

Appendix A

RF Test Data for BT V5.0 (BDR/EDR) (Conducted Measurement)

Product Name: Bluetooth Speaker with Wireless Charging

Trade Mark: N/A

Test Model: XO-9672

Environmental Conditions

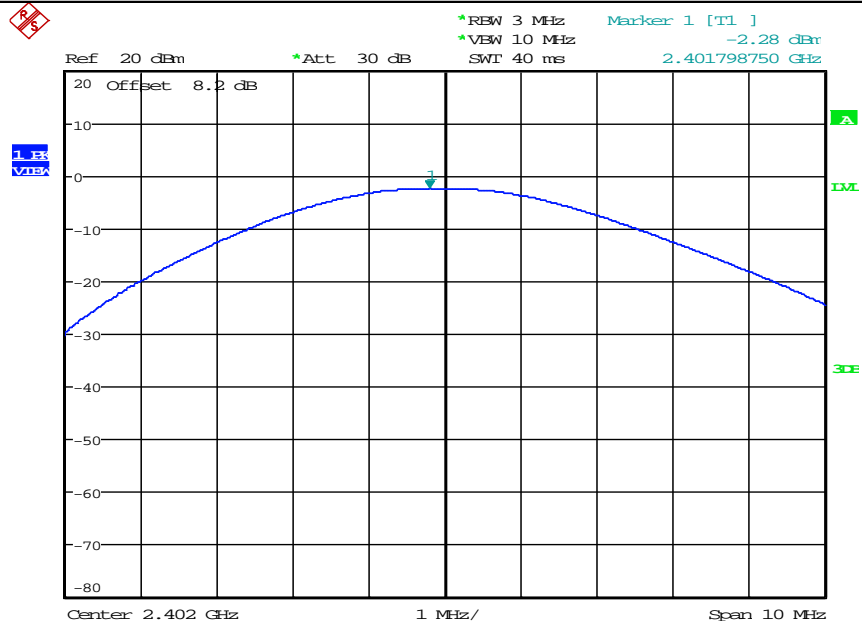
Temperature:	24.6 °C
Relative Humidity:	53.8%
ATM Pressure:	100.0 kPa
Test Engineer:	JERRY.ZENG
Supervised by:	Wang.Chuang

A.1 Maxmum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.280	21	PASS
	MCH	-3.160	21	PASS
	HCH	-4.660	21	PASS
$\pi/4$ DQPSK	LCH	-0.140	21	PASS
	MCH	-1.120	21	PASS
	HCH	-2.620	21	PASS
8DPSK	LCH	0.410	21	PASS
	MCH	-0.570	21	PASS
	HCH	-2.040	21	PASS

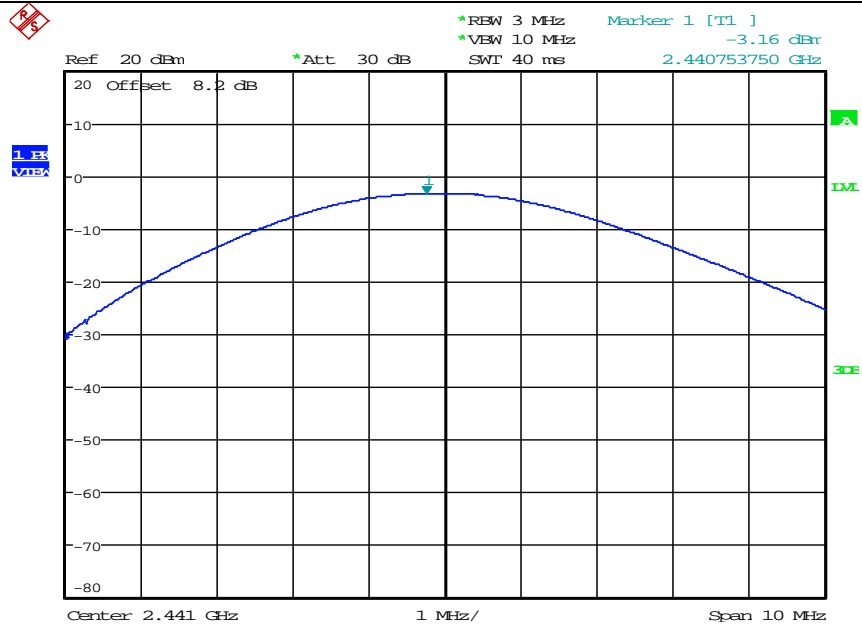
Test Graphs

GFSK/LCH



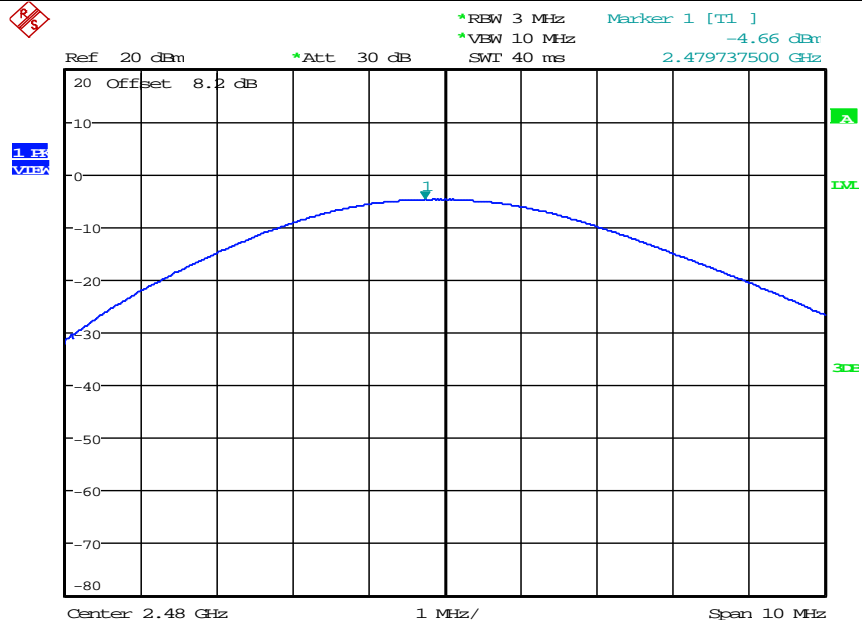
Date: 12.AUG.2019 20:04:42

GFSK/MCH



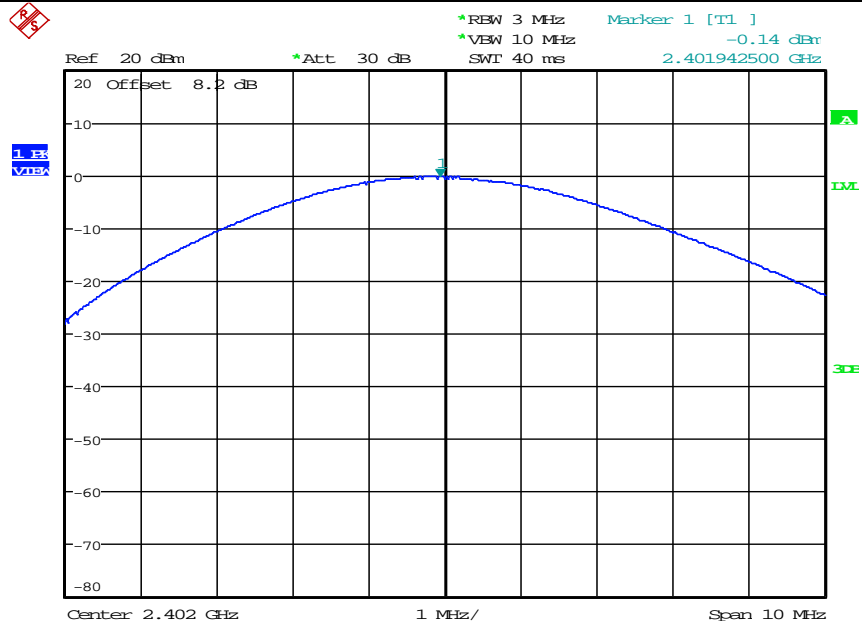
Date: 12.AUG.2019 20:07:17

GFSK/HCH



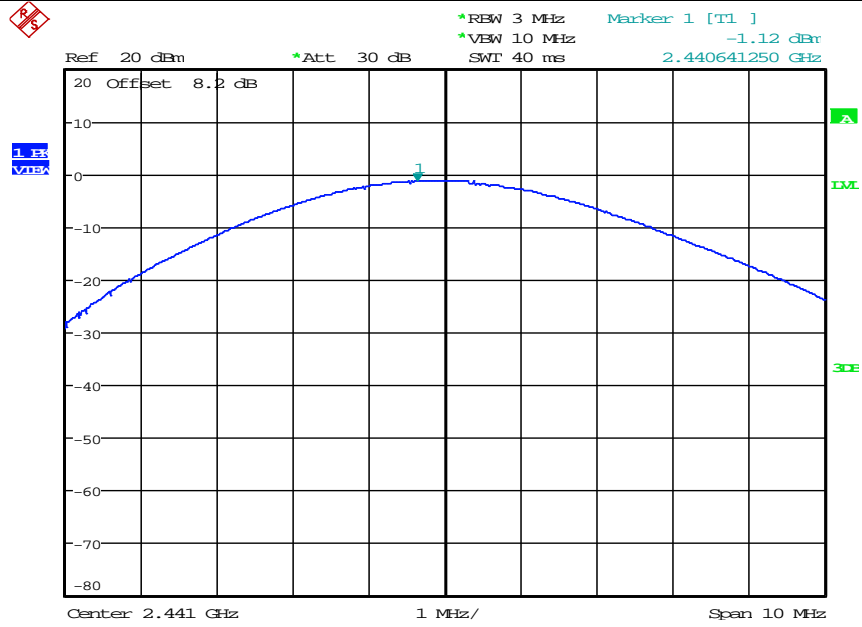
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$\pi/4$ DQPSK/LCH



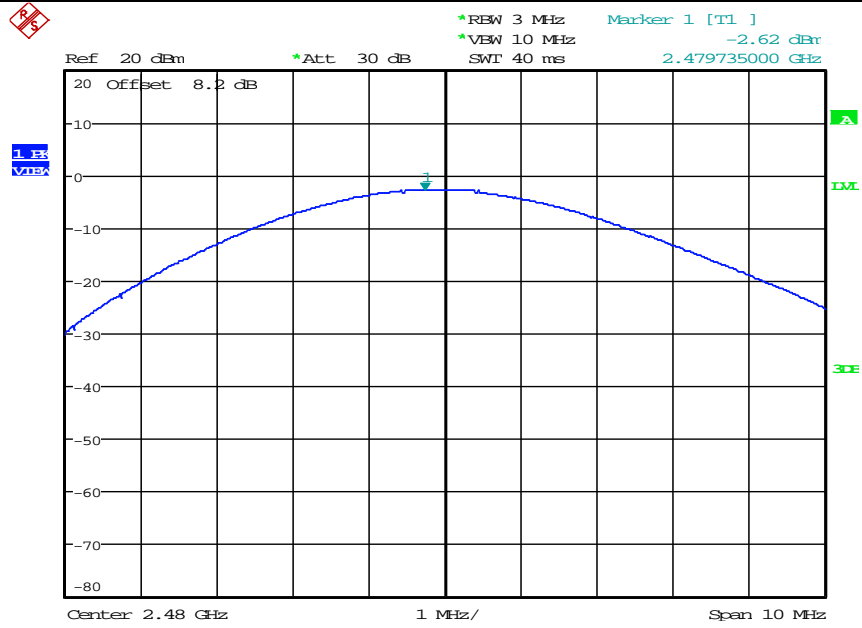
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$\pi/4$ DQPSK/MCH



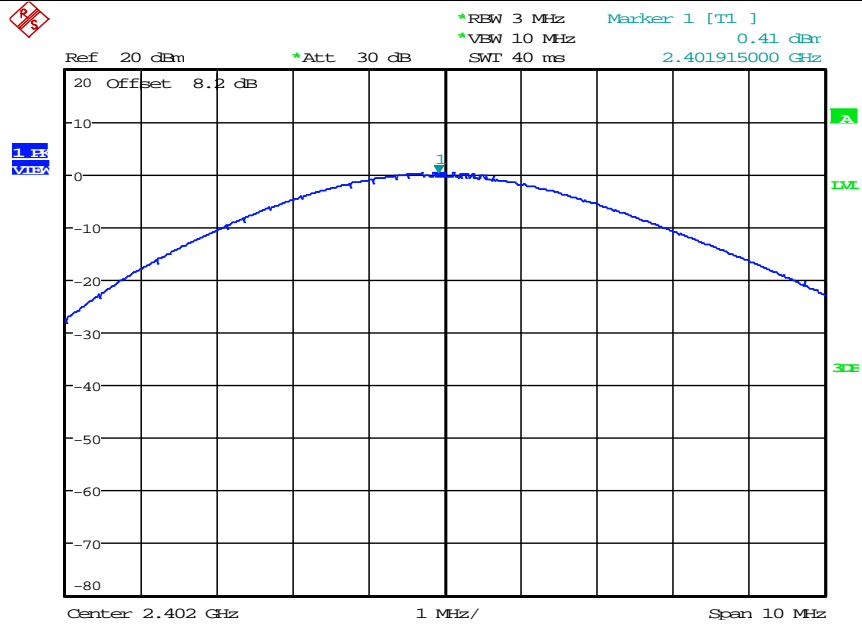
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$\pi/4$ DQPSK/HCH



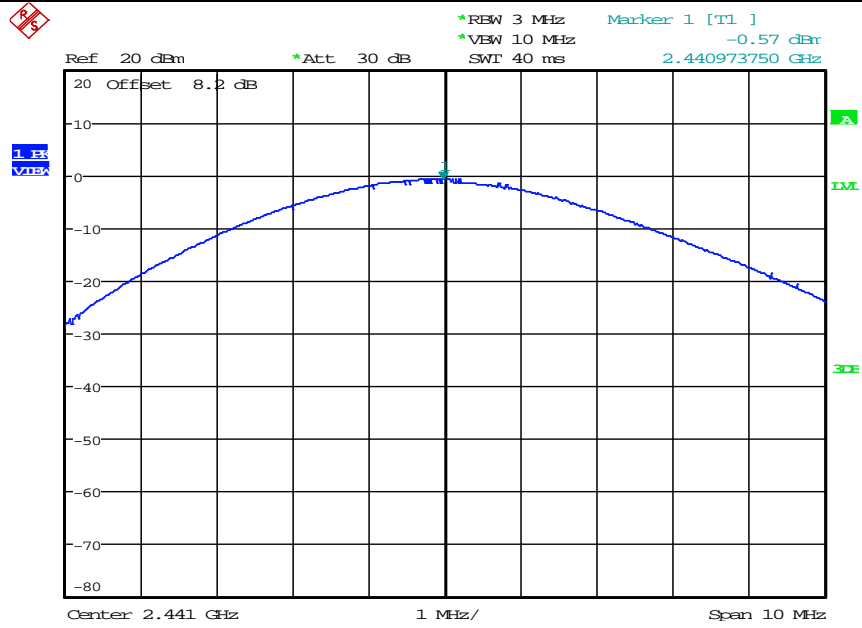
Date: 12.AUG.2019 20:16:47

8DPSK/LCH



Date: 12.AUG.2019 20:19:31

8DPSK/MCH

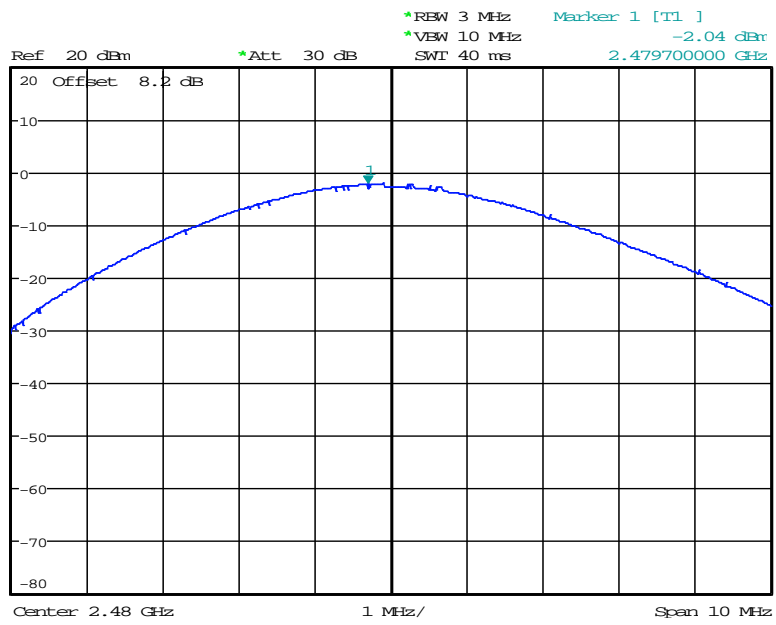


Date: 12.AUG.2019 20:22:10

8DPSK/HCH



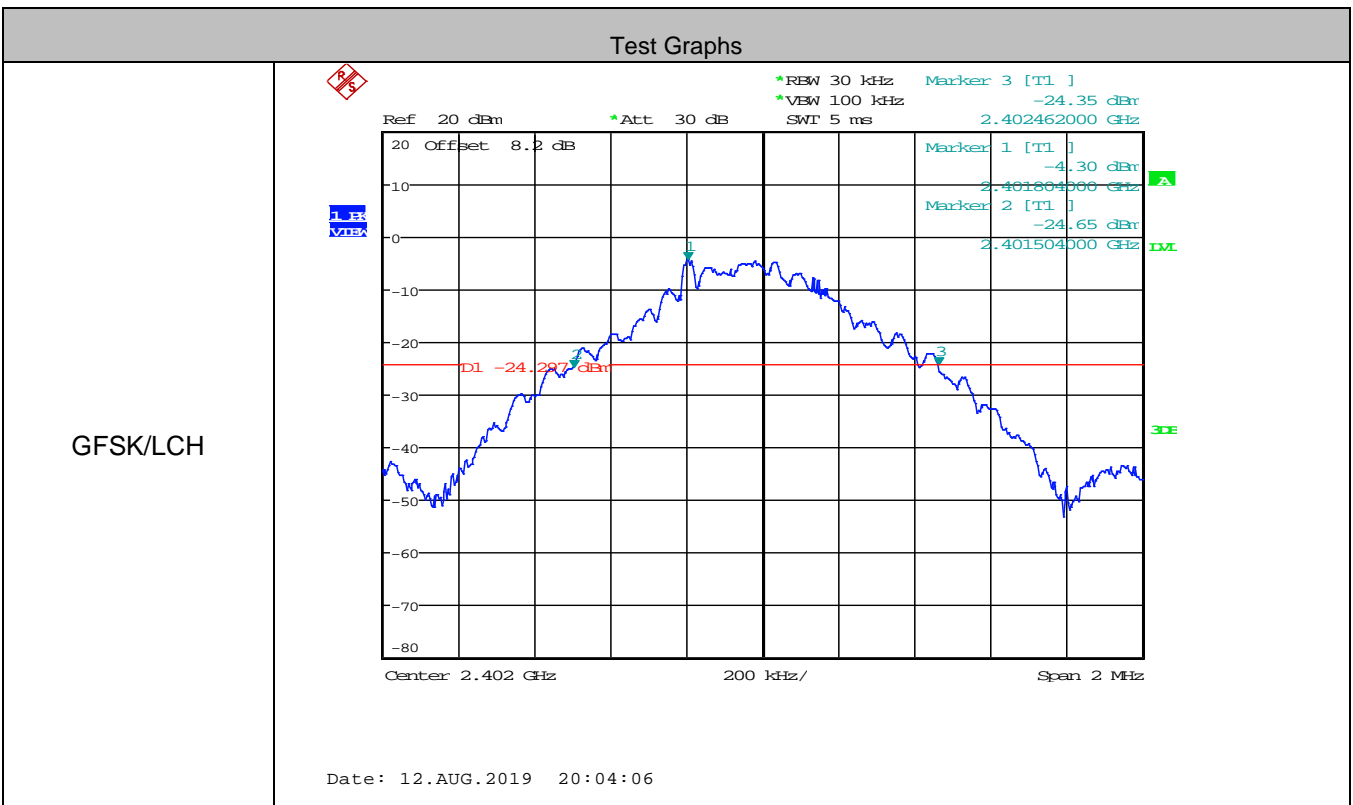
1.18
VIEW



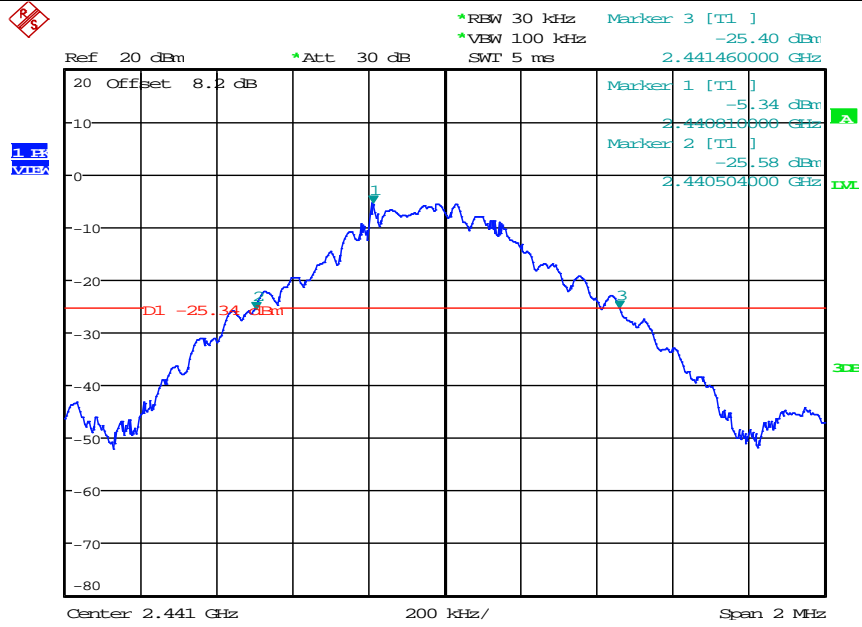
Date: 12.AUG.2019 20:23:55

A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.958	Not Specified	PASS
	MCH	0.956	Not Specified	PASS
	HCH	0.960	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.280	Not Specified	PASS
	MCH	1.282	Not Specified	PASS
	HCH	1.284	Not Specified	PASS
8DPSK	LCH	1.296	Not Specified	PASS
	MCH	1.294	Not Specified	PASS
	HCH	1.294	Not Specified	PASS

