FCC PART 15.247
TEST REPORT

For

Guangzhou Munbyn Information Technology Co, Ltd.

329 3rd Floor, Tairong Business Center, No. 63 Xizeng Road, Liwan District, Guangzhou, China.

FCC ID: 2A5LY-ITP02

Report Type:	**Product Name:**
Original Report	Portable thermal printer

Report Number:	2407T42038E-RF-02
Report Date:	2024-08-27
Reviewed By:	Stein Peng
Approves By:	Miles Chen
Prepared By:	Bay Area Compliance Laboratories Corp. (Xiamen) Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen Tel: +86-592-3200111 www.baclcorp.com.cn

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	2407T42038E-RF-02	R1V1	2024-08-27	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product Name:	Portable thermal printer
Tested Model:	ITP02
Multiple Model(s):	ITP03, ITP06, ITP07
Power Supply:	DC 5V from USB port or 7.4V from battery
Maximum Output Power:	GFSK:-2.11 dBm π/4-DQPSK:-2.01 dBm
RF Function:	Classic BT
Operating Band/Frequency:	2402-2480 MHz
Channel Number:	79
Channel Separation:	1 MHz
Modulation Type:	GFSK, π/4-DQPSK
Antenna Type:	Built-in ceramic antenna
★Maximum Antenna Gain:	1.36 dBi
EUT Received Status	Good

Note:
1. The Maximum Antenna Gain was declared by manufacturer.
2. The model difference are model name and sale channels, the rest are the same.
2. All measurement and test data in this report was gathered from production sample serial number: 2KXQ-1 (Assigned by the BACL(Xiamen). The EUT supplied by the applicant was received on 2024-05-07)

Objective

This test report is prepared for *Guangzhou Munbyn Information Technology Co, Ltd.* in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commissions rules.

The tests were performed in order to determine Compliance with FCC Part 15, Subpart C, 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 C63.10-2020, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and 558074 D01 15.247 Meas Guidance v05r02.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Xiamen) to collect test data is located on the Unit 102, No. 902 Meifeng South Road, Binhai West Avenue, Science and Technology Innovation Park, Torch High tech Zone XiaMen.

Bay Area Compliance Laboratories Corp. (Xiamen) Lab is accredited to ISO/IEC 17025 by A2LA (Certificate Number: 7134.01) and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN1384.

Measurement Uncertainty

Item		U_{lab}
Radiated Emission	9kHz-30MHz	2.59 dB
	30MHz~200MHz	4.38dB
	200MHz~1GHz	4.50dB
	1GHz~6GHz	4.58 dB
	6GHz-18GHz	5.43 dB
	18GHz~26.5GHz	5.47 dB
AC Power Lines Conducted Emissions	150kHz-30MHz	2.33 dB
Occupied Channel Bandwidth		±0.10MHz
Transmitter Conducted Power(Conducted RF power)		±0.624 dB
Conducted Spurious Emission		±2.52 dB
Power Spectral Density		±0.61dB
Duty Cycle		1%
Temperature		±1℃
Humidity		±5%
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.

SYSTEM TEST CONFIGURATION

Test Mode and Voltage

The system was configured for testing in a typical mode (as normally used by a typical user).	
Test mode:	Test mode 1: Transmitting
Test voltage:	Test mode 1: DC 7.4V from battery or DC 5V from USB port
Remark:	During all emission tests, the EUT was configured to measure its highest possible emission level and the worst case's test data was presented in this test report.

Description of Test Configuration

Channel list:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	40	2442
1	2403	…	…
…	…	…	…
…	…	78	2480
39	2441	/	/

EUT was tested with Channel 0, 39 and 78.

★EUT Exercise Software

RF Test Tool: BR BlueletSuite_v5.14.exe

★Power level: 7

Note: The power level was declared by the applicant.

Special Accessories

No special accessory.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

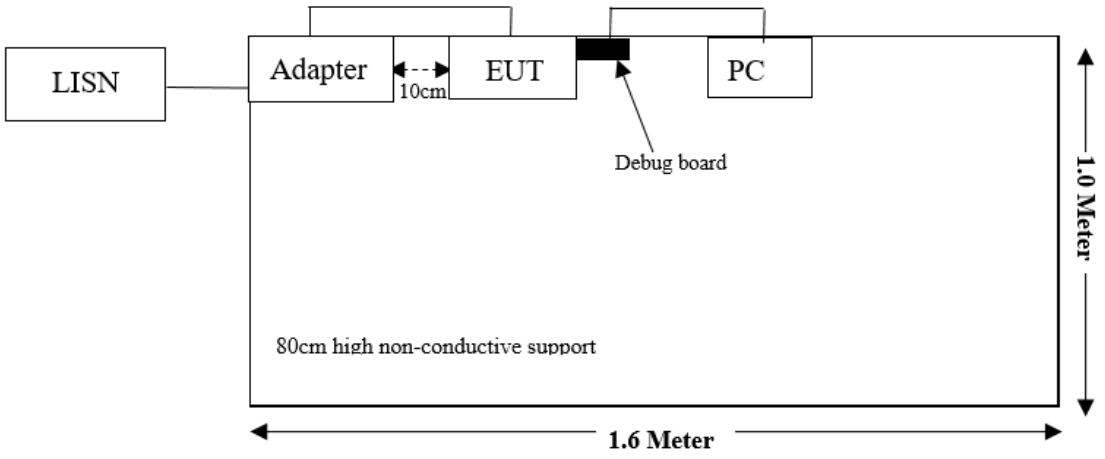
Manufacturer	Description	Model	Serial Number
Lenovo	Lenovo 14w Gen 2	Lenovo 14w Gen 2	PW01PJ6E
HONOTO	Adapter	ADS-12EA-05 05010E	0523
RISYM	Debug board	CH340G	/

External I/O Cable

Cable Description	Length (m)	From Port	To
USB Cable	1.0	PC	Debug board
Adapter Cable	0.5	Adapter	EUT

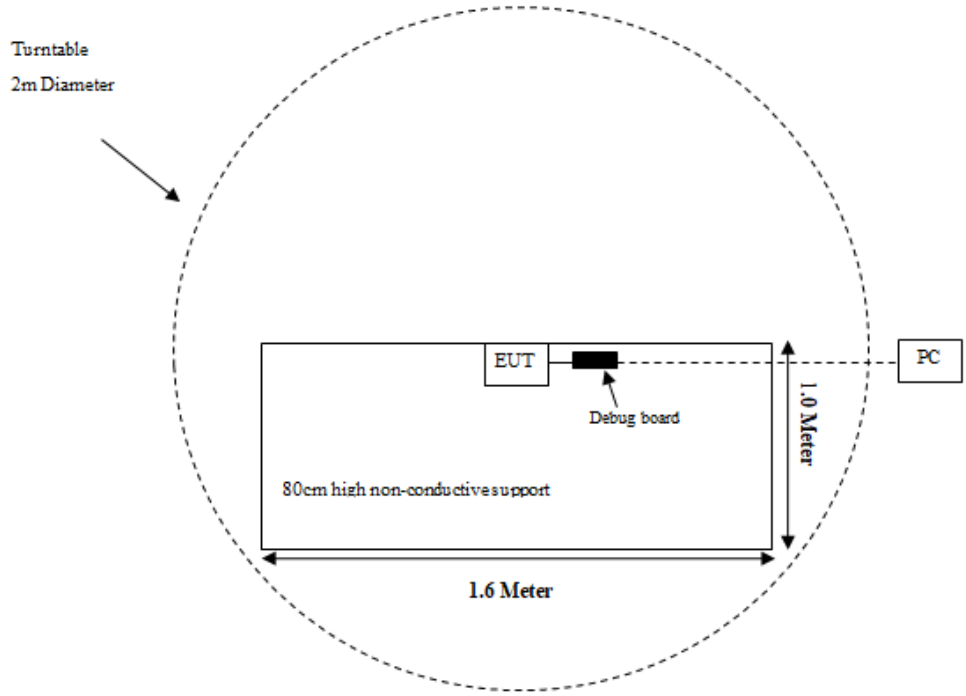
Block Diagram of Test Setup

Conducted Emission:

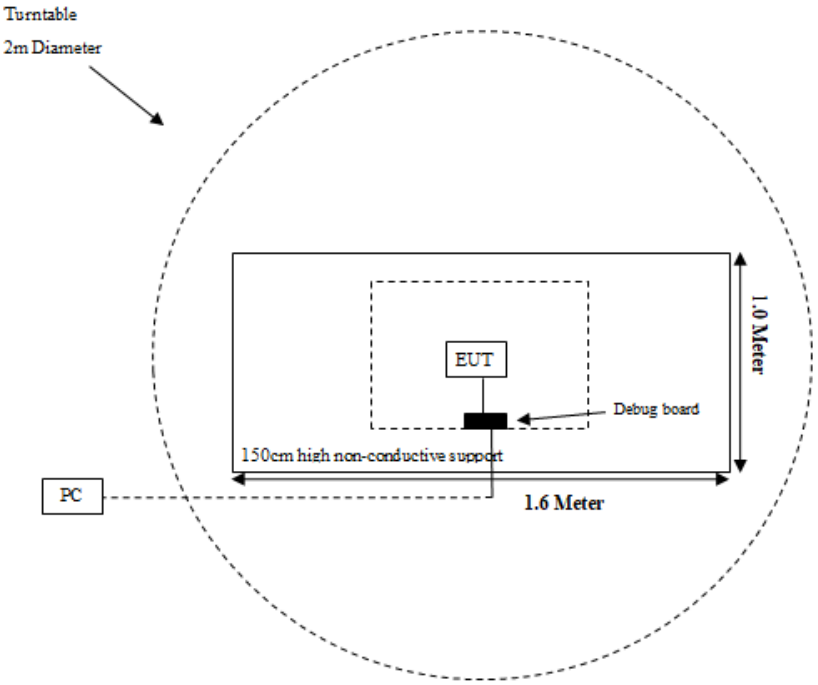


Radiated Emission：

Below 1GHz



Above 1GHz:



SUMMARY OF TEST RESULTS

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

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted Emission Test					
EMI Test Receiver	Rohde & Schwarz	ESR	103105	2023/09/12	2024/09/11
LISN	Rohde & Schwarz	ENV216	100129	2023/09/12	2024/09/11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	0357.8810.54	2023/09/12	2024/09/11
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC001	2023/08/29	2024/08/28
Test Software	Audix	E3	18621a	N/A	N/A
Radiated Emission Test Below 1GHz					
EMI Test Receiver	Rohde & Schwarz	ESR	103103	2023/09/12	2024/09/11
Antenna	Sunol Sciences	JB6	A122022-5	2023/07/27	2026/07/26
Loop Antenna	Rohde & Schwarz	HFH2-Z2	830749/001	2023/07/27	2026/07/26
Amplifier	Sonoma	310B	120903	2023/09/12	2024/09/11
Coaxial Cable	XINHANGWEIBO	XH400T-N-4M	CC002	2023/08/29	2024/08/28
Coaxial Cable	XINHANGWEIBO	XH460B-N-2M	CC006	2023/08/29	2024/08/28
Coaxial Cable	XINHANGWEIBO	XH460B-N-12M	CC007	2023/08/29	2024/08/28
Coaxial Cable	XINHANGWEIBO	HFH2-CC	335.3609	2023/09/20	2024/09/19
Test Software	Audix	E3	18621a	N/A	N/A
Radiated Emission Above 1 GHz					
Spectrum Analyzer	Rohde & Schwarz	FSV40-N	102051	2023/09/12	2024/09/11
Double Ridge Guide Horn Antenna	A.H.Systems	SAS-571	1980	2023/07/28	2026/07/27
Filter Switch Unit	Decentest	DT7220FSU	DS79904	2024/02/23	2025/02/22
Multiplex Switch Test Control Set	Decentest	DT7220SCU	DS79901	2024/02/23	2025/02/22
Horn Antenna	EMCO	3116	9407-2232	2023/07/31	2026/07/30
Preamplifier	A.H.Systems	PAM-0118P	489	2023/09/12	2024/09/11
Preamplifier	A.H.Systems	PAM-1840	200	2023/09/12	2024/09/11
Coaxial Cable	XINHANGWEIBO	XH800A-N-6M	CC004	2023/08/29	2024/08/28
Coaxial Cable	XINHANGWEIBO	XH800A-N-1M	CC005	2023/08/29	2024/08/28
Test Software	Audix	E3	18621a	N/A	N/A
RF Conducted Test					
Spectrum Analyzer	Rohde & Schwarz	FSU	100405	2023/09/12	2024/09/11
Coaxial Cable	N/A	N/A	N/A	Each time	N/A

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

FCC §15.203 – 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. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.
And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Antenna Connector Construction

The EUT has one Built-in ceramic antenna for Bluetooth, which was permanently attached and the antenna gain is 1.36dBi, fulfill the requirement of this section. Please refer to the EUT photos.

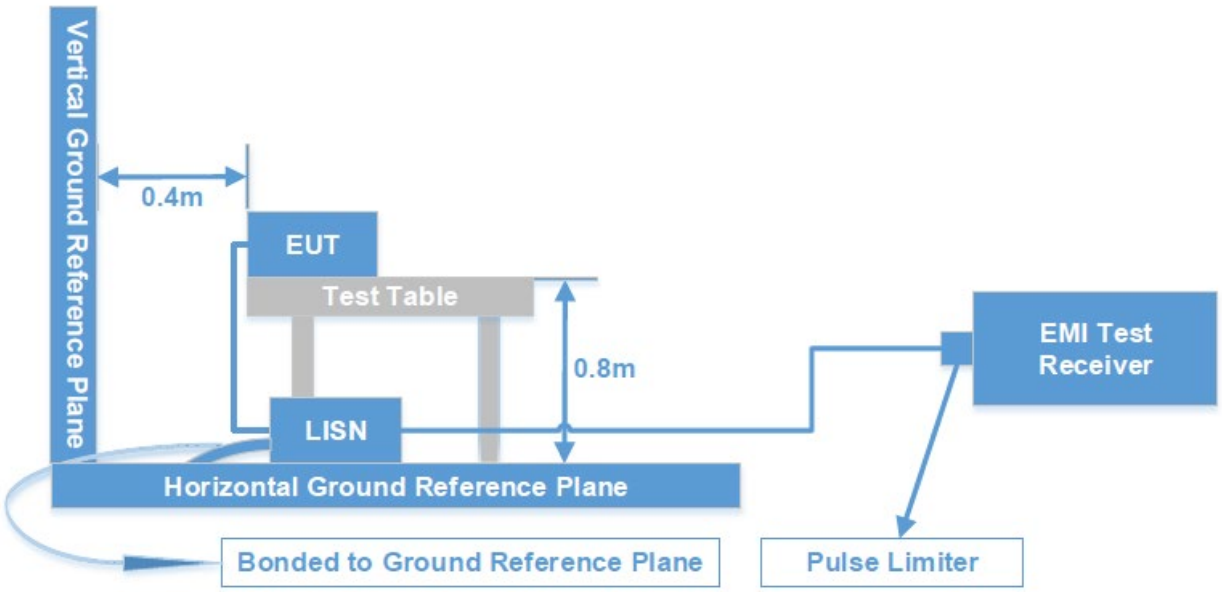
Result: Compliance

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2020. The related limit was specified in FCC Part 15.207.

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	RBW	VBW	Detector
150 kHz – 30 MHz	9 kHz	30 kHz	QP/AV

Test Procedure

ANSI C63.10-2020 clause 6.2

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.

If the maximum peak value of the emissions is below the average limit, the QP value and average value measurement will not need to be performed and only record the maximum peak measured value to meet the requirements.

Level &Margin Calculation

The Level is calculated by adding LISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation from the Meter Reading. The basic equation is as follows:

Factor (dB) = LISN VDF (dB) + Cable Loss (dB) + Transient Limiter Attenuation (dB)
Level (dBμV) = Reading (dBμV) + Factor (dB)

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

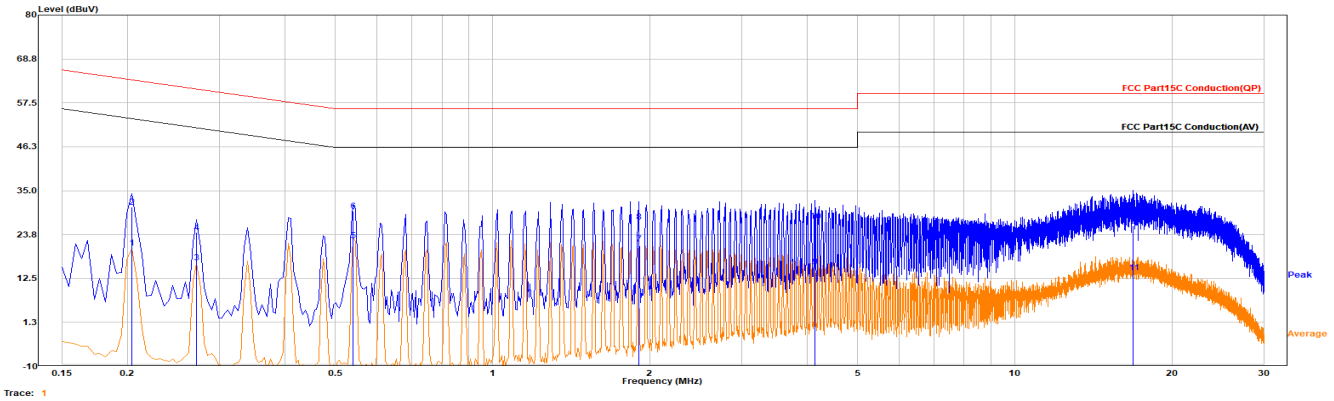
Margin (dB) = Limit (dBμV) – Level (dBμV)

Test Data

EUT operation mode: Transmitting in the high channel of EDR (π/4- DQPSK) mode (worst case)

Date: 2024-05-18

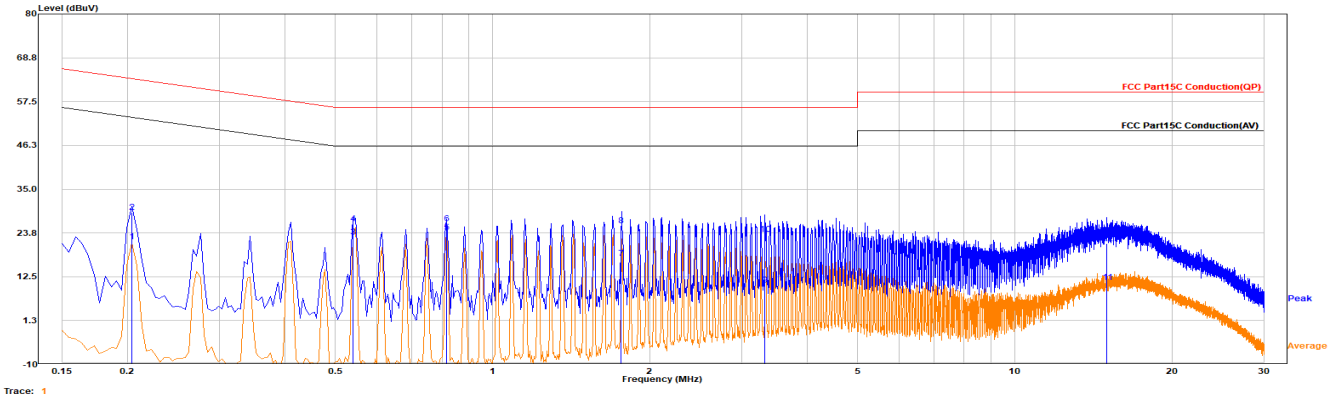
Project No.: 2407T42038E-RF Temp/Humi: 24.8°C/59%
Test Mode: BT 2480MHz Transmit Tested by: Ash Lin



Freq	Reading	Factor	Level	Limit	Margin	Phase	Remark
MHz	dBuV	dB	dBuV	dBµV	dB		
0.204	10.66	9.65	20.31	53.45	33.14	Line	Average
0.204	21.19	9.65	30.84	63.45	32.61	Line	QP
0.271	6.84	9.67	16.51	51.07	34.56	Line	Average
0.271	14.60	9.67	24.27	61.07	36.80	Line	QP
0.541	12.50	9.71	22.21	46.00	23.79	Line	Average
0.541	19.99	9.71	29.70	56.00	26.30	Line	QP
1.905	11.61	9.71	21.32	46.00	24.68	Line	Average
1.905	17.29	9.71	27.00	56.00	29.00	Line	QP
4.150	5.88	9.66	15.54	46.00	30.46	Line	Average
4.150	17.51	9.66	27.17	56.00	28.83	Line	QP
16.866	4.23	9.83	14.06	50.00	35.94	Line	Average
16.866	16.13	9.83	25.96	60.00	34.04	Line	QP

