

Appendix A

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

Product Name: Friendship Lamp

Trade Mark: Brookstone

Test Model: BSFL1800

Environmental Conditions

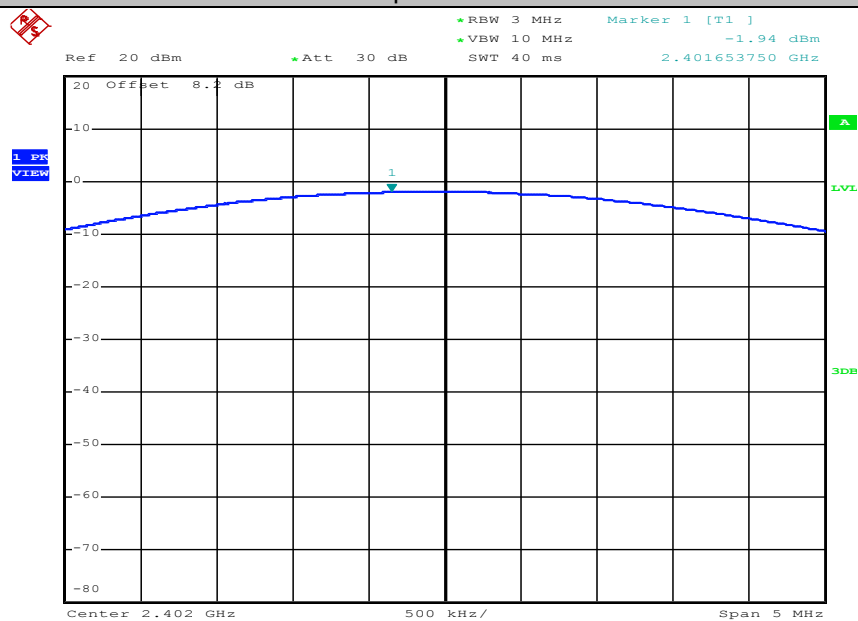
Temperature:	24.3° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.940	21	PASS
	MCH	-2.770	21	PASS
	HCH	-4.230	21	PASS
$\pi/4$ DQPSK	LCH	0.380	21	PASS
	MCH	-0.690	21	PASS
	HCH	-2.130	21	PASS
8DPSK	LCH	0.860	21	PASS
	MCH	-0.140	21	PASS
	HCH	-1.580	21	PASS

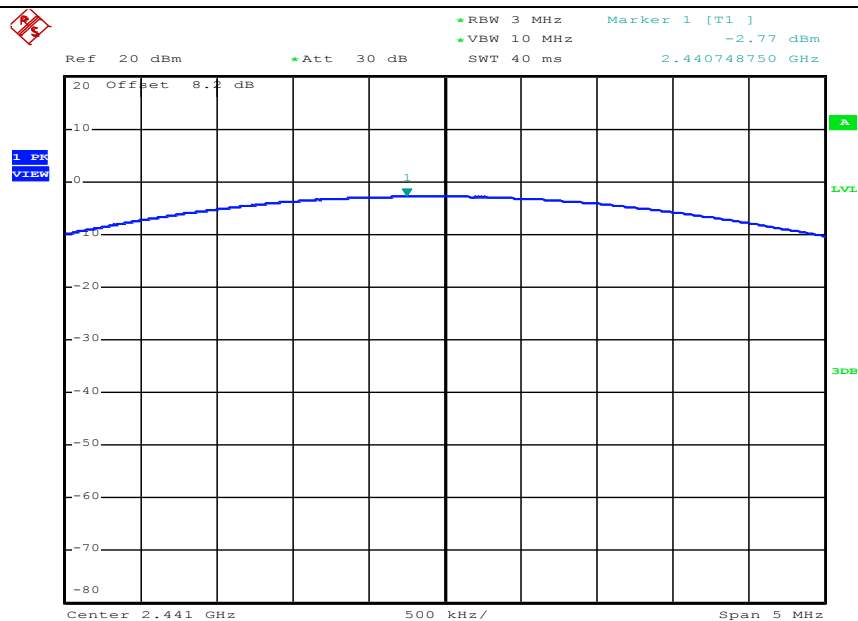
Test Graphs

GFSK/LCH



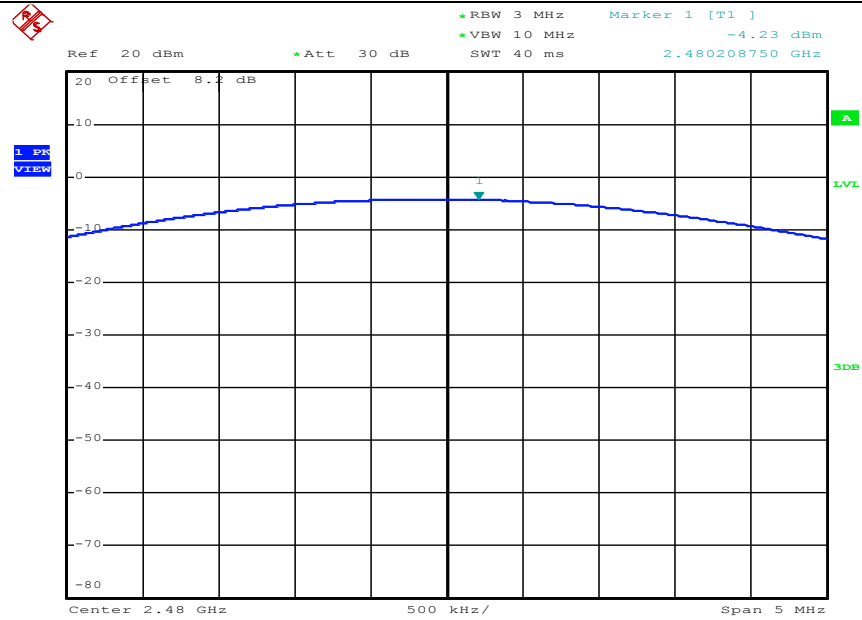
Date: 10.AUG.2019 13:32:58

GFSK/MCH

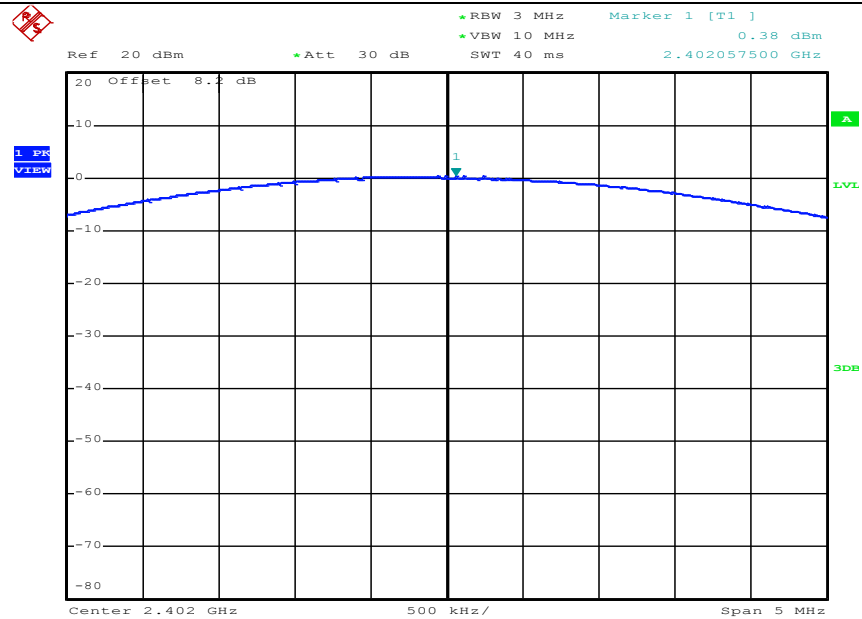


Date: 10.AUG.2019 13:36:03

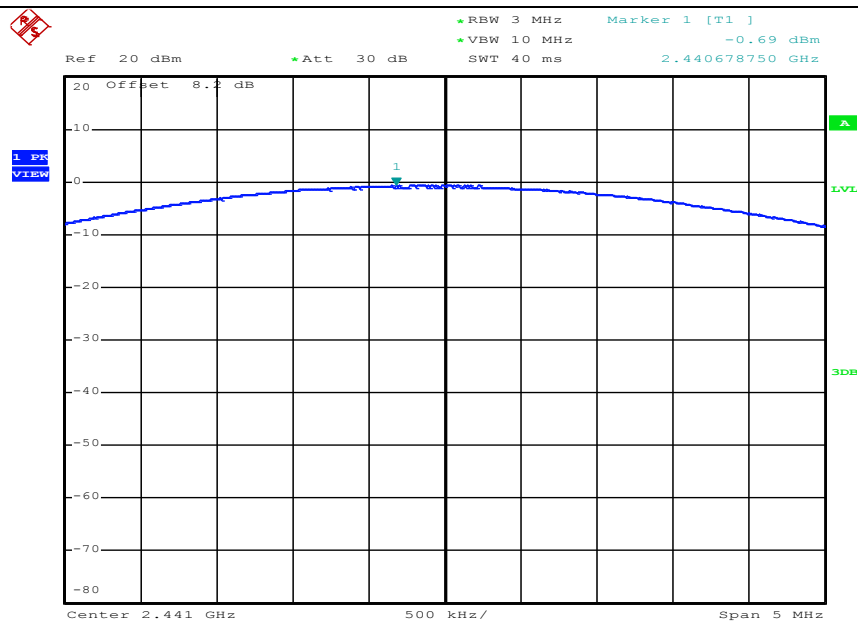
GFSK/HCH



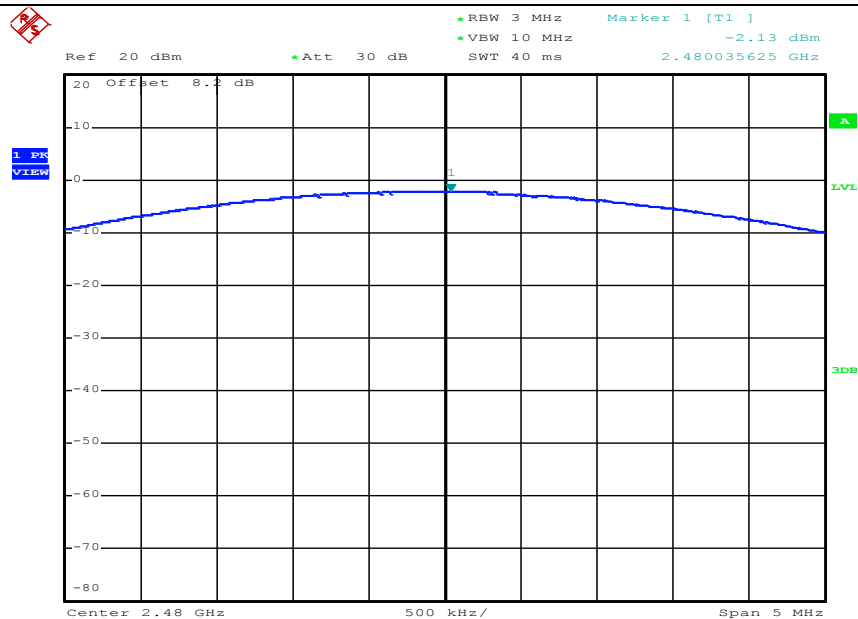
Date: 10.AUG.2019 13:38:05

 π /4DQPSK/LCH

Date: 10.AUG.2019 13:40:49

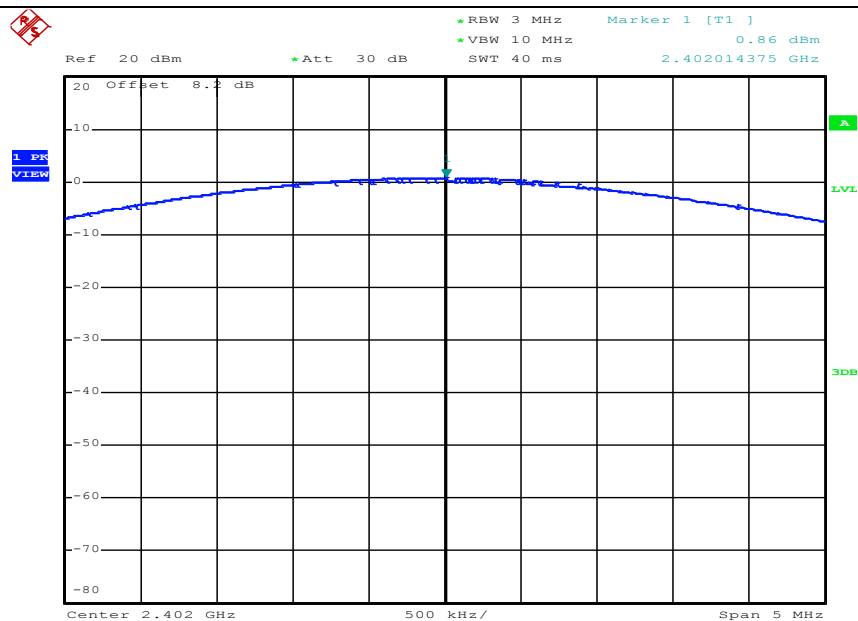
$\pi/4$ DQPSK/MCH

Date: 10.AUG.2019 13:43:37

 $\pi/4$ DQPSK/HCH

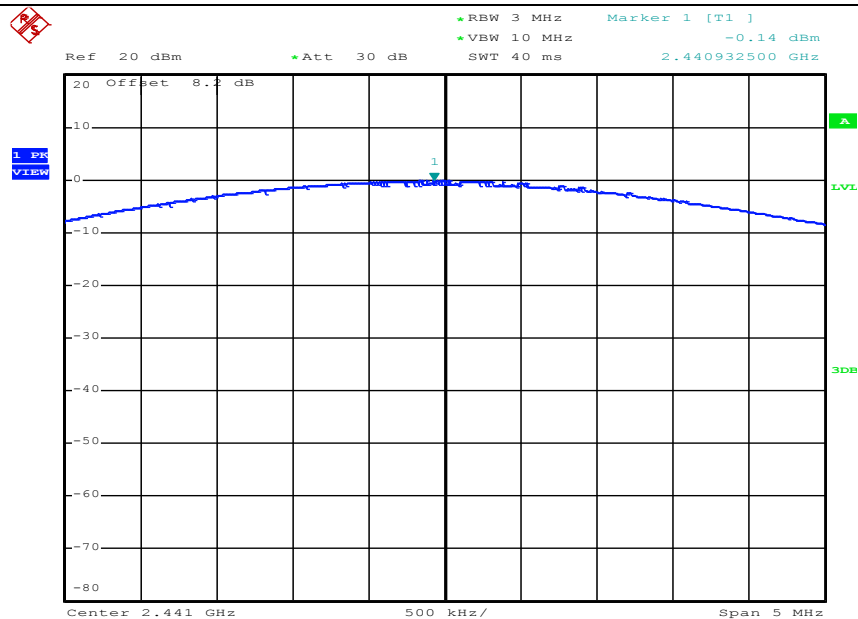
Date: 10.AUG.2019 13:45:31

8DPSK/LCH



Date: 10.AUG.2019 13:48:33

8DPSK/MCH

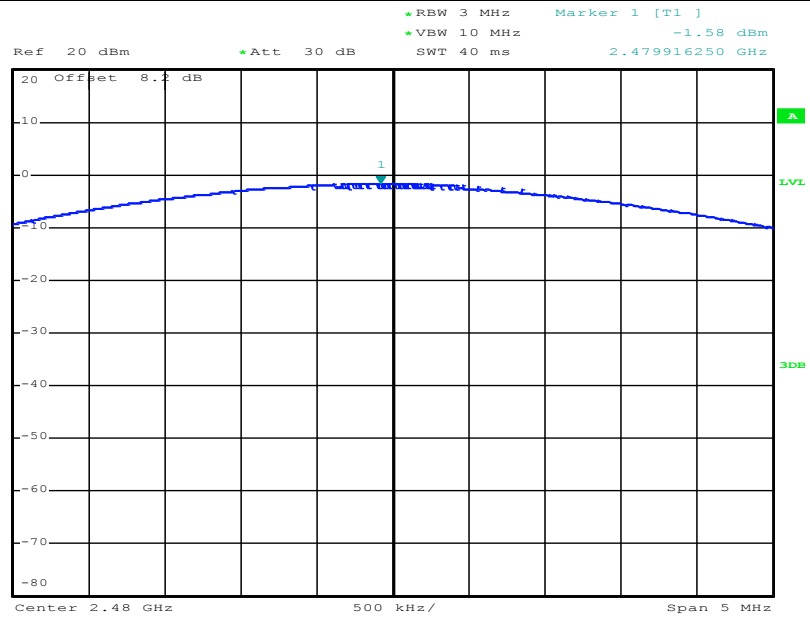


Date: 10.AUG.2019 13:51:06

8DPSK/HCH



1 PK
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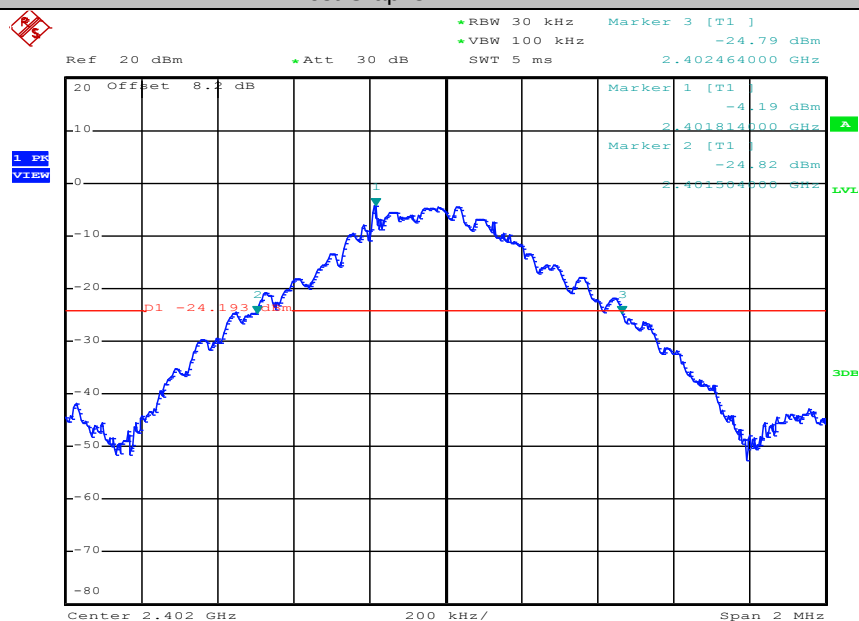
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A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.960	Not Specified	PASS
	MCH	0.956	Not Specified	PASS
	HCH	0.964	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.280	Not Specified	PASS
	MCH	1.282	Not Specified	PASS
	HCH	1.280	Not Specified	PASS
8DPSK	LCH	1.298	Not Specified	PASS
	MCH	1.294	Not Specified	PASS
	HCH	1.302	Not Specified	PASS

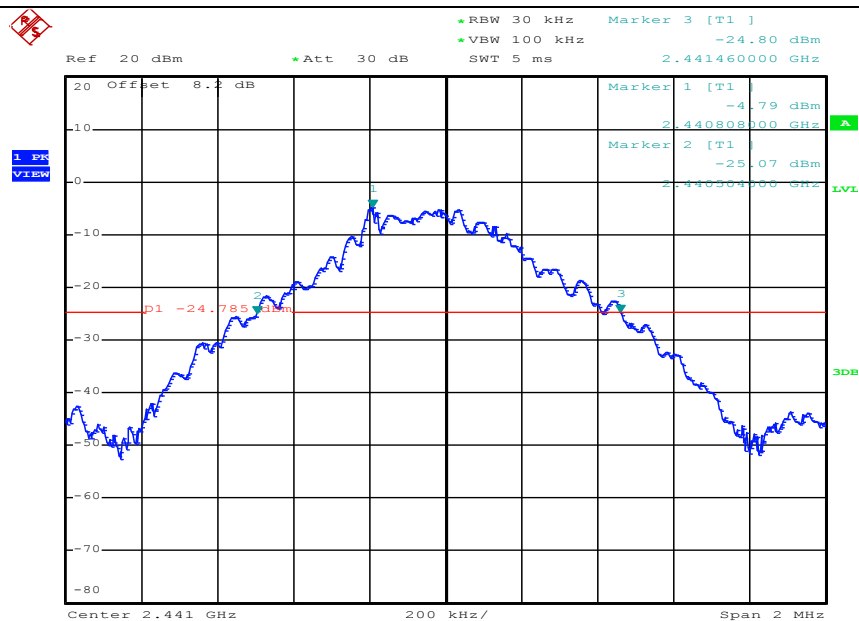
Test Graphs

GFSK/LCH



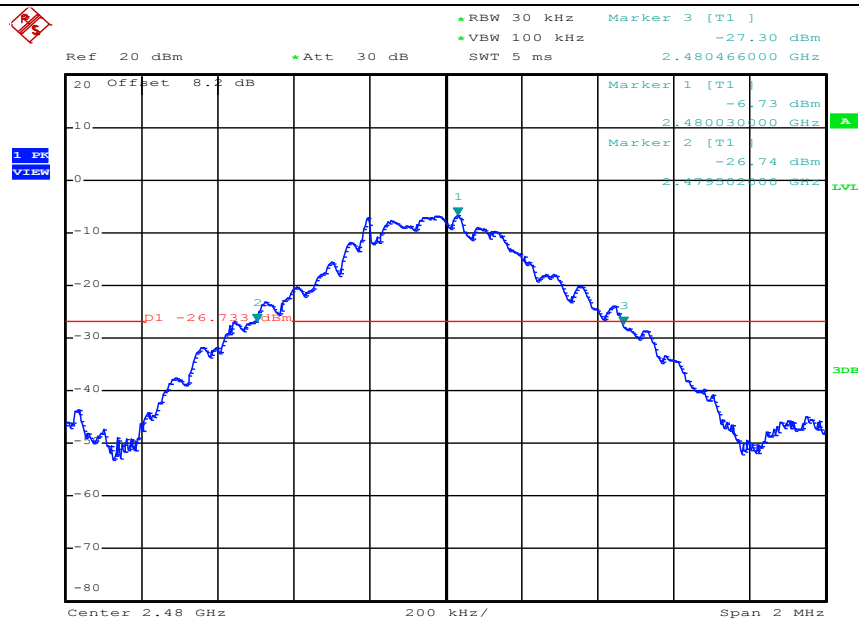
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GFSK/MCH