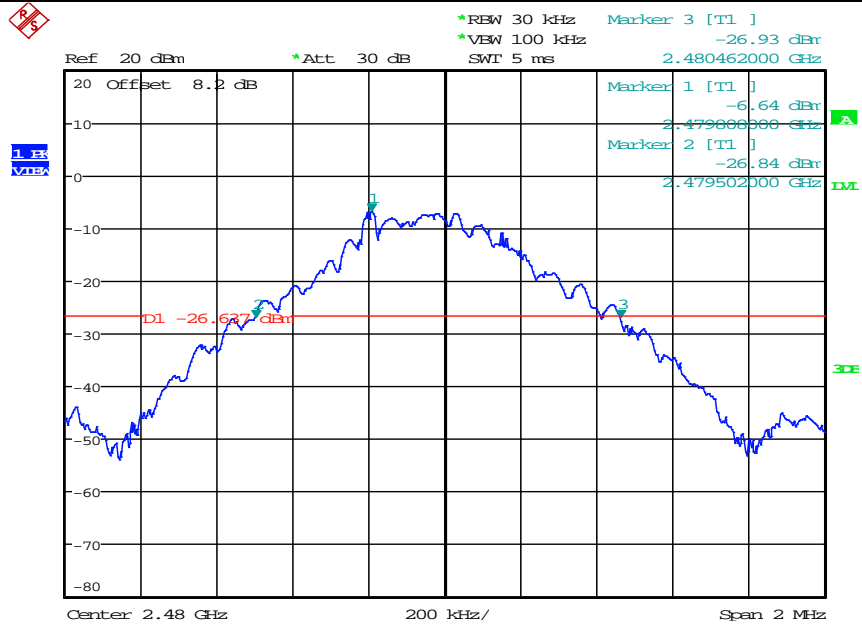


GFSK/MCH



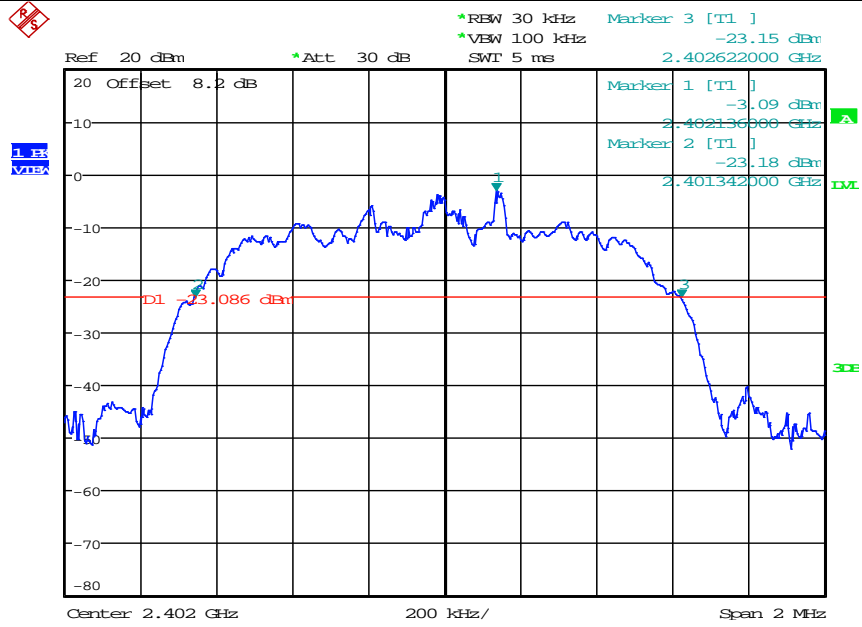
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GFSK/HCH



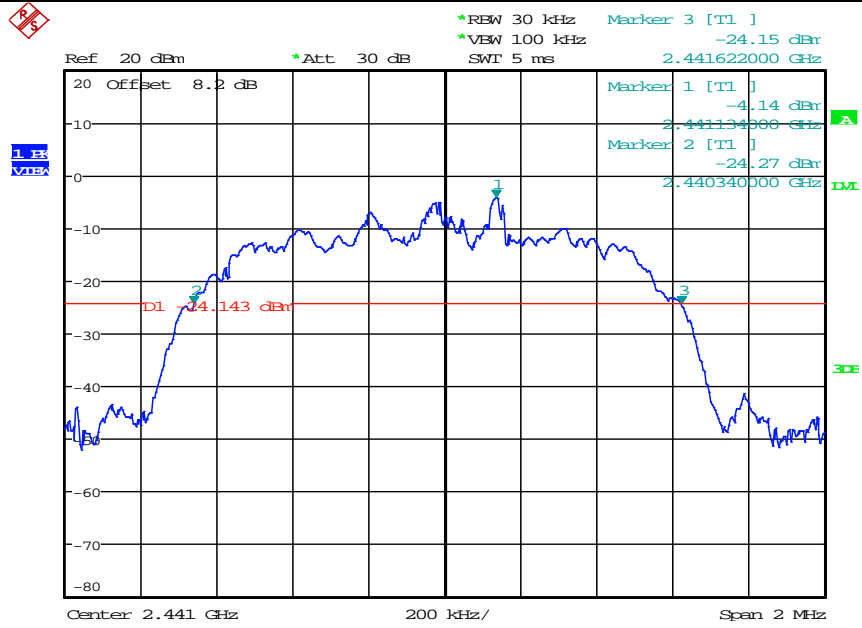
Date: 12.AUG.2019 20:08:27

$\pi/4$ DQPSK/LCH



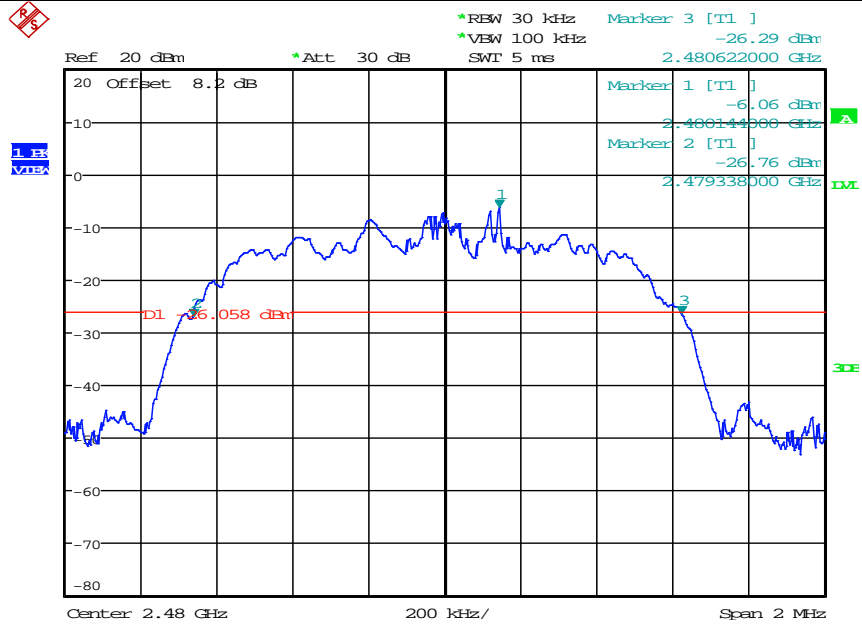
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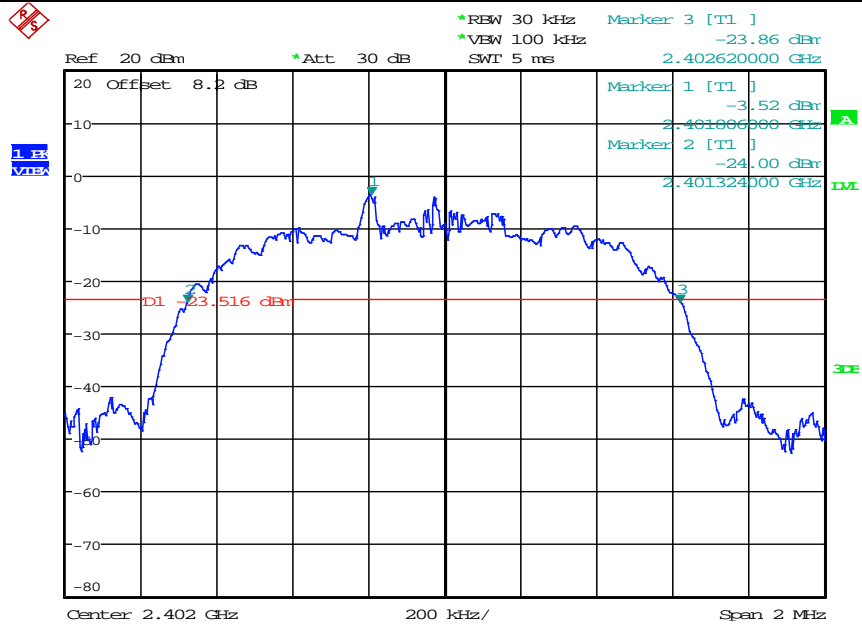
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$\pi/4$ DQPSK/HCH



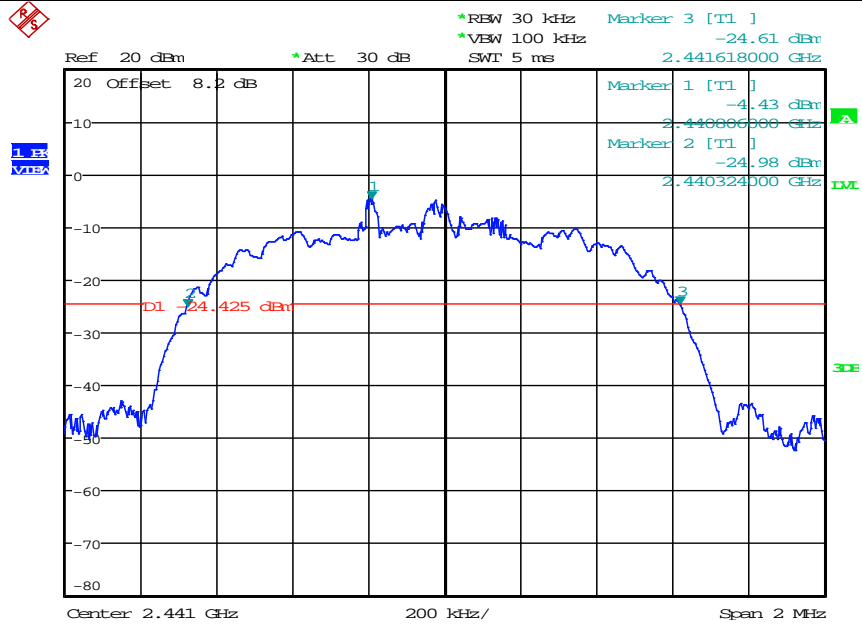
Date: 12.AUG.2019 20:16:10

8DPSK/LCH



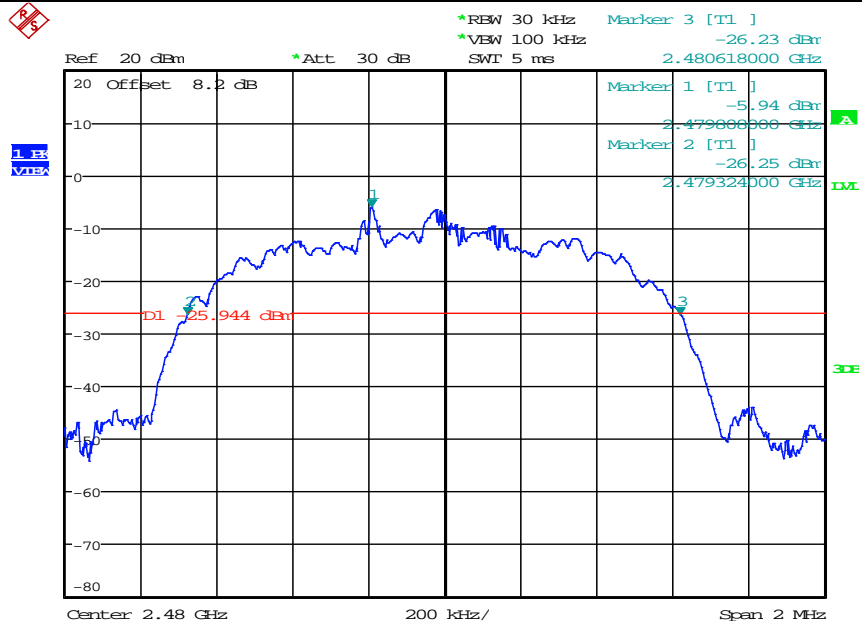
Date: 12.AUG.2019 20:18:54

8DPSK/MCH



Date: 12.AUG.2019 20:21:33

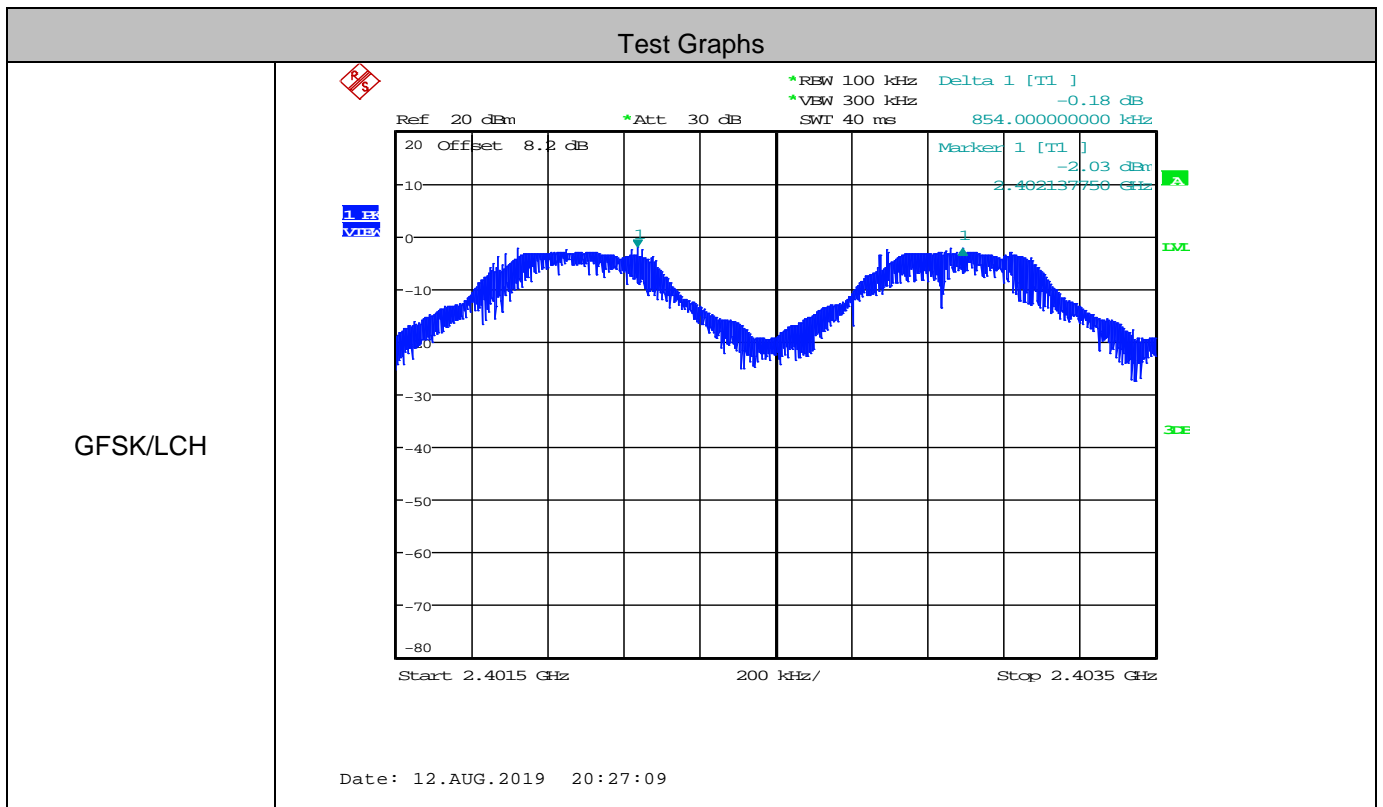
8DPSK/HCH



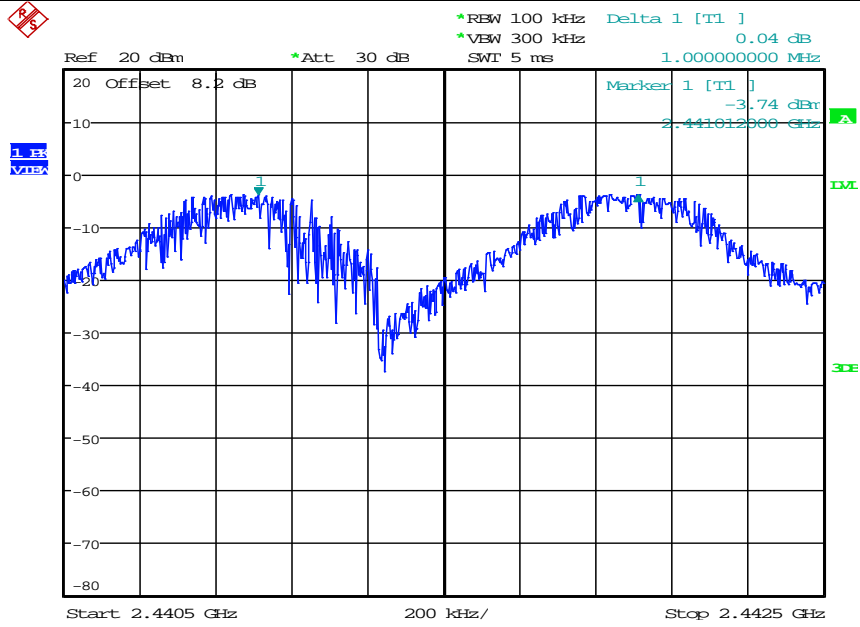
Date: 12.AUG.2019 20:23:18

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.854	0.640	PASS
	MCH	1.000	0.640	PASS
	HCH	1.042	0.640	PASS
π/4DQPSK	LCH	1.020	0.856	PASS
	MCH	1.132	0.856	PASS
	HCH	1.180	0.856	PASS
8DPSK	LCH	1.180	0.864	PASS
	MCH	0.994	0.864	PASS
	HCH	1.186	0.864	PASS

