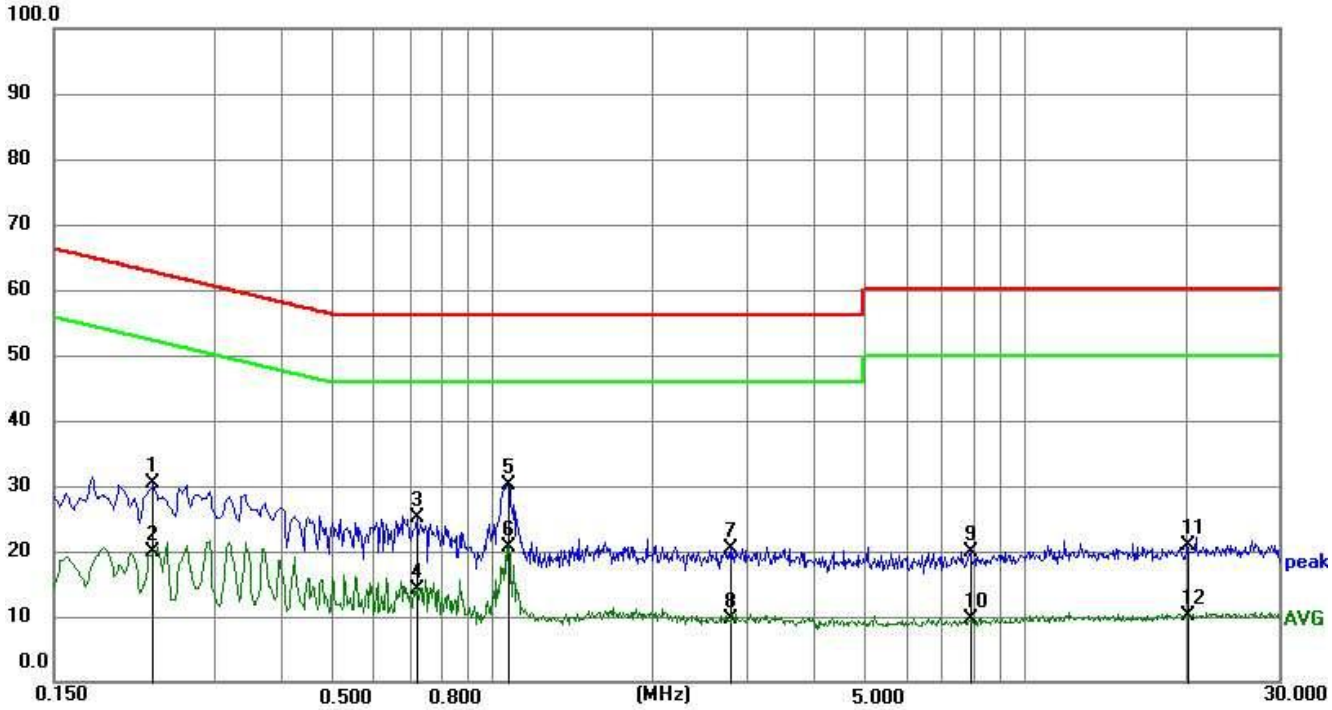
Temperature:	25℃	Relative Humidity:	50%
Test Mode:	GFSK(worst mode)	Test Voltage:	DC 5V from adapter AC 120V/60Hz
Result:	N	Result:	Pass



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2310	20.25	10.05	30.30	62.41	32.11	QP
2	0.2310	9.82	10.05	19.87	52.41	32.54	AVG
3	0.7215	15.21	9.98	25.19	56.00	30.81	QP
4	0.7215	4.17	9.98	14.15	46.00	31.85	AVG
5	1.0680	20.20	9.99	30.19	56.00	25.81	QP
6	1.0680	10.76	9.99	20.75	46.00	25.25	AVG
7	2.8140	10.39	9.94	20.33	56.00	35.67	QP
8	2.8140	-0.36	9.94	9.58	46.00	36.42	AVG
9	7.9125	10.08	9.82	19.90	60.00	40.10	QP
10	7.9125	-0.26	9.82	9.56	50.00	40.44	AVG
11	20.2470	10.83	10.00	20.83	60.00	39.17	QP
12	20.2470	0.19	10.00	10.19	50.00	39.81	AVG

Remark:

1.All readings are Quasi-Peak and Average values

2.During the test, pre-scan all modes, only the worst case is recorded in the report. AC conducted emission pre-test at both at AC 120V/60Hz and AC 240V/60Hz modes, recorded worst case AC 120V/60Hz.

