

Appendix A

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

Product Name: SING & SMILE MUSIC PLAYER

Trade Mark: N/A

Test Model: KL-0517

Environmental Conditions

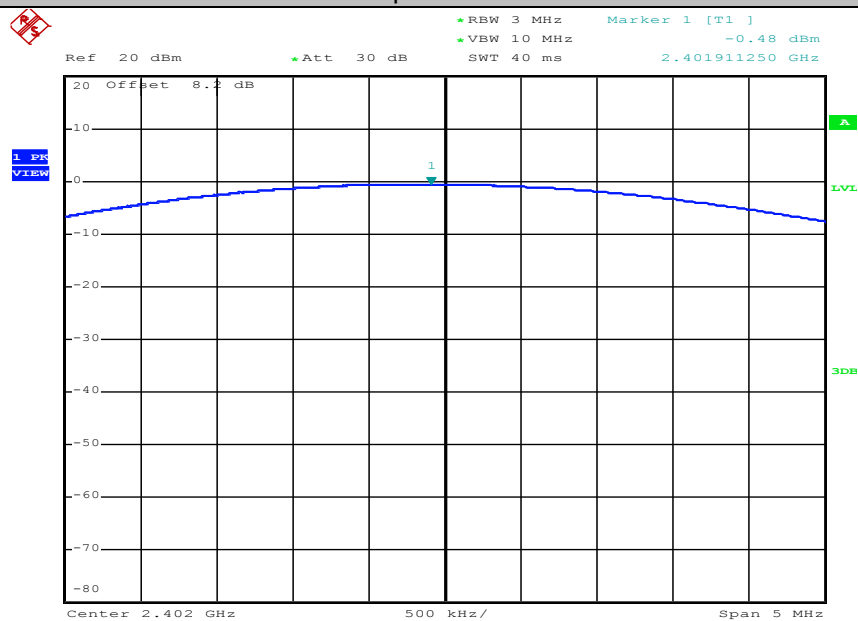
Temperature:	22.8 ° C
Relative Humidity:	52.6%
ATM Pressure:	100.0 kPa
Test Engineer:	QUXIN
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.480	21	PASS
	MCH	-1.030	21	PASS
	HCH	-1.880	21	PASS
$\pi/4$ DQPSK	LCH	-0.200	21	PASS
	MCH	-0.690	21	PASS
	HCH	-1.390	21	PASS

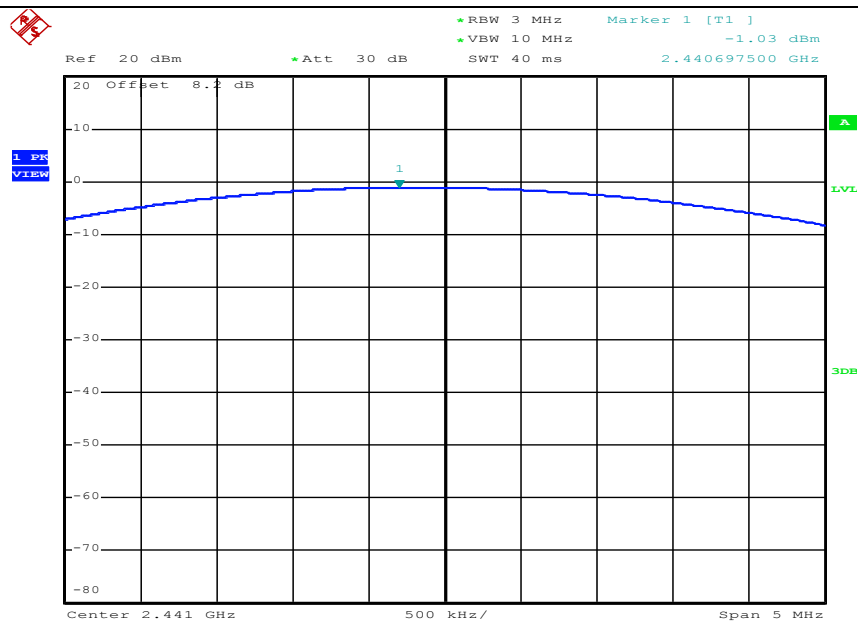
Test Graphs

GFSK/LCH



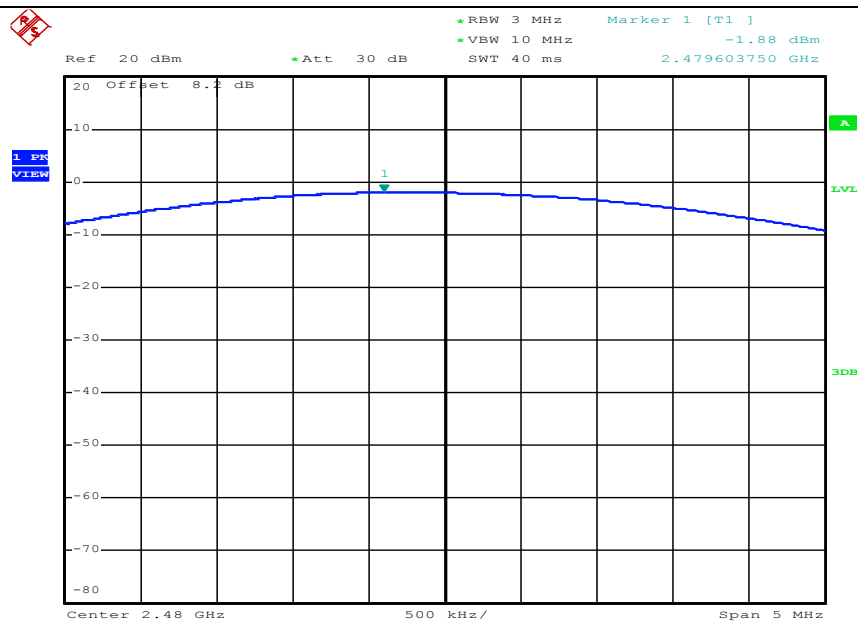
Date: 14.OCT.2019 18:11:24

GFSK/MCH

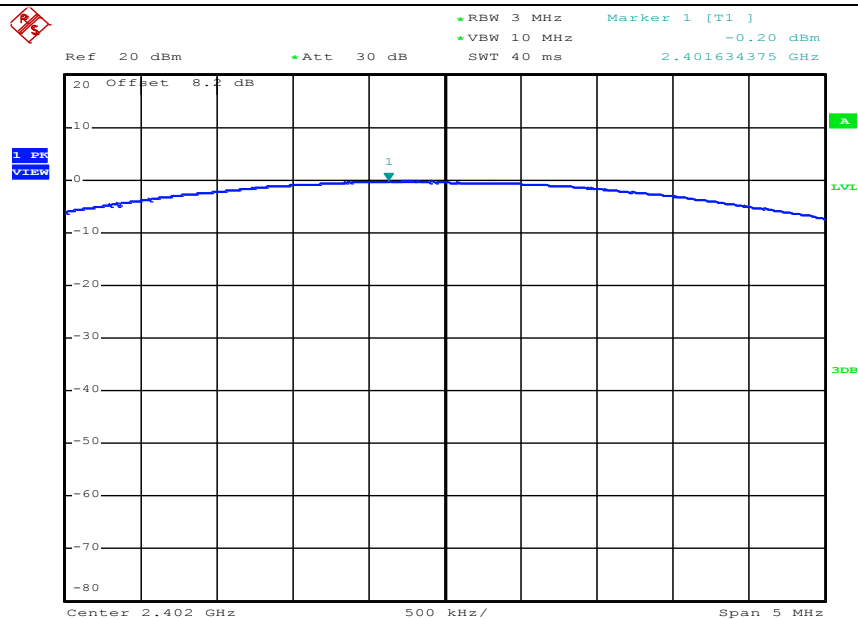


Date: 14.OCT.2019 18:14:13

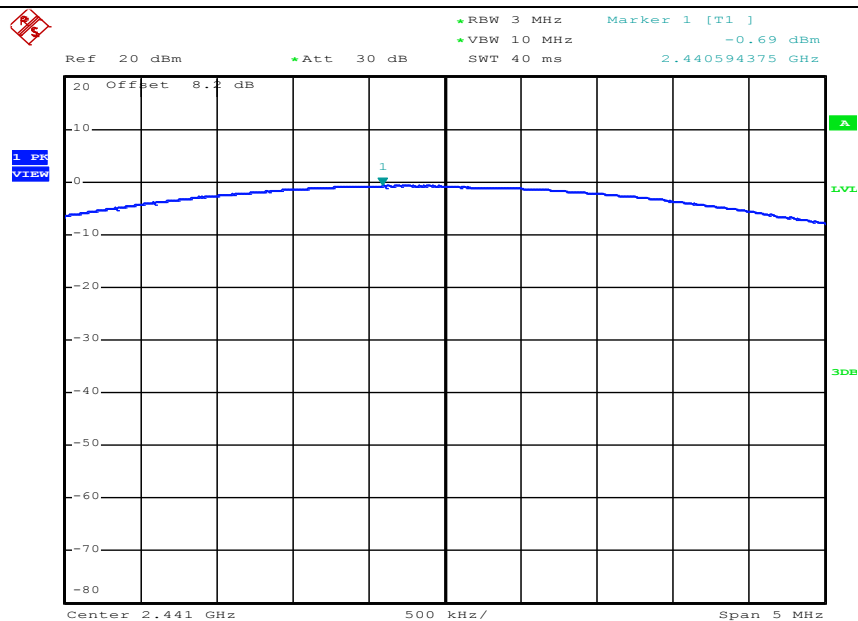
GFSK/HCH



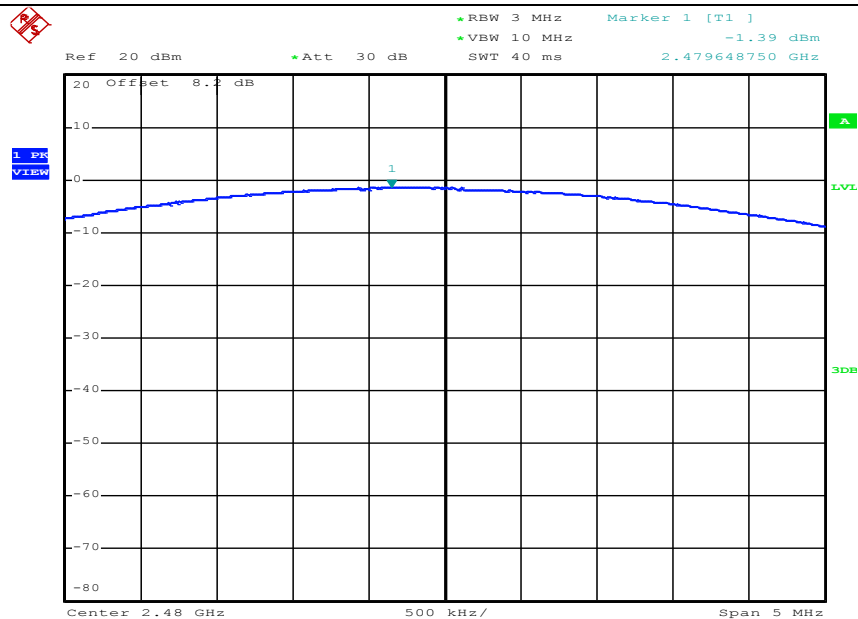
Date: 14.OCT.2019 18:16:15

 π /4DQPSK/LCH

Date: 14.OCT.2019 18:19:05

$\pi/4$ DQPSK/MCH

Date: 14.OCT.2019 18:22:24

 $\pi/4$ DQPSK/HCH

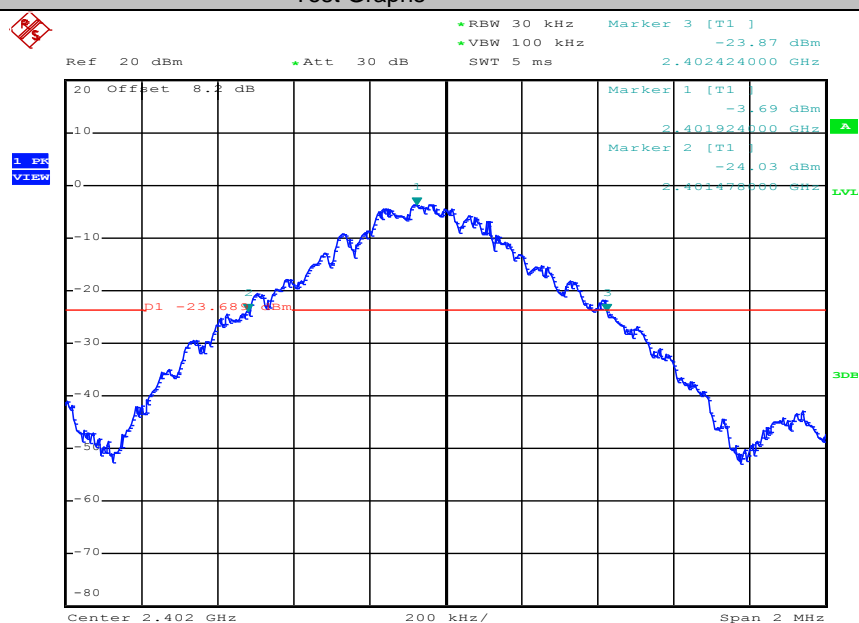
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A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.946	Not Specified	PASS
	MCH	0.948	Not Specified	PASS
	HCH	0.950	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.322	Not Specified	PASS
	MCH	1.320	Not Specified	PASS
	HCH	1.310	Not Specified	PASS

