TEST REPORT

Applicant Name:	Telepower Communication Co., Ltd.
Address:	5 Bld, Zone A, Hantian Technology Town No.17 ShenHai RD, Nanhai District Foshan China
Report Number:	2401S34482E-RF-00A
FCC ID:	2AJ2B-T10

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Ticket Validator
Model No.:	T10
Multiple Model(s) No.:	N/A
Trade Mark:	Telpo
Date Received:	2024/04/26
Issue Date:	2024/08/09

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	2401S34482E-RF-00A	Original Report	2024/08/09

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Ticket Validator
Tested Model	T10
Multiple Model(s)	N/A
Frequency Range	Bluetooth: 2402~2480MHz
Transmit Peak Power	7.48dBm
Modulation Technique	Bluetooth: GFSK, π/4-DQPSK, 8DPSK
Antenna Specification#	2.48dBi (provided by the applicant)
Voltage Range	DC 9-40V from DC Port or DC 12/24V from POE
Sample serial number	2KGH-1 for Conducted and Radiated Emissions Test 2KGH-2 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	N/A
Note: The EUT powered by adapter or POE, the worst case power supply was selected to test for AC line conducted and radiated emission below 1GHz according to DTS report test result.	

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, 15.207, 15.205, 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)
0	2402	40	2442
1	2403	41	2443
2	2404	42	2444
…	…	…	…
…	…	…	…
36	2438	75	2477
37	2439	76	2478
38	2440	77	2479
39	2441	78	2480

EUT was tested with Channel 0, 39 and 78.

EUT Exercise Software

"QRCT3"[#] exercise software was used and the power level is 9[#]. 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

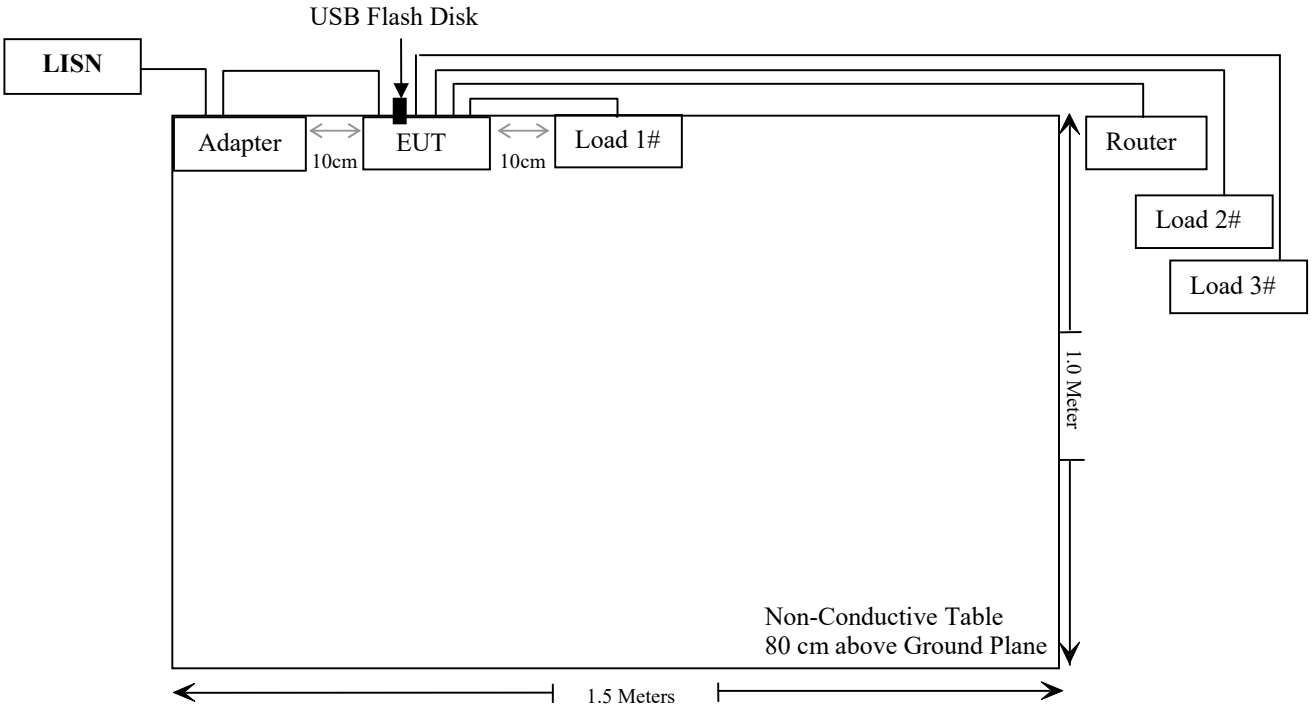
Manufacturer	Description	Model	Serial Number
FOSHAN SHUNDE GUANYUDA POWER SUPPLY.CO.,LTD	Adapter	GMB36-120300-F	B136-120200-E2
TP-LINK	TL-POE	TL-POE2412G	T240050-2-PoE
Unknown	USB Flash Disk	Unknown	Unknown
HIKVISION	Router	DS-3WR03	10021642429
BACL	Load 1#	Unknown	Unknown
BACL	Load 2#	Unknown	Unknown
BACL	Load 3#	Unknown	Unknown
Unknown	Receptacle	Unknown	Unknown

External I/O Cable

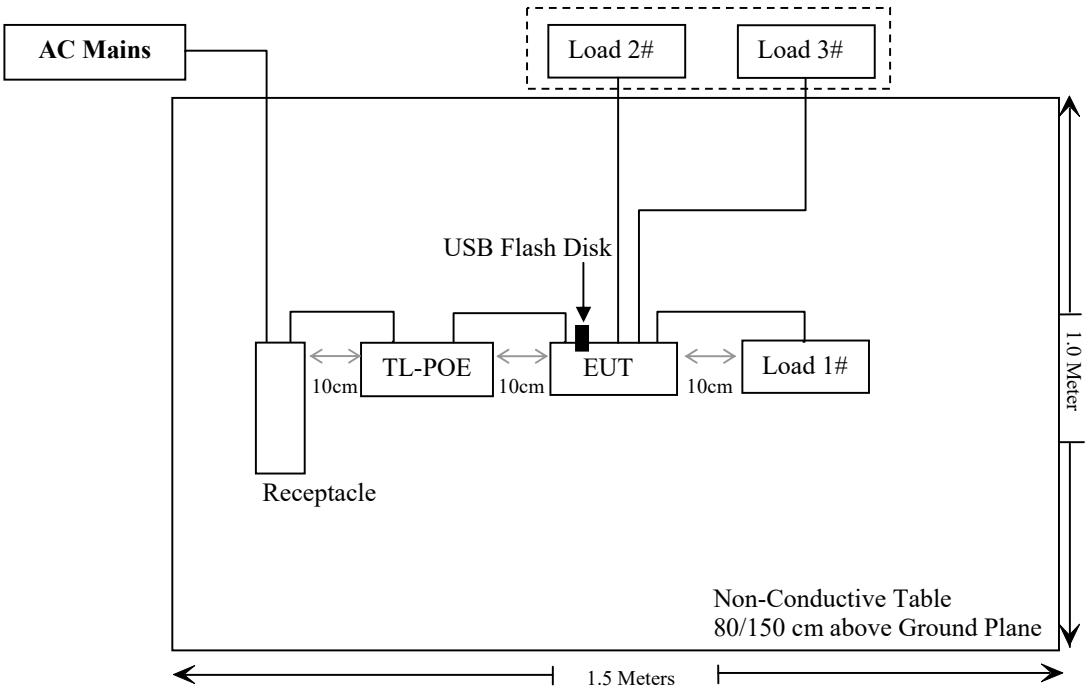
Cable Description	Length (m)	From Port	To
Un-shielding Detachable AC Cable	1.5	Adapter	LISN
Un-shielding Un-Detachable DC Cable	1.0	EUT_ DC Port	Adapter
Un-shielding Detachable RJ45 Cable	10.0	EUT_ RJ45 Port	Router
Un-shielding Detachable DC Cable	0.2	EUT_RS485 Port	Load 1#
Un-shielding Detachable DC Cable	3.0	EUT_RS232 Port	Load 2#
Un-shielding Detachable DC Cable	3.0	EUT_WG IN/OUT Port	Load 3#
Un-shielding Un-Detachable AC Cable	1.5	Receptacle	AC Mains
Un-shielding Detachable AC Cable	0.5	Receptacle	TL-POE
Un-shielding Detachable RJ45 Cable	1.5	TL-POE	EUT_ RJ45 Port

Block Diagram of Test Setup

For Conducted Emissions



For Radiated Emissions:



SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
§1.1307 ,§2.1091	MPE-Based Exemption	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	2023/08/03	2024/08/02
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emission Test_ Below 1GHz					
R&S	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
BACL	Active Loop Antenna	1313-1A	4031911	2024/03/21	2025/03/20
Unknown	Cable	Chamber Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	Cable	Chamber Cable 4	EC-007	2023/08/03	2024/08/02
Audix	EMI Test software	E3	19821b(V9)	NCR	NCR
Radiated Emission Test_ Above 1GHz					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	NCR	NCR
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/02	2024/08/01
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
RF Conducted Test					
Rohde & Schwarz	SPECTRUM ANALYZER	FSU26	200982	2023/12/18	2024/12/17
Unknown	10dB Attenuator	Unknown	F-03-EM190	2023/07/04	2024/07/03

*** 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 §1.1307 (B) & §2.1091- MPE-BASED EXEMPTION

Applicable Standard

According to subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemptionfrom further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	1,920 R^2.
1.34-30	3,450 R^2/f^2.
30-300	3.83 R^2.
300-1,500	0.0128 R^2f.
1,500-100,000	19.2R^2.

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^{a} \frac{P_i}{P_{th,i}} + \sum_{j=1}^{b} \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^{c} \frac{Evaluated_k}{Exposure\ Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power#	Antenna Gain#		ERP		Evaluation Distance (cm)	ERP Limit (mW)
		(dBm)	(dBi)	(dBd)	(dBm)	(mW)		
BT	2402-2480	7.5	2.48	0.33	7.83	6.07	25	1200
BLE	2402-2480	-1.5	2.48	0.33	-1.17	0.76	25	1200
2.4G Wi-Fi	2412-2462	25.5	2.48	0.33	25.83	382.82	25	1200
5.2G Wi-Fi	5180-5240	11.0	2.49	0.34	11.34	13.61	25	1200
GSM850*	824-849	25.49	0.69	-1.46	24.03	252.93	25	659
PCS1900*	1850-1910	22.49	1.31	-0.84	21.65	146.22	25	1200
WCDMA B2	1850-1910	22.5	1.31	-0.84	21.66	146.55	25	1200
WCDMA B5	824-849	22.0	0.69	-1.46	20.54	113.24	25	659
LTE B2	1850-1910	22.5	1.31	-0.84	21.66	146.55	25	1200
LTE B4	1710-1755	21.5	0.07	-2.08	19.42	87.50	25	1200
LTE B7	2500-2570	21.5	4.54	2.39	23.89	244.91	25	1200
LTE B38	2570-2620	21.5	4.07	1.92	23.42	219.79	25	1200

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.
2. The BT, 2.4G Wi-Fi and 5G Wi-Fi cannot transmit at same time.
3. 0dBd=2.15dBi

Note*: It was the time average power according to the duty cycle.

Mode		Tune-up Peak Output Power (dBm)			Tune-up Average Output Power (dBm)		
		Low	Middle	High	Low	Middle	High
GPRS850	1 slot	33.0	33.0	33.0	23.97	23.97	23.97
	2 slots	31.5	31.5	31.5	25.48	25.48	25.48
	3 slots	29.5	29.5	29.5	25.24	25.24	25.24
	4 slots	28.5	28.5	28.5	**25.49**	**25.49**	**25.49**
GPRS1900	1 slot	29.5	29.5	29.5	20.47	20.47	20.47
	2 slots	28.5	28.5	28.5	22.48	22.48	22.48
	3 slots	26.5	26.5	26.5	22.24	22.24	22.24
	4 slots	25.5	25.5	25.5	**22.49**	**22.49**	**22.49**

Note: the duty cycle for 1 slot is 1/8, 2 slots is 1/4, 3 slots is 3/8, 4 slots is 1/2
The average power=Peak power+ duty cycle factor
Duty cycle factor=10*log (duty cycle)

NFC:

Mode	Frequency (MHz)	Maximum E-Field (dBuV/m@3m)	Maximum EIRP (dBm)	ERP		Evaluation Distance (cm)	ERP Limit (mW)
				(dBm)	(mW)		
NFC	13.56	71.68	-23.52	-25.67	0.0027	25	1173

Note: EIRP = E-Field – 95.2 @3m, ERP = EIRP-2.15

Simultaneous transmitting consideration (worst case):

The ratio= $ERP_{2.4G\ Wi\text{-}Fi}$/limit +ERP_{GSM850}/limit+ ERP_{NFC}/limit = 382.82/1200+ 252.93/659+ 0.0027/1173 =0.703＜1.0

So simultaneous exposure is compliant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 25cm from nearby persons.

