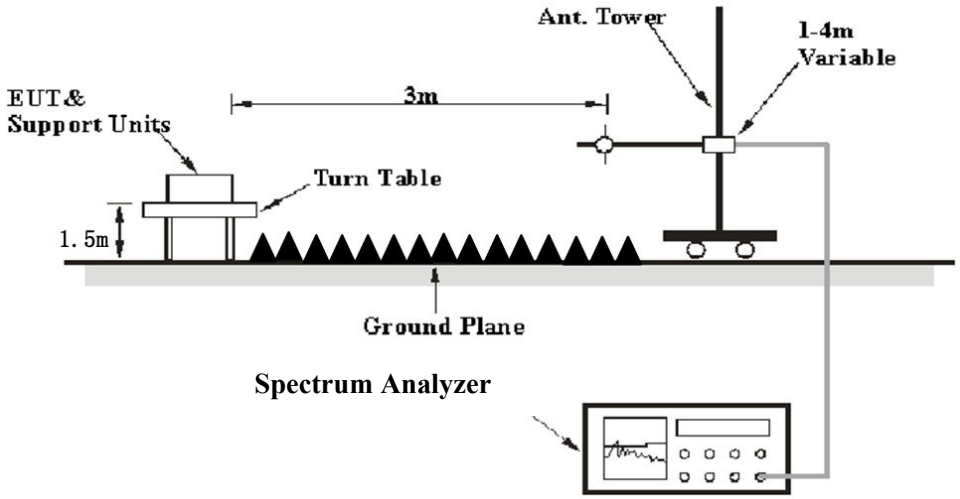
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



The radiated emission and out of band emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209/15.205 and FCC 15.249 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.
The EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

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	RBW	Video B/W
PK	1MHz	3 MHz
AV	1MHz	1 kHz

Final measurement for emission identified during pre-scan

Measurement	RBW	Video B/W
PK	1MHz	3 MHz
AV	1MHz	10 Hz

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.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 meter, and the EUT is placed on a turntable, which is 0.8 meter above ground plane for below 1GHz or 1.5 meter for above 1GHz, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

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

Test Data

Environmental Conditions

Temperature:	22~24.1 ℃
Relative Humidity:	47~54 %
ATM Pressure:	101 kPa

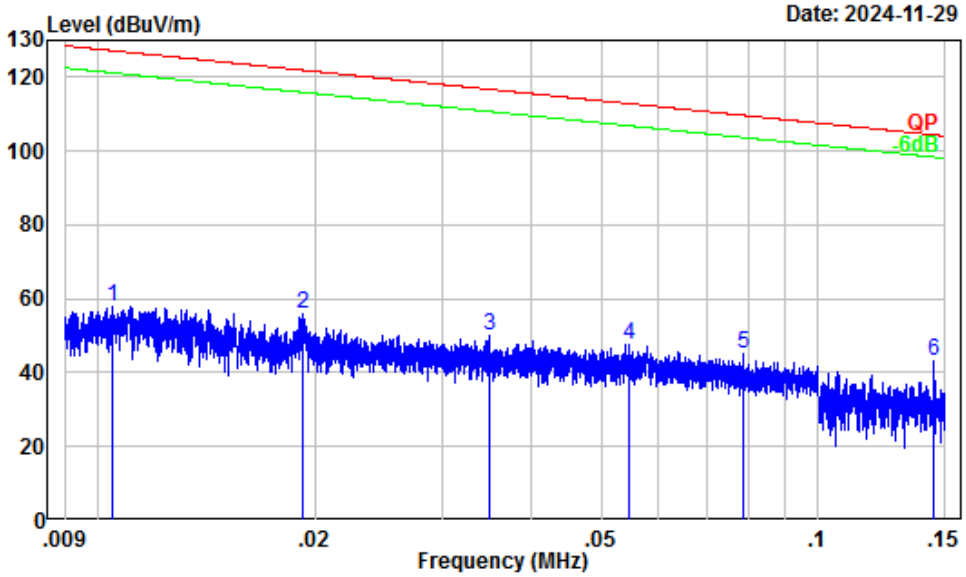
The testing was performed by Anson Su on 2024-11-29 for below 1GHz and Dylan Yang from 2024-12-24 to 2025-01-15 for above 1GHz.

EUT operation mode: Transmitting

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

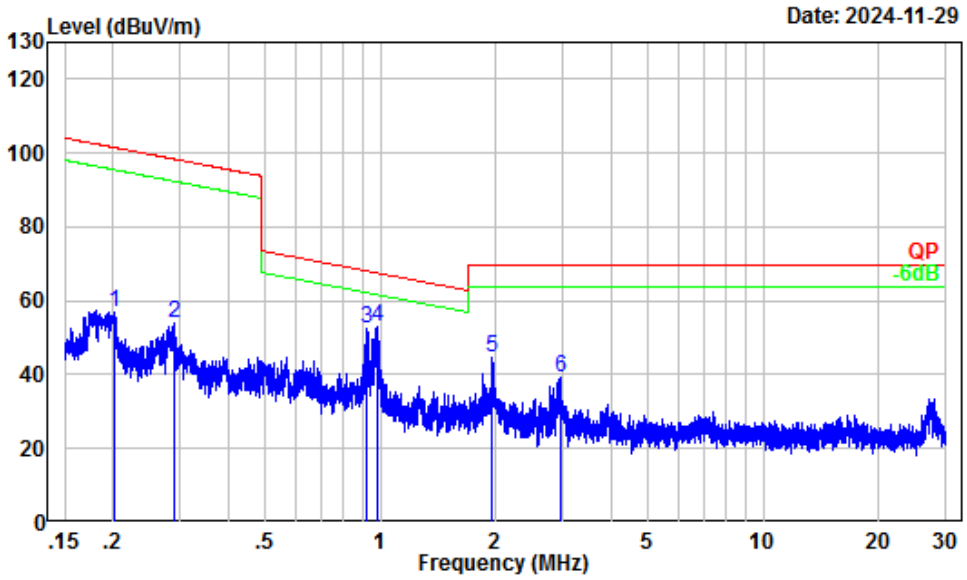
9 kHz-30MHz: (*Maximum output power mode, low channel)*

Parallel (worst case)



