

## Dwell Time

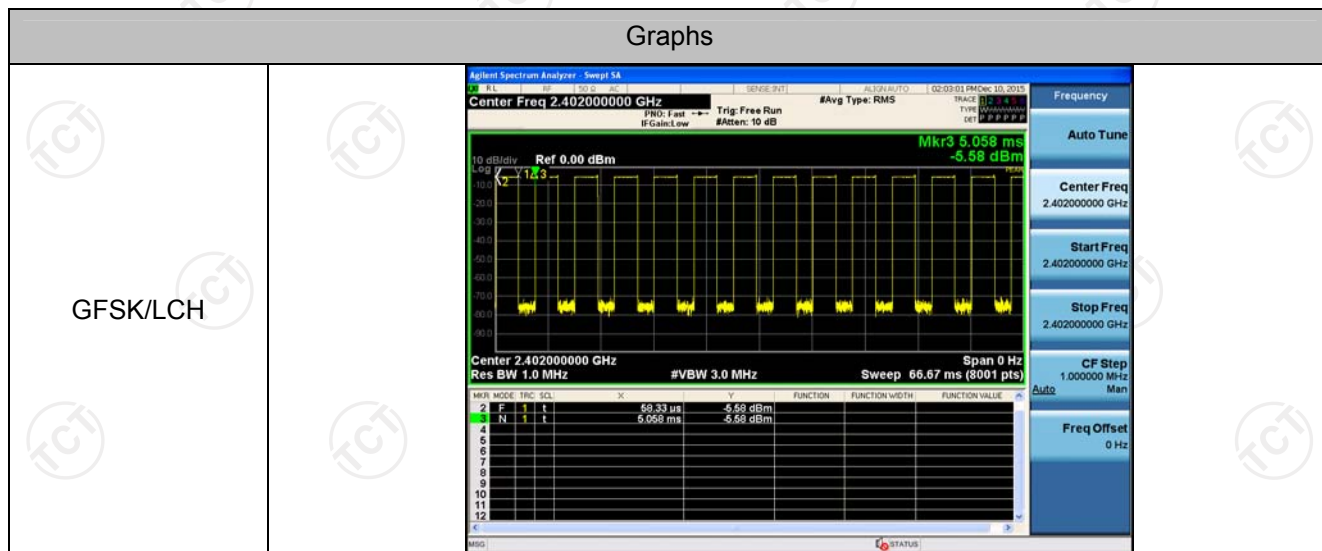
### Result Table

The Dwell Time=Burst Width\*Total Hops. The detailed calculations are showed as follows:

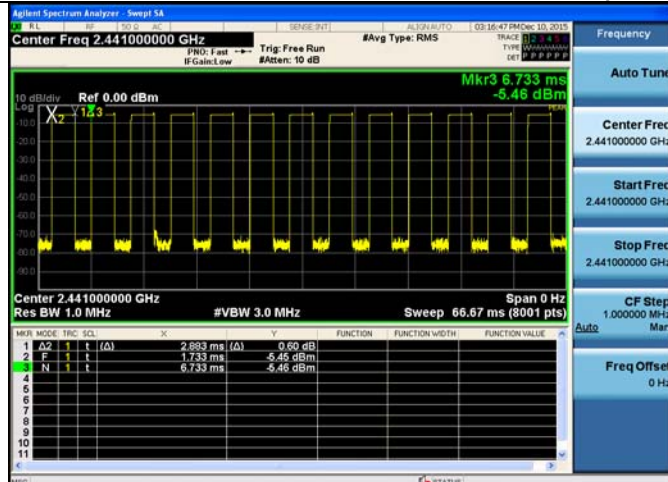
- The duration for dwell time calculation:  $0.4[s] \times \text{hopping number} = 0.4[s] \times 79[\text{ch}] = 31.6[s \cdot \text{ch}]$ ;
- The burst width [ms/hop/ch], which is directly measured, refers to the duration on one channel hop.
- The hops per second for all channels: The selected EUT Conf uses a slot type of 5-Tx&1-Rx and a hopping rate of 1600 [ch\*hop/s] for all channels. So the final hopping rate for all channels is  $1600/6 = 266.67 [\text{ch} \cdot \text{hop/s}]$
- The hops per second on one channel:  $266.67 [\text{ch} \cdot \text{hops/s}] / 79 [\text{ch}] = 3.38 [\text{hop/s}]$ ;
- The total hops for all channels within the dwell time calculation duration:  $3.38 [\text{hop/s}] \times 31.6[s \cdot \text{ch}] = 106.67 [\text{hop} \cdot \text{ch}]$ ;
- The dwell time for all channels hopping:  $106.67 [\text{hop} \cdot \text{ch}] \times \text{Burst Width} [\text{ms/hop/ch}]$ .

| Mode          | Channel | Burst Width<br>[ms/hop/ch] | Total<br>Hops[hop*ch] | Dwell<br>Time[s] | Duty Cycle<br>[%] | Verdict |
|---------------|---------|----------------------------|-----------------------|------------------|-------------------|---------|
| GFSK          | LCH     | 2.883                      | 106.7                 | 0.308            | 57.67             | PASS    |
| GFSK          | MCH     | 2.883                      | 106.7                 | 0.308            | 57.67             | PASS    |
| GFSK          | HCH     | 2.875                      | 106.7                 | 0.307            | 57.50             | PASS    |
| $\pi/4$ DQPSK | LCH     | 2.867                      | 106.7                 | 0.306            | 57.33             | PASS    |
| $\pi/4$ DQPSK | MCH     | 2.875                      | 106.7                 | 0.307            | 57.50             | PASS    |
| $\pi/4$ DQPSK | HCH     | 2.867                      | 106.7                 | 0.306            | 57.33             | PASS    |
| 8DPSK         | LCH     | 2.867                      | 106.7                 | 0.306            | 57.33             | PASS    |
| 8DPSK         | MCH     | 2.875                      | 106.7                 | 0.307            | 57.50             | PASS    |
| 8DPSK         | HCH     | 2.867                      | 106.7                 | 0.306            | 57.33             | PASS    |

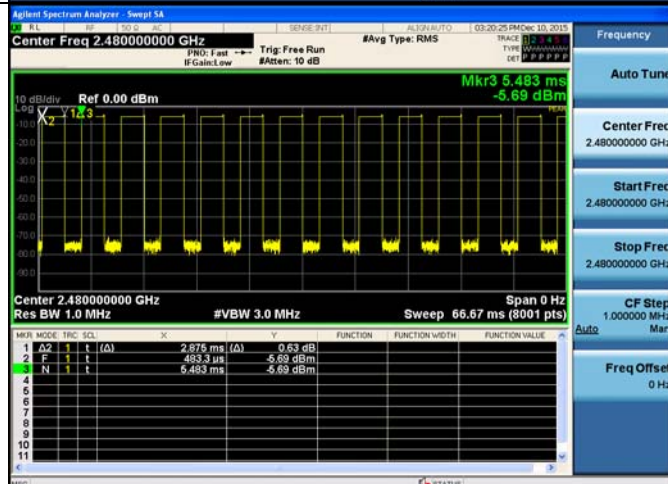
### Test Graph



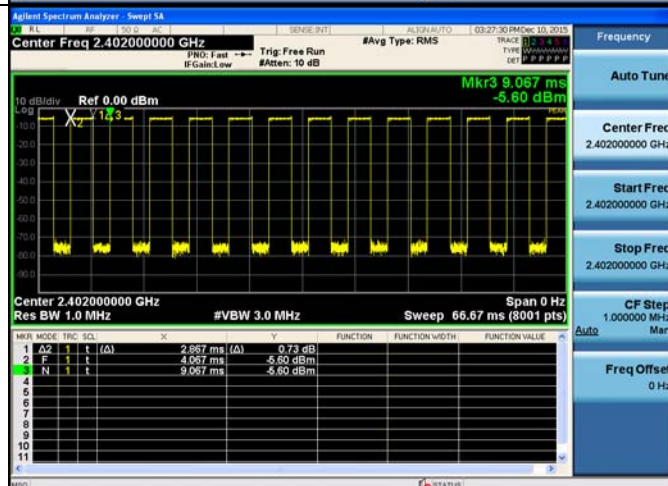
GFSK/MCH

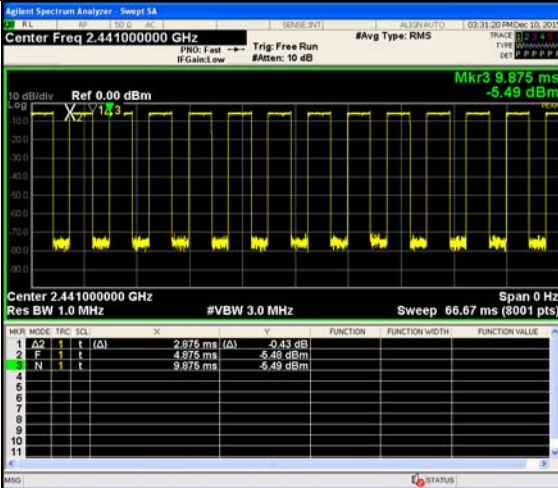
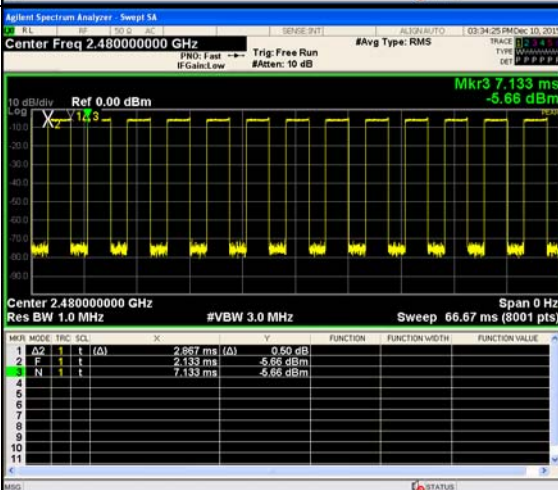
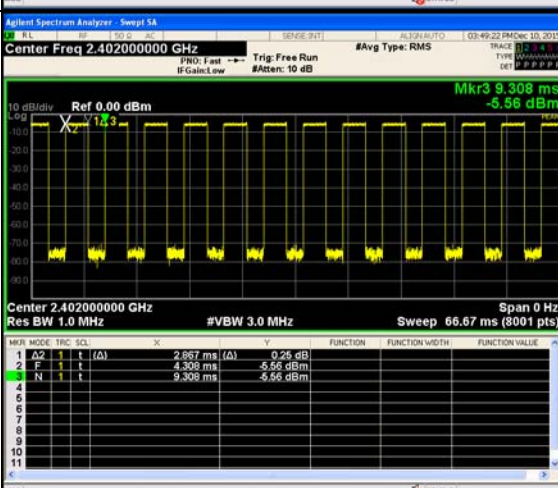