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 t hat furnished by the responsible party shall be used with the device. The use of a permanently attached ant enna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient t o comply with the provisions of this Section. The manufacturer may design the unit so that a broken anten na 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 res ponsible 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 arrangement, which was permanently attached, the antenna gain[#] is 2.48dBi, fulfill the requirement of this section. Please refer to the EUT photos.

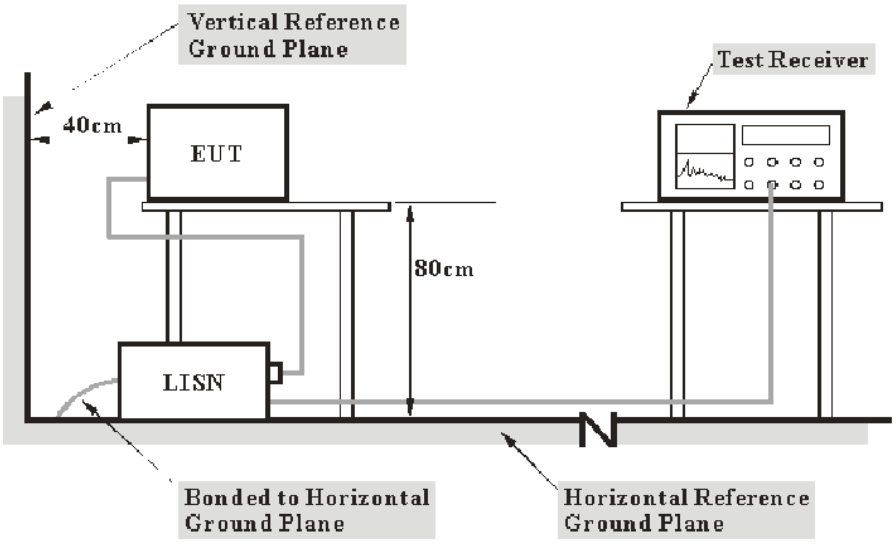
Result: Compliant

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

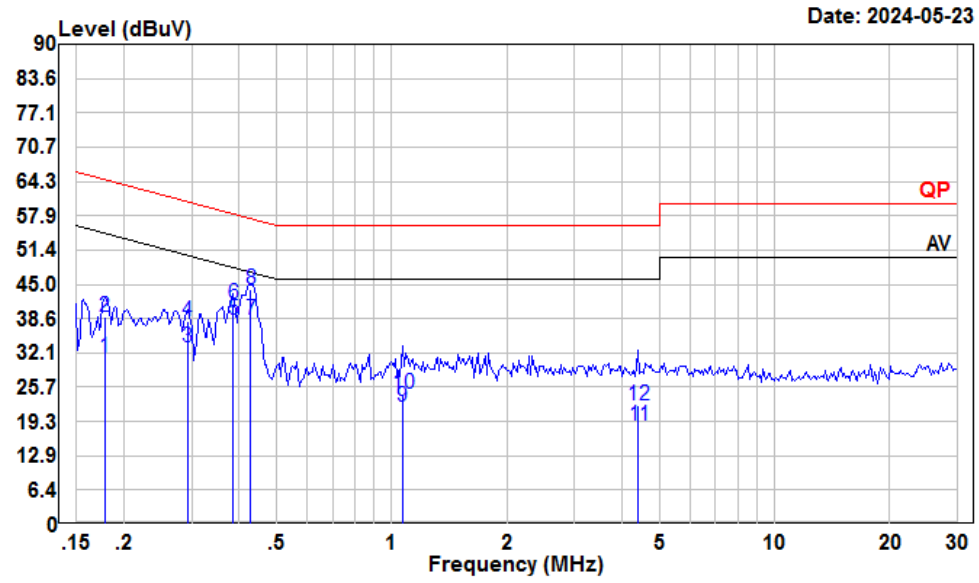
Temperature:	25 ℃
Relative Humidity:	54 %
ATM Pressure:	101 kPa

The testing was performed by Macy Shi on 2024-05-23.

EUT operation mode: Transmitting (Maximum output power mode, EDR (8DPSK) Middle Channel)

Note: Worst case is adapter power supply

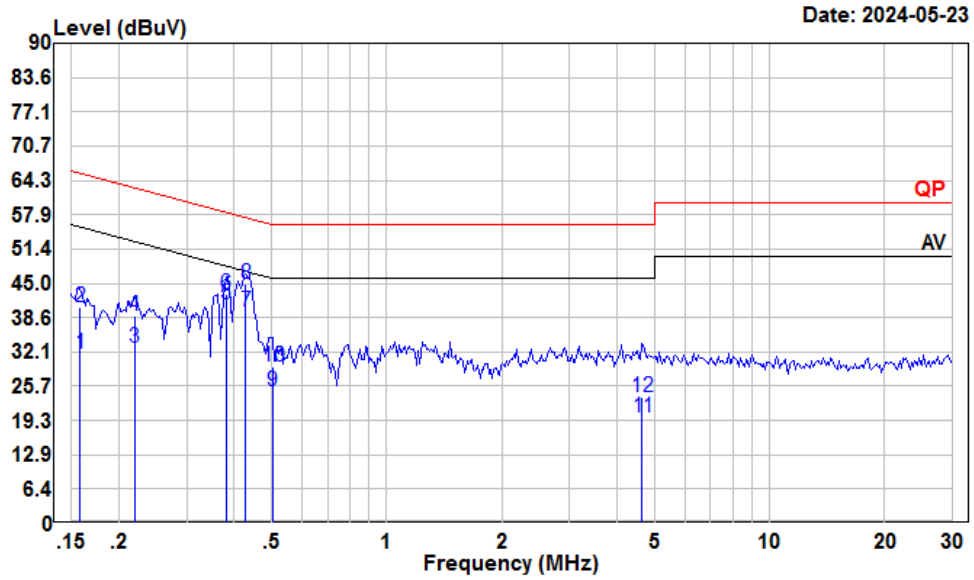
AC 120V/60 Hz, Line



Condition: Line
Project : 2401S34482E-RF
tester : Macy.shi
Note : BT

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.18	10.75	31.28	10.40	10.13	54.59	-23.31	Average
2	0.18	18.46	38.99	10.40	10.13	64.59	-25.60	QP
3	0.29	12.73	33.18	10.32	10.13	50.46	-17.28	Average
4	0.29	17.67	38.12	10.32	10.13	60.46	-22.34	QP
5	0.39	17.80	38.26	10.26	10.20	48.17	-9.91	Average
6	0.39	21.00	41.46	10.26	10.20	58.17	-16.71	QP
7	0.43	18.04	38.47	10.23	10.20	47.29	-8.82	Average
8	0.43	23.50	43.93	10.23	10.20	57.29	-13.36	QP
9	1.07	1.19	21.92	10.57	10.16	46.00	-24.08	Average
10	1.07	3.77	24.50	10.57	10.16	56.00	-31.50	QP
11	4.41	-2.03	18.64	10.43	10.24	46.00	-27.36	Average
12	4.41	1.67	22.34	10.43	10.24	56.00	-33.66	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : 2401S34482E-RF
tester : Macy.shi
Note : BT

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.16	11.44	31.86	10.27	10.15	55.56	-23.70	Average
2	0.16	20.03	40.45	10.27	10.15	65.56	-25.11	QP
3	0.22	12.10	32.86	10.62	10.14	52.83	-19.97	Average
4	0.22	18.09	38.85	10.62	10.14	62.83	-23.98	QP
5	0.38	20.20	41.14	10.74	10.20	48.25	-7.11	Average
6	0.38	22.00	42.94	10.74	10.20	58.25	-15.31	QP
7	0.43	18.65	39.62	10.77	10.20	47.29	-7.67	Average
8	0.43	23.95	44.92	10.77	10.20	57.29	-12.37	QP
9	0.50	3.68	24.63	10.80	10.15	46.00	-21.37	Average
10	0.50	8.45	29.40	10.80	10.15	56.00	-26.60	QP
11	4.65	-0.84	19.79	10.40	10.23	46.00	-26.21	Average
12	4.65	3.16	23.79	10.40	10.23	56.00	-32.21	QP

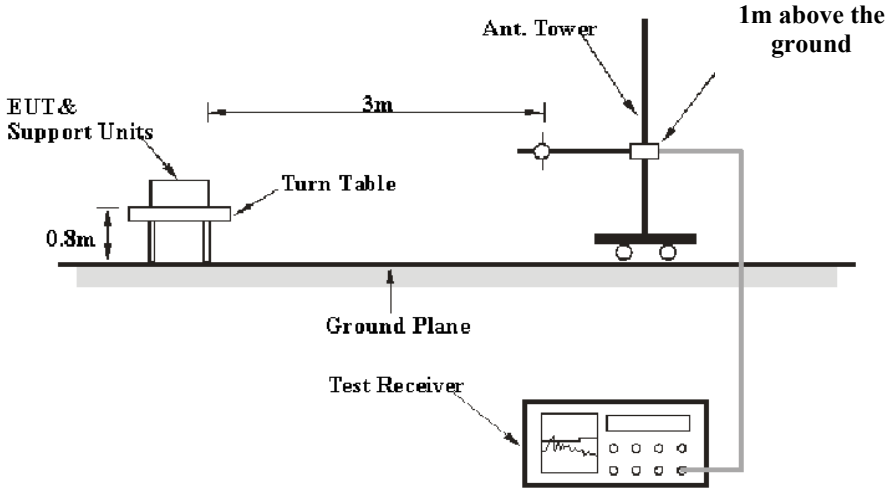
FCC §15.205, §15.209 & §15.247(d) - RADIATED EMISSIONS

Applicable Standard

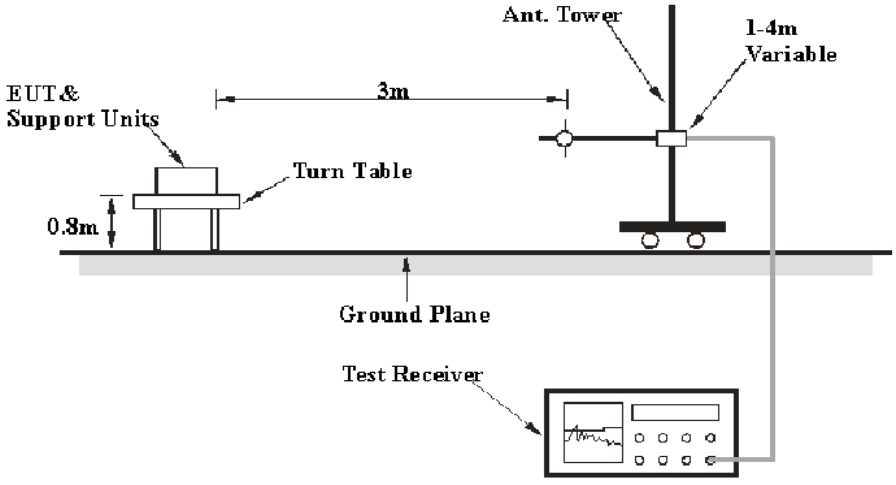
FCC §15.205; §15.209; §15.247(d)

EUT Setup

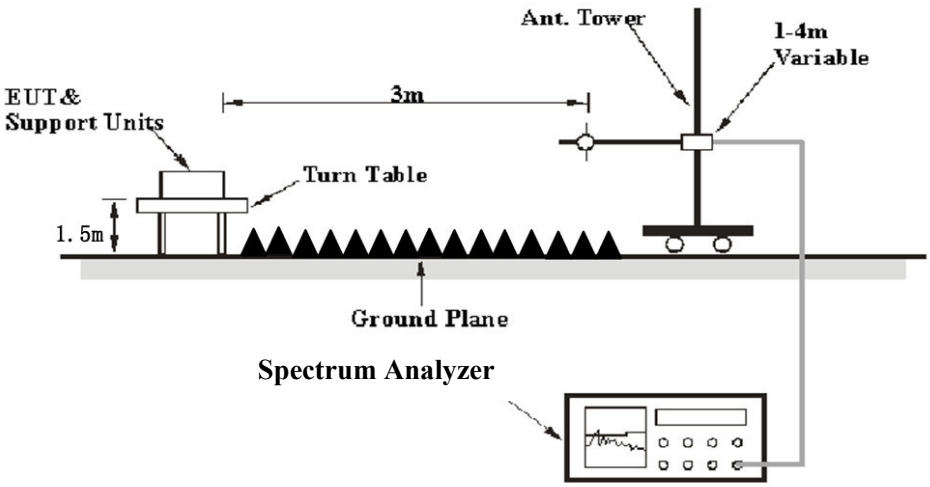
9 kHz-30MHz:



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.

