

10.5 TIME OF OCCUPANCY (DWELL TIME)

	Channel	GFSK	8DPSK	$\pi/4$ DQPSK
Pulse Time (ms)	Low	2.885	2.895	2.890
	Mid	2.890	2.895	2.890
	High	2.890	2.890	2.890

Non-AFH Mode

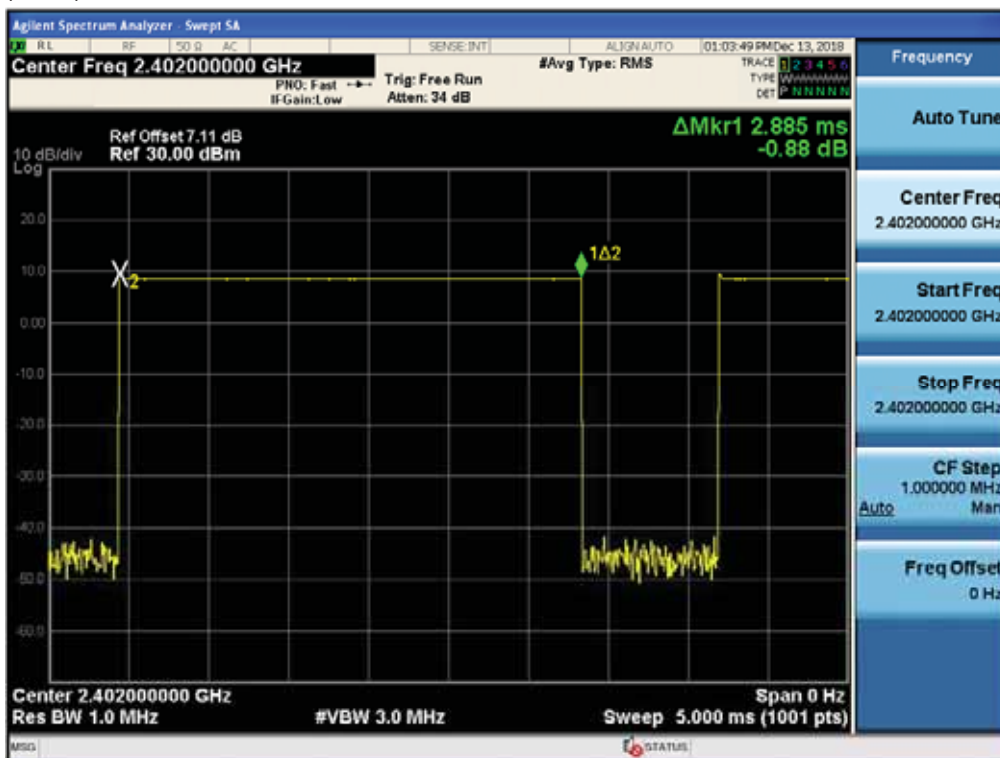
	Channel	GFSK	8DPSK	$\pi/4$ DQPSK	Period Time (s)	Limit (ms)
Total of Dwell (ms)	Low	307.73	308.80	308.27	31.6	400
	Mid	308.27	308.80	308.27	31.6	
	High	308.27	308.27	308.27	31.6	

AFH Mode

	Channel	GFSK	8DPSK	$\pi/4$ DQPSK	Period Time (s)	Limit (ms)
Total of Dwell (ms)	Low	153.87	154.40	154.13	8.0	400
	Mid	154.13	154.40	154.13	8.0	
	High	154.13	154.13	154.13	8.0	

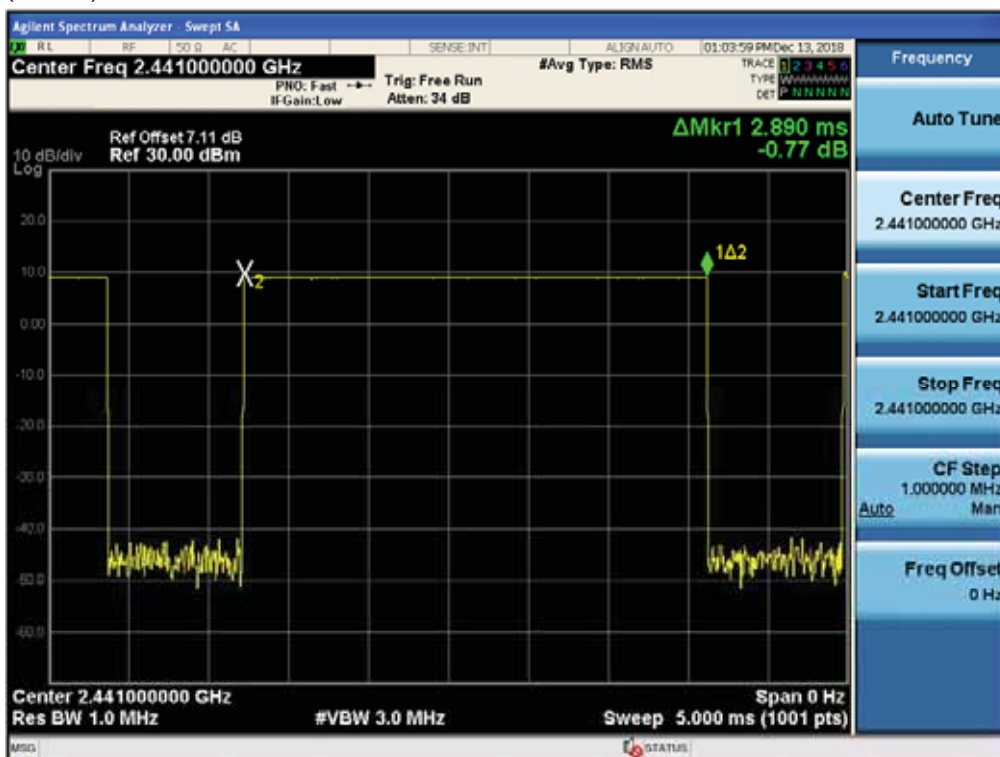
Test Plots (GFSK)

Dwell Time (CH.0)



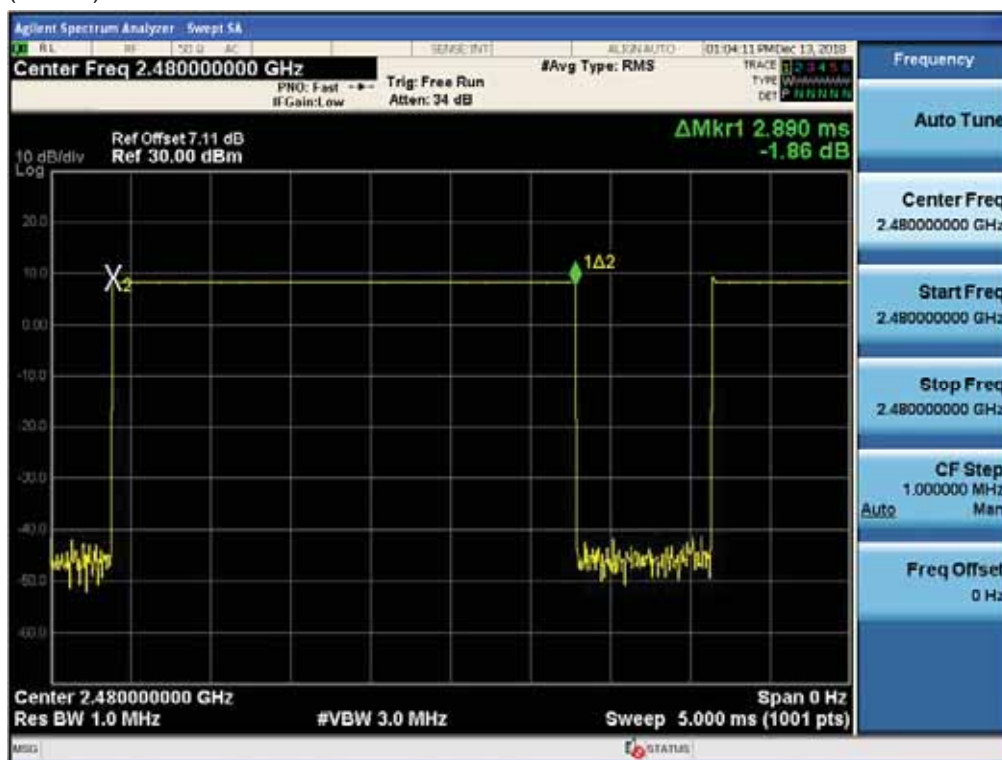
Test Plots (GFSK)

Dwell Time (CH.39)



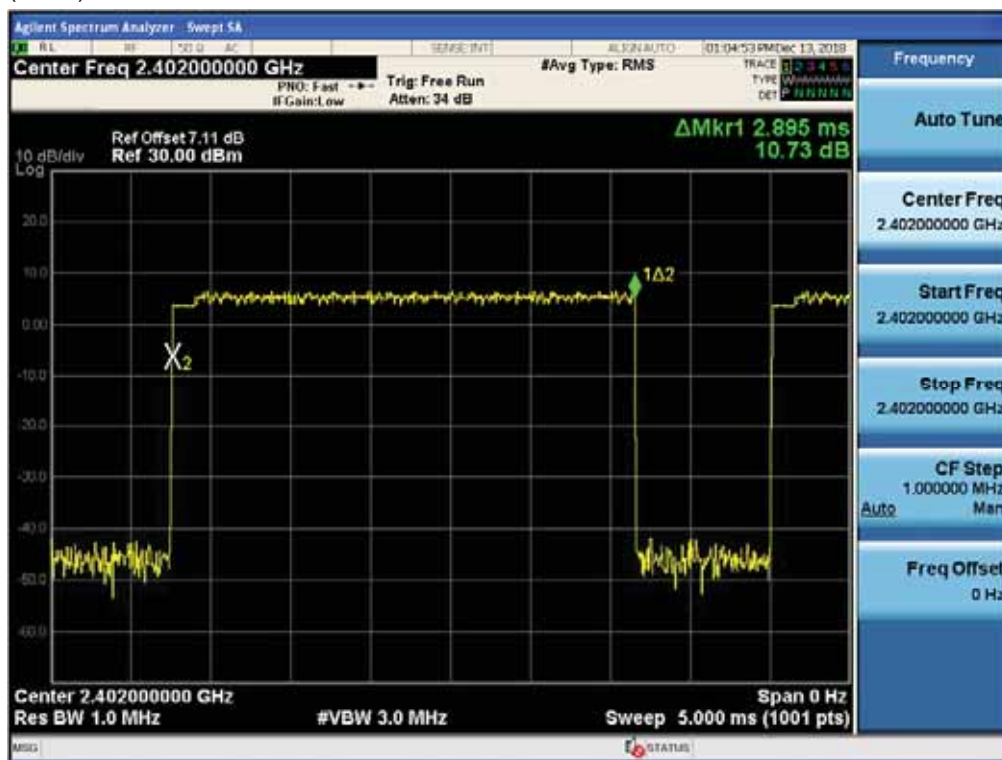
Test Plots (GFSK)

Dwell Time (CH.78)