GFSK/HCH

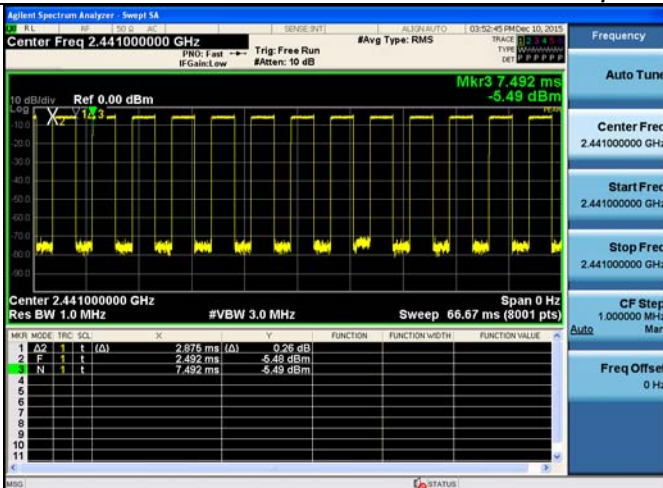


$\pi/4$ DQPSK/LCH

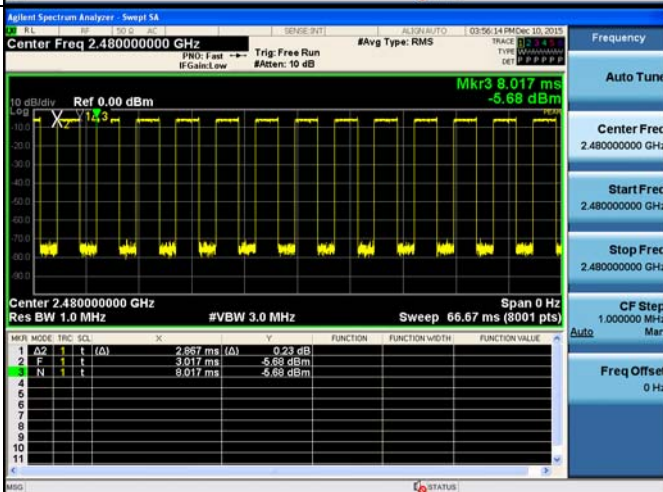


| $\pi/4$ DQPSK/MCH |  <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>t</td><td>(Δ)</td><td>2.875 ms (Δ)</td><td>-0.43 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>t</td><td></td><td>4.875 ms</td><td>-5.49 dBm</td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>t</td><td></td><td>9.875 ms</td><td>-5.49 dBm</td><td></td><td></td></tr></table>  | MNR | MODE | TRC | SCL          | X         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 2.875 ms (Δ) | -0.43 dB |  |  | 2 | F | 1 | t |  | 4.875 ms | -5.49 dBm |  |  | 3 | N | 1 | t |  | 9.875 ms | -5.49 dBm |  |  | <div>Frequency</div> <div>Auto Tune</div> <div>Center Freq<br/>2.441000000 GHz</div> <div>Start Freq<br/>2.441000000 GHz</div> <div>Stop Freq<br/>2.441000000 GHz</div> <div>CF Step<br/>1.000000 MHz<br/>Auto Man</div> <div>Freq Offset<br/>0 Hz</div> |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|--------------|-----------|----------------|----------------|----------------|----------------|---|----|---|---|-----|--------------|----------|--|--|---|---|---|---|--|----------|-----------|--|--|---|---|---|---|--|----------|-----------|--|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TRC | SCL  | X   | Y            | FUNCTION  | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1   | t    | (Δ) | 2.875 ms (Δ) | -0.43 dB  |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 4.875 ms     | -5.49 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 3                 | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 9.875 ms     | -5.49 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| $\pi/4$ DQPSK/HCH |  <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>t</td><td>(Δ)</td><td>2.867 ms (Δ)</td><td>0.50 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>t</td><td></td><td>2.133 ms</td><td>-5.66 dBm</td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>t</td><td></td><td>7.133 ms</td><td>-5.66 dBm</td><td></td><td></td></tr></table>  | MNR | MODE | TRC | SCL          | X         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 2.867 ms (Δ) | 0.50 dB  |  |  | 2 | F | 1 | t |  | 2.133 ms | -5.66 dBm |  |  | 3 | N | 1 | t |  | 7.133 ms | -5.66 dBm |  |  | <div>Frequency</div> <div>Auto Tune</div> <div>Center Freq<br/>2.480000000 GHz</div> <div>Start Freq<br/>2.480000000 GHz</div> <div>Stop Freq<br/>2.480000000 GHz</div> <div>CF Step<br/>1.000000 MHz<br/>Auto Man</div> <div>Freq Offset<br/>0 Hz</div> |
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TRC | SCL  | X   | Y            | FUNCTION  | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1   | t    | (Δ) | 2.867 ms (Δ) | 0.50 dB   |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 2.133 ms     | -5.66 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 3                 | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 7.133 ms     | -5.66 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 8DPSK/LCH         |  <table><tr><th>MNR</th><th>MODE</th><th>TRC</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>A2</td><td>1</td><td>t</td><td>(Δ)</td><td>2.867 ms (Δ)</td><td>0.26 dB</td><td></td><td></td></tr><tr><td>2</td><td>F</td><td>1</td><td>t</td><td></td><td>4.308 ms</td><td>-5.56 dBm</td><td></td><td></td></tr><tr><td>3</td><td>N</td><td>1</td><td>t</td><td></td><td>9.308 ms</td><td>-5.56 dBm</td><td></td><td></td></tr></table> | MNR | MODE | TRC | SCL          | X         | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | A2 | 1 | t | (Δ) | 2.867 ms (Δ) | 0.26 dB  |  |  | 2 | F | 1 | t |  | 4.308 ms | -5.56 dBm |  |  | 3 | N | 1 | t |  | 9.308 ms | -5.56 dBm |  |  | <div>Frequency</div> <div>Auto Tune</div> <div>Center Freq<br/>2.402000000 GHz</div> <div>Start Freq<br/>2.402000000 GHz</div> <div>Stop Freq<br/>2.402000000 GHz</div> <div>CF Step<br/>1.000000 MHz<br/>Auto Man</div> <div>Freq Offset<br/>0 Hz</div> |
| MNR               | MODE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TRC | SCL  | X   | Y            | FUNCTION  | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 1                 | A2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1   | t    | (Δ) | 2.867 ms (Δ) | 0.26 dB   |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 2                 | F                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 4.308 ms     | -5.56 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |
| 3                 | N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1   | t    |     | 9.308 ms     | -5.56 dBm |                |                |                |                |   |    |   |   |     |              |          |  |  |   |   |   |   |  |          |           |  |  |   |   |   |   |  |          |           |  |  |                                                                                                                                                                                                                                                          |

8DPSK/MCH



8DPSK/HCH



## Hopping Channel Number

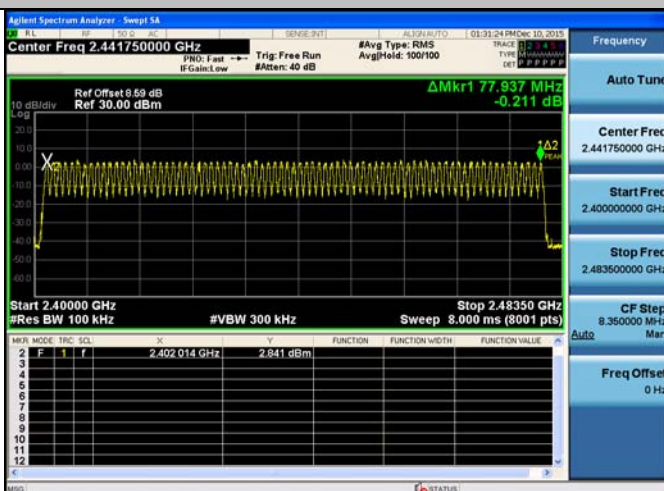
### Result Table

| Mode          | Channel. | Number of Hopping Channel | Verdict |
|---------------|----------|---------------------------|---------|
| GFSK          | Hop      | 79                        | PASS    |
| $\pi/4$ DQPSK | Hop      | 79                        | PASS    |
| 8DPSK         | Hop      | 79                        | PASS    |

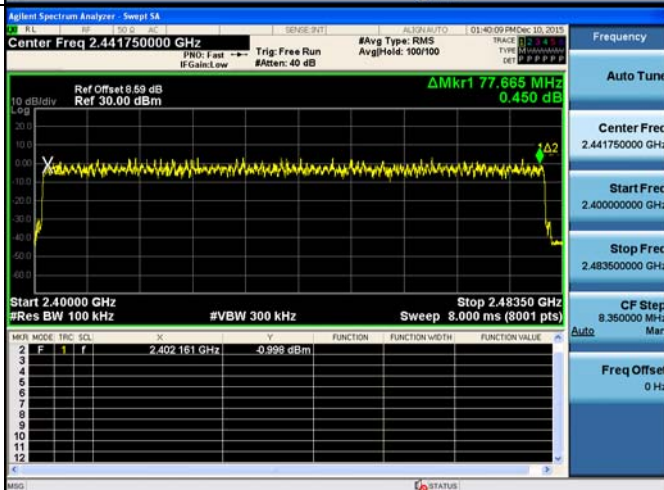
### Test Graph

#### Graphs

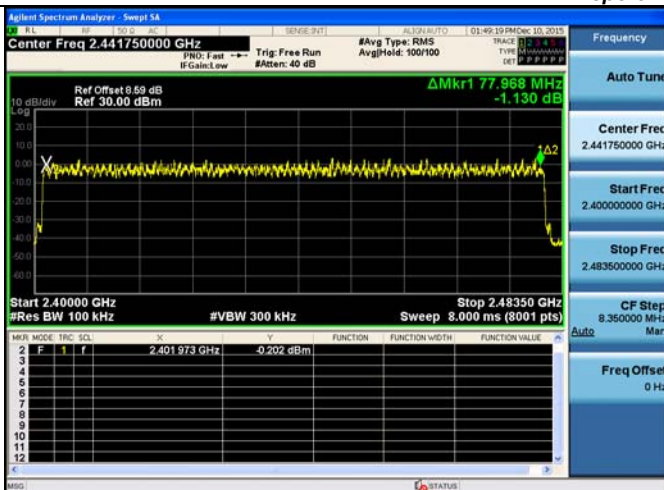
GFSK/Hop



$\pi/4$ DQPSK/Hop



8DPSK/Hop



## Conducted Peak Output Power

Result Table

| Mode          | Channel. | Maximum Peak Output Power [dBm] | Verdict |
|---------------|----------|---------------------------------|---------|
| GFSK          | LCH      | 4.148                           | PASS    |
| GFSK          | MCH      | 4.163                           | PASS    |
| GFSK          | HCH      | 3.925                           | PASS    |
| $\pi/4$ DQPSK | LCH      | 4.413                           | PASS    |
| $\pi/4$ DQPSK | MCH      | 4.516                           | PASS    |
| $\pi/4$ DQPSK | HCH      | 4.327                           | PASS    |
| 8DPSK         | LCH      | 4.655                           | PASS    |
| 8DPSK         | MCH      | 4.716                           | PASS    |
| 8DPSK         | HCH      | 4.496                           | PASS    |

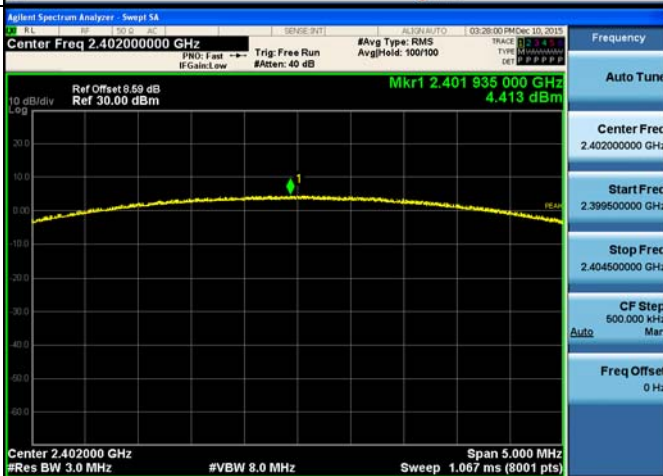
Test Graph



GFSK/HCH



$\pi/4$ DQPSK/LCH



$\pi/4$ DQPSK/MCH



$\pi/4$ DQPSK/HCH



8DPSK/LCH



8DPSK/MCH



8DPSK/HCH

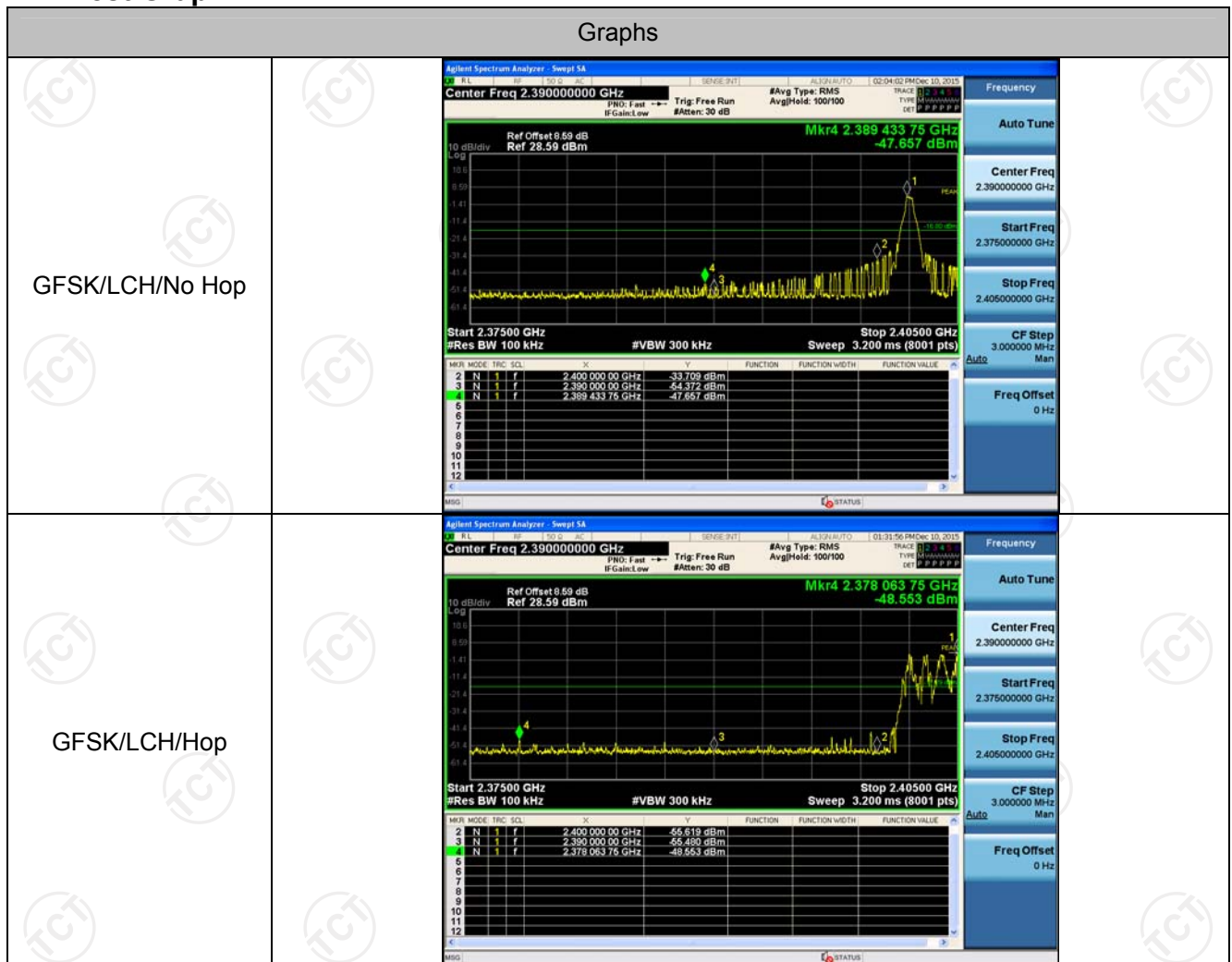


## Band-edge for RF Conducted Emissions

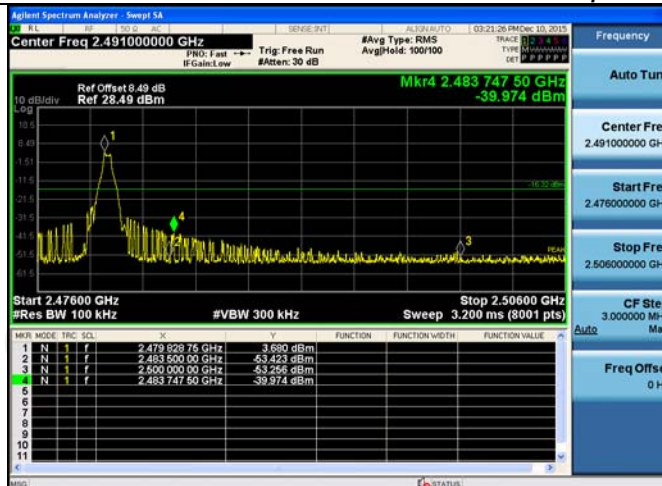
Result Table

| Mode          | Channel | Carrier Frequency [MHz] | Carrier Power [dBm] | Frequency Hopping | Max Spurious Level [dBm] | Limit [dBm] | Verdict |
|---------------|---------|-------------------------|---------------------|-------------------|--------------------------|-------------|---------|
| GFSK          | LCH     | 2402                    | 3.201               | Off               | -47.657                  | -16.8       | PASS    |
|               |         |                         | 2.710               | On                | -48.553                  | -17.29      | PASS    |
| GFSK          | HCH     | 2480                    | 3.680               | Off               | -39.974                  | -16.32      | PASS    |
|               |         |                         | 2.433               | On                | -45.781                  | -17.57      | PASS    |
| $\pi/4$ DQPSK | LCH     | 2402                    | 2.234               | Off               | -51.705                  | -17.77      | PASS    |
|               |         |                         | -1.369              | On                | -51.504                  | -21.37      | PASS    |
| $\pi/4$ DQPSK | HCH     | 2480                    | 2.283               | Off               | -45.790                  | -17.72      | PASS    |
|               |         |                         | -0.828              | On                | -49.855                  | -20.83      | PASS    |
| 8DPSK         | LCH     | 2402                    | 2.369               | Off               | -52.128                  | -17.63      | PASS    |
|               |         |                         | 1.444               | On                | -51.367                  | -18.56      | PASS    |
| 8DPSK         | HCH     | 2480                    | 1.499               | Off               | -47.414                  | -18.5       | PASS    |
|               |         |                         | 1.711               | On                | -48.066                  | -18.29      | PASS    |

