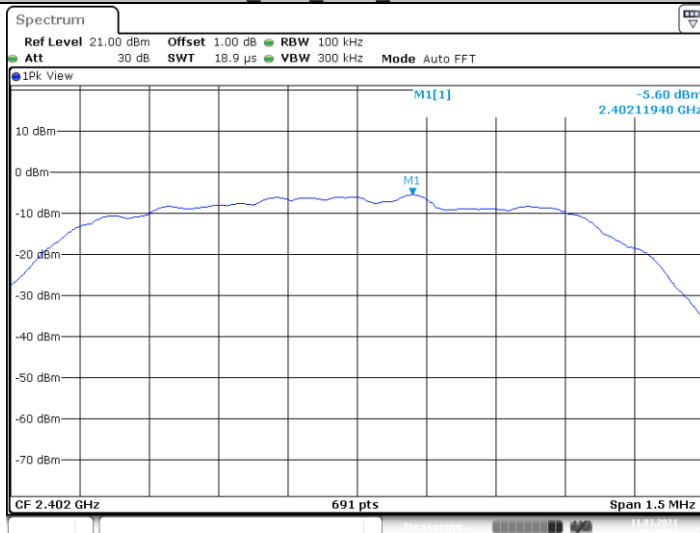


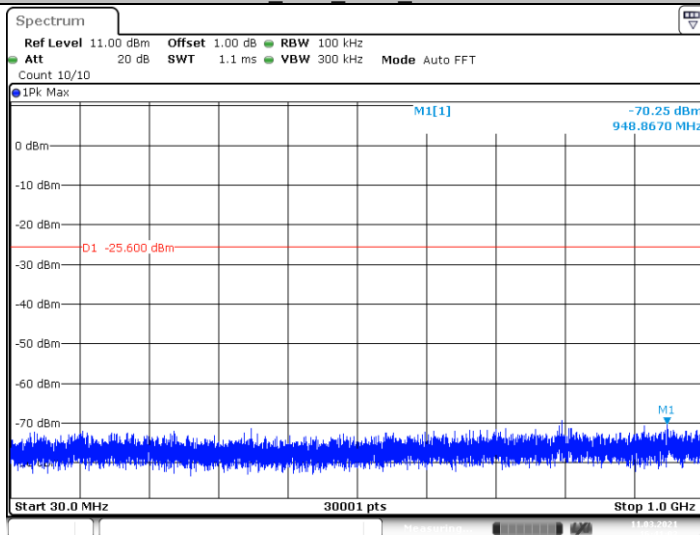


3DH5_Ant1_2402_0~Reference



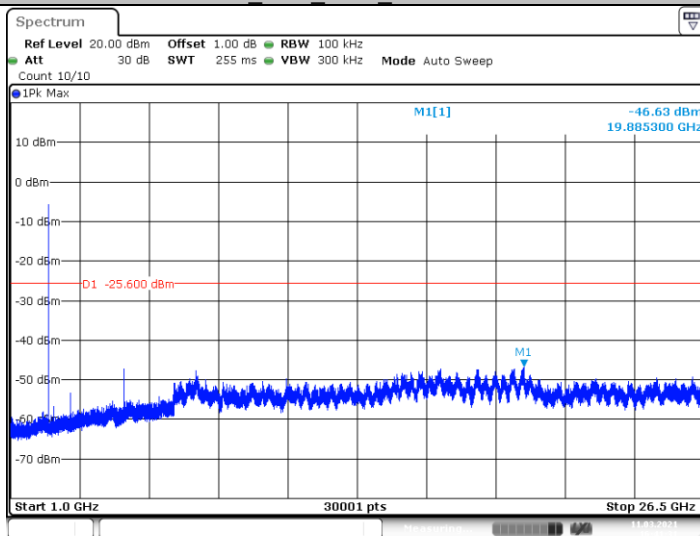
Date: 11.MAR.2021 16:40:54

3DH5_Ant1_2402_30~1000



Date: 11.MAR.2021 16:41:03

3DH5_Ant1_2402_1000~26500



Date: 11.MAR.2021 16:41:31

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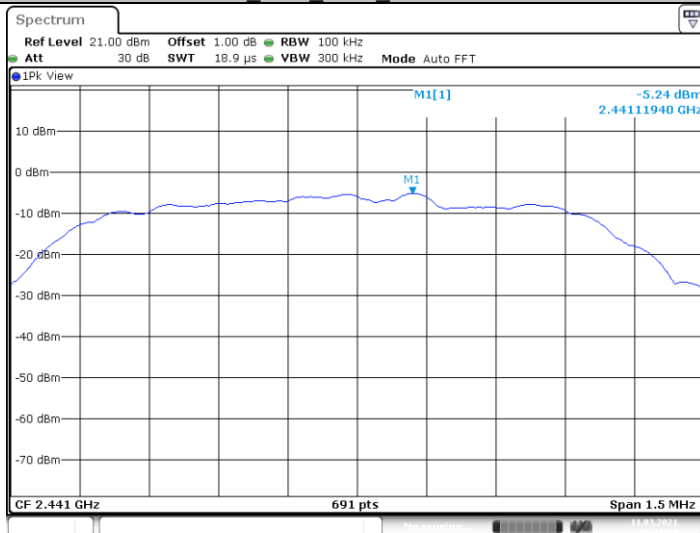
Fax: (86)755-27521011

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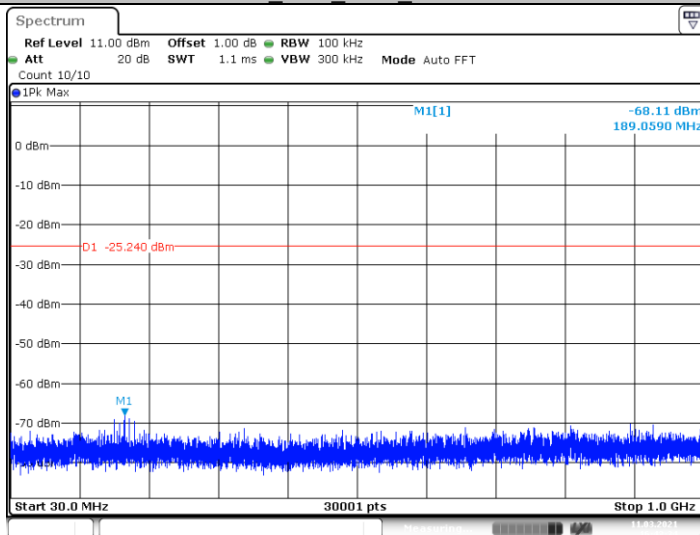


3DH5_Ant1_2441_0~Reference



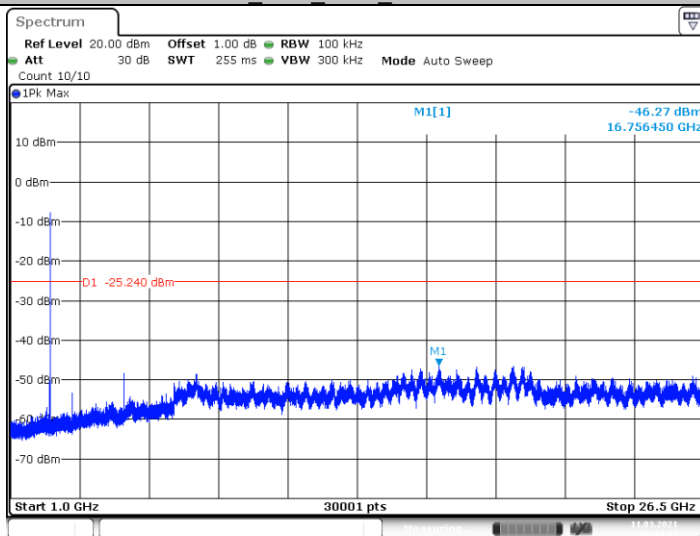
Date: 11.MAR.2021 16:43:25

3DH5_Ant1_2441_30~1000



Date: 11.MAR.2021 16:43:34

3DH5_Ant1_2441_1000~26500



Date: 11.MAR.2021 16:44:02

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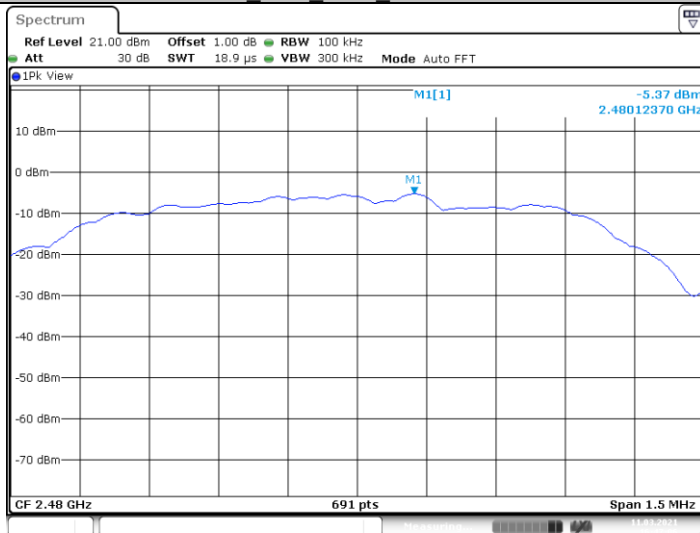
Fax: (86)755-27521011

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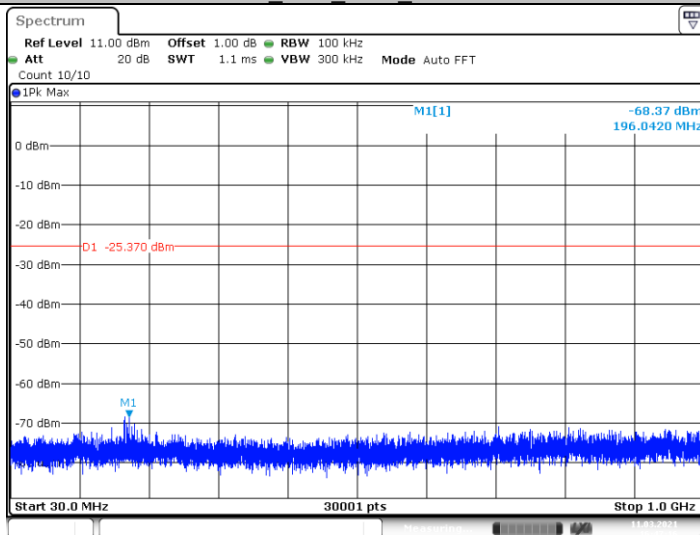


