TEST REPORT

Applicant Name:	Shenzhen Jiayz photo industrial ., Ltd
Address:	A16 Building, Intelligent Terminal Industrial Park of Silicon Valley Power, Guanlan, Longhua District, Shenzhen, China
Report Number:	2401V86257E-RF-00
FCC ID:	2ARN3-112211RXA

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Wireless Microphone
Model No.:	BY-V4-RXU
Multiple Model(s) No.:	BY-V4-RX, BY-V4-RXD, BY-V4-RX35
Trade Mark:	BOYA
Date Received:	2024/08/06
Issue Date:	2024/10/14

Test Result:	Pass▲

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

Prepared and Checked By:

Ekko Wu
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	2401V86257E-RF-00	Original Report	2024/10/14

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Wireless Microphone
Tested Model	BY-V4-RXU
Multiple Model(s)	BY-V4-RX, BY-V4-RXD, BY-V4-RX35
Frequency Range	2402~2478MHz
Transmit Peak Power	4.2dBm
Modulation Technique	GFSK
Antenna Specification#	0.5dBi (provided by the applicant)
Voltage Range	DC 5V from USB-C Port
Sample serial number	2PDS-1 for Radiated Emissions Test 2PDS-2 for RF Conducted Test (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, Part 15-Subparts A and C of the Federal Communication Commission rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, 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.

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-150kHz	3.94dB(k=2, 95% level of confidence)
	150kHz-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

The system was configured for testing in an engineering mode.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	**2402**	40	2441
2	2403	41	2442
3	2404	42	2443
…	…	…	…
…	…	…	…
37	2438	75	2476
38	2439	76	2477
39	**2440**	77	**2478**

EUT was tested with Channel 1, 39 and 77.

Note: The EUT has two RF modules, according to the manufacturer, the two modules can't transmit simultaneously.

EUT Exercise Software

"FCC.exe"[#] exercise software was used and the power level is 21[#]. The software and power level was provided by the applicant.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

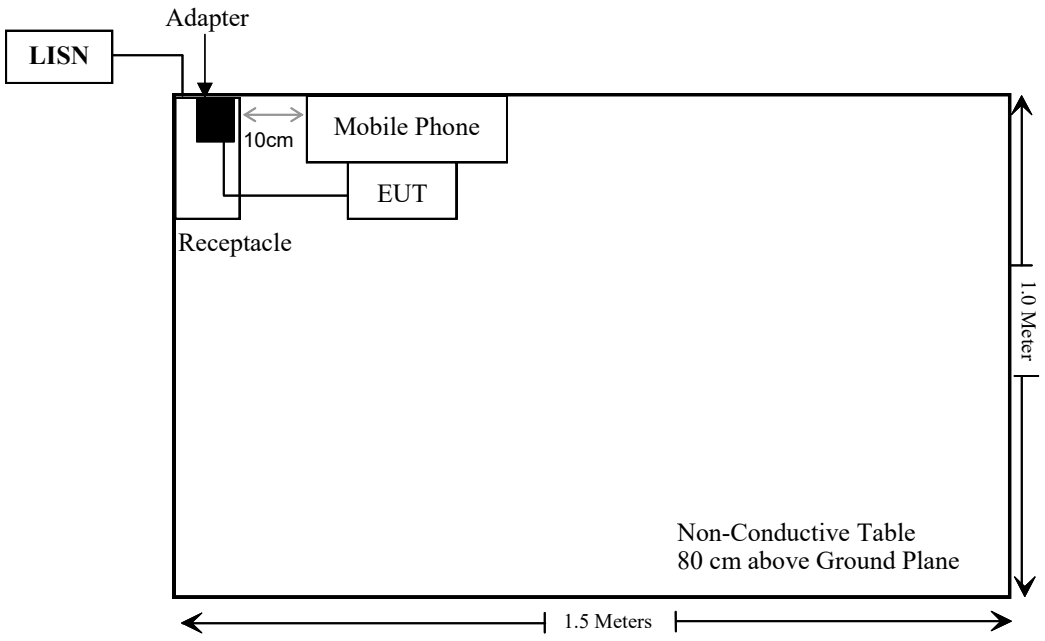
Manufacturer	Description	Model	Serial Number
Redmi	Mobile phone	M2012K10C	Unknown
LOGICOM	Mobile phone	E500	Unknown
BLU	Adapter	US-CR-2000	Unknown

External I/O Cable

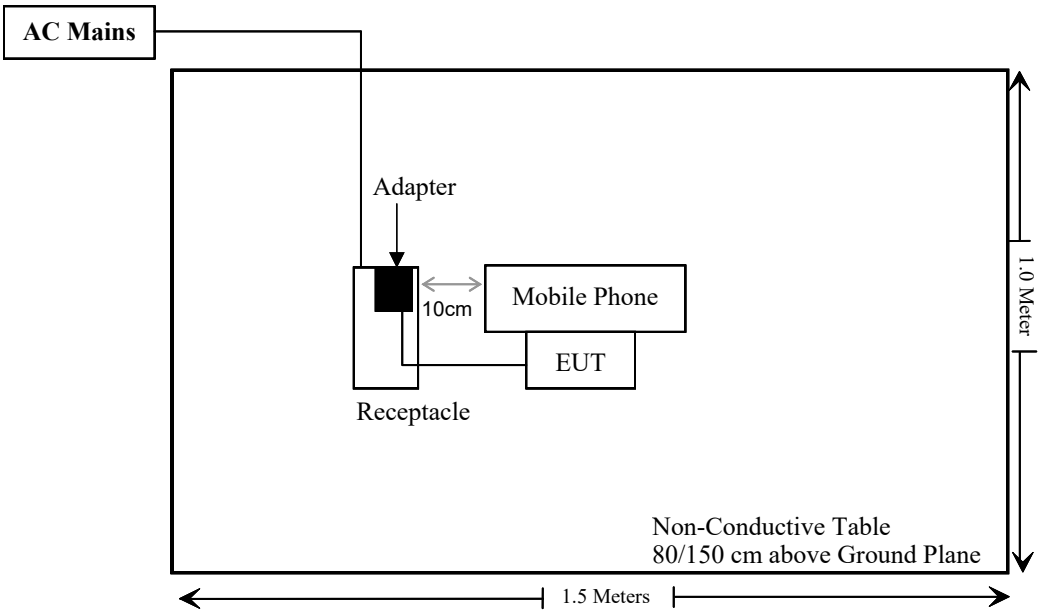
Cable Description	Length (m)	From Port	To
Un-shielded Detachable DC cable	0.2	Adapter	EUT

Block Diagram of Test Setup

For Conducted Emissions:



For Radiated Emissions:



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC 15.247 (i), §1.1307 (b) (1) & §2.1093	RF Exposure	Compliant
FCC §15.203	Antenna Requirement	Compliant
FCC §15.207(a)	AC Line Conducted Emissions	Compliant
FCC §15.205, §15.209, §15.247(d)	Radiated Emissions	Compliant
FCC §15.247(a)(1)	20 dB Emission Bandwidth	Compliant
FCC §15.247(a)(1)	Channel Separation Test	Compliant
FCC §15.247(a)(1)(iii)	Time of Occupancy (Dwell Time)	Compliant
FCC §15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
FCC §15.247(b)(1)	Peak Output Power Measurement	Compliant
FCC §15.247(d)	Band edges	Compliant

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
Unknown	RF Cable	XH750A-N	J-10M	2024/06/18	2025/06/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	2024/06/18	2025/06/17
A.H.System	Pre-amplifier	PAM-1840VH	190	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	2026	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101942	2023/12/18	2024/12/17
R&S	SPECTRUM ANALYZER	FSU26	200120	2024/01/08	2025/01/07
Unknown	10dB Attenuator	Unknown	F-03-EM065	2024/06/27	2025/06/26
Micro-Tronics	RF Cable	8082176	W6102	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:

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
GFSK	2402-2478	4.5	2.82	5	0.9	3.0	**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 two internal antennas arrangement, which were permanently attached, the antenna gain[#] is 0.5dBi, fulfill the requirement of this section. Please refer to the EUT photos.

