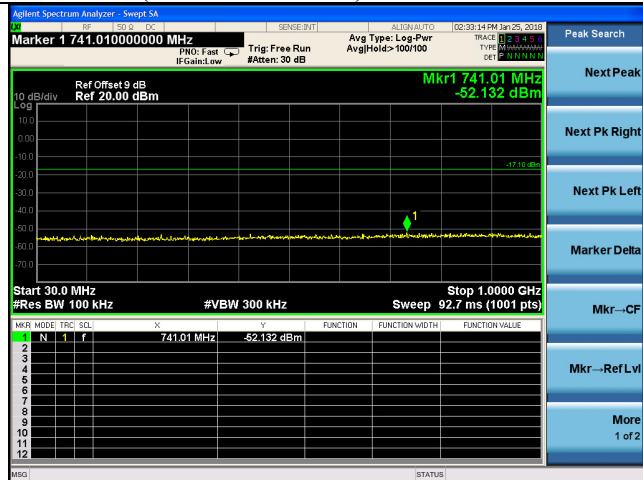
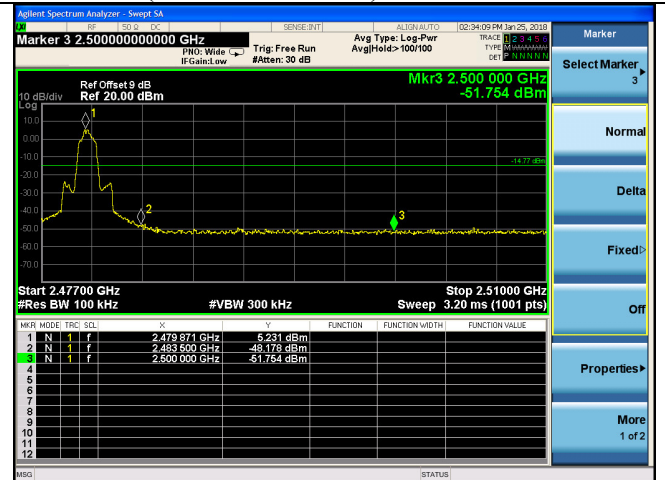


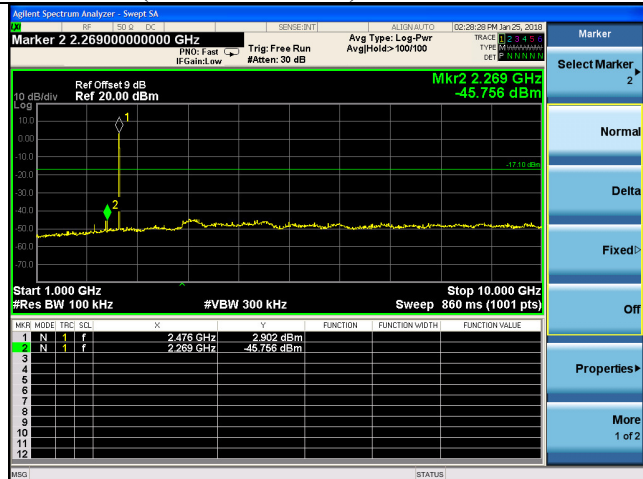
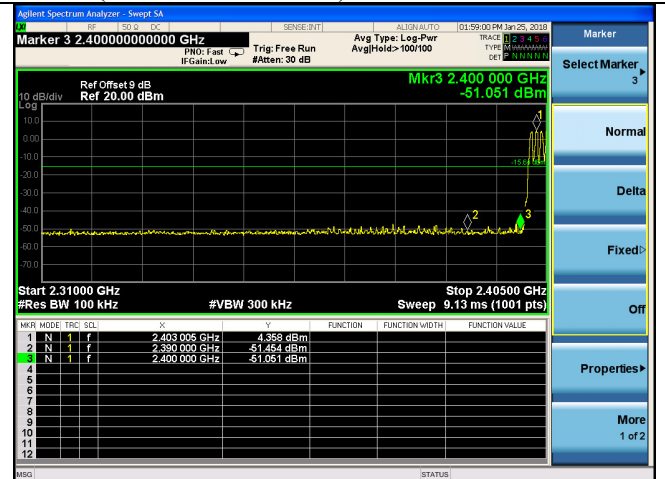
## 2480MHz(30MHz – 1GHz)



