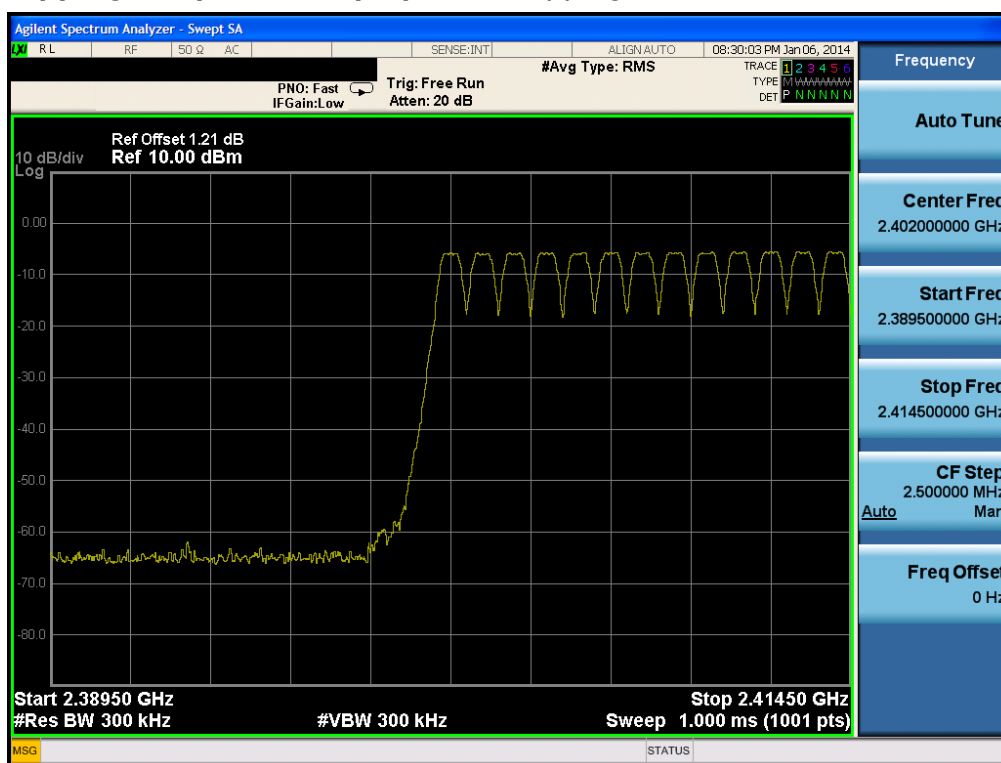


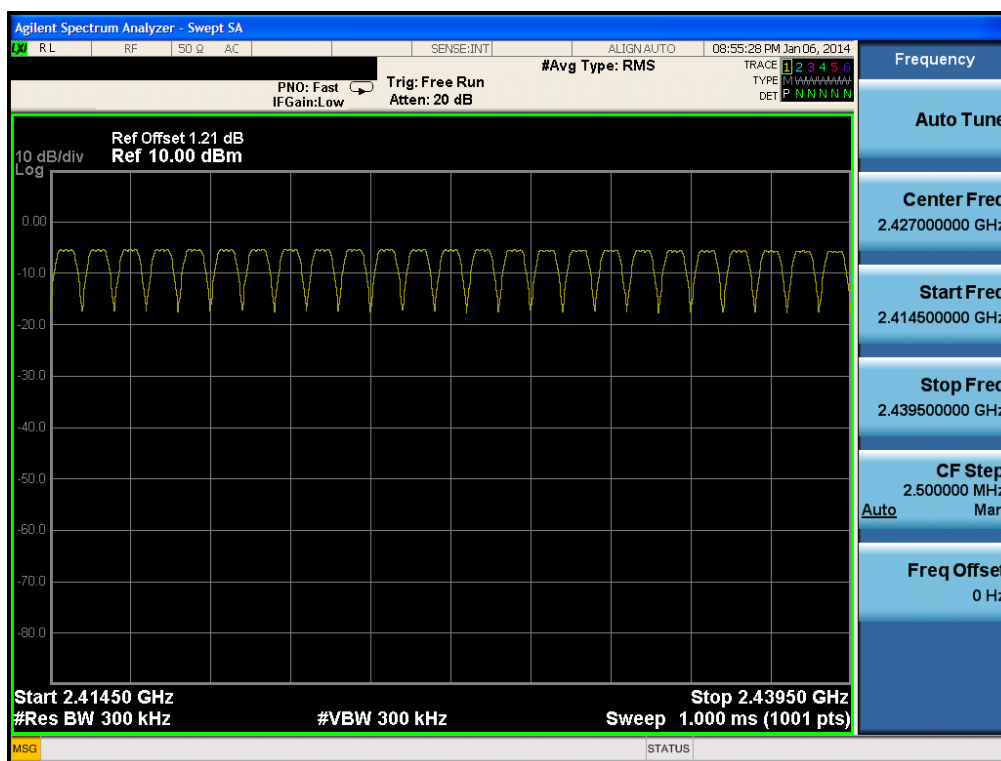
Number of Hopping Frequencies 1(FH)

Hopping mode: Enable & GFSK



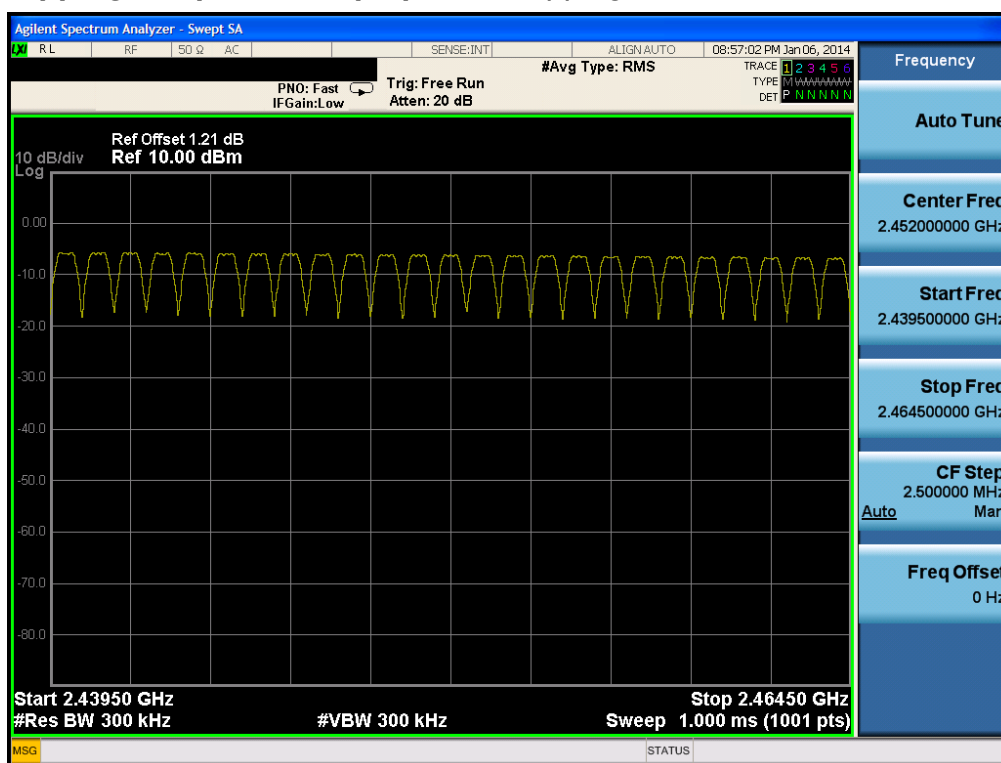
Number of Hopping Frequencies 2(FH)

Hopping mode: Enable & GFSK



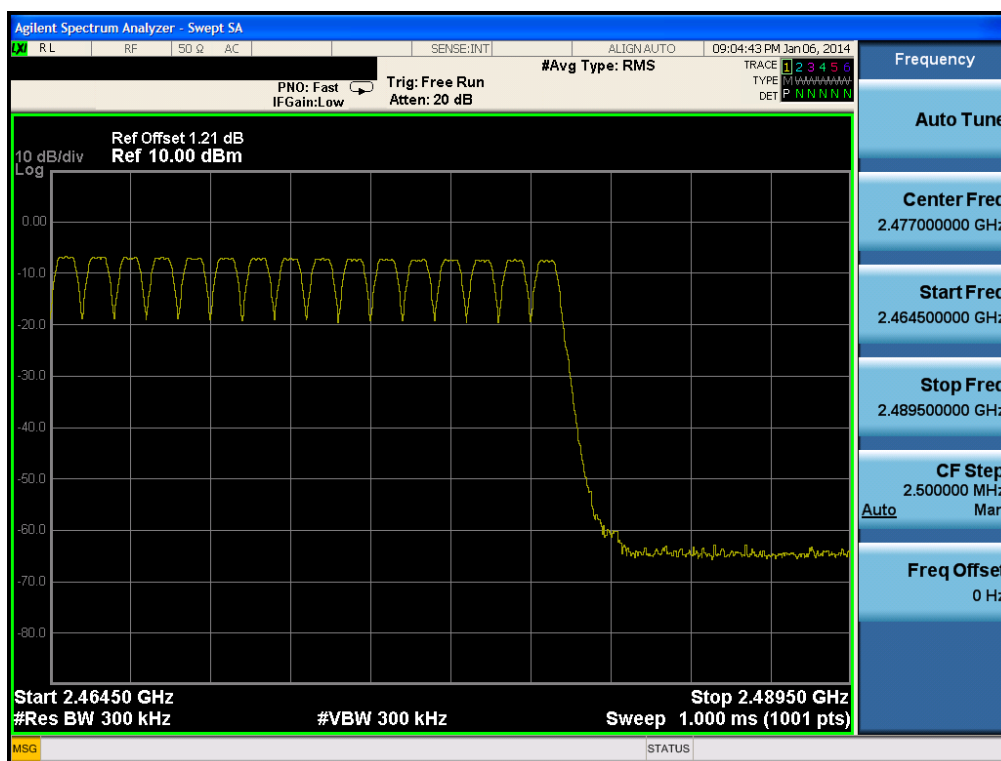
Number of Hopping Frequencies 3(FH)

Hopping mode: Enable & GFSK

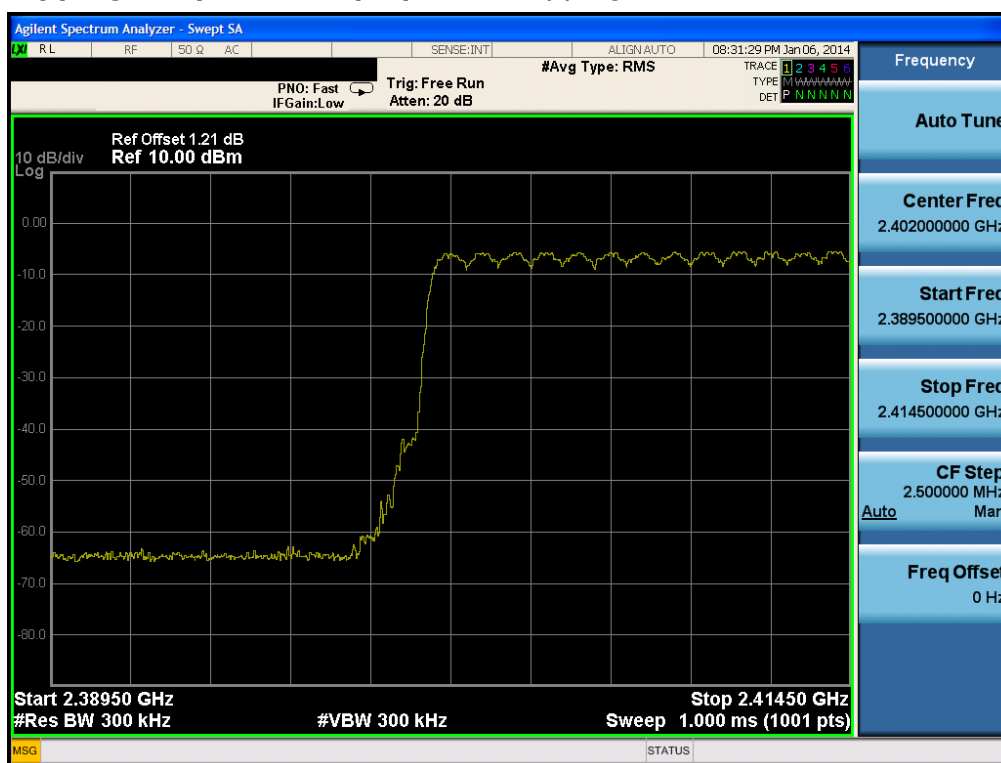


Number of Hopping Frequencies 4(FH)

