

Appendix A

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

Product Name: Biometric access system

Trade Mark: N/A

Test Model: Access One

Environmental Conditions

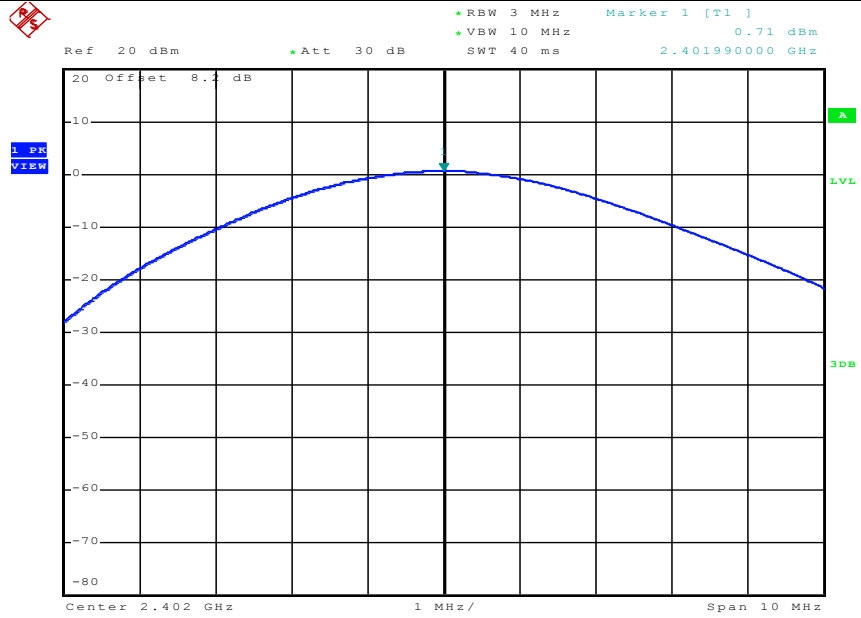
Temperature:	23.9°C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	JK Zhou
Supervised by:	Wang.Chuang

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.710	30	PASS
	MCH	0.650	30	PASS
	HCH	0.770	30	PASS
$\pi/4$ DQPSK	LCH	-0.140	21	PASS
	MCH	-0.170	21	PASS
	HCH	0.680	21	PASS
8DPSK	LCH	-0.140	21	PASS
	MCH	-0.200	21	PASS
	HCH	0.650	21	PASS

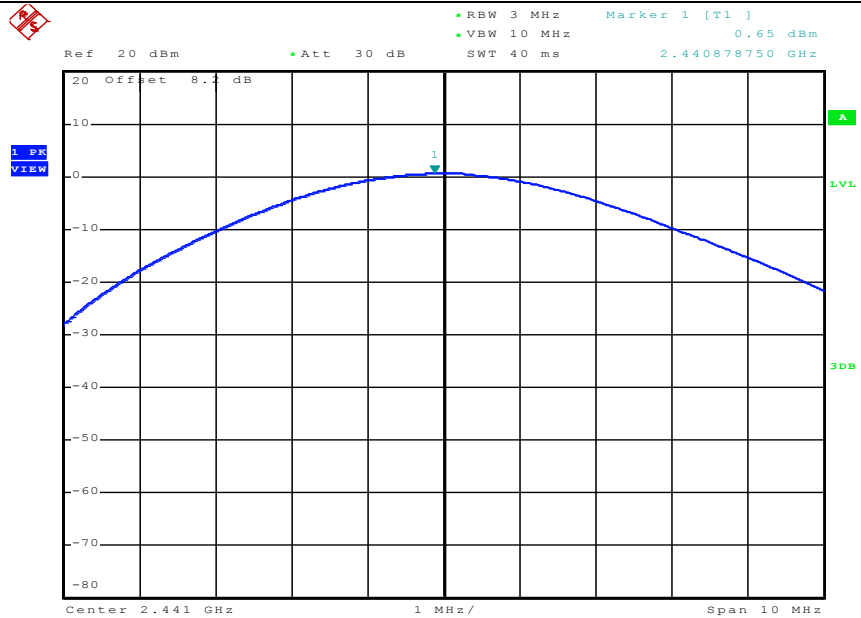
Test Graphs

GFSK/LCH



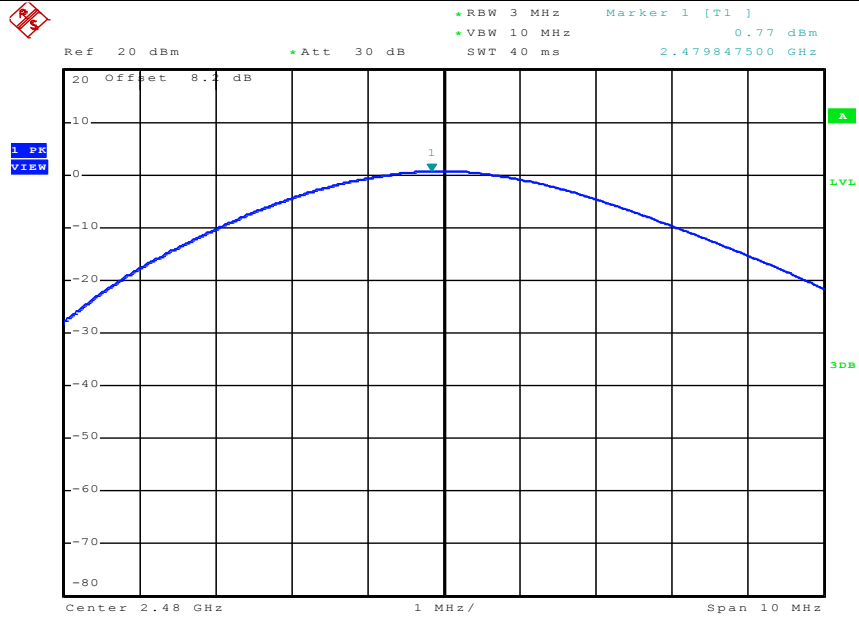
Date: 20.SEP.2019 15:20:23

GFSK/MCH



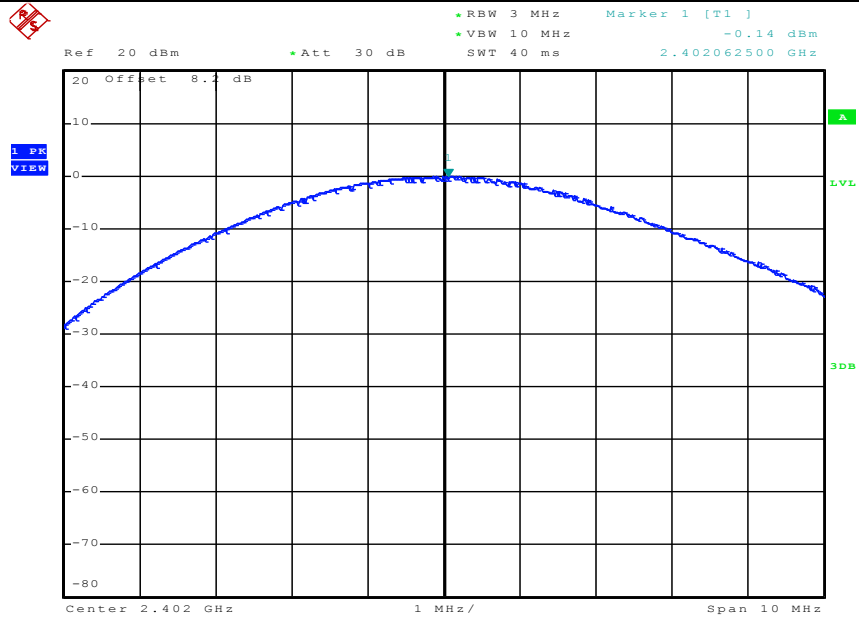
Date: 20.SEP.2019 15:22:50

GFSK/HCH



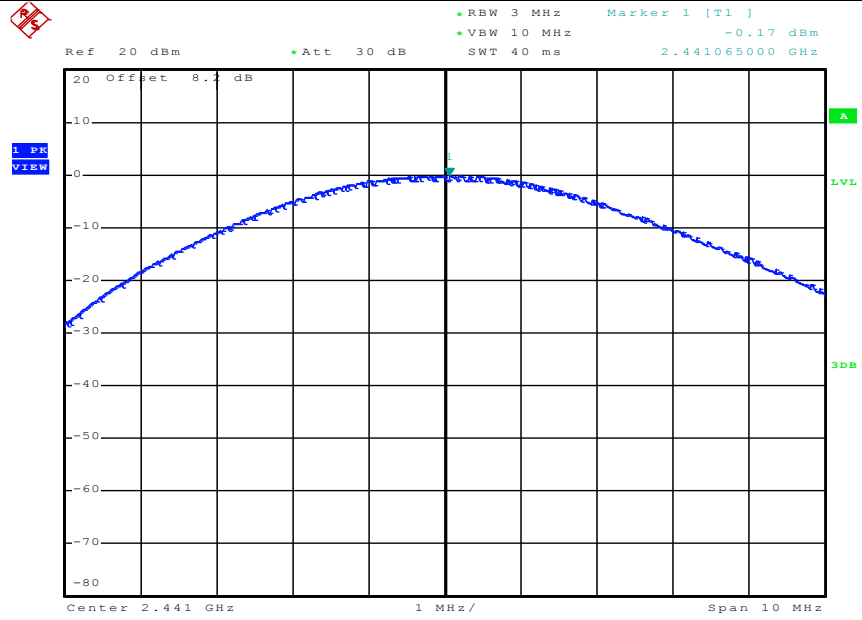
Date: 20.SEP.2019 15:24:31

$\pi/4$ DQPSK/LCH



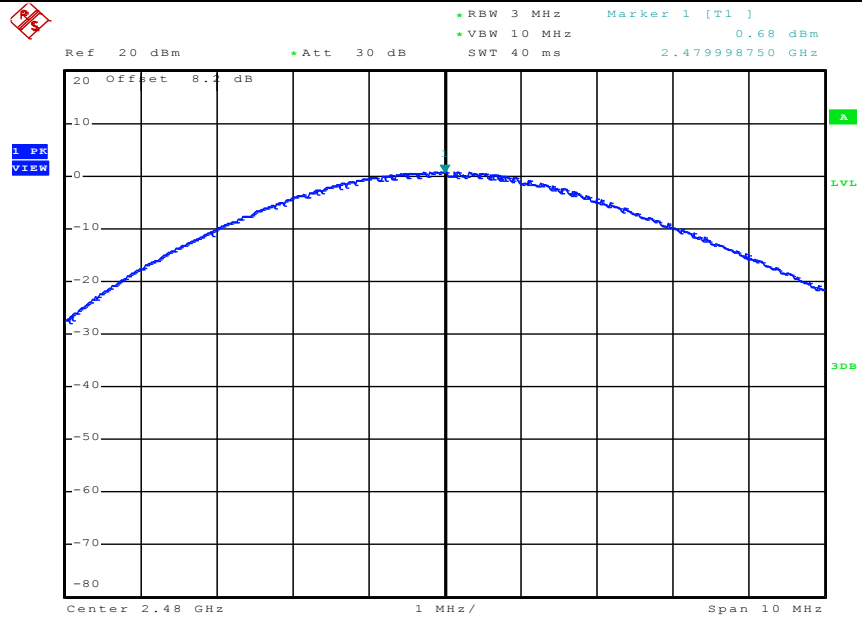
Date: 20.SEP.2019 15:27:12

$\pi/4$ DQPSK/MCH



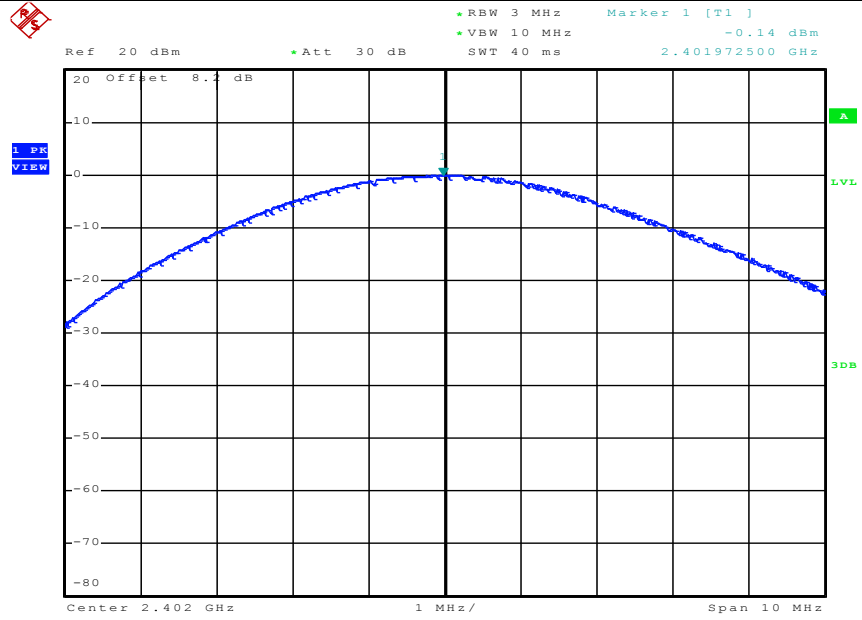
Date: 20.SEP.2019 15:29:38

$\pi/4$ DQPSK/HCH



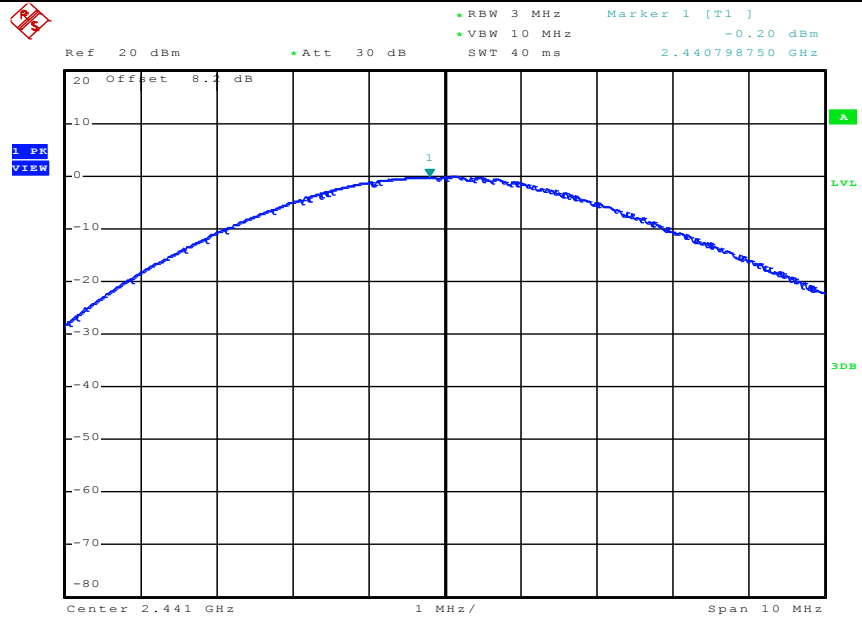
Date: 20.SEP.2019 15:31:18

8DPSK/LCH



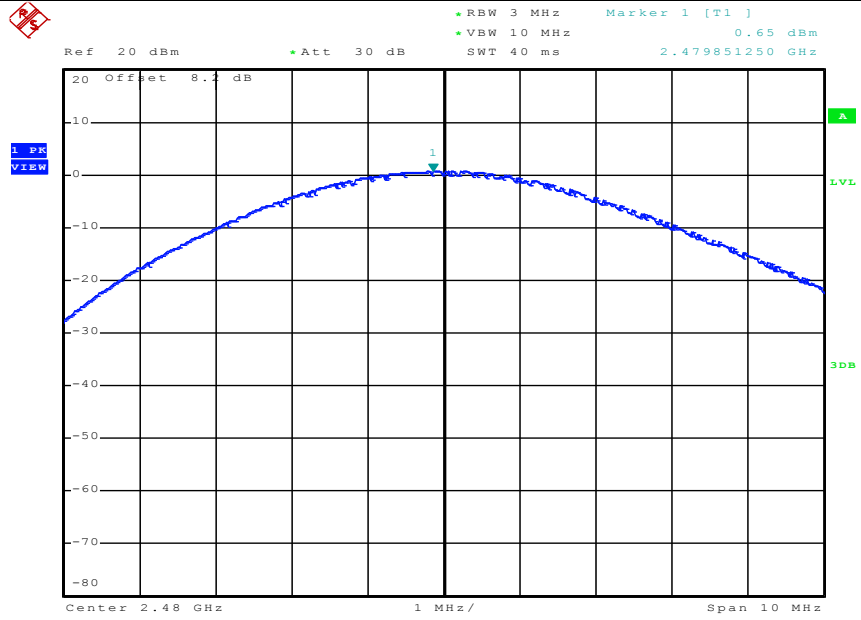
Date: 20.SEP.2019 15:33:57

8DPSK/MCH



Date: 20.SEP.2019 15:36:29

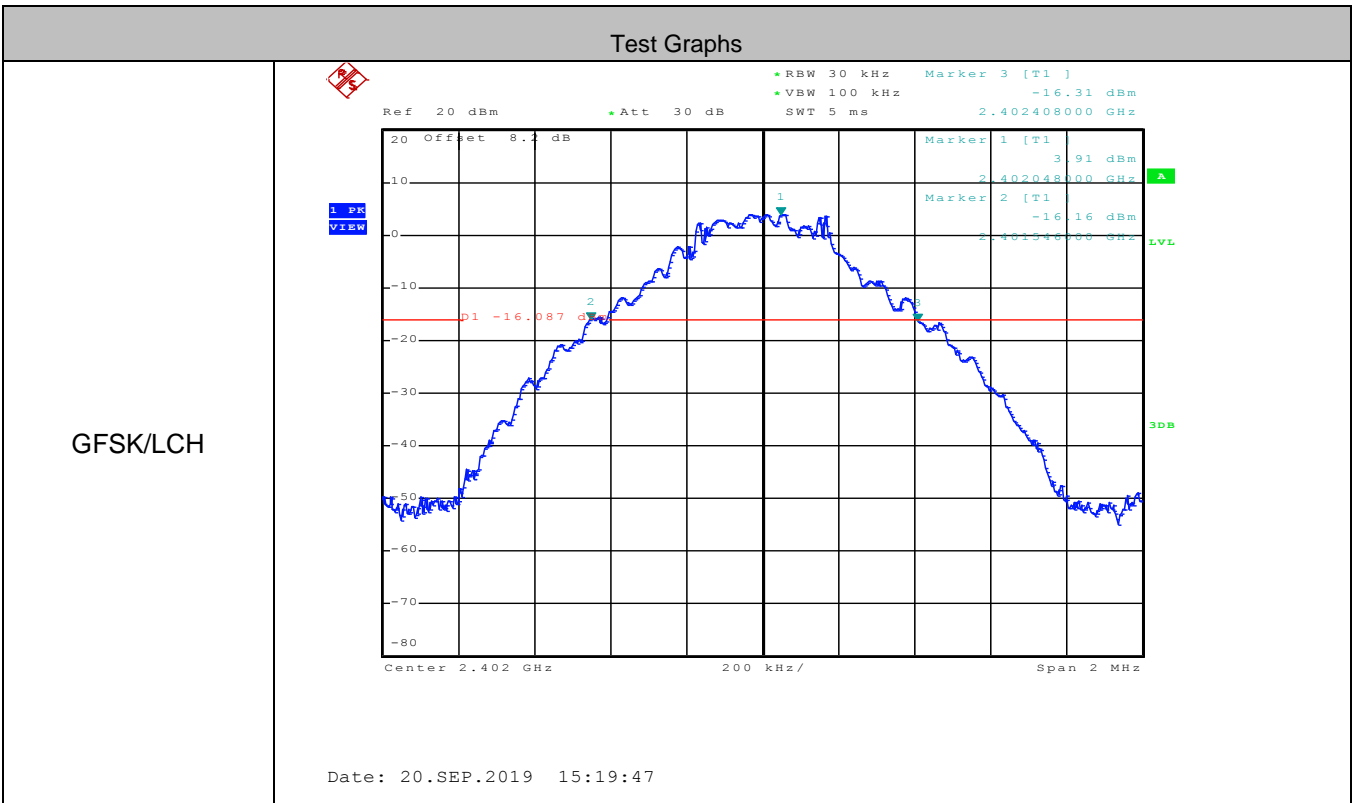
8DPSK/HCH



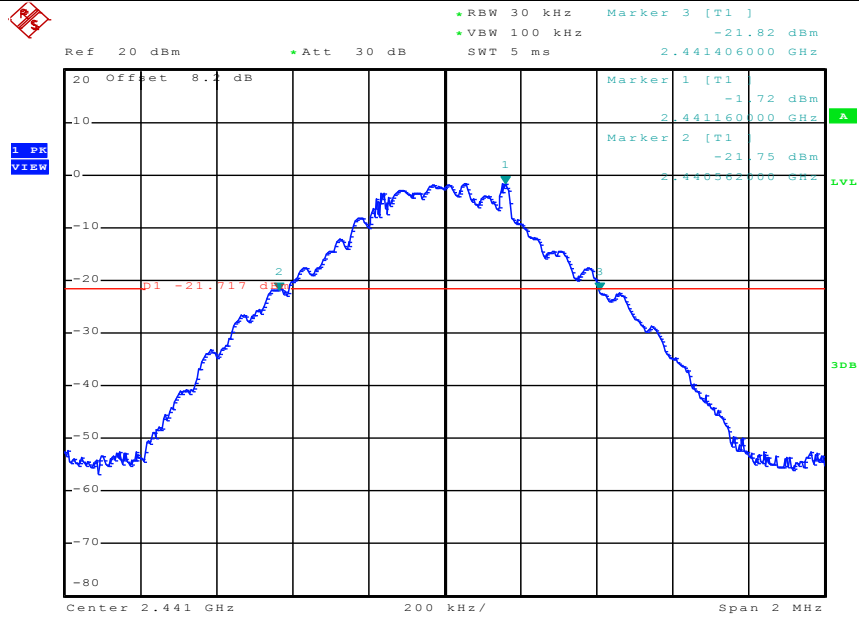
Date: 20.SEP.2019 15:38:09

A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.862	Not Specified	PASS
	MCH	0.844	Not Specified	PASS
	HCH	0.854	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.272	Not Specified	PASS
	MCH	1.258	Not Specified	PASS
	HCH	1.260	Not Specified	PASS
8DPSK	LCH	1.254	Not Specified	PASS
	MCH	1.258	Not Specified	PASS
	HCH	1.282	Not Specified	PASS

