

**FCC Part 15.247****Test Information:**

<b>Serial No.:</b>	2ES3-3	<b>Test Date:</b>	2024-01-04~2024-01-15
<b>Test Site:</b>	RF	<b>Test Mode:</b>	Transmitting
<b>Tester:</b>	Lingling Li	<b>Test Result:</b>	Pass

**Environmental Conditions:**

<b>Temperature:</b> (°C)	25.5-26.5	<b>Relative Humidity:</b> (%)	57-59	<b>ATM Pressure:</b> (kPa)	101.1-101.5
-----------------------------	-----------	----------------------------------	-------	-------------------------------	-------------

**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	211002	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**

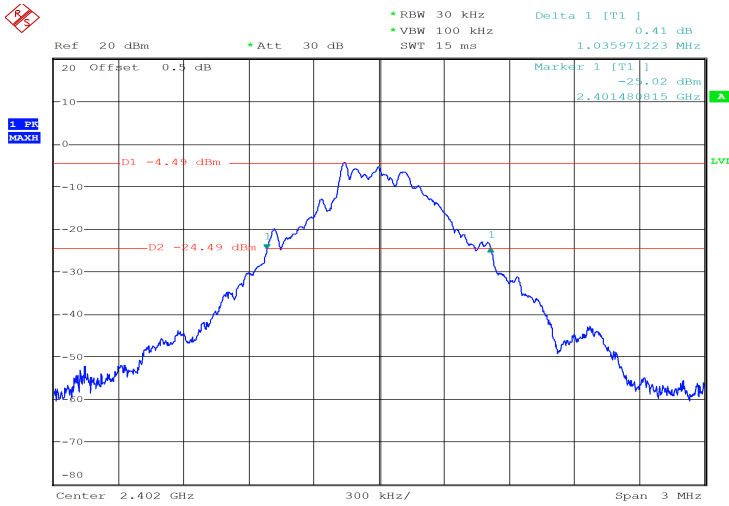
<b>Mode</b>	<b>Value (MHz)</b>	<b>Result</b>
GFSK_Low	1.036	Pass
GFSK_Middle	1.038	Pass
GFSK_High	1.046	Pass

**EDR**

<b>Mode</b>	<b>Value (MHz)</b>	<b>Result</b>
$\pi/4$ -DQPSK_Low	1.302	Pass
$\pi/4$ -DQPSK_Middle	1.295	Pass
$\pi/4$ -DQPSK_High	1.293	Pass
8DPSK_Low	1.264	Pass
8DPSK_Middle	1.273	Pass
8DPSK_High	1.281	Pass

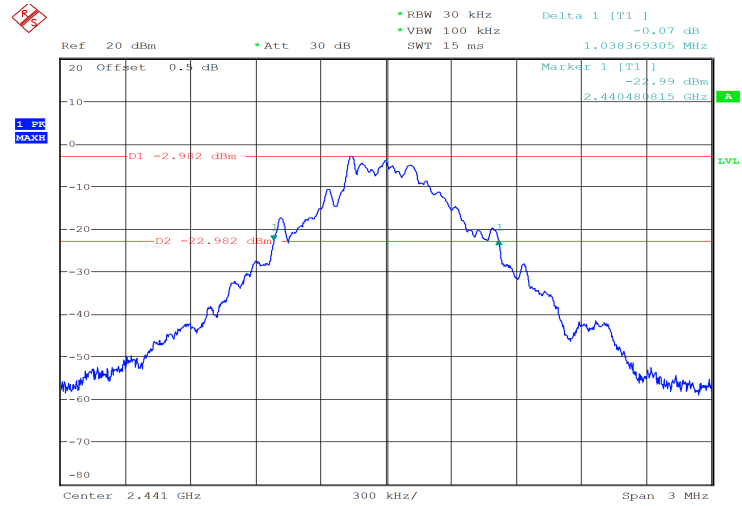
BDR

GFSK\_Low 1.036 MHz



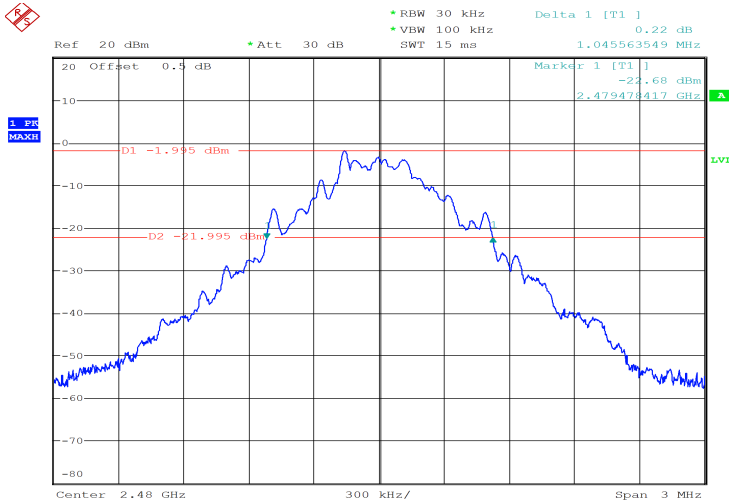
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:05:57

GFSK\_Middle 1.038 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:08:49

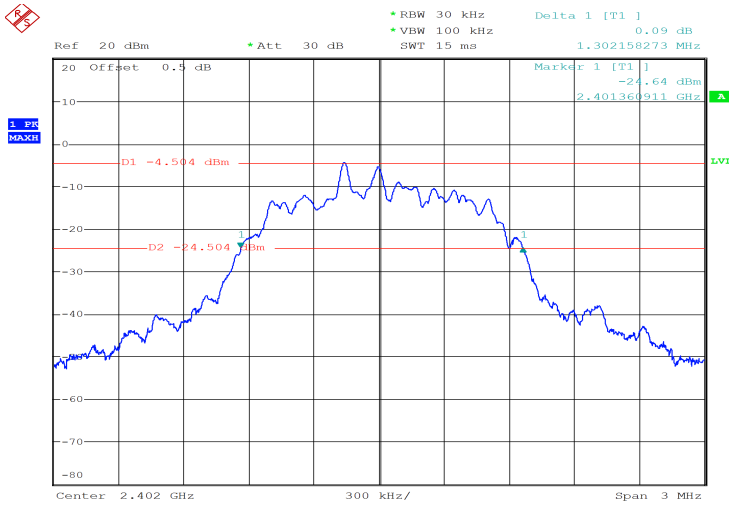
GFSK\_High 1.046 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:13:51

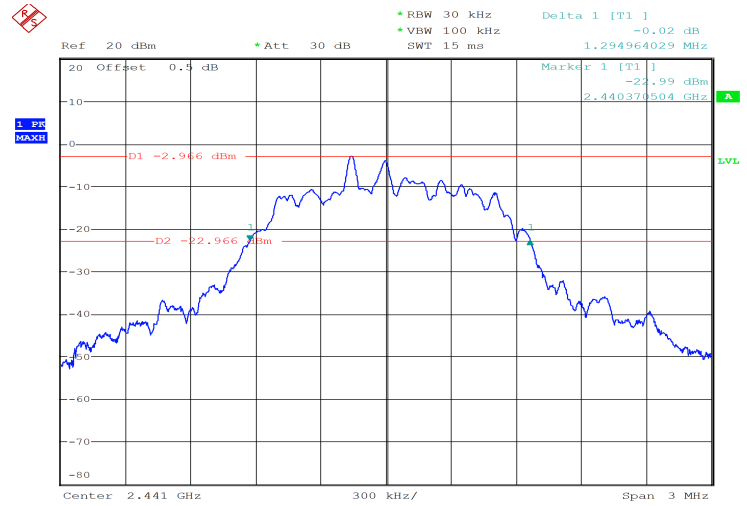
EDR

$\pi/4$ -DQPSK\_Low 1.302 MHz



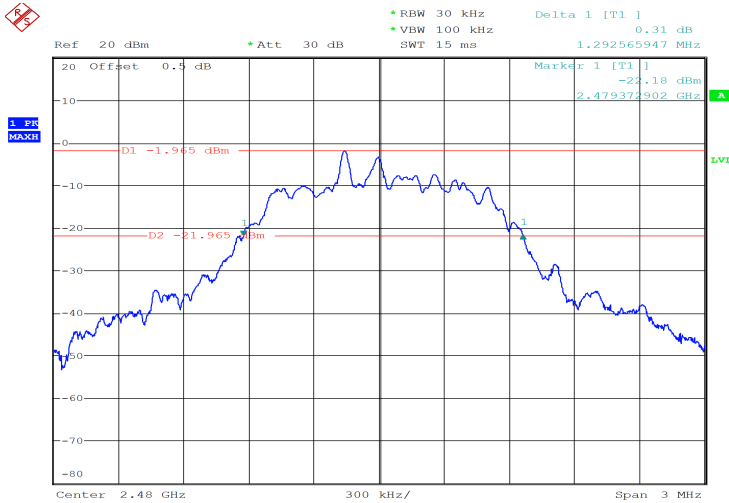
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:22:30

$\pi/4$ -DQPSK\_Middle 1.295 MHz



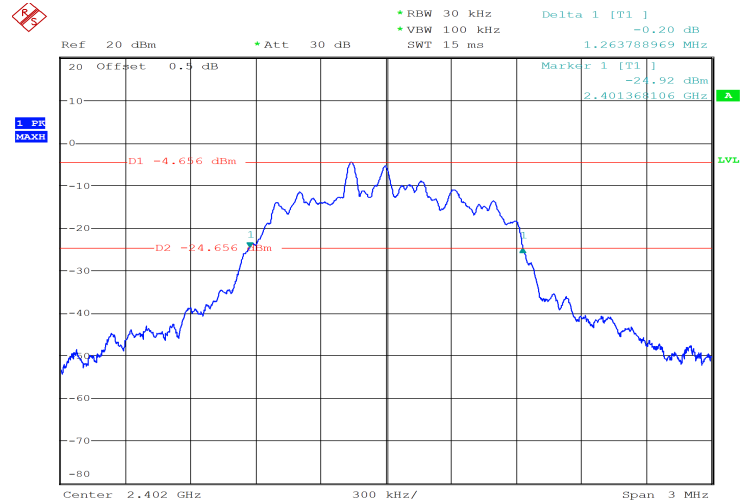
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:27:54

