

Appendix A

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

Product Name: Bluetooth Alarm Clock Speaker with Wireless charger,FM Radio and Shaker

Trade Mark: iLuv

Test Model: TimeShaker 6Q Wow

Environmental Conditions

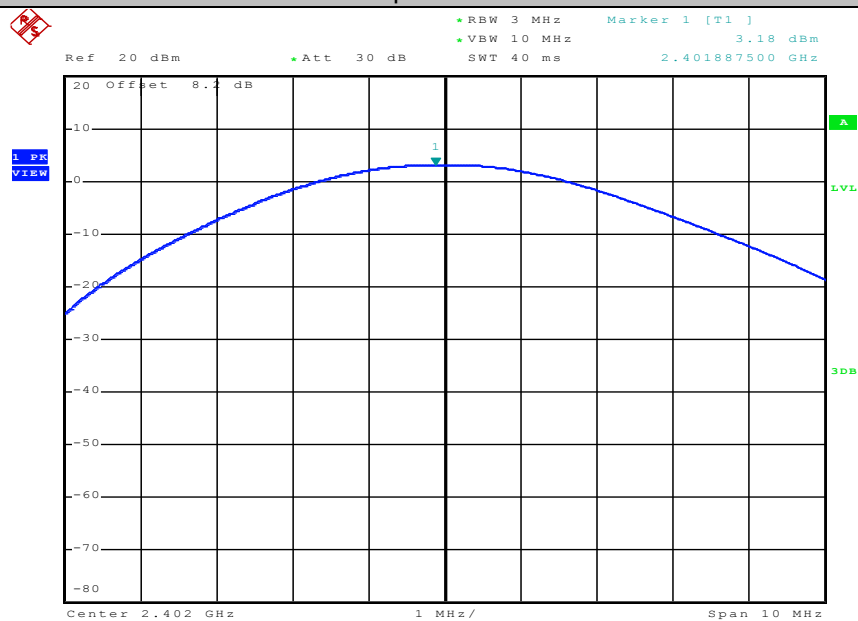
Temperature:	24.8 ° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	lihuan
Supervised by:	Wang.Chuang

A.1 Maximum Conducted Peak Output Power

Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	3.180	30	PASS
	MCH	4.310	30	PASS
	HCH	2.910	30	PASS
$\pi/4$ DQPSK	LCH	2.730	21	PASS
	MCH	3.400	21	PASS
	HCH	1.780	21	PASS