Site : Chamber A
Condition : 3m
Project Number: 2401Z62182E-RF
Test Mode : Transmitting
Setting PK RBW: 0.3kHz VBW:1kHz
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	32.21	25.72	57.93	127.22	-69.29	Peak
2	0.02	30.55	25.47	56.02	121.93	-65.91	Peak
3	0.03	27.99	21.88	49.87	116.75	-66.88	Peak
4	0.05	25.93	21.52	47.45	112.84	-65.39	Peak
5	0.08	23.54	21.35	44.89	109.69	-64.80	Peak
6	0.14	19.36	23.79	43.15	104.39	-61.24	Peak

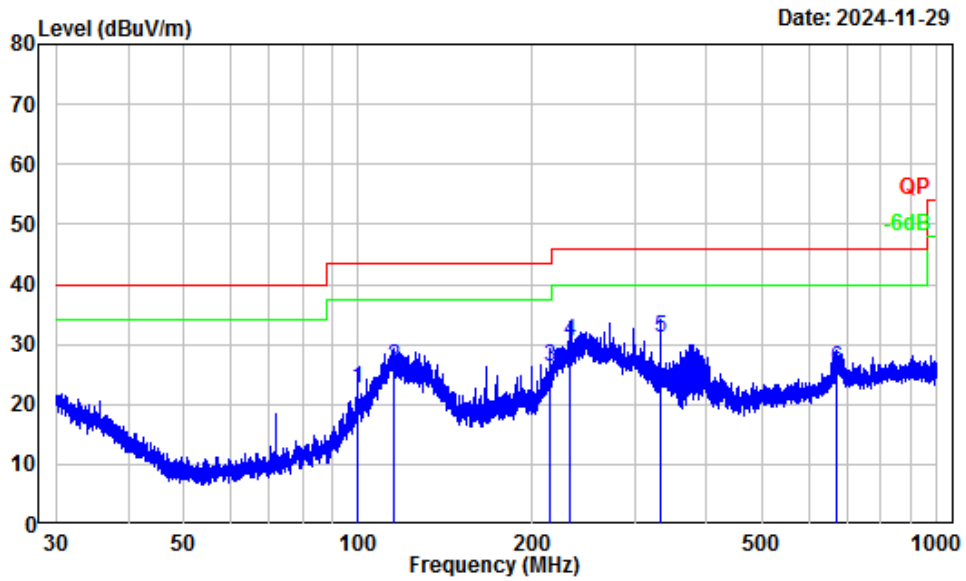


Site : Chamber A
Condition : 3m
Project Number: 2401Z62182E-RF
Test Mode : Transmitting
Setting PK RBW: 10kHz VBW:30kHz
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	0.20	15.99	40.75	56.74	101.51	-44.77	Peak
2	0.29	10.90	42.95	53.85	98.41	-44.56	Peak
3	0.92	1.79	50.72	52.51	68.20	-15.69	Peak
4	0.98	1.35	51.48	52.83	67.65	-14.82	Peak
5	1.96	-1.49	46.11	44.62	69.54	-24.92	Peak
6	2.94	-2.12	41.30	39.18	69.54	-30.36	Peak

30MHz-1GHz: (*Maximum output power mode, low channel)*

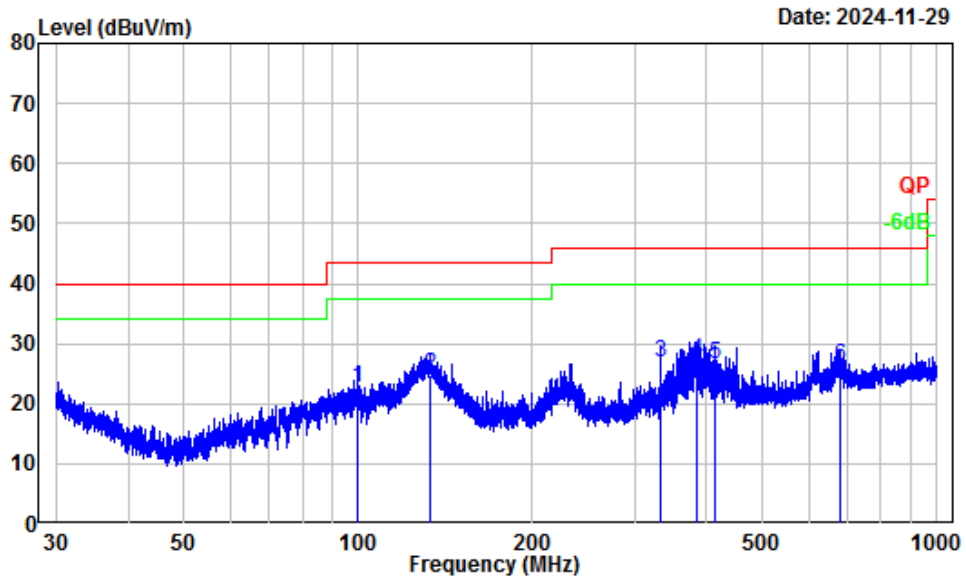
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401Z62182E-RF
Test Mode : Transmitting
Setting QP RBW: 120kHz
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	99.75	-15.97	38.54	22.57	43.50	-20.93	QP
2	114.87	-12.15	38.40	26.25	43.50	-17.25	QP
3	214.80	-14.20	40.42	26.22	43.50	-17.28	QP
4	232.43	-13.70	44.20	30.50	46.00	-15.50	QP
5	331.94	-10.61	41.63	31.02	46.00	-14.98	QP
6	670.20	-3.84	29.83	25.99	46.00	-20.01	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401Z62182E-RF
Test Mode : Transmitting
Setting QP RBW: 120kHz
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	99.62	-16.01	38.74	22.73	43.50	-20.77	QP
2	133.21	-11.40	36.20	24.80	43.50	-18.70	QP
3	332.96	-10.58	37.40	26.82	46.00	-19.18	QP
4	385.28	-9.00	36.06	27.06	46.00	-18.94	QP
5	413.63	-8.06	34.68	26.62	46.00	-19.38	QP
6	679.07	-3.73	30.00	26.27	46.00	-19.73	QP

