Appendix A

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

Product Name: Urbanista Athens

Trade Mark: Urbanista

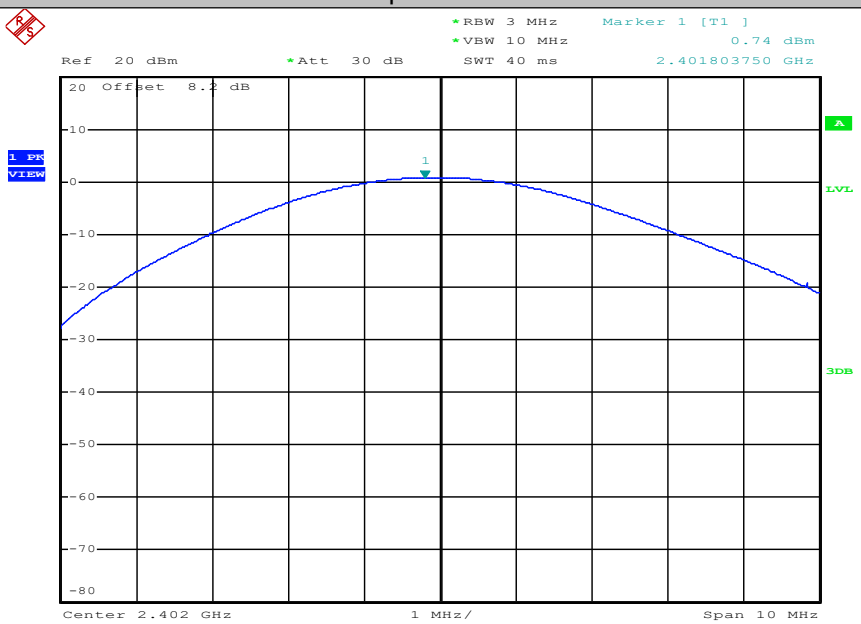
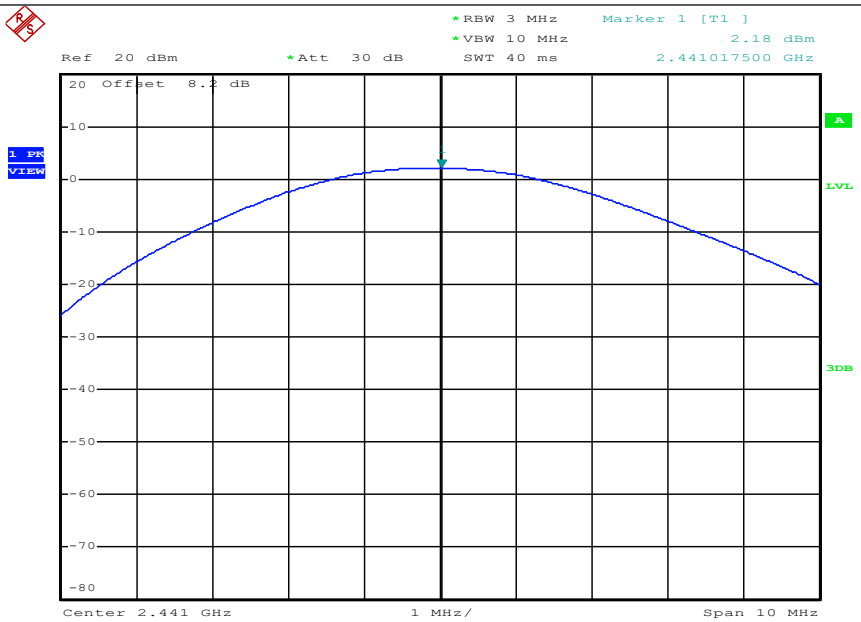
Test Model: Urbanista Athens

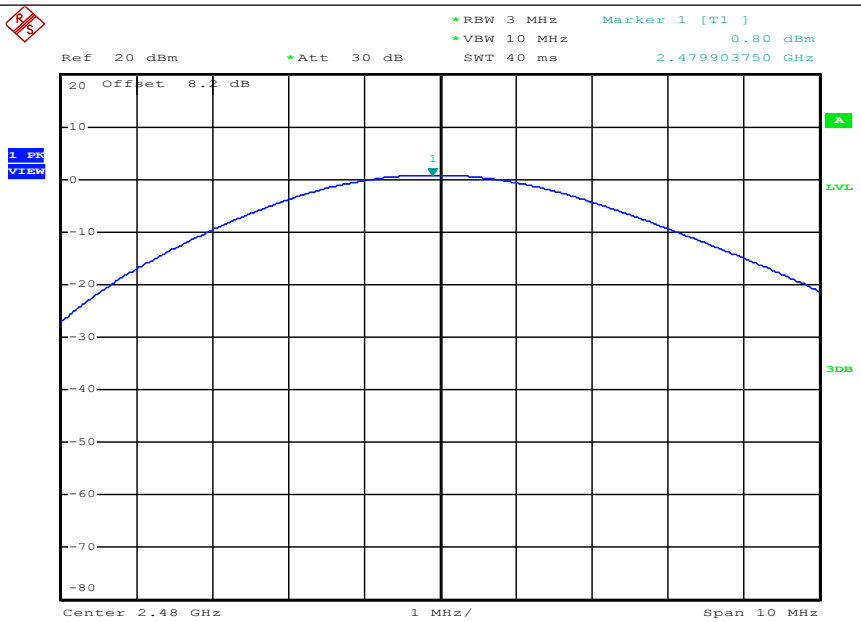
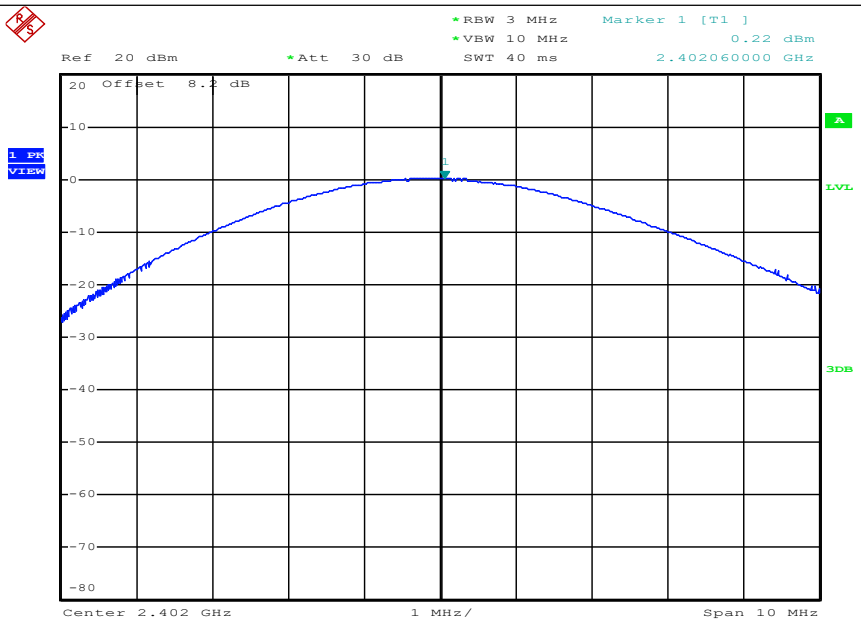
Environmental Conditions

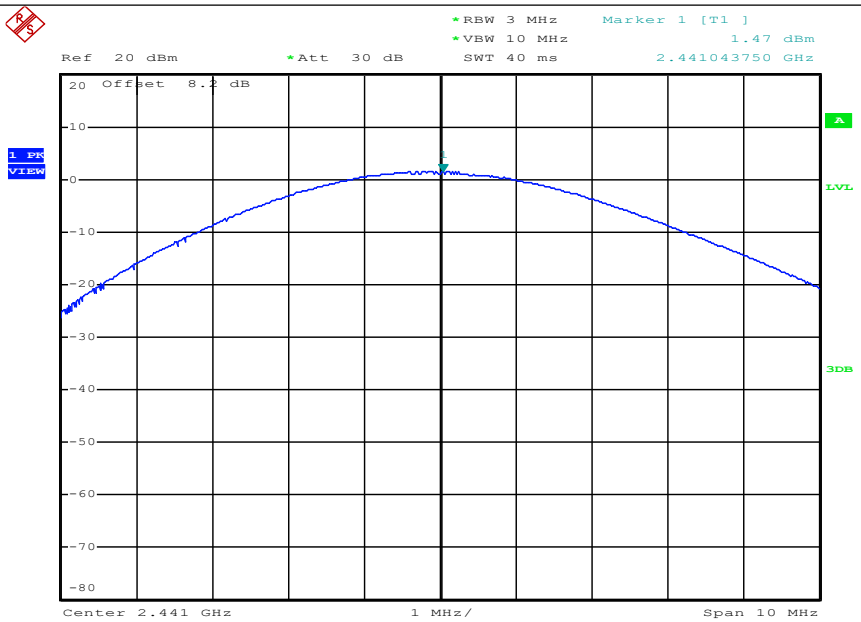
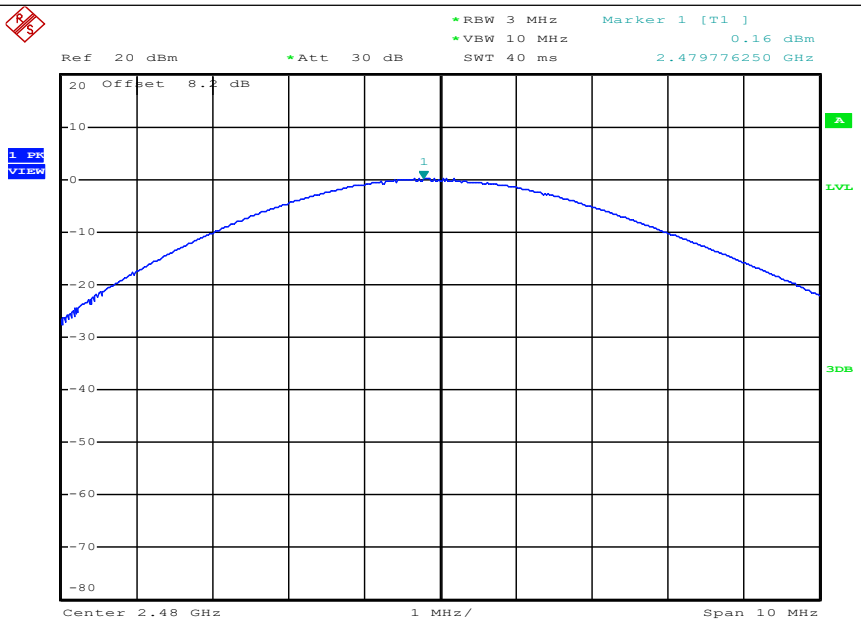
Temperature:	24.3 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	David Luo
Supervised by:	Wang.Chuang

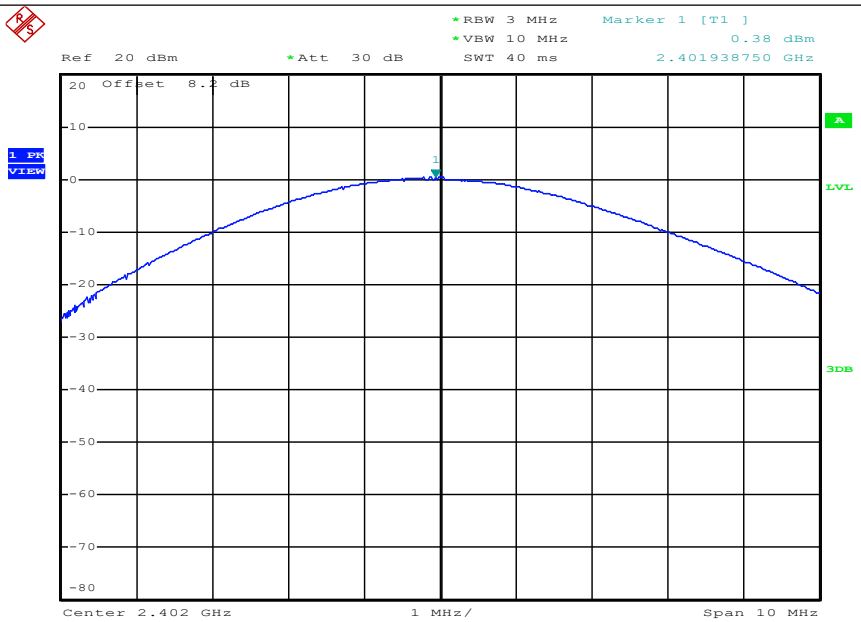
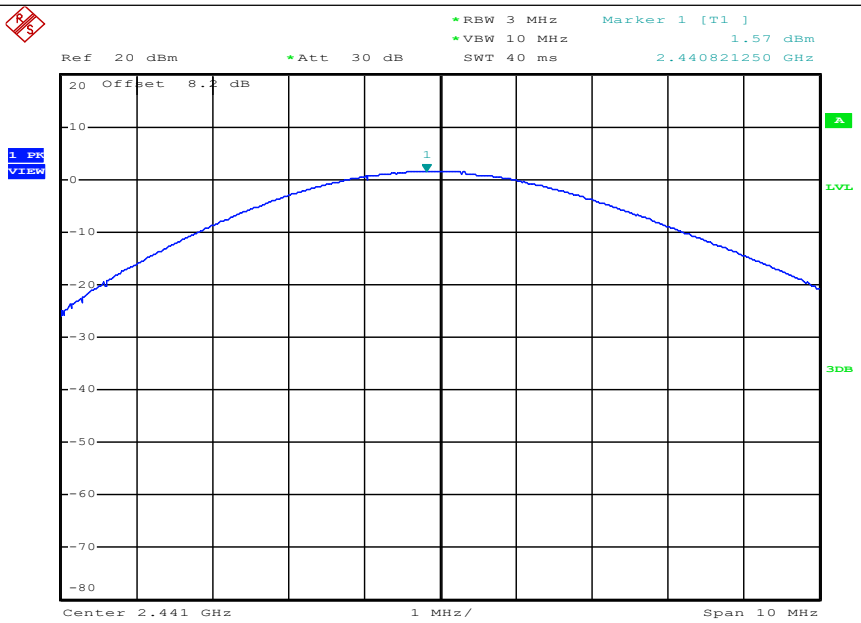
A.1 Maxmum Conducted Peak Output Power

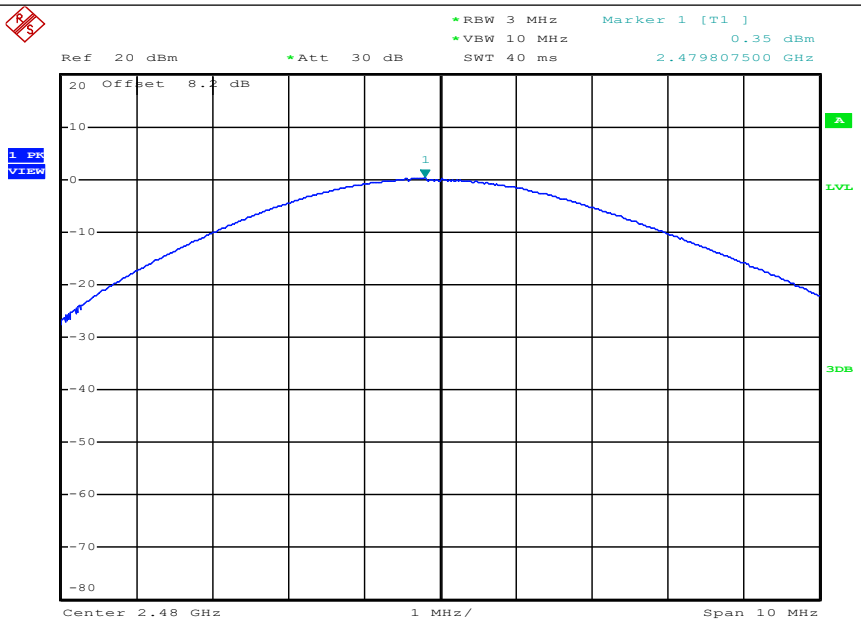
Mode	Channel.	Maximum Peak Output Power [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.740	30	PASS
	MCH	2.180	30	PASS
	HCH	0.800	30	PASS
π/4DQPSK	LCH	0.220	21	PASS
	MCH	1.470	21	PASS
	HCH	0.160	21	PASS
8DPSK	LCH	0.380	21	PASS
	MCH	1.570	21	PASS
	HCH	0.350	21	PASS

Test Graphs	
GFSK/LCH	 Date: 11.SEP.2019 15:24:01
GFSK/MCH	 Date: 11.SEP.2019 15:27:43

GFSK/HCH	 Date: 11.SEP.2019 15:30:33
π/4DQPSK/LCH	 Date: 11.SEP.2019 15:33:11

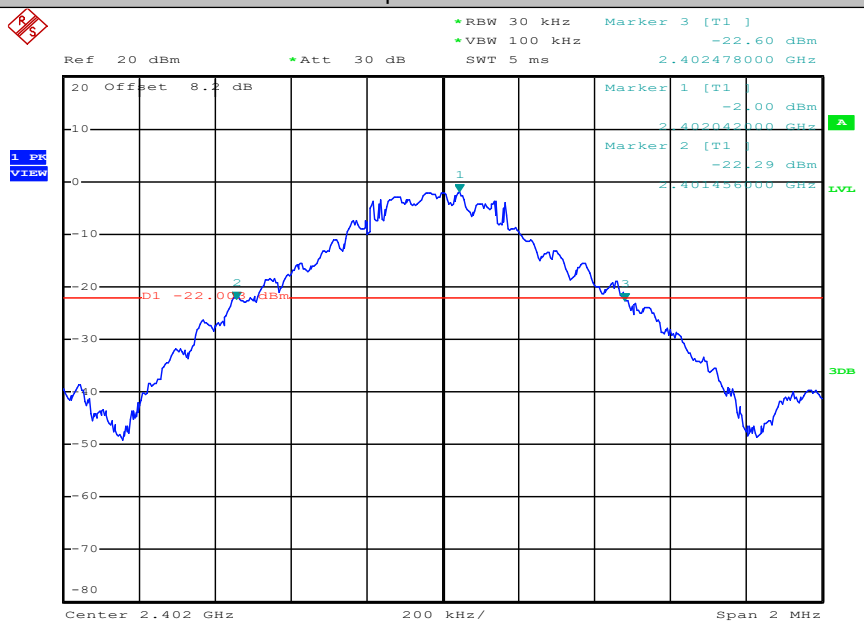
π/4DQPSK/MCH	 Date: 11.SEP.2019 15:35:42
π/4DQPSK/HCH	 Date: 11.SEP.2019 15:44:15