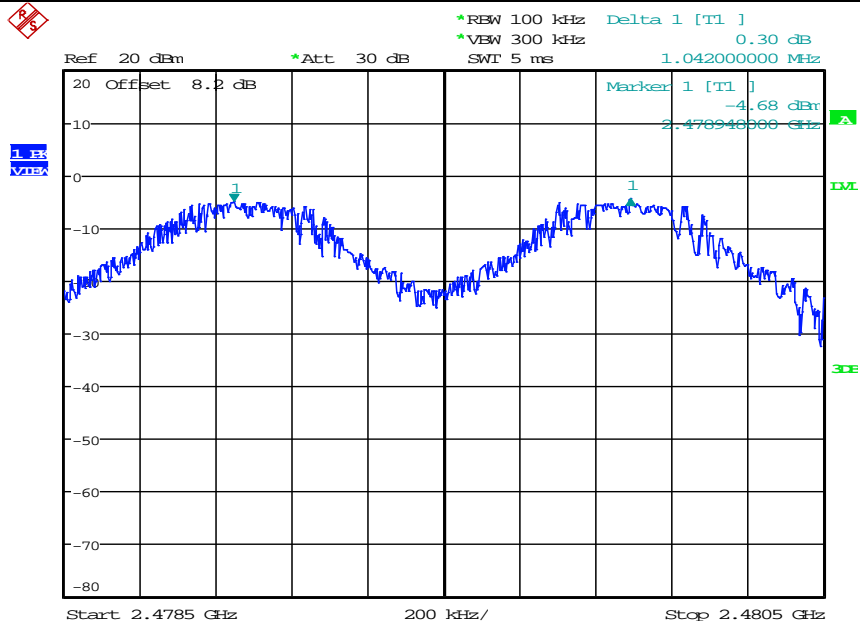


GFSK/MCH



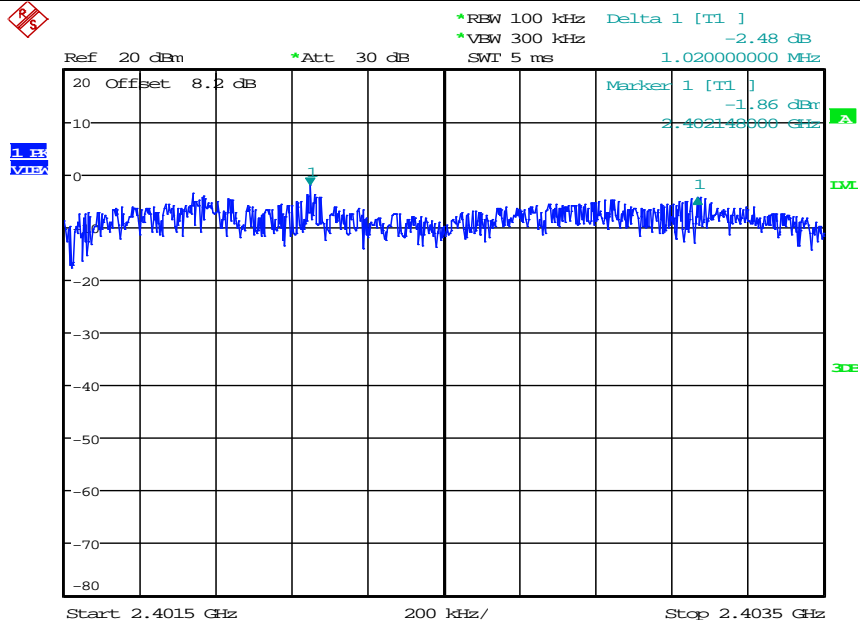
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GFSK/HCH



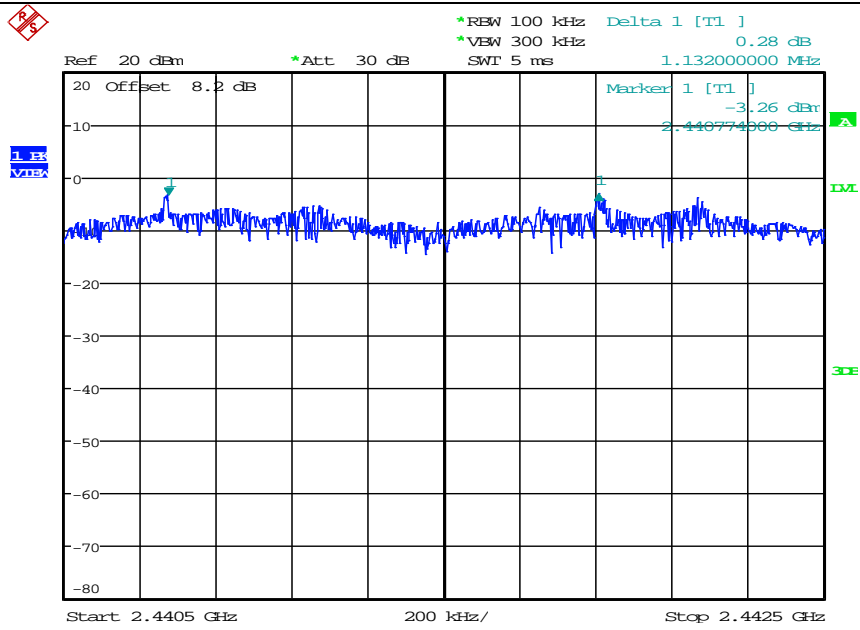
Date: 12.AUG.2019 20:29:40

$\pi/4$ DQPSK/LCH



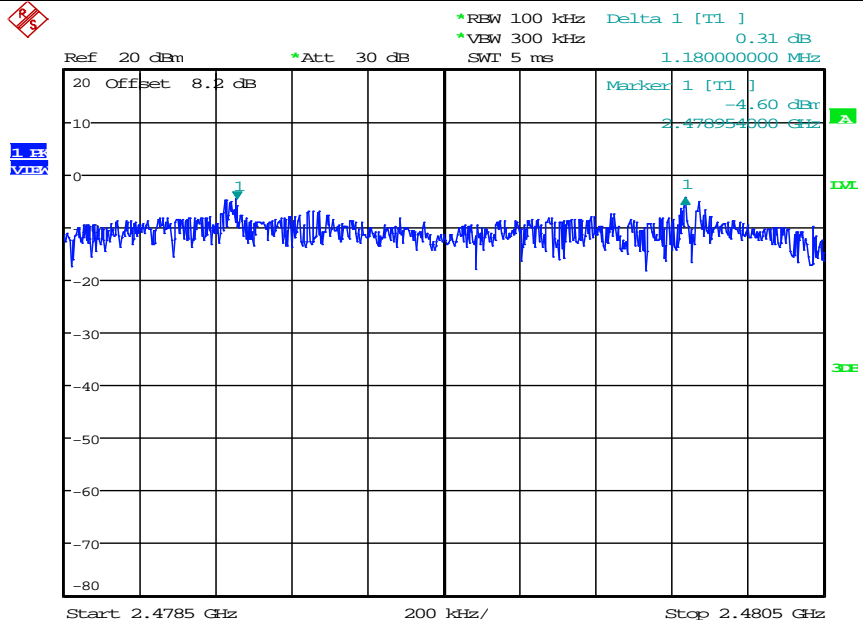
Date: 12.AUG.2019 21:09:14

$\pi/4$ DQPSK/MCH



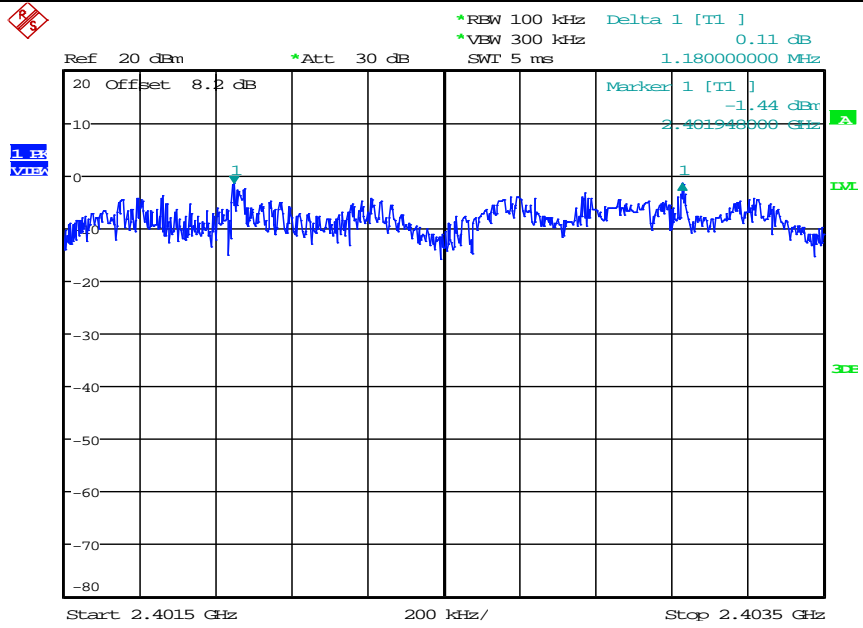
Date: 12.AUG.2019 20:37:49

π /4DQPSK/HCH

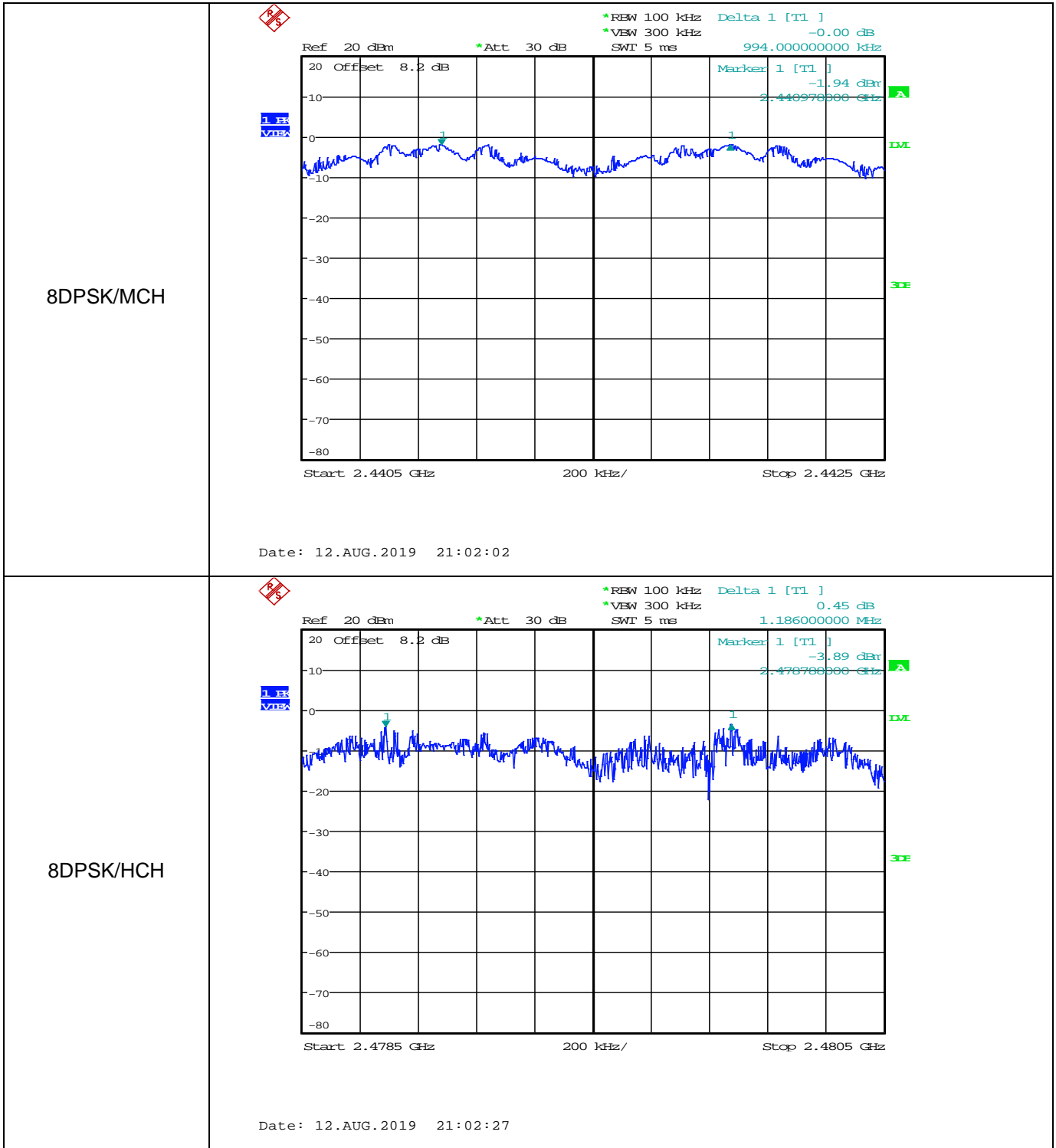


Date: 12.AUG.2019 20:38:14

8DPSK/LCH



Date: 12.AUG.2019 20:42:25

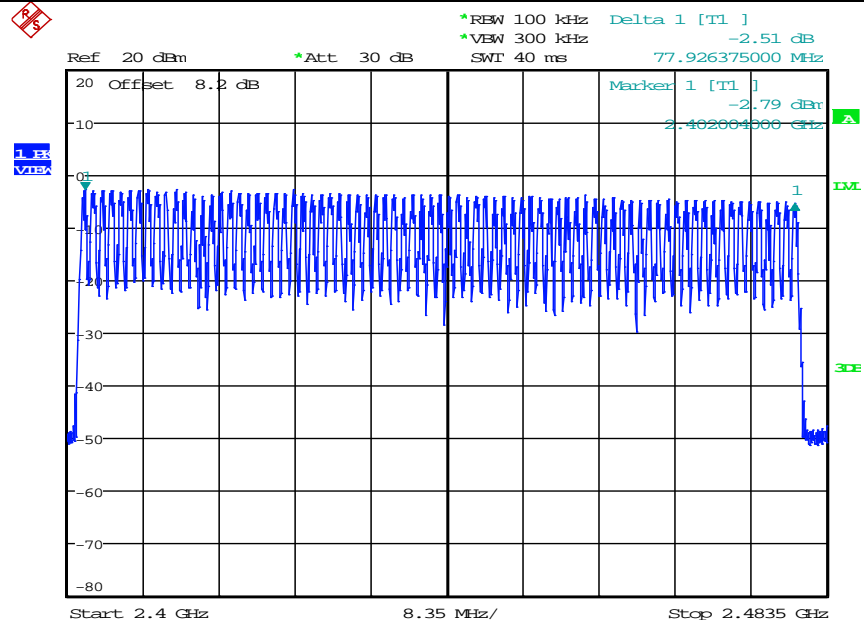


A.4 Hopping Channel Number

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

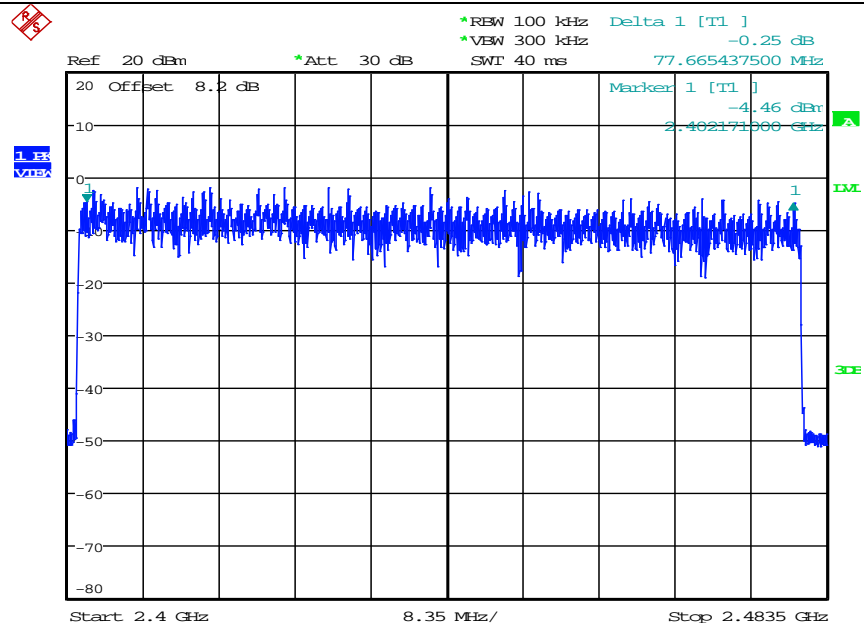
Test Graphs

GFSK/Hop



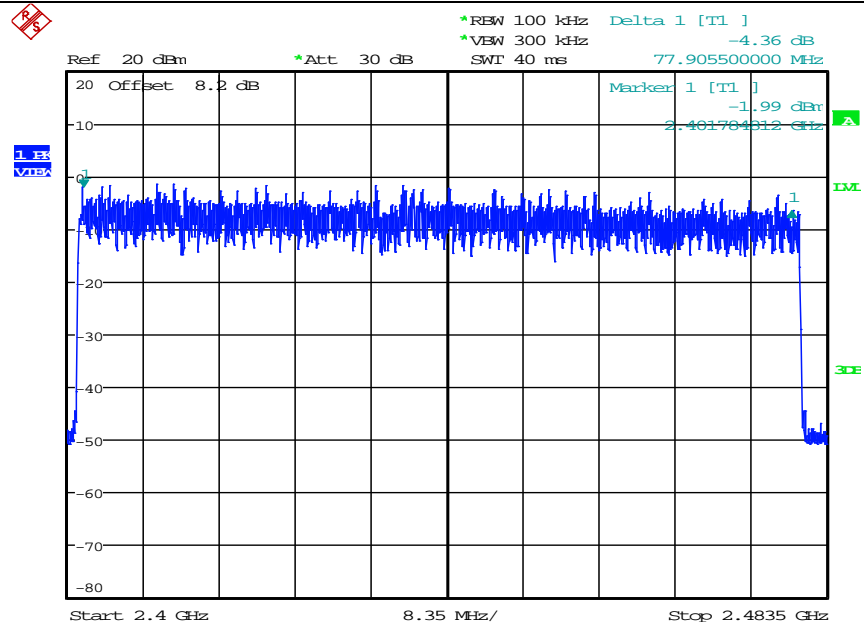
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$\pi/4$ DQPSK/Hop



