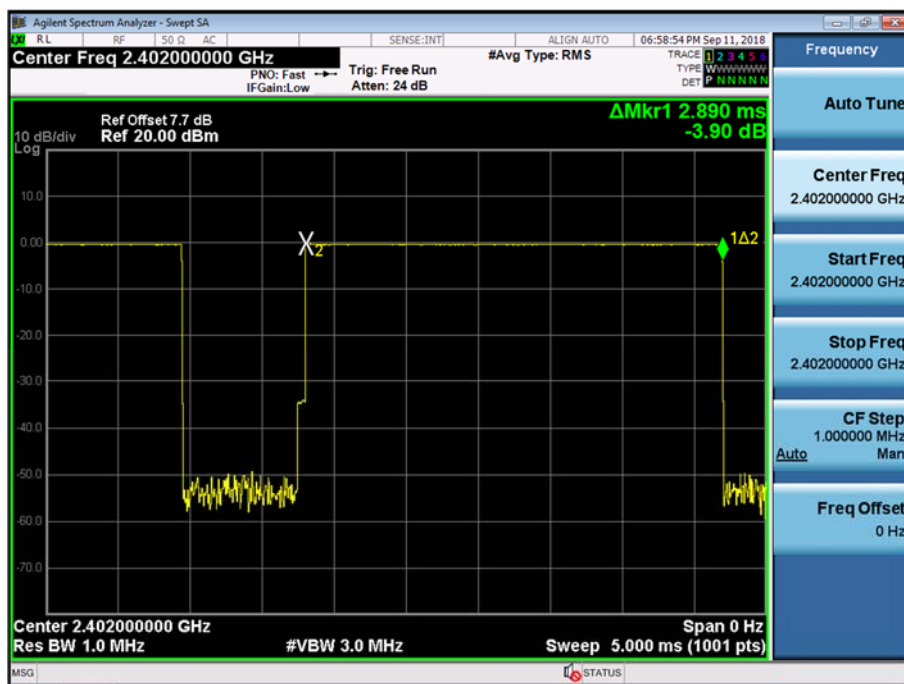


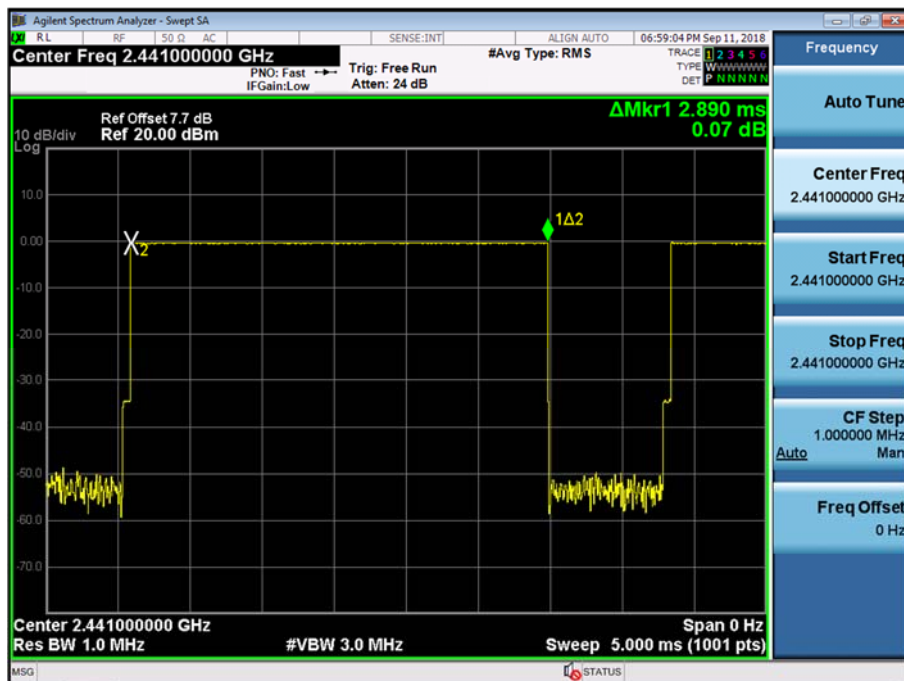
Test Plots (GFSK)

Dwell Time (CH.0)

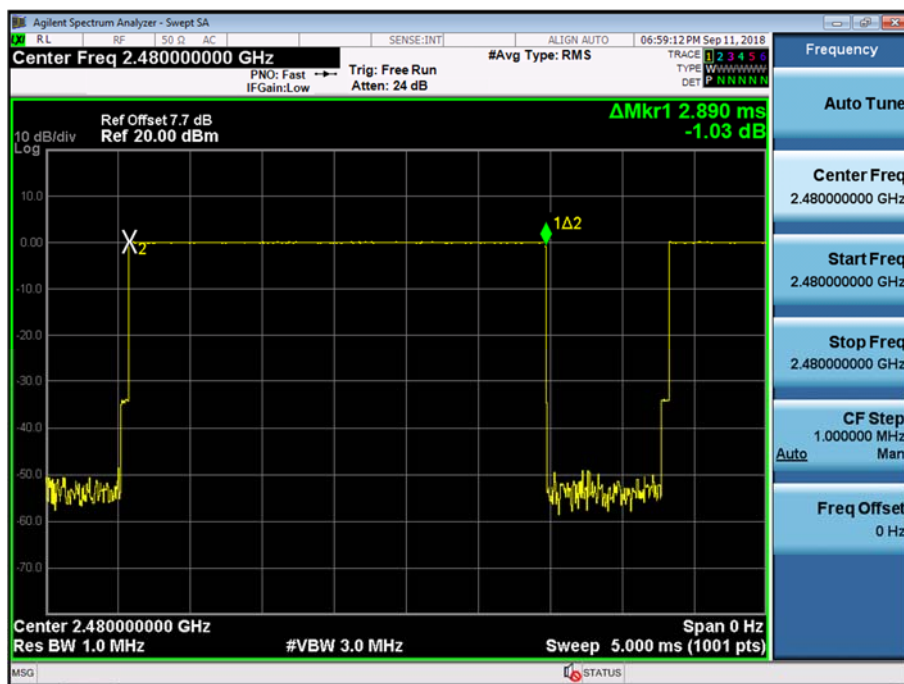


Test Plots (GFSK)

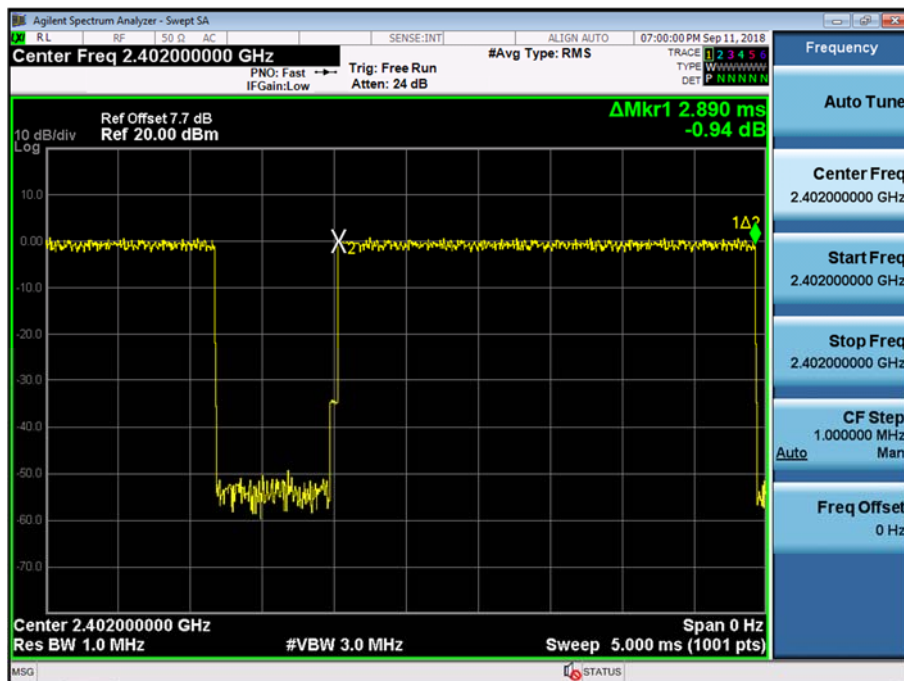
Dwell Time (CH.39)



