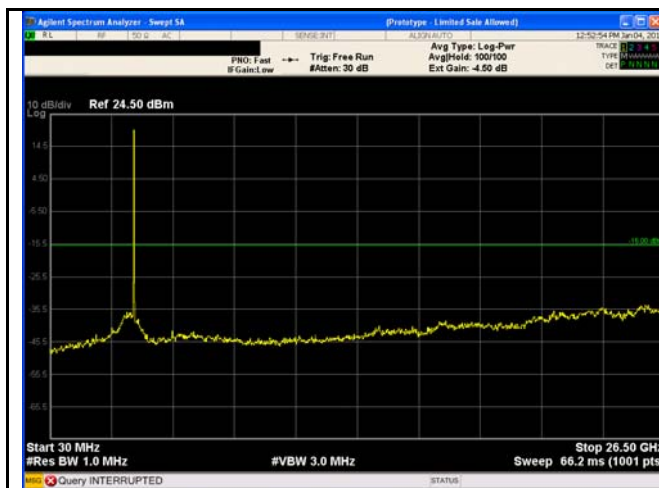
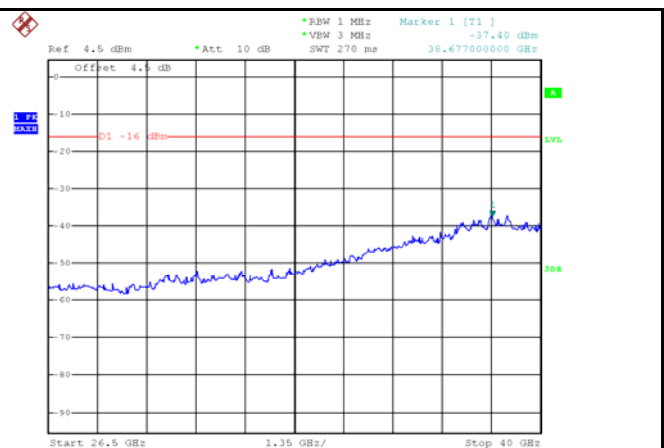