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:	25~25.5 ℃
Relative Humidity:	50~57 %
ATM Pressure:	101 kPa

The testing was performed by Anson Su on 2024-07-29 for below 1GHz and Zenos Qiao on 2024-05-15 for above 1GHz.

Test mode: Transmitting (worst case is POE power supply)

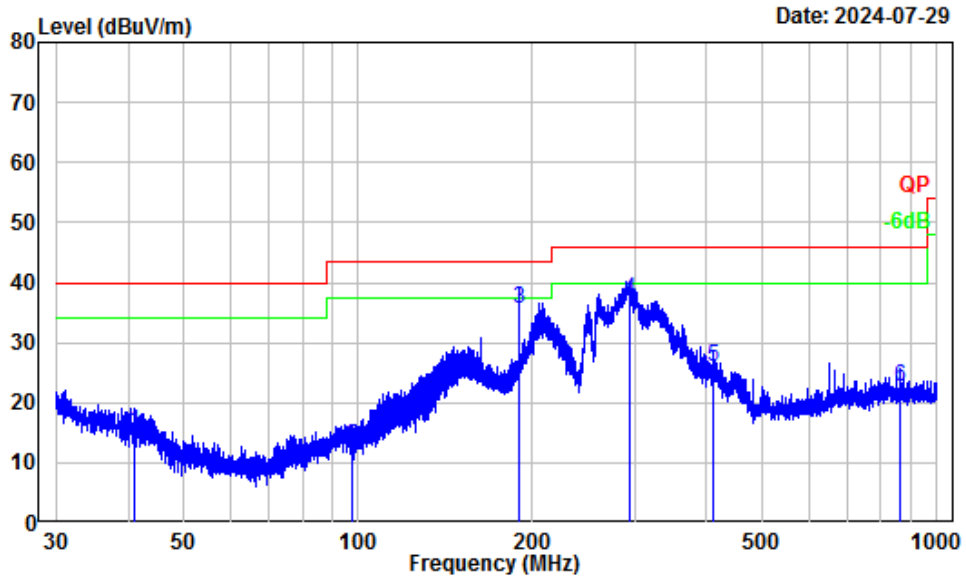
Note: After pre-scan in the X, Y and Z axes of orientation, the worst case z-axis of orientation were recorded.

9 kHz-30MHz: *(Maximum output power mode, EDR (8DPSK) Middle Channel)*

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

30MHz-1GHz: *(Maximum output power mode, EDR (8DPSK) Middle Channel)*

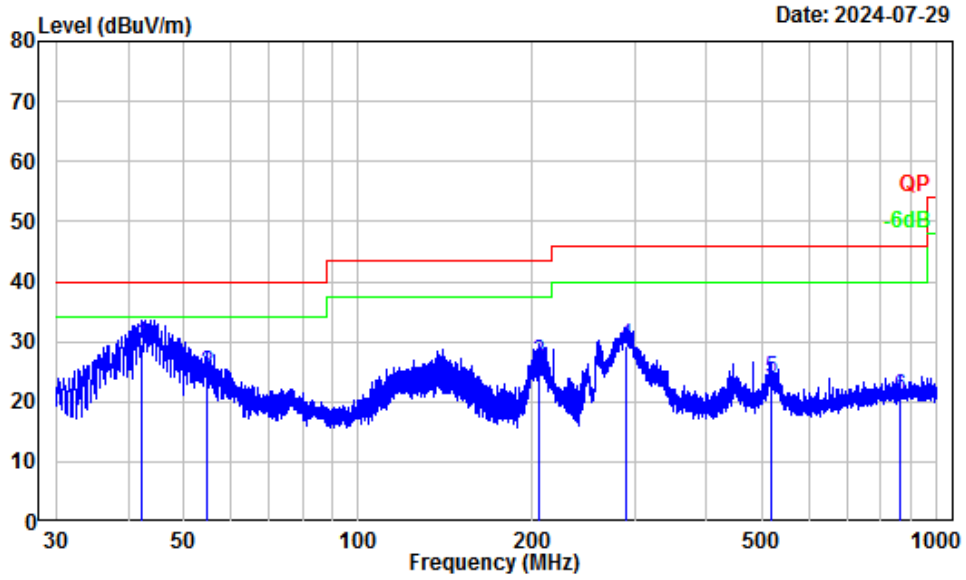
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: 2401S34482E-RF
Test Mode : BT
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.99	-13.58	28.64	15.06	40.00	-24.94	QP
2	97.88	-17.34	30.13	12.79	43.50	-30.71	QP
3	189.90	-15.28	51.00	35.72	43.50	-7.78	QP
4	294.11	-13.38	50.50	37.12	46.00	-8.88	QP
5	409.30	-10.66	36.48	25.82	46.00	-20.18	QP
6	864.19	-5.04	27.56	22.52	46.00	-23.48	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: 2401S34482E-RF
Test Mode : BT
Tester : Anson Su

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.27	-14.30	43.78	29.48	40.00	-10.52	QP
2	54.91	-18.73	43.34	24.61	40.00	-15.39	QP
3	205.22	-14.71	41.28	26.57	43.50	-16.93	QP
4	291.04	-13.48	42.86	29.38	46.00	-16.62	QP
5	515.89	-8.40	32.21	23.81	46.00	-22.19	QP
6	864.19	-5.04	26.00	20.96	46.00	-25.04	QP

Above 1GHz:

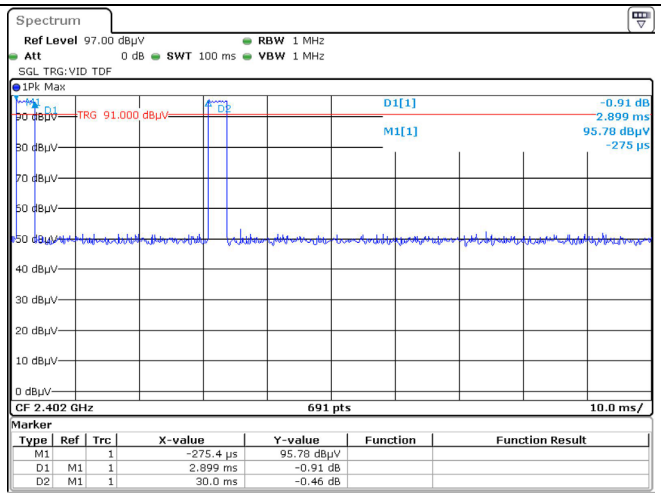
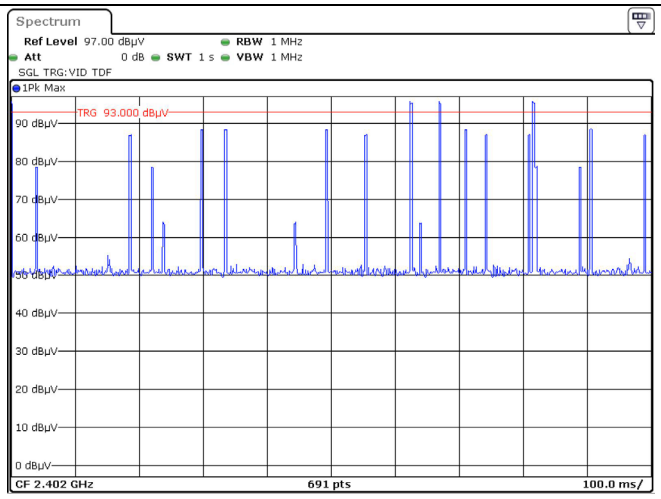
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
8DPSK							
Low Channel 2402MHz							
2378.36	55.64	PK	H	-2.93	52.71	74	-21.29
2380.25	55.39	PK	V	-2.93	52.46	74	-21.54
4804.00	47.05	PK	H	2.42	49.47	74	-24.53
4804.00	47.28	PK	V	2.42	49.70	74	-24.30
Middle Channel 2441MHz							
4882.00	47.32	PK	H	2.58	49.90	74	-24.10
4882.00	47.54	PK	V	2.58	50.12	74	-23.88
High Channel 2480MHz							
2483.67	56.85	PK	H	-3.17	53.68	74	-20.32
2483.52	58.38	PK	V	-3.17	55.21	74	-18.79
4960.00	47.57	PK	H	2.68	50.25	74	-23.75
4960.00	47.89	PK	V	2.68	50.57	74	-23.43

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							
2378.36	52.71	H	-24.73	27.98	54	-26.02	Bandedge
2380.25	52.46	V	-24.73	27.73	54	-26.27	Bandedge
4804.00	49.47	H	-24.73	24.74	54	-29.26	Harmonic
4804.00	49.70	V	-24.73	24.97	54	-29.03	Harmonic
Middle Channel 2441MHz							
4882.00	49.90	H	-24.73	25.17	54	-28.83	Harmonic
4882.00	50.12	V	-24.73	25.39	54	-28.61	Harmonic
High Channel 2480MHz							
2483.67	53.68	H	-24.73	28.95	54	-25.05	Bandedge
2483.52	55.21	V	-24.73	30.48	54	-23.52	Bandedge
4960.00	50.25	H	-24.73	25.52	54	-28.48	Harmonic
4960.00	50.57	V	-24.73	25.84	54	-28.16	Harmonic

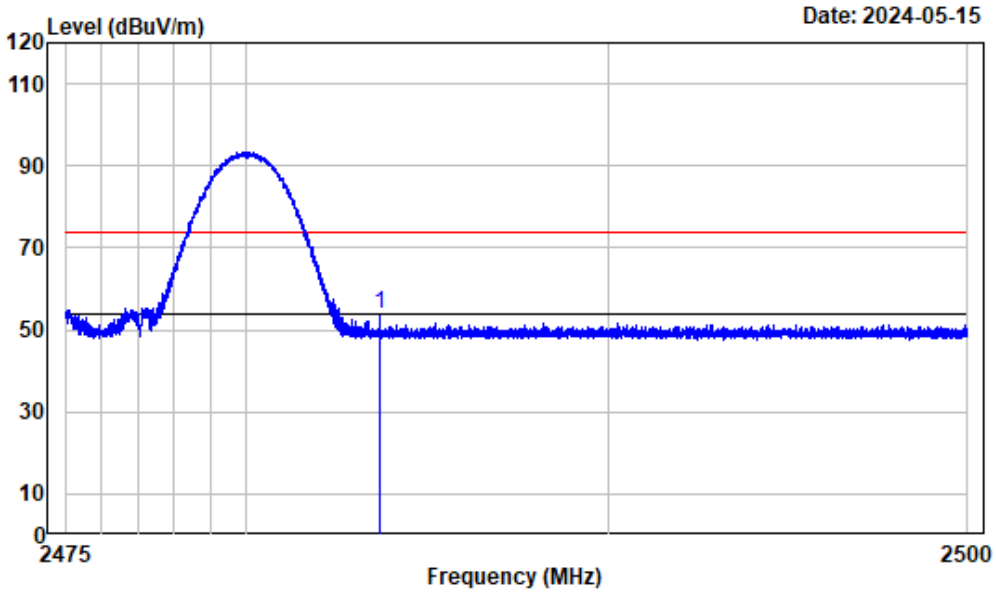
Note: Average level= Peak level+ Duty Cycle Corrected Factor

Worst case duty cycle:
Duty cycle = Ton/100ms = 2.899*2/100=0.05798
Duty Cycle Corrected Factor = 20lg (Duty cycle) = 20lg0.05798 = -24.73

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

Band Edge Measurements (Radiated):