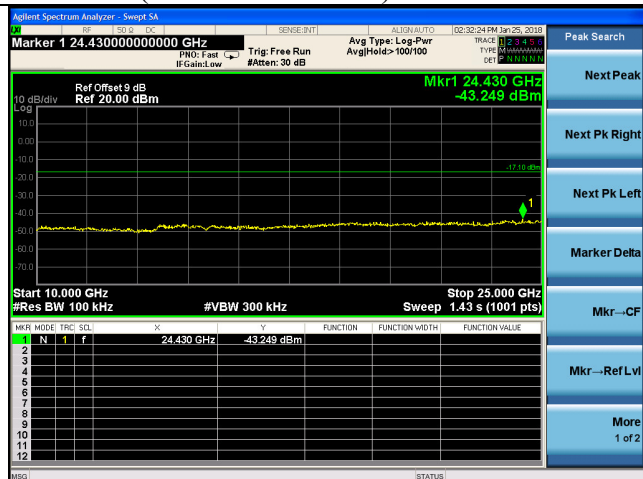
## 2480MHz(10GHz – 25GHz)



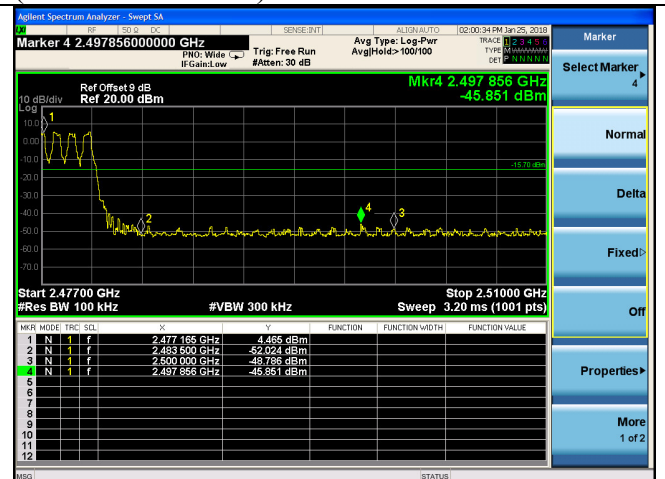
## 2480MHz(1GHz – 10GHz)


Hopping on  
GFSK(2.3GHz – 2.4GHz)


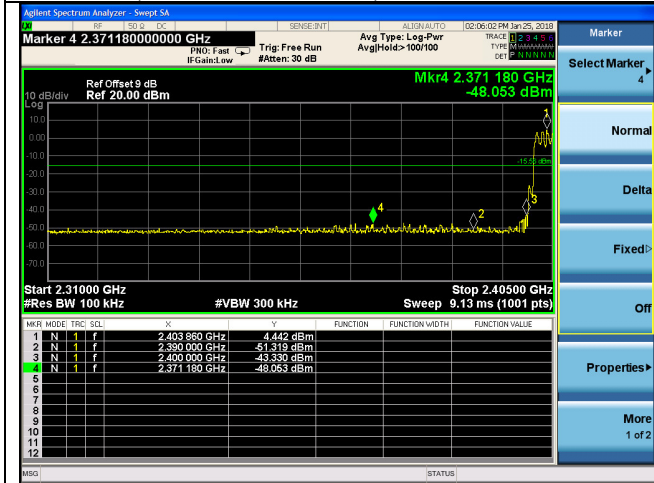
## 2480MHz(2.4GHz – 2.5GHz)



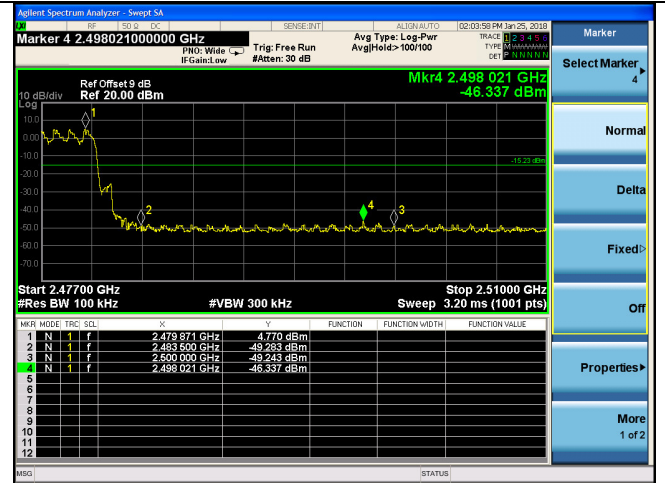
## (2.4GHz – 2.5GHz)



