

**FCC PART 15.247
TEST REPORT**

For

Vagaro, Inc.

4430 Rosewood Drive, Suite 500, Pleasanton, CA 94588

FCC ID: 2BFJHD052

Report Type: Original Report	Product Name: PayPro
Report Number:	<u>RKSA240328001-00B</u>
Report Date:	<u>2024-06-17</u>
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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.

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REPORT REVISION HISTORY

Number of Revisions	Report No.	Version	Issue Date	Description
0	RKSA240328001-00B	R1V1	2024-06-17	Initial Release

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant:	Vagaro, Inc.
Product Name:	PayPro
Tested Model	D052
Power Supply:	DC 24V
Maximum Output Power:	GFSK: 10.20 dBm $\pi/4$ -DQPSK: 9.63 dBm 8DPSK: 9.29 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:	4.62 dBi

Adapter Information:

Model: ASSA52-240250

Input: 100-240V, 50/60Hz, 1.5A

Output: 24.0V, 2.5A, 60.0W

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: RKSA240328001-1 (Assigned by the BACL (Kunshan). The EUT supplied by the applicant was received on 2024-03-28.)

Objective

This test report is prepared for *Vagaro, Inc.* 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: Engineering Mode

★Power level: 5

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

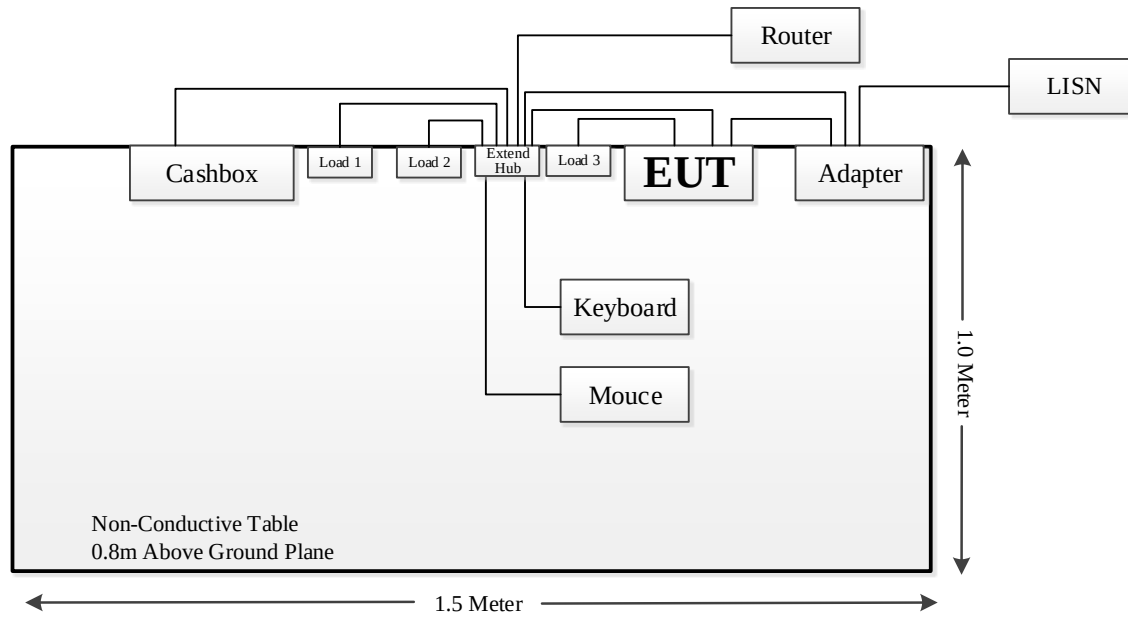
Manufacturer	Description	Model	Serial Number
Lenovo	Mouse	M12Pro	/
/	load*3	/	/
TPLINK	Router	TL XDR3010	12373X0002080
/	cashbox	/	/
/	Keyboard	/	/

External I/O Cable

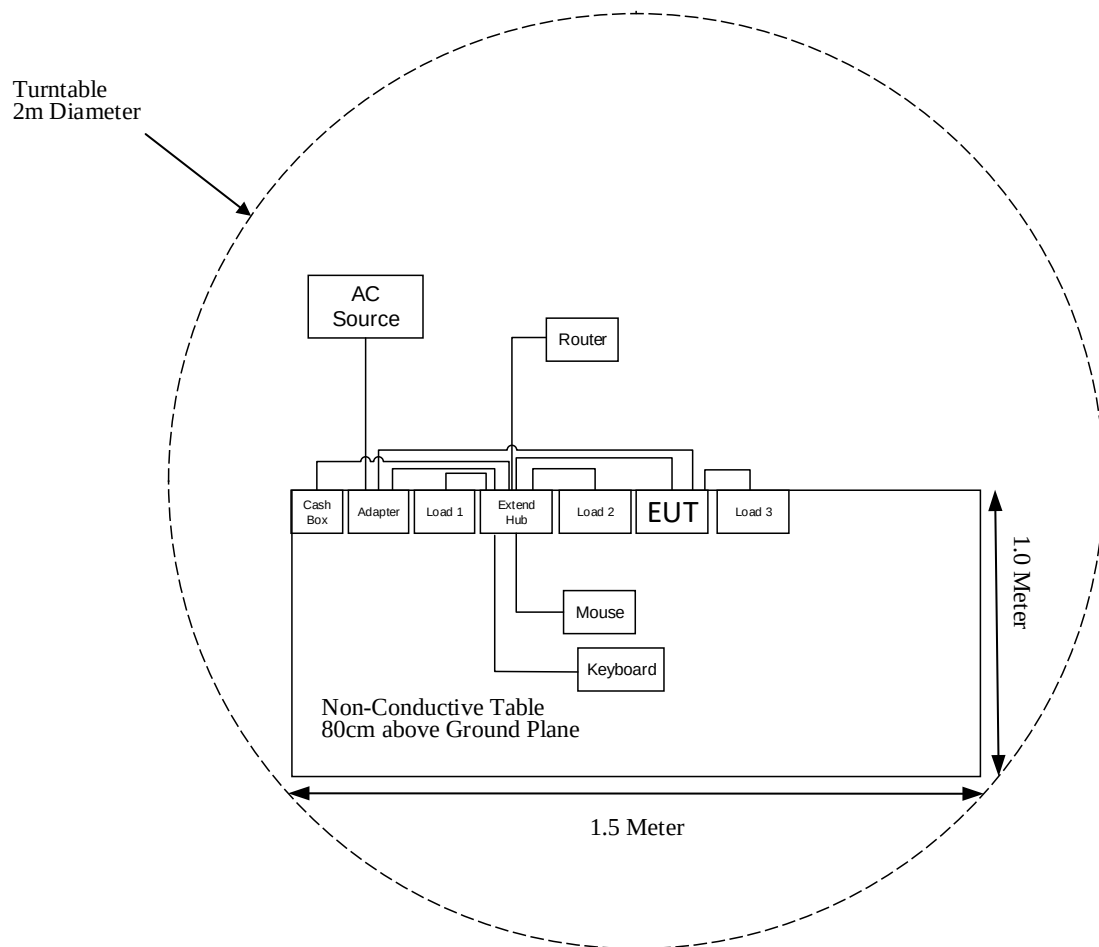
Cable Description	Length (m)	From Port	To
Power cable 1	1.0	AC Source/LISN	Adapter
Power cable 2	1.0	EUT	Extend Hub
RJ45 Cable 1	5.0	Extend Hub	Router
RJ45 Cable 2	1.0	Extend Hub	Cash box
USB Cable 1	1.0	Extend Hub	Mouse
USB Cable 2	1.0	Extend Hub	Keyboard
USB Cable 3	0.5	Extend Hub	Load 1
USB Cable 4	0.5	Extend Hub	Load 2
USB Cable 5	0.5	EUT	Load 3
USB Cable 6	1.5	Adapter	EUT

Block Diagram of Test Setup

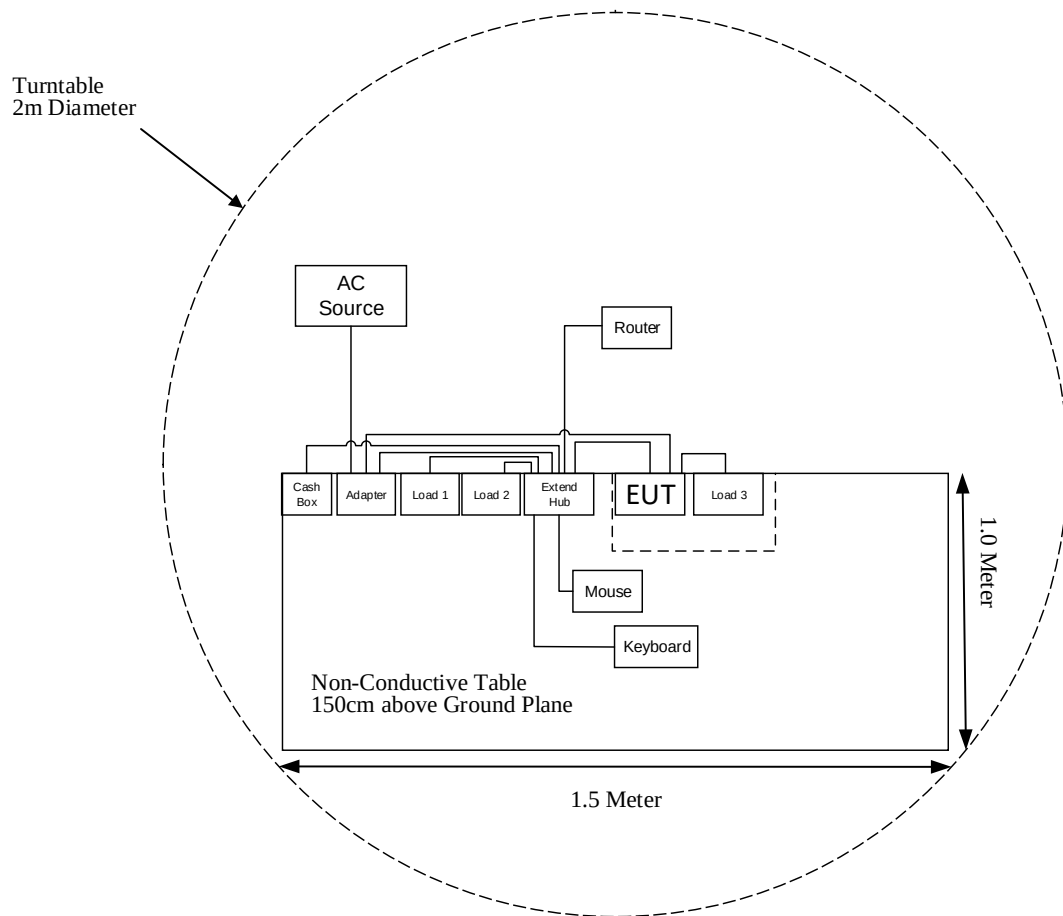
For Conducted Emissions:



For Radiated Emissions(Below 1GHz):



For Radiated Emissions (Above 1 GHz):



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
Radiated Emission Test (Chamber #2)					
Rohde & Schwarz	EMI Test Receiver	ESU40	100207/040	2024-04-25	2025-04-24
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	2024-04-25	2025-04-24
SELECTOR	Amplifier	EM18G40G	060726	2024-04-25	2025-04-24
MICRO-TRONICS	Band Reject Filter	BRM50702	G024	2024-04-25	2025-04-24
Narda	Attenuator	10dB	010	2024-04-25	2025-04-24
Rohde & Schwarz	Auto test Software	EMC32	100361	N/A	N/A
MICRO-COAX	Coaxial Cable	Cable-6	006	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-11	011	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-12	012	2024-04-25	2025-04-24
MICRO-COAX	Coaxial Cable	Cable-13	013	2024-04-25	2025-04-24
RF Conducted Test					
Rohde & Schwarz	Signal Analyzer	FSV40	101116	2024-04-24	2025-04-23
Rohde & Schwarz	Spectrum Analyzer	FSU26	200103	2024-04-24	2025-04-23
Narda	Attenuator	10dB	010	2024-04-25	2025-04-24
Conducted Emission Test					
Rohde & Schwarz	EMI Test Receiver	ESR	101746	2023-05-23	2024-05-22
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	0357.8810.54	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).

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

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 for Bluetooth, and the antenna gain is 4.62 dBi, fulfill the requirement of this section. Please refer to the EUT photos.

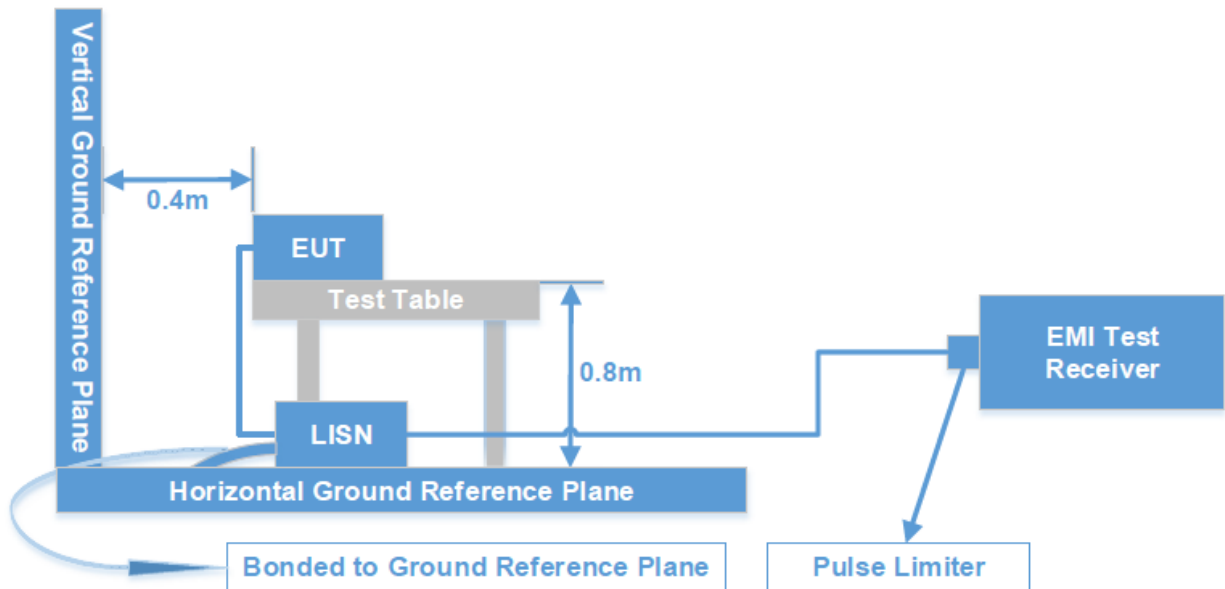
Result: Compliant.

