

## Table of Contents

1.	MAXIMUM PEAK CONDUCTED OUTPUT POWER.....	2
1.1	TEST DATAS .....	2
1.2	TEST PLOTS .....	2
2.	CONDUCTED SPURIOUS EMISSIONS.....	7
2.1	TEST DATAS .....	7
3.	RADIATED SPURIOUS EMISSIONS.....	11
3.1	TEST DATAS .....	11
3.2	BANDEDGE .....	18
3.2.1	Test Datas .....	18
4.	20DB BANDWIDTH .....	20
4.1	TEST DATAS .....	20
4.2	TEST PLOTS .....	20
5.	CARRIER FREQUENCY SEPARATION.....	25
5.1	TEST DATAS .....	25
6.	NUMBER OF HOPPING FREQUENCY .....	30
6.1	TEST DATAS .....	30
7.	TIME OF OCCUPANCY.....	32
7.1	TEST DATAS .....	32
7.2	TEST PLOTS .....	33
8.	CONDUCTED EMISSIONS ON AC MAINS.....	47
8.1	TEST DATAS .....	47

## 1. Maximum Peak Conducted Output Power

### 1.1 Test Datas

For GFSK

Channel	Frequency (MHz)	Measured Value (dBm)	Output Power (mW)	Limit (mW)
Low Channel	2402	0.204	1.05	125
Middle Channel	2441	-1.477	0.71	125
High Channel	2480	-1.438	0.72	125

For pi/4DQPSK

Channel	Frequency (MHz)	Measured Value (dBm)	Output Power (mW)	Limit (mW)
Low Channel	2402	-0.816	0.83	125
Middle Channel	2441	-2.115	0.61	125
High Channel	2480	-2.291	0.59	125

For 8DPSK

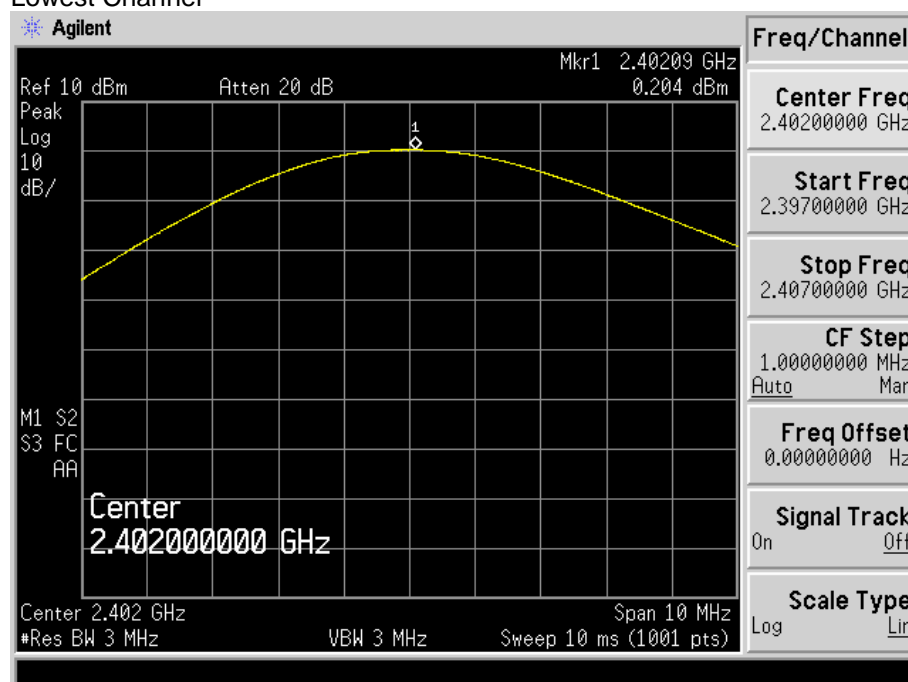
Channel	Frequency (MHz)	Measured Value (dBm)	Output Power (mW)	Limit (mW)
Low Channel	2402	-0.578	0.88	125
Middle Channel	2441	-1.983	0.63	125
High Channel	2480	-2.152	0.61	125

Note: Only the worst case was shown in this test report and the worst case test mode is DH1.

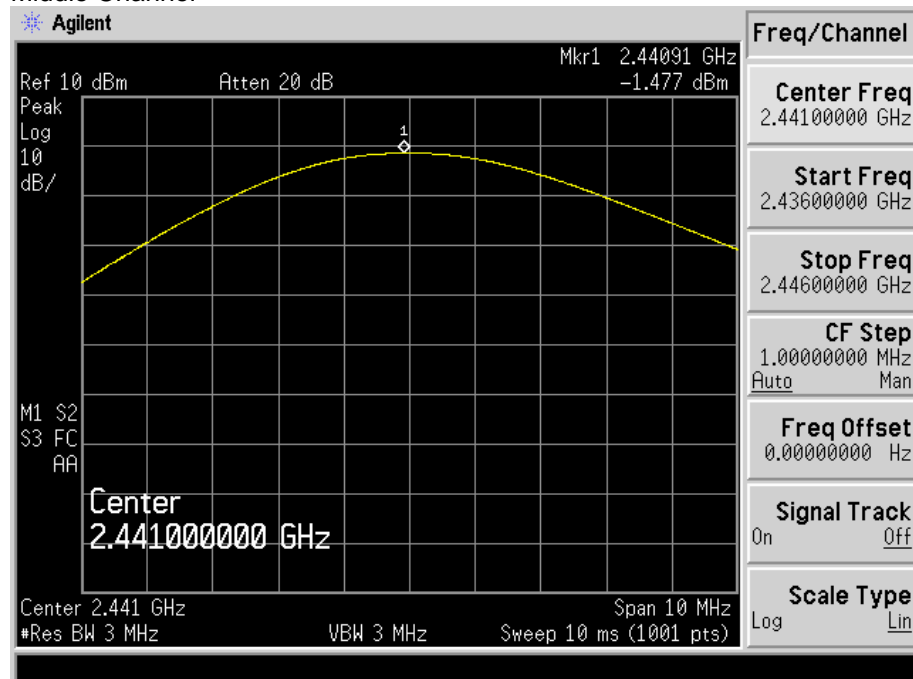
### 1.2 Test Plots

GFSK

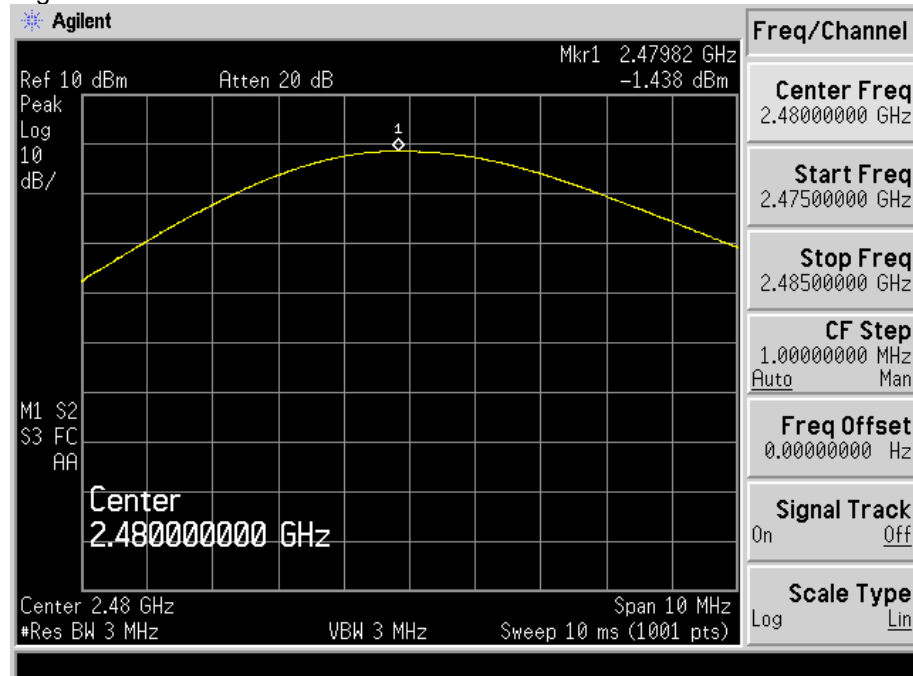
Lowest Channel



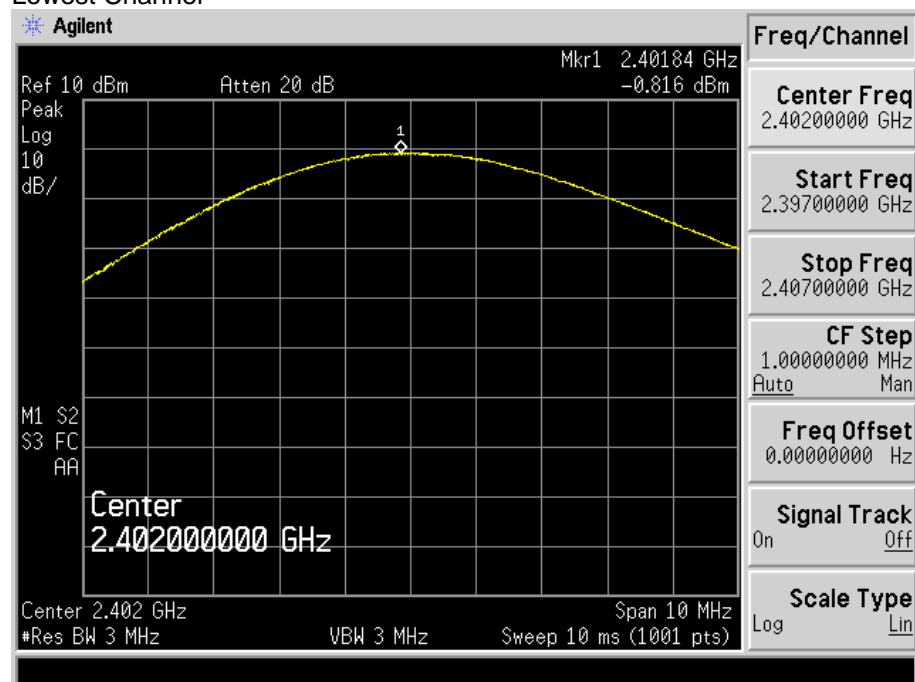
### Middle Channel



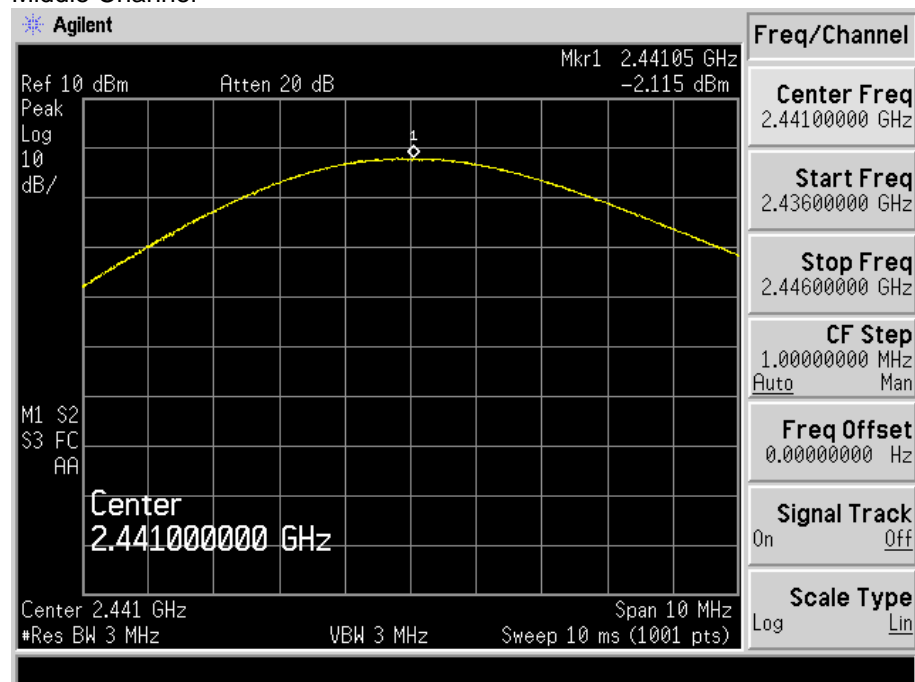
### Highest Channel



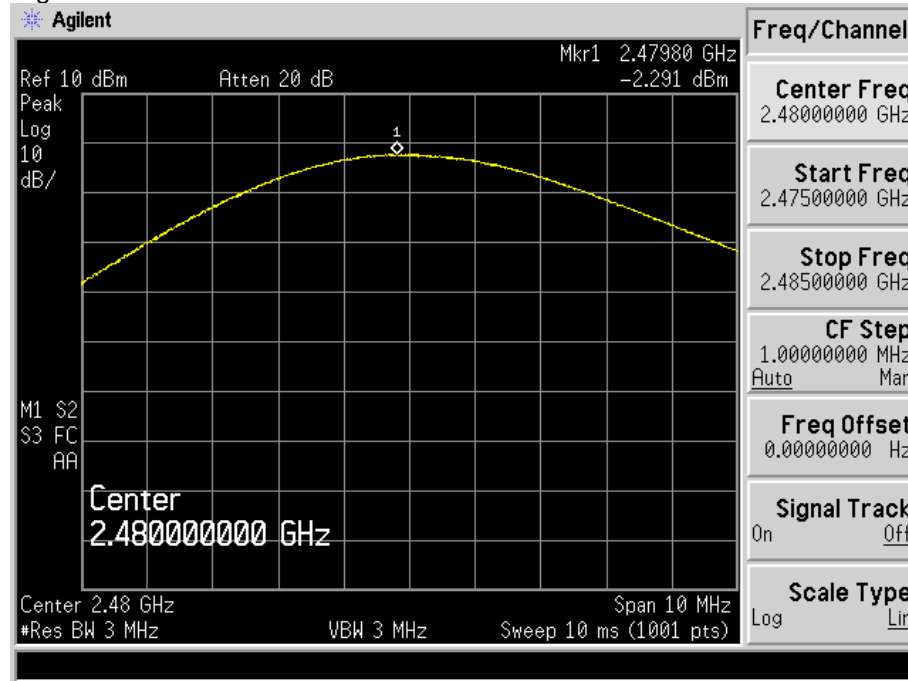
pi/4DQPSK  
Lowest Channel



Middle Channel

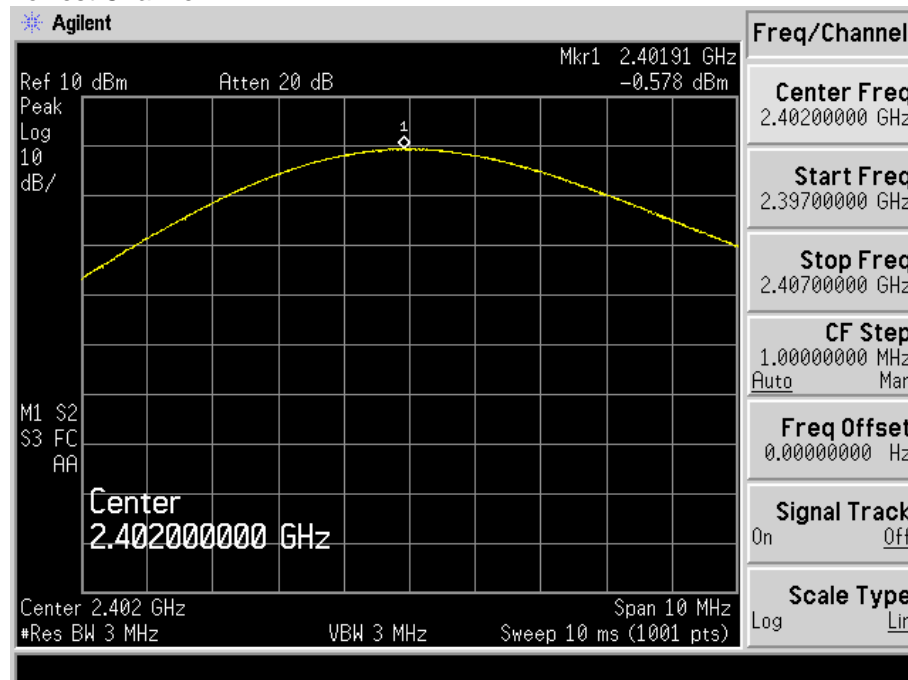


### Highest Channel

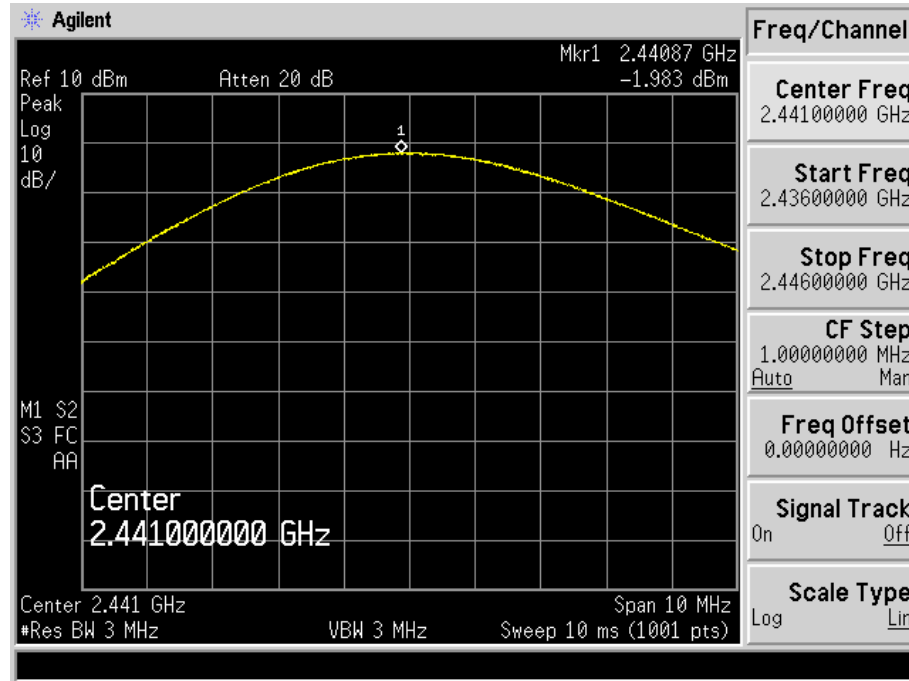


### 8DPSK

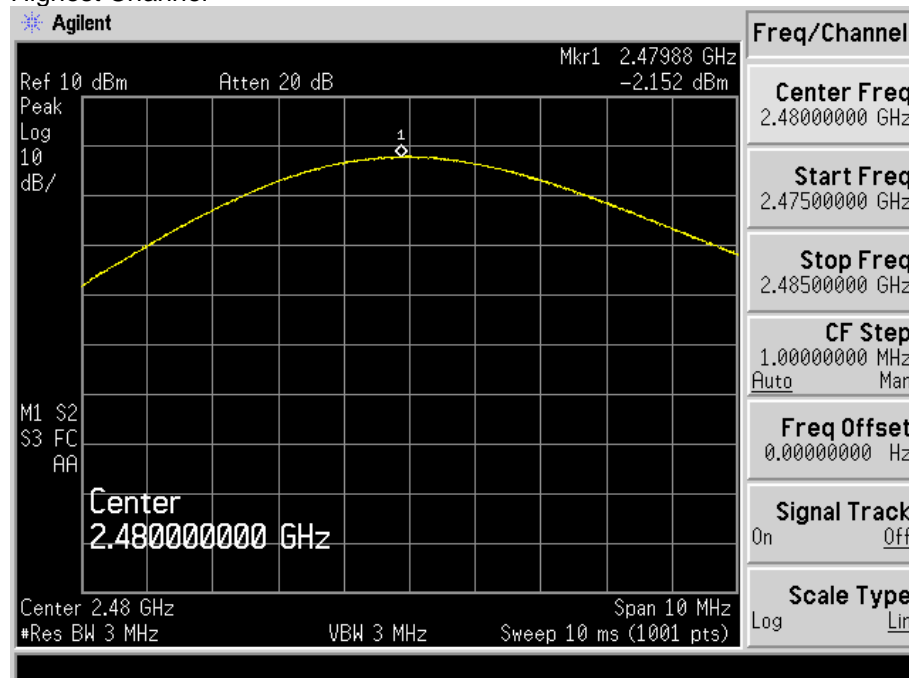
#### Lowest Channel



### Middle Channel



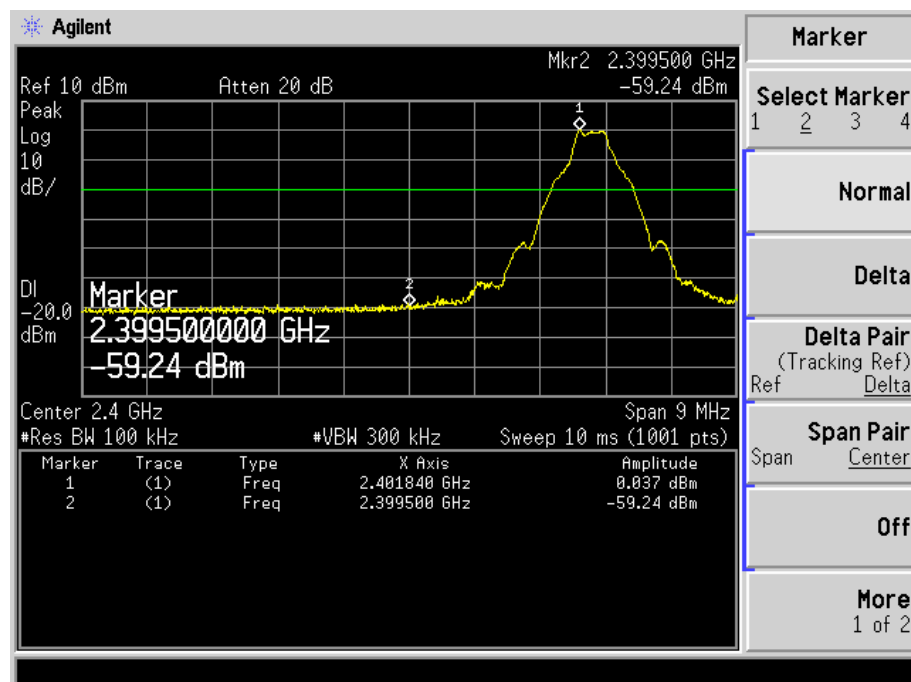
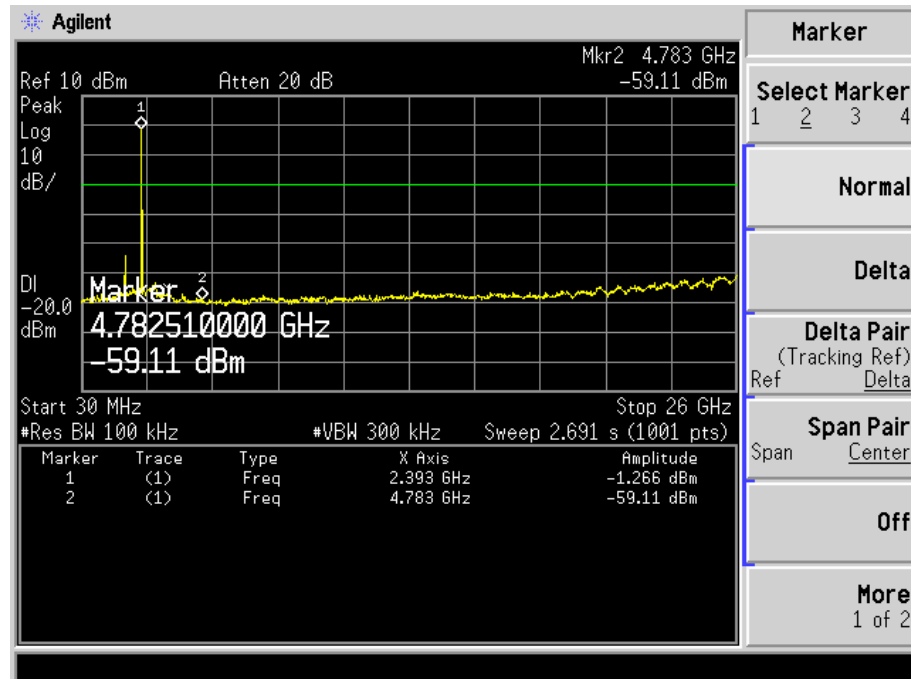
### Highest Channel