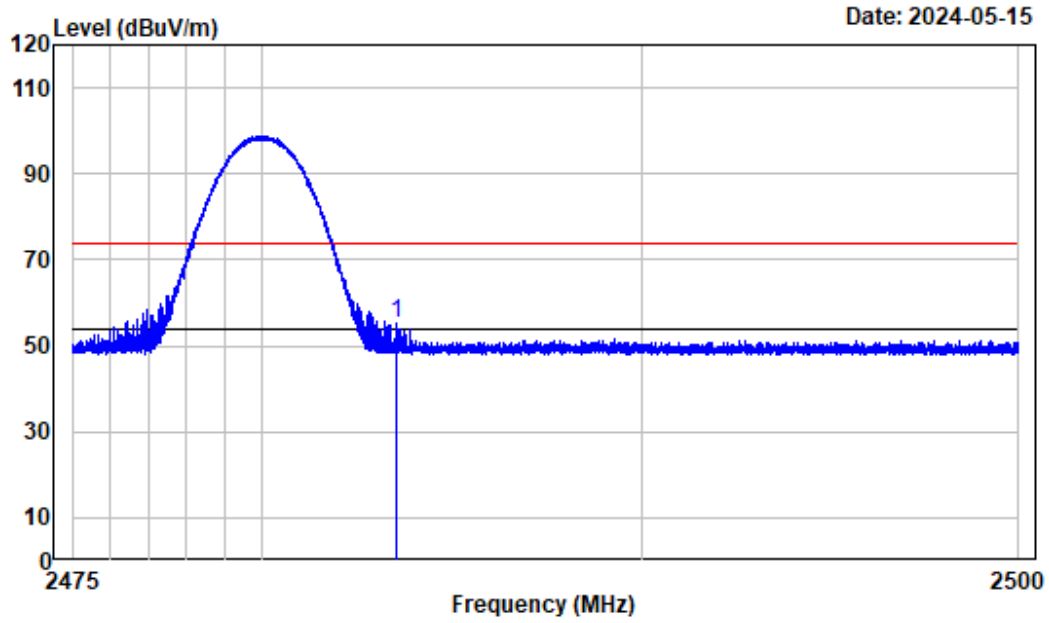
8DPSK			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: 2401S34482E-RF
Tester : Zenos Qiao
Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.670	-3.17	56.85	53.68	74.00	-20.32	Peak

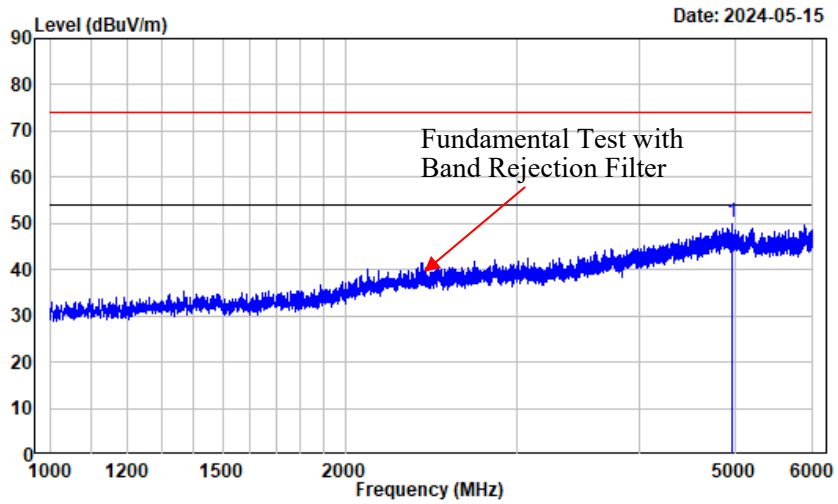
8DPSK			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: 2401S34482E-RF
Tester : Zenos Qiao
Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.516	-3.17	58.38	55.21	74.00	-18.79	Peak

Harmonic and Emissions Measurements:

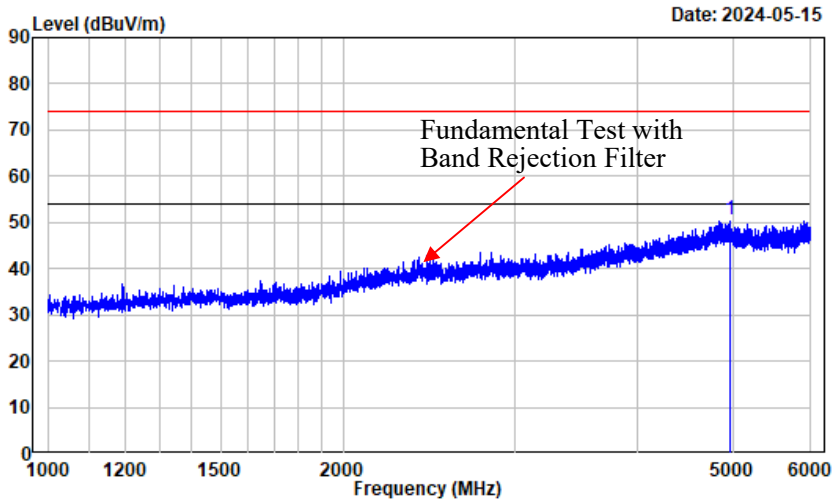
Horizontal	
1-6GHz	

Condition : Horizontal
Project No.: 2401S34482E-RF
Tester : Zenos Qiao
Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4960.000	2.68	47.57	50.25	74.00	-23.75	Peak

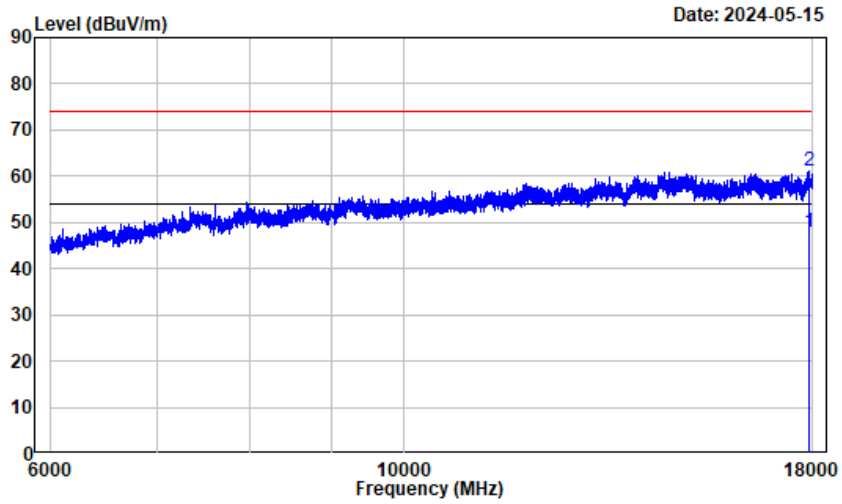
Vertical

1-6GHz



Condition : Vertical
Project No.: 2401S34482E-RF
Tester : Zenos Qiao
Note : BT-3DH5-2480

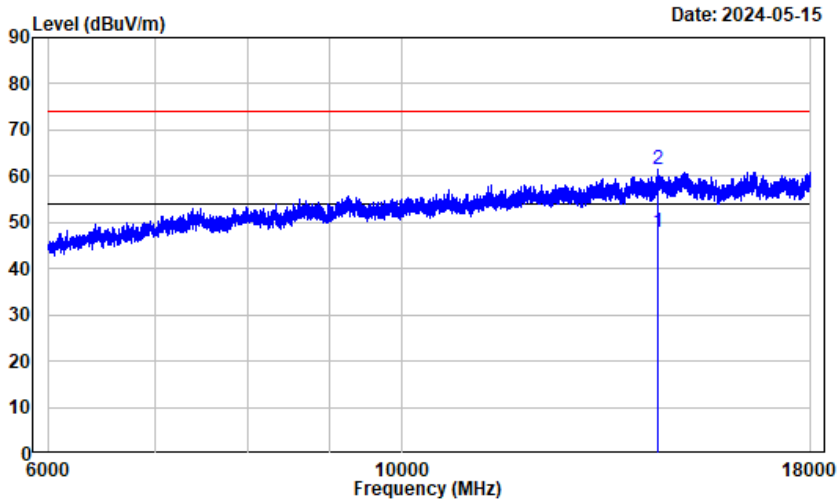
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4960.000	2.68	47.89	50.57	74.00	-23.43	Peak

Horizontal	
6-18GHz	 Condition : Horizontal Project No.: 2401S34482E-RF Tester : Zenos Qiao Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	17919.000	24.05	23.70	47.75	54.00	-6.25	Average
2	17919.000	24.05	37.08	61.13	74.00	-12.87	Peak

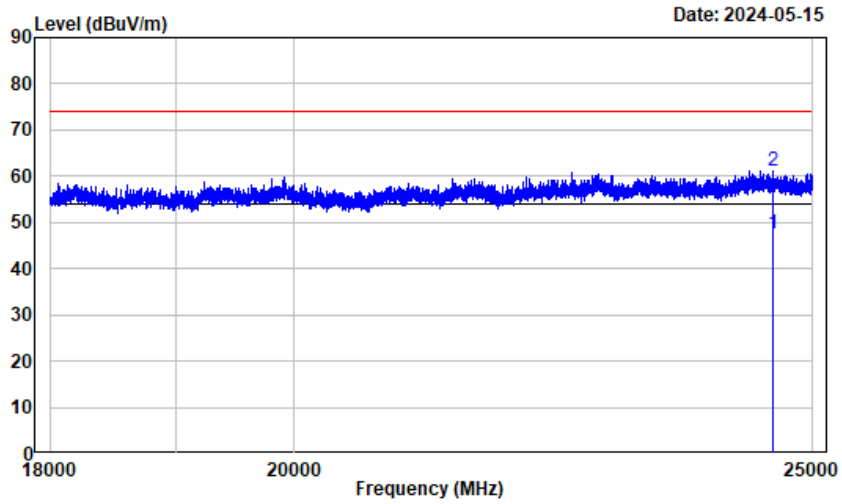
Vertical

6-18GHz

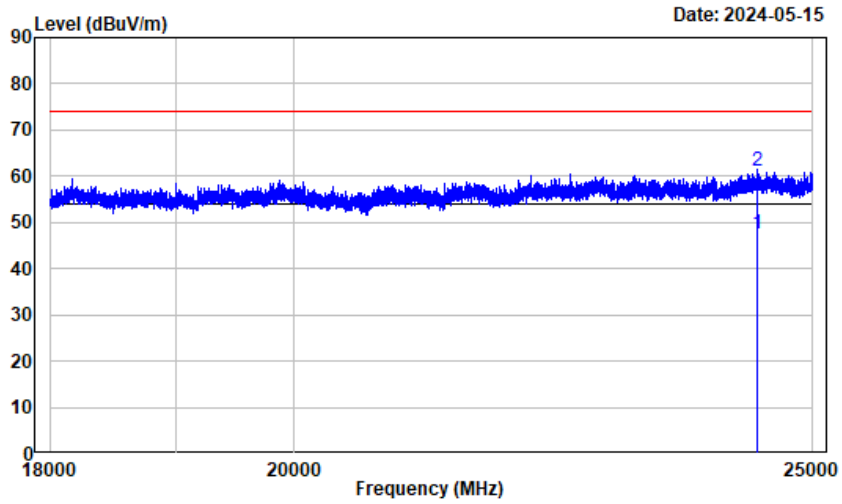


Condition : Vertical
Project No.: 2401S34482E-RF
Tester : Zenos Qiao
Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	14455.500	17.37	30.50	47.87	54.00	-6.13	Average
2	14455.500	17.37	43.97	61.34	74.00	-12.66	Peak

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: 2401S34482E-RF Tester : Zenos Qiao Note : BT-3DH5-2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	24574.750	18.90	28.68	47.58	54.00	-6.42	Average
2	24574.750	18.90	42.09	60.99	74.00	-13.01	Peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: 2401S34482E-RF Tester : Zenos Qiao Note : BT-3DH5-2480 Freq / Factor / Read Level / Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 24408.500 18.79 28.90 47.69 54.00 -6.31 Average 2 24408.500 18.79 42.35 61.14 74.00 -12.86 Peak

FCC §15.247(a) (1) - CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hoping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

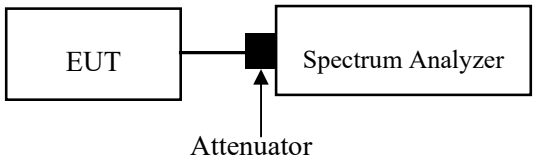
Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.2

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: Wide enough to capture the peaks of two adjacent channels.
b) RBW: Start with the RBW set to approximately 30% of the channel spacing; adjust as necessary to best identify the center of each individual channel.
c) Video (or average) bandwidth (VBW) ≥ RBW.
d) Sweep: Auto.
e) Detector function: Peak.
f) Trace: Max hold.
g) Allow the trace to stabilize.

Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Compliance of an EUT with the appropriate regulatory limit shall be determined.