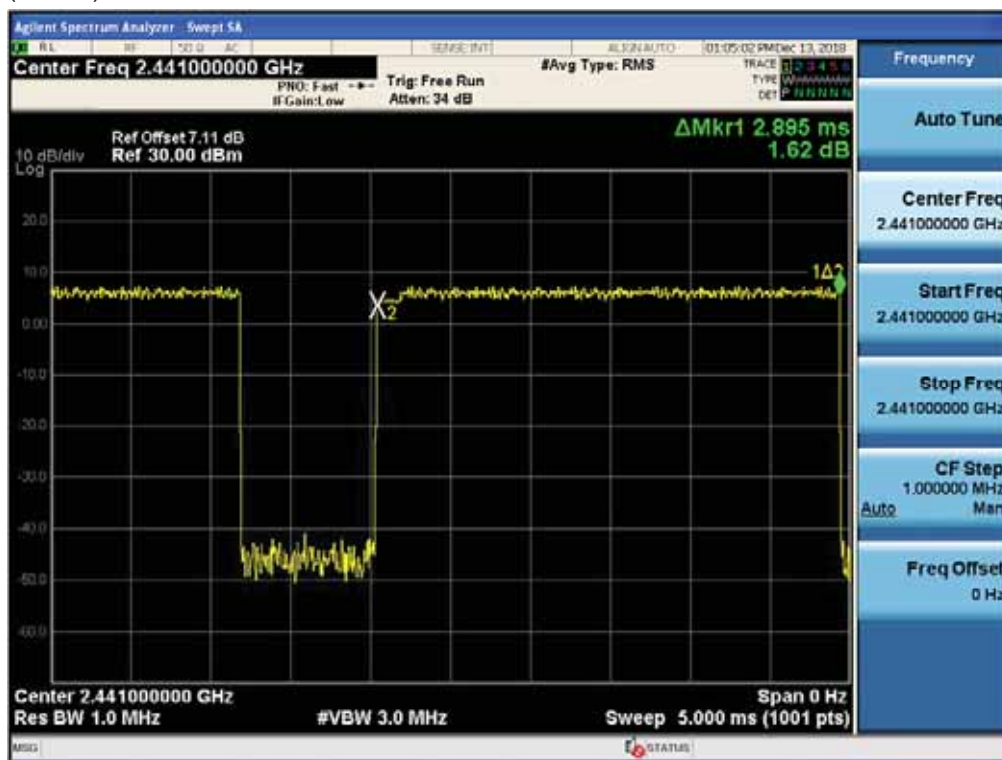
Test Plots (8DPSK)

Dwell Time (CH.0)



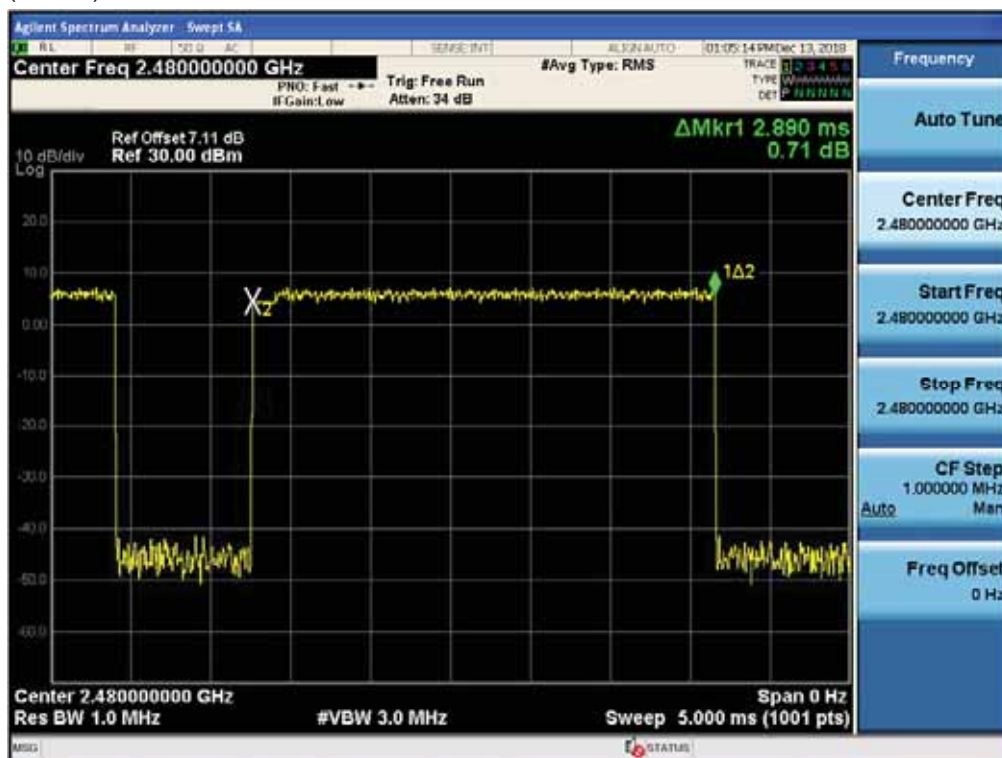
Test Plots (8DPSK)

Dwell Time (CH.39)



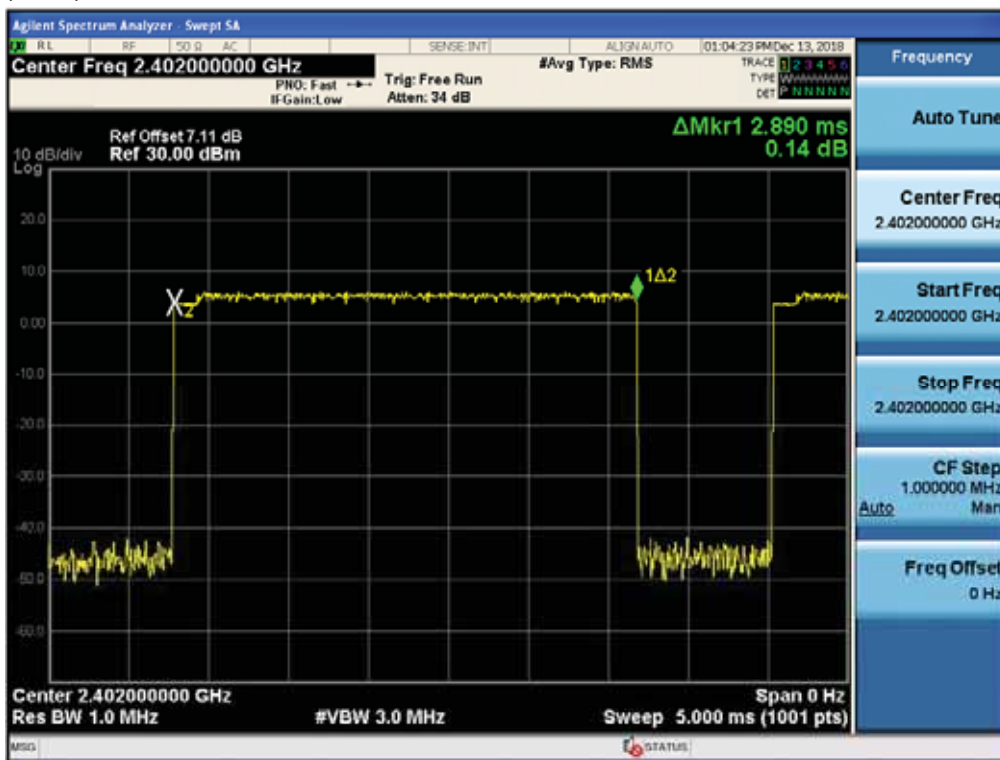
Test Plots (8DPSK)

Dwell Time (CH.78)



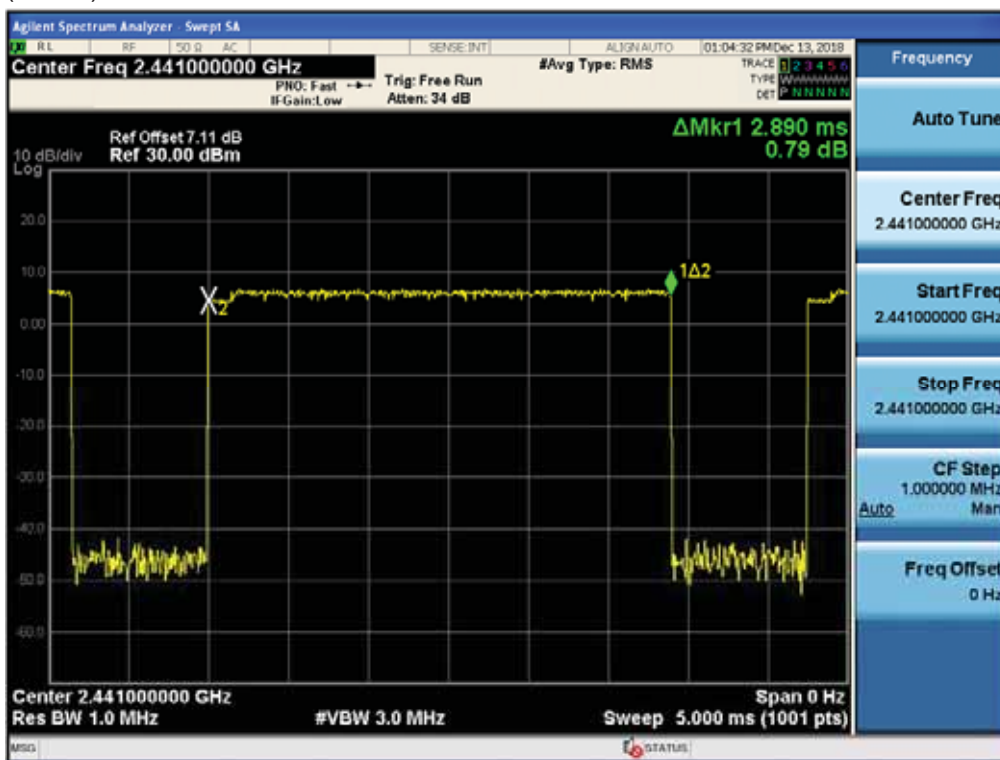
Test Plots ($\pi/4$ DQPSK)

Dwell Time (CH.0)