8DPSK/LCH	 Date: 11.SEP.2019 15:47:19
8DPSK/MCH	 Date: 11.SEP.2019 15:49:47

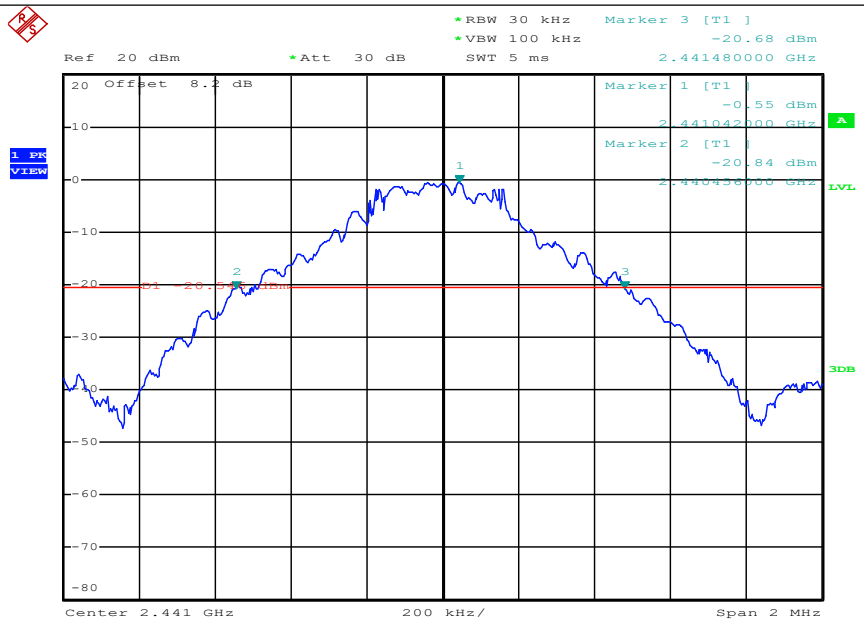
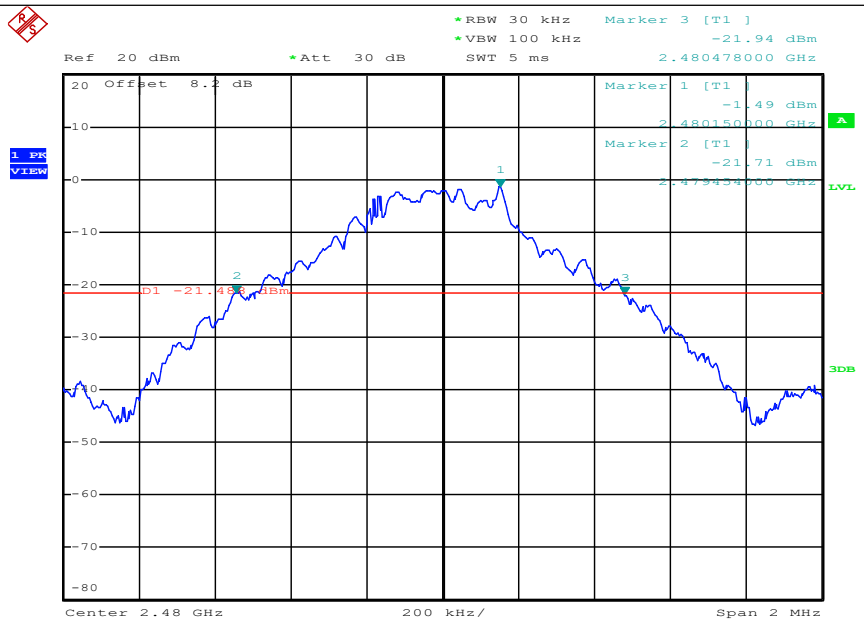
8DPSK/HCH	 Date: 11.SEP.2019 15:51:30

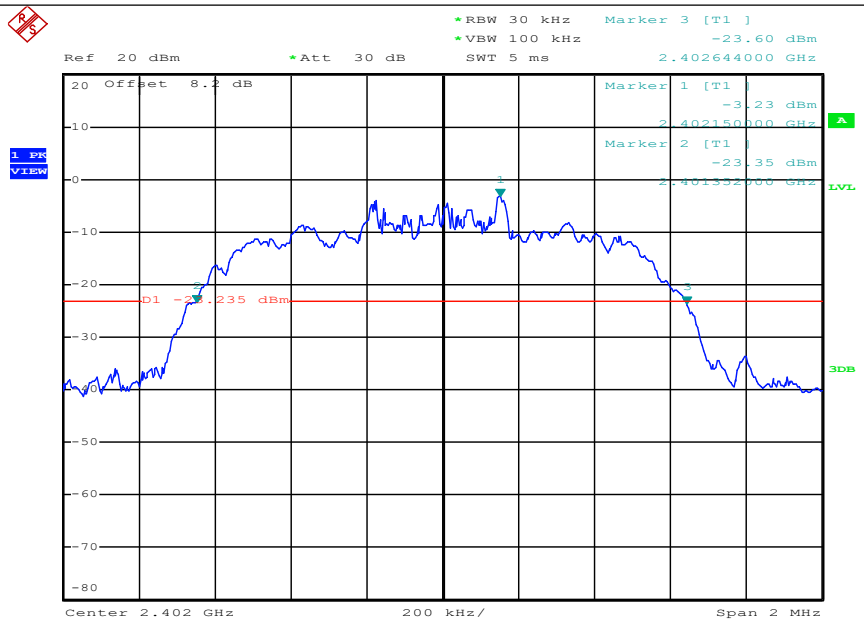
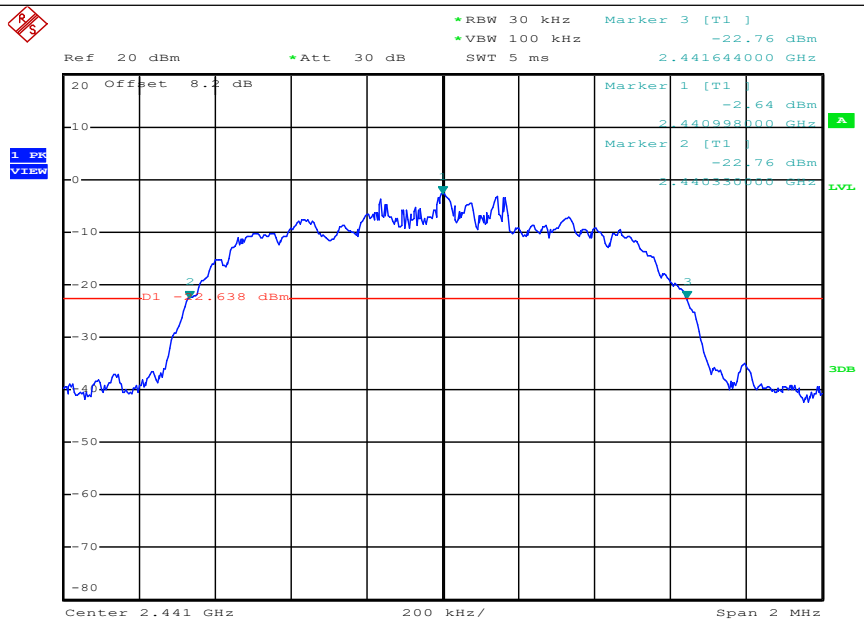
A.2 20dB Bandwidth

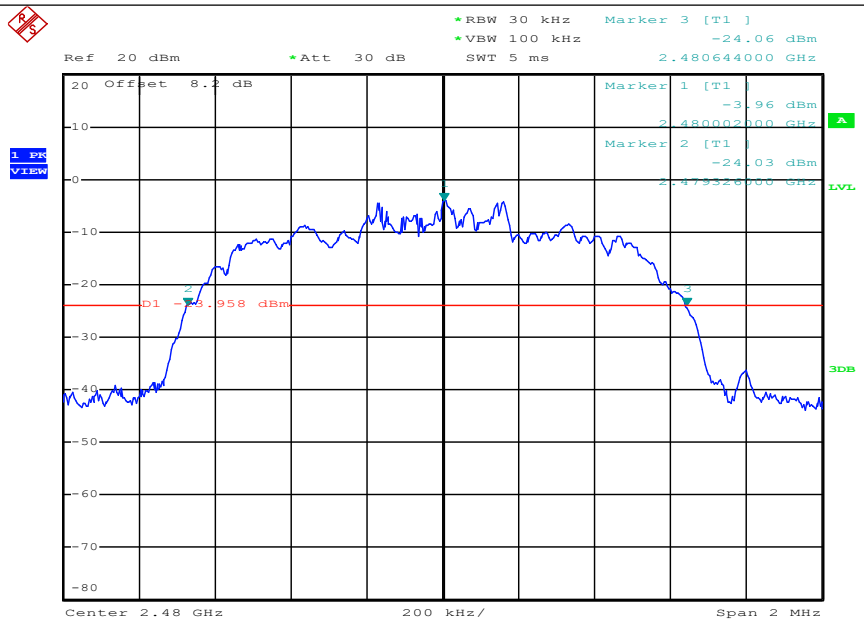
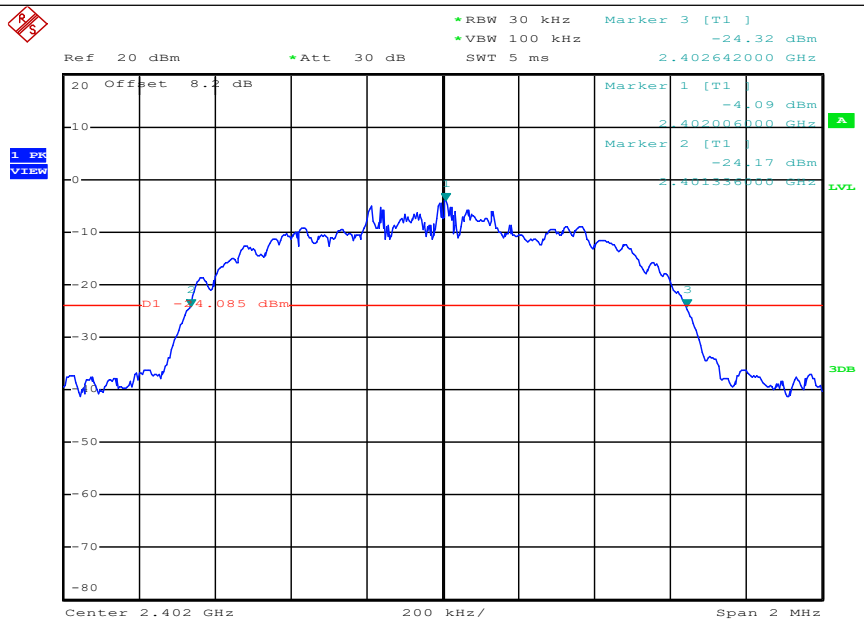
Mode	Channel.	20dB Bandwidth [MHz]	Limit [MHz]	Verdict
GFSK	LCH	1.022	Not Specified	PASS
	MCH	1.024	Not Specified	PASS
	HCH	1.024	Not Specified	PASS
π/4DQPSK	LCH	1.292	Not Specified	PASS
	MCH	1.314	Not Specified	PASS
	HCH	1.318	Not Specified	PASS
8DPSK	LCH	1.306	Not Specified	PASS
	MCH	1.290	Not Specified	PASS
	HCH	1.294	Not Specified	PASS

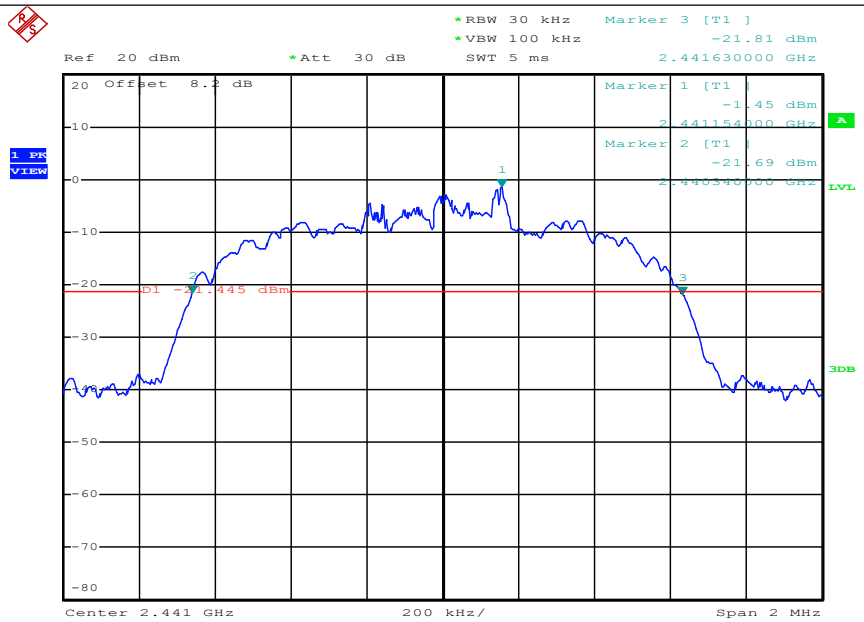
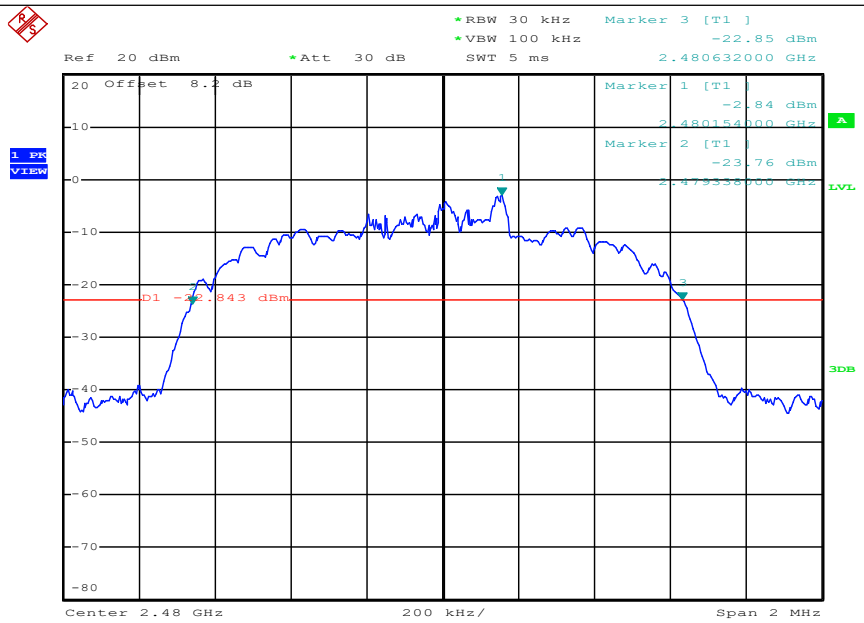
Test Graphs	
GFSK/LCH	

Date: 11.SEP.2019 15:23:24

GFSK/MCH	 Date: 11.SEP.2019 15:27:07
GFSK/HCH	 Date: 11.SEP.2019 15:29:57

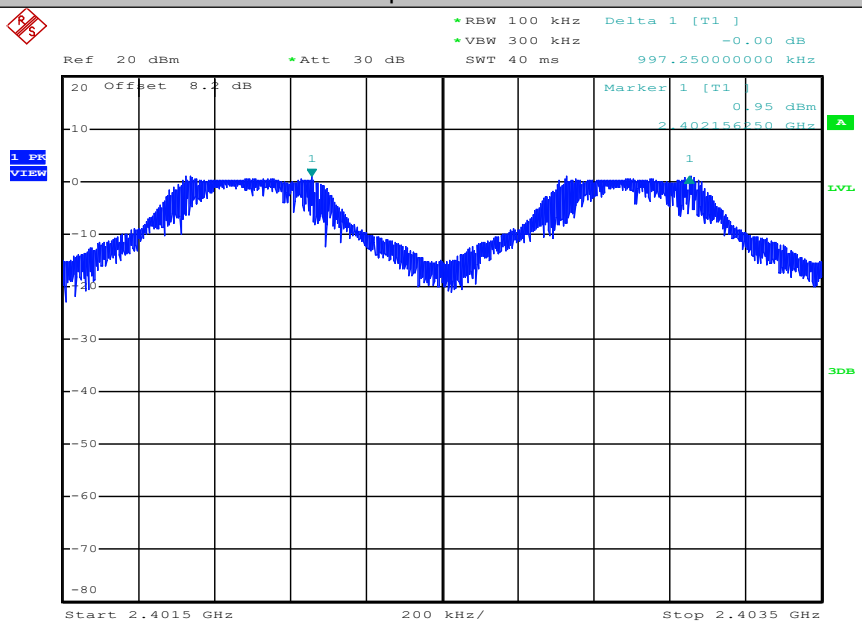
π/4DQPSK/LCH	 Date: 11.SEP.2019 15:32:35
π/4DQPSK/MCH	 Date: 11.SEP.2019 15:35:05

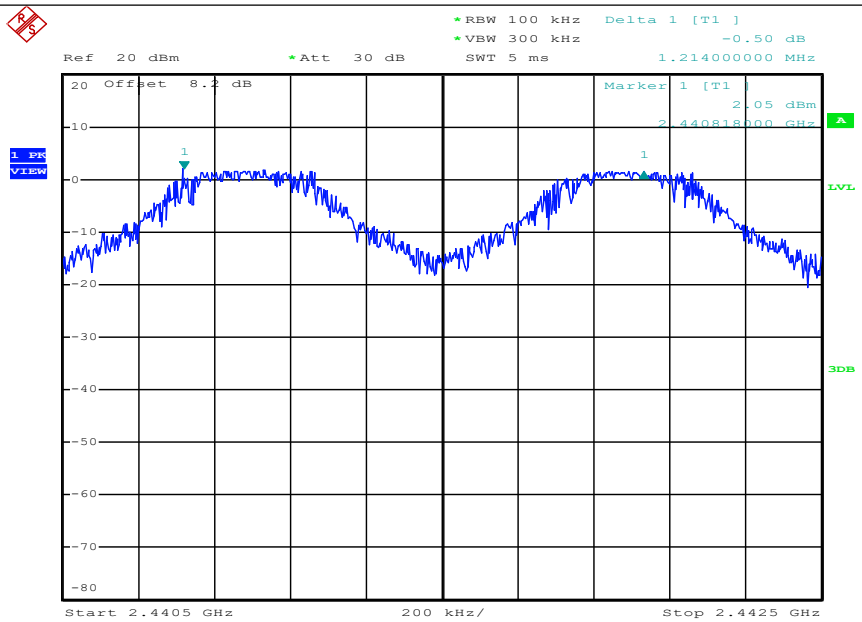
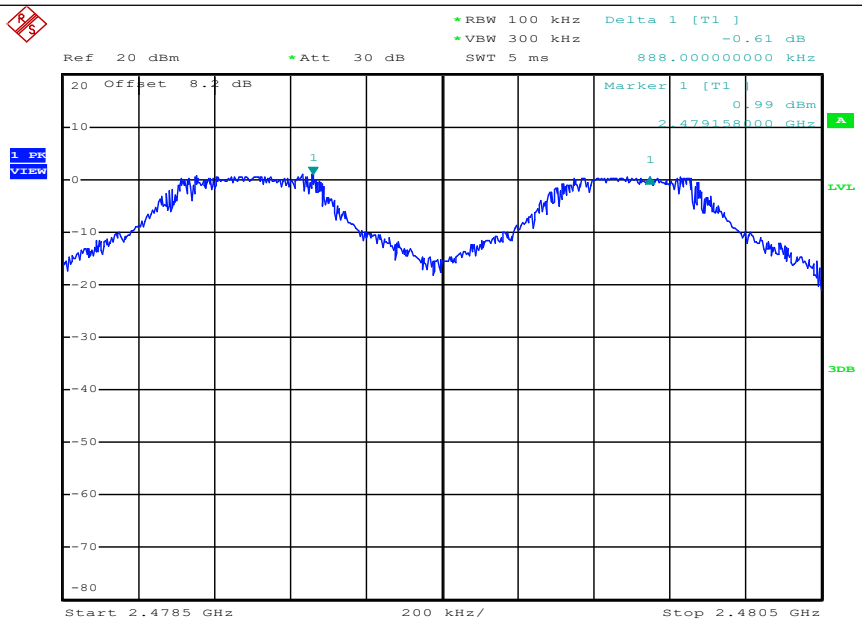
π/4DQPSK/HCH	 Date: 11.SEP.2019 15:43:38
8DPSK/LCH	 Date: 11.SEP.2019 15:46:42

