

Appendix A

RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)

Product Name: 5 inch 4G Smart Phone

Trade Mark: LOGIC, iSWAG, UNONU

Test Model: L50T

Environmental Conditions

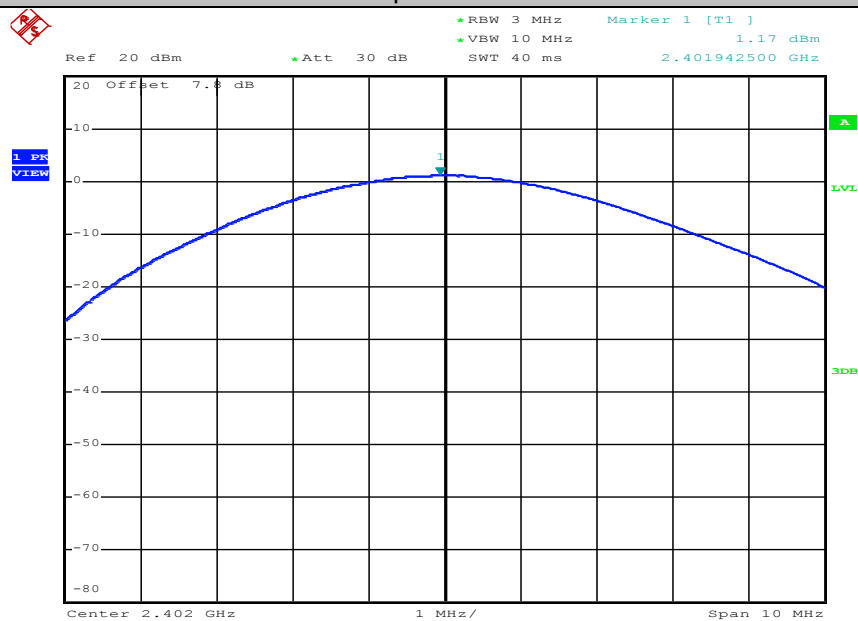
Temperature:	24.5 ° C
Relative Humidity:	54.4%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang.Chuang
Supervised by:	TOM.LIU

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	1.170	30	PASS
	MCH	-0.110	30	PASS
	HCH	-0.170	30	PASS
$\pi/4$ DQPSK	LCH	0.440	21	PASS
	MCH	-0.910	21	PASS
	HCH	-0.940	21	PASS
8DPSK	LCH	0.470	21	PASS
	MCH	-0.880	21	PASS
	HCH	-0.720	21	PASS

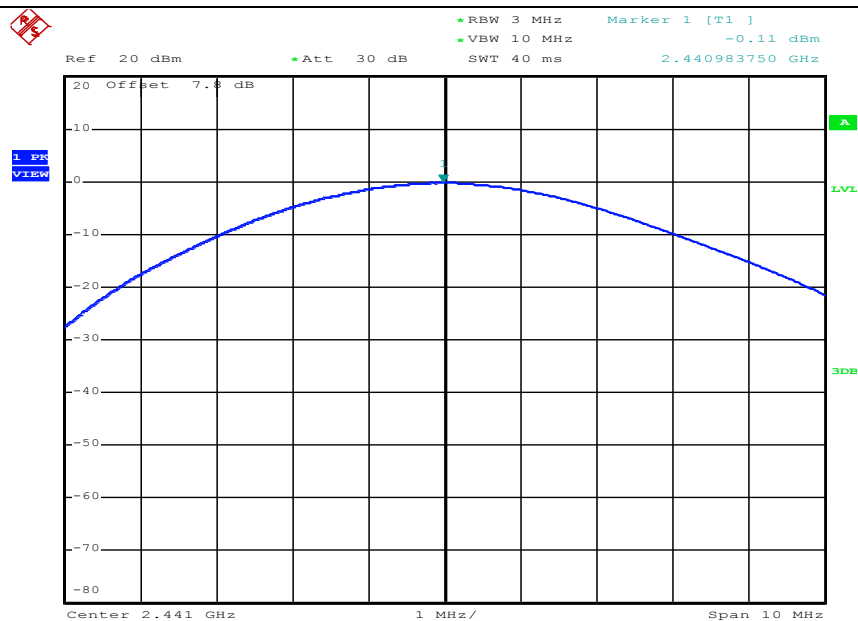
Test Graphs

GFSK/LCH



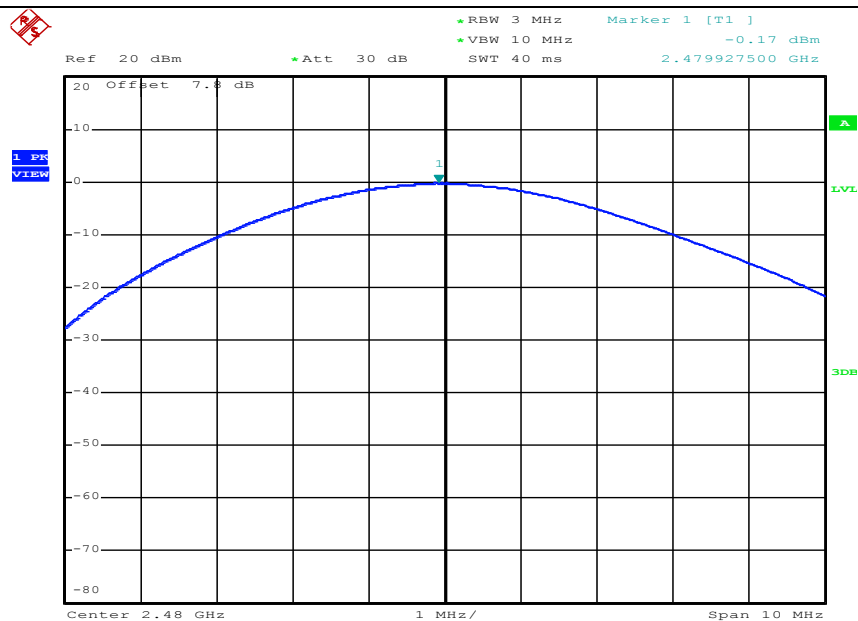
Date: 30.SEP.2019 16:01:36

GFSK/MCH

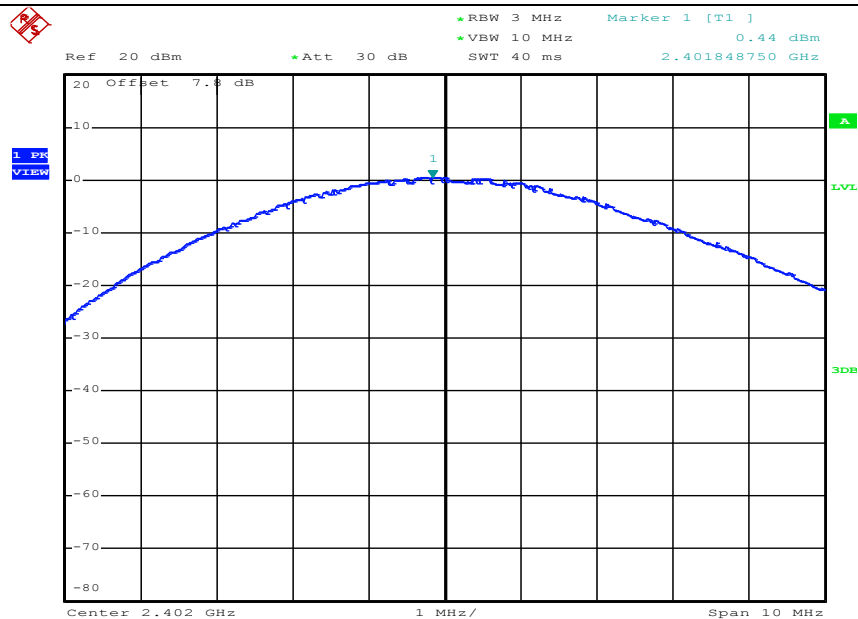


Date: 30.SEP.2019 16:04:26

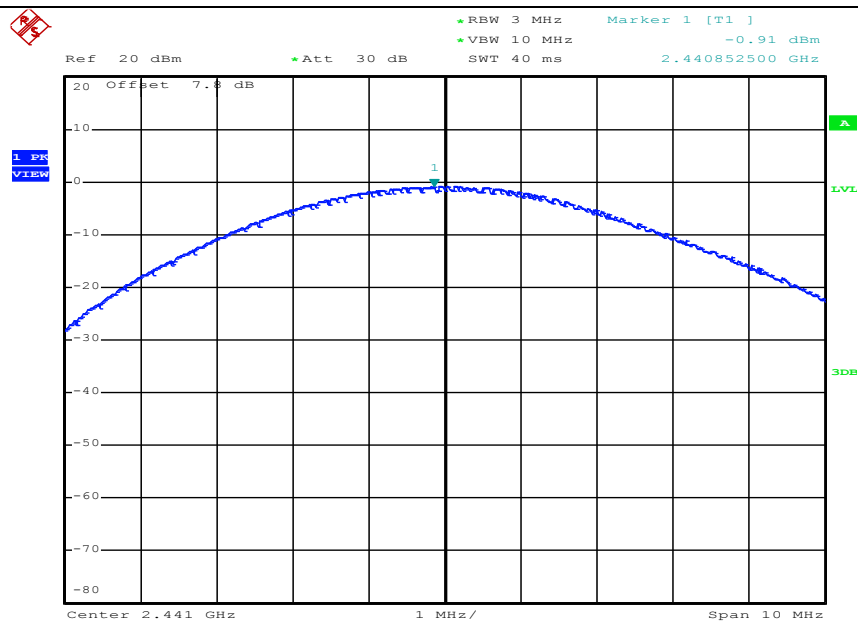
GFSK/HCH



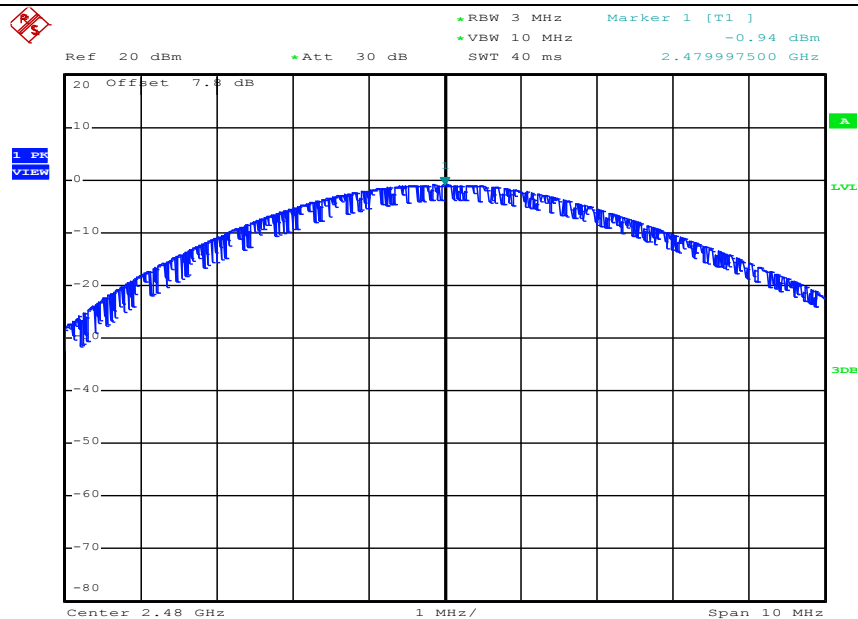
Date: 30.SEP.2019 16:06:19

 $\pi/4$ DQPSK/LCH

Date: 30.SEP.2019 16:08:59

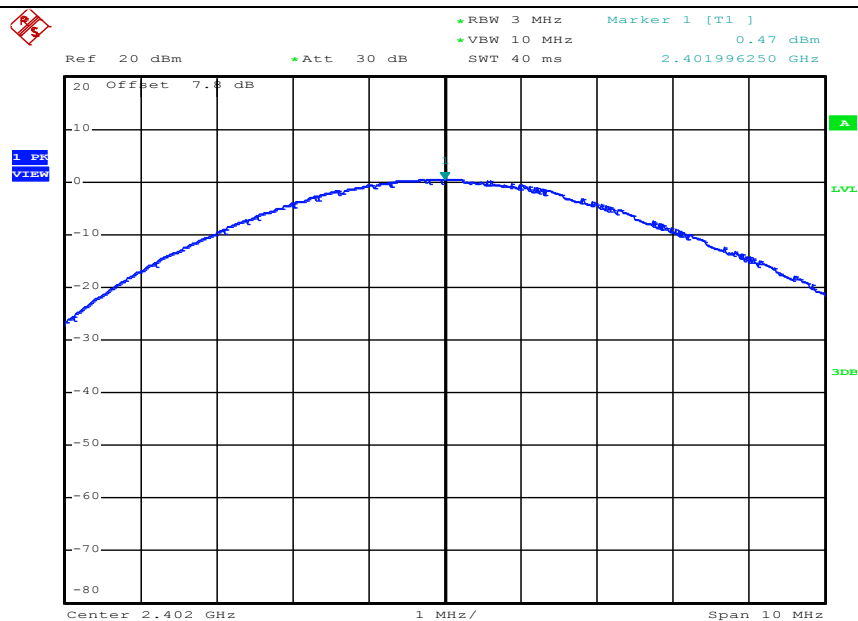
$\pi/4$ DQPSK/MCH

Date: 30.SEP.2019 16:11:29

 $\pi/4$ DQPSK/HCH

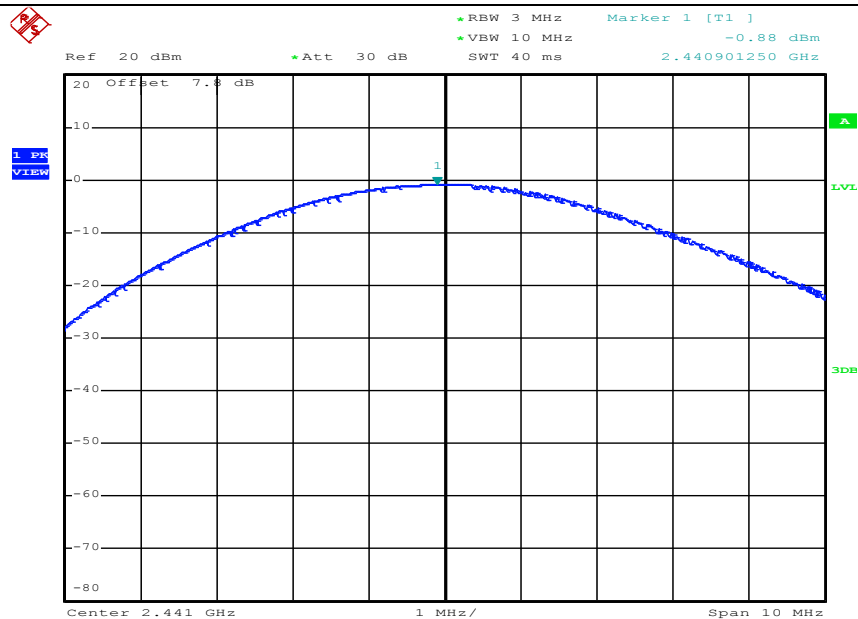
Date: 30.SEP.2019 16:13:34

8DPSK/LCH



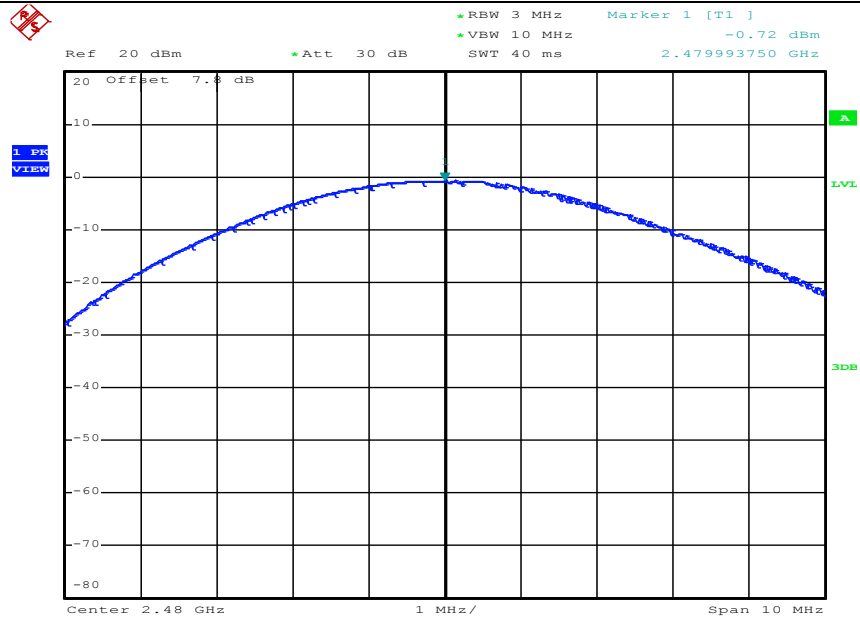
Date: 30.SEP.2019 16:17:19

8DPSK/MCH



Date: 30.SEP.2019 16:20:16

8DPSK/HCH



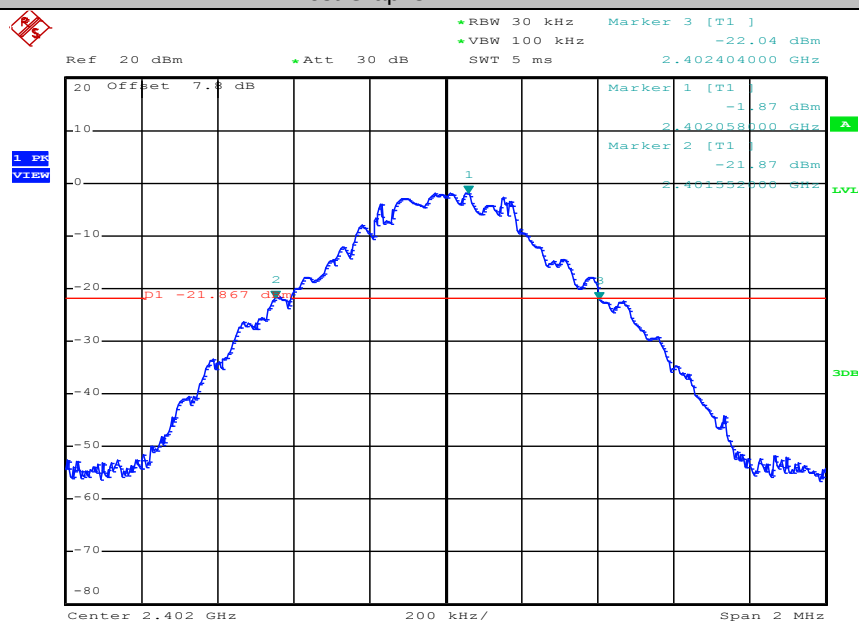
Date: 30.SEP.2019 16:21:59

A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.852	Not Specified	PASS
	MCH	0.858	Not Specified	PASS
	HCH	0.860	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.260	Not Specified	PASS
	MCH	1.264	Not Specified	PASS
	HCH	1.106	Not Specified	PASS
8DPSK	LCH	1.258	Not Specified	PASS
	MCH	1.264	Not Specified	PASS
	HCH	1.258	Not Specified	PASS