Date: 2024-05-18

Project No. : 2407T42038E-RF Temp/Humi: 24.8°C/59%
Test Mode: BT 2480MHz Transmit Tested by: Ash Lin



Freq	Reading	Factor	Level	Limit	Margin	Phase	Remark
MHz	dBuV	dB	dBuV	dBµV	dB		
0.204	11.93	9.62	21.55	53.45	31.90	Neutral	Average
0.204	19.49	9.62	29.11	63.45	34.34	Neutral	QP
0.541	13.00	9.72	22.72	46.00	23.28	Neutral	Average
0.541	16.50	9.72	26.22	56.00	29.78	Neutral	QP
0.816	14.31	9.69	24.00	46.00	22.00	Neutral	Average
0.816	16.41	9.69	26.10	56.00	29.90	Neutral	QP
1.765	7.51	9.76	17.27	46.00	28.73	Neutral	Average
1.765	15.91	9.76	25.67	56.00	30.33	Neutral	QP
3.327	0.64	9.68	10.32	46.00	35.68	Neutral	Average
3.327	13.72	9.68	23.40	56.00	32.60	Neutral	QP
15.012	1.22	9.87	11.09	50.00	38.91	Neutral	Average
15.012	11.09	9.87	20.96	60.00	39.04	Neutral	QP

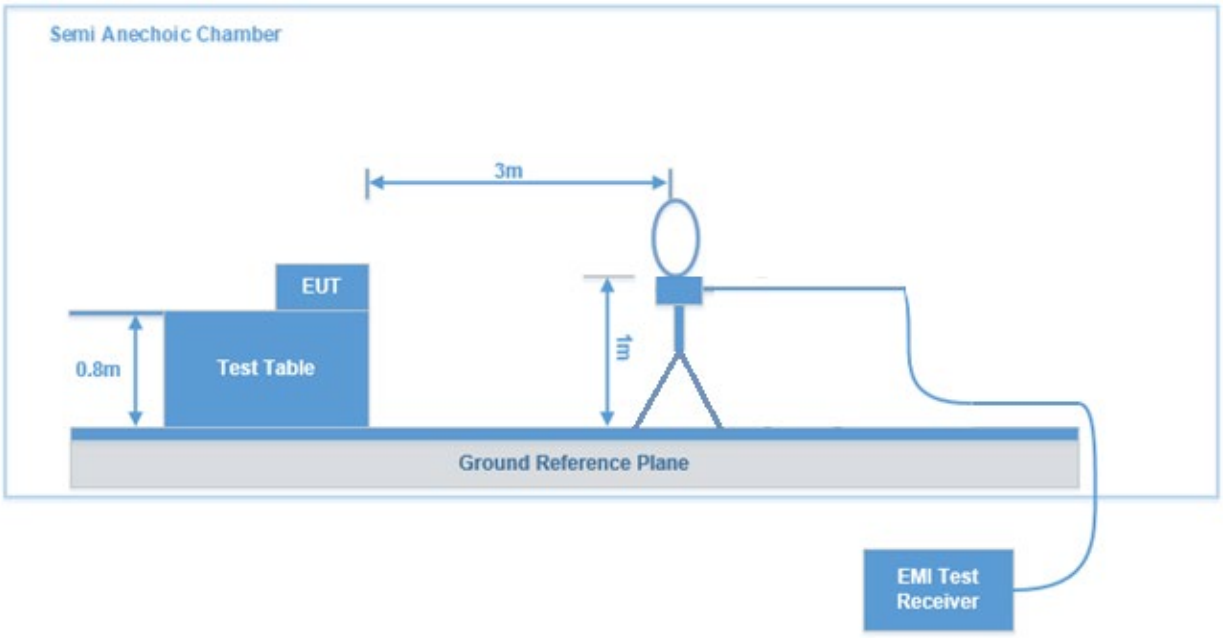
FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS

Applicable Standard

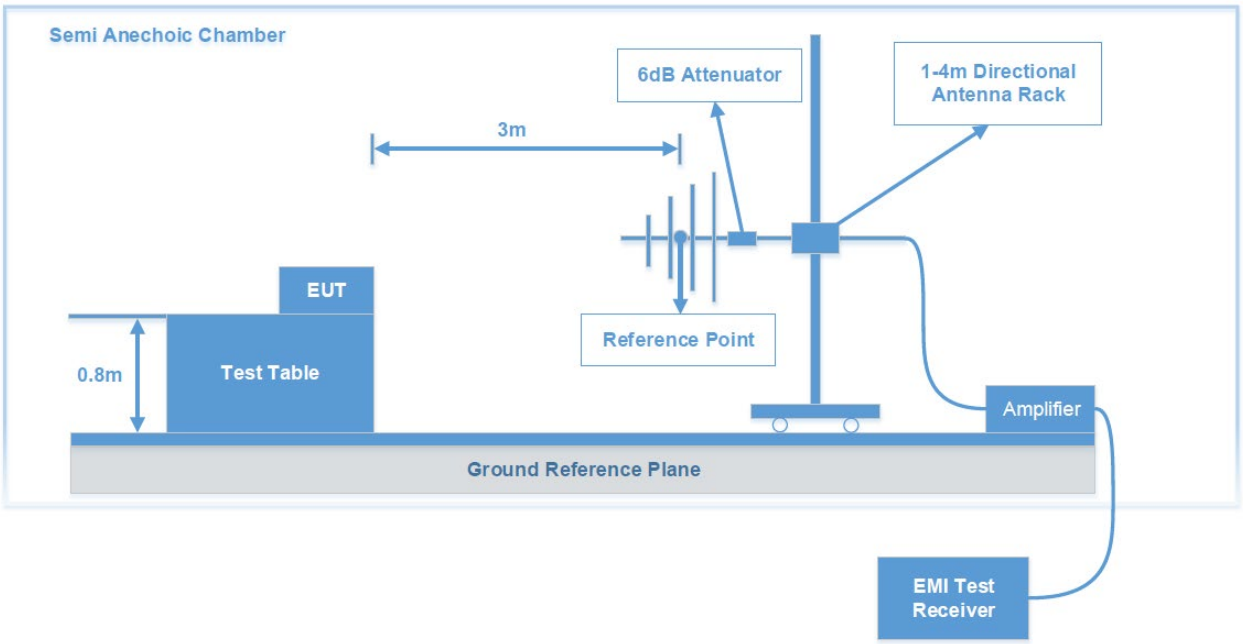
FCC §15.205; §15.209; §15.247(d)

Test System Setup

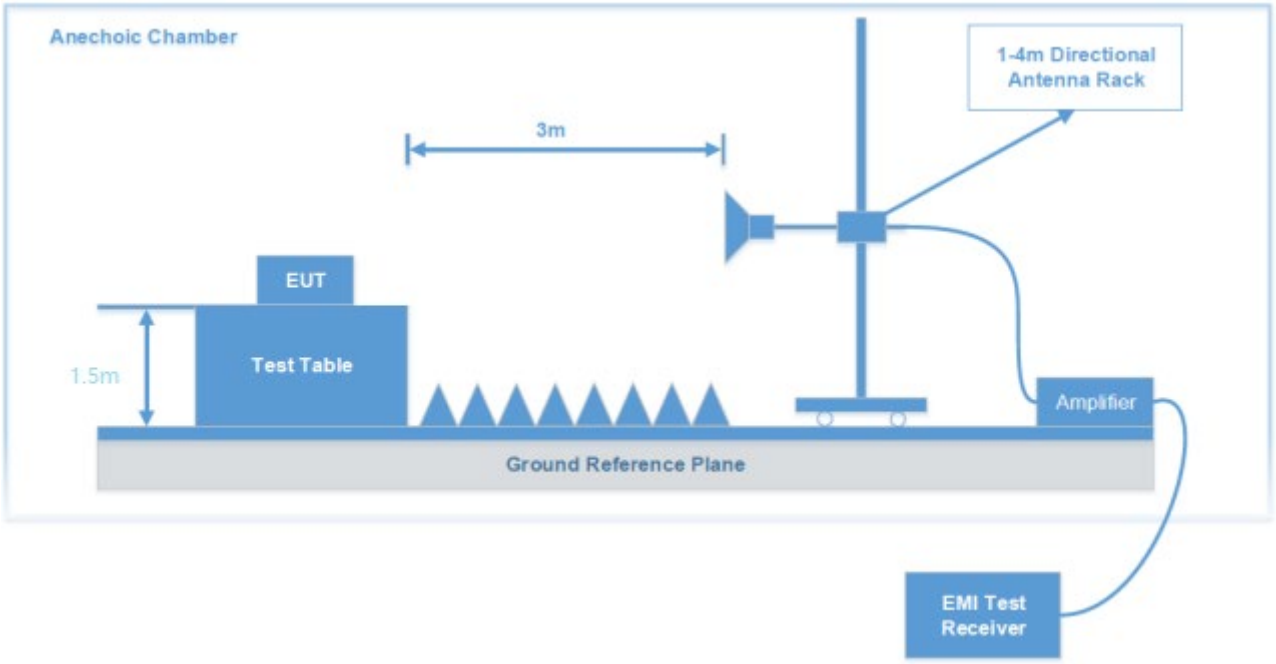
9 kHz-30MHz



Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters, using the setup accordance with the ANSI C63.10-2020. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 25 GHz.

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

Frequency Range	RBW	VBW	IF B/W	Measurement
9 kHz – 150 kHz	200Hz	1 kHz	/	PK
	/	/	200Hz	QP/AV
150 kHz – 30 MHz	10 kHz	30 kHz	/	PK
	/	/	9kHz	QP/AV
30 MHz – 1000 MHz	100 kHz	300 kHz	/	PK
	/	/	120kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	PK
	1 MHz	/	10Hz	AV

Test Procedure

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

For each measurement antenna alignment, the EUT shall be rotated through 0° to 360° on a turntable. 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, then the following statement shall be made: "all emissions were greater than 20 dB below the limit."

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 10 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

Level &Margin Calculation

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

Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)
Level (dBμV/m) = Reading (dBμV) + Factor (dB/m)

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

Margin (dB) = Limit (dBμV/m) –Level (dBμV/m)

Test Data

Please refer to the below table and plots.

Frequency Range:	Below 1 GHz	Above 1 GHz
Temperature:	24℃	21.3℃~23.1℃
Relative Humidity:	53 %	51%~53%
ATM Pressure:	101 kPa	100.1 kPa~101.1 kPa
Test Date:	2024-05-16	2024-08-06~2024-08-27
Test Engineer:	Stein Peng	Wlif Wu

After pre-scan in the X, Y and Z axes of orientation, the worst case is below:

1) 9 kHz ~30MHz

EUT operation mode: Transmitting in BDR high channel (worst case)

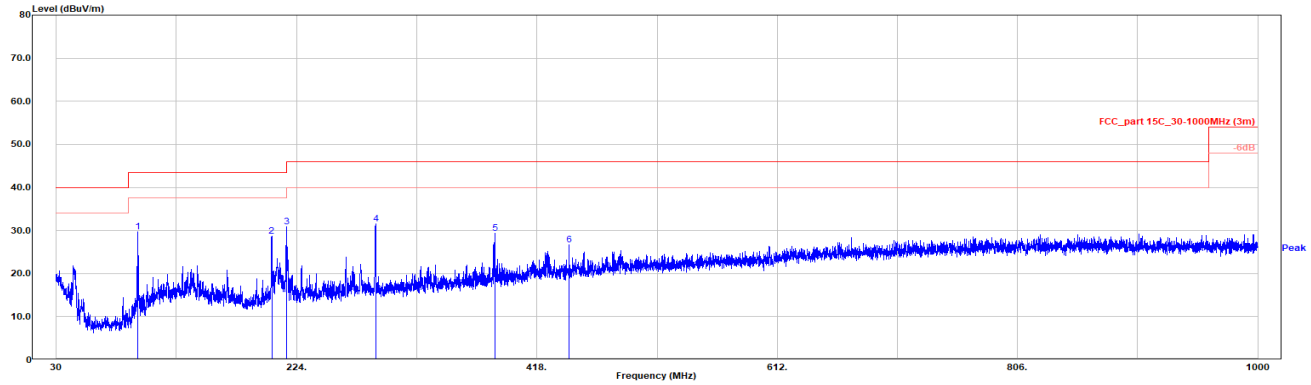
Pre-scan in parallel, ground-parallel and perpendicular of orientation of loop antenna, the amplitude of spurious emissions attenuated is more than 20 dB below the permissible value, which is not required to be report.

2) 30MHz-1GHz

EUT operation mode: Transmitting in the high channel of BDR(GFSK) mode (worst case)

Date: 2024-05-16

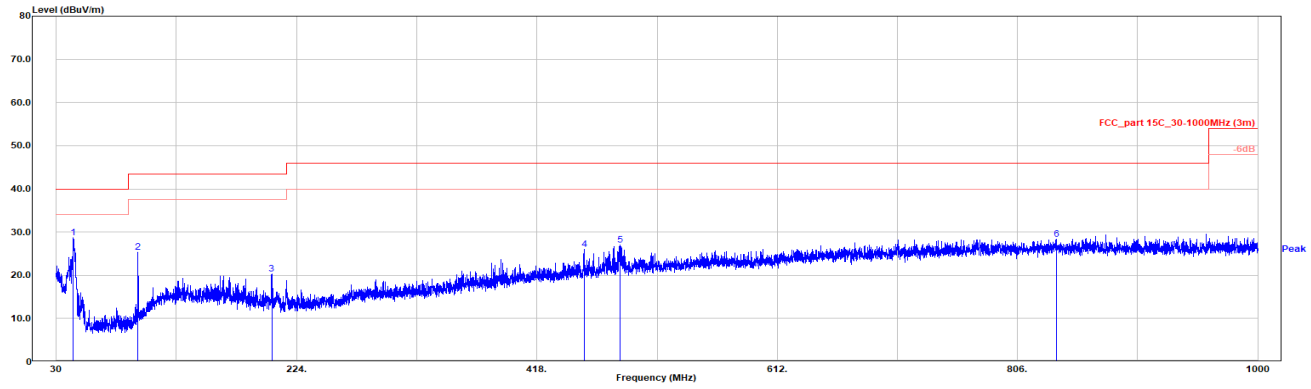
Project No.: 2407T42038E-RF Temp/Humi: 24.0℃/53%
Test Mode: Transmit Tested by: Stein Peng



Freq	Reading	Factor	Level	Limit	Margin	Pol	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
95.669	45.87	-16.19	29.68	43.50	13.82	Horizontal	Peak
203.921	40.62	-11.99	28.63	43.50	14.87	Horizontal	Peak
216.046	43.49	-12.68	30.81	46.00	15.19	Horizontal	Peak
288.020	40.81	-9.25	31.55	46.00	14.45	Horizontal	Peak
384.050	36.32	-6.93	29.39	46.00	16.61	Horizontal	Peak
443.899	31.60	-4.97	26.63	46.00	19.37	Horizontal	Peak

Date: 2024-05-16

Project No.: 2407T42038E-RF Temp/Humi: 24.0℃/53%
Test Mode: Transmit Tested by: Stein Peng

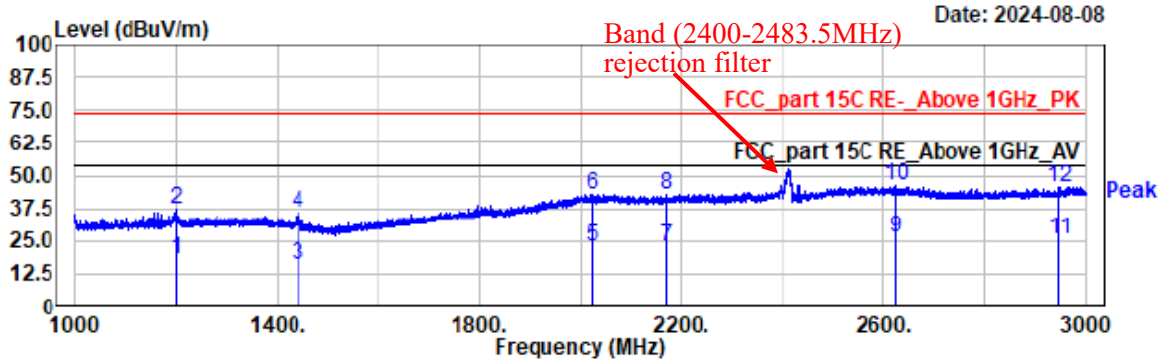


Freq	Reading	Factor	Level	Limit	Margin	Pol	Remark
MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		
43.871	43.14	-14.50	28.63	40.00	11.37	Vertical	Peak
95.960	41.48	-16.13	25.35	43.50	18.15	Vertical	Peak
203.921	32.28	-11.99	20.28	43.50	23.22	Vertical	Peak
456.121	30.66	-4.69	25.97	46.00	20.03	Vertical	Peak
485.415	30.54	-3.60	26.93	46.00	19.07	Vertical	Peak
837.234	26.52	1.79	28.31	46.00	17.69	Vertical	Peak

3) 1 GHz-3 GHz

Project No.: 2407T42038E-RF
Test Mode: BT DH1 2402
EUT Model: ITP02
Test distance: 3m

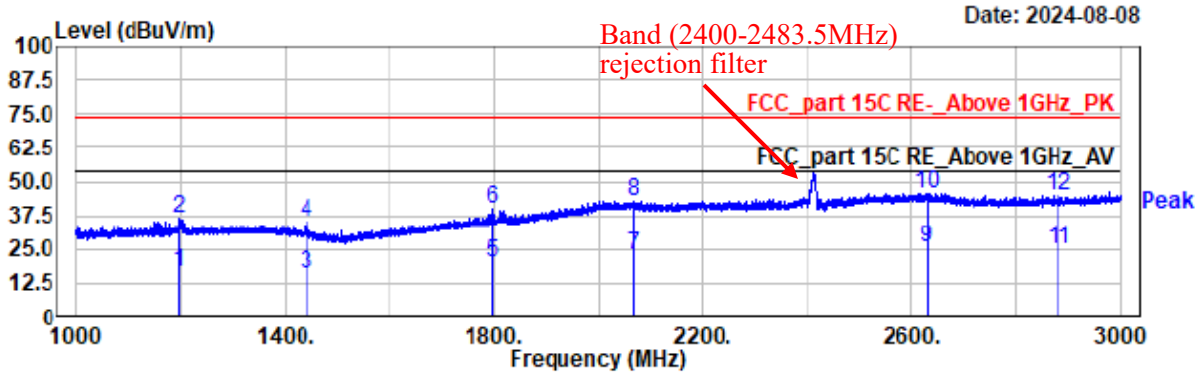
Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1199.40	34.02	-16.05	17.97	54.00	36.03	horizontal	Average
1199.40	53.46	-16.05	37.41	74.00	36.59	horizontal	Peak
1440.00	32.80	-16.84	15.96	54.00	38.04	horizontal	Average
1440.00	52.45	-16.84	35.61	74.00	38.39	horizontal	Peak
2024.20	29.04	-6.37	22.67	54.00	31.33	horizontal	Average
2024.20	49.00	-6.37	42.63	74.00	31.37	horizontal	Peak
2170.00	29.46	-6.54	22.92	54.00	31.08	horizontal	Average
2170.00	49.45	-6.54	42.91	74.00	31.09	horizontal	Peak
2623.40	29.22	-3.34	25.88	54.00	28.12	horizontal	Average
2623.40	49.21	-3.34	45.87	74.00	28.13	horizontal	Peak
2948.00	29.91	-4.22	25.69	54.00	28.31	horizontal	Average
2948.00	49.87	-4.22	45.65	74.00	28.35	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: BT DH1 2402
EUT Model: ITP02
Test distance: 3m