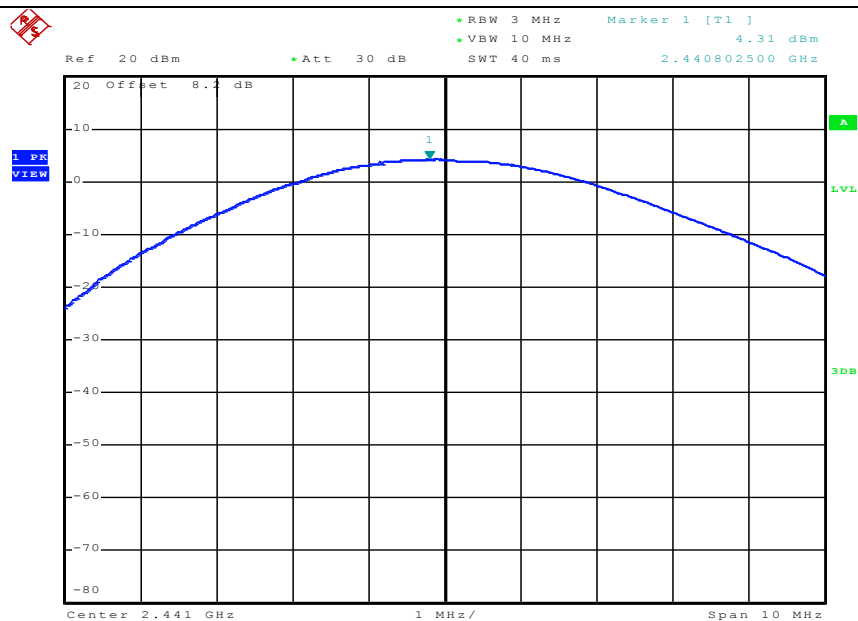
Test Graphs

GFSK/LCH



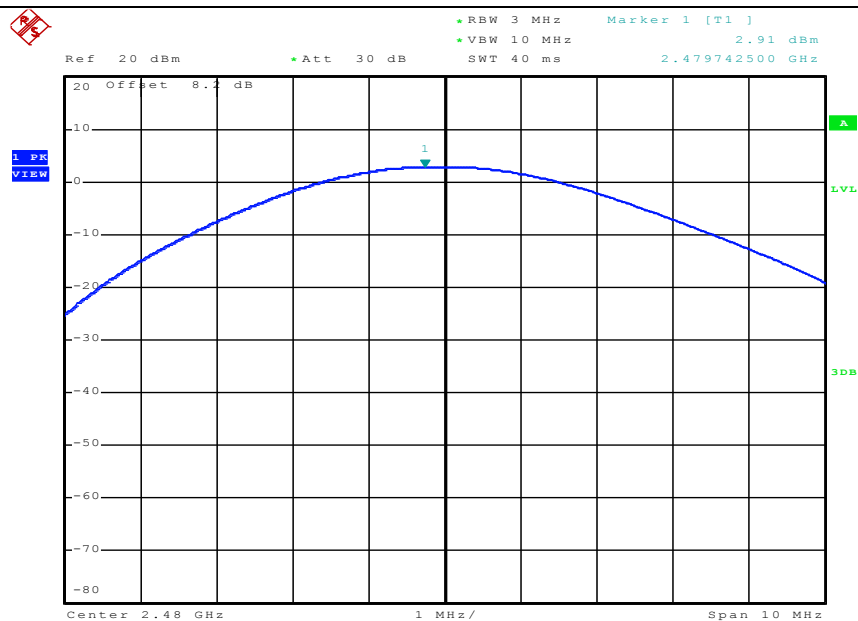
Date: 23.AUG.2019 13:57:41

GFSK/MCH

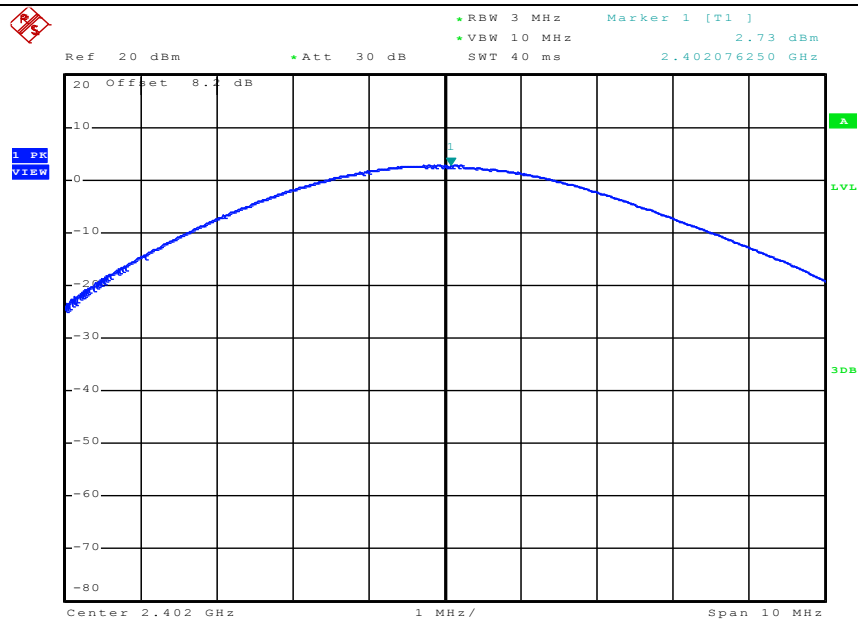


Date: 23.AUG.2019 14:00:10

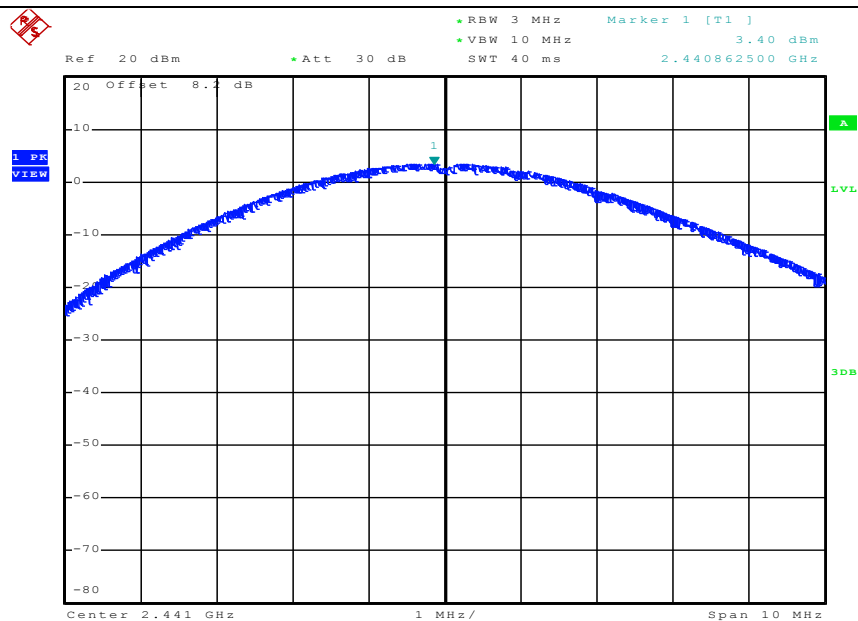
GFSK/HCH



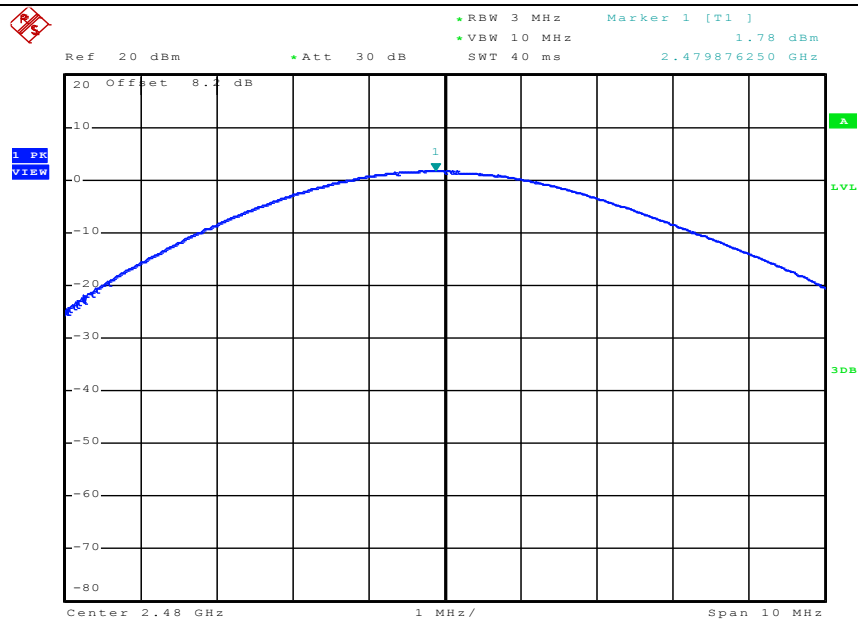
Date: 23.AUG.2019 14:01:53

 $\pi/4$ DQPSK/LCH

Date: 23.AUG.2019 14:07:58

$\pi/4$ DQPSK/MCH

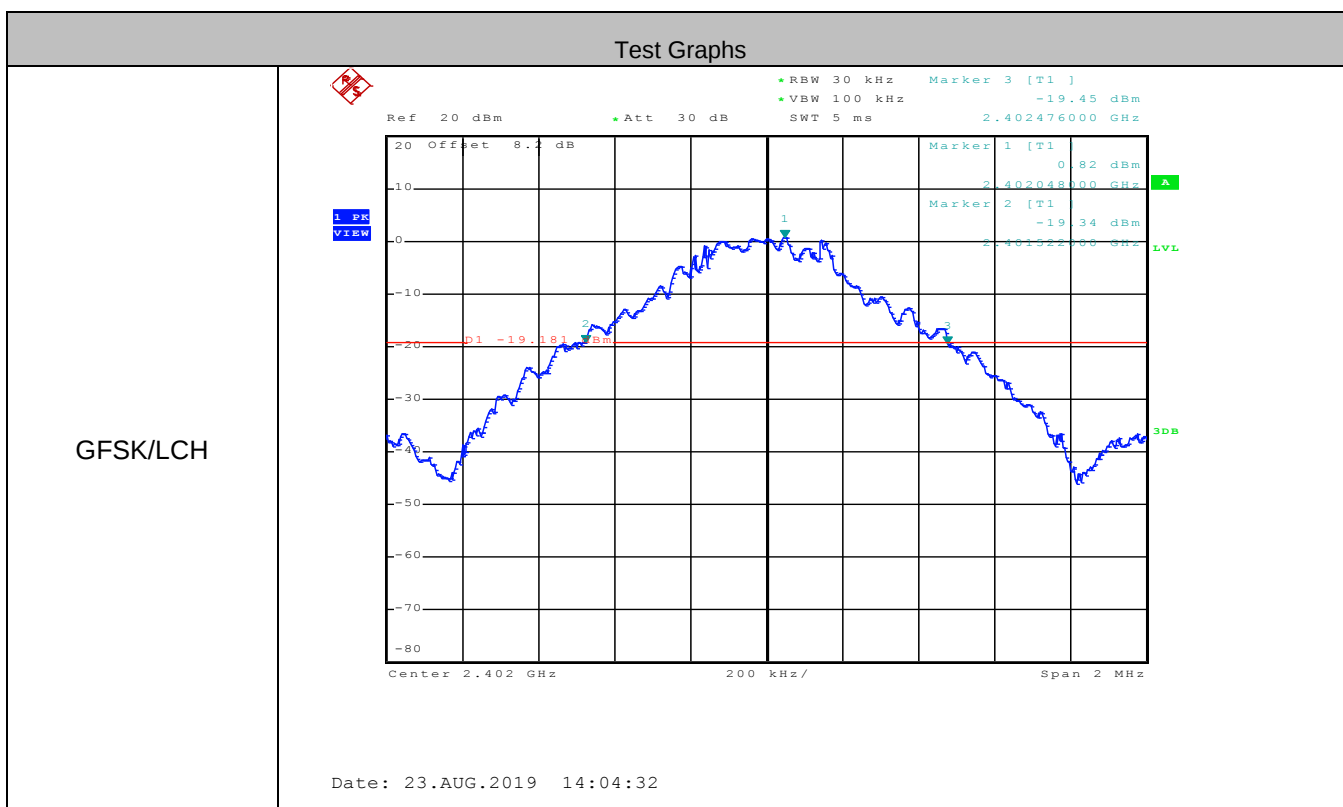
Date: 23.AUG.2019 14:10:55

 $\pi/4$ DQPSK/HCH

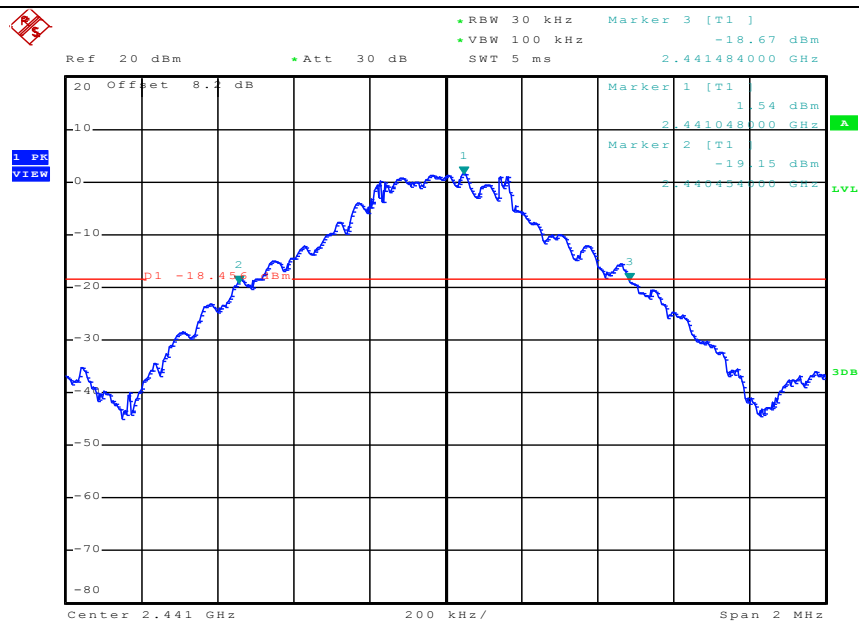
Date: 23.AUG.2019 14:13:00

A.2 20dB Bandwidth

Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.954	Not Specified	PASS
	MCH	1.030	Not Specified	PASS
	HCH	1.032	Not Specified	PASS