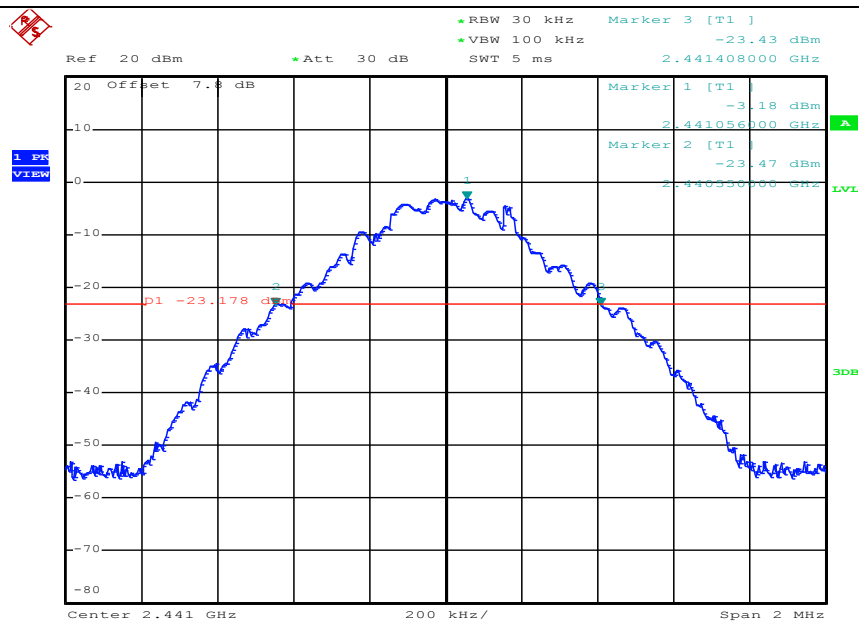
Test Graphs

GFSK/LCH



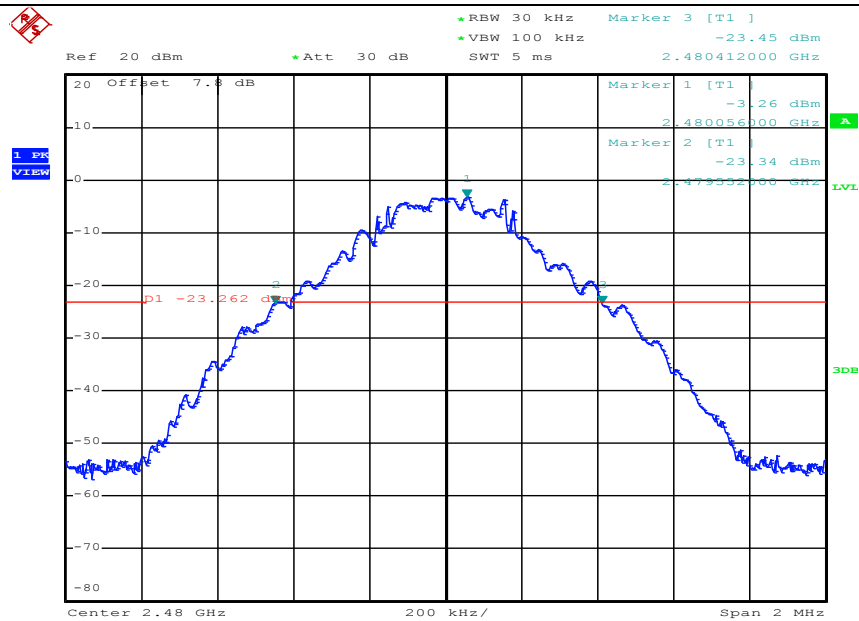
Date: 30.SEP.2019 16:01:00

GFSK/MCH

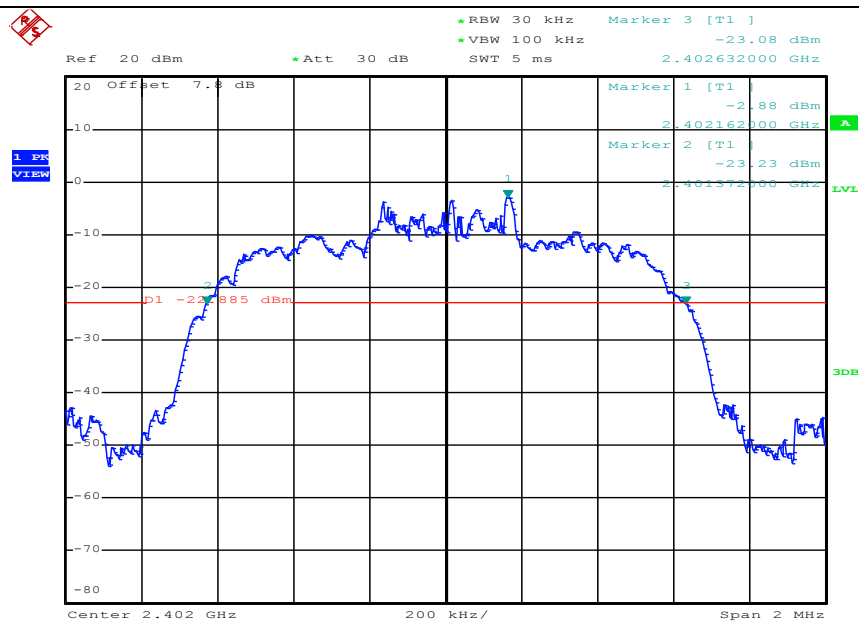


Date: 30.SEP.2019 16:03:49

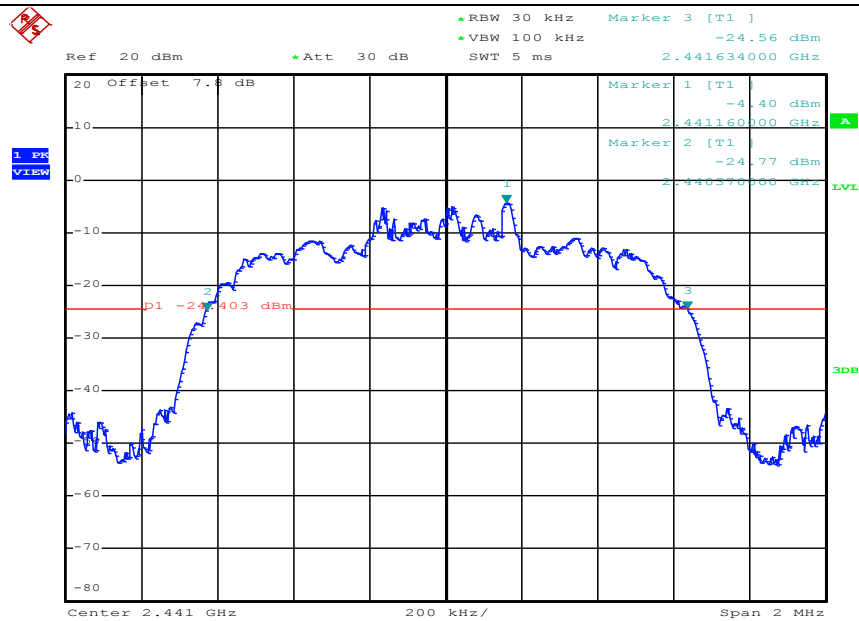
GFSK/HCH



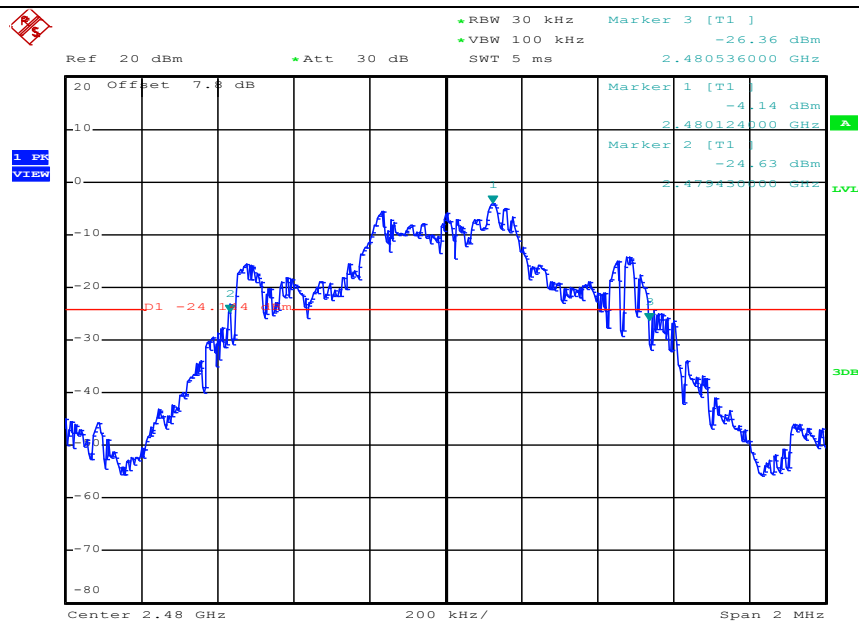
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$\pi/4$ DQPSK/LCH

Date: 30.SEP.2019 16:08:23

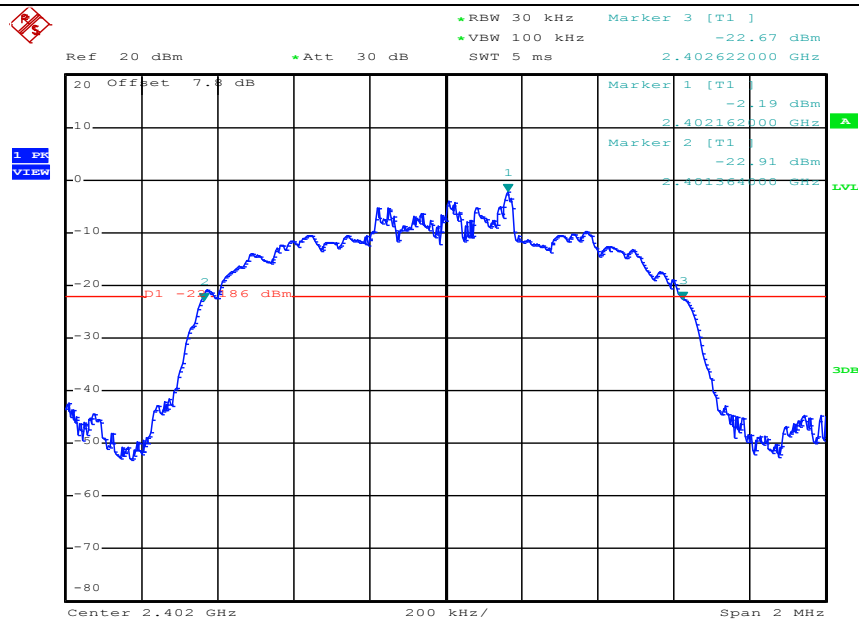
 $\pi/4$ DQPSK/MCH

Date: 30.SEP.2019 16:10:52

$\pi/4$ DQPSK/HCH

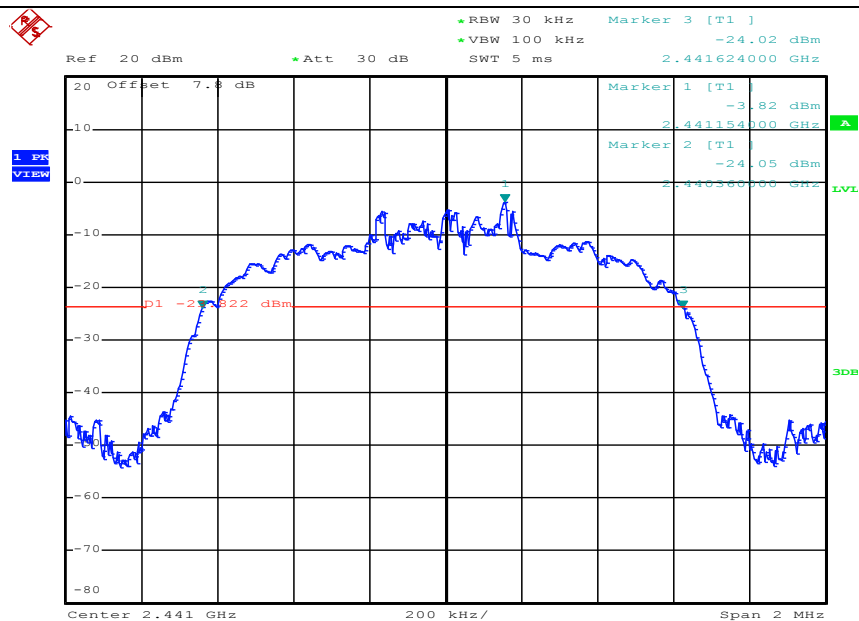
Date: 30.SEP.2019 16:12:57

8DPSK/LCH



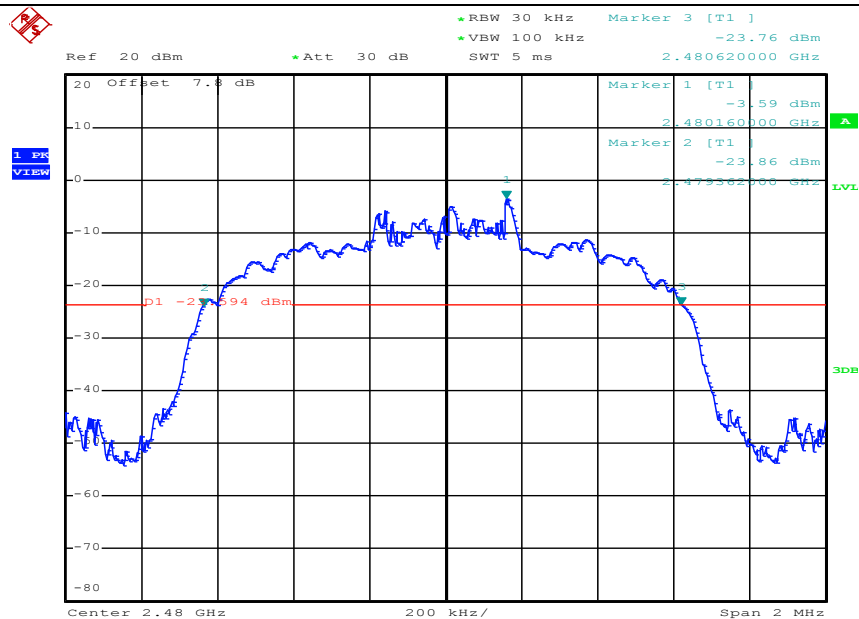
Date: 30.SEP.2019 16:16:43

8DPSK/MCH



Date: 30.SEP.2019 16:19:38

8DPSK/HCH



Date: 30.SEP.2019 16:21:22

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.014	0.852	PASS
	MCH	0.906	0.858	PASS
	HCH	1.004	0.860	PASS
$\pi/4$ DQPSK	LCH	1.304	0.843	PASS
	MCH	1.042	0.843	PASS
	HCH	0.984	0.843	PASS
8DPSK	LCH	0.978	0.843	PASS
	MCH	1.010	0.843	PASS
	HCH	0.920	0.843	PASS

Test Graphs

Ref 20 dBm Att 30 dB RBW 100 kHz Delta 1 [T1] 0.12 dB
VBW 300 kHz SWT 40 ms 1.014250000 MHz

