

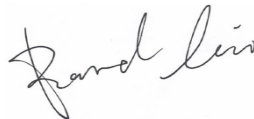
FCC PART 15.247 TEST REPORT

For

Miura Systems Ltd

Unit 3, Cliveden Office Village, Lancaster Road, Cressex Industrial Estate, High Wycombe, United Kingdom

FCC ID: 2AO4FMASP01

Report Type: Original Report	Product Name: MASP01
Report Number:	RKSA231206001-00A
Report Date:	2024-06-21
Reviewed By:	Bard Liu 
Approved By:	Kyle Xu 
Prepared By:	Bay Area Compliance Laboratories Corp. (Kunshan) No.248 Chenghu Road, Kunshan, Jiangsu Province, China Tel: +86-512-86175000 Fax: +86-512-88934268 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Kunshan). This report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, or any agency of the U.S. Government.

TABLE OF CONTENTS

REPORT REVISION HISTORY.....	4
GENERAL INFORMATION.....	5
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	5
OBJECTIVE	5
TEST METHODOLOGY	5
MEASUREMENT UNCERTAINTY.....	6
TEST FACILITY	6
SYSTEM TEST CONFIGURATION.....	7
DESCRIPTION OF TEST CONFIGURATION	7
EUT EXERCISE SOFTWARE	7
SPECIAL ACCESSORIES.....	7
EQUIPMENT MODIFICATIONS	7
SUPPORT EQUIPMENT LIST AND DETAILS	8
EXTERNAL I/O CABLE.....	8
BLOCK DIAGRAM OF TEST SETUP	8
SUMMARY OF TEST RESULTS	12
TEST EQUIPMENT LIST	13
FCC §15.203 – ANTENNA REQUIREMENT	14
APPLICABLE STANDARD	14
ANTENNA CONNECTOR CONSTRUCTION	14
FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS	15
APPLICABLE STANDARD	15
TEST SYSTEM SETUP.....	15
EMI TEST RECEIVER SETUP.....	15
TEST PROCEDURE	16
TEST RESULTS SUMMARY	16
TEST DATA: SEE APPENDIX	16
FCC §15.205, §15.209 & §15.247(d) – RADIATED EMISSIONS.....	17
APPLICABLE STANDARD	17
TEST SYSTEM SETUP.....	17
EMI TEST RECEIVER SETUP.....	18
TEST PROCEDURE	18
TEST RESULTS SUMMARY	19
TEST DATA: SEE APPENDIX	19
FCC §15.247(a) (1)-CHANNEL SEPARATION TEST	20
APPLICABLE STANDARD	20
TEST PROCEDURE	20
TEST DATA: SEE APPENDIX	20
FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH.....	21
APPLICABLE STANDARD	21
TEST PROCEDURE	21
TEST DATA: SEE APPENDIX	21
FCC §15.247(a) (1) (iii)-QUANTITY OF HOPPING CHANNEL TEST	22
APPLICABLE STANDARD	22
TEST PROCEDURE	22
TEST DATA: SEE APPENDIX	22
FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME).....	23
APPLICABLE STANDARD	23

TEST PROCEDURE	23
TEST DATA: SEE APPENDIX	23
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT	24
APPLICABLE STANDARD	24
TEST PROCEDURE	24
TEST DATA: SEE APPENDIX	24
FCC §15.247(d) - BAND EDGES TESTING	25
APPLICABLE STANDARD	25
TEST PROCEDURE	25
TEST DATA: SEE APPENDIX	25
Appendix - TEST DATA.....	26
ENVIRONMENTAL CONDITIONS & TEST INFORMATION	26
AC LINE CONDUCTED EMISSIONS	28
RADIATED EMISSIONS & RESTRICTED BANDS EMISSIONS	32
CHANNEL SEPARATION TEST	54
20 dB BANDWIDTH TEST	59
QUANTITY OF HOPPING CHANNEL TEST	64
TIME OF OCCUPANCY (DWELL TIME)	66
PEAK OUTPUT POWER MEASUREMENT.....	72
BAND EDGES.....	78
EUT PHOTOGRAPHS.....	85
TEST SETUP PHOTOGRAPHS	86

REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA231206001-00A	R1V1	2024-06-21	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Miura Systems Ltd
Product Name:	MASP01
Tested Model:	MASP01
HVIN:	MASP01-1, MASP01-2
Power Supply:	DC 5V charging (USB-C or POGO Pins port) or DC 7.4V battery
Maximum Output Power:	GFSK: 10.98 dBm $\pi/4$ -DQPSK: 10.41 dBm 8DPSK: 10.77 dBm
RF Function:	Classic BT
Operating Band/Frequency:	2402-2480 MHz
Channel Number:	79
Channel Separation:	1 MHz
Modulation Type:	GFSK, $\pi/4$ -DQPSK, 8DPSK
Antenna Type:	FPC Antenna
★Maximum Antenna Gain:	1.3 dBi

Adapter Information:

Model: ASSA107w-050200

Input: AC100-240V 50/60Hz 0.45A

Output: 5V, 2.0A, 10.0W

Note: The maximum antenna gain was declared by the manufacturer.

All measurement and test data in this report was gathered from production sample serial number:

RKSA231206001-1 (HVIN: MASP01-1) (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2023-12-06.)

Objective

This test report is prepared for *Miura Systems 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 C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices and 558074 D01 15.247 Meas Guidance v05r02.

Measurement Uncertainty

Item		Uncertainty
AC Power Lines Conducted Emissions		3.19dB
RF conducted test with spectrum		0.9dB
RF Output Power with Power meter		0.5dB
Radiated emission	9 kHz~150 kHz	3.8dB
	150 kHz~30 MHz	3.4dB
	30MHz~1GHz	6.11dB
	1GHz~6GHz	4.45dB
	6GHz~18GHz	5.23dB
	18GHz~40GHz	5.65dB
Occupied Bandwidth		0.5kHz
Temperature		1.0°C
Humidity		6%

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Kunshan) to collect test data is located on the No.248 Chenghu Road, Kunshan, Jiangsu Province, China.

Bay Area Compliance Laboratories Corp. (Kunshan) is accredited in accordance with ISO/IEC 17025:2017 by NVLAP (Lab code: 600338-0), and the lab has been recognized as the FCC accredited lab under the KDB 974614 D01, the FCC Designation No. : CN5055.

SYSTEM TEST CONFIGURATION

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: QRCT

★Power level: Default

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
/	/	/	/

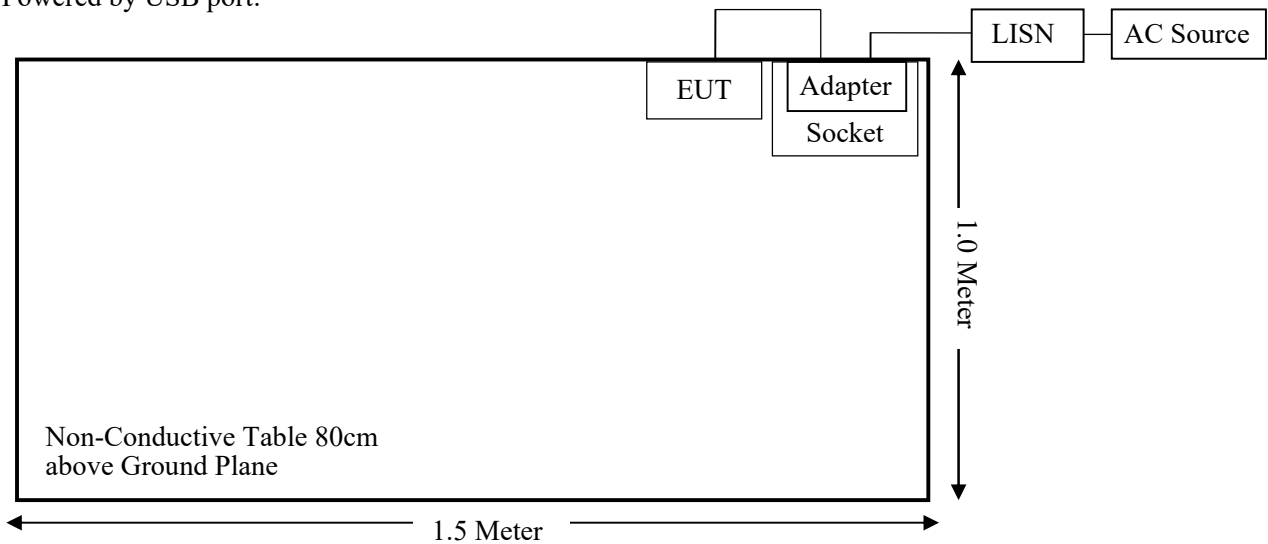
External I/O Cable

Cable Description	Length (m)	From Port	To
USB Cable	1.0	EUT/Base	Adapter
Power Cable	1.0	Adapter	LISN/AC Source

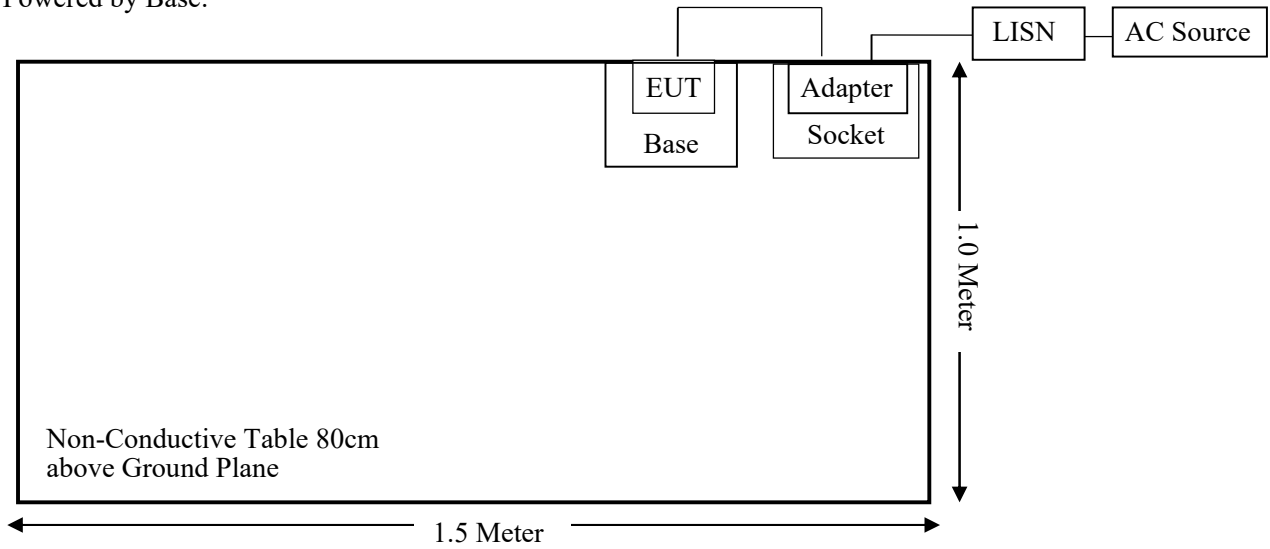
Block Diagram of Test Setup

For Conducted Emissions:

Powered by USB port:

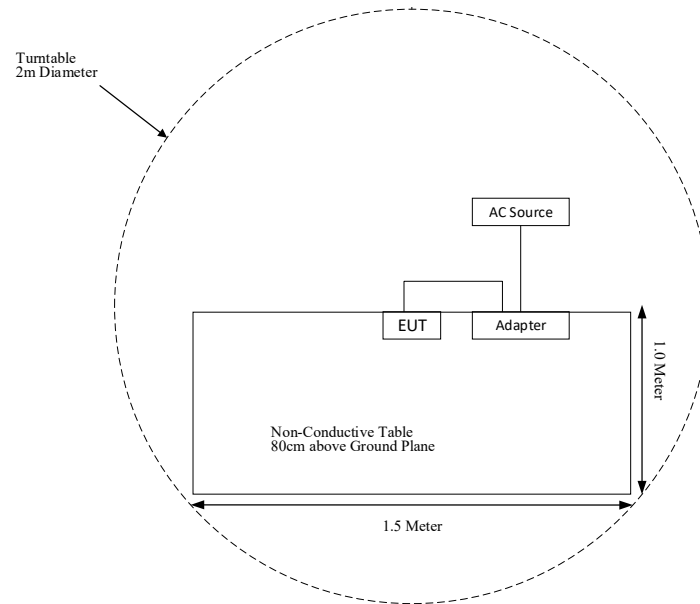


Powered by Base:

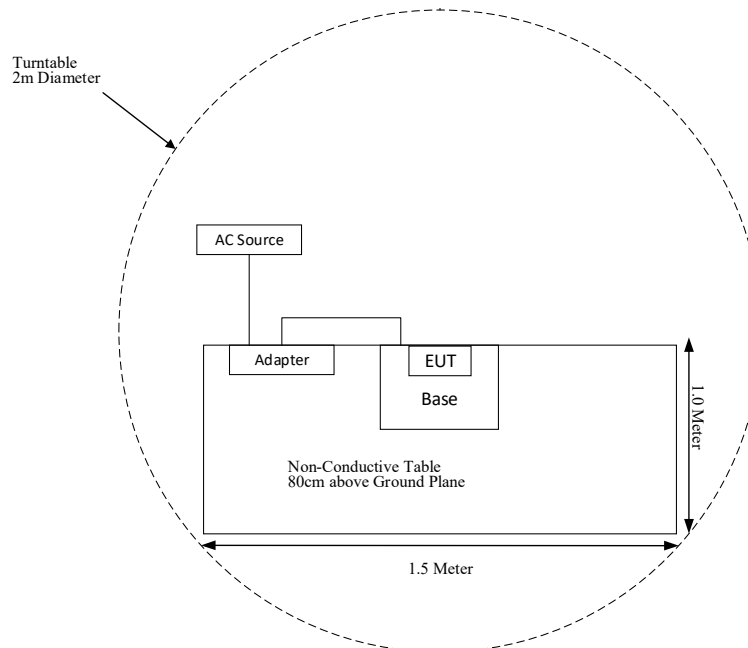


For Radiated Emissions (Below 1GHz):

Powered by USB port:

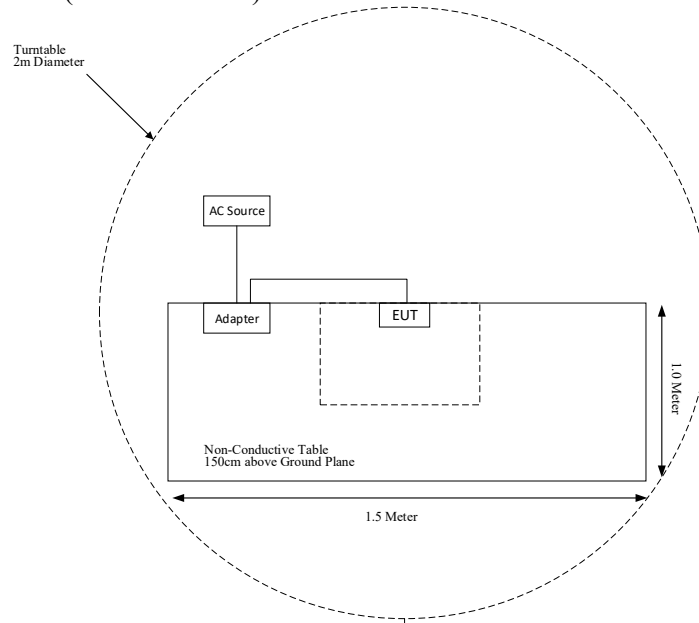


Powered by Base:

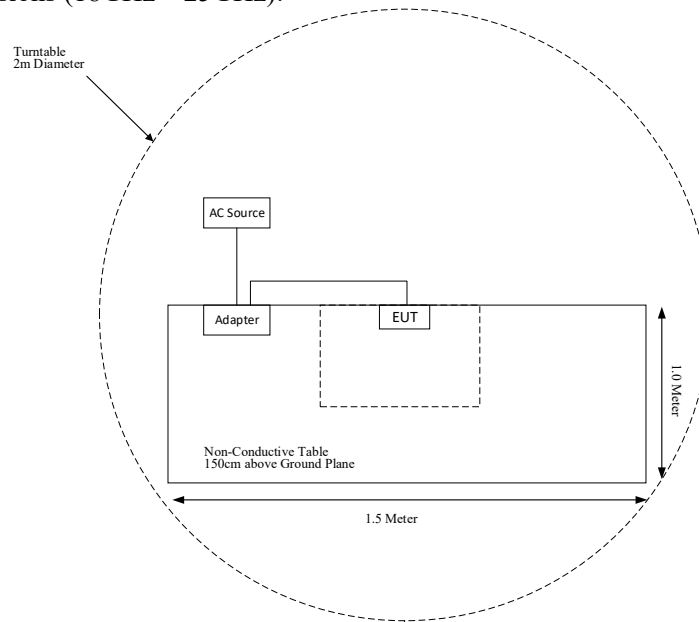


Powered by USB port:

For Radiated Emissions (1GHz – 18GHz):



For Radiated Emissions (18GHz – 25GHz):



Note: The product can be charged via two different ports, USB-C or POGO Pins. Both configurations be evaluated AC Power Line Conducted Emissions and Undesirable Emission for below 1GHz. Two configurations are basically the same. Therefore, only powered by USB port mode to be assessed for 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
Radiated Emission Test (Chamber #1)					
Rohde & Schwarz	EMI Test Receiver	ESCI	100195	2023-05-23	2024-05-22
Sunol Sciences	Broadband Antenna	JB3	A090314-1	2023-11-11	2024-11-10
Narda	6dB Attenuator	773-6	10690812-2-1	2023-11-11	2024-11-10
ETS-LINDGREN	Loop Antenna	6512	108100	2023-11-09	2024-11-08
Sonoma Instrument	Pre-amplifier	310N	171205	2023-05-23	2024-05-22
Rohde & Schwarz	Auto Test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-8	008	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-9	009	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-10	010	2023-05-23	2024-05-22
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2023-05-19	2024-05-18
ETS-LINDGREN	Horn Antenna	3115	9311-4159	2023-12-02	2024-12-01
ETS-LINDGREN	Horn Antenna	3116	2516	2023-12-08	2024-12-07
A.H.Systems, inc	Amplifier	PAM-0118P	512	2023-05-23	2024-05-22
SELECTOR	Amplifier	EM18G40G	060726	2023-05-23	2024-05-22
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2023-08-05	2024-08-04
Narda	Attenuator	10dB	010	2023-08-15	2024-08-14
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-11	011	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-12	012	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-13	013	2023-05-23	2024-05-22
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2023-05-23	2024-05-22
Rohde & Schwarz	Signal Analyzer	FSV40	101116	2023-05-23	2024-05-22
Narda	Attenuator	10dB	010	2023-05-23	2024-05-22
XHFDZ	RG316 Coaxial Cable	SMA-316	XHF-1175	Each time	N/A
Unknown	RF Cable	RF Cable C01	C01	Each Time	N/A
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	1316.3003K03-101746-zn	2023-07-28	2024-07-27
Rohde & Schwarz	LISN	ENV216	101115	2023-05-23	2024-05-22
Audix	Test Software	e3	V9	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3-Z2	100552	2023-05-23	2024-05-22
MICRO-COAX	Coaxial Cable	Cable-15	015	2023-05-23	2024-05-22

Statement of Traceability: Bay Area Compliance Laboratories Corp. (Kunshan) 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.