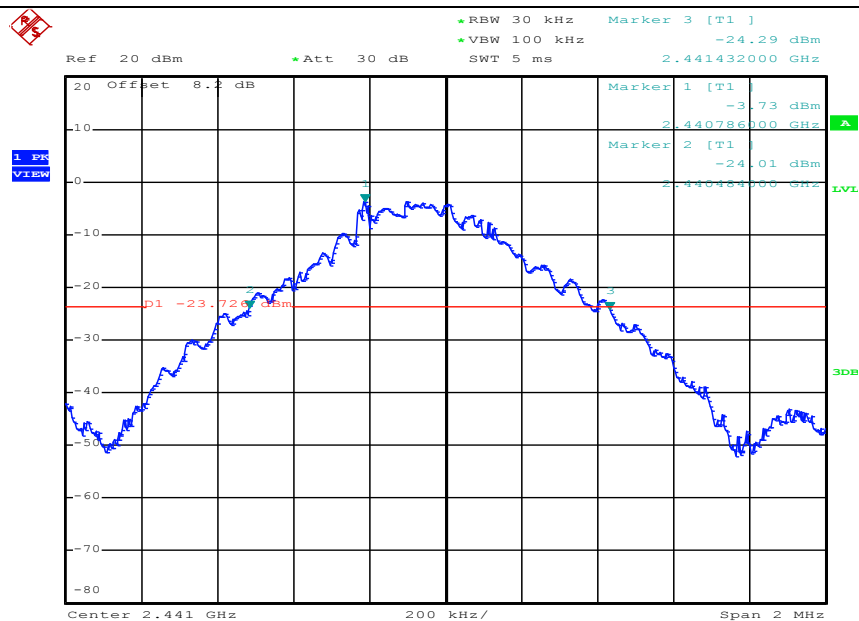
Test Graphs

GFSK/LCH



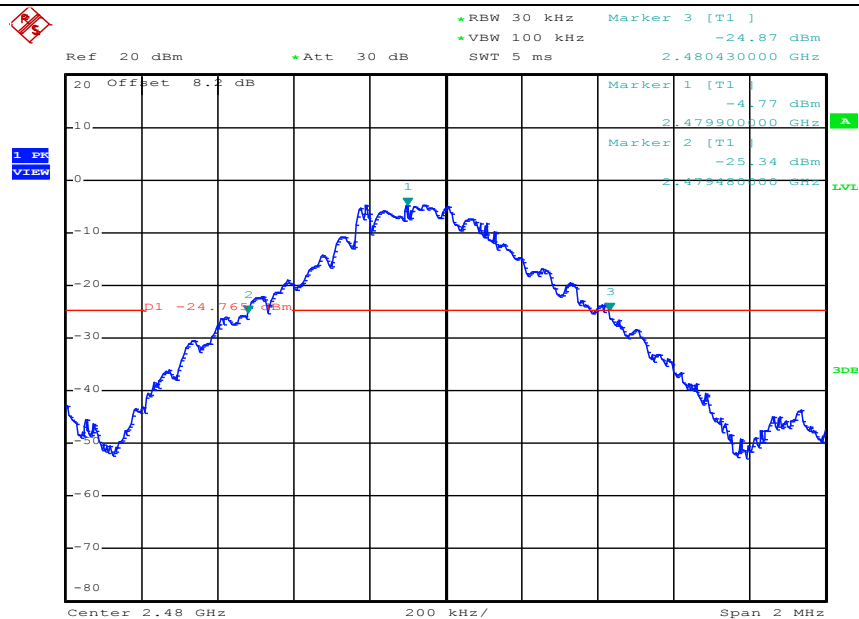
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GFSK/MCH

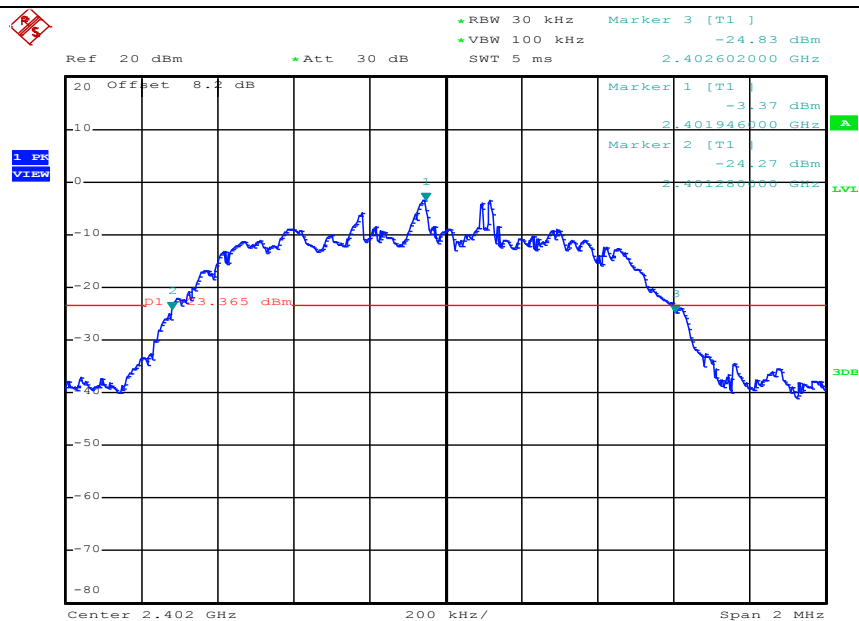


Date: 14.OCT.2019 18:13:37

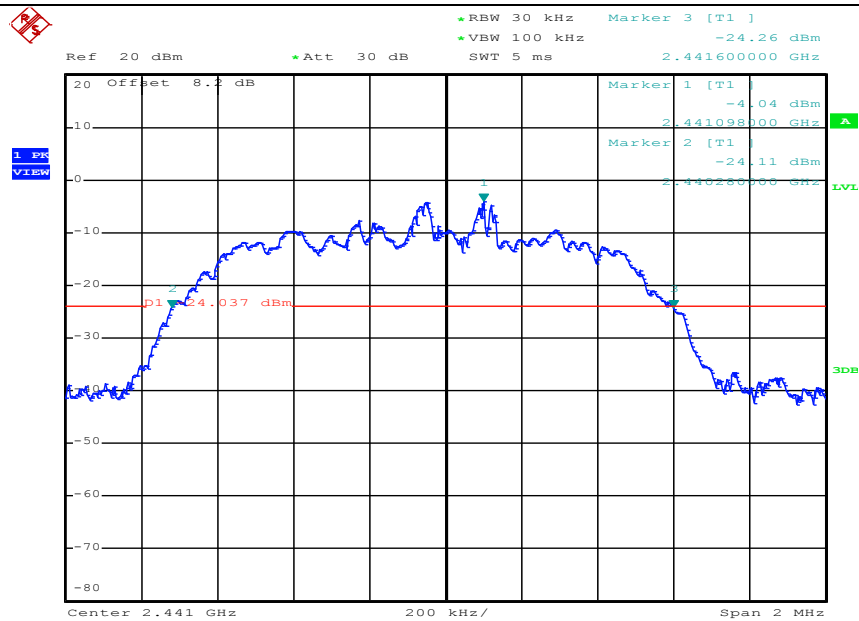
GFSK/HCH



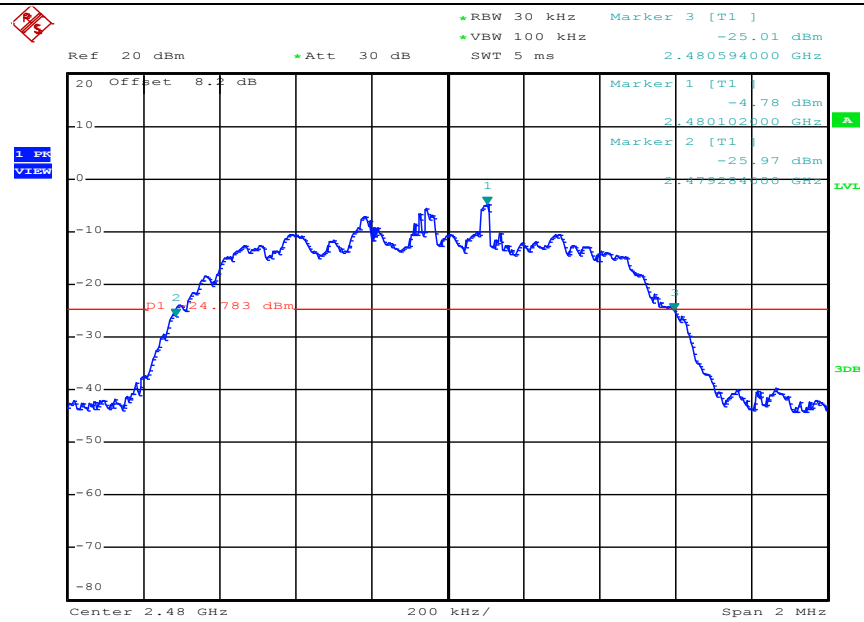
Date: 14.OCT.2019 18:15:38

$\pi/4$ DQPSK/LCH

Date: 14.OCT.2019 18:18:28

 $\pi/4$ DQPSK/MCH

Date: 14.OCT.2019 18:21:47

$\pi/4$ DQPSK/HCH

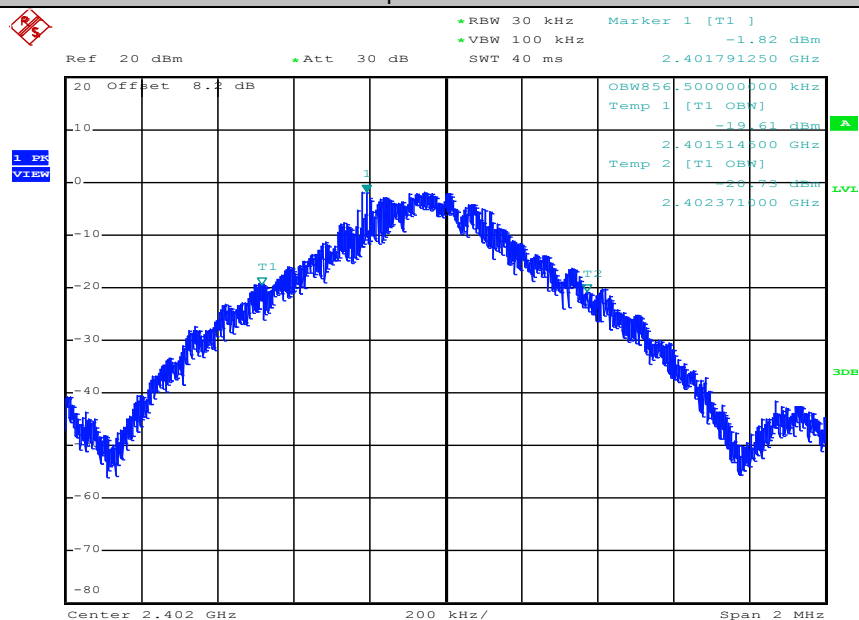
Date: 14.OCT.2019 18:23:41

A.3 Occupied Bandwidth

Mode	Channel.	Occupied Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.857	Not Specified	PASS
	MCH	0.856	Not Specified	PASS
	HCH	0.858	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.224	Not Specified	PASS
	MCH	1.214	Not Specified	PASS
	HCH	1.210	Not Specified	PASS

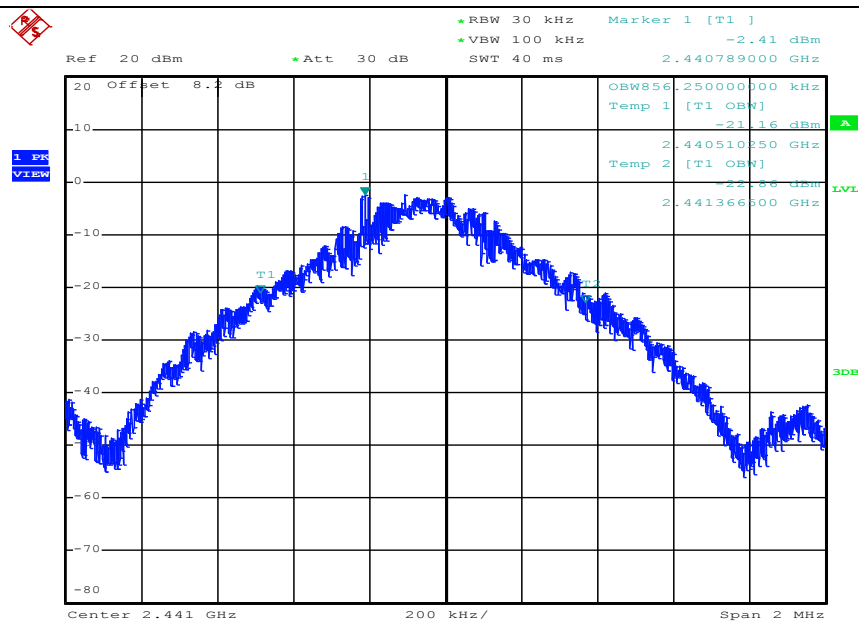
Test Graphs

GFSK/LCH



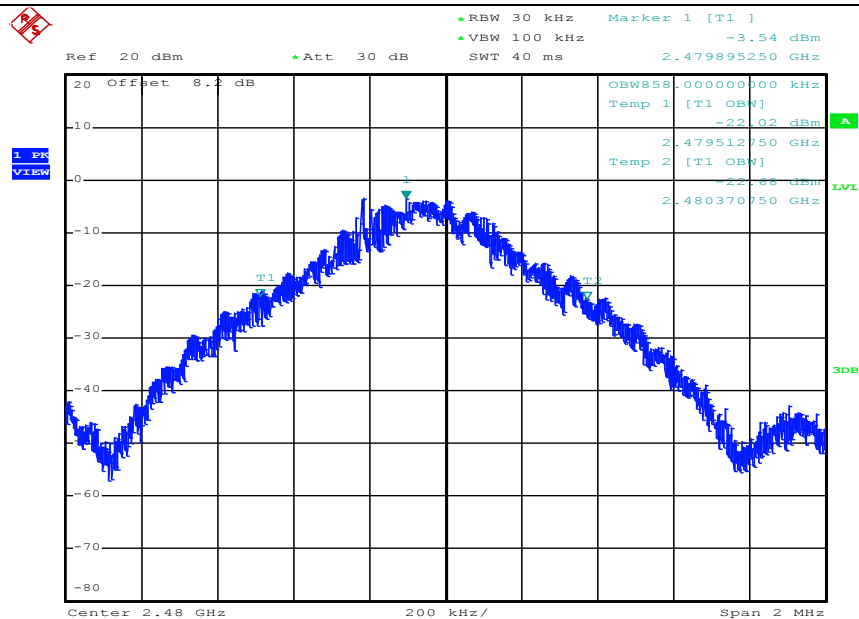
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GFSK/MCH