3DH5_Ant1_2480_0~Reference



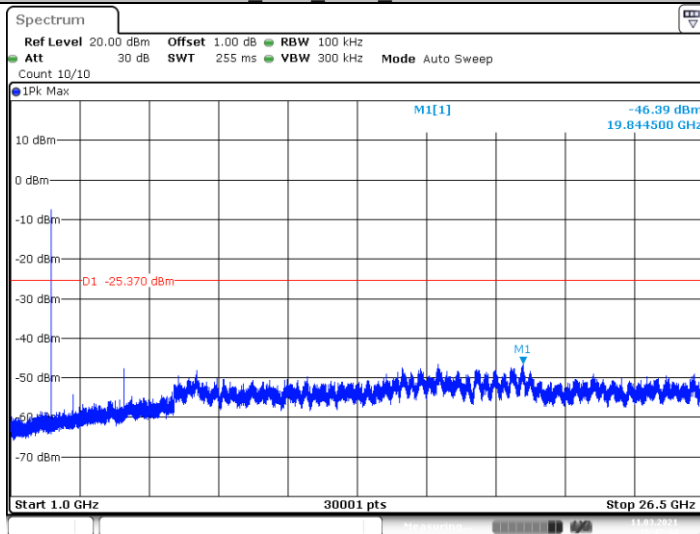
Date: 11.MAR.2021 16:47:07

3DH5_Ant1_2480_30~1000



Date: 11.MAR.2021 16:47:16

3DH5_Ant1_2480_1000~26500



Date: 11.MAR.2021 16:47:43

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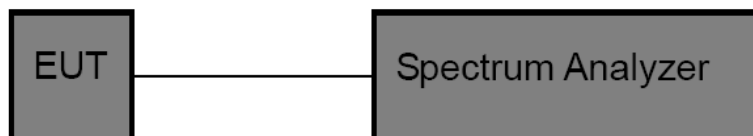


3.5. 20DB Bandwidth

Limit

N/A

Test Configuration



Test Procedure

5. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
6. OCB and 20dB Spectrum Setting:
 - (1) Set RBW = 1% ~ 5% occupied bandwidth.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

Note: The EUT was set to continuously transmitting in each mode and low, Middle and high channel for the test.

Test Mode

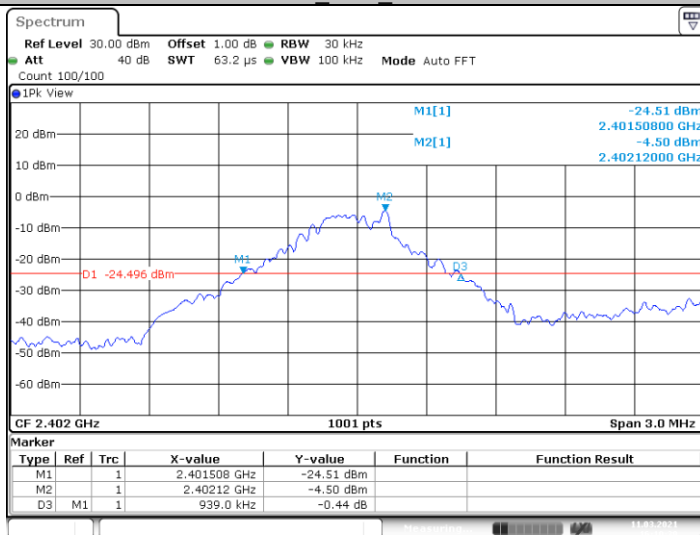
Please refer to the clause 2.4.

Test Results

Test Mode	Frequency (MHz)	20db EBW[MHz]	FL[MHz]	FH[MHz]	20dB Bandwidth *2/3 (kHz)	Verdict
GFSK	2402	0.939	2401.508	2402.447	626.00	PASS
	2441	0.981	2440.466	2441.447	654.00	PASS
	2480	0.933	2479.514	2480.447	622.00	PASS
$\pi/4$ -DQPSK	2402	1.353	2401.295	2402.648	902.00	PASS
	2441	1.353	2440.295	2441.648	902.00	PASS
	2480	1.353	2479.295	2480.648	902.00	PASS
8-DPSK	2402	1.341	2401.295	2402.636	894.00	PASS
	2441	1.308	2440.322	2441.630	872.00	PASS
	2480	1.311	2479.322	2480.633	874.00	PASS

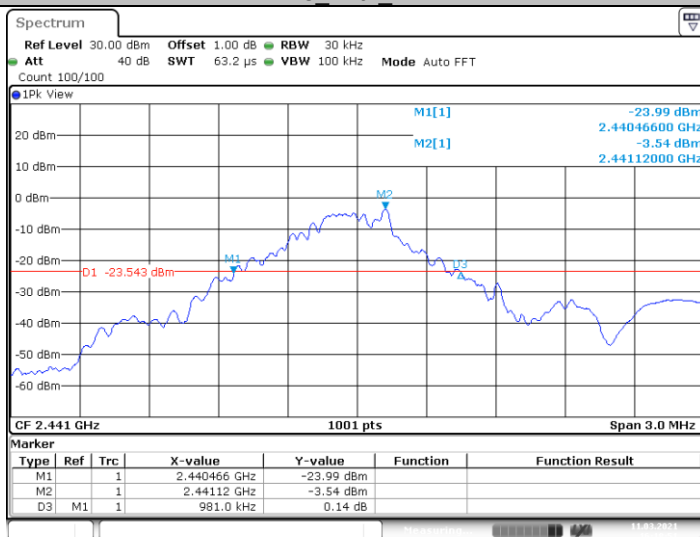


DH5_Ant1_2402



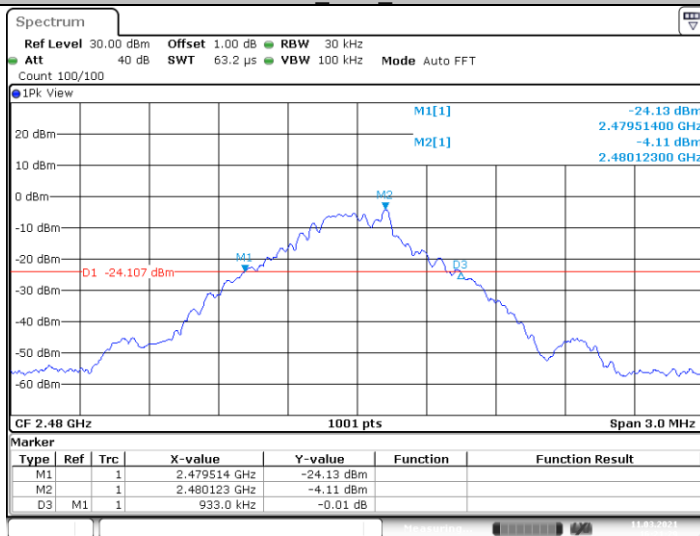
Date: 11.MAR.2021 16:10:39

DH5_Ant1_2441



Date: 11.MAR.2021 16:18:51

DH5_Ant1_2480



Date: 11.MAR.2021 16:21:29

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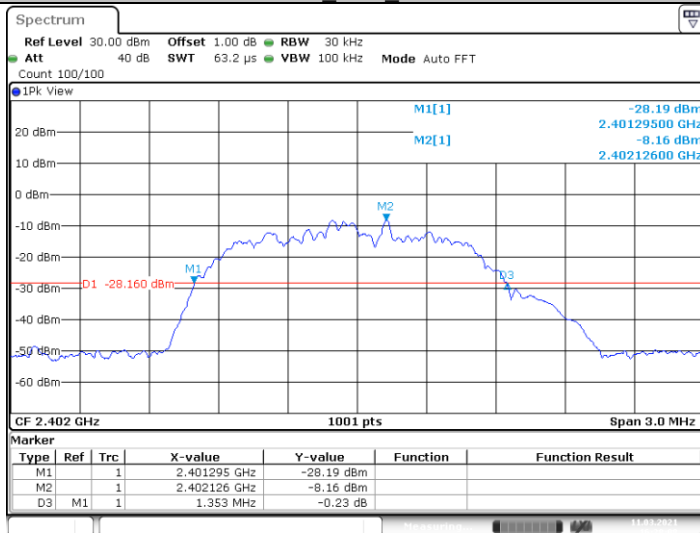
Fax: (86)755-27521011

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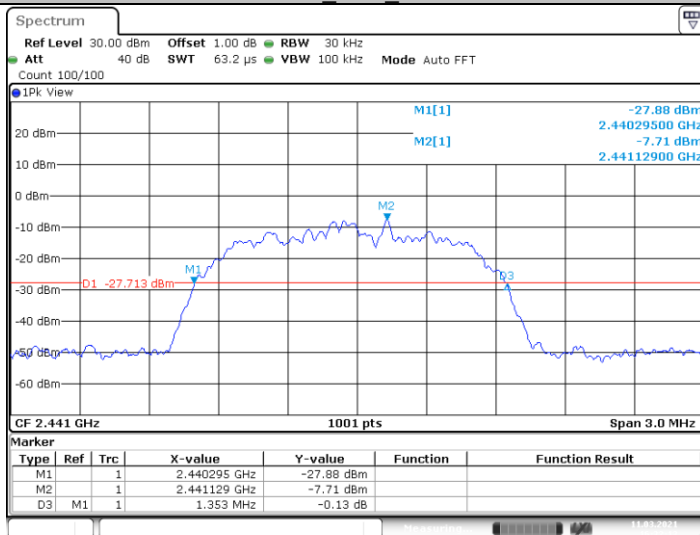