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

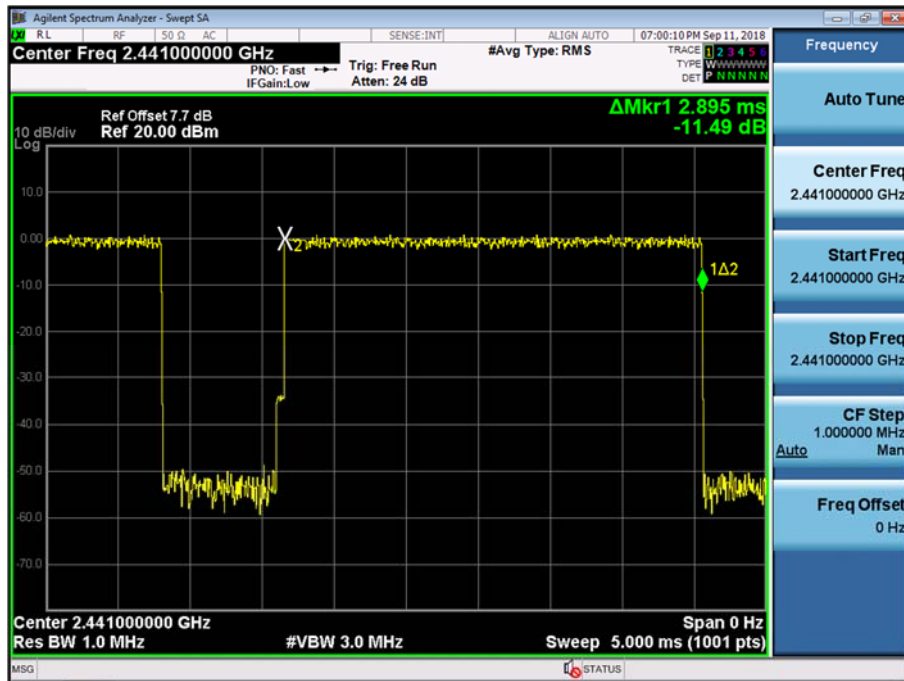


Test Plots (8DPSK)  
Dwell Time (CH.0)



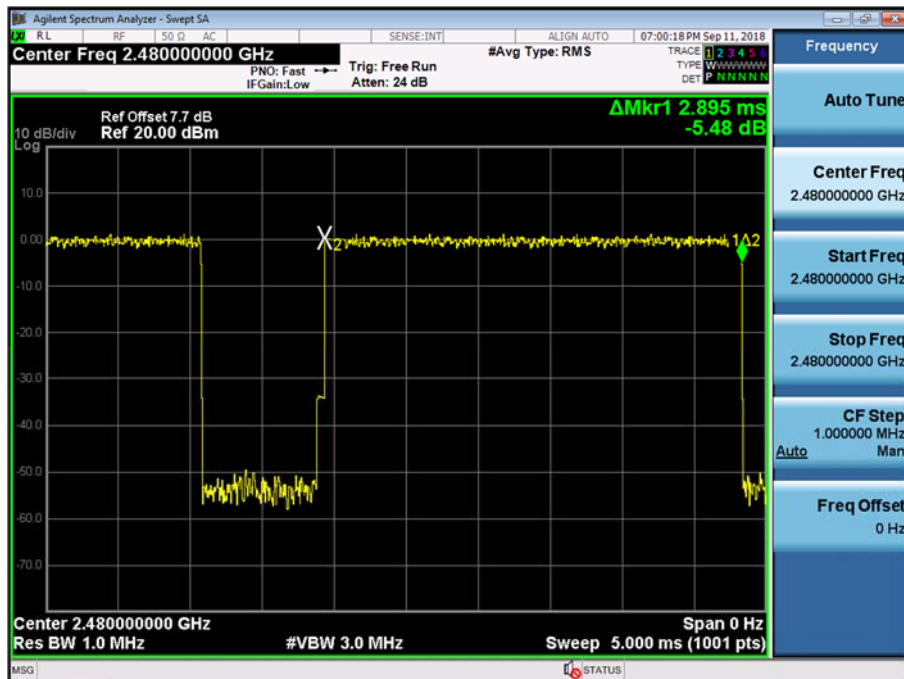
Test Plots (8DPSK)

Dwell Time (CH.39)



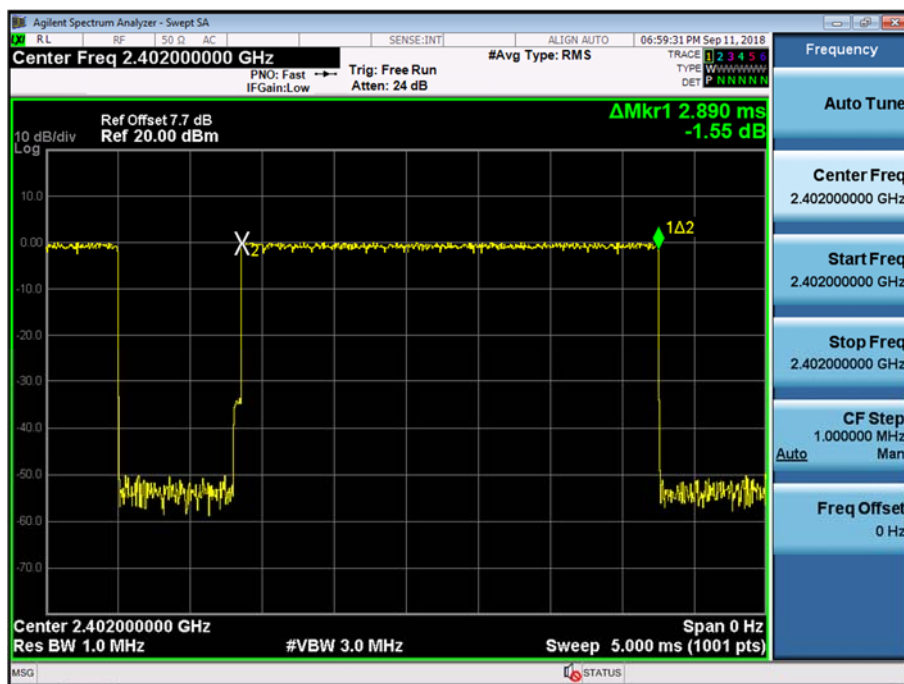
Test Plots (8DPSK)

Dwell Time (CH.78)