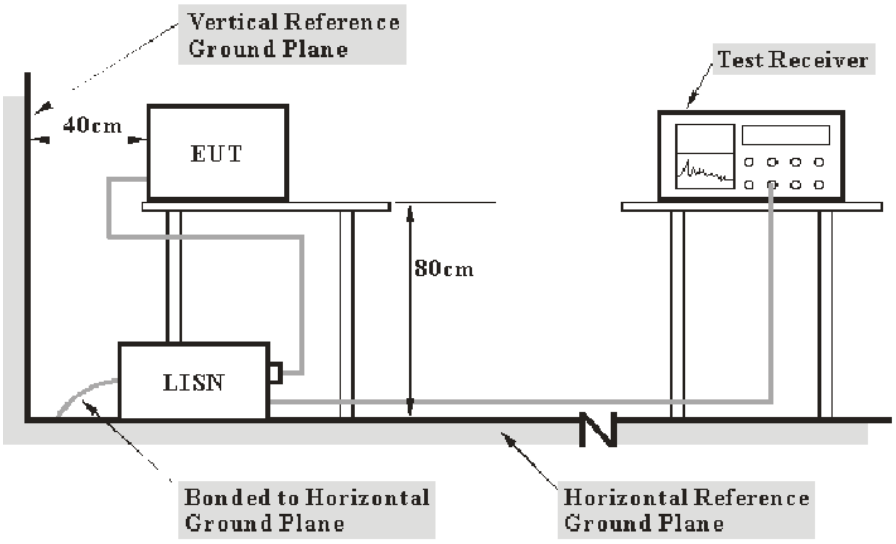
Result: Compliant

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

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

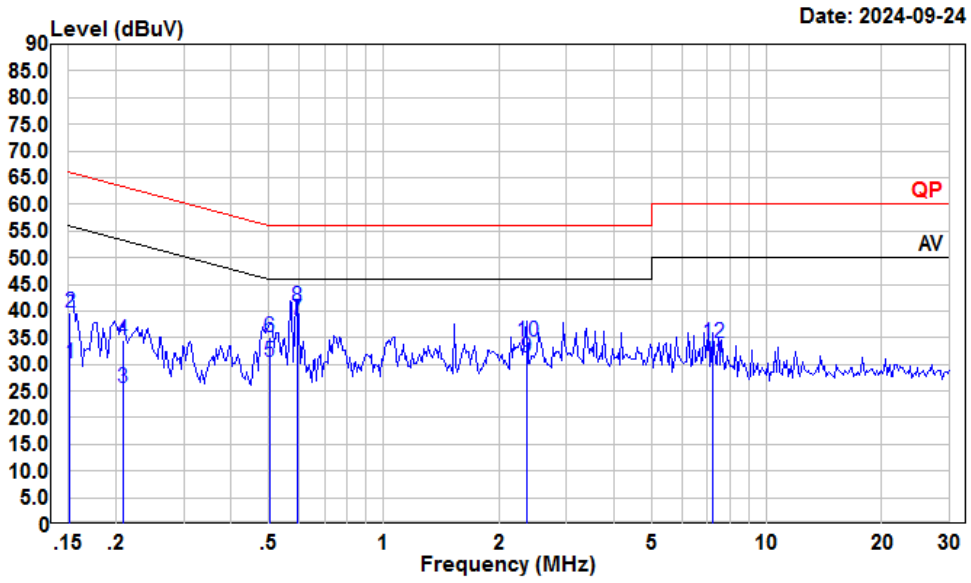
Environmental Conditions

Temperature:	24 ℃
Relative Humidity:	68 %
ATM Pressure:	101 kPa

The testing was performed by Macy Shi on 2024-09-24.

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

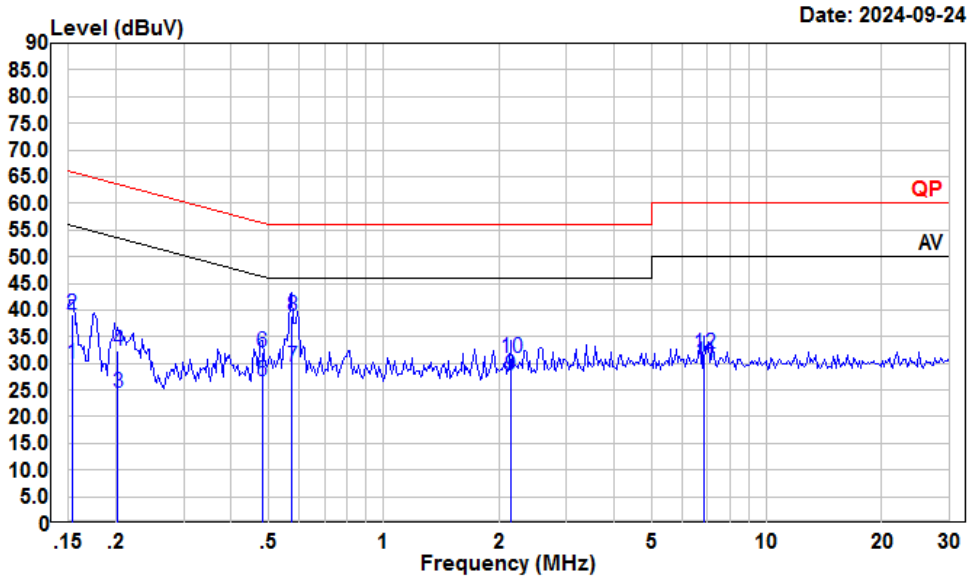
AC 120V/60 Hz, Line



Condition: Line
Project : 2401V86257E-RF
tester : Macy.shi
Note : Transmitting

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.152	9.09	30.12	10.90	10.13	55.91	-25.79	Average
2	0.152	18.57	39.60	10.90	10.13	65.91	-26.31	QP
3	0.208	4.75	25.63	10.79	10.09	53.27	-27.64	Average
4	0.208	13.63	34.51	10.79	10.09	63.27	-28.76	QP
5	0.502	9.92	30.56	10.50	10.14	46.00	-15.44	Average
6	0.502	14.35	34.99	10.50	10.14	56.00	-21.01	QP
7	0.595	17.62	38.24	10.50	10.12	46.00	-7.76	Average
8	0.595	20.09	40.71	10.50	10.12	56.00	-15.29	QP
9	2.358	10.52	31.23	10.53	10.18	46.00	-14.77	Average
10	2.358	13.63	34.34	10.53	10.18	56.00	-21.66	QP
11	7.252	9.78	30.48	10.51	10.19	50.00	-19.52	Average
12	7.252	13.17	33.87	10.51	10.19	60.00	-26.13	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401V86257E-RF
tester : Macy.shi
Note : Transmitting

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.153	9.21	29.93	10.59	10.13	55.82	-25.89	Average
2	0.153	18.31	39.03	10.59	10.13	65.82	-26.79	QP
3	0.202	3.98	24.47	10.40	10.09	53.54	-29.07	Average
4	0.202	11.94	32.43	10.40	10.09	63.54	-31.11	QP
5	0.481	5.89	26.71	10.69	10.13	46.32	-19.61	Average
6	0.481	11.34	32.16	10.69	10.13	56.32	-24.16	QP
7	0.576	8.65	29.47	10.70	10.12	46.00	-16.53	Average
8	0.576	18.02	38.84	10.70	10.12	56.00	-17.16	QP
9	2.144	7.14	27.72	10.40	10.18	46.00	-18.28	Average
10	2.144	10.56	31.14	10.40	10.18	56.00	-24.86	QP
11	6.878	9.30	30.18	10.69	10.19	50.00	-19.82	Average
12	6.878	10.87	31.75	10.69	10.19	60.00	-28.25	QP

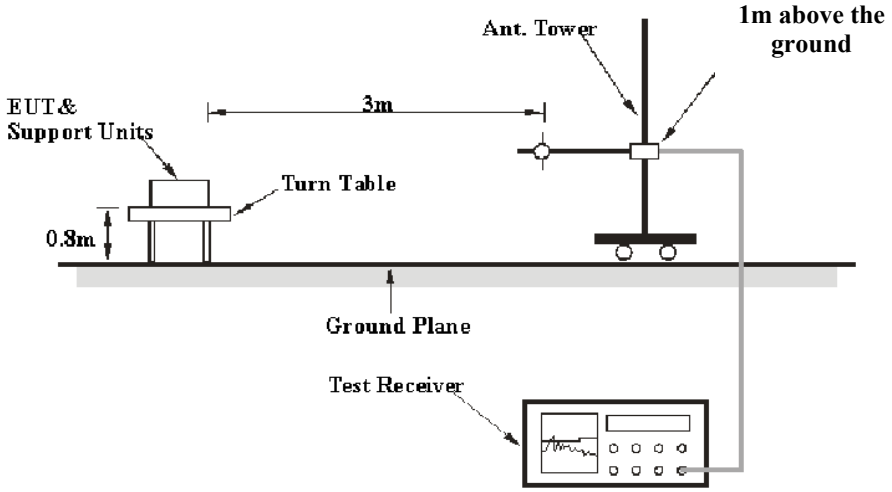
FCC §15.205, §15.209 & §15.247(d) - RADIATED EMISSIONS

Applicable Standard

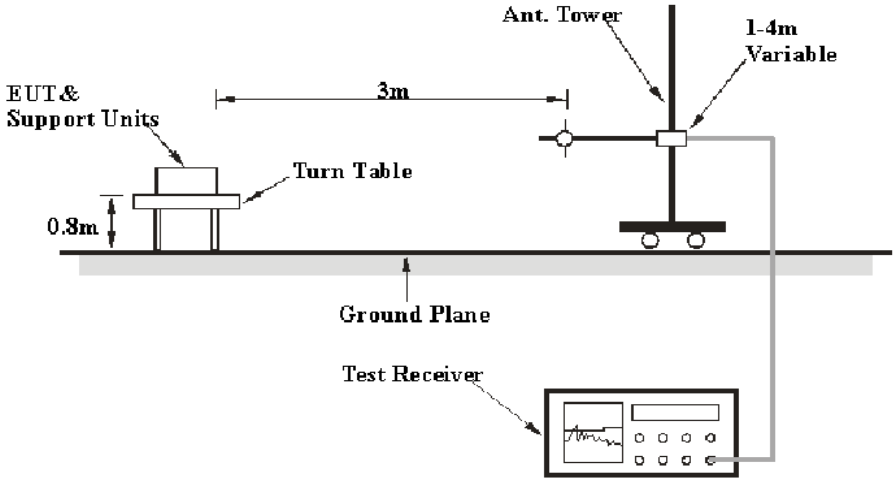
FCC §15.205; §15.209; §15.247(d)