4. 20 DB BANDWIDTH

4.1 Limit

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Limit	Frequency Range (MHz)
15.247a(1)	20dB bandwidth	N/A	2400-2483.5

4.2 Test Procedure

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

(2) Set the spectrum analyzer as follows

RBW: 30kHz

VBW: 100kHz

Detector Mode: AVG

Sweep time: auto

Trace mode Max hold

(3) Allow the trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

4.3 Test setup

4.4 Test results

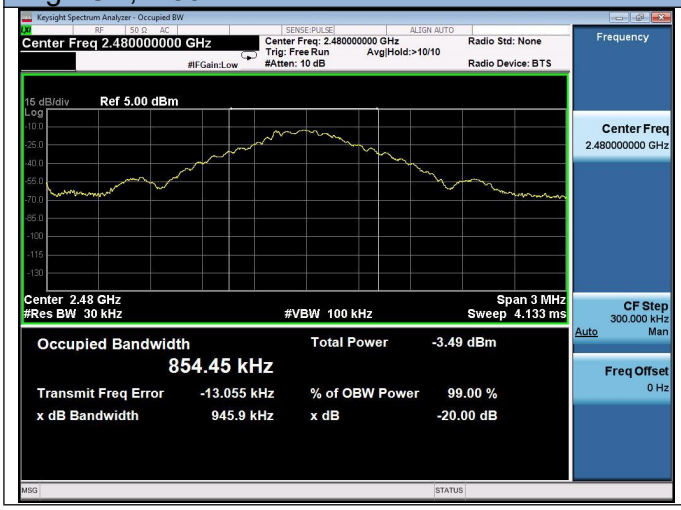
GFSK Mode			
Test Mode	Channel (MHz)	20dB Bandwidth (KHz)	Verdict
Lowest	2402MHz	871.8	Pass
Middle	2441MHz	947.0	Pass
Highest	2480MHz	945.9	Pass