$\pi/4$ -DQPSK\_High 1.293 MHz



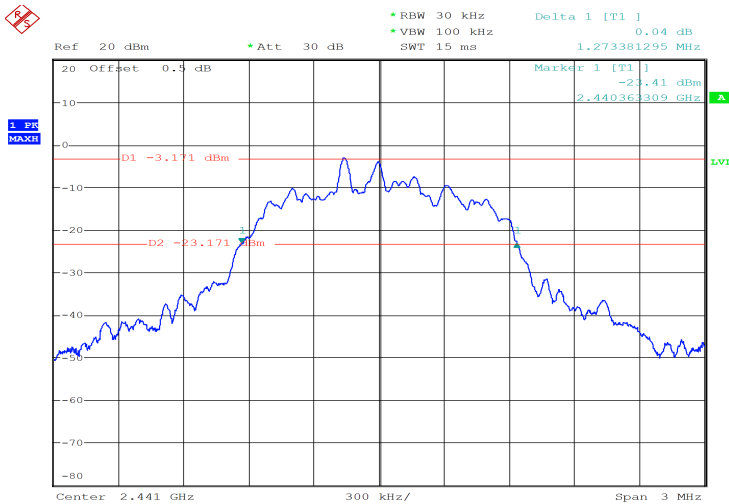
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:31:16

8DPSK\_Low 1.264 MHz



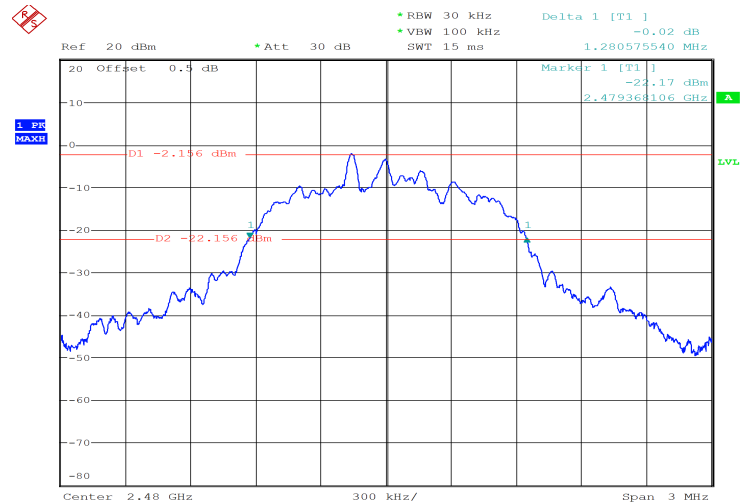
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:37:58

8DPSK\_Middle 1.273 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:40:47

8DPSK\_High 1.281 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:44:23

**99% Occupied Bandwidth****BDR**

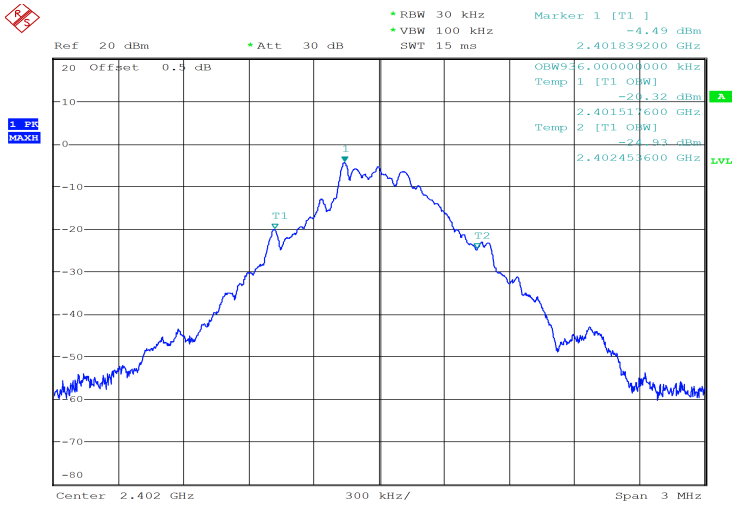
<b>Mode</b>	<b>99% OBW (MHz)</b>
GFSK_Low	0.936
GFSK_Middle	0.970
GFSK_High	0.986

**EDR**

<b>Mode</b>	<b>99% OBW (MHz)</b>
$\pi/4$ -DQPSK_Low	1.212
$\pi/4$ -DQPSK_Middle	1.222
$\pi/4$ -DQPSK_High	1.238
8DPSK_Low	1.186
8DPSK_Middle	1.195
8DPSK_High	1.210

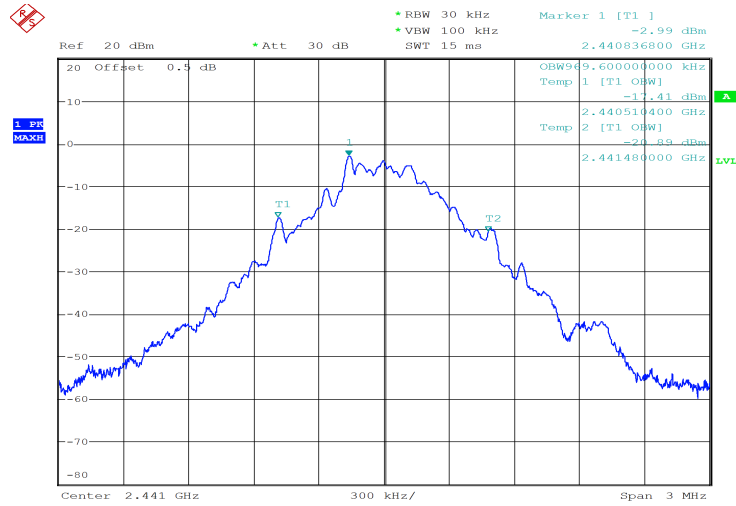
BDR

GFSK\_Low 0.936 MHz



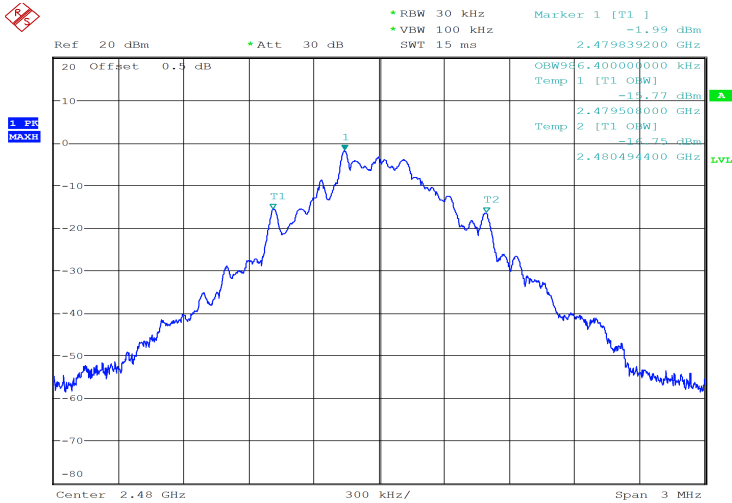
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:06:42

GFSK\_Middle 0.970 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:09:46

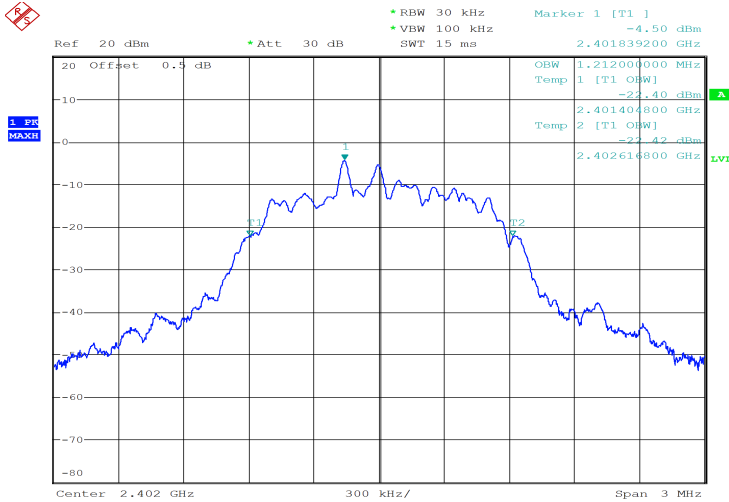
GFSK\_High 0.986 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:14:22

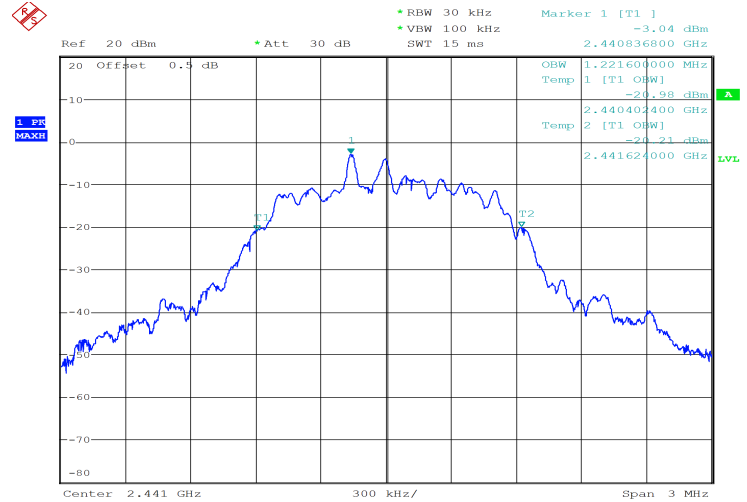
EDR

$\pi/4$ -DQPSK\_Low 1.212 MHz



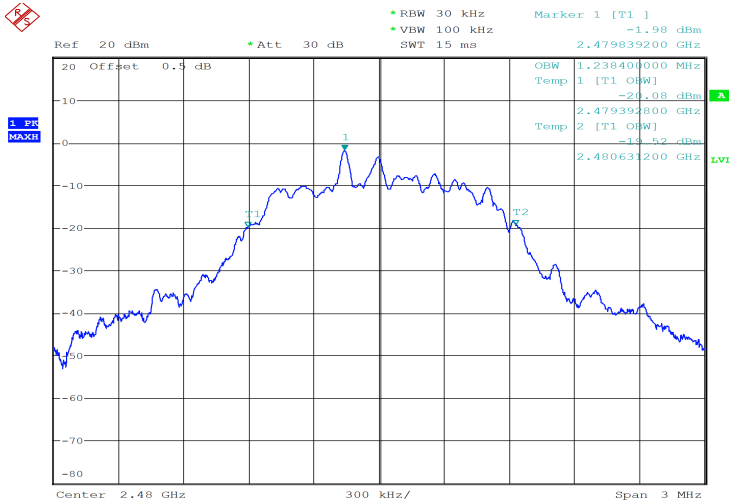
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:23:05

