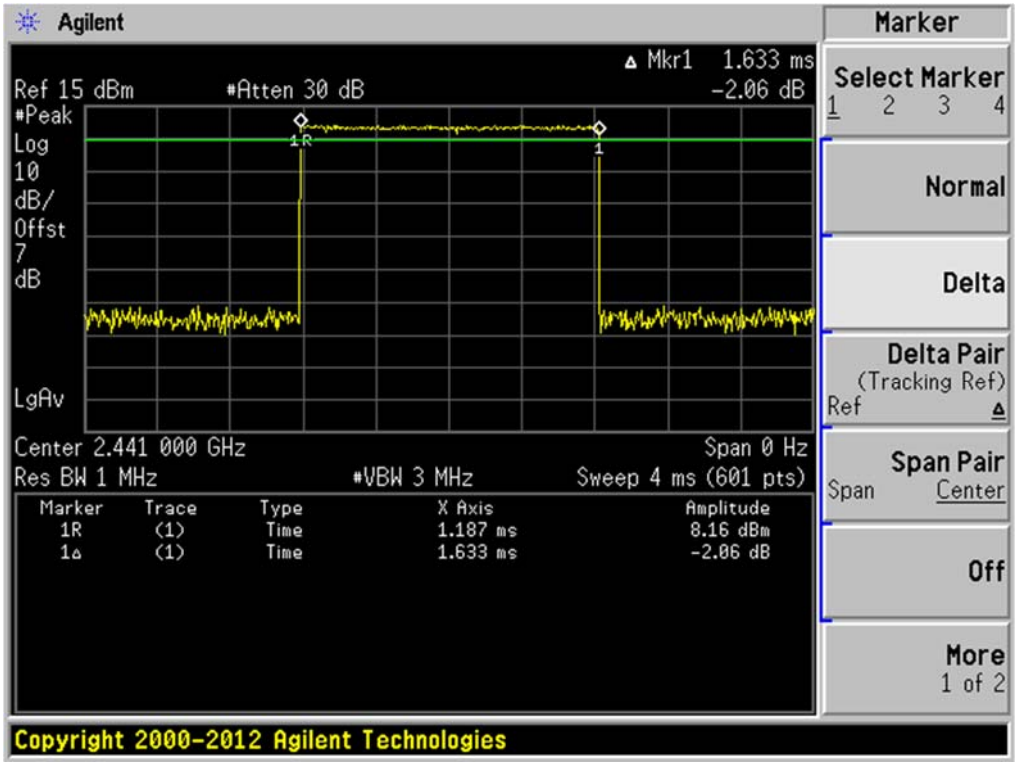
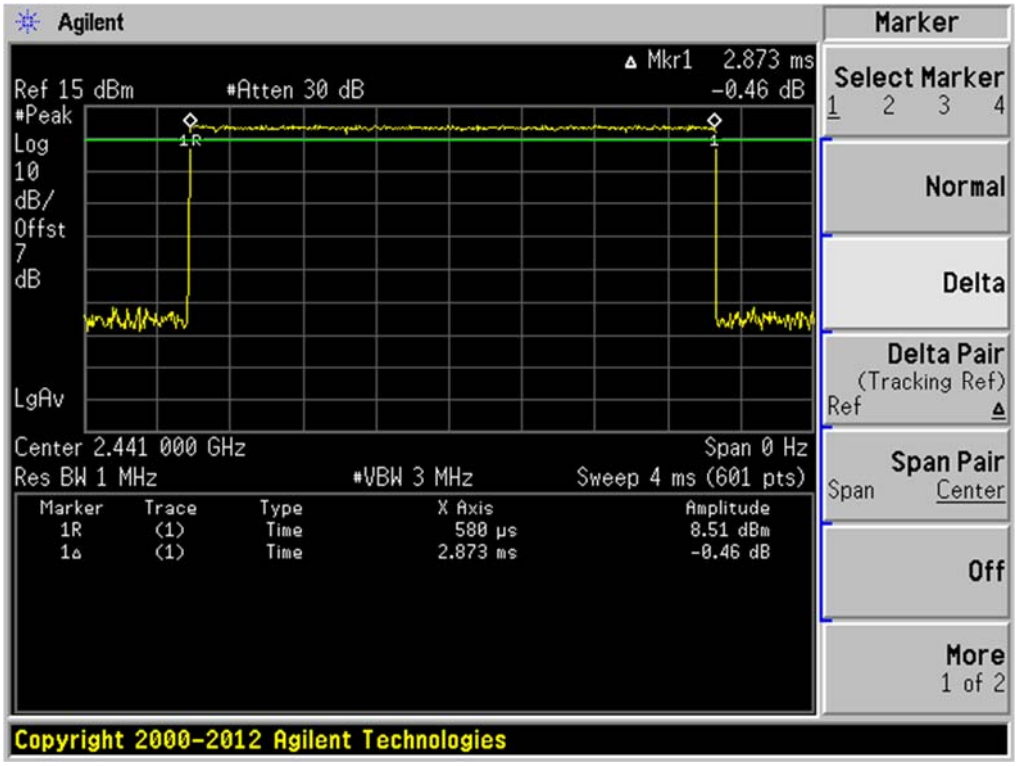
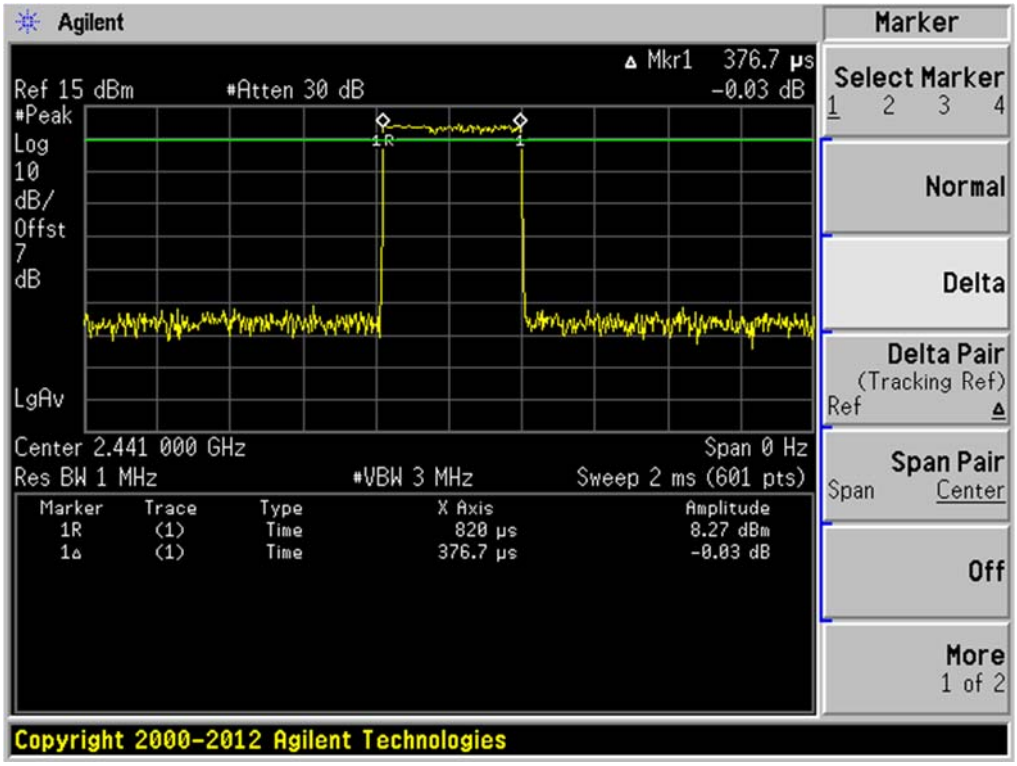
Π/4-DQPSK DH3



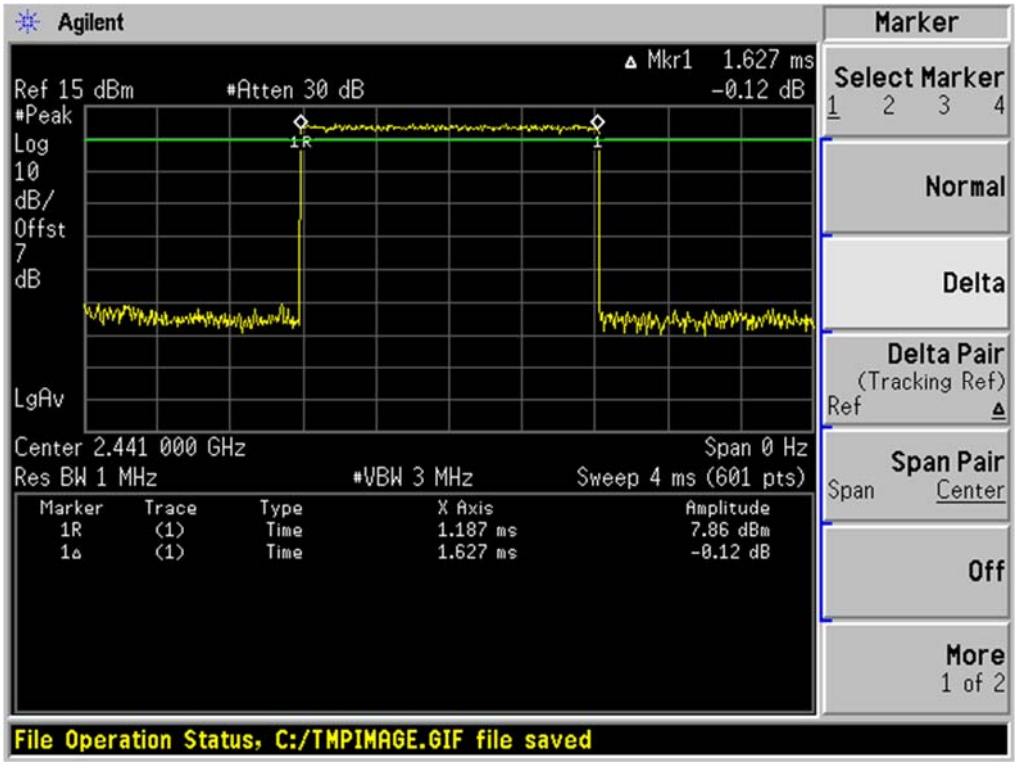
Π/4-DQPSK DH5



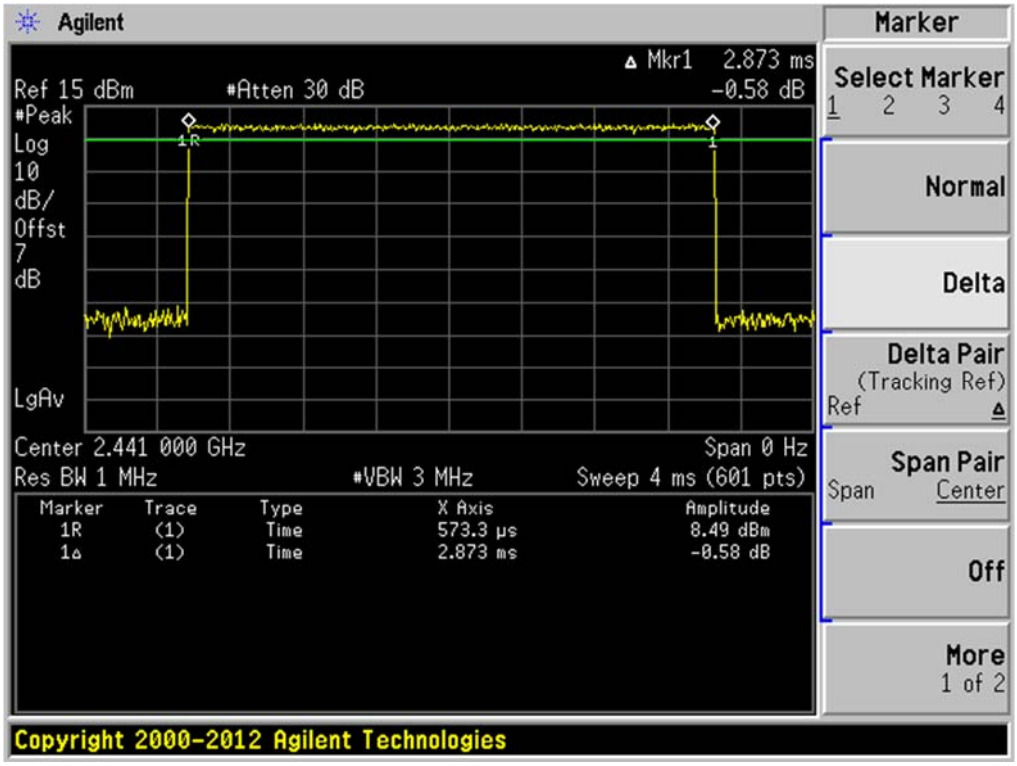
8-DPSK DH1



8-DPSK DH3



8-DPSK DH5


Agilent
Marker
Mkr1 2.873 ms
Ref 15 dBm
#Atten 30 dB
-0.58 dB
#Peak
Log
10
dB/
Offst
7
dB
LgAv
Center 2.441 000 GHz
Span 0 Hz
Res BW 1 MHz
#VBW 3 MHz
Sweep 4 ms (601 pts)
Marker Trace Type X Axis Amplitude
1R (1) Time 573.3 µs 8.49 dBm
1Δ (1) Time 2.873 ms -0.58 dB
Select Marker
1 2 3 4
Normal
Delta
Delta Pair
(Tracking Ref)
Ref
Span Pair
Span Center
Off
More
1 of 2
Copyright 2000-2012 Agilent Technologies

A.6 Conducted Spurious Emissions

Test Data

GFSK Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-45.65	7.90	-12.10	Pass
Middle	-40.63	7.32	-12.68	Pass
High	-41.90	7.26	-12.74	Pass

∏/4-DQPSK Mode:

Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-42.82	8.43	-42.82	Pass
Middle	-38.52	4.30	-38.52	Pass
High	-45.81	8.34	-45.81	Pass

8-DPSK Mode:

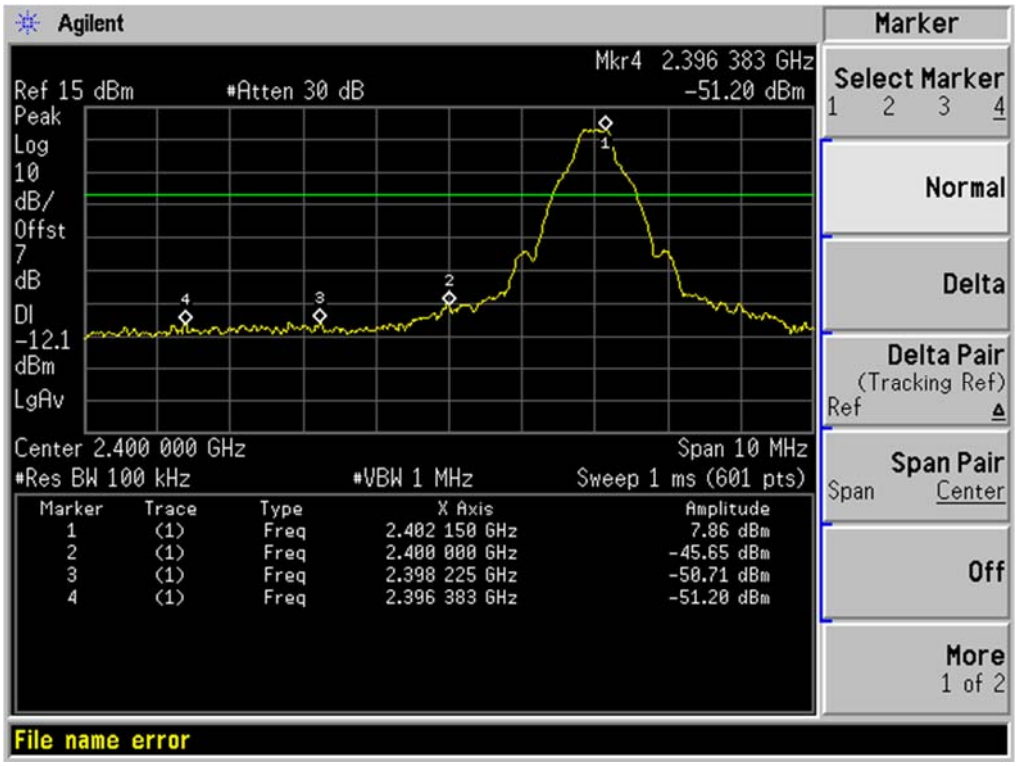
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-45.55	8.86	-11.14	Pass
Middle	-40.63	5.19	-14.81	Pass
High	-44.38	8.34	-11.66	Pass

Hopping Mode:

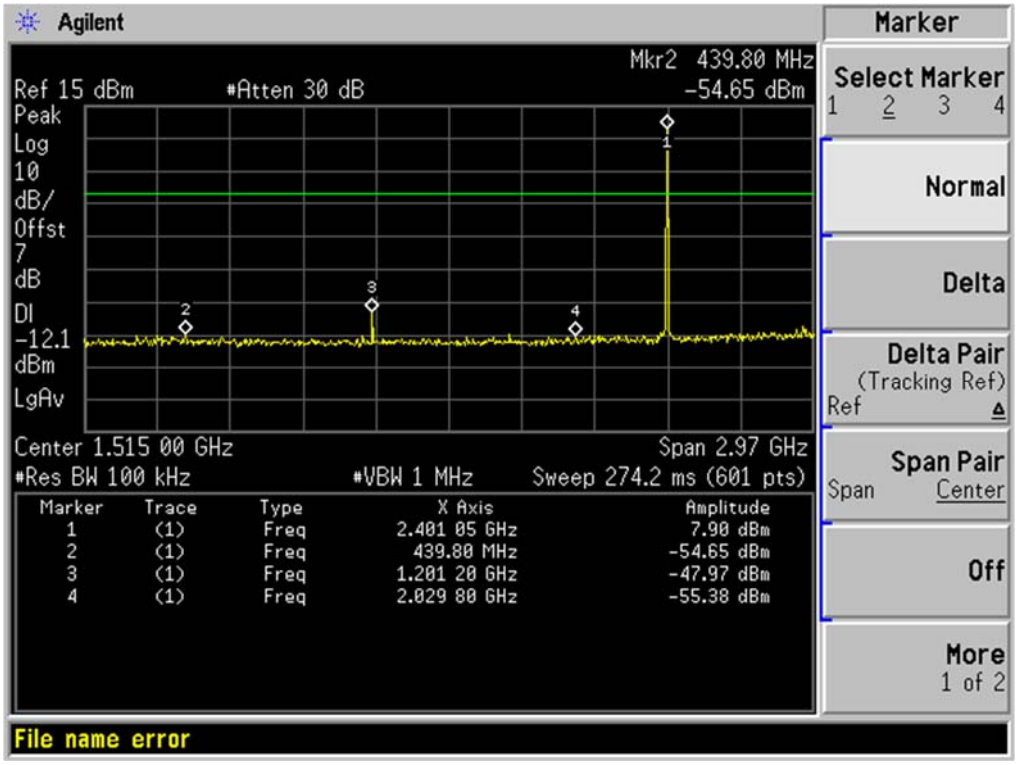
Channel	Measured Max. Out of Band Emission (dBm)	Limit (dBm)		Verdict
		Carrier Level	Calculated 20 dBc Limit	
Low	-43.97	7.03	-12.97	Pass
Middle	-42.44	6.12	-13.98	Pass
High	-40.49	7.00	-13.00	Pass

Test Plots

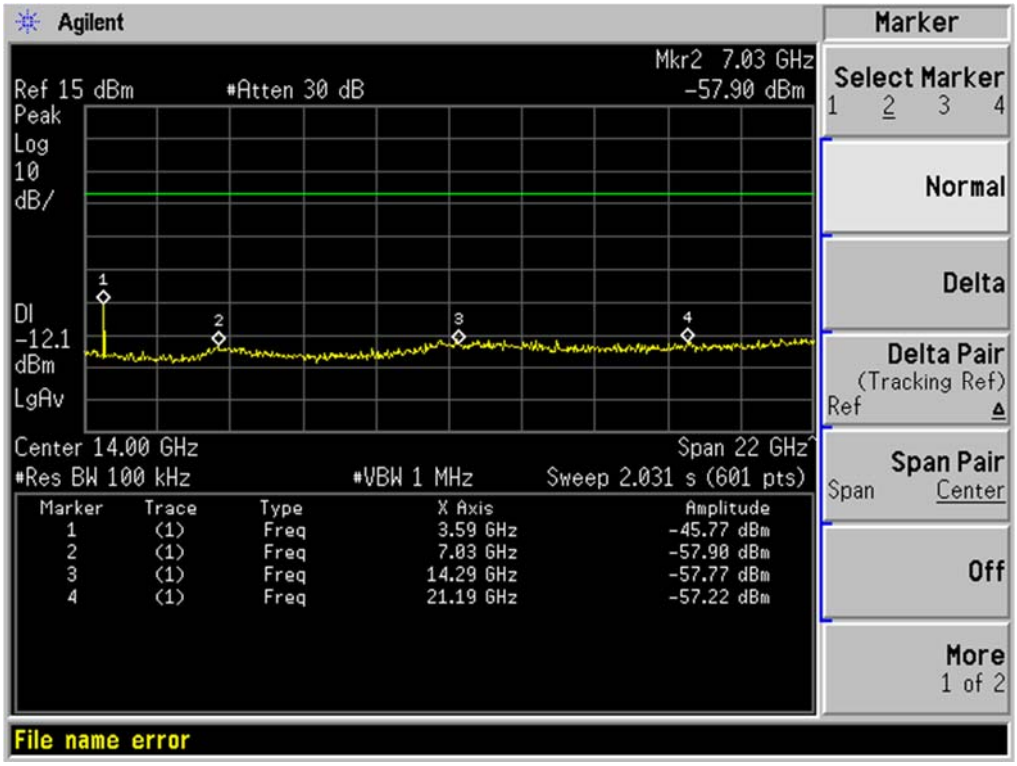
GFSK LOW CHANNEL , BAND EDGE



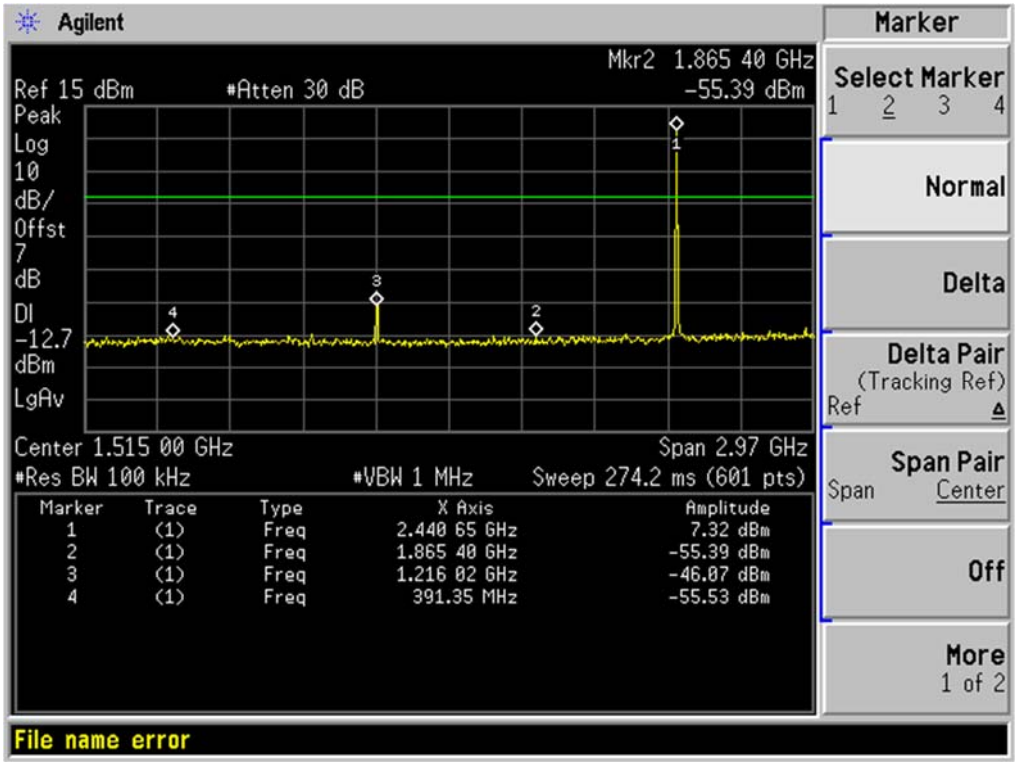
GFSK LOW CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



