

Appendix A

RF Test Data for BT V4.2(BDR/EDR) (Conducted Measurement)

Product Name: Wireless Keyboard

Trade Mark: FUNDIAN

Test Model: PV-K01

Environmental Conditions

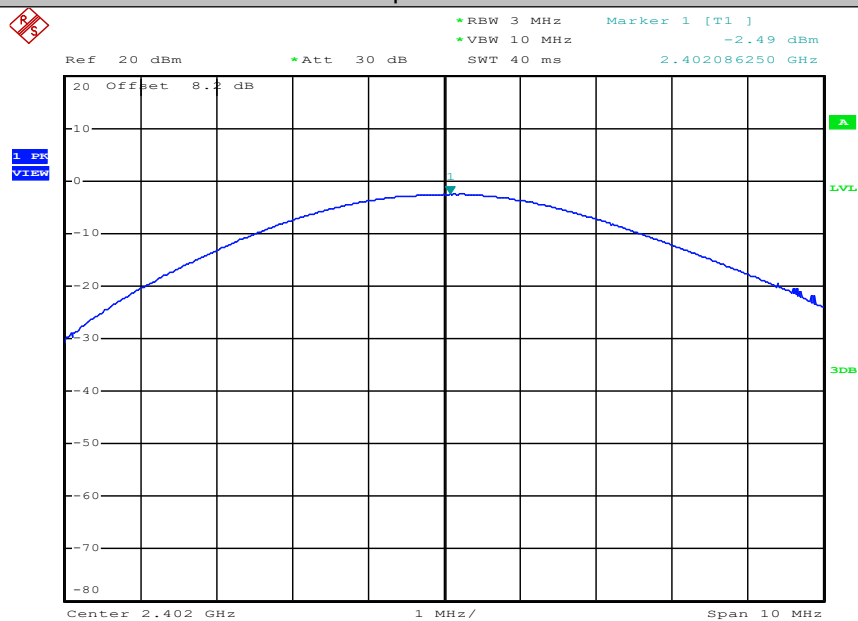
Temperature:	23.8 ° C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	JK ZHOU
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.490	30	PASS
	MCH	-1.210	30	PASS
	HCH	-1.580	30	PASS
$\pi/4$ DQPSK	LCH	-1.790	21	PASS
	MCH	-1.000	21	PASS
	HCH	-1.430	21	PASS
8DPSK	LCH	-1.520	21	PASS
	MCH	-0.850	21	PASS
	HCH	-1.240	21	PASS

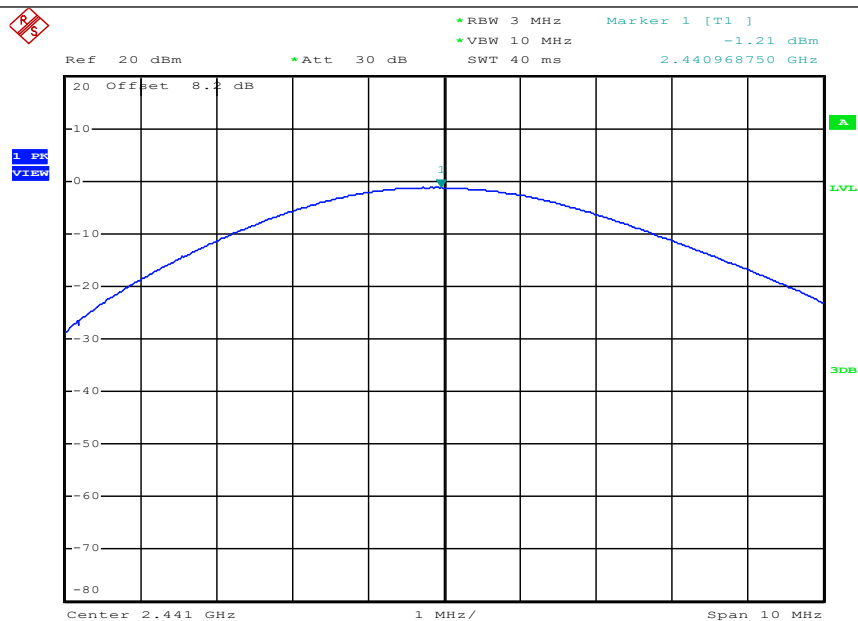
Test Graphs

GFSK/LCH



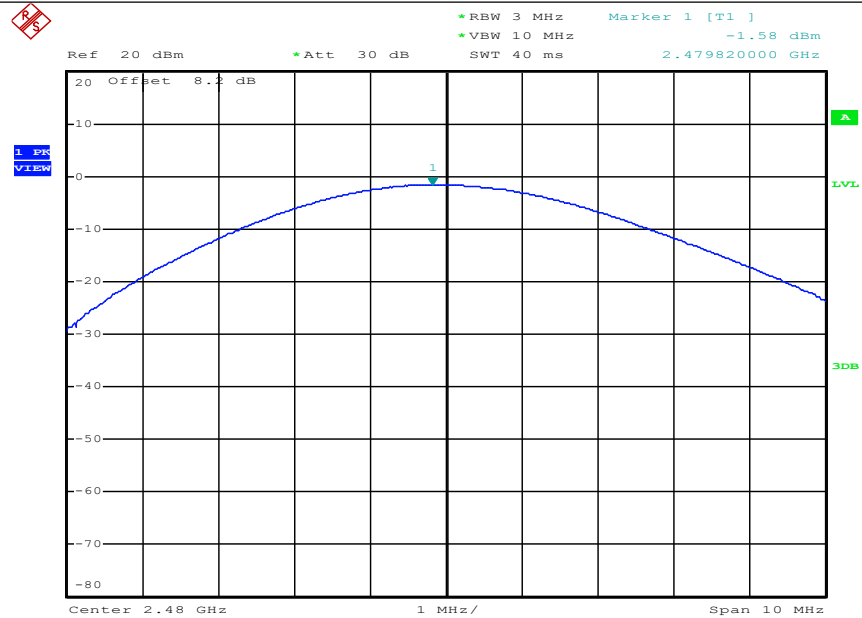
Date: 20.AUG.2019 13:41:24

GFSK/MCH

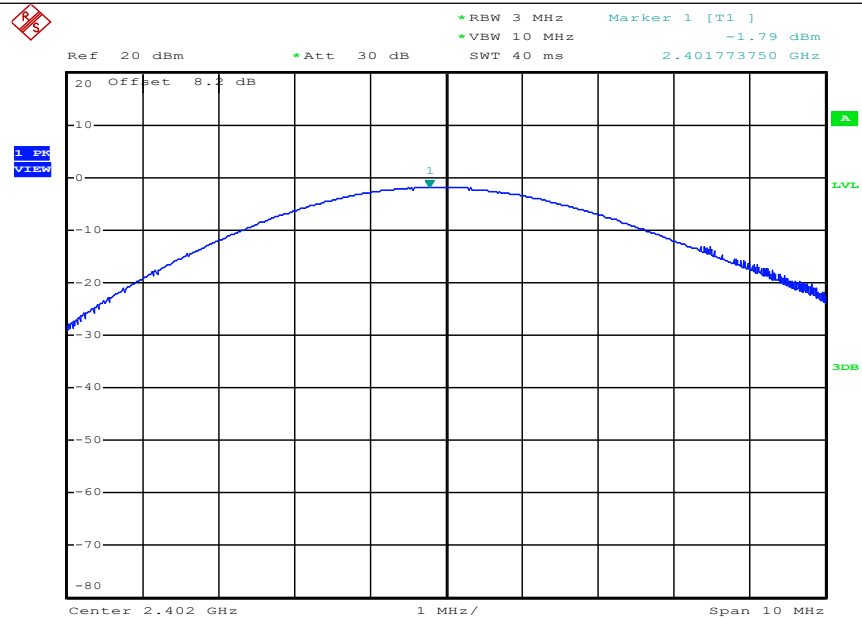


Date: 20.AUG.2019 13:44:01

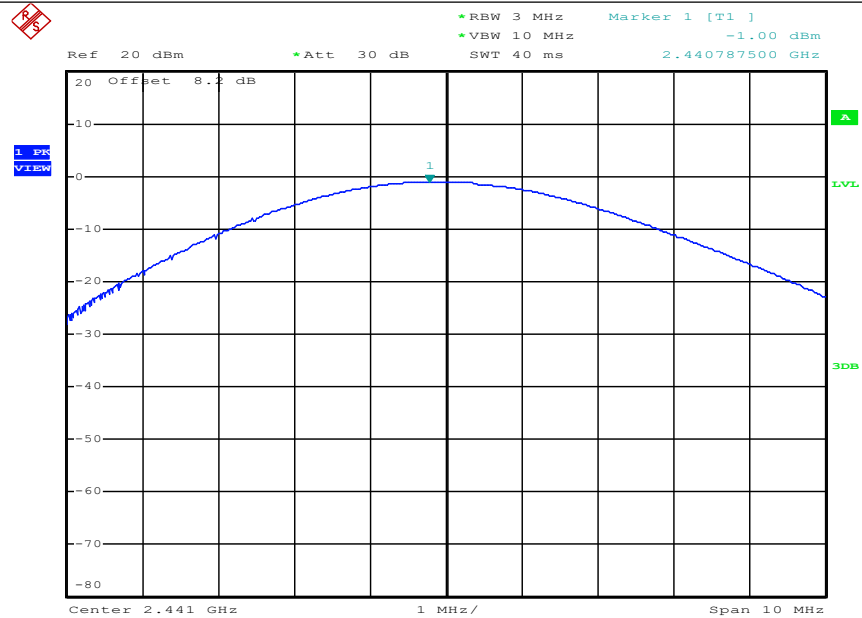
GFSK/HCH



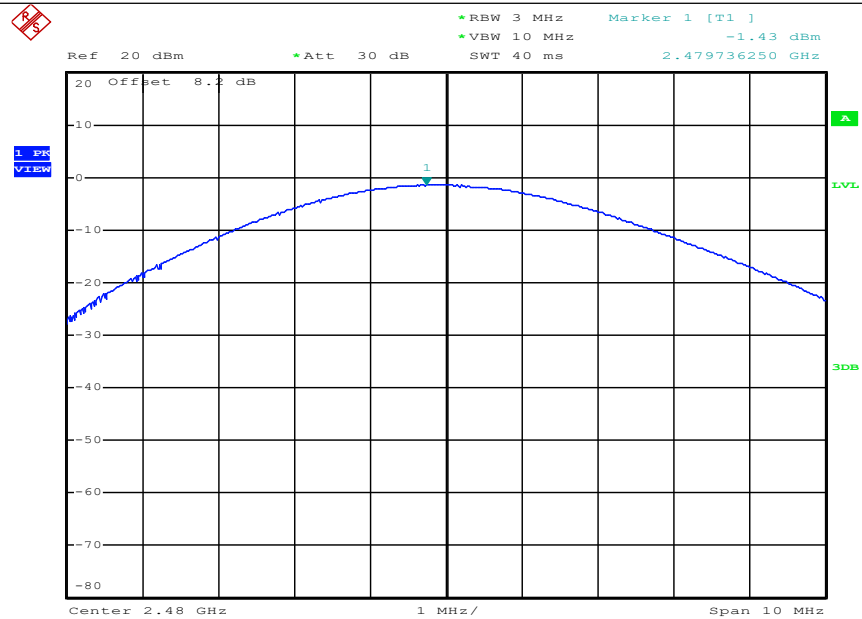
Date: 20.AUG.2019 13:45:47

 π /4DQPSK/LCH

Date: 20.AUG.2019 13:57:41

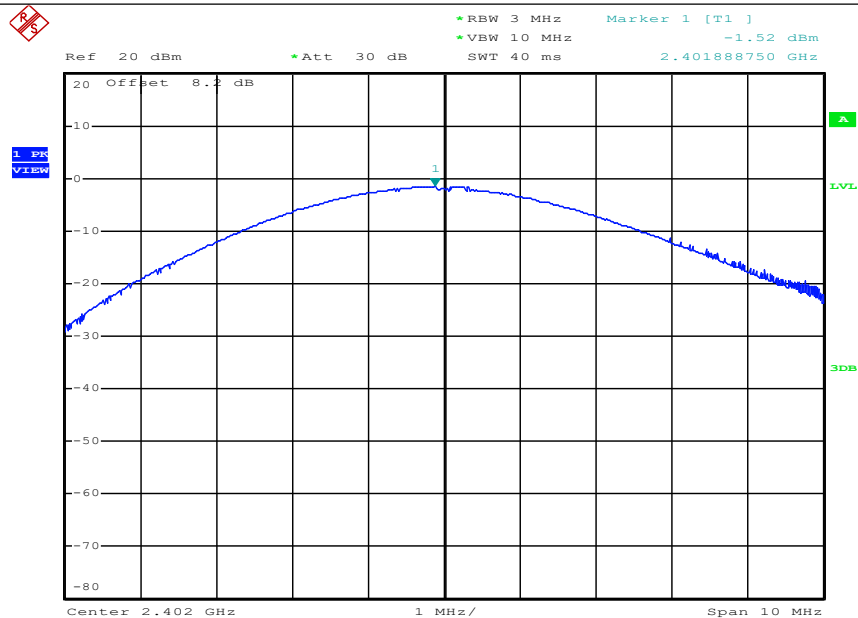
$\pi/4$ DQPSK/MCH

Date: 20.AUG.2019 14:00:11

 $\pi/4$ DQPSK/HCH

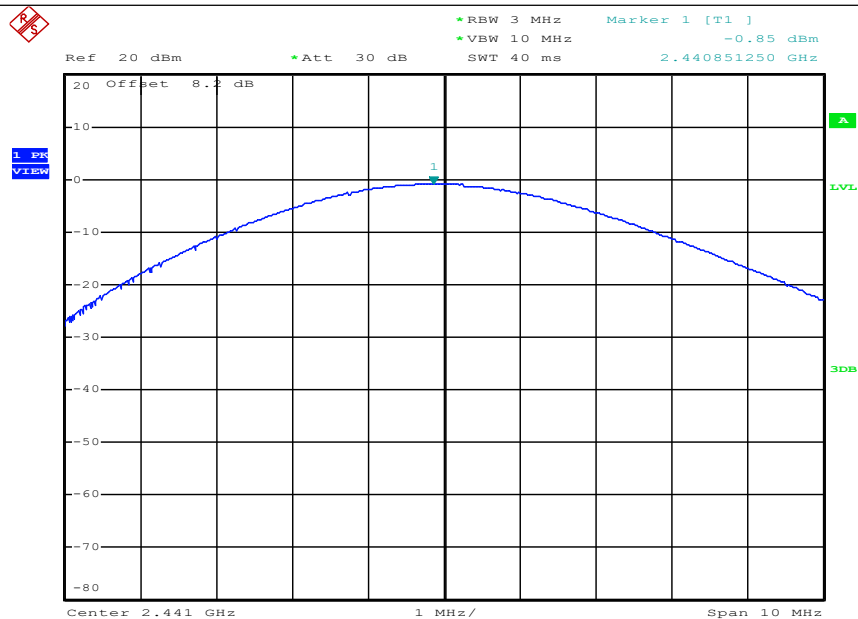
Date: 20.AUG.2019 14:01:55

8DPSK/LCH



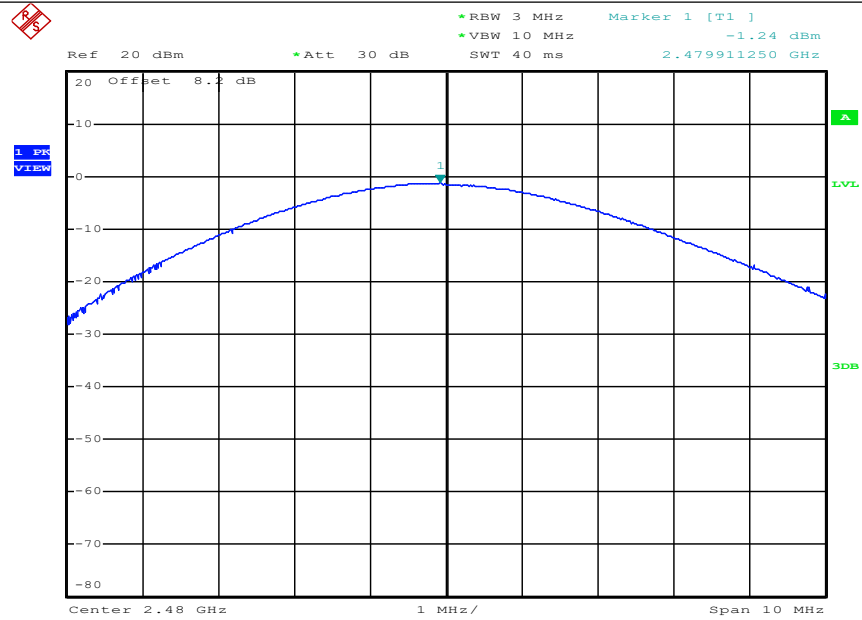
Date: 20.AUG.2019 14:05:22

8DPSK/MCH



Date: 20.AUG.2019 14:08:18

8DPSK/HCH



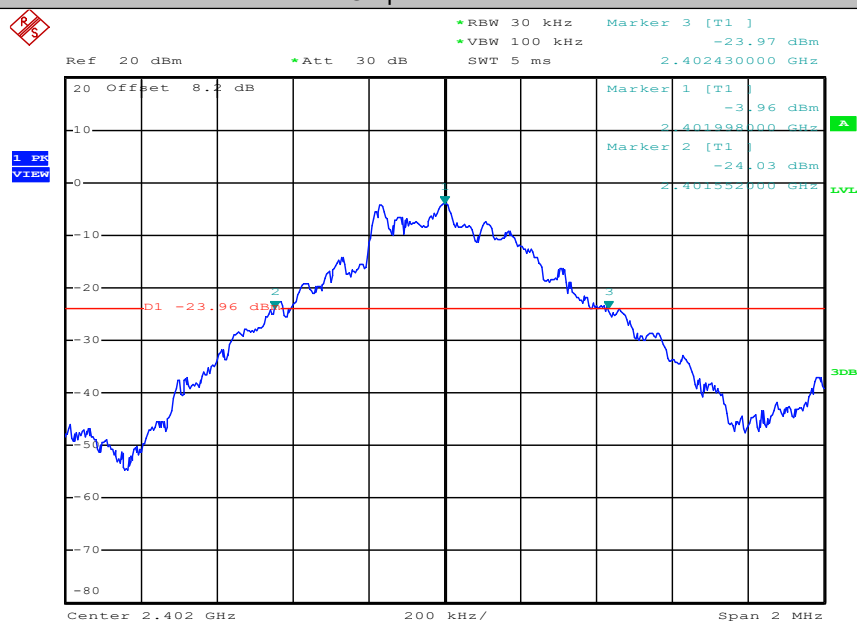
Date: 20.AUG.2019 14:10:05

A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.878	Not Specified	PASS
	MCH	0.890	Not Specified	PASS
	HCH	0.886	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.240	Not Specified	PASS
	MCH	1.248	Not Specified	PASS
	HCH	1.248	Not Specified	PASS
8DPSK	LCH	1.258	Not Specified	PASS
	MCH	1.270	Not Specified	PASS
	HCH	1.264	Not Specified	PASS