$\pi/4$ DQPSK	LCH	1.300	Not Specified	PASS
	MCH	1.314	Not Specified	PASS
	HCH	1.320	Not Specified	PASS

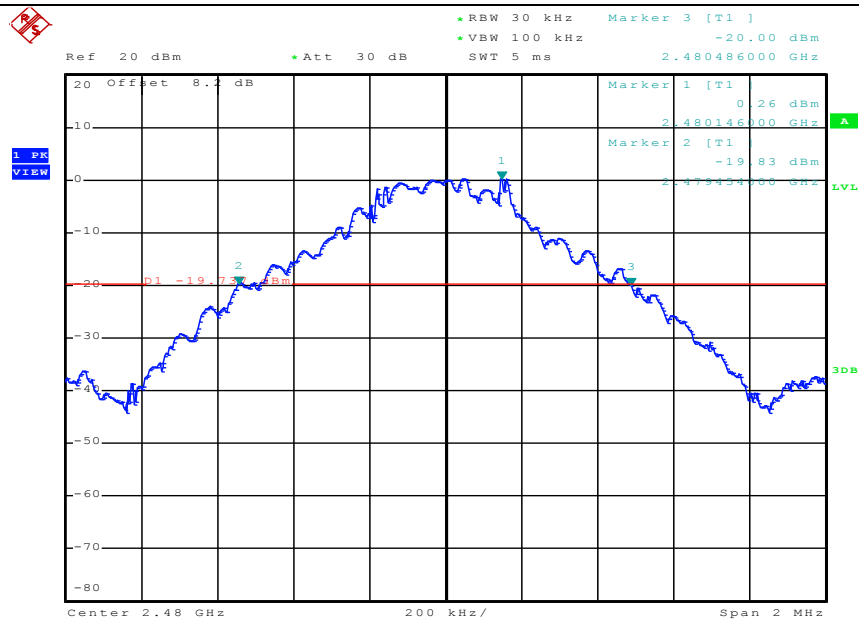


GFSK/MCH

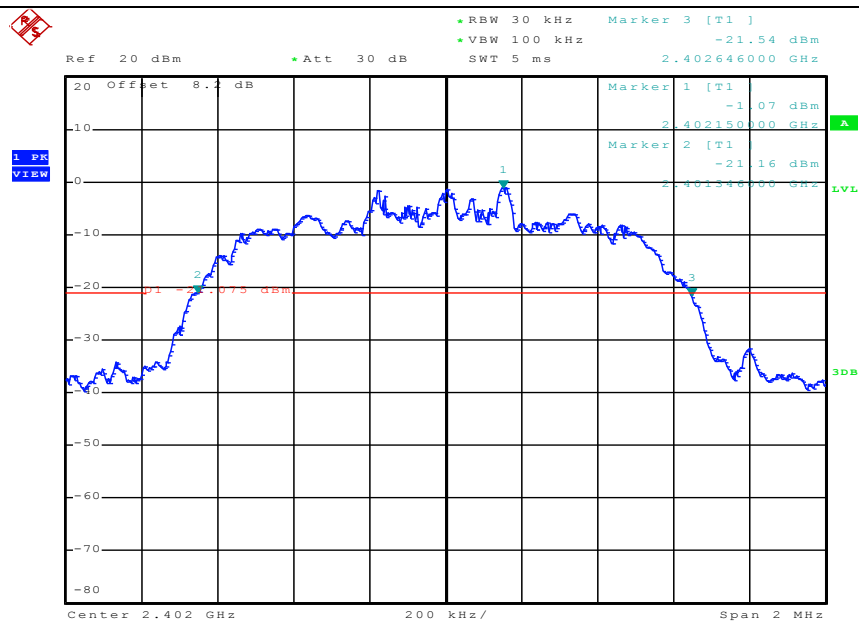


Date: 23.AUG.2019 13:59:34

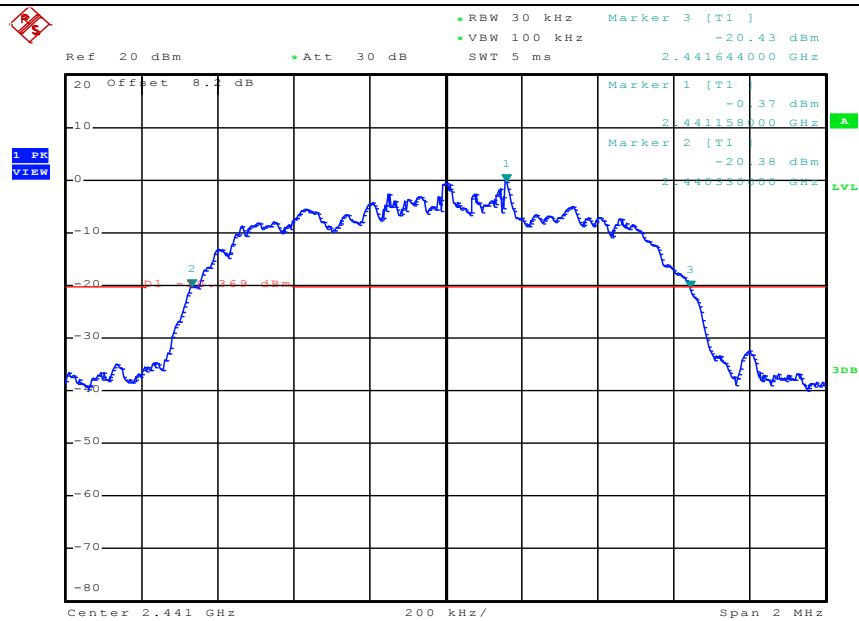
GFSK/HCH



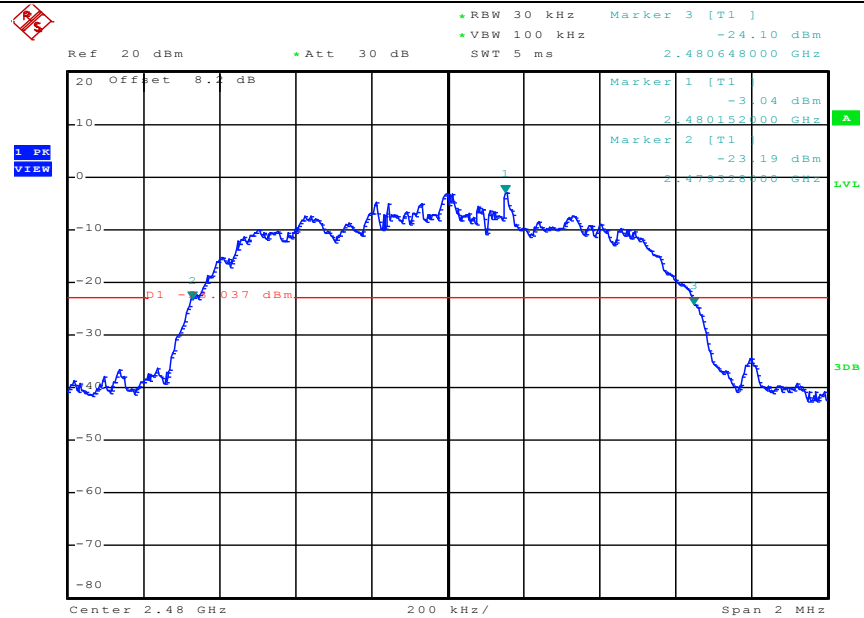
Date: 23.AUG.2019 14:01:17

$\pi/4$ DQPSK/LCH

Date: 23.AUG.2019 14:07:22

 $\pi/4$ DQPSK/MCH

Date: 23.AUG.2019 14:09:48

$\pi/4$ DQPSK/HCH

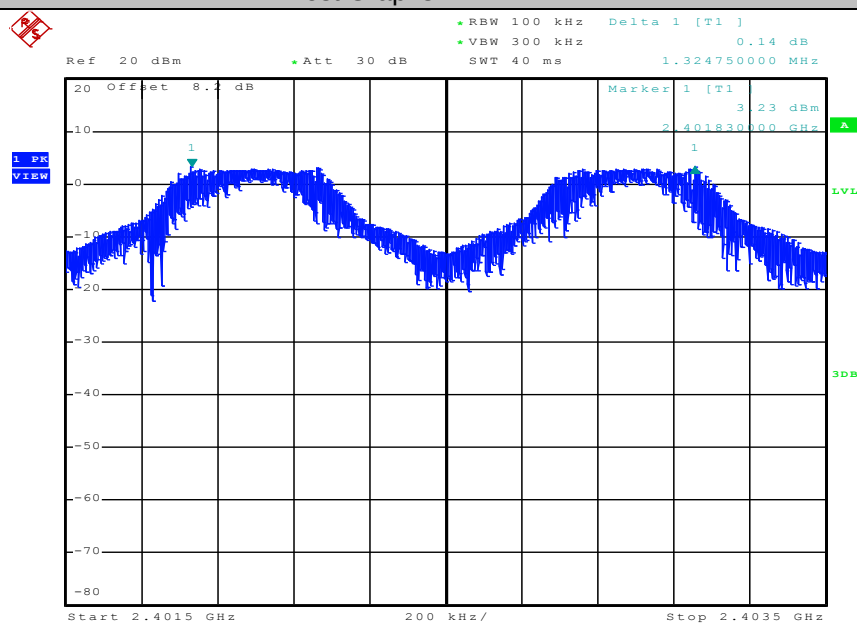
Date: 23.AUG.2019 14:12:23

A.3 Carrier Frequency Separation

Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.325	0.688	PASS
	MCH	0.852	0.688	PASS
	HCH	1.208	0.688	PASS
π /4DQPSK	LCH	1.056	0.880	PASS
	MCH	1.070	0.880	PASS
	HCH	0.994	0.880	PASS

