Appendix A RF Test Data for BT V4.1(BDR/EDR) (Conducted Measurement)

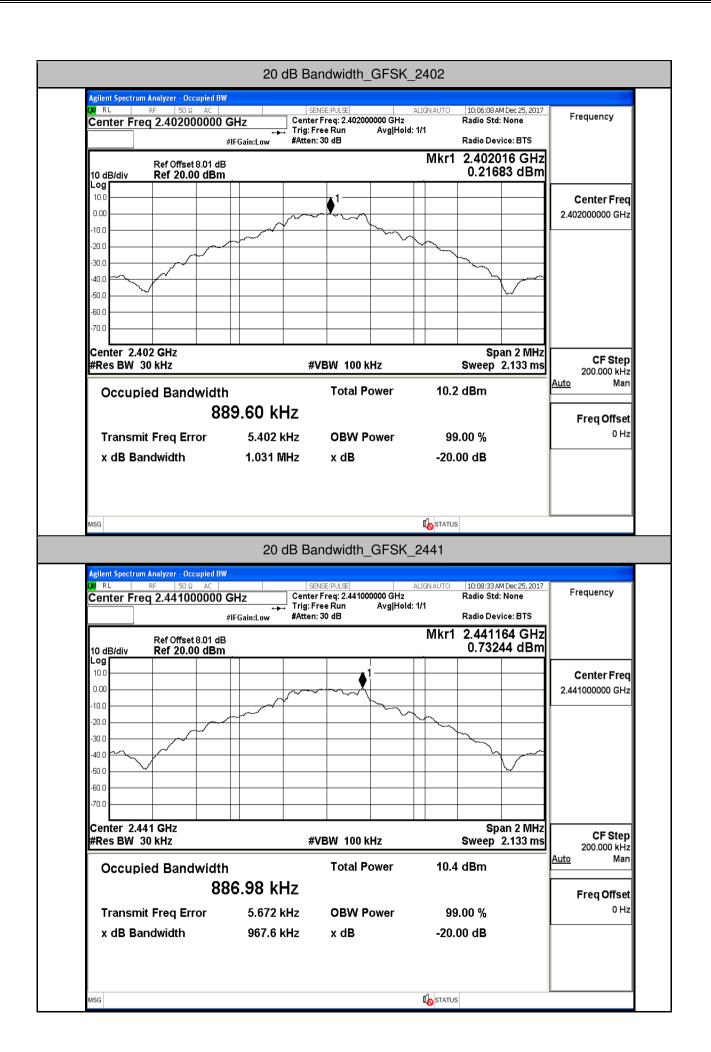
Product Name: Android tv box

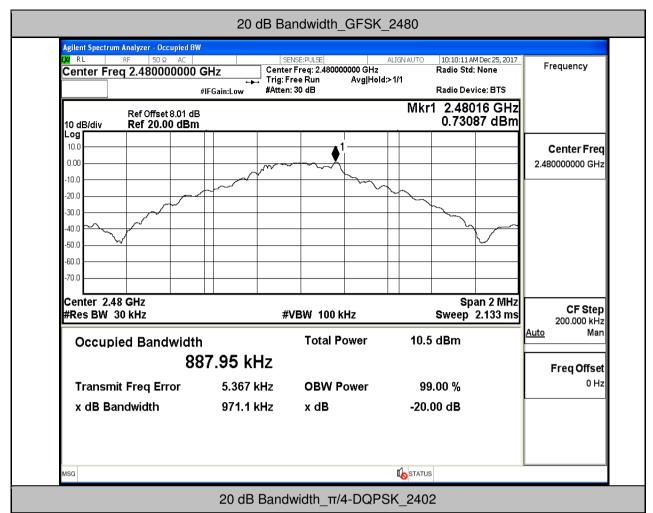
Trade Mark: Test Model: RL

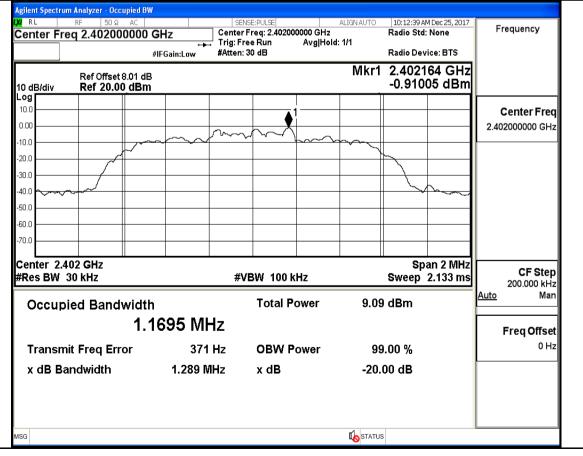
FCC ID: 2AF9R-RL

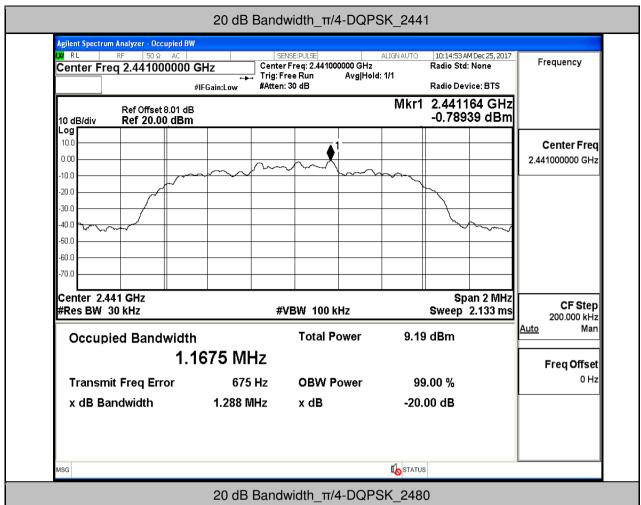
A.1 20 dB Bandwidth

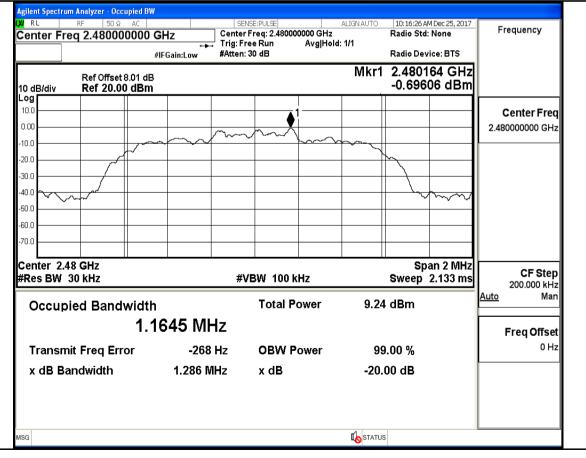
Test Mode	Test Channel	EBW[MHz]	Limit[MHz]	Verdict
	2402	1.031		PASS
GFSK	2441	0.9676		PASS
	2480	0.9711		PASS
π/4-DQPSK	2402	1.289		PASS
	2441	1.288		PASS
	2480	1.286		PASS
8-DPSK	2402	1.293		PASS
	2441	1.294		PASS
	2480	1.298		PASS

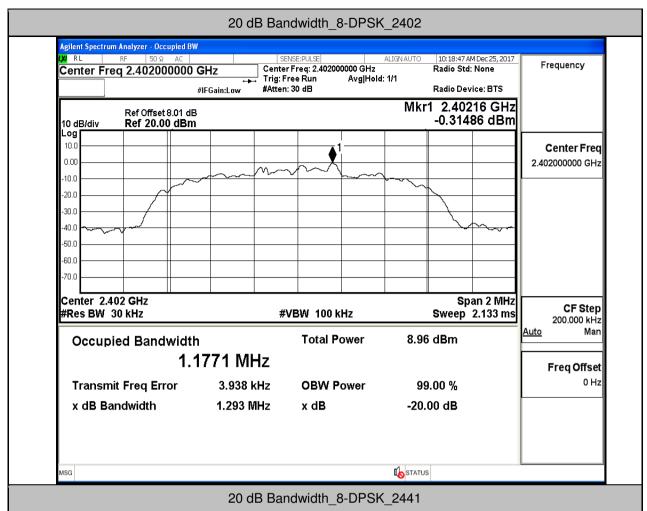


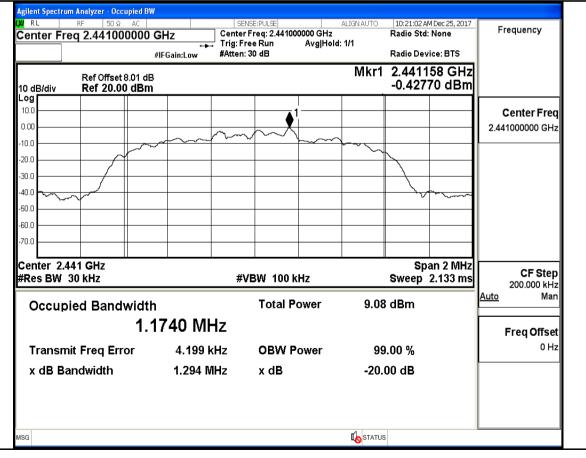


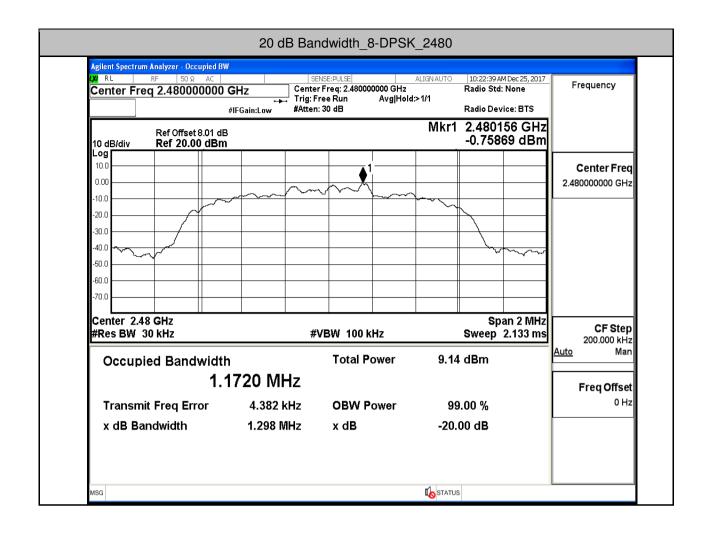






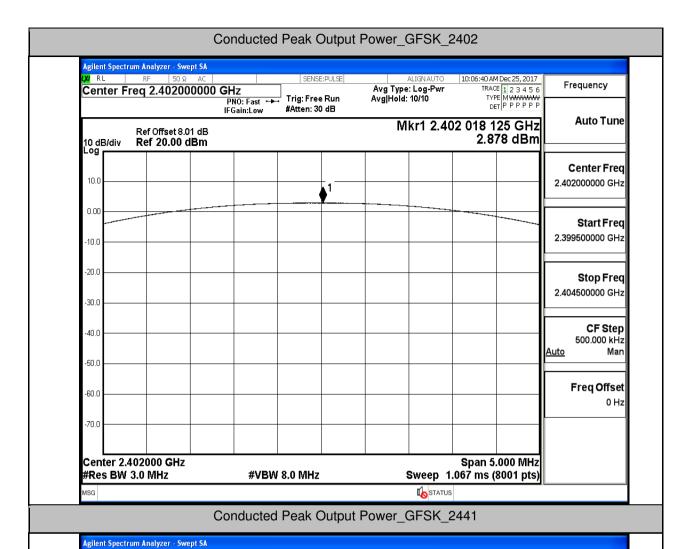


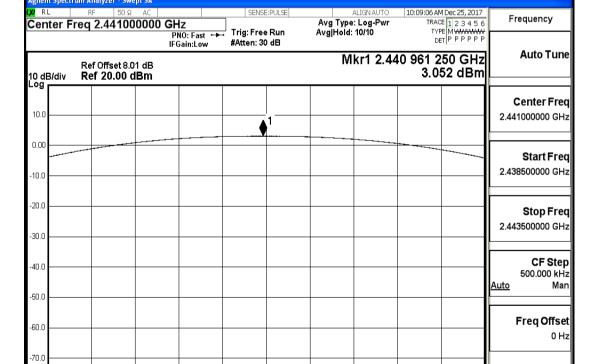




A.2 Conducted Peak Output Power

Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict	
	2402	2.878	30	PASS	
GFSK	2441	3.052	30	PASS	
	2480	3.159	30	PASS	
π/4-DQPSK	2402	2.768	21	PASS	
	2441	2.927	21	PASS	
	2480	3.025	21	PASS	
	2402	2.904	21	PASS	
8-DPSK	2441	3.068	21	PASS	
	2480	3.168	21	PASS	