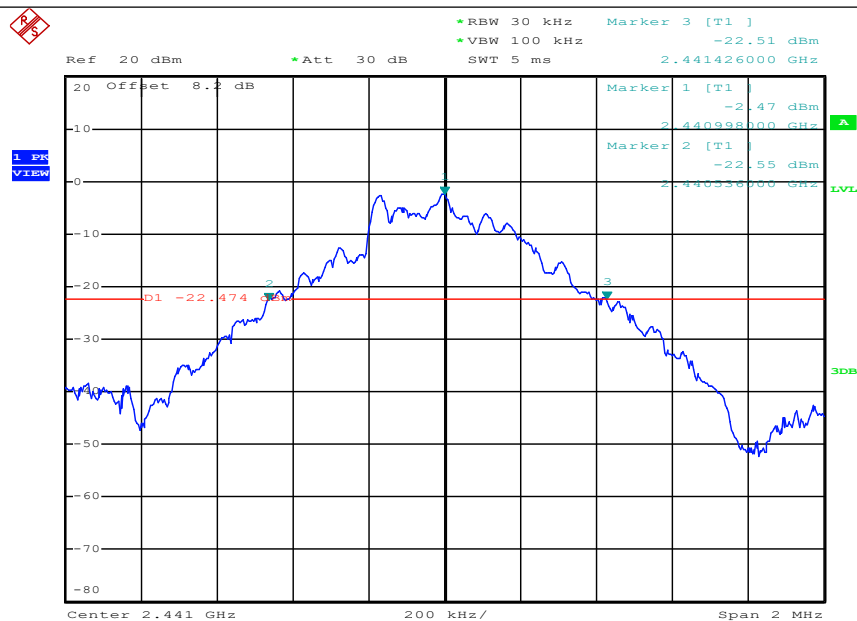
Test Graphs

GFSK/LCH



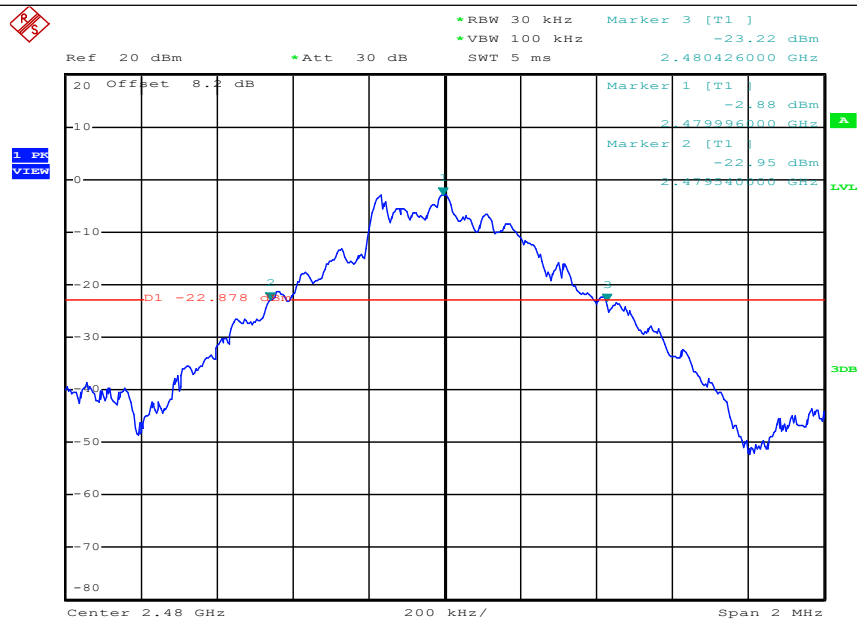
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GFSK/MCH

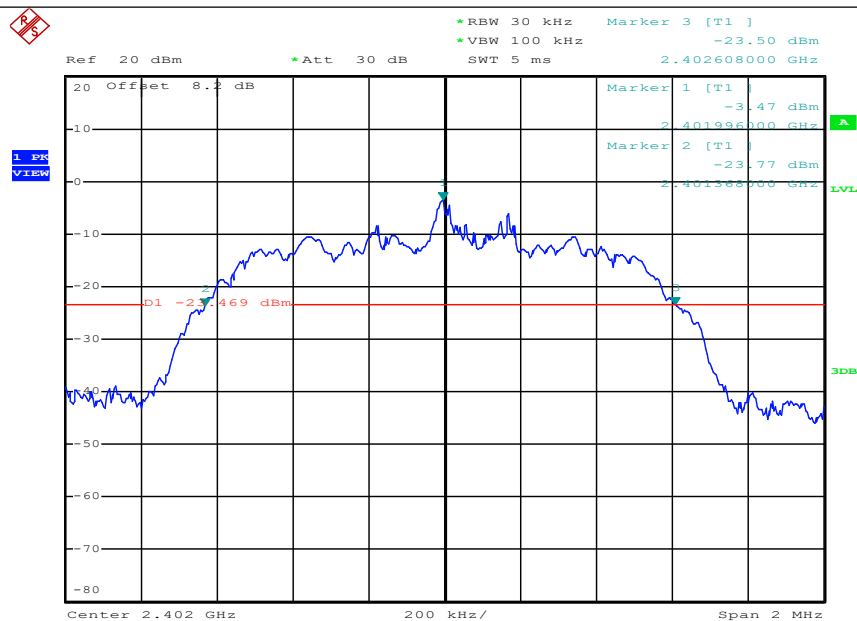


Date: 20.AUG.2019 13:43:25

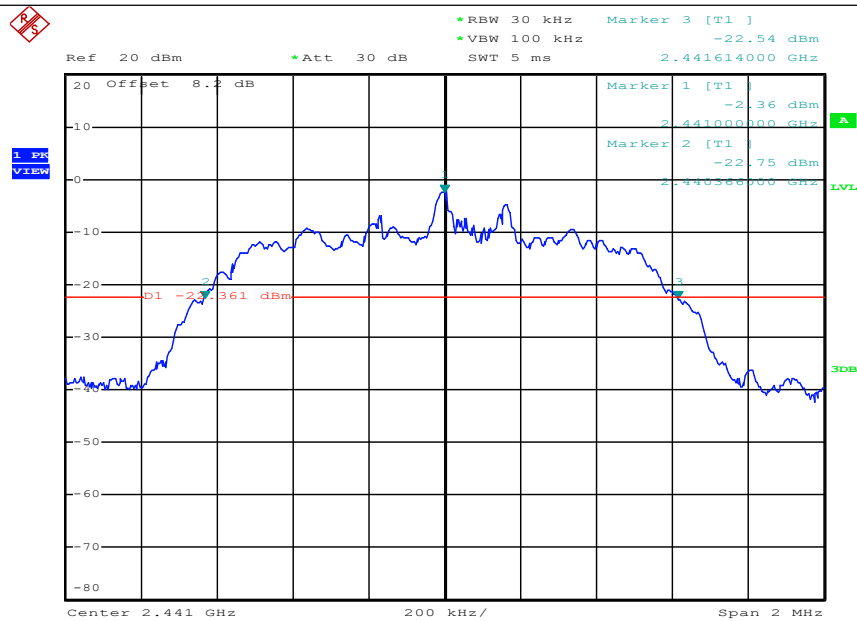
GFSK/HCH



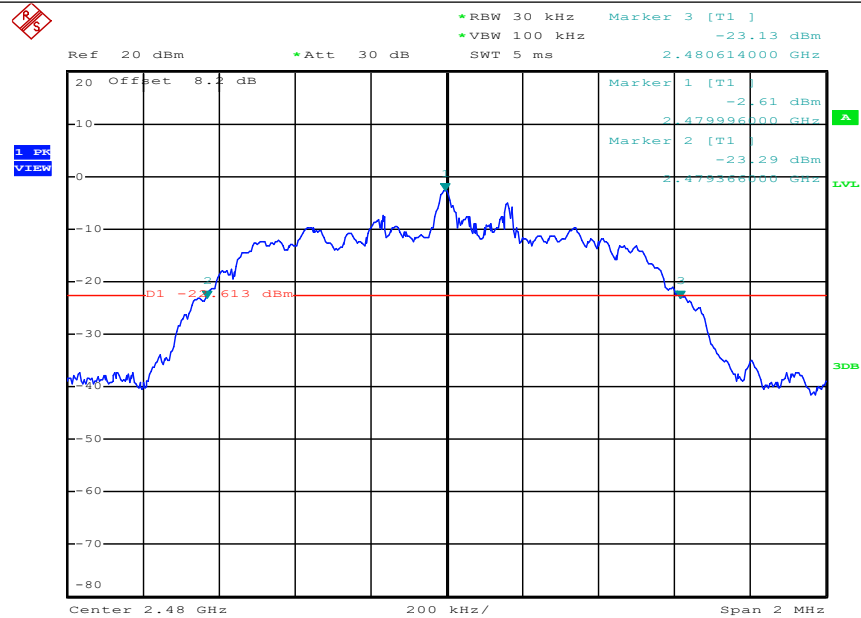
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$\pi/4$ DQPSK/LCH

Date: 20.AUG.2019 13:57:05

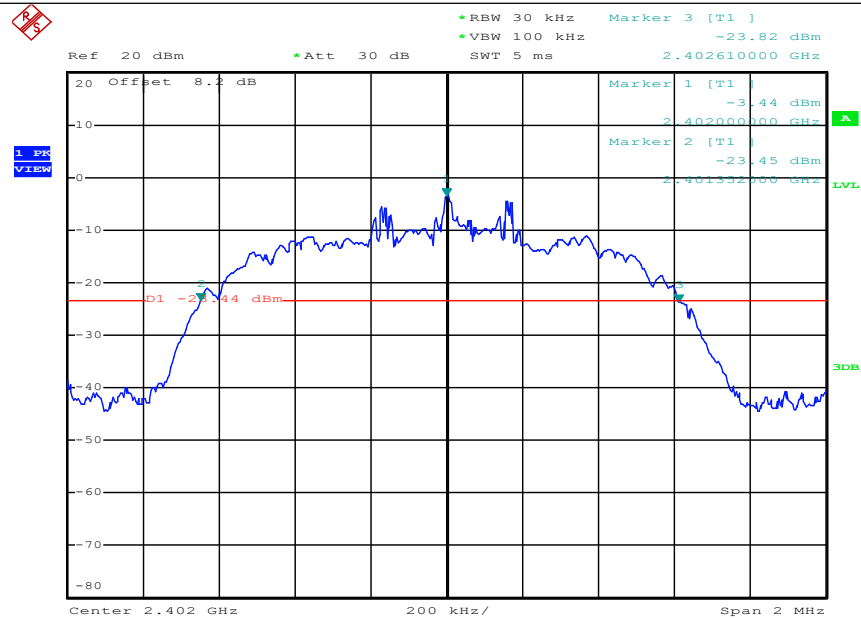
 $\pi/4$ DQPSK/MCH

Date: 20.AUG.2019 13:59:36

$\pi/4$ DQPSK/HCH

Date: 20.AUG.2019 14:01:19

8DPSK/LCH



Date: 20.AUG.2019 14:04:46

Ref 20 dBm *Att 30 dB *RBW 30 kHz VBW 100 kHz SWT 5 ms Marker 3 [T1] 2.441616000 GHz

20 Offset 8.2 dB

Marker 1 [T1] -2.79 dBm 2.441004000 GHz

Marker 2 [T1] -22.93 dBm 2.440346000 GHz

1 PR VIEW

dBm -22.787 dBm

Center 2.441 GHz 200 kHz/ Span 2 MHz

Date: 20.AUG.2019 14:07:42

Ref 20 dBm *Att 30 dB RBW 30 kHz VBW 100 kHz SWT 5 ms Marker 3 [T1] -22.90 dBm 2.480614000 GHz

20 Offset 8.2 dB

1 PK VIEW

Marker 1 [T1] -2.59 dBm 2.479998000 GHz

Marker 2 [T1] -22.77 dBm 2.479350000 GHz

D1 -22.593 dBm

Center 2.48 GHz 200 kHz/ Span 2 MHz

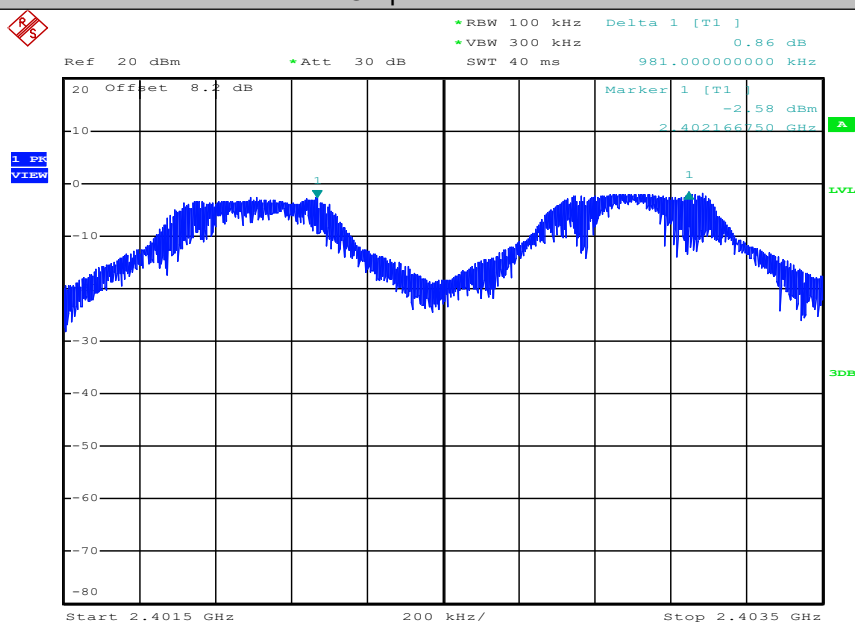
Date: 20.AUG.2019 14:09:29

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.981	0.593	PASS
	MCH	1.006	0.593	PASS
	HCH	1.104	0.593	PASS
$\pi/4$ DQPSK	LCH	1.170	0.832	PASS
	MCH	1.188	0.832	PASS
	HCH	1.164	0.832	PASS
8DPSK	LCH	1.172	0.847	PASS
	MCH	1.002	0.847	PASS
	HCH	1.060	0.847	PASS

Test Graphs

GFSK/LCH



Date: 20.AUG.2019 14:15:09

Ref 20 dBm *Att 30 dB RBW 100 kHz VBW 300 kHz Delta 1 [T1] -0.03 dB SWT 5 ms 1.006000000 MHz

20 Offset 8.2 dB

Marker 1 [T1] -1.96 dBm 2.440500000 GHz

1 PR VIEW

Start 2.4405 GHz 200 kHz/ Stop 2.4425 GHz

Date: 20.AUG.2019 14:17:07

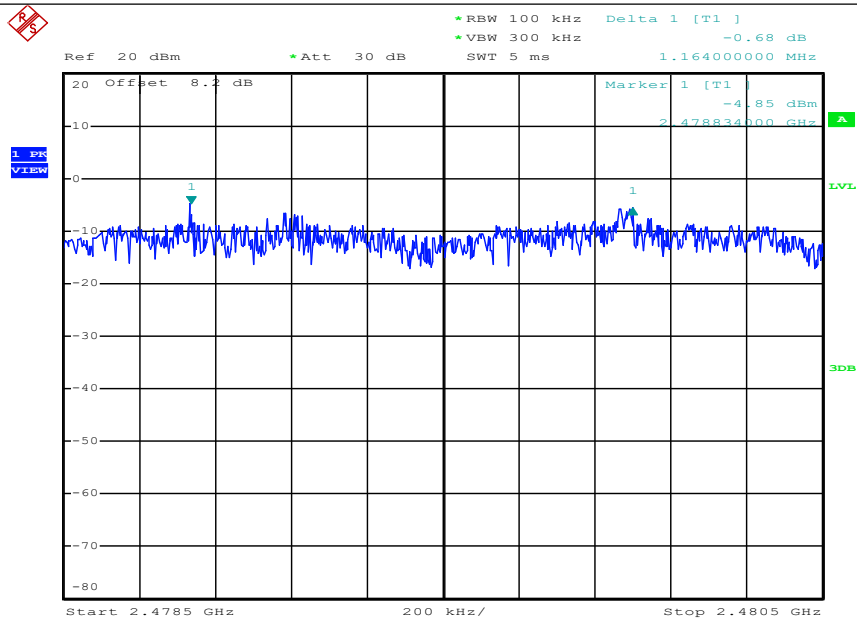
Ref 20 dBm *Att 30 dB RBW 100 kHz Delta 1 [T1] 0.42 dB
 VBW 300 kHz 1.104000000 MHz
 SWT 5 ms

