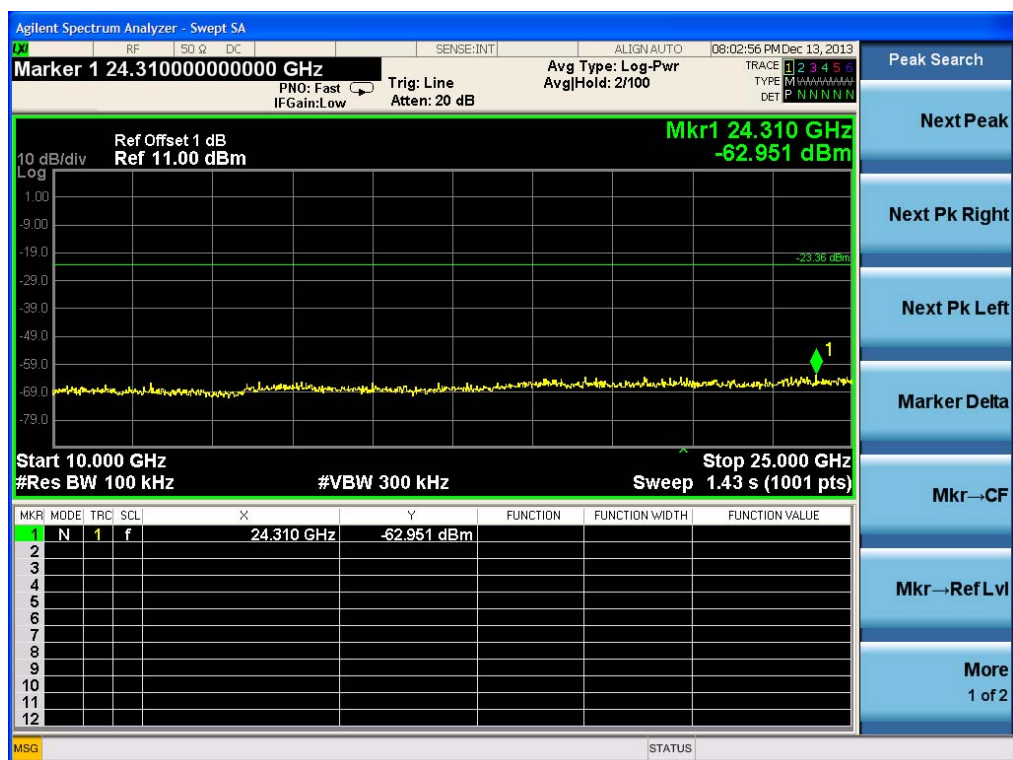
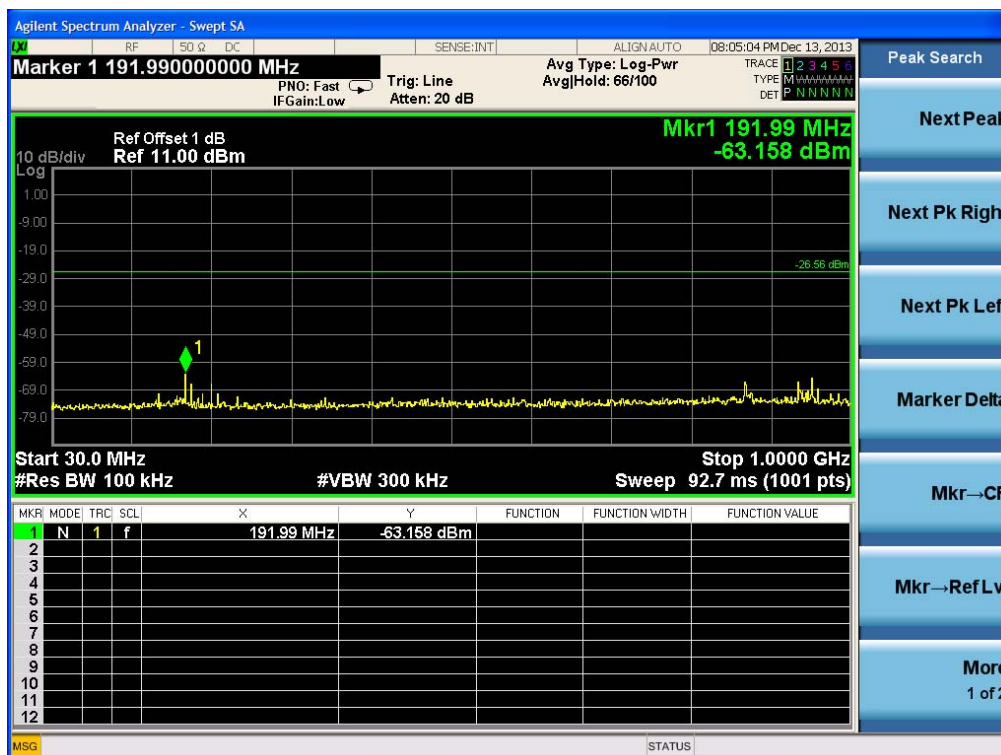
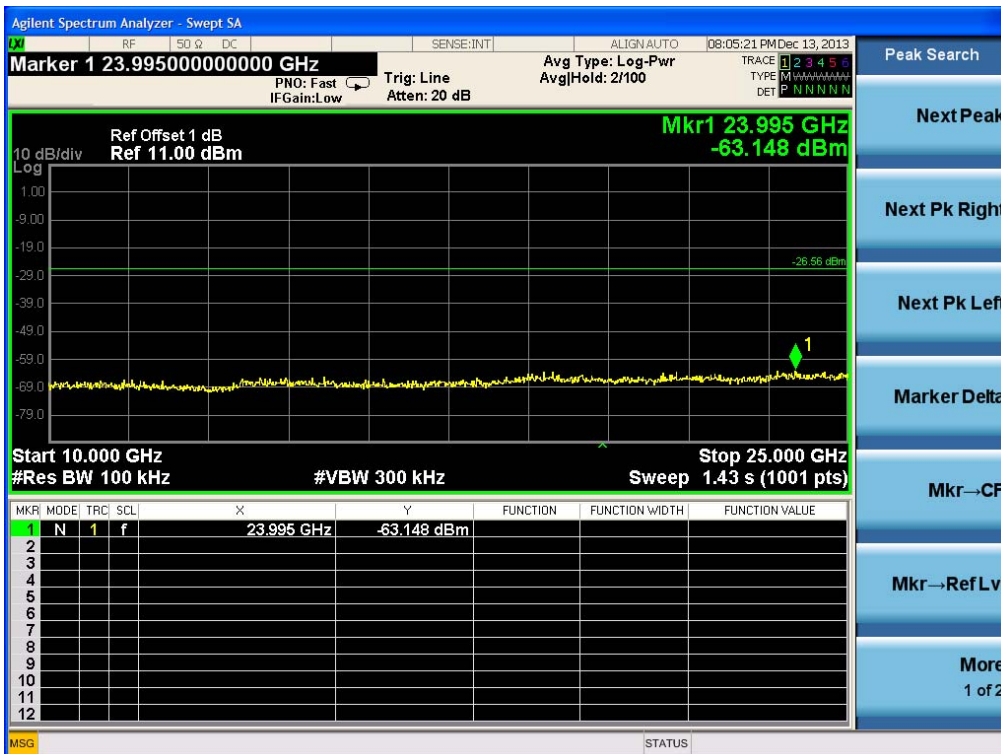
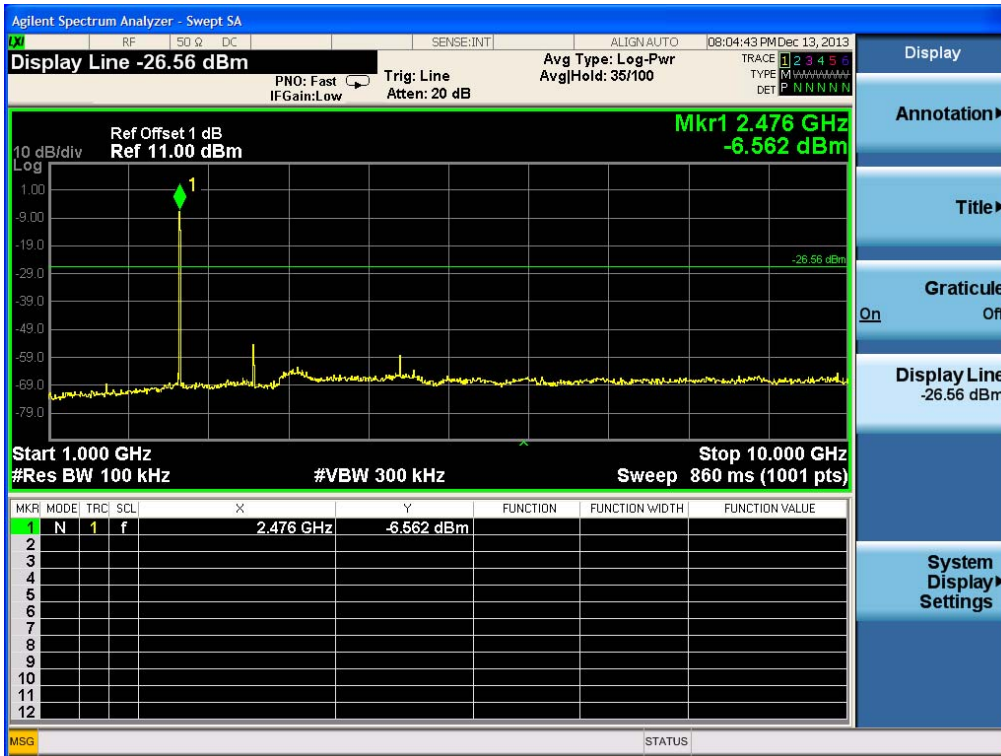