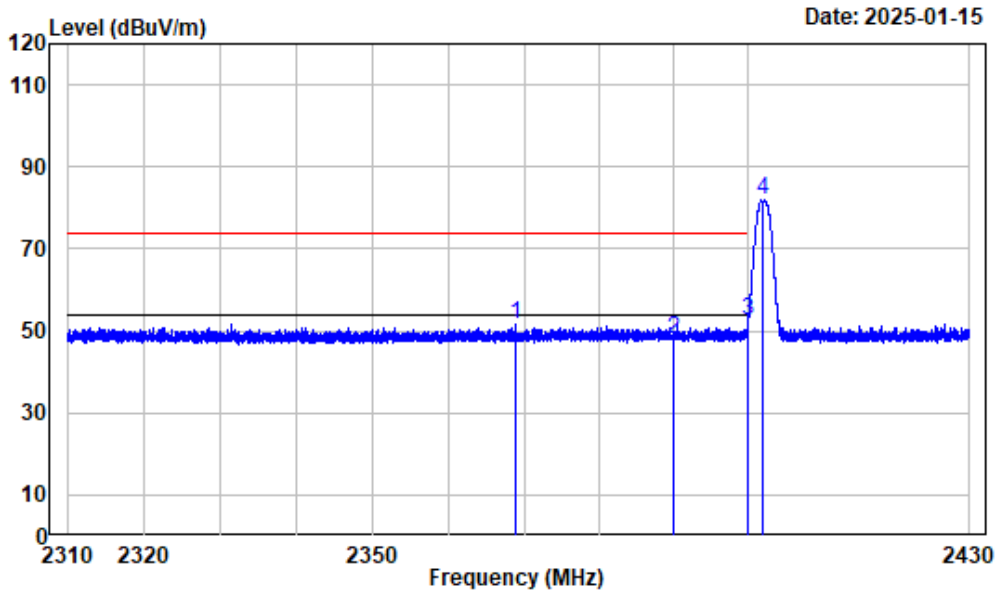
Above 1GHz:

Frequency (MHz)	Reading (dBµV)	Detector (PK/AV)	Polar (H/V)	Factor (dB/m)	Absolute Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
Low Channel							
4804.00	52.61	PK	H	-7.79	44.82	74	-29.18
4804.00	41.41	AV	H	-7.79	33.62	54	-20.38
4804.00	51.71	PK	V	-7.79	43.92	74	-30.08
4804.00	39.45	AV	V	-7.79	31.66	54	-22.34
Middle Channel							
4880.00	52.88	PK	H	-7.59	45.29	74	-28.71
4880.00	39.94	AV	H	-7.59	32.35	54	-21.65
4880.00	52.52	PK	V	-7.59	44.93	74	-29.07
4880.00	38.68	AV	V	-7.59	31.09	54	-22.91
High Channel							
4960.00	52.22	PK	H	-7.57	44.65	74	-29.35
4960.00	39.45	AV	H	-7.57	31.88	54	-22.12
4960.00	52.48	PK	V	-7.57	44.91	74	-29.09
4960.00	38.66	AV	V	-7.57	31.09	54	-22.91

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Absolute Level /Level= Factor + Reading
Margin = Absolute Level/Level - Limit
The other spurious emission which is 20dB to the limit or in noise floor level was not recorded.

Test plots for Band Edge Measurements (Radiated):

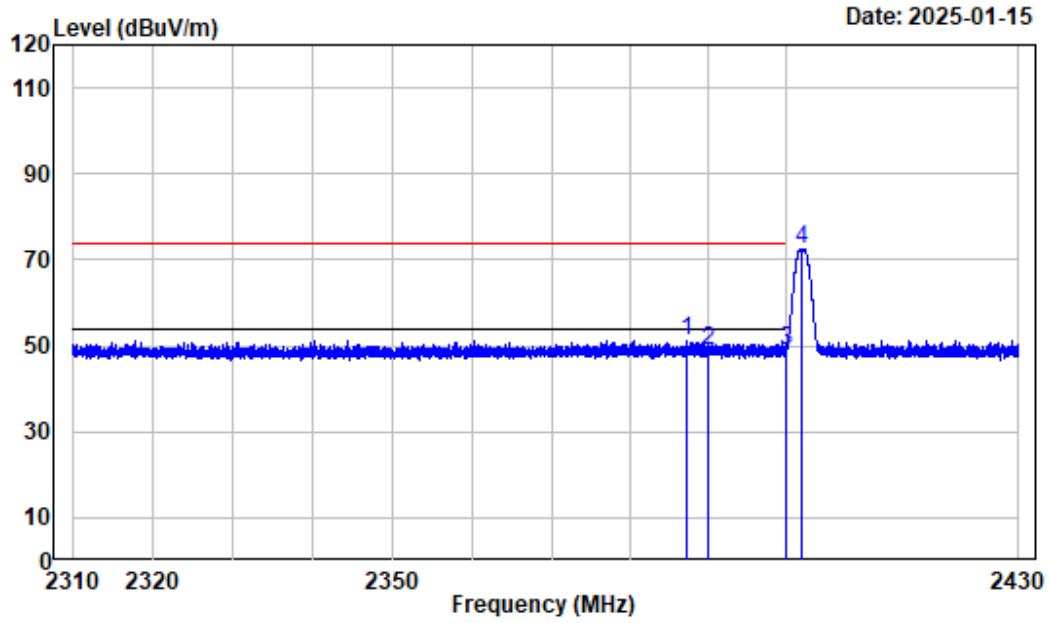
Test Channel:	2402MHz	Ant. Polar. :	Horizontal



Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2368.762	-10.94	62.57	51.63	74.00	-22.37	peak
2	2390.000	-10.98	58.86	47.88	74.00	-26.12	Peak
3	2400.000	-11.01	63.70	52.69	74.00	-21.31	Peak
4	2402.000	-11.01	92.76	81.75	114.00	-32.25	Peak