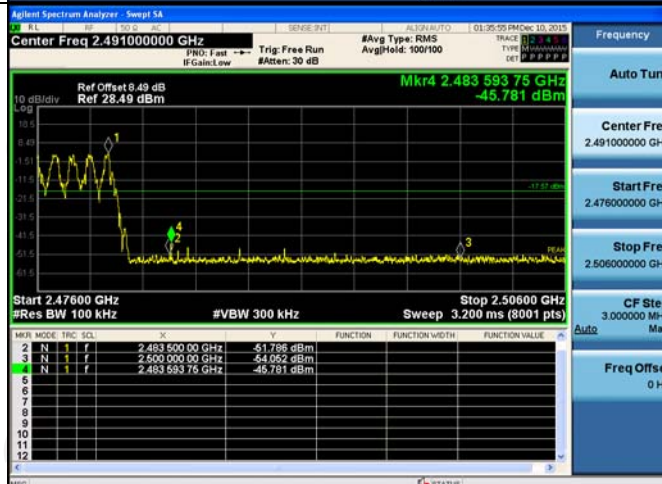
Test Graph



GFSK/HCH/No Hop



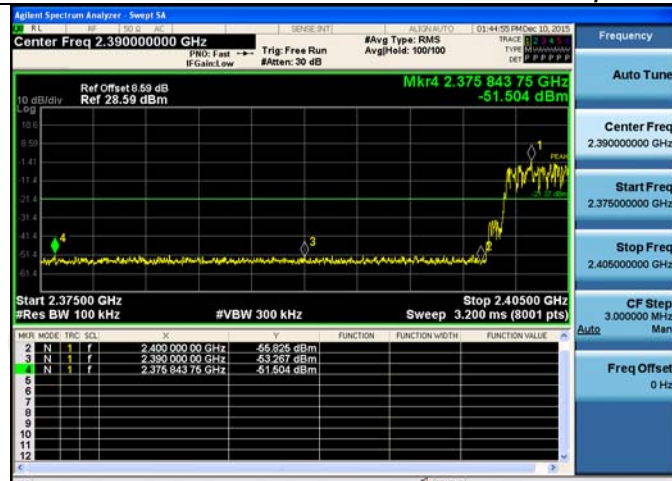
GFSK/HCH/Hop



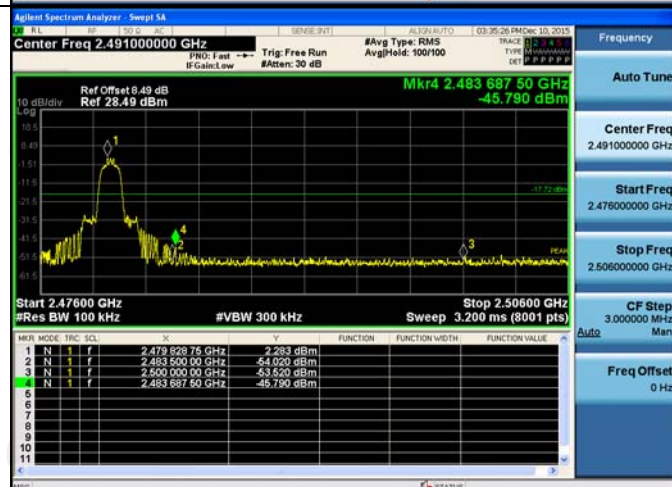
$\pi/4$ DQPSK/LCH/No Hop



$\pi/4$ DQPSK/LCH/Hop



$\pi/4$ DQPSK/HCH/No Hop



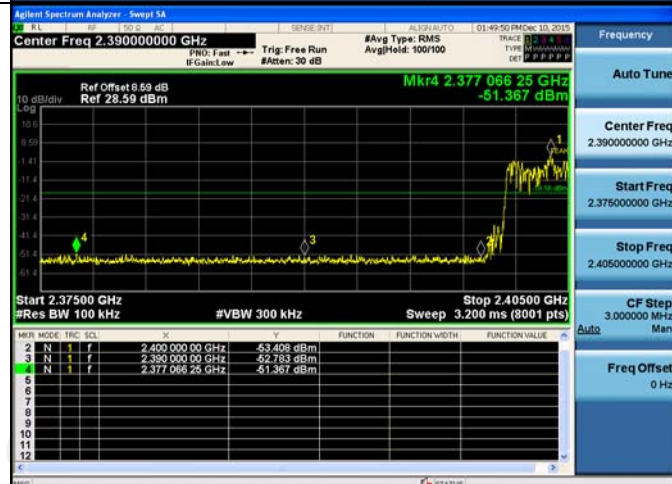
$\pi/4$ DQPSK/HCH/Hop



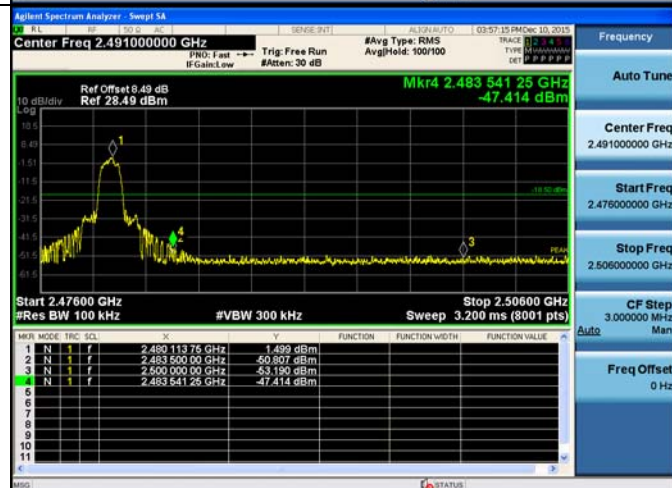
8DPSK/LCH/No Hop



8DPSK/LCH/Hop



8DPSK/HCH/No Hop



8DPSK/HCH/Hop

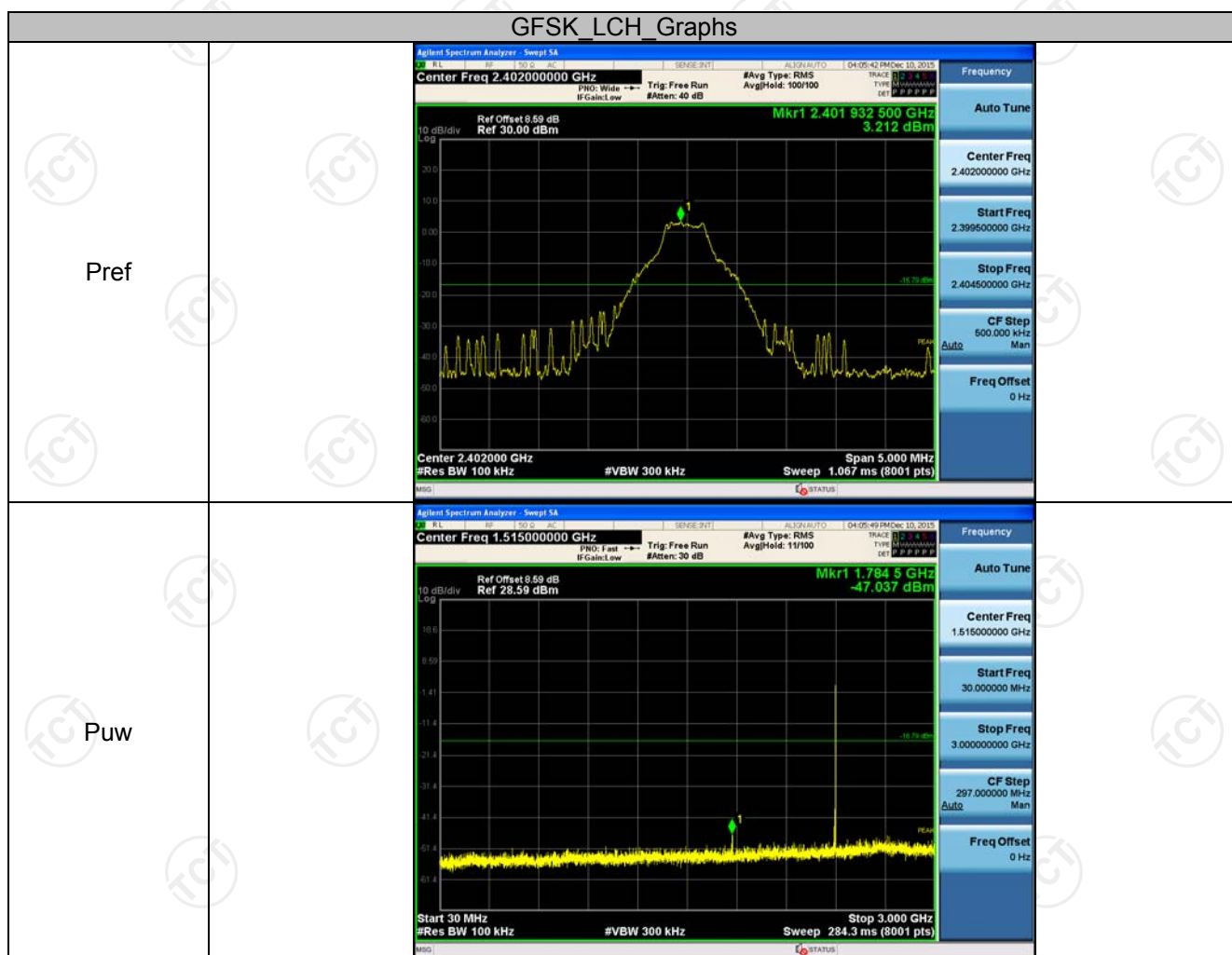


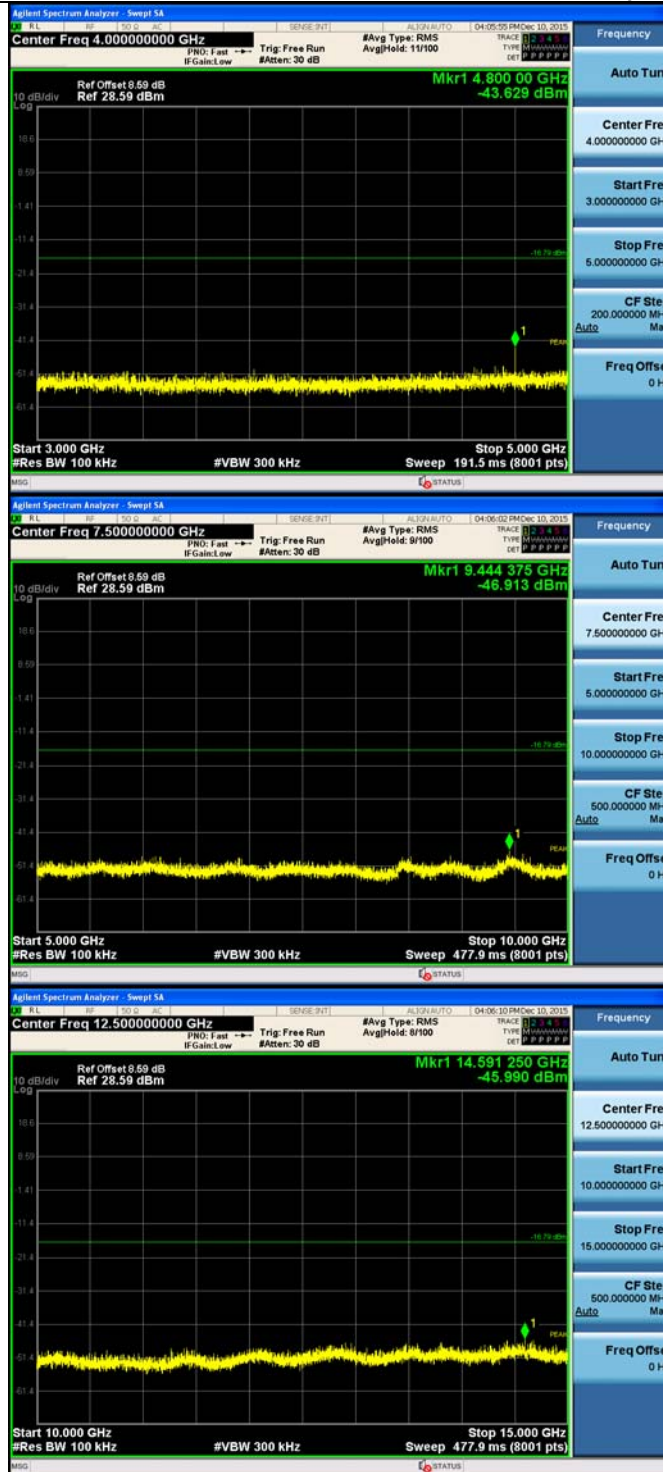
## RF Conducted Spurious Emissions

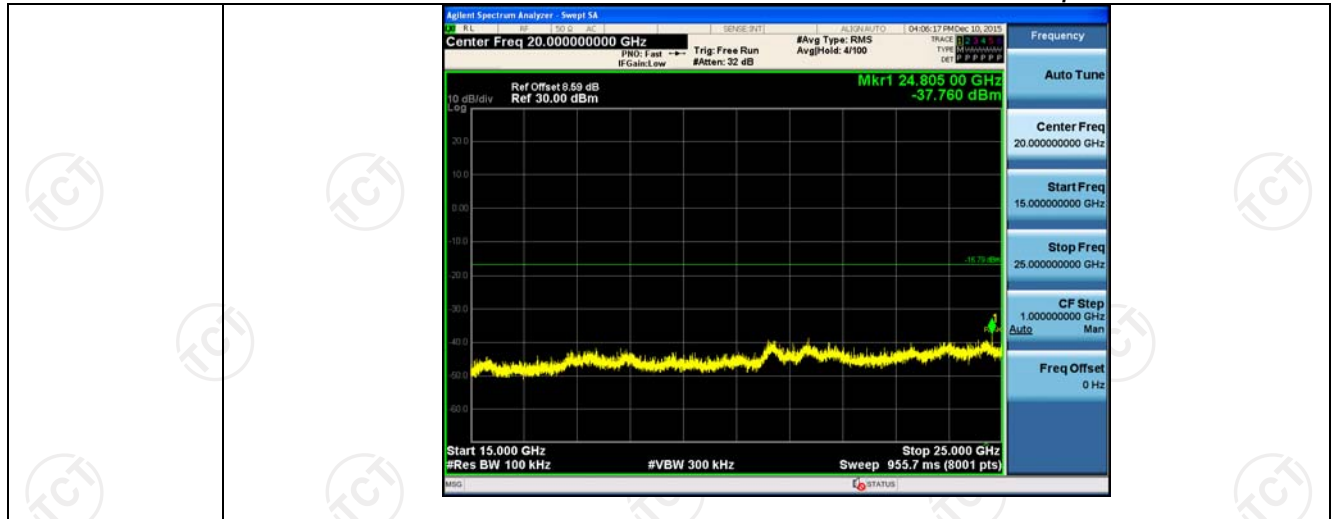
Result Table

| Mode          | Channel | Pref [dBm] | Puw[dBm] | Verdict |
|---------------|---------|------------|----------|---------|
| GFSK          | LCH     | 3.212      | <Limit   | PASS    |
| GFSK          | MCH     | 3.939      | <Limit   | PASS    |
| GFSK          | HCH     | 2.298      | <Limit   | PASS    |
| $\pi$ /4DQPSK | LCH     | 2.191      | <Limit   | PASS    |
| $\pi$ /4DQPSK | MCH     | 2.14       | <Limit   | PASS    |
| $\pi$ /4DQPSK | HCH     | 2.264      | <Limit   | PASS    |
| 8DPSK         | LCH     | 2.854      | <Limit   | PASS    |
| 8DPSK         | MCH     | 2.922      | <Limit   | PASS    |
| 8DPSK         | HCH     | 2.734      | <Limit   | PASS    |