Antenna Connector Construction

The EUT has an FPC antenna which was permanently attached, and the antenna gain is 1.30 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

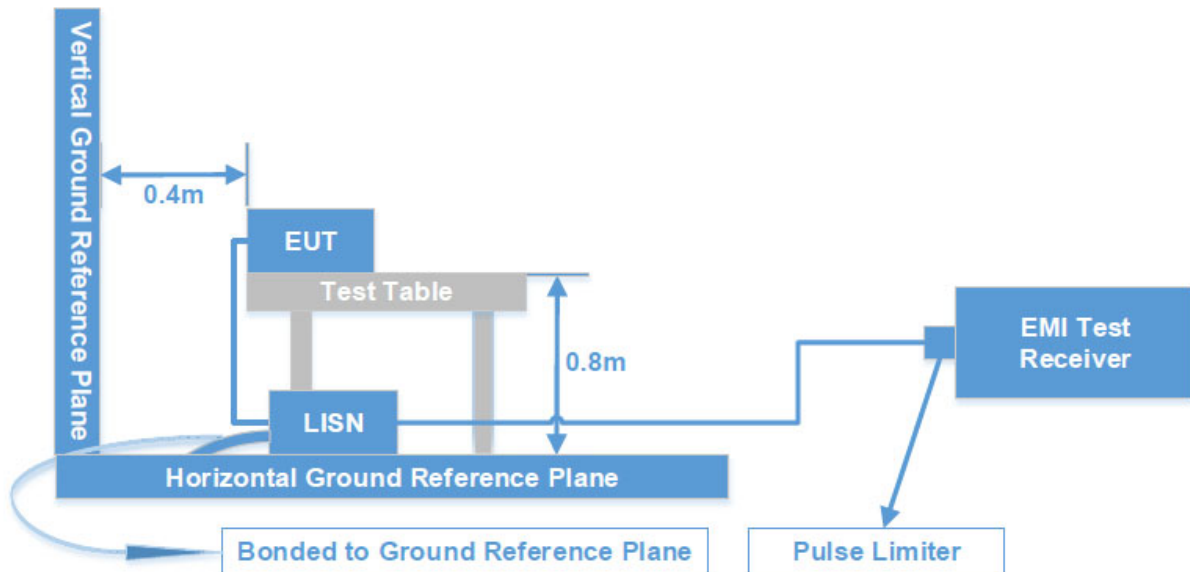
Result: Compliant.

FCC §15.207 (a) – AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

Test System Setup



The measurement procedure of EUT setup is according with ANSI C63.10-2013. 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
150 kHz - 30 MHz	9 kHz	30 kHz

Test Procedure

ANSI C63.10-2013 clause 6.2

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 & Over Limit 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) = Read level (dBμV) + Factor (dB)

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 above the limit. The equation for Over Limit calculation is as follows:

Over Limit (dB) = Level (dBμV) - Limit (dBμV)

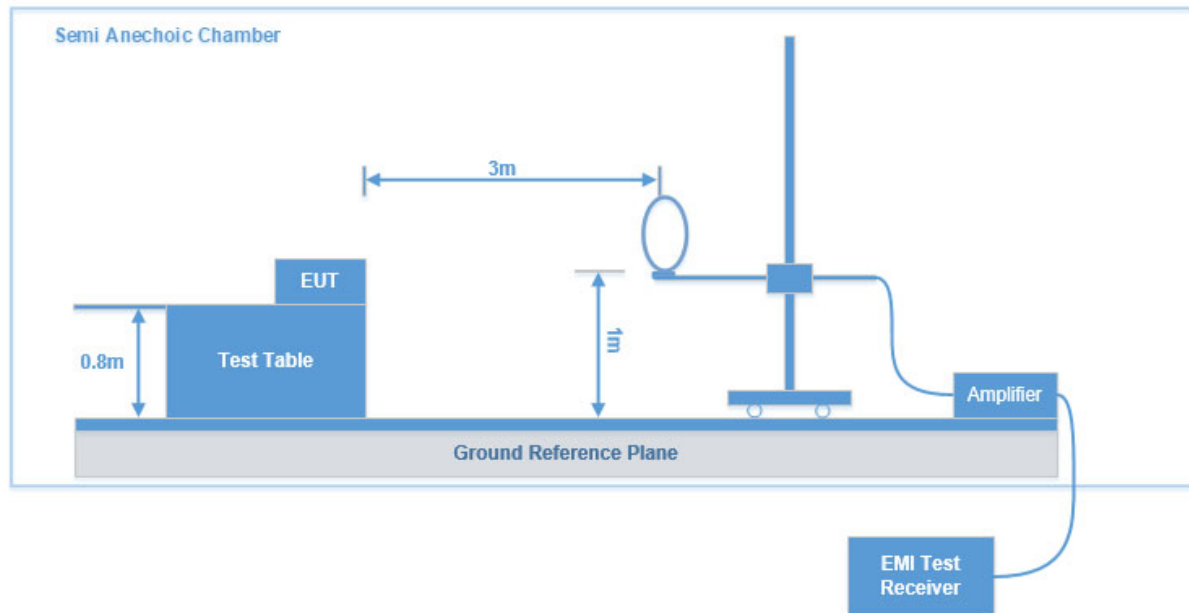
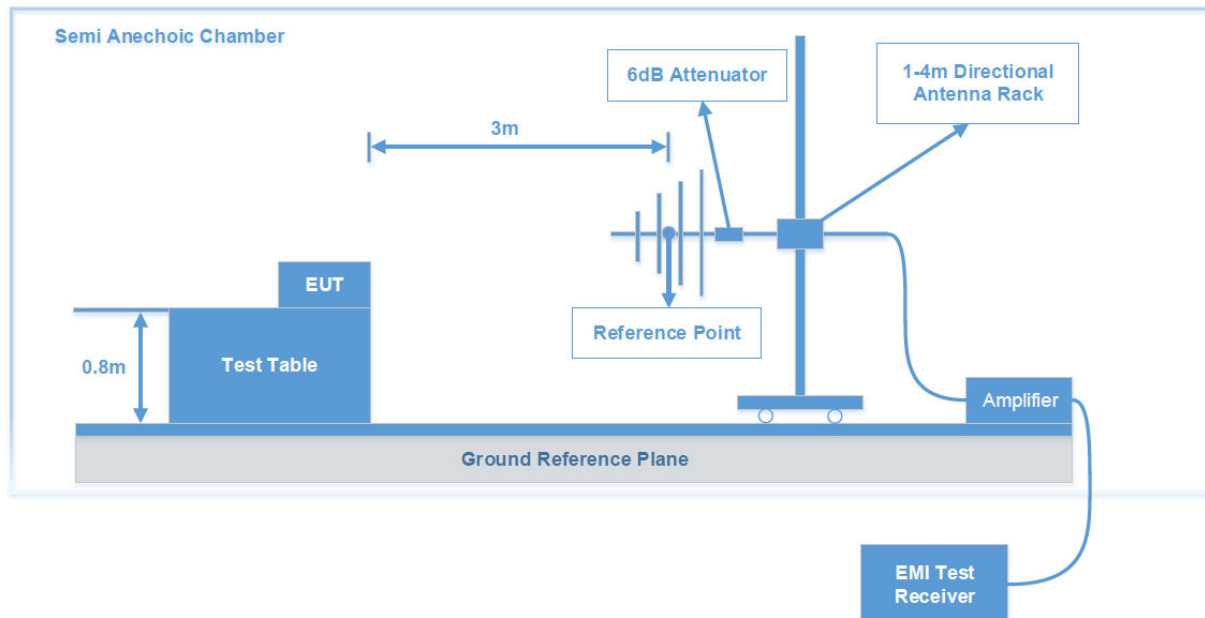
Test Results Summary

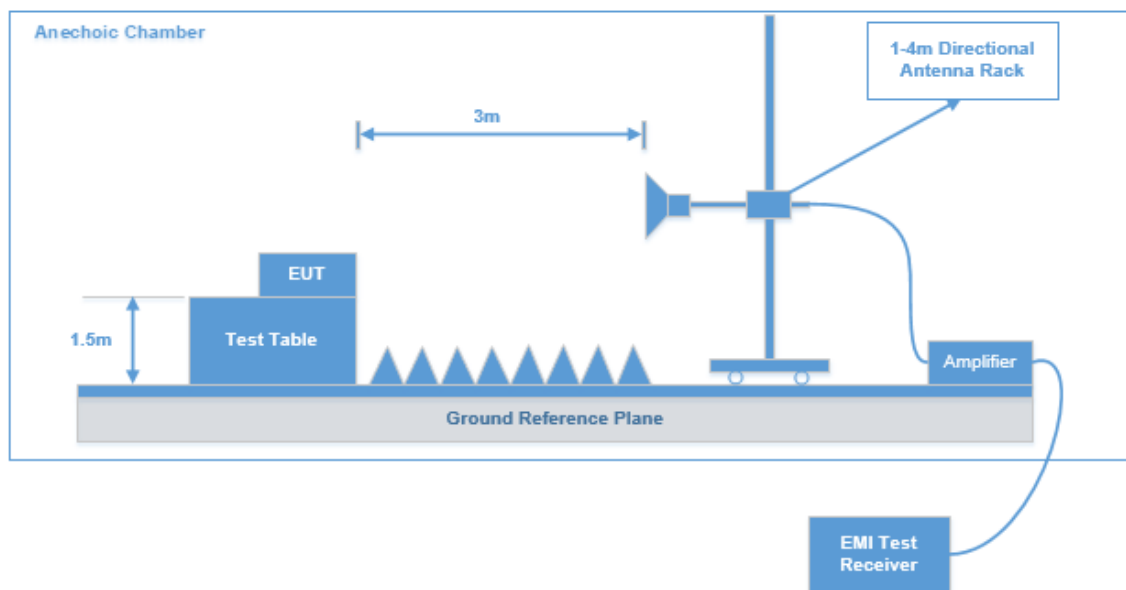
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data: See Appendix

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:****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 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	200 Hz	1 kHz	200 Hz	QP/Average
150 kHz - 30 MHz	9 kHz	30 kHz	9 kHz	QP/ Average
30 MHz - 1000 MHz	100 kHz	300 kHz	/	Peak
	/	/	120 kHz	QP
Above 1GHz	1MHz	3 MHz	/	Peak
	1MHz	3 MHz	/	Average

Test Procedure

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

If the measured peak level of the emissions that the measuring receiver reading level plus corrected factor is at least 6 dB below the QP emission limit, there's no need to record the measured QP level of the emissions in the report.

For 9 kHz-30MHz test, the lowest height of the magnetic antenna shall be 1 m above the ground and three antenna orientations (parallel, perpendicular, and ground-parallel) shall be measured.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude 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:

Corrected Amplitude (dBμV/m) = Meter Reading (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB) - Amplifier Gain (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/m) – Corrected Amplitude (dBμV/m)

Note: The QuasiPeak (dBμV/m), MaxPeak (dBμV/m), Average (dBμV/m) which shown in the data table are all Corrected Amplitude.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247.

Test Data: See Appendix

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

Applicable Standard

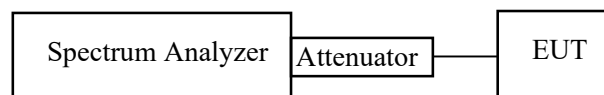
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that 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.

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) $\geq$ 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: See Appendix

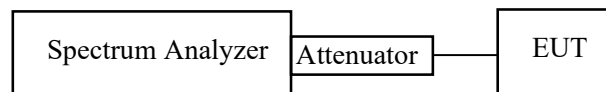
FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH

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

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: See Appendix

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

Applicable Standard

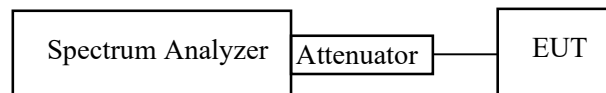
Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress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

Test Procedure

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 $\geq$ 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: See Appendix

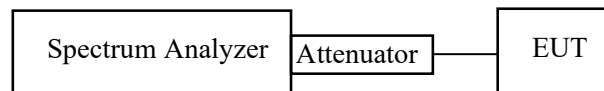
FCC §15.247(a) (1) (iii) - TIME OF OCCUPANCY (DWELL TIME)**Applicable Standard**

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

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 $\leq$ channel spacing and where possible RBW should be set $\geq 1 / T$, 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: See Appendix

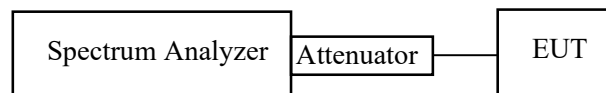
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

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

- 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 $\geq$ 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: See Appendix

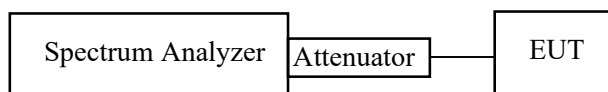
FCC §15.247(d) - BAND EDGES TESTING

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)).

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: See Appendix

Appendix - TEST DATA

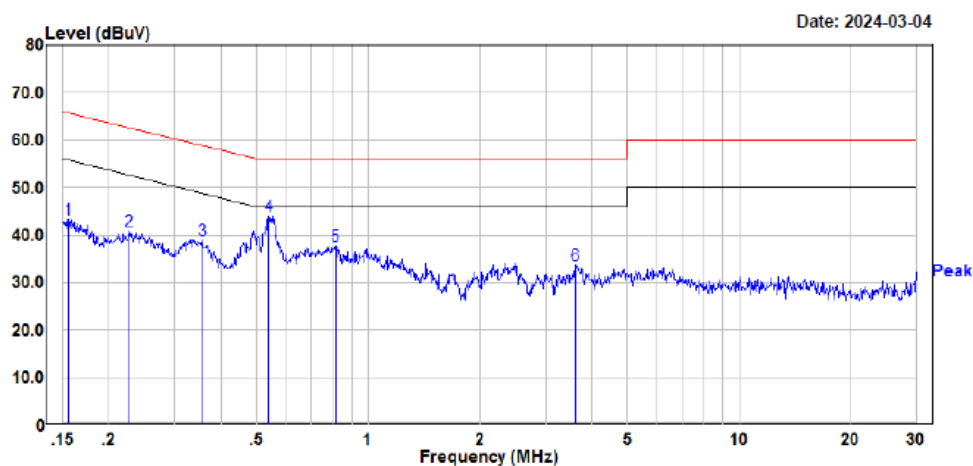
Environmental Conditions & Test Information

Test Item:	AC LINE CONDUCTED EMISSIONS		RADIATED EMISSIONS	
			9kHz - 1GHz	
Test Date:	2024-03-04	2024-04-01	2024-04-19	2024-04-26
Temperature:	15.9 °C	18.8 °C	19.2 °C	21.5 °C
Relative Humidity:	45 %	57 %	57 %	52 %
ATM Pressure:	101.6kPa	101.5kPa	101.1kPa	100.7kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Joe Zhang	Frank Liu	Leah Li	Leah Li

Test Item:	RADIATED EMISSIONS	
	1 GHz – 18 GHz	18 GHz – 25 GHz
Test Date:	2024-03-02	2024-05-07
Temperature:	20.3 °C	24.6 °C
Relative Humidity:	52 %	43 %
ATM Pressure:	102.8kPa	102.6kPa
Test Result:	Pass	Pass
Test Engineer:	Peter Wang	Peter Wang

Test Item:	20 DB BANDWIDTH TEST	CHANNEL SEPARATION TEST	QUANTITY OF HOPPING CHANNEL TEST	TIME OF OCCUPANCY (DWELL TIME)
Test Date:	2024-02-27	2024-03-12	2024-03-12	2024-03-12
Temperature:	21.3 °C	23.5 °C	23.5 °C	23.5 °C
Relative Humidity:	45 %	39 %	39 %	39 %
ATM Pressure:	102.3kPa	103.4kPa	103.4kPa	103.4kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Bard Liu	Bard Liu	Bard Liu	Bard Liu

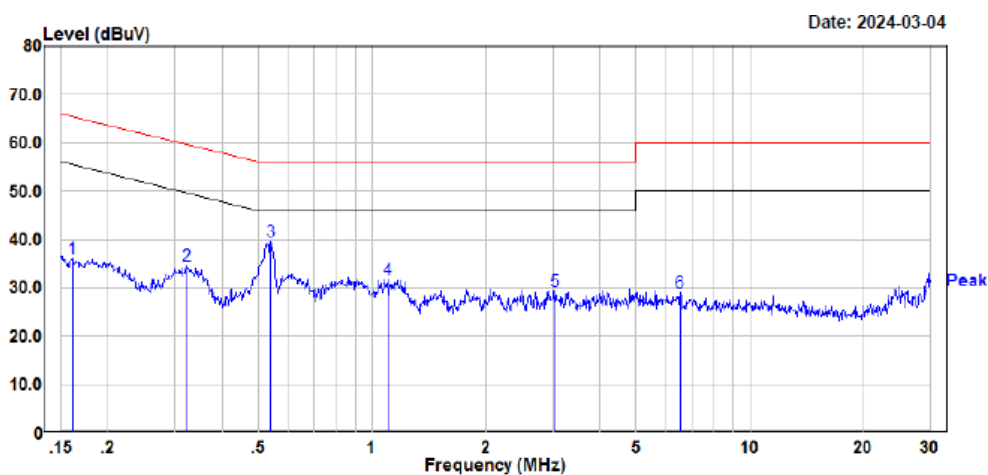
Test Item:	TRANSMITTER OUTPUT POWER MEASUREMENT	OUT OF BAND EMISSIONS
Test Date:	2024-04-02	2024-03-12~2024-04-07
Temperature:	21.5 °C	21.3 °C~23.5 °C
Relative Humidity:	46 %	39%~47 %
ATM Pressure:	102.5kPa	102.3kPa~103.4kPa
Test Result:	Pass	Pass
Test Engineer:	Bard Liu	Bard Liu

AC LINE CONDUCTED EMISSIONS*EUT operation mode: Transmitting in GFSK Mode low channel (maximum output power mode)**Powered by USB port:***Line**

Site : CE
Condition : FCC Part 15.207
: DET:Peak
Project No. : RKSA231206001
Model : MASP01
Phase : L
Voltage : 120V/60Hz
Mode : BT
Test Equipment : ENV216,ESR
Temperature : 15.9℃
Humidity : 45%
Atmospheric pressure: 101.6kPa
Test Engineer : Joe Zhang

		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.155	23.44	19.90	43.34	65.71	-22.37	Peak
2	0.226	20.88	19.97	40.85	62.61	-21.76	Peak
3	0.355	19.00	20.04	39.04	58.84	-19.80	Peak
4	0.537	23.91	20.10	44.01	56.00	-11.99	Peak
5	0.817	17.74	19.93	37.67	56.00	-18.33	Peak
6	3.607	13.40	20.28	33.68	56.00	-22.32	Peak

Neutral

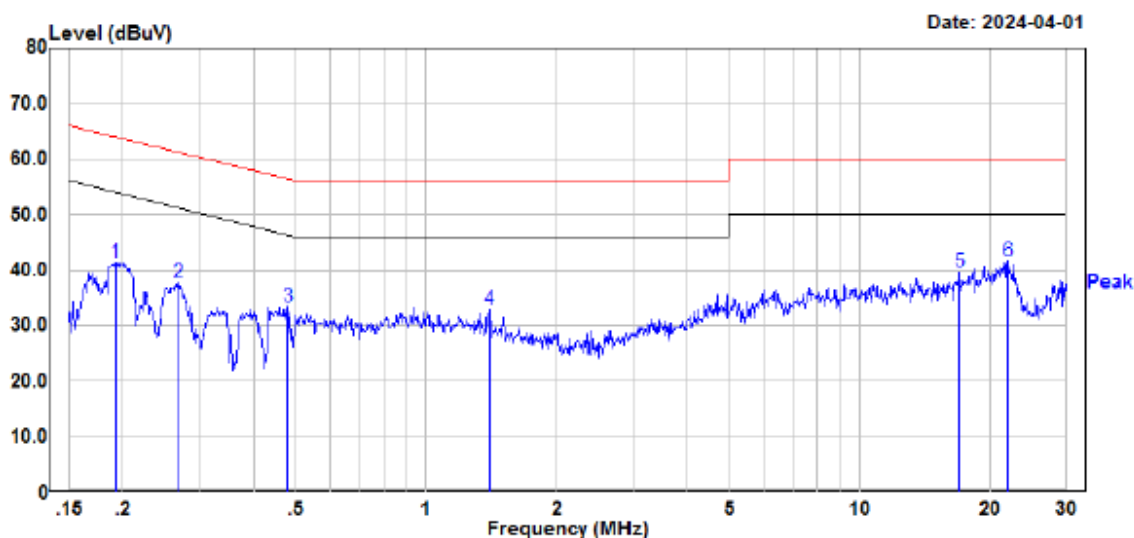


Site : CE
Condition : Part 15.207
: DET:Peak
Project No. : RKSA231206001
Model : MASP01
Phase : N
Voltage : 120V/60Hz
Mode : BT
Test Equipment : ENV216,ESR
Temperature : 15.9℃
Humidity : 45%
Atmospheric pressure: 101.6kPa
Test Engineer : Joe Zhang