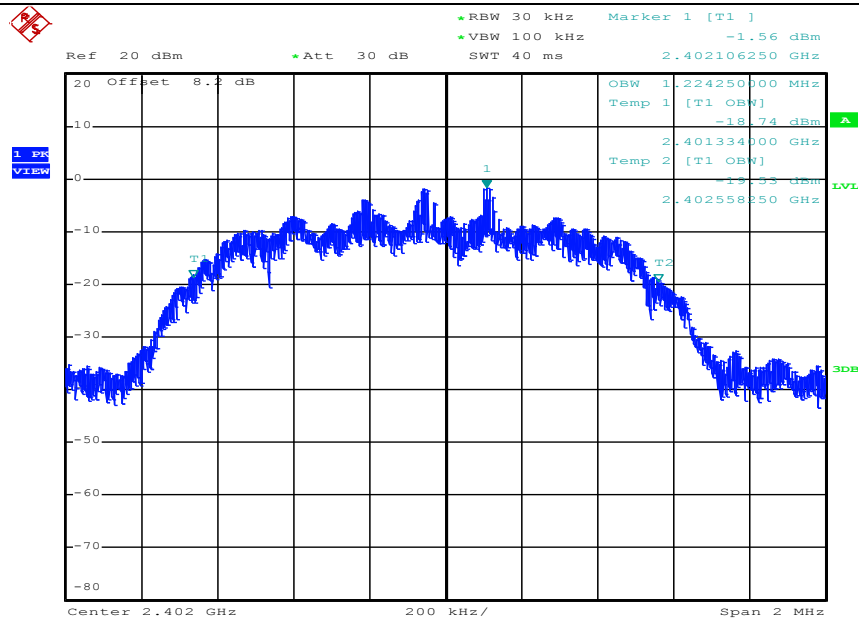


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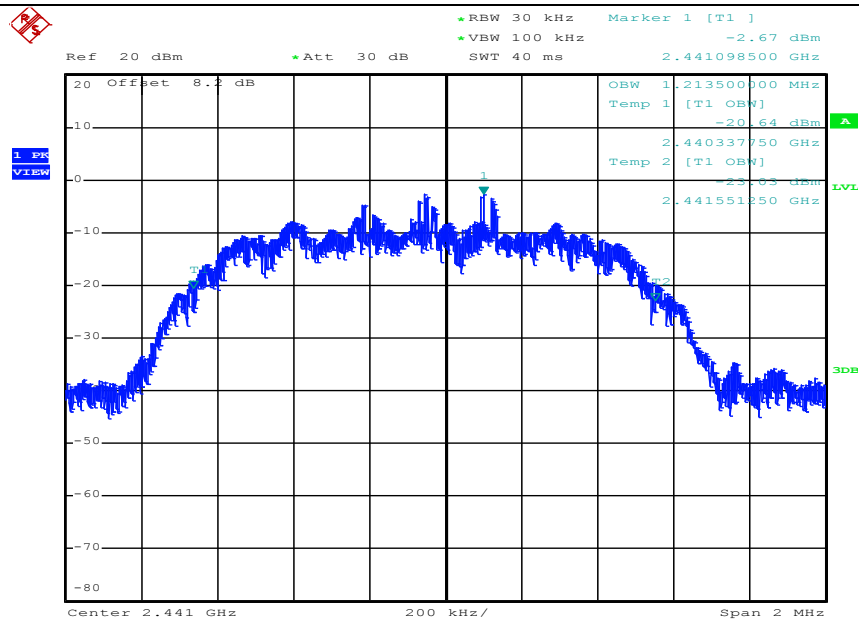
GFSK/HCH



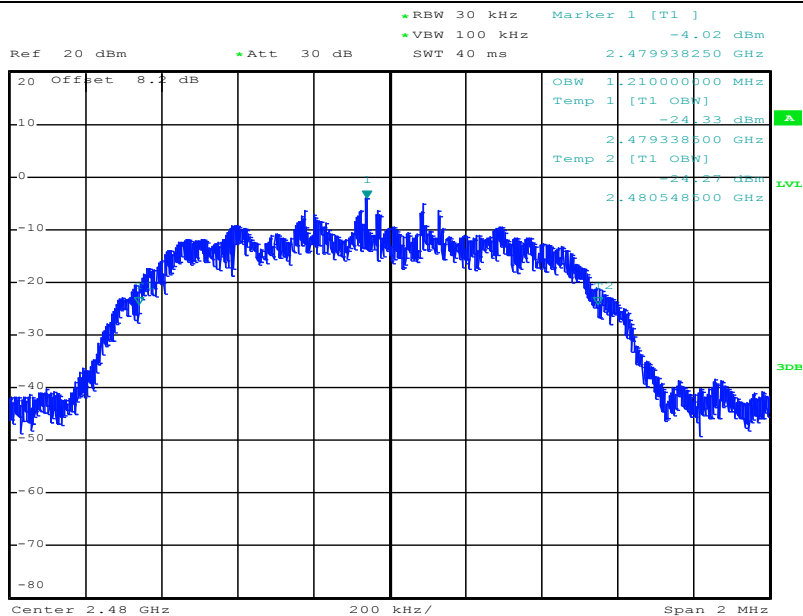
Date: 15.OCT.2019 09:34:43

$\pi/4$ DQPSK/LCH

Date: 15.OCT.2019 09:35:29

 $\pi/4$ DQPSK/MCH

Date: 15.OCT.2019 09:36:10

$\pi/4$ DQPSK/HCH

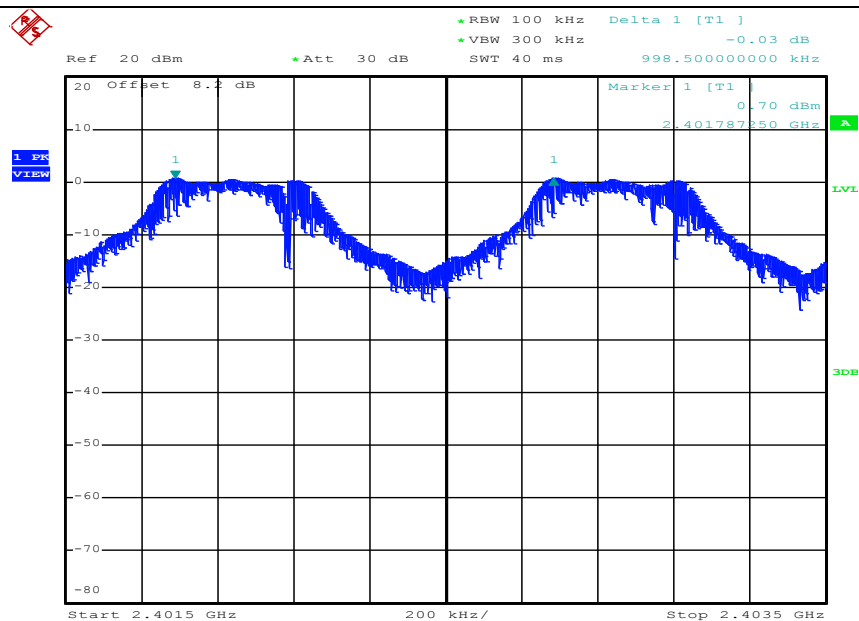
Date: 15.OCT.2019 09:36:46

A.4 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.999	0.633	PASS
	MCH	1.000	0.633	PASS
	HCH	0.990	0.633	PASS
$\pi/4$ DQPSK	LCH	0.986	0.881	PASS
	MCH	1.004	0.881	PASS
	HCH	1.148	0.881	PASS

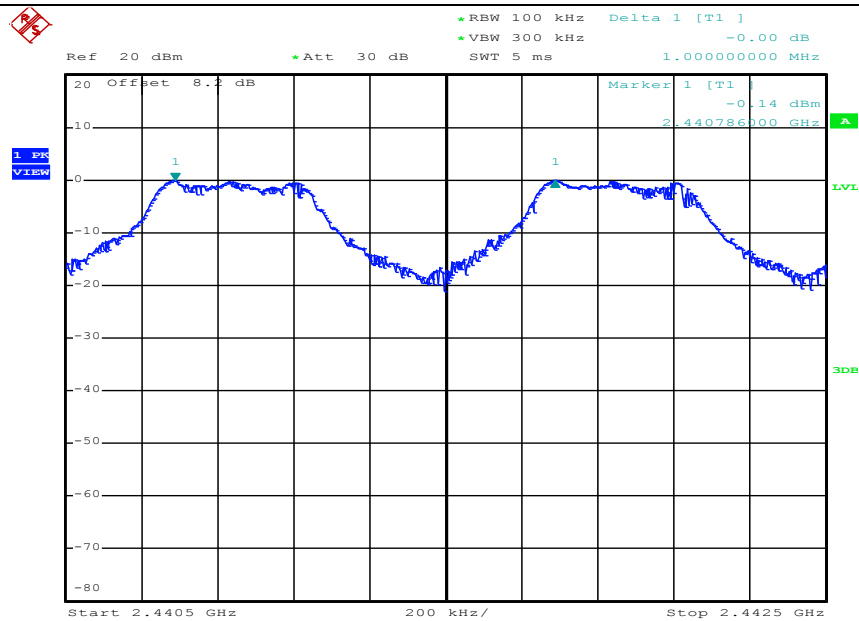
Test Graphs

GFSK/LCH



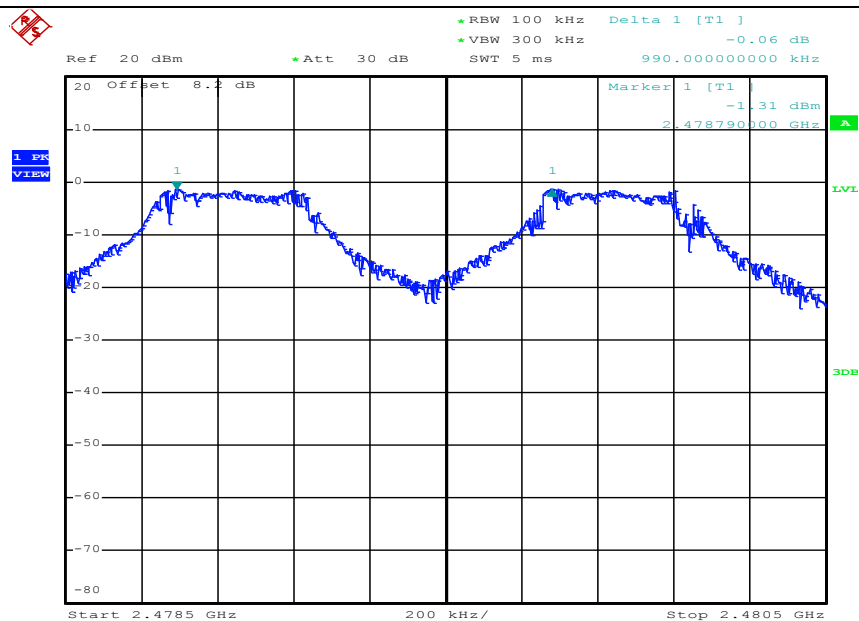
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GFSK/MCH