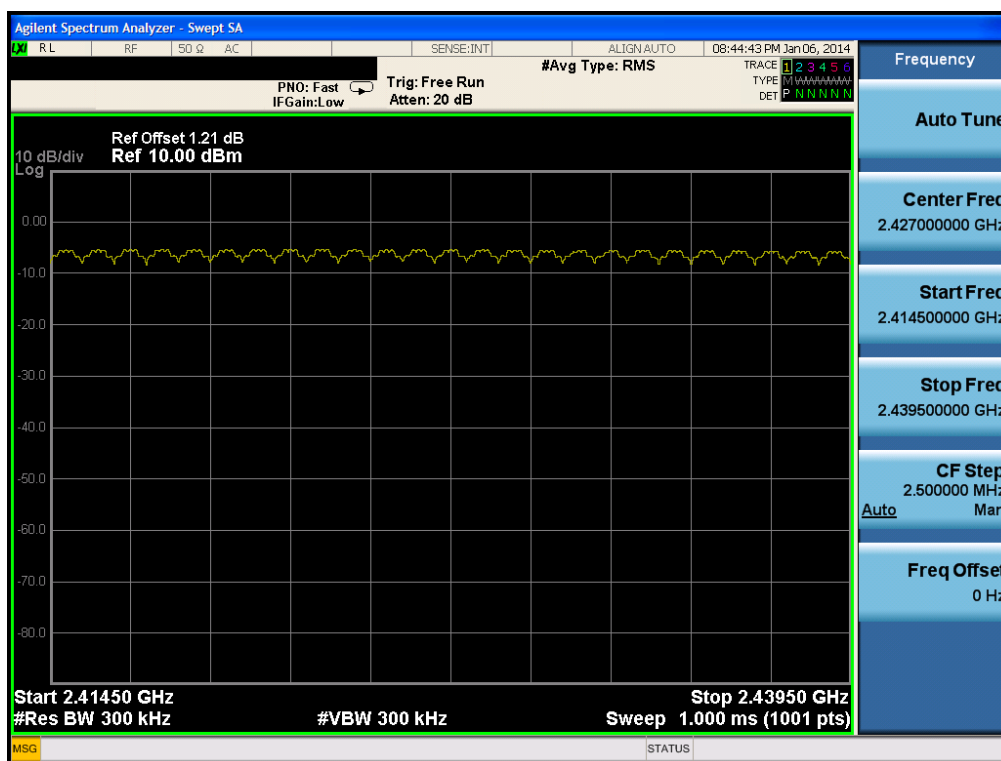
Hopping mode: Enable & GFSK



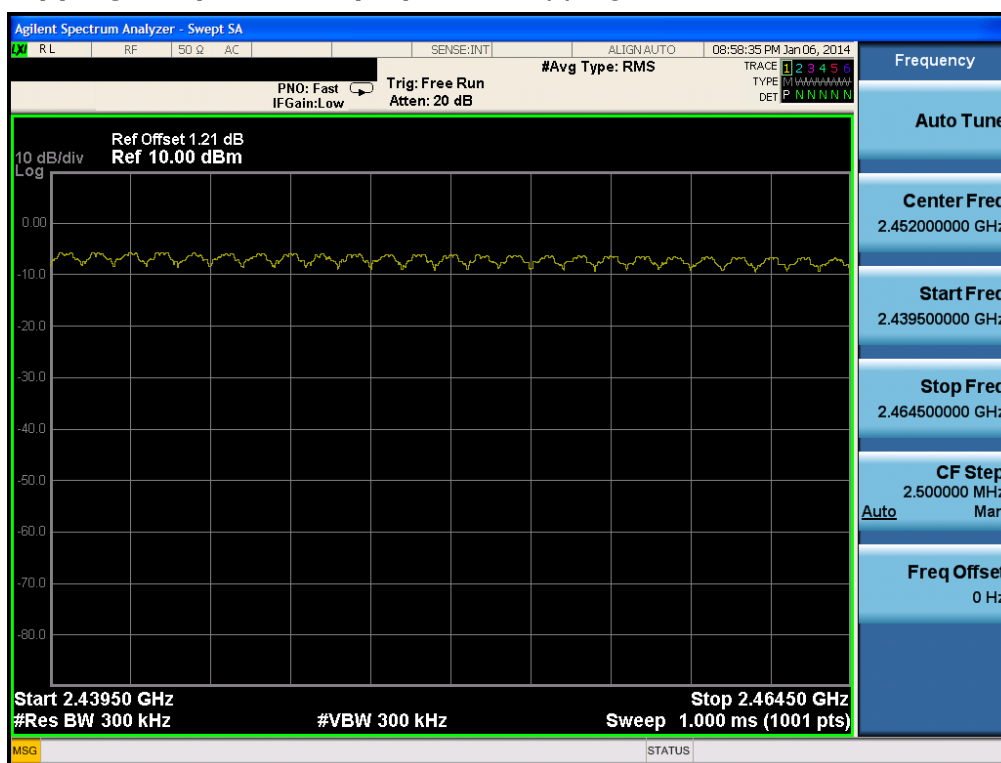
Number of Hopping Frequencies 1(FH)

Hopping mode: Enable & $\pi/4$ DQPSK

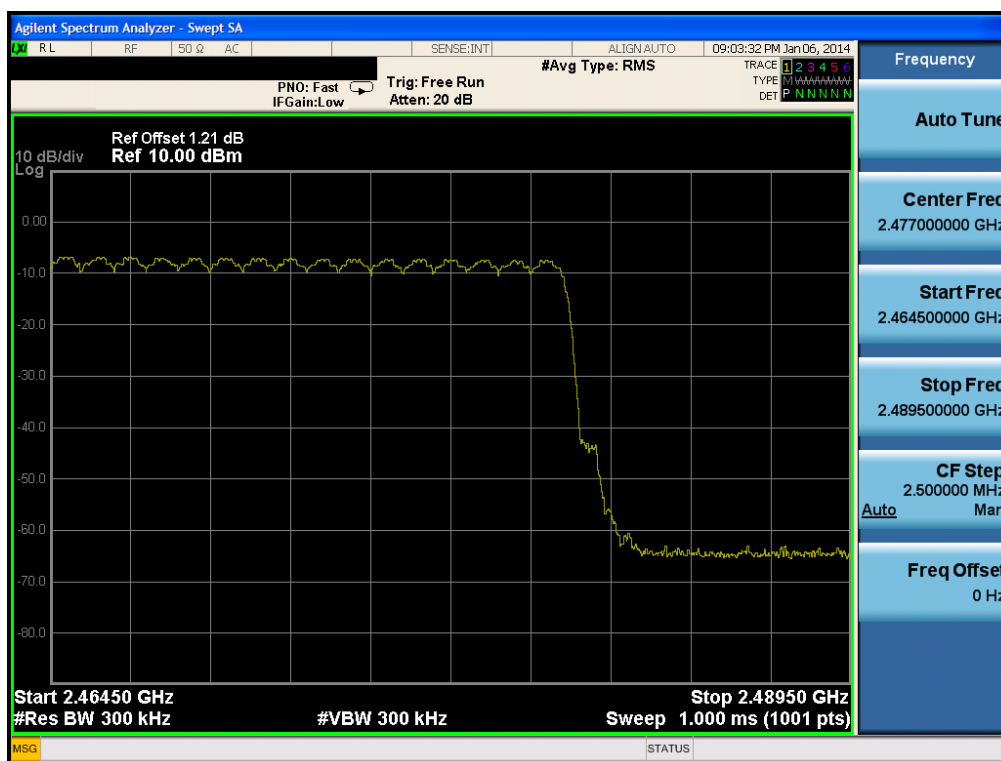
Number of Hopping Frequencies 2(FH)

Hopping mode: Enable & $\pi/4$ DQPSK

Number of Hopping Frequencies 3(FH)

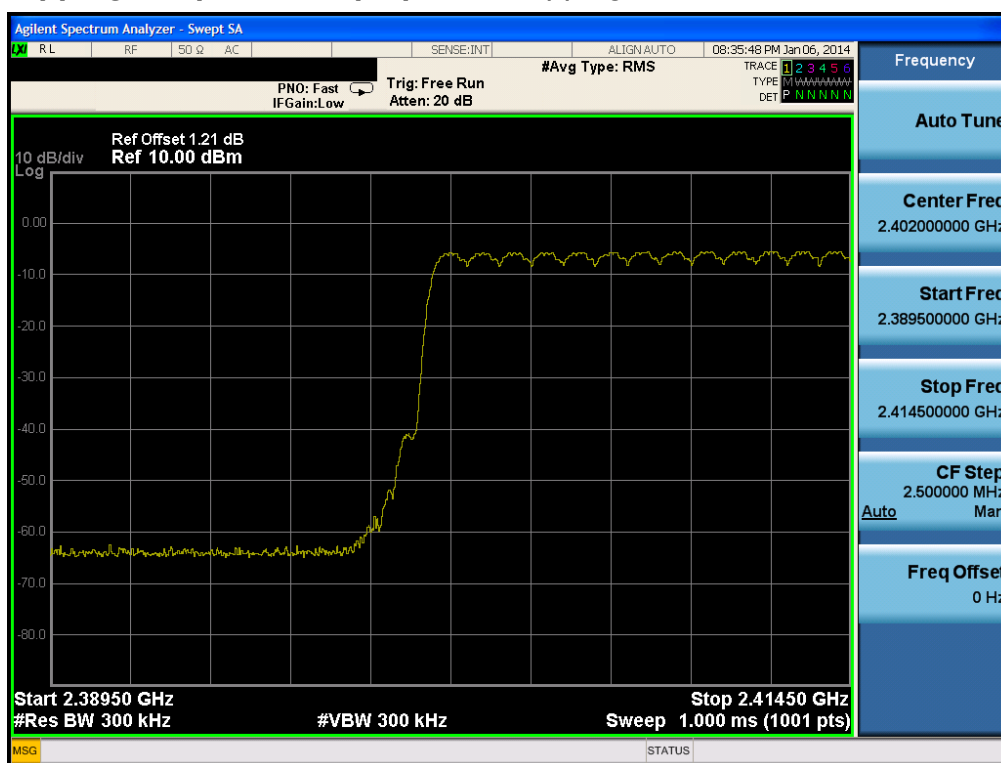
Hopping mode: Enable & $\pi/4$ DQPSK

Number of Hopping Frequencies 4(FH)

Hopping mode: Enable & $\pi/4$ DQPSK

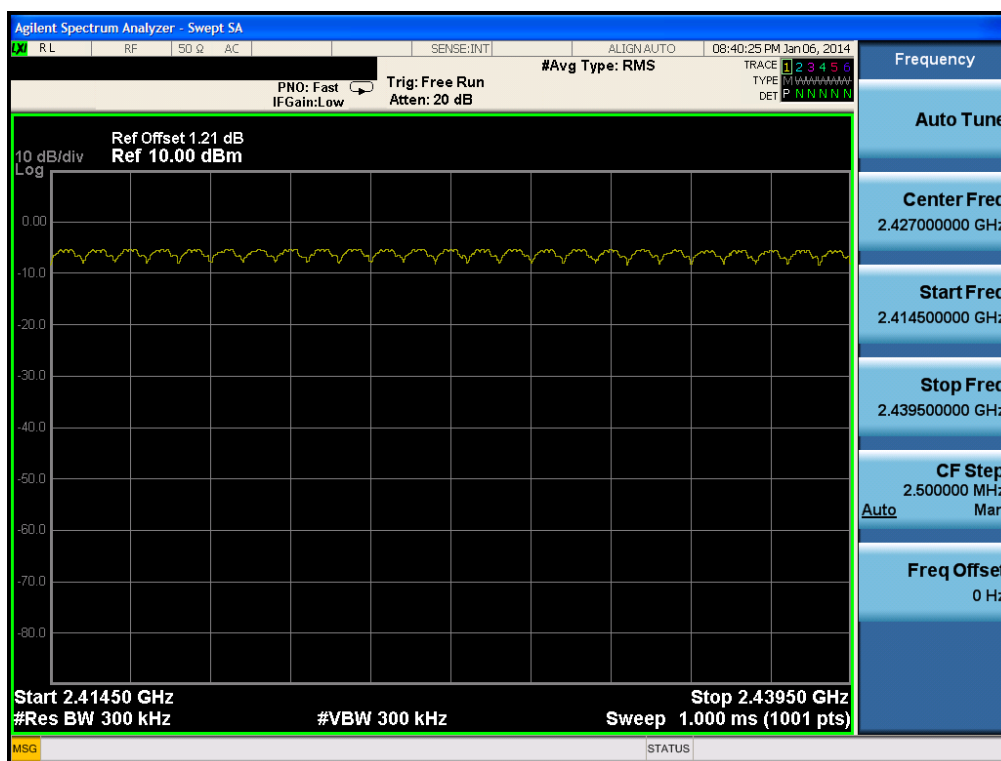
Number of Hopping Frequencies 1(FH)