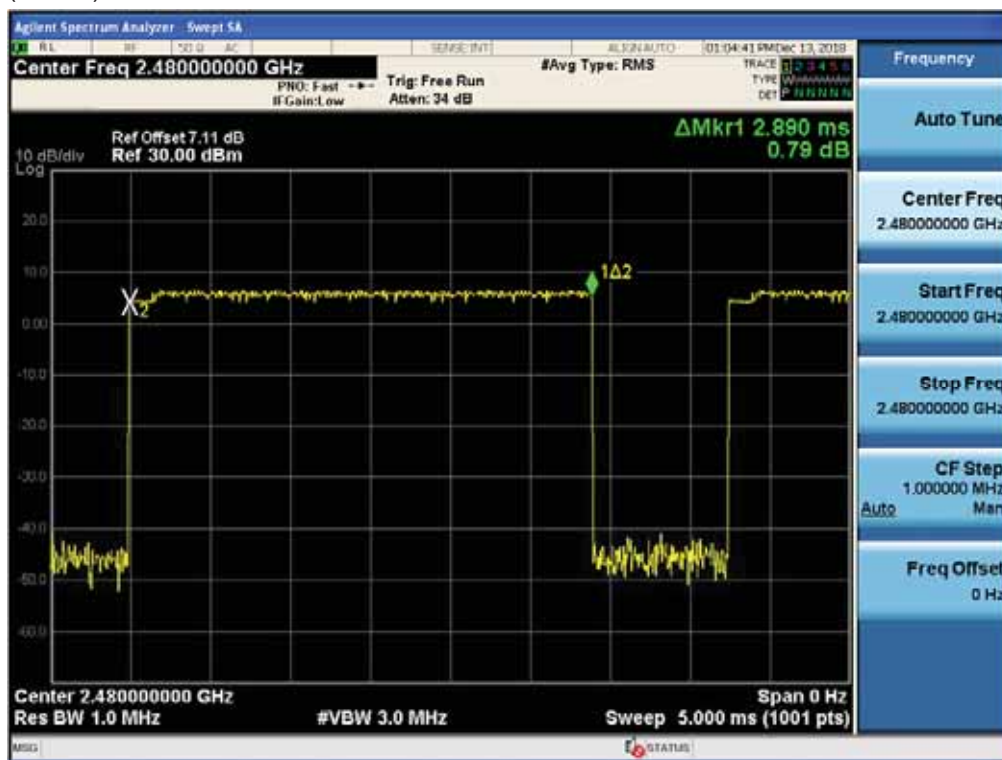
Test Plots ($\pi/4$ DQPSK)

Dwell Time (CH.39)



Test Plots ($\pi/4$ DQPSK)

Dwell Time (CH.78)



10.6 SPURIOUS EMISSIONS

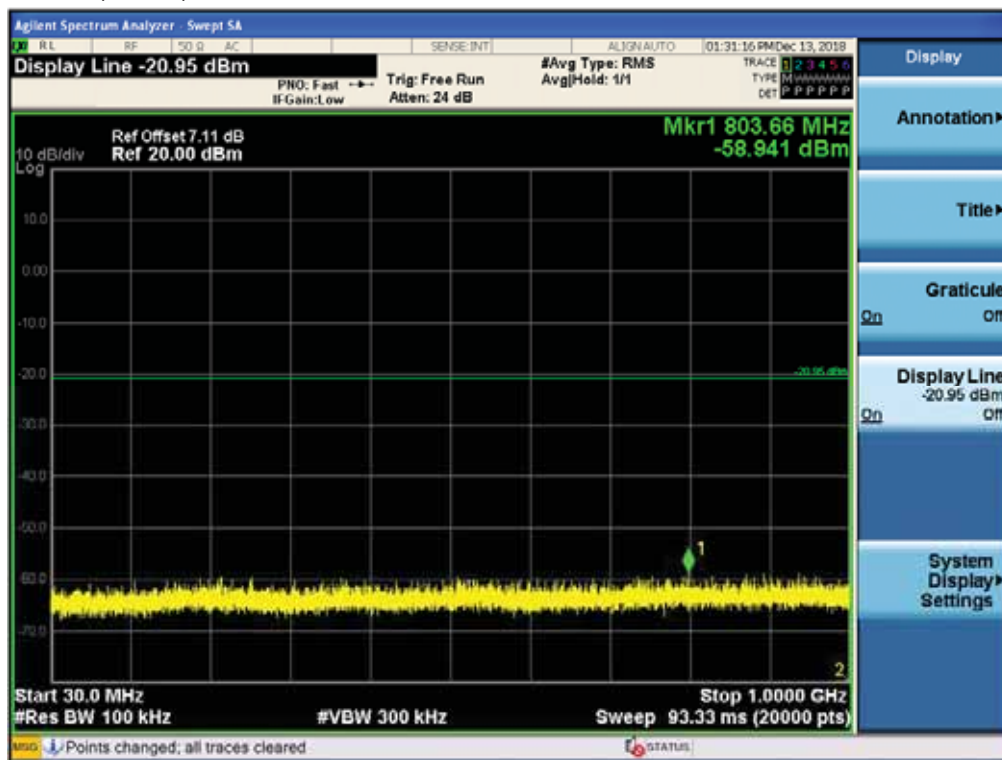
10.6.1 CONDUCTED SPURIOUS EMISSIONS

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.

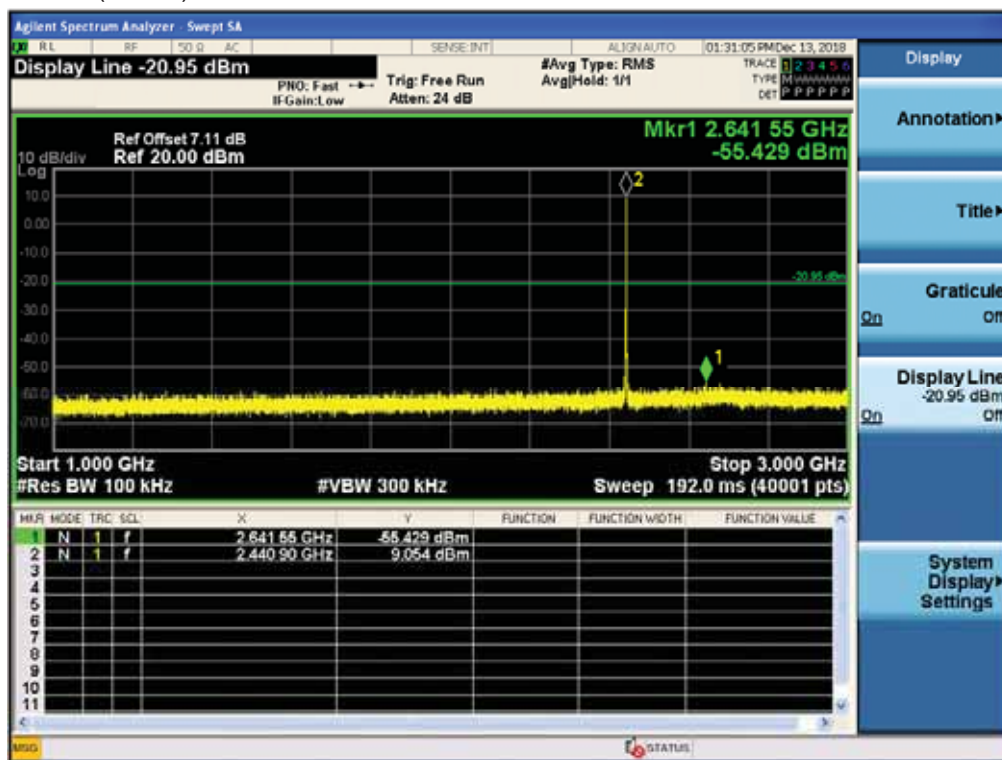
Test Plots (GFSK)- 30 MHz - 1 GHz

Spurious Emission (CH.39)



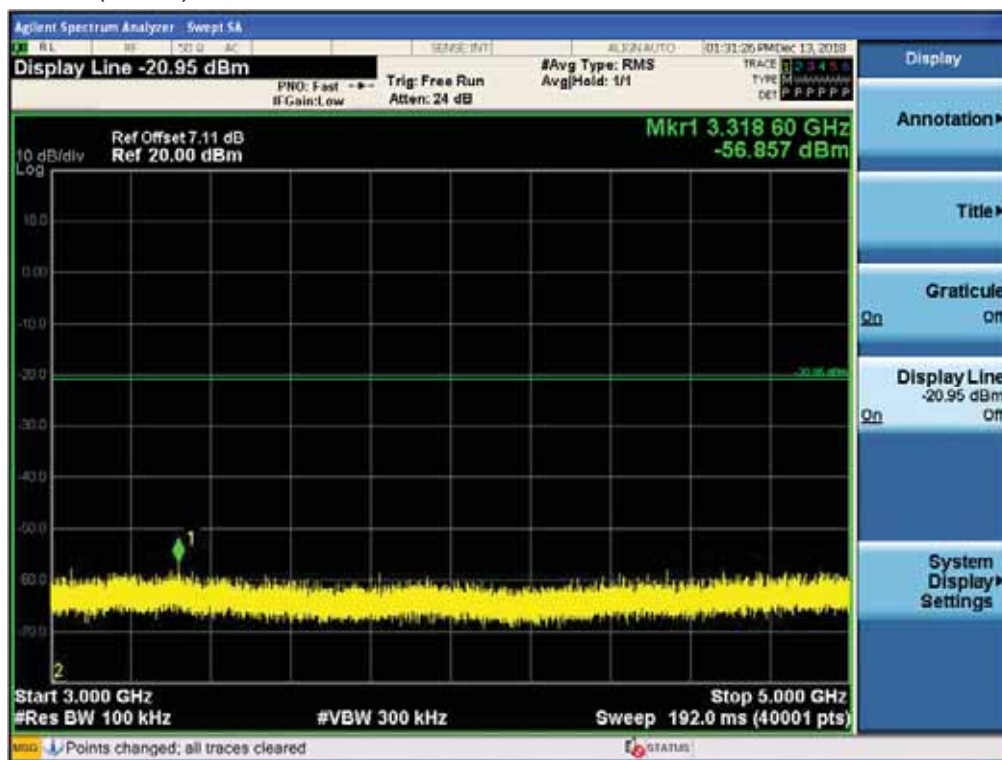
Test Plots (GFSK)- 1 GHz – 3 GHz

Spurious Emission (CH.39)



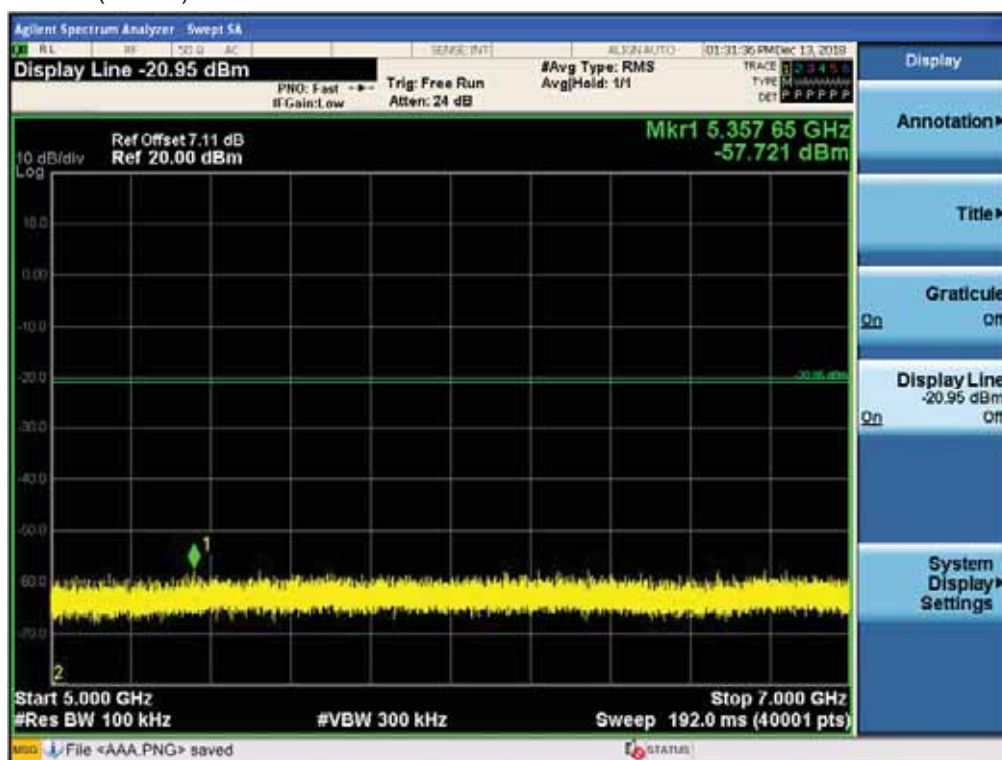
Test Plots(GFSK)- 3 GHz - 5 GHz

Spurious Emission (CH.39)