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

During the conducted emission test, the EUT or 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 & 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:

$$\begin{aligned}\text{Factor (dB)} &= \text{LISN VDF (dB)} + \text{Cable Loss (dB)} + \text{Transient Limiter Attenuation (dB)} \\ \text{Level (dB}\mu\text{V)} &= \text{Read level (dB}\mu\text{V)} + \text{Factor (dB)}\end{aligned}$$

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:

$$\text{Over Limit (dB)} = \text{Level (dB}\mu\text{V)} - \text{Limit (dB}\mu\text{V)}$$

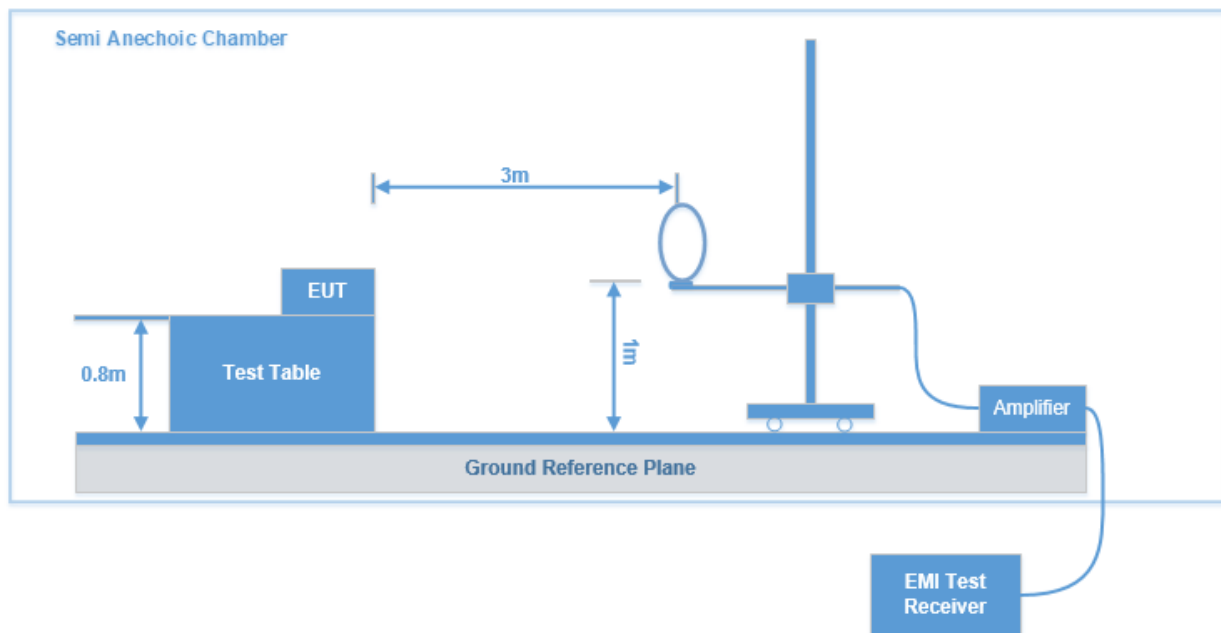
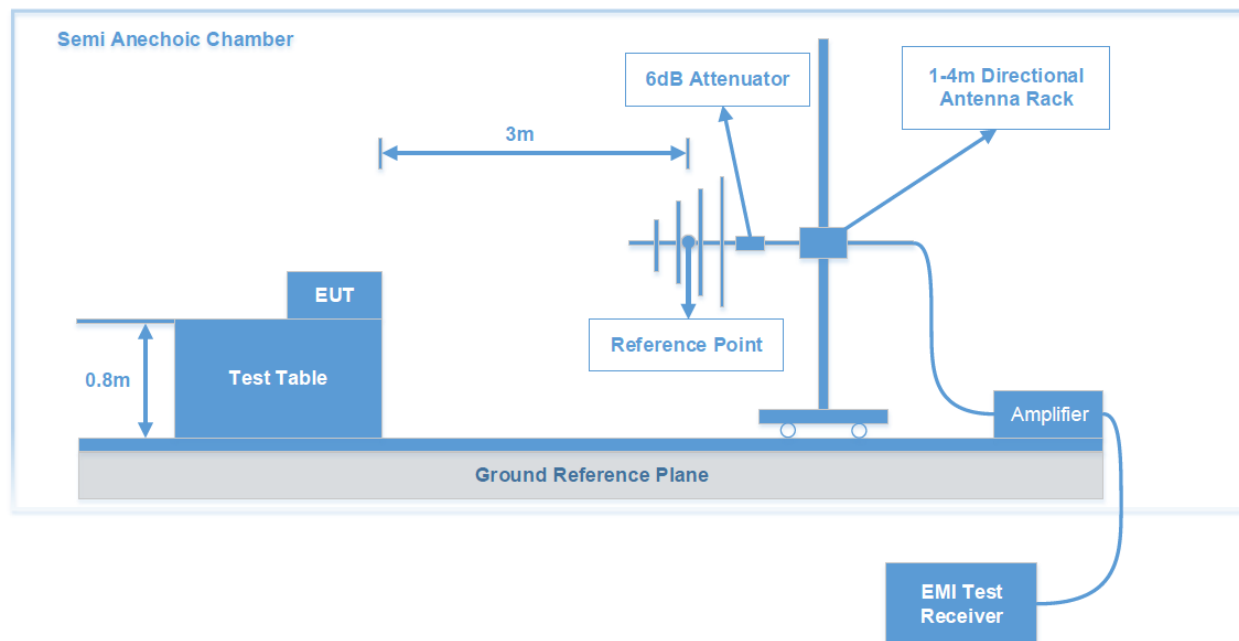
Test Results Summary

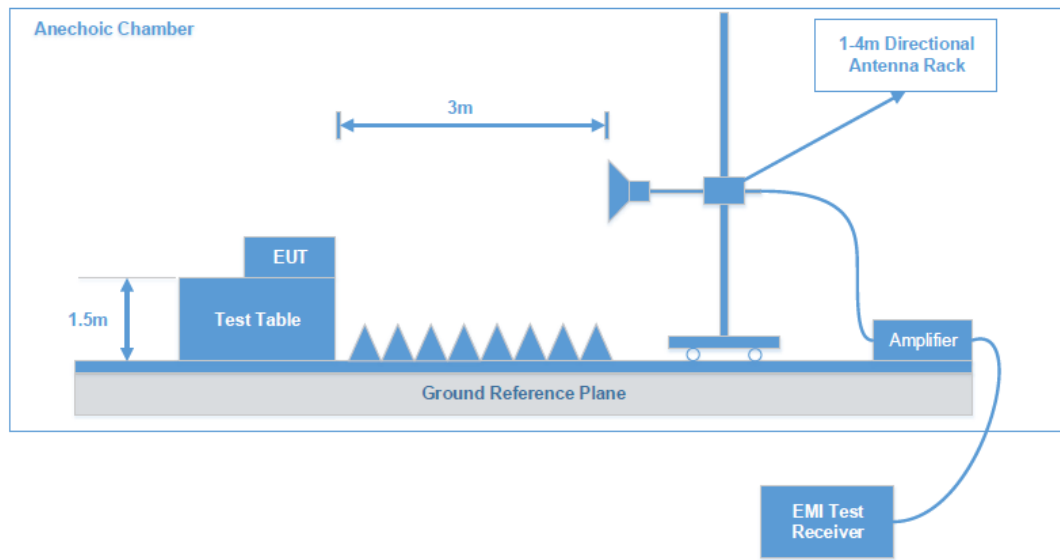
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

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**9kHz - 30MHz:****30 MHz - 1 GHz:**

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

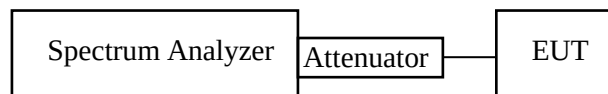
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that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

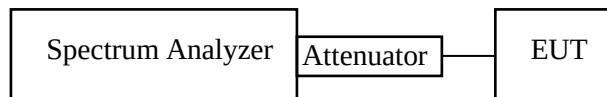
FCC §15.247(a) (1) – 20 dB EMISSION BANDWIDTH

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 Datd: See Appendix

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

Applicable Standard

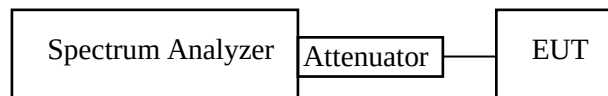
Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress 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 Datd: See Appendix

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

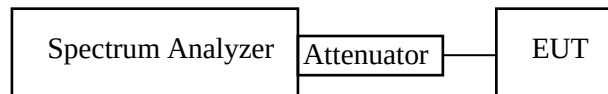
Applicable Standard

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 Datd: See Appendix

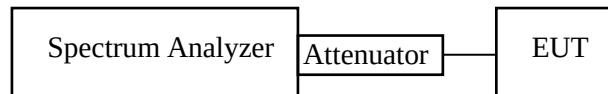
FCC §15.247(b) (1) - PEAK OUTPUT POWER MEASUREMENT

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 Datd: See Appendix

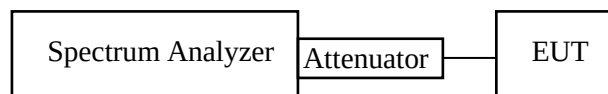
FCC §15.247(d) - BAND EDGES TESTING

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 Datd: See Appendix

EUT PHOTOGRAPHS

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

TEST SETUP PHOTOGRAPHS

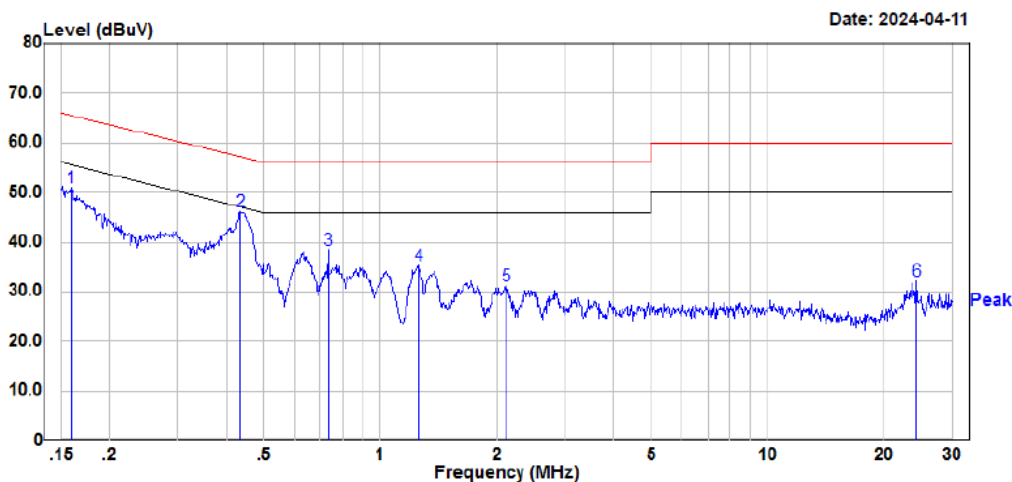
Please refer to the attachment EXHIBIT C-TEST SETUP PHOTOGRAPHS.

APPENDIX - TEST DATA

Environmental Conditions & Test Information

Test Item:	AC LINE CONDUCTED EMISSIONS	RADIATED EMISSIONS			CHANNEL SEPARATIO N TEST	20 DB BANDWIDT H TEST
		9kHz - 1GHz	1 GHz - 18 GHz	18 GHz - 25 GHz		
Test Date:	2024-04-11	2024-04-13	2024-04-29	2024-06-14	2024-05-11 to 2024-06-06	2024-05-11 to 2024-06-06
Temperature:	19.6 °C	19.8 °C	20.3 °C	22.5 °C	19.8-22.3 °C	19.8-22.3 °C
Relative Humidity:	62 %	61 %	52 %	56 %	46-55 %	46-55 %
ATM Pressure:	101.8 kPa	101.5 kPa	101.5kPa	100.6 kPa	100.6- 101.2kPa	100.6- 101.2kPa
Test Result:	Pass	Pass	Pass	Pass	Pass	Pass
Test Engineer:	Frank Liu	Leah Li	Hugh Wu	Hugh Wu	Hardy Huang	Hardy Huang

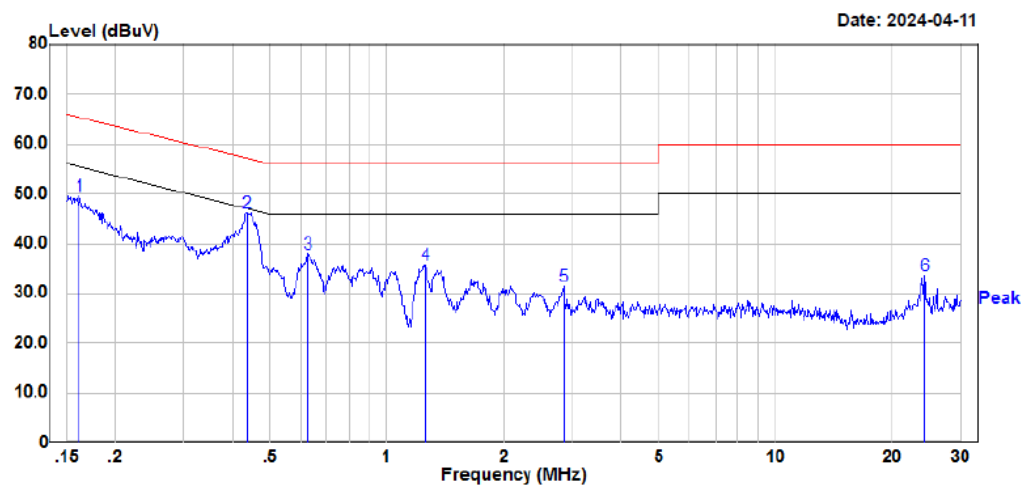
Test Item:	Quantity Of Hopping Channel Test	Time Of Occupancy (Dwell Time)	PEAK OUTPUT POWER MEASUREMENT	BAND EDGES TESTING
Test Date:	2024-05-11 to 2024-06-06	2024-05-22	2024-05-11 to 2024-05-15	2024-05-11 to 2024-05-15
Temperature:	19.8-22.3 °C	21.7 °C	19.8-20.3 °C	19.8-20.3 °C
Relative Humidity:	46-55 %	43 %	46-50 %	46-50 %
ATM Pressure:	100.6-101.2kPa	101.6kPa	101.2-101.4kPa	101.2-101.4kPa
Test Result:	Pass	Pass	Pass	Pass
Test Engineer:	Hardy Huang	Hardy Huang	Hardy Huang	Hardy Huang

AC LINE CONDUCTED EMISSIONS*EUT operation mode: Transmitting in GFSK Mode middle channel (maximum output power mode)***AC 120V/60 Hz, Line**

Site : CE
Condition : FCC PART 15.207
Project : RKSA240328001
Model : D052
Phase : L
Voltage : 120V/60Hz
Mode : BT
Test Equipment : ENV216,ESR
Temperature : 19.6℃
Humidity : 62%
Atmospheric pressure: 101.8kPa
Test Engineer : Frank Liu

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV		dB	dBuV	dB	
1	0.158	31.00	20.00	51.00	65.54	-14.54	Peak
2	0.434	26.10	20.00	46.10	57.18	-11.08	Peak
3	0.732	18.58	19.89	38.47	56.00	-17.53	Peak
4	1.254	15.57	19.74	35.31	56.00	-20.69	Peak
5	2.106	11.27	20.03	31.30	56.00	-24.70	Peak
6	24.213	12.33	19.90	32.23	60.00	-27.77	Peak

AC 120V/60 Hz, Neutral



Site : CE
Condition : FCC PART 15.207
: DET:Peak
Project : RKSA240328001
Model : D052
Phase : N
Voltage : 120V/60Hz
Mode : BT
Test Equipment : ENV216,ESR
Temperature : 19.6°C
Humidity : 62%
Atmospheric pressure: 101.8kPa
Test Engineer : Frank Liu

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	
1	0.162	29.56	20.00	49.56	65.38	-15.82	Peak
2	0.436	26.25	20.00	46.25	57.14	-10.89	Peak
3	0.624	17.98	19.94	37.92	56.00	-18.08	Peak
4	1.254	16.11	19.74	35.85	56.00	-20.15	Peak
5	2.854	11.35	20.07	31.42	56.00	-24.58	Peak
6	24.213	13.64	19.90	33.54	60.00	-26.46	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-30 MHz: (Transmitting maximum output power GFSK mode middle channel)

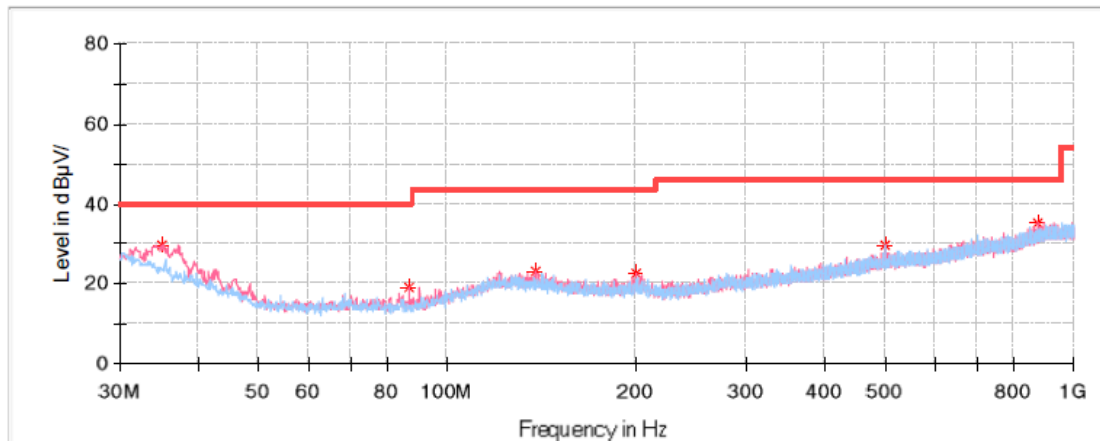
The amplitude of spurious emissions attenuated more than 20 dB below the limit was not be recorded.

