

FCC Part 15.247

Test Information:

Serial No.:	2ET3-2	Test Date:	2023/12/27~2024/01/03
Test Site:	RF	Test Mode:	Transmitting
Tester:	Lingling Li	Test Result:	Pass

Environmental Conditions:

Temperature: (°C)	25.5	Relative Humidity: (%)	55	ATM Pressure: (kPa)	101.2
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Test Equipment List and Details:

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSU26	100147	2023/03/31	2024/03/30
zhuoxiang	Coaxial Cable	SMA-178	211003	Each time	N/A

* Statement of Traceability: China Certification ICT Co., Ltd (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

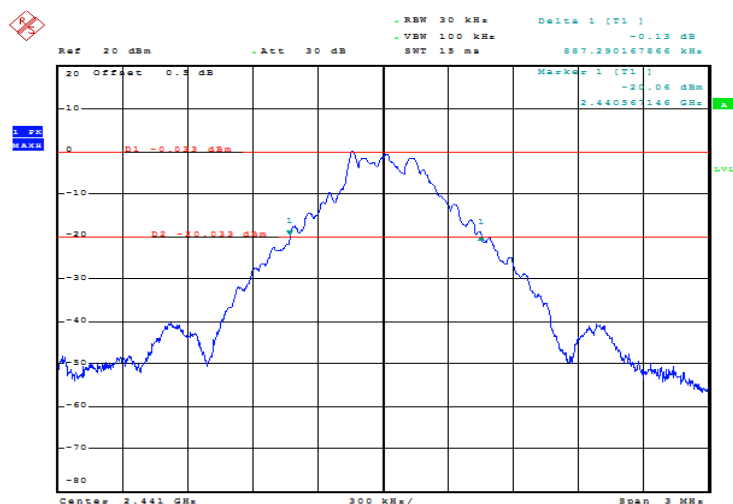
20 dB Emission Bandwidth**BDR**

Mode	Value (MHz)	Result
GFSK_Low	0.887	Pass
GFSK_Middle	0.887	Pass
GFSK_High	0.885	Pass

EDR

Mode	Value (MHz)	Result
$\pi/4$ -DQPSK_Low	1.254	Pass
$\pi/4$ -DQPSK_Middle	1.252	Pass
$\pi/4$ -DQPSK_High	1.249	Pass
8DPSK_Low	1.242	Pass
8DPSK_Middle	1.223	Pass
8DPSK_High	1.223	Pass

GFSK Middle 0.887 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27-DEC-2023 15:17:48

Ref 20 dBm - Att 20 dB

RBW 30 kHz VSW 100 kHz SWT 12 ms

Delta 1 [T1] -0.24 dB

2.47956 GHz

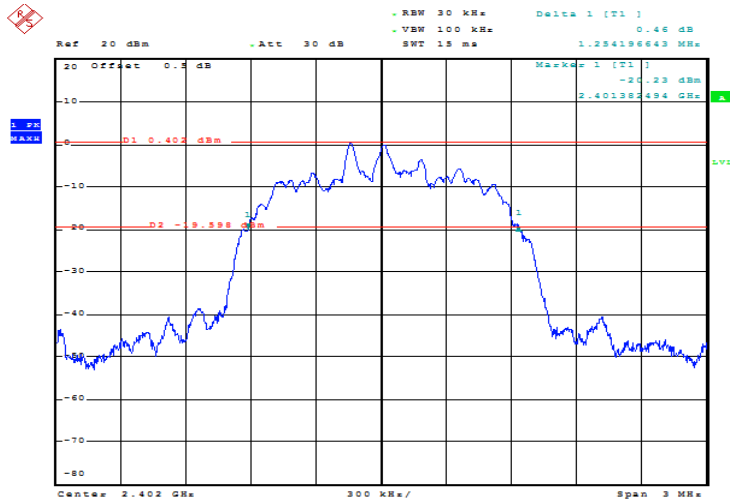
20 Offset 0.5 dB

Marker 1 [T1] -2.83 dBm 2.47956 GHz

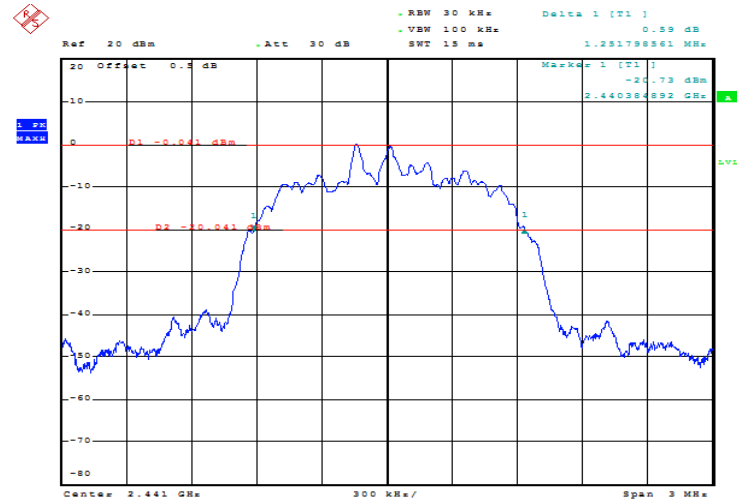
Center 2.48 GHz Span 3 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:22:35

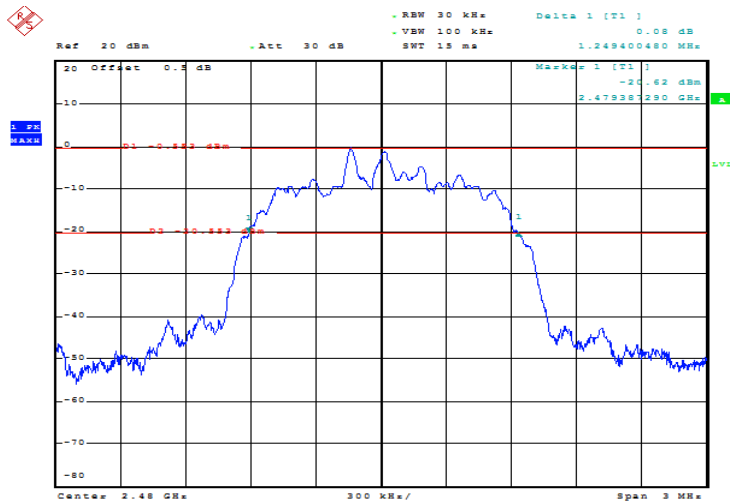
EDR

 $\pi/4$ -DQPSK_Low 1.254 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:26:47

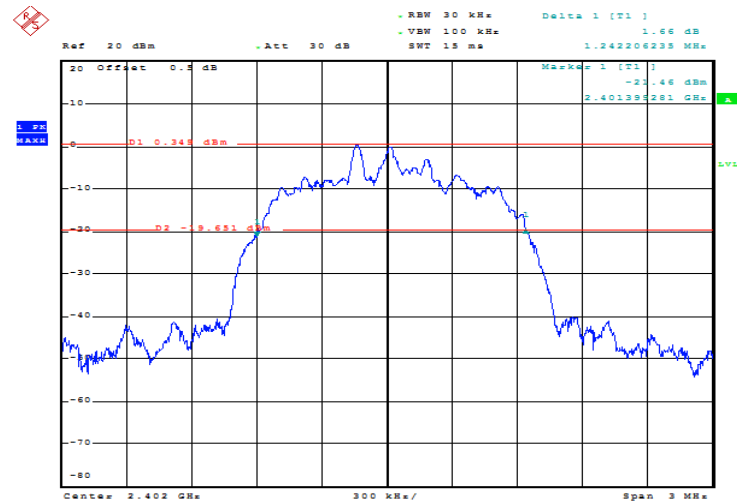
 $\pi/4$ -DQPSK_Middle 1.252 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 15:36:40

 $\pi/4$ -DQPSK_High 1.249 MHz

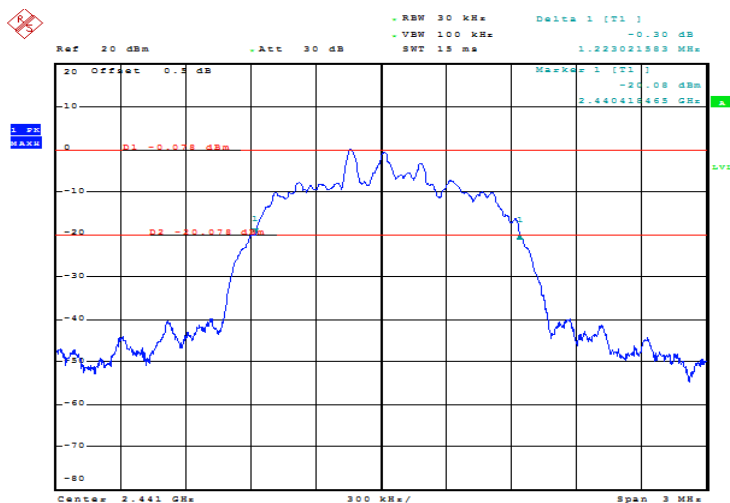
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:38:07

8DPSK_Low 1.242 MHz



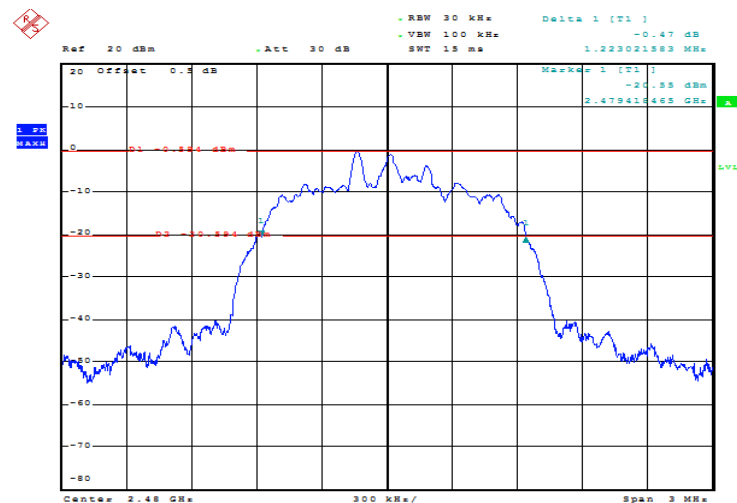
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:41:48