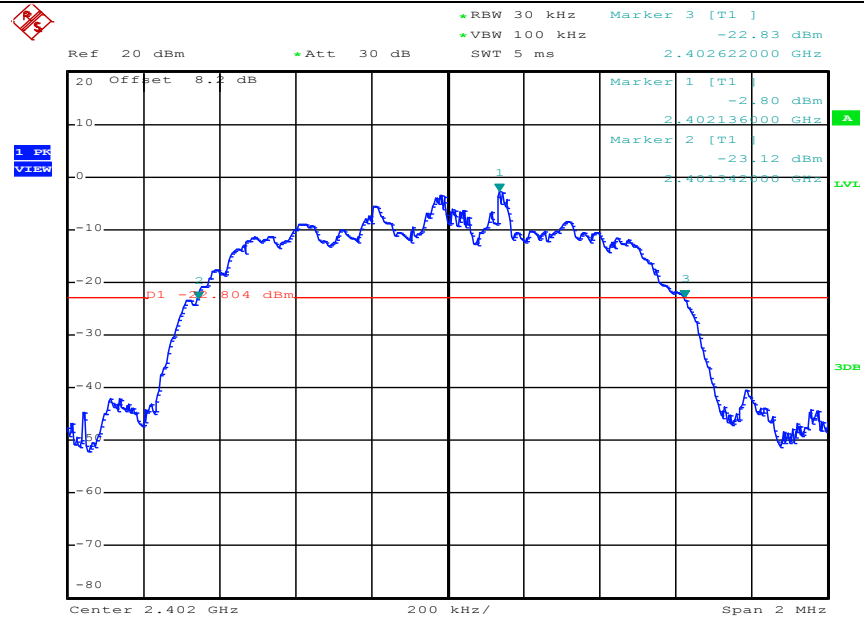
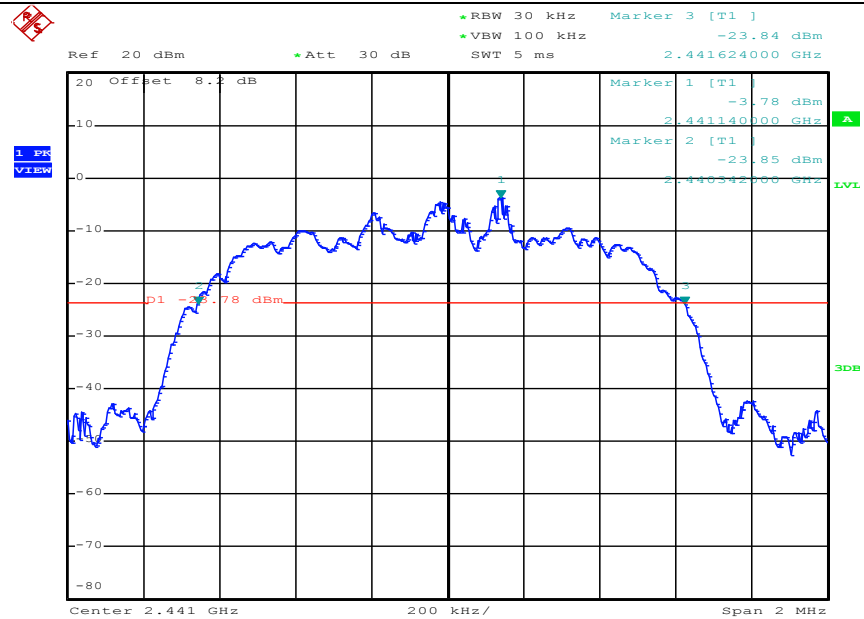


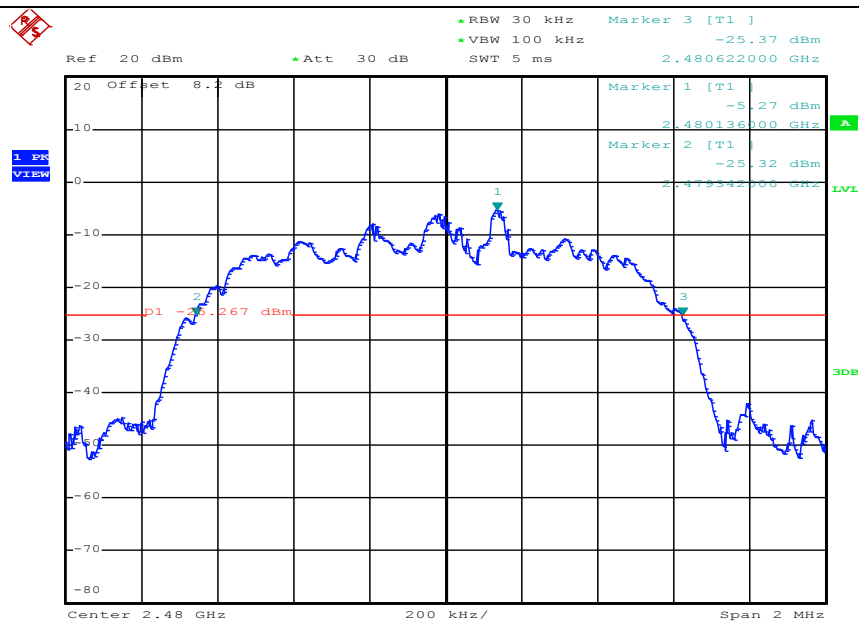
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GFSK/HCH



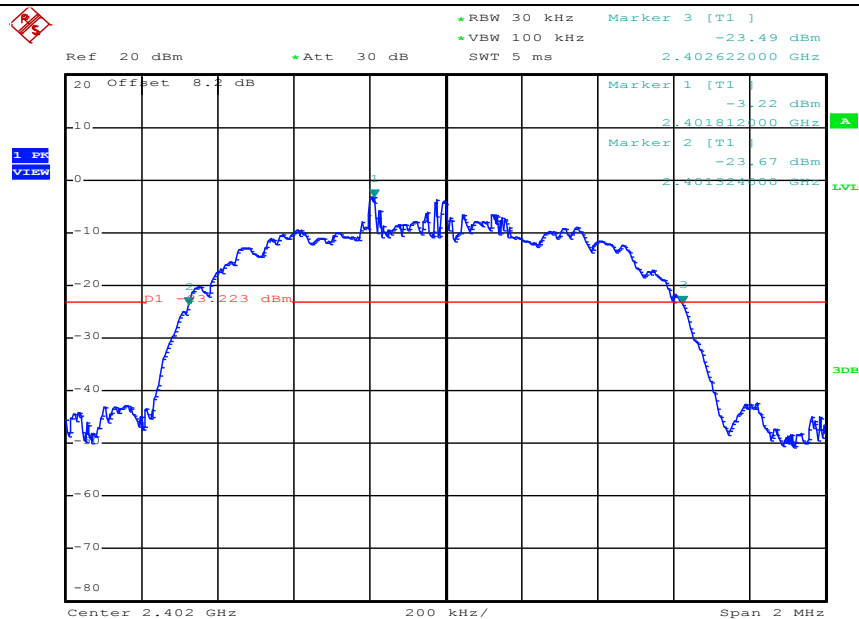
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$\pi/4$ DQPSK/LCH $\pi/4$ DQPSK/MCH

$\pi/4$ DQPSK/HCH

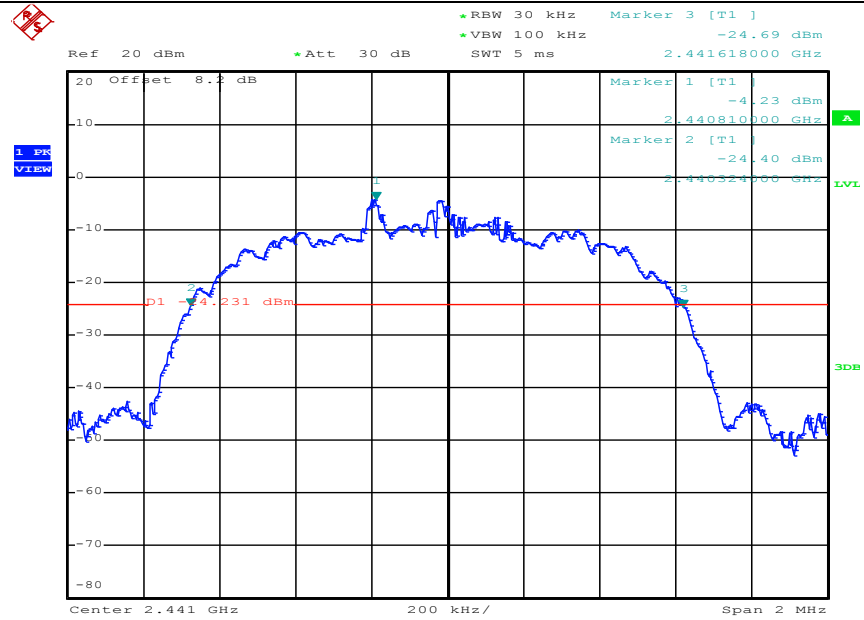
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8DPSK/LCH



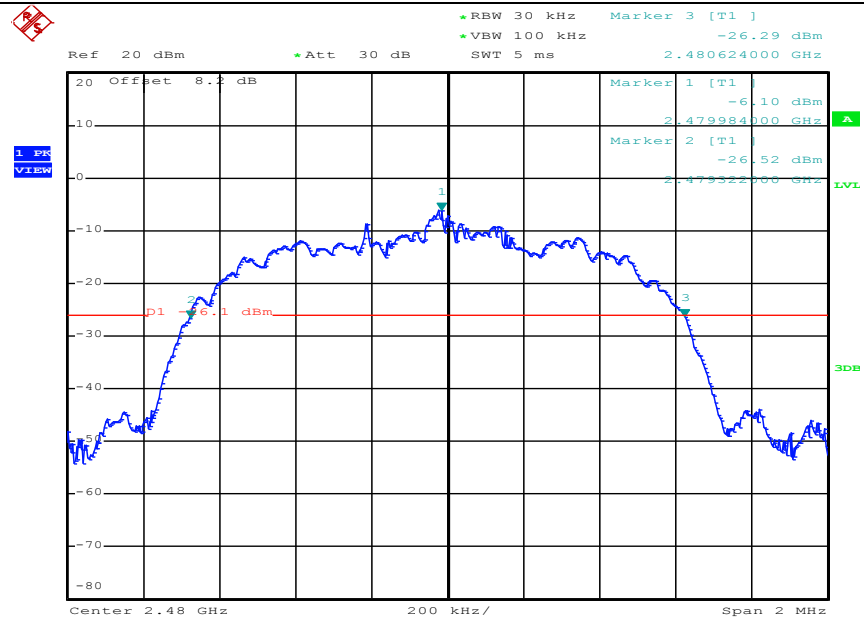
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8DPSK/MCH



Date: 10.AUG.2019 13:50:29

8DPSK/HCH



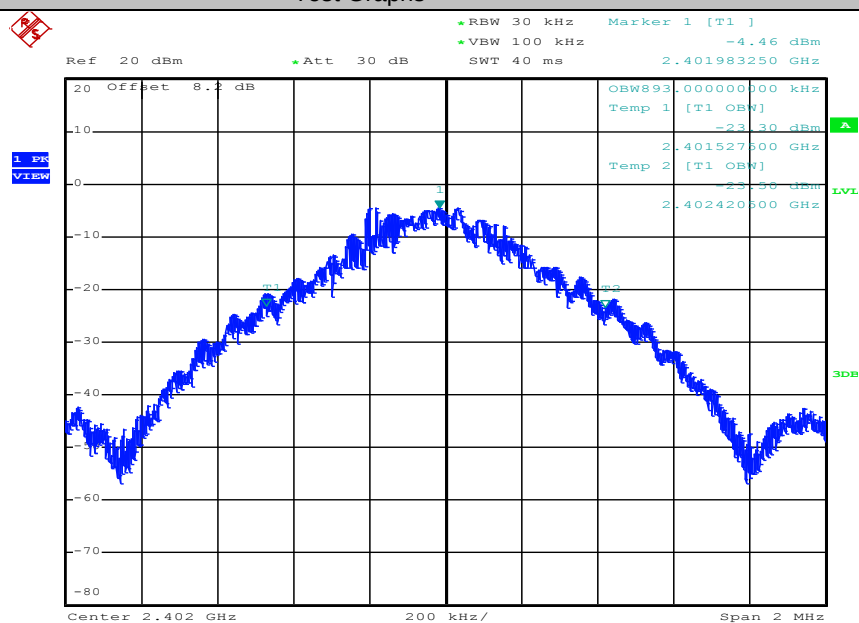
Date: 10.AUG.2019 13:53:37

A.3 Occupied Bandwidth

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.893	Not Specified	PASS
	MCH	0.893	Not Specified	PASS
	HCH	0.894	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.190	Not Specified	PASS
	MCH	1.188	Not Specified	PASS
	HCH	1.186	Not Specified	PASS
8DPSK	LCH	1.189	Not Specified	PASS
	MCH	1.189	Not Specified	PASS
	HCH	1.189	Not Specified	PASS

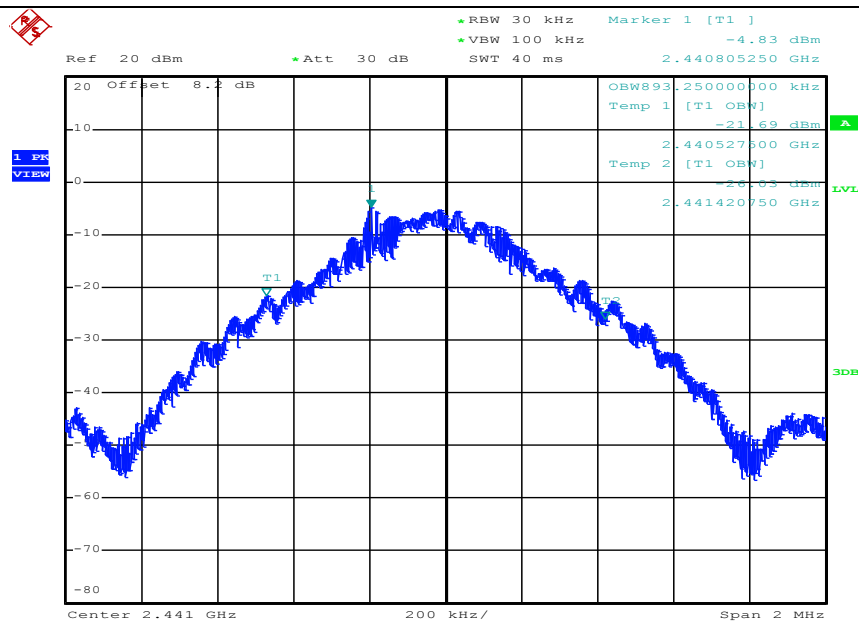
Test Graphs

GFSK/LCH



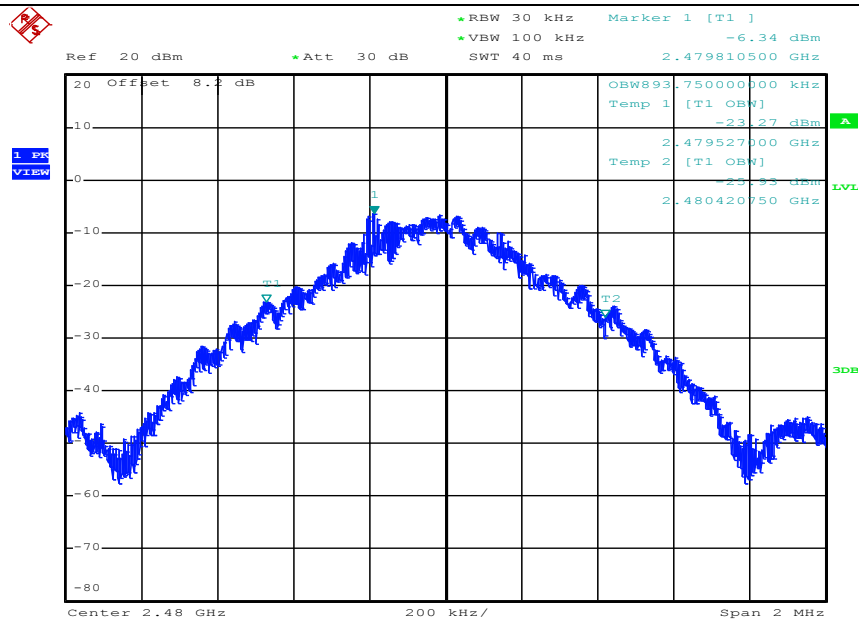
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GFSK/MCH

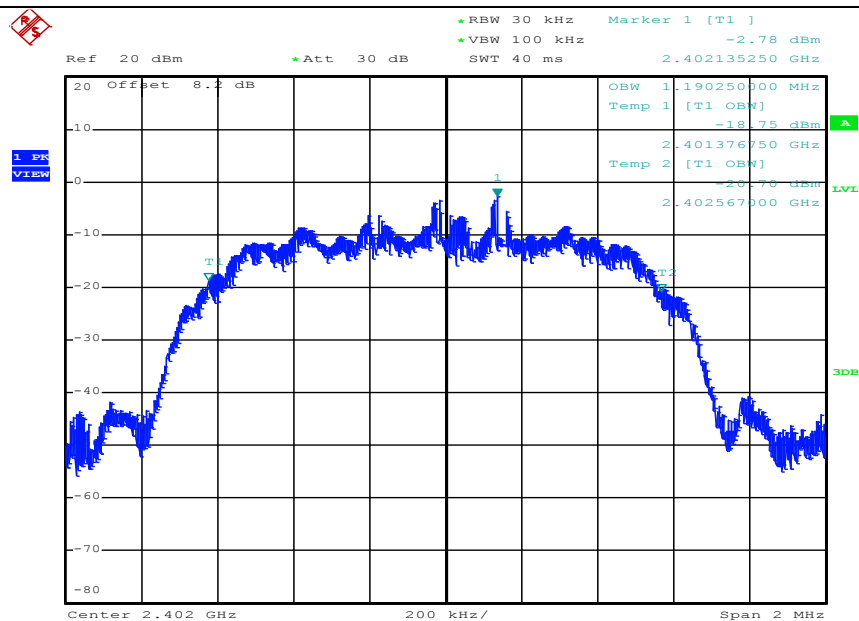


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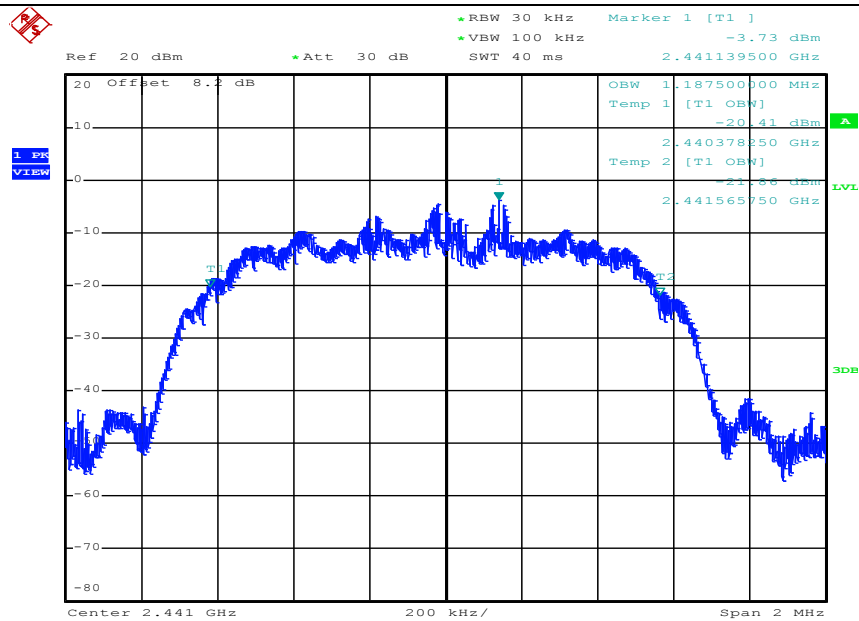
GFSK/HCH