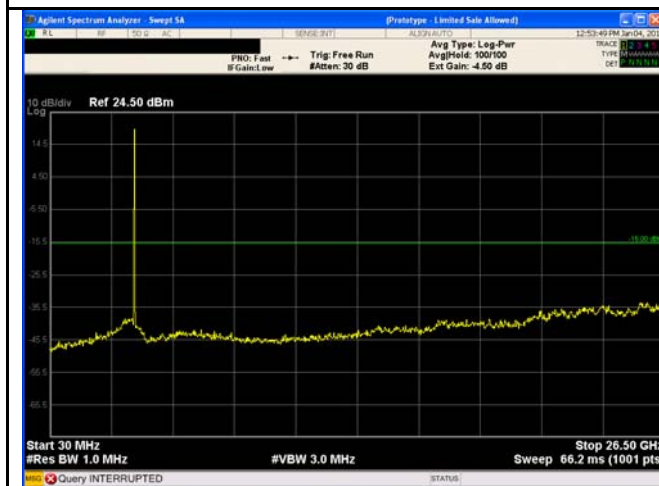


10MHz - Low CH 30MHz~26.5GHz

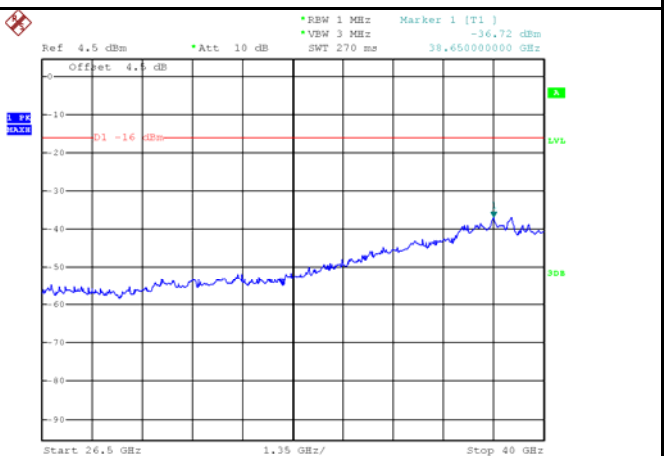


Date: 4.JAN.2018 04:42:14

10MHz - Low CH 26.5GHz~40GHz

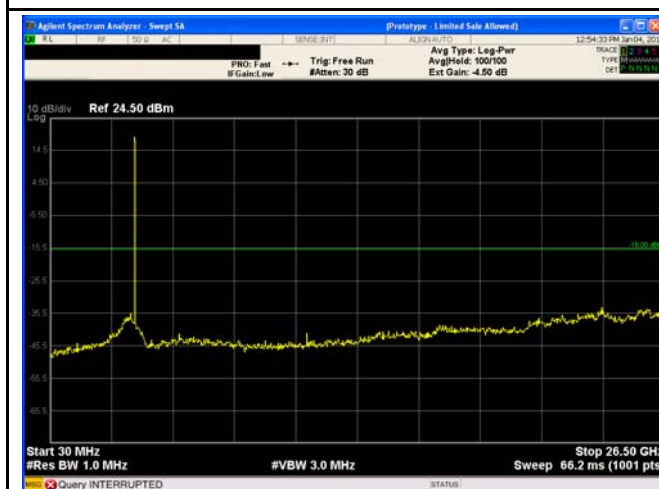


10MHz - Middle CH 30MHz~26.5GHz

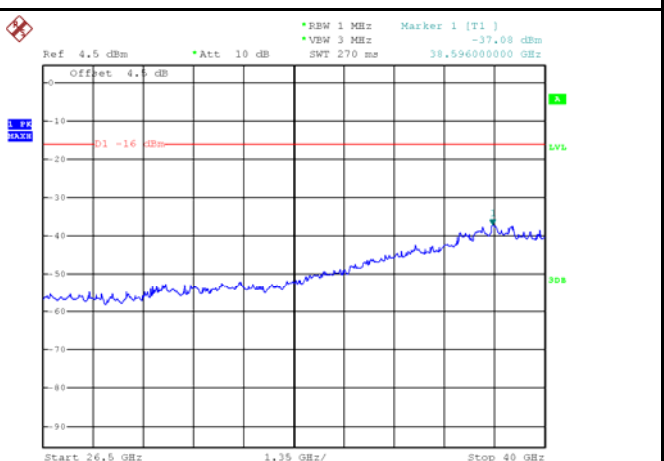


Date: 4.JAN.2018 04:42:33

10MHz - Middle CH 26.5GHz~40GHz

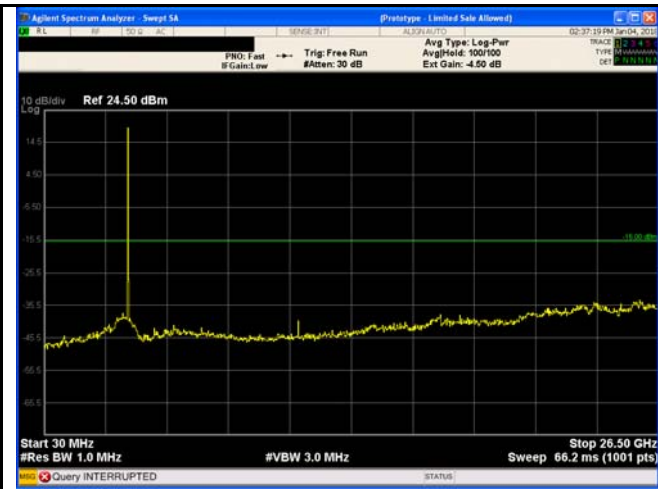


10MHz - High CH 30MHz~26.5GHz

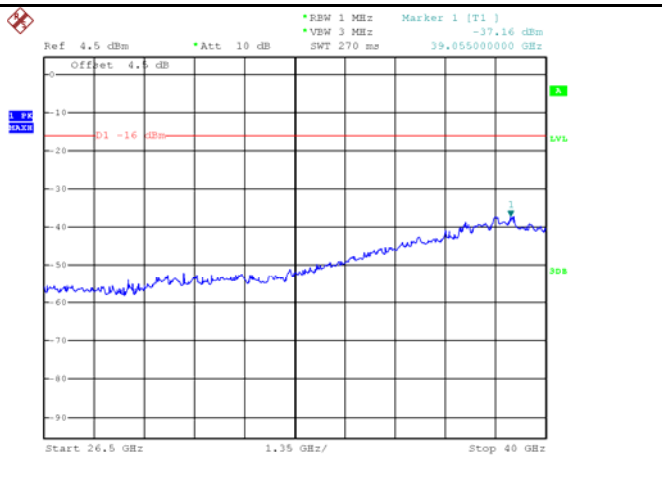


Date: 4.JAN.2018 04:42:52

10MHz - High CH 26.5GHz~40GHz

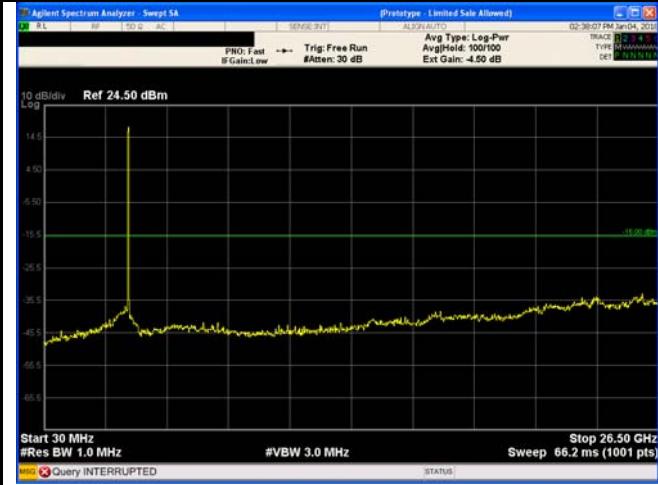


15MHz - Low CH 30MHz~26.5GHz

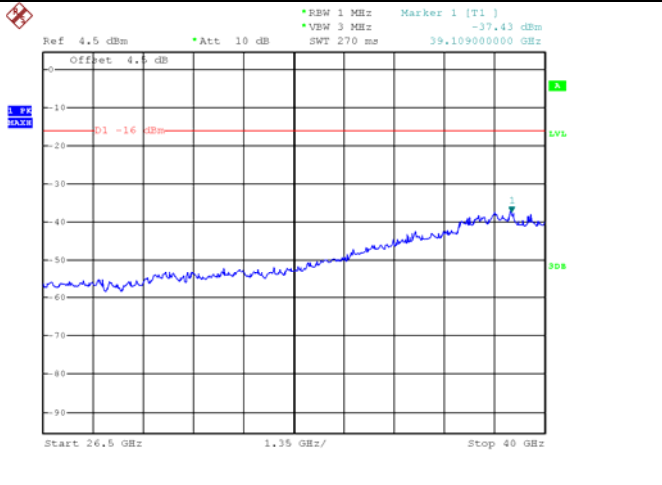


Date: 4.JAN.2018 04:43:09

15MHz - Low CH 26.5GHz~40GHz

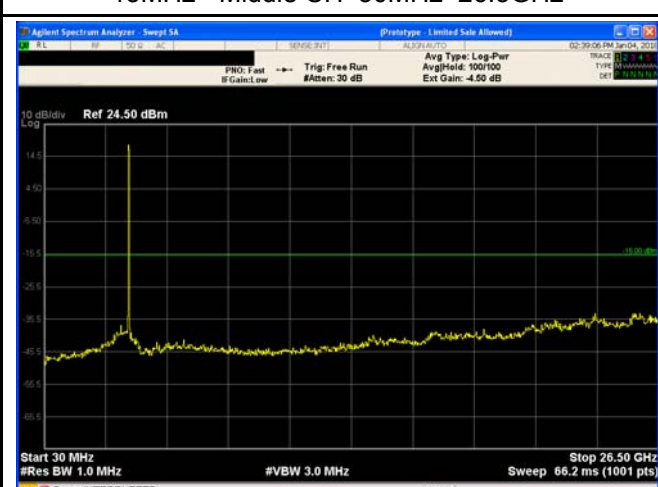


15MHz - Middle CH 30MHz~26.5GHz

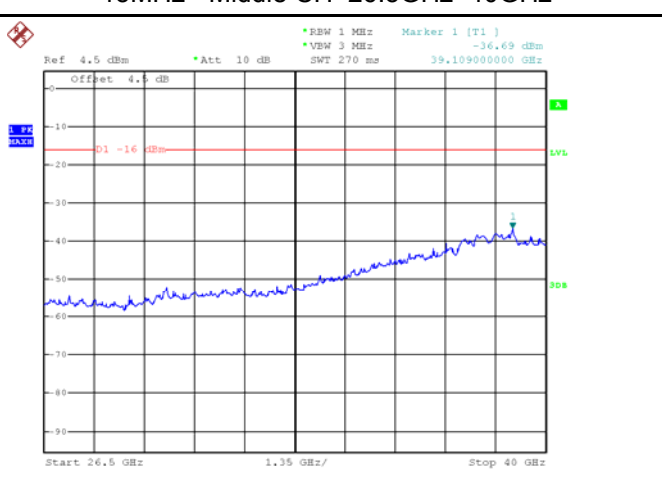


Date: 4.JAN.2018 04:43:31

15MHz - Middle CH 26.5GHz~40GHz

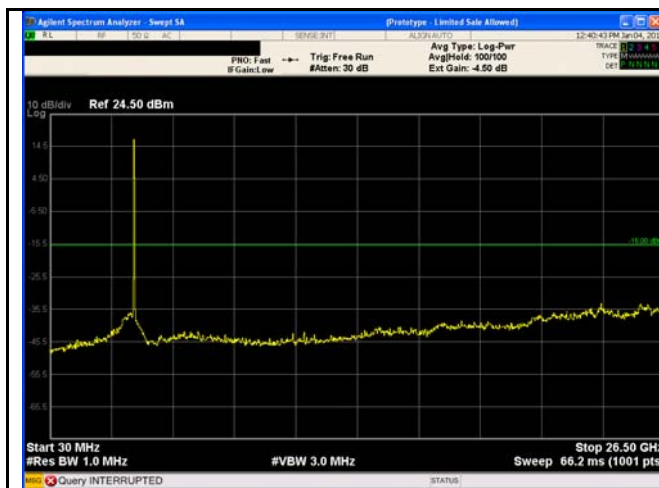


15MHz - High CH 30MHz~26.5GHz

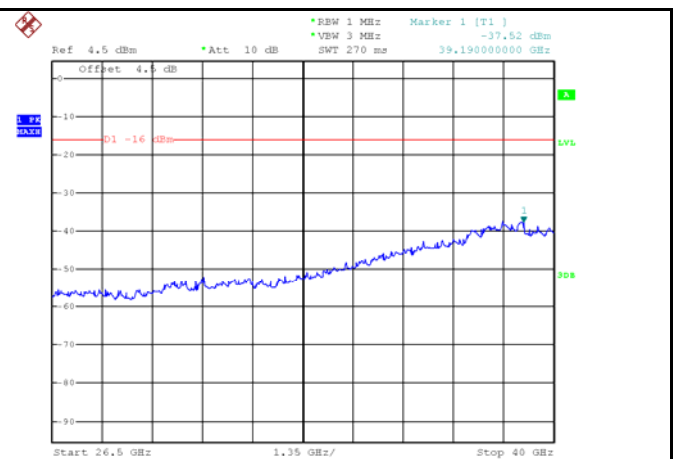


Date: 4.JAN.2018 04:43:46

15MHz - High CH 26.5GHz~40GHz

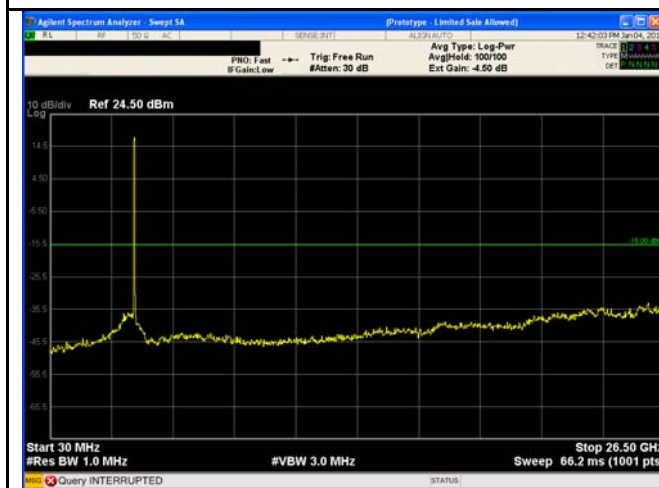


20MHz - Low CH 30MHz~26.5GHz

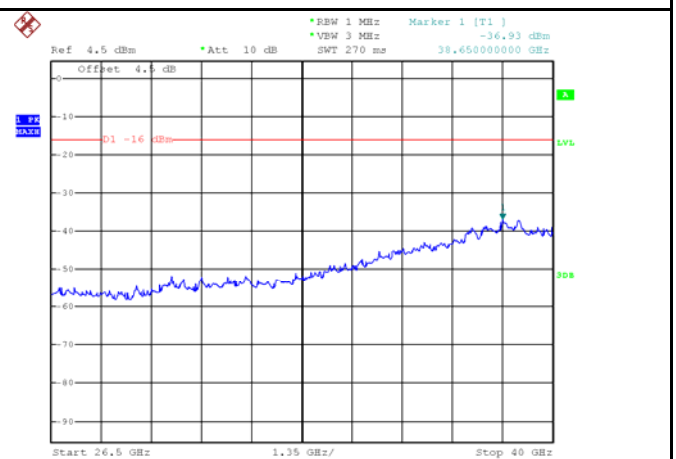


Date: 4.JAN.2018 04:44:07

20MHz - Low CH 26.5GHz~40GHz

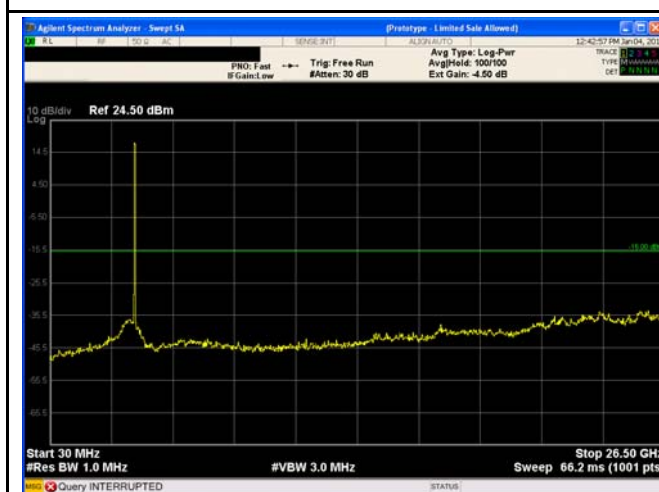


20MHz - Middle CH 30MHz~26.5GHz

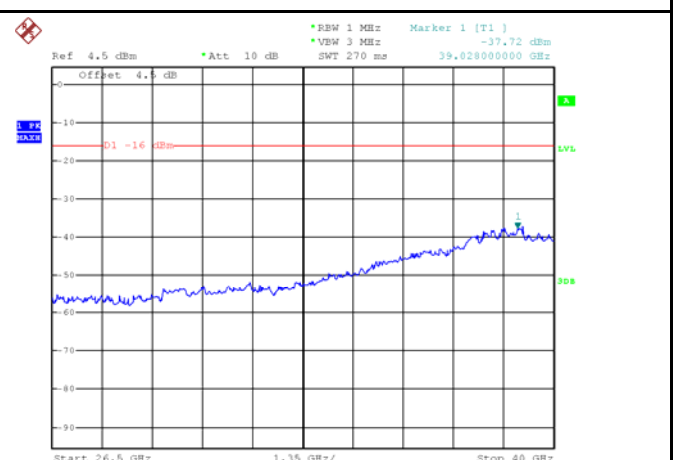


Date: 4.JAN.2018 04:44:23

20MHz - Middle CH 26.5GHz~40GHz



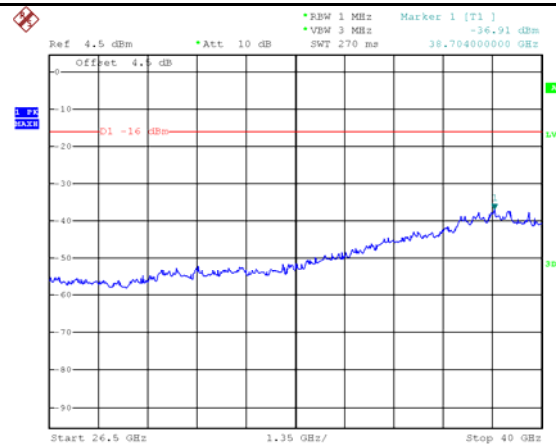
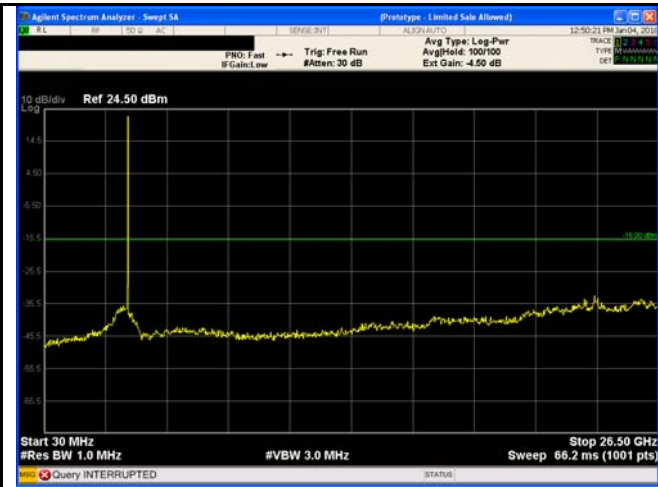
20MHz - High CH 30MHz~26.5GHz



Date: 4.JAN.2018 04:44:51

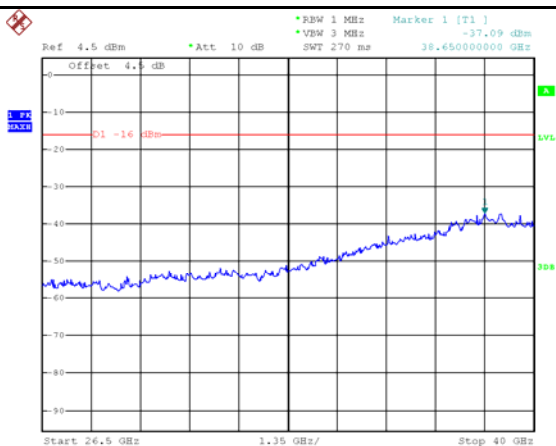
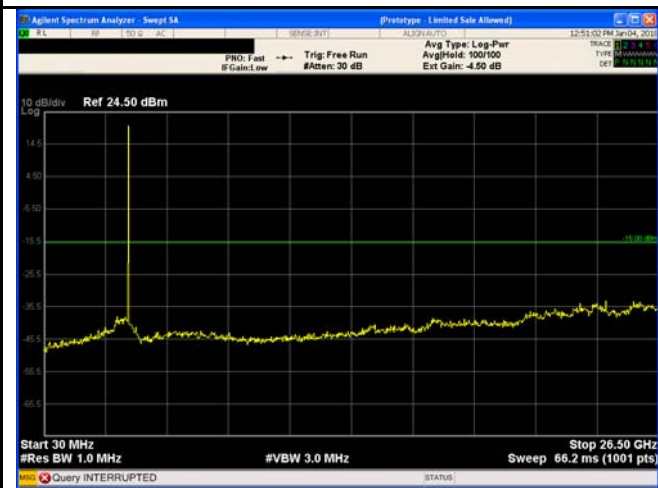
20MHz - High CH 26.5GHz~40GHz

Chain 1



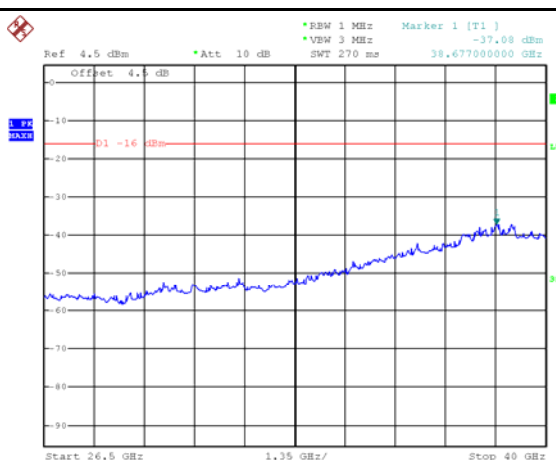
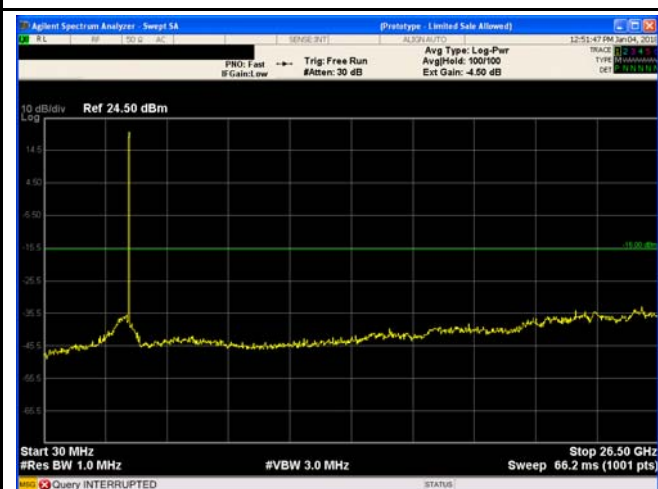
Date: 4.JAN.2018 04:45:15

5MHz - Low CH 30MHz~26.5GHz



Date: 4.JAN.2018 04:45:55

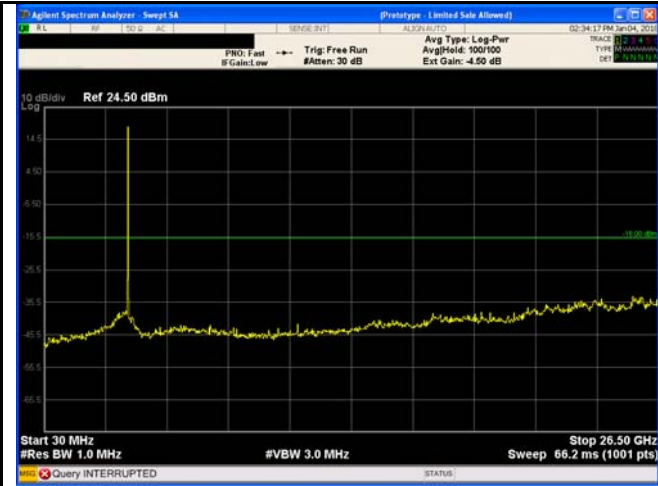
5MHz - Middle CH 30MHz~26.5GHz



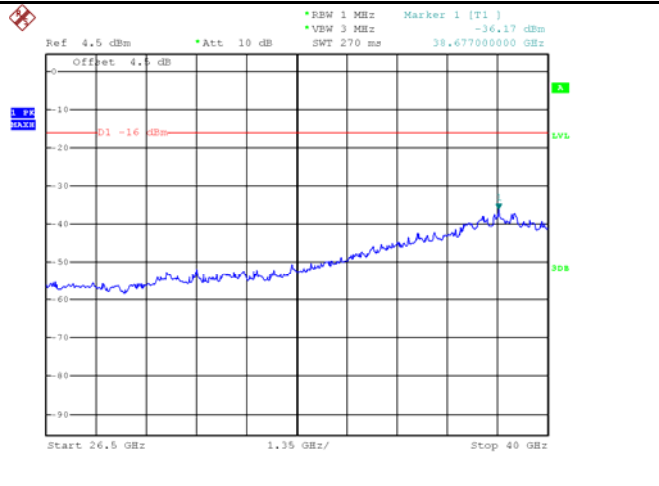
Date: 4.JAN.2018 04:46:09

5MHz - High CH 30MHz~26.5GHz

5MHz - High CH 26.5GHz~40GHz

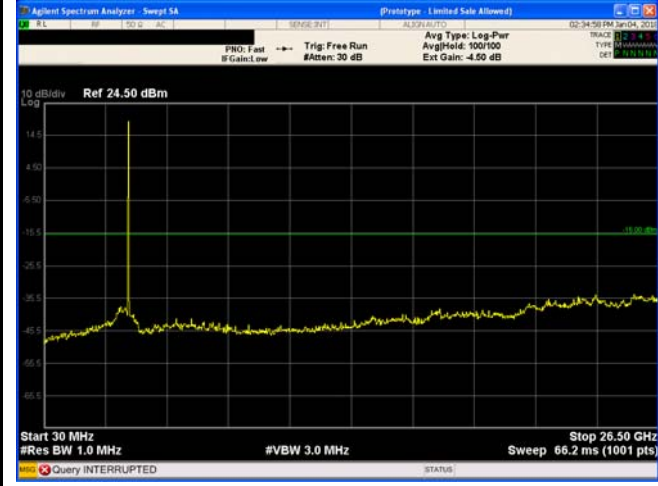


10MHz - Low CH 30MHz~26.5GHz

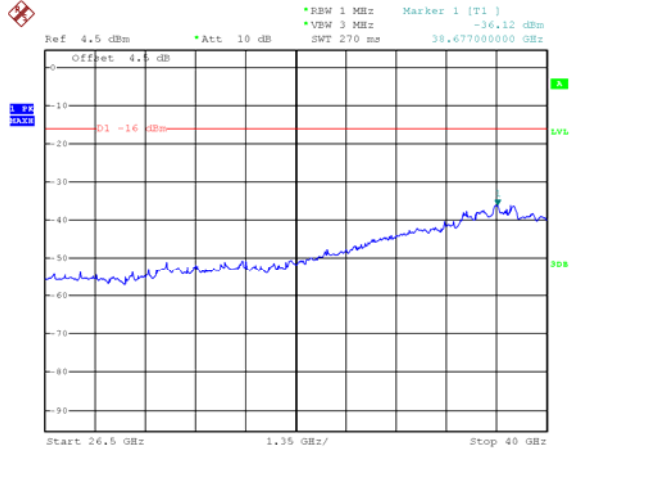


Date: 4.JAN.2018 04:46:22

10MHz - Low CH 26.5GHz~40GHz

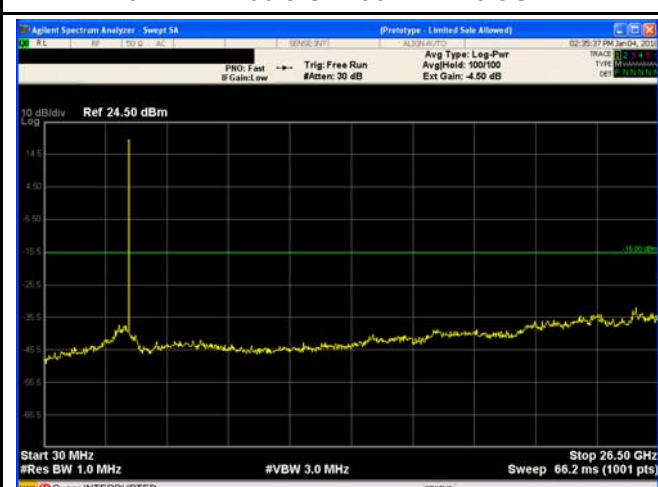


10MHz - Middle CH 30MHz~26.5GHz

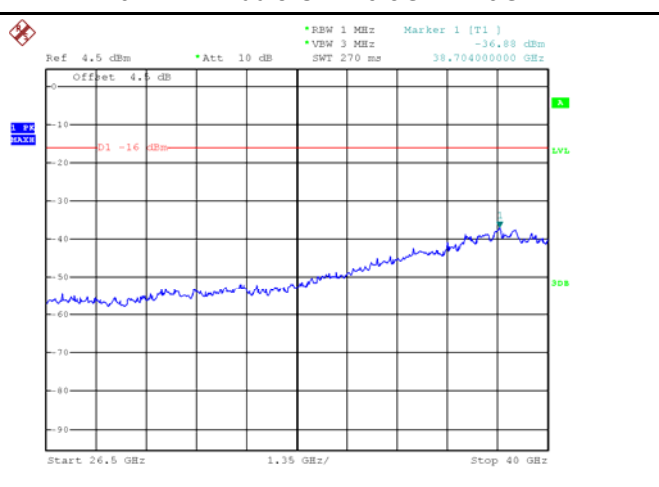


Date: 4.JAN.2018 04:49:24

10MHz - Middle CH 26.5GHz~40GHz

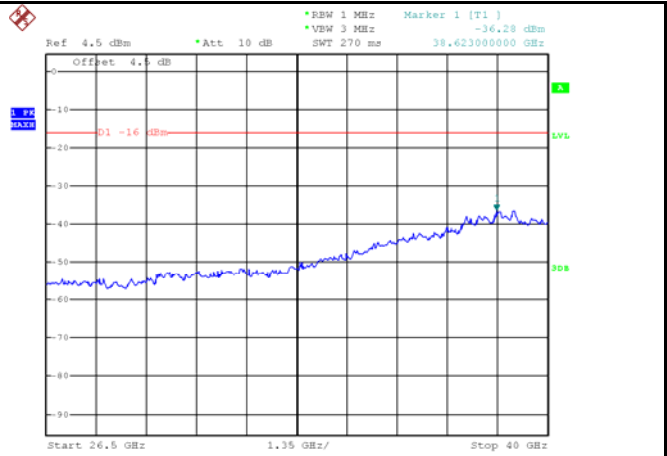
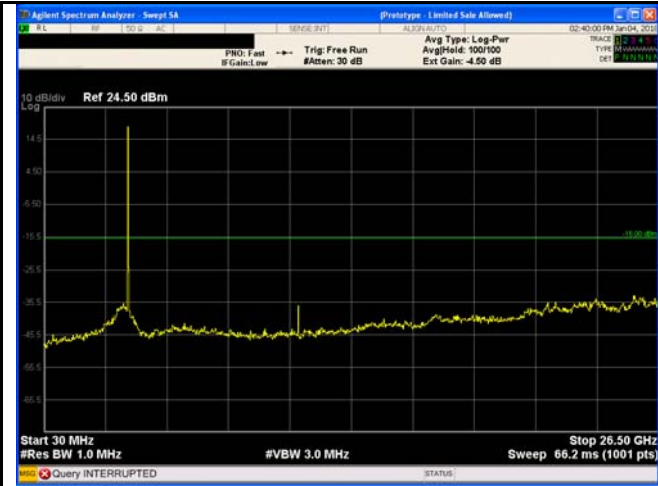