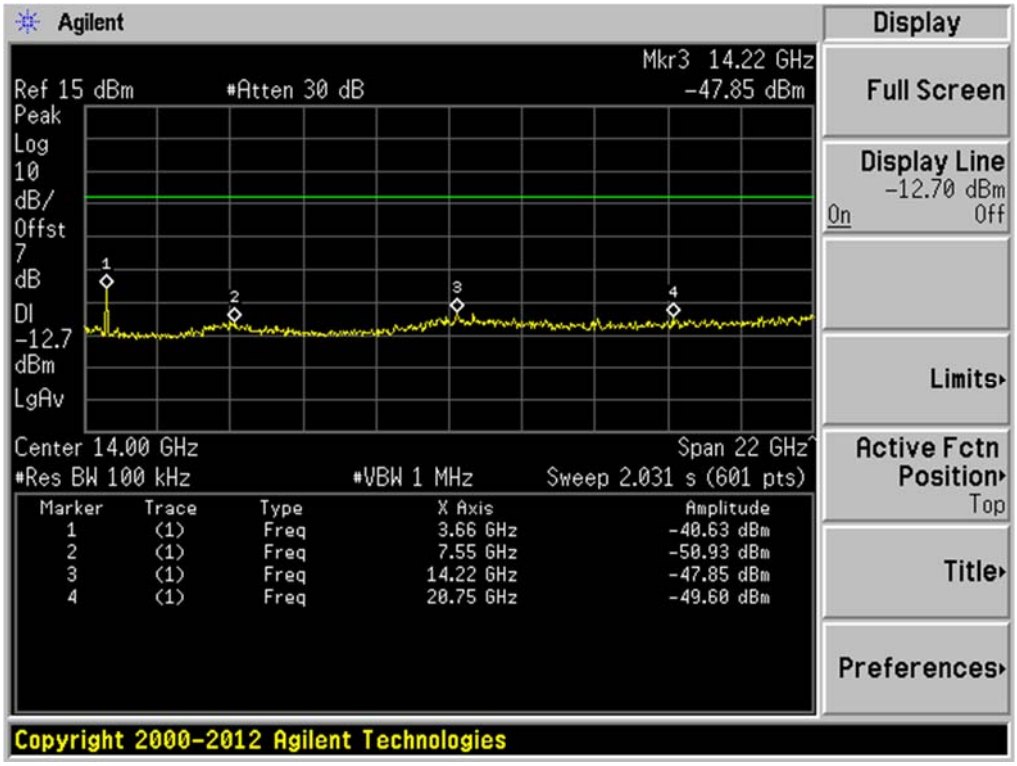
GFSK LOW CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



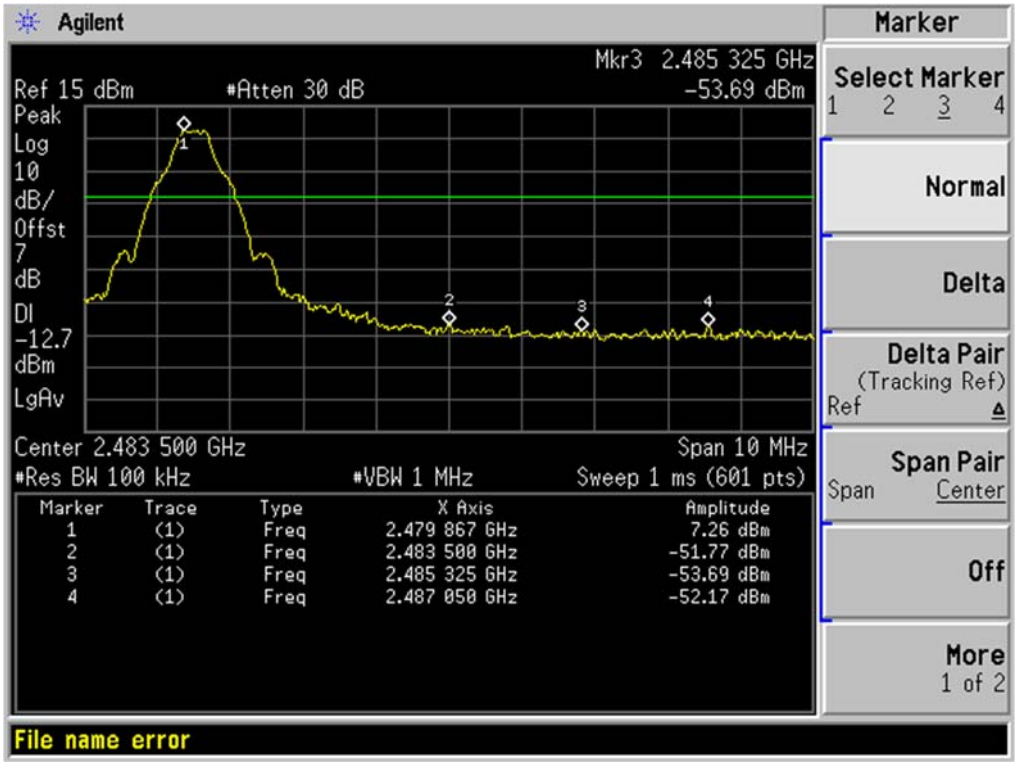
GFSK MIDDLE CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



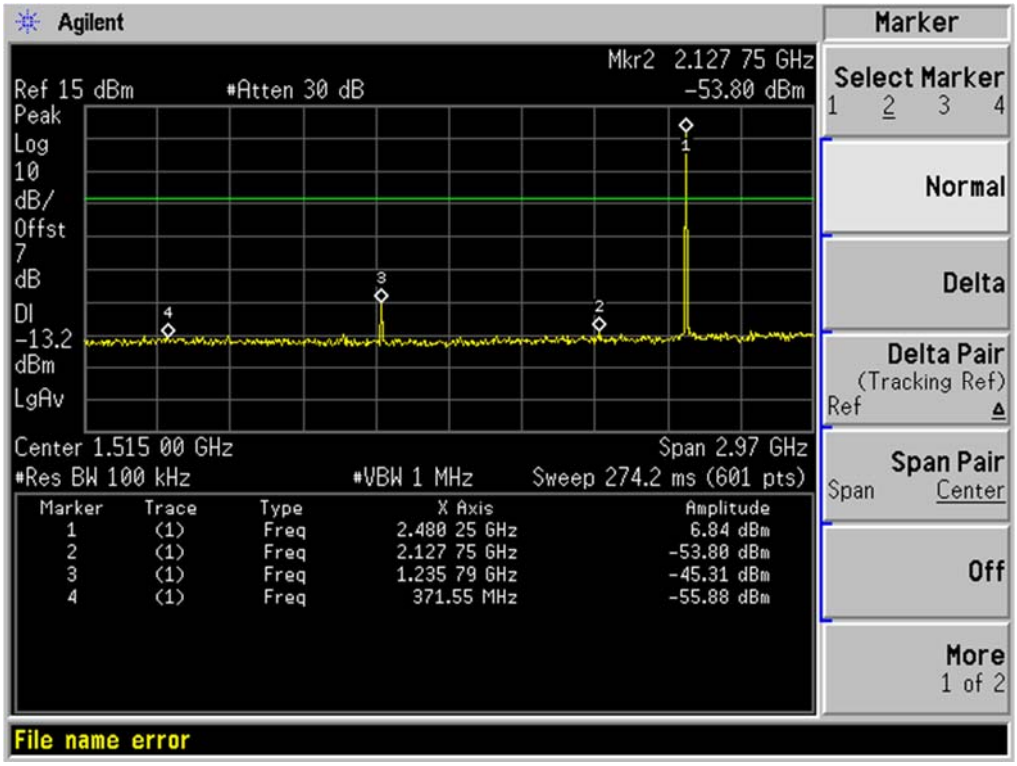
GFSK MIDDLE CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



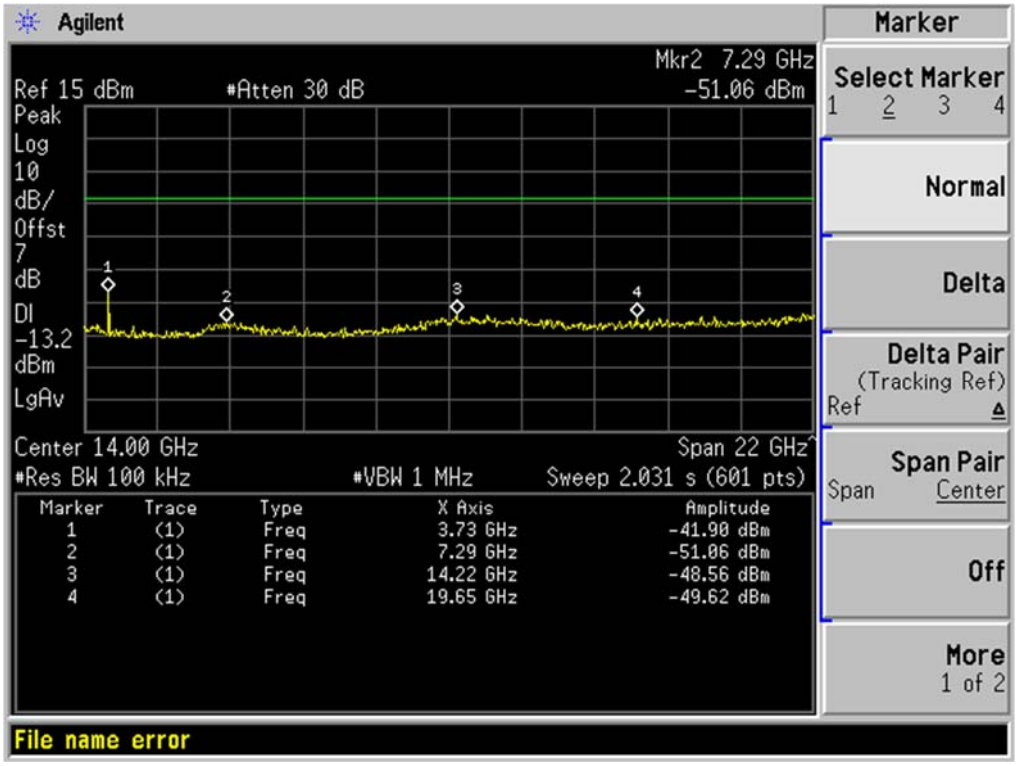
GFSK HIGH CHANNEL , BAND EDGE



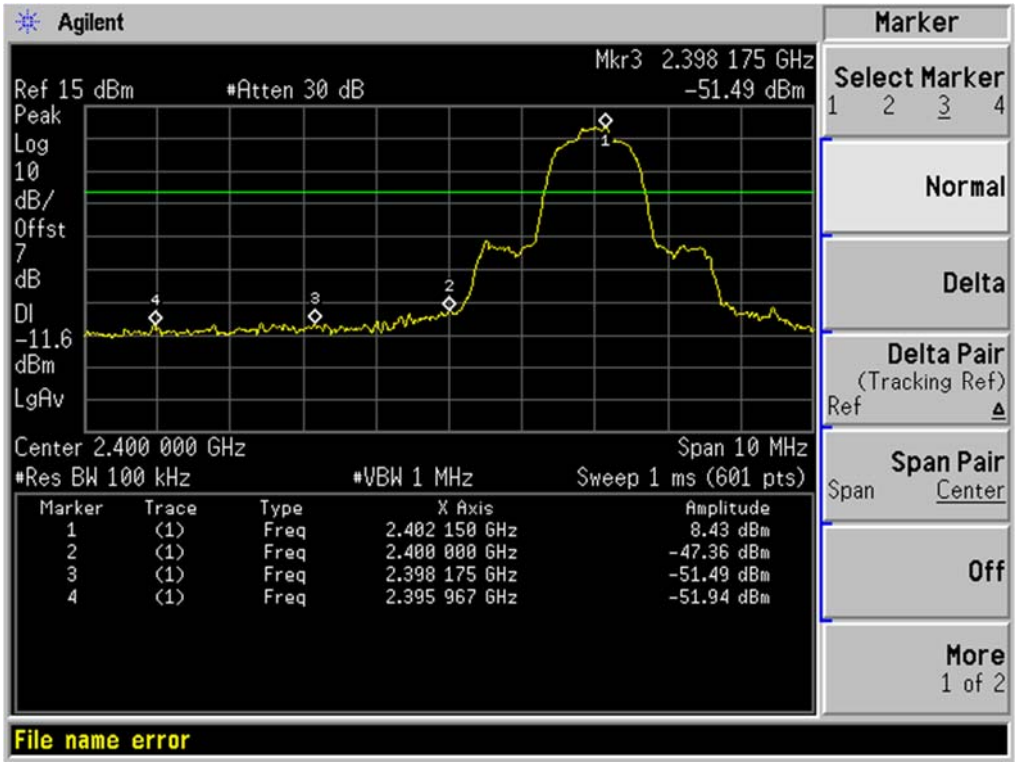
GFSK HIGH CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



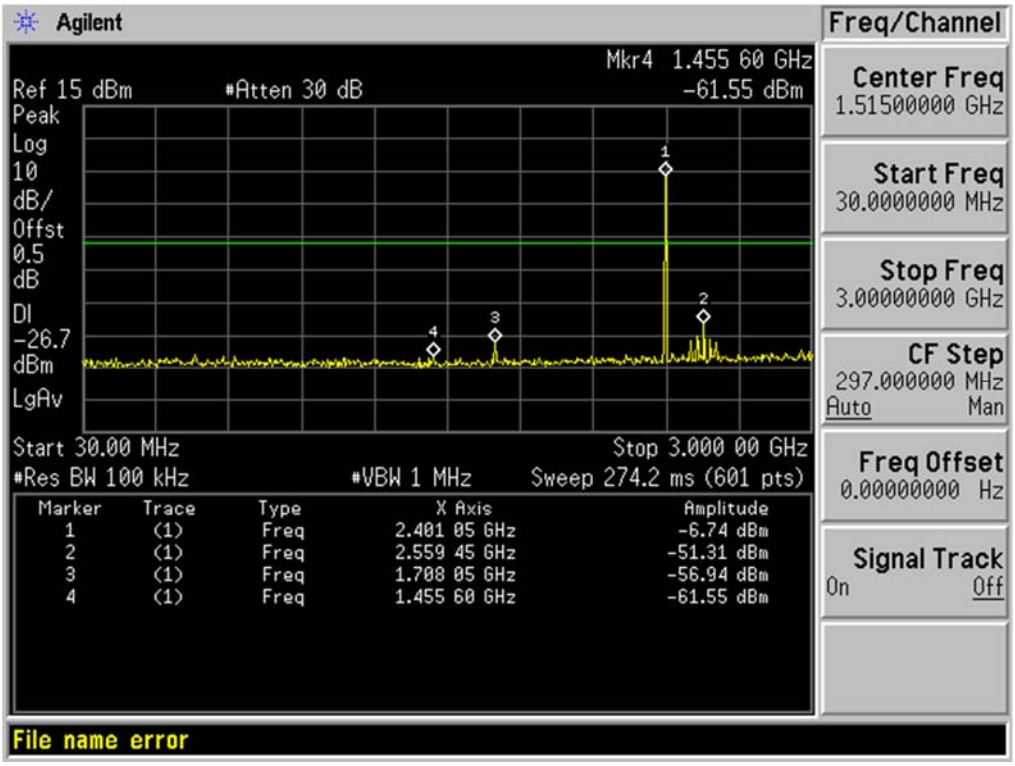
GFSK HIGH CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



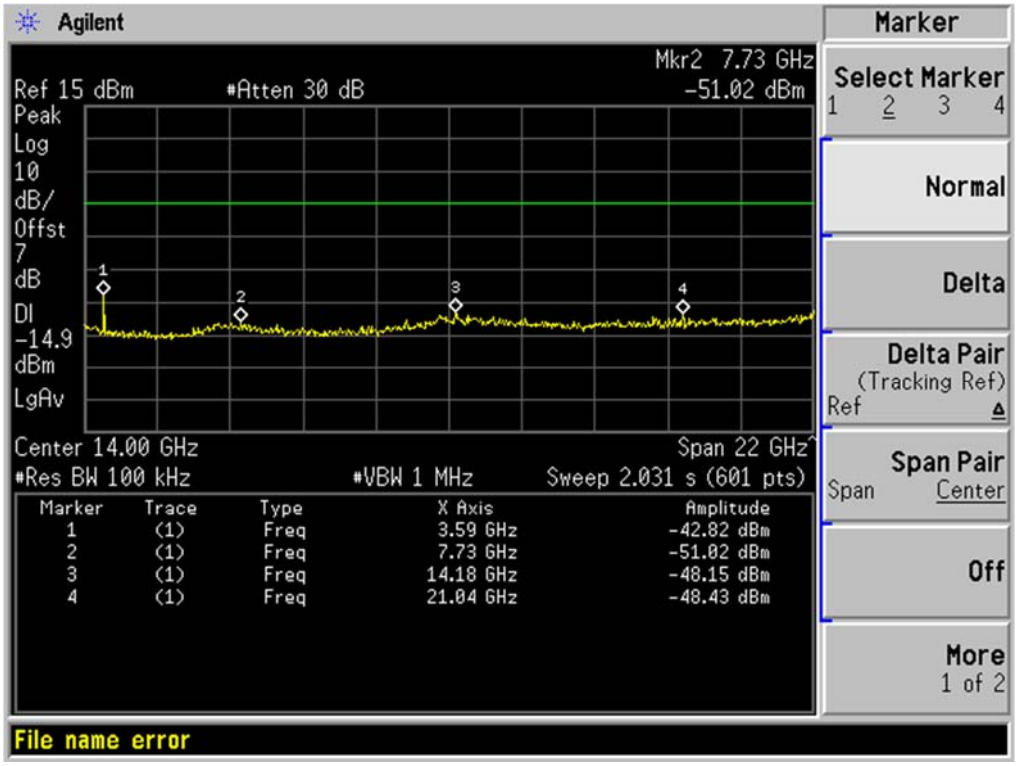
∏/4-DQPSK LOW CHANNEL , BAND EDGE



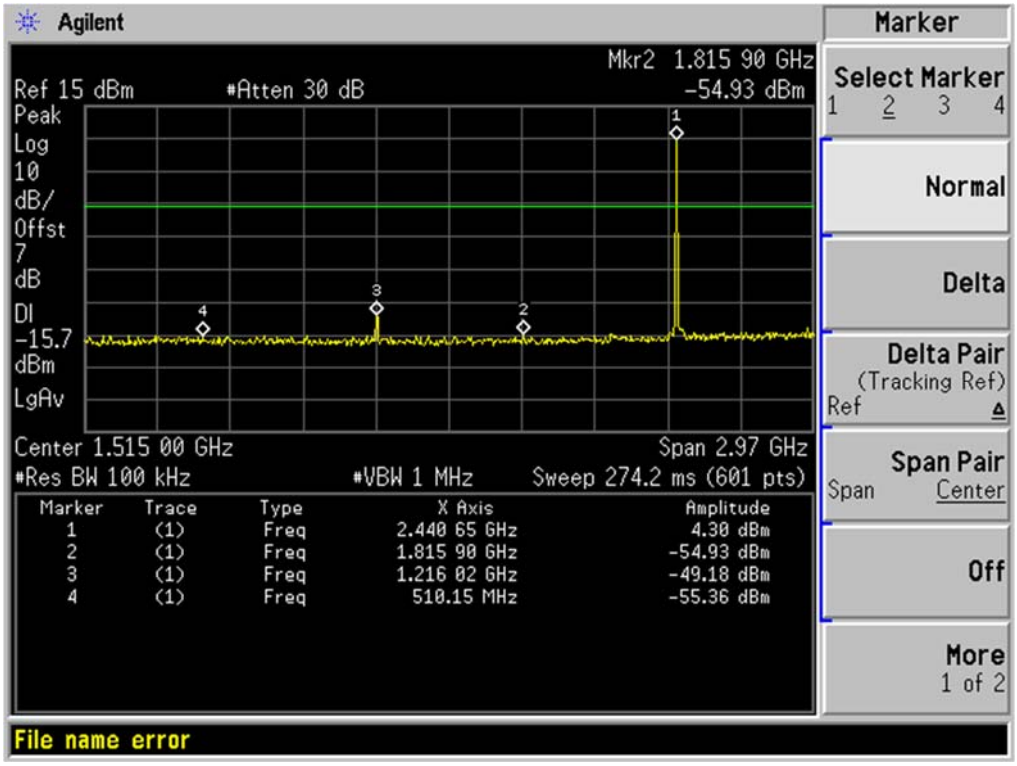
∏/4-DQPSK LOW CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



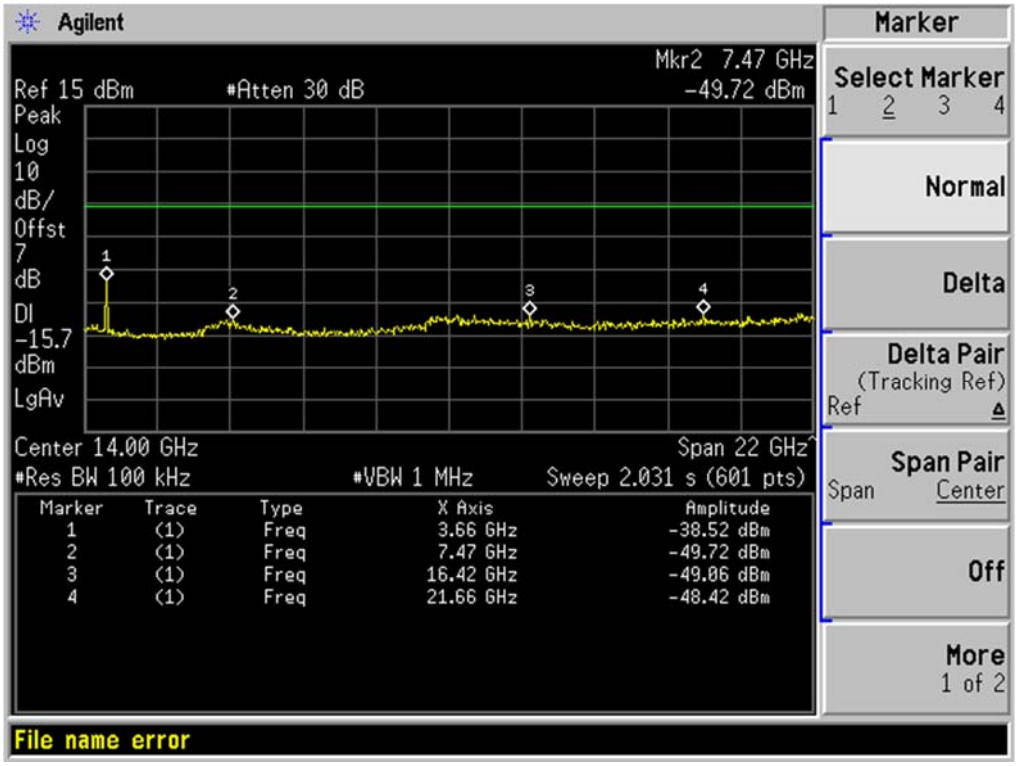
∏/4-DQPSK LOW CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