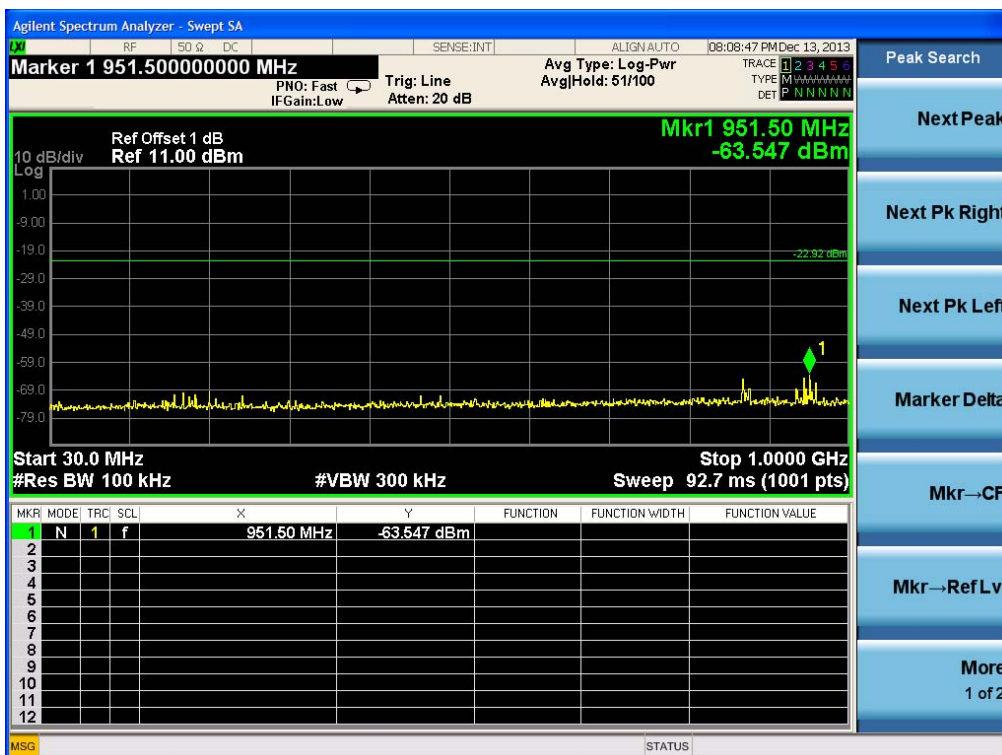
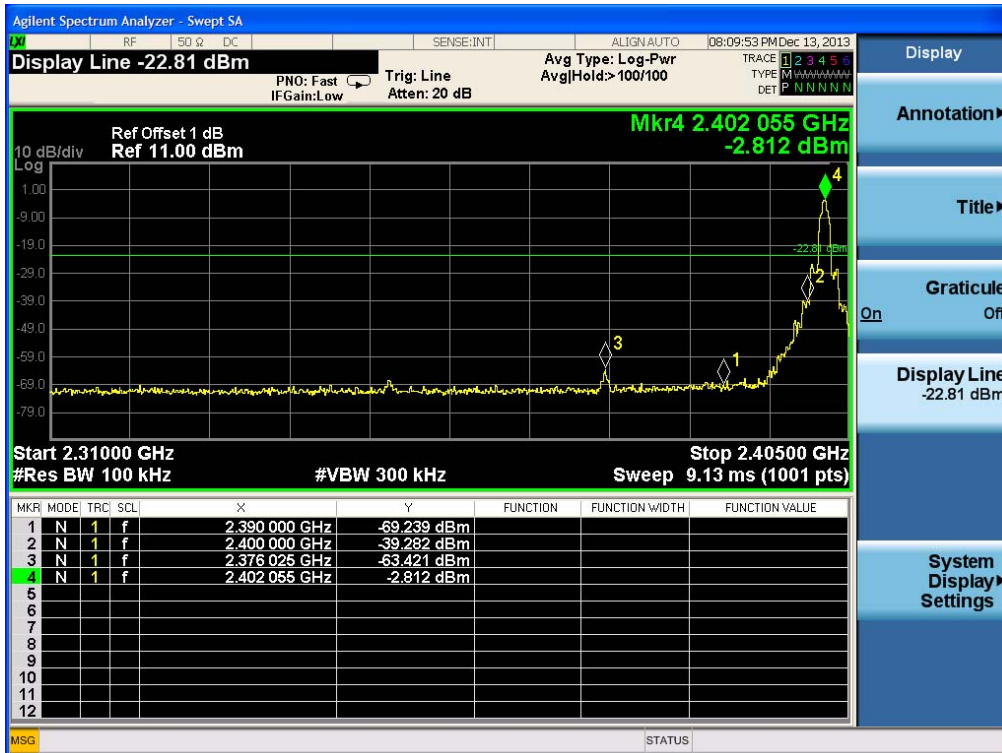


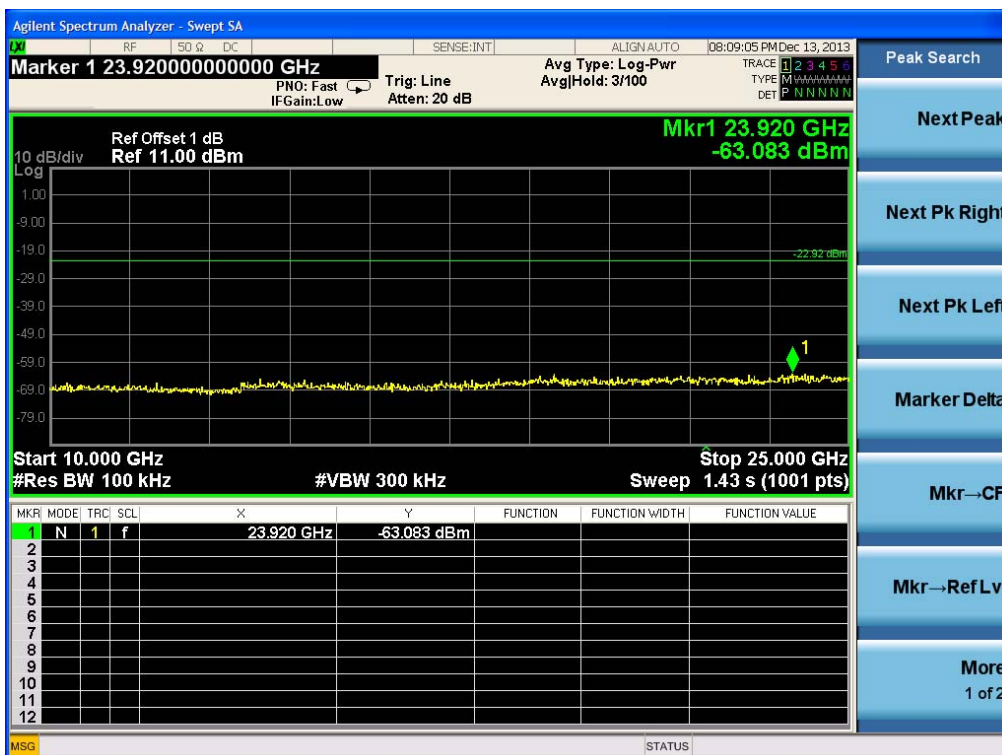
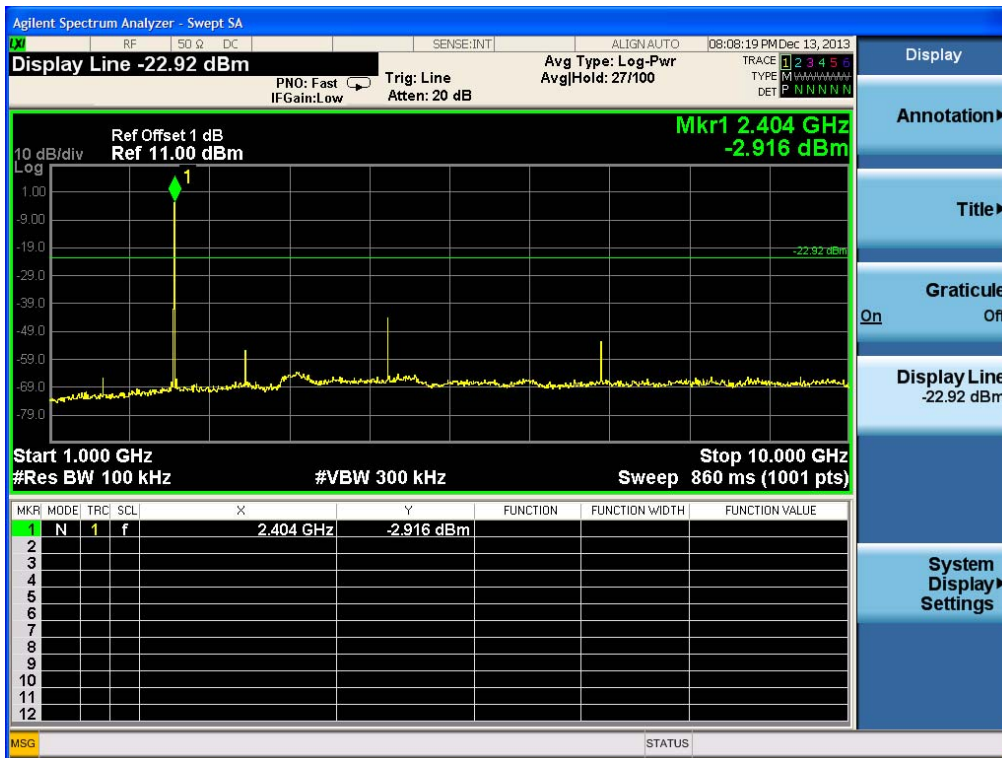
8DPSK Hopping off CHH :



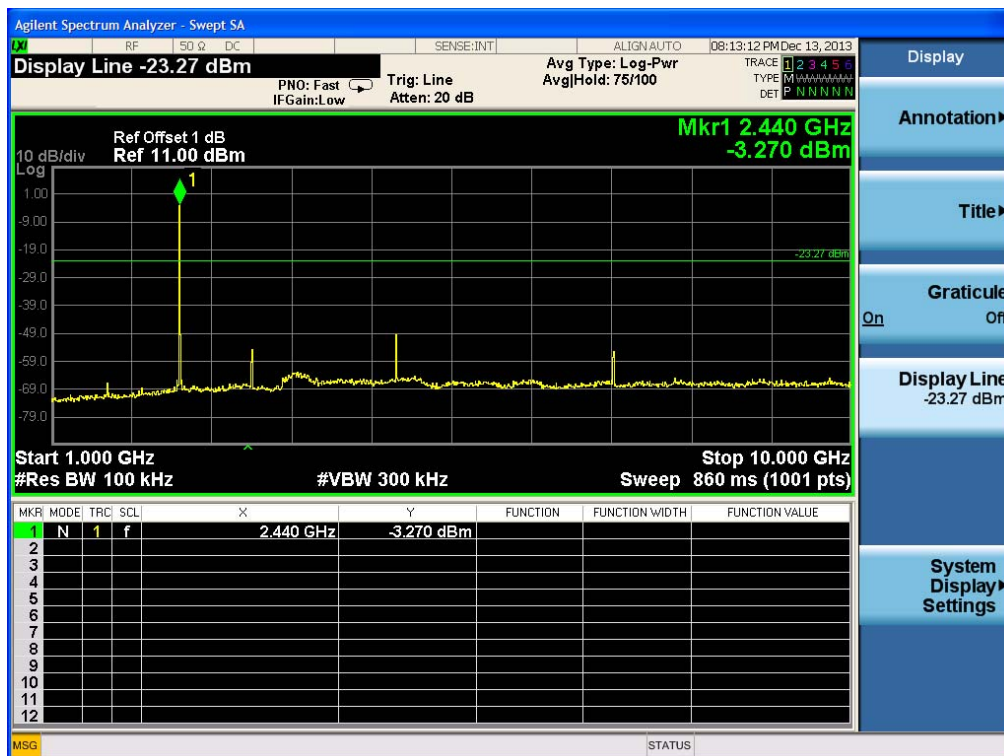
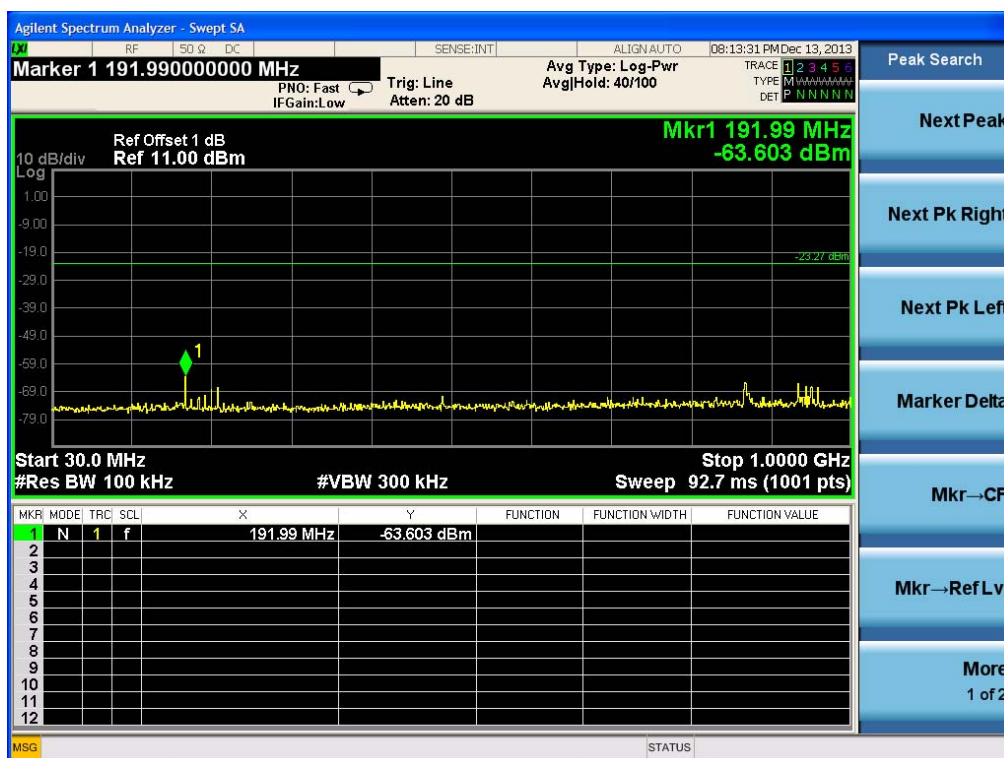