8DPSK_Middle 1.223 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 15:22:03

8DPSK_High 1.223 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:47:14

99% Occupied Bandwidth**BDR**

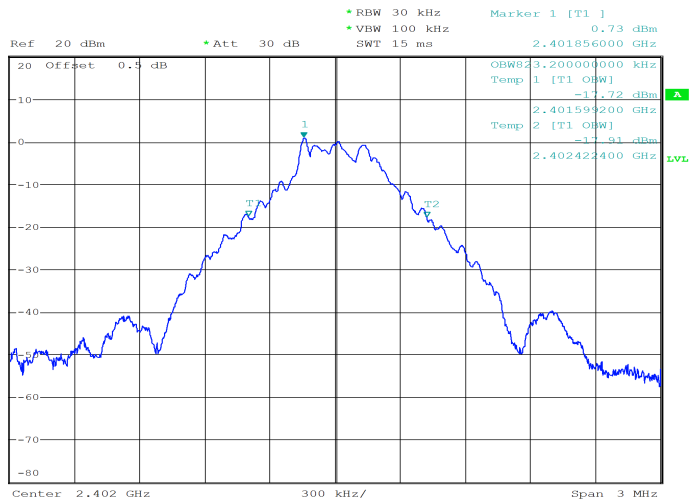
Mode	99% OBW (MHz)
GFSK_Low	0.823
GFSK_Middle	0.826
GFSK_High	0.828

EDR

Mode	99% OBW (MHz)
$\pi/4$ -DQPSK_Low	1.166
$\pi/4$ -DQPSK_Middle	1.166
$\pi/4$ -DQPSK_High	1.164
8DPSK_Low	1.154
8DPSK_Middle	1.226
8DPSK_High	1.154

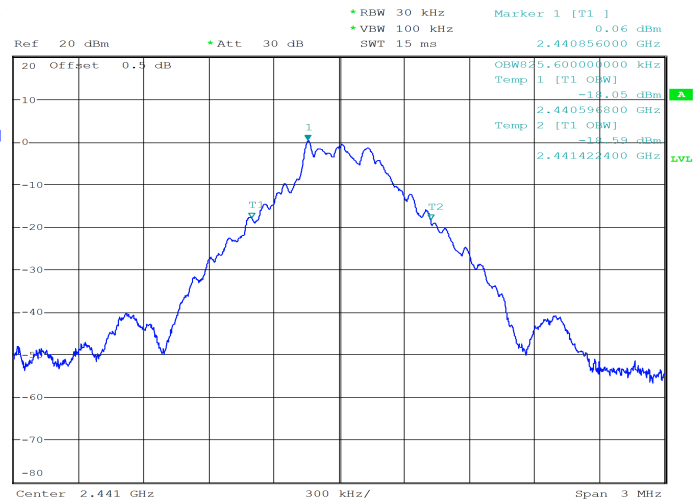
BDR

GFSK_Low 0.823 MHz

1 PR
MAXH

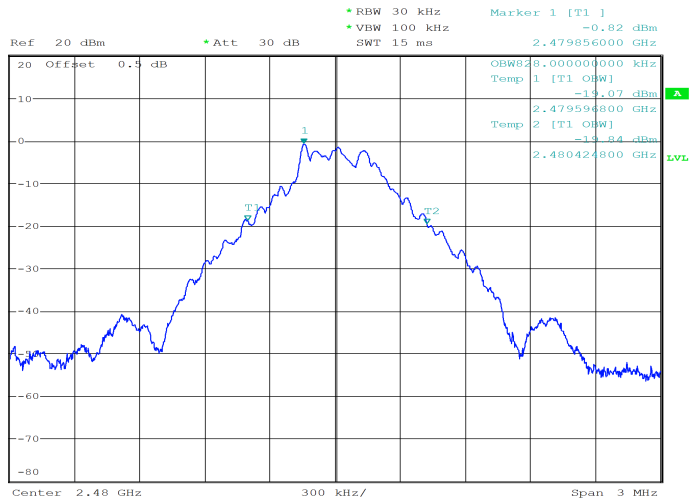
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:44:41

GFSK_Middle 0.826 MHz

1 PR
MAXH

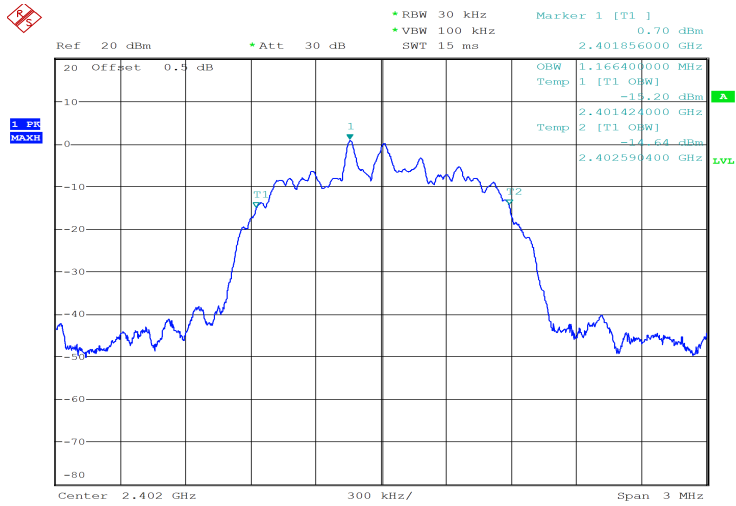
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:45:38

GFSK_High 0.828 MHz

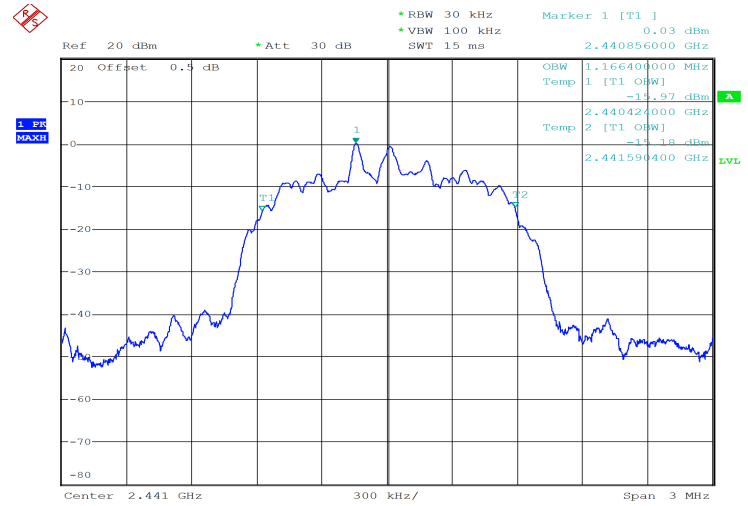
1 PR
MAXH

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:46:28

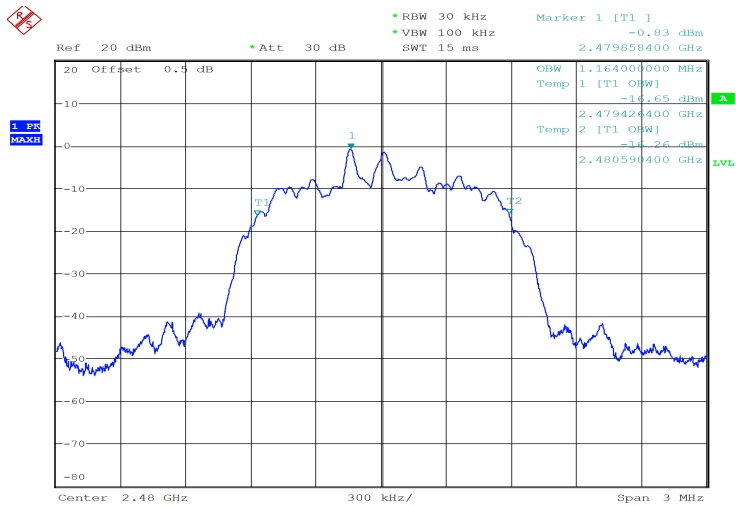
EDR

 $\pi/4$ -DQPSK_Low 1.166 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:47:16

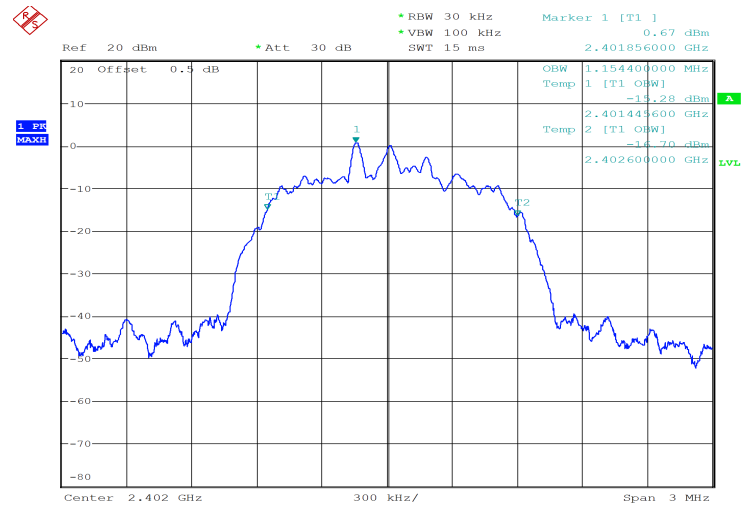
 $\pi/4$ -DQPSK_Middle 1.166 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:48:07