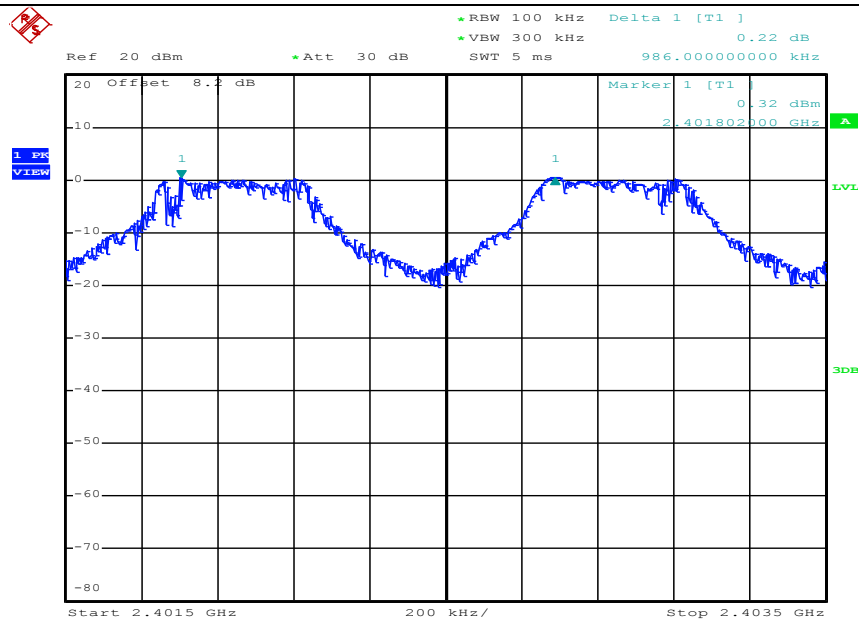


Date: 15.OCT.2019 09:50:17

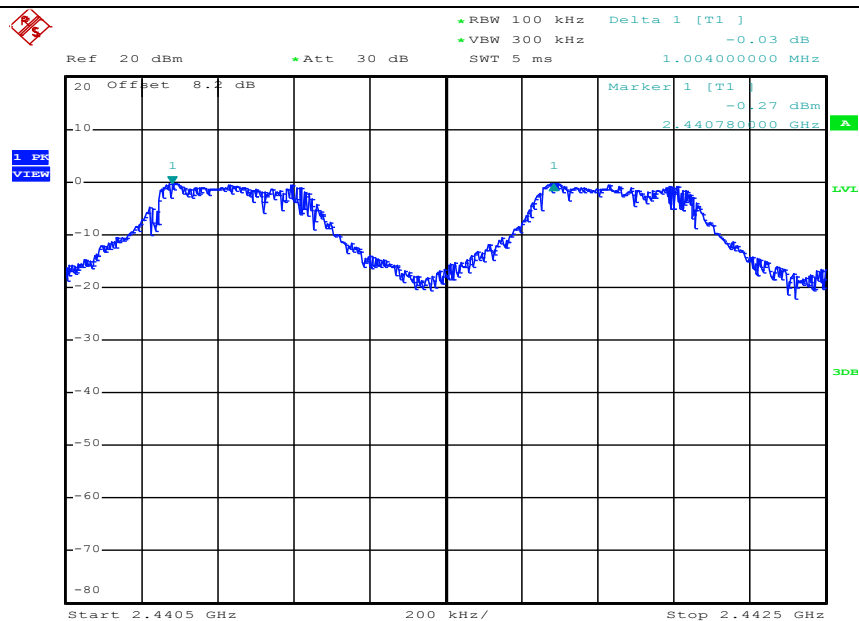
GFSK/HCH



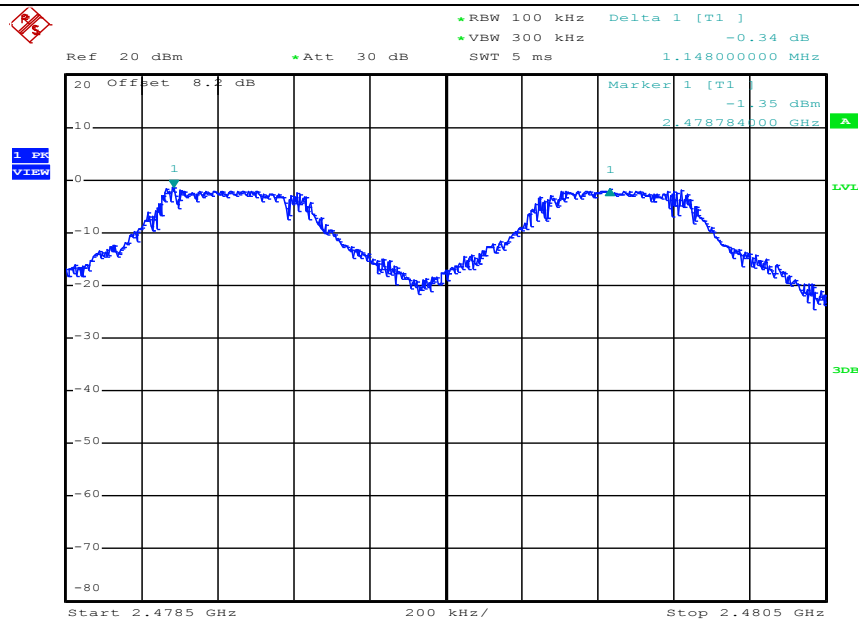
Date: 15.OCT.2019 09:51:57

 π /4DQPSK/LCH

Date: 15.OCT.2019 10:06:05

$\pi/4$ DQPSK/MCH

Date: 15.OCT.2019 10:13:34

 $\pi/4$ DQPSK/HCH

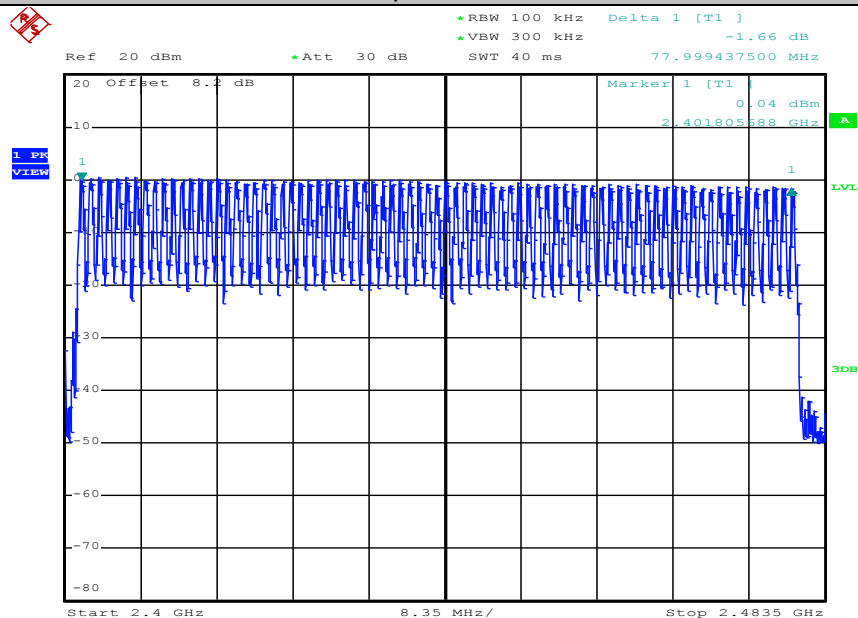
Date: 15.OCT.2019 10:25:23

A.5 Hopping Channel Number

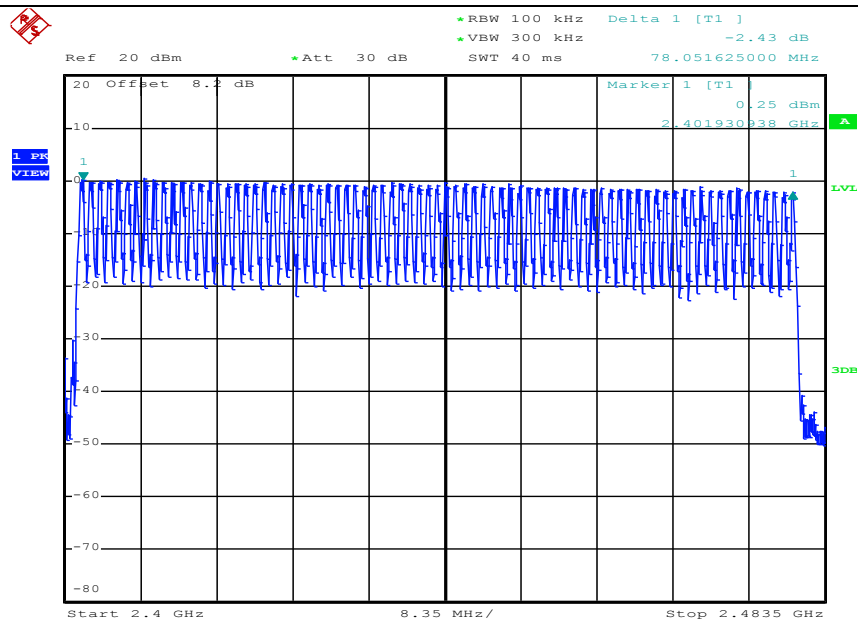
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	≥ 15	PASS
$\pi/4$ DQPSK	Hop	79	≥ 15	PASS