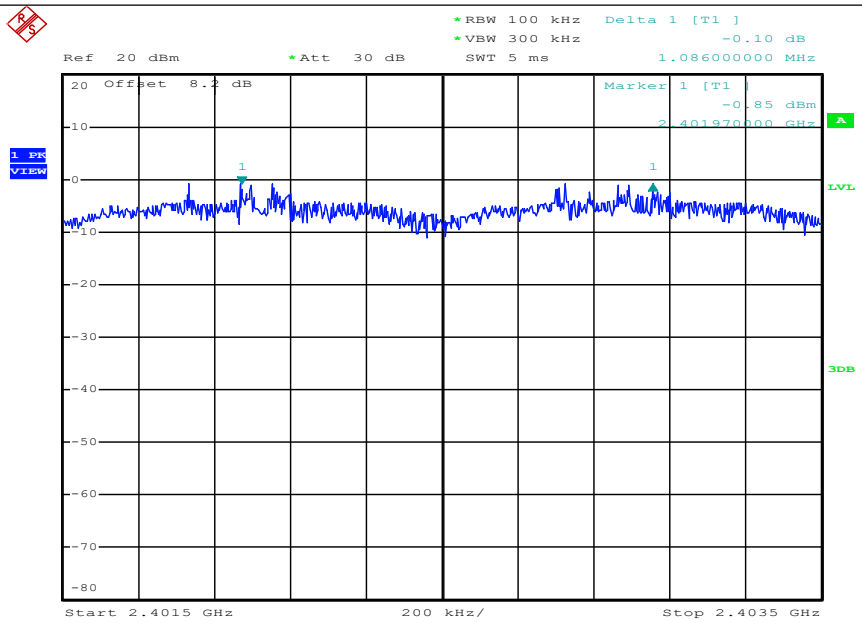
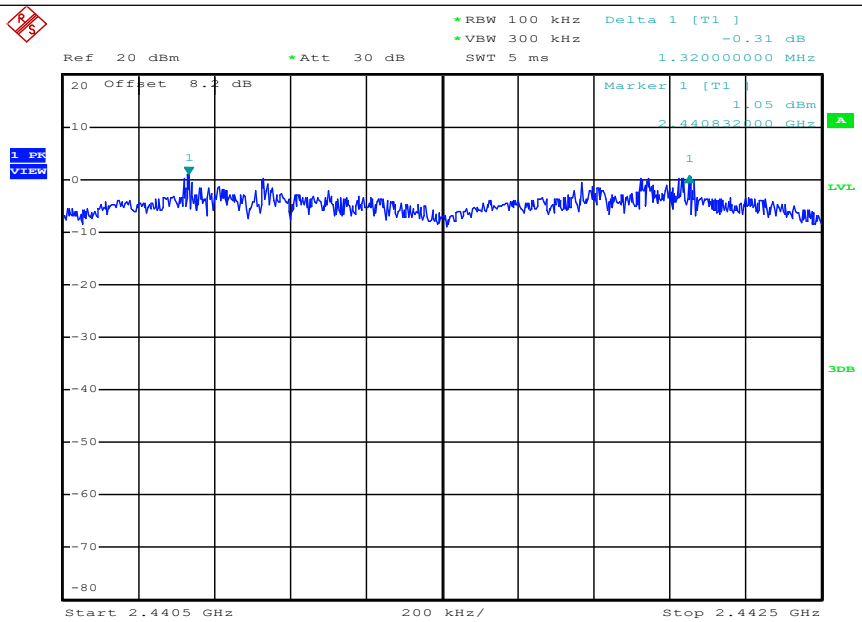
8DPSK/MCH	 Date: 11.SEP.2019 15:49:11
8DPSK/HCH	 Date: 11.SEP.2019 15:50:54

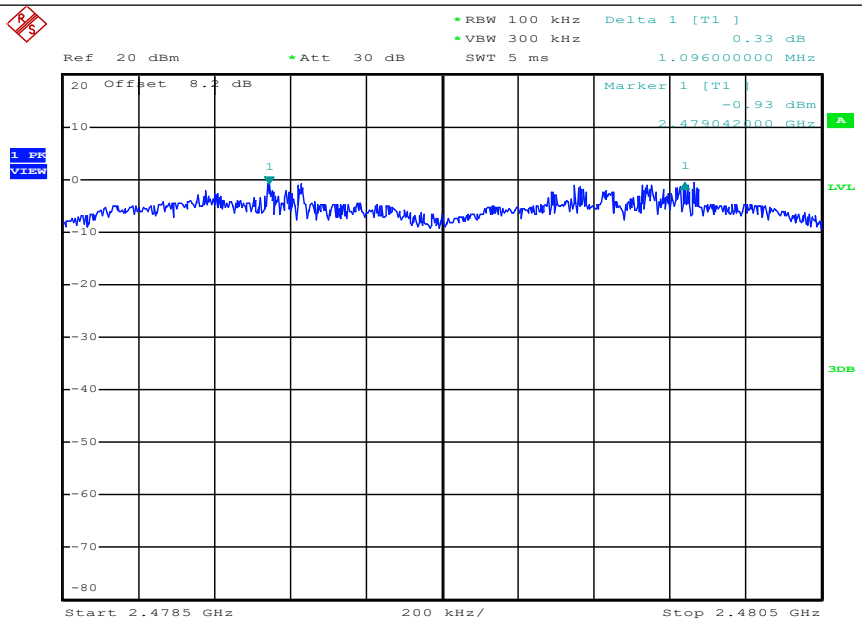
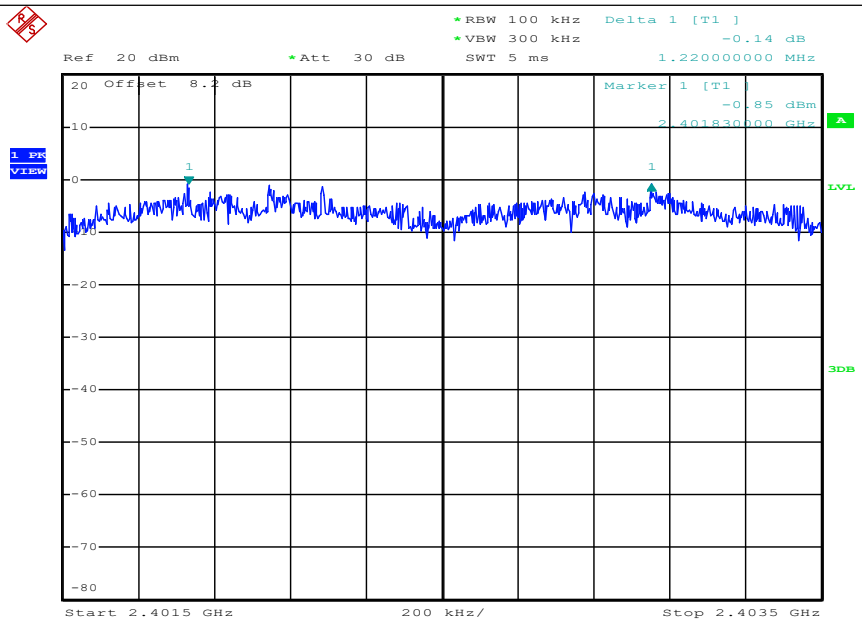
A.3 Carrier Frequency Separation

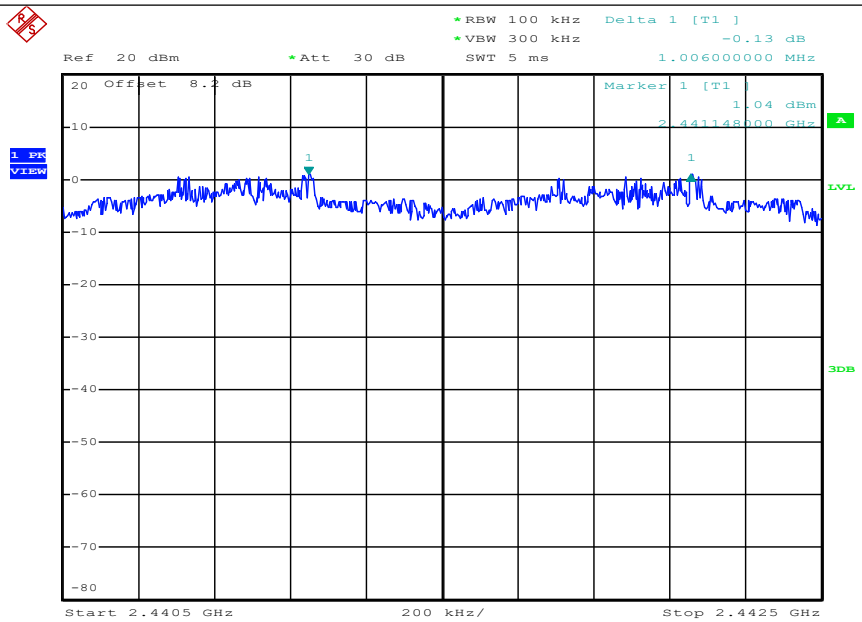
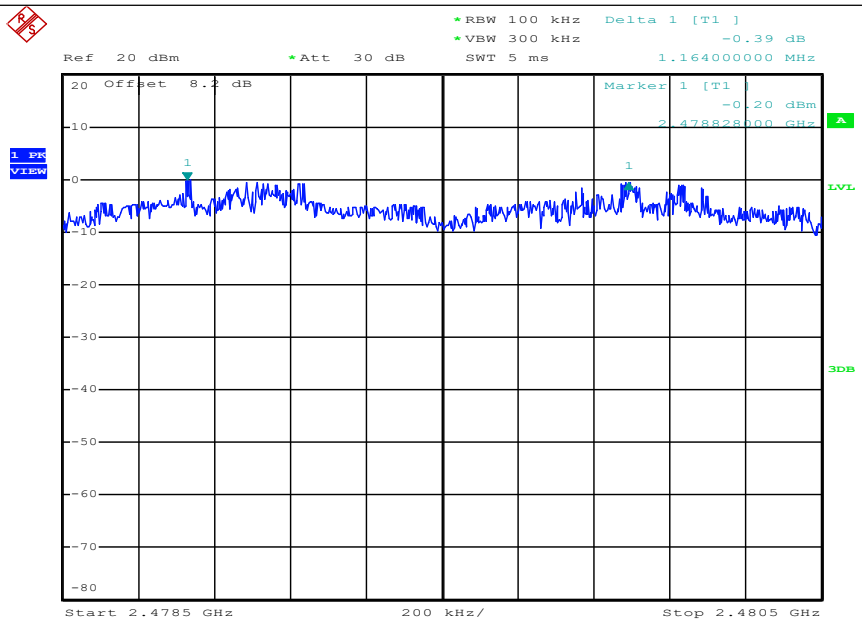
Mode	Channel.	Carrier Frequency Separation [MHz]	Limit [MHz]	Verdict
GFSK	LCH	0.997	0.683	PASS
	MCH	1.214	0.683	PASS
	HCH	0.888	0.683	PASS
π/4DQPSK	LCH	1.086	0.879	PASS
	MCH	1.320	0.879	PASS
	HCH	1.096	0.879	PASS
8DPSK	LCH	1.220	0.871	PASS
	MCH	1.006	0.871	PASS
	HCH	1.164	0.871	PASS

Test Graphs	
GFSK/LCH	

GFSK/MCH	 Date: 11.SEP.2019 15:58:07
GFSK/HCH	 Date: 11.SEP.2019 15:59:18

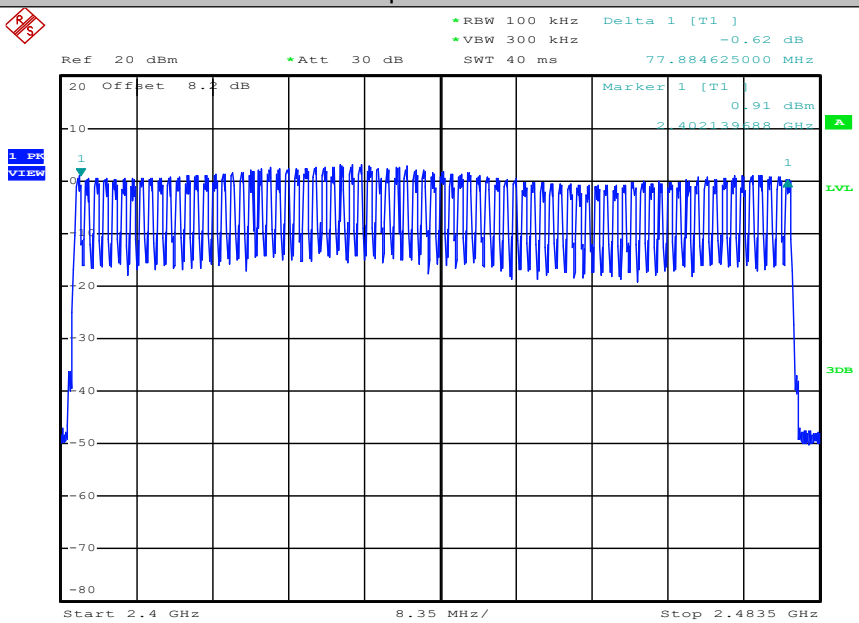
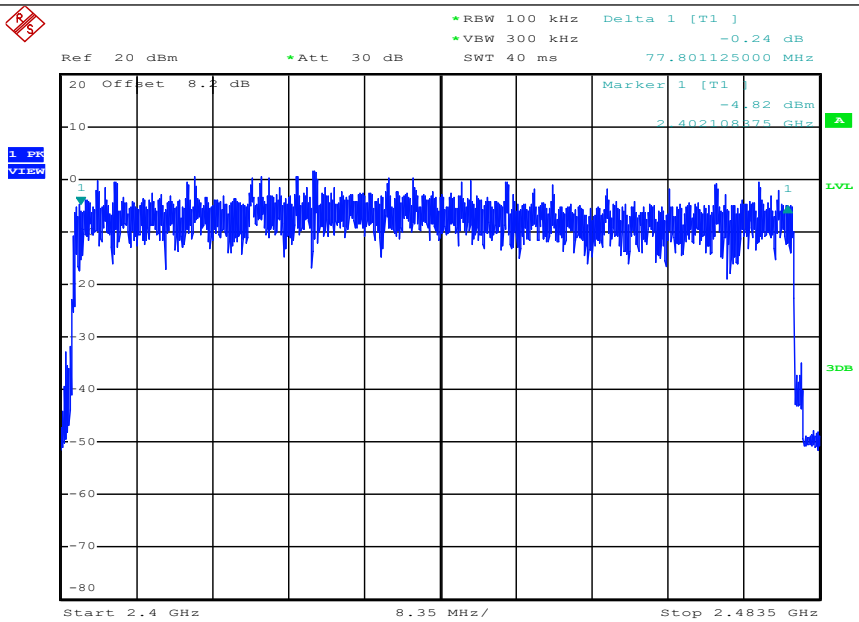
π/4DQPSK/LCH	 Date: 11.SEP.2019 16:10:21
π/4DQPSK/MCH	 Date: 11.SEP.2019 16:13:22

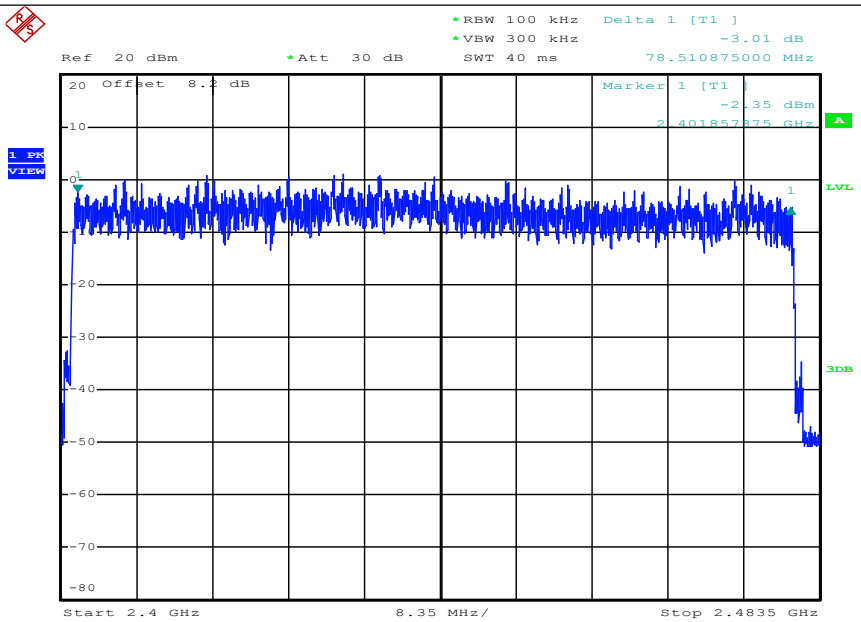
π/4DQPSK/HCH	 Date: 11.SEP.2019 16:14:45
8DPSK/LCH	 Date: 11.SEP.2019 16:18:27

8DPSK/MCH	 Date: 11.SEP.2019 16:21:32
8DPSK/HCH	 Date: 11.SEP.2019 16:28:28

A.4 Hopping Channel Number

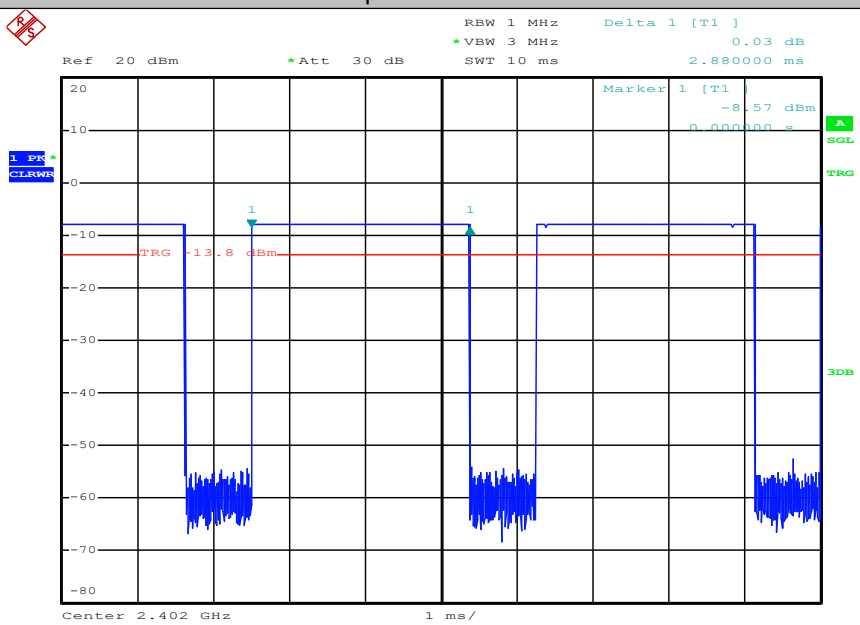
Mode	Channel.	Number of Hopping Channel [N]	Limit [N]	Verdict
GFSK	Hop	79	>=15	PASS
π/4DQPSK	Hop	79	>=15	PASS
8DPSK	Hop	79	>=15	PASS

