

## Appendix A

### RF Test Data for BT LE (Conducted Measurement)

Product Name: Smart small spotlights

Trade Mark: N/A

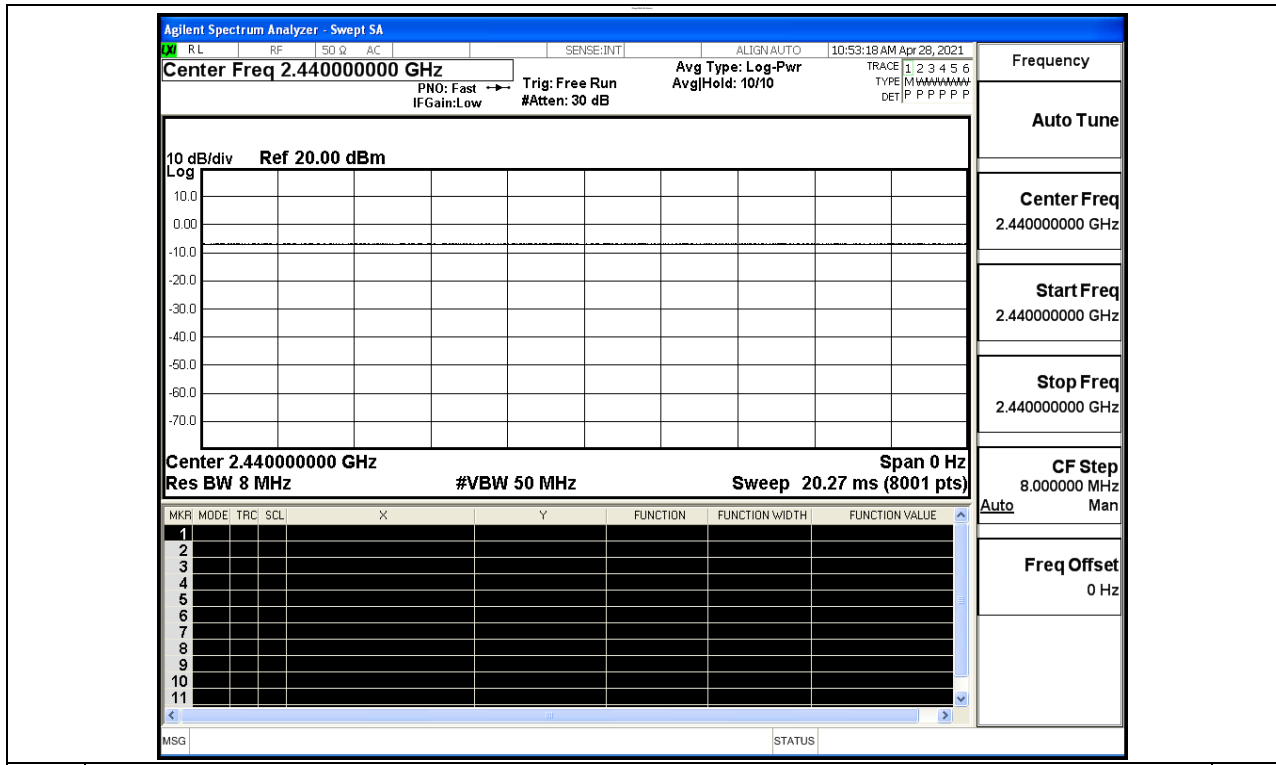
Test Model: GU10

#### Environmental Conditions

|                    |           |
|--------------------|-----------|
| Temperature:       | 25 ° C    |
| Relative Humidity: | 50%       |
| ATM Pressure:      | 100.0 kPa |
| Test Engineer:     | Carl Fu   |
| Supervised by:     | Li Huan   |

#### A.1 Duty Cycle

| Test Mode | Test Channel | Ant  | Duty Cycle[%] | Verdict |
|-----------|--------------|------|---------------|---------|
| BT LE     | 2440         | Ant1 | 100           | PASS    |