20 Offset 8.2 dB Marker 1 [T1]
 -2.23 dBm
 2.479046000 GHz

1 PK
 VIEW

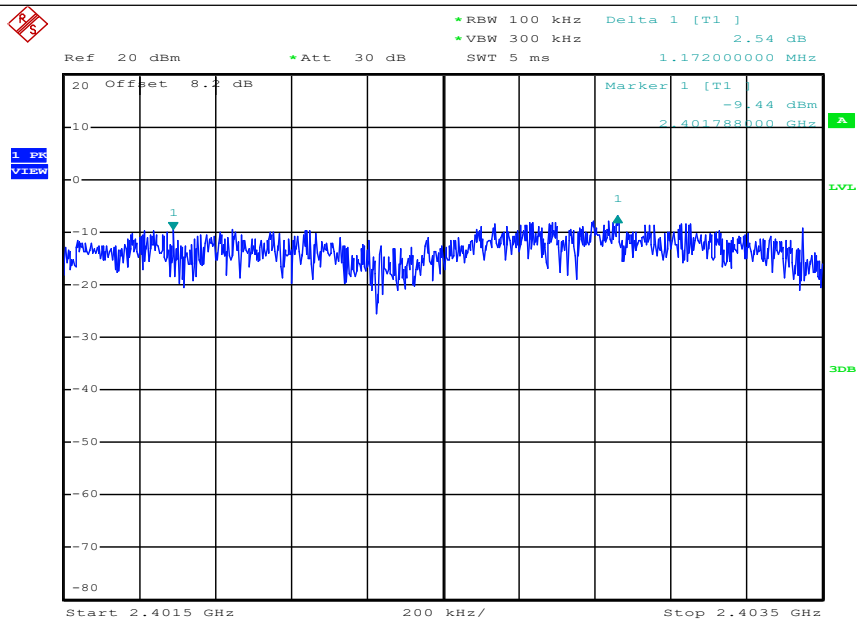
Start 2.4785 GHz 200 kHz/ Stop 2.4805 GHz

Date: 20.AUG.2019 14:17:36

π /4DQPSK/HCH

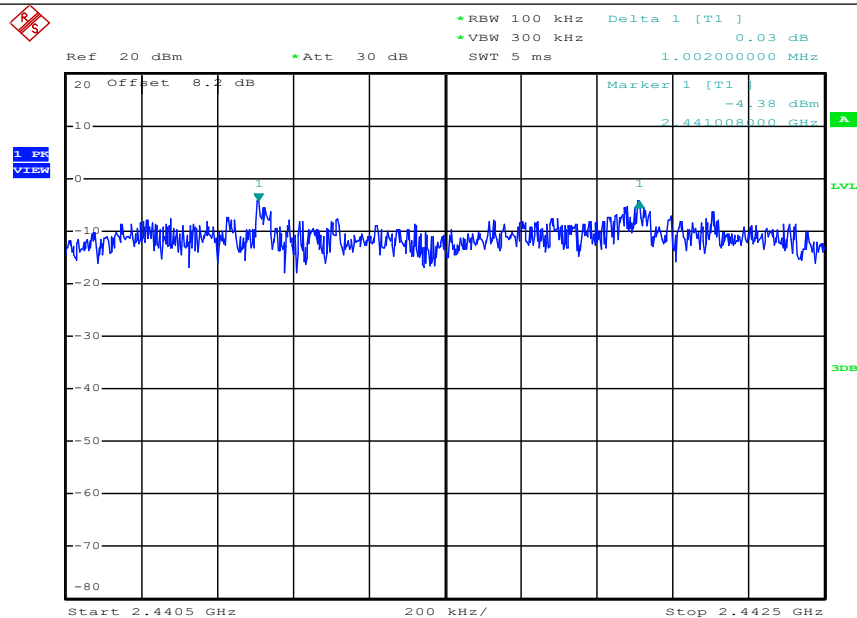
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8DPSK/LCH

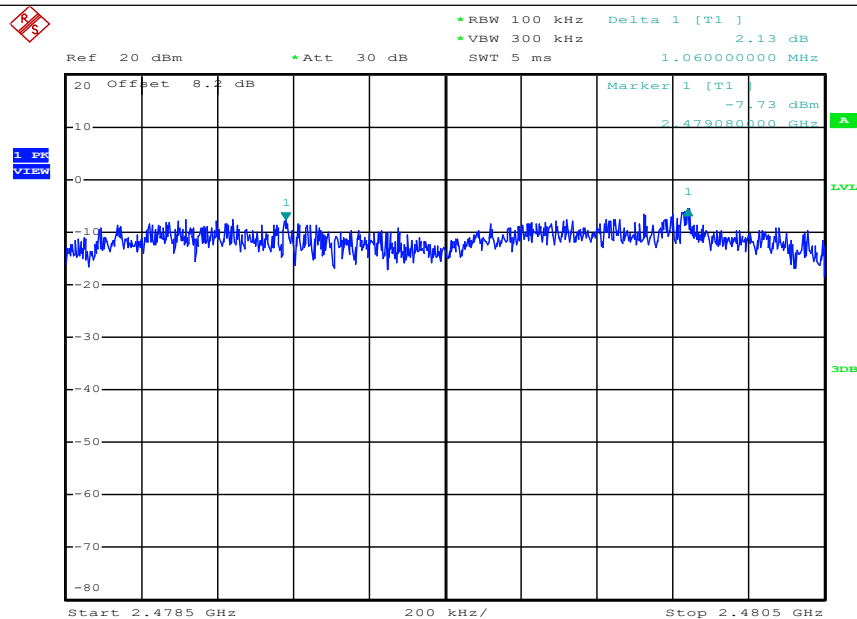


Date: 20.AUG.2019 14:34:32

8DPSK/MCH



8DPSK/HCH

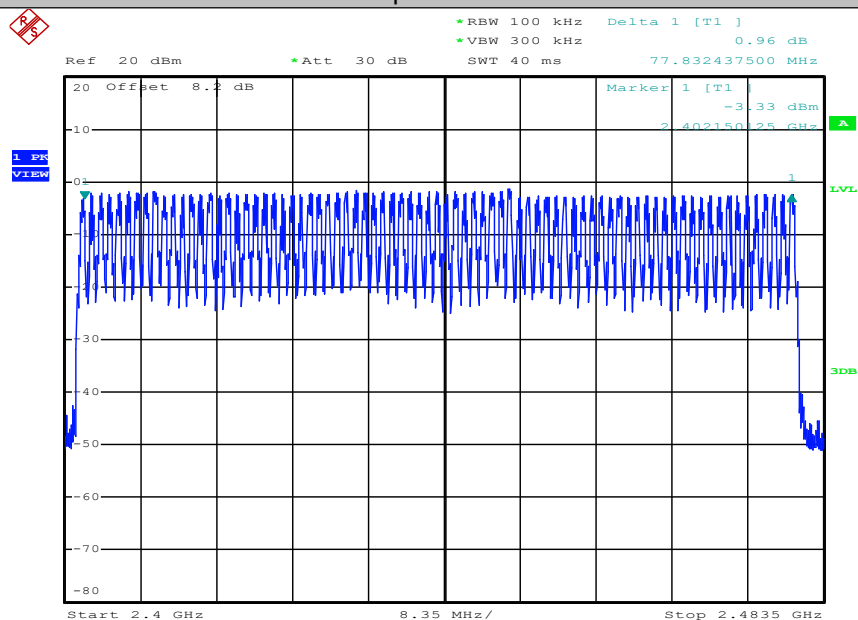


A.4 Hopping Channel Number

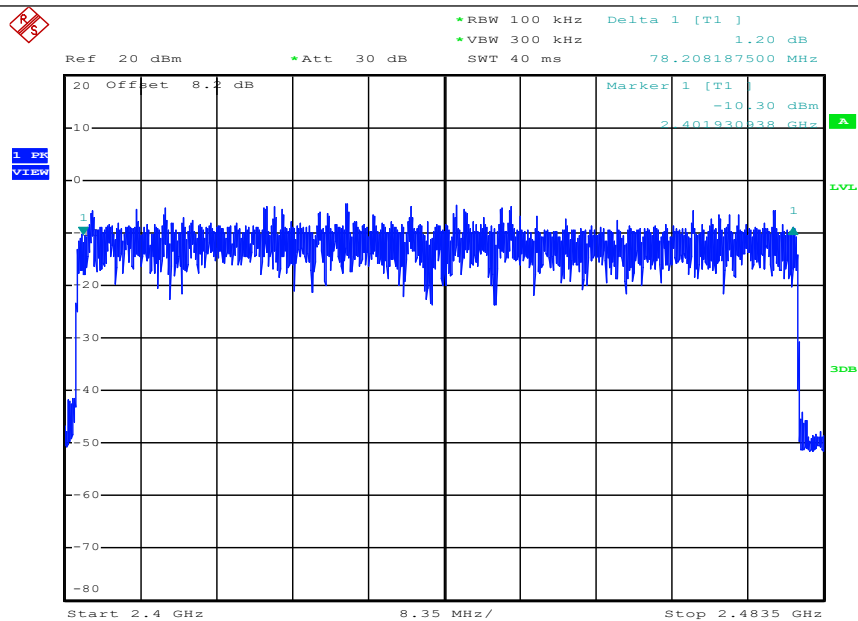
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop

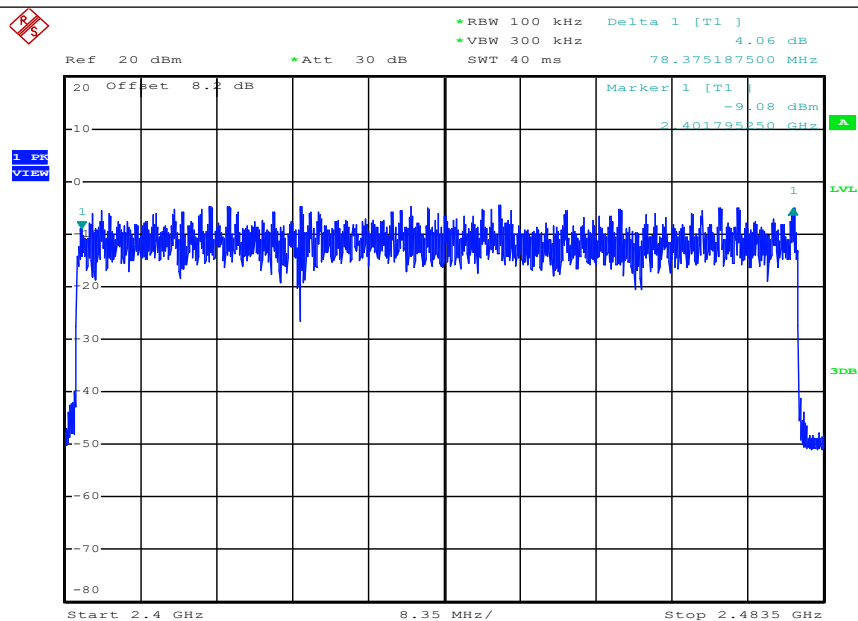


Date: 20.AUG.2019 14:20:54

 $\pi/4$ DQPSK/Hop

Date: 20.AUG.2019 14:33:27

8DPSK/Hop



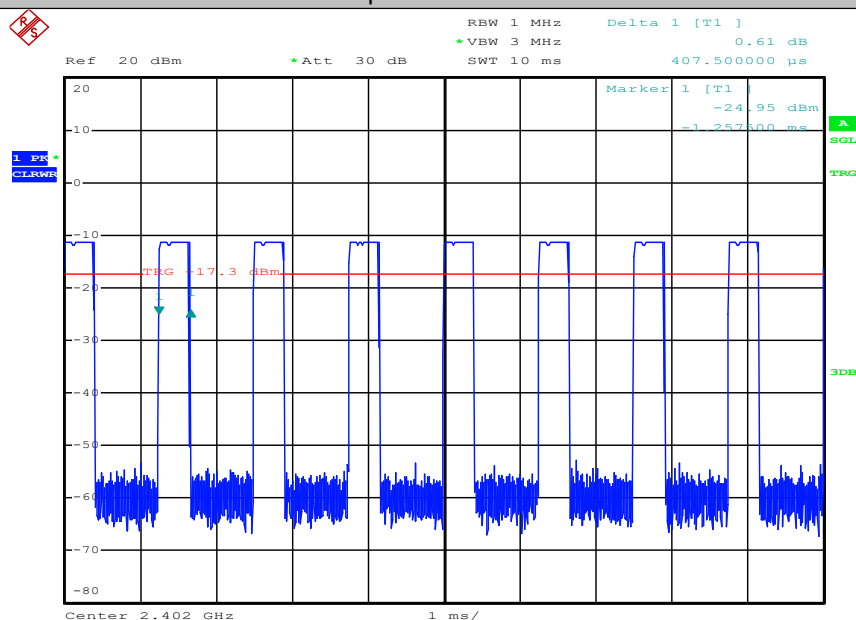
Date: 20.AUG.2019 14:43:28

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	0.41	106.7	0.044	0.4	PASS
	DH5	MCH	0.41	106.7	0.044	0.4	PASS
	DH5	HCH	0.41	106.7	0.044	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	0.41	106.7	0.312	0.4	PASS
	2DH5	MCH	0.41	106.7	0.312	0.4	PASS
	2DH5	HCH	0.41	106.7	0.312	0.4	PASS
8DPSK	3DH5	LCH	0.41	106.7	0.312	0.4	PASS
	3DH5	MCH	0.41	106.7	0.312	0.4	PASS
	3DH5	HCH	0.41	106.7	0.312	0.4	PASS