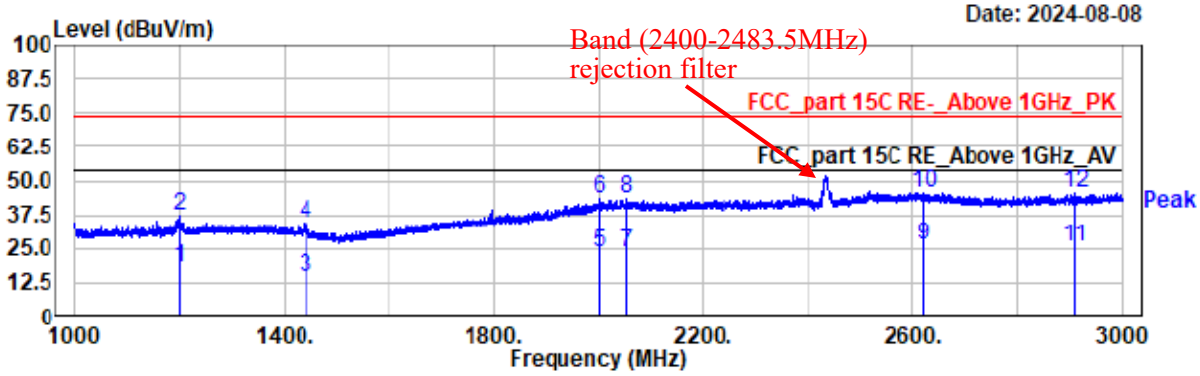
Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1197.40	32.42	-16.07	16.35	54.00	37.65	vertical	Average
1197.40	52.80	-16.07	36.73	74.00	37.27	vertical	Peak
1440.20	32.73	-16.84	15.89	54.00	38.11	vertical	Average
1440.20	52.19	-16.84	35.35	74.00	38.65	vertical	Peak
1797.40	31.62	-11.63	19.99	54.00	34.01	vertical	Average
1797.40	51.55	-11.63	39.92	74.00	34.08	vertical	Peak
2066.00	28.93	-6.23	22.70	54.00	31.30	vertical	Average
2066.00	48.90	-6.23	42.67	74.00	31.33	vertical	Peak
2630.20	29.04	-3.34	25.70	54.00	28.30	vertical	Average
2630.20	49.11	-3.34	45.77	74.00	28.23	vertical	Peak
2880.00	29.02	-4.45	24.57	54.00	29.43	vertical	Average
2880.00	49.42	-4.45	44.97	74.00	29.03	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: BT DH1 2441
EUT Model: ITP02
Test distance: 3m

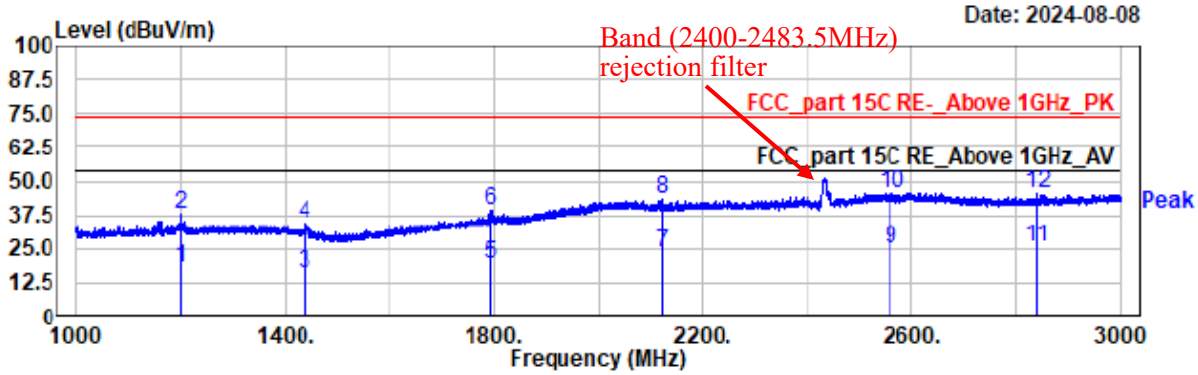
Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1201.00	33.70	-16.04	17.66	54.00	36.34	horizontal	Average
1201.00	53.30	-16.04	37.26	74.00	36.74	horizontal	Peak
1440.40	31.52	-16.85	14.67	54.00	39.33	horizontal	Average
1440.40	51.24	-16.85	34.39	74.00	39.61	horizontal	Peak
2001.40	30.38	-6.73	23.65	54.00	30.35	horizontal	Average
2001.40	50.36	-6.73	43.63	74.00	30.37	horizontal	Peak
2051.40	29.27	-6.00	23.27	54.00	30.73	horizontal	Average
2051.40	49.22	-6.00	43.22	74.00	30.78	horizontal	Peak
2621.60	29.30	-3.33	25.97	54.00	28.03	horizontal	Average
2621.60	49.02	-3.33	45.69	74.00	28.31	horizontal	Peak
2909.80	29.73	-4.36	25.37	54.00	28.63	horizontal	Average
2909.80	49.60	-4.36	45.24	74.00	28.76	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: BT DH1 2441
EUT Model: ITP02
Test distance: 3m

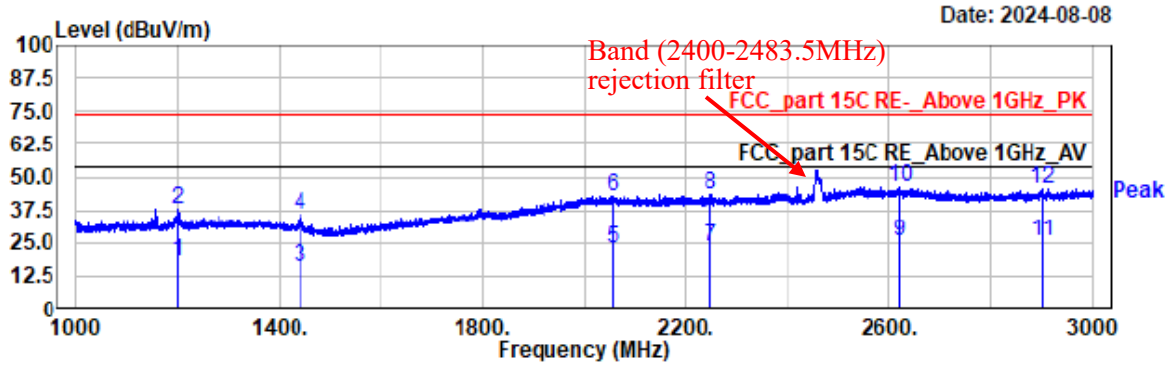
Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1199.80	34.32	-16.05	18.27	54.00	35.73	vertical	Average
1199.80	53.65	-16.05	37.60	74.00	36.40	vertical	Peak
1437.60	32.44	-16.78	15.66	54.00	38.34	vertical	Average
1437.60	50.97	-16.78	34.19	74.00	39.81	vertical	Peak
1793.20	31.34	-11.72	19.62	54.00	34.38	vertical	Average
1793.20	51.22	-11.72	39.50	74.00	34.50	vertical	Peak
2124.60	29.99	-6.73	23.26	54.00	30.74	vertical	Average
2124.60	50.00	-6.73	43.27	74.00	30.73	vertical	Peak
2561.80	28.59	-3.43	25.16	54.00	28.84	vertical	Average
2561.80	49.09	-3.43	45.66	74.00	28.34	vertical	Peak
2839.80	29.83	-4.57	25.26	54.00	28.74	vertical	Average
2839.80	50.04	-4.57	45.47	74.00	28.53	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: BT DH1 2480
EUT Model: ITP02
Test distance: 3m

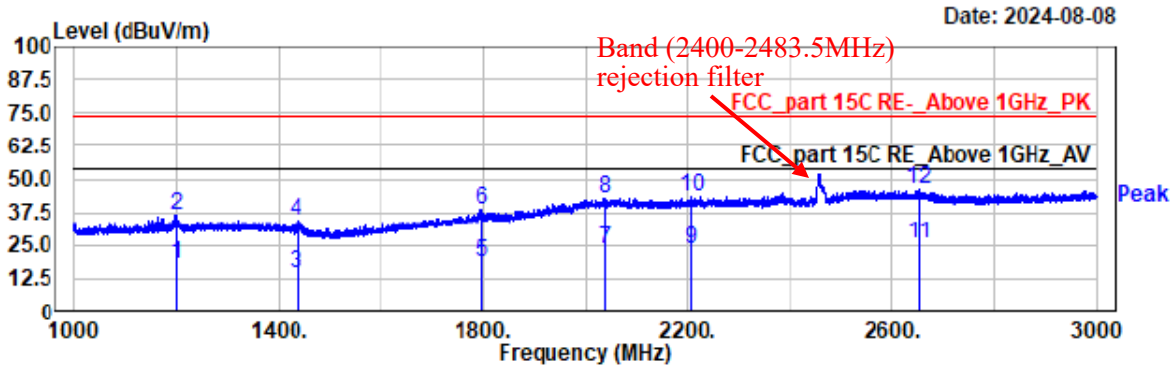
Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1201.00	33.73	-16.04	17.69	54.00	36.31	horizontal	Average
1201.00	53.71	-16.04	37.67	74.00	36.33	horizontal	Peak
1440.60	32.43	-16.86	15.57	54.00	38.43	horizontal	Average
1440.60	52.43	-16.86	35.57	74.00	38.43	horizontal	Peak
2055.60	28.95	-6.07	22.88	54.00	31.12	horizontal	Average
2055.60	48.95	-6.07	42.88	74.00	31.12	horizontal	Peak
2250.60	29.91	-6.25	23.66	54.00	30.34	horizontal	Average
2250.60	49.80	-6.25	43.55	74.00	30.45	horizontal	Peak
2622.80	29.20	-3.34	25.86	54.00	28.14	horizontal	Average
2622.80	49.24	-3.34	45.90	74.00	28.10	horizontal	Peak
2902.20	29.70	-4.38	25.32	54.00	28.68	horizontal	Average
2902.20	49.70	-4.38	45.32	74.00	28.68	horizontal	Peak

Project No.: 2407V46068E-RF
Test Mode: 11b-2462
EUT Model: M150i
Test distance: 3m

Temp/Humi/ATM: 23.1℃/52%/100.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery

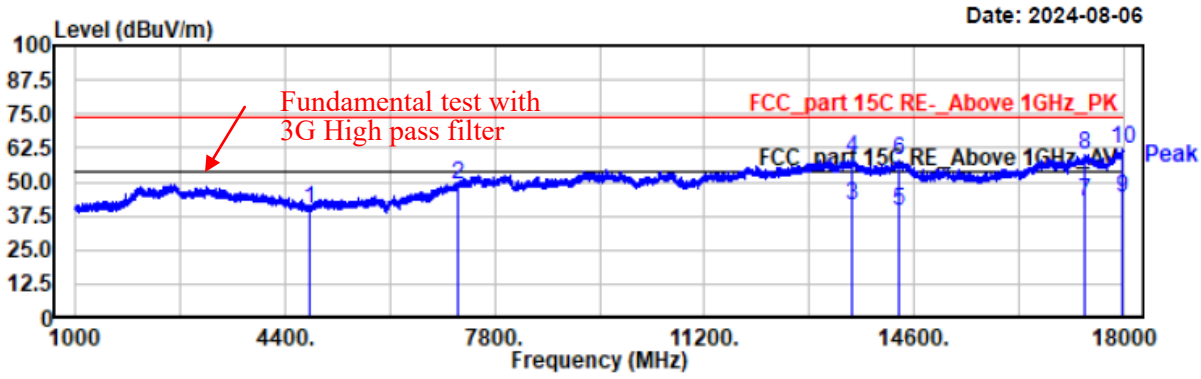


Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
1200.80	33.68	-16.04	17.64	54.00	36.36	vertical	Average
1200.80	52.92	-16.04	36.88	74.00	37.12	vertical	Peak
1434.40	31.34	-16.68	14.66	54.00	39.34	vertical	Average
1434.40	50.84	-16.68	34.16	74.00	39.84	vertical	Peak
1799.20	30.30	-11.58	18.72	54.00	35.28	vertical	Average
1799.20	50.29	-11.58	38.71	74.00	35.29	vertical	Peak
2039.00	29.31	-6.15	23.16	54.00	30.84	vertical	Average
2039.00	49.15	-6.15	43.00	74.00	31.00	vertical	Peak
2204.40	29.47	-6.25	23.22	54.00	30.78	vertical	Average
2204.40	49.47	-6.25	43.22	74.00	30.78	vertical	Peak
2651.60	29.27	-3.41	25.86	54.00	28.14	vertical	Average
2651.60	49.37	-3.41	45.96	74.00	28.04	vertical	Peak

4）3 GHz~18 GHz:

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2402
EUT Model: ITP02
Test distance: 3m

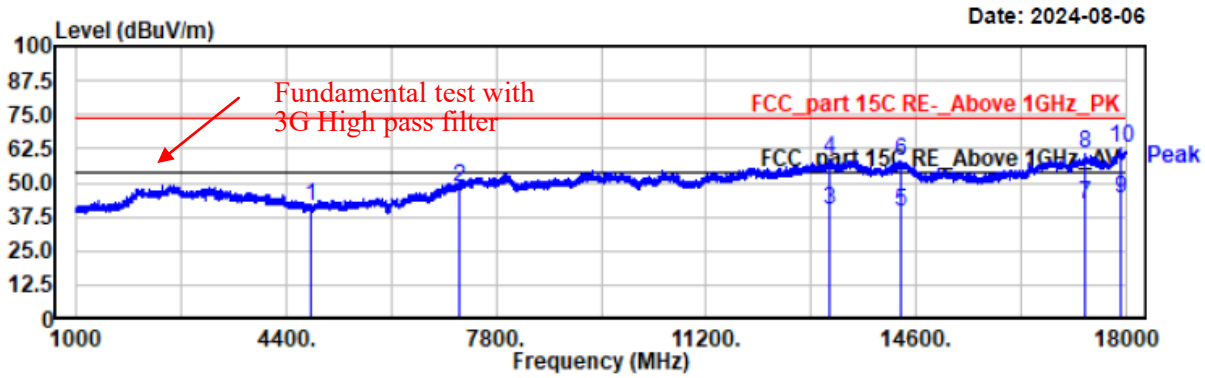
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4804.60	38.82	1.09	39.91	74.00	34.09	horizontal	Peak
7206.00	40.01	9.14	49.15	74.00	24.85	horizontal	Peak
13605.50	25.48	15.57	41.05	54.00	12.95	horizontal	Average
13605.50	43.21	15.57	58.78	74.00	15.22	horizontal	Peak
14346.70	24.63	14.94	39.57	54.00	14.43	horizontal	Average
14346.70	42.82	14.94	57.76	74.00	16.24	horizontal	Peak
17367.60	27.96	15.07	43.03	54.00	10.97	horizontal	Average
17367.60	45.04	15.07	60.11	74.00	13.89	horizontal	Peak
17986.40	27.15	17.05	44.20	54.00	9.80	horizontal	Average
17986.40	45.16	17.05	62.21	74.00	11.79	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2402
EUT Model: ITP02
Test distance: 3m

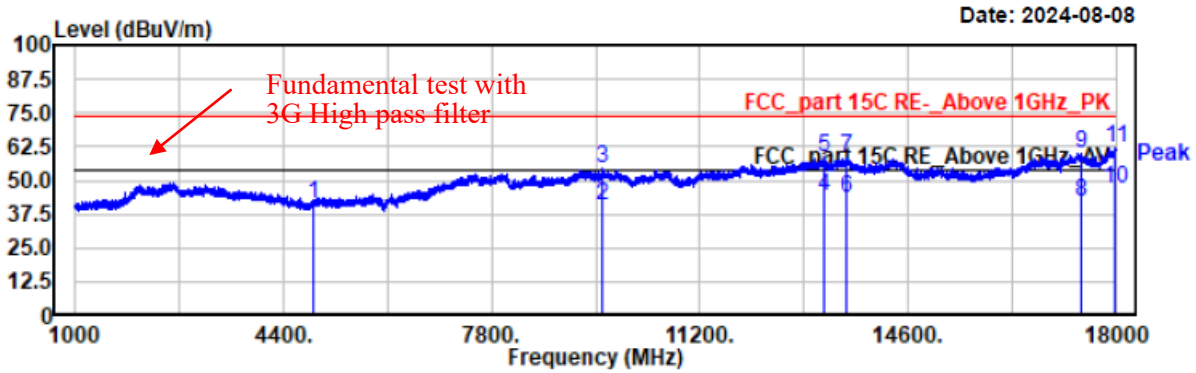
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4804.60	40.35	1.09	41.44	74.00	32.56	vertical	Peak
7206.00	39.19	9.14	48.33	74.00	25.67	vertical	Peak
13183.90	24.36	15.78	40.14	54.00	13.86	vertical	Average
13183.90	42.70	15.78	58.48	74.00	15.52	vertical	Peak
14346.70	24.31	14.94	39.25	54.00	14.75	vertical	Average
14346.70	42.67	14.94	57.61	74.00	16.39	vertical	Peak
17345.50	27.31	15.08	42.39	54.00	11.61	vertical	Average
17345.50	45.33	15.08	60.41	74.00	13.59	vertical	Peak
17913.30	27.32	16.84	44.16	54.00	9.84	vertical	Average
17913.30	45.67	16.84	62.51	74.00	11.49	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2441
EUT Model: ITP02
Test distance: 3m

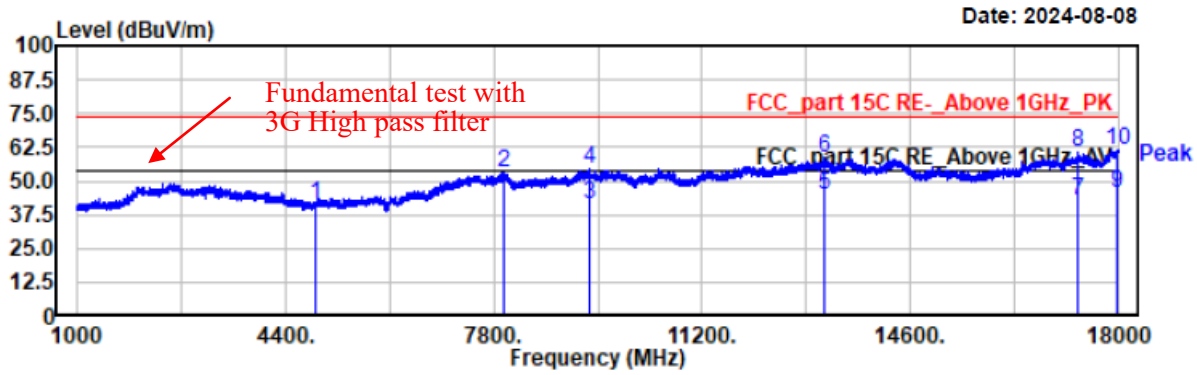
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4882.80	38.94	2.10	41.04	74.00	32.96	horizontal	Peak
9595.20	28.26	12.30	40.56	54.00	13.44	horizontal	Average
9595.20	42.06	12.30	54.36	74.00	19.64	horizontal	Peak
13216.20	28.58	15.74	44.32	54.00	9.68	horizontal	Average
13216.20	42.62	15.74	58.36	74.00	15.64	horizontal	Peak
13605.50	27.56	15.57	43.13	54.00	10.87	horizontal	Average
13605.50	43.21	15.57	58.78	74.00	15.22	horizontal	Peak
17440.70	27.39	14.99	42.38	54.00	11.62	horizontal	Average
17440.70	45.12	14.99	60.11	74.00	13.89	horizontal	Peak
17986.40	29.84	17.05	46.89	54.00	7.11	horizontal	Average
17986.40	45.16	17.05	62.21	74.00	11.79	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2441
EUT Model: ITP02
Test distance: 3m

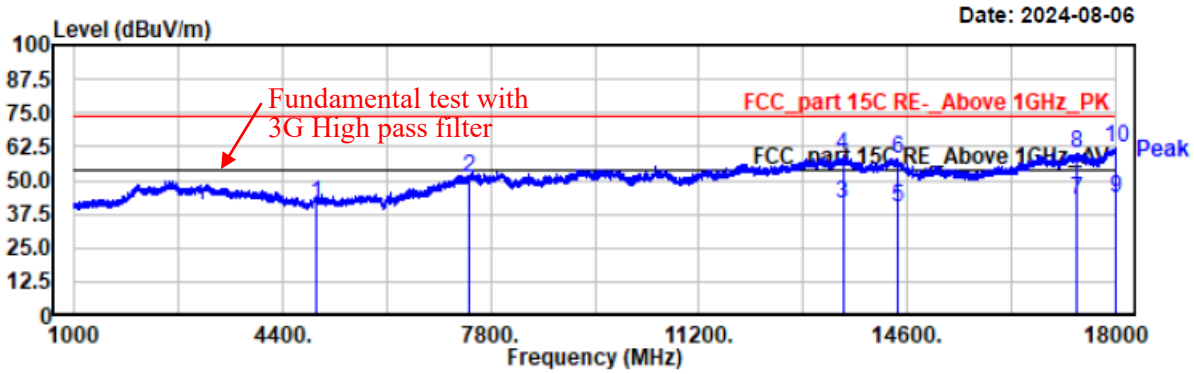
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4882.80	39.13	2.10	41.23	74.00	32.77	vertical	Peak
7961.50	43.00	9.96	52.96	74.00	21.04	vertical	Peak
9350.40	29.88	11.57	41.45	54.00	12.55	vertical	Average
9350.40	42.94	11.57	54.51	74.00	19.49	vertical	Peak
13183.90	28.76	15.78	44.54	54.00	9.46	vertical	Average
13183.90	42.70	15.78	58.48	74.00	15.52	vertical	Peak
17345.50	27.35	15.08	42.43	54.00	11.57	vertical	Average
17345.50	45.33	15.08	60.41	74.00	13.59	vertical	Peak
17981.30	28.75	17.05	45.80	54.00	8.20	vertical	Average
17981.30	44.61	17.05	61.66	74.00	12.34	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2480
EUT Model: ITP02
Test distance: 3m