Test Data

Environmental Conditions

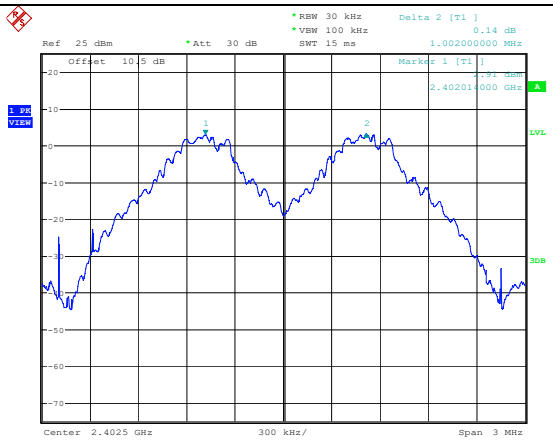
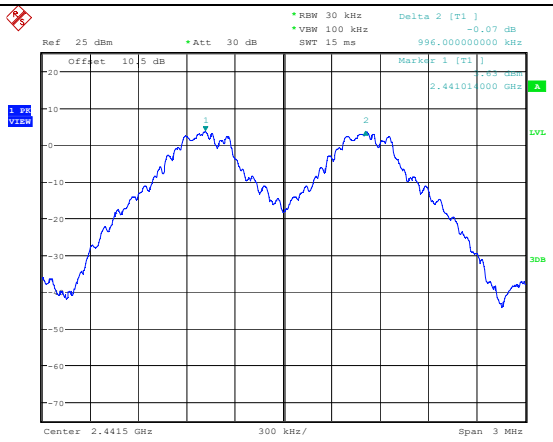
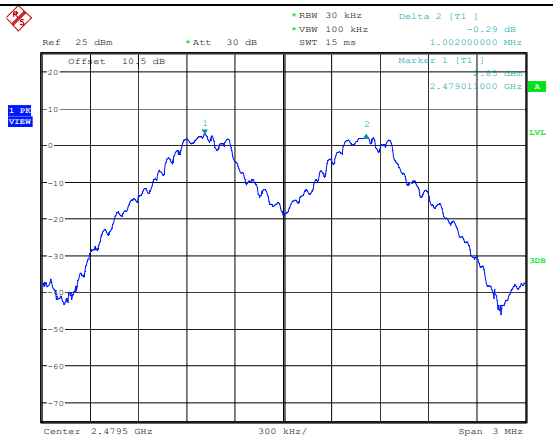
Temperature:	26 °C
Relative Humidity:	46 %
ATM Pressure:	101 kPa

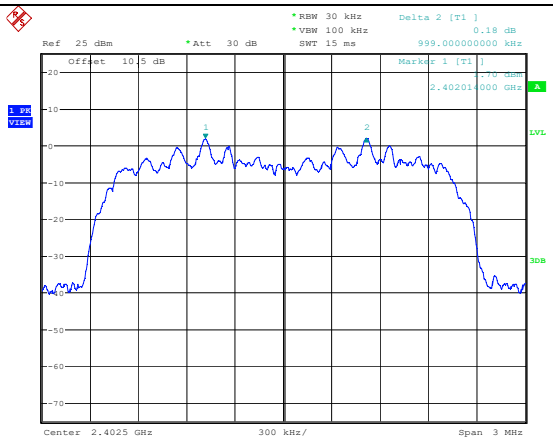
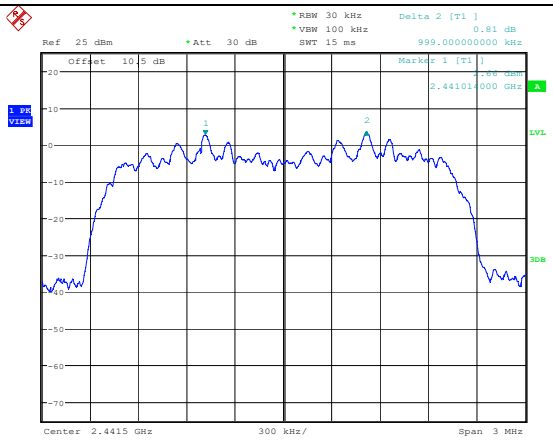
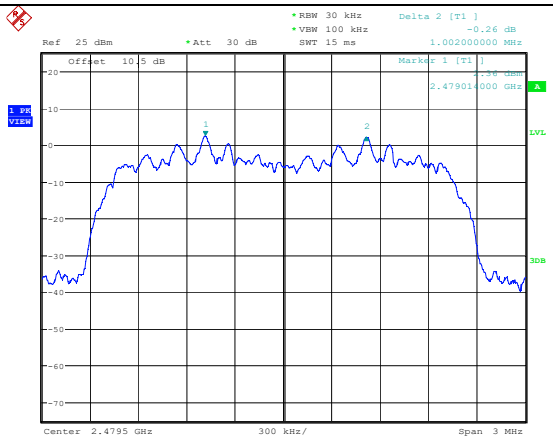
The testing was performed by Allen Bai on 2024-05-17.

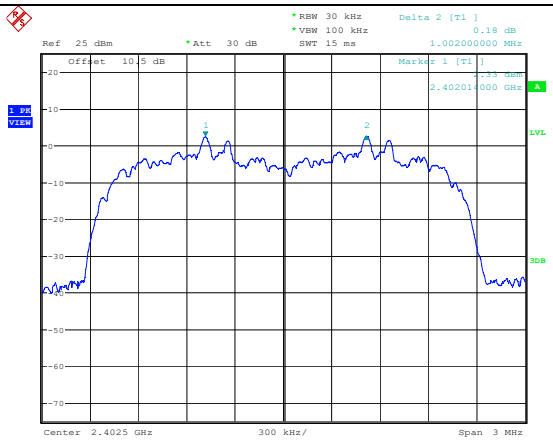
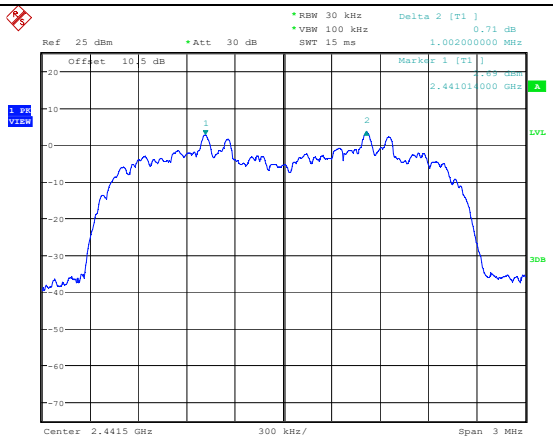
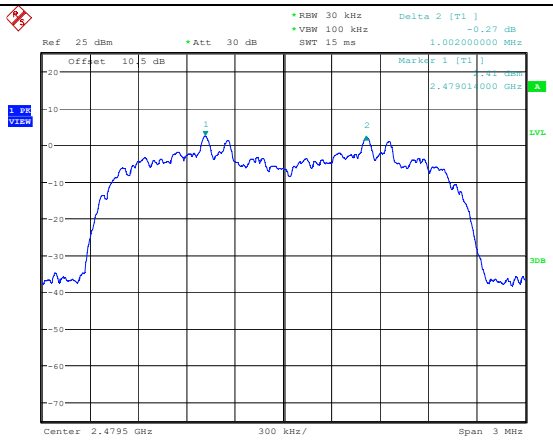
EUT operation mode: Transmitting

Test Result: Compliant.

Test Modes	Test Frequency (MHz)	Channel Separation (MHz)	Limits (MHz)
BDR Mode (GFSK)	2402	1.002	0.636
	2441	0.996	0.638
	2480	1.002	0.638
EDR Mode (π/4-DQPSK)	2402	0.999	0.872
	2441	0.999	0.872
	2480	1.002	0.874
EDR Mode (8DPSK)	2402	1.002	0.870
	2441	1.002	0.870
	2480	1.002	0.870

BDR Mode (GFSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:27:39
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:29:10
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:30:37

EDR Mode (π/4-DQPSK)	
Low Channel	
Middle Channel	
High Channel	

EDR Mode (8DPSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:36:32
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:37:54
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:39:33

FCC §15.247(a) (1) - 20 dB EMISSION BANDWIDTH

Applicable Standard

Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Test Procedure

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

a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW.

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

c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than [10 log (OBW/RBW)] below the reference level.

d) Steps a) through c) might require iteration to adjust within the specified tolerances.

e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target "−xx dB down" requirement; that is, if the requirement calls for measuring the −20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value.

f) Set detection mode to peak and trace mode to max hold.

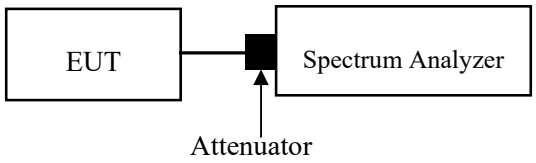
g) Determine the reference value: Set the EUT to transmit an un-modulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value).

h) Determine the "−xx dB down amplitude" using [(reference value) − xx]. Alternatively, this calculation may be made by using the marker-delta function of the instrument.

i) If the reference value is determined by an un-modulated carrier, then turn the EUT modulation on, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j).

j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the "− xx dB down amplitude" determined in step h). If a marker is below this "−xx dB down amplitude" value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the "− xx dB down amplitude" determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth.

k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).



Test Data

Environmental Conditions

Temperature:	26 ℃
Relative Humidity:	46 %
ATM Pressure:	101 kPa

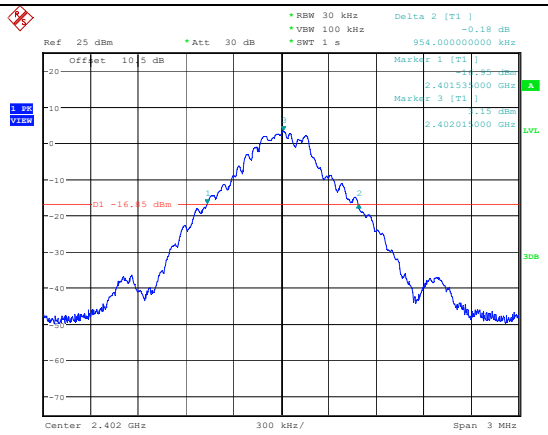
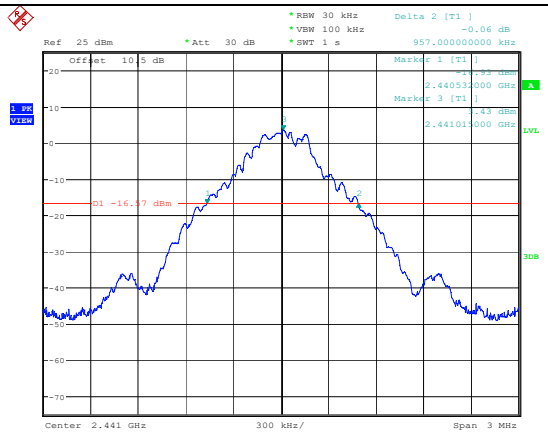
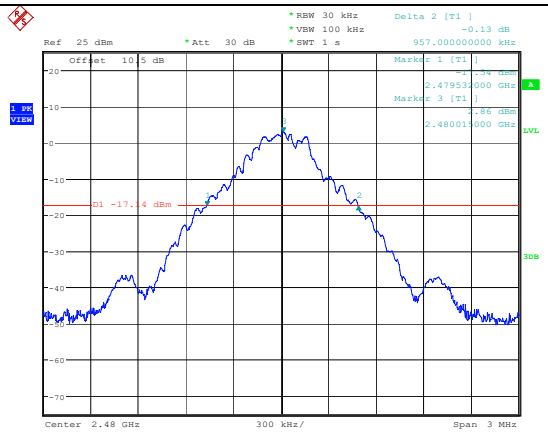
The testing was performed by Allen Bai on 2024-05-16.