#VBW 8.0 MHz

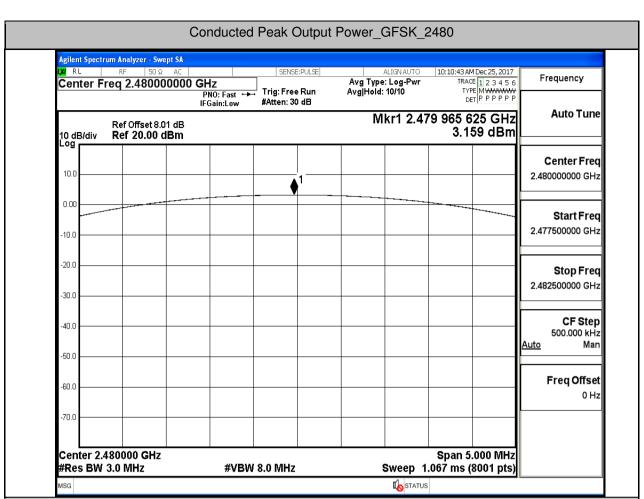
Span 5.000 MHz

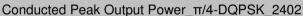
Sweep 1.067 ms (8001 pts)

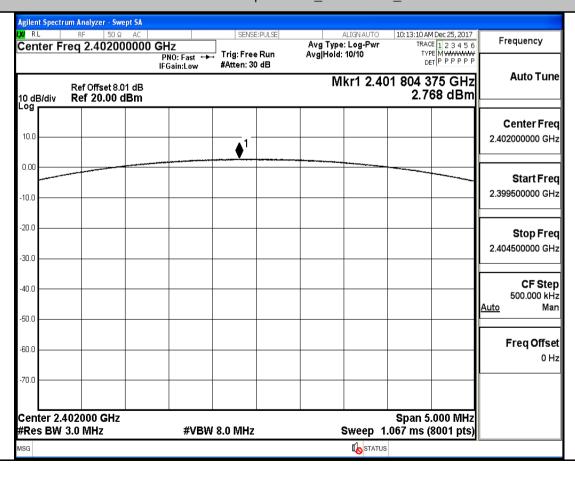
STATUS

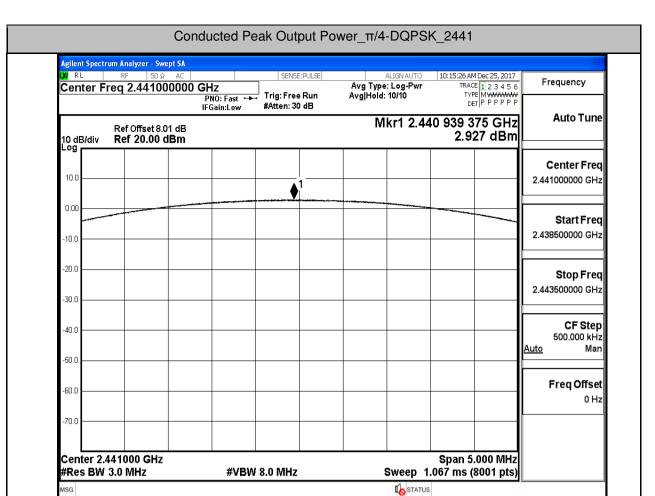
Center 2.441000 GHz

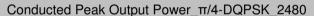
#Res BW 3.0 MHz

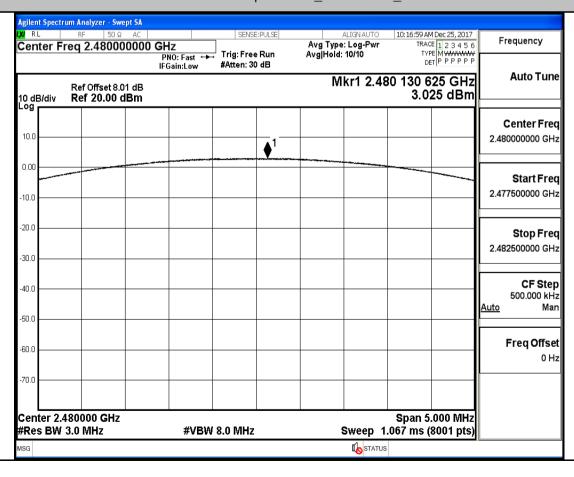


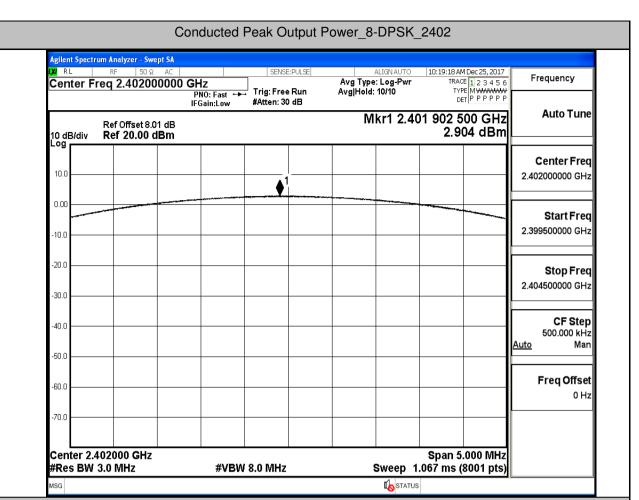


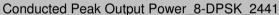


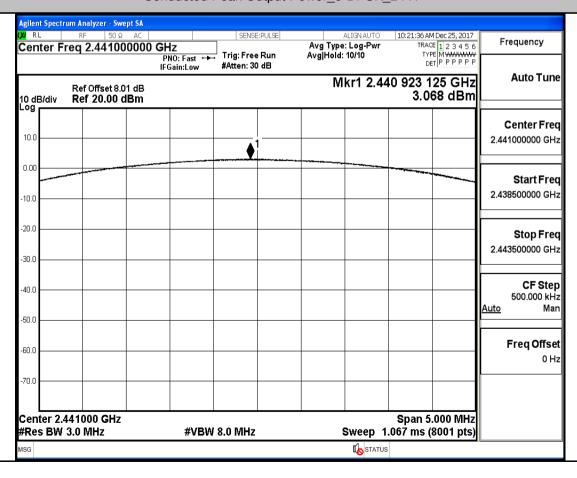


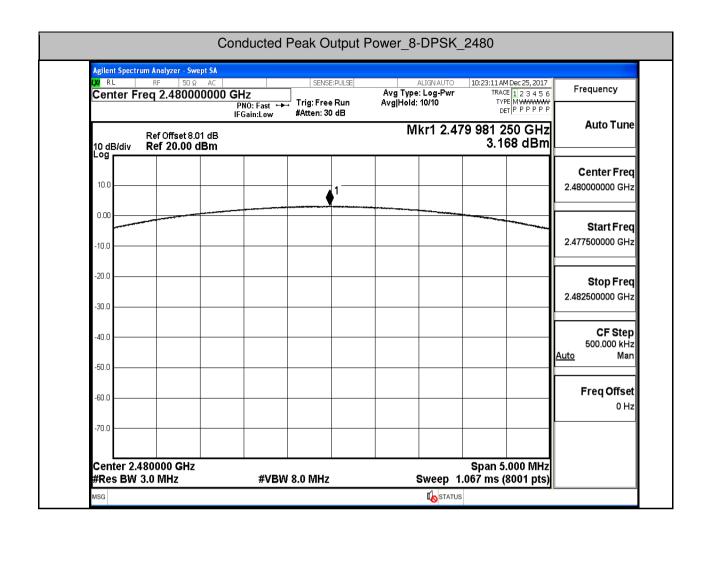






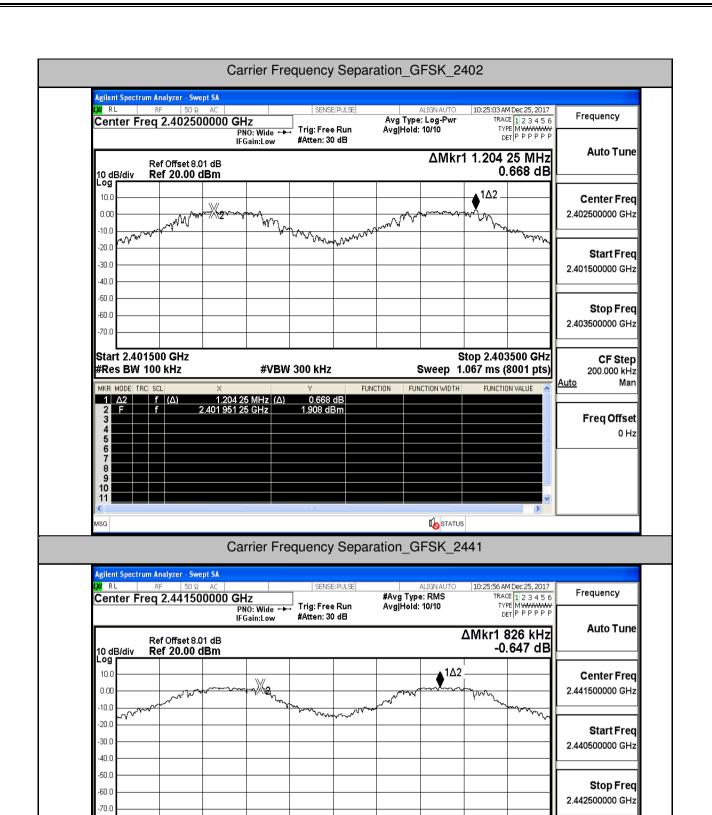






A.3 Carrier Frequency Separation

Test Mode	Test Channel	Result[MHz]	Limit[MHz]	Verdict
	2402	1.204	0.69	PASS
GFSK	2441	0.826	0.65	PASS
	2480	0.846	0.65	PASS
	2402	0.984	0.86	PASS
π/4-DQPSK	2441	1.17	0.86	PASS
	2480	1.004	0.86	PASS
8-DPSK	2402	0.984	0.86	PASS
	2441	1.282	0.86	PASS
	2480	1.08	0.87	PASS



#VBW 300 kHz

826 kHz (Δ) 2.441 164 GHz -0.647 dB 2.796 dBm

Start 2.440500 GHz

#Res BW 100 kHz

MKR MODE TRC SCL

Stop 2.442500 GHz

1.000 ms (1001 pts)