$\pi/4$ DQPSK Hopping off CHL :



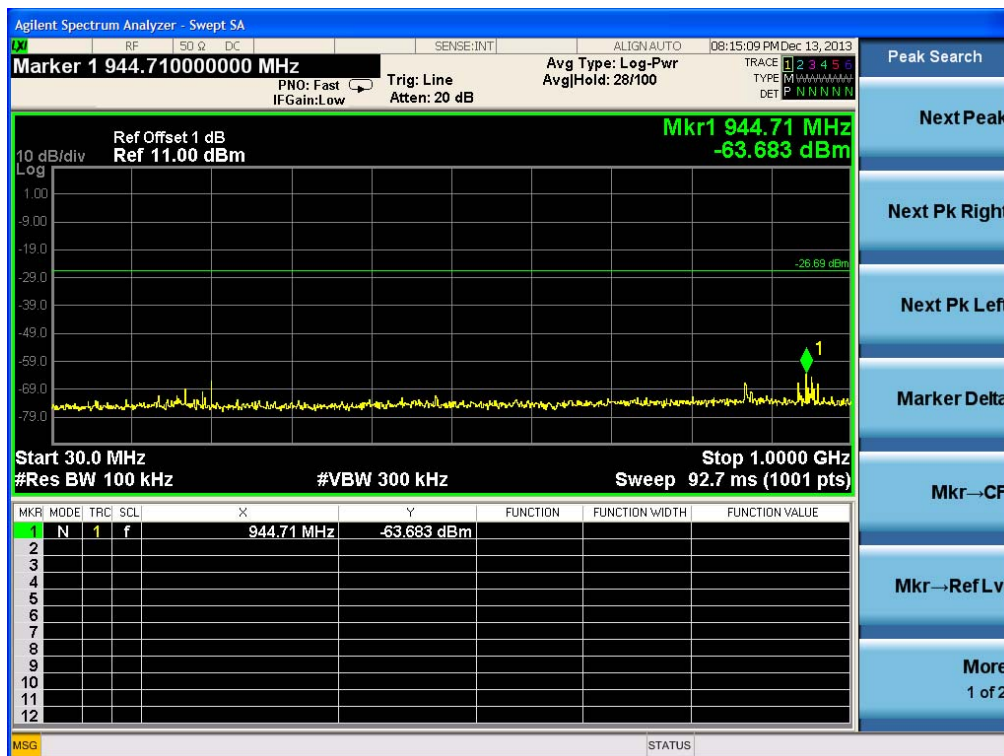


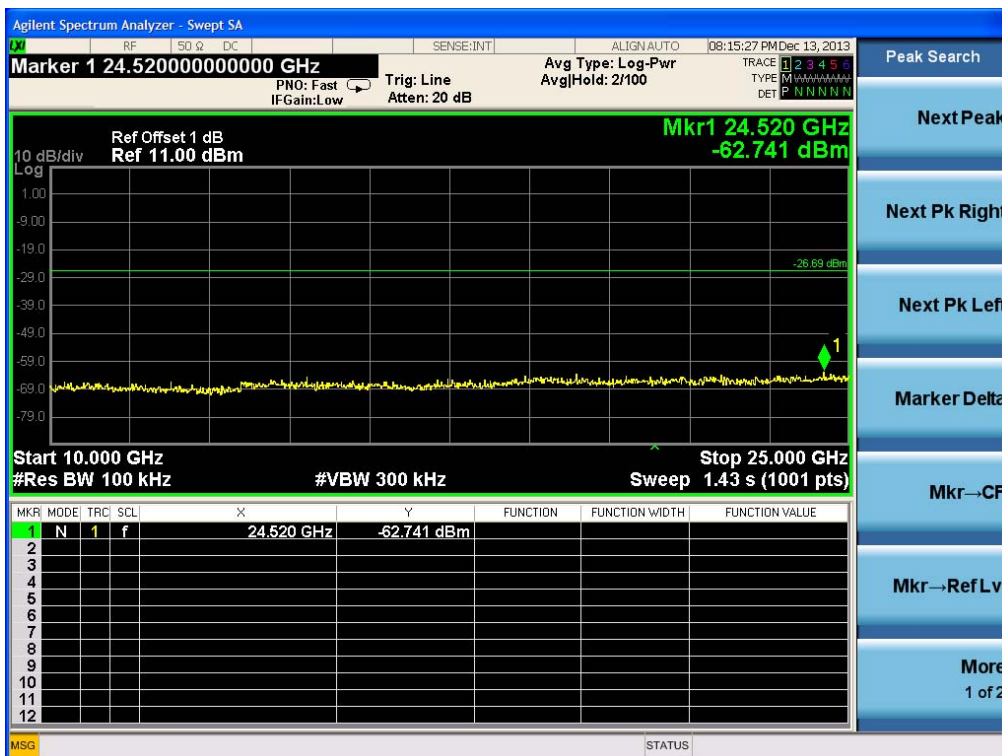
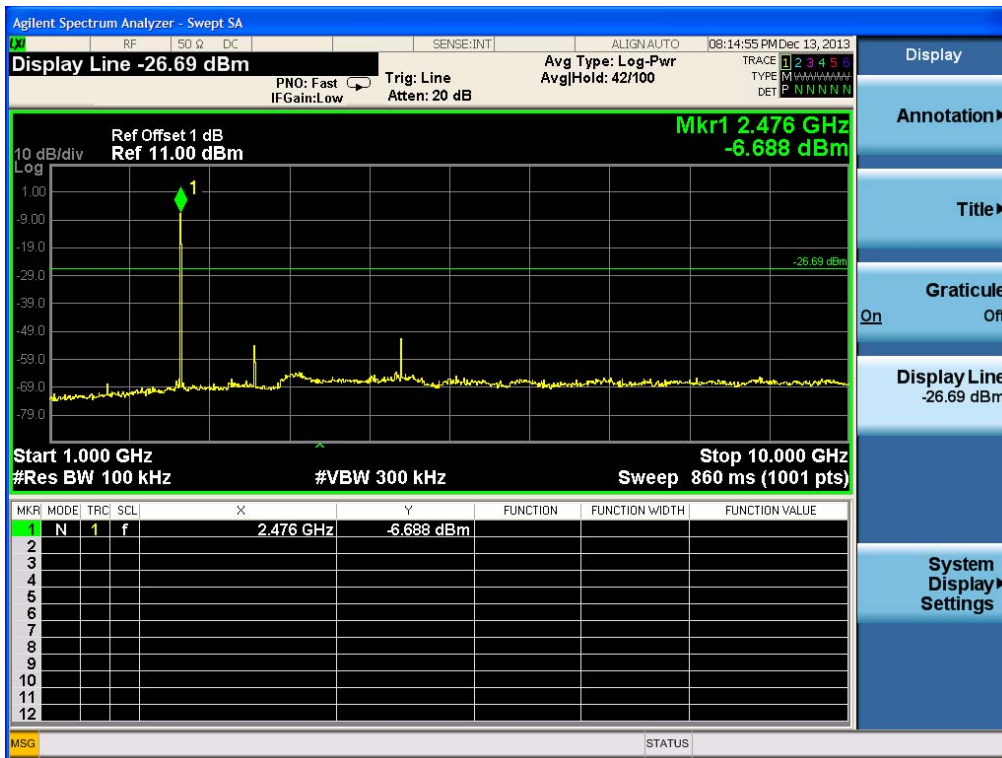
$\pi/4$ DQPSK Hopping off CHM :





$\pi/4$ DQPSK Hopping off CHH :





9. Carrier Frequency Separation Test

9.1 Test Procedure

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, freq 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. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