## 8-DPSK(2.3GHz – 2.4GHz)



## (2.4GHz – 2.5GHz)



## 6. 20 DB BANDWIDTH TEST

### 6.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

### 6.2.Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

### 6.3.Test Procedure

1. Connect the antenna port of the EUT to the spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel with test software.
3. Setting of SA is following as: RBW: 30kHz / VBW: 100kHz  
Sweep Mode: Continuous sweep  
Detect mode: Positive peak  
Trace mode: Max hold.
4. Use the occupied bandwidth function of the SA measure the 20dB bandwidth directly.

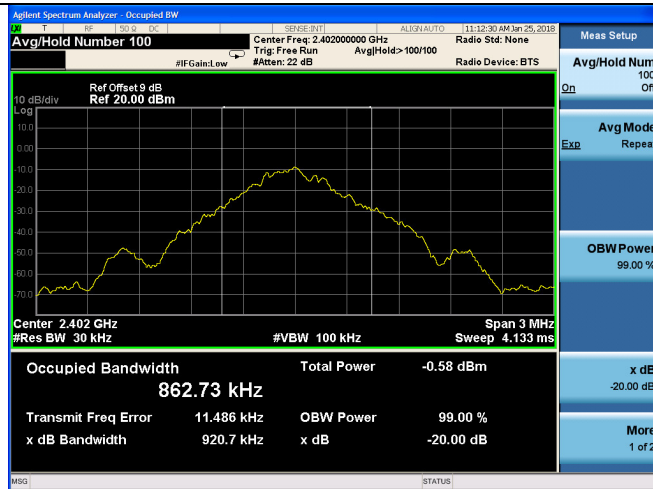
### 6.4.Test Results

EUT: Gemini		
M/N:Gemini 4G		
Test date:2018-01-25	Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: Kayle	Test site: RF site	Temperature:22.8±0.6 °C

Test Mode	Frequency (MHz)	20dB bandwidth (KHz)	Limit (KHz)
GFSK	2402	920.7	N/A
	2441	831.1	N/A
	2480	775.2	N/A
8-DPSK	2402	1.295	N/A
	2441	1.282	N/A
	2480	1.233	N/A
Conclusion : PASS			