FUNCTION VALUE

Sweep

FUNCTION WIDTH

FUNCTION

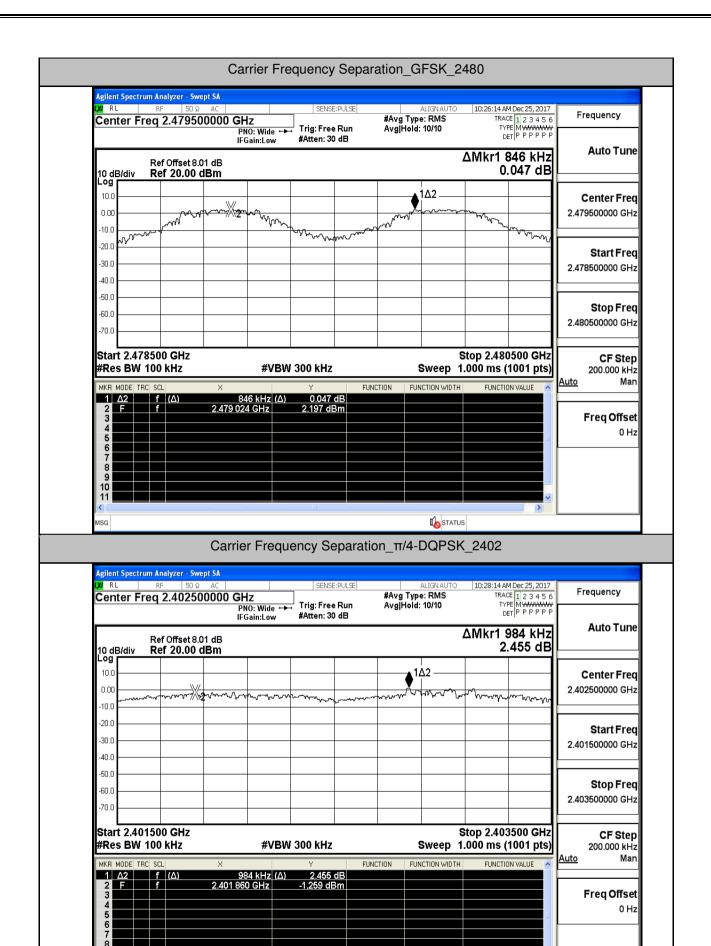
CF Step

Man

200.000 kHz

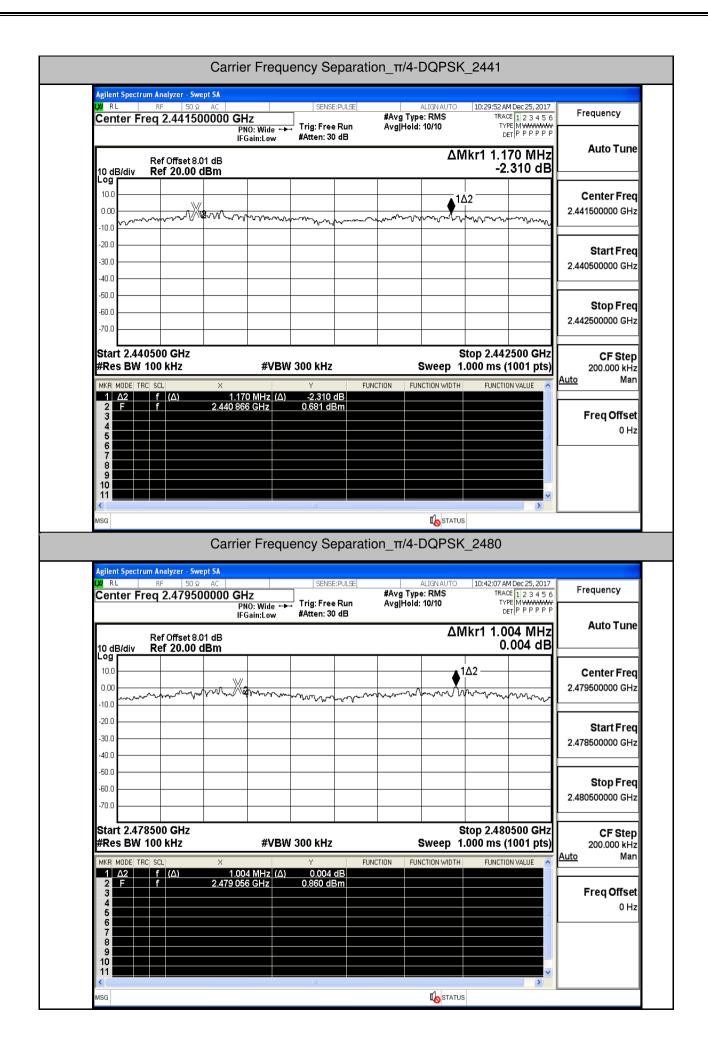
Freq Offset 0 Hz

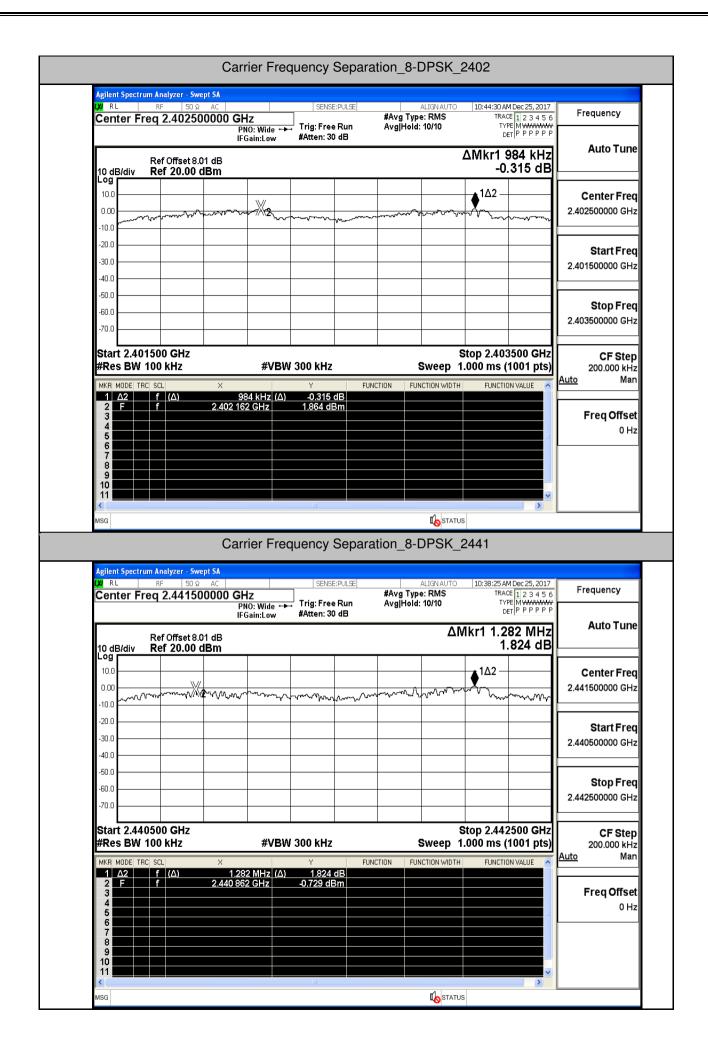
<u>Auto</u>

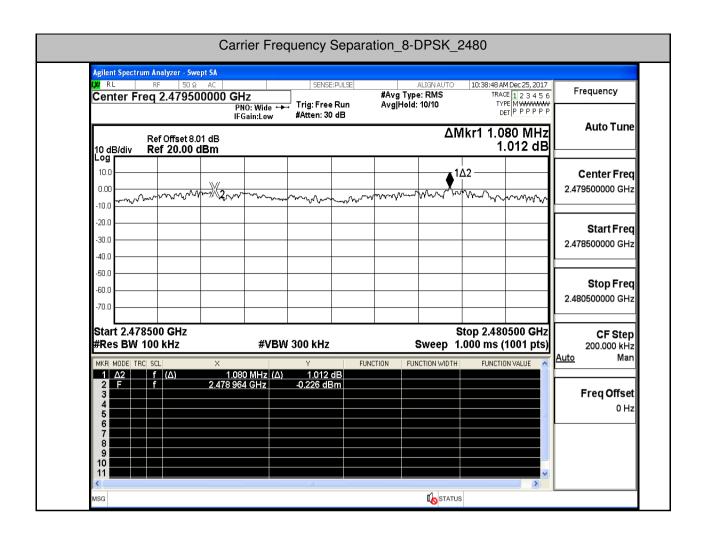


STATUS

ISG

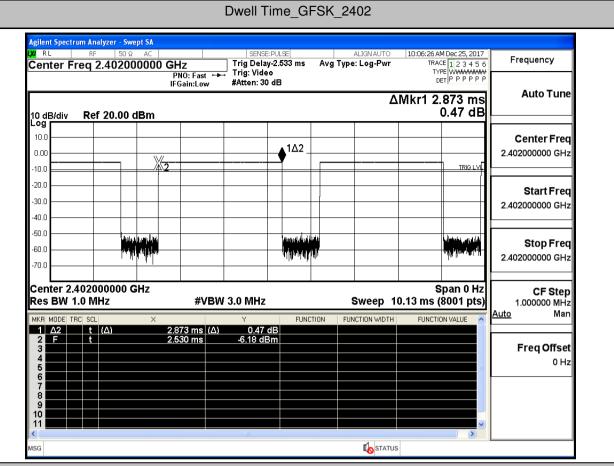




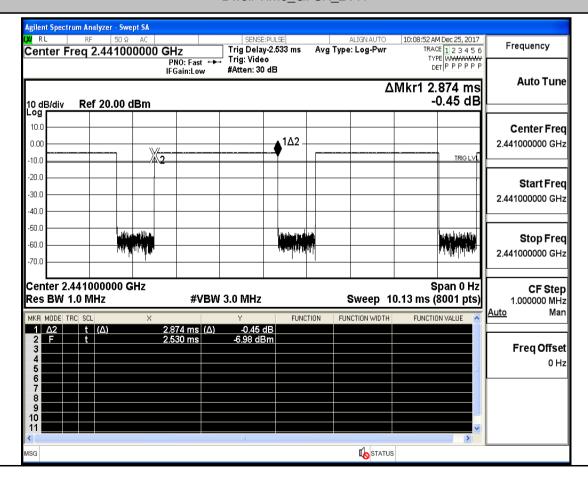


A.4 Dwell Time

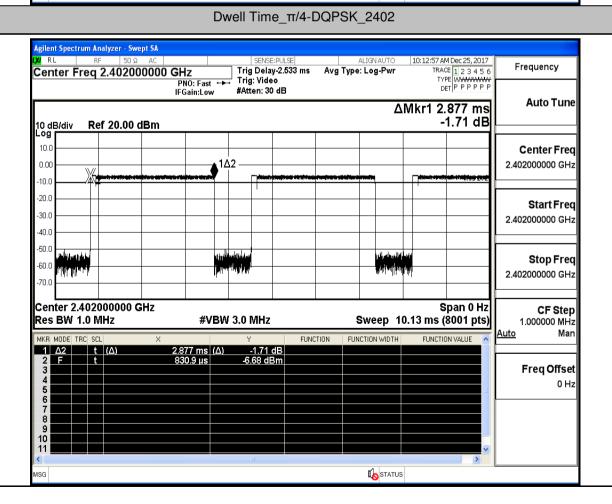
Test Mode	Test Channel	Burst Total Width[ms/hop/ch] Hops[hop*ch] Dwell Time[s]		Limit[s]	Verdict	
	2402	2.87	106.7	0.306	0.4	PASS
GFSK	2441	2.87	106.7	0.306	0.4	PASS
	2480	2.87	106.7	0.306	0.4	PASS
π/4-DQPSK	2402	2.88	106.7	0.307	0.4	PASS
	2441	2.88	106.7	0.307	0.4	PASS
	2480	2.88	106.7	0.307	0.4	PASS
	2402	2.88	106.7	0.307	0.4	PASS
8-DPSK	2441	2.88	106.7	0.307	0.4	PASS
	2480	2.88	106.7	0.307	0.4	PASS

