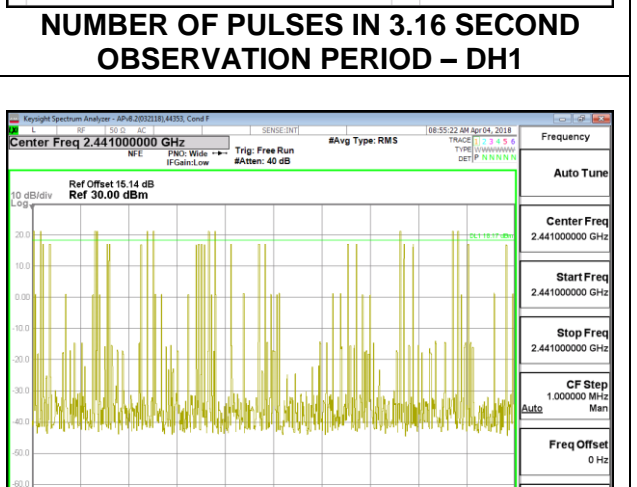
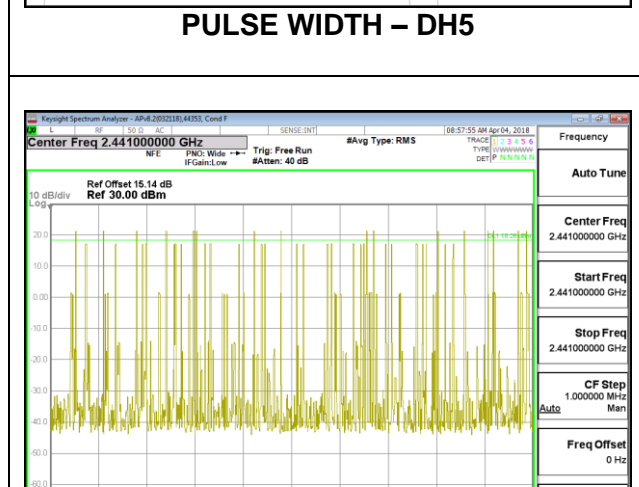
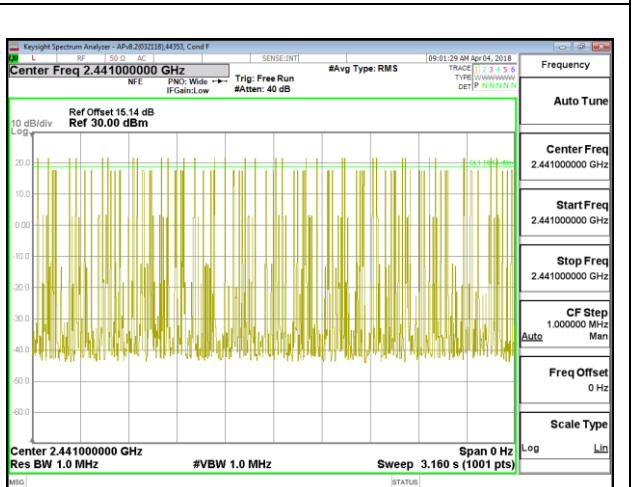
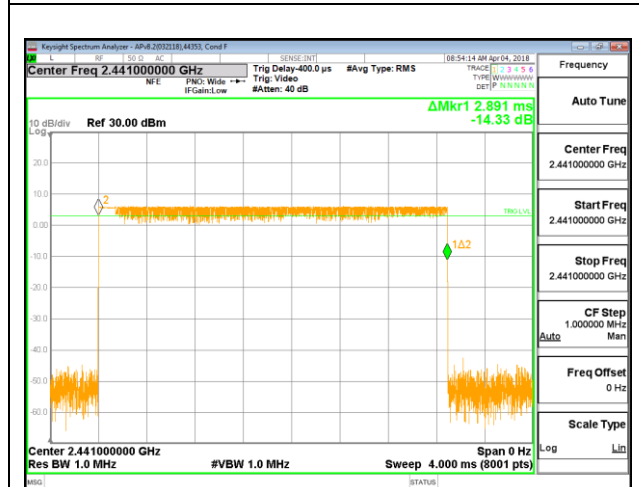
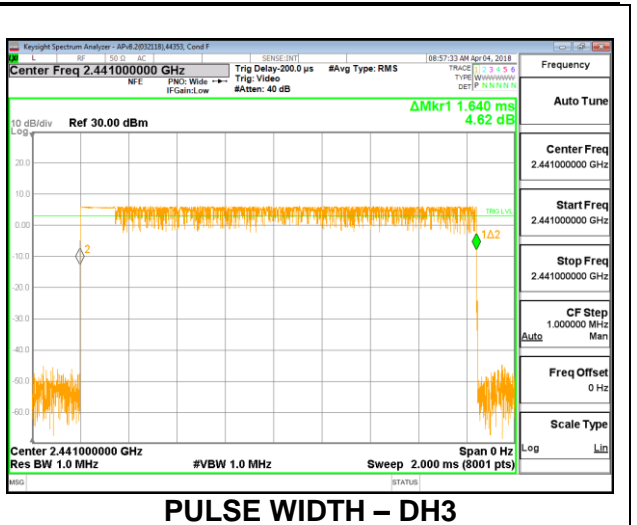
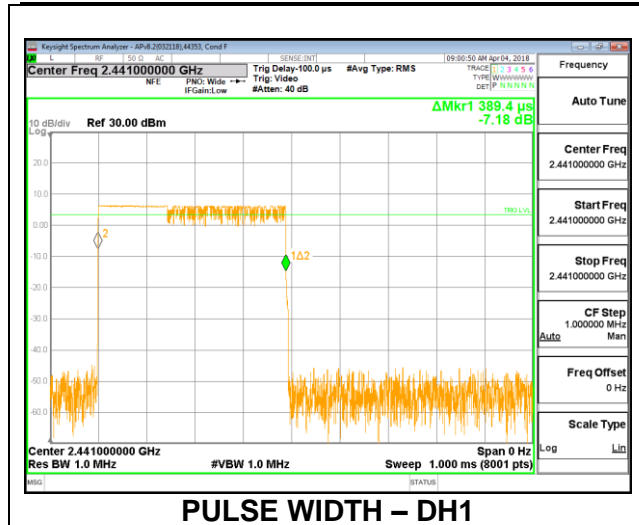


**Antenna 3**

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
3DH1	0.389	32	0.12448	0.4	-0.2755
3DH3	1.64	16	0.2624	0.4	-0.1376
3DH5	2.891	11	0.31801	0.4	-0.082

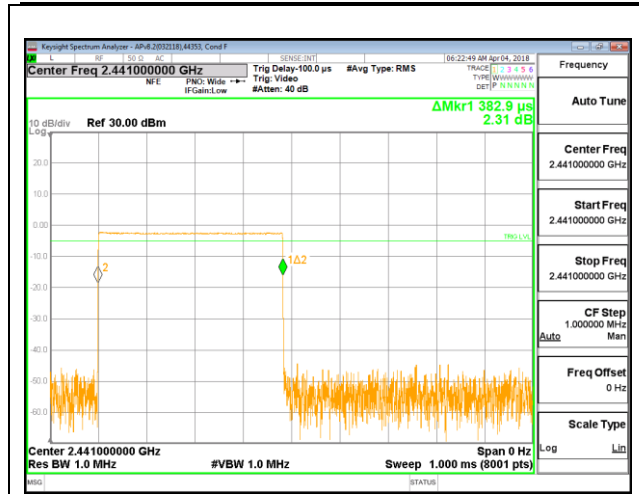
Note: for AFH(8PSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate in section 8.5.1 demonstrates compliance with channel occupancy when AFH is employed.