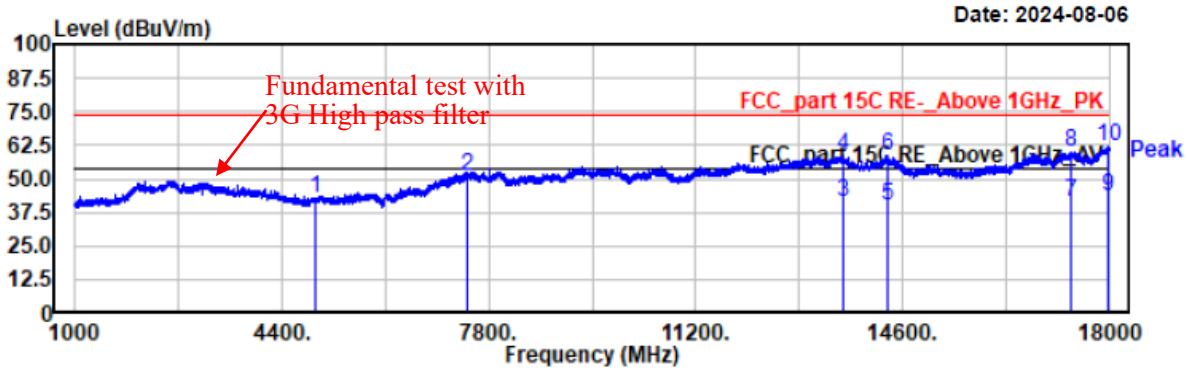
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4959.30	38.74	2.86	41.60	74.00	32.40	horizontal	Peak
7440.00	40.48	10.40	50.88	74.00	23.12	horizontal	Peak
13547.70	25.17	15.89	41.06	54.00	12.94	horizontal	Average
13547.70	43.28	15.89	59.17	74.00	14.83	horizontal	Peak
14440.20	25.37	14.49	39.86	54.00	14.14	horizontal	Average
14440.20	43.74	14.49	58.23	74.00	15.77	horizontal	Peak
17362.50	27.76	15.06	42.82	54.00	11.18	horizontal	Average
17362.50	45.26	15.06	60.32	74.00	13.68	horizontal	Peak
17994.90	26.18	17.08	43.26	54.00	10.74	horizontal	Average
17994.90	44.90	17.08	61.98	74.00	12.02	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2480
EUT Model: ITP02
Test distance: 3m

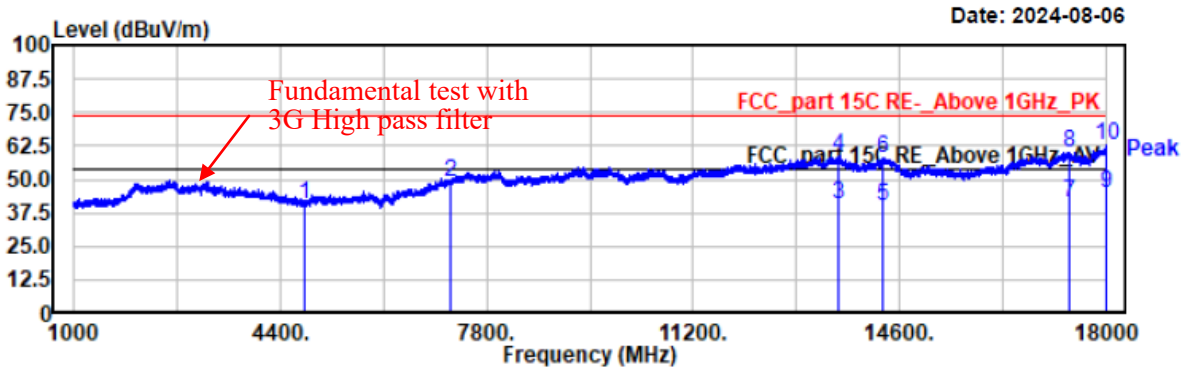
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4959.30	39.93	2.86	42.79	74.00	31.21	vertical	Peak
7440.00	40.65	10.40	51.05	74.00	22.95	vertical	Peak
13610.60	25.51	15.53	41.04	54.00	12.96	vertical	Average
13610.60	42.99	15.53	58.52	74.00	15.48	vertical	Peak
14355.20	25.32	14.87	40.19	54.00	13.81	vertical	Average
14355.20	43.53	14.87	58.40	74.00	15.60	vertical	Peak
17360.80	26.38	15.06	41.44	54.00	12.56	vertical	Average
17360.80	44.94	15.06	60.00	74.00	14.00	vertical	Peak
17984.70	26.18	17.05	43.23	54.00	10.77	vertical	Average
17984.70	44.68	17.05	61.73	74.00	12.27	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2402
EUT Model: ITP02
Test distance: 3m

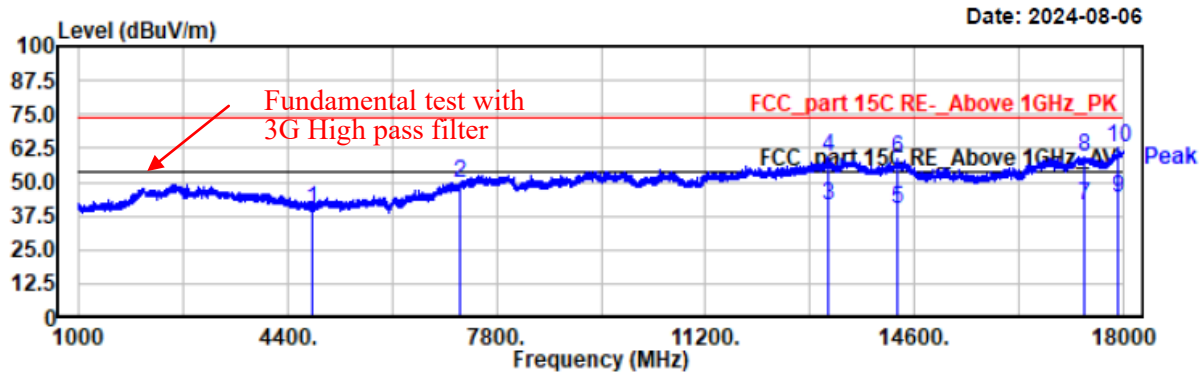
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4804.60	39.40	1.09	40.49	74.00	33.51	horizontal	Peak
7206.00	39.53	9.14	48.67	74.00	25.33	horizontal	Peak
13600.40	25.37	15.62	40.99	54.00	13.01	horizontal	Average
13600.40	43.29	15.62	58.91	74.00	15.09	horizontal	Peak
14333.10	24.65	15.02	39.67	54.00	14.33	horizontal	Average
14333.10	42.99	15.02	58.01	74.00	15.99	horizontal	Peak
17401.60	26.39	15.04	41.43	54.00	12.57	horizontal	Average
17401.60	44.85	15.04	59.89	74.00	14.11	horizontal	Peak
17996.60	27.69	17.09	44.78	54.00	9.22	horizontal	Average
17996.60	45.59	17.09	62.68	74.00	11.32	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2402
EUT Model: ITP02
Test distance: 3m

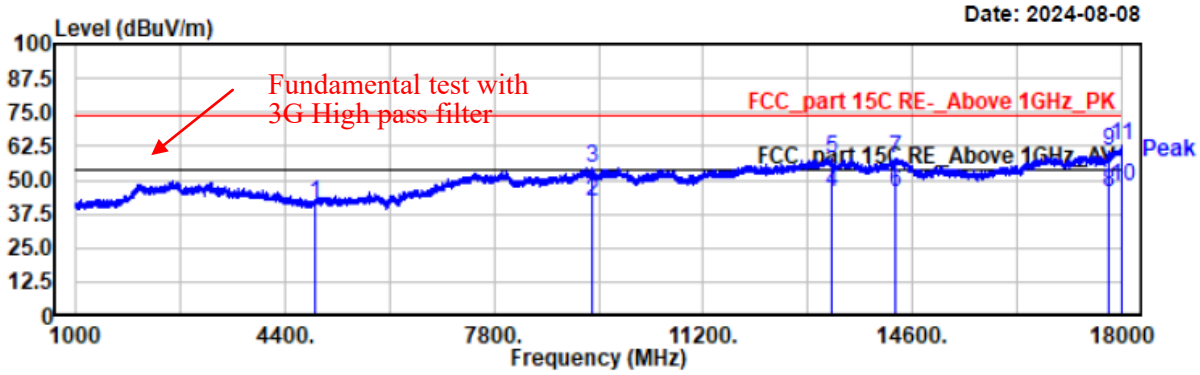
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4804.60	38.86	1.09	39.95	74.00	34.05	vertical	Peak
7206.00	40.32	9.14	49.46	74.00	24.54	vertical	Peak
13192.40	25.38	15.80	41.18	54.00	12.82	vertical	Average
13192.40	43.21	15.80	59.01	74.00	14.99	vertical	Peak
14311.00	25.15	15.17	40.32	54.00	13.68	vertical	Average
14311.00	43.77	15.17	58.94	74.00	15.06	vertical	Peak
17359.10	26.34	15.07	41.41	54.00	12.59	vertical	Average
17359.10	44.24	15.07	59.31	74.00	14.69	vertical	Peak
17923.50	27.38	16.86	44.24	54.00	9.76	vertical	Average
17923.50	45.71	16.86	62.57	74.00	11.43	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2441
EUT Model: ITP02
Test distance: 3m

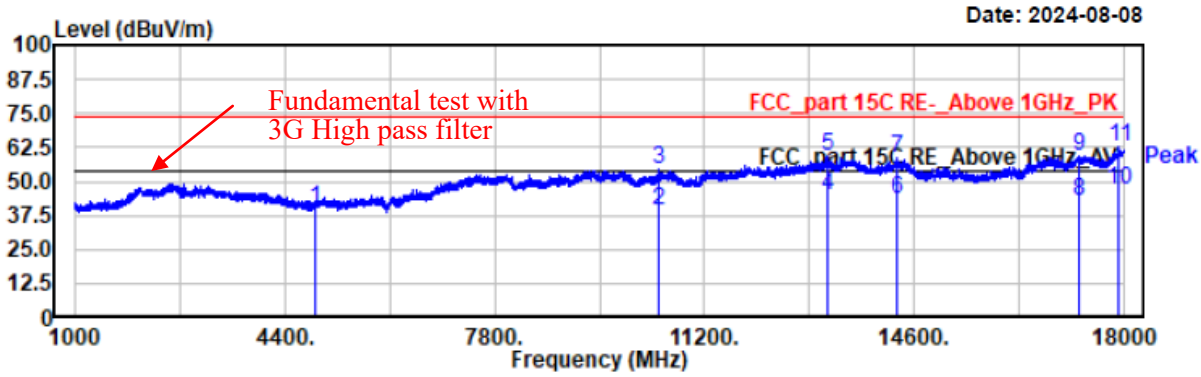
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4882.00	39.59	2.08	41.67	74.00	32.33	horizontal	Peak
9391.20	29.87	12.06	41.93	74.00	32.07	horizontal	Average
9391.20	42.61	12.06	54.67	74.00	19.33	horizontal	Peak
13285.90	30.08	15.40	45.48	74.00	28.52	horizontal	Average
13285.90	42.79	15.40	58.19	74.00	15.81	horizontal	Peak
14333.10	30.20	15.02	45.22	74.00	28.78	horizontal	Average
14333.10	42.99	15.02	58.01	74.00	15.99	horizontal	Peak
17797.70	30.11	15.56	45.67	74.00	28.33	horizontal	Average
17797.70	45.25	15.56	60.81	74.00	13.19	horizontal	Peak
17996.60	30.27	17.09	47.36	74.00	26.64	horizontal	Average
17996.60	45.59	17.09	62.68	74.00	11.32	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2441
EUT Model: ITP02
Test distance: 3m

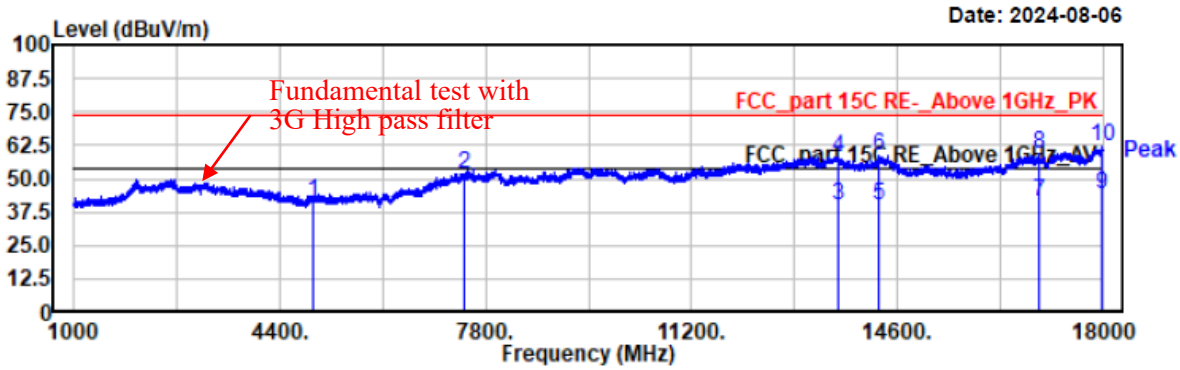
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4882.80	37.87	2.10	39.97	74.00	34.03	vertical	Peak
10467.30	27.40	11.65	39.05	54.00	14.95	vertical	Average
10467.30	43.07	11.65	54.72	74.00	19.28	vertical	Peak
13192.40	28.93	15.80	44.73	54.00	9.27	vertical	Average
13192.40	43.21	15.80	59.01	74.00	14.99	vertical	Peak
14311.00	27.97	15.17	43.14	54.00	10.86	vertical	Average
14311.00	43.77	15.17	58.94	74.00	15.06	vertical	Peak
17287.70	27.38	15.05	42.43	54.00	11.57	vertical	Average
17287.70	44.01	15.05	59.06	74.00	14.94	vertical	Peak
17923.50	30.09	16.86	46.95	54.00	7.05	vertical	Average
17923.50	45.71	16.86	62.57	74.00	11.43	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2480
EUT Model: ITP02
Test distance: 3m

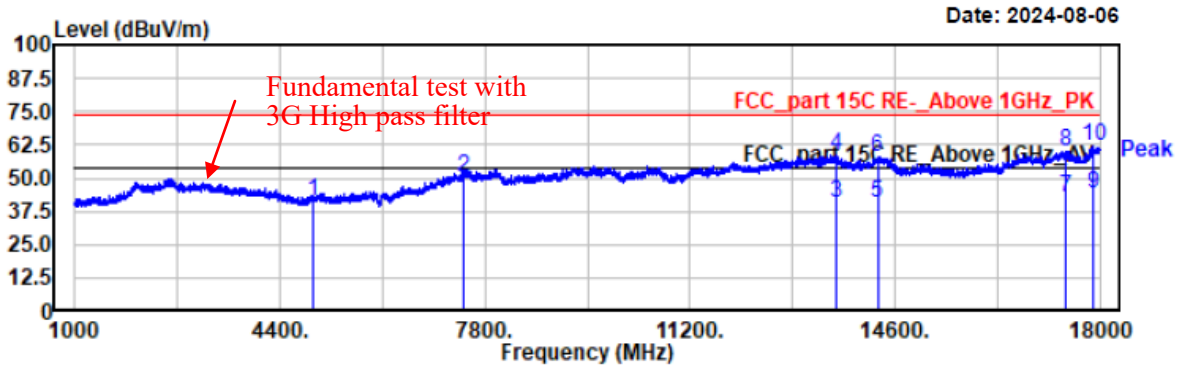
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4959.30	38.62	2.86	41.48	74.00	32.52	horizontal	Peak
7440.00	41.05	10.40	51.45	74.00	22.55	horizontal	Peak
13627.60	24.32	15.36	39.68	54.00	14.32	horizontal	Average
13627.60	42.80	15.36	58.16	74.00	15.84	horizontal	Peak
14294.00	25.05	15.20	40.25	54.00	13.75	horizontal	Average
14294.00	43.22	15.20	58.42	74.00	15.58	horizontal	Peak
16944.30	27.14	14.35	41.49	54.00	12.51	horizontal	Average
16944.30	45.15	14.35	59.50	74.00	14.50	horizontal	Peak
17969.40	27.37	17.01	44.38	54.00	9.62	horizontal	Average
17969.40	45.01	17.01	62.02	74.00	11.98	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2480
EUT Model: ITP02
Test distance: 3m

Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery

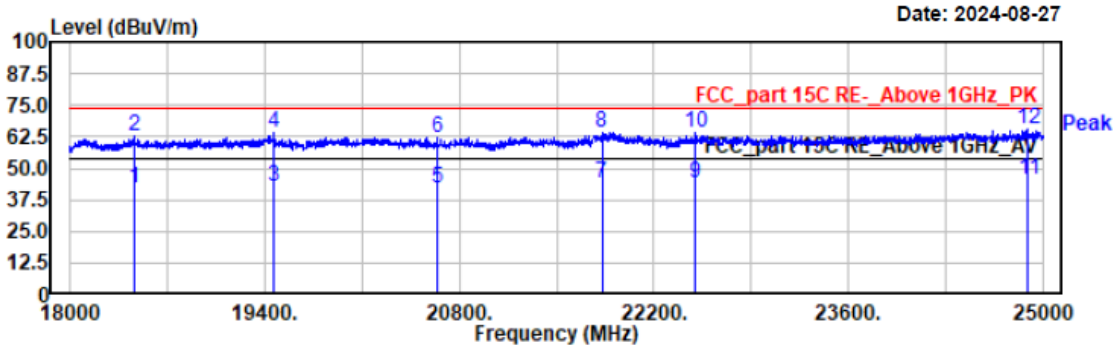


Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
4959.30	38.82	2.86	41.68	74.00	32.32	vertical	Peak
7440.00	39.89	10.40	50.29	74.00	23.71	vertical	Peak
13637.80	25.63	15.28	40.91	54.00	13.09	vertical	Average
13637.80	43.43	15.28	58.71	74.00	15.29	vertical	Peak
14309.30	25.38	15.19	40.57	54.00	13.43	vertical	Average
14309.30	43.02	15.19	58.21	74.00	15.79	vertical	Peak
17418.60	27.63	15.02	42.65	54.00	11.35	vertical	Average
17418.60	45.27	15.02	60.29	74.00	13.71	vertical	Peak
17882.70	27.64	16.59	44.23	54.00	9.77	vertical	Average
17882.70	45.17	16.59	61.76	74.00	12.24	vertical	Peak

5) 18 GHz - 25 GHz(worst case)

Project No.: 2407T42038E-RF
Test Mode: BDR 2480MHz
EUT Model: ITP02
Test distance: 3m

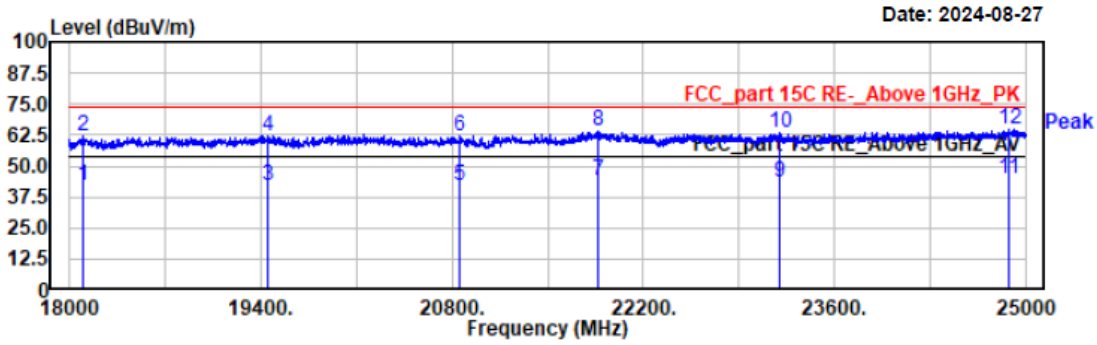
Temp/Humi/ATM: 22.3℃/53%/101.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18457.60	17.78	24.18	41.96	54.00	12.04	horizontal	Average
18457.60	38.65	24.18	62.83	74.00	11.17	horizontal	Peak
19467.40	18.73	24.37	43.10	54.00	10.90	horizontal	Average
19467.40	39.45	24.37	63.82	74.00	10.18	horizontal	Peak
20637.80	17.22	24.96	42.18	54.00	11.82	horizontal	Average
20637.80	37.44	24.96	62.40	74.00	11.60	horizontal	Peak
21825.80	18.40	25.80	44.20	54.00	9.80	horizontal	Average
21825.80	38.44	25.80	64.24	74.00	9.76	horizontal	Peak
22501.20	17.37	26.62	43.99	54.00	10.01	horizontal	Average
22501.20	37.31	26.62	63.93	74.00	10.07	horizontal	Peak
24894.80	17.45	28.18	45.63	54.00	8.37	horizontal	Average
24894.80	37.15	28.18	65.33	74.00	8.67	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: BDR 2480MHz
EUT Model: ITP02
Test distance: 3m