4.5 Original Test Data

Low CH, 2402MHz

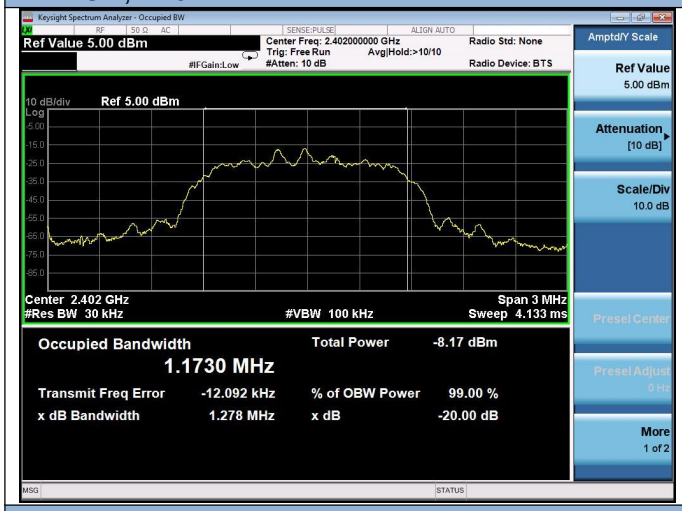
Middle CH,2441MHz

High CH,2480 MHz



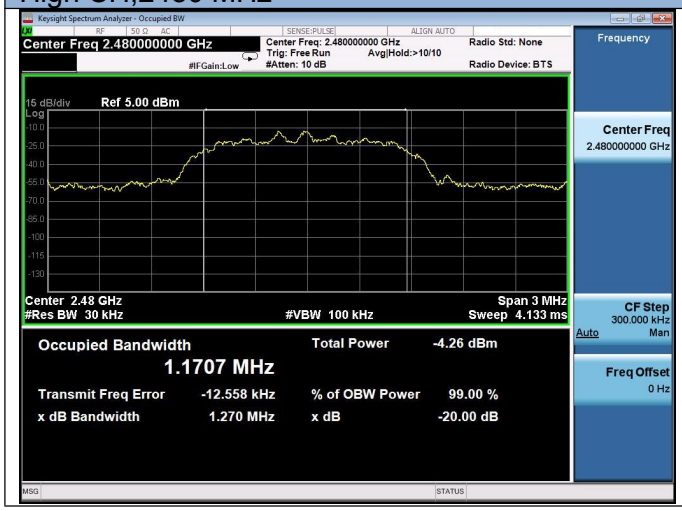
π/4-DQPSK Mode				
Test Mode	Channel (MHz)	20dB Bandwidth (MHz)	Verdict	
Lowest	2402MHz	1.278	Pass	
Middle	2441MHz	1.297	Pass	
Highest	2480MHz	1.270	Pass	

Low CH, 2402MHz



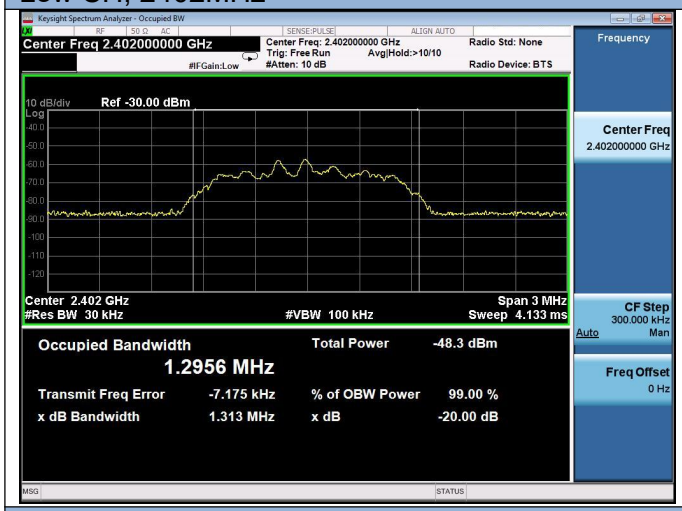
Middle CH,2441MHz

High CH,2480 MHz



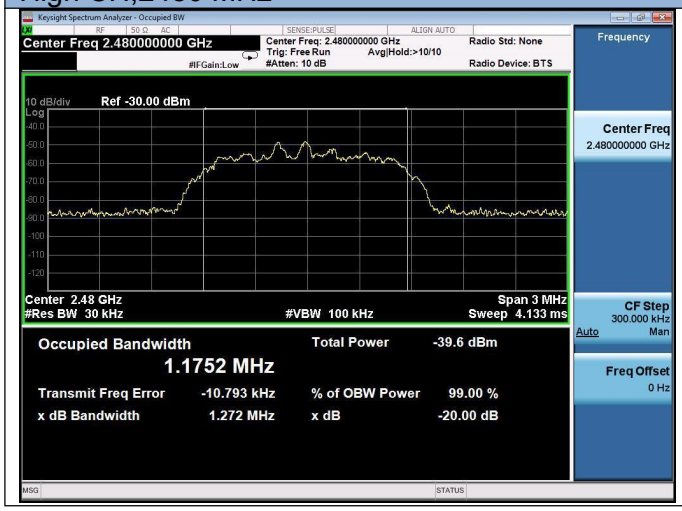
8-DPSK Mode				
Test Mode	Channel (MHz)	20dB Bandwidth (MHz)	Verdict	
Lowest	2402MHz	1.313	Pass	
Middle	2441MHz	1.299	Pass	
Highest	2480MHz	1.272	Pass	

Low CH, 2402MHz



Middle CH,2441MHz

High CH,2480 MHz



5. CONDUCTED OUTPUT POWER

5.1 LIMIT

FCC Part 15 Subpart C			
Section	Test Item	Limit	Frequency Range
15.247(b)(1)	Peak output power	Power <1W(30dBm)	2400-2483.5

5.2 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting:
RBW=1MHz, VBW=3MHz, Detector=Peak (If 20dB BW ≤1 MHz)
RBW=3MHz, VBW=8MHz, Detector=Peak (If 20dB BW > 1 MHz)
(3) The EUT was set to continuously transmitting in the max power during the test.