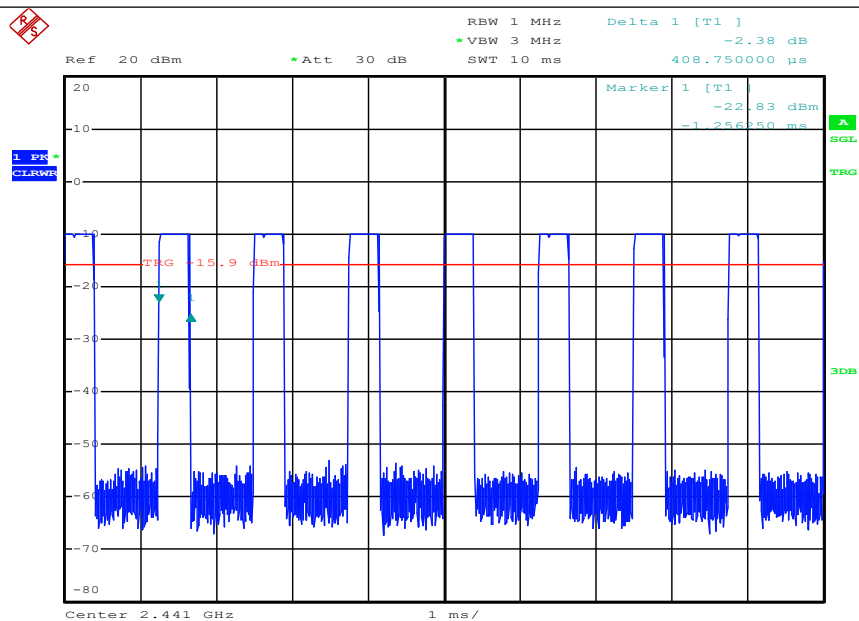
Test Graphs

GFSK_DH5/LCH



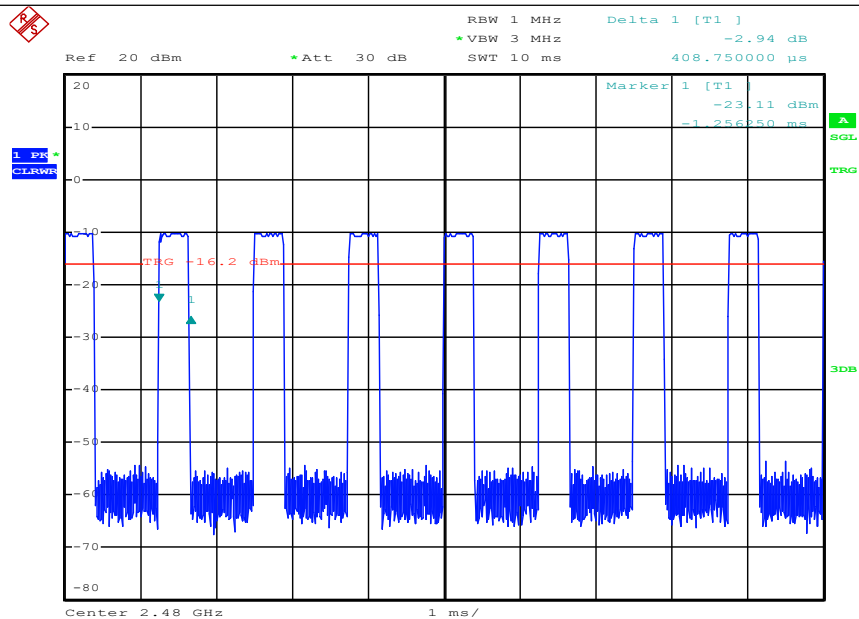
Date: 20.AUG.2019 13:41:09

GFSK_DH5/MCH



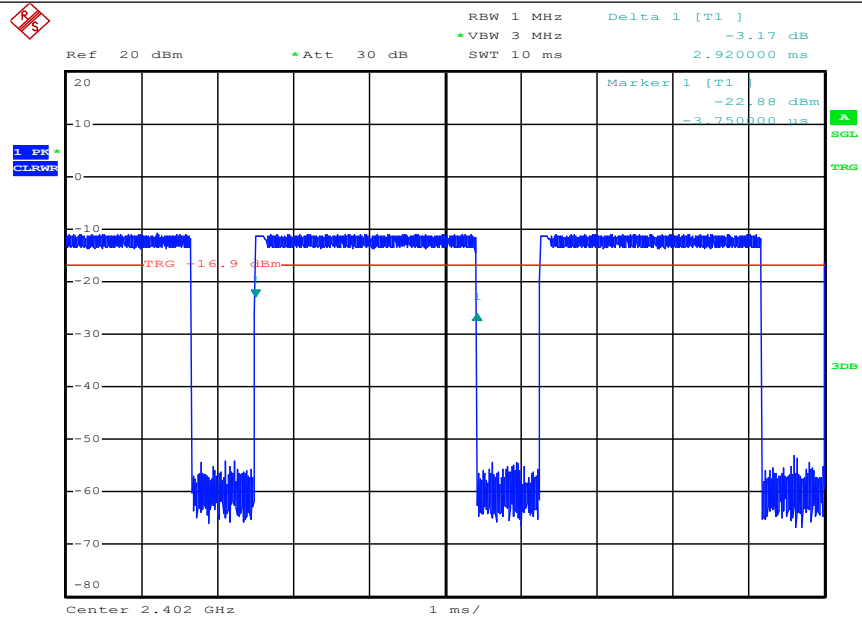
Date: 20.AUG.2019 13:43:46

GFSK_DH5/HCH



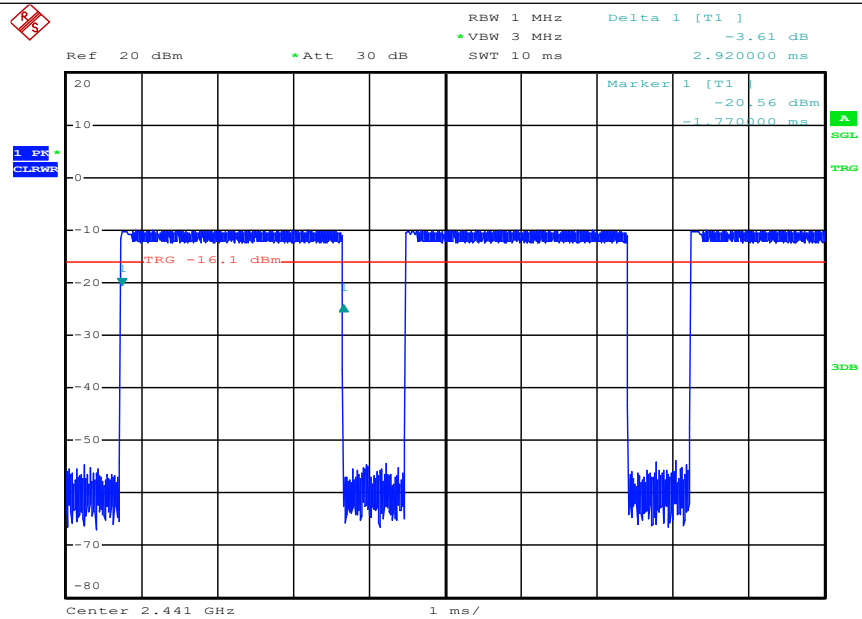
Date: 20.AUG.2019 13:45:32

$\pi/4$ DQPSK
_2DH5/LCH



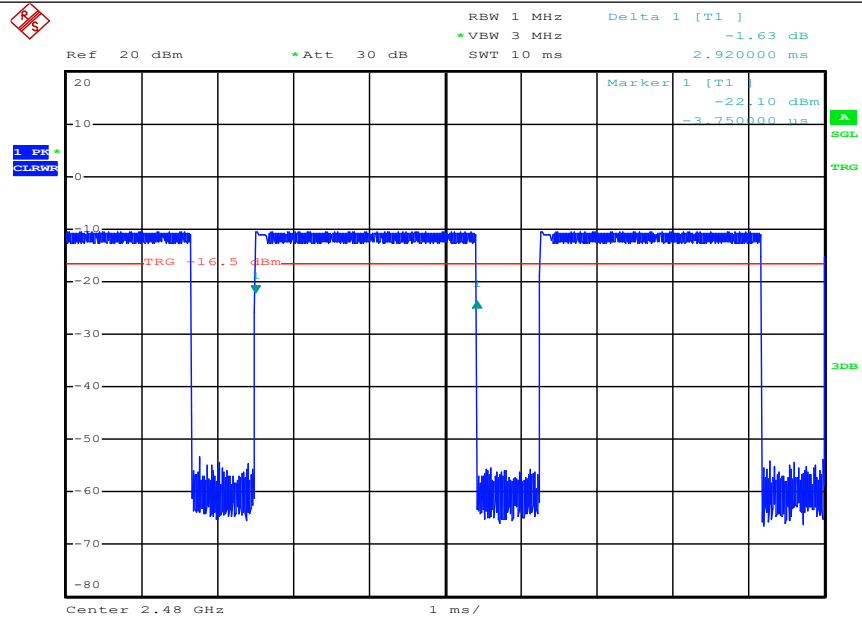
Date: 20.AUG.2019 13:57:26

$\pi/4$ DQPSK
_2DH5/MCH



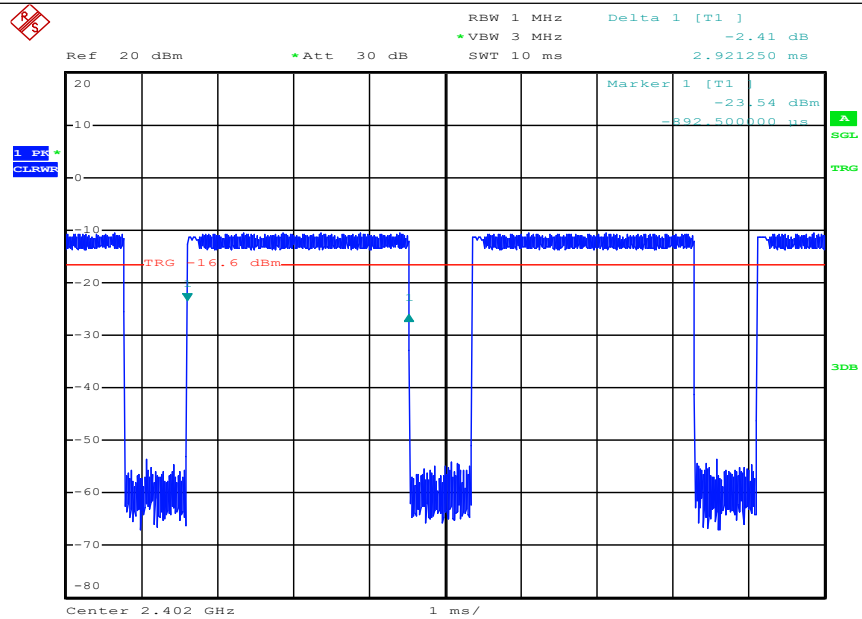
Date: 20.AUG.2019 13:59:57

$\pi/4$ DQPSK
_2DH5/HCH



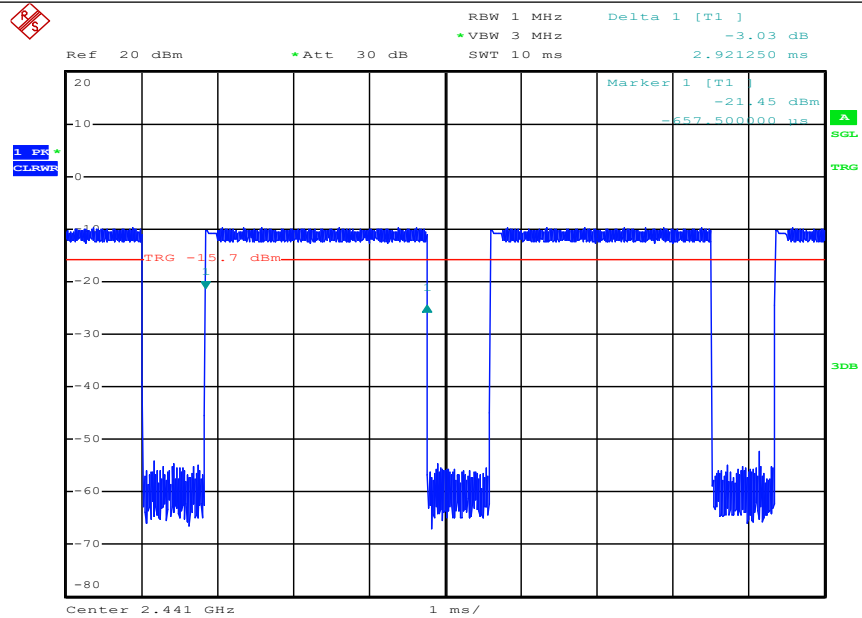
Date: 20.AUG.2019 14:01:40

8DPSK_3DH5/LCH



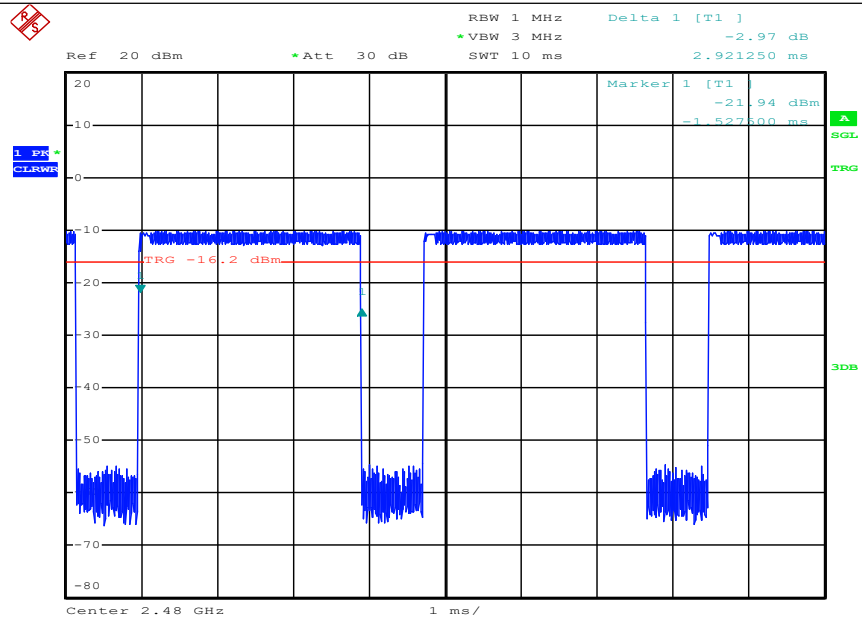
Date: 20.AUG.2019 14:05:08

8DPSK_3DH5/MCH



Date: 20.AUG.2019 14:08:03

8DPSK_3DH5/HCH



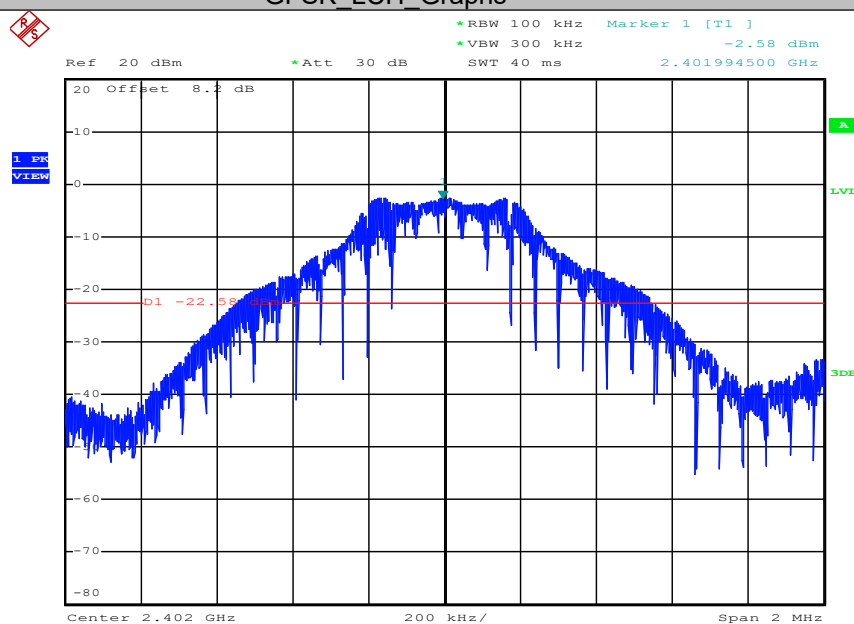
Date: 20.AUG.2019 14:09:50

A.6 RF Conducted Spurious Emissions

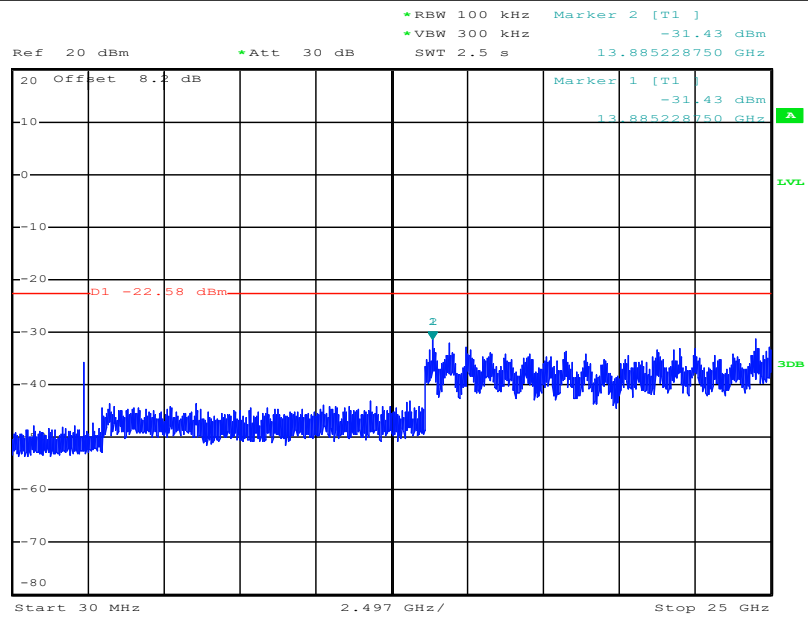
Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.58	-31.430	-22.580	PASS
	MCH	-1.14	-30.150	-21.140	PASS
	HCH	-1.51	-32.490	-21.510	PASS
$\pi/4$ DQPSK	LCH	-2.63	-32.680	-22.630	PASS
	MCH	-1.57	-33.100	-21.570	PASS
	HCH	-2.02	-32.470	-22.020	PASS
8DPSK	LCH	-2.61	-31.680	-22.610	PASS
	MCH	-1.54	-32.220	-21.540	PASS
	HCH	-1.85	-32.220	-21.850	PASS