Temp/Humi/ATM: 22.3℃/53%/101.1kPa
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
18103.40	17.82	24.34	42.16	54.00	11.84	vertical	Average
18103.40	37.68	24.34	62.02	74.00	11.98	vertical	Peak
19454.20	17.91	24.38	42.29	54.00	11.71	vertical	Average
19454.20	37.75	24.38	62.13	74.00	11.87	vertical	Peak
20851.20	17.26	25.14	42.40	54.00	11.60	vertical	Average
20851.20	37.18	25.14	62.32	74.00	11.68	vertical	Peak
21872.00	18.44	26.00	44.44	54.00	9.56	vertical	Average
21872.00	38.32	26.00	64.32	74.00	9.68	vertical	Peak
23196.40	16.51	26.69	43.20	54.00	10.80	vertical	Average
23196.40	36.45	26.69	63.14	74.00	10.86	vertical	Peak
24872.80	16.78	28.18	44.96	54.00	9.04	vertical	Average
24872.80	36.71	28.18	64.89	74.00	9.11	vertical	Peak

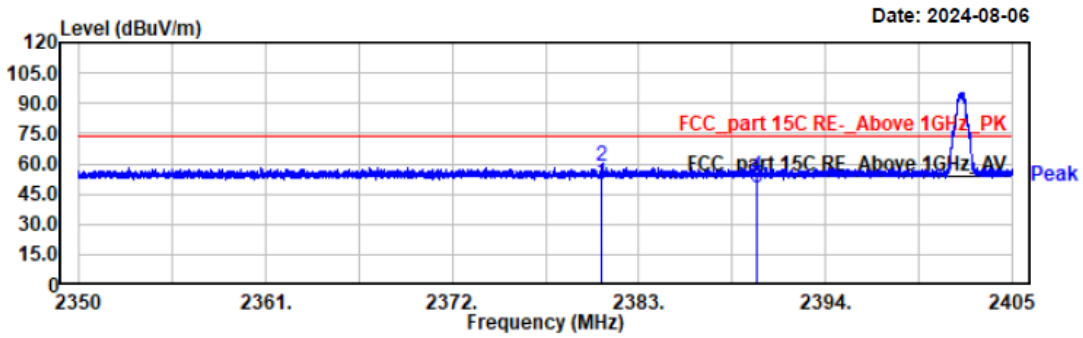
Restricted Bands Emissions:

Pre-Scan with GFSK, π/4-DQPSK modes of operation in the X,Y and Z axes of orientation, the worst case ***GFSK Mode in Z-axis of orientation***

Note:
Factor (dB/m) =Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (dB)
Level (dBμV/m) = Reading (dBμV) + Factor (dB/m)
Margin (dB) = Limit (dBμV/m) –Level (dBμV/m)

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2402
EUT Model: ITP02
Test distance: 3m

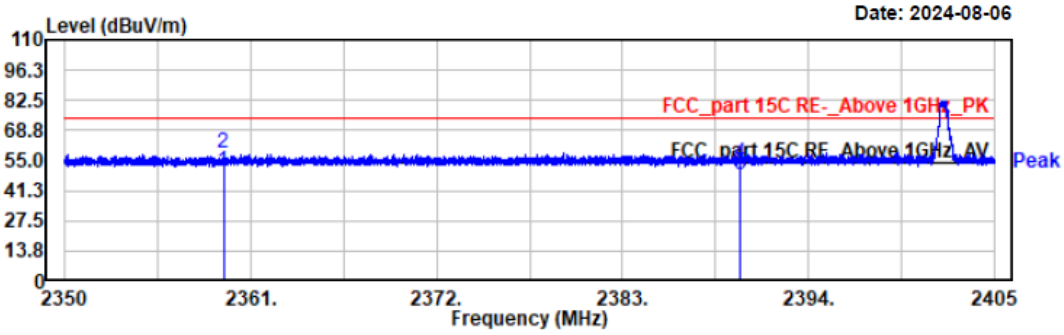
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2380.76	13.43	36.81	50.24	54.00	3.76	horizontal	Average
2380.76	22.11	36.81	58.92	74.00	15.08	horizontal	Peak
2390.00	11.37	36.93	48.30	54.00	5.70	horizontal	Average
2390.00	17.17	36.93	54.10	74.00	19.90	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2402
EUT Model: ITP02
Test distance: 3m

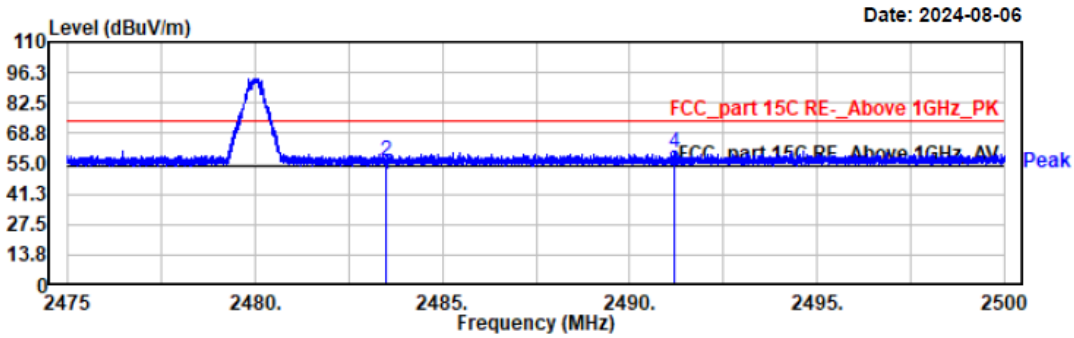
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2359.39	13.43	36.53	49.96	54.00	4.04	vertical	Average
2359.39	21.72	36.53	58.25	74.00	15.75	vertical	Peak
2390.00	11.34	36.93	48.27	54.00	5.73	vertical	Average
2390.00	17.28	36.93	54.21	74.00	19.79	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2480
EUT Model: ITP02
Test distance: 3m

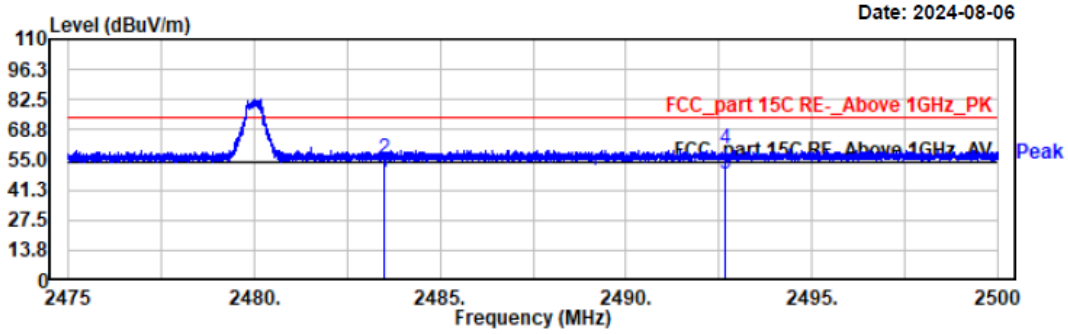
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	12.38	37.75	50.13	54.00	3.87	horizontal	Average
2483.50	18.57	37.75	56.32	74.00	17.68	horizontal	Peak
2491.21	13.64	37.89	51.53	54.00	2.47	horizontal	Average
2491.21	22.30	37.89	60.19	74.00	13.81	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 1DH1 2480
EUT Model: ITP02
Test distance: 3m

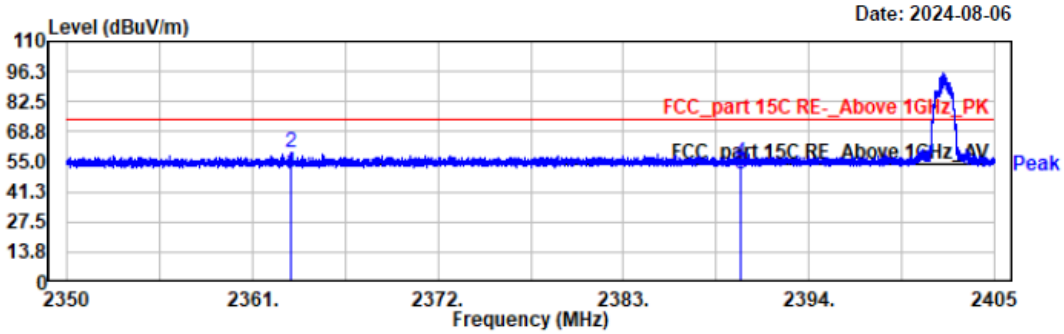
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	11.36	37.75	49.11	54.00	4.89	vertical	Average
2483.50	17.91	37.75	55.66	74.00	18.34	vertical	Peak
2492.66	10.43	37.92	48.35	54.00	5.65	vertical	Average
2492.66	21.92	37.92	59.84	74.00	14.16	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2402
EUT Model: ITP02
Test distance: 3m

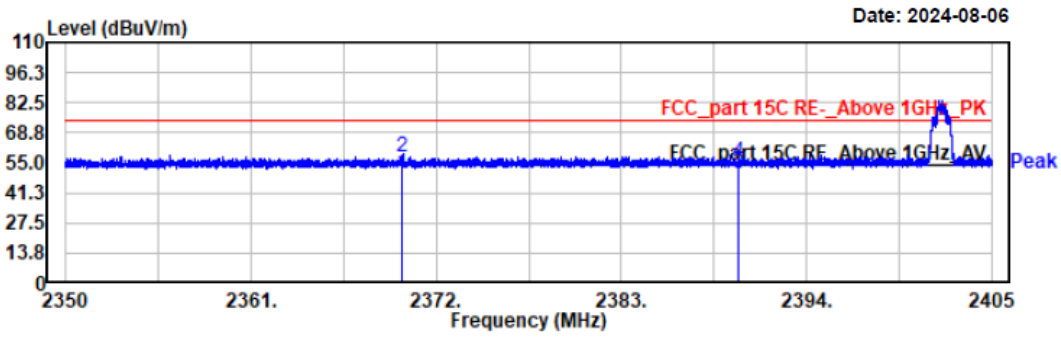
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2363.23	13.43	36.59	50.02	54.00	3.98	horizontal	Average
2363.23	22.42	36.59	59.01	74.00	14.99	horizontal	Peak
2390.00	12.74	36.93	49.67	54.00	4.33	horizontal	Average
2390.00	17.49	36.93	54.42	74.00	19.58	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2402
EUT Model: ITP02
Test distance: 3m

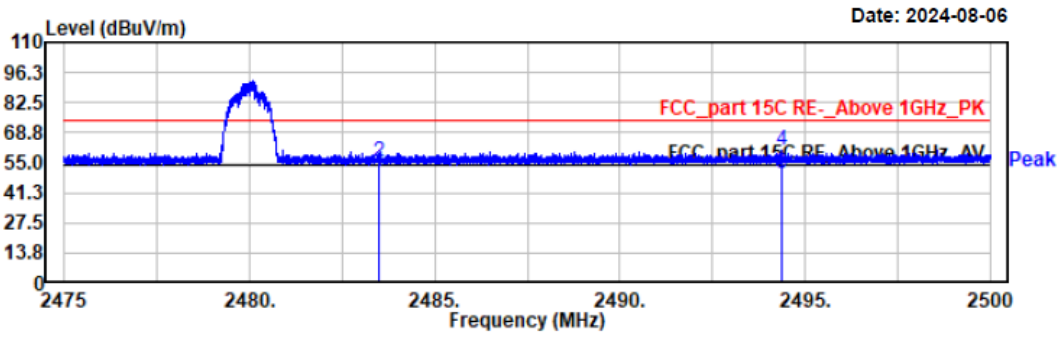
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2369.95	13.74	36.67	50.41	54.00	3.59	vertical	Average
2369.95	21.09	36.67	57.76	74.00	16.24	vertical	Peak
2390.00	12.76	36.93	49.69	54.00	4.31	vertical	Average
2390.00	18.27	36.93	55.20	74.00	18.80	vertical	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2480
EUT Model: ITP02
Test distance: 3m

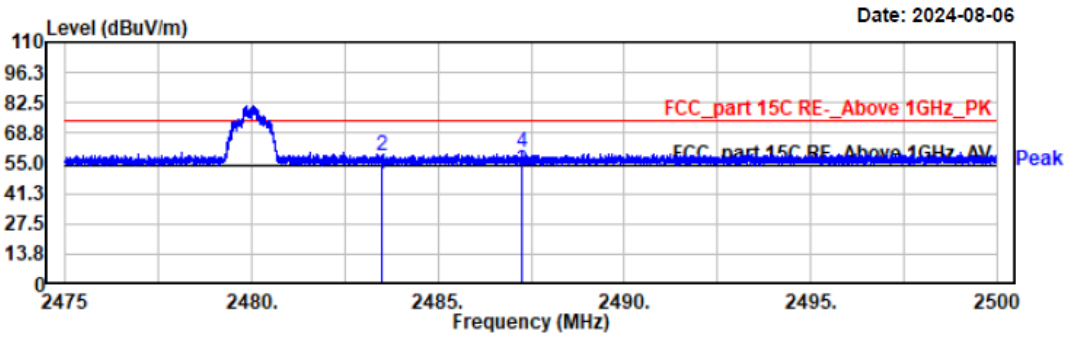
Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	12.84	37.75	50.59	54.00	3.41	horizontal	Average
2483.50	17.30	37.75	55.05	74.00	18.95	horizontal	Peak
2494.35	12.43	37.96	50.39	54.00	3.61	horizontal	Average
2494.35	22.88	37.96	60.84	74.00	13.16	horizontal	Peak

Project No.: 2407T42038E-RF
Test Mode: 2DH1 2480
EUT Model: ITP02
Test distance: 3m

Temp/Humi: 21.3℃/51%
Tested by: Wlif Wu
Power Source: DC7.4V from Battery



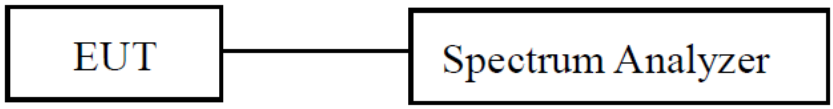
Freq MHz	Reading dBuV	Factor dB/m	Result dBuV/m	Limit dBuV/m	Margin dB	Polarity	Remark
2483.50	12.37	37.75	50.12	54.00	3.88	vertical	Average
2483.50	20.34	37.75	58.09	74.00	15.91	vertical	Peak
2487.25	13.74	37.82	51.56	54.00	2.44	vertical	Average
2487.25	21.75	37.82	59.57	74.00	14.43	vertical	Peak

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.

EUT Setup



Test Procedure

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.

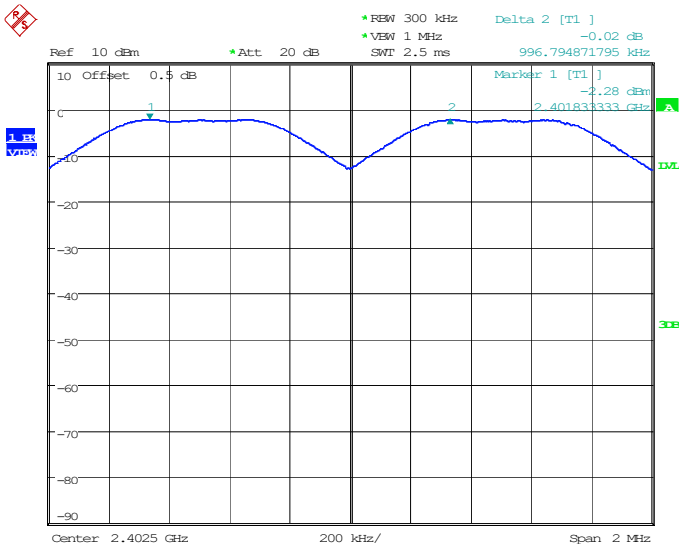
Test Data

Test Mode:	Transmitting	Test Engineer:	Stein Peng
Test Date:	2024-05-14	Environment:	Temp.: 23.9°C Humi.: 60% Atm:99.8kPa

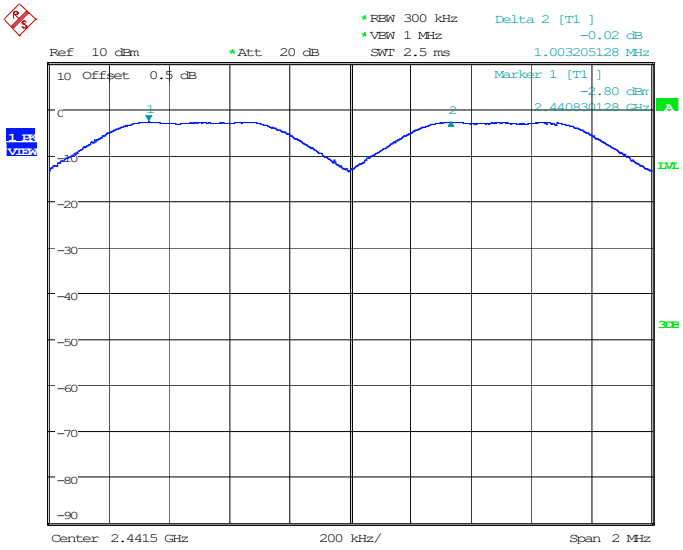
Mode	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)	Result
BDR (GFSK)	Low	2402	0.997	0.593	Pass
	Middle	2441	1.003	0.591	Pass
	High	2480	0.987	0.593	Pass
EDR (π/4-DQPSK)	Low	2402	1.003	0.793	Pass
	Middle	2441	0.997	0.793	Pass
	High	2480	1.016	0.793	Pass

Note: Limit = 20 dB bandwidth*2/3

BDR (GFSK): Low Channel

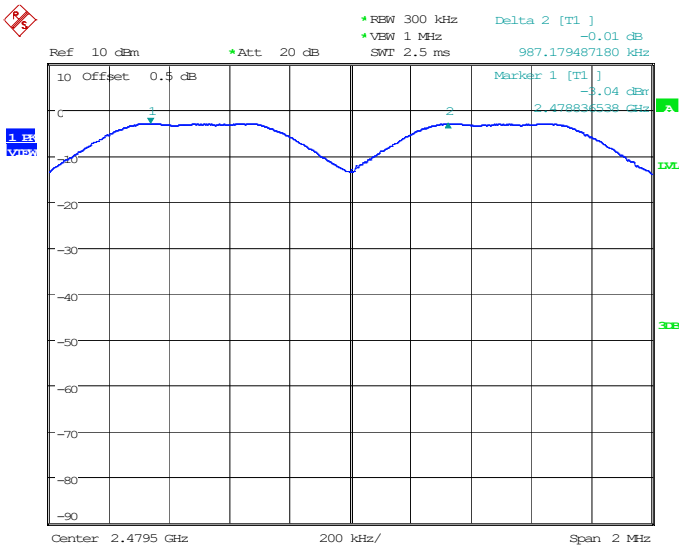


BDR (GFSK): Middle Channel



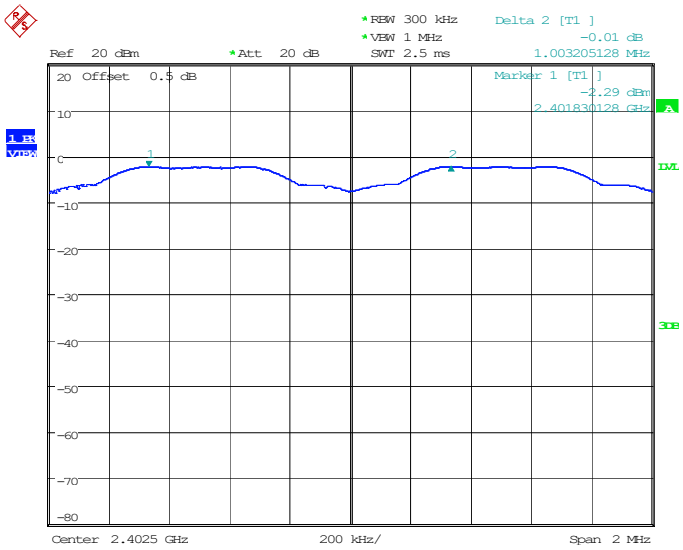
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 09:44:37