30 MHz - 1 GHz (Transmitting in maximum output power GFSK mode):

Low Channel: 2402 MHz

Common Information

Project No:	RKSA240328001
Test Mode:	BT
Standard:	FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer:	Leah Li

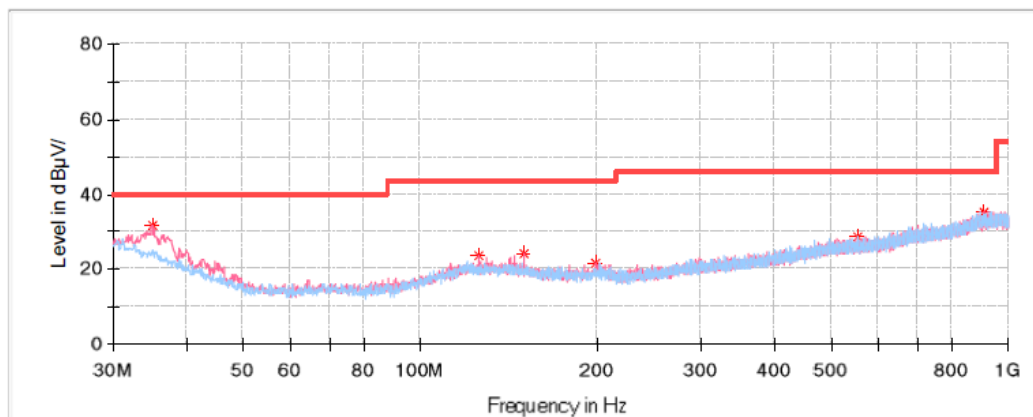


Critical_Freqs

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
34.971250	29.83	40.00	10.17	V	-7.8
86.866250	19.10	40.00	20.90	V	-17.3
138.640000	23.16	43.50	20.34	V	-11.5
200.356250	22.59	43.50	20.91	V	-12.5
498.873750	29.54	46.00	16.46	H	-5.8
872.687500	35.26	46.00	10.74	V	0.6

Middle Channel: 2441 MHz**Common Information**

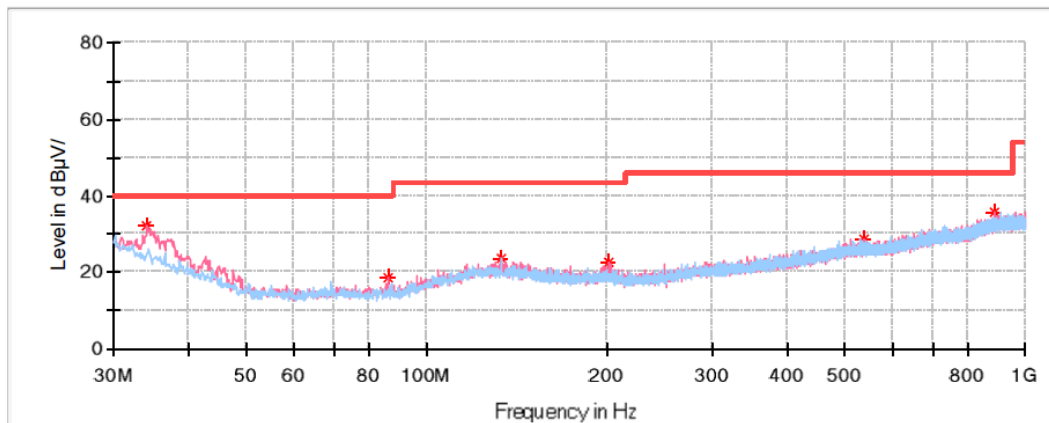
Project No: RKSA240328001
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
34.971250	31.65	40.00	8.35	V	-7.8
125.787500	23.56	43.50	19.94	V	-11.3
149.673750	24.10	43.50	19.40	V	-12.0
198.658750	21.62	43.50	21.88	V	-12.6
552.830000	28.77	46.00	17.23	H	-5.3
908.092500	35.22	46.00	10.78	V	1.3

High Channel:2480 MHz**Common Information**

Project No: RKSA240328001
Test Mode: BT
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Leah Li

**Critical Freqs**

Frequency (MHz)	MaxPeak (dBμ V/m)	Limit (dBμ V/m)	Margin (dB)	Pol	Corr. (dB/m)
34.122500	32.21	40.00	7.79	V	-7.3
86.138750	18.72	40.00	21.28	V	-17.3
133.062500	23.60	43.50	19.90	H	-11.4
201.326250	22.60	43.50	20.90	V	-12.6
536.582500	28.93	46.00	17.07	V	-5.4
886.510000	35.73	46.00	10.27	V	1.0

1 GHz - 18 GHz:**GFSK:****Low Channel: 2402 MHz****Common Information**

Project No.:

RKSA240328001

Test Mode:

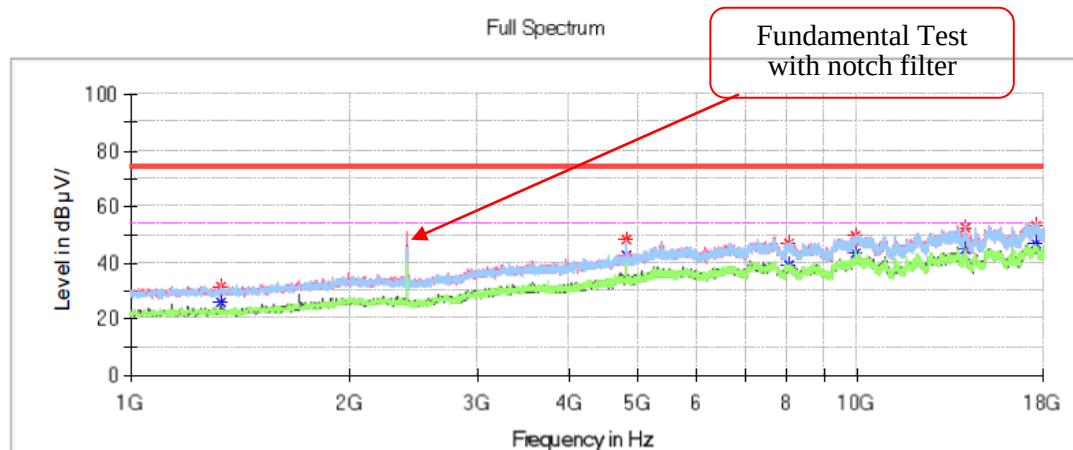
BT DH5 mode of low channel

Standard:

FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Engineer:

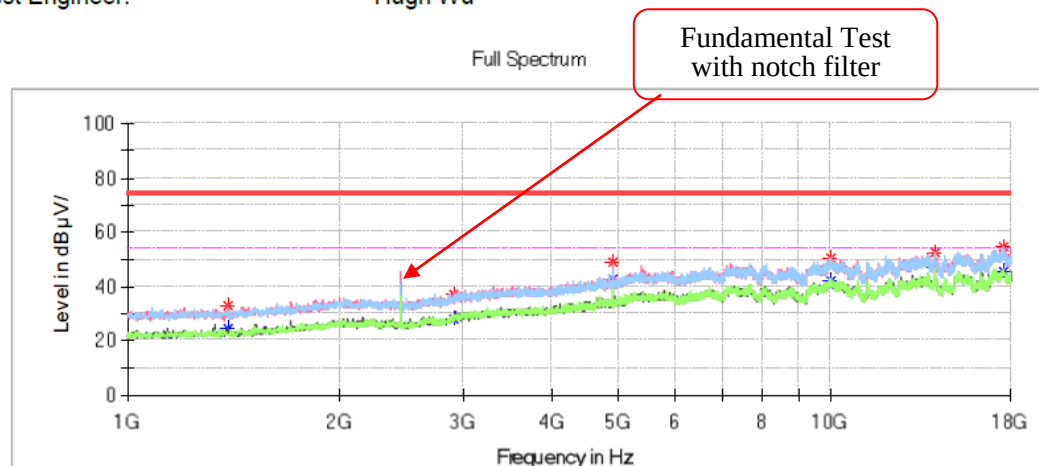
Hugh Wu

**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)
1328.100000	---	25.76	54.00	28.24	V	-14.5
1328.100000	31.65	---	74.00	42.35	V	-14.5
4802.900000	48.31	---	74.00	25.69	V	-2.2
4802.900000	---	42.48	54.00	11.52	V	-2.2
8019.300000	---	39.18	54.00	14.82	H	3.8
8019.300000	47.05	---	74.00	26.95	H	3.8
9947.100000	---	43.47	54.00	10.53	V	7.6
9947.100000	49.47	---	74.00	24.53	V	7.6
14001.600000	---	44.87	54.00	9.13	V	10.5
14001.600000	52.62	---	74.00	21.38	V	10.5
17600.500000	---	46.97	54.00	7.03	V	13.2
17600.500000	53.42	---	74.00	20.58	V	13.2

Middle Channel: 2441 MHz**Common Information**

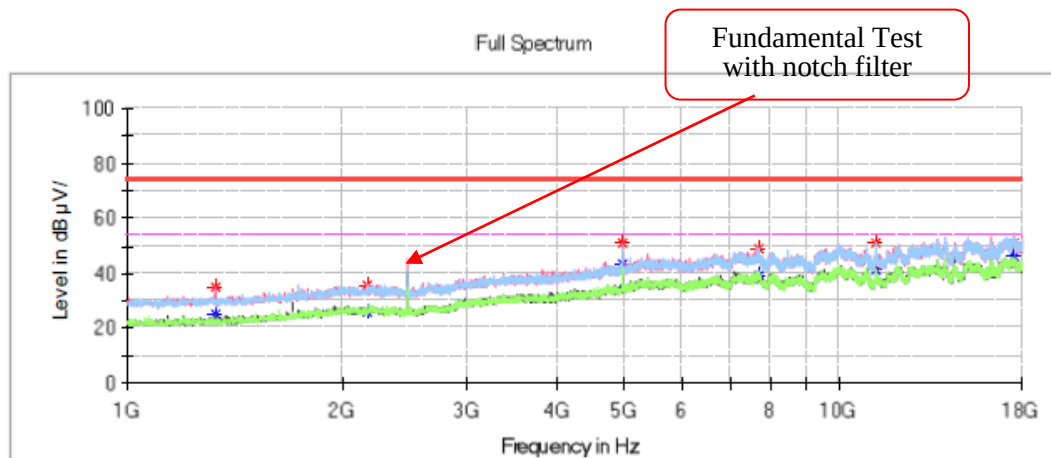
Project No.: RKSA240328001
 Test Mode: BT DH5 mode of middle channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugh Wu

**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)
1391.000000	---	24.58	54.00	29.42	V	-14.3
1391.000000	33.01	---	74.00	40.99	V	-14.3
2898.900000	---	28.04	54.00	25.96	V	-8.4
2898.900000	37.24	---	74.00	36.76	V	-8.4
4881.100000	---	42.34	54.00	11.66	V	-1.8
4881.100000	48.78	---	74.00	25.22	V	-1.8
9989.600000	---	41.77	54.00	12.23	V	7.8
9989.600000	50.51	---	74.00	23.49	V	7.8
14001.600000	52.62	---	74.00	21.38	H	10.5
14001.600000	---	46.63	54.00	7.37	H	10.5
17566.500000	54.39	---	74.00	19.61	H	13.3
17566.500000	---	45.77	54.00	8.23	H	13.3

High Channel: 2480 MHz**Common Information**

Project No.: RKSA240328001
 Test Mode: BT DH5 mode of high channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugh Wu

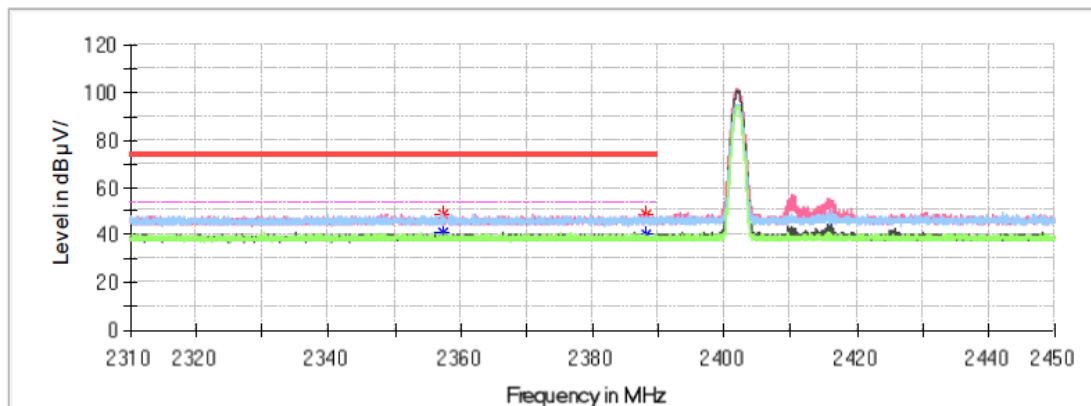
**Critical Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1328.100000	---	25.03	54.00	28.97	V	-14.5
1328.100000	34.70	---	74.00	39.30	V	-14.5
2174.700000	---	26.17	54.00	27.83	V	-10.3
2174.700000	35.86	---	74.00	38.14	V	-10.3
4959.300000	---	43.56	54.00	10.44	V	-1.4
4959.300000	50.77	---	74.00	23.23	V	-1.4
7692.900000	---	39.04	54.00	14.96	V	4.0
7692.900000	48.60	---	74.00	25.40	V	4.0
11201.700000	---	41.55	54.00	12.45	H	6.7
11201.700000	50.72	---	74.00	23.28	H	6.7
17559.700000	51.31	---	74.00	22.69	V	13.4
17559.700000	---	46.26	54.00	7.74	V	13.4

Band Edge:**Left Side****Common Information**

Project No.: RKSA240328001
Test Mode: BT DH5 mode of low channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

Full Spectrum

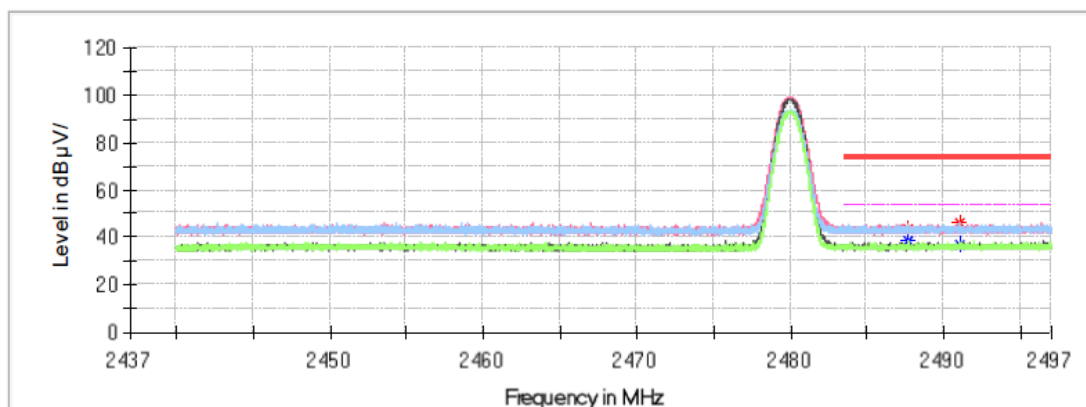
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2357.432000	---	41.00	54.00	13.00	V	0.0
2357.432000	48.27	---	74.00	25.73	V	0.0
2388.078000	---	40.20	54.00	13.80	V	0.1
2388.078000	48.75	---	74.00	25.25	V	0.1

Right Side**Common Information**

Project No.: RKSA240328001
Test Mode: BT DH5 mode of high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

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)
2487.754000	43.96	---	74.00	30.04	H	0.2
2487.754000	---	38.43	54.00	15.57	H	0.2
2490.988000	46.42	---	74.00	27.58	H	0.2
2490.988000	---	36.79	54.00	17.21	H	0.2

$\pi/4$ -DQPSK:

Low Channel: 2402 MHz

Common Information

Project No.:

RKSA240328001

Test Mode:

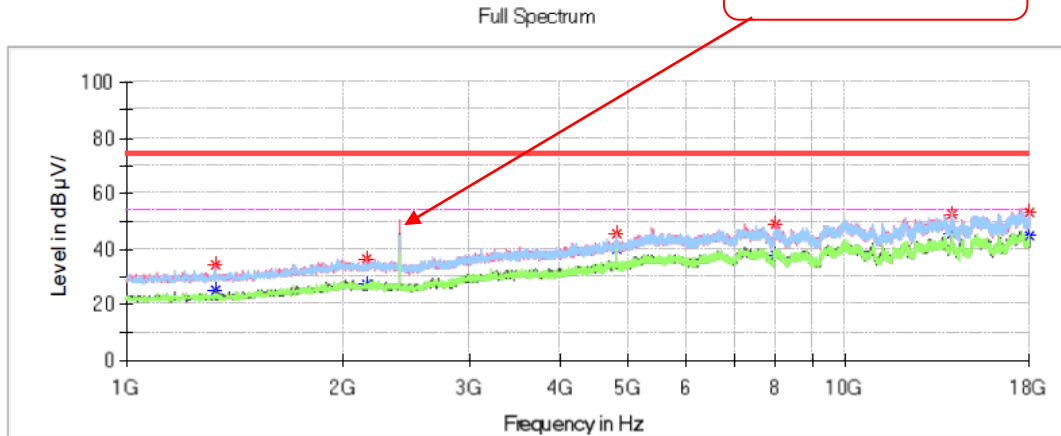
BT 2DH5 mode of low channel

Standard:

FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Engineer:

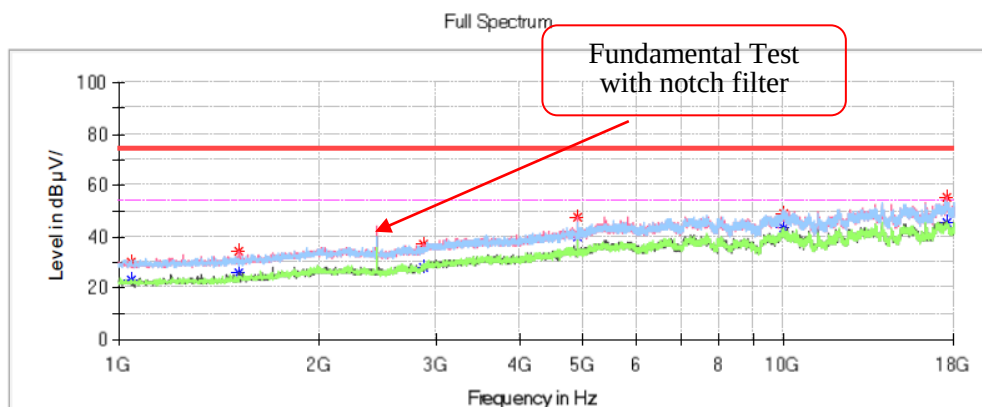
Hugh Wu

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)
1328.100000	---	25.28	54.00	28.72	V	-14.5
1328.100000	34.47	---	74.00	39.53	V	-14.5
2156.000000	---	26.94	54.00	27.06	V	-10.3
2156.000000	36.25	---	74.00	37.75	V	-10.3
4802.900000	---	39.77	54.00	14.23	H	-2.2
4802.900000	45.39	---	74.00	28.61	H	-2.2
7987.000000	---	38.02	54.00	15.98	V	3.8
7987.000000	48.93	---	74.00	25.07	V	3.8
14001.600000	---	45.61	54.00	8.39	H	10.5
14001.600000	52.75	---	74.00	21.25	H	10.5
17998.300000	---	44.92	54.00	9.08	H	11.5
17998.300000	53.45	---	74.00	20.55	H	11.5

Middle Channel: 2441 MHz**Common Information**

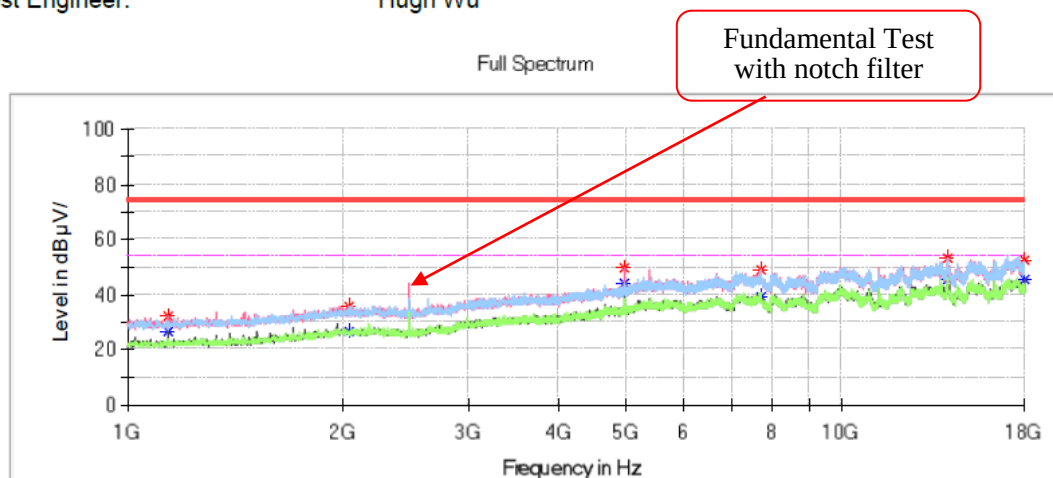
Project No.: RKSA240328001
Test Mode: BT 2DH5 mode of middle channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

**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)
1047.600000	---	22.94	54.00	31.06	V	-15.4
1047.600000	29.88	---	74.00	44.12	V	-15.4
1518.500000	34.07	---	74.00	39.93	V	-13.8
1518.500000	---	26.19	54.00	27.81	V	-13.8
2875.100000	---	28.31	54.00	25.69	V	-8.5
2875.100000	37.38	---	74.00	36.62	V	-8.5
4881.100000	47.71	---	74.00	26.29	V	-1.8
4881.100000	---	39.95	54.00	14.05	V	-1.8
9972.600000	---	43.04	54.00	10.96	V	7.7
9972.600000	48.95	---	74.00	25.05	V	7.7
17571.600000	---	45.71	54.00	8.29	H	13.3
17571.600000	55.25	---	74.00	18.75	H	13.3

High Channel: 2480 MHz**Common Information**

Project No.: RKSA240328001
 Test Mode: BT 2DH5 mode of high channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugh Wu

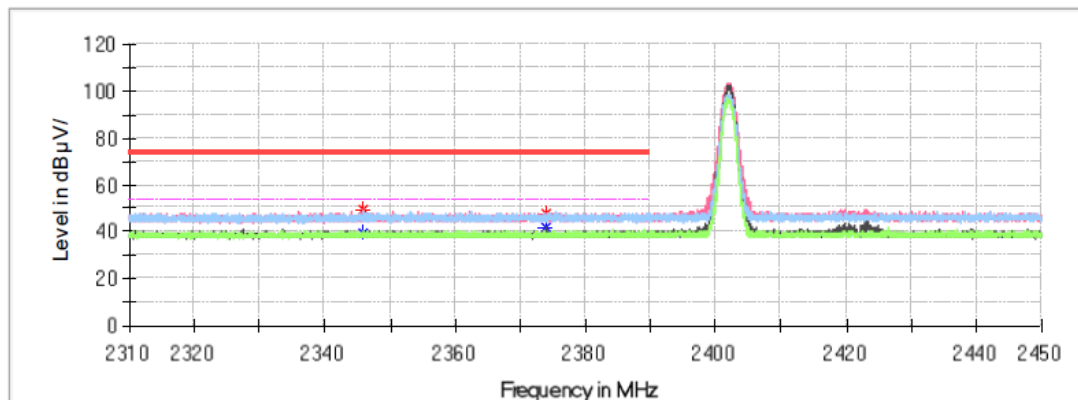
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1137.700000	32.03	---	74.00	41.97	V	-15.1
1137.700000	---	26.63	54.00	27.37	V	-15.1
2045.500000	35.70	---	74.00	38.30	V	-10.5
2045.500000	---	26.84	54.00	27.16	V	-10.5
4959.300000	---	44.38	54.00	9.62	V	-1.4
4959.300000	49.81	---	74.00	24.19	V	-1.4
7691.200000	---	39.06	54.00	14.94	H	4.0
7691.200000	48.98	---	74.00	25.02	H	4.0
14003.300000	---	45.43	54.00	8.57	V	10.5
14003.300000	53.37	---	74.00	20.63	V	10.5
17998.300000	---	45.50	54.00	8.50	V	11.5
17998.300000	52.59	---	74.00	21.41	V	11.5

Band Edge:**Left Side****Common Information**

Project No.: RKSA240328001
Test Mode: BT 2DH5 mode of low channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

Full Spectrum

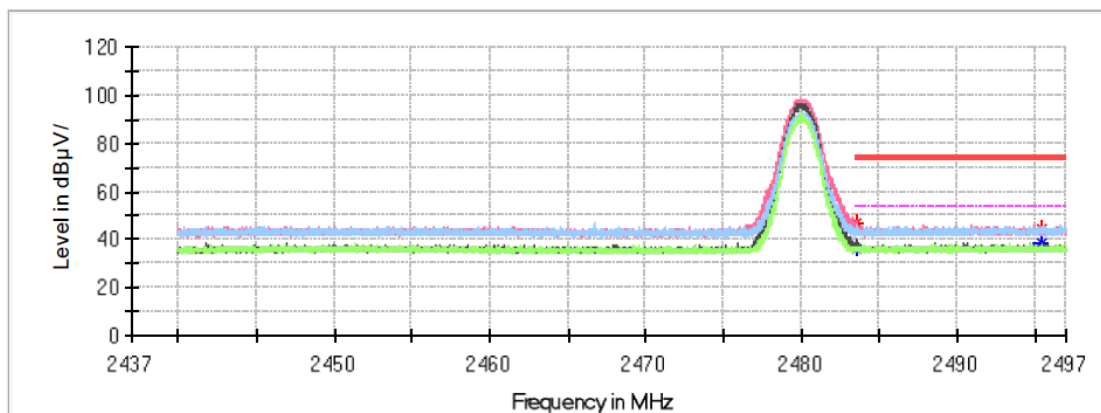
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2345.756000	49.09	---	74.00	24.91	V	0.0
2345.756000	---	39.14	54.00	14.86	V	0.0
2373.840000	48.23	---	74.00	25.77	V	0.0
2373.840000	---	41.94	54.00	12.06	V	0.0

Right Side**Common Information**

Project No.: RKSA240328001
Test Mode: BT 2DH5 mode of high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

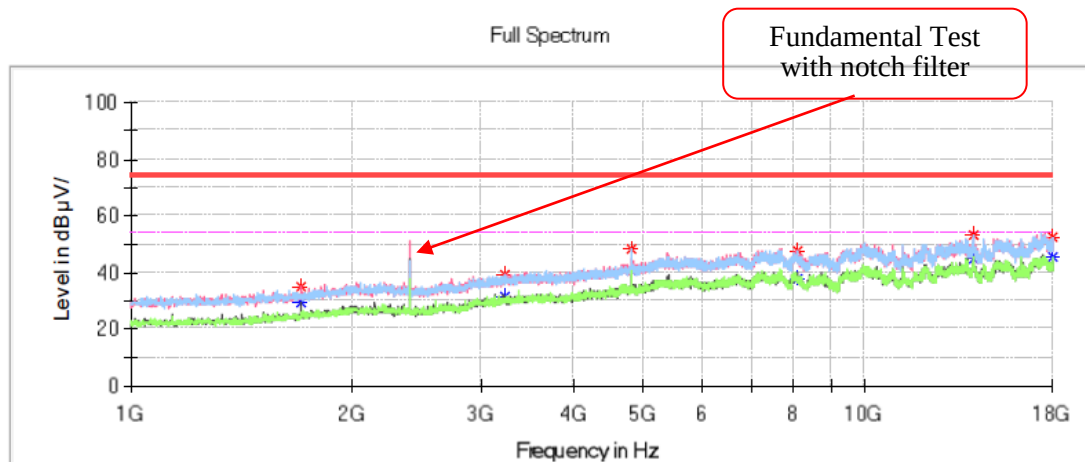
Full Spectrum

**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)
2483.512000	---	36.36	54.00	17.64	V	0.2
2483.512000	47.00	---	74.00	27.00	V	0.2
2495.494000	---	38.82	54.00	15.18	V	0.2
2495.494000	44.63	---	74.00	29.37	V	0.2

8DPSK:**Low Channel: 2402 MHz****Common Information**

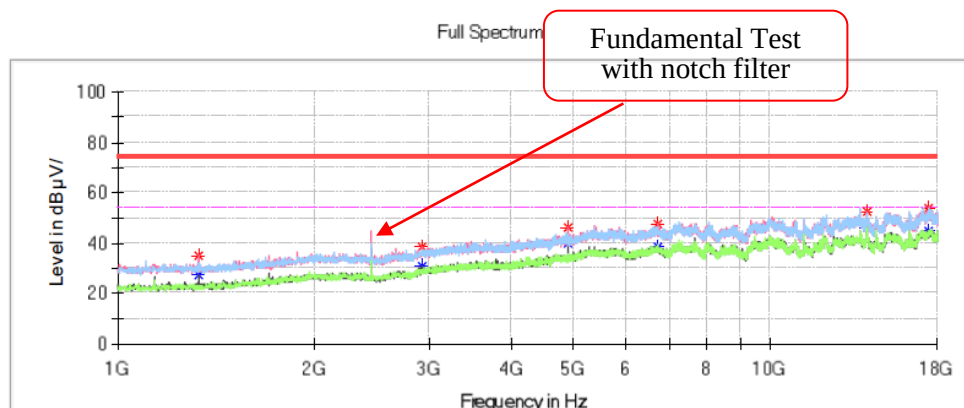
Project No.: RKSA240328001
 Test Mode: BT 3DH5 mode of low channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugh Wu

**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)
1707.200000	---	29.18	54.00	24.82	V	-12.5
1707.200000	35.04	---	74.00	38.96	V	-12.5
3227.000000	---	31.21	54.00	22.79	H	-7.2
3227.000000	39.38	---	74.00	34.62	H	-7.2
4802.900000	---	40.83	54.00	13.17	H	-2.2
4802.900000	48.46	---	74.00	25.54	H	-2.2
8092.400000	---	37.80	54.00	16.20	H	3.8
8092.400000	47.21	---	74.00	26.79	H	3.8
14001.600000	---	44.84	54.00	9.16	H	10.5
14001.600000	52.84	---	74.00	21.16	H	10.5
18000.000000	---	45.62	54.00	8.38	H	11.5
18000.000000	52.75	---	74.00	21.25	H	11.5

Middle Channel: 2441 MHz**Common Information**

Project No.: RKSA240328001
 Test Mode: BT 3DH5 mode of middle channel
 Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
 Test Engineer: Hugh Wu

**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)
1328.100000	---	26.94	54.00	27.06	V	-14.5
1328.100000	35.13	---	74.00	38.87	V	-14.5
2926.100000	---	30.86	54.00	23.14	V	-8.3
2926.100000	38.50	---	74.00	35.50	V	-8.3
4881.100000	---	40.21	54.00	13.79	V	-1.8
4881.100000	45.89	---	74.00	28.11	V	-1.8
6696.700000	---	38.14	54.00	15.86	V	2.0
6696.700000	47.76	---	74.00	26.24	V	2.0
14003.300000	52.13	---	74.00	21.87	V	10.5
14003.300000	---	45.88	54.00	8.12	V	10.5
17428.800000	53.67	---	74.00	20.33	H	13.4
17428.800000	---	45.06	54.00	8.94	H	13.4

High Channel: 2480 MHz**Common Information**

Project No.:

RKSA240328001

Test Mode:

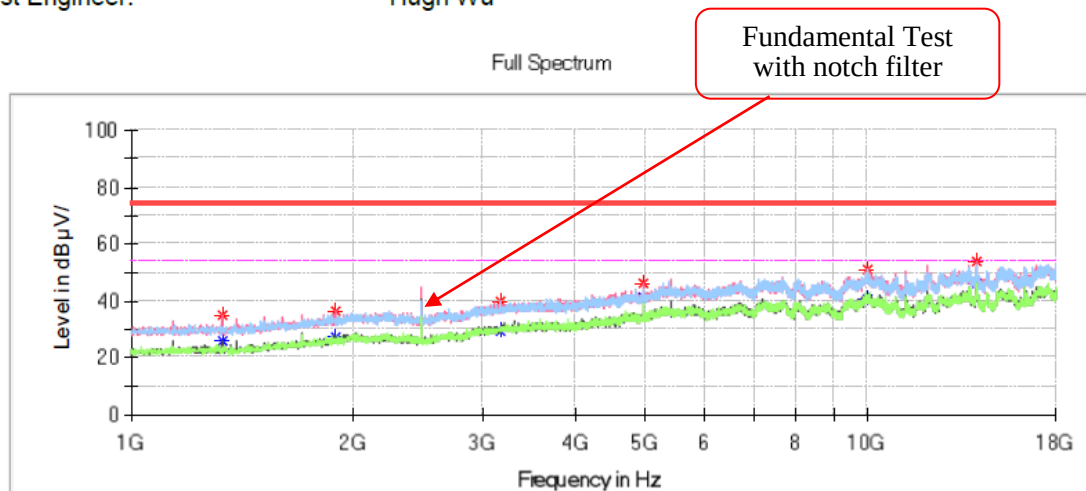
BT 3DH5 mode of high channel

Standard:

FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209

Test Engineer:

Hugh Wu

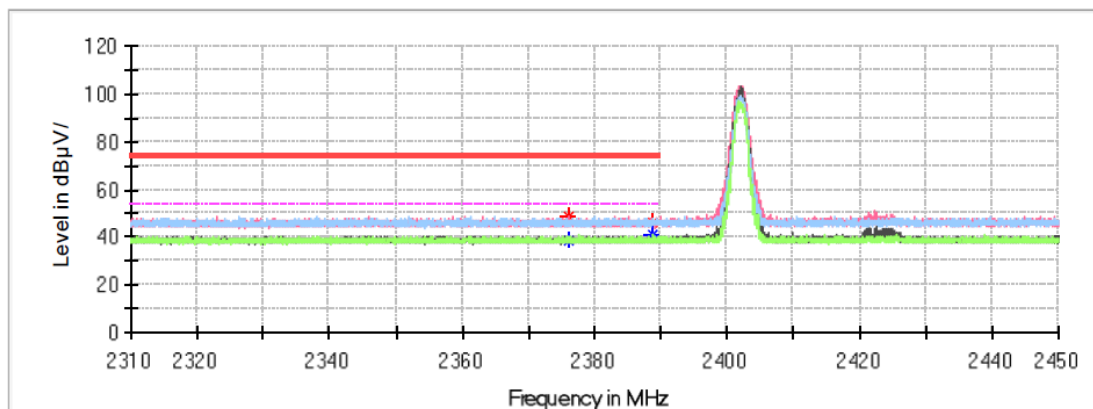
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
1326.400000	---	26.13	54.00	27.87	V	-14.5
1326.400000	34.63	---	74.00	39.37	V	-14.5
1897.600000	---	27.04	54.00	26.96	V	-11.3
1897.600000	36.70	---	74.00	37.30	V	-11.3
3177.700000	---	29.31	54.00	24.69	H	-7.3
3177.700000	40.13	---	74.00	33.87	H	-7.3
4959.300000	---	41.09	54.00	12.91	V	-1.4
4959.300000	46.30	---	74.00	27.70	V	-1.4
9996.400000	---	40.55	54.00	13.45	H	7.8
9996.400000	50.83	---	74.00	23.17	H	7.8
14001.600000	---	46.50	54.00	7.50	V	10.5
14001.600000	54.05	---	74.00	19.95	V	10.5

Band Edge:**Left Side****Common Information**

Project No.: RKSA240328001
Test Mode: BT 3DH5 mode of low channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

Full Spectrum

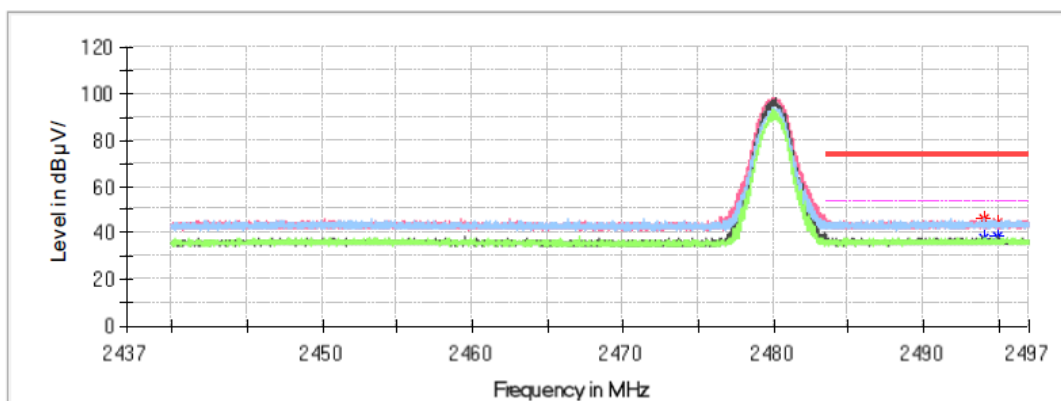
**Critical_Freqs**

Frequency (MHz)	MaxPeak (dB μ V/m)	Average (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Pol	Corr. (dB/m)
2376.108000	48.63	---	74.00	25.37	V	0.0
2376.108000	---	38.70	54.00	15.30	V	0.0
2388.806000	46.54	---	74.00	27.46	V	0.1
2388.806000	---	40.96	54.00	13.04	V	0.1

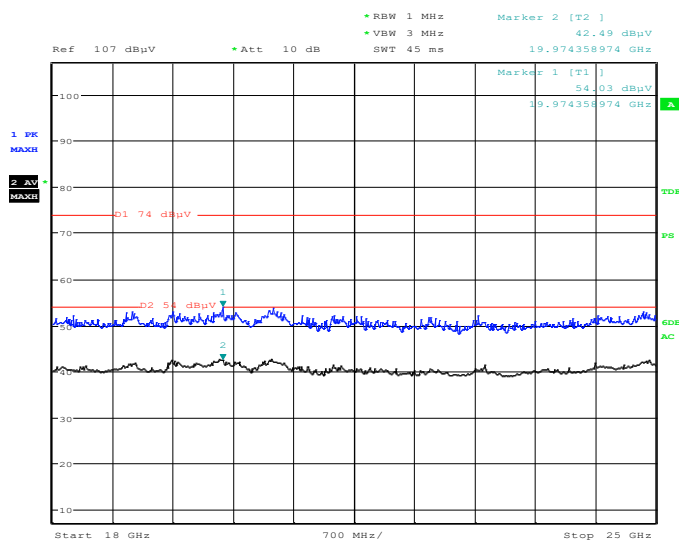
Right Side**Common Information**

Project No.: RKSA240328001
Test Mode: BT 3DH5 mode of high channel
Standard: FCC Part 15.247 & FCC Part 15.205 & FCC Part 15.209
Test Engineer: Hugh Wu

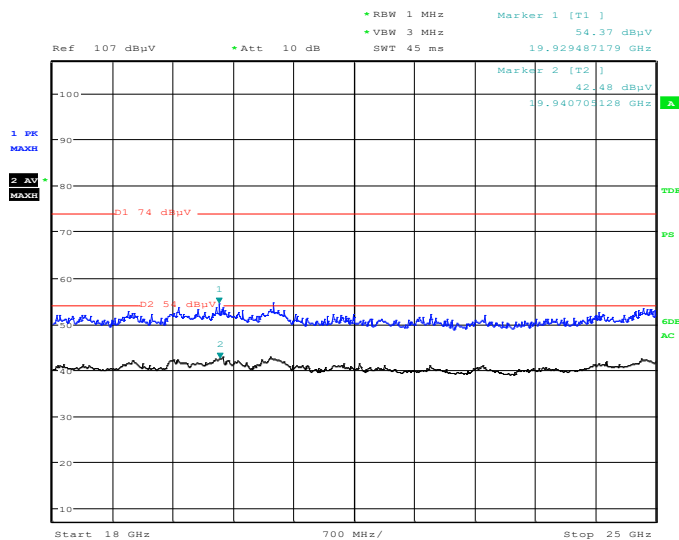
Full Spectrum

**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)
2493.982000	46.10	---	74.00	27.90	H	0.2
2493.988000	---	37.78	54.00	16.22	H	0.2
2494.912000	---	38.55	54.00	15.45	H	0.2
2494.912000	44.30	---	74.00	29.70	H	0.2

18 GHz - 25 GHz (GFSK Mode middle channel):**Horizontal**

Project No : RKSA240328001 Tester :Hugh Wu
Date: 14.JUN.2024 13:25:21

Vertical

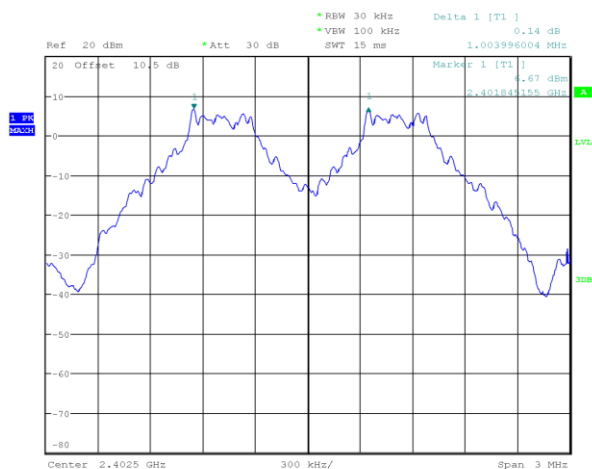
Project No : RKSA240328001 Tester :Hugh Wu
Date: 14.JUN.2024 13:11:14

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

CHANNEL SEPARATION TEST*EUT operation mode: Transmitting*

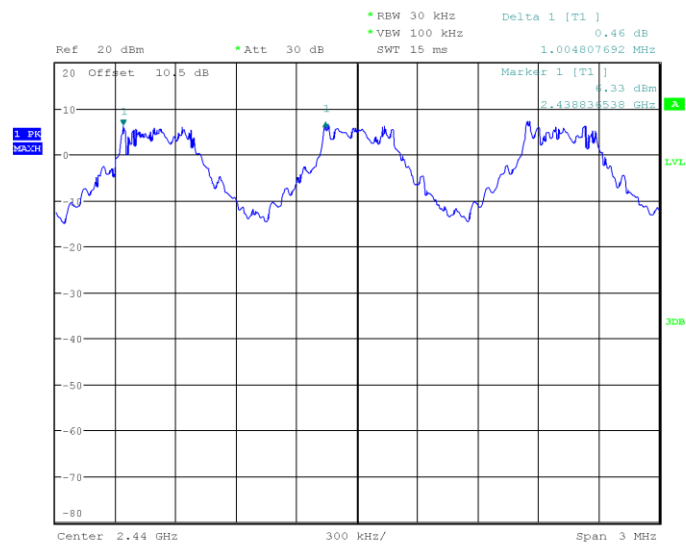
Mode	Channel	Result (MHz)	Limit (MHz)
GFSK	Low	1.004	0.639
	Middle	1.005	0.637
	High	1.004	0.625
$\pi/4$ DQPSK	Low	1.004	0.841
	Middle	1.000	0.315
	High	1.004	0.837
8DPSK	Low	1.005	0.851
	Middle	1.005	0.851
	High	1.000	0.849

Note: Limit = 20 dB bandwidth*2/3

BDR (GFSK): Low Channel

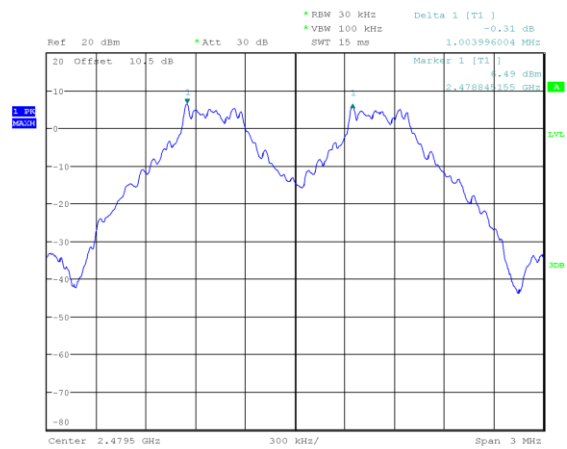
ProjectNo.: RKSA240328001 Tester: Hardy Huang
 Date: 11.MAY.2024 21:52:34

BDR (GFSK): Middle Channel

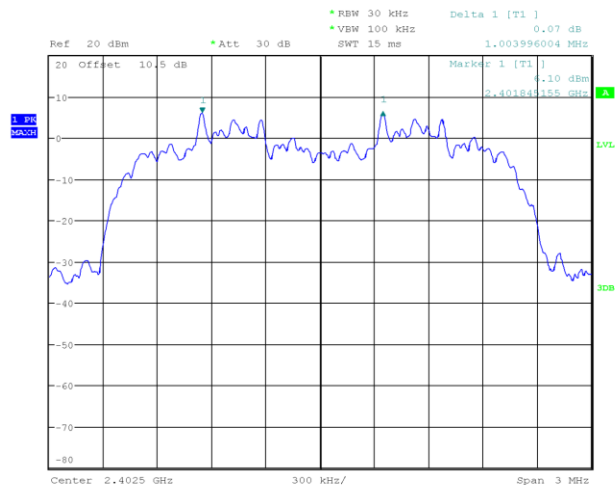


ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 10:32:43

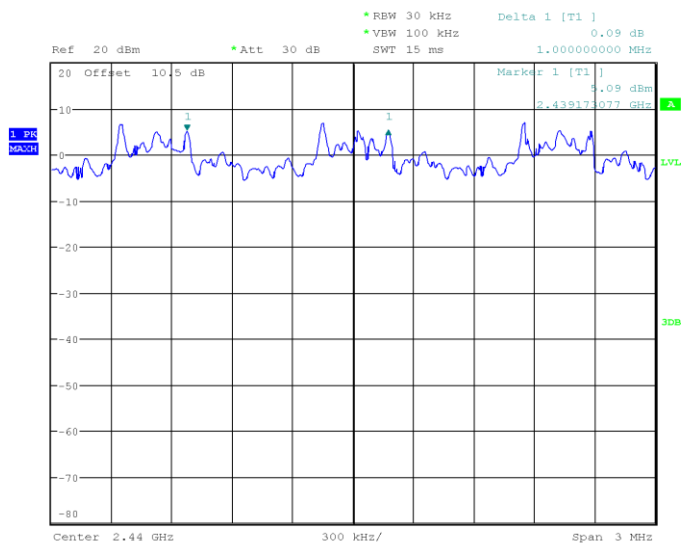
BDR (GFSK): High Channel



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:10:48

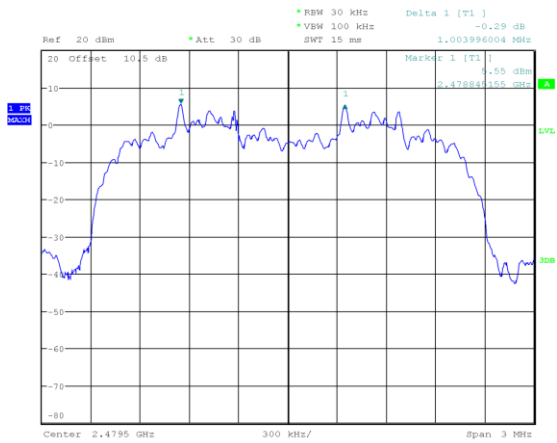
EDR ($\pi/4$ -DQPSK): Low Channel

ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:54:46

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

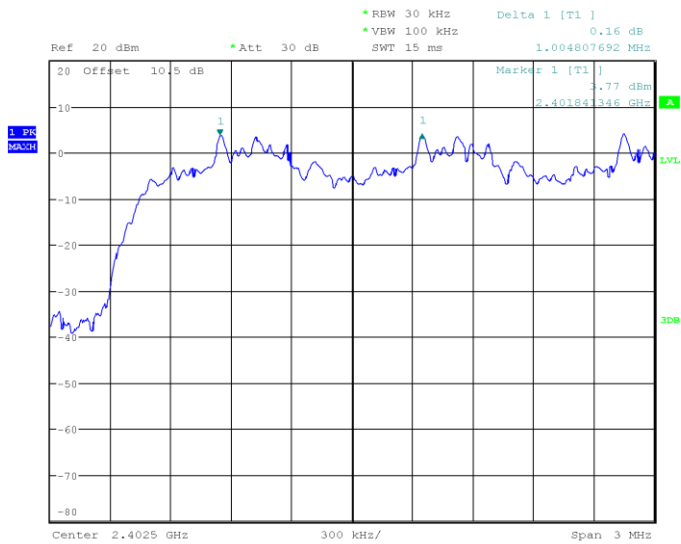
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 10:40:26