Hopping mode: Enable & 8DPSK



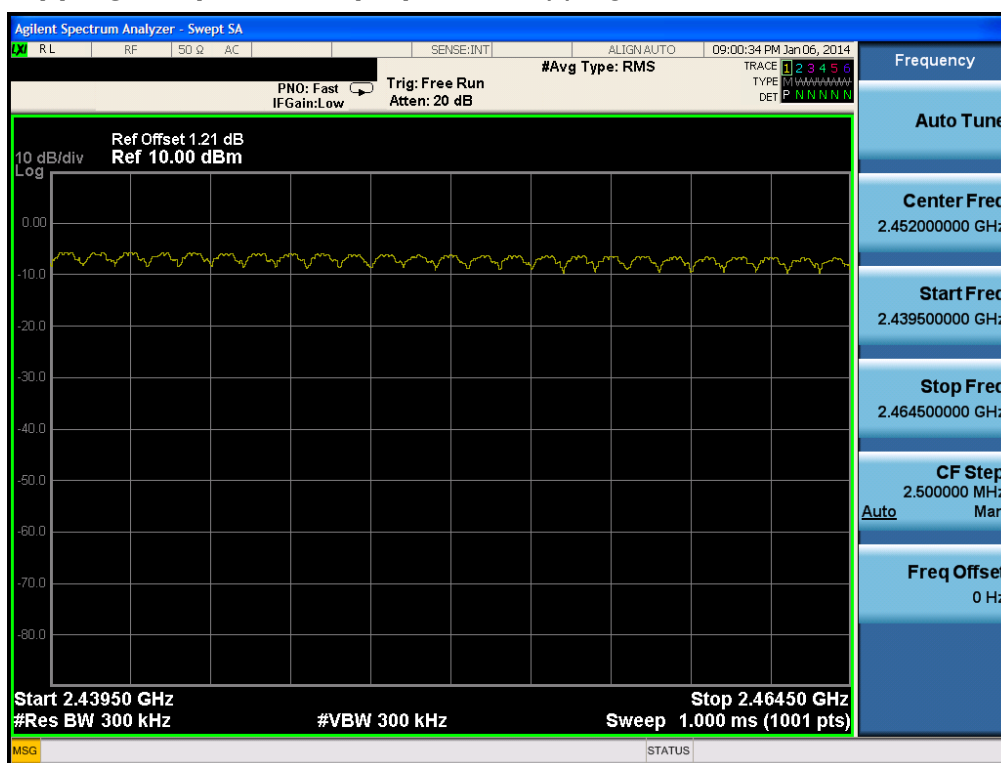
Number of Hopping Frequencies 2(FH)

Hopping mode: Enable & 8DPSK



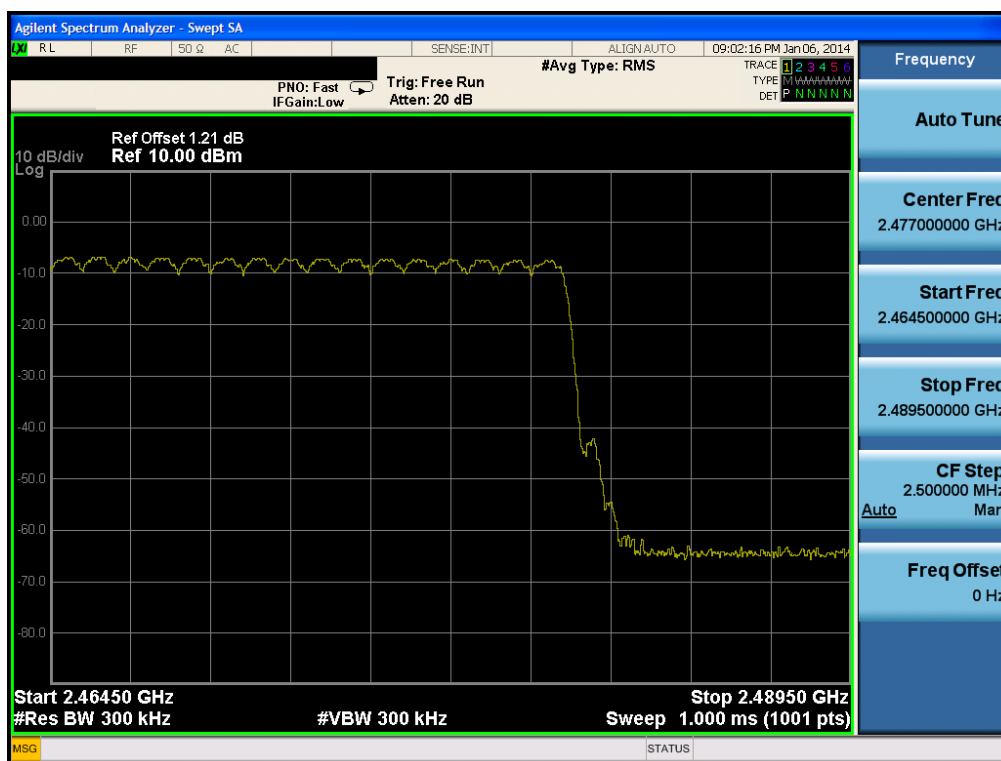
Number of Hopping Frequencies 3(FH)

Hopping mode: Enable & 8DPSK



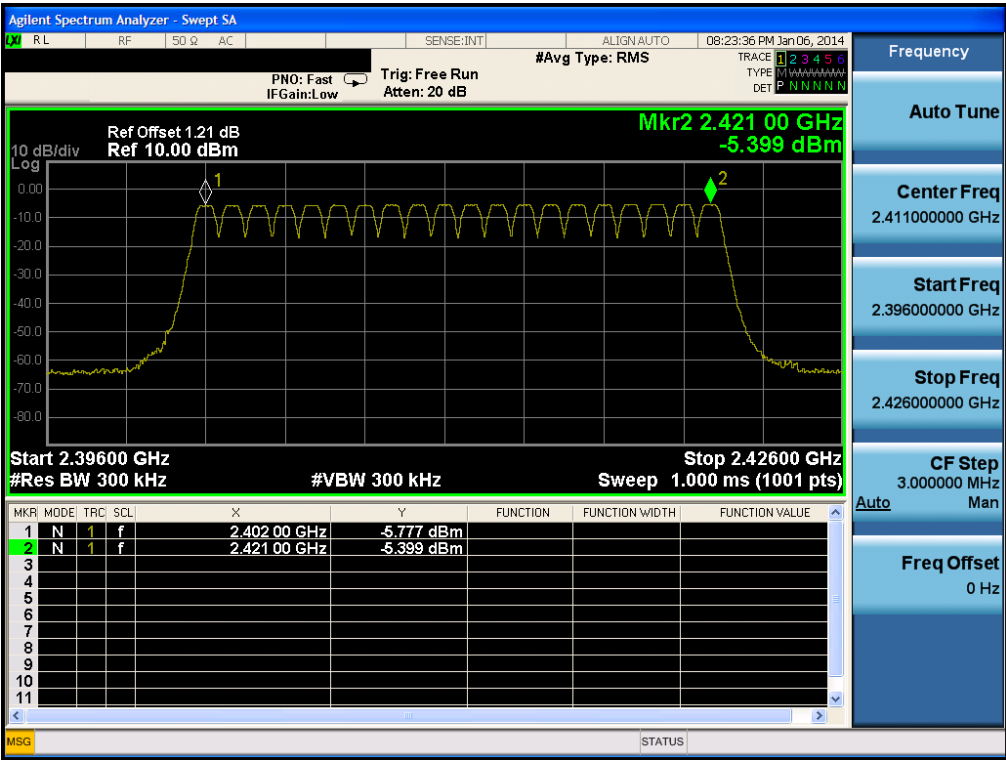
Number of Hopping Frequencies 4(FH)

Hopping mode: Enable & 8DPSK



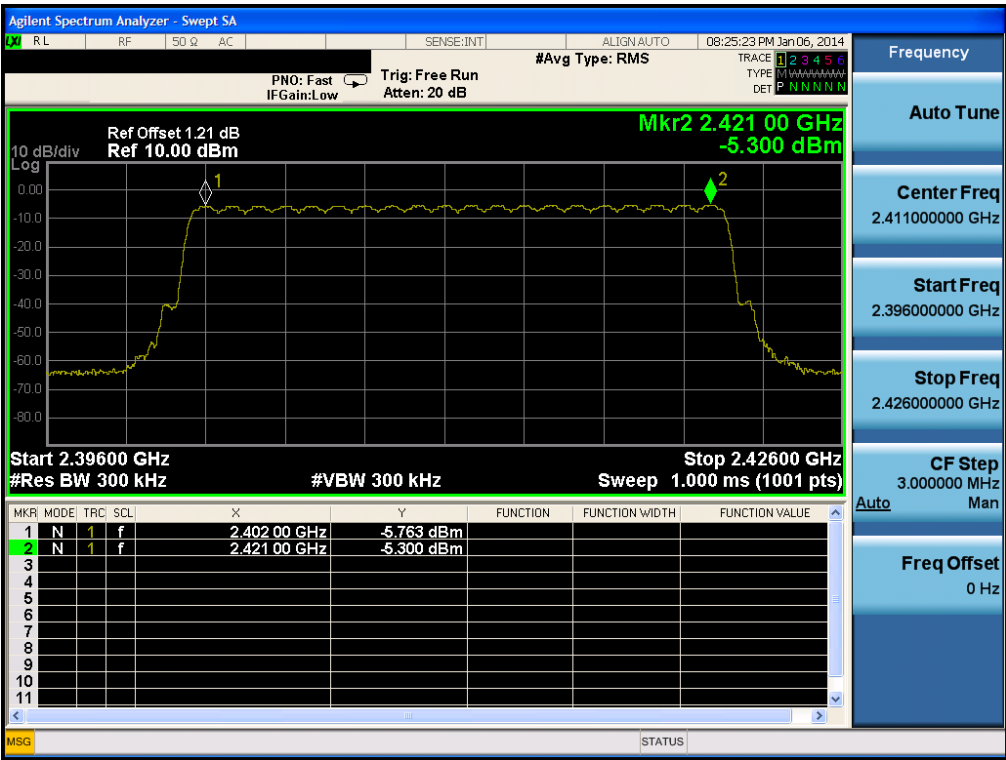
Number of Hopping Frequencies 1(AFH)