Date: 12.AUG.2019 20:41:35

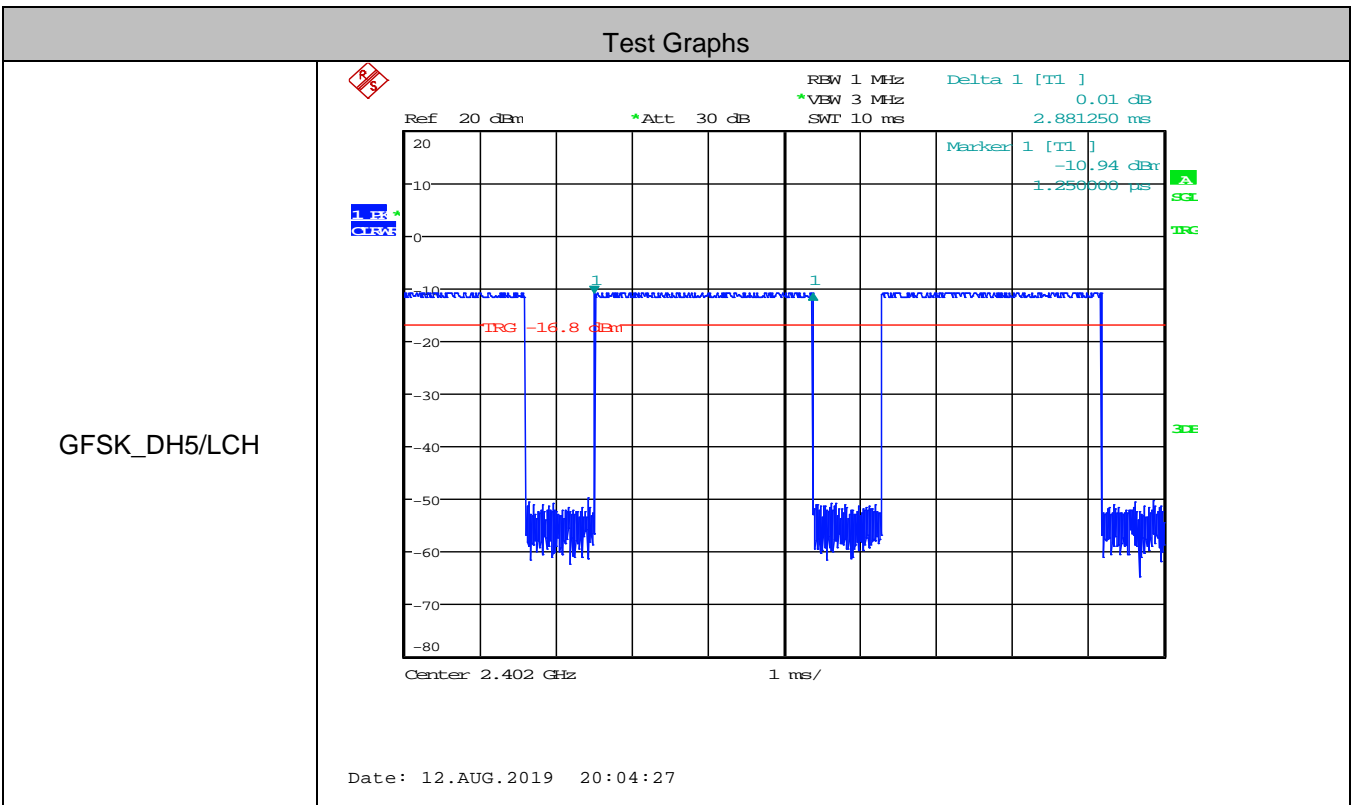
8DPSK/Hop



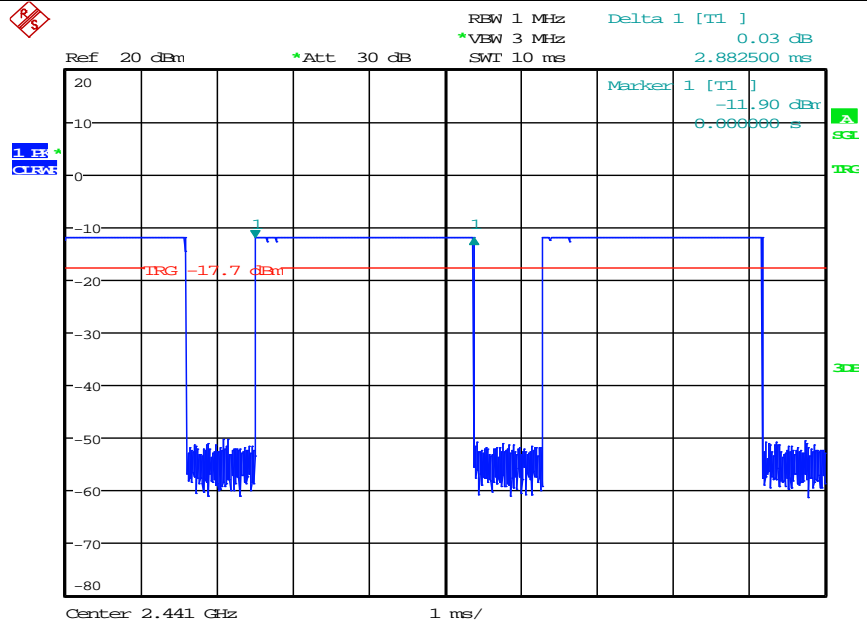
Date: 12.AUG.2019 21:08:27

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	2.89	106.7	0.307	0.4	PASS
	DH5	MCH	2.89	106.7	0.307	0.4	PASS
	DH5	HCH	2.89	106.7	0.307	0.4	PASS
$\pi/4$ DQPSK	2DH5	LCH	2.89	106.7	0.308	0.4	PASS
	2DH5	MCH	2.89	106.7	0.308	0.4	PASS
	2DH5	HCH	2.89	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