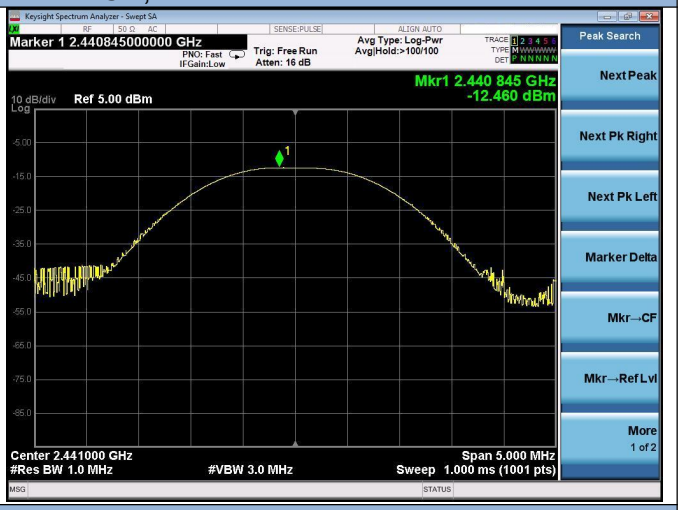
5.3 TEST SETUP

5.4 TEST RESULTS

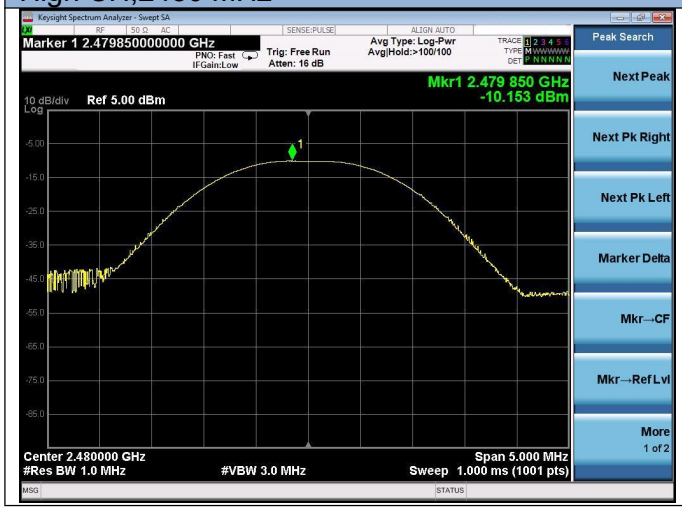
GFSK Mode				
TestMode	Channel (MHz)	Result（dBm）	Limit（dBm）	Verdict
Lowest	2402MHz	-14.250	21	Pass
Middle	2441MHz	-12.460	21	Pass
Highest	2480MHz	-10.153	21	Pass

Low CH, 2402MHz

Middle CH,2441MHz

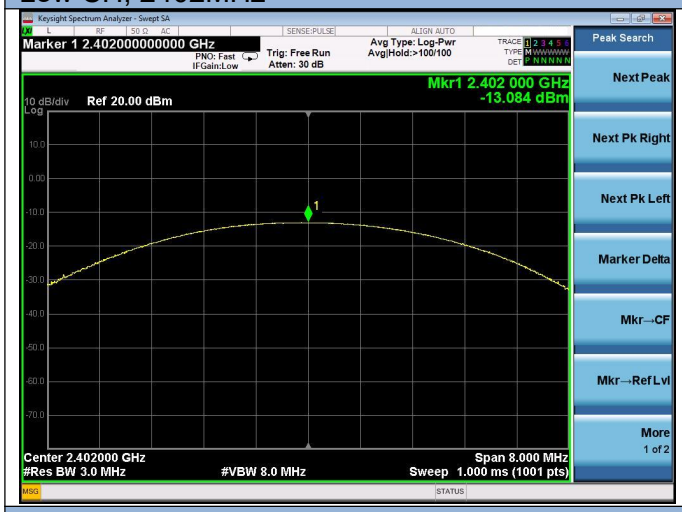


High CH,2480 MHz



π/4-DQPSK Mode				
TestMode	Channel (MHz)	Result（dBm）	Limit（dBm）	Verdict
Lowest	2402MHz	-13.084	21	Pass
Middle	2441MHz	-11.784	21	Pass
Highest	2480MHz	-11.361	21	Pass