Test Graphs

GFSK/LCH



Date: 23.AUG.2019 14:16:14

1. PK
VIEW

20 Off set 8.2 dB

Ref 20 dBm Att 30 dB

RBW 100 kHz Delta 1 [T1]
VBW 300 kHz -0.40 dB
SWT 5 ms 852.00000000 kHz

Marker 1 [T1]
3 -81 dBm
2 44168000 GHz

Start 2.4405 GHz 200 kHz/ Stop 2.4425 GHz

Date: 23.AUG.2019 14:17:53

1 PK
VIEW

Ref 20 dBm Att 30 dB RBW 100 kHz VBW 300 kHz SWT 5 ms Delta 1 [T1] -0.15 dB 1.208000000 MHz

20 Offset 8.2 dB

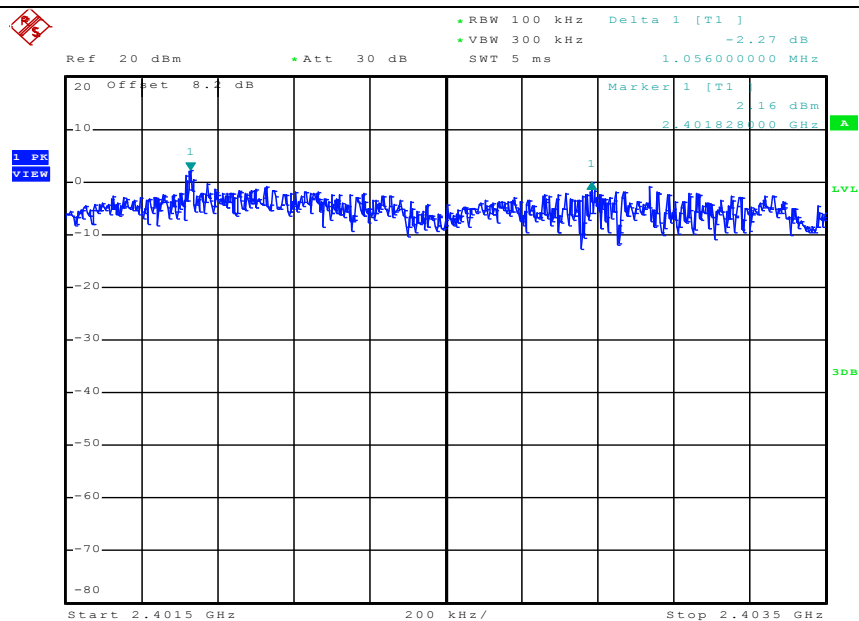
Marker 1 [T1] 2.02 dBm 2.47884000 GHz

1

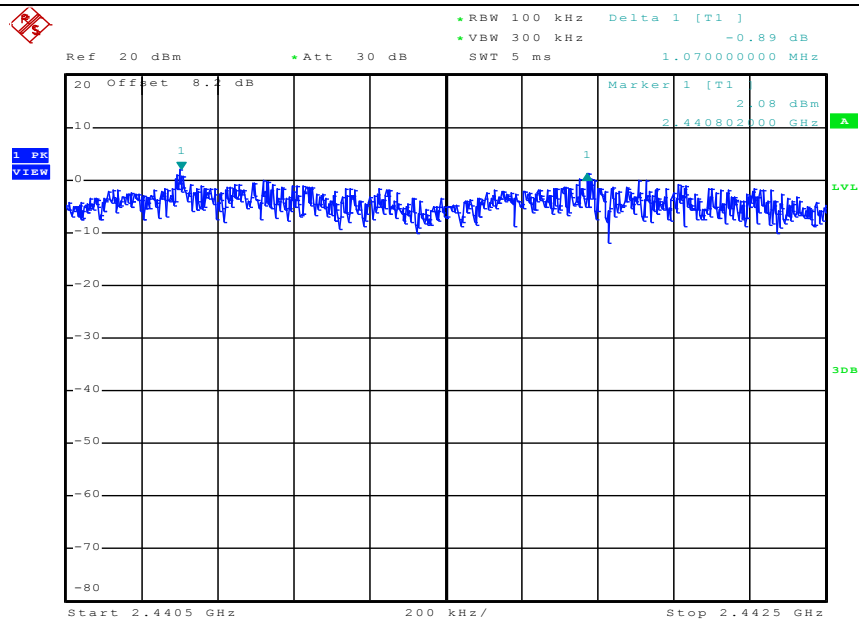
1

Start 2.4785 GHz 200 kHz/ Stop 2.4805 GHz

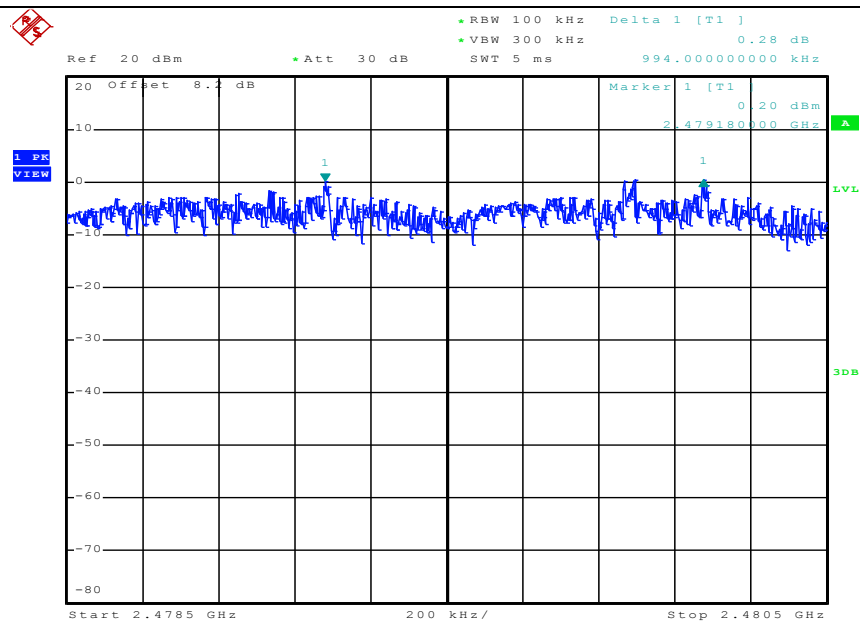
Date: 23.AUG.2019 14:18:14

$\pi/4$ DQPSK/LCH

Date: 23.AUG.2019 14:22:20

 $\pi/4$ DQPSK/MCH

Date: 23.AUG.2019 14:24:12

$\pi/4$ DQPSK/HCH

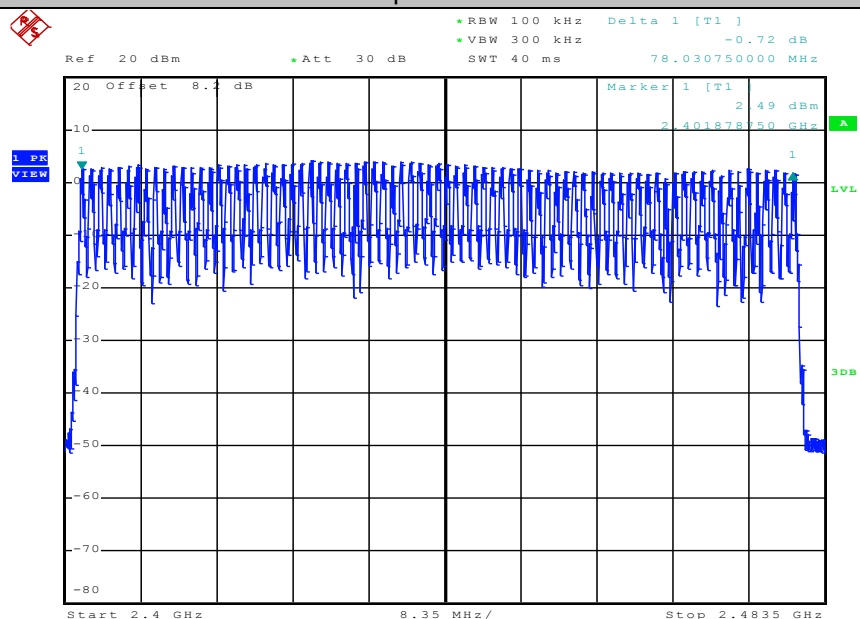
Date: 23.AUG.2019 14:24:36

A.4 Hopping Channel Number

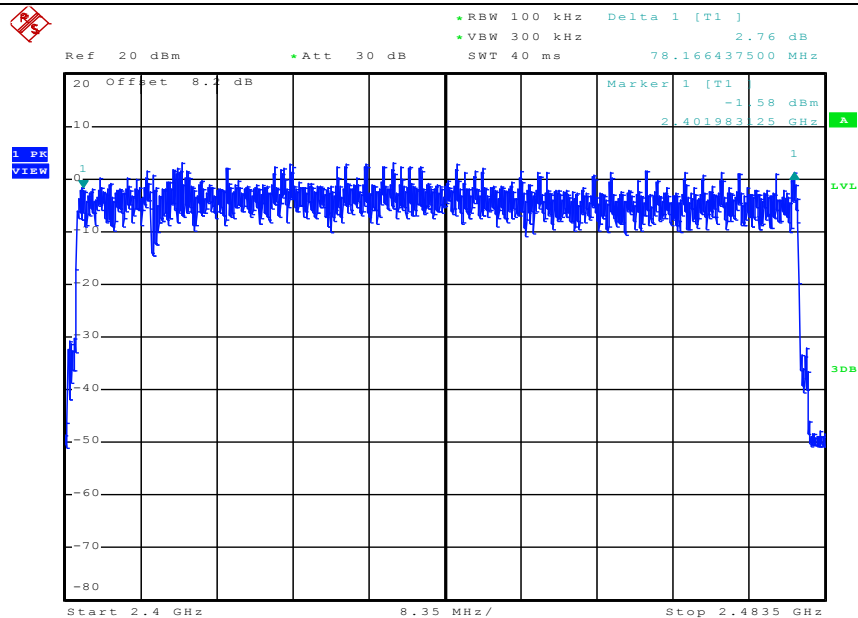
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
$\pi/4$ DQPSK	Hop	79	>=15	PASS

Test Graphs

GFSK/Hop



Date: 23.AUG.2019 14:21:42

$\pi/4$ DQPSK/Hop

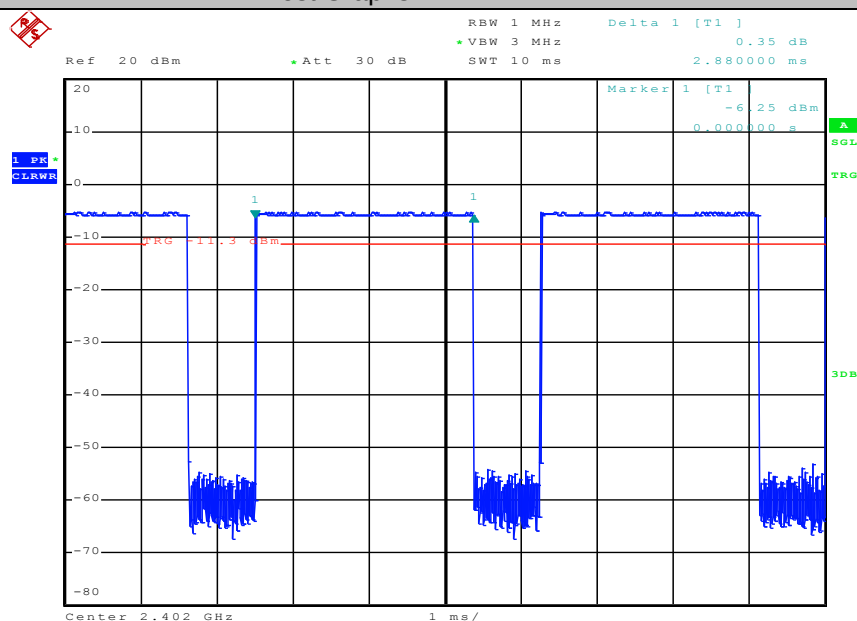
Date: 23.AUG.2019 14:29:51

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
$\pi/4$ DQPSK	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