GFSK LCH_Graphs

Pref



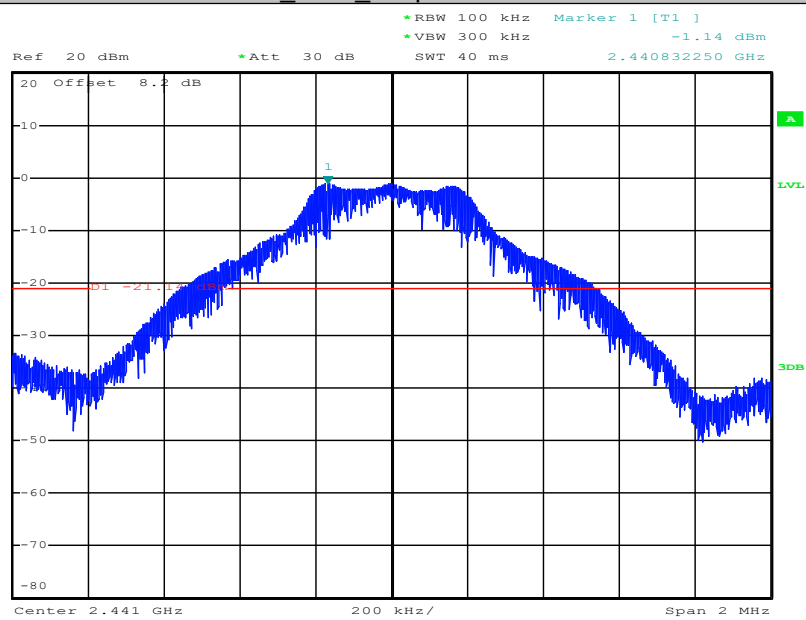
Date: 20.AUG.2019 13:41:53

P_uw1. PR
VIEW

Date: 20.AUG.2019 13:42:08

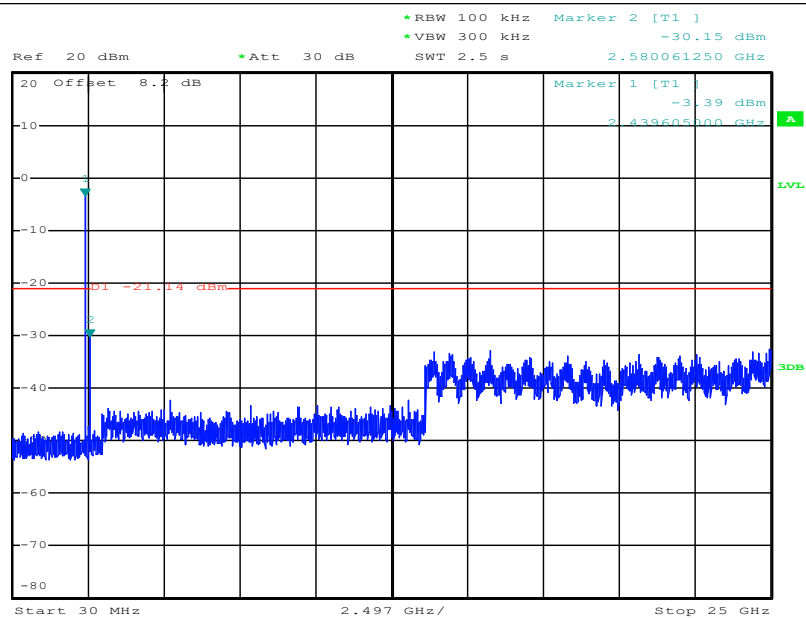
GFSK_MCH_Graphs

Pref

1 PR
VIEW

Date: 20.AUG.2019 13:44:14

Puw

1 PR
VIEW

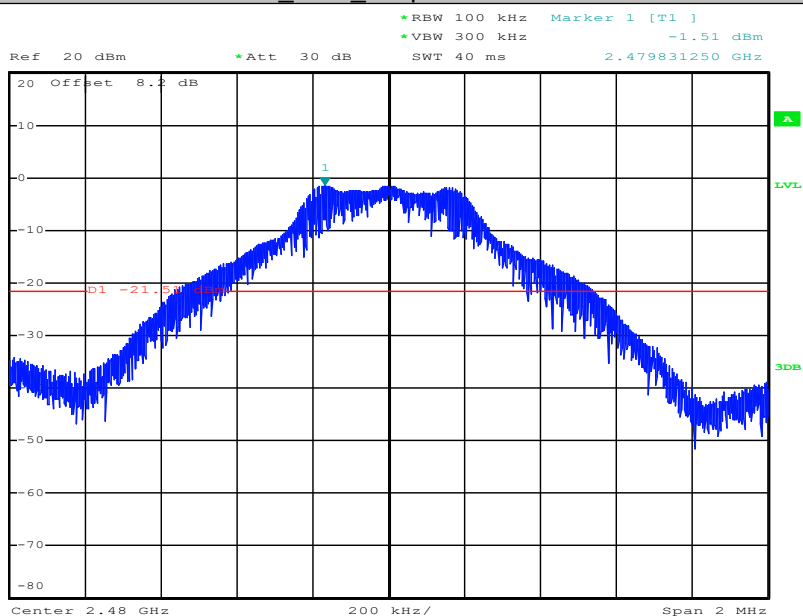
Date: 20.AUG.2019 13:44:28

GFSK_HCH_Graphs

Pref



1 PR
VIEW

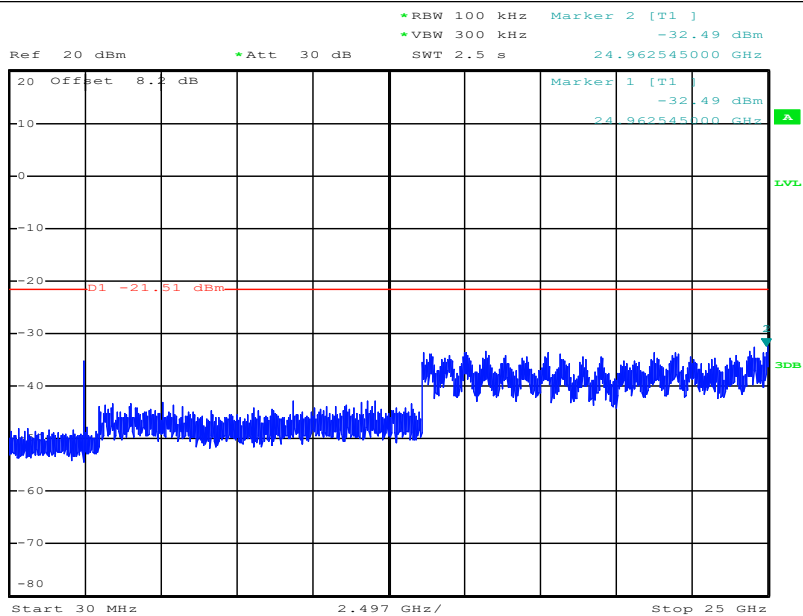


Date: 20.AUG.2019 13:46:16

Puw



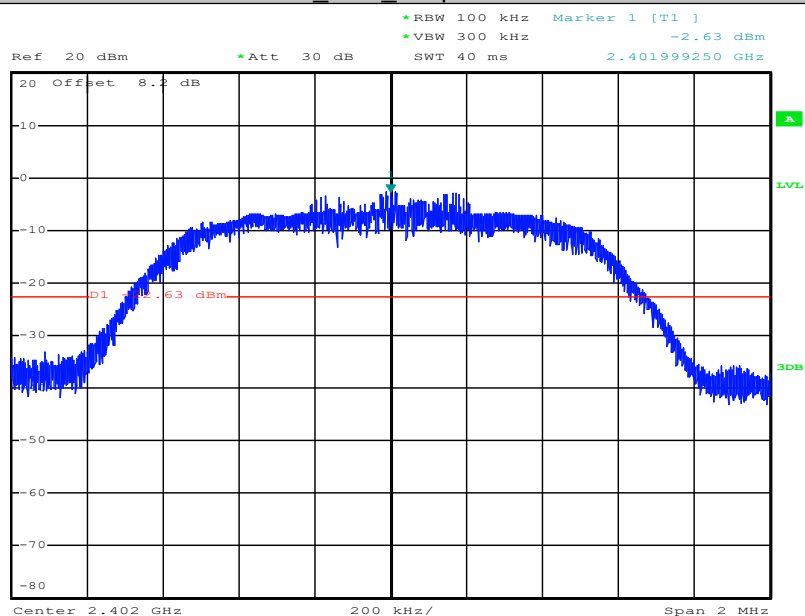
1 PR
VIEW



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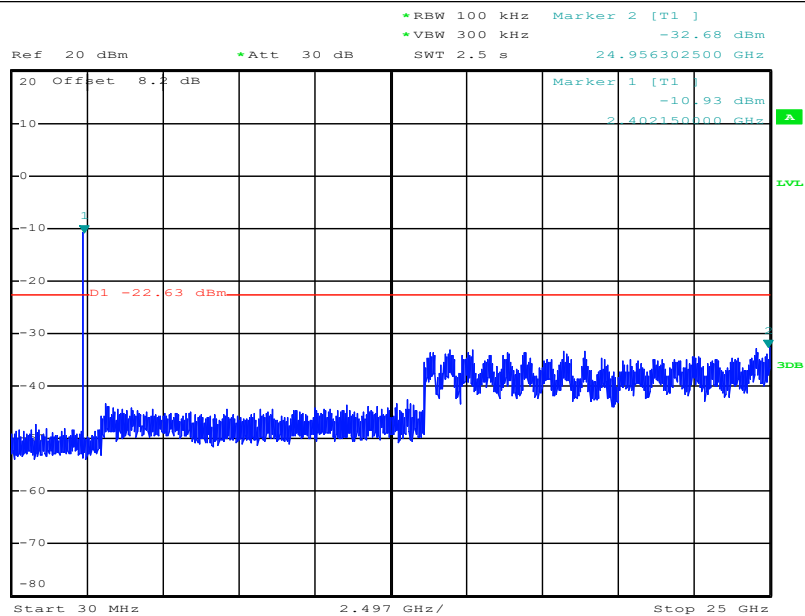
$\pi/4$ DQPSK_LCH_Graphs