2DH5_Ant1_2402



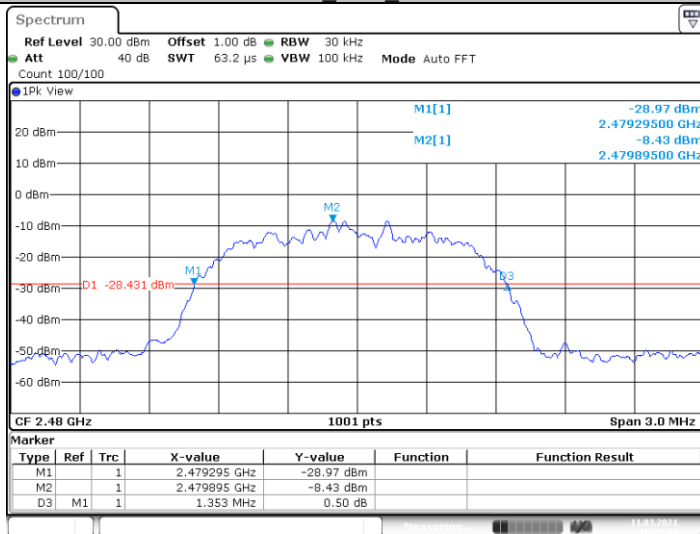
Date: 11.MAR.2021 16:28:08

2DH5_Ant1_2441



Date: 11.MAR.2021 16:32:13

2DH5_Ant1_2480



Date: 11.MAR.2021 16:35:14

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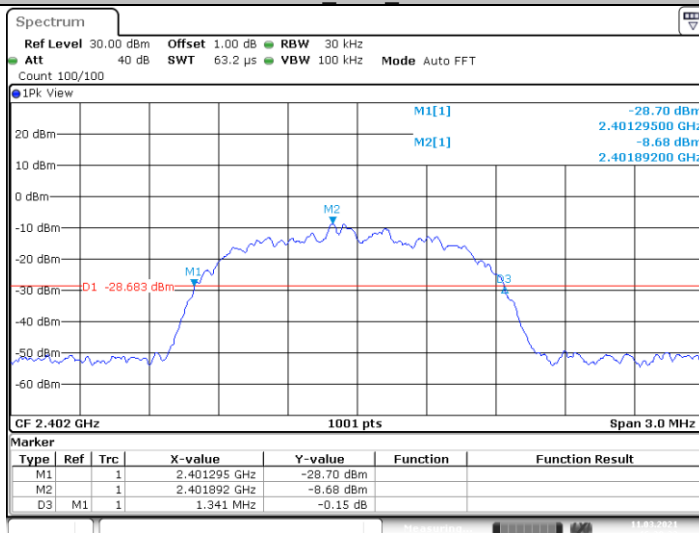
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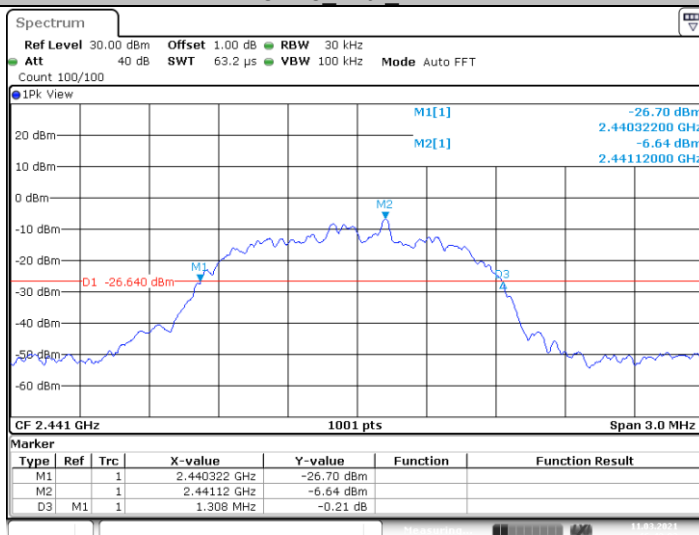


3DH5_Ant1_2402



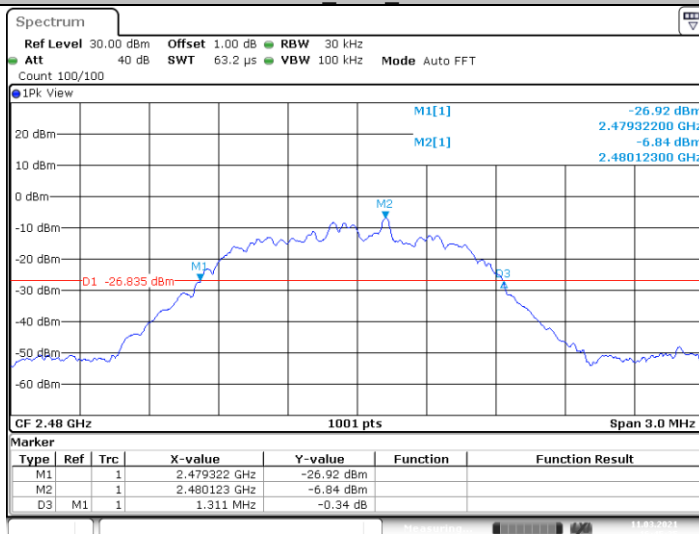
Date: 11.MAR.2021 16:39:22

3DH5_Ant1_2441



Date: 11.MAR.2021 16:43:01

3DH5_Ant1_2480



Date: 11.MAR.2021 16:45:35

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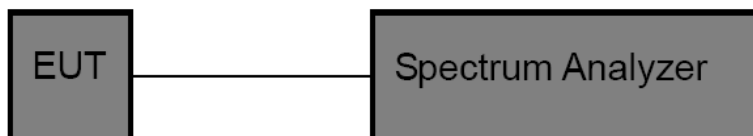
3.6. Channel Separation

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(1)/ RSS-247 5.1 b :

Test Item	Limit	Frequency Range(MHz)
Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth Which is greater	2400~2483.5

Test Configuration



Test Procedure

7. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
8. Spectrum Setting:
 - (1) Set RBW = 100 kHz.
 - (2) Set the video bandwidth (VBW) ≥ 3 RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

Test Mode

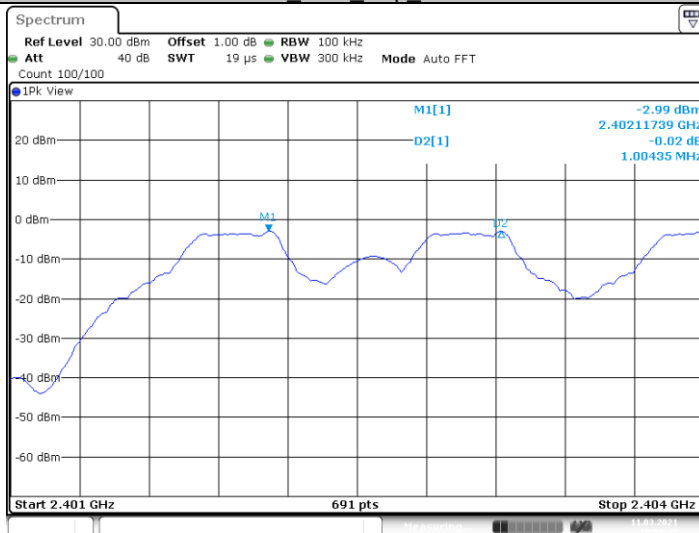
Please refer to the clause 2.4.

Test Results

Test Mode	Frequency(MHz)	Result[MHz]	Limit[MHz]	Verdict
GFSK	Hop_2402	1.004	≥ 0.981	PASS
	Hop_2441	0.970	≥ 0.654	PASS
	Hop_2480	1.029	≥ 0.981	PASS
$\pi/4$ -DQPSK	Hop_2402	1.000	≥ 0.902	PASS
	Hop_2441	1.091	≥ 0.902	PASS
	Hop_2480	0.989	≥ 0.902	PASS
8-DPSK	Hop_2402	1.004	≥ 0.894	PASS
	Hop_2441	1.000	≥ 0.894	PASS
	Hop_2480	1.000	≥ 0.894	PASS

