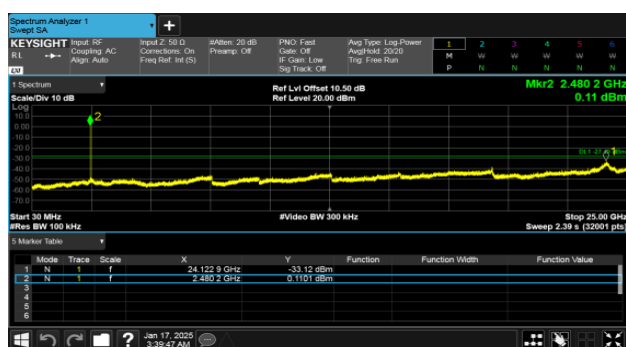
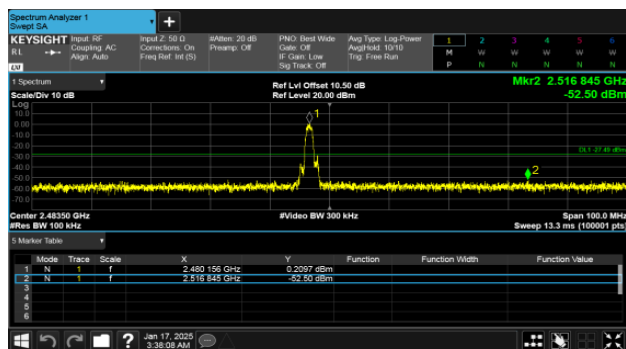
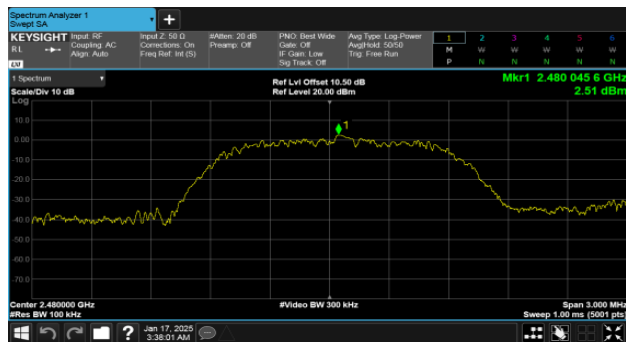