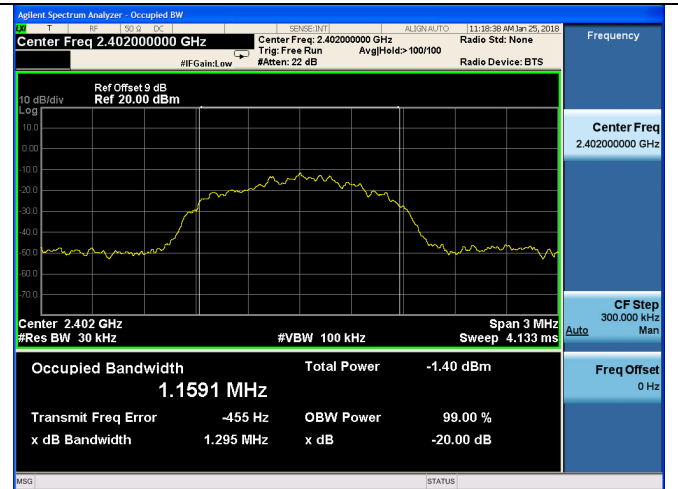
## GFSK

2402MHz



## 8-DPSK

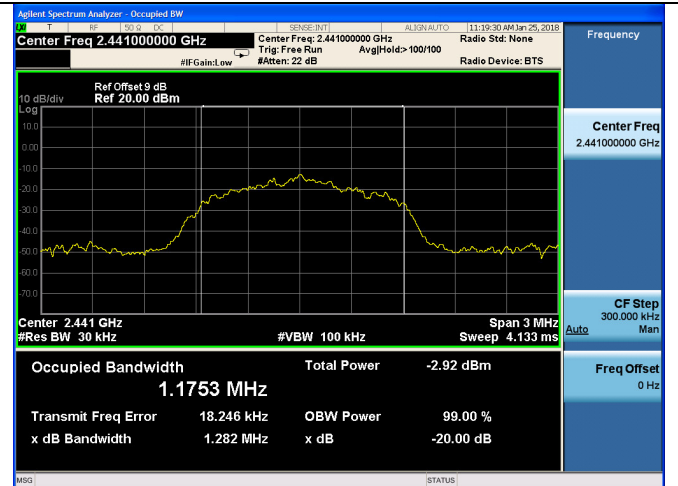
2402MHz



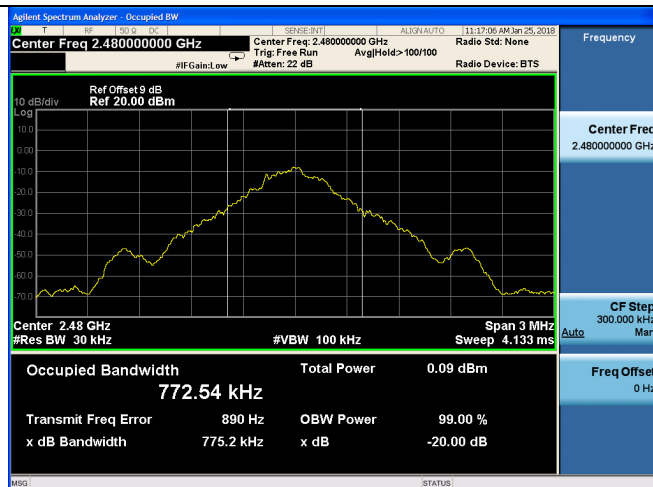
2441MHz



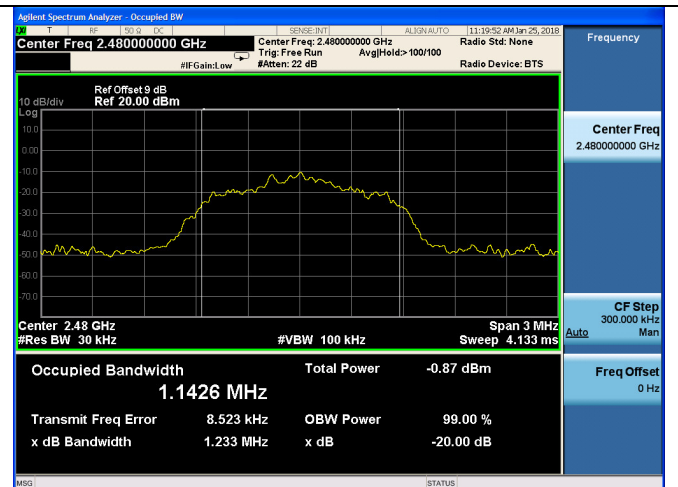
2441MHz



2480MHz



2480MHz



## 7. CARRIER FREQUENCY SEPARATION TEST

### 7.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

### 7.2. Limit

Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### 7.3. Test Procedure

1. Connect the antenna port of the EUT to the Spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel.
3. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz.Span:5MHz
4. Use the mark Delta function of the SA measure out the channel separation.

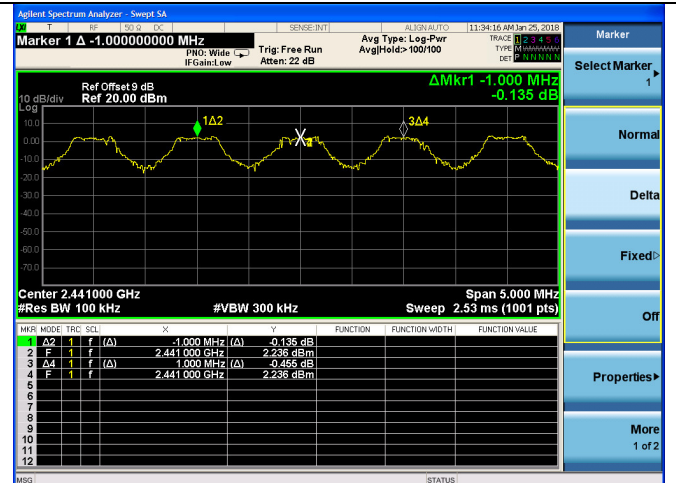
### 7.4. Test Results.