The peak detector was used with 100 kHz/300 kHz RBW/VBW

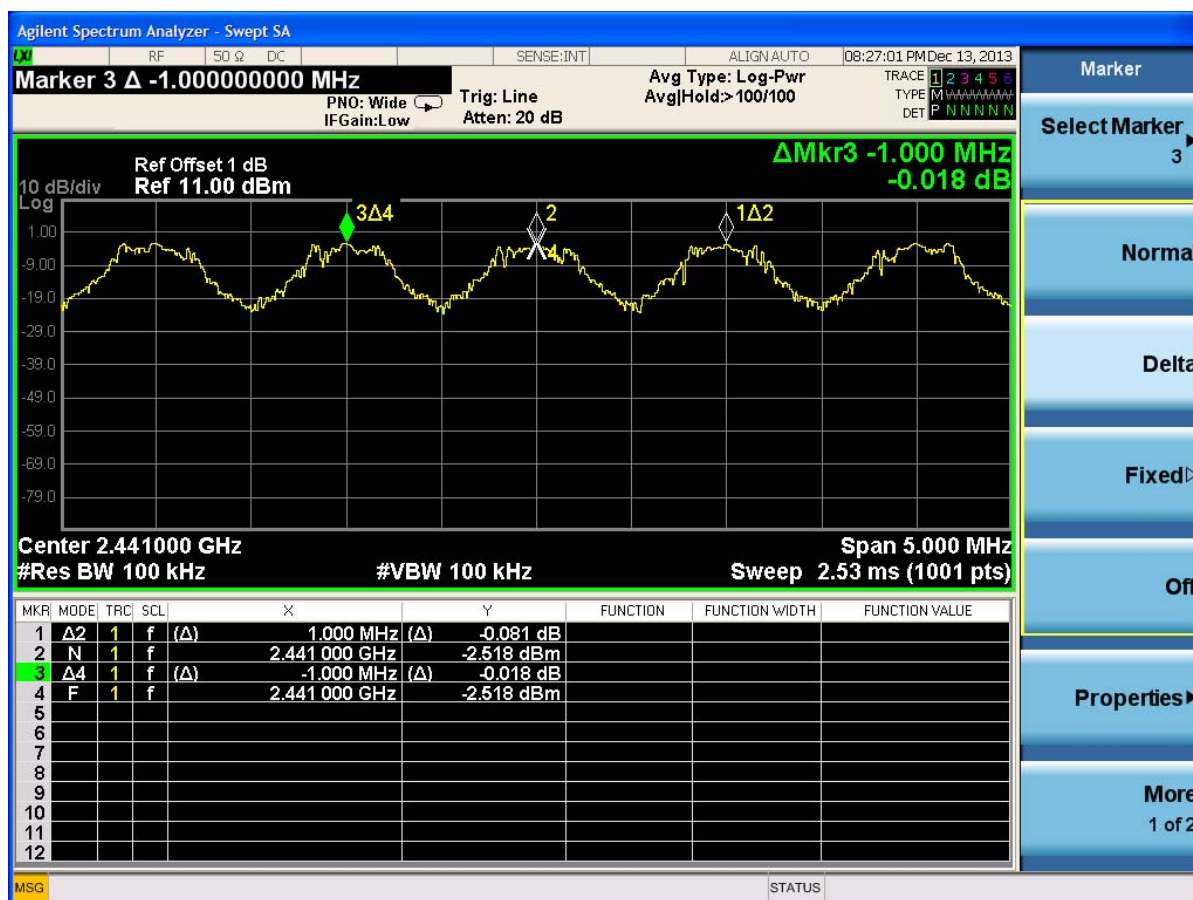
9.2 Measurement Equipment

Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

9.3 Test Result

Widest channel bandwidth was **1215kHz**. So Two-thirds is **810kHz** and greater than 25kHz .

Result : Pass. Carrier Frequency Separation=1MHz > **810kHz**



10. Output Power Test

10.1 Test Procedure

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

(1) 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 W. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 W.

(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

10.2 Measurement Equipment

Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

10.3 Test Result

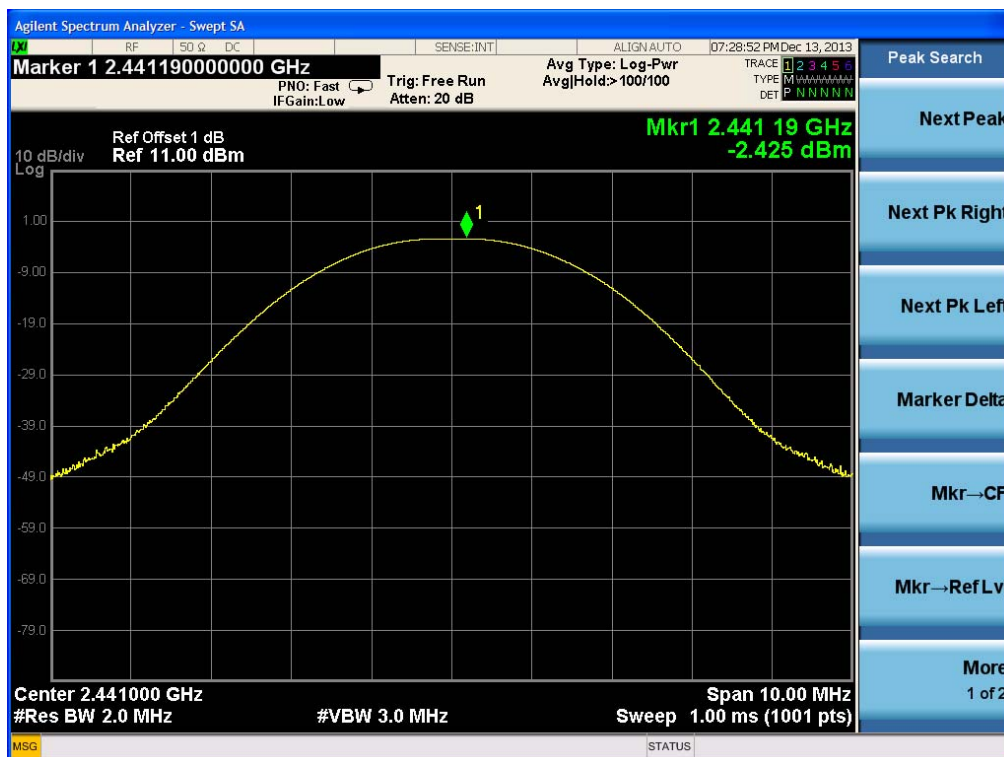
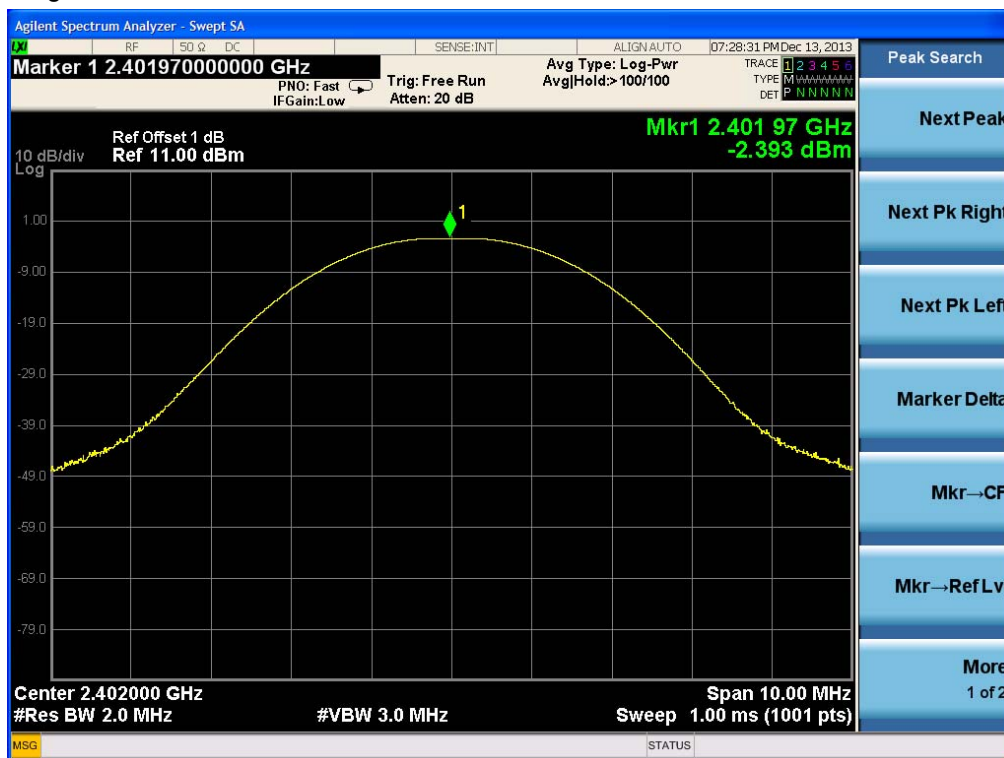
Remark : 1:RBW=2MHz VBW=3MHz PK detector for GFSK

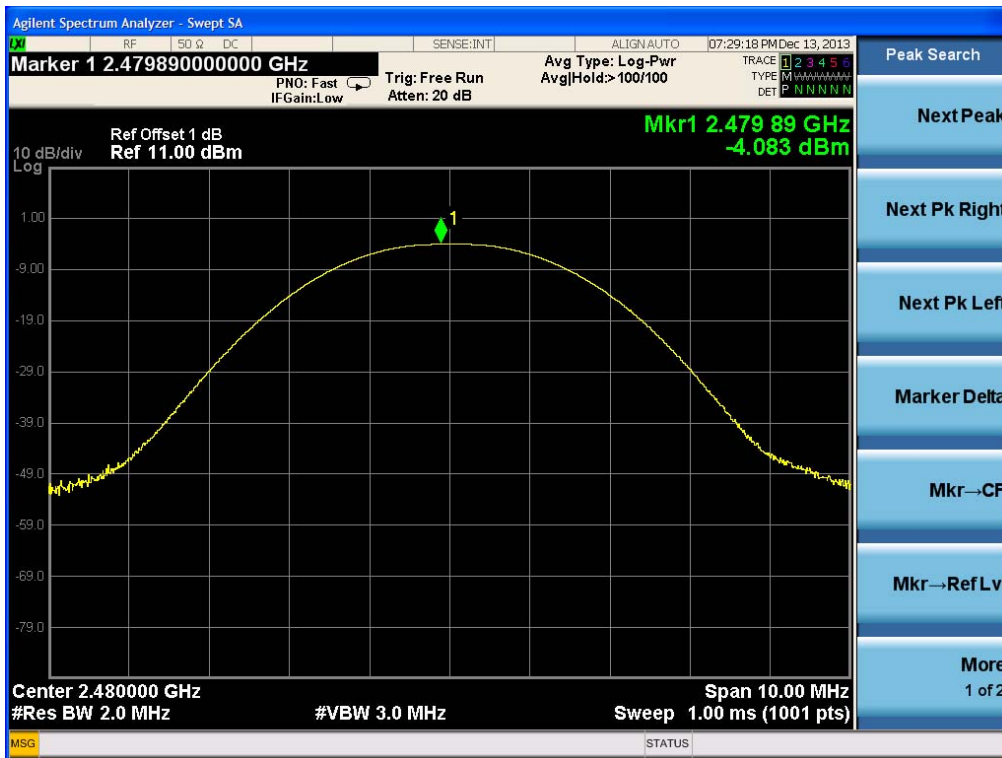
Cable loss is 1dB and it have been set in Spectrum

GFSK:

Frequency, MHz	Result Output power, dBm	<Power Limit, dBm
2402	-2.393	30.00
2441	-2.425	30.00
2480	-4.083	30.00

Diagram of GFSK is as below:





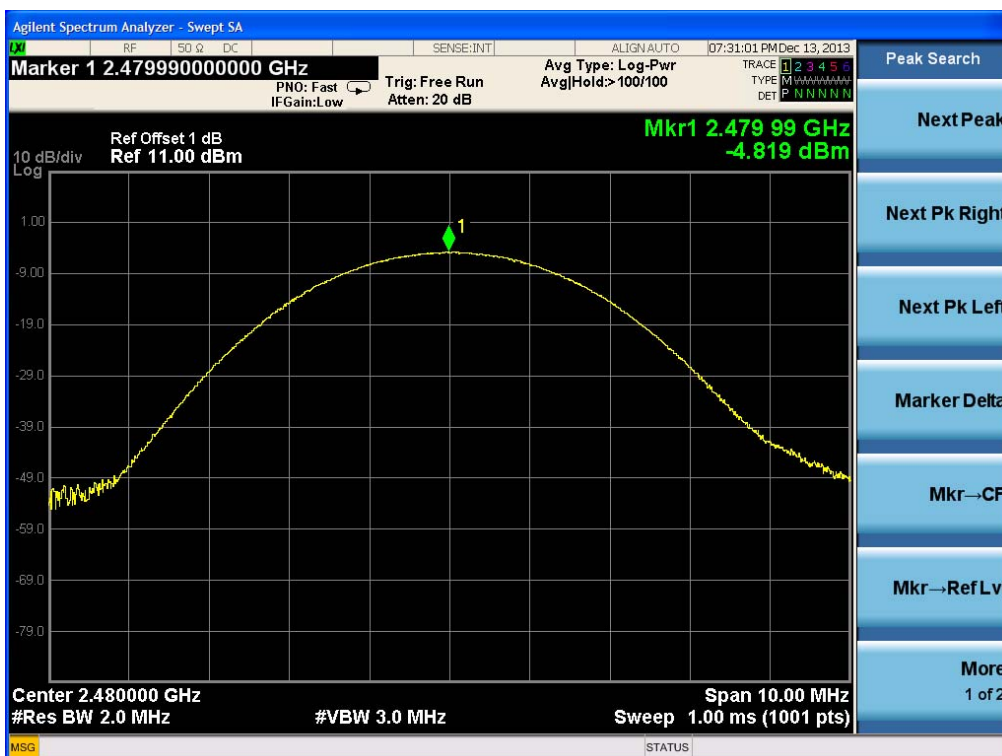
Remark : 1:RBW=2MHz VBW=3MHz PK detector for 8DPSK
Cable loss is 1dB and it have been set in Spectrum

8DPSK:

Frequency, MHz	Result Output power, dBm	<Power Limit, dBm
2402	-2.604	30.00
2441	-2.768	30.00
2480	-4.819	30.00

Diagram of 8DPSK is as below:

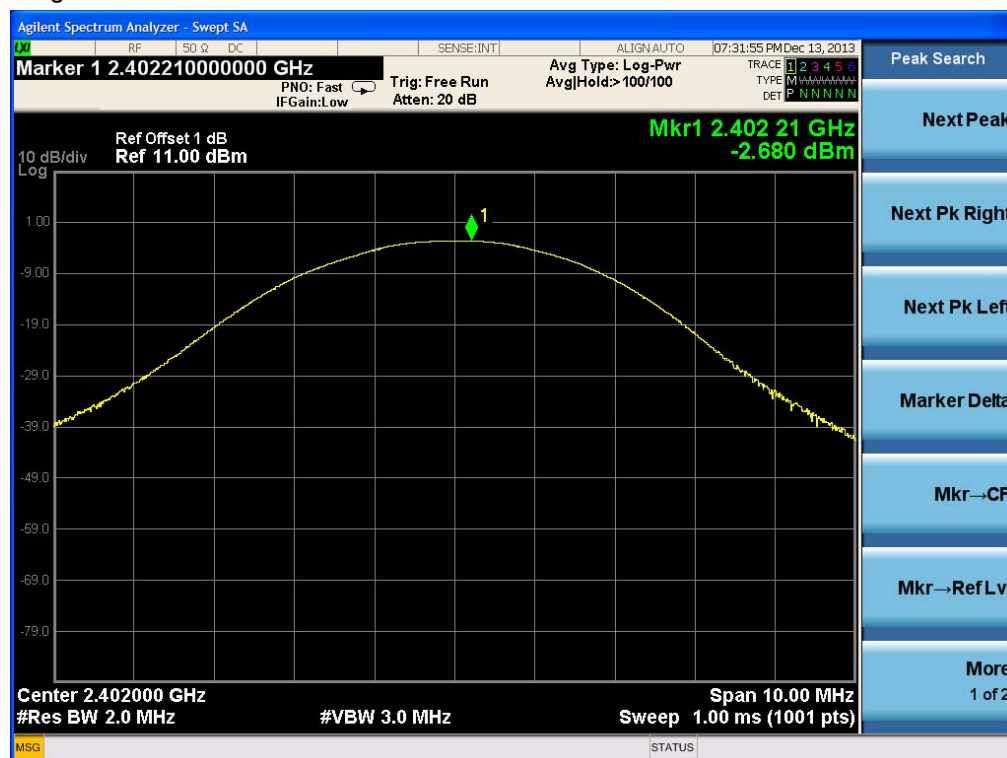


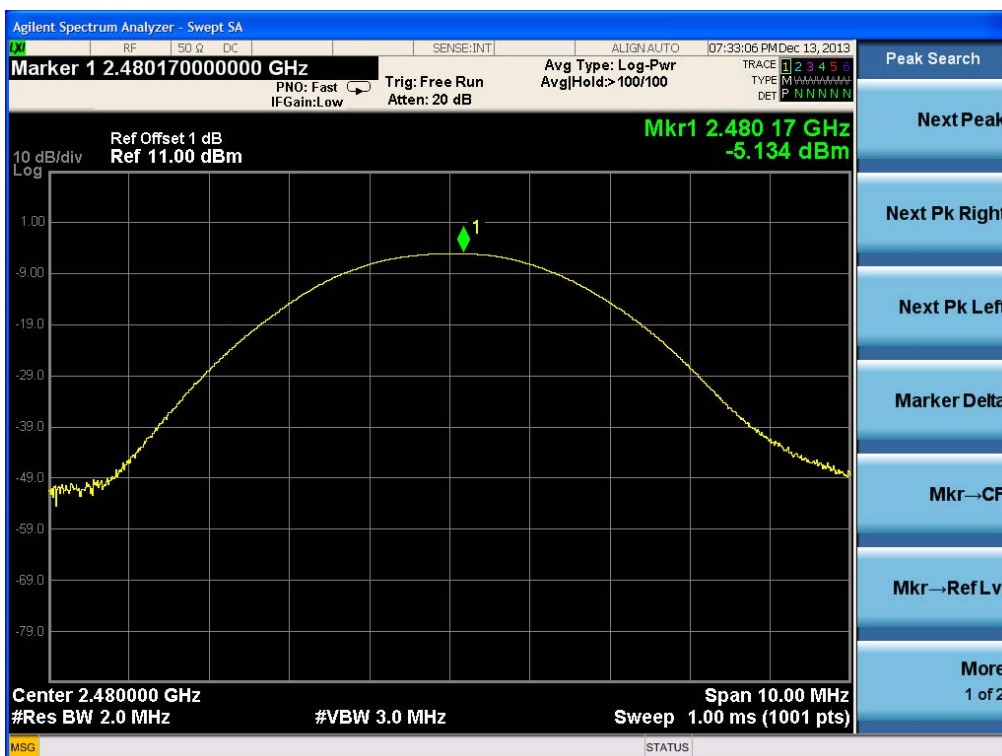
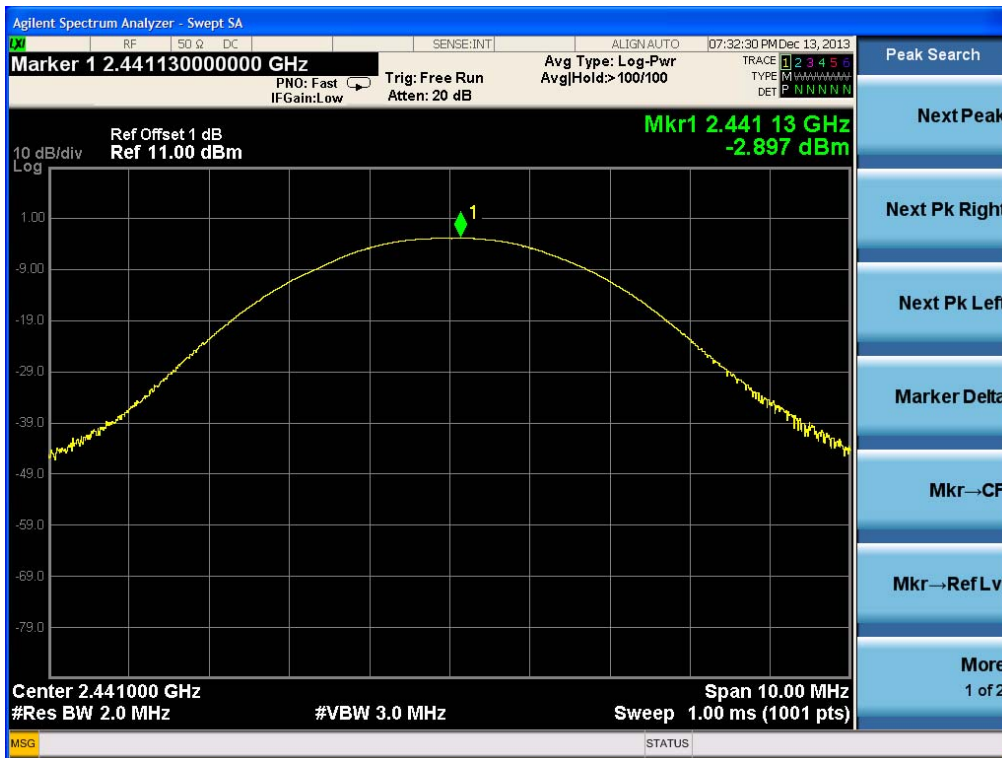


Remark : 1:RBW=2MHz VBW=3MHz PK detector for $\pi/4$ DQPSK
Cable loss is 1dB and it have been set in Spectrum
 $\pi/4$ DQPSK:

Frequency, MHz	Result Output power, dBm	<Power Limit, dBm
2402	-2.680	30.00
2441	-2.897	30.00
2480	-5.134	30.00

Diagram of $\pi/4$ DQPSK is as below:





11. NUMBER OF HOPPING FREQUENCY TEST

11.1 Test Procedure

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

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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