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



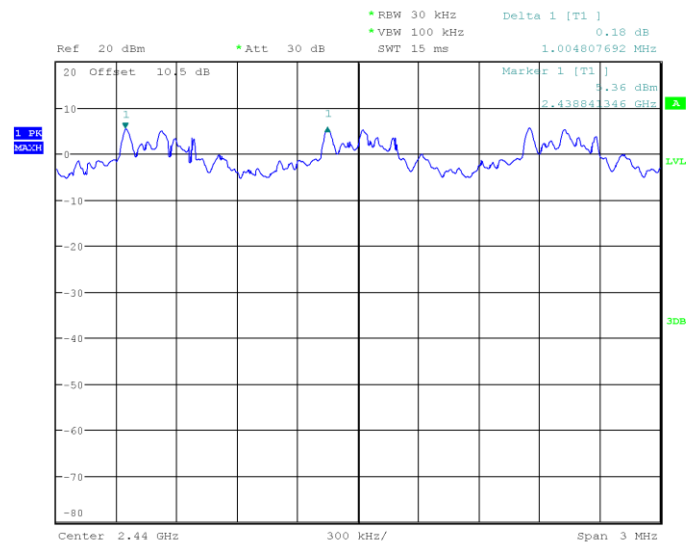
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:14:48

EDR (8DPSK): Low Channel



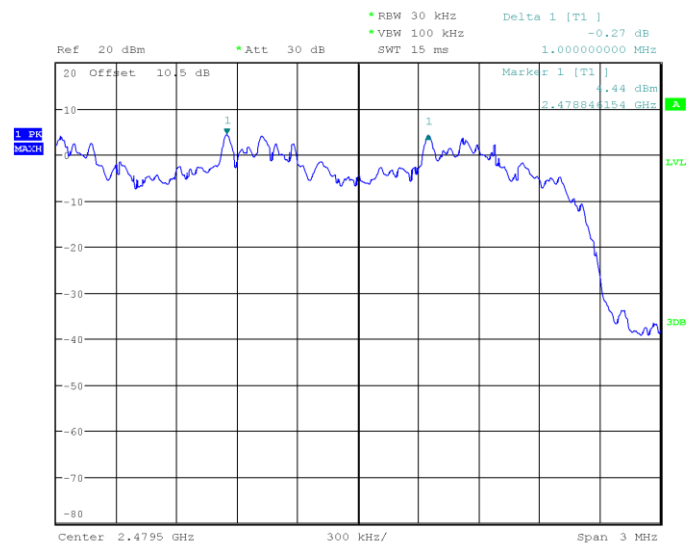
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 6.JUN.2024 15:10:12

EDR (8DPSK): Middle Channel



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 10:48:27

EDR (8DPSK): High Channel



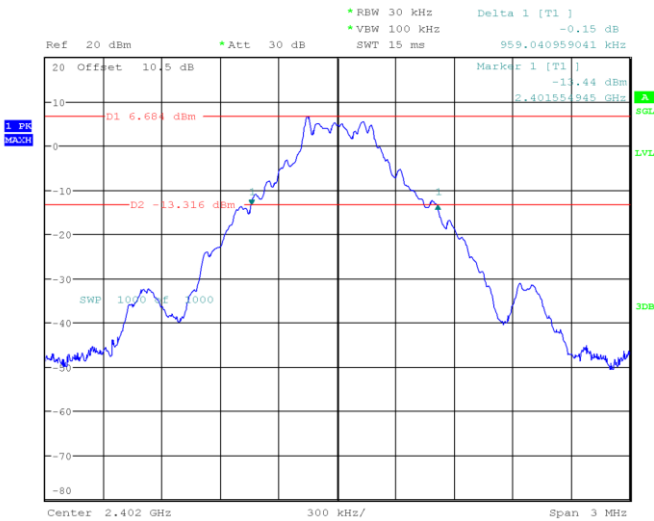
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 6.JUN.2024 15:34:36

20 dB BANDWIDTH TEST

EUT operation mode: Transmitting

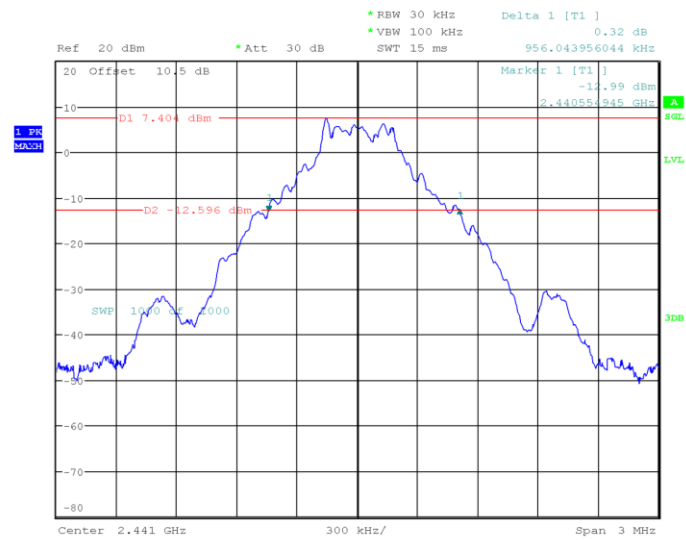
Mode	Channel	Frequency (MHz)	20 dB Emission Bandwidth (MHz)
BDR (GFSK)	Low	2402	0.959
	Middle	2441	0.956
	High	2480	0.938
EDR ($\pi/4$ -DQPSK)	Low	2402	1.262
	Middle	2441	1.260
	High	2480	1.256
EDR (8DPSK)	Low	2402	1.277
	Middle	2441	1.277
	High	2480	1.274

BDR (GFSK): Low Channel



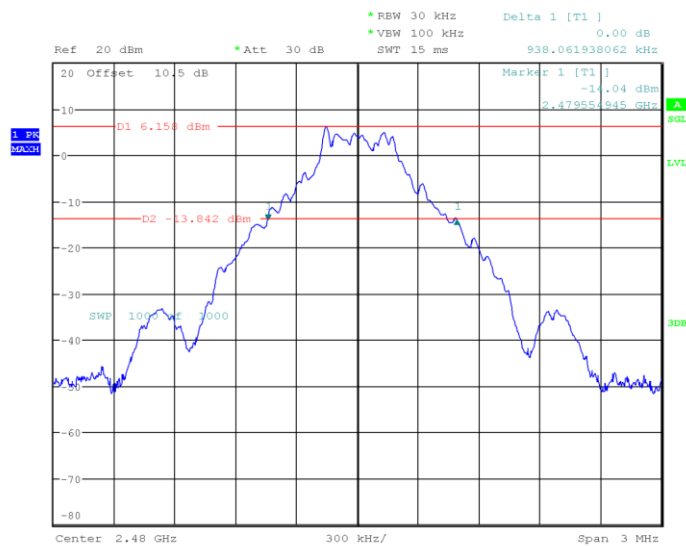
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 21:38:44

BDR (GFSK): Middle Channel



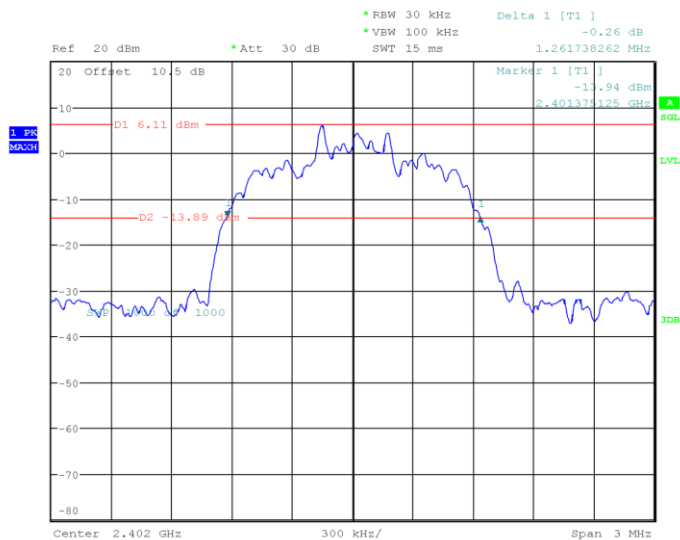
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 21:53:43

BDR (GFSK): High Channel



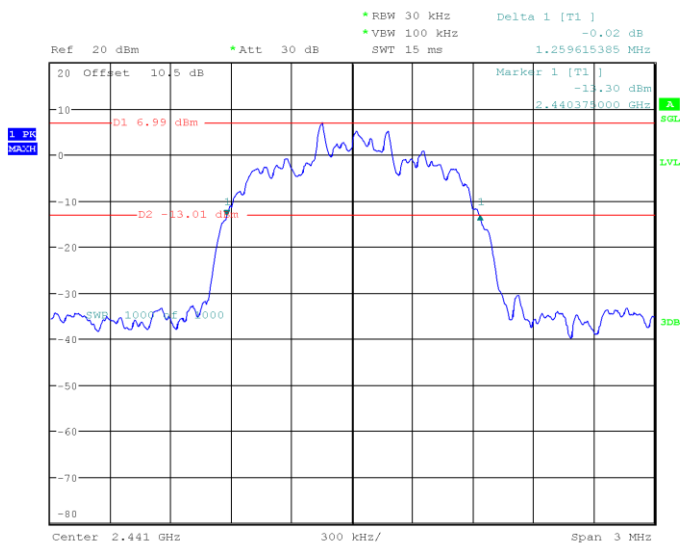
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:01:08

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



ProjectNo.:RKSA240328001 Tester:Hardy Huang
 Date: 11.MAY.2024 22:45:24

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



ProjectNo.:RKSA240328001 Tester:Hardy Huang
 Date: 6.JUN.2024 14:54:46

*RBW 30 kHz Delta 1 [T1] 0.03 dB
 *VBW 100 kHz
 *Att 30 dB SWT 15 ms 1.255744256 GHz

Ref 20 dBm Offset 10.5 dB Marker 1 [T1] -14.91 dBm
 2.479375125 GHz

1 PR
 MAGN

D1 5.24 dBm
 D2 -14.751 dBm

SWP 100 Hz 1000

1
 2

1.255744256 GHz

3dB

Center 2.48 GHz 300 kHz/ Span 3 MHz

ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:06:34

Ref 20 dBm Att 30 dB RBW 30 kHz VBW 100 kHz SWT 15 ms Delta 1 [T1] -0.34 dB 1.276723217 MHz

20 Offset 10 5 dB

Marker 1 [T1] -19.55 dBm 2.401372128 GHz

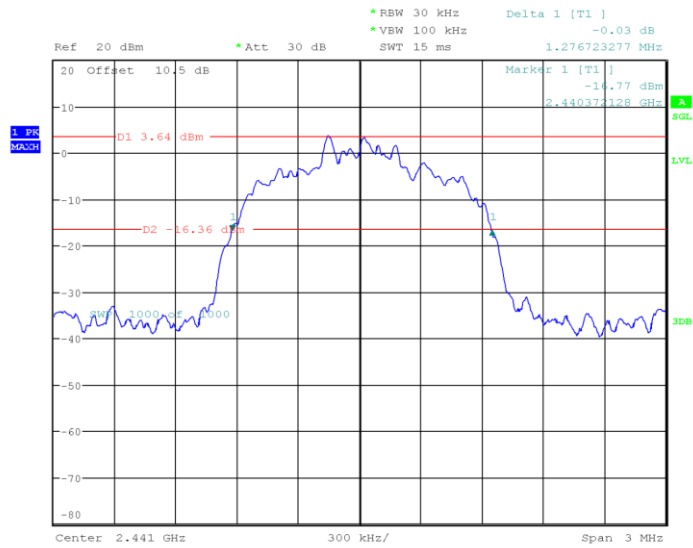
D1 4.571 dBm

D2 -15.429 dBm

Center 2.402 GHz 300 kHz/ Span 3 MHz

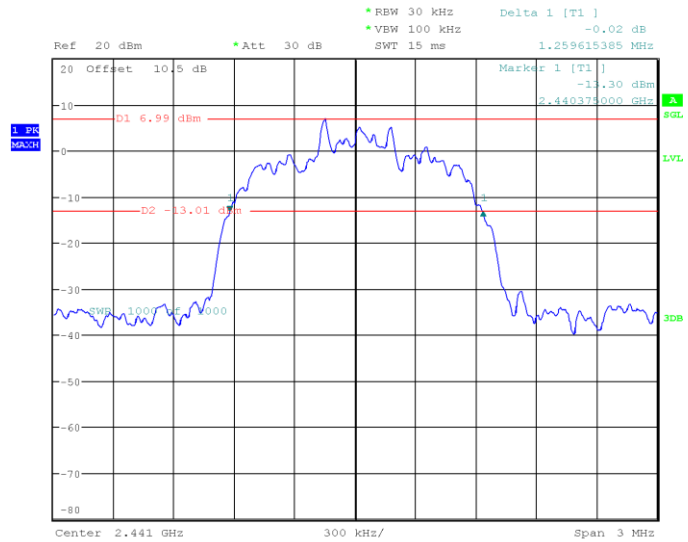
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:14:25

EDR (8DPSK): Middle Channel



ProjectNo.:RKSA240328001 Tester:Hardy Huang
 Date: 15.MAY.2024 23:30:57

EDR (8DPSK): High Channel



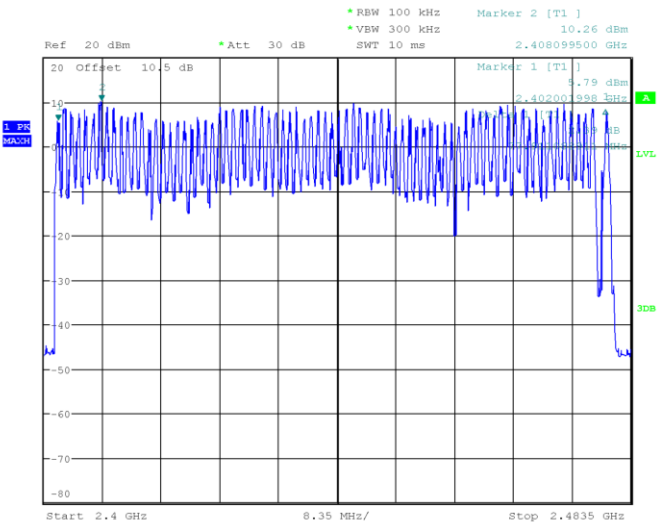
ProjectNo.:RKSA240328001 Tester:Hardy Huang
 Date: 6.JUN.2024 14:54:46

QUANTITY OF HOPPING CHANNEL TEST

EUT operation mode: Hopping

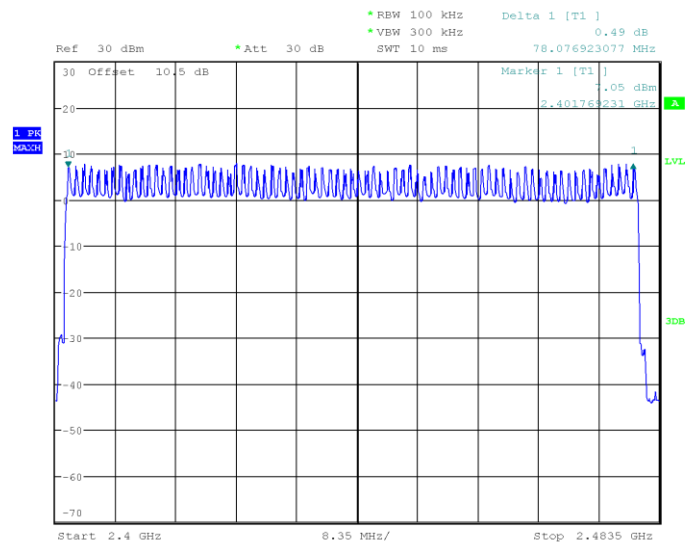
Mode	Frequency Range (MHz)	Number of Hopping Channel (CH)	Limit (CH)
BDR (GFSK)	2400-2483.5	79	≥15
EDR (π/4-DQPSK)	2400-2483.5	79	≥15
EDR (8DPSK)	2400-2483.5	79	≥15

BDR (GFSK): Number of Hopping Channels



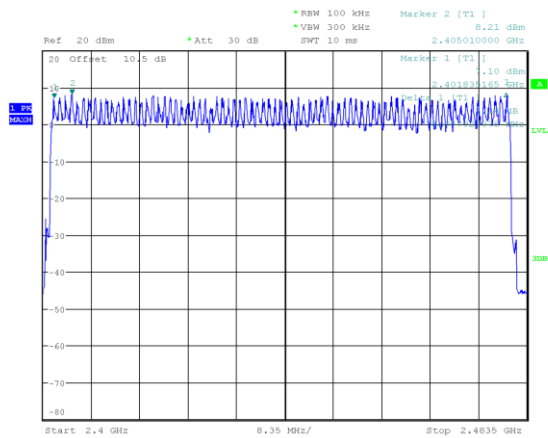
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:26:58