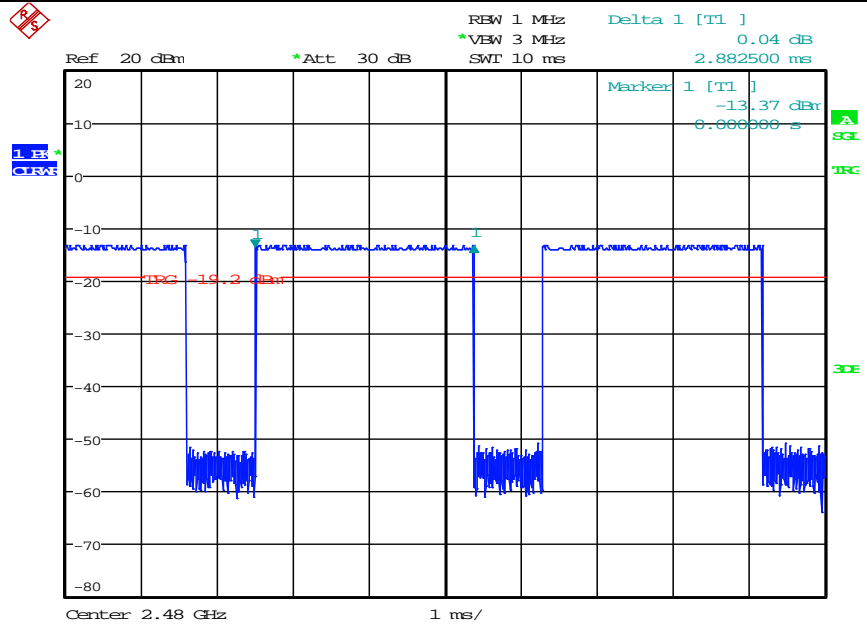


GFSK_DH5/MCH



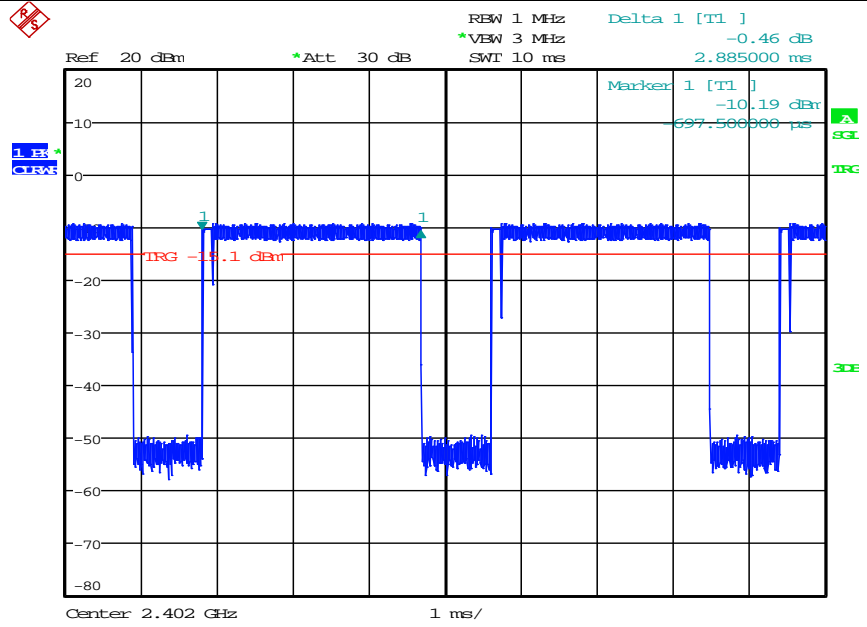
Date: 12.AUG.2019 20:07:02

GFSK_DH5/HCH



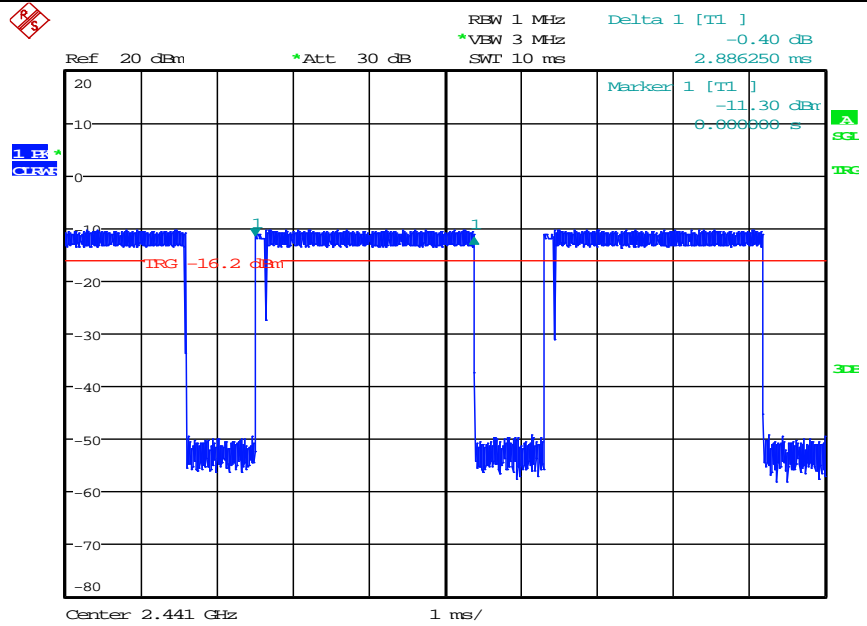
Date: 12.AUG.2019 20:08:48

$\pi/4$ DQPSK
_2DH5/LCH



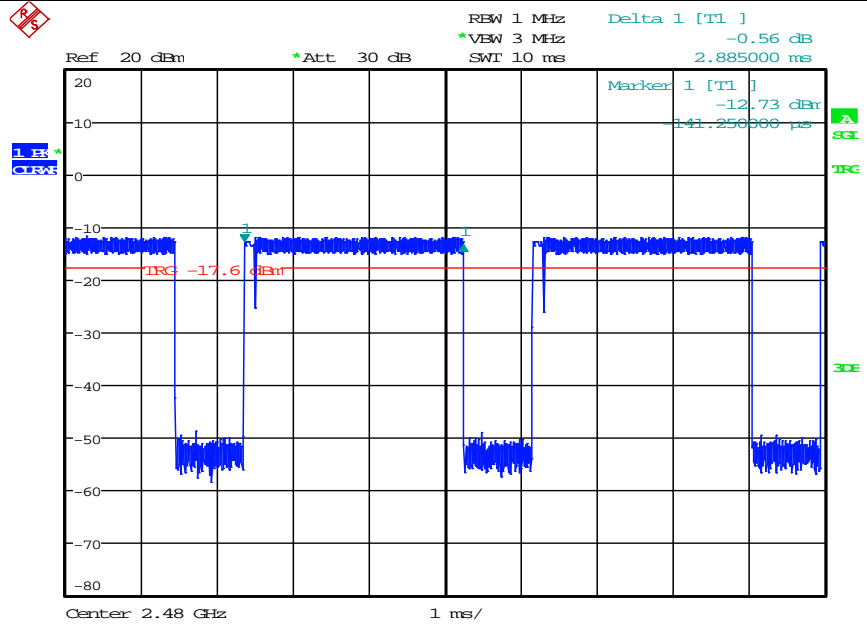
Date: 12.AUG.2019 20:11:27

$\pi/4$ DQPSK
_2DH5/MCH



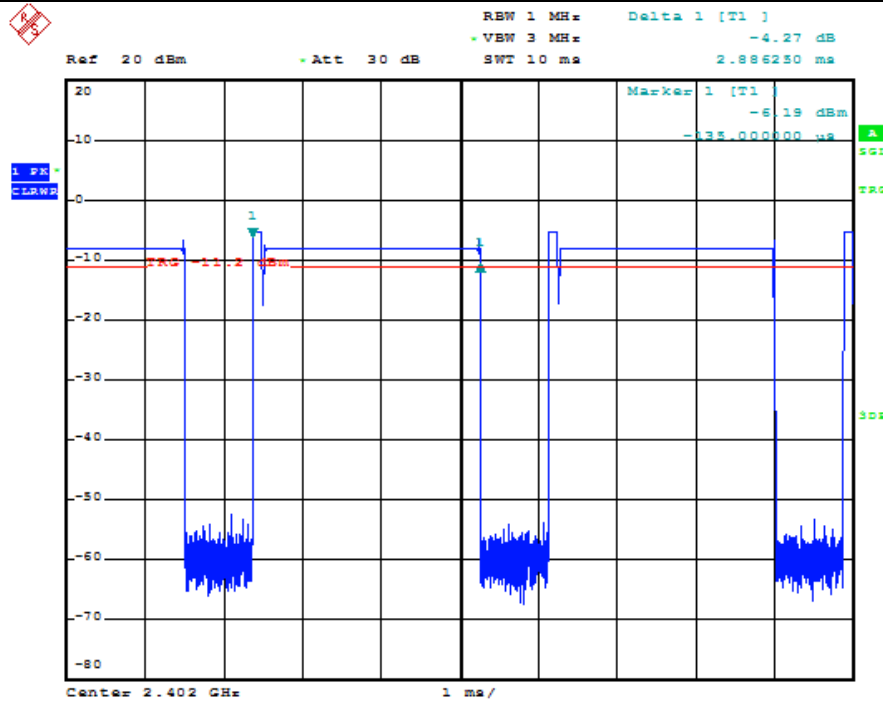
Date: 12.AUG.2019 20:14:00

$\pi/4$ DQPSK
_2DH5/HCH



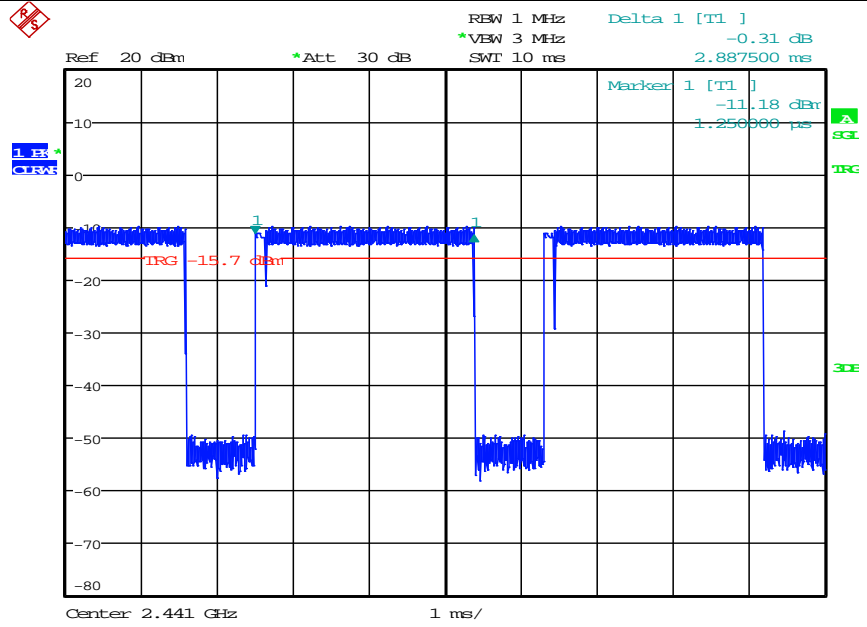
Date: 12.AUG.2019 20:16:31

8DPSK _3DH5/LCH



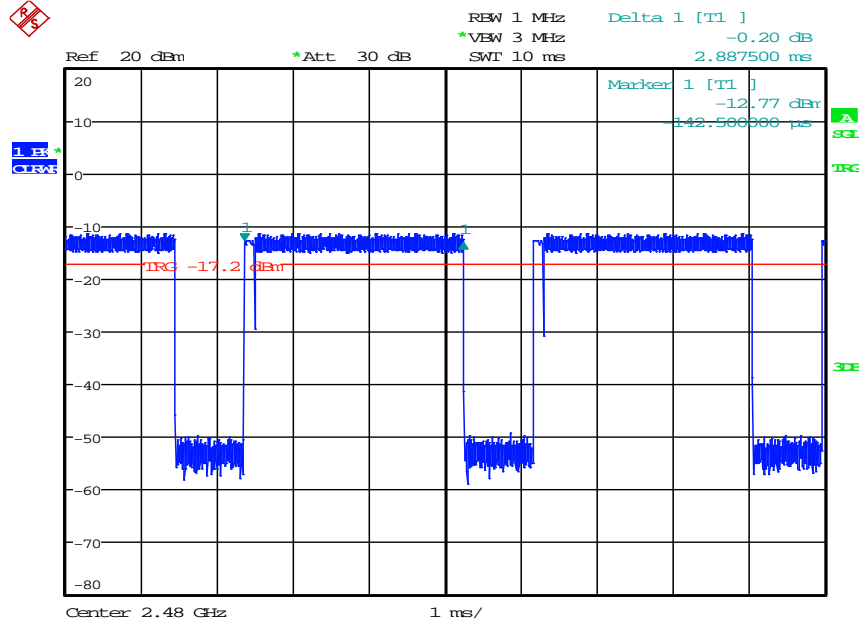
Date: 12.AUG.2019 11:21:02

8DPSK_3DH5/MCH



Date: 12.AUG.2019 20:21:54

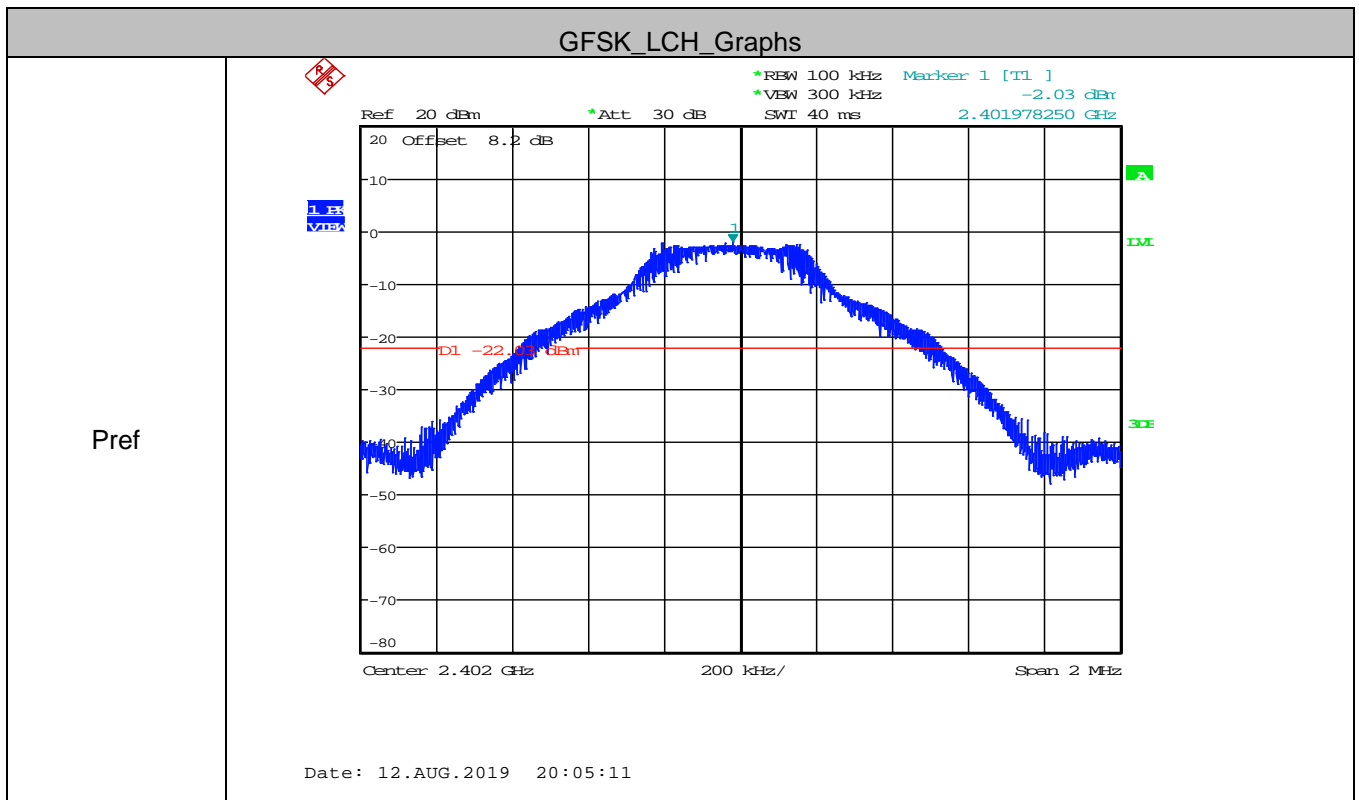
8DPSK_3DH5/HCH



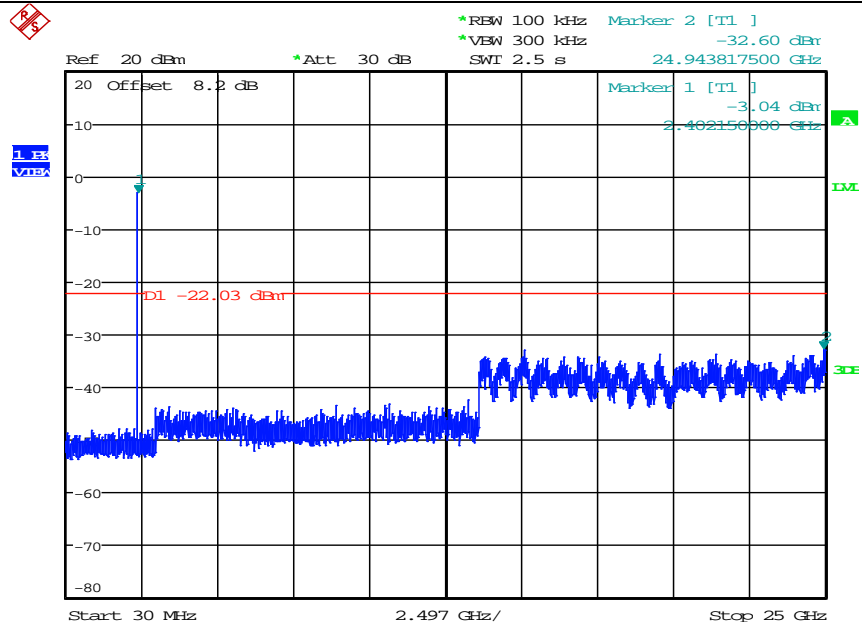
Date: 12.AUG.2019 20:23:39

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	-2.03	-32.600	-22.030	PASS
	MCH	-3.1	-32.530	-23.100	PASS
	HCH	-4.35	-32.700	-24.350	PASS
$\pi/4$ DQPSK	LCH	-1.28	-32.590	-21.280	PASS
	MCH	-2.28	-31.780	-22.280	PASS
	HCH	-3.77	-32.510	-23.770	PASS
8DPSK	LCH	-1.27	-32.930	-21.270	PASS
	MCH	-2.21	-32.430	-22.210	PASS
	HCH	-3.68	-32.600	-23.680	PASS