	Freq	Read		Limit	Over	Remark
		Level	Factor	Level	Line	Limit
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.161	16.19	19.90	36.09	65.42	-29.33 Peak
2	0.323	14.60	20.02	34.62	59.62	-25.00 Peak
3	0.537	19.56	20.10	39.66	56.00	-16.34 Peak
4	1.101	11.94	19.81	31.75	56.00	-24.25 Peak
5	3.045	9.00	20.25	29.25	56.00	-26.75 Peak
6	6.527	8.79	20.26	29.05	60.00	-30.95 Peak

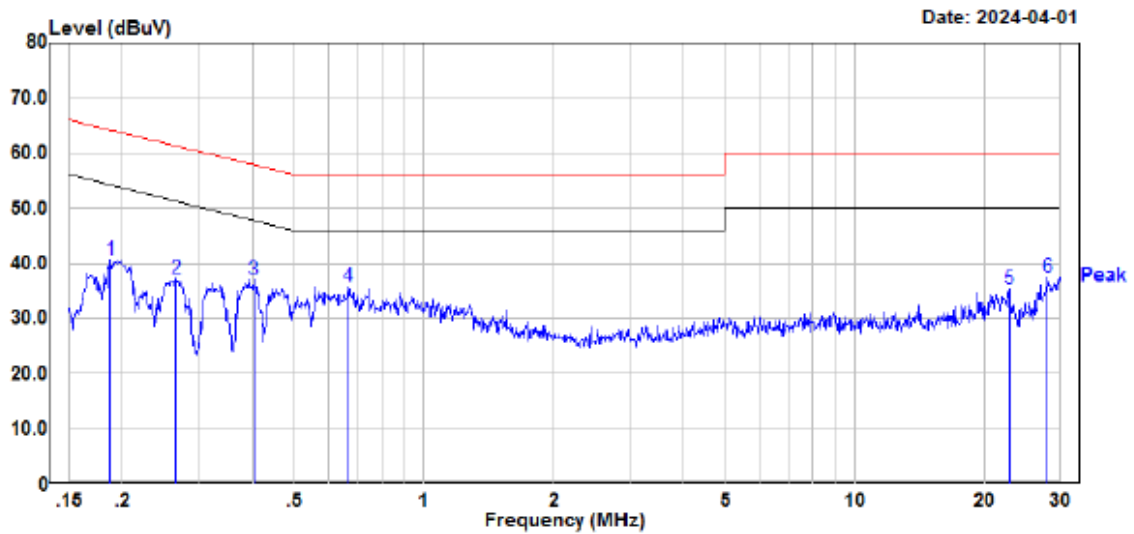
Powered by Base:

Line:



Site : CE
Condition : FCC Part 15.207
: DET:Peak
Project No. : RKSA231206001
Model : MASP01
Phase : L
Voltage : 120V/60Hz
Mode : BT
Test Equipment : ENV216,ESR
Temperature : 18.8℃
Humidity : 57%
Atmospheric pressure: 101.5kPa
Test Engineer : Frank Liu

		Read			Limit	Over	
	Freq	Level	Factor	Level	Line	Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.192	21.45	19.94	41.39	63.93	-22.54	Peak
2	0.269	17.66	19.99	37.65	61.16	-23.51	Peak
3	0.479	13.21	20.11	33.32	56.35	-23.03	Peak
4	1.399	12.82	19.97	32.79	56.00	-23.21	Peak
5	16.996	19.78	19.82	39.60	60.00	-20.40	Peak
6	21.915	21.78	19.88	41.66	60.00	-18.34	Peak

Neutral:

Site : CE
 Condition : FCC Part 15.207
 : DET:Peak
 Project No. : RKSA231206001
 Model : MASP01
 Phase : N
 Voltage : 120V/60Hz
 Mode : BT
 Test Equipment : ENV216,ESR
 Temperature : 18.8℃
 Humidity : 57%
 Atmospheric pressure: 101.5kPa
 Test Engineer : Frank Liu

	Freq	Read		Limit	Over	
		Level	Factor	Level	Line	Limit Remark
	MHz	dBuV	dB	dBuV	dBuV	dB
1	0.188	20.68	19.94	40.62	64.14	-23.52 Peak
2	0.266	17.16	19.99	37.15	61.24	-24.09 Peak
3	0.402	16.88	20.07	36.95	57.80	-20.85 Peak
4	0.669	15.73	20.07	35.80	56.00	-20.20 Peak
5	22.807	15.39	19.90	35.29	60.00	-24.71 Peak
6	27.978	17.53	19.99	37.52	60.00	-22.48 Peak

RADIATED EMISSIONS & RESTRICTED BANDS EMISSIONS

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

9 kHz-30MHz:(Transmitting in maximum output power mode and channel)

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

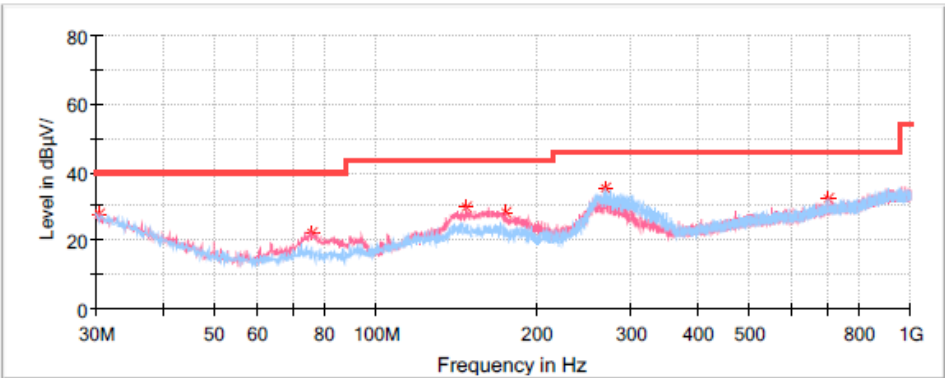
30MHz-1GHz:

EUT operation mode: Transmitting in GFSK mode (maximum output power mode)
Powered by USB port:

Low Channel: 2402 MHz

Common Information

Project No:	RKSA231206001
EUT Model:	MASP01
Test Mode:	BT
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI, JB3, 310N
Temperature:	19.2°C
Humidity:	57%
Barometric Pressure:	101.1kPa
Test Engineer:	Leah Li
Test Date:	2024/4/19



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.485000	27.62	40.00	12.38	V	-4.8
76.196250	21.98	40.00	18.02	V	-17.3
147.491250	29.82	43.50	13.68	V	-11.9
174.772500	27.93	43.50	15.57	V	-13.1
268.256250	35.19	46.00	10.81	H	-11.8
699.421250	32.37	46.00	13.63	H	-2.4

Middle Channel: 2441 MHz

Common Information

Project No:RKSA231206001

EUT Model:MASP01

Test Mode:BT

Standard:FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Equipment:ESCI, JB3, 310N

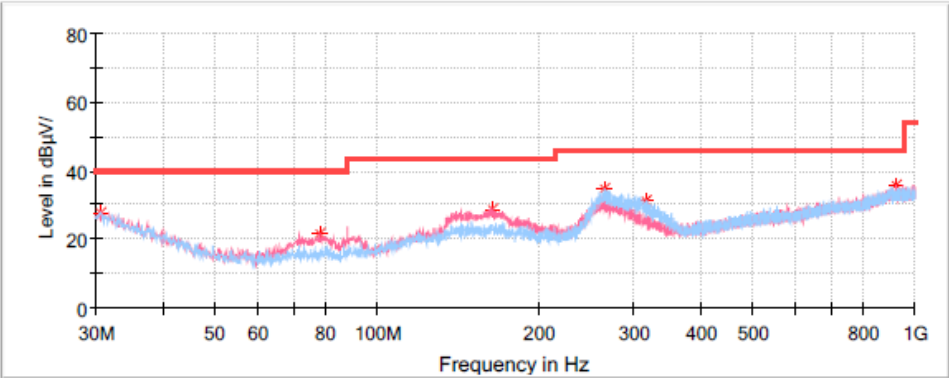
Temperature:19.2℃

Humidity:57%

Barometric Pressure:101.1kPa

Test Engineer:Leah Li

Test Date:2024/4/19

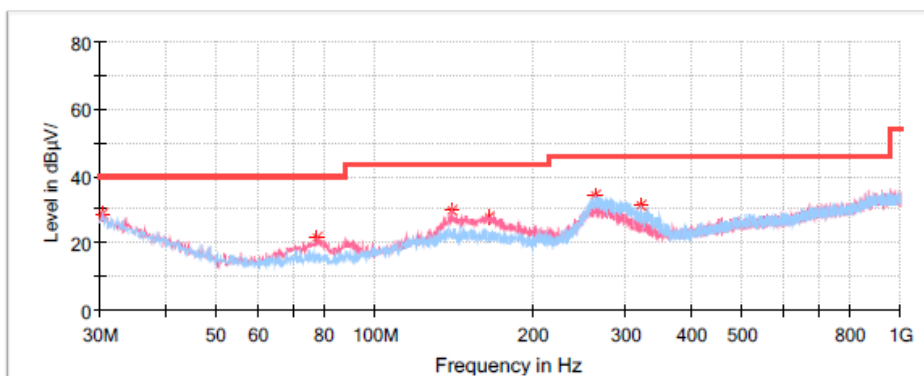


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.606250	27.60	40.00	12.40	H	-4.9
78.136250	21.48	40.00	18.52	V	-17.4
163.860000	28.82	43.50	14.68	V	-12.7
264.497500	34.60	46.00	11.40	H	-12.1
316.635000	30.97	46.00	15.03	H	-10.6
922.157500	35.61	46.00	10.39	V	1.4

High Channel: 2480 MHz**Common Information**

Project No: RKSA231206001
EUT Model: MASP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESCI, JB3, 310N
Temperature: 19.2°C
Humidity: 57%
Barometric Pressure: 101.1kPa
Test Engineer: Leah Li
Test Date: 2024/4/19

**Critical_Freqs**

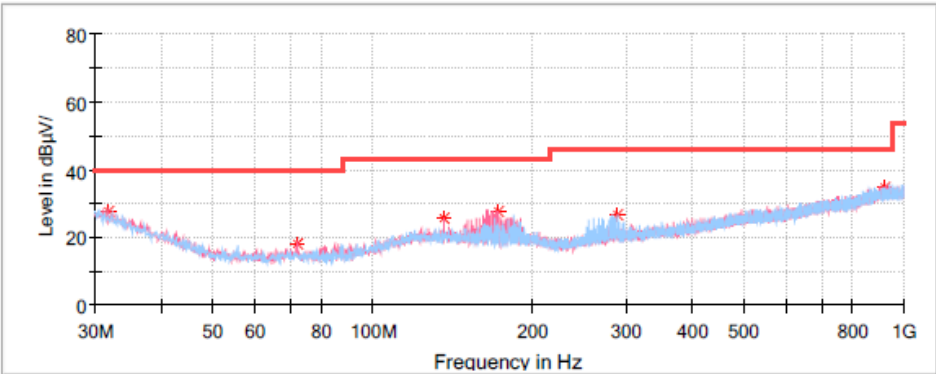
Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.485000	28.60	40.00	11.40	V	-4.8
77.651250	21.51	40.00	18.49	V	-17.4
139.852500	29.68	43.50	13.82	V	-11.5
165.315000	27.90	43.50	15.60	V	-12.8
262.436250	33.97	46.00	12.03	H	-12.2
321.242500	31.34	46.00	14.66	H	-10.5

Powered by Base:

Low Channel: 2402 MHz

Common Information

Project No:	RKSA231206001
EUT Model:	MASP01
Test Mode:	BT
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESCI、JB3、310N
Temperature:	21.5℃
Humidity:	52%
Barometric Pressure:	100.7kPa
Test Engineer:	Leah Li
Test Date:	2024/4/26



Critical Freqs

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.818750	27.63	40.00	12.37	V	-5.7
71.952500	17.93	40.00	22.07	V	-16.9
136.093750	25.79	43.50	17.71	V	-11.5
173.075000	27.64	43.50	15.86	V	-13.0
288.868750	26.81	46.00	19.19	H	-11.0
920.581250	34.72	46.00	11.28	H	1.4

Middle Channel: 2441 MHz

Common Information

Project No:

EUT Model:

Test Mode:

Standard:

Test Equipment:

Temperature:

Humidity:

Barometric Pressure:

Test Engineer:

Test Date:

RKSA231206001

MASP01

BT

FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

ESCI, JB3, 310N

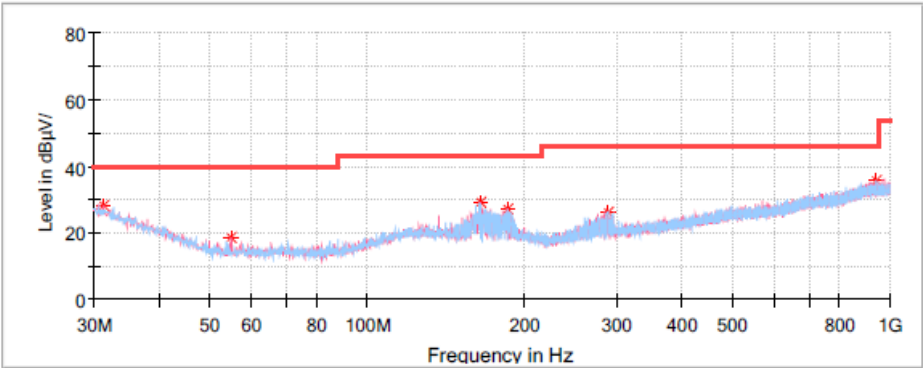
21.5°C

52%

100.7kPa

Leah Li

2024/4/26

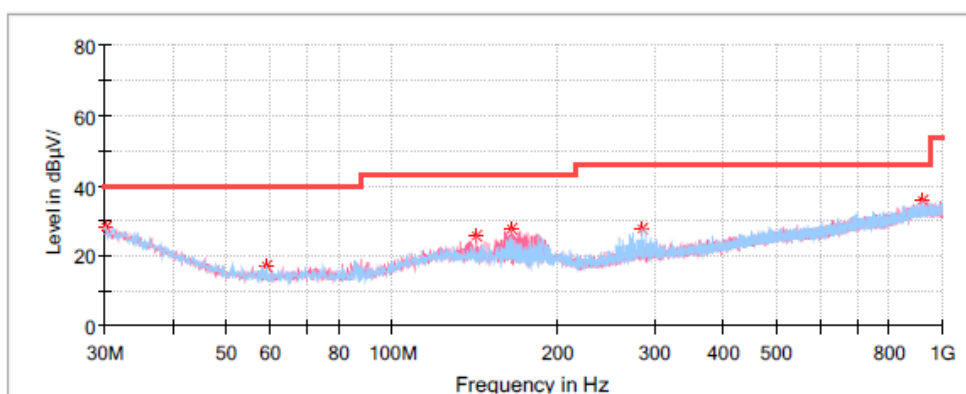


Critical_Freqs

Frequency (MHz)	MaxPeak (dBµ V/m)	Limit (dBµ V/m)	Margin (dB)	Pol	Corr. (dB/m)
31.333750	28.24	40.00	11.76	V	-5.3
55.098750	18.60	40.00	21.40	V	-17.1
164.830000	29.30	43.50	14.20	V	-12.7
186.291250	27.12	43.50	16.38	H	-13.0
288.262500	25.91	46.00	20.09	H	-11.0
941.436250	35.67	46.00	10.33	H	1.5

High Channel: 2480 MHz**Common Information**

Project No: RKSA231206001
EUT Model: MASP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESCI, JB3, 310N
Temperature: 21.5°C
Humidity: 52%
Barometric Pressure: 100.7kPa
Test Engineer: Leah Li
Test Date: 2024/4/26

**Critical Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
30.121250	28.00	40.00	12.00	H	-4.5
59.342500	16.96	40.00	23.04	H	-17.4
142.277500	25.91	43.50	17.59	V	-11.6
165.072500	27.61	43.50	15.89	V	-12.7
284.382500	27.52	46.00	18.48	H	-11.1
924.340000	35.53	46.00	10.47	H	1.4

Powered by USB port:

1 GHz - 18 GHz:

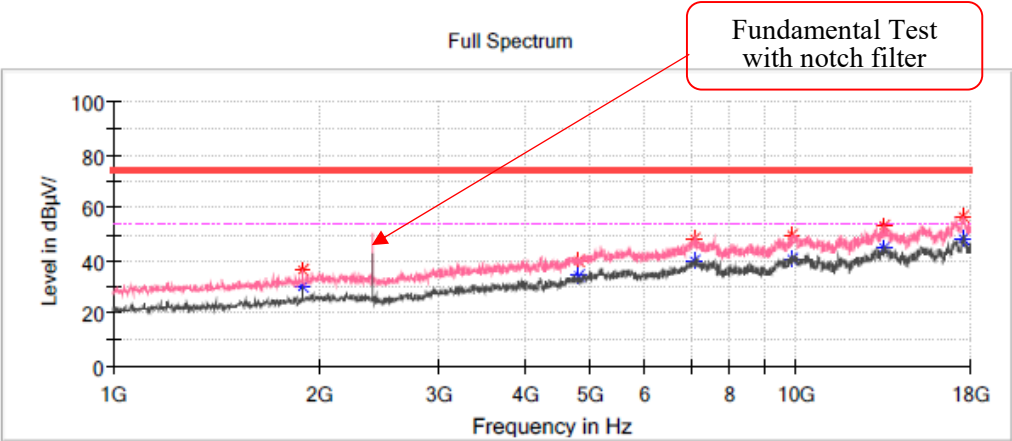
GFSK:

Low Channel: 2402 MHz

Common Information

Project No.:
EUT Model:
Test Mode:
Standard:
Test Equipment:
Temperature:
Humidity:
Atmospheric pressure:
Test Engineer:
Test Date

RKSA231206001
MAPSP01
BT
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
ESU40,3115,PAM-0118P
20.3℃
52%
102.8kPa
Peter Wang
2024/3/2



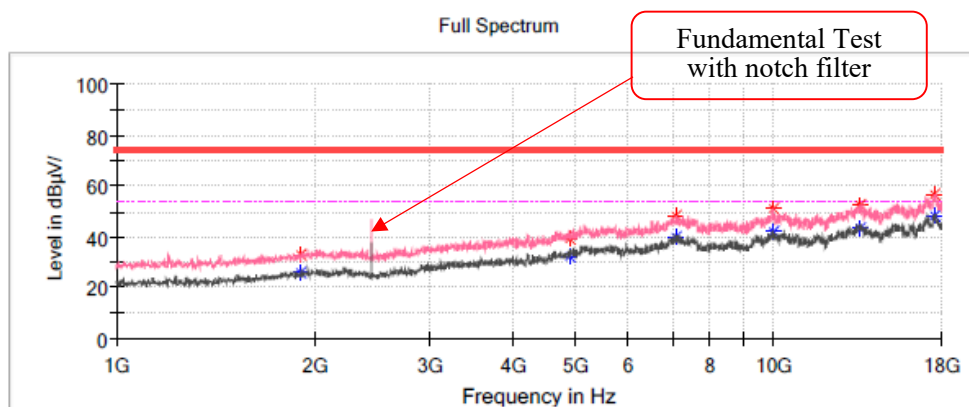
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1892.500000	36.67	---	74.00	37.33	V	-11.3
1892.500000	---	29.96	54.00	24.04	V	-11.3
4806.300000	39.60	---	74.00	34.40	V	-2.2
4806.300000	---	34.40	54.00	19.60	V	-2.2
7120.000000	---	39.70	54.00	14.30	V	3.9
7120.000000	48.43	---	74.00	25.57	V	3.9
9877.400000	---	40.85	54.00	13.15	V	7.4
9877.400000	49.86	---	74.00	24.14	V	7.4
13483.100000	---	44.51	54.00	9.49	V	10.9
13483.100000	53.34	---	74.00	20.66	V	10.9
17558.000000	---	48.09	54.00	5.91	V	13.4
17558.000000	56.82	---	74.00	17.18	V	13.4