11.2 Measurement Equipment

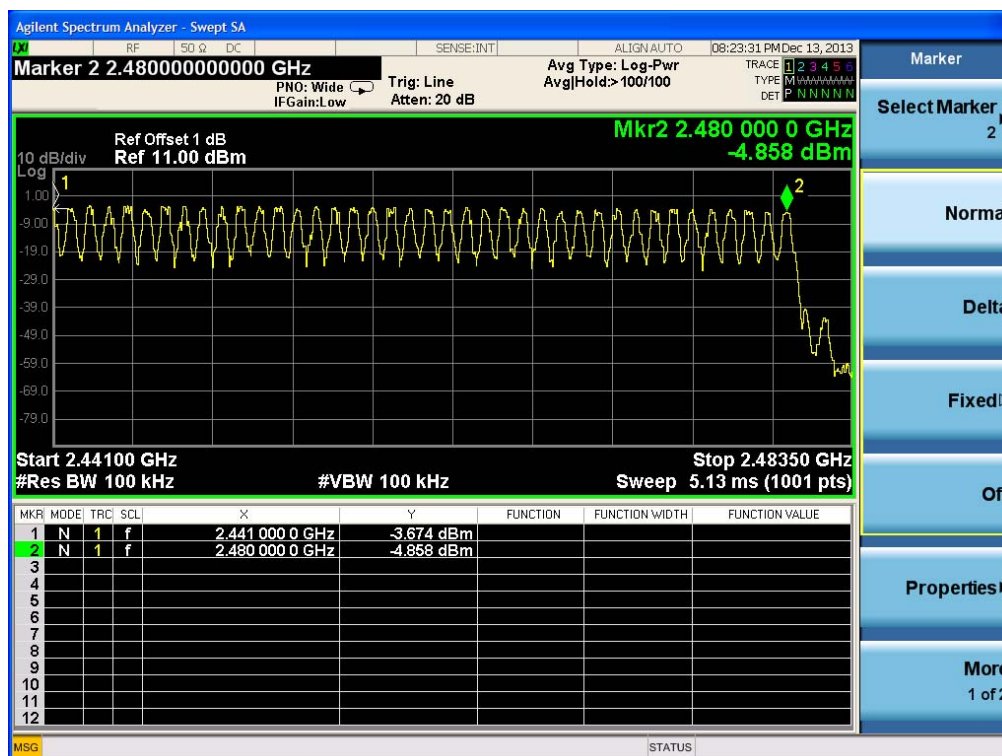
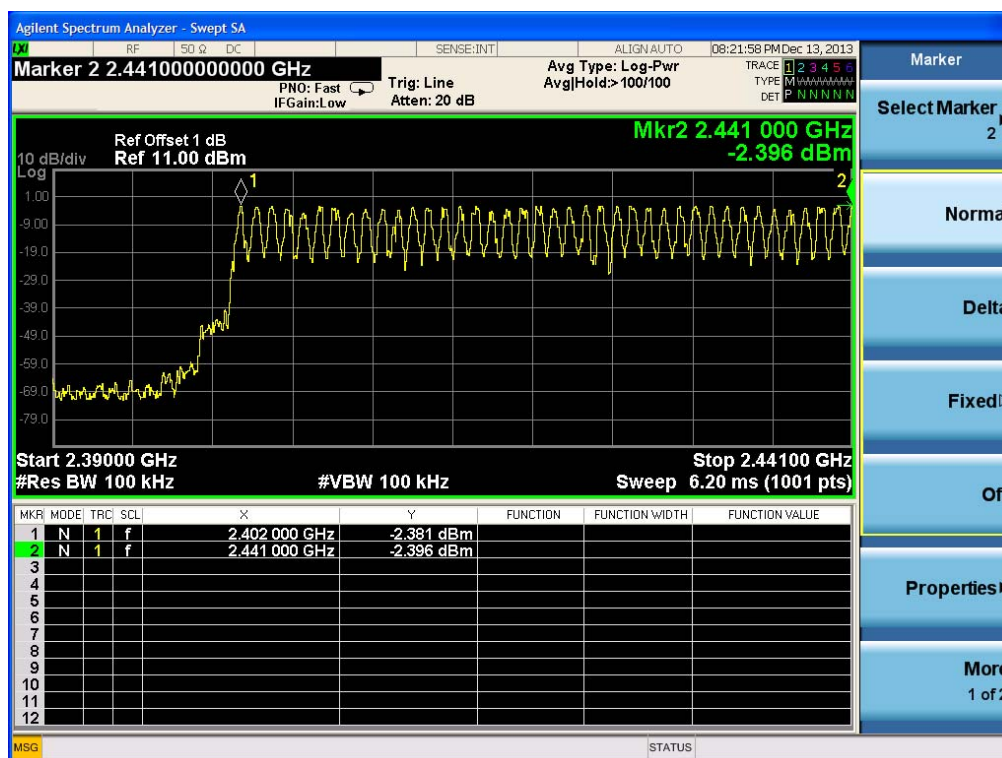
Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

11.3 Test Result

Test mode: Transmitter Hopping on

Number of channels used	Minimum number of channels limit	Margin
79	15	64

11.3.1 Diagram



12. DWELL TIME TEST

12.1 Test Procedure

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. 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. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

12.2 Measurement Equipment

Item	Equipment	Last Calibration	Type	Serial No.	Manufacturer
1	Spectrum	May.08, 13	E4446A	US44300459	Agilent

12.3 Test Result

Limit:

Total time of occupancy is 0.4 s within a period of time equals number of hopping channels employed multiplied by 0.4 s, which is 0.4 s within the period of time $0.4 \times 79 = 31.6$ s

Remark :

DH1 Packet permit maximum $1600 / 79 / 2 = 10.12$ hops per second in each channel (1 time slot RX, 1 time slot TX). So, total hops is $10.12 \times 31.6 = 320$

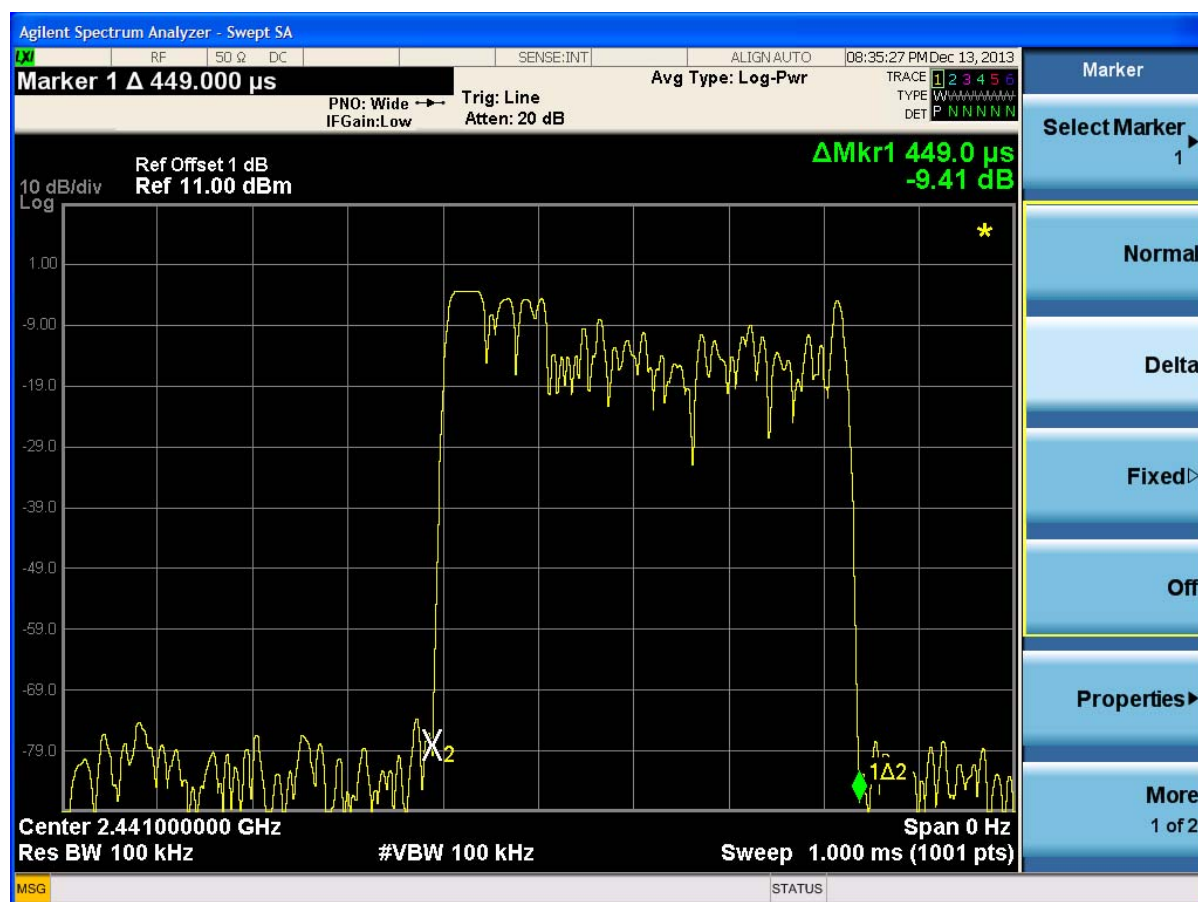
DH3 Packet permit maximum $1600 / 79 / 4 = 5.06$ hops per second in each channel (3 time slots RX, 1 time slot TX). So, total hops is $5.06 \times 31.6 = 160$

DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel (5 time slots RX, 1 time slot TX). So, total hops is $3.37 \times 31.6 = 106.6$

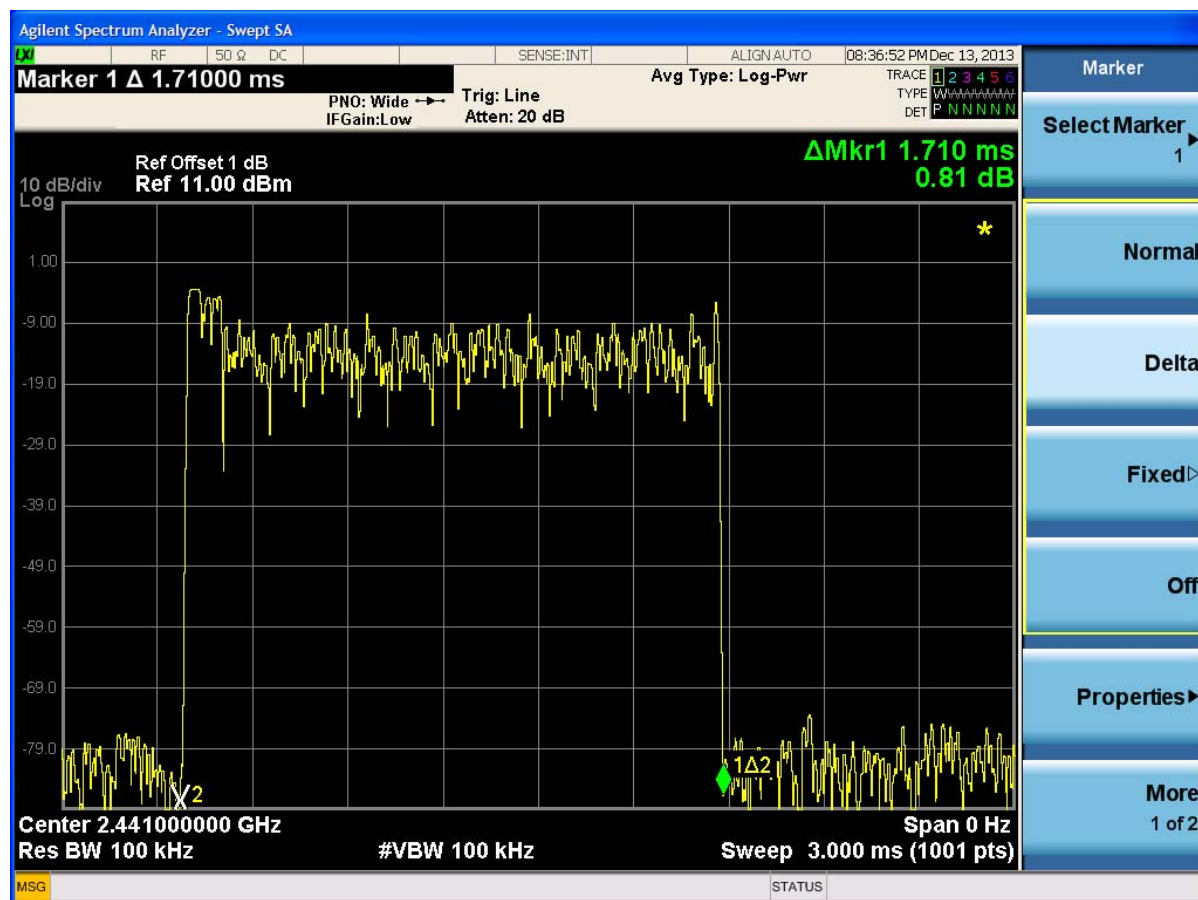
8DPSK

Grouping	Diagram	Time of occupancy ms	Limit ms	Remark
DH1	11-1	143.68	400	320x 0.449
DH3	11-2	273.60	400	160x 1.710
DH5	11-3	315.00	400	106.6x 2.955