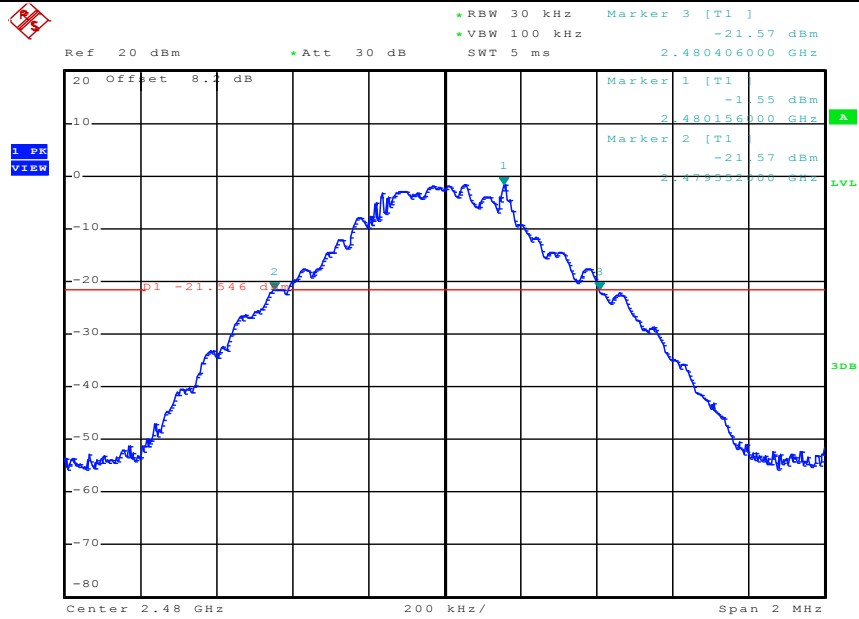


GFSK/MCH



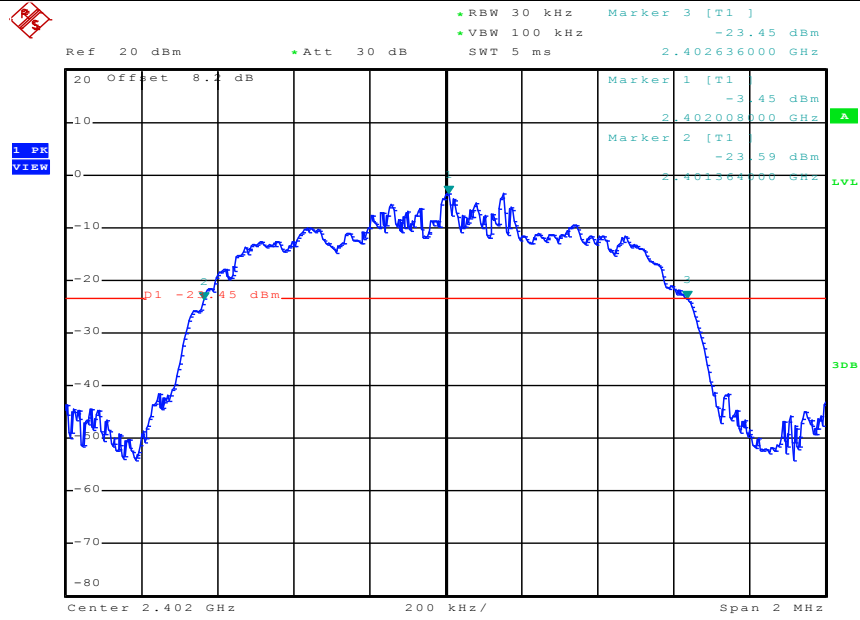
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GFSK/HCH



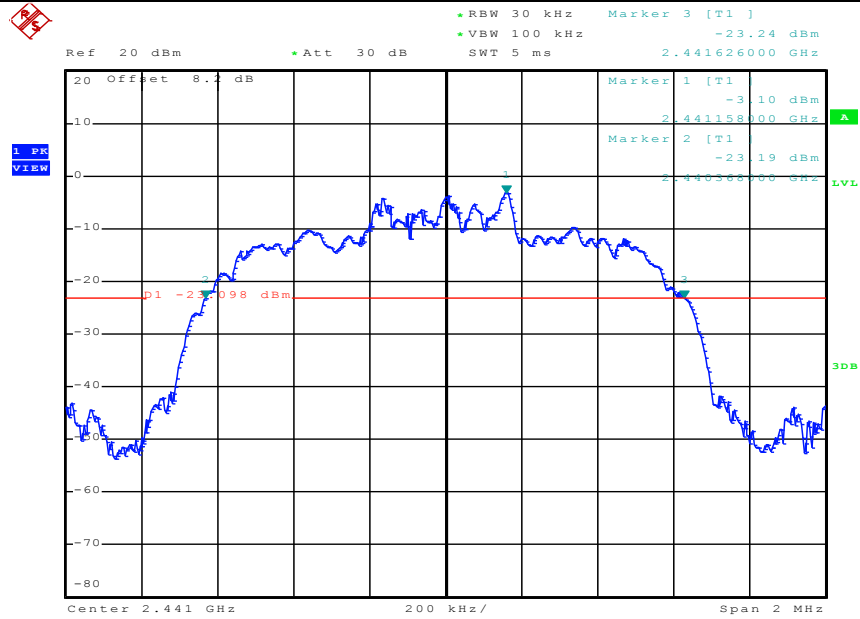
Date: 20.SEP.2019 15:23:55

$\pi/4$ DQPSK/LCH



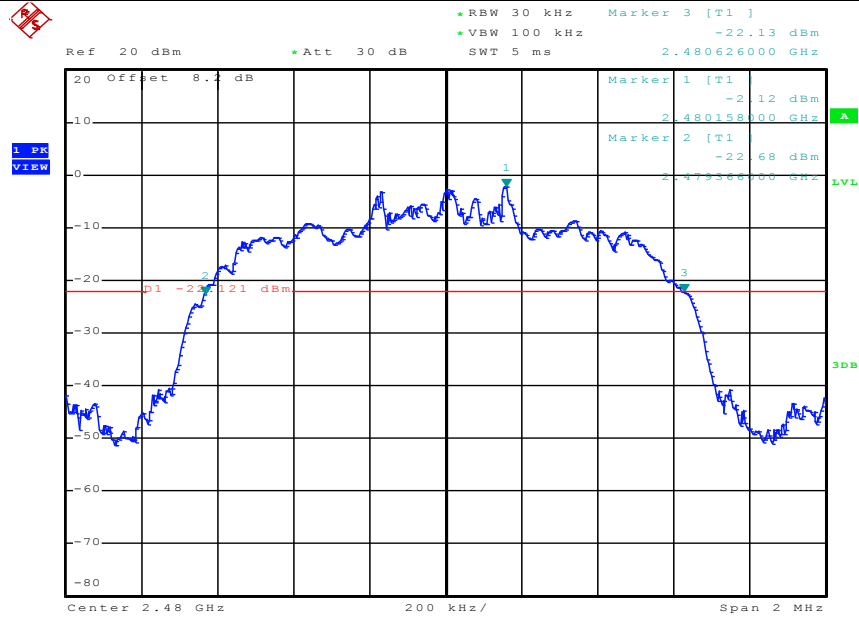
Date: 20.SEP.2019 15:26:35

$\pi/4$ DQPSK/MCH



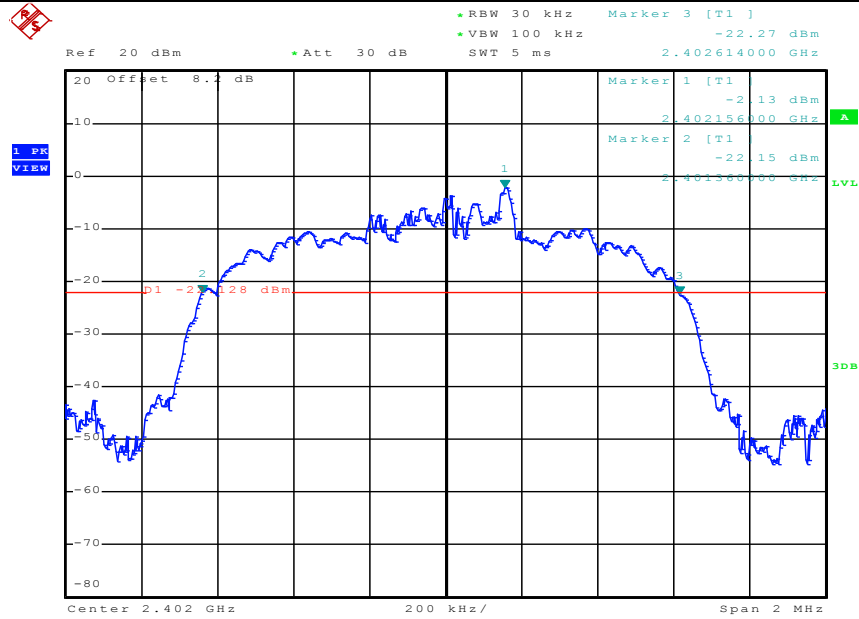
Date: 20.SEP.2019 15:29:01

$\pi/4$ DQPSK/HCH



Date: 20.SEP.2019 15:30:42

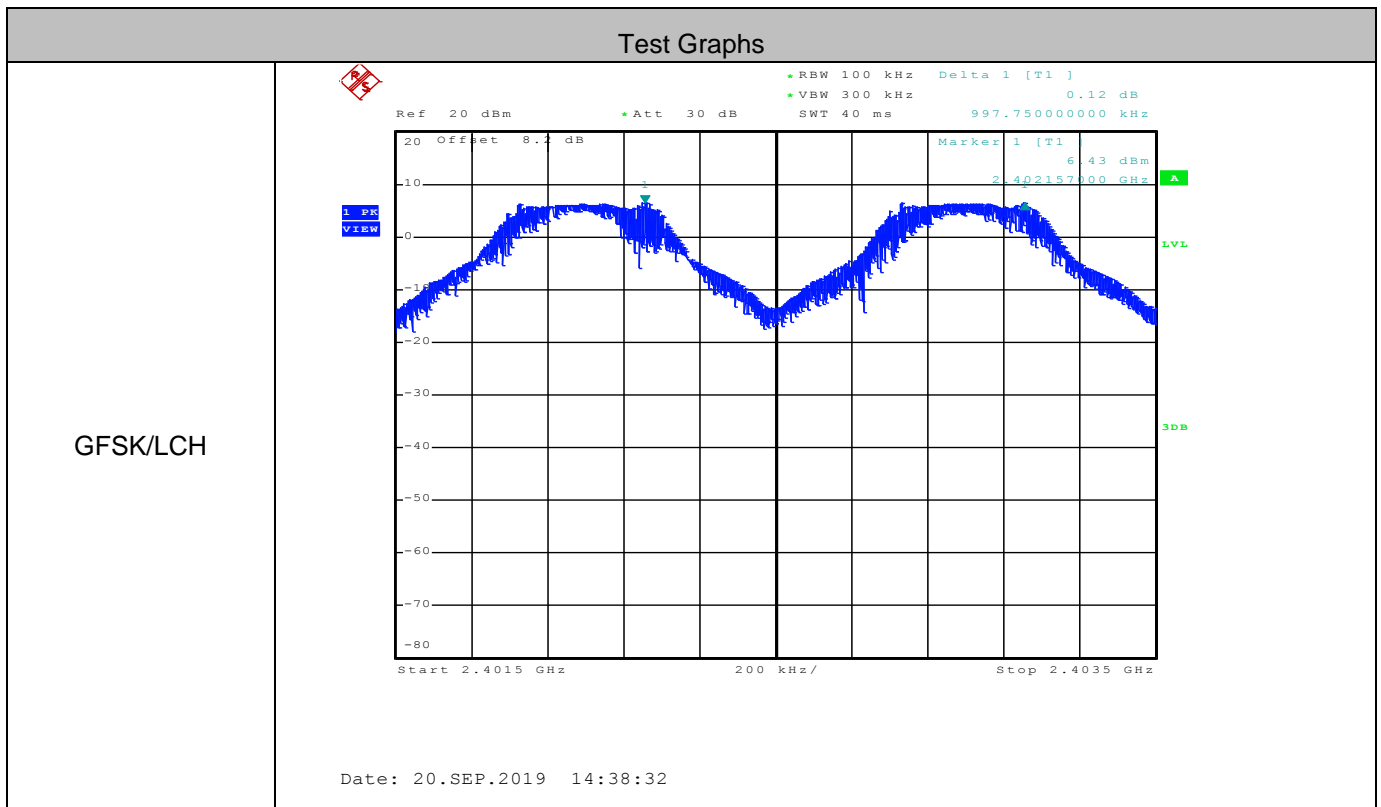
8DPSK/LCH



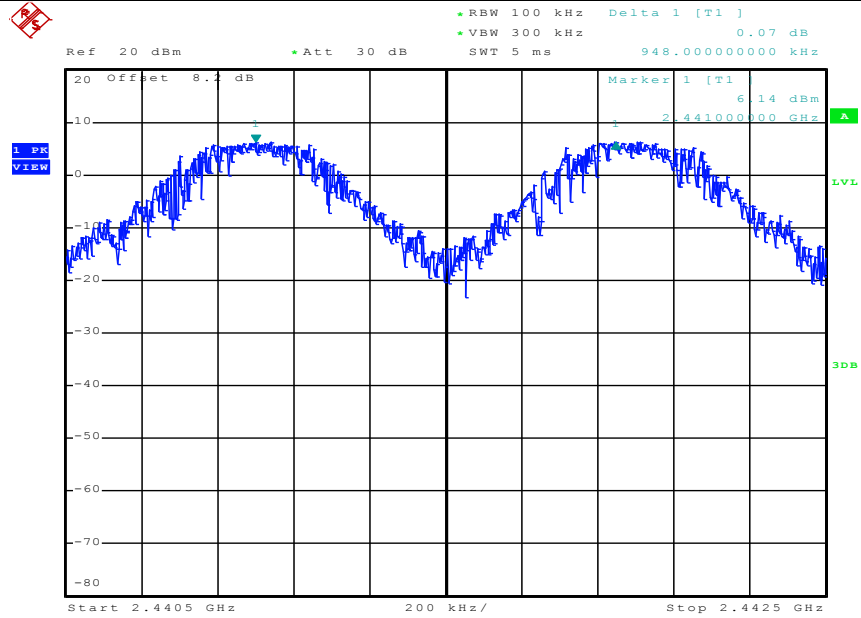
Date: 20.SEP.2019 15:33:20

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.998	0.575	PASS
	MCH	0.948	0.563	PASS
	HCH	0.868	0.569	PASS
π/4DQPSK	LCH	1.064	0.848	PASS
	MCH	1.084	0.839	PASS
	HCH	1.306	0.840	PASS
8DPSK	LCH	0.898	0.836	PASS
	MCH	0.836	0.839	PASS
	HCH	1.020	0.855	PASS