EUT Setup

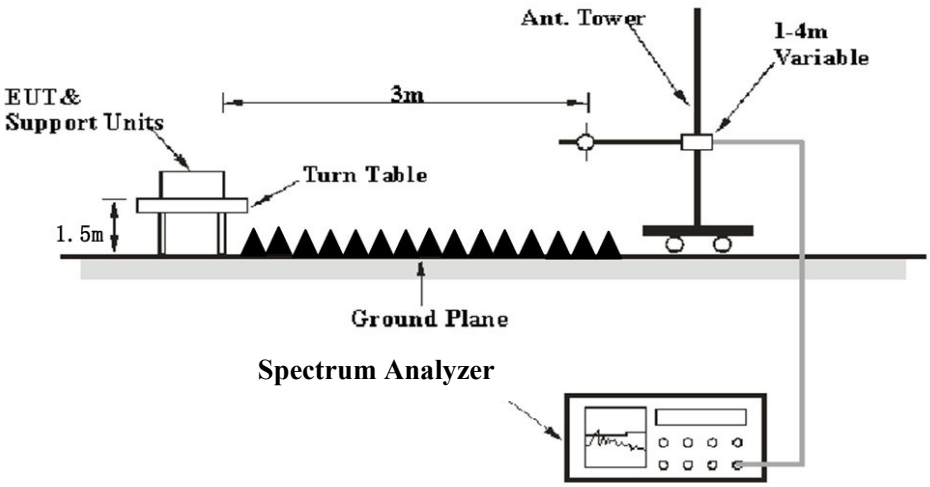
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



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

EMI Test Receiver & Spectrum Analyzer Setup

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
Above 1 GHz	Harmonics & Band Edge			
	1MHz	3 MHz	/	PK
	Average Emission Level=Peak Emission Level+20*log(Duty cycle)			
	Other Emissions			
	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Average

For Duty cycle measurement:

Use the duty cycle factor correction factor method per 15.35(c).
Duty cycle=On time/100milliseconds, On time=N1*L1+N2*L2+…Nn-1*Ln-1+Nn*Ln,
Where N1 is number of type 1 pulses, L1 is length of type 1 pulse, etc.

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.

For 9 kHz-30MHz, 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.

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:	23~25.5 ℃
Relative Humidity:	50~55 %
ATM Pressure:	101~101.3 kPa

The testing was performed by Anson Su on 2024-08-23 for below 1GHz and Sadow Tan and Dylan Yang from 2024-08-29 to 2024-09-19 for above 1GHz.

Test mode: Transmitting

Note: After pre-scan in the X, Y and Z axes of orientation, the worst case z-axis of orientation were recorded.

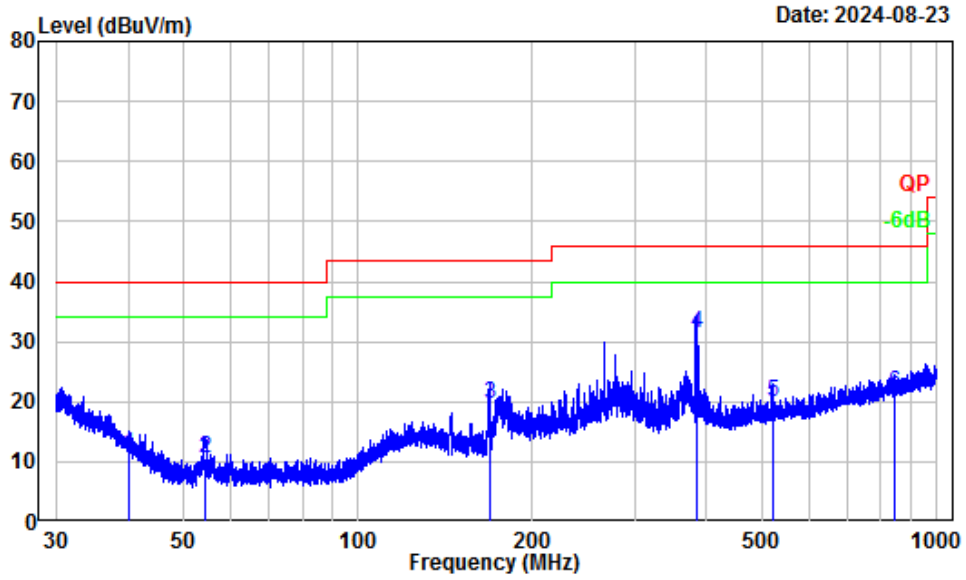
9 kHz-30MHz: *(Maximum output power mode, Low channel)*

The amplitude of spurious emissions attenuated more than 20 dB below the limit was not recorded.

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

ANT1

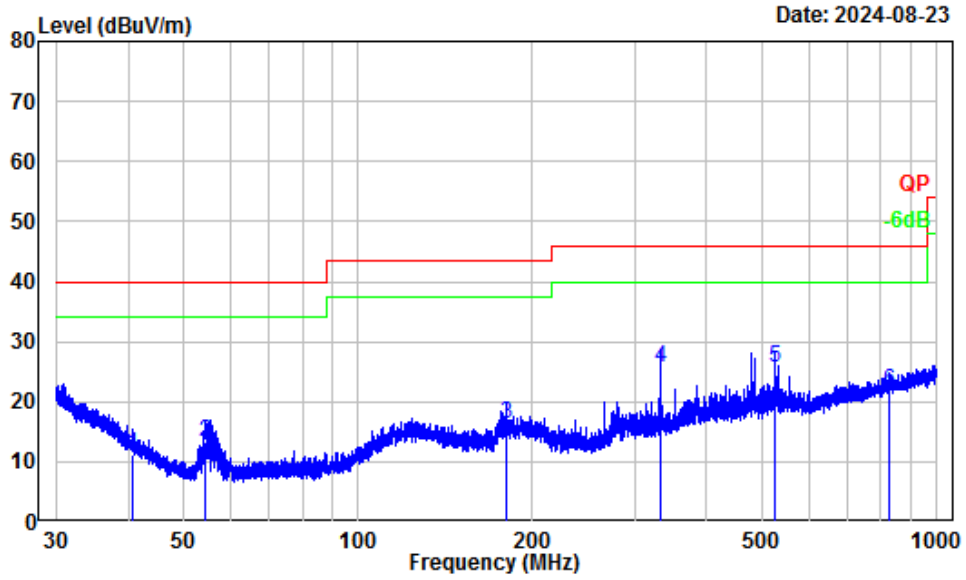
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401V86257E-RF
Test Mode : Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.12	-13.28	24.41	11.13	40.00	-28.87	QP
2	54.45	-19.10	29.76	10.66	40.00	-29.34	QP
3	168.78	-14.38	34.15	19.77	43.50	-23.73	QP
4	383.76	-11.40	42.75	31.35	46.00	-14.65	QP
5	519.29	-9.05	29.01	19.96	46.00	-26.04	QP
6	847.68	-4.14	25.49	21.35	46.00	-24.65	QP

Vertical

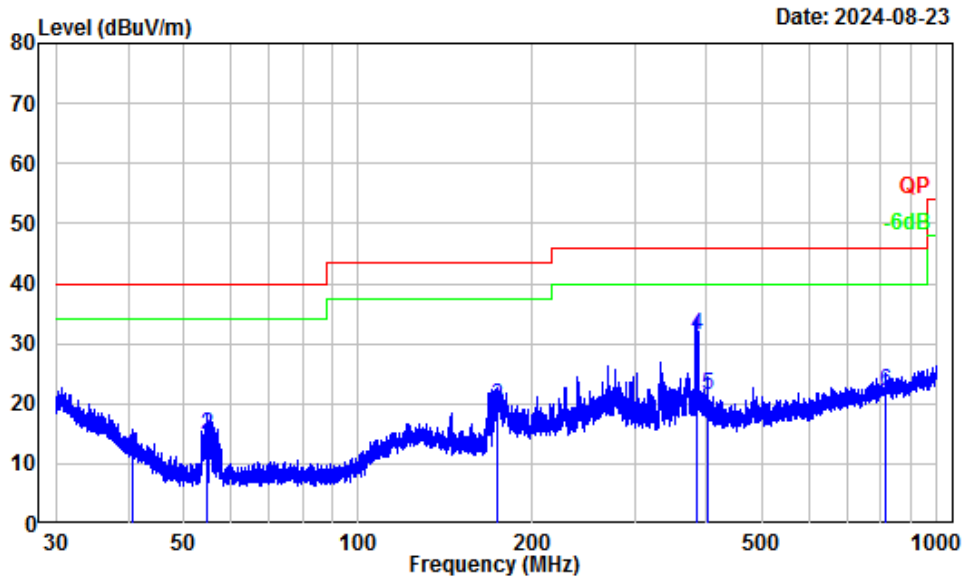


Site : Chamber A
Condition : 3m Vertical
Project Number: 2401V86257E-RF
Test Mode : Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.70	-13.69	24.96	11.27	40.00	-28.73	QP
2	54.50	-19.10	32.46	13.36	40.00	-26.64	QP
3	180.25	-12.88	29.28	16.40	43.50	-27.10	QP
4	332.23	-12.50	38.14	25.64	46.00	-20.36	QP
5	525.01	-8.95	34.48	25.53	46.00	-20.47	QP
6	827.49	-4.58	26.33	21.75	46.00	-24.25	QP