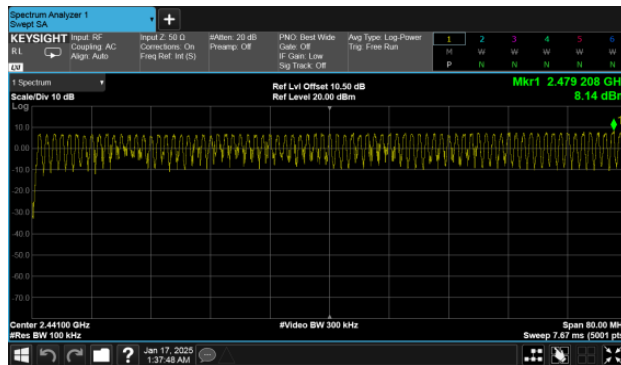


Modulation Type: 8DPSK (3Mbps)
Channel: 78

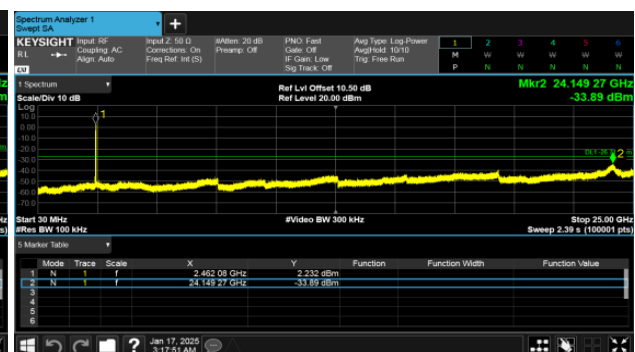
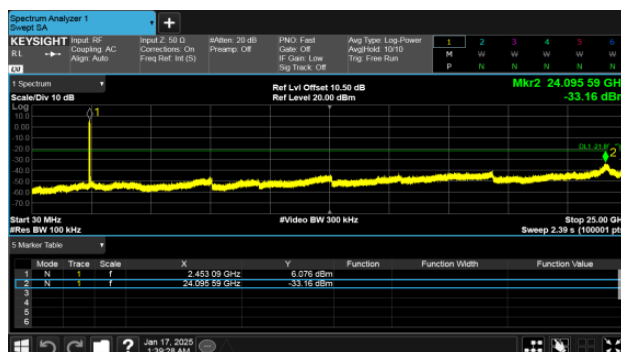
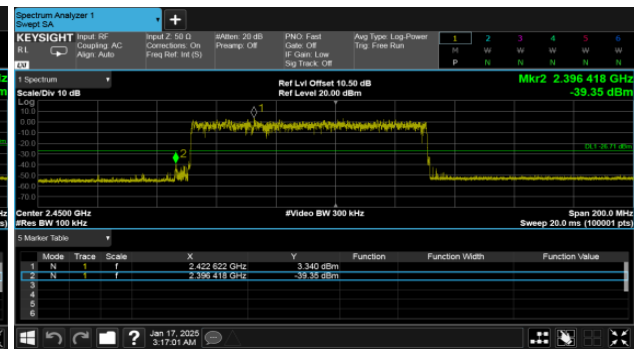
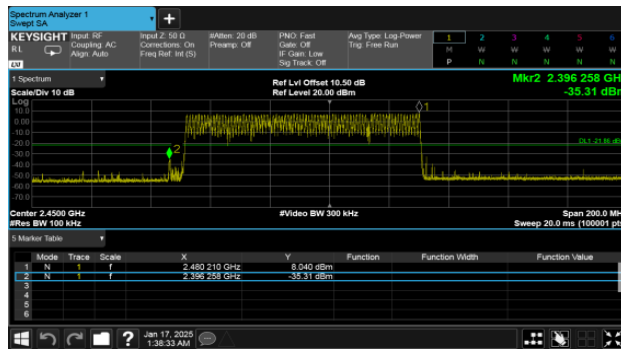
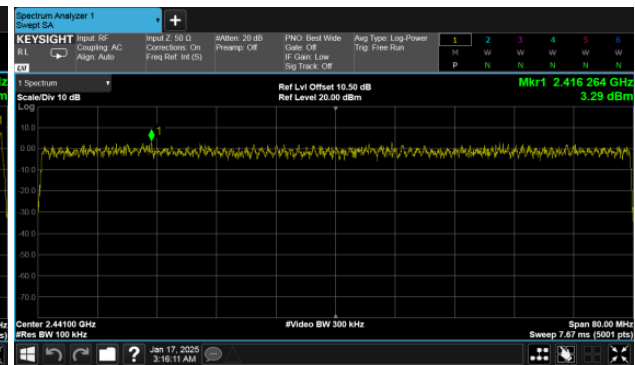