 $\pi/4$ -DQPSK_High 1.164 MHz

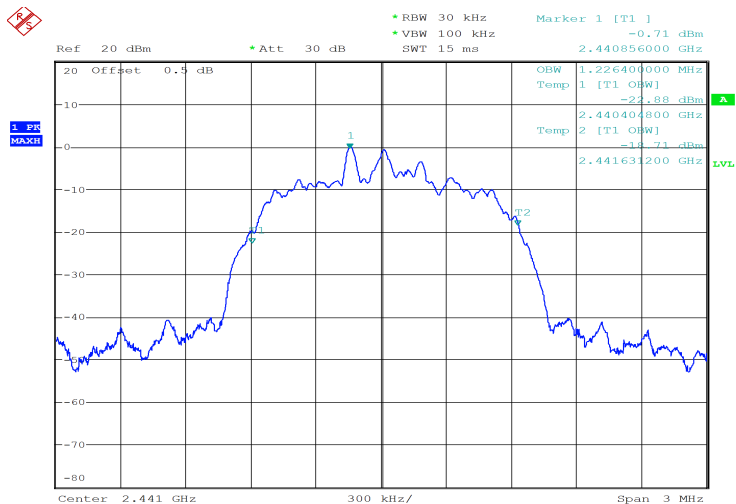
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:49:03

8DPSK_Low 1.154 MHz



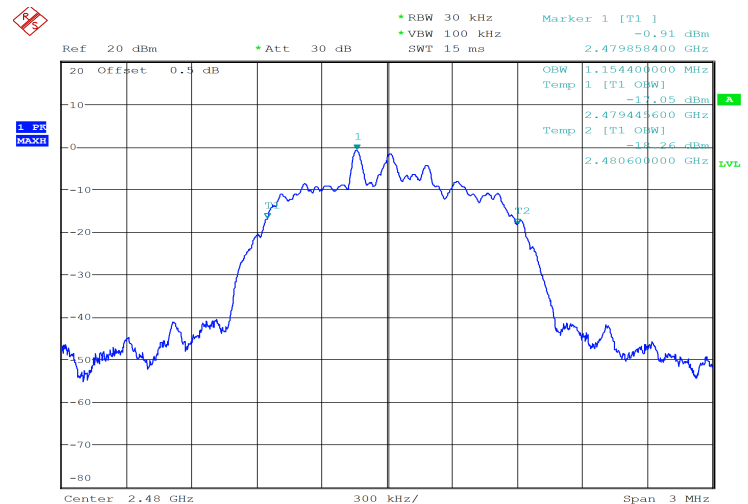
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:49:46

8DPSK_Middle 1.226 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:50:17

8DPSK_High 1.154 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 3.JAN.2024 08:51:50

Channel Separation

BDR

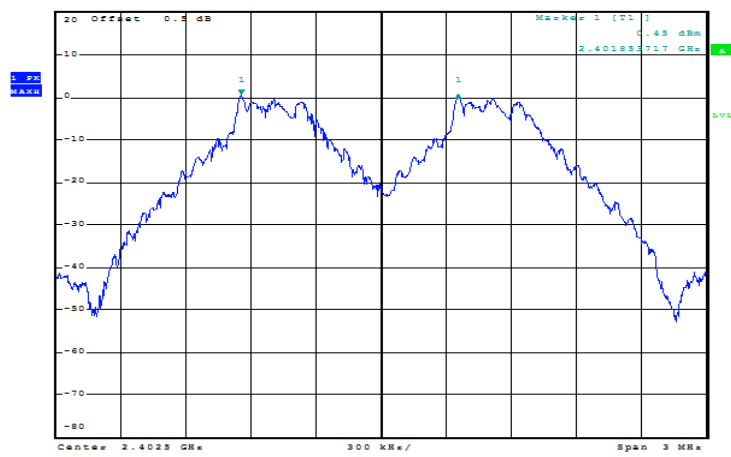
Mode	Value (MHz)	Limit (MHz)	Result
GFSK_Low	1.002	0.614	Pass
GFSK_Middle	1.000	0.591	Pass
GFSK_High	1.002	0.590	Pass

EDR

Mode	Value (MHz)	Limit (MHz)	Result
$\pi/4$ -DQPSK_Low	1.000	0.836	Pass
$\pi/4$ -DQPSK_Middle	1.002	0.835	Pass
$\pi/4$ -DQPSK_High	1.000	0.833	Pass
8DPSK_Low	1.002	0.828	Pass
8DPSK_Middle	1.002	0.815	Pass
8DPSK_High	1.000	0.815	Pass

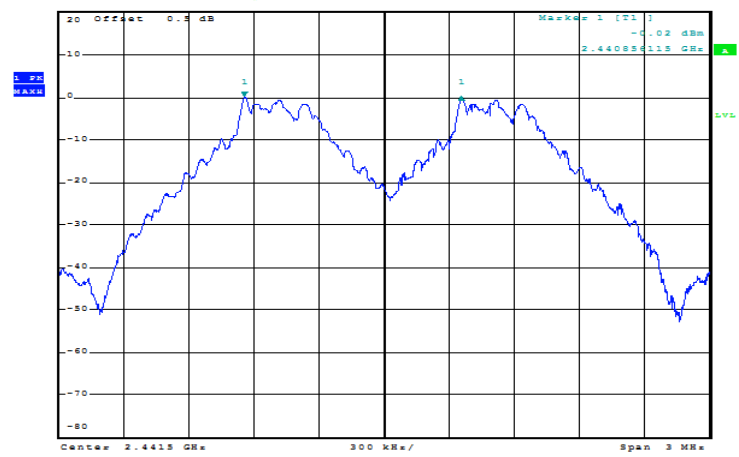
BDR

GFSK_Low 1.002 MHz



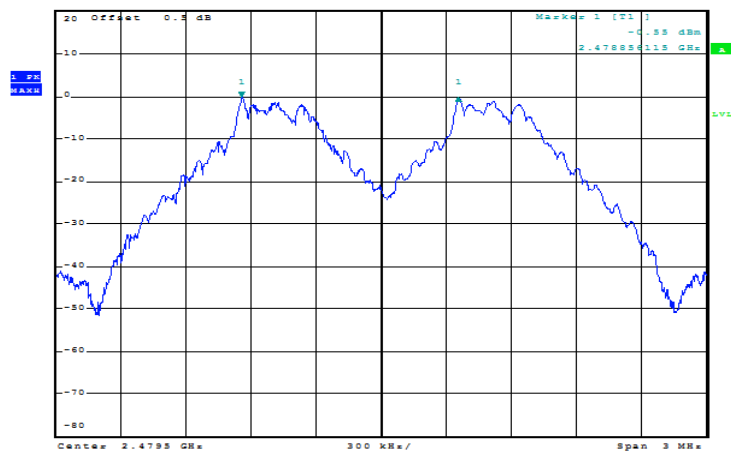
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:14:58

GFSK_Middle 1.000 MHz



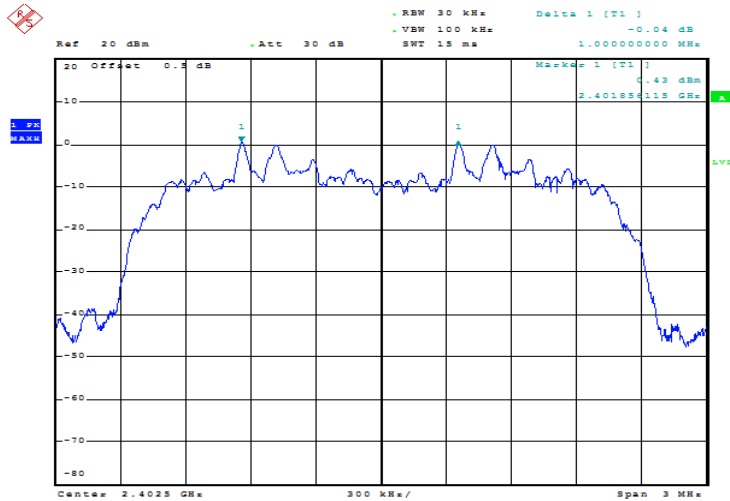
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:18:51

GFSK_High 1.002 MHz

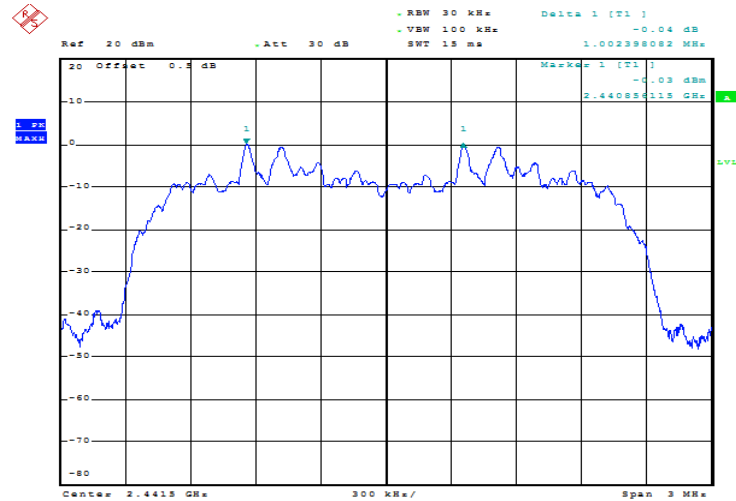


Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:23:17

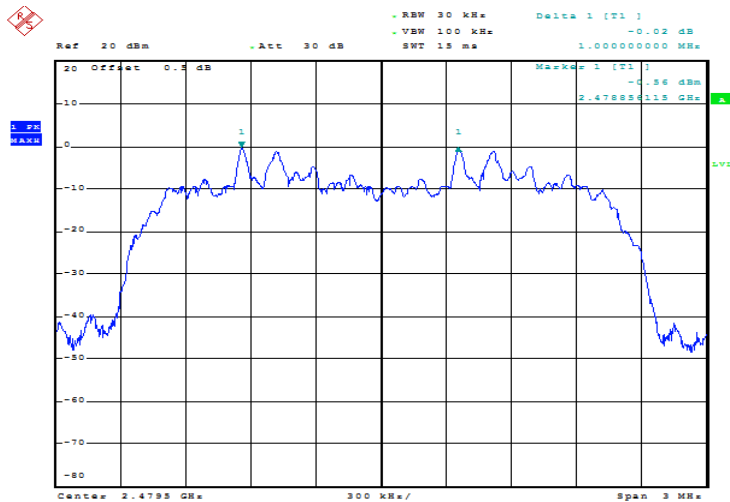
EDR

 $\pi/4$ -DQPSK_Low 1.000 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:27:25