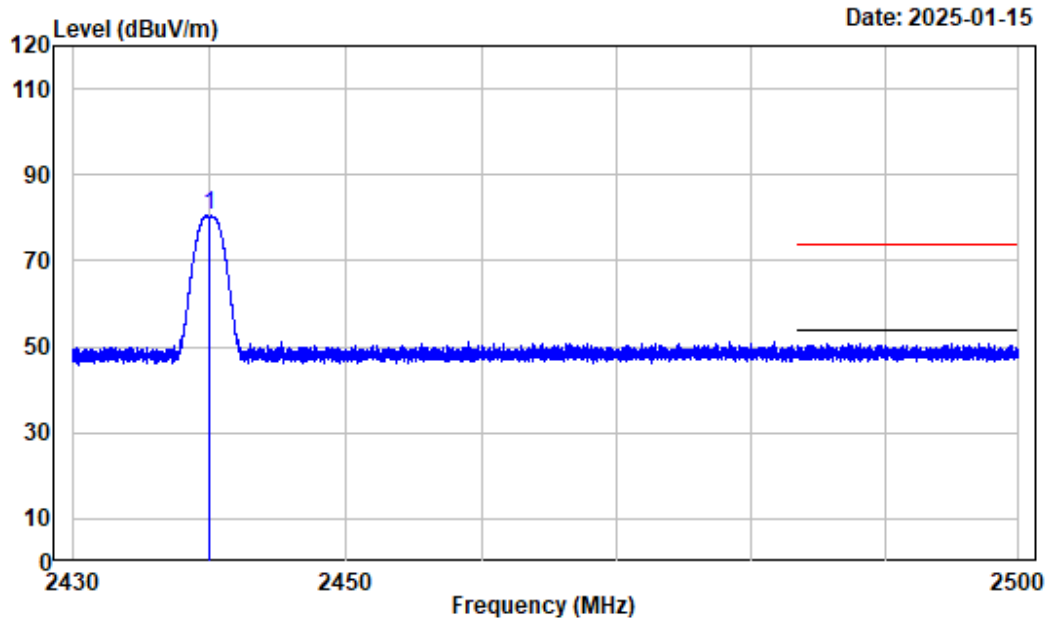
Test Channel:	2402MHz	Ant. Polar. :	Vertical



Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2387.185	-10.97	62.22	51.25	74.00	-22.75	peak
2	2390.000	-10.98	59.96	48.98	74.00	-25.02	Peak
3	2400.000	-11.01	59.95	48.94	74.00	-25.06	Peak
4	2402.000	-11.01	83.44	72.43	114.00	-41.57	Peak

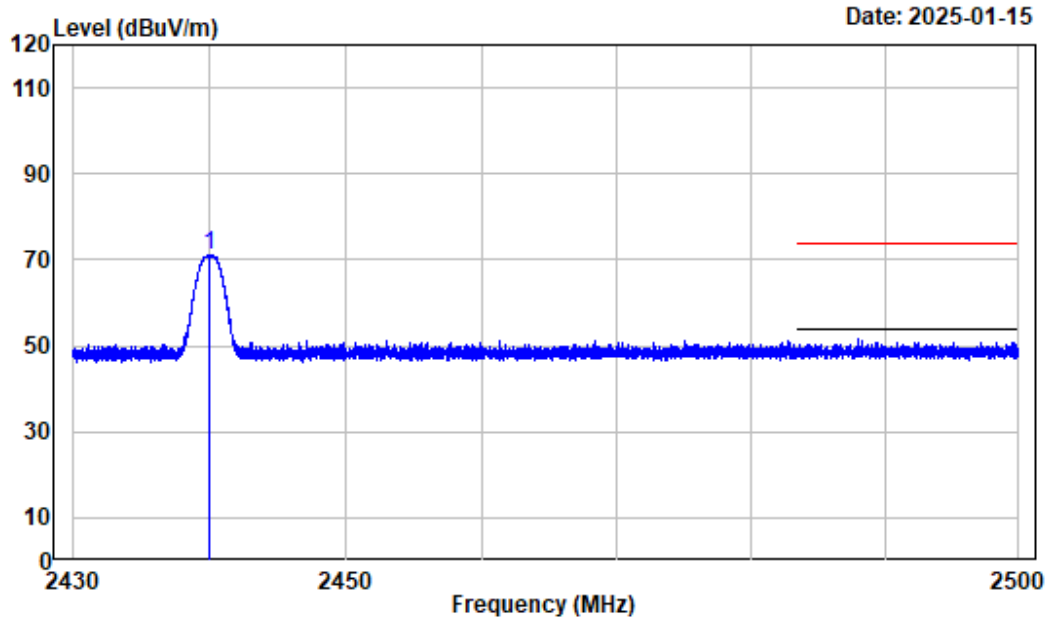
Test Channel:	2440MHz	Ant. Polar. :	Horizontal



Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2440

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2440.000	-10.93	91.42	80.49	114.00	-33.51	Peak

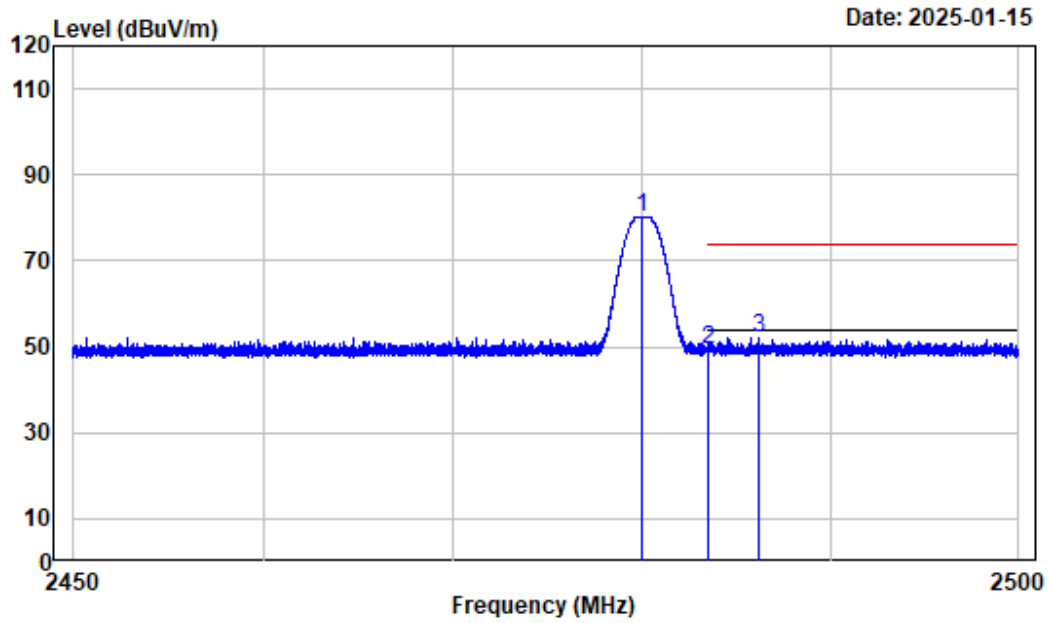
Test Channel:	2440MHz	Ant. Polar. :	Vertical



Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2440

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2440.000	-10.93	82.00	71.07	114.00	-42.93	Peak

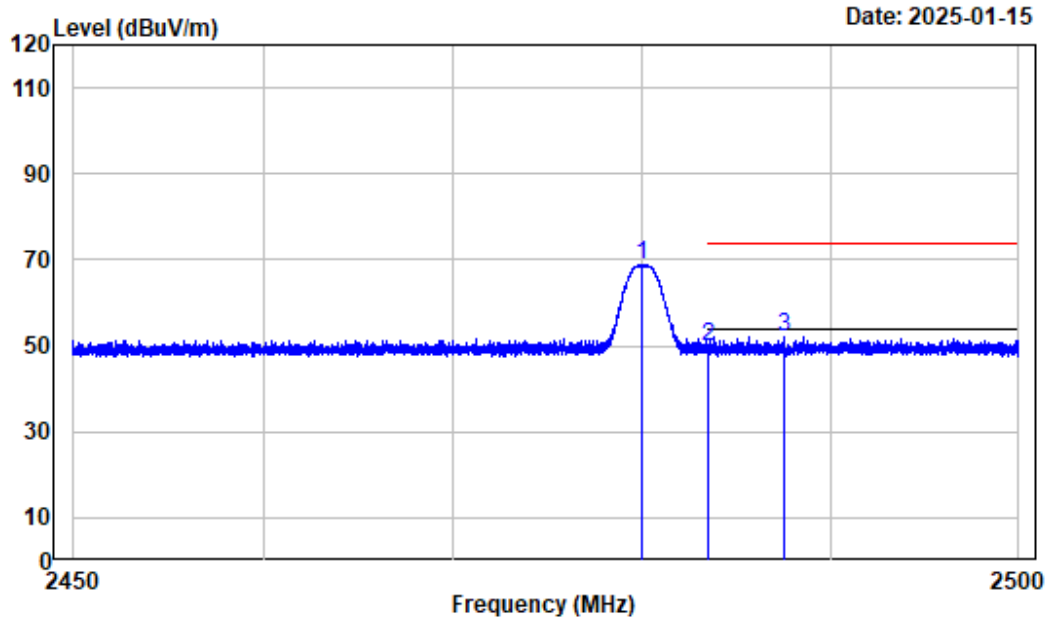
Test Channel:	2480MHz	Ant. Polar. :	Horizontal



Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2480.000	-10.97	91.33	80.36	114.00	-33.64	Peak
2	2483.500	-10.97	60.47	49.50	74.00	-24.50	Peak
3	2486.223	-10.97	63.10	52.13	74.00	-21.87	peak

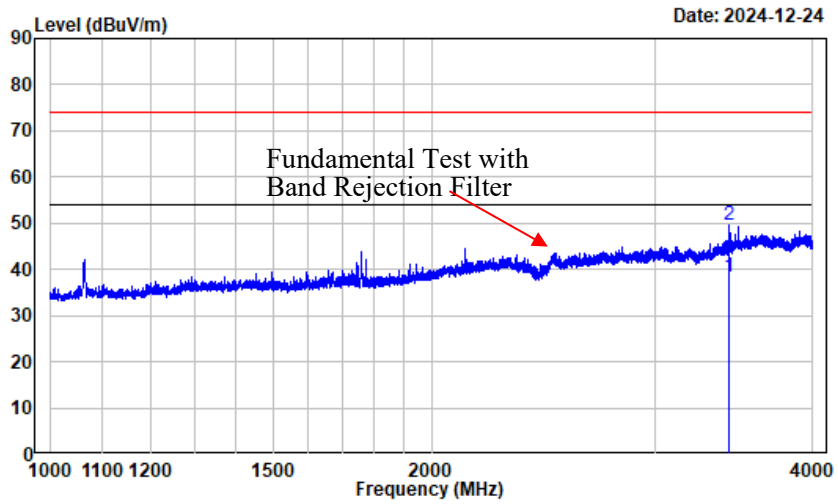
Test Channel:	2480MHz	Ant. Polar. :	Vertical



Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan.Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2480.000	-10.97	79.79	68.82	114.00	-45.18	Peak
2	2483.500	-10.97	60.98	50.01	74.00	-23.99	Peak
3	2487.517	-10.98	63.01	52.03	74.00	-21.97	peak

Listed with the worst harmonic margin test plot:

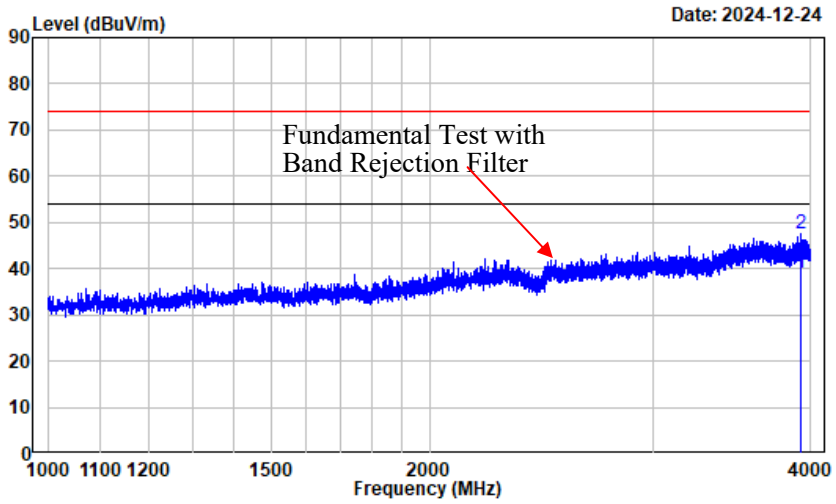
Horizontal	
1-4GHz	


```
Condition        : Horizontal
Project No.      : 2401Z62182E-RF
Tester           : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Average reading : RBW:1MHz VBW:1kHz Detector:Peak
Note             : 2.4G_2402
```

