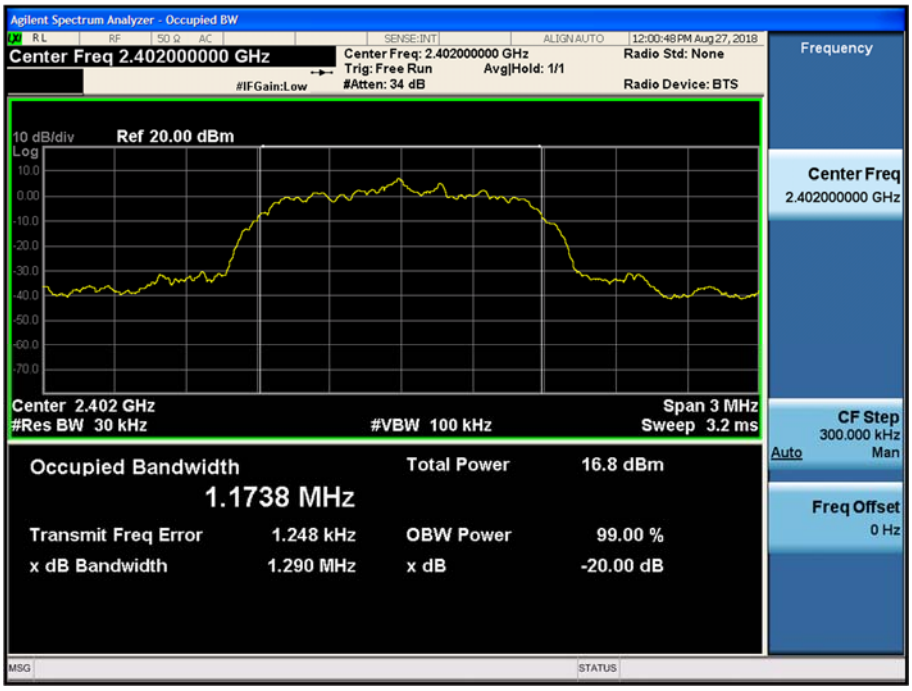
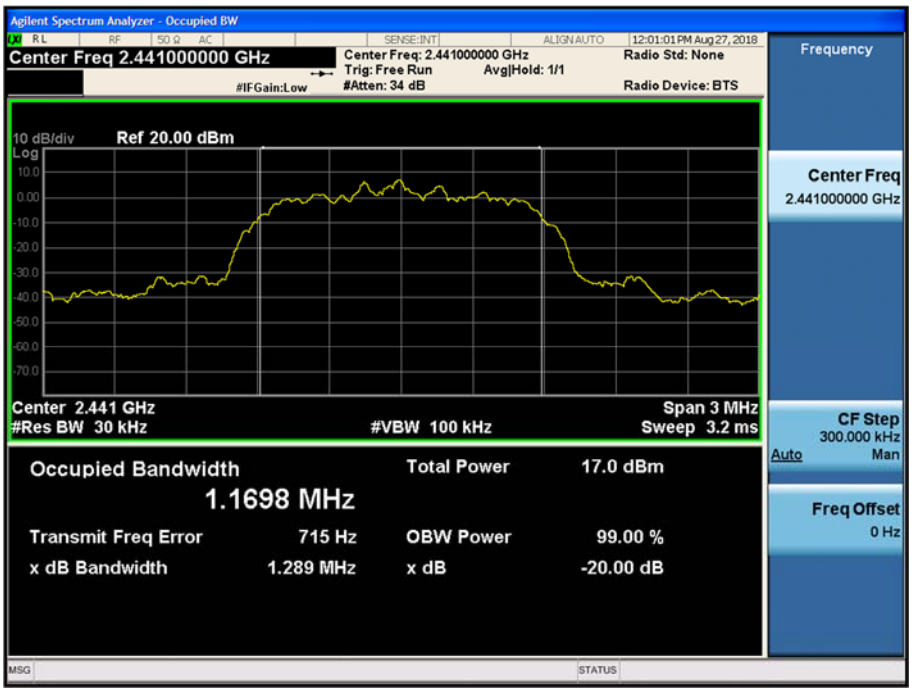
Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (CH.0)



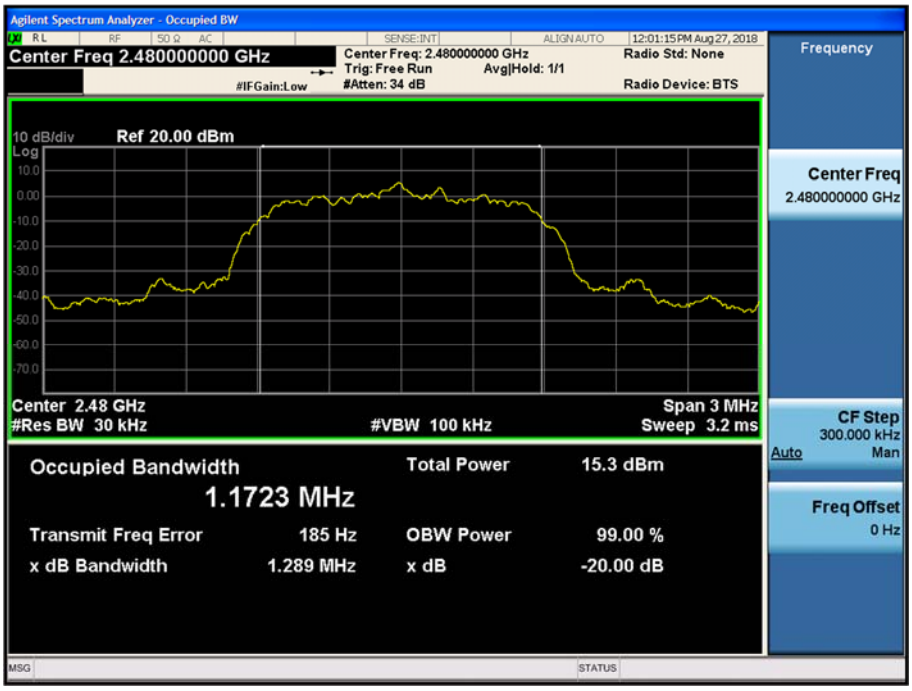
Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (CH.39)



Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (CH.78)



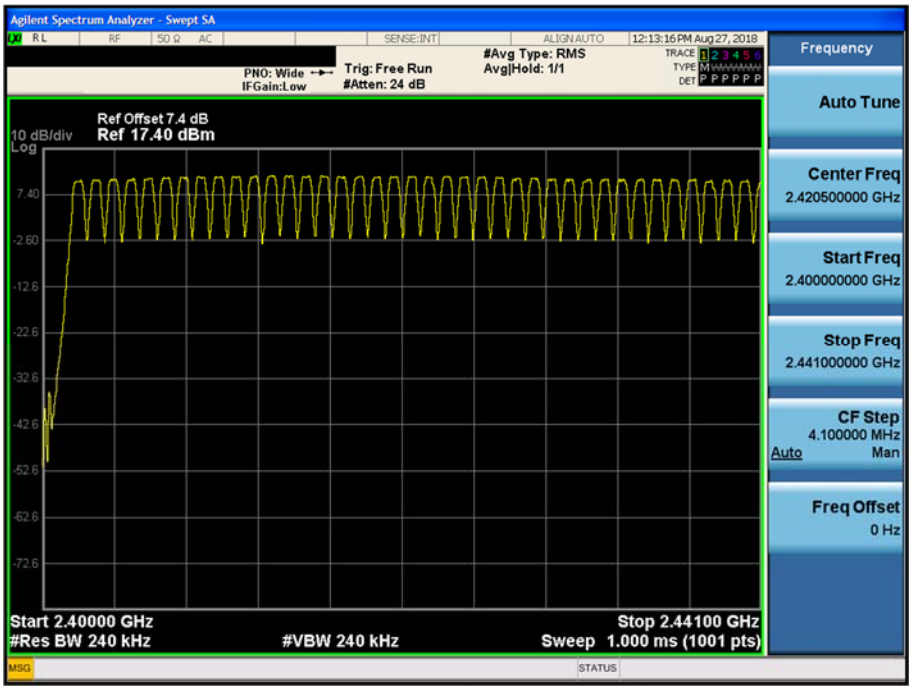
10.4 NUMBER OF HOPPING FREQUENCY

Result (No. of CH)			Limit
GFSK	8DPSK	π/4DQPSK	
79	79	79	>15

Note :

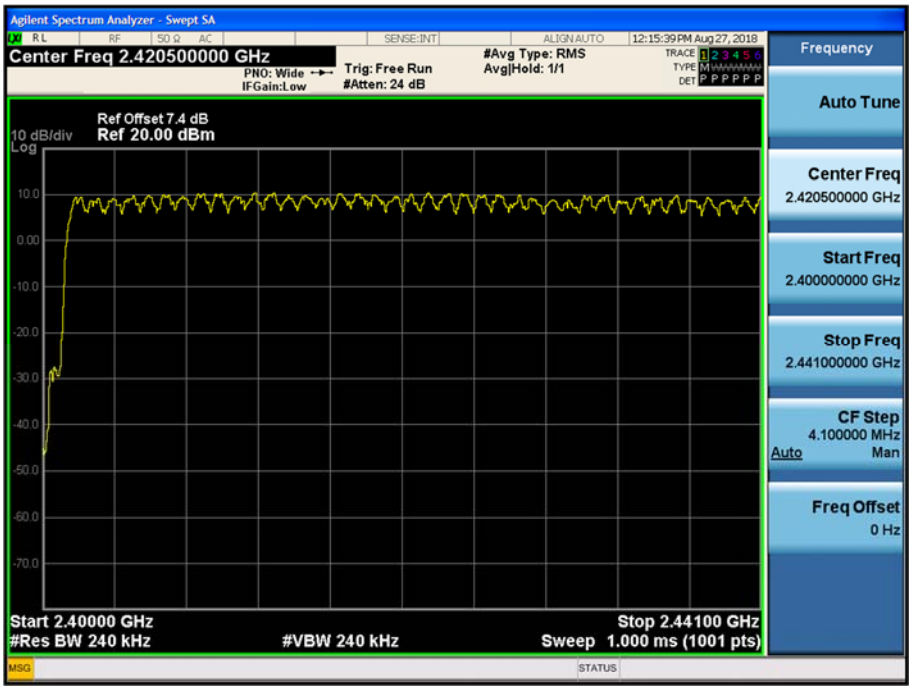
In case of AFH mode, minimum number of hopping channels is 20.