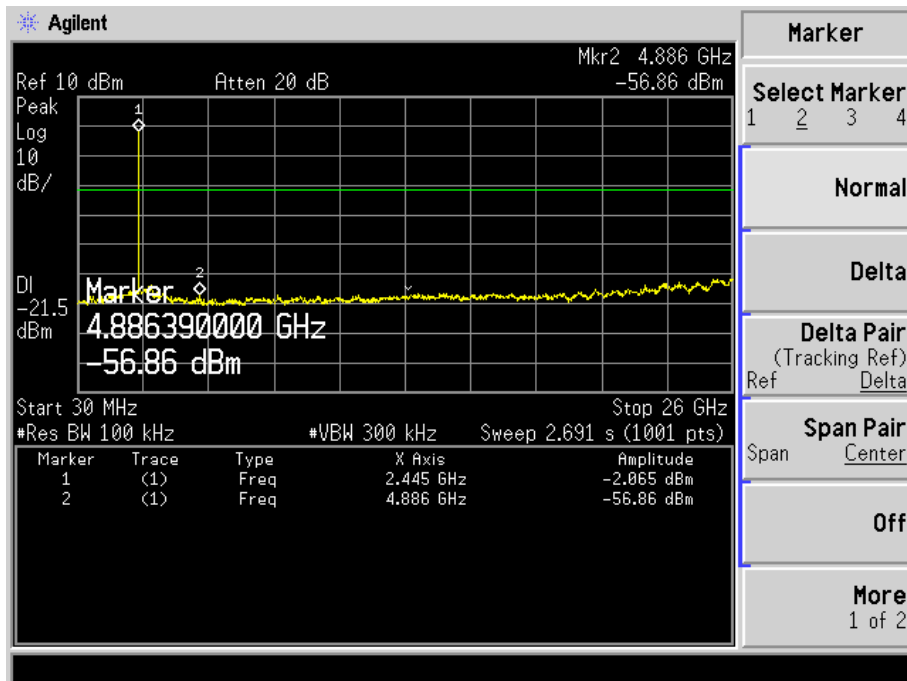
## 2. Conducted Spurious Emissions

### 2.1 Test Datas

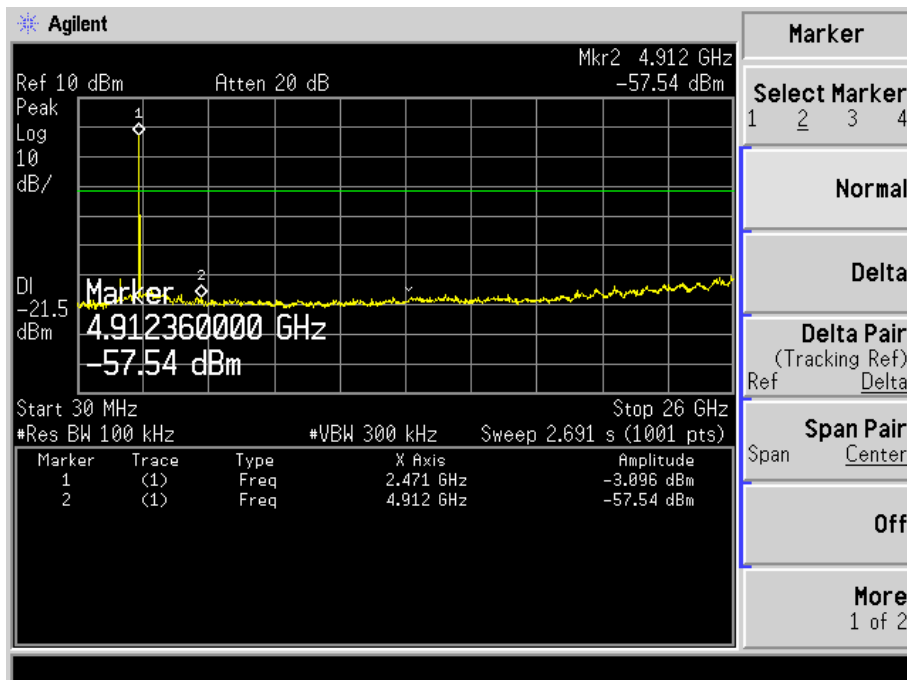
Lowest Channel



### Middle Channel

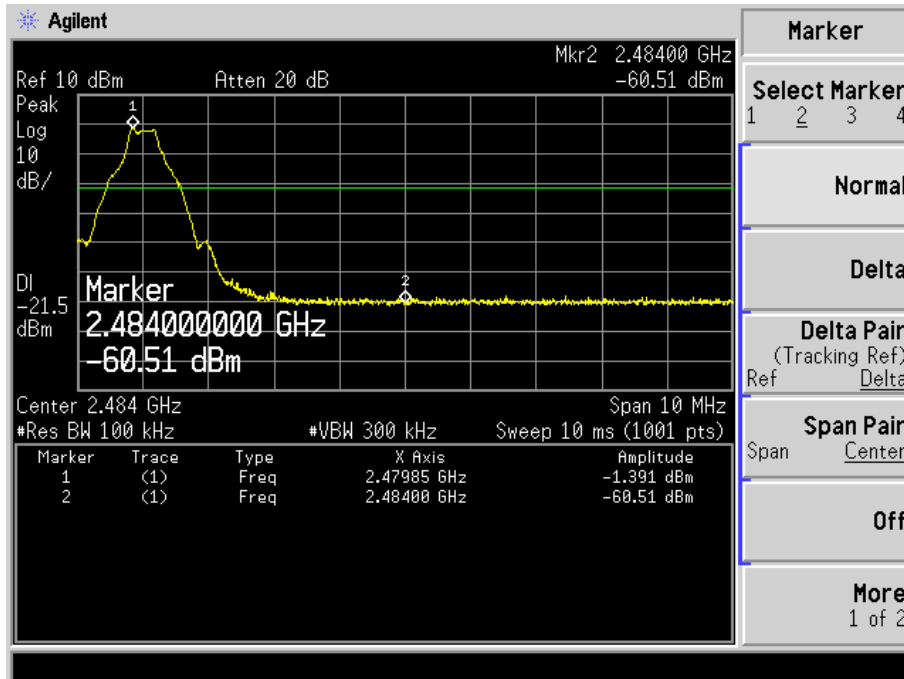


### Highest Channel



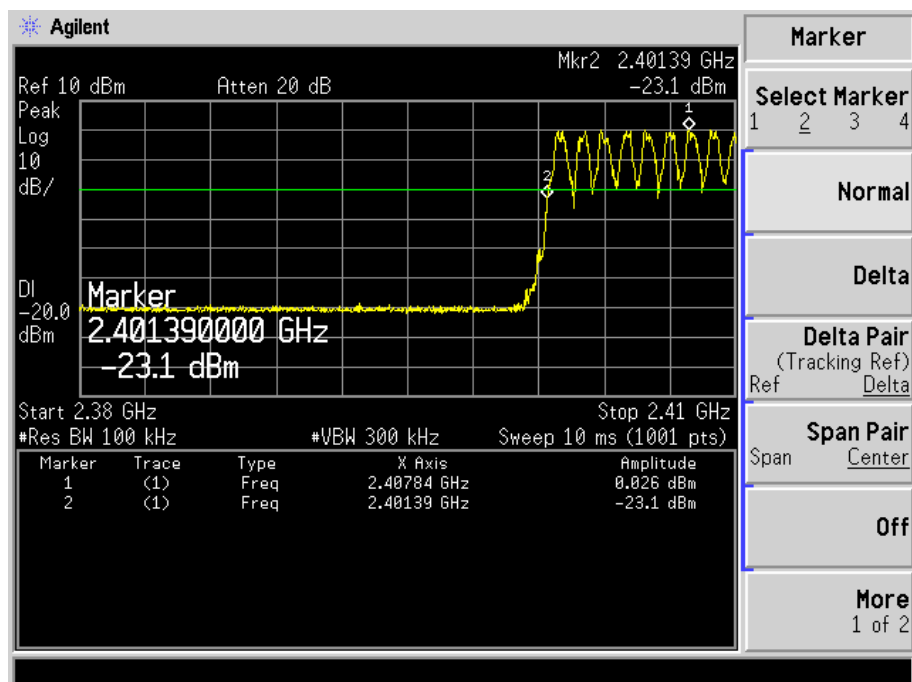


**Produkte**  
*Products*

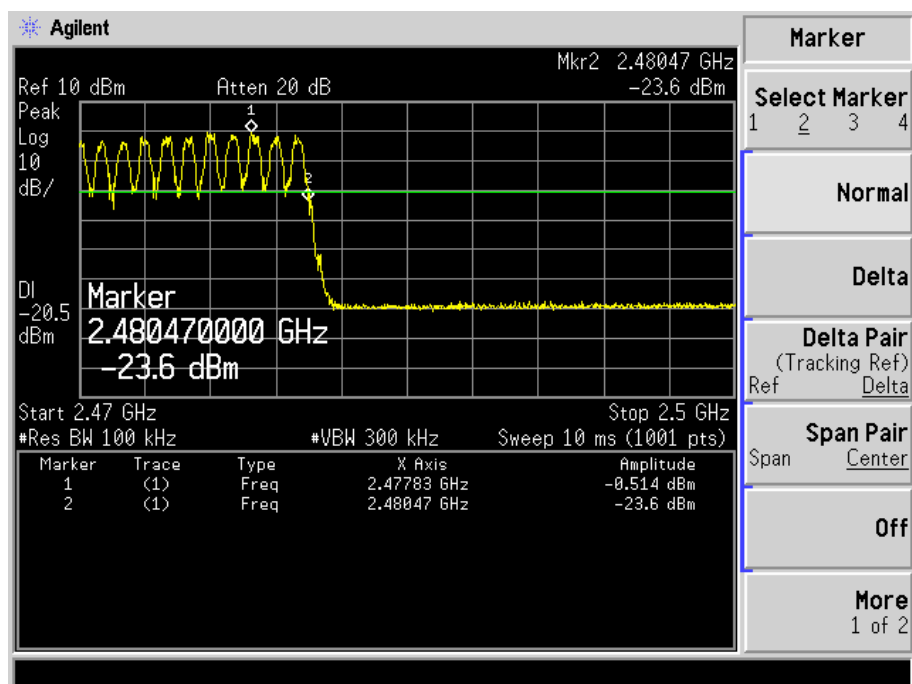


## Bandedge with Hopping

### Lowest Channel



### Highest Channel

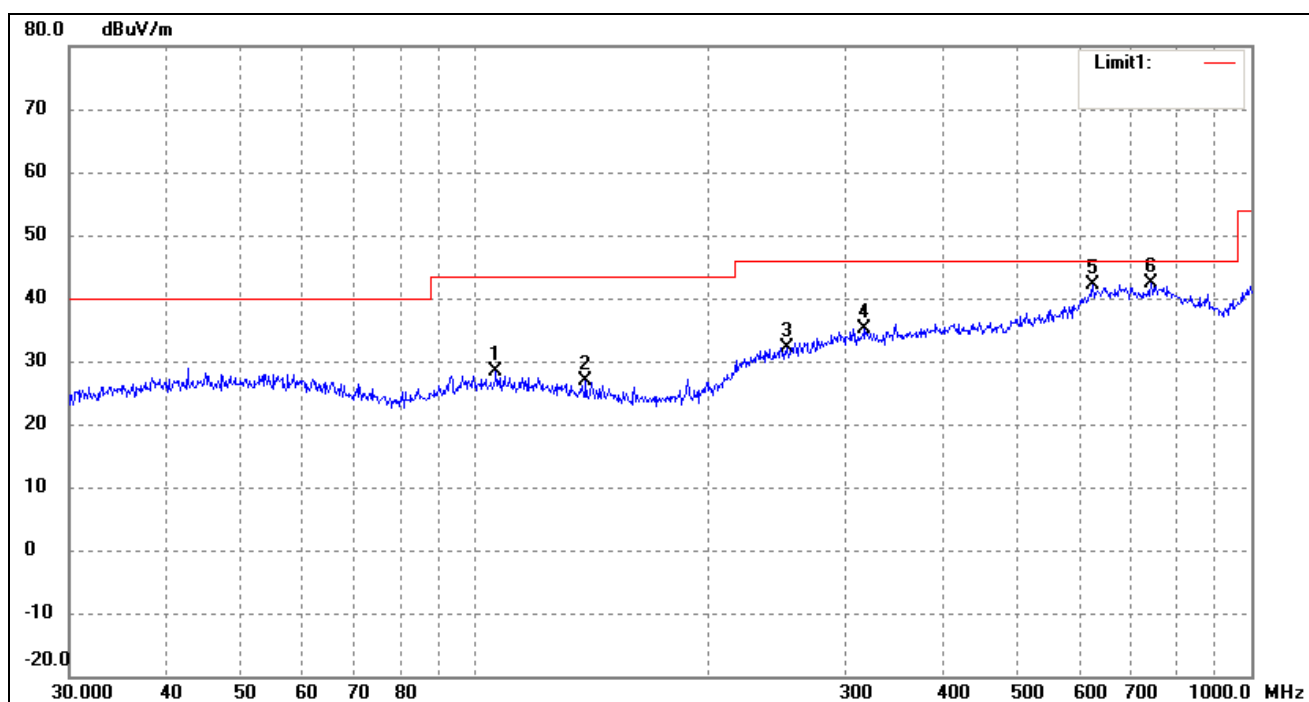


Note: Only the worst case were shown in this test report and the worst case test mode is GFSK, DH1

### 3. Radiated Spurious Emissions

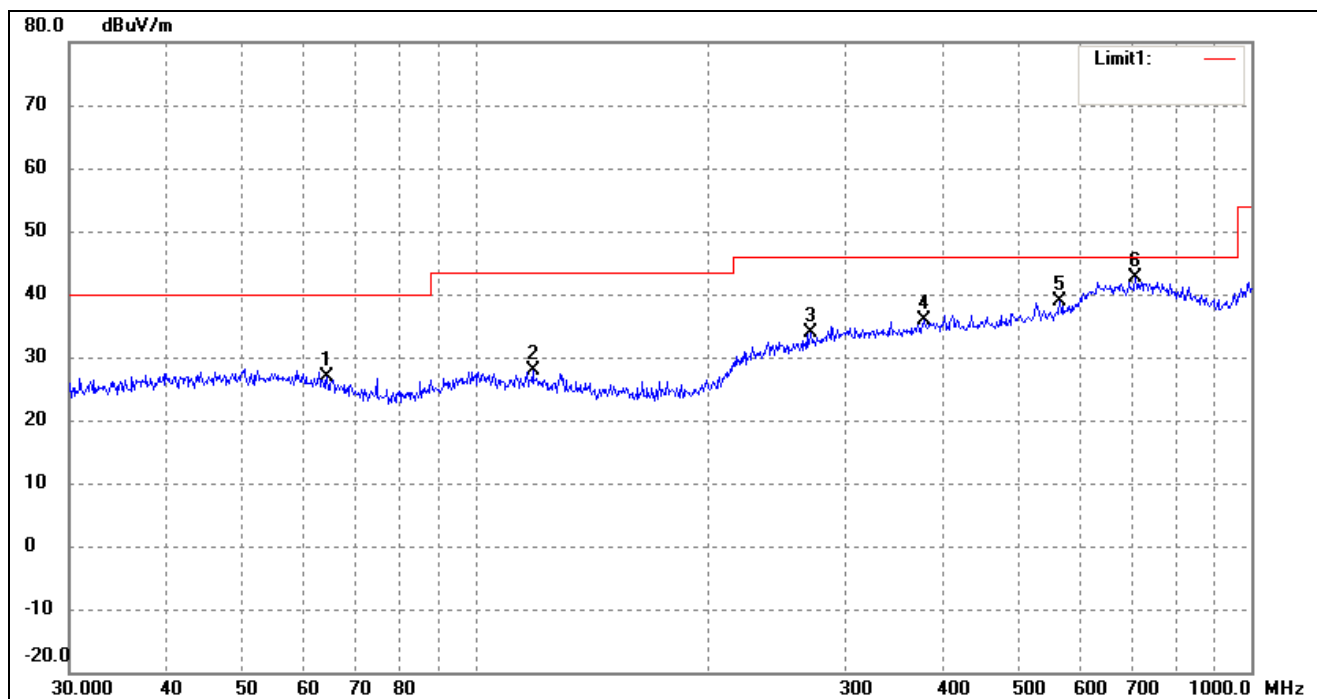
#### 3.1 Test Datas

Spurious Emissions of 30MHz to 1GHz	
EUT:	Mobile Phone
Tested Model:	EZ-100
Operating Condition:	Transmitting Low Channel (2402MHz)
Test Specification:	Horizontal



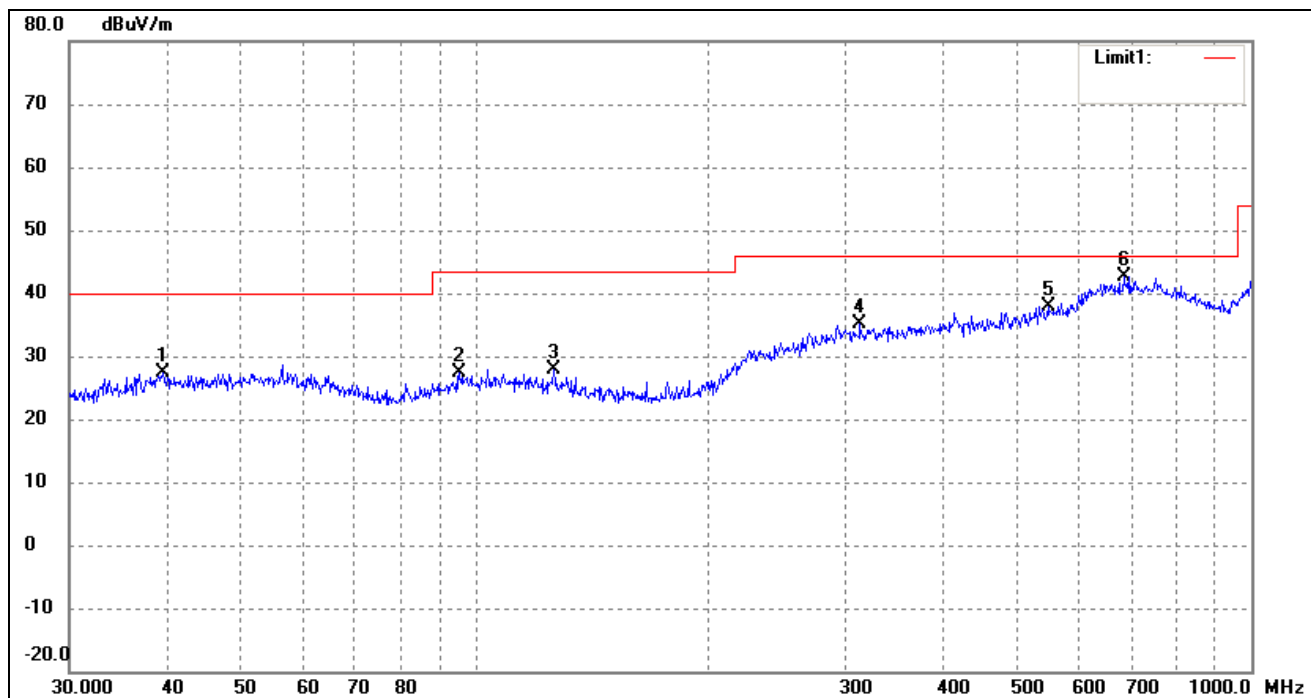
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	106.3850	23.38	4.89	28.27	43.50	-15.23	233	100	
2	138.8735	23.71	3.25	26.96	43.50	-16.54	145	100	
3	252.0627	22.86	9.38	32.24	46.00	-13.76	97	100	
4	317.7011	23.17	11.96	35.13	46.00	-10.87	148	100	
5	625.0780	24.49	17.55	42.04	46.00	-3.96	119	100	
6	742.2587	23.38	18.93	42.31	46.00	-3.69	92	100	