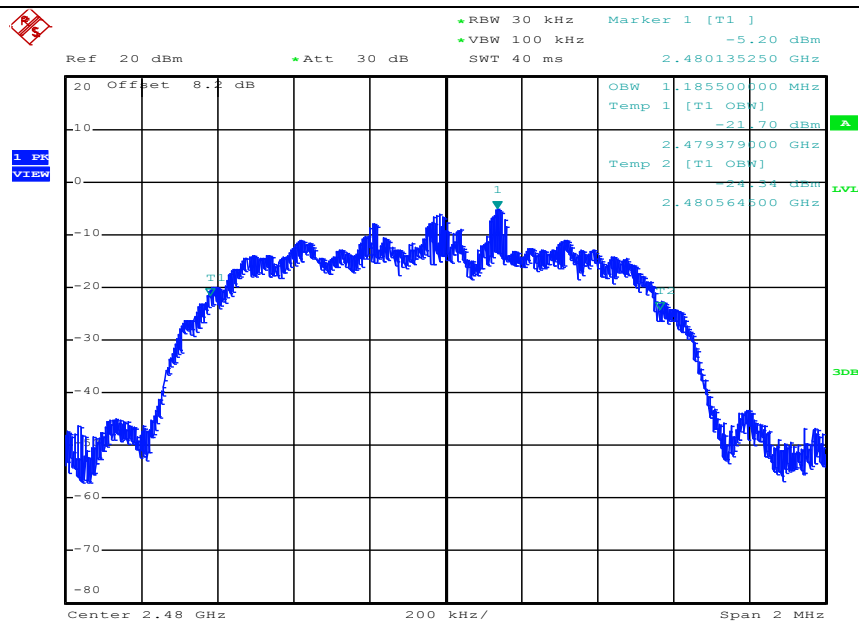
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$\pi/4$ DQPSK/LCH

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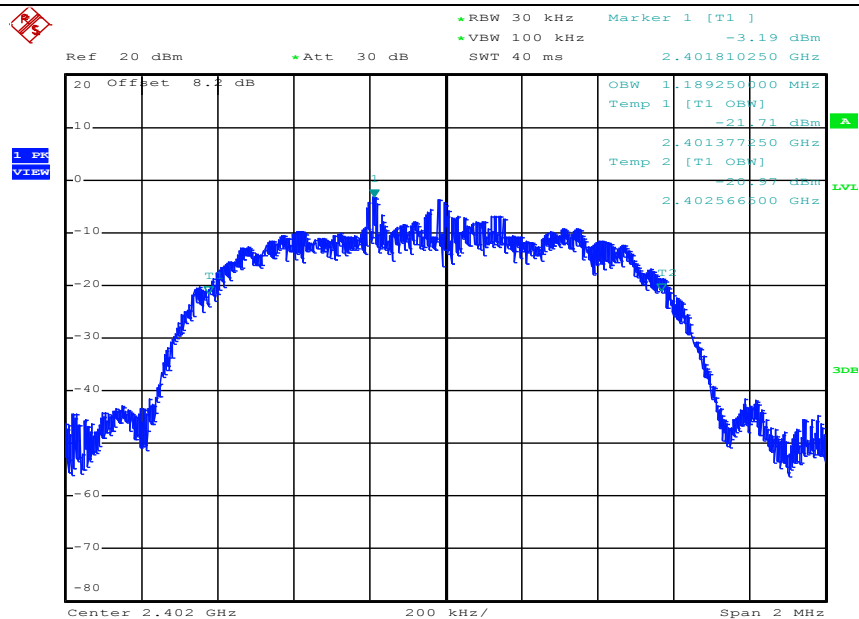
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$\pi/4$ DQPSK/HCH

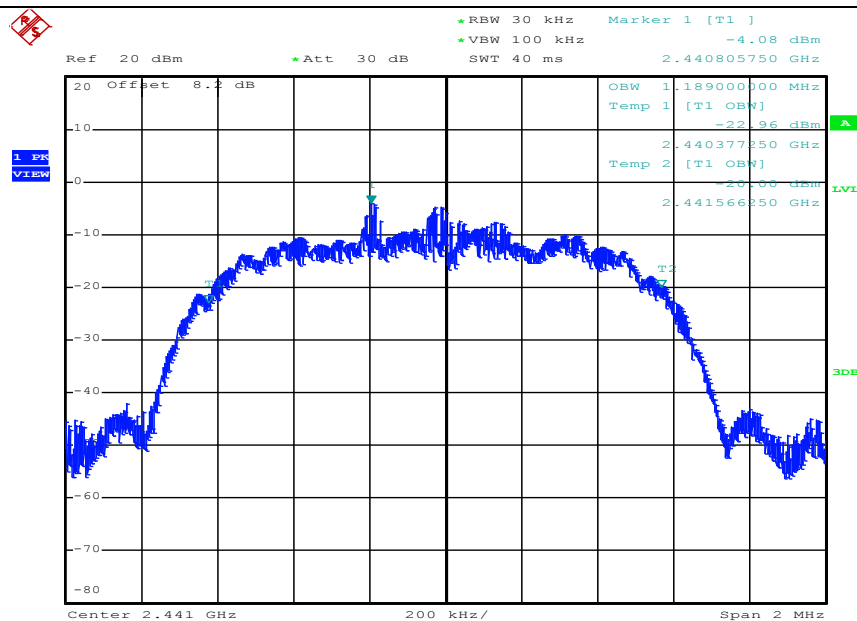
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8DPSK/LCH



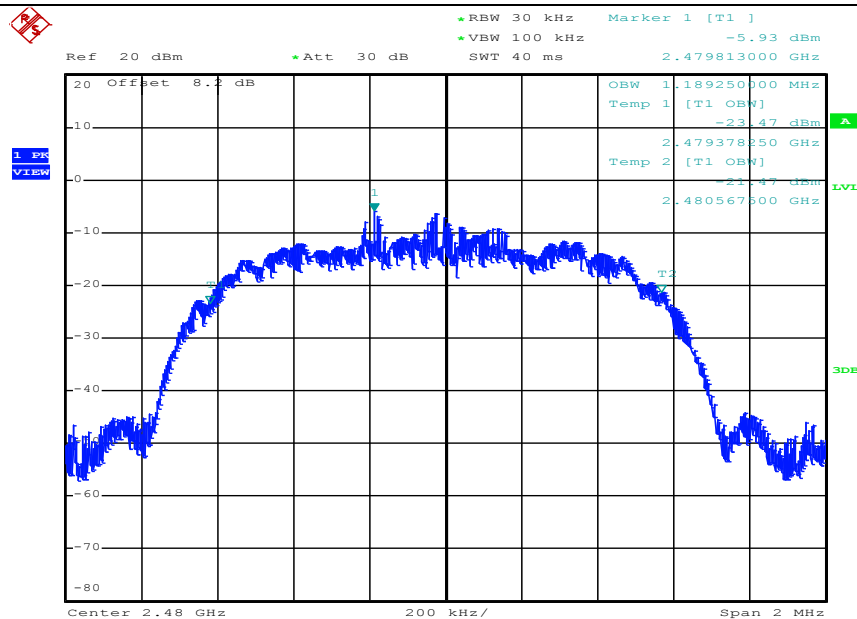
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8DPSK/MCH



Date: 10.AUG.2019 14:02:50

8DPSK/HCH



Date: 10.AUG.2019 14:03:27

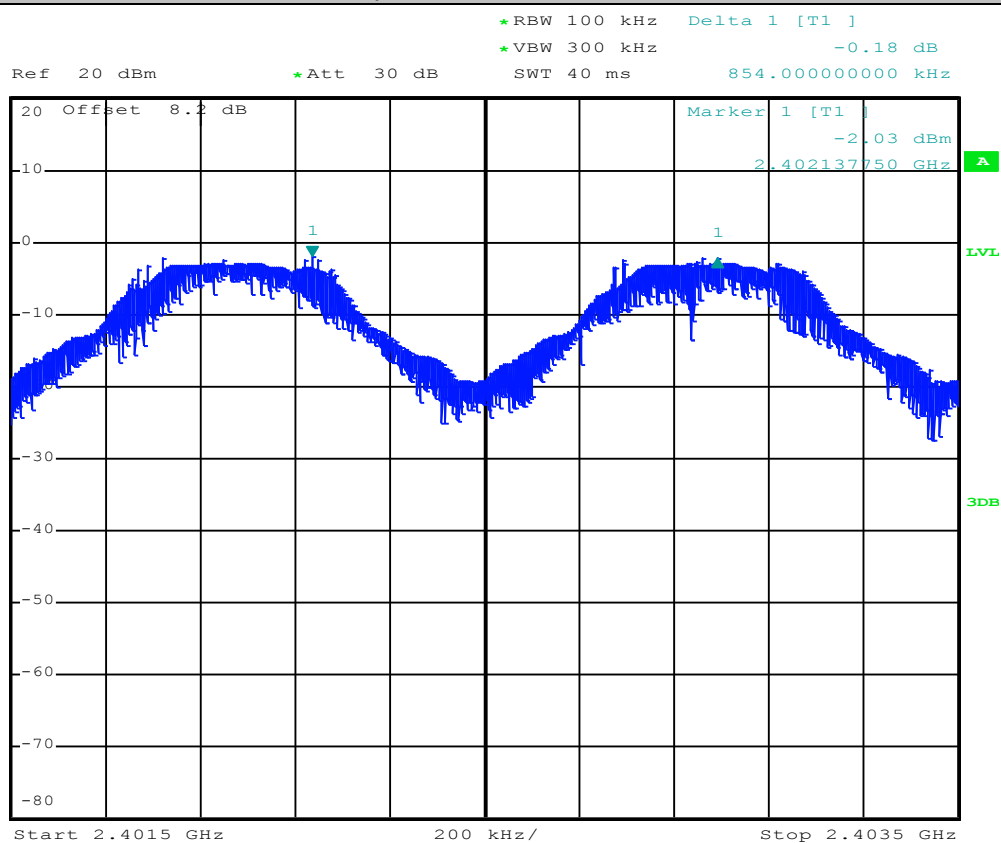
A.4 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.854	0.643	PASS
	MCH	0.776	0.643	PASS
	HCH	1.102	0.643	PASS
$\pi/4$ DQPSK	LCH	0.998	0.855	PASS
	MCH	1.152	0.855	PASS

	HCH	1.026	0.855	PASS
8DPSK	LCH	0.914	0.868	PASS
	MCH	1.222	0.868	PASS
	HCH	1.004	0.868	PASS

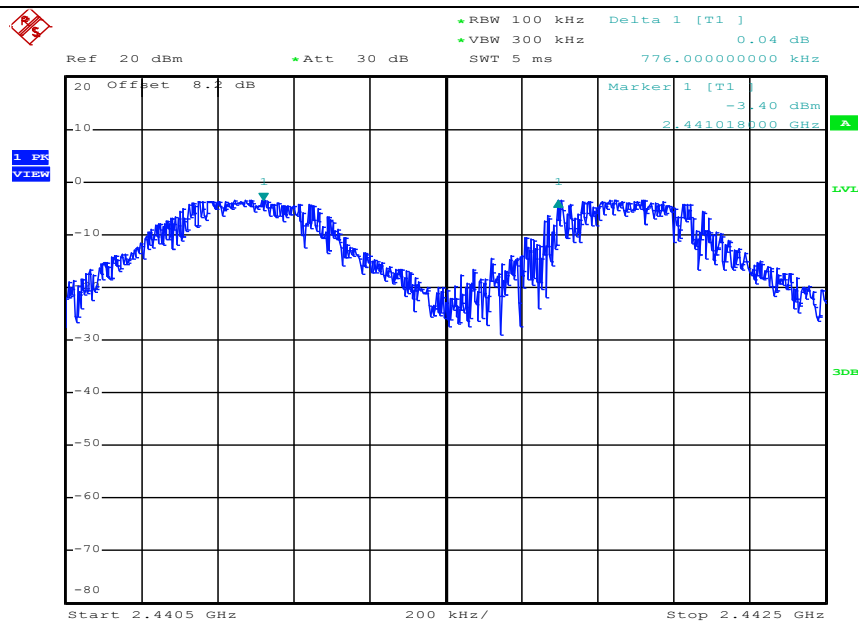
Test Graphs

GFSK/LCH

1 PR
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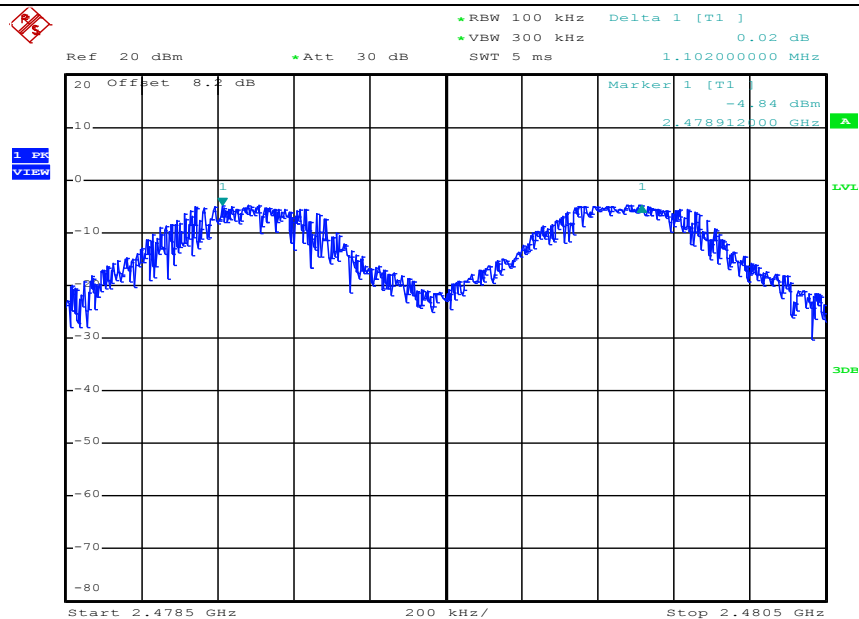
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GFSK/MCH

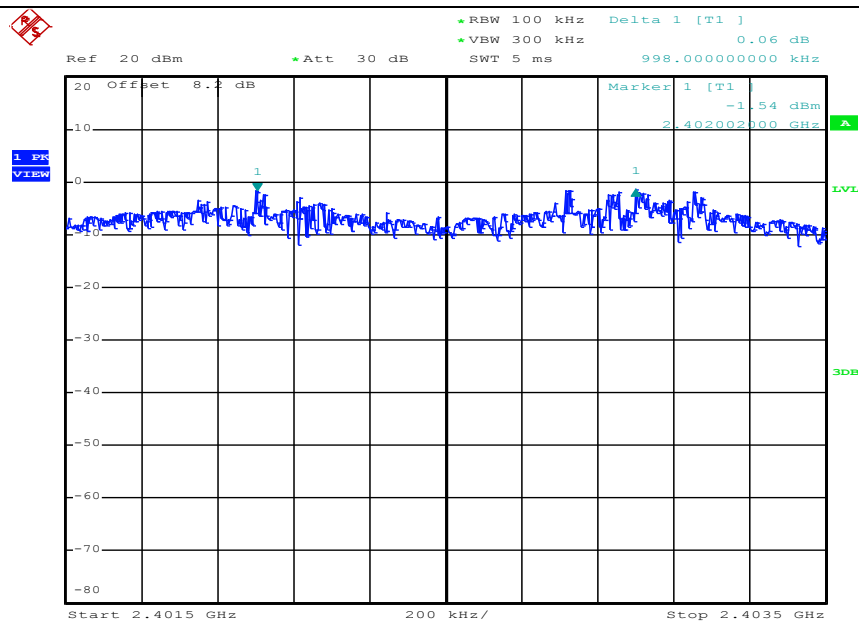


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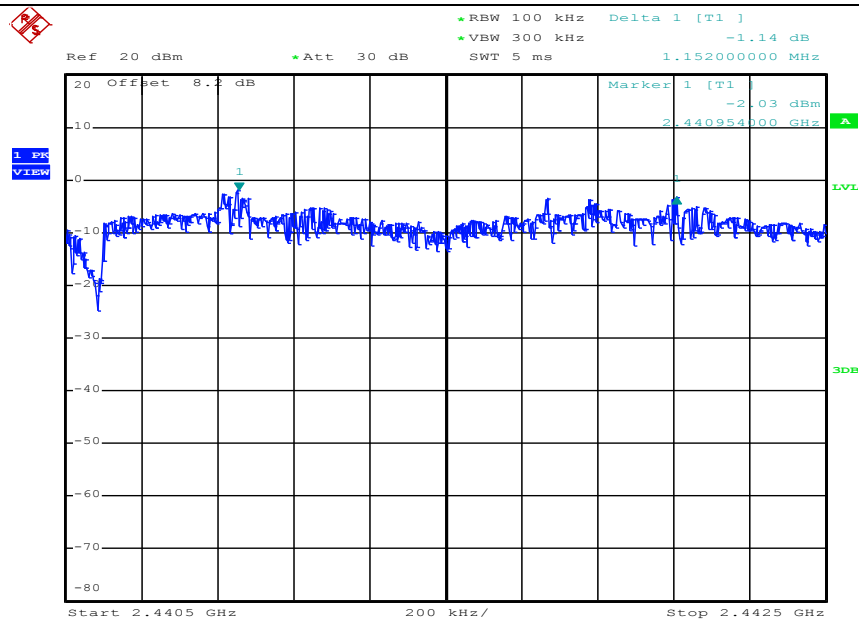
GFSK/HCH



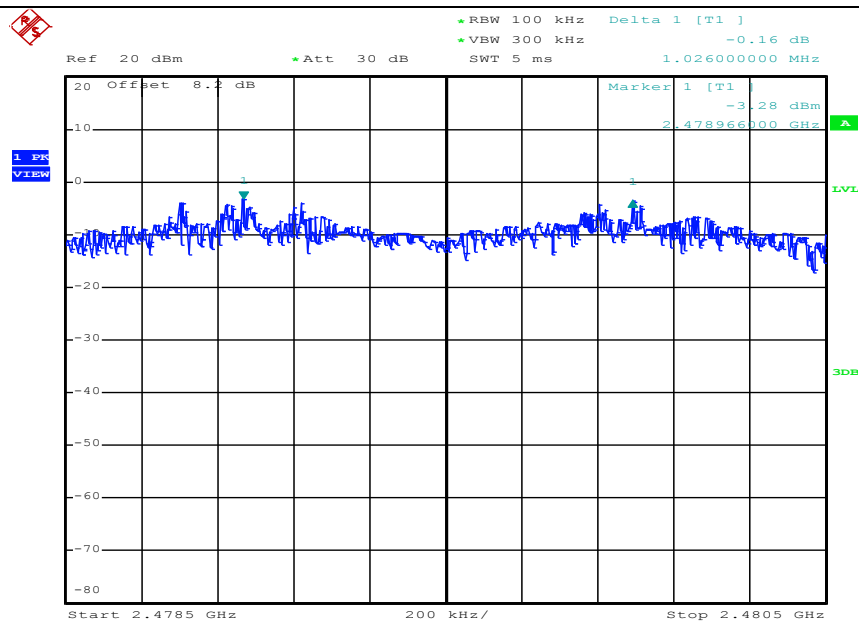
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$\pi/4$ DQPSK/LCH