Pref

1 PR
VIEW

Date: 20.AUG.2019 13:58:09

Puw

1 PR
VIEW

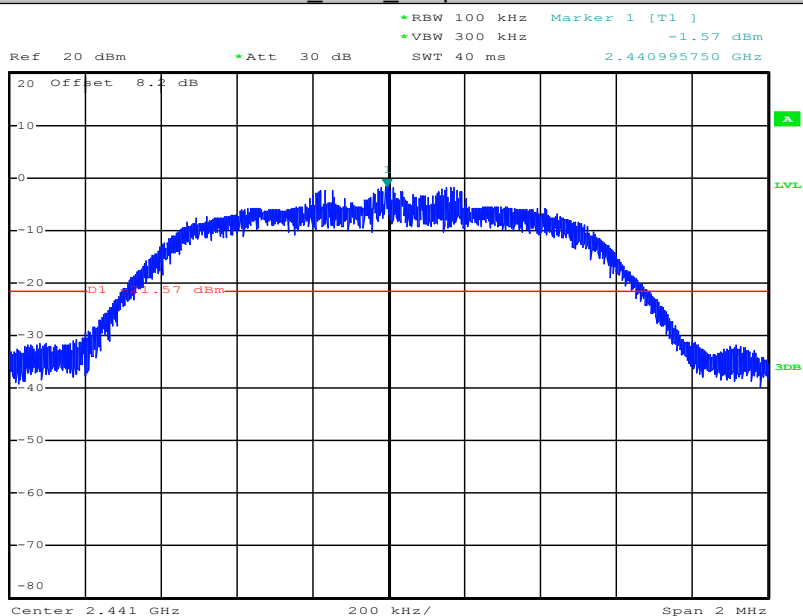
Date: 20.AUG.2019 13:58:24

$\pi/4$ DQPSK_MCH_Graphs

Pref



1 PR
VIEW

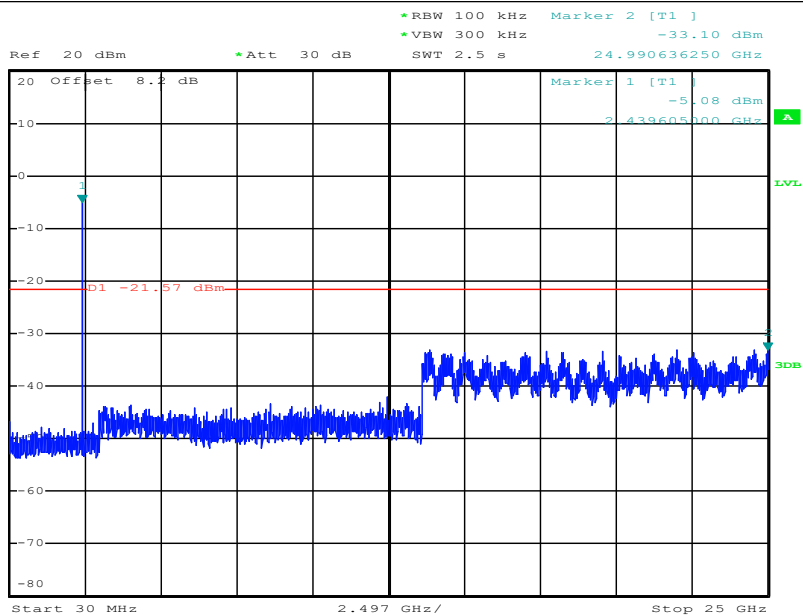


Date: 20.AUG.2019 14:00:24

Puw



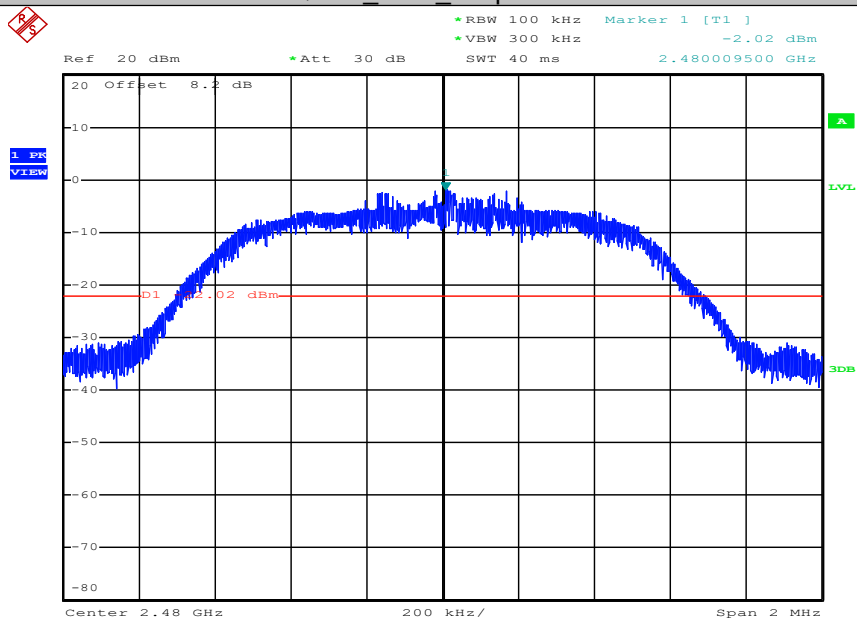
1 PR
VIEW



Date: 20.AUG.2019 14:00:38

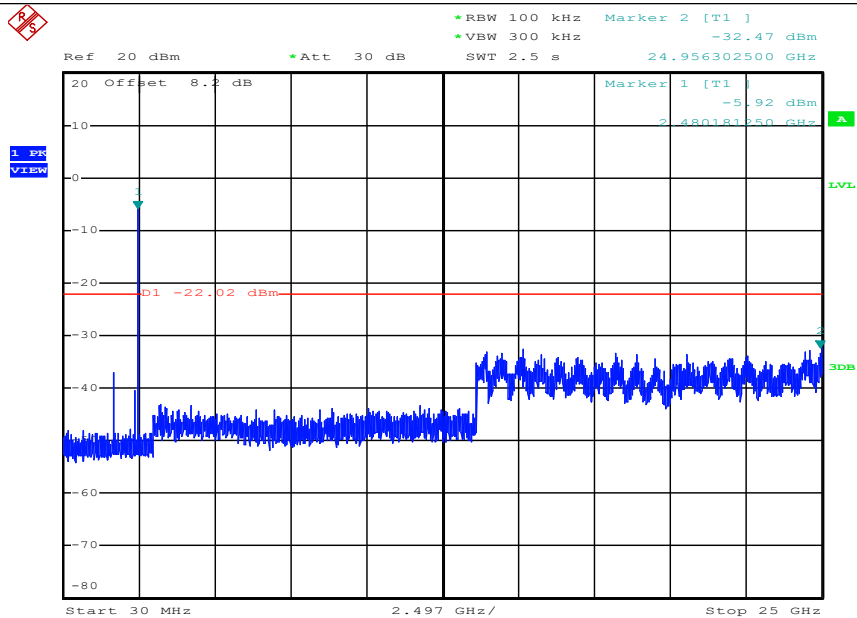
$\pi/4$ DQPSK_HCH_Graphs

Pref



Date: 20.AUG.2019 14:02:24

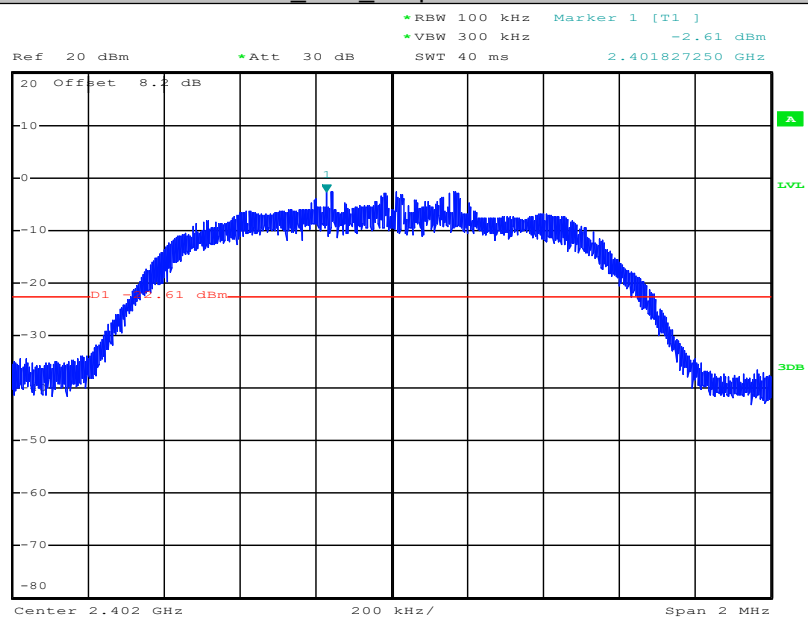
Puw



Date: 20.AUG.2019 14:02:38

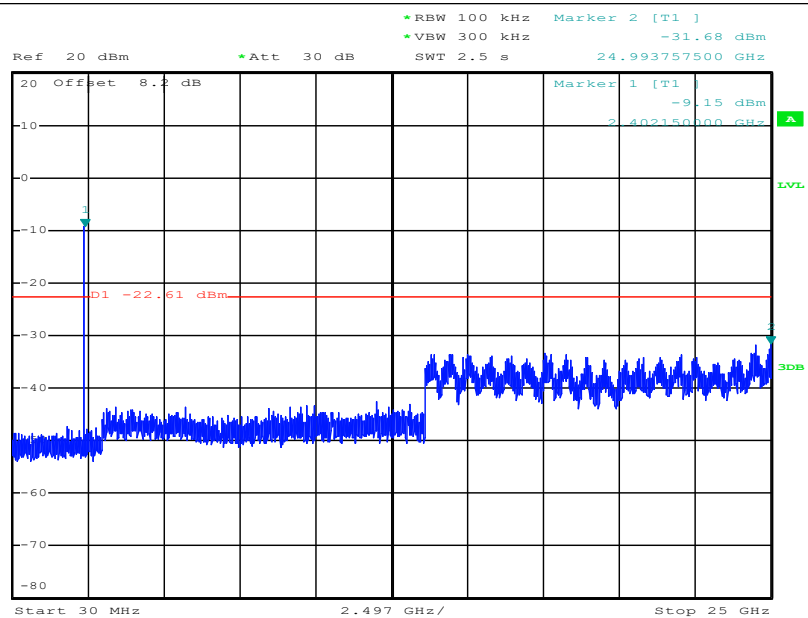
8DPSK_LCH_Graphs

Pref

1 PR
VIEW

Date: 20.AUG.2019 14:05:51

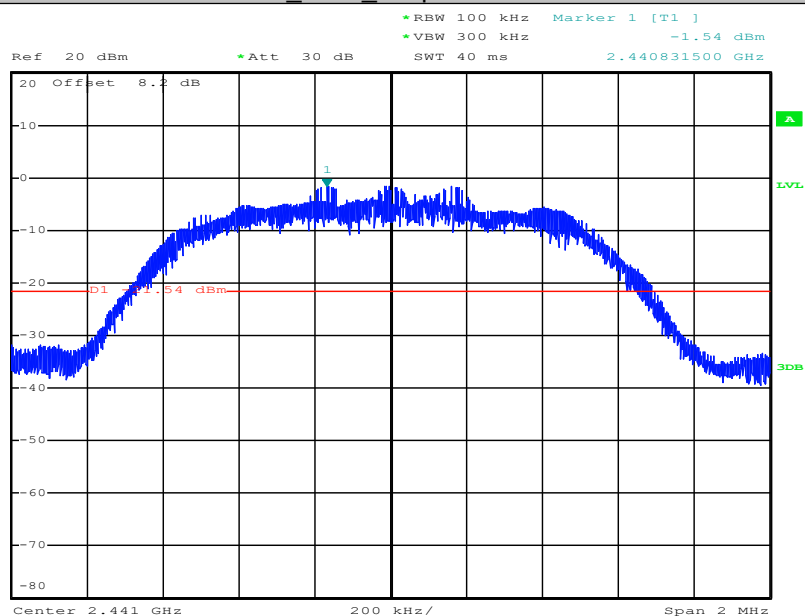
Puw

1 PR
VIEW

Date: 20.AUG.2019 14:06:05

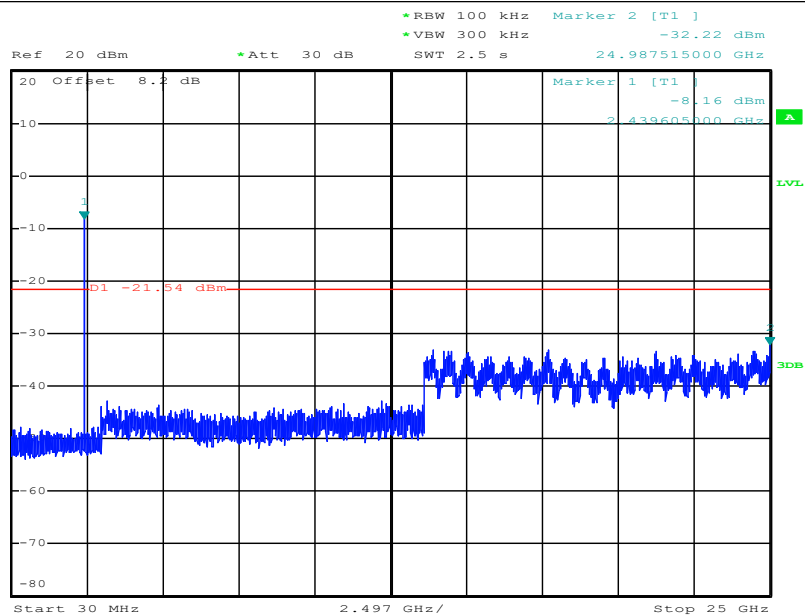
8DPSK_MCH_Graphs

Pref

1 PR
VIEW

Date: 20.AUG.2019 14:08:30

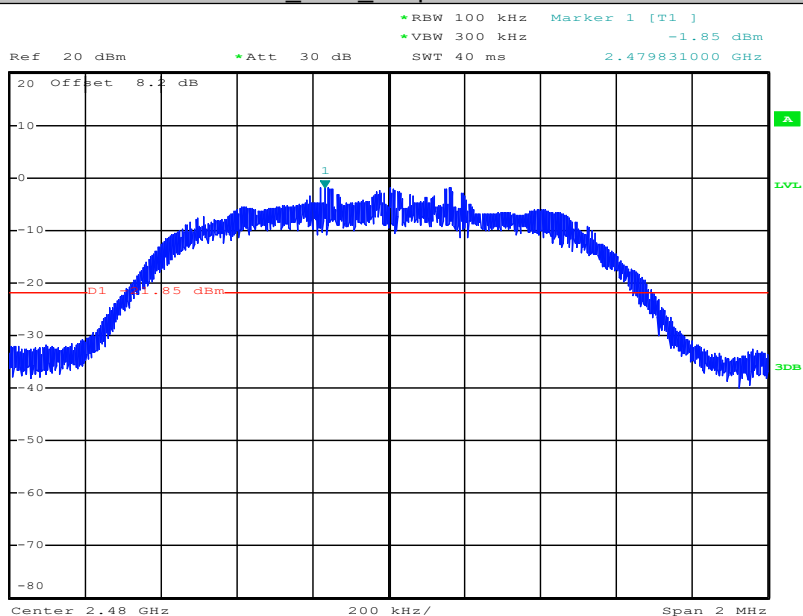
Puw

1 PR
VIEW

Date: 20.AUG.2019 14:08:45

8DPSK_HCH_Graphs

Pref

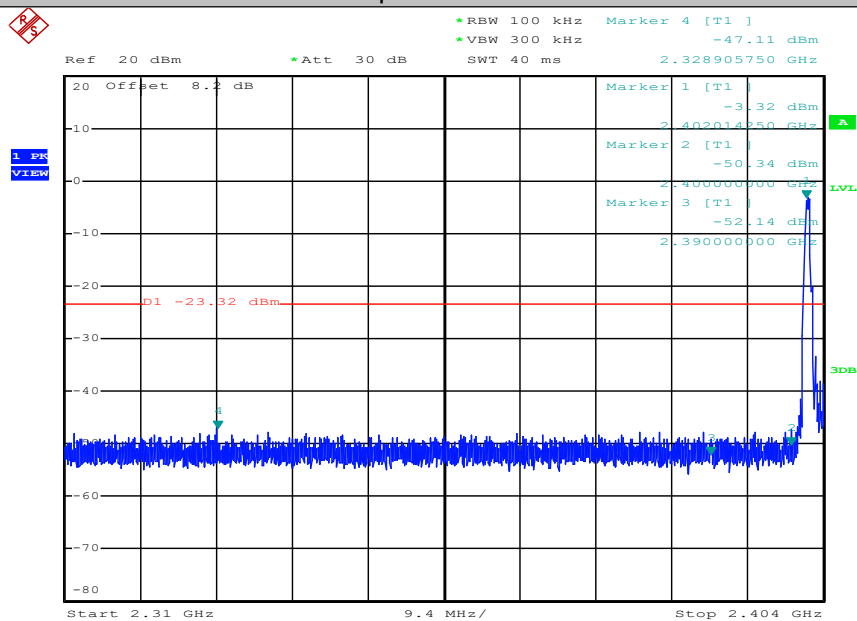
1 PR
VIEW

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	-3.320	Off	-47.113	-23.32	PASS
			-1.550	On	-46.522	-21.55	PASS
	HCH	2480	-1.560	Off	-47.560	-21.56	PASS
			-1.810	On	-46.845	-21.81	PASS
$\pi/4$ DQPSK	LCH	2402	-4.800	Off	-47.591	-24.8	PASS
			-4.720	On	-46.829	-24.72	PASS
	HCH	2480	-2.120	Off	-47.631	-22.12	PASS
			-5.080	On	-47.498	-25.08	PASS
8DPSK	LCH	2402	-2.700	Off	-47.429	-22.7	PASS
			-4.700	On	-46.923	-24.7	PASS
	HCH	2480	-2.100	Off	-47.657	-22.1	PASS
			-4.800	On	-46.444	-24.8	PASS