Hopping Mode: Modulation Type: GFSK

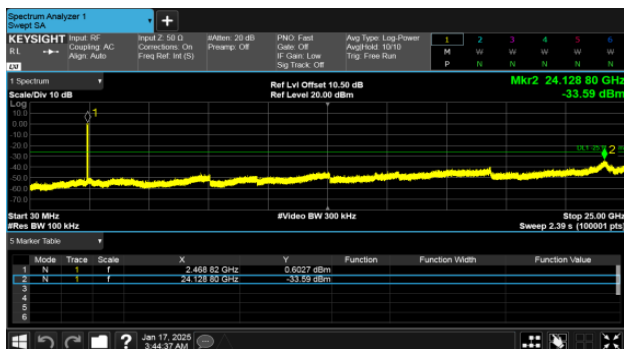
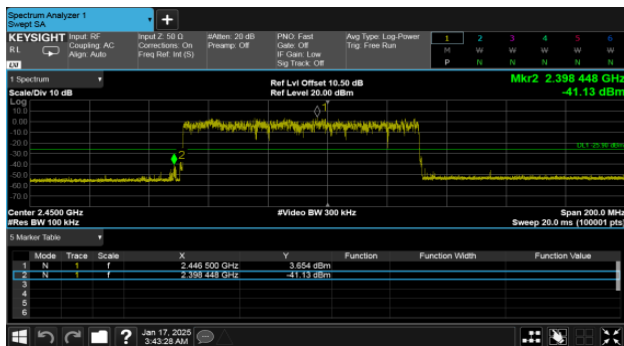
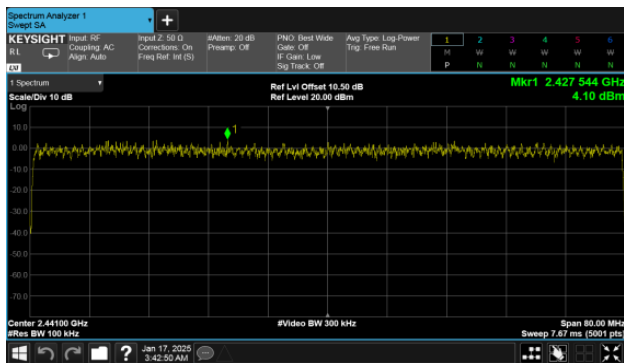


Modulation Type: $\pi/4$ -DQPSK





Modulation Type: 8DPSK





9. 20dB Bandwidth Measurement Data

9.1 Test Limit

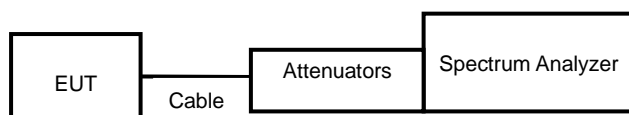
For reference data.

9.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 6.9

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 1% to 5% of the 20dB Bandwidth and VBW to approximately three times RBW.
- The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

9.3 Test Setup Layout



9.4 Test Result and Data

Modulation Type	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	2/3 20dB Bandwidth (MHz)
GFSK	0	2402	1.100	0.733
	39	2441	1.037	0.691
	78	2480	1.041	0.694
$\pi/4$ -DQPSK	0	2402	1.422	0.948
	39	2441	1.375	0.917
	78	2480	1.359	0.906
8DPSK	0	2402	1.359	0.906
	39	2441	1.335	0.890
	78	2480	1.337	0.891



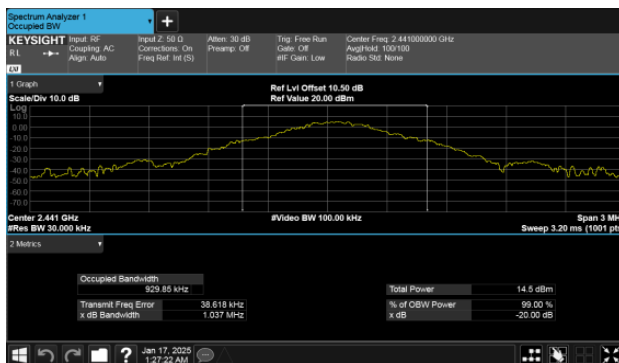
Modulation Type: GFSK (1Mbps)
Channel: 00



Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 00



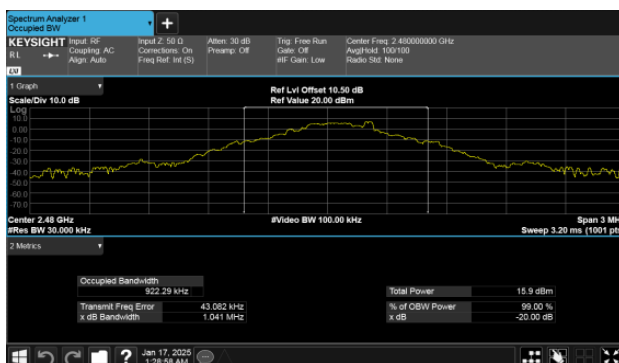
CH39



CH39



CH78



CH78





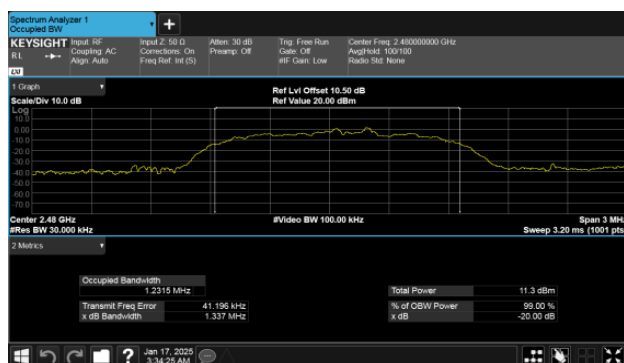
Modulation Type: 8DPSK (3Mbps)
Channel: 00



CH39



CH78





10. Carrier Frequency Separation

10.1 Test Limit

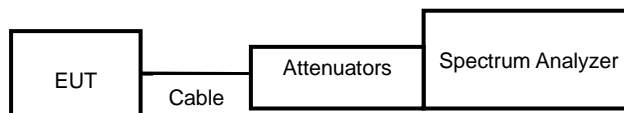
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that 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.

10.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.2

- The transmitter output was connected to the spectrum analyzer.
- Set RBW of spectrum analyzer to 300 KHz and VBW to 1000 KHz.
- By using the MaxHold function record the separation of two adjacent channels.
- Measure the frequency difference of these two adjacent channels.

10.3 Test Setup Layout

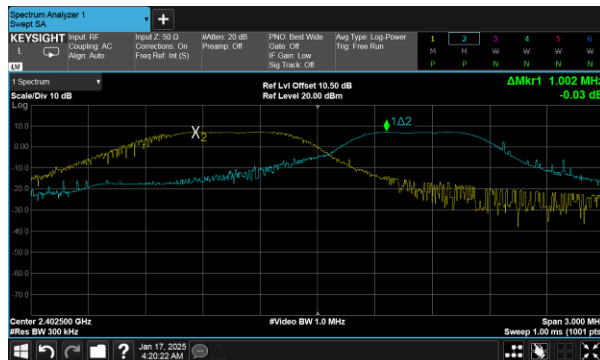


10.4 Test Result and Data

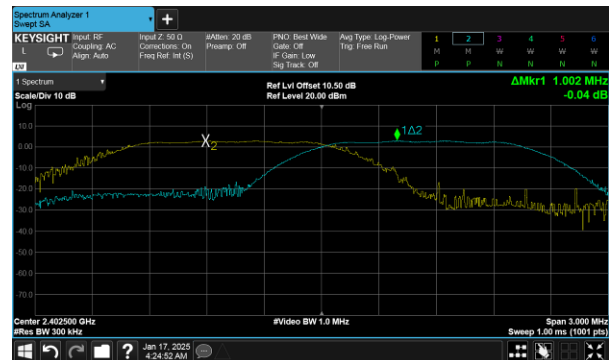
Modulation Type	Channel	Frequency (MHz)	Channel Separation (MHz)	Limit (MHz)
GFSK	0	2402	1.002	0.733
	39	2441	1.002	0.691
	78	2480	1.002	0.694
$\pi/4$ -DQPSK	0	2402	1.002	0.948
	39	2441	1.002	0.917
	78	2480	1.002	0.906
8DPSK	0	2402	1.002	0.906
	39	2441	1.002	0.890
	78	2480	1.002	0.891