Test Plots (GFSK)
Number of Channels (2.4 GHz - 2.441 GHz)

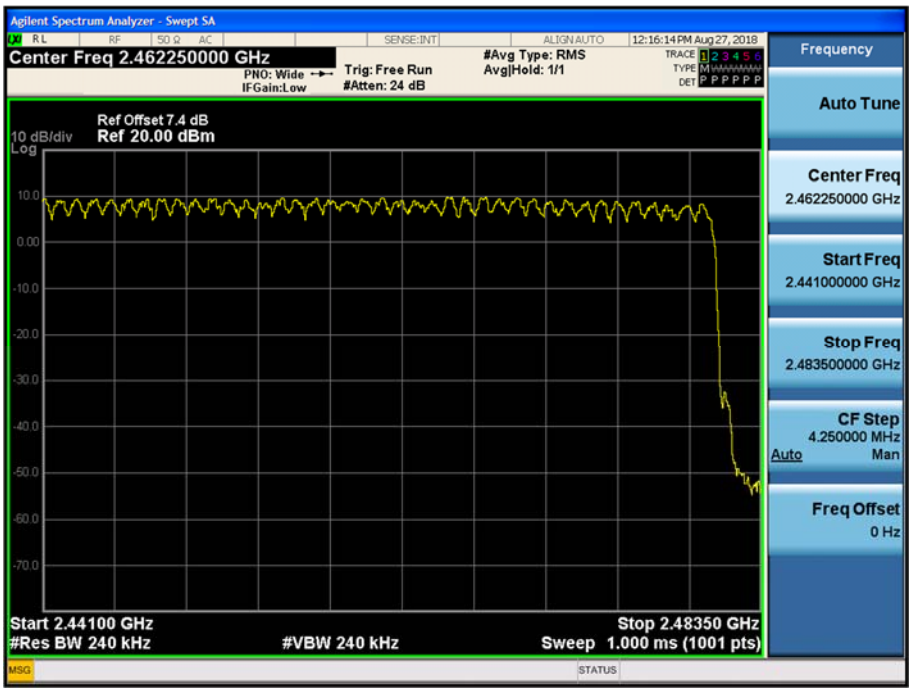


Test Plots (GFSK)
Number of Channels (2.441 GHz - 2.4835 GHz)

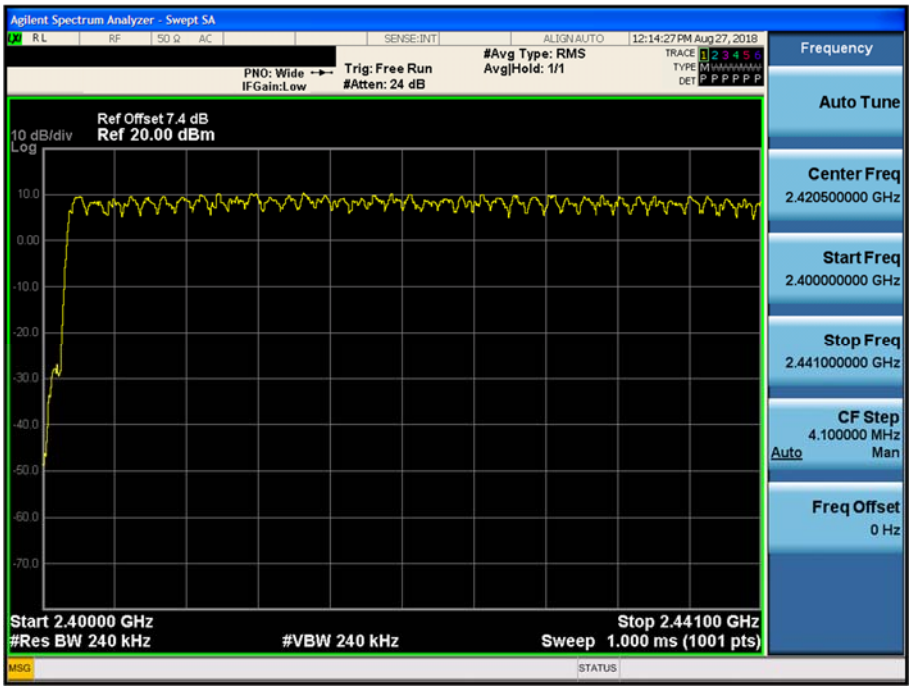
Test Plots (8DPSK)
Number of Channels (2.4 GHz - 2.441 GHz)



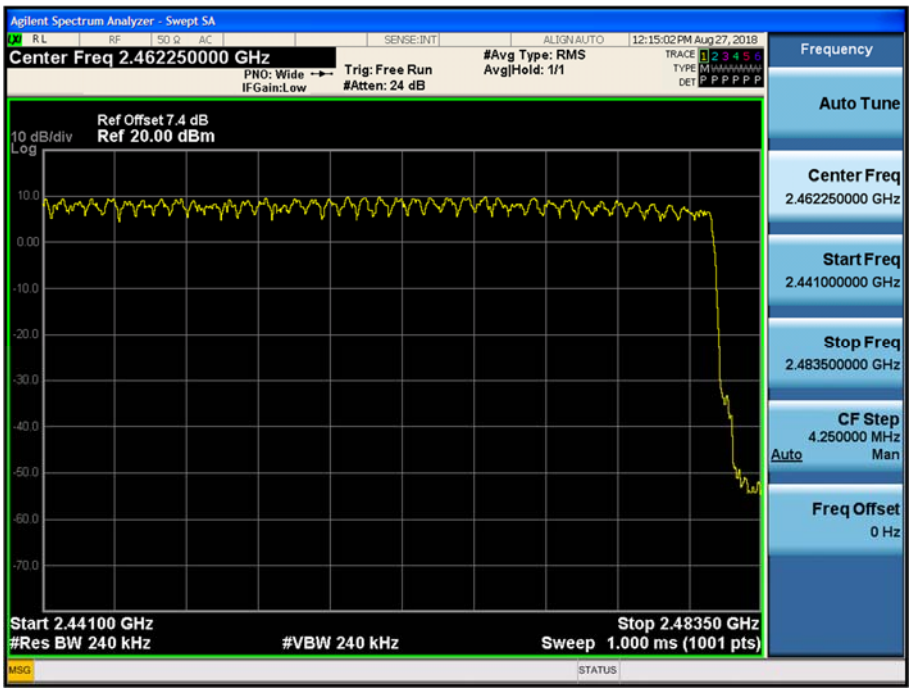
Test Plots (8DPSK)
Number of Channels (2.441 GHz - 2.4835 GHz)



Test Plots (π/4DQPSK)
Number of Channels (2.4 GHz - 2.441 GHz)



Test Plots (π/4DQPSK)
Number of Channels (2.441 GHz - 2.4835 GHz)

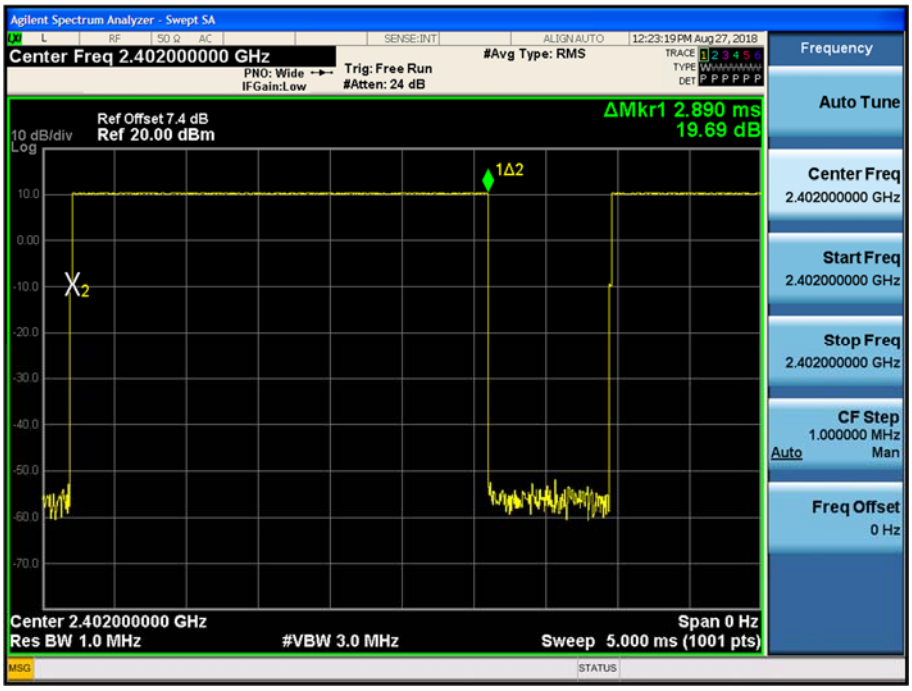


10.5 TIME OF OCCUPANCY (DWELL TIME)

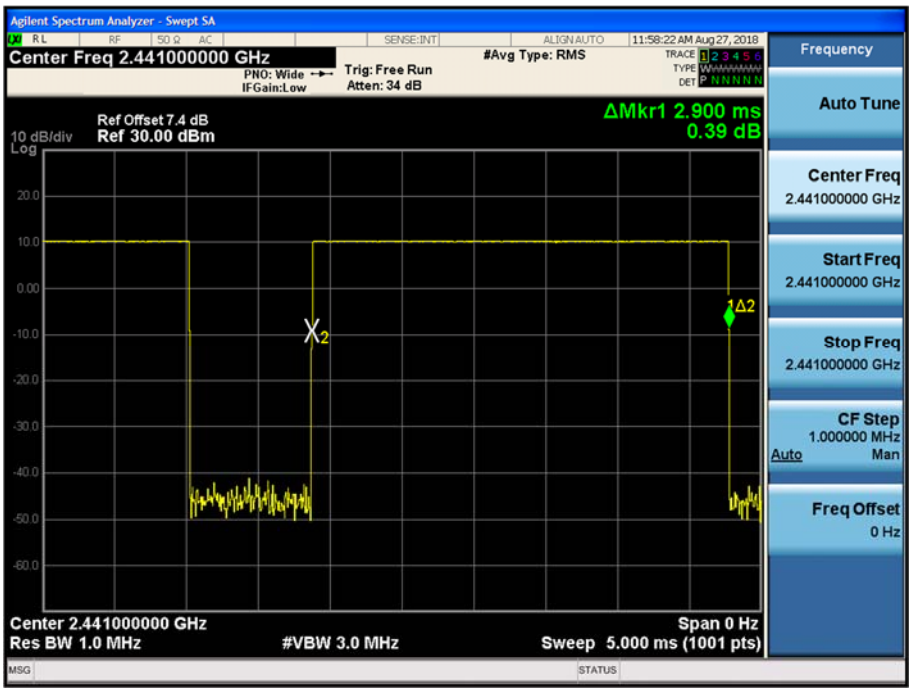
	Channel	GFSK	8DPSK	π/4DQPSK
Pulse Time (ms)	Low	2.890	2.890	2.890
	Mid	2.900	2.885	2.890
	High	2.900	2.890	2.890

	Channel	GFSK	8DPSK	π/4DQPSK	Period Time (s)	Limit (ms)
Total of Dwell (ms)	Low	308.27	308.27	308.27	31.6	400
	Mid	309.33	307.73	308.27	31.6	
	High	309.33	308.27	308.27	31.6	

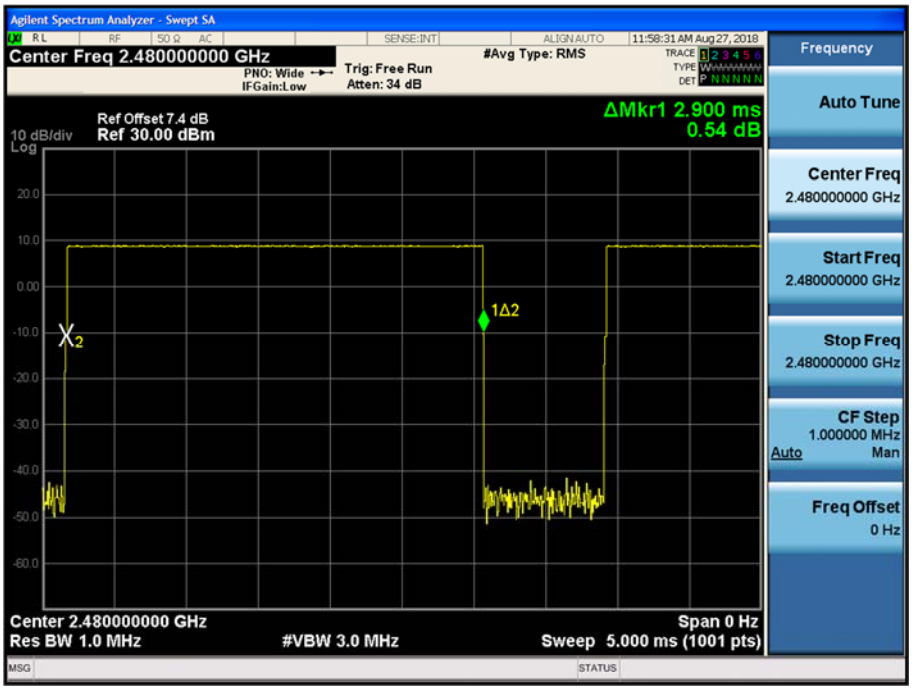
Test Plots (GFSK)
Dwell Time (CH.0)