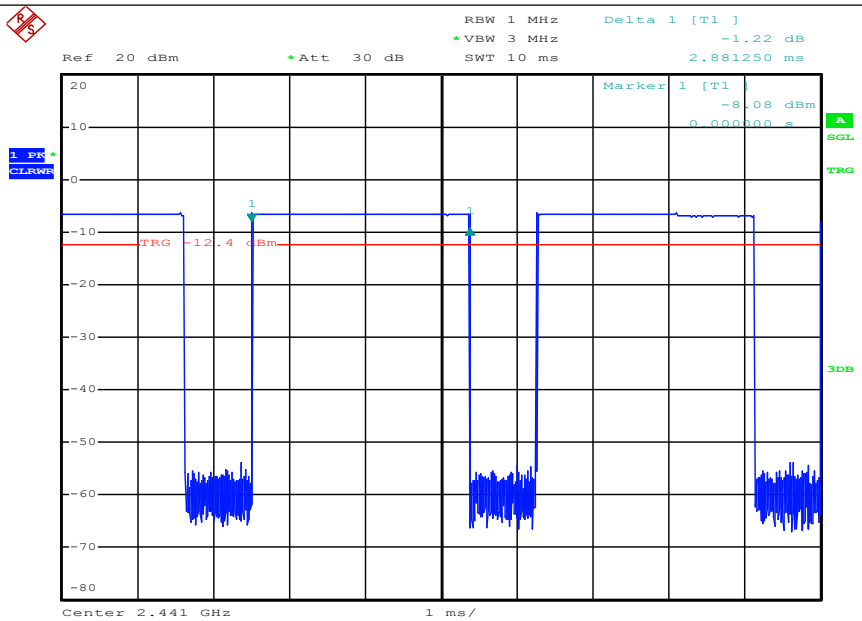
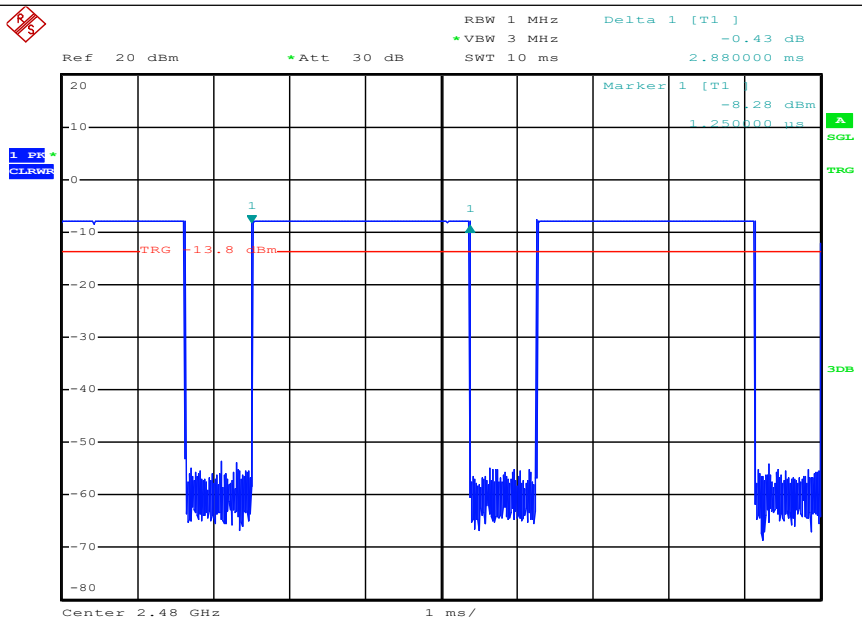
Test Graphs	
GFSK/Hop	 Date: 11.SEP.2019 16:08:56
π/4DQPSK/Hop	 Date: 11.SEP.2019 16:17:32

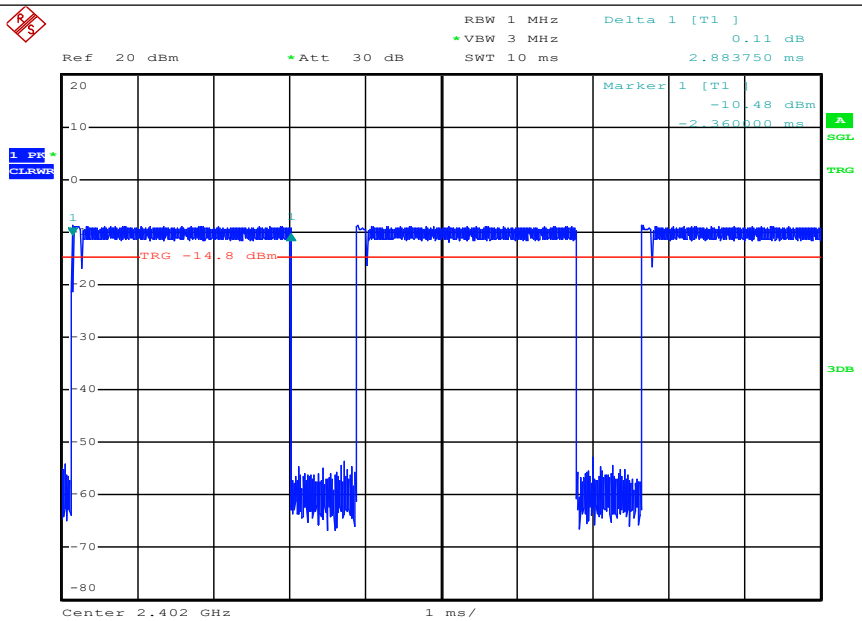
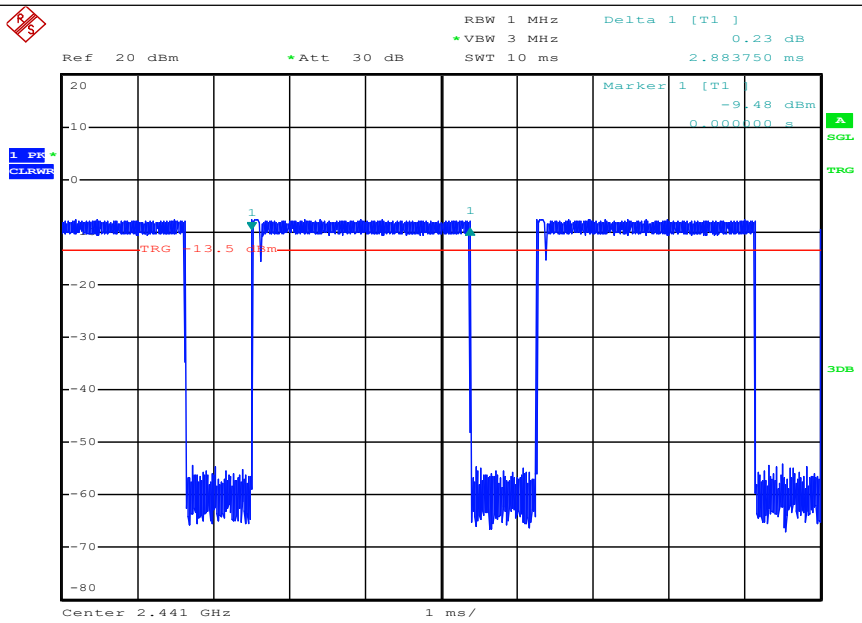
8DPSK/Hop	 Date: 11.SEP.2019 16:26:54

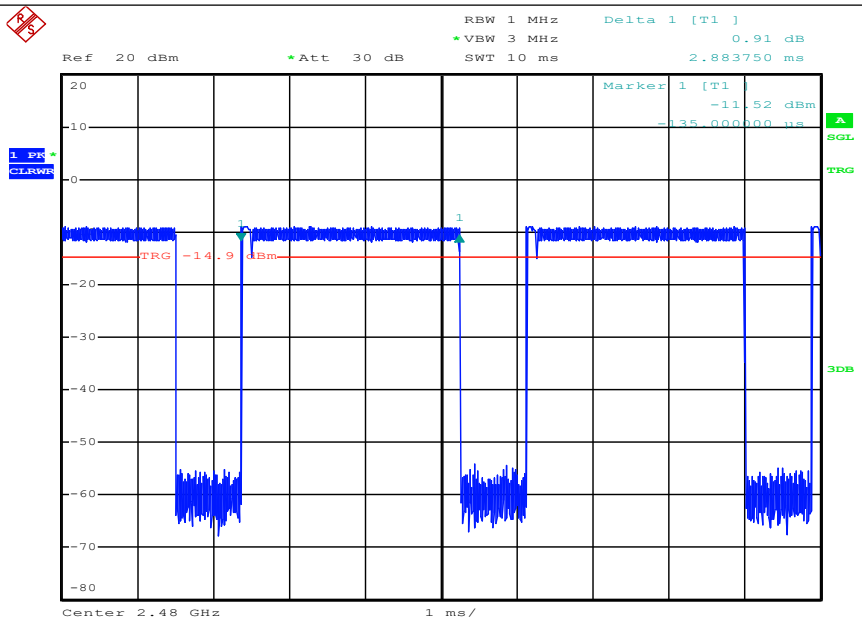
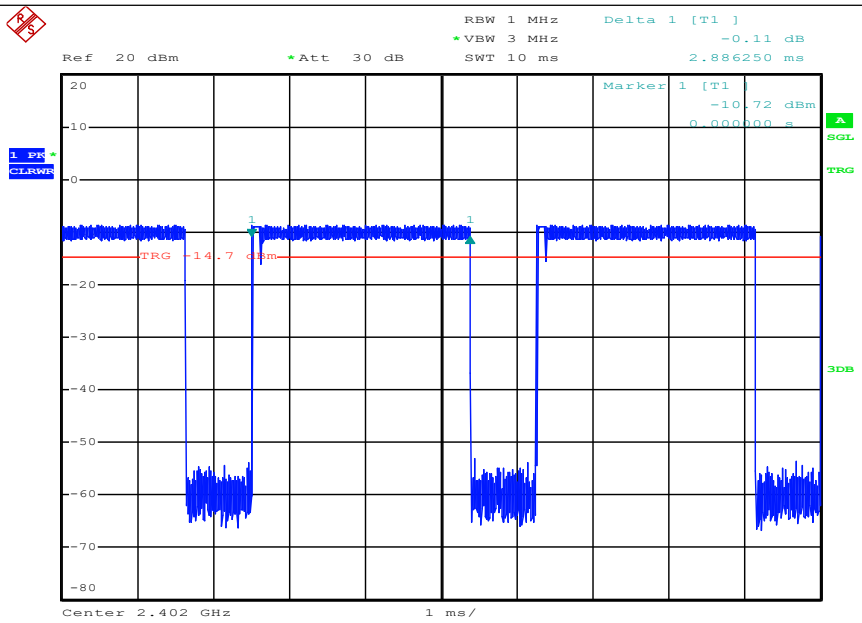
A.5 Dwell Time

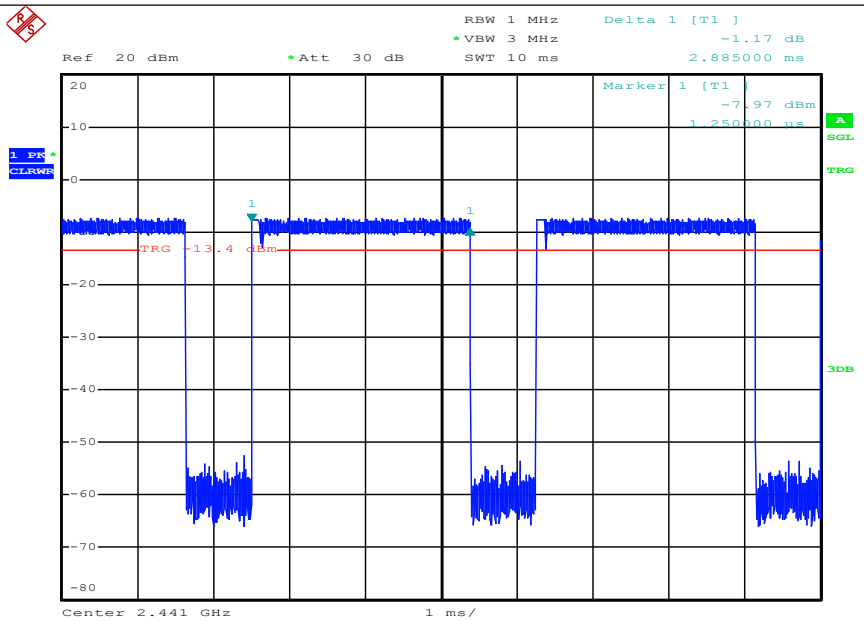
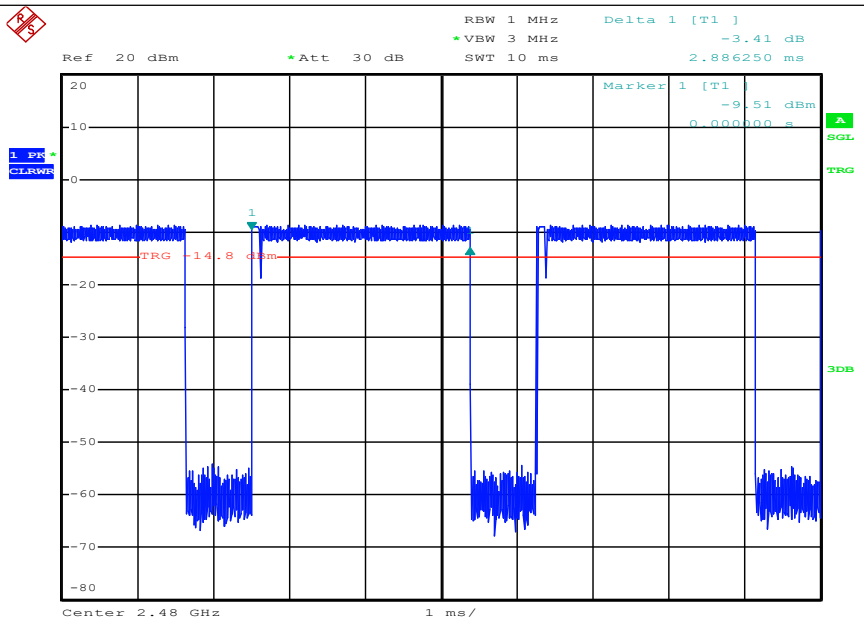
Mode	Packet	Channel	Burst Width [ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit [s]	Verdict
GFSK	DH5	LCH	2.88	106.7	0.307	0.4	PASS
	DH5	MCH	2.88	106.7	0.307	0.4	PASS
	DH5	HCH	2.88	106.7	0.307	0.4	PASS
π/4DQPSK	2DH5	LCH	2.88	106.7	0.307	0.4	PASS
	2DH5	MCH	2.88	106.7	0.307	0.4	PASS
	2DH5	HCH	2.88	106.7	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

Test Graphs	
GFSK_DH5/LCH	

GFSK_DH5/MCH	 Date: 11.SEP.2019 15:27:28
GFSK_DH5/HCH	 Date: 11.SEP.2019 15:30:18

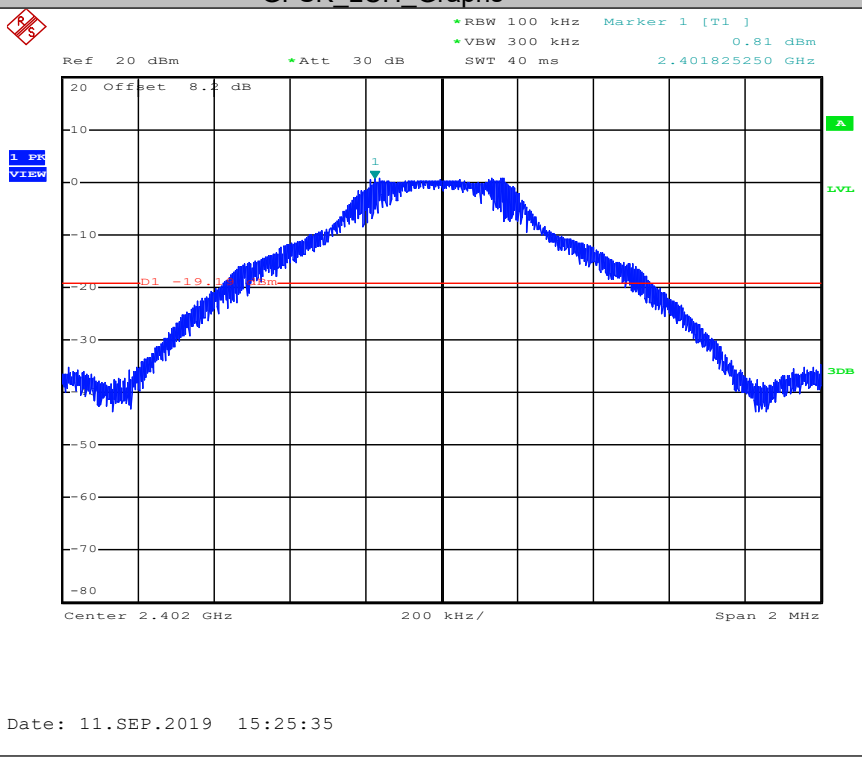
π/4DQPSK _2DH5/LCH	 Date: 11.SEP.2019 15:32:56
π/4DQPSK _2DH5/MCH	 Date: 11.SEP.2019 15:35:26

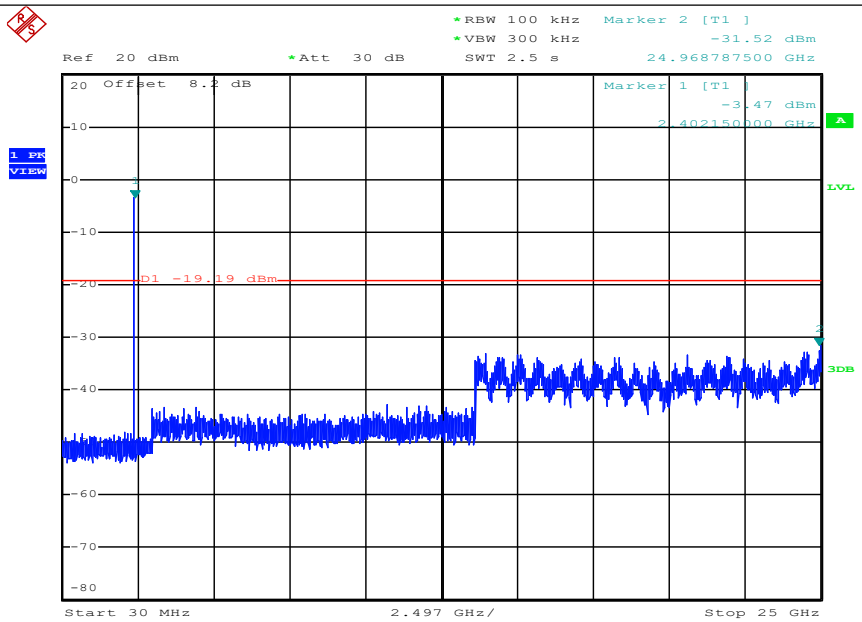
π/4DQPSK _2DH5/HCH	 Date: 11.SEP.2019 15:44:00
8DPSK _3DH5/LCH	 Date: 11.SEP.2019 15:47:03