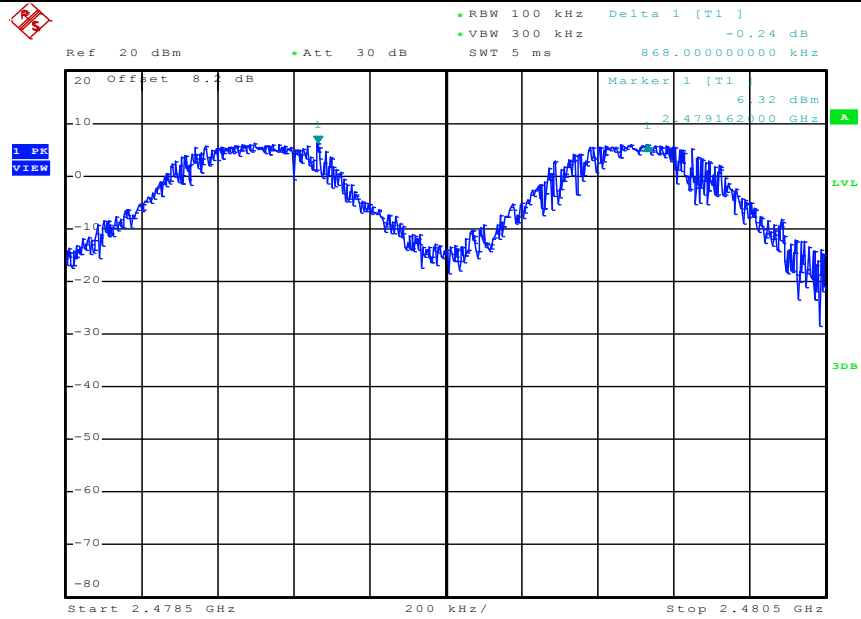


GFSK/MCH



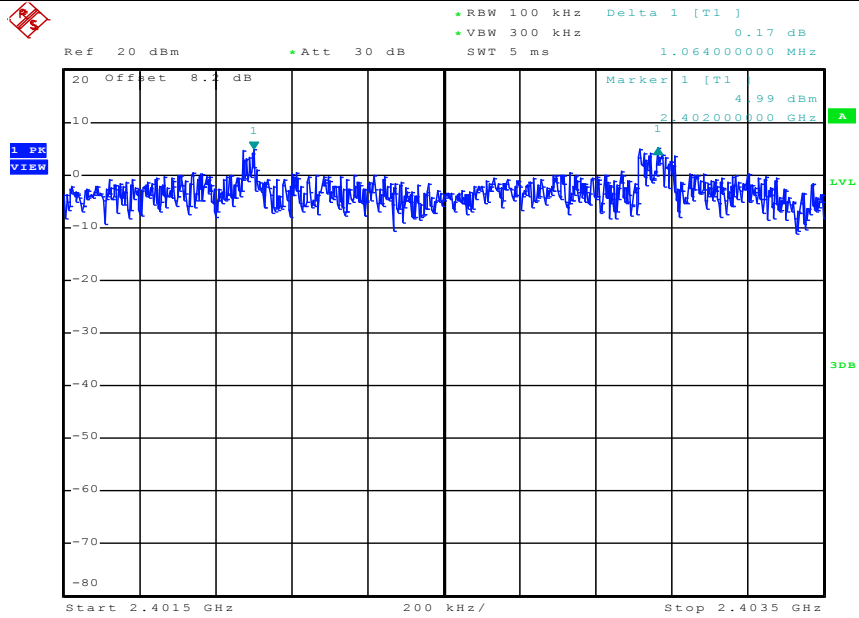
Date: 20.SEP.2019 14:41:14

GFSK/HCH



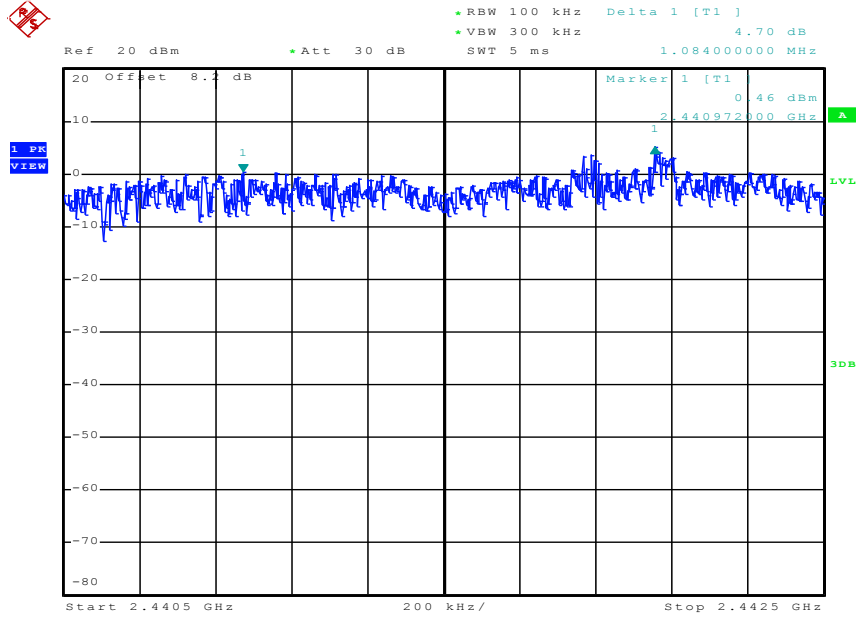
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π /4DQPSK/LCH



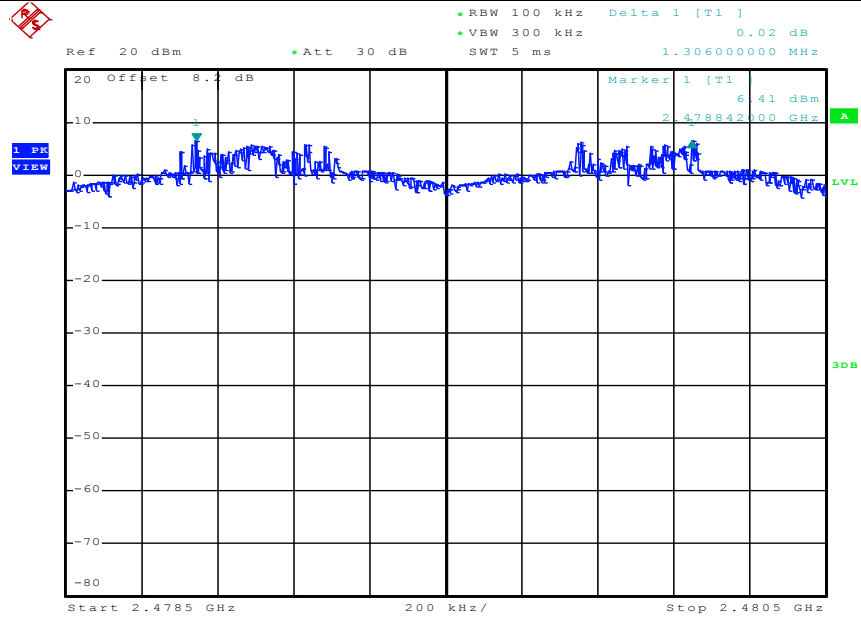
Date: 20.SEP.2019 14:46:21

π /4DQPSK/MCH



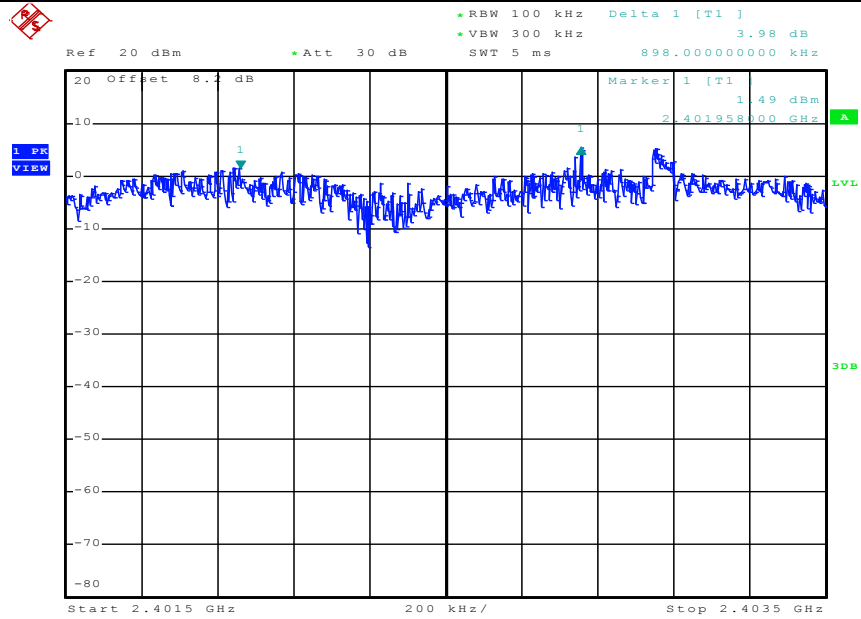
Date: 20.SEP.2019 14:49:37

π /4DQPSK/HCH

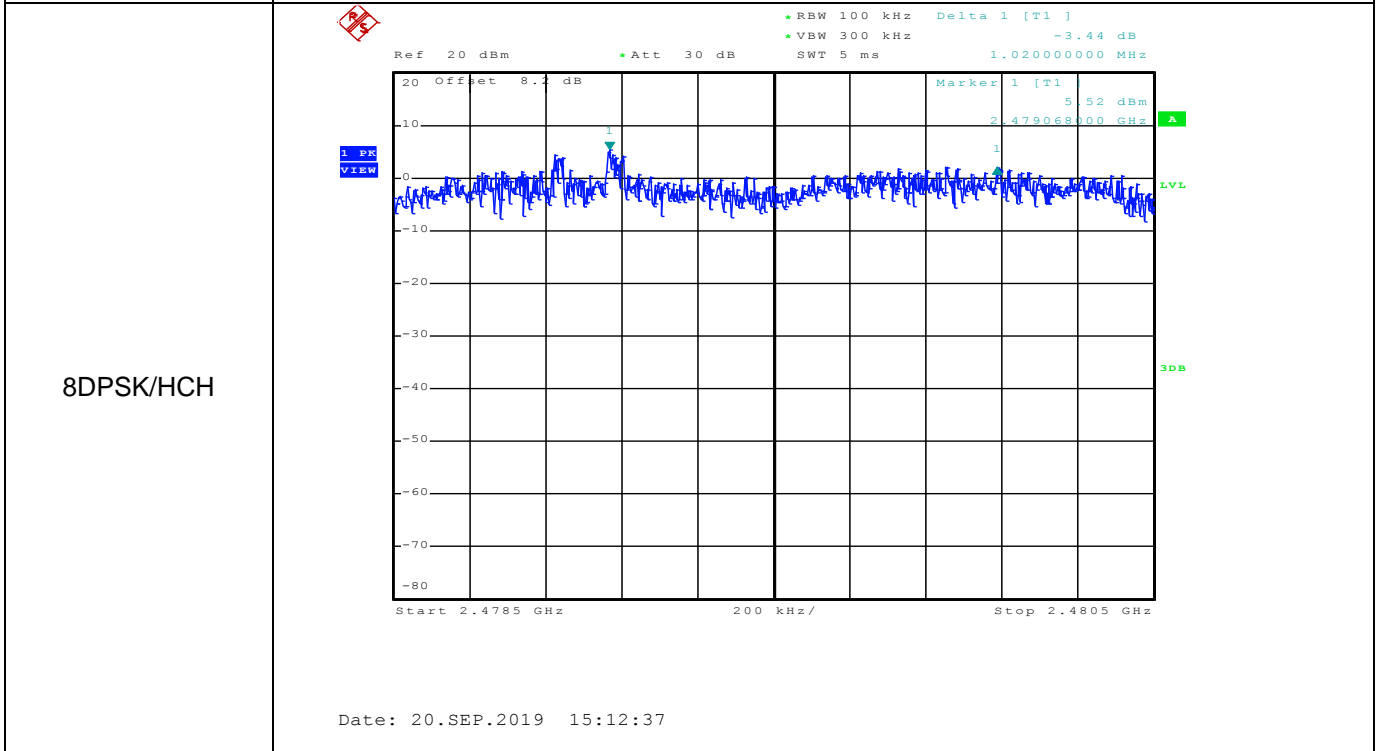
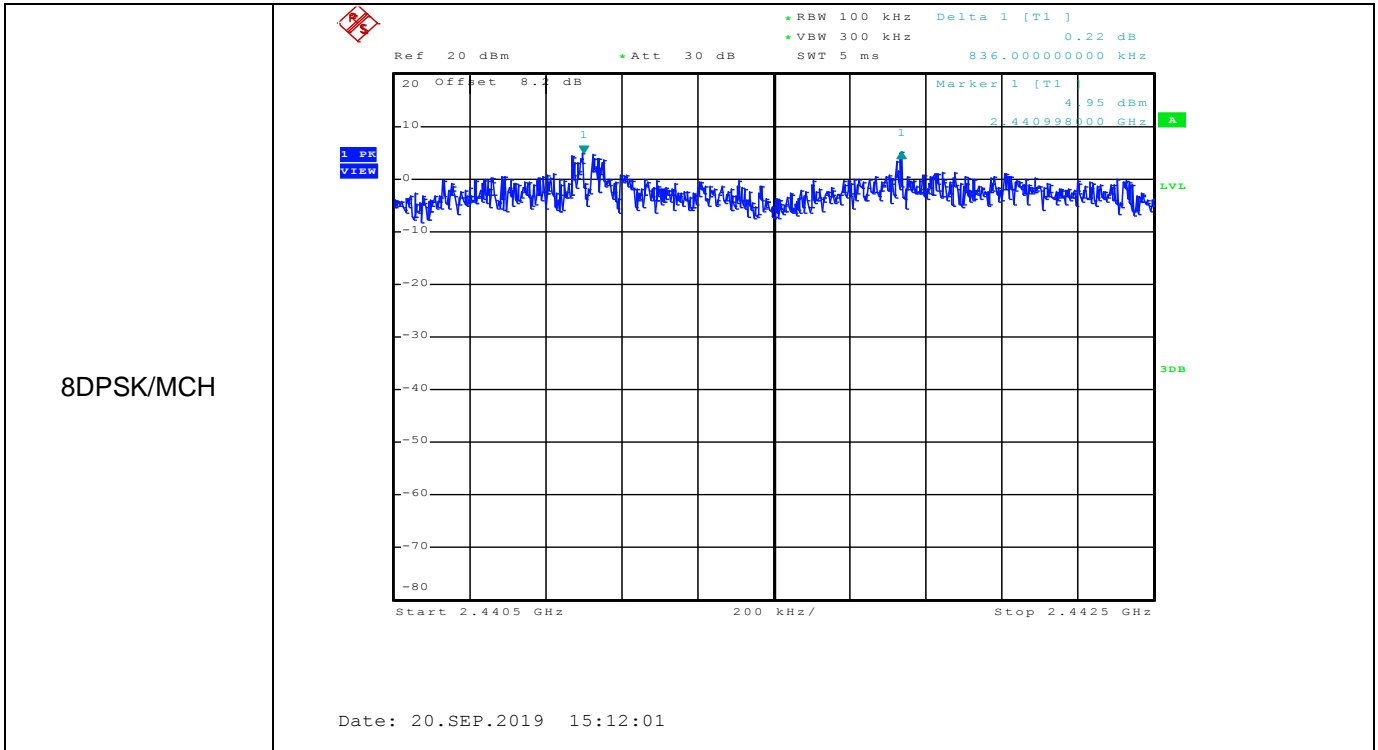


Date: 20.SEP.2019 14:51:02

8DPSK/LCH



Date: 20.SEP.2019 15:03:40

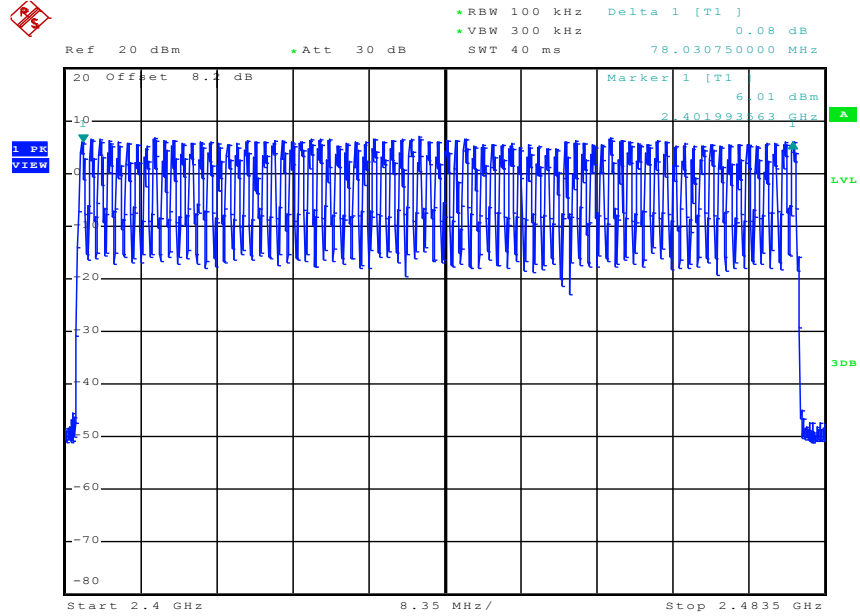


A.4 Hopping Channel Number

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

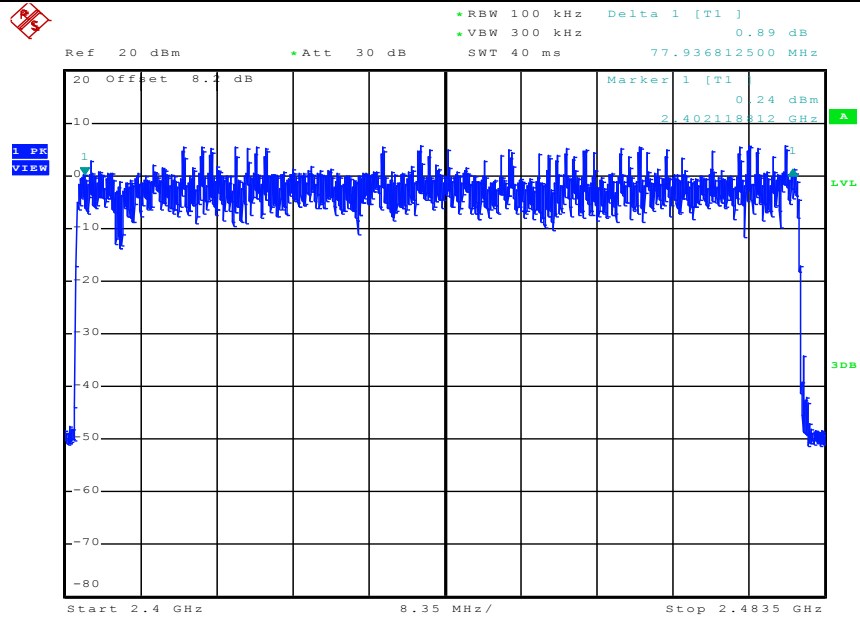
Test Graphs

GFSK/Hop



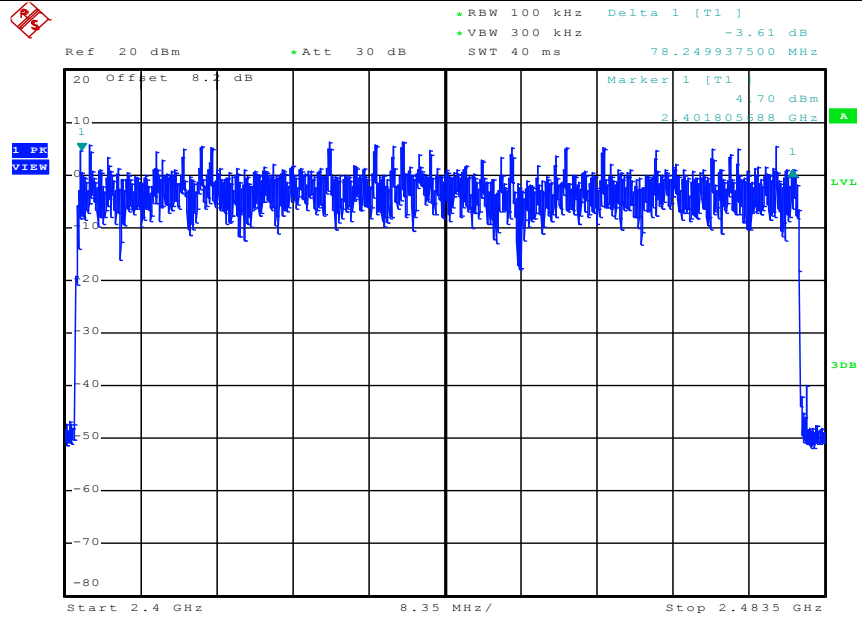
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$\pi/4$ DQPSK/Hop