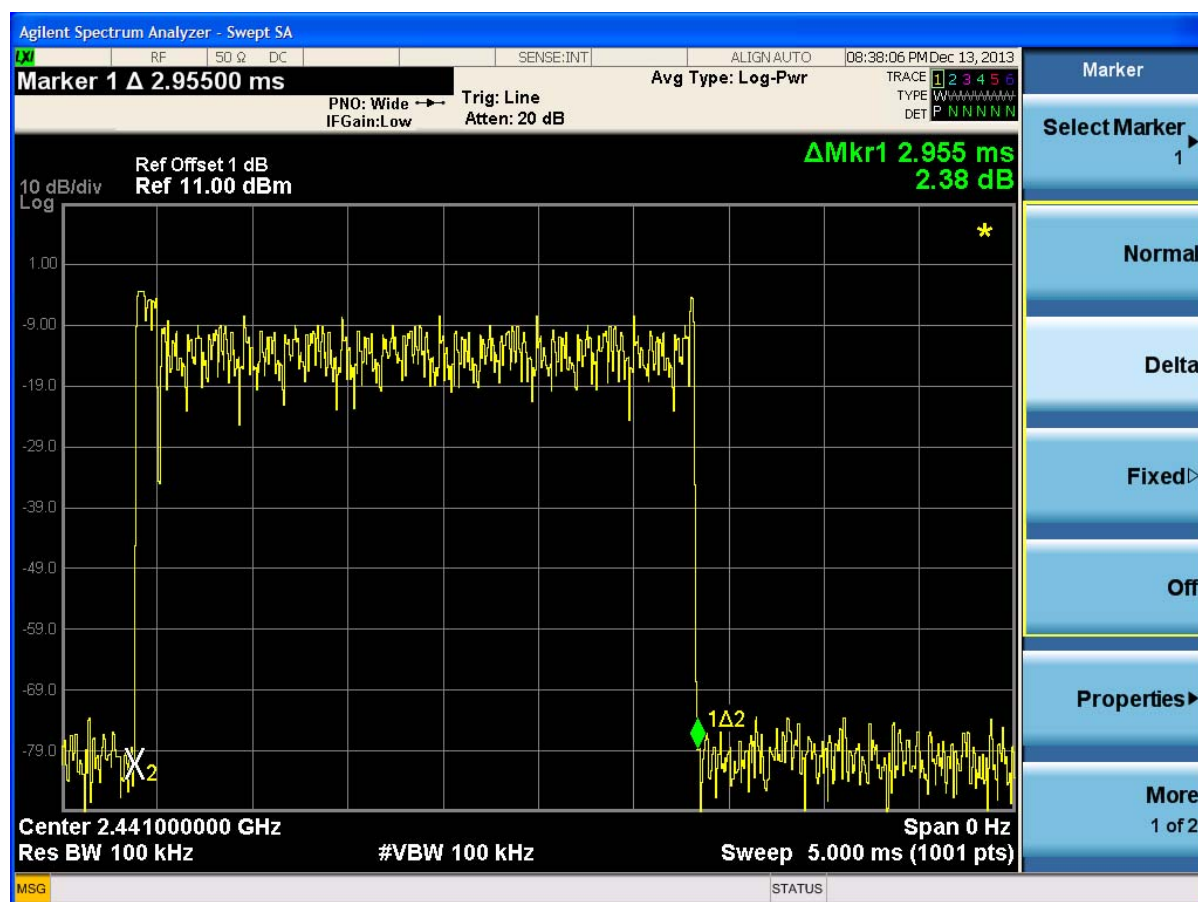
12.3.1 Diagram 11-1



12.3.2 Diagram 11-2



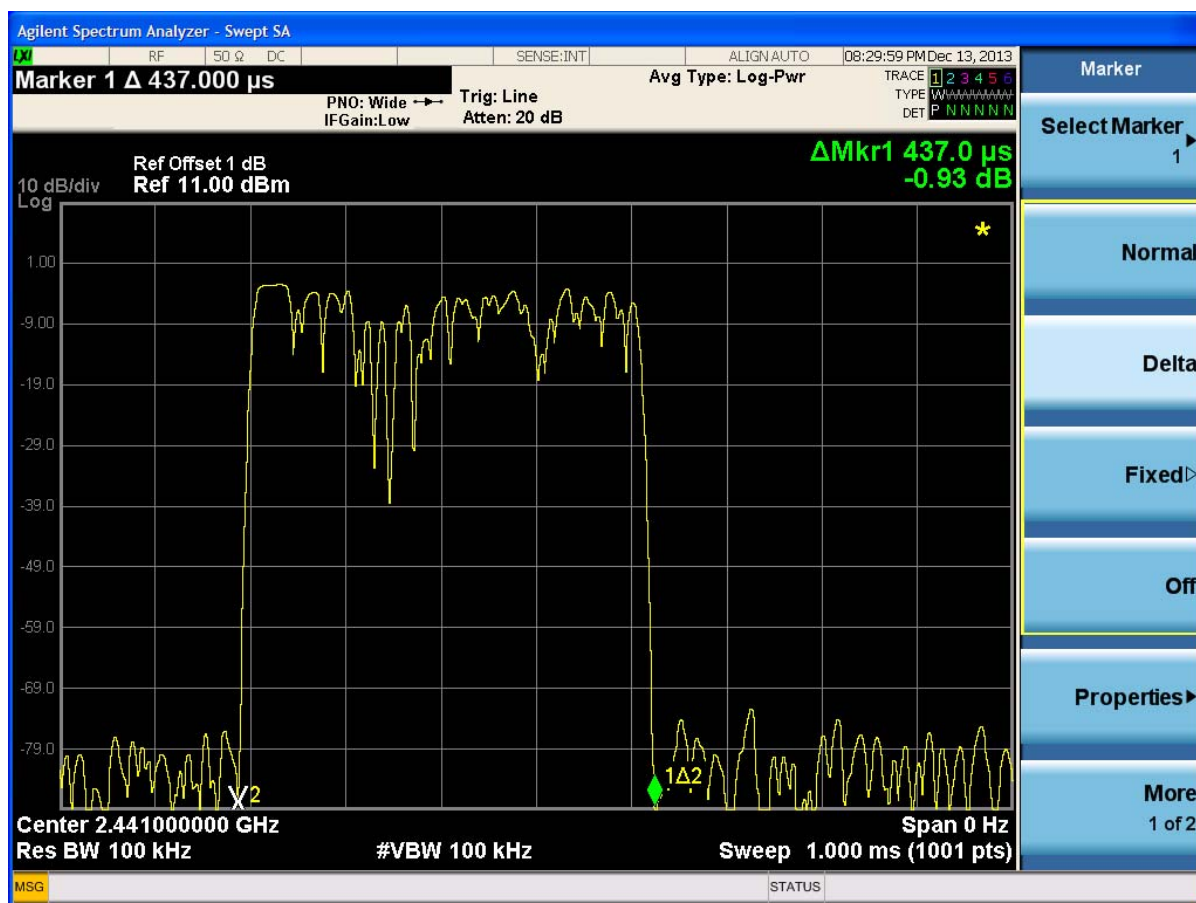
12.3.3 Diagram 11-3



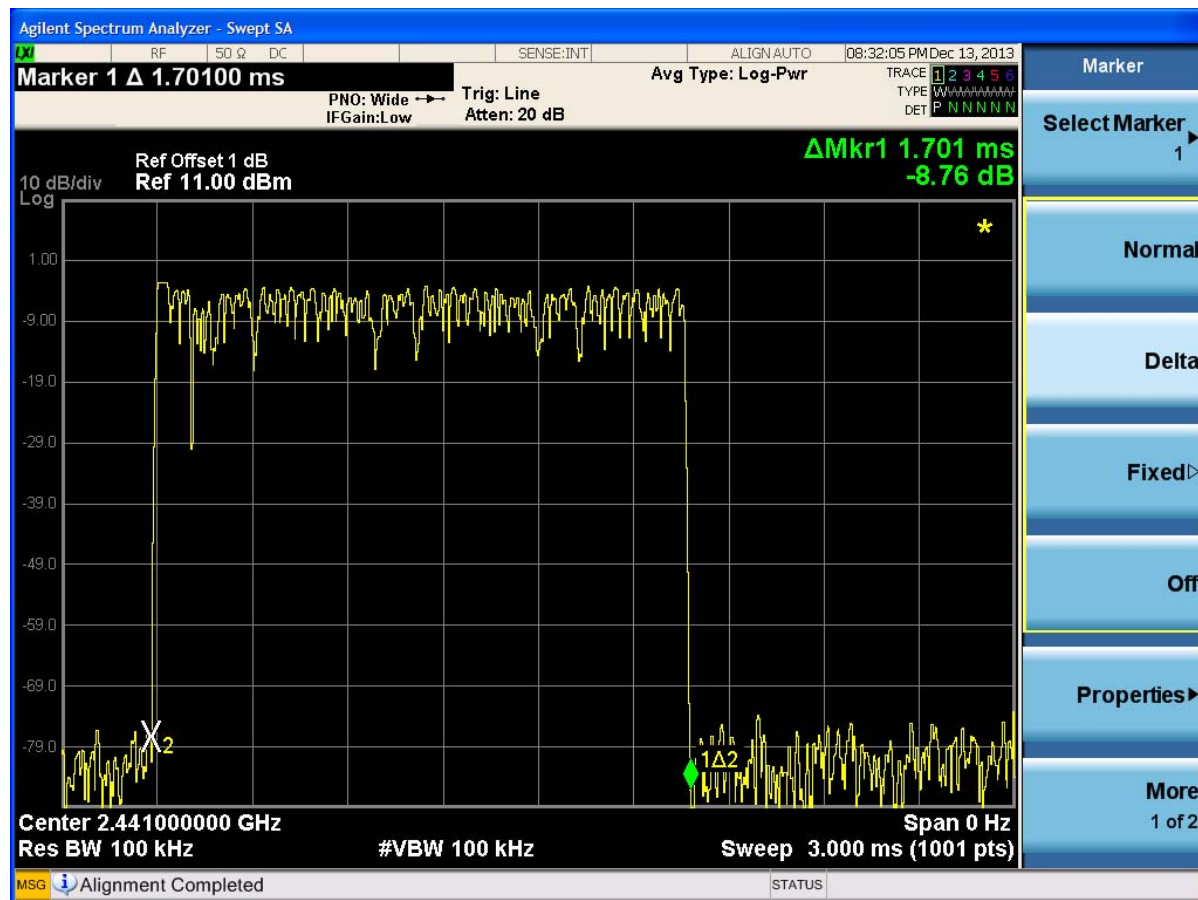
GFSK

Grouping	Diagram	Time of occupancy ms	Limit ms	Remark
DH1	11-4	139.84	400	320x 0.437
DH3	11-5	272.16	400	160x 1.701
DH5	11-6	316.07	400	106.6x 2.965