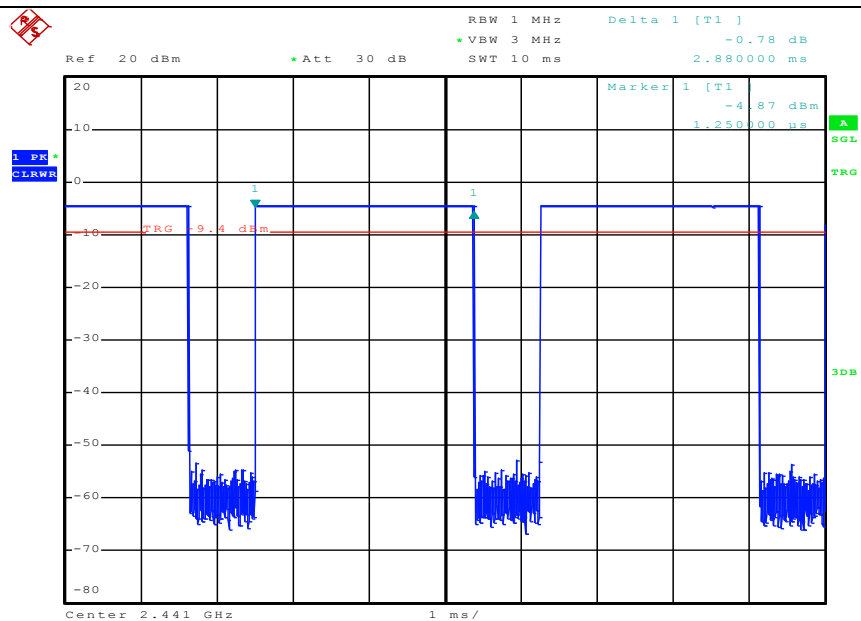
Test Graphs

GFSK_DH5/LCH



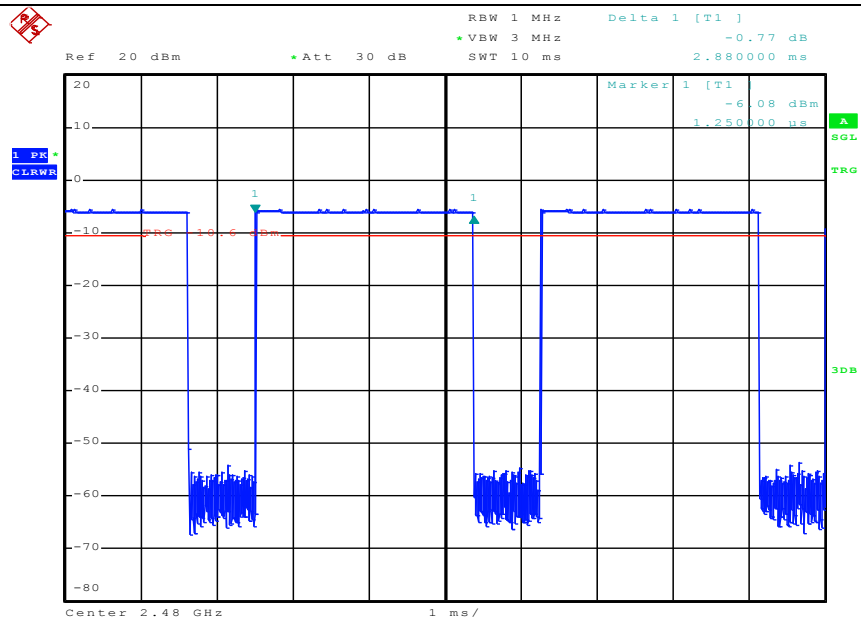
Date: 23.AUG.2019 13:57:26

GFSK_DH5/MCH



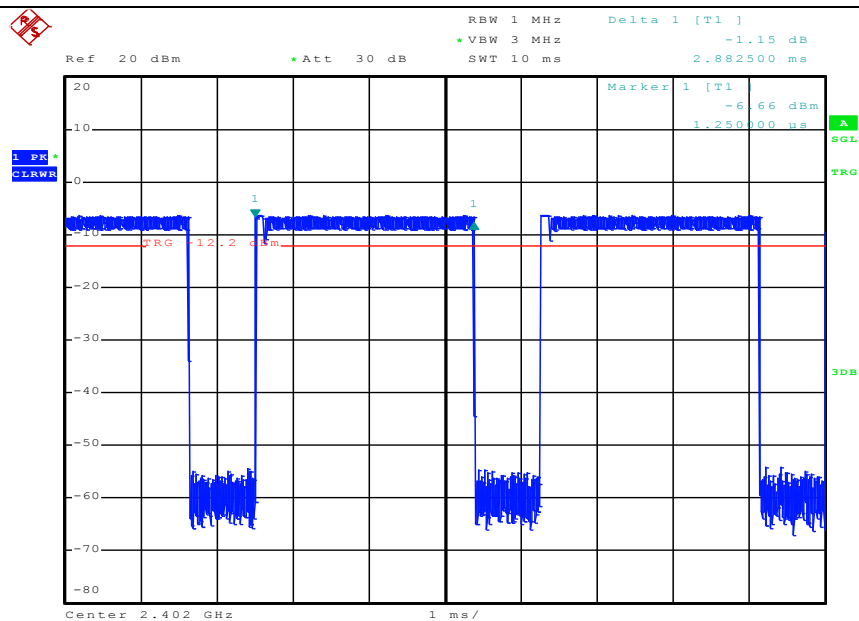
Date: 23.AUG.2019 13:59:55

GFSK_DH5/HCH



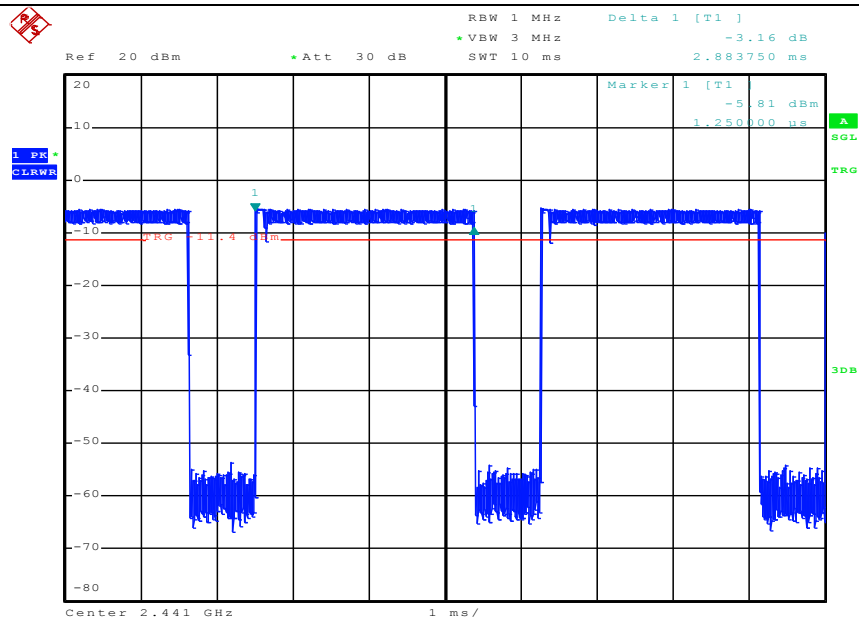
Date: 23.AUG.2019 14:01:38

$\pi/4$ DQPSK
_2DH5/LCH



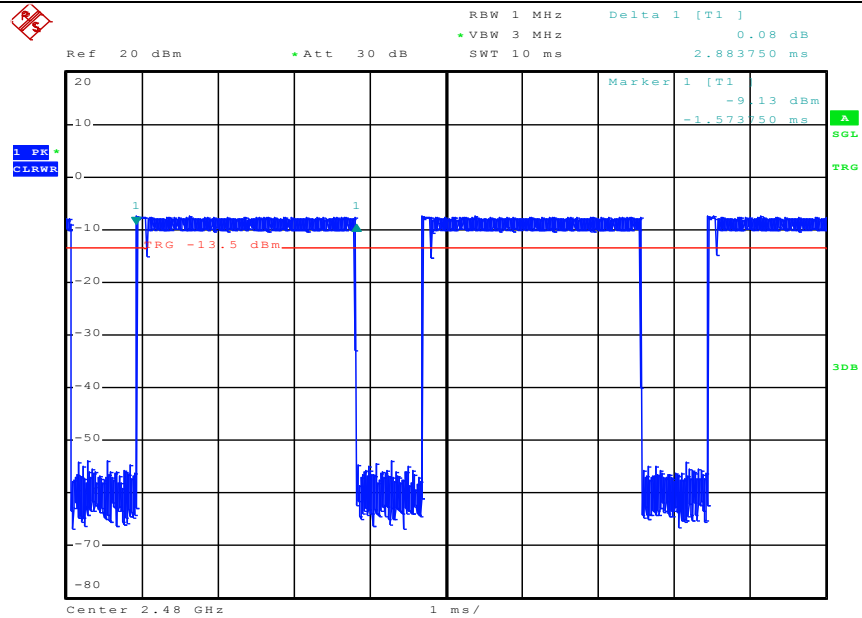
Date: 23.AUG.2019 14:07:43

$\pi/4$ DQPSK
_2DH5/MCH



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

$\pi/4$ DQPSK
_2DH5/HCH



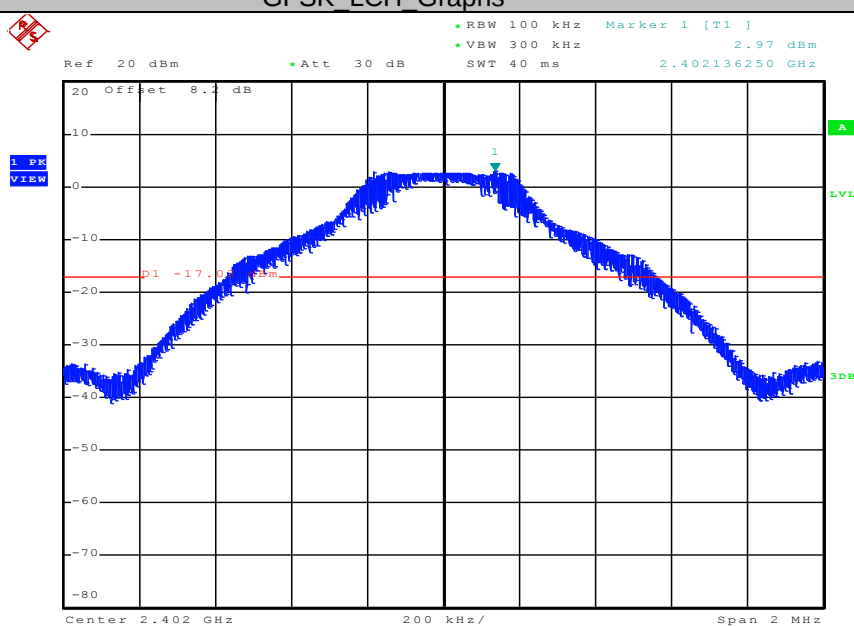
Date: 23.AUG.2019 14:12:45

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2.97	-32.700	-17.030	PASS
	MCH	4.4	-32.370	-15.600	PASS
	HCH	2.9	-32.660	-17.100	PASS
$\pi/4$ DQPSK	LCH	2.01	-32.110	-17.990	PASS
	MCH	3.04	-32.360	-16.960	PASS
	HCH	1.2	-31.450	-18.800	PASS