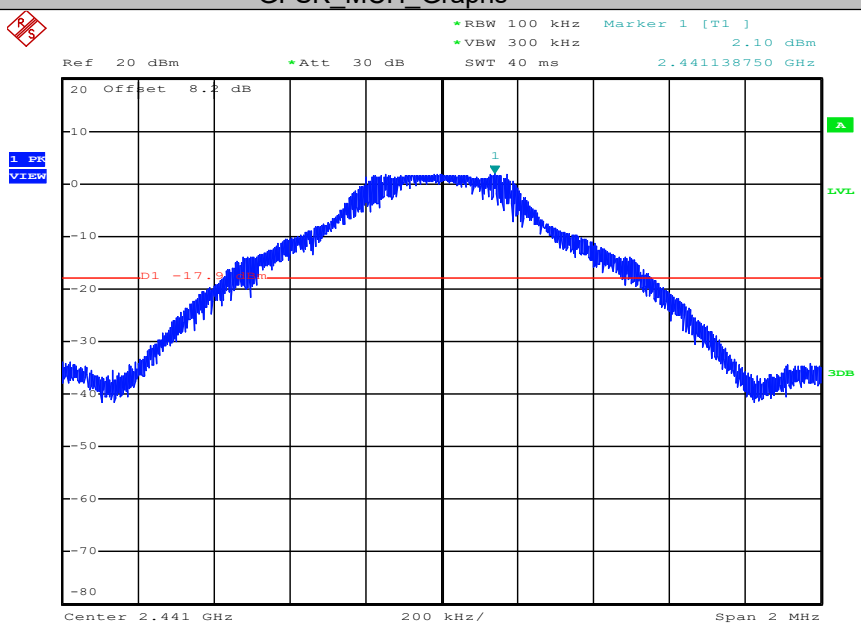
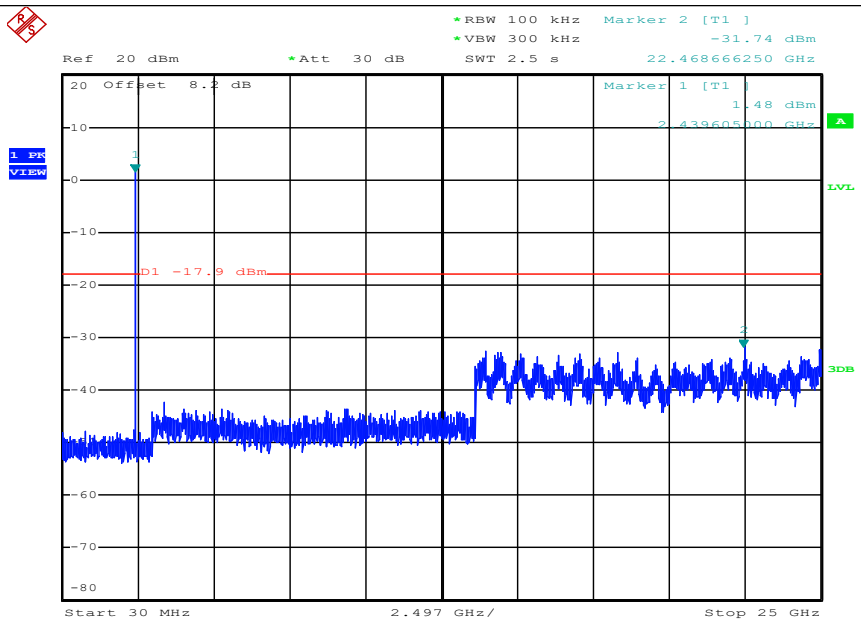
8DPSK _3DH5/MCH	 Date: 11.SEP.2019 15:49:32
8DPSK _3DH5/HCH	 Date: 11.SEP.2019 15:51:16

A.6 RF Conducted Spurious Emissions

Mode	Channel	Pref [dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	0.81	-31.520	-19.190	PASS
	MCH	2.1	-31.740	-17.900	PASS
	HCH	0.83	-32.320	-19.170	PASS
π/4DQPSK	LCH	-0.19	-32.280	-20.190	PASS
	MCH	1.02	-32.730	-18.980	PASS
	HCH	-0.3	-32.430	-20.300	PASS
8DPSK	LCH	-0.18	-32.950	-20.180	PASS
	MCH	1	-32.190	-19.000	PASS
	HCH	-0.32	-32.610	-20.320	PASS

GFSK_LCH_Graphs	
Pref	

Puw	 Date: 11.SEP.2019 15:25:49

GFSK_MCH_Graphs	
Pref	 Date: 11.SEP.2019 15:27:55
Puw	 Date: 11.SEP.2019 15:28:10

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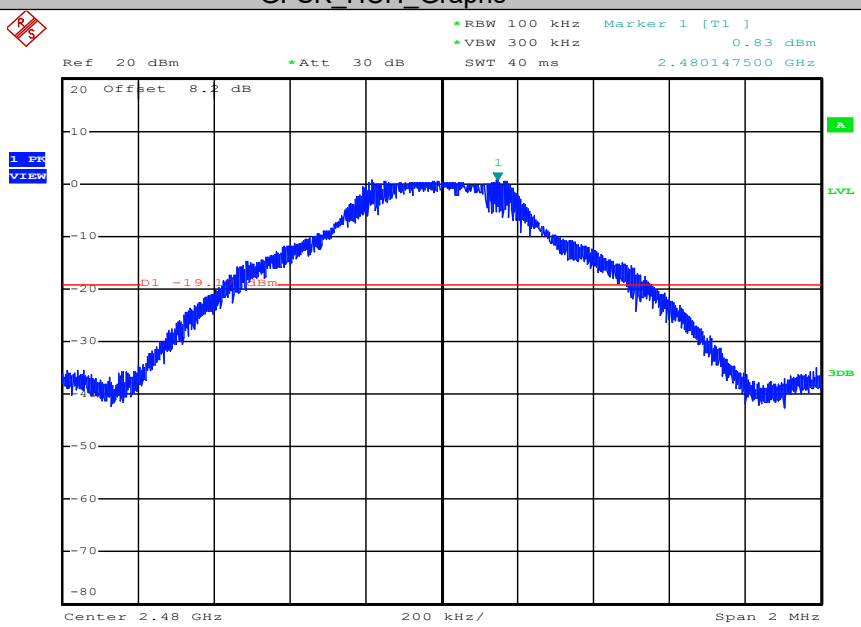
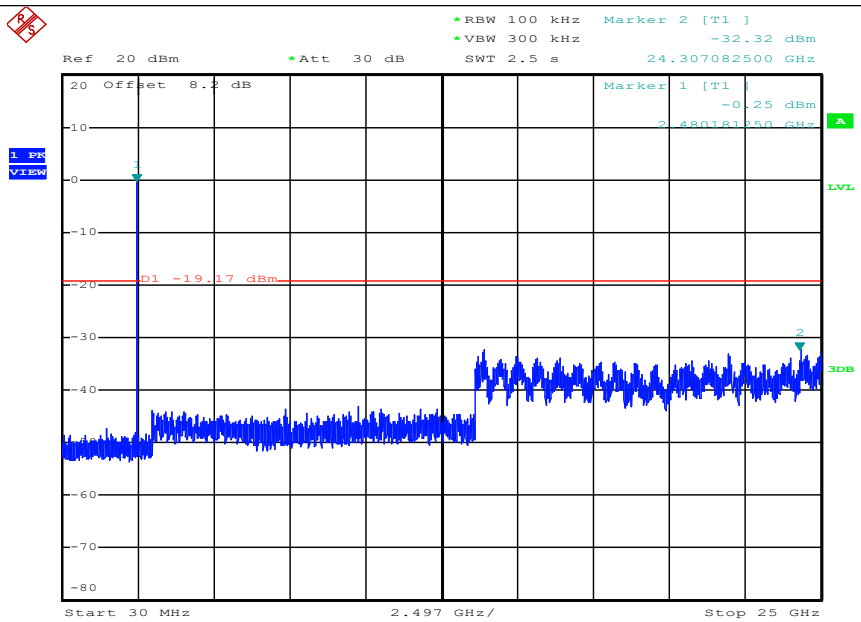
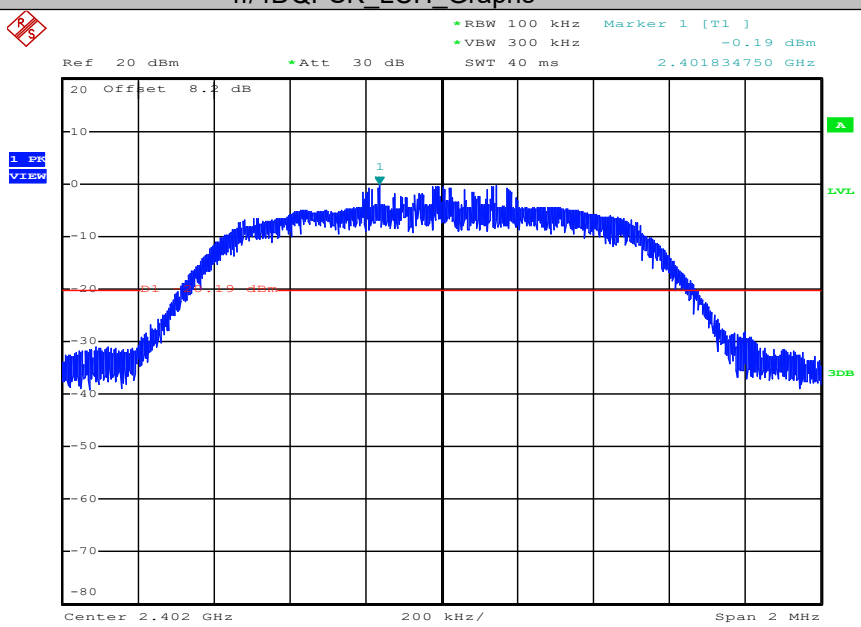
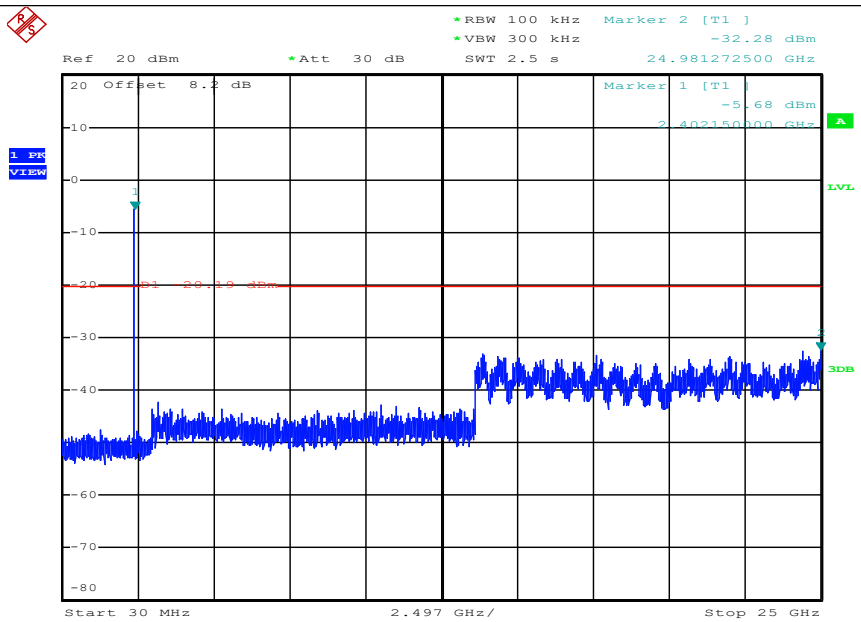
Pref	 Date: 11.SEP.2019 15:31:03
Puw	 Date: 11.SEP.2019 15:31:17

π/4DQPSK_LCH_Graphs	
Pref	 Date: 11.SEP.2019 15:33:40
Puw	 Date: 11.SEP.2019 15:33:55