Test Graphs

GFSK/Hop



Date: 15.OCT.2019 10:02:05

 $\pi/4$ DQPSK/Hop

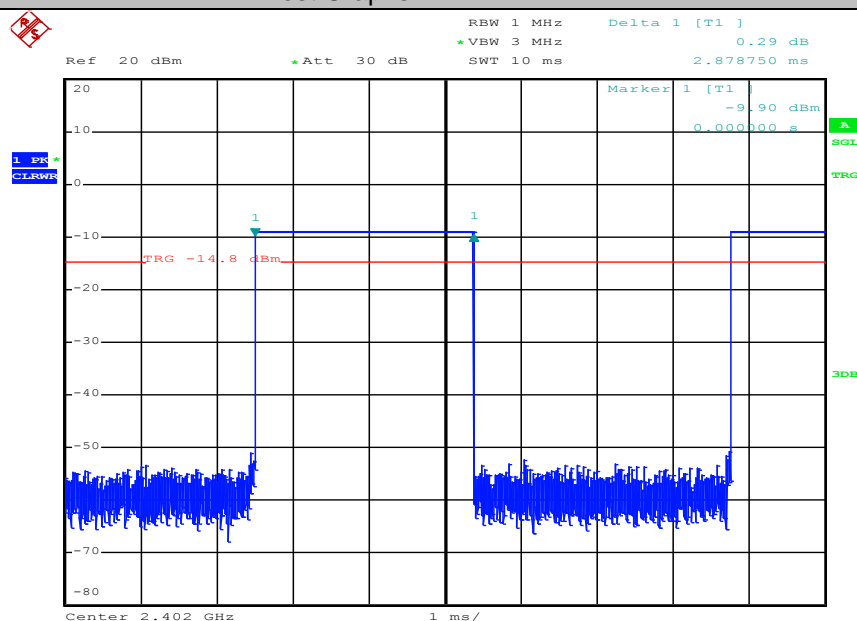
Date: 15.OCT.2019 10:23:59

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

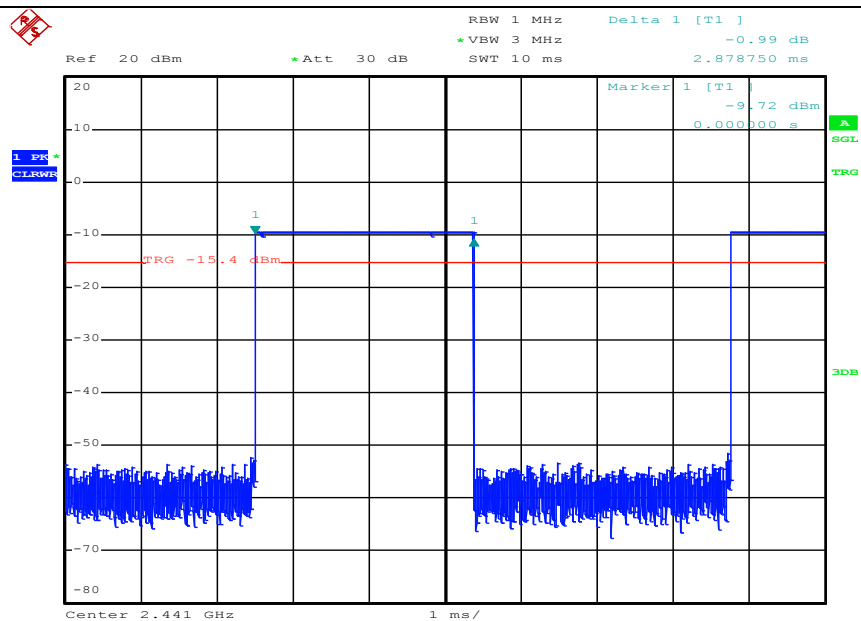
Test Graphs

GFSK_DH5/LCH



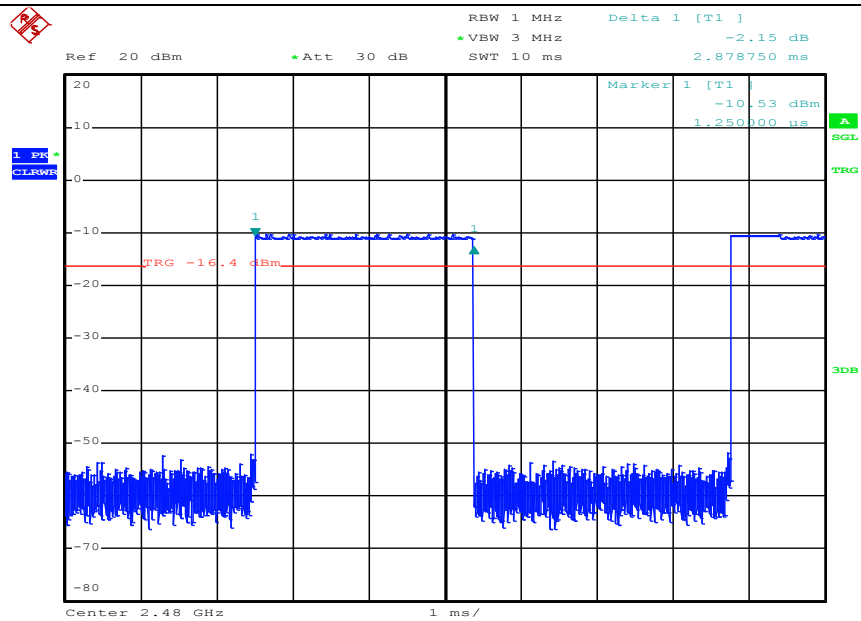
Date: 14.OCT.2019 18:11:08

GFSK_DH5/MCH



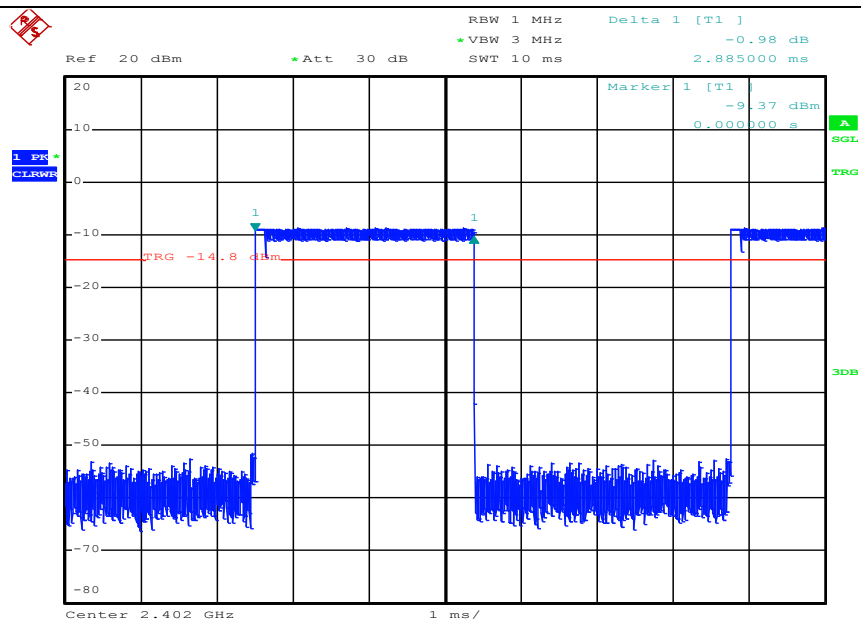
Date: 14.OCT.2019 18:13:58

GFSK_DH5/HCH



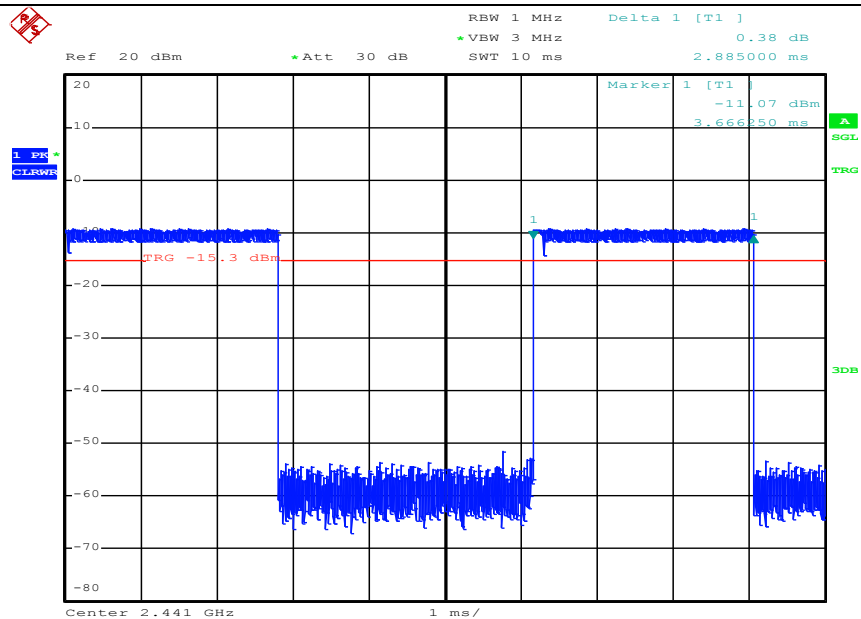
Date: 14.OCT.2019 18:16:00

$\pi/4$ DQPSK
_2DH5/LCH



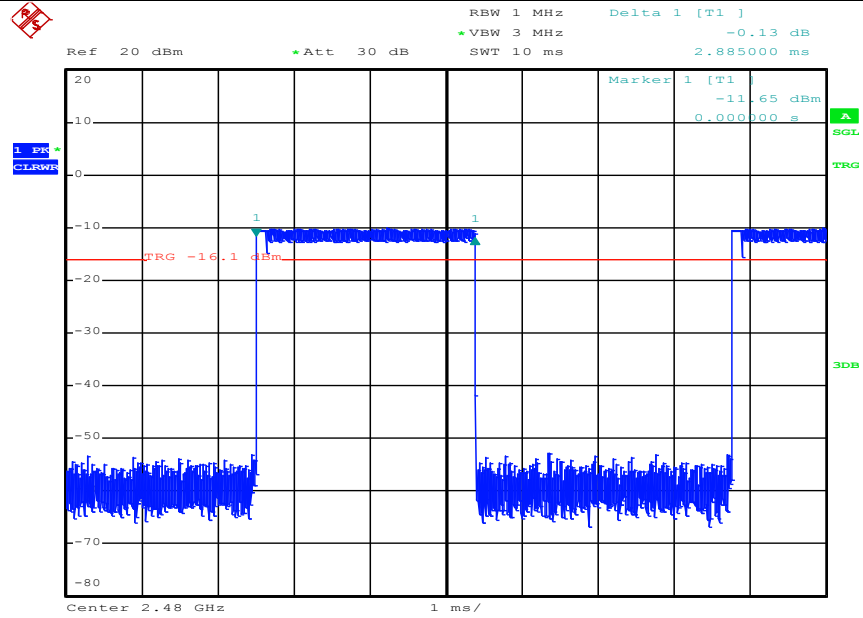
Date: 14.OCT.2019 18:18:49

$\pi/4$ DQPSK
_2DH5/MCH



Date: 14.OCT.2019 18:22:09

$\pi/4$ DQPSK
_2DH5/HCH



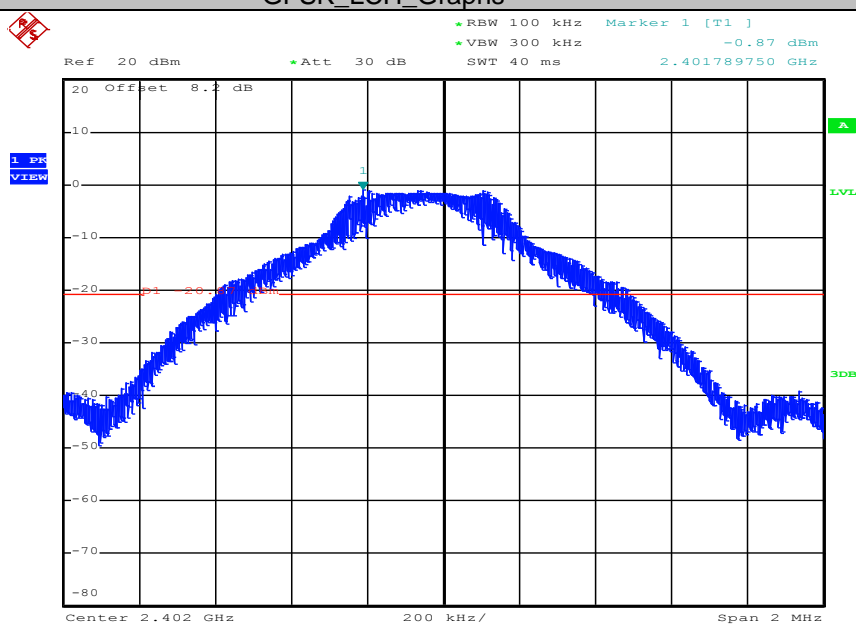
Date: 14.OCT.2019 18:24:03

A.7 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-0.87	-32.290	-20.870	PASS
	MCH	-1.48	-31.850	-21.480	PASS
	HCH	-2.27	-31.670	-22.270	PASS
$\pi/4$ DQPSK	LCH	-0.97	-30.950	-20.970	PASS
	MCH	-1.67	-32.670	-21.670	PASS
	HCH	-2.49	-32.740	-22.490	PASS