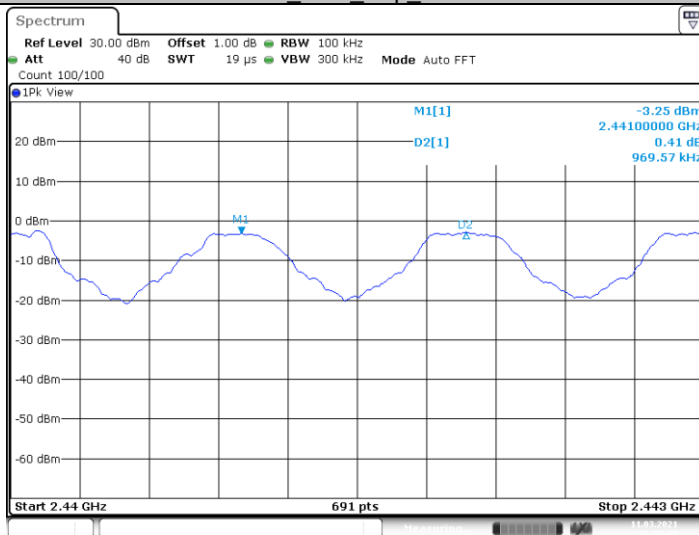


DH5_Ant1_Hop_2402



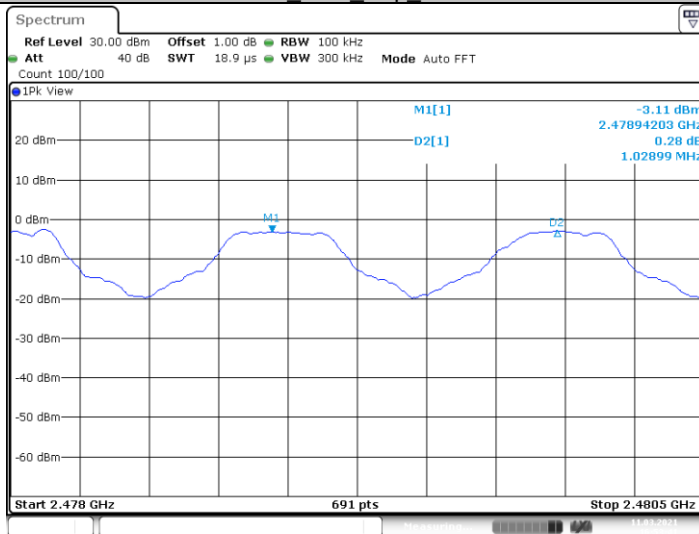
Date: 11.MAR.2021 16:50:45

DH5_Ant1_Hop_2441



Date: 11.MAR.2021 16:52:09

DH5_Ant1_Hop_2480



Date: 11.MAR.2021 16:53:41

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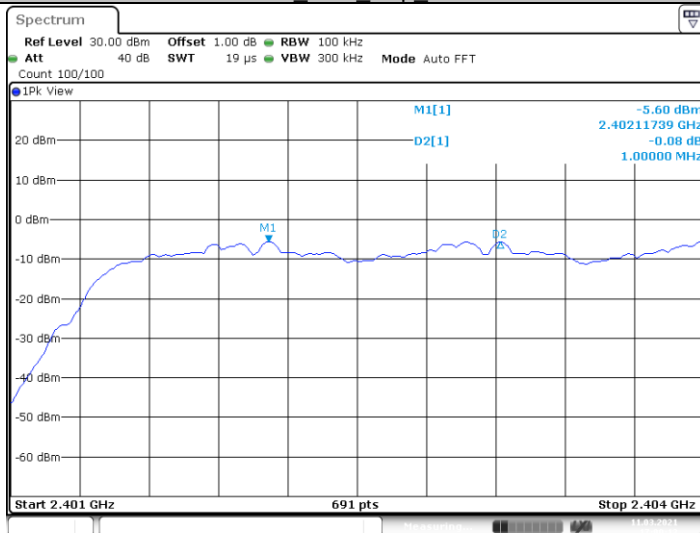
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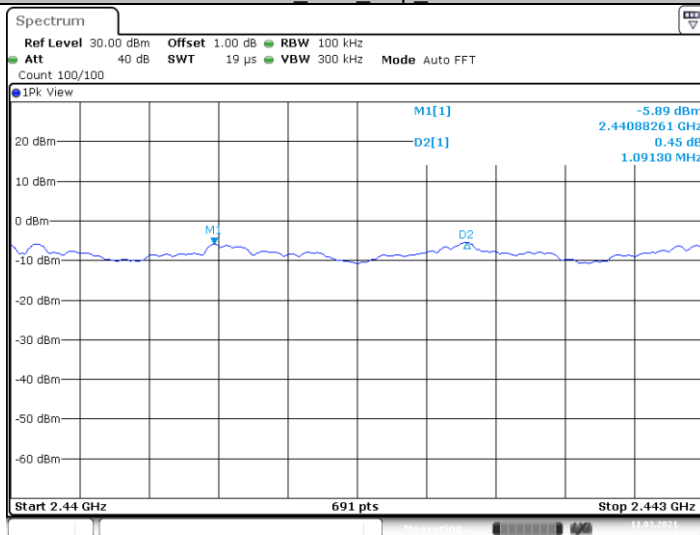


2DH5 Ant1 Hop 2402



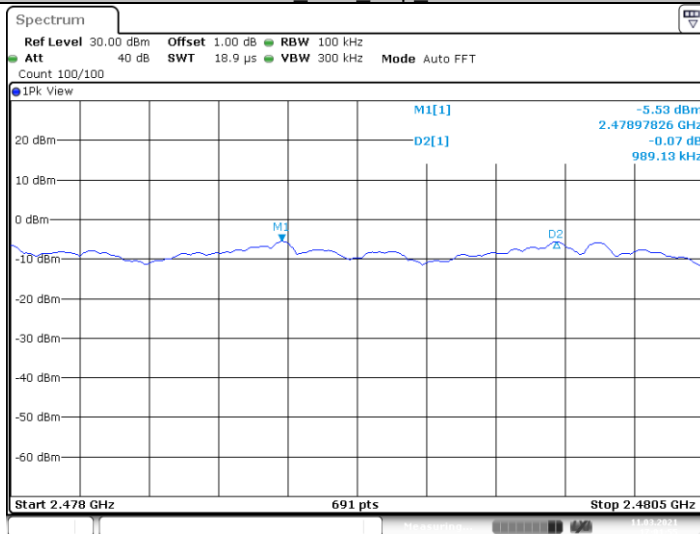
Date: 11.MAR.2021 17:00:13

2DH5 Ant1 Hop 2441



Date: 11.MAR.2021 17:01:18

2DH5 Ant1 Hop 2480



Date: 11.MAR.2021 17:01:55

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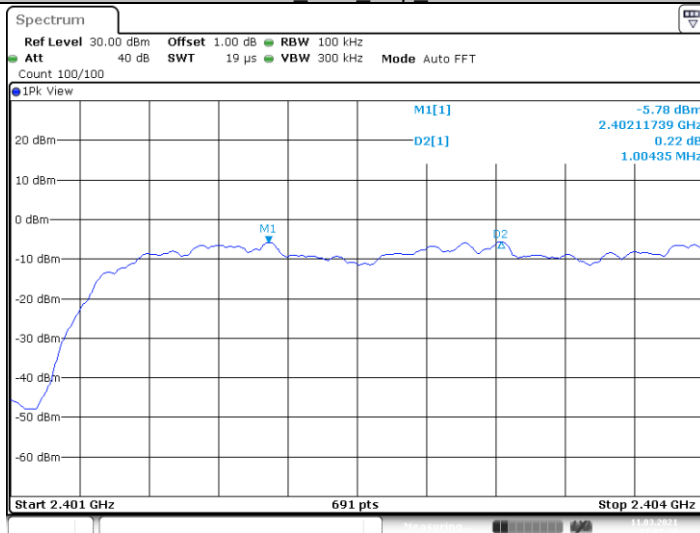
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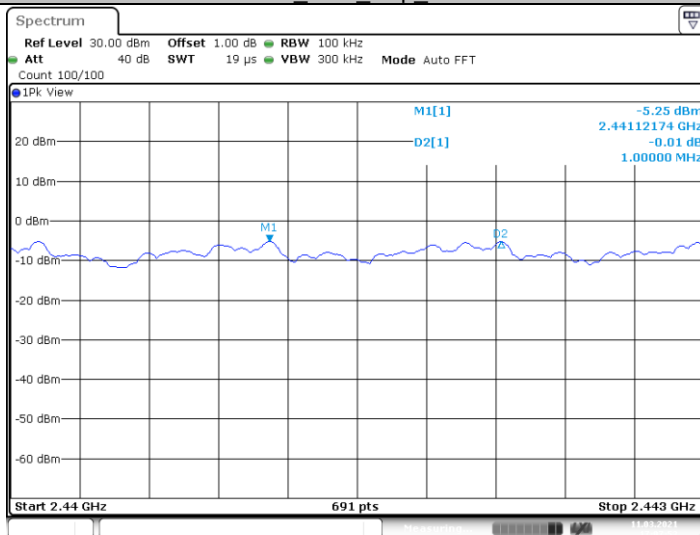


3DH5 Ant1 Hop 2402



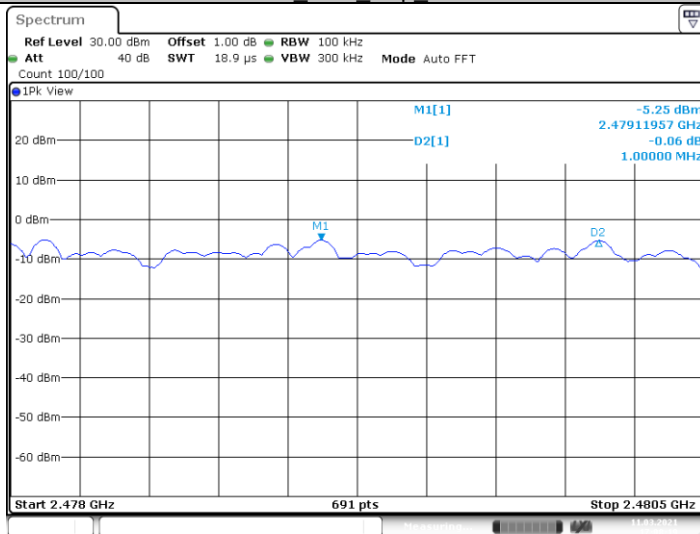
Date: 11.MAR.2021 17:07:10

3DH5 Ant1 Hop 2441



Date: 11.MAR.2021 17:07:53

3DH5 Ant1 Hop 2480



Date: 11.MAR.2021 17:08:18

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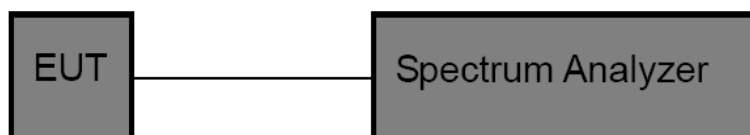
3.7. Number of Hopping Channel

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (a)(iii)/ RSS-247 5.1 d:

Section	Test Item	Limit
15.247 (a)(iii)/ RSS-247 5.1 d:	Number of Hopping Channel	>15