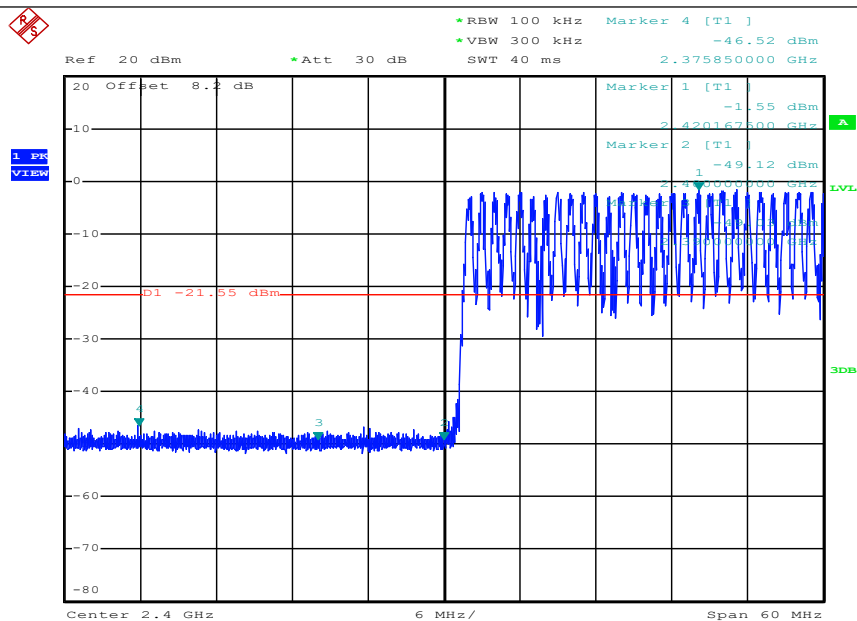
Test Graphs

GFSK/LCH/No Hop



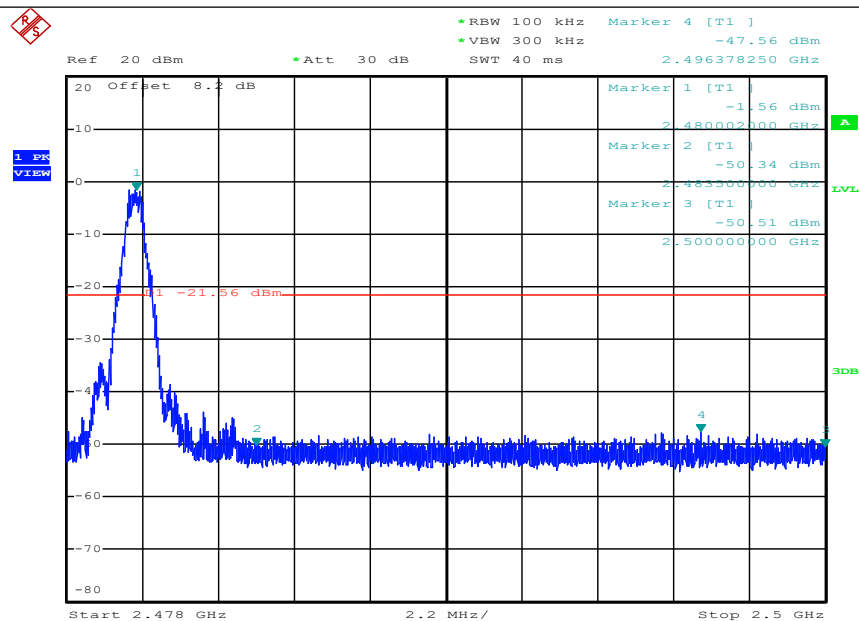
Date: 20.AUG.2019 13:41:40

GFSK/LCH/Hop



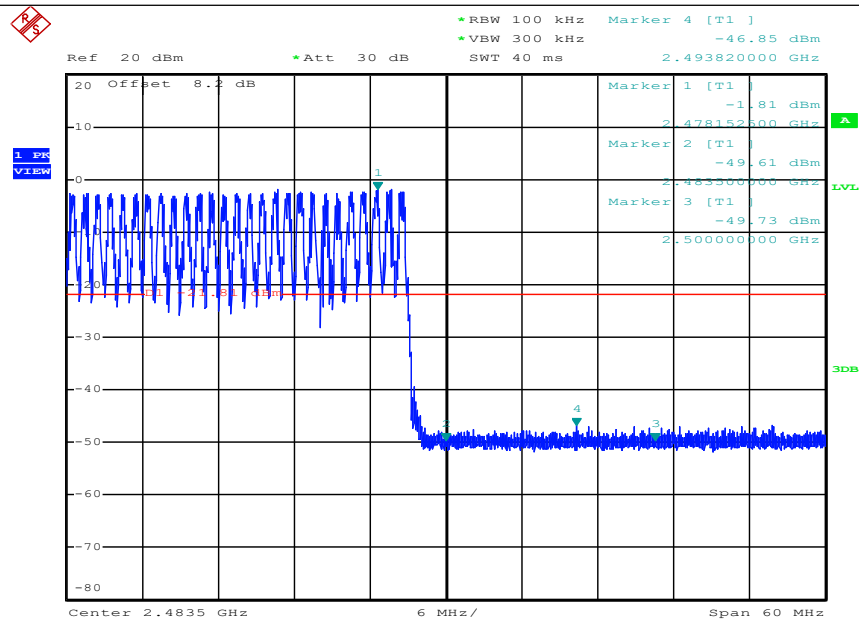
Date: 20.AUG.2019 14:16:46

GFSK/HCH/No Hop



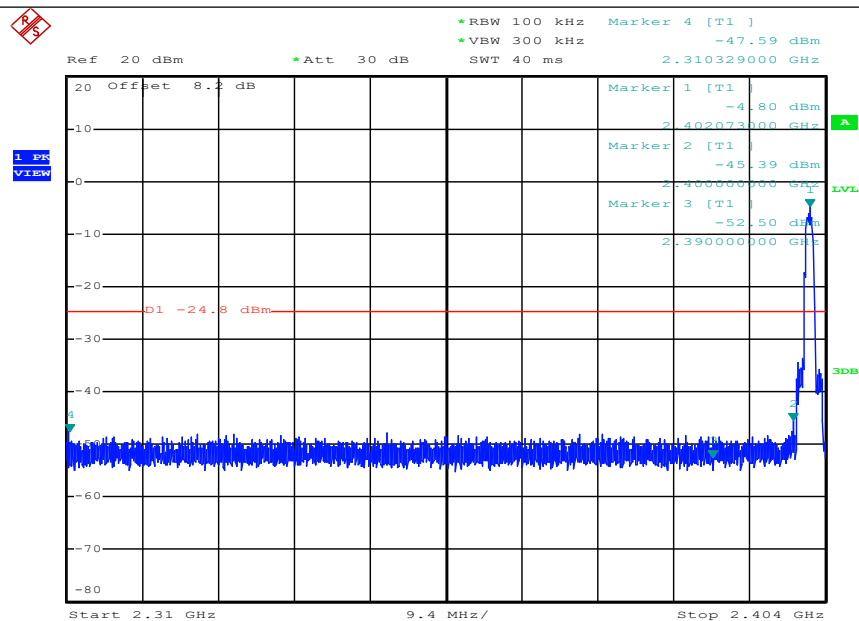
Date: 20.AUG.2019 13:46:03

GFSK/HCH/Hop



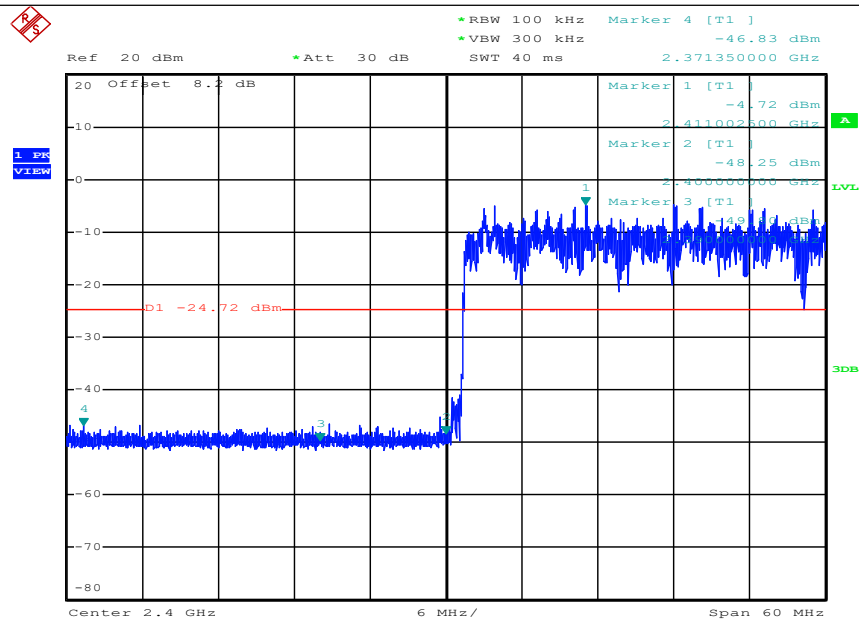
Date: 20.AUG.2019 14:19:03

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



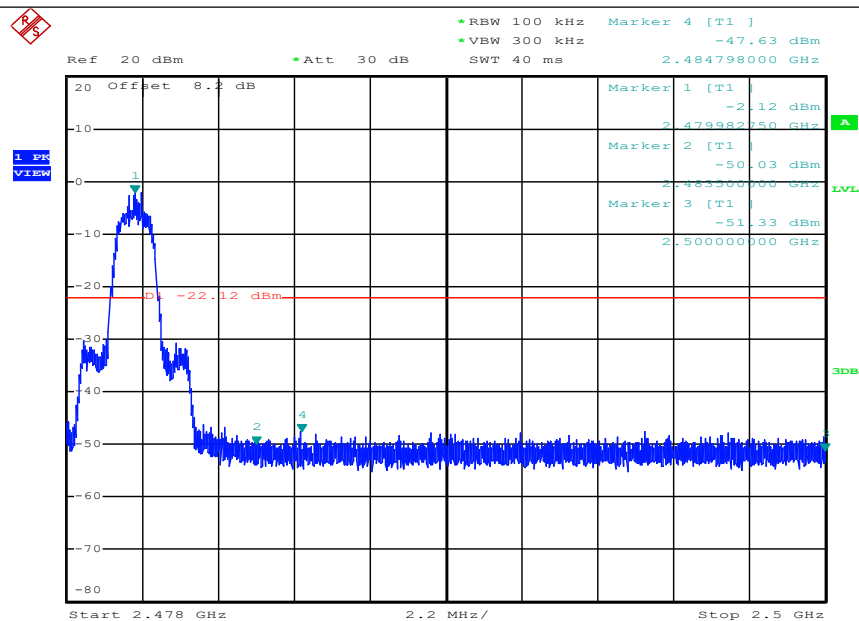
Date: 20.AUG.2019 13:57:57

$\pi/4$ DQPSK/LCH/Hop



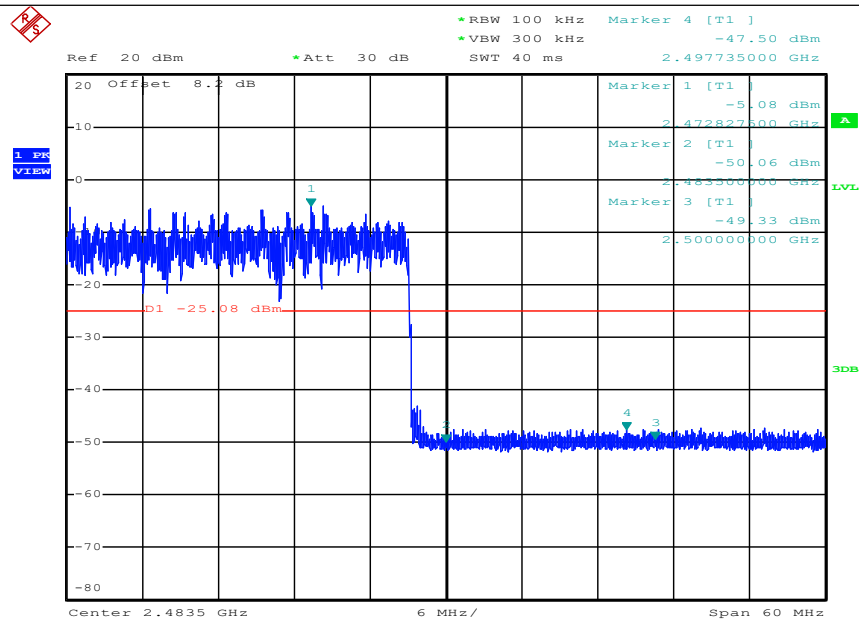
Date: 20.AUG.2019 14:30:07

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



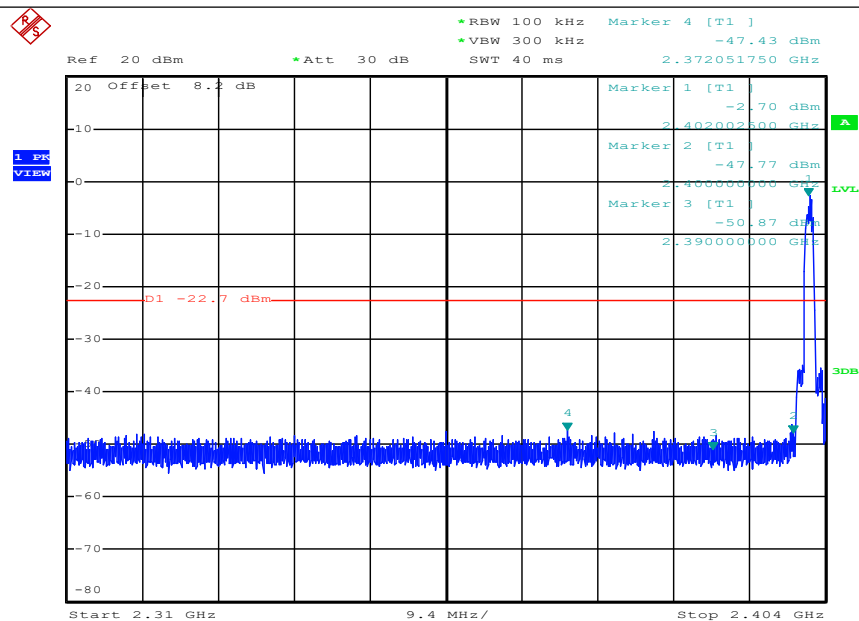
Date: 20.AUG.2019 14:02:11

$\pi/4$ DQPSK/HCH/Hop



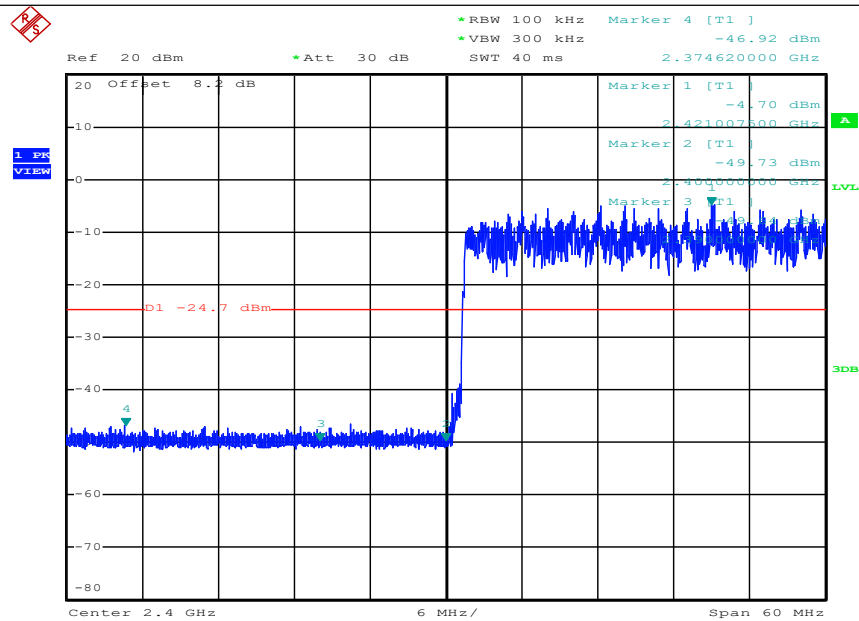
Date: 20.AUG.2019 14:32:11

8DPSK/LCH/No Hop



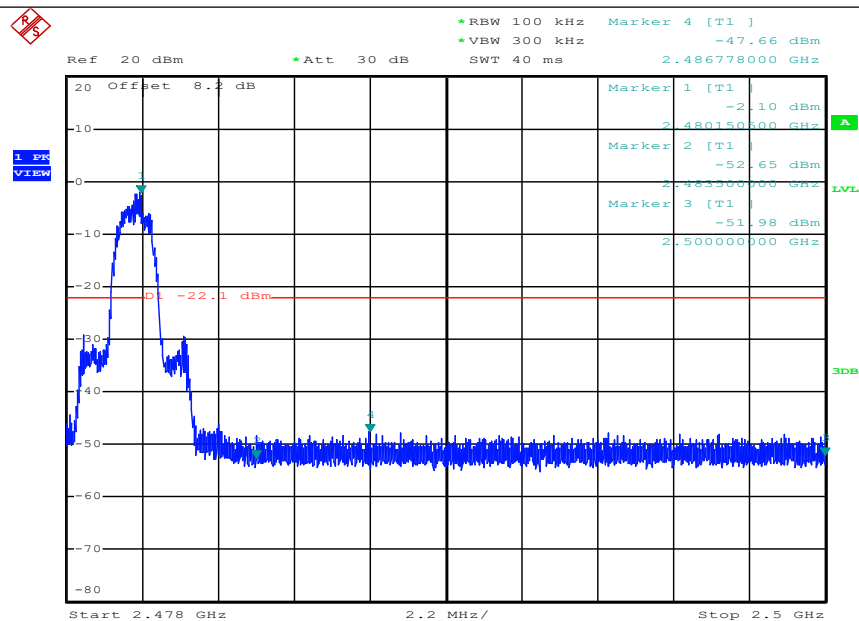
Date: 20.AUG.2019 14:05:38

8DPSK/LCH/Hop



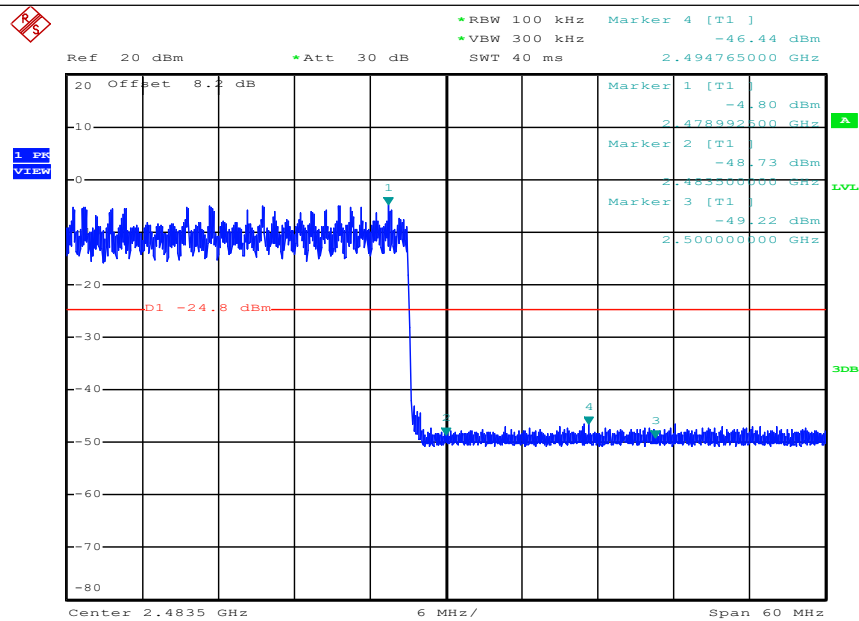
Date: 20.AUG.2019 14:36:25

8DPSK/HCH/No Hop



Date: 20.AUG.2019 14:10:21

8DPSK/HCH/Hop

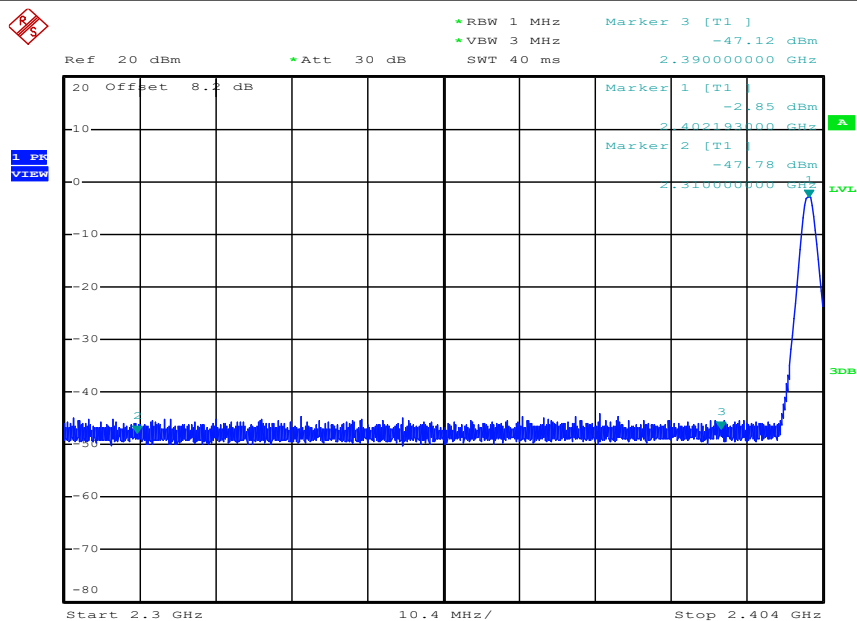


Date: 20.AUG.2019 14:41:38

A.8 Restrict-band band-edge measurements

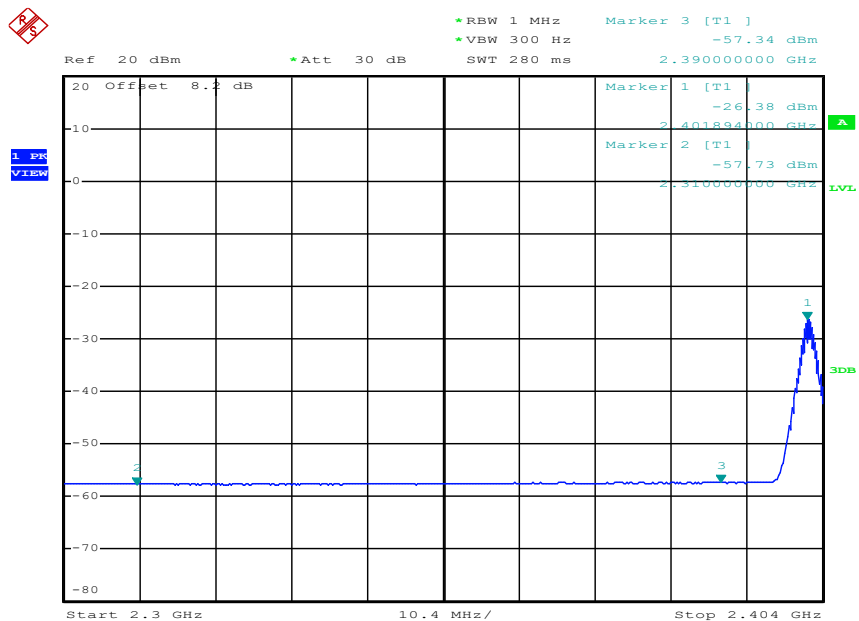
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.78	2.0	0	47.48	PEAK	74	PASS
	Off	2310.0	-57.73	2.0	0	37.53	AV	54	PASS
	Off	2390.0	-47.12	2.0	0	48.14	PEAK	74	PASS
	Off	2390.0	-57.34	2.0	0	37.92	AV	54	PASS
	Off	2483.5	-40.33	2.0	0	54.93	PEAK	74	PASS
	Off	2483.5	-50.80	2.0	0	44.46	AV	54	PASS
	Off	2500.0	-47.00	2.0	0	48.26	PEAK	74	PASS
	Off	2500.0	-57.98	2.0	0	37.28	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-46.75	2.0	0	48.51	PEAK	74	PASS
	Off	2310.0	-57.65	2.0	0	37.61	AV	54	PASS
	Off	2390.0	-48.64	2.0	0	46.62	PEAK	74	PASS
	Off	2390.0	-57.46	2.0	0	37.80	AV	54	PASS
	Off	2483.5	-38.71	2.0	0	56.55	PEAK	74	PASS
	Off	2483.5	-45.40	2.0	0	49.86	AV	54	PASS
	Off	2500.0	-47.24	2.0	0	48.02	PEAK	74	PASS
	Off	2500.0	-58.01	2.0	0	37.25	AV	54	PASS
8DPSK	Off	2310.0	-47.21	2.0	0	48.05	PEAK	74	PASS
	Off	2310.0	-57.65	2.0	0	37.61	AV	54	PASS
	Off	2390.0	-47.98	2.0	0	47.28	PEAK	74	PASS
	Off	2390.0	-57.30	2.0	0	37.96	AV	54	PASS
	Off	2483.5	-39.51	2.0	0	55.75	PEAK	74	PASS
	Off	2483.5	-45.41	2.0	0	49.85	AV	54	PASS
	Off	2500.0	-48.28	2.0	0	46.98	PEAK	74	PASS
	Off	2500.0	-57.94	2.0	0	37.32	AV	54	PASS