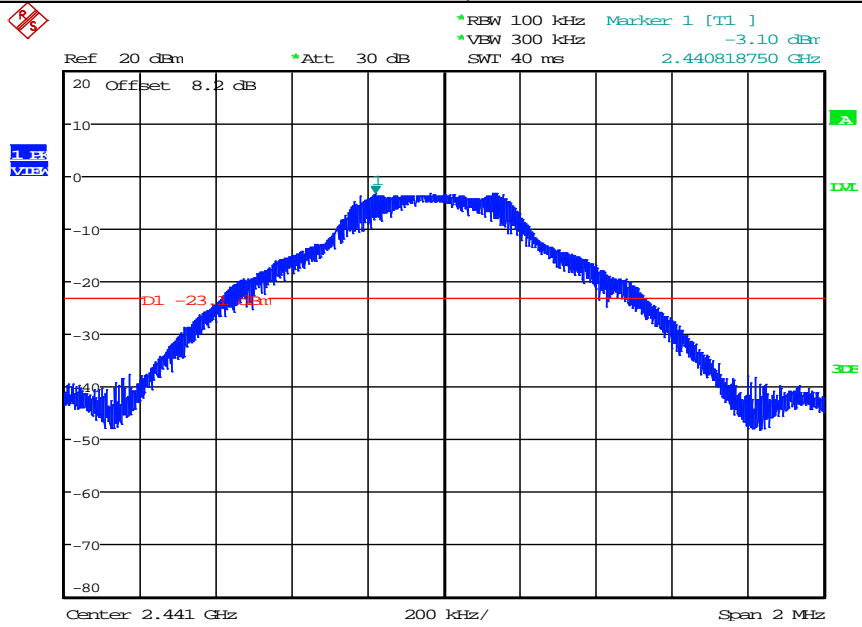
P_{uw}



Date: 12.AUG.2019 20:05:26

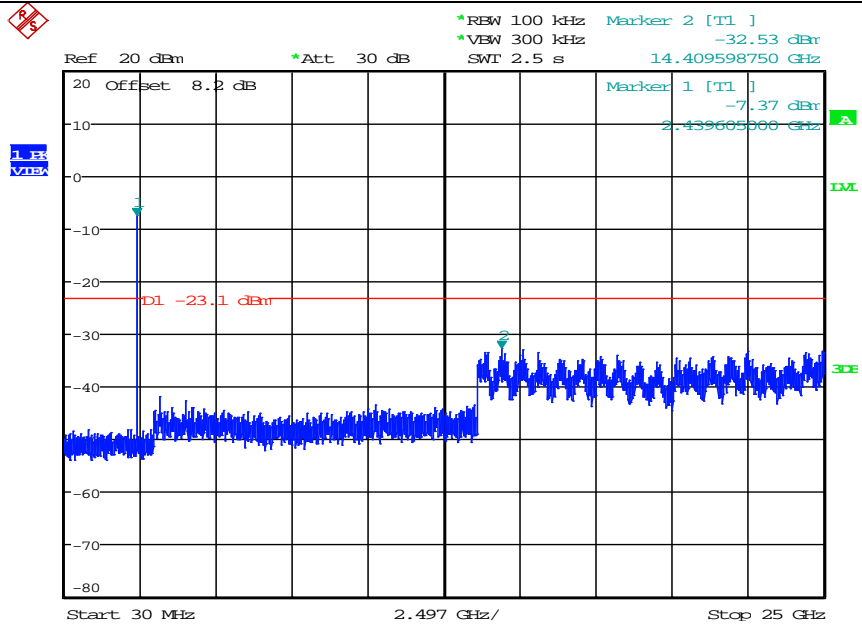
GFSK_MCH_Graphs

Pref



Date: 12.AUG.2019 20:07:29

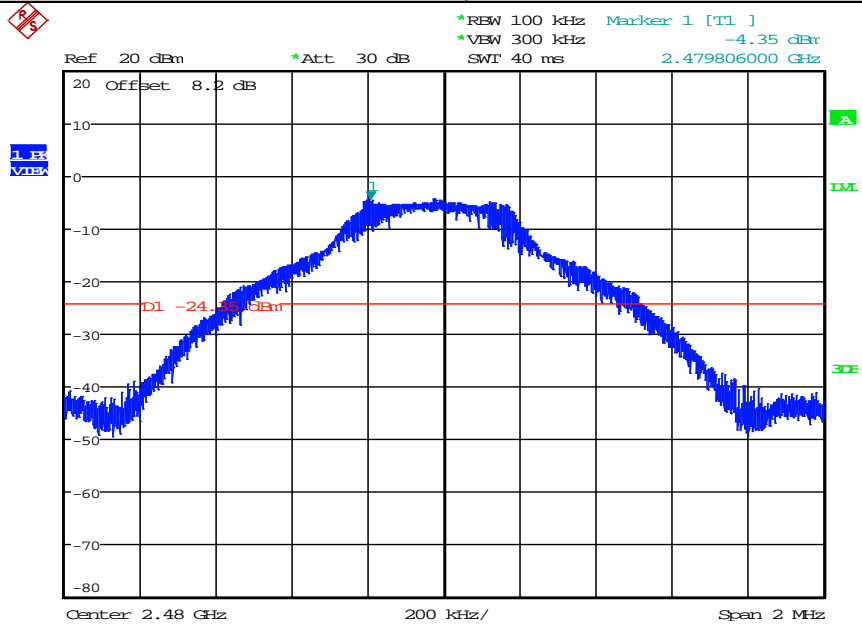
Puw



Date: 12.AUG.2019 20:07:44

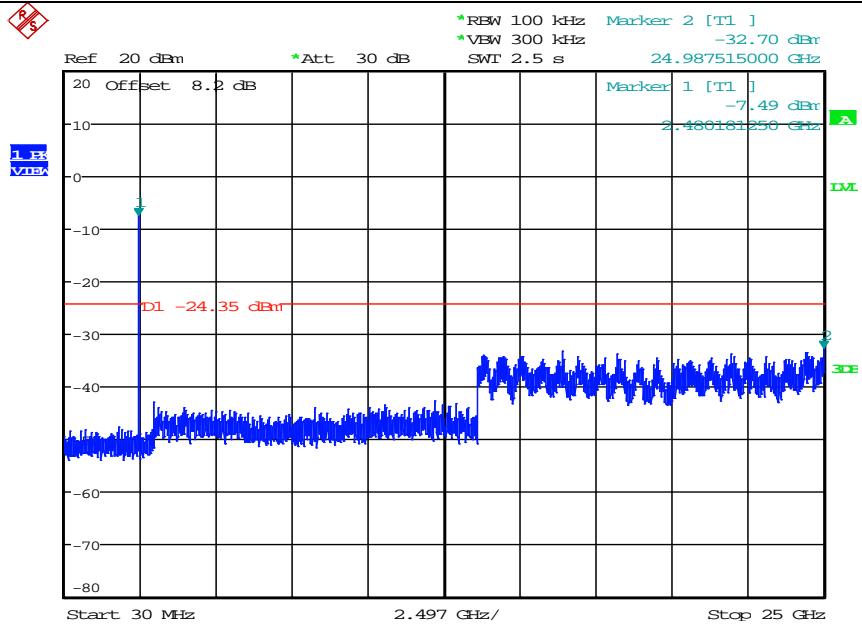
GFSK_HCH_Graphs

Pref



Date: 12.AUG.2019 20:09:33

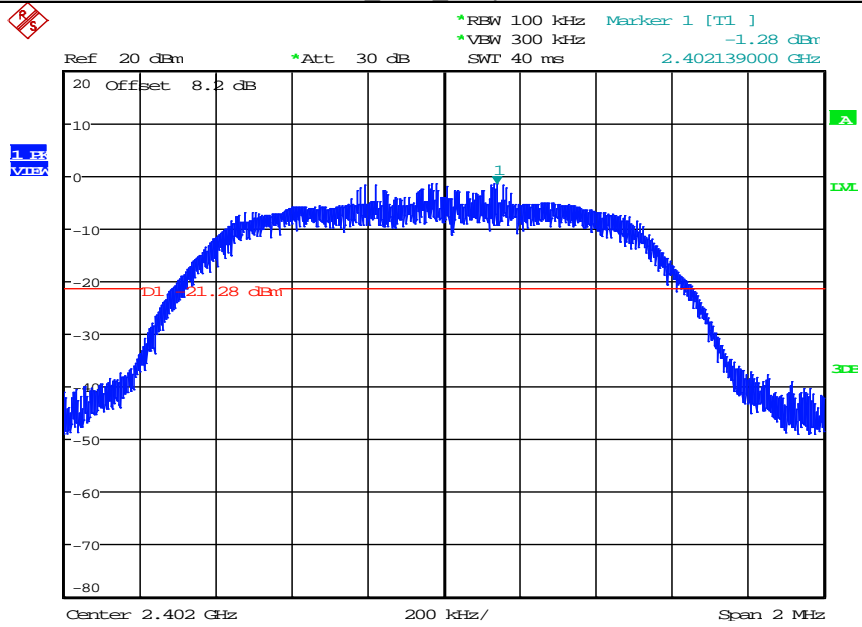
Puw



Date: 12.AUG.2019 20:09:48

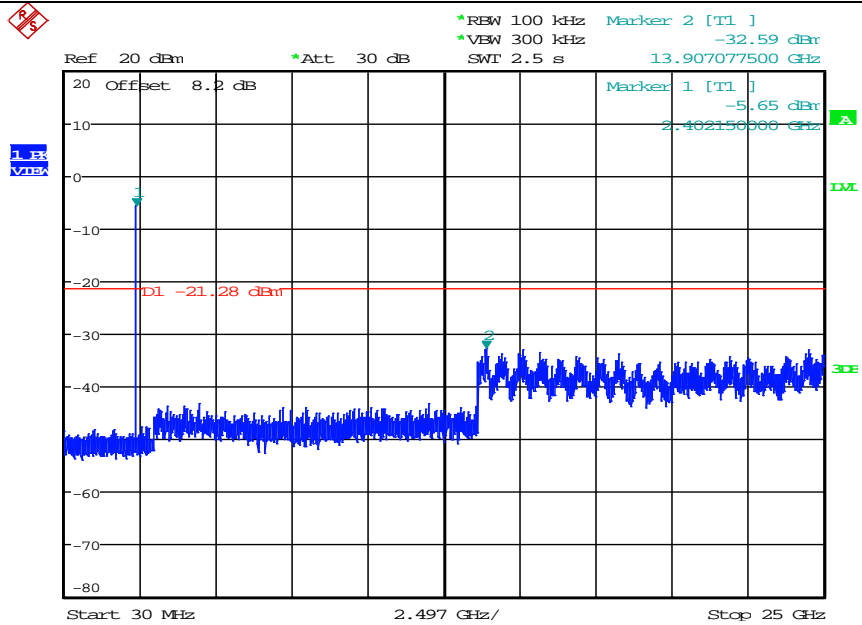
$\pi/4$ DQPSK_LCH_Graphs

Pref



Date: 12.AUG.2019 20:12:12

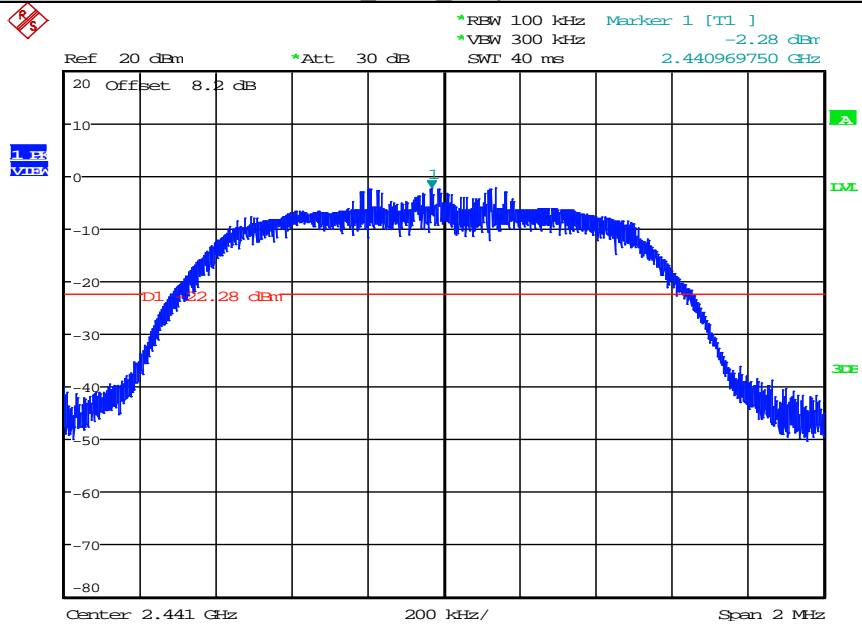
Puw



Date: 12.AUG.2019 20:12:27

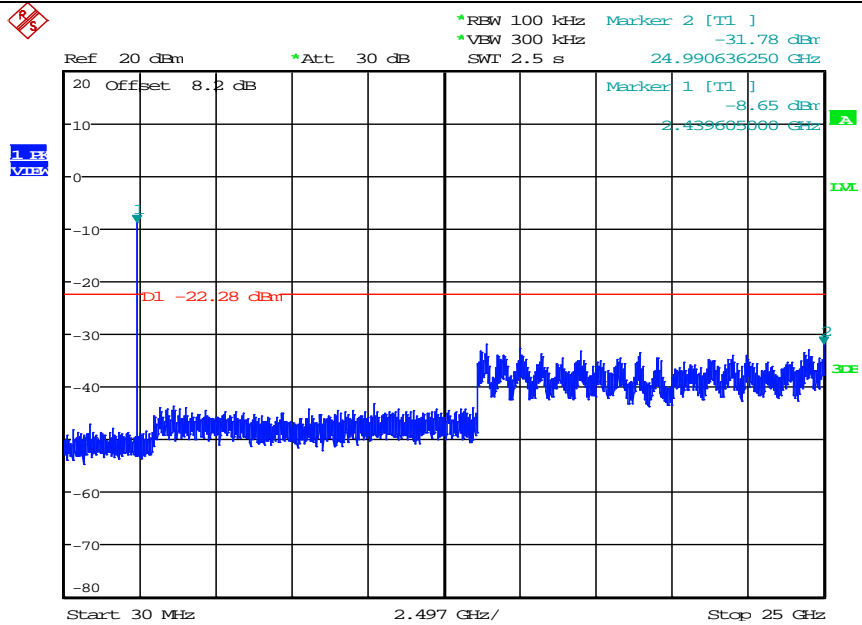
$\pi/4$ DQPSK_MCH_Graphs

Pref



Date: 12.AUG.2019 20:14:27

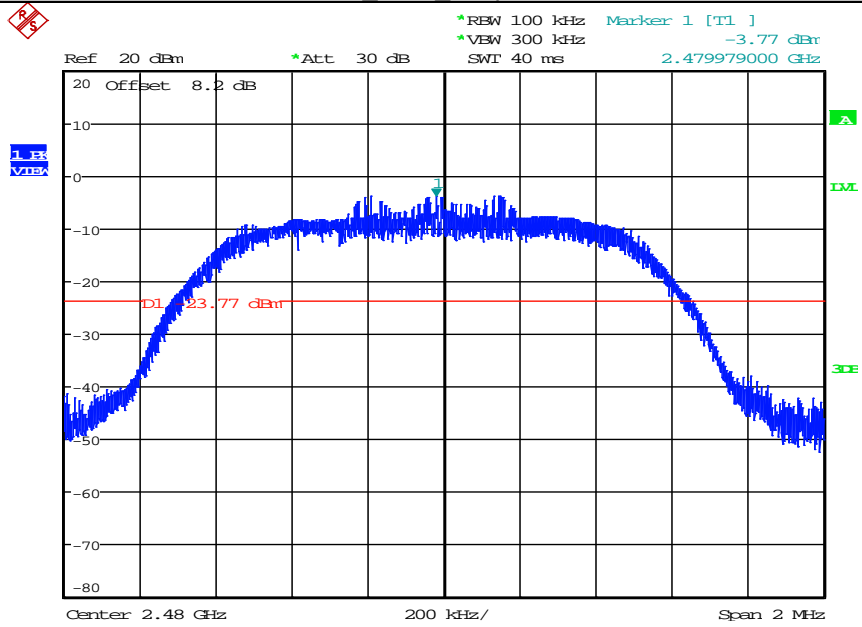
Puw



Date: 12.AUG.2019 20:14:42

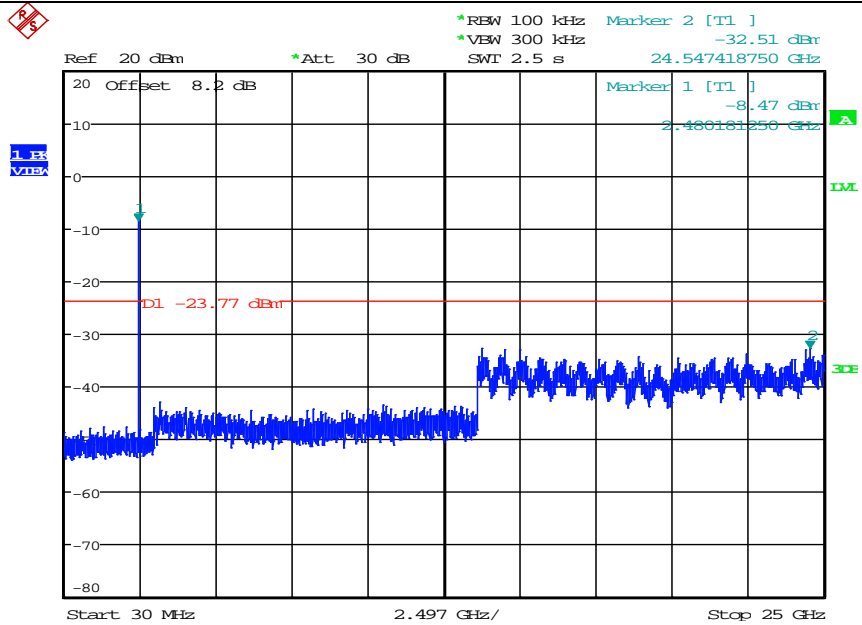
$\pi/4$ DQPSK_HCH_Graphs

Pref



Date: 12.AUG.2019 20:17:16

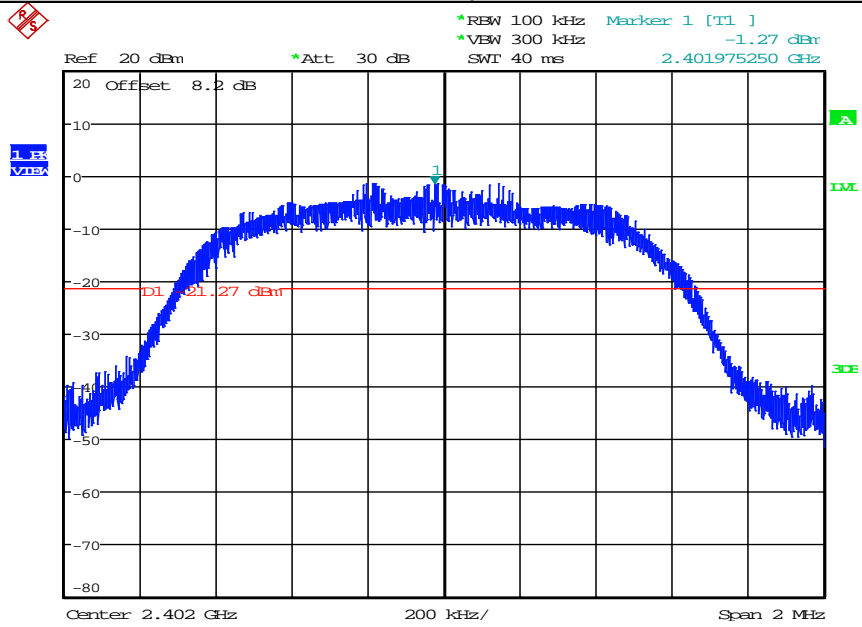
Puw



Date: 12.AUG.2019 20:17:31

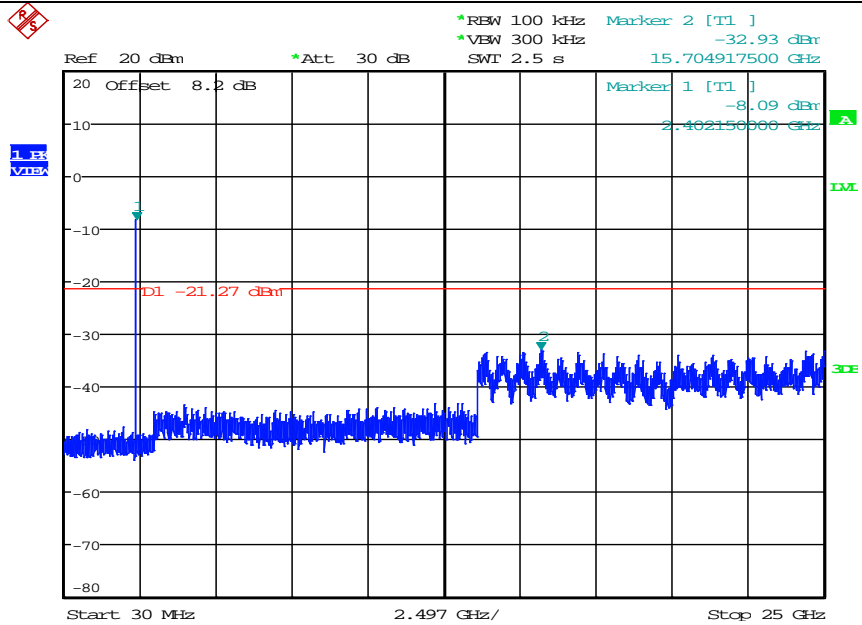
8DPSK_LCH_Graphs

Pref



Date: 12.AUG.2019 20:20:00

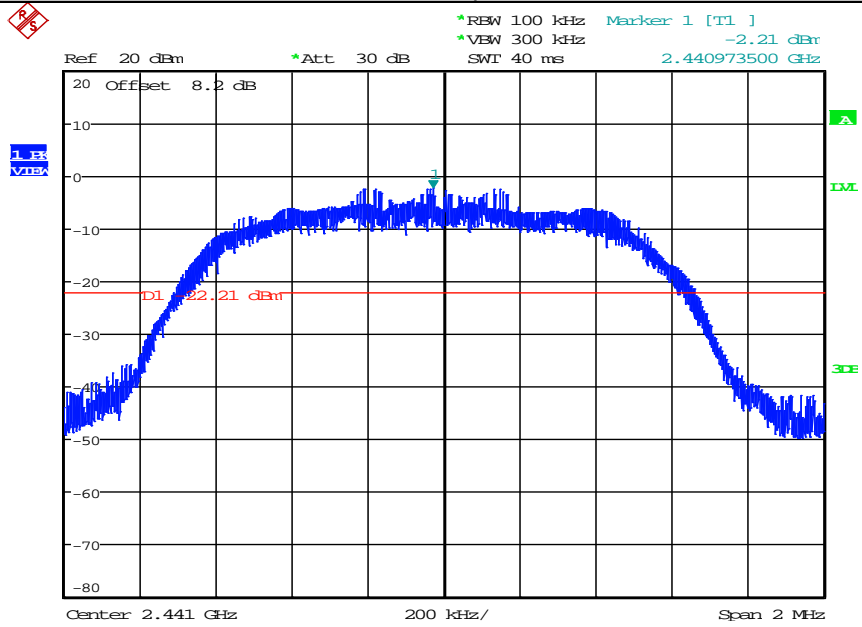
Puw



Date: 12.AUG.2019 20:20:14

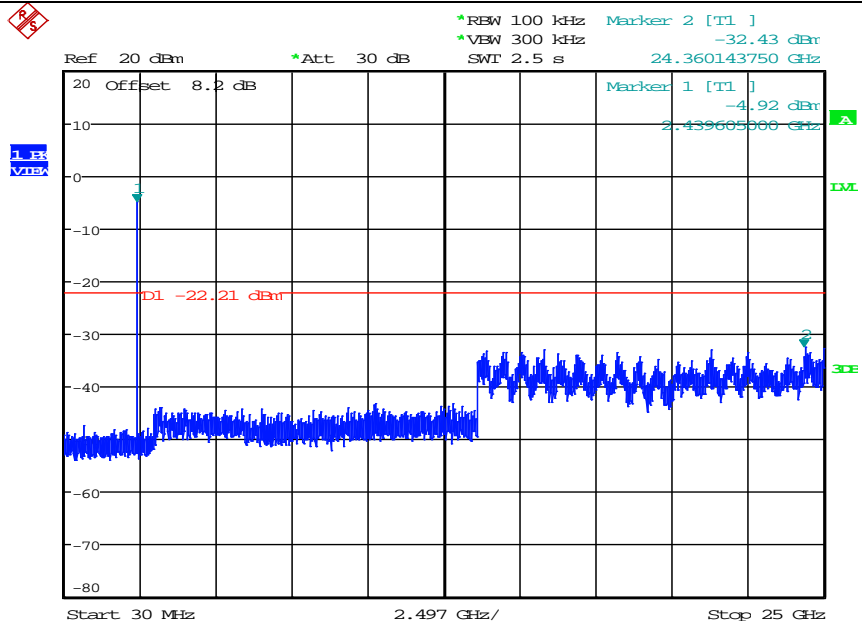
8DPSK_MCH_Graphs

Pref



Date: 12.AUG.2019 20:22:22

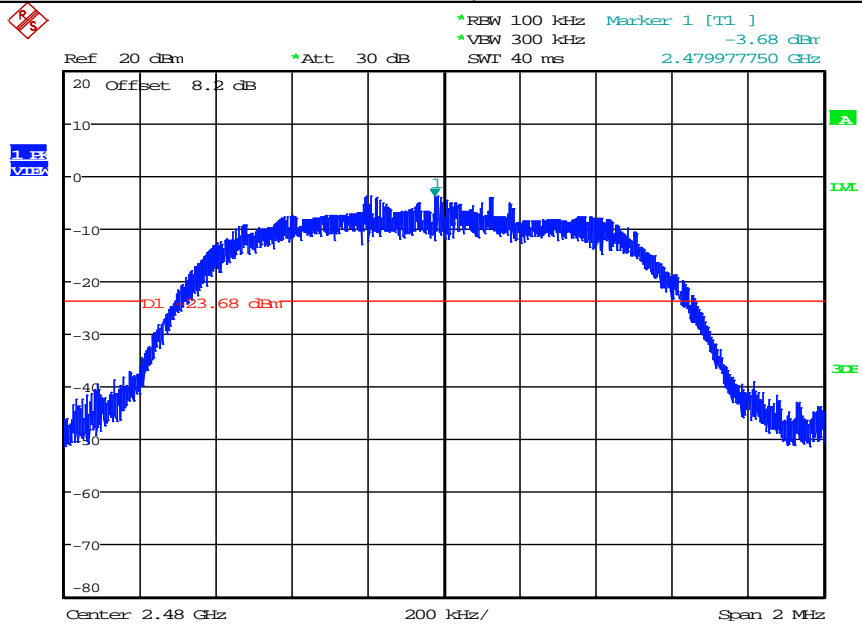
Puw



Date: 12.AUG.2019 20:22:37

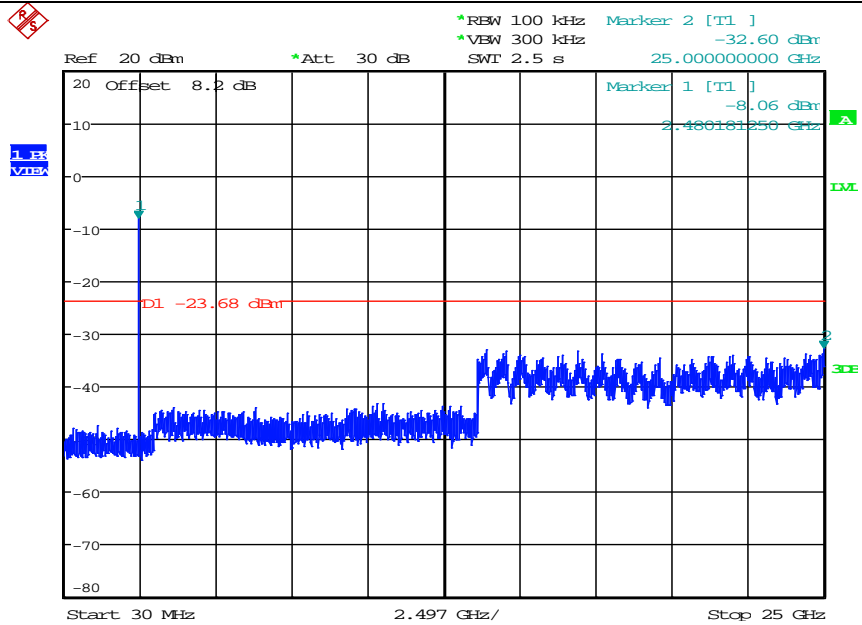
8DPSK_HCH_Graphs

Pref



Date: 12.AUG.2019 20:24:24

Puw



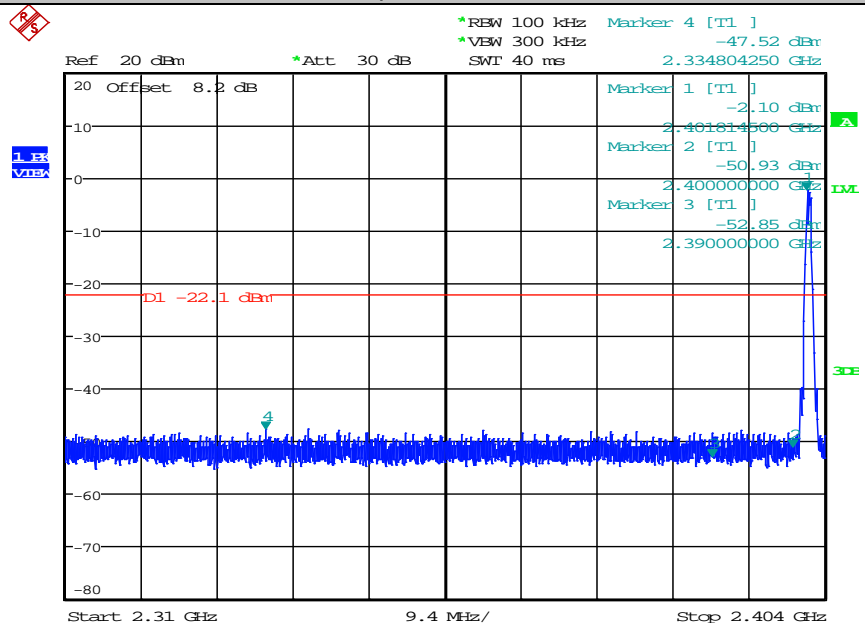
Date: 12.AUG.2019 20:24:39

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	-2.100	Off	-47.516	-22.1	PASS
			-2.640	On	-46.732	-22.64	PASS
	HCH	2480	-4.680	Off	-47.477	-24.68	PASS
			-3.760	On	-46.688	-23.76	PASS
$\pi/4$ DQPSK	LCH	2402	-1.590	Off	-47.675	-21.59	PASS
			-1.250	On	-46.609	-21.25	PASS
	HCH	2480	-3.970	Off	-47.609	-23.97	PASS
			-3.490	On	-47.210	-23.49	PASS
8DPSK	LCH	2402	-2.530	Off	-46.874	-22.53	PASS
			-1.380	On	-46.363	-21.38	PASS
	HCH	2480	-4.330	Off	-46.503	-24.33	PASS
			-2.830	On	-46.692	-22.83	PASS