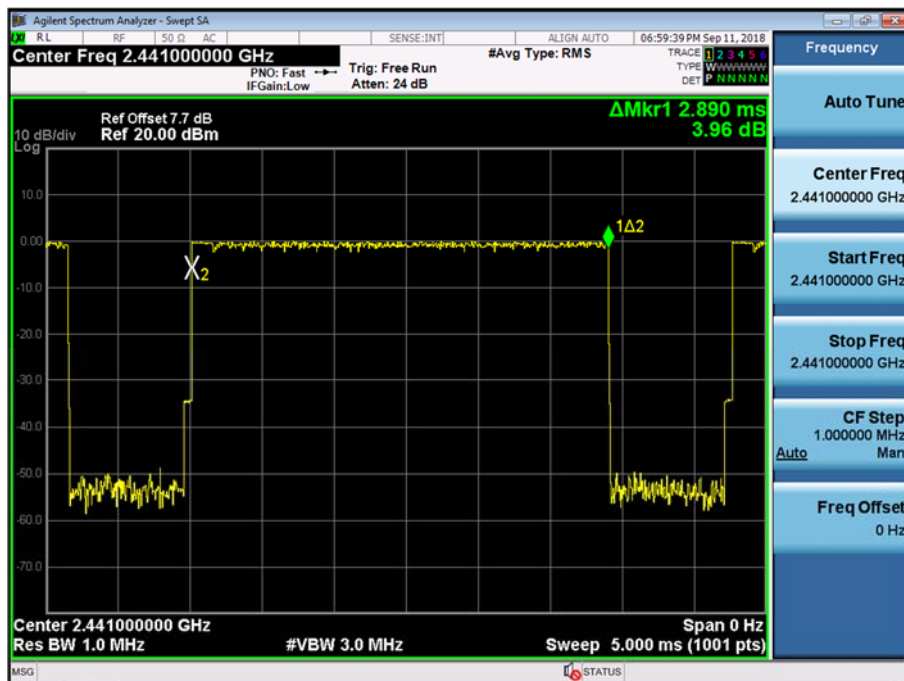
Test Plots ( $\pi/4$ DQPSK)

Dwell Time (CH.0)

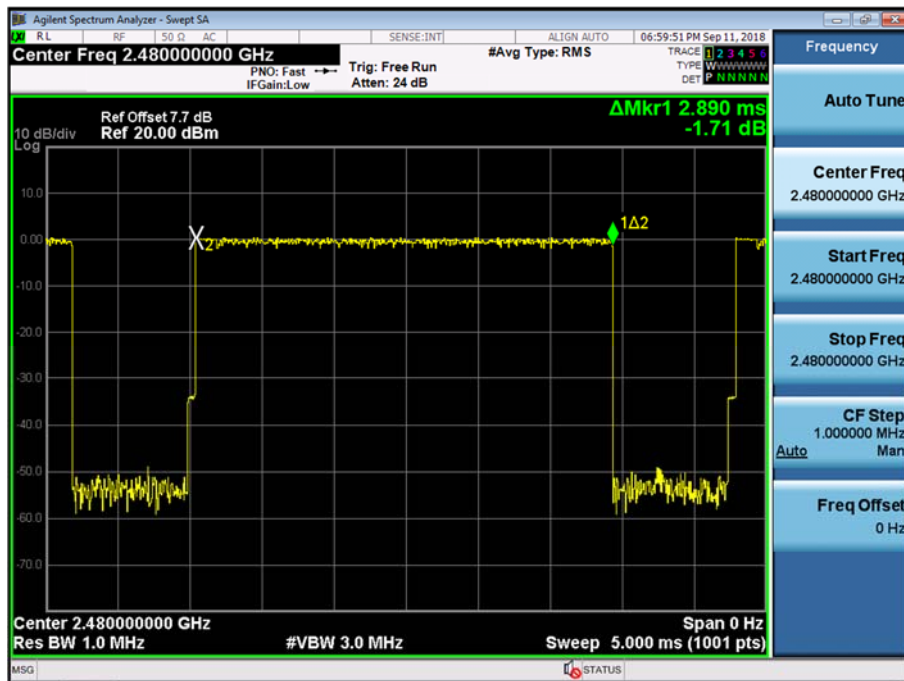


Test Plots ( $\pi/4$ DQPSK)

Dwell Time (CH.39)



Test Plots ( $\pi/4$ DQPSK)  
Dwell Time (CH.78)



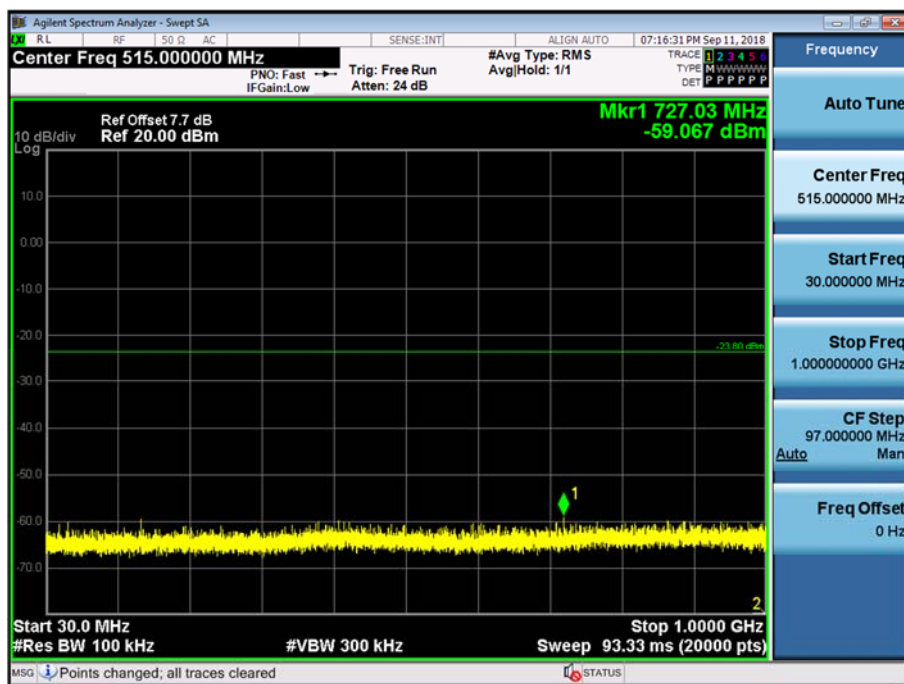
## **10.6 SPURIOUS EMISSIONS**

### **10.6.1 CONDUCTED SPURIOUS EMISSIONS**

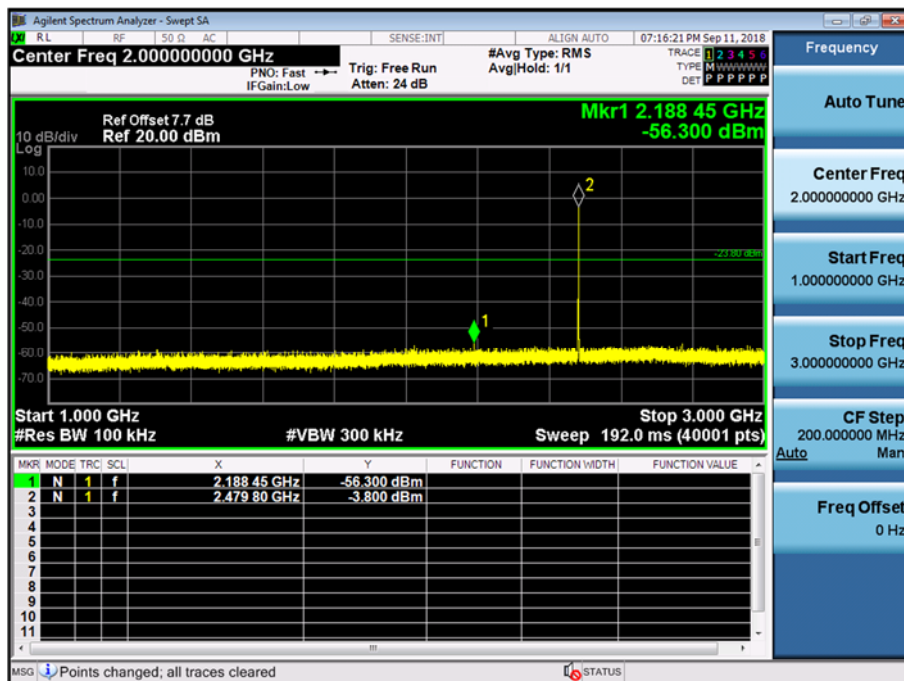
Test Result : please refer to the plot below.