Date: 20.SEP.2019 15:02:43

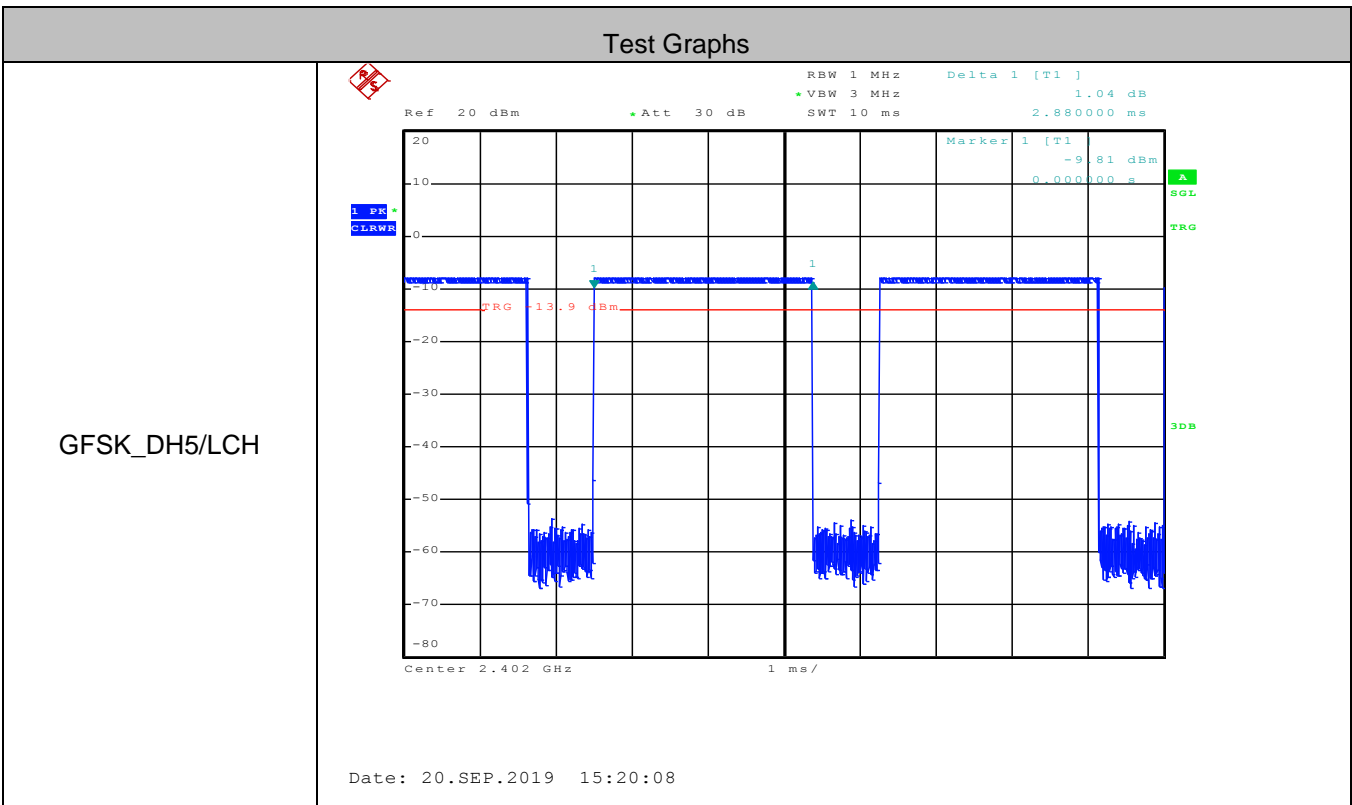
8DPSK/Hop



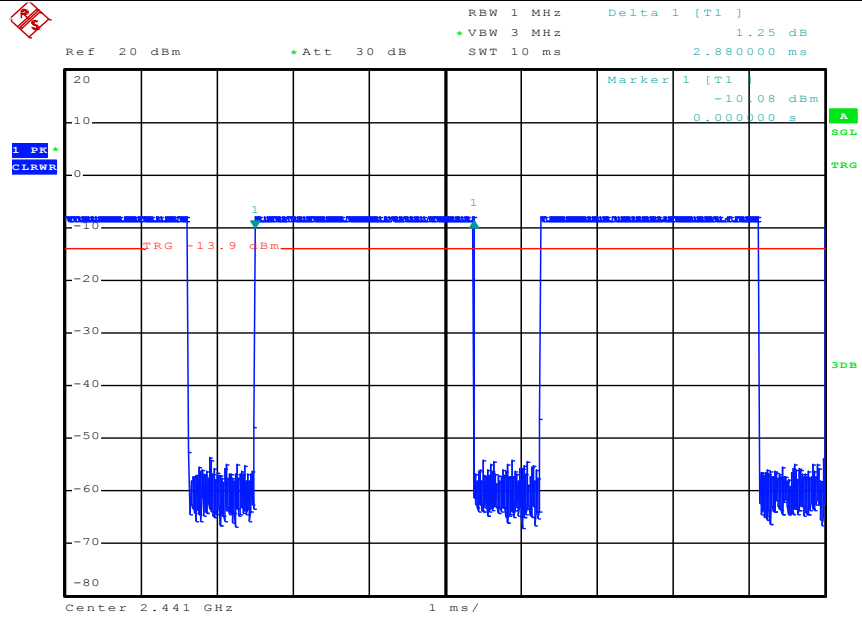
Date: 20.SEP.2019 15:17:42

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
π/4DQPSK	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

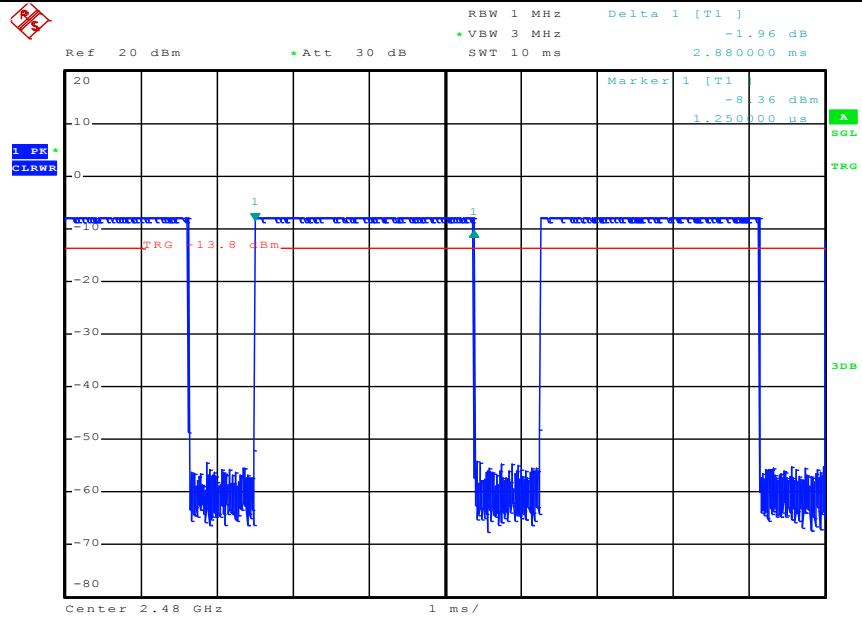


GFSK_DH5/MCH



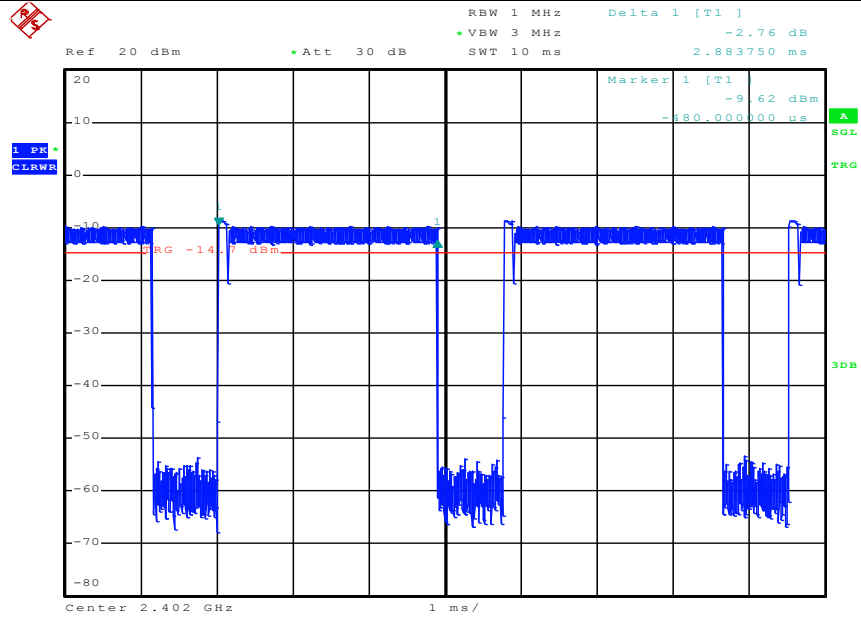
Date: 20.SEP.2019 15:22:35

GFSK_DH5/HCH



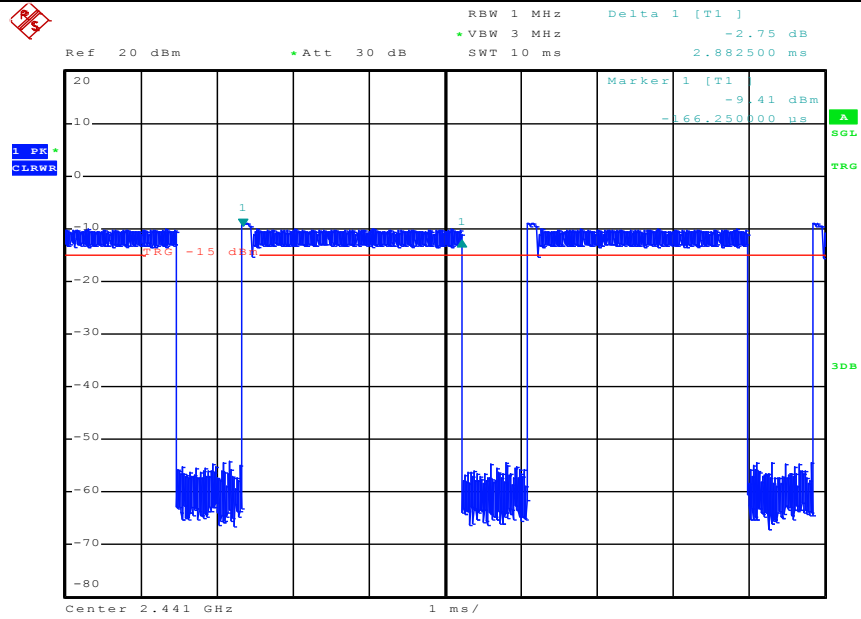
Date: 20.SEP.2019 15:24:16

$\pi/4$ DQPSK
_2DH5/LCH



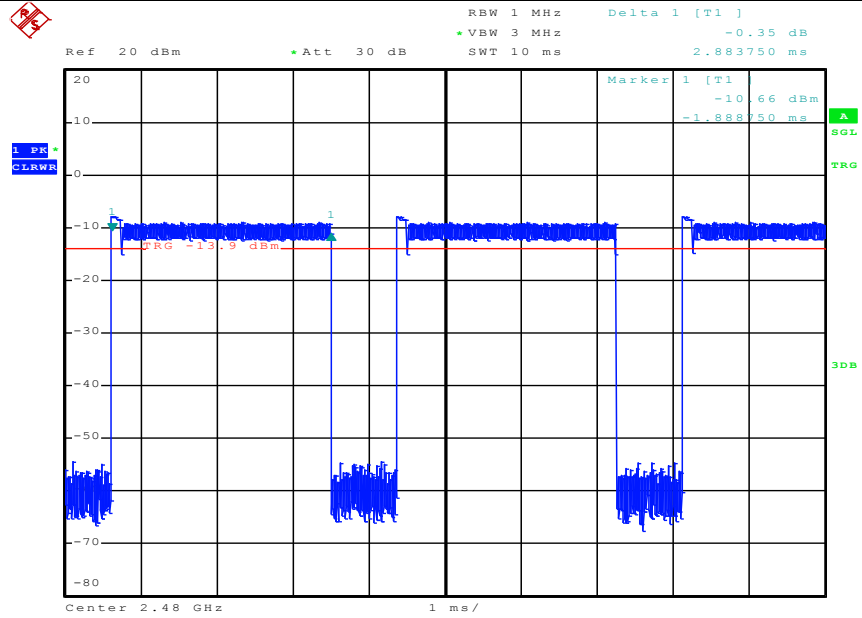
Date: 20.SEP.2019 15:26:56

$\pi/4$ DQPSK
_2DH5/MCH



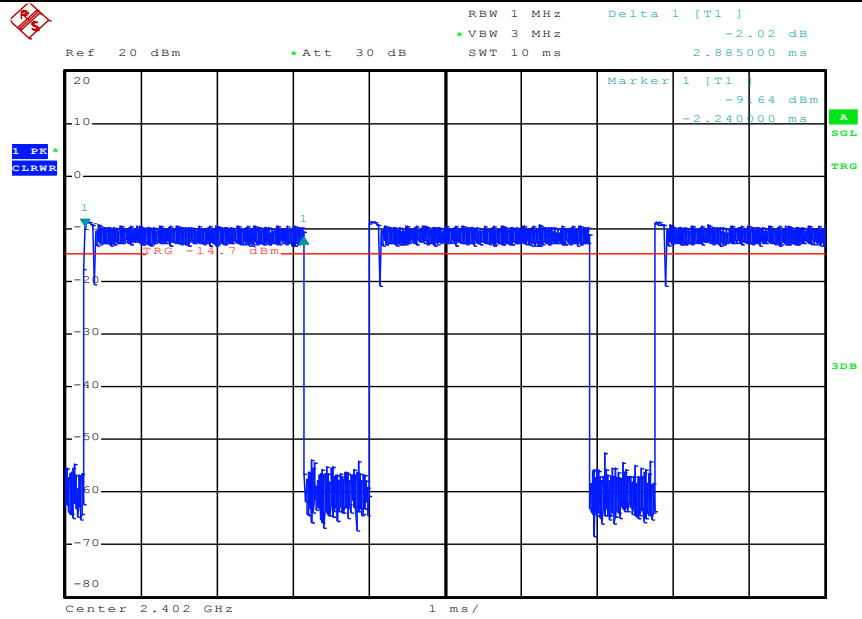
Date: 20.SEP.2019 15:29:23

$\pi/4$ DQPSK
_2DH5/HCH



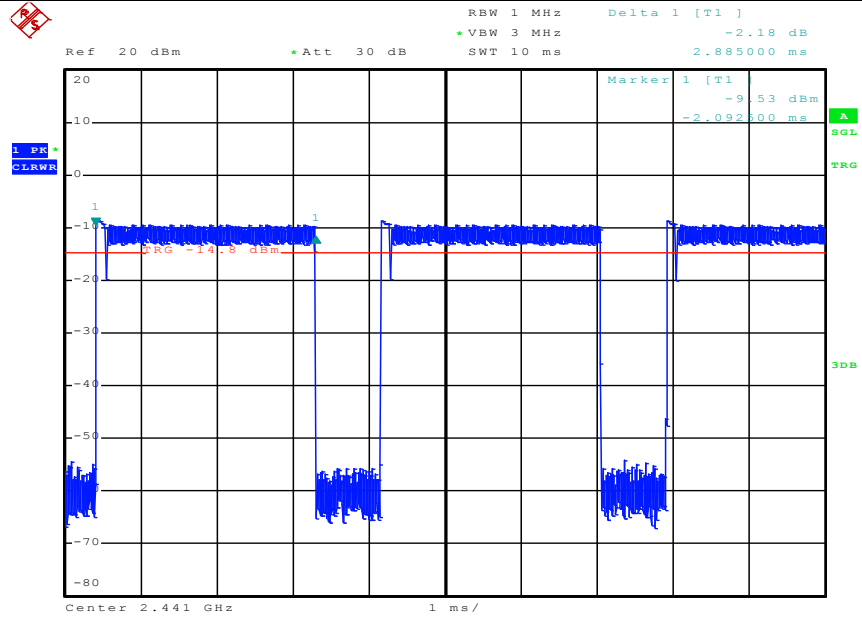
Date: 20.SEP.2019 15:31:04

8DPSK_3DH5/LCH



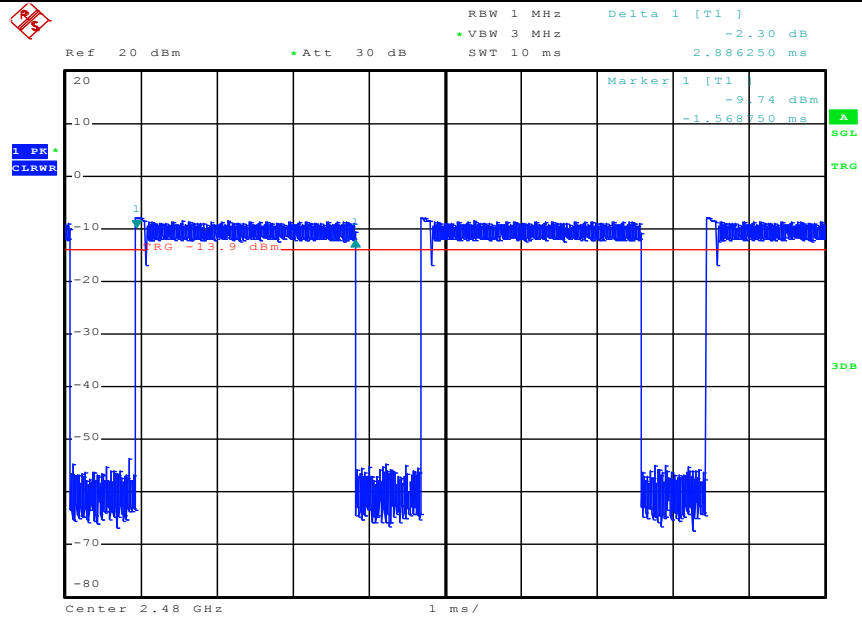
Date: 20.SEP.2019 15:33:42

8DPSK_3DH5/MCH



Date: 20.SEP.2019 15:36:14

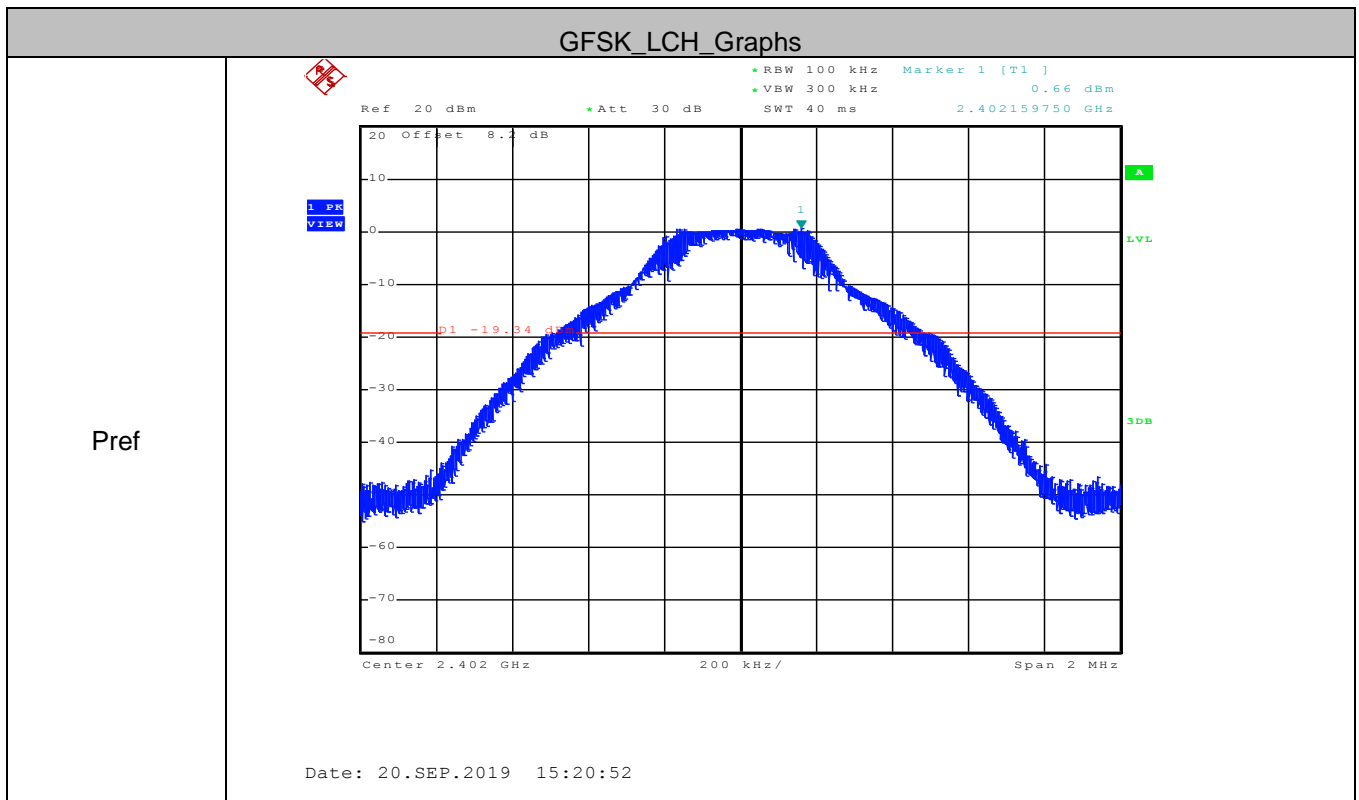
8DPSK_3DH5/HCH



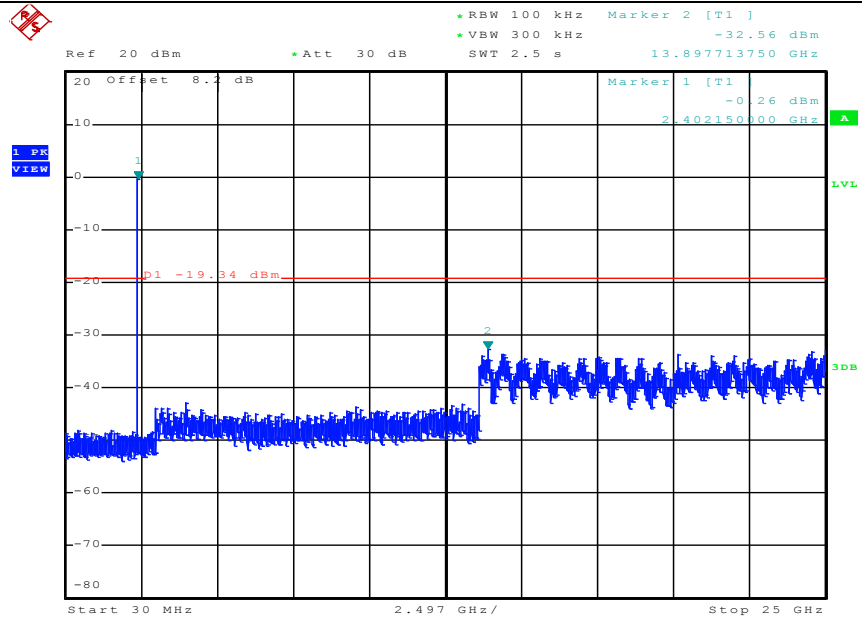
Date: 20.SEP.2019 15:37:54

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.66	-32.560	-19.340	PASS
	MCH	0.65	-31.940	-19.350	PASS
	HCH	0.69	-32.440	-19.310	PASS
$\pi/4$ DQPSK	LCH	-0.06	-32.050	-20.060	PASS
	MCH	-0.09	-32.460	-20.090	PASS
	HCH	0.66	-32.660	-19.340	PASS
8DPSK	LCH	0.13	-31.940	-19.870	PASS
	MCH	0.07	-33.080	-19.930	PASS
	HCH	0.81	-32.370	-19.190	PASS