$\pi/4$ -DQPSK\_Middle 1.222 MHz



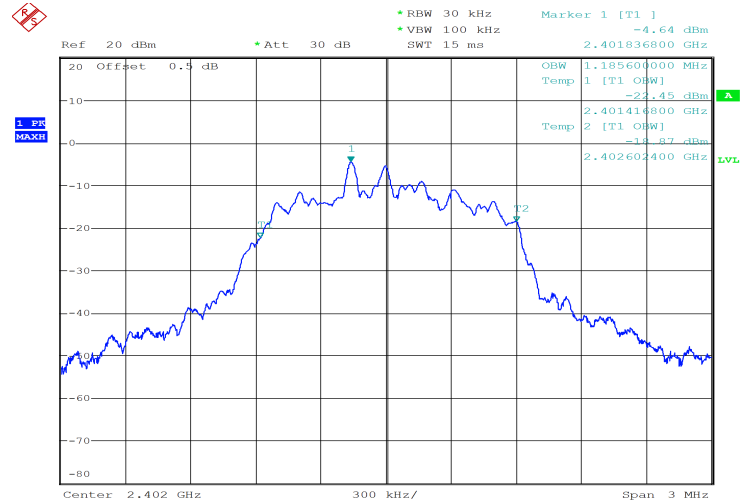
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:28:20

$\pi/4$ -DQPSK\_High 1.238 MHz



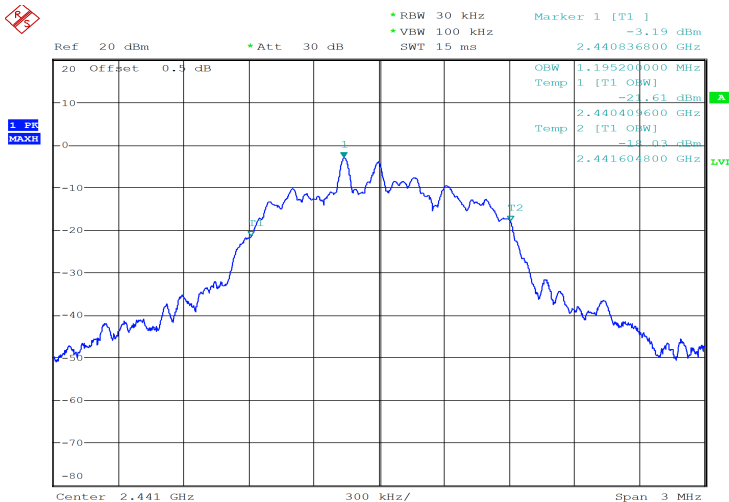
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:31:48

8DPSK\_Low 1.186 MHz



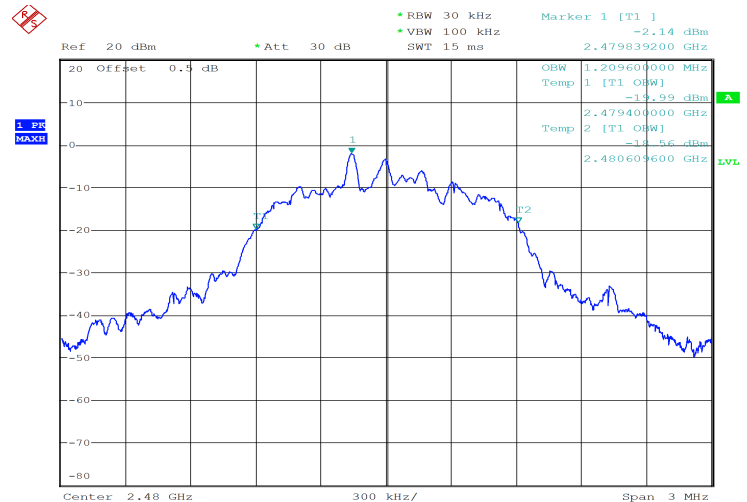
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:38:31

8DPSK\_Middle 1.195 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:41:19

8DPSK\_High 1.210 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:44:57

**Channel Separation****BDR**

<b>Mode</b>	<b>Value (MHz)</b>	<b>Limit (MHz)</b>	<b>Result</b>
GFSK_Low	1.002	0.691	Pass
GFSK_Middle	1.002	0.692	Pass
GFSK_High	1.002	0.697	Pass

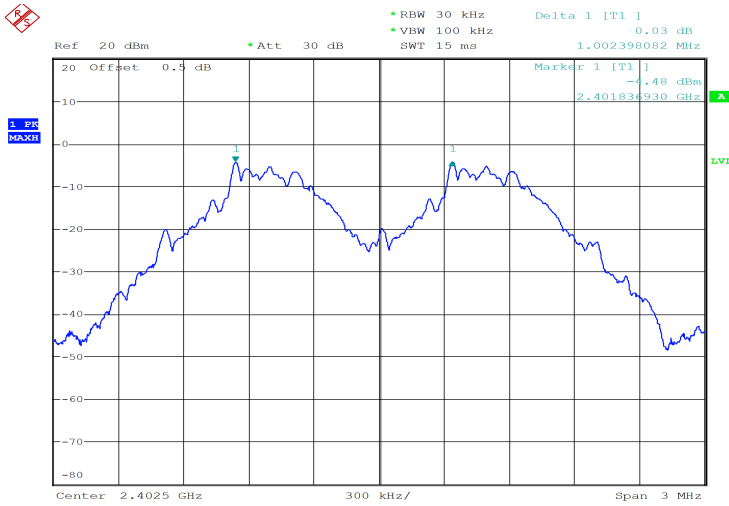
**EDR**

<b>Mode</b>	<b>Value (MHz)</b>	<b>Limit (MHz)</b>	<b>Result</b>
$\pi/4$ -DQPSK_Low	1.002	0.868	Pass
$\pi/4$ -DQPSK_Middle	1.005	0.863	Pass
$\pi/4$ -DQPSK_High	1.000	0.862	Pass
8DPSK_Low	1.002	0.843	Pass
8DPSK_Middle	1.002	0.849	Pass
8DPSK_High	1.000	0.854	Pass



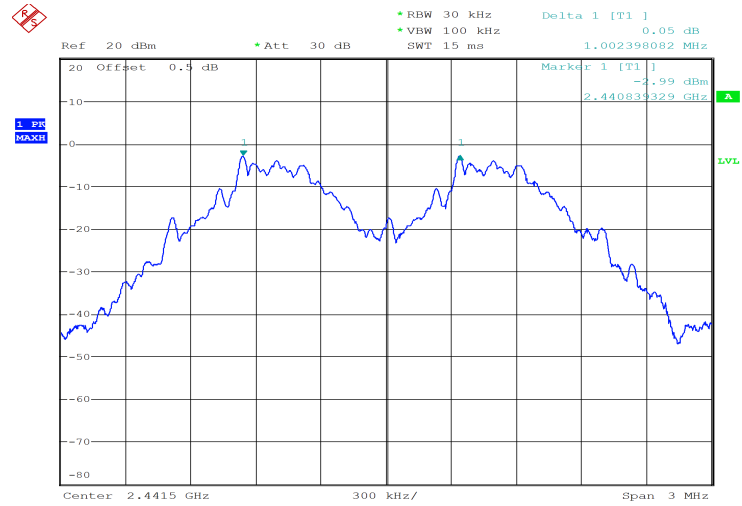
BDR

GFSK\_Low 1.002 MHz



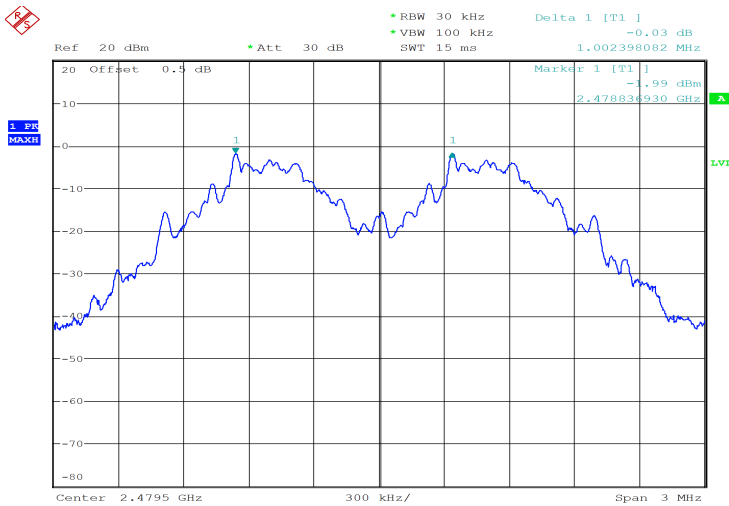
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:07:48

GFSK\_Middle 1.002 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:10:45

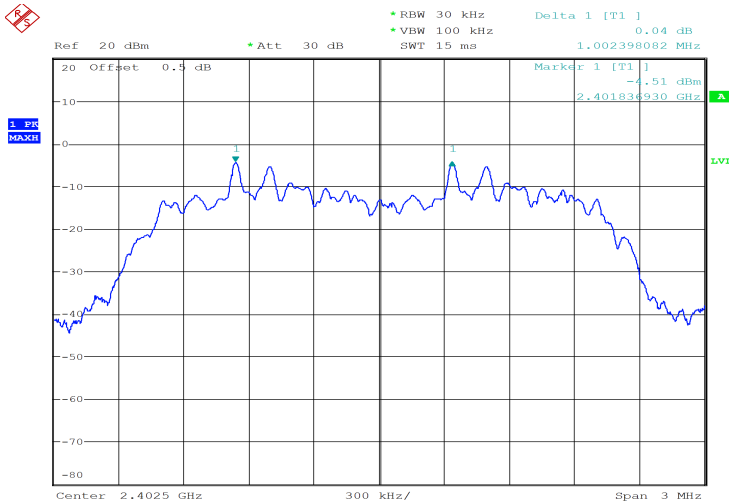
GFSK\_High 1.002 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:15:15