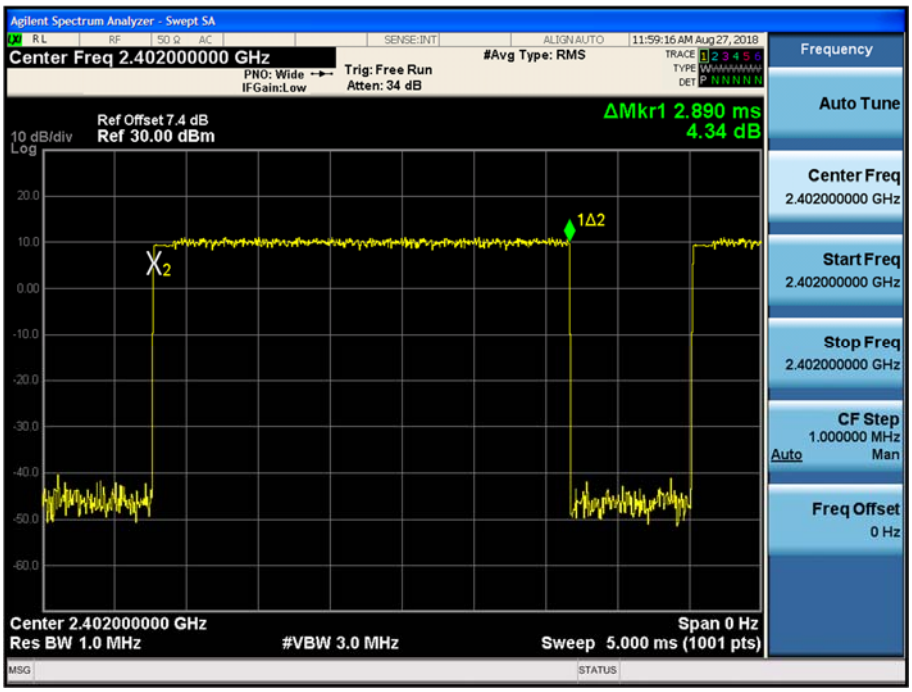
Test Plots (GFSK)
Dwell Time (CH.39)



Test Plots (GFSK)
Dwell Time (CH.78)

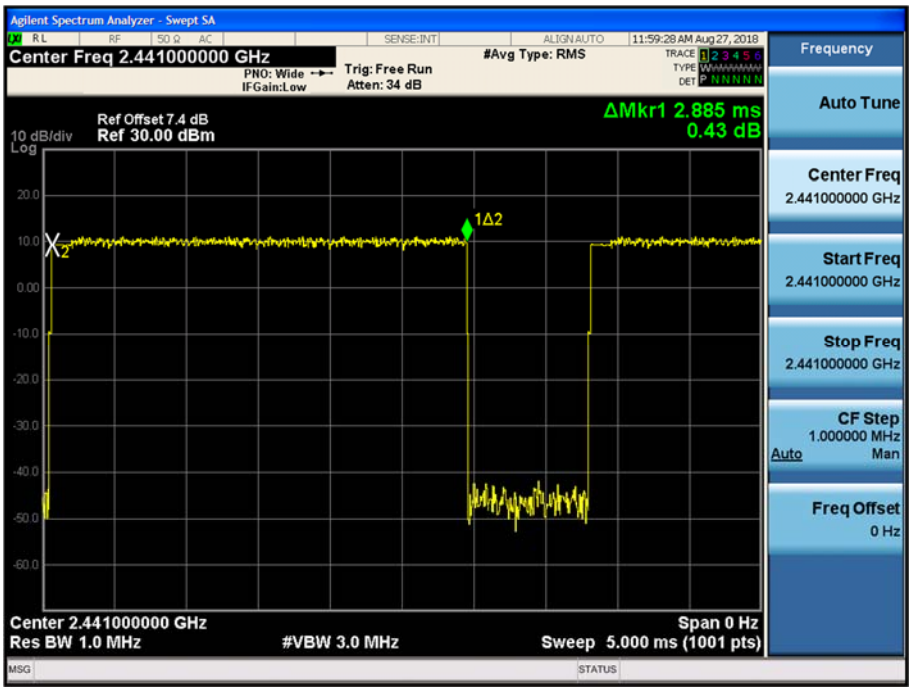


Test Plots (8DPSK)
Dwell Time (CH.0)



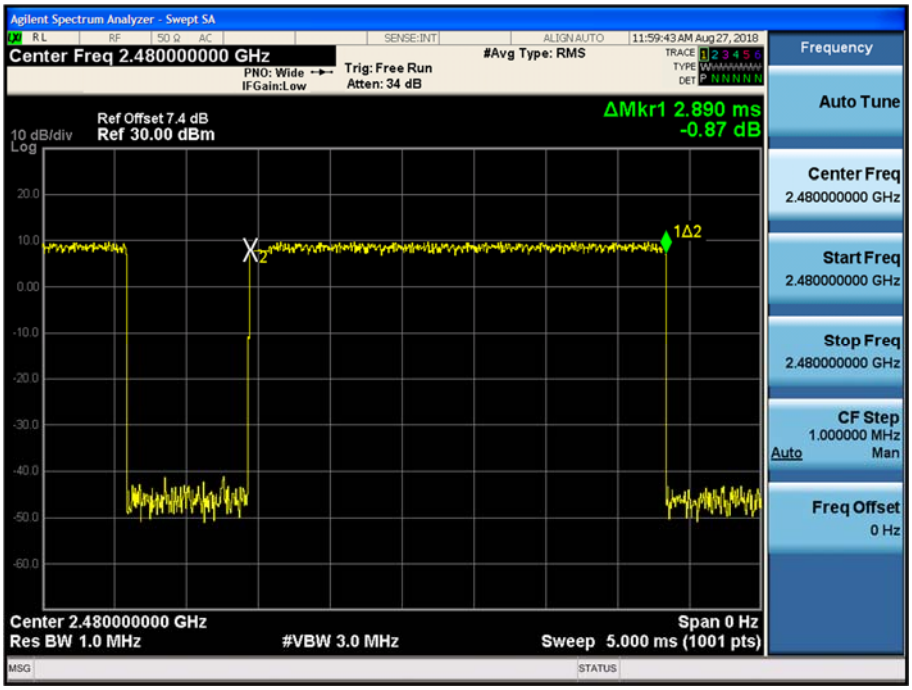
Test Plots (8DPSK)

Dwell Time (CH.39)

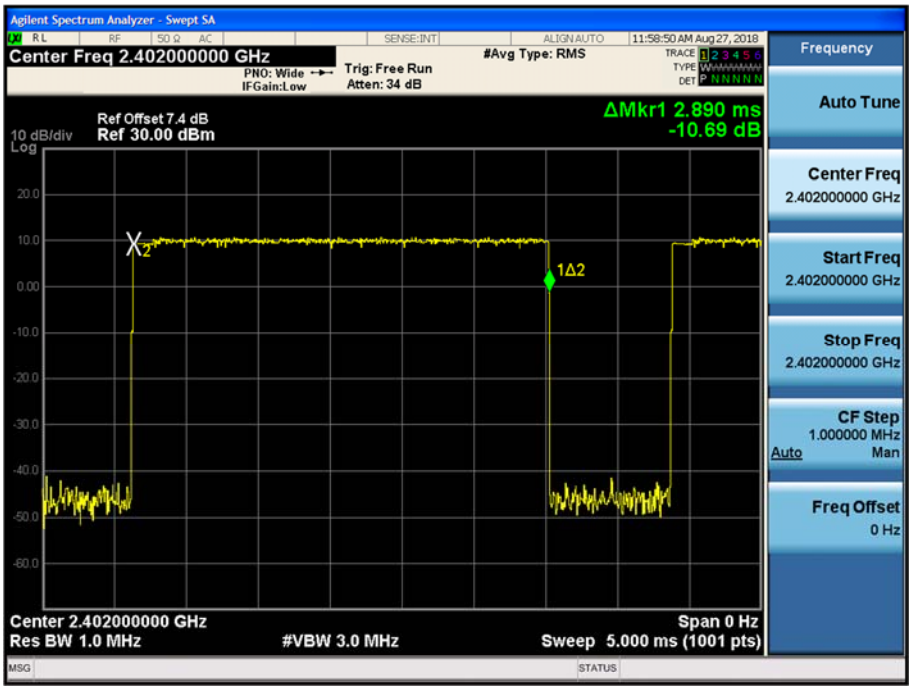


Test Plots (8DPSK)

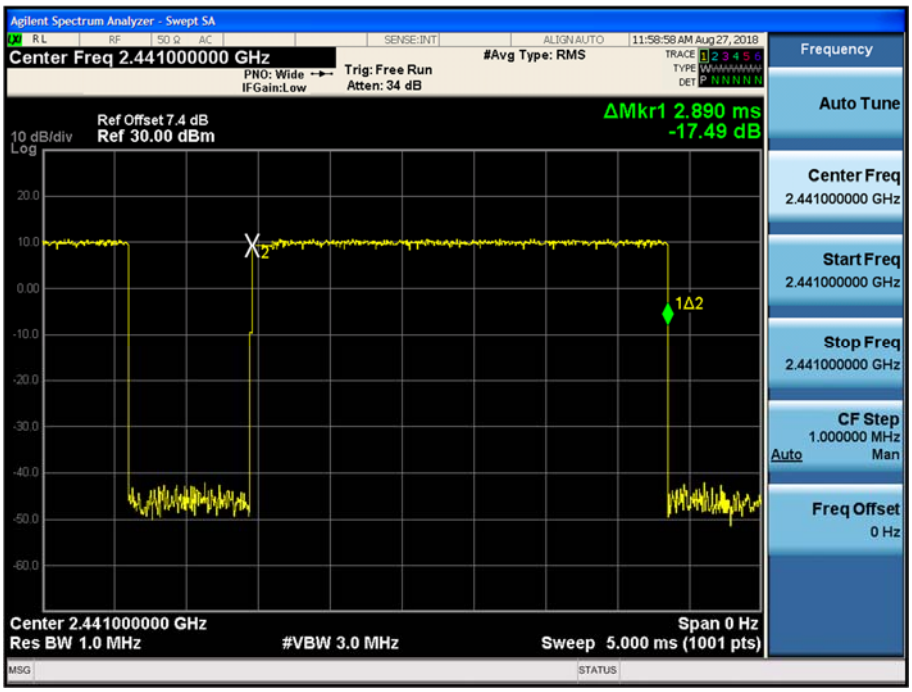
Dwell Time (CH.78)