ANT2

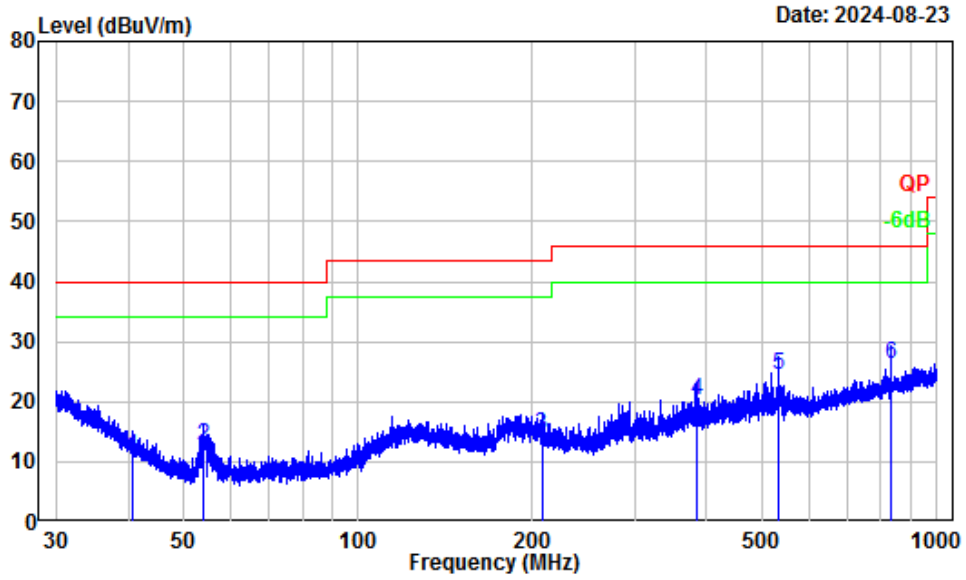
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401V86257E-RF
Test Mode : Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.61	-13.63	25.22	11.59	40.00	-28.41	QP
2	54.64	-19.10	33.85	14.75	40.00	-25.25	QP
3	173.43	-13.91	33.41	19.50	43.50	-24.00	QP
4	384.27	-11.39	42.64	31.25	46.00	-14.75	QP
5	401.49	-10.88	32.46	21.58	46.00	-24.42	QP
6	814.18	-4.84	26.93	22.09	46.00	-23.91	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401V86257E-RF
Test Mode : Transmitting
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.70	-13.69	24.64	10.95	40.00	-29.05	QP
2	54.05	-19.11	31.73	12.62	40.00	-27.38	QP
3	207.49	-13.50	28.05	14.55	43.50	-28.95	QP
4	384.10	-11.40	31.60	20.20	46.00	-25.80	QP
5	532.20	-8.90	33.47	24.57	46.00	-21.43	QP
6	833.68	-4.44	30.64	26.20	46.00	-19.80	QP

Above 1GHz:

ANT1

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
GFSK							
Low Channel 2402MHz							
2316.38	54.60	PK	H	-3.10	51.50	74.	-22.50
2389.28	54.79	PK	V	-3.20	51.59	74	-22.41
4804.00	46.09	PK	H	1.69	47.78	74	-26.22
4804.00	45.36	PK	V	1.69	47.05	74	-26.95
Middle Channel 2440MHz							
4880.00	45.60	PK	H	1.69	47.29	74	-26.71
4880.00	45.92	PK	V	1.69	47.61	74	-26.39
High Channel 2478MHz							
2483.67	57.19	PK	H	-3.17	54.02	74	-19.98
2487.19	55.01	PK	V	-3.17	51.84	74	-22.16
4956.00	46.12	PK	H	2.77	48.89	74	-25.11
4956.00	46.22	PK	V	2.77	48.99	74	-25.01

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.

Field Strength of Average							
Frequency (MHz)	**Peak Measurement @3m (dBμV/m)**	**Polar (H/V)**	**Duty Cycle Corrected Factor (dB)**	**Average Level (dBμV/m)**	**Limit (dBμV/m)**	**Margin (dB)**	**Comment**
Low Channel 2402MHz							
2316.38	51.50	H	-42.62	8.88	54.	-45.12	Bandedge
2389.28	51.59	V	-42.62	8.97	54.	-45.03	Bandedge
4804.00	47.78	H	-42.62	5.16	54	-48.84	Harmonic
4804.00	47.05	V	-42.62	4.43	54	-49.57	Harmonic
Middle Channel 2440MHz							
4880.00	47.29	H	-42.62	4.67	54	-49.33	Harmonic
4880.00	47.61	V	-42.62	4.99	54	-49.01	Harmonic
High Channel 2478MHz							
2483.67	54.02	H	-42.62	11.40	54	-42.60	Bandedge
2487.19	51.84	V	-42.62	9.22	54	-44.78	Bandedge
4956.00	48.89	H	-42.62	6.27	54	-47.73	Harmonic
4956.00	48.99	V	-42.62	6.37	54	-47.63	Harmonic

Note: Average level= Peak level+ Duty Cycle Corrected Factor

Worst case duty cycle:
Duty cycle = Ton/100ms = 0.37*2/100=0.0074
Duty Cycle Corrected Factor = 20lg (Duty cycle) = 20lg0.0074 = -42.62

ANT2

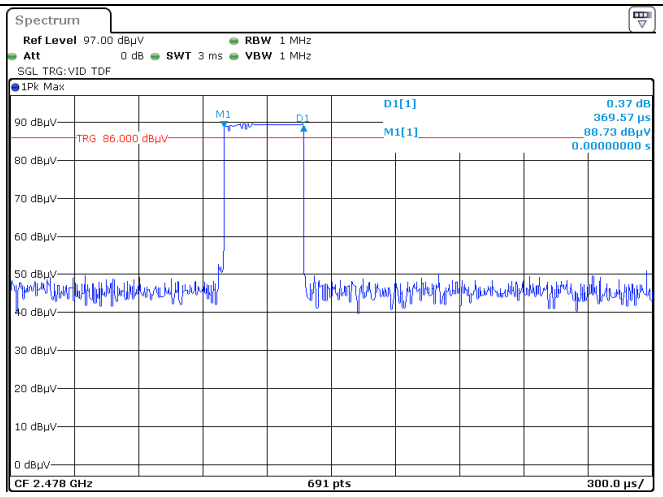
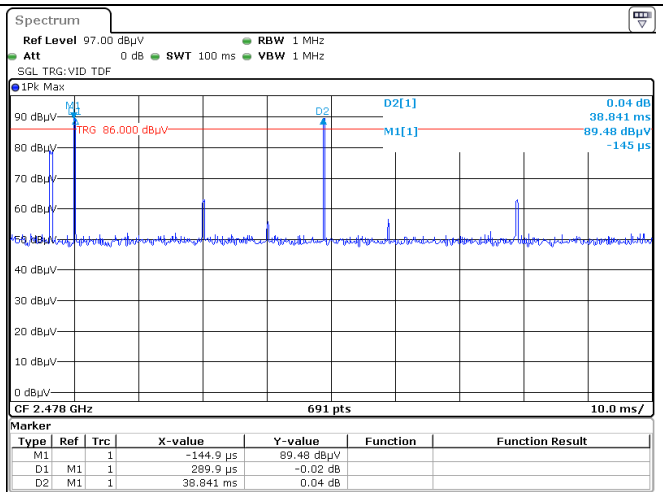
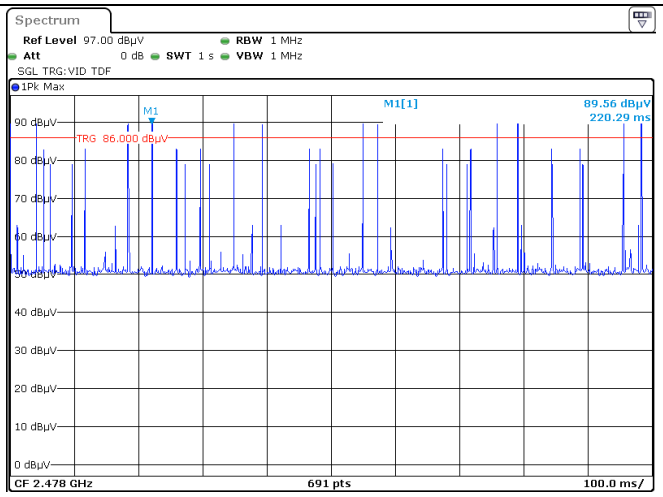
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBµV/m)	Limit (dBµV/m)	Margin (dB)
	Reading (dBµV)	PK/AV					
GFSK							
Low Channel 2402MHz							
2389.78	54.66	PK	H	-3.20	51.46	74.00	-22.54
2314.49	53.85	PK	V	-3.11	50.74	74.00	-23.26
4804.00	46.65	PK	H	1.69	48.34	74.00	-25.66
4804.00	46.31	PK	V	1.69	48.00	74.00	-26.00
Middle Channel 2440MHz							
4880.00	46.19	PK	H	1.69	47.88	74.00	-26.12
4880.00	46.07	PK	V	1.69	47.76	74.00	-26.24
High Channel 2478MHz							
2484.92	55.31	PK	H	-3.17	52.14	74.00	-21.86
2484.10	53.99	PK	V	-3.17	50.82	74.00	-23.18
4956.00	47.05	PK	H	2.77	49.82	74.00	-24.18
4956.00	46.74	PK	V	2.77	49.51	74.00	-24.49

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.