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)

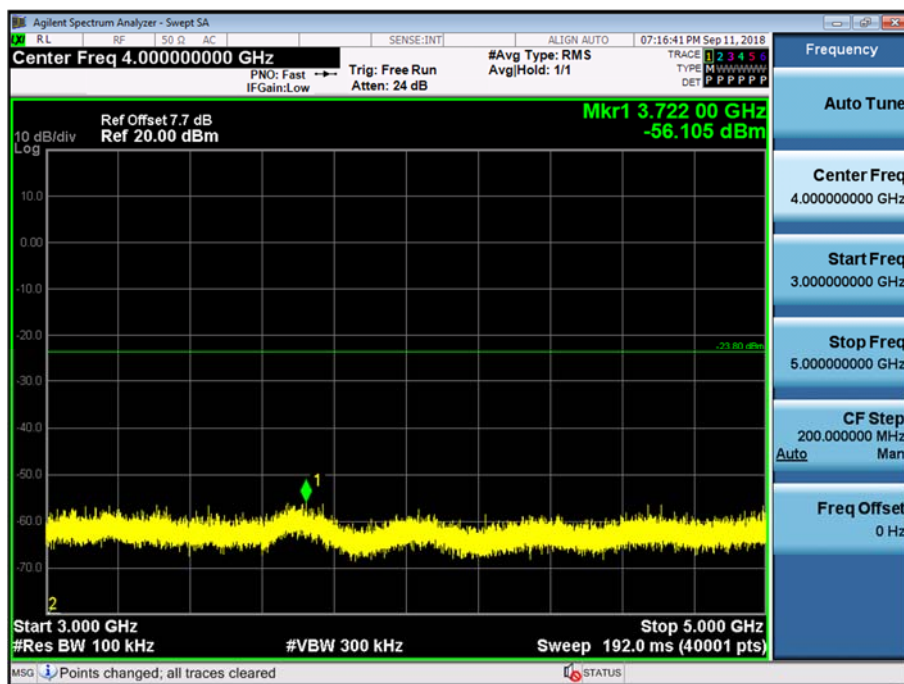


Test Plots (8DPSK)- 1 GHz – 3 GHz  
Spurious Emission (CH.39)

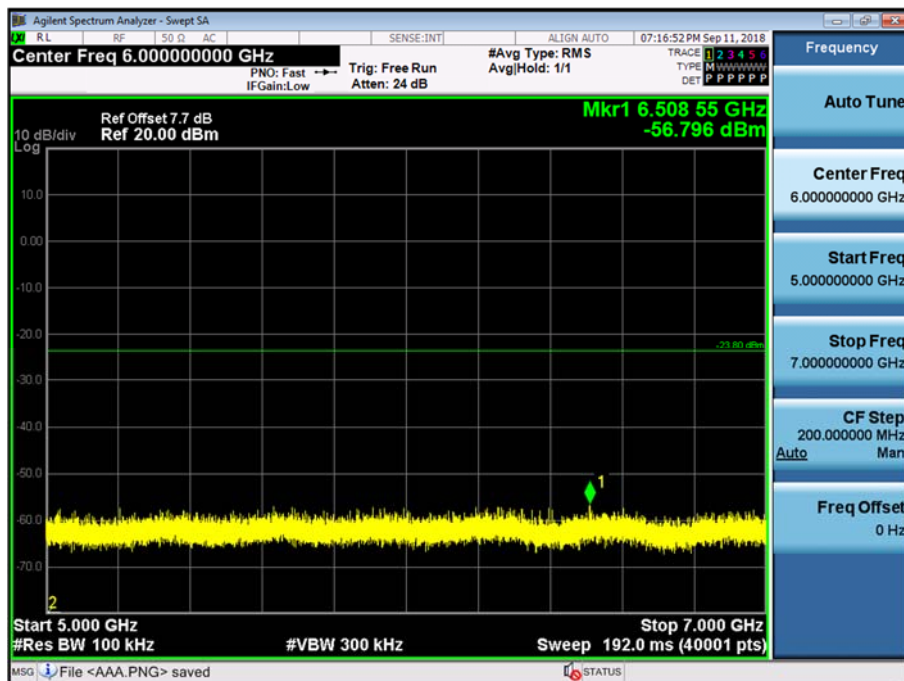




Test Plots(8DPSK)- 3 GHz - 5 GHz  
Spurious Emission (CH.39)

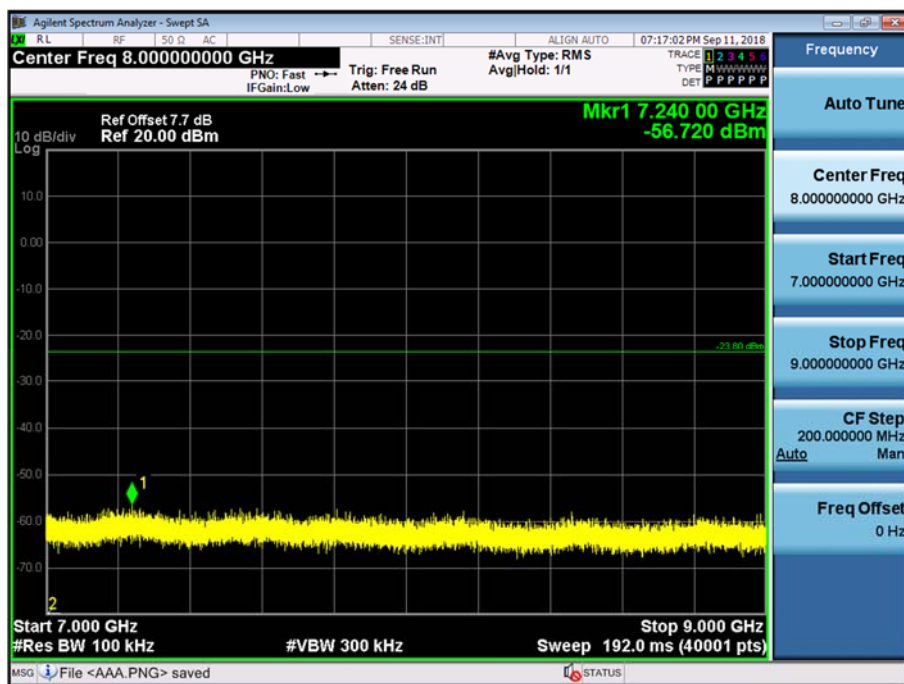


Test Plots (8DPSK)- 5 GHz - 7 GHz  
Spurious Emission (CH.39)