10MHz - High CH 30MHz~26.5GHz



Date: 4.JAN.2018 04:49:42

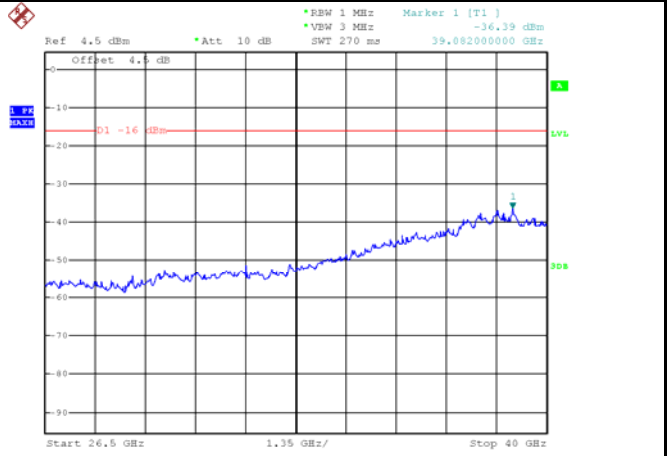
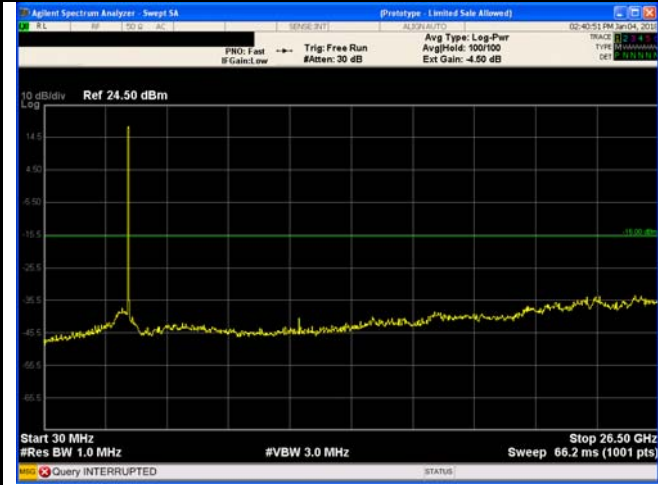
10MHz - High CH 26.5GHz~40GHz



Date: 4.JAN.2018 04:50:36

15MHz - Low CH 30MHz~26.5GHz

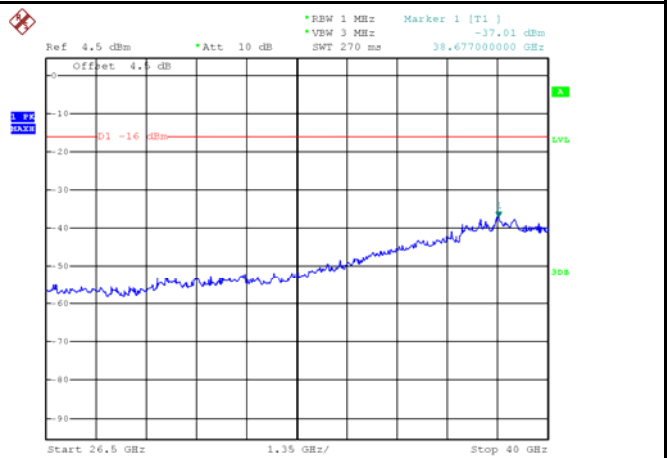
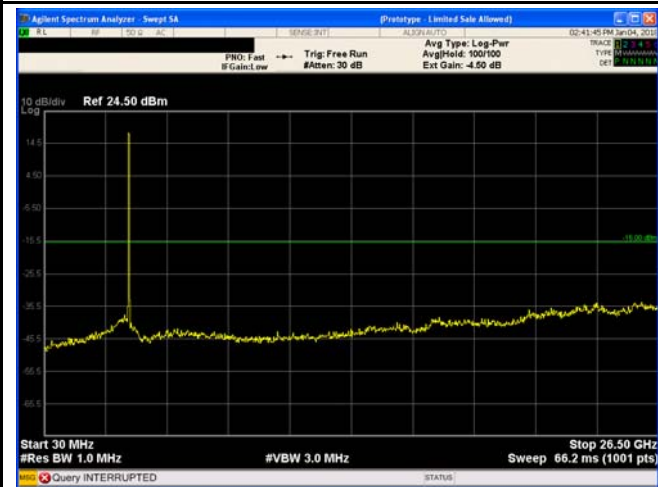
15MHz - Low CH 26.5GHz~40GHz



Date: 4.JAN.2018 04:50:53

15MHz - Middle CH 30MHz~26.5GHz

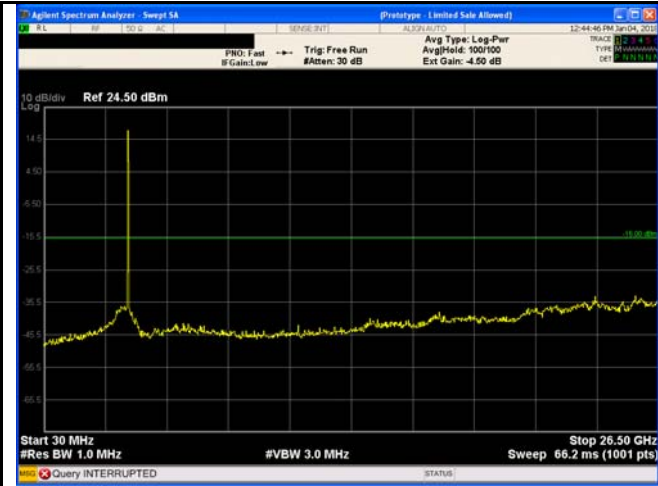
15MHz - Middle CH 26.5GHz~40GHz



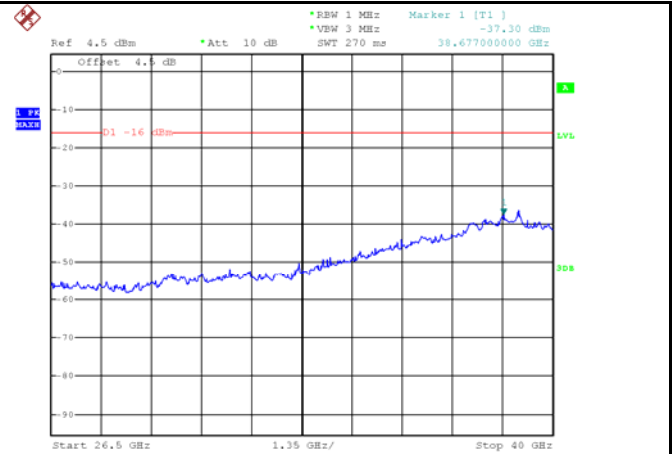
Date: 4.JAN.2018 04:51:06

15MHz - High CH 30MHz~26.5GHz

15MHz - High CH 26.5GHz~40GHz

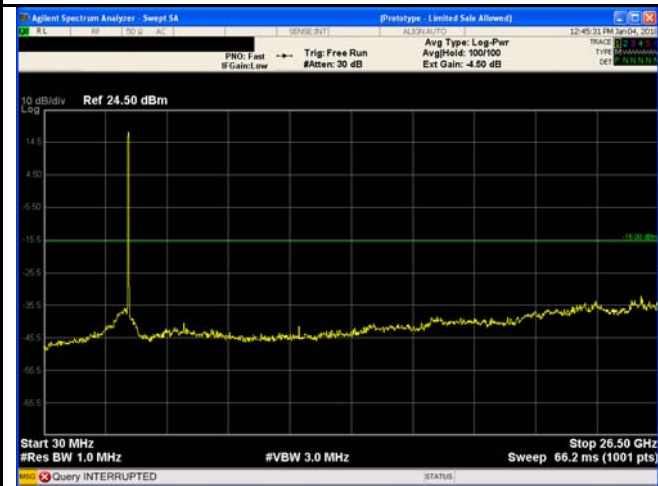


20MHz - Low CH 30MHz~26.5GHz

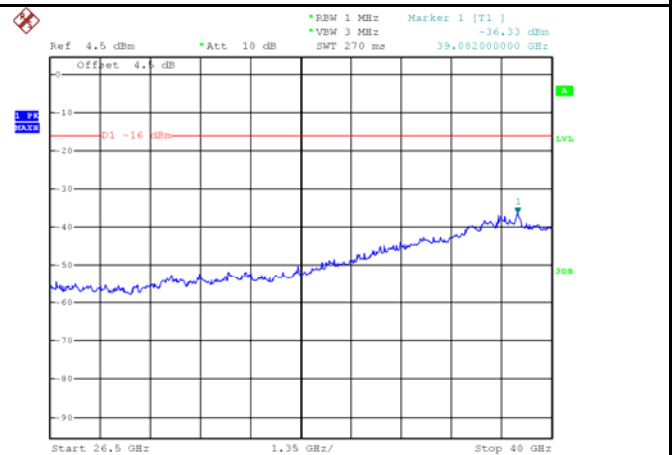


Date: 4.JAN.2018 04:51:20

20MHz - Low CH 26.5GHz~40GHz

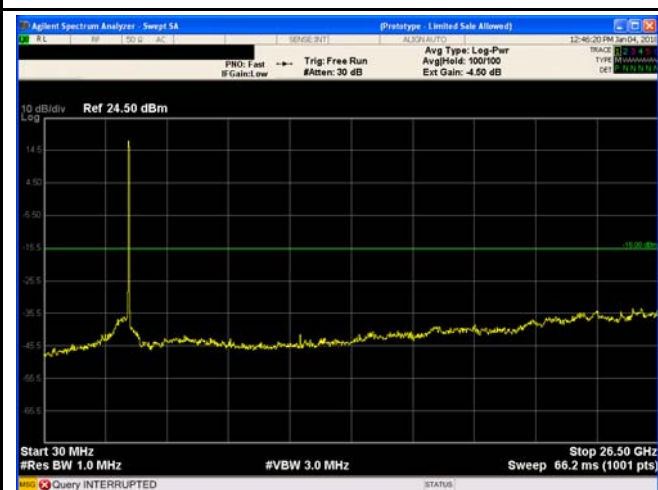


20MHz - Middle CH 30MHz~26.5GHz

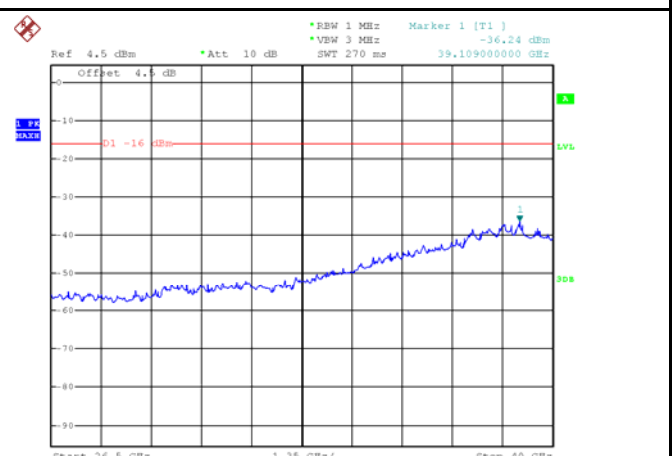


Date: 4.JAN.2018 04:51:30

20MHz - Middle CH 26.5GHz~40GHz



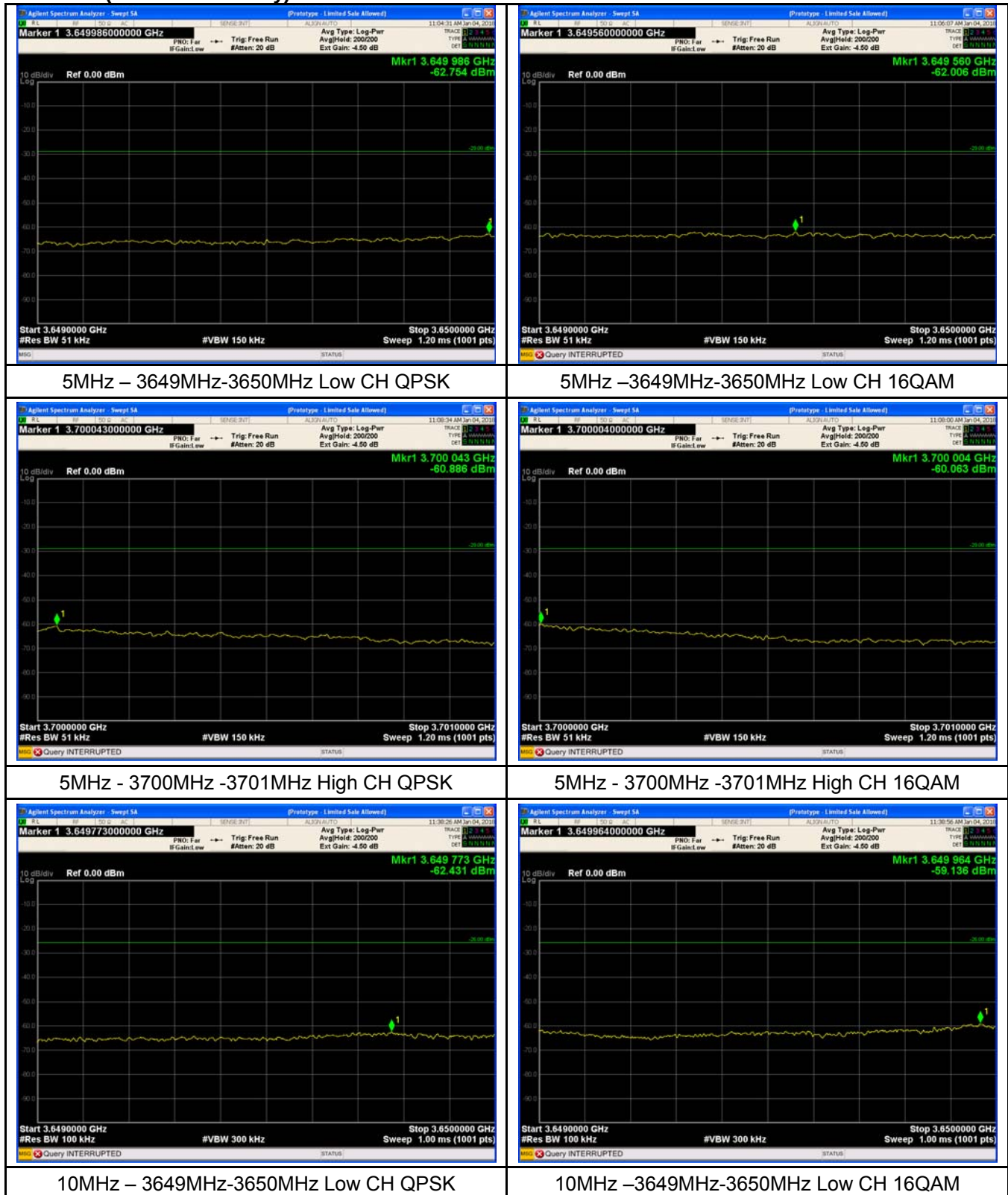
20MHz - High CH 30MHz~26.5GHz

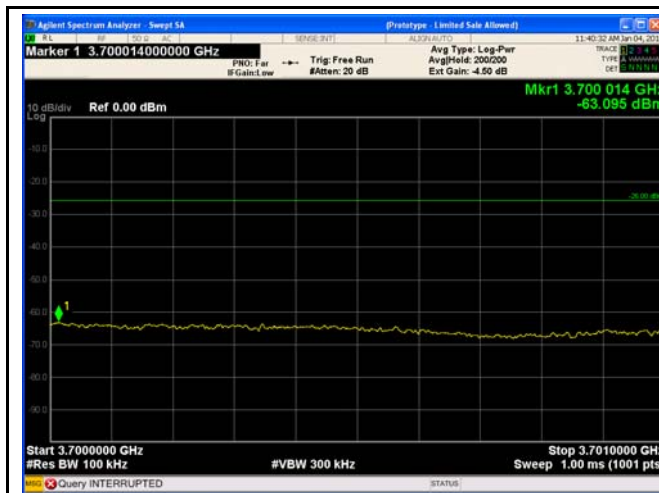


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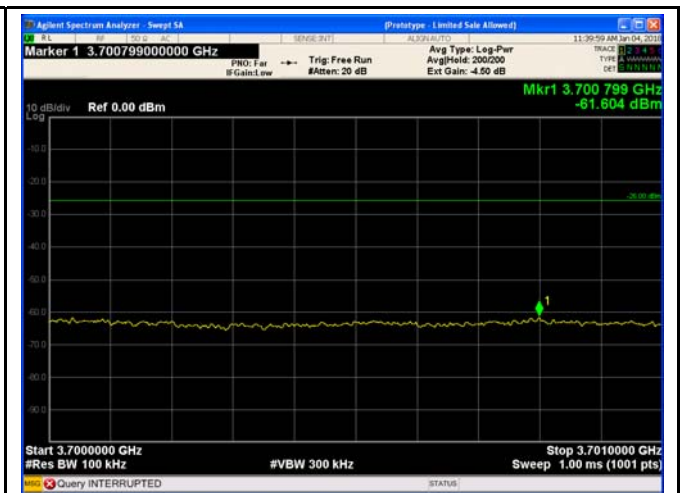
20MHz - High CH 26.5GHz~40GHz