Date: 10.AUG.2019 14:11:19

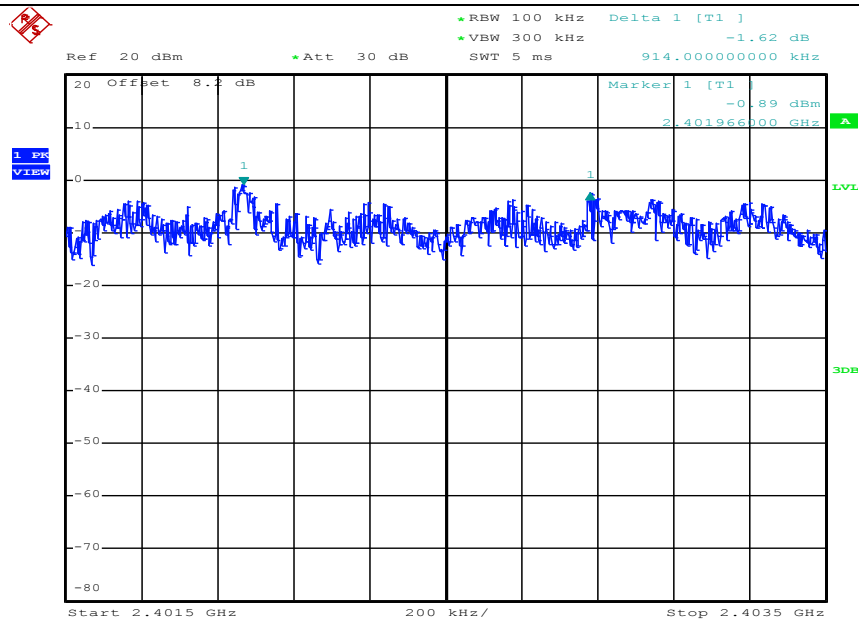
 $\pi/4$ DQPSK/MCH

Date: 10.AUG.2019 14:28:12

π /4DQPSK/HCH

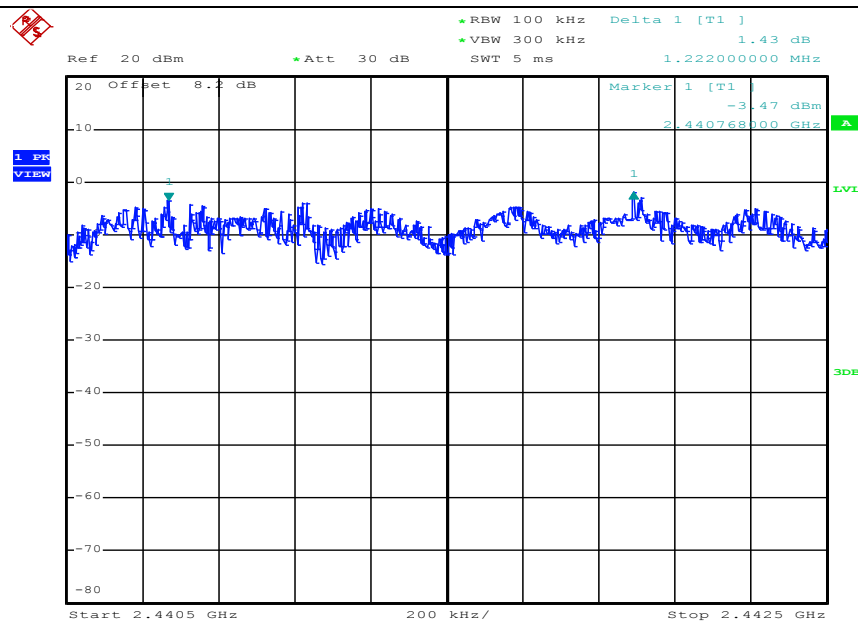
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8DPSK/LCH



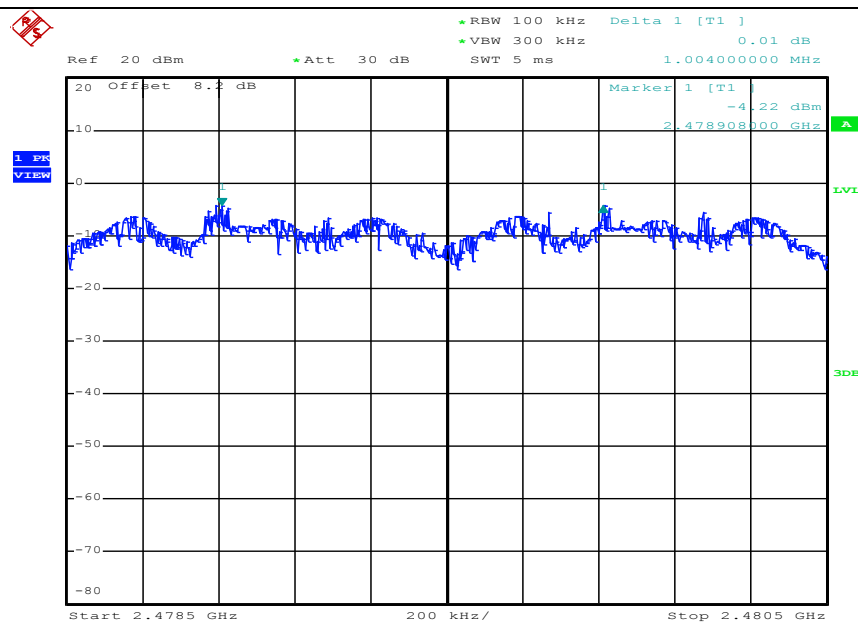
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8DPSK/MCH



Date: 10.AUG.2019 14:29:13

8DPSK/HCH



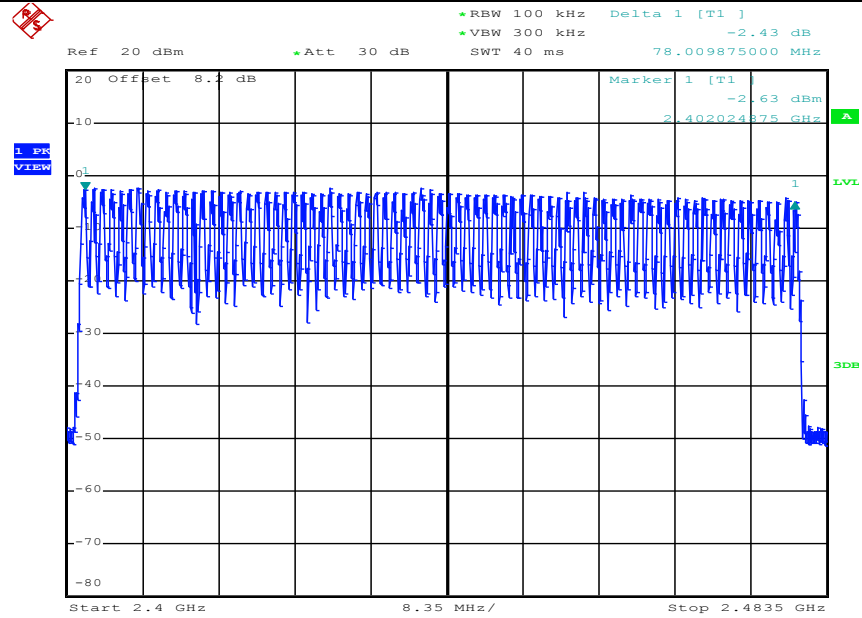
Date: 10.AUG.2019 14:23:21

A.5 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

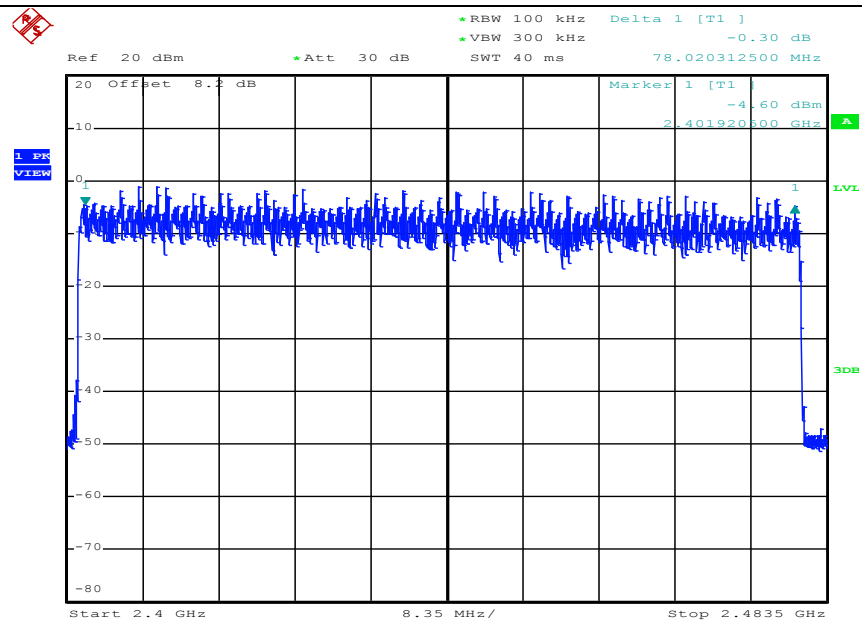
Test Graphs

GFSK/Hop



Date: 10.AUG.2019 14:10:13

$\pi/4$ DQPSK/Hop

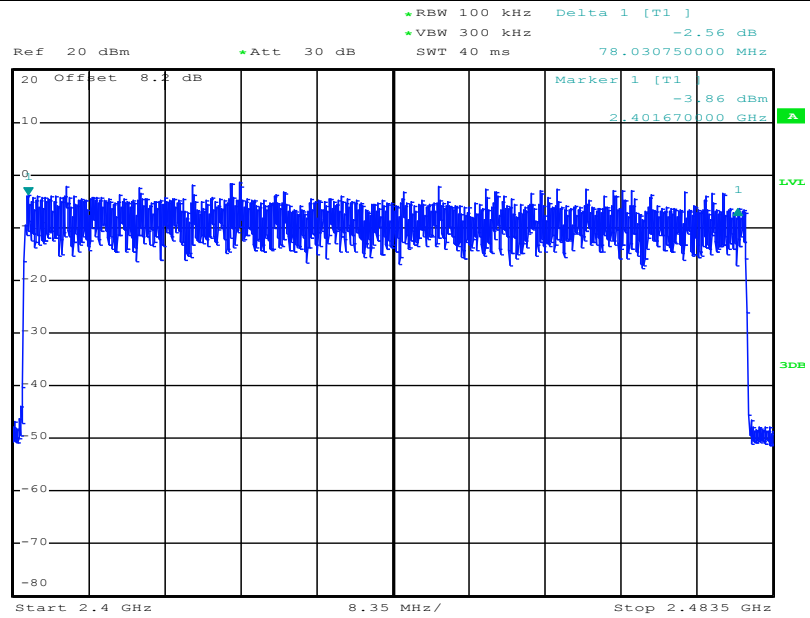


Date: 10.AUG.2019 14:19:48

8DPSK/Hop



1 PR
VIEW



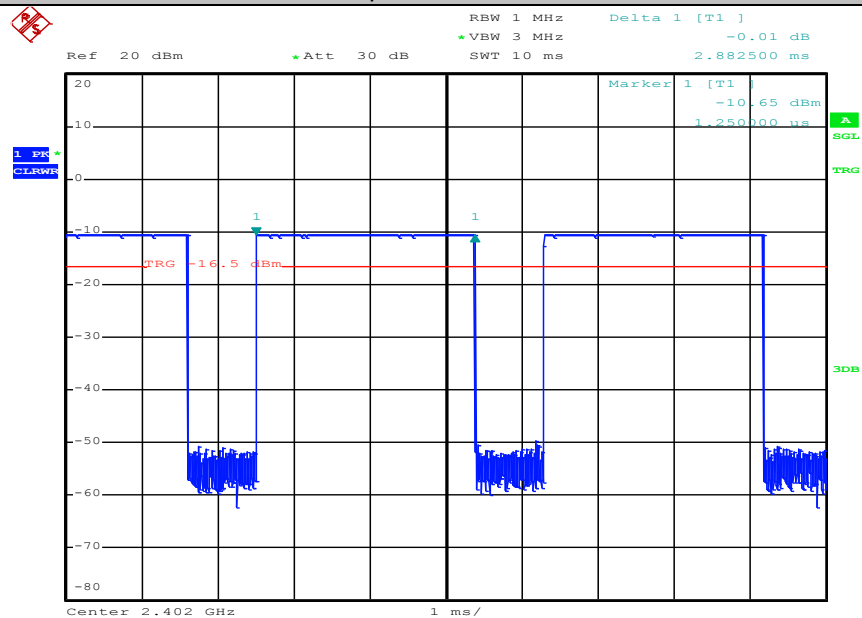
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A.6 Dwell Time

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	0.308	0.4	PASS
	2DH5	MCH	2.88	106.7	0.308	0.4	PASS
	2DH5	HCH	2.88	106.7	0.308	0.4	PASS
8DPSK	3DH5	LCH	2.89	106.7	0.308	0.4	PASS
	3DH5	MCH	2.89	106.7	0.308	0.4	PASS
	3DH5	HCH	2.89	106.7	0.308	0.4	PASS

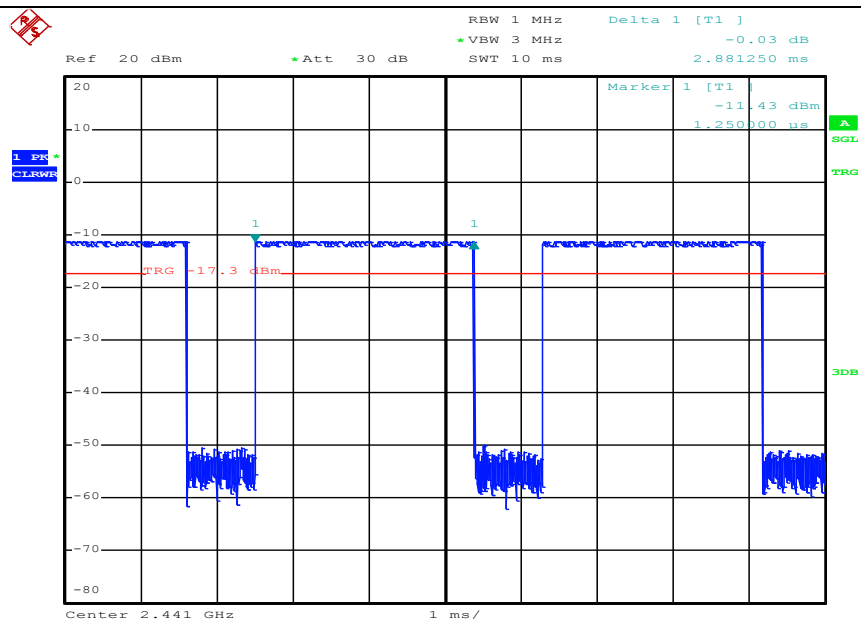
Test Graphs

GFSK_DH5/LCH



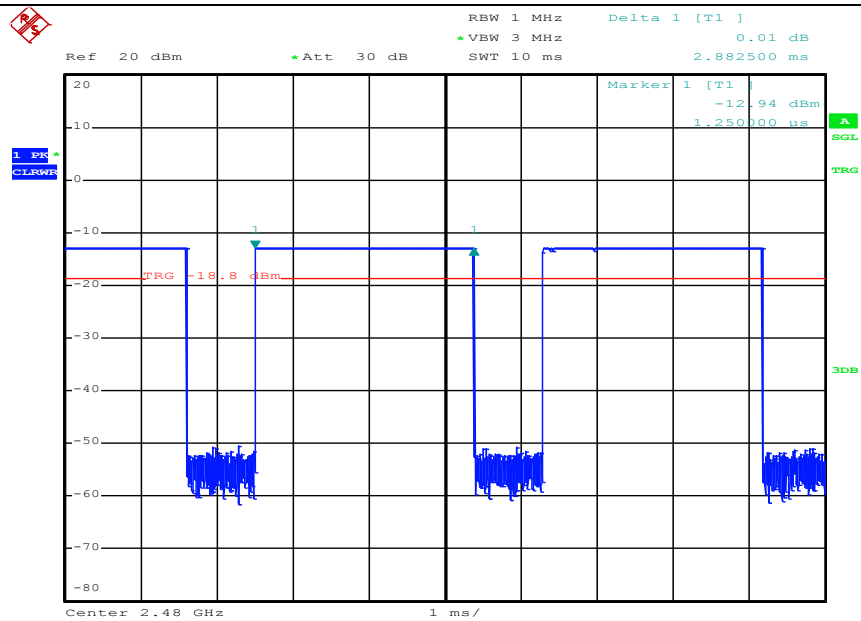
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GFSK_DH5/MCH



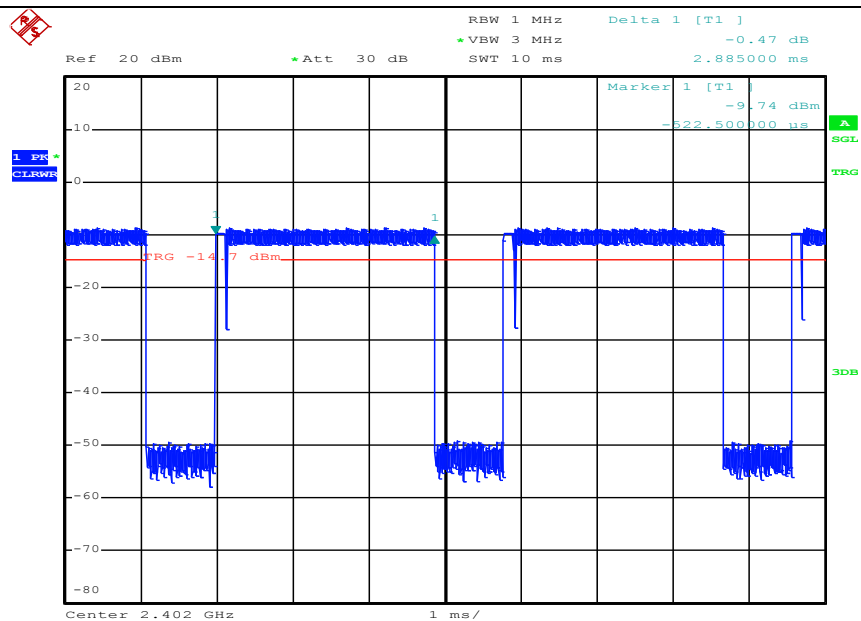
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GFSK_DH5/HCH



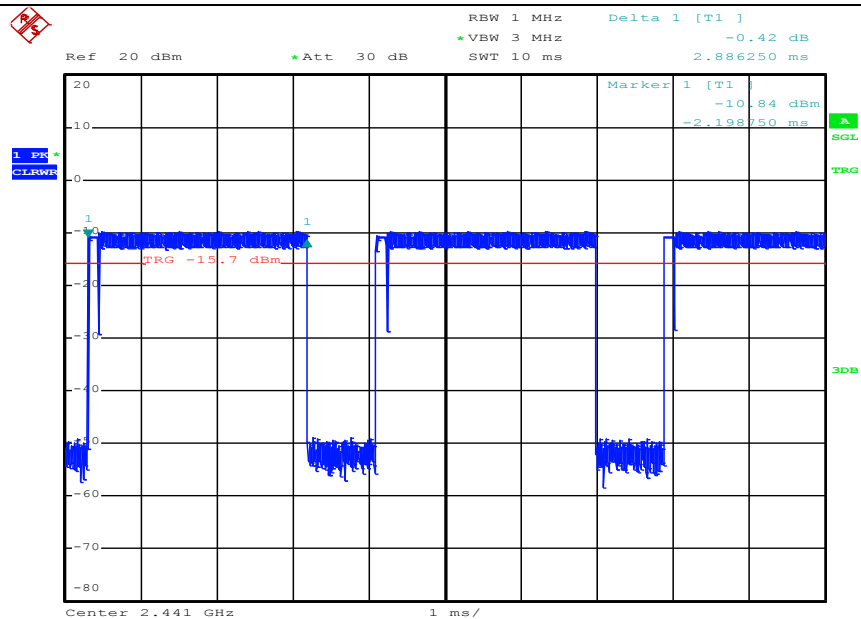
Date: 10.AUG.2019 13:37:50

$\pi/4$ DQPSK
_2DH5/LCH



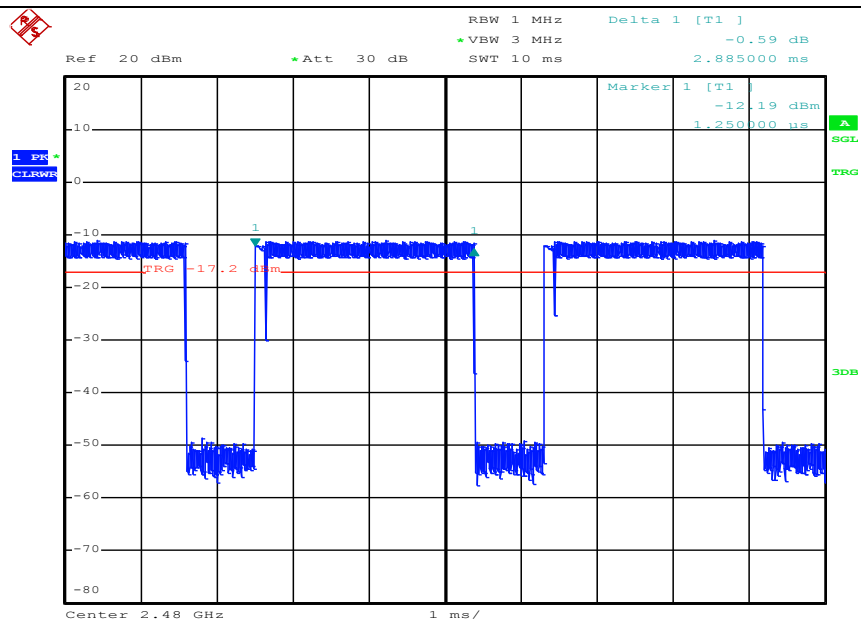
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$\pi/4$ DQPSK
_2DH5/MCH