20 Offset 7.8 dB

1 PK VIEW

Marker 1 [T1] 0.65 dBm 2.402147750 GHz

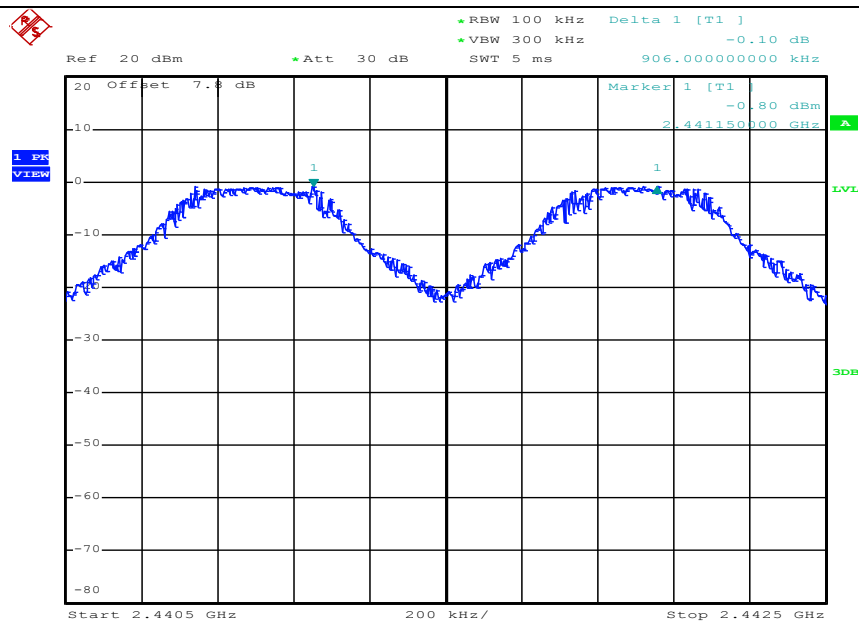
1VL

3dB

Start 2.4015 GHz 200 kHz/ Stop 2.4035 GHz

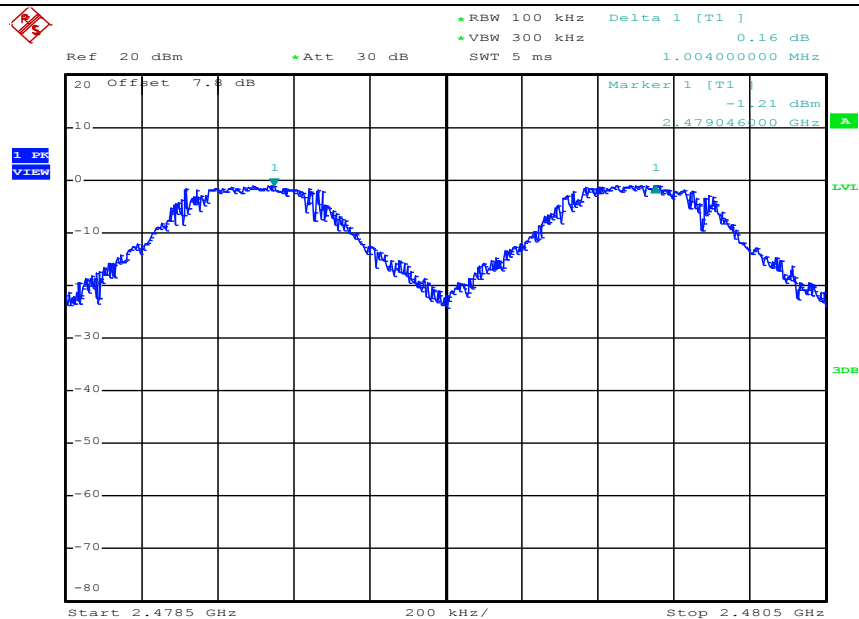
The figure is a spectrum plot with a blue trace showing two distinct signal peaks. The x-axis represents frequency in GHz, ranging from 2.4015 to 2.4035. The y-axis represents power in dBm, ranging from -80 to 20. Two peaks are visible, each marked with a green triangle and labeled '1'. The first peak is at approximately 2.4015 GHz and the second is at approximately 2.4035 GHz. The plot includes a grid and various measurement parameters such as RBW, VBW, SWT, and Delta. The text '1 PK VIEW' is visible on the left side of the plot area. The text '1VL' and '3dB' are visible on the right side of the plot area. The text 'Start 2.4015 GHz 200 kHz/ Stop 2.4035 GHz' is visible at the bottom of the plot area.

GFSK/MCH

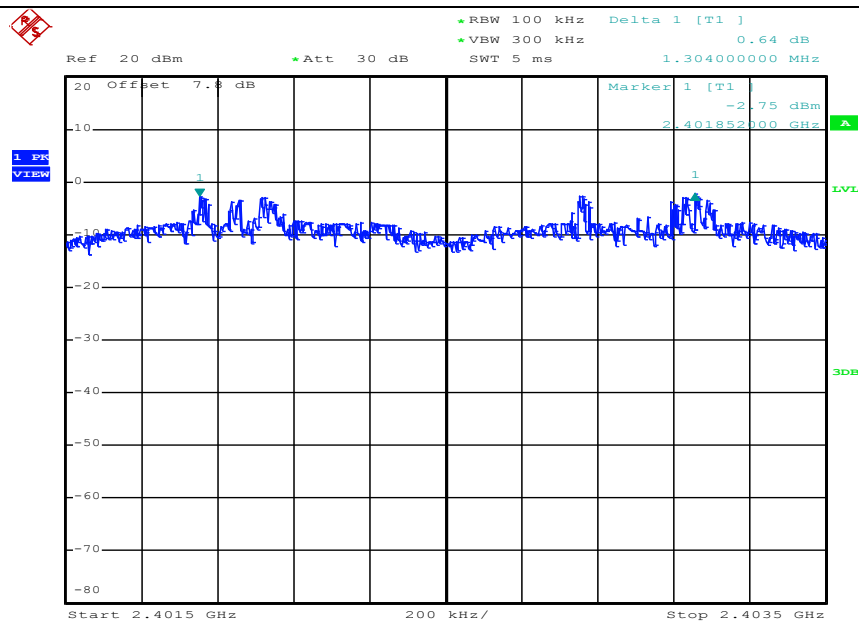


Date: 30.SEP.2019 16:29:12

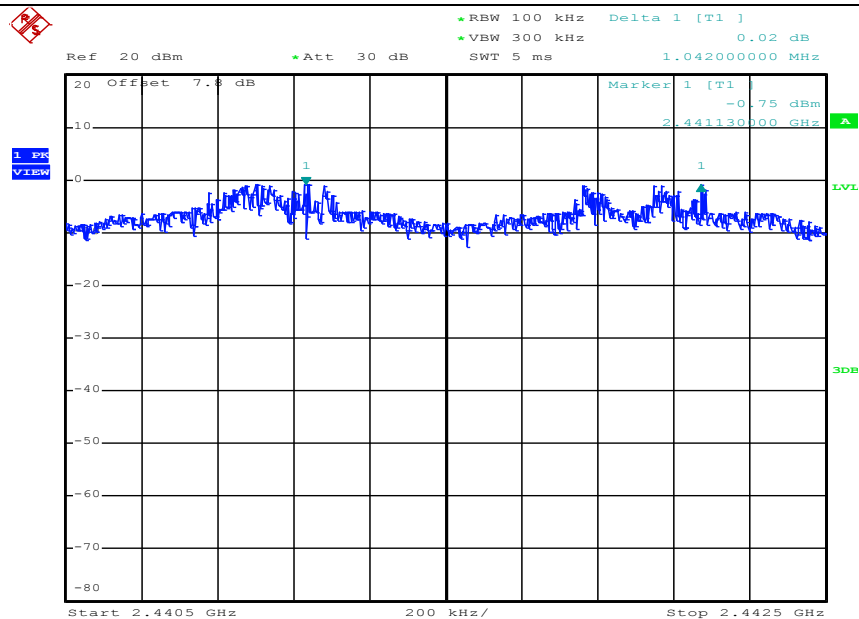
GFSK/HCH



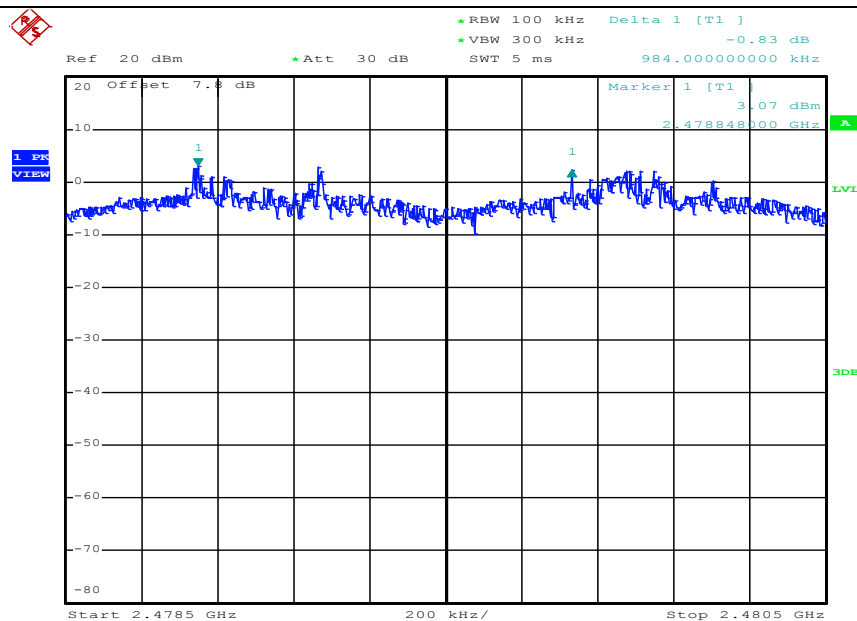
Date: 30.SEP.2019 16:29:44

$\pi/4$ DQPSK/LCH

Date: 30.SEP.2019 14:32:48

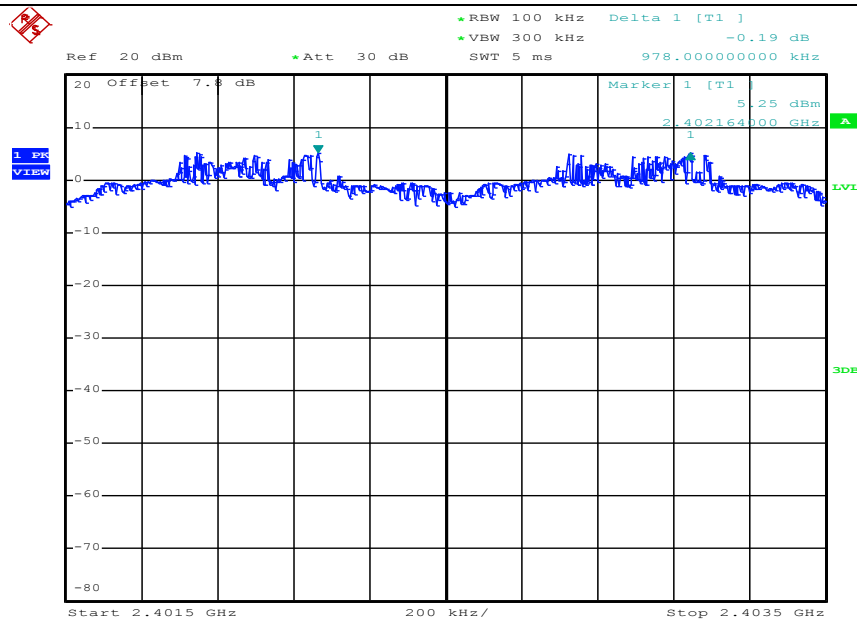
 $\pi/4$ DQPSK/MCH

Date: 30.SEP.2019 14:35:47

$\pi/4$ DQPSK/HCH

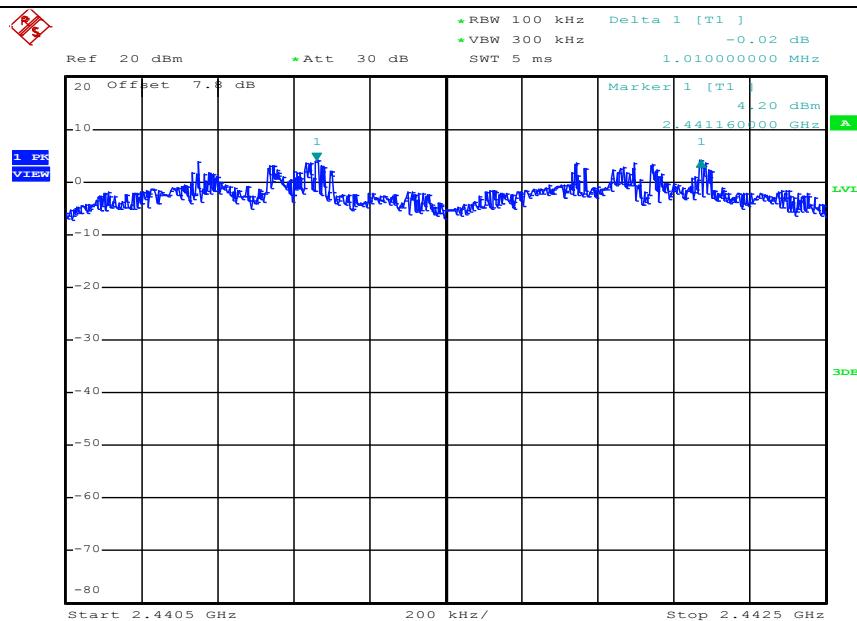
Date: 30.SEP.2019 14:36:46

8DPSK/LCH



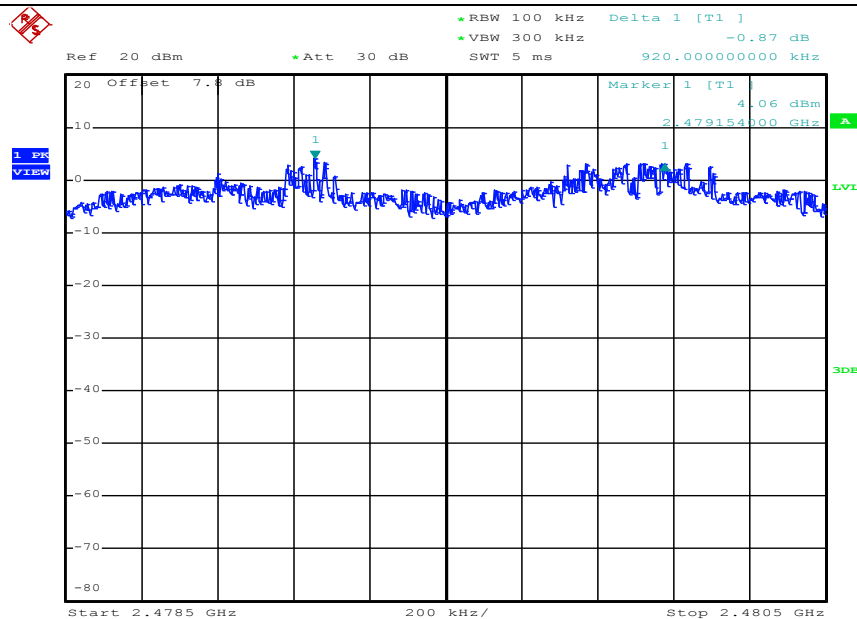
Date: 30.SEP.2019 16:51:28

8DPSK/MCH



Date: 30.SEP.2019 16:56:03

8DPSK/HCH



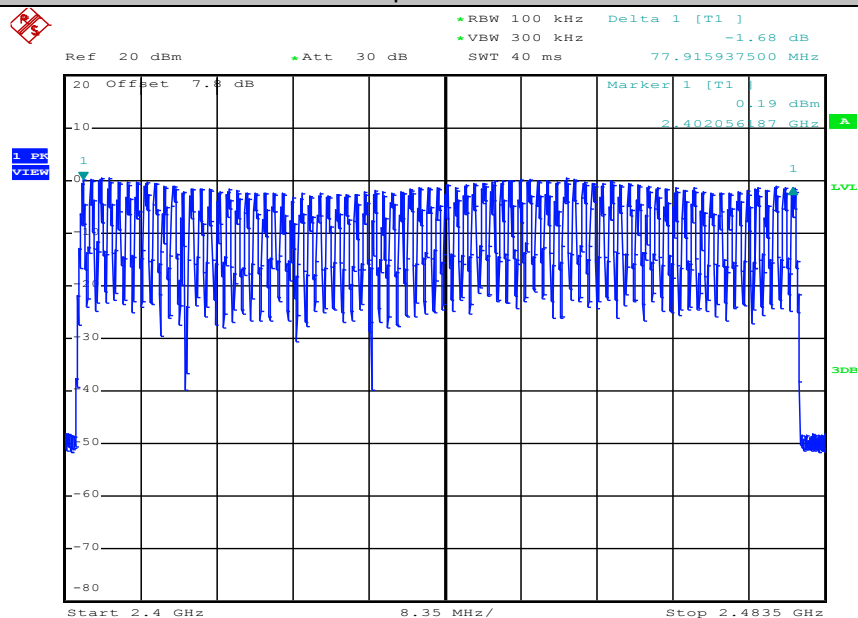
Date: 30.SEP.2019 16:57:14

A.4 Hopping Channel Number

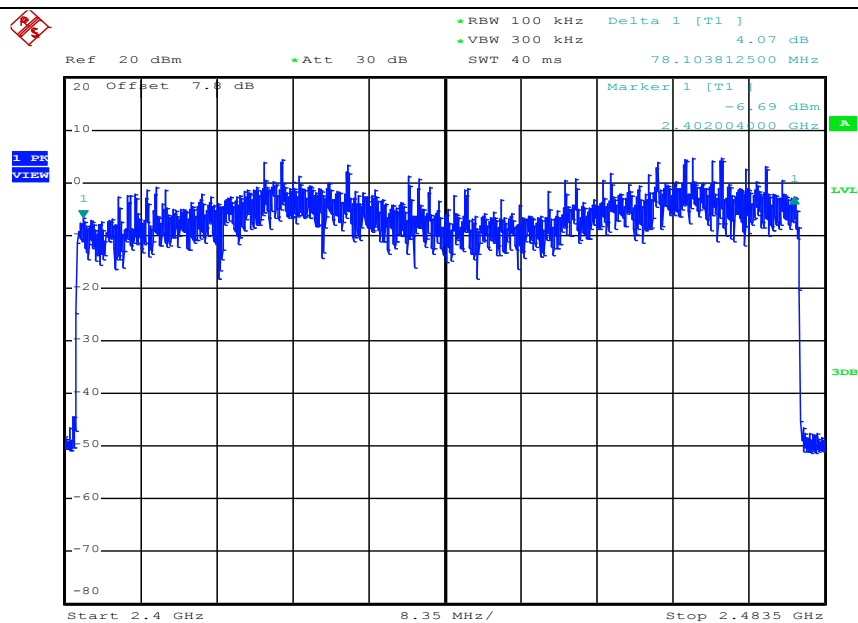
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