### Band edge emission Chain 0 (1MHz immediately)

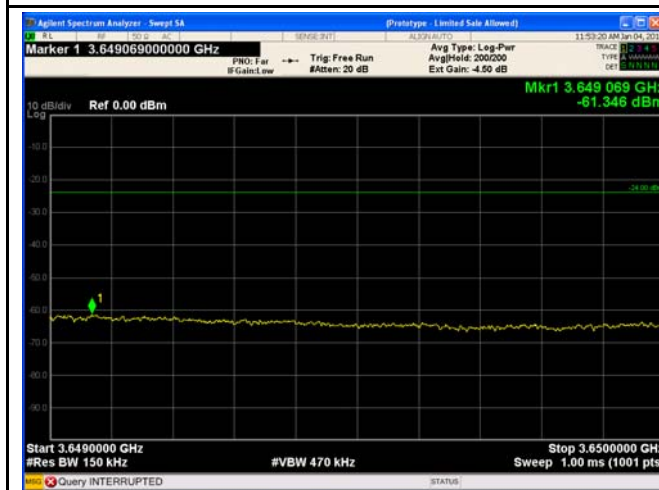




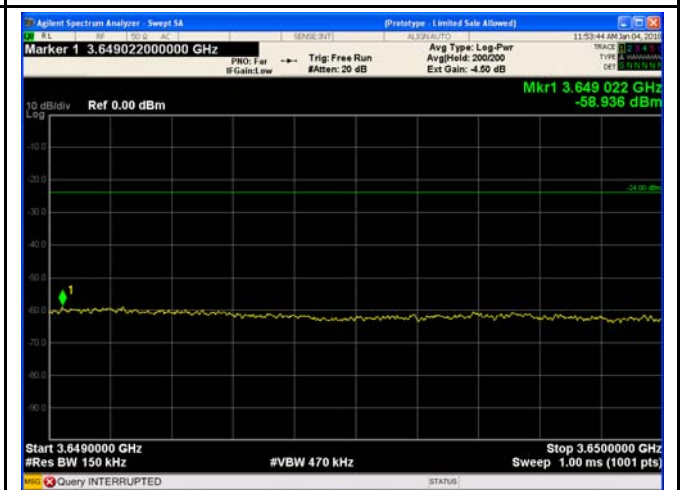
10MHz - 3700MHz -3701MHz High CH QPSK



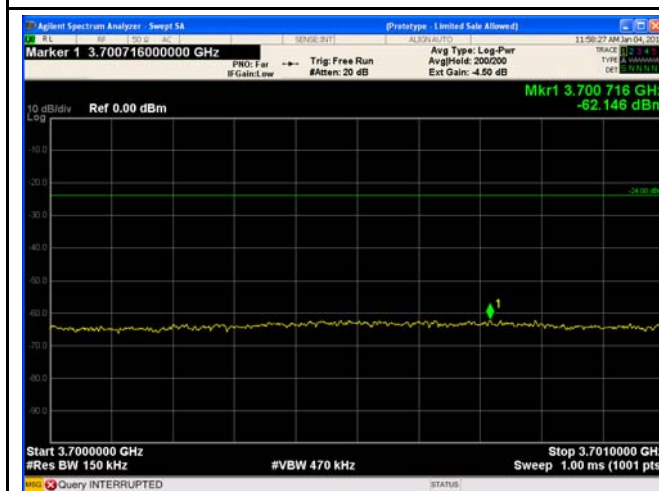
10MHz - 3700MHz -3701MHz High CH 16QAM



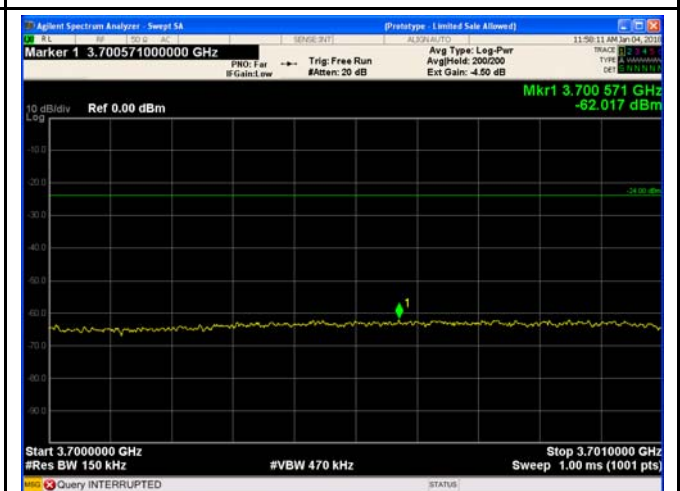
15MHz - 3649MHz-3650MHz Low CH QPSK



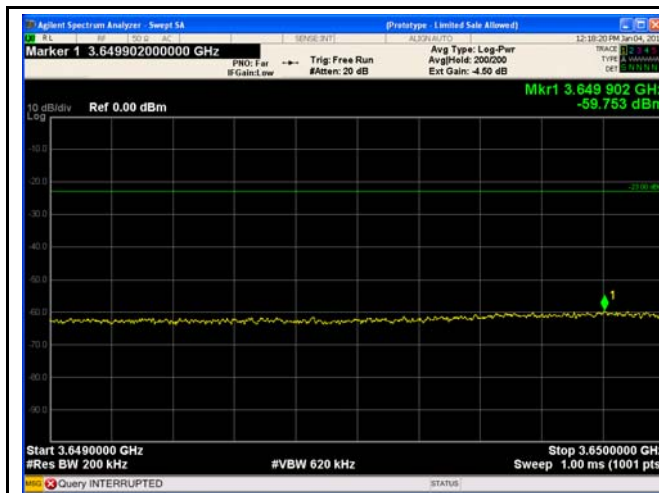
15MHz - 3649MHz-3650MHz Low CH 16QAM



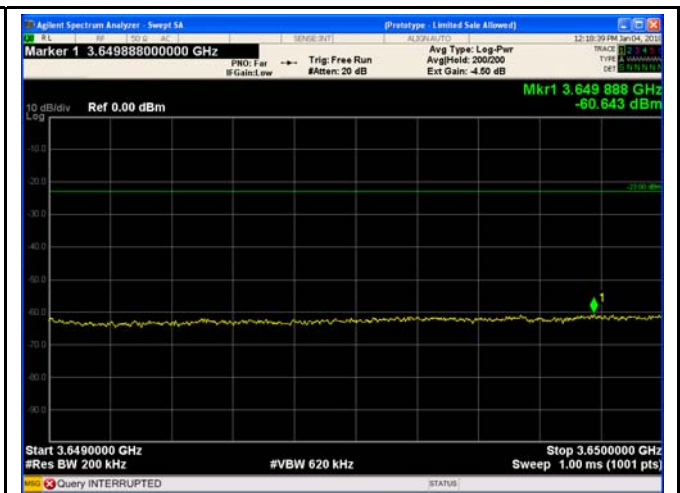
15MHz - 3700MHz -3701MHz High CH QPSK



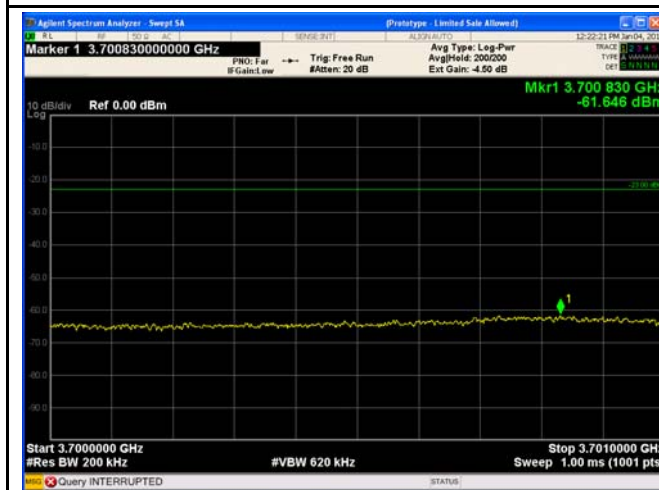
15MHz - 3700MHz -3701MHz High CH 16QAM



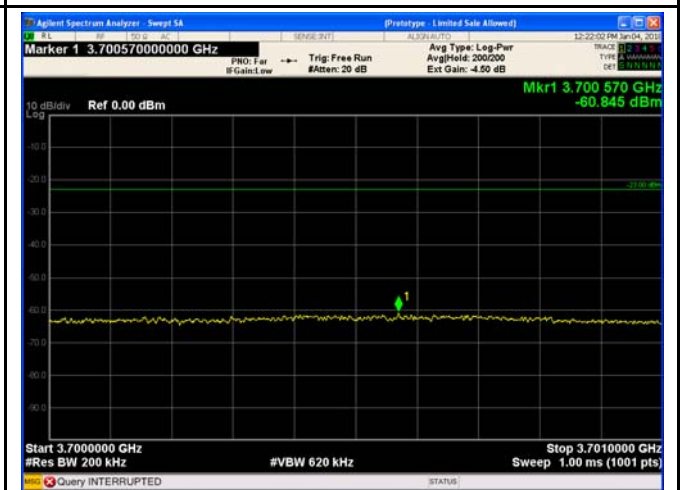
20MHz – 3649MHz-3650MHz Low CH QPSK



20MHz –3649MHz-3650MHz Low CH 16QAM

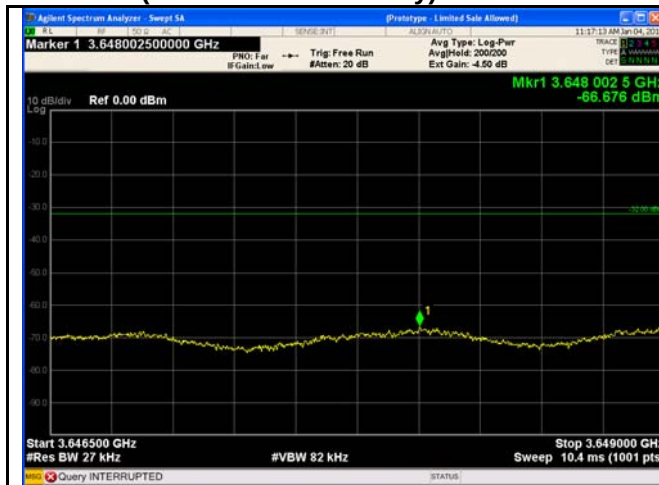


20MHz - 3700MHz -3701MHz High CH QPSK

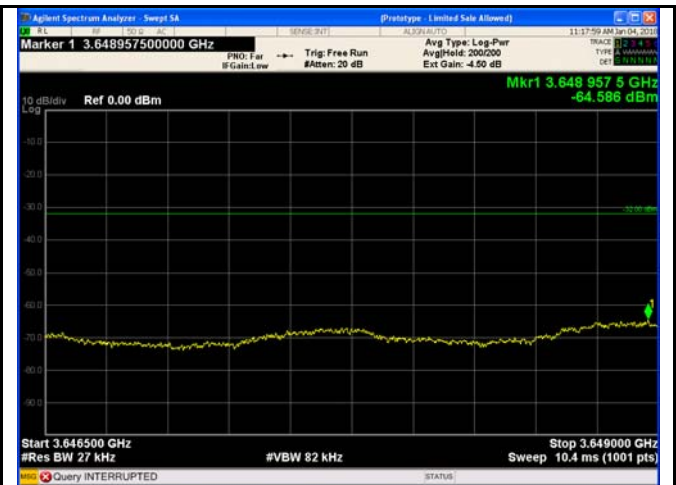


20MHz - 3700MHz -3701MHz High CH 16QAM

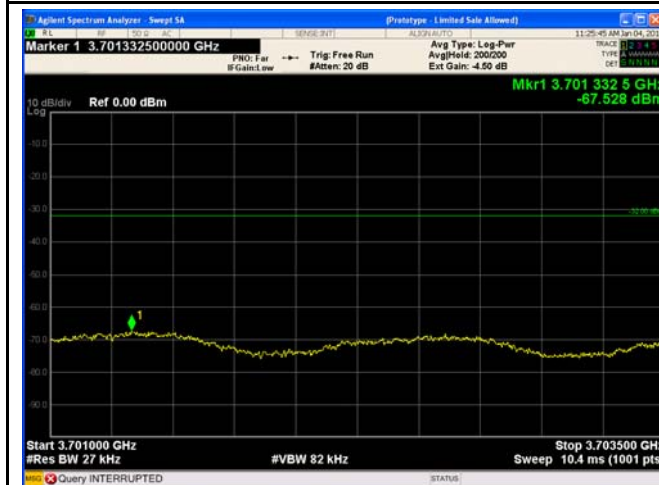
## Chain 0 (more than 1MHz away)