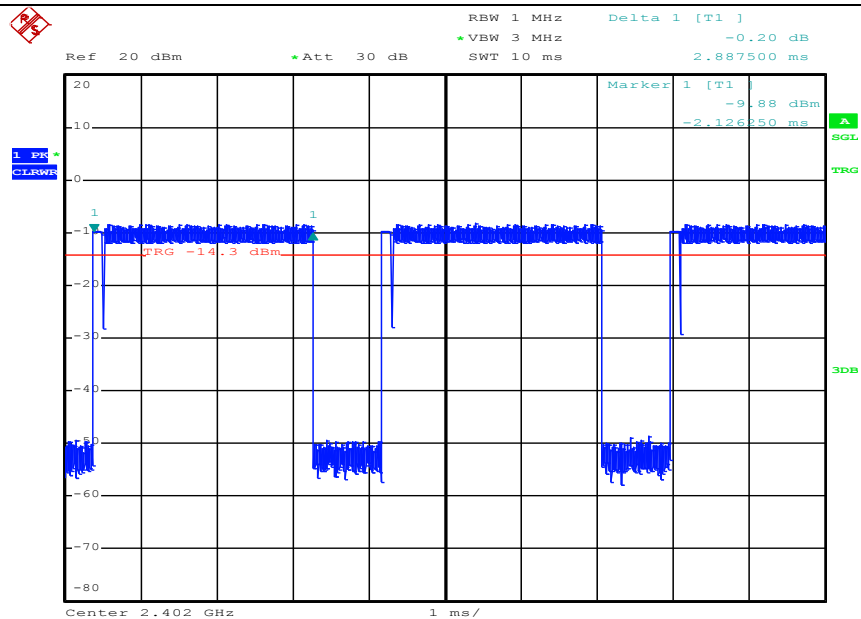
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$\pi/4$ DQPSK
_2DH5/HCH



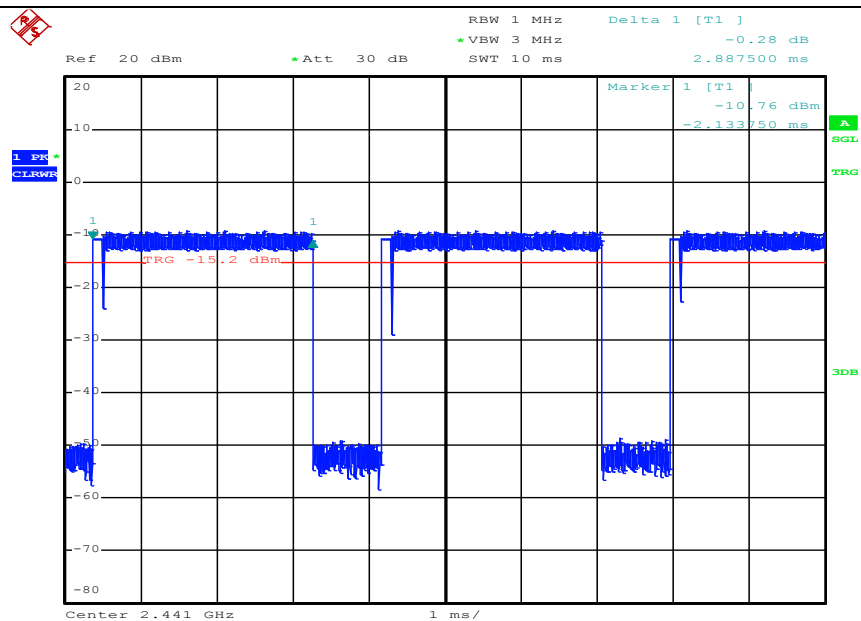
Date: 10.AUG.2019 13:45:16

8DPSK_3DH5/LCH



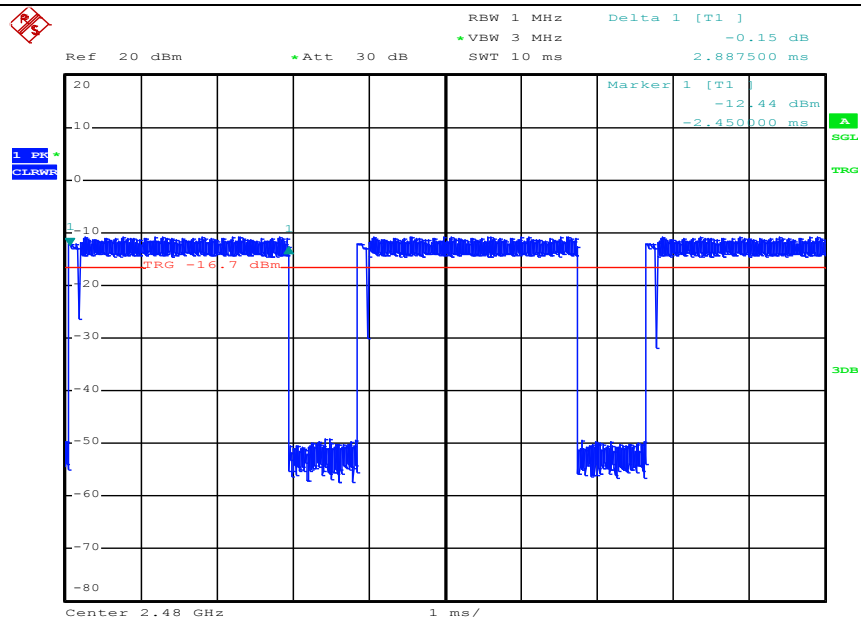
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8DPSK_3DH5/MCH



Date: 10.AUG.2019 13:50:51

8DPSK_3DH5/HCH



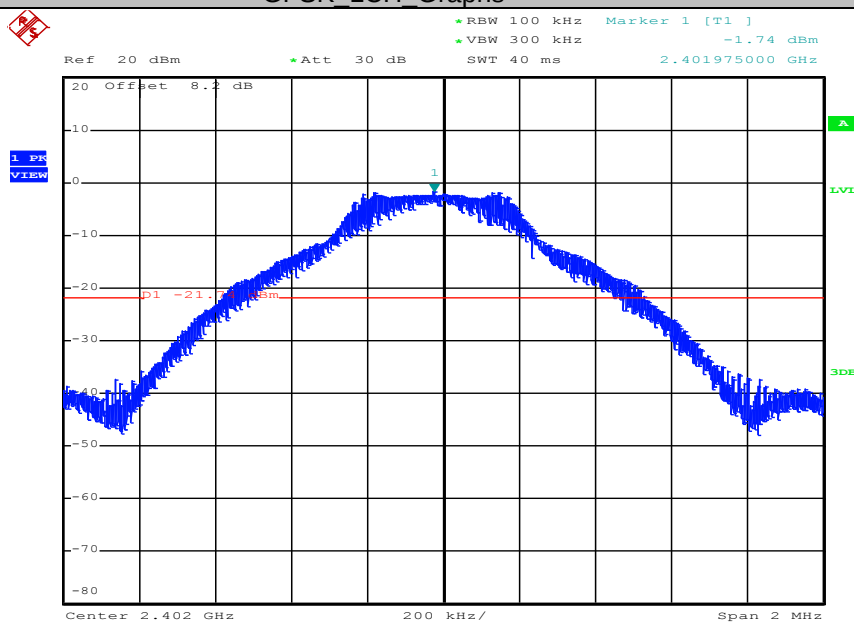
Date: 10.AUG.2019 13:53:58

A.7 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-1.74	-31.660	-21.740	PASS
	MCH	-2.6	-32.830	-22.600	PASS
	HCH	-4.01	-32.110	-24.010	PASS
$\pi/4$ DQPSK	LCH	-0.87	-32.290	-20.870	PASS
	MCH	-1.86	-32.250	-21.860	PASS
	HCH	-3.37	-32.870	-23.370	PASS
8DPSK	LCH	-0.96	-32.460	-20.960	PASS
	MCH	-1.89	-31.930	-21.890	PASS
	HCH	-3.36	-32.500	-23.360	PASS

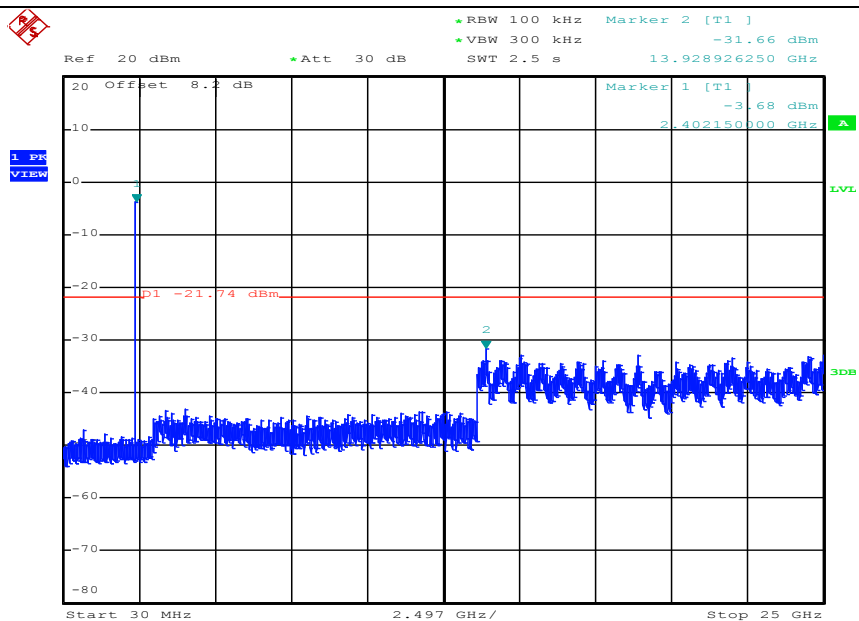
GFSK LCH Graphs

Pref



Date: 10.AUG.2019 13:33:27

P_uw



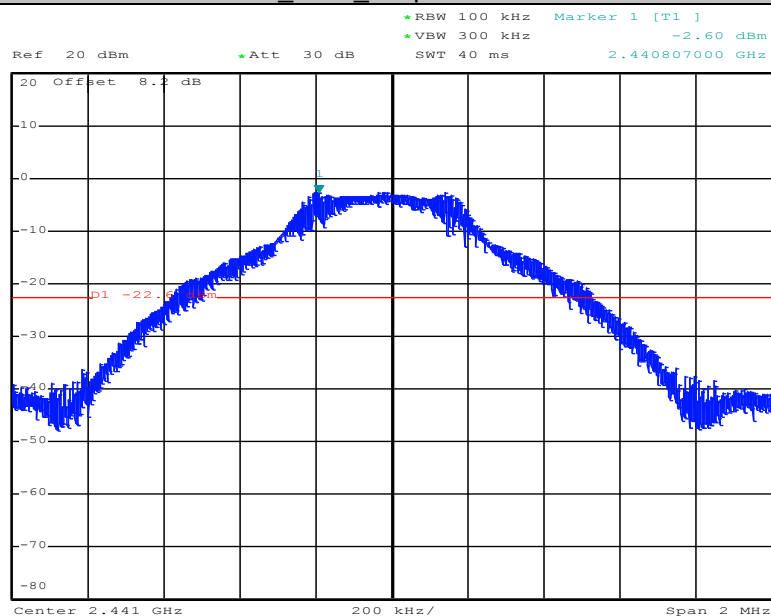
Date: 10.AUG.2019 13:33:42

GFSK_MCH_Graphs

Pref



1 PR
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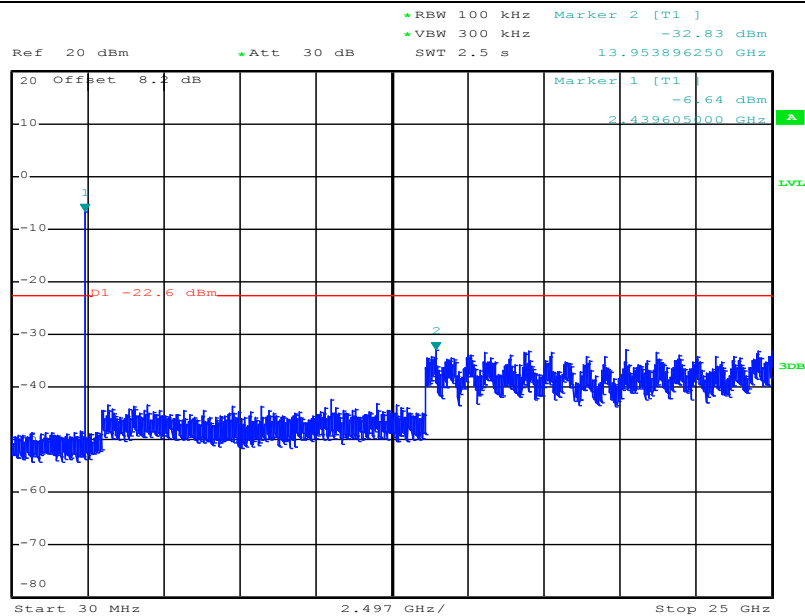


Date: 10.AUG.2019 13:36:16

Puw



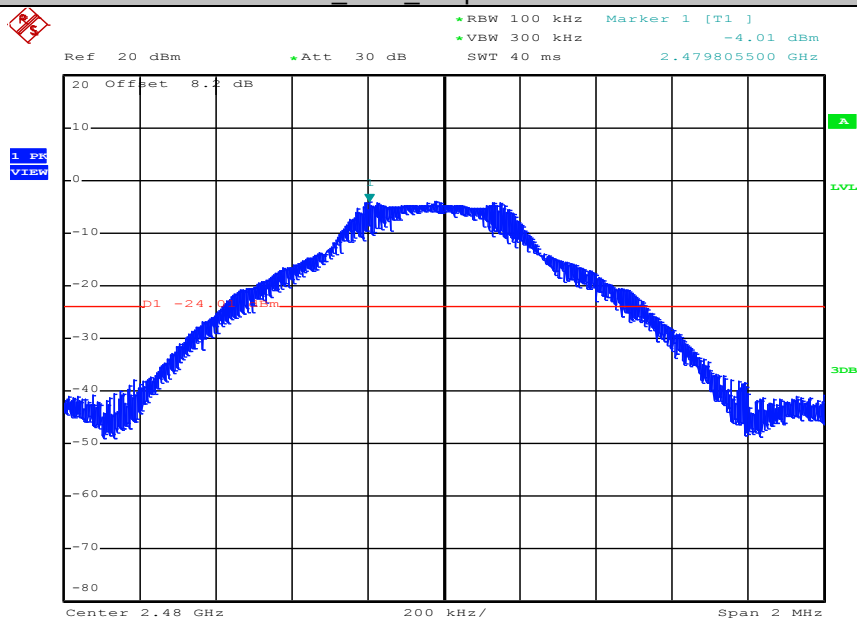
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VIEW



Date: 10.AUG.2019 13:36:31

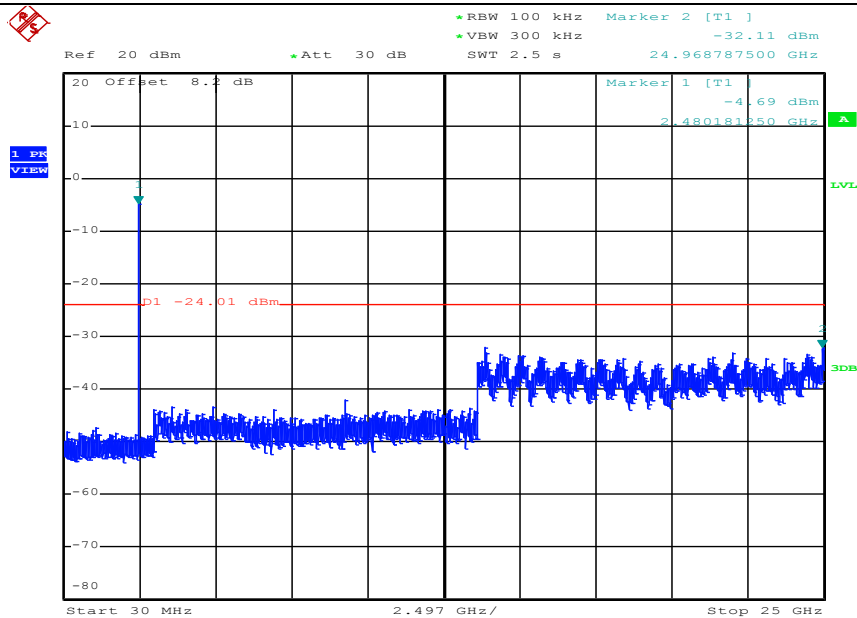
GFSK_HCH_Graphs

Pref



Date: 10.AUG.2019 13:38:35

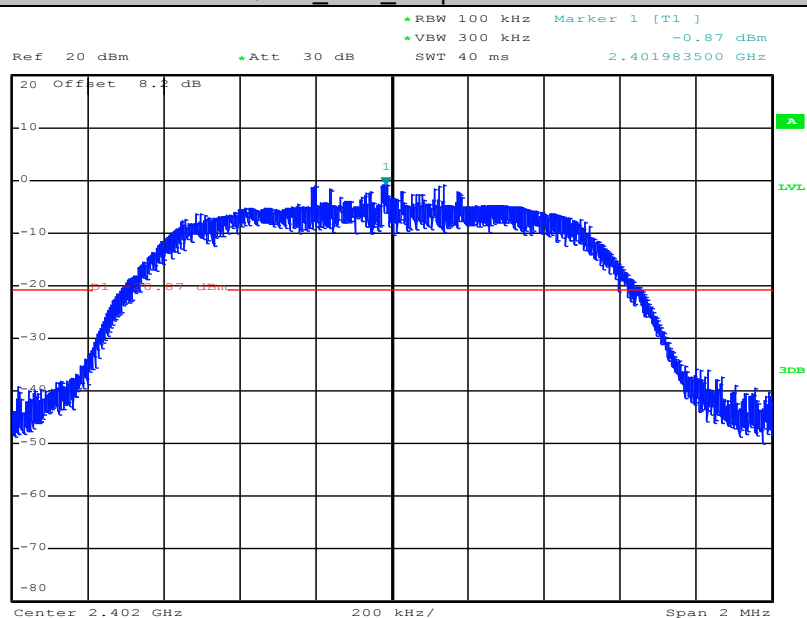
Puw



Date: 10.AUG.2019 13:38:49

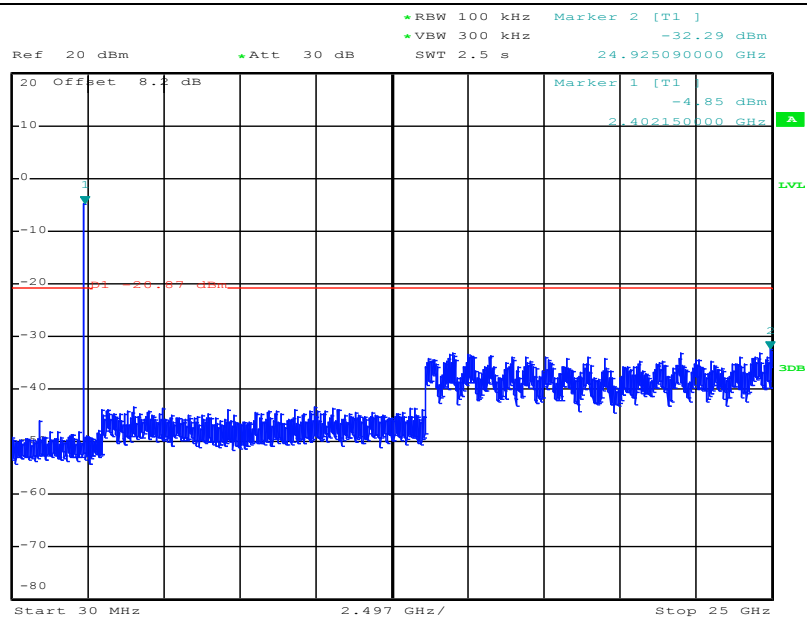
$\pi/4$ DQPSK_LCH_Graphs

Pref

1 PR
VIEW

Date: 10.AUG.2019 13:41:18

Puw

1 PR
VIEW

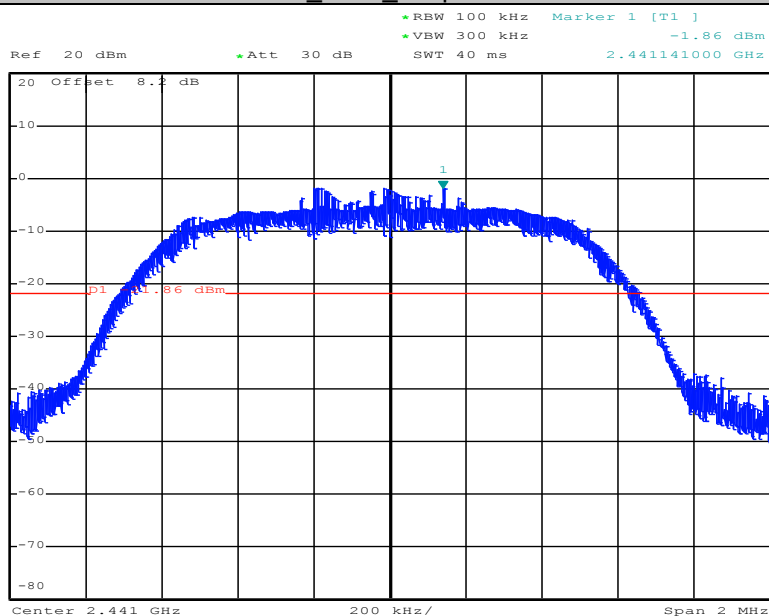
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$\pi/4$ DQPSK_MCH_Graphs