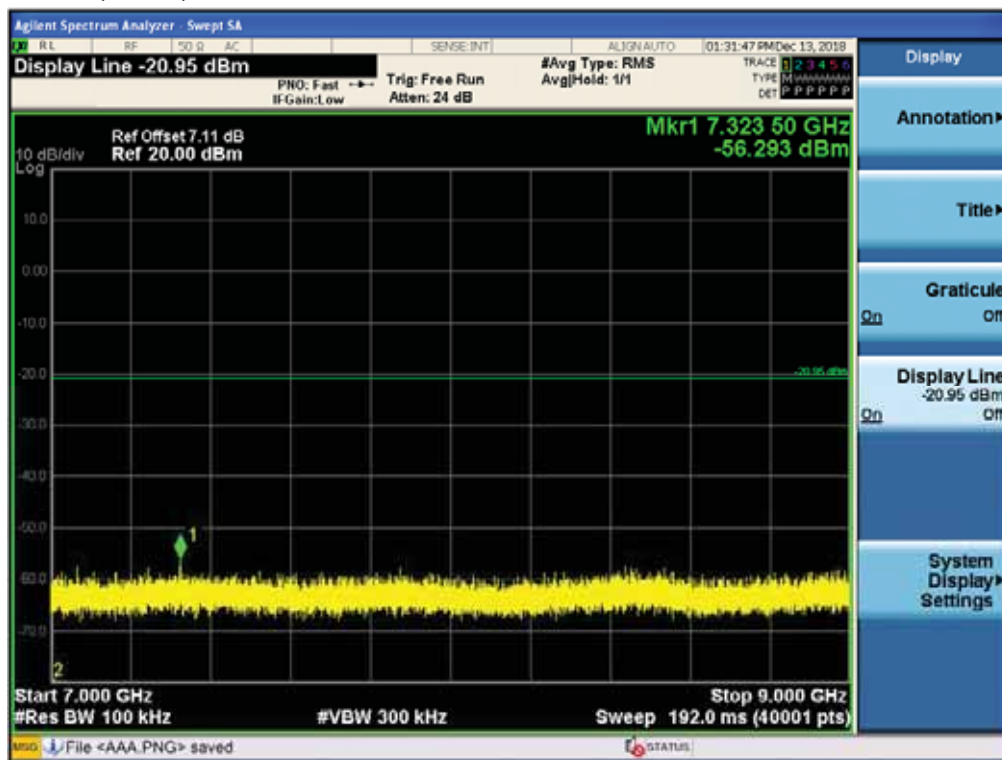
Test Plots (GFSK)- 5 GHz - 7 GHz

Spurious Emission (CH.39)



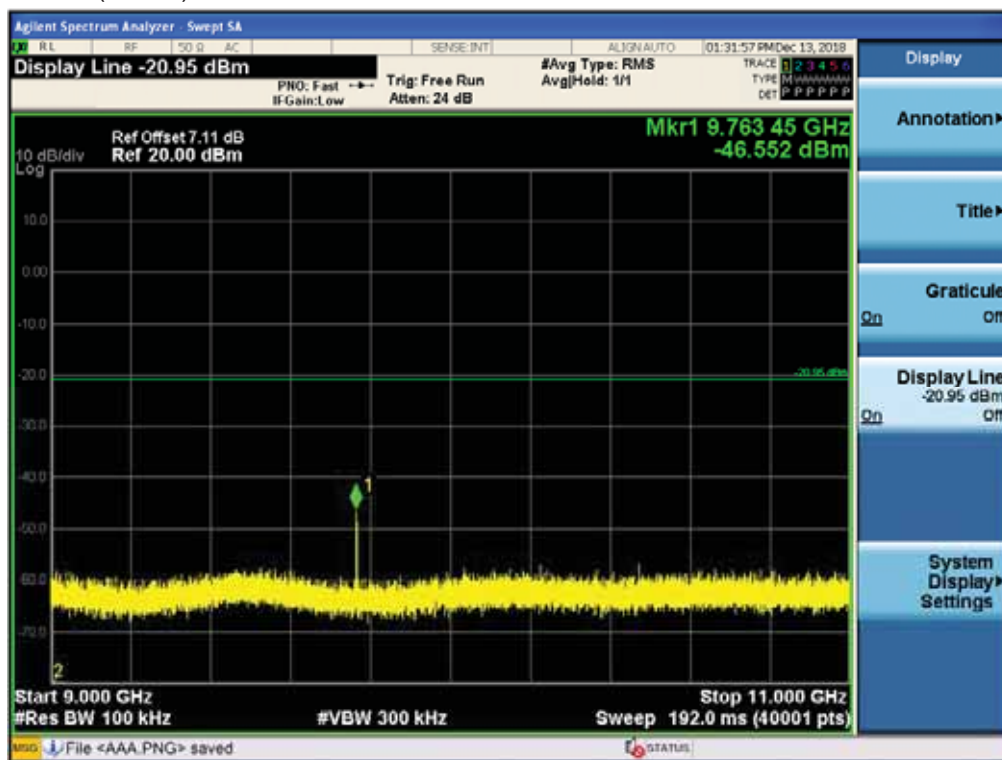
Test Plots(GFSK)- 7 GHz - 9 GHz

Spurious Emission (CH.39)



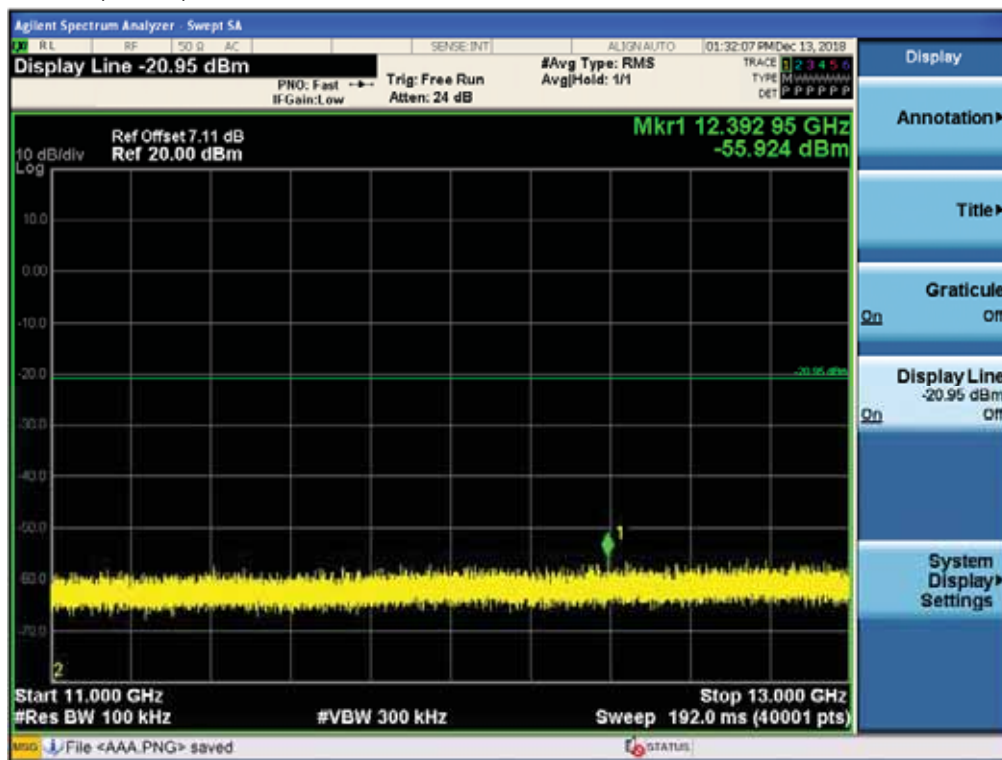
Test Plots(GFSK)- 9 GHz - 11 GHz

Spurious Emission (CH.39)



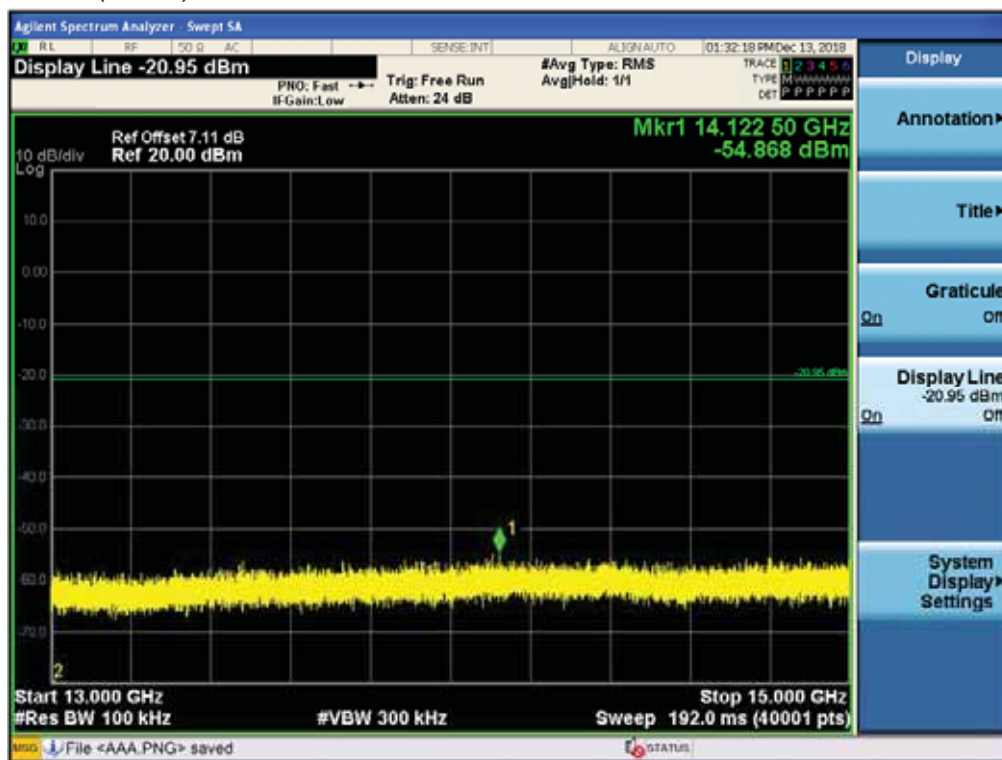
Test Plots(GFSK) 11 GHz - 13 GHz

Spurious Emission (CH.39)



