

## Bluetooth Annex

## Summary

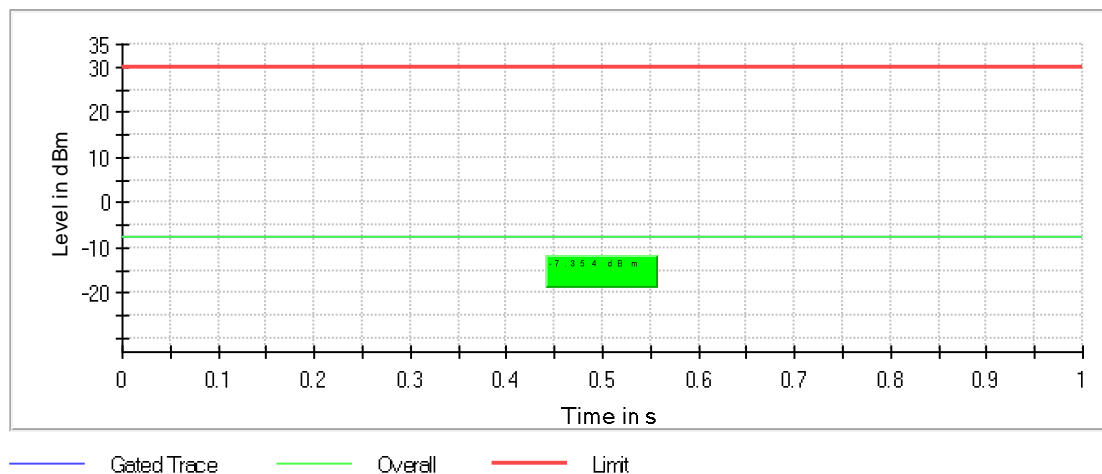
| Test  | Frequency (MHz) | Nominal Power (dBm) | Nominal Bandwidth (MHz) | Result |
|---|-----------------|---------------------|-------------------------|--------|
| RF output power                                   | 2402.000        | 30.0                | 1.000000                | PASS   |
| Minimum Emission Bandwidth 6 dB                   | 2402.000        | 30.0                | 1.000000                | PASS   |
| Peak Power Spectral Density                       | 2402.000        | 30.0                | 1.000000                | PASS   |
| Occupied Channel Bandwidth 99%                    | 2402.000        | 30.0                | 1.000000                | PASS   |
| Band Edge low                                     | 2402.000        | 30.0                | 1.000000                | PASS   |
| Tx Spurious Emission                              | 2402.000        | 30.0                | 1.000000                | PASS   |
| Emissions in restricted frequency bands (Average) | 2402.000        | 30.0                | 1.000000                | PASS   |
| RF output power                                   | 2442.000        | 30.0                | 1.000000                | PASS   |
| Minimum Emission Bandwidth 6 dB                   | 2442.000        | 30.0                | 1.000000                | PASS   |
| Peak Power Spectral Density                       | 2442.000        | 30.0                | 1.000000                | PASS   |
| Occupied Channel Bandwidth 99%                    | 2442.000        | 30.0                | 1.000000                | PASS   |
| Tx Spurious Emission                              | 2442.000        | 30.0                | 1.000000                | PASS   |
| Emissions in restricted frequency bands (Average) | 2442.000        | 30.0                | 1.000000                | PASS   |
| RF output power                                   | 2480.000        | 30.0                | 1.000000                | PASS   |
| Minimum Emission Bandwidth 6 dB                   | 2480.000        | 30.0                | 1.000000                | PASS   |
| Peak Power Spectral Density                       | 2480.000        | 30.0                | 1.000000                | PASS   |
| Occupied Channel Bandwidth 99%                    | 2480.000        | 30.0                | 1.000000                | PASS   |
| Band Edge high                                    | 2480.000        | 30.0                | 1.000000                | PASS   |
| Tx Spurious Emission                              | 2480.000        | 30.0                | 1.000000                | PASS   |
| Emissions in restricted frequency bands (Average) | 2480.000        | 30.0                | 1.000000                | PASS   |

## RF output power (2402 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Gated RMS (dBm) | Limit Max (dBm) | Gated EIRP (dBm) | DutyCycle (%) | Result |
|---------------------|-----------------|-----------------|------------------|---------------|--------|
| 2402.000000         | -7.4            | 30.0            | -7.4             | 100.000       | PASS   |

Gated Trace



### OSP PowerMeter settings

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Measurement Time | 1.000 s          | 1.000 s       |
| Points           | 1000000          | 1000000       |
| Time resolution  | 1.000 $\mu$ s    | 1.000 $\mu$ s |