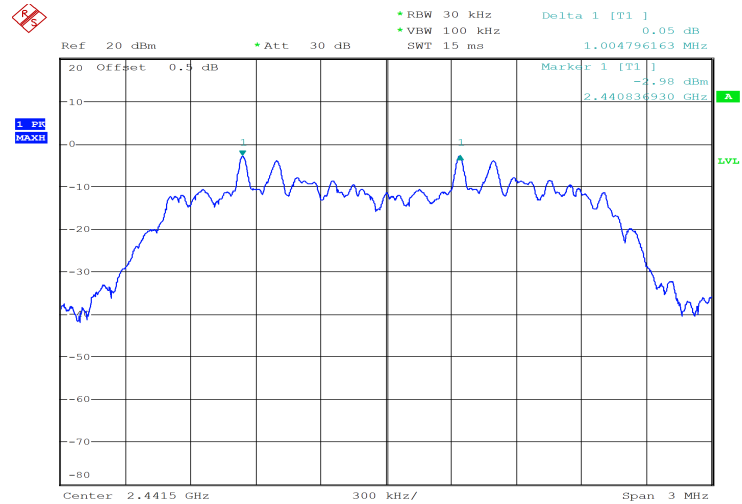
EDR

$\pi/4$ -DQPSK\_Low 1.002 MHz



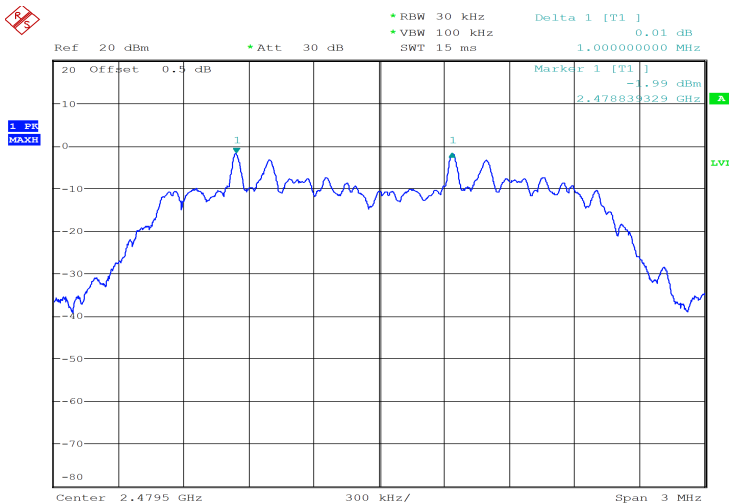
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:23:51

$\pi/4$ -DQPSK\_Middle 1.005 MHz



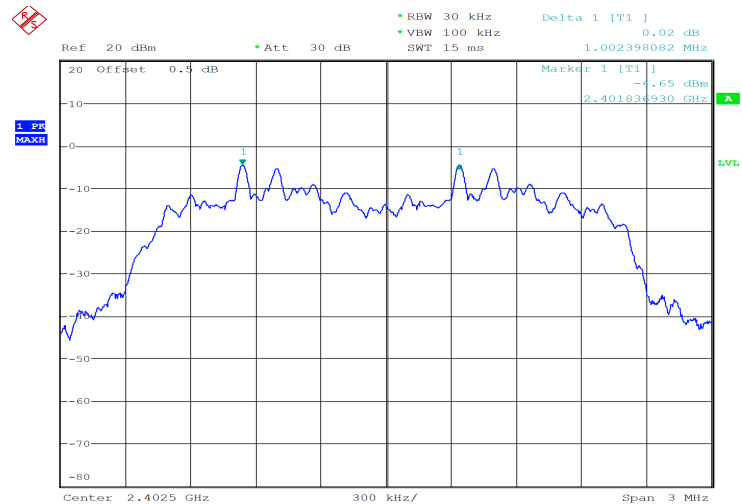
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:29:06

$\pi/4$ -DQPSK\_High 1.000 MHz



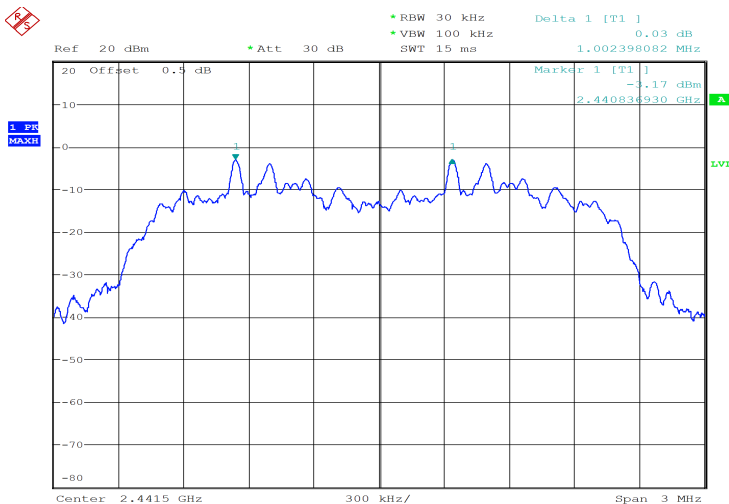
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:32:45

8DPSK\_Low 1.002 MHz



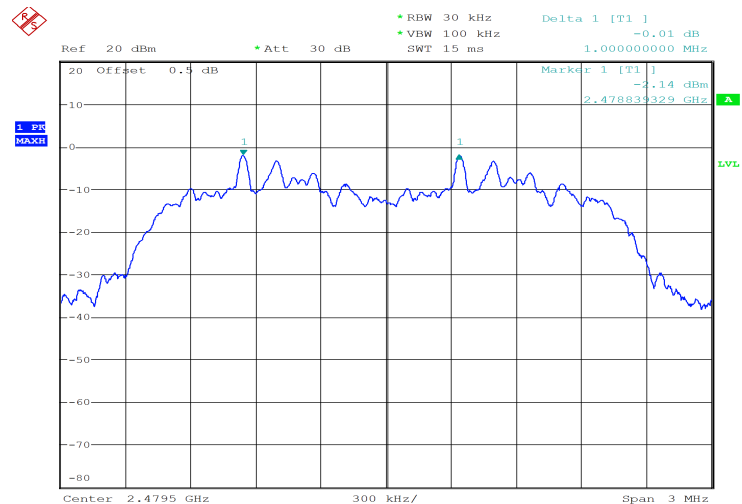
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:39:24

8DPSK\_Middle 1.002 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:42:24

8DPSK\_High 1.000 MHz



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:46:02

---

**Number of Hopping Frequency****BDR**

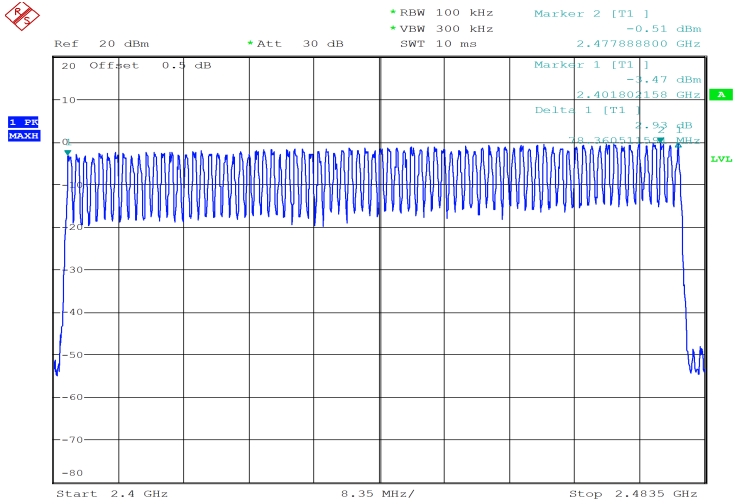
Mode	Value	Limit	Result
GFSK_Hopping	79	15	Pass

**EDR**

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

BDR

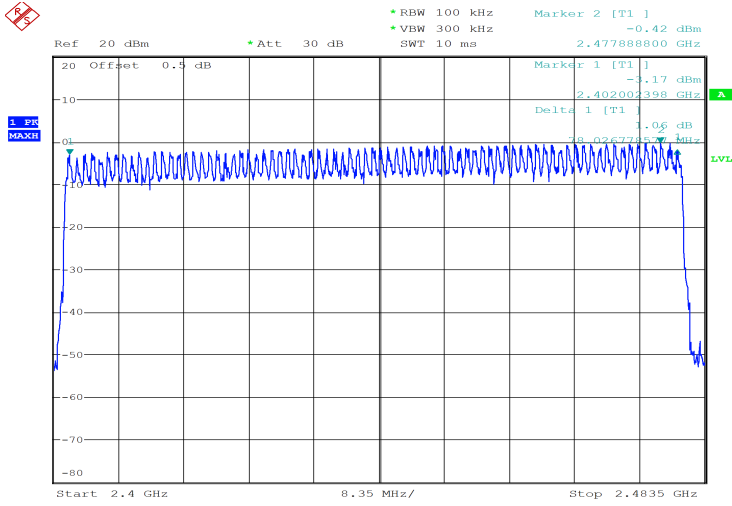
### GFSK\_Hopping 79



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:18:11

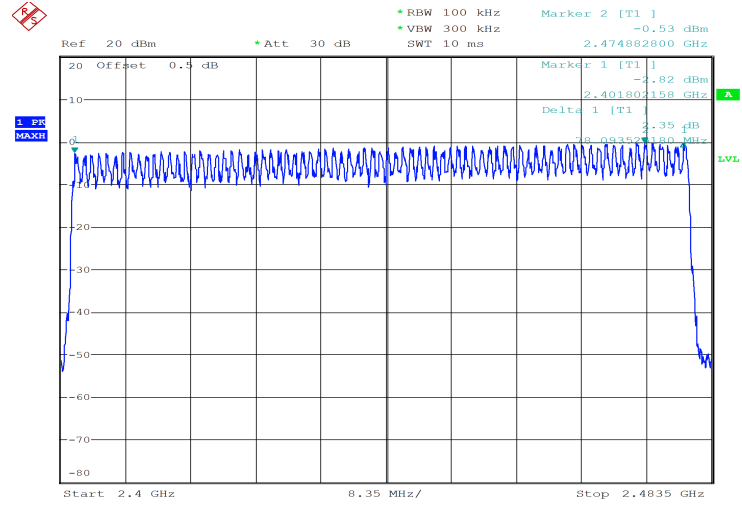
EDR

$\pi/4$ -DQPSK\_Hopping 79



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:25:51

8DPSK\_Hopping 79



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:34:02

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

Mode	Pulse width (ms)	Dwell time (s)	Limit (s)	Result
GFSK_Hopping_DH1	0.387	0.124	0.400	Pass
GFSK_Hopping_DH3	1.650	0.264	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	0.396	0.127	0.400	Pass
$\pi/4$ -DQPSK_Hopping_2DH3	1.657	0.265	0.400	Pass
$\pi/4$ -DQPSK_Hopping_2DH5	2.910	0.310	0.400	Pass
8DPSK_Hopping_3DH1	0.398	0.127	0.400	Pass
8DPSK_Hopping_3DH3	1.652	0.264	0.400	Pass
8DPSK_Hopping_3DH5	2.910	0.310	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