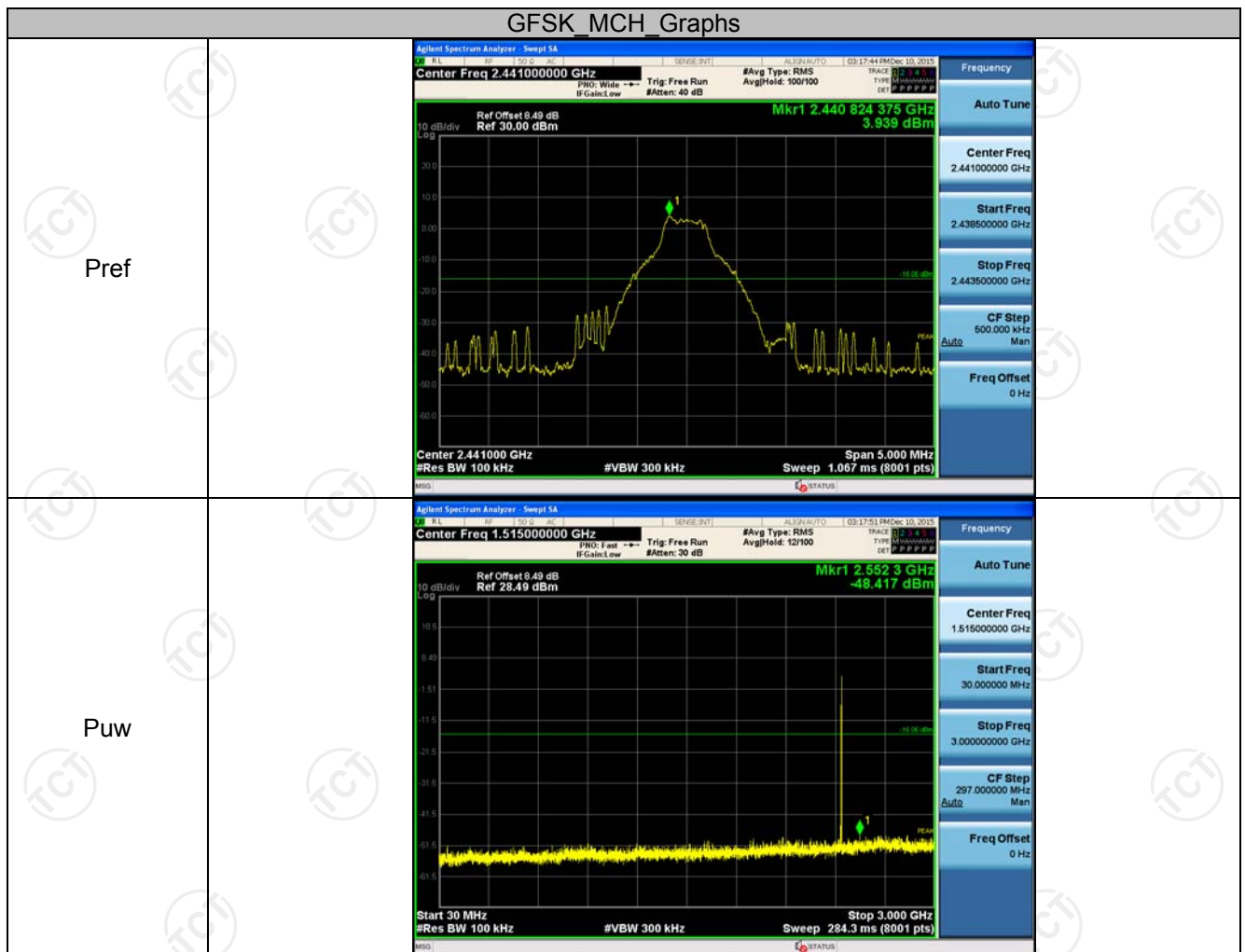
Test Graph

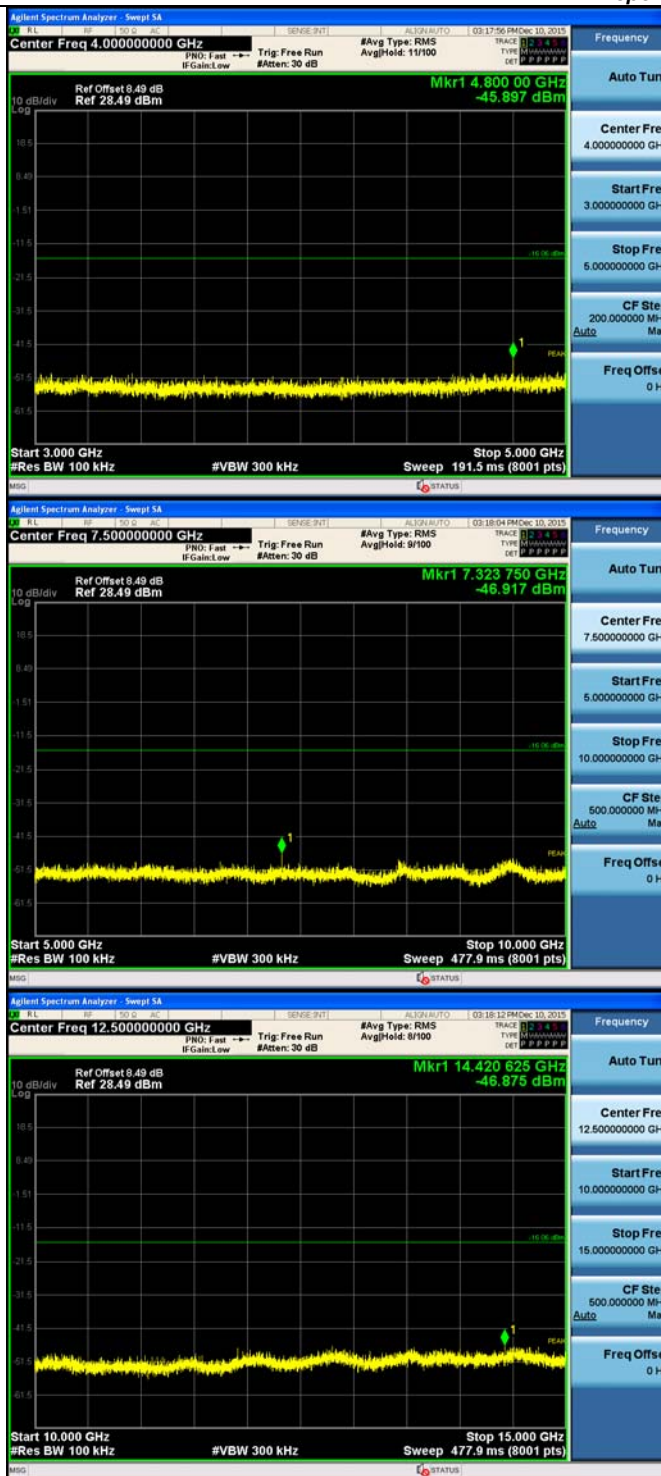


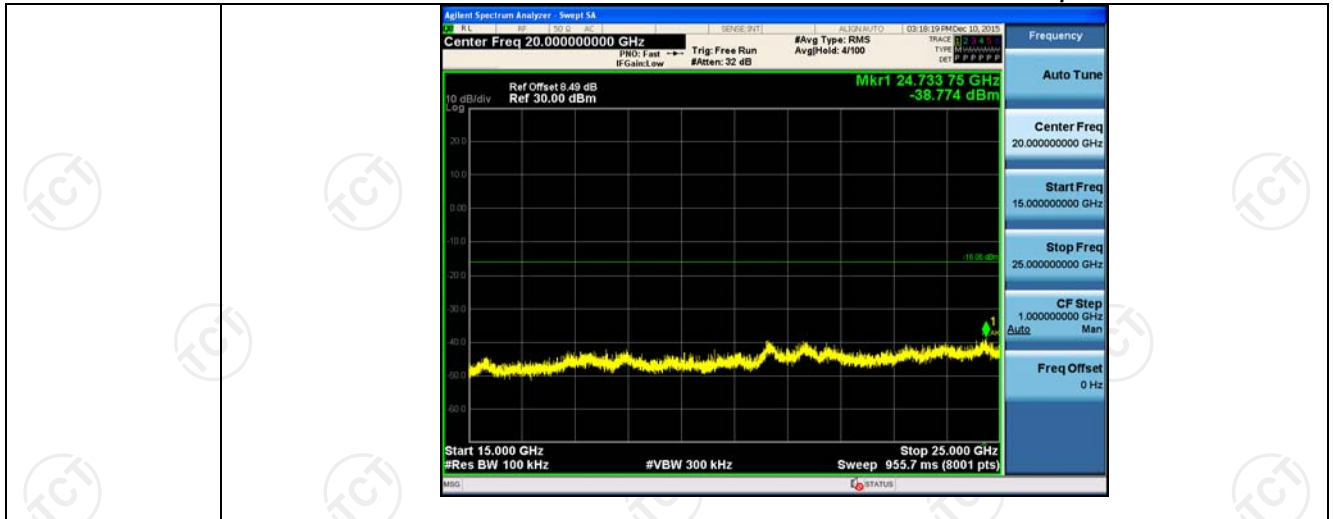




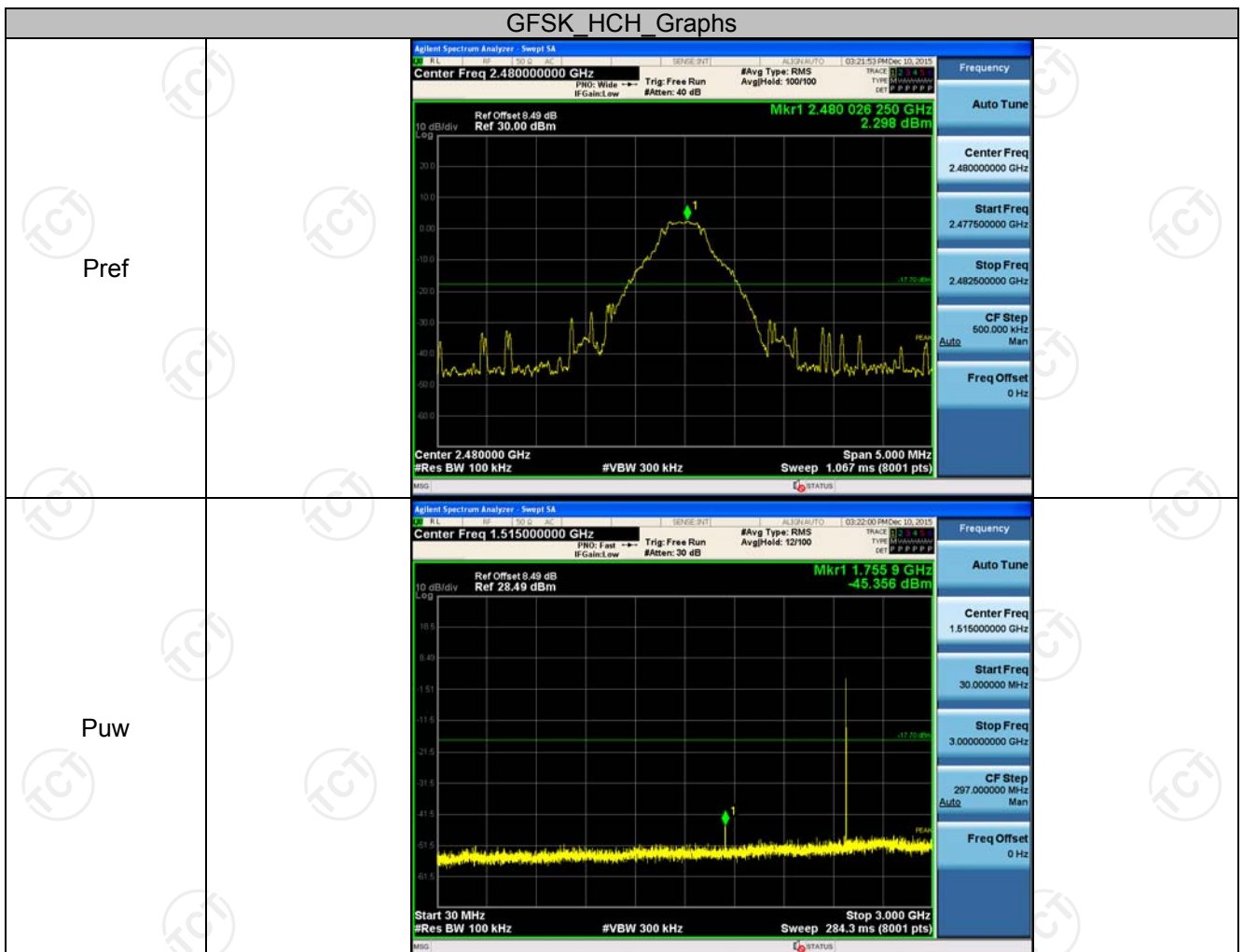