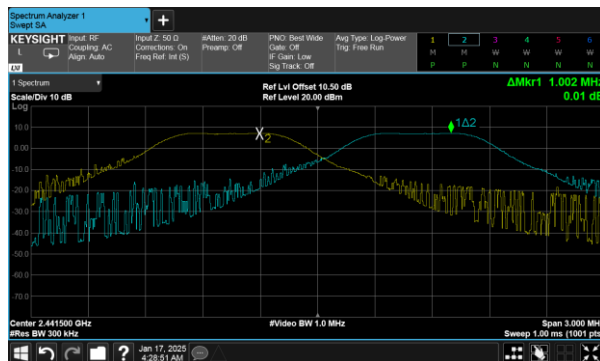
Modulation Type: GFSK (1Mbps)
Channel: 00



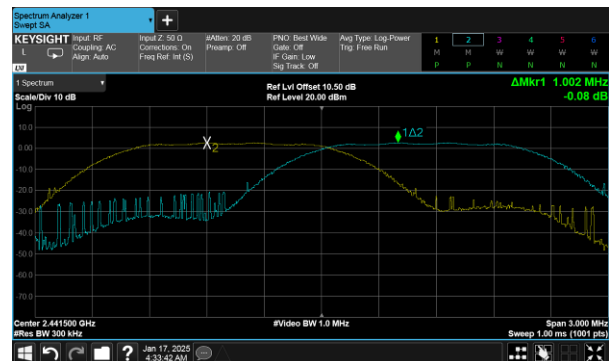
Modulation Type: $\pi/4$ -DQPSK (2Mbps)
Channel: 00