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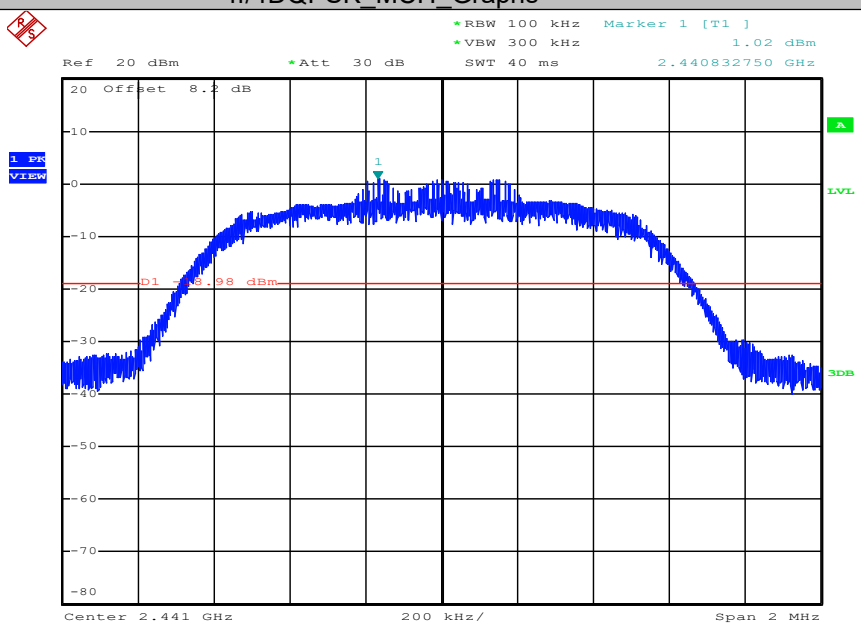
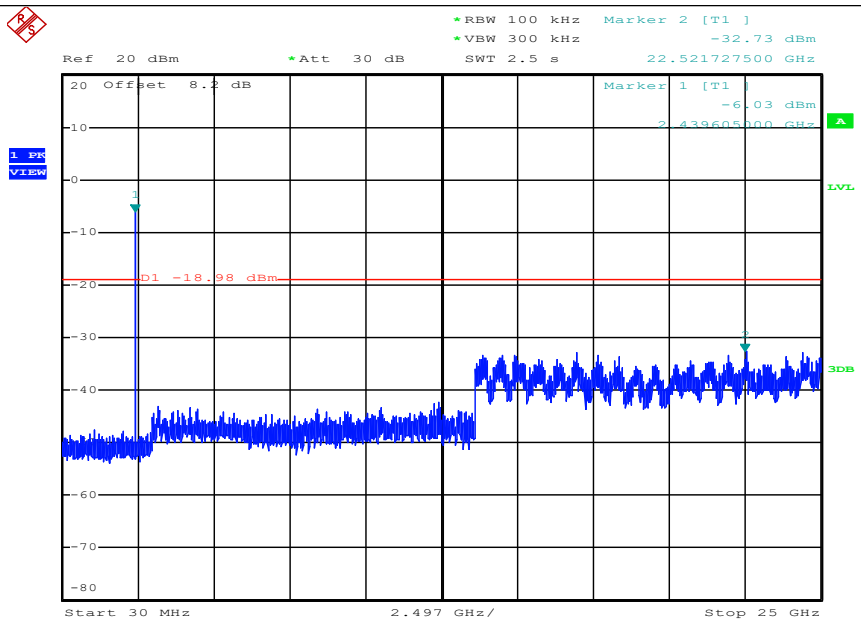
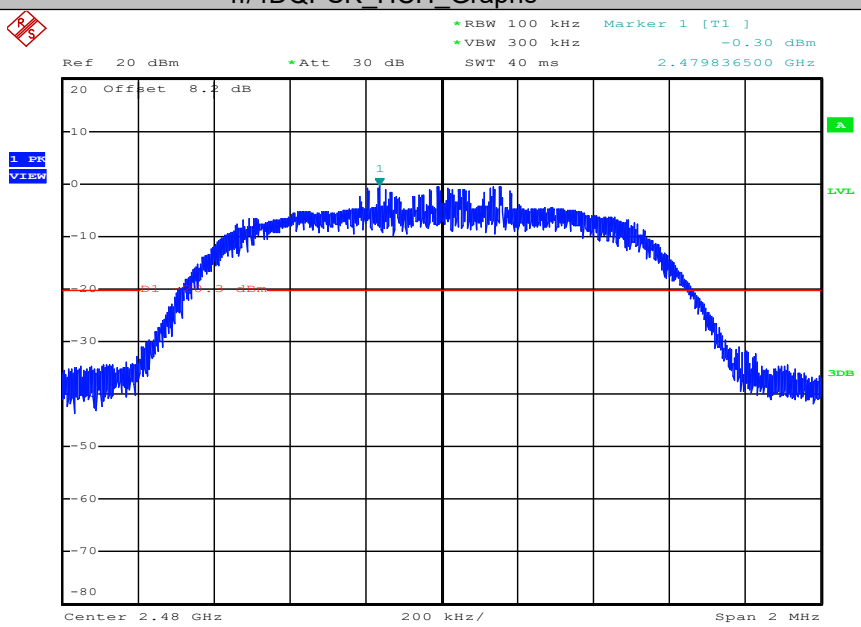
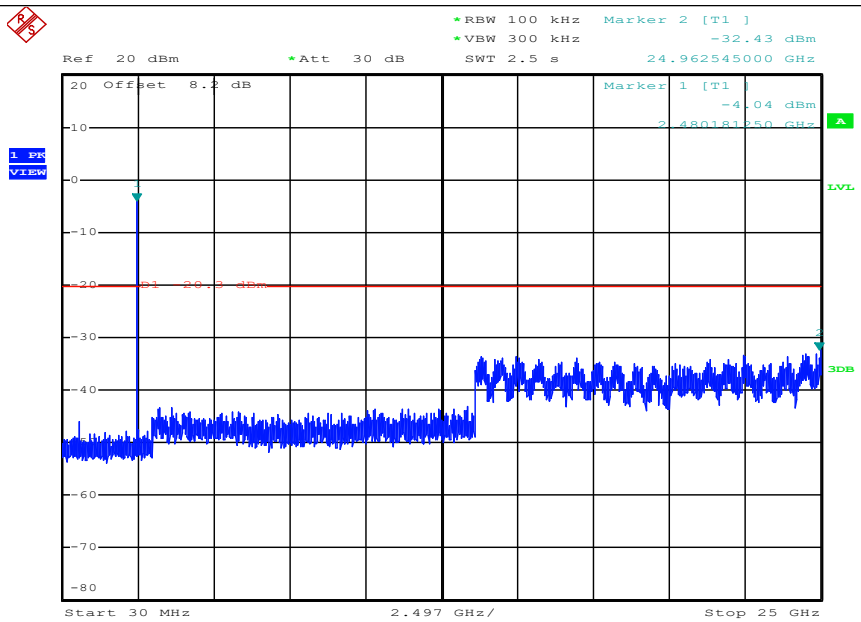
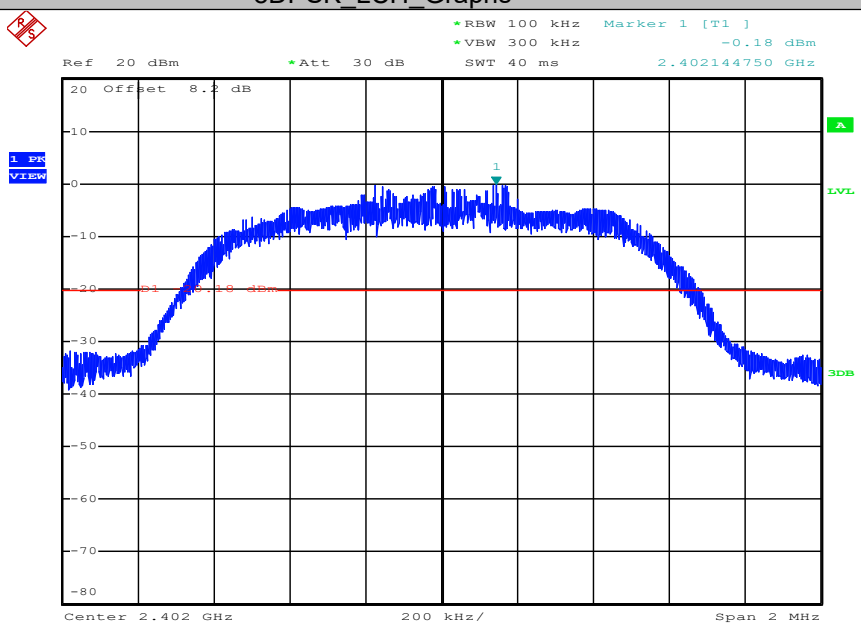
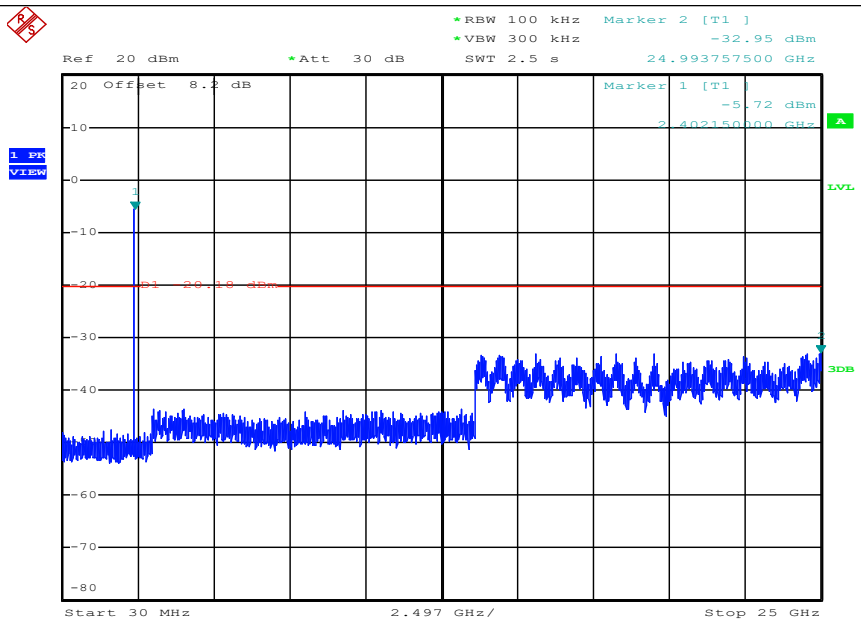
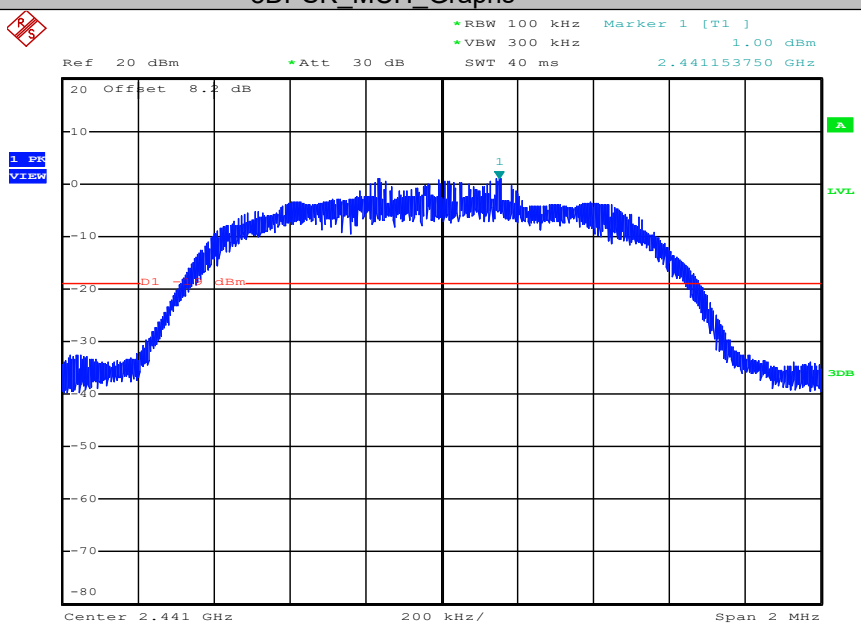
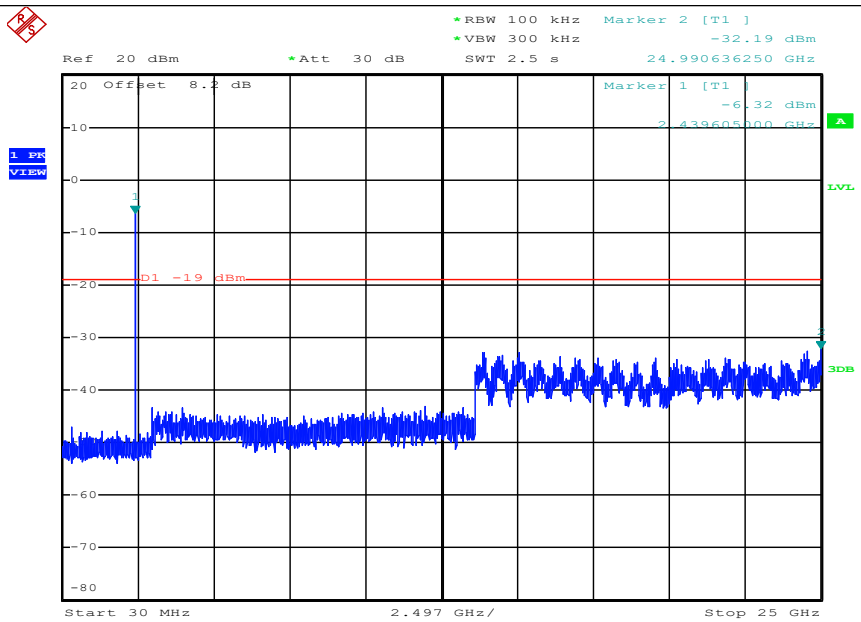
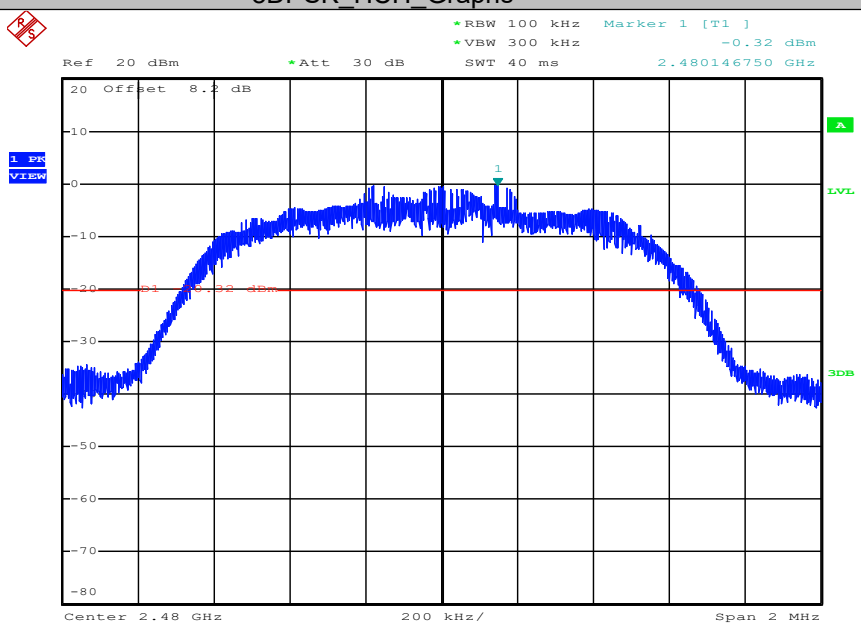
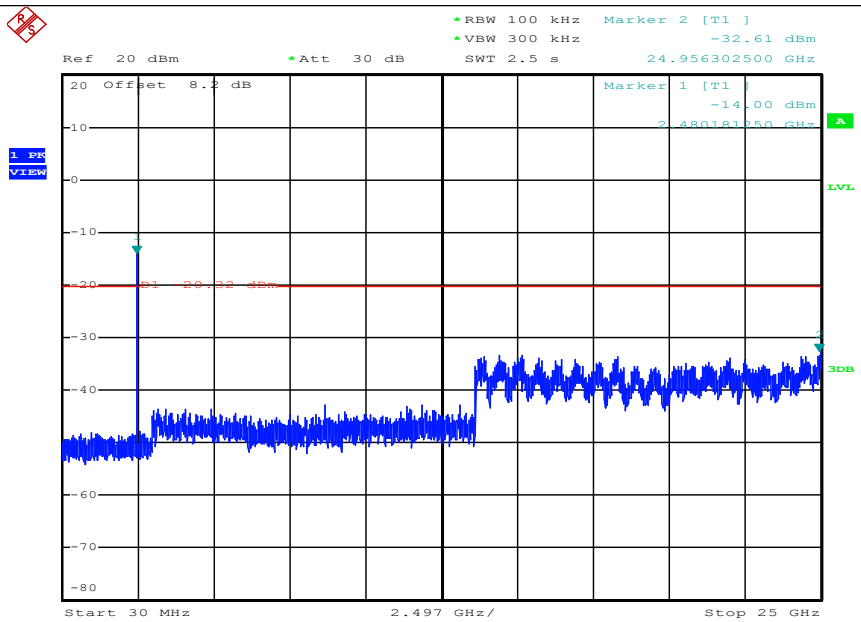
Pref	 Date: 11.SEP.2019 15:35:54
Puw	 Date: 11.SEP.2019 15:36:09

π/4DQPSK_HCH_Graphs	
Pref	 Date: 11.SEP.2019 15:45:12
Puw	 Date: 11.SEP.2019 15:45:27

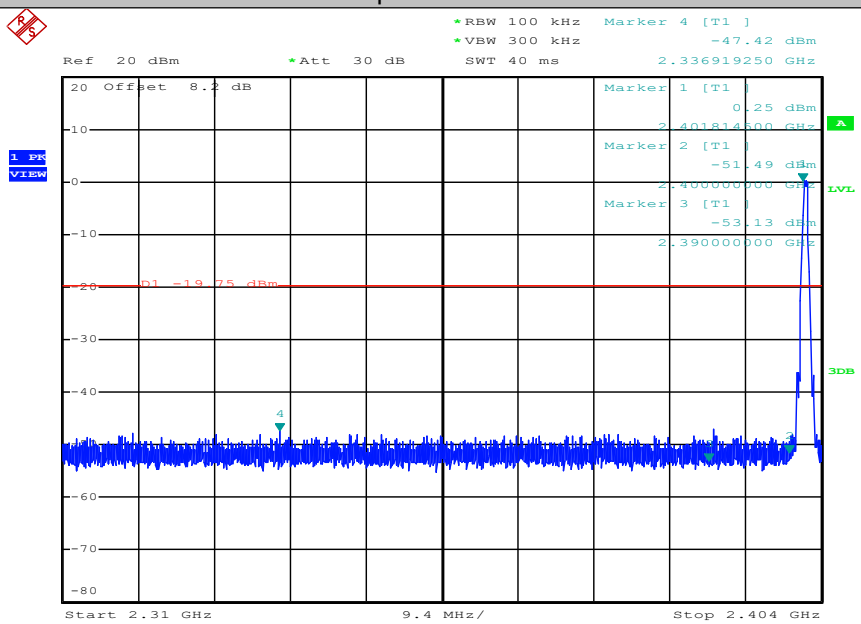
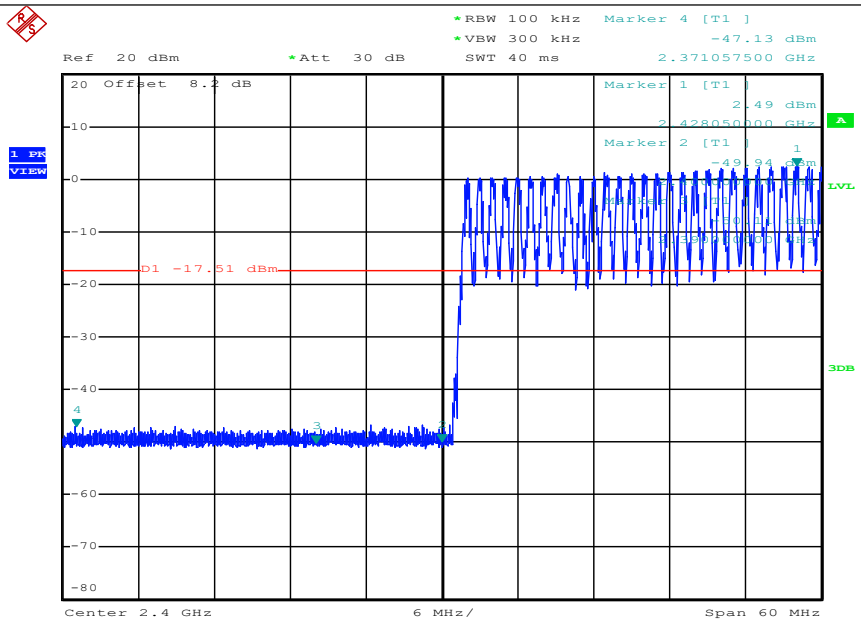
8DPSK_LCH_Graphs	
Pref	 Date: 11.SEP.2019 15:47:48
Puw	 Date: 11.SEP.2019 15:48:03

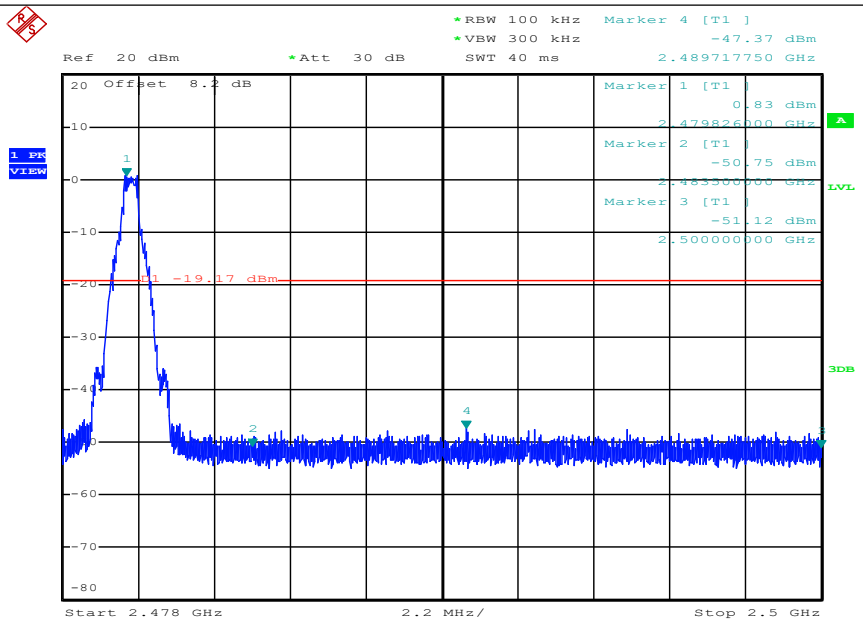
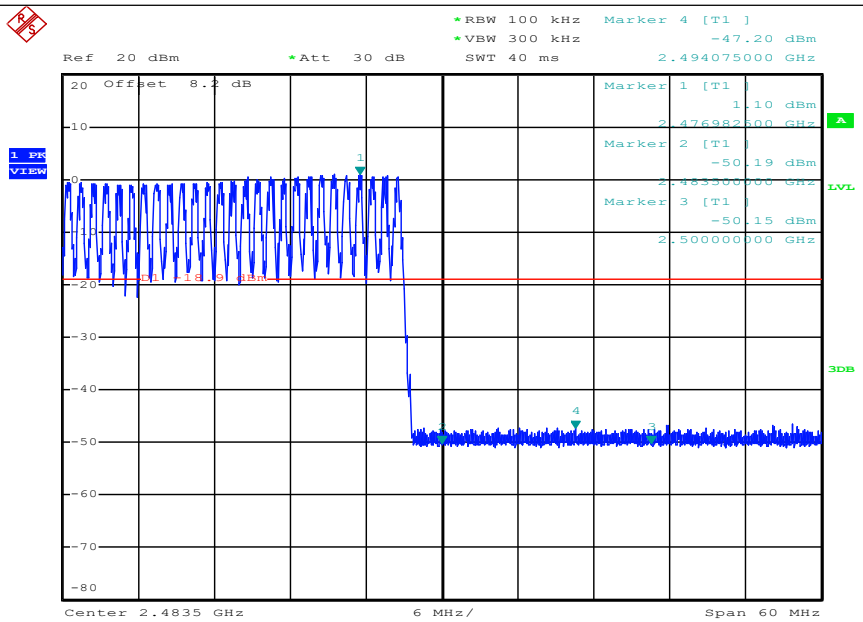
8DPSK_MCH_Graphs	
Pref	 Date: 11.SEP.2019 15:50:00
Puw	 Date: 11.SEP.2019 15:50:14