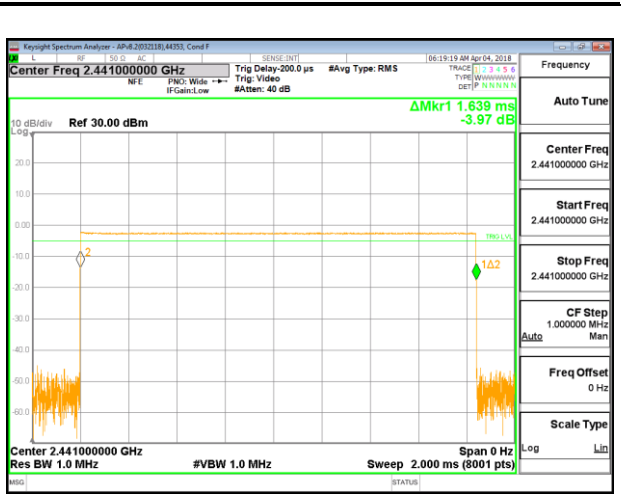
**8.5.3. LOW POWER BASIC DATA RATE GFSK MODULATION**

**Antenna 4**

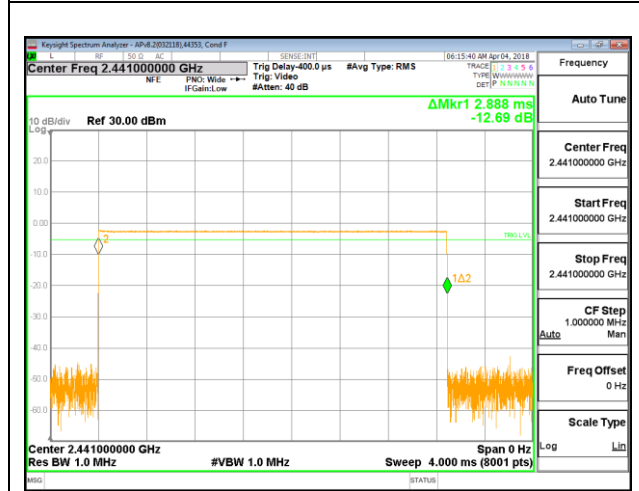
DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
<b>GFSK Normal Mode</b>					
DH1	0.383	32	0.1226	0.4	-0.2774
DH3	1.639	16	0.2622	0.4	-0.1378
DH5	2.888	11	0.3177	0.4	-0.0823
<b>GFSK AFH Mode</b>					
DH Packet	Pulse Width (sec)	Number of Pulses in 0.8 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
DH1	0.383	8	0.03064	0.4	-0.3694
DH3	1.639	4	0.06556	0.4	-0.3344
DH5	2.888	2.75	0.07942	0.4	-0.3206



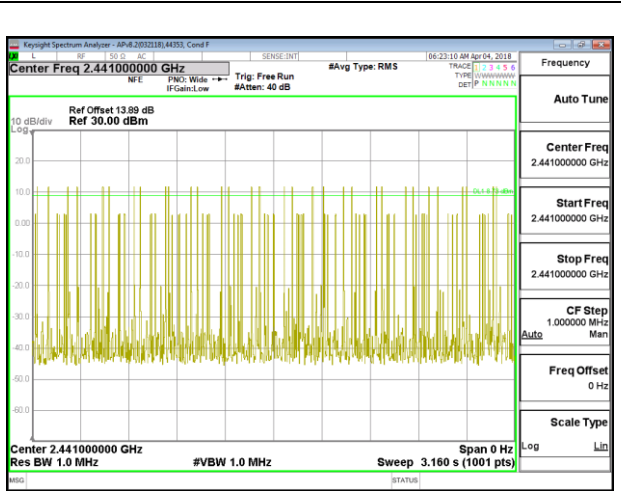
**PULSE WIDTH – DH1**



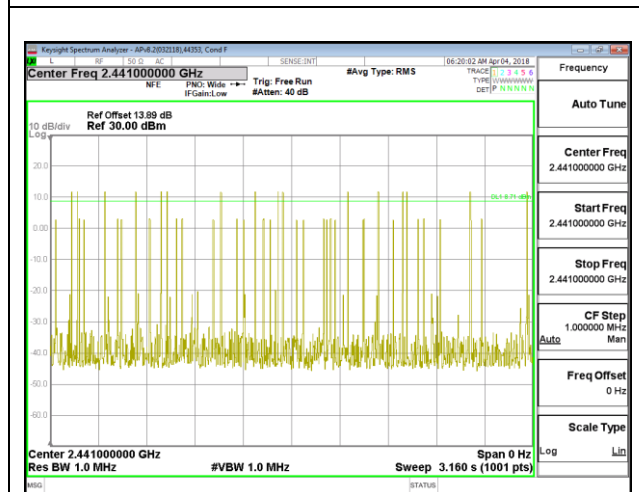
**PULSE WIDTH – DH3**



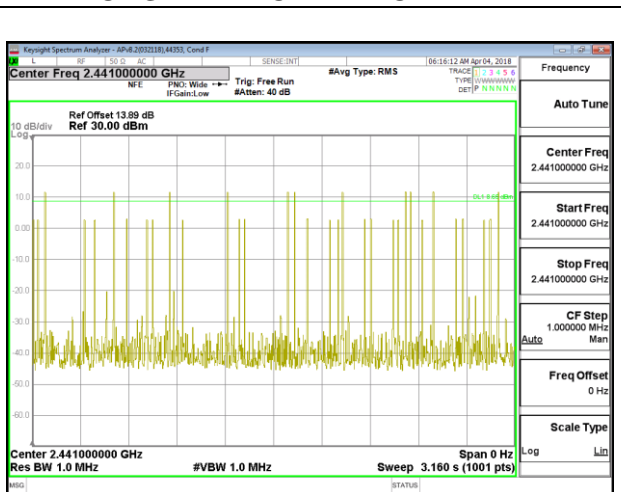
**PULSE WIDTH – DH5**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – DH1**



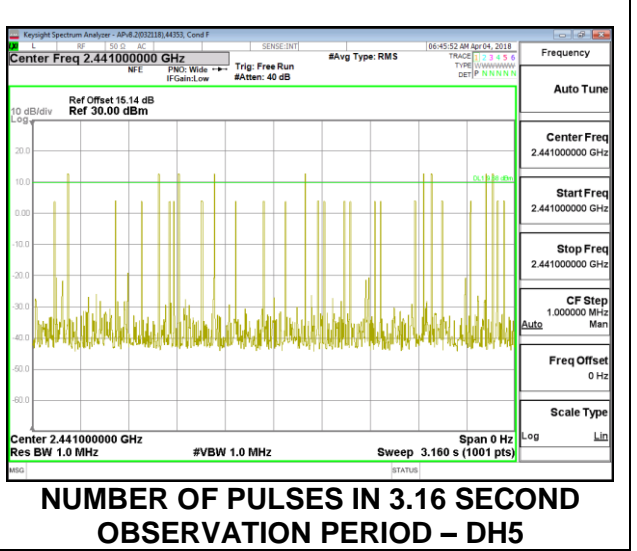
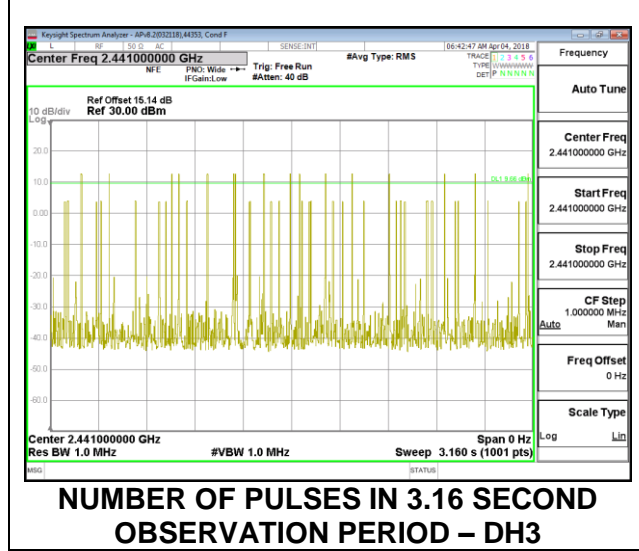
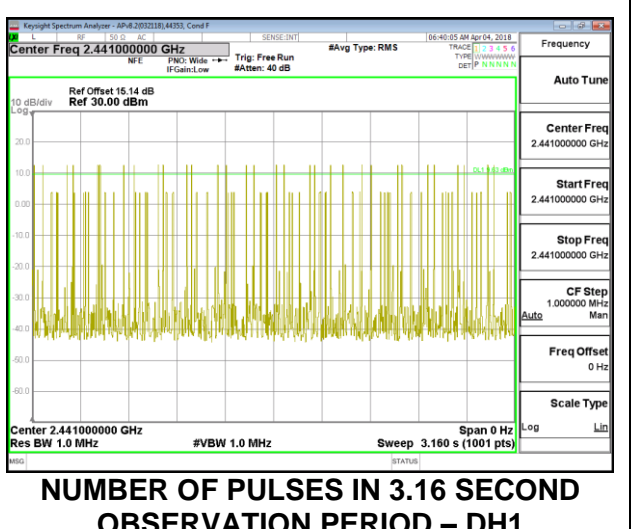
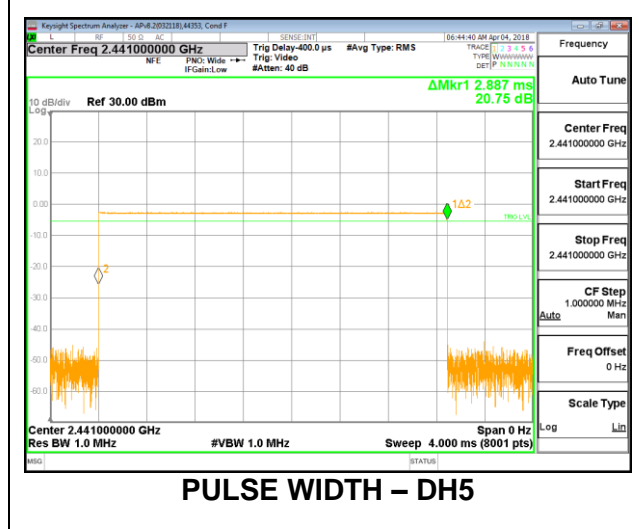
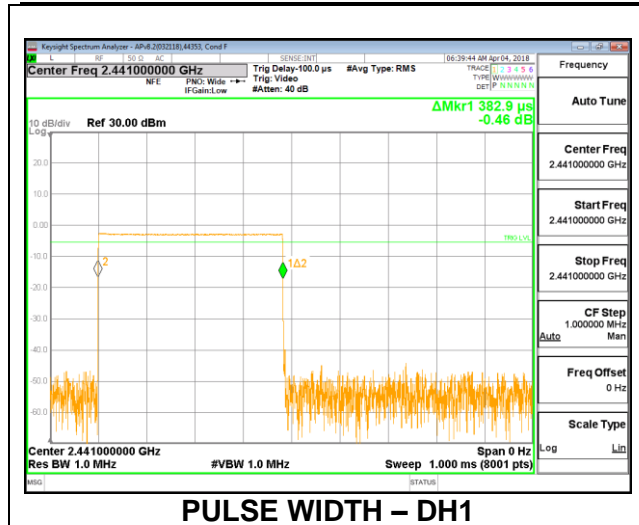
**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – DH3**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – DH5**