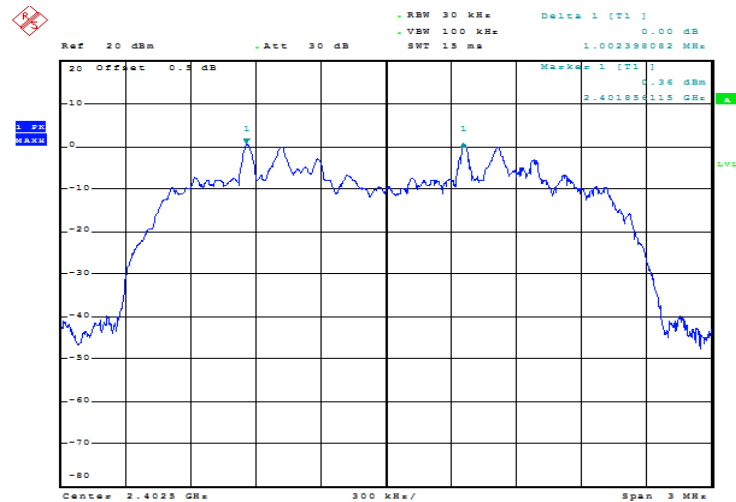
 $\pi/4$ -DQPSK_Middle 1.002 MHz

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:36:53

 $\pi/4$ -DQPSK_High 1.000 MHz

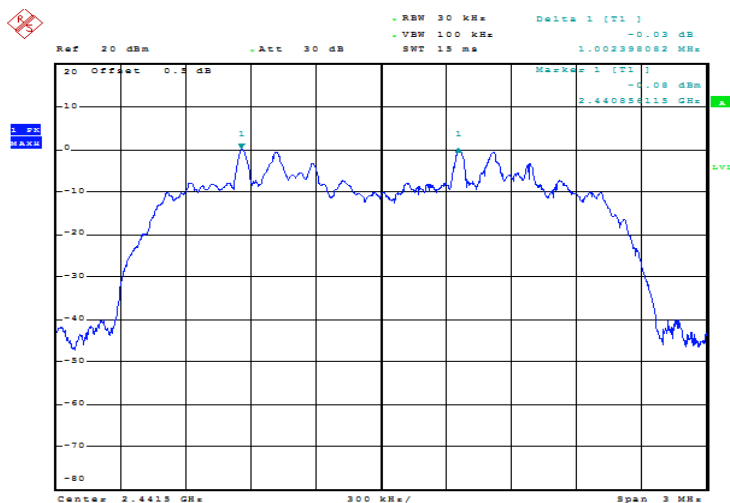
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:38:47

8DPSK_Low 1.002 MHz



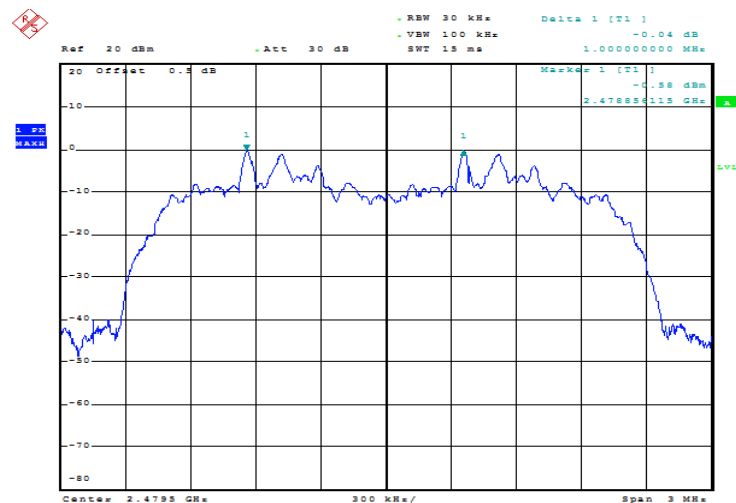
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:42:31

8DPSK_Middle 1.002 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:45:41

8DPSK_High 1.000 MHz



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:48:02

Number of Hopping Frequency**BDR**

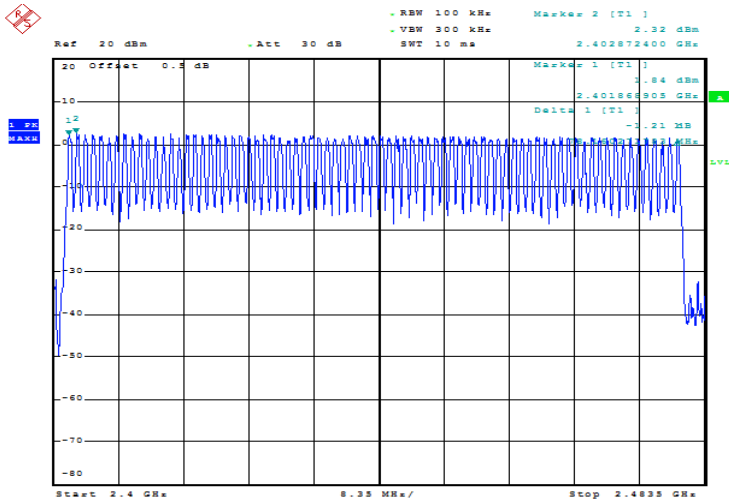
Mode	Value	Limit	Result
GFSK_Hopping	79	15	Pass

EDR

Mode	Value	Limit	Result
$\pi/4$ -DQPSK_Hopping	79	15	Pass
8DPSK_Hopping	79	15	Pass

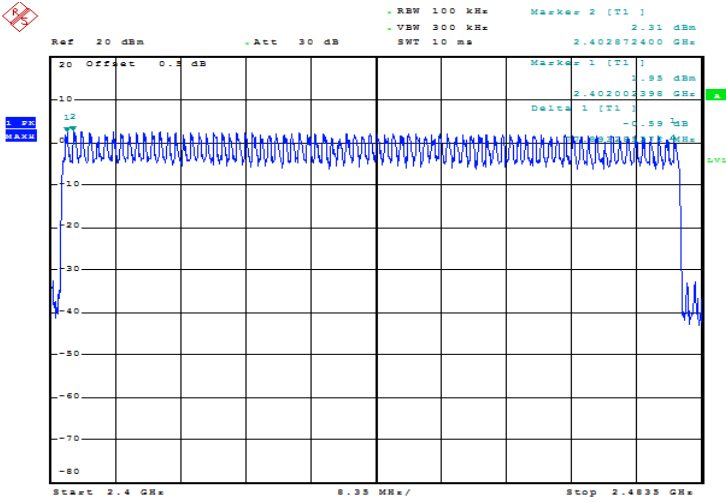
BDR

GFSK_Hopping 79



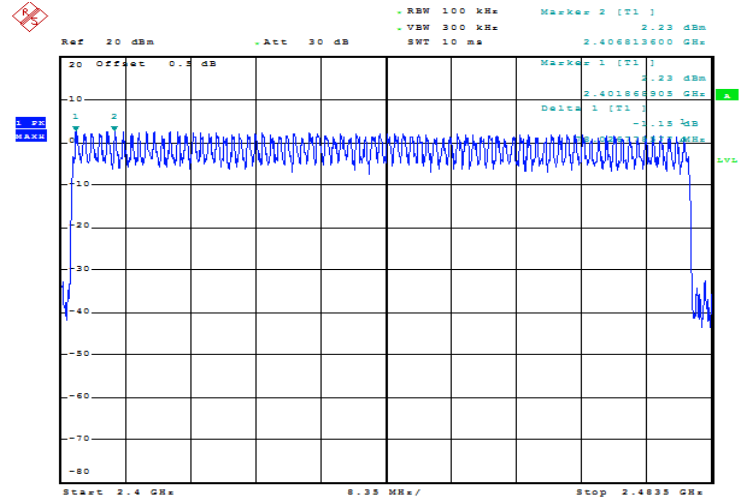
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:30:38

EDR

 $\pi/4$ -DQPSK_Hopping 79

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:53:52

8DPSK_Hopping 79



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:44:12

Time of Occupancy (dwell time)**BDR**

Mode	Pulse width (ms)	Dwell time (s)	Limit (s)	Result
GFSK_Hopping_DH1	0.385	0.123	0.400	Pass
GFSK_Hopping_DH3	1.645	0.263	0.400	Pass
GFSK_Hopping_DH5	2.906	0.310	0.400	Pass

EDR

Mode	Pulse width (ms)	Dwell time (s)	Limit (s)	Result
$\pi/4$ -DQPSK_Hopping_2DH1	0.389	0.125	0.400	Pass
$\pi/4$ -DQPSK_Hopping_2DH3	1.652	0.264	0.400	Pass
$\pi/4$ -DQPSK_Hopping_2DH5	2.906	0.310	0.400	Pass
8DPSK_Hopping_3DH1	0.396	0.127	0.400	Pass
8DPSK_Hopping_3DH3	1.652	0.264	0.400	Pass
8DPSK_Hopping_3DH5	2.914	0.311	0.400	Pass

Note:

DH1:Dwell time=Pulse time (ms) $\times$ (1600/2/79) $\times$ 31.6 s

DH3:Dwell time=Pulse time (ms) $\times$ (1600/4/79) $\times$ 31.6 s

DH5:Dwell time=Pulse time (ms) $\times$ (1600/6/79) $\times$ 31.6 s

2DH1: Dwell time=Pulse time (ms) $\times$ (1600/2/79) $\times$ 31.6 s

2DH3: Dwell time=Pulse time (ms) $\times$ (1600/4/79) $\times$ 31.6 s

2DH5: Dwell time=Pulse time (ms) $\times$ (1600/6/79) $\times$ 31.6 s

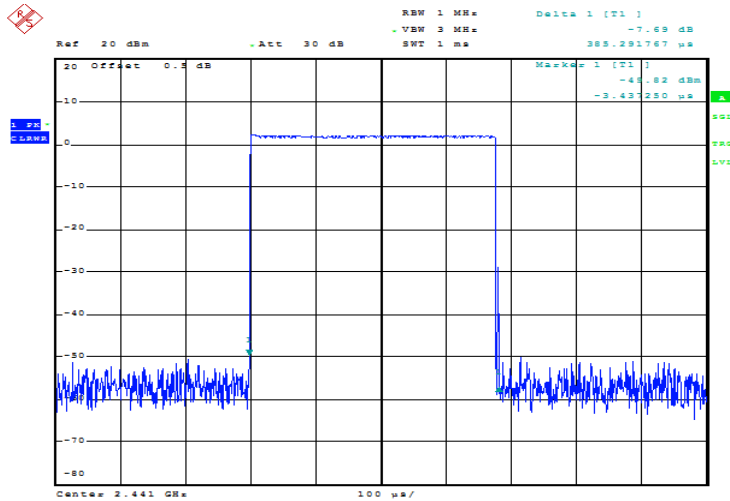
3DH1: Dwell time=Pulse time (ms) $\times$ (1600/2/79) $\times$ 31.6 s

3DH3: Dwell time=Pulse time (ms) $\times$ (1600/4/79) $\times$ 31.6 s

3DH5: Dwell time=Pulse time (ms) $\times$ (1600/6/79) $\times$ 31.6 s

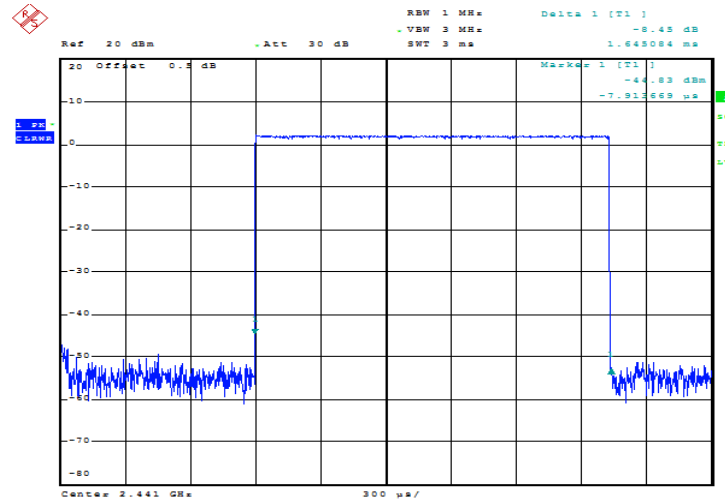
BDR

GFSK_Hopping_DH1 0.385ms



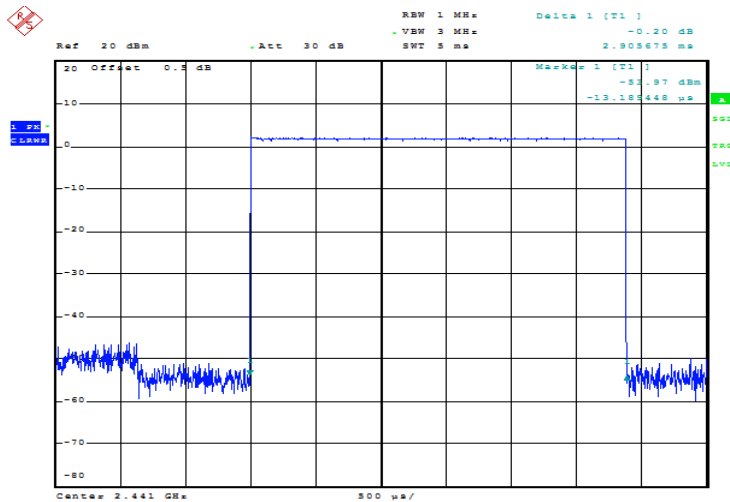
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:06:14

GFSK_Hopping_DH3 1.645ms



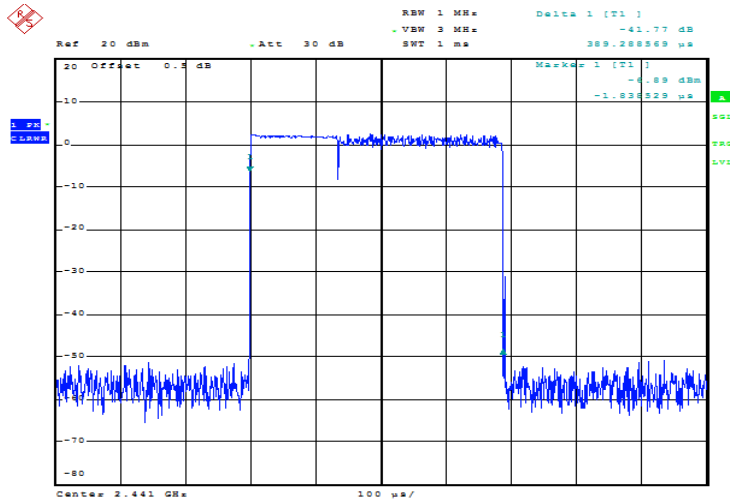
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:09:18

GFSK_Hopping_DH5 2.906ms

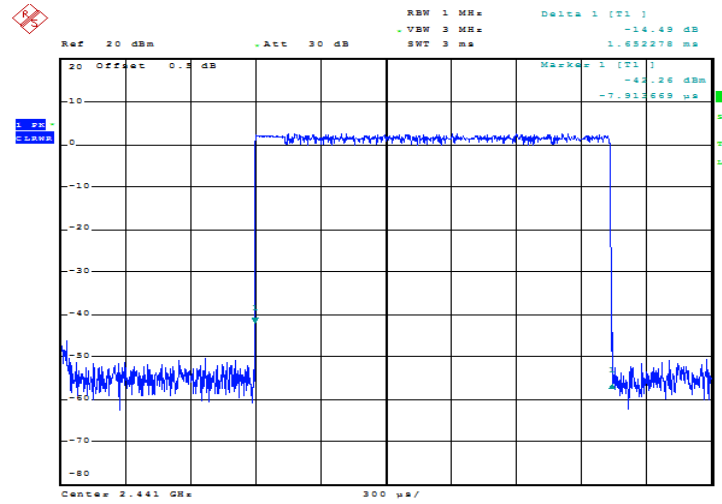


Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:10:34

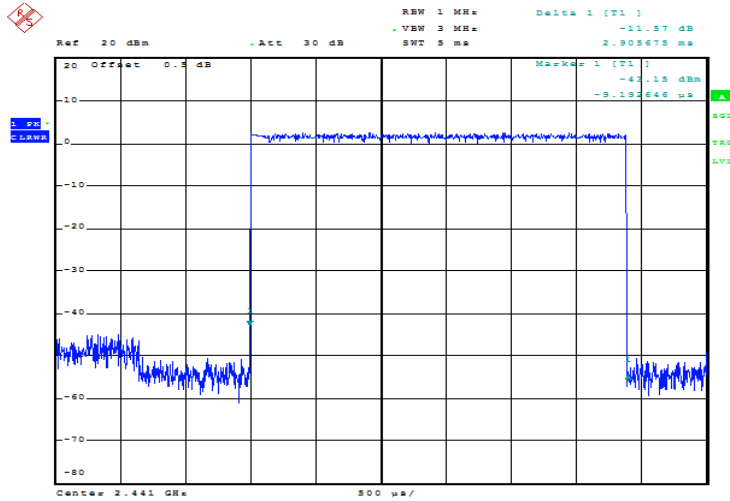
EDR

 $\pi/4$ -DQPSK_Hopping_2DH1 0.389ms

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:11:42

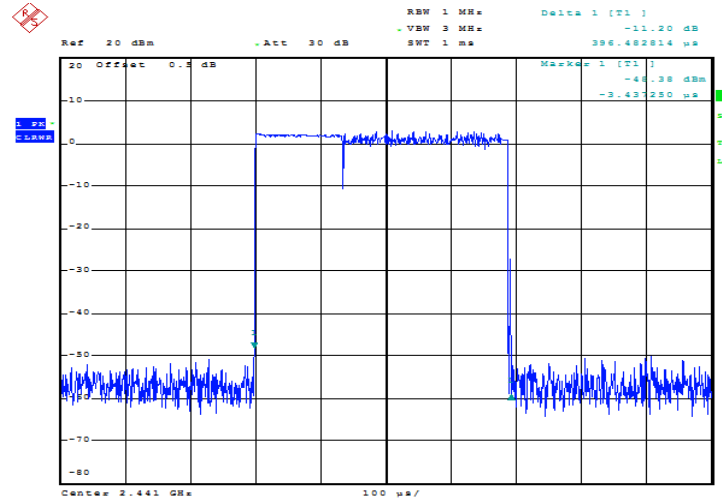
 $\pi/4$ -DQPSK_Hopping_2DH3 1.652ms

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:22:29

 $\pi/4$ -DQPSK_Hopping_2DH5 2.906ms

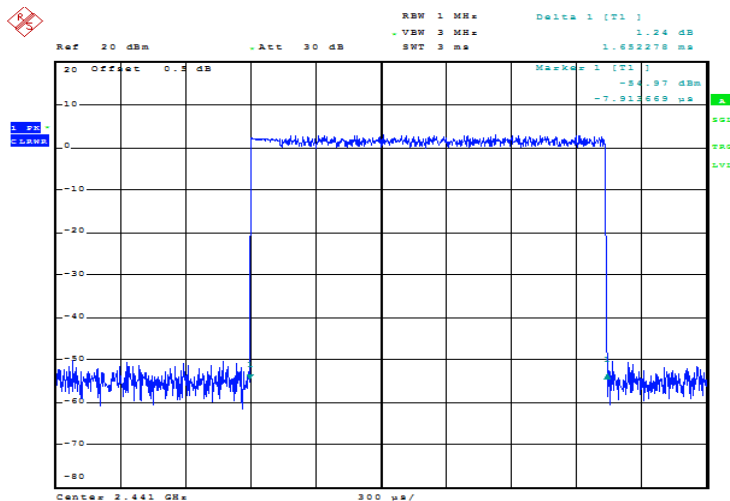
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:13:35