GFSK_LCH_Graphs

Pref

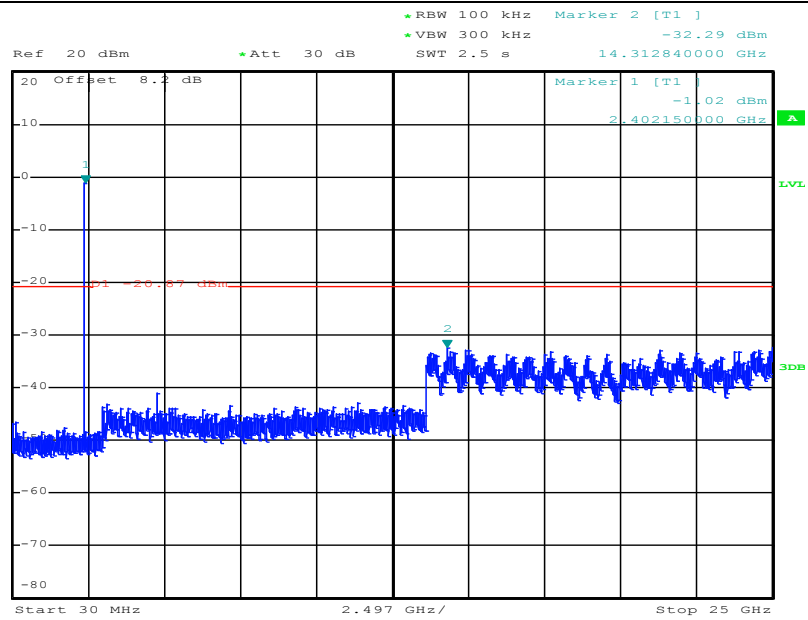


Date: 14.OCT.2019 18:12:02

P_{uw}



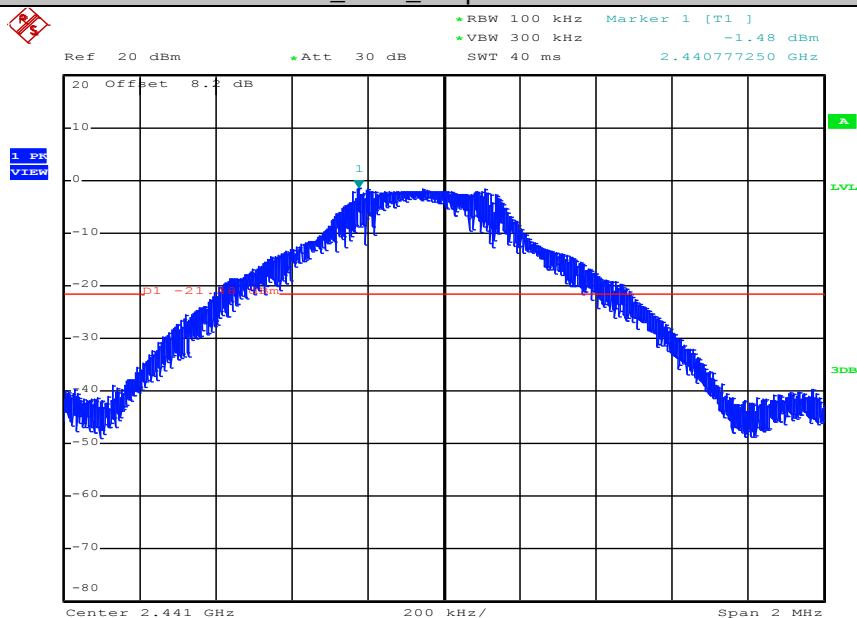
1. PR
VIEW



Date: 14.OCT.2019 18:12:21

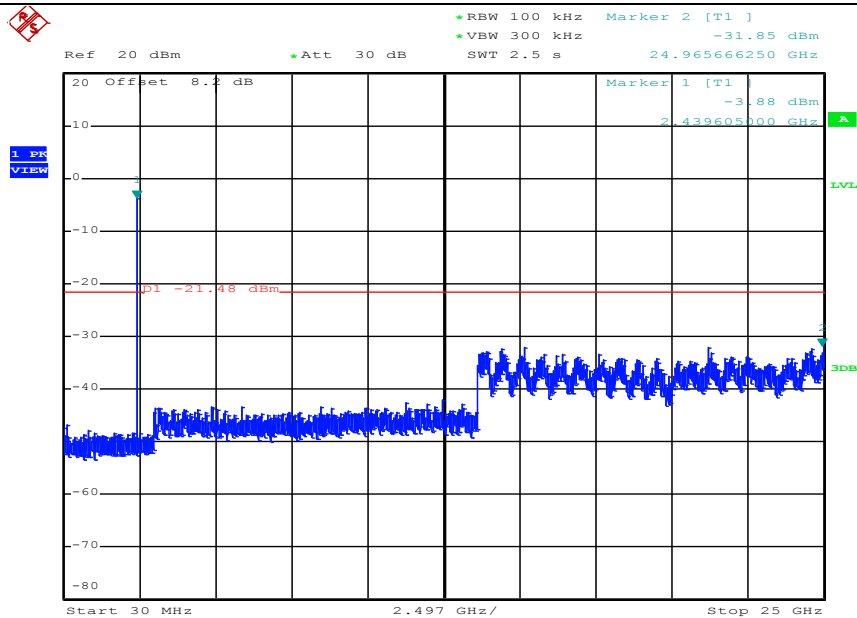
GFSK_MCH_Graphs

Pref



Date: 14.OCT.2019 18:14:26

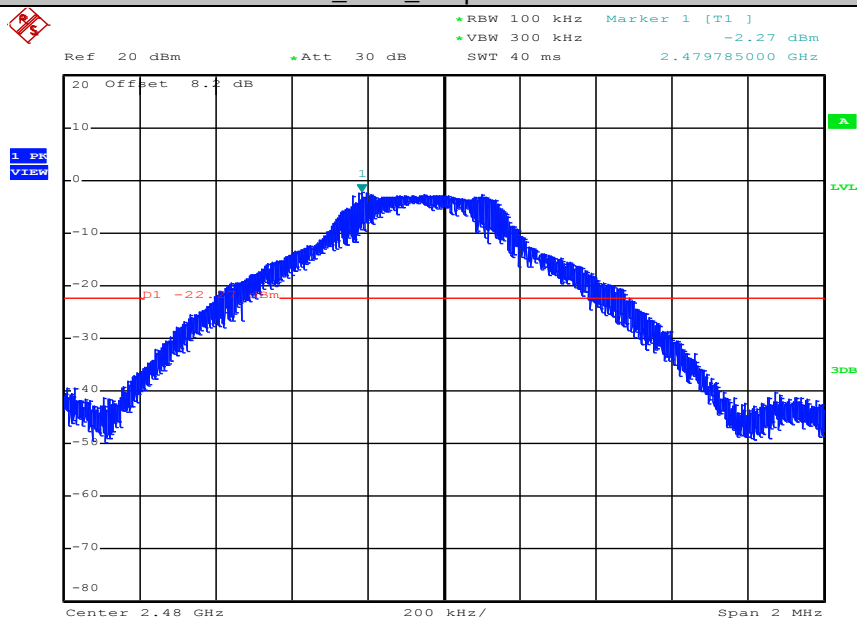
Puw



Date: 14.OCT.2019 18:14:46

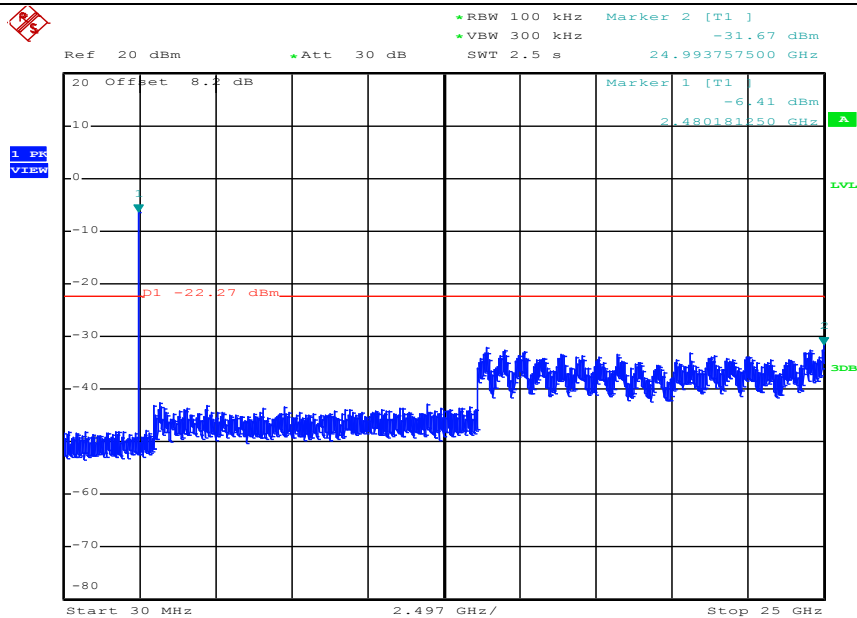
GFSK_HCH_Graphs

Pref



Date: 14.OCT.2019 18:16:44

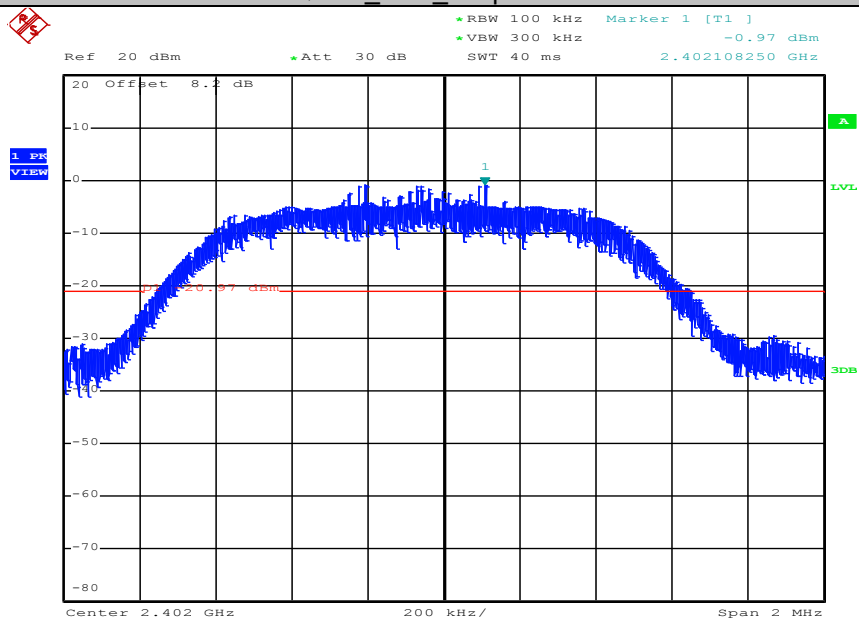
Puw



Date: 14.OCT.2019 18:17:04

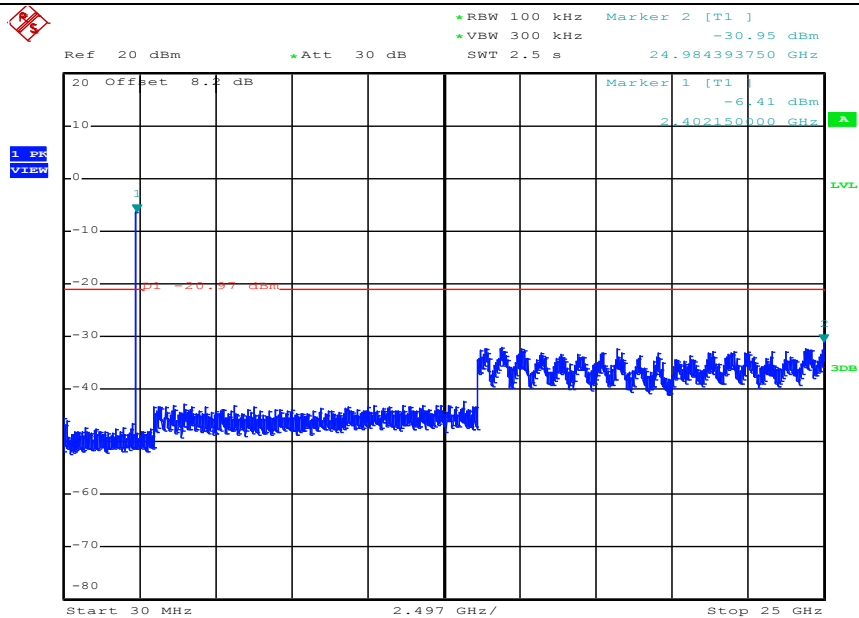
$\pi/4$ DQPSK_LCH_Graphs

Pref



Date: 14.OCT.2019 18:19:45

Puw



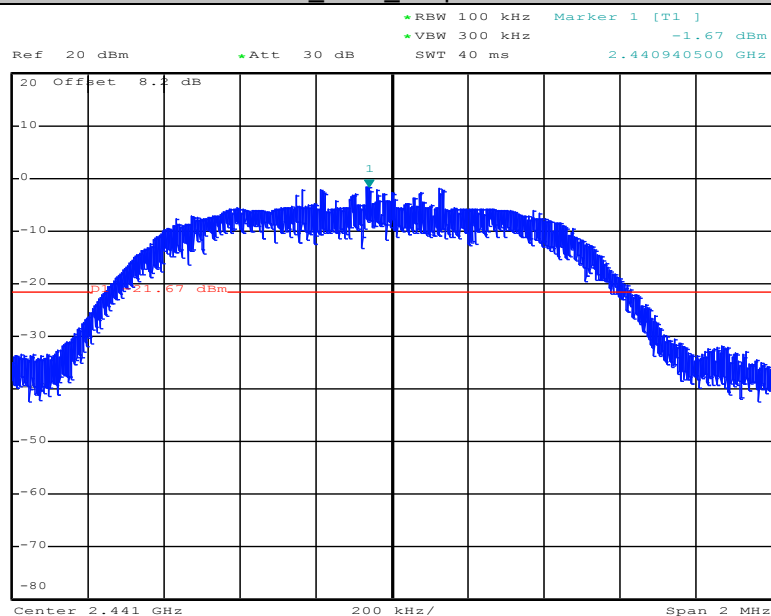
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$\pi/4$ DQPSK_MCH_Graphs

Pref



1 PR
VIEW

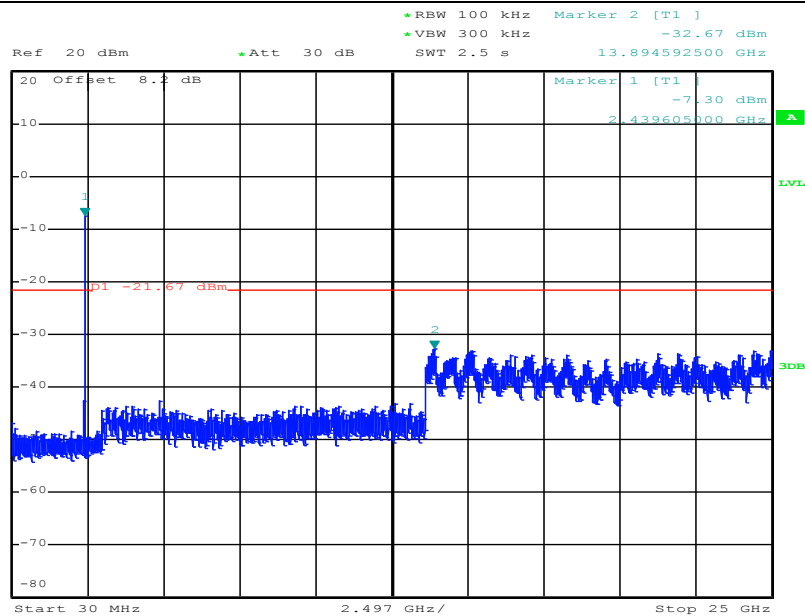


Date: 14.OCT.2019 18:22:37

Puw



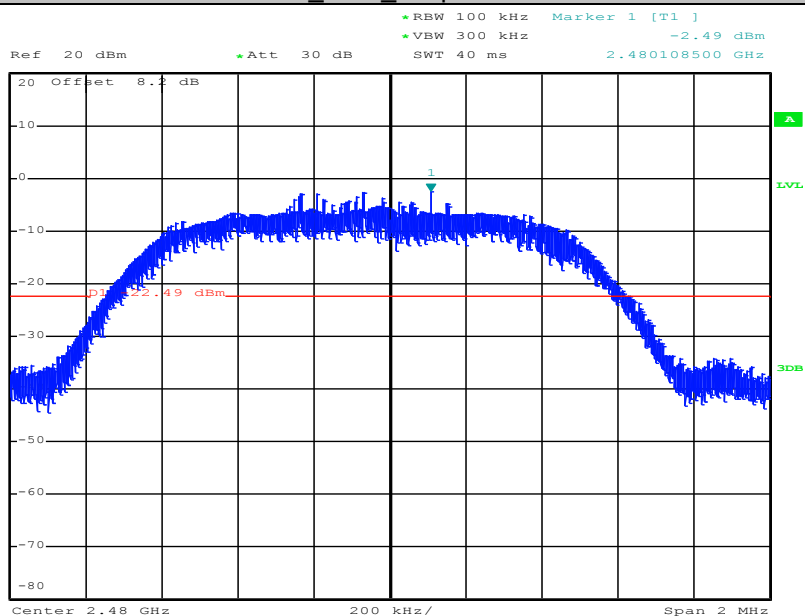
1 PR
VIEW



Date: 14.OCT.2019 18:22:51

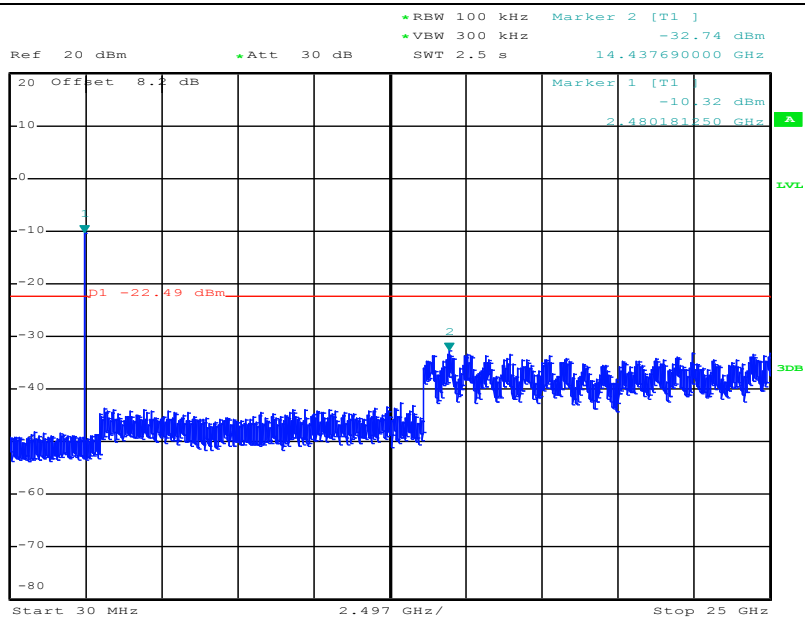
$\pi/4$ DQPSK_HCH_Graphs

Pref

1 PR
VIEW

Date: 14.OCT.2019 18:24:54

Puw

1 PR
VIEW

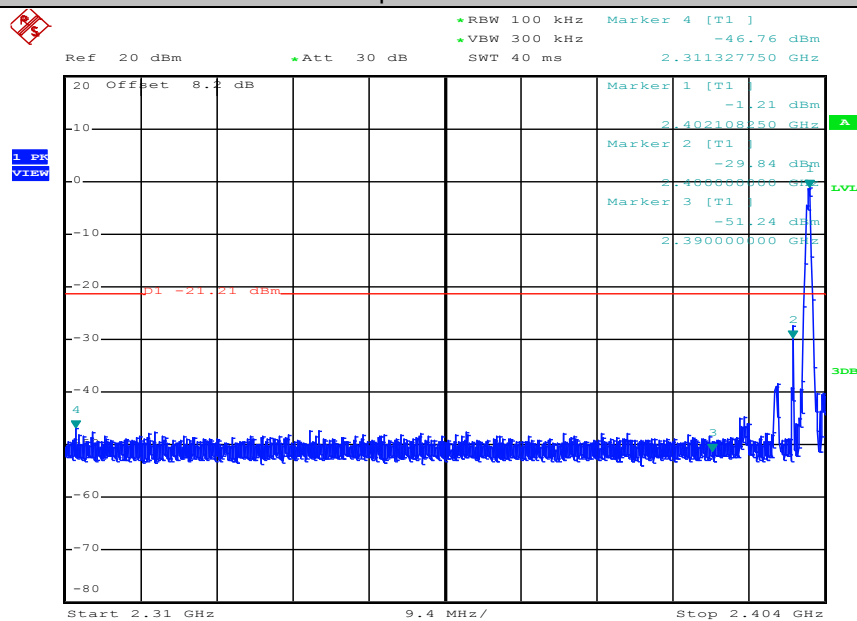
Date: 14.OCT.2019 18:25:11

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	-1.210	Off	-46.764	-21.21	PASS
			0.460	On	-45.472	-19.54	PASS
	HCH	2480	-3.040	Off	-46.079	-23.04	PASS
			-0.750	On	-46.339	-20.75	PASS
$\pi/4$ DQPSK	LCH	2402	-1.580	Off	-46.857	-21.58	PASS
			0.470	On	-46.404	-19.53	PASS
	HCH	2480	-2.600	Off	-46.461	-22.6	PASS
			-1.060	On	-44.843	-21.06	PASS