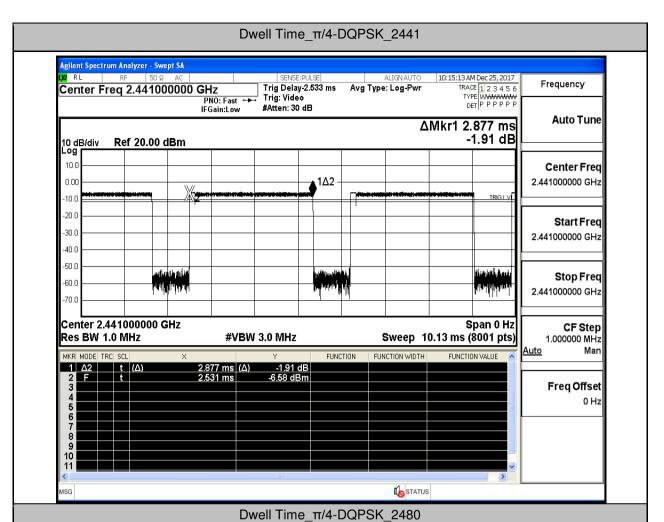


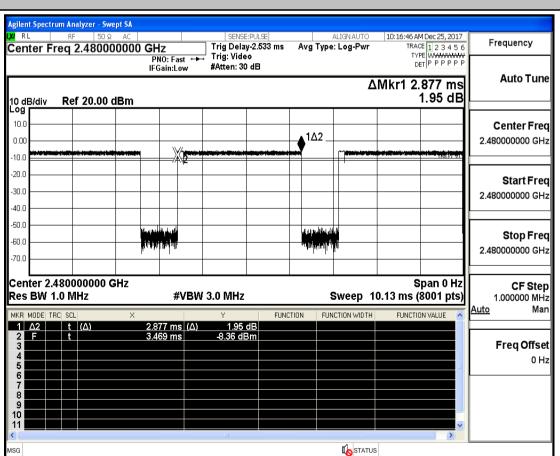




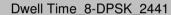
Dwell Time_GFSK_2480 10:10:30 AM Dec 25, 2017 Frequency Trig Delay-2.533 ms TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P P Center Freq 2.480000000 GHz Avg Type: Log-Pwr Trig: Video PNO: Fast ↔ IFGain:Low **Auto Tune** ΔMkr1 2.873 ms 10 dB/div Ref 20.00 dBm -0.95 dB 10.0 Center Freq **≜**1∆2 2.480000000 GHz 0.00 TRIG LV -10.0 -20.0 Start Fred -30.0 2.480000000 GHz -40.0 -50.0 Stop Freq -60.0 2.480000000 GHz Center 2.480000000 GHz Span 0 Hz **CF Step** Sweep 10.13 ms (8001 pts) Res BW 1.0 MHz **#VBW 3.0 MHz** 1.000000 MHz Man FUNCTION VALUE FUNCTION FUNCTION WIDTH -0.95 dB -5.31 dBm Freq Offset 0 Hz STATUS



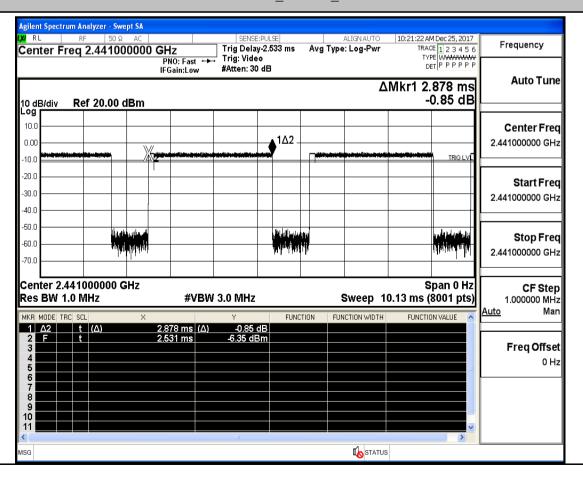


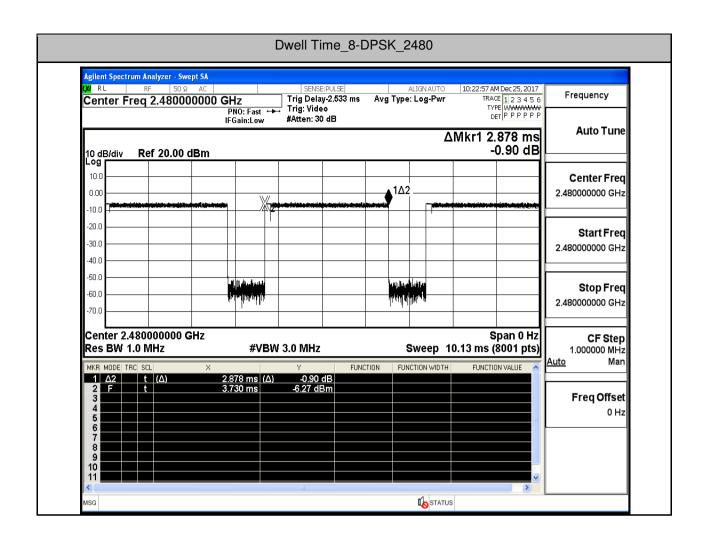


Dwell Time_8-DPSK_2402 10:19:05 AM Dec 25, 2017 Frequency Trig Delay-2.533 ms TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P P Center Freq 2.402000000 GHz Avg Type: Log-Pwr Trig: Video PNO: Fast IFGain:Low **Auto Tune** ΔMkr1 2.878 ms 10 dB/div Ref 20.00 dBm -0.87 dB 10.0 Center Freq _1Δ2 2.402000000 GHz 0.00 -10.0 -20.0 Start Freq -30.0 2.402000000 GHz -40.0 -50.0 Stop Freq -60.0 2.402000000 GHz Center 2.402000000 GHz Span 0 Hz **CF Step** Sweep 10.13 ms (8001 pts) Res BW 1.0 MHz **#VBW 3.0 MHz** 1.000000 MHz Man FUNCTION FUNCTION WIDTH FUNCTION VALUE -0.87 dB -6.45 dBm Freq Offset 0 Hz



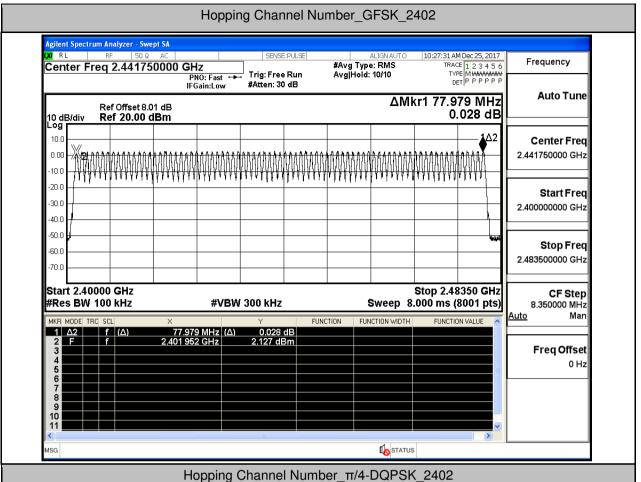
STATUS

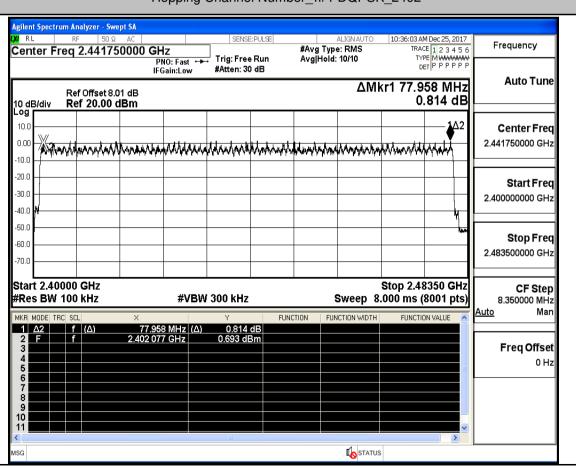


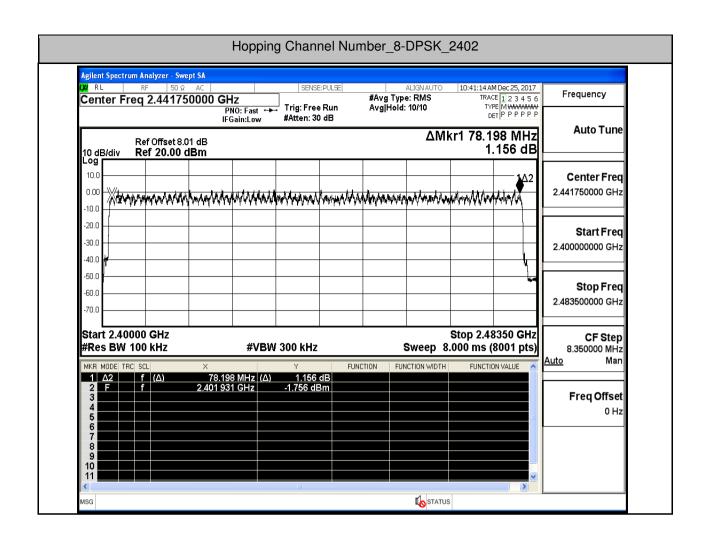


A.5 Hopping Channel Number

Test Mode	Test Channel	Number of Hopping Channel[N]		Verdict
GFSK	All	79	>=15	PASS
π/4-DQPSK	All	79	>=15	PASS
8-DPSK	All	79	>=15	PASS