BDR (GFSK): High Channel



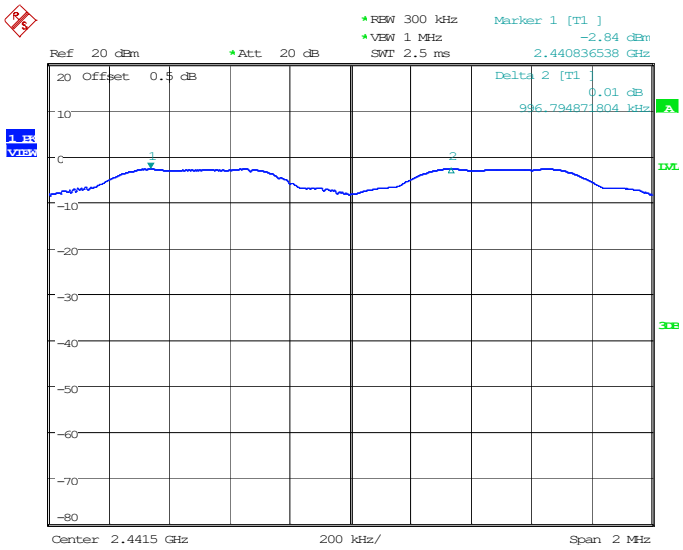
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 09:46:12

EDR (π/4-DQPSK): Low Channel



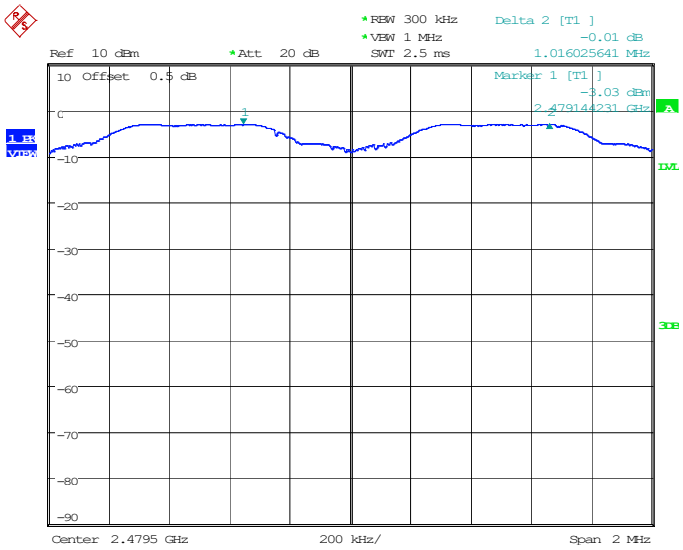
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 09:57:22

EDR (π/4-DQPSK): Middle Channel



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:06:02

EDR (π/4-DQPSK): High Channel



Project No. :2407T42038E-RF Tester: Stein Peng

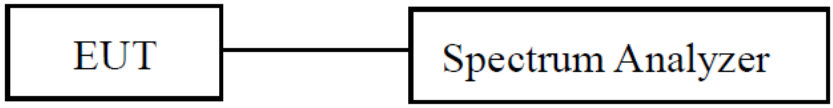
Date: 14.MAY.2024 09:48:40

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.

EUT Setup



Test Procedure

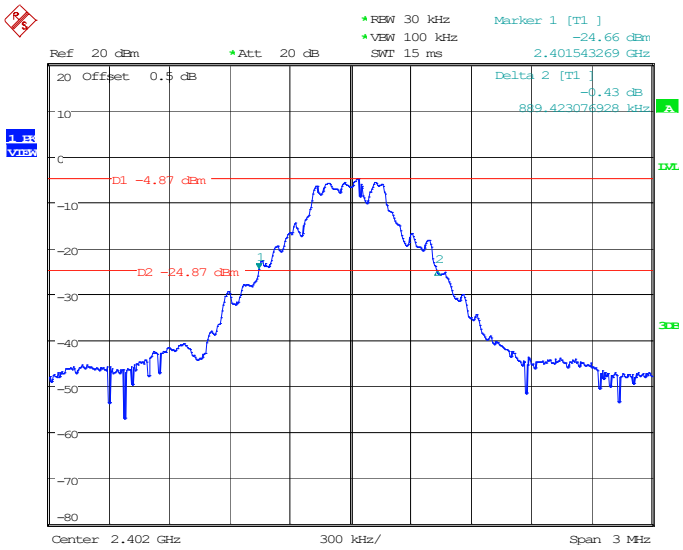
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Test Mode:	Transmitting	Test Engineer:	Stein Peng
Test Date:	2024-05-14	Environment:	Temp.: 23.9℃ Humi.: 60% Atm:99.8kPa

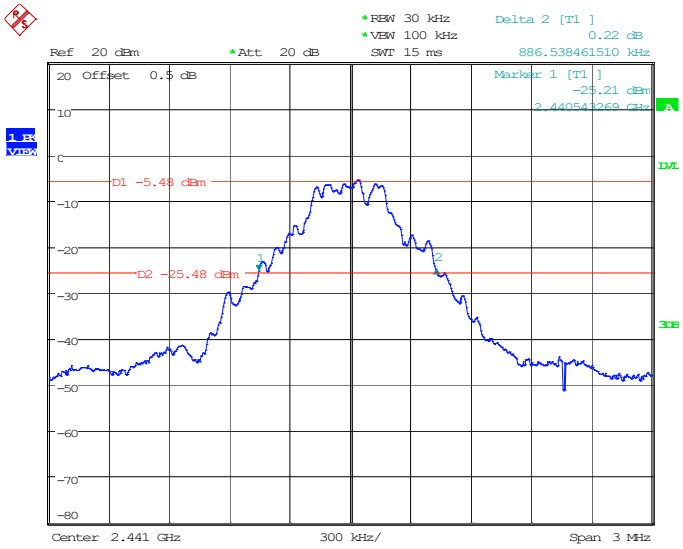
Mode	Channel	Frequency (MHz)	20 dB Emission Bandwidth (MHz)
BDR (GFSK)	Low	2402	0.889
	Middle	2441	0.887
	High	2480	0.890
EDR (π/4-DQPSK)	Low	2402	1.190
	Middle	2441	1.190
	High	2480	1.190

BDR (GFSK): Low Channel



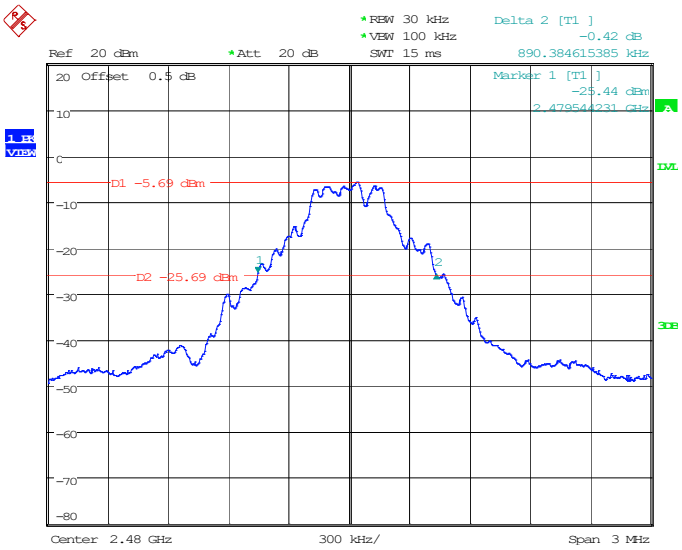
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:35:51

BDR (GFSK): Middle Channel



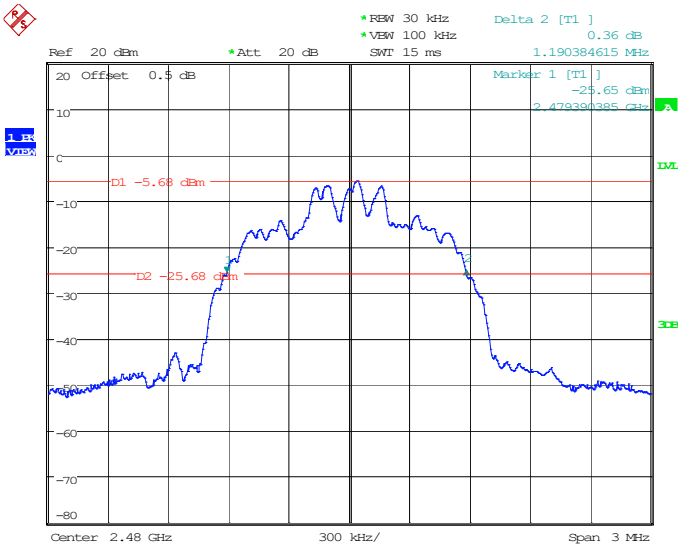
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:40:37

BDR (GFSK): High Channel



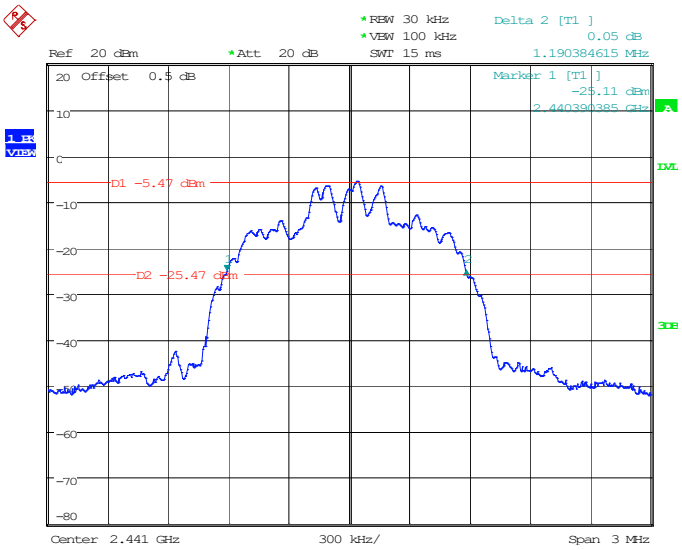
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:46:03

EDR (π/4-DQPSK): Low Channel



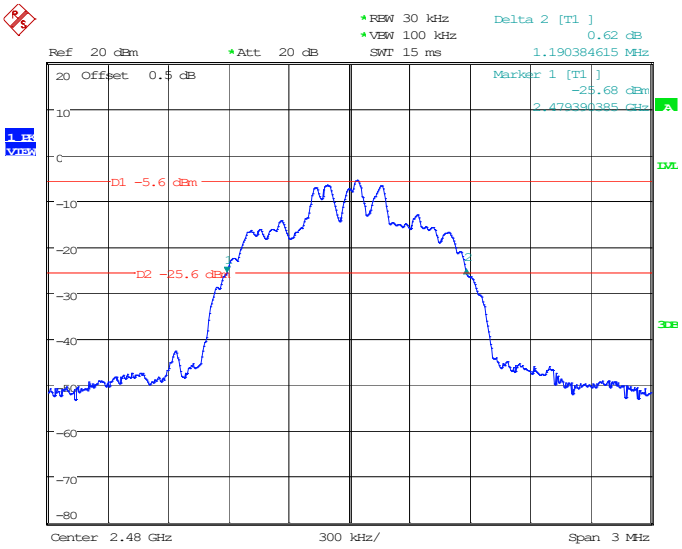
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:59:13

EDR(π/4-DQPSK): Middle Channel



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 10:55:57

EDR (π/4-DQPSK): High Channel



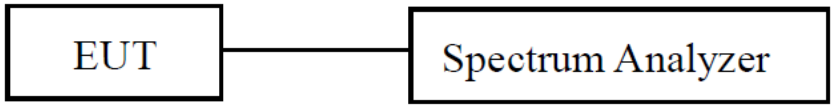
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 16:24:05

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.

EUT Setup



Test Procedure

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

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.
g. Allow the trace to stabilize.

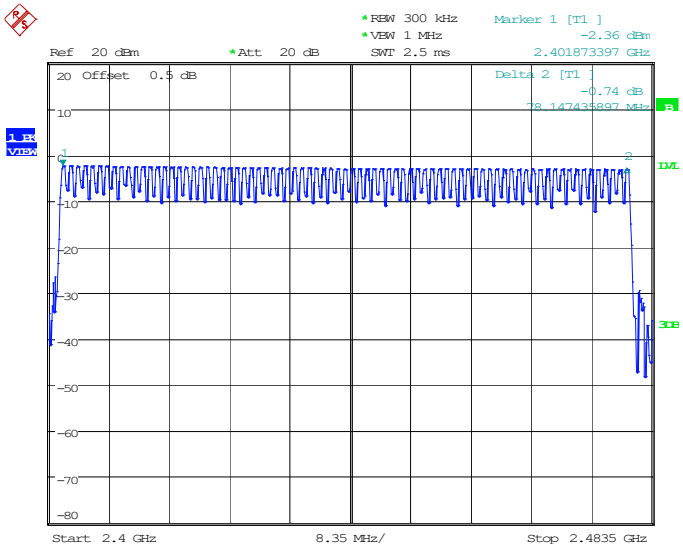
It might prove necessary to break the span up into subranges to show clearly all of the hopping frequencies.

Test Data

Test Mode:	Transmitting	Test Engineer:	Stein Peng
Test Date:	2024-05-14	Environment:	Temp.: 23.9℃ Humi.: 62% Atm :101.8kPa

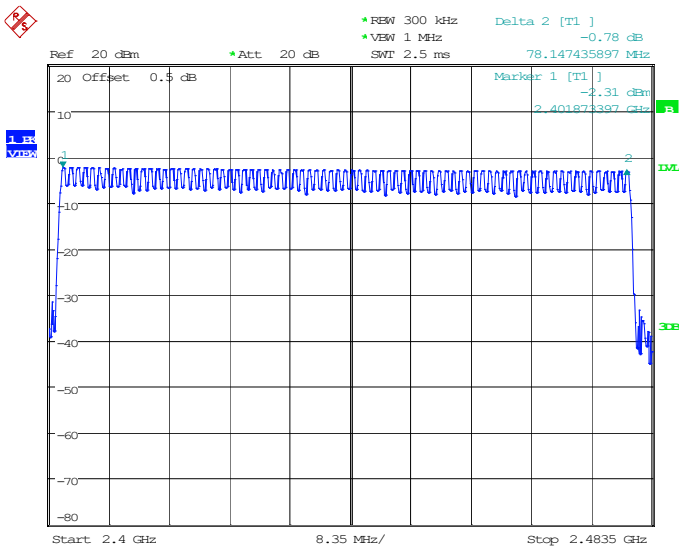
Mode	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
BDR (GFSK)	2400-2483.5	79	≥15
EDR (π/4-DQPSK)	2400-2483.5	79	≥15

BDR (GFSK): Number of Hopping Channels



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 12:24:54

EDR (π/4-DQPSK): Number of Hopping Channels



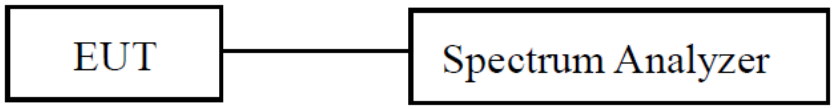
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:10:05

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.

EUT Setup



Test Procedure

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

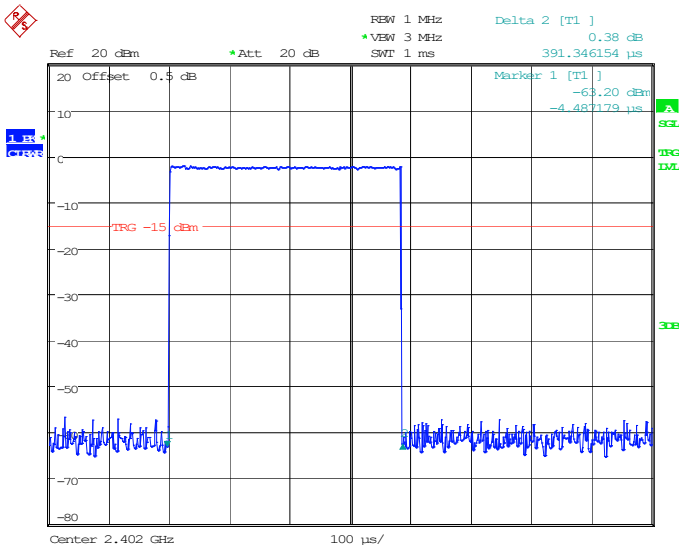
a Span: Zero span, centered on a hopping channel.
b RBW shall be ≤ channel spacing and where possible RBW should be set ≥ 1 / T, where T is the expected dwell time per channel.
c Sweep: As necessary to capture the entire dwell time per hopping channel; where possible use a video trigger and trigger delay 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.

Test Data

Test Mode:	Transmitting	Test Engineer:	Ash Lin
Test Date:	2024-05-14	Environment:	Temp.: 23.9℃ Humi.: 60% Atm:99.8kPa

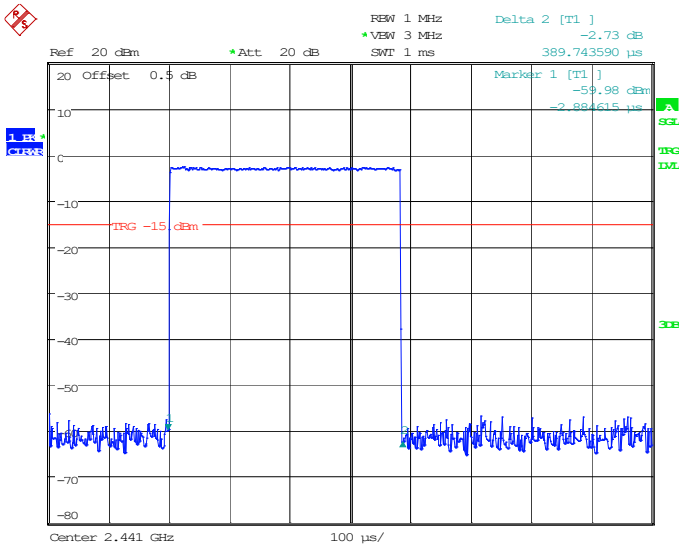
Mode		Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR (GFSK)	DH1	Low	0.391	0.125	0.400	Pass
		Middle	0.390	0.125	0.400	Pass
		High	0.393	0.126	0.400	Pass
		Note: DH1:Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH3	Low	1.660	0.266	0.400	Pass
		Middle	1.666	0.267	0.400	Pass
		High	1.676	0.268	0.400	Pass
		Note: DH3:Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH5	Low	2.908	0.310	0.400	Pass
		Middle	2.908	0.310	0.400	Pass
		High	2.908	0.310	0.400	Pass
		Note: DH5:Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR (π/4-DQPSK)	2DH1	Low	0.400	0.128	0.400	Pass
		Middle	0.403	0.129	0.400	Pass
		High	0.402	0.129	0.400	Pass
		Note: 2DH1:Dwell time = Pulse time*(1600/2/79)*31.6S				
	2DH3	Low	1.676	0.268	0.400	Pass
		Middle	1.662	0.266	0.400	Pass
		High	1.662	0.266	0.400	Pass
		Note: 2DH3:Dwell time = Pulse time*(1600/4/79)*31.6S				
	2DH5	Low	2.918	0.311	0.400	Pass
		Middle	2.926	0.312	0.400	Pass
		High	2.934	0.313	0.400	Pass
		Note: 2DH5:Dwell time = Pulse time*(1600/6/79)*31.6S				

BDR (GFSK): Pulse time, Low Channel, DH1



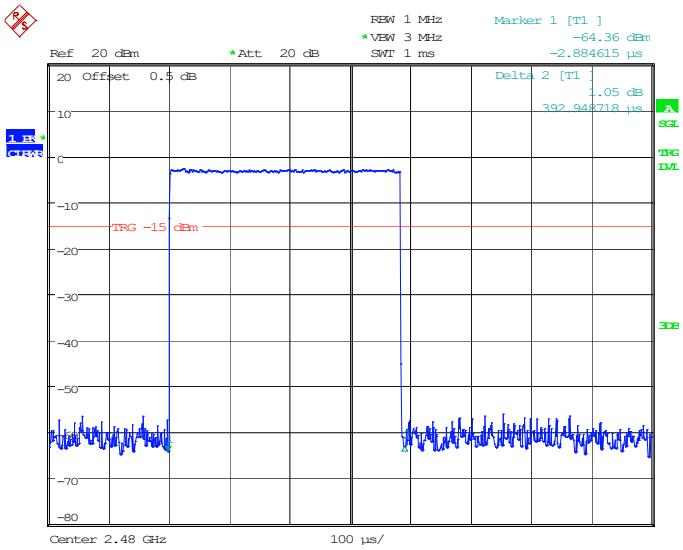
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:23:34