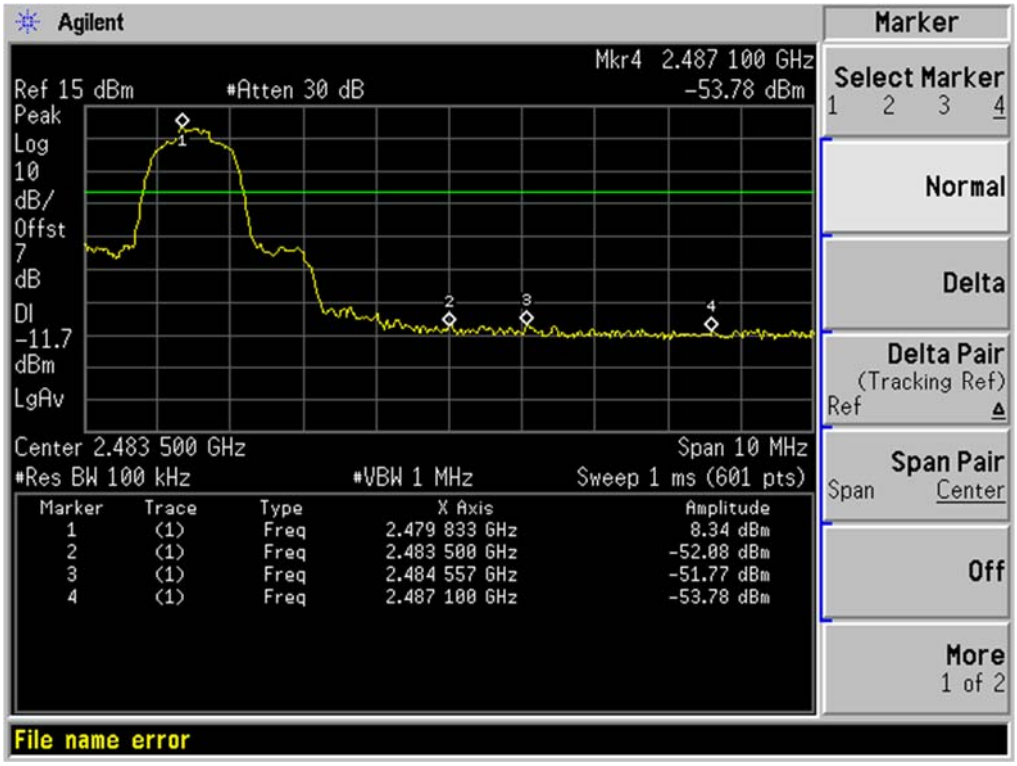
∏/4-DQPSK MIDDLE CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



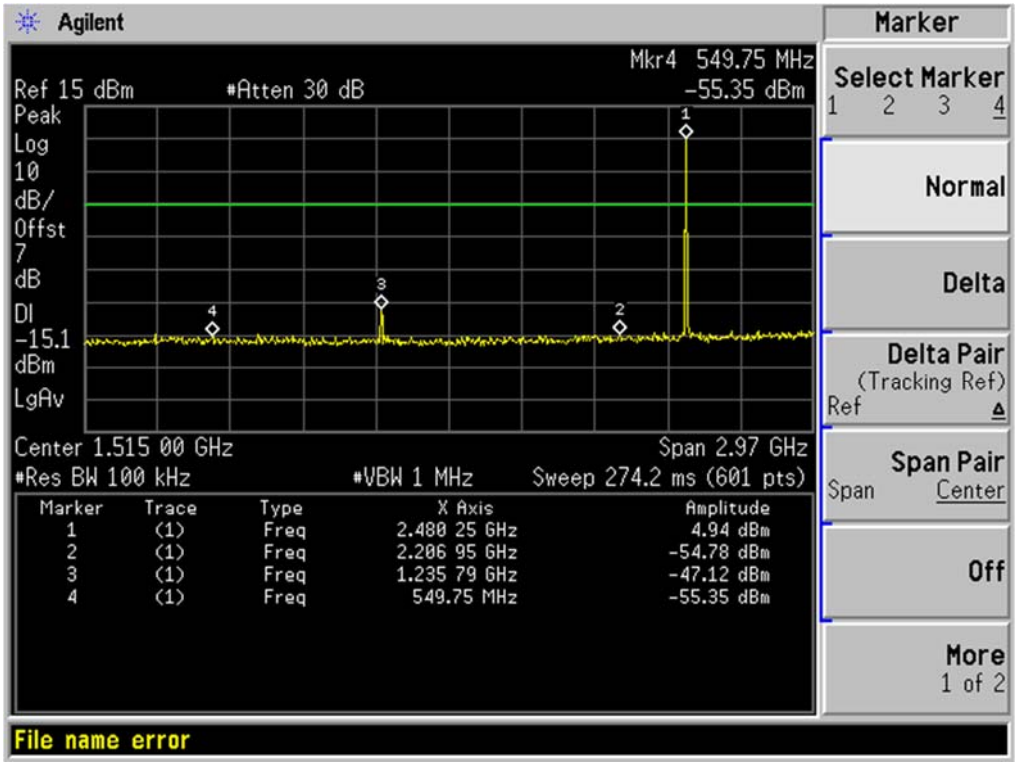
∏/4-DQPSK MIDDLE CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



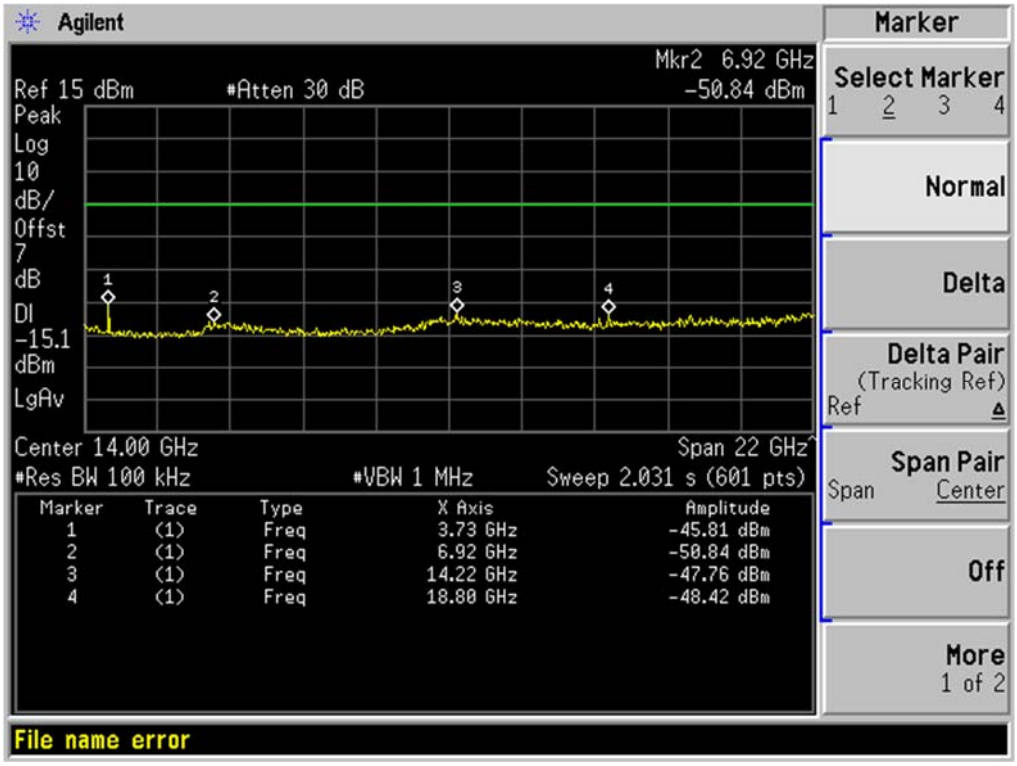
∏/4-DQPSK HIGH CHANNEL , BAND EDGE



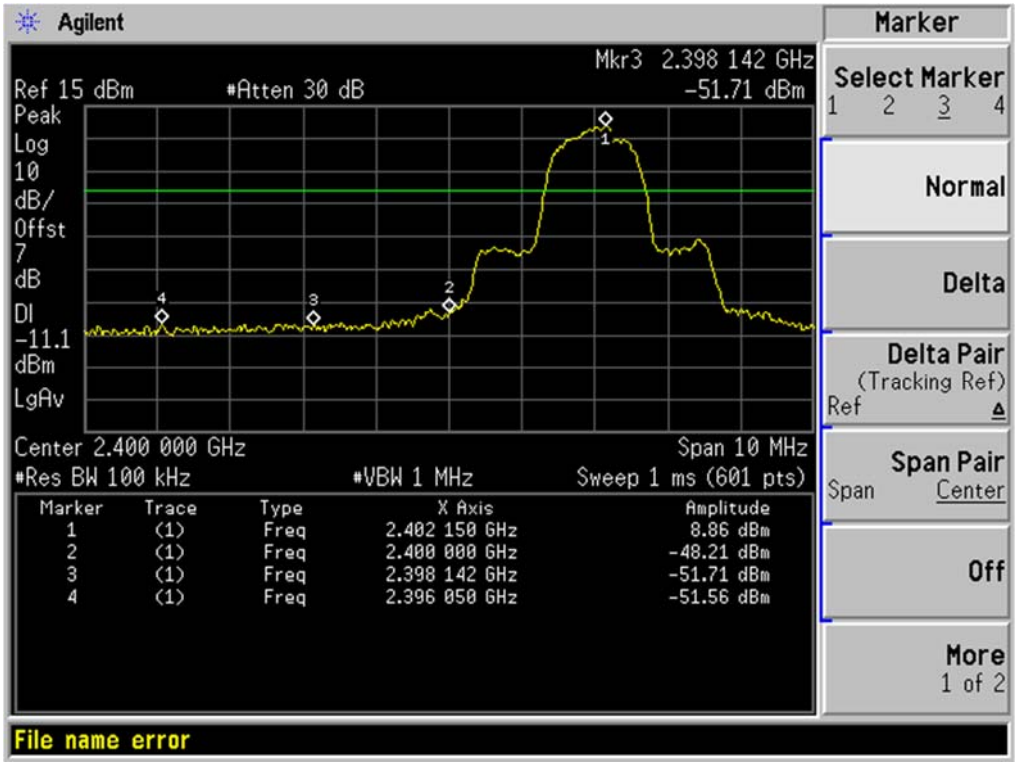
∏/4-DQPSK HIGH CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



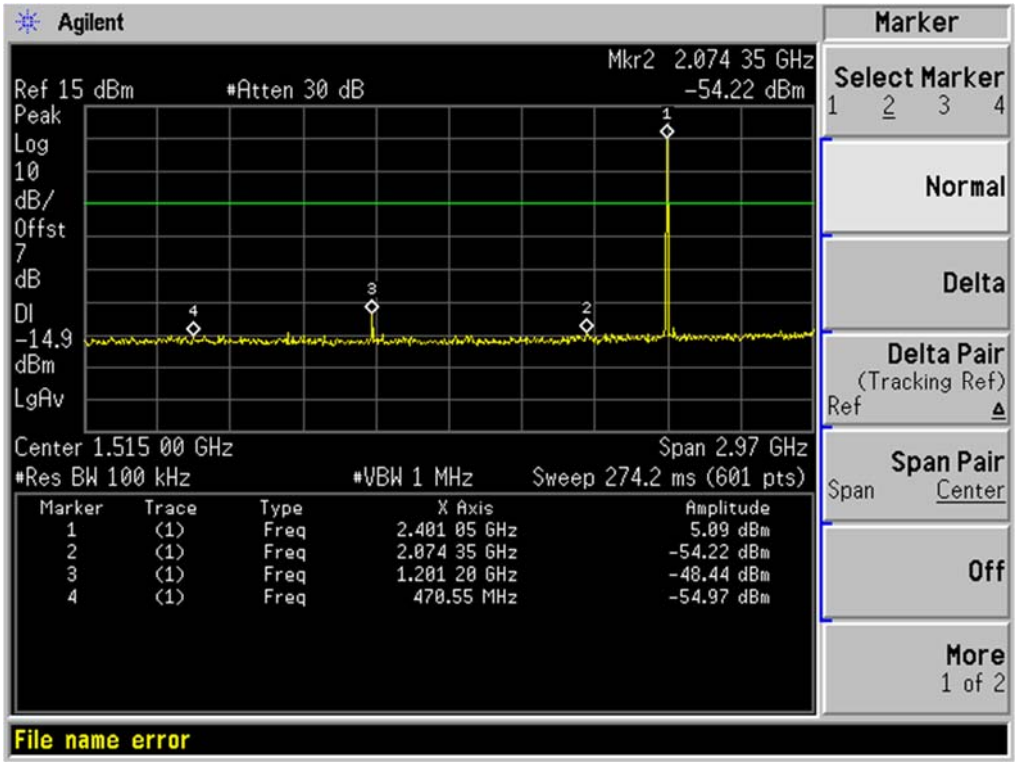
∏/4-DQPSK HIGH CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



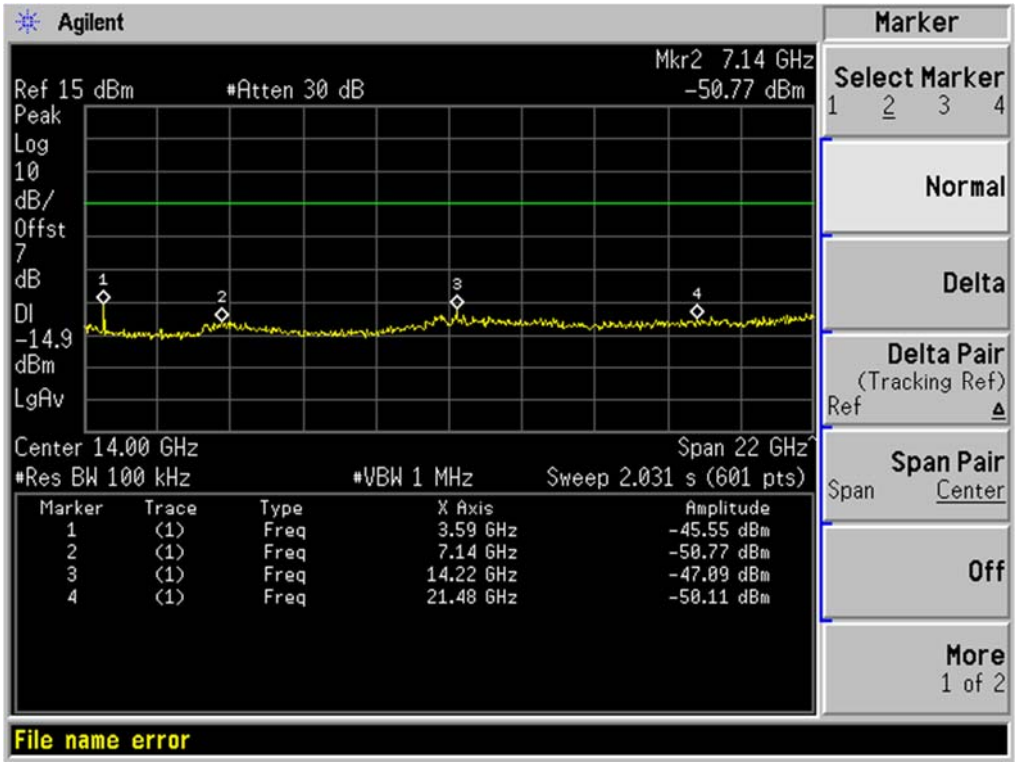
8-DPSK LOW CHANNEL , BAND EDGE



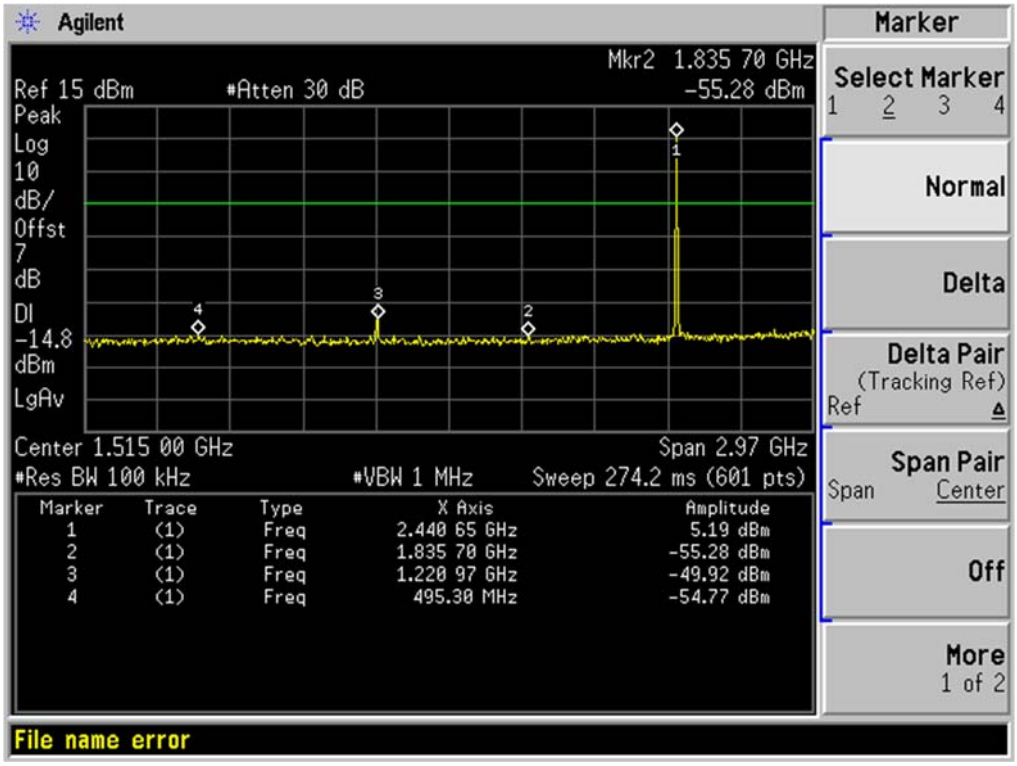
8-DPSK LOW CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



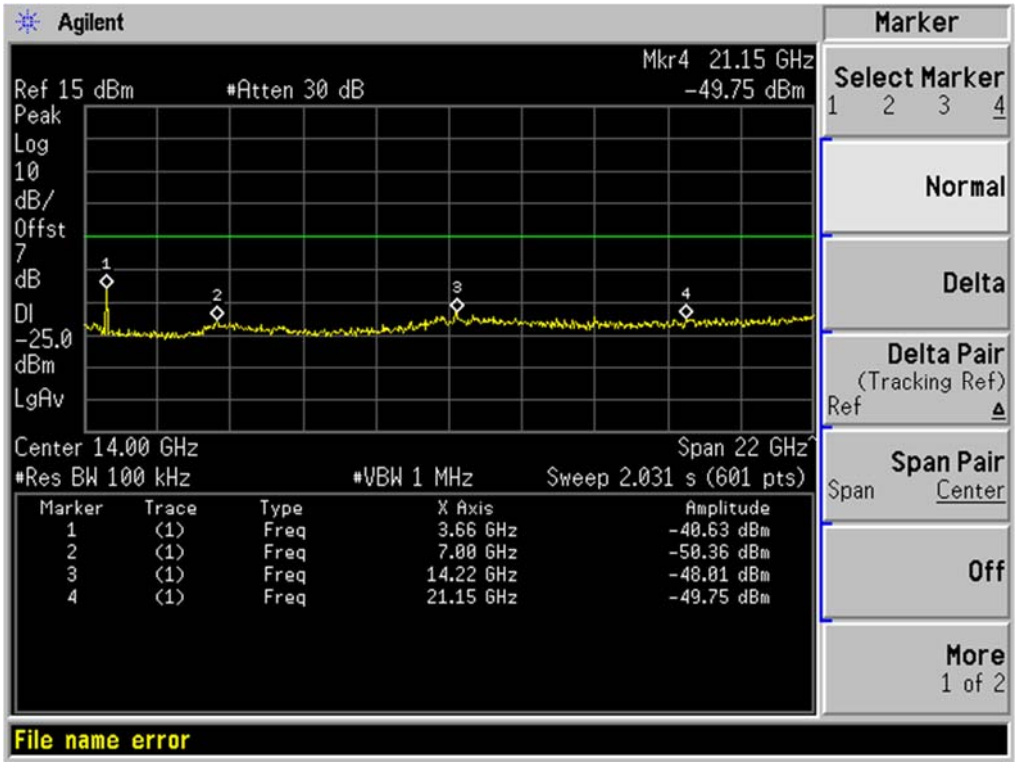
8-DPSK LOW CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



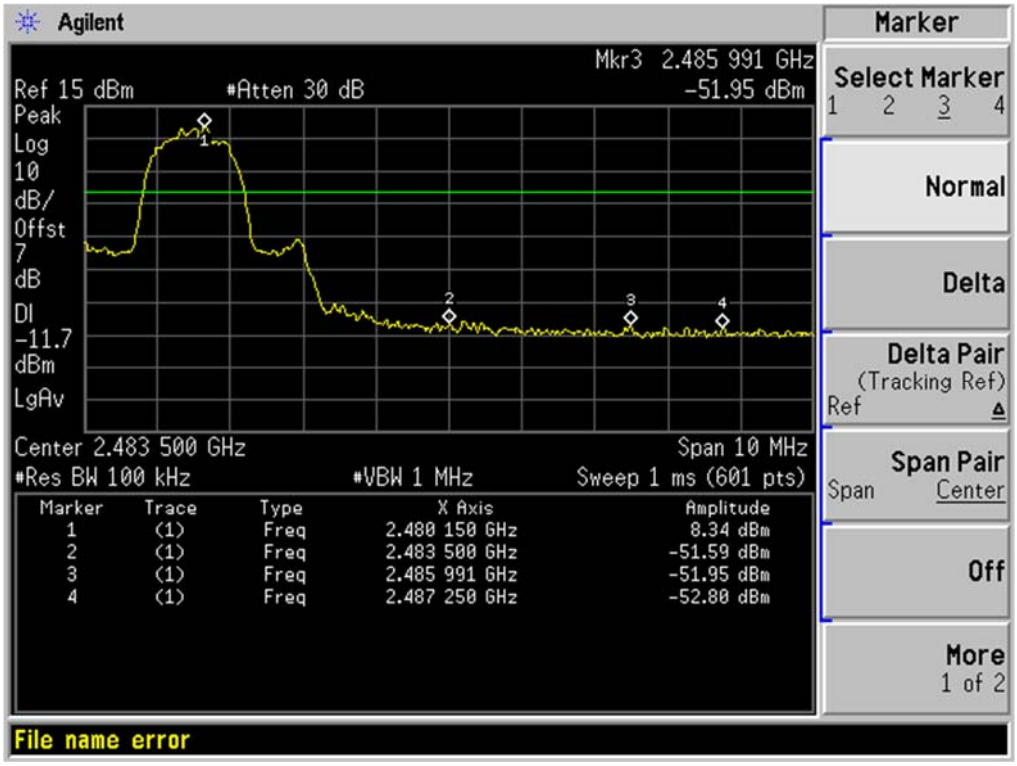
8-DPSK MIDDLE CHANNEL , SPURIOUS 30 MHz ~ 3 GHz