Middle Channel: 2441 MHz

Common Information

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3℃
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2



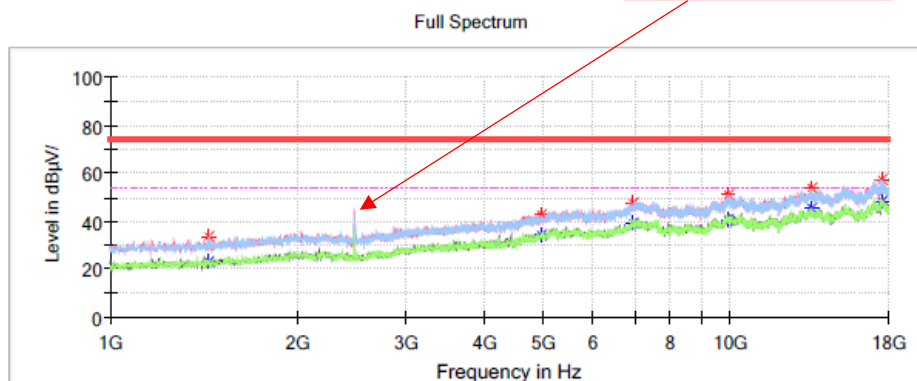
Critical Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1911.200000	---	25.87	54.00	28.13	V	-11.2
1911.200000	33.14	---	74.00	40.86	V	-11.2
4879.400000	---	32.00	54.00	22.00	V	-1.8
4879.400000	39.51	---	74.00	34.49	V	-1.8
7089.400000	---	39.71	54.00	14.29	V	3.9
7089.400000	47.98	---	74.00	26.02	V	3.9
10004.900000	---	42.13	54.00	11.87	V	7.8
10004.900000	50.74	---	74.00	23.26	V	7.8
13559.600000	---	43.60	54.00	10.40	V	10.9
13559.600000	52.15	---	74.00	21.85	V	10.9
17566.500000	56.81	---	74.00	17.19	V	13.3
17568.200000	---	48.18	54.00	5.82	V	13.3

High Channel: 2480 MHz**Common Information**

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3℃
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Fundamental Test
with notch filter

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1438.600000	---	23.10	54.00	30.90	H	-14.1
1438.600000	33.67	---	74.00	40.33	V	-14.1
4959.300000	---	34.42	54.00	19.58	H	-1.4
4959.300000	42.57	---	74.00	31.43	V	-1.4
6984.000000	---	39.18	54.00	14.82	H	3.7
6984.000000	47.32	---	74.00	26.68	V	3.7
9904.600000	---	40.59	54.00	13.41	H	7.5
9904.600000	50.89	---	74.00	23.11	H	7.5
13542.600000	---	45.63	54.00	8.37	V	11.0
13542.600000	53.60	---	74.00	20.40	V	11.0
17575.000000	---	48.32	54.00	5.68	H	13.3
17575.000000	57.56	---	74.00	16.44	H	13.3

Band Edge:

Left Side

Common Information

Project No.:

EUT Model:

Test Mode:

Test Equipment:

Temperature:

Humidity:

Atmospheric pressure:

Test Engineer:

Test Date

RKSA231206001

MAPSP01

BT

ESU40,3115,PAM-0118P

20.3℃

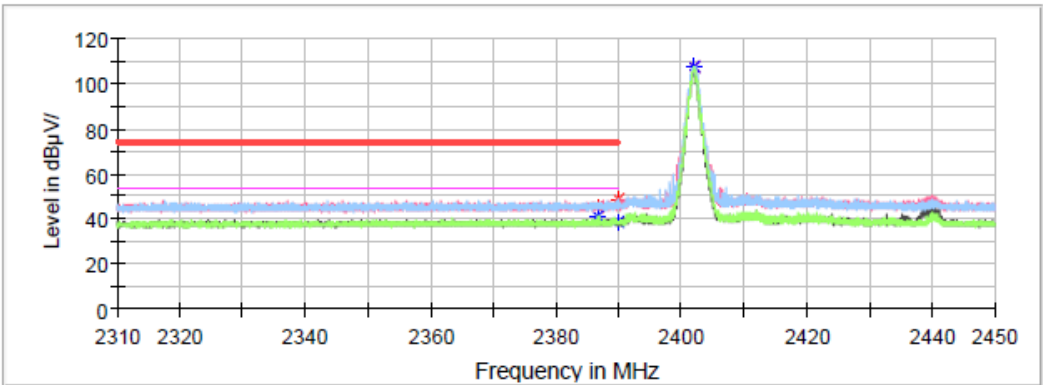
52%

102.8kPa

Peter Wang

2024/3/2

Full Spectrum



Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2386.566000	---	40.94	54.00	13.06	H	0.1
2386.566000	45.64	---	74.00	28.36	H	0.1
2389.940000	---	38.85	54.00	15.15	H	0.1
2389.940000	49.02	---	74.00	24.98	H	0.1

Right Side

Common Information

Project No.:

EUT Model:

Test Mode:

Test Equipment:

Temperature:

Humidity:

Atmospheric pressure:

Test Engineer:

Test Date

RKSA231206001

MAPSP01

BT

ESU40,3115,PAM-0118P

20.3℃

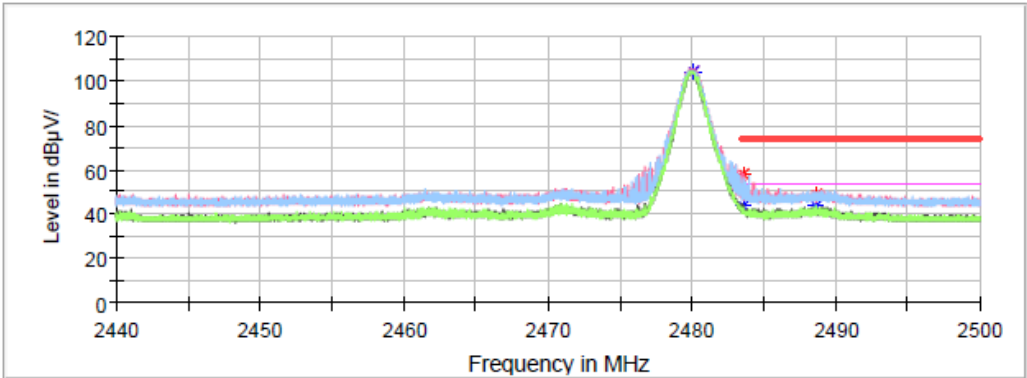
52%

102.8kPa

Peter Wang

2024/3/2

Full Spectrum



Critical_Freqs

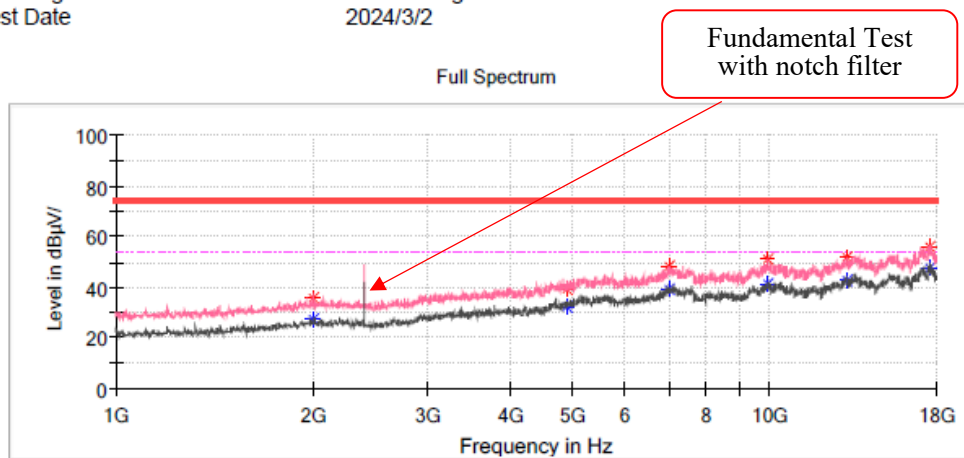
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.560000	58.18	---	74.00	15.82	V	0.2
2483.560000	---	43.85	54.00	10.15	V	0.2
2488.630000	49.02	---	74.00	24.98	H	0.2
2488.630000	---	43.91	54.00	10.09	H	0.2

$\pi/4$ -DQPSK:

Low Channel: 2402 MHz

Common Information

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3℃
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

**Critical Freqs**

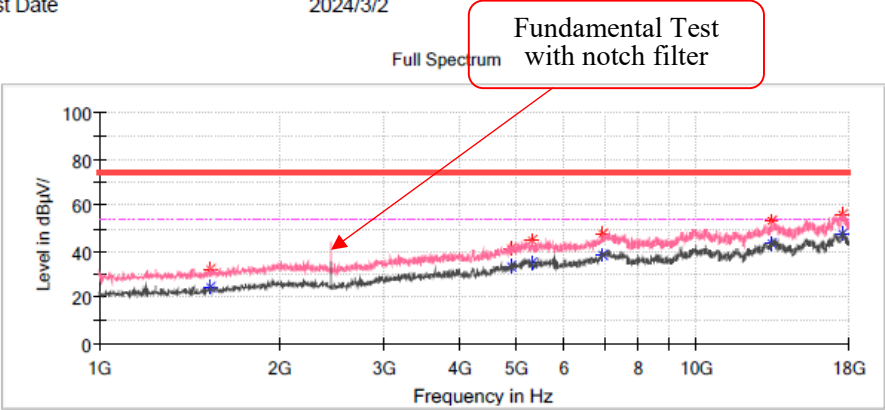
Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1997.900000	---	27.06	54.00	26.94	V	-10.6
1997.900000	35.67	---	74.00	38.33	V	-10.6
4881.100000	---	32.37	54.00	21.63	V	-1.8
4881.100000	39.08	---	74.00	34.92	V	-1.8
7023.100000	---	38.93	54.00	15.07	V	3.8
7023.100000	48.50	---	74.00	25.50	V	3.8
9919.900000	---	41.46	54.00	12.54	V	7.6
9919.900000	51.26	---	74.00	22.74	V	7.6
13131.200000	---	42.43	54.00	11.57	V	9.5
13131.200000	51.97	---	74.00	22.03	V	9.5
17524.000000	---	47.30	54.00	6.70	V	13.5
17524.000000	56.25	---	74.00	17.75	V	13.5

Middle Channel: 2441 MHz

Common Information

Project No.:
EUT Model:
Test Mode:
Standard:
Test Equipment:
Temperature:
Humidity:
Atmospheric pressure:
Test Engineer:
Test Date

RKSA231206001
MAPSP01
BT
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
ESU40,3115,PAM-0118P
20.3°C
52%
102.8kPa
Peter Wang
2024/3/2



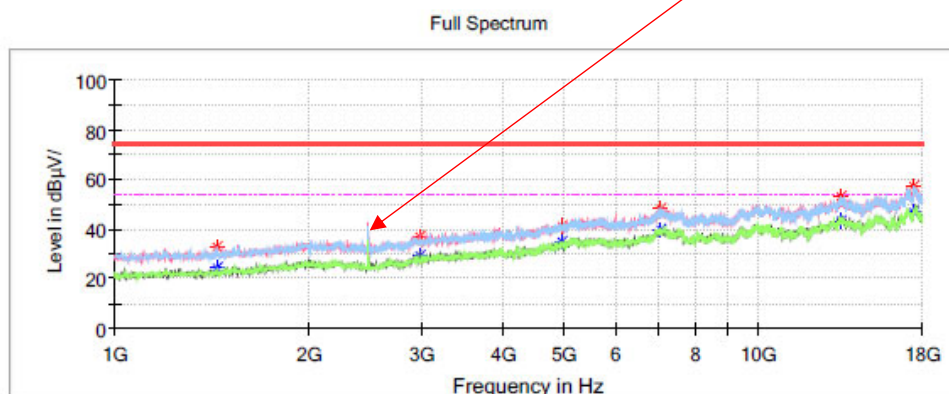
Critical Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1530.400000	---	24.20	54.00	29.80	V	-13.7
1530.400000	32.42	---	74.00	41.58	V	-13.7
4879.400000	---	33.78	54.00	20.22	V	-1.8
4879.400000	40.99	---	74.00	33.01	V	-1.8
5306.100000	---	35.30	54.00	18.70	V	0.0
5306.100000	44.65	---	74.00	29.35	V	0.0
6985.700000	---	38.74	54.00	15.26	V	3.7
6985.700000	47.50	---	74.00	26.50	V	3.7
13398.100000	---	43.30	54.00	10.70	V	10.6
13398.100000	53.03	---	74.00	20.97	V	10.6
17518.900000	---	47.60	54.00	6.40	V	13.5
17518.900000	56.04	---	74.00	17.96	V	13.5

High Channel: 2480 MHz**Common Information**

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3°C
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Fundamental Test
with notch filter

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1440.300000	---	24.40	54.00	29.60	H	-14.1
1440.300000	33.14	---	74.00	40.86	H	-14.1
2970.300000	---	29.04	54.00	24.96	V	-8.1
2970.300000	37.00	---	74.00	37.00	V	-8.1
4962.700000	41.43	---	74.00	32.57	H	-1.4
4962.700000	---	34.78	54.00	19.22	H	-1.4
7069.000000	48.37	---	74.00	25.63	H	3.8
7069.000000	---	40.00	54.00	14.00	H	3.8
13435.500000	---	43.63	54.00	10.37	V	10.7
13435.500000	53.12	---	74.00	20.88	V	10.7
17503.600000	---	47.11	54.00	6.89	H	13.6
17503.600000	57.10	---	74.00	16.90	H	13.6

Band Edge:

Left Side

Test Report

Common Information

Project No.:

EUT Model:

Test Mode:

Test Equipment:

Temperature:

Humidity:

Atmospheric pressure:

Test Engineer:

Test Date

RKSA231206001

MAPSP01

BT

ESU40,3115,PAM-0118P

20.3℃

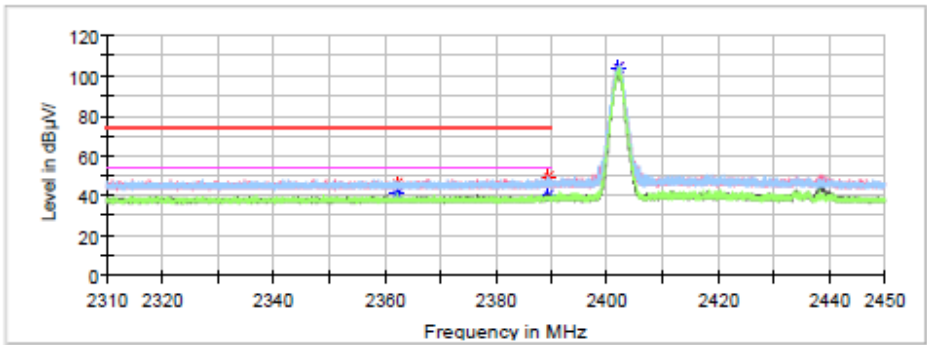
52%

102.8kPa

Peter Wang

2024/3/2

Full Spectrum



Critical Freqs

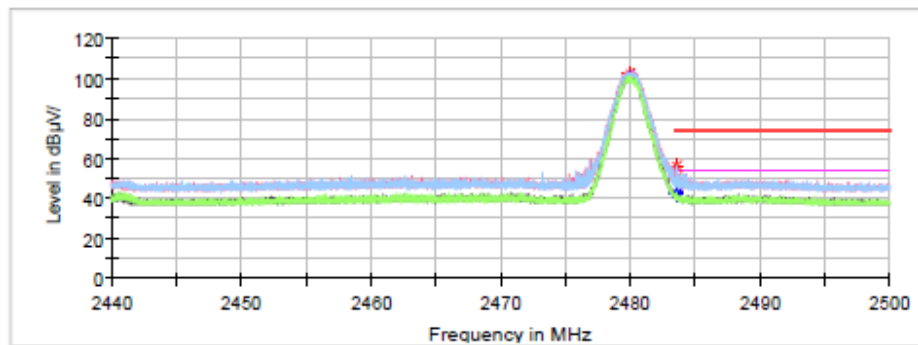
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2362.136000	46.49	---	74.00	27.51	H	0.0
2362.136000	---	40.87	54.00	13.13	H	0.0
2389.212000	49.23	---	74.00	24.77	H	0.1
2389.212000	---	40.42	54.00	13.58	V	0.1

Right Side

Common Information

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3°C
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Full Spectrum



Critical Freqs

Frequency (MHz)	MaxPeak (dB μV/m)	Average (dB μV/m)	Limit (dB μV/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.524000	---	42.76	54.00	11.24	H	0.2
2483.524000	50.74	---	74.00	23.26	H	0.2
2483.584000	---	42.14	54.00	11.86	H	0.2
2483.584000	56.20	---	74.00	17.80	H	0.2

8DPSK:

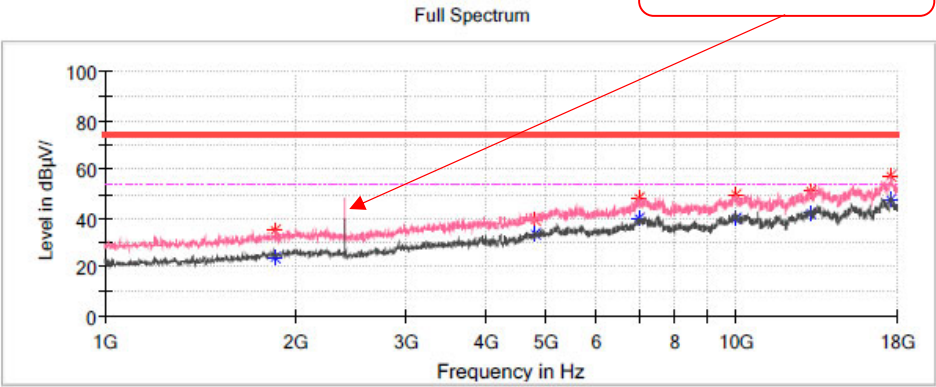
Low Channel: 2402 MHz

Common Information

Project No.:
EUT Model:
Test Mode:
Standard:
Test Equipment:
Temperature:
Humidity:
Atmospheric pressure:
Test Engineer:
Test Date

RKSA231206001
MAPSP01
BT
FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
ESU40,3115,PAM-0118P
20.3℃
52%
102.8kPa
Peter Wang
2024/3/2