BDR (GFSK): Pulse time, Middle Channel, DH1



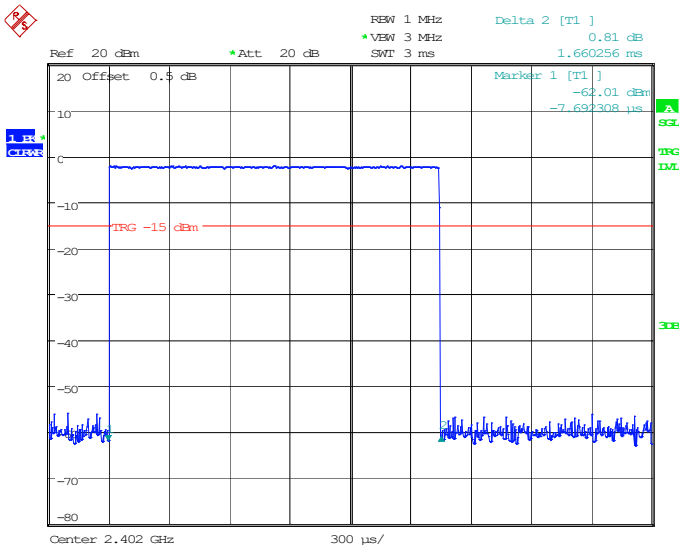
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:45:42

BDR (GFSK): Pulse time, High Channel, DH1



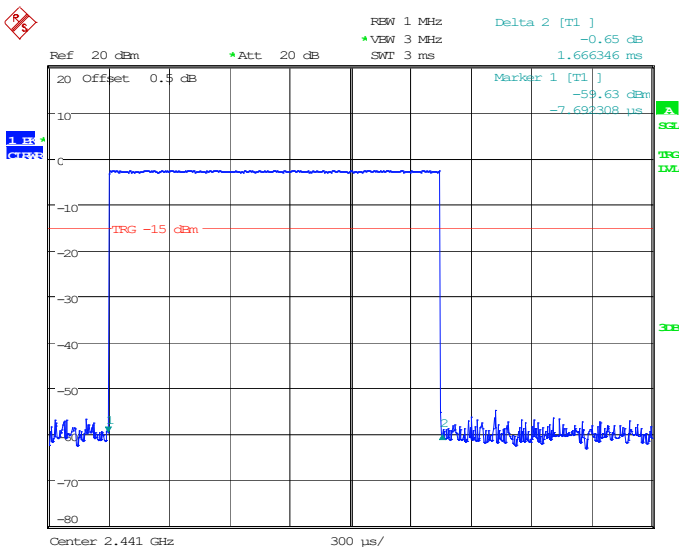
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:47:14

BDR (GFSK): Pulse time, Low Channel, DH3



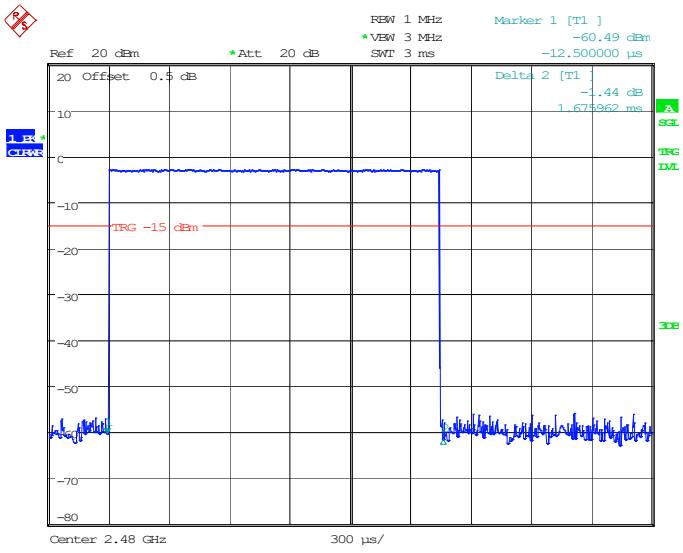
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:50:39

BDR (GFSK): Pulse time, Middle Channel, DH3



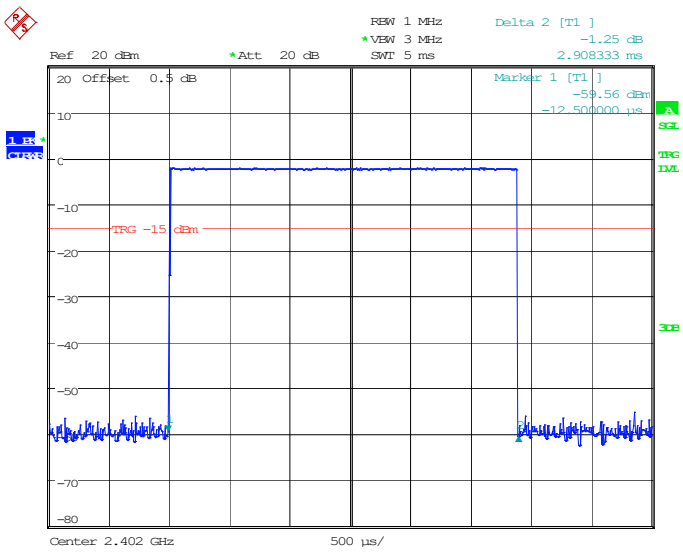
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:51:45

BDR (GFSK): Pulse time, High Channel, DH3



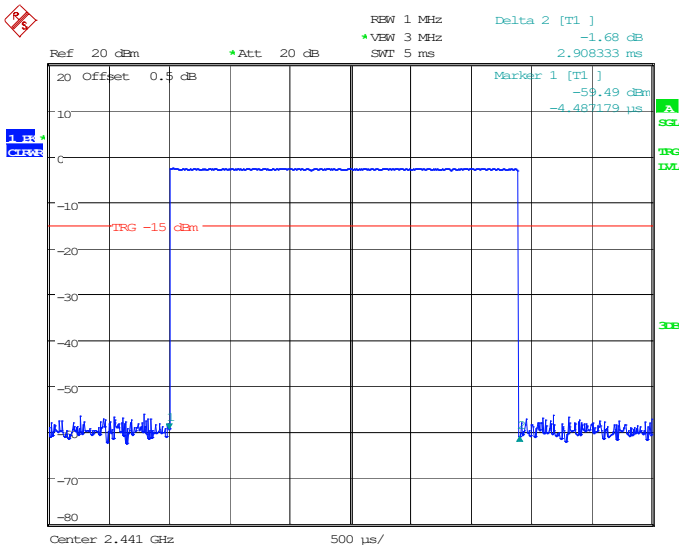
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:53:31

BDR (GFSK): Pulse time, Low Channel, DH5



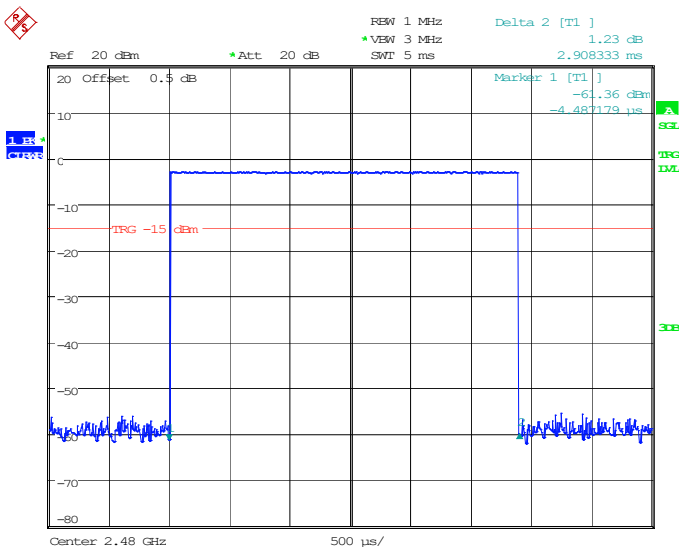
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:14:07

BDR (GFSK): Pulse time, Middle Channel, DH5



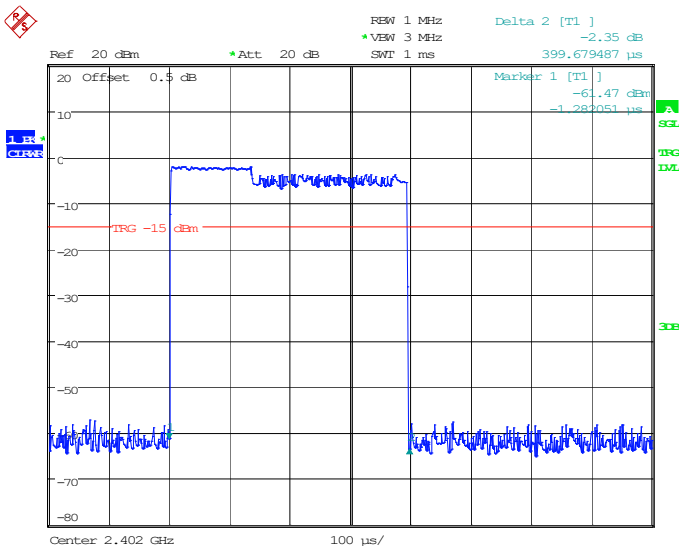
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:13:01

BDR (GFSK): Pulse time, High Channel, DH5



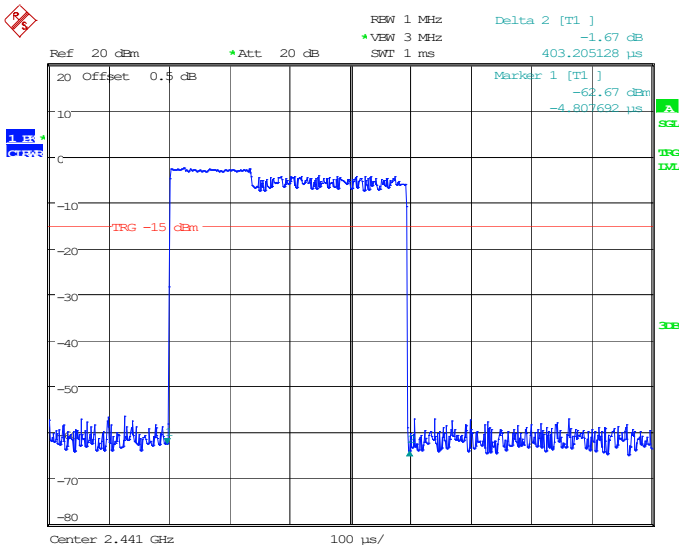
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 11:55:03

EDR (π/4-DQPSK): Pulse time, Low Channel, 2DH1



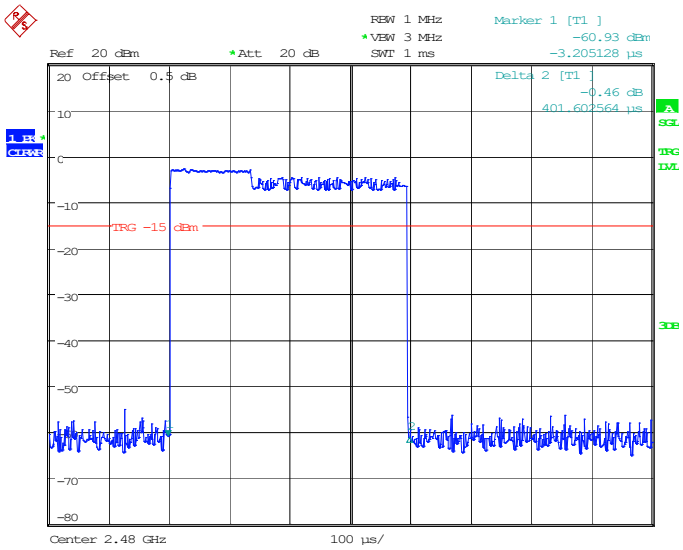
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:27:49

EDR (π/4-DQPSK):Pulse time, Middle Channel, 2DH1



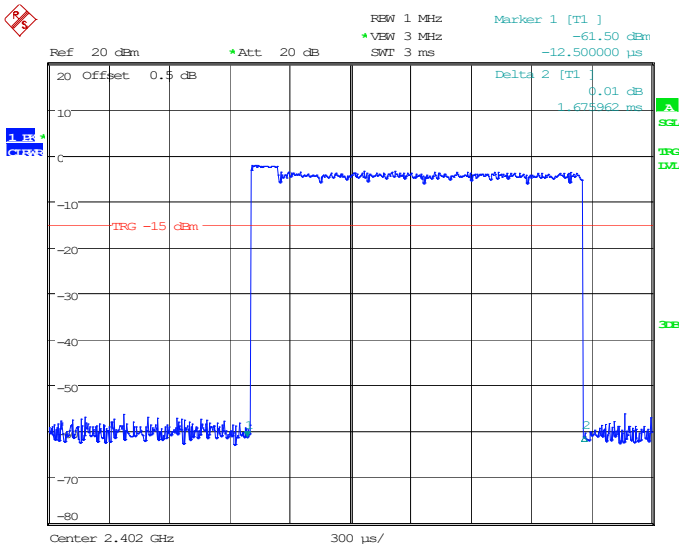
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:23:24

EDR (π/4-DQPSK):Pulse time, High Channel, 2DH1



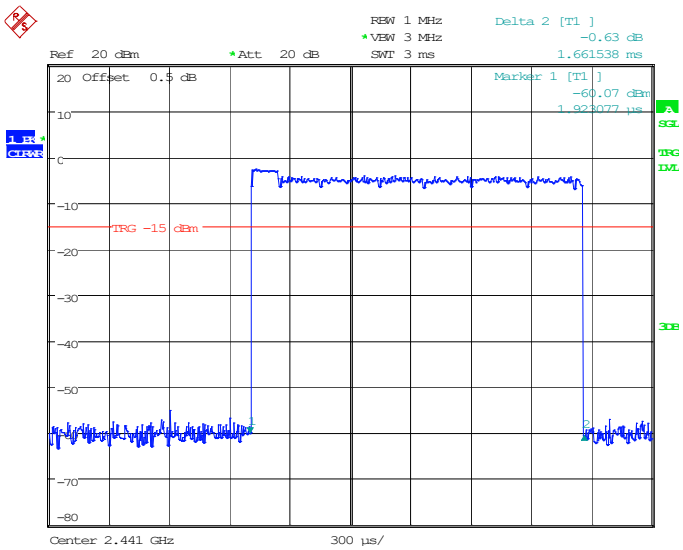
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:22:37

EDR (π/4-DQPSK):Pulse time, Low Channel, 2DH3



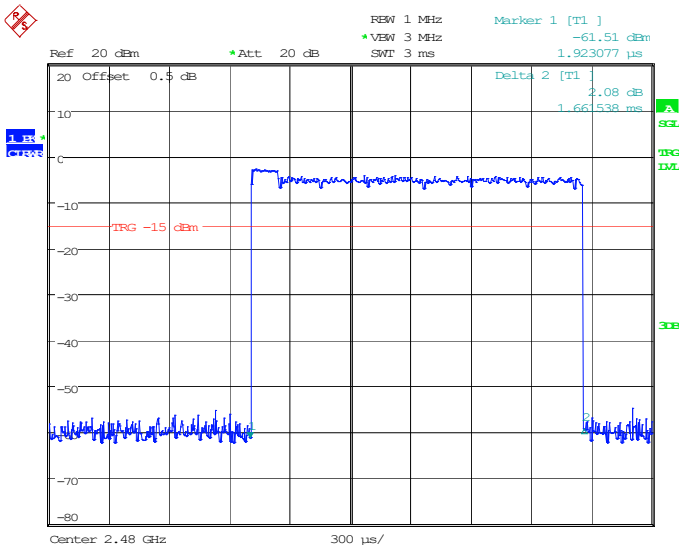
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:19:18

EDR (π/4-DQPSK):Pulse time, Middle Channel, 2DH3



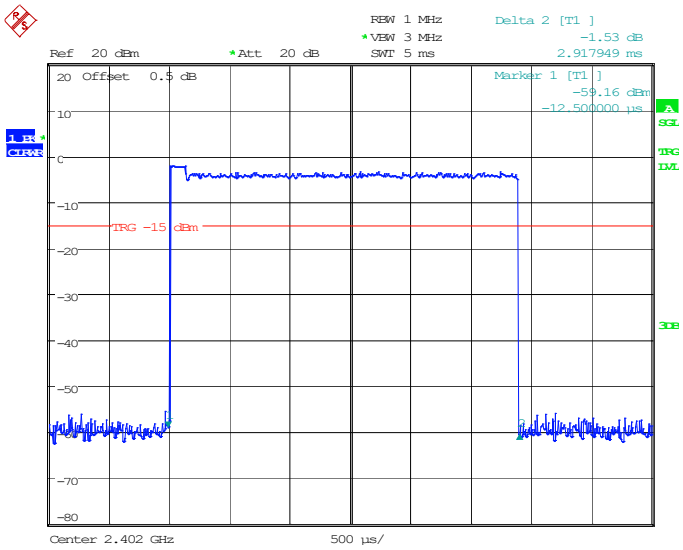
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:20:00

EDR (π/4-DQPSK):Pulse time, High Channel, 2DH3



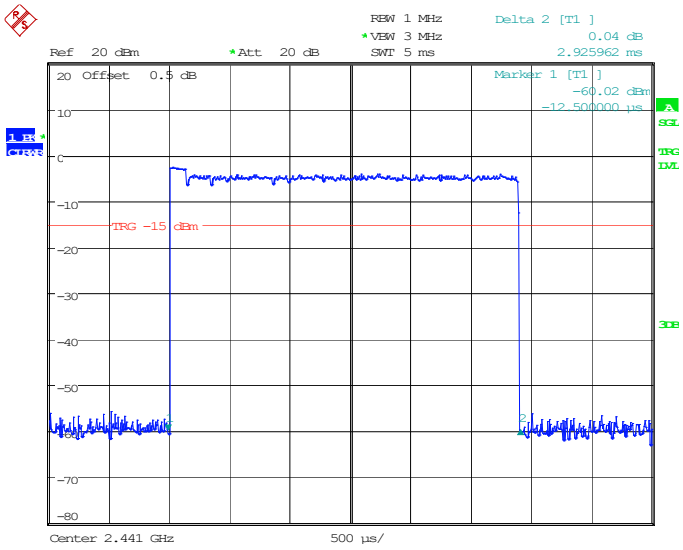
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:20:42

EDR (π/4-DQPSK):Pulse time, Low Channel, 2DH5



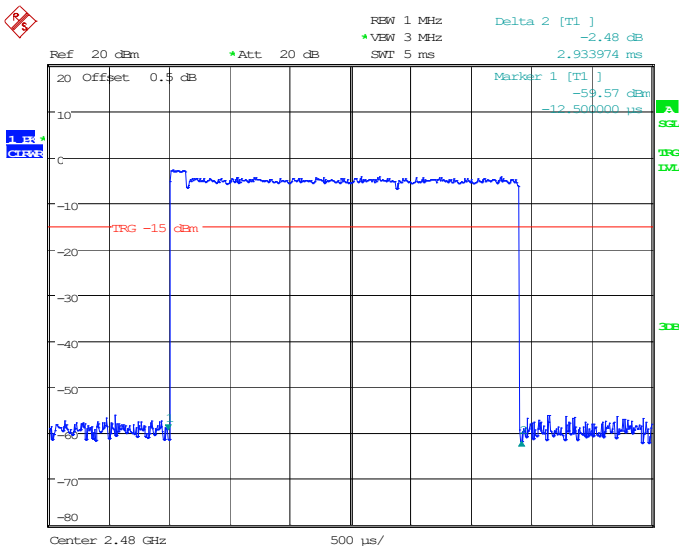
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:15:26

EDR (π/4-DQPSK):Pulse time, Middle Channel, 2DH5



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:16:36

EDR (π/4-DQPSK):Pulse time, High Channel, 2DH5



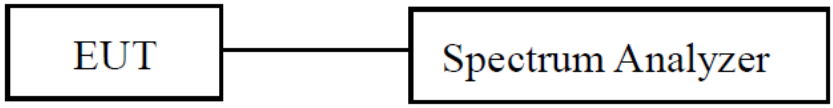
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:17:39

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.

EUT Setup



Test Procedure

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.
e. A plot of the test results and setup description shall be included in the test report.