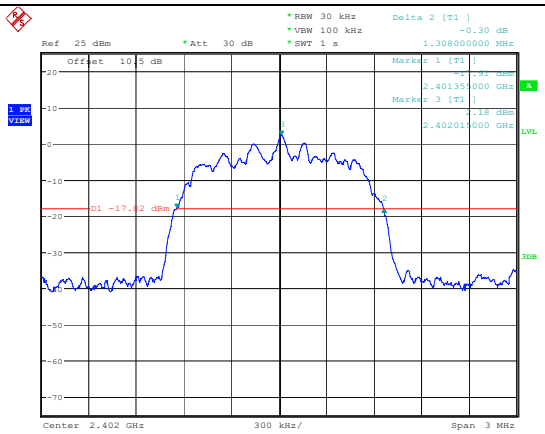
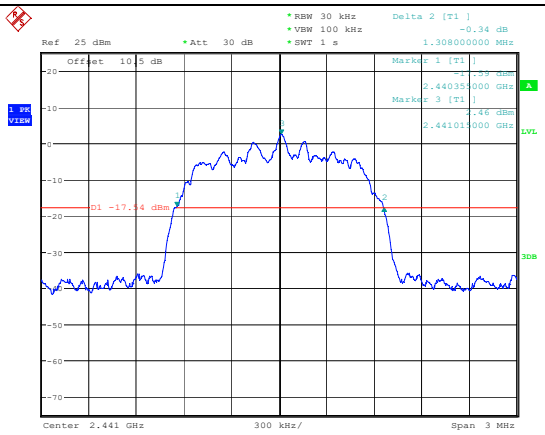
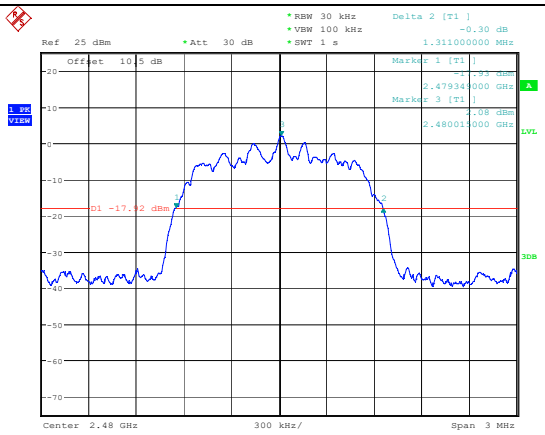
EUT operation mode: Transmitting

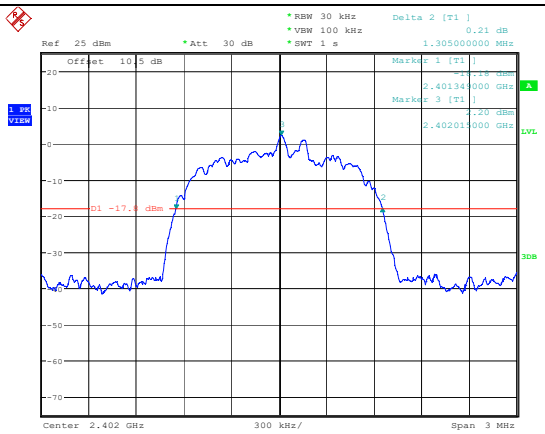
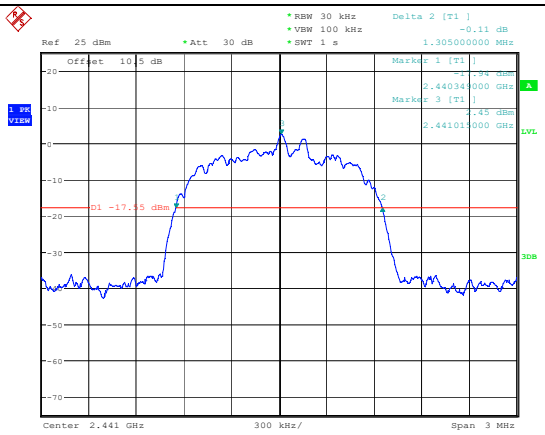
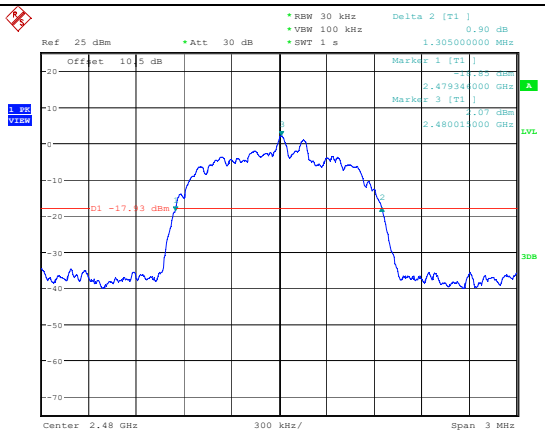
Test Result: Compliant.

Test Modes	Test Channel	Test Frequency (MHz)	20 dB Bandwidth (MHz)
BDR Mode (GFSK)	Lowest	2402	0.954
	Middle	2441	0.957
	Highest	2480	0.957
EDR Mode (π/4-DQPSK)	Lowest	2402	1.308
	Middle	2441	1.308
	Highest	2480	1.311
EDR Mode (8DPSK)	Lowest	2402	1.305
	Middle	2441	1.305
	Highest	2480	1.305

20 dB Bandwidth

BDR Mode (GFSK)	
Low Channel	
Middle Channel	
High Channel	

EDR Mode (π/4-DQPSK)	
Low Channel	
Middle Channel	
High Channel	

EDR Mode (8DPSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:05:29
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:52:16
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:15:52

FCC §15.247(a) (1) (iii) - QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that
a minimum of 15 channels are used.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.3

a) Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.

b) RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.

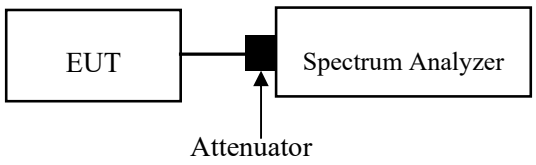
c) VBW ≥ RBW.

d) Sweep: Auto.

e) Detector function: Peak.

f) Trace: Max hold.

It might prove necessary to break the span up into sub ranges to show clearly all of the hopping frequencies. Compliance of an EUT with the appropriate regulatory limit shall be determined for the number of hopping channels.



Test Data

Environmental Conditions

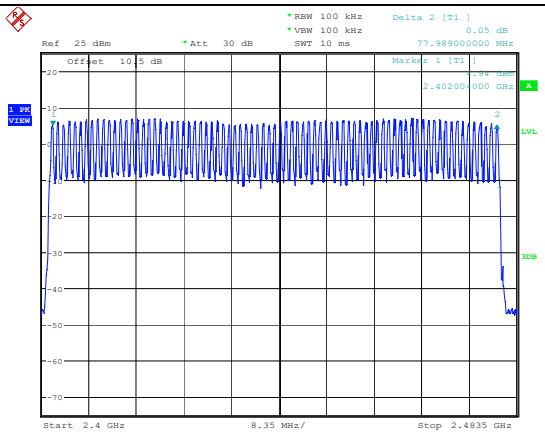
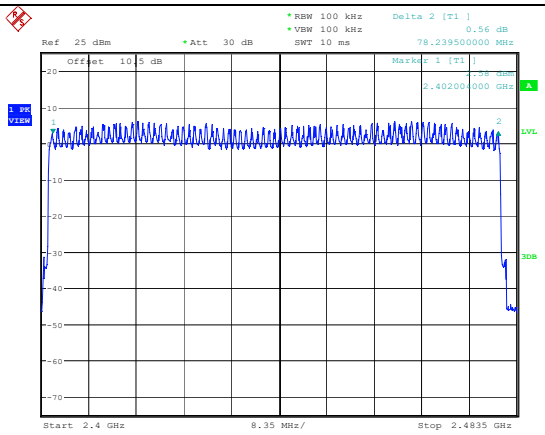
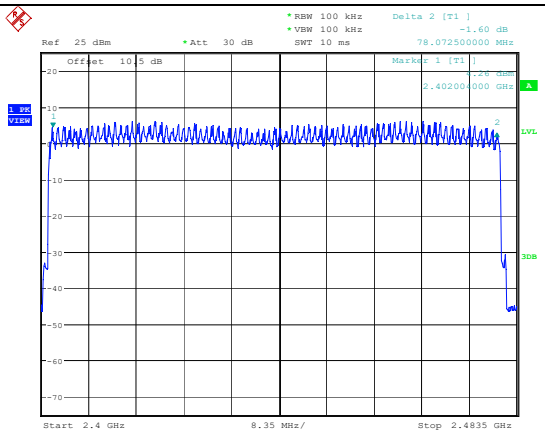
Temperature:	25~26 ℃
Relative Humidity:	46~47 %
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-05-16 to 2024-05-17.

EUT operation mode: Transmitting

Test Result: Compliant.

Test Modes	Frequency Range (MHz)	Number of Hopping Channel	Limits
GFSK	2400-2483.5	79	≥15
π/4-DQPSK	2400-2483.5	79	≥15
8DPSK	2400-2483.5	79	≥15

Hopping Channel	
GFSK	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:26:39
π/4-DQPSK	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:47:59
8DPSK	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:01:04

FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)

Applicable Standard

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.4

The EUT shall have its hopping function enabled. Use the following spectrum analyzer settings:

a) Span: Zero span, centered on a hopping channel.
b) RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel.
c) Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay so that the transmitted signal starts a little to the right of the start of the plot. The trigger level might need slight adjustment to prevent triggering when the system hops on an adjacent channel; a second plot might be needed with a longer sweep time to show two successive hops on a channel.
d) Detector function: Peak.
e) Trace: Max hold.

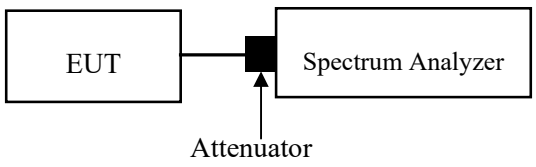
Use the marker-delta function to determine the transmit time per hop. If this value varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation in transmit time.

Repeat the measurement using a longer sweep time to determine the number of hops over the period specified in the requirements. The sweep time shall be equal to, or less than, the period specified in the requirements. Determine the number of hops over the sweep time and calculate the total number of hops in the period specified in the requirements, using the following equation:

(Number of hops in the period specified in the requirements) =(number of hops on spectrum analyzer) × (period specified in the requirements / analyzer sweep time)

The average time of occupancy is calculated from the transmit time per hop multiplied by the number of hops in the period specified in the requirements. If the number of hops in a specific time varies with different modes of operation (data rate, modulation format, number of hopping channels, etc.), then repeat this test for each variation.

The measured transmit time and time between hops shall be consistent with the values described in the operational description for the EUT.



Test Data

Environmental Conditions

Temperature:	25~26 ℃
Relative Humidity:	46~47 %
ATM Pressure:	101 kPa

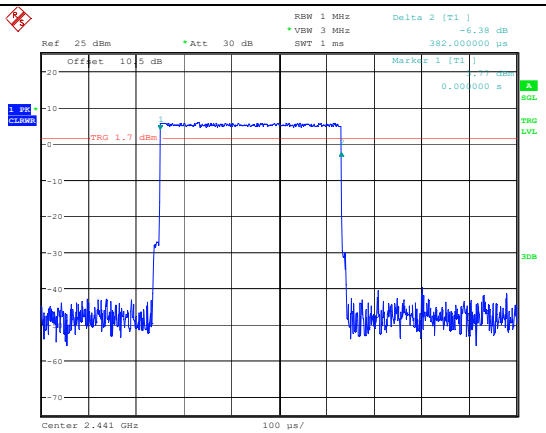
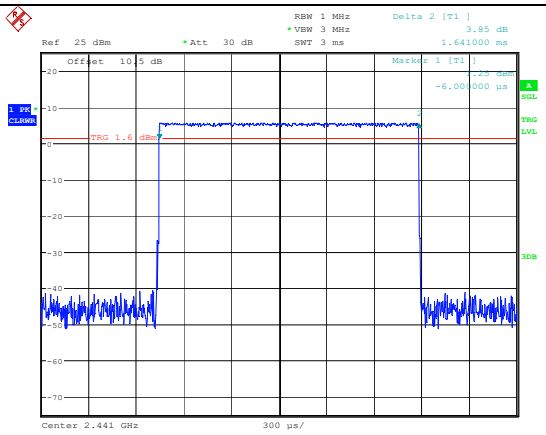
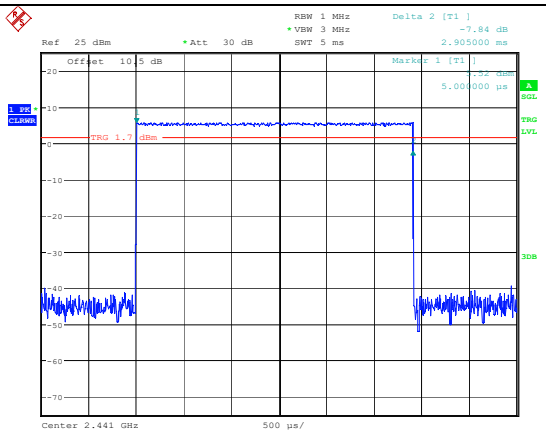
The testing was performed by Allen Bai from 2024-05-16 to 2024-05-17.