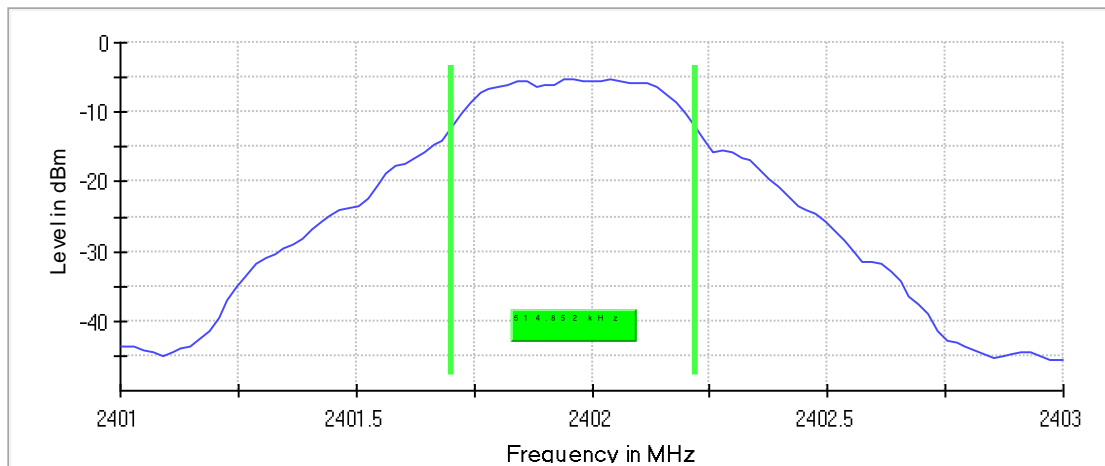
# Minimum Emission Bandwidth 6 dB (2402 MHz; 30.000 dBm; 1 MHz)

## 6 dB Bandwidth

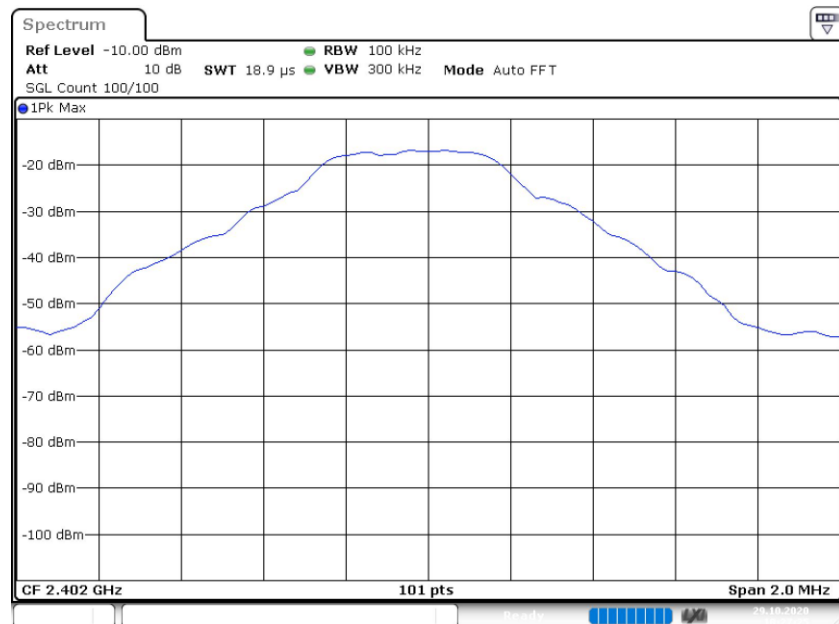
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 0.514852        | 0.500000        | ---             | 2401.702970          | 2402.217822           |

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2402.000000         | -5.2            | PASS   |

6 dB Bandwidth



## Bandwidth



Date: 29.OCT.2020 10:27:25

## Measurement

| Setting | Instrument Value | Target Value |
|---------|------------------|--------------|
|         |                  |              |

|                 |                |               |
|-----------------|----------------|---------------|
| Start Frequency | 2.40100 GHz    | 2.40100 GHz   |
| Stop Frequency  | 2.40300 GHz    | 2.40300 GHz   |
| Span            | 2.000 MHz      | 2.000 MHz     |
| RBW             | 100.000 kHz    | ~ 100.000 kHz |
| VBW             | 300.000 kHz    | ~ 300.000 kHz |
| SweepPoints     | 101            | ~ 40          |
| Sweeptime       | 18.938 $\mu$ s | AUTO          |
| Reference Level | -10.000 dBm    | -10.000 dBm   |
| Attenuation     | 10.000 dB      | AUTO          |
| Detector        | MaxPeak        | MaxPeak       |
| SweepCount      | 100            | 100           |
| Filter          | 3 dB           | 3 dB          |
| Trace Mode      | Max Hold       | Max Hold      |
| SweepType       | FFT            | AUTO          |
| Preamp          | off            | off           |