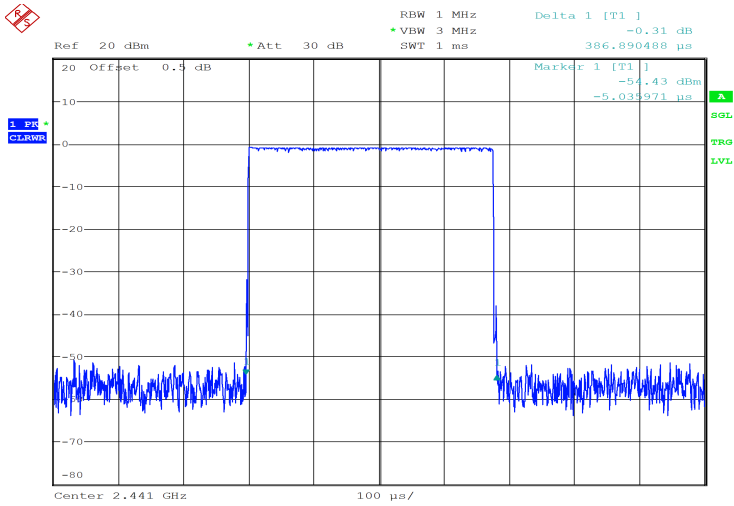
**3DH1:** Dwell time=Pulse time (ms)  $\times$  (1600/2/79)  $\times$ 31.6 s

**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

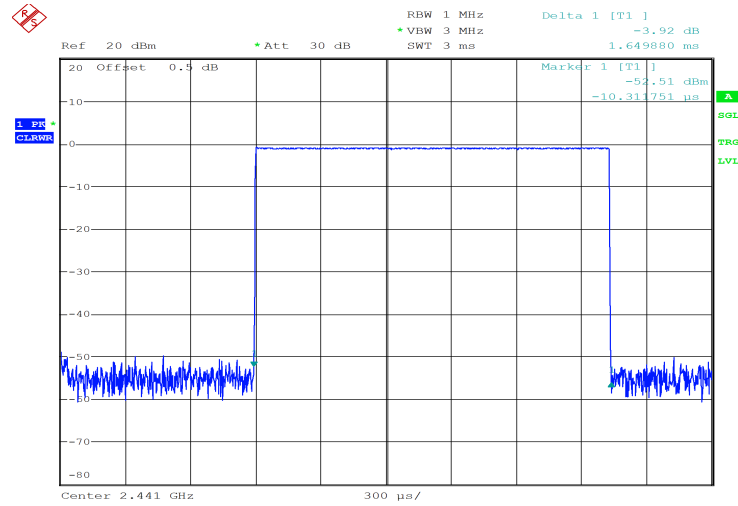
BDR

GFSK\_Hopping\_DH1 0.387ms



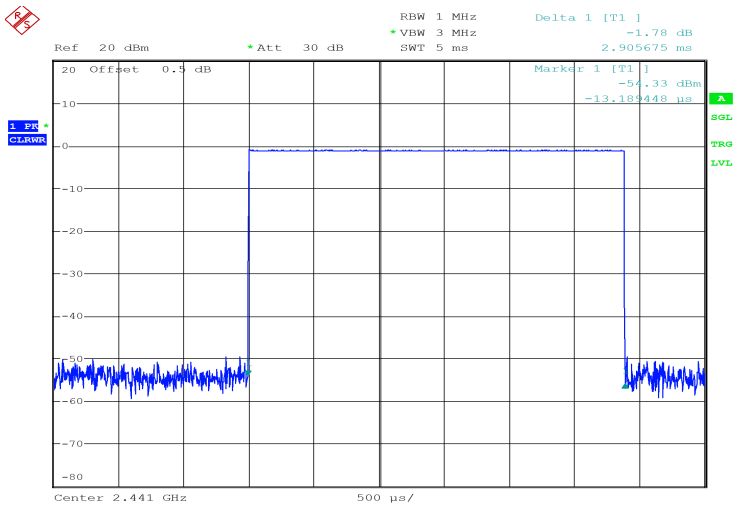
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:51:16

GFSK\_Hopping\_DH3 1.650ms



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:53:19

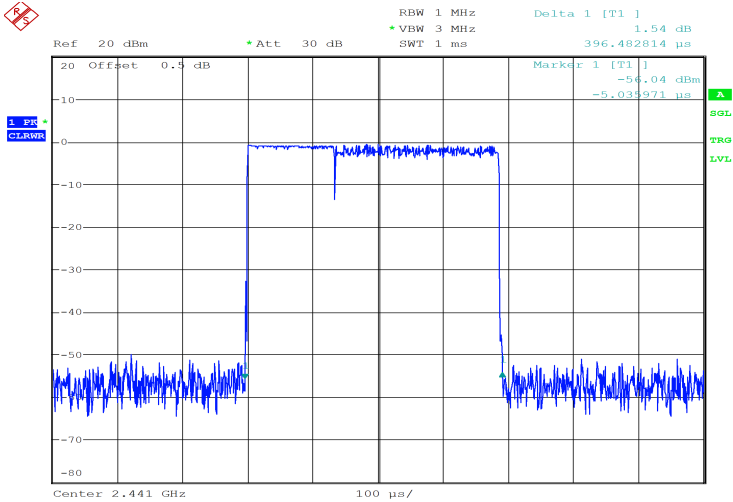
GFSK\_Hopping\_DH5 2.906ms



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 15.JAN.2024 10:38:42

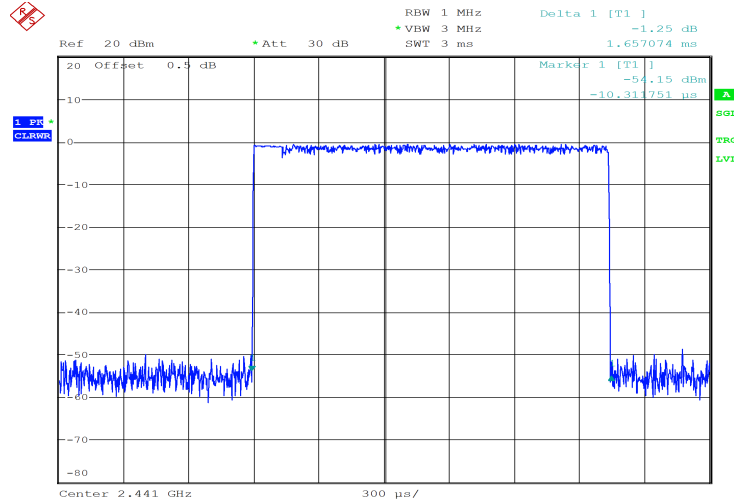
EDR

$\pi/4$ -DQPSK\_Hopping\_2DH1 0.396ms



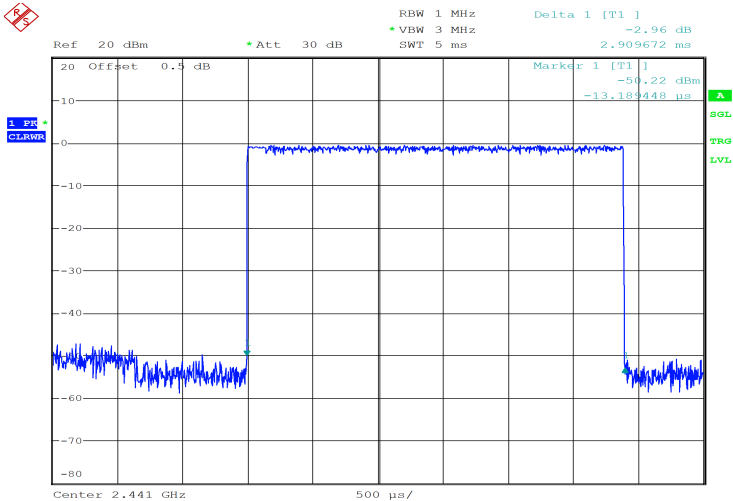
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:57:02

$\pi/4$ -DQPSK\_Hopping\_2DH3 1.657ms



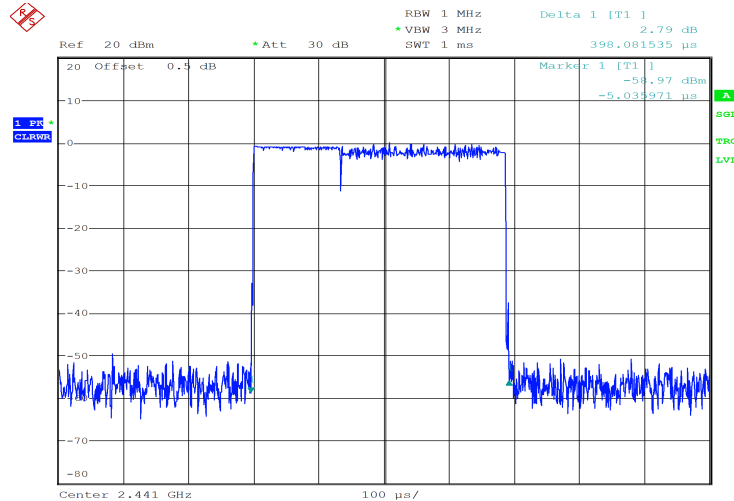
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 14:58:35

$\pi/4$ -DQPSK\_Hopping\_2DH5 2.910ms



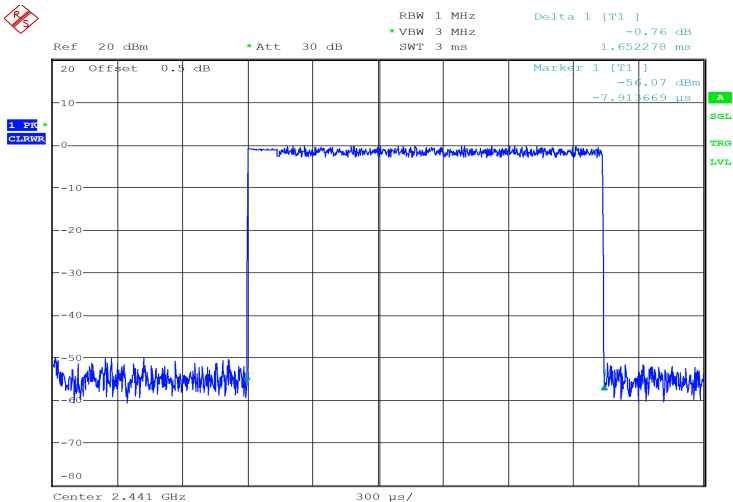
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:05:21