8DPSK_Hopping_3DH1 0.396ms



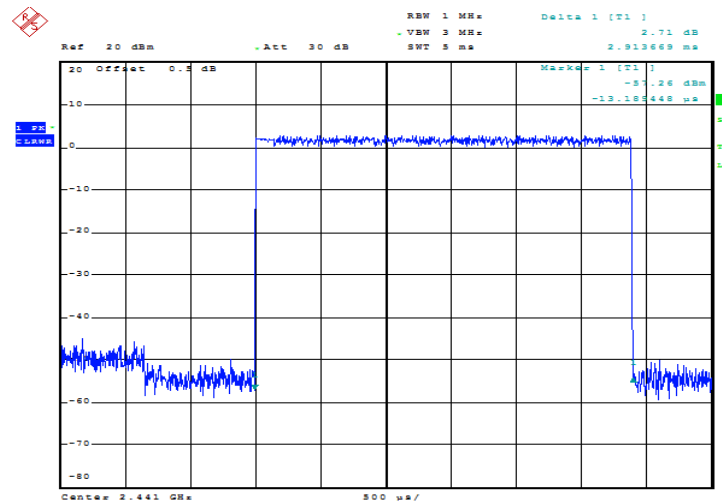
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:16:13

8DPSK_Hopping_3DH3 1.652ms



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:17:34

8DPSK_Hopping_3DH5 2.914ms



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 14:18:39

Maximum Conducted Output Power**BDR**

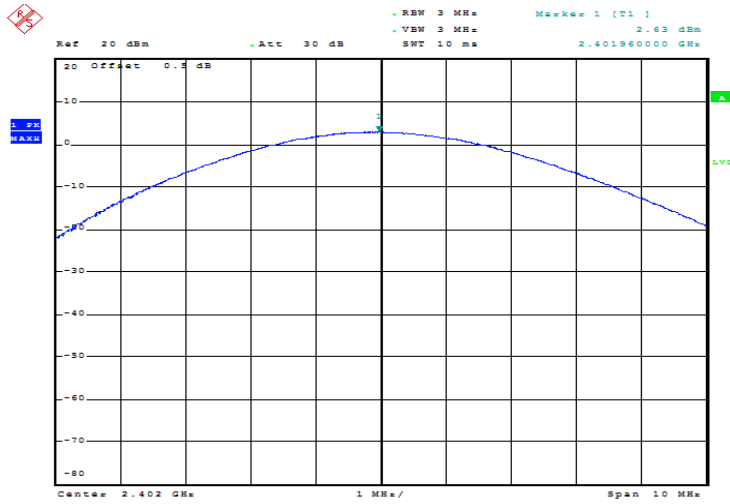
Mode	Value (dBm)	Limit (dBm)	Result
GFSK_Low	2.63	21.00	Pass
GFSK_Middle	2.17	21.00	Pass
GFSK_High	1.67	21.00	Pass

EDR

Mode	Value (dBm)	Limit (dBm)	Result
$\pi/4$ -DQPSK_Low	3.26	21.00	Pass
$\pi/4$ -DQPSK_Middle	2.81	21.00	Pass
$\pi/4$ -DQPSK_High	2.34	21.00	Pass
8DPSK_Low	3.70	21.00	Pass
8DPSK_Middle	3.29	21.00	Pass
8DPSK_High	2.83	21.00	Pass

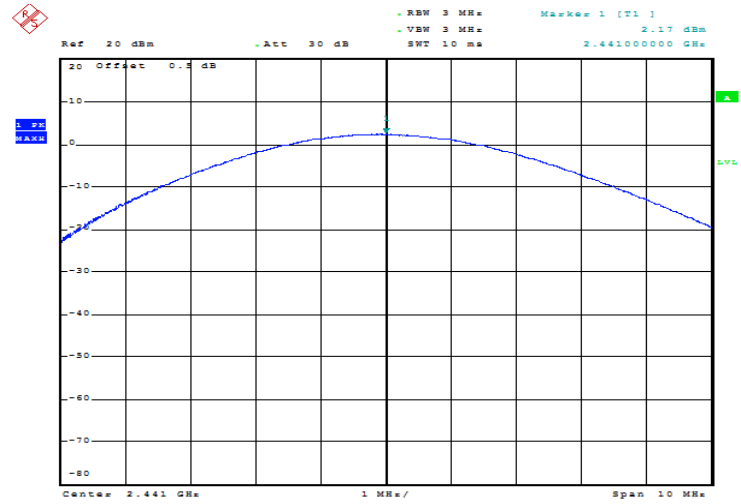
BDR

GFSK_Low 2.63 dBm



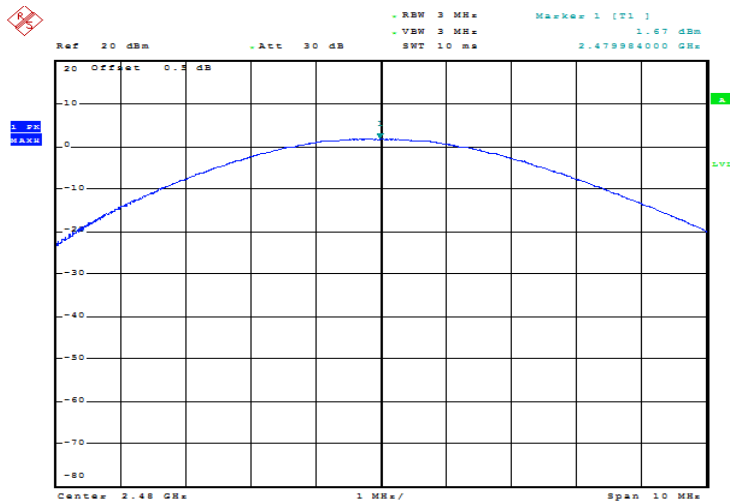
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:18:30

GFSK_Middle 2.17 dBm



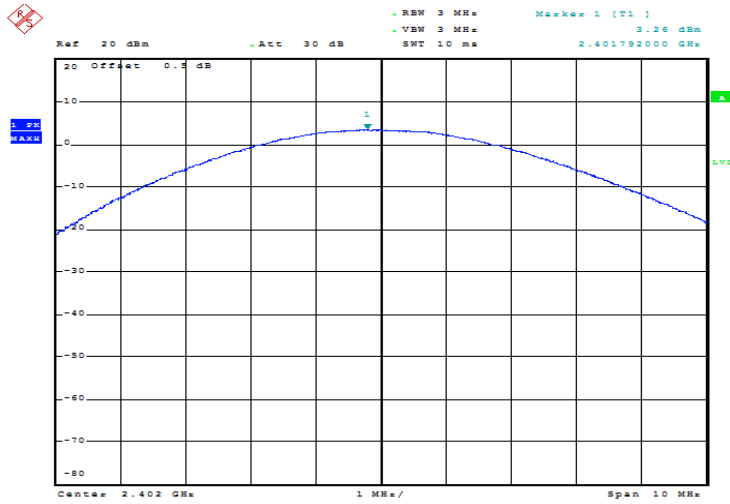
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:19:12