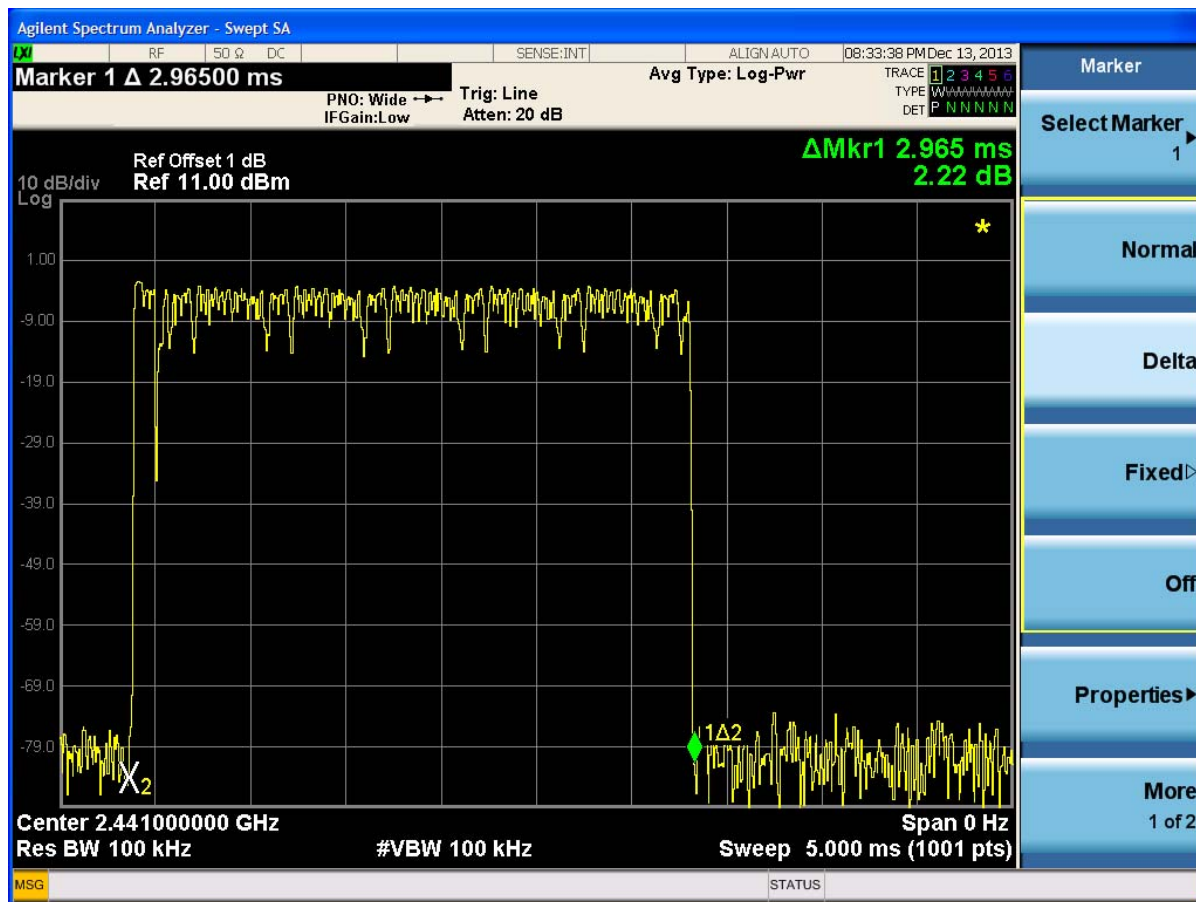
12.3.4 Diagram 11-4



12.3.5 Diagram 11-5



12.3.6 Diagram 11-6



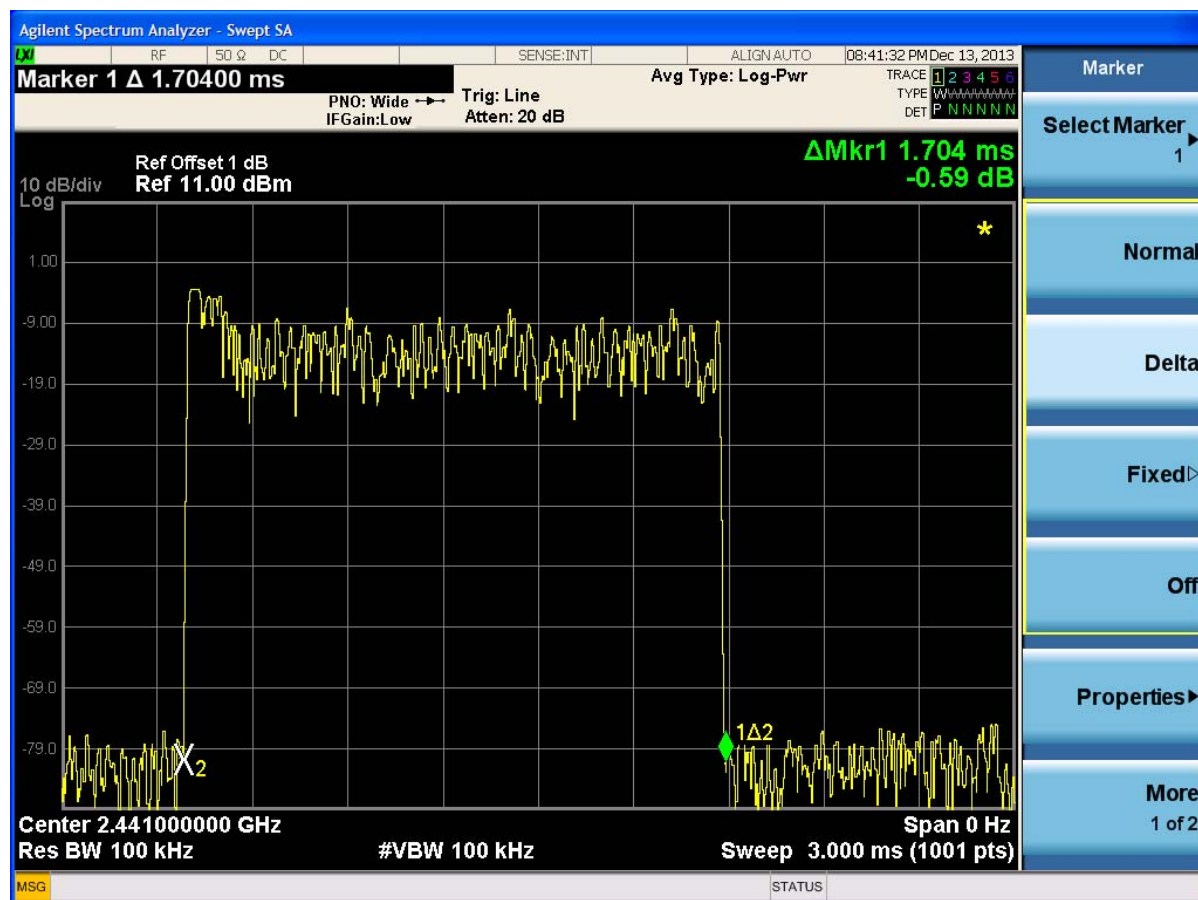
$\pi/4$ DQPSK

Grouping	Diagram	Time of occupancy ms	Limit ms	Remark
DH1	11-7	143.36	400	320x 0.448
DH3	11-8	272.64	400	160x 1.704
DH5	11-9	315.54	400	106.6x 2.960

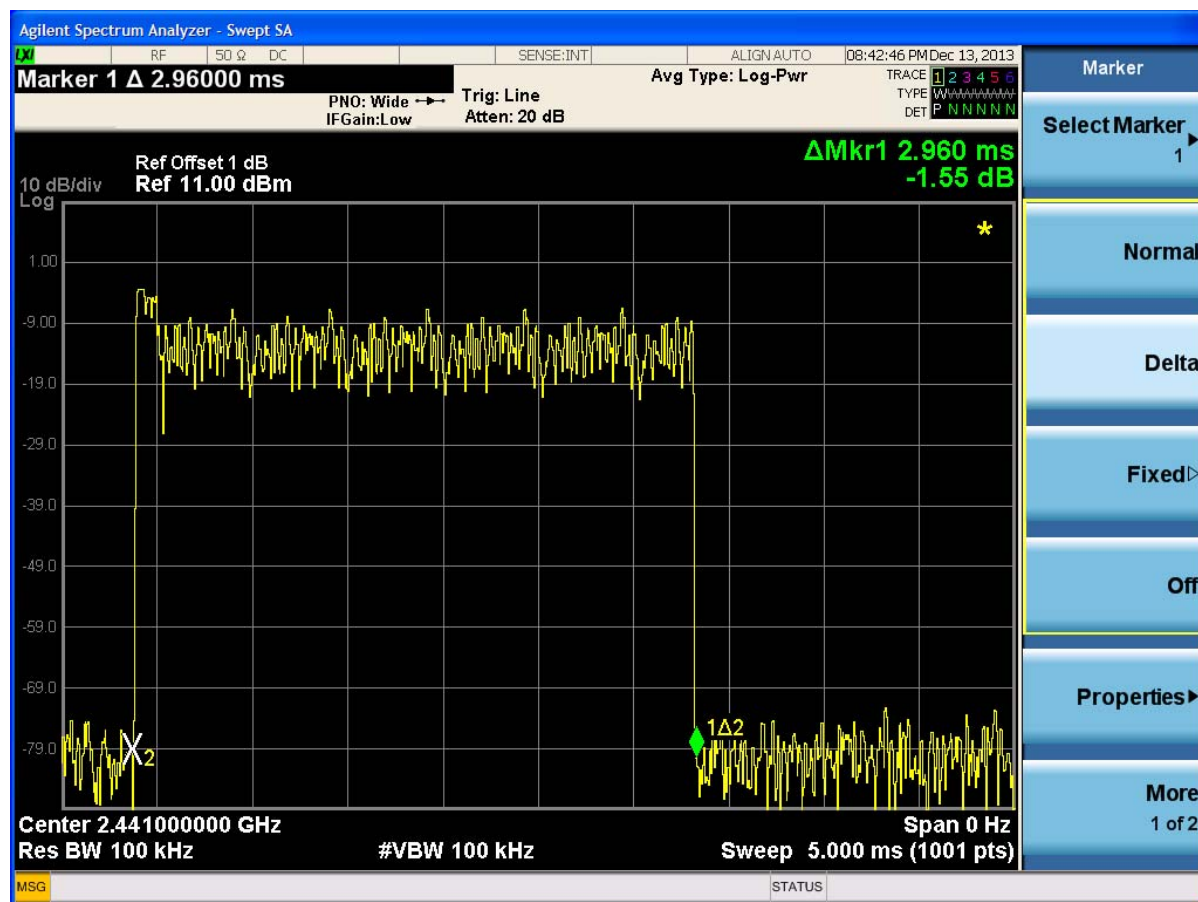
12.3.7 Diagram 11-7



12.3.8 Diagram 11-8



12.3.9 Diagram 11-9



13 Antenna requirement

13.1 Requirement

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

13.2 Result

The antenna used for this product is Internal Patch antenna that no antenna other than that furnished by the responsible party shall be used with the device, The Antenna gain of this antenna is 2 dBi.

END OF REPORT