Test Specification: Vertical



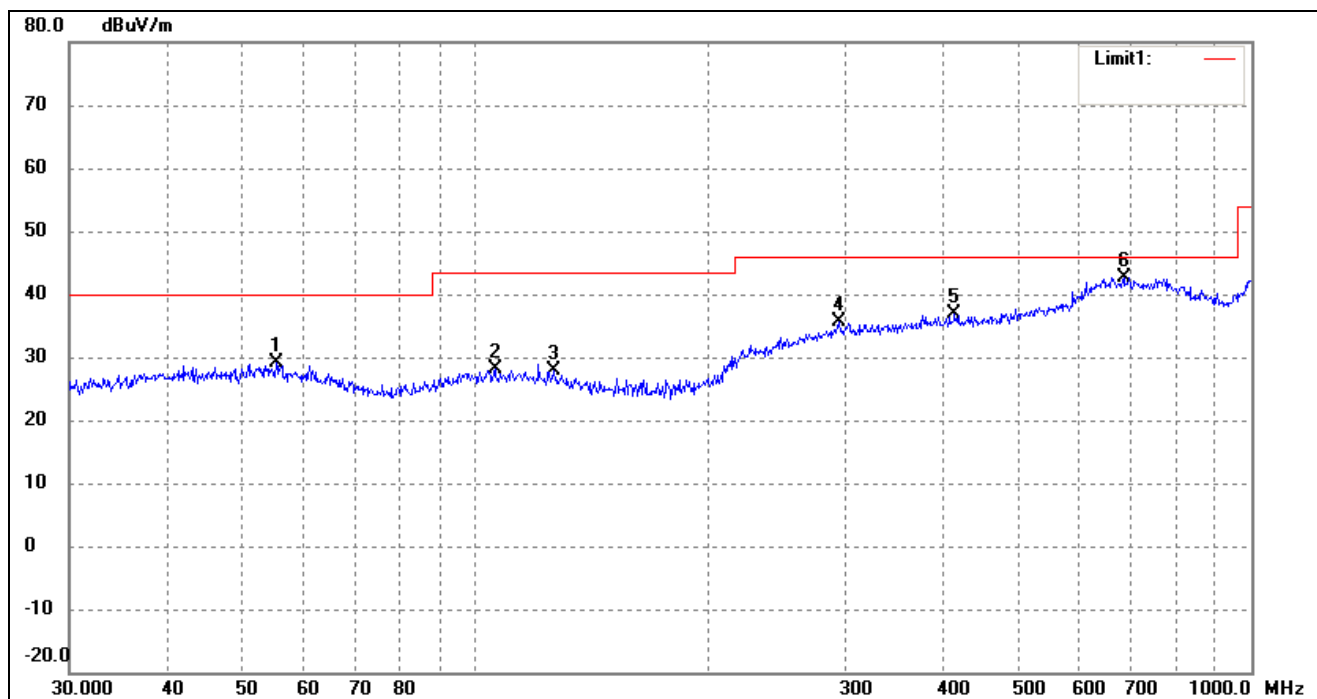
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree ( ° )	Height (cm)	Remark
1	64.4331	22.68	4.11	26.79	40.00	-13.21	148	100	
2	118.6014	23.16	4.82	27.98	43.50	-15.52	255	100	
3	270.3748	23.54	10.44	33.98	46.00	-12.02	134	100	
4	378.5843	23.99	11.80	35.79	46.00	-10.21	274	100	
5	566.6223	24.51	14.35	38.86	46.00	-7.14	224	100	
6	709.1823	25.08	17.48	42.56	46.00	-3.44	91	100	

Operating Condition:	Transmitting Middle Channel (2441MHz)
Test Specification:	Horizontal



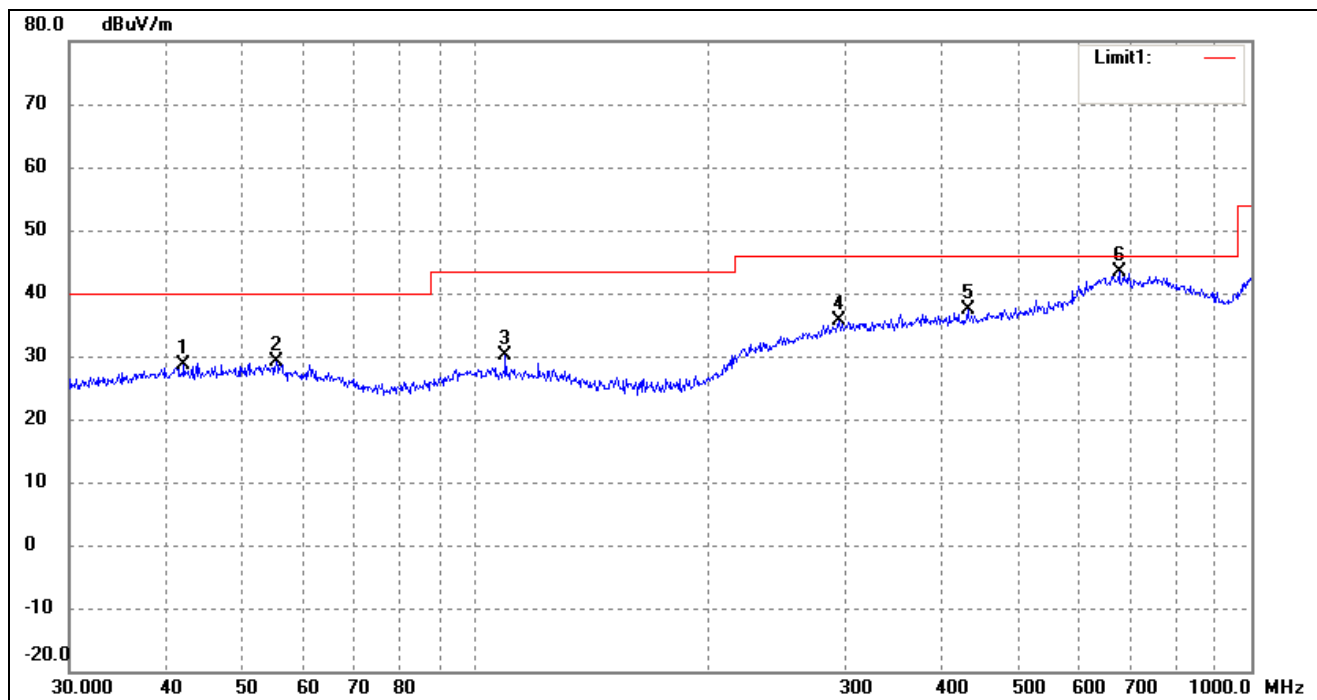
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	39.5757	22.43	4.87	27.30	40.00	-12.70	321	100	
2	95.4270	23.19	4.25	27.44	43.50	-16.06	169	100	
3	126.3286	23.55	4.29	27.84	43.50	-15.66	237	100	
4	313.2760	23.25	11.95	35.20	46.00	-10.80	135	100	
5	547.0977	24.10	13.88	37.98	46.00	-8.02	62	100	
6	684.7454	24.32	18.33	42.65	46.00	-3.35	144	100	

Test Specification: Vertical



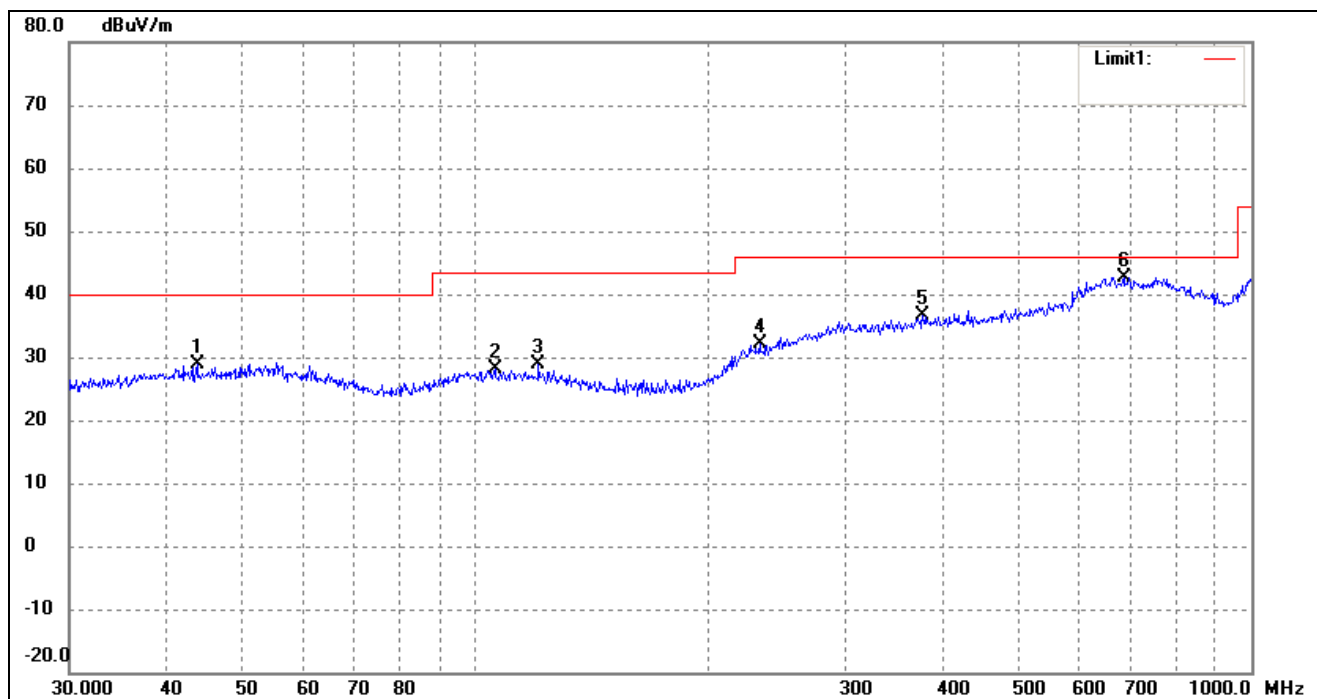
No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	55.4147	23.99	5.02	29.01	40.00	-10.99	233	100	
2	106.0126	23.20	4.88	28.08	43.50	-15.42	326	100	
3	126.3286	23.55	4.29	27.84	43.50	-15.66	255	100	
4	294.1137	24.01	11.74	35.75	46.00	-10.25	102	100	
5	414.7223	24.66	12.10	36.76	46.00	-9.24	164	100	
6	684.7454	24.32	18.33	42.65	46.00	-3.35	88	100	

Operating Condition:	Transmitting High Channel (2480MHz)
Test Specification:	Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	42.1542	23.58	4.94	28.52	40.00	-11.48	209	100	
2	55.4147	23.99	5.02	29.01	40.00	-10.99	322	100	
3	109.4116	25.36	4.87	30.23	43.50	-13.27	215	100	
4	294.1137	24.01	11.74	35.75	46.00	-10.25	55	100	
5	431.0316	25.12	12.22	37.34	46.00	-8.66	79	100	
6	675.2080	24.84	18.42	43.26	46.00	-2.74	360	100	

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	43.8119	23.89	4.95	28.84	40.00	-11.16	116	100	
2	106.0126	23.20	4.88	28.08	43.50	-15.42	204	100	
3	120.6991	24.03	4.76	28.79	43.50	-14.71	217	100	
4	232.5318	23.58	8.45	32.03	46.00	-13.97	311	100	
5	377.2591	24.77	11.81	36.58	46.00	-9.42	88	100	
6	684.7454	24.32	18.33	42.65	46.00	-3.35	194	100	



Radiated Spurious Emissions of Above 1GHz

Frequency (MHz)	Reading (dBuV/m)	Correct dB	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Polar H/V	Detector
Low Channel-2402MHz							
4804	65.47	-3.59	61.88	74	-12.12	H	PK
4804	46.92	-3.59	43.33	54	-10.67	H	AV
7206	65.43	-0.52	64.91	74	-9.09	H	PK
7206	46.02	-0.52	45.5	54	-8.5	H	AV
4804	64.67	-3.59	61.08	74	-12.92	V	PK
4804	48.99	-3.59	45.4	54	-8.6	V	AV
7206	65.42	-0.52	64.9	74	-9.1	V	PK
7206	48.66	-0.52	48.14	54	-5.86	V	AV
Middle Channel-2441MHz							
4884	62.3	-3.49	58.81	74	-15.19	H	PK
4884	48.01	-3.49	44.52	54	-9.48	H	AV
7326	62.18	-0.47	61.71	74	-12.29	H	PK
7326	48.36	-0.47	47.89	54	-6.11	H	AV
4884	63.06	-3.49	59.57	74	-14.43	V	PK
4884	48.92	-3.49	45.43	54	-8.57	V	AV
7326	65.99	-0.47	65.52	74	-8.48	V	PK
7326	47.04	-0.47	46.57	54	-7.43	V	AV
High Channel-2480MHz							
4960	64.54	-3.41	61.13	74	-12.87	H	PK
4960	47.22	-3.41	43.81	54	-10.19	H	AV
7440	65.08	-0.42	64.66	74	-9.34	H	PK
7440	48.78	-0.42	48.36	54	-5.64	H	AV
4960	63.61	-3.41	60.2	74	-13.8	V	PK
4960	47.11	-3.41	43.7	54	-10.3	V	AV
7440	62.26	-0.42	61.84	74	-12.16	V	PK
7440	48.51	-0.42	48.09	54	-5.91	V	AV

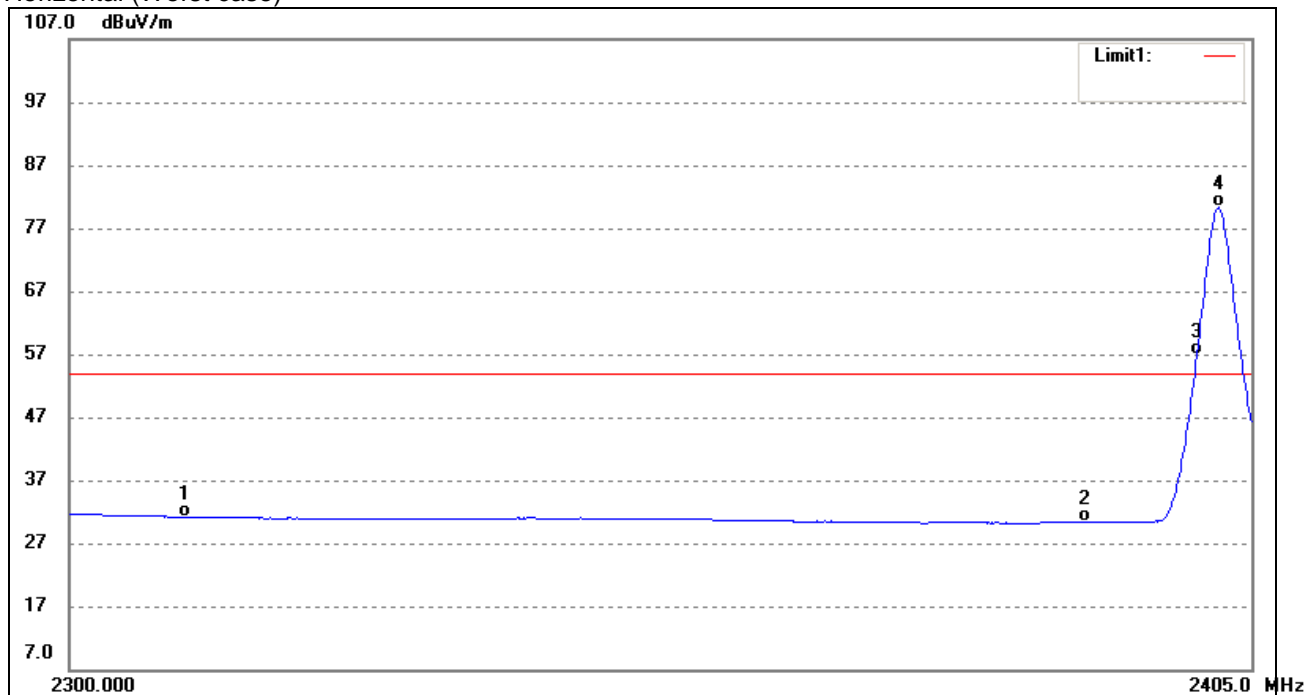
Note:

- 1, The EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.
- 2, Testing is carried out with frequency rang 9kHz to the tenth harmonics.
- 3, Only the worst case were shown in this test report and the worst case test mode is GFSK, DH1.
- 4, The margin is greater than 20 dB are not shown in this Appendix.

## 3.2 Bandedge

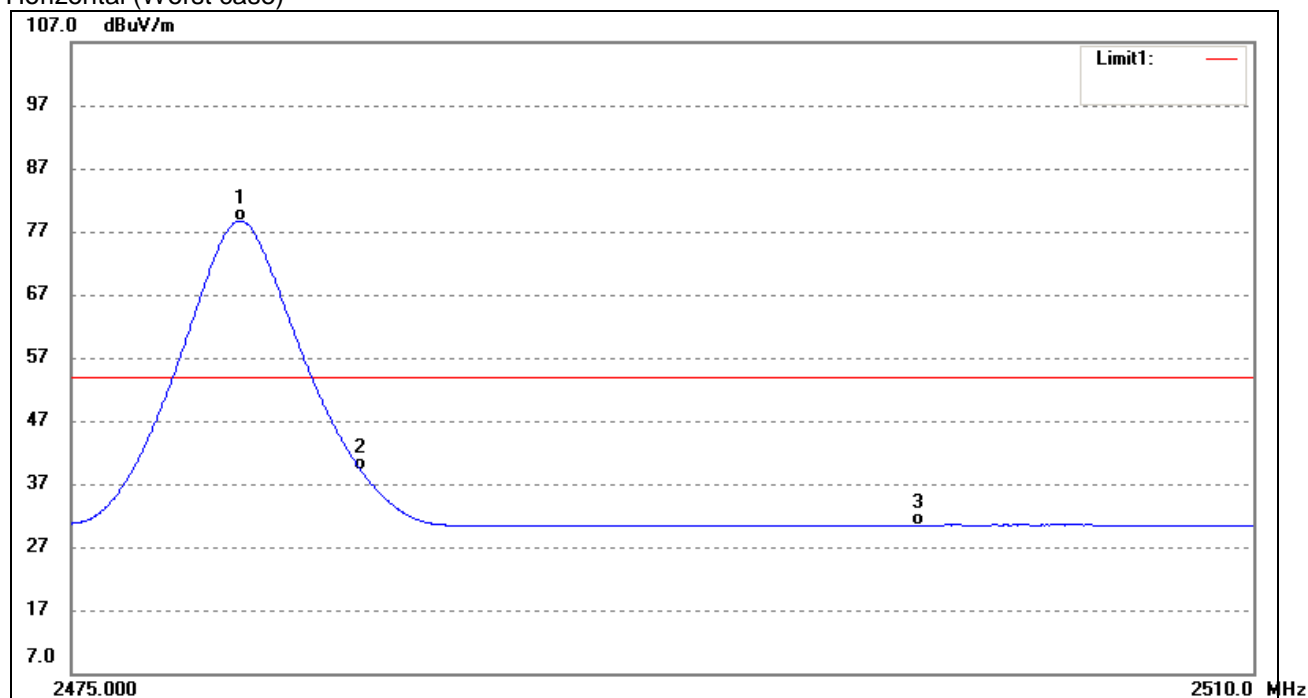
### 3.2.1 Test Datas

Lowest Channel  
Horizontal (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2310.000	34.58	-3.35	31.23	54.00	-22.77	Average Detector
2	2310.000	46.78	-3.35	43.43	74.00	-30.57	Peak Detector
3	2390.000	34.57	-4.29	30.28	54.00	-23.72	Average Detector
4	2390.000	44.99	-4.29	40.70	74.00	-33.30	Peak Detector
5	2400.000	61.36	-4.40	56.96	/	/	Average Detector
6	2401.996	84.73	-4.42	80.31	/	/	Average Detector

Highest Channel  
Horizontal (Worst case)



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2479.975	83.07	-4.36	78.71	/	/	Average Detector
2	2479.766	94.28	-4.36	89.92	/	/	Peak Detector
3	2483.500	43.53	-4.36	39.17	54.00	-14.83	Average Detector
4	2483.500	54.96	-4.36	50.60	74.00	-23.40	Peak Detector
5	2500.000	34.79	-4.34	30.45	54.00	-23.55	Average Detector
6	2500.000	46.52	-4.34	42.18	74.00	-31.82	Peak Detector

Note:

1, The EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test set-up photos.