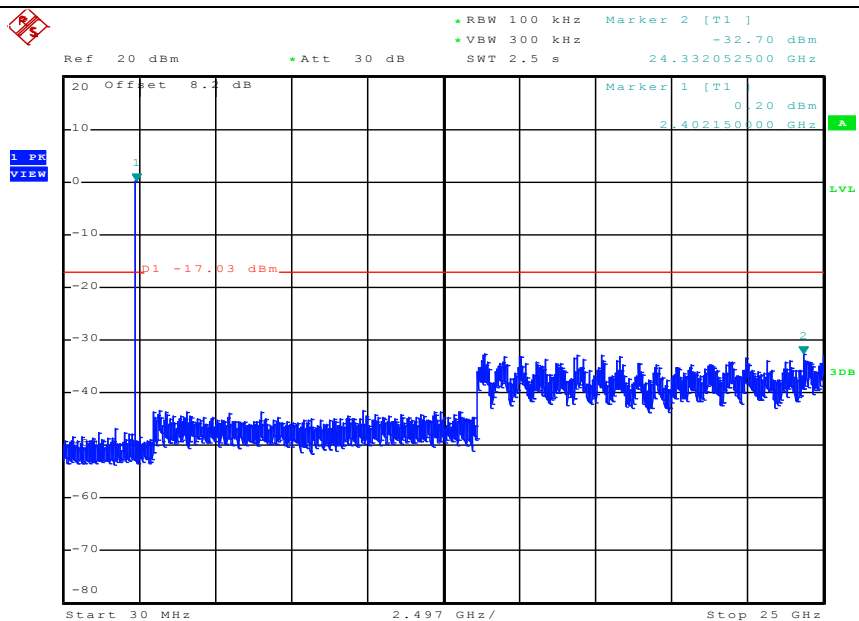
GFSK LCH Graphs

Pref



Date: 23.AUG.2019 13:58:11

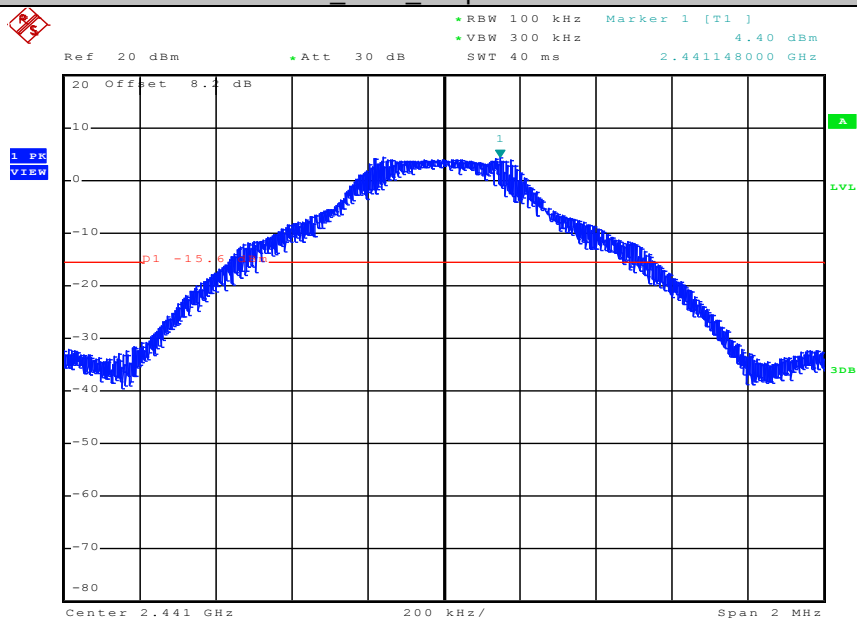
P_{uw}



Date: 23.AUG.2019 13:58:26

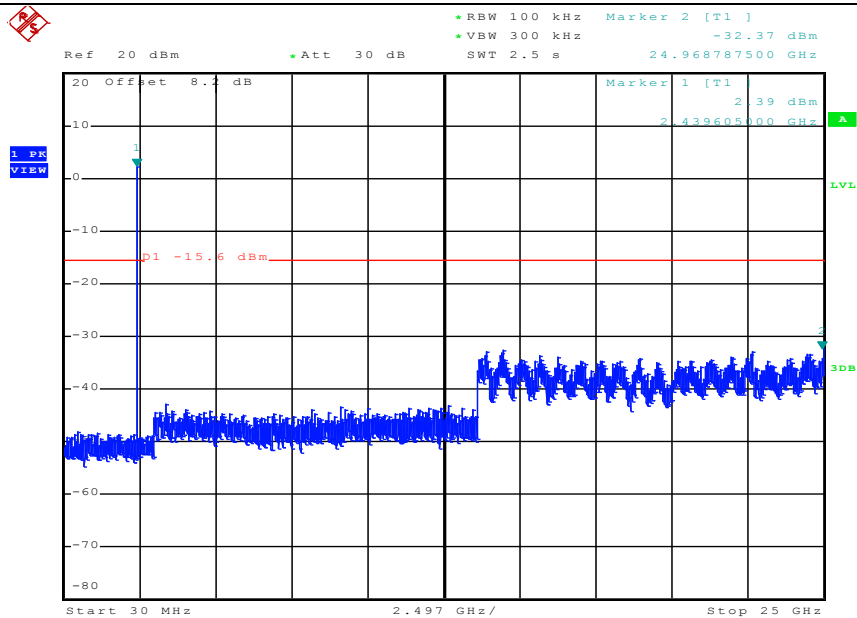
GFSK_MCH_Graphs

Pref



Date: 23.AUG.2019 14:00:23

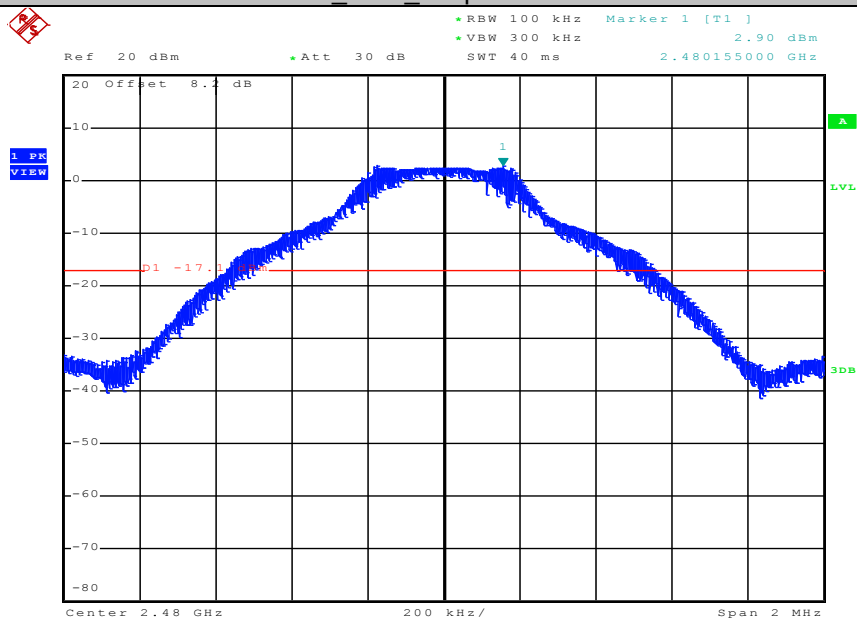
Puw



Date: 23.AUG.2019 14:00:37

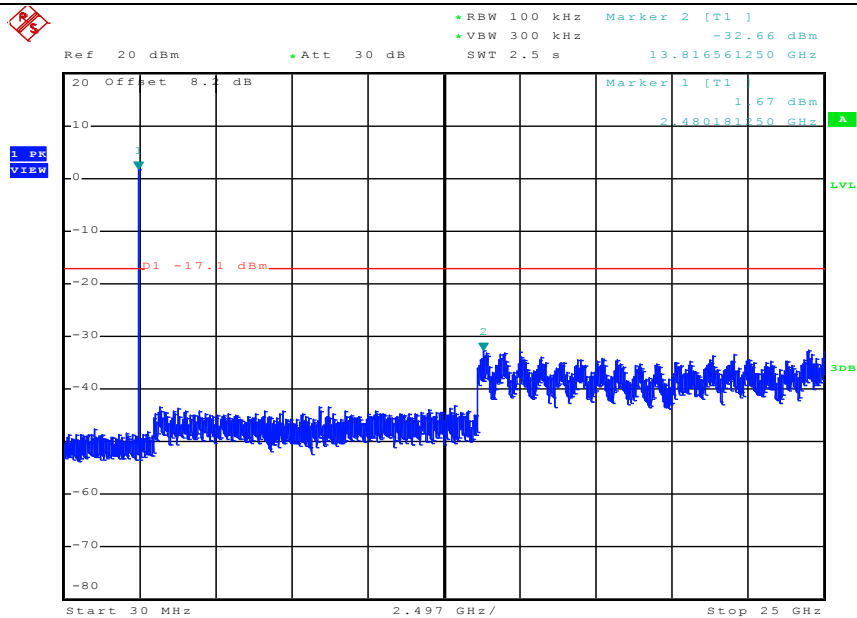
GFSK_HCH_Graphs

Pref



Date: 23.AUG.2019 14:02:22

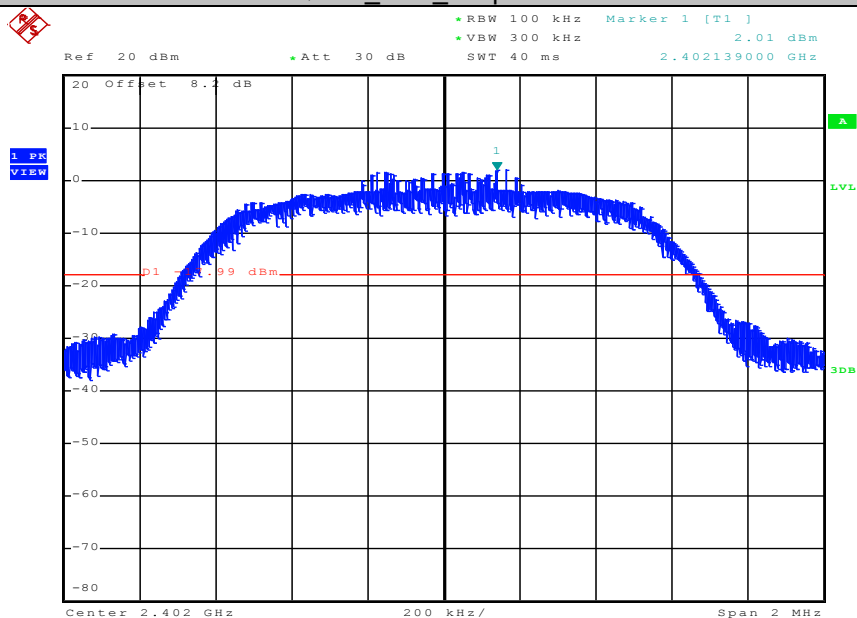
Puw



Date: 23.AUG.2019 14:02:37

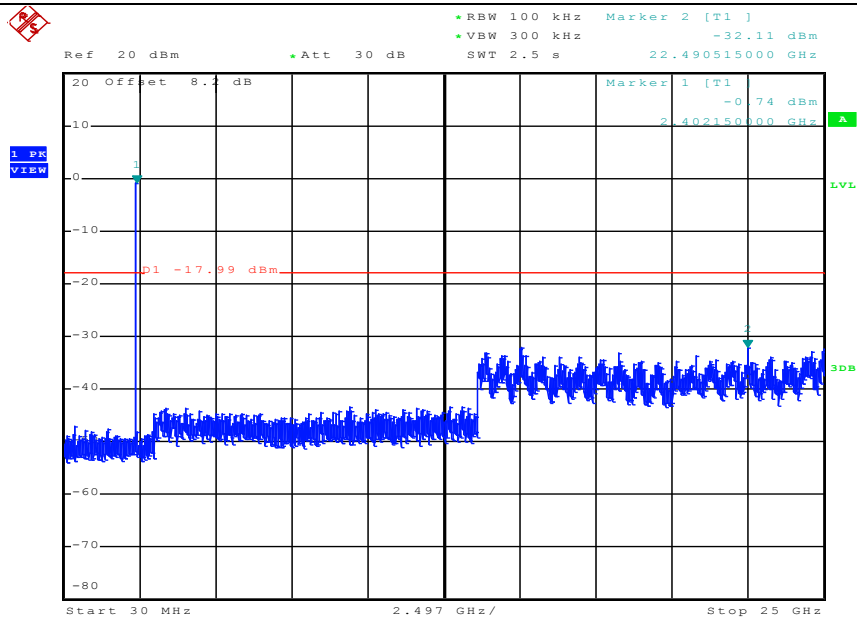
$\pi/4$ DQPSK_LCH_Graphs

Pref



Date: 23.AUG.2019 14:08:28

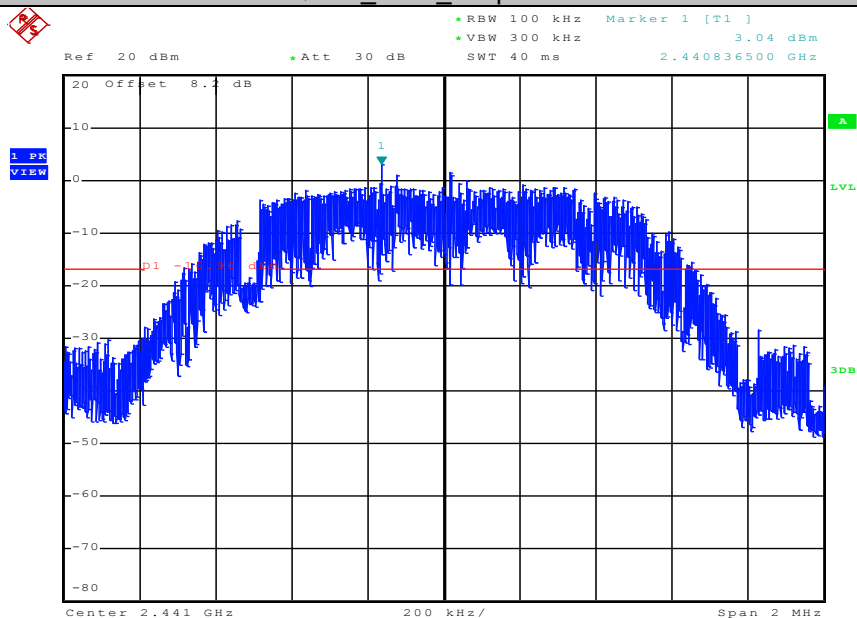
Puw



Date: 23.AUG.2019 14:08:42

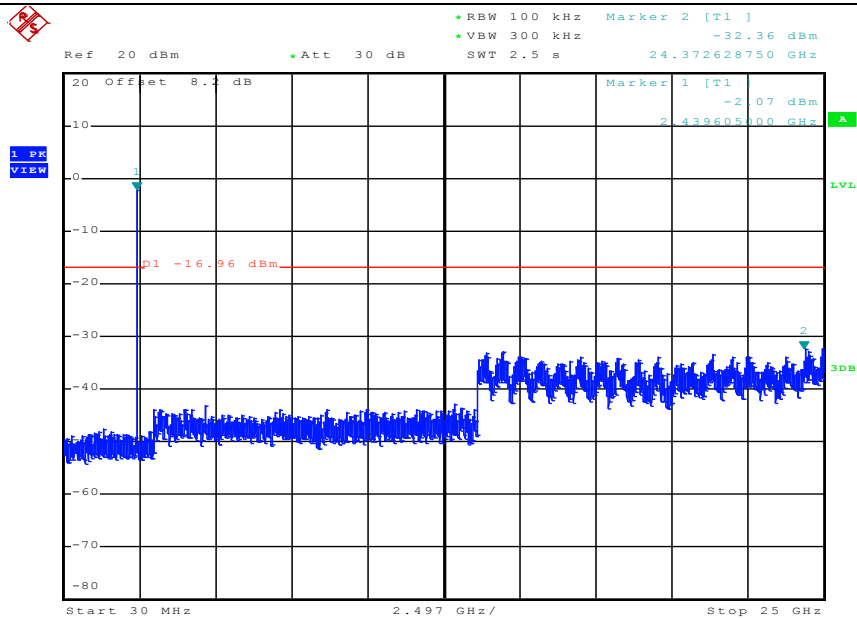
$\pi/4$ DQPSK_MCH_Graphs

Pref



Date: 23.AUG.2019 14:11:33

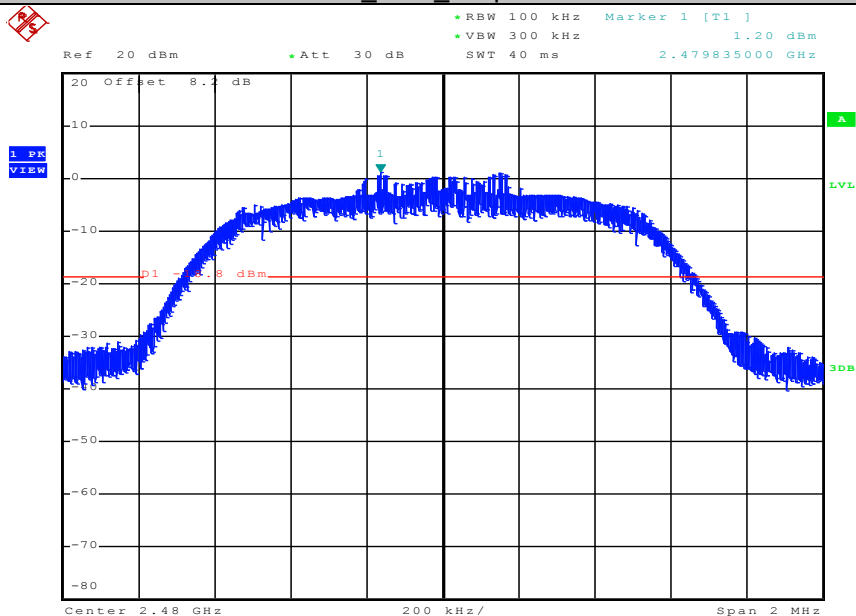
Puw



Date: 23.AUG.2019 14:11:48

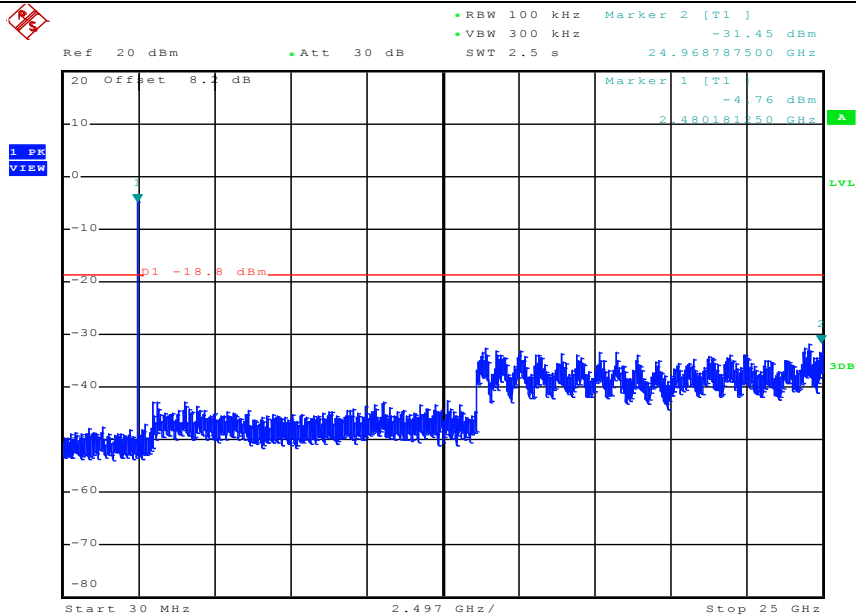
$\pi/4$ DQPSK_HCH_Graphs

Pref



Date: 23.AUG.2019 14:13:30

Puw



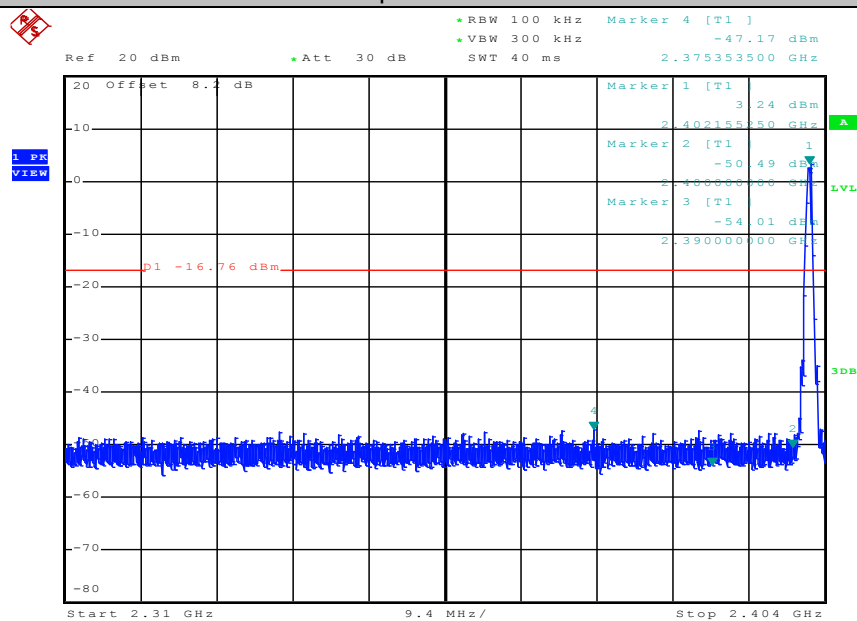
Date: 23.AUG.2019 14:13:45

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	3.240	Off	-47.172	-16.76	PASS
			3.780	On	-46.680	-16.22	PASS
	HCH	2480	2.320	Off	-46.861	-17.68	PASS
			2.870	On	-47.005	-17.13	PASS
$\pi/4$ DQPSK	LCH	2402	-0.990	Off	-47.001	-20.99	PASS
			2.370	On	-46.910	-17.63	PASS
	HCH	2480	0.650	Off	-47.017	-19.35	PASS
			1.430	On	-46.943	-18.57	PASS