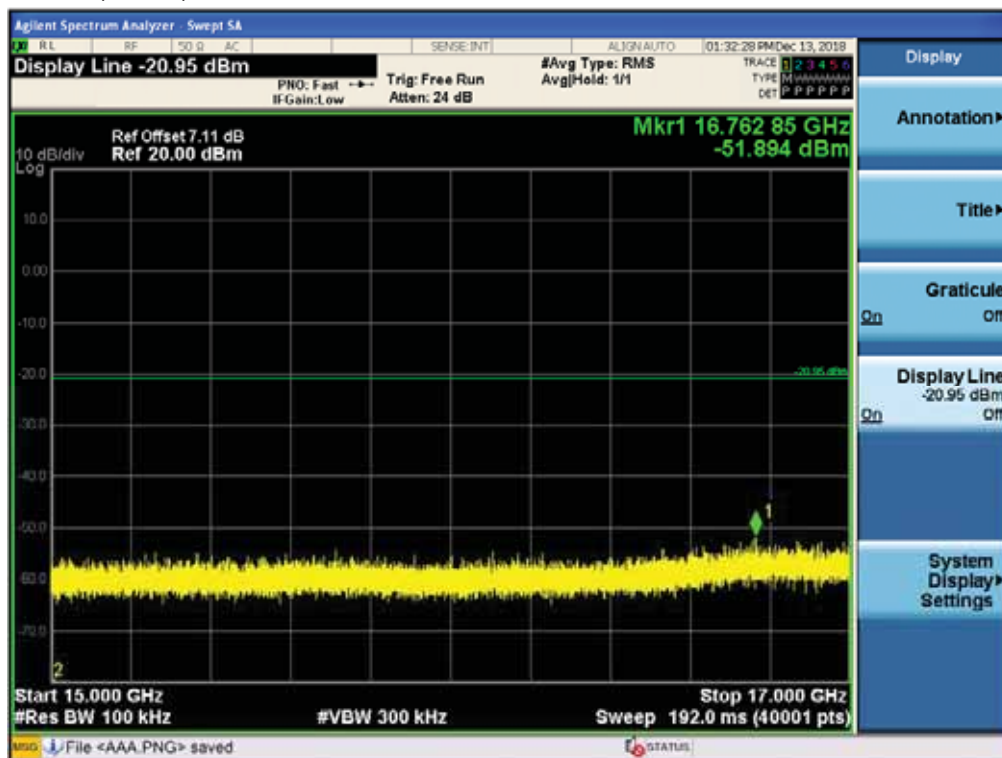
Test Plots (GFSK)- 13 GHz – 15 GHz

Spurious Emission (CH.39)



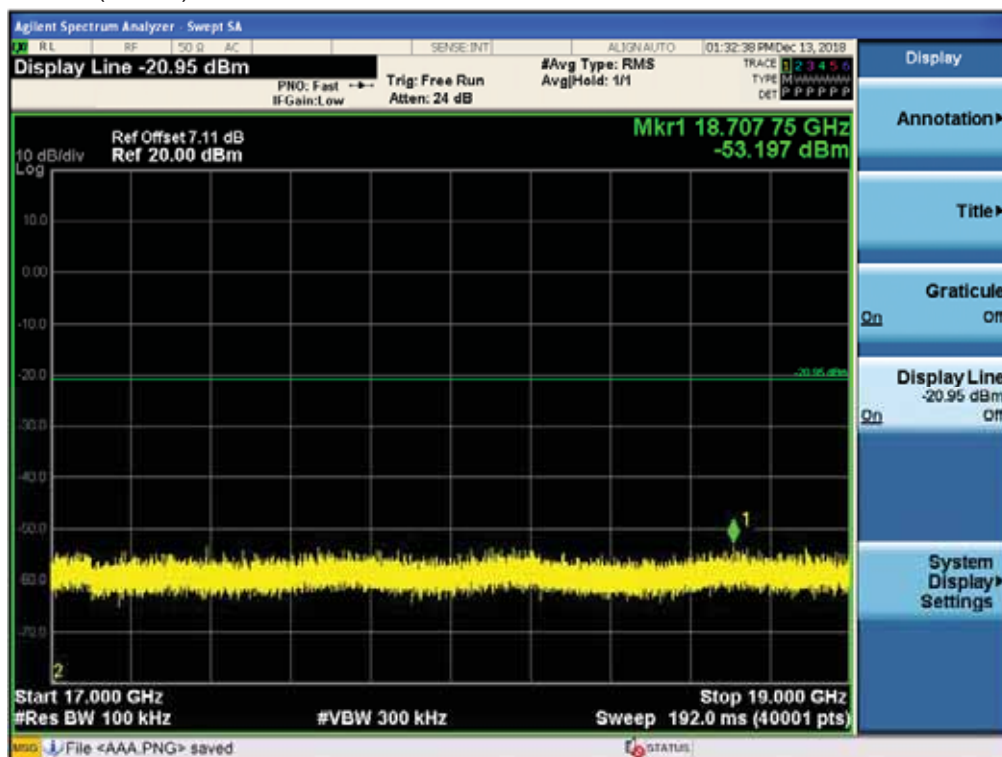
Test Plots(GFSK)- 15 GHz - 17 GHz

Spurious Emission (CH.39)



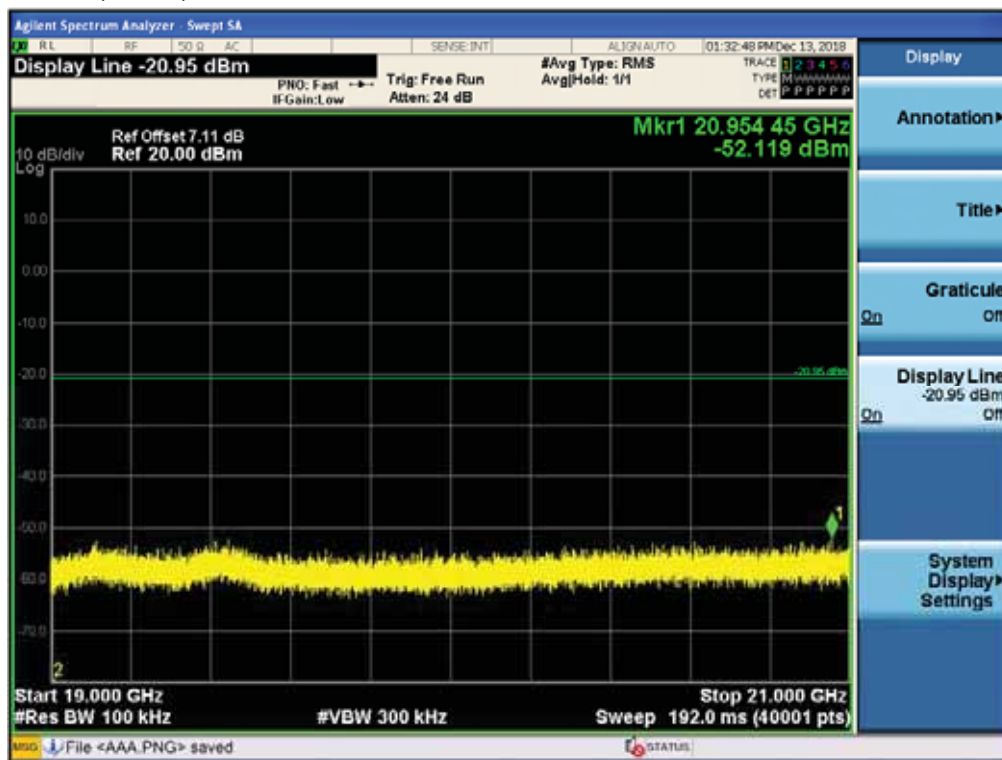
Test Plots(GFSK)- 17 GHz - 19 GHz

Spurious Emission (CH.39)



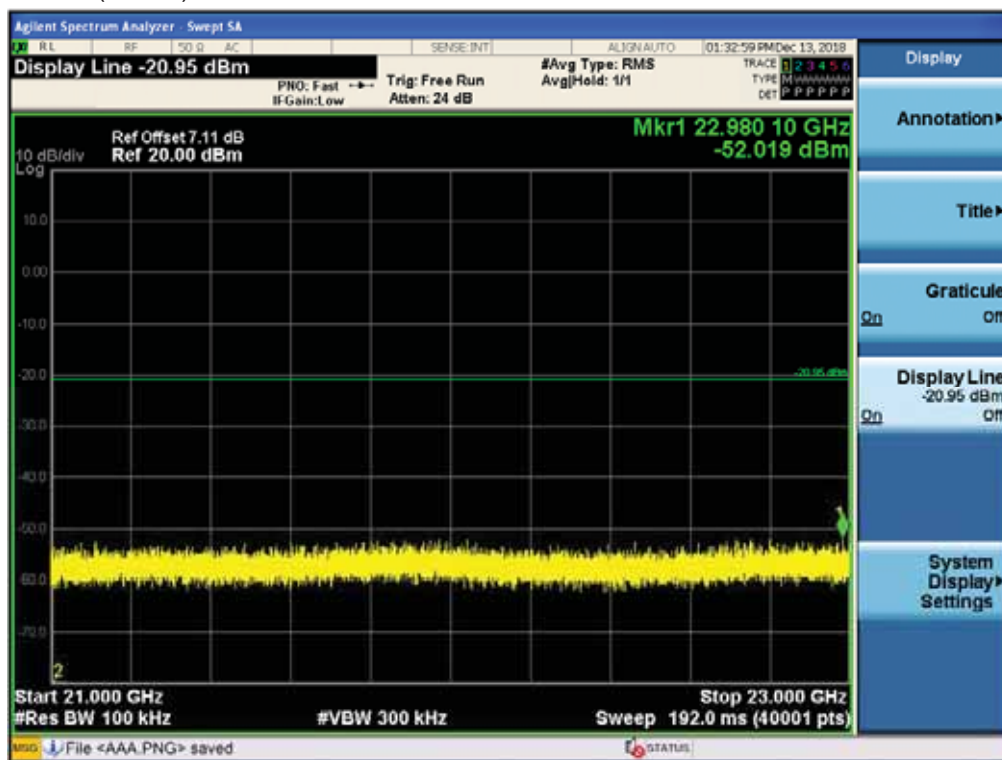
Test Plots (GFSK)- 19 GHz - 21 GHz

Spurious Emission (CH.39)