**Antenna 3**

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
<b>GFSK Normal Mode</b>					
DH1	0.383	32	0.1226	0.4	-0.2774
DH3	1.639	16	0.2622	0.4	-0.1378
DH5	2.887	9	0.2598	0.4	-0.1402
<b>GFSK AFH Mode</b>					
DH1	0.383	8	0.03064	0.4	-0.3694
DH3	1.639	4	0.06556	0.4	-0.3344
DH5	2.887	2.25	0.06496	0.4	-0.3350

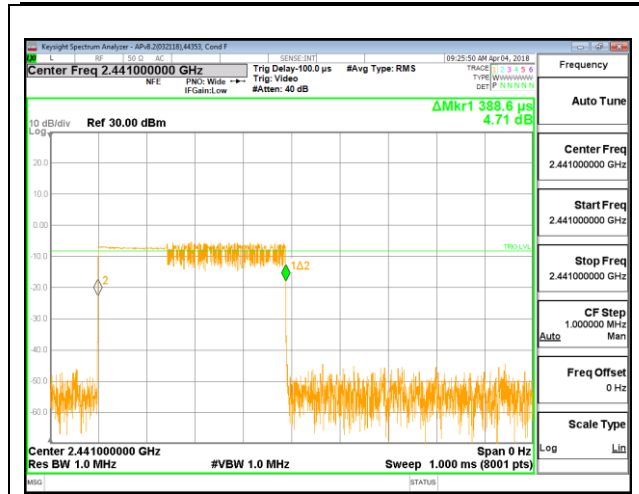


### 8.5.4. LOW POWER ENCHANCED DATA RATE 8PSK MODULATION

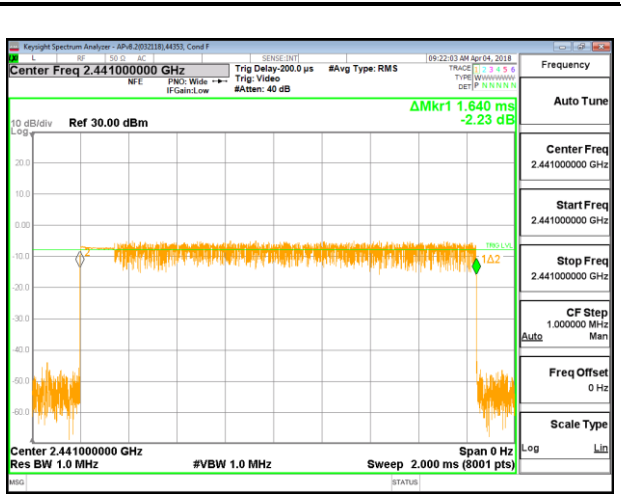
#### Antenna 4

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
3DH1	0.3886	32	0.124352	0.4	-0.2756
3DH3	1.640	16	0.2624	0.4	-0.1376
3DH5	2.891	11	0.31801	0.4	-0.082

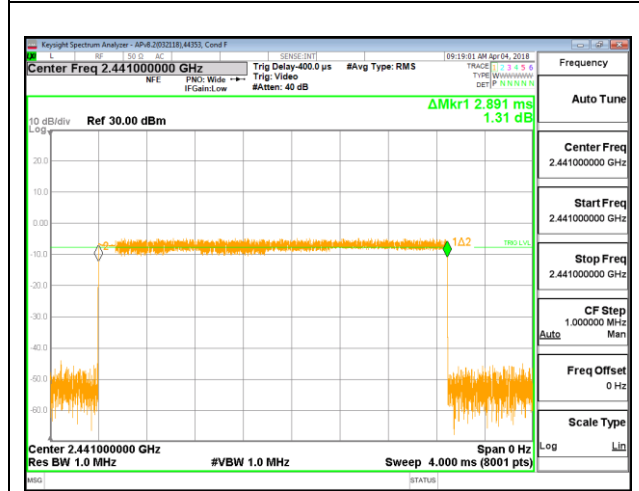
Note: for AFH(8PSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate in section 8.5.3 demonstrates compliance with channel occupancy when AFH is employed.



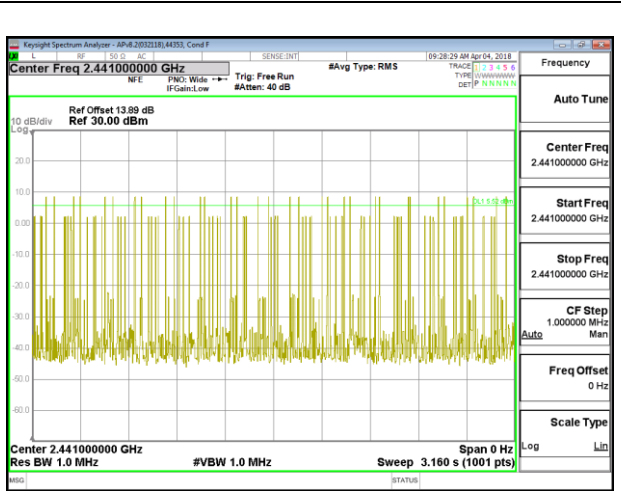
**PULSE WIDTH – 3DH1**



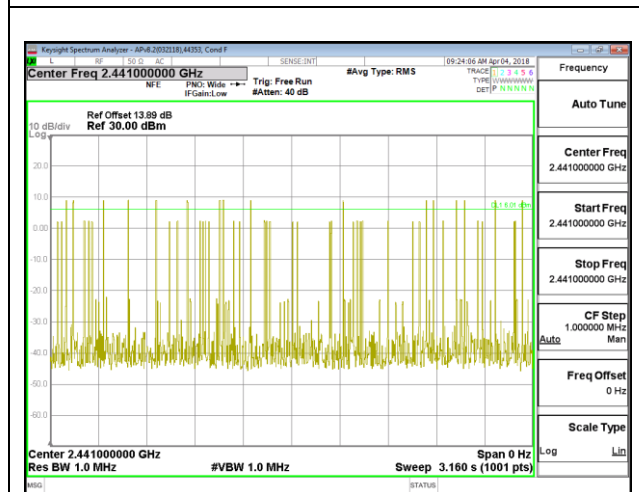
**PULSE WIDTH – 3DH3**



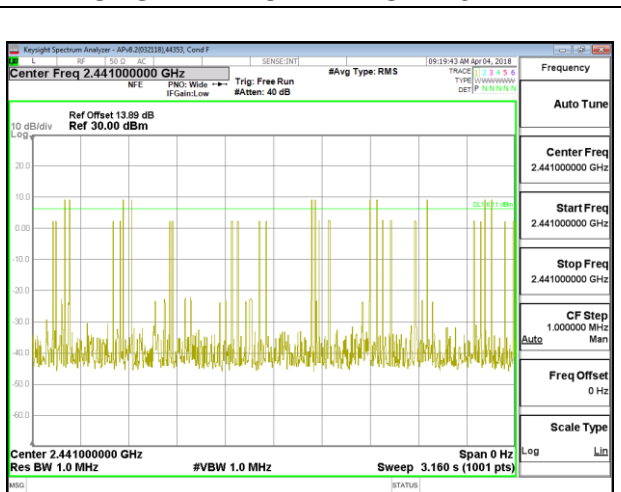
**PULSE WIDTH – 3DH5**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH1**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH3**