Test Plots (π/4DQPSK)
Dwell Time (CH.0)

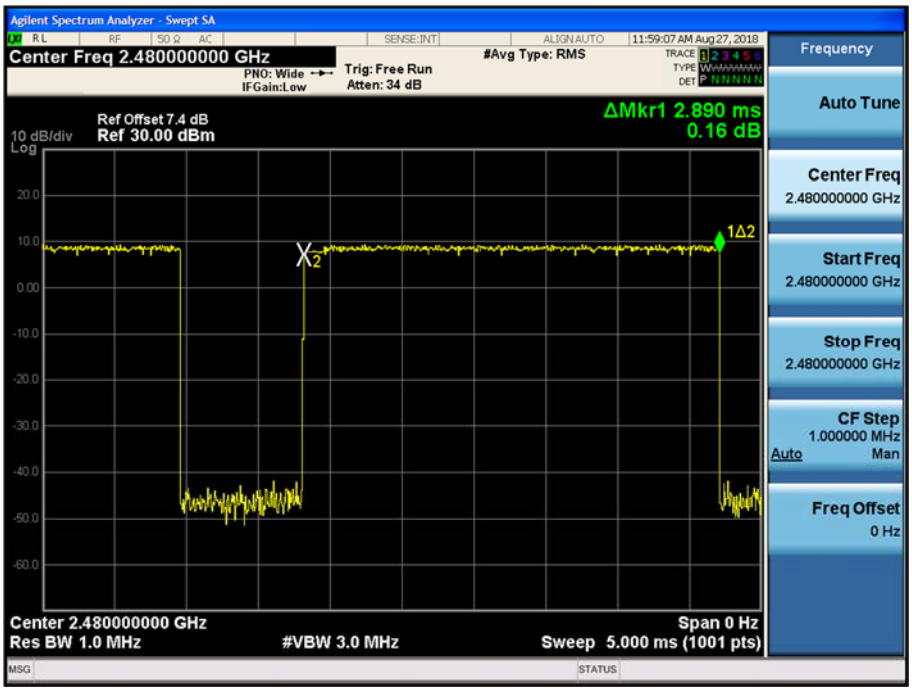


Test Plots (π/4DQPSK)
Dwell Time (CH.39)



Test Plots (π/4DQPSK)

Dwell Time (CH.78)



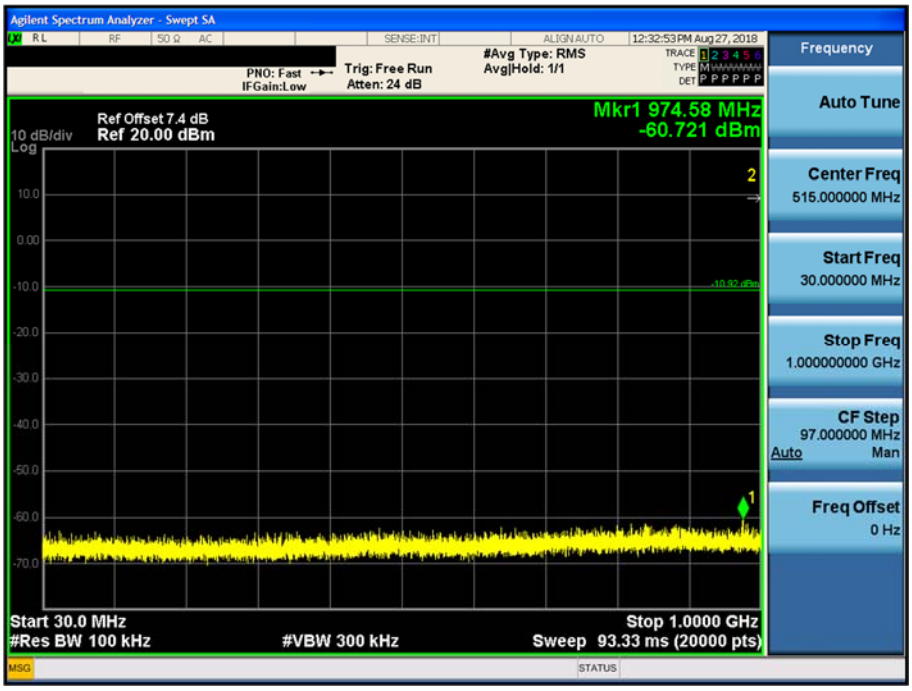
10.6 SPURIOUS EMISSIONS

10.6.1 CONDUCTED SPURIOUS EMISSIONS

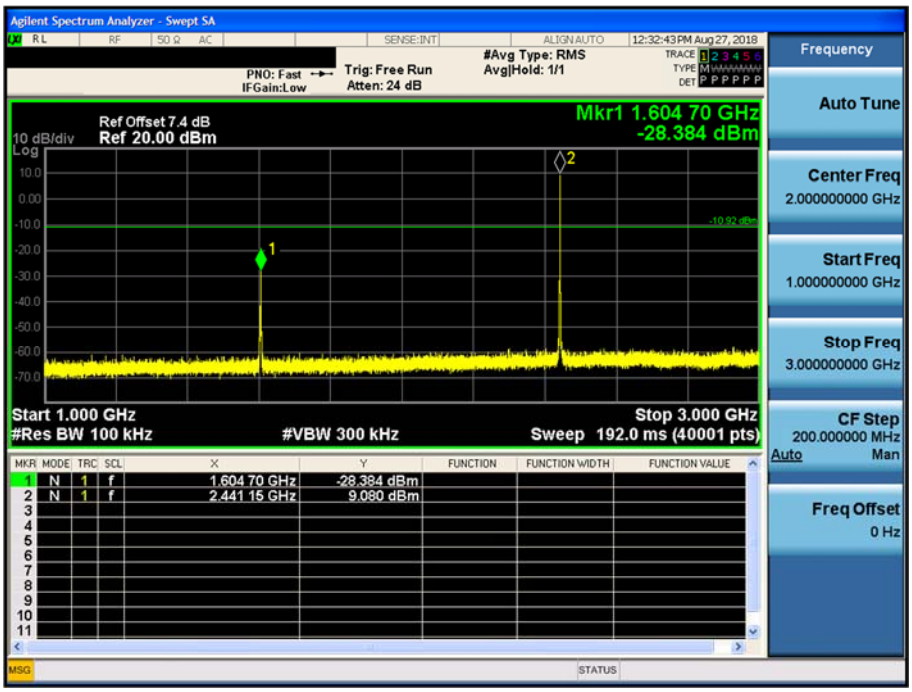
Test Result : please refer to the plot below.

In order to simplify the report, attached plots were only the worst case channel and data rate.

Test Plots (8DPSK)- 30 MHz - 1 GHz
Spurious Emission (CH.39)

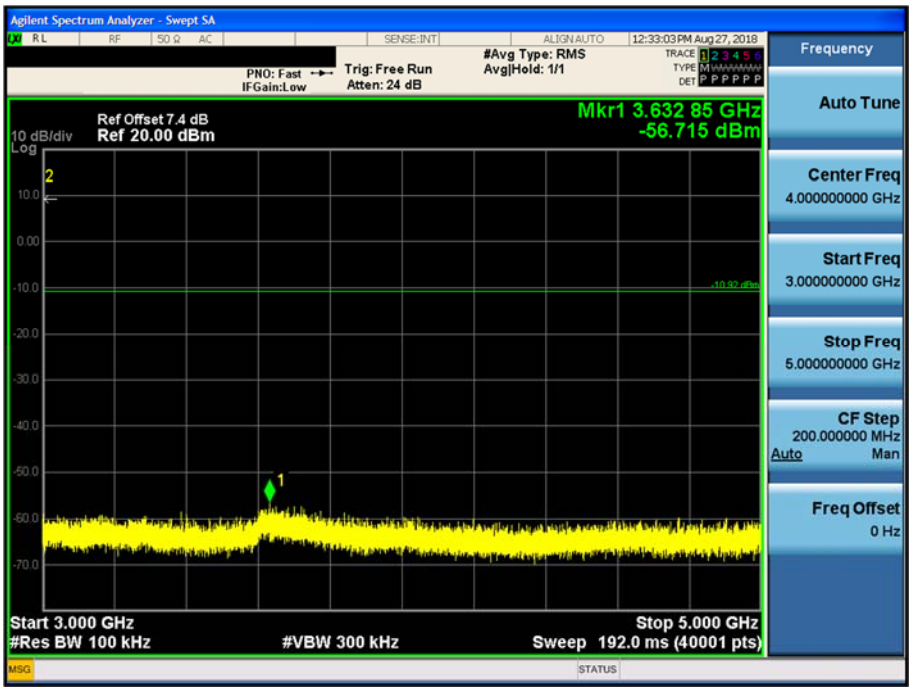


Test Plots (8DPSK)- 1 GHz – 3 GHz
Spurious Emission (CH.39)



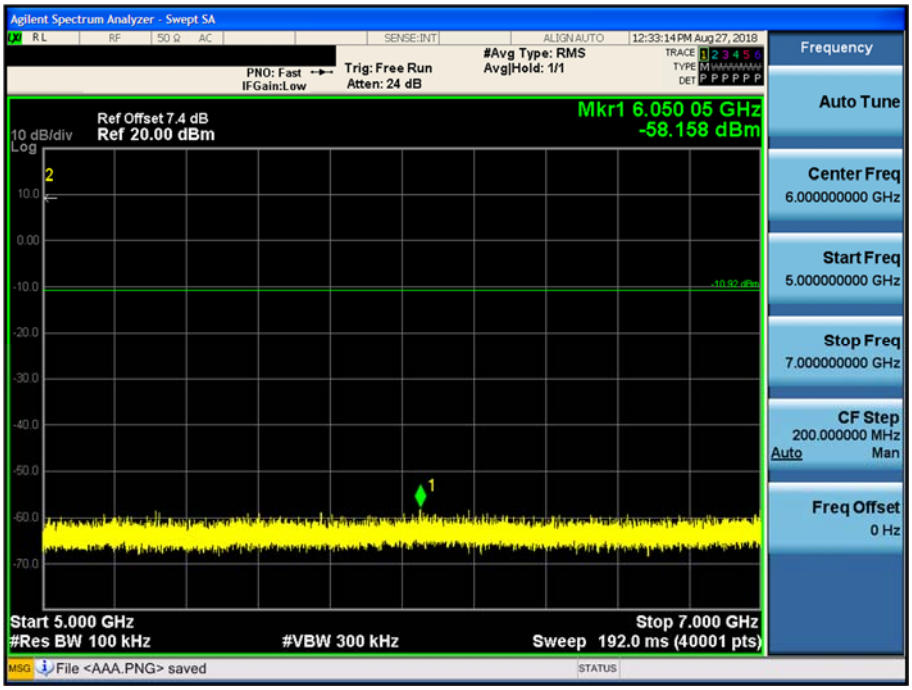
Test Plots(8DPSK)- 3 GHz - 5 GHz

Spurious Emission (CH.39)