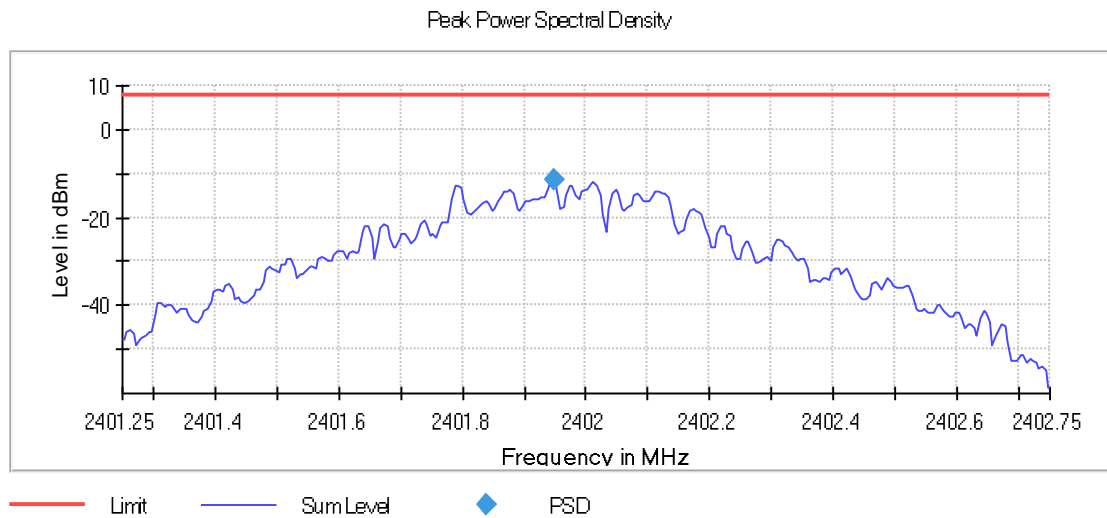
## Peak Power Spectral Density (2402 MHz; 30.000 dBm; 1 MHz)

### Result

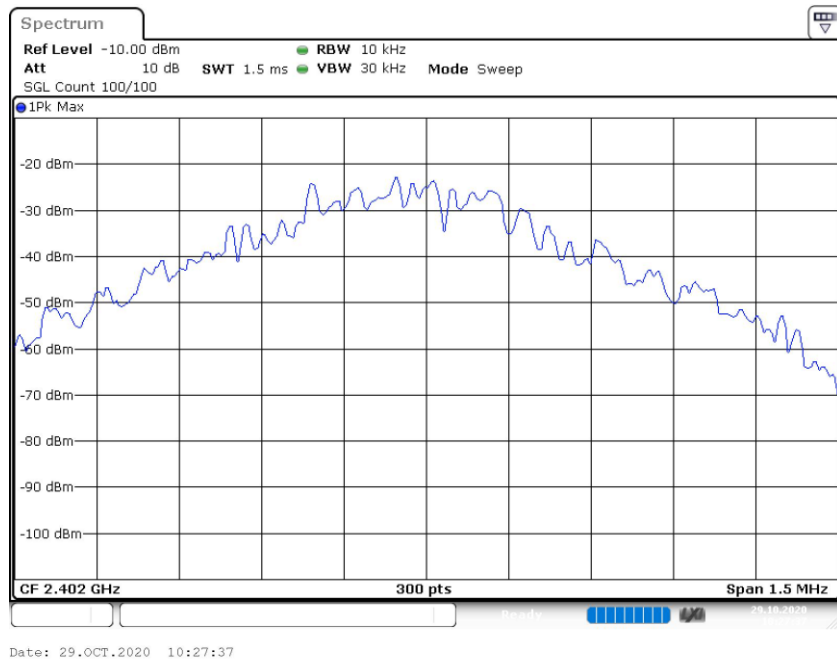
| DUT Frequency (MHz) | Frequency (MHz) | PSD (dBm) | Limit Max (dBm) | Result |
|---------------------|-----------------|-----------|-----------------|--------|
| 2402.000000         | 2401.947500     | -11.271   | 8.0             | PASS   |