2, Only the worst case were shown in this test report and the worst case test mode is GFSK, DH1.

## 4. 20dB Bandwidth

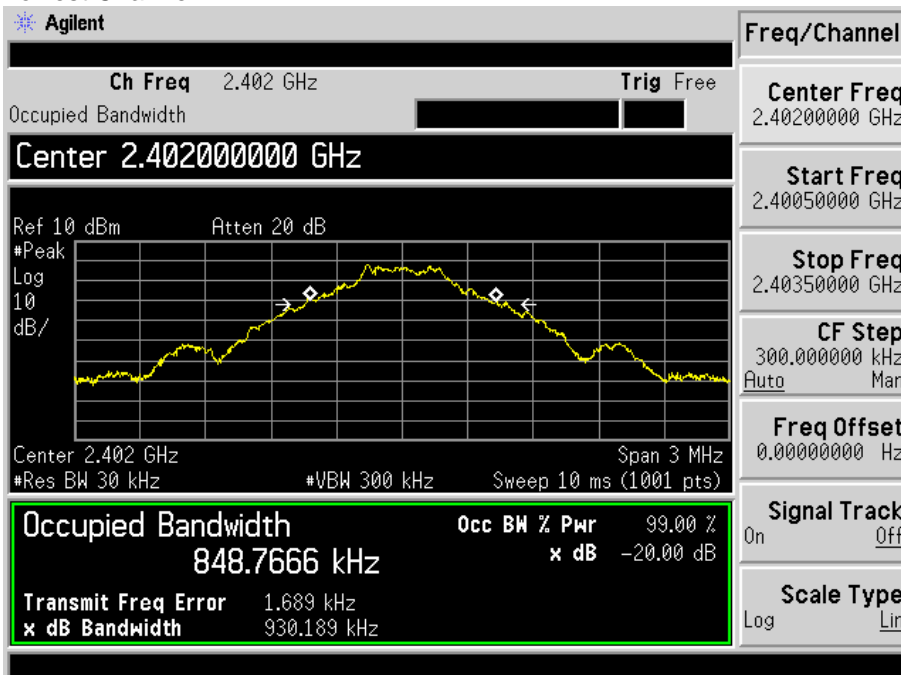
### 4.1 Test Datas

Test Mode	Test Channel (MHz)	20 dB Bandwidth (KHz)
GFSK	2402	930.189
	2441	1173.000
	2480	928.621
pi/4DQPSK	2402	1217.000
	2441	1223.000
	2480	1209.000
8DPSK	2402	1264.000
	2441	1381.000
	2480	1261.000

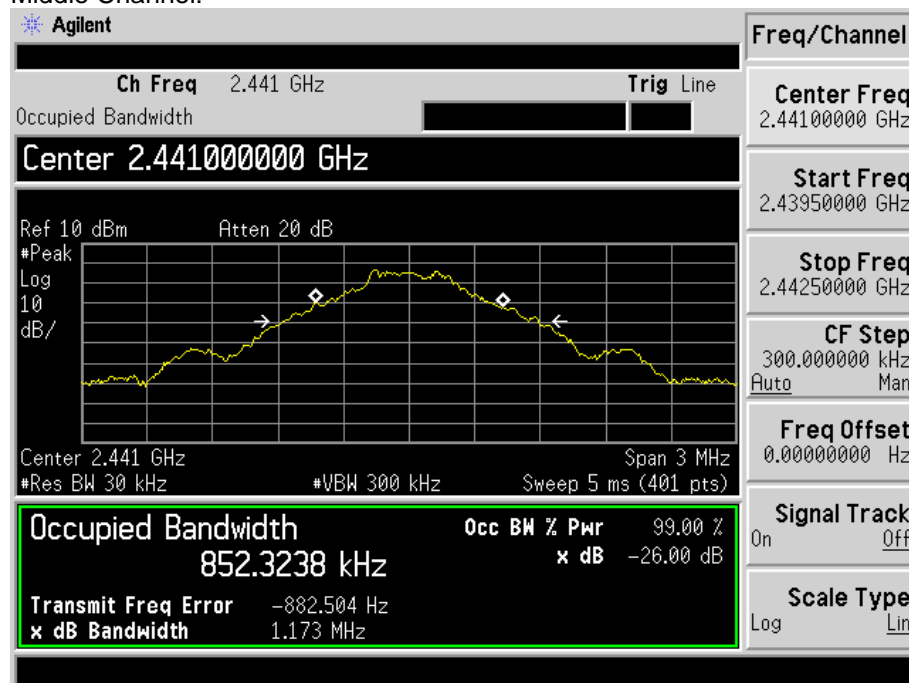
### 4.2 Test Plots

GFSK

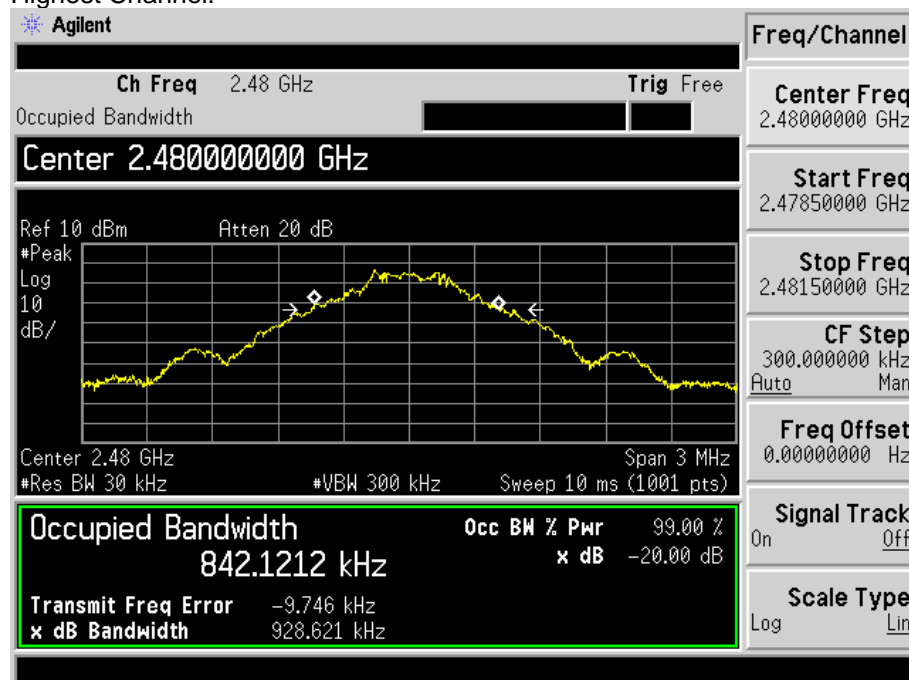
Lowest Channel:



Middle Channel:



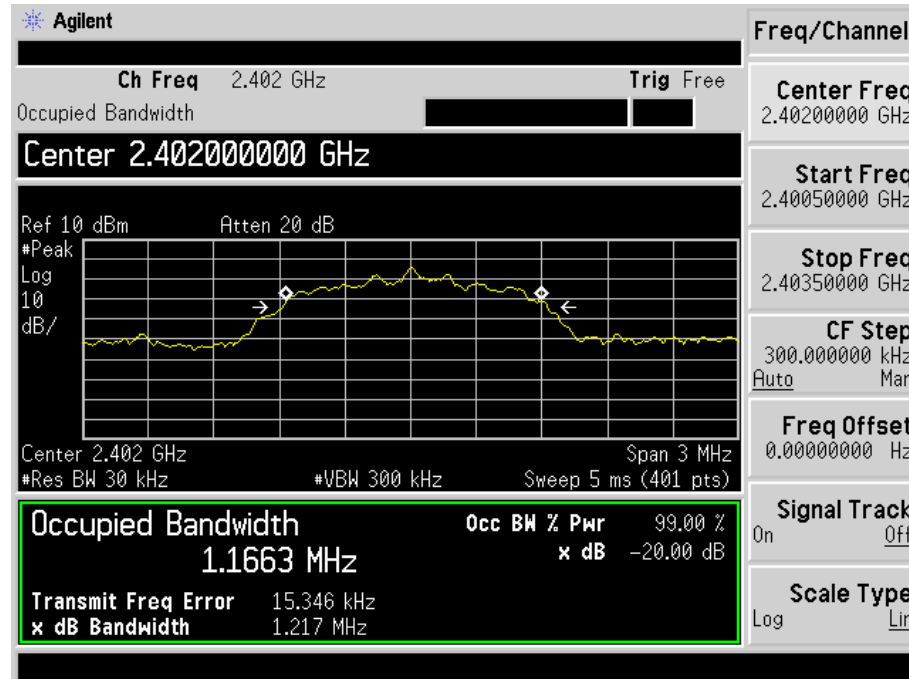
Highest Channel:



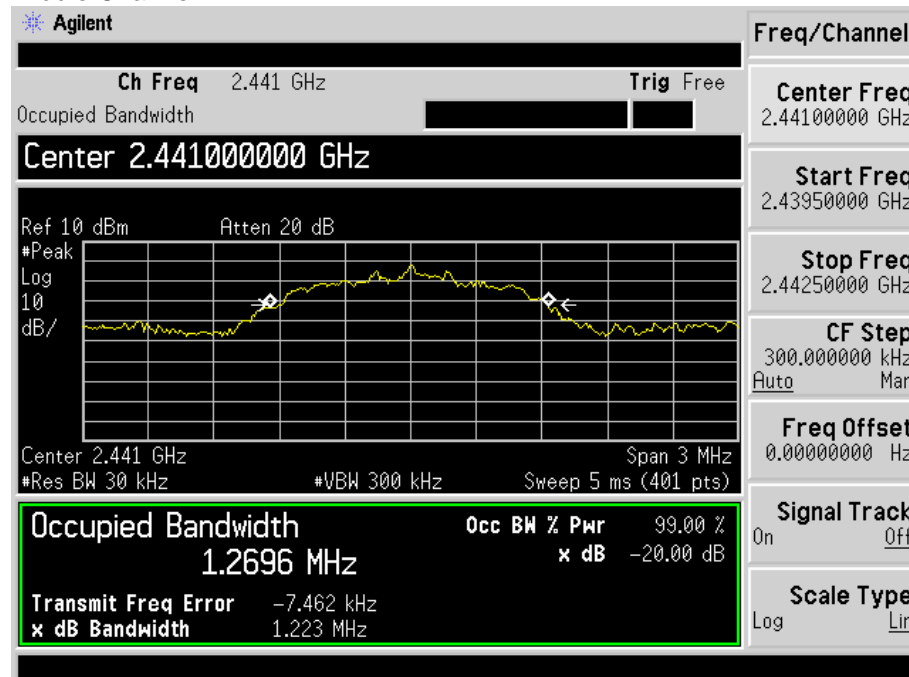
Produkte  
Products

pi/4DQPSK

Lowest Channel:

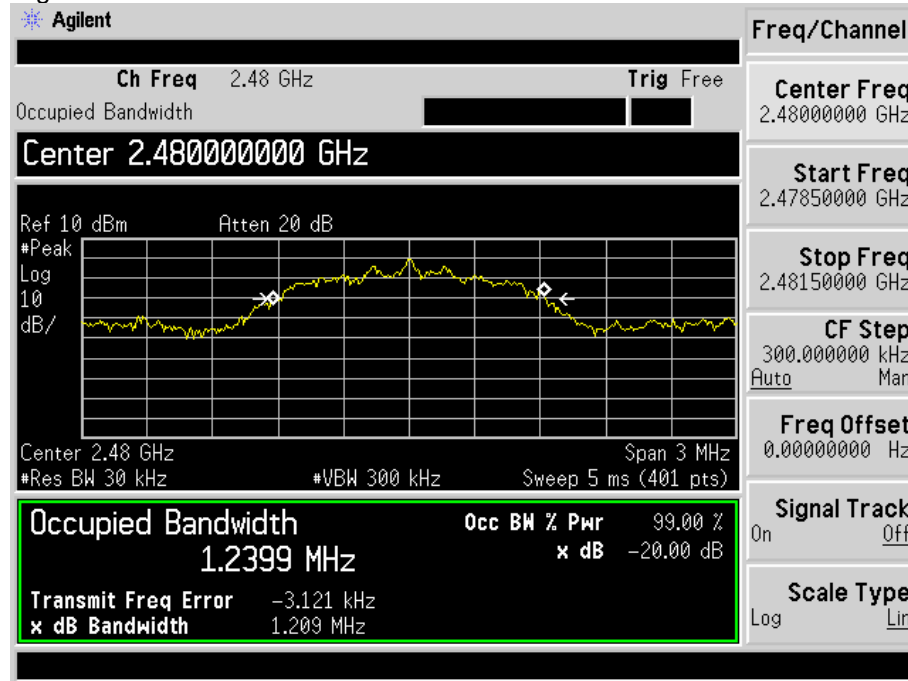


Middle Channel:



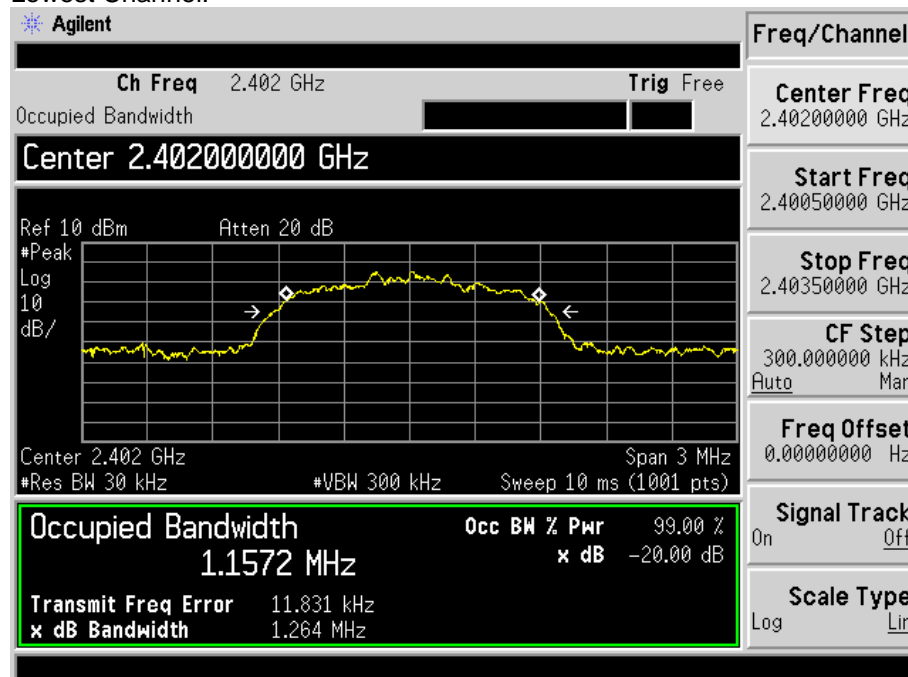
Produkte  
Products

Highest Channel:

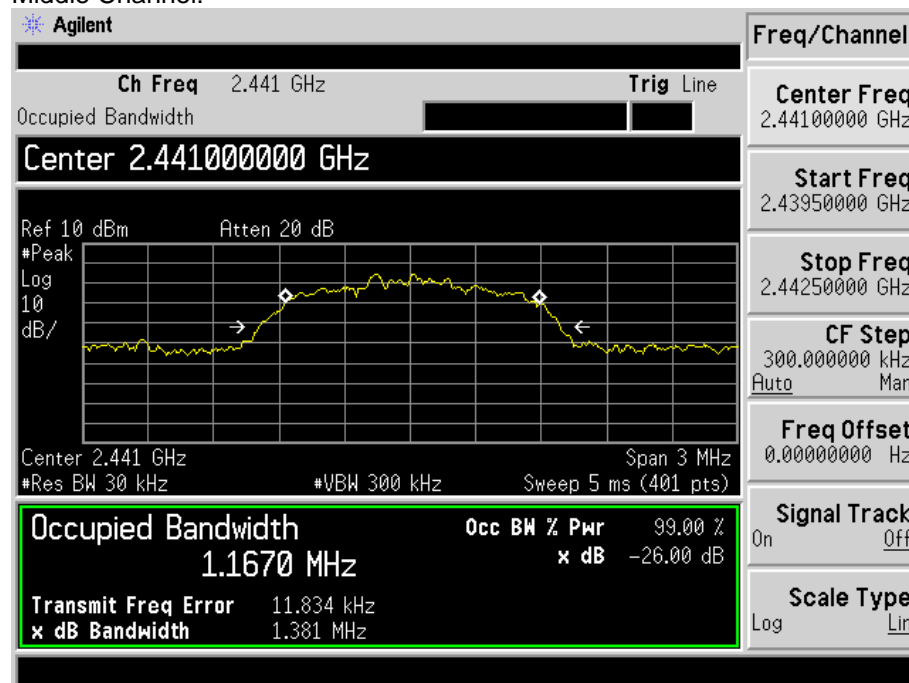


8DPSK

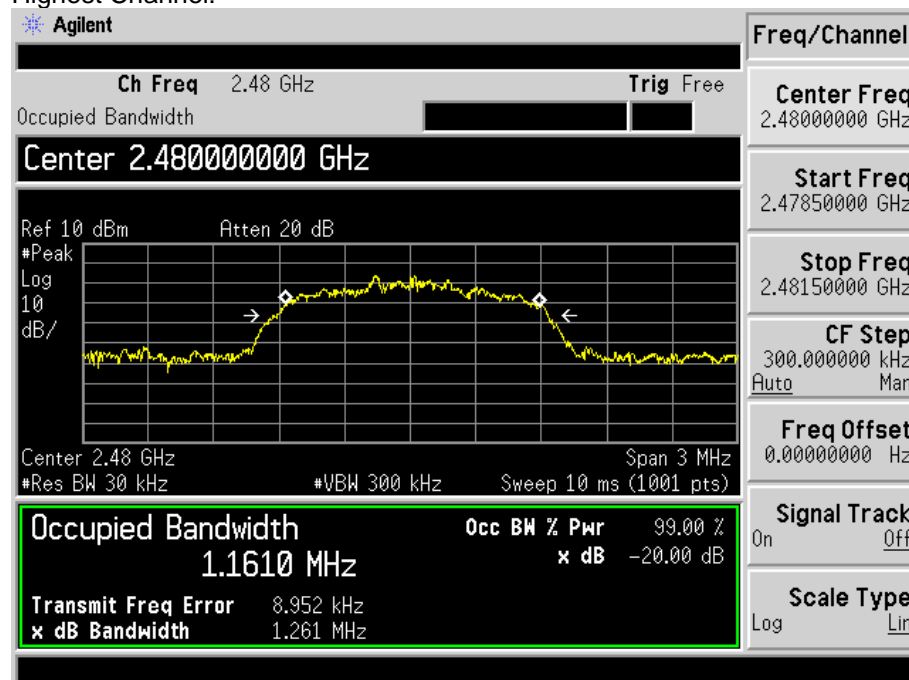
Lowest Channel:



Middle Channel:



Highest Channel:



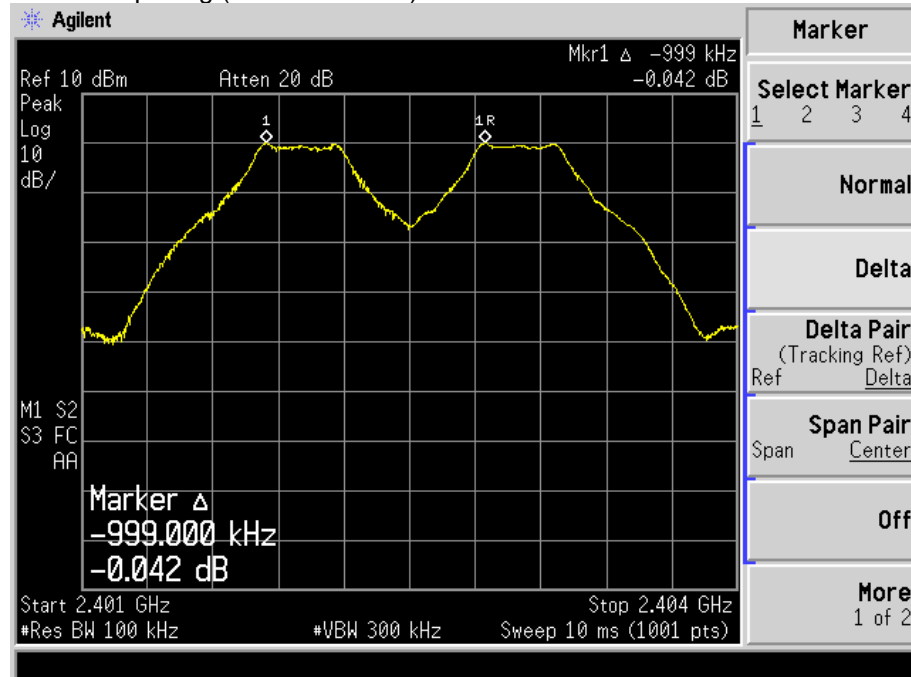


## 5. Carrier Frequency Separation

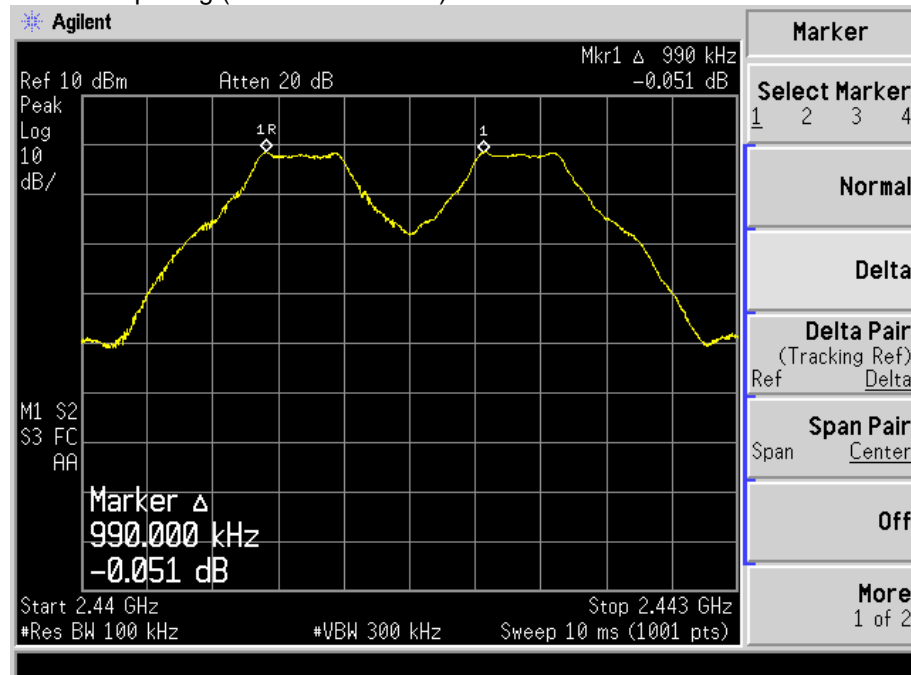
### 5.1 Test Datas

GFSK

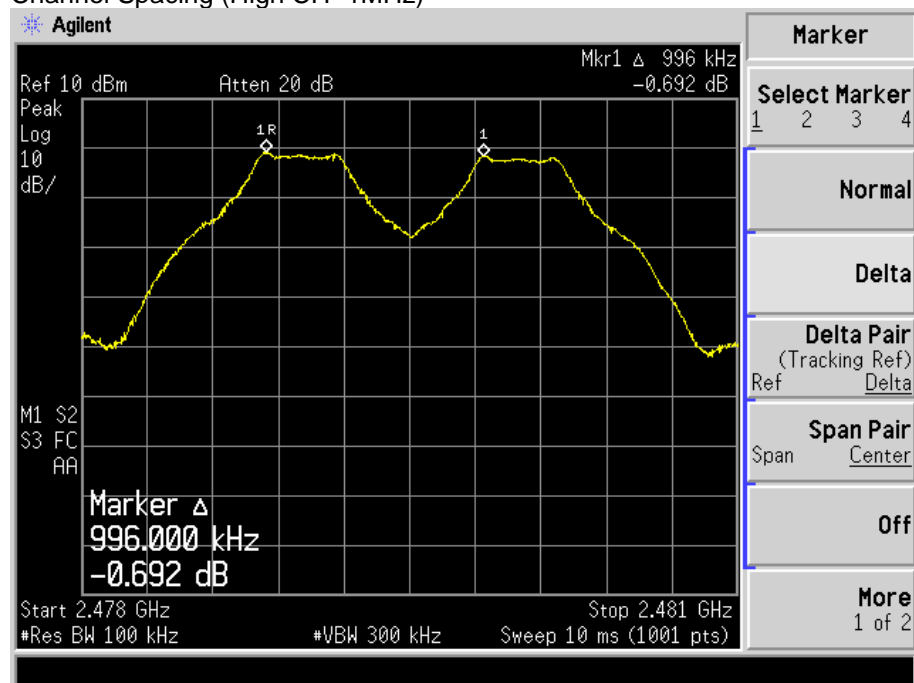
Channel Spacing (Low CH=1MHz)



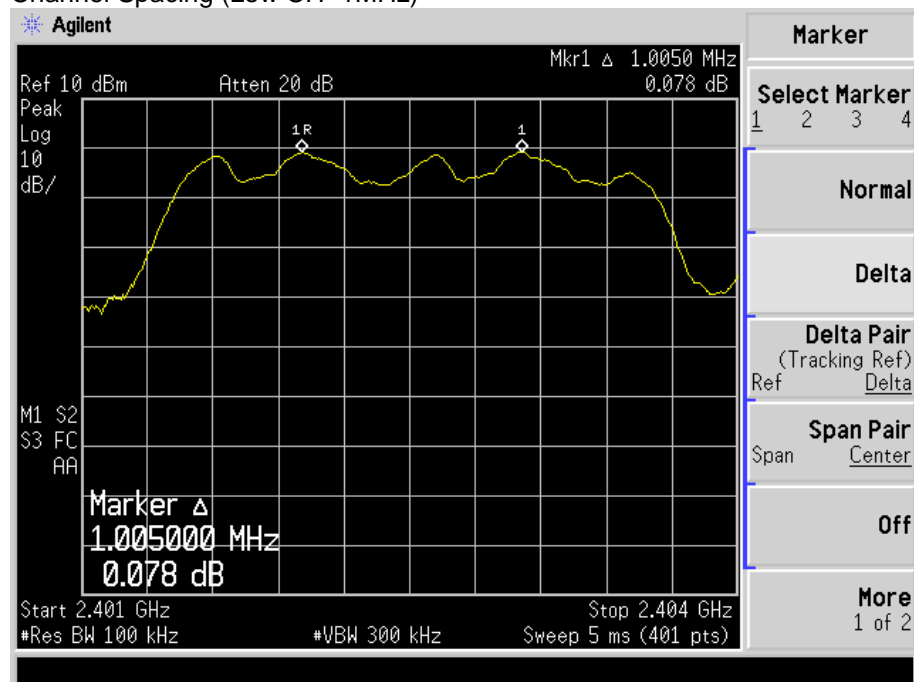
Channel Spacing (Middle CH=1MHz)



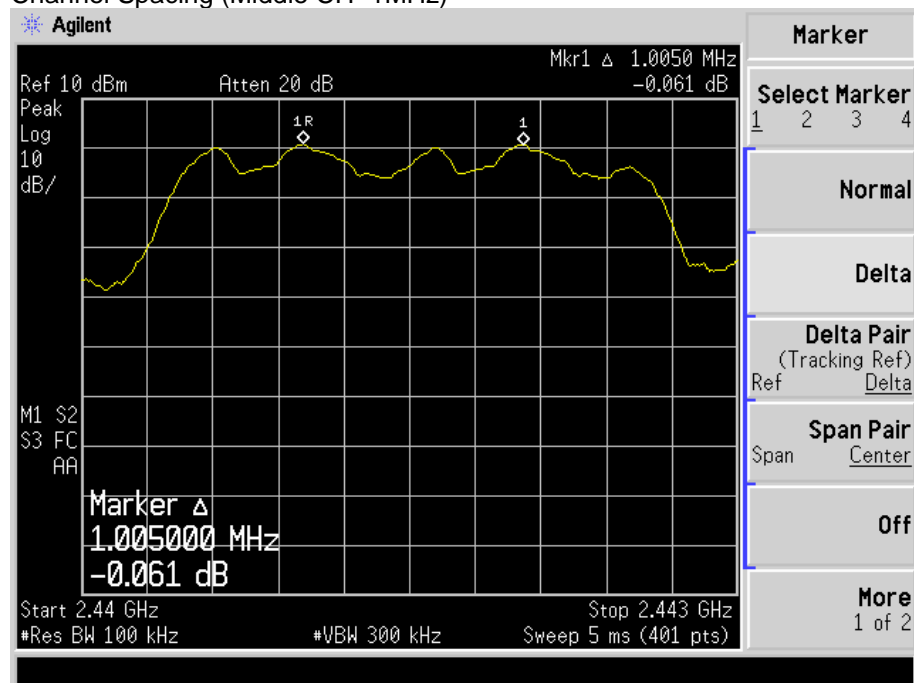
### Channel Spacing (High CH=1MHz)



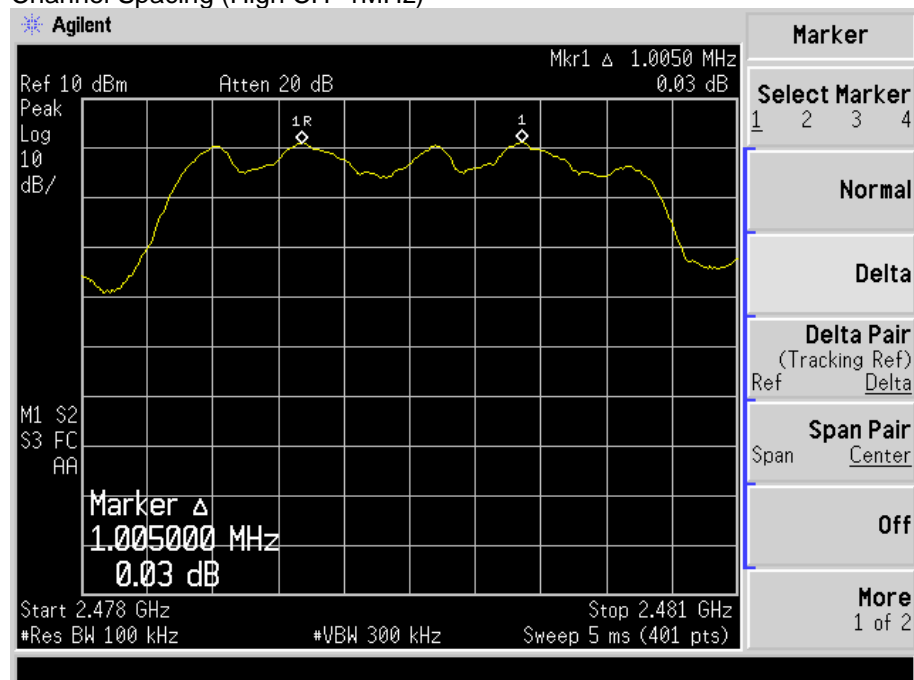
### pi/4DQPSK Channel Spacing (Low CH=1MHz)



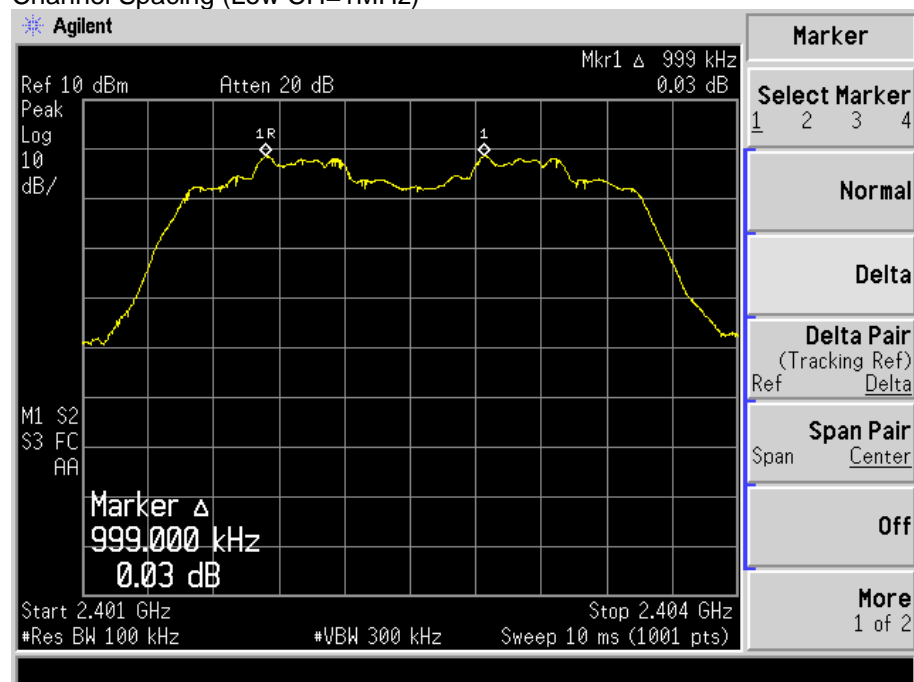
### Channel Spacing (Middle CH=1MHz)



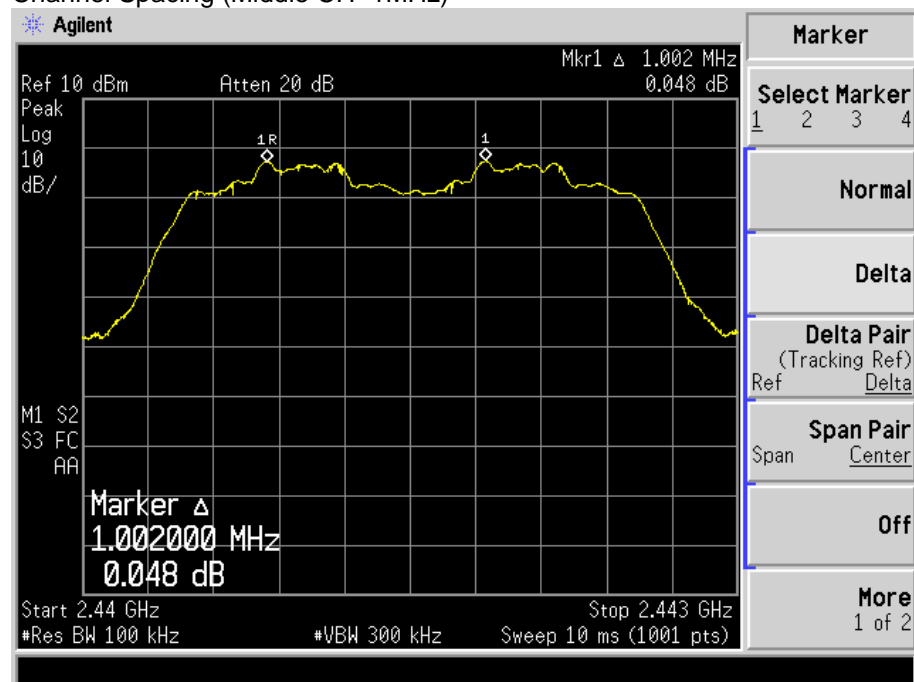
### Channel Spacing (High CH=1MHz)



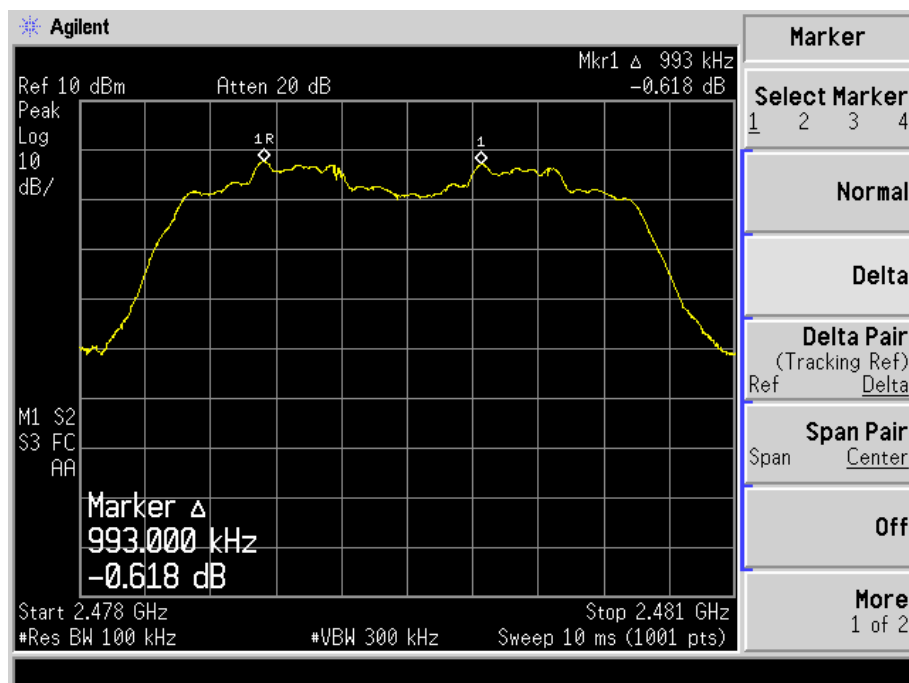
8DPSK  
Channel Spacing (Low CH=1MHz)



Channel Spacing (Middle CH=1MHz)



Channel Spacing (High CH=1MHz)

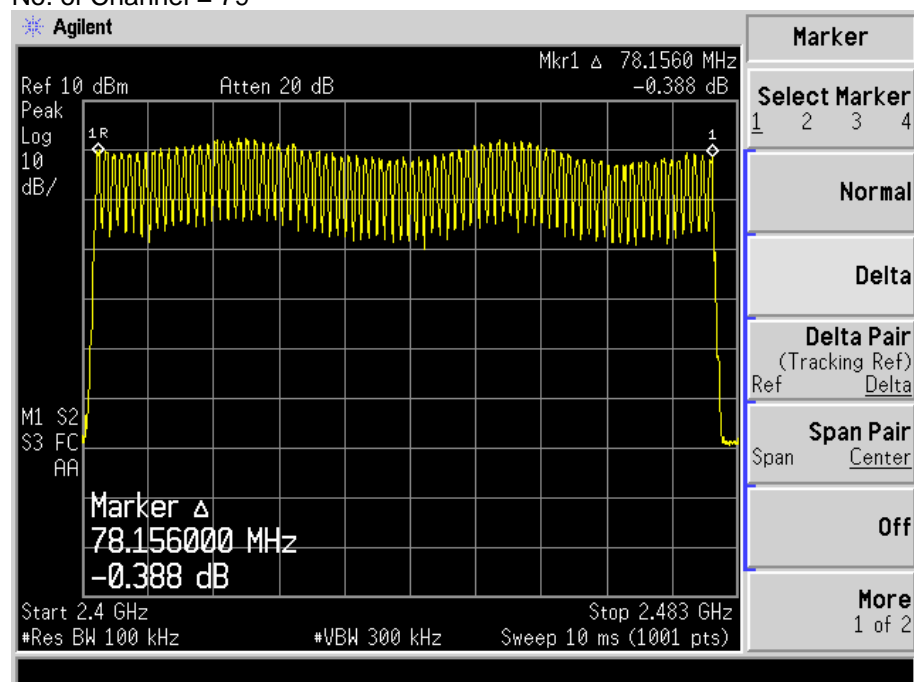


## 6. Number of Hopping Frequency

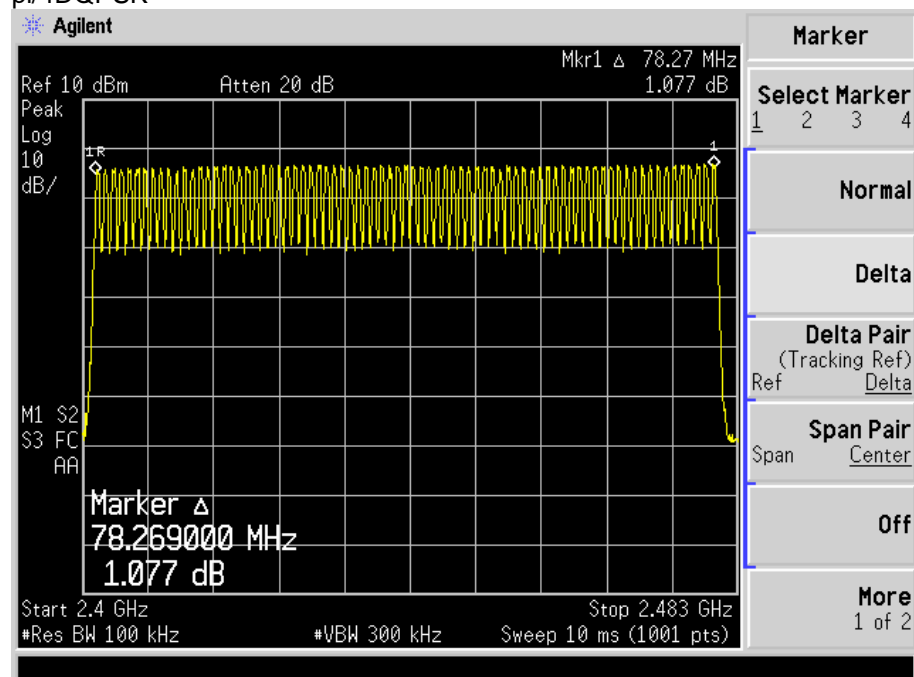
### 6.1 Test Datas

GFSK

No. of Channel = 79

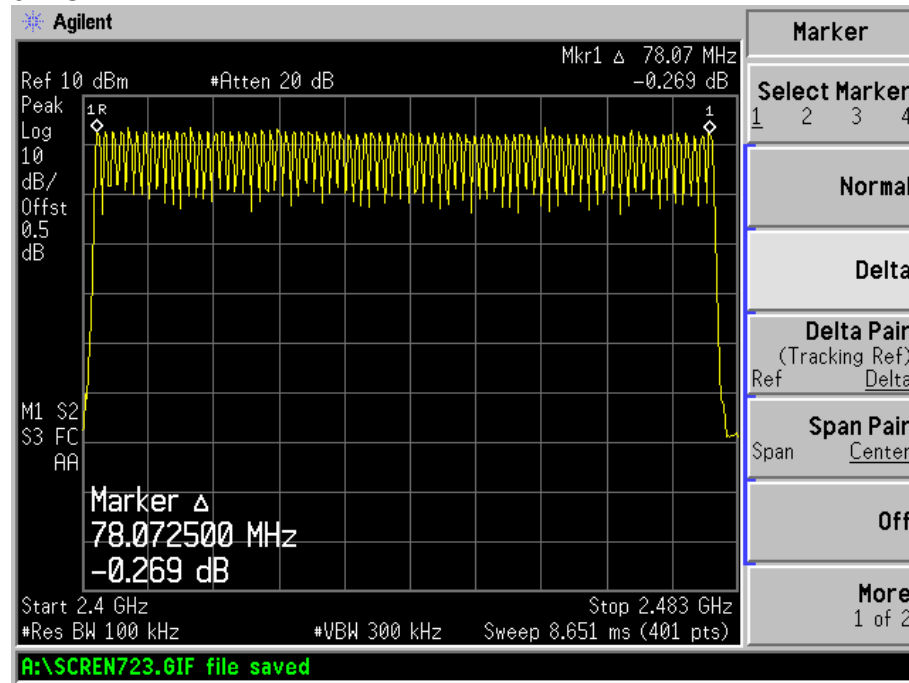


pi/4DQPSK



Produkte  
Products

8DPSK



## 7. Time of Occupancy

### 7.1 Test Datas

The dwell time within a period in data mode is independent from the packet type (packet length).  
Test data is corrected with the worse case, which the packet length is DH1, DH3, and DH5.