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



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 6.JUN.2024 15:50:52

EDR (8DPSK): Number of Hopping Channels



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 16.MAY.2024 00:07:19

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

Mode		Channel	Pulse Width (ms)	Dwell Time (s)	Limit (s)	Result
BDR (GFSK)	DH1	Middle	0.377	0.121	0.4	Pass
		Note: DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	DH3	Middle	1.641	0.263	0.4	Pass
		Note: DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	DH5	Middle	2.883	0.308	0.4	Pass
		Note: DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR ($\pi/4$ -DQPSK)	2DH1	Middle	0.385	0.123	0.4	Pass
		Note: 2DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	2DH3	Middle	1.645	0.263	0.4	Pass
		Note: 2DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	2DH5	Middle	2.895	0.309	0.4	Pass
		Note: 2DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				
EDR (8DPSK)	3DH1	Middle	0.387	0.124	0.4	Pass
		Note: 3 DH1: Dwell time = Pulse time*(1600/2/79)*31.6S				
	3DH3	Middle	1.646	0.263	0.4	Pass
		Note: 3DH3: Dwell time = Pulse time*(1600/4/79)*31.6S				
	3DH5	Middle	2.896	0.309	0.4	Pass
		Note: 3DH5: Dwell time = Pulse time*(1600/6/79)*31.6S				

RBW 1 MHz Delta 1 [T1] -0.68 dB
 *VEM 3 MHz
 SWT 1 ms 376.602564 μ s

Ref 20 dBm Offset 10.5 dB

Marker 1 [T1] 9.83 dBm 861.531162 ns

1. Freq
 2. Power

Center 2.441 GHz 100 μ s/

ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 11:34:28

RBW 1 MHz Delta 1 [T1]
 *Att 30 dB -1.04 dB
 *VSW 3 MHz
 SWT 3 ms 1.641026 ms

Ref 20 dBm

20 Offset 10.5 dB

1 9.73 dBm

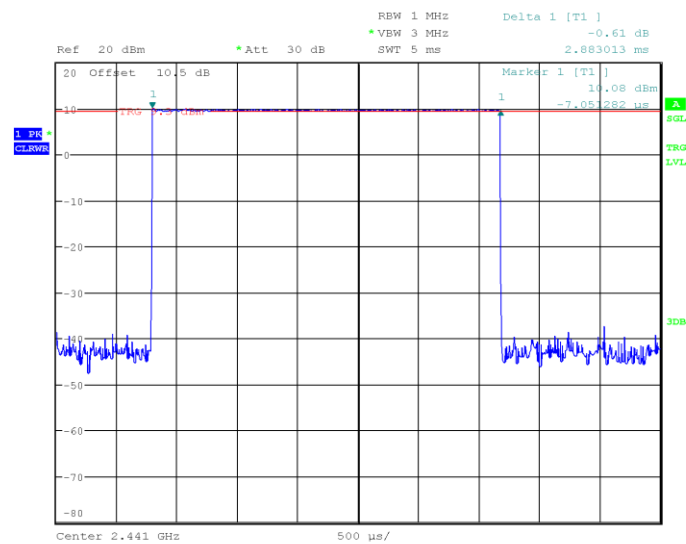
Marker 1 [T1] 9.73 dBm
 961.538462 ns

1 PR
 CLAWR

Center 2.441 GHz 300 us/

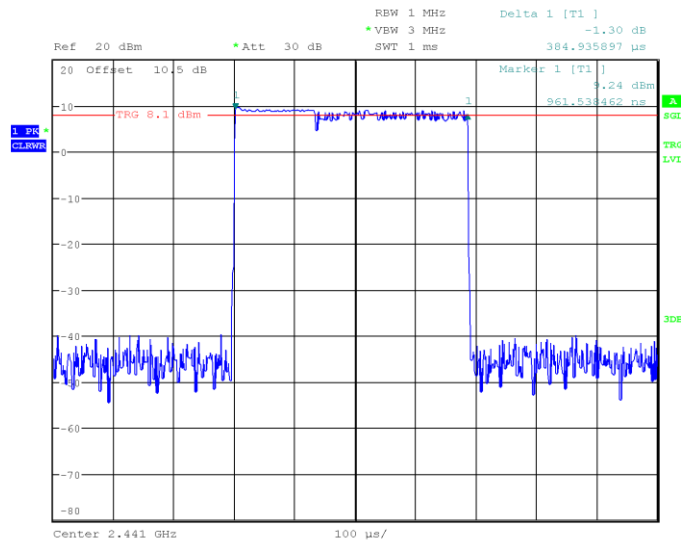
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 11:38:54

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



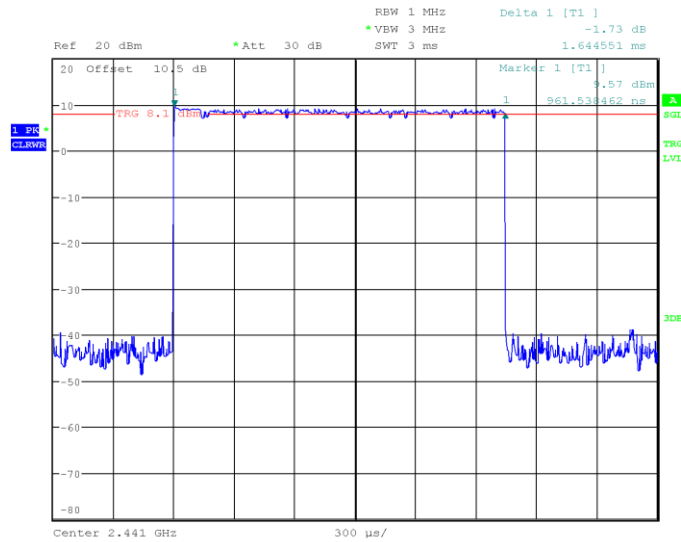
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 11:40:53

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



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 11:43:59

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



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 22.MAY.2024 11:45:24

RBW 1 MHz Delta 1 [T1] -1.37 dB
 * VBW 3 MHz 2.694551
 SWT 5 ms

Ref 20 dBm * Att 30 dB

10.5 dB

Offset 10.5 dB

TRG 0.144 us

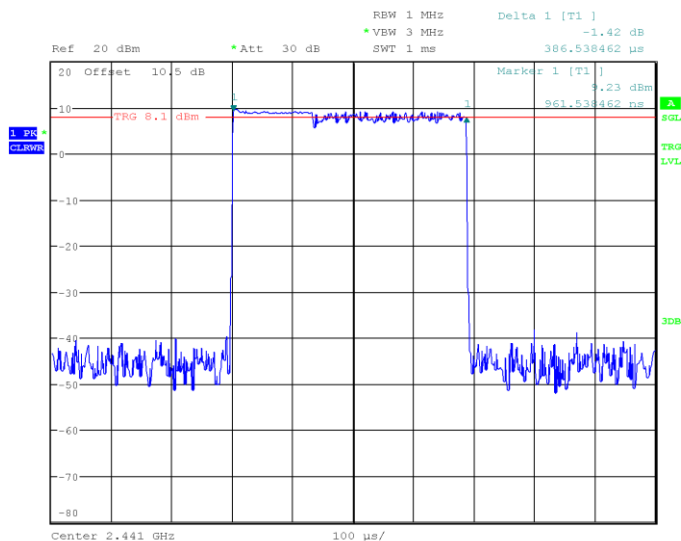
Marker 1 [T1] 9.14 dBm -7.051282 us

1 PR *
 CLAWN

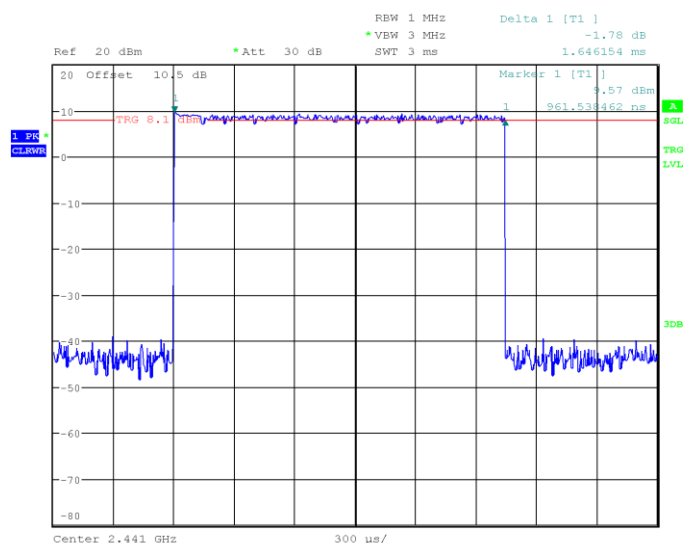
1 PR *
 CLAWN

Center 2.441 GHz 500 us/

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

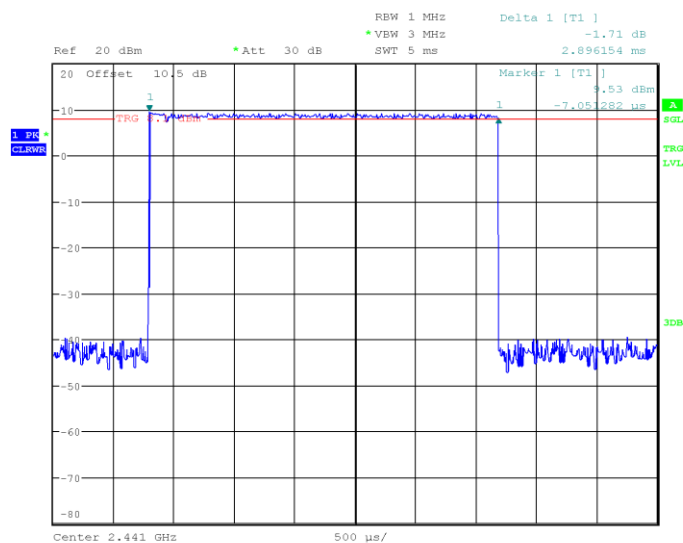


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EDR (8DPSK): Pulse time, Middle Channel, 3DH3

ProjectNo.:RKSA240328001 Tester:Hardy Huang

Date: 22.MAY.2024 11:50:39

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

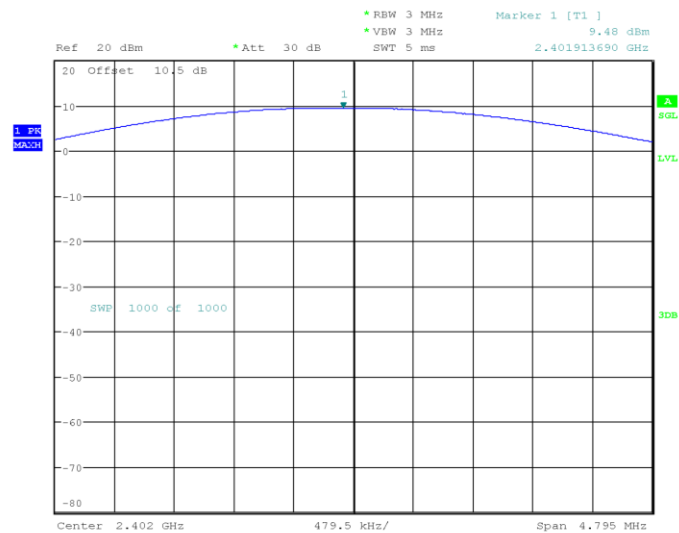
ProjectNo.:RKSA240328001 Tester:Hardy Huang

Date: 22.MAY.2024 11:51:49

PEAK OUTPUT POWER MEASUREMENT*EUT operation mode: Transmitting*

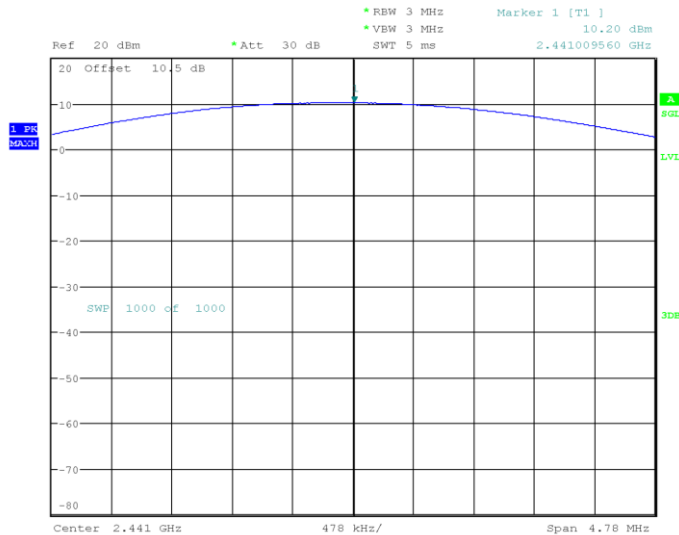
Mode	Channel	Frequency (MHz)	Result (dBm)	Limit (dBm)
GFSK	Low	2402	9.48	21
	Middle	2441	10.20	
	High	2480	8.75	
$\pi/4$ DQPSK	Low	2402	8.85	
	Middle	2441	9.63	
	High	2480	8.12	
8DPSK	Low	2402	8.77	
	Middle	2441	7.89	
	High	2480	9.29	

BDR (GFSK): 2402MHz



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 21:45:27

BDR (GFSK): 2441MHz



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 21:56:06

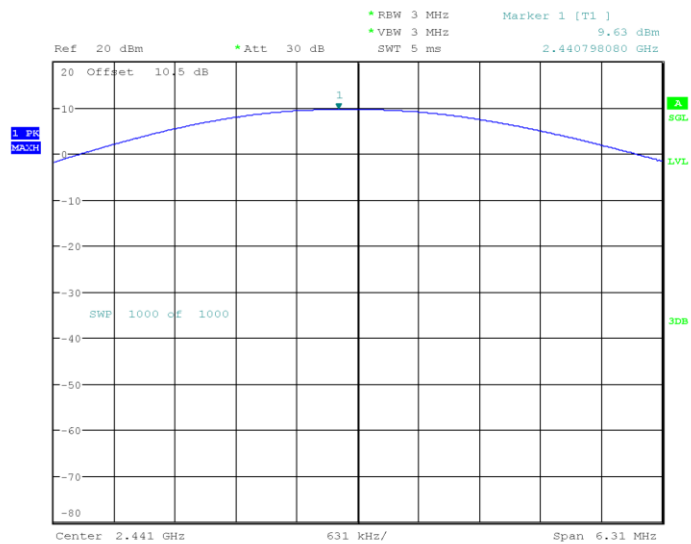
The screenshot displays a spectrum analyzer interface. At the top, the following parameters are listed: Ref 20 dBm, *Att 30 dB, *RBW 3 MHz, *VBW 3 MHz, SWT 5 ms, Marker 1 [T1], 8.75 dBm, and 2.479770560 GHz. The main display area shows a blue trace representing the signal spectrum. The horizontal axis is labeled 'Center 2.48 GHz' and 'Span 4.78 MHz'. The vertical axis is labeled '20 Offset 10.5 dB' and ranges from -80 to 20 dBm. A single peak is visible at approximately -10 dBm, marked with a blue arrow and labeled '1'. The peak is labeled '1 PR' and 'MAX' on the left side. The signal is identified as 'A SGL' and 'LVL' on the right side. The sweep parameters are 'SWP 1000 CH 1000'.

ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:08:57

Ref 20 dBm * Att 30 dB * RBW 3 MHz * VBW 3 MHz * Span 6.31 MHz
 2.401747600 GHz 8.85 dBm
 1 PR
 MAGN
 20 Offset 10.5 dB
 -10
 -20
 -30
 -40
 -50
 -60
 -70
 -80
 SWP 1000 df 1000
 1
 3dB
 LVL
 SGL
 Center 2.402 GHz 631 kHz/ Span 6.31 MHz

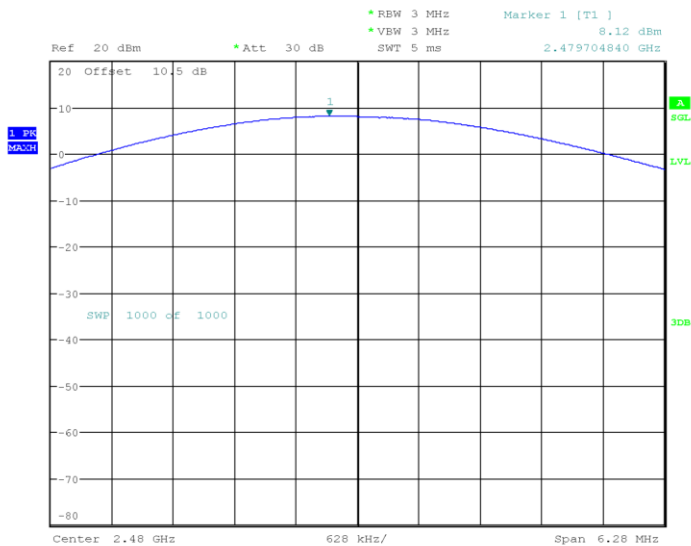
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:50:38

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



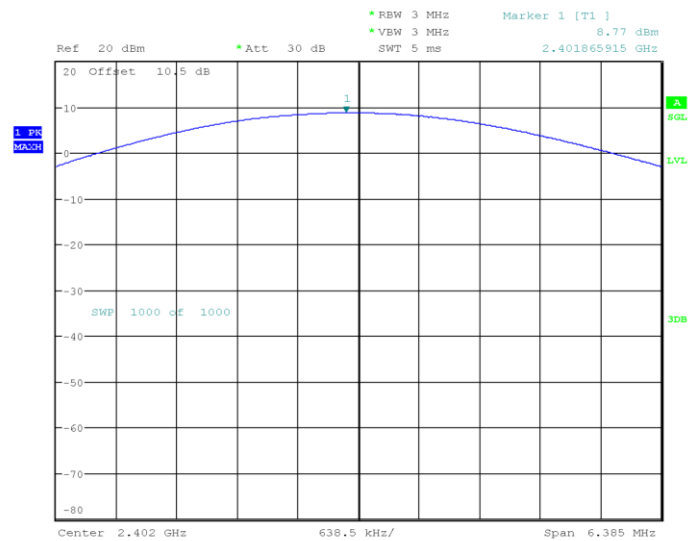
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:59:30

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



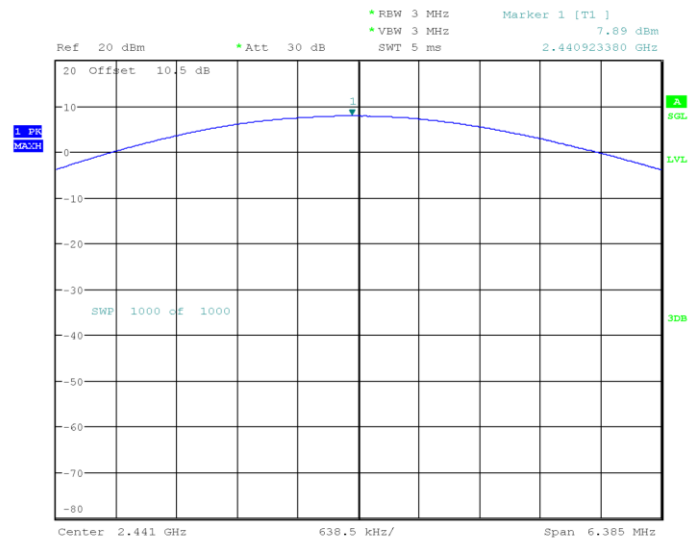
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:13:02

EDR(8DPSK): 2402MHz



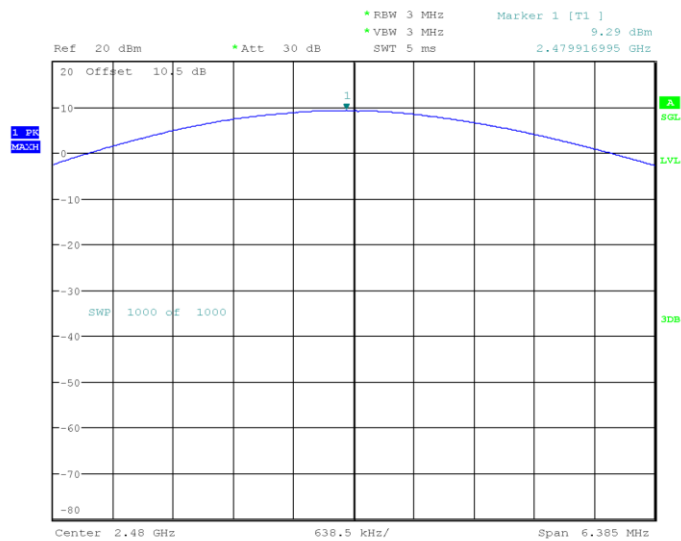
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:28:59

EDR(8DPSK): 2441MHz



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:33:15

EDR(8DPSK): 2480MHz



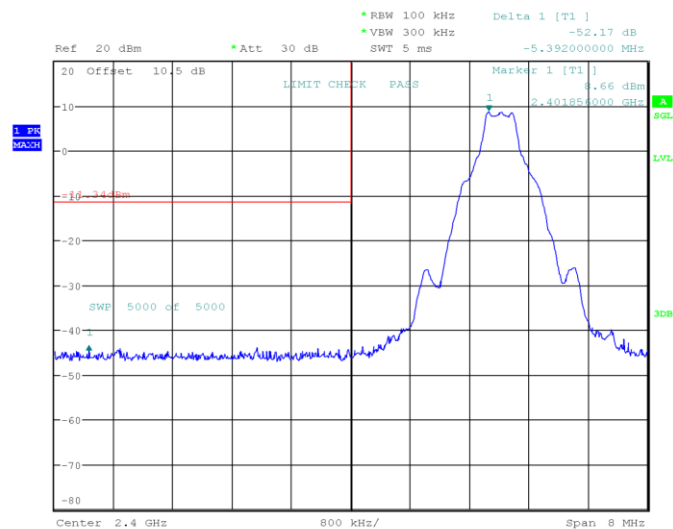
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:43:37

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

Mode	Value (dB)	Limit (dB)	Result
GFSK_Low	52.17	20.00	Pass
GFSK_High	51.68	20.00	Pass
GFSK_Hopping_Lower	52.98	20.00	Pass
GFSK_Hopping_Upper	44.89	20.00	Pass
$\pi/4$ -DQPSK_Low	47.16	20.00	Pass
$\pi/4$ -DQPSK_High	50.97	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Lower	50.86	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Upper	47.14	20.00	Pass
8DPSK_Low	47.74	20.00	Pass
8DPSK_High	51.94	20.00	Pass
8DPSK_Hopping_Lower	47.45	20.00	Pass
8DPSK_Hopping_Upper	46.98	20.00	Pass

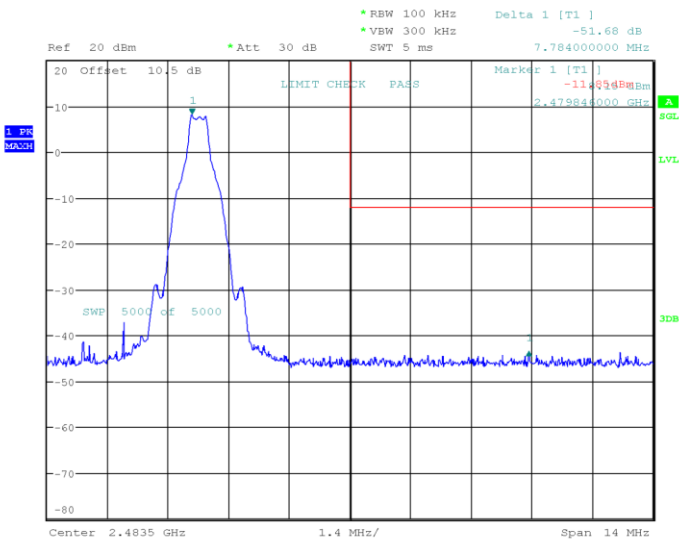
Band Edge

BDR (GFSK): Left Side - Transmitting



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 21:41:37

BDR (GFSK): Right Side - Transmitting



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:05:16

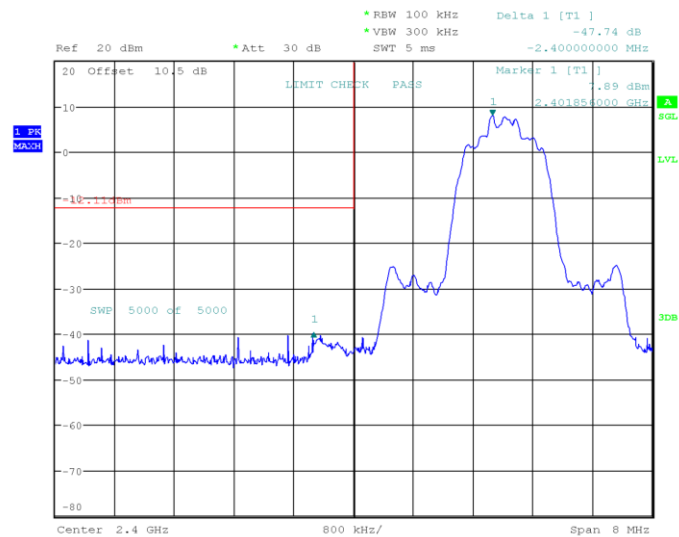
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ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:48:15

[illegible]

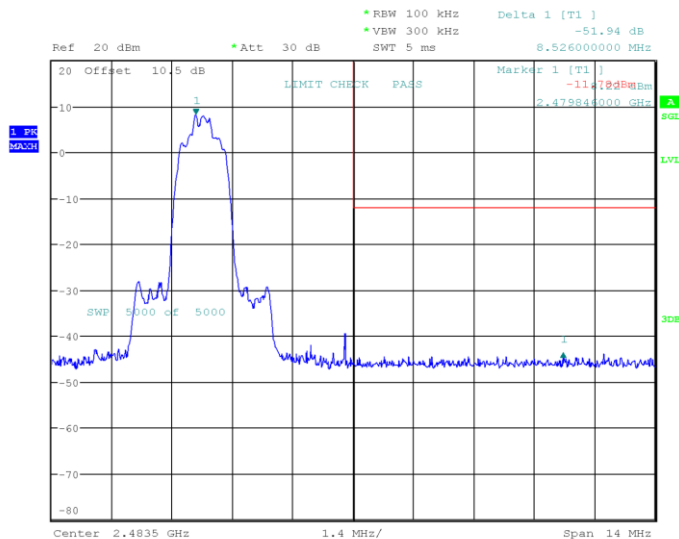
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:10:43

EDR (8DPSK): Left Side - Transmitting



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:17:16

EDR (8DPSK): Right Side - Transmitting



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:41:18

Ref 20 dBm *Att 30 dB SWT 5 ms -6.416000000 MHz

20 Offset 10.5 dB

LEMIT CHECK PASS

Marker 1 [T1] 9.03 dBm 2.40385000 GHz

1. PK MAX-M

SWP 5000 of 5000

Center 2.4 GHz 800 kHz/ Span 8 MHz

ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:14:02

Ref 20 dBm *Att 30 dB SWT 5 ms 5.68400000 MHz

RBW 100 kHz Delta 1 [T1] -44.89 dB

*VBW 300 kHz

Marker 1 [T1] -11.4 dBm

2.477844000 GHz

1. PK

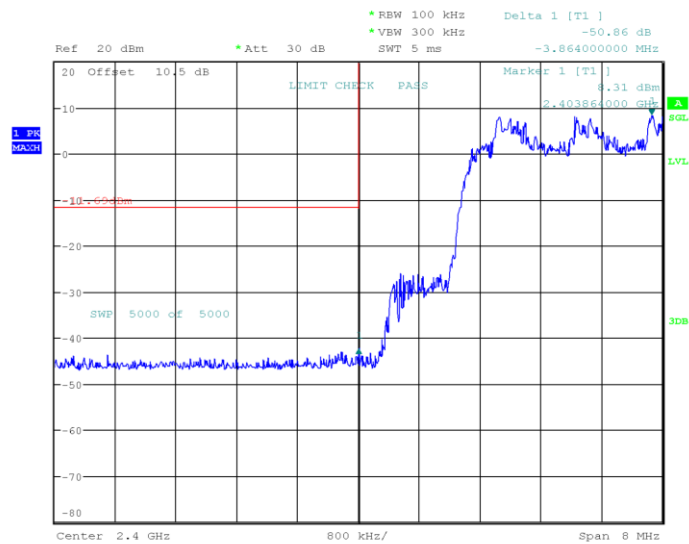
MA-M

SWP 5000 of 5000

Center 2.4835 GHz 1.4 MHz/ Span 14 MHz

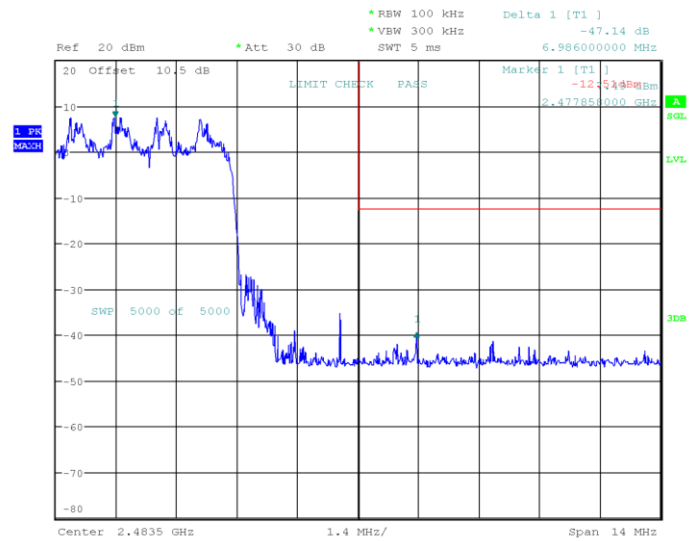
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 22:24:32

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



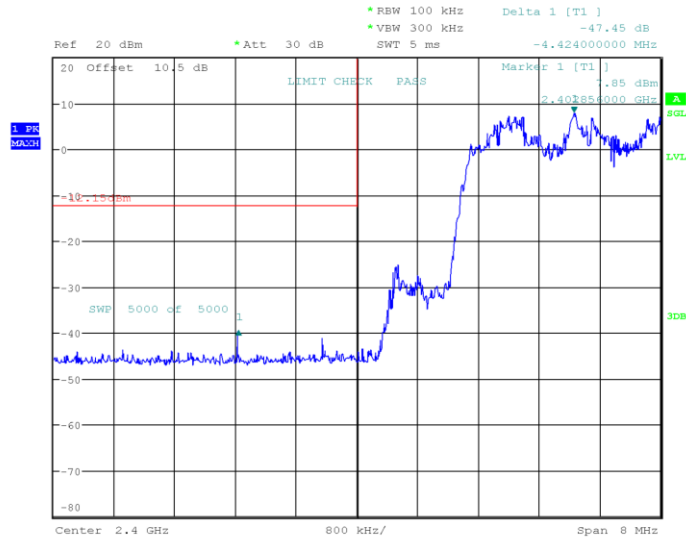
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:46:19

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



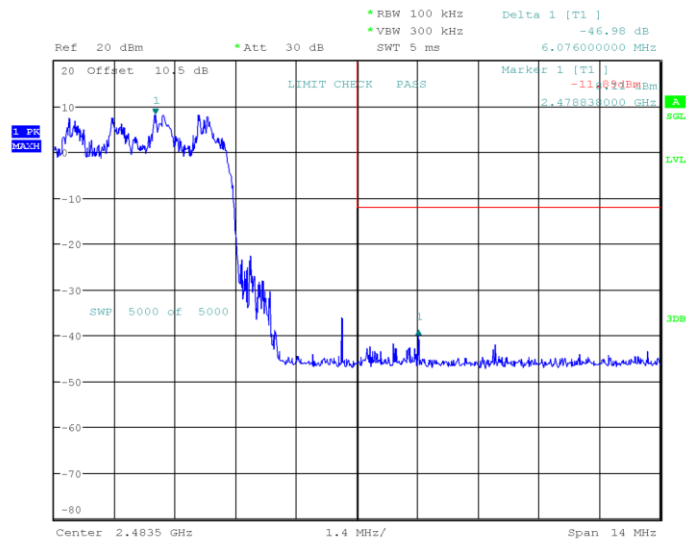
ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 11.MAY.2024 23:50:55

EDR (8DPSK): Left Side- Hopping



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:47:48

EDR (8DPSK): Right Side- Hopping



ProjectNo.:RKSA240328001 Tester:Hardy Huang
Date: 15.MAY.2024 23:54:13

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 *******