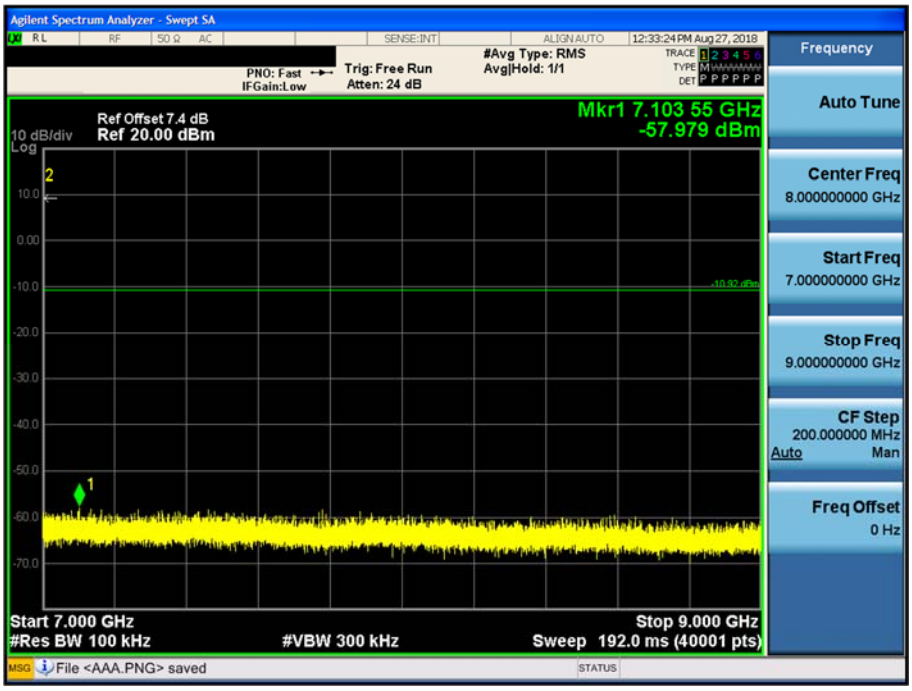


Test Plots (8DPSK)- 5 GHz - 7 GHz

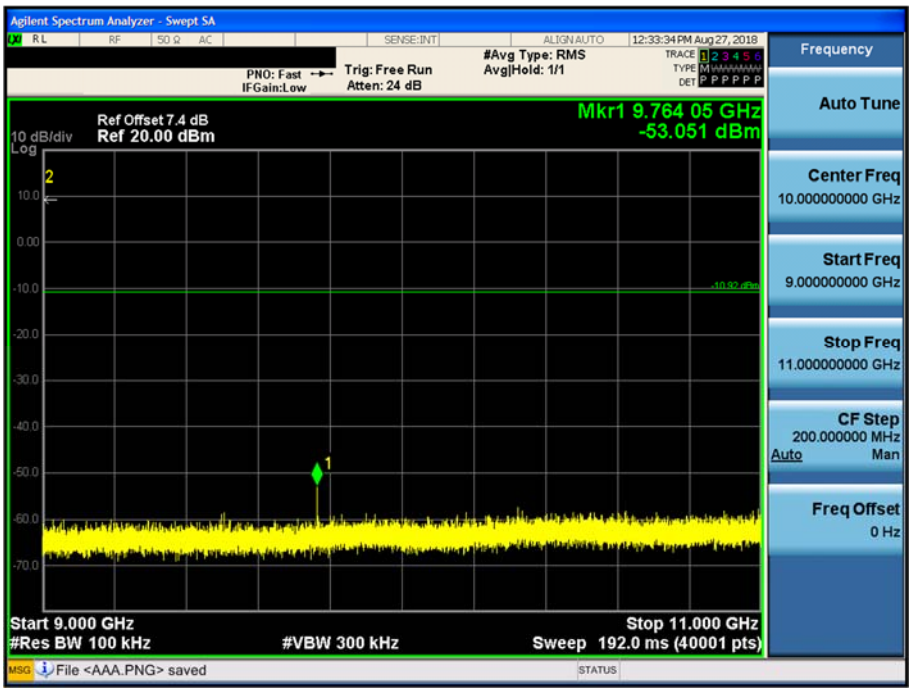
Spurious Emission (CH.39)



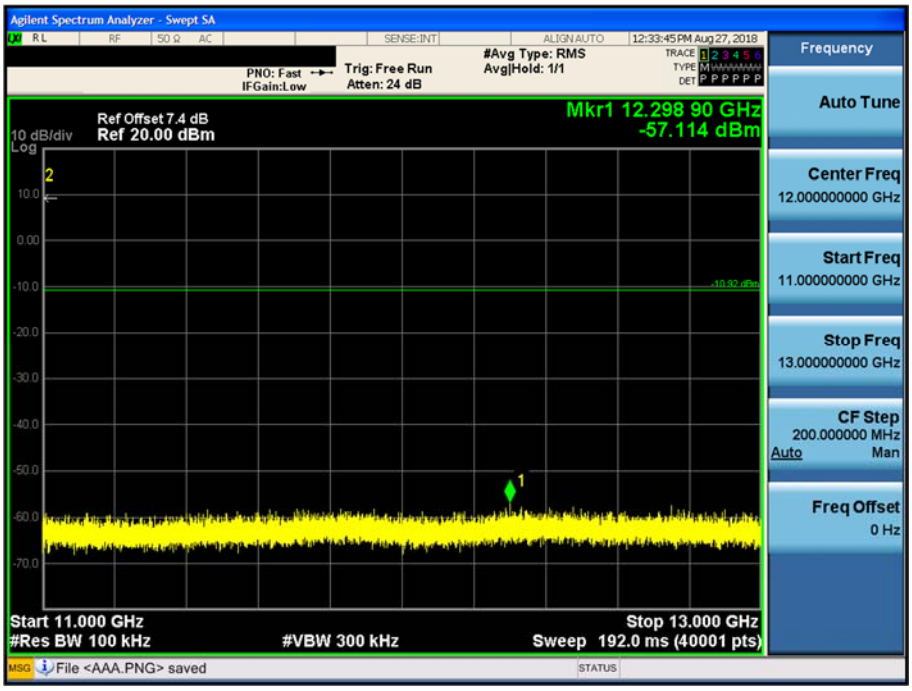
Test Plots(8DPSK)- 7 GHz - 9 GHz
Spurious Emission (CH.39)



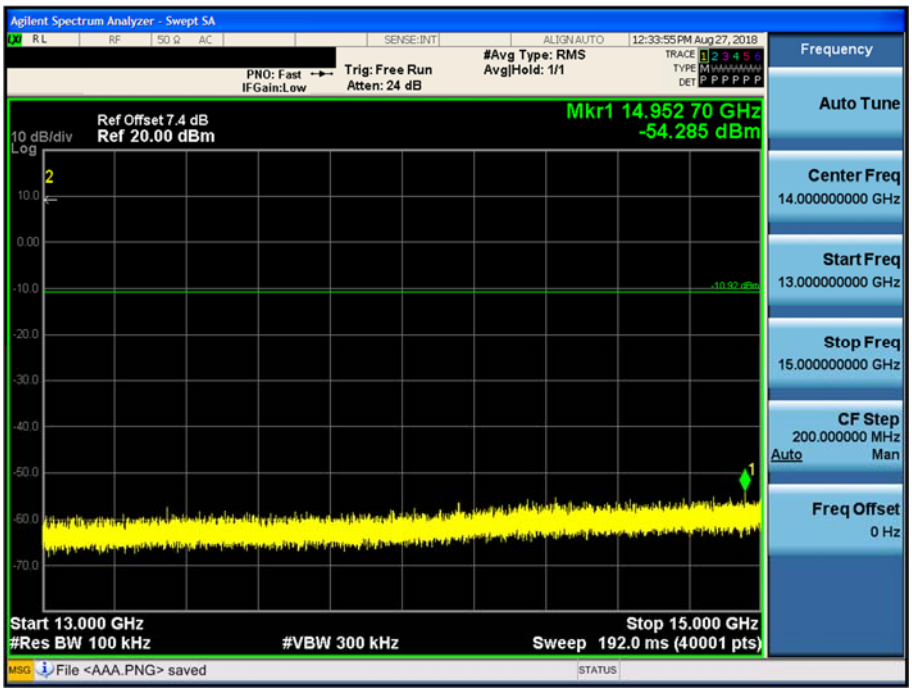
Test Plots(8DPSK)- 9 GHz - 11 GHz
Spurious Emission (CH.39)



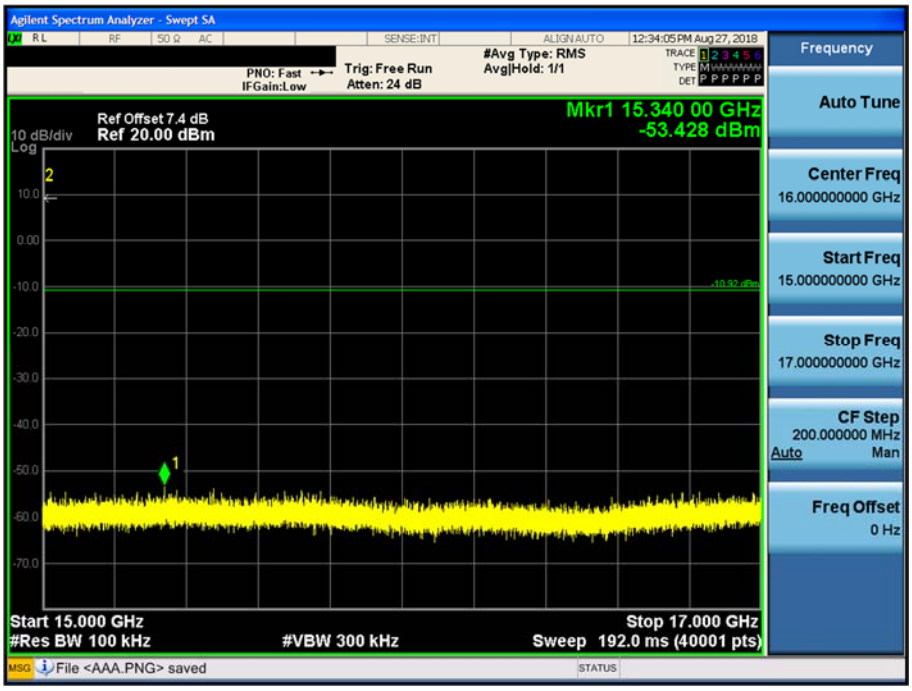
Test Plots(8DPSK) 11 GHz - 13 GHz
Spurious Emission (CH.39)



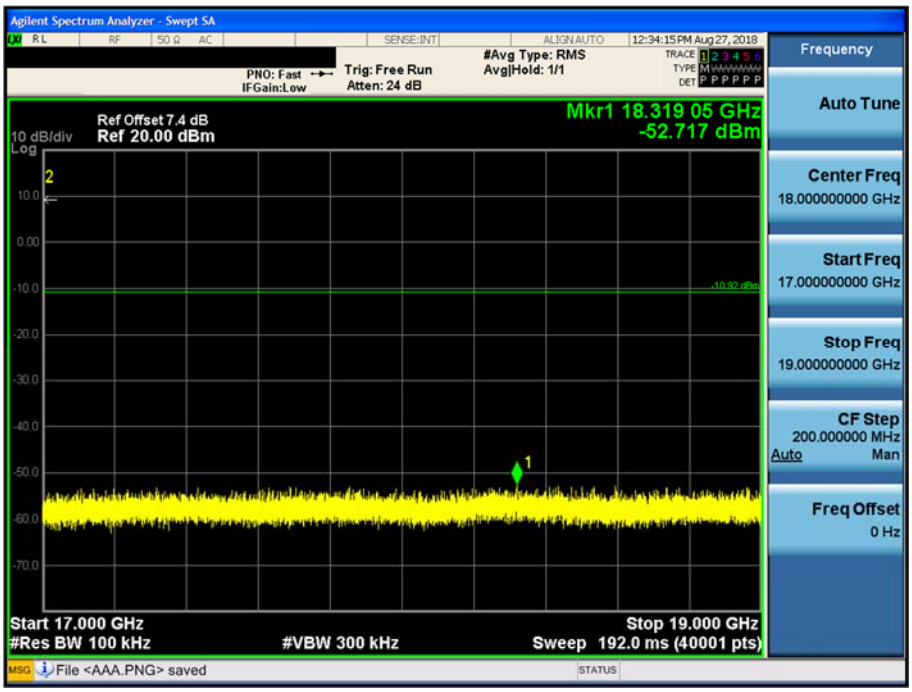
Test Plots (8DPSK)- 13 GHz – 15 GHz
Spurious Emission (CH.39)