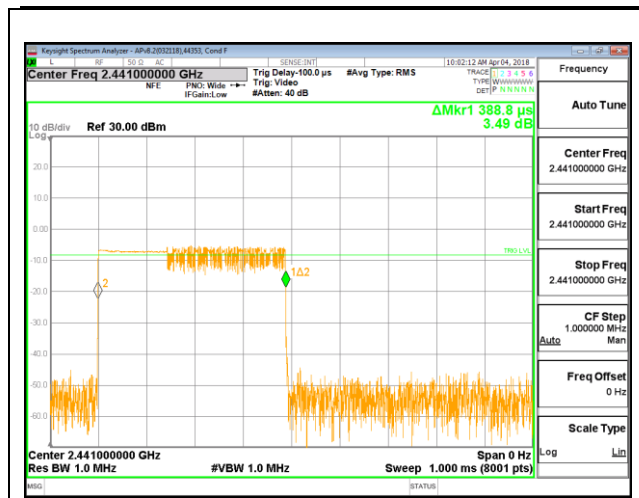
**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH5**



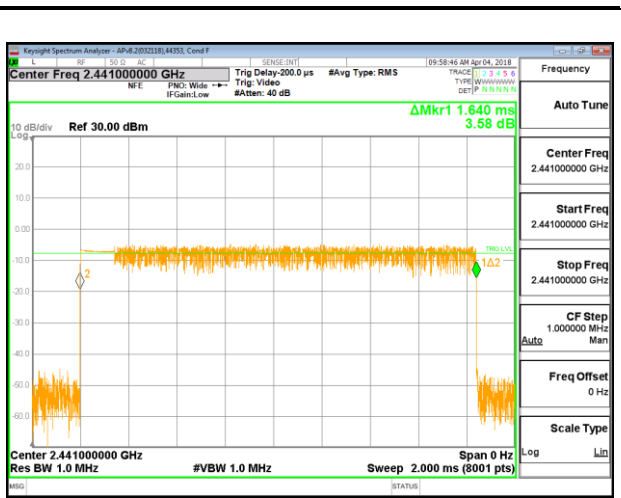
**Antenna 3**

DH Packet	Pulse Width (msec)	Number of Pulses in 3.16 seconds	Average Time of Occupancy (sec)	Limit (sec)	Margin (sec)
8PSK Normal Mode					
3DH1	0.389	32	0.12448	0.4	-0.2755
3DH3	1.64	16	0.2624	0.4	-0.1376
3DH5	2.891	12	0.34692	0.4	-0.0531

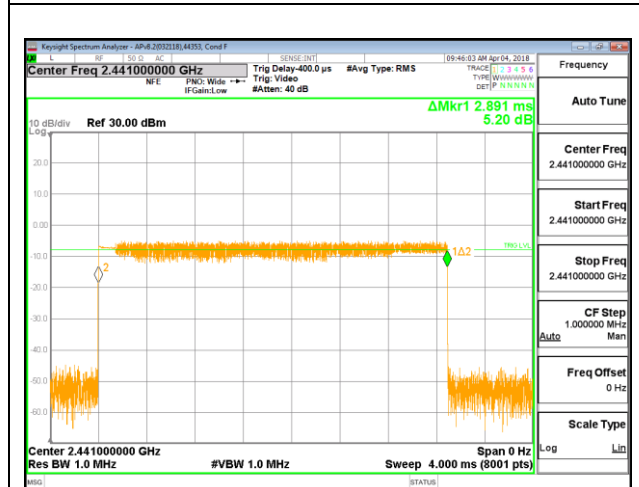
Note: for AFH(8PSK) mode, please refer to the results of AFH(GFSK) mode; the channel selection and hopping rate are the same for both EDR and Basic Rate operation, data for Basic Rate in section 8.5.3 demonstrates compliance with channel occupancy when AFH is employed.



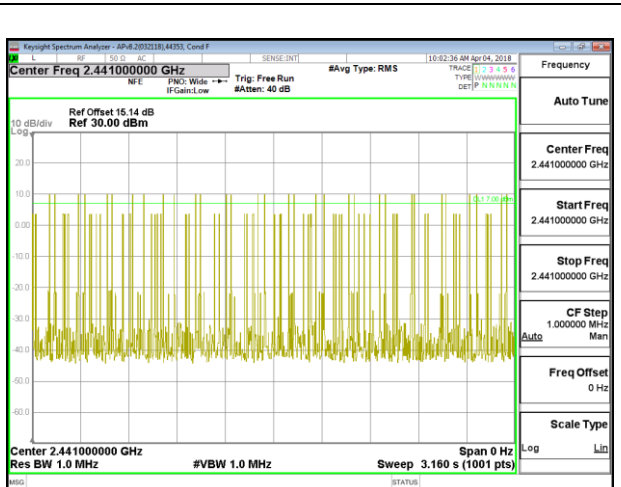
**PULSE WIDTH – 3DH1**



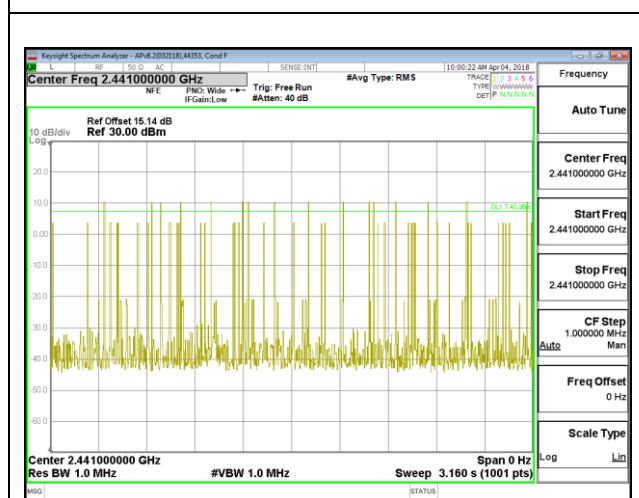
**PULSE WIDTH – 3DH3**



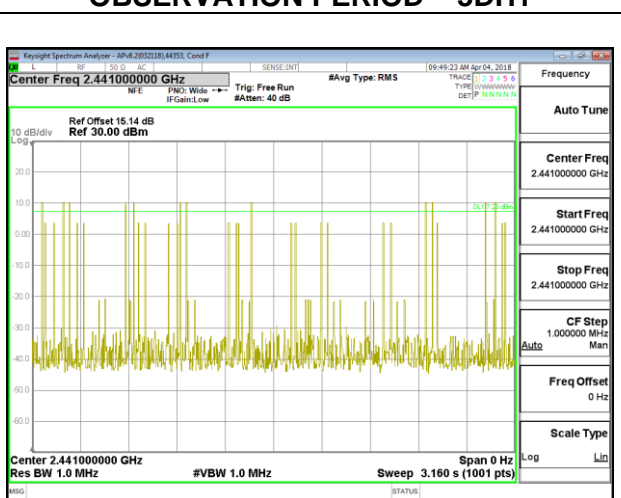
**PULSE WIDTH – 3DH5**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH1**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH3**



**NUMBER OF PULSES IN 3.16 SECOND  
 OBSERVATION PERIOD – 3DH5**

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## **8.6. OUTPUT POWER**

### **LIMITS**

§15.247 (b) (1)

RSS-247 (5.4) (b)

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for a gated peak reading of power.