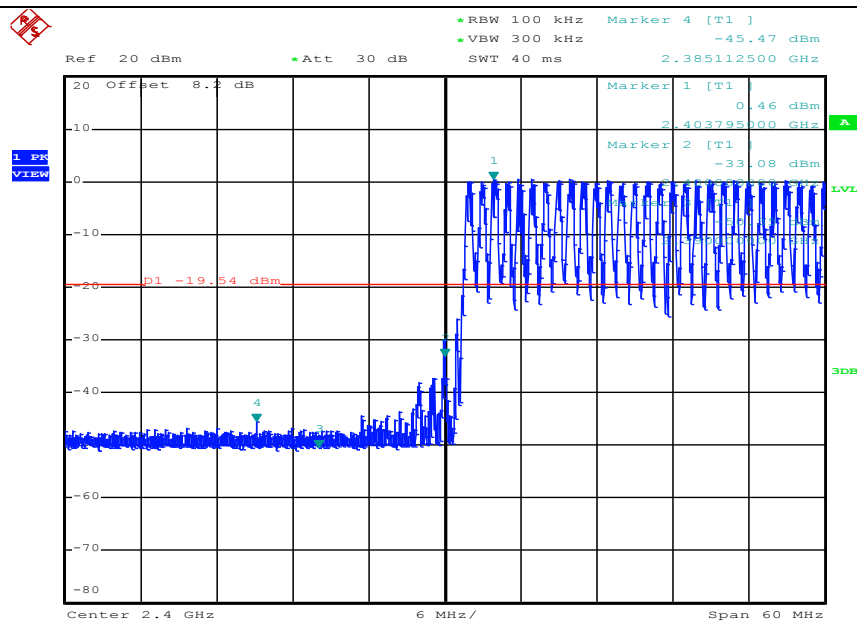
Test Graphs

GFSK/LCH/No Hop



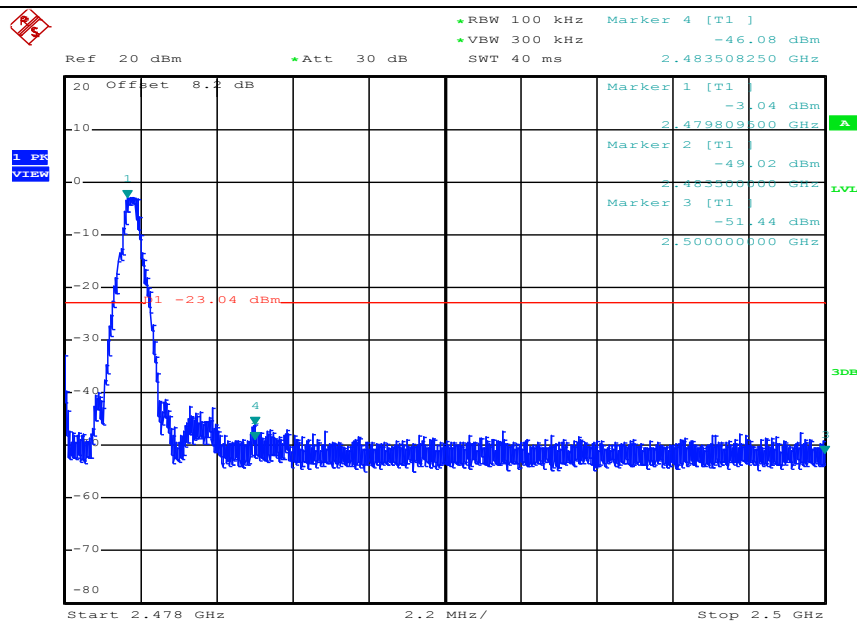
Date: 14.OCT.2019 18:11:49

GFSK/LCH/Hop



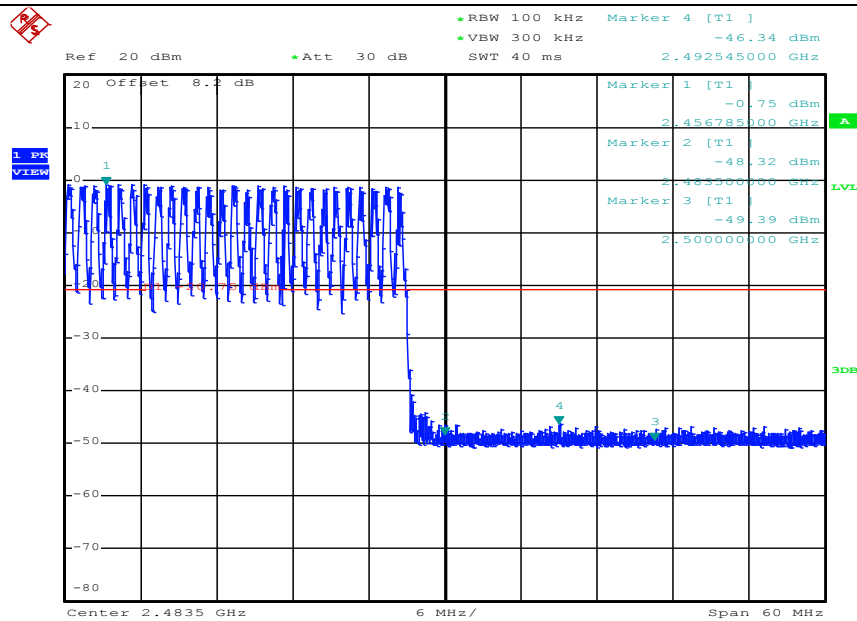
Date: 15.OCT.2019 09:47:41

GFSK/HCH/No Hop



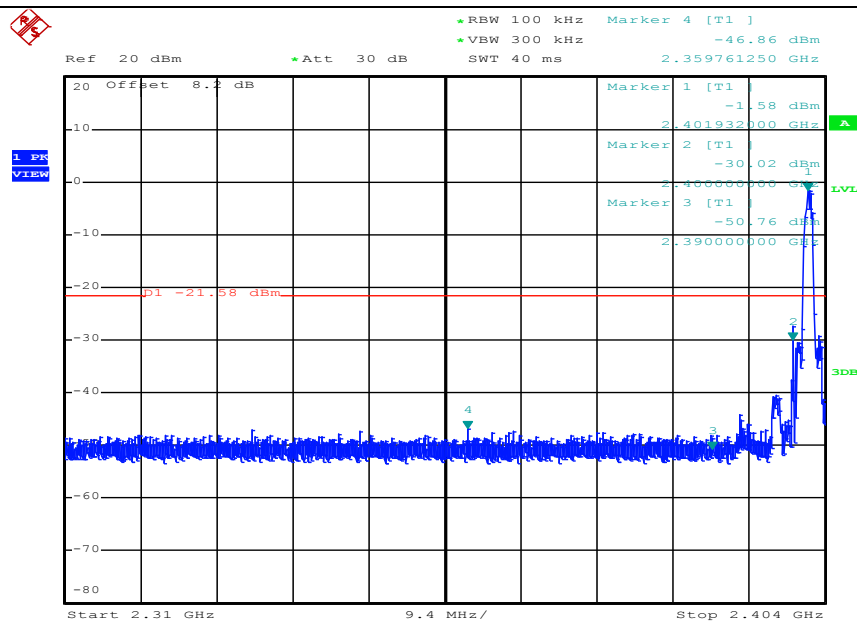
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GFSK/HCH/Hop