The test period:  $T = 0.4 \text{ Second} * 79 \text{ Channel} = 31.6 \text{ s}$

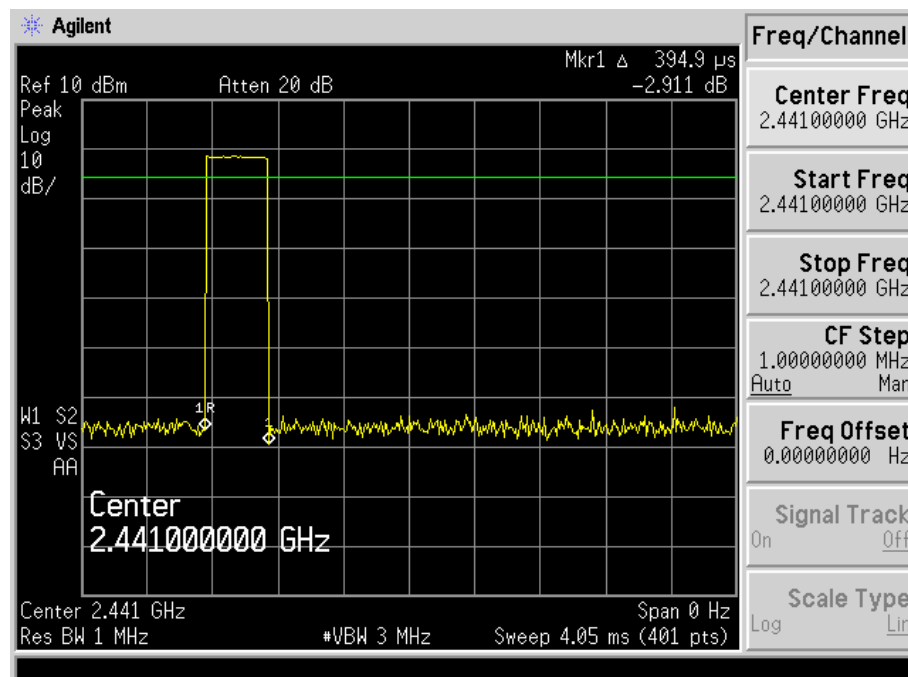
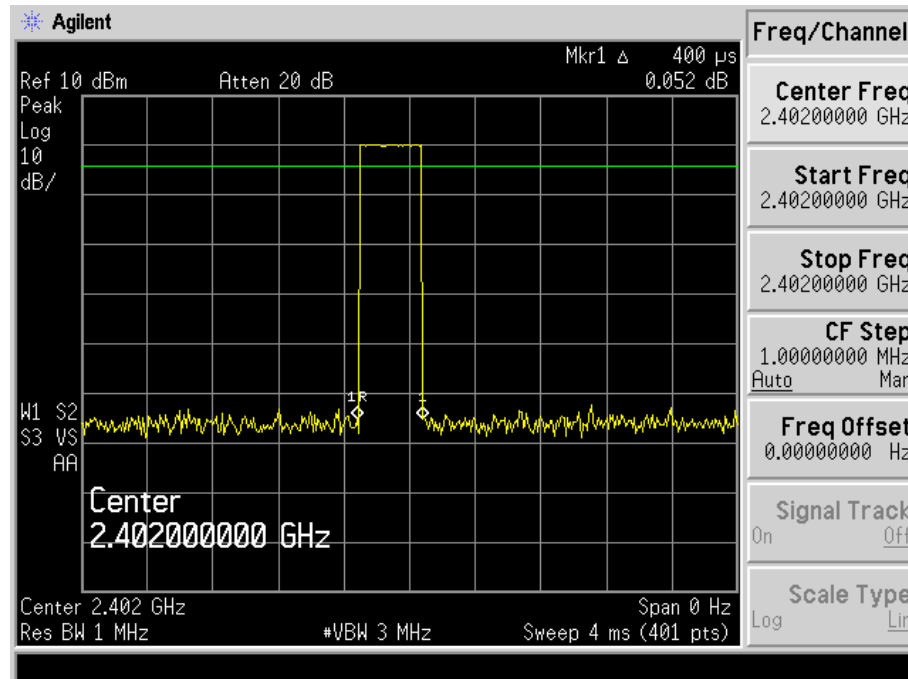
Dwell time = time slot length \* (Hopping rate / Number of hopping channels) \* Period

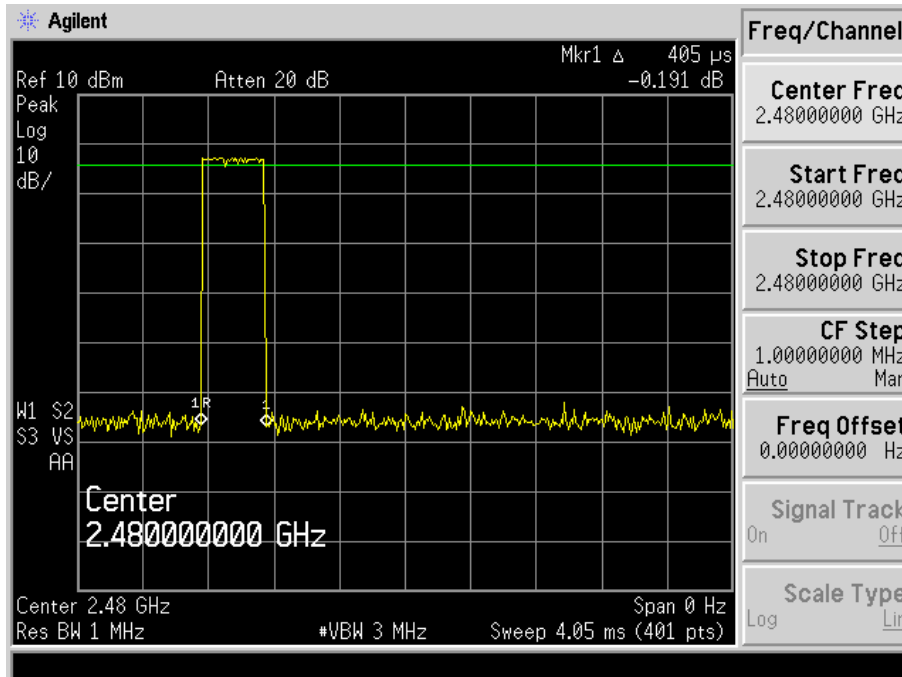
Modulation	Test Channel	Packet	Time Slot Length (ms)	Dwell Time (ms)	Limit (ms)
GFSK	2402MHz	DH1	0.400	128.00	400
		DH3	1.660	265.60	400
		DH5	2.906	309.97	400
	2441MHz	DH1	0.395	126.40	400
		DH3	1.650	264.00	400
		DH5	2.90	309.33	400
	2480MHz	DH1	0.405	129.60	400
		DH3	1.660	265.60	400
		DH5	2.906	309.97	400
pi/4DQPSK	2402MHz	2DH1	0.42	134.400	400
		2DH3	1.67	267.200	400
		2DH5	2.92	311.467	400
	2441MHz	2DH1	0.42	134.400	400
		2DH3	1.66	265.600	400
		2DH5	2.92	311.467	400
	2480MHz	2DH1	0.43	137.600	400
		2DH3	1.68	268.800	400
		2DH5	2.91	312.533	400
8DPSK	2402MHz	3DH1	0.394	126.08	400
		3DH3	1.661	265.76	400
		3DH5	2.916	311.04	400
	2441MHz	3DH1	0.400	128.00	400
		3DH3	1.660	265.60	400
		3DH5	2.910	310.40	400
	2480MHz	3DH1	0.400	128.00	400
		3DH3	1.650	264.00	400
		3DH5	2.916	311.04	400



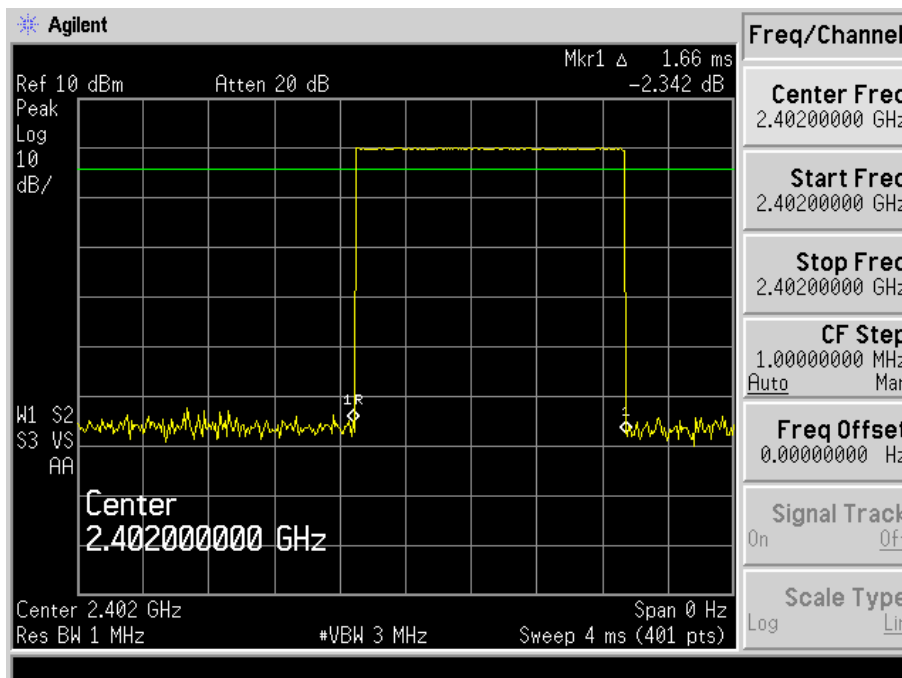
## 7.2 Test Plots

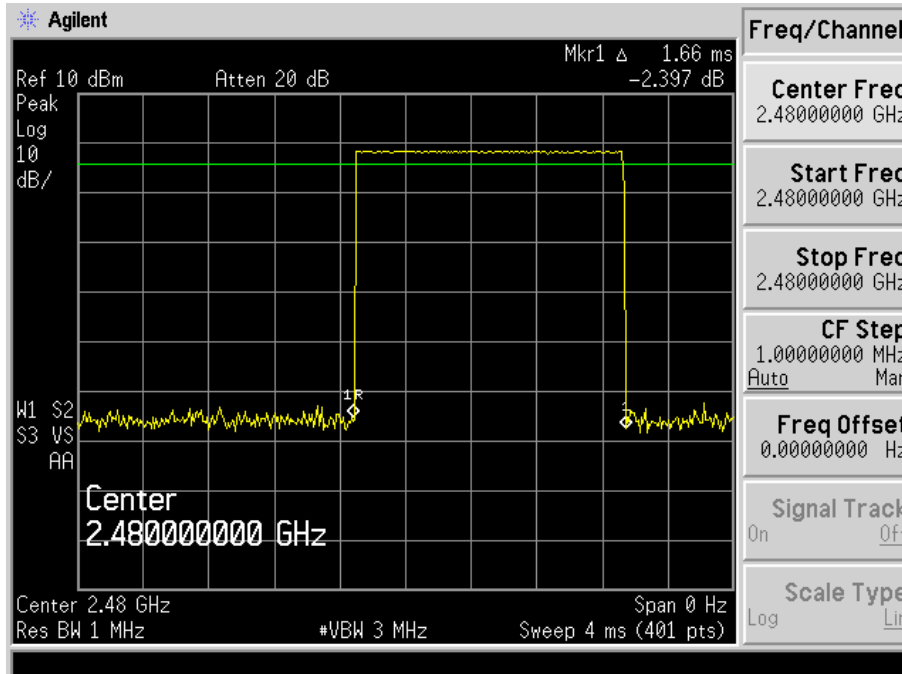
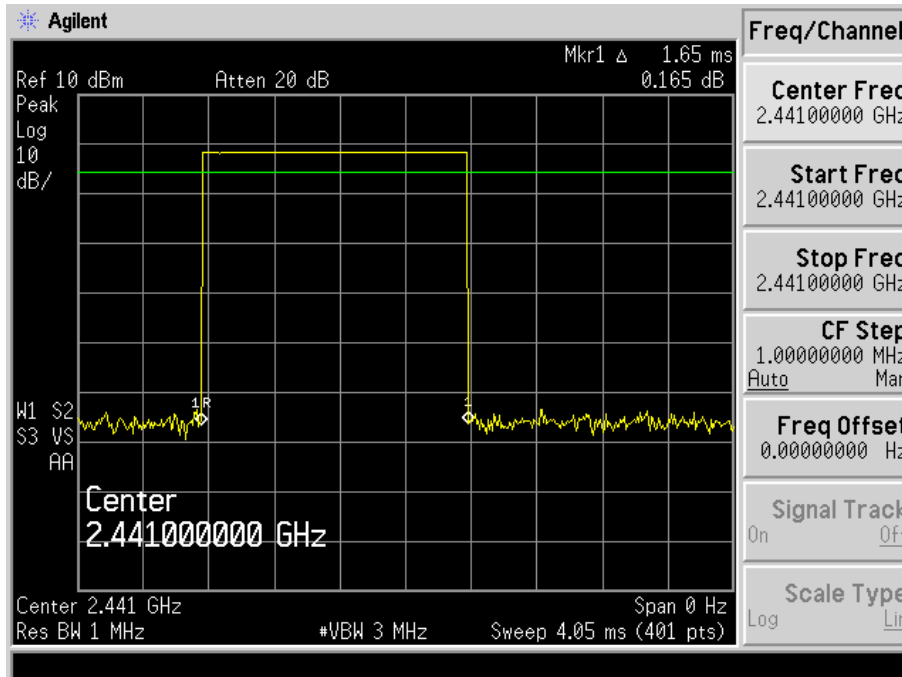
DH1 time slot (Low, Middle, High Channels)



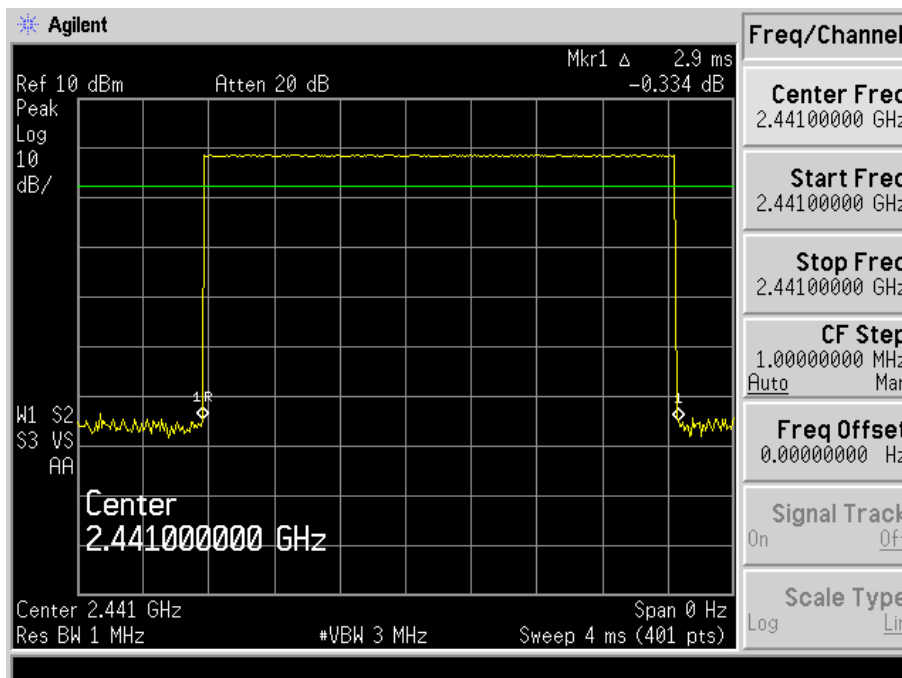
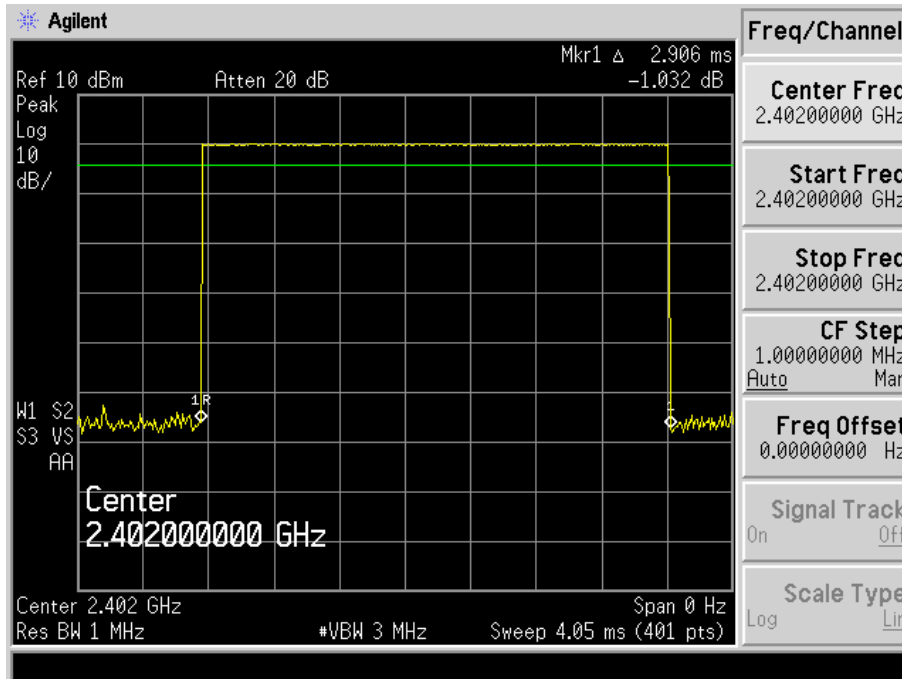


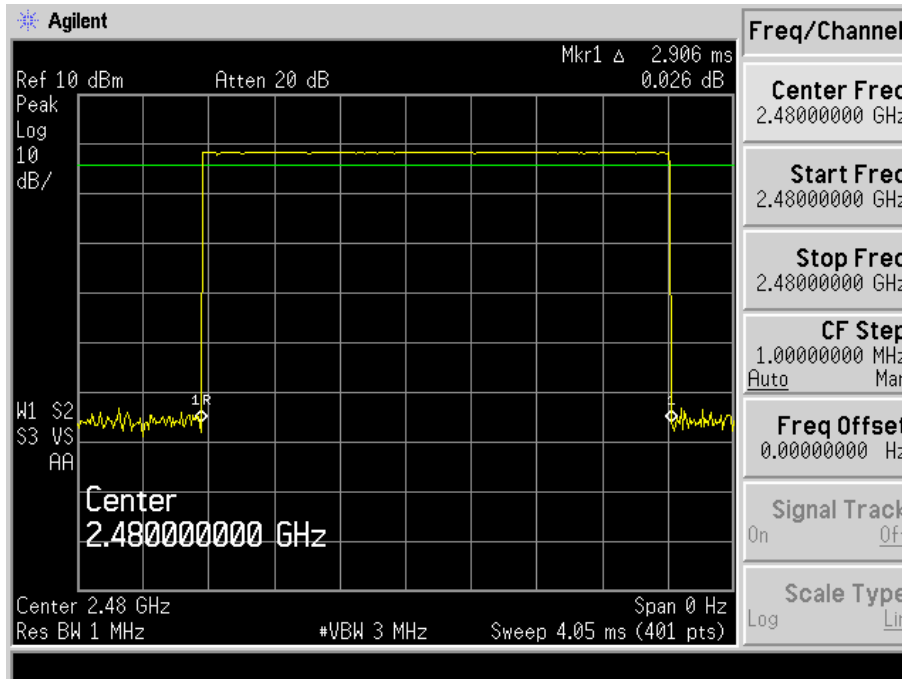
DH3 time slot (Low, Middle, High Channels)