Test Configuration



Test Procedure

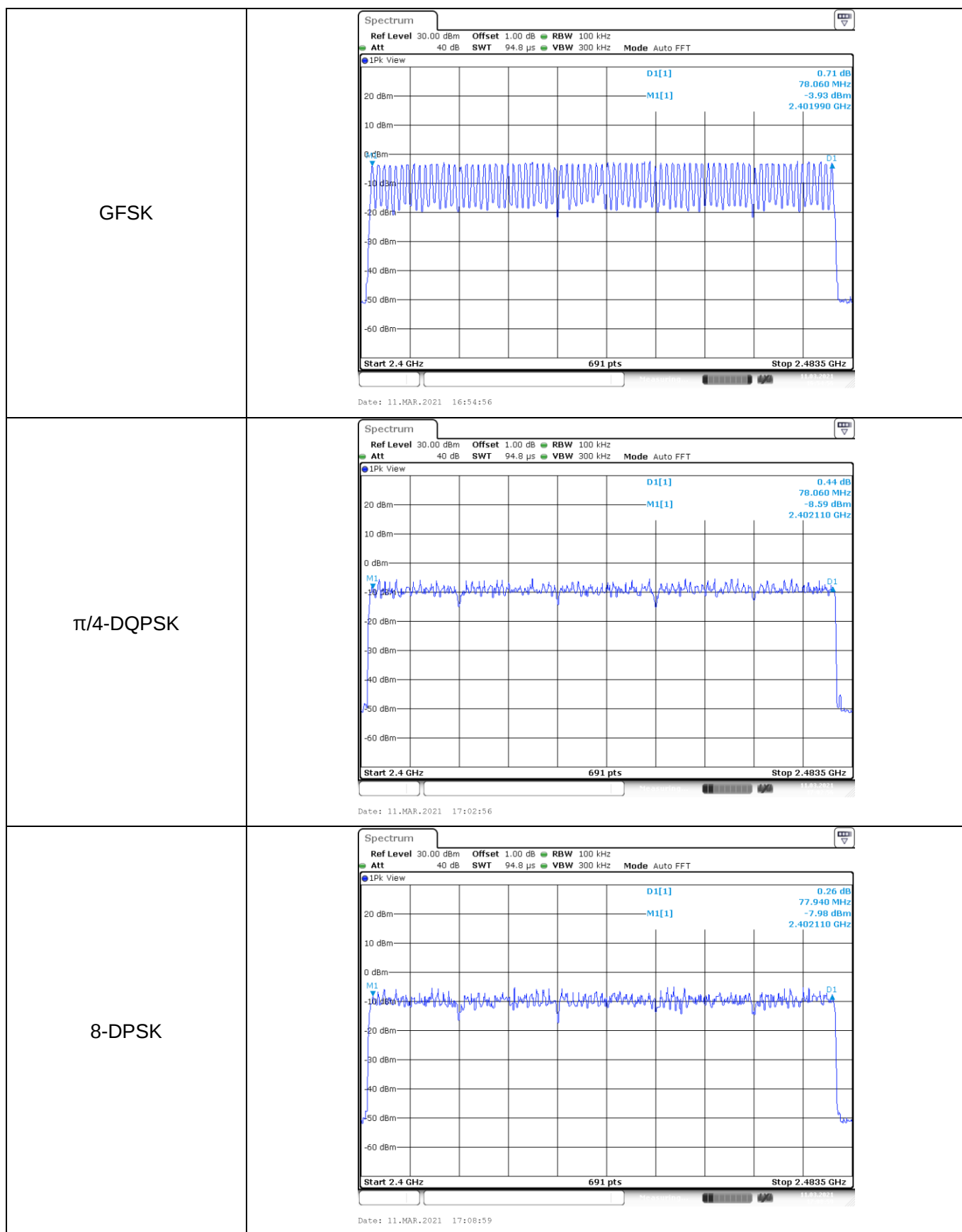
1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
 - (1) Peak Detector: RBW=100 kHz, VBW $\geq$ RBW, Sweep time= Auto.

Test Mode

Please refer to the clause 2.4.

Test Result

Modulation type	Channel number	Limit	Result
GFSK	79	≥ 15.00	Pass
$\pi/4$ -DQPSK	79		
8DPSK	79		



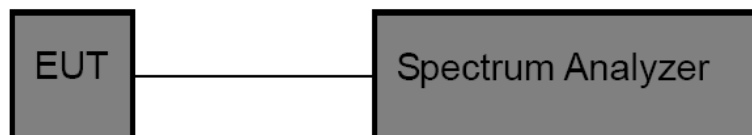


3.8. Dwell Time

Limit

Section	Test Item	Limit
15.247(a)(iii)/ RSS-247 5.1 d	Average Time of Occupancy	0.4 sec

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
 - (1) Spectrum Setting: RBW=1MHz, VBW $\geq$ RBW.
 - (2) Use video trigger with the trigger level set to enable triggering only on full pulses.
 - (3) Sweep Time is more than once pulse time.
 - (4) Set the center frequency on any frequency would be measure and set the frequency span to zero.
 - (5) Measure the maximum time duration of one single pulse.
 - (6) Set the EUT for packet transmitting.

Test Mode

Please refer to the clause 2.4.

**Test Result**

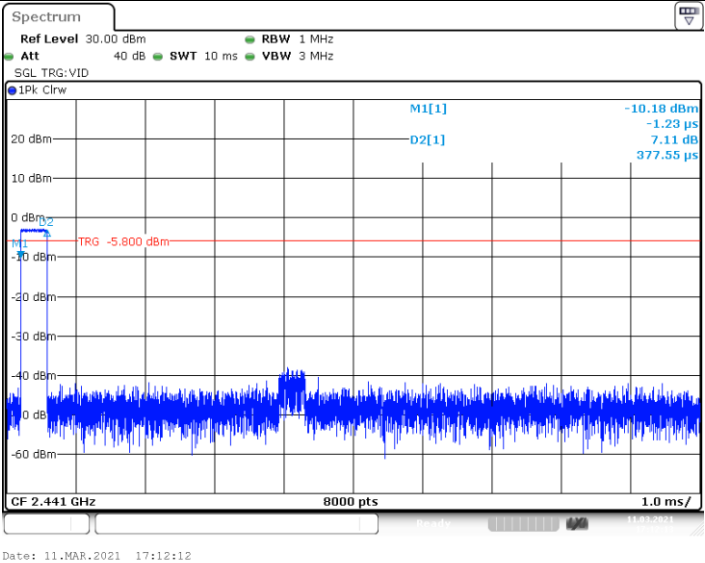
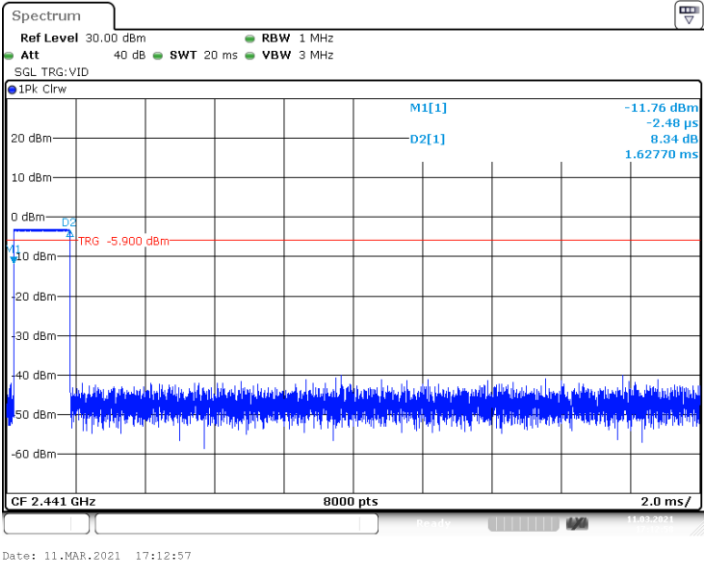
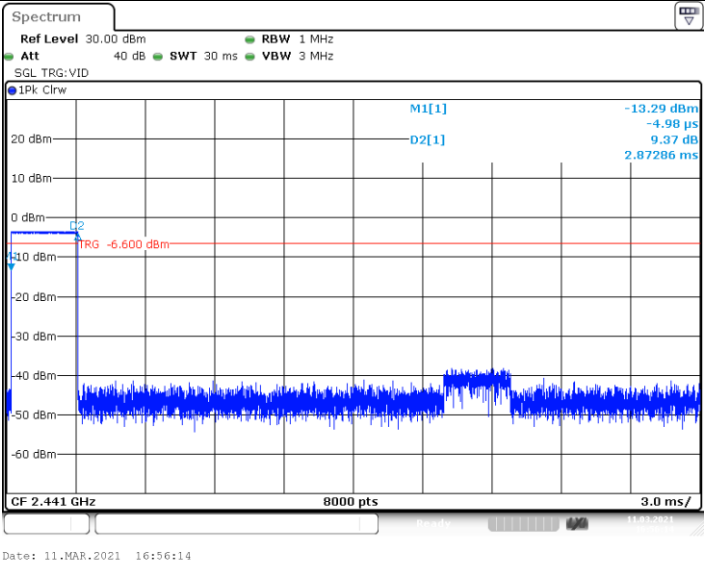
Modulation type	Channel	Frequency (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (ms)	Limit (Second)	Result
GFSK	DH1	2441	0.38	121.60	31.60	≤ 0.40	Pass
	DH3	2441	1.63	260.80	31.60		
	DH5	2441	2.87	306.13	31.60		
$\pi/4$ -DQPSK	2DH1	2441	0.38	121.60	31.60	≤ 0.40	Pass
	2DH3	2441	1.63	260.80	31.60		
	2DH5	2441	2.88	307.20	31.60		
8-DPSK	3DH1	2441	0.38	121.60	31.60	≤ 0.40	Pass
	3DH3	2441	1.63	260.80	31.60		
	3DH5	2441	2.88	307.20	31.60		