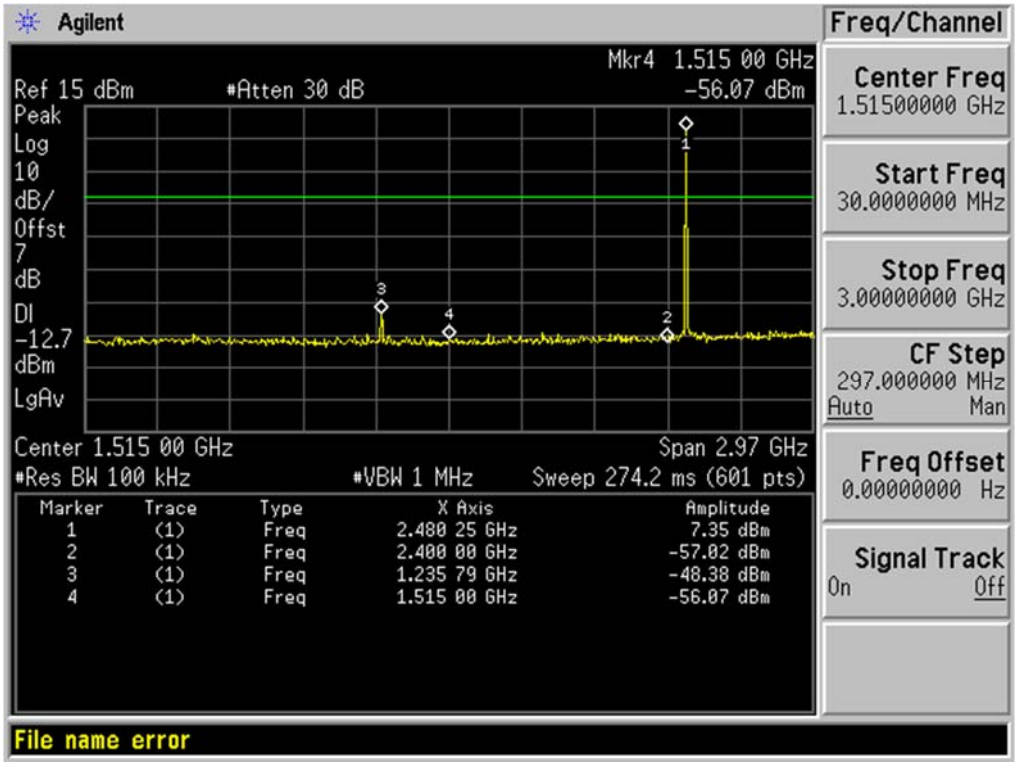
8-DPSK MIDDLE CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



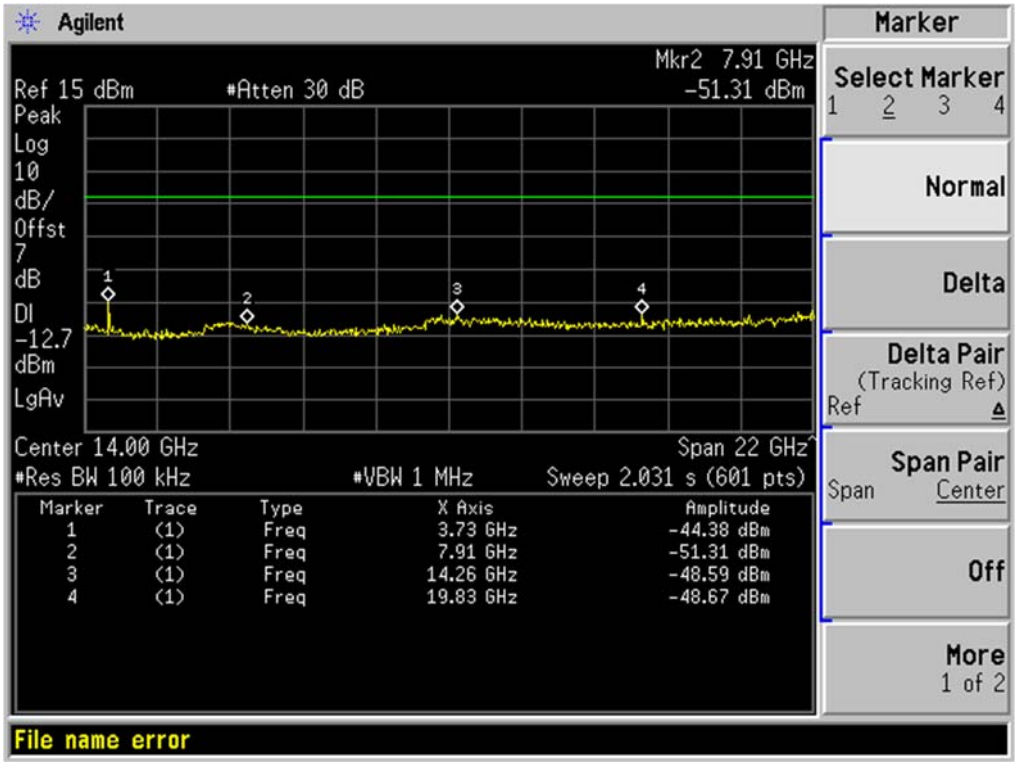
8-DPSK HIGH CHANNEL , BAND EDGE



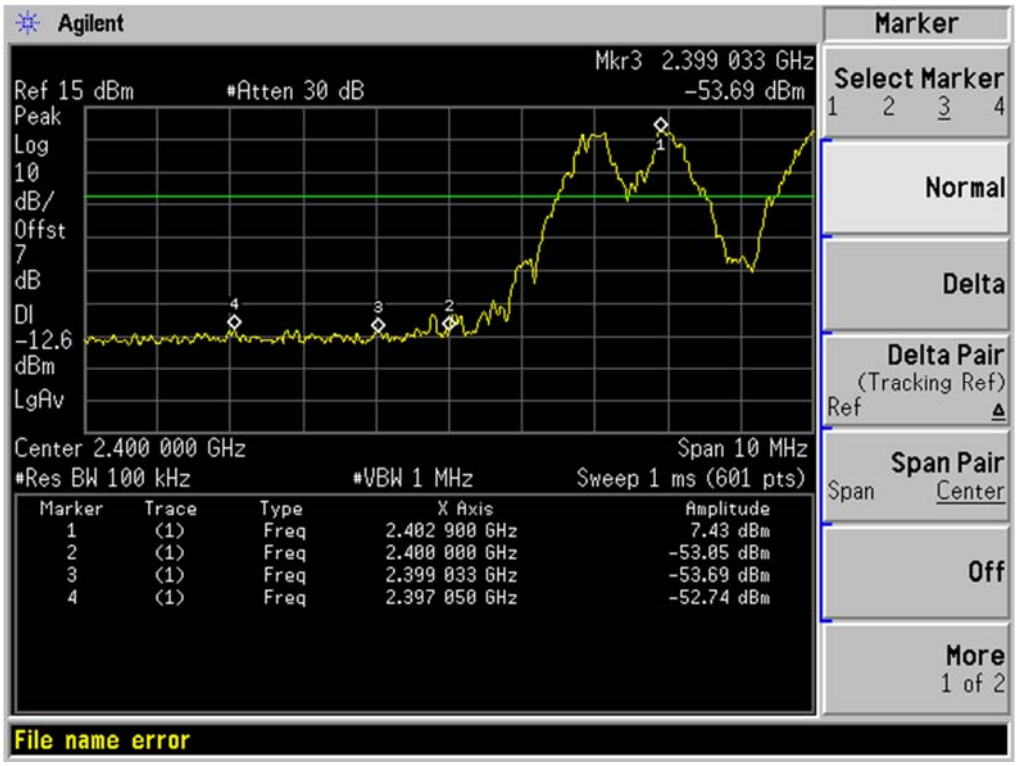
8-DPSK HIGH CHANNEL , SPURIOUS 30 MHz ~3 GHz



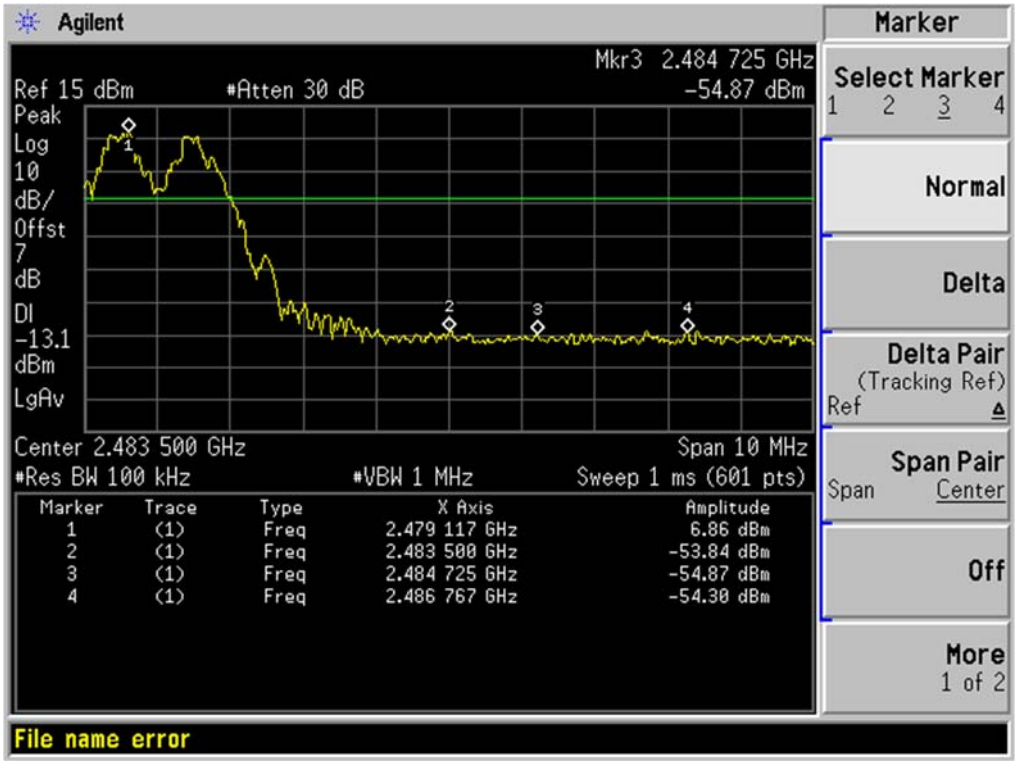
8-DPSK HIGH CHANNEL , SPURIOUS 3 GHz ~ 25 GHz



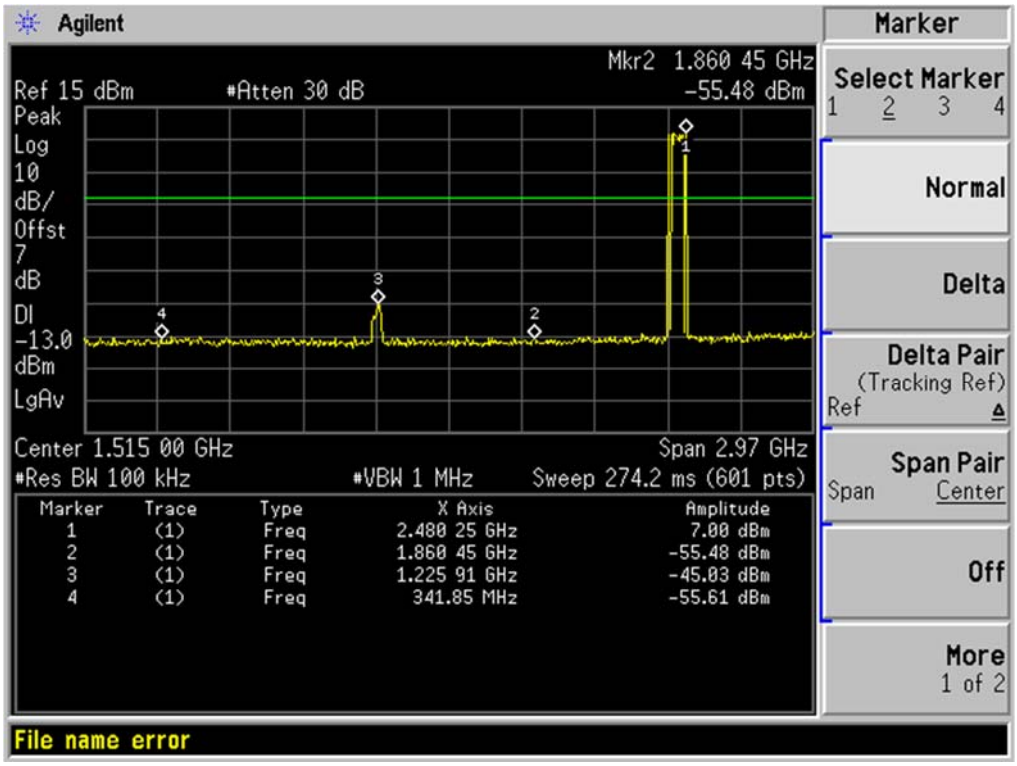
GFSK Hopping BAND EDGE (LOW)



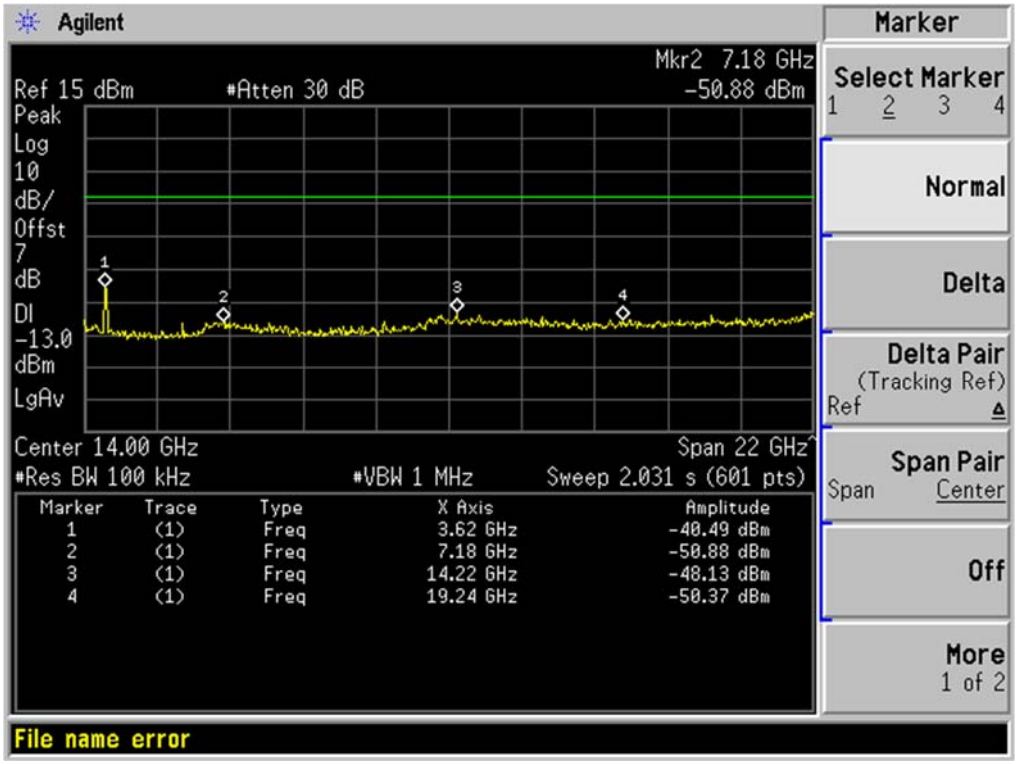
GFSK Hopping BAND EDGE (HIGH)



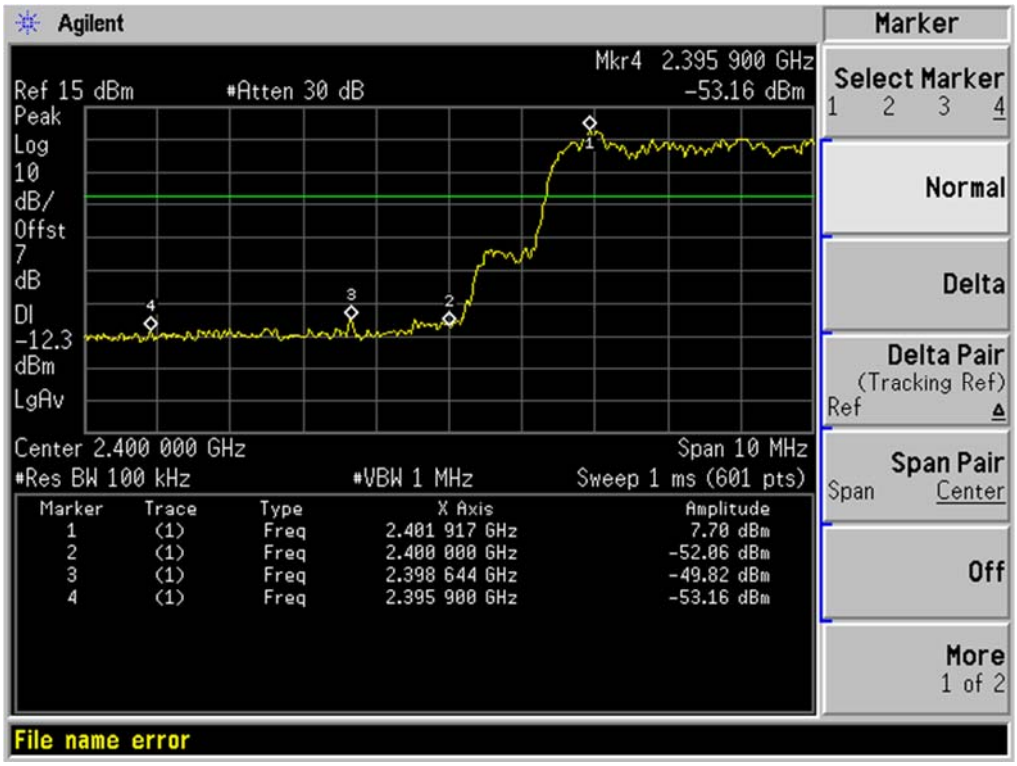
GFSK Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



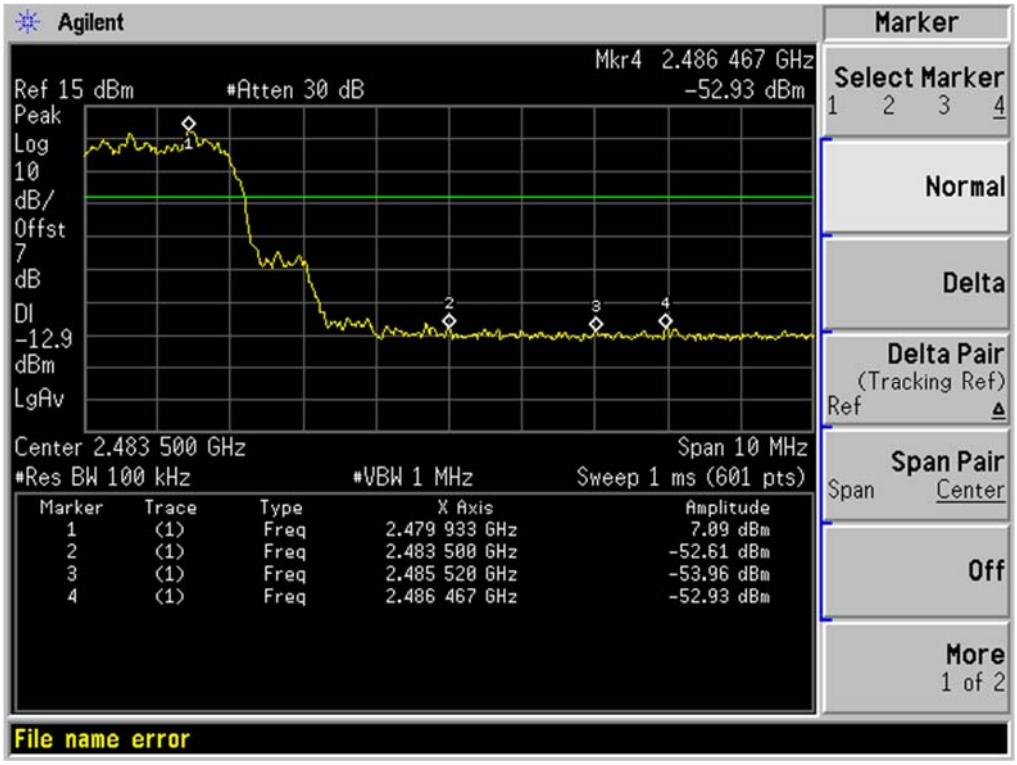
GFSK Hopping Mode, SPURIOUS 30 3GHz ~ 25 GHz



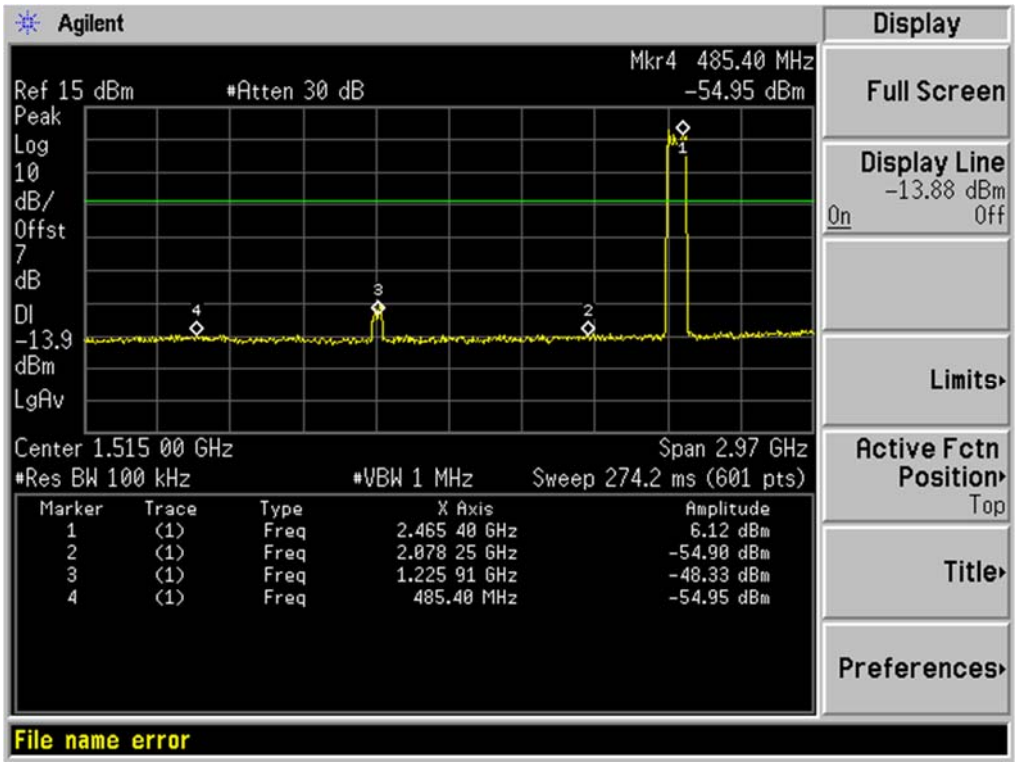
Π/4-DQPSK Hopping BAND EDGE (LOW)