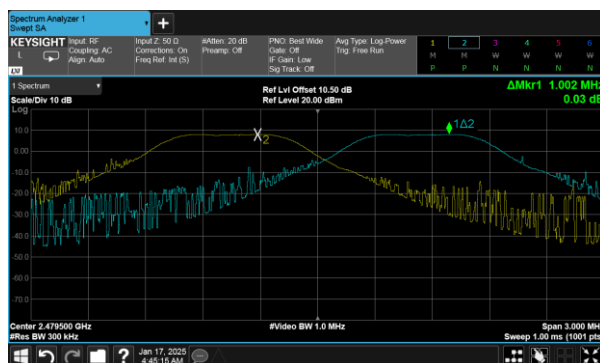
CH39



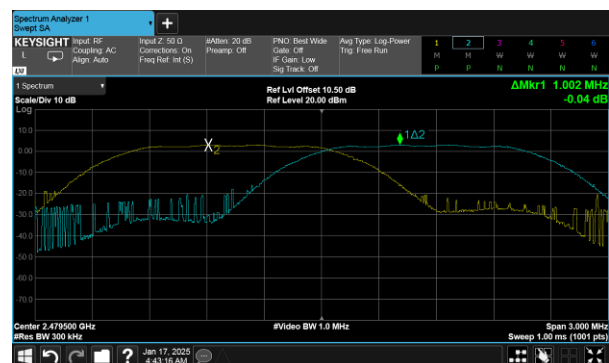
CH39



CH78

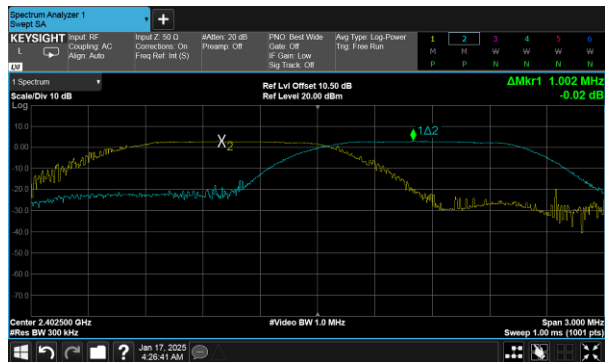


CH78

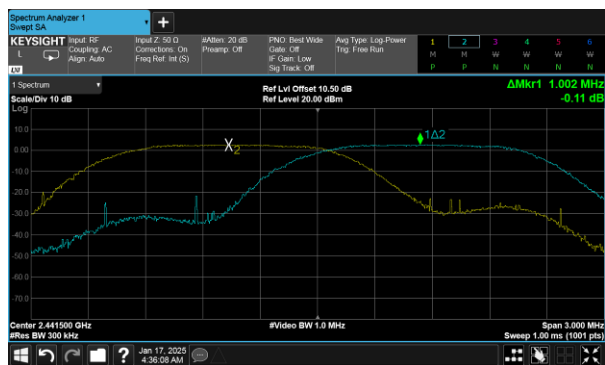




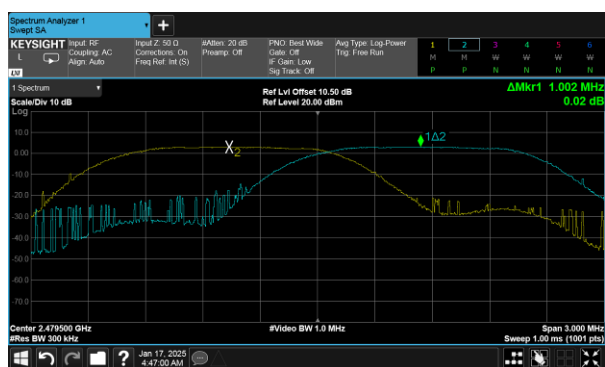
Modulation Type: 8DPSK (3Mbps)
Channel: 00



CH39



CH78





11. Dwell Time on each channel

11.1 Test Limit

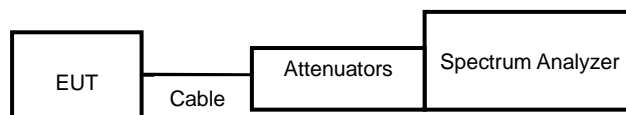
The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

11.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.4

1. The transmitter output was connected to the spectrum analyzer.
2. Adjust the center frequency to measure frequency, then set zero span mode.
3. Set RBW of spectrum analyzer to 300KHz and VBW to 1MHz.
4. Measure the time duration of one transmission on the measured frequency.

11.3 Test Setup Layout



11.4 Test Result and Data

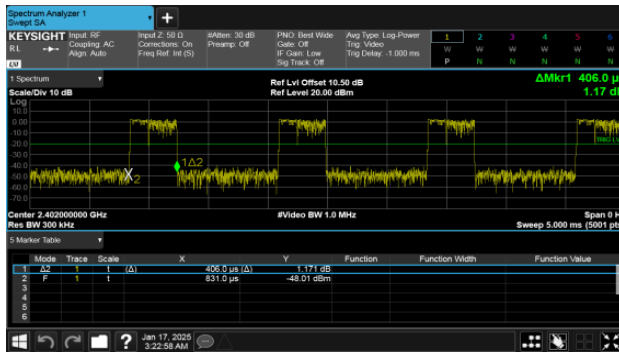
Modulation Type	Frequency (MHz)	Length of transmission time (ms)	Number of transmission in a 31.6 (79 Hopping*0.4)	Dwell Time (ms)	Limit (ms)
GFSK-DH1	2402	0.400	320.00	128.00	400
GFSK-DH3	2402	1.660	160.00	265.60	400
GFSK-DH5	2402	2.912	106.67	310.61	400
$\pi/4$ -DQPSK-DH1	2402	0.396	320.00	126.72	400
$\pi/4$ -DQPSK-DH3	2402	1.664	160.00	266.24	400
$\pi/4$ -DQPSK-DH5	2402	2.904	106.67	309.76	400
8DPSK-DH1	2402	0.406	320.00	129.92	400
8DPSK-DH3	2402	1.660	160.00	265.60	400
8DPSK-DH5	2402	2.912	106.67	310.61	400

Modulation Type	Frequency (MHz)	Length of transmission time (ms)	Number of transmission in a 8 (20 Hopping*0.4)	Dwell Time (ms)	Limit (ms)
AFH-DH1	2402-2421	0.391	160.00	62.56	400
AFH-DH3	2402-2421	1.664	80.00	133.12	400
AFH-DH5	2402-2421	2.908	53.33	155.08	400