Note: 1DH1/2DH1/3DH1 Total of Dwell= Pulse Time*(1600/2)*31.6/79

1DH3/2DH3/3DH3 Total of Dwell= Pulse Time*(1600/4)*31.6/79

1DH5/2DH5/3DH5 Total of Dwell= Pulse Time*(1600/6)*31.6/79



Modulation Type:		GFSK
DH1		
DH3		
DH5		

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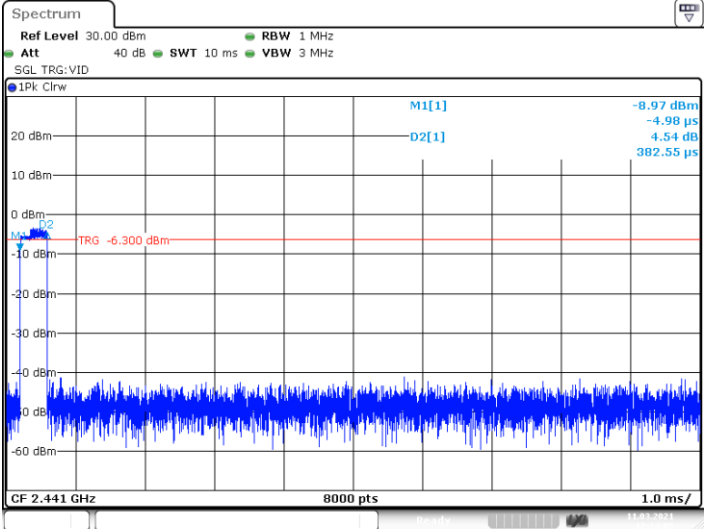
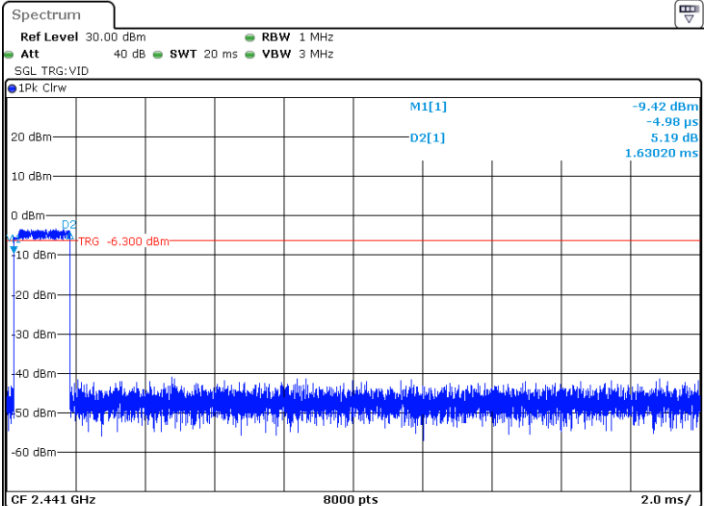
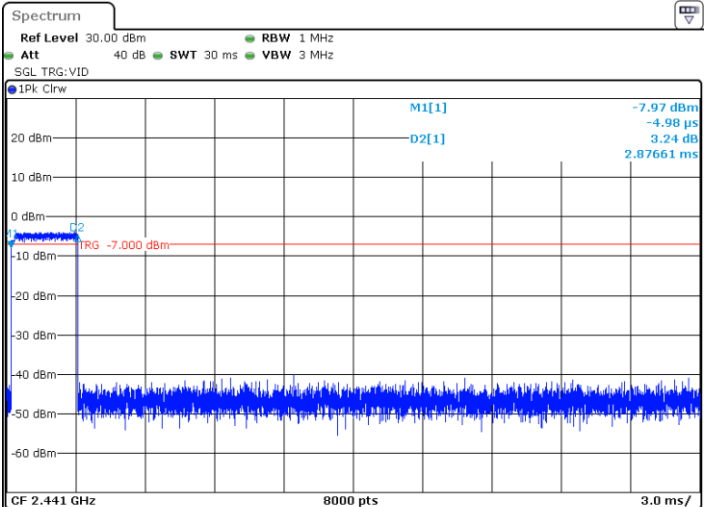
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Modulation Type:	$\pi/4$ -DQPSK
2DH1	 Date: 11.MAR.2021 17:14:05
2DH3	 Date: 11.MAR.2021 17:14:44
2DH5	 Date: 11.MAR.2021 17:03:11

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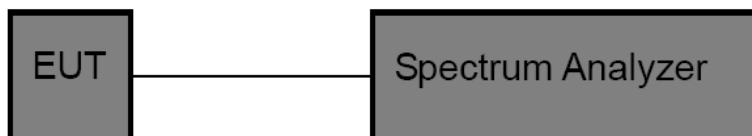
3.9. Peak Output Power

Limit

FCC CFR Title 47 Part 15 Subpart C Section 15.247 (b)(1) / RSS-247 5.4 b:

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	Hopping Channels>75 Power<1W(30dBm) Other <125mW(21dBm)	2400~2483.5

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. Spectrum Setting:
 - (1) Set RBW> 20DB Bandwidth.
 - (2) Set the video bandwidth (VBW) ≥ RBW.
 - (3) Detector = Peak.
 - (4) Trace mode = Max hold.
 - (5) Sweep = Auto couple.

Test Mode

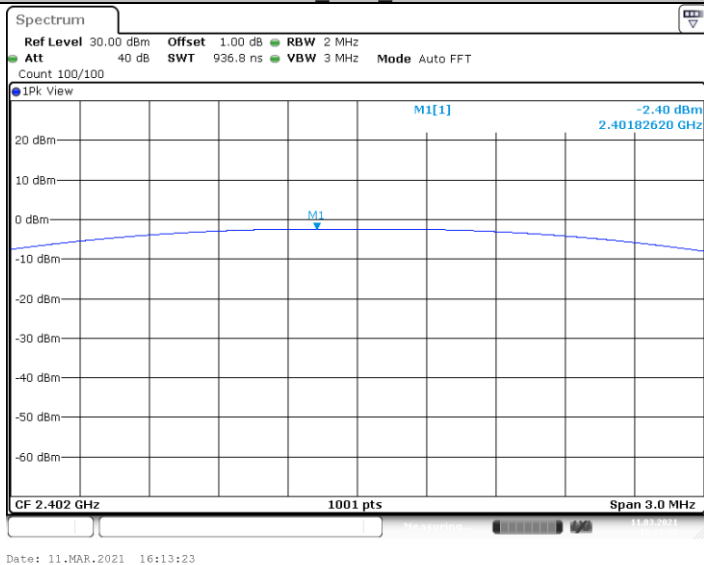
Please refer to the clause 2.4.

Test Result

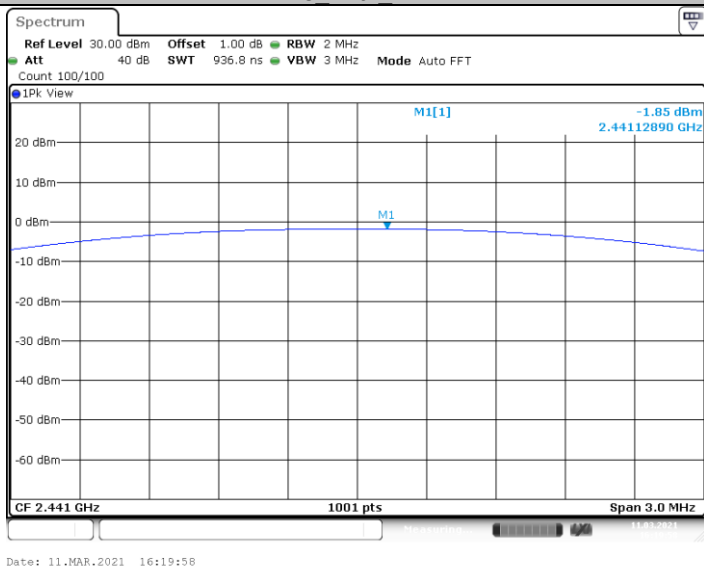
Test Mode	Frequency (MHz)	Result[dBm]	Limit[dBm]	Verdict
GFSK	2402	-2.40	<=30	PASS
	2441	-1.85	<=30	PASS
	2480	-2.01	<=30	PASS
π/4-DQPSK	2402	-2.73	<=30	PASS
	2441	-2.06	<=30	PASS
	2480	-2.64	<=30	PASS
8-DPSK	2402	-2.66	<=30	PASS
	2441	-2.22	<=30	PASS
	2480	-1.80	<=30	PASS



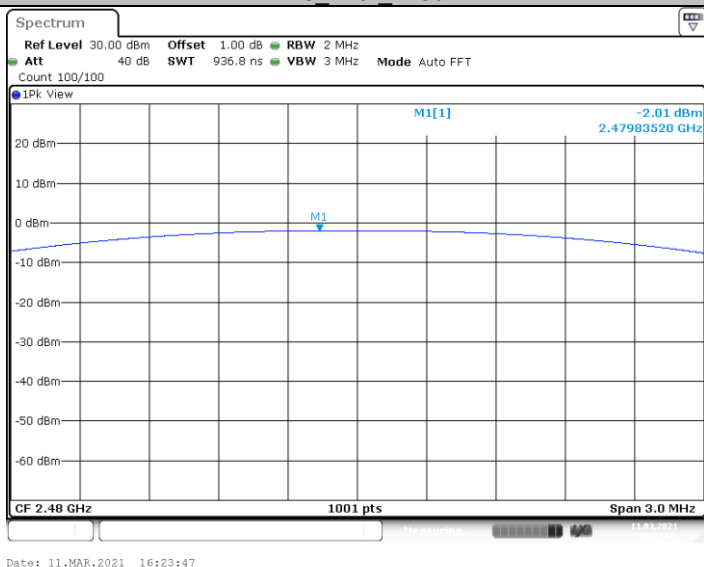
DH5_Ant1_2402



DH5_Ant1_2441



DH5_Ant1_2480



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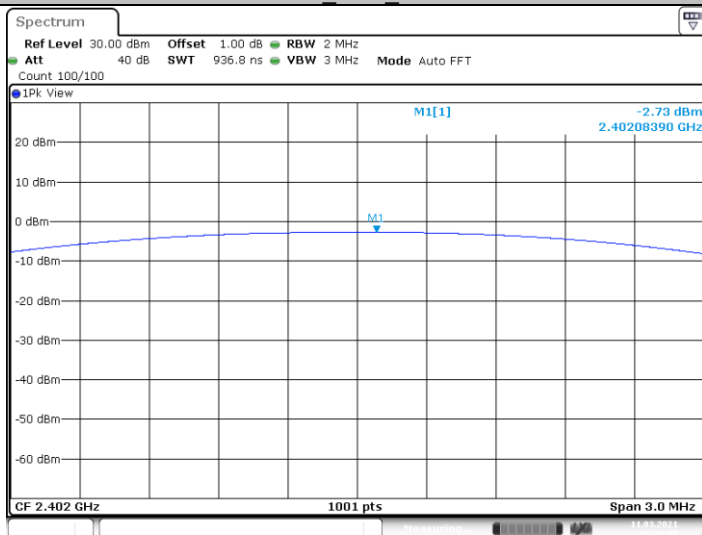
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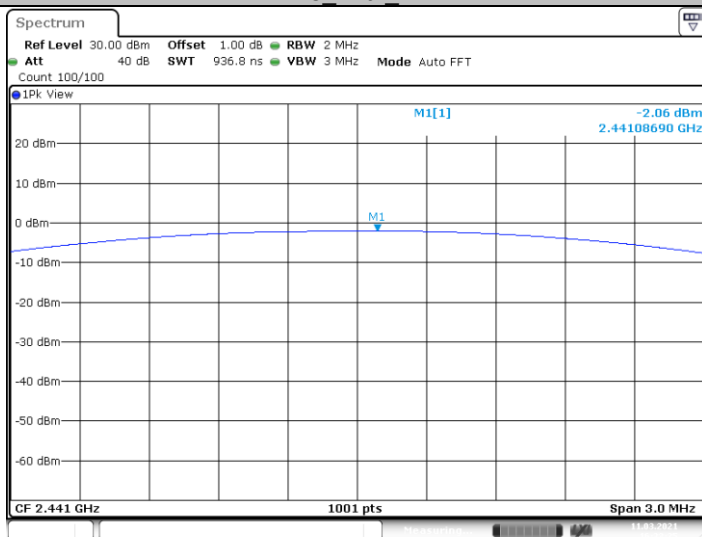