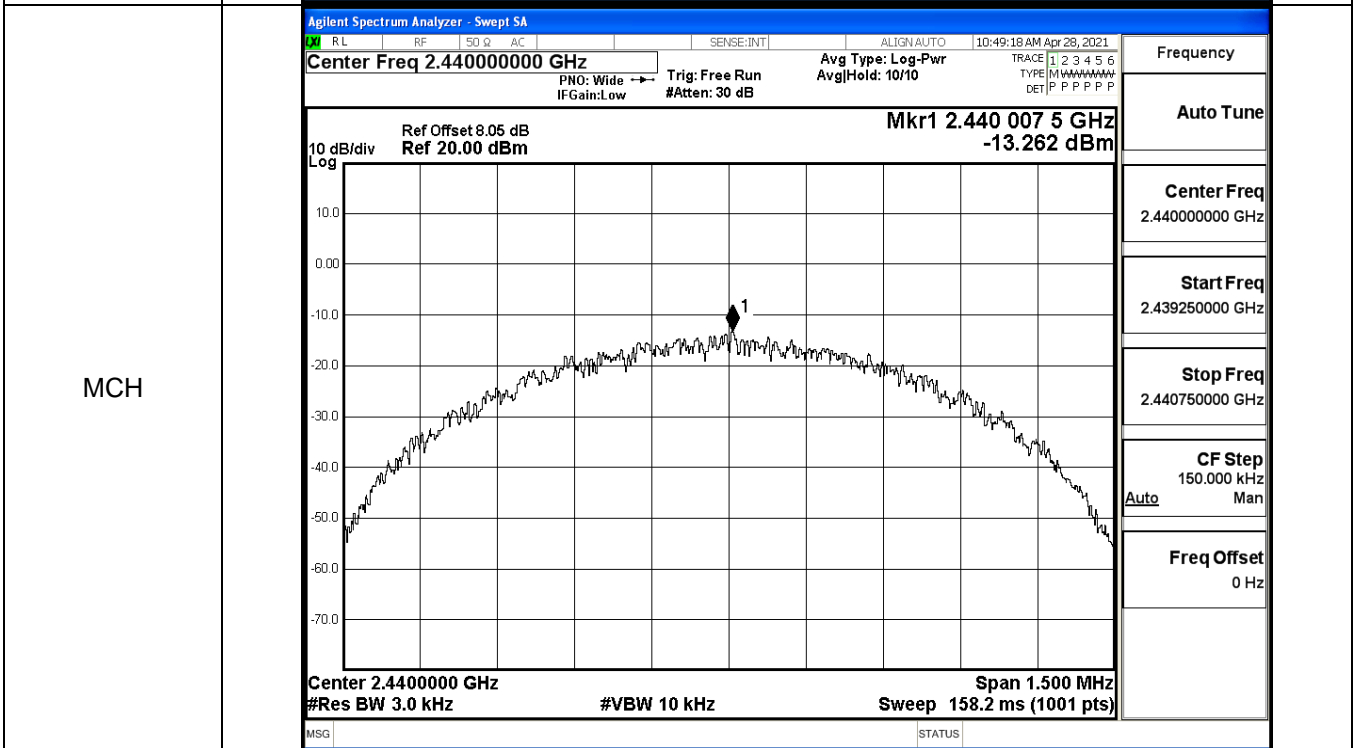
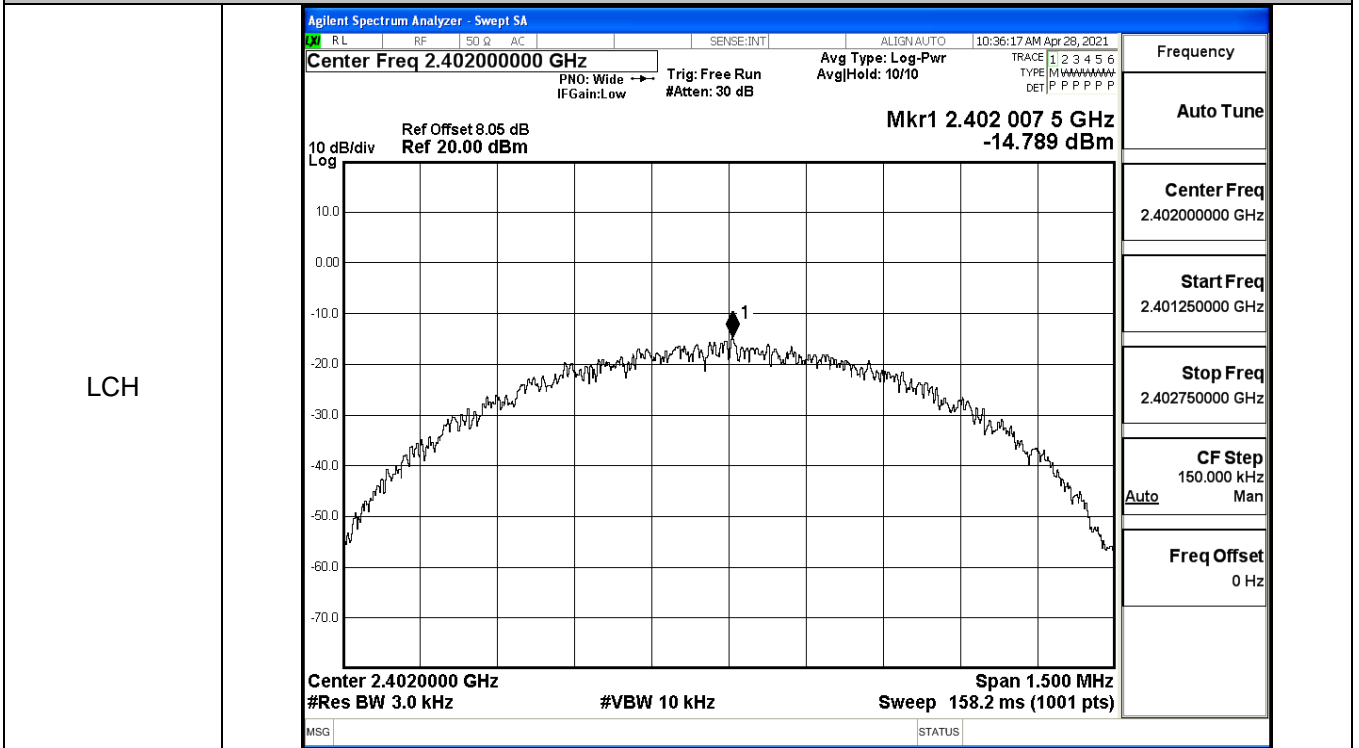
### A.2 Maximum Conducted Peak Output Power

| Mode  | Channel | Conduct Peak Power[dBm] | Limit [dBm] | Verdict |
|-------|---------|-------------------------|-------------|---------|
| BT LE | LCH     | 0.526                   | 30          | PASS    |
| BT LE | MCH     | 2.184                   | 30          | PASS    |
| BT LE | HCH     | 2.043                   | 30          | PASS    |

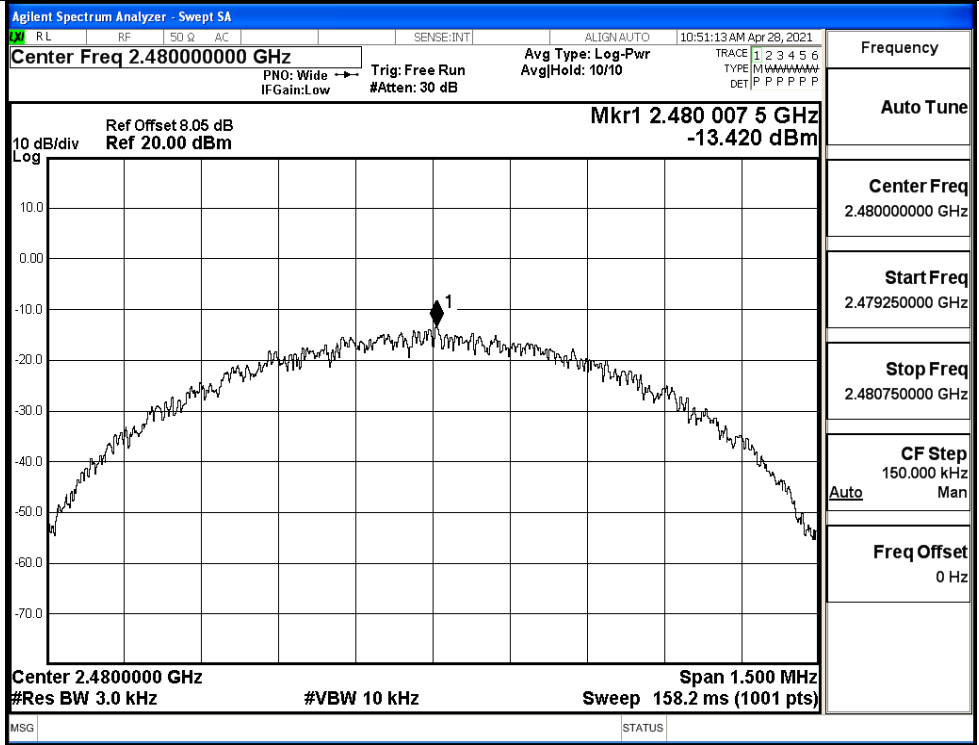
### A.3 Maximum Power Spectral Density

| Mode  | Channel | PSD [dBm/3KHz] | Limit [dBm/3KHz] | Verdict |
|-------|---------|----------------|------------------|---------|
| BT LE | LCH     | -14.789        | 8                | PASS    |
| BT LE | MCH     | -13.262        | 8                | PASS    |
| BT LE | HCH     | -13.420        | 8                | PASS    |