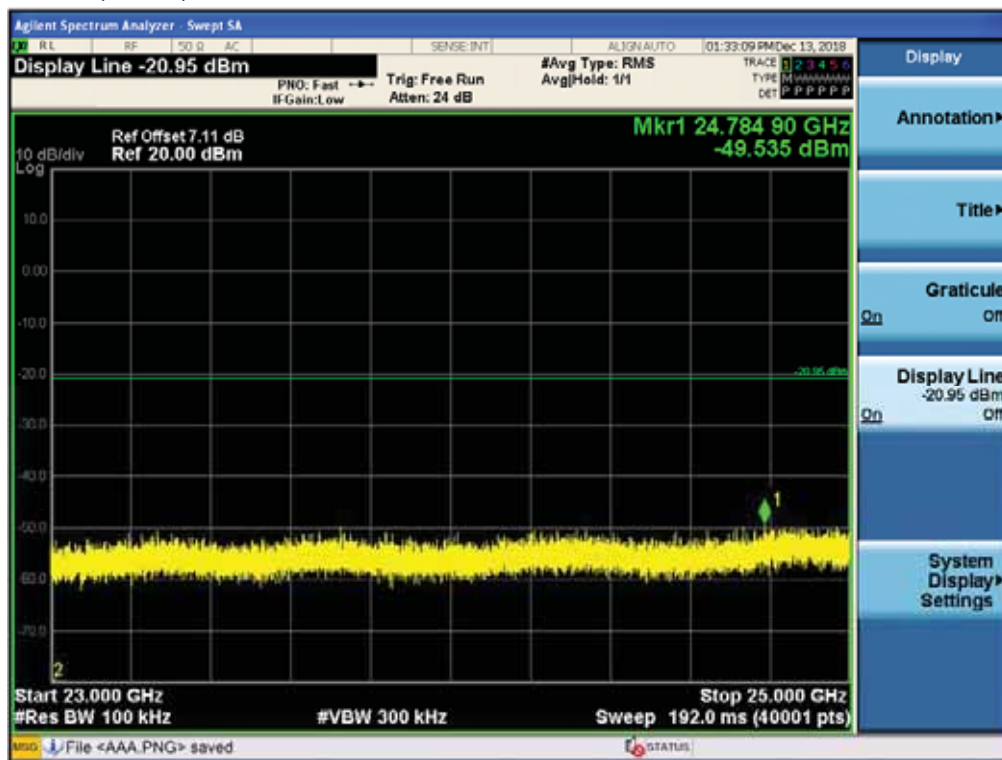
Test Plots (GFSK)- 21 GHz - 23 GHz

Spurious Emission (CH.39)



Test Plots (GFSK)- 23 GHz - 25 GHz

Spurious Emission (CH.39)



[NOTE]

The test limit is 20dBc. The limit line in the plot is 30 dBc. But it was not revised because it was worst.

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	52.58	1.83	V	54.41	73.98	19.57	PK
4804	41.55	1.83	V	43.38	53.98	10.60	AV
7206	47.52	9.65	V	57.17	73.98	16.81	PK
7206	35.26	9.65	V	44.91	53.98	9.07	AV
4804	52.15	1.83	H	53.98	73.98	20.00	PK
4804	42.26	1.83	H	44.09	53.98	9.89	AV
7206	48.67	9.65	H	58.32	73.98	15.66	PK
7206	36.24	9.65	H	45.89	53.98	8.09	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	50.61	1.83	V	52.44	73.98	21.54	PK
4804	37.09	1.83	V	38.92	53.98	15.06	AV
7206	49.20	9.65	V	58.85	73.98	15.13	PK
7206	36.08	9.65	V	45.73	53.98	8.25	AV
4804	51.55	1.83	H	53.38	73.98	20.60	PK
4804	38.04	1.83	H	39.87	53.98	14.11	AV
7206	49.75	9.65	H	59.4	73.98	14.58	PK
7206	36.13	9.65	H	45.78	53.98	8.20	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	50.51	1.83	V	52.34	73.98	21.64	PK
4804	37.99	1.83	V	39.82	53.98	14.16	AV
7206	48.20	9.65	V	57.85	73.98	16.13	PK
7206	36.11	9.65	V	45.76	53.98	8.22	AV
4804	51.32	1.83	H	53.15	73.98	20.83	PK
4804	38.26	1.83	H	40.09	53.98	13.89	AV
7206	49.87	9.65	H	59.52	73.98	14.46	PK
7206	36.17	9.65	H	45.82	53.98	8.16	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	51.74	2.31	V	54.05	73.98	19.93	PK
4882	38.74	2.31	V	41.05	53.98	12.93	AV
7323	49.06	9.96	V	59.02	73.98	14.96	PK
7323	35.99	9.96	V	45.95	53.98	8.03	AV
4882	52.11	2.31	H	54.42	73.98	19.56	PK
4882	39.51	2.31	H	41.82	53.98	12.16	AV
7323	50.56	9.96	H	60.52	73.98	13.46	PK
7323	36.33	9.96	H	46.29	53.98	7.69	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	49.83	2.31	V	52.14	73.98	21.84	PK
4882	36.42	2.31	V	38.73	53.98	15.25	AV
7323	49.42	9.96	V	59.38	73.98	14.60	PK
7323	35.64	9.96	V	45.6	53.98	8.38	AV
4882	50.68	2.31	H	52.99	73.98	20.99	PK
4882	37.36	2.31	H	39.67	53.98	14.31	AV
7323	50.24	9.96	H	60.2	73.98	13.78	PK
7323	36.06	9.96	H	46.02	53.98	7.96	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	50.68	2.31	V	52.99	73.98	20.99	PK
4882	37.21	2.31	V	39.52	53.98	14.46	AV
7323	49.60	9.96	V	59.56	73.98	14.42	PK
7323	35.99	9.96	V	45.95	53.98	8.03	AV
4882	50.75	2.31	H	53.06	73.98	20.92	PK
4882	37.32	2.31	H	39.63	53.98	14.35	AV
7323	50.37	9.96	H	60.33	73.98	13.65	PK
7323	36.17	9.96	H	46.13	53.98	7.85	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	48.25	2.26	V	50.51	73.98	23.47	PK
4960	36.44	2.26	V	38.70	53.98	15.28	AV
7440	48.59	9.78	V	58.37	73.98	15.61	PK
7440	35.25	9.78	V	45.03	53.98	8.95	AV
4960	50.84	2.26	H	53.1	73.98	20.88	PK
4960	37.80	2.26	H	40.06	53.98	13.92	AV
7440	49.81	9.78	H	59.59	73.98	14.39	PK
7440	35.67	9.78	H	45.45	53.98	8.53	AV

Operation Mode: CH High(8DPSK)

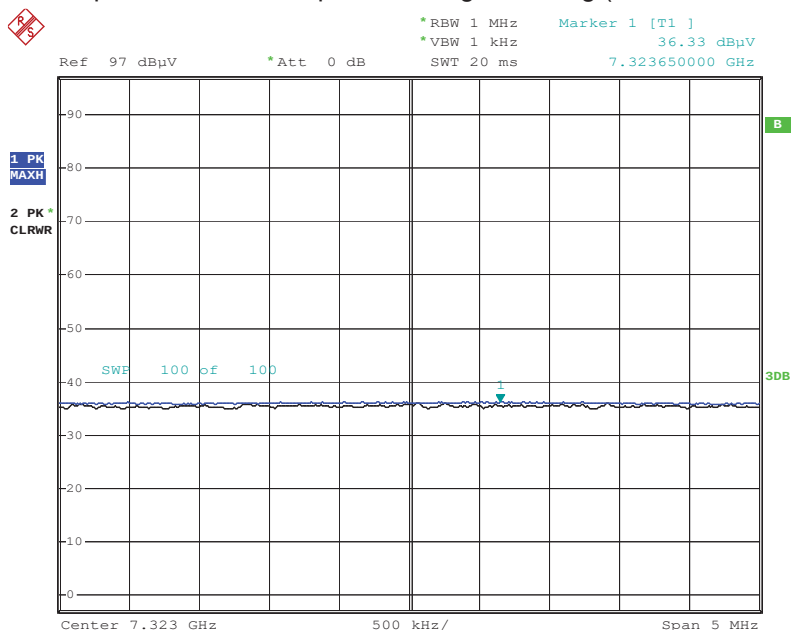
Frequency [MHz]	Reading [dBuV]	A.F + C.L - A.G + D.F [dB]	Pol. [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4960	49.24	2.26	V	51.50	73.98	22.48	PK
4960	36.90	2.26	V	39.16	53.98	14.82	AV
7440	48.18	9.78	V	57.96	73.98	16.02	PK
7440	34.88	9.78	V	44.66	53.98	9.32	AV
4960	50.43	2.26	H	52.69	73.98	21.29	PK
4960	37.04	2.26	H	39.3	53.98	14.68	AV
7440	49.09	9.78	H	58.87	73.98	15.11	PK
7440	35.73	9.78	H	45.51	53.98	8.47	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	49.87	2.26	V	52.13	73.98	21.85	PK
4960	36.94	2.26	V	39.20	53.98	14.78	AV
7440	49.05	9.78	V	58.83	73.98	15.15	PK
7440	34.78	9.78	V	44.56	53.98	9.42	AV
4960	50.39	2.26	H	52.65	73.98	21.33	PK
4960	37.08	2.26	H	39.34	53.98	14.64	AV
7440	49.52	9.78	H	59.3	73.98	14.68	PK
7440	35.56	9.78	H	45.34	53.98	8.64	AV

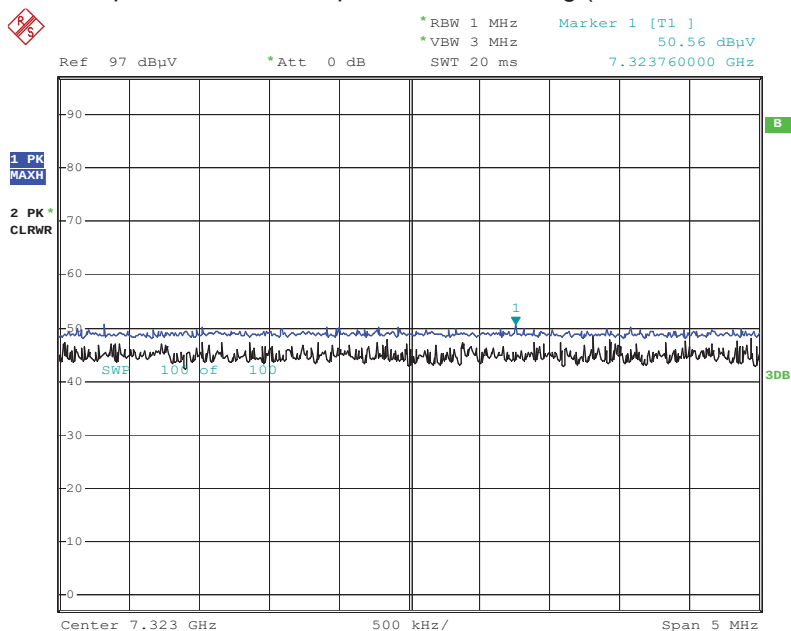
RESULT PLOTS (Worst case : Y-H)