GFSK_High 1.67 dBm

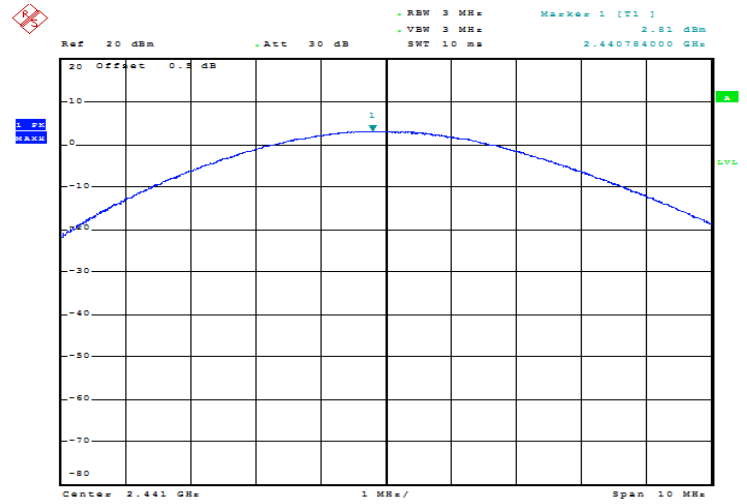


Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:23:47

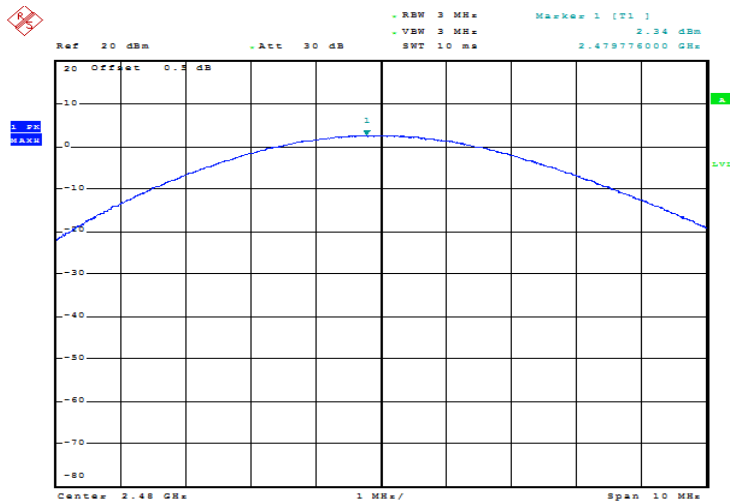
EDR

 $\pi/4$ -DQPSK_Low 3.26 dBm

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:27:49

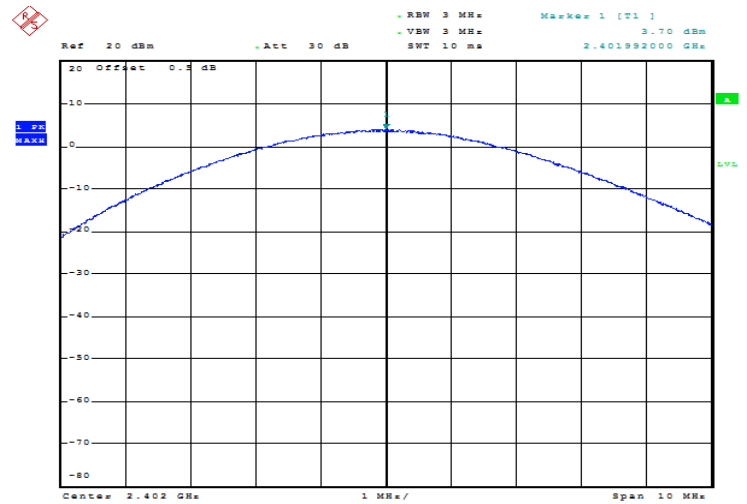
 $\pi/4$ -DQPSK_Middle 2.81 dBm

Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:37:33

 $\pi/4$ -DQPSK_High 2.34 dBm

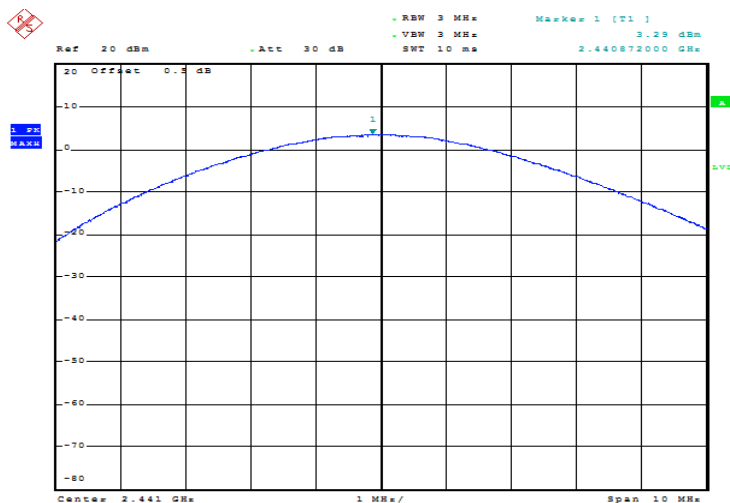
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:39:30

8DPSK_Low 3.70 dBm



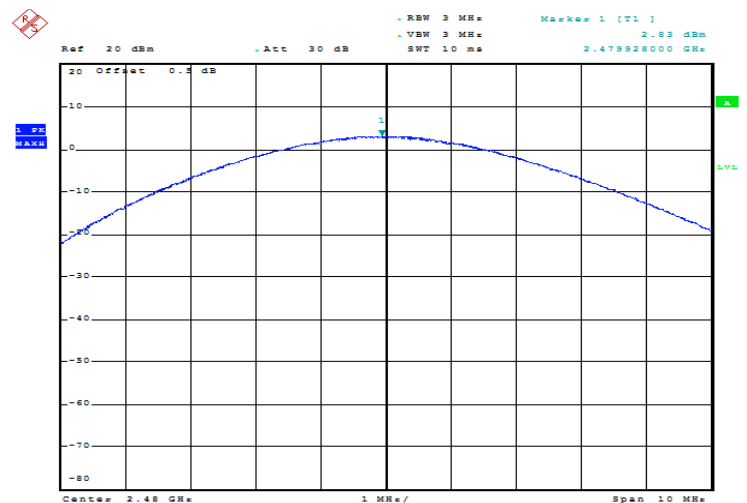
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:43:06

8DPSK_Middle 3.29 dBm



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:46:34

8DPSK_High 2.83 dBm



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:48:30

100 kHz Bandwidth of Frequency Band Edge**BDR**

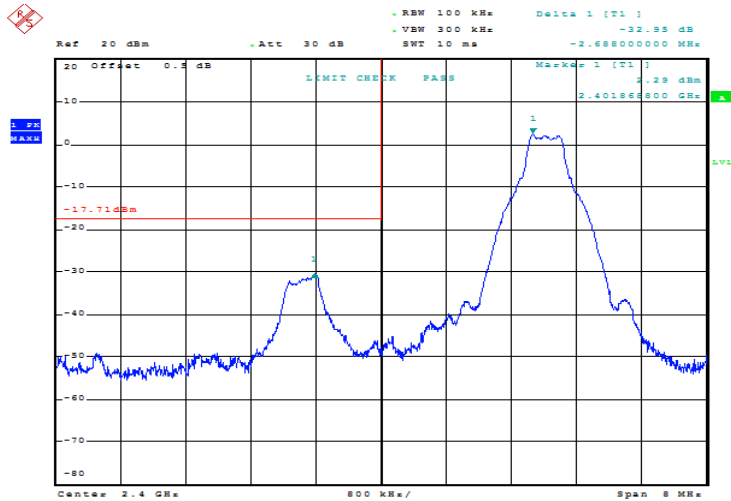
Mode	Value (dB)	Limit (dB)	Result
GFSK_Low	32.95	20.00	Pass
GFSK_High	36.32	20.00	Pass
GFSK_Hopping_Lower	34.57	20.00	Pass
GFSK_Hopping_Upper	36.47	20.00	Pass

EDR

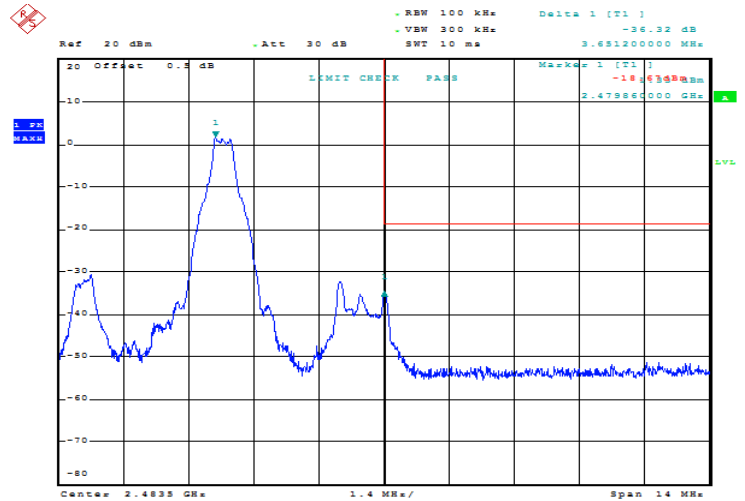
Mode	Value (dB)	Limit (dB)	Result
$\pi/4$ -DQPSK_Low	33.08	20.00	Pass
$\pi/4$ -DQPSK_High	36.36	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Lower	34.49	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Upper	36.89	20.00	Pass
8DPSK_Low	33.07	20.00	Pass
8DPSK_High	36.46	20.00	Pass
8DPSK_Hopping_Lower	34.47	20.00	Pass
8DPSK_Hopping_Upper	36.94	20.00	Pass