Low CH, 2402MHz

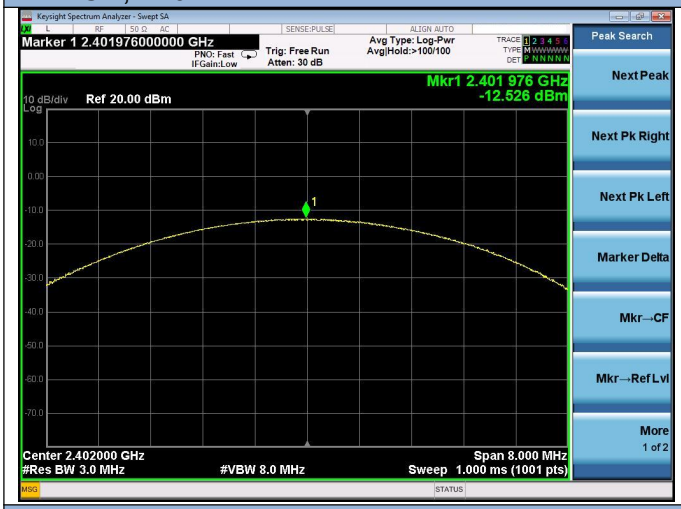


Middle CH,2441MHz

High CH,2480 MHz

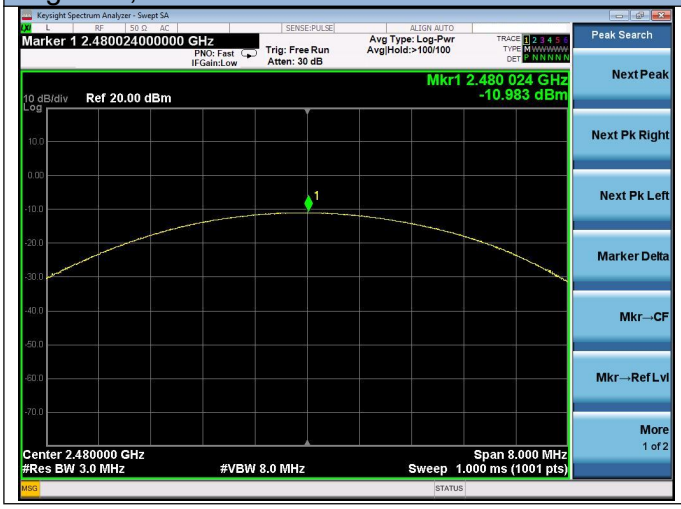
8-DPSK Mode				
TestMode	Channel (MHz)	Result（dBm）	Limit（dBm）	Verdict
Lowest	2402MHz	-12.526	21	Pass
Middle	2441MHz	-11.324	21	Pass
Highest	2480MHz	-10.983	21	Pass

Low CH, 2402MHz



Middle CH,2441MHz

High CH,2480 MHz



6 NUMBER OF HOPPING CHANNEL

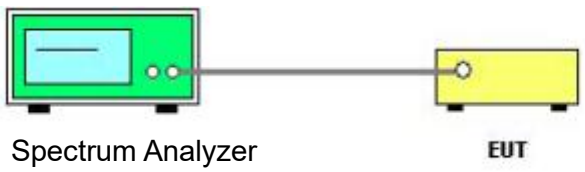
6.1 LIMIT

FCC Part 15.247,Subpart C				
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(1)(iii) RSS-247	Number of Hopping Channel	>15	2400-2483.5	PASS

6.2 TEST PROCEDURE

a The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
b Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = Auto