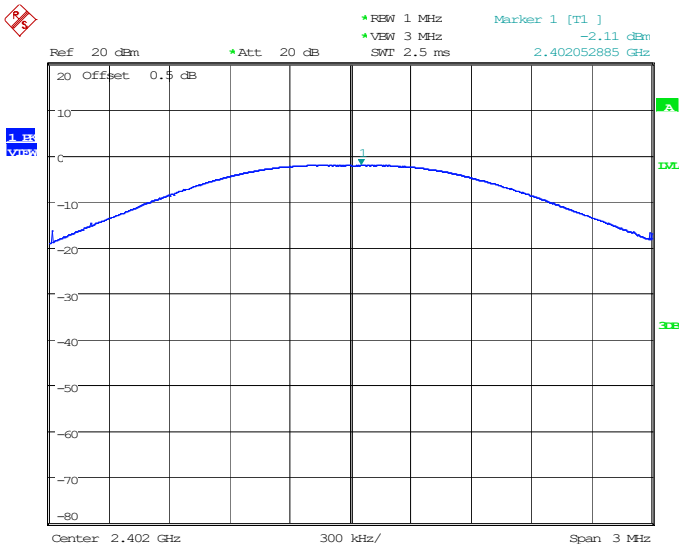
Test Data

Test Mode:	Transmitting	Test Engineer:	Stein Peng
Test Date:	2024-05-14~2024~05-17	Environment:	Temp.: 23.9℃~25.9℃ Humi.: 60%~62% Atm:99.8kPa~101.1kPa

Mode	Frequency (MHz)	Peak Conducted Output Power (dBm)	Limit (dBm)
BDR (GFSK)	2402	-2.11	21
	2441	-2.63	21
	2480	-2.86	21
EDR (π/4-DQPSK)	2402	-2.01	21
	2441	-2.53	21
	2480	-2.78	21

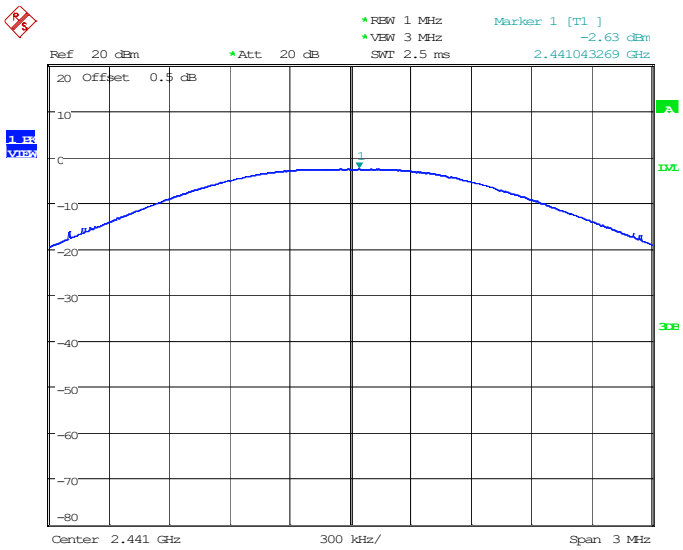
Please refet to below plots:

BDR (GFSK): 2402MHz



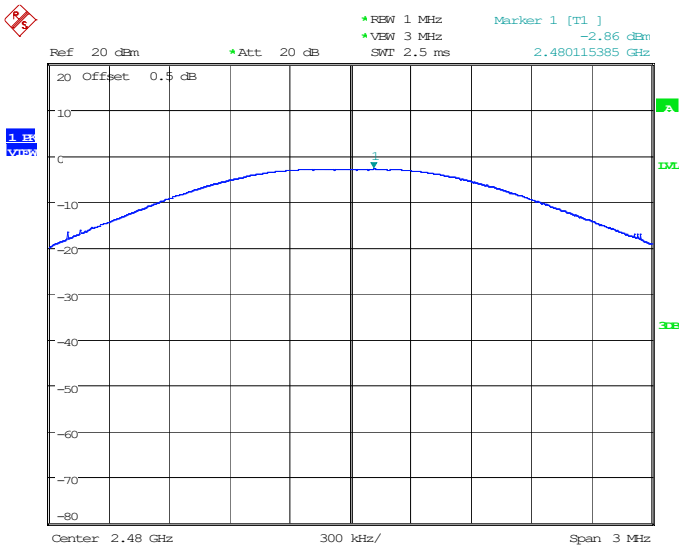
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:30:53

BDR (GFSK): 2441MHz



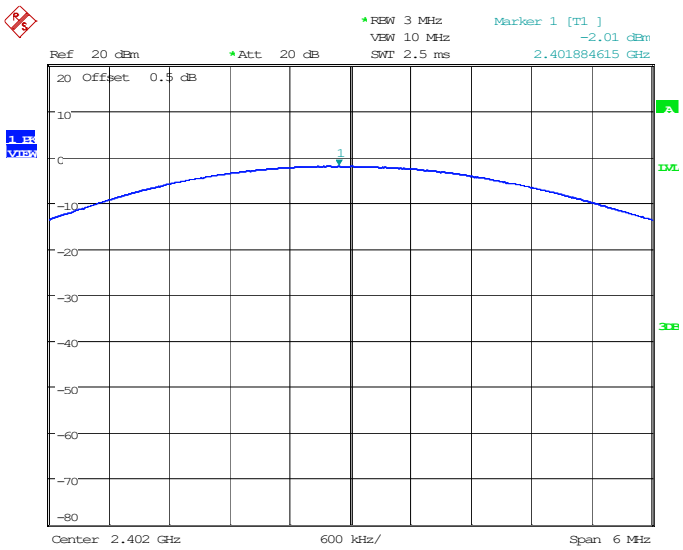
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:32:57

BDR (GFSK): 2480MHz



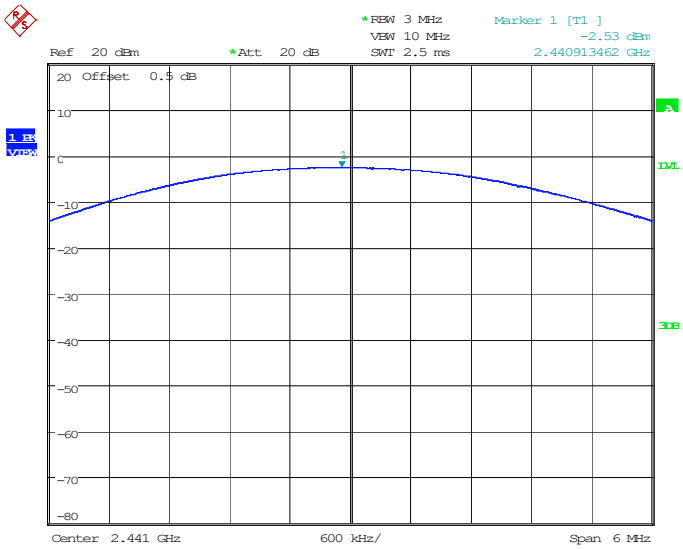
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 13:33:37

EDR(π/4-DQPSK): 2402MHz



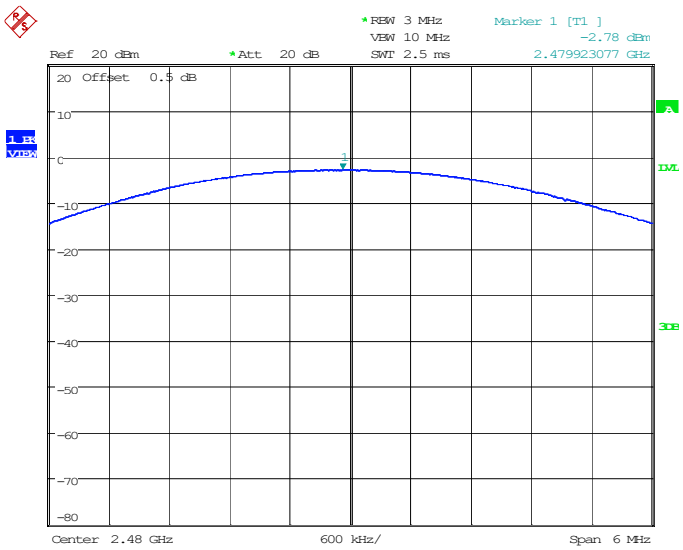
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 17.MAY.2024 17:59:36

EDR(π/4-DQPSK): 2441MHz



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 17.MAY.2024 18:01:07

EDR(π/4-DQPSK): 2480MHz



Project No. :2407T42038E-RF Tester: Stein Peng

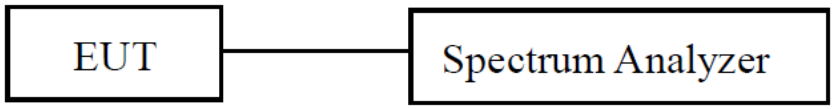
Date: 17.MAY.2024 18:01:57

FCC §15.247(d) - 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)).

EUT Setup



Test Procedure

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.

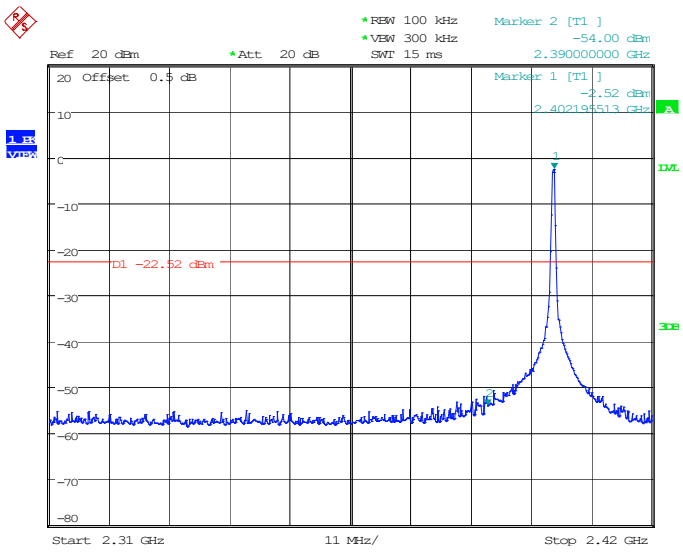
Test Data

Test Mode:	Transmitting	Test Engineer:	Ash Lin
Test Date:	2024-05-14~2024-05-15	Environment:	Temp.: 23.9°C Humi.: 60%~62% Atm:99.8kPa~101.8kPa

Please refer to the below plots:

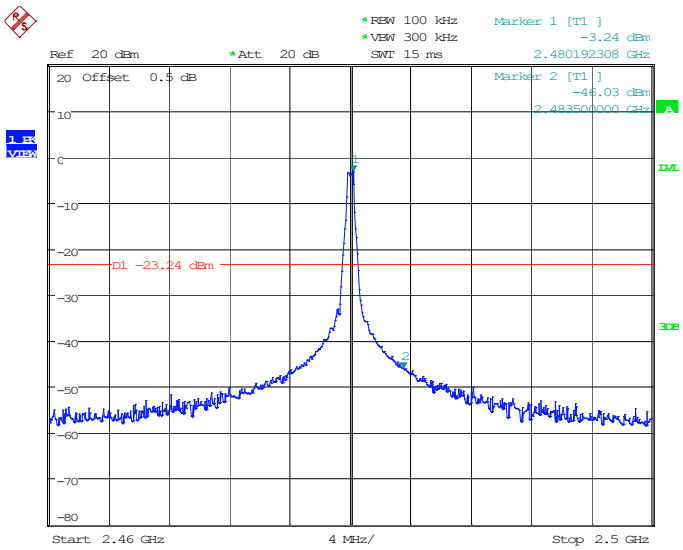
Band Edge

BDR (GFSK): Left Side



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 15.MAY.2024 09:58:10

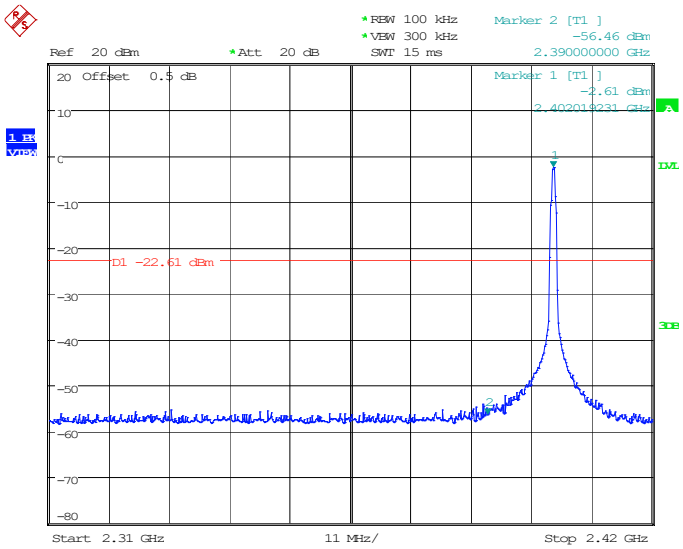
BDR (GFSK): Right Side



Project No. :2407T42038E-RF Tester: Stein Peng

Date: 14.MAY.2024 13:58:26

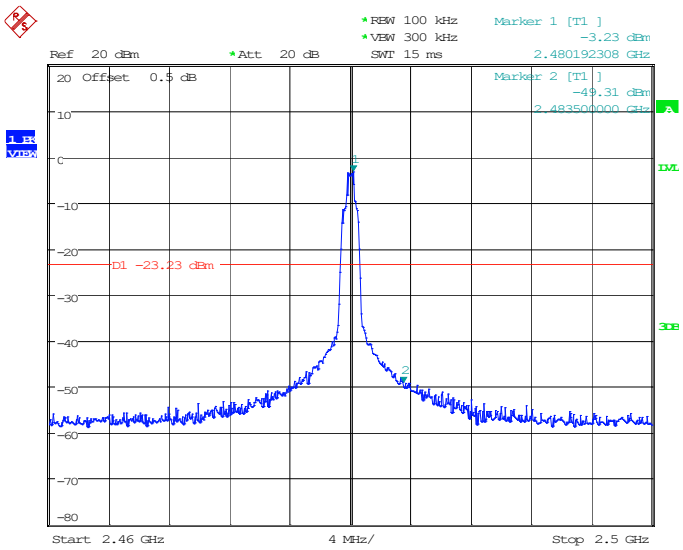
EDR (π/4-DQPSK): Left Side



Project No. :2407T42038E-RF Tester: Stein Peng

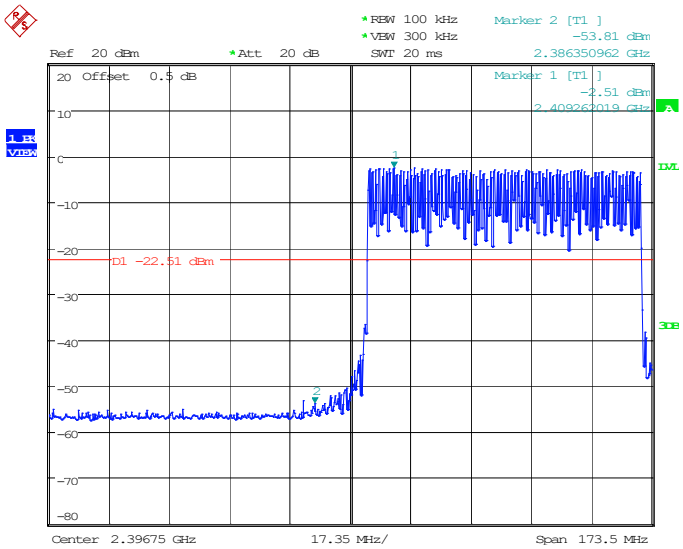
Date: 15.MAY.2024 09:55:38

EDR (π/4-DQPSK): Right Side



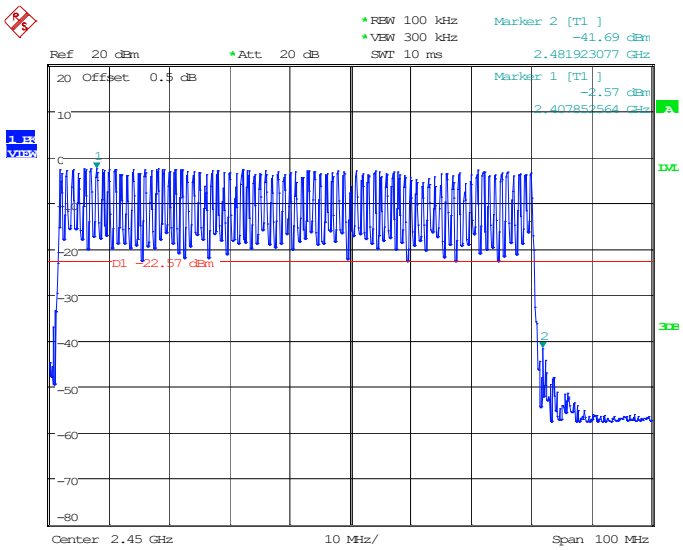
Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 14:01:03

BDR (GFSK): Left Side - Hopping



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 14:14:19

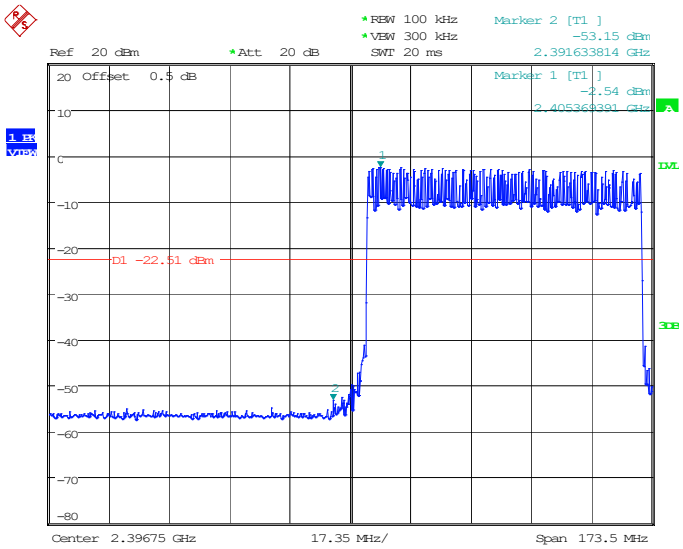
BDR (GFSK): Right Side - Hopping



Project No. :2407T42038E-RF Tester: Stein Peng

Date: 14.MAY.2024 14:58:47

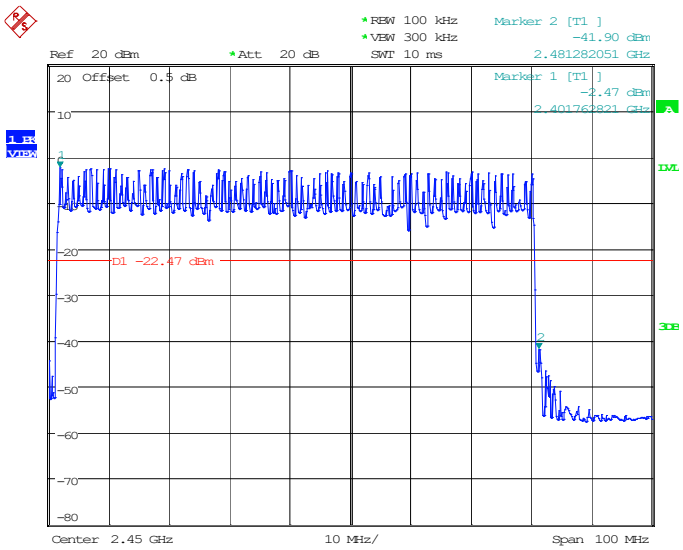
EDR (π/4-DQPSK): Left Side - Hopping



Project No. :2407T42038E-RF Tester: Stein Peng

Date: 14.MAY.2024 14:40:47

EDR (π/4-DQPSK): Right Side - Hopping



Project No. :2407T42038E-RF Tester: Stein Peng
Date: 14.MAY.2024 14:51:30

APPENDIX A - EUT PHOTOGRAPHS

Please refer to the attachment 2407T42038E-RF-EXP EUT EXTERNAL PHOTOGRAPHS and 2407T42038E-RF-INP EUT INTERNAL PHOTOGRAPHS.

APPENDIX B - TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2407T42038E-RF-TSP TEST SETUP PHOTOGRAPHS.

Declarations

1. Bay Area Compliance Laboratories Corp. (Xiamen) is not responsible for authenticity of any information provided by the applicant. Information from the applicant that may affect test results are marked with an asterisk "★".

2. Unless otherwise stated, the results shown in this test report refer only to the sample(s) tested.

3. Unless required by the rule provided by the applicant or product regulations, then decision rule in this report did not consider the uncertainty.

4. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor k=2 with the 95.45% confidence interval.

5. This report cannot be reproduced except in full, without prior written approval of Bay Area Compliance Laboratories Corp. (Xiamen).

6. This report is valid only with a valid digital signature. The digital signature may be available only under the adobe software above version 7.0.

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