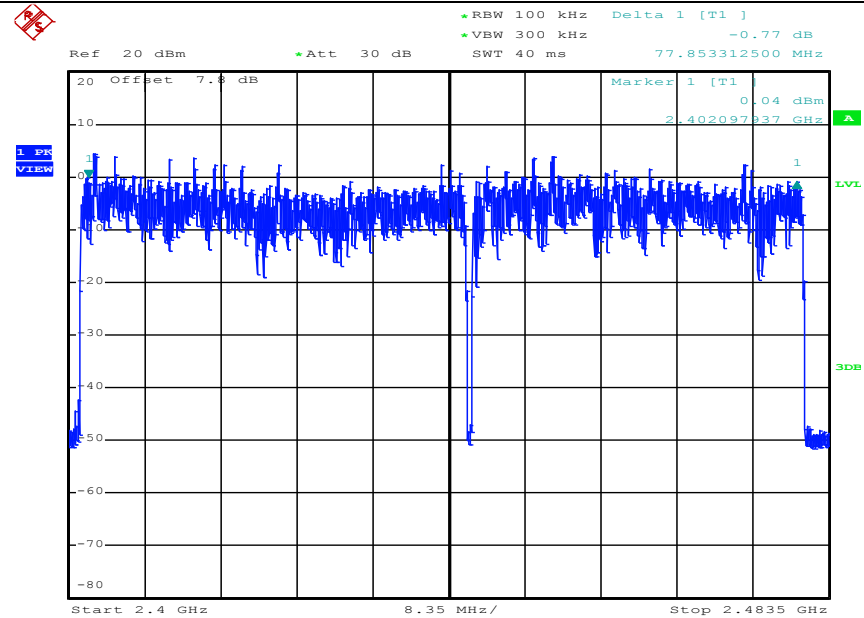


Date: 30.SEP.2019 16:33:02

 $\pi/4$ DQPSK/Hop

Date: 30.SEP.2019 14:39:57

8DPSK/Hop



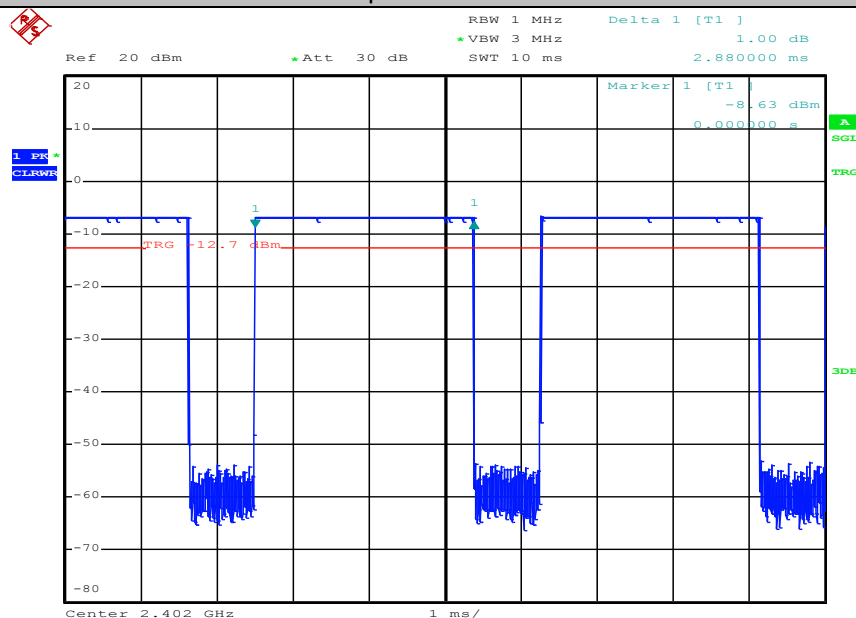
Date: 30.SEP.2019 17:00:31

A.5 Dwell Time

Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	0.307	0.4	PASS
8DPSK	3DH5	LCH	2.88	106.7	0.308	0.4	PASS
	3DH5	MCH	2.88	106.7	0.308	0.4	PASS
	3DH5	HCH	2.88	106.7	0.308	0.4	PASS

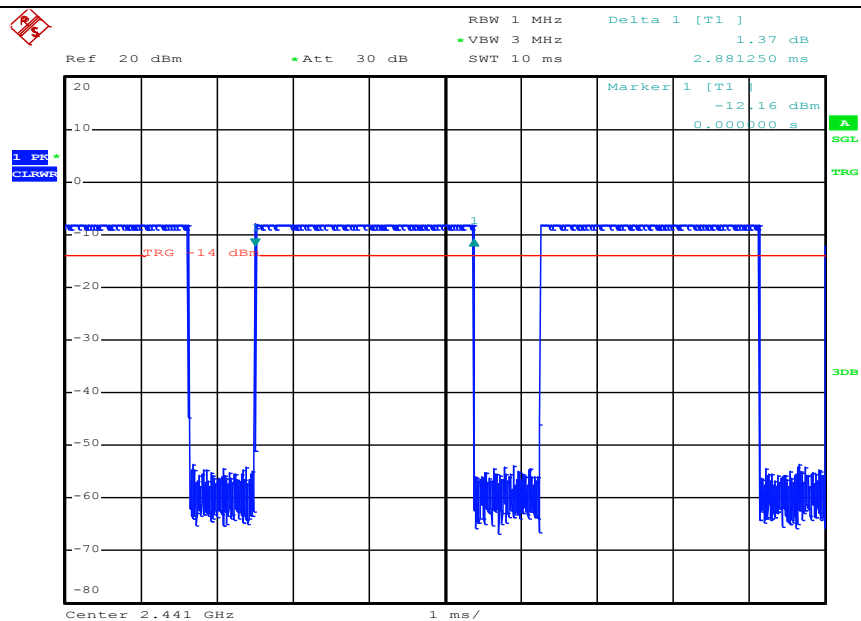
Test Graphs

GFSK_DH5/LCH



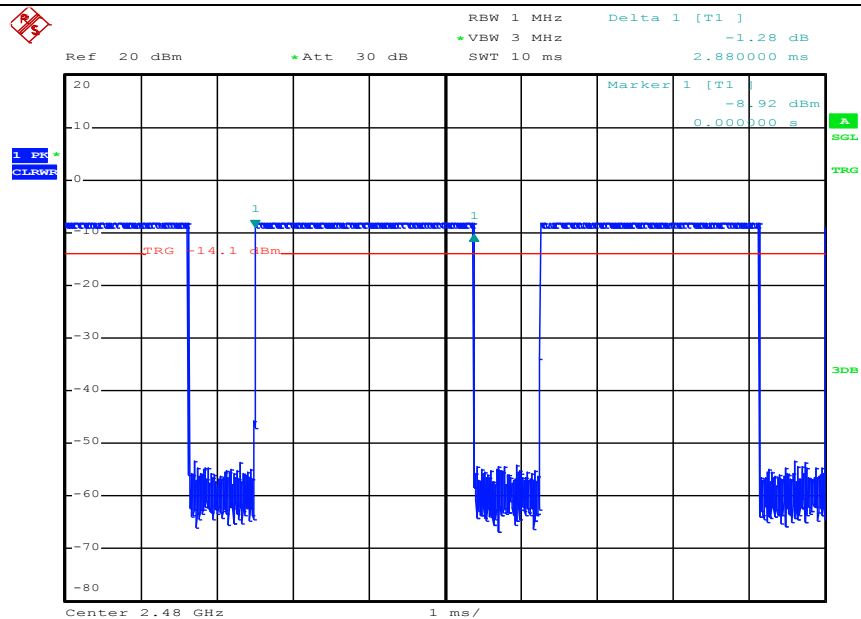
Date: 30.SEP.2019 16:01:21

GFSK_DH5/MCH



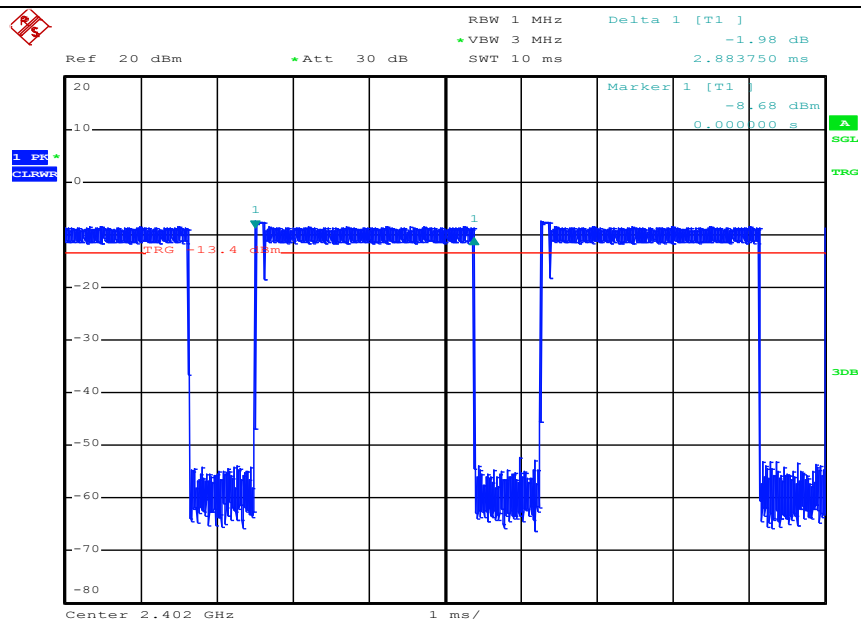
Date: 30.SEP.2019 16:04:11

GFSK_DH5/HCH



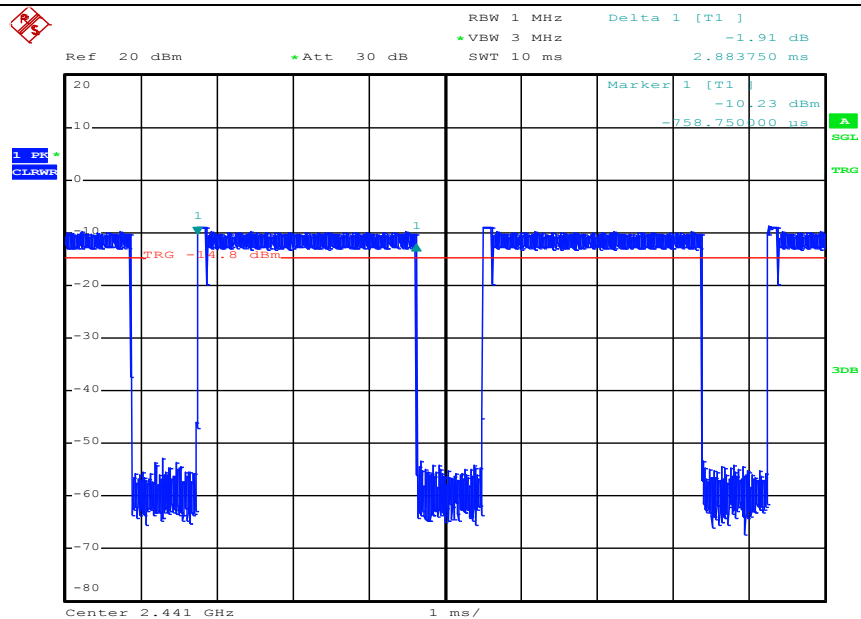
Date: 30.SEP.2019 16:06:03

$\pi/4$ DQPSK
_2DH5/LCH



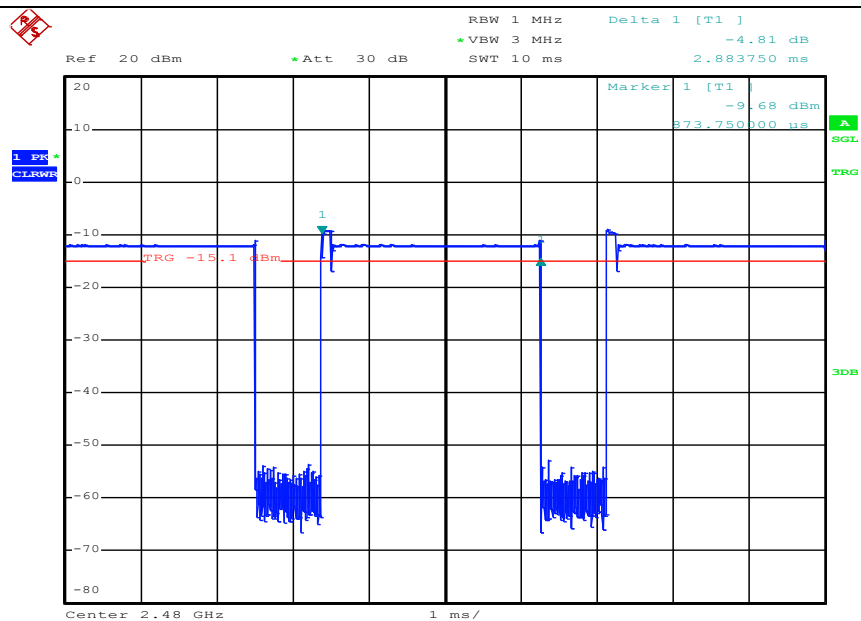
Date: 30.SEP.2019 16:08:44

$\pi/4$ DQPSK
_2DH5/MCH



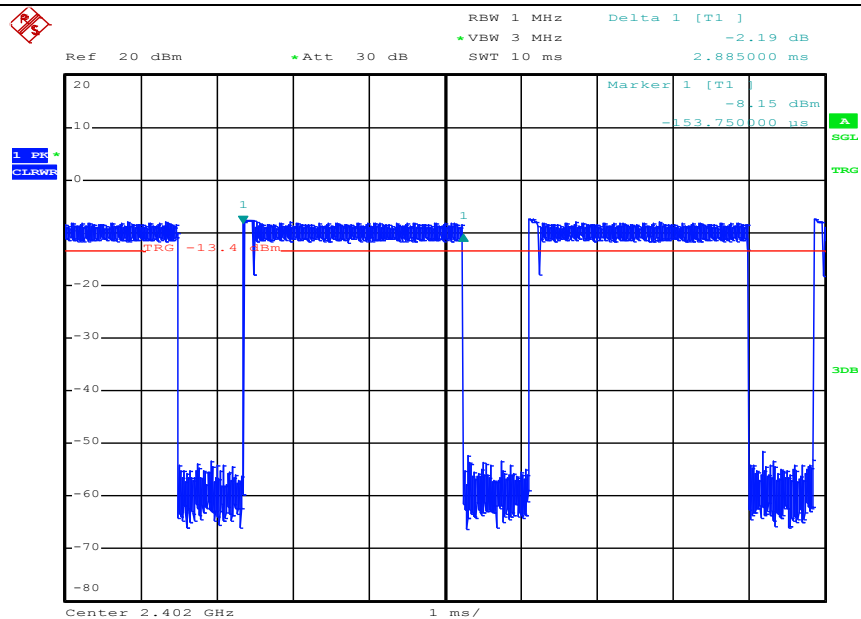
Date: 30.SEP.2019 16:11:14

$\pi/4$ DQPSK
_2DH5/HCH



Date: 30.SEP.2019 16:13:19

8DPSK_3DH5/LCH



Date: 30.SEP.2019 16:17:04

Date: 30.SEP.2019 16:20:00

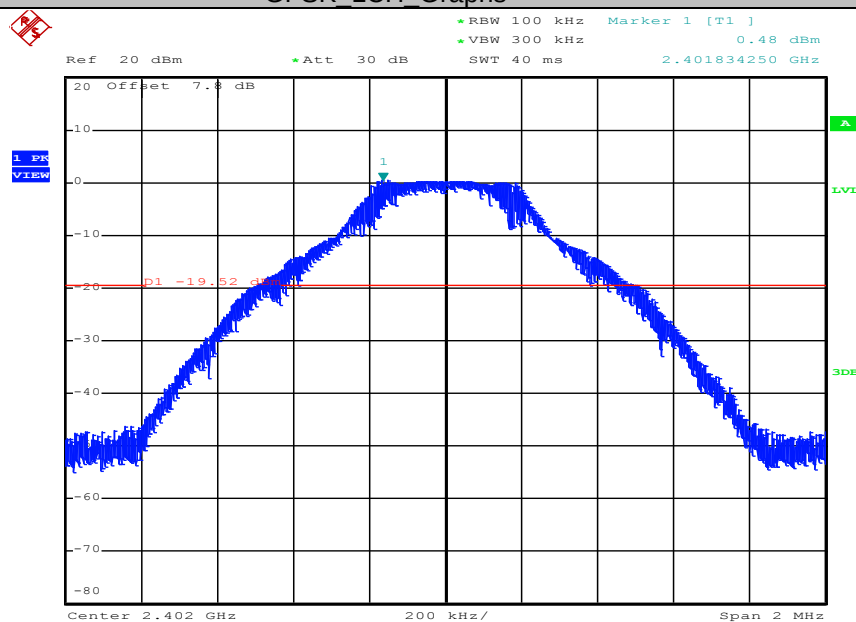
Date: 30.SEP.2019 16:21:44

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.48	-32.810	-19.520	PASS
	MCH	-0.74	-32.990	-20.740	PASS
	HCH	-0.84	-31.110	-20.840	PASS
$\pi/4$ DQPSK	LCH	-0.09	-32.180	-20.090	PASS
	MCH	-1.32	-32.320	-21.320	PASS
	HCH	-1.52	-32.130	-21.520	PASS
8DPSK	LCH	0.11	-31.910	-19.890	PASS
	MCH	-1.19	-31.550	-21.190	PASS
	HCH	-1.08	-31.990	-21.080	PASS