6.3 TEST SETUP



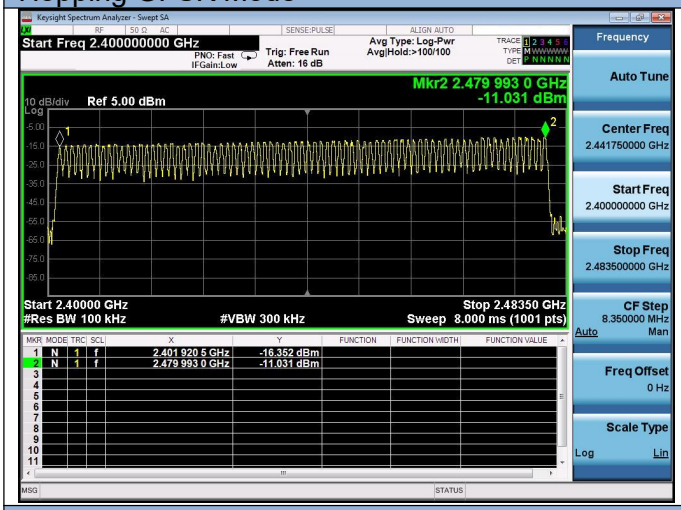
6.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

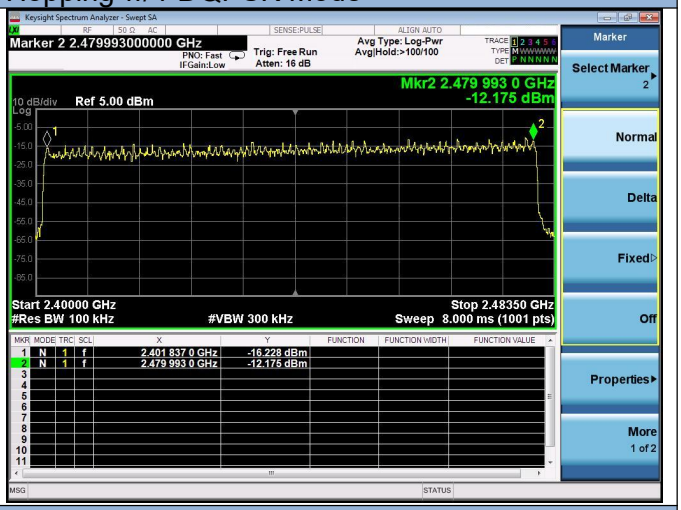
6.5 TEST RESULTS

Temperature:	25 °C	Relative Humidity:	60%
Test Mode:	Hopping Mode	Test Voltage:	DC 5V

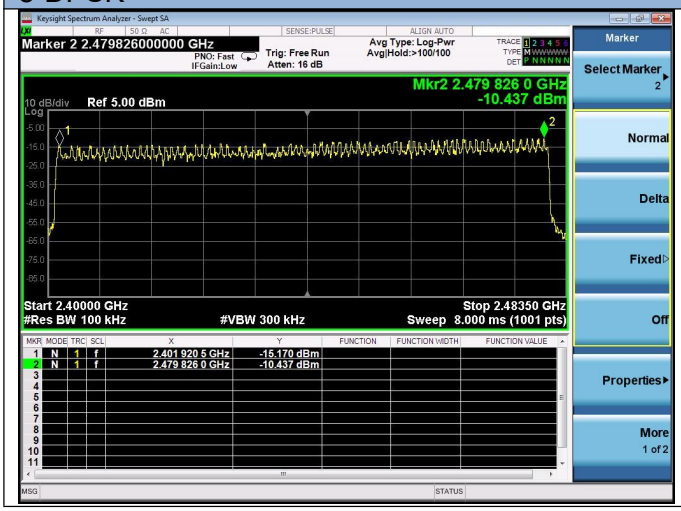
Hopping GFSK Mode



Hopping π/4-DQPSK Mode



8-DPSK



7. BAND EDGE AND SPURIOUS(CONDUCTED)

7.1 LIMIT

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 30dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

7.2 TEST PROCEDURE

(1) Connect EUT's antenna output to spectrum analyzer by RF cable.

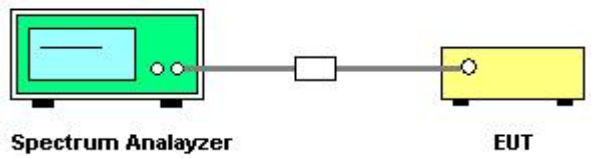
(2) Establish Allow the trace to stabilize, use the peak marker function to determine the maximum peak power level to establish the reference level.