## GFSK\_MCH\_Graphs

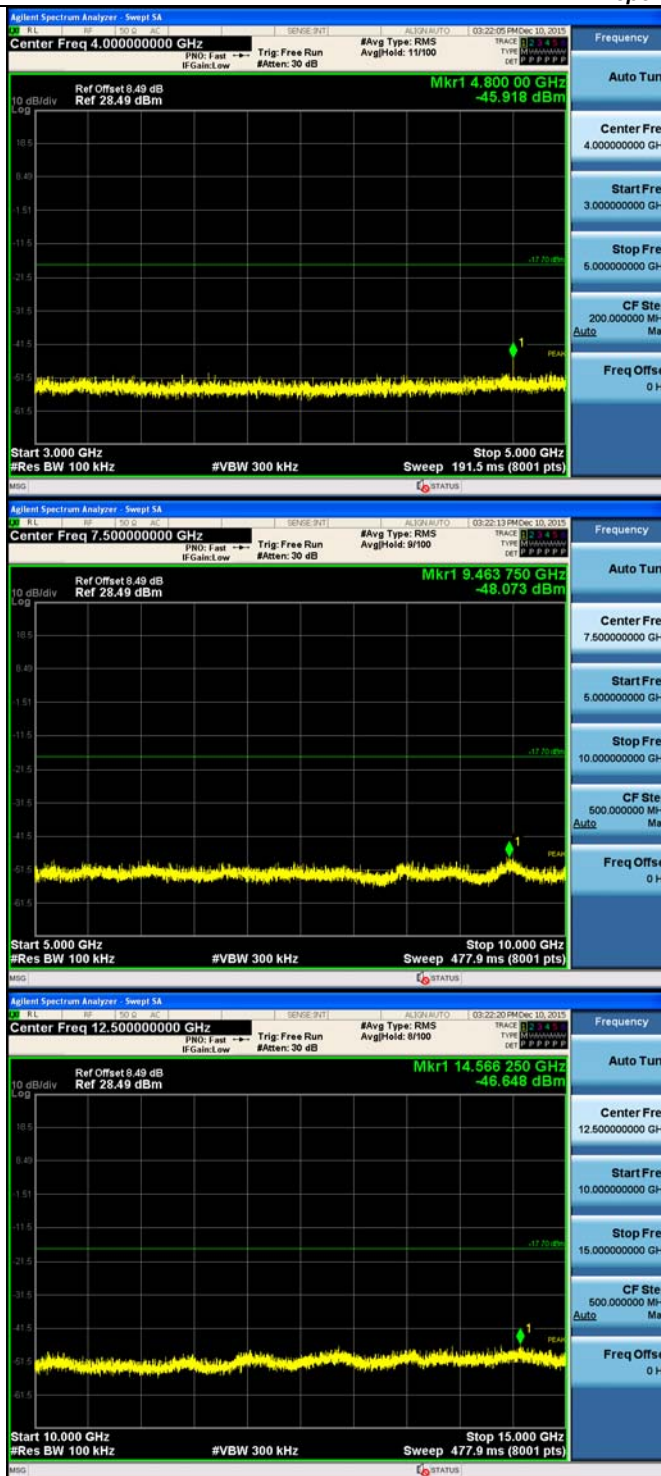


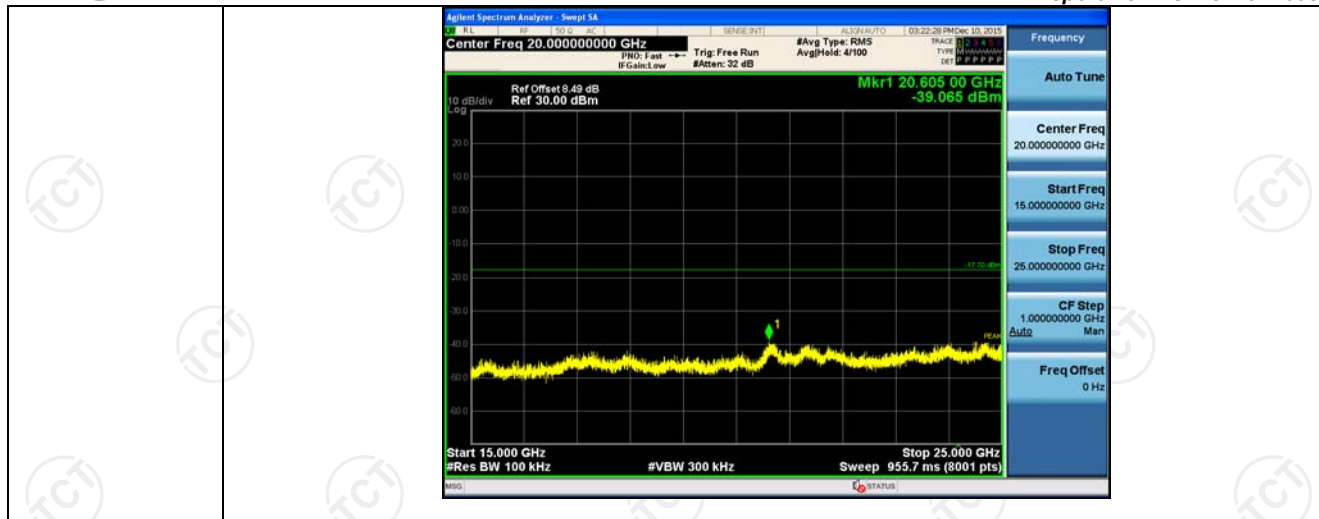




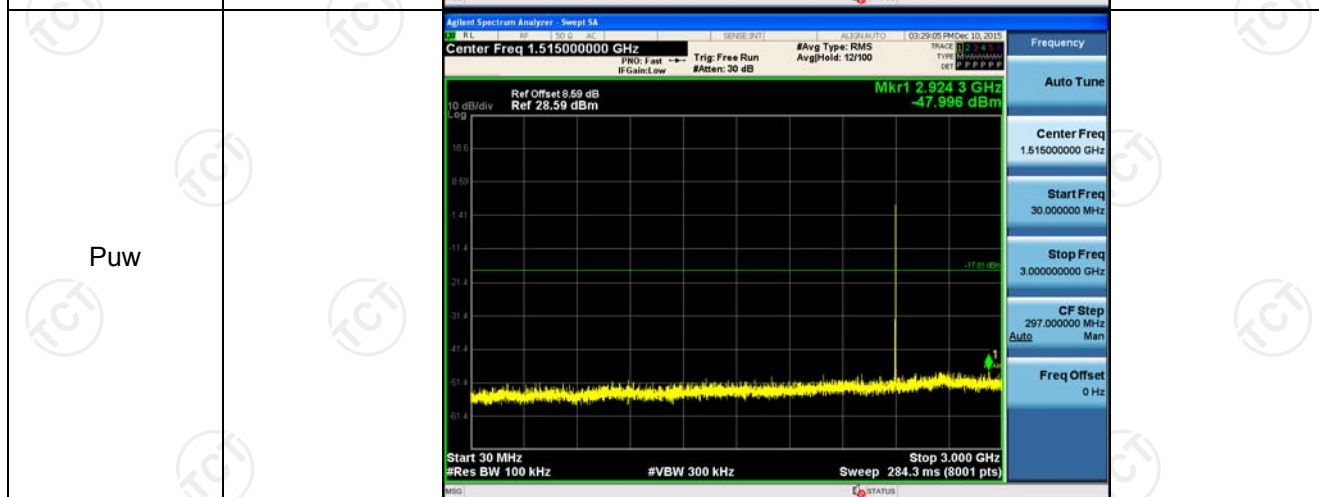
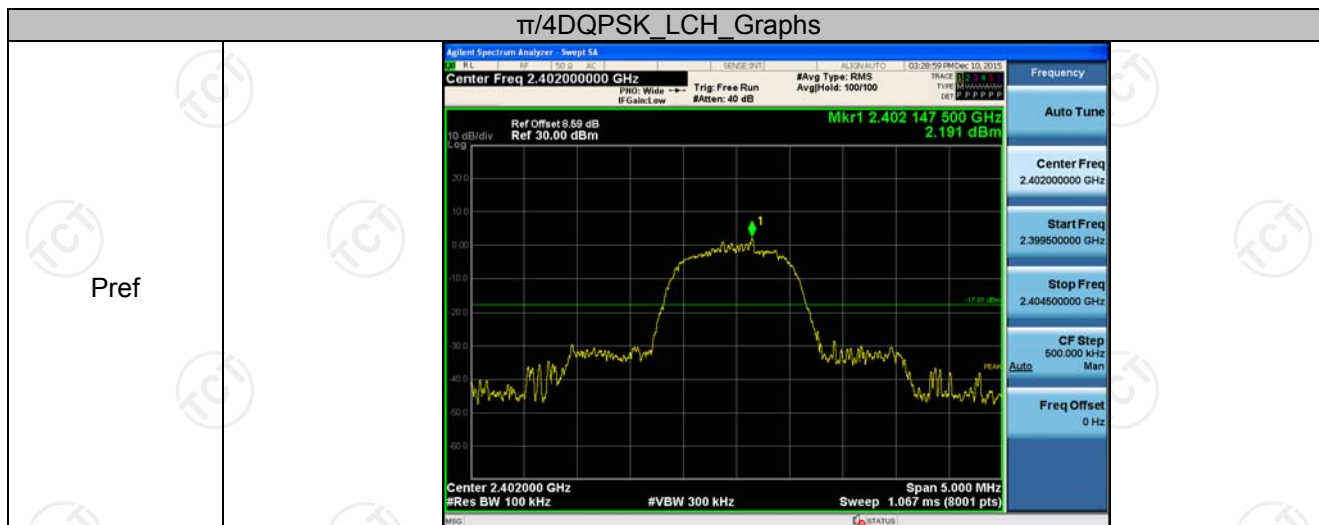
## GFSK HCH\_Graphs