#### Test Graphs



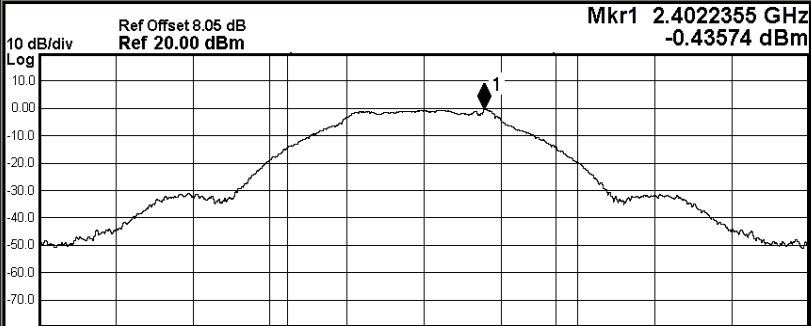
HCH

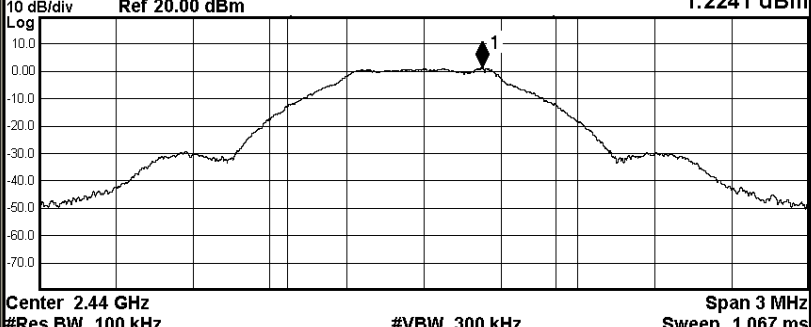


**A.4 6dB Bandwidth**

| Mode  | Channel | 6dB Bandwidth [MHz] | Limit [MHz] | Verdict |
|-------|---------|---------------------|-------------|---------|
| BT LE | LCH     | 0.6715              | ≥0.5        | PASS    |
| BT LE | MCH     | 0.6844              | ≥0.5        | PASS    |
| BT LE | HCH     | 0.6640              | ≥0.5        | PASS    |

**Test Graphs**

|                     |  |                                    |             |          |                   |  |  |                     |           |         |                |      |          |
|---------------------|--|------------------------------------|-------------|----------|-------------------|--|--|---------------------|-----------|---------|----------------|------|----------|
| LCH                 | <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 10:35:52 AM Apr 28, 2021</p> <p style="margin: 0;">Center Freq 2.402000000 GHz Center Freq: 2.402000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold&gt;1/1</p> <p style="font-size: x-small; margin: 0;">#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> | Frequency                          |             |          |                   |  |  |                     |           |         |                |      |          |
|                     |  <p style="font-size: x-small; margin: 0;">10 dB/div Ref Offset 8.05 dB Mkr1 2.4022355 GHz<br/>Log Ref 20.00 dBm -0.43574 dBm</p>  | Center Freq<br>2.402000000 GHz     |             |          |                   |  |  |                     |           |         |                |      |          |
|                     | <p style="font-size: x-small; margin: 0;">Center 2.402 GHz Span 3 MHz<br/>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p>  | CF Step<br>300.000 kHz<br>Auto Man |             |          |                   |  |  |                     |           |         |                |      |          |
|                     | <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td style="width: 33%;">Occupied Bandwidth</td> <td style="width: 33%;">Total Power</td> <td style="width: 33%;">6.71 dBm</td> </tr> <tr> <td style="text-align: center;"><b>1.0408 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>    | Occupied Bandwidth                 | Total Power | 6.71 dBm | <b>1.0408 MHz</b> |  |  | Transmit Freq Error | OBW Power | 99.00 % | x dB Bandwidth | x dB | -6.00 dB |
| Occupied Bandwidth  | Total Power  | 6.71 dBm                           |             |          |                   |  |  |                     |           |         |                |      |          |
| <b>1.0408 MHz</b>   |  |                                    |             |          |                   |  |  |                     |           |         |                |      |          |
| Transmit Freq Error | OBW Power  | 99.00 %                            |             |          |                   |  |  |                     |           |         |                |      |          |
| x dB Bandwidth      | x dB   | -6.00 dB                           |             |          |                   |  |  |                     |           |         |                |      |          |

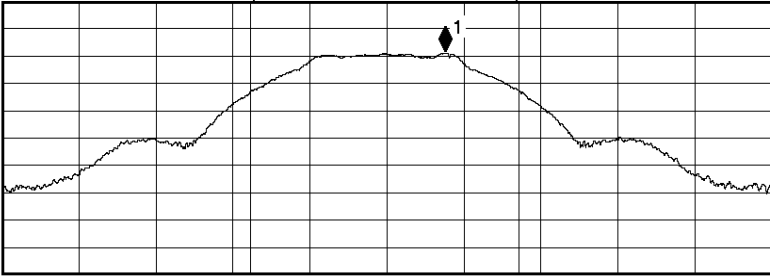
|                     |  |                                    |             |          |                   |  |  |                     |           |         |                |      |          |
|---------------------|--|------------------------------------|-------------|----------|-------------------|--|--|---------------------|-----------|---------|----------------|------|----------|
| MCH                 | <p style="font-size: small; margin: 0;">Agilent Spectrum Analyzer - Occupied BW</p> <p style="font-size: x-small; margin: 0;">RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 10:48:53 AM Apr 28, 2021</p> <p style="margin: 0;">Center Freq 2.440000000 GHz Center Freq: 2.440000000 GHz Radio Std: None</p> <p style="font-size: x-small; margin: 0;">Trig: Free Run AvgHold&gt;1/1</p> <p style="font-size: x-small; margin: 0;">#IFGain:Low #Atten: 30 dB Radio Device: BTS</p> | Frequency                          |             |          |                   |  |  |                     |           |         |                |      |          |
|                     |  <p style="font-size: x-small; margin: 0;">10 dB/div Ref Offset 8.05 dB Mkr1 2.4402288 GHz<br/>Log Ref 20.00 dBm 1.2241 dBm</p>  | Center Freq<br>2.440000000 GHz     |             |          |                   |  |  |                     |           |         |                |      |          |
|                     | <p style="font-size: x-small; margin: 0;">Center 2.44 GHz Span 3 MHz<br/>#Res BW 100 kHz #VBW 300 kHz Sweep 1.067 ms</p>   | CF Step<br>300.000 kHz<br>Auto Man |             |          |                   |  |  |                     |           |         |                |      |          |
|                     | <table style="width: 100%; font-size: x-small; border-collapse: collapse;"> <tr> <td style="width: 33%;">Occupied Bandwidth</td> <td style="width: 33%;">Total Power</td> <td style="width: 33%;">8.40 dBm</td> </tr> <tr> <td style="text-align: center;"><b>1.0394 MHz</b></td> <td></td> <td></td> </tr> <tr> <td>Transmit Freq Error</td> <td>OBW Power</td> <td>99.00 %</td> </tr> <tr> <td>x dB Bandwidth</td> <td>x dB</td> <td>-6.00 dB</td> </tr> </table>    | Occupied Bandwidth                 | Total Power | 8.40 dBm | <b>1.0394 MHz</b> |  |  | Transmit Freq Error | OBW Power | 99.00 % | x dB Bandwidth | x dB | -6.00 dB |
| Occupied Bandwidth  | Total Power  | 8.40 dBm                           |             |          |                   |  |  |                     |           |         |                |      |          |
| <b>1.0394 MHz</b>   |  |                                    |             |          |                   |  |  |                     |           |         |                |      |          |
| Transmit Freq Error | OBW Power  | 99.00 %                            |             |          |                   |  |  |                     |           |         |                |      |          |
| x dB Bandwidth      | x dB   | -6.00 dB                           |             |          |                   |  |  |                     |           |         |                |      |          |