Hopping mode: Enable & GFSK



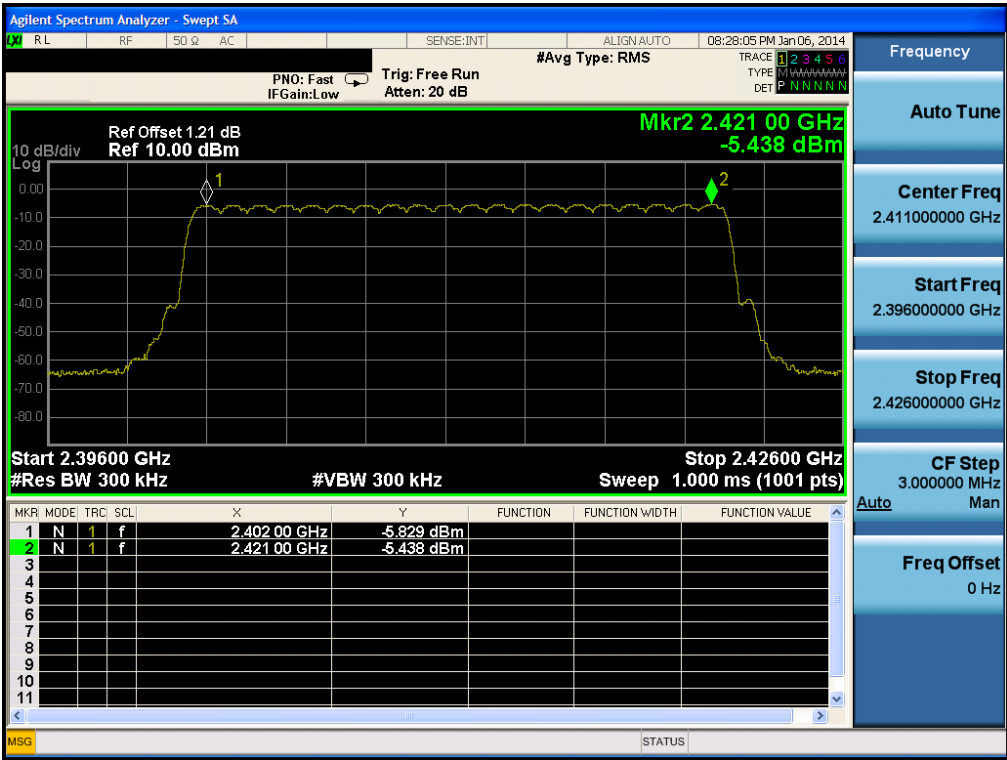
Number of Hopping Frequencies 1(AFH)

Hopping mode: Enable & $\pi/4$ DQPSK



Number of Hopping Frequencies 1(AFH)

Hopping mode: Enable & 8DPSK



5. 20dBc BW

5.1. Test Setup

Refer to the APPENDIX I.

5.2. Limit

Limit: Not Applicable

5.3. Test Procedure

1. The 20dBc bandwidth were measured with a spectrum analyzer connected to RF antenna connector (conducted measurement) while EUT was operating in transmit mode. The analyzer center frequency was set to the EUT carrier frequency, using the analyzer.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using $RBW \geq 1\%$ of the 20 dB bandwidth, $VBW \geq RBW$, Span = 3 MHz.

5.4. Test Results

L40SE2

Ambient temperature : 24°C
Relative humidity : 48%

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.801
	Middle	0.801
	Highest	0.801
<u>$\pi/4$DQPSK</u>	Lowest	1.203
	Middle	1.197
	Highest	1.212
<u>8DPSK</u>	Lowest	1.236
	Middle	1.239
	Highest	1.248

Note 1: See next pages for actual measured spectrum plots.

20dBc Bandwidth

Lowest Channel&Modulation: GFSK

20dBc Bandwidth

Middle Channel&Modulation: GFSK

20dBc Bandwidth

Highest Channel&Modulation: GFSK

20dBc Bandwidth

Lowest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Middle Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Highest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel&Modulation: 8DPSK



20dBc Bandwidth

Middle Channel&Modulation: 8DPSK



20dBc Bandwidth

Highest Channel & Modulation: 8DPSK



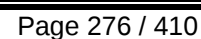
L40SK2

Ambient temperature : 24°C
Relative humidity : 48%

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.810
	Middle	0.798
	Highest	0.795
<u>$\pi/4$DQPSK</u>	Lowest	1.191
	Middle	1.182
	Highest	1.200
<u>8DPSK</u>	Lowest	1.236
	Middle	1.233
	Highest	1.239

Note 1: See next pages for actual measured spectrum plots.

Lowest Channel & Modulation: GFSK



20dBc Bandwidth

Highest Channel&Modulation: GFSK

20dBc Bandwidth

Lowest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Middle Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Highest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel&Modulation: 8DPSK

20dBc Bandwidth

Middle Channel&Modulation: 8DPSK

20dBc Bandwidth

Highest Channel & Modulation: 8DPSK



L40VW2

Ambient temperature : 24 °C
Relative humidity : 48 %

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.795
	Middle	0.798
	Highest	0.798
<u>$\pi/4$DQPSK</u>	Lowest	1.203
	Middle	1.203
	Highest	1.206
<u>8DPSK</u>	Lowest	1.230
	Middle	1.233
	Highest	1.239

Note 1: See next pages for actual measured spectrum plots.

20dBc Bandwidth

Lowest Channel & Modulation: GFSK

20dBc Bandwidth

Middle Channel & Modulation: GFSK

Highest Channel & Modulation: GFSK

Lowest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Middle Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Highest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel & Modulation: 8DPSK

20dBc Bandwidth

Middle Channel & Modulation: 8DPSK

20dBc Bandwidth

Highest Channel & Modulation: 8DPSK



L41SK2

Ambient temperature : 24°C
Relative humidity : 48%

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.798
	Middle	0.792
	Highest	0.795
<u>$\pi/4$DQPSK</u>	Lowest	1.182
	Middle	1.182
	Highest	1.194
<u>8DPSK</u>	Lowest	1.233
	Middle	1.239
	Highest	1.224

Note 1: See next pages for actual measured spectrum plots.

20dBc Bandwidth

Lowest Channel&Modulation: GFSK

20dBc Bandwidth

Middle Channel&Modulation: GFSK

20dBc Bandwidth

Highest Channel&Modulation: GFSK

20dBc Bandwidth

Lowest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Middle Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Highest Channel&Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel&Modulation: 8DPSK

20dBc Bandwidth

Middle Channel&Modulation: 8DPSK

20dBc Bandwidth

Highest Channel & Modulation: 8DPSK



L41VW2

Ambient temperature : 24 °C
Relative humidity : 48 %

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.852
	Middle	0.804
	Highest	0.804
<u>$\pi/4$DQPSK</u>	Lowest	1.209
	Middle	1.212
	Highest	1.209
<u>8DPSK</u>	Lowest	1.182
	Middle	1.248
	Highest	1.245

Note 1: See next pages for actual measured spectrum plots.

20dBc Bandwidth

Lowest Channel & Modulation: GFSK

20dBc Bandwidth

Middle Channel & Modulation: GFSK

20dBc Bandwidth

Highest Channel & Modulation: GFSK

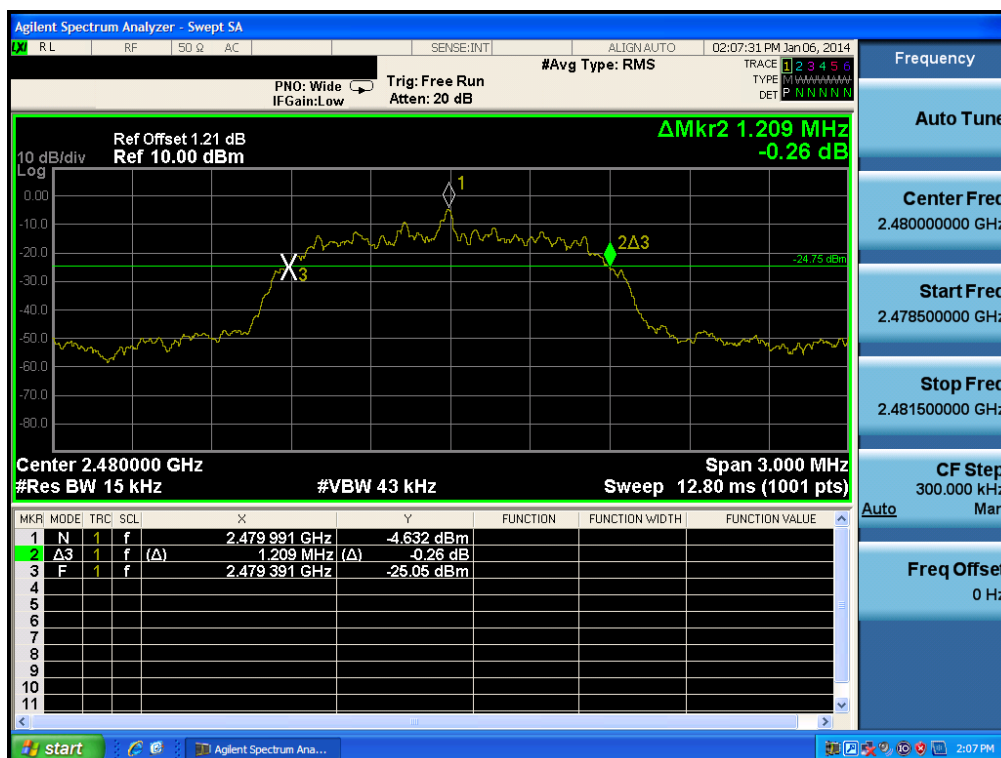
20dBc Bandwidth

Lowest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Middle Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Highest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel & Modulation: 8DPSK

20dBc Bandwidth

Middle Channel & Modulation: 8DPSK

20dBc Bandwidth

Highest Channel & Modulation: 8DPSK

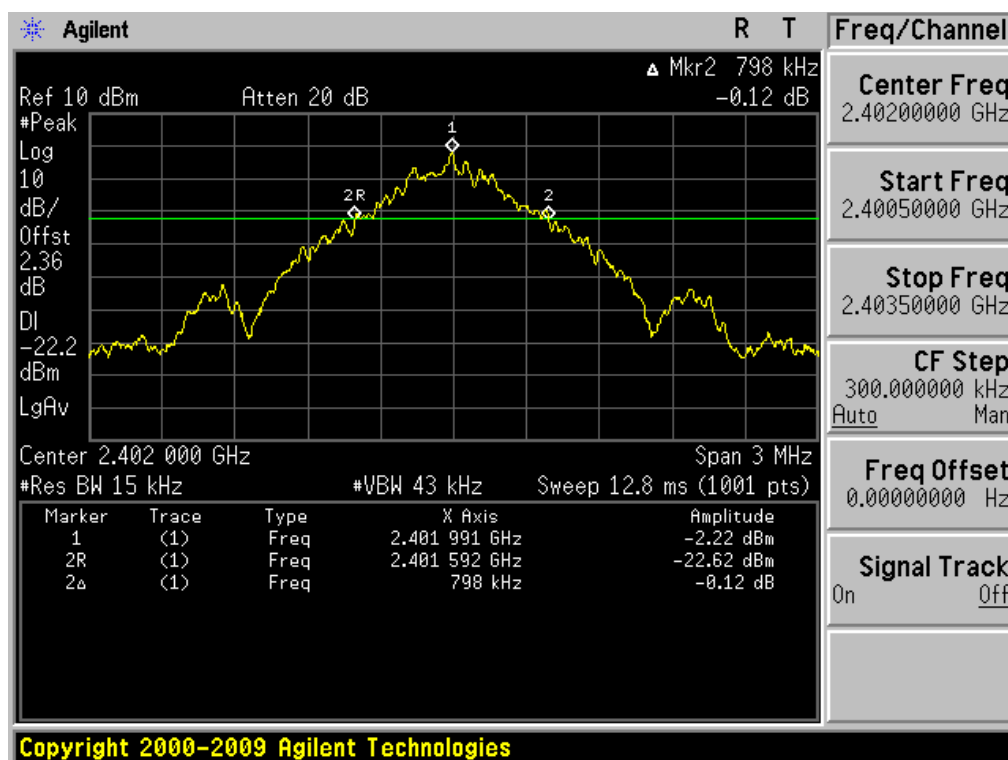
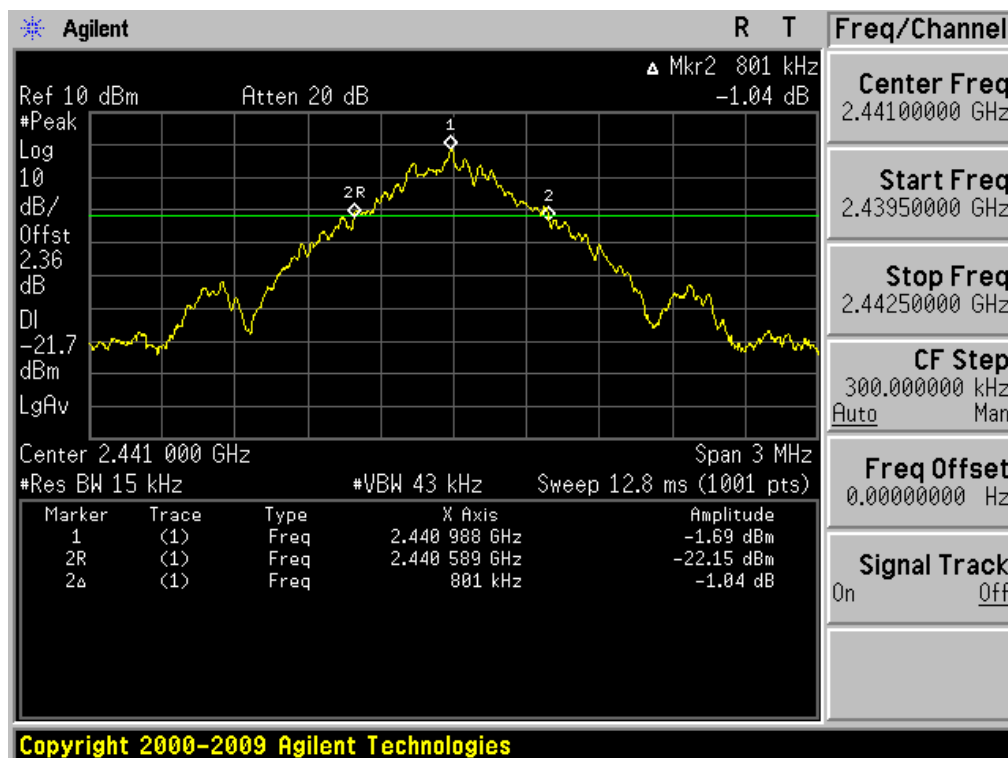