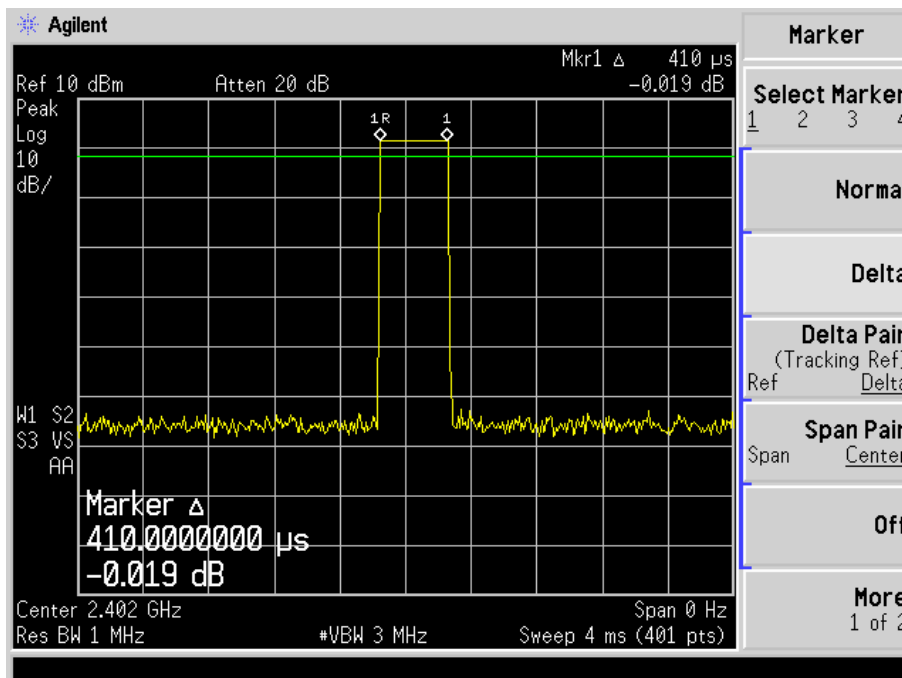


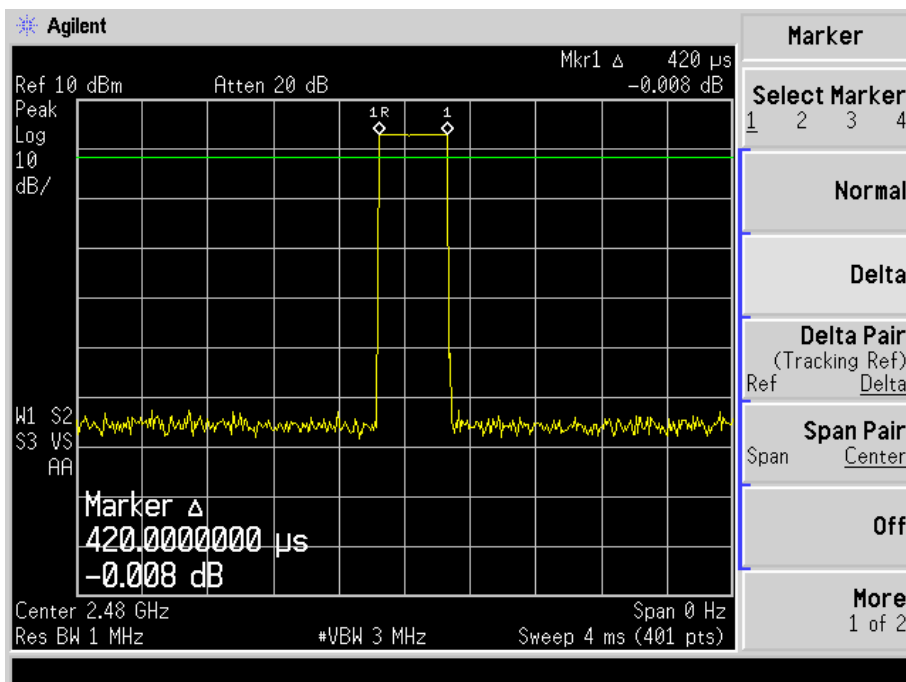
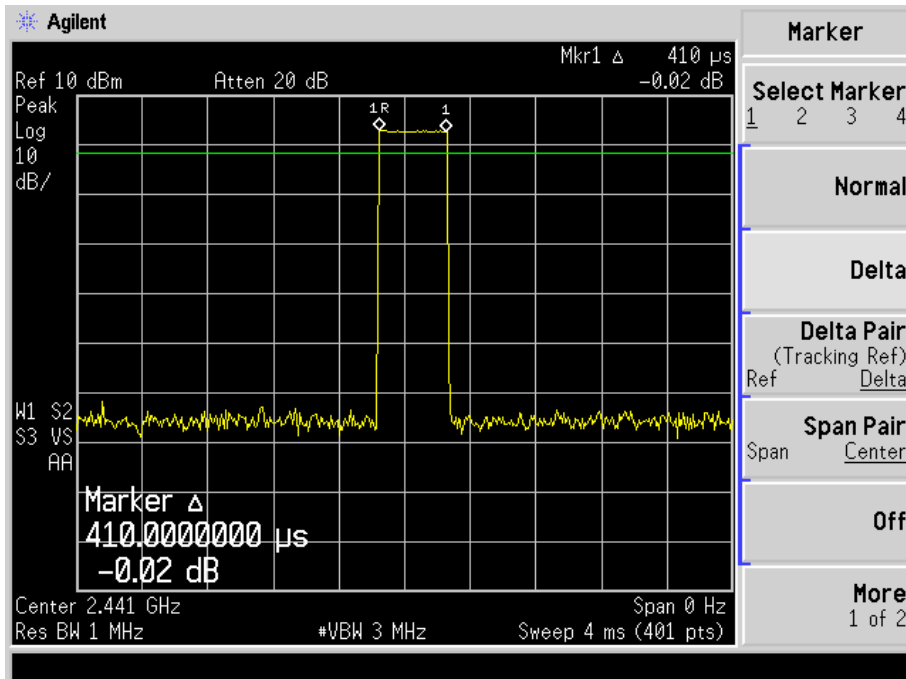
DH5 time slot (Low, Middle, High Channels)



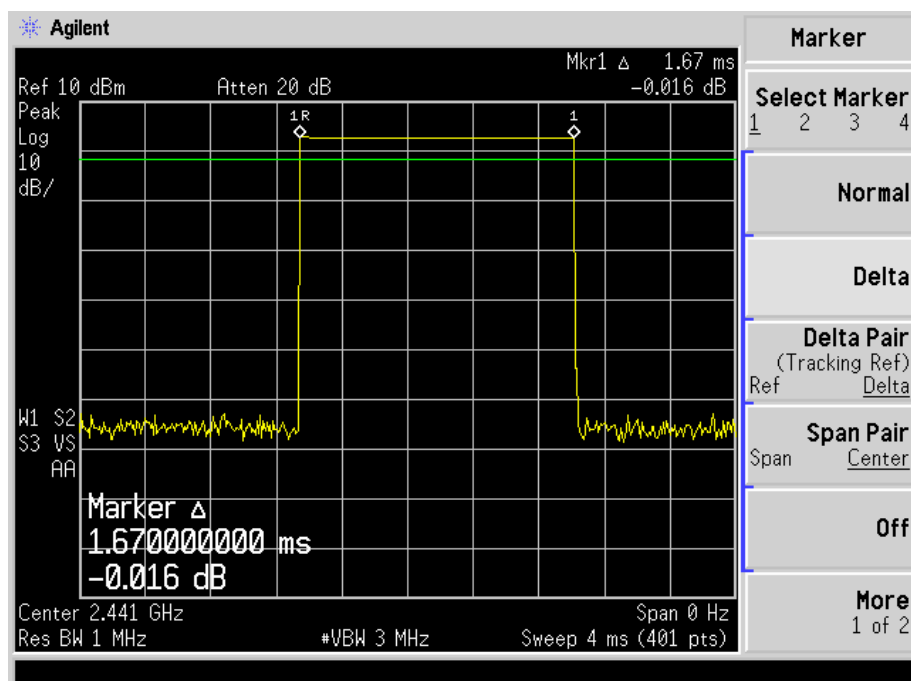
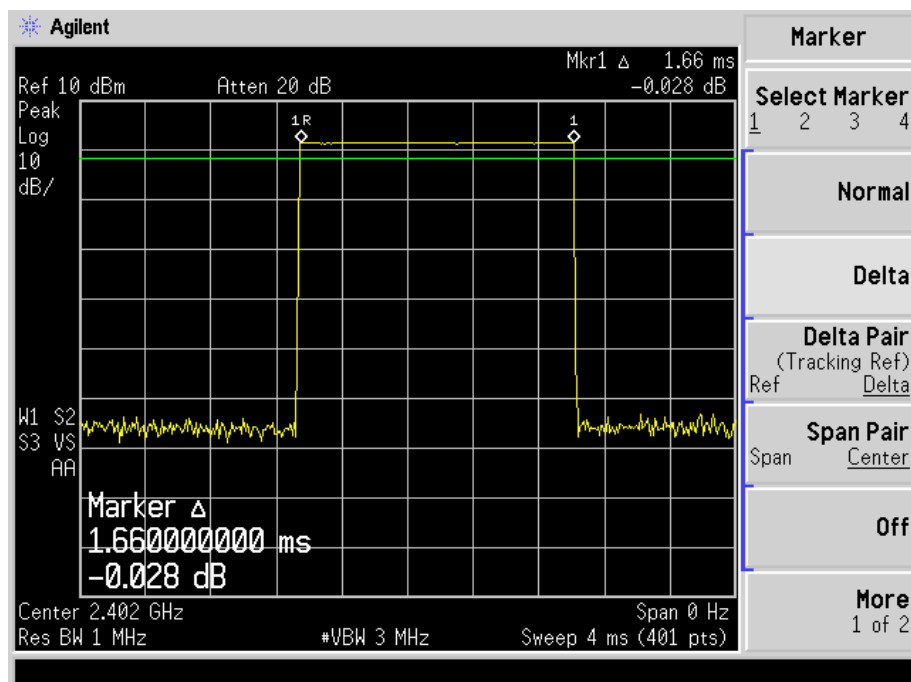


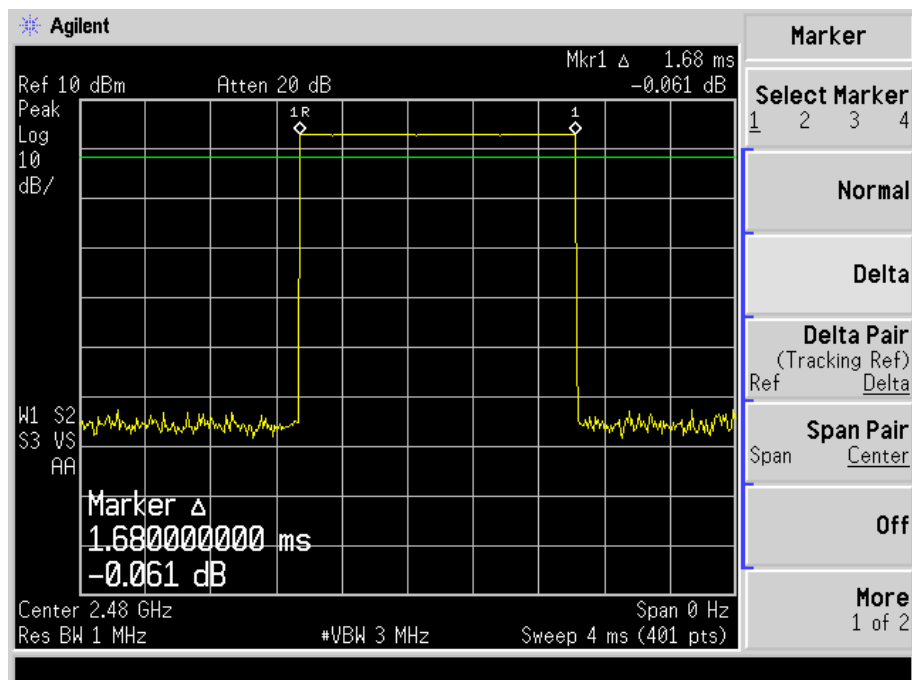
2DH1 time slot (Low, Middle, High Channels)



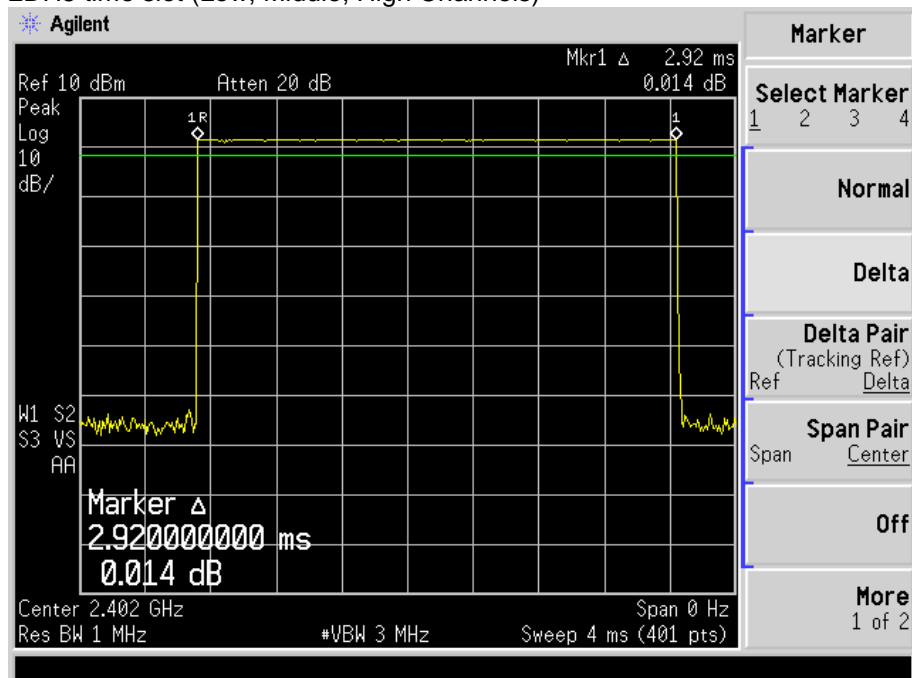


2DH3 time slot (Low, Middle, High Channels)

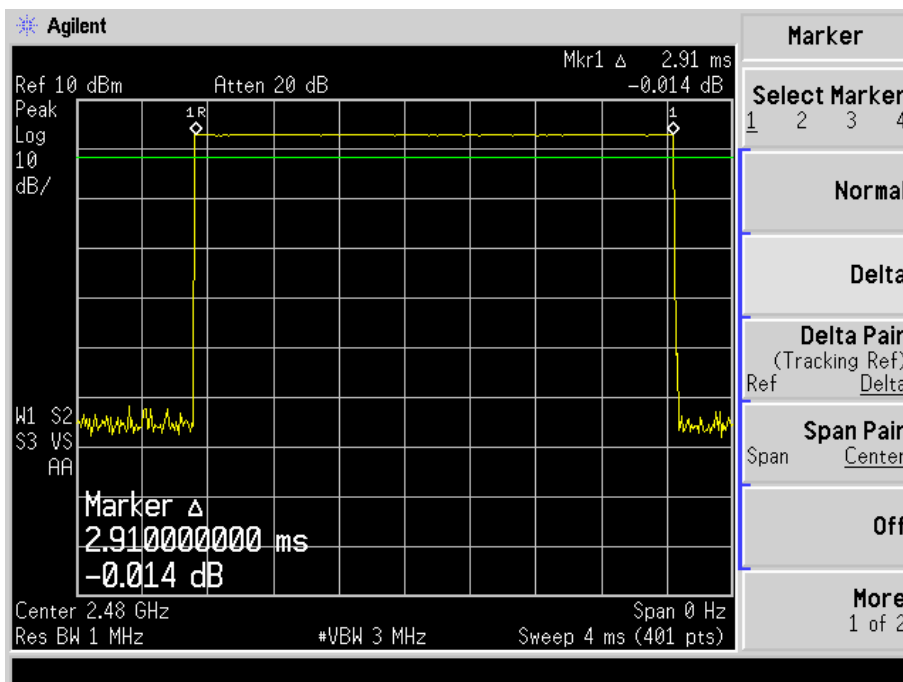
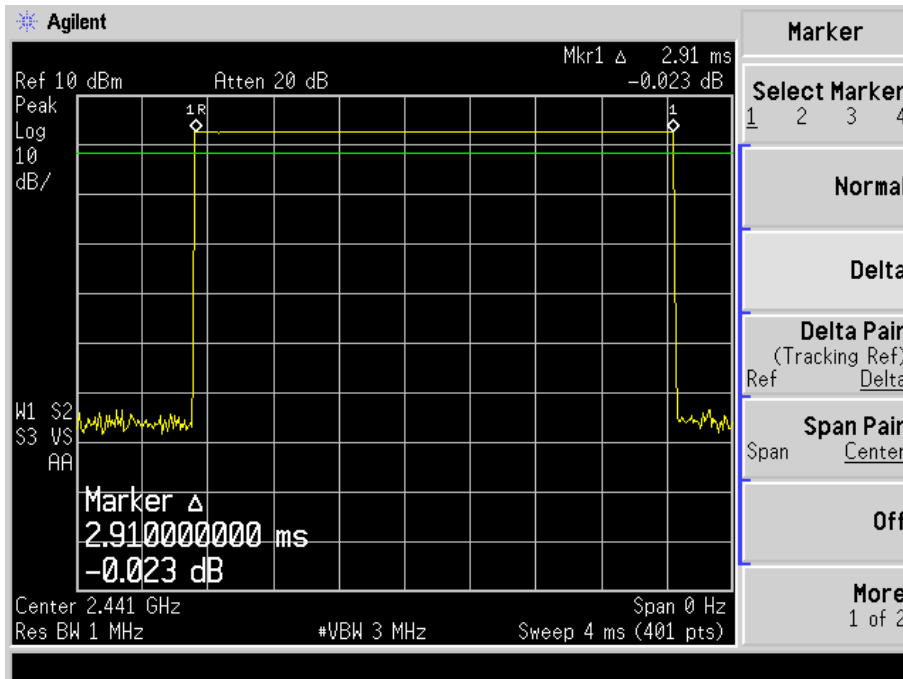




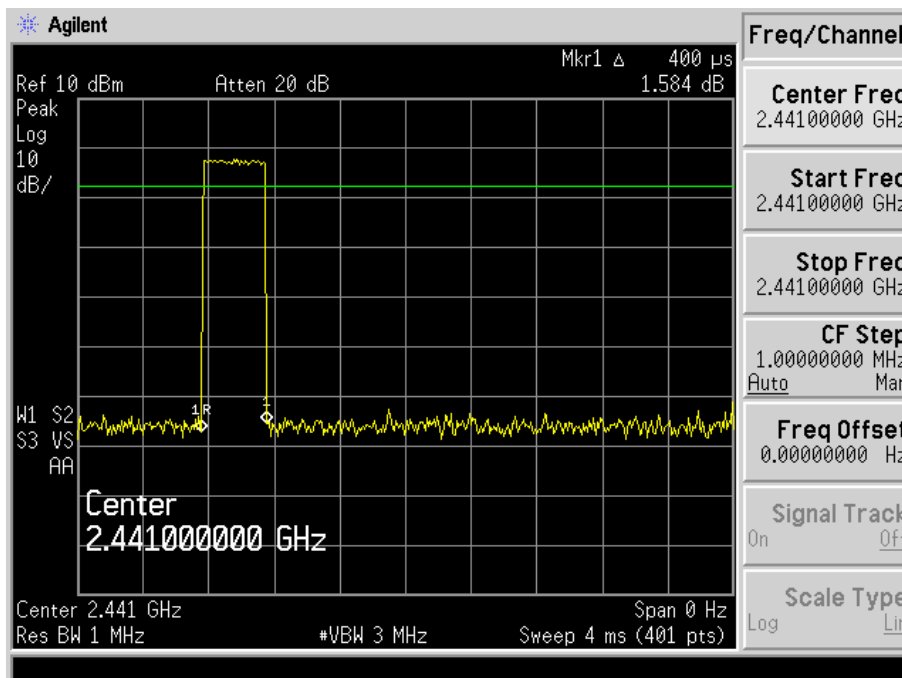
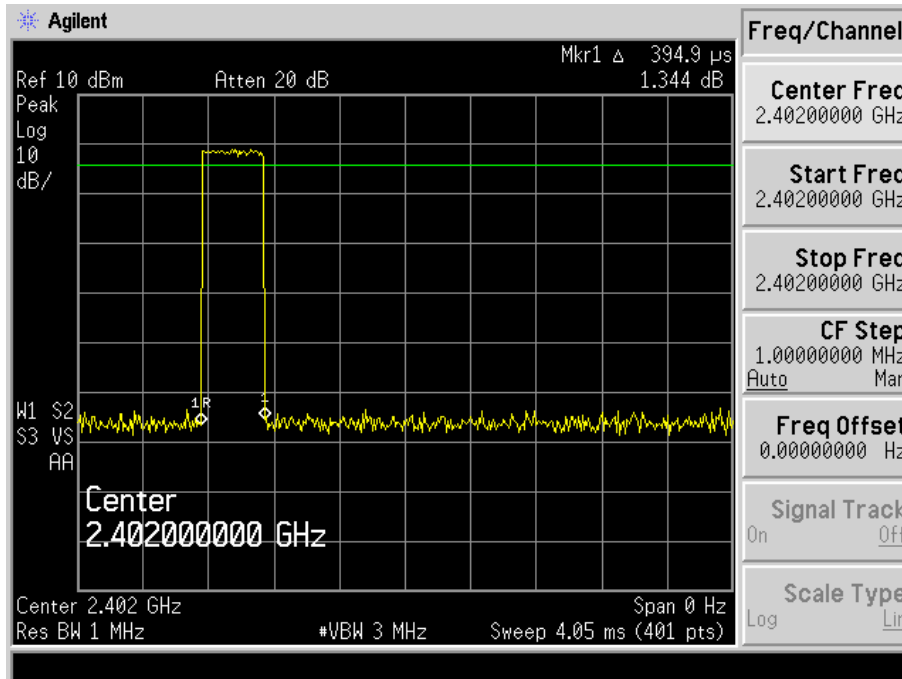
2DH5 time slot (Low, Middle, High Channels)