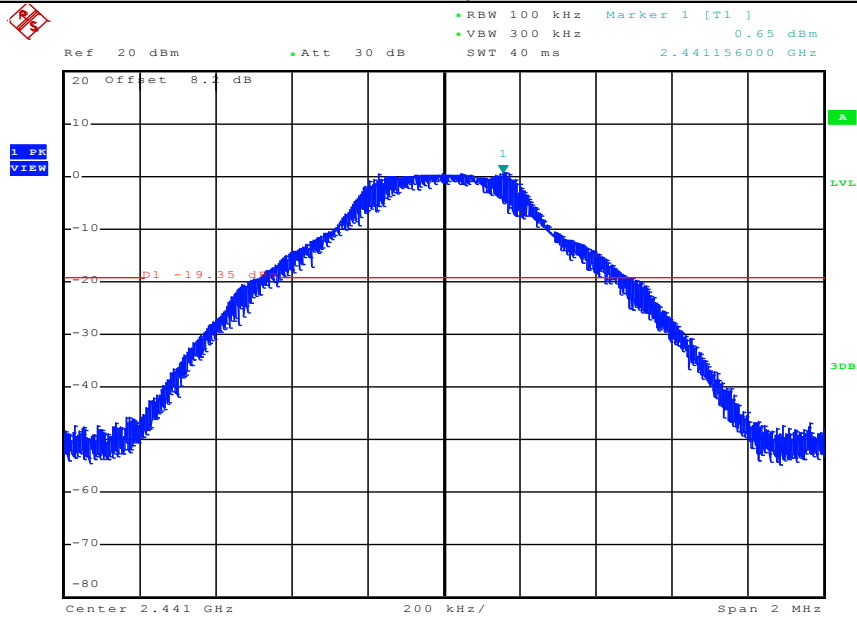
P_{uw}



Date: 20.SEP.2019 15:21:07

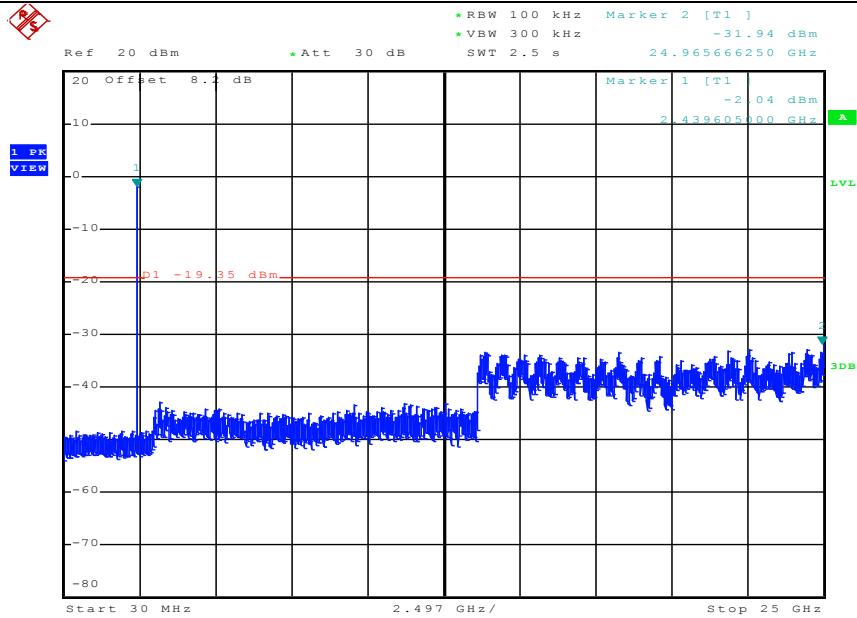
GFSK_MCH_Graphs

Pref



Date: 20.SEP.2019 15:23:03

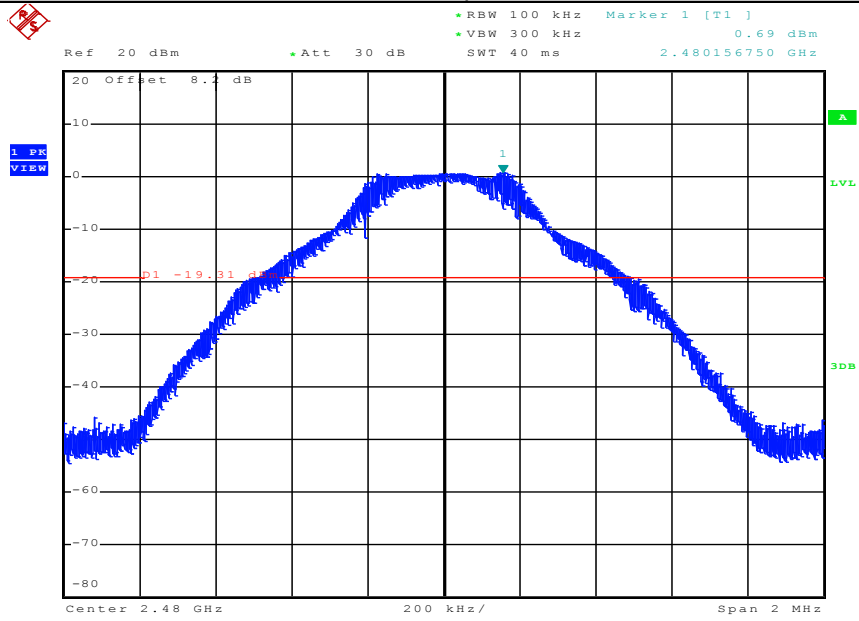
Puw



Date: 20.SEP.2019 15:23:17

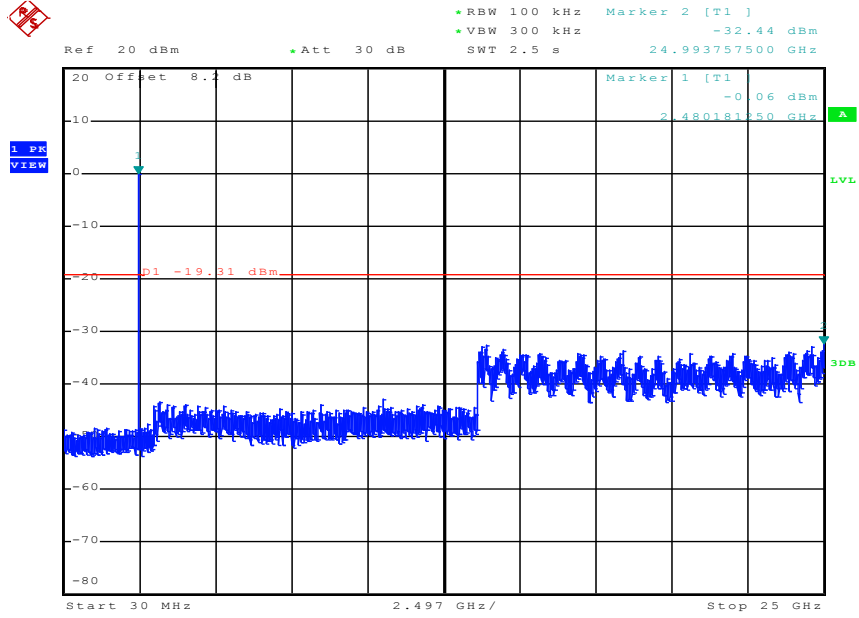
GFSK_HCH_Graphs

Pref



Date: 20.SEP.2019 15:25:00

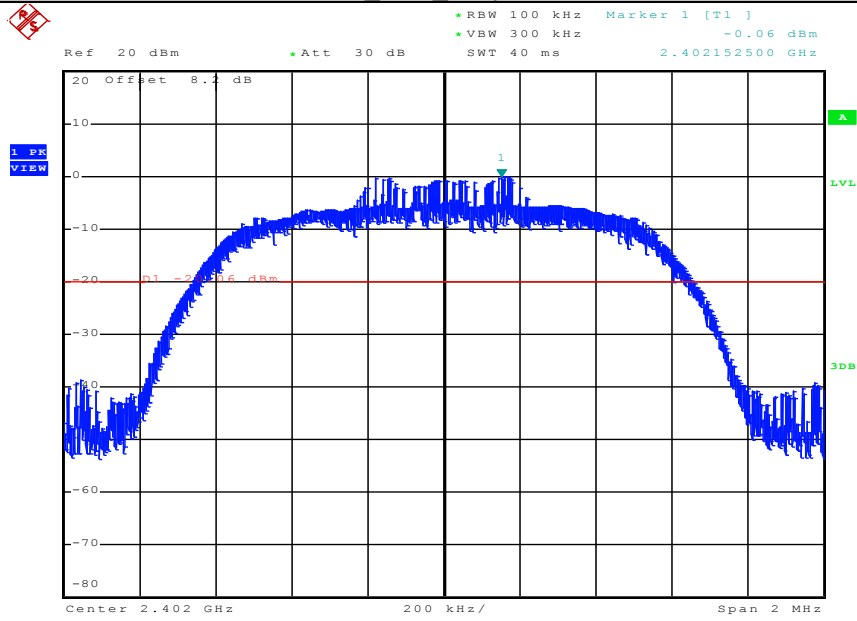
Puw



Date: 20.SEP.2019 15:25:14

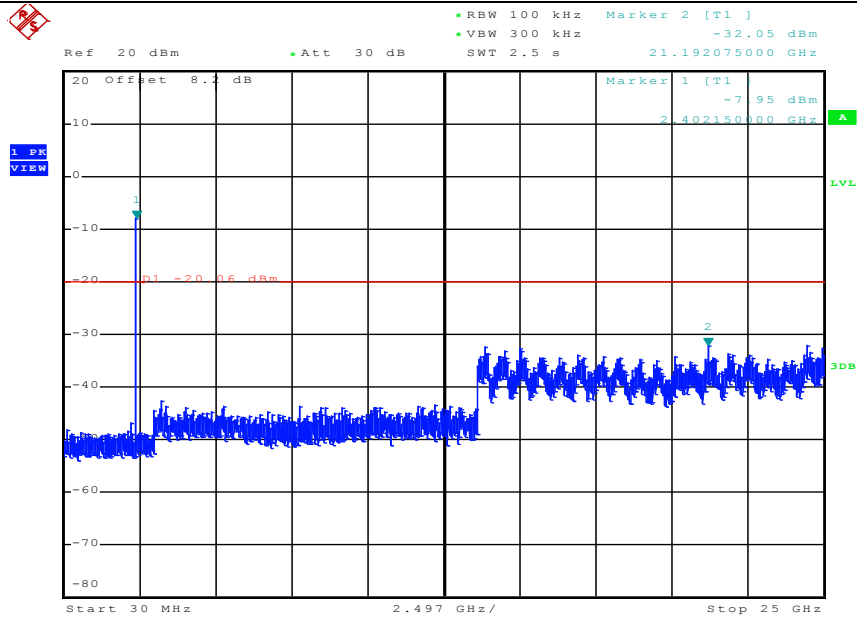
$\pi/4$ DQPSK_LCH_Graphs

Pref



Date: 20.SEP.2019 15:27:41

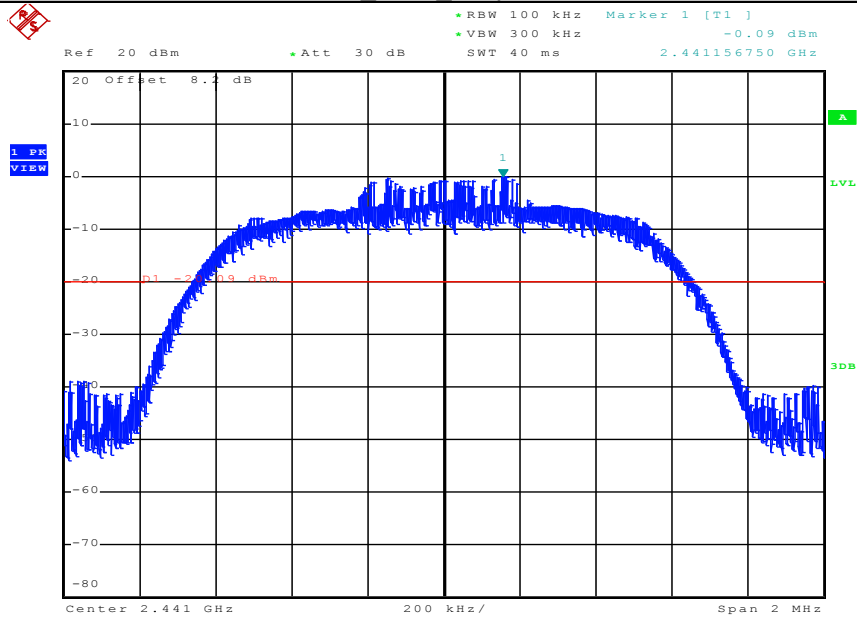
Puw



Date: 20.SEP.2019 15:27:55

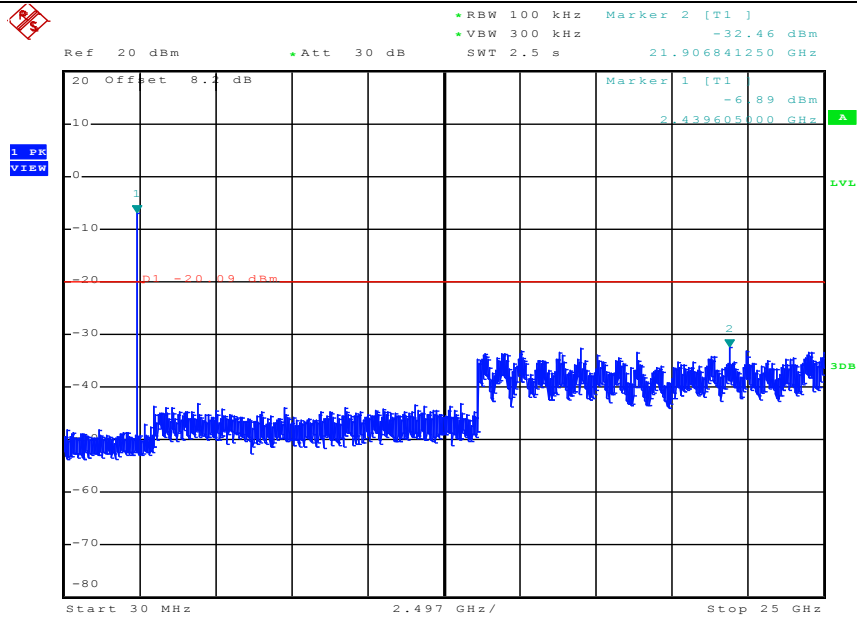
$\pi/4$ DQPSK_MCH_Graphs

Pref



Date: 20.SEP.2019 15:29:50

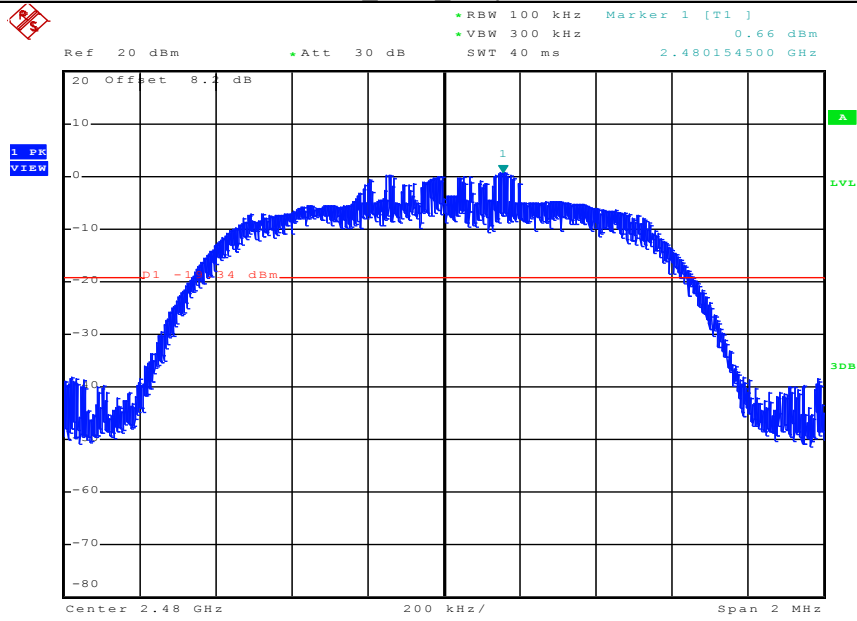
Puw



Date: 20.SEP.2019 15:30:05

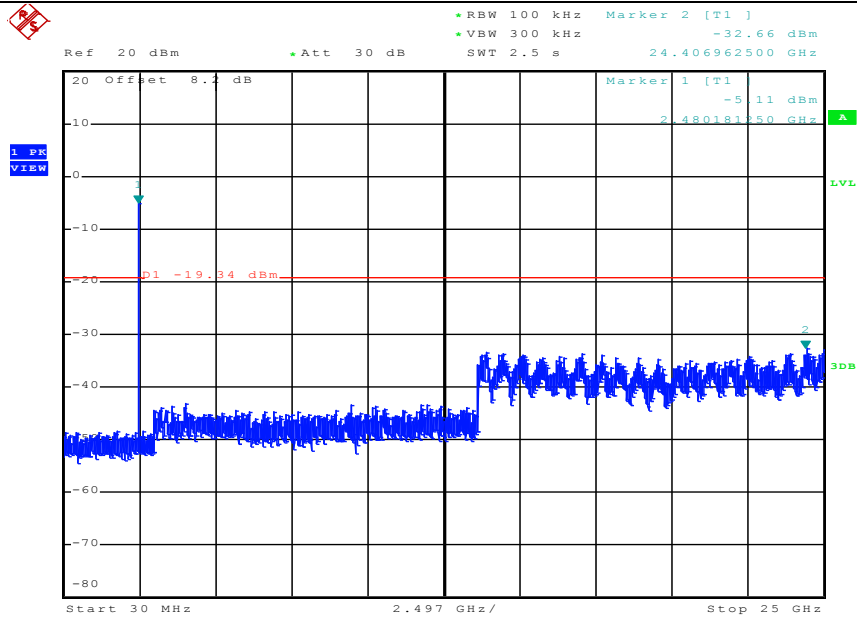
$\pi/4$ DQPSK_HCH_Graphs

Pref



Date: 20.SEP.2019 15:31:47

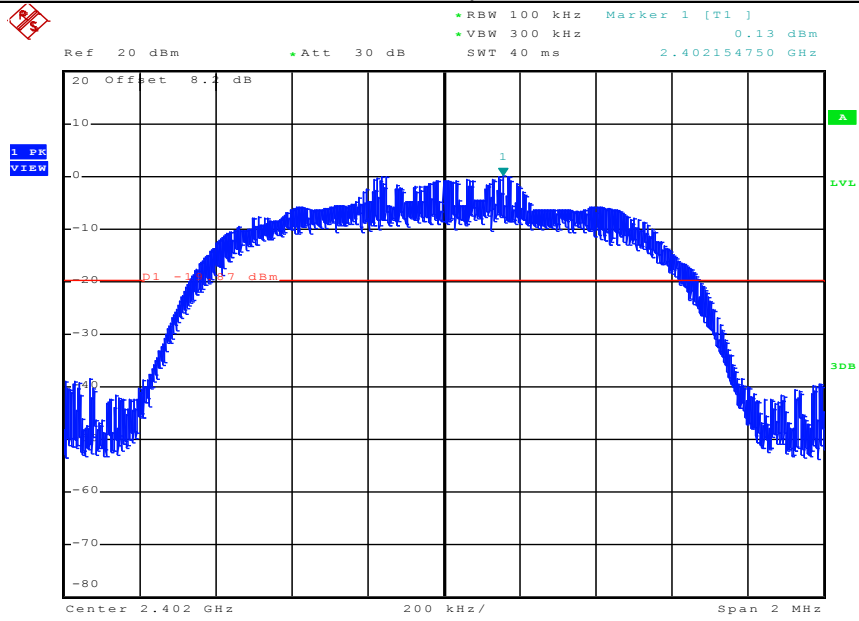
Puw



Date: 20.SEP.2019 15:32:02

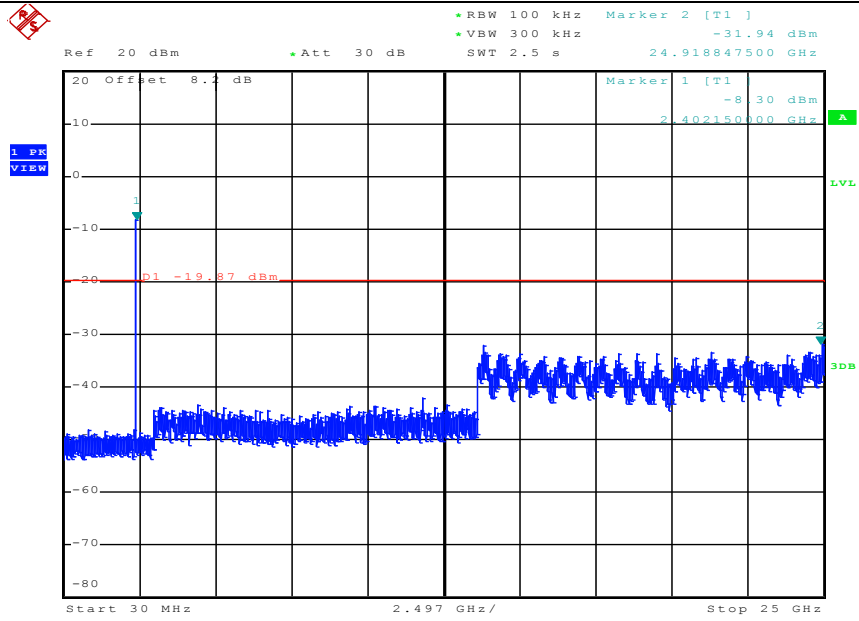