Field Strength of Average							
Frequency (MHz)	**Peak Measurement @3m (dBµV/m)**	**Polar (H/V)**	**Duty Cycle Corrected Factor (dB)**	**Average Level (dBµV/m)**	**Limit (dBµV/m)**	**Margin (dB)**	**Comment**
Low Channel 2402MHz							
2389.78	51.46	H	-42.62	8.84	54.00	-45.16	Bandedge
2314.49	50.74	V	-42.62	8.12	54.00	-45.88	Bandedge
4804.00	48.34	H	-42.62	5.72	54.00	-48.28	Harmonic
4804.00	48.00	V	-42.62	5.38	54.00	-48.62	Harmonic
Middle Channel 2441MHz							
4880.00	47.88	H	-42.62	5.26	54.00	-48.74	Harmonic
4880.00	47.76	V	-42.62	5.14	54.00	-48.86	Harmonic
High Channel 2480MHz							
2484.92	52.14	H	-42.62	9.52	54.00	-44.48	Bandedge
2484.10	50.82	V	-42.62	8.20	54.00	-45.80	Bandedge
4956.00	49.82	H	-42.62	7.20	54.00	-46.80	Harmonic
4956.00	49.51	V	-42.62	6.89	54.00	-47.11	Harmonic

Note: Average level= Peak level+ Duty Cycle Corrected Factor

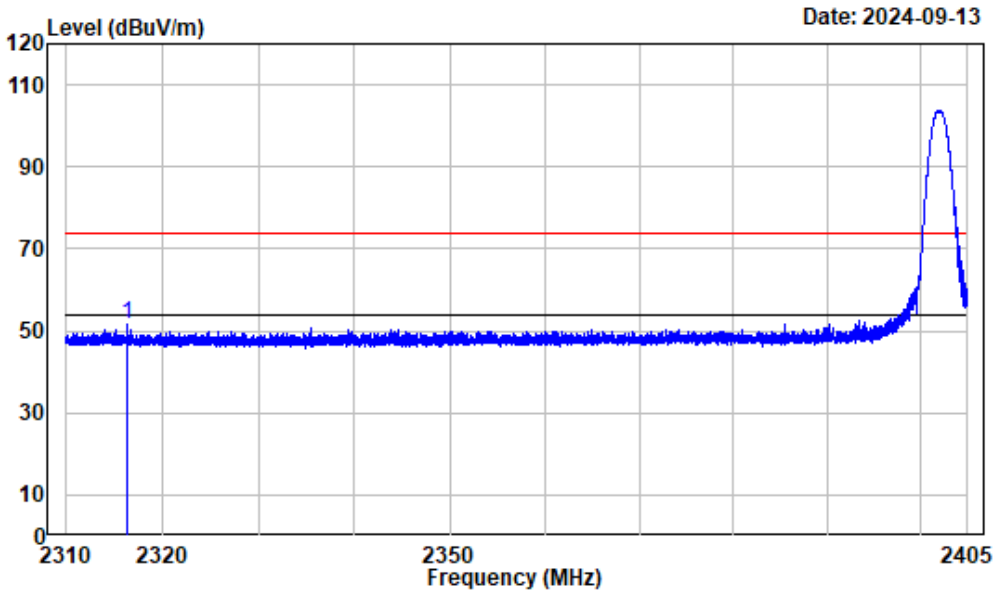
Worst case duty cycle:
Duty cycle = Ton/100ms = 0.37*2/100=0.0074
Duty Cycle Corrected Factor = 20lg (Duty cycle) = 20lg0.0074 = -42.62

Duty Cycle (3ms)	
Duty Cycle (100ms)	
Duty Cycle (1s)	

Test plots for Band Edge Measurements (Radiated):

ANT1

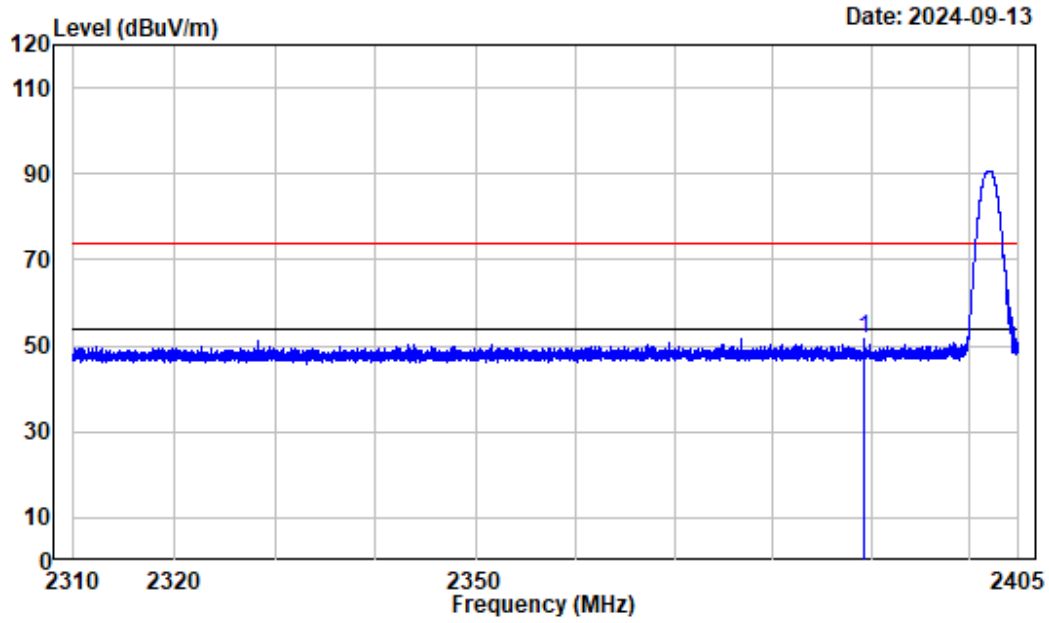
GFSK			
Test Channel:	**2402MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2316.377	-3.10	54.60	51.50	74.00	-22.50	peak

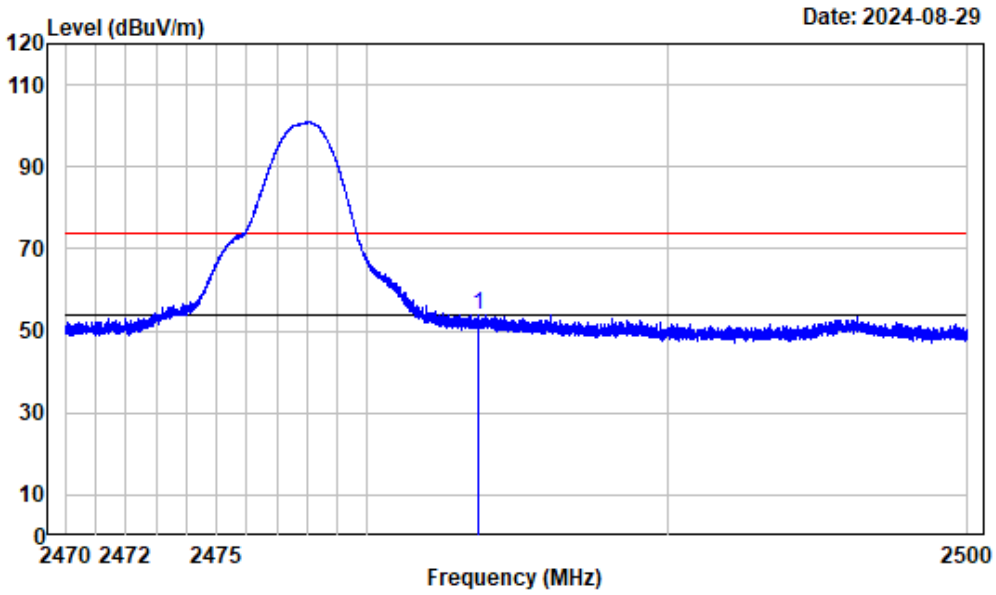
GFSK			
Test Channel:	**2402MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.278	-3.20	54.79	51.59	74.00	-22.41	peak

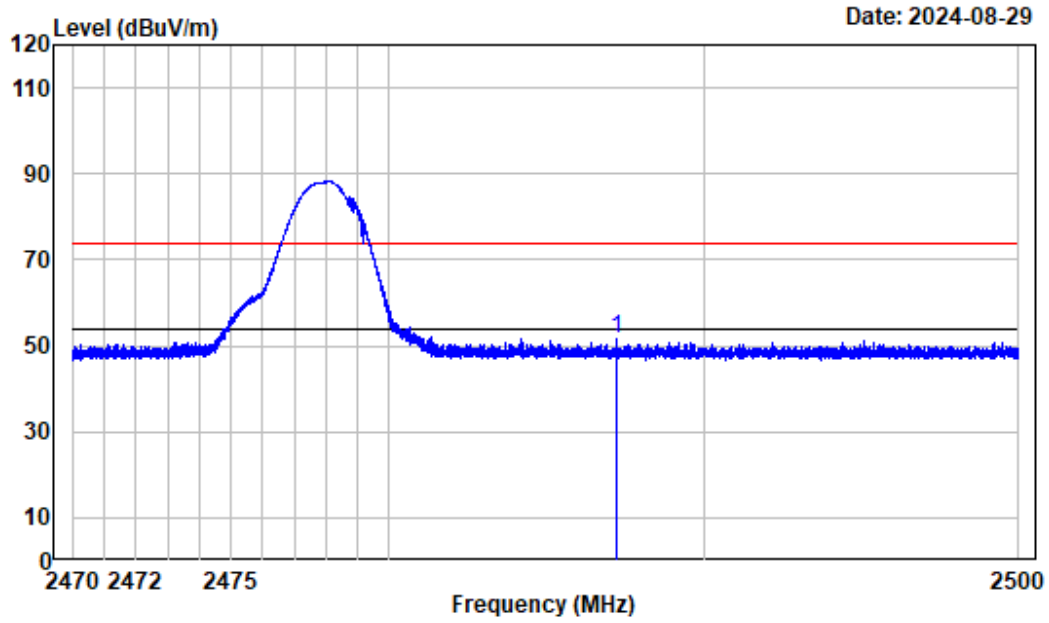
GFSK			
Test Channel:	**2478MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Sadow Tan
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.665	-3.17	57.19	54.02	74.00	-19.98	peak