Pref



1 PR
VIEW

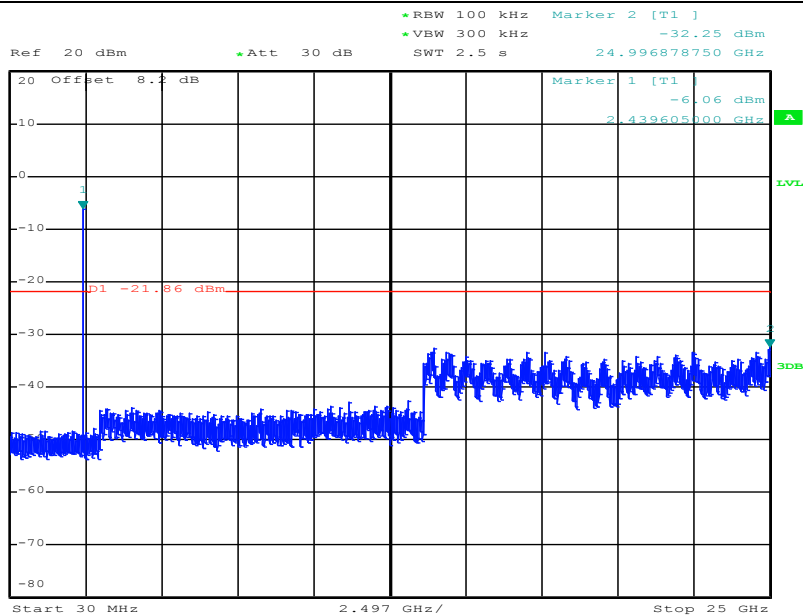


Date: 10.AUG.2019 13:43:50

Puw



1 PR
VIEW



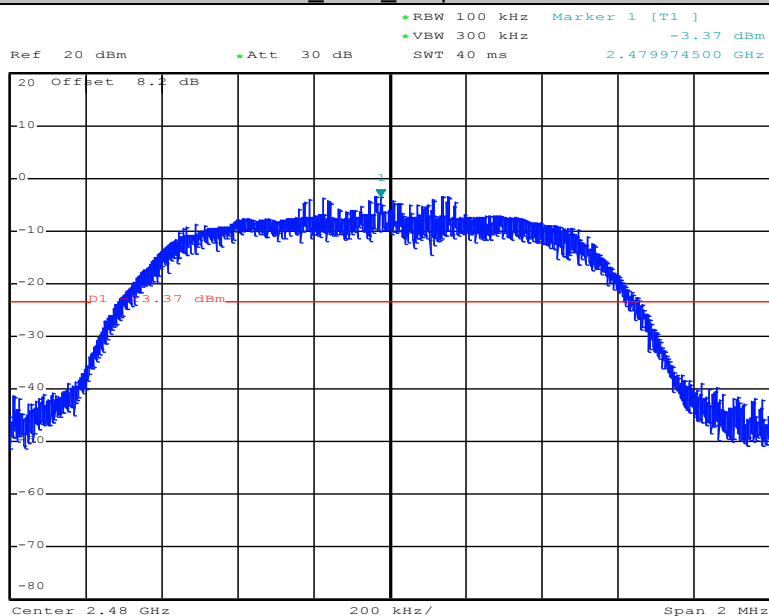
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$\pi/4$ DQPSK_HCH_Graphs

Pref



1 PR
VIEW

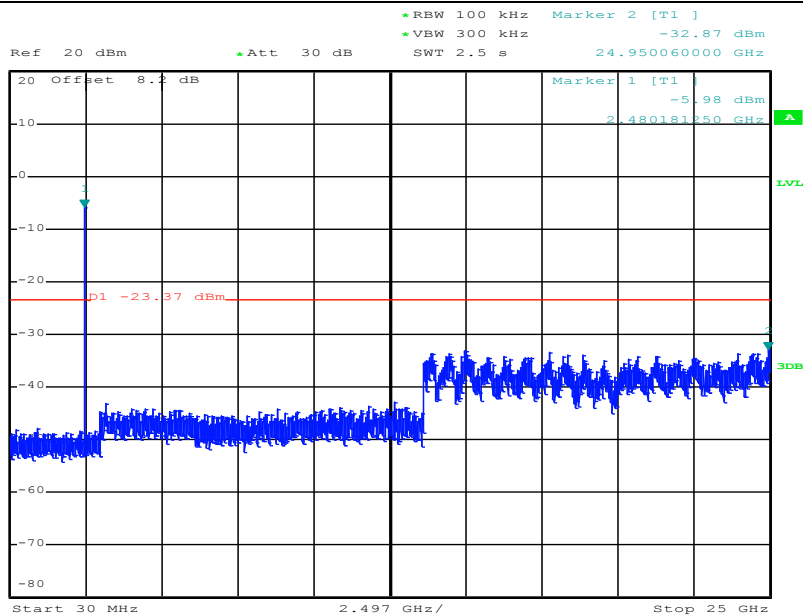


Date: 10.AUG.2019 13:46:01

Puw



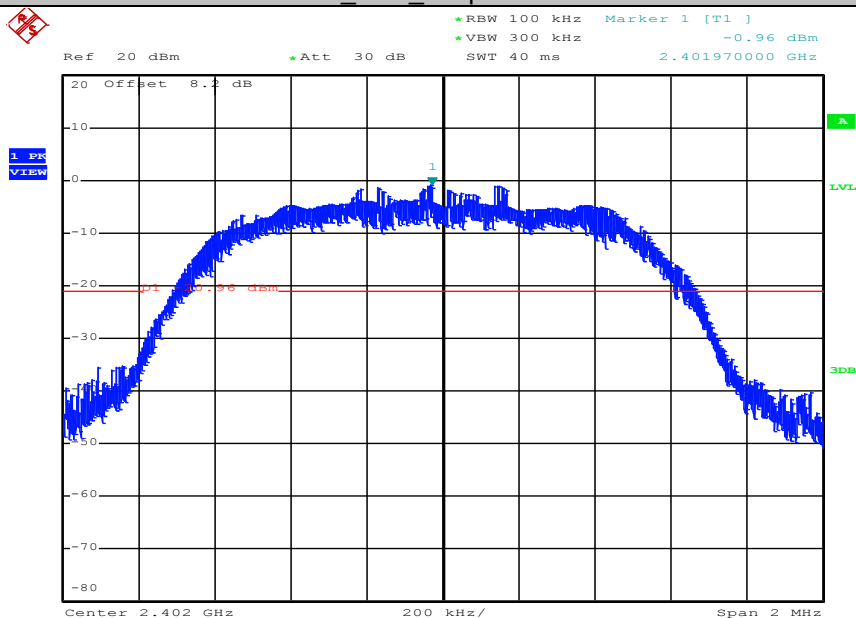
1 PR
VIEW



Date: 10.AUG.2019 13:46:16

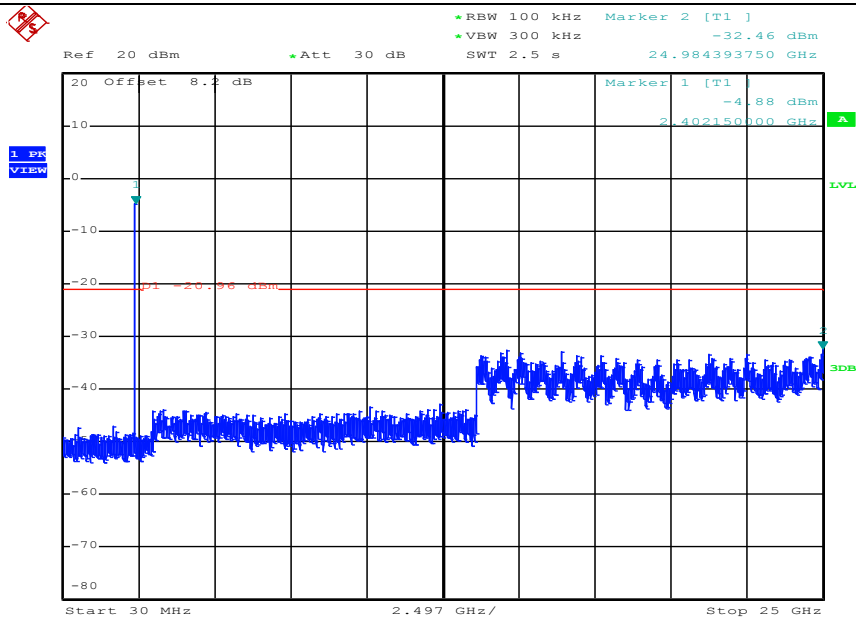
8DPSK_LCH_Graphs

Pref



Date: 10.AUG.2019 13:49:02

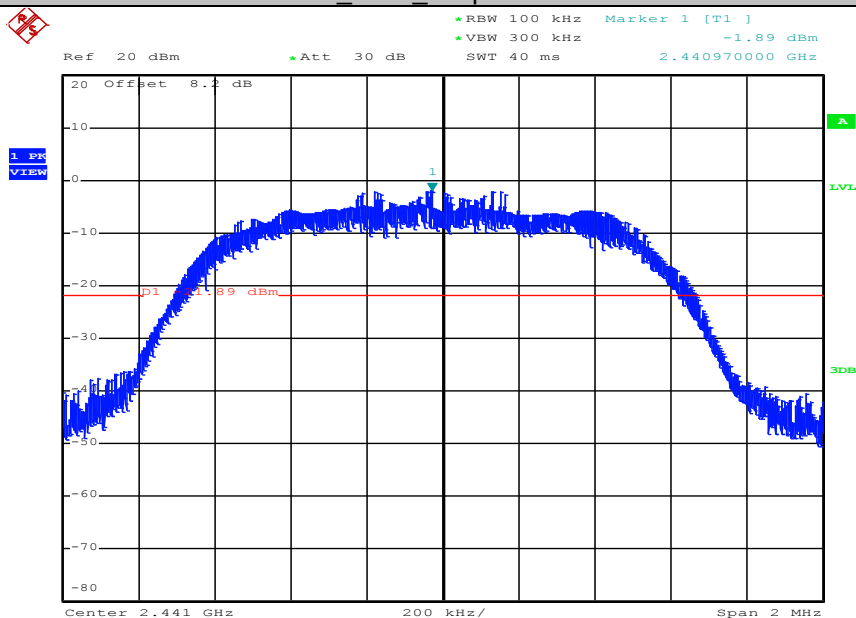
Puw



Date: 10.AUG.2019 13:49:17

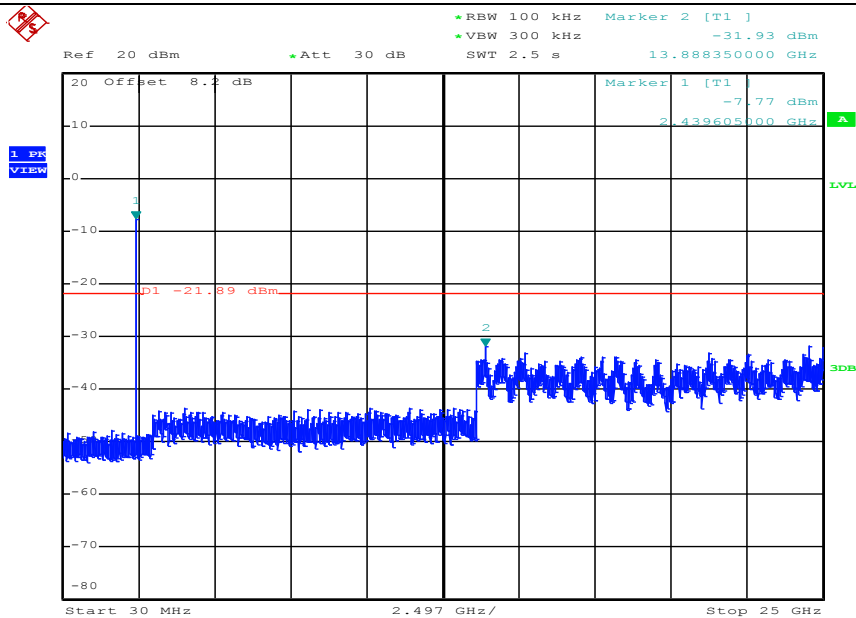
8DPSK_MCH_Graphs

Pref



Date: 10.AUG.2019 13:51:18

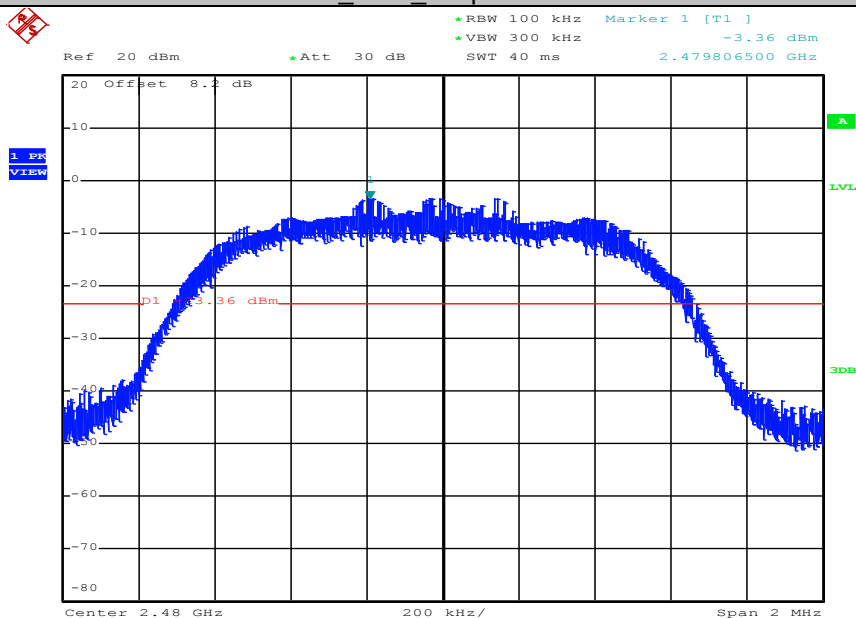
Puw



Date: 10.AUG.2019 13:51:33

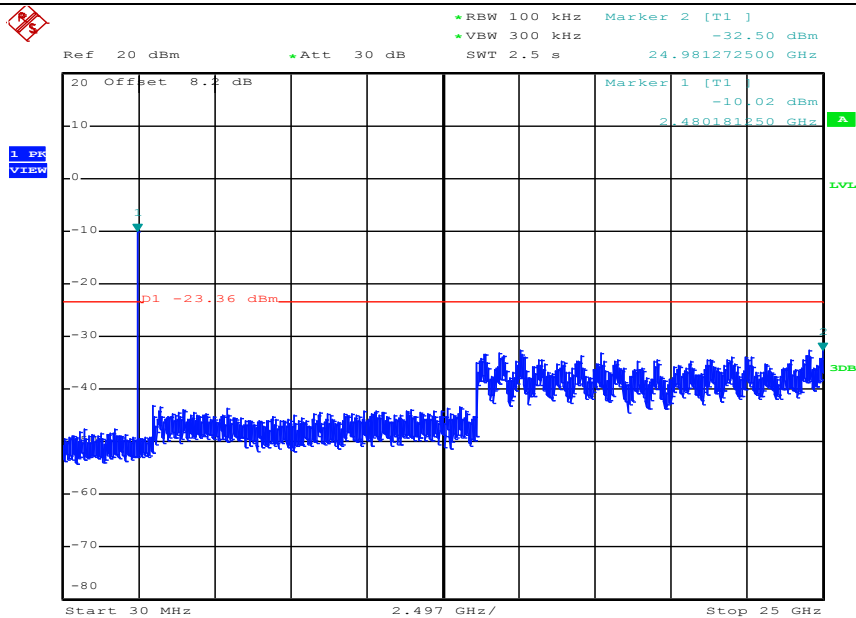
8DPSK_HCH_Graphs

Pref



Date: 10.AUG.2019 13:54:43

Puw



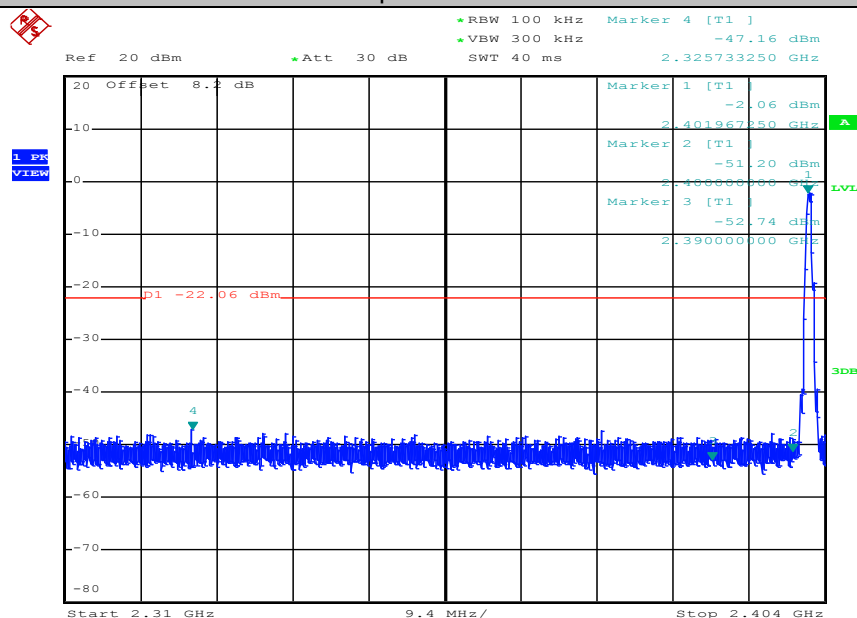
Date: 10.AUG.2019 13:54:58

A.8 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	-2.060	Off	-47.155	-22.06	PASS
			-2.170	On	-46.980	-22.17	PASS
	HCH	2480	-4.140	Off	-47.582	-24.14	PASS
			-3.740	On	-46.964	-23.74	PASS
$\pi/4$ DQPSK	LCH	2402	-1.160	Off	-47.424	-21.16	PASS
			-1.080	On	-47.130	-21.08	PASS
	HCH	2480	-3.410	Off	-47.747	-23.41	PASS
			-2.500	On	-46.452	-22.5	PASS
8DPSK	LCH	2402	-2.070	Off	-46.573	-22.07	PASS
			-1.710	On	-46.809	-21.71	PASS
	HCH	2480	-3.440	Off	-47.155	-23.44	PASS
			-2.390	On	-46.448	-22.39	PASS