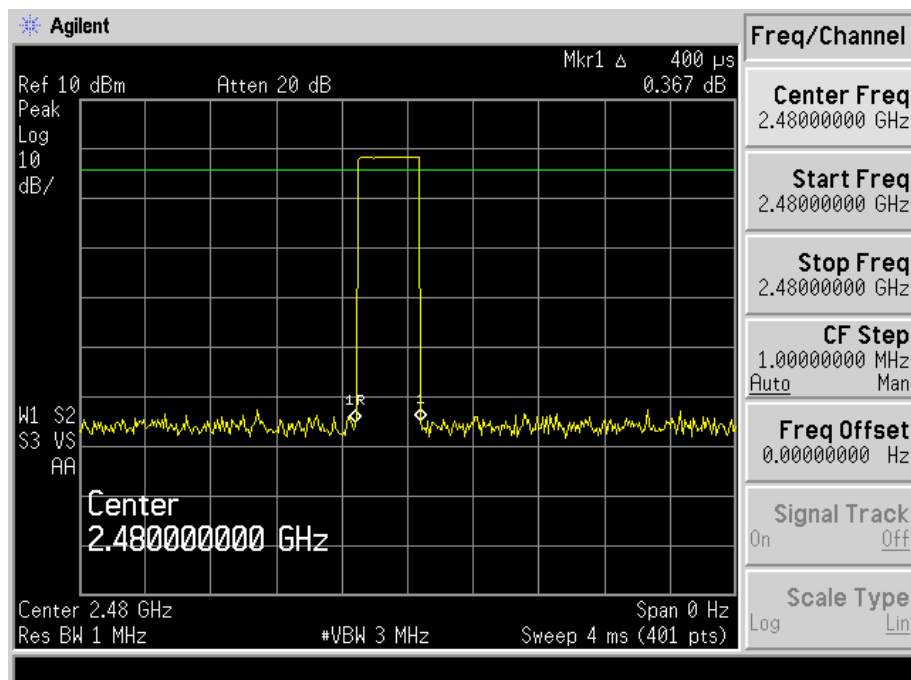




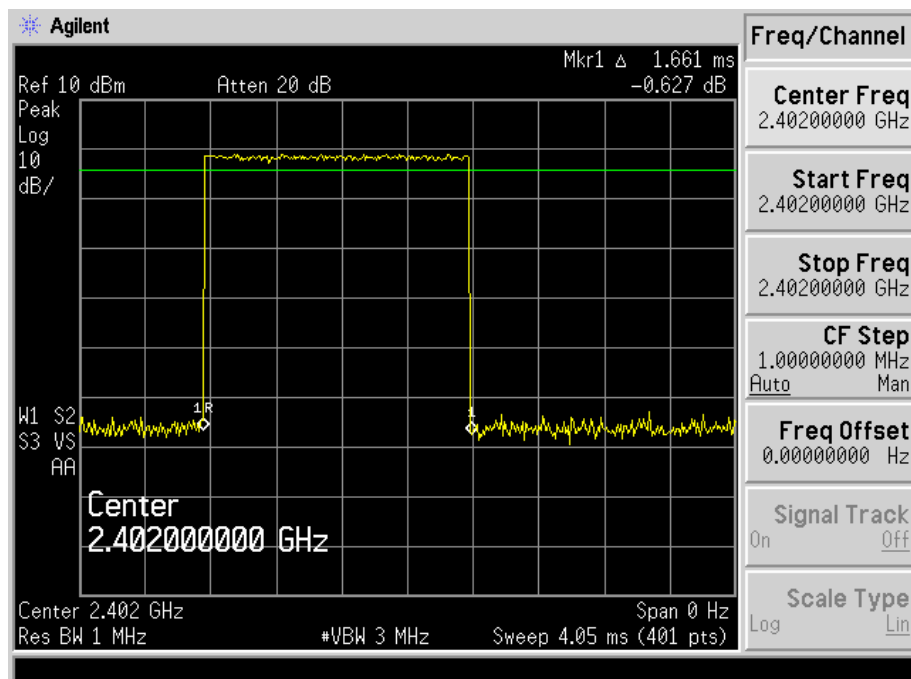


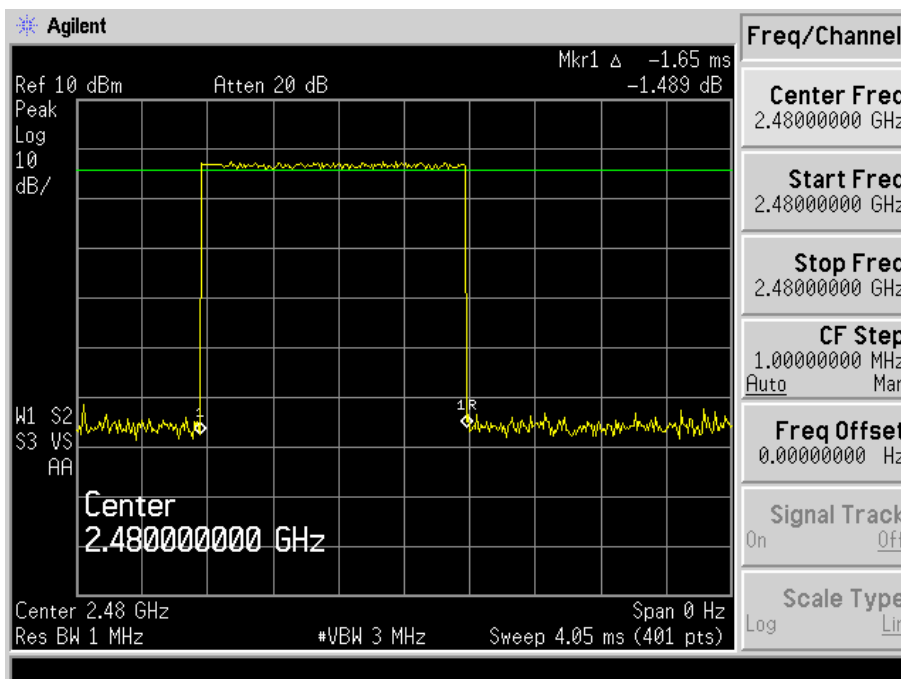
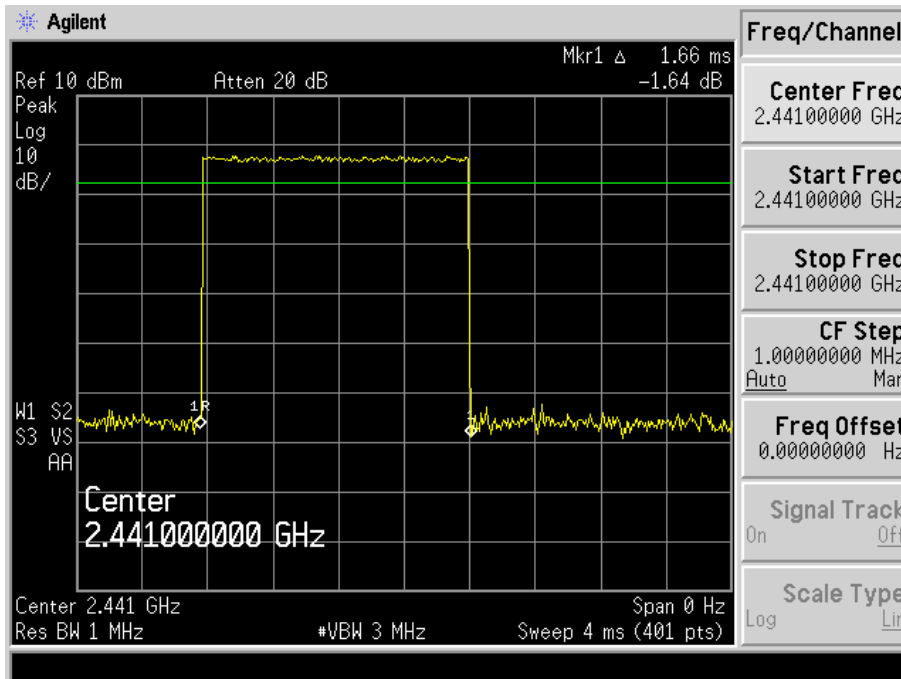
3DH1 time slot (Low, Middle, High Channels)



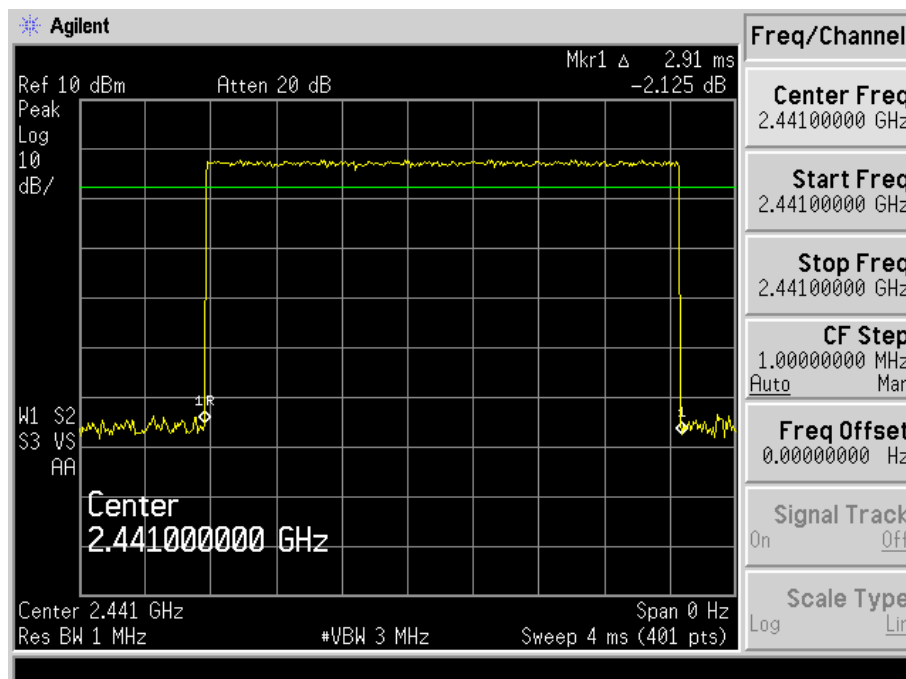
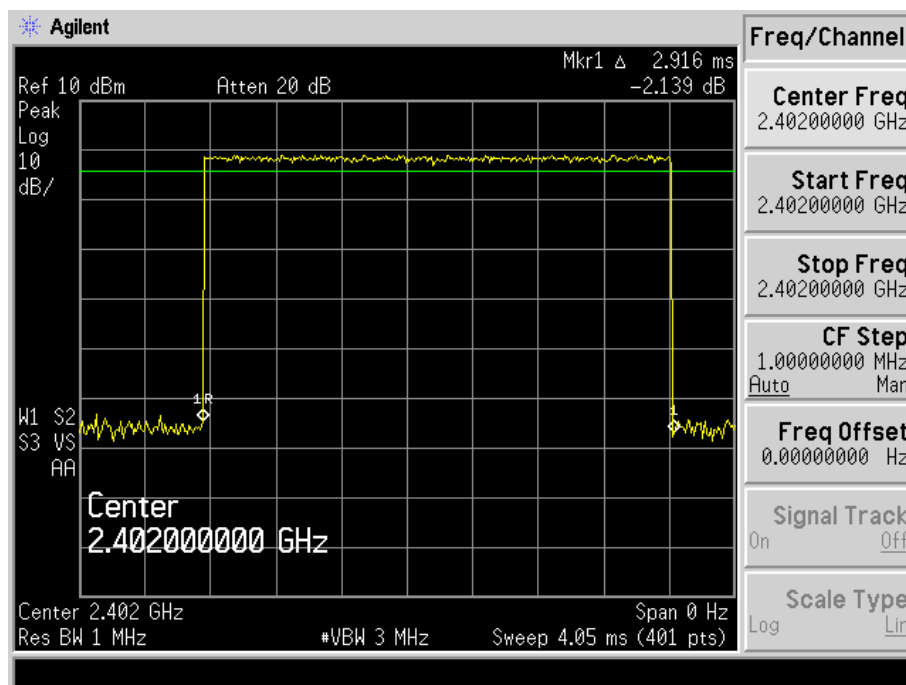


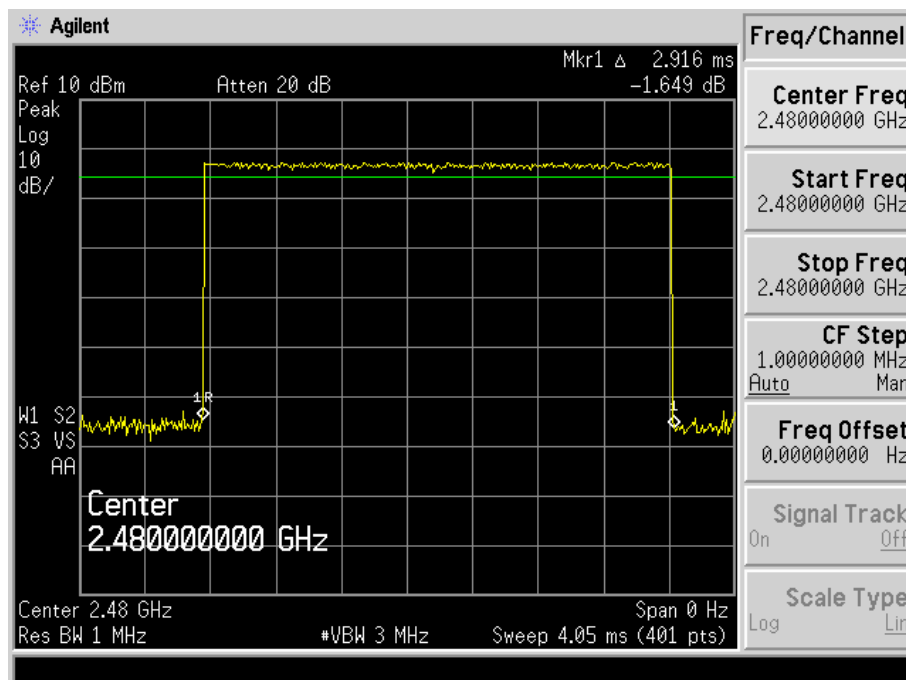
3DH3 time slot (Low, Middle, High Channels)





3DH5 time slot (Low, Middle, High Channels)

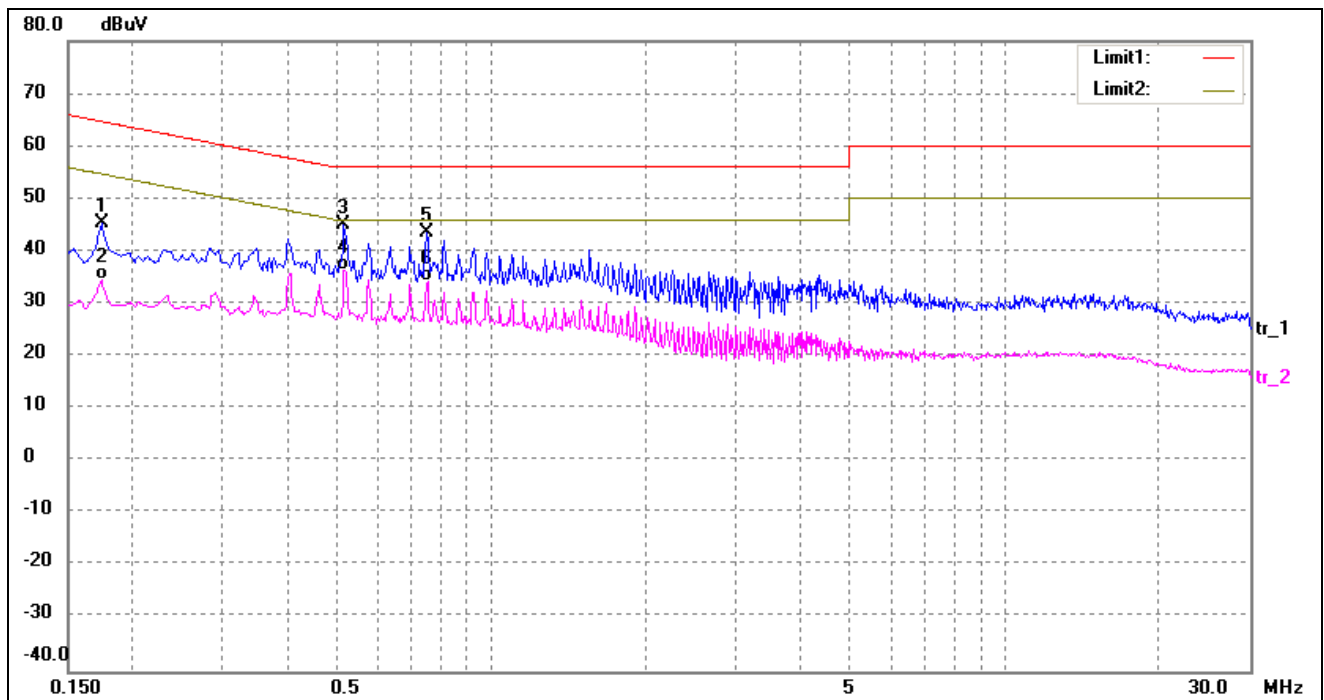




## 8. Conducted Emissions on AC Mains

### 8.1 Test Datas

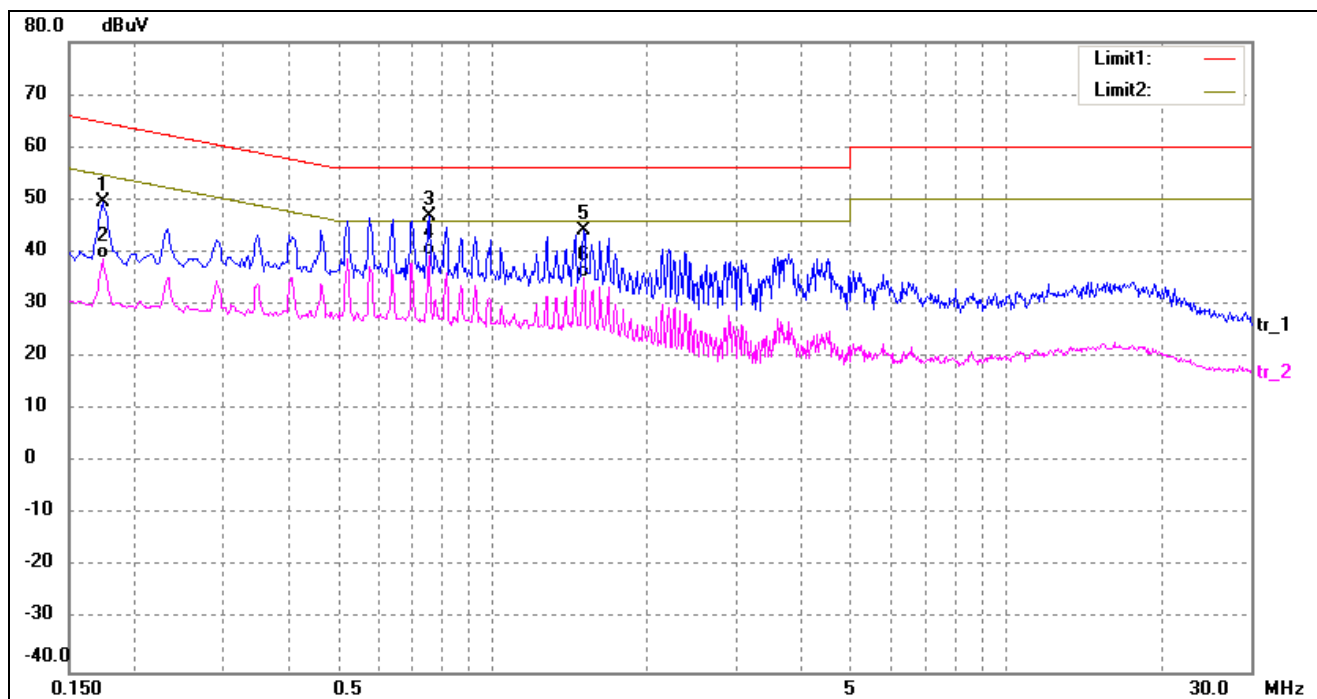
EUT:	Mobile Phone
Tested Model:	EZ-100
Operating Condition:	BT Transmitting
Line:	Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1740	35.52	9.83	45.35	64.77	-19.42	peak
2	0.1740	24.61	9.83	34.44	54.77	-20.33	AVG
3	0.5180	35.13	9.80	44.93	56.00	-11.07	peak
4*	0.5180	26.63	9.80	36.43	46.00	-9.57	AVG
5	0.7500	33.72	9.78	43.50	56.00	-12.50	peak
6	0.7540	24.54	9.78	34.32	46.00	-11.68	AVG

Line:

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1740	39.81	9.83	49.64	64.77	-15.13	peak
2	0.1740	28.96	9.83	38.79	54.77	-15.98	AVG
3	0.7540	37.01	9.78	46.79	56.00	-9.21	peak
4*	0.7540	29.43	9.78	39.21	46.00	-6.79	AVG
5	1.5100	34.29	9.75	44.04	56.00	-11.96	peak
6	1.5100	25.27	9.75	35.02	46.00	-10.98	AVG