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



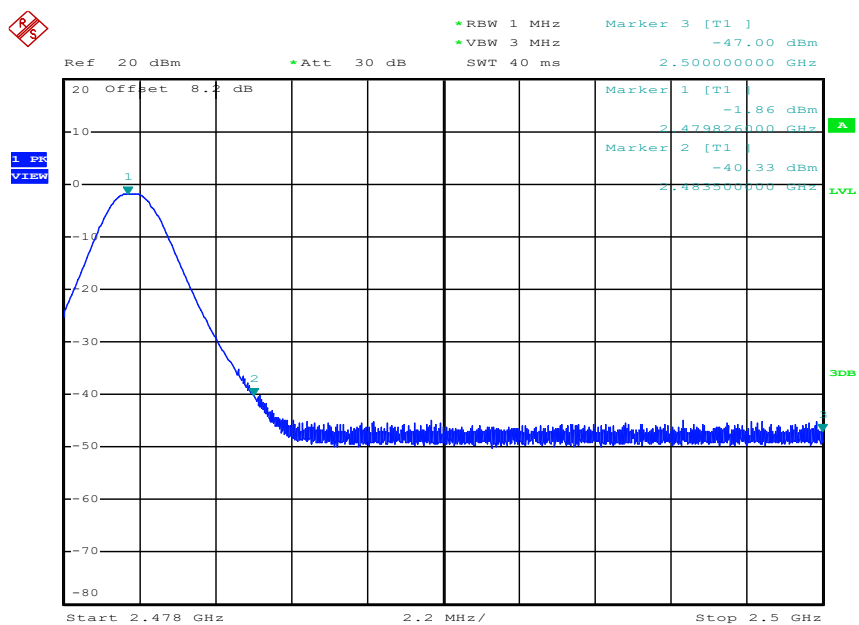
Date: 20.AUG.2019 13:42:26

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



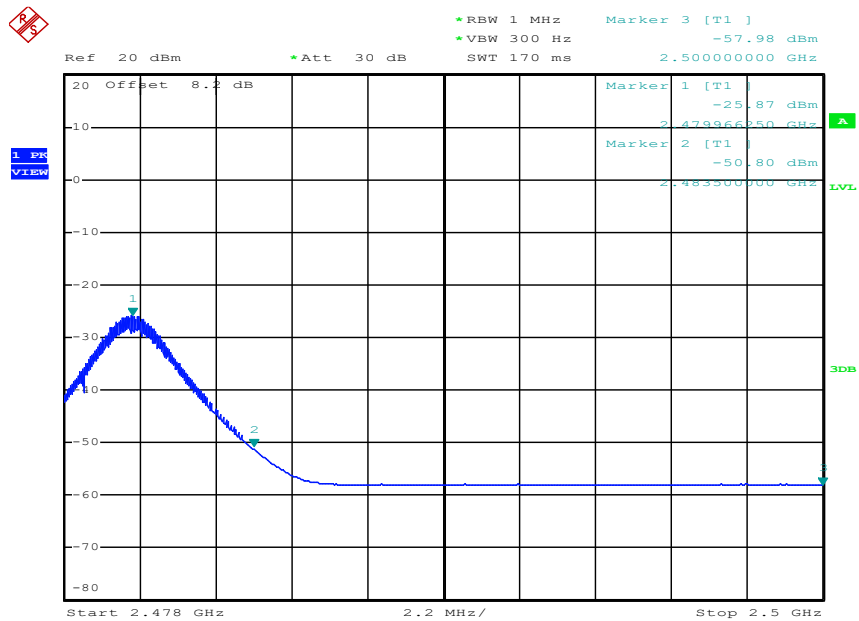
Date: 20.AUG.2019 13:42:40

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

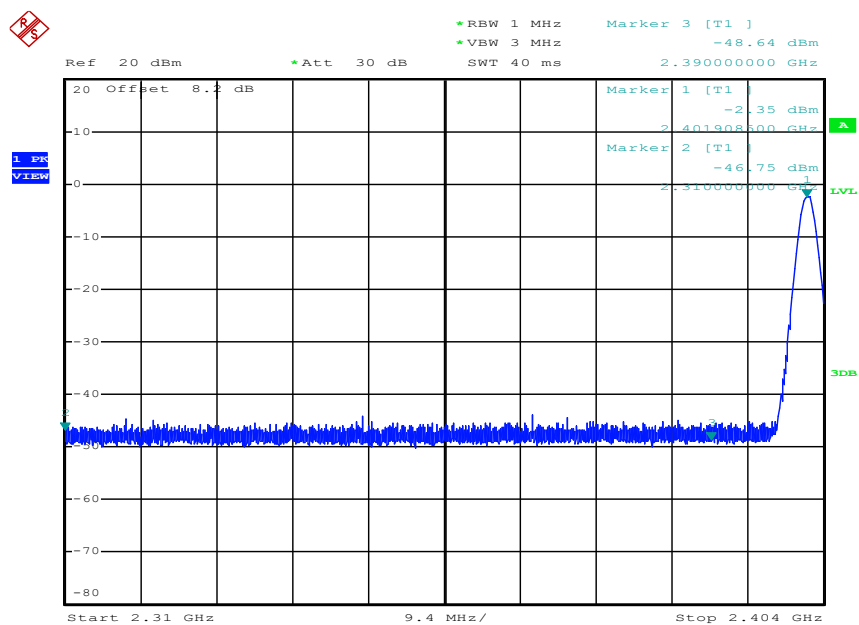


Date: 20.AUG.2019 13:46:49

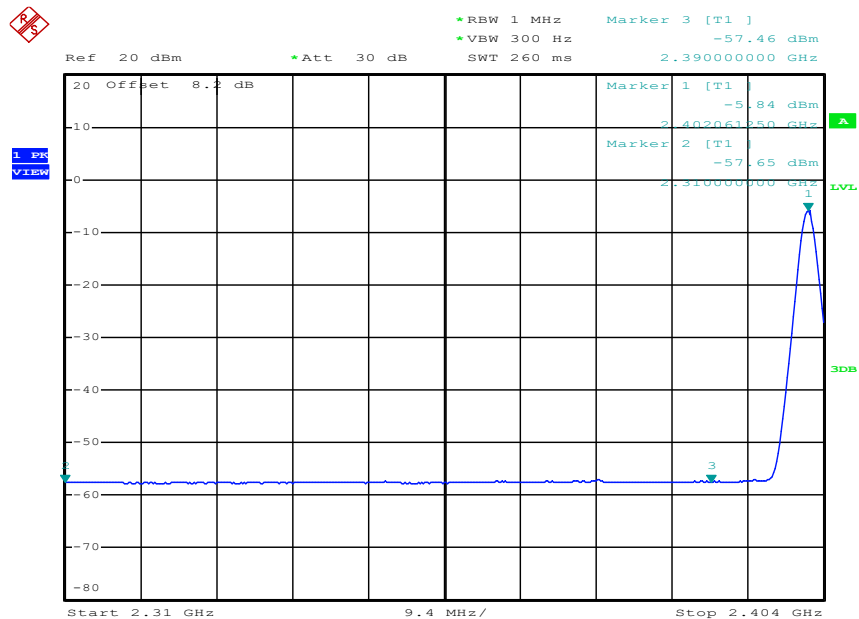
Restrict-band band-edge measurements_Hopping Off_ GFSK_Average (High Channel)



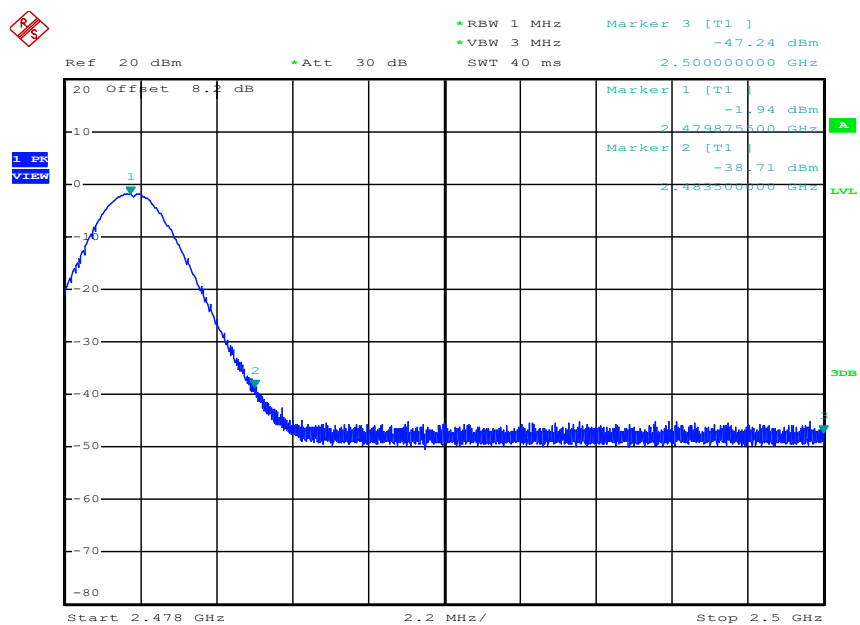
Date: 20.AUG.2019 13:47:02

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

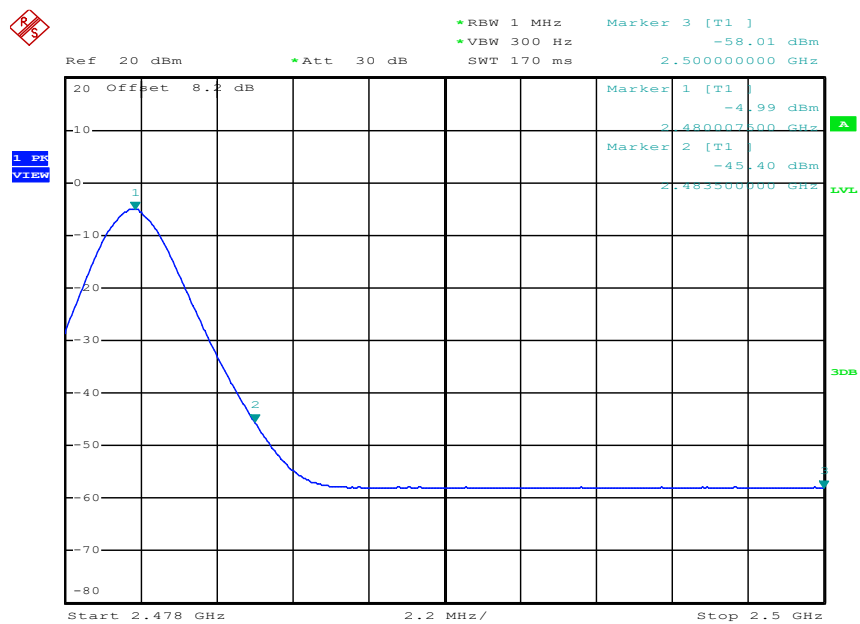
Date: 20.AUG.2019 13:58:43

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

Date: 20.AUG.2019 13:58:56

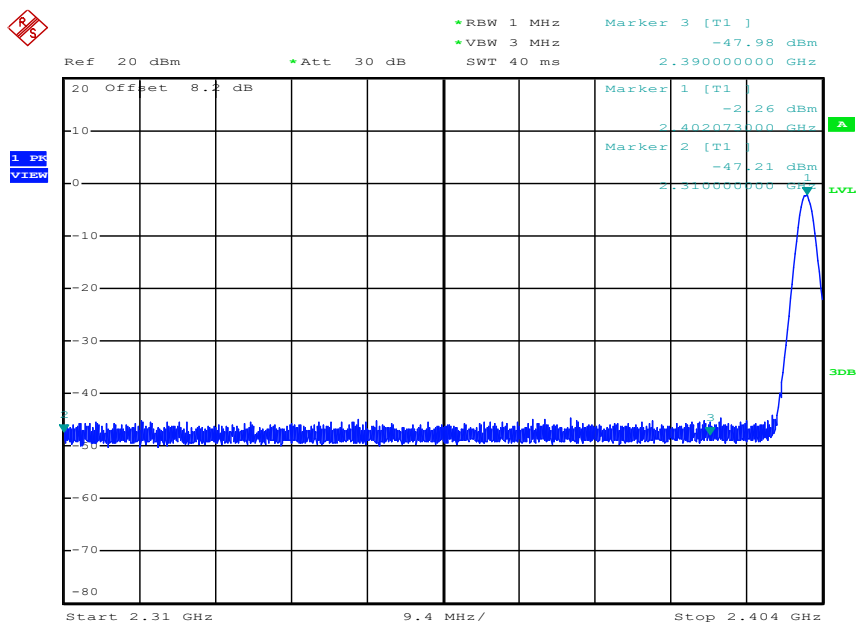
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (High Channel)

Date: 20.AUG.2019 14:02:57

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

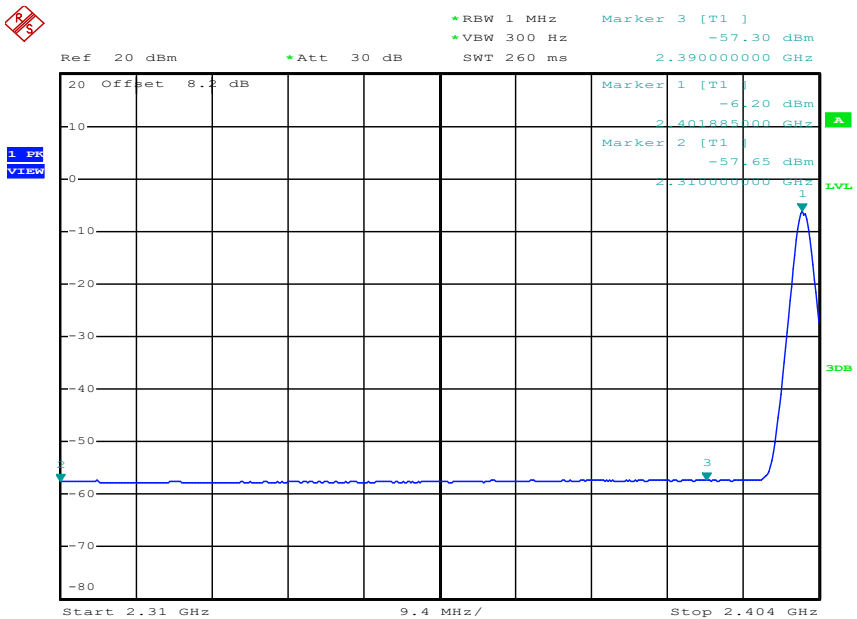
Date: 20.AUG.2019 14:03:10

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



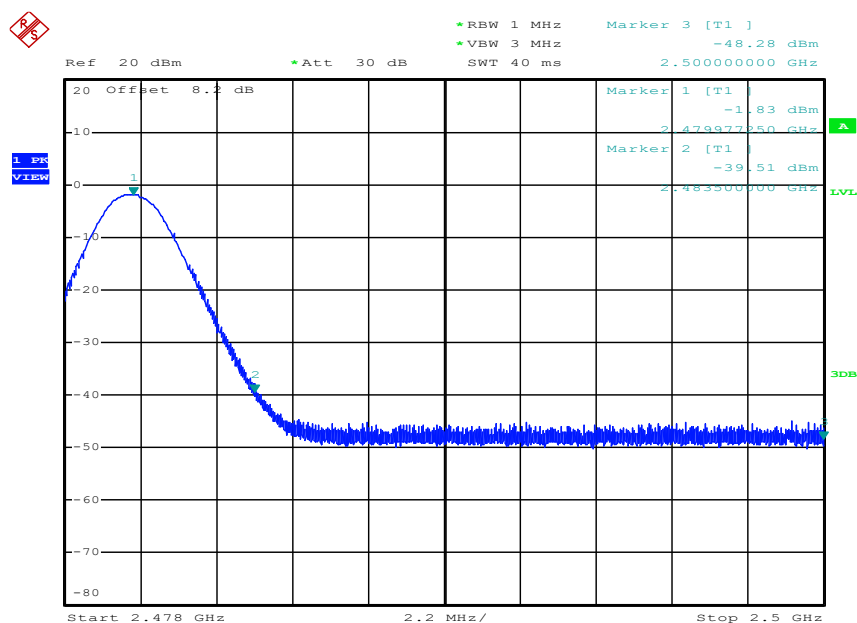
Date: 20.AUG.2019 14:06:24

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



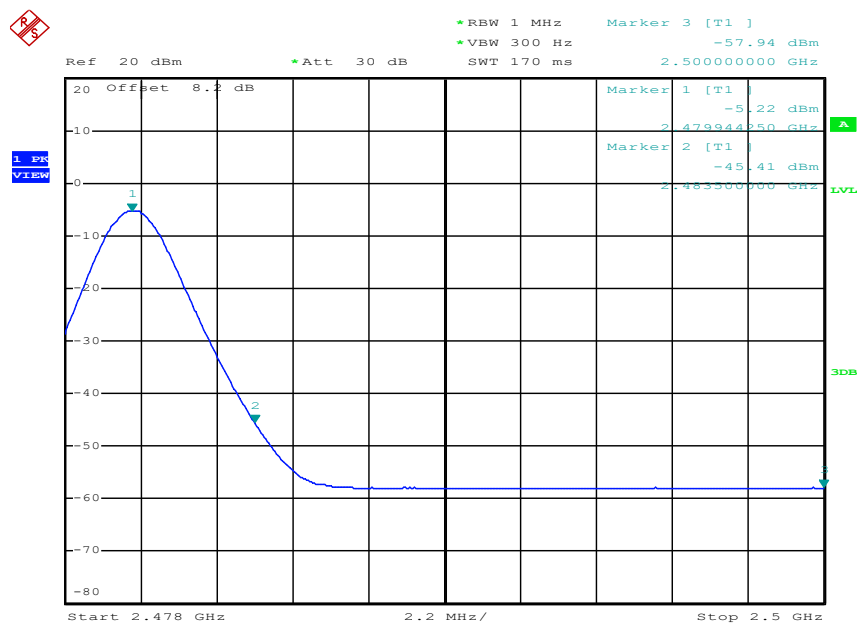
Date: 20.AUG.2019 14:06:37

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



Date: 20.AUG.2019 14:11:06

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



Date: 20.AUG.2019 14:11:19