8DPSK_LCH_Graphs

Pref



Date: 20.SEP.2019 15:34:26

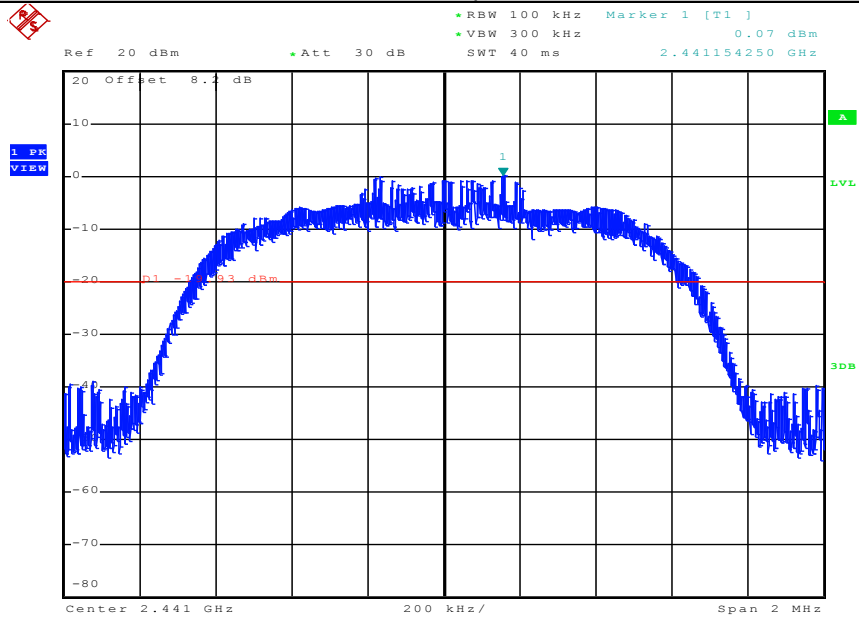
Puw



Date: 20.SEP.2019 15:34:41

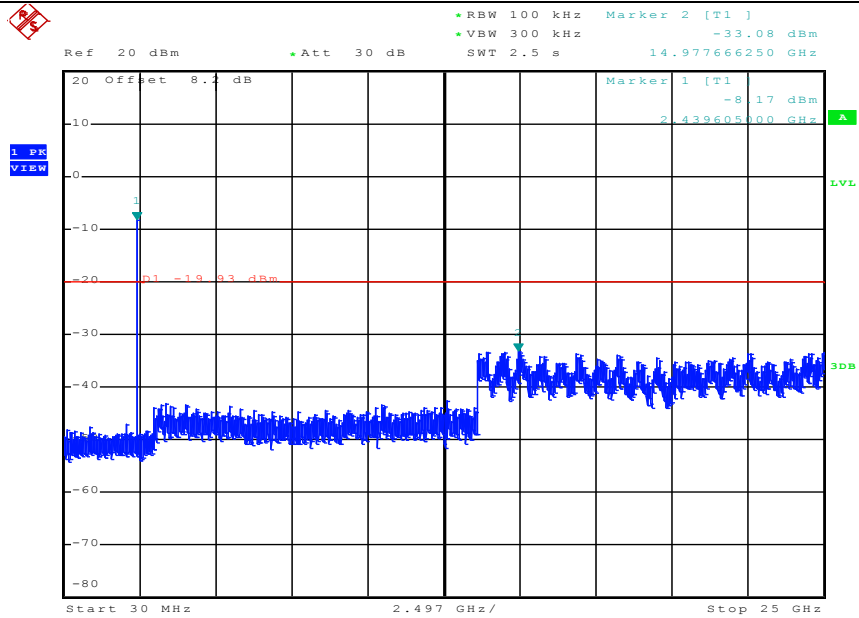
8DPSK_MCH_Graphs

Pref



Date: 20.SEP.2019 15:36:41

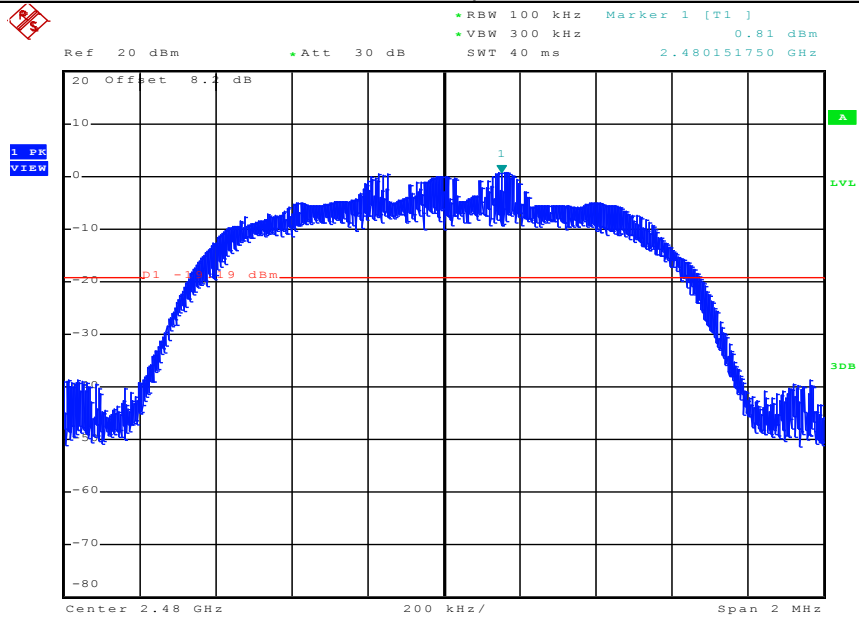
Puw



Date: 20.SEP.2019 15:36:56

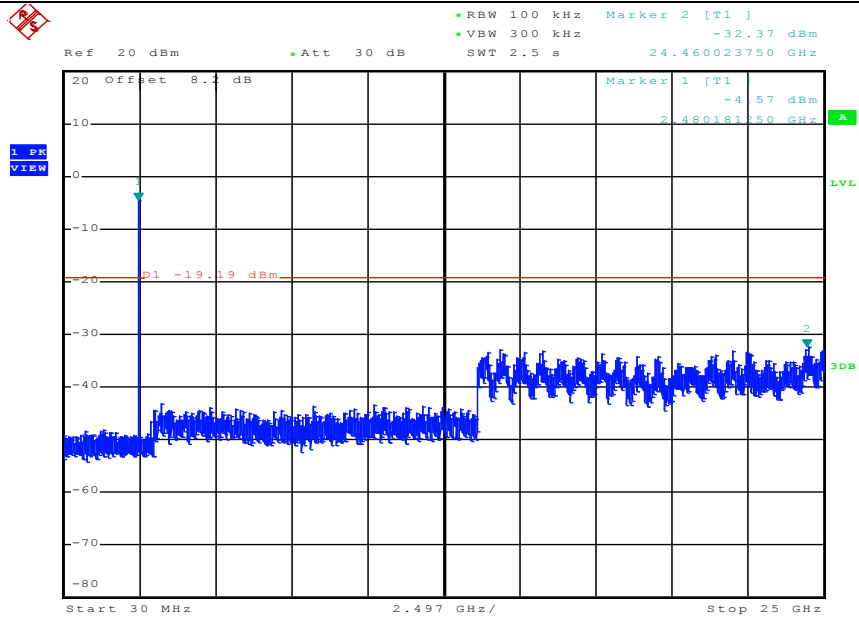
8DPSK_HCH_Graphs

Pref



Date: 20.SEP.2019 15:38:38

Puw



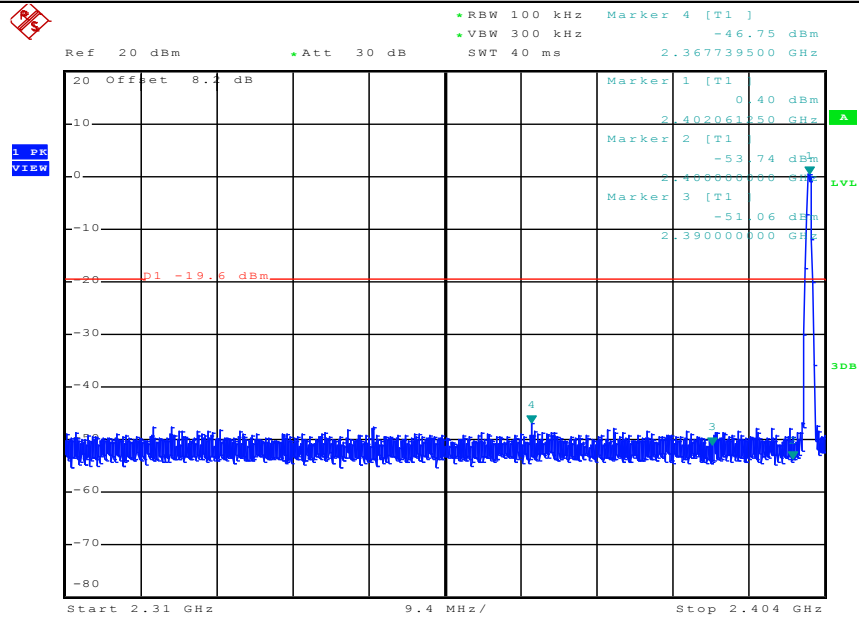
Date: 20.SEP.2019 15:38:52

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	0.400	Off	-46.752	-19.6	PASS
			6.580	On	-46.764	-13.42	PASS
	HCH	2480	0.410	Off	-47.359	-19.59	PASS
			6.300	On	-46.577	-13.7	PASS
π/4DQPSK	LCH	2402	-0.660	Off	-47.631	-20.66	PASS
			6.080	On	-46.865	-13.92	PASS
	HCH	2480	0.450	Off	-47.765	-19.55	PASS
			6.110	On	-46.294	-13.89	PASS
8DPSK	LCH	2402	0.050	Off	-47.463	-19.95	PASS
			5.970	On	-46.464	-14.03	PASS
	HCH	2480	0.730	Off	-46.997	-19.27	PASS
			6.450	On	-46.080	-13.55	PASS