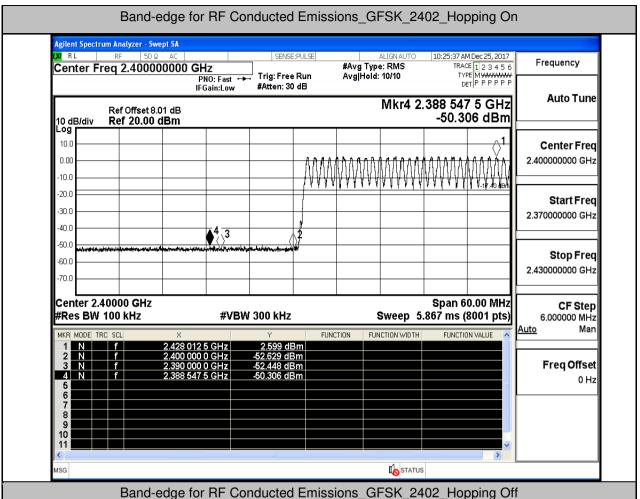


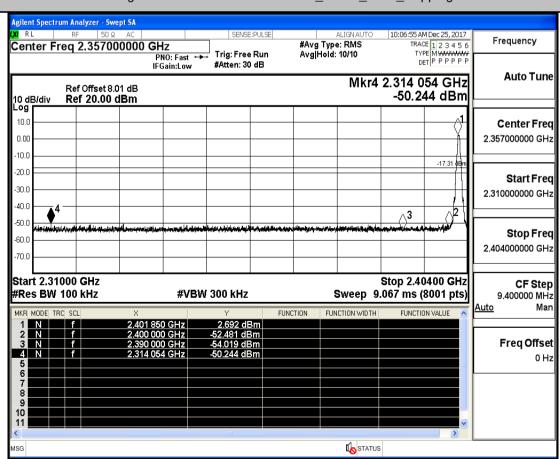


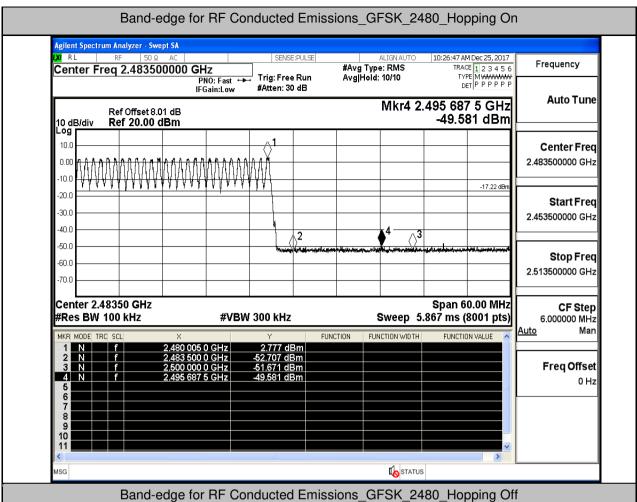


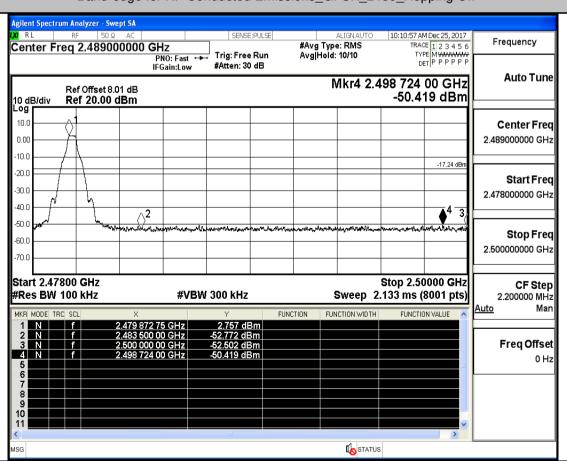
A.6 Band-edge for RF Conducted Emissions

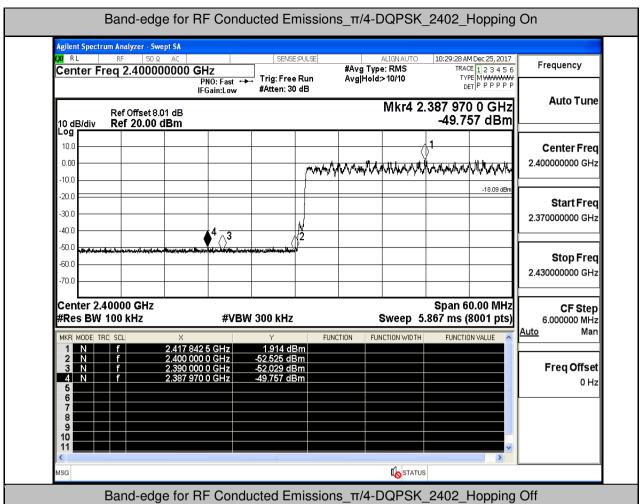
Test Mode	Test Channel	Hopping	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit[dBm]	Verdict
	2402	On	2.599	-50.306	-17.4	PASS
GFSK	2402	Off	2.692	-50.244	-17.31	PASS
GFSN	2480	On	2.777	-49.581	-17.22	PASS
	2480	Off	2.757	-50.419	-17.24	PASS
	2402	On	1.914	-49.757	-18.09	PASS
-/4 DODOK	2402	Off	1.922	-50.273	-18.08	PASS
π/4-DQPSK	2480	On	1.716	-49.493	-18.28	PASS
	2480	Off	2.075	-50.203	-17.93	PASS
	2402	On	1.725	-49.031	-18.28	PASS
8-DPSK	2402	Off	1.914	-50.307	-18.09	PASS
	2480	On	1.654	-49.120	-18.35	PASS
	2480	Off	1.981	-50.271	-18.02	PASS