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



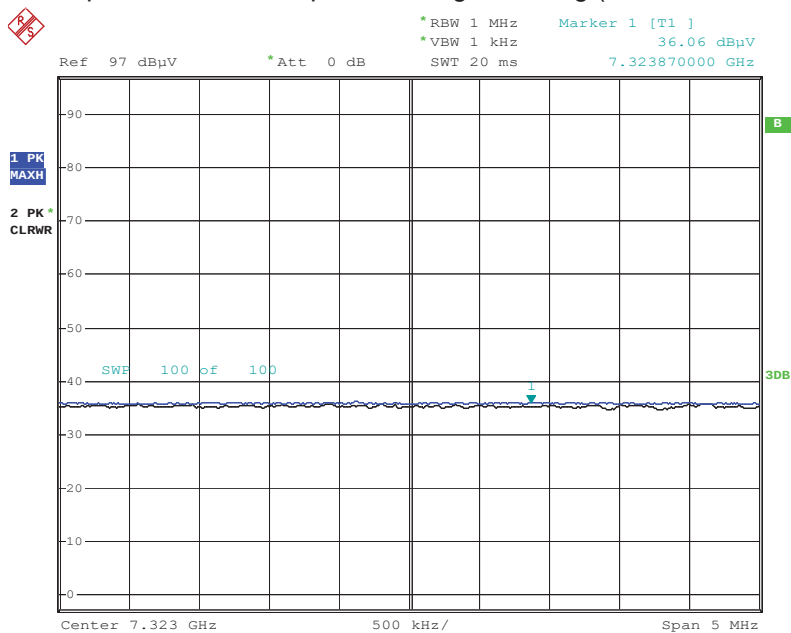
Date: 6.FEB.2003 20:52:57

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



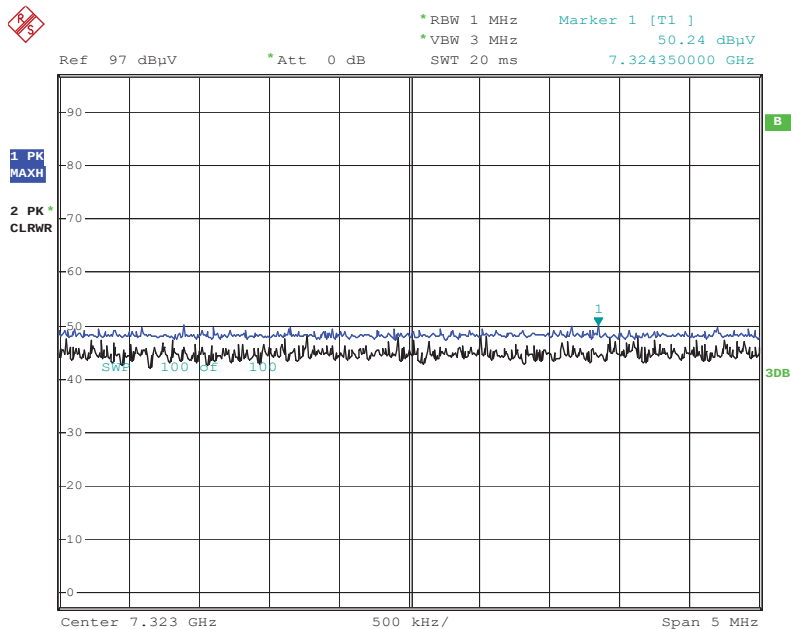
Date: 6.FEB.2003 20:52:19

Radiated Spurious Emissions plot – Average Reading (8DPSK, Ch.39 3rd Harmonic)



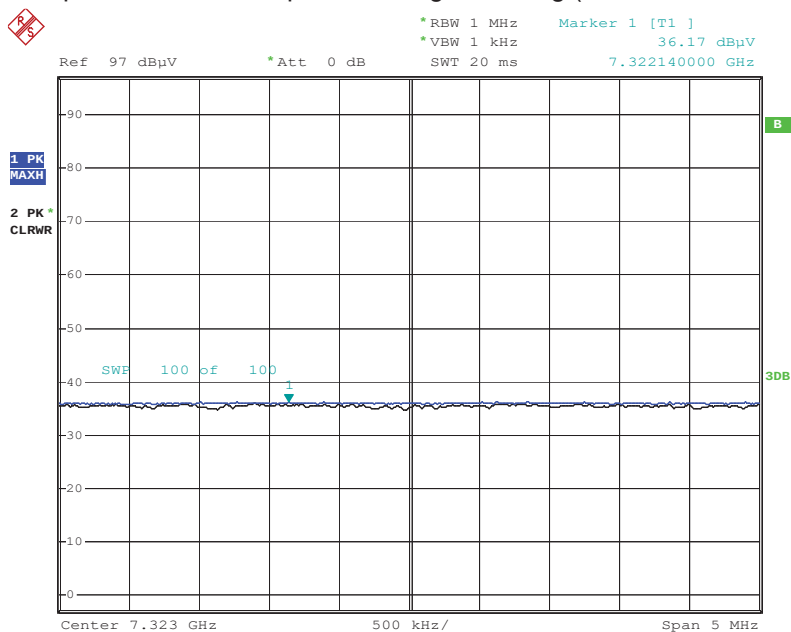
Date: 6.FEB.2003 20:55:25

Radiated Spurious Emissions plot – Peak Reading (8DPSK, Ch.39 3rd Harmonic)



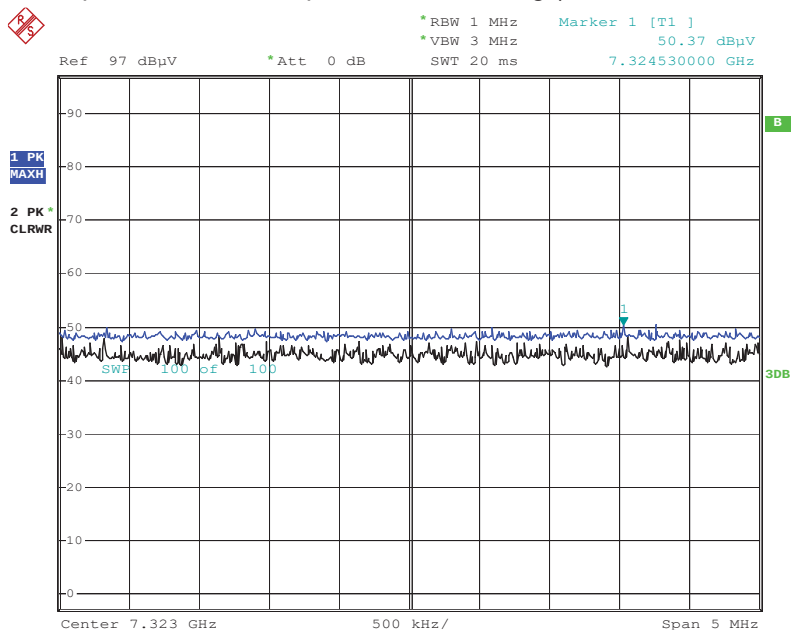
Date: 6.FEB.2003 20:55:04

Radiated Spurious Emissions plot – Average Reading ($\pi/4$ DQPSK, Ch.39 3rd Harmonic)



Date: 6.FEB.2003 20:53:29

Radiated Spurious Emissions plot – Peak Reading ($\pi/4$ DQPSK, Ch.39 3rd Harmonic)



Date: 6.FEB.2003 20:54:05

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]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	21.78	35.09	H	56.87	73.98	17.11	PK
2390.0	11.22	35.09	H	46.31	53.98	7.67	AV
2390.0	21.47	35.09	V	56.56	73.98	17.42	PK
2390.0	11.02	35.09	V	46.11	53.98	7.87	AV
2483.5	28.21	35.11	H	63.32	73.98	10.66	PK
2483.5	13.39	35.11	H	48.50	53.98	5.49	AV
2483.5	27.65	35.11	V	62.76	73.98	11.22	PK
2483.5	13.25	35.11	V	48.36	53.98	5.63	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]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	22.36	35.09	H	57.45	73.98	16.53	PK
2390.0	11.24	35.09	H	46.33	53.98	7.65	AV
2390.0	21.42	35.09	V	56.51	73.98	17.47	PK
2390.0	10.57	35.09	V	45.66	53.98	8.32	AV
2483.5	28.14	35.11	H	63.25	73.98	10.73	PK
2483.5	13.39	35.11	H	48.50	53.98	5.48	AV
2483.5	26.84	35.11	V	61.95	73.98	12.03	PK
2483.5	13.12	35.11	V	48.23	53.98	5.75	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]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	21.56	35.09	H	56.65	73.98	17.33	PK
2390.0	11.05	35.09	H	46.14	53.98	7.84	AV
2390.0	20.85	35.09	V	55.94	73.98	18.04	PK
2390.0	10.85	35.09	V	45.94	53.98	8.04	AV
2483.5	28.46	35.11	H	63.57	73.98	10.42	PK
2483.5	13.40	35.11	H	48.51	53.98	5.47	AV
2483.5	28.13	35.11	V	63.24	73.98	10.75	PK
2483.5	12.74	35.11	V	47.85	53.98	6.13	AV

RESULT PLOTS (Worst case : Z-V)

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



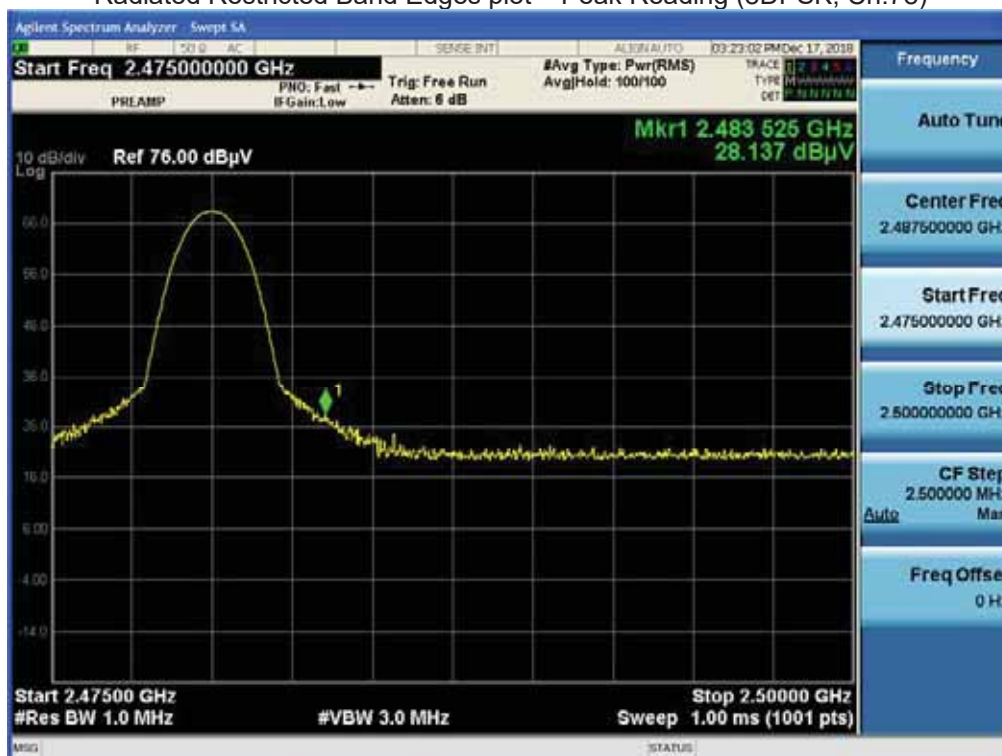
Radiated Restricted Band Edges plot – Peak Reading (GFSK, Ch.78)