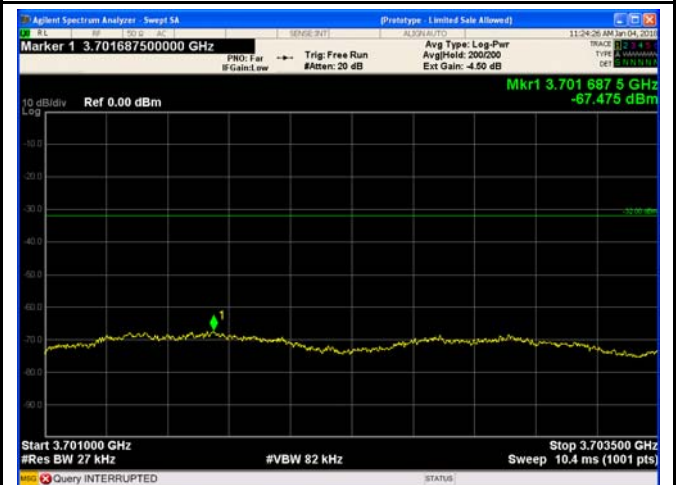
5MHz – 3646.5MHz-3649MHz Low CH QPSK



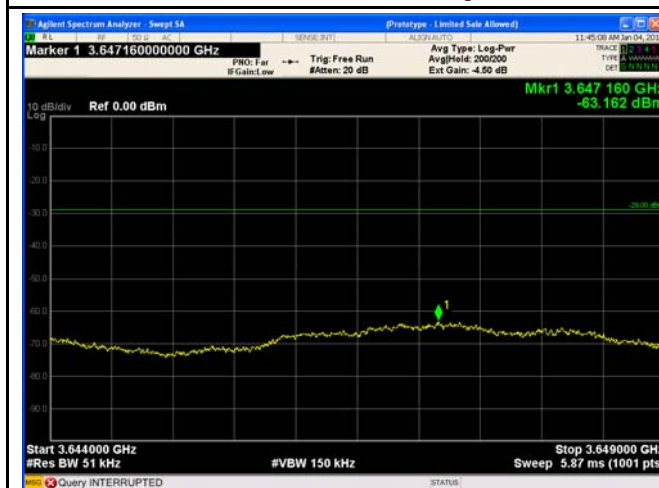
5MHz – 3646.5MHz-3649MHz Low CH 16QAM



5MHz - 3701MHz -3703.5MHz High CH QPSK



5MHz - 3701MHz -3703.5MHz High CH 16QAM



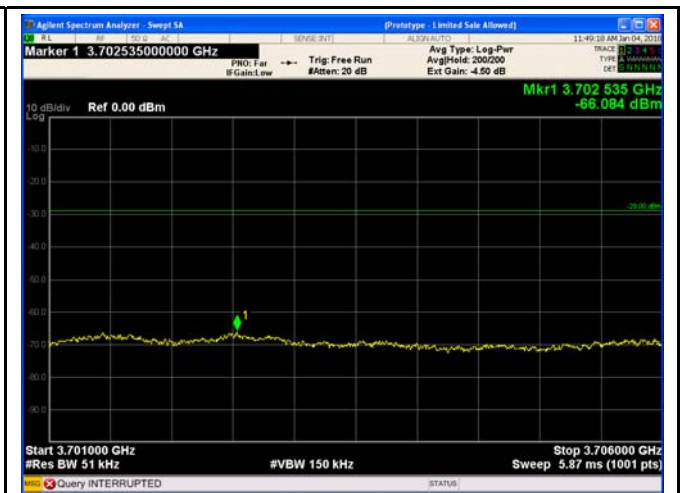
10MHz – 3644MHz-3649MHz Low CH QPSK



10MHz – 3644MHz-3649MHz Low CH 16QAM



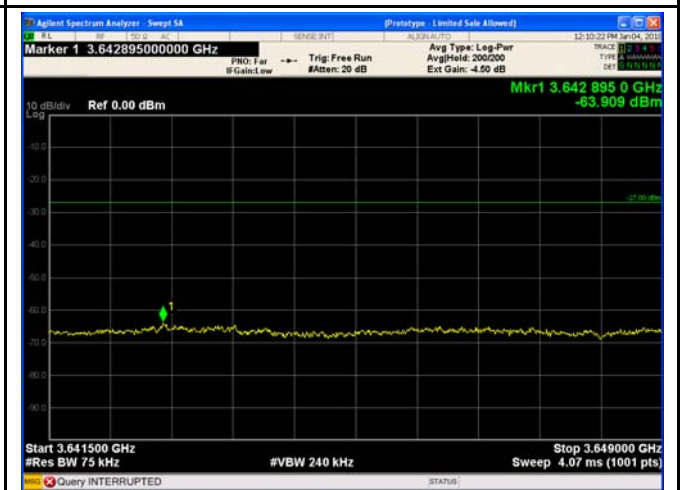
10MHz - 3701MHz -3706MHz High CH QPSK



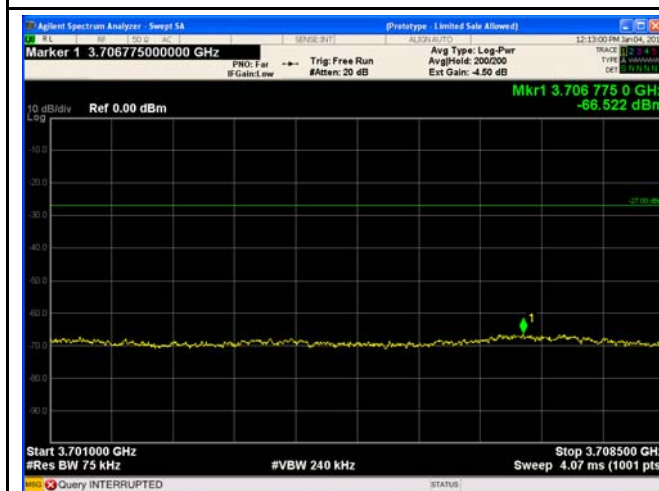
10MHz - 3701MHz -3706MHz High CH 16QAM



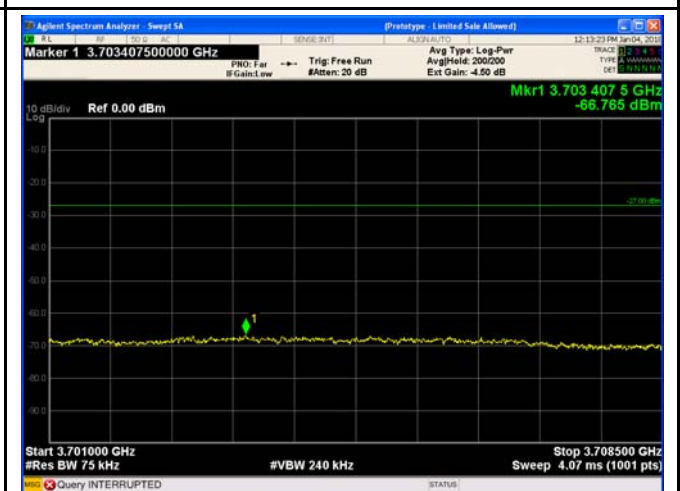
15MHz - 3641.5MHz-3649MHz Low CH QPSK



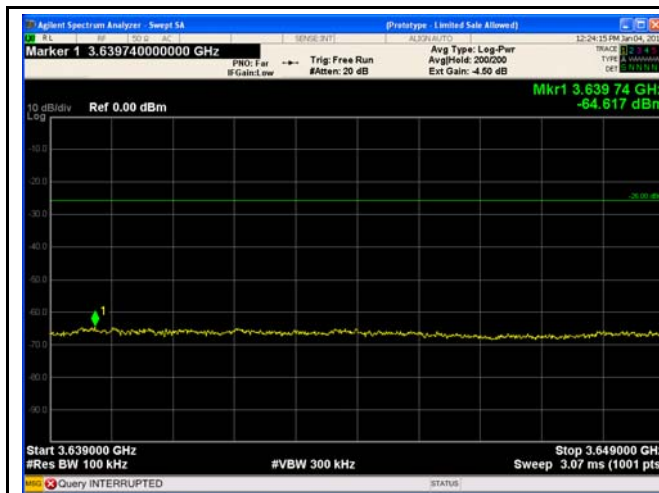
15MHz - 3641.5MHz-3649MHz Low CH 16QAM



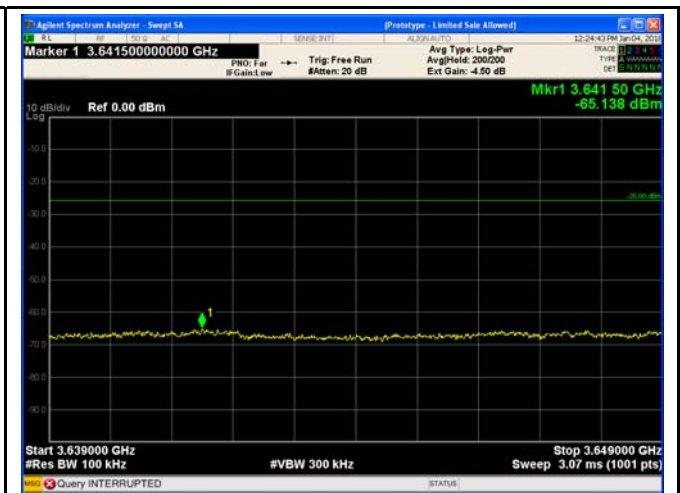
15MHz - 3701MHz -3708.5MHz High CH QPSK



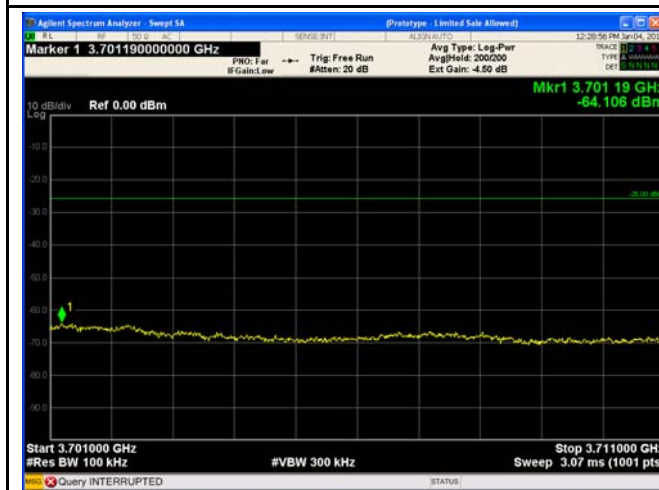
15MHz - 3701MHz -3708.5MHz High CH 16QAM



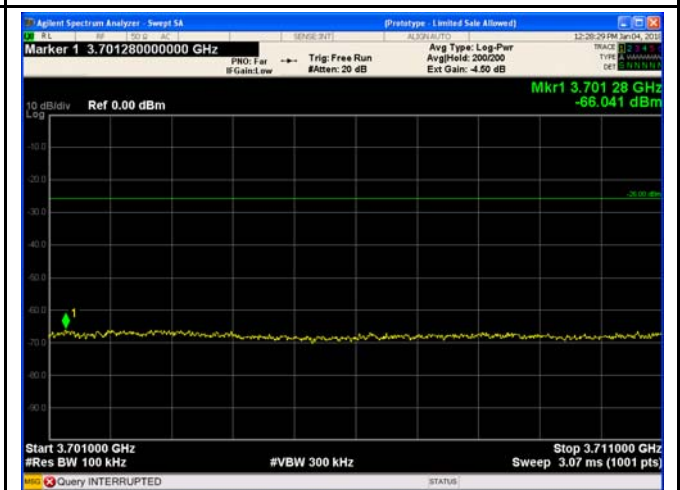
20MHz – 3639MHz-3649MHz Low CH QPSK



20MHz – 3639MHz-3649MHz Low CH 16QAM

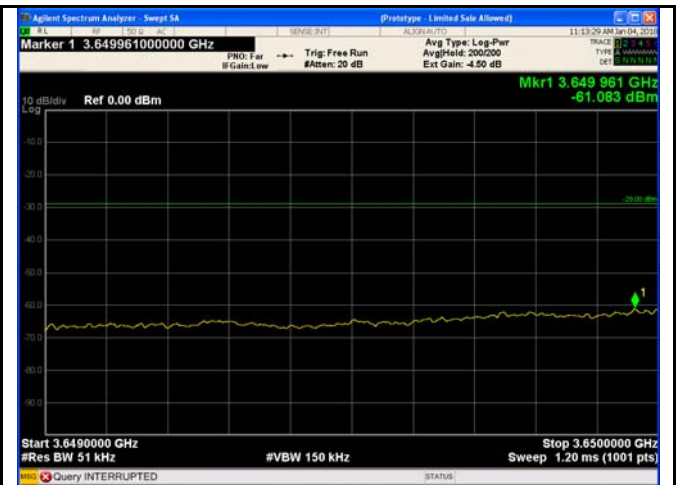
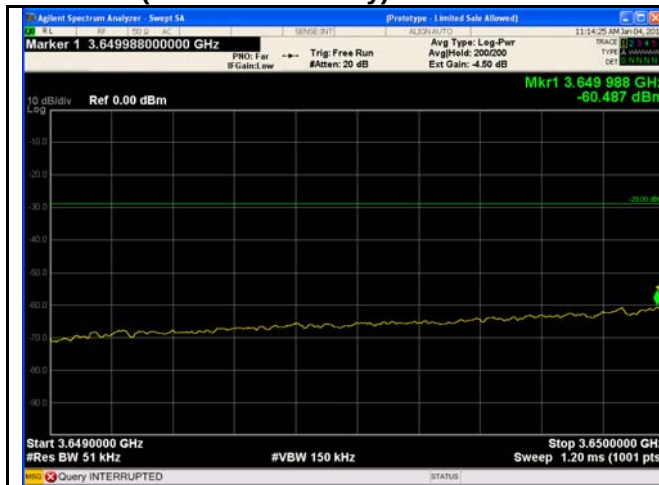


20MHz - 3701MHz -3711MHz High CH QPSK

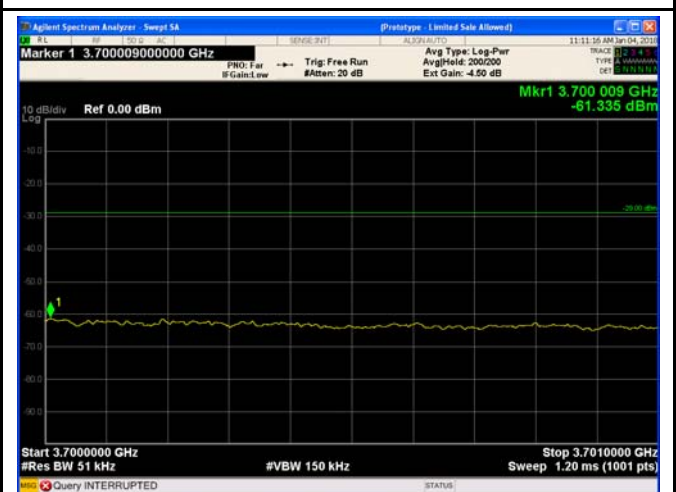
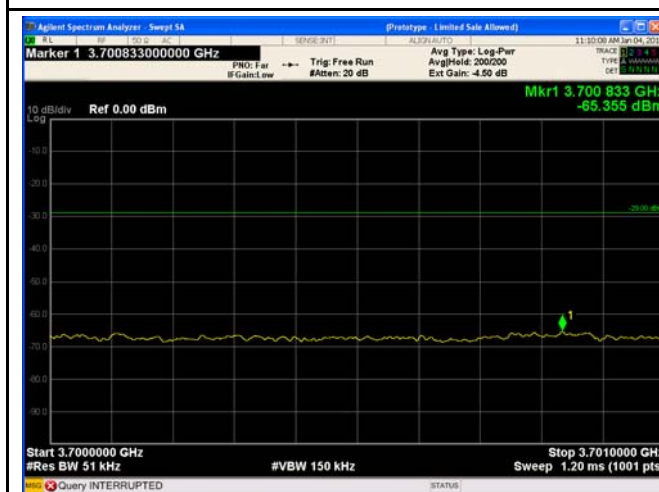


20MHz - 3701MHz -3711MHz High CH 16QAM

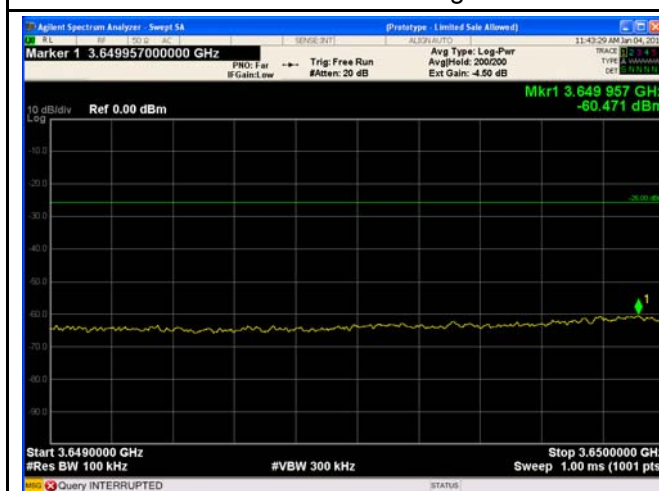
## Chain 1 (1MHz immediately)