Fundamental Test
with notch filter

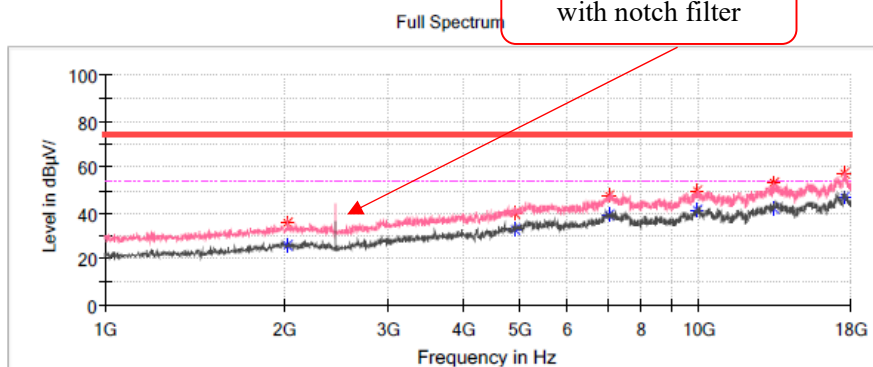


Critical_Freqs

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1858.500000	---	23.70	54.00	30.30	V	-11.5
1858.500000	34.81	---	74.00	39.19	V	-11.5
4806.300000	---	33.78	54.00	20.22	V	-2.2
4806.300000	39.39	---	74.00	34.61	V	-2.2
7028.200000	---	39.82	54.00	14.18	V	3.8
7028.200000	48.01	---	74.00	25.99	V	3.8
9960.700000	---	39.58	54.00	14.42	V	7.7
9960.700000	49.71	---	74.00	24.29	V	7.7
13080.200000	---	41.86	54.00	12.14	V	9.3
13080.200000	50.88	---	74.00	23.12	V	9.3
17558.000000	---	47.90	54.00	6.10	V	13.4
17558.000000	57.13	---	74.00	16.87	V	13.4

Middle Channel: 2441 MHz**Common Information**

Project No.:	RKSA231206001
EUT Model:	MAPSP01
Test Mode:	BT
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment:	ESU40,3115,PAM-0118P
Temperature:	20.3°C
Humidity:	52%
Atmospheric pressure:	102.8kPa
Test Engineer:	Peter Wang
Test Date	2024/3/2

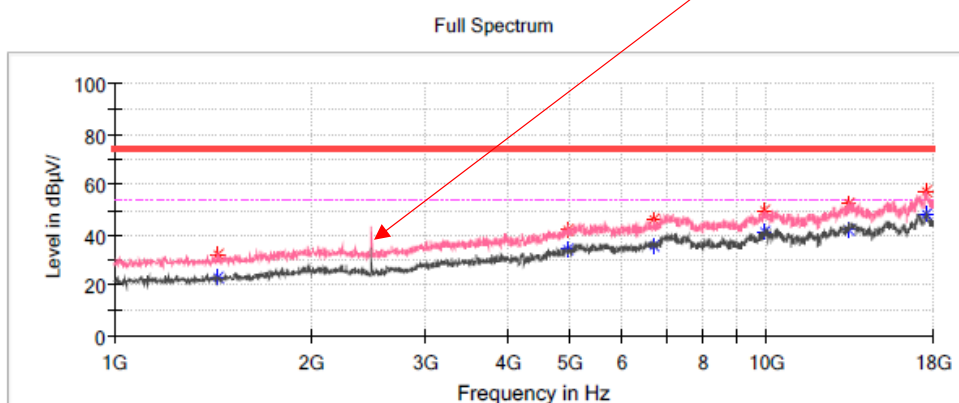
Fundamental Test
with notch filter**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2033.600000	---	25.90	54.00	28.10	V	-10.5
2033.600000	35.52	---	74.00	38.48	V	-10.5
4879.400000	---	33.05	54.00	20.95	V	-1.8
4879.400000	39.88	---	74.00	34.12	V	-1.8
7041.800000	---	39.08	54.00	14.92	V	3.8
7041.800000	47.64	---	74.00	26.36	V	3.8
9936.900000	49.62	---	74.00	24.38	V	7.6
9938.600000	---	41.13	54.00	12.87	V	7.6
13394.700000	---	42.16	54.00	11.84	V	10.6
13394.700000	53.05	---	74.00	20.95	V	10.6
17529.100000	---	47.06	54.00	6.94	V	13.5
17529.100000	57.56	---	74.00	16.44	V	13.5

High Channel: 2480 MHz**Common Information**

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3℃
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Fundamental Test
with notch filter

**Critical Freqs**

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1438.600000	---	22.77	54.00	31.23	V	-14.1
1438.600000	32.45	---	74.00	41.55	V	-14.1
4962.700000	---	34.35	54.00	19.65	V	-1.4
4962.700000	41.76	---	74.00	32.24	V	-1.4
6712.000000	---	35.49	54.00	18.51	V	2.1
6712.000000	46.39	---	74.00	27.61	V	2.1
9911.400000	---	41.59	54.00	12.41	V	7.5
9911.400000	49.34	---	74.00	24.66	V	7.5
13352.200000	---	41.99	54.00	12.01	V	10.4
13352.200000	52.49	---	74.00	21.51	V	10.4
17573.300000	57.53	---	74.00	16.47	V	13.3
17575.000000	---	48.39	54.00	5.61	V	13.3

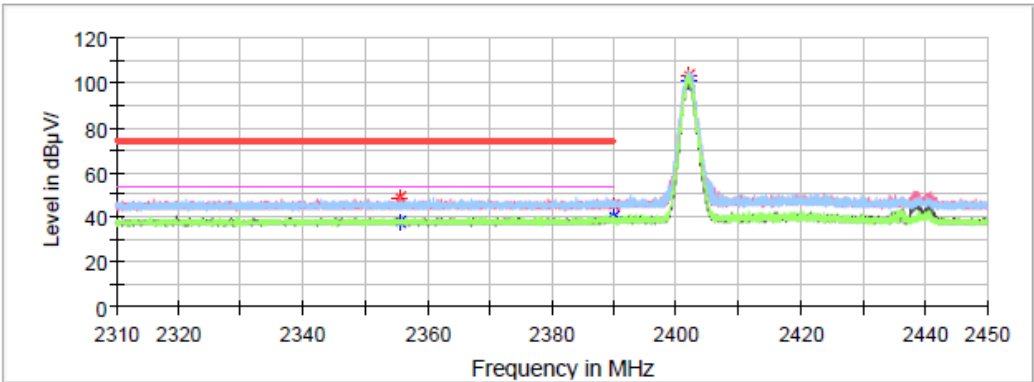
Band Edge:

Left Side

Common Information

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3℃
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Full Spectrum



Critical_Freqs

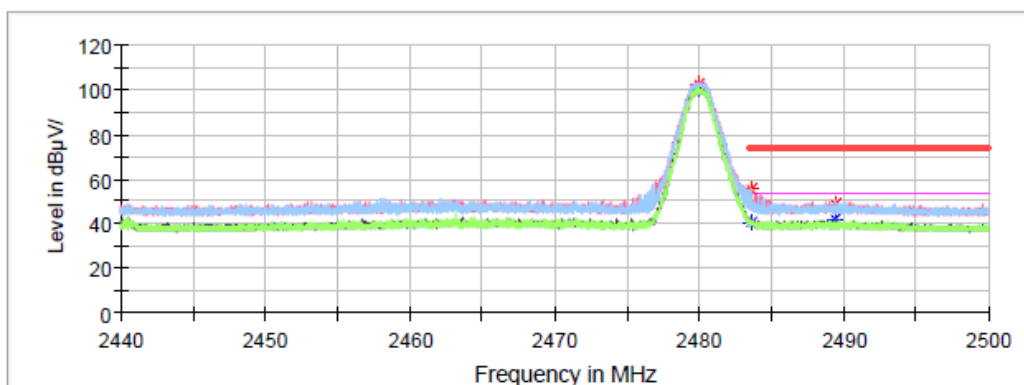
Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2355.556000	48.47	---	74.00	25.53	H	0.0
2355.556000	---	37.74	54.00	16.26	H	0.0
2389.926000	45.31	---	74.00	28.69	H	0.1
2389.926000	---	40.46	54.00	13.54	H	0.1

Right Side

Common Information

Project No.: RKSA231206001
EUT Model: MAPSP01
Test Mode: BT
Test Equipment: ESU40,3115,PAM-0118P
Temperature: 20.3°C
Humidity: 52%
Atmospheric pressure: 102.8kPa
Test Engineer: Peter Wang
Test Date: 2024/3/2

Full Spectrum



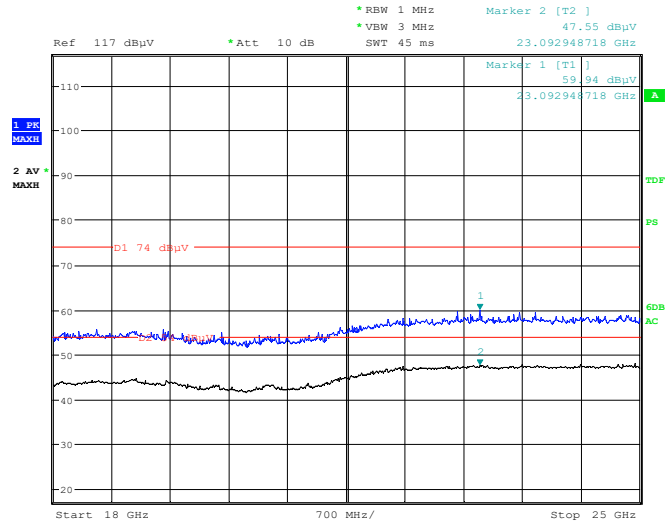
Critical_Freqs

Frequency (MHz)	MaxPeak (dB µ V/m)	Average (dB µ V/m)	Limit (dB µ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2483.542000	55.07	---	74.00	18.93	H	0.2
2483.542000	---	40.21	54.00	13.79	H	0.2
2489.458000	49.02	---	74.00	24.98	V	0.2
2489.458000	---	41.76	54.00	12.24	V	0.2

18GHz-25GHz:

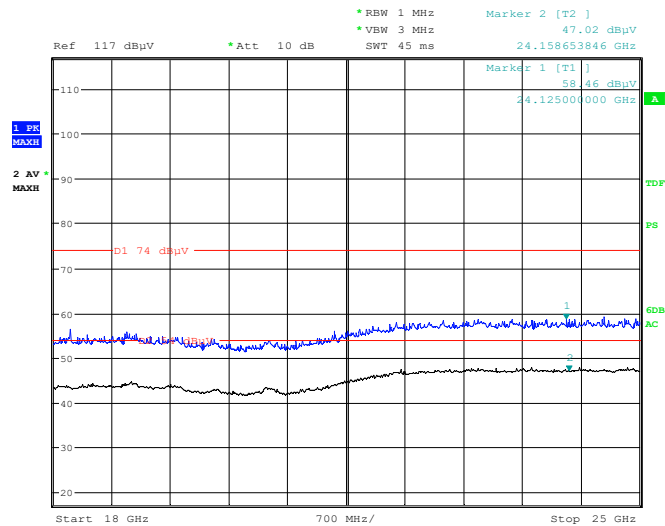
EUT operation mode: Transmitting in Low channel of GFSK mode (Worst case)

Horizontal



Project No.RKSA231206001 Tester: Peter Wang
Date: 7.MAY.2024 19:45:38

Vertical



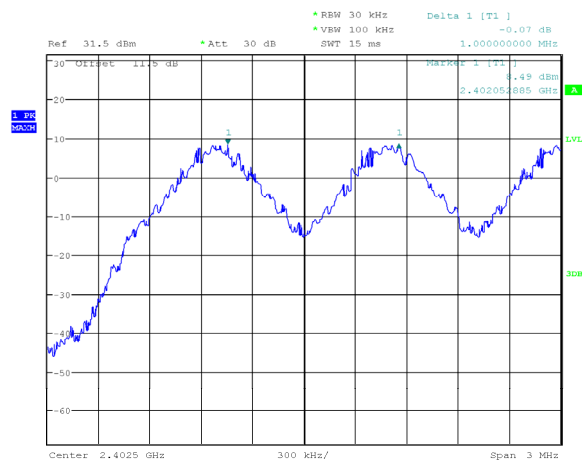
Project No.RKSA231206001 Tester: Peter Wang
Date: 7.MAY.2024 20:02:08

Note: The test distance is 3m. The limit is 74dBμV/m(Peak) and 54dBμV/m(Average).

EUT operation mode: Transmitting

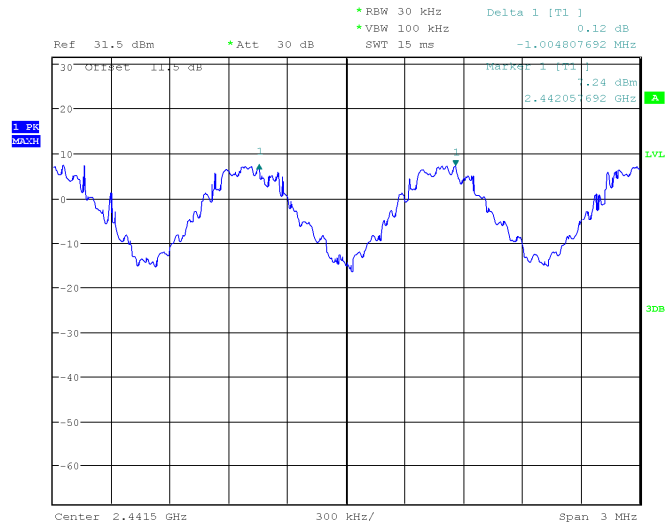
Mode	Channel	Channel frequency (MHz)	Result (MHz)	Limit (MHz)
GFSK	Low	2402-2403	1.000	0.627
	Middle	2441-2442	1.005	0.629
	High	2480-2479	0.995	0.629
$\pi/4$ DQPSK	Low	2402-2403	0.995	0.859
	Middle	2441-2442	1.005	0.859
	High	2480-2479	1.005	0.856
8DPSK	Low	2402-2403	0.990	0.864
	Middle	2441-2442	1.000	0.864
	High	2480-2479	1.000	0.861

BDR (GFSK): Low Channel



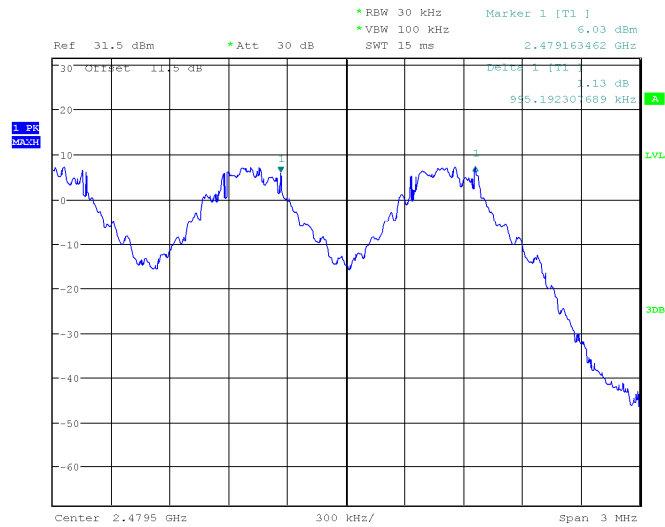
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:46:27

BDR (GFSK): Middle Channel

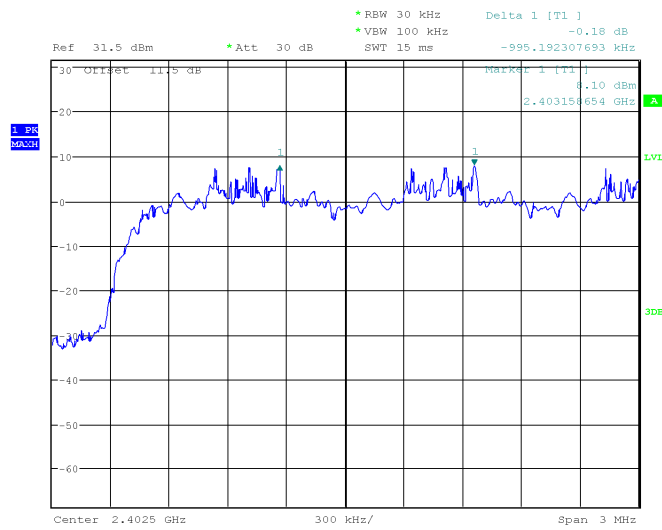


ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:57:47

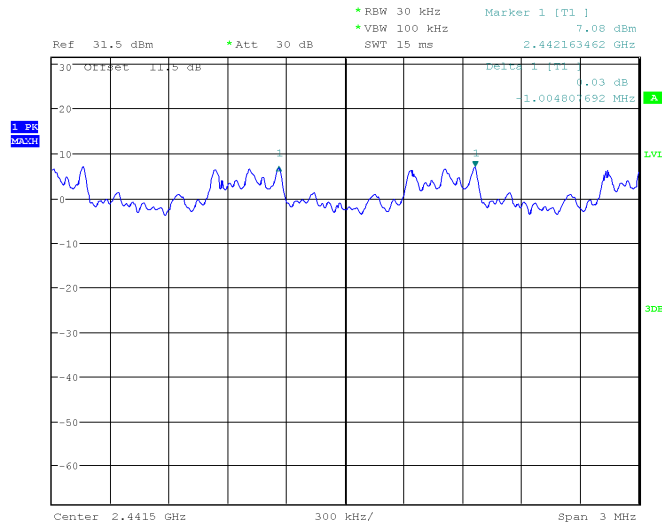
BDR (GFSK): High Channel



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 15:17:42

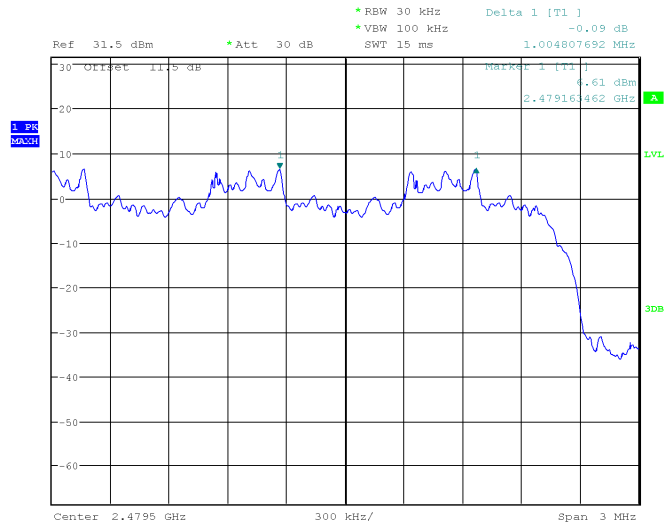
EDR ($\pi/4$ -DQPSK): Low Channel

ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:44:03

EDR ($\pi/4$ -DQPSK): Middle Channel

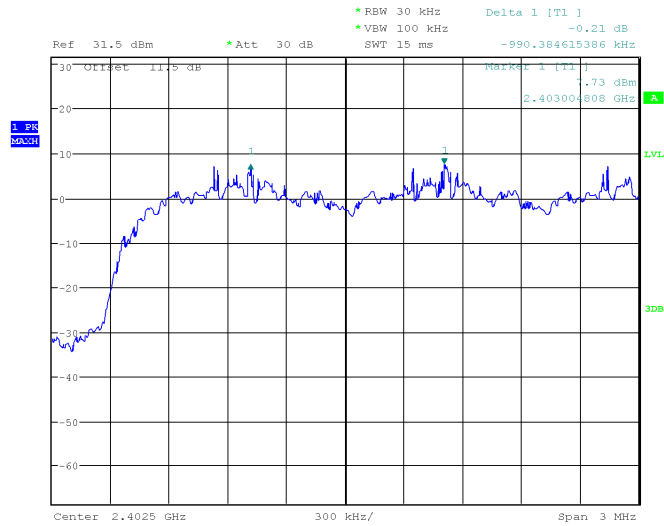
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 15:04:28

EDR ($\pi/4$ -DQPSK): High Channel



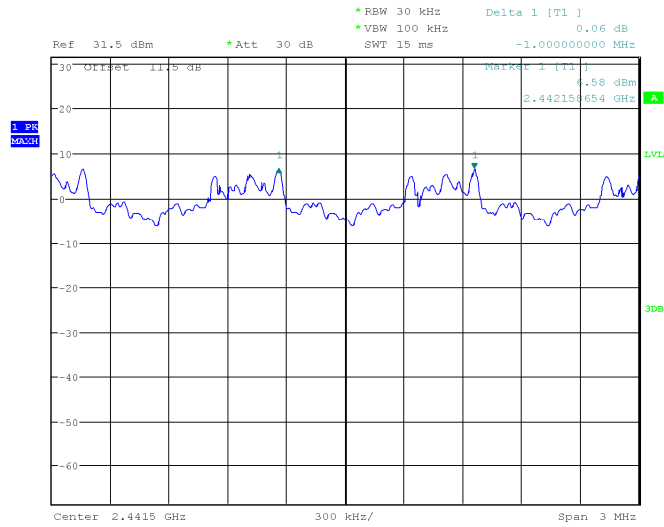
ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 15:14:07