8DPSK\_Hopping\_3DH1 0.398ms



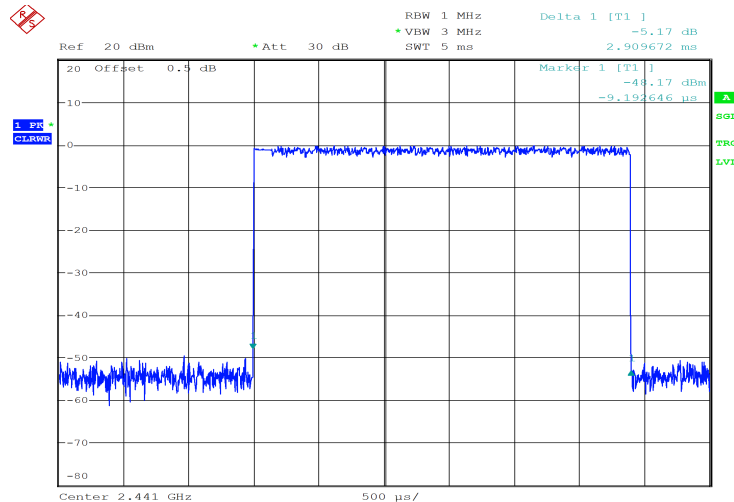
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 4.JAN.2024 15:02:22

8DPSK\_Hopping\_3DH3 1.652ms



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:07:01

8DPSK\_Hopping\_3DH5 2.910ms



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
Date: 15.JAN.2024 10:10:24



**Maximum Conducted Output Power****BDR**

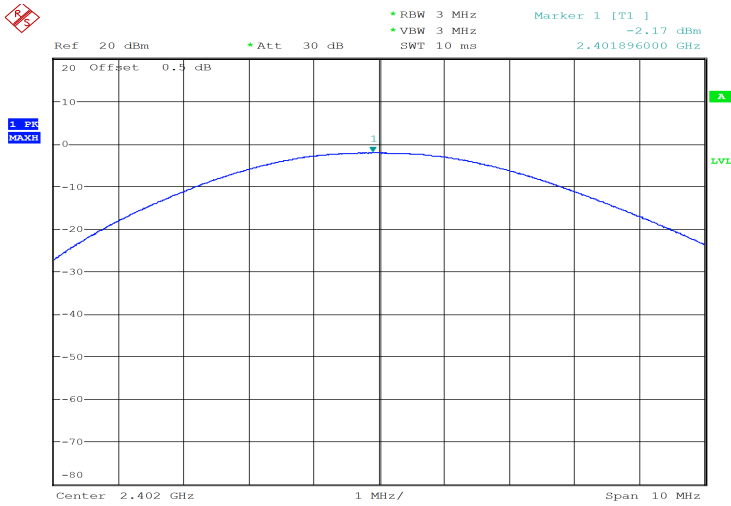
<b>Mode</b>	<b>Value (dBm)</b>	<b>Limit (dBm)</b>	<b>Result</b>
GFSK_Low	-2.17	21.00	Pass
GFSK_Middle	-0.76	21.00	Pass
GFSK_High	0.24	21.00	Pass

**EDR**

<b>Mode</b>	<b>Value (dBm)</b>	<b>Limit (dBm)</b>	<b>Result</b>
$\pi/4$ -DQPSK_Low	-1.47	21.00	Pass
$\pi/4$ -DQPSK_Middle	-0.08	21.00	Pass
$\pi/4$ -DQPSK_High	0.88	21.00	Pass
8DPSK_Low	-0.85	21.00	Pass
8DPSK_Middle	0.51	21.00	Pass
8DPSK_High	1.41	21.00	Pass

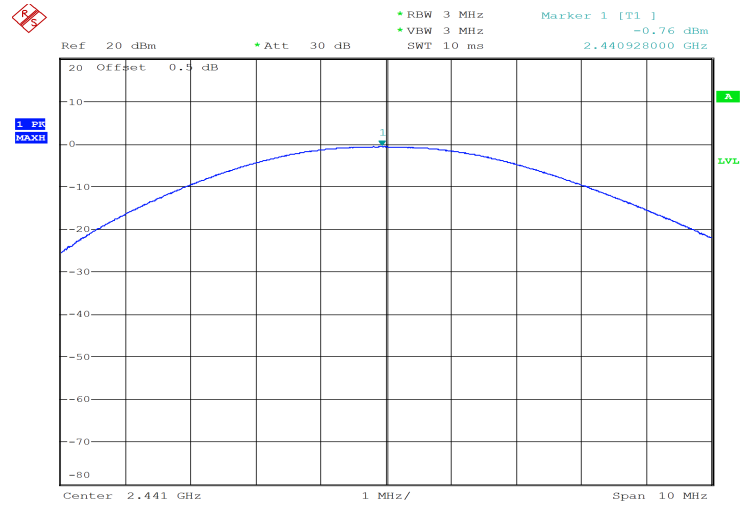
BDR

### GFSK\_Low -2.17 dBm



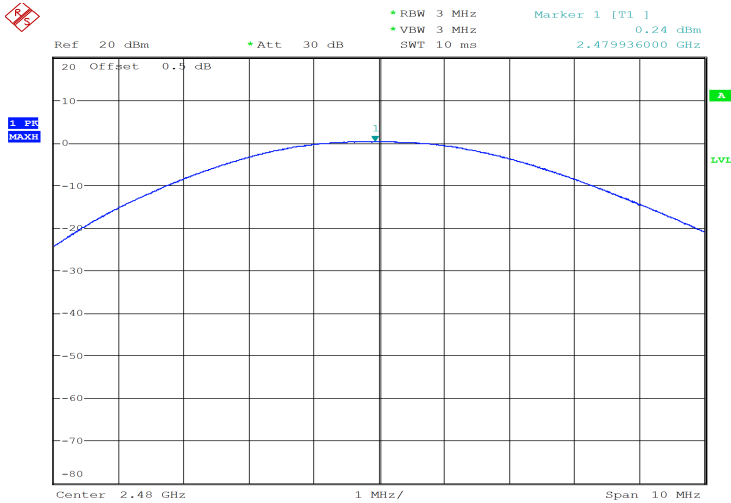
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:04:10

### GFSK\_Middle -0.76 dBm



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:08:15

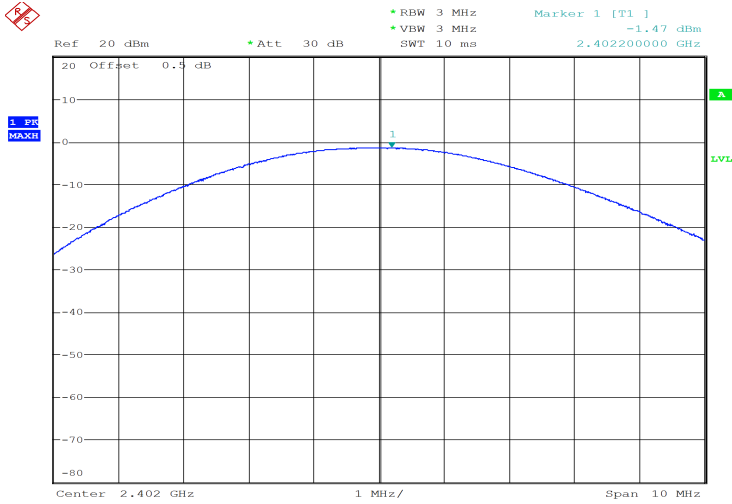
### GFSK\_High 0.24 dBm



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:11:37

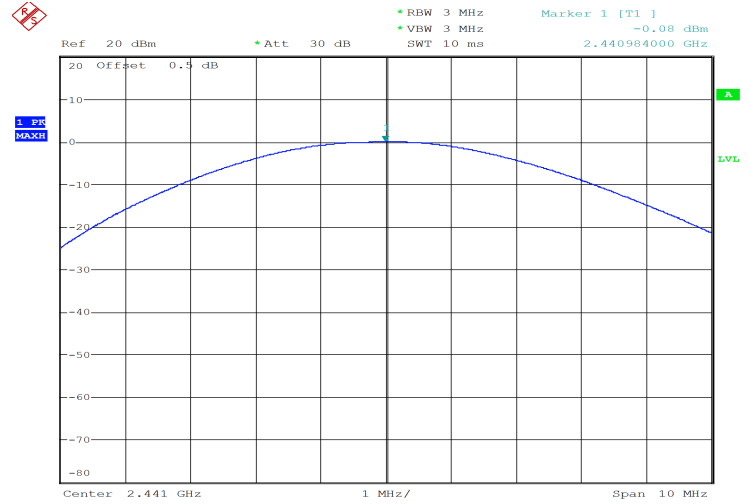
EDR

$\pi/4$ -DQPSK\_Low -1.47 dBm



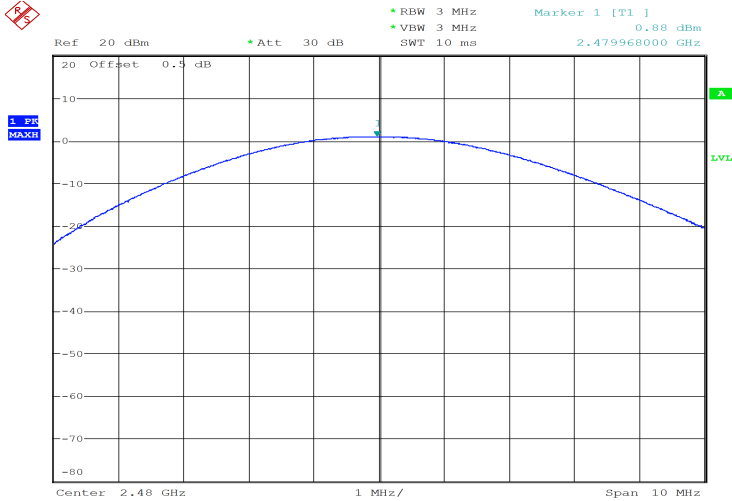
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:19:07