(3) Set the spectrum analyzer as follows:

RBW:	100kHz
VBW:	300kHz
Span	Encompass frequency range to be measured
Number of measurement points	≥span/RBW
Detector Mode:	Pake
Sweep time:	auto
Trace mode	Max hold

(5) Allow the trace to stabilize, use the peak marker function to determine the maximum amplitude of all unwanted emissions outside of the authorized frequency band

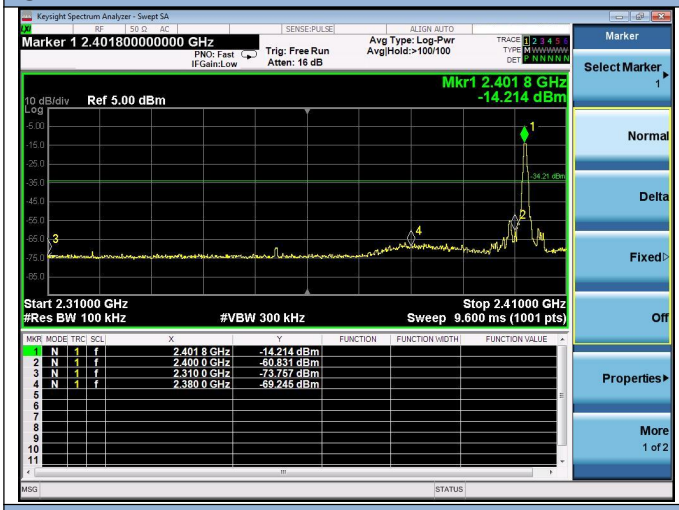
7.3 TEST SETUP



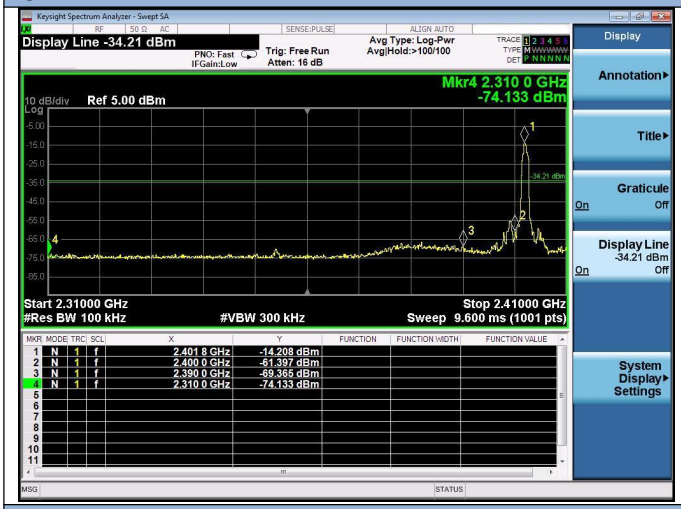
7.4 TEST RESULTS

Eut set mode	CH or Frequency	Result