### **RESULTS**

### 8.6.1. HIGH POWER BASIC DATA RATE GFSK MODULATION

#### Antenna 4

Tested By:	12492
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	18.10	30	-11.9
Middle	2441	18.13	30	-11.87
High	2480	18.04	30	-11.96

#### Antenna 3

Tested By:	12492
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.15	30	-9.85
Middle	2441	20.20	30	-9.8
High	2480	20.12	30	-9.88

### 8.6.2. HIGH POWER ENCHANCED DATA RATE 8PSK MODULATION

#### Antenna 4

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.10	21	-0.9
Middle	2441	20.22	21	-0.78
High	2480	20.15	21	-0.85

#### Antenna 3

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.17	21	-0.83
Middle	2441	20.24	21	-0.76
High	2480	20.15	21	-0.85

**8.6.3. HIGH POWER ENCHANCED DATA RATE DQPSK MODULATION**

**Antenna 4**

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.07	21	-0.93
Middle	2441	20.15	21	-0.85
High	2480	20.03	21	-0.97

**Antenna 3**

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	20.09	21	-0.91
Middle	2441	20.18	21	-0.82
High	2480	20.10	21	-0.9

### 8.6.4. LOW POWER BASIC DATA RATE GFSK MODULATION

#### Antenna 4

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.18	30	-18.82
Middle	2441	11.32	30	-18.68
High	2480	11.22	30	-18.78

#### Antenna 3

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	11.10	30	-18.9
Middle	2441	11.23	30	-18.77
High	2480	11.14	30	-18.86

### 8.6.5. LOW POWER ENCHANCED DATA RATE 8PSK MODULATION

#### Antenna 4

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.11	21	-10.89
Middle	2441	10.06	21	-10.94
High	2480	10.12	21	-10.88

#### Antenna 3

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.17	21	-10.83
Middle	2441	10.23	21	-10.77
High	2480	10.15	21	-10.85



**8.6.6. LOW POWER ENCHANCED DATA RATE DQPSK MODULATION**

**Antenna 4**

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.04	21	-10.96
Middle	2441	10.10	21	-10.9
High	2480	10.07	21	-10.93

**Antenna 3**

Tested By:	52287
Date:	7/17/2018

Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	10.18	21	-10.82
Middle	2441	10.20	21	-10.8
High	2480	10.17	21	-10.83

## **8.7. AVERAGE POWER**

### **LIMITS**

None; for reporting purposes only

### **TEST PROCEDURE**

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 10.5 dB (including 10 dB pad and 0.5 dB cable) was entered as an offset in the power meter to allow for a gated average reading of power.

### **RESULTS**

### 8.7.1. HIGH POWER BASIC DATA RATE GFSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	17.89
Middle	2441	17.90
High	2480	17.75

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	19.78
Middle	2441	19.89
High	2480	19.76

### 8.7.2. HIGH POWER ENCHANCED DATA RATE 8PSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	17.30
Middle	2441	17.48
High	2480	17.36

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	17.43
Middle	2441	17.50
High	2480	17.41

### 8.7.3. HIGH POWER ENCHANCED DATA RATE DQPSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	17.33
Middle	2441	17.40
High	2480	17.30

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	17.37
Middle	2441	17.45
High	2480	17.38

### 8.7.4. LOW POWER BASIC DATA RATE GFSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.77
Middle	2441	10.90
High	2480	10.83

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	10.73
Middle	2441	10.84
High	2480	10.78

### 8.7.5. LOW POWER ENCHANCED DATA RATE 8PSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.47
Middle	2441	7.45
High	2480	7.49

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.43
Middle	2441	7.46
High	2480	7.41

### 8.7.6. LOW POWER ENCHANCED DATA RATE DQPSK MODULATION

#### Antenna 4

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.38
Middle	2441	7.42
High	2480	7.40

#### Antenna 3

Tested By:	12492
Date	7/17/2018

Channel	Frequency (MHz)	Average Power (dBm)
Low	2402	7.40
Middle	2441	7.45
High	2480	7.39



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## **8.8. CONDUCTED SPURIOUS EMISSIONS**

### **LIMITS**

FCC §15.247 (d)

RSS-247 5.5

Limit = -20 dBc

### **TEST PROCEDURE**

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

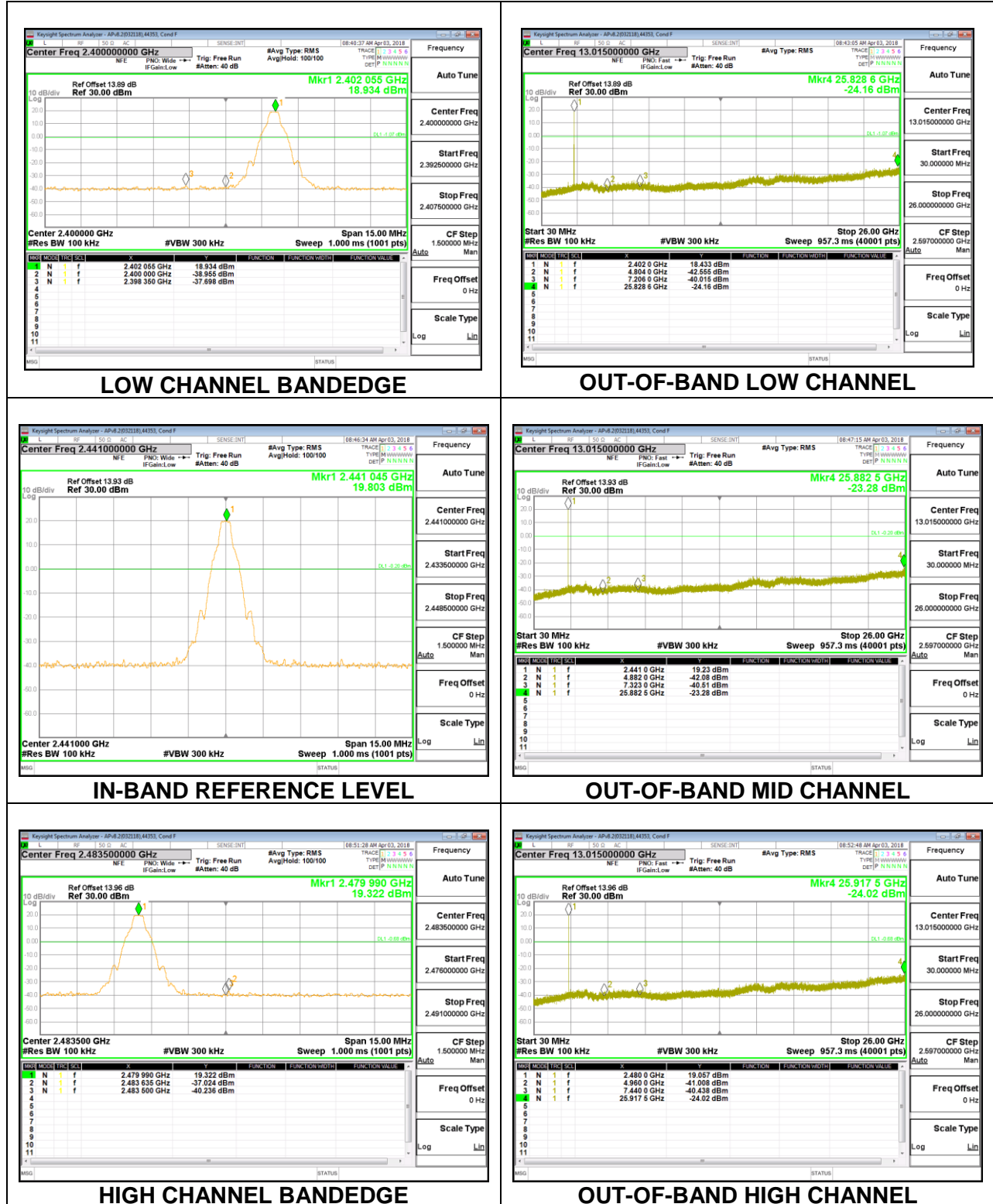
The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedges at 2.4 and 2.4835 GHz are investigated with the transmitter set to the normal hopping mode.