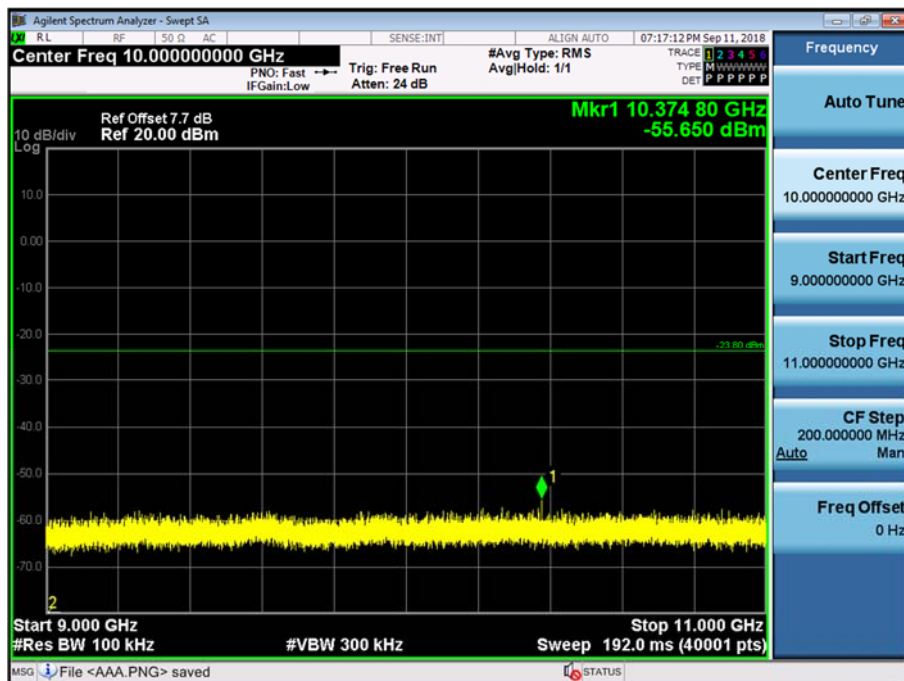




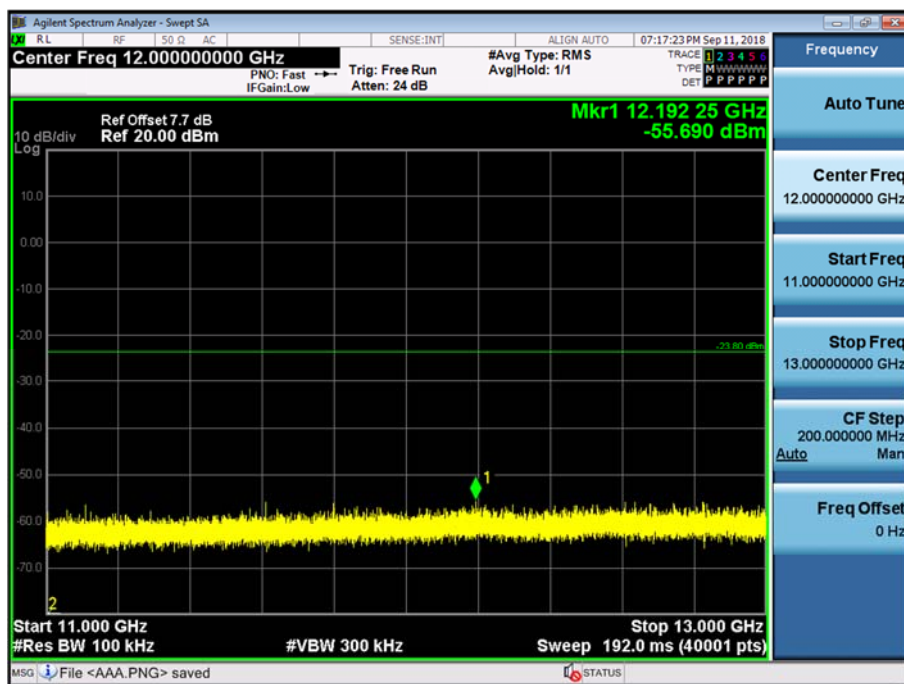
Test Plots(8DPSK)- 7 GHz - 9 GHz  
Spurious Emission (CH.39)



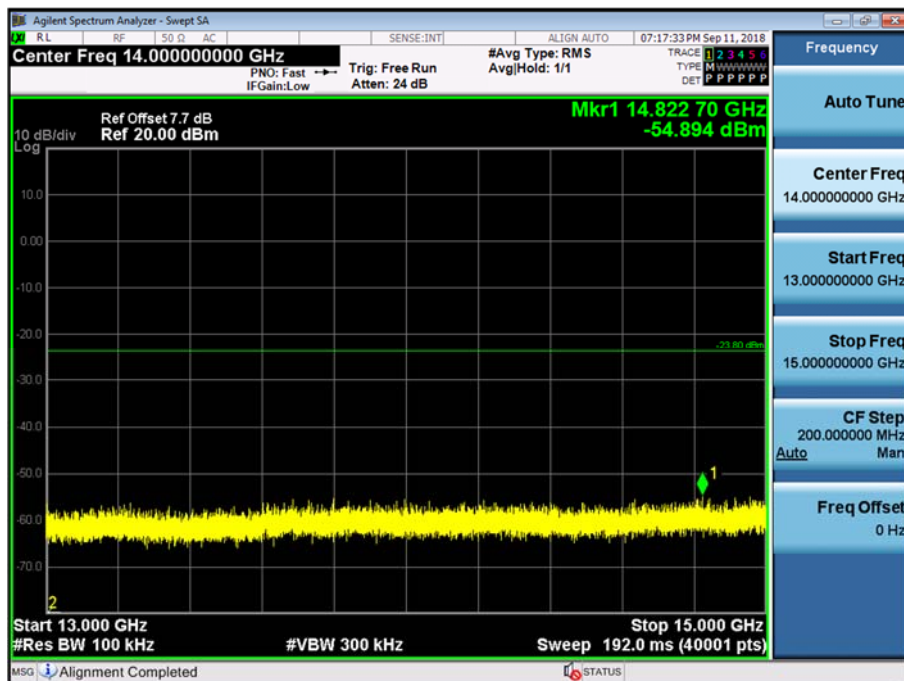
Test Plots(8DPSK)- 9 GHz - 11 GHz  
Spurious Emission (CH.39)



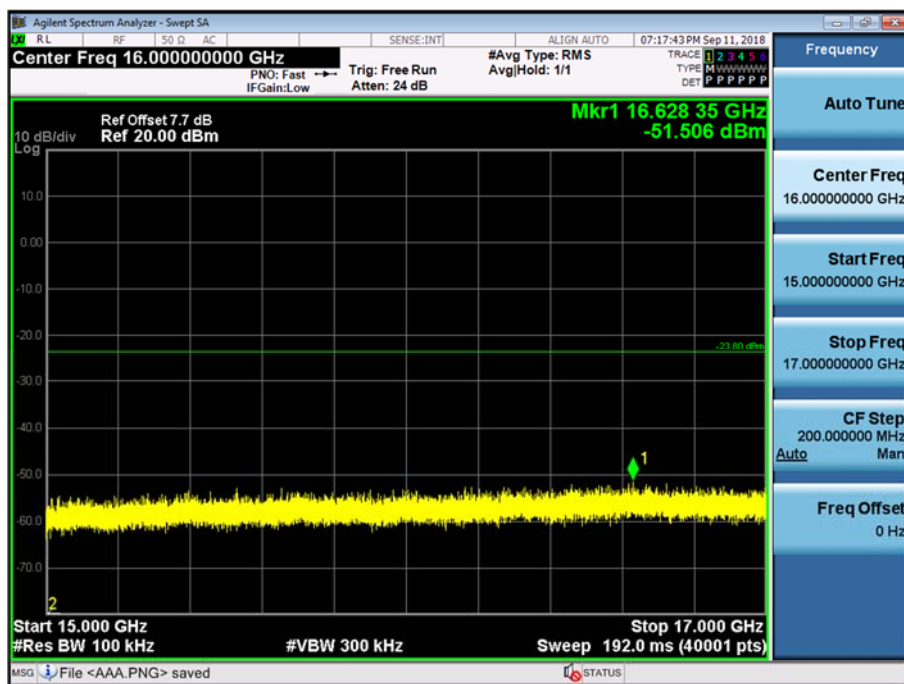
Test Plots(8DPSK) 11 GHz - 13 GHz  
Spurious Emission (CH.39)