$\pi/4$ -DQPSK\_Middle -0.08 dBm



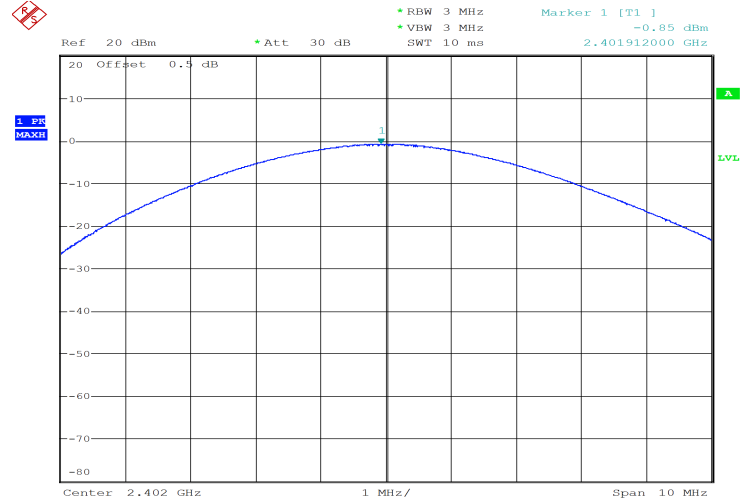
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:27:25

$\pi/4$ -DQPSK\_High 0.88 dBm



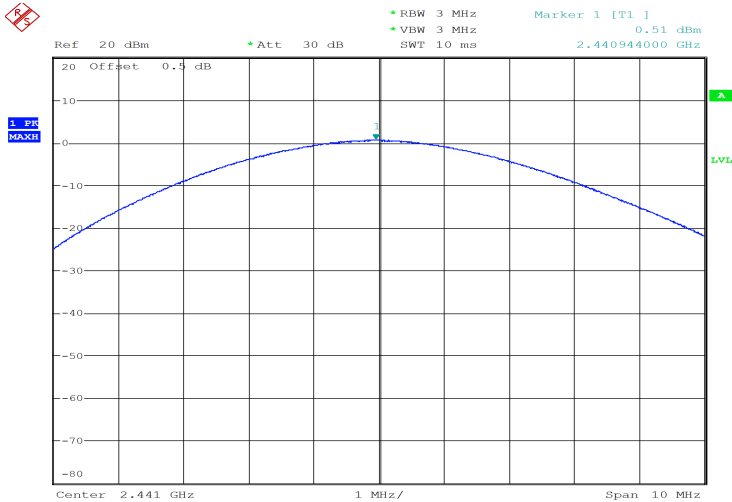
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:29:38

8DPSK\_Low -0.85 dBm



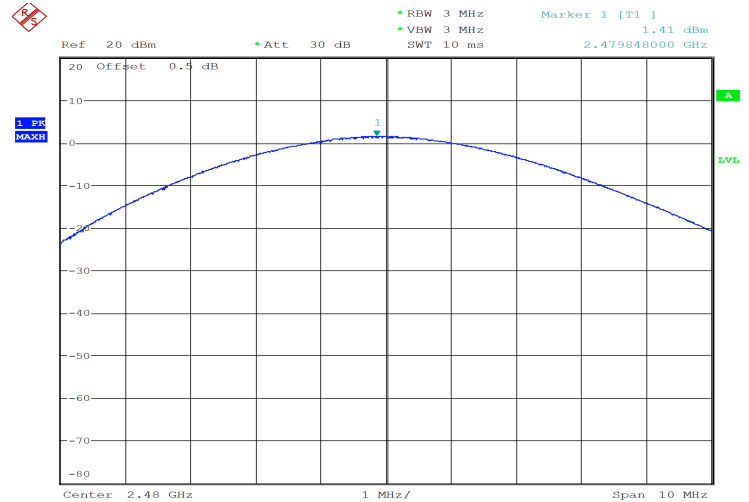
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:36:21

8DPSK\_Middle 0.51 dBm



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:40:11

8DPSK\_High 1.41 dBm



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:42:46

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

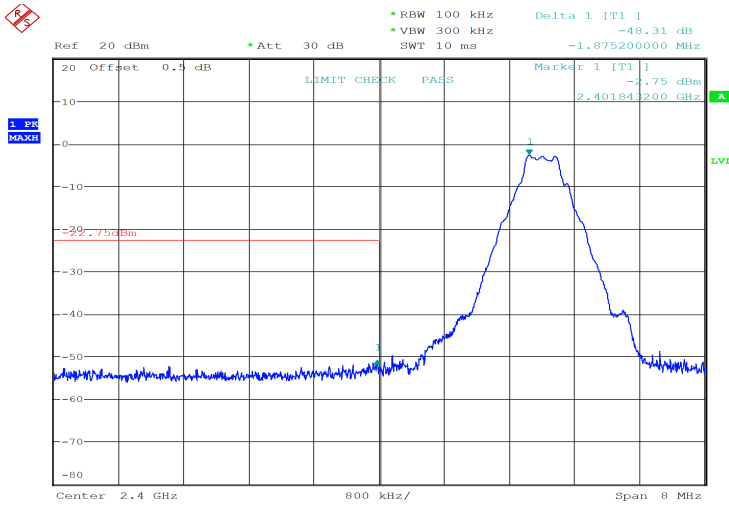
<b>Mode</b>	<b>Value (dB)</b>	<b>Limit (dB)</b>	<b>Result</b>
GFSK_Low	48.31	20.00	Pass
GFSK_High	51.25	20.00	Pass
GFSK_Hopping_Lower	47.81	20.00	Pass
GFSK_Hopping_Upper	50.71	20.00	Pass

**EDR**

<b>Mode</b>	<b>Value (dB)</b>	<b>Limit (dB)</b>	<b>Result</b>
$\pi/4$ -DQPSK_Low	46.96	20.00	Pass
$\pi/4$ -DQPSK_High	51.21	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Lower	48.06	20.00	Pass
$\pi/4$ -DQPSK_Hopping_Upper	51.40	20.00	Pass
8DPSK_Low	49.27	20.00	Pass
8DPSK_High	51.20	20.00	Pass
8DPSK_Hopping_Lower	46.70	20.00	Pass
8DPSK_Hopping_Upper	51.33	20.00	Pass

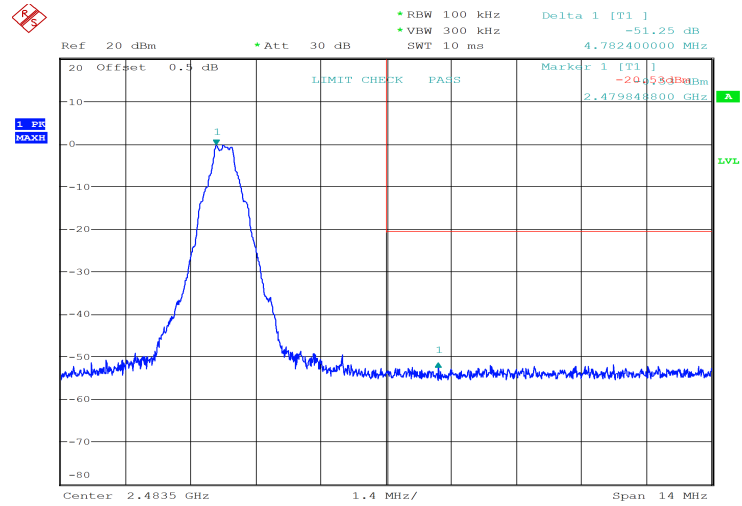
BDR

GFSK\_Low 48.31 dB



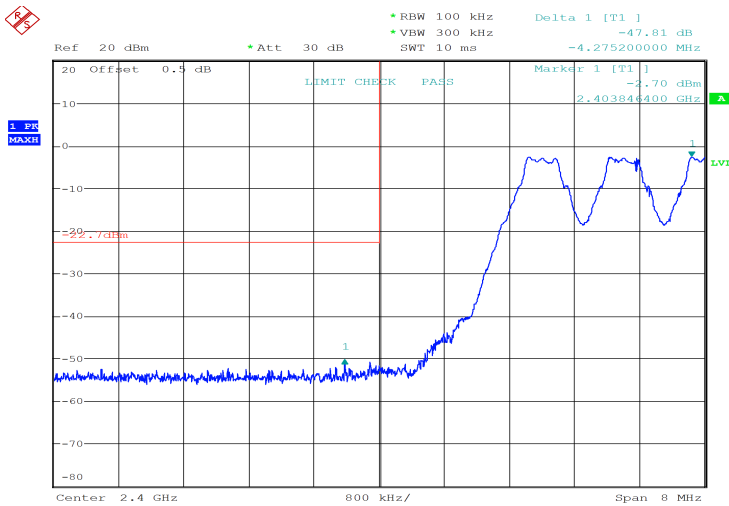
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:05:24

GFSK\_High 51.25 dB



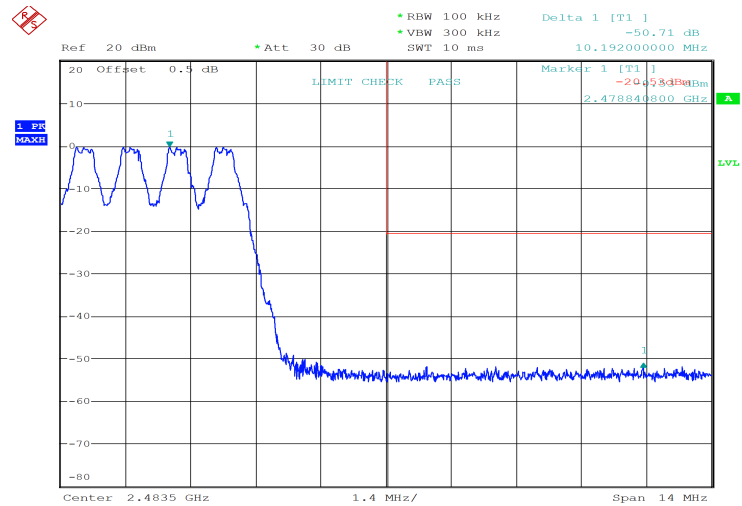
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:13:11