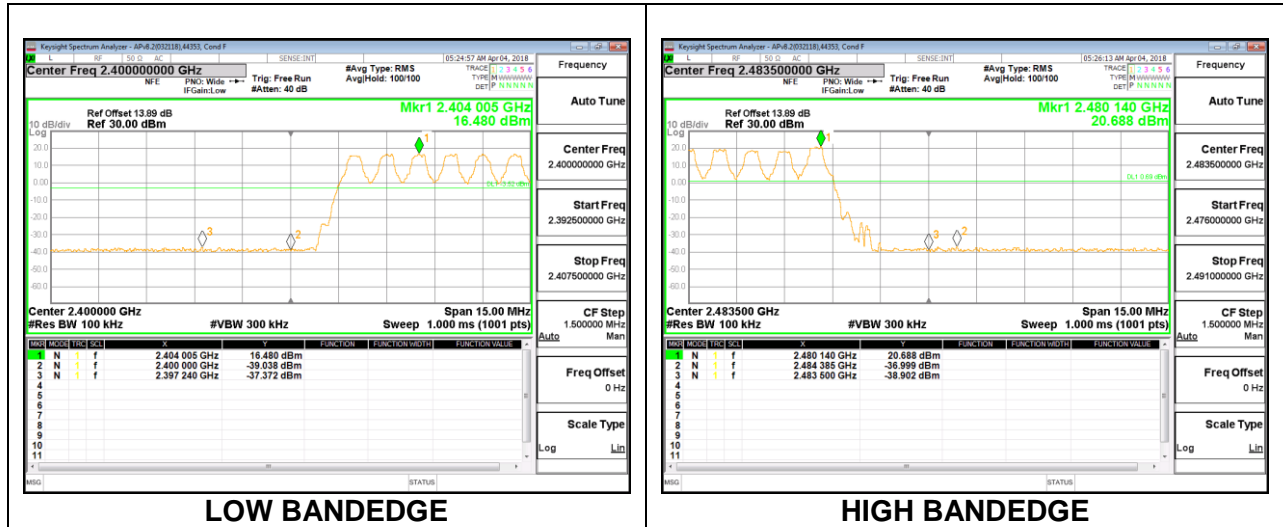
### **RESULTS**

### 8.8.1. HIGH POWER BASIC DATA RATE GFSK MODULATION

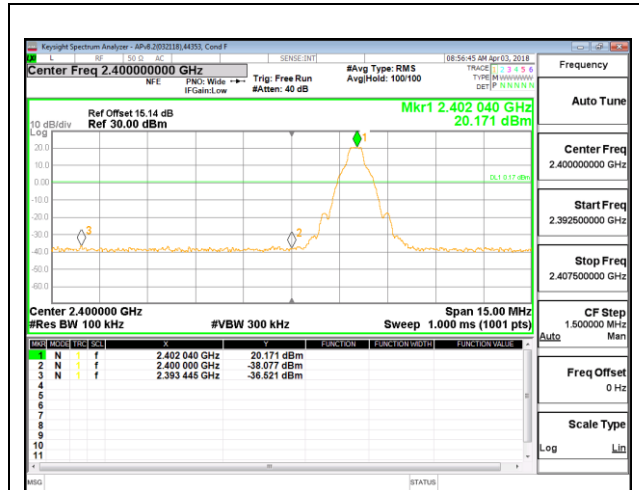
#### Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING



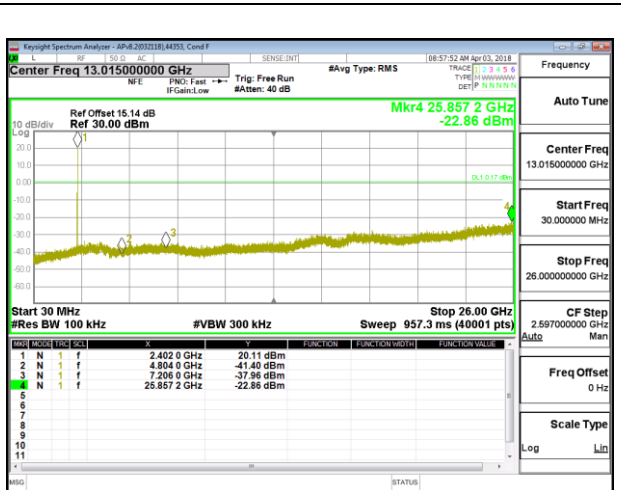
**Antenna 4 SPURIOUS BANDEGE EMISSIONS WITH HOPPING ON**



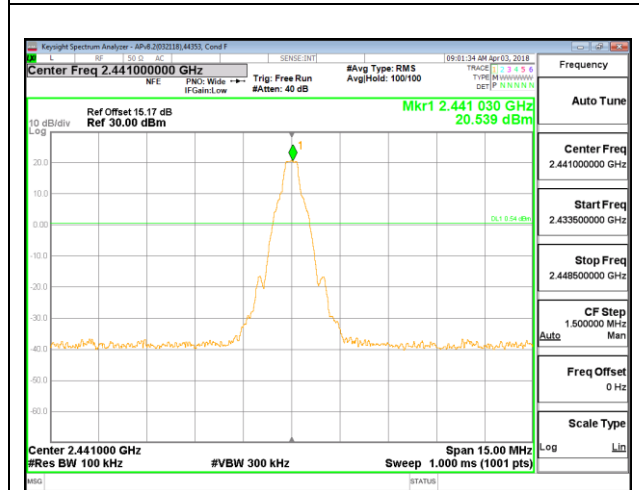
**Antenna 3 SPURIOUS EMISSIONS, NON-HOPPING**