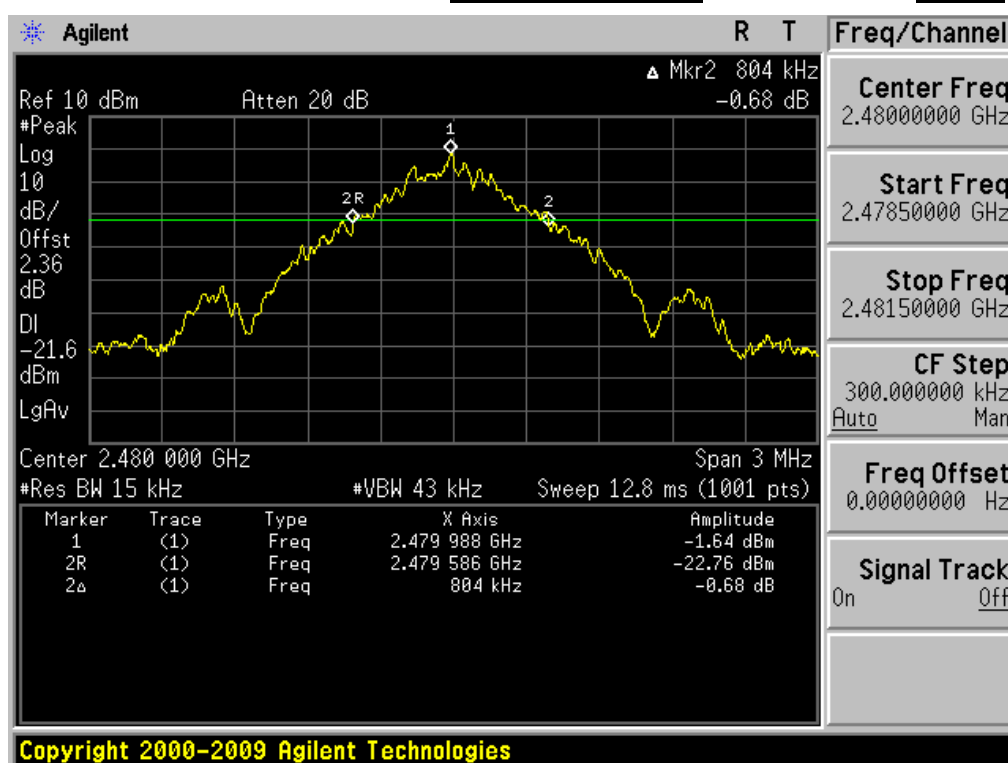
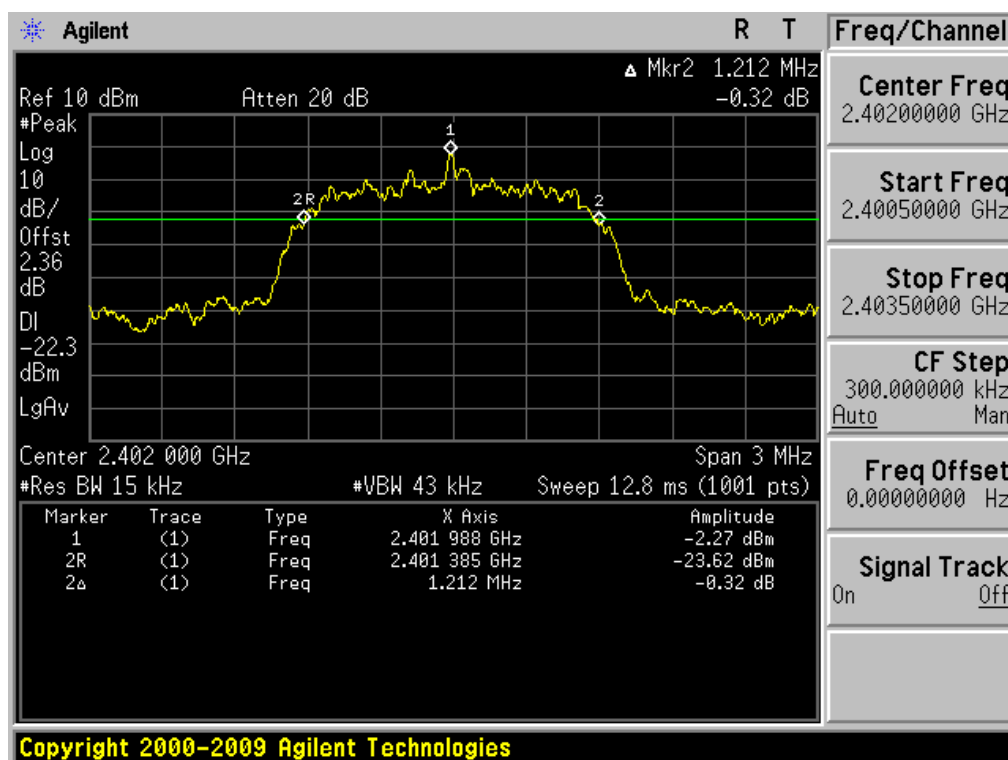
L42VW2

Ambient temperature : 24 °C
Relative humidity : 48 %

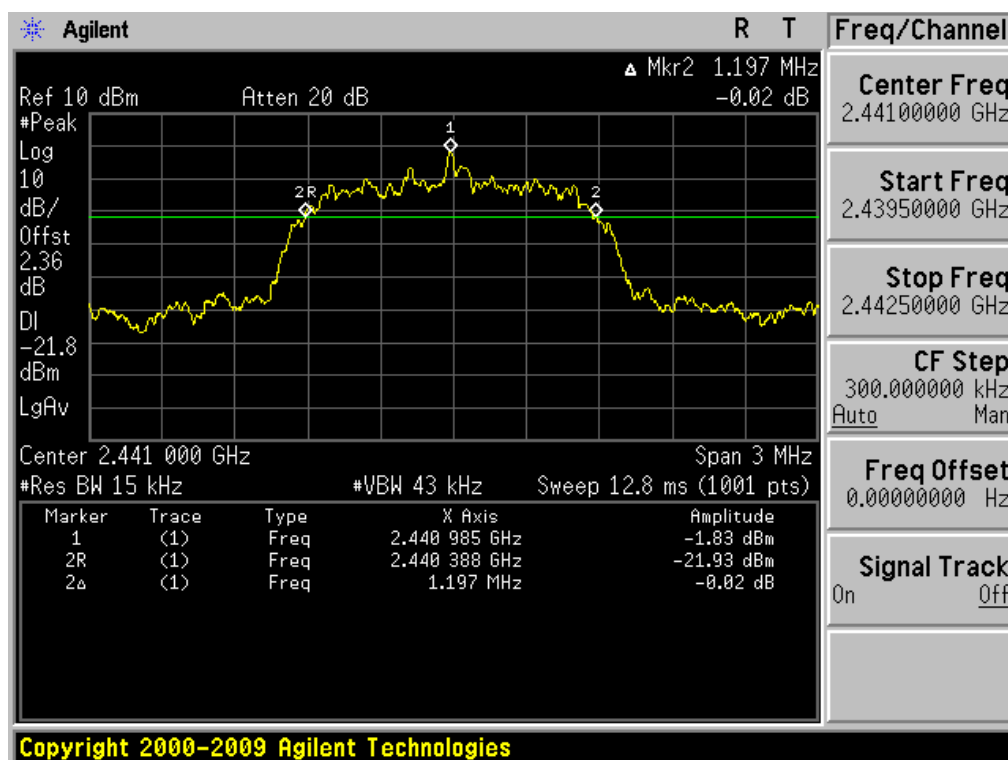
Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.798
	Middle	0.801
	Highest	0.804
<u>$\pi/4$DQPSK</u>	Lowest	1.212
	Middle	1.197
	Highest	1.206
<u>8DPSK</u>	Lowest	1.236
	Middle	1.242
	Highest	1.242

Note 1: See next pages for actual measured spectrum plots.

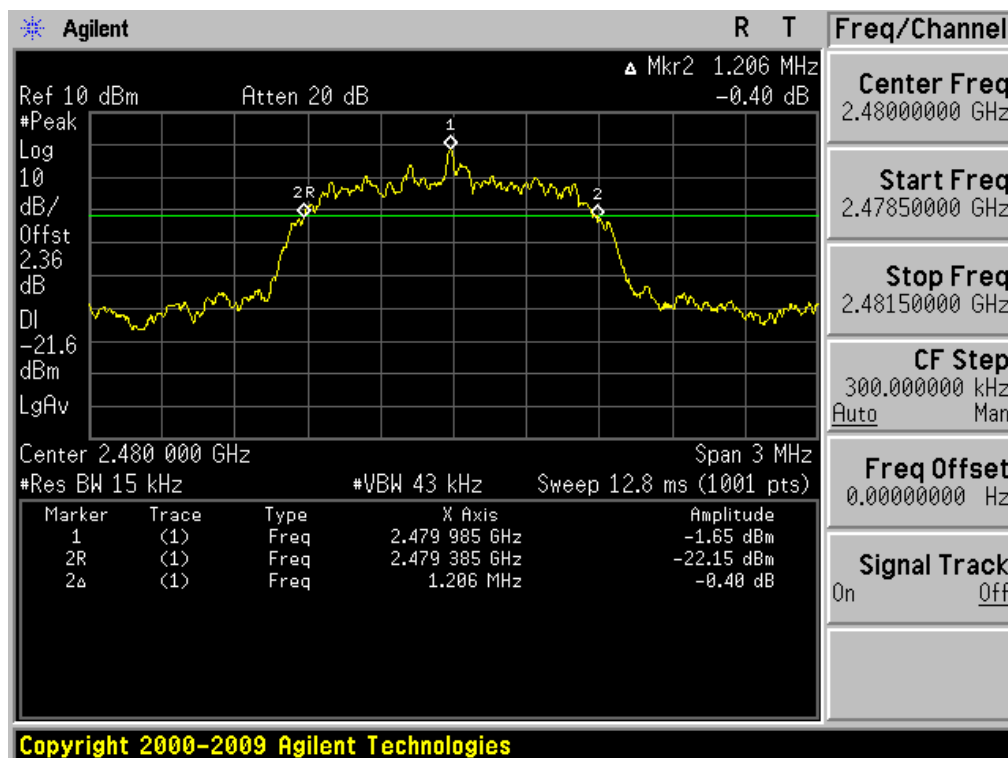
20dBc Bandwidth**Lowest Channel** & Modulation: **GFSK****20dBc Bandwidth****Middle Channel** & Modulation: **GFSK**