GFSK LCH Graphs

Pref

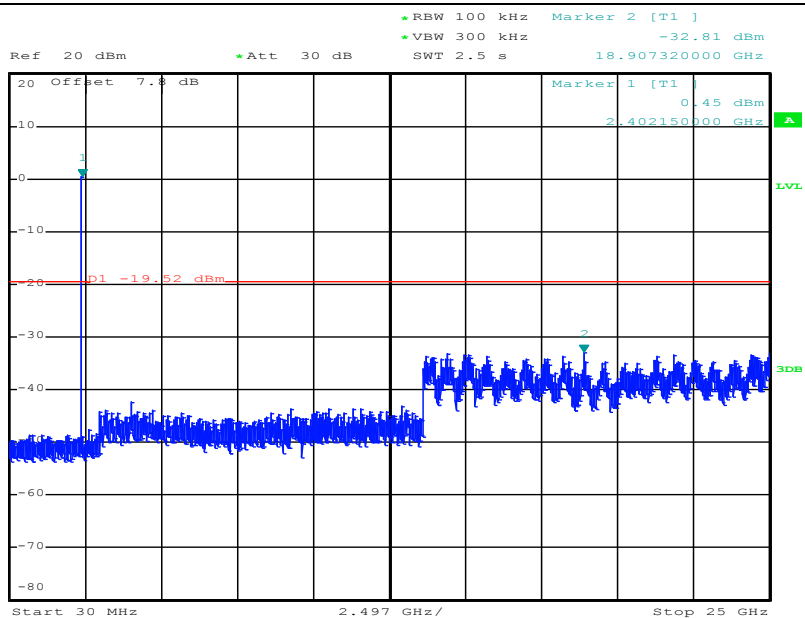


Date: 30.SEP.2019 16:02:06

P_{uw}



1. PK
VIEW



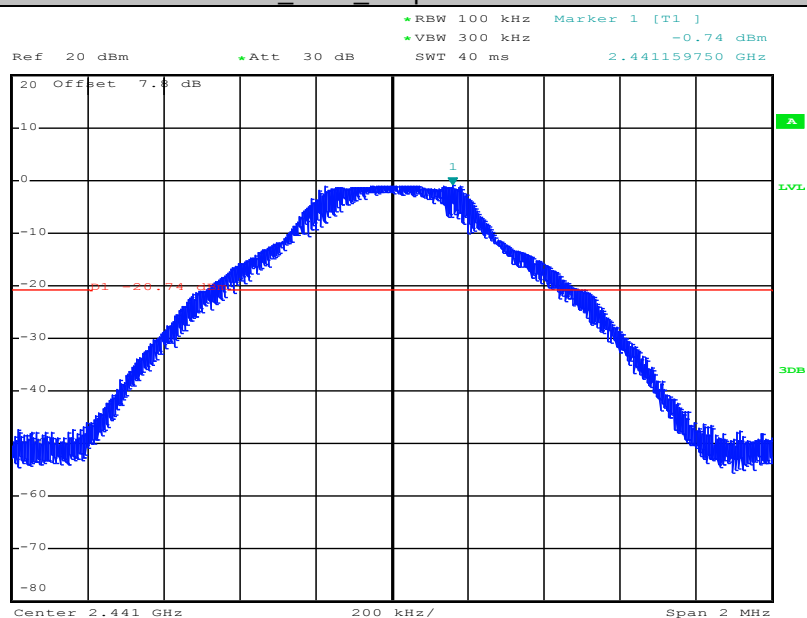
Date: 30.SEP.2019 16:02:20

GFSK_MCH_Graphs

Pref



1 PR
VIEW

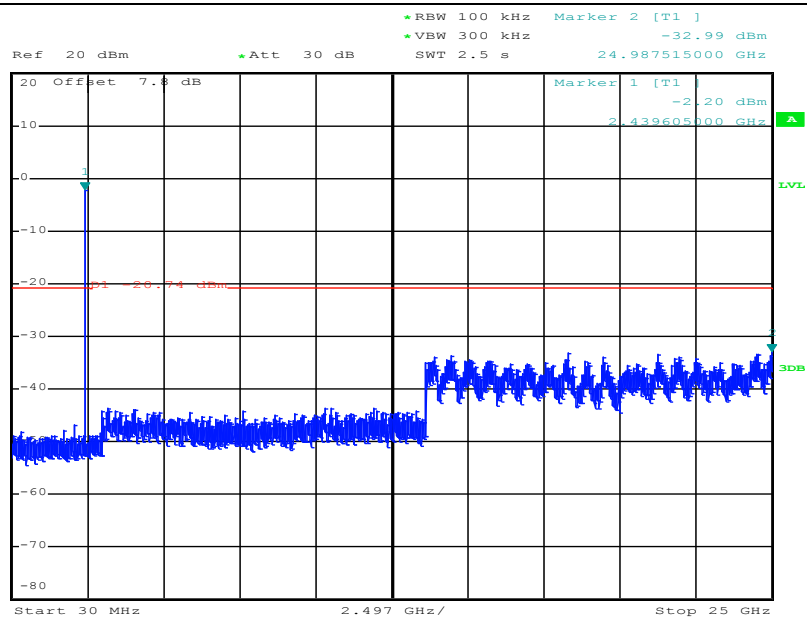


Date: 30.SEP.2019 16:04:39

Puw



1 PR
VIEW



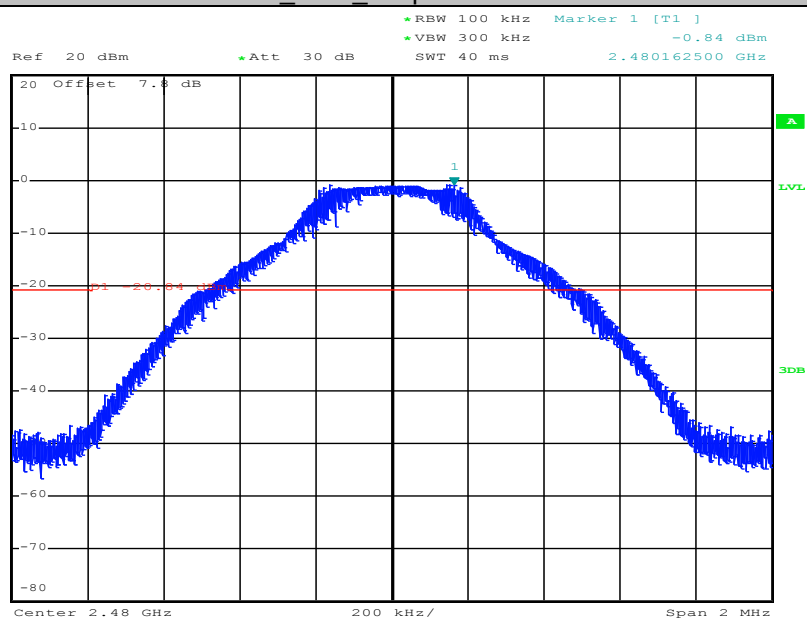
Date: 30.SEP.2019 16:04:54

GFSK_HCH_Graphs

Pref



1 PR
VIEW

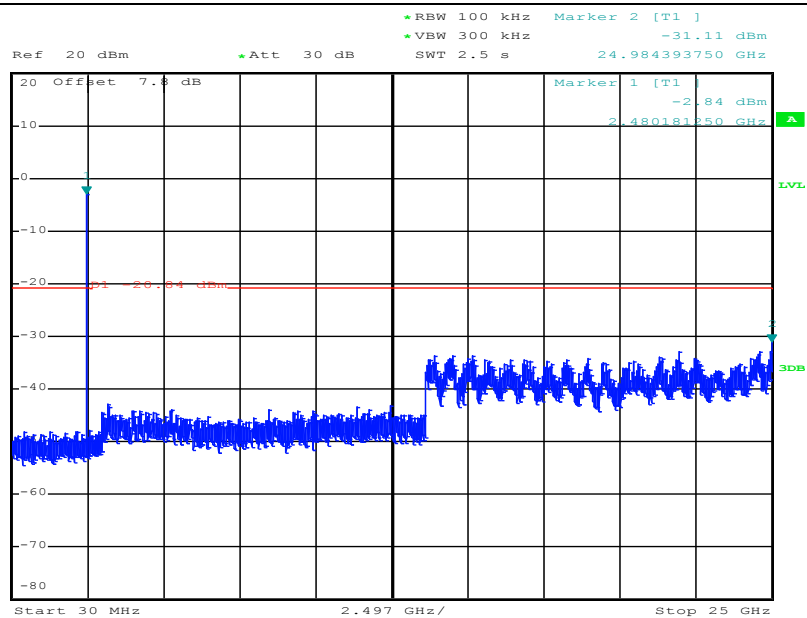


Date: 30.SEP.2019 16:06:48

Puw



1 PR
VIEW



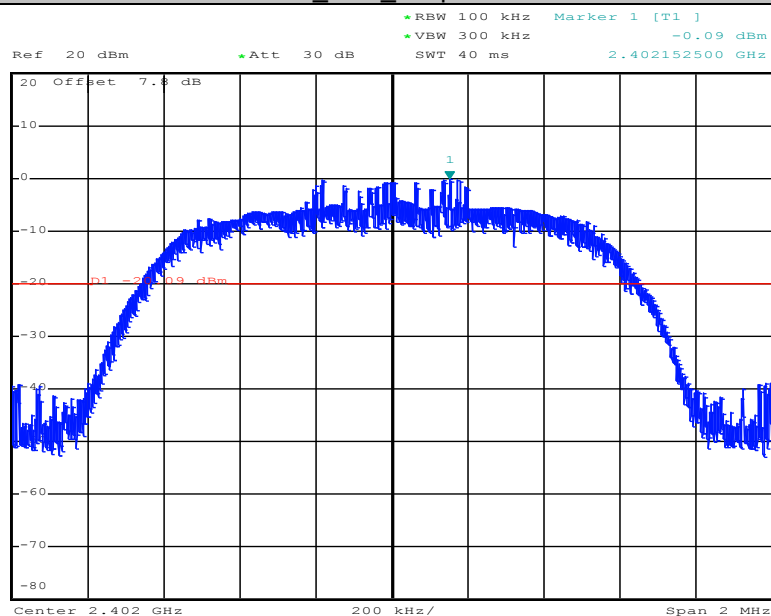
Date: 30.SEP.2019 16:07:03

$\pi/4$ DQPSK_LCH_Graphs

Pref



1 PR
VIEW

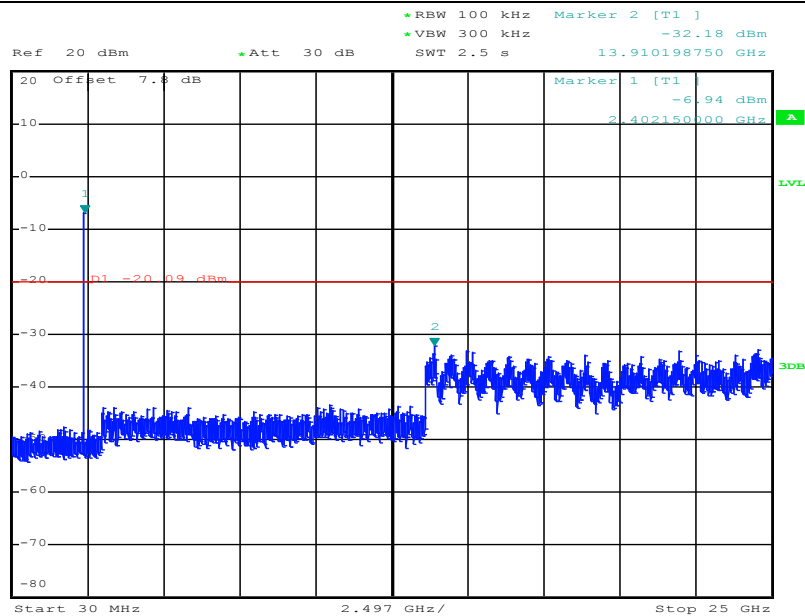


Date: 30.SEP.2019 16:09:29

Puw



1 PR
VIEW



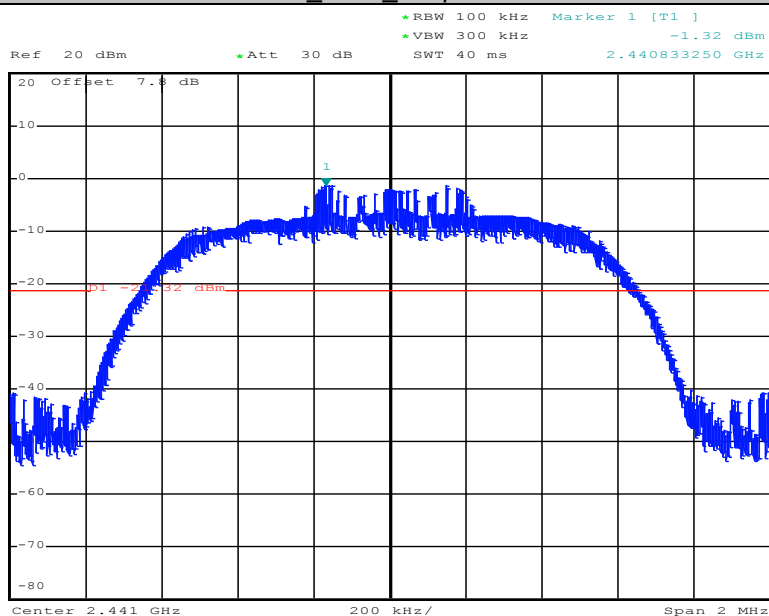
Date: 30.SEP.2019 16:09:44

$\pi/4$ DQPSK_MCH_Graphs

Pref



1 PR
VIEW

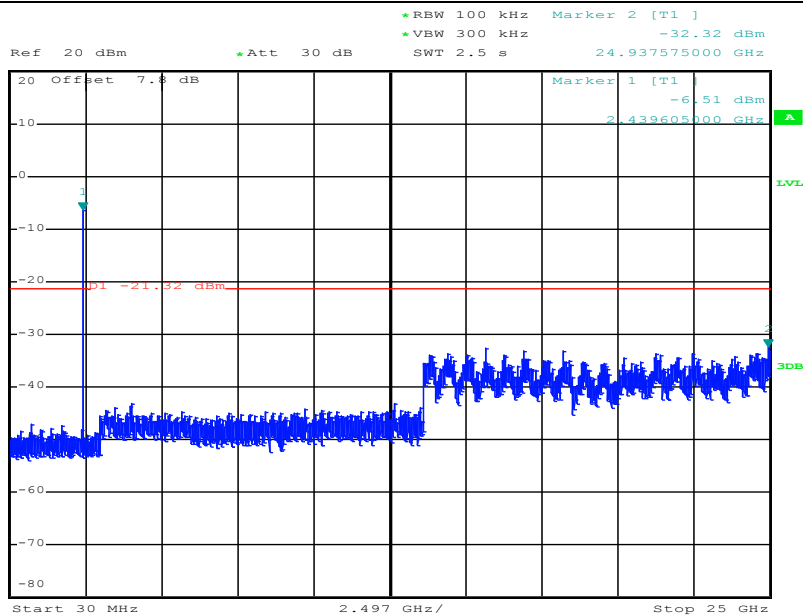


Date: 30.SEP.2019 16:11:41

Puw

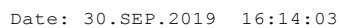


1 PR
VIEW

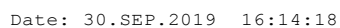


Date: 30.SEP.2019 16:11:56

Pref

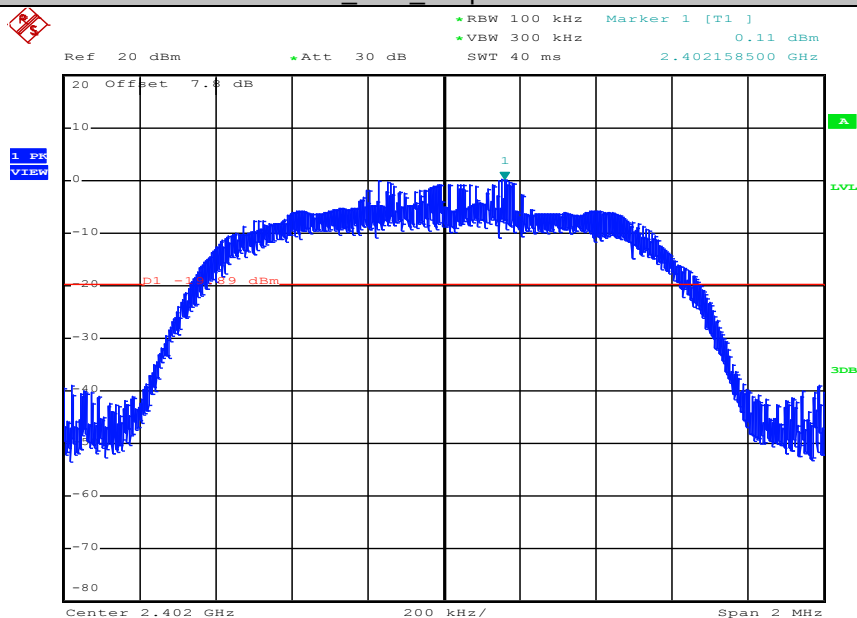


PuW



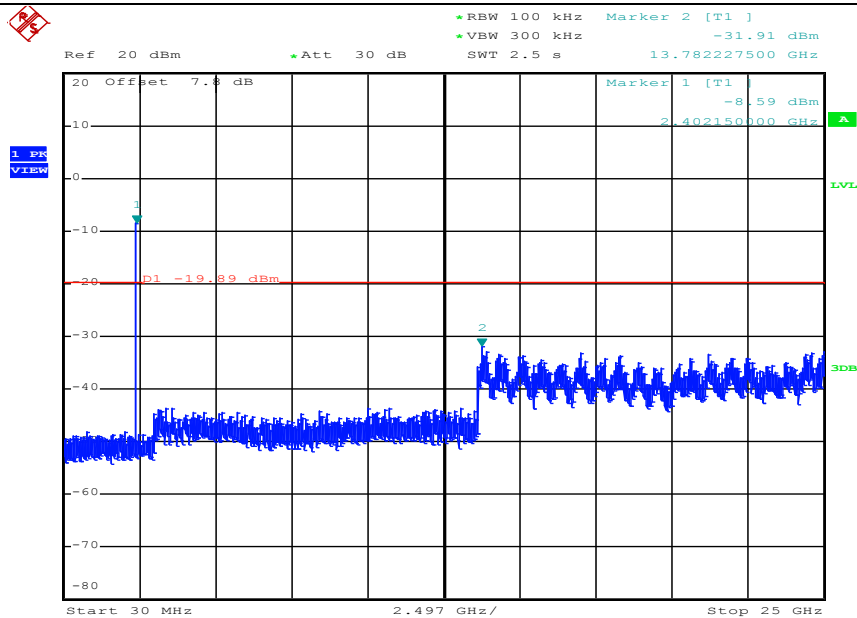
8DPSK_LCH_Graphs

Pref



Date: 30.SEP.2019 16:17:49

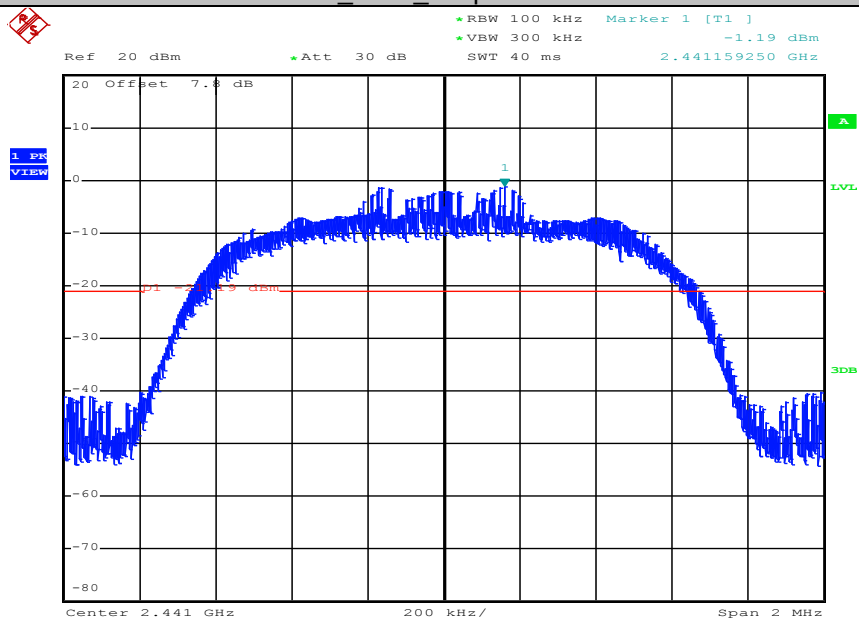
Puw



Date: 30.SEP.2019 16:18:04

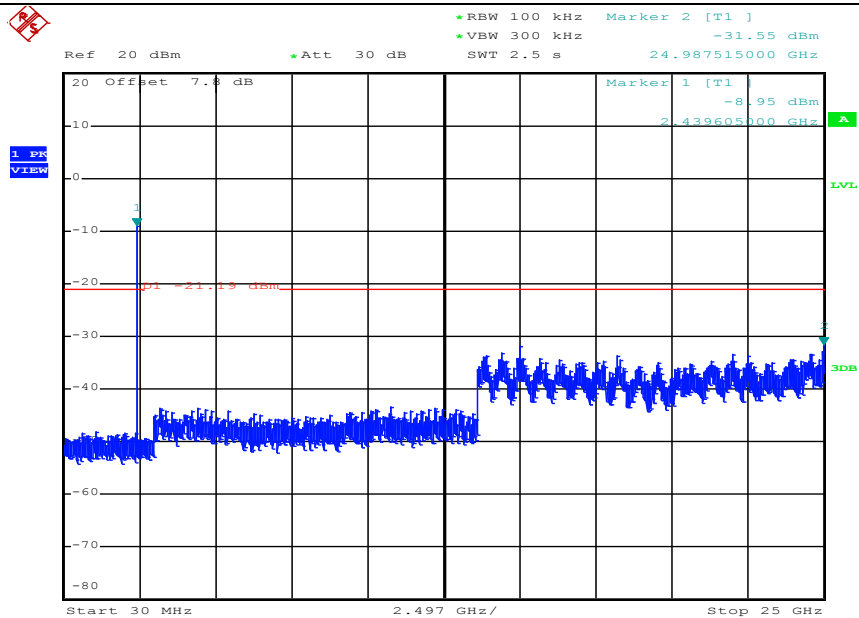
8DPSK_MCH_Graphs

Pref