EDR (8DPSK): Low Channel



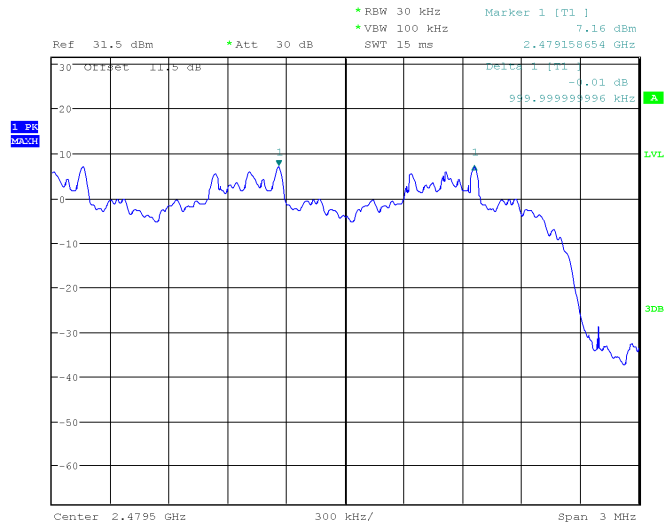
ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 14:36:23

EDR (8DPSK): Middle Channel



ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 15:09:08

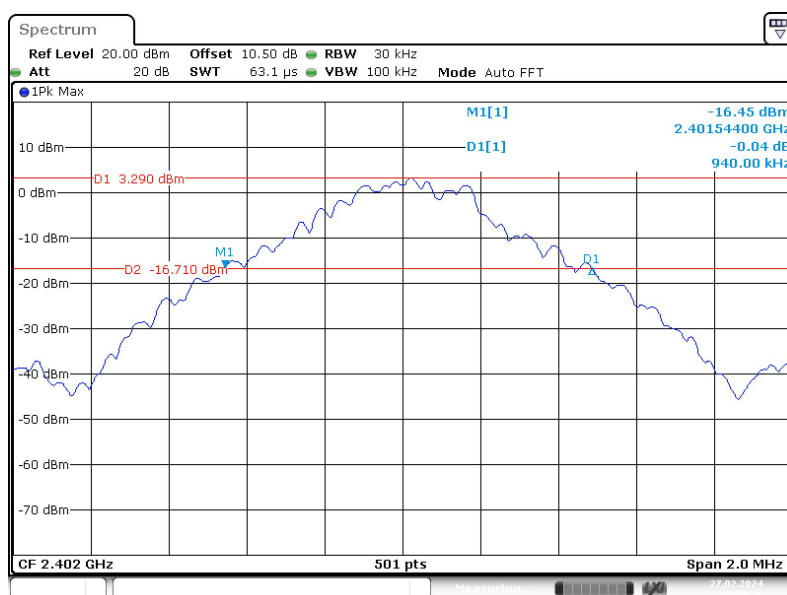
EDR (8DPSK): High Channel



ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 15:12:11

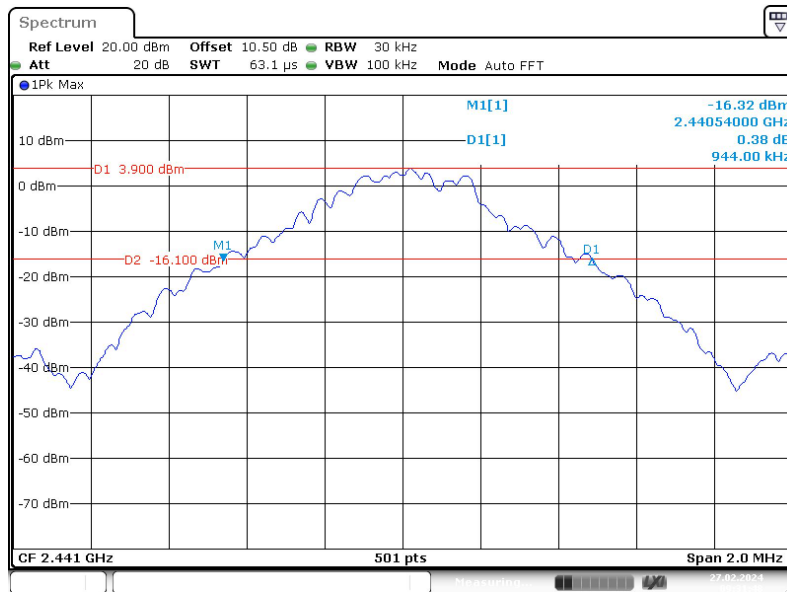
20 dB BANDWIDTH TEST*EUT operation mode: Transmitting*

Mode	Channel	Frequency (MHz)	20 dB Emission Bandwidth (MHz)
BDR (GFSK)	Low	2402	0.940
	Middle	2441	0.944
	High	2480	0.944
EDR ($\pi/4$-DQPSK)	Low	2402	1.288
	Middle	2441	1.288
	High	2480	1.284
EDR (8DPSK)	Low	2402	1.296
	Middle	2441	1.296
	High	2480	1.292

BDR (GFSK): Low Channel

ProjectNo.: RSHA231206001 Tester: Bard Liu
Date: 27.FEB.2024 09:30:19

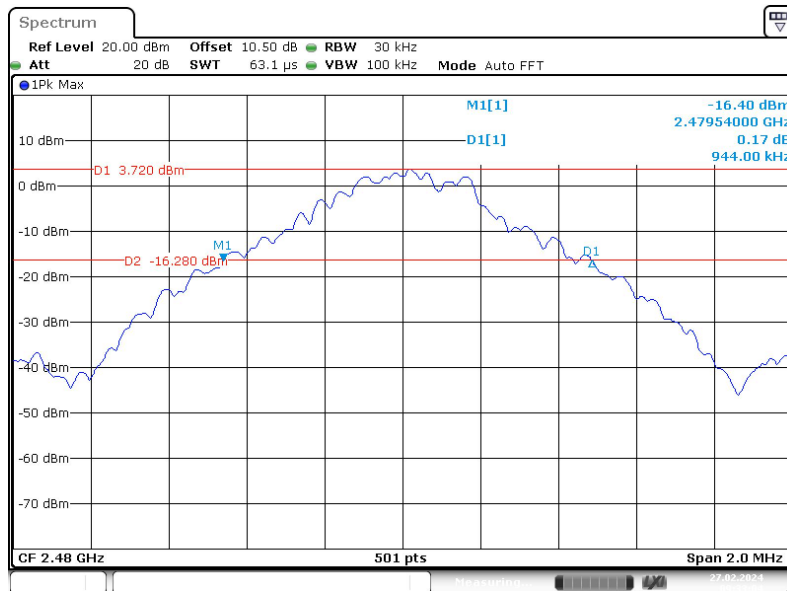
BDR (GFSK): Middle Channel



ProjectNo.:RSHA231206001 Tester: Bard Liu

Date: 27.FEB.2024 09:31:49

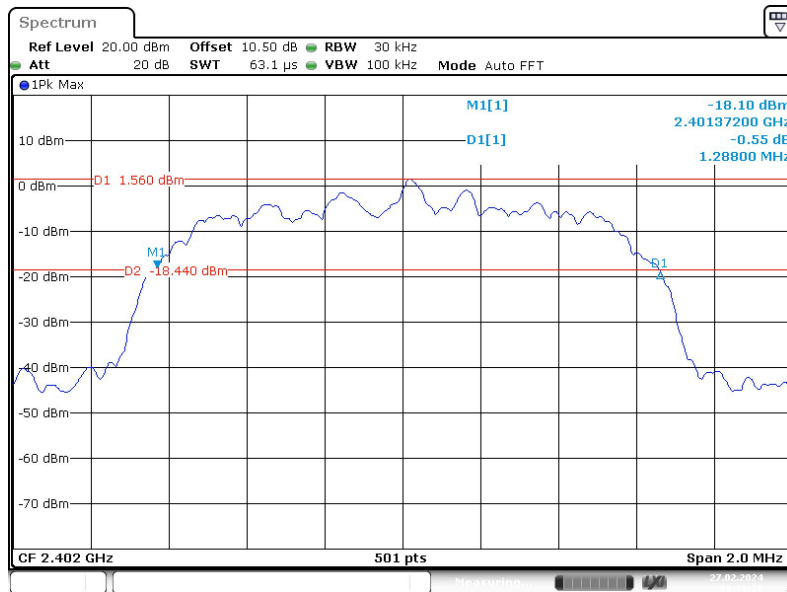
BDR (GFSK): High Channel



ProjectNo.:RSHA231206001 Tester: Bard Liu

Date: 27.FEB.2024 09:33:04

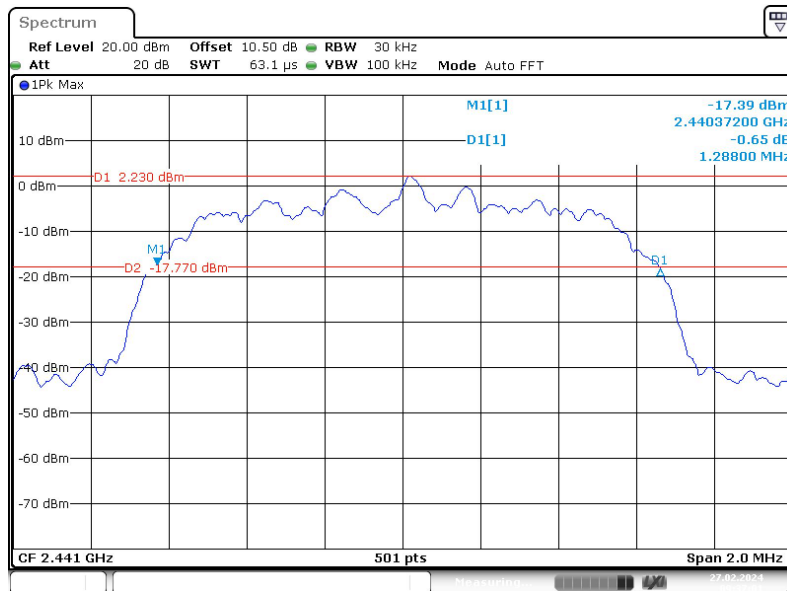
EDR ($\pi/4$ -DQPSK): Low Channel



ProjectNo.:RSHA231206001 Tester: Bard Liu

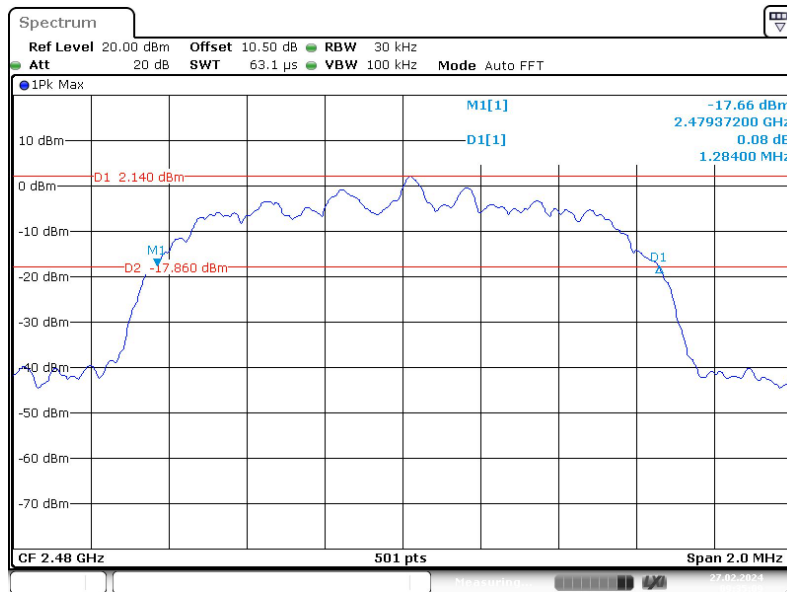
Date: 27.FEB.2024 09:38:20

EDR($\pi/4$ -DQPSK): Middle Channel



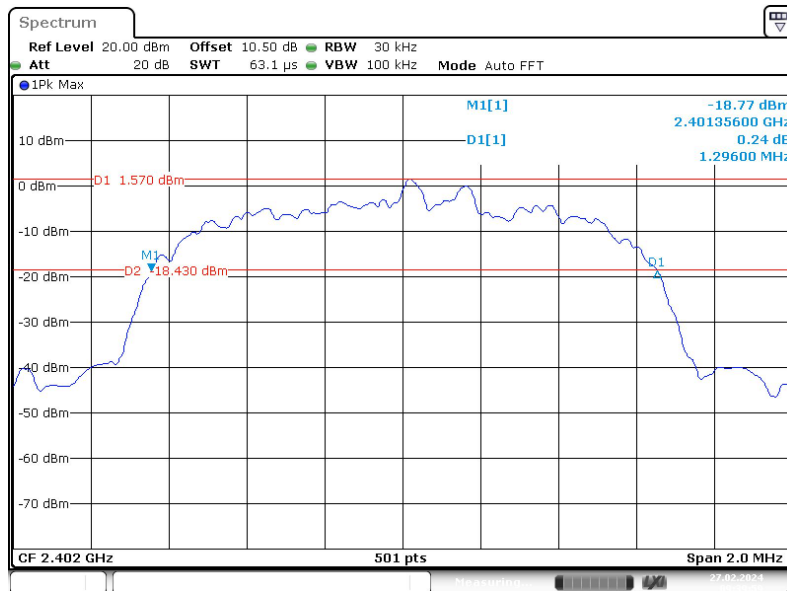
ProjectNo.:RSHA231206001 Tester: Bard Liu

Date: 27.FEB.2024 09:37:01

EDR ($\pi/4$ -DQPSK): High Channel

ProjectNo.: RSHA231206001 Tester: Bard Liu

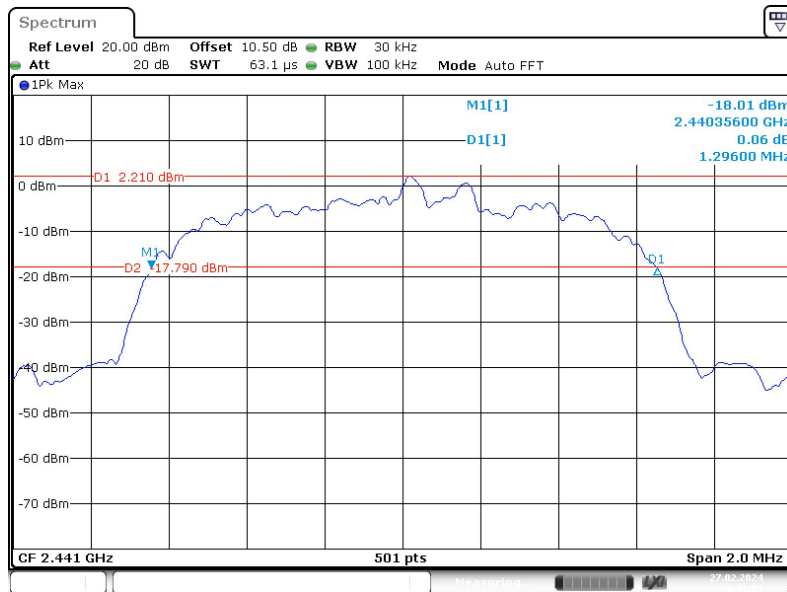
Date: 27.FEB.2024 09:35:09

EDR (8DPSK): Low Channel

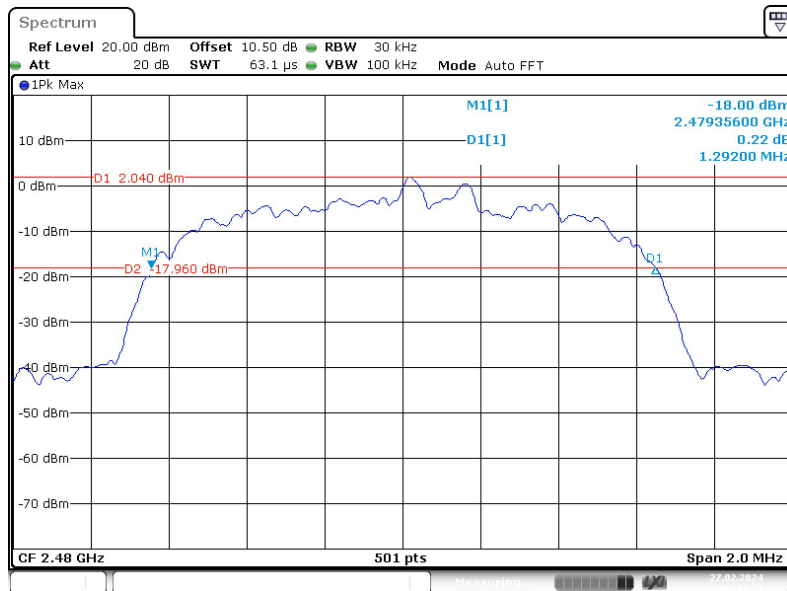
ProjectNo.: RSHA231206001 Tester: Bard Liu

Date: 27.FEB.2024 09:40:00

EDR (8DPSK): Middle Channel



EDR (8DPSK): High Channel

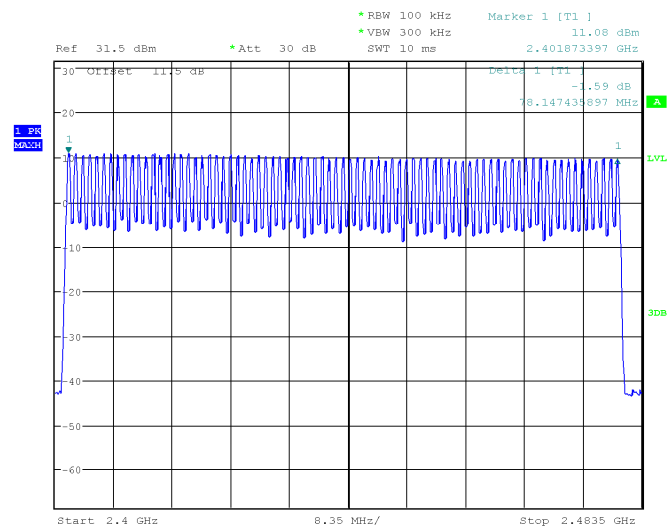


QUANTITY OF HOPPING CHANNEL TEST

EUT operation mode: Hopping

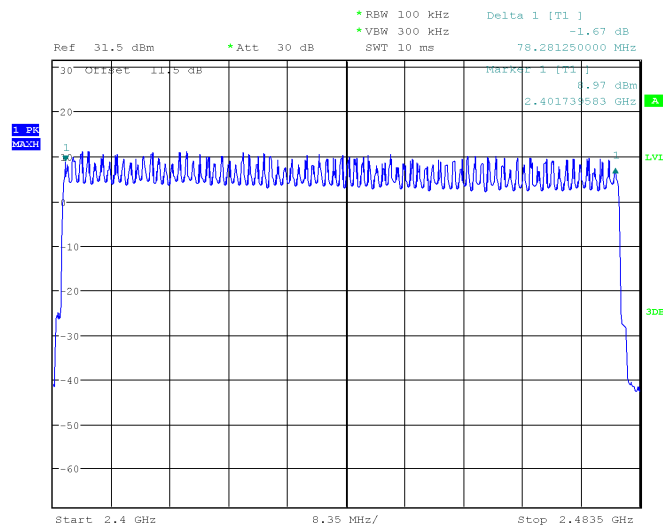
Mode	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
BDR (GFSK)	2400-2483.5	79	≥15
EDR (π/4-DQPSK)	2400-2483.5	79	≥15
EDR (8DPSK)	2400-2483.5	79	≥15