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3438.930	-10.39	48.77	38.38	54.00	-15.62	Average
2	3438.930	-10.39	60.02	49.63	74.00	-24.37	Peak

Vertical

1-4GHz

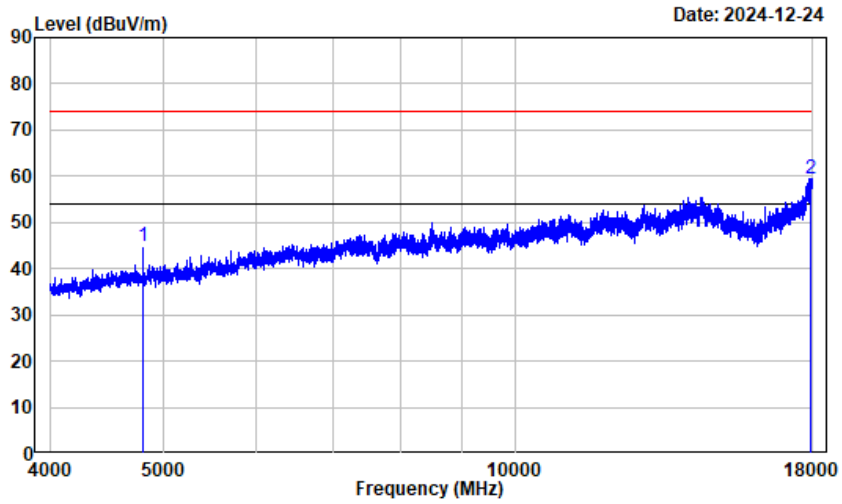



```
Condition       : Vertical
Project No.     : 2401Z62182E-RF
Tester          : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Average reading : RBW:1MHz VBW:1kHz Detector:Peak
Note            : 2.4G_2402
```

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3931.741	-9.51	48.66	39.15	74.00	-34.85	Average
2	3931.741	-9.51	56.92	47.41	74.00	-26.59	Peak

Horizontal-Peak

4-18GHz

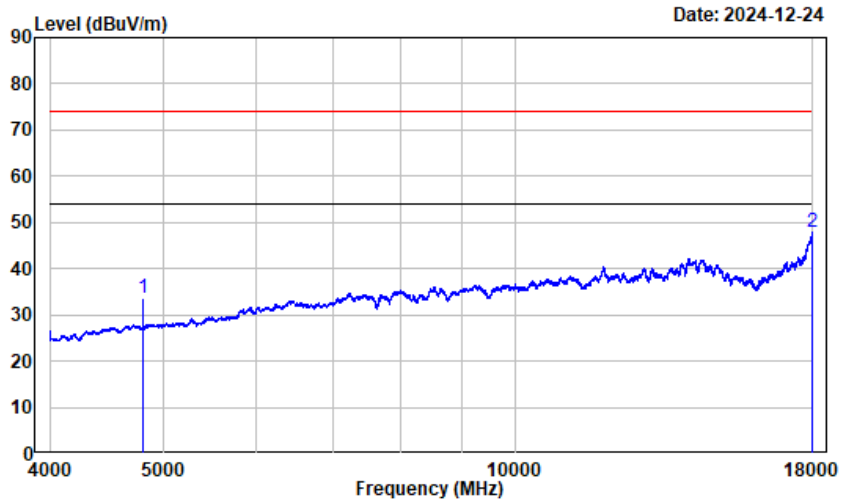


Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	-7.79	52.61	44.82	74.00	-29.18	Peak
2	17952.740	12.97	46.47	59.44	74.00	-14.56	Peak

Horizontal-Average

4-18GHz

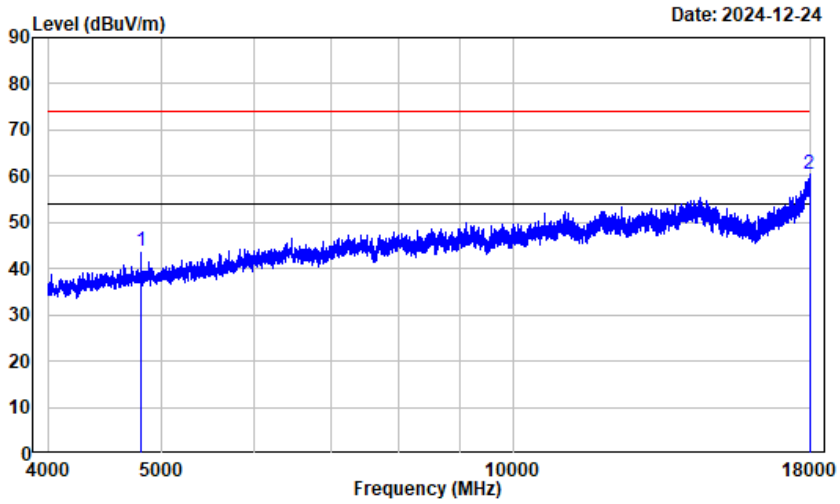


Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Average reading: RBW:1MHz VBW:1kHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	-7.79	41.41	33.62	54.00	-20.38	Average
2	17986.000	13.13	34.72	47.85	54.00	-6.15	Average