BDR

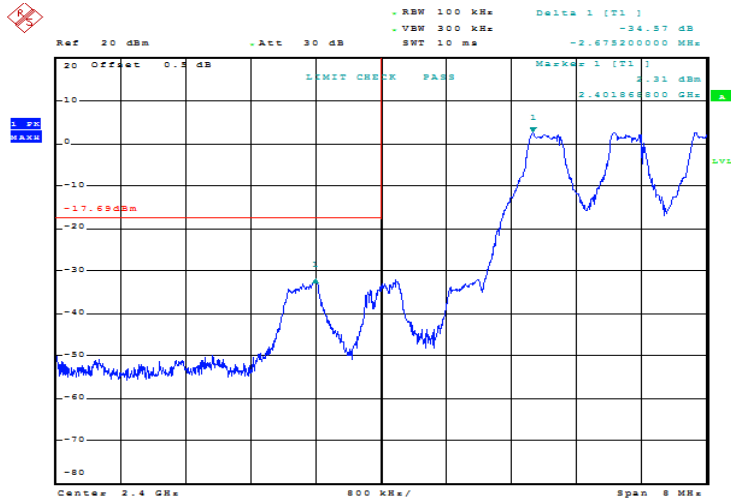
GFSK_Low 32.95 dB



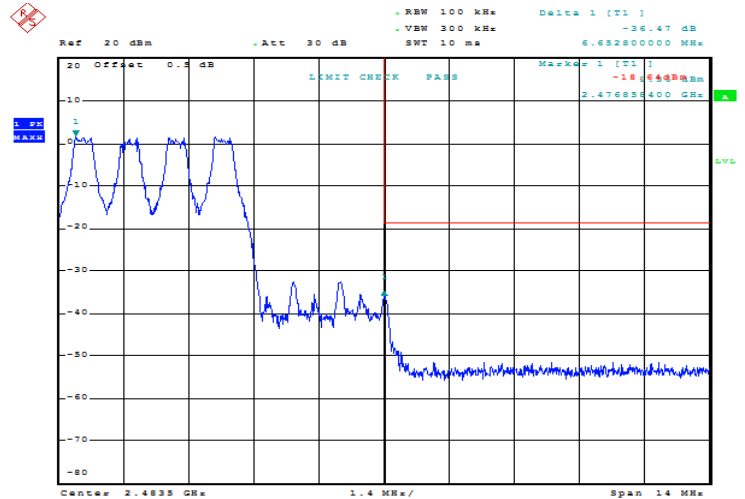
GFSK_High 36.32 dB



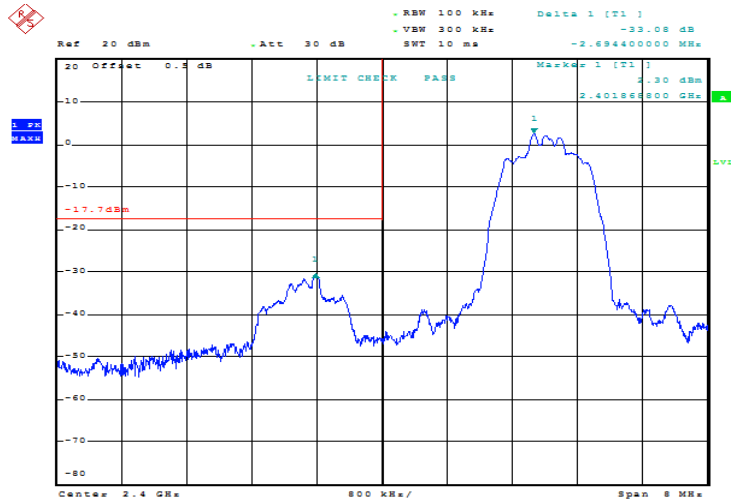
GFSK_Hopping_Lower 34.57 dB



GFSK_Hopping_Upper 36.47 dB

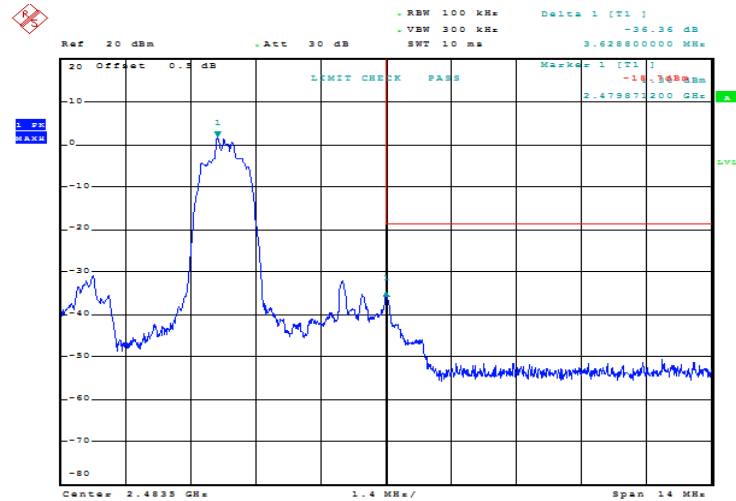


$\pi/4$ -DQPSK_Low 33.08 dB



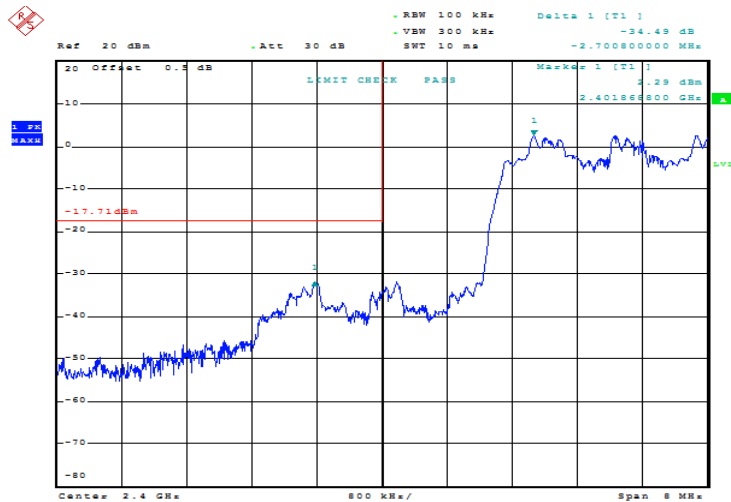
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:35:24

$\pi/4$ -DQPSK_High 36.36 dB



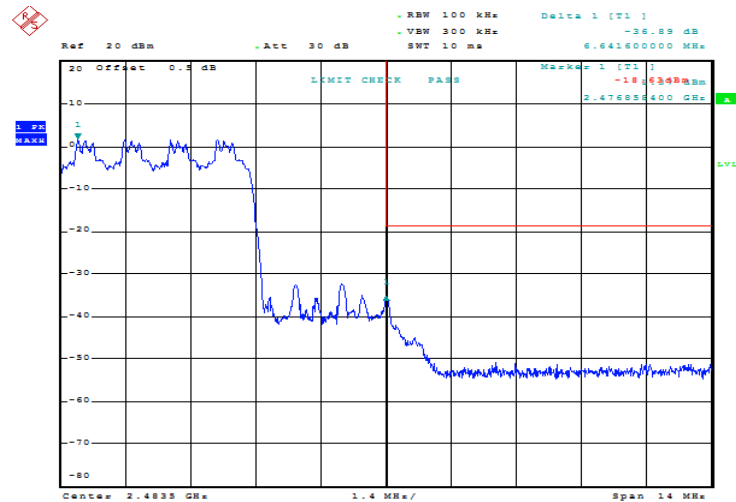
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:40:52

$\pi/4$ -DQPSK_Hopping_Lower 34.49 dB



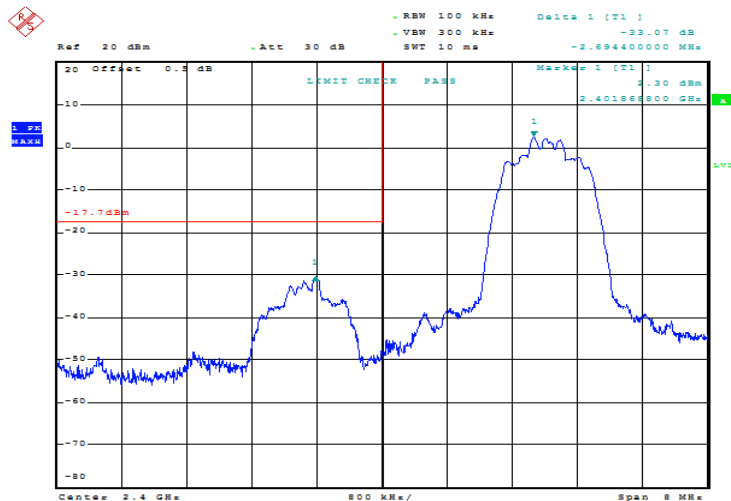
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 15:02:18

$\pi/4$ -DQPSK_Hopping_Upper 36.89 dB



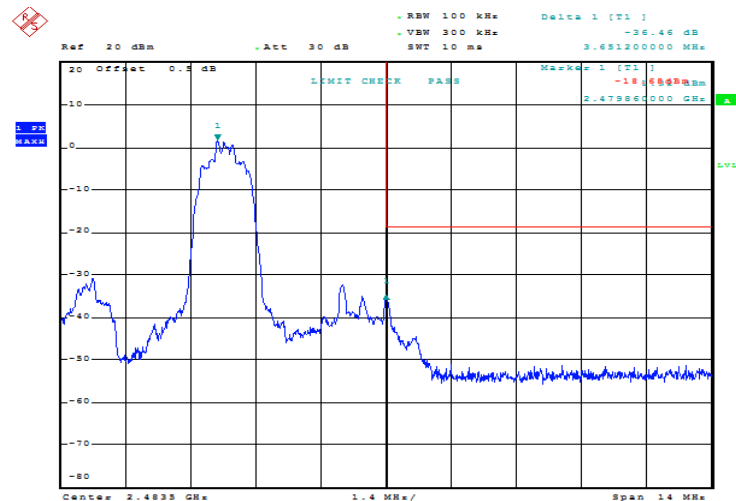
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 15:05:46

8DPSK_Low 33.07 dB



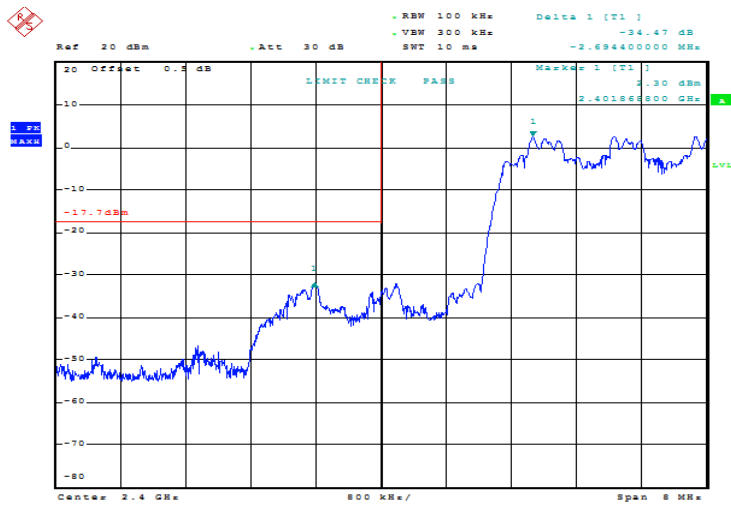
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:44:12

8DPSK_High 36.46 dB



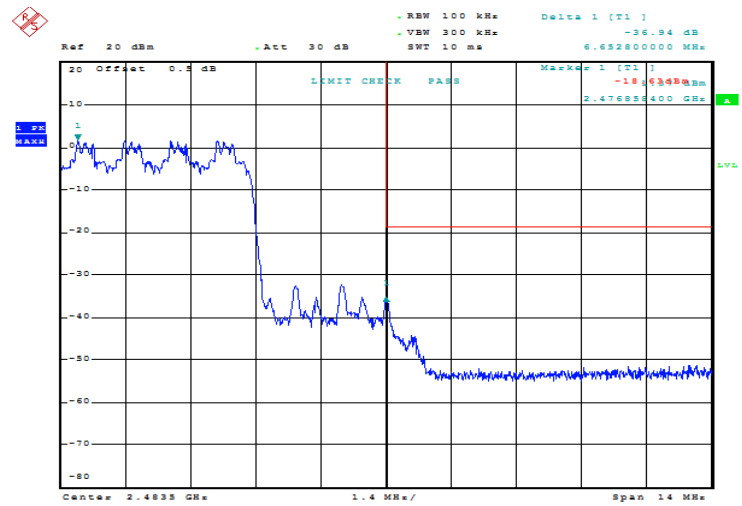
Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:49:52

8DPSK_Hopping_Lower 34.47 dB



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:07:11

8DPSK_Hopping_Upper 36.94 dB



Comment: ProjectNo.:CR231273021-RF Tester:Lingling Li
Date: 27.DEC.2023 13:08:59