HCH

Agilent Spectrum Analyzer - Occupied BW

|                                    |    |      |                              |           |                   |                          |
|------------------------------------|----|------|------------------------------|-----------|-------------------|--------------------------|
| RL                                 | RF | 50 Ω | AC                           | SENSE:INT | ALIGN:AUTO        | 10:50:49 AM Apr 28, 2021 |
| <b>Center Freq 2.480000000 GHz</b> |    |      | Center Freq: 2.480000000 GHz |           | Radio Std: None   |                          |
|                                    |    |      | Trig: Free Run               |           | AvgHold>1/1       |                          |
| #IFGain:Low                        |    |      | #Atten: 30 dB                |           | Radio Device: BTS |                          |

|           |                    |                           |
|-----------|--------------------|---------------------------|
| 10 dB/div | Ref Offset 8.05 dB | <b>Mkr1 2.4802284 GHz</b> |
| Log       | Ref 20.00 dBm      | <b>1.1008 dBm</b>         |



|                 |              |                |
|-----------------|--------------|----------------|
| Center 2.48 GHz | #VBW 300 kHz | Span 3 MHz     |
| #Res BW 100 kHz |              | Sweep 1.067 ms |

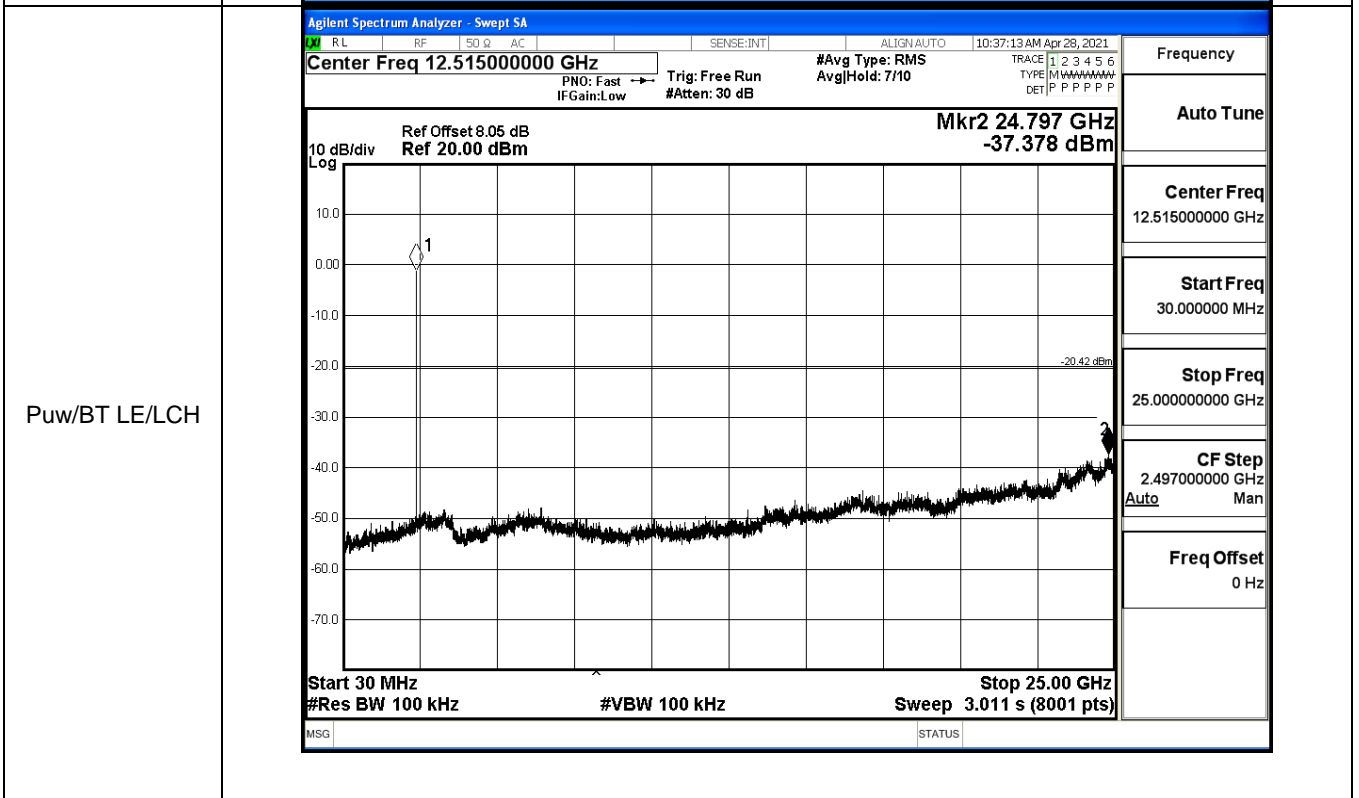
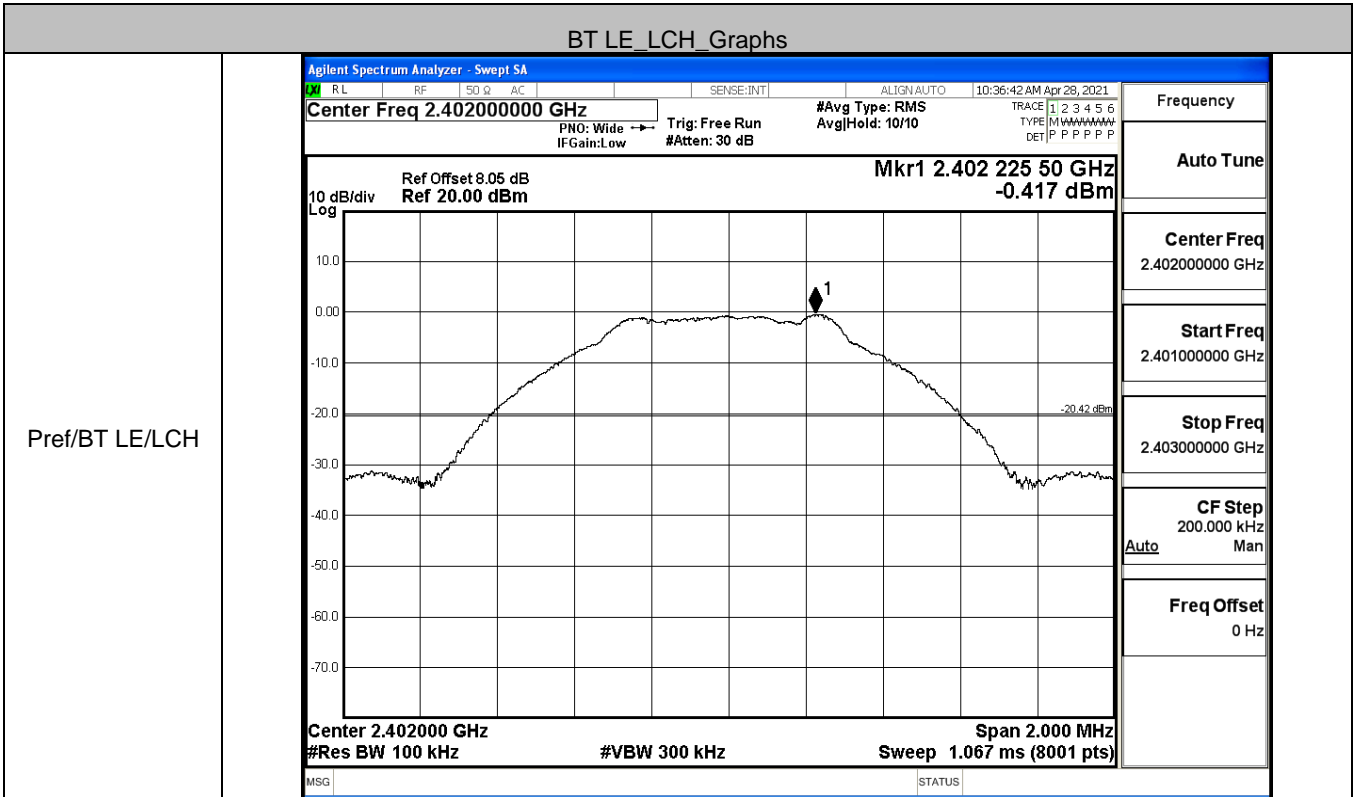
|                           |                    |                 |
|---------------------------|--------------------|-----------------|
| <b>Occupied Bandwidth</b> | <b>Total Power</b> | <b>8.26 dBm</b> |
| <b>1.0378 MHz</b>         |                    |                 |
| Transmit Freq Error       | -5.521 kHz         | OBW Power       |
| x dB Bandwidth            | 664.0 kHz          | x dB            |
|                           |                    | 99.00 %         |
|                           |                    | -6.00 dB        |