## 5MHz - 3649MHz-3650MHz Low CH QPSK

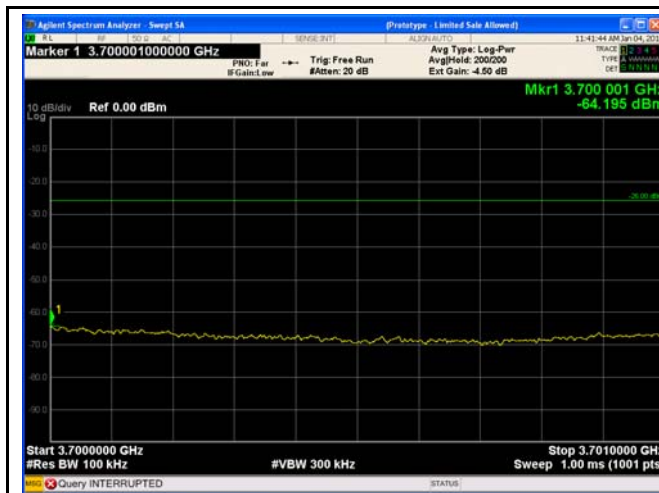


## 5MHz - 3700MHz -3701MHz High CH QPSK

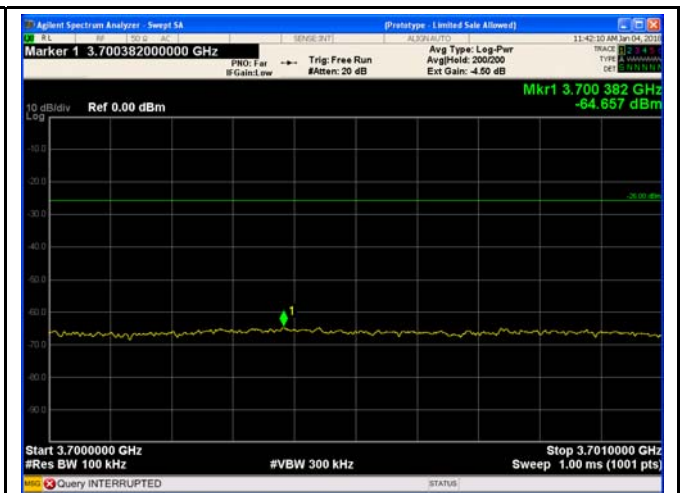


## 10MHz - 3649MHz-3650MHz Low CH QPSK

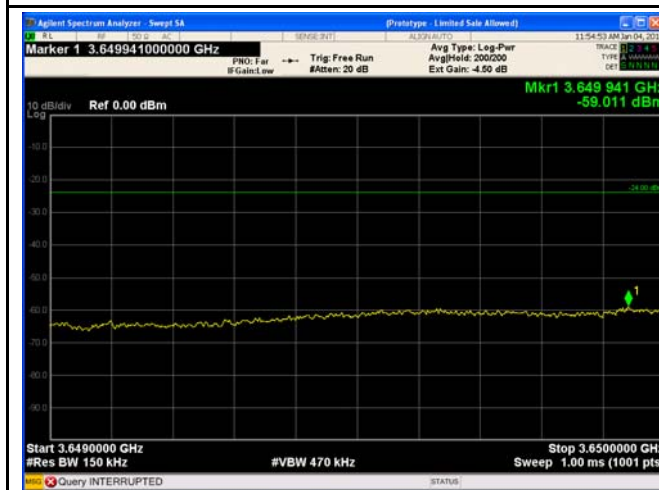
## 10MHz - 3649MHz-3650MHz Low CH 16QAM



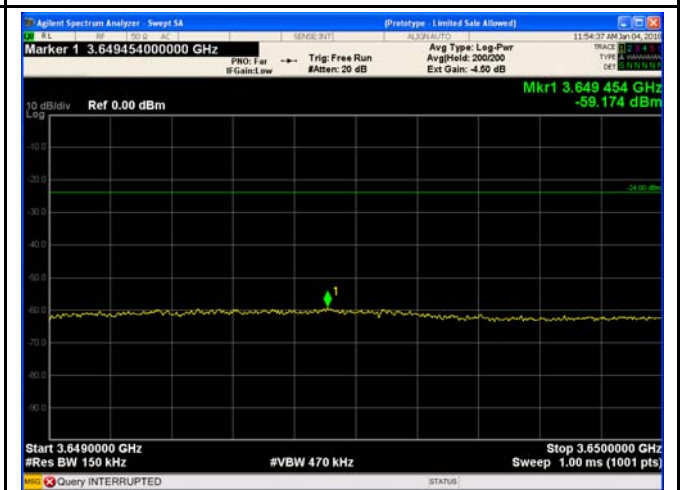
10MHz - 3700MHz -3701MHz High CH QPSK



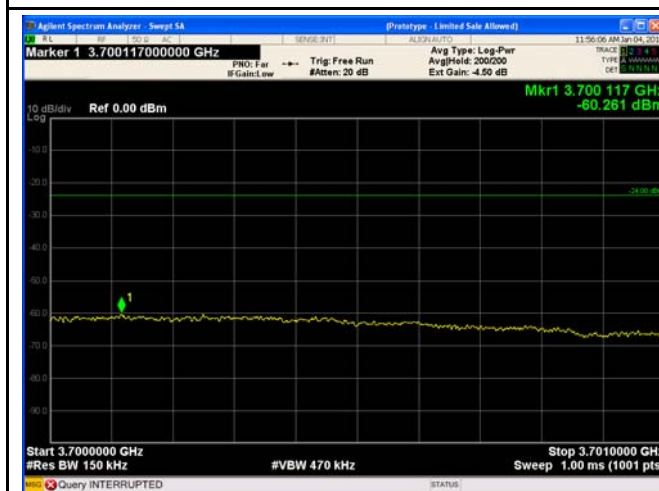
10MHz - 3700MHz -3701MHz High CH 16QAM



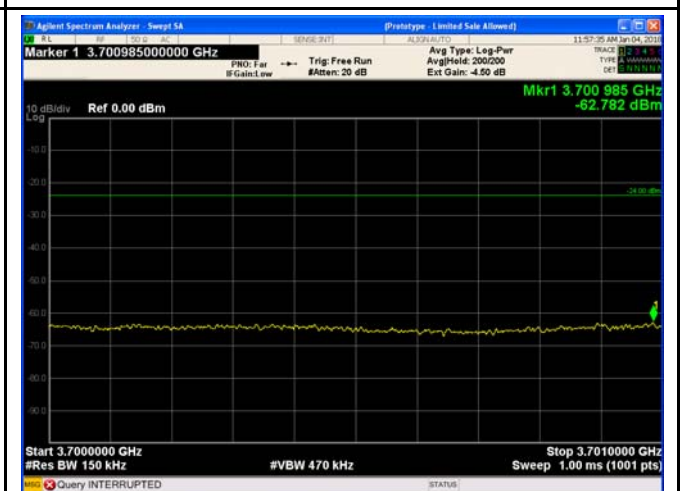
15MHz - 3649MHz-3650MHz Low CH QPSK



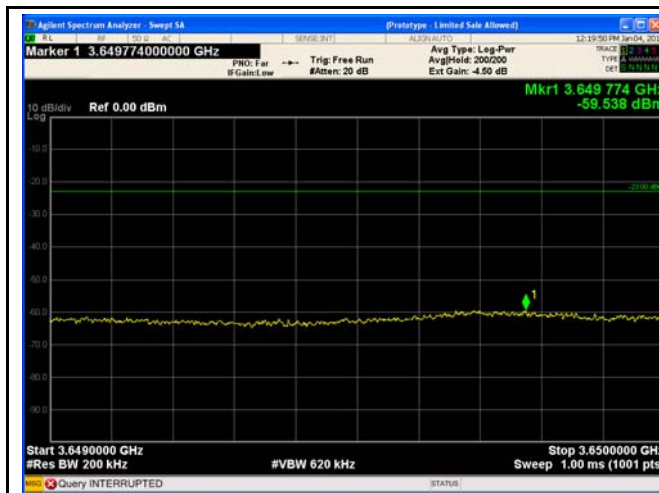
15MHz - 3649MHz-3650MHz Low CH 16QAM



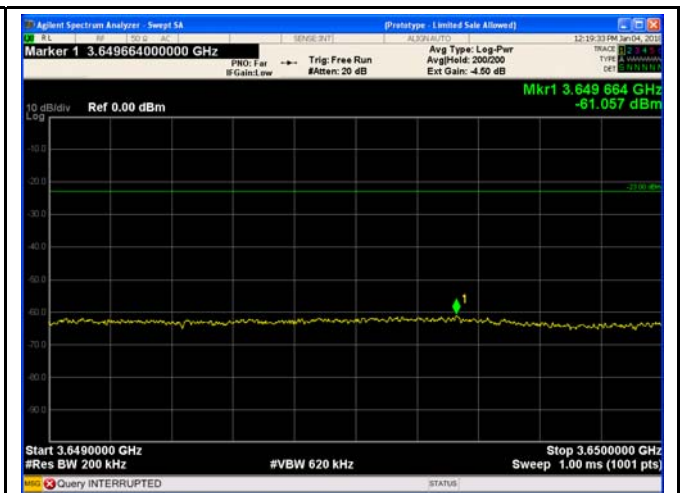
15MHz - 3700MHz -3701MHz High CH QPSK



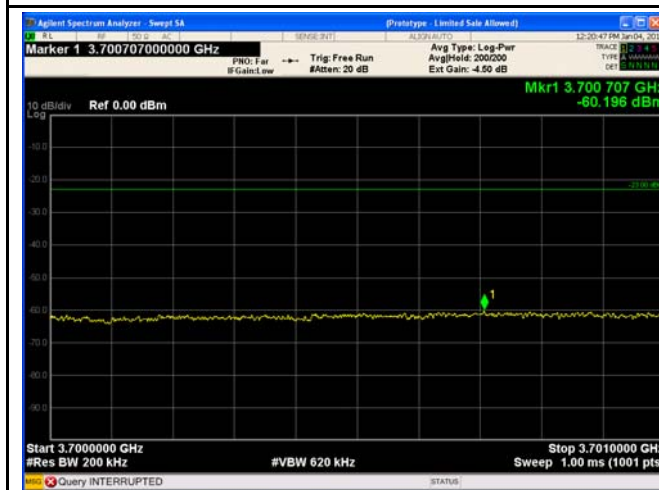
15MHz - 3700MHz -3701MHz High CH 16QAM



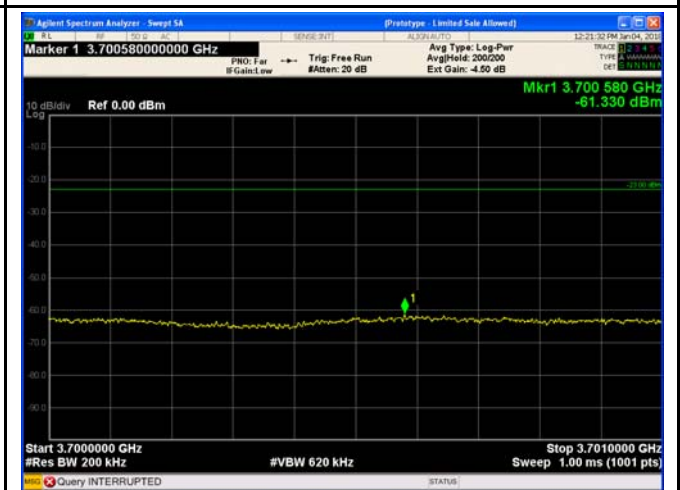
20MHz – 3649MHz-3650MHz Low CH QPSK



20MHz – 3649MHz-3650MHz Low CH 16QAM

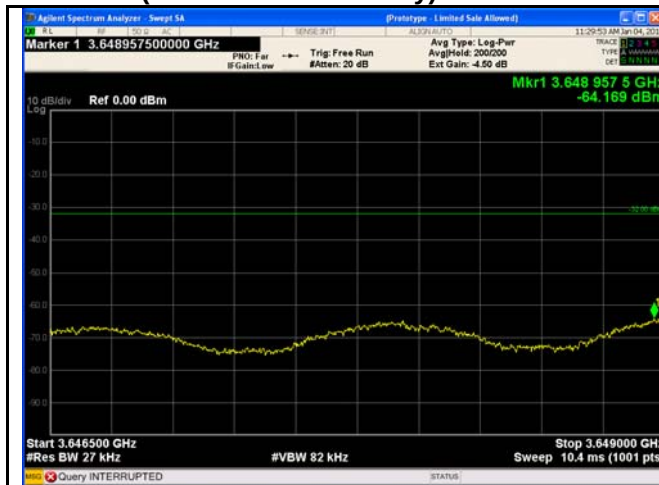


20MHz - 3700MHz -3701MHz High CH QPSK

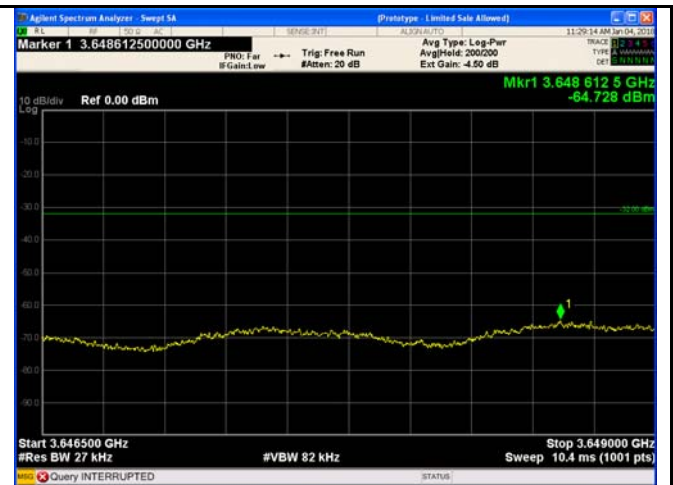


20MHz - 3700MHz -3701MHz High CH 16QAM

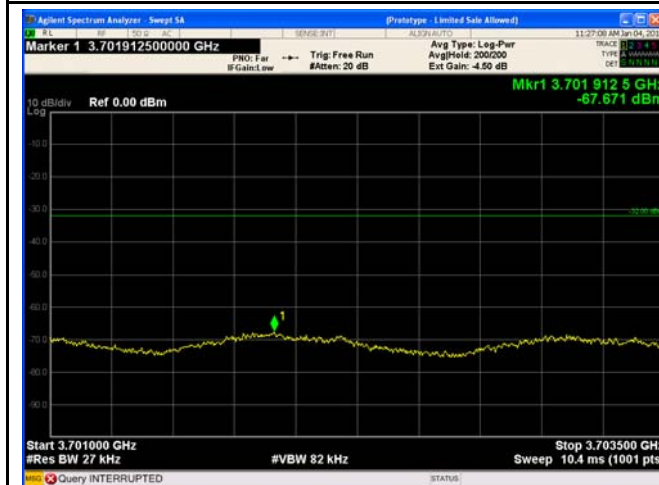
## Chain 1 (more than 1MHz away)