BDR (GFSK): Number of Hopping Channels



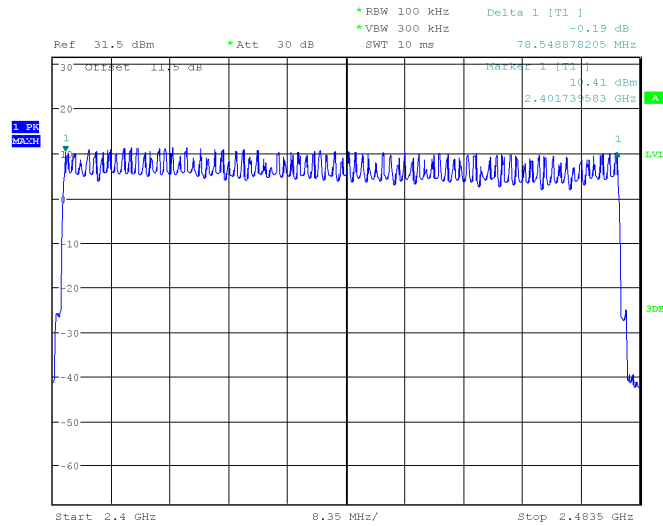
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:24:21

EDR ($\pi/4$ -DQPSK): Number of Hopping Channels



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:22:04

EDR (8DPSK): Number of Hopping Channels



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:31:25

TIME OF OCCUPANCY (DWELL TIME)*EUT operation mode: Hopping*

Mode		Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR (GFSK)	DH1	Middle	0.397	0.127	0.4	Pass
		Note: DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH3	Middle	1.671	0.267	0.4	Pass
		Note: DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH5	Middle	2.923	0.312	0.4	Pass
		Note: DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR ($\pi/4$ -DQPSK)	2DH1	Middle	0.402	0.129	0.4	Pass
		Note: 2DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	2DH3	Middle	1.671	0.267	0.4	Pass
		Note: 2DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	2DH5	Middle	2.923	0.312	0.4	Pass
		Note: 2DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR (8DPSK)	3DH1	Middle	0.402	0.129	0.4	Pass
		Note: 3 DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	3DH3	Middle	1.667	0.267	0.4	Pass
		Note: 3DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	3DH5	Middle	2.929	0.312	0.4	Pass
		Note: 3DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				

RBW 500 kHz Marker 1 [T1]
 * VSW 2 MHz
 SWT 1 ms

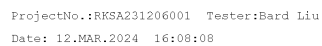
Ref 31.5 dBm * Att 30 dB
 Delta 1 [T1] -4.11 dB
 397.438897 μ s
 -48.97 dBm
 -6.730769 μ s

1 ps
 CLASS

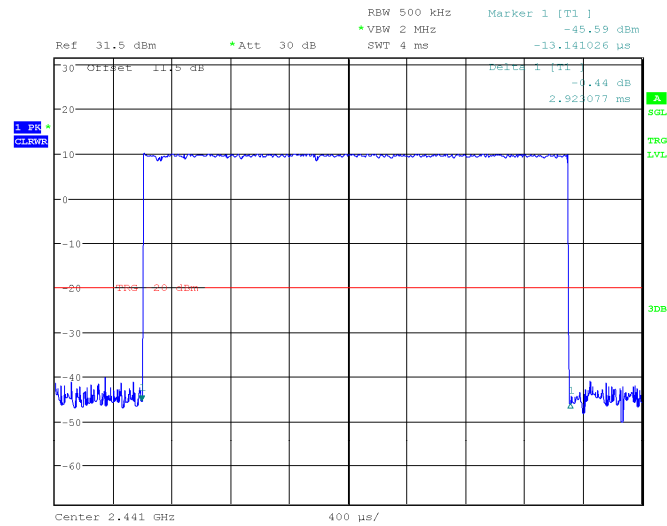
Offset 11.5 dB
 -11.5 dBm
 -48.97 dBm
 -4.11 dB
 397.438897 μ s
 -6.730769 μ s

Center 2.441 GHz 100 μ s/

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

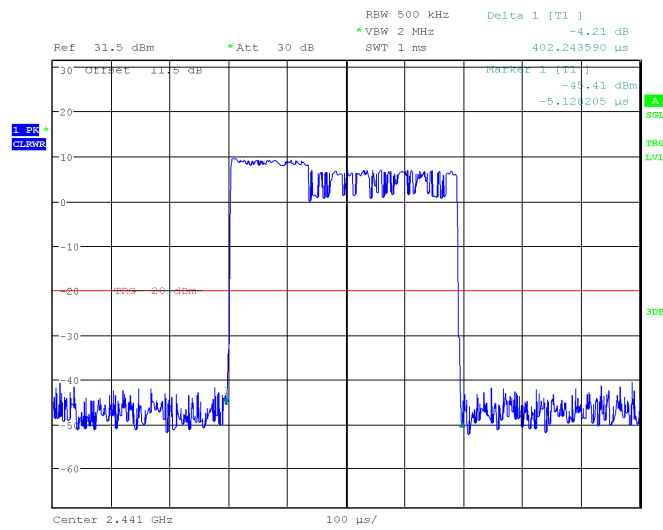


BDR (GFSK): Pulse time, Middle Channel, DH5



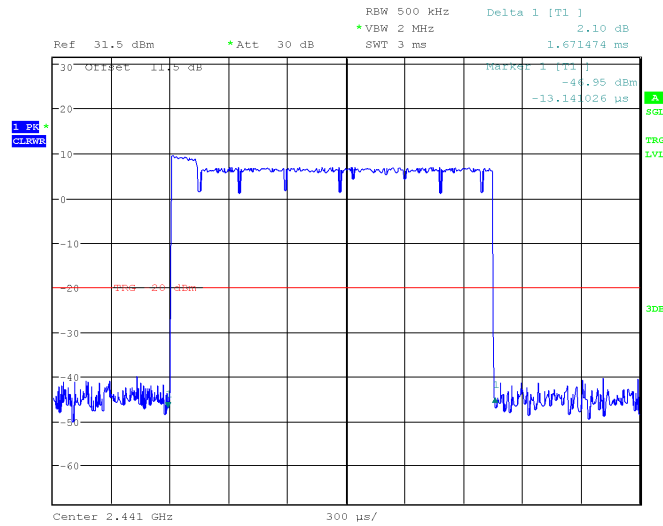
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 16:10:01

EDR ($\pi/4$ -DQPSK): Pulse time, Middle Channel, 2DH1



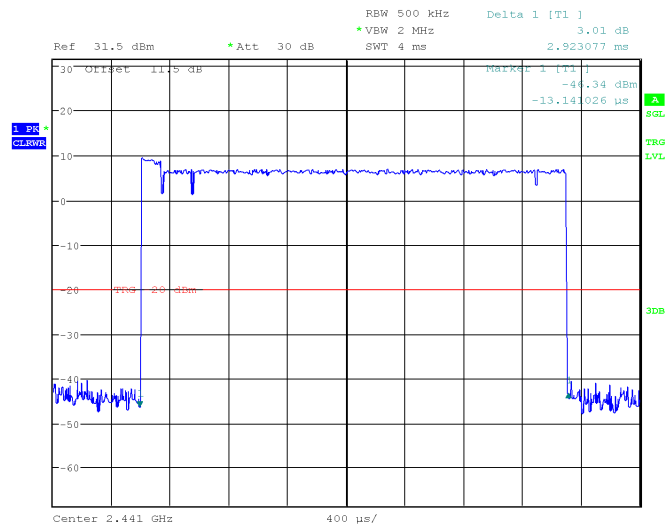
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 16:00:34

EDR ($\pi/4$ -DQPSK): Pulse time, Middle Channel, 2DH3



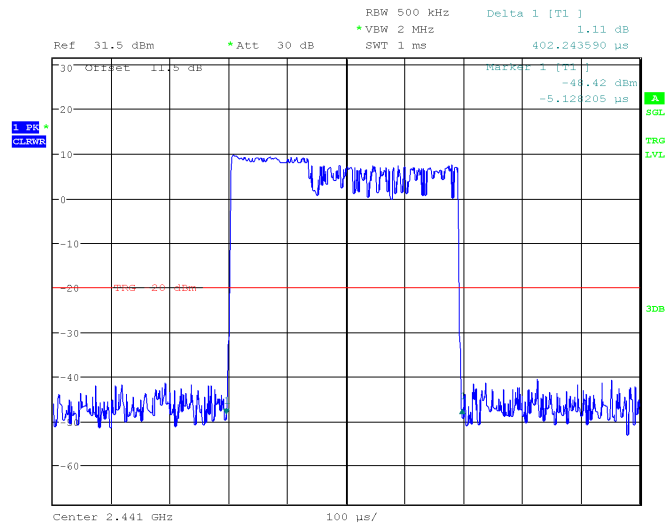
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 16:06:40

EDR ($\pi/4$ -DQPSK): Pulse time, Middle Channel, 2DH5



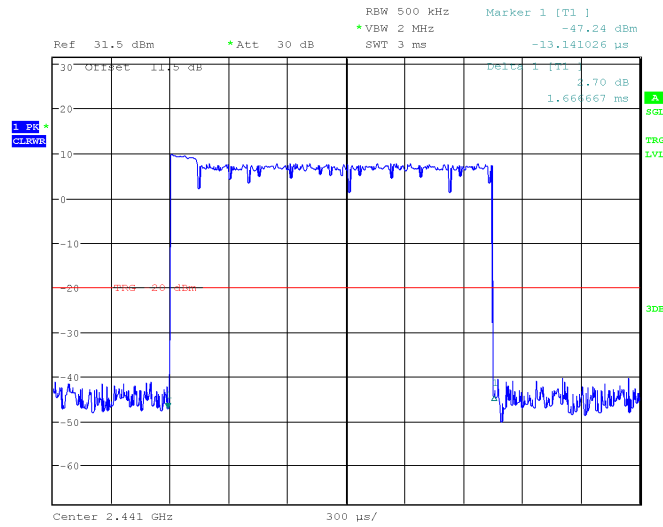
ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 16:11:51

EDR (8DPSK): Pulse time, Middle Channel, 3DH1



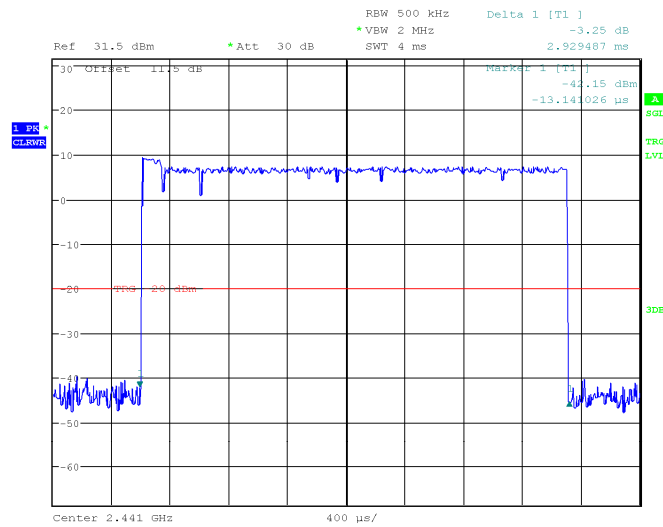
ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 12.MAR.2024 16:02:02

EDR (8DPSK): Pulse time, Middle Channel, 3DH3



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 16:05:01

EDR (8DPSK): Pulse time, Middle Channel, 3DH5

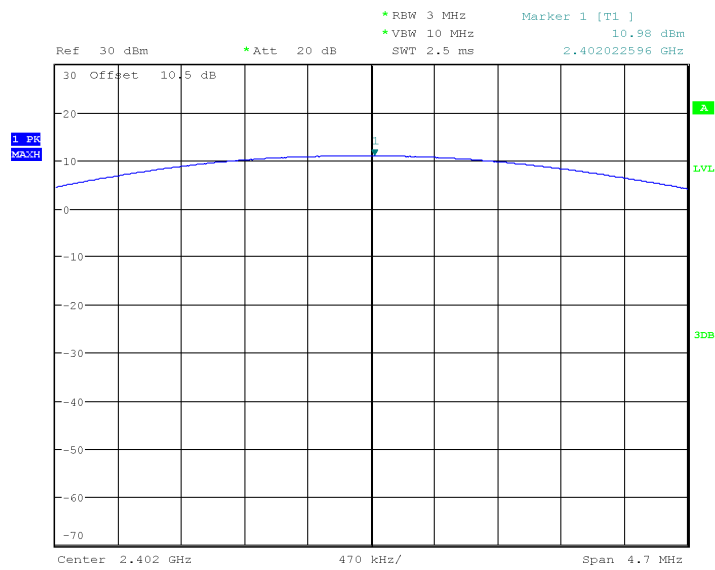


ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 16:13:30

PEAK OUTPUT POWER MEASUREMENT*EUT operation mode: Transmitting*

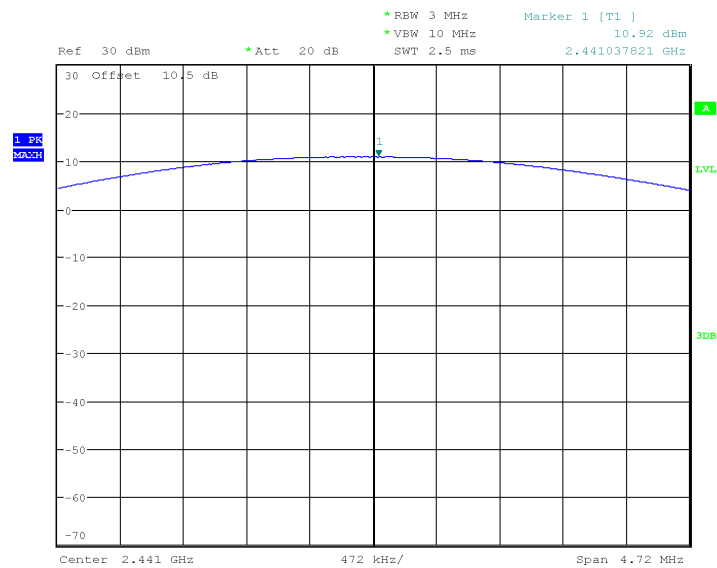
Mode	Channel	Frequency (MHz)	Result (dBm)	Limit (dBm)
GFSK	Low	2402	10.98	21
	Middle	2441	10.92	
	High	2480	10.33	
$\pi/4$ DQPSK	Low	2402	10.41	
	Middle	2441	10.38	
	High	2480	9.85	
8DPSK	Low	2402	10.77	
	Middle	2441	10.69	
	High	2480	10.14	

BDR (GFSK): 2402MHz



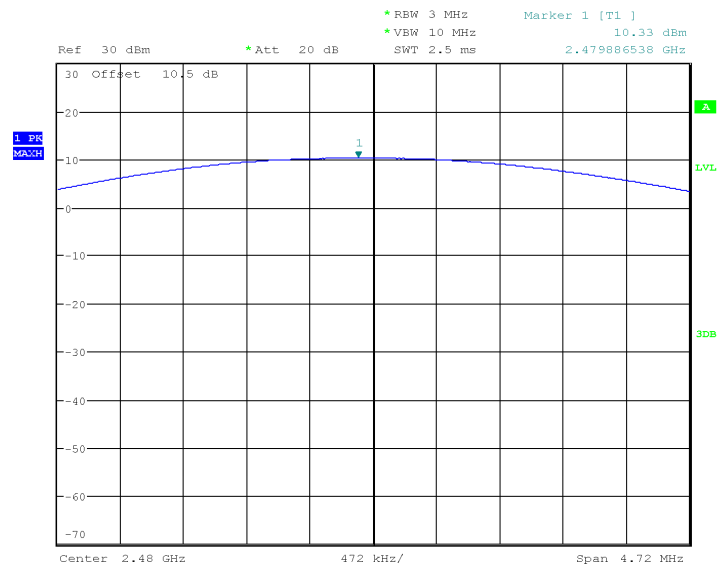
Project No.:RSA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:35:08

BDR (GFSK): 2441MHz



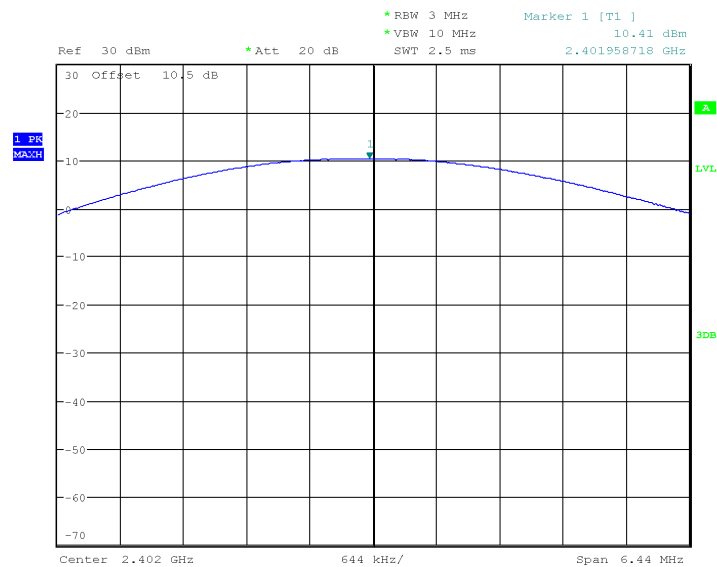
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:38:28

BDR (GFSK): 2480MHz



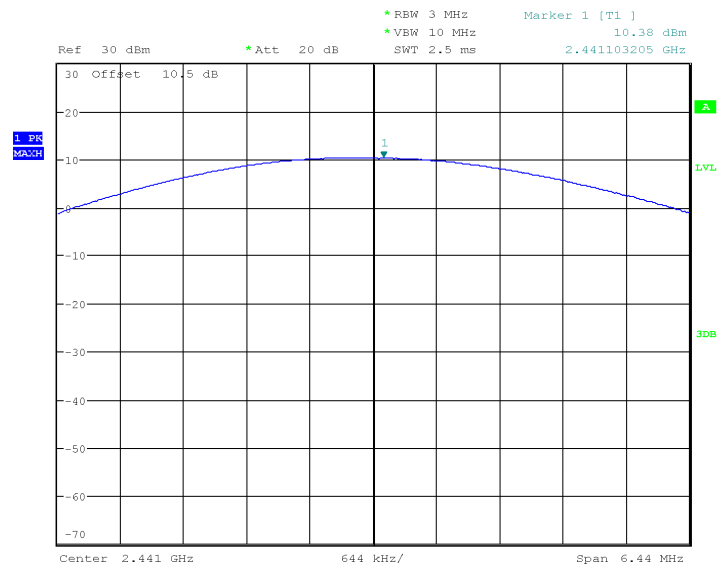
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:40:35

EDR($\pi/4$ -DQPSK): 2402MHz



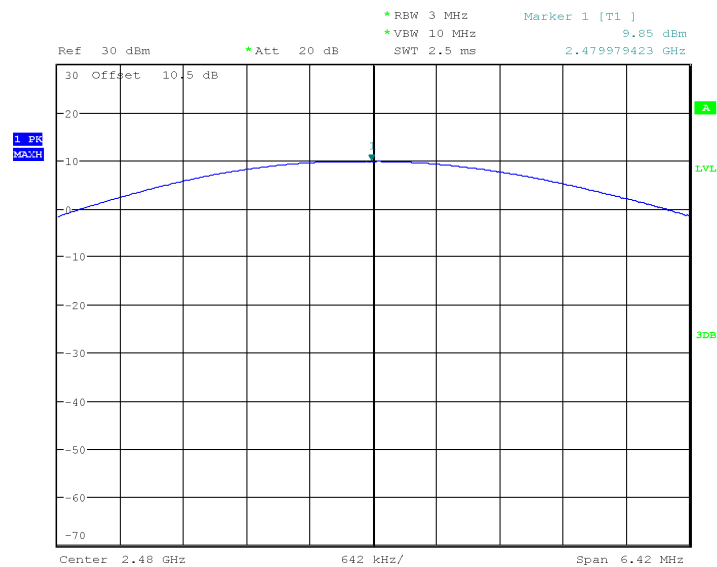
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:42:46