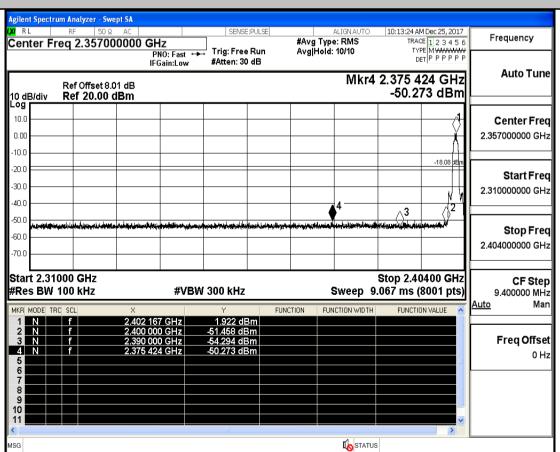


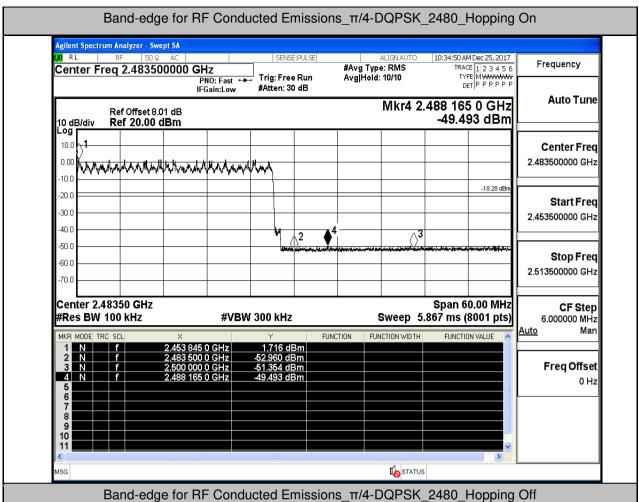


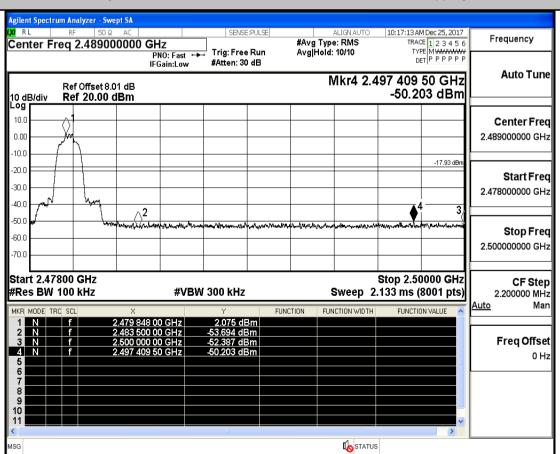


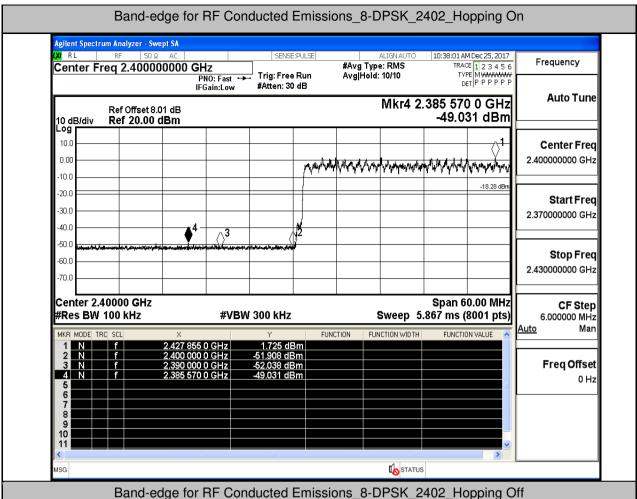


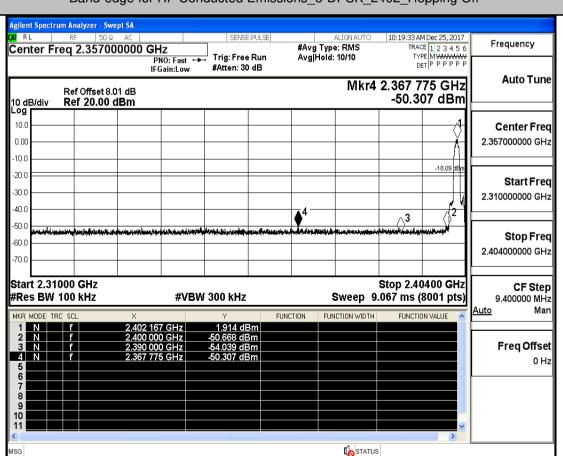


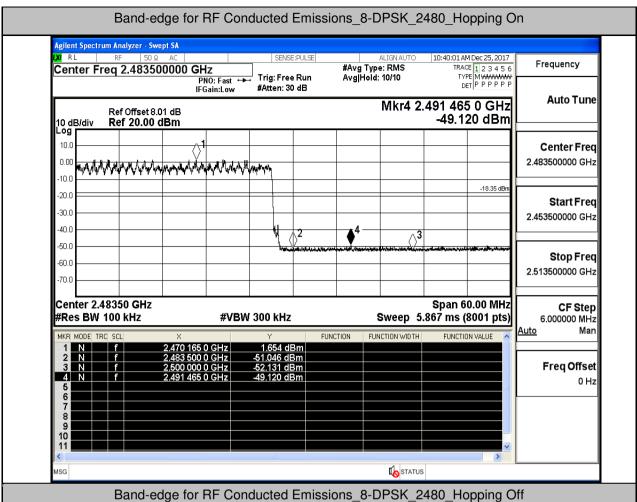


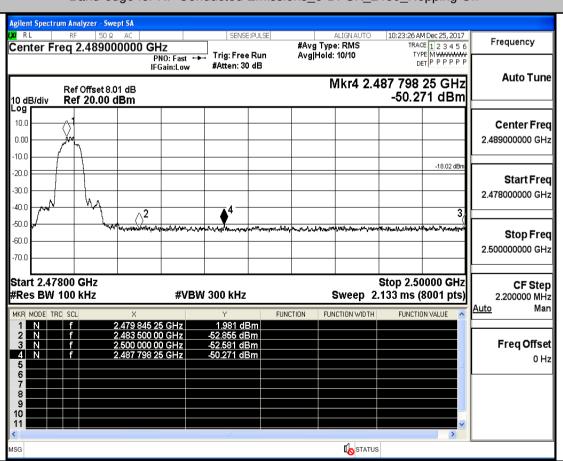






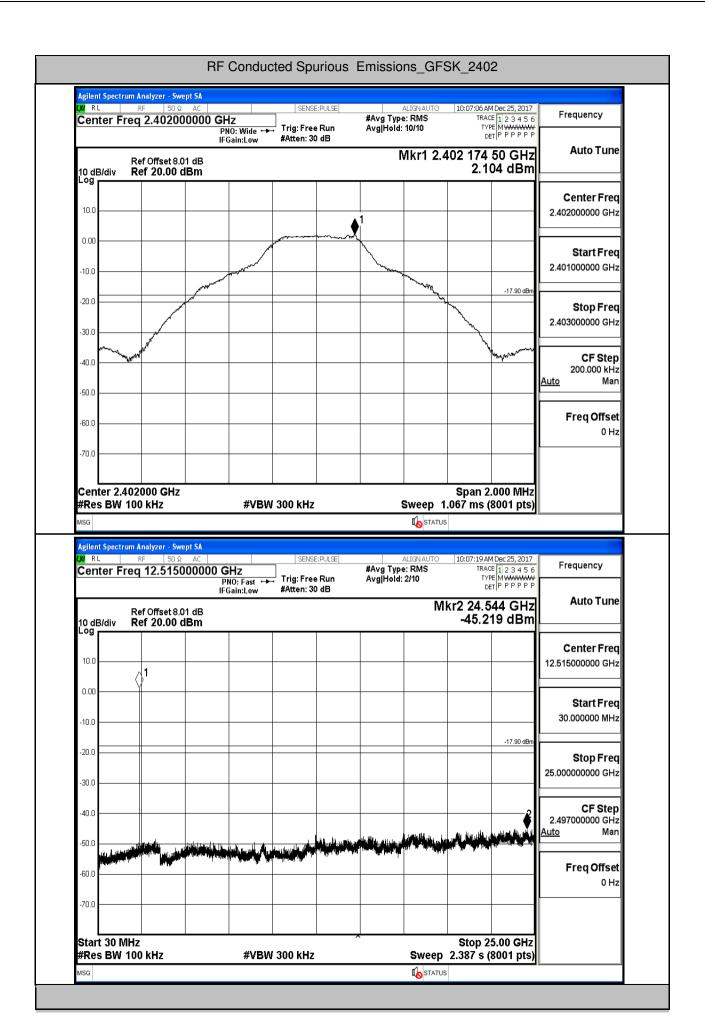


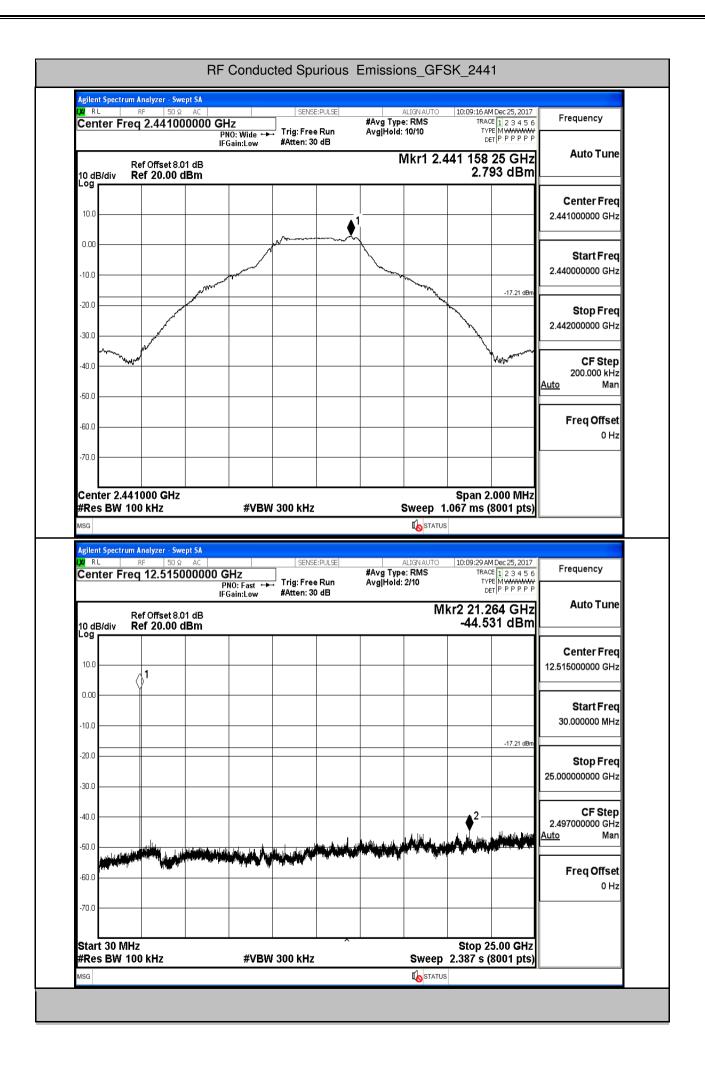


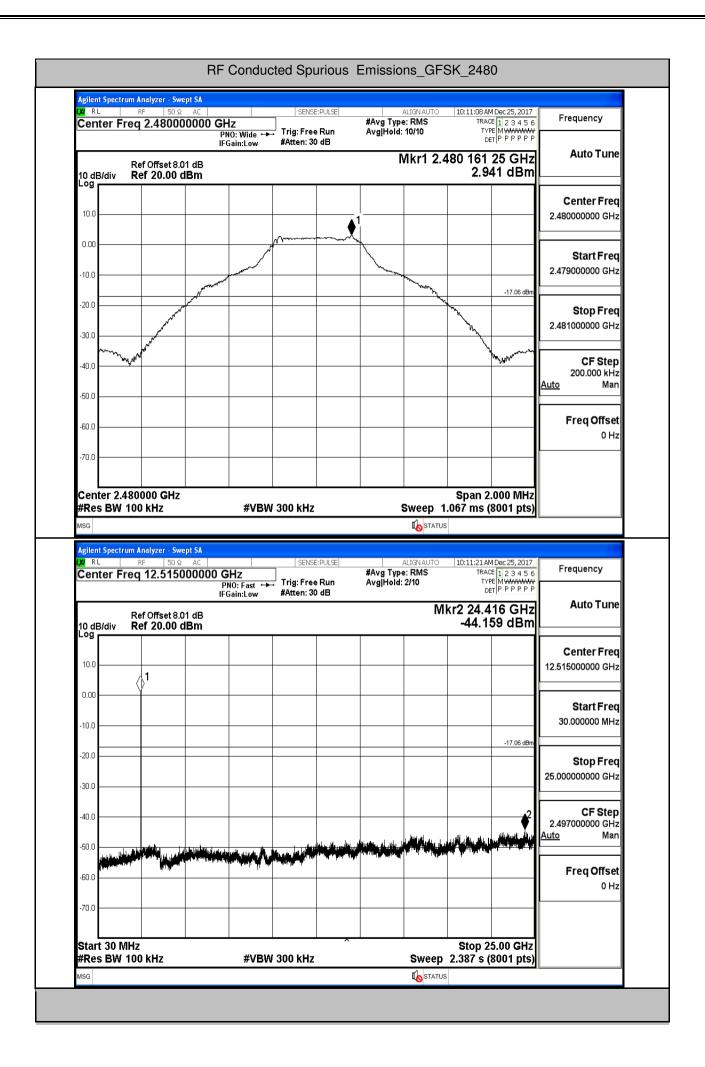


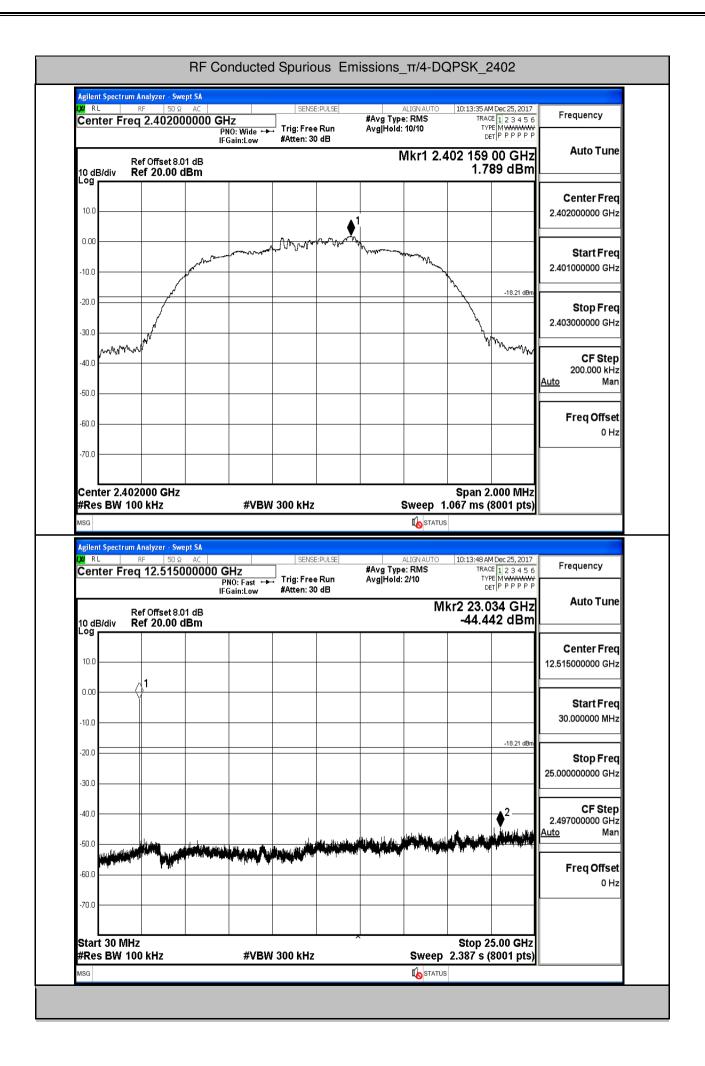
A.7 RF Conducted Spurious Emissions

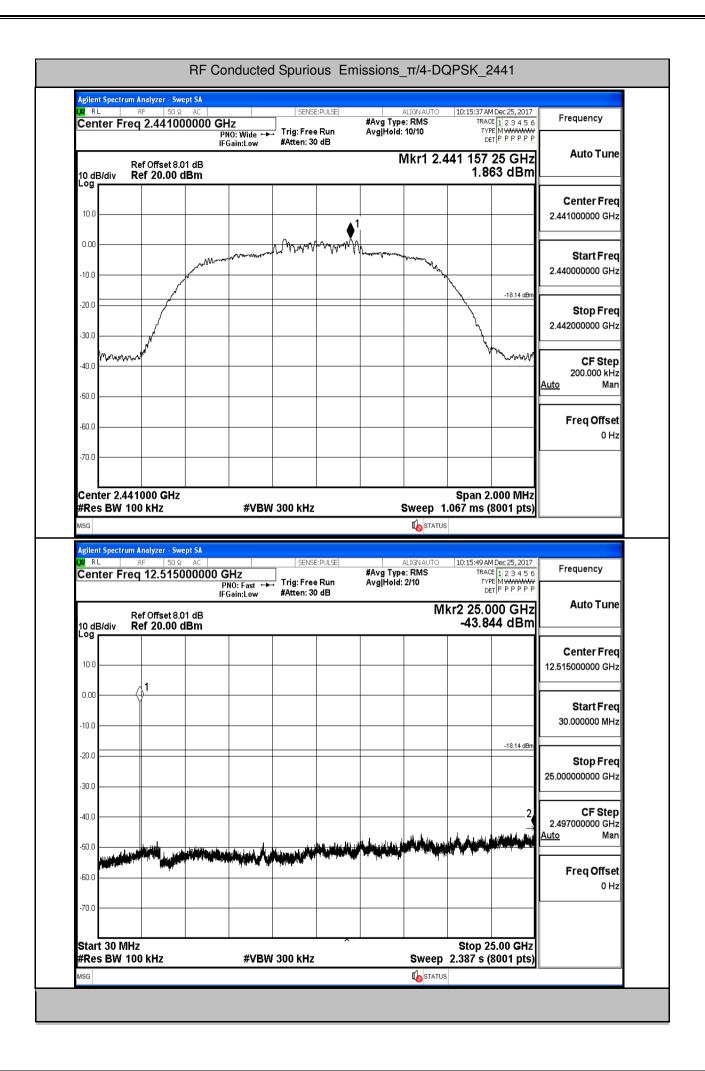
Test Mode	Test Channel	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
	2402	30	25000	100	300	2.104	-45.219	<- 17.896	PASS
GFSK	2441	30	25000	100	300	2.793	-44.531	<- 17.207	PASS
	2480	30	25000	100	300	2.941	-44.159	<- 17.059	PASS
π/4- DQPSK	2402	30	25000	100	300	1.789	-44.442	<- 18.211	PASS
	2441	30	25000	100	300	1.863	-43.844	<- 18.137	PASS
	2480	30	25000	100	300	1.952	-44.371	<- 18.048	PASS
	2402	30	25000	100	300	1.461	-44.663	<- 18.539	PASS
8-DPSK	2441	30	25000	100	300	1.568	-44.744	<- 18.432	PASS
	2480	30	25000	100	300	1.462	-44.737	<- 18.538	PASS