|             |                 |
|-------------|-----------------|
| Frequency   | 2.480000000 GHz |
| Center Freq | 2.480000000 GHz |
| CF Step     | 300.000 kHz     |
| Auto        | Man             |
| Freq Offset | 0 Hz            |

### A.5 RF Conducted Spurious Emissions

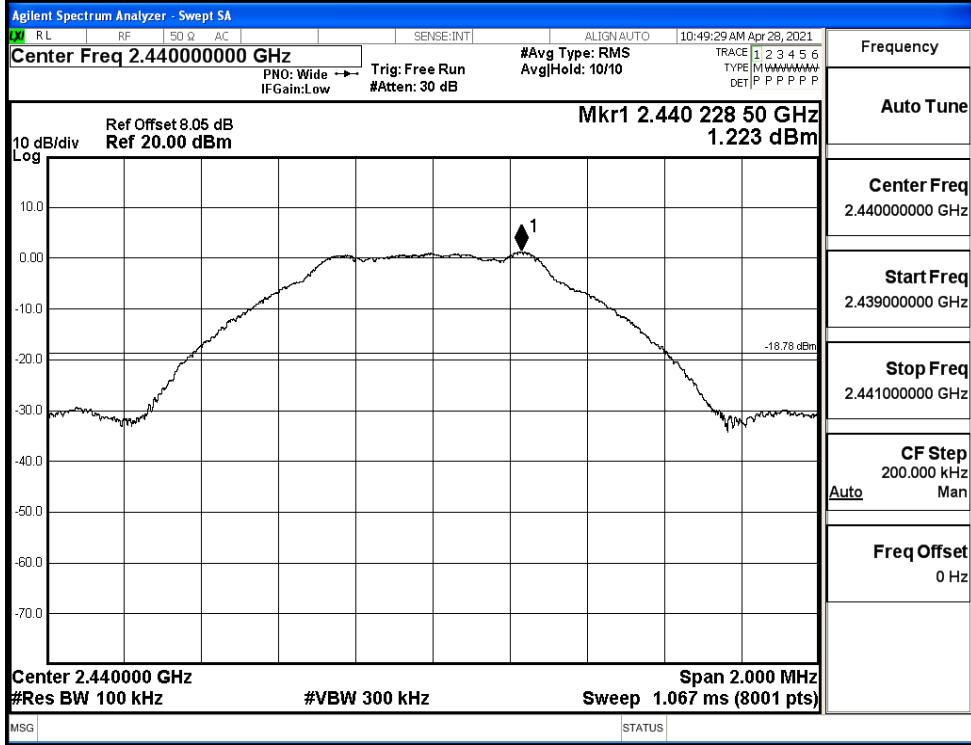
| Mode  | Channel | Pref [dBm] | Max. Level [dBm] | Limit [dBm] | Verdict |
|-------|---------|------------|------------------|-------------|---------|
| BT LE | LCH     | -0.417     | -37.378          | -20.417     | PASS    |
| BT LE | MCH     | 1.223      | -37.810          | -18.777     | PASS    |
| BT LE | HCH     | 1.046      | -37.872          | -18.954     | PASS    |