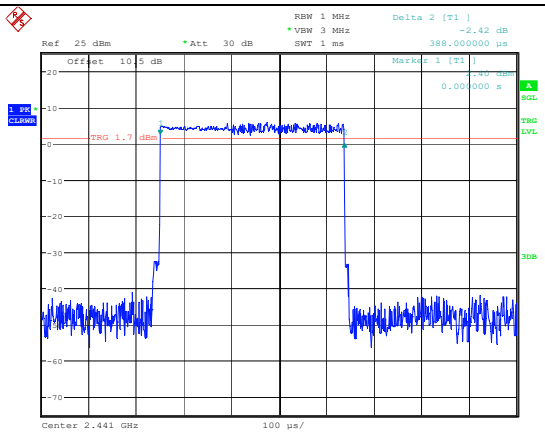
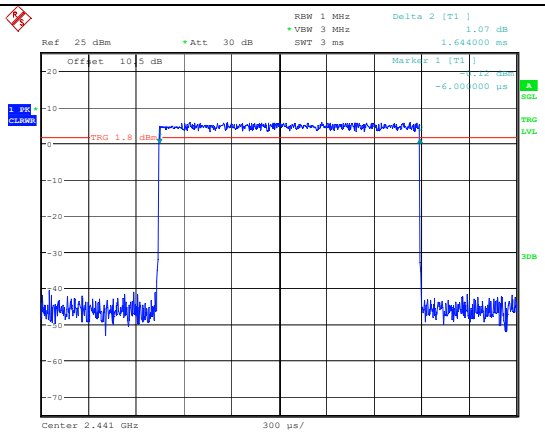
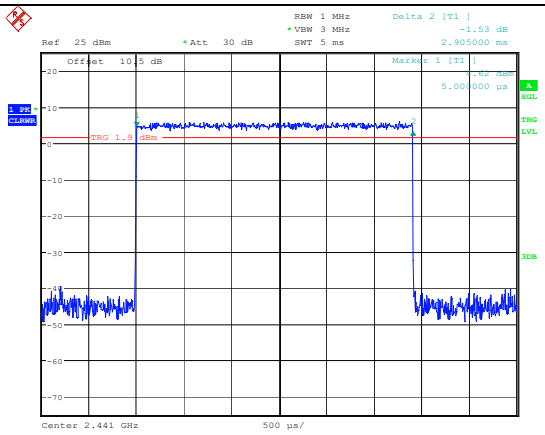
EUT operation mode: Transmitting

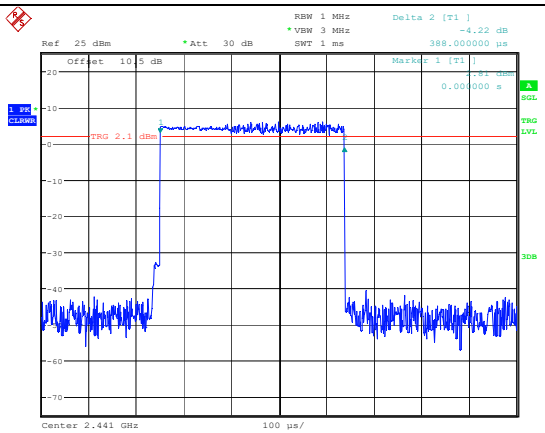
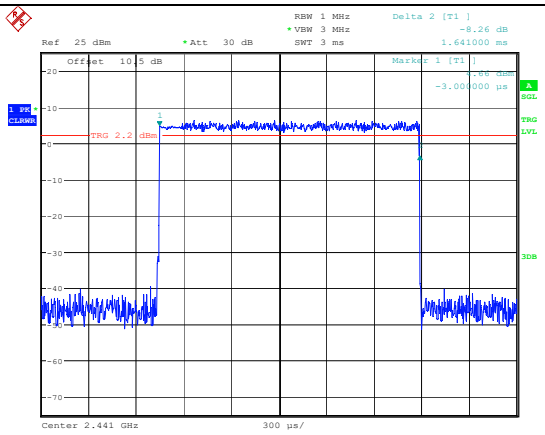
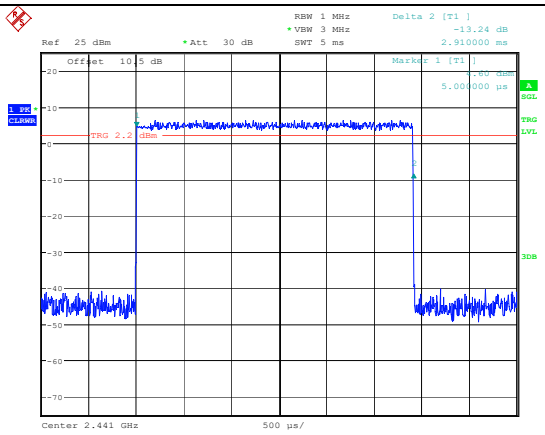
Test Result: Compliant.

Test Modes	Packet Type	Test Frequency (MHz)	Pulse width (ms)	Result (s)	Limit (s)
BDR Mode (GFSK)	DH1	2441	0.382	0.122	0.400
	DH3	2441	1.641	0.263	0.400
	DH5	2441	2.905	0.310	0.400
EDR Mode (π/4-DQPSK)	2DH1	2441	0.388	0.124	0.400
	2DH3	2441	1.644	0.263	0.400
	2DH5	2441	2.905	0.310	0.400
EDR Mode (8DPSK)	3DH1	2441	0.388	0.124	0.400
	3DH3	2441	1.641	0.263	0.400
	3DH5	2441	2.910	0.310	0.400

Note:
DH1/2DH1/3DH1:Dwell time=Pulse time (ms) × (1600/2/79) ×31.6 s
DH3/2DH3/3DH3:Dwell time=Pulse time (ms) × (1600/4/79) ×31.6 s
DH5/2DH5/3DH5:Dwell time=Pulse time (ms) × (1600/6/79) ×31.6 s

BDR Mode (GFSK)	
DH1	
DH3	
DH5	

EDR Mode (π/4-DQPSK)	
2DH1	
2DH3	
2DH5	

EDR Mode (8DPSK)	
3DH1	
3DH3	
3DH5	

FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. And for all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 7.8.5

This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. The hopping shall be disabled for this test:

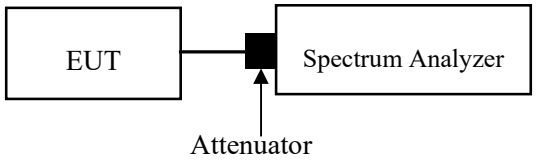
a) Use the following spectrum analyzer settings:

1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.
2) RBW > 20 dB bandwidth of the emission being measured.
3) VBW ≥ RBW.
4) Sweep: Auto.
5) Detector function: Peak.
6) Trace: Max hold.

b) Allow trace to stabilize.

c) Use the marker-to-peak function to set the marker to the peak of the emission.

d) The indicated level is the peak output power, after any corrections for external attenuators and cables.



Test Data

Environmental Conditions

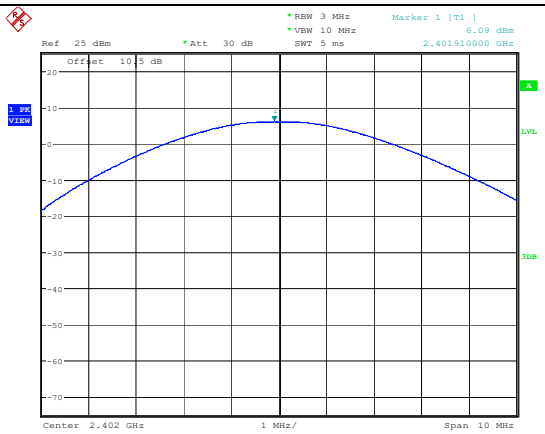
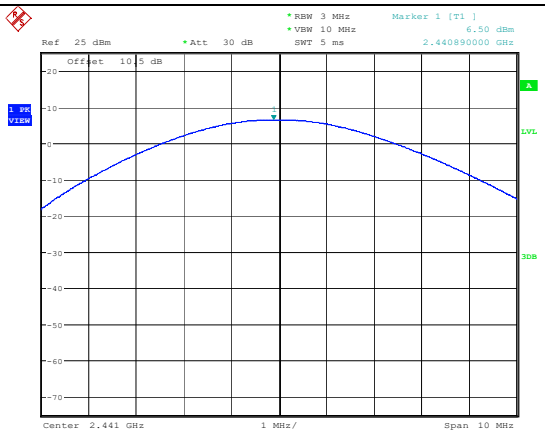
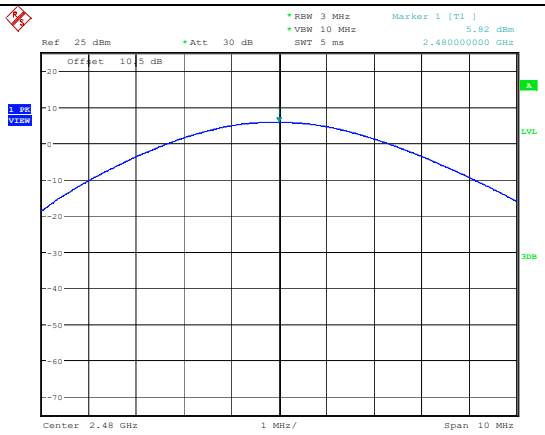
Temperature:	26 ℃
Relative Humidity:	46 %
ATM Pressure:	101 kPa

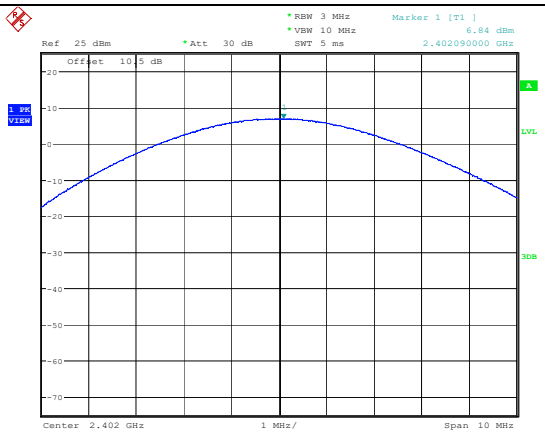
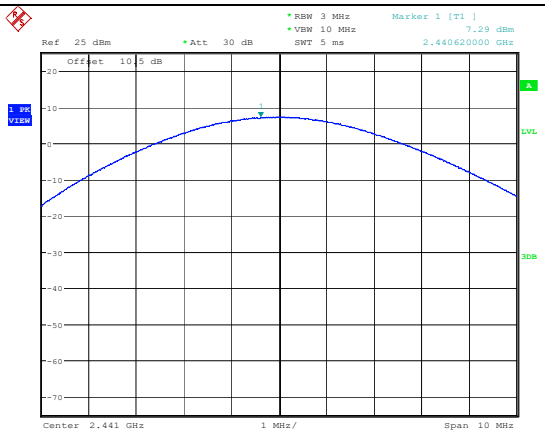
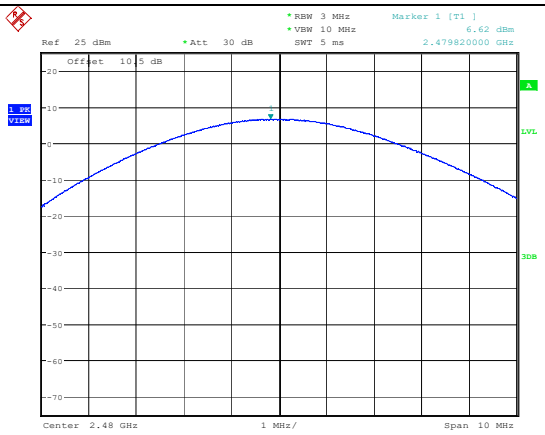
The testing was performed by Allen Bai on 2024-05-16.

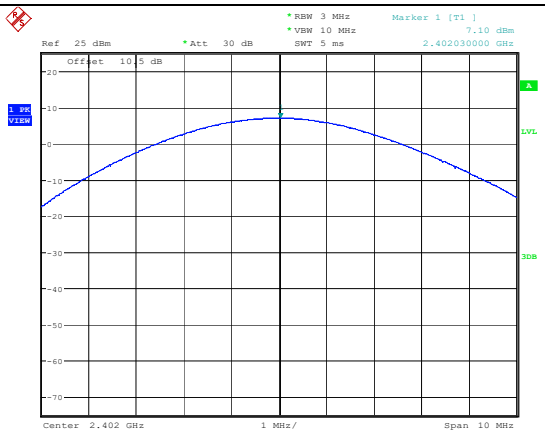
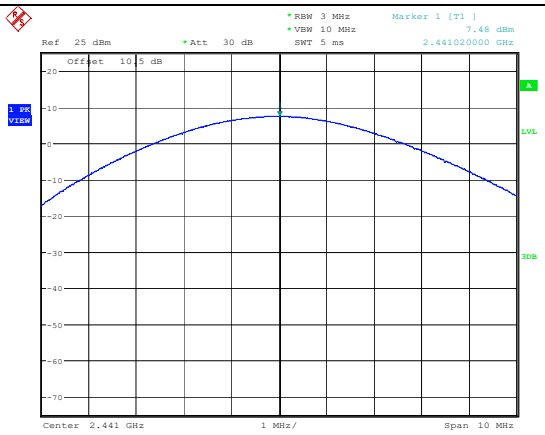
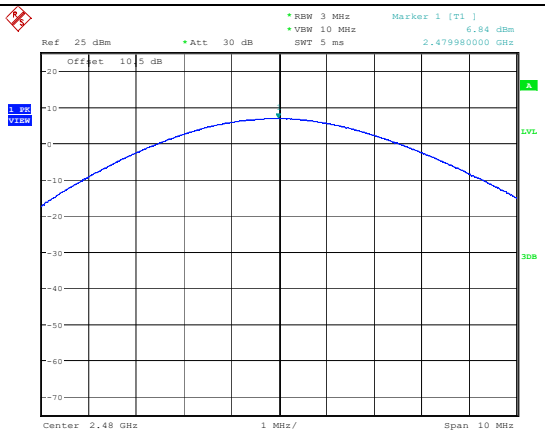
EUT operation mode: Transmitting

Test Result: Compliant.