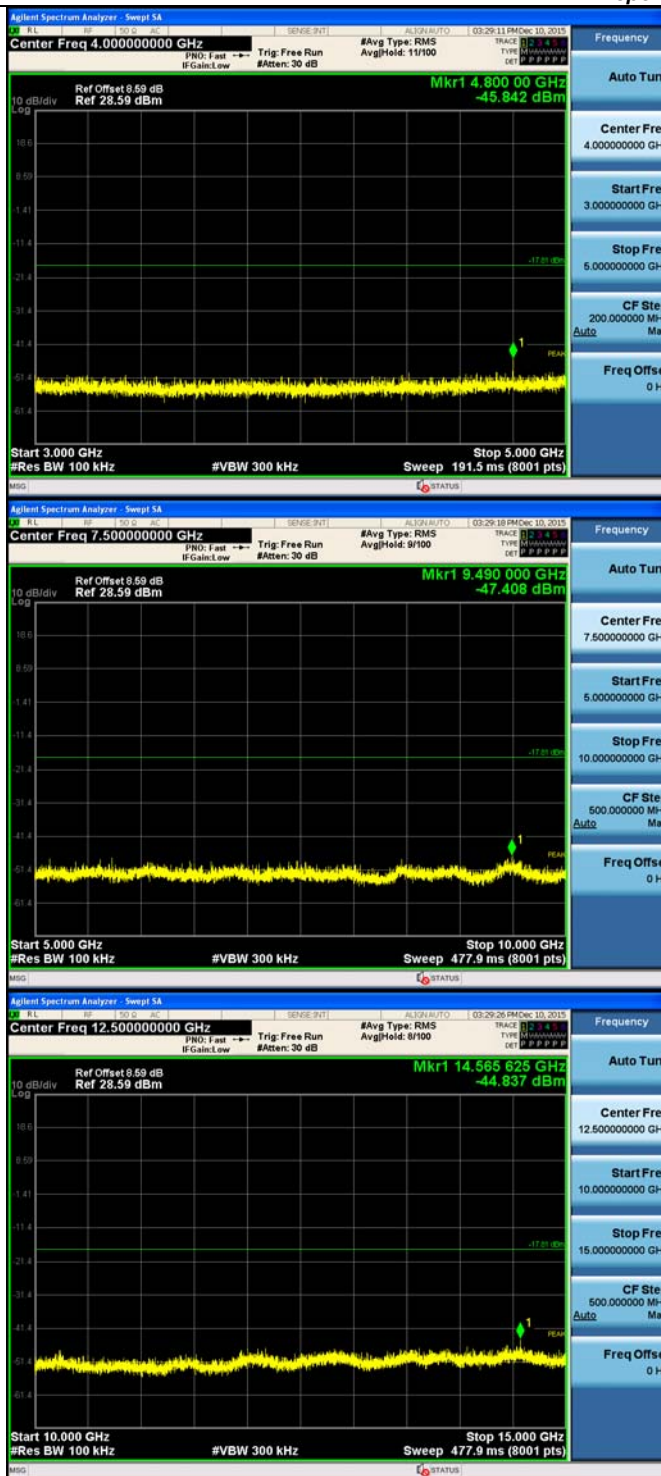


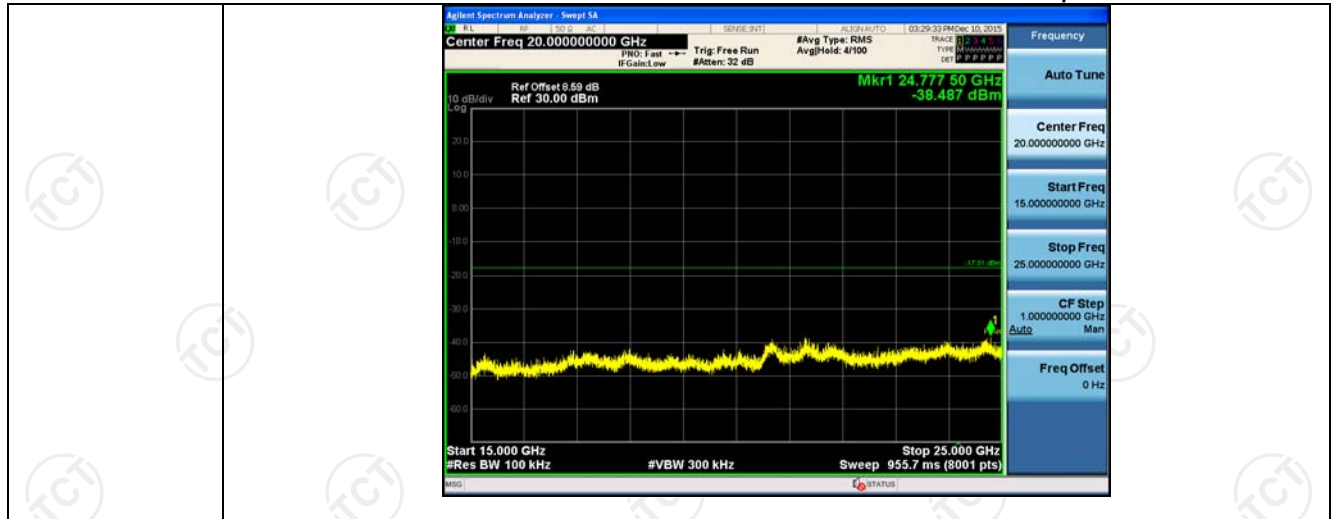




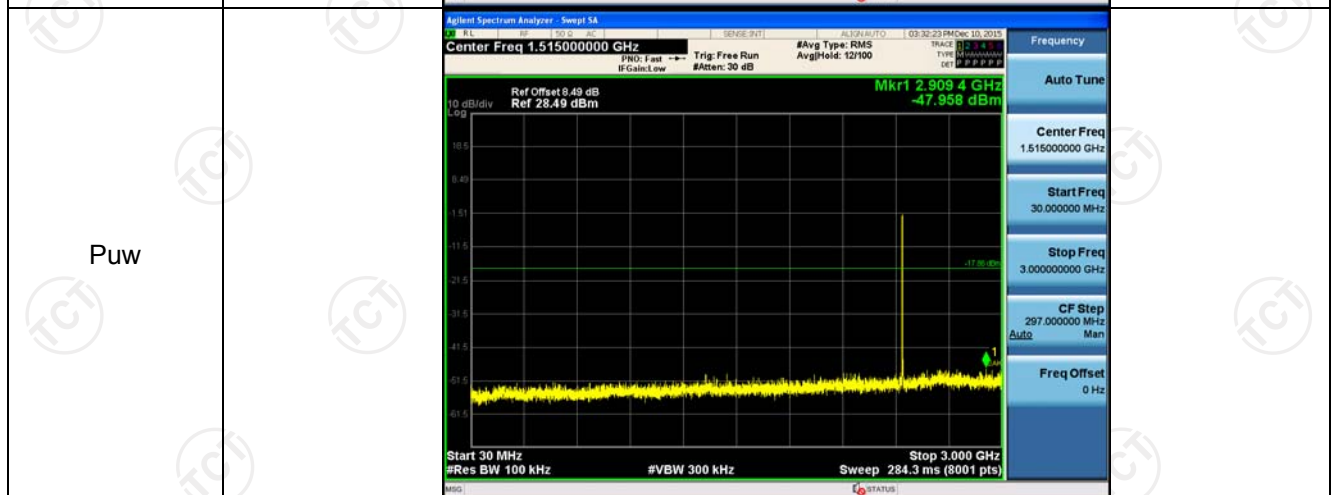
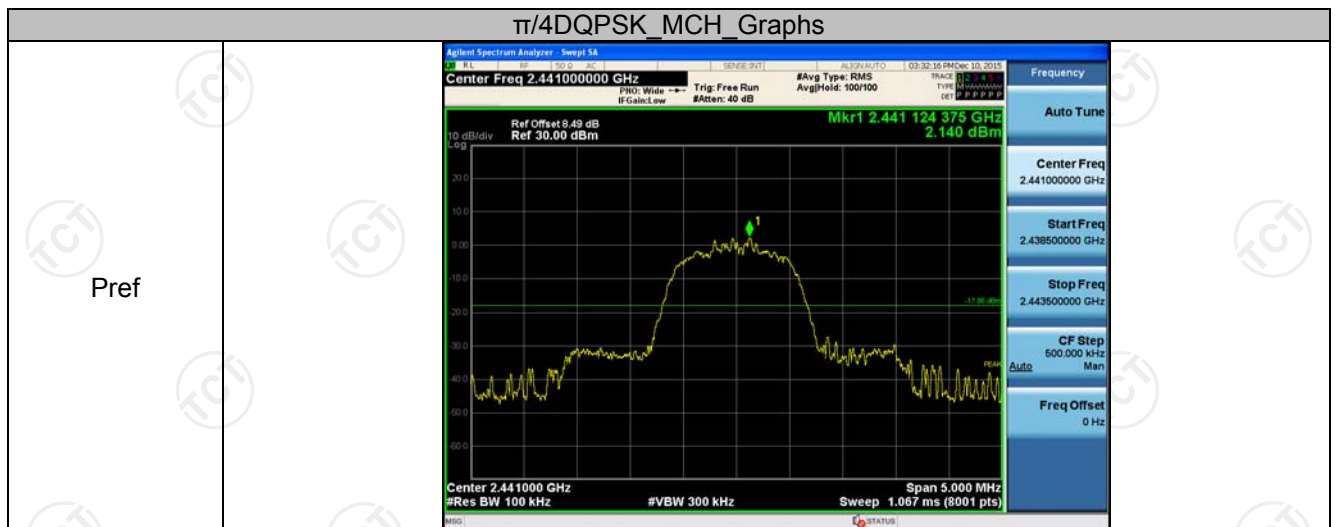
## $\pi/4$ DQPSK LCH\_Graphs

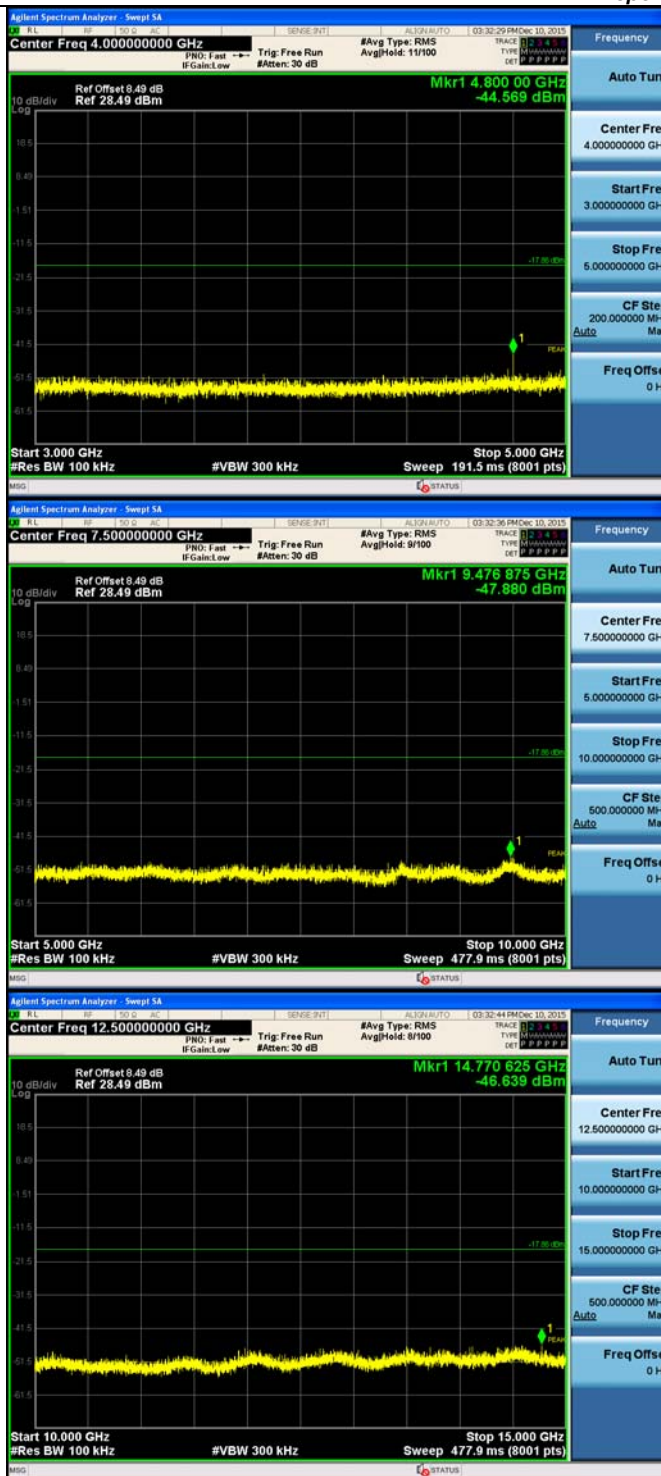


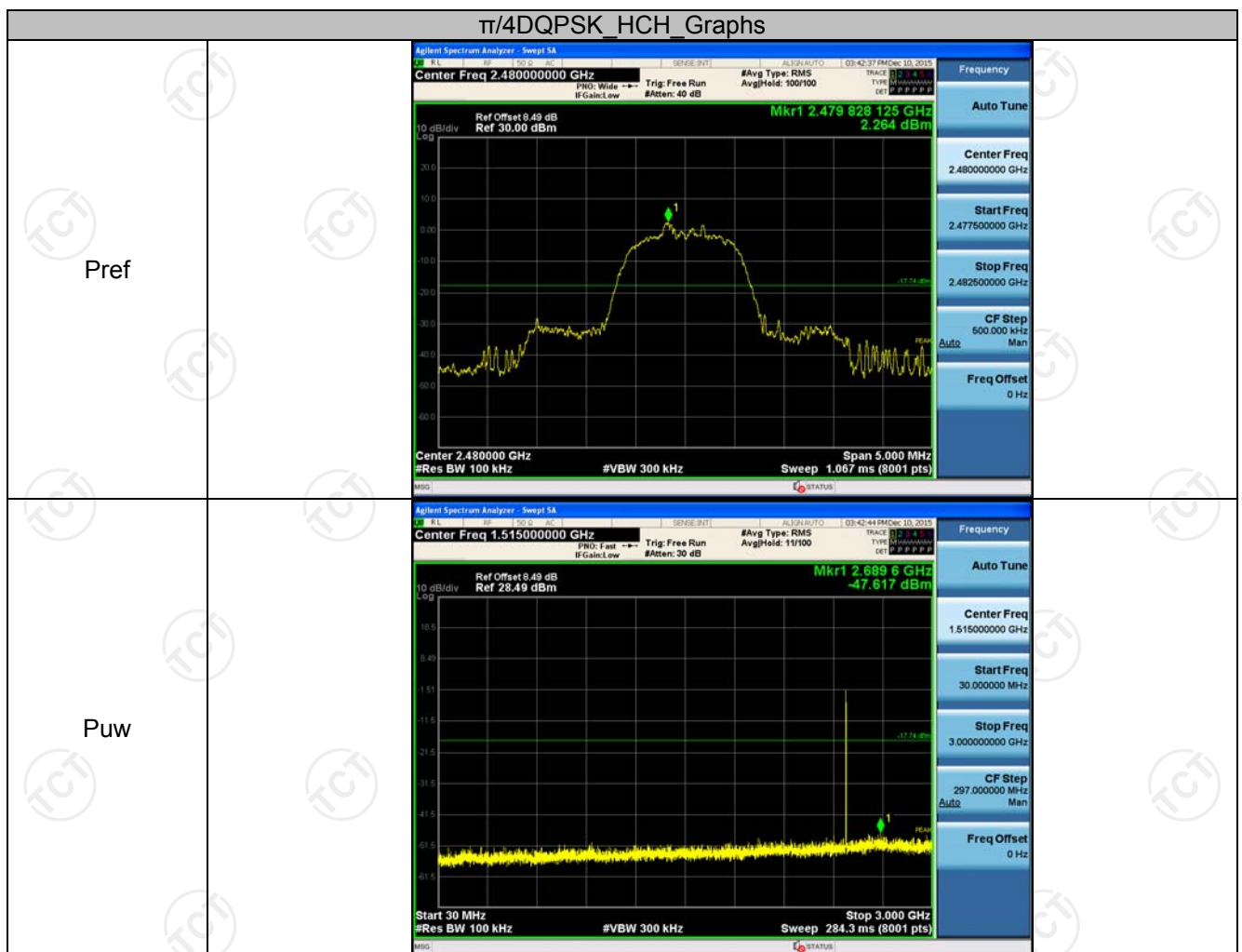
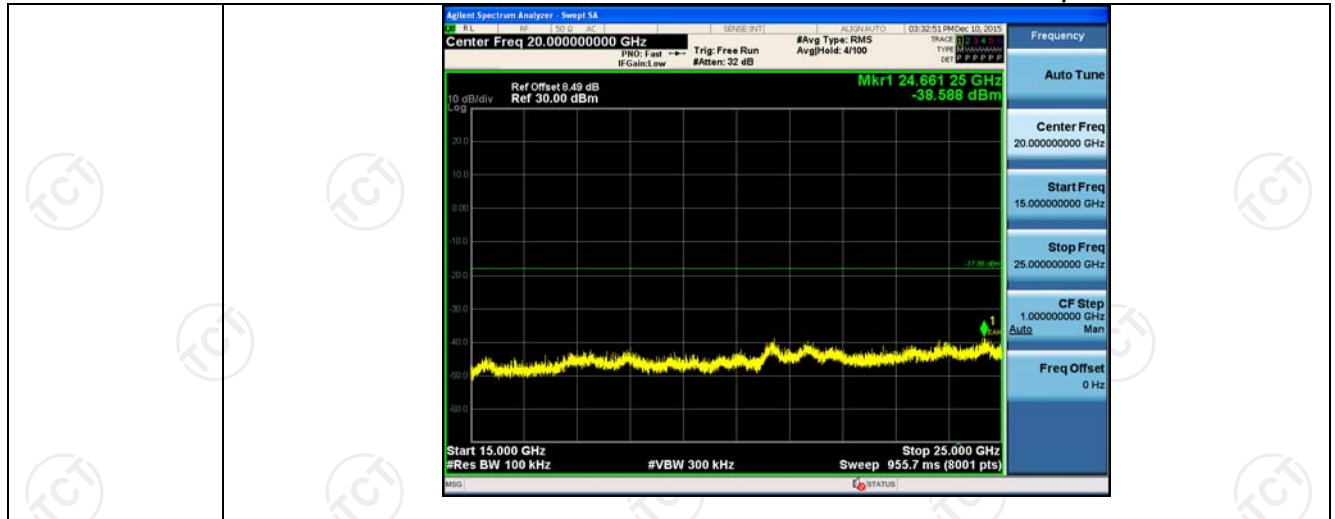