EDR($\pi/4$ -DQPSK): 2441MHz



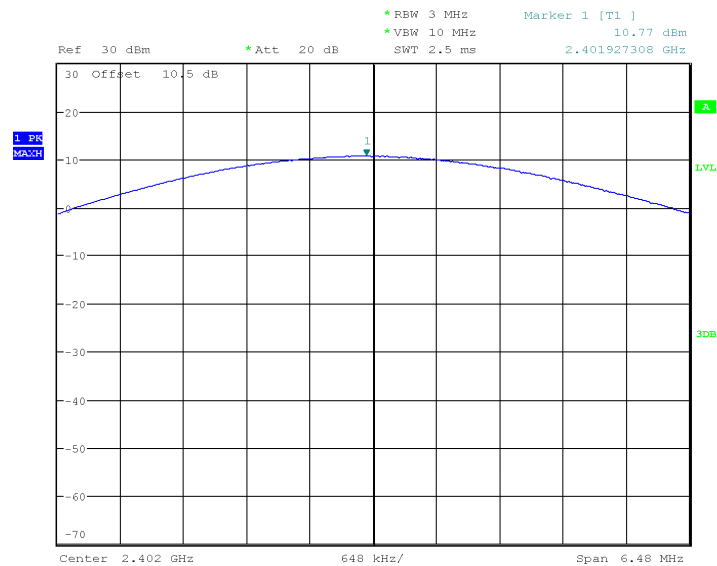
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:47:06

EDR($\pi/4$ -DQPSK): 2480MHz



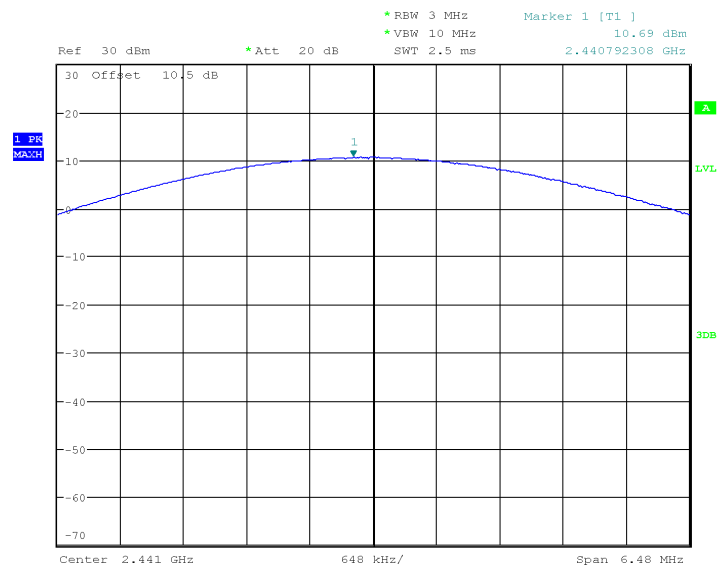
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:47:55

EDR(8DPSK): 2402MHz



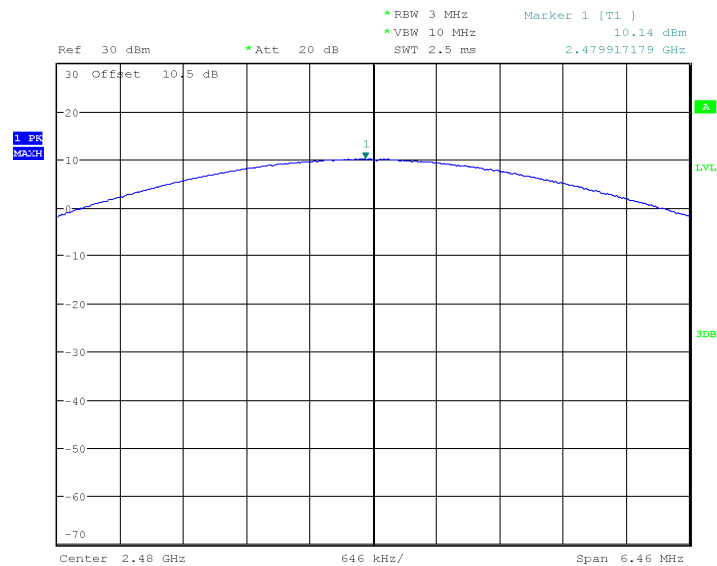
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:51:42

EDR(8DPSK): 2441MHz



Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:52:48

EDR(8DPSK): 2480MHz



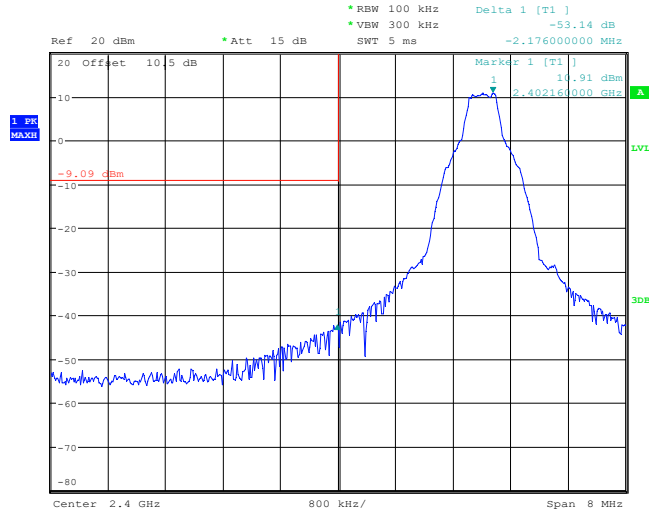
Project No.:RSHA231206001 Tester:Bard Liu
Date: 2.APR.2024 16:53:39

BAND EDGES*EUT operation mode: Transmitting & Hopping**Test Result: Compliant.*

Mode	Channel	Frequency (MHz)	Result (dBc)	Limit (dBc)
GFSK	Low	2402	53.14	20
	High	2480	60.56	
$\pi/4$ DQPSK	Low	2402	54.16	
	High	2480	61.85	
8DPSK	Low	2402	53.87	
	High	2480	60.58	
GFSK (Hopping)	Low	2402	39.41	
	High	2480	41.61	
$\pi/4$ DQPSK (Hopping)	Low	2402	38.75	
	High	2480	41.35	
8DPSK (Hopping)	Low	2402	39.92	
	High	2480	40.32	

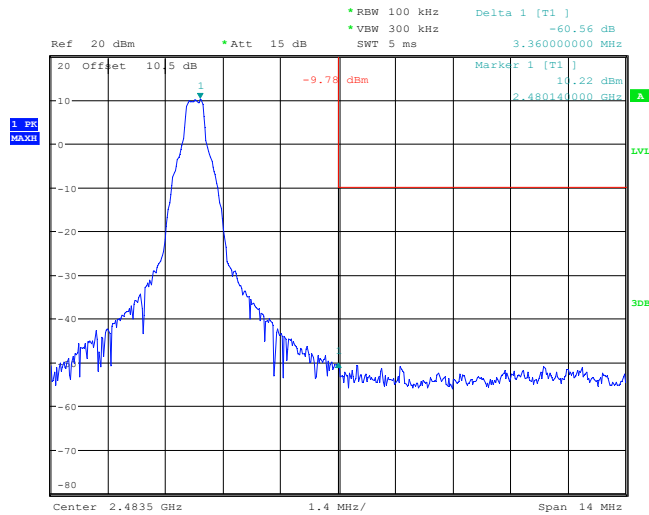
Band Edge

BDR (GFSK): Left Side



ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 7.APR.2024 10:15:45

BDR (GFSK): Right Side



ProjectNo.:RKSA231206001 Tester:Bard Liu
 Date: 7.APR.2024 10:17:34

Ref 20 dBm *Att 15 dB SWT 5 ms -1.888000000 MHz

RBW 100 kHz Delta 1 [T1]
VBW 300 kHz -54.16 dB

Marker 1 [T1]
1 10.53 dBm
2.401854000 GHz

-9.47 dBm

Center 2.4 GHz 800 kHz/ Span 8 MHz

Ref 20 dBm *Att 15 dB SWT 5 ms 8.596000000 MHz

Delta 1 [T1] -61.85 dB
 *RBW 100 kHz
 *VBW 300 kHz

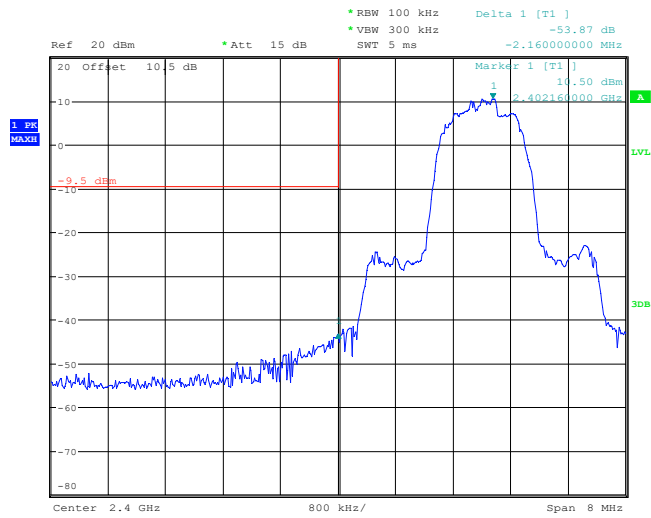
Marker 1 [T1] 10.23 dBm
 2.480140000 GHz

1 pp MAXH

Center 2.4835 GHz 1.4 MHz/ Span 14 MHz

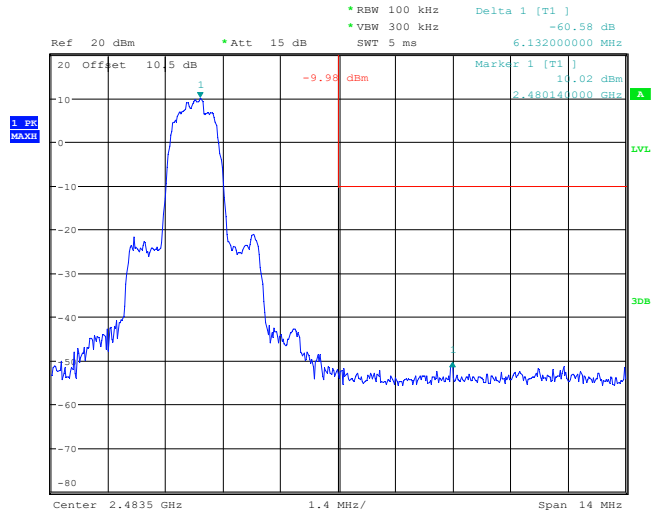
Page 80 of 87

EDR (8DPSK): Left Side



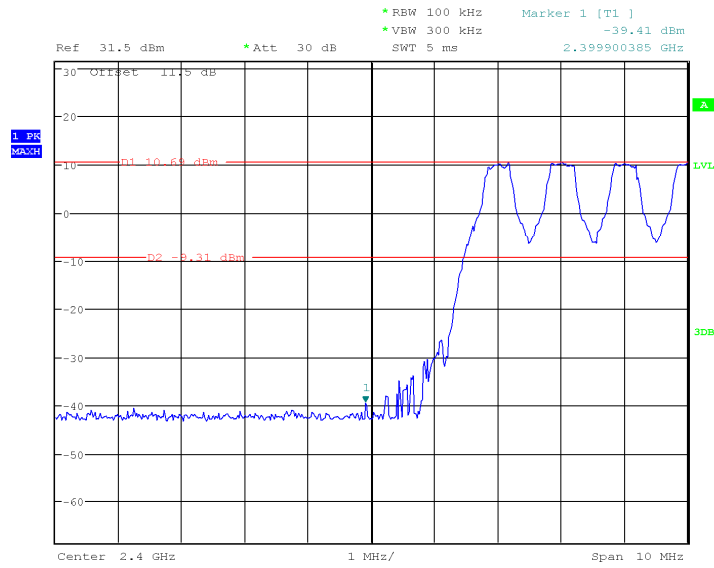
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 7.APR.2024 10:08:35

EDR (8DPSK): Right Side



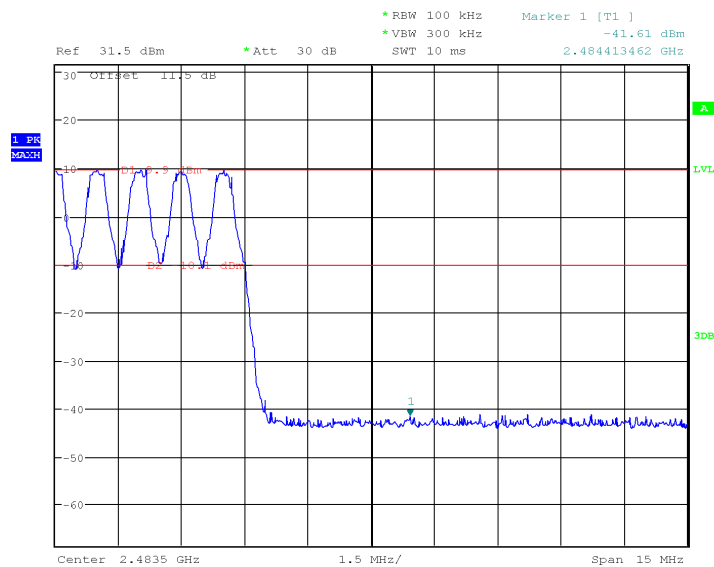
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 7.APR.2024 10:09:55

BDR (GFSK): Left Side - Hopping



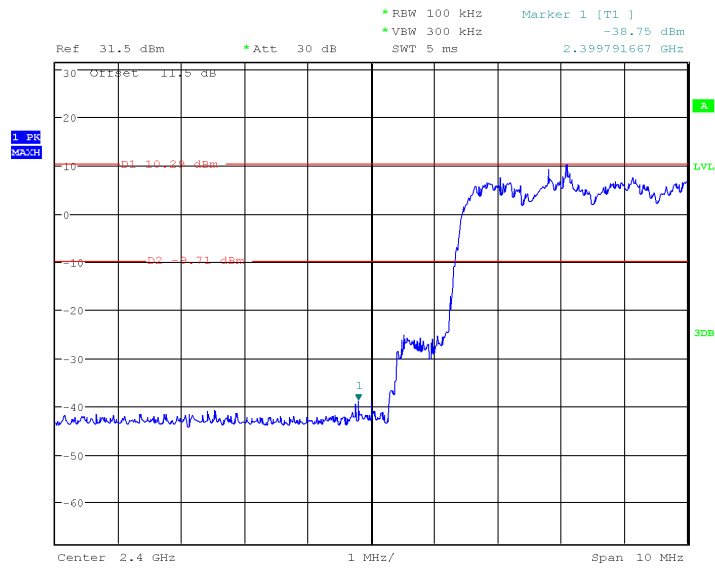
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 25.MAR.2024 16:08:23

BDR (GFSK): Right Side- Hopping



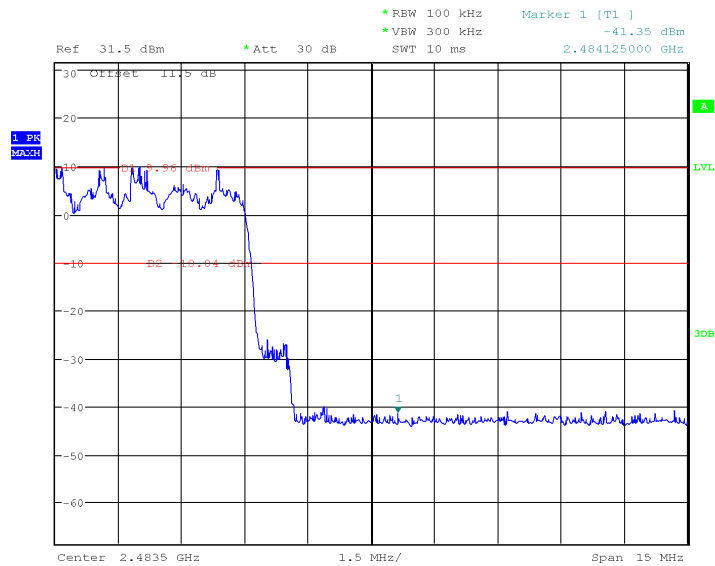
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:13:13

EDR ($\pi/4$ -DQPSK): Left Side- Hopping



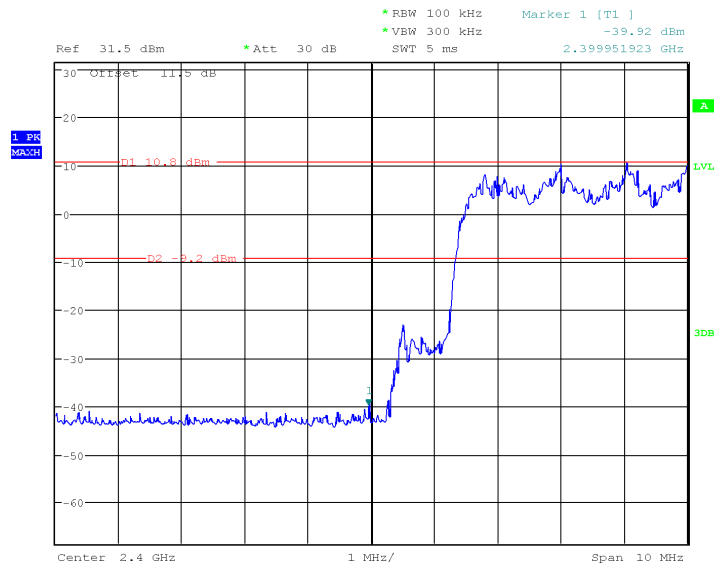
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:05:32

EDR ($\pi/4$ -DQPSK): Right Side- Hopping



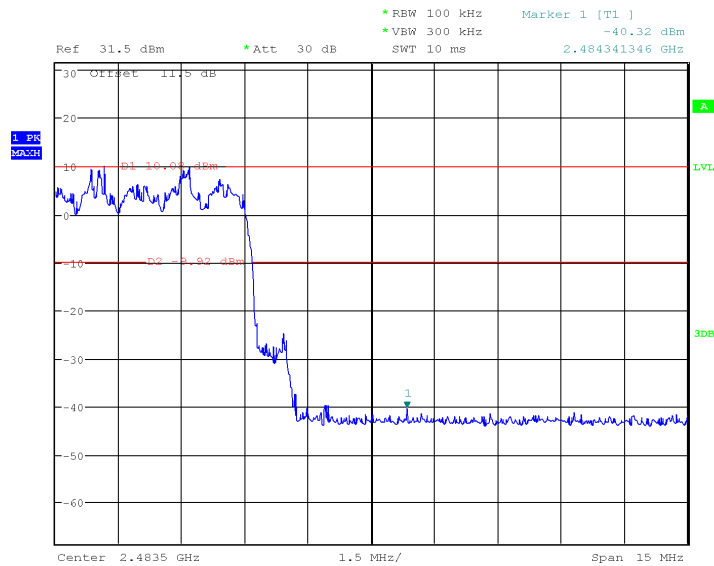
ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:11:16

EDR (8DPSK): Left Side- Hopping



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:07:04

EDR (8DPSK): Right Side- Hopping



ProjectNo.:RKSA231206001 Tester:Bard Liu
Date: 12.MAR.2024 14:09:14

EUT PHOTOGRAPHS

Please refer to the attachment EXHIBIT A-EUT EXTERNAL PHOTOGRAPHS and EXHIBIT B-EUT INTERNAL PHOTOGRAPHS.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment EXHIBIT C-TEST SETUP PHOTOGRAPHS.

Declarations

1. The laboratory is not responsible for the authenticity of any information provided by the applicant. Information from the applicant that may affect test results is marked with “★”.
2. The test data was only valid for the test sample(s).
3. 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.
4. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.
5. 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.

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