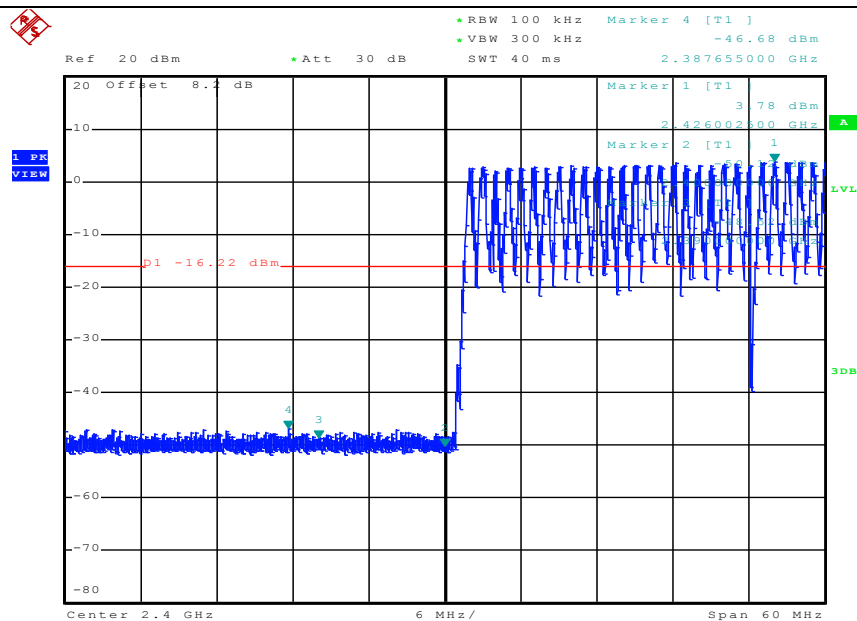
Test Graphs

GFSK/LCH/No Hop



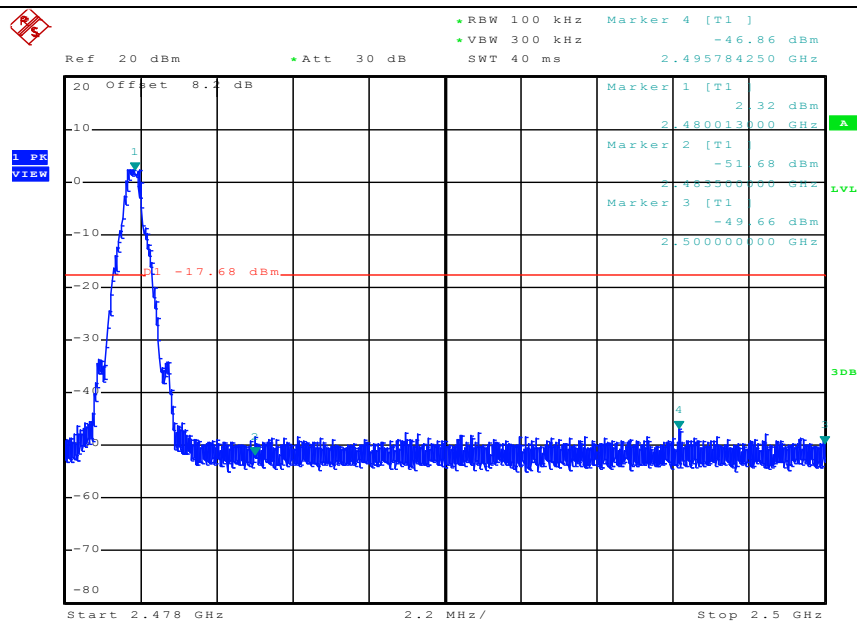
Date: 23.AUG.2019 13:57:58

GFSK/LCH/Hop



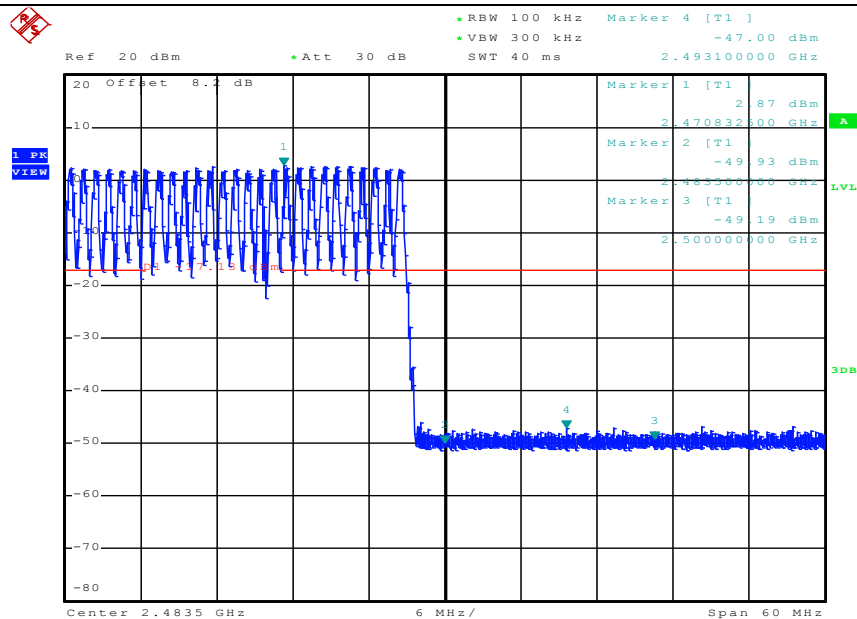
Date: 23.AUG.2019 14:17:32

GFSK/HCH/No Hop



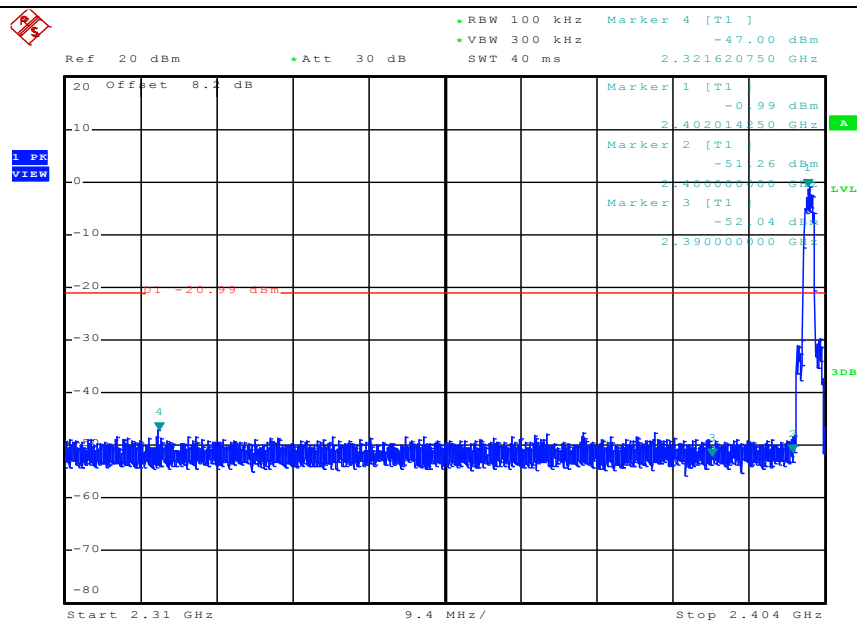
Date: 23.AUG.2019 14:02:09

GFSK/HCH/Hop



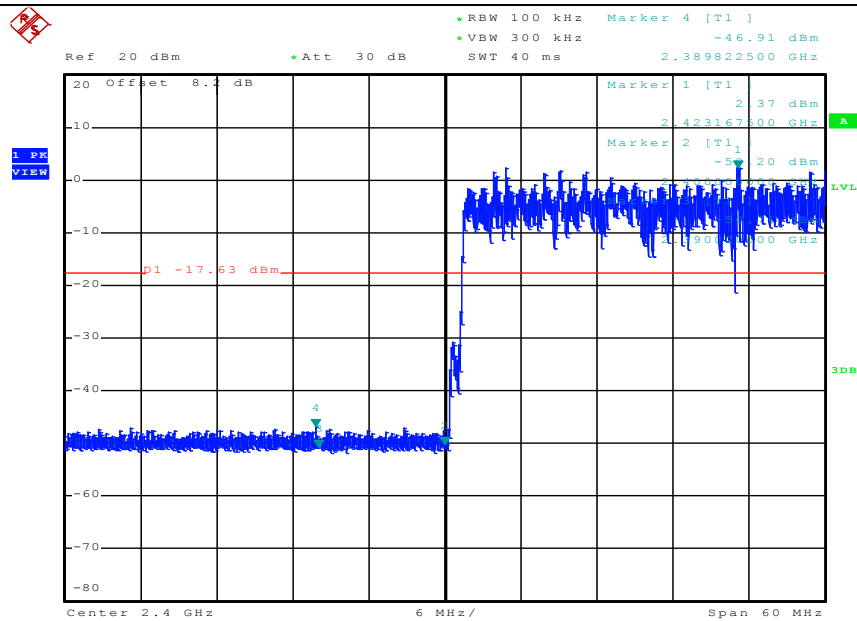
Date: 23.AUG.2019 14:20:13

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



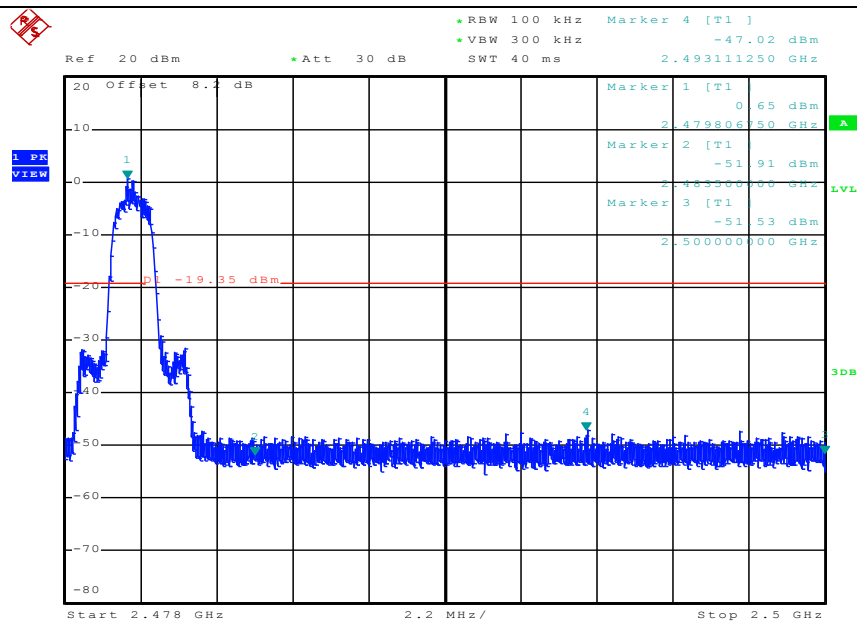
Date: 23.AUG.2019 14:08:15

$\pi/4$ DQPSK/LCH/Hop



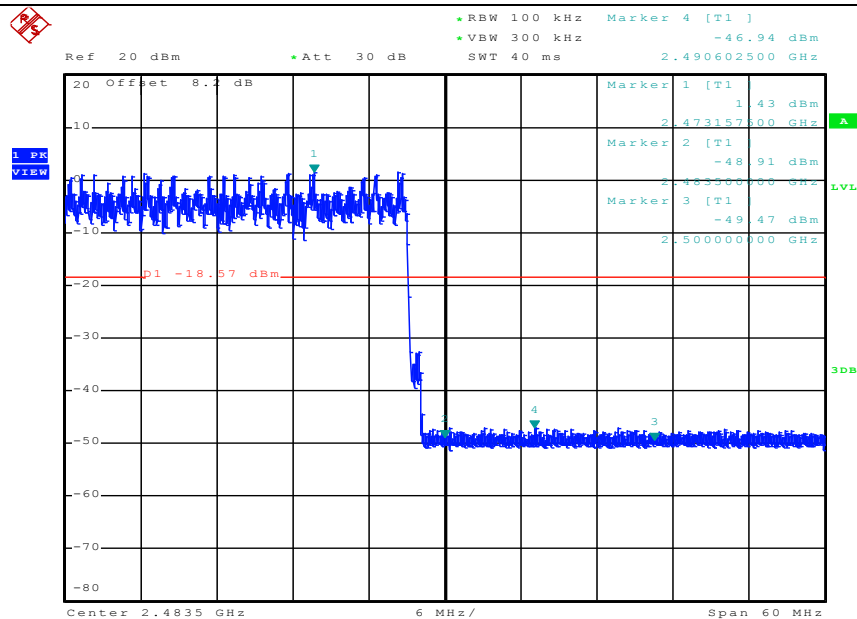
Date: 23.AUG.2019 14:23:46

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



Date: 23.AUG.2019 14:13:17

$\pi/4$ DQPSK/HCH/Hop

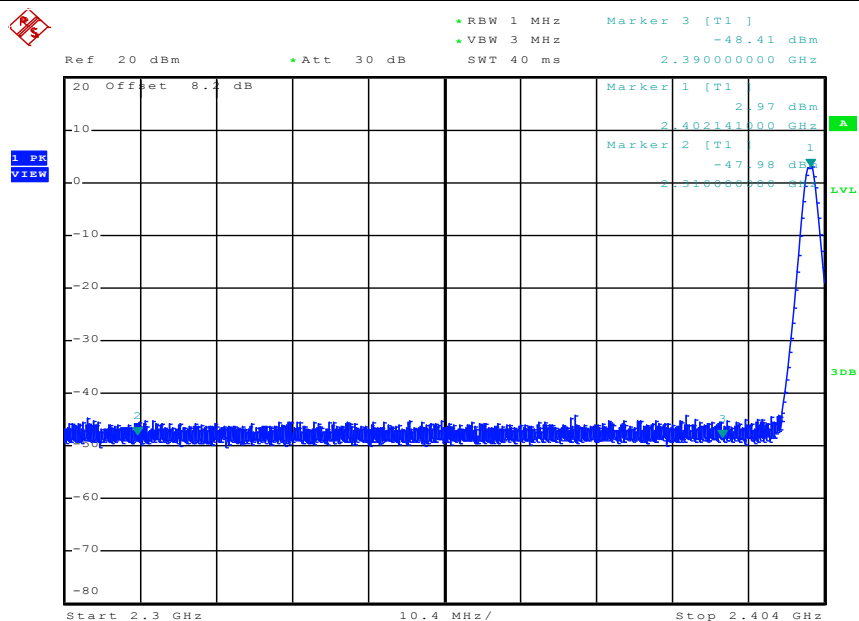


Date: 23.AUG.2019 14:27:39

A.8 Restrict-band band-edge measurements

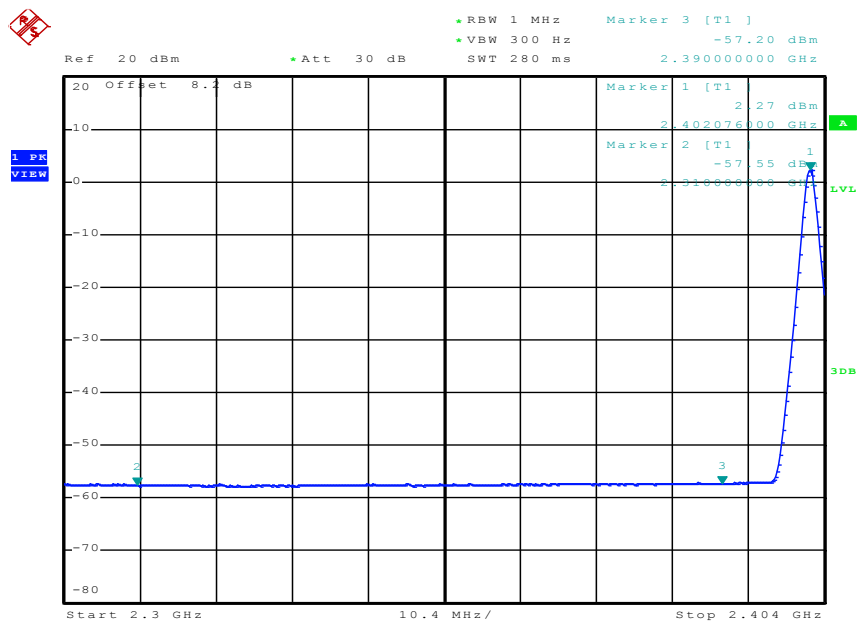
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.98	2.0	0	49.28	PEAK	74	PASS
	Off	2310.0	-57.55	2.0	0	39.71	AV	54	PASS
	Off	2390.0	-48.41	2.0	0	48.85	PEAK	74	PASS
	Off	2390.0	-57.20	2.0	0	40.06	AV	54	PASS
	Off	2483.5	-47.18	2.0	0	50.08	PEAK	74	PASS
	Off	2483.5	-54.35	2.0	0	42.91	AV	54	PASS
	Off	2500.0	-45.54	2.0	0	51.72	PEAK	74	PASS
	Off	2500.0	-58.00	2.0	0	39.26	AV	54	PASS
$\pi/4$ DQPSK	Off	2310.0	-48.19	2.0	0	49.07	PEAK	74	PASS
	Off	2310.0	-57.55	2.0	0	39.71	AV	54	PASS
	Off	2390.0	-47.85	2.0	0	49.41	PEAK	74	PASS
	Off	2390.0	-57.33	2.0	0	39.93	AV	54	PASS
	Off	2483.5	-38.01	2.0	0	59.25	PEAK	74	PASS
	Off	2483.5	-46.77	2.0	0	50.49	AV	54	PASS
	Off	2500.0	-47.26	2.0	0	50.00	PEAK	74	PASS
	Off	2500.0	-57.36	2.0	0	39.90	AV	54	PASS