Test Modes	Test Frequency (MHz)	Peak Conducted Output Power (dBm)	Limits (dBm)
BDR Mode (GFSK)	2402	6.09	21
	2441	6.50	21
	2480	5.82	21
EDR Mode (π/4-DQPSK)	2402	6.84	21
	2441	7.29	21
	2480	6.62	21
EDR Mode (8DPSK)	2402	7.10	21
	2441	7.48	21
	2480	6.84	21

BDR Mode (GFSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:56:41
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:40:54
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:09:16

EDR Mode (π/4-DQPSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:59:35
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:47:17
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:12:17

EDR Mode (8DPSK)	
Low Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:02:23
Middle Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:51:05
High Channel	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:14:42

FCC §15.247(d) § 5.5 - BAND EDGES TESTING

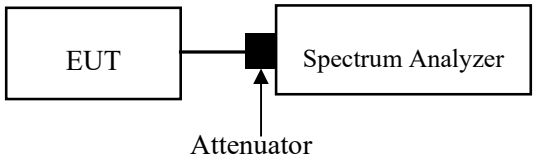
Applicable Standard

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 7.8.6 & Clause 6.10

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 100 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.



Test Data

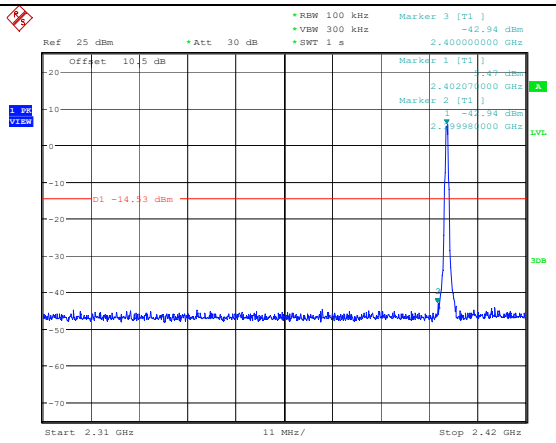
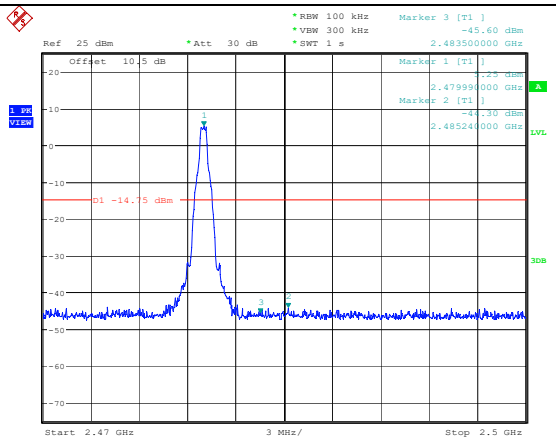
Environmental Conditions

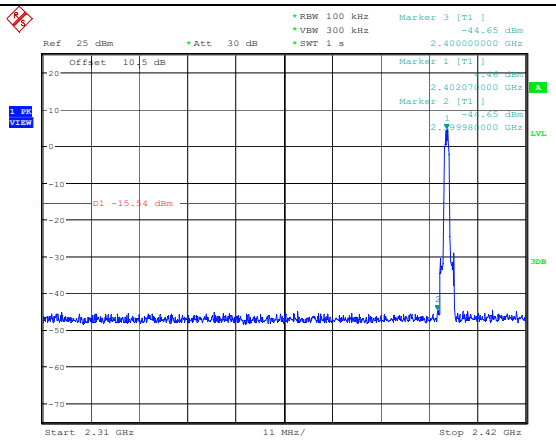
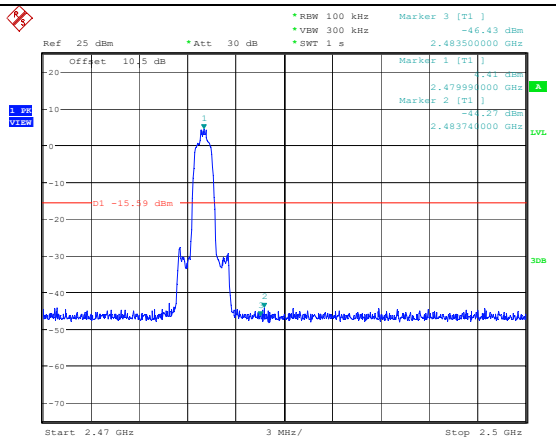
Temperature:	25~26 ℃
Relative Humidity:	46~47 %
ATM Pressure:	101 kPa

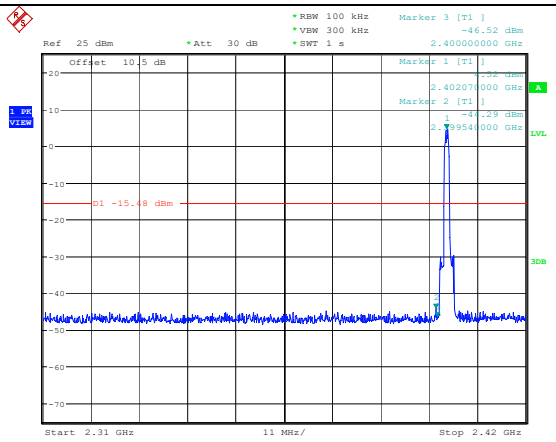
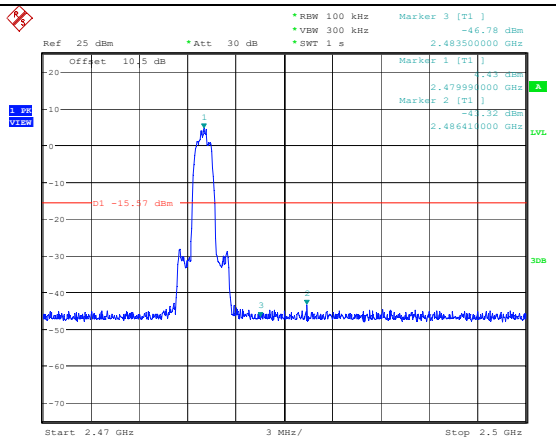
The testing was performed by Allen Bai from 2024-05-16 to 2024-05-17.

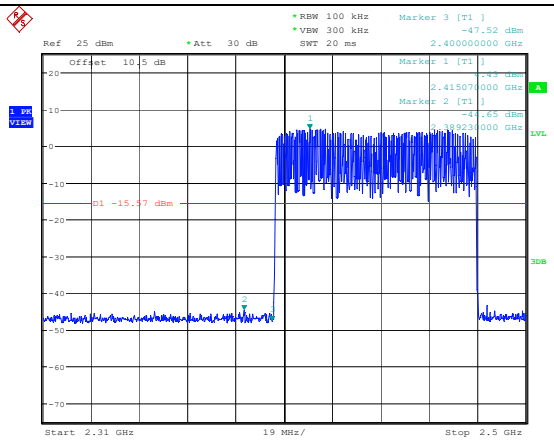
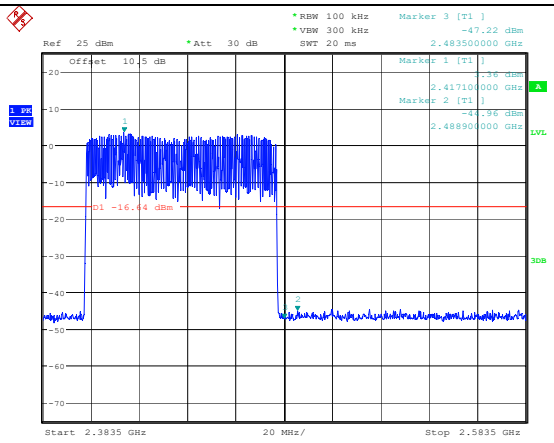
EUT operation mode: Transmitting

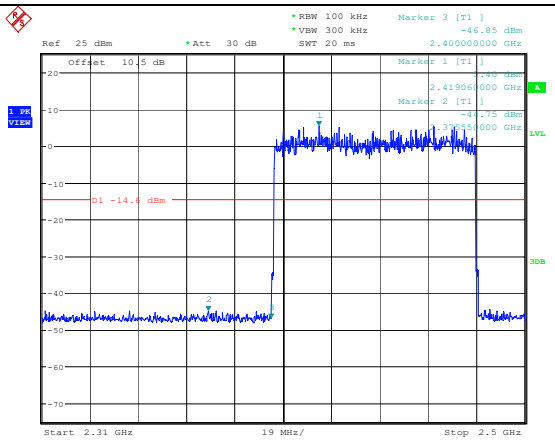
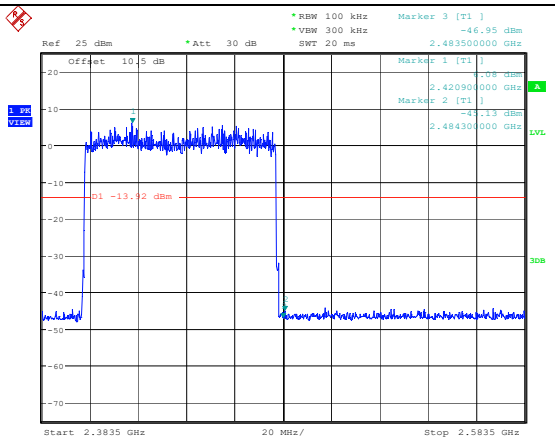
Test Result: Compliant.

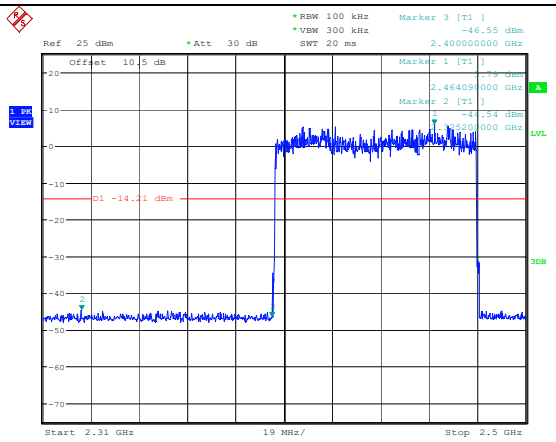
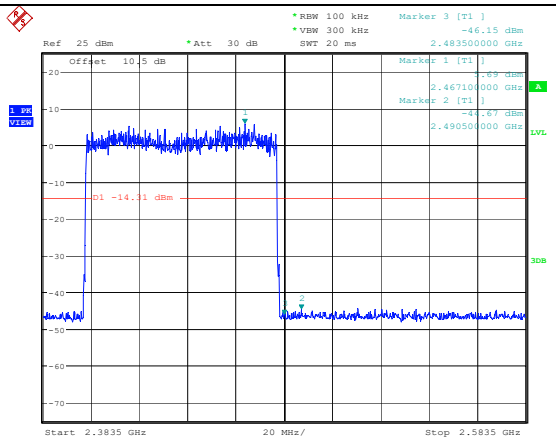
Band Edge, Single Channel	
BDR Mode (GFSK), Left Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 22:58:35
BDR Mode (GFSK), Right Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:11:03

Band Edge, Single Channel	
EDR Mode (π/4-DQPSK), Left Side	
EDR Mode (π/4-DQPSK), Right Side	

Band Edge, Single Channel	
EDR Mode (8DPSK), Left Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:05:51
EDR Mode (8DPSK), Right Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 16.MAY.2024 23:16:14

Band Edge, Hopping Channel	
BDR Mode (GFSK), Left Side	
BDR Mode (GFSK), Right Side	

Band Edge, Hopping Channel	
EDR Mode (π/4-DQPSK), Left Side	
EDR Mode (π/4-DQPSK), Right Side	

Band Edge, Hopping Channel	
EDR Mode (8DPSK), Left Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:03:12
EDR Mode (8DPSK), Right Side	 ProjectNo.:2401S34482E-RF Tester:Allen Bai Date: 17.MAY.2024 00:06:12

EUT PHOTOGRAPHS

Please refer to the attachment 2401S34482E-RF External photo and 2401S34482E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401S34482E-RFE Test Setup photo.

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