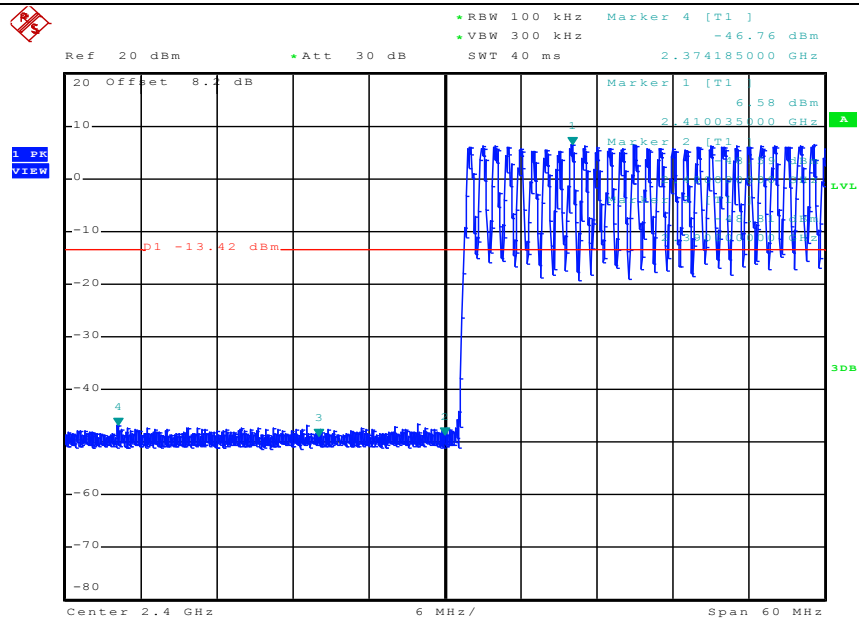
Test Graphs

GFSK/LCH/No Hop



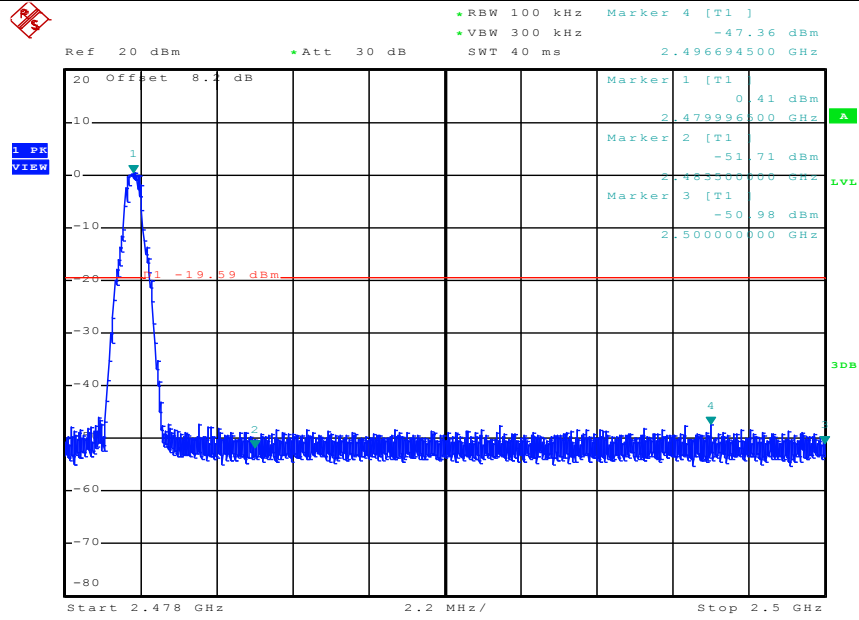
Date: 20.SEP.2019 15:20:39

GFSK/LCH/Hop



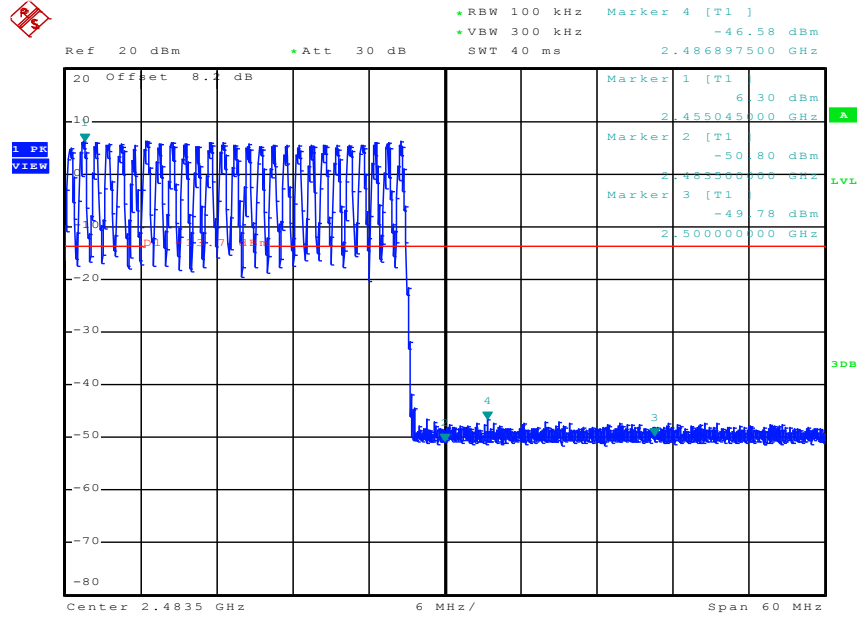
Date: 20.SEP.2019 14:40:52

GFSK/HCH/No Hop



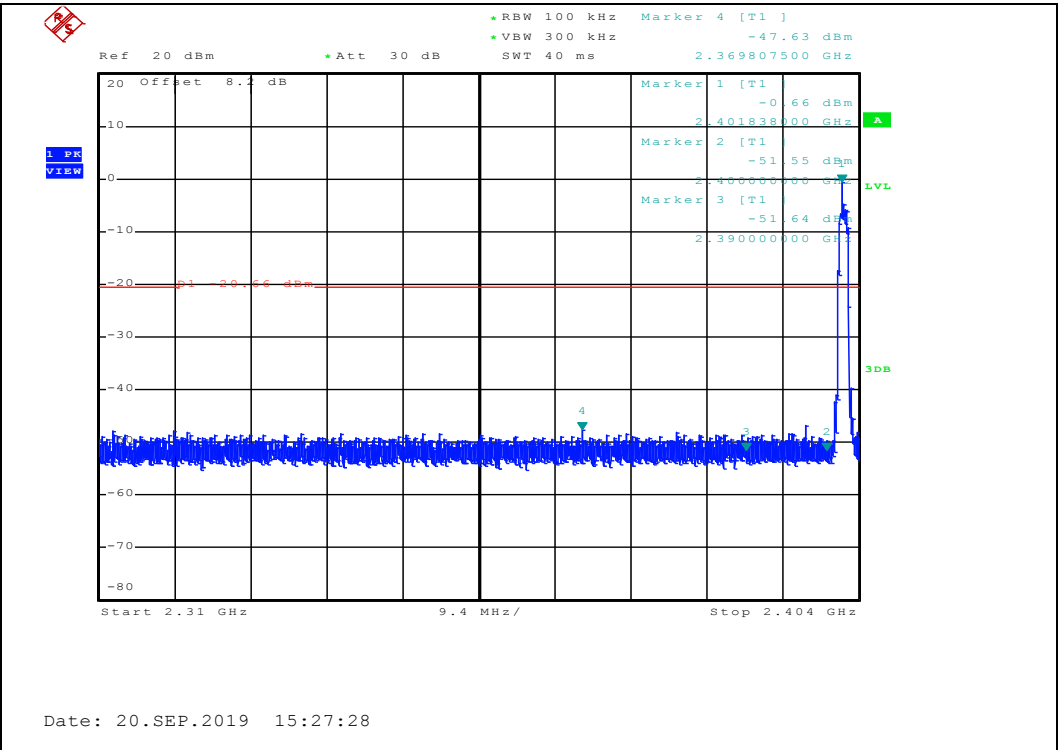
Date: 20.SEP.2019 15:24:47

GFSK/HCH/Hop

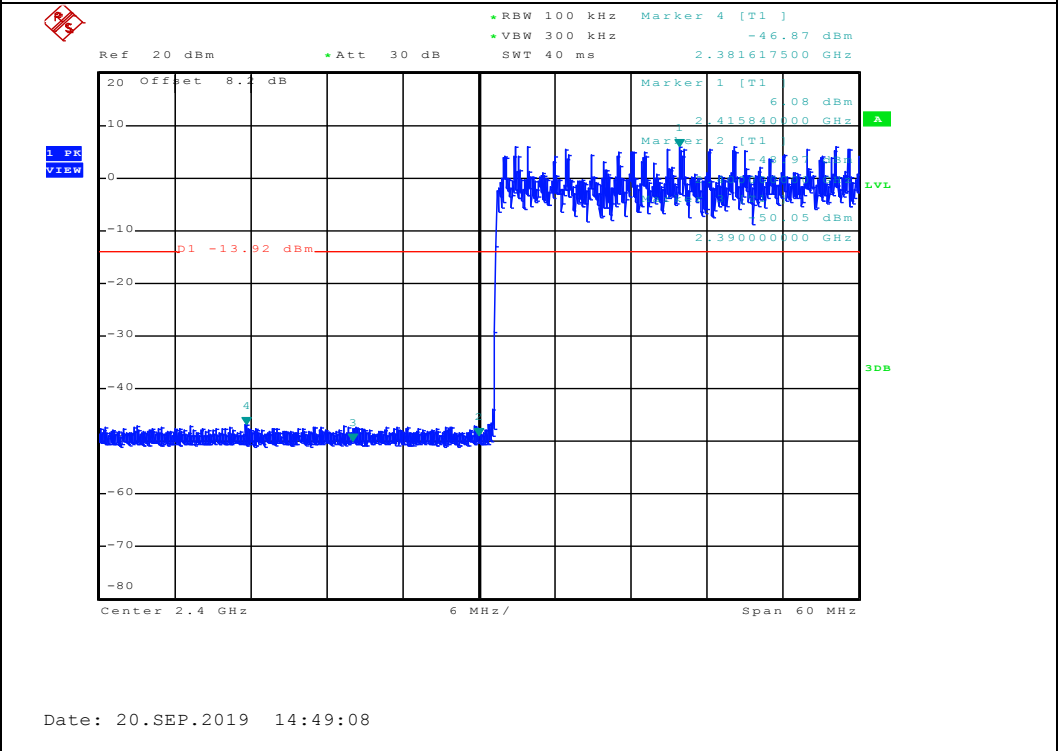


Date: 20.SEP.2019 14:43:41

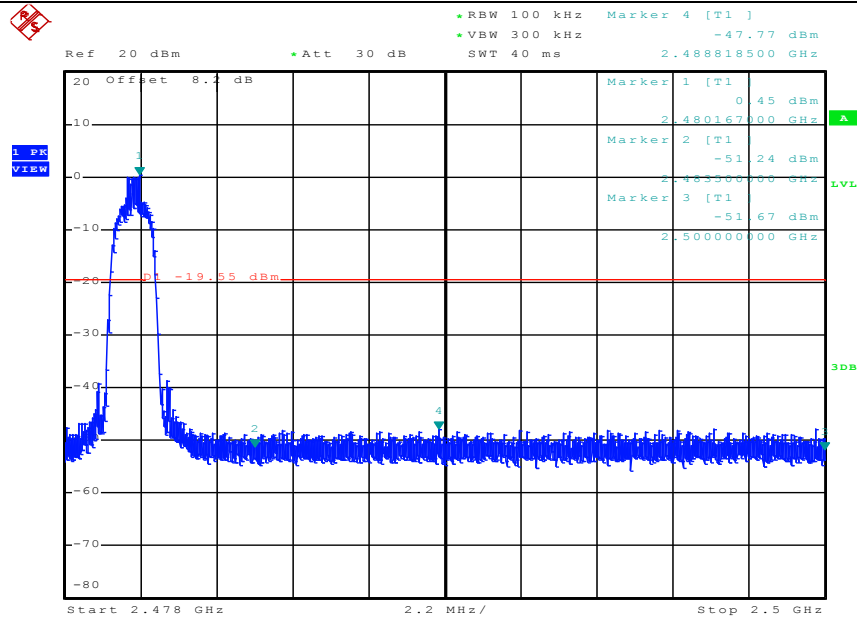
π /4DQPSK/LCH/No
Hop



π /4DQPSK/LCH/Hop

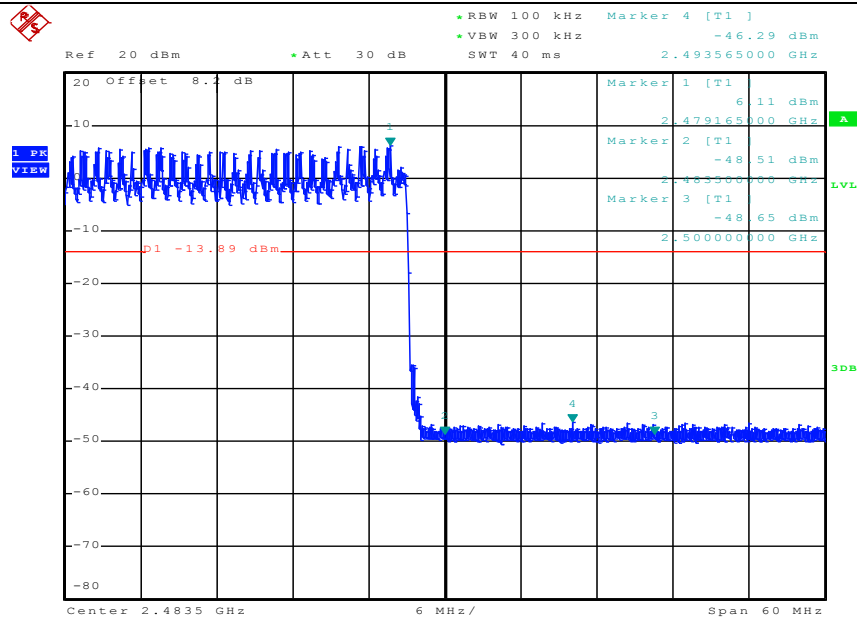


π /4DQPSK/HCH/No
Hop



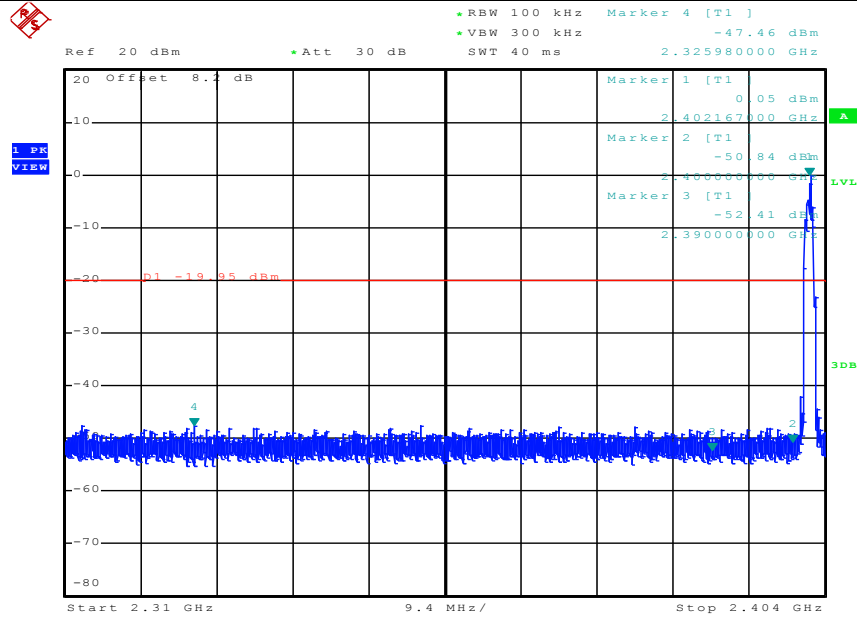
Date: 20.SEP.2019 15:31:35

π /4DQPSK/HCH/Hop



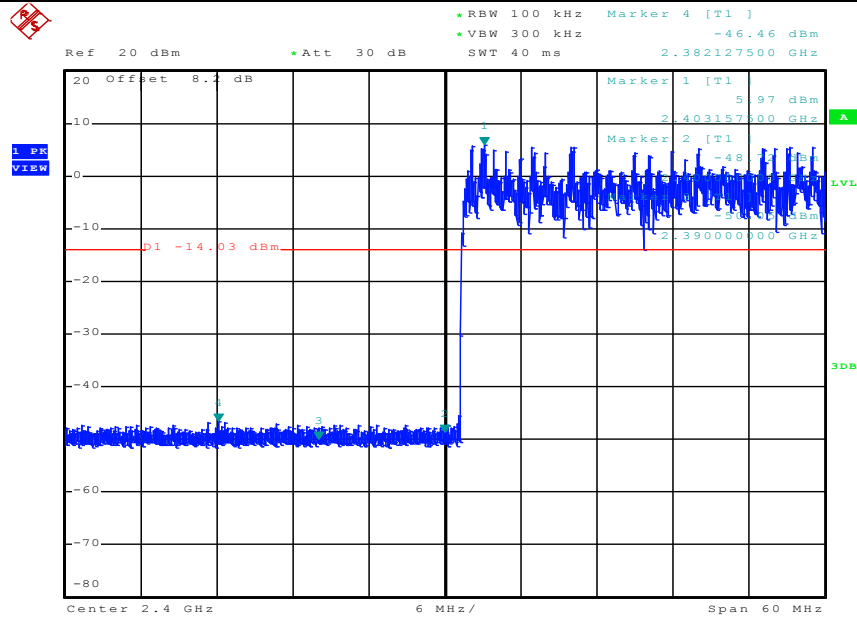
Date: 20.SEP.2019 15:00:47

8DPSK/LCH/No Hop



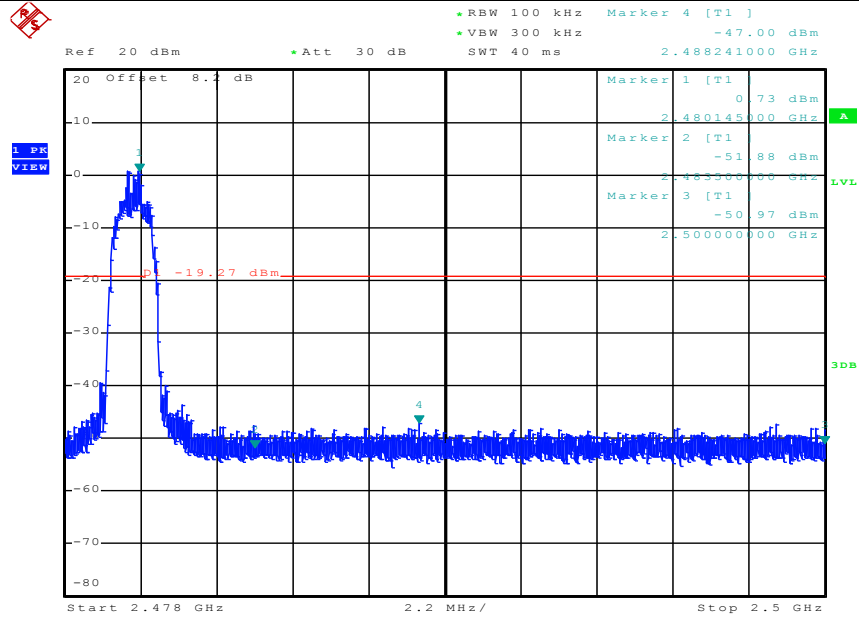
Date: 20.SEP.2019 15:34:13

8DPSK/LCH/Hop



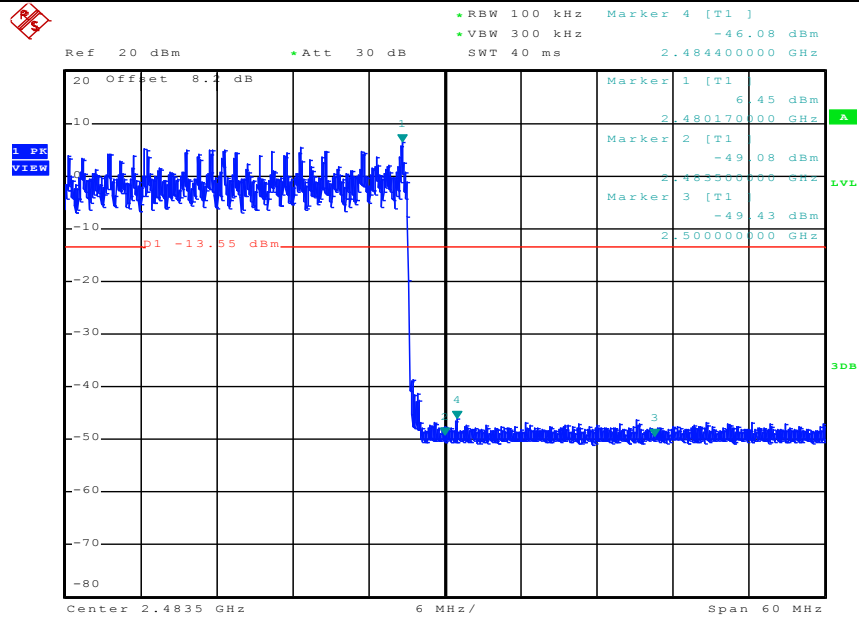
Date: 20.SEP.2019 15:05:17

8DPSK/HCH/No Hop



Date: 20.SEP.2019 15:38:25

8DPSK/HCH/Hop

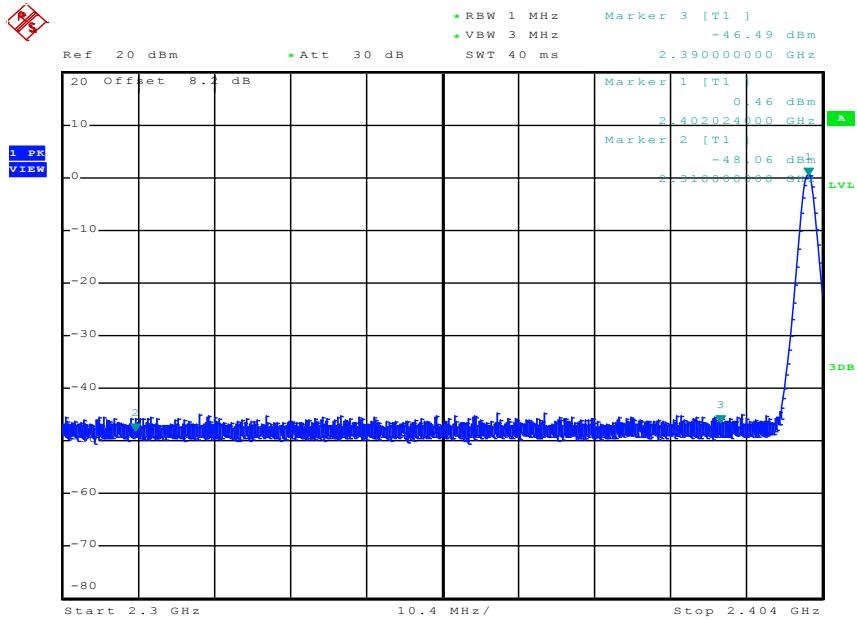


Date: 20.SEP.2019 15:16:20

A.8 Restrict-band band-edge measurements

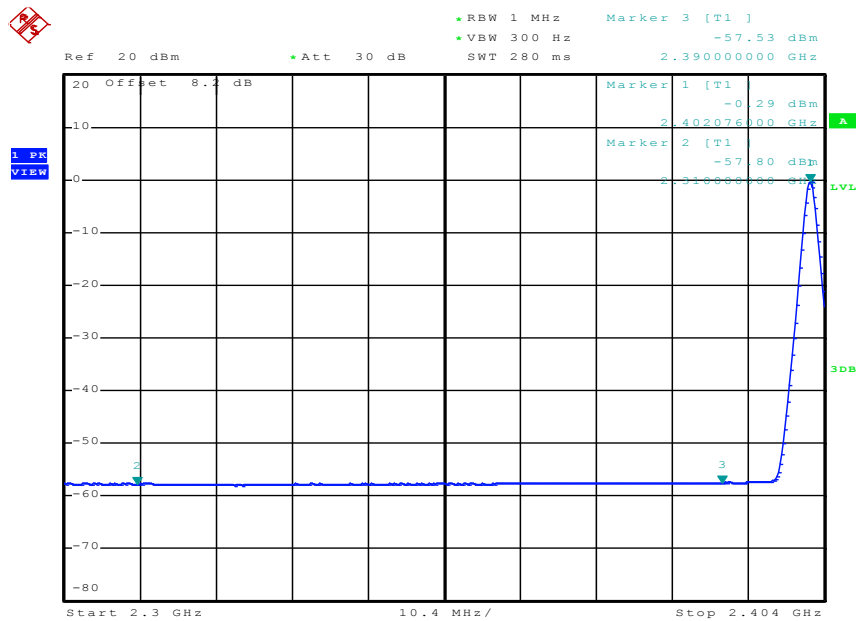
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-48.06	2.0	0	47.20	PEAK	74	PASS
	Off	2310.0	-57.80	2.0	0	37.46	AV	54	PASS
	Off	2390.0	-46.49	2.0	0	48.77	PEAK	74	PASS
	Off	2390.0	-57.53	2.0	0	37.73	AV	54	PASS
	Off	2483.5	-39.47	2.0	0	55.79	PEAK	74	PASS
	Off	2483.5	-42.58	2.0	0	52.68	AV	54	PASS
	Off	2500.0	-47.30	2.0	0	47.96	PEAK	74	PASS
	Off	2500.0	-58.09	2.0	0	37.17	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-48.38	2.0	0	46.88	PEAK	74	PASS
	Off	2310.0	-57.79	2.0	0	37.47	AV	54	PASS
	Off	2390.0	-48.15	2.0	0	47.11	PEAK	74	PASS
	Off	2390.0	-57.54	2.0	0	37.72	AV	54	PASS
	Off	2483.5	-39.35	2.0	0	55.91	PEAK	74	PASS
	Off	2483.5	-45.00	2.0	0	50.26	AV	54	PASS
	Off	2500.0	-47.08	2.0	0	48.18	PEAK	74	PASS
	Off	2500.0	-58.14	2.0	0	37.12	AV	54	PASS
8DPSK	Off	2310.0	-48.64	2.0	0	46.62	PEAK	74	PASS
	Off	2310.0	-57.81	2.0	0	37.45	AV	54	PASS
	Off	2390.0	-48.40	2.0	0	46.86	PEAK	74	PASS
	Off	2390.0	-57.50	2.0	0	37.76	AV	54	PASS
	Off	2483.5	-39.28	2.0	0	55.98	PEAK	74	PASS
	Off	2483.5	-44.96	2.0	0	50.30	AV	54	PASS
	Off	2500.0	-48.36	2.0	0	46.90	PEAK	74	PASS
	Off	2500.0	-58.10	2.0	0	37.16	AV	54	PASS