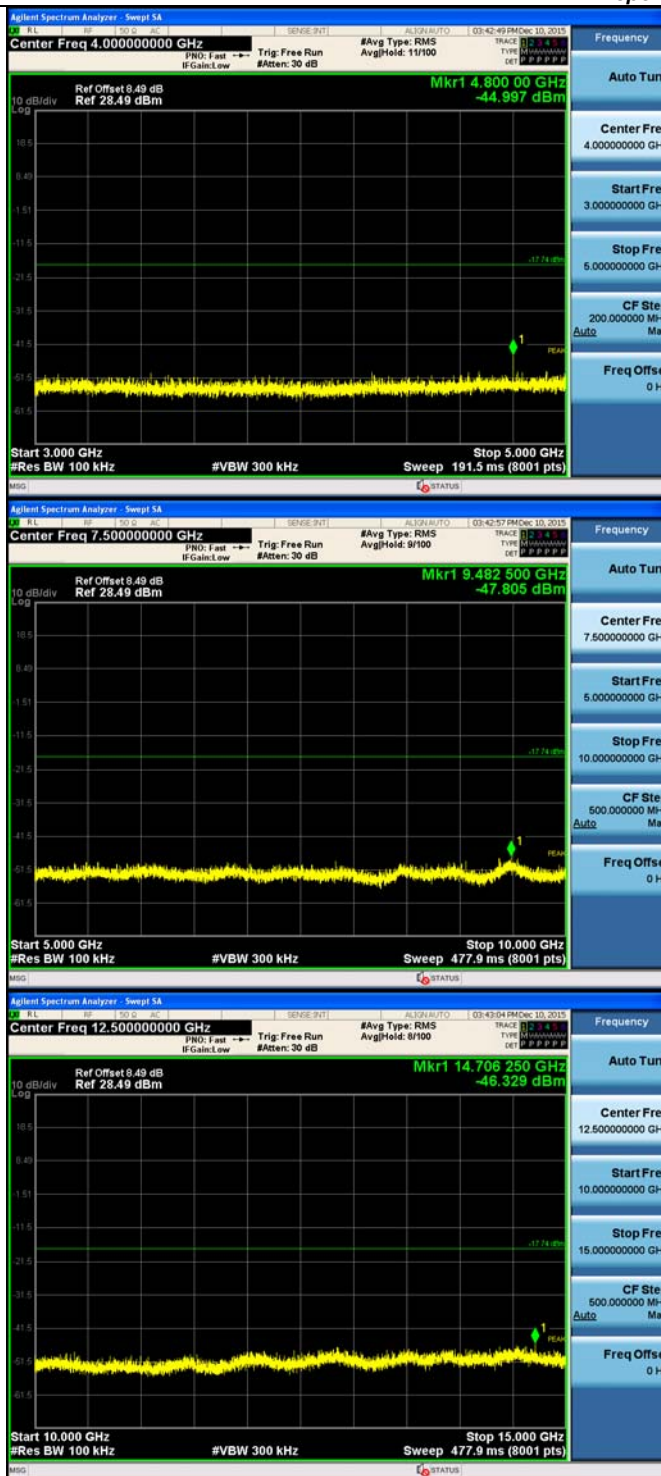


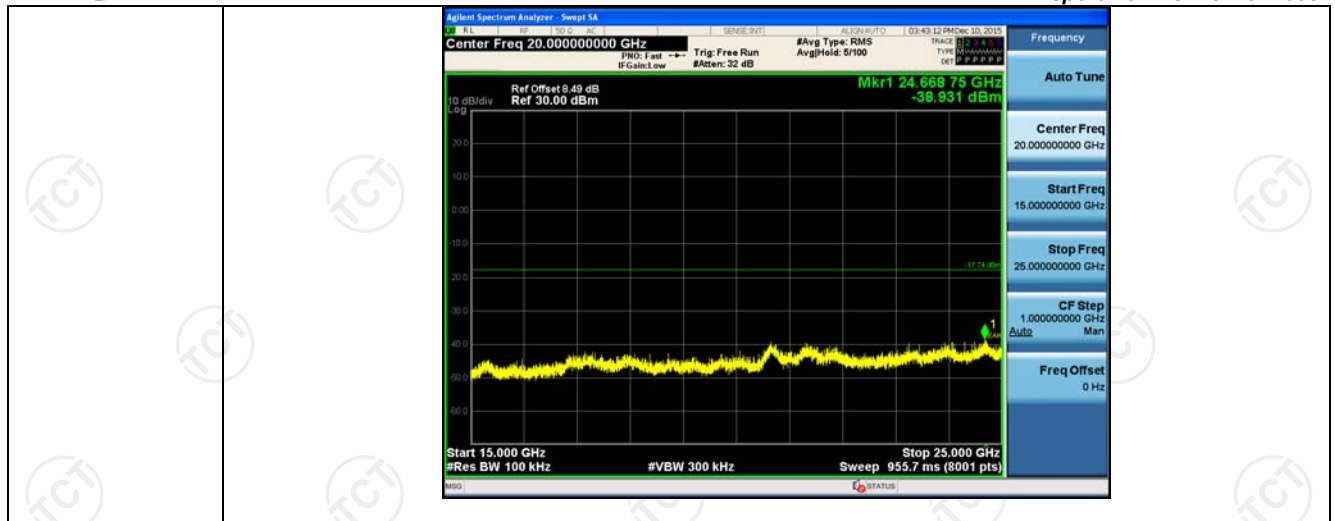
## $\pi/4$ DQPSK\_MCH\_Graphs



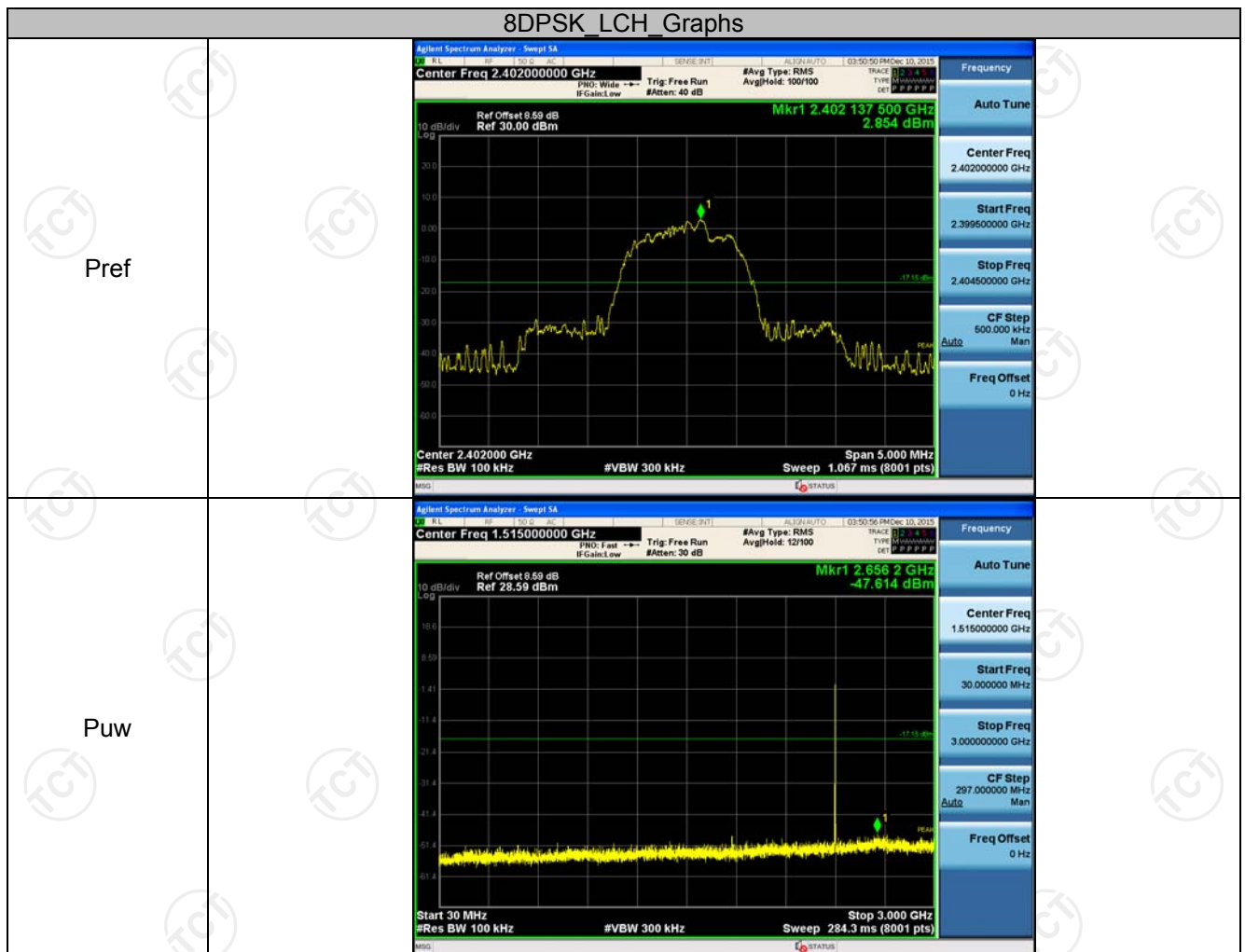


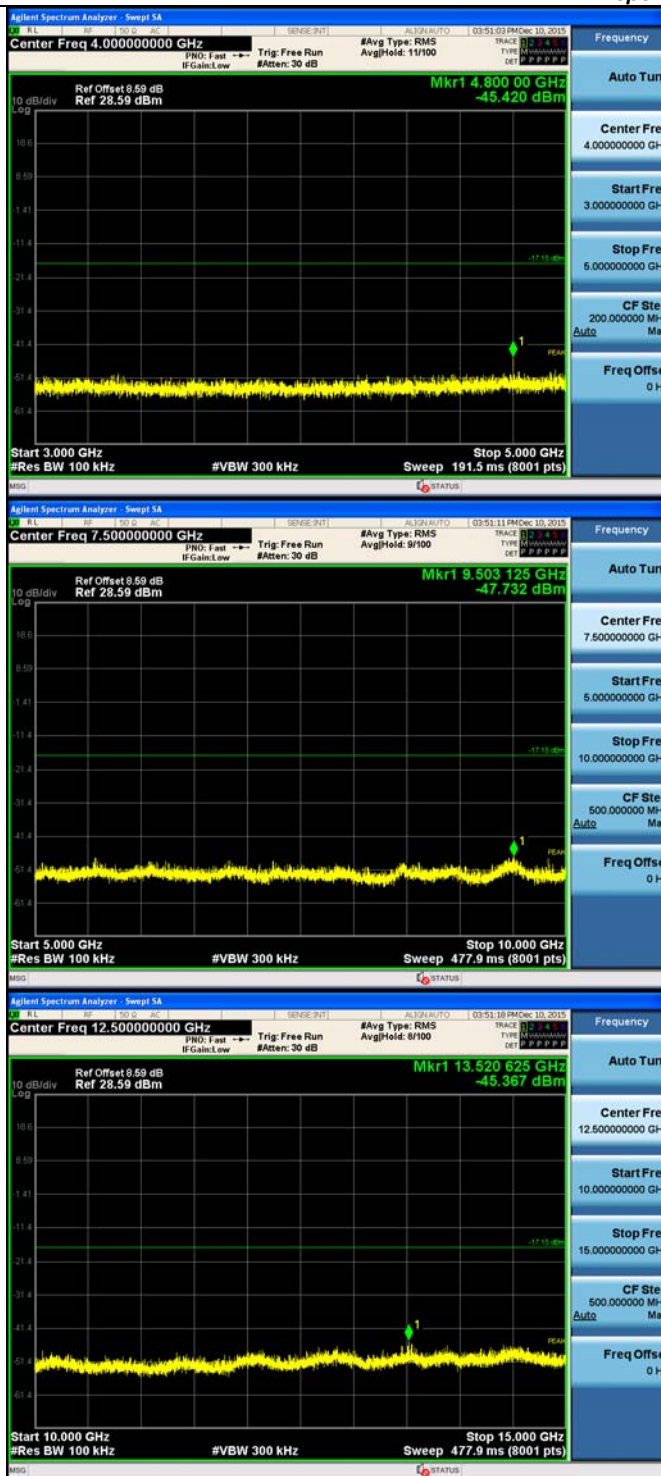


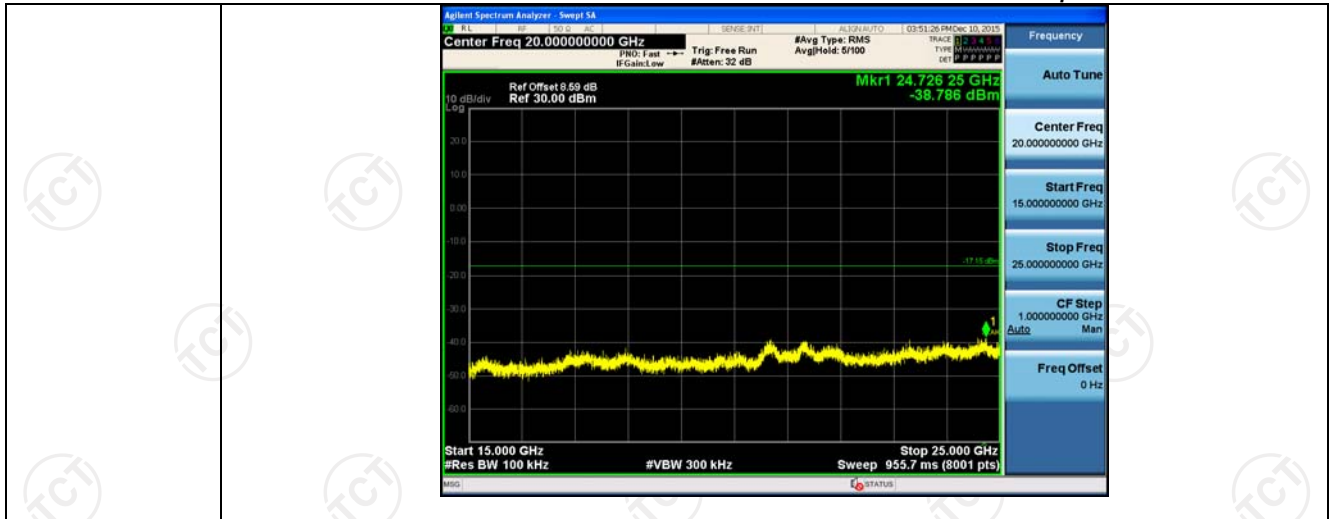




## 8DPSK\_LCH\_Graphs

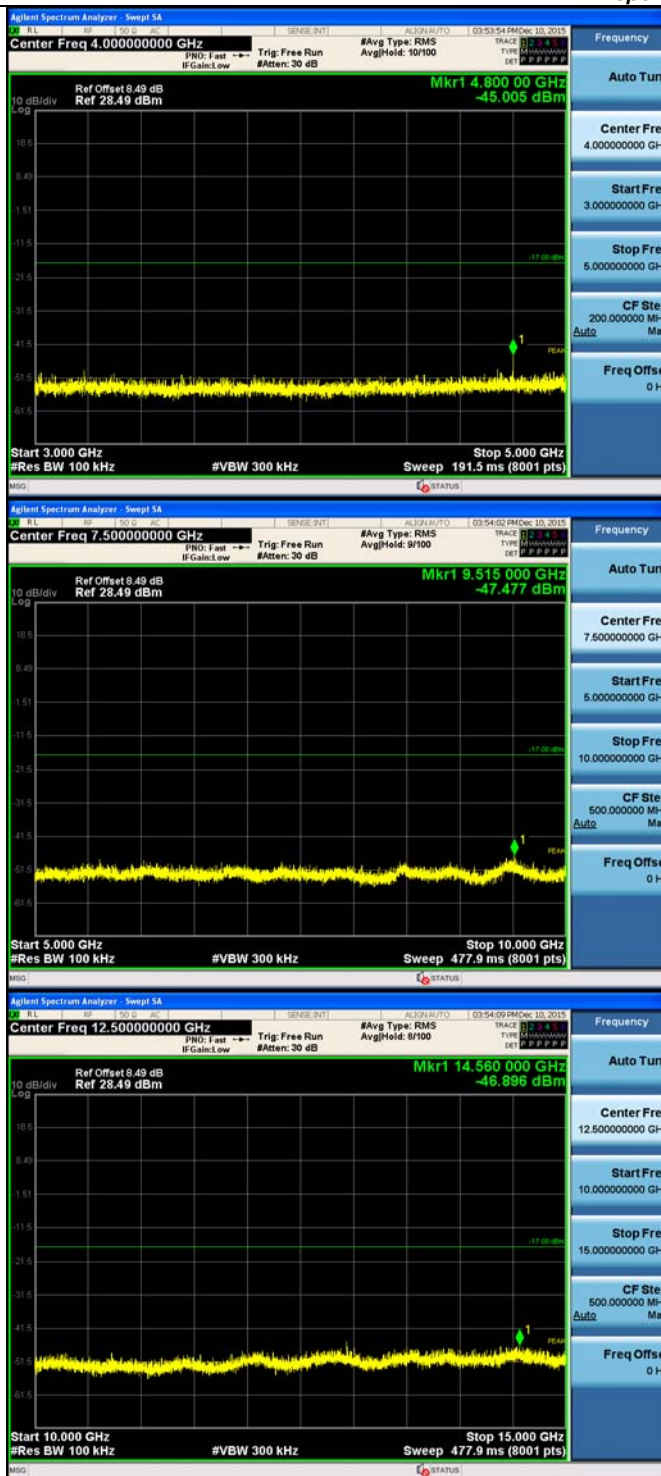