BT LE\_LCH\_Graphs

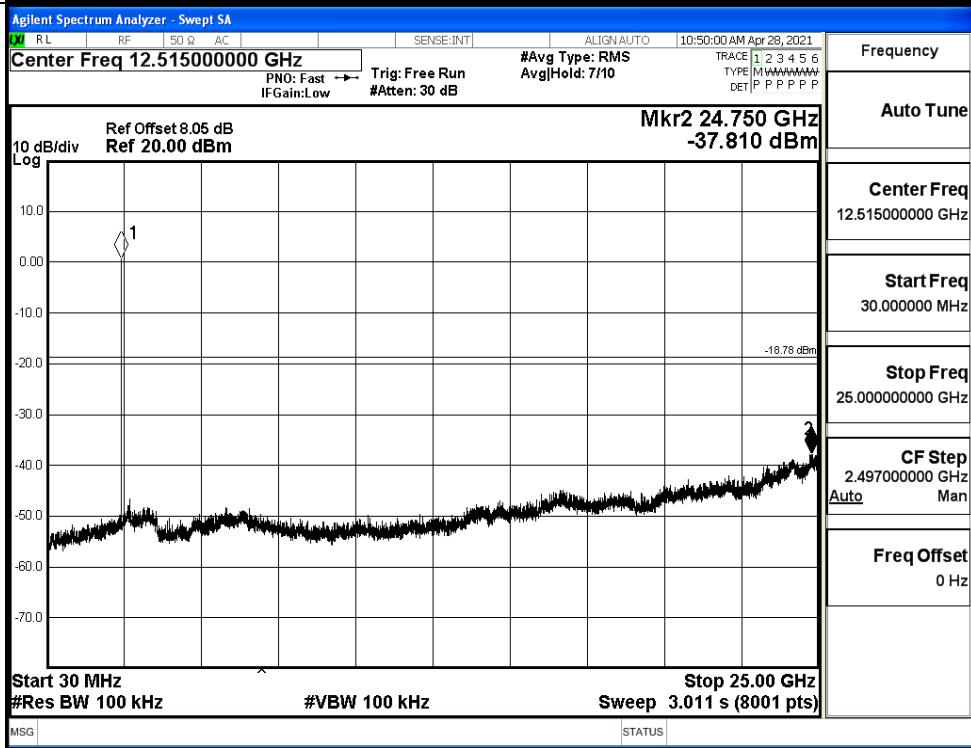


BT LE\_MCH\_Graphs

Pref/BT LE/MCH



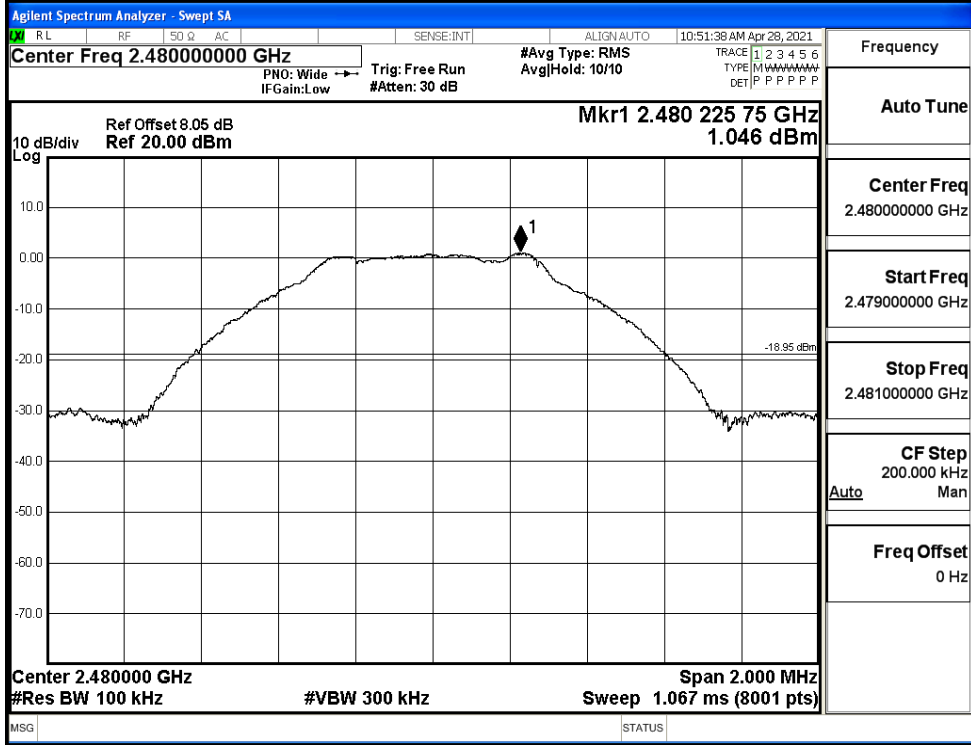
Puw/BT LE/MCH



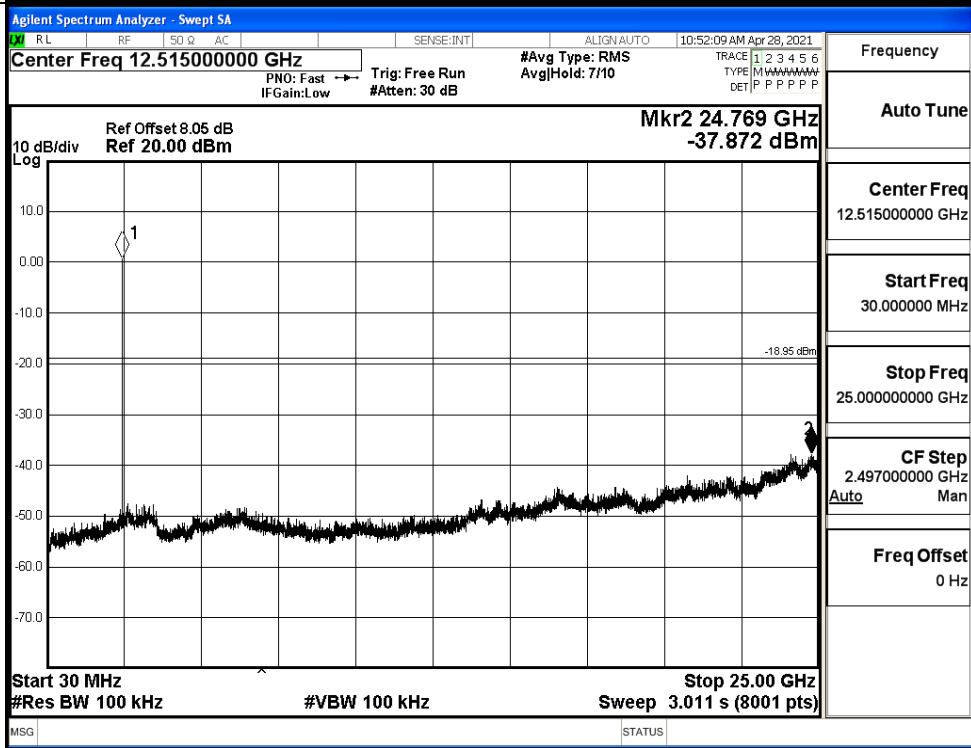


BT LE\_HCH\_Graphs

Pref/BT LE/HCH



Puw/BT LE/HCH



### A.6 Band-edge for RF Conducted Emissions

| Mode  | Channel | Carrier Power[dBm] | Max.Spurious Level [dBm] | Limit [dBm] | Verdict |
|-------|---------|--------------------|--------------------------|-------------|---------|
| BT LE | LCH     | -0.256             | -50.141                  | -20.26      | PASS    |
| BT LE | HCH     | 1.285              | -48.726                  | -18.72      | PASS    |