Vertical-Peak

4-18GHz

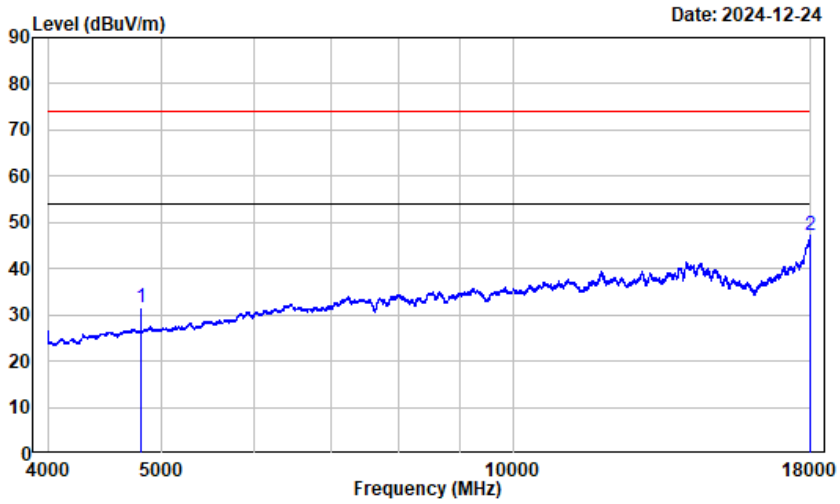


Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	-7.79	51.71	43.92	74.00	-30.08	Peak
2	17956.240	12.98	47.33	60.31	74.00	-13.69	Peak

Vertical-Average

4-18GHz

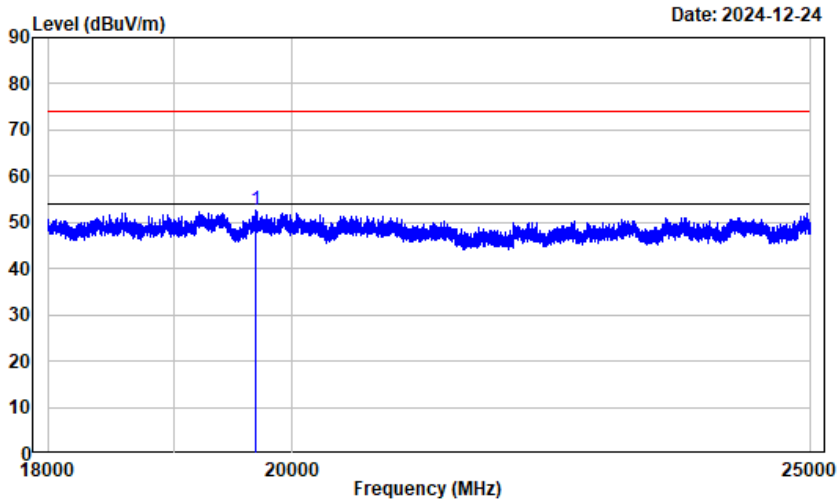


Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Average reading: RBW:1MHz VBW:1kHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4804.000	-7.79	39.45	31.66	54.00	-22.34	Average
2	17998.250	13.19	33.85	47.04	54.00	-6.96	Average

Horizontal

18-25GHz

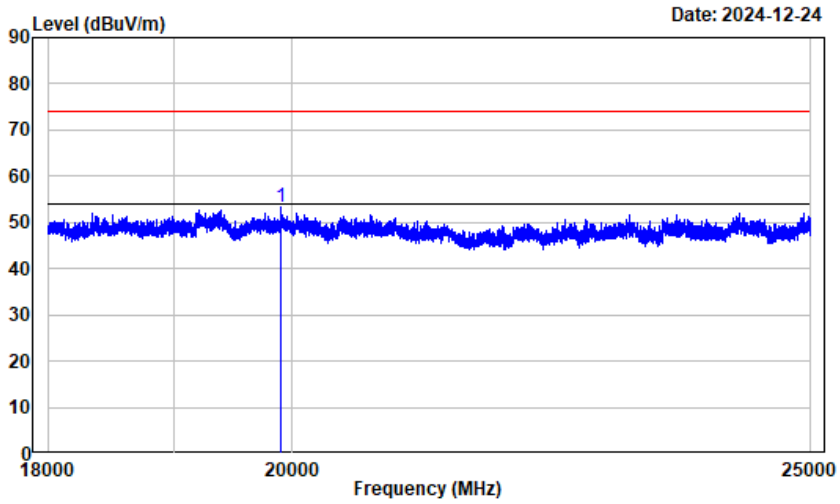


Condition : Horizontal
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19689.840	15.39	37.11	52.50	74.00	-21.50	Peak

Vertical

18-25GHz



Condition : Vertical
Project No. : 2401Z62182E-RF
Tester : Dylan Yang
Spectrum setting: Peak reading: RBW:1MHz VBW:3MHz Detector:Peak
Note : 2.4G_2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	19900.740	15.42	37.75	53.17	74.00	-20.83	Peak

FCC§15.215(c) - 20dB EMISSION BANDWIDTH

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

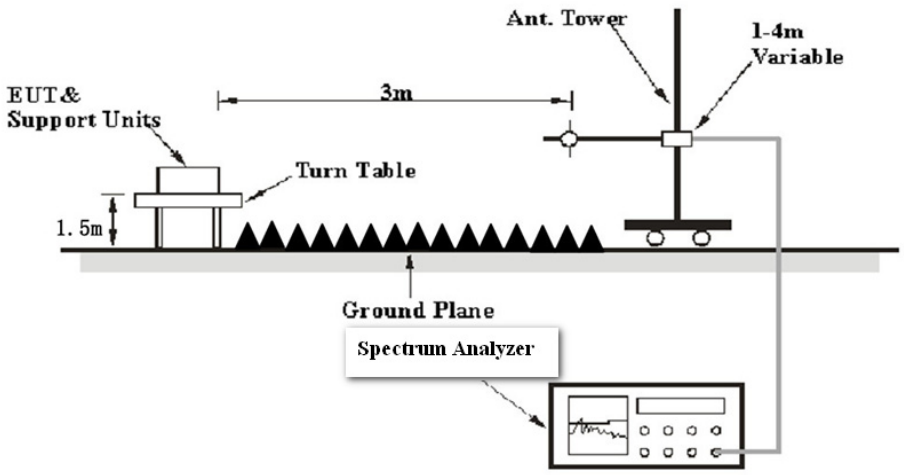
Test Method: ANSI C63.10-2013 Clause 7.8.7 & Clause 6.9.2

The following conditions shall be observed for measuring the occupied bandwidth and 20 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 / 20 dB bandwidth if the device is not transmitting continuously.

• The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW/ 20dB bandwidth and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement.