20dBc Bandwidth**Highest Channel** & Modulation: **GFSK****20dBc Bandwidth****Lowest Channel** & Modulation: **$\pi/4$ DQPSK**

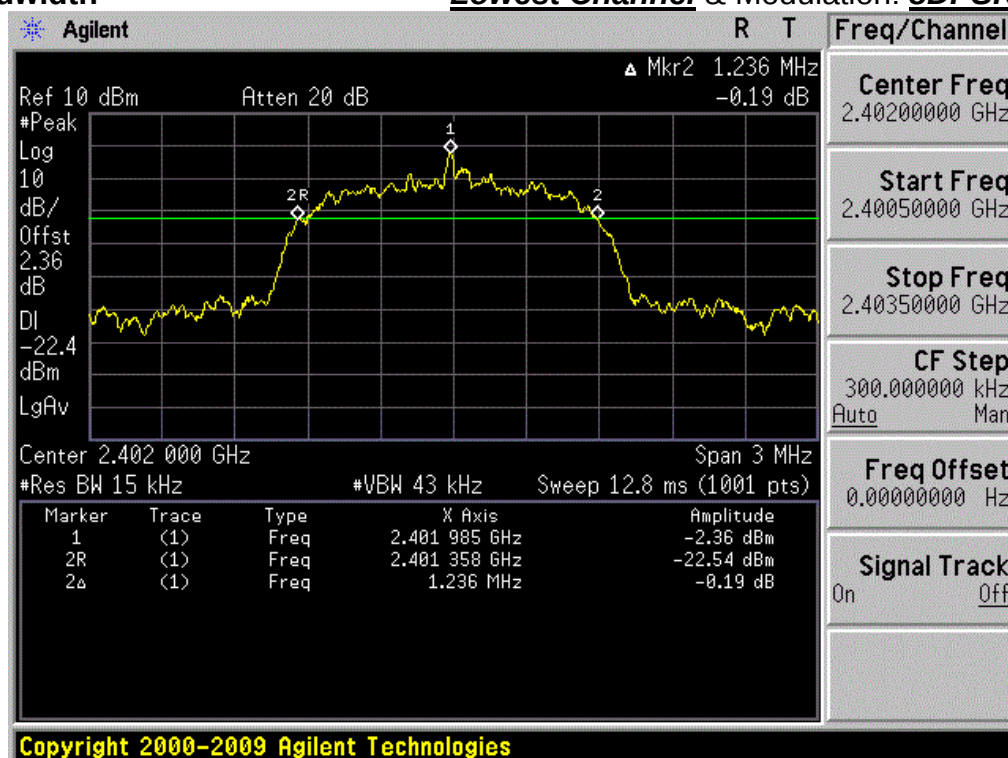
20dBc Bandwidth

Middle Channel & Modulation: $\pi/4$ DQPSK

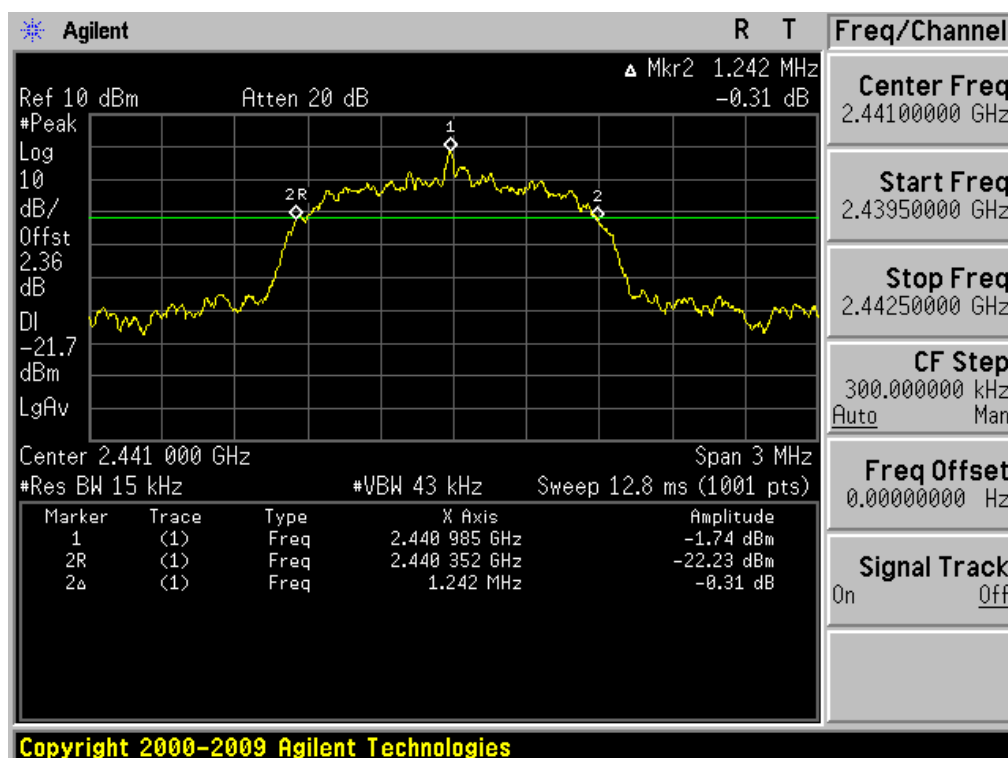
20dBc Bandwidth

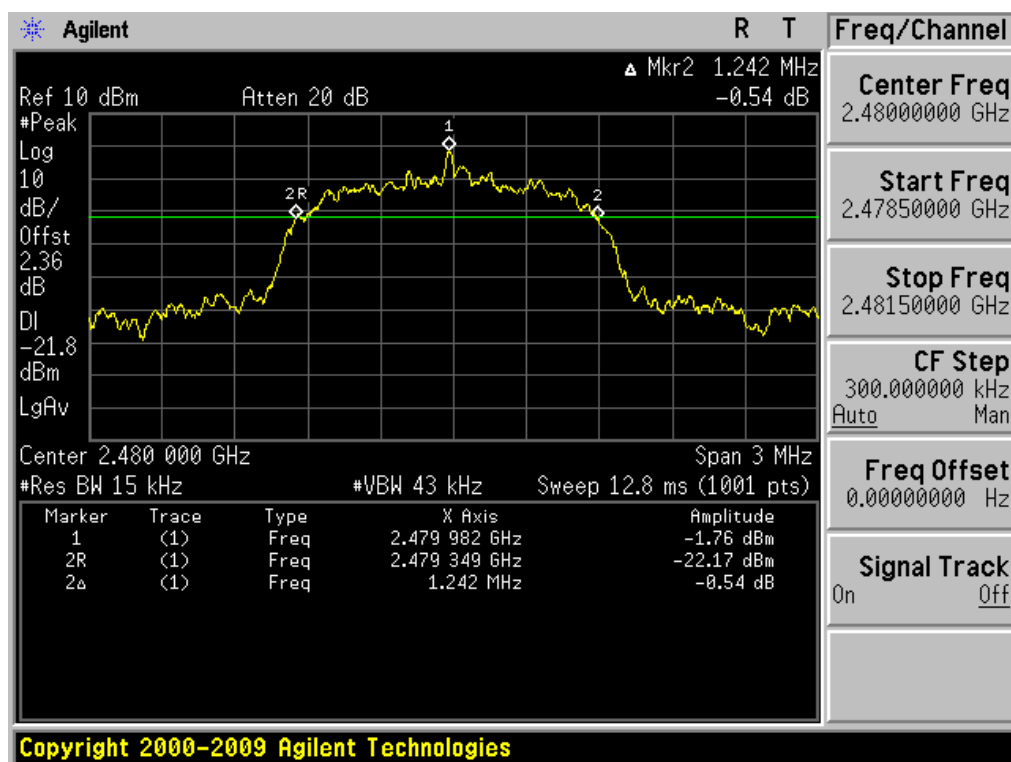
Highest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel & Modulation: **8DPSK**

20dBc Bandwidth

Middle Channel & Modulation: **8DPSK**

20dBc Bandwidth**Highest Channel** & Modulation: **8DPSK**

L52SK2

Ambient temperature : 24°C
Relative humidity : 48%

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.795
	Middle	0.795
	Highest	0.798
<u>$\pi/4$DQPSK</u>	Lowest	1.200
	Middle	1.200
	Highest	1.203
<u>8DPSK</u>	Lowest	1.230
	Middle	1.227
	Highest	1.227

Note 1: See next pages for actual measured spectrum plots.

Lowest Channel & Modulation: GFSK

Middle Channel&Modulation: **GFSK**

Highest Channel & Modulation: GFSK

Lowest Channel & Modulation: $\pi/4$ DQPSK

Middle Channel Modulation: $\pi/4$ DQPSK

Highest Channel & Modulation: $\pi/4$ DQPSK

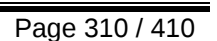
20dBc Bandwidth

Lowest Channel&Modulation: 8DPSK

20dBc Bandwidth

Middle Channel&Modulation: 8DPSK

Highest Channel & Modulation: **8DPSK**



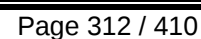
L53VW2

Ambient temperature : 24 °C
Relative humidity : 48 %

Modulation	Tested Channel	20dBc BW (MHz)
<u>GFSK</u>	Lowest	0.798
	Middle	0.798
	Highest	0.798
<u>$\pi/4$DQPSK</u>	Lowest	1.203
	Middle	1.206
	Highest	1.200
<u>8DPSK</u>	Lowest	1.239
	Middle	1.236
	Highest	1.242

Note 1: See next pages for actual measured spectrum plots.

Lowest Channel & Modulation: **GFSK**



20dBc Bandwidth

Highest Channel & Modulation: GFSK

20dBc Bandwidth

Lowest Channel & Modulation: $\pi/4$ DQPSK

Middle Channel & Modulation: $\pi/4$ DQPSK

Highest Channel & Modulation: $\pi/4$ DQPSK

20dBc Bandwidth

Lowest Channel & Modulation: 8DPSK

20dBc Bandwidth

Middle Channel & Modulation: 8DPSK

20dBc Bandwidth

Highest Channel & Modulation: 8DPSK



6. Time of Occupancy (Dwell Time)

6.1. Test Setup

Refer to the APPENDIX I.

6.2. Limit

Limit: Not Applicable

6.3. Test Procedure

The dwell time was measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function enabled.