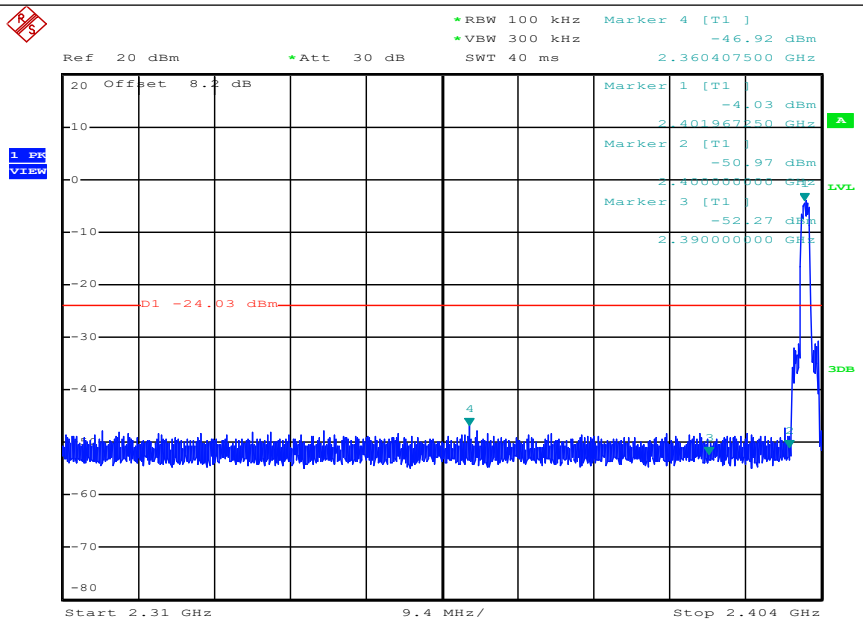
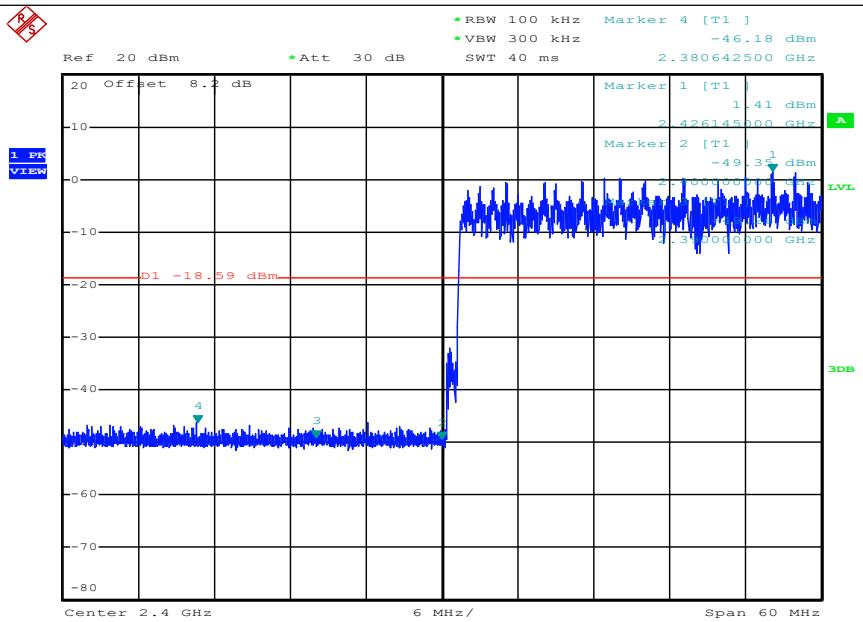
8DPSK_HCH_Graphs	
Pref	 Date: 11.SEP.2019 15:51:59
Puw	 Date: 11.SEP.2019 15:52:14

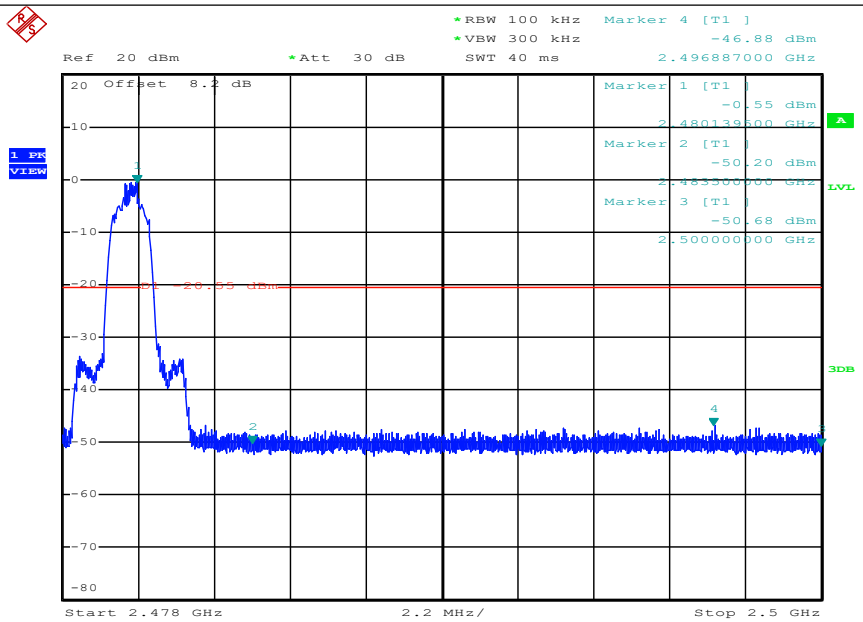
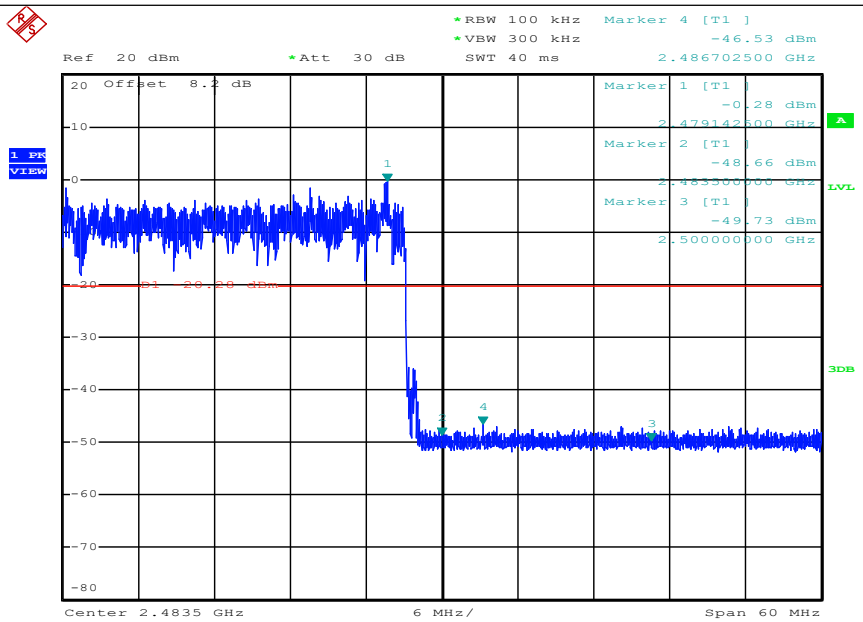
A.7 Band-edge for RF Conducted Emissions

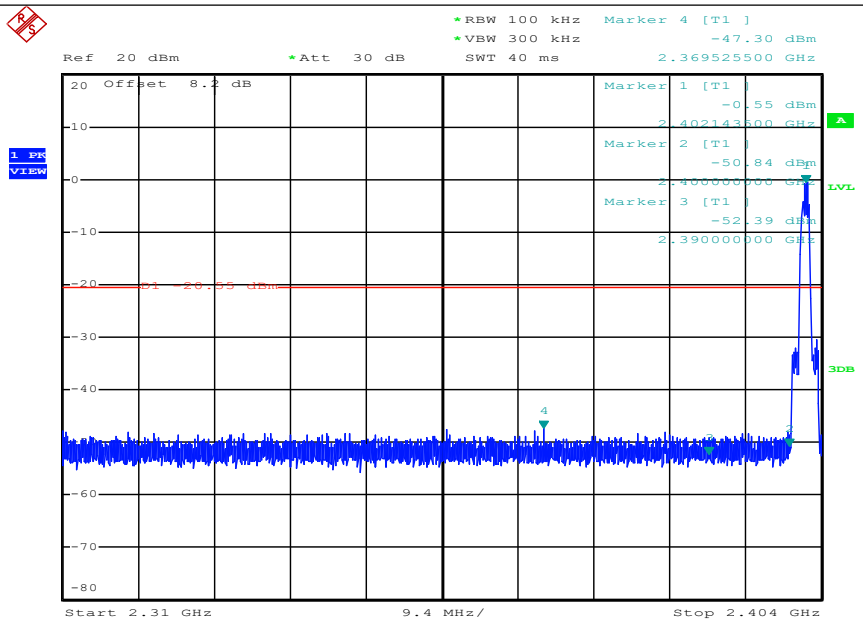
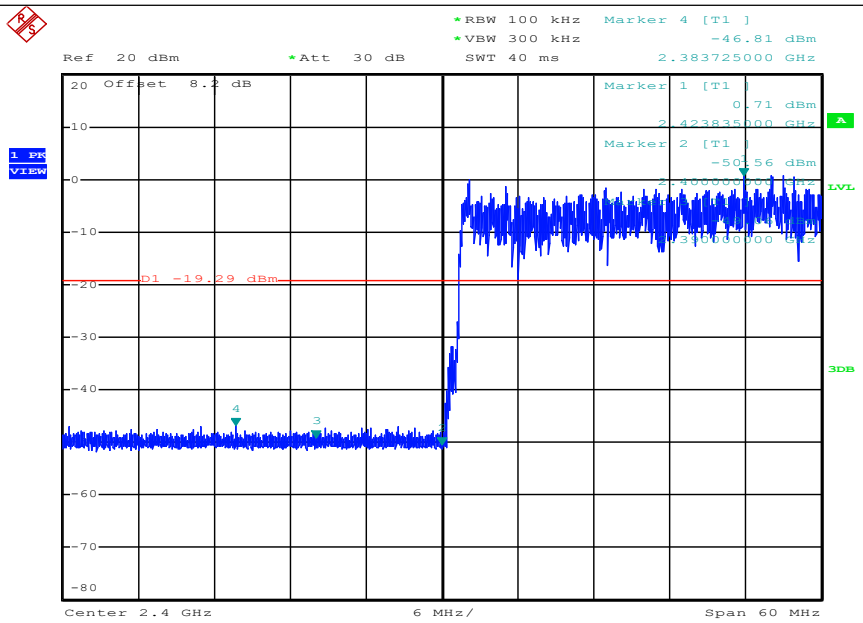
Mode	Channel	Carrier Frequency [MHz]	Carrier Power [dBm]	Frequency Hopping	Max Spurious Level [dBm]	Limit [dBm]	Verdict
GFSK	LCH	2402	0.250	Off	-47.424	-19.75	PASS
			2.490	On	-47.130	-17.51	PASS
	HCH	2480	0.830	Off	-47.368	-19.17	PASS
			1.100	On	-47.197	-18.9	PASS
π/4DQPSK	LCH	2402	-4.030	Off	-46.918	-24.03	PASS
			1.410	On	-46.185	-18.59	PASS
	HCH	2480	-0.550	Off	-46.878	-20.55	PASS
			-0.280	On	-46.534	-20.28	PASS
8DPSK	LCH	2402	-0.550	Off	-47.299	-20.55	PASS
			0.710	On	-46.813	-19.29	PASS
	HCH	2480	-0.450	Off	-46.910	-20.45	PASS
			-0.240	On	-46.557	-20.24	PASS

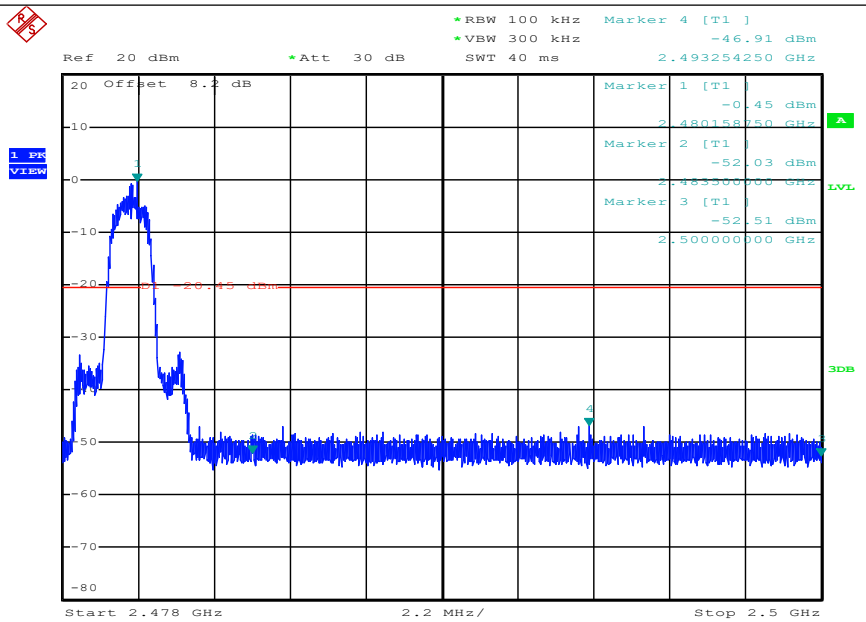
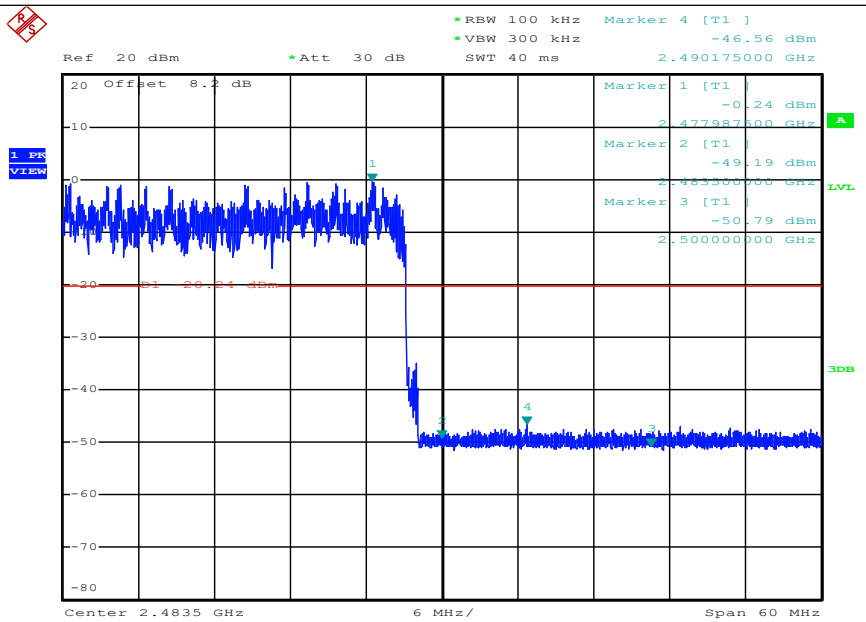
Test Graphs	
GFSK/LCH/No Hop	 Date: 11.SEP.2019 15:24:17
GFSK/LCH/Hop	 Date: 11.SEP.2019 15:57:40

GFSK/HCH/No Hop	 Date: 11.SEP.2019 15:30:50
GFSK/HCH/Hop	 Date: 11.SEP.2019 16:02:17

π/4DQPSK/LCH/No Hop	 Date: 11.SEP.2019 15:33:28
π/4DQPSK/LCH/Hop	 Date: 11.SEP.2019 16:12:29

π/4DQPSK/HCH/No Hop	 Date: 11.SEP.2019 15:44:59
π/4DQPSK/HCH/Hop	 Date: 11.SEP.2019 16:16:08

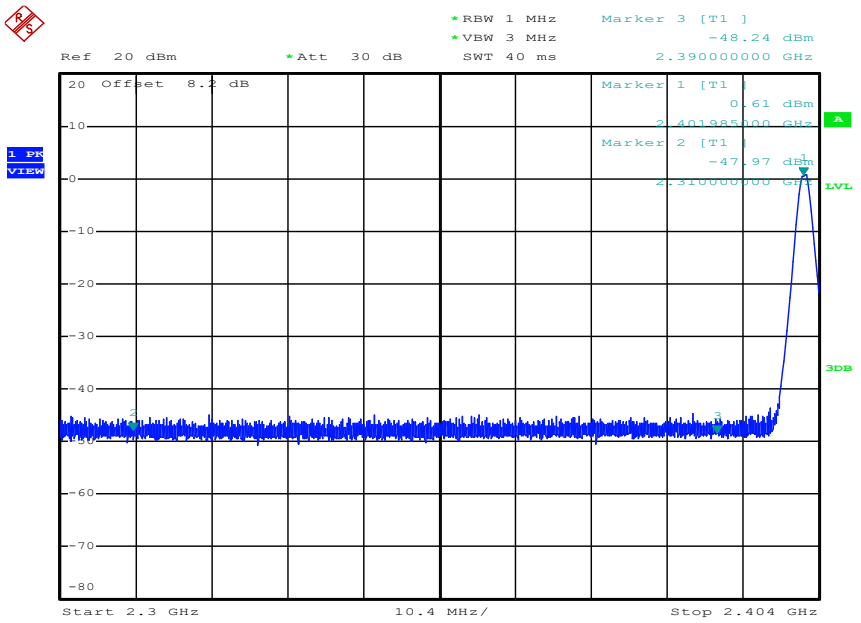
8DPSK/LCH/No Hop	 Date: 11.SEP.2019 15:47:35
8DPSK/LCH/Hop	 Date: 11.SEP.2019 16:19:52

8DPSK/HCH/No Hop	 Date: 11.SEP.2019 15:51:46
8DPSK/HCH/Hop	 Date: 11.SEP.2019 16:24:36

A.8 Restrict-band band-edge measurements

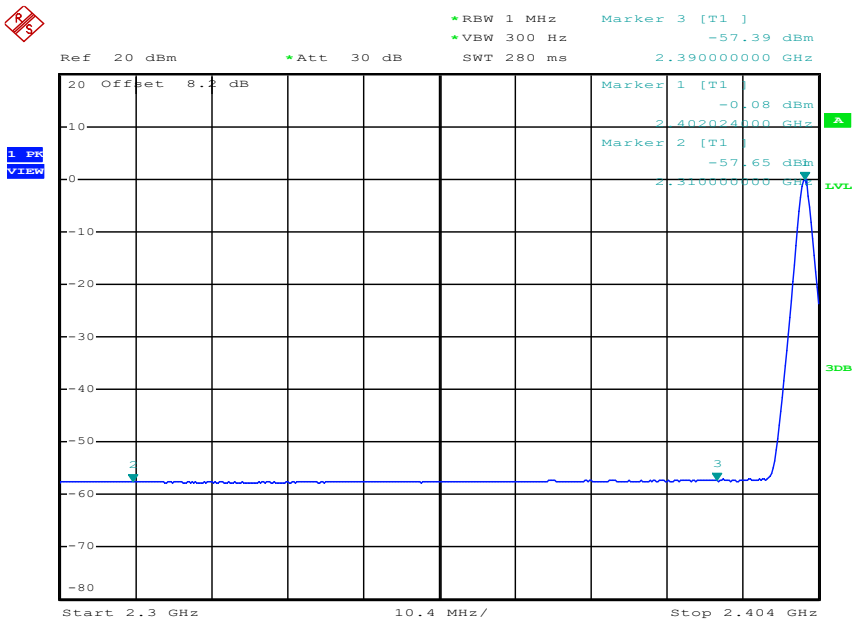
Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-47.97	2.0	0	47.79	PEAK	74	PASS
	Off	2310.0	-57.65	2.0	0	38.11	AV	54	PASS
	Off	2390.0	-48.24	2.0	0	47.52	PEAK	74	PASS
	Off	2390.0	-57.39	2.0	0	38.37	AV	54	PASS
	Off	2483.5	-38.82	2.0	0	56.94	PEAK	74	PASS
	Off	2483.5	-42.35	2.0	0	53.41	AV	54	PASS
	Off	2500.0	-48.61	2.0	0	47.15	PEAK	74	PASS
	Off	2500.0	-58.09	2.0	0	37.67	AV	54	PASS
π/4DQPSK	Off	2310.0	-49.43	2.0	0	46.33	PEAK	74	PASS
	Off	2310.0	-57.69	2.0	0	38.07	AV	54	PASS
	Off	2390.0	-47.53	2.0	0	48.23	PEAK	74	PASS
	Off	2390.0	-57.53	2.0	0	38.23	AV	54	PASS
	Off	2483.5	-39.11	2.0	0	56.65	PEAK	74	PASS
	Off	2483.5	-44.54	2.0	0	51.22	AV	54	PASS
	Off	2500.0	-48.44	2.0	0	47.32	PEAK	74	PASS
	Off	2500.0	-58.03	2.0	0	37.73	AV	54	PASS
8DPSK	Off	2310.0	-49.07	2.0	0	46.69	PEAK	74	PASS
	Off	2310.0	-57.67	2.0	0	38.09	AV	54	PASS
	Off	2390.0	-48.17	2.0	0	47.59	PEAK	74	PASS
	Off	2390.0	-57.41	2.0	0	38.35	AV	54	PASS
	Off	2483.5	-39.23	2.0	0	56.53	PEAK	74	PASS
	Off	2483.5	-44.50	2.0	0	51.26	AV	54	PASS
	Off	2500.0	-48.01	2.0	0	47.75	PEAK	74	PASS
	Off	2500.0	-58.01	2.0	0	37.75	AV	54	PASS