GFSK			
Test Channel:	**2478MHz**	**Ant. Polar. :**	**Vertical**

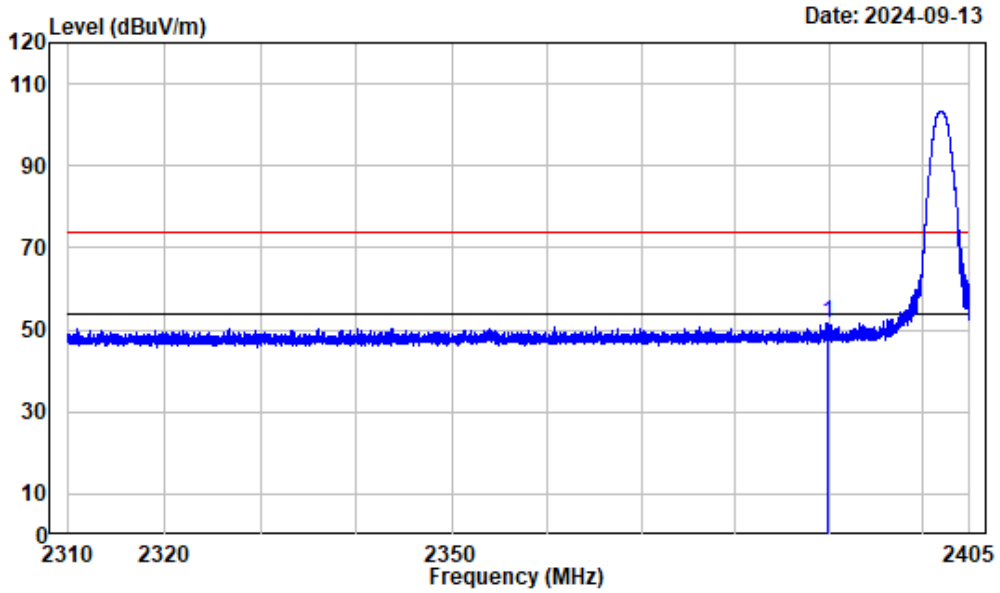


Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Sadow Tan
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2487.194	-3.17	55.01	51.84	74.00	-22.16	peak

ANT2

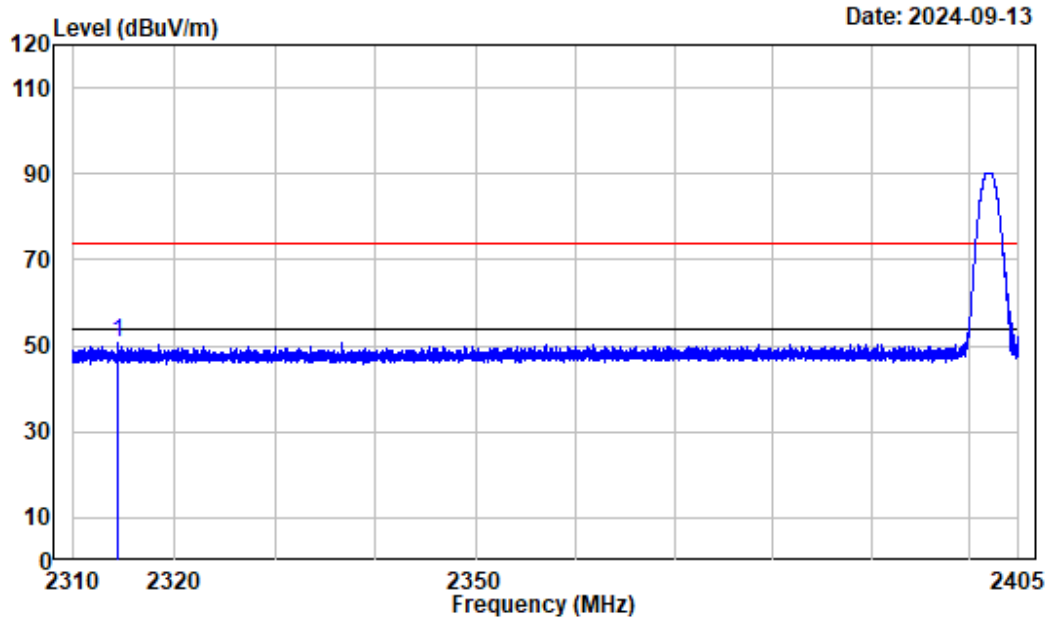
GFSK			
Test Channel:	**2402MHz**	**Ant. Polar. :**	**Horizontal**



Site : chamber B
Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2389.776	-3.20	54.66	51.46	74.00	-22.54	peak

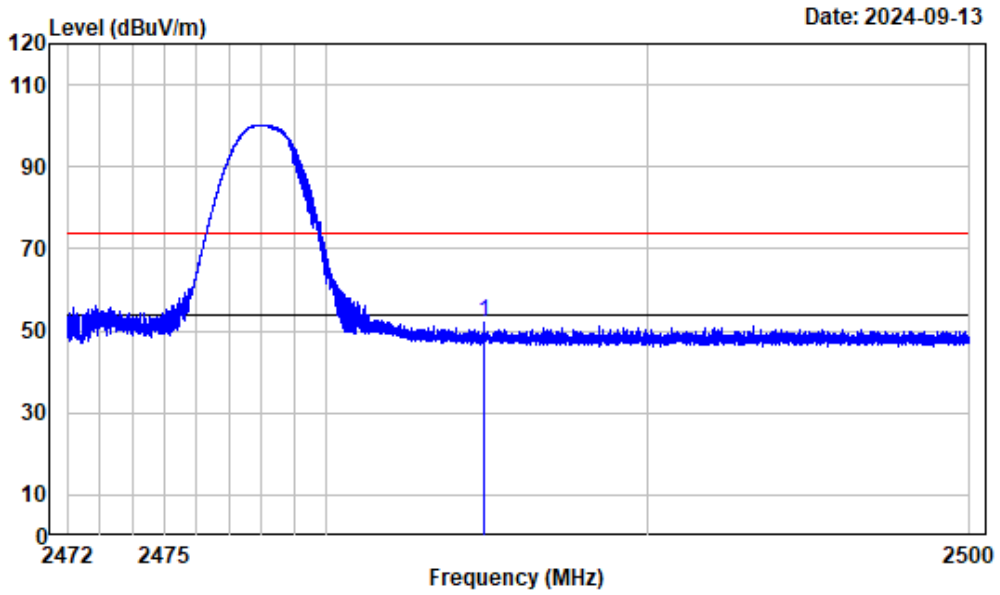
GFSK			
Test Channel:	**2402MHz**	**Ant. Polar. :**	**Vertical**



Site : chamber B
Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2402

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2314.489	-3.11	53.85	50.74	74.00	-23.26	peak

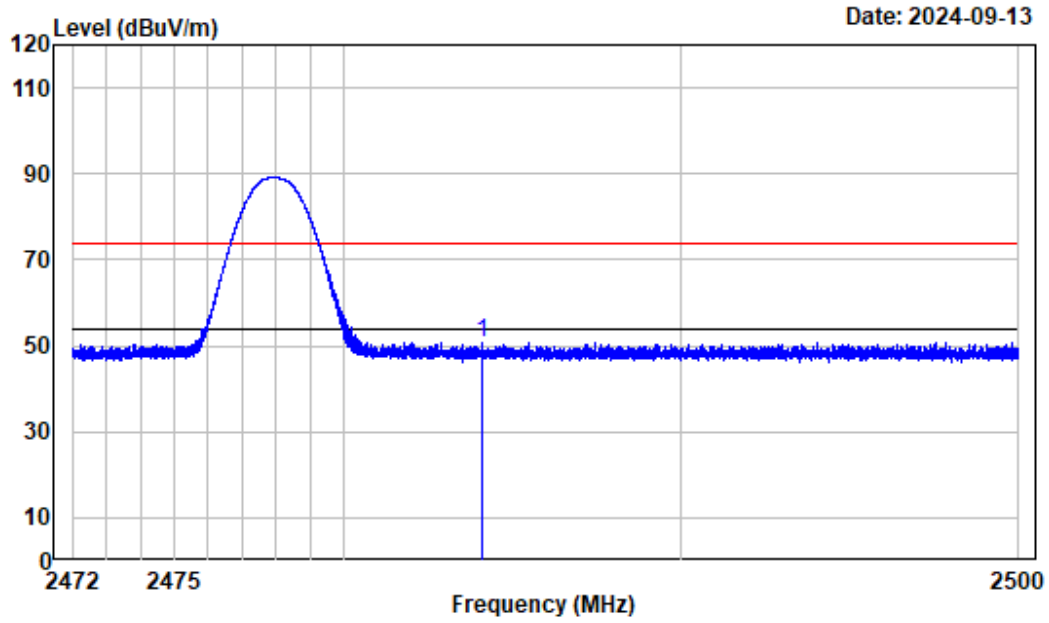
GFSK			
Test Channel:	**2478MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2484.918	-3.17	55.31	52.14	74.00	-21.86	peak