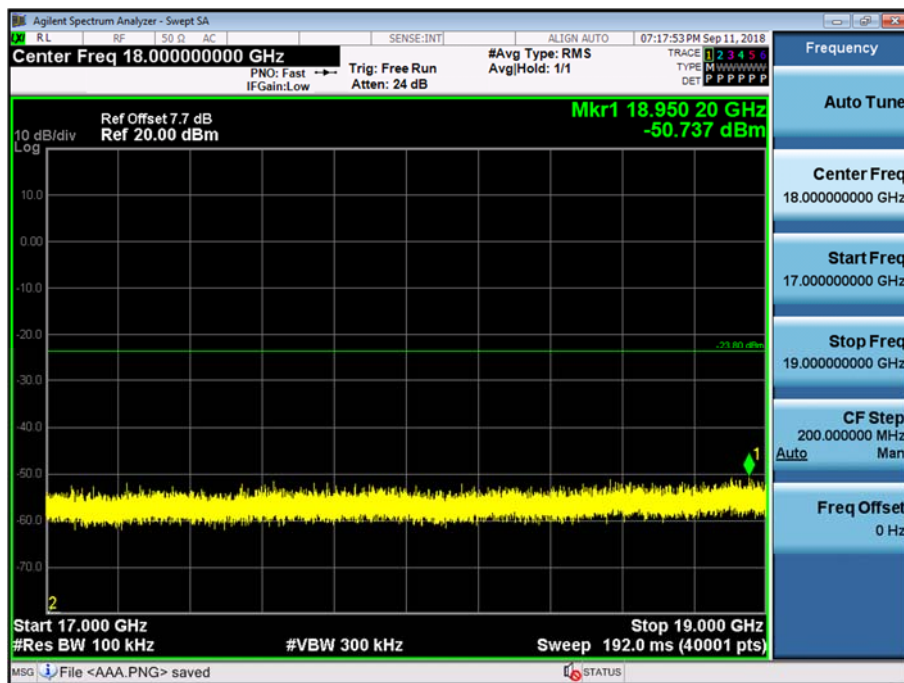
Test Plots (8DPSK)- 13 GHz – 15 GHz  
Spurious Emission (CH.39)



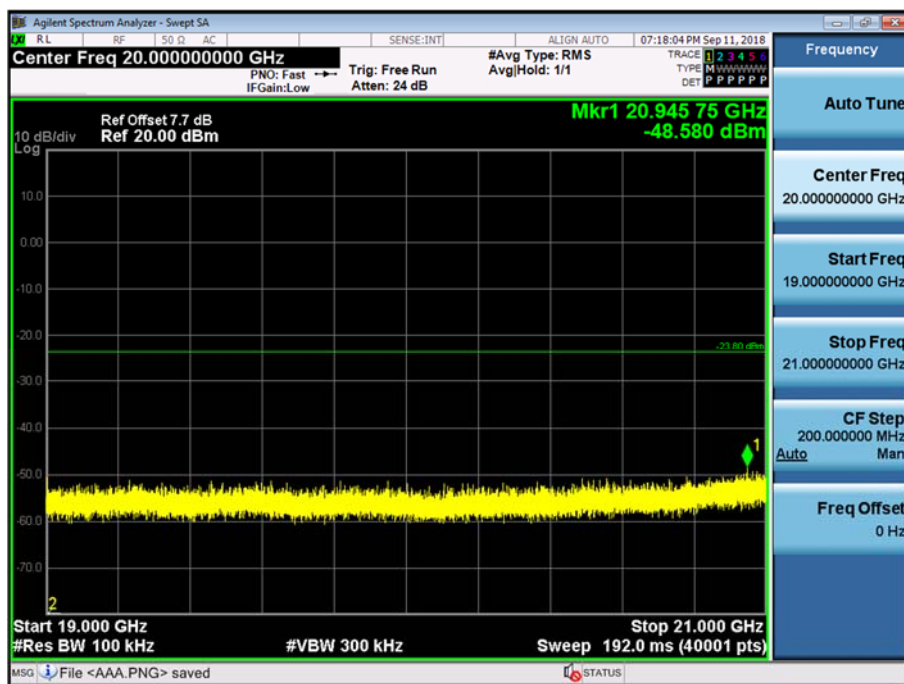
Test Plots(8DPSK)- 15 GHz - 17 GHz  
Spurious Emission (CH.39)



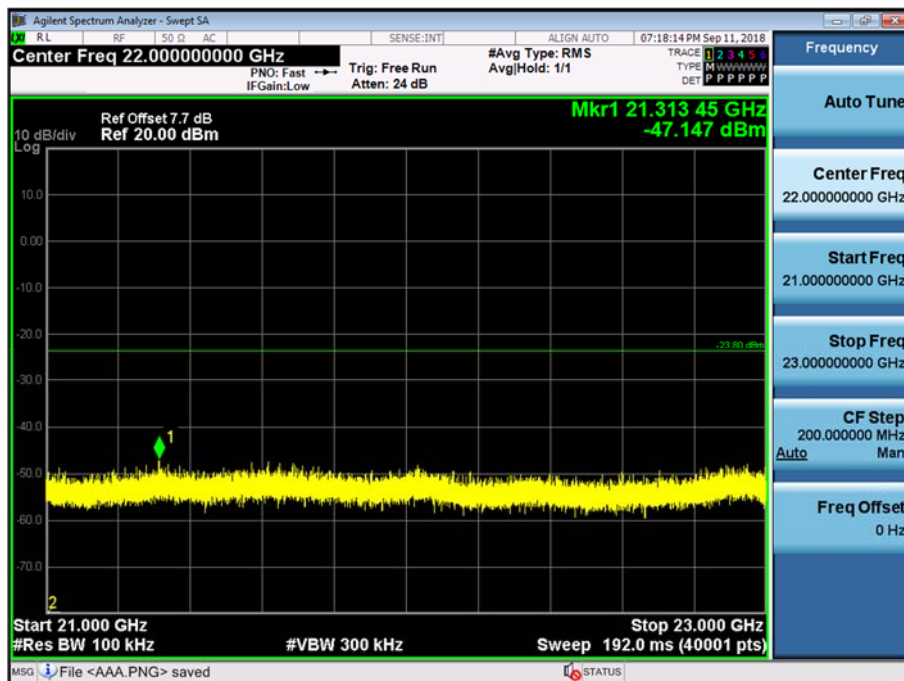
Test Plots(8DPSK)- 17 GHz - 19 GHz  
Spurious Emission (CH.39)