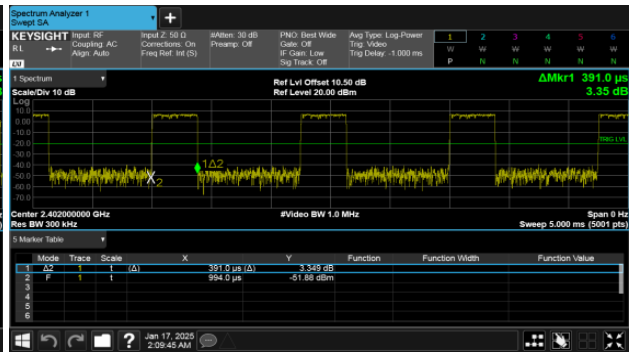




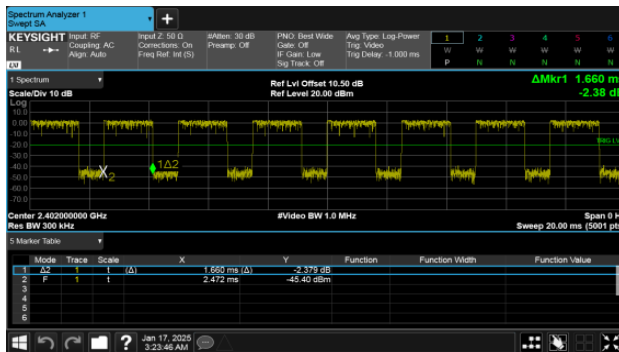
Modulation Type: 8DPSK-DH1
Channel: 00



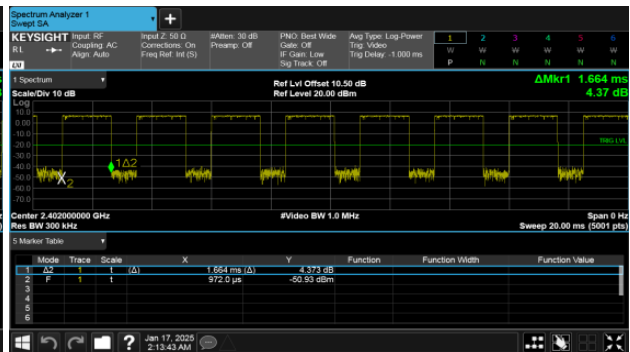
Modulation Type: AFH (DH1)



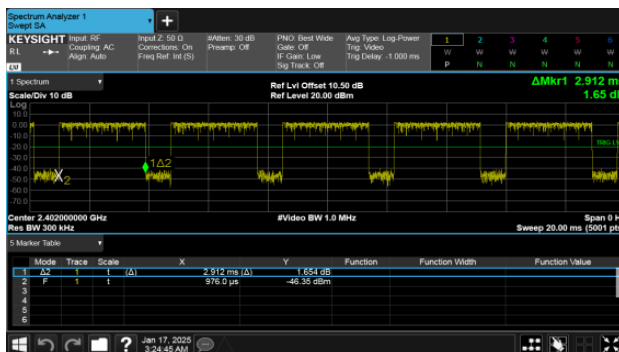
Modulation Type: 8DPSK-DH3
Channel: 00



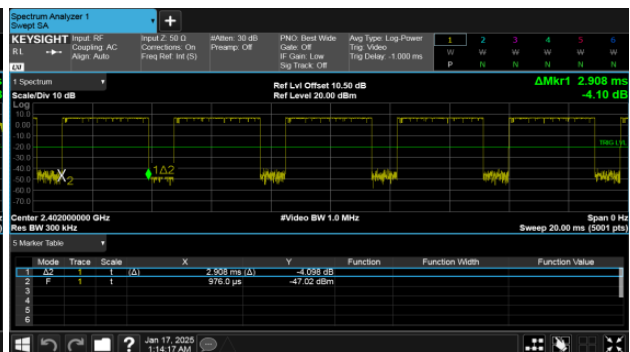
Modulation Type: AFH (DH3)



Modulation Type: 8DPSK-DH5
Channel: 00



Modulation Type: AFH (DH5)





12. Number of Hopping Channels

12.1 Test Limit

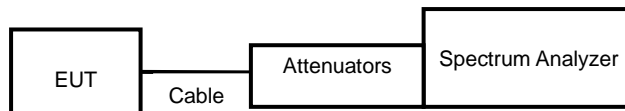
Frequency hopping systems in the 2400 ~ 2483.5 MHz band shall use at least 15 channels.