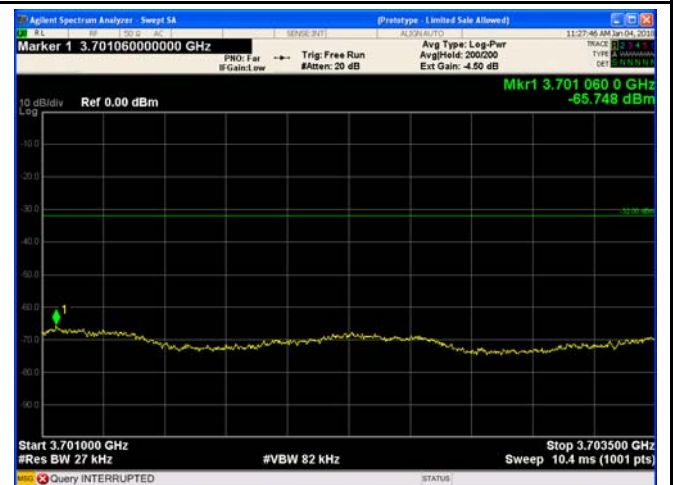
5MHz – 3646.5MHz-3649MHz Low CH QPSK



5MHz –3646.5MHz-3649MHz Low CH 16QAM



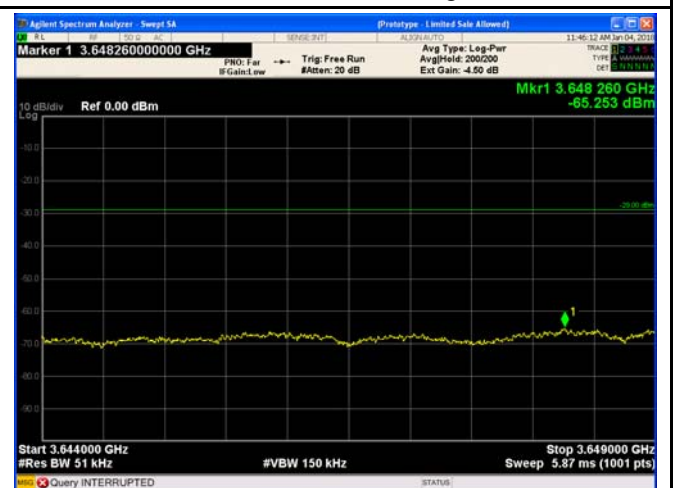
5MHz - 3701MHz -3703.5MHz High CH QPSK



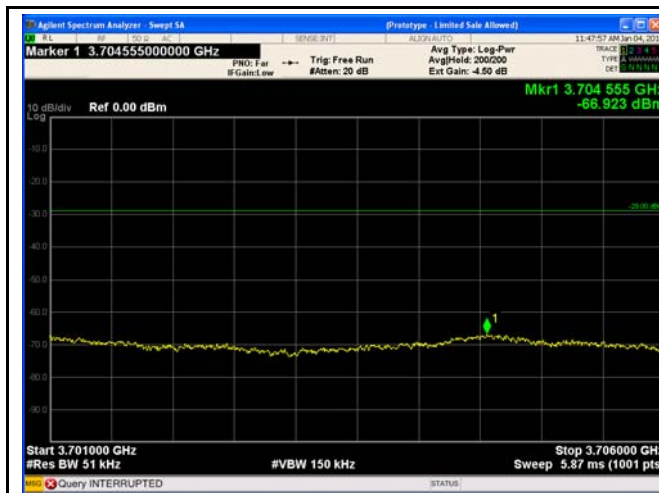
5MHz - 3701MHz -3703.5MHz High CH 16QAM



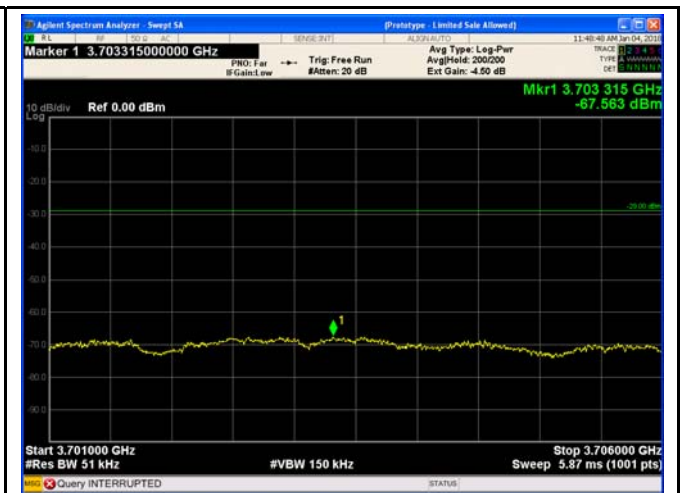
10MHz – 3644MHz-3649MHz Low CH QPSK



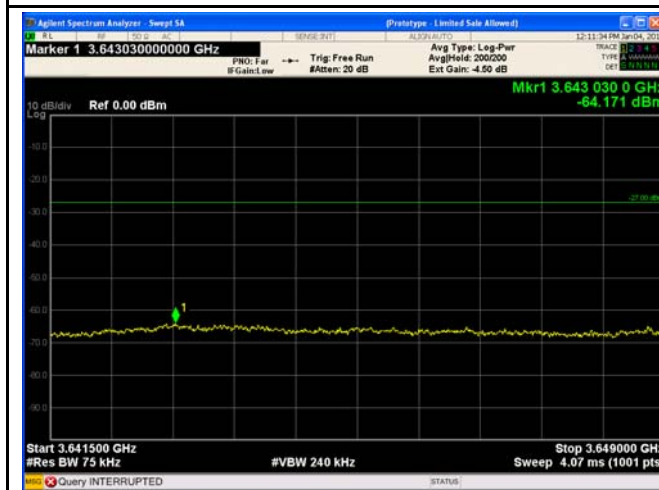
10MHz –3644MHz-3649MHz Low CH 16QAM



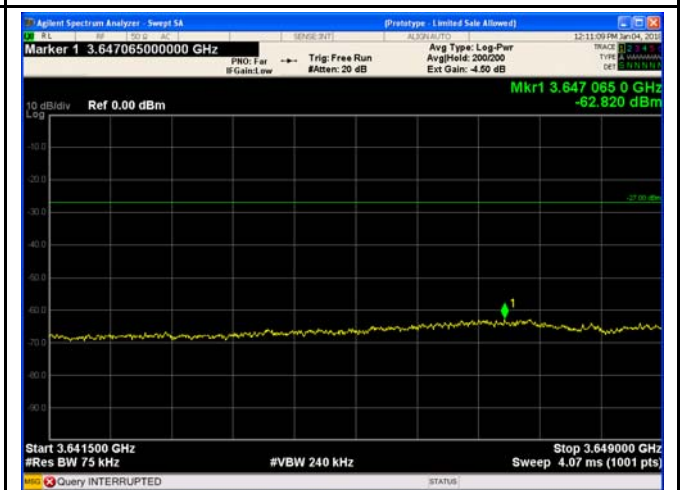
10MHz - 3701MHz -3706MHz High CH QPSK



10MHz - 3701MHz -3706MHz High CH 16QAM



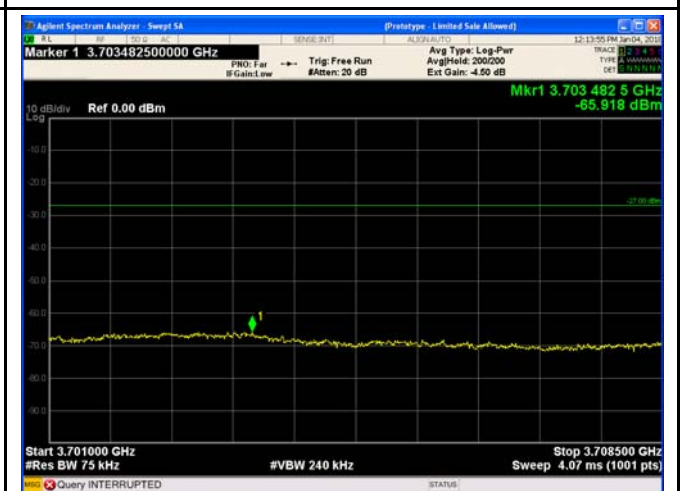
15MHz - 3641.5MHz-3619MHz Low CH QPSK



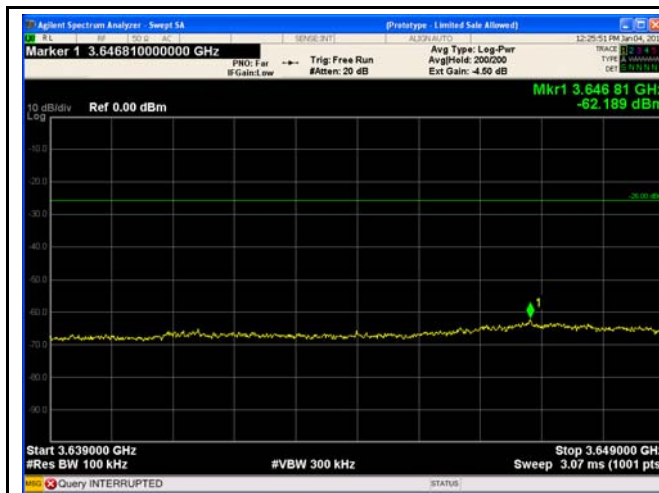
15MHz - 3641.5MHz-3649MHz Low CH 16QAM



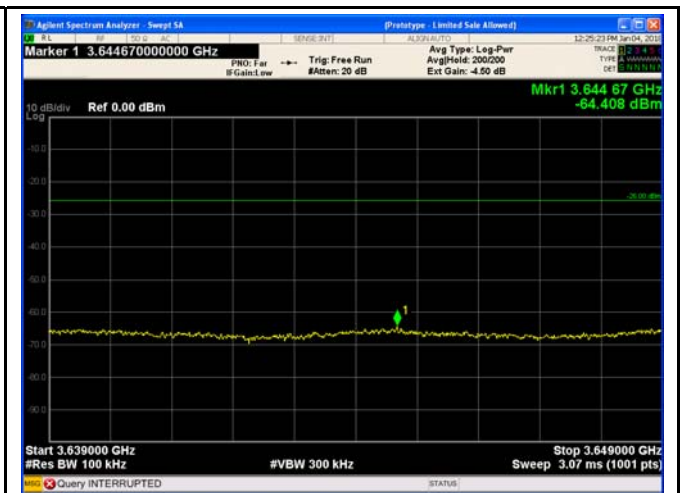
15MHz - 3701MHz -3708.5MHz High CH QPSK



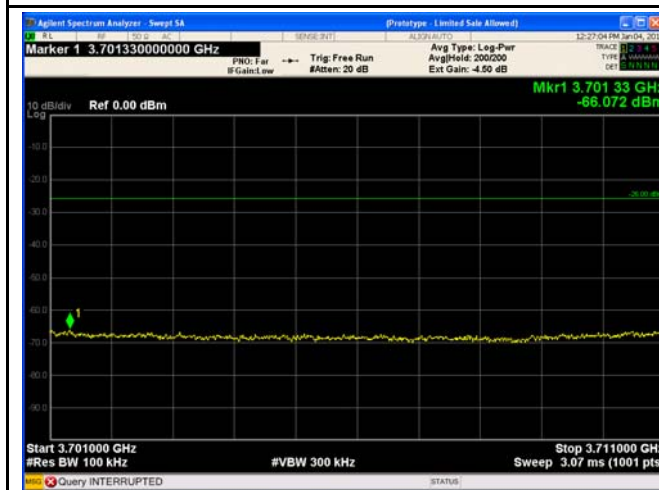
15MHz - 3701MHz -3708.5MHz High CH 16QAM



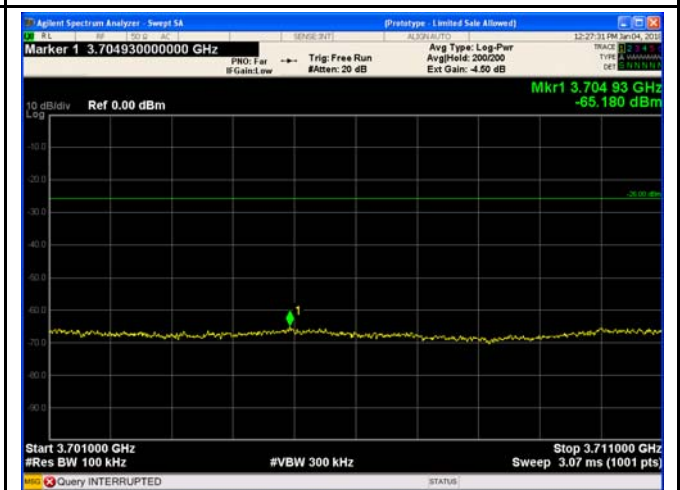
20MHz – 3639MHz-3649MHz Low CH QPSK



20MHz – 3639MHz-3649MHz Low CH 16QAM



20MHz - 3701MHz -3711MHz High CH QPSK



20MHz - 3701MHz -3711MHz High CH 16QAM

## 12 Field strength of spurious radiation measurement

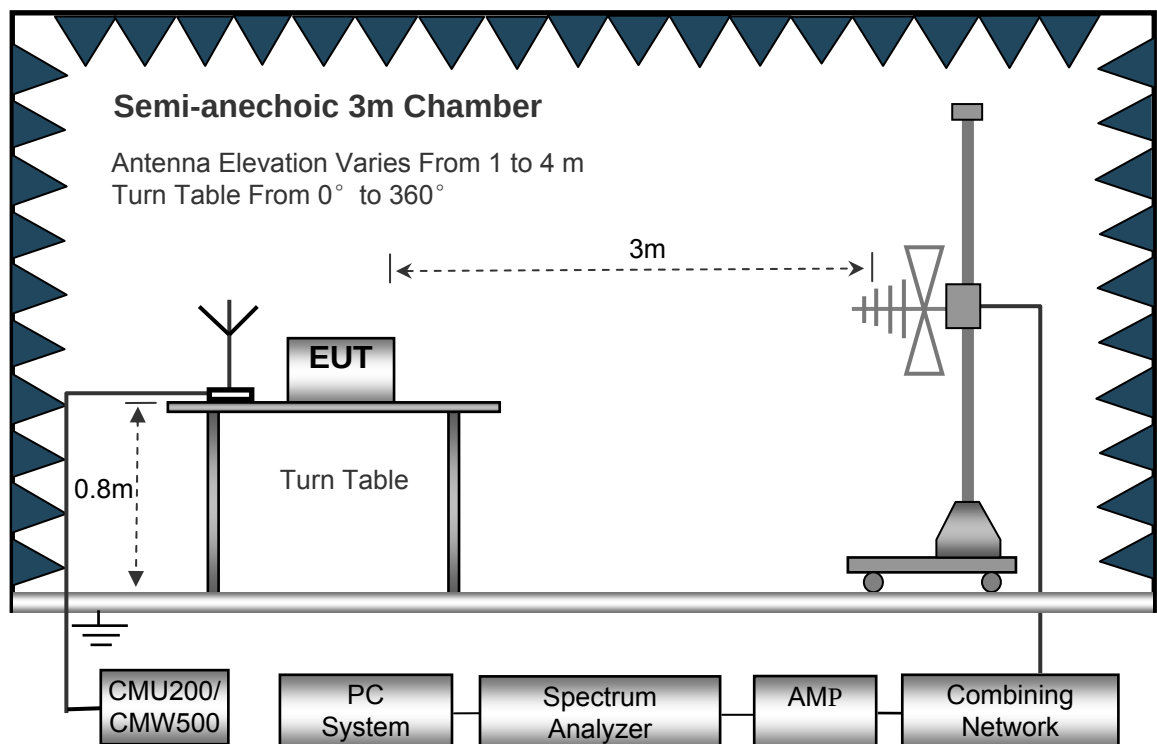
|                   |                                       |
|-------------------|---------------------------------------|
| Test Requirement: | FCC part90.1323                       |
| Test Method:      | FCC part2.1051<br>ANSI/TIA-603-E-2016 |
| Test Mode:        | Data communicating mode               |
| Limit:            | -13dBm                                |

### 12.1 EUT Operation

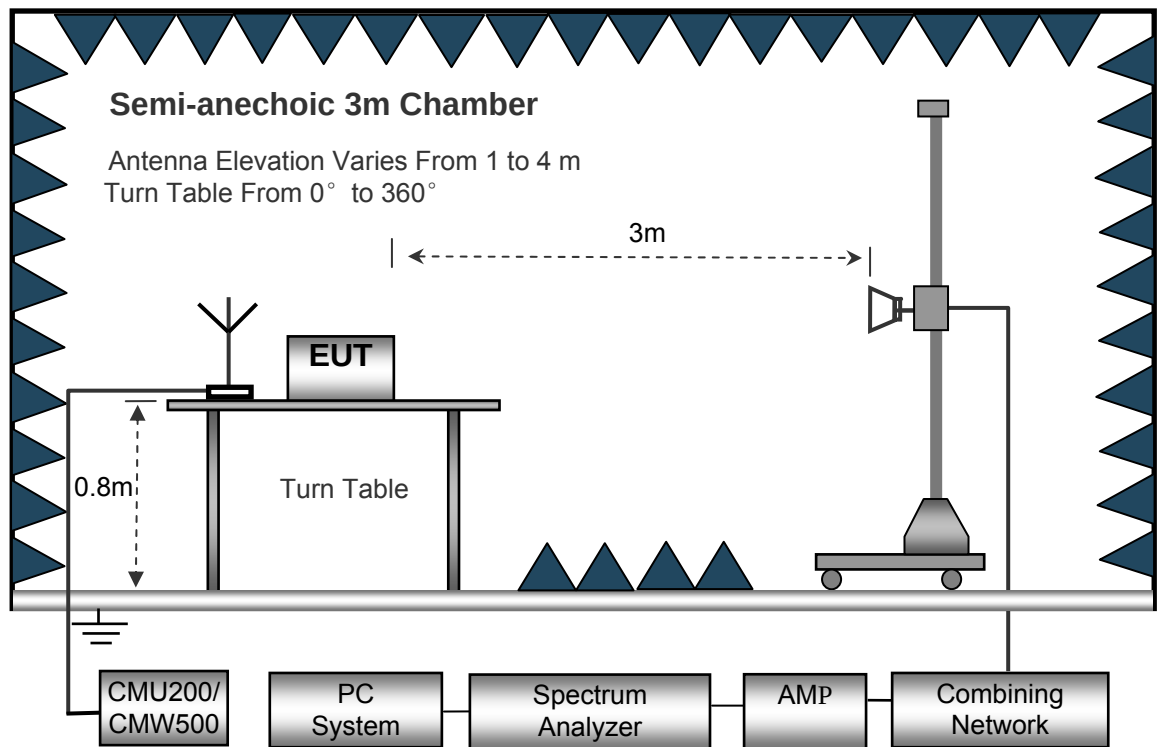
|                         |           |
|-------------------------|-----------|
| Operating Environment : |           |
| Temperature:            | 23.5 °C   |
| Humidity:               | 52.1 % RH |
| Atmospheric Pressure:   | 101.2kPa  |

### 12.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site. The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



### 12.3 Spectrum Analyzer Setup

30MHz ~ 1GHz

Sweep Speed ..... Auto  
Detector ..... PK  
Resolution Bandwidth..... 100kHz  
Video Bandwidth..... 300kHz

Above 1GHz

Sweep Speed ..... Auto  
Detector ..... PK  
Resolution Bandwidth..... 1MHz  
Video Bandwidth..... 3MHz  
Detector ..... Ave.  
Resolution Bandwidth..... 1MHz  
Video Bandwidth..... 10Hz

## 12.4 Test Procedure

1. The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.
2. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.
3. The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission was identified, the power of the emission was determined using the substitution method.
4. The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

$$\text{ERP / EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain(dB/dBi)} - \text{Cable Loss (dB)}$$

## 12.5 Test Result

30MHz-18GHz

Remark: During the test, pre-scan the QPSK, 16QAM modulation, and found the QPSK modulation and 10MHz bandwidth is the worst case.