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



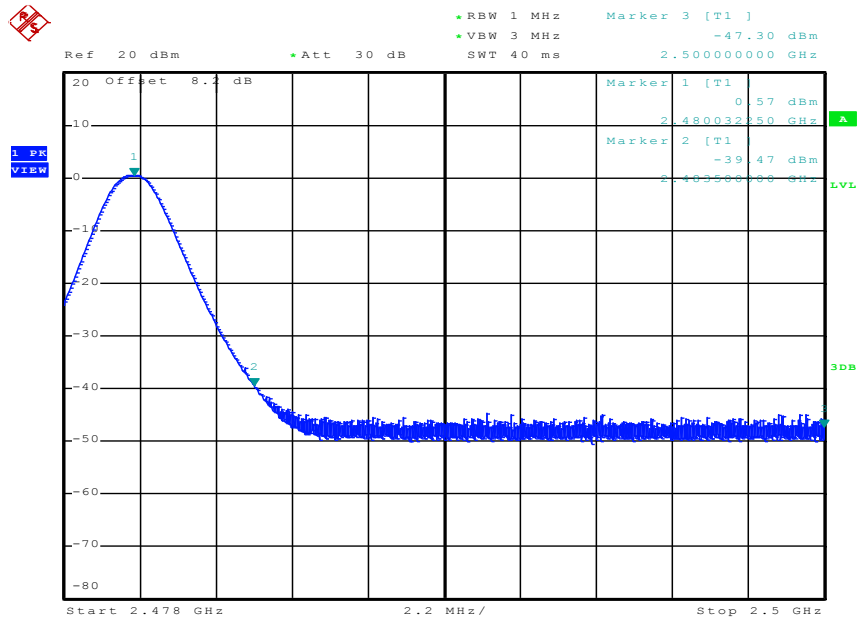
Date: 20.SEP.2019 15:21:25

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



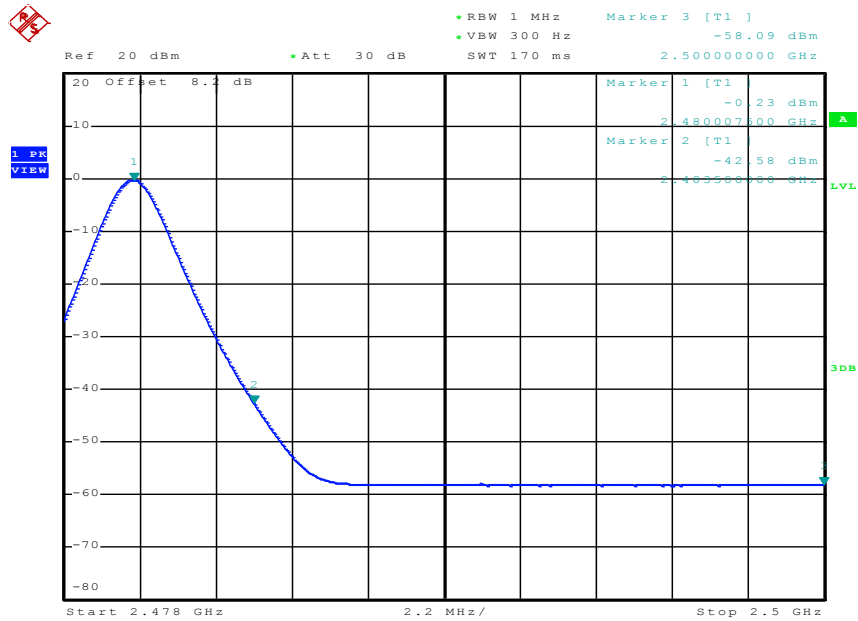
Date: 20.SEP.2019 15:21:38

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



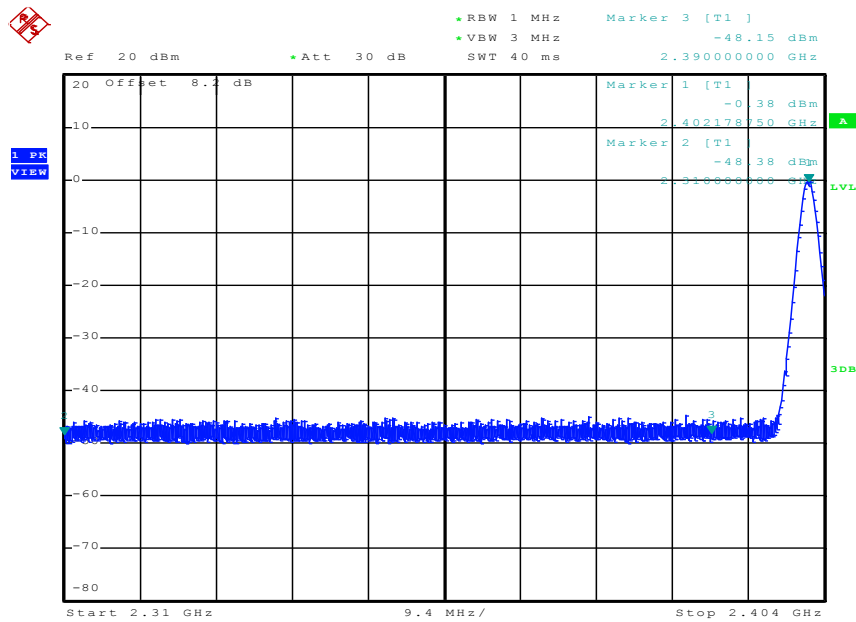
Date: 20.SEP.2019 15:25:33

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



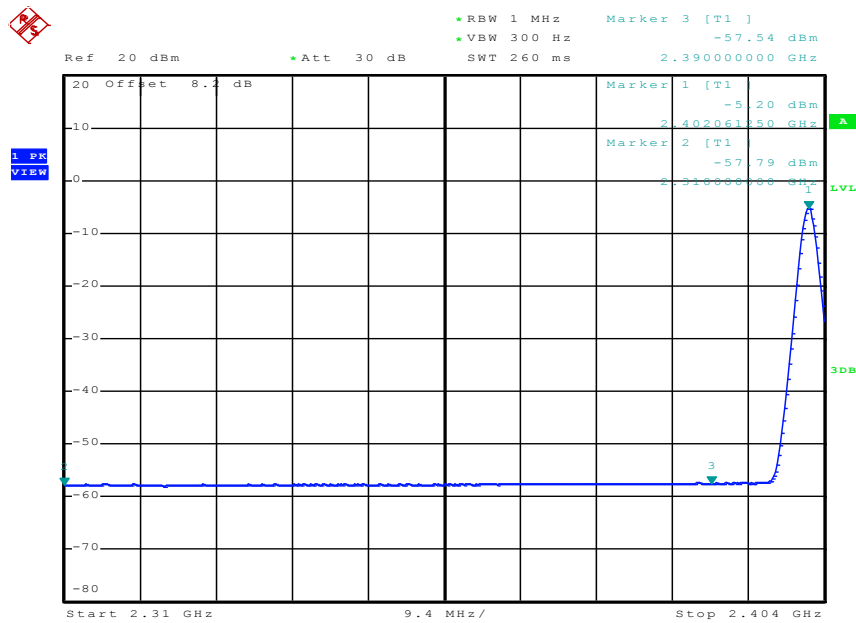
Date: 20.SEP.2019 15:25:46

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



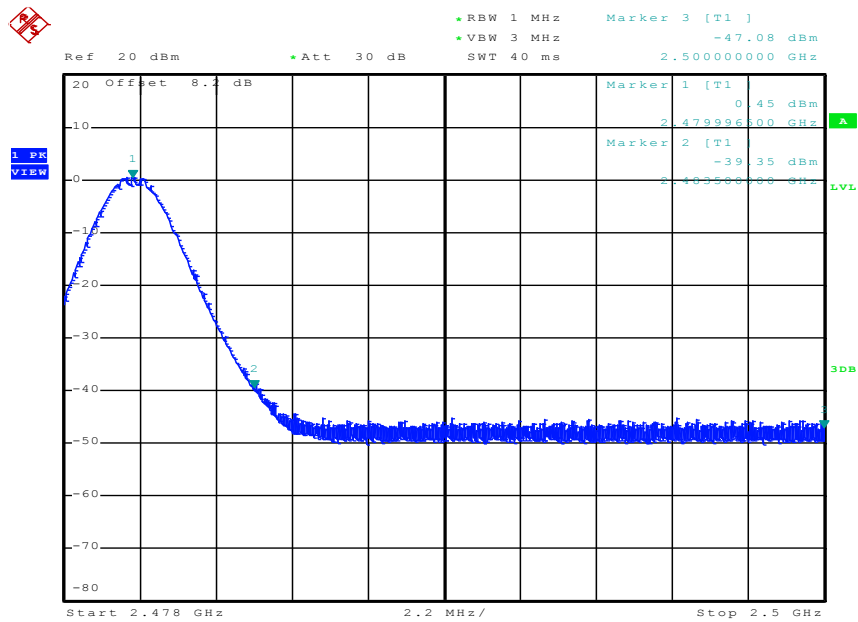
Date: 20.SEP.2019 15:28:14

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



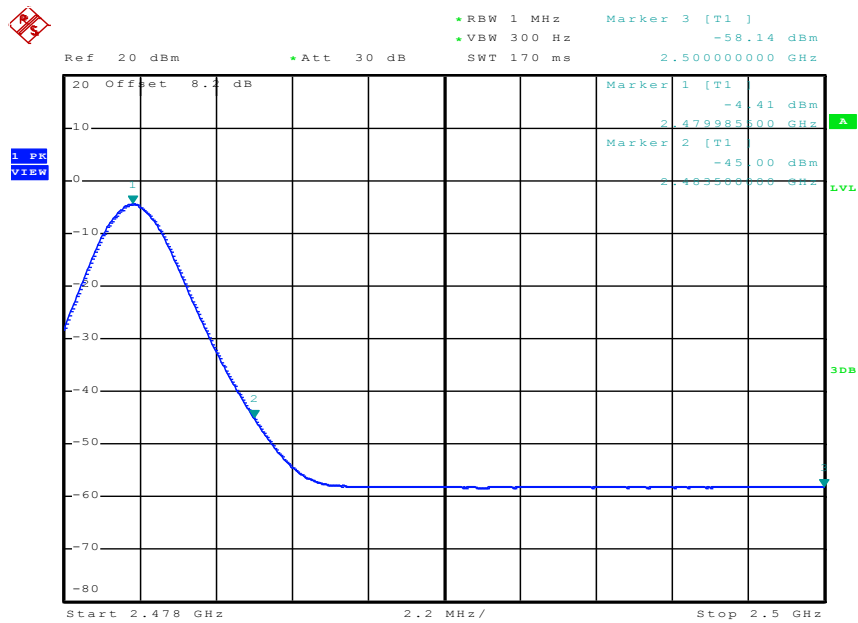
Date: 20.SEP.2019 15:28:27

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



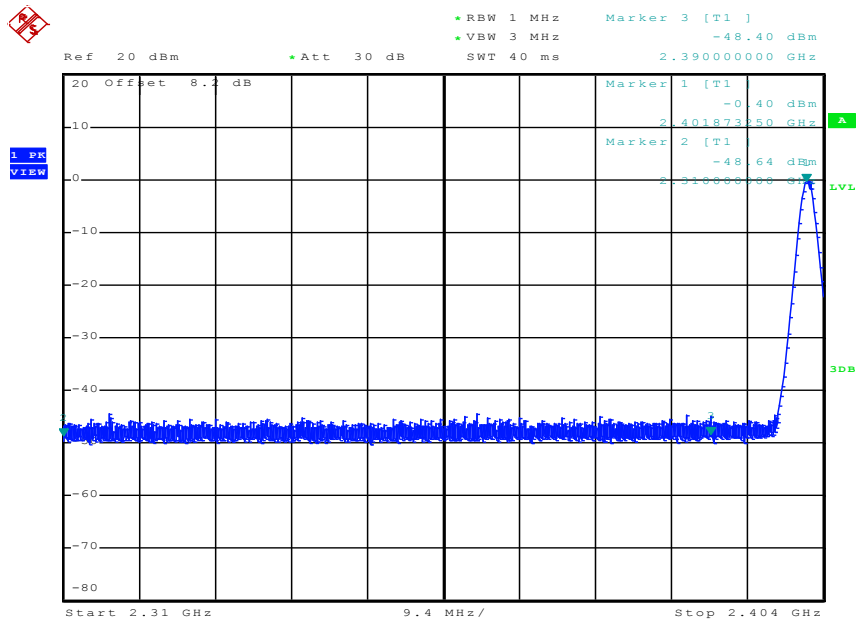
Date: 20.SEP.2019 15:32:21

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



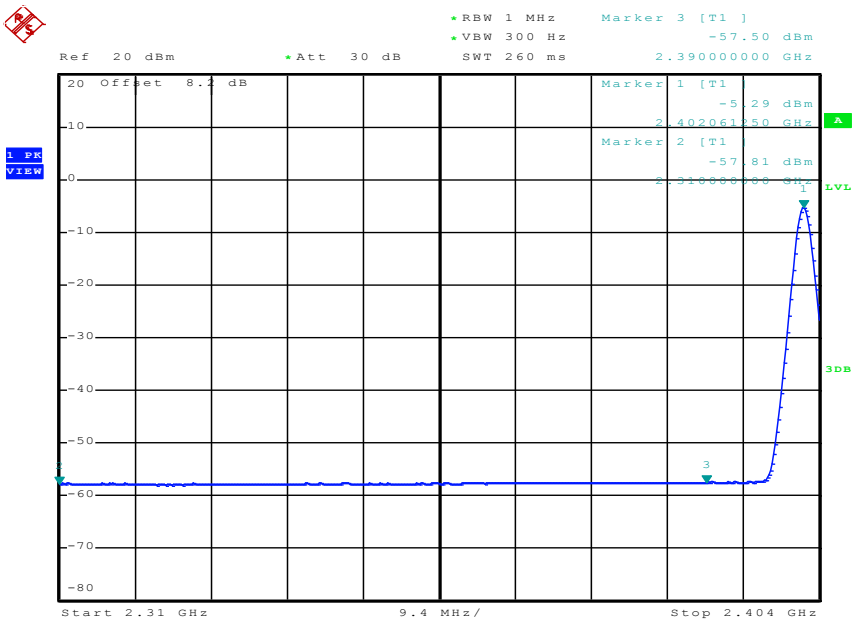
Date: 20.SEP.2019 15:32:33

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



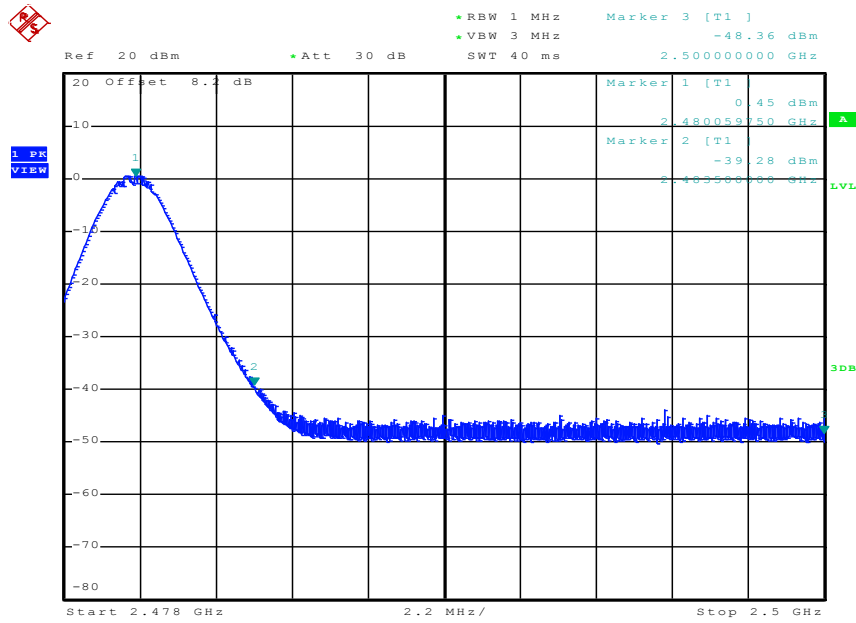
Date: 20.SEP.2019 15:35:00

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



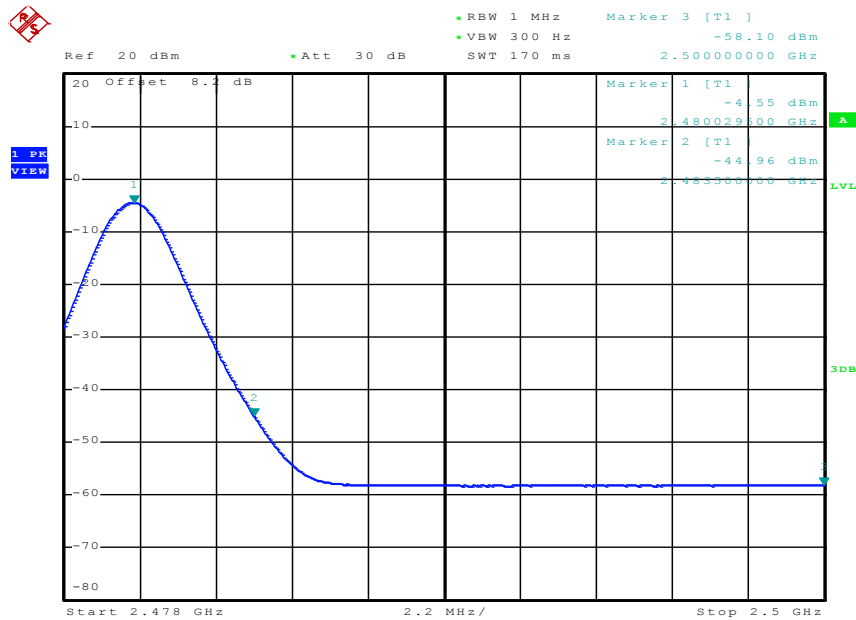
Date: 20.SEP.2019 15:35:13

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



Date: 20.SEP.2019 15:39:11

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



Date: 20.SEP.2019 15:39:24