12.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.3

- The transmitter output was connected to the spectrum analyzer.
2. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
3. Set the MaxHold function, and then keep the EUT in hopping mode. Record all the signals from each channel until each one has been record.

12.3 Test Setup Layout

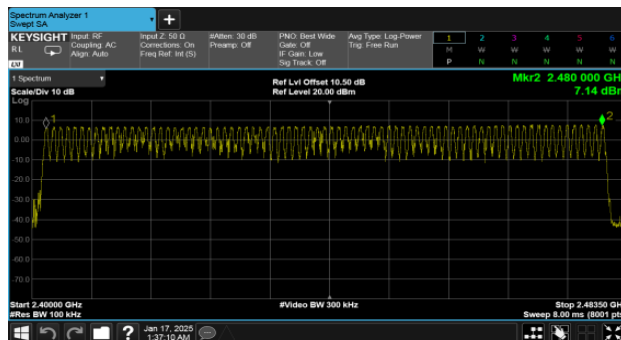


12.4 Test Result and Data

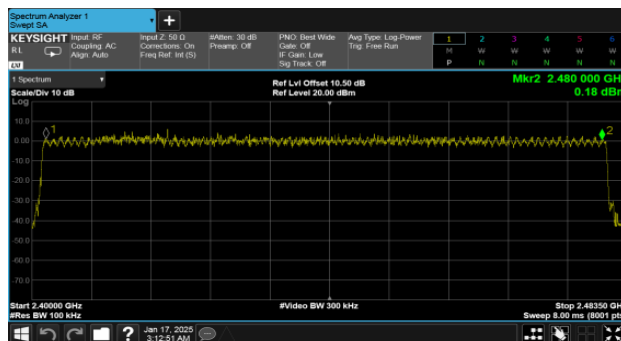
Modulation Type	Hopping Channels
GFSK	79
$\pi/4$ -DQPSK	79
8DPSK	79



Modulation Type: GFSK (1Mbps)



Modulation Type: $\pi/4$ -DQPSK (2Mbps)



Modulation Type: 8DPSK (3Mbps)





13. Maximum Average Output Power

13.1 Test Limit

The Maximum Average Output Power Measurement is 30dBm.

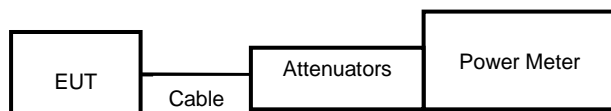
13.2 Test Procedures

According to the methods defined in ANSI C63.10-2013 Section 7.8.5

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter.

Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

13.3 Test Setup Layout



13.4 Test Result and Data

Setting	Modulation Type	Channel	Frequency (MHz)	AV Output Power (dBm)	AV Output Power (mW)
9	GFSK	0	2402	7.78	5.998
9		39	2441	8.29	6.745
9		78	2480	8.78	7.551
9	$\pi/4$ -DQPSK	0	2402	3.44	2.208
9		39	2441	3.78	2.388
9		78	2480	3.83	2.415
9	8DPSK	0	2402	3.46	2.218
9		39	2441	3.78	2.388
9		78	2480	3.82	2.410

AFH Mode

Setting	Modulation Type	Channel	Frequency (MHz)	AV Output Power (dBm)	AV Output Power (mW)
9	GFSK	0-19	2402-2421	8.04	6.361
9	$\pi/4$ -DQPSK	0-19	2402-2421	3.61	2.296
9	8DPSK	0-19	2402-2421	3.62	2.301

-----THE END OF REPORT-----