The spectrum analyzer is set to:

Center frequency = 2441 MHz

RBW = 1 MHz

Trace = max hold

Span = zero

VBW = $\geq$ RBW

Detector function = peak

6.4. Test Results

L40SE2

Ambient temperature : 24°C

Relative humidity : 48 %

- FH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	79	2.95	3.75	0.315
	2 DH 5	79	2.95	3.75	0.315
	3 DH 5	79	2.95	3.75	0.315

- AFH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	20	2.95	3.75	0.157
	2 DH 5	20	2.95	3.75	0.157
	3 DH 5	20	2.95	3.75	0.157

Note 1: Dwell Time = $0.4 \times \text{Hopping channel} \times \text{Burst ON time} \times ((\text{Hopping rate} \div \text{Time slots}) \div \text{Hopping channel})$

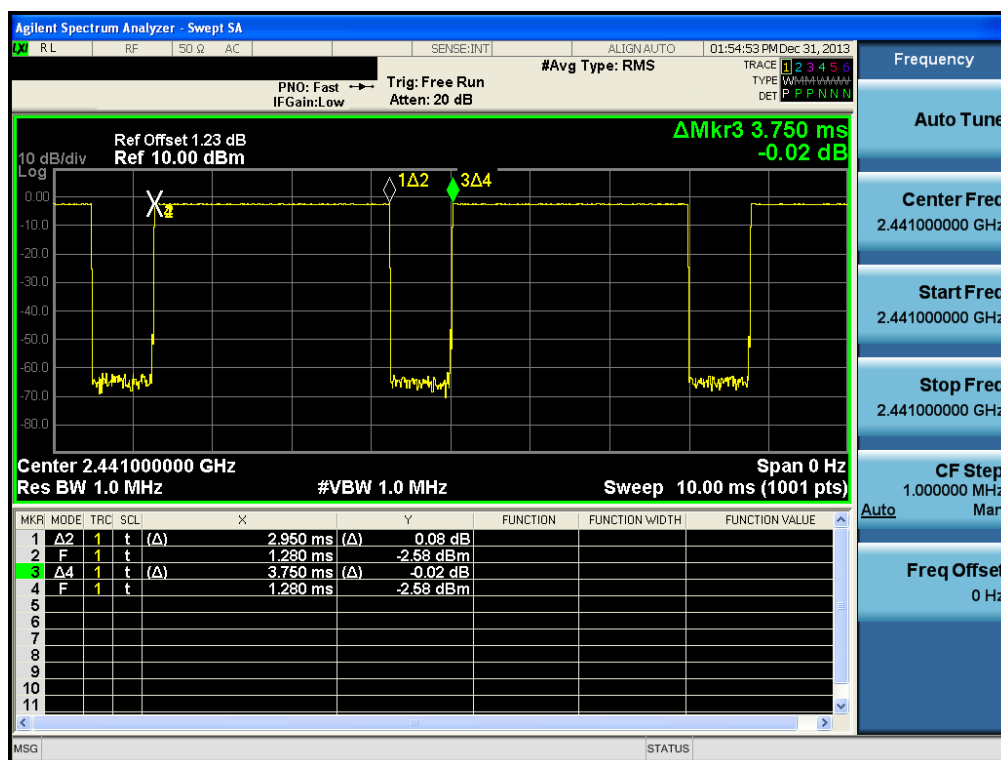
- Time slots for DH5 = 6 slots(TX = 5 slot / RX = 1 slot)

- Hopping Rate = 1600 for FH mode & 800 for AFH mode

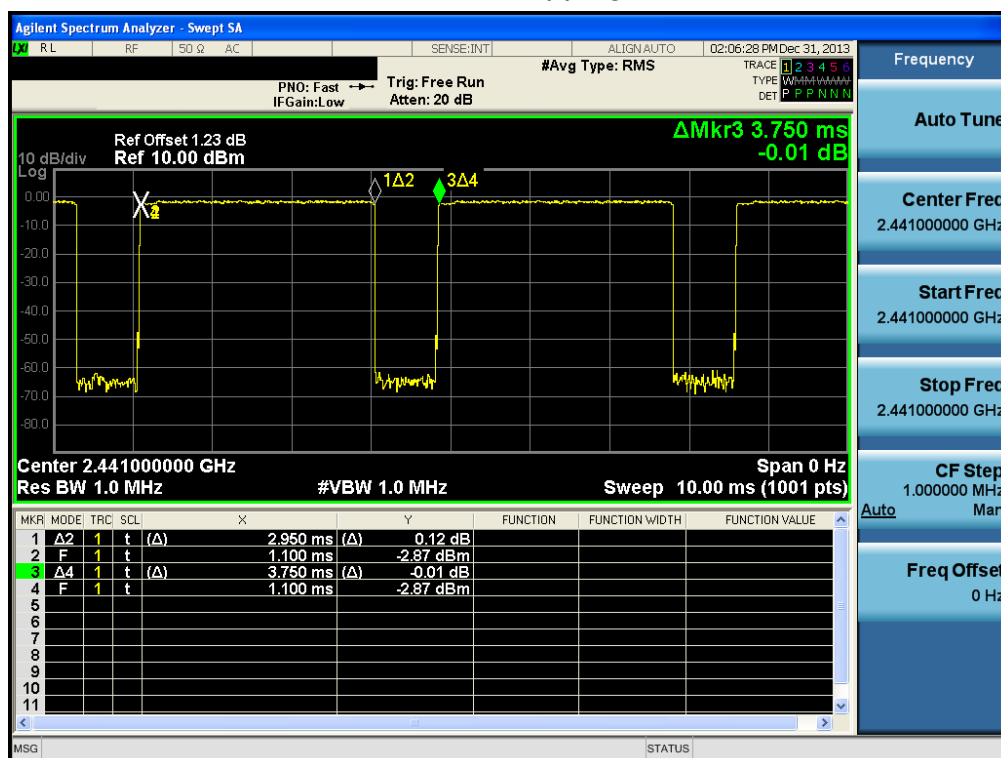
Note 2: See next pages for actual measured spectrum plots.

Time of Occupancy (FH)

Hopping mode: Enable&GFSK

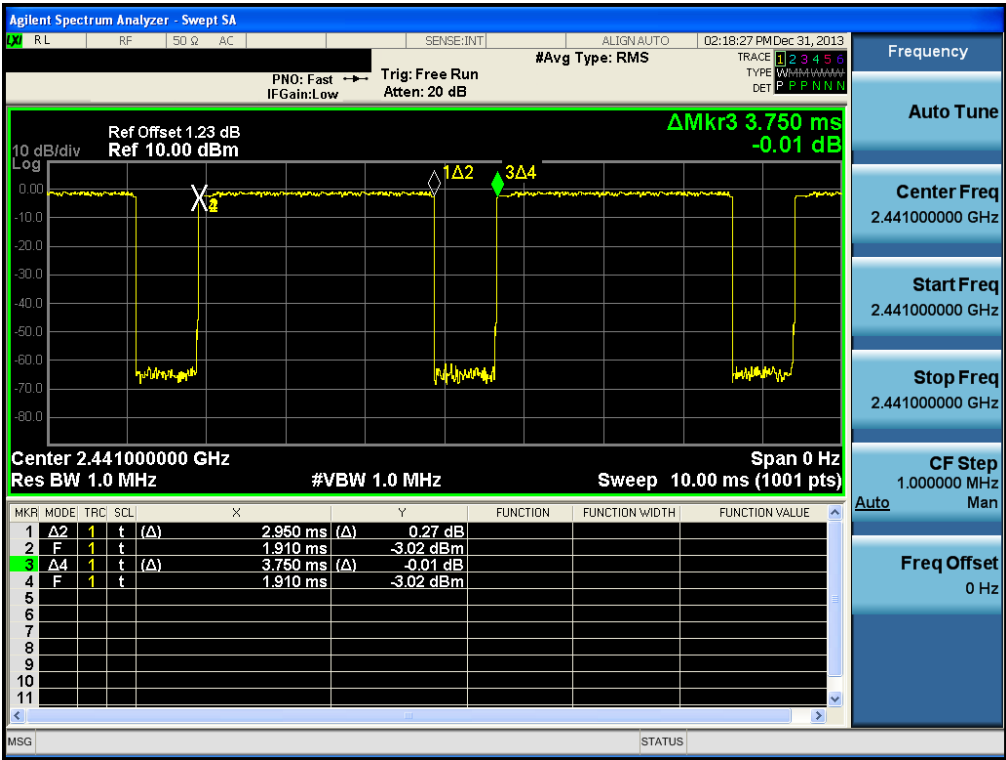


Time of Occupancy (FH)

Hopping mode: Enable& π /4DQPSK

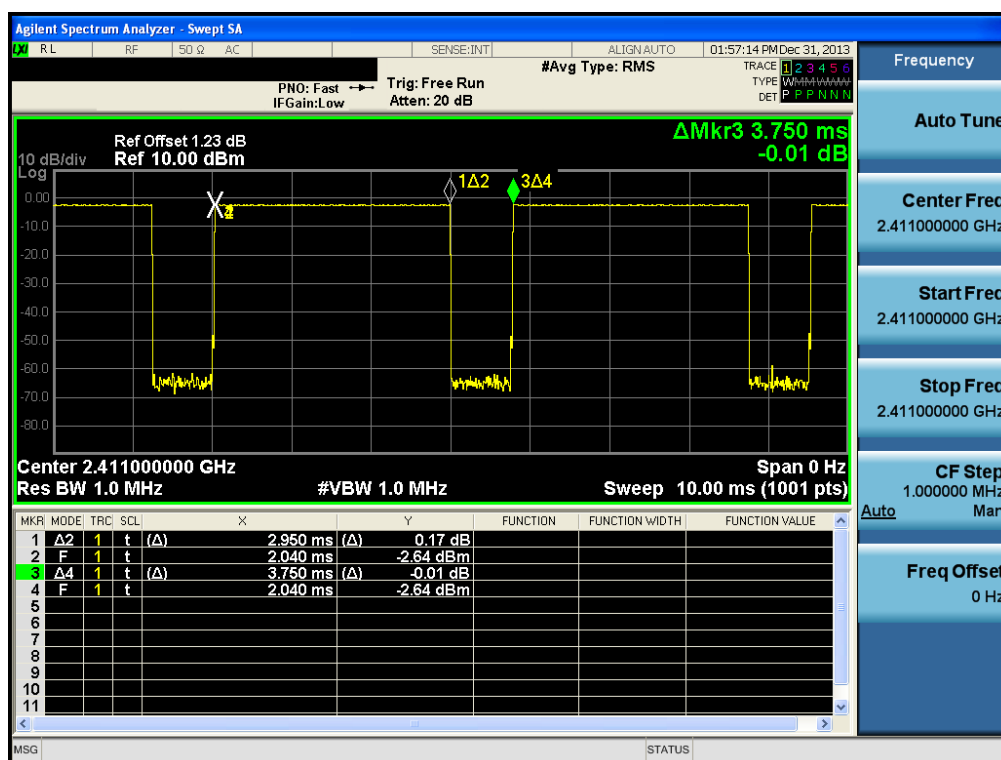
Time of Occupancy (FH)

Hopping mode: Enable&8DPSK

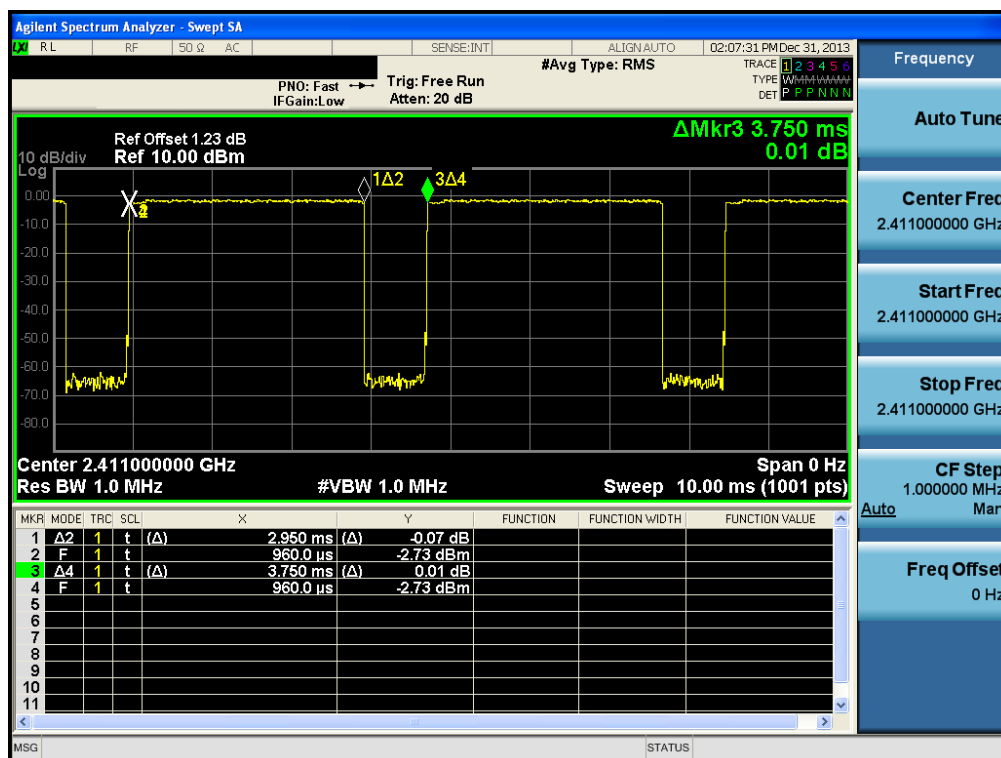


Time of Occupancy (AFH)