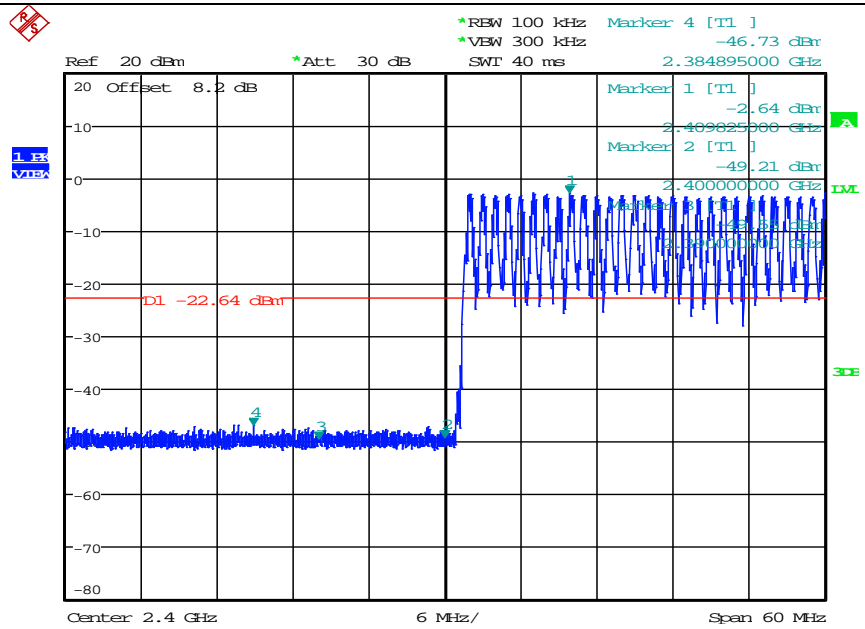
Test Graphs

GFSK/LCH/No Hop



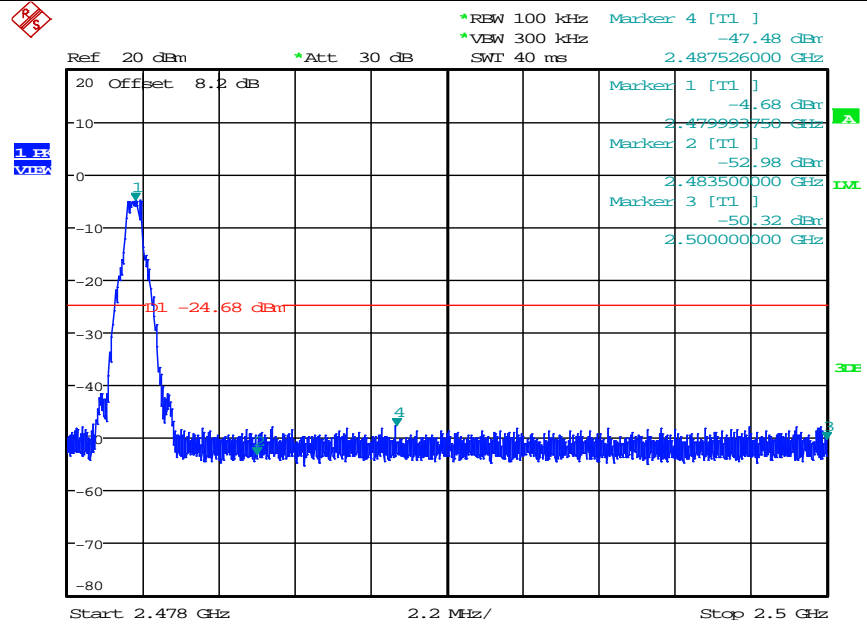
Date: 12.AUG.2019 20:04:59

GFSK/LCH/Hop



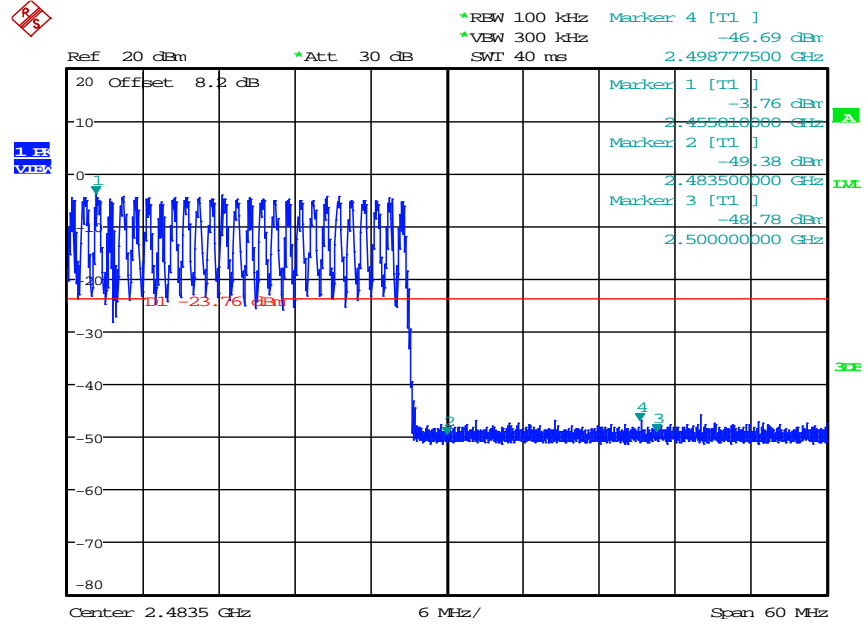
Date: 12.AUG.2019 20:28:48

GFSK/HCH/No Hop



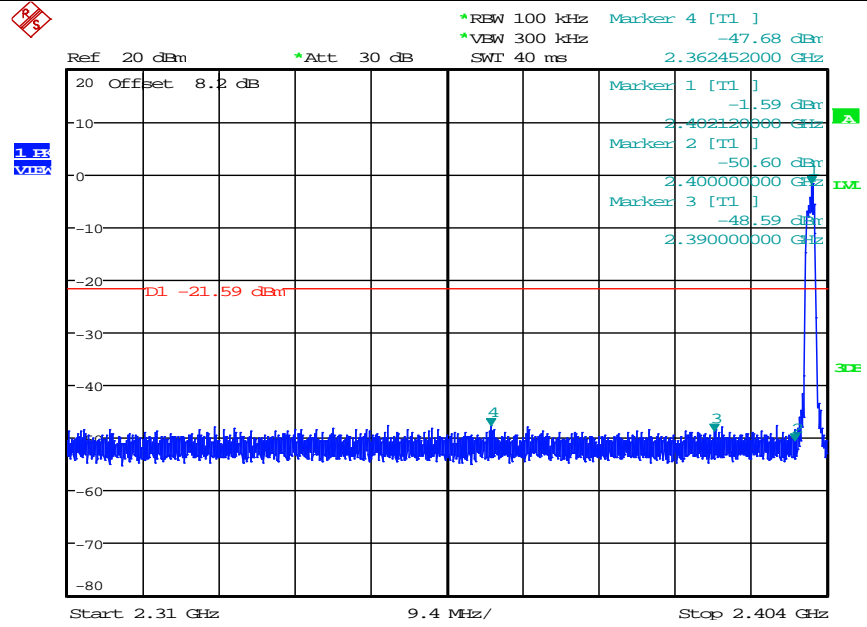
Date: 12.AUG.2019 20:09:20

GFSK/HCH/Hop

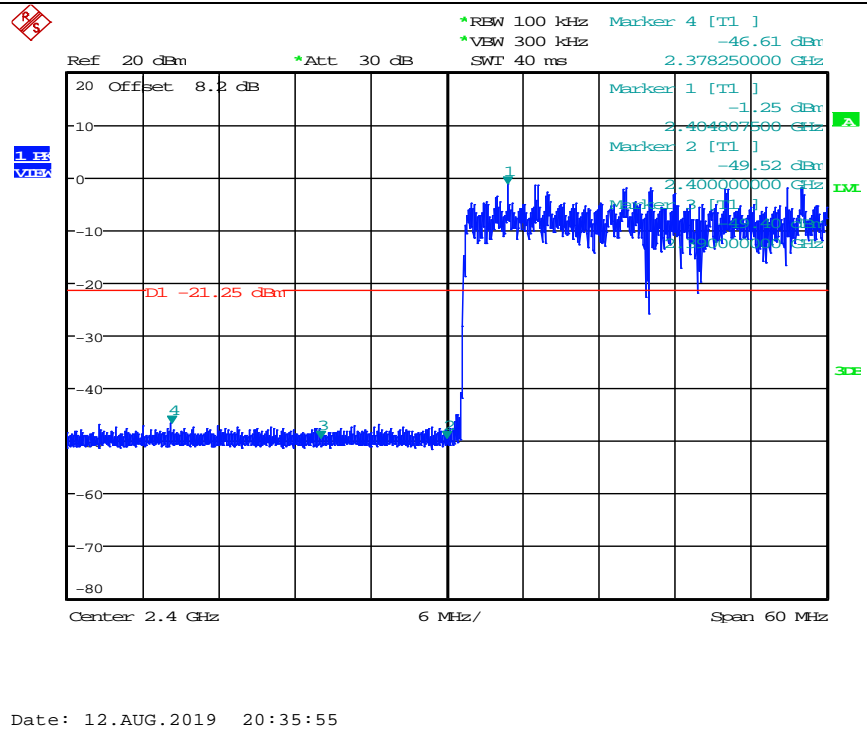


Date: 12.AUG.2019 20:31:39

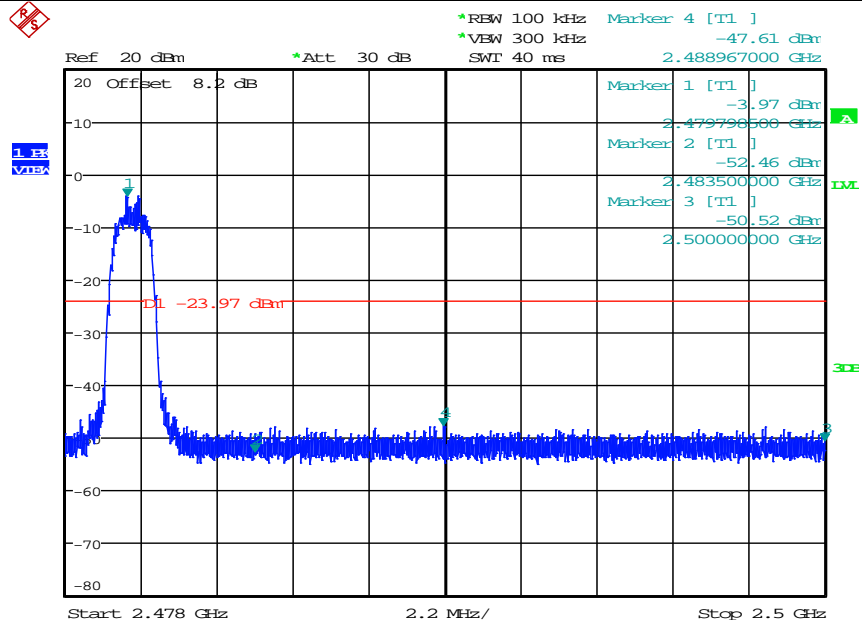
$\pi/4$ DQPSK/LCH/No
Hop



$\pi/4$ DQPSK/LCH/Hop

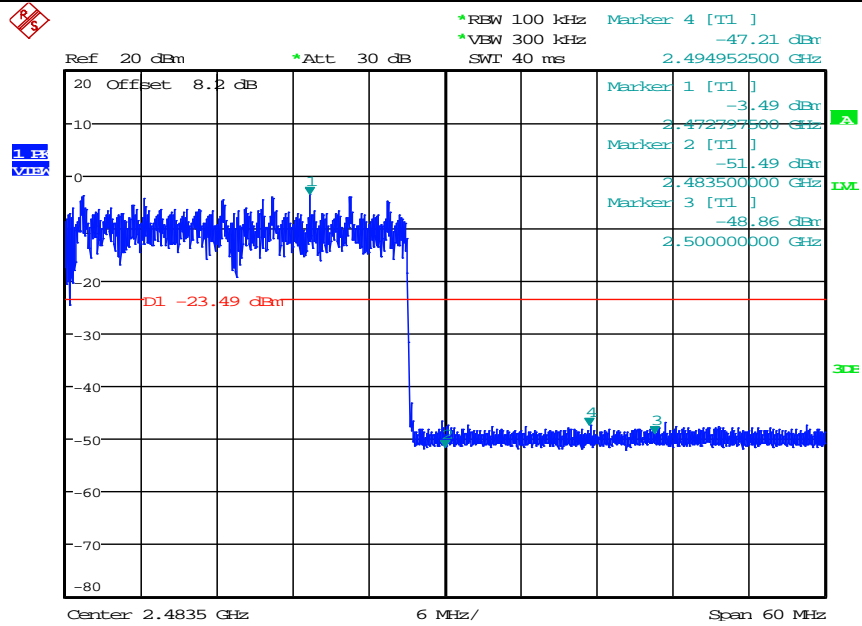


$\pi/4$ DQPSK/HCH/No
Hop



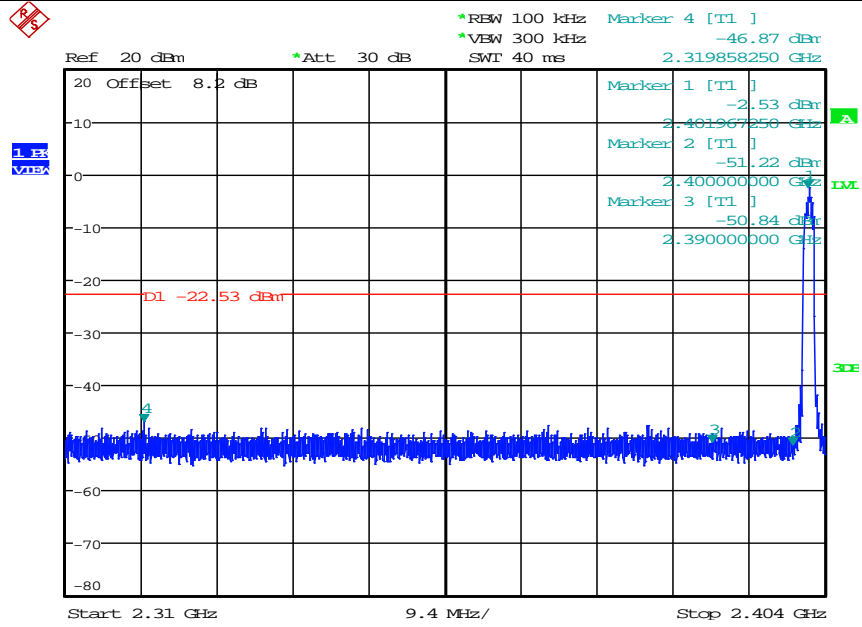
Date: 12.AUG.2019 20:17:03

$\pi/4$ DQPSK/HCH/Hop



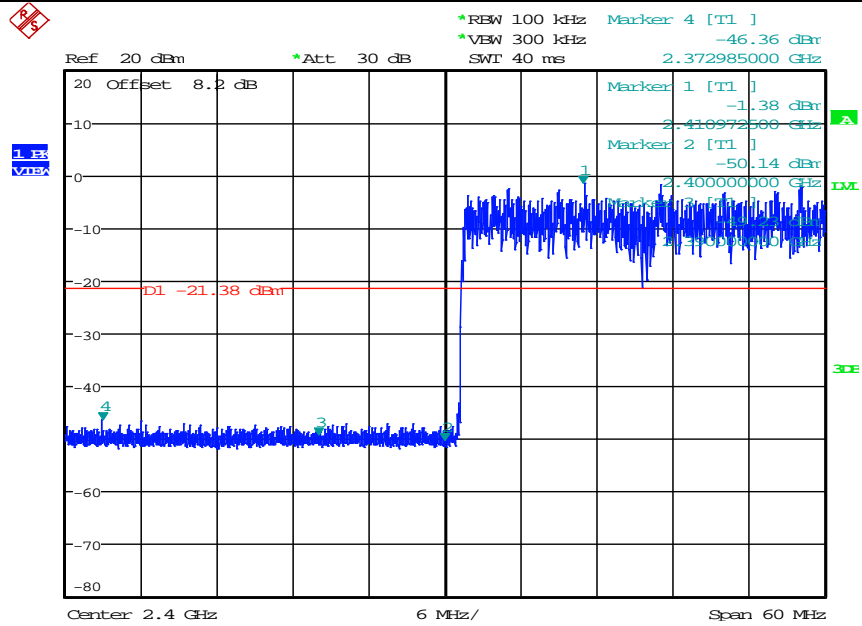
Date: 12.AUG.2019 20:39:36

8DPSK/LCH/No Hop



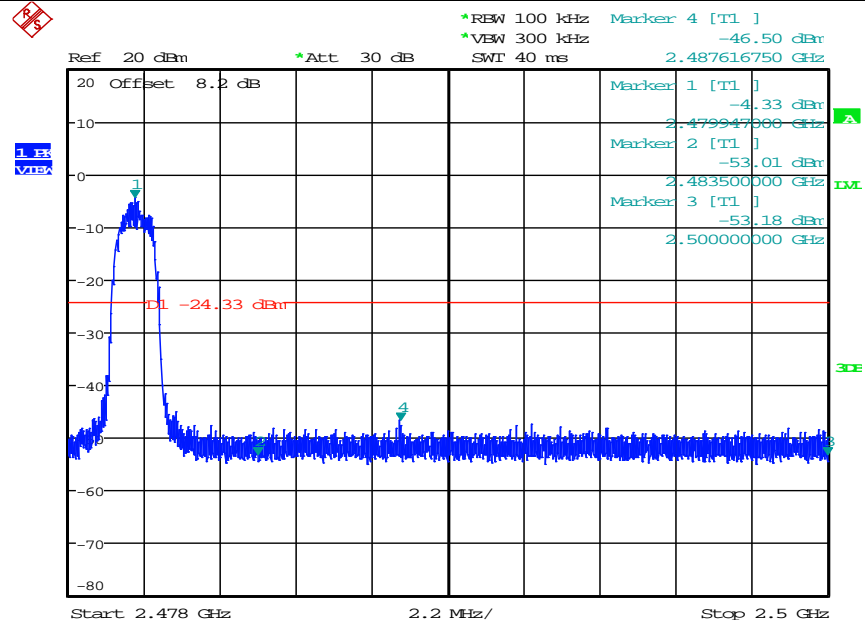
Date: 12.AUG.2019 20:19:47

8DPSK/LCH/Hop



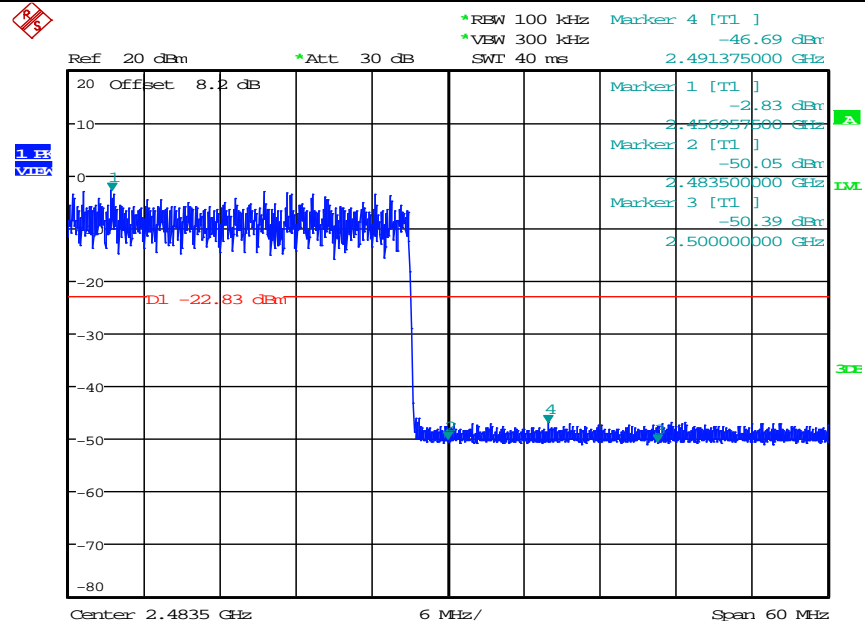
Date: 12.AUG.2019 20:43:42

8DPSK/HCH/No Hop



Date: 12.AUG.2019 20:24:11

8DPSK/HCH/Hop

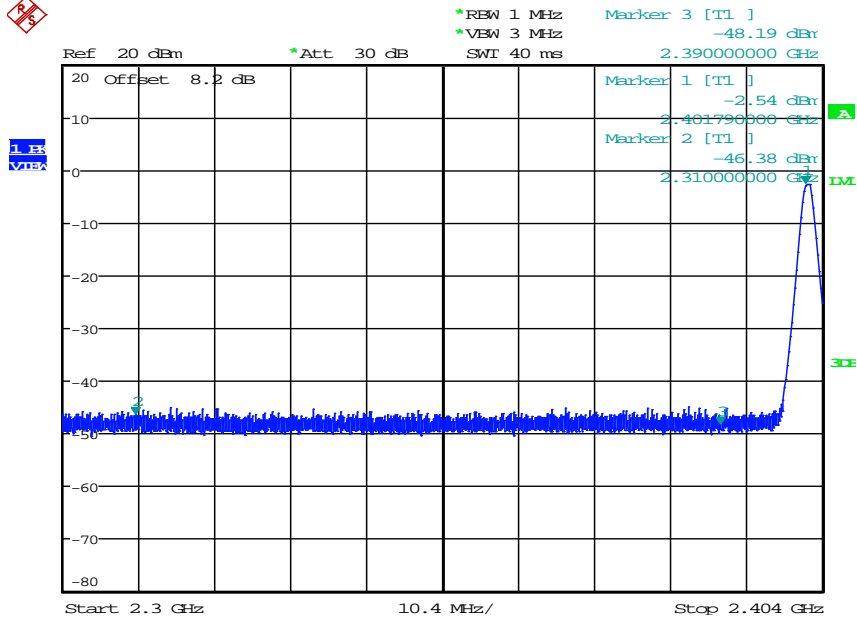


Date: 12.AUG.2019 21:05:46

A.8 Restrict-band band-edge measurements

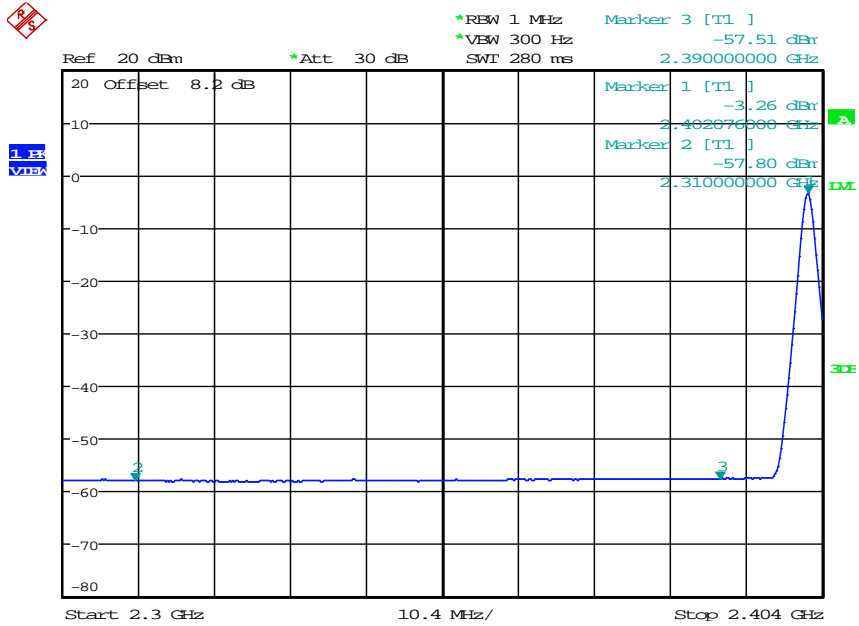
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-46.38	2.0	0	50.88	PEAK	74	PASS
	Off	2310.0	-57.80	2.0	0	39.46	AV	54	PASS
	Off	2390.0	-48.19	2.0	0	49.07	PEAK	74	PASS
	Off	2390.0	-57.51	2.0	0	39.75	AV	54	PASS
	Off	2483.5	-43.61	2.0	0	53.65	PEAK	74	PASS
	Off	2483.5	-48.09	2.0	0	49.17	AV	54	PASS
	Off	2500.0	-47.81	2.0	0	49.45	PEAK	74	PASS
	Off	2500.0	-58.24	2.0	0	39.02	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-48.89	2.0	0	48.37	PEAK	74	PASS
	Off	2310.0	-57.77	2.0	0	39.49	AV	54	PASS
	Off	2390.0	-49.09	2.0	0	48.17	PEAK	74	PASS
	Off	2390.0	-57.60	2.0	0	39.66	AV	54	PASS
	Off	2483.5	-42.07	2.0	0	55.19	PEAK	74	PASS
	Off	2483.5	-48.06	2.0	0	49.20	AV	54	PASS
	Off	2500.0	-49.24	2.0	0	48.02	PEAK	74	PASS
	Off	2500.0	-58.19	2.0	0	39.07	AV	54	PASS
8DPSK	Off	2310.0	-47.34	2.0	0	49.92	PEAK	74	PASS
	Off	2310.0	-57.93	2.0	0	39.33	AV	54	PASS
	Off	2390.0	-46.84	2.0	0	50.42	PEAK	74	PASS
	Off	2390.0	-57.57	2.0	0	39.69	AV	54	PASS
	Off	2483.5	-41.05	2.0	0	56.21	PEAK	74	PASS
	Off	2483.5	-47.99	2.0	0	49.27	AV	54	PASS
	Off	2500.0	-47.36	2.0	0	49.90	PEAK	74	PASS
	Off	2500.0	-58.25	2.0	0	39.01	AV	54	PASS