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



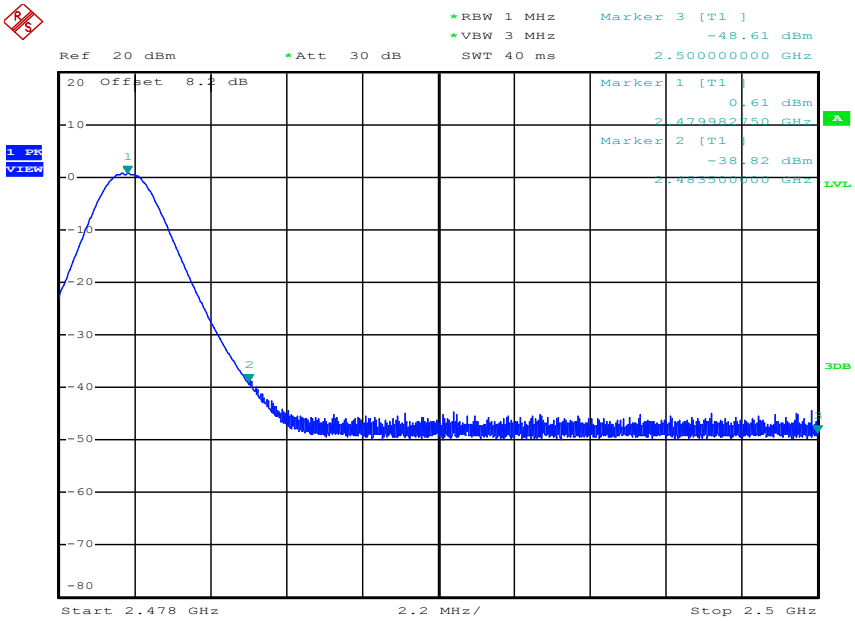
Date: 11.SEP.2019 15:26:08

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



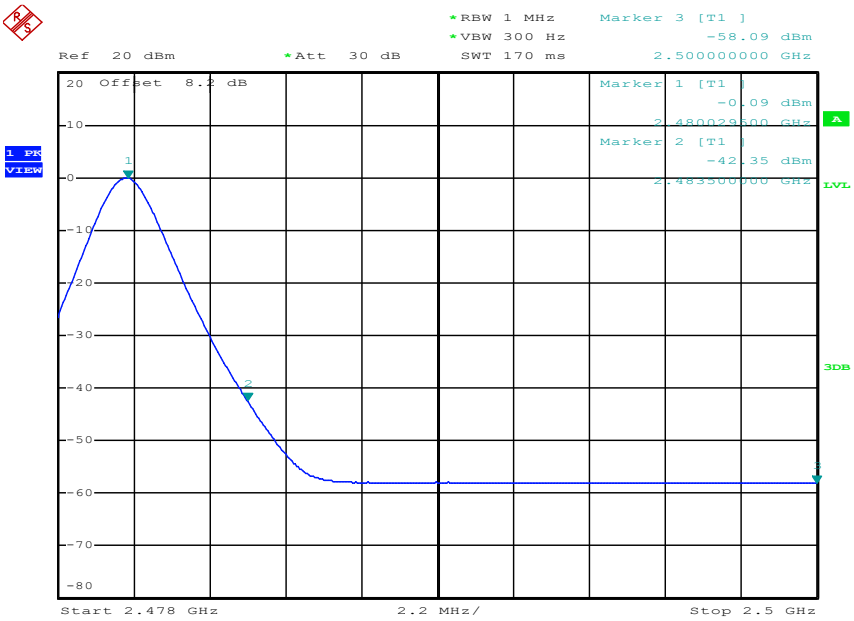
Date: 11.SEP.2019 15:26:21

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



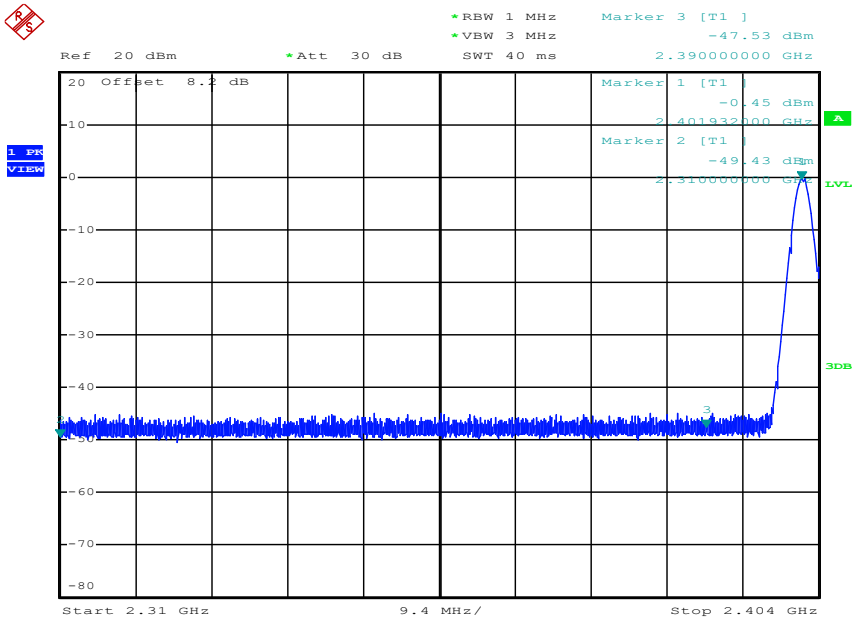
Date: 11.SEP.2019 15:31:36

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



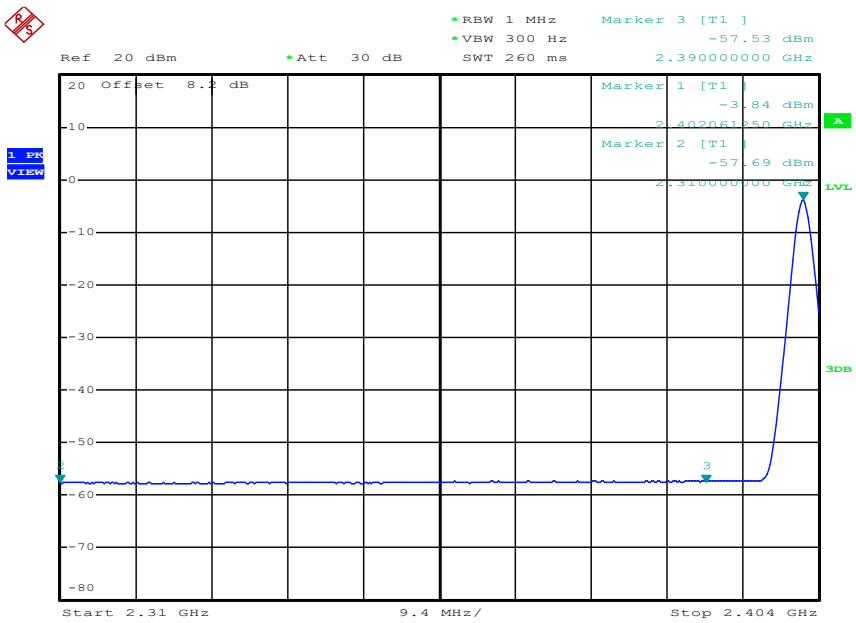
Date: 11.SEP.2019 15:31:49

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



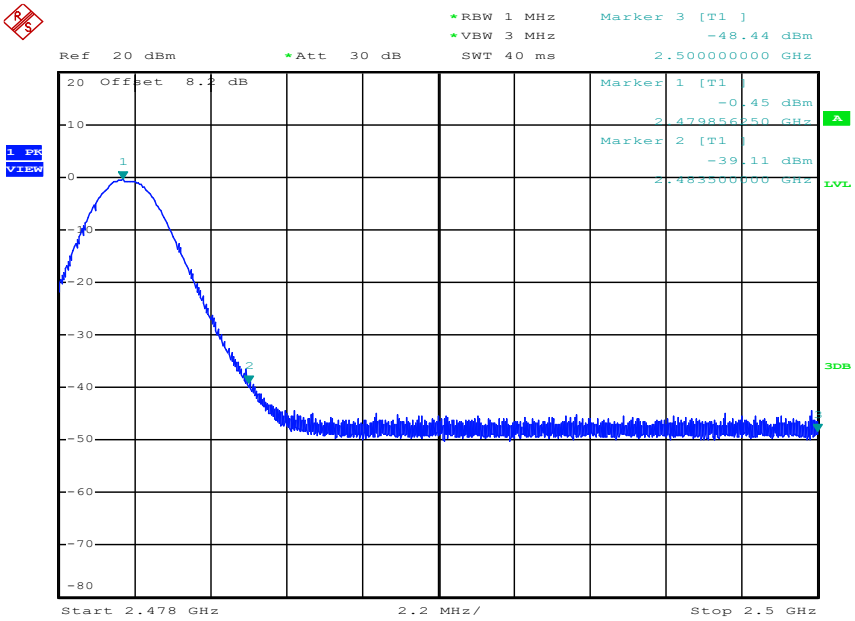
Date: 11.SEP.2019 15:34:14

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



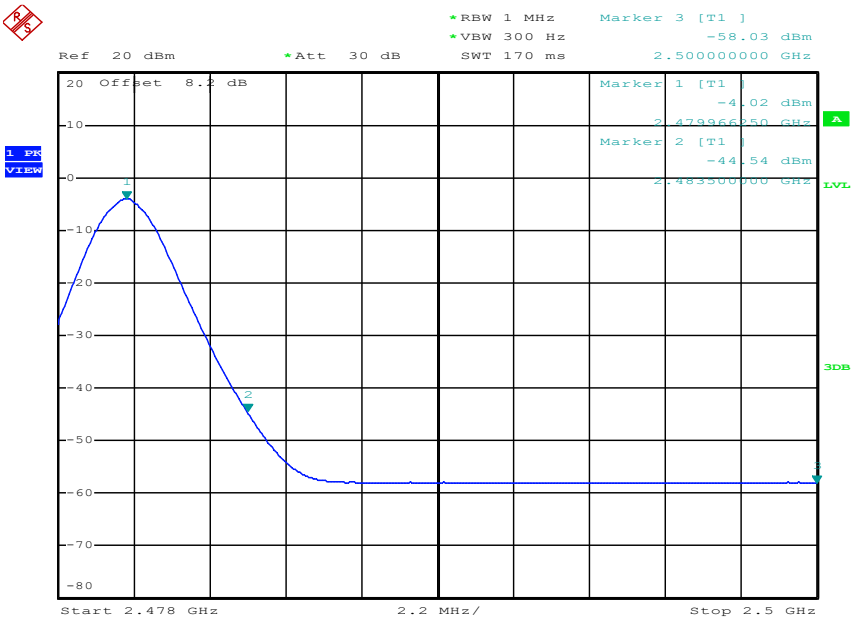
Date: 11.SEP.2019 15:34:27

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



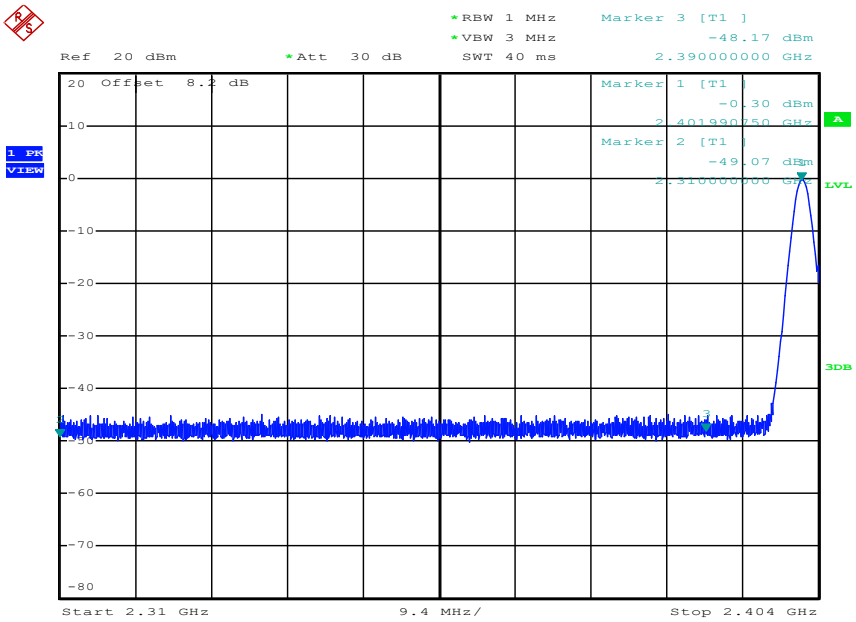
Date: 11.SEP.2019 15:45:46

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



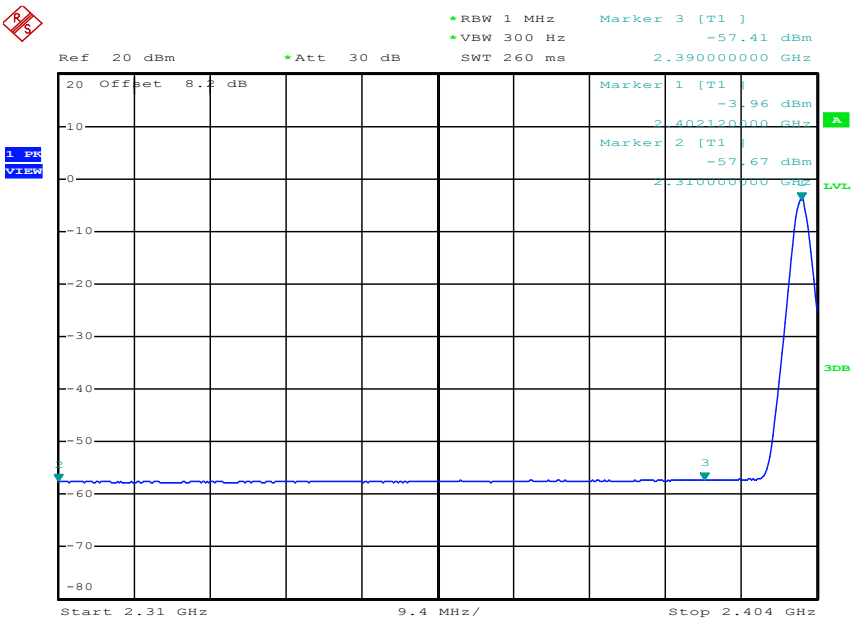
Date: 11.SEP.2019 15:45:59

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



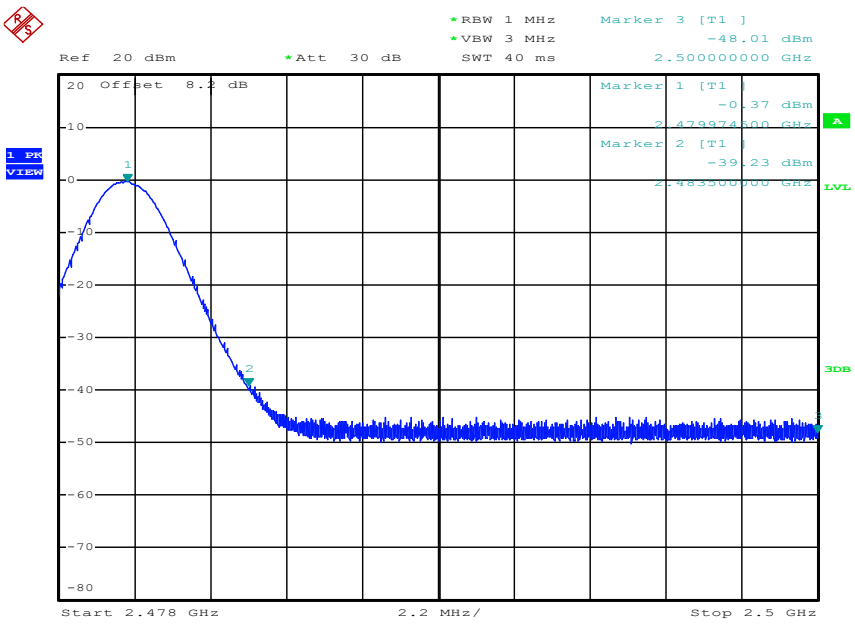
Date: 11.SEP.2019 15:48:21

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



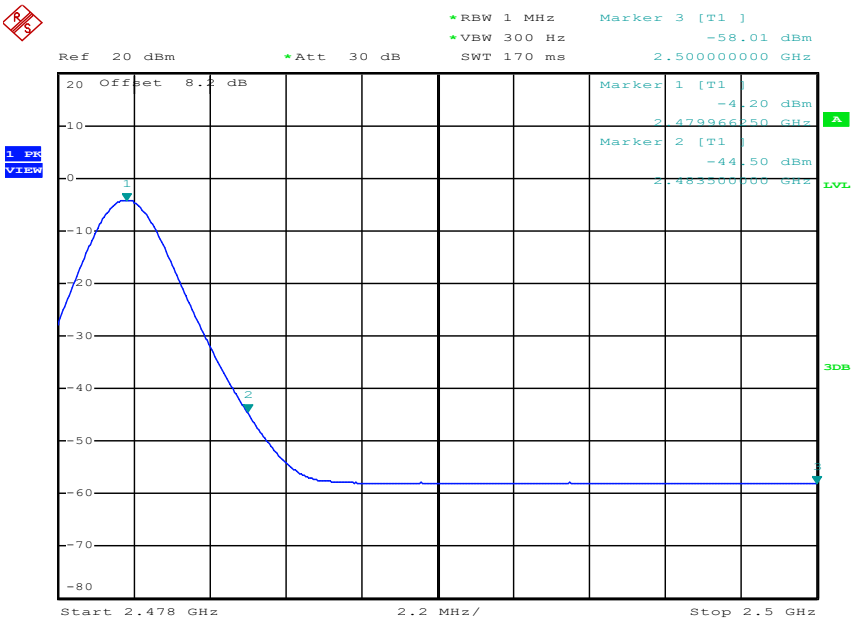
Date: 11.SEP.2019 15:48:35

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



Date: 11.SEP.2019 15:52:32

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



Date: 11.SEP.2019 15:52:46