Date: 30.SEP.2019 16:20:28

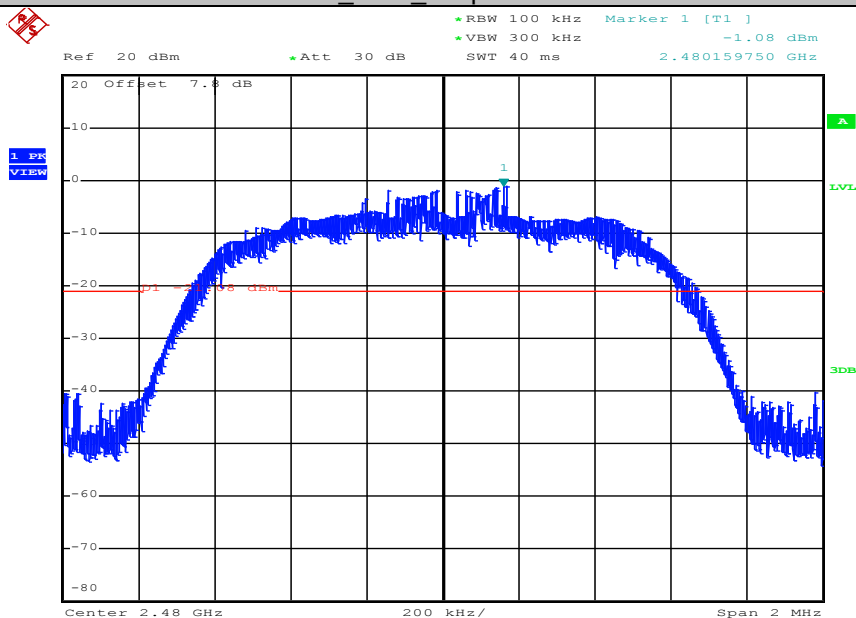
Puw



Date: 30.SEP.2019 16:20:43

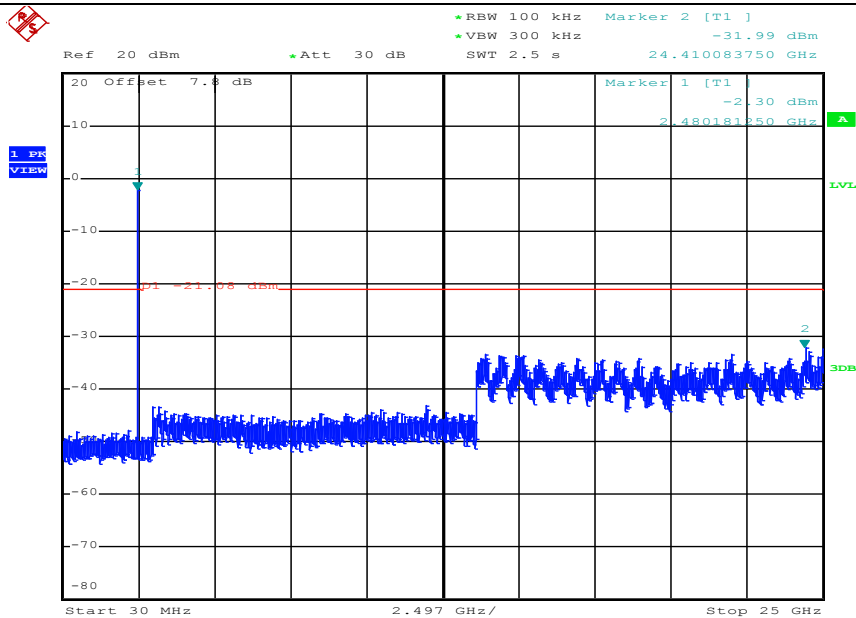
8DPSK_HCH_Graphs

Pref



Date: 30.SEP.2019 16:22:29

Puw



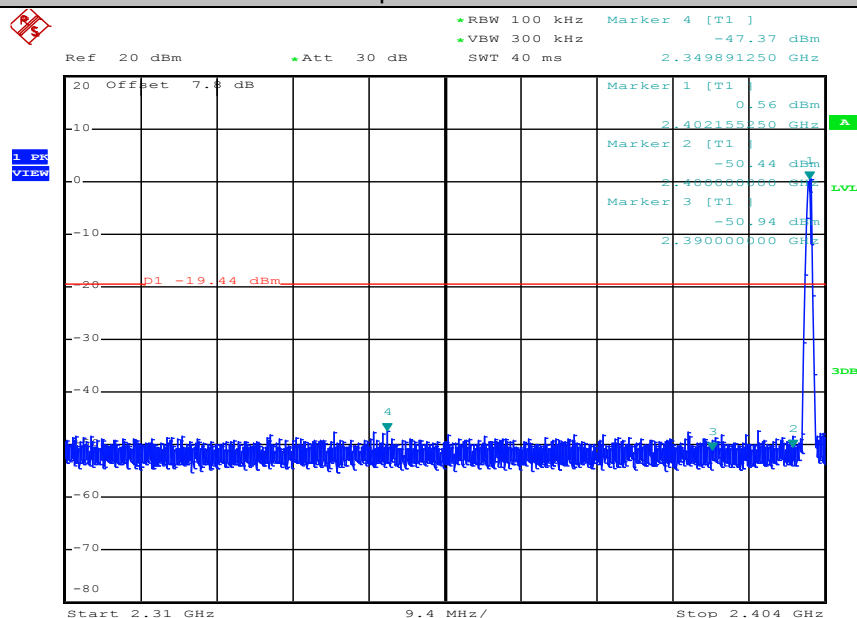
Date: 30.SEP.2019 16:22:44

A.7 Band-edge for RF Conducted Emissions

Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.560	Off	-47.374	-19.44	PASS
			0.360	On	-46.586	-19.64	PASS
	HCH	2480	-0.830	Off	-47.434	-20.83	PASS
			-0.110	On	-47.212	-20.11	PASS
$\pi/4$ DQPSK	LCH	2402	-0.790	Off	-47.711	-20.79	PASS
			4.580	On	-47.331	-15.42	PASS
	HCH	2480	-2.140	Off	-47.702	-22.14	PASS
			4.530	On	-47.583	-15.47	PASS
8DPSK	LCH	2402	-1.290	Off	-47.370	-21.29	PASS
			5.120	On	-46.500	-14.88	PASS
	HCH	2480	-1.080	Off	-47.707	-21.08	PASS
			5.070	On	-47.016	-14.93	PASS

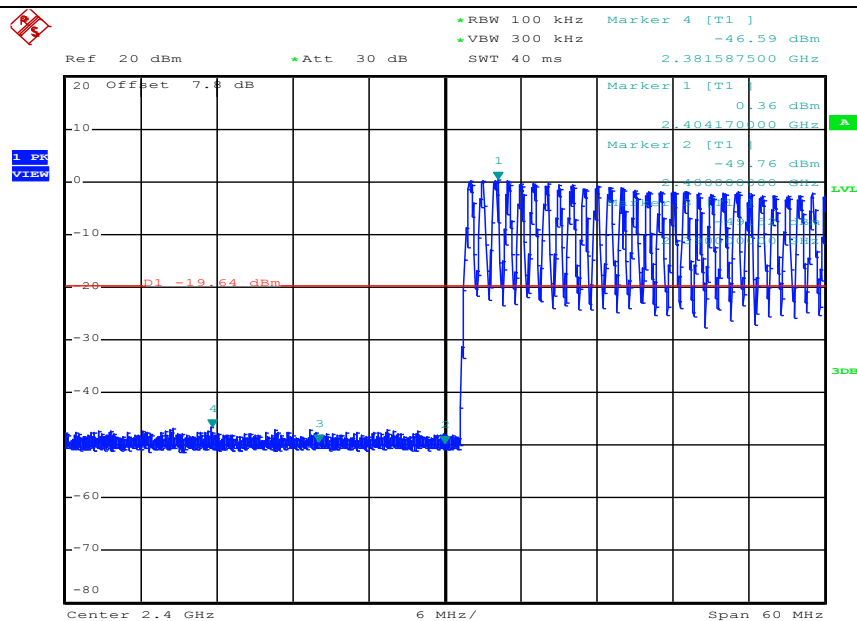
Test Graphs

GFSK/LCH/No Hop



Date: 30.SEP.2019 16:01:53

GFSK/LCH/Hop



Date: 30.SEP.2019 16:28:19

Date: 30.SEP.2019 16:06:35

Date: 30.SEP.2019 16:31:26

1 PR VIEW

Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 40 ms Marker 4 [T1]

2.342688500 GHz

20 Offset 7.8 dB

Marker 1 [T1] -0.79 dBm

2.401873250 GHz

Marker 2 [T1] -49.28 dBm

2.400000000 GHz

Marker 3 [T1] -53.67 dBm

2.390000000 GHz

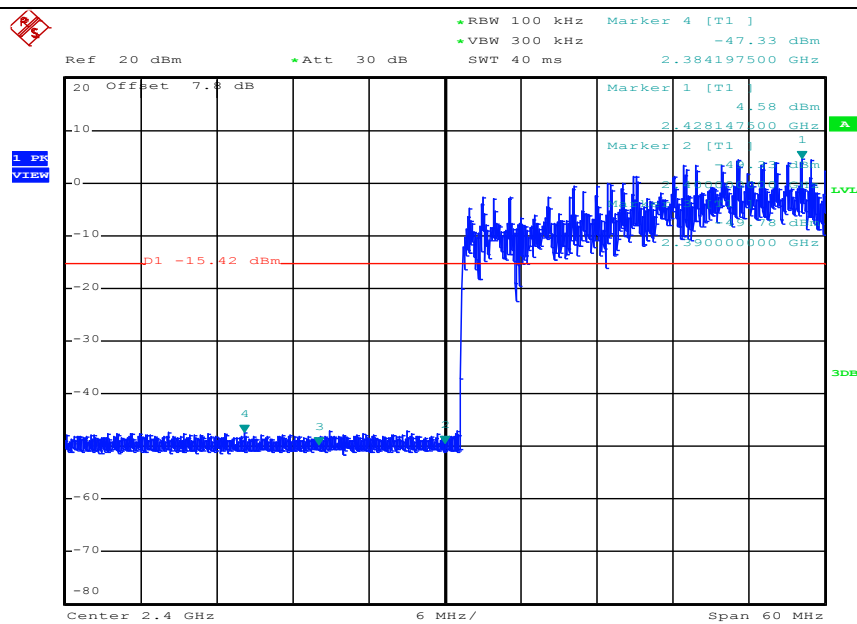
20 -10 -0 -10 -20 -30 -40 -50 -60 -70 -80