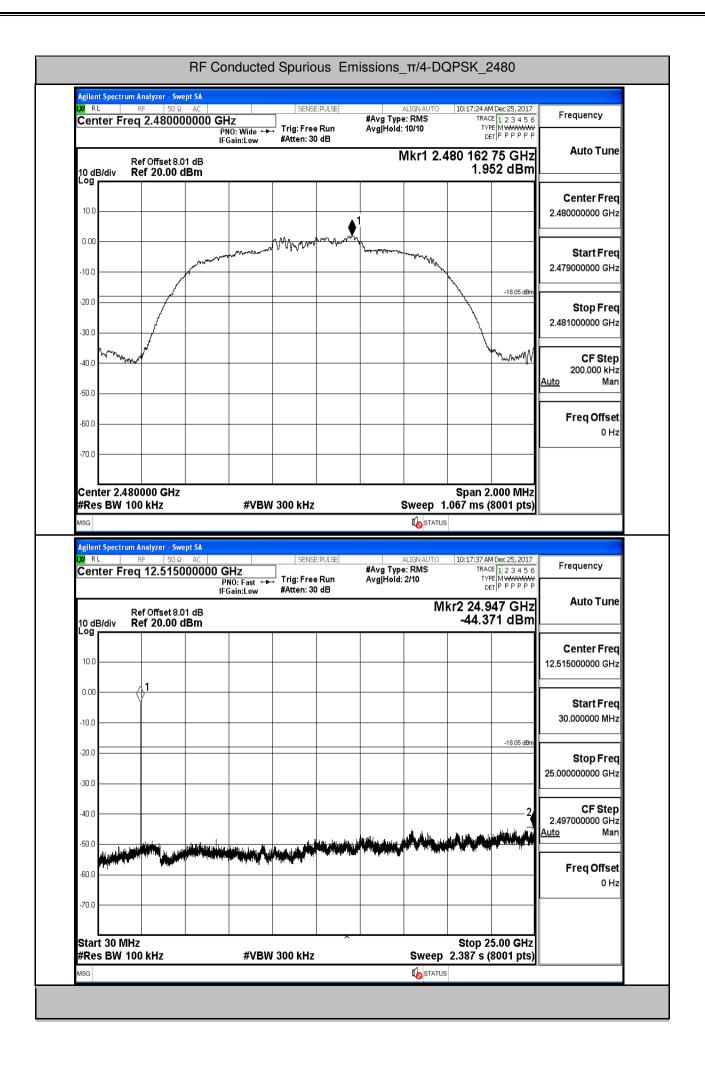


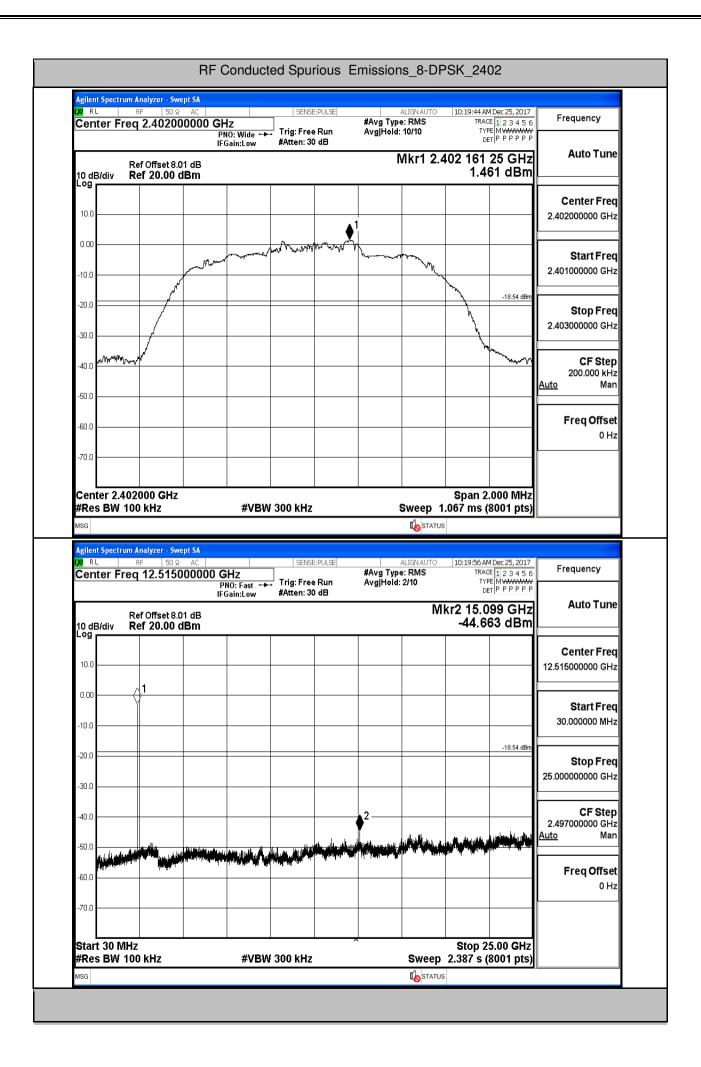


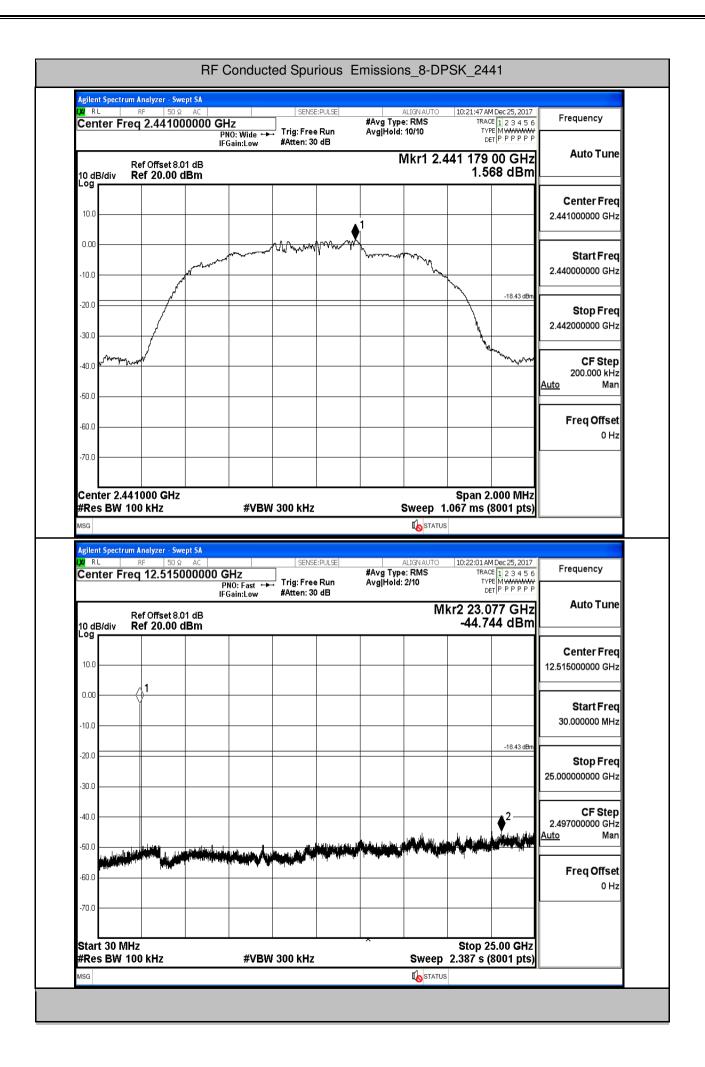


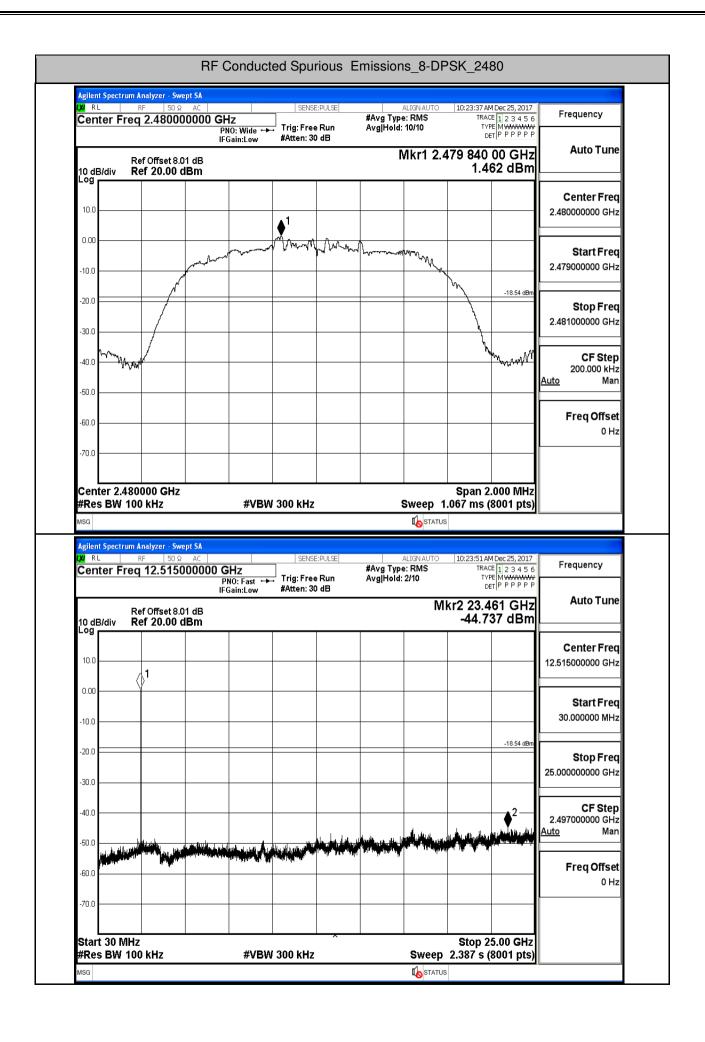






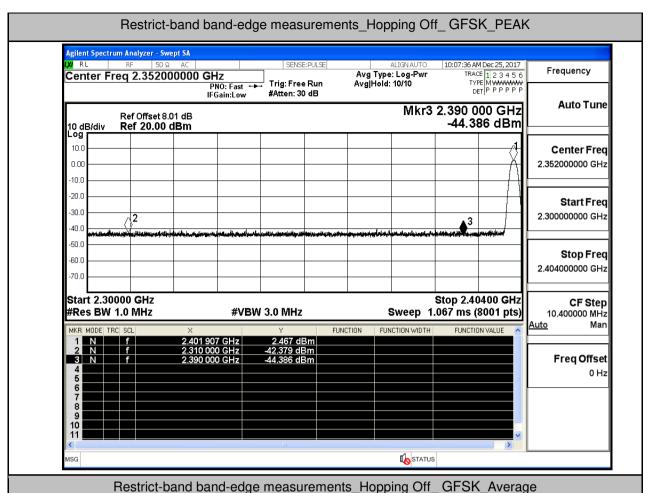


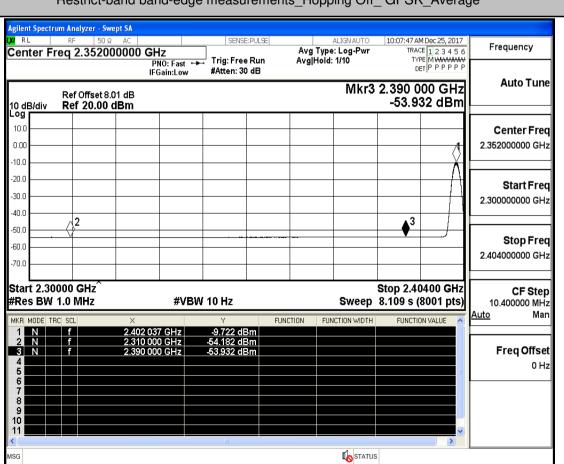




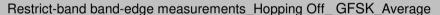
A.8 Restrict-band band-edge measurements

Test Mode	Hopping	Freq.	Power [dBm]	Gain	Ground Factor	E [dBuV/m]	Detector	Limit [dBuV/m]	Verdict
GFSK	Off	2310.0	-42.38	2	0	54.88	PEAK	74	PASS
	Off	2310.0	-54.18	2	0	43.08	AV	54	PASS
	Off	2390.0	-44.39	2	0	52.87	PEAK	74	PASS
	Off	2390.0	-53.93	2	0	43.33	AV	54	PASS
	Off	2483.5	-43.66	2	0	53.60	PEAK	74	PASS
	Off	2483.5	-53.69	2	0	43.57	AV	54	PASS
	Off	2500.0	-43.03	2	0	54.23	PEAK	74	PASS
	Off	2500.0	-53.61	2	0	43.65	AV	54	PASS
π/4- DQPSK	Off	2310.0	-43.75	2	0	53.51	PEAK	74	PASS
	Off	2310.0	-54.24	2	0	43.01	AV	54	PASS
	Off	2390.0	-43.19	2	0	54.07	PEAK	74	PASS
	Off	2390.0	-53.93	2	0	43.32	AV	54	PASS
	Off	2483.5	-43.93	2	0	53.33	PEAK	74	PASS
	Off	2483.5	-53.62	2	0	43.64	AV	54	PASS
	Off	2500.0	-43.11	2	0	54.15	PEAK	74	PASS
	Off	2500.0	-53.60	2	0	43.66	AV	54	PASS
8-DPSK	Off	2310.0	-44.14	2	0	53.12	PEAK	74	PASS
	Off	2310.0	-54.22	2	0	43.04	AV	54	PASS
	Off	2390.0	-42.92	2	0	54.34	PEAK	74	PASS
	Off	2390.0	-53.95	2	0	43.31	AV	54	PASS
	Off	2483.5	-43.54	2	0	53.72	PEAK	74	PASS
	Off	2483.5	-53.62	2	0	43.63	AV	54	PASS
	Off	2500.0	-43.54	2	0	53.72	PEAK	74	PASS
	Off	2500.0	-53.61	2	0	43.65	AV	54	PASS



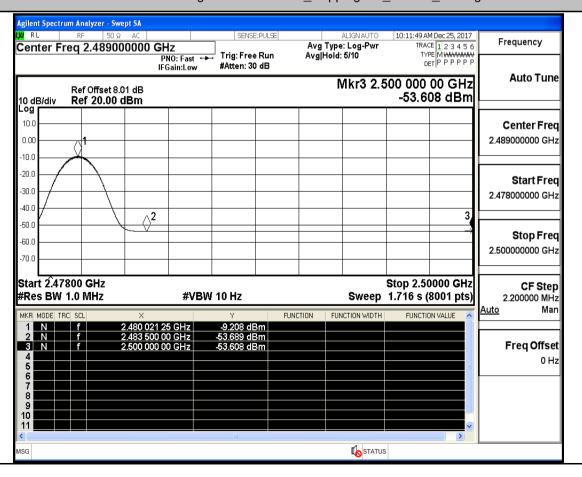


Restrict-band band-edge measurements Hopping Off GFSK PEAK Agilent Spectrum Analyzer - Swept SA ALIGN AUTO 10:11:38 AM Dec 25, 2017 RL SENSE:PULSE TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P P Frequency Center Freq 2.489000000 GHz Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 10/10 PNO: Fast → #Atten: 30 dB IFGain:Low Auto Tune Mkr3 2.500 000 00 GHz Ref Offset 8.01 dB -43.030 dBm 10 dB/div Log Ref 20.00 dBm 10.0 Center Frea 0.00 2.489000000 GHz 10.0 -20.0 Start Freq -30.0 2.478000000 GHz -40.0 -50.0 Stop Freq -60 C 2.500000000 GHz -70.0 Start 2.47800 GHz Stop 2.50000 GHz CF Step #Res BW 1.0 MHz **#VBW 3.0 MHz** Sweep 1.067 ms (8001 pts) 2 200000 MHz <u>Auto</u> Man FUNCTION FUNCTION WIDTH FUNCTION VALUE Freq Offset N 2.500 000 00 GHz -43.030 dBm 0 Hz

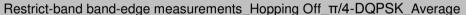


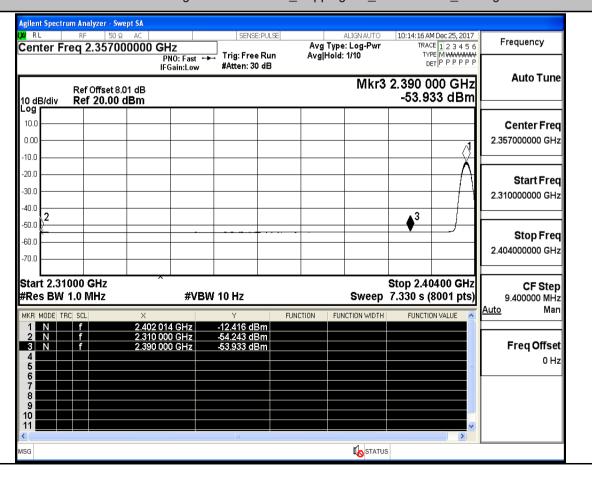
ISG

STATUS



Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK Agilent Spectrum Analyzer - Swept SA ALIGN AUTO 10:14:04 AM Dec 25, 2017 // RL SENSE:PULSE TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P P Frequency Center Freq 2.357000000 GHz Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 10/10 PNO: Fast → #Atten: 30 dB IFGain:Low Auto Tune Mkr3 2.390 000 GHz Ref Offset 8.01 dB -43.188 dBm 10 dB/div Log Ref 20.00 dBm 10.0 Center Frea 2.357000000 GHz 0.00 -10.0 -20.0 Start Freq -30.0 2.310000000 GHz -40.0 -50 C Stop Freq -60 C 2.404000000 GHz Start 2.31000 GHz Stop 2.40400 GHz CF Step #Res BW 1.0 MHz **#VBW 3.0 MHz** Sweep 1.067 ms (8001 pts) 9 400000 MHz <u>Auto</u> Man FUNCTION FUNCTION WIDTH FUNCTION VALUE 1.899 dBm -43.746 dBm Freq Offset N 2.390 000 GHz -43.188 dBm 0 Hz STATUS ISG





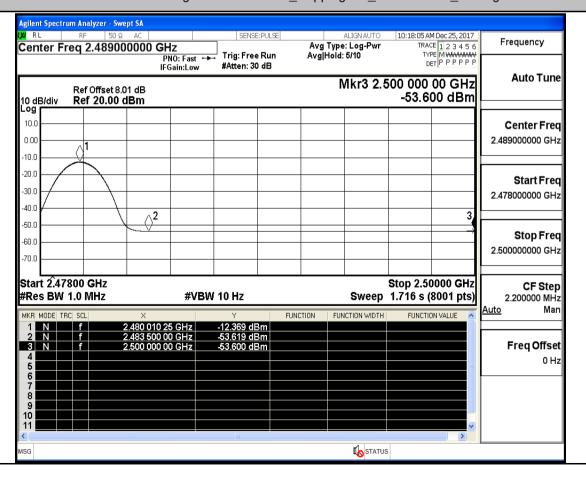
Restrict-band band-edge measurements_Hopping Off_π/4-DQPSK_PEAK Agilent Spectrum Analyzer - Swept SA ALIGN AUTO 10:17:53 AM Dec 25, 2017 // RL SENSE:PULSE TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P P Frequency Center Freq 2.489000000 GHz Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 10/10 PNO: Fast → #Atten: 30 dB IFGain:Low Auto Tune Mkr3 2.500 000 00 GHz Ref Offset 8.01 dB -43.111 dBm 10 dB/div Log Ref 20.00 dBm 10.0 Center Frea 0.00 2.489000000 GHz 10.0 -20.0 Start Freq -30.0 2.478000000 GHz $\sqrt{2}$ -40.0 -50.0 Stop Freq -60 C 2.500000000 GHz -70.0 Start 2.47800 GHz Stop 2.50000 GHz CF Step #Res BW 1.0 MHz **#VBW 3.0 MHz** Sweep 1.067 ms (8001 pts) 2 200000 MHz <u>Auto</u> Man FUNCTION FUNCTION WIDTH FUNCTION VALUE Freq Offset N 2.500 000 00 GHz -43.111 dBm

Restrict-band band-edge measurements Hopping Off $\pi/4$ -DQPSK Average

ISG

STATUS

0 Hz



Restrict-band band-edge measurements_Hopping Off_8-DPSK_PEAK Agilent Spectrum Analyzer - Swept SA ALIGN AUTO 10:20:13 AM Dec 25, 2017 RL SENSE:PULSE TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P P Frequency Center Freq 2.357000000 GHz Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 10/10 PNO: Fast → #Atten: 30 dB IFGain:Low Auto Tune Mkr3 2.390 000 GHz Ref Offset 8.01 dB -42.921 dBm 10 dB/div Log Ref 20.00 dBm 10.0 Center Frea 2.357000000 GHz 0.00 -10.0 -20.0 Start Freq -30.0 2.310000000 GHz -40.0 -50 C Stop Freq -60 C 2.404000000 GHz Start 2.31000 GHz Stop 2.40400 GHz CF Step #Res BW 1.0 MHz **#VBW 3.0 MHz** Sweep 1.067 ms (8001 pts) 9 400000 MHz <u>Auto</u> Man FUNCTION FUNCTION WIDTH FUNCTION VALUE Freq Offset N 42.921 dBm 2.390 000 GHz 0 Hz STATUS ISG