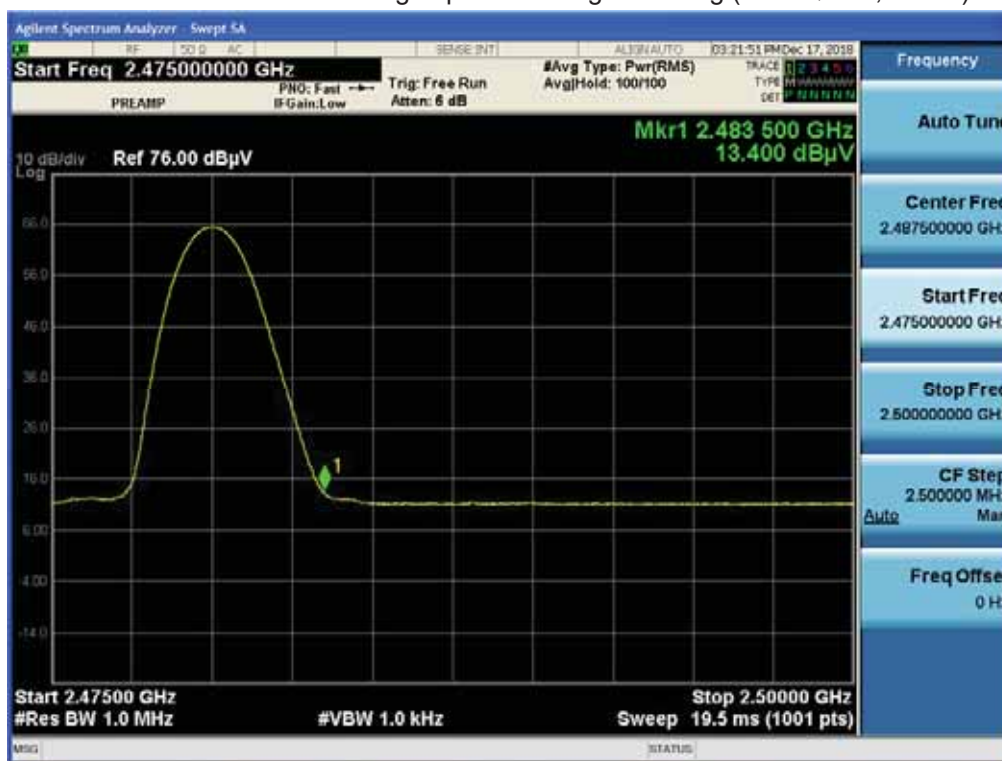
Radiated Restricted Band Edges plot – Average Reading (8DPSK, Ch.78)



Radiated Restricted Band Edges plot – Peak Reading (8DPSK, Ch.78)



Radiated Restricted Band Edges plot – Average Reading ($\pi/4$ DQPSK, Ch.78)



Radiated Restricted Band Edges plot – Peak Reading ($\pi/4$ DQPSK, Ch.78)



Note:

Plot of worst case are only reported.

10.7 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

BT_L1

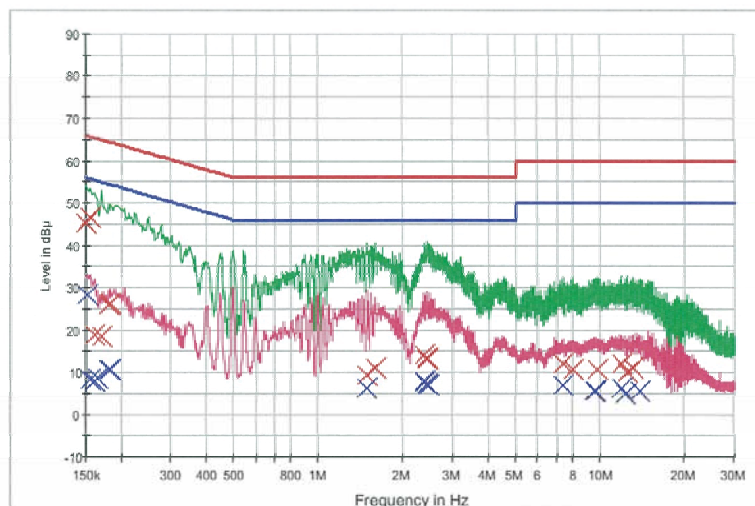
1 / 2

HCT TEST Report

Common Information

EUT: SM-M105FDS
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: BT_L1

FCC CLASS B_Exten Cable



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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.150000	45.2	9.000	Off	L1	9.7	20.8	66.0
0.156000	46.5	9.000	Off	L1	9.7	19.2	65.7
0.160000	18.7	9.000	Off	L1	9.7	46.7	65.5
0.170000	18.5	9.000	Off	L1	9.7	46.5	65.0
0.180000	25.8	9.000	Off	L1	9.7	38.7	64.5
0.184000	26.4	9.000	Off	L1	9.7	37.9	64.3
1.490000	9.4	9.000	Off	L1	9.9	46.6	56.0
1.586000	11.0	9.000	Off	L1	9.9	45.0	56.0
2.380000	14.1	9.000	Off	L1	9.9	41.9	56.0
2.384000	14.0	9.000	Off	L1	9.9	42.0	56.0
2.430000	13.4	9.000	Off	L1	9.9	42.6	56.0
2.434000	13.2	9.000	Off	L1	9.9	42.8	56.0
7.330000	12.0	9.000	Off	L1	10.1	48.0	60.0
8.000000	10.6	9.000	Off	L1	10.1	49.4	60.0
9.704000	10.6	9.000	Off	L1	10.2	49.4	60.0
11.856000	12.0	9.000	Off	L1	10.2	48.0	60.0
12.532000	10.0	9.000	Off	L1	10.2	50.0	60.0
13.014000	11.1	9.000	Off	L1	10.2	48.9	60.0

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BT_L1

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Final Result 2

Frequency (MHz)	CAverage (dBμV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.152000	28.2	9.000	Off	L1	9.7	27.7	55.9
0.156000	8.3	9.000	Off	L1	9.7	47.3	55.7
0.160000	8.1	9.000	Off	L1	9.7	47.4	55.5
0.164000	8.6	9.000	Off	L1	9.7	46.7	55.3
0.180000	10.6	9.000	Off	L1	9.7	43.9	54.5
0.184000	10.7	9.000	Off	L1	9.7	43.6	54.3
1.490000	6.2	9.000	Off	L1	9.9	39.8	46.0
2.380000	7.8	9.000	Off	L1	9.9	38.2	46.0
2.384000	7.8	9.000	Off	L1	9.9	38.2	46.0
2.430000	7.4	9.000	Off	L1	9.9	38.6	46.0
2.434000	7.3	9.000	Off	L1	9.9	38.7	46.0
2.458000	7.1	9.000	Off	L1	9.9	38.9	46.0
7.330000	7.0	9.000	Off	L1	10.1	43.0	50.0
9.508000	5.6	9.000	Off	L1	10.2	44.4	50.0
9.682000	5.7	9.000	Off	L1	10.2	44.3	50.0
11.856000	6.4	9.000	Off	L1	10.2	43.6	50.0
12.304000	5.0	9.000	Off	L1	10.2	45.0	50.0
13.816000	5.7	9.000	Off	L1	10.2	44.3	50.0

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Conducted Emissions (Line 2)

BT_N

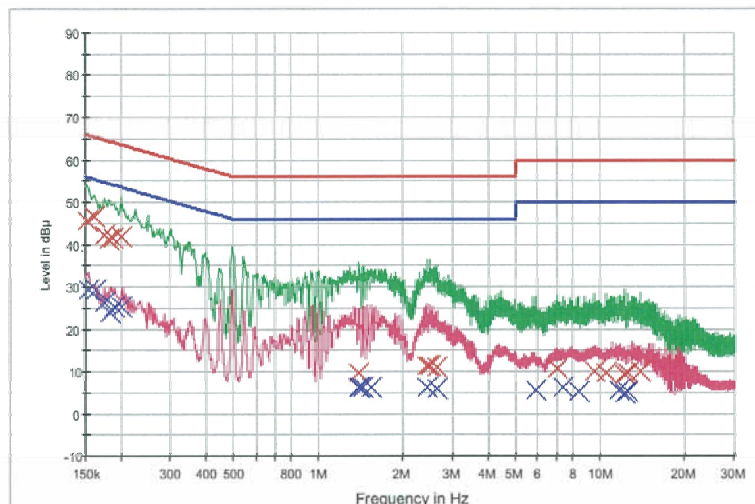
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HCT TEST Report

Common Information

EUT: SM-M105FDS
Manufacturer: SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions: BT_N

FCC CLASS B_Exten Cable



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

Final Result 1

Frequency (MHz)	QuasiPeak (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.152000	45.6	9.000	Off	N	9.7	20.3	65.9
0.160000	46.5	9.000	Off	N	9.7	19.0	65.5
0.174000	42.1	9.000	Off	N	9.7	22.7	64.8
0.180000	41.2	9.000	Off	N	9.7	23.3	64.5
0.188000	41.5	9.000	Off	N	9.7	22.7	64.1
0.200000	41.8	9.000	Off	N	9.7	21.8	63.6
1.392000	9.8	9.000	Off	N	9.9	46.2	56.0
2.430000	11.5	9.000	Off	N	9.9	44.5	56.0
2.438000	11.2	9.000	Off	N	9.9	44.8	56.0
2.478000	11.2	9.000	Off	N	9.9	44.8	56.0
2.482000	11.3	9.000	Off	N	9.9	44.7	56.0
2.622000	10.9	9.000	Off	N	9.9	45.1	56.0
7.046000	10.6	9.000	Off	N	10.1	49.4	60.0
9.528000	10.1	9.000	Off	N	10.2	49.9	60.0
10.434000	9.6	9.000	Off	N	10.3	50.4	60.0
12.208000	9.4	9.000	Off	N	10.4	50.6	60.0
12.528000	9.6	9.000	Off	N	10.4	50.4	60.0
13.356000	9.9	9.000	Off	N	10.4	50.1	60.0

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BT_N

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Final Result 2

Frequency (MHz)	CAverage (dBuV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBuV)
0.154000	29.5	9.000	Off	N	9.7	26.3	55.8
0.162000	29.2	9.000	Off	N	9.7	26.2	55.4
0.174000	26.1	9.000	Off	N	9.7	28.6	54.8
0.182000	23.9	9.000	Off	N	9.7	30.5	54.4
0.190000	25.2	9.000	Off	N	9.7	28.8	54.0
0.200000	25.2	9.000	Off	N	9.7	28.4	53.6
1.392000	6.3	9.000	Off	N	9.9	39.7	46.0
1.396000	6.3	9.000	Off	N	9.9	39.7	46.0
1.440000	6.3	9.000	Off	N	9.9	39.7	46.0
1.546000	6.3	9.000	Off	N	9.9	39.7	46.0
2.432000	6.4	9.000	Off	N	9.9	39.6	46.0
2.620000	6.0	9.000	Off	N	9.9	40.0	46.0
5.914000	5.6	9.000	Off	N	10.1	44.4	50.0
7.346000	6.4	9.000	Off	N	10.2	43.6	50.0
8.342000	5.4	9.000	Off	N	10.2	44.6	50.0
11.626000	5.6	9.000	Off	N	10.3	44.4	50.0
12.208000	4.9	9.000	Off	N	10.4	45.1	50.0
12.528000	5.2	9.000	Off	N	10.4	44.8	50.0

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