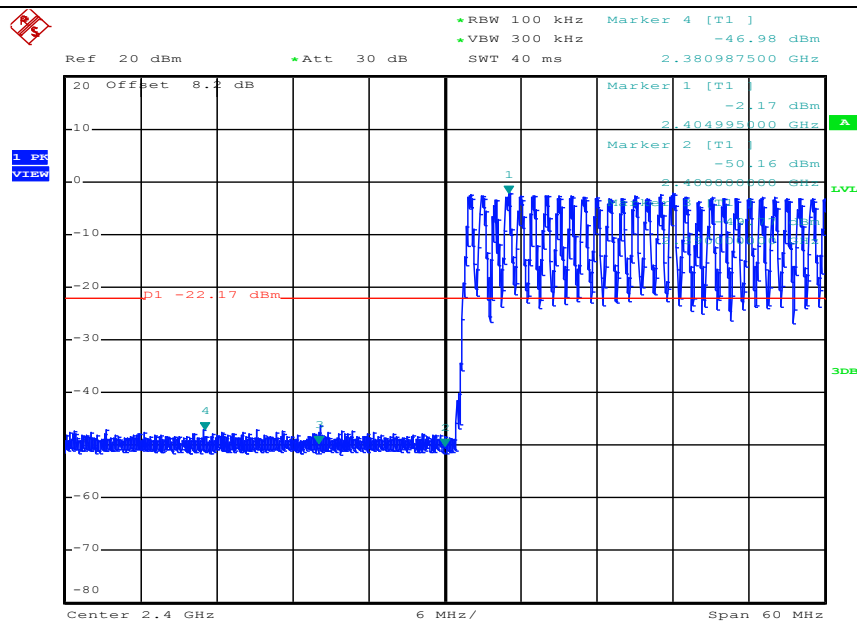
Test Graphs

GFSK/LCH/No Hop



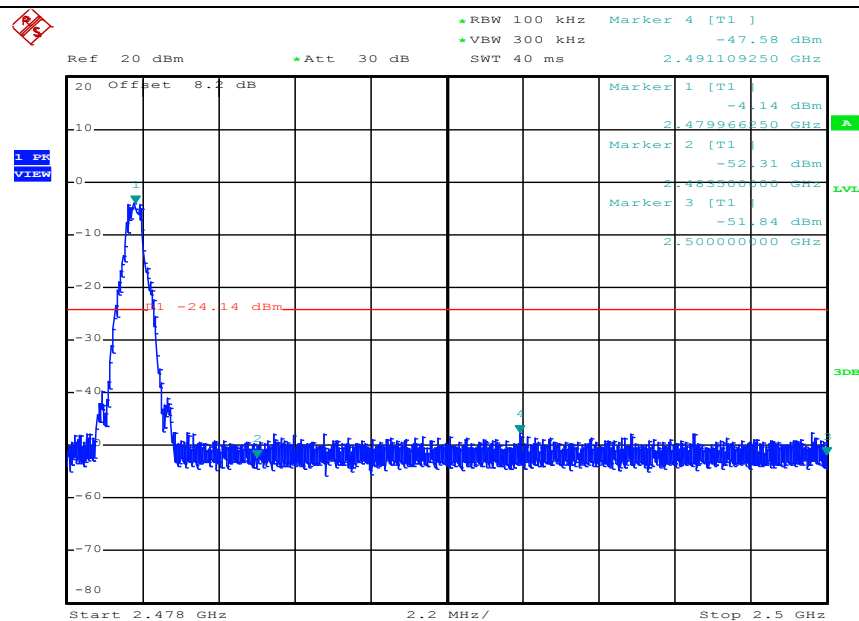
Date: 10.AUG.2019 13:33:14

GFSK/LCH/Hop



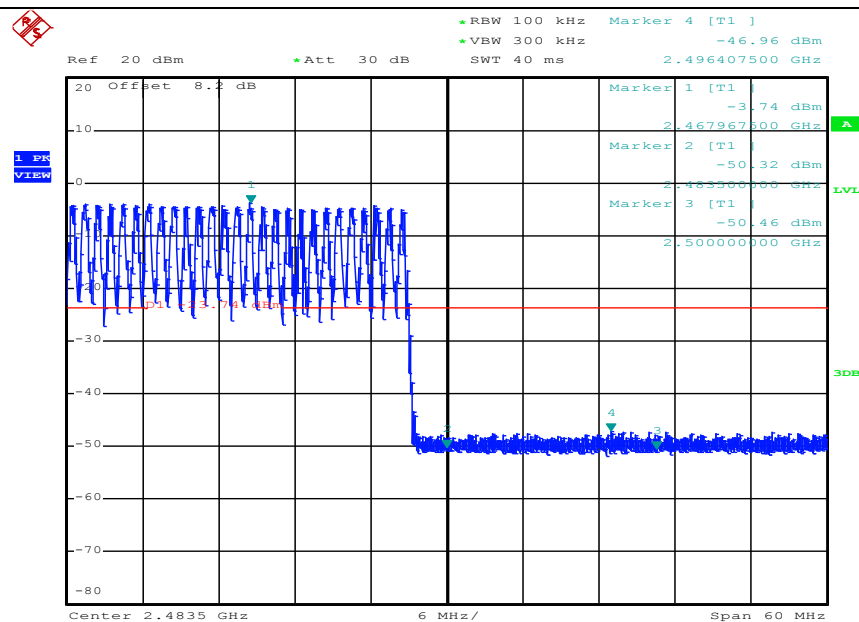
Date: 10.AUG.2019 14:05:47

GFSK/HCH/No Hop



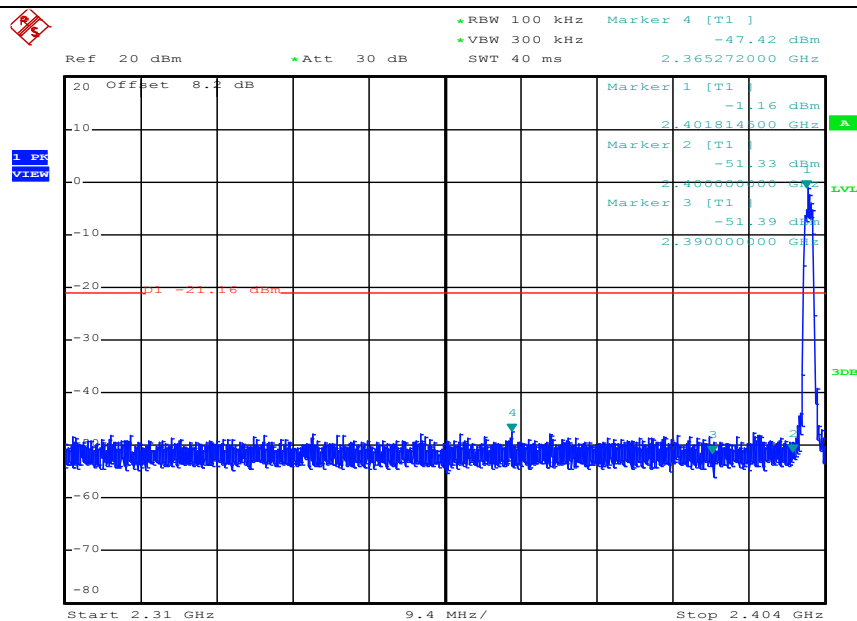
Date: 10.AUG.2019 13:38:21

GFSK/HCH/Hop



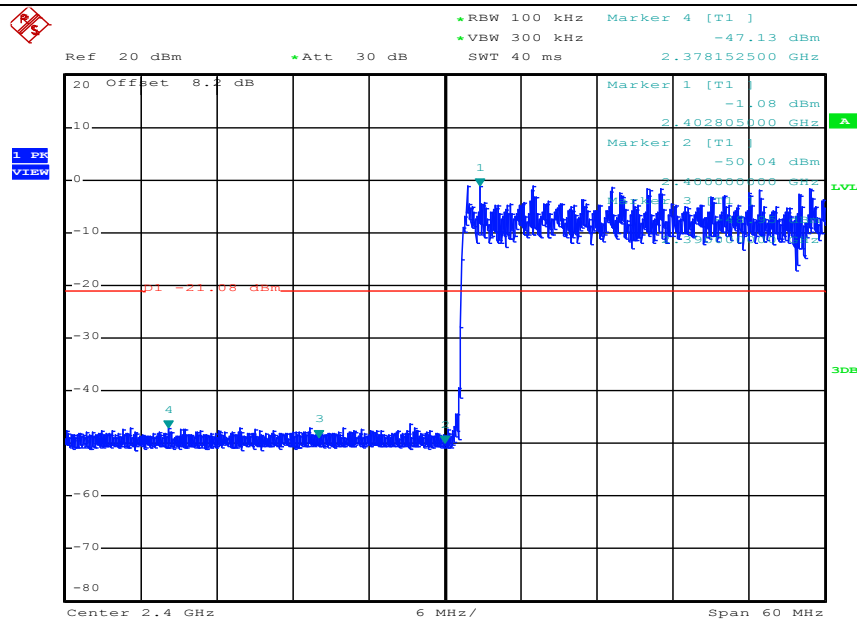
Date: 10.AUG.2019 14:08:14

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



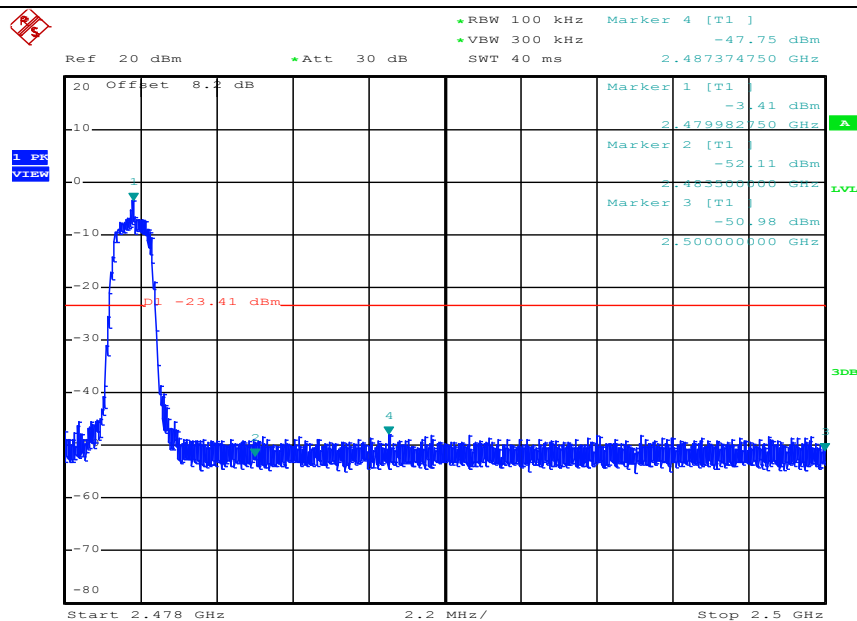
Date: 10.AUG.2019 13:41:05

$\pi/4$ DQPSK/LCH/Hop



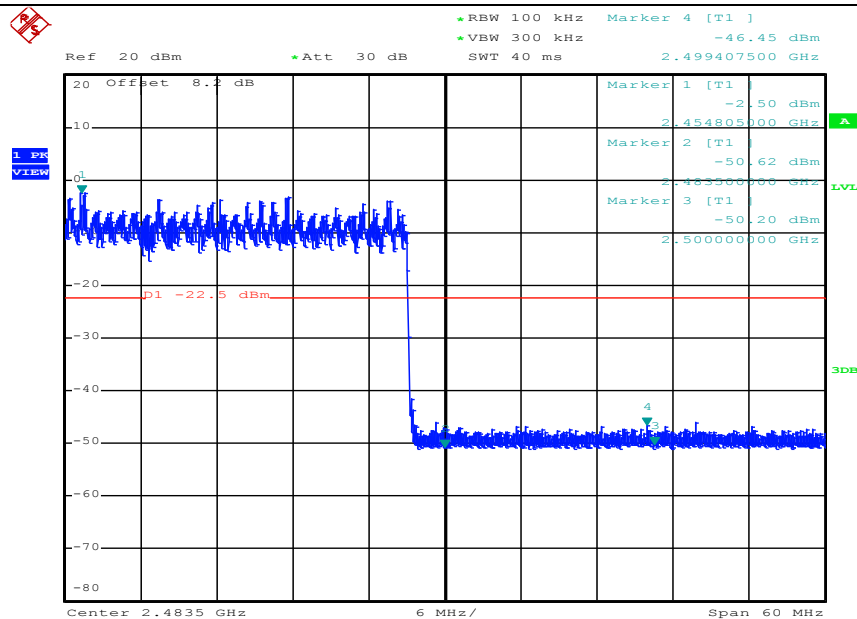
Date: 10.AUG.2019 14:13:46

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



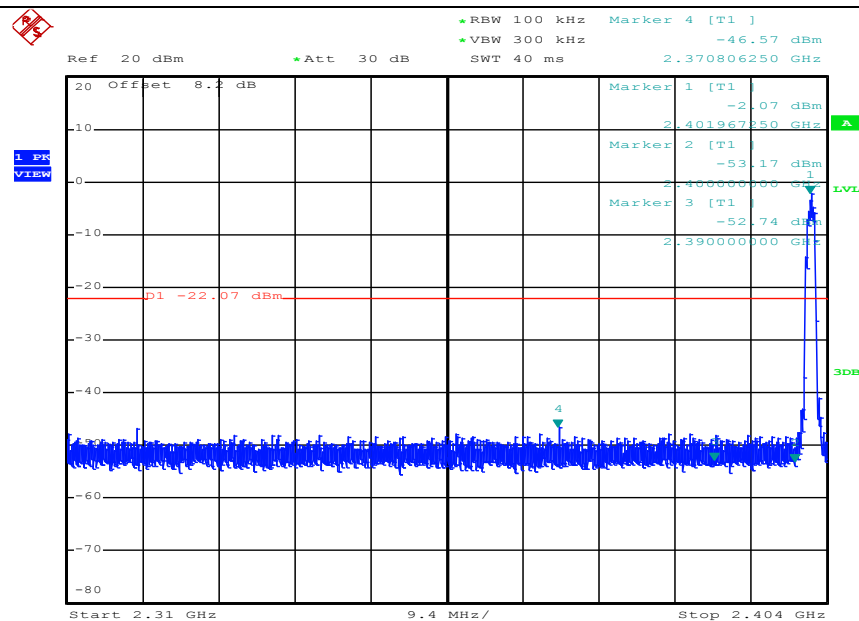
Date: 10.AUG.2019 13:45:48

$\pi/4$ DQPSK/HCH/Hop



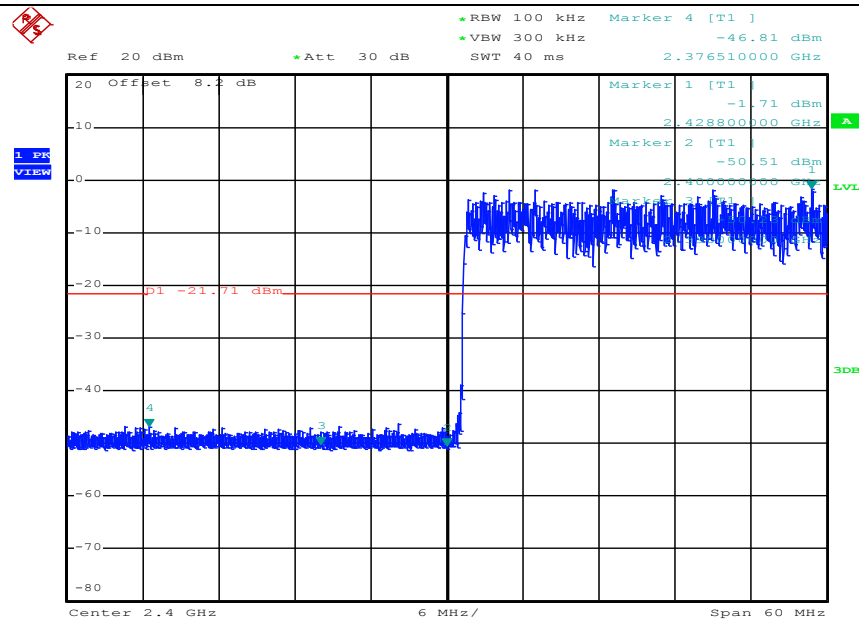
Date: 10.AUG.2019 14:17:30

8DPSK/LCH/No Hop



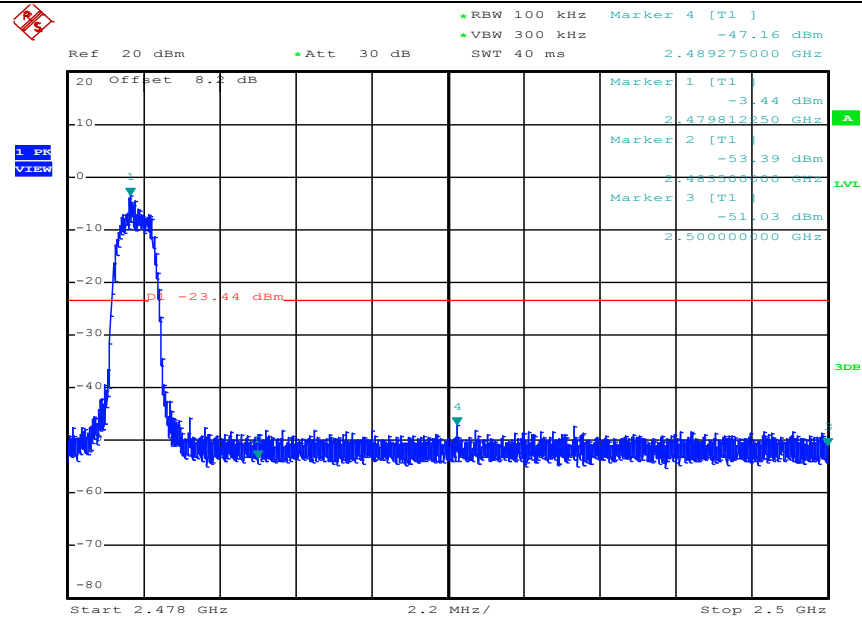
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8DPSK/LCH/Hop



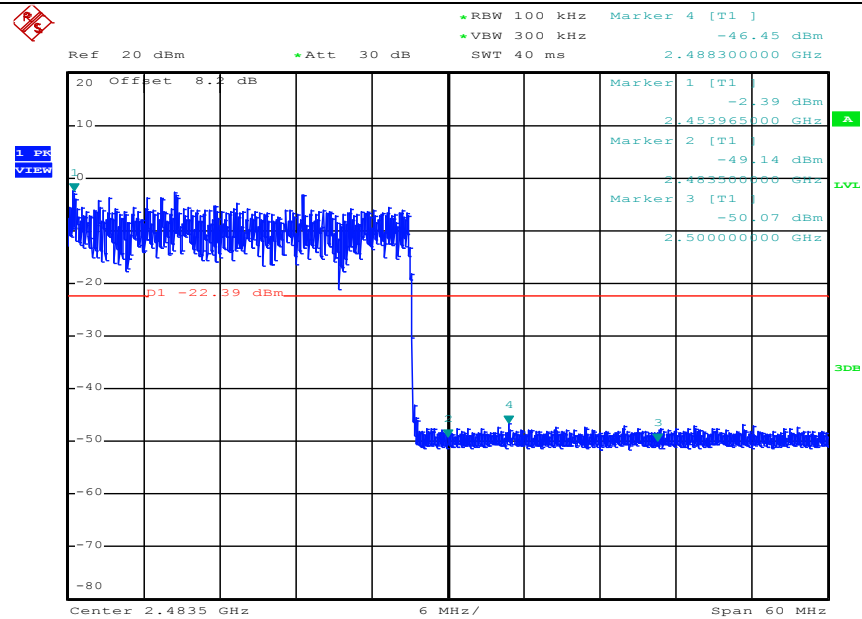
Date: 10.AUG.2019 14:22:30

8DPSK/HCH/No Hop



Date: 10.AUG.2019 13:54:30

8DPSK/HCH/Hop

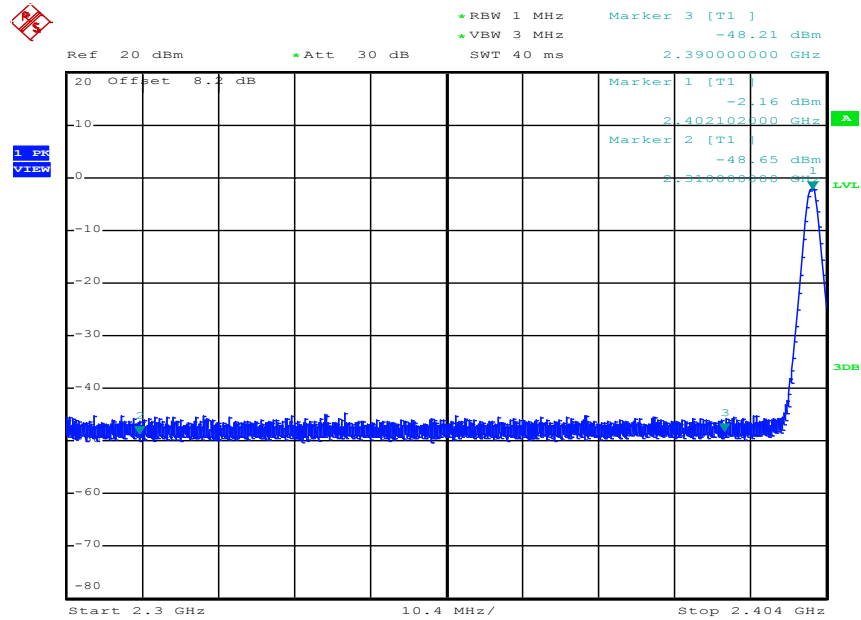


Date: 10.AUG.2019 14:25:11

A.8 Restrict-band band-edge measurements

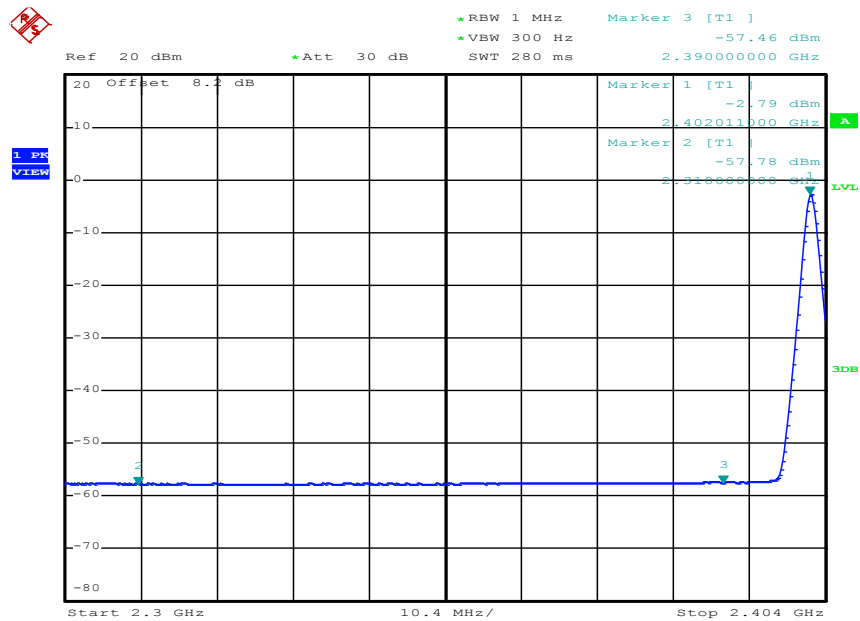
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.65	2.0	0	48.61	PEAK	74	PASS
	Off	2310.0	-57.78	2.0	0	39.48	AV	54	PASS
	Off	2390.0	-48.21	2.0	0	49.05	PEAK	74	PASS
	Off	2390.0	-57.46	2.0	0	39.80	AV	54	PASS
	Off	2483.5	-42.79	2.0	0	54.47	PEAK	74	PASS
	Off	2483.5	-47.57	2.0	0	49.69	AV	54	PASS
	Off	2500.0	-48.75	2.0	0	48.51	PEAK	74	PASS
	Off	2500.0	-58.00	2.0	0	39.26	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-47.90	2.0	0	49.36	PEAK	74	PASS
	Off	2310.0	-57.79	2.0	0	39.47	AV	54	PASS
	Off	2390.0	-48.94	2.0	0	48.32	PEAK	74	PASS
	Off	2390.0	-57.39	2.0	0	39.87	AV	54	PASS
	Off	2483.5	-41.80	2.0	0	55.46	PEAK	74	PASS
	Off	2483.5	-47.41	2.0	0	49.85	AV	54	PASS
	Off	2500.0	-49.44	2.0	0	47.82	PEAK	74	PASS
	Off	2500.0	-58.10	2.0	0	39.16	AV	54	PASS
8DPSK	Off	2310.0	-47.63	2.0	0	49.63	PEAK	74	PASS
	Off	2310.0	-57.73	2.0	0	39.53	AV	54	PASS
	Off	2390.0	-48.91	2.0	0	48.35	PEAK	74	PASS
	Off	2390.0	-57.42	2.0	0	39.84	AV	54	PASS
	Off	2483.5	-41.49	2.0	0	55.77	PEAK	74	PASS
	Off	2483.5	-47.44	2.0	0	49.82	AV	54	PASS
	Off	2500.0	-48.09	2.0	0	49.17	PEAK	74	PASS
	Off	2500.0	-58.10	2.0	0	39.16	AV	54	PASS