GFSK	CH1	Pass
	CH79	Pass

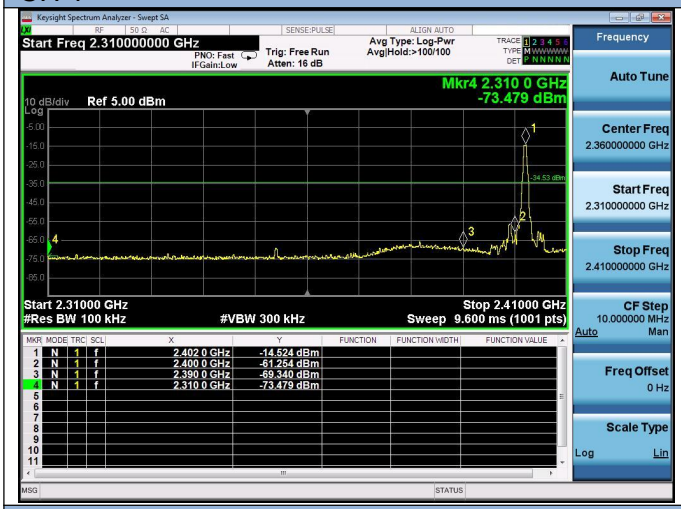
7.5 Original test data

CH 1	CH 79
	

Eut set mode	CH or Frequency	Result
π/4-DQPSK	CH1	Pass
	CH79	Pass

CH 1	CH 79
	

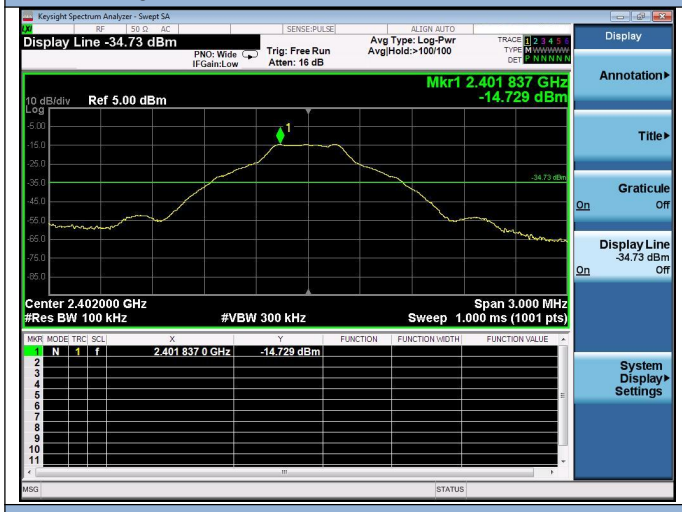
Eut set mode	CH or Frequency	Result
8-DPSK	CH1	Pass
	CH79	Pass

CH 1	CH 79
	

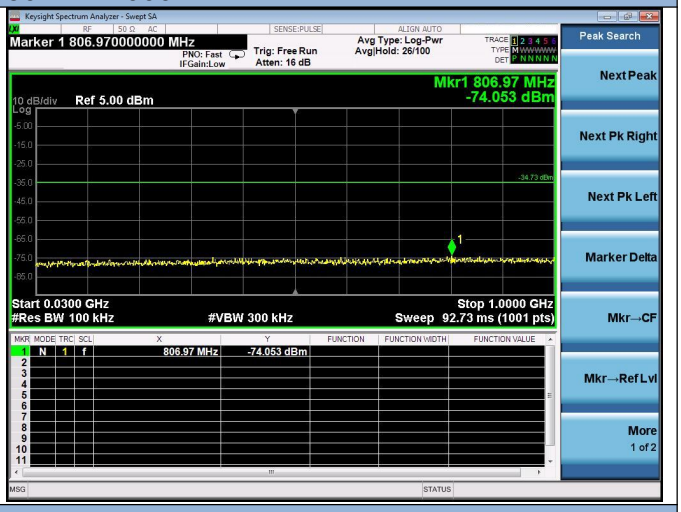
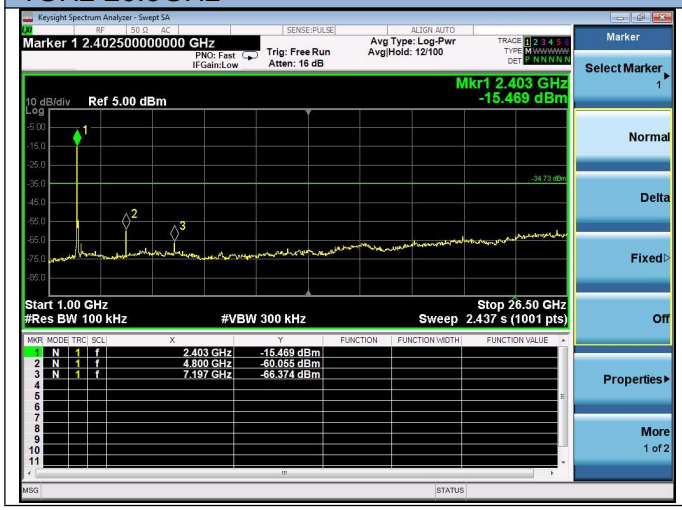
7.6 Spurious emissions

Temperature:	25 °C	Relative Humidity:	60%
Test Mode:	GFSK Mode	Test Voltage:	DC 5V

Low 2402MHz



30MHz-1000MHz



1GHz-26.5GHz