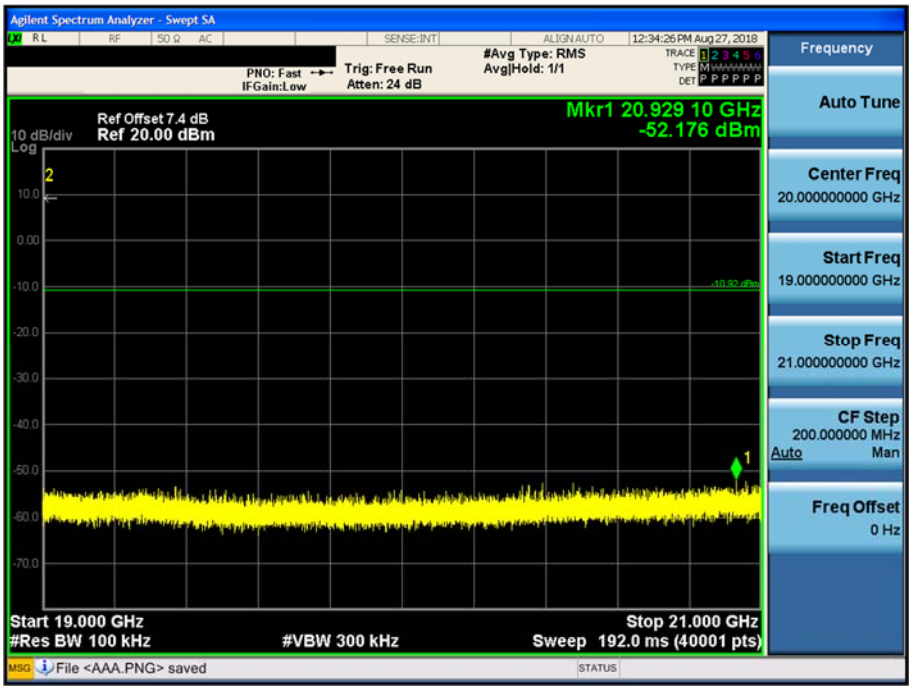
Test Plots(8DPSK)– 15 GHz - 17 GHz
Spurious Emission (CH.39)



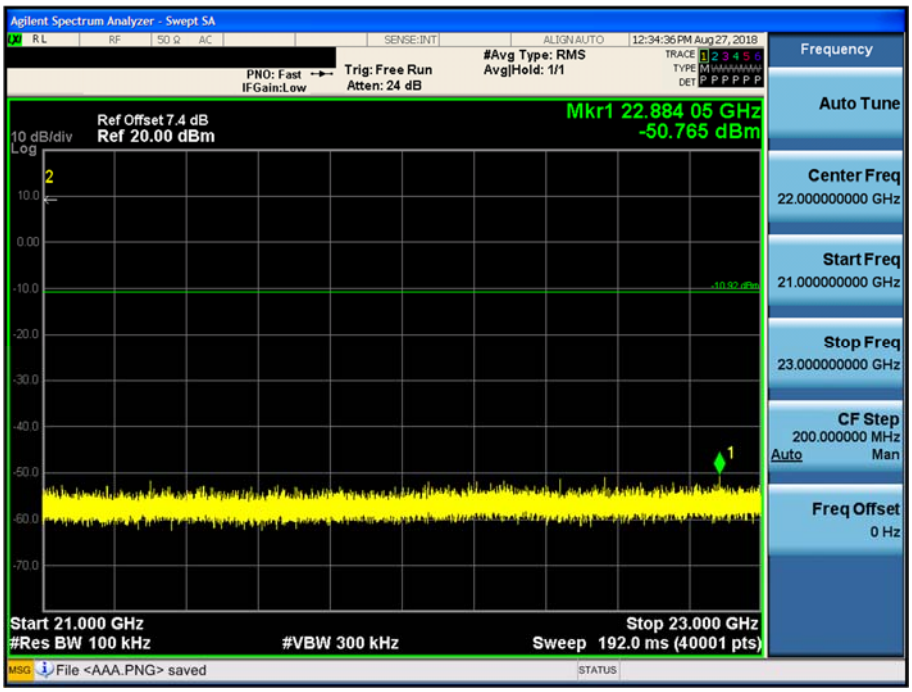
Test Plots(8DPSK)- 17 GHz - 19 GHz
Spurious Emission (CH.39)



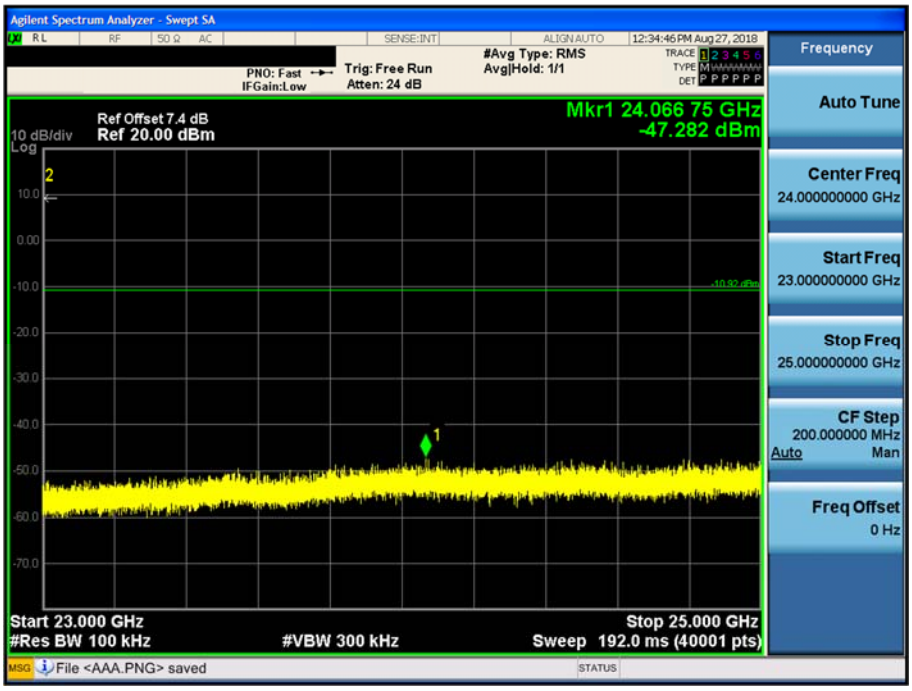
Test Plots (8DPSK)- 19 GHz - 21 GHz
Spurious Emission (CH.39)



Test Plots (8DPSK)- 21 GHz - 23 GHz
Spurious Emission (CH.39)



Test Plots (8DPSK)- 23 GHz - 25 GHz
Spurious Emission (CH.39)



10.6.2 RADIATED SPURIOUS EMISSIONS

Frequency Range : 9 kHz – 30MHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

Note:

1. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = 40*log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBuV) + Distance extrapolation factor
4. Radiated test is performed with hopping off.
5. The test results for below 30 MHz is correlated to an open site.
   The result on OATS is about 2 dB higher than semi-anechoic chamber(10 m chamber)

Frequency Range : Below 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dBuV/m	dBm/m	dBm	(H/V)	dBuV/m	dBuV/m	dB
No Critical peaks found							

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
2. Radiated test is performed with hopping off.

Frequency Range : Above 1 GHz

Operation Mode: CH Low(GFSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	51.27	2.07	V	53.34	73.98	20.64	PK
4804	38.13	2.07	V	40.2	53.98	13.78	AV
7206	50.23	9.57	V	59.8	73.98	14.18	PK
7206	36.81	9.57	V	46.38	53.98	7.60	AV
4804	51.70	2.07	H	53.77	73.98	20.21	PK
4804	39.02	2.07	H	41.09	53.98	12.89	AV
7206	50.02	9.57	H	59.59	73.98	14.39	PK
7206	36.74	9.57	H	46.31	53.98	7.67	AV

Operation Mode: CH Low(8DPSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	50.99	2.07	V	53.06	73.98	20.92	PK
4804	37.08	2.07	V	39.15	53.98	14.83	AV
7206	50.18	9.57	V	59.75	73.98	14.23	PK
7206	36.39	9.57	V	45.96	53.98	8.02	AV
4804	51.17	2.07	H	53.24	73.98	20.74	PK
4804	37.14	2.07	H	39.21	53.98	14.77	AV
7206	49.84	9.57	H	59.41	73.98	14.57	PK
7206	36.41	9.57	H	45.98	53.98	8.00	AV

Operation Mode: CH Low(π/4DQPSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4804	50.55	2.07	V	52.62	73.98	21.36	PK
4804	37.02	2.07	V	39.09	53.98	14.89	AV
7206	49.06	9.57	V	58.63	73.98	15.35	PK
7206	36.60	9.57	V	46.17	53.98	7.81	AV
4804	51.30	2.07	H	53.37	73.98	20.61	PK
4804	37.09	2.07	H	39.16	53.98	14.82	AV
7206	50.46	9.57	H	60.03	73.98	13.95	PK
7206	36.63	9.57	H	46.2	53.98	7.78	AV

Operation Mode: CH Mid(GFSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	50.94	2.56	V	53.5	73.98	20.48	PK
4882	40.07	2.56	V	42.63	53.98	11.35	AV
7323	51.68	9.72	V	61.4	73.98	12.58	PK
7323	38.54	9.72	V	48.26	53.98	5.72	AV
4882	51.51	2.56	H	54.07	73.98	19.91	PK
4882	40.31	2.56	H	42.87	53.98	11.11	AV
7323	51.91	9.72	H	61.63	73.98	12.35	PK
7323	38.58	9.72	H	48.3	53.98	5.68	AV

Operation Mode: CH Mid(8DPSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	50.67	2.56	V	53.23	73.98	20.75	PK
4882	38.49	2.56	V	41.05	53.98	12.93	AV
7323	50.63	9.72	V	60.35	73.98	13.63	PK
7323	37.41	9.72	V	47.13	53.98	6.85	AV
4882	51.46	2.56	H	54.02	73.98	19.96	PK
4882	38.63	2.56	H	41.19	53.98	12.79	AV
7323	51.33	9.72	H	61.05	73.98	12.93	PK
7323	37.48	9.72	H	47.2	53.98	6.78	AV

Operation Mode: CH Mid(π/4DQPSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4882	50.71	2.56	V	53.27	73.98	20.71	PK
4882	38.33	2.56	V	40.89	53.98	13.09	AV
7323	50.58	9.72	V	60.3	73.98	13.68	PK
7323	37.25	9.72	V	46.97	53.98	7.01	AV
4882	51.19	2.56	H	53.75	73.98	20.23	PK
4882	38.56	2.56	H	41.12	53.98	12.86	AV
7323	51.43	9.72	H	61.15	73.98	12.83	PK
7323	37.30	9.72	H	47.02	53.98	6.96	AV