Hopping mode: Enable&GFSK

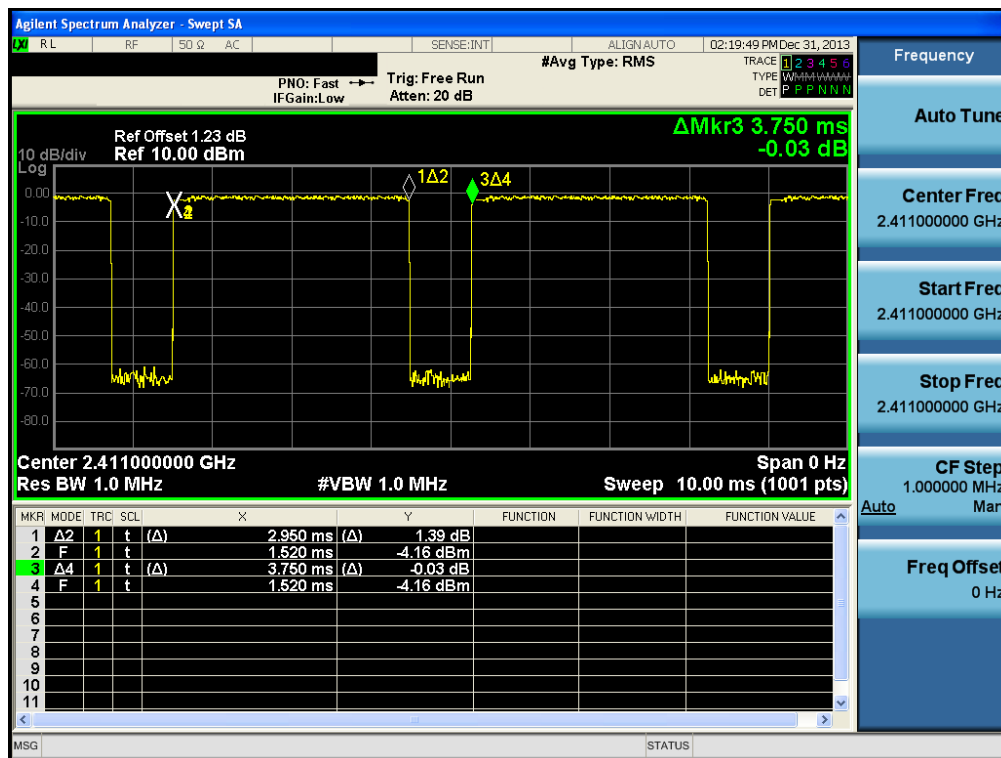


Time of Occupancy (AFH)

Hopping mode: Enable& π /4DQPSK

Time of Occupancy (AFH)

Hopping mode: Enable&8DPSK



L40SK2

Ambient temperature : 24°C
Relative humidity : 48 %

- FH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	79	2.95	3.75	0.315
	2 DH 5	79	2.95	3.75	0.315
	3 DH 5	79	2.95	3.75	0.315

- AFH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	20	2.95	3.75	0.157
	2 DH 5	20	2.95	3.75	0.157
	3 DH 5	20	2.95	3.75	0.157

Note 1: Dwell Time = $0.4 \times \text{Hopping channel} \times \text{Burst ON time} \times ((\text{Hopping rate} \div \text{Time slots}) \div \text{Hopping channel})$

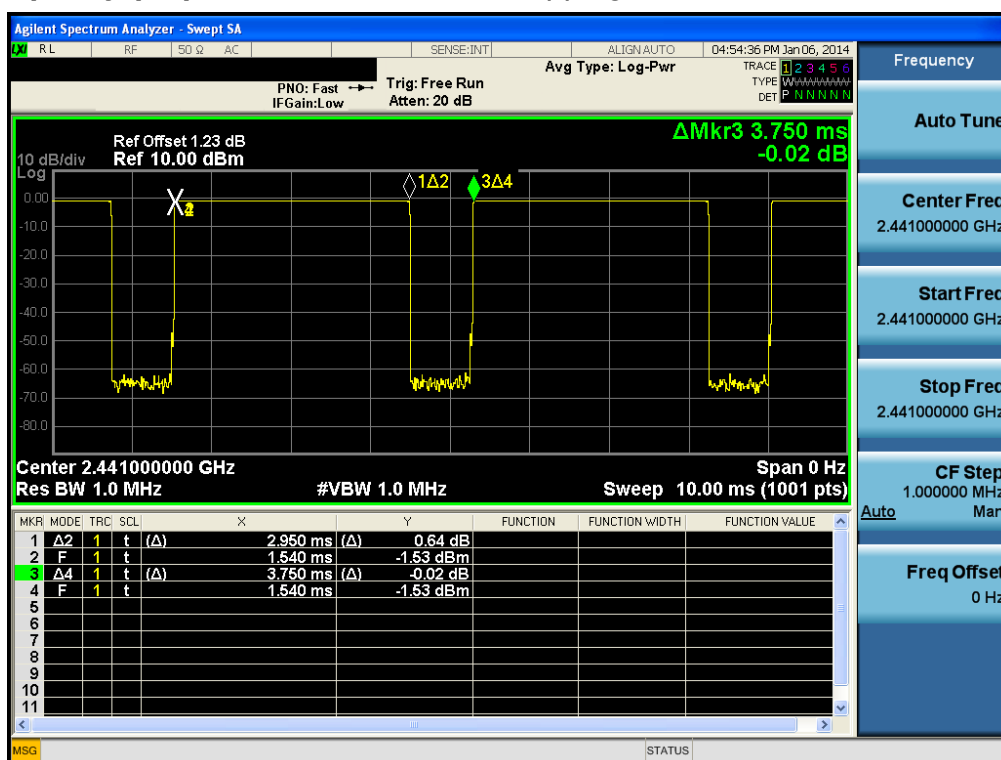
- Time slots for DH5 = 6 slots(TX = 5 slot / RX = 1 slot)

- Hopping Rate = 1600 for FH mode & 800 for AFH mode

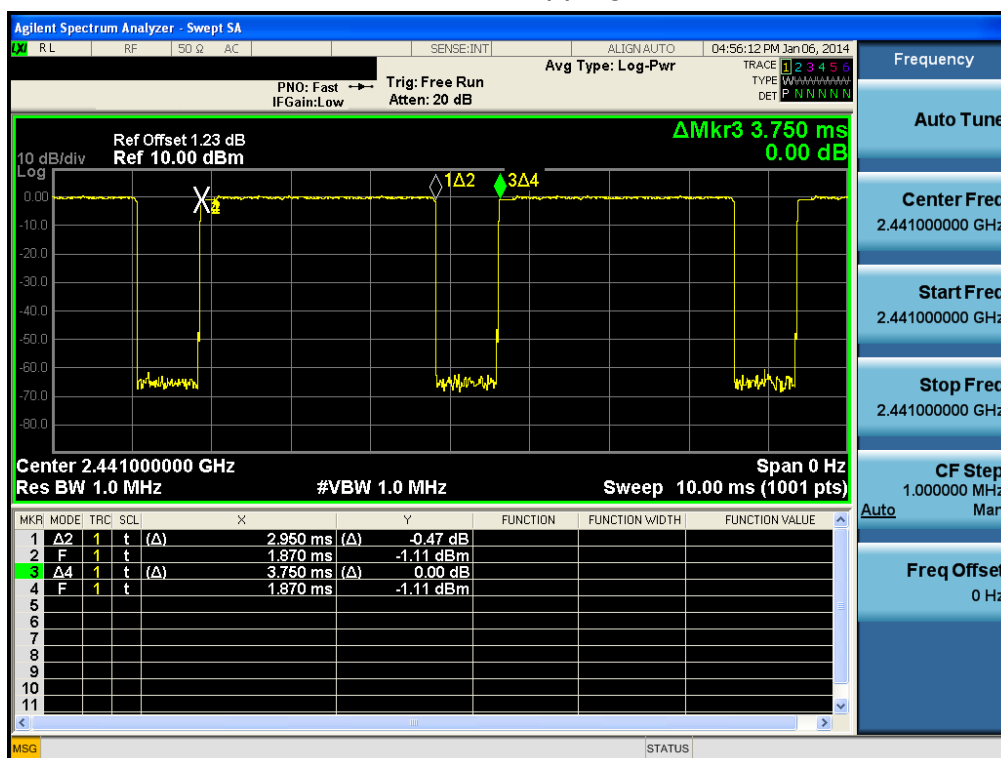
Note 2: See next pages for actual measured spectrum plots.

Time of Occupancy (FH)

Hopping mode: Enable&GFSK

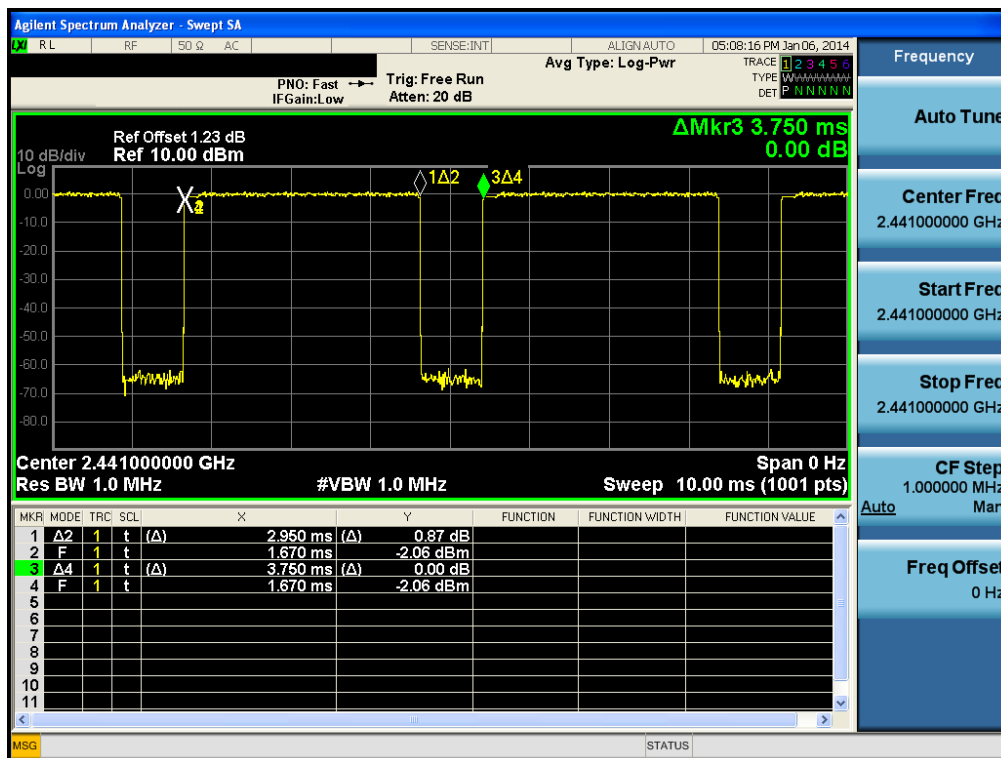


Time of Occupancy (FH)

Hopping mode: Enable& $\pi/4$ DQPSK

Time of Occupancy (FH)

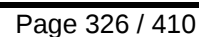
Hopping mode: Enable&8DPSK



Hopping mode: Enable&GFSK

Hopping mode: Enable $\pi/4$ DQPSK

Hopping mode: Enable&8DPSK



L40VW2

Ambient temperature : 24 °C
Relative humidity : 48 %

- FH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	79	2.95	3.75	0.315
	2 DH 5	79	2.95	3.75	0.315
	3 DH 5	79	2.95	3.75	0.315

- AFH mode

Hopping mode	Packet Type	Number of hopping Channels	Burst On Time (ms)	Period (ms)	Test Result (sec)
Enable	DH 5	20	2.95	3.75	0.157
	2 DH 5	20	2.95	3.75	0.157
	3 DH 5	20	2.95	3.75	0.157

Note 1: Dwell Time = $0.4 \times \text{Hopping channel} \times \text{Burst ON time} \times ((\text{Hopping rate} \div \text{Time slots}) \div \text{Hopping channel})$

- Time slots for DH5 = 6 slots(TX = 5 slot / RX = 1 slot)

- Hopping Rate = 1600 for FH mode & 800 for AFH mode

Note 2: See next pages for actual measured spectrum plots.