GFSK			
Test Channel:	**2478MHz**	**Ant. Polar. :**	**Vertical**

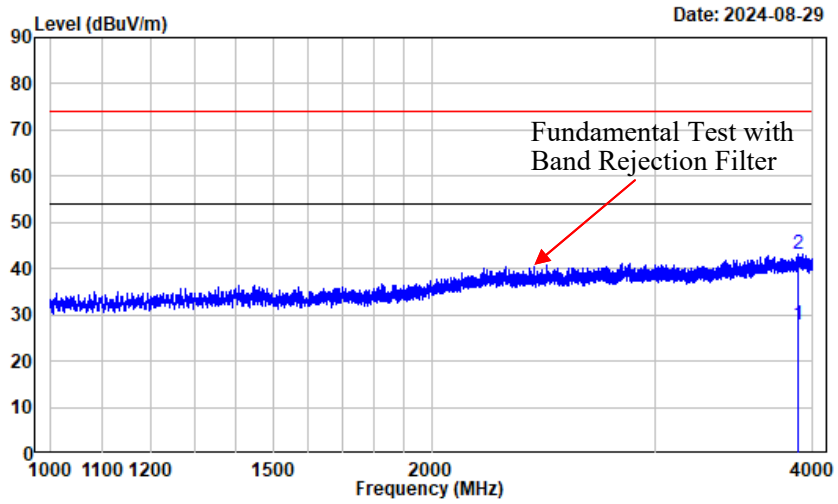


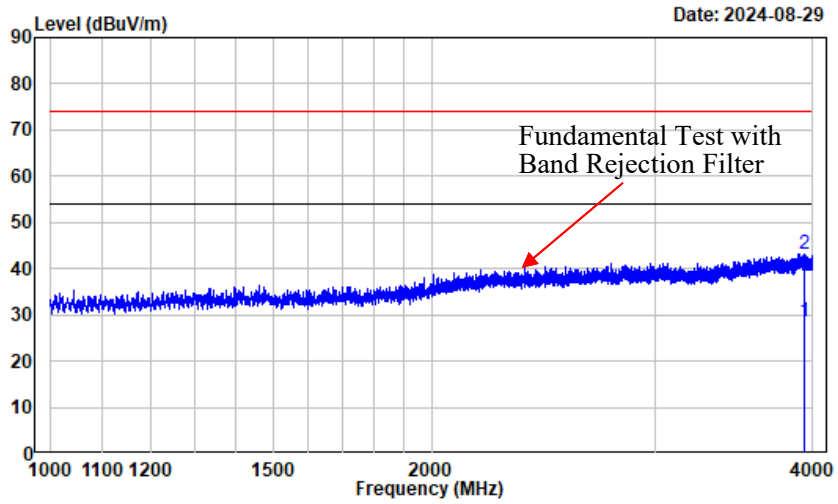
Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2484.103	-3.17	53.99	50.82	74.00	-23.18	peak

Listed with the worst harmonic margin test plot:

ANT1

Horizontal	
1-4GHz	 Condition : Horizontal Project No.: 2401V86257E-RF Tester : Sadow Tan Note : 2478 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 3895.000 -0.55 28.33 27.78 54.00 -26.22 Average 2 3895.000 -0.55 43.73 43.18 74.00 -30.82 Peak

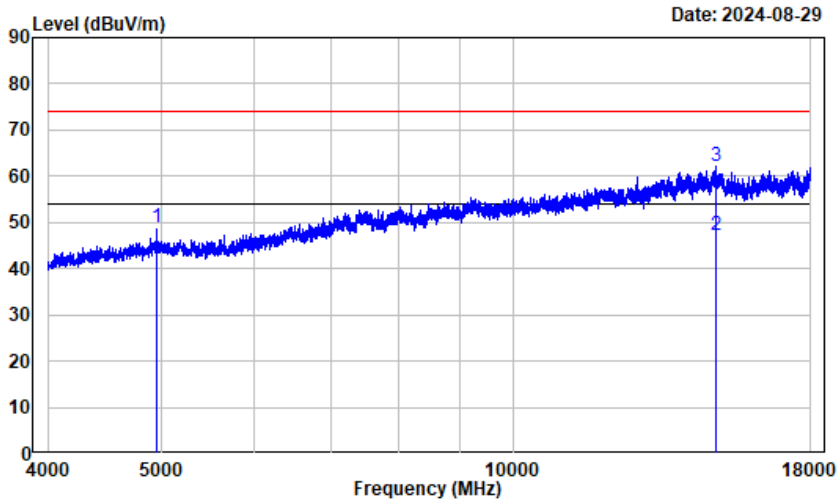
Vertical	
1-4GHz	

Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Sadow Tan
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3937.000	-0.26	28.74	28.48	54.00	-25.52	Average
2	3937.000	-0.26	43.38	43.12	74.00	-30.88	Peak

Horizontal

4-18GHz

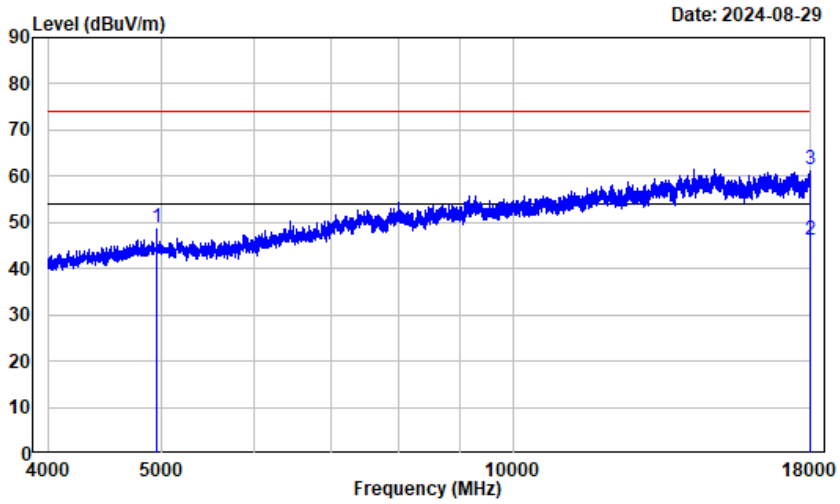


Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Sadow Tan
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4956.000	2.77	46.12	48.89	74.00	-25.11	Peak
2	14939.250	16.47	30.84	47.31	54.00	-6.69	Average
3	14939.250	16.47	45.60	62.07	74.00	-11.93	Peak

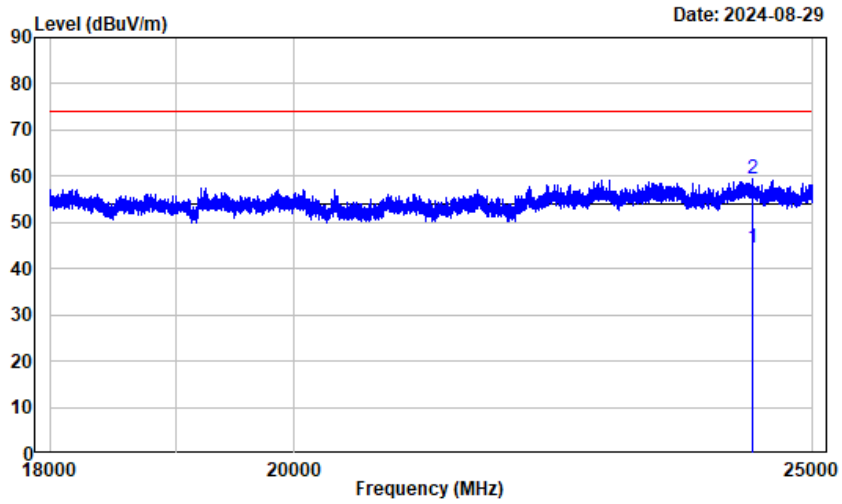
Vertical

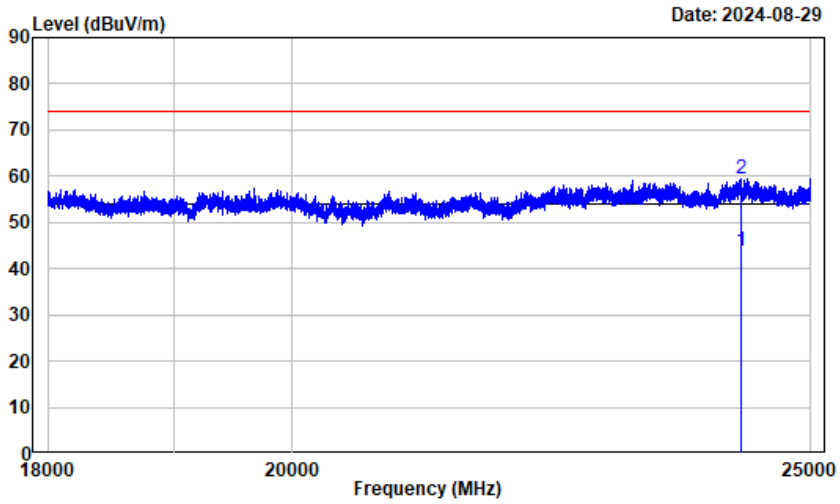
4-18GHz



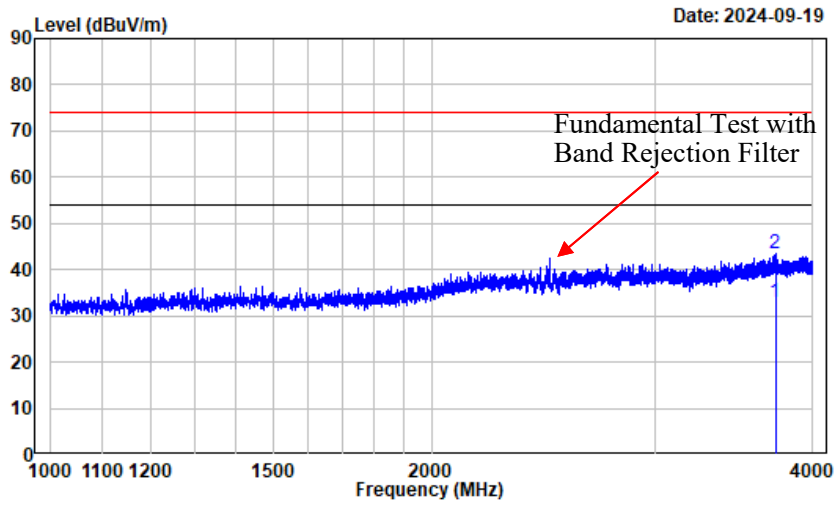
Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Sadow Tan
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4956.000	2.77	46.22	48.99	74.00	-25.01	Peak
2	18000.000	24.62	21.43	46.05	54.00	-7.95	Average
3	18000.000	24.62	36.93	61.55	74.00	-12.45	Peak