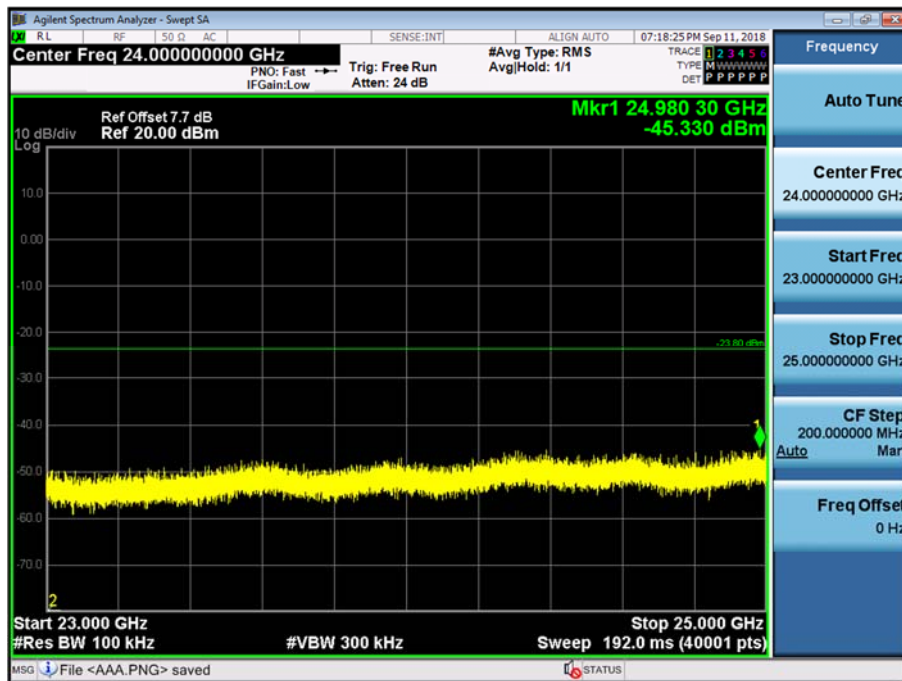
Test Plots (8DPSK)- 19 GHz - 21 GHz  
Spurious Emission (CH.39)



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 =  $40 \cdot \log(\text{specific distance} / \text{test distance})$  (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	51.40	2.07	V	53.47	73.98	20.51	PK
4804	38.68	2.07	V	40.75	53.98	13.23	AV
7206	51.01	9.57	V	60.58	73.98	13.40	PK
7206	36.92	9.57	V	46.49	53.98	7.49	AV
4804	51.27	2.07	H	53.34	73.98	20.64	PK
4804	38.11	2.07	H	40.18	53.98	13.80	AV
7206	51.43	9.57	H	61	73.98	12.98	PK
7206	37.00	9.57	H	46.57	53.98	7.41	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	52.09	2.07	V	54.16	73.98	19.82	PK
4804	38.06	2.07	V	40.13	53.98	13.85	AV
7206	50.89	9.57	V	60.46	73.98	13.52	PK
7206	36.98	9.57	V	46.55	53.98	7.43	AV
4804	51.67	2.07	H	53.74	73.98	20.24	PK
4804	37.99	2.07	H	40.06	53.98	13.92	AV
7206	50.49	9.57	H	60.06	73.98	13.92	PK
7206	36.95	9.57	H	46.52	53.98	7.46	AV

Operation Mode: CH Low( $\pi/4$ DQPSK)

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	52.15	2.07	V	54.22	73.98	19.76	PK
4804	38.09	2.07	V	40.16	53.98	13.82	AV
7206	50.96	9.57	V	60.53	73.98	13.45	PK
7206	36.98	9.57	V	46.55	53.98	7.43	AV
4804	51.10	2.07	H	53.17	73.98	20.81	PK
4804	37.86	2.07	H	39.93	53.98	14.05	AV
7206	50.57	9.57	H	60.14	73.98	13.84	PK
7206	36.91	9.57	H	46.48	53.98	7.50	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	50.91	2.56	V	53.47	73.98	20.51	PK
4882	38.01	2.56	V	40.57	53.98	13.41	AV
7323	52.00	9.72	V	61.72	73.98	12.26	PK
7323	36.80	9.72	V	46.52	53.98	7.46	AV
4882	49.68	2.56	H	52.24	73.98	21.74	PK
4882	37.89	2.56	H	40.45	53.98	13.53	AV
7323	50.48	9.72	H	60.2	73.98	13.78	PK
7323	36.78	9.72	H	46.5	53.98	7.48	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	51.27	2.56	V	53.83	73.98	20.15	PK
4882	37.62	2.56	V	40.18	53.98	13.80	AV
7323	50.89	9.72	V	60.61	73.98	13.37	PK
7323	36.73	9.72	V	46.45	53.98	7.53	AV
4882	50.55	2.56	H	53.11	73.98	20.87	PK
4882	37.52	2.56	H	40.08	53.98	13.90	AV
7323	50.68	9.72	H	60.4	73.98	13.58	PK
7323	36.69	9.72	H	46.41	53.98	7.57	AV

Operation Mode: CH Mid( $\pi/4$ DQPSK)

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	51.11	2.56	V	53.67	73.98	20.31	PK
4882	37.60	2.56	V	40.16	53.98	13.82	AV
7323	51.11	9.72	V	60.83	73.98	13.15	PK
7323	36.79	9.72	V	46.51	53.98	7.47	AV
4882	50.98	2.56	H	53.54	73.98	20.44	PK
4882	37.44	2.56	H	40	53.98	13.98	AV
7323	50.76	9.72	H	60.48	73.98	13.50	PK
7323	36.74	9.72	H	46.46	53.98	7.52	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	52.21	2.66	V	54.87	73.98	19.11	PK
4960	38.46	2.66	V	41.12	53.98	12.86	AV
7440	50.51	10.20	V	60.71	73.98	13.27	PK
7440	36.42	10.20	V	46.62	53.98	7.36	AV
4960	51.34	2.66	H	54	73.98	19.98	PK
4960	38.30	2.66	H	40.96	53.98	13.02	AV
7440	50.38	10.20	H	60.58	73.98	13.40	PK
7440	36.23	10.20	H	46.43	53.98	7.55	AV

## Operation Mode: CH High(8DPSK)

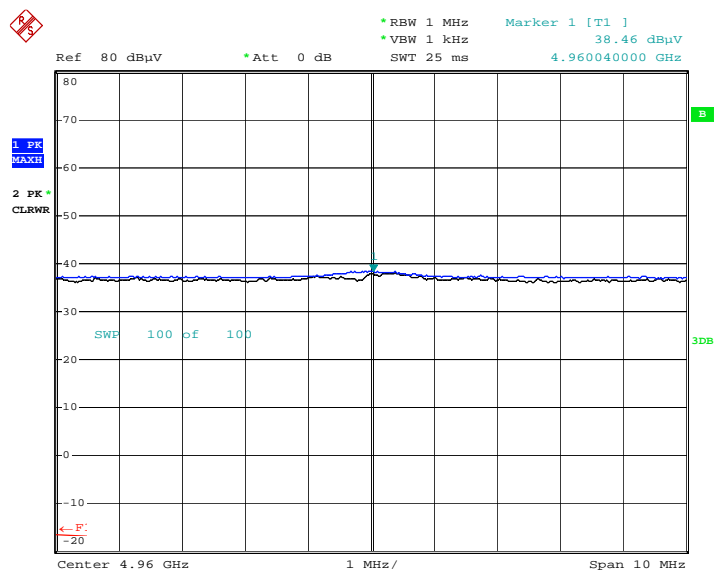
Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	50.98	2.66	V	53.64	73.98	20.34	PK
4960	37.83	2.66	V	40.49	53.98	13.49	AV
7440	49.25	10.20	V	59.45	73.98	14.53	PK
7440	36.22	10.20	V	46.42	53.98	7.56	AV
4960	50.61	2.66	H	53.27	73.98	20.71	PK
4960	37.68	2.66	H	40.34	53.98	13.64	AV
7440	50.42	10.20	H	60.62	73.98	13.36	PK
7440	36.35	10.20	H	46.55	53.98	7.43	AV

Operation Mode: CH High ( $\pi/4$ DQPSK)

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	50.96	2.66	V	53.62	73.98	20.36	PK
4960	37.74	2.66	V	40.40	53.98	13.58	AV
7440	50.63	10.20	V	60.83	73.98	13.15	PK
7440	36.39	10.20	V	46.59	53.98	7.39	AV
4960	50.36	2.66	H	53.02	73.98	20.96	PK
4960	37.69	2.66	H	40.35	53.98	13.63	AV
7440	50.16	10.20	H	60.36	73.98	13.62	PK
7440	36.28	10.20	H	46.48	53.98	7.50	AV