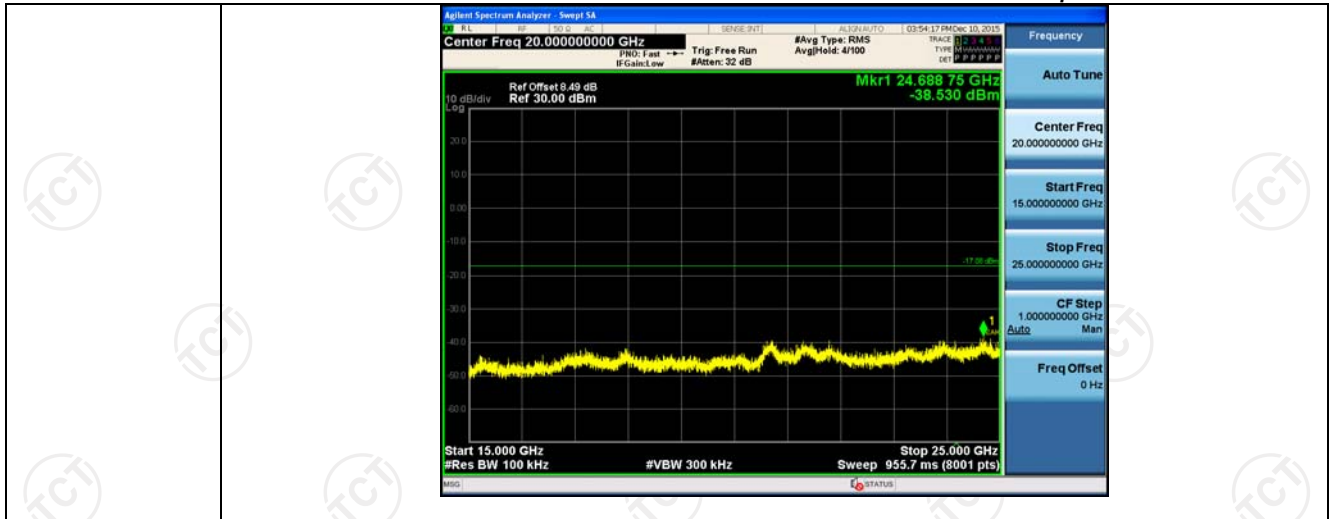




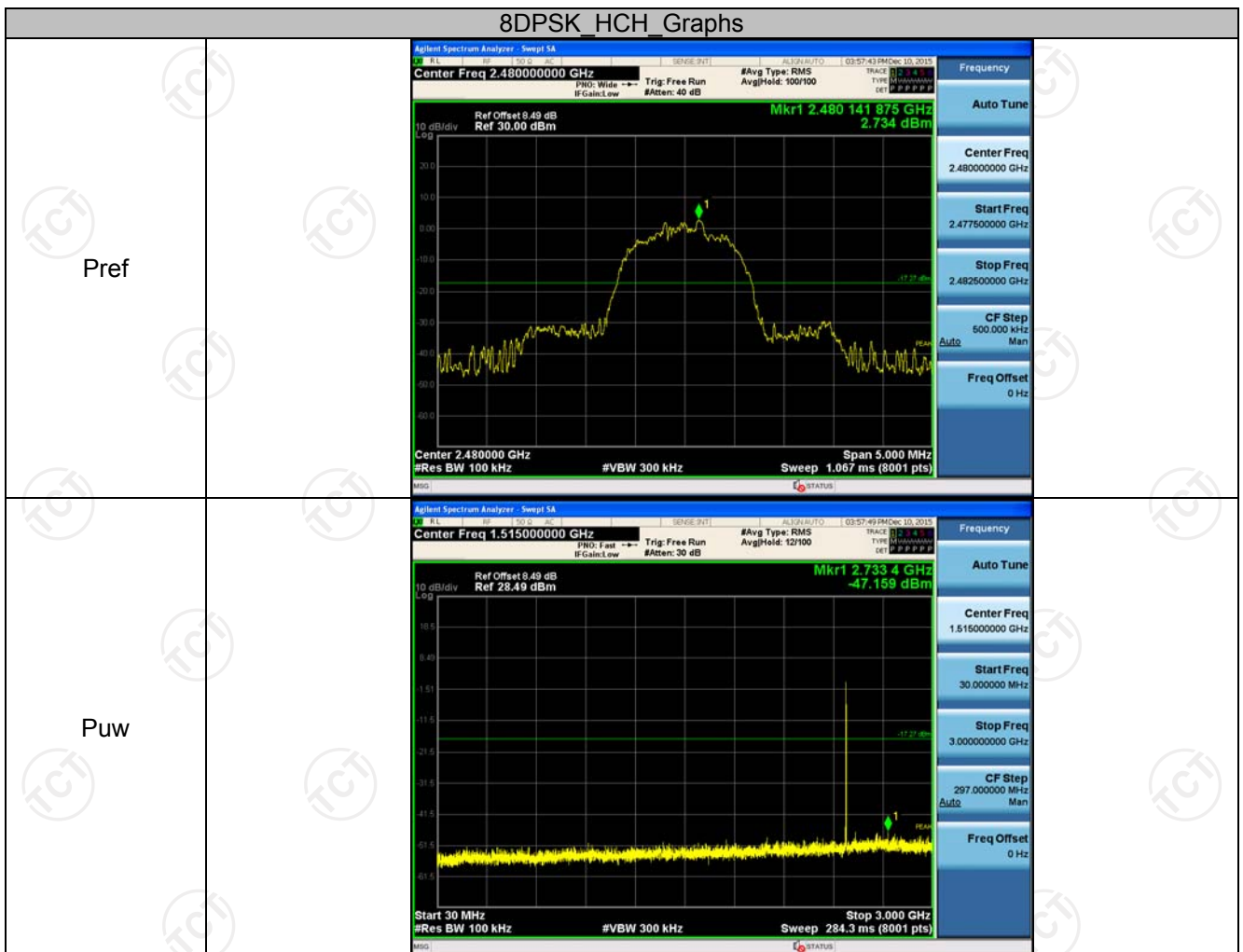
## 8DPSK\_MCH\_Graphs

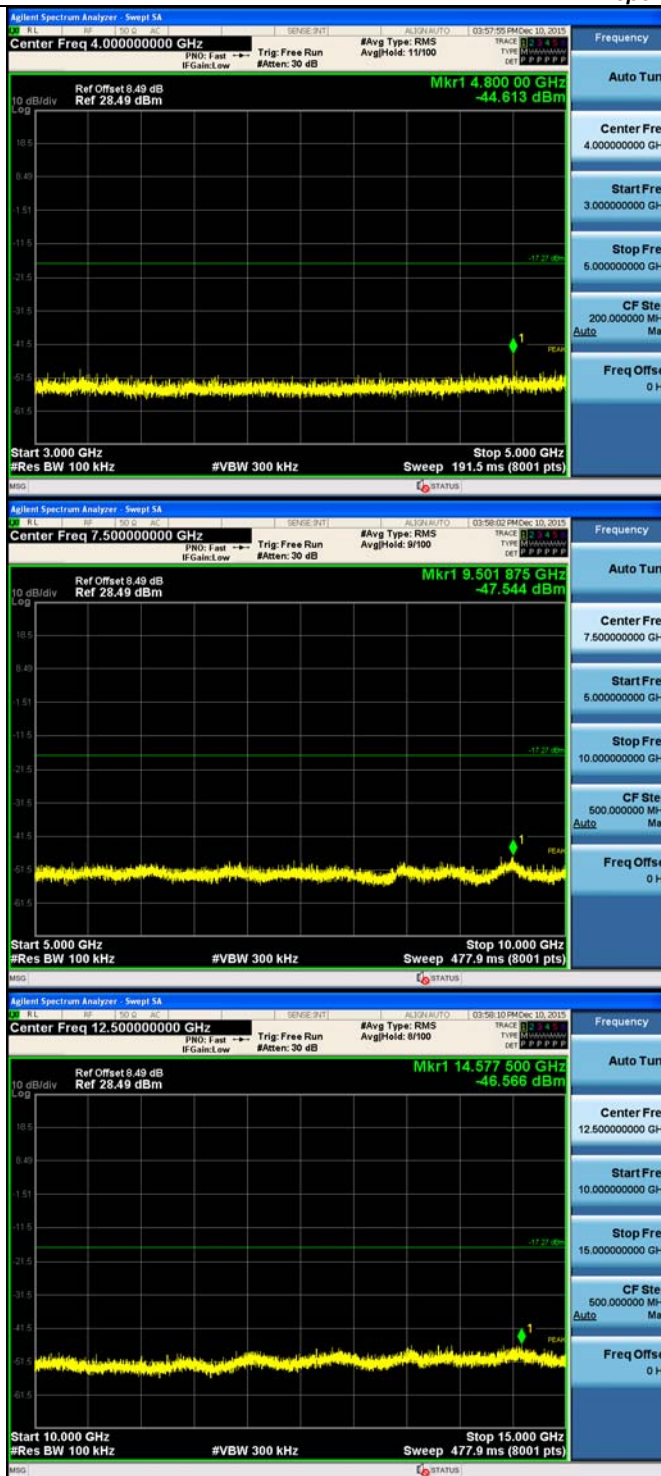


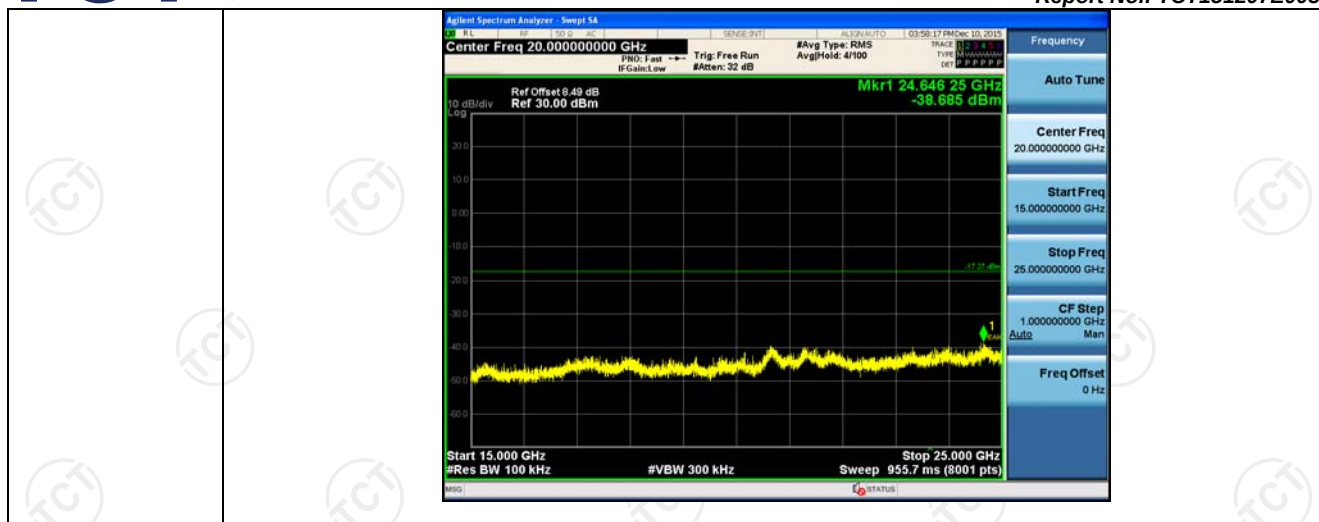




## 8DPSK\_HCH\_Graphs







\*\*\*\*\*END OF REPORT\*\*\*\*\*