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



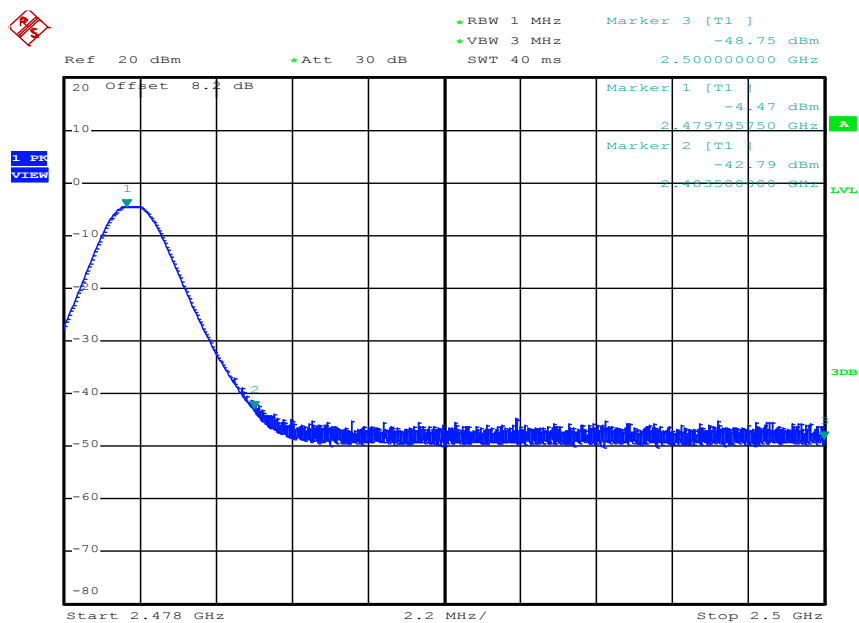
Date: 10.AUG.2019 13:34:01

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



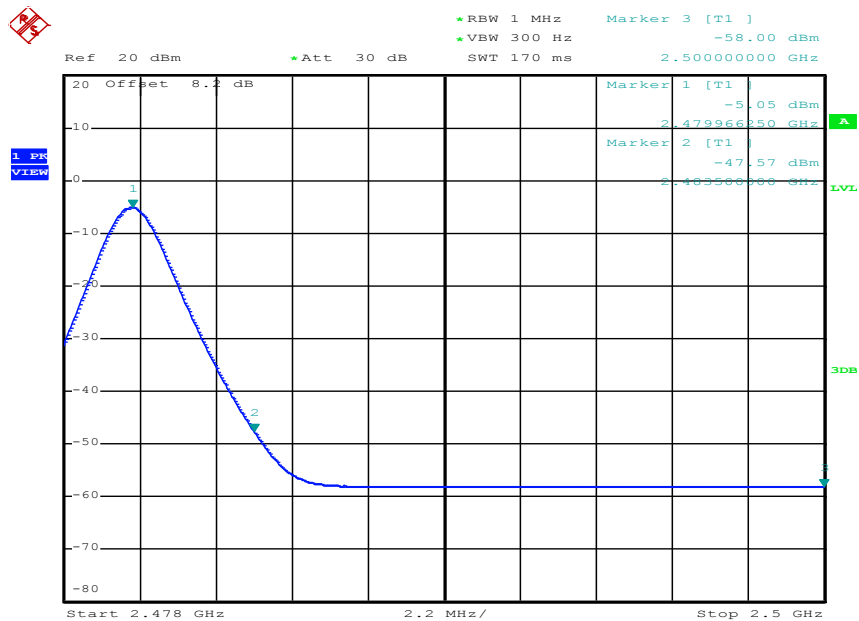
Date: 10.AUG.2019 13:34:14

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

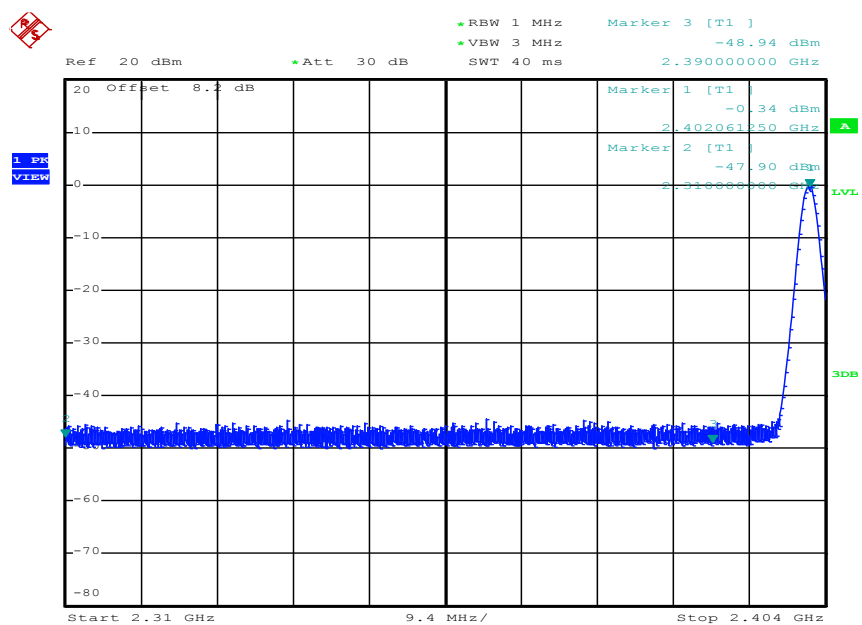


Date: 10.AUG.2019 13:39:08

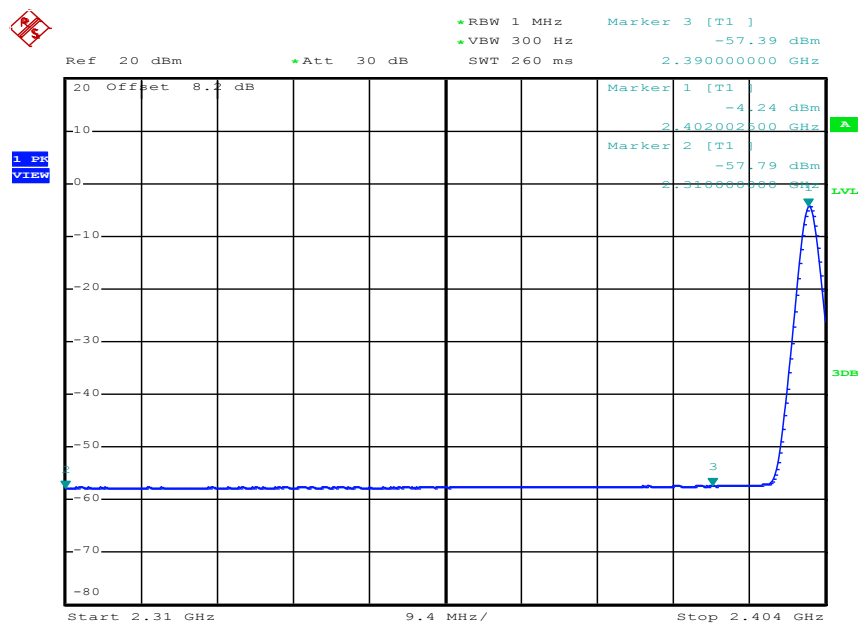
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



Date: 10.AUG.2019 13:39:21

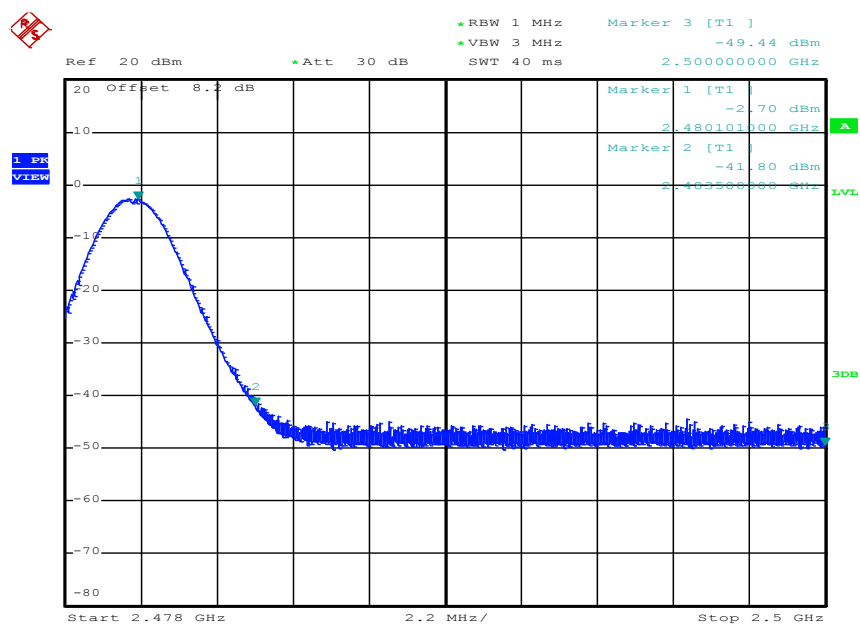
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)

Date: 10.AUG.2019 13:41:52

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

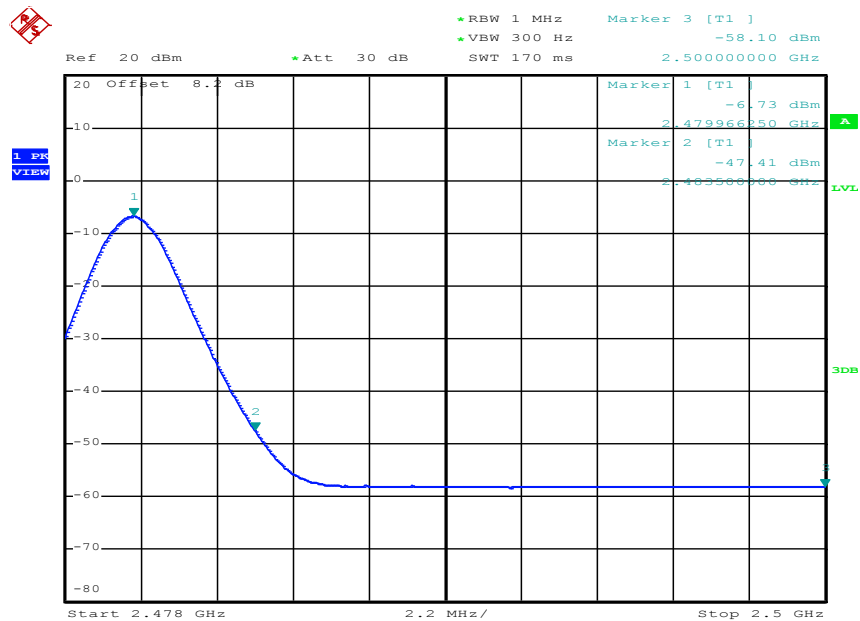
Date: 10.AUG.2019 13:42:05

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



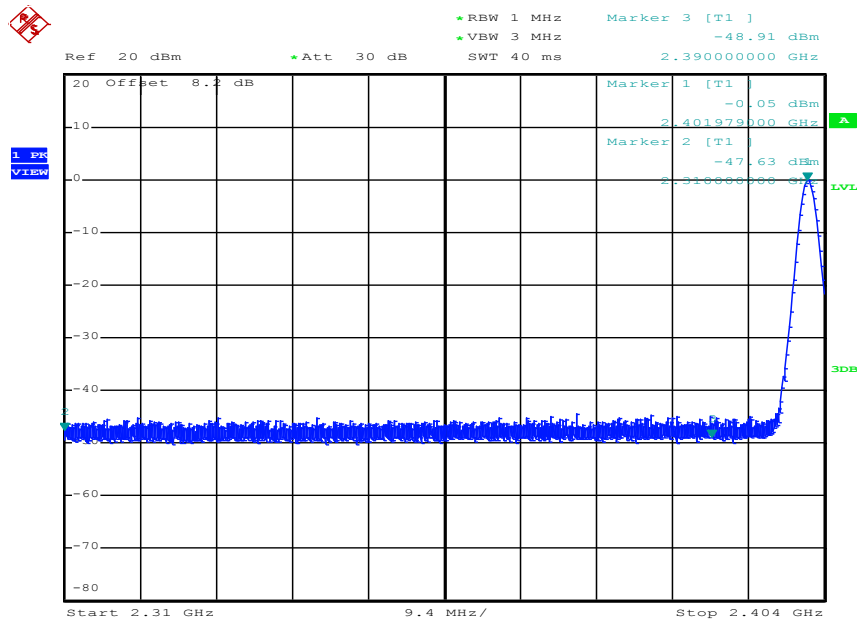
Date: 10.AUG.2019 13:46:35

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



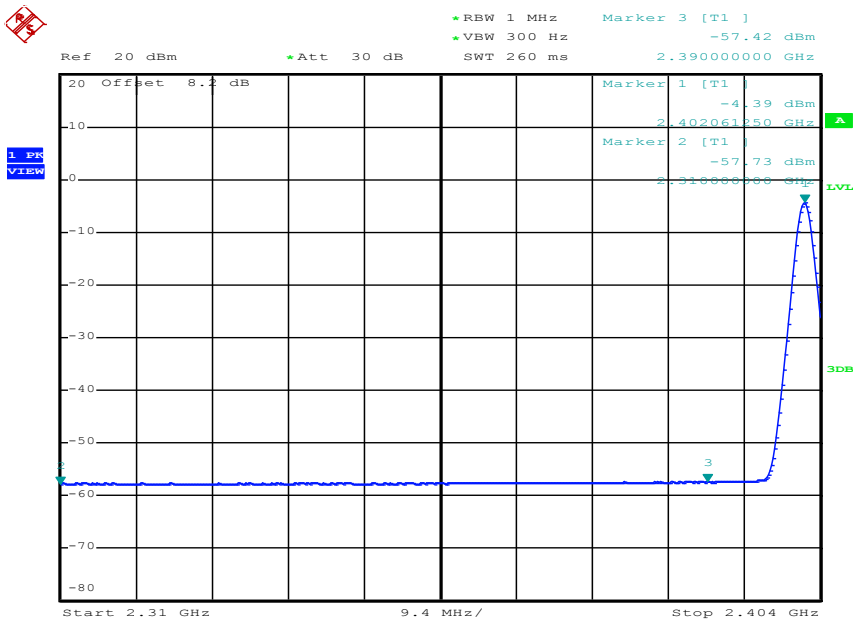
Date: 10.AUG.2019 13:46:48

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



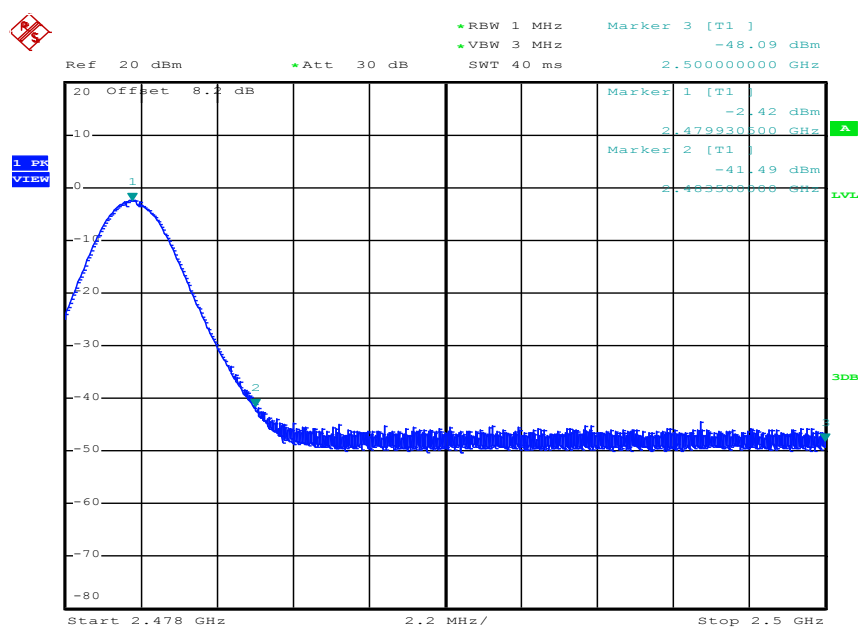
Date: 10.AUG.2019 13:49:35

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



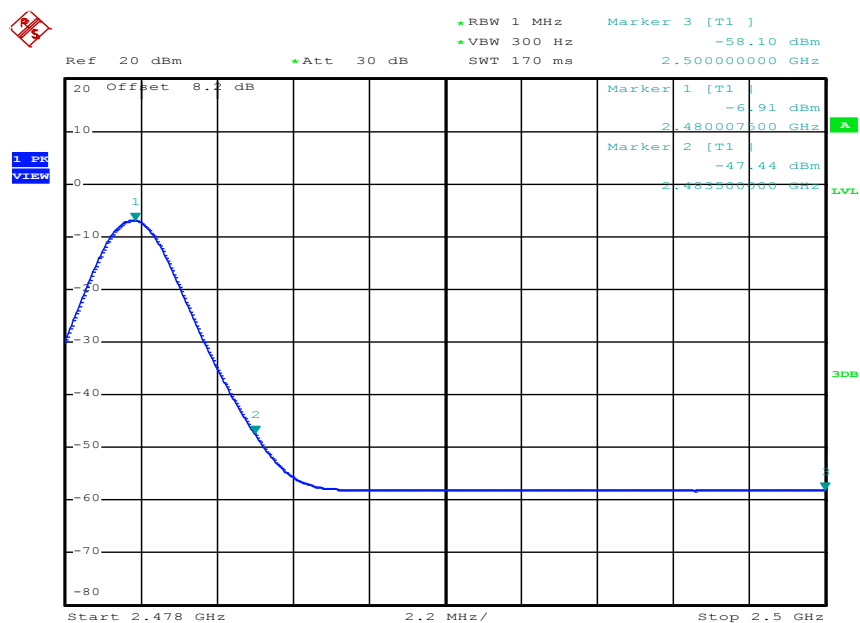
Date: 10.AUG.2019 13:49:49

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



Date: 10.AUG.2019 13:55:17

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



Date: 10.AUG.2019 13:55:30