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: 2401V86257E-RF Tester : Sadow Tan Note : 2478 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 24359.500 18.66 25.67 44.33 54.00 -9.67 Average 2 24359.500 18.66 40.81 59.47 74.00 -14.53 peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: 2401V86257E-RF Tester : Sadow Tan Note : 2478 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 24263.250 18.44 25.46 43.90 54.00 -10.10 Average 2 24263.250 18.44 40.87 59.31 74.00 -14.69 peak

ANT2

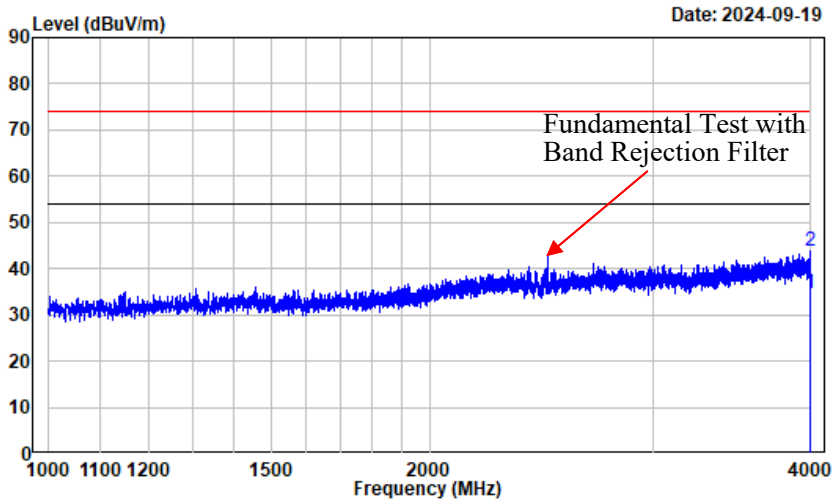
Horizontal	
1-4GHz	

Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3737.500	-0.97	33.97	33.00	54.00	-21.00	Average
2	3737.500	-0.97	44.39	43.42	74.00	-30.58	Peak

Vertical

1-4GHz

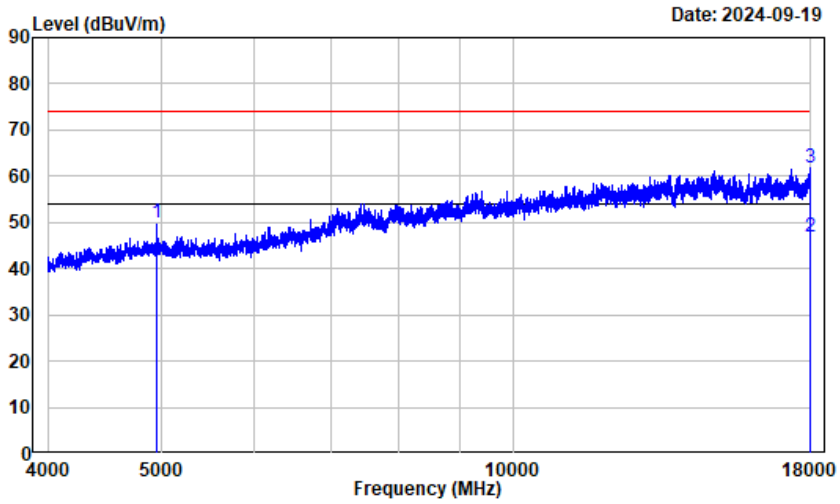


Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	3999.250	-0.21	34.78	34.57	54.00	-19.43	Average
2	3999.250	-0.21	43.89	43.68	74.00	-30.32	Peak

Horizontal

4-18GHz

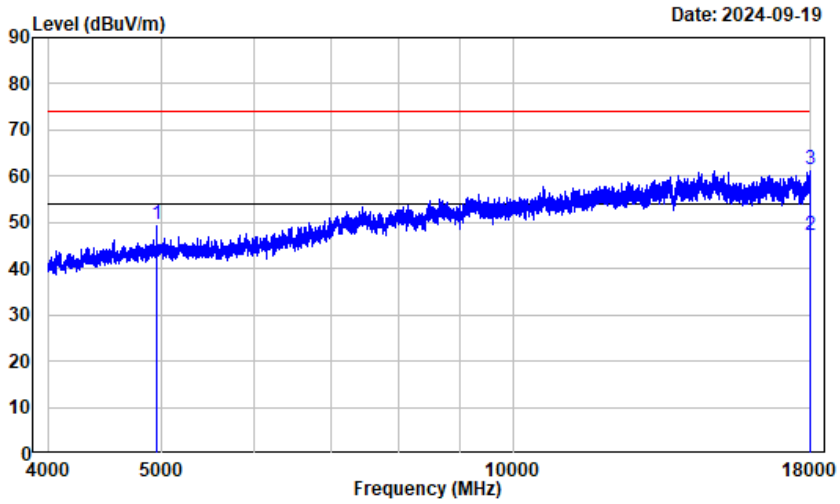


Condition : Horizontal
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4956.000	2.77	47.05	49.82	74.00	-24.18	Peak
2	17987.750	24.53	22.36	46.89	54.00	-7.11	Average
3	17987.750	24.53	37.32	61.85	74.00	-12.15	Peak

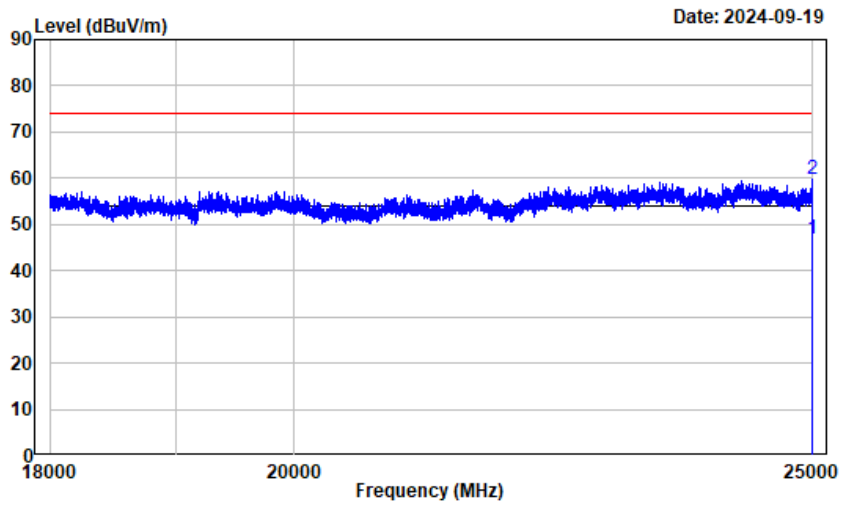
Vertical

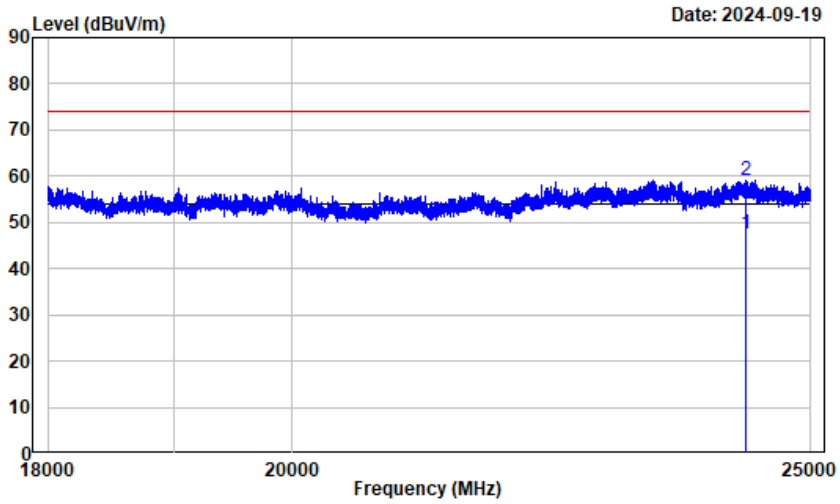
4-18GHz



Condition : Vertical
Project No.: 2401V86257E-RF
Tester : Dylan.Yang
Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4956.000	2.77	46.74	49.51	74.00	-24.49	Peak
2	18000.000	24.62	22.58	47.20	54.00	-6.80	Average
3	18000.000	24.62	36.84	61.46	74.00	-12.54	Peak

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: 2401V86257E-RF Tester : Dylan.Yang Note : 2478 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 24992.130 18.38 28.65 47.03 54.00 -6.97 Average 2 24992.130 18.38 41.35 59.73 74.00 -14.27 peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: 2401V86257E-RF Tester : Dylan.Yang Note : 2478

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	24318.380	18.56	28.97	47.53	54.00	-6.47	Average
2	24318.380	18.56	40.70	59.26	74.00	-14.74	peak