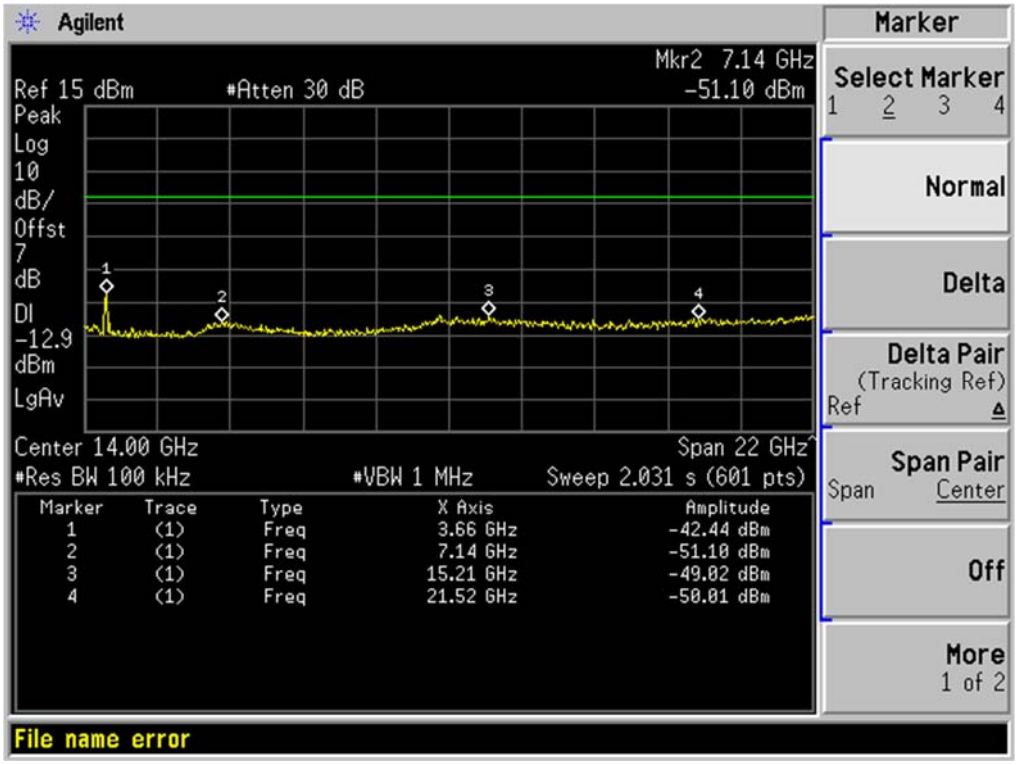
Π/4-DQPSK Hopping BAND EDGE (HIGH)



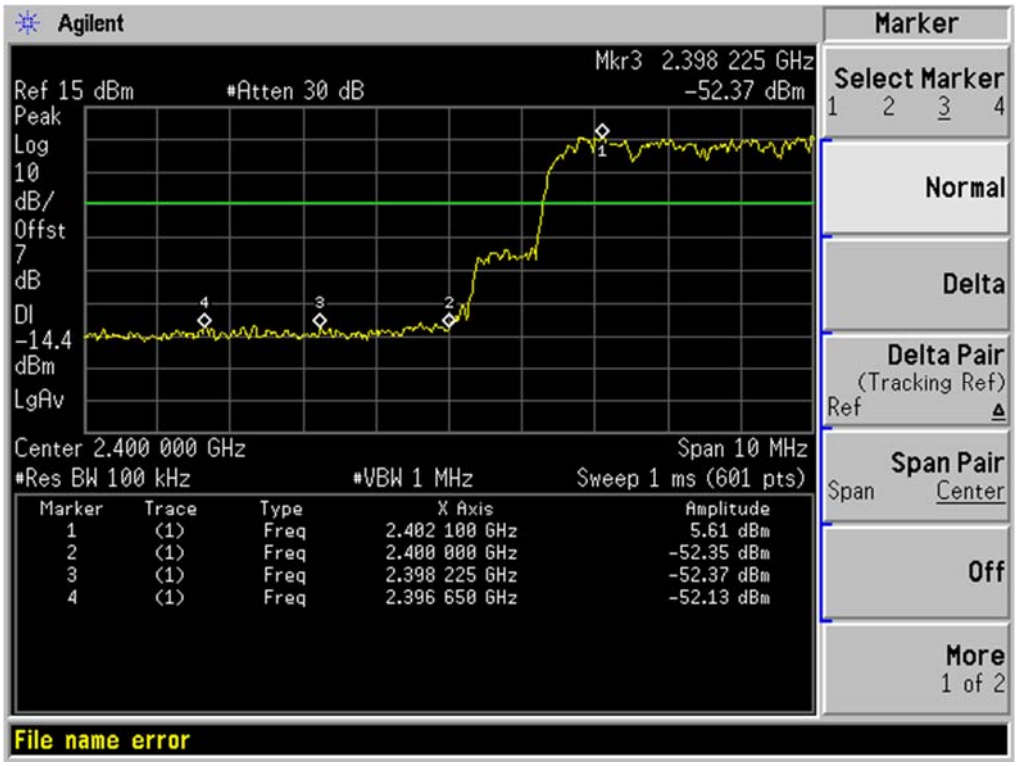
Π/4-DQPSK Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



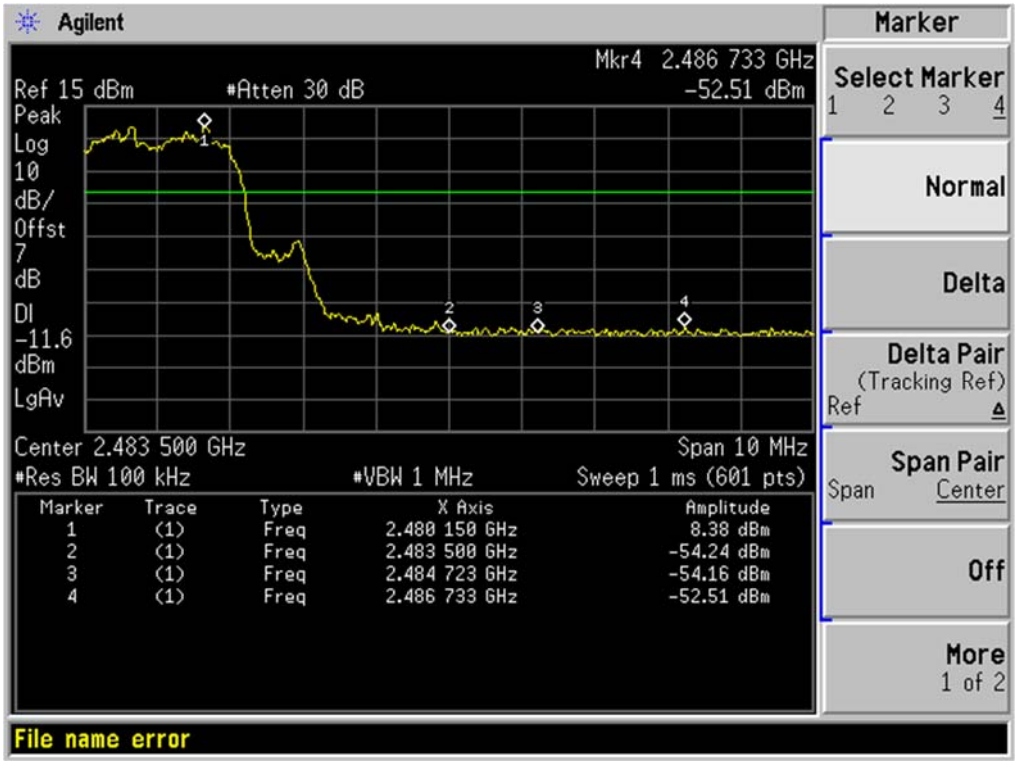
Π/4-DQPSK Hopping Mode, SPURIOUS 30 3GHz ~ 25 GHz



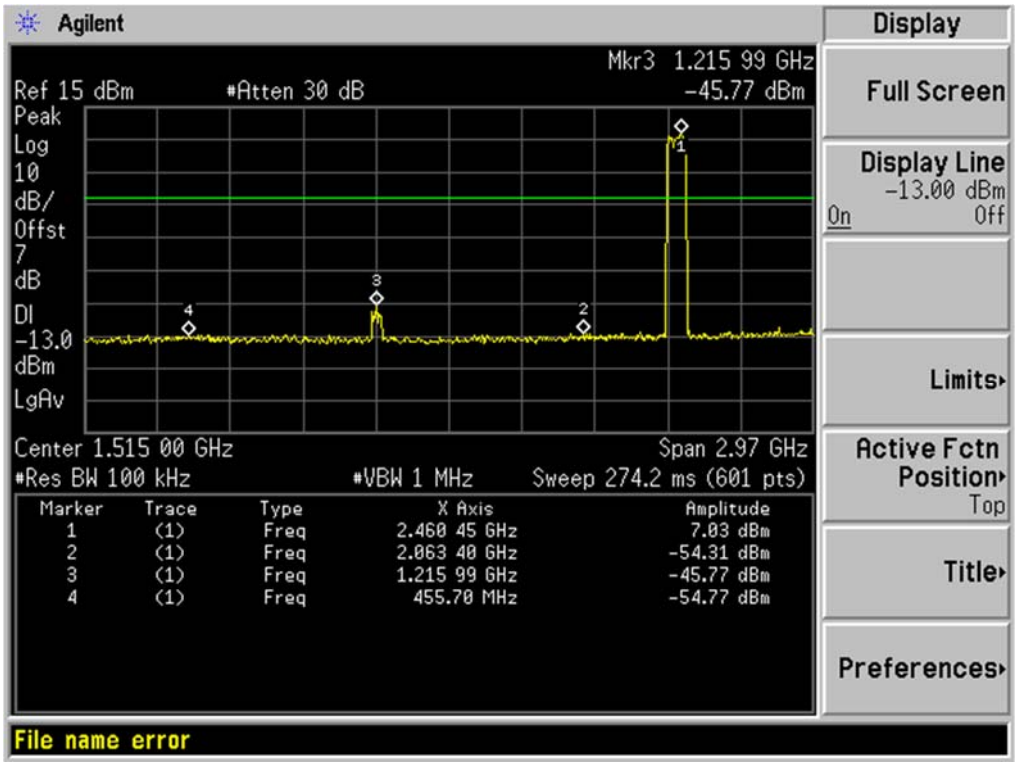
8-DPSK Hopping BAND EDGE (LOW)



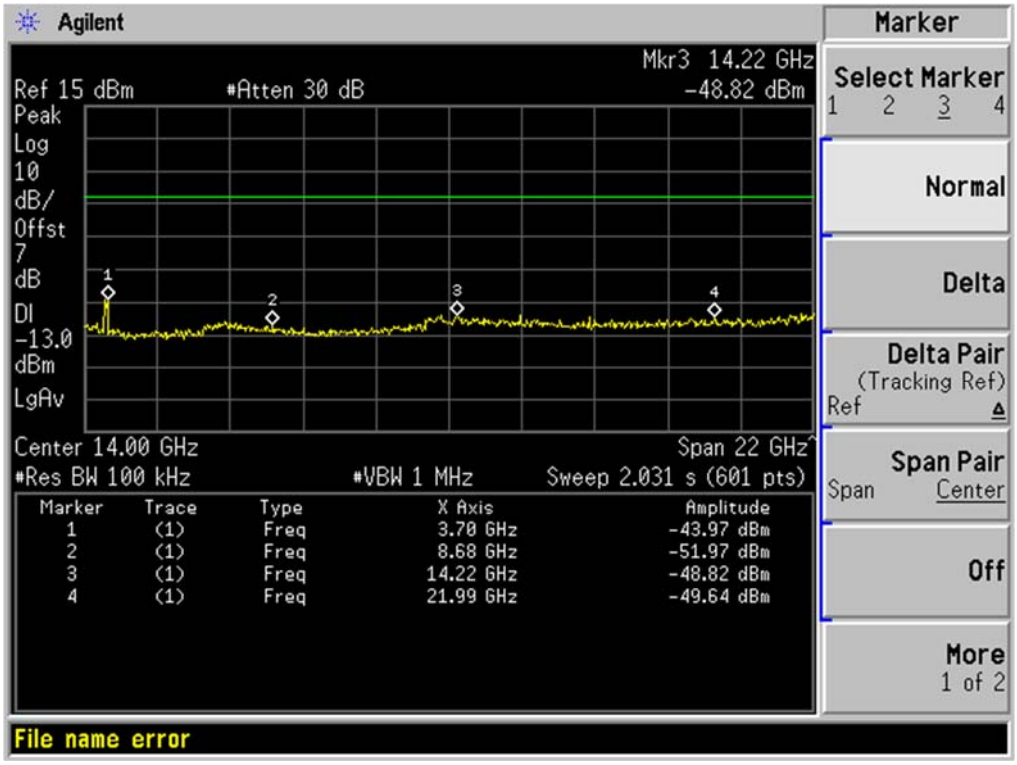
8-DPSK Hopping BAND EDGE (HIGH)



8-DPSK Hopping Mode, SPURIOUS 30 MHz ~ 3 GHz



8-DPSK Hopping Mode, SPURIOUS 30 3GHz ~ 25 GHz

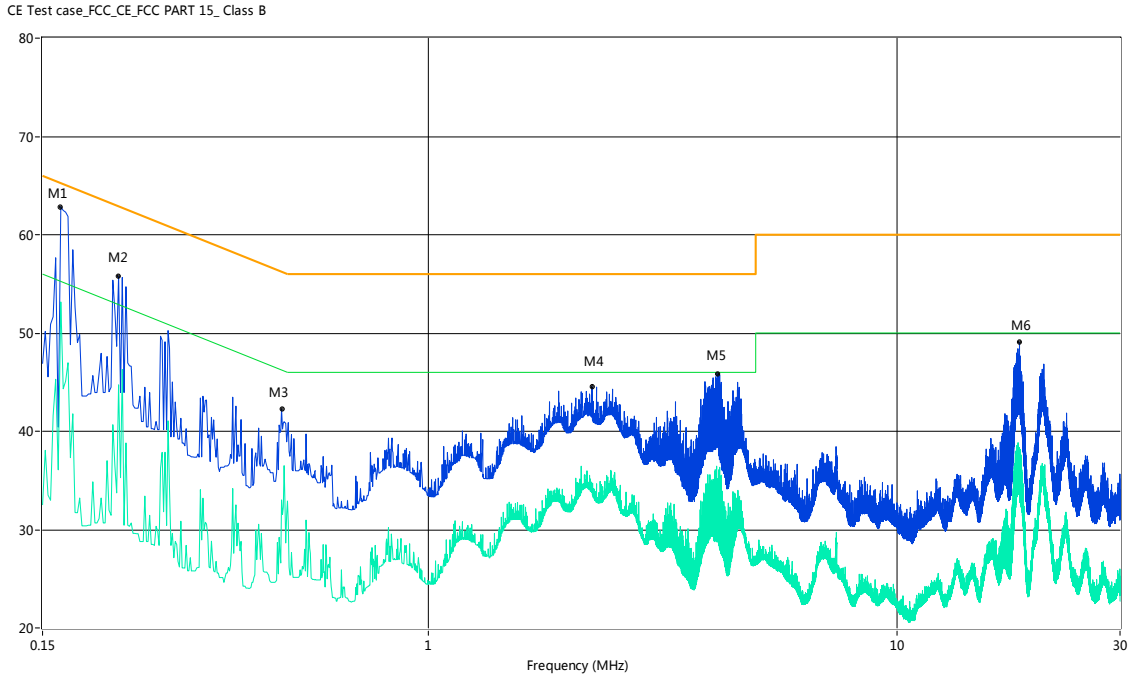


A.7 Conducted Emissions

Note: All configurations have been tested, only the worst configuration (GFSK High Channel) shown here.

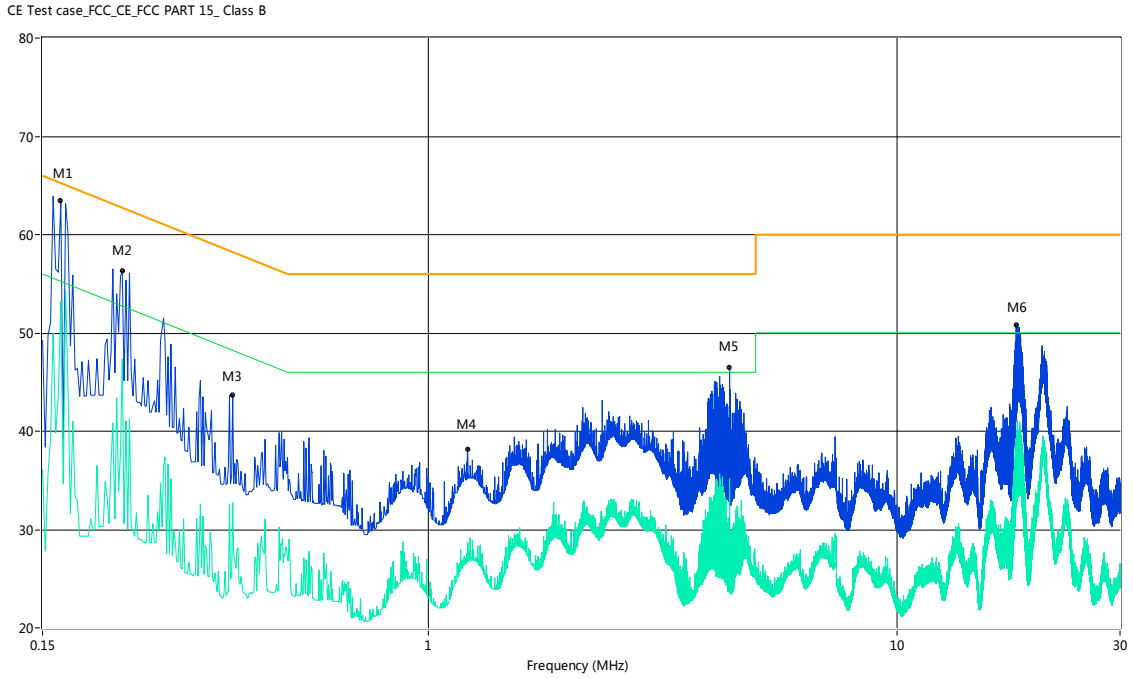
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.16	62.8	13.00	65.6	2.80	Peak	L Line	Pass
1**	0.16	53.2	13.00	55.6	2.40	AV	L Line	Pass
2	0.22	55.8	13.00	64.1	8.30	Peak	L Line	Pass
2**	0.22	44.7	13.00	54.1	9.40	AV	L Line	Pass
3	0.49	42.2	13.00	56.4	14.20	Peak	L Line	Pass
3**	0.49	33.0	13.00	46.4	13.40	AV	L Line	Pass
4	2.24	44.6	13.00	56.0	11.40	Peak	L Line	Pass
4**	2.24	34.0	13.00	46.0	12.00	AV	L Line	Pass
5	4.14	45.9	13.00	56.0	10.10	Peak	L Line	Pass
5**	4.14	35.2	13.00	46.0	10.80	AV	L Line	Pass
6	18.30	49.0	13.00	60.0	11.00	Peak	L Line	Pass
6**	18.30	38.4	13.00	50.0	11.60	AV	L Line	Pass

PHASE N

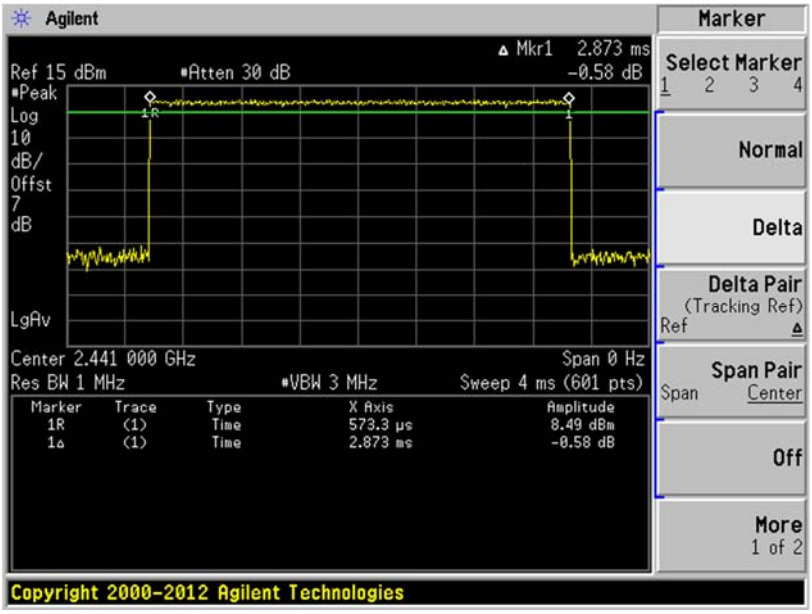


No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.16	63.4	13.00	65.6	2.20	Peak	N Line	Pass
1**	0.16	53.2	13.00	55.6	2.40	AV	N Line	Pass
2	0.22	56.3	13.00	63.9	7.60	Peak	N Line	Pass
2**	0.22	47.3	13.00	53.9	6.60	AV	N Line	Pass
3	0.38	43.7	13.00	59.4	15.70	Peak	N Line	Pass
3**	0.38	32.7	13.00	49.4	16.70	AV	N Line	Pass
4	1.21	38.1	13.00	56.0	17.90	Peak	N Line	Pass
4**	1.21	26.7	13.00	46.0	19.30	AV	N Line	Pass
5	4.40	46.5	13.00	56.0	9.50	Peak	N Line	Pass
5**	4.40	35.2	13.00	46.0	10.80	AV	N Line	Pass
6	18.01	50.8	13.00	60.0	9.20	Peak	N Line	Pass
6**	18.01	39.1	13.00	50.0	10.90	AV	N Line	Pass

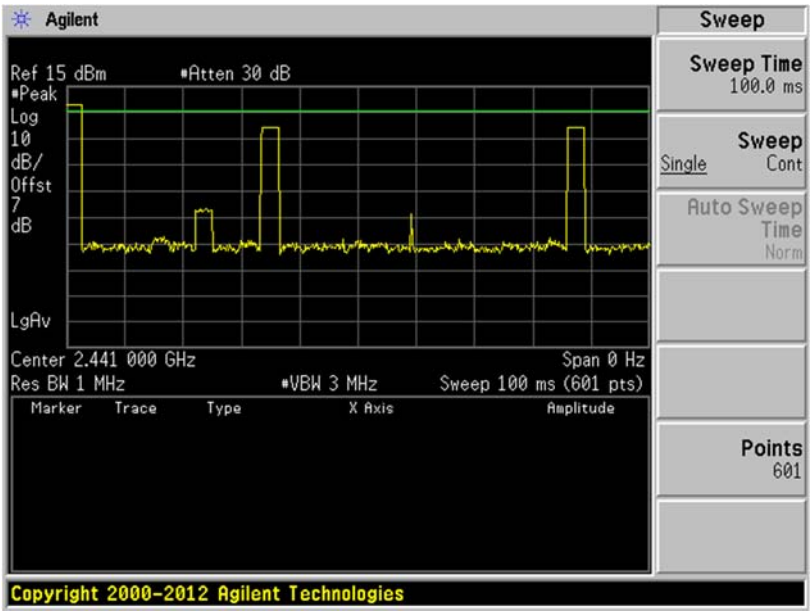
A.8 Radiated Emission

Duty cycle correction factor for average measurement.

DH5 on time/100 ms(Count Pulses) Plot on Channel 39



DH5 on time/100 ms(One Pulse) Plot on Channel 39



Note:

1. Duty cycle = on time/100 milliseconds = 3 * 2.873/100 =8.62 %
2. Duty cycle correction factor = 20*log (Duty cycle) = -21.29 dB
3. 2DH5 has the highest duty cycle and is reported.

Note 1: The symbol of "--" in the table which means not application.