2DH5_Ant1_2402



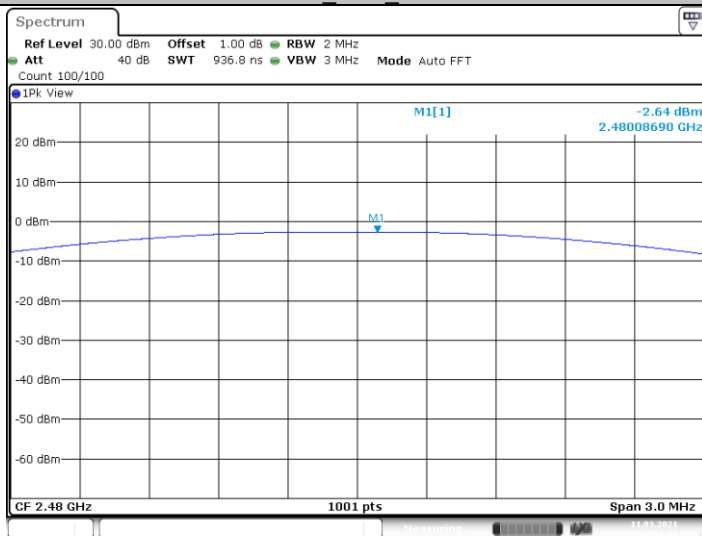
Date: 11.MAR.2021 16:30:55

2DH5_Ant1_2441



Date: 11.MAR.2021 16:33:25

2DH5_Ant1_2480



Date: 11.MAR.2021 16:37:31

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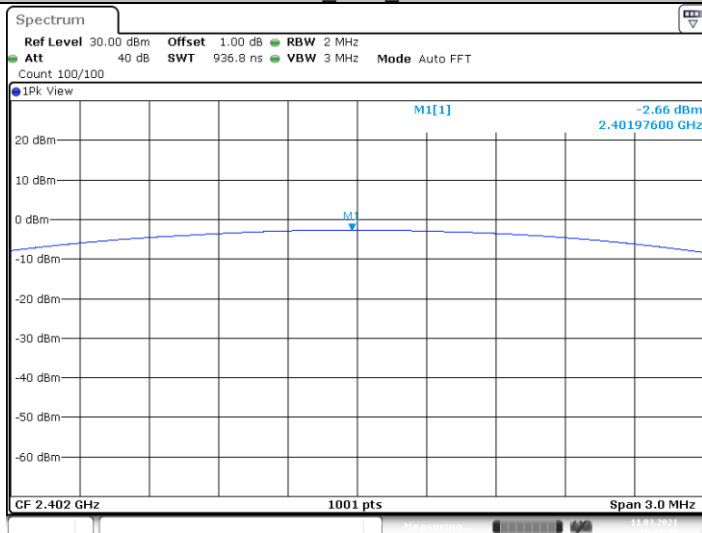
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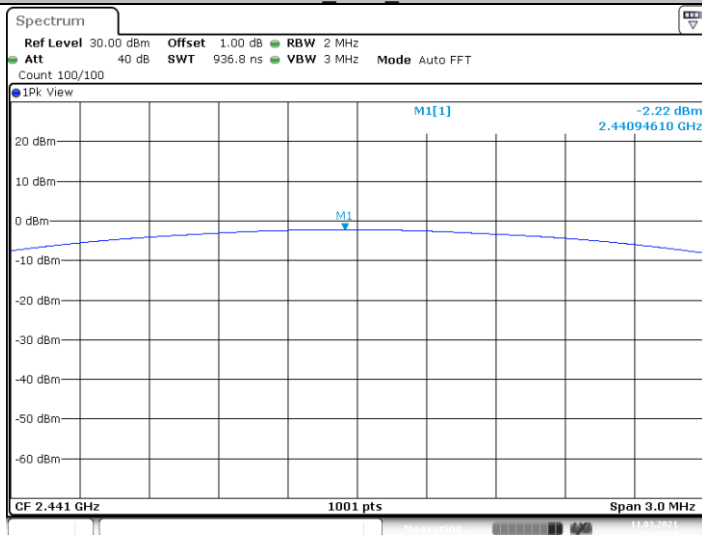


3DH5_Ant1_2402



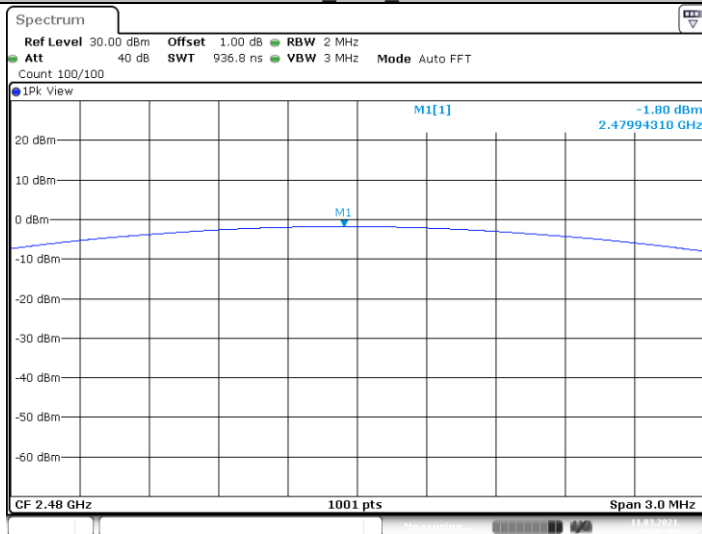
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3DH5_Ant1_2441



Date: 11.MAR.2021 16:44:11

3DH5_Ant1_2480



Date: 11.MAR.2021 16:47:52

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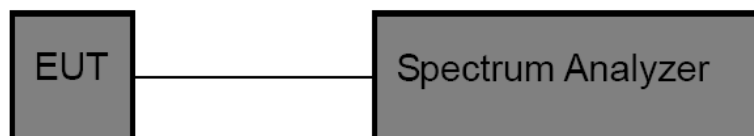


3.10. Duty Cycle

Limit

None, for report purposes only.

Test Configuration



Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
2. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram above. The measurement according to section 10.2 of KDB 558074 D01 DTS Meas Guidance v05r02.
3. Spectrum Setting:
Set analyzer center frequency to test channel center frequency.
Set the span to 0Hz
Set the RBW to 10MHz
Set the VBW to 10MHz
Detector: Peak
Sweep time: Auto
Allow trace to fully stabilize. Then use the peak marker function to determine the maximum amplitude level.

Test Mode

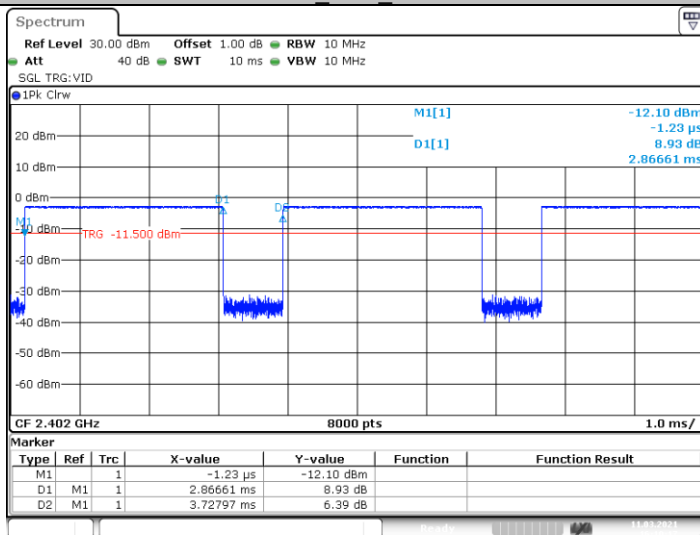
Please refer to the clause 2.4.

Test Result

Test Mode	Frequency (MHz)	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T Minimum VBW (kHz)	Final setting For VBW (kHz)
GFSK	2402	2.87	3.73	76.89	0.35	1
	2441	2.87	3.73	76.89	0.35	1
	2480	2.87	3.73	76.92	0.35	1
$\pi/4$ -DQPSK	2402	2.87	3.73	76.95	0.35	1
	2441	2.87	3.73	76.95	0.35	1
	2480	2.87	3.73	76.95	0.35	1
8-DPSK	2402	2.87	3.73	77.03	0.35	1
	2441	2.87	3.73	77.00	0.35	1
	2480	2.87	3.73	77.02	0.35	1