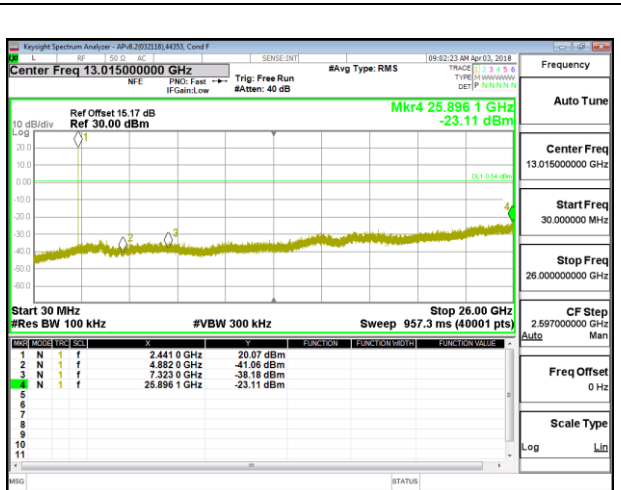
**LOW CHANNEL BANDEDGE**



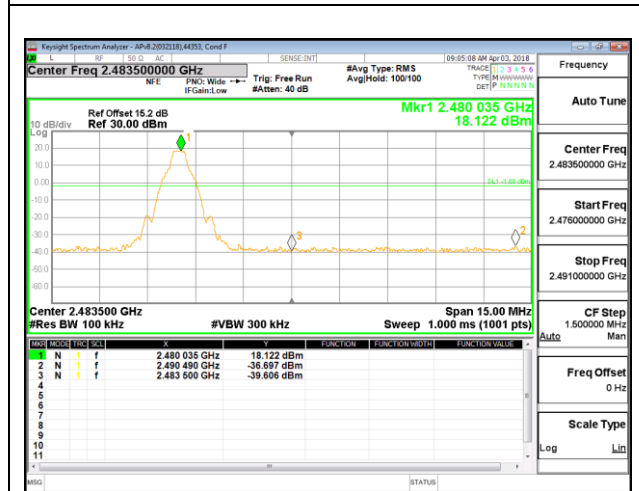
**OUT-OF-BAND LOW CHANNEL**



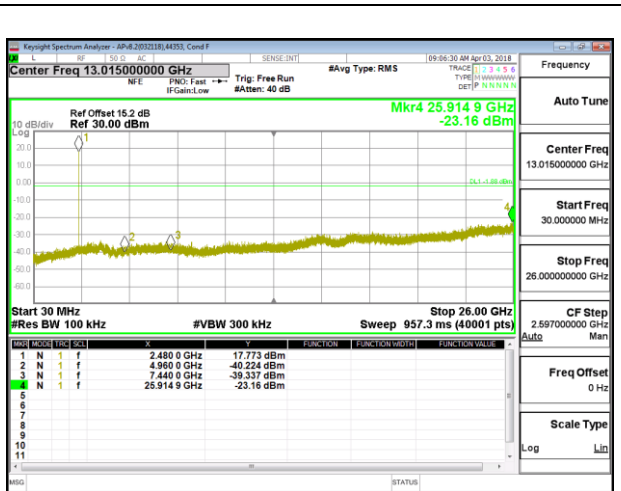
**IN-BAND REFERENCE LEVEL**



**OUT-OF-BAND MID CHANNEL**

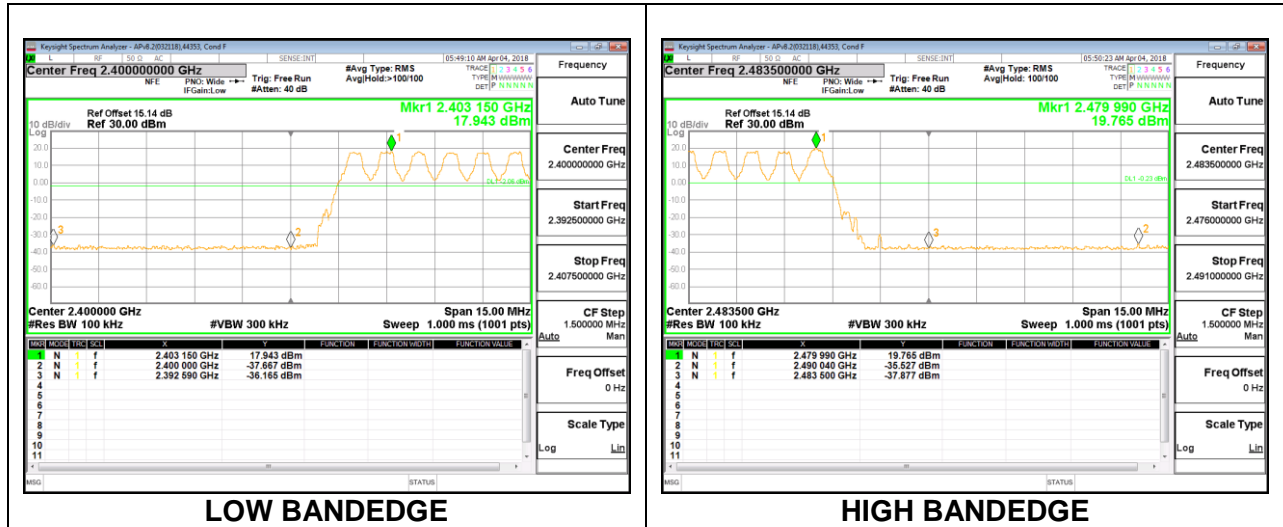


**HIGH CHANNEL BANDEDGE**



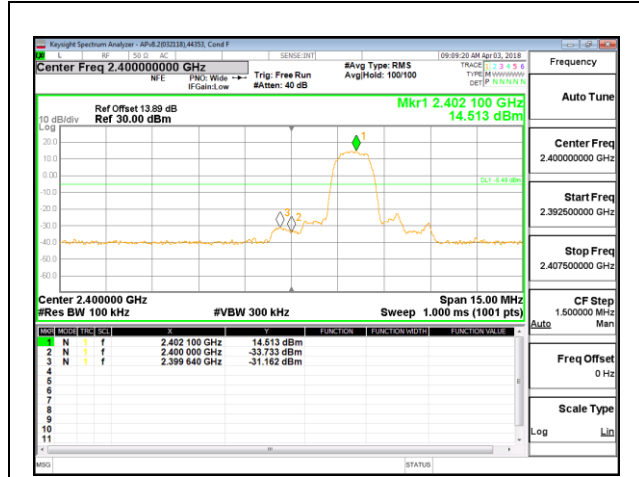
**OUT-OF-BAND HIGH CHANNEL**

**Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON**

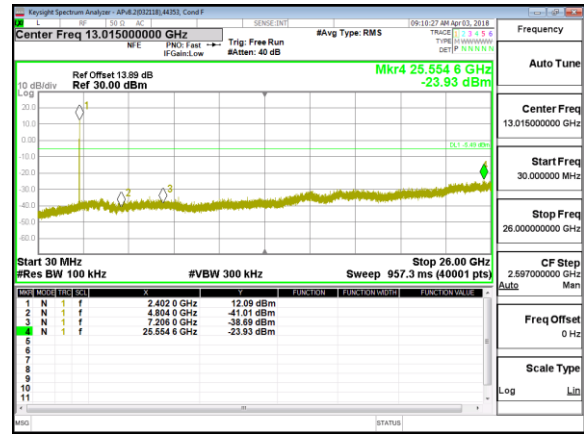


## 8.8.2. HIGH POWER ENCHANCED DATA RATE 8PSK MODULATION

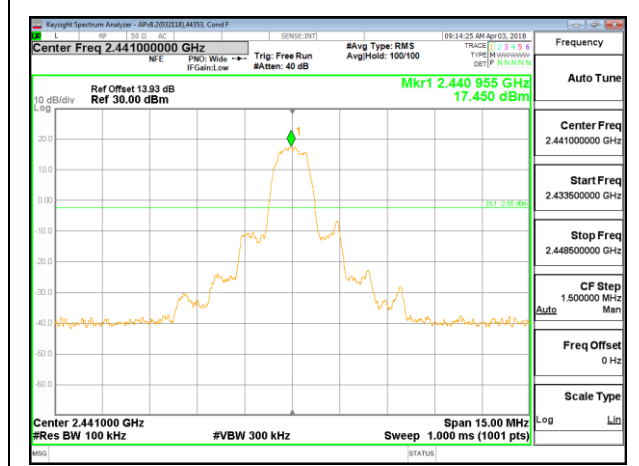
### Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING



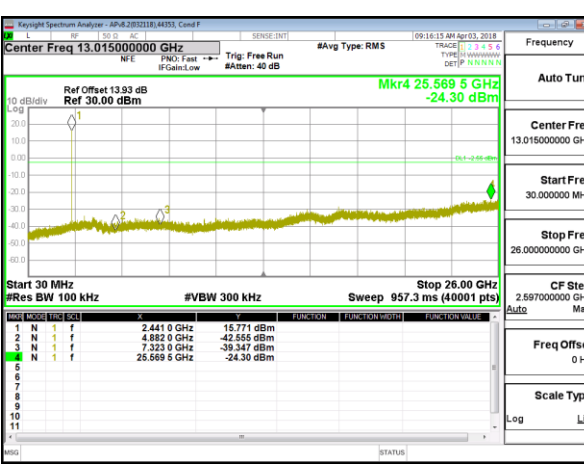
LOW CHANNEL BANDEDGE



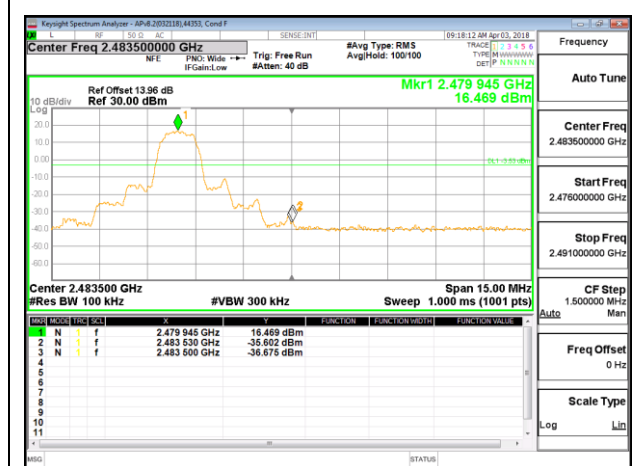
OUT-OF-BAND LOW CHANNEL



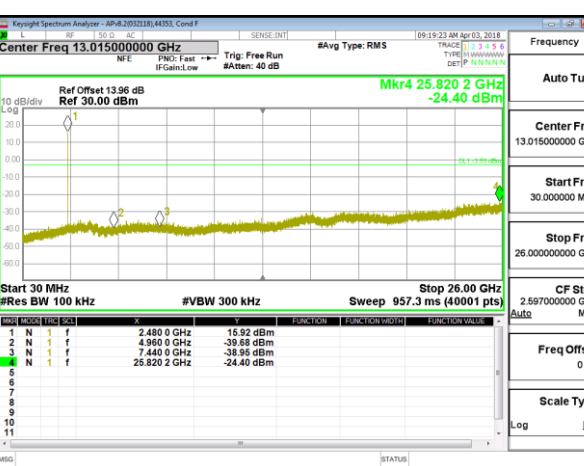
IN-BAND REFERENCE LEVEL



OUT-OF-BAND MID CHANNEL

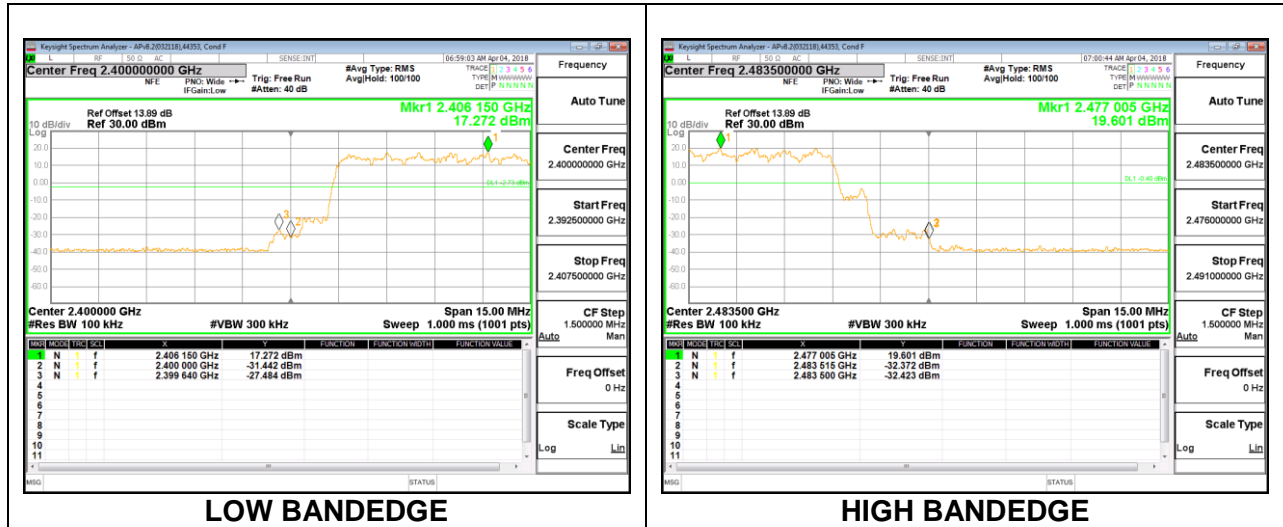


HIGH CHANNEL BANDEDGE

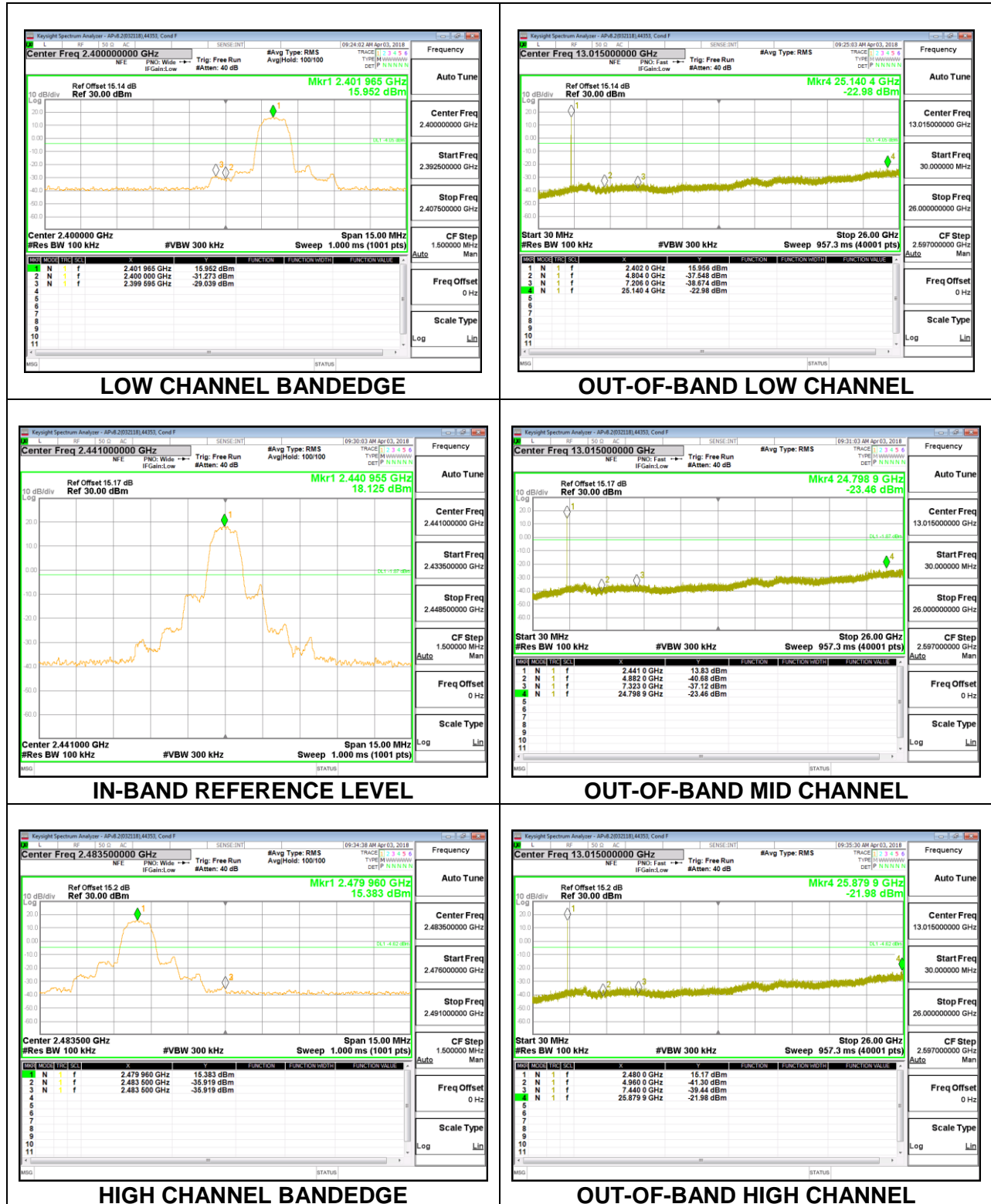


OUT-OF-BAND HIGH CHANNEL

**Antenna 4 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON**

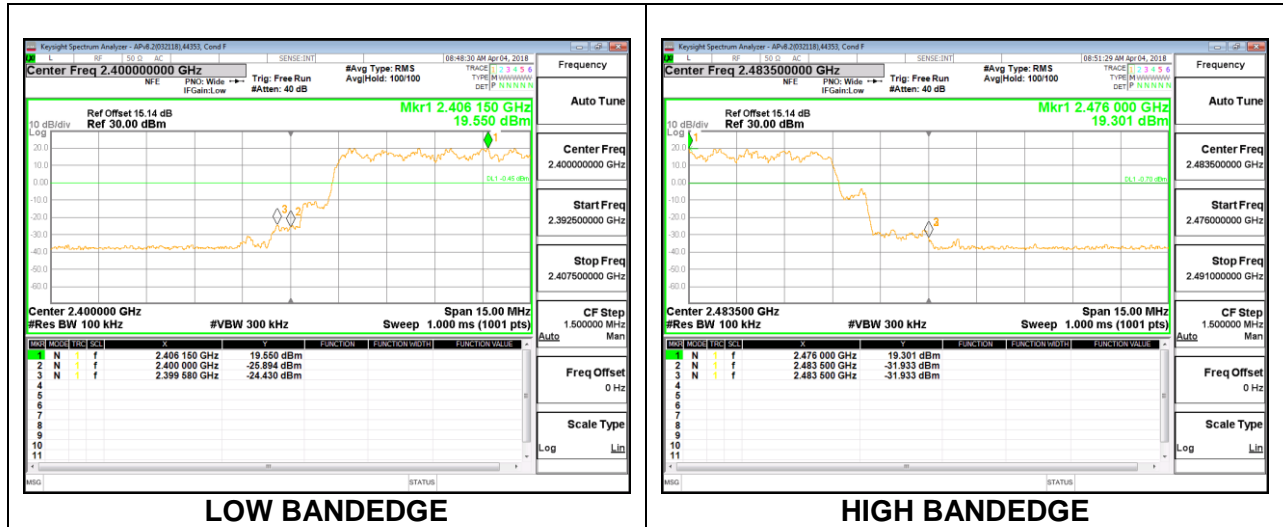


**Antenna 3 SPURIOUS EMISSIONS, NON-HOPPING**





**Antenna 3 SPURIOUS BANDEDGE EMISSIONS WITH HOPPING ON**



### 8.8.3. LOW POWER BASIC DATA RATE GFSK MODULATION

#### Antenna 4 SPURIOUS EMISSIONS, NON-HOPPING