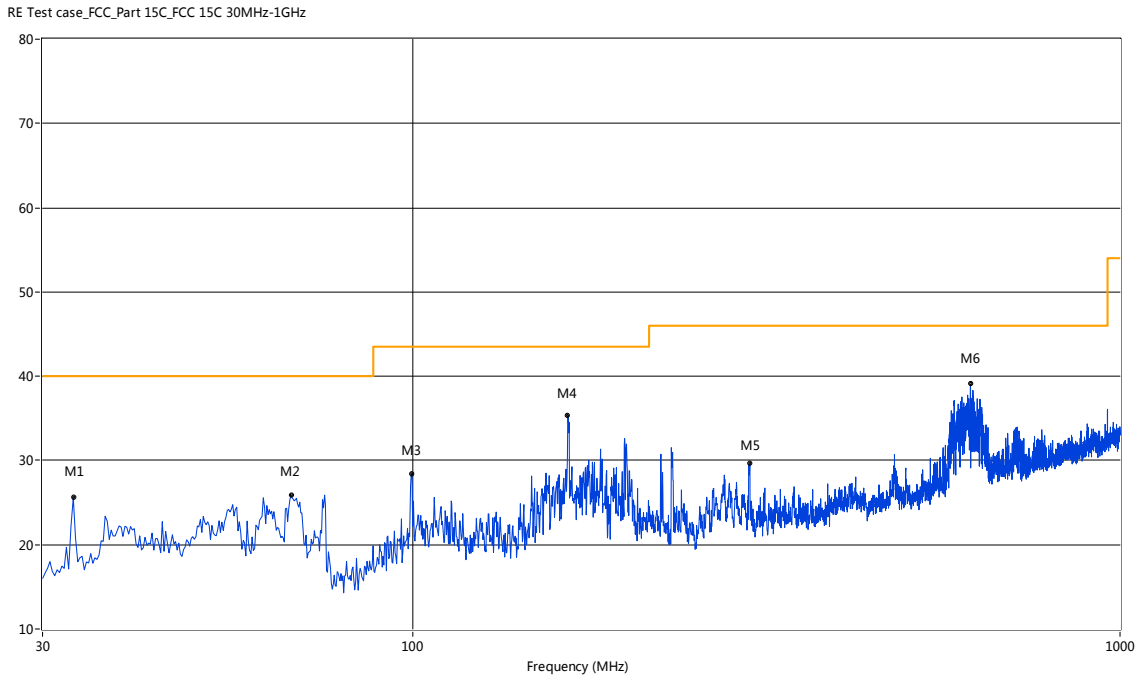
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: All configurations have been tested, only the worst configuration (GFSK High Channel) shown here.

Test Data and Plots

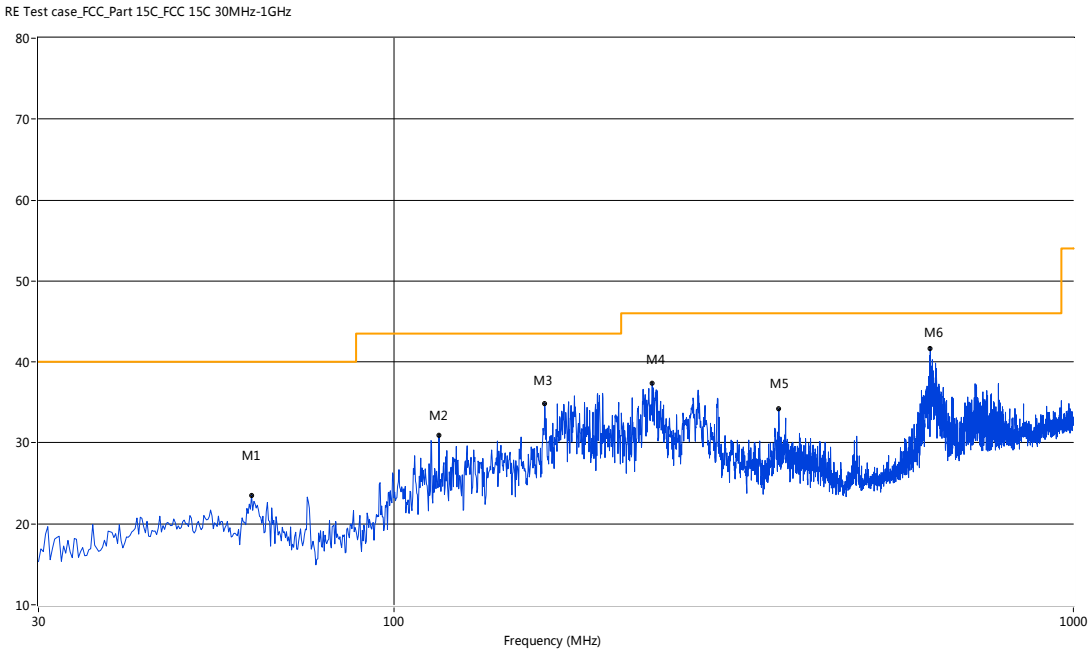
The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

30 MHz to 1 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	33.15	25.59	-21.90	40.0	14.41	Peak	242.00	100	Vertical	N/A
1*	33.15	5.47	-21.9	40.0	34.53	QP	242.00	100	Vertical	Pass
2	67.34	25.85	-21.61	40.0	14.15	Peak	18.00	100	Vertical	N/A
2*	67.34	6.34	-21.61	40.0	33.66	QP	18.00	100	Vertical	Pass
3	99.82	28.45	-20.20	43.5	15.05	Peak	118.00	100	Vertical	N/A
3*	99.82	14.75	-20.2	43.5	28.75	QP	118.00	100	Vertical	Pass
4	165.77	35.34	-22.91	43.5	8.16	Peak	267.00	100	Vertical	N/A
4*	165.77	17.37	-22.91	43.5	26.13	QP	267.00	100	Vertical	Pass
5	299.59	29.66	-17.64	46.0	16.34	Peak	47.00	100	Vertical	N/A
5*	299.59	12.38	-17.64	46.0	33.62	QP	47.00	100	Vertical	Pass
6	614.52	39.08	-10.24	46.0	6.92	Peak	298.00	100	Vertical	N/A
6*	614.52	20.76	-10.24	46.0	25.24	QP	298.00	100	Vertical	Pass

30 MHz to 1 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	61.76	23.51	-20.29	40.0	16.49	Peak	342.00	100	Horizontal	N/A
1*	61.76	3.83	-20.29	40.0	36.17	QP	342.00	100	Horizontal	Pass
2	116.55	30.94	-21.21	43.5	12.56	Peak	4.00	100	Horizontal	N/A
2*	116.55	10.43	-21.21	43.5	33.07	QP	4.00	100	Horizontal	Pass
3	166.74	34.85	-22.85	43.5	8.65	Peak	172.00	100	Horizontal	N/A
3*	166.74	13.75	-22.85	43.5	29.75	QP	172.00	100	Horizontal	Pass
4	239.95	37.35	-19.10	46.0	8.65	Peak	254.00	100	Horizontal	N/A
4*	239.95	16.75	-19.1	46.0	29.25	QP	254.00	100	Horizontal	Pass
5	368.45	34.22	-16.00	46.0	11.78	Peak	122.00	100	Horizontal	N/A
5*	368.45	16.41	-16	46.0	29.59	QP	122.00	100	Horizontal	Pass
6	615.73	41.68	-10.36	46.0	4.32	Peak	182.00	100	Horizontal	N/A
6*	615.73	23.34	-10.36	46.0	22.66	QP	182.00	100	Horizontal	Pass

Note: The marked spikes near 2400 MHz with circle should be ignored because they are Fundamental signal.

Test Data and Plots (1 GHz ~ 10th Harmonic)

GFSK LOW CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.39	48.72	-4.61	74	25.28	Peak	277	100	Vertical	Pass
2	2401.65	102.51	-0.27	74	-28.51	Peak	141	100	Vertical	N/A
3	3802.85	47.39	9.95	74	26.61	Peak	277	100	Vertical	Pass
4	5675.33	52.32	15.46	74	21.68	Peak	77	100	Vertical	Pass
5	12042.43	51.67	20.83	74	22.33	Peak	106	100	Vertical	Pass
6	19179.7	50.08	14.04	74	23.92	Peak	15	100	Vertical	Pass

GFSK LOW CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.7	-4.59	74	25.3	Peak	63	100	Horizontal	Pass
2	2401.65	110.25	-0.27	74	-36.25	Peak	146	100	Horizontal	N/A
3	3202.1	48.82	9.97	74	25.18	Peak	276	100	Horizontal	Pass
4	4804.05	56.05	13.74	74	17.95	Peak	331	100	Horizontal	Pass
4*	4804.05	34.76	13.74	54	19.24	AV	331	100	Horizontal	Pass
5	12098.59	51.27	20.77	74	22.73	Peak	20.3	100	Horizontal	Pass
6	19449.25	50.3	12.8	74	23.7	Peak	359.8	100	Horizontal	Pass

GFSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.96	-4.59	74	25.04	Peak	248	100	Vertical	Pass
2	2440.64	100.99	-0.41	74	-26.99	Peak	246	100	Vertical	N/A
3	3321.34	48.61	10.13	74	25.39	Peak	202	100	Vertical	Pass
4	5670.08	52.56	15.39	74	21.44	Peak	208	100	Vertical	Pass
5	11312.4	51.06	20.18	74	22.94	Peak	342	100	Vertical	Pass
6	19009.98	50.21	13.42	74	23.79	Peak	266	100	Vertical	Pass

GFSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1437.89	48.6	-4.61	74	25.4	Peak	149	100	Horizontal	Pass
2	2440.64	109.61	-0.41	74	-35.61	Peak	219	100	Horizontal	N/A
3	3363.24	47.25	10.13	74	26.75	Peak	307	100	Horizontal	Pass
4	4881.28	53.68	13.62	74	20.32	Peak	281	100	Horizontal	Pass
5	11233.78	50.65	20.2	74	23.35	Peak	20	100	Horizontal	Pass
6	19449.25	50.27	12.8	74	23.73	Peak	348	100	Horizontal	Pass

GFSK HIGH CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	49.04	-4.59	74	24.96	Peak	122	100	Vertical	Pass
2	2480.13	100.72	-0.6	74	-26.72	Peak	53	100	Vertical	N/A
3	3719.82	49.8	10.33	74	24.2	Peak	165	100	Vertical	Pass
4	5928.02	52.14	15.74	74	21.86	Peak	350	100	Vertical	Pass
5	11975.04	51.02	20.76	74	22.98	Peak	26	100	Vertical	Pass
6	19179.7	50.68	14.04	74	23.32	Peak	141	100	Vertical	Pass

GFSK HIGH CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	49.66	-4.59	74	24.34	Peak	124	100	Horizontal	Pass
2	2479.63	109.21	-0.63	74	-35.21	Peak	244	100	Horizontal	N/A
3	3720.57	46.85	10.32	74	27.15	Peak	54	100	Horizontal	Pass
4	4960.76	53.66	14.26	74	20.34	Peak	353	100	Horizontal	Pass
5	12042.43	52.17	20.83	74	21.83	Peak	132	100	Horizontal	Pass
6	19249.58	49.91	13.82	74	24.09	Peak	19	100	Horizontal	Pass

∏/4-DQPSK LOW CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1594.35	49.71	-4.29	74.0	24.29	Peak	316.00	100	Vertical	Pass
2	2402.15	101.58	-0.34	74.0	-27.58	Peak	143.00	100	Vertical	N/A
3	3455.36	47.69	9.95	74.0	26.31	Peak	307.00	100	Vertical	Pass
4	5165.46	51.84	14.88	74.0	22.16	Peak	223.00	100	Vertical	Pass
5	12289.52	51.80	20.65	74.0	22.20	Peak	52.00	100	Vertical	Pass
6	19249.58	50.03	13.82	74.0	23.97	Peak	117.00	100	Vertical	Pass

∏/4-DQPSK LOW CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.89	49.16	-4.53	74.0	24.84	Peak	62.00	100	Horizontal	Pass
2	2402.15	108.76	-0.34	74.0	-34.76	Peak	267.00	100	Horizontal	N/A
3	3225.36	48.01	9.97	74.0	25.99	Peak	117.00	100	Horizontal	Pass
4	4804.05	53.64	13.74	74.0	20.36	Peak	243.00	100	Horizontal	Pass
5	12143.51	51.53	20.72	74.0	22.47	Peak	69.00	100	Horizontal	Pass
6	19179.70	50.29	14.04	74.0	23.71	Peak	265.00	100	Horizontal	Pass

∏/4-DQPSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1438.89	48.29	-4.59	74.0	25.71	Peak	329.00	100	Vertical	Pass
2	2440.64	99.91	-0.41	74.0	-25.91	Peak	144.00	100	Vertical	N/A
3	3305.47	46.39	10.13	74.0	27.61	Peak	237.00	100	Vertical	Pass
4	4660.09	51.67	13.11	74.0	22.33	Peak	171.00	100	Vertical	Pass
5	11570.72	51.20	20.24	74.0	22.80	Peak	328.00	100	Vertical	Pass
6	19179.70	50.69	14.04	74.0	23.31	Peak	75.00	100	Vertical	Pass

∏/4-DQPSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.08	-4.59	74.0	25.92	Peak	305.00	100	Horizontal	Pass
2	2441.14	110.42	-0.38	74.0	-36.42	Peak	11.00	100	Horizontal	N/A
3	3527.44	47.12	10.13	74.0	26.88	Peak	123.00	100	Horizontal	Pass
4	4882.03	53.84	13.60	74.0	20.16	Peak	347.00	100	Horizontal	Pass
5	11975.04	51.35	20.76	74.0	22.65	Peak	111.00	100	Horizontal	Pass
6	19409.32	50.17	12.89	74.0	23.83	Peak	226.00	100	Horizontal	Pass

∏/4-DQPSK HIGH CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.94	-4.59	74.0	25.06	Peak	6.00	100	Vertical	Pass
2	2479.63	100.69	-0.63	74.0	-26.69	Peak	84.00	100	Vertical	N/A
3	3719.82	51.79	10.33	74.0	22.21	Peak	348.00	100	Vertical	Pass
4	4960.76	51.92	14.26	74.0	22.08	Peak	198.00	100	Vertical	Pass
5	12289.52	51.60	20.65	74.0	22.40	Peak	310.00	100	Vertical	Pass
6	19179.70	50.47	14.04	74.0	23.53	Peak	120.00	100	Vertical	Pass

∏/4-DQPSK HIGH CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	49.03	-4.55	74.0	24.97	Peak	65.00	100	Horizontal	Pass
2	2480.13	110.22	-0.60	74.0	-36.22	Peak	21.00	100	Horizontal	N/A
3	3720.57	52.92	10.32	74.0	21.08	Peak	15.00	100	Horizontal	Pass
4	4960.01	53.63	14.22	74.0	20.37	Peak	72.00	100	Horizontal	Pass
5	12042.43	51.89	20.83	74.0	22.11	Peak	28.00	100	Horizontal	Pass
6	19449.25	50.38	12.80	74.0	23.62	Peak	17.00	100	Horizontal	Pass

8-DPSK LOW CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1595.85	50.77	-4.33	74.0	23.23	Peak	234.00	100	Vertical	Pass
2	2401.65	100.60	-0.27	74.0	-26.60	Peak	322.00	100	Vertical	N/A
3	3736.47	48.55	9.95	74.0	25.45	Peak	36.00	100	Vertical	Pass
4	4804.05	52.33	13.74	74.0	21.67	Peak	147.00	100	Vertical	Pass
5	11930.12	51.25	20.55	74.0	22.75	Peak	168.00	100	Vertical	Pass
6	19049.92	49.97	13.57	74.0	24.03	Peak	231.00	100	Vertical	Pass

8-DPSK LOW CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.85	-4.59	74.0	25.15	Peak	46.00	100	Horizontal	Pass
2	2401.65	110.92	-0.27	74.0	-36.92	Peak	26.00	100	Horizontal	N/A
3	3235.98	45.39	9.95	74.0	28.61	Peak	267.00	100	Horizontal	Pass
4	4804.05	53.97	13.74	74.0	20.03	Peak	318.00	100	Horizontal	Pass
4*	4804.05	32.92	13.74	54.0	21.08	AV	318.00	100	Horizontal	Pass
5	11952.58	51.06	20.65	74.0	22.94	Peak	108.00	100	Horizontal	Pass
6	19179.70	50.60	14.04	74.0	23.40	Peak	88.00	100	Horizontal	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	49.53	-4.55	74.0	24.47	Peak	54.00	100	Vertical	Pass
2	2441.14	100.32	-0.38	74.0	-26.32	Peak	167.00	100	Vertical	N/A
3	3447.39	47.21	10.13	74.0	26.79	Peak	71.00	100	Vertical	Pass
4	5694.83	51.28	15.15	74.0	22.72	Peak	7.00	100	Vertical	Pass
5	12109.82	51.33	20.76	74.0	22.67	Peak	328.00	100	Vertical	Pass
6	19009.98	50.27	13.42	74.0	23.73	Peak	48.00	100	Vertical	Pass

8-DPSK MIDDLE CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	48.29	-4.55	74.0	25.71	Peak	198.00	100	Horizontal	Pass
2	2441.14	110.71	-0.38	74.0	-36.71	Peak	50.00	100	Horizontal	N/A
3	3714.36	50.14	10.13	74.0	23.86	Peak	139.00	100	Horizontal	Pass
4	4882.03	53.87	13.60	74.0	20.13	Peak	159.00	100	Horizontal	Pass
5	12289.52	51.74	20.65	74.0	22.26	Peak	148.00	100	Horizontal	Pass
6	19449.25	50.41	12.80	74.0	23.59	Peak	338.00	100	Horizontal	Pass

8-DPSK HIGH CHANNEL 1 GHz to 25 GHz, ANT V

No	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	48.52	-4.55	74.0	25.48	Peak	355.00	100	Vertical	Pass
2	2480.13	100.86	-0.60	74.0	-26.86	Peak	196.00	100	Vertical	N/A
3	3719.82	50.40	10.33	74.0	23.60	Peak	22.00	100	Vertical	Pass
4	5388.90	51.49	14.74	74.0	22.51	Peak	351.00	100	Vertical	Pass
5	12289.52	51.32	20.65	74.0	22.68	Peak	66.00	100	Vertical	Pass
6	19179.70	50.44	14.04	74.0	23.56	Peak	356.00	100	Vertical	Pass

8-DPSK HIGH CHANNEL 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1442.39	48.72	-4.52	74.0	25.28	Peak	116.00	100	Horizontal	Pass
2	2479.63	110.25	-0.63	74.0	-36.25	Peak	22.00	100	Horizontal	N/A
3	3720.57	52.09	10.32	74.0	21.91	Peak	163.00	100	Horizontal	Pass
4	4960.01	53.68	14.22	74.0	20.32	Peak	44.00	100	Horizontal	Pass
5	12042.43	52.15	20.83	74.0	21.85	Peak	316.00	100	Horizontal	Pass
6	19179.70	50.37	14.04	74.0	23.63	Peak	107.00	100	Horizontal	Pass

Hopping Mode:

GFSK MODE 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	49.60	-4.55	74.0	24.40	Peak	22.00	100	Vertical	Pass
2	2407.15	96.34	-0.19	74.0	-22.34	Peak	136.00	100	Vertical	N/A
3	2479.13	92.41	-0.58	74.0	-18.41	Peak	321.00	100	Vertical	N/A
4	3325.14	57.32	10.19	74.0	16.68	Peak	86.00	100	Vertical	Pass
5	4721.57	53.32	13.58	74.0	20.68	Peak	23.00	100	Vertical	Pass
6	12042.43	51.75	20.83	74.0	22.25	Peak	348.00	100	Vertical	Pass

GFSK MODE 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	48.51	-4.55	74.0	25.49	Peak	71.00	100	Horizontal	Pass
2	2402.65	109.55	-0.26	74.0	-35.55	Peak	90.00	100	Horizontal	N/A
3	2474.13	109.35	-0.49	74.0	-35.35	Peak	86.00	100	Horizontal	N/A
4	3429.15	47.25	10.09	74.0	26.75	Peak	67.00	100	Horizontal	Pass
5	4859.53	53.80	13.55	74.0	20.20	Peak	287.00	100	Horizontal	Pass
6	12289.52	51.68	20.65	74.0	22.32	Peak	21.00	100	Horizontal	Pass

∏/4-DQPSK MODE 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	48.96	-4.59	74.0	25.04	Peak	55.00	100	Vertical	Pass
2	2401.65	100.81	-0.27	74.0	-26.81	Peak	9.00	100	Vertical	N/A
3	2476.63	99.37	-0.56	74.0	-25.37	Peak	96.00	100	Vertical	N/A
4	3357.85	47.36	10.09	74.0	26.64	Peak	10.00	100	Vertical	Pass
5	4721.57	52.45	13.58	74.0	21.55	Peak	177.00	100	Vertical	Pass
6	12042.43	51.71	20.83	74.0	22.29	Peak	273.00	100	Vertical	Pass

∏/4-DQPSK MODE 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1440.39	48.34	-4.55	74.0	25.66	Peak	234.00	100	Horizontal	Pass
2	2403.15	110.85	-0.20	74.0	-36.85	Peak	111.00	100	Horizontal	N/A
3	2477.63	109.77	-0.53	74.0	-35.77	Peak	27.00	100	Horizontal	N/A
4	3335.54	45.31	10.14	74.0	28.69	Peak	244.00	100	Horizontal	Pass
5	4870.03	53.88	13.60	74.0	20.12	Peak	189.00	100	Horizontal	Pass
6	12042.43	51.48	20.83	74.0	22.52	Peak	281.00	100	Horizontal	Pass

-DPSK MODE 1 GHz to 25 GHz, ANT V

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1439.89	49.30	-4.59	74.0	24.70	Peak	180.00	100	Vertical	Pass
2	2408.65	99.45	-0.10	74.0	-25.45	Peak	294.00	100	Vertical	N/A
3	2475.13	97.36	-0.50	74.0	-23.36	Peak	154.00	100	Vertical	N/A
4	3236.32	45.11	10.19	74.0	28.89	Peak	103.00	100	Vertical	Pass
5	5715.07	51.78	15.41	74.0	22.22	Peak	208.00	100	Vertical	Pass
6	12098.59	51.06	20.77	74.0	22.94	Peak	278.00	100	Vertical	Pass

8-DPSK MODE 1 GHz to 25 GHz, ANT H

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1438.89	48.92	-4.59	74.0	25.08	Peak	294.00	100	Horizontal	Pass
2	2401.65	109.74	-0.27	74.0	-35.74	Peak	105.00	100	Horizontal	N/A
3	2480.13	110.16	-0.60	74.0	-36.16	Peak	69.00	100	Horizontal	N/A
4	3357.18	41.58	10.12	74.0	32.42	Peak	194.00	100	Horizontal	Pass
5	4830.29	53.64	13.71	74.0	20.36	Peak	45.00	100	Horizontal	Pass
6	12042.43	52.20	20.83	74.0	21.80	Peak	184.00	100	Horizontal	Pass

A.9 Band Edge

Test Data

Note 1: The lowest and highest channels are tested to verify the band edge emissions. Please refer to the following the plots for emissions values.

Note 2: The test data all are tested in the vertical and horizontal antenna which the trace is max hold. So these plots have shown the worst case.