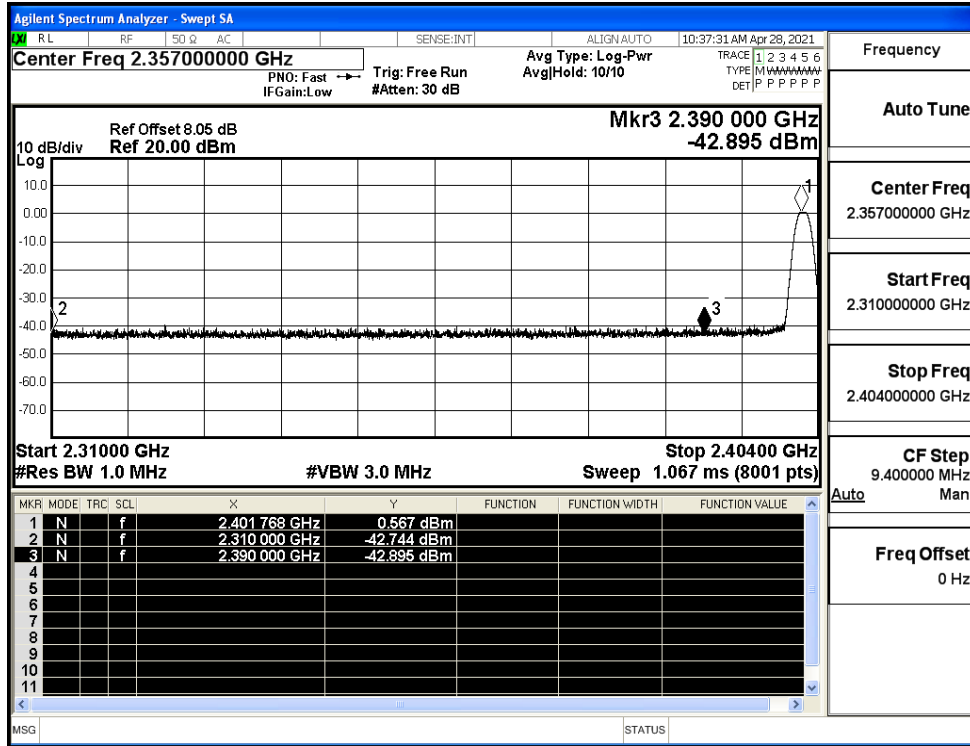
Test Graphs

| LCH | <p>Agilent Spectrum Analyzer - Swept SA<br/>                 Center Freq 2.35700000 GHz<br/>                 Ref Offset 8.05 dB, Ref 20.00 dBm<br/>                 Mkr4 2.326 920 GHz, -50.141 dBm<br/>                 Start 2.31000 GHz, Stop 2.40400 GHz<br/>                 #Res BW 100 kHz, #VBW 300 kHz, Sweep 9.067 ms (8001 pts)</p> <table border="1" style="font-size: small;"> <thead> <tr> <th>MKR</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> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.402 249 GHz</td><td>-0.256 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.400 000 GHz</td><td>-51.493 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.390 000 GHz</td><td>-53.893 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.326 920 GHz</td><td>-50.141 dBm</td><td></td><td></td><td></td></tr> </tbody> </table>               | MKR | MODE | TRC              | SCL         | X        | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | f |  | 2.402 249 GHz    | -0.256 dBm |  |  |  | 2 | N | f |  | 2.400 000 GHz    | -51.493 dBm |  |  |  | 3 | N | f |  | 2.390 000 GHz    | -53.893 dBm |  |  |  | 4 | N | f |  | 2.326 920 GHz    | -50.141 dBm |  |  |  | Frequency<br>Auto Tune<br>Center Freq<br>2.35700000 GHz<br>Start Freq<br>2.31000000 GHz<br>Stop Freq<br>2.40400000 GHz<br>CF Step<br>9.400000 MHz<br>Freq Offset<br>0 Hz |
|-----|---|-----|------|------------------|-------------|----------|----------------|----------------|----------------|----------------|---|---|---|--|------------------|------------|--|--|--|---|---|---|--|------------------|-------------|--|--|--|---|---|---|--|------------------|-------------|--|--|--|---|---|---|--|------------------|-------------|--|--|--|--|
| MKR | MODE  | TRC | SCL  | X                | Y           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 1   | N   | f   |      | 2.402 249 GHz    | -0.256 dBm  |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 2   | N   | f   |      | 2.400 000 GHz    | -51.493 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 3   | N   | f   |      | 2.390 000 GHz    | -53.893 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 4   | N   | f   |      | 2.326 920 GHz    | -50.141 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| HCH | <p>Agilent Spectrum Analyzer - Swept SA<br/>                 Center Freq 2.48900000 GHz<br/>                 Ref Offset 8.05 dB, Ref 20.00 dBm<br/>                 Mkr4 2.487 710 25 GHz, -48.726 dBm<br/>                 Start 2.47800 GHz, Stop 2.50000 GHz<br/>                 #Res BW 100 kHz, #VBW 300 kHz, Sweep 2.133 ms (8001 pts)</p> <table border="1" style="font-size: small;"> <thead> <tr> <th>MKR</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> </thead> <tbody> <tr><td>1</td><td>N</td><td>f</td><td></td><td>2.480 222 00 GHz</td><td>1.285 dBm</td><td></td><td></td><td></td></tr> <tr><td>2</td><td>N</td><td>f</td><td></td><td>2.483 500 00 GHz</td><td>-51.123 dBm</td><td></td><td></td><td></td></tr> <tr><td>3</td><td>N</td><td>f</td><td></td><td>2.500 000 00 GHz</td><td>-52.110 dBm</td><td></td><td></td><td></td></tr> <tr><td>4</td><td>N</td><td>f</td><td></td><td>2.487 710 25 GHz</td><td>-48.726 dBm</td><td></td><td></td><td></td></tr> </tbody> </table> | MKR | MODE | TRC              | SCL         | X        | Y              | FUNCTION       | FUNCTION WIDTH | FUNCTION VALUE | 1 | N | f |  | 2.480 222 00 GHz | 1.285 dBm  |  |  |  | 2 | N | f |  | 2.483 500 00 GHz | -51.123 dBm |  |  |  | 3 | N | f |  | 2.500 000 00 GHz | -52.110 dBm |  |  |  | 4 | N | f |  | 2.487 710 25 GHz | -48.726 dBm |  |  |  | Frequency<br>Auto Tune<br>Center Freq<br>2.48900000 GHz<br>Start Freq<br>2.47800000 GHz<br>Stop Freq<br>2.50000000 GHz<br>CF Step<br>2.200000 MHz<br>Freq Offset<br>0 Hz |
| MKR | MODE  | TRC | SCL  | X                | Y           | FUNCTION | FUNCTION WIDTH | FUNCTION VALUE |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 1   | N   | f   |      | 2.480 222 00 GHz | 1.285 dBm   |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 2   | N   | f   |      | 2.483 500 00 GHz | -51.123 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 3   | N   | f   |      | 2.500 000 00 GHz | -52.110 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |
| 4   | N   | f   |      | 2.487 710 25 GHz | -48.726 dBm |          |                |                |                |                |   |   |   |  |                  |            |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |   |   |   |  |                  |             |  |  |  |  |