Test Data

Environmental Conditions

Temperature:	24.1 ℃
Relative Humidity:	47 %
ATM Pressure:	101 kPa

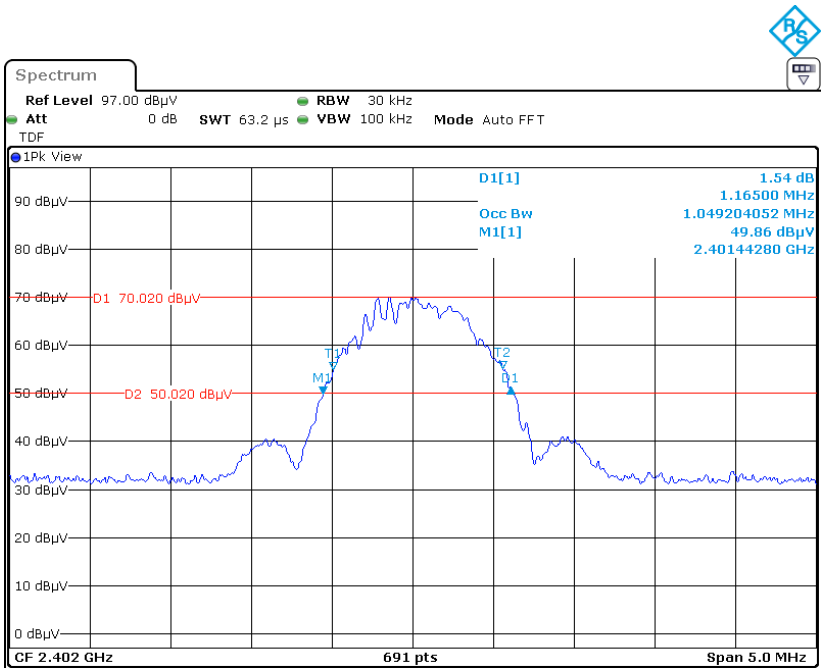
The testing was performed by Dylan Yang on 2025-01-15.

EUT operation mode: Transmitting

Please refer to the following table and plots.

Channel	Frequency (MHz)	20dB Bandwidth (MHz)
Low	2402	1.049
Middle	2440	1.049
High	2480	1.056

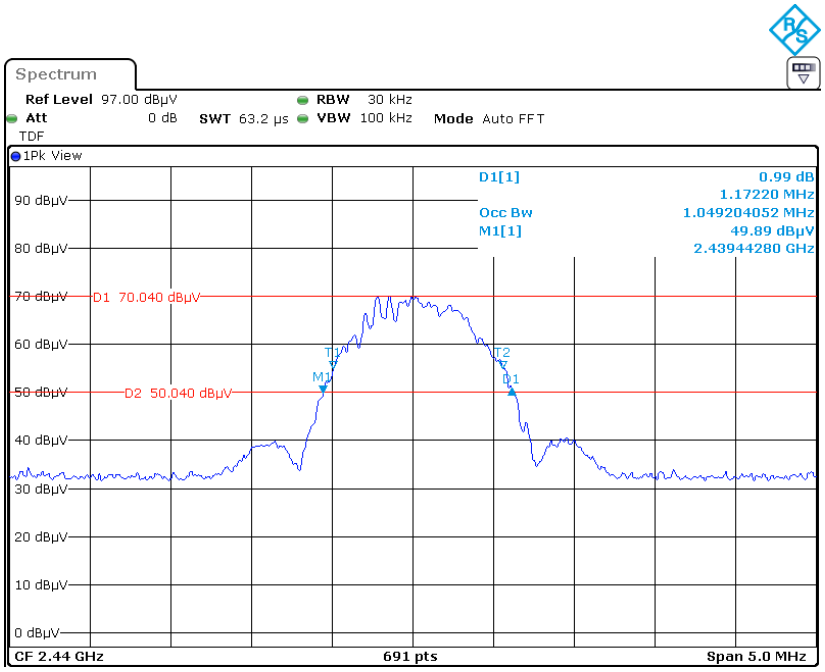
Low channel



ProjectNo.:2401Z62182E-RF Tester:Dylan Yang

Date: 15.JAN.2025 10:46:30

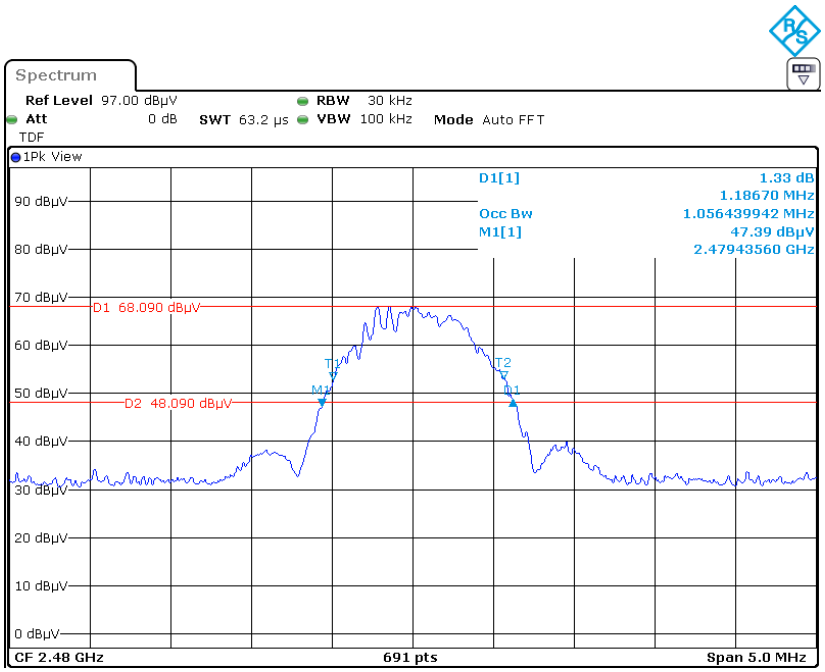
Middle Channel



ProjectNo.:2401Z62182E-RF Tester:Dylan Yang

Date: 15.JAN.2025 10:50:20

High Channel



ProjectNo.:2401Z62182E-RF Tester:Dylan Yang

Date: 15.JAN.2025 11:13:39

EUT PHOTOGRAPHS

Please refer to the attachment 2401Z62182E-RF External photo and 2401Z62182E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401Z62182E-RF Test Setup photo.

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