Operation Mode: CH High(GFSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	51.33	2.66	V	53.99	73.98	19.99	PK
4960	39.55	2.66	V	42.21	53.98	11.77	AV
7440	49.86	10.20	V	60.06	73.98	13.92	PK
7440	36.30	10.20	V	46.5	53.98	7.48	AV
4960	51.66	2.66	H	54.32	73.98	19.66	PK
4960	40.47	2.66	H	43.13	53.98	10.85	AV
7440	49.91	10.20	H	60.11	73.98	13.87	PK
7440	36.55	10.20	H	46.75	53.98	7.23	AV

Operation Mode: CH High(8DPSK)

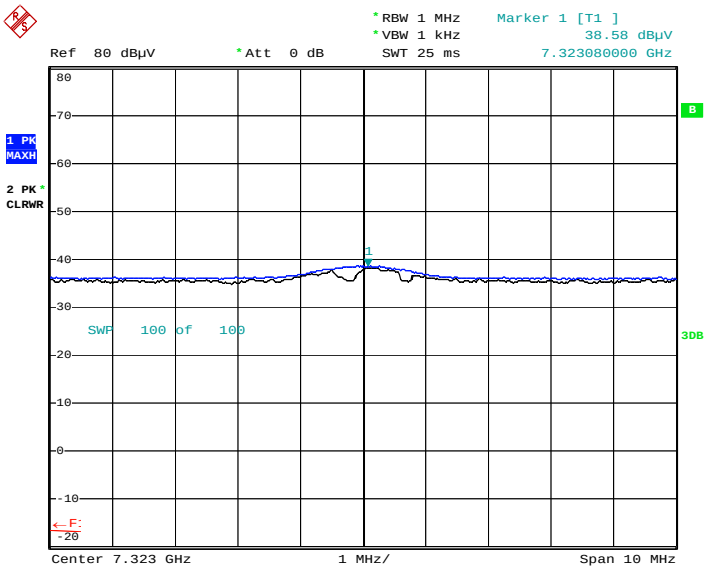
Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	51.13	2.66	V	53.79	73.98	20.19	PK
4960	38.71	2.66	V	41.37	53.98	12.61	AV
7440	49.84	10.20	V	60.04	73.98	13.94	PK
7440	36.11	10.20	V	46.31	53.98	7.67	AV
4960	51.25	2.66	H	53.91	73.98	20.07	PK
4960	38.81	2.66	H	41.47	53.98	12.51	AV
7440	50.17	10.20	H	60.37	73.98	13.61	PK
7440	36.25	10.20	H	46.45	53.98	7.53	AV

Operation Mode: CH High(π/4DQPSK)

Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.54	2.66	V	53.20	73.98	20.78	PK
4960	38.91	2.66	V	41.57	53.98	12.41	AV
7440	49.45	10.20	V	59.65	73.98	14.33	PK
7440	36.04	10.20	V	46.24	53.98	7.74	AV
4960	51.29	2.66	H	53.95	73.98	20.03	PK
4960	38.97	2.66	H	41.63	53.98	12.35	AV
7440	50.31	10.20	H	60.51	73.98	13.47	PK
7440	36.15	10.20	H	46.35	53.98	7.63	AV

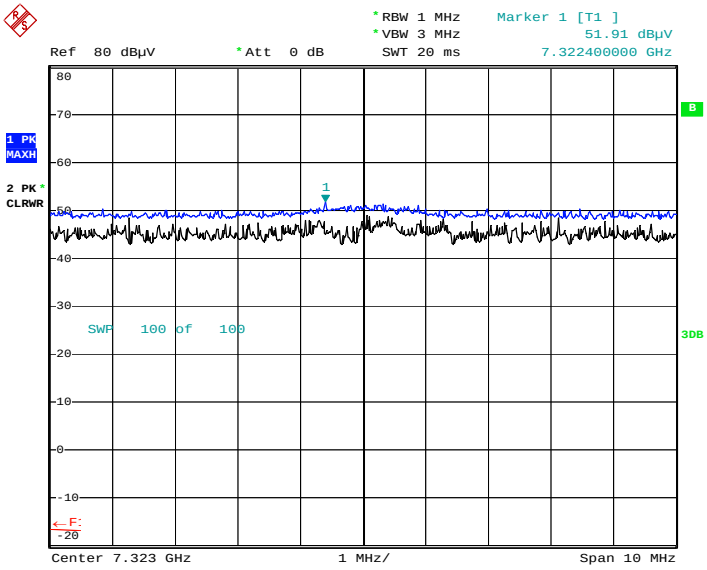
RESULT PLOTS

Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.39 3rd Harmonic)



Date: 28.AUG.2018 14:09:15

Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.39 3rd Harmonic)



Date: 28.AUG.2018 14:09:54

Note:

Plot of worst case are only reported.

10.6.3 RADIATED RESTRICTED BAND EDGES

Operation Mode: Normal(GFSK)
Operating Frequency: 2402 MHz, 2480 MHz
Channel No: CH 0, CH 78

Frequency [MHz]	Reading [dBuV]	A.F + C.L + D.F [dB]	Pol. [H/V]	D.C.C.F [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	23.92	35.36	H	0	59.28	73.98	14.70	PK
2390.0	11.54	35.36	H	-24.73	22.17	53.98	31.81	AV
2390.0	23.51	35.36	V	0	58.87	73.98	15.11	PK
2390.0	11.49	35.36	V	-24.73	22.12	53.98	31.86	AV
2483.5	30.71	35.73	H	0	66.44	73.98	7.54	PK
2483.5	27.19	35.73	H	-24.73	38.19	53.98	15.79	AV
2483.5	29.00	35.73	V	0	64.73	73.98	9.25	PK
2483.5	25.12	35.73	V	-24.73	36.12	53.98	17.86	AV

Operation Mode: EDR(8DPSK)
Operating Frequency: 2402 MHz, 2480 MHz
Channel No: CH 0, CH 78

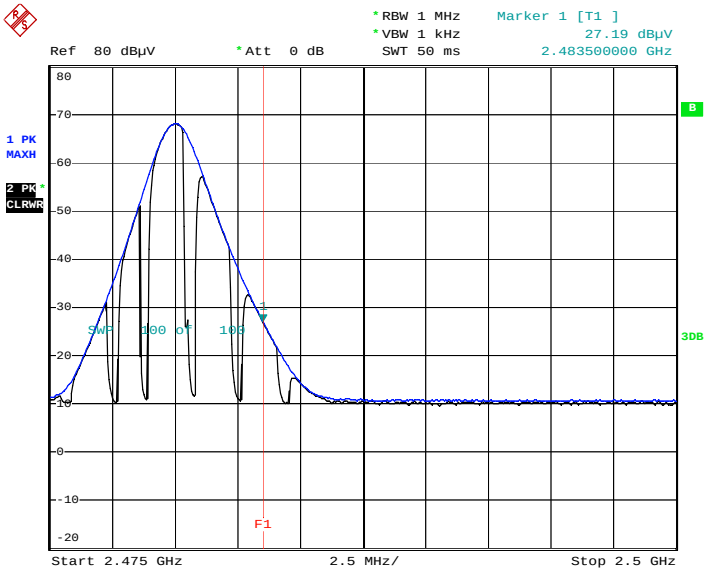
Frequency [MHz]	Reading [dBuV]	A.F + C.L + D.F [dB]	Pol. [H/V]	D.C.C.F [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	24.28	35.36	H	0	59.64	73.98	14.34	PK
2390.0	11.61	35.36	H	-24.73	22.24	53.98	31.74	AV
2390.0	24.06	35.36	V	0	59.42	73.98	14.56	PK
2390.0	11.44	35.36	V	-24.73	22.07	53.98	31.91	AV
2483.5	31.34	35.73	H	0	67.07	73.98	6.91	PK
2483.5	26.17	35.73	H	-24.73	37.17	53.98	16.81	AV
2483.5	29.61	35.73	V	0	65.34	73.98	8.64	PK
2483.5	24.17	35.73	V	-24.73	35.17	53.98	18.81	AV

Operation Mode	EDR(π/4DQPSK)
Operating Frequency	2402 MHz, 2480 MHz
Channel No	CH 0, CH 78

Frequency [MHz]	Reading [dBuV]	A.F + C.L + D.F [dB]	Pol. [H/V]	D.C.C.F [dB]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	23.92	35.36	H	0	59.28	73.98	14.70	PK
2390.0	11.47	35.36	H	-24.73	22.10	53.98	31.88	AV
2390.0	23.87	35.36	V	0	59.23	73.98	14.75	PK
2390.0	11.28	35.36	V	-24.73	21.91	53.98	32.07	AV
2483.5	31.74	35.73	H	0	67.47	73.98	6.51	PK
2483.5	26.07	35.73	H	-24.73	37.07	53.98	16.91	AV
2483.5	29.75	35.73	V	0	65.48	73.98	8.50	PK
2483.5	24.03	35.73	V	-24.73	35.03	53.98	18.95	AV

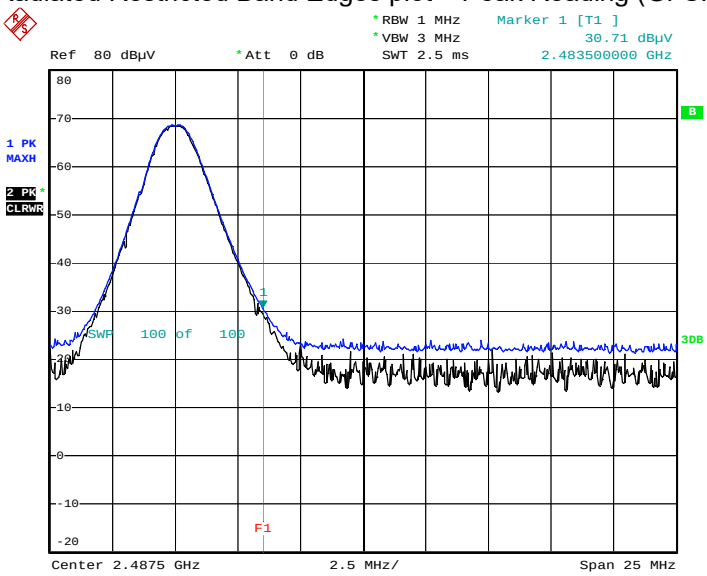
RESULT PLOTS

Radiated Restricted Band Edges plot – Average Reading (GFSK, Ch.78)



Date: 28.AUG.2018 10:18:43

Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)



Date: 28.AUG.2018 10:19:29

Note:

Plot of worst case are only reported.