4

2

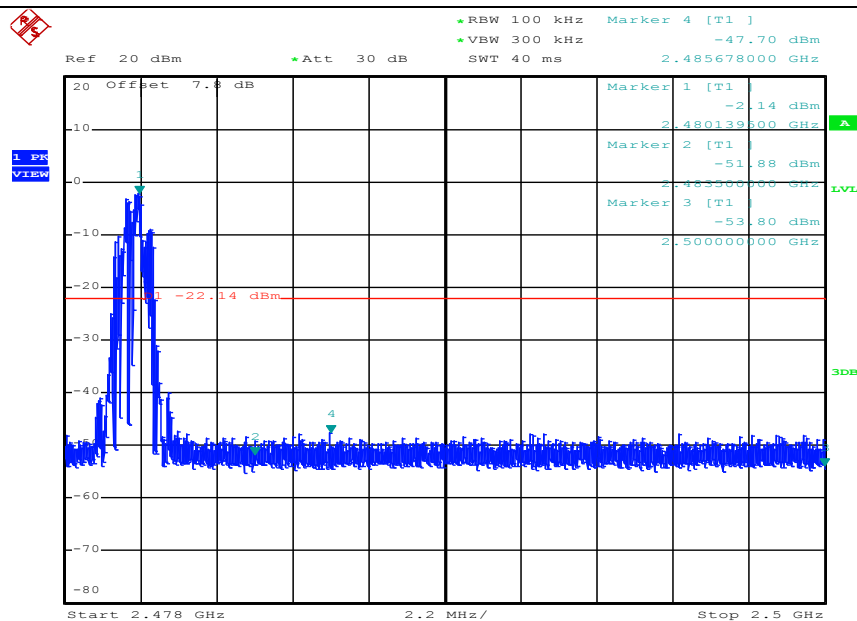
Start 2.31 GHz 9.4 MHz/ Stop 2.404 GHz

$\pi/4$ DQPSK/LCH/Hop



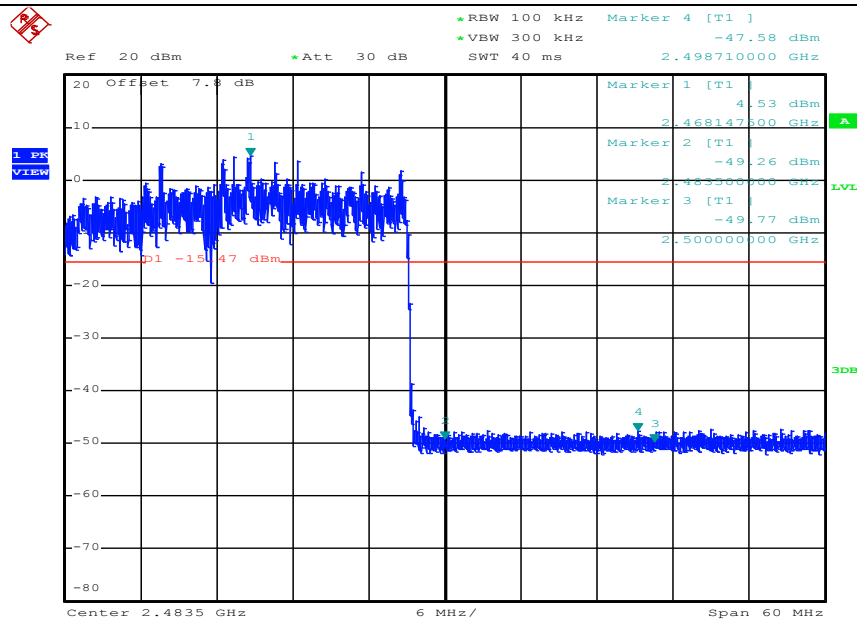
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$\pi/4$ DQPSK/HCH/No
Hop



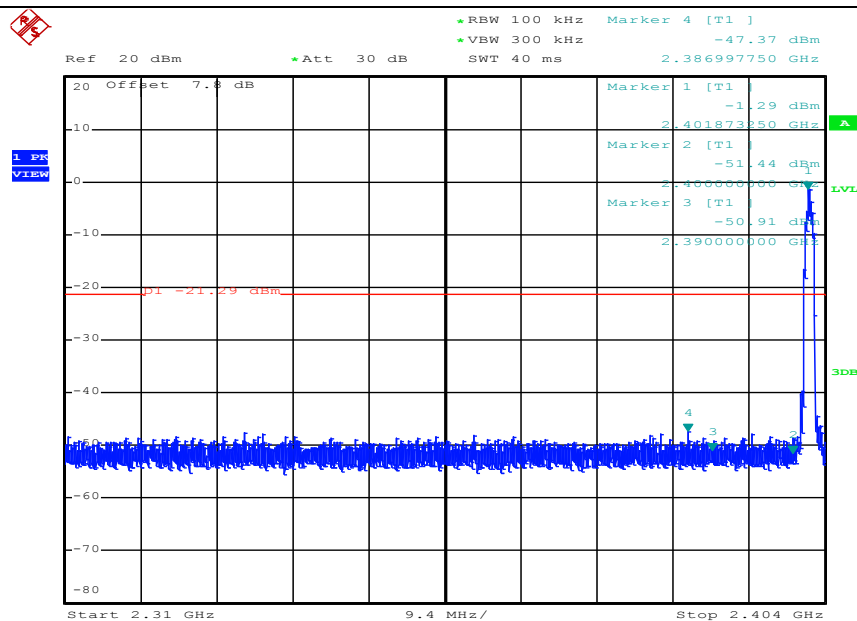
Date: 30.SEP.2019 16:13:50

$\pi/4$ DQPSK/HCH/Hop



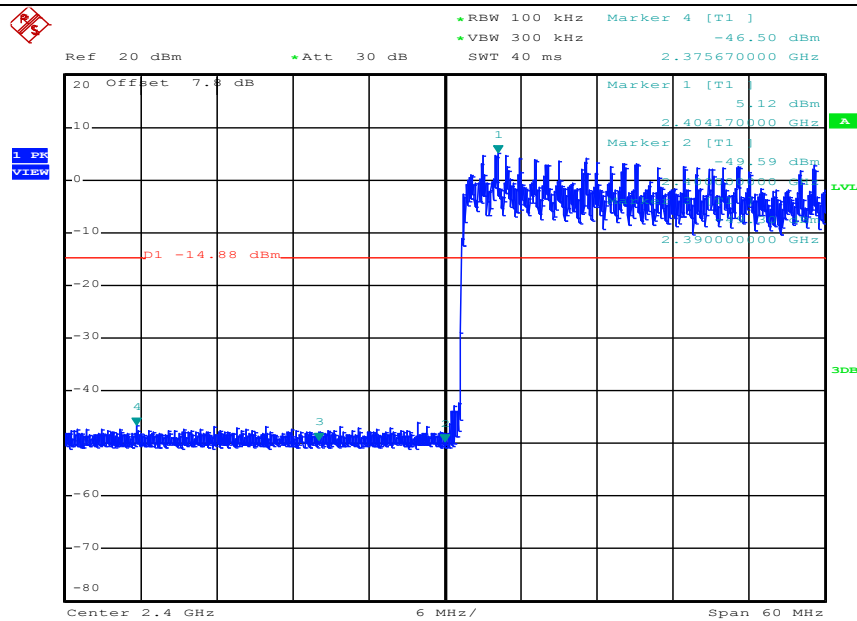
Date: 30.SEP.2019 14:38:02

8DPSK/LCH/No Hop



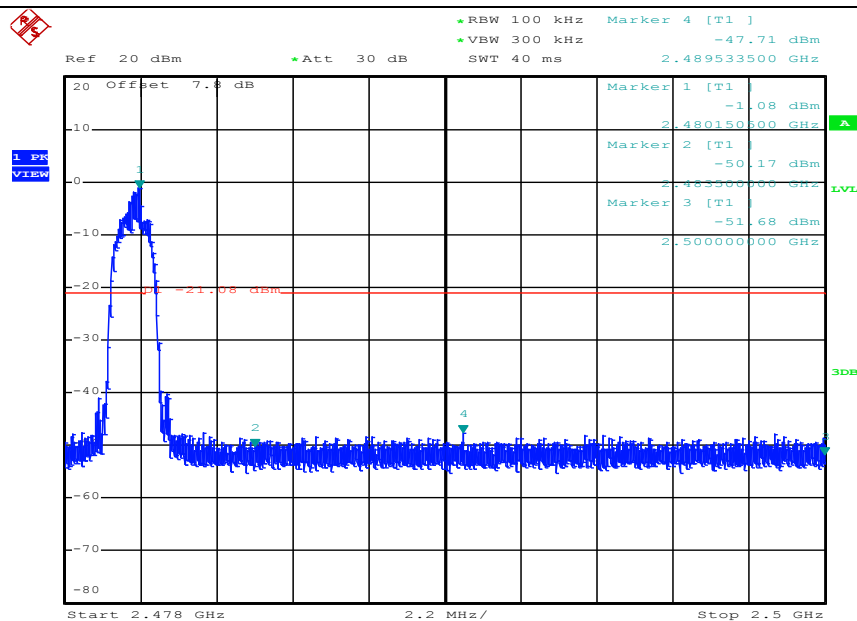
Date: 30.SEP.2019 16:17:36

8DPSK/LCH/Hop



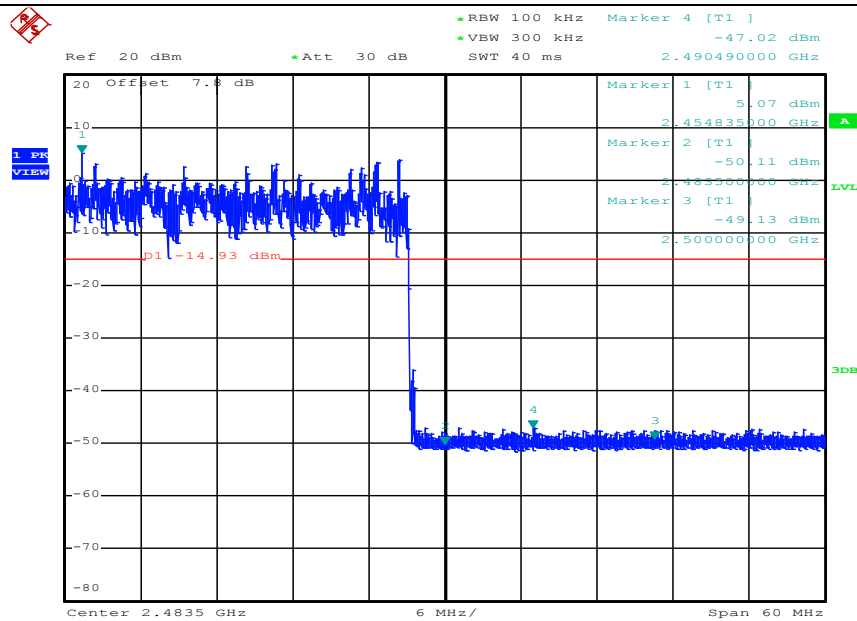
Date: 30.SEP.2019 16:54:36

8DPSK/HCH/No Hop



Date: 30.SEP.2019 16:22:16

8DPSK/HCH/Hop

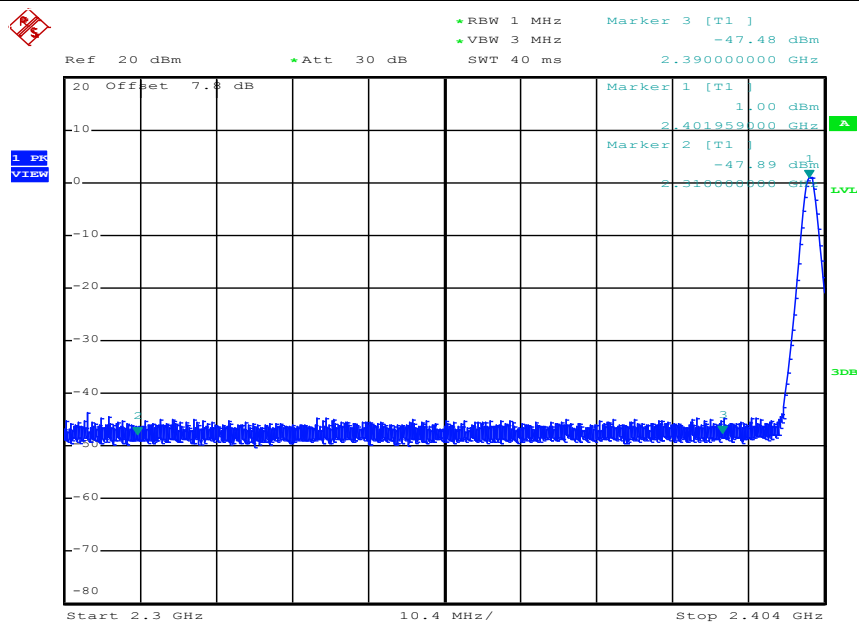


Date: 30.SEP.2019 16:59:16

A.8 Restrict-band band-edge measurements

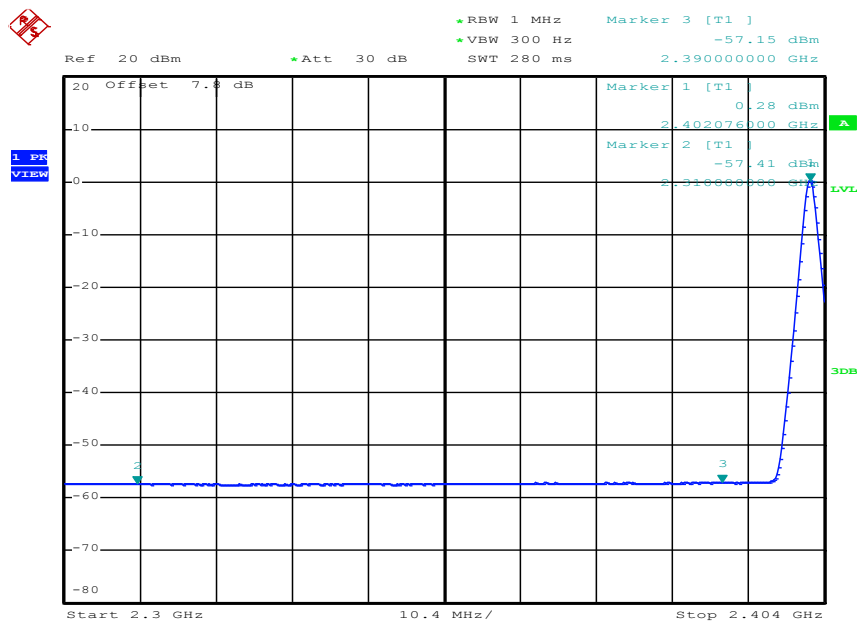
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.89	2.0	0	48.37	PEAK	74	PASS
	Off	2310.0	-57.41	2.0	0	38.85	AV	54	PASS
	Off	2390.0	-47.48	2.0	0	48.78	PEAK	74	PASS
	Off	2390.0	-57.15	2.0	0	39.11	AV	54	PASS
	Off	2483.5	-39.06	2.0	0	57.20	PEAK	74	PASS
	Off	2483.5	-42.41	2.0	0	53.85	AV	54	PASS
	Off	2500.0	-47.92	2.0	0	48.34	PEAK	74	PASS
	Off	2500.0	-57.73	2.0	0	38.53	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-47.70	2.0	0	48.56	PEAK	74	PASS
	Off	2310.0	-57.43	2.0	0	38.83	AV	54	PASS
	Off	2390.0	-48.28	2.0	0	47.98	PEAK	74	PASS
	Off	2390.0	-57.16	2.0	0	39.10	AV	54	PASS
	Off	2483.5	-39.84	2.0	0	56.42	PEAK	74	PASS
	Off	2483.5	-44.42	2.0	0	51.84	AV	54	PASS
	Off	2500.0	-46.84	2.0	0	49.42	PEAK	74	PASS
	Off	2500.0	-57.75	2.0	0	38.51	AV	54	PASS
8DPSK	Off	2310.0	-48.72	2.0	0	47.54	PEAK	74	PASS
	Off	2310.0	-57.39	2.0	0	38.87	AV	54	PASS
	Off	2390.0	-46.40	2.0	0	49.86	PEAK	74	PASS
	Off	2390.0	-57.13	2.0	0	39.13	AV	54	PASS
	Off	2483.5	-39.78	2.0	0	56.48	PEAK	74	PASS
	Off	2483.5	-45.25	2.0	0	51.01	AV	54	PASS
	Off	2500.0	-47.43	2.0	0	48.83	PEAK	74	PASS
	Off	2500.0	-57.77	2.0	0	38.49	AV	54	PASS

Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (Low Channel)



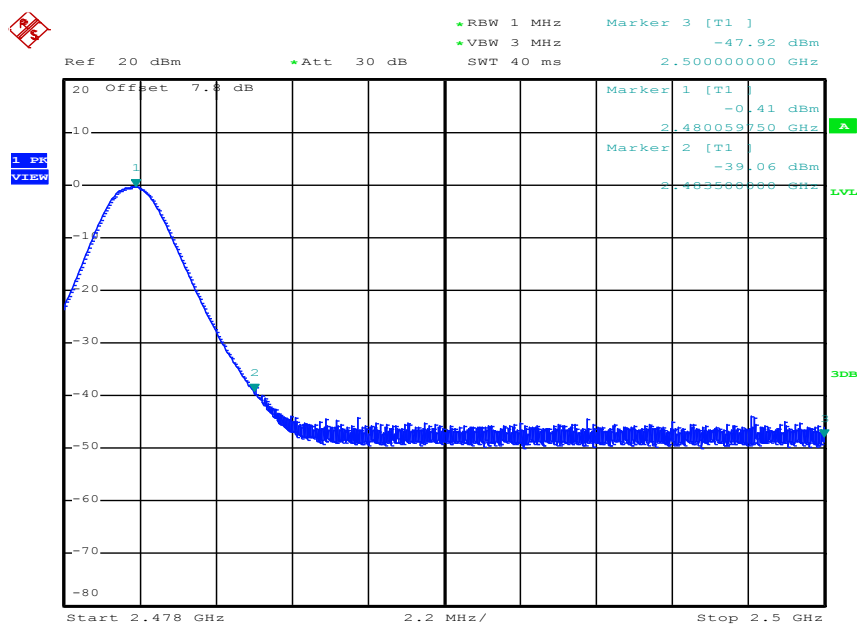
Date: 30.SEP.2019 16:02:39

Restrict-band band-edge measurements_Hopping Off_GFSK_Average (Low Channel)