| Frequency      | Receiver Reading | Turn table Angle | RX Antenna |       | Substituted |       |              | Absolute Level | Result |        |
|----------------|------------------|------------------|------------|-------|-------------|-------|--------------|----------------|--------|--------|
|                |                  |                  | Height     | Polar | SG Level    | Cable | Antenna Gain |                | Limit  | Margin |
| (MHz)          | (dBμV)           | Degree           | (m)        | (H/V) | (dBm)       | (dB)  | (dB)         | (dBm)          | (dBm)  | (dB)   |
| Low channel    |                  |                  |            |       |             |       |              |                |        |        |
| 199.52         | 37.79            | 221              | 1.5        | H     | -72.72      | 0.15  | 0.00         | -72.87         | -13.00 | -59.87 |
| 199.52         | 29.73            | 22               | 1.6        | V     | -77.86      | 0.15  | 0.00         | -78.01         | -13.00 | -65.01 |
| 7310.00        | 65.95            | 20               | 1.2        | H     | -43.29      | 2.79  | 12.70        | -33.38         | -13.00 | -20.38 |
| 7310.00        | 59.98            | 283              | 1.0        | V     | -48.79      | 2.79  | 12.70        | -38.88         | -13.00 | -25.88 |
| 10965.00       | 53.58            | 99               | 1.8        | H     | -52.96      | 3.12  | 11.50        | -44.58         | -13.00 | -31.58 |
| 10965.00       | 44.73            | 226              | 1.9        | V     | -60.70      | 3.12  | 11.50        | -52.32         | -13.00 | -39.32 |
| Middle channel |                  |                  |            |       |             |       |              |                |        |        |
| 199.52         | 38.47            | 188              | 1.8        | H     | -72.04      | 0.15  | 0.00         | -72.19         | -13.00 | -59.19 |
| 199.52         | 29.36            | 241              | 2.2        | V     | -78.23      | 0.15  | 0.00         | -78.38         | -13.00 | -65.38 |
| 7350.00        | 58.91            | 166              | 1.7        | H     | -50.33      | 2.37  | 12.50        | -40.20         | -13.00 | -27.20 |
| 7350.00        | 53.74            | 277              | 1.4        | V     | -55.03      | 2.37  | 12.50        | -44.90         | -13.00 | -31.90 |
| 11025.00       | 46.66            | 199              | 1.6        | H     | -59.88      | 3.12  | 11.50        | -51.50         | -13.00 | -38.50 |
| 11025.00       | 37.58            | 281              | 2.1        | V     | -67.85      | 3.12  | 11.50        | -59.47         | -13.00 | -46.47 |
| High channel   |                  |                  |            |       |             |       |              |                |        |        |
| 199.52         | 38.86            | 101              | 1.1        | H     | -71.65      | 0.15  | 0.00         | -71.80         | -13.00 | -58.80 |
| 199.52         | 30.13            | 346              | 1.7        | V     | -77.46      | 0.15  | 0.00         | -77.61         | -13.00 | -64.61 |
| 7390.00        | 51.22            | 232              | 1.5        | H     | -58.19      | 2.37  | 12.50        | -48.06         | -13.00 | -35.06 |
| 7390.00        | 47.62            | 232              | 1.2        | V     | -61.15      | 2.37  | 12.50        | -51.02         | -13.00 | -38.02 |
| 11085.00       | 40.40            | 18               | 1.2        | H     | -64.83      | 3.12  | 11.50        | -56.45         | -13.00 | -43.45 |
| 11085.00       | 29.86            | 202              | 2.1        | V     | -75.03      | 3.12  | 11.50        | -66.65         | -13.00 | -53.65 |

Remark:

Test Frequency: 18GHz~25GHz

The measurements were more than 20 dB below the limit and not recorded

### 13 Frequency stability V.S. Temperature measurement

Test Requirement: FCC Part90.213(a)  
 Test Method: FCC Part2.1055(a)(1)(b)  
 ANSI/TIA-603-E-2016  
 Test Mode: Data communicating mode  
 Limit: FCC:

| Frequency range (MHz) | Fixed and base stations (±ppm) | Mobile stations (±ppm)    |                              |
|-----------------------|--------------------------------|---------------------------|------------------------------|
|                       |                                | Over 2 watts output power | 2 watts or less output power |
| Below 25              | 100                            | 100                       | 200                          |
| 25-50                 | 20                             | 20                        | 50                           |
| 72-76                 | 5                              |                           | 50                           |
| 150-174               | 5                              | 5                         | 50                           |
| 216-220               | 1.0                            |                           | 1.0                          |
| 220-222               | 0.1                            | 1.5                       | 1.5                          |
| 421-512               | 2.5                            | 5                         | 5                            |
| 806-809               | 1.0                            | 1.5                       | 1.5                          |
| 809-824               | 1.5                            | 2.5                       | 2.5                          |
| 851-854               | 1.0                            | 1.5                       | 1.5                          |
| 854-869               | 1.5                            | 2.5                       | 2.5                          |
| 896-901               | 0.1                            | 1.5                       | 1.5                          |
| 902-928               | 2.5                            | 2.5                       | 2.5                          |
| 902-928               | 2.5                            | 2.5                       | 2.5                          |
| 929-930               | 1.5                            |                           |                              |
| 935-940               | 0.1                            | 1.5                       | 1.5                          |
| 1427-1435             | 300                            | 300                       | 300                          |
| Above 2450            |                                |                           |                              |

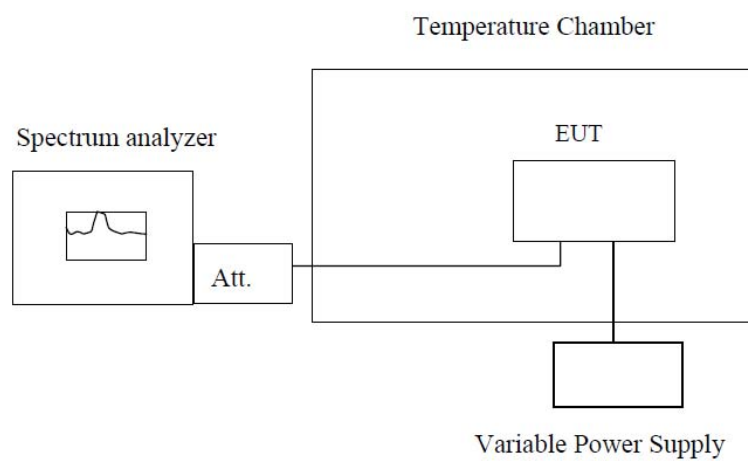
#### 13.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C  
 Humidity: 52.3 % RH  
 Atmospheric Pressure: 101.3kPa

#### 13.2 Test Procedure

1. The equipment under test was connected to an external DC power supply and input rated voltage.
2. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators.
3. The EUT was placed inside the temperature chamber.
4. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency.
5. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency.
6. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.



**Note :** Measurement setup for testing on Antenna connector

### 13.3 Test Result

Remark: All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

#### Chain 0

| Test Frequency: 3652.5MHz QPSK 5MHz |                    |                      |                       |
|-------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                 | 120                | 103                  | 0.0282                |
| -25                                 |                    | 106                  | 0.0290                |
| -10                                 |                    | 105                  | 0.0287                |
| 0                                   |                    | 103                  | 0.0282                |
| 10                                  |                    | 107                  | 0.0293                |
| 20                                  |                    | 110                  | 0.0301                |
| 30                                  |                    | 106                  | 0.0290                |
| 40                                  |                    | 109                  | 0.0298                |
| 55                                  |                    | 111                  | 0.0304                |

| Test Frequency: 3655MHz QPSK 10MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                | 120                | 106                  | 0.0290                |
| -25                                |                    | 105                  | 0.0287                |
| -10                                |                    | 108                  | 0.0295                |
| 0                                  |                    | 112                  | 0.0306                |
| 10                                 |                    | 120                  | 0.0328                |
| 20                                 |                    | 114                  | 0.0312                |
| 30                                 |                    | 105                  | 0.0287                |
| 40                                 |                    | 116                  | 0.0317                |
| 55                                 |                    | 118                  | 0.0323                |

| Test Frequency: 3657.5MHz QPSK 15MHz |                    |                      |                       |
|--------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                  | 120                | 108                  | 0.0295                |
| -25                                  |                    | 103                  | 0.0282                |
| -10                                  |                    | 101                  | 0.0276                |
| 0                                    |                    | 105                  | 0.0287                |
| 10                                   |                    | 114                  | 0.0312                |
| 20                                   |                    | 104                  | 0.0284                |
| 30                                   |                    | 103                  | 0.0282                |
| 40                                   |                    | 100                  | 0.0273                |
| 55                                   |                    | 104                  | 0.0284                |

| Test Frequency: 3660MHz QPSK 20MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                | 120                | 107                  | 0.0292                |
| -25                                |                    | 116                  | 0.0317                |
| -10                                |                    | 114                  | 0.0311                |
| 0                                  |                    | 109                  | 0.0298                |
| 10                                 |                    | 104                  | 0.0284                |
| 20                                 |                    | 101                  | 0.0276                |
| 30                                 |                    | 102                  | 0.0279                |
| 40                                 |                    | 118                  | 0.0322                |
| 55                                 |                    | 109                  | 0.0298                |

**Chain 1**

| Test Frequency: 3652.5MHz QPSK 5MHz |                    |                      |                       |
|-------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                 | 120                | 101                  | 0.0277                |
| -25                                 |                    | 101                  | 0.0277                |
| -10                                 |                    | 107                  | 0.0293                |
| 0                                   |                    | 106                  | 0.0290                |
| 10                                  |                    | 112                  | 0.0307                |
| 20                                  |                    | 98                   | 0.0268                |
| 30                                  |                    | 114                  | 0.0312                |
| 40                                  |                    | 106                  | 0.0290                |
| 55                                  |                    | 99                   | 0.0271                |

| Test Frequency: 3655MHz QPSK 10MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                | 120                | 103                  | 0.0282                |
| -25                                |                    | 102                  | 0.0279                |
| -10                                |                    | 118                  | 0.0323                |
| 0                                  |                    | 109                  | 0.0298                |
| 10                                 |                    | 115                  | 0.0315                |
| 20                                 |                    | 106                  | 0.0290                |
| 30                                 |                    | 117                  | 0.0320                |
| 40                                 |                    | 107                  | 0.0293                |
| 55                                 |                    | 118                  | 0.0323                |

| Test Frequency: 3657.5MHz QPSK 15MHz |                    |                      |                       |
|--------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                  | 120                | 117                  | 0.0320                |
| -25                                  |                    | 108                  | 0.0295                |
| -10                                  |                    | 113                  | 0.0309                |
| 0                                    |                    | 112                  | 0.0306                |
| 10                                   |                    | 117                  | 0.0320                |
| 20                                   |                    | 119                  | 0.0325                |
| 30                                   |                    | 115                  | 0.0314                |
| 40                                   |                    | 114                  | 0.0312                |
| 55                                   |                    | 116                  | 0.0317                |

| Test Frequency: 3660MHz QPSK 20MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| -40                                | 120                | 115                  | 0.0314                |
| -25                                |                    | 108                  | 0.0295                |
| -10                                |                    | 123                  | 0.0336                |
| 0                                  |                    | 115                  | 0.0314                |
| 10                                 |                    | 111                  | 0.0303                |
| 20                                 |                    | 107                  | 0.0292                |
| 30                                 |                    | 110                  | 0.0301                |
| 40                                 |                    | 106                  | 0.0290                |
| 55                                 |                    | 120                  | 0.0328                |

## 14 Frequency stability V.S. Voltage measurement

Test Requirement: FCC Part90.213(a)  
 Test Method: FCC Part2.1055(a)(1)(b)  
 ANSI/TIA-603-E-2016  
 Test Mode: Data communicating mode  
 Limit: FCC:

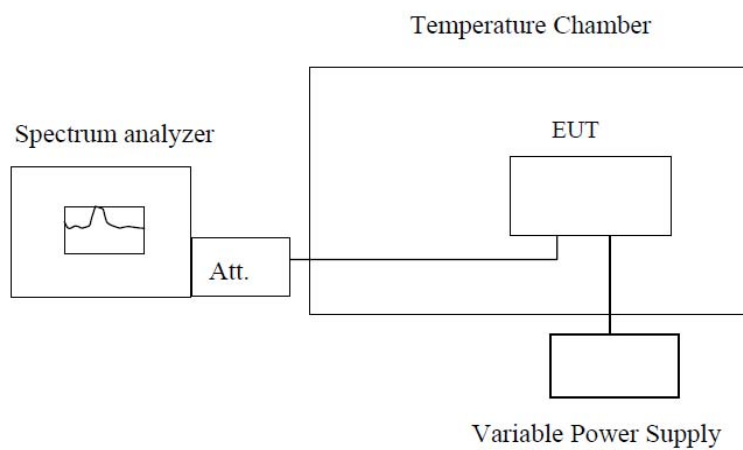
| Frequency range (MHz) | Fixed and base stations (±ppm) | Mobile stations (±ppm)    |                              |
|-----------------------|--------------------------------|---------------------------|------------------------------|
|                       |                                | Over 2 watts output power | 2 watts or less output power |
| Below 25              | 100                            | 100                       | 200                          |
| 25-50                 | 20                             | 20                        | 50                           |
| 72-76                 | 5                              |                           | 50                           |
| 150-174               | 5                              | 5                         | 50                           |
| 216-220               | 1.0                            |                           | 1.0                          |
| 220-222               | 0.1                            | 1.5                       | 1.5                          |
| 421-512               | 2.5                            | 5                         | 5                            |
| 808-809               | 1.0                            | 1.5                       | 1.5                          |
| 809-824               | 1.5                            | 2.5                       | 2.5                          |
| 851-854               | 1.0                            | 1.5                       | 1.5                          |
| 854-869               | 1.5                            | 2.5                       | 2.5                          |
| 896-901               | 0.1                            | 1.5                       | 1.5                          |
| 902-928               | 2.5                            | 2.5                       | 2.5                          |
| 902-928               | 2.5                            | 2.5                       | 2.5                          |
| 929-930               | 1.5                            |                           |                              |
| 935-940               | 0.1                            | 1.5                       | 1.5                          |
| 1427-1435             | 300                            | 300                       | 300                          |
| Above 2450            |                                |                           |                              |

### 14.1 EUT Operation

Operating Environment :  
 Temperature: 22.9 °C  
 Humidity: 52.0 % RH  
 Atmospheric Pressure: 101.3kPa

### 14.2 Test Procedure

1. Set chamber temperature to 25°C. Use a variable DC power source to power the EUT and set the voltage to rated voltage.
2. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
3. Reduce the input voltage to specify extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.



**Note :** Measurement setup for testing on Antenna connector

### 14.3 Test Result

Remark: All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

#### Chain 0

| Test Frequency: 3652.5MHz QPSK 5MHz |                    |                      |                       |
|-------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                  | 105                | 104                  | 0.0285                |
|                                     | 120                | 107                  | 0.0293                |
|                                     | 144                | 105                  | 0.0287                |

| Test Frequency: 3655MHz QPSK 10MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                 | 105                | 107                  | 0.0293                |
|                                    | 120                | 106                  | 0.0290                |
|                                    | 144                | 111                  | 0.0304                |

| Test Frequency: 3657.5MHz QPSK 15MHz |                    |                      |                       |
|--------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                   | 105                | 105                  | 0.0287                |
|                                      | 120                | 110                  | 0.0301                |
|                                      | 144                | 108                  | 0.0295                |

| Test Frequency: 3660MHz QPSK 20MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                 | 105                | 106                  | 0.0290                |
|                                    | 120                | 116                  | 0.0317                |
|                                    | 144                | 118                  | 0.0322                |

**Chain 1**

| Test Frequency: 3652.5MHz QPSK 5MHz |                    |                      |                       |
|-------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                    | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                  | 105                | 110                  | 0.0301                |
|                                     | 120                | 100                  | 0.0274                |
|                                     | 144                | 113                  | 0.0309                |

| Test Frequency: 3655MHz QPSK 10MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                 | 105                | 111                  | 0.0304                |
|                                    | 120                | 112                  | 0.0306                |
|                                    | 144                | 114                  | 0.0312                |

| Test Frequency: 3657.5MHz QPSK 15MHz |                    |                      |                       |
|--------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                     | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                   | 105                | 106                  | 0.0290                |
|                                      | 120                | 115                  | 0.0314                |
|                                      | 144                | 103                  | 0.0282                |

| Test Frequency: 3660MHz QPSK 20MHz |                    |                      |                       |
|------------------------------------|--------------------|----------------------|-----------------------|
| Temperature (°C)                   | Power Supply (VDC) | Frequency Error (Hz) | Frequency Error (ppm) |
| 25                                 | 105                | 117                  | 0.0320                |
|                                    | 120                | 114                  | 0.0311                |
|                                    | 144                | 107                  | 0.0292                |

## **15 Photographs of Test Setup and EUT.**

Note: Please refer to appendix: WTS17S1298632E\_Photo.

===== End of Report =====