10.7 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

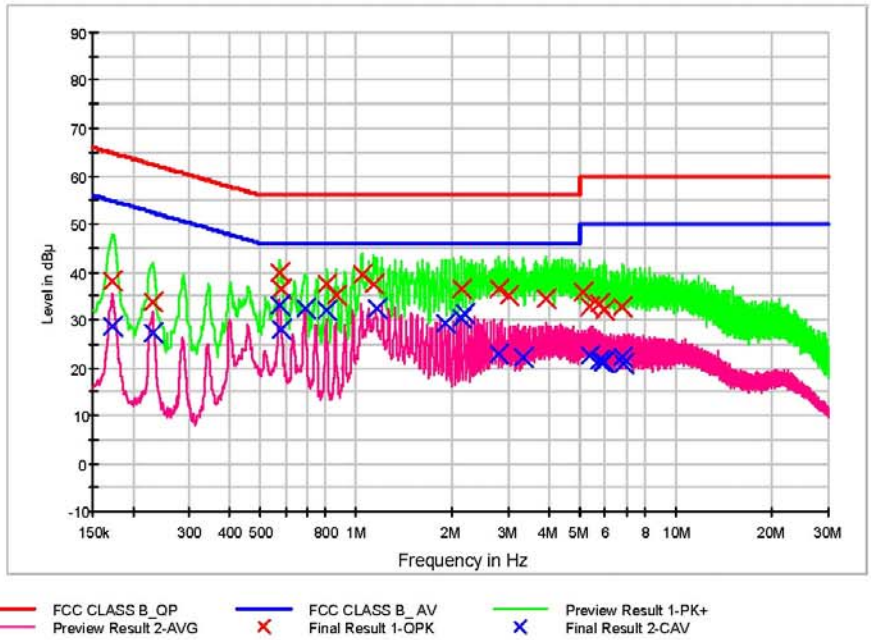
Blue tooth_N 1 / 2

HCT TEST Report

Common Information

EUT:	SM-J410FDS
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	bluetooth_N

FCC CLASS B_Exten Cable



Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.172000	38.1	9.000	Off	N	9.7	26.8	64.9
0.232000	33.7	9.000	Off	N	9.7	28.6	62.4
0.578000	39.9	9.000	Off	N	9.8	16.1	56.0
0.584000	36.5	9.000	Off	N	9.8	19.5	56.0
0.810000	37.5	9.000	Off	N	9.8	18.5	56.0
0.870000	35.0	9.000	Off	N	9.8	21.0	56.0
1.040000	39.3	9.000	Off	N	9.8	16.7	56.0
1.138000	37.5	9.000	Off	N	9.8	18.5	56.0
2.138000	36.5	9.000	Off	N	9.8	19.5	56.0
2.780000	36.4	9.000	Off	N	9.9	19.6	56.0
3.010000	35.2	9.000	Off	N	9.9	20.8	56.0
3.938000	34.6	9.000	Off	N	10.0	21.4	56.0
5.134000	35.7	9.000	Off	N	10.0	24.3	60.0
5.352000	32.6	9.000	Off	N	10.0	27.4	60.0
5.784000	33.4	9.000	Off	N	10.1	26.6	60.0
5.958000	32.2	9.000	Off	N	10.1	27.8	60.0
5.966000	32.1	9.000	Off	N	10.1	27.9	60.0
6.820000	32.6	9.000	Off	N	10.1	27.4	60.0

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Blue tooth_N 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.172000	28.8	9.000	Off	N	9.7	26.1	54.9
0.230000	27.2	9.000	Off	N	9.7	25.2	52.4
0.574000	33.1	9.000	Off	N	9.8	12.9	46.0
0.584000	28.0	9.000	Off	N	9.8	18.0	46.0
0.692000	32.5	9.000	Off	N	9.7	13.5	46.0
0.808000	32.0	9.000	Off	N	9.8	14.0	46.0
1.156000	32.4	9.000	Off	N	9.8	13.6	46.0
1.908000	29.3	9.000	Off	N	9.8	16.7	46.0
2.138000	30.2	9.000	Off	N	9.8	15.8	46.0
2.194000	31.3	9.000	Off	N	9.8	14.7	46.0
2.780000	22.8	9.000	Off	N	9.9	23.2	46.0
3.336000	22.1	9.000	Off	N	9.9	23.9	46.0
5.352000	22.6	9.000	Off	N	10.0	27.4	50.0
5.784000	21.6	9.000	Off	N	10.1	28.4	50.0
5.912000	21.2	9.000	Off	N	10.1	28.8	50.0
5.958000	21.1	9.000	Off	N	10.1	28.9	50.0
6.820000	22.1	9.000	Off	N	10.1	27.9	50.0
6.834000	20.7	9.000	Off	N	10.1	29.3	50.0

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Conducted Emissions (Line 2)

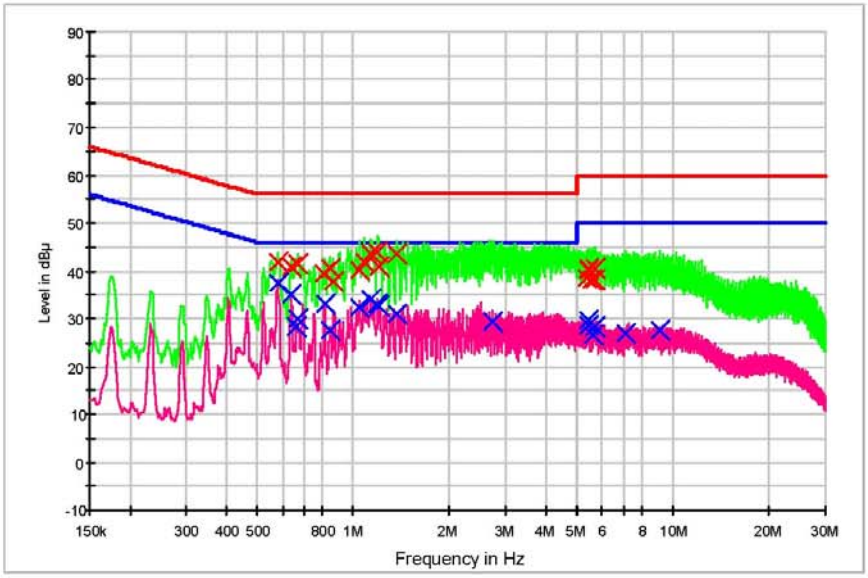
Blue tooth_L1 1 / 2

HCT TEST Report

Common Information

EUT:	SM-J410FDS
Manufacturer:	SAMSUNG
Test Site:	SHIELD ROOM
Operating Conditions:	bluetooth_L1

FCC CLASS B_Exten Cable



FCC CLASS B_QP
Preview Result 2-AVG
FCC CLASS B_AV
Final Result 1-QPK
Preview Result 1-PK+
Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.582000	41.8	9.000	Off	L1	9.8	14.2	56.0
0.642000	40.7	9.000	Off	L1	9.7	15.3	56.0
0.672000	41.5	9.000	Off	L1	9.7	14.5	56.0
0.812000	39.5	9.000	Off	L1	9.7	16.5	56.0
0.846000	40.4	9.000	Off	L1	9.8	15.6	56.0
0.870000	37.7	9.000	Off	L1	9.8	18.3	56.0
1.044000	40.3	9.000	Off	L1	9.8	15.7	56.0
1.080000	41.8	9.000	Off	L1	9.8	14.2	56.0
1.138000	43.4	9.000	Off	L1	9.8	12.6	56.0
1.194000	44.0	9.000	Off	L1	9.8	12.0	56.0
1.202000	40.9	9.000	Off	L1	9.8	15.1	56.0
1.368000	43.6	9.000	Off	L1	9.8	12.4	56.0
5.400000	38.6	9.000	Off	L1	10.0	21.4	60.0
5.410000	40.4	9.000	Off	L1	10.0	19.6	60.0
5.420000	40.2	9.000	Off	L1	10.0	19.8	60.0
5.564000	38.2	9.000	Off	L1	10.0	21.8	60.0
5.706000	40.4	9.000	Off	L1	10.0	19.6	60.0
5.716000	38.2	9.000	Off	L1	10.0	21.8	60.0

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Blue tooth_L1 2 / 2

Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.582000	37.4	9.000	Off	L1	9.8	8.6	46.0
0.640000	35.2	9.000	Off	L1	9.7	10.8	46.0
0.666000	28.4	9.000	Off	L1	9.7	17.6	46.0
0.670000	30.0	9.000	Off	L1	9.7	16.0	46.0
0.814000	33.0	9.000	Off	L1	9.7	13.0	46.0
0.846000	27.7	9.000	Off	L1	9.8	18.3	46.0
1.044000	32.4	9.000	Off	L1	9.8	13.6	46.0
1.136000	33.9	9.000	Off	L1	9.8	12.1	46.0
1.194000	33.0	9.000	Off	L1	9.8	13.0	46.0
1.198000	32.8	9.000	Off	L1	9.8	13.2	46.0
1.368000	31.1	9.000	Off	L1	9.8	14.9	46.0
2.742000	29.3	9.000	Off	L1	9.9	16.7	46.0
5.410000	29.7	9.000	Off	L1	10.0	20.3	50.0
5.420000	28.5	9.000	Off	L1	10.0	21.5	50.0
5.620000	26.5	9.000	Off	L1	10.0	23.5	50.0
5.706000	28.3	9.000	Off	L1	10.0	21.7	50.0
7.104000	27.0	9.000	Off	L1	10.1	23.0	50.0
9.072000	27.7	9.000	Off	L1	10.1	22.3	50.0

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11 LIST OF TEST EQUIPMENT

Conducted Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/20/2017	Annual	102245
Rohde & Schwarz	ESCI / Test Receiver	06/27/2018	Annual	100033
ESPAC	SU-642 /Temperature Chamber	03/30/2018	Annual	0093008124
Agilent	N9020A / Signal Analyzer	06/08/2018	Annual	MY51110085
Agilent	N9030A / Signal Analyzer	11/22/2017	Annual	MY49431210
Agilent	N1911A / Power Meter	04/16/2018	Annual	MY45100523
Agilent	N1921A / Power Sensor	04/16/2018	Annual	MY52260025
Agilent	87300B / Directional Coupler	11/20/2017	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/07/2018	Annual	05001
Hewlett Packard	E3632A / DC Power Supply	06/26/2018	Annual	KR75303960
Agilent	8493C / Attenuator(10 dB)	07/10/2018	Annual	07560
Rohde & Schwarz	EMC32 / Software	N/A	N/A	N/A
HCT CO., LTD.	FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	N/A	N/A
Rohde & Schwarz	CBT / Bluetooth Tester	05/17/2018	Annual	100422

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
Innco system	MA4640/800-XP-EP / Antenna Position Tower	N/A	N/A	N/A
Audix	EM1000 / Controller	N/A	N/A	060520
Audix	Turn Table	N/A	N/A	N/A
Rohde & Schwarz	Loop Antenna	04/19/2017	Biennial	1513-175
Schwarzbeck	VULB 9168 / Hybrid Antenna	04/06/2017	Biennial	760
Schwarzbeck	BBHA 9120D / Horn Antenna	05/02/2017	Biennial	9120D-937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP40(9 kHz ~ 40 GHz) / Spectrum Analyzer	07/24/2018	Annual	100843
Rohde & Schwarz	FSV40-N / Spectrum Analyzer	09/27/2017	Annual	101068-SZ
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	06/07/2018	Annual	8
Wainwright Instruments	WHFX7.0/18G-8SS / High Pass Filter	05/09/2018	Annual	29
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	06/29/2018	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/03/2018	Annual	2
Api tech.	18B-03 / Attenuator (3 dB)	06/07/2018	Annual	1
Agilent	8493C-10 / Attenuator(10 dB)	07/17/2018	Annual	08285
CERNEX	CBLU1183540 / Power Amplifier	07/10/2018	Annual	22964
CERNEX	CBL06185030 / Power Amplifier	07/10/2018	Annual	22965
CERNEX	CBL18265035 / Power Amplifier	01/10/2018	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	06/29/2018	Annual	25956
TESCOM	TC-3000C / Bluetooth Tester	03/27/2018	Annual	3000C000276

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

12 ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-1809-FC040-P
2	HCT-RF-1809-FC041-P
3	HCT-RF-1809-FC042-P