EUT: Gemini			
M/N: Gemini 4G			
Test date: 2018-01-25		Pressure: 101.4±1.0kpa	Humidity: 51.4±3.0%
Tested by: Kayle		Test site: RF Site	Temperature: 23.4±0.6°C
Test Mode	Channel separation	Limit(KHz)	Conclusion
GFSK	1.0MHz	613.800	PASS
8-DPSK	1.0MHz	863.333	PASS

#### GFSK



#### 8-DPSK



## 8. NUMBER OF HOPPING FREQUENCY TEST

### 8.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

### 8.2. Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

### 8.3. Test Procedure

Use the test method described in ANSI C63.10 clause 7.8.3:

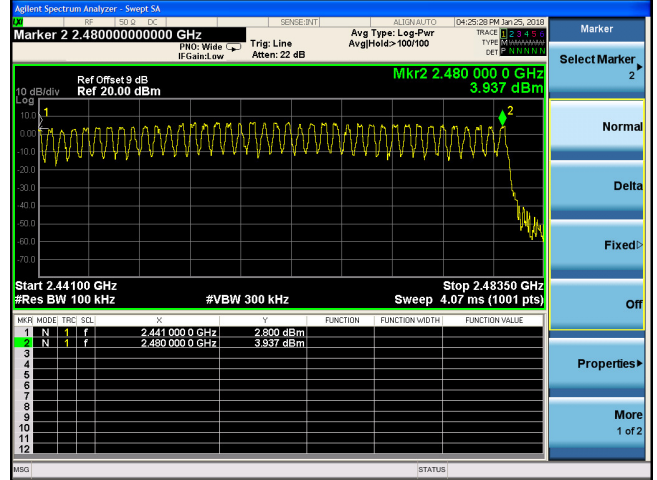
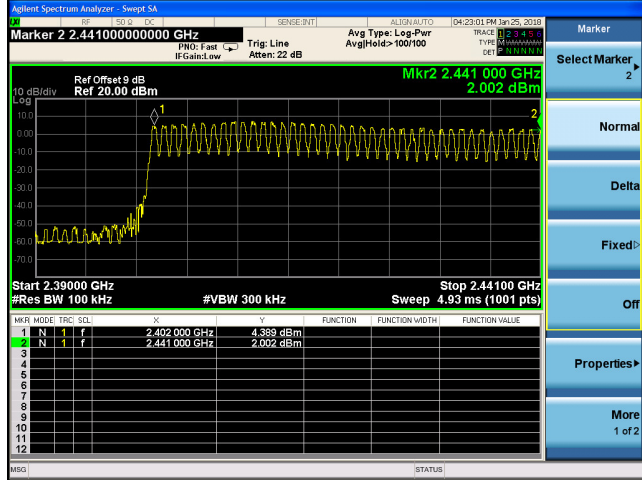
- Span: The frequency band of operation. Depending on the number of channels the device supports, it may be necessary to divide the frequency range of operation across multiple spans, to allow the individual channels to be clearly seen.
- RBW: To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller.
- VBW  $\geq$  RBW.
- Sweep: Auto.
- Detector function: Peak.
- Trace: Max hold.
- Allow the trace to stabilize.

### 8.4. Test Results

EUT: Gemini		
M/N: Gemini 4G		
Test date: 2018-01-25	Pressure: 101.4 $\pm$ 1.0 kpa	Humidity: 51.4 $\pm$ 3.0%
Tested by: Kayle	Test site: RF Site	Temperature: 23.4 $\pm$ 0.6 $^{\circ}$ C

Test Mode	Number of channel	Limit	Conclusion
GFSK	79	$\geq 15$	PASS
8-DPSK	79	$\geq 15$	PASS

## GFSK



## 8-DPSK