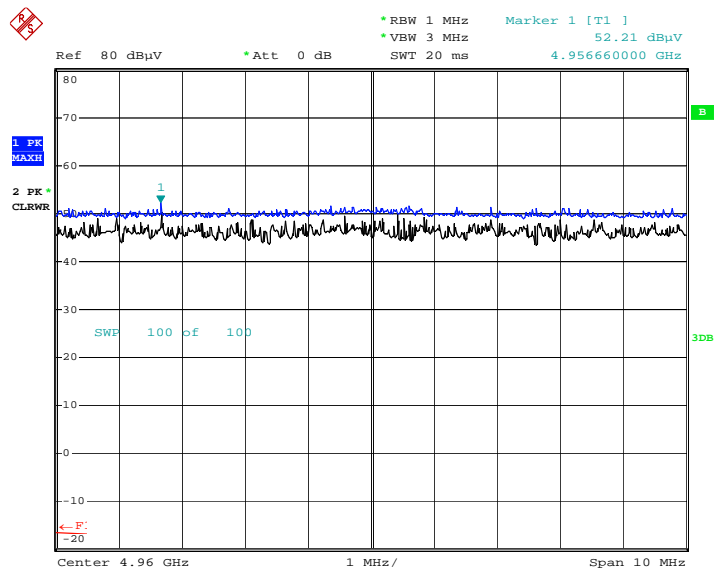
## RESULT PLOTS

Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.78 2nd Harmonic)



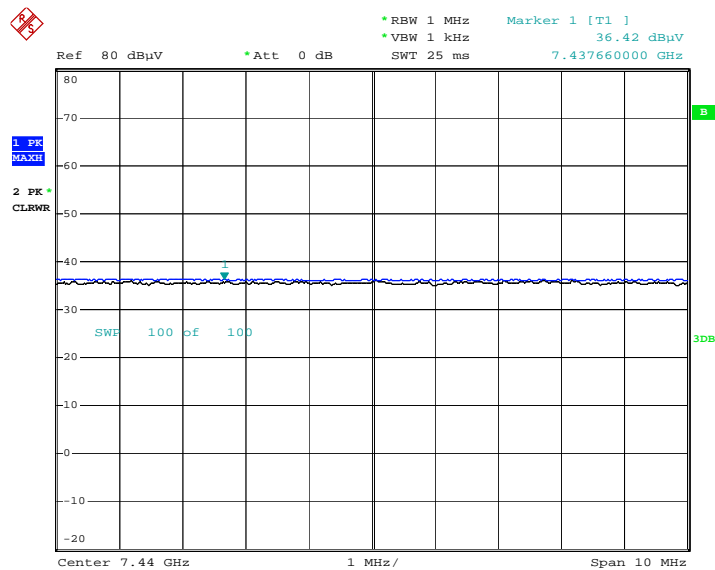
Date: 11.SEP.2018 11:07:41

Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.78 2nd Harmonic)



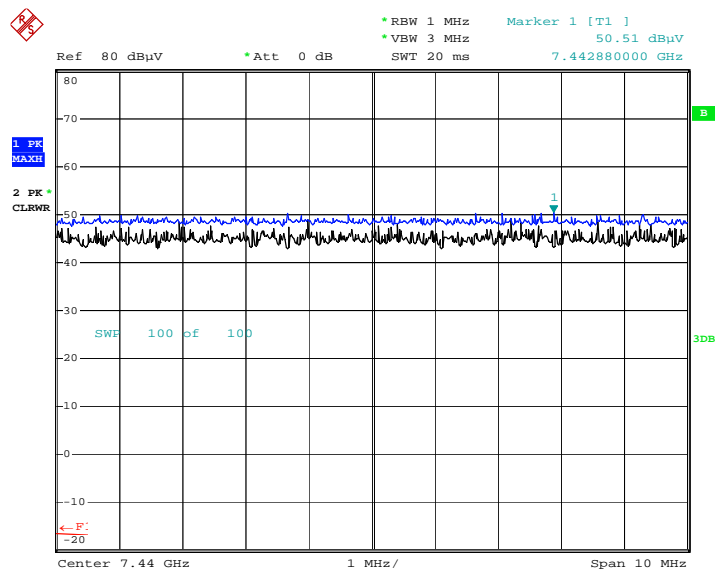
Date: 11.SEP.2018 11:08:28

Radiated Spurious Emissions plot – Average Reading (GFSK, Ch.78 3rd Harmonic)



Date: 11.SEP.2018 11:10:27

Radiated Spurious Emissions plot – Peak Reading (GFSK, Ch.78 3rd Harmonic)



Date: 11.SEP.2018 11:09:00

**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	24.58	35.36	H	0	59.94	73.98	14.04	PK
2390.0	11.77	35.36	H	-24.73	22.40	53.98	31.58	AV
2390.0	23.48	35.36	V	0	58.84	73.98	15.14	PK
2390.0	11.56	35.36	V	-24.73	22.19	53.98	31.79	AV
2483.5	25.16	35.73	H	0	60.89	73.98	13.09	PK
2483.5	15.94	35.73	H	-24.73	26.94	53.98	27.04	AV
2483.5	24.51	35.73	V	0	60.24	73.98	13.74	PK
2483.5	15.04	35.73	V	-24.73	26.04	53.98	27.94	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	23.61	35.36	H	0	58.97	73.98	15.01	PK
2390.0	11.76	35.36	H	-24.73	22.39	53.98	31.59	AV
2390.0	23.42	35.36	V	0	58.78	73.98	15.20	PK
2390.0	11.58	35.36	V	-24.73	22.21	53.98	31.77	AV
2483.5	24.47	35.73	H	0	60.20	73.98	13.78	PK
2483.5	15.24	35.73	H	-24.73	26.24	53.98	27.74	AV
2483.5	23.65	35.73	V	0	59.38	73.98	14.60	PK
2483.5	14.34	35.73	V	-24.73	25.34	53.98	28.64	AV

Operation Mode	EDR( $\pi/4$ DQPSK)
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	23.76	35.36	H	0	59.12	73.98	14.86	PK
2390.0	11.66	35.36	H	-24.73	22.29	53.98	31.69	AV
2390.0	22.99	35.36	V	0	58.35	73.98	15.63	PK
2390.0	11.59	35.36	V	-24.73	22.22	53.98	31.76	AV
2483.5	25.24	35.73	H	0	60.97	73.98	13.01	PK
2483.5	15.24	35.73	H	-24.73	26.24	53.98	27.74	AV
2483.5	23.97	35.73	V	0	59.70	73.98	14.28	PK
2483.5	14.37	35.73	V	-24.73	25.37	53.98	28.61	AV





## 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	VULB 9168 / Hybrid Antenna	08/09/2018	Annual	3368
Schwarzbeck	BBHA 9120D / Horn Antenna	06/30/2017	Biennial	1300
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	12/04/2017	Biennial	BBHA9170541
Rohde & Schwarz	FSP(9 kHz ~ 40 GHz) / Spectrum Analyzer	07/24/2019	Annual	100843
Wainwright Instruments	WHK3.0/18G-10EF / High Pass Filter	01/03/2018	Annual	F6
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
Weinschel	2-3 / Attenuator (3 dB)	10/13/2017	Annual	BR0617
H+S	5910-N-50-010 / Attenuator(10 dB)	11/09/2017	Annual	NONE
CERNEX	CBLU1183540B-01 / Power Amplifier	12/26/2017	Annual	25540
CERNEX	CBL06185030 / Power Amplifier	03/28/2018	Annual	28550
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-FC104-P