GFSK\_Hopping\_Lower 47.81 dB



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:16:55

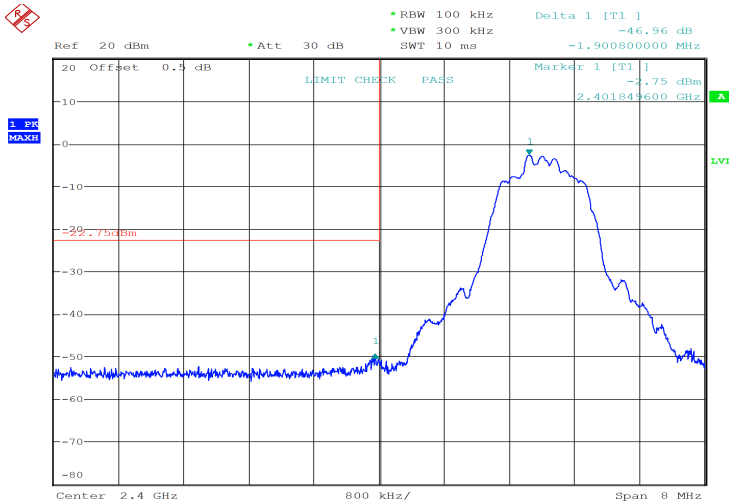
GFSK\_Hopping\_Upper 50.71 dB



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 15.JAN.2024 10:13:18

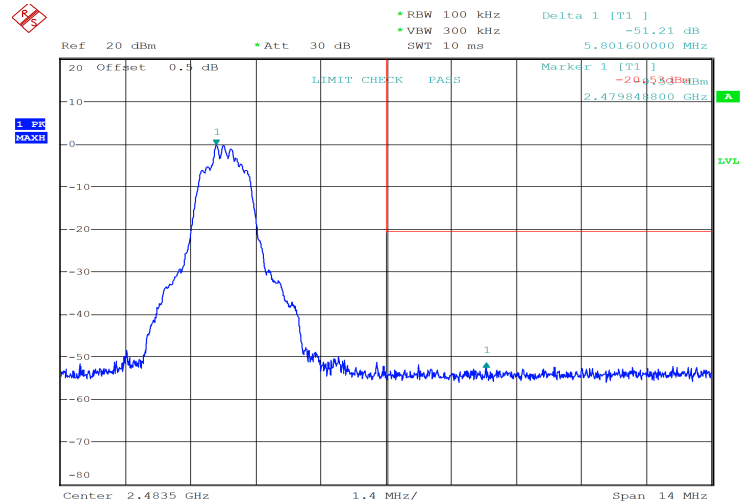
EDR

$\pi/4$ -DQPSK\_Low 46.96 dB



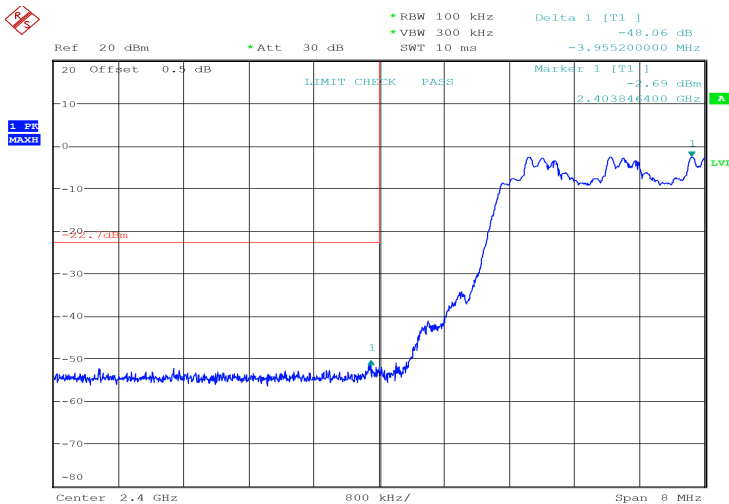
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:21:56

$\pi/4$ -DQPSK\_High 51.21 dB



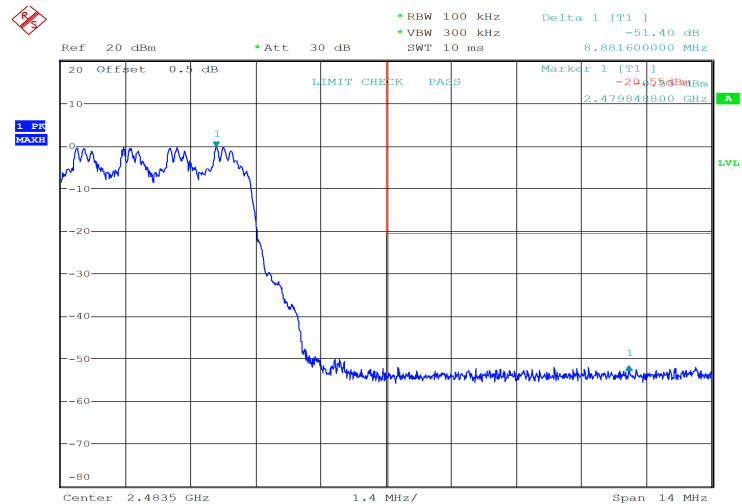
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:30:51

$\pi/4$ -DQPSK\_Hopping\_Lower 48.06 dB



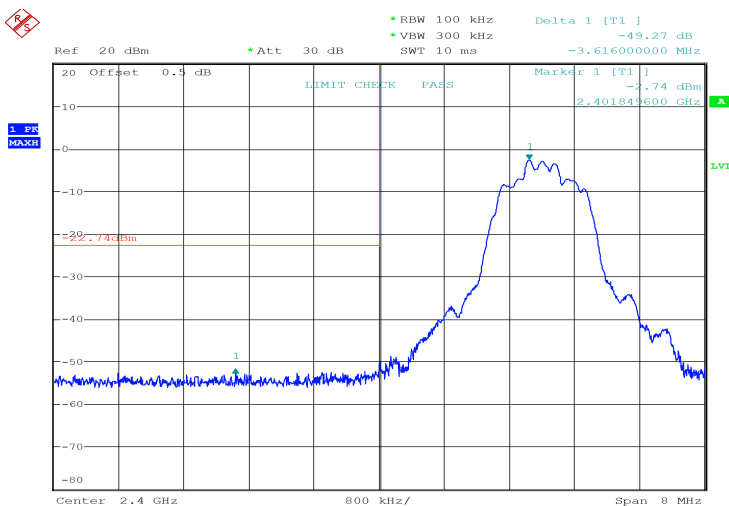
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:34:05

$\pi/4$ -DQPSK\_Hopping\_Upper 51.40 dB



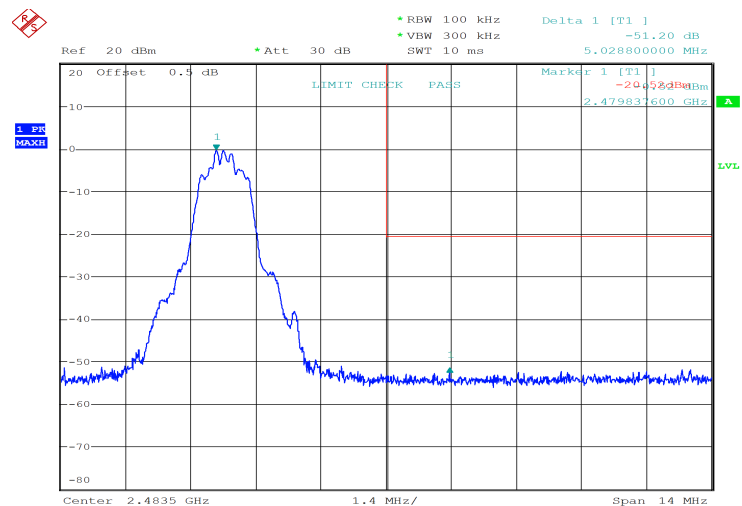
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:35:46

8DPSK\_Low 49.27 dB



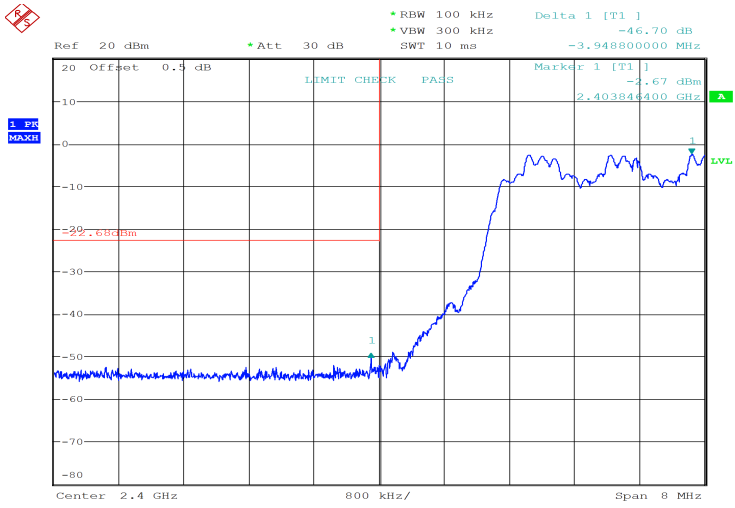
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:37:20

8DPSK\_High 51.20 dB



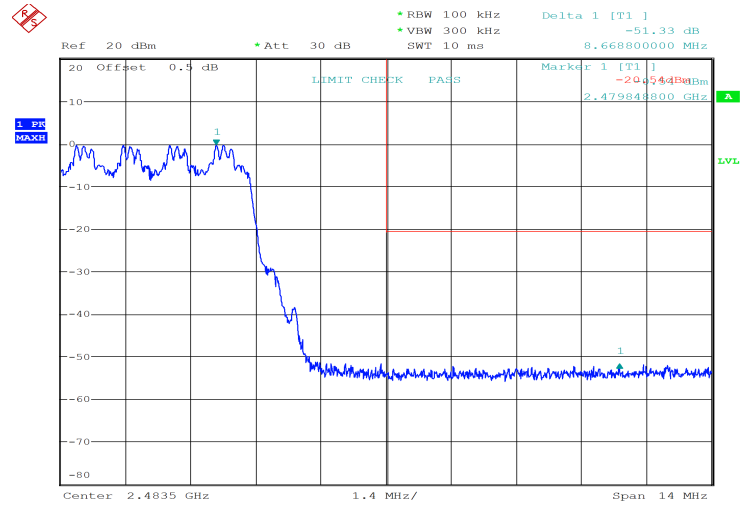
Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:43:54

### 8DPSK\_Hopping\_Lower 46.70 dB



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:48:01

### 8DPSK\_Hopping\_Upper 51.33 dB



Comment: ProjectNo.:CR231267242-RF Tester:Lingling Li  
 Date: 4.JAN.2024 14:49:25