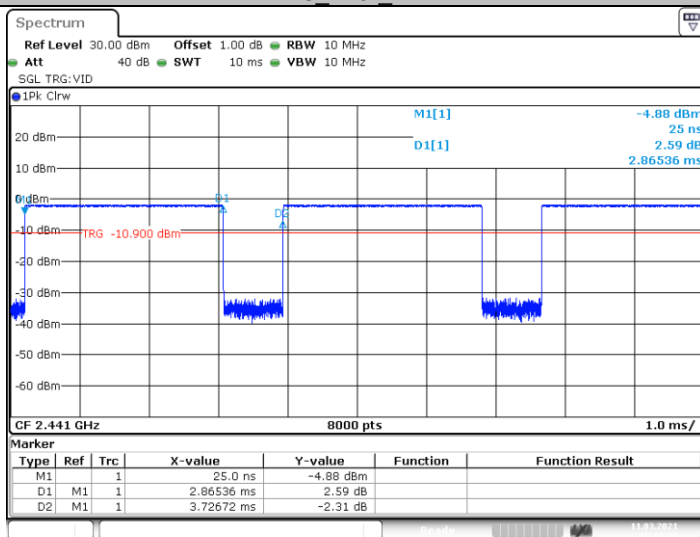


DH5_Ant1_2402



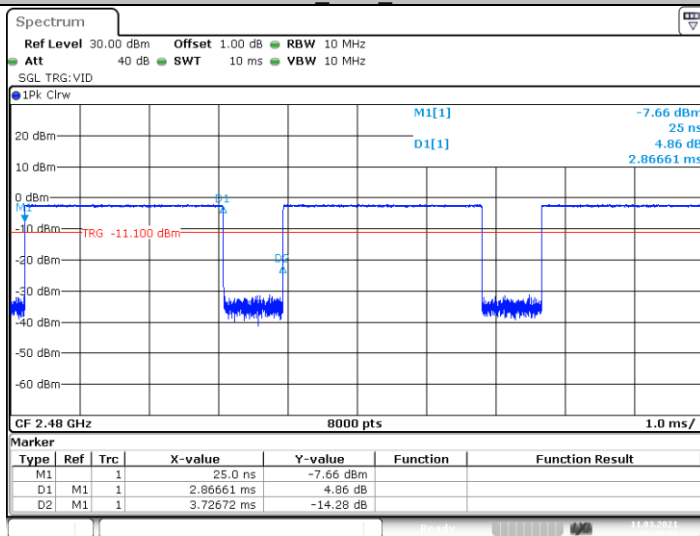
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DH5_Ant1_2441



Date: 11.MAR.2021 16:18:22

DH5_Ant1_2480



Date: 11.MAR.2021 16:20:59

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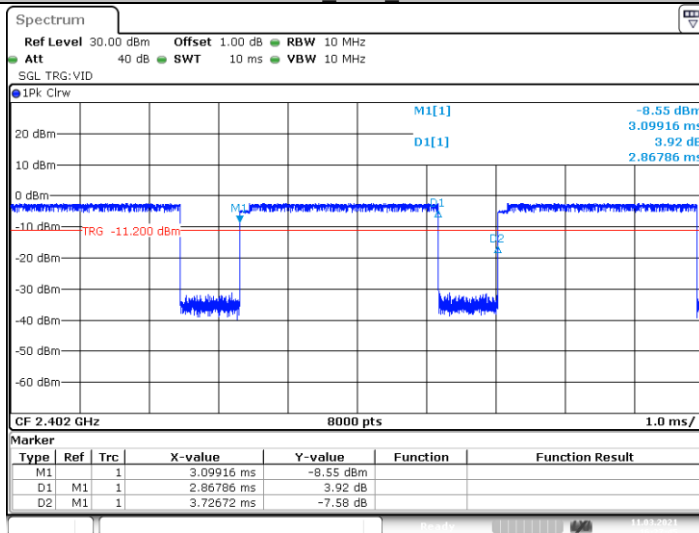
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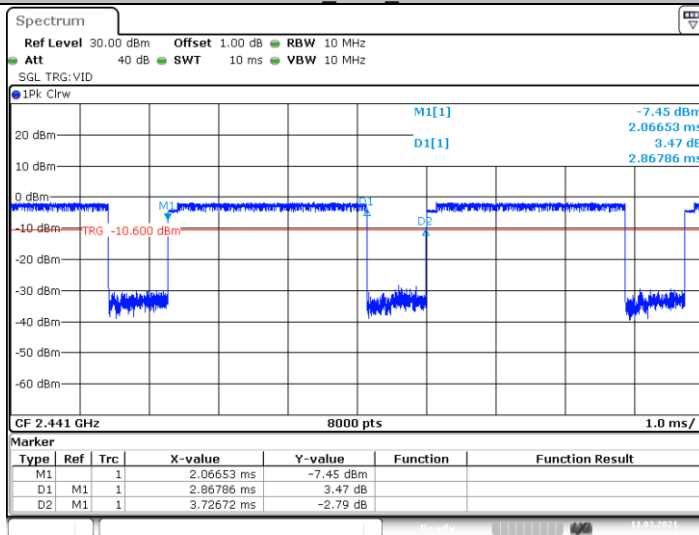


2DH5_Ant1_2402



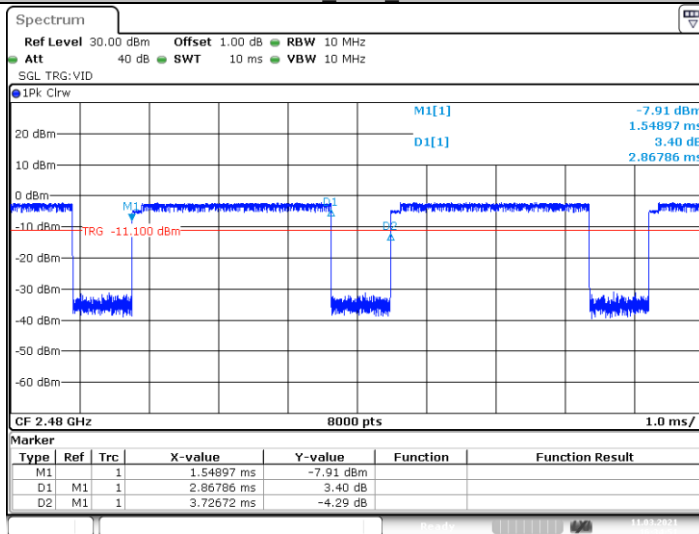
Date: 11.MAR.2021 16:27:45

2DH5_Ant1_2441



Date: 11.MAR.2021 16:31:50

2DH5_Ant1_2480



Date: 11.MAR.2021 16:34:50

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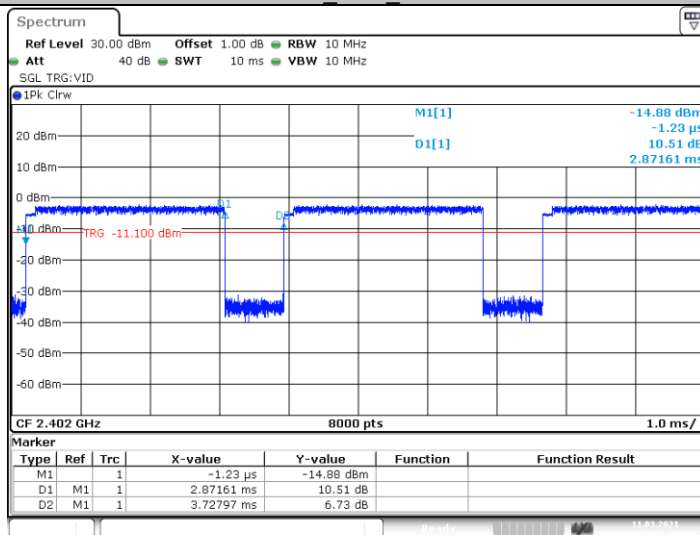
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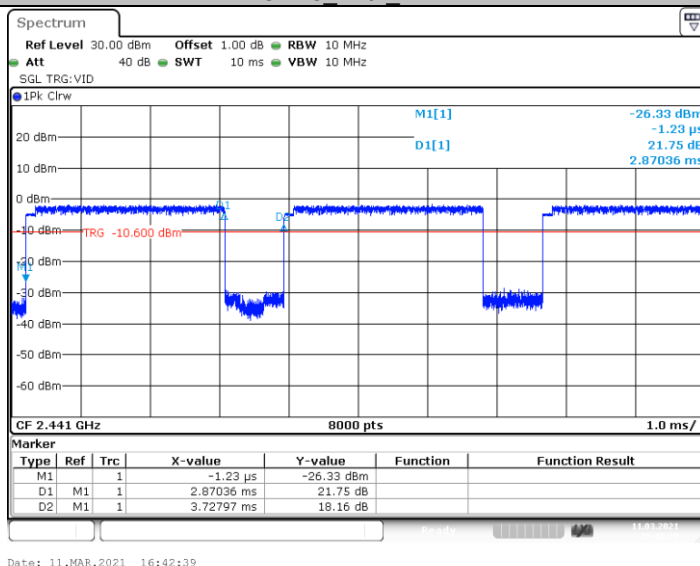
For anti-fake verification, please visit the official website of Certification and Accreditation Administration of the People's Republic of China : yz.cnca.cn



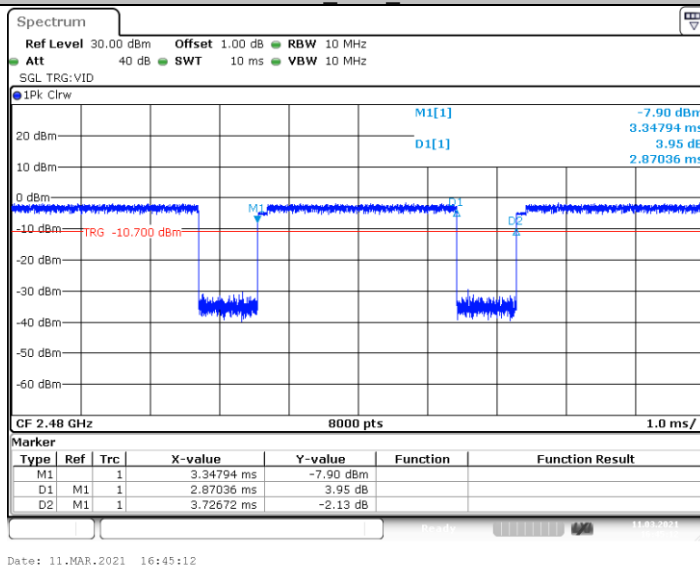
3DH5_Ant1_2402



3DH5_Ant1_2441



3DH5_Ant1_2480



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3.11. Antenna Requirement

Requirement

FCC CFR Title 47 Part 15 Subpart C Section 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 antenna that uses a unique coupling to the intentional radiator, 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.

FCC CFR Title 47 Part 15 Subpart C Section 15.247(c) (1)(i):

(i) Systems operating in the 2400~2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

Test Result

The test result is PASS, because the directional gain of the antenna less than 6dBi, please refer to the EUT internal photographs antenna photo.

*****THE END*****