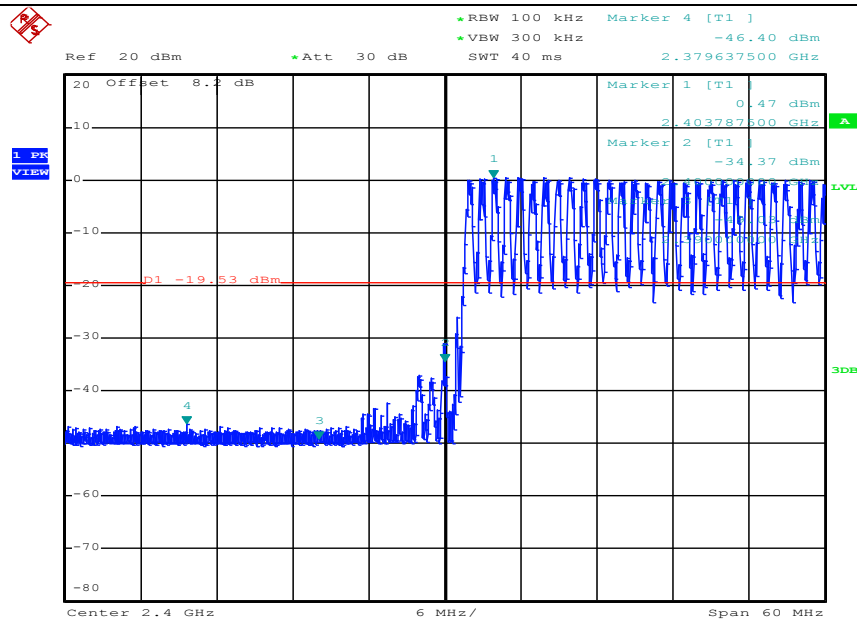
Date: 15.OCT.2019 09:55:59

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



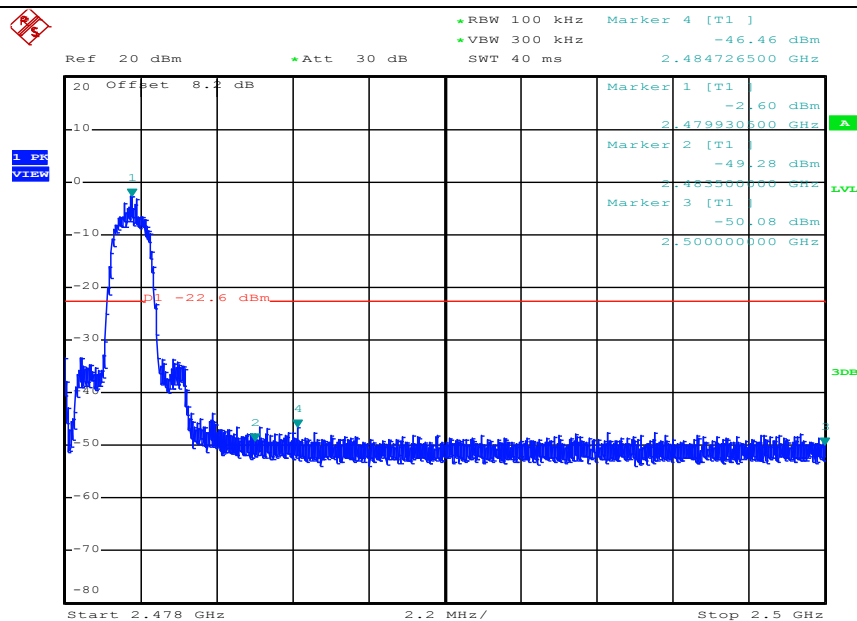
Date: 14.OCT.2019 18:19:32

$\pi/4$ DQPSK/LCH/Hop



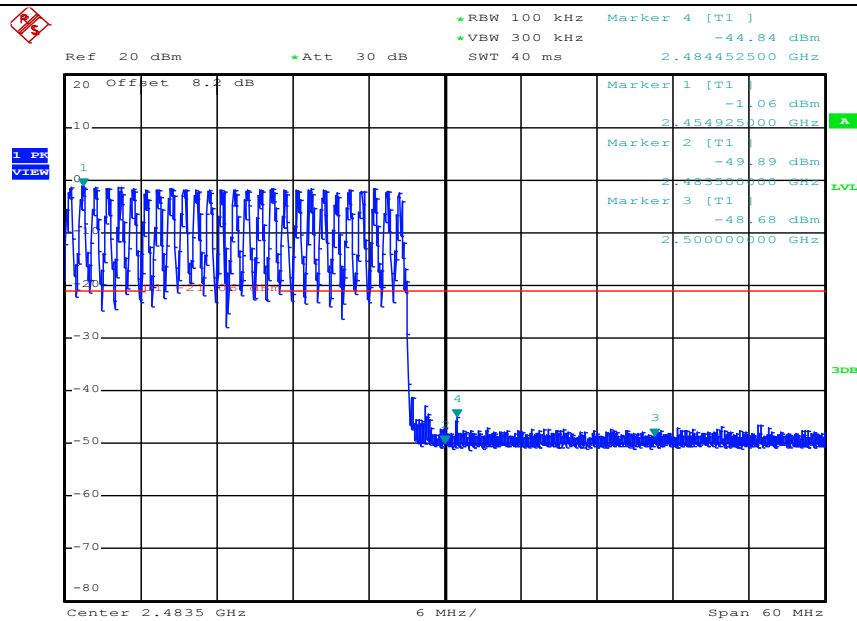
Date: 15.OCT.2019 10:11:52

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



Date: 14.OCT.2019 18:24:41

$\pi/4$ DQPSK/HCH/Hop

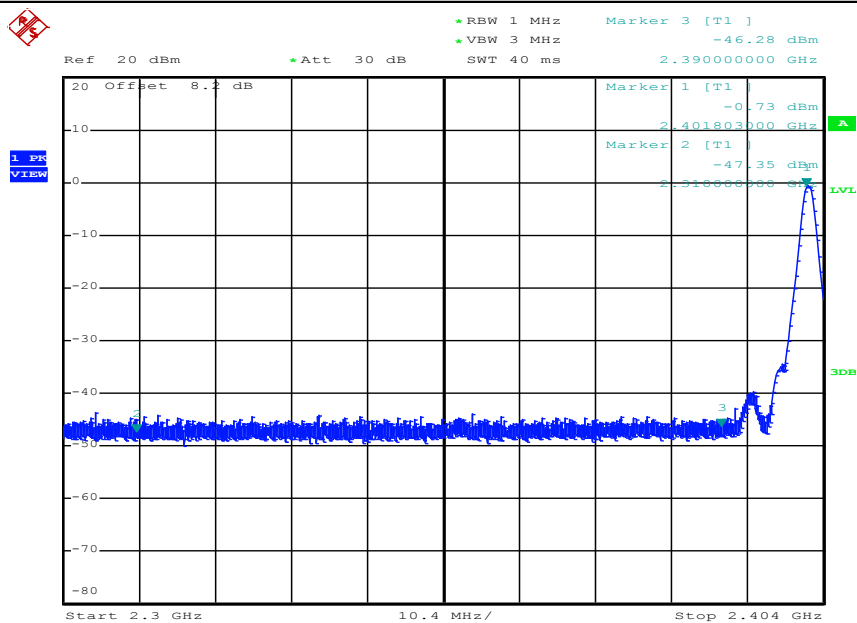


Date: 15.OCT.2019 10:17:03

A.8 Restrict-band band-edge measurements

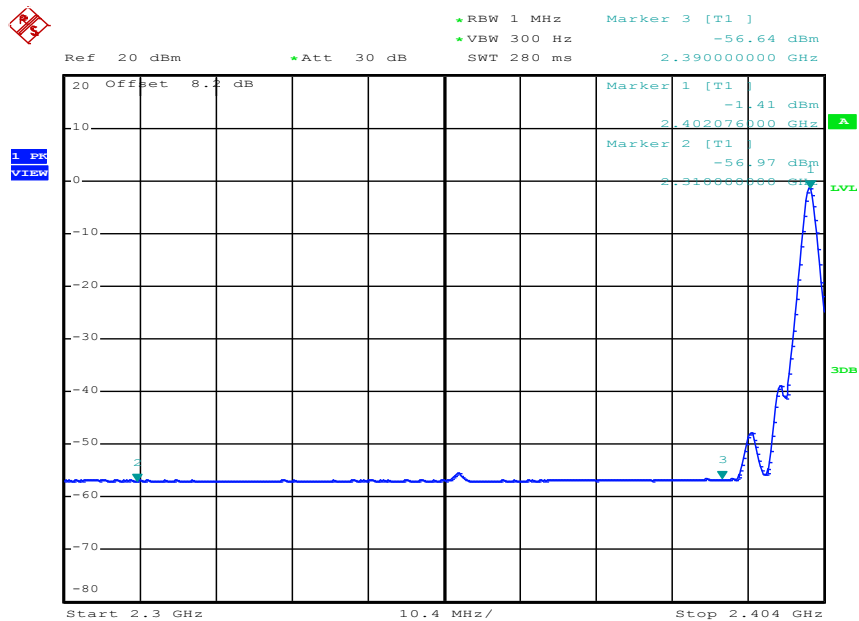
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.35	2.0	0	47.91	PEAK	74	PASS
	Off	2310.0	-56.97	2.0	0	38.29	AV	54	PASS
	Off	2390.0	-46.28	2.0	0	48.98	PEAK	74	PASS
	Off	2390.0	-56.64	2.0	0	38.62	AV	54	PASS
	Off	2483.5	-39.02	2.0	0	56.24	PEAK	74	PASS
	Off	2483.5	-44.26	2.0	0	51.00	AV	54	PASS
	Off	2500.0	-47.26	2.0	0	48.00	PEAK	74	PASS
	Off	2500.0	-57.27	2.0	0	37.99	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-47.99	2.0	0	47.27	PEAK	74	PASS
	Off	2310.0	-56.97	2.0	0	38.29	AV	54	PASS
	Off	2390.0	-47.47	2.0	0	47.79	PEAK	74	PASS
	Off	2390.0	-56.73	2.0	0	38.53	AV	54	PASS
	Off	2483.5	-38.39	2.0	0	56.87	PEAK	74	PASS
	Off	2483.5	-45.03	2.0	0	50.23	AV	54	PASS
	Off	2500.0	-47.25	2.0	0	48.01	PEAK	74	PASS
	Off	2500.0	-57.36	2.0	0	37.90	AV	54	PASS

Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (Low Channel)



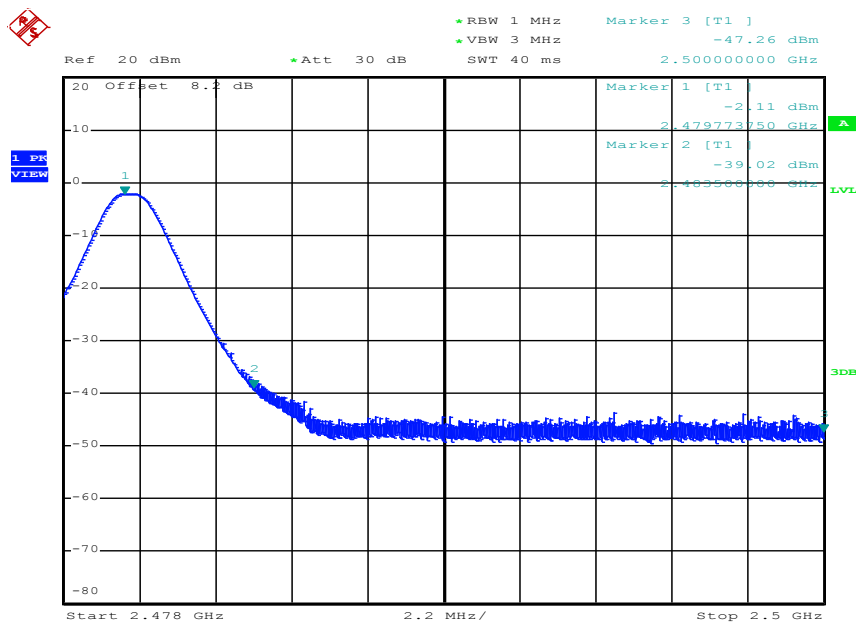
Date: 14.OCT.2019 18:12:40

Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (Low Channel)



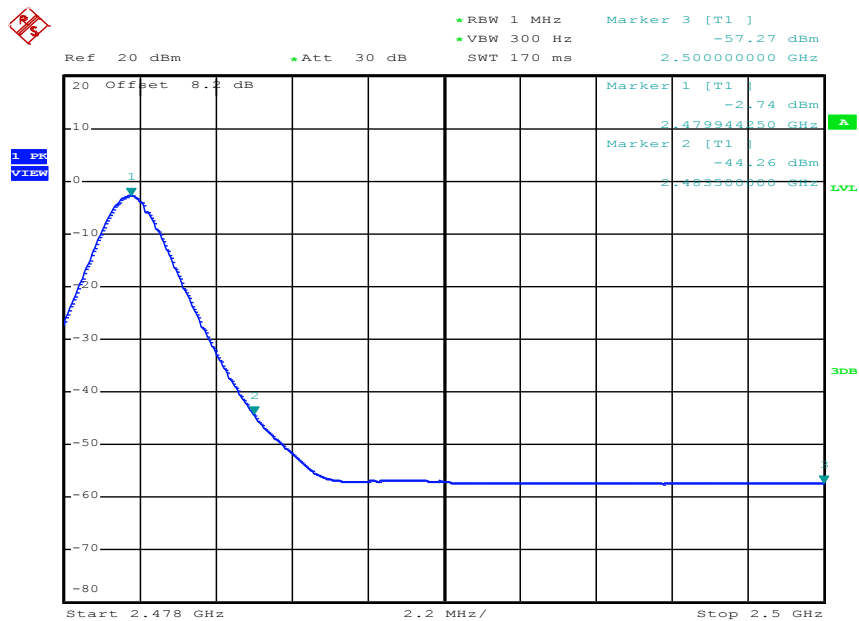
Date: 14.OCT.2019 18:12:53

Restrict-band band-edge measurements_Hopping Off_ GFSK_PEAK (High Channel)



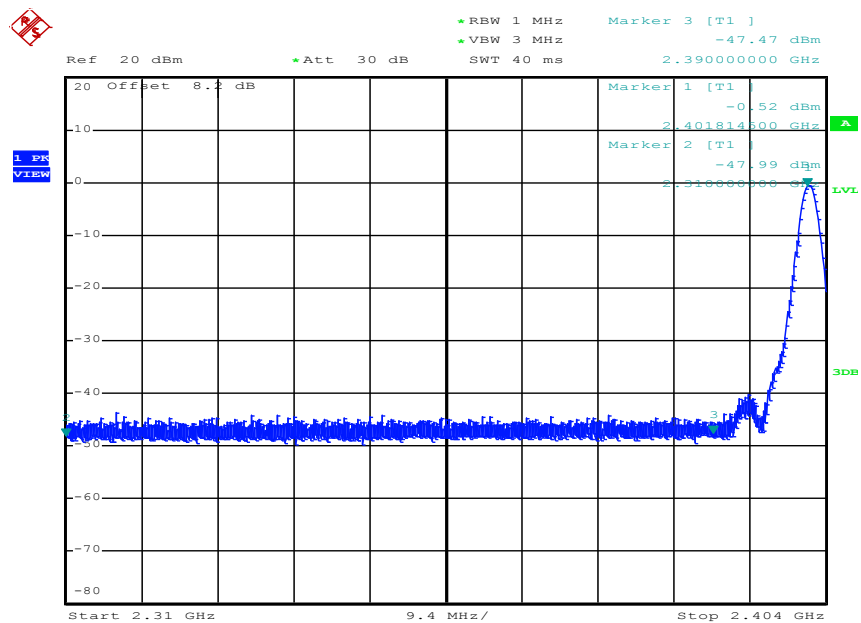
Date: 14.OCT.2019 18:17:23

Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



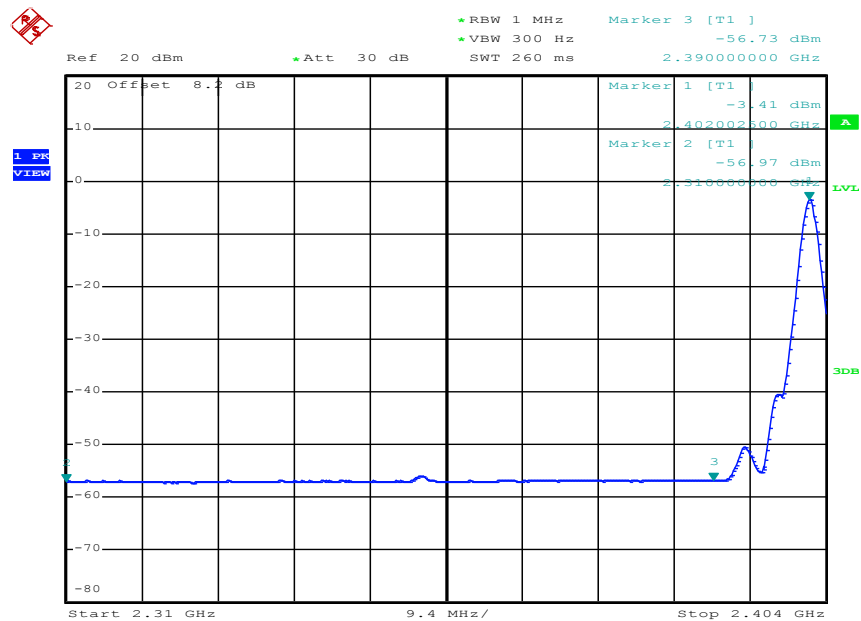
Date: 14.OCT.2019 18:17:36

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



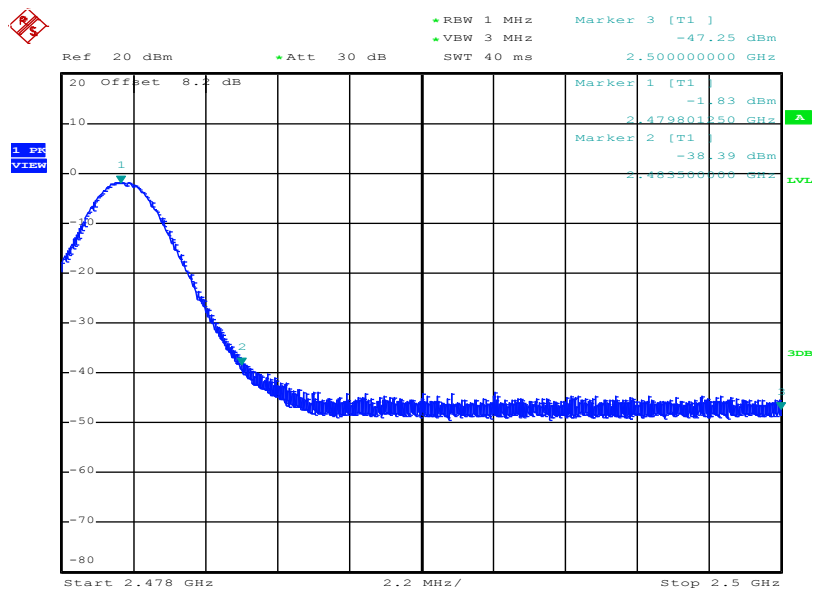
Date: 14.OCT.2019 18:20:44

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



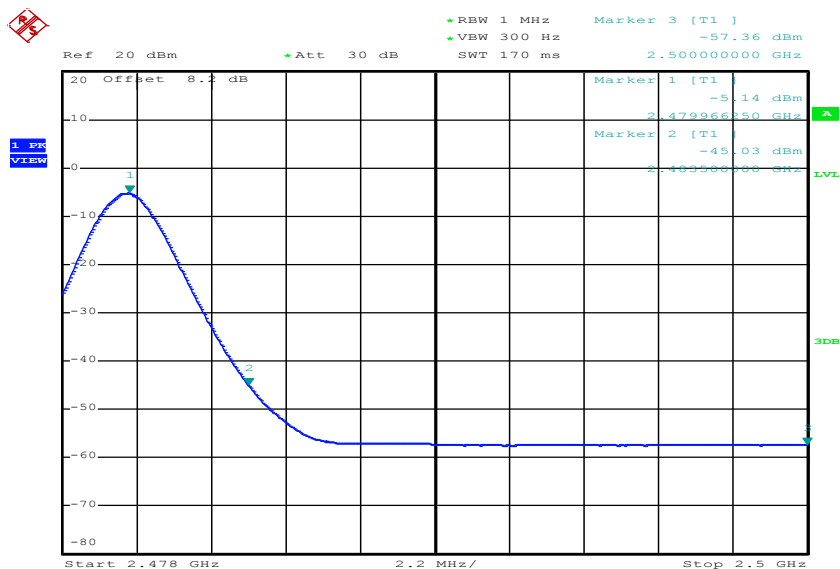
Date: 14.OCT.2019 18:20:58

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



Date: 14.OCT.2019 18:25:30

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



Date: 14.OCT.2019 18:25:44