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



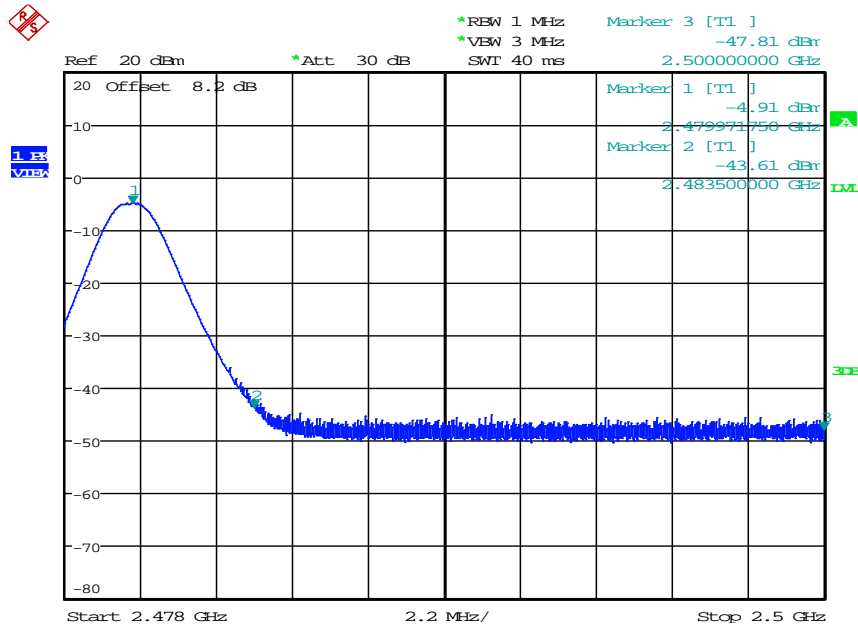
Date: 12.AUG.2019 20:05:45

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



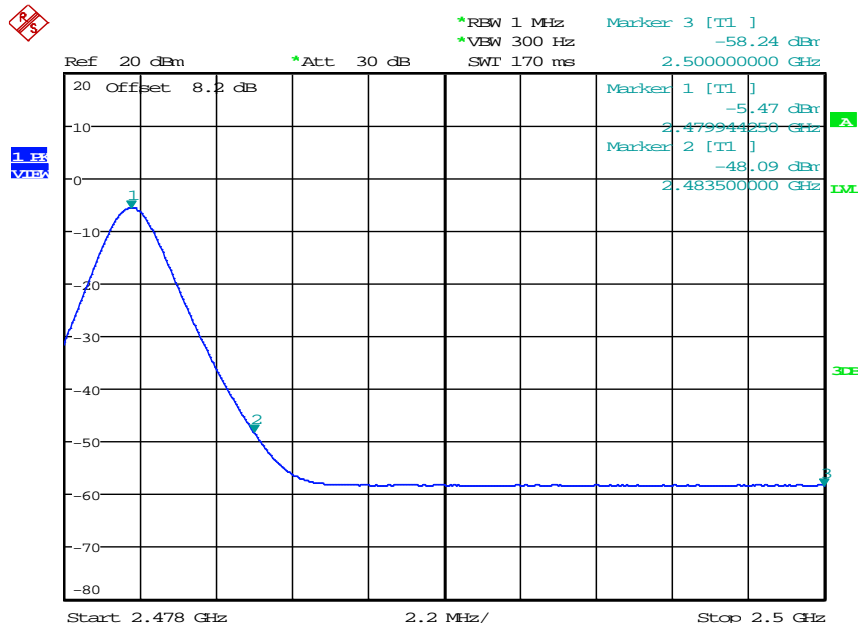
Date: 12.AUG.2019 20:05:58

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



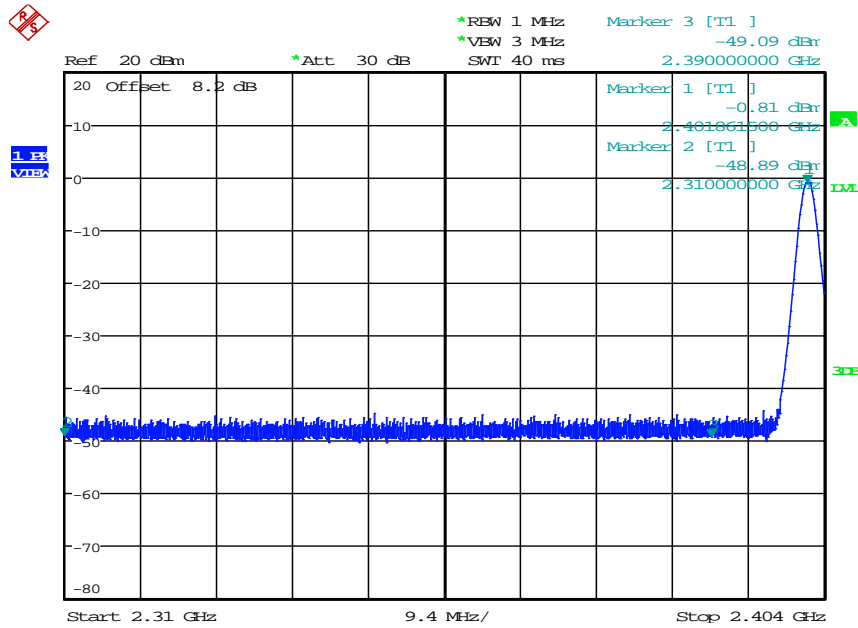
Date: 12.AUG.2019 20:10:07

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



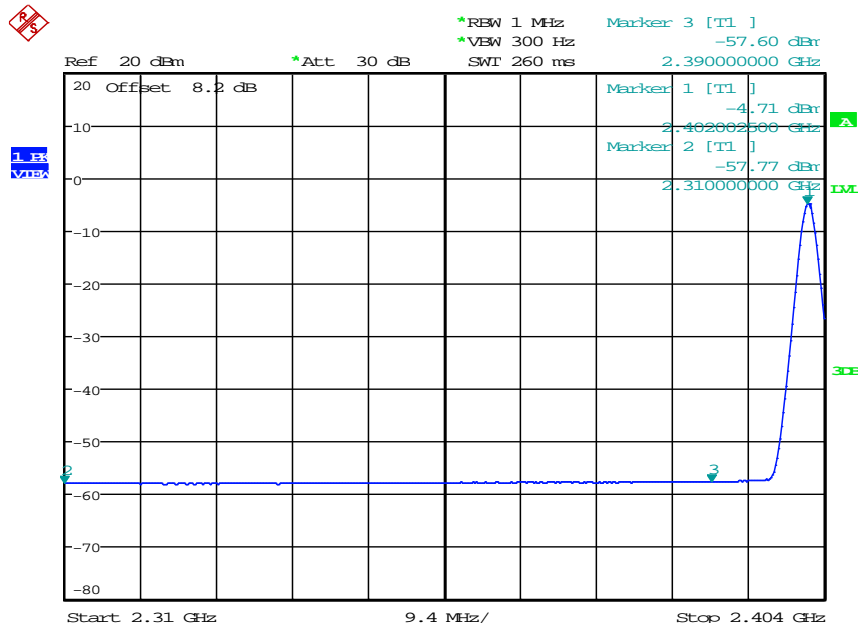
Date: 12.AUG.2019 20:10:20

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



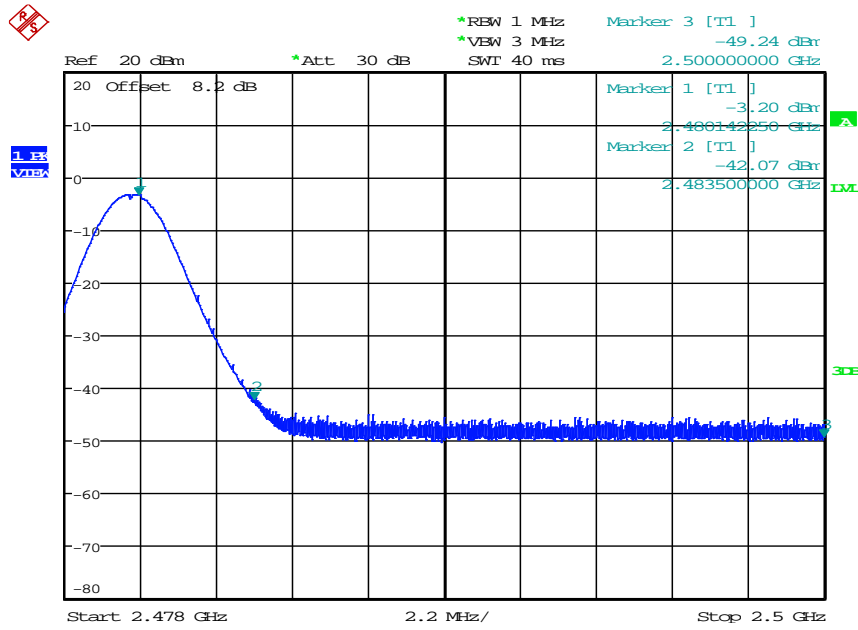
Date: 12.AUG.2019 20:12:46

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



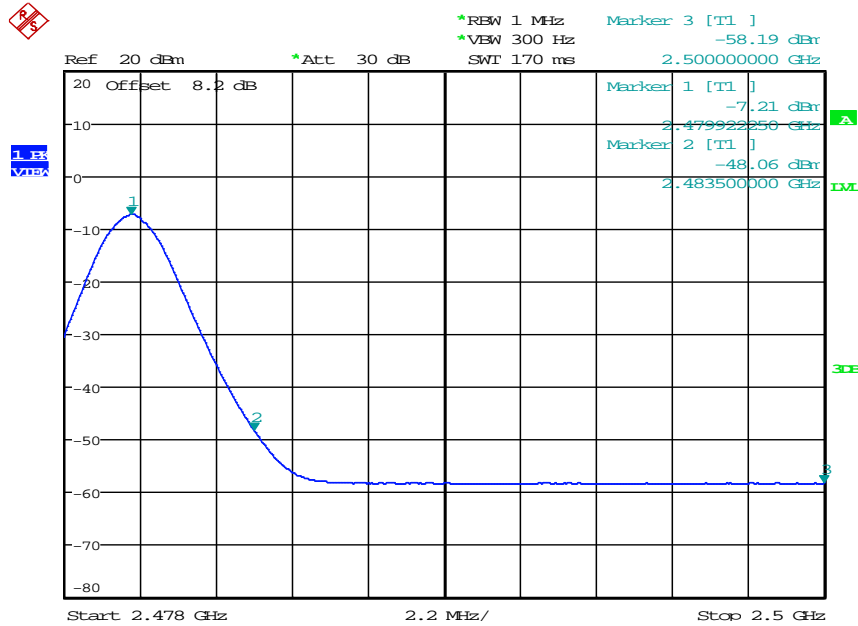
Date: 12.AUG.2019 20:12:59

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



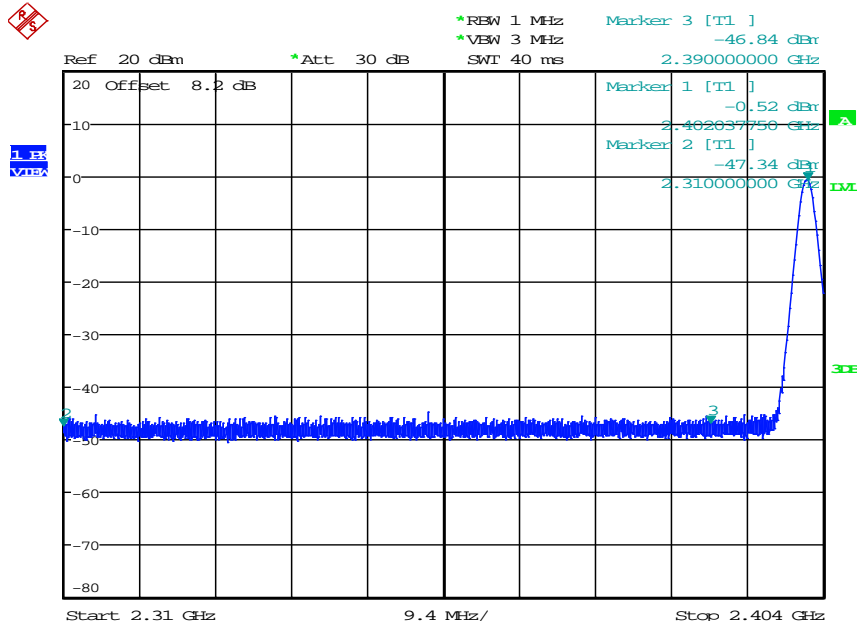
Date: 12.AUG.2019 20:17:50

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



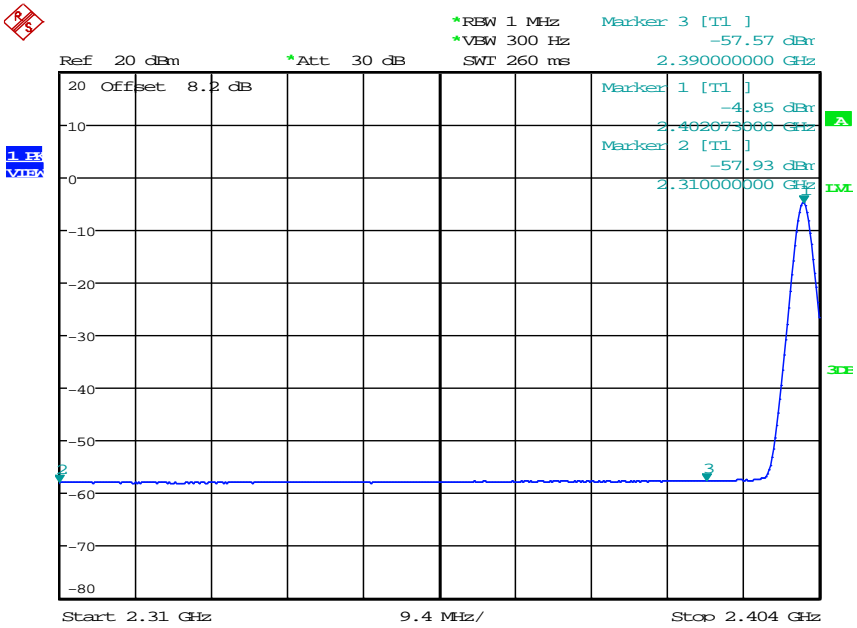
Date: 12.AUG.2019 20:18:03

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



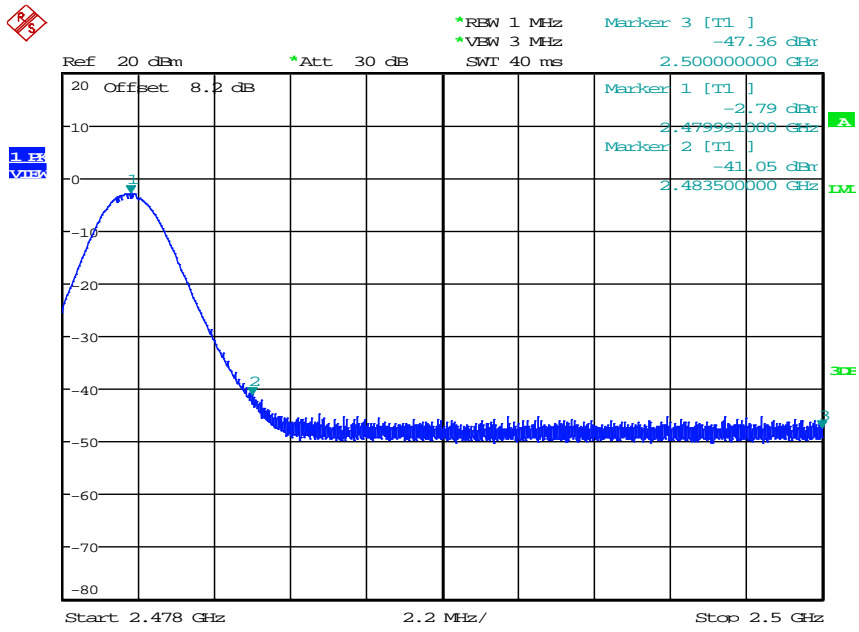
Date: 12.AUG.2019 20:20:33

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



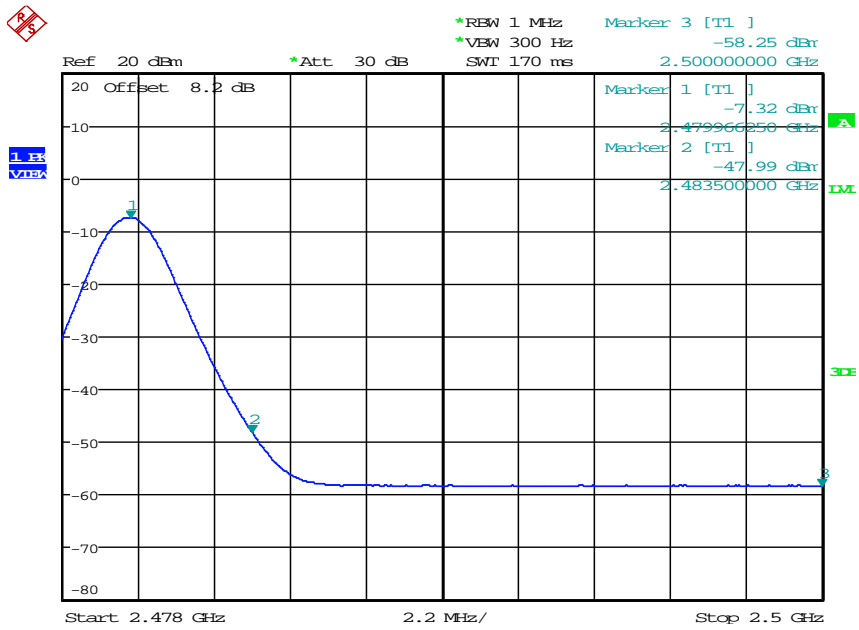
Date: 12.AUG.2019 20:20:46

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



Date: 12.AUG.2019 20:24:58

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



Date: 12.AUG.2019 20:25:11