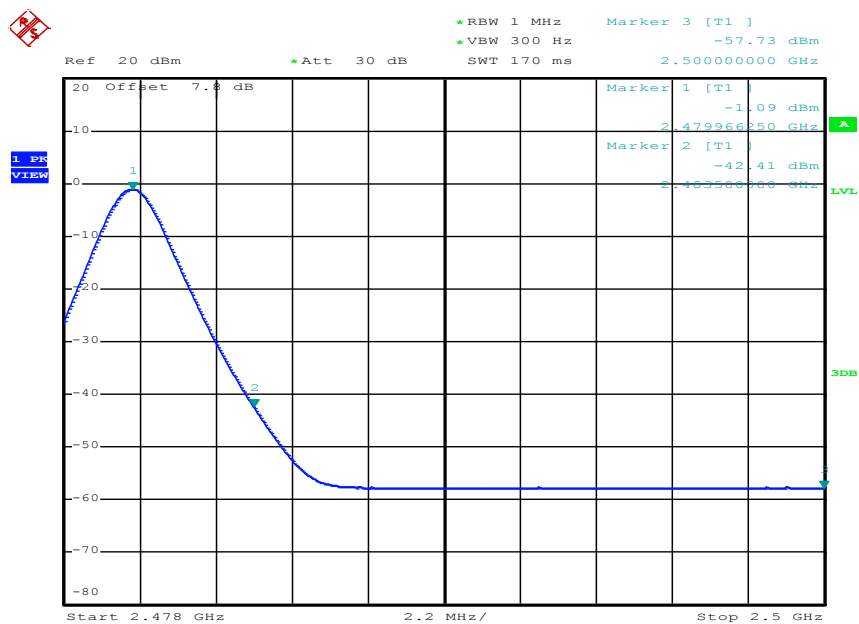
Date: 30.SEP.2019 16:02:53

Restrict-band band-edge measurements_Hopping Off_GFSK_PEAK (High Channel)

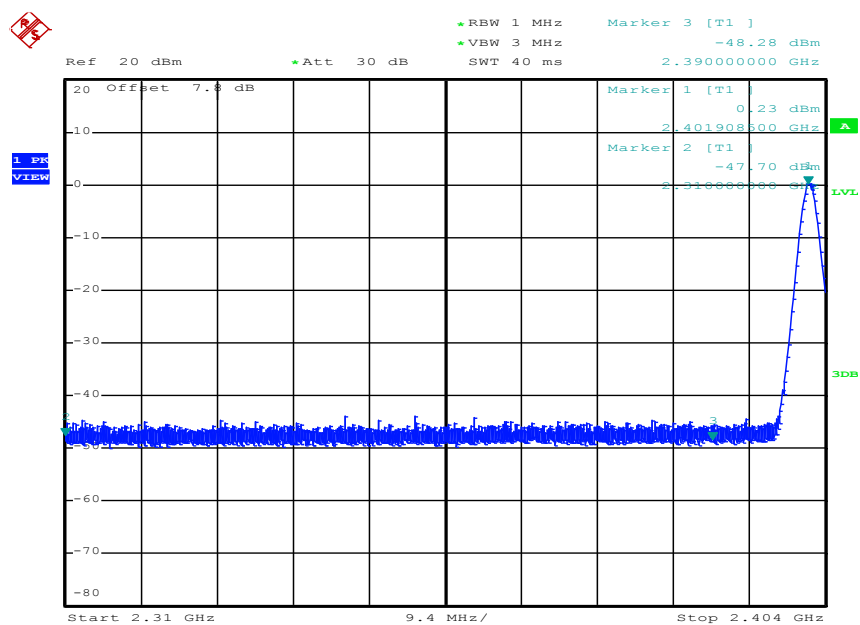


Date: 30.SEP.2019 16:07:22

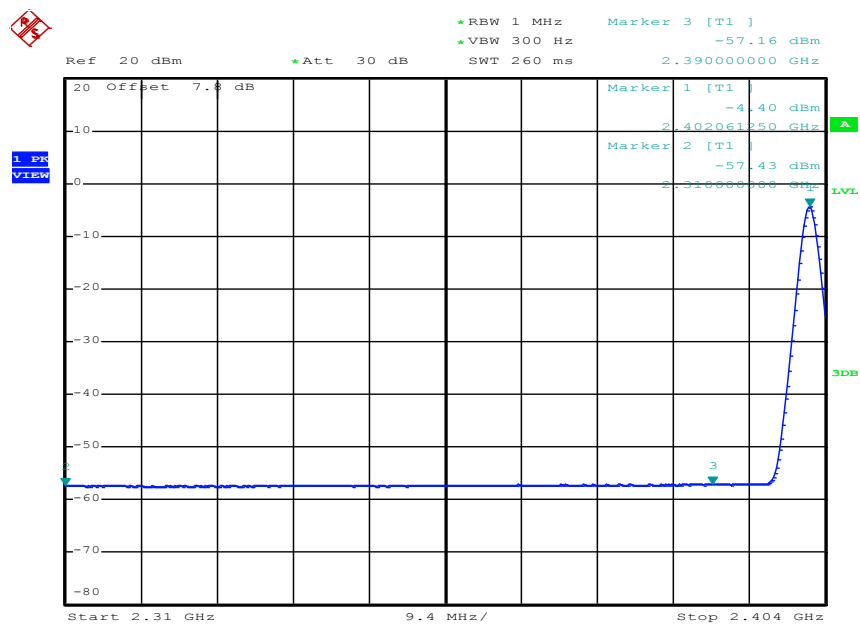
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



Date: 30.SEP.2019 16:07:35

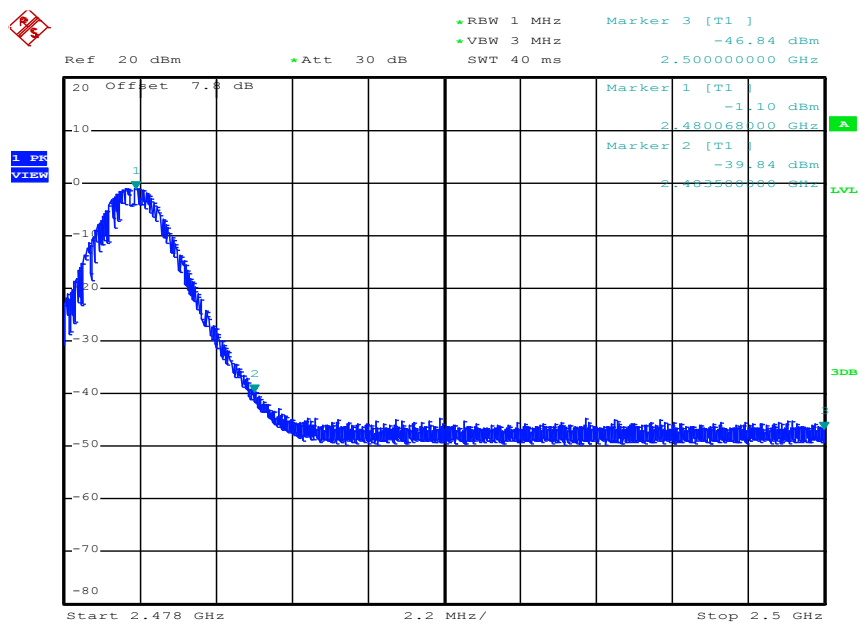
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)

Date: 30.SEP.2019 16:10:03

Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_Average (Low Channel)

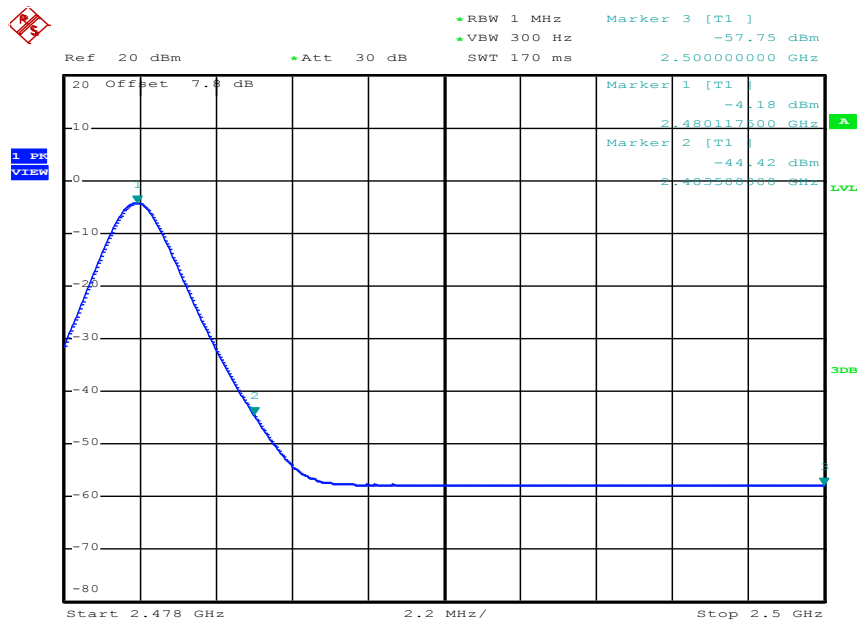
Date: 30.SEP.2019 16:10:16

Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK (High Channel)



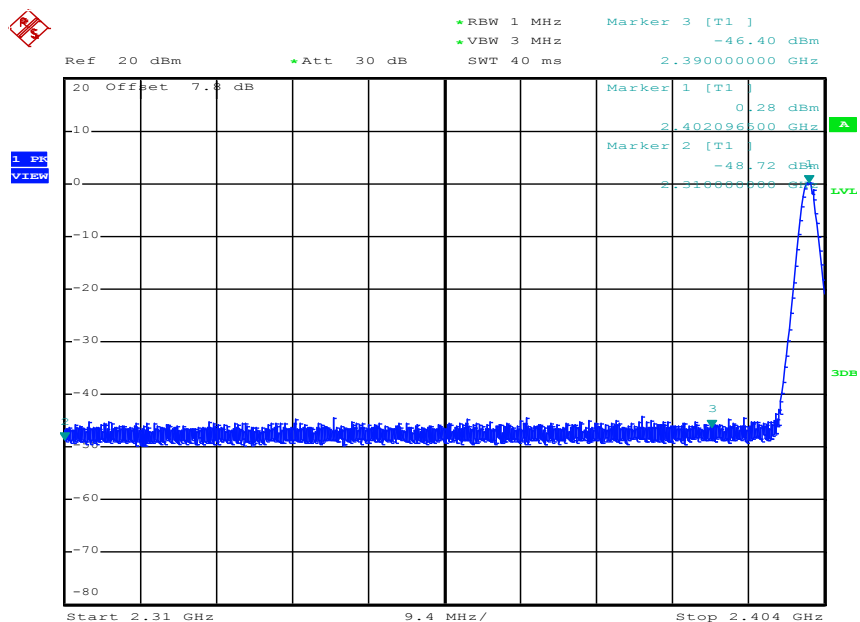
Date: 30.SEP.2019 16:14:37

Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_Average (High Channel)



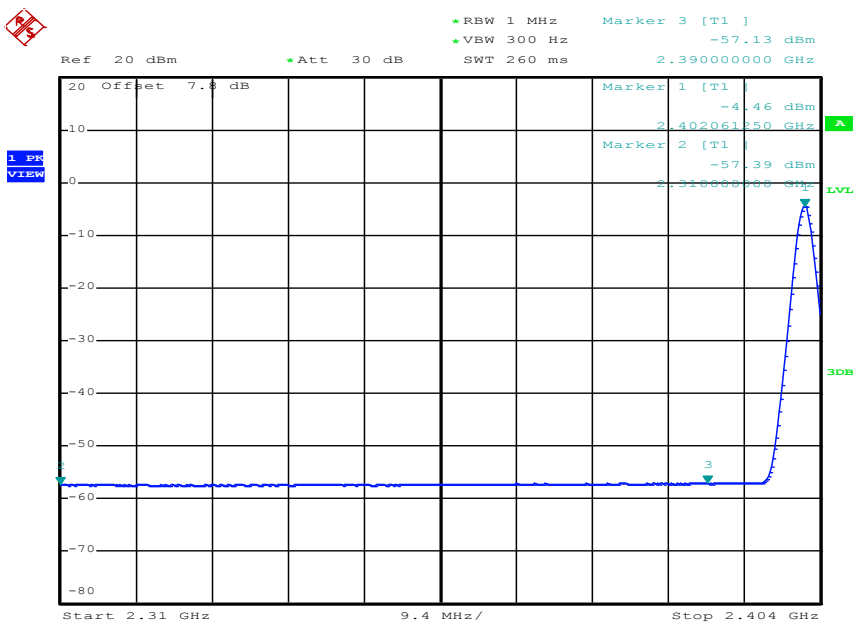
Date: 30.SEP.2019 16:14:50

Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (Low Channel)



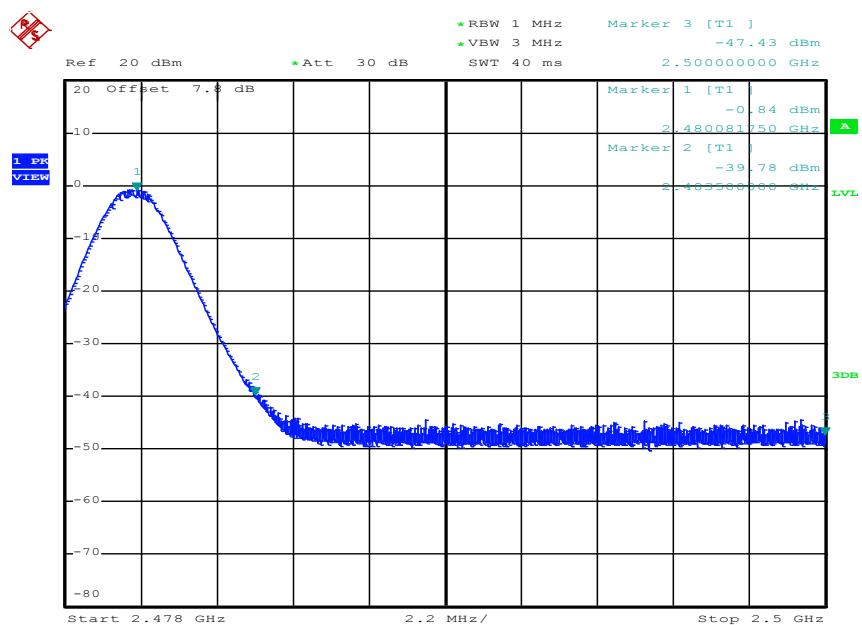
Date: 30.SEP.2019 16:18:23

Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (Low Channel)



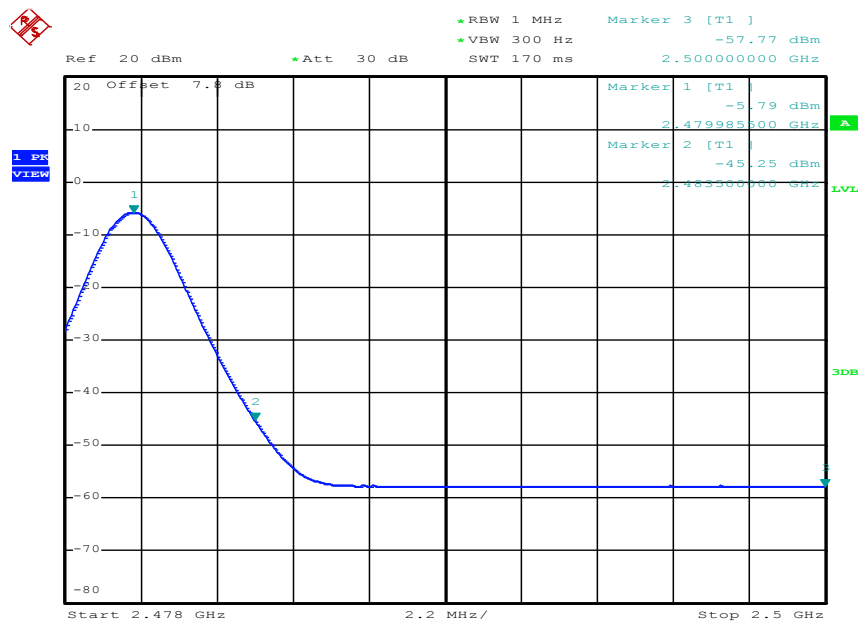
Date: 30.SEP.2019 16:18:36

Restrict-band band-edge measurements_Hopping Off_8DPSK_PEAK (High Channel)



Date: 30.SEP.2019 16:23:03

Restrict-band band-edge measurements_Hopping Off_8DPSK_Average (High Channel)



Date: 30.SEP.2019 16:23:16