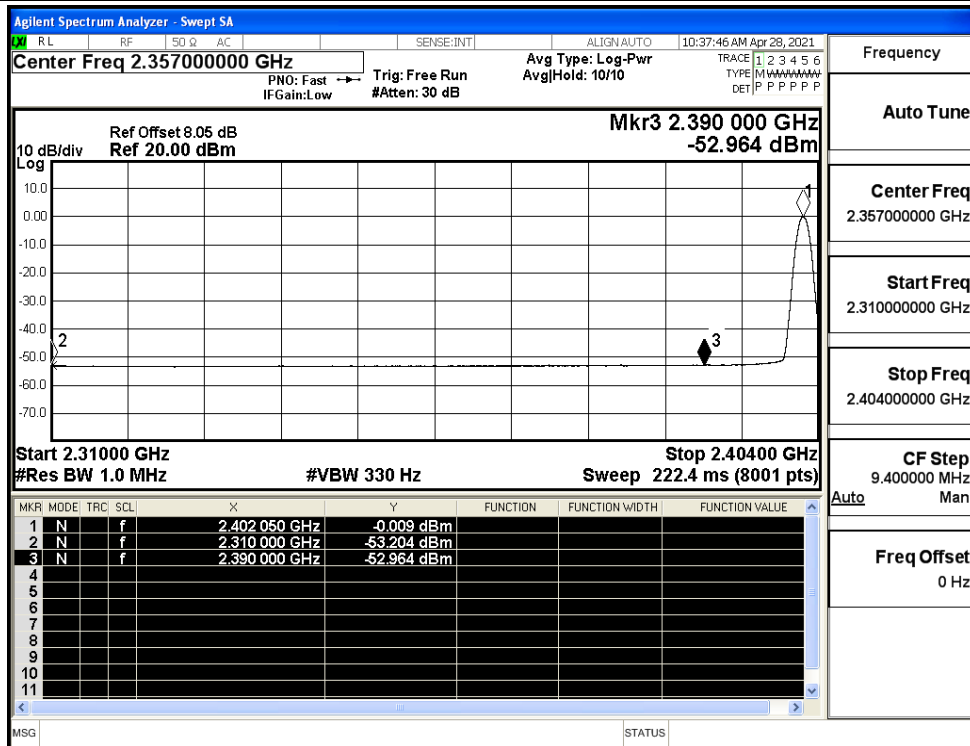
## A.7 Restrict-band band-edge measurements

| Test Mode | Test Channel | Ant  | Freq.  | Power [dBm] | Gain | Ground Factor | E [dBuV/m] | Detector | Limit [dBuV/m] | Verdi |
|-----------|--------------|------|--------|-------------|------|---------------|------------|----------|----------------|-------|
| BT LE     | 2402         | Ant1 | 2310.0 | -42.74      | 4.6  | 0             | 57.09      | PEAK     | 74             | PASS  |
|           |              | Ant1 | 2310.0 | -53.20      | 4.6  | 0             | 46.63      | AV       | 54             | PASS  |
|           |              | Ant1 | 2390.0 | -42.90      | 4.6  | 0             | 56.93      | PEAK     | 74             | PASS  |
|           |              | Ant1 | 2390.0 | -52.96      | 4.6  | 0             | 46.87      | AV       | 54             | PASS  |
|           | 2480         | Ant1 | 2483.5 | -41.25      | 4.6  | 0             | 58.58      | PEAK     | 74             | PASS  |
|           |              | Ant1 | 2483.5 | -51.07      | 4.6  | 0             | 48.76      | AV       | 54             | PASS  |
|           |              | Ant1 | 2500.0 | -41.21      | 4.6  | 0             | 58.62      | PEAK     | 74             | PASS  |
|           |              | Ant1 | 2500.0 | -52.28      | 4.6  | 0             | 47.55      | AV       | 54             | PASS  |

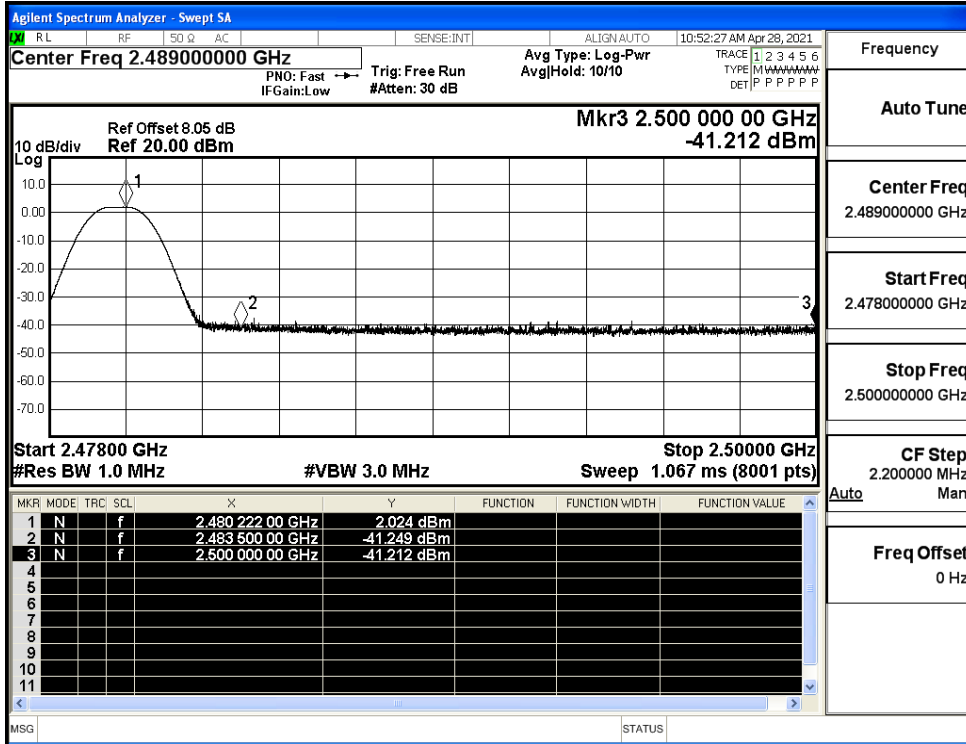
Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_PEAK



Restrict-band band-edge measurements\_BT LE\_2402\_Ant1\_AV



Restrict-band band-edge measurements\_BT LE\_2480\_Ant1\_PEAK



Restrict-band band-edge measurements\_BT LE\_2480\_Ant1\_AV