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



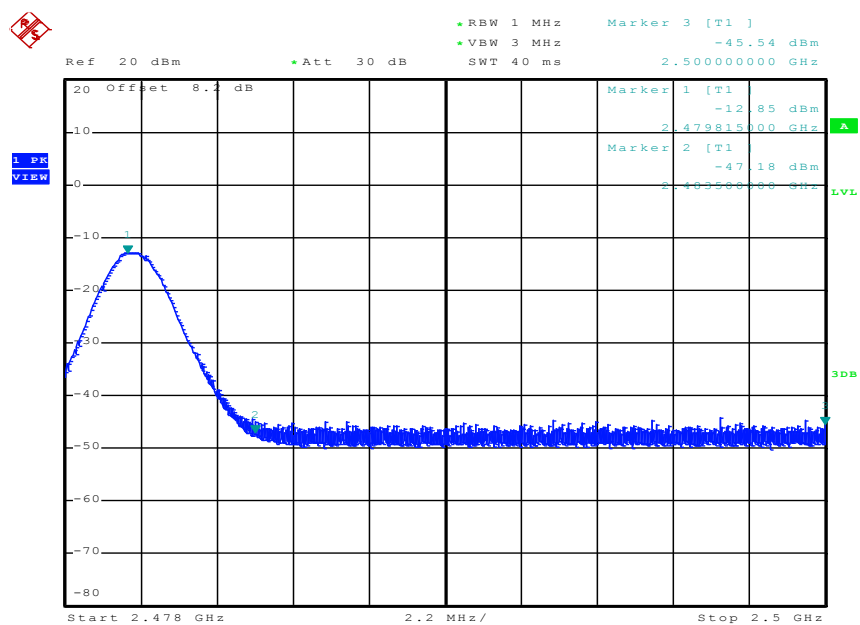
Date: 23.AUG.2019 13:58:44

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



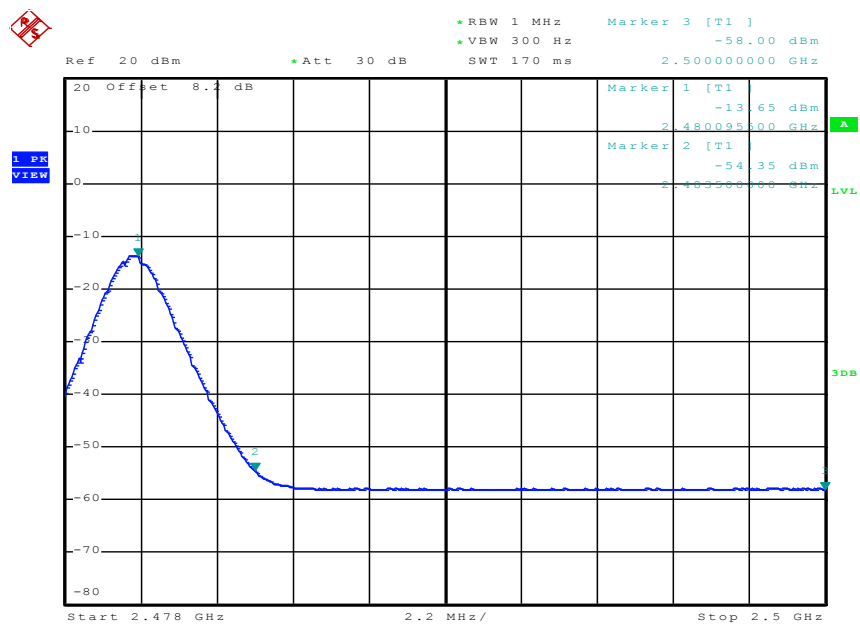
Date: 23.AUG.2019 13:58:58

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

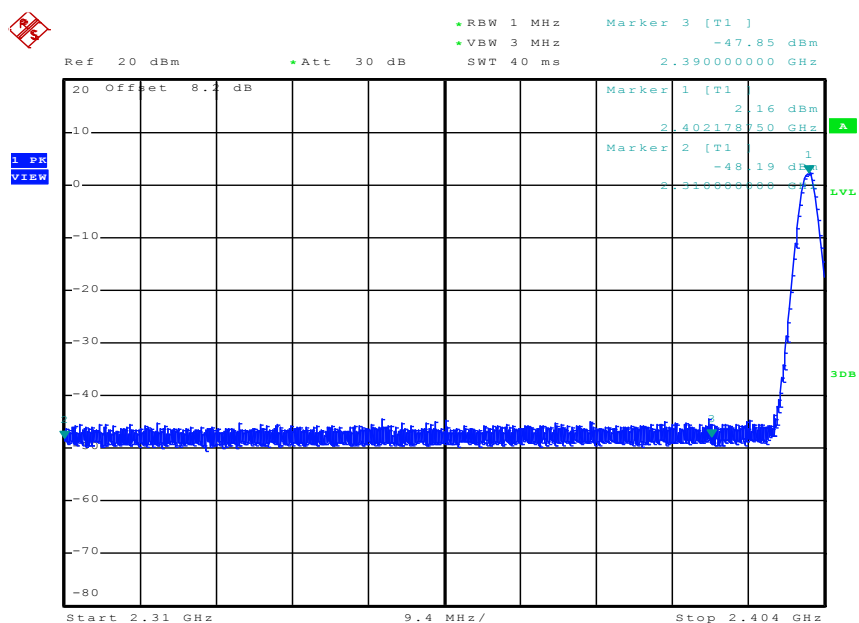


Date: 23.AUG.2019 14:06:28

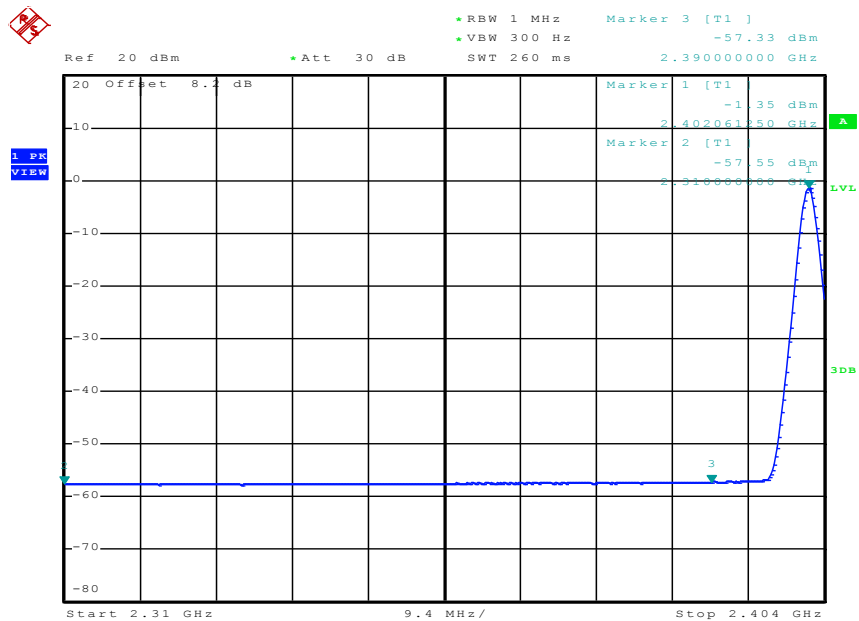
Restrict-band band-edge measurements_Hopping Off_GFSK_Average (High Channel)



Date: 23.AUG.2019 14:06:41

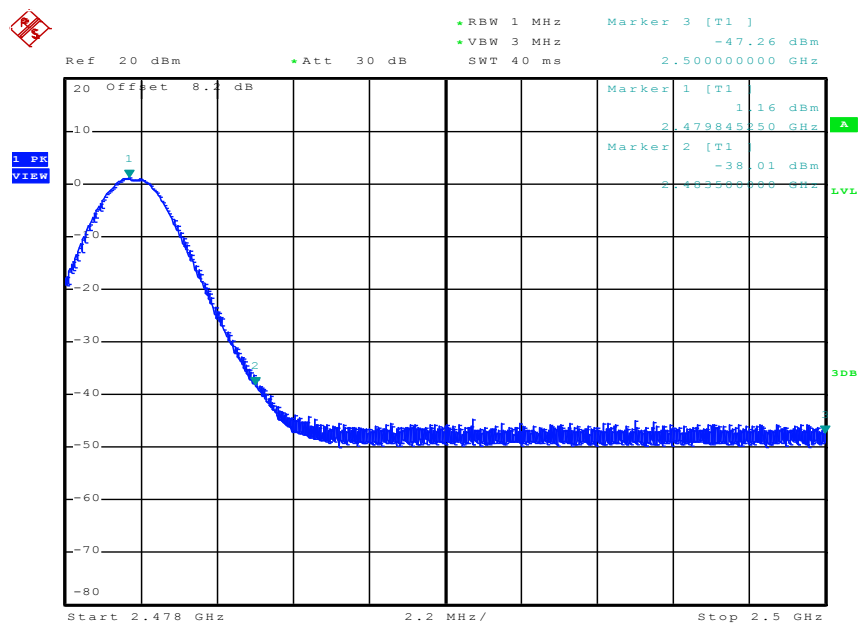
Restrict-band band-edge measurements_Hopping Off $\pi/4$ -DQPSK_PEAK (Low Channel)

Date: 23.AUG.2019 14:09:01

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

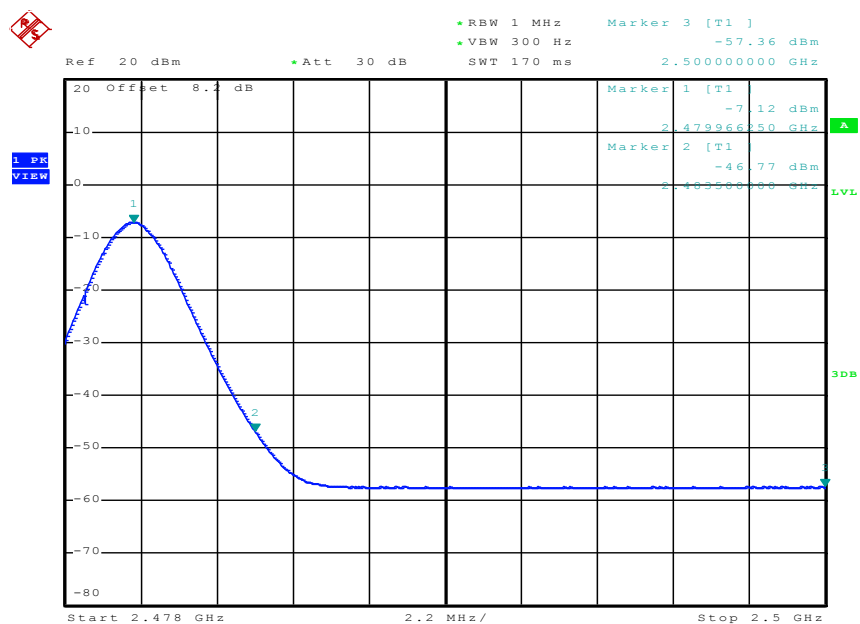
Date: 23.AUG.2019 14:09:15

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



Date: 23.AUG.2019 14:14:03

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



Date: 25.AUG.2019 20:28:45