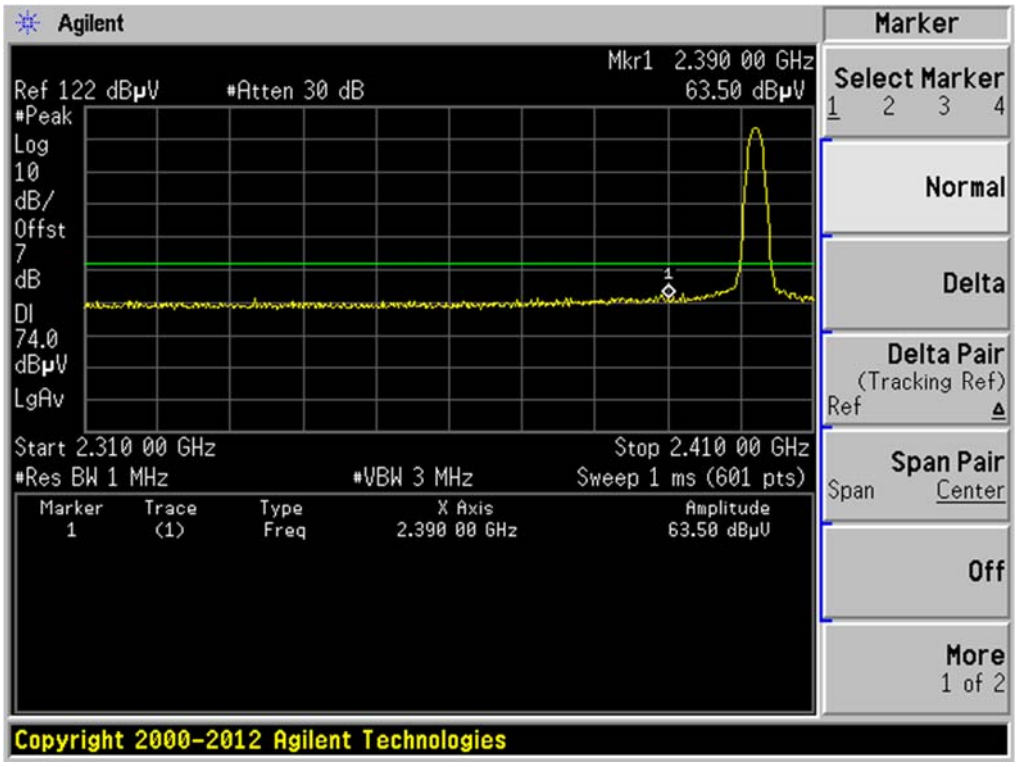
Note 3: The average levels were calculated from the peak level corrected with duty cycle correction factor (-21.29 dB) derived from 20log (dwell time/100 ms).

For example: Average level = 63.50 dBuV/m – 21.29 (dB) = 42.21 dBuV/m.

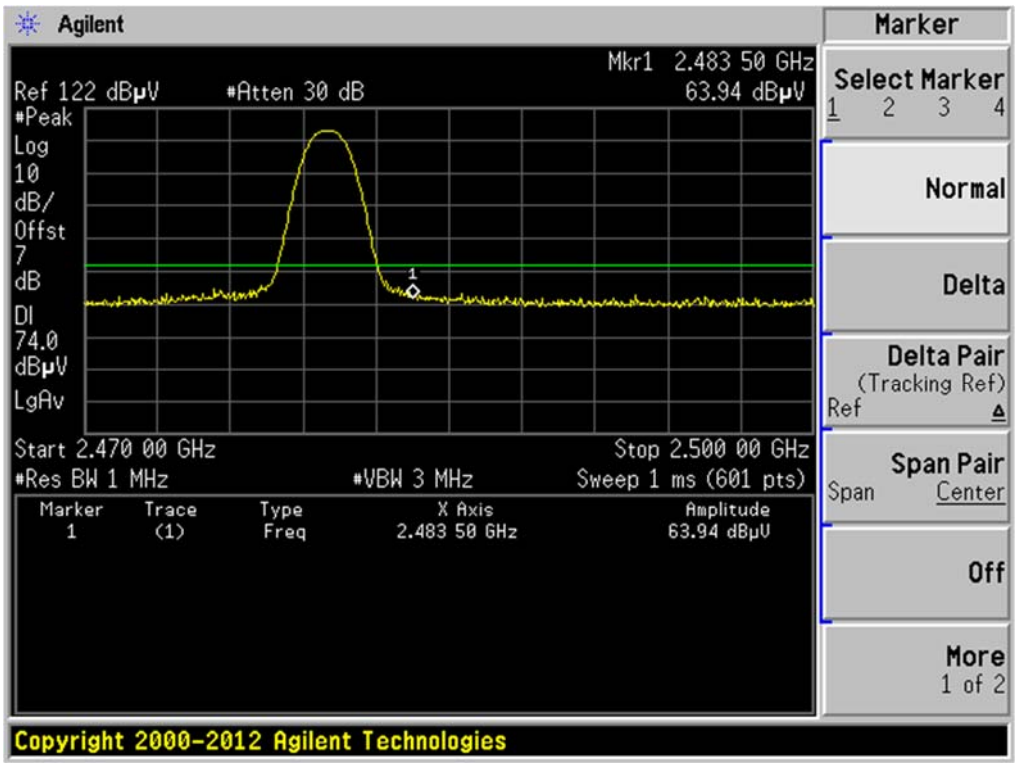
Test Mode	Test Channel	Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	Remark	Verdict
GFSK	Low	2390	63.50	74	10.50	PEAK	Pass
		2390	42.21	54	11.79	AVERAGE	Pass
GFSK	HIGH	2483.5	63.94	74	10.06	PEAK	Pass
		2483.5	42.65	54	11.35	AVERAGE	Pass
∏/4DQPSK	Low	2390	62.74	74	11.26	PEAK	Pass
		2390	41.45	54	12.55	AVERAGE	Pass
∏/4DQPSK	HIGH	2483.5	63.87	74	10.13	PEAK	Pass
		2483.5	42.58	54	11.42	AVERAGE	Pass
8-DPSK	Low	2390	62.01	74	11.99	PEAK	Pass
		2390	40.72	54	13.28	AVERAGE	Pass
8-DPSK	HIGH	2483.5	64.60	74	9.40	PEAK	Pass
		2483.5	43.31	54	10.69	AVERAGE	Pass
GFSK(Hopping)	Low	2390	62.00	74	12.00	PEAK	Pass
		2390	40.71	54	13.29	AVERAGE	Pass
GFSK(Hopping	HIGH	2483.5	62.71	74	11.29	PEAK	Pass
		2483.5	41.42	54	12.58	AVERAGE	Pass
∏/4DQPSK (Hopping)	Low	2390	61.33	74	12.67	PEAK	Pass
		2390	40.04	54	13.96	AVERAGE	Pass
∏/4DQPSK (Hopping)	HIGH	2483.5	62.97	74	11.03	PEAK	Pass
		2483.5	41.68	54	12.32	AVERAGE	Pass
8-DPSK (Hopping)	Low	2390	60.86	74	13.14	PEAK	Pass
		2390	39.57	54	14.43	AVERAGE	Pass
8-DPSK (Hopping)	HIGH	2483.5	62.68	74	11.32	PEAK	Pass
		2483.5	41.39	54	12.61	AVERAGE	Pass

Test Plots

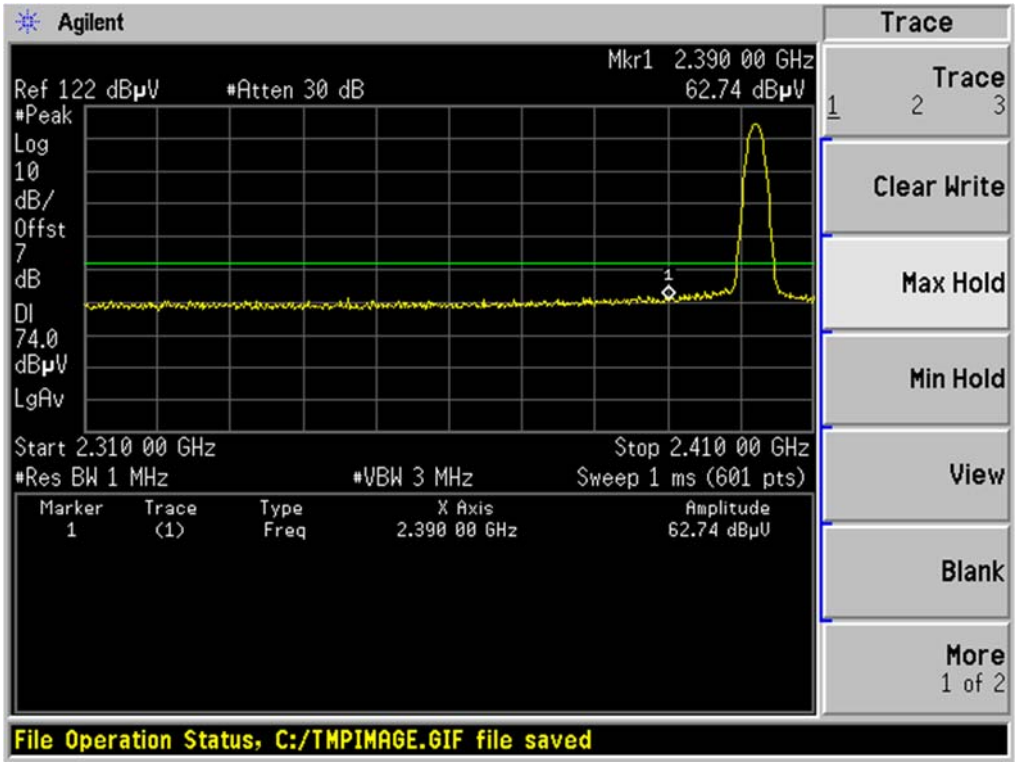
GFSK LOW CHANNEL , PEAK



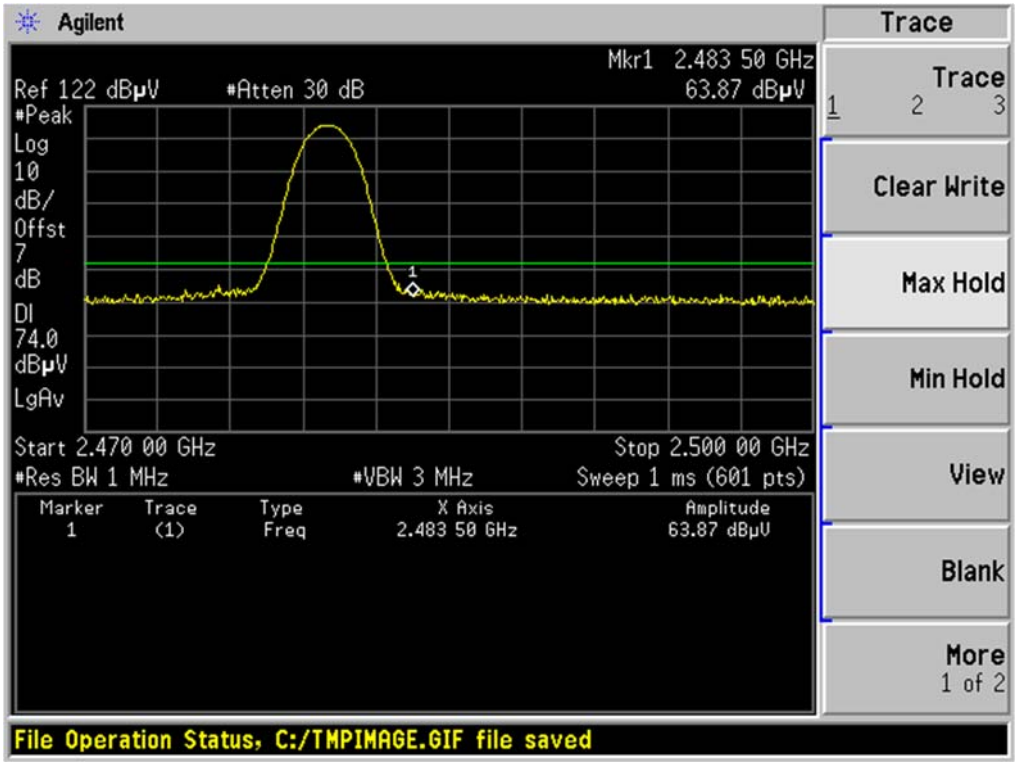
GFSK HIGH CHANNEL , PEAK



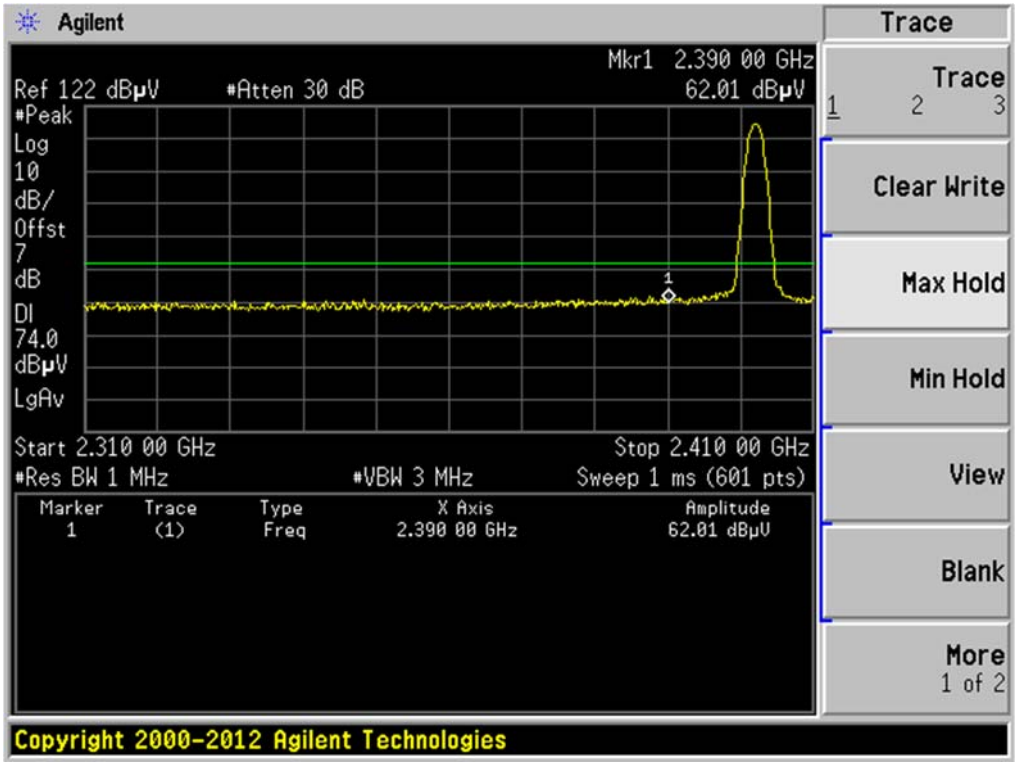
Π/4-DQPSK LOW CHANNEL , PEAK



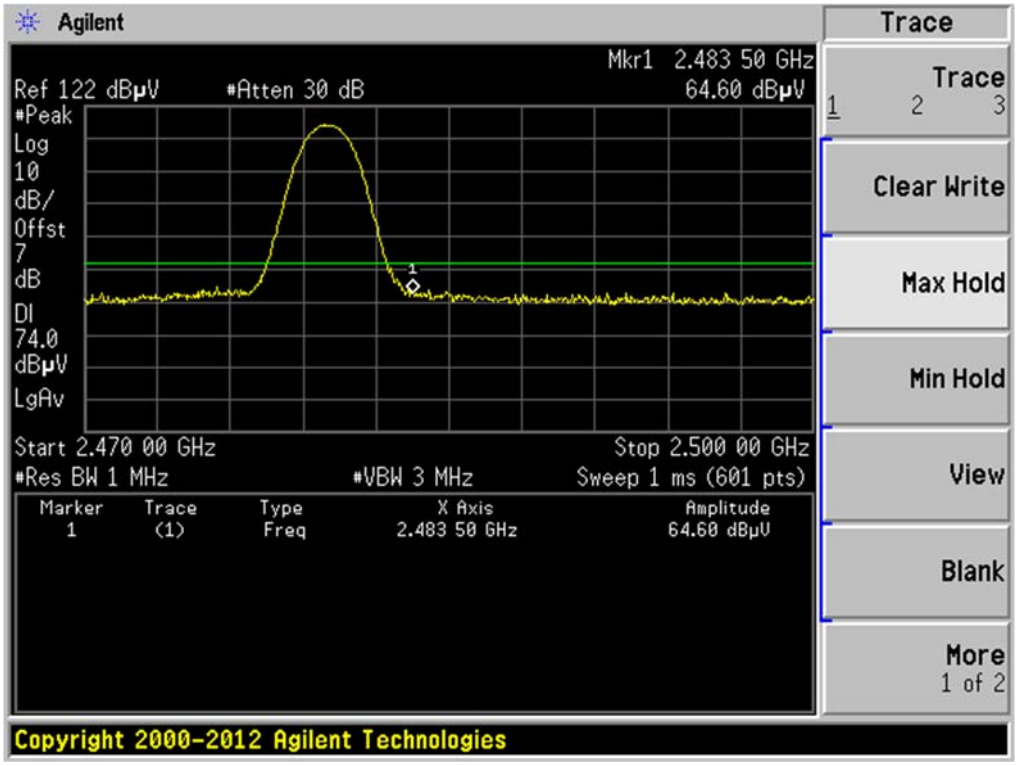
Π/4-DQPSK HIGH CHANNEL , PEAK



8-DPSK LOW CHANNEL , PEAK

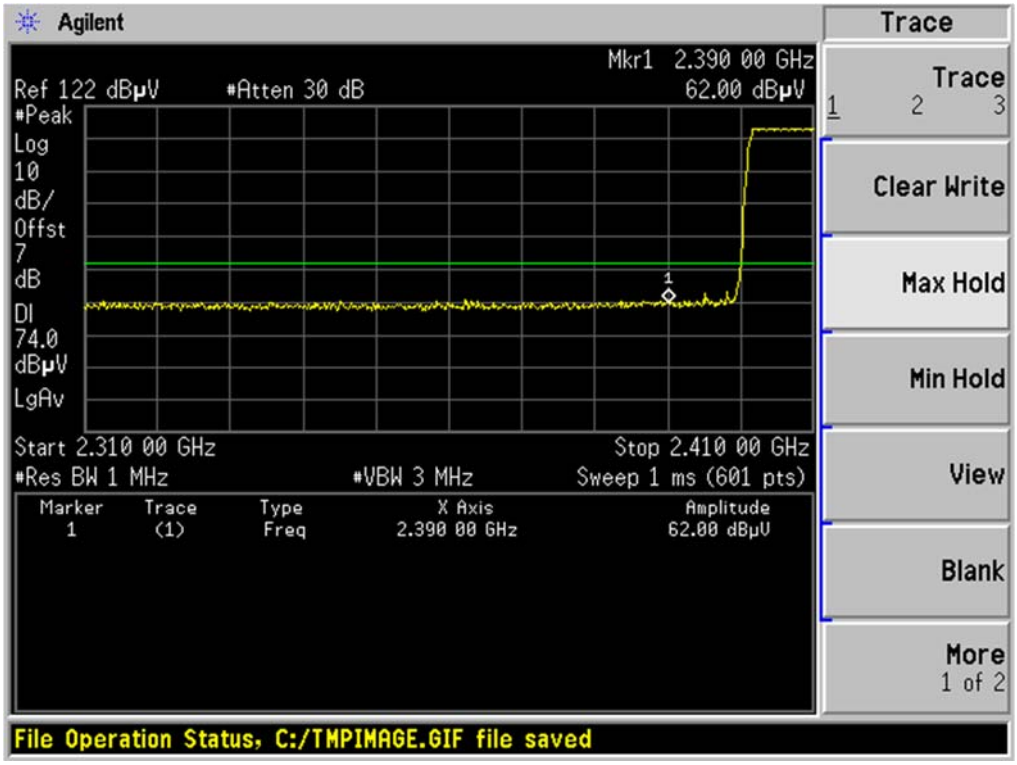


8-DPSK HIGH CHANNEL , PEAK

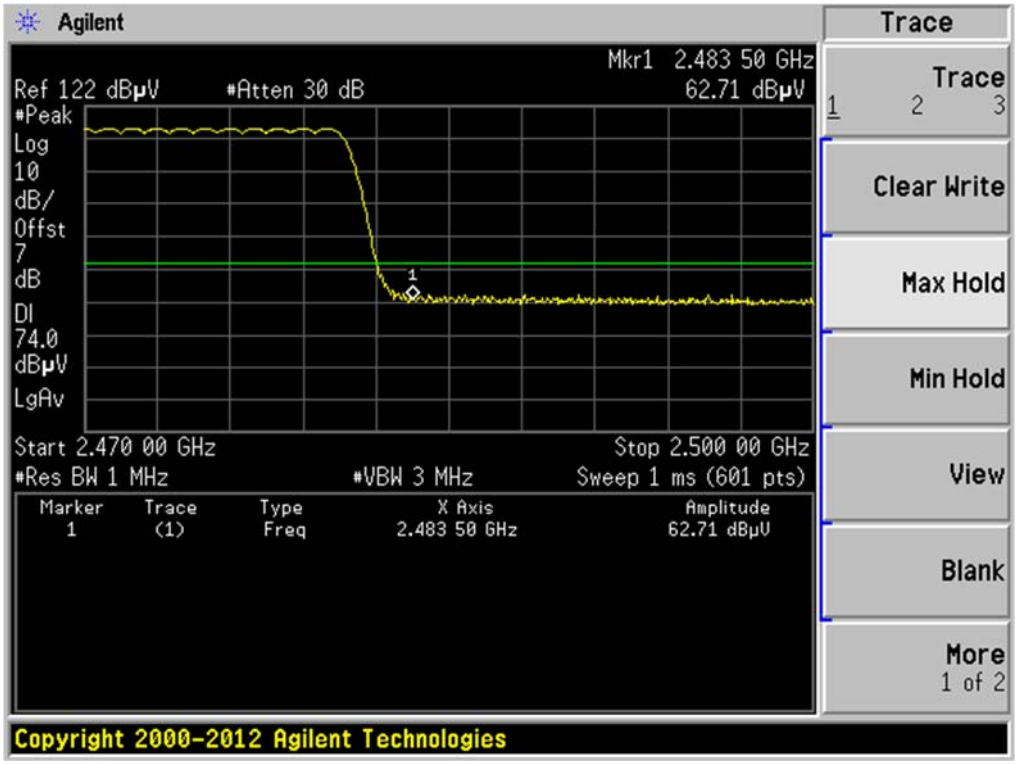


Hopping Mode:

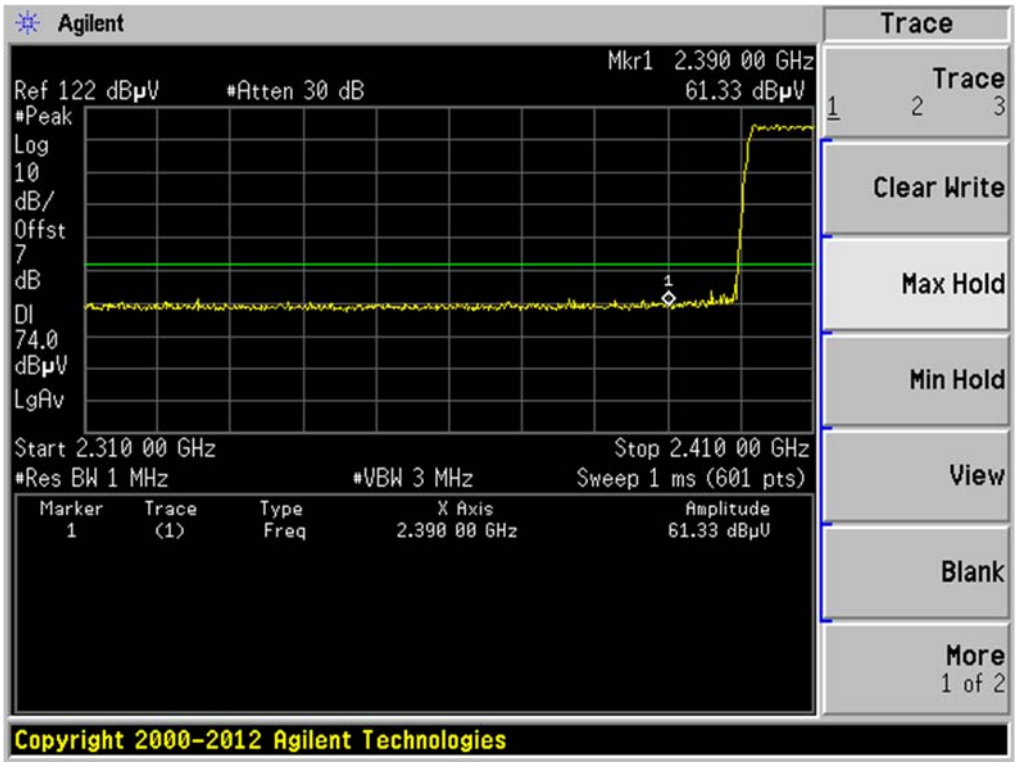
GFSK LOW FREQUENCY BAND, PEAK



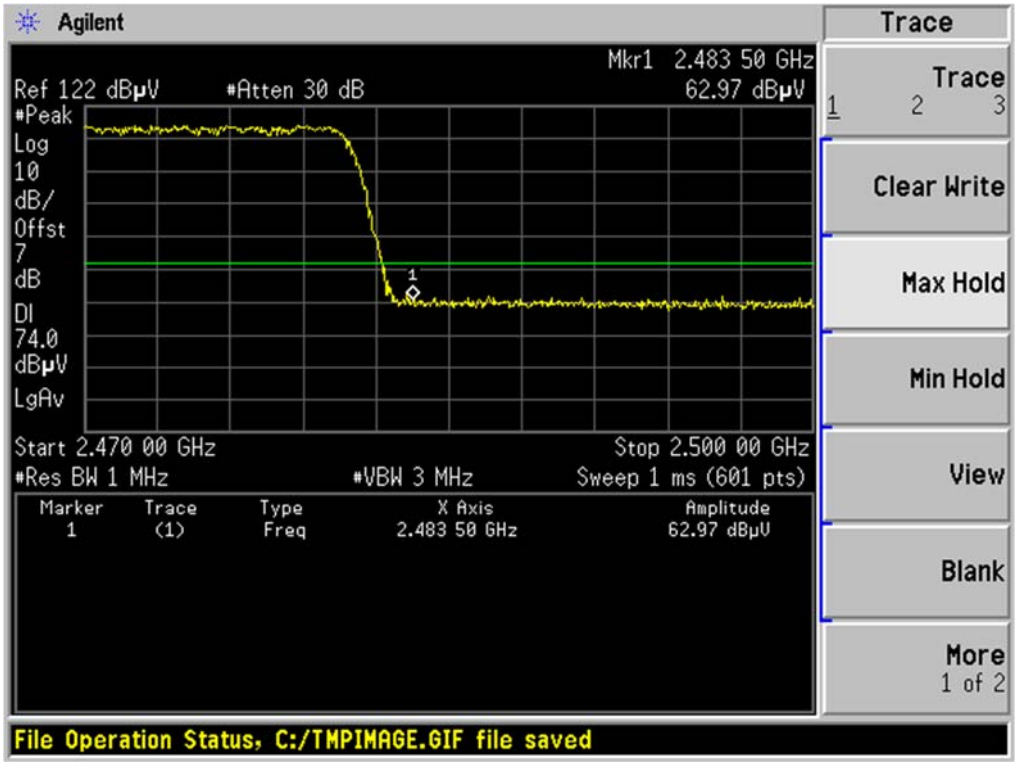
GFSK HIGH FREQUENCY BAND, PEAK



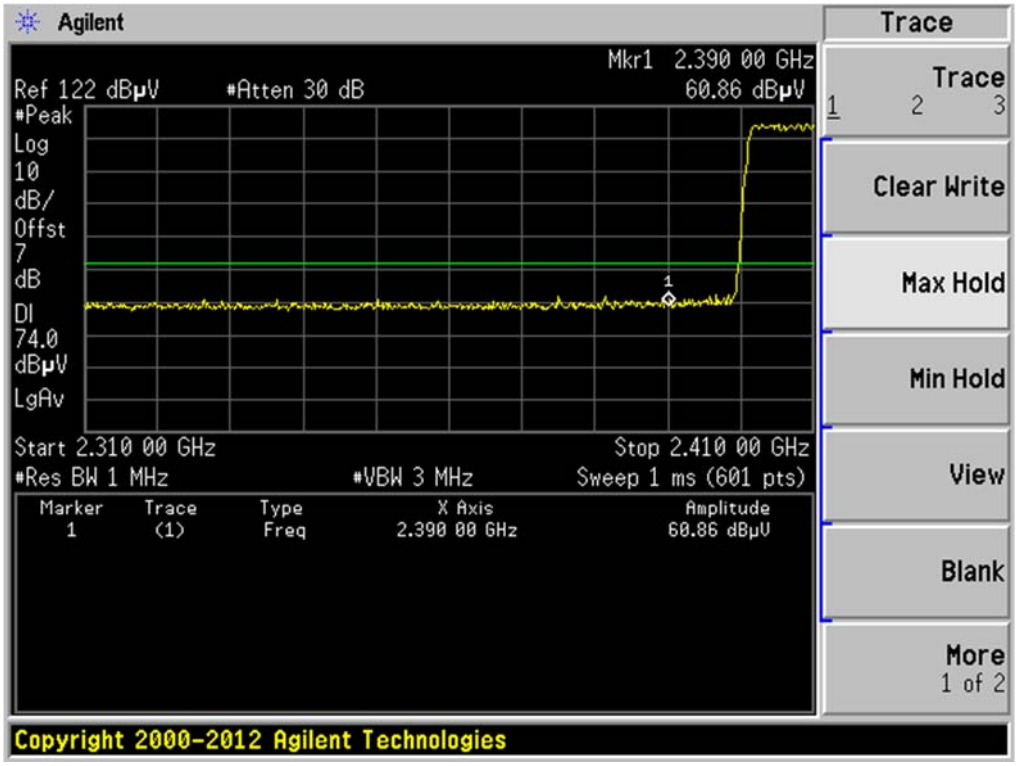
∏/4-DQPSK LOW FREQUENCY BAND, PEAK



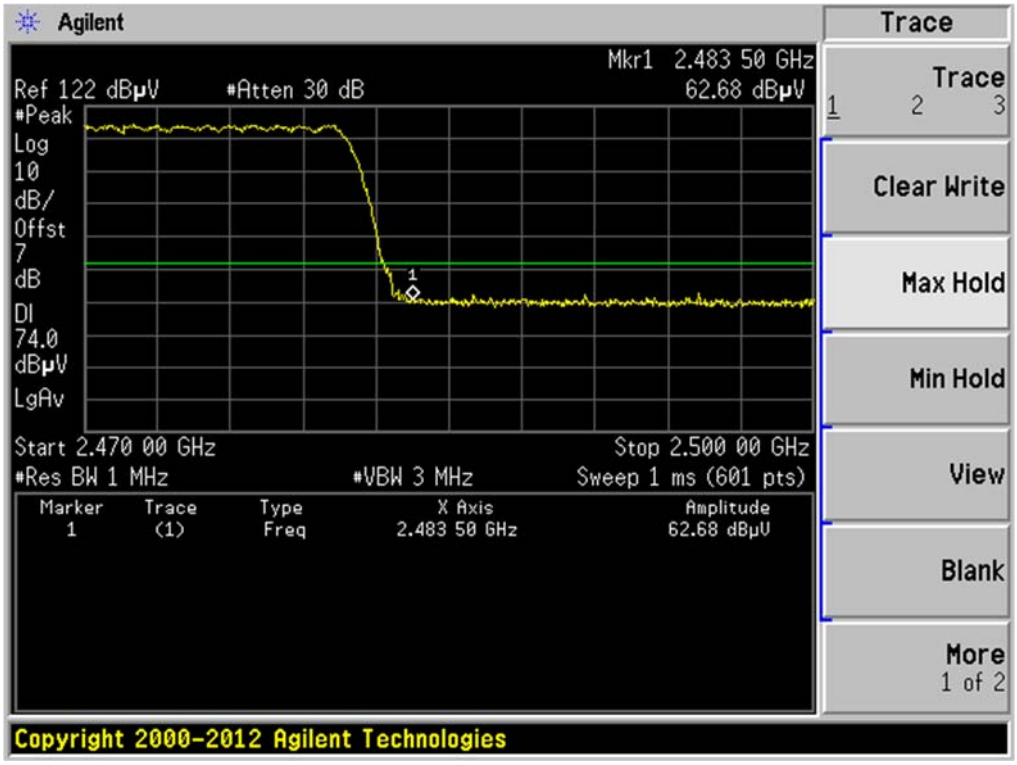
∏/4-DQPSK HIGH FREQUENCY BAND, PEAK



8-DPSK LOW FREQUENCY BAND, PEAK



8-DPSK HIGH FREQUENCY BAND, PEAK

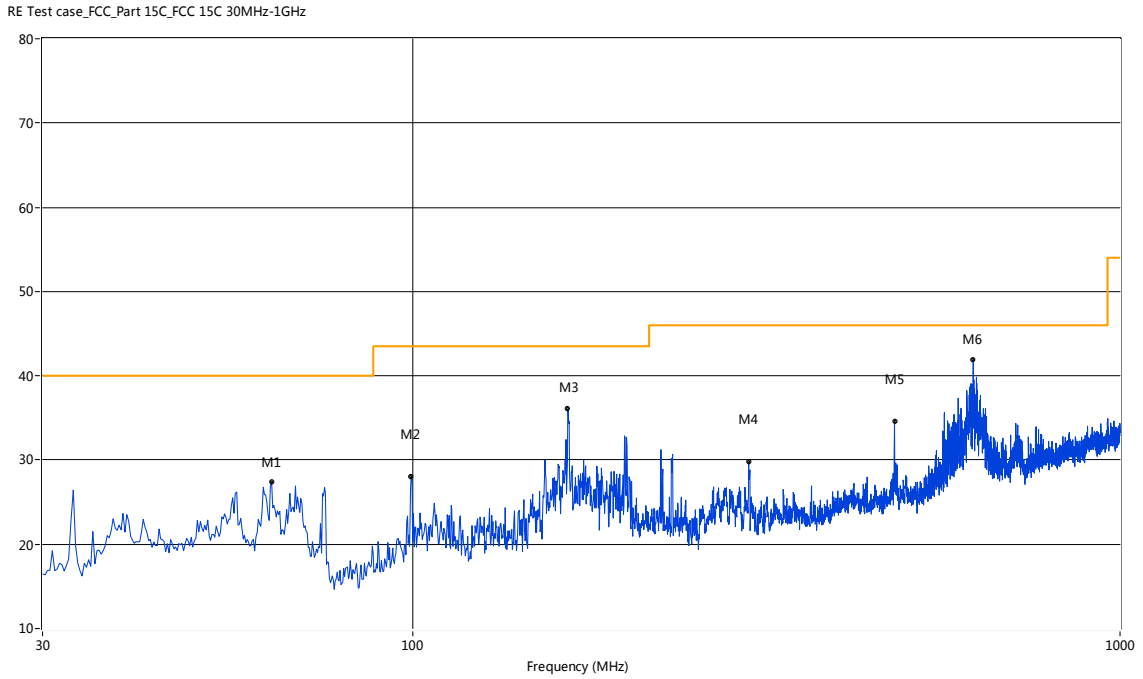


A.10 Receiver Spurious Emissions

Note: All configurations have been tested, only the worst configuration (GFSK High Channel) shown here.

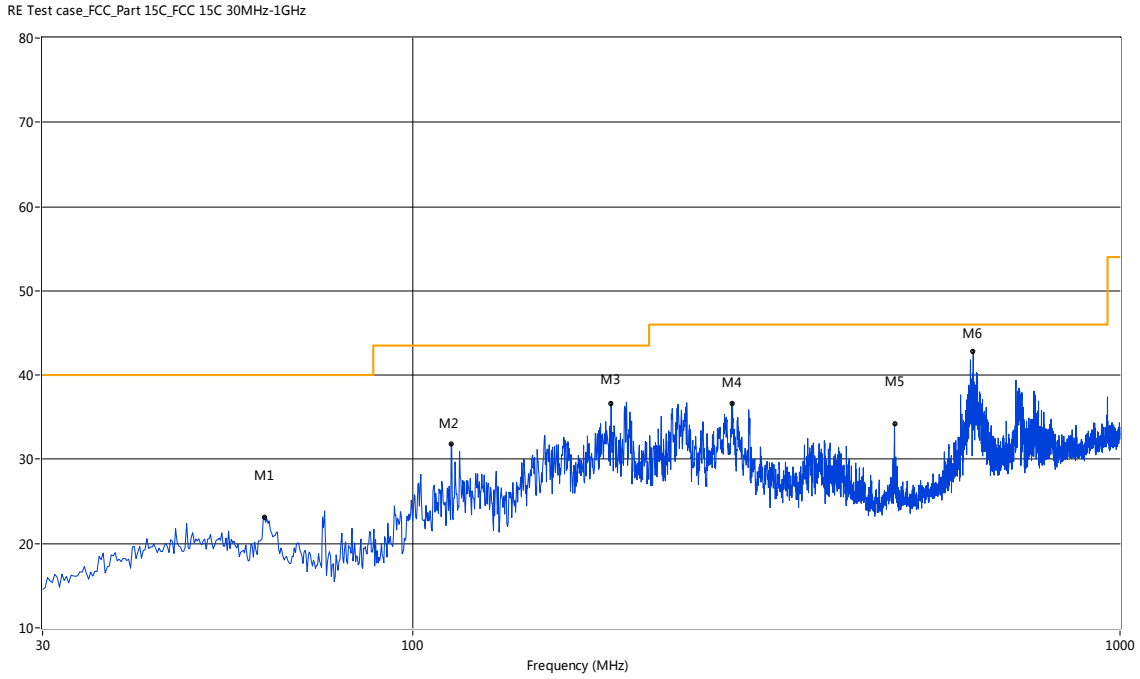
Test Data and Plots

30 MHz to 1 GHz, ANT V



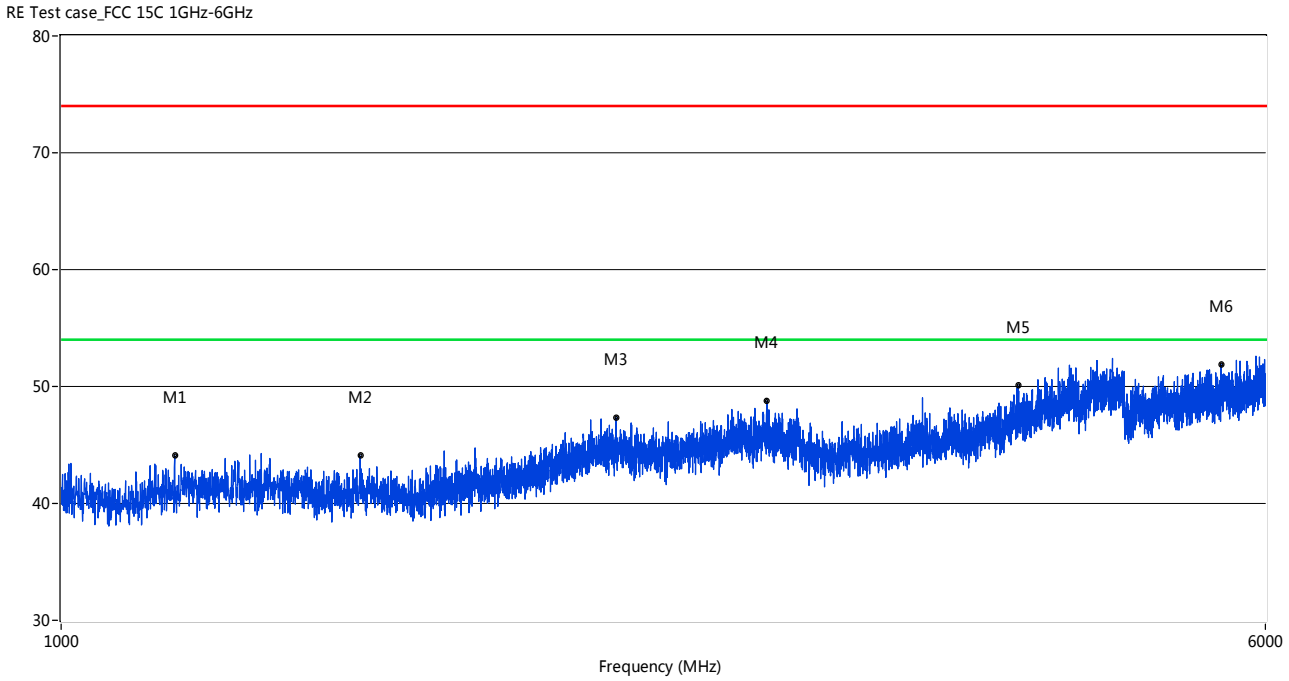
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	63.21	27.41	-20.43	40	12.59	Peak	333.00	100	Vertical	N/A
1*	63.21	18.55	-20.43	54	35.45	QP	333.00	100	Vertical	Pass
2	99.58	28.04	-20.22	43.5	15.46	Peak	225.00	100	Vertical	N/A
2*	99.58	20.27	-20.22	54	33.73	QP	225.00	100	Vertical	Pass
3	165.77	36.06	-22.91	43.5	7.44	Peak	210.00	100	Vertical	N/A
3*	165.77	25.58	-22.91	54	28.42	QP	210.00	100	Vertical	Pass
4	298.62	29.75	-17.68	46	16.25	Peak	341.00	100	Vertical	N/A
4*	298.62	22.57	-17.68	54	31.43	QP	341.00	100	Vertical	Pass
5	479.97	34.53	-13.81	46	11.47	Peak	117.00	100	Vertical	N/A
5*	479.97	26.27	-13.81	54	27.73	QP	117.00	100	Vertical	Pass
6	620.1	41.92	-10.17	46	4.08	Peak	312.00	100	Vertical	N/A
6*	620.1	30.50	-10.17	54	23.50	QP	312.00	100	Vertical	Pass

30 MHz to 1 GHz, ANT H



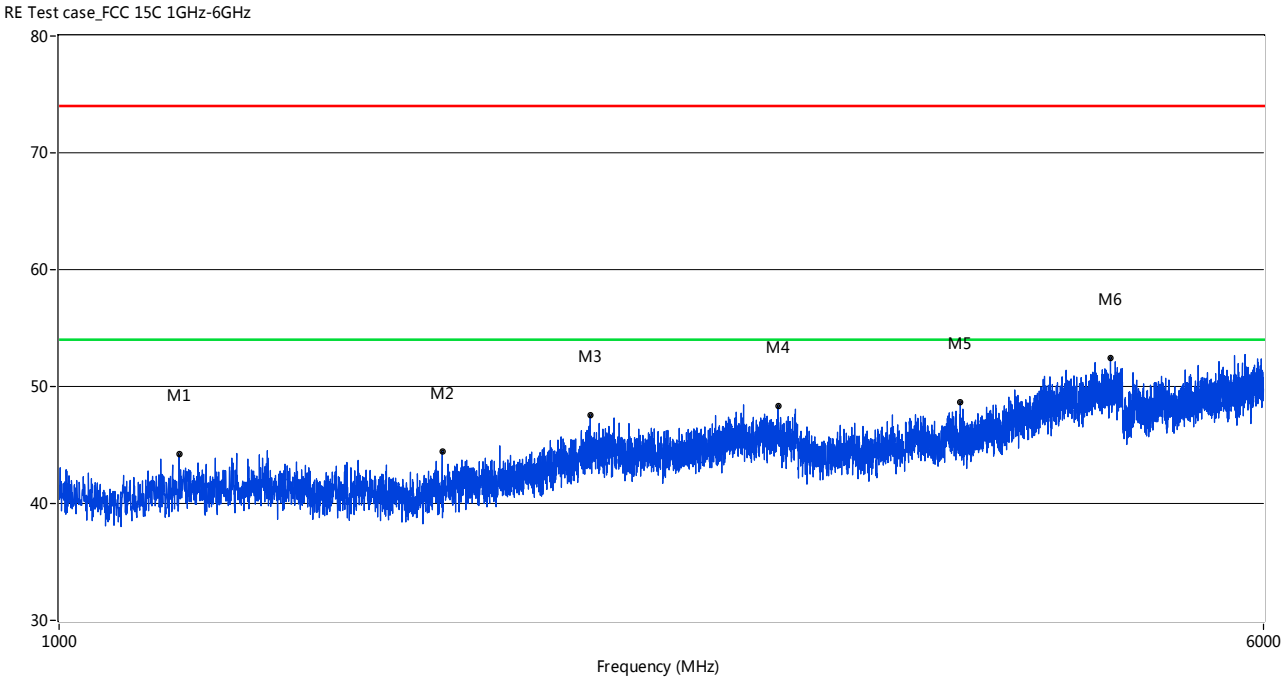
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	61.76	23.07	-20.29	40	16.93	Peak	153.00	100	Horizontal	N/A
1*	61.76	12.13	-20.29	54	41.87	QP	153.00	100	Horizontal	Pass
2	113.4	31.82	-20.74	43.5	11.68	Peak	93.00	100	Horizontal	N/A
2*	113.4	22.42	-20.74	54	31.58	QP	93.00	100	Horizontal	Pass
3	190.74	36.56	-21.13	43.5	6.94	Peak	270.00	100	Horizontal	N/A
3*	190.74	25.27	-21.13	54	28.73	QP	270.00	100	Horizontal	Pass
4	283.35	36.60	-18.28	46	9.40	Peak	254.00	100	Horizontal	N/A
4*	283.35	25.40	-18.28	54	28.60	QP	254.00	100	Horizontal	Pass
5	479.97	34.17	-13.81	46	11.83	Peak	219.00	100	Horizontal	N/A
5*	479.97	26.55	-13.81	54	27.45	QP	219.00	100	Horizontal	Pass
6	620.1	42.76	-10.17	46	3.24	Peak	145.00	100	Horizontal	N/A
6*	620.1	33.86	-10.17	54	20.14	QP	145.00	100	Horizontal	Pass

1 GHz to 6 GHz, ANT V



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1183.95	44.08	-5.55	74.0	29.92	Peak	123.90	100	Vertical	Pass
2	1560.36	44.07	-4.00	74.0	29.93	Peak	53.90	100	Vertical	Pass
3	2283.18	47.33	-0.58	74.0	26.67	Peak	169.20	100	Vertical	Pass
4	2859.03	48.78	1.99	74.0	25.22	Peak	1.10	100	Vertical	Pass
5	4153.21	50.07	11.48	74.0	23.93	Peak	17.80	100	Vertical	Pass
6	5616.10	51.90	15.41	74.0	22.10	Peak	106.50	100	Vertical	Pass

1 GHz to 6 GHz, ANT H



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1195.45	44.18	-5.46	74.0	29.82	Peak	251.30	100	Horizontal	Pass
2	1768.31	44.45	-3.78	74.0	29.55	Peak	99.40	100	Horizontal	Pass
3	2203.70	47.53	-0.40	74.0	26.47	Peak	168.60	100	Horizontal	Pass
4	2913.52	48.38	2.39	74.0	25.62	Peak	175.40	100	Horizontal	Pass
5	3821.80	48.63	10.81	74.0	25.37	Peak	1.90	100	Horizontal	Pass
6	4778.56	52.44	13.62	74.0	21.56	Peak	0.50	100	Horizontal	Pass

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ15C0294-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL-SZ15C0294-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL-SZ15C0294-AI.PDF”.

--END OF REPORT--