### Ports

| Port | State |
|------|-------|
| 1    | used  |



PSD Connector 1



## Measurement

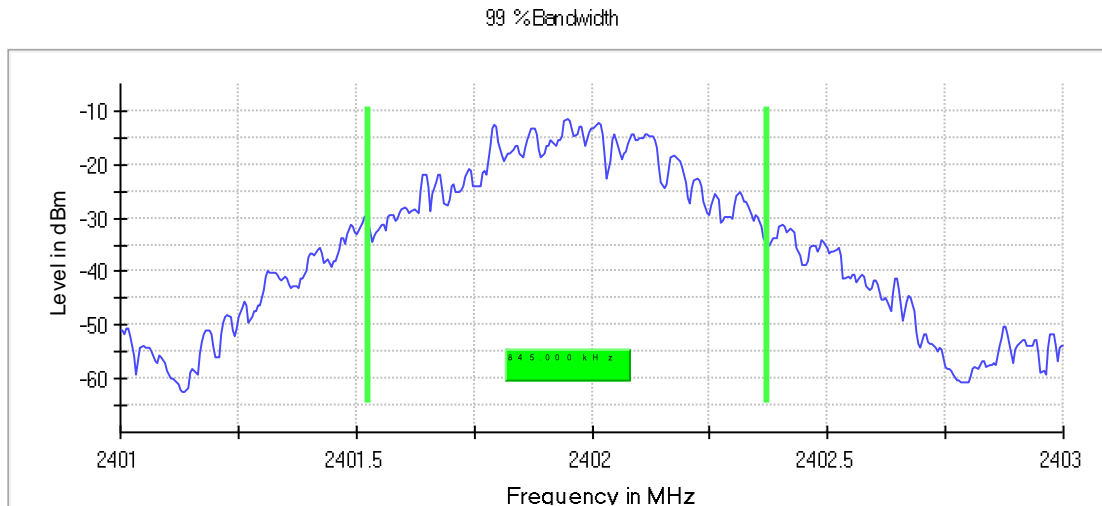
| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.40125 GHz      | 2.40125 GHz   |
| Stop Frequency  | 2.40275 GHz      | 2.40275 GHz   |
| Span            | 1.500 MHz        | 1.500 MHz     |
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 300              | ~ 300         |
| Sweeptime       | 1.500 ms         | AUTO          |
| Reference Level | -10.000 dBm      | -10.000 dBm   |
| Attenuation     | 10.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | Sweep            | Sweep         |
| Preamp          | off              | off           |

**Occupied Channel Bandwidth 99% (2402 MHz; 30.000 dBm; 1 MHz)**

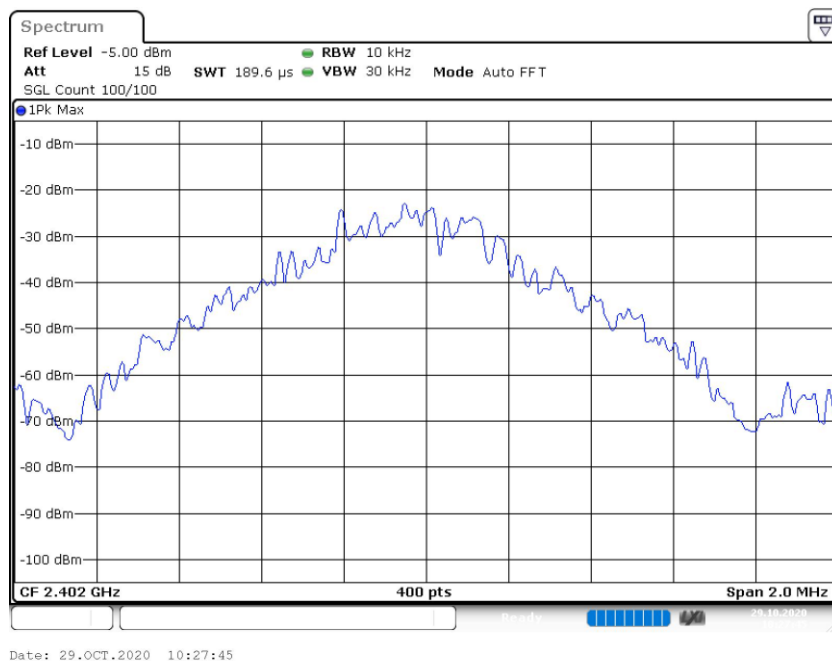
## 99 % Bandwidth

| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2402.000000         | 0.845000        | ---             | ---             | 2401.527500          | 2402.372500           |

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |



### Bandwidth



### Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.40100 GHz      | 2.40100 GHz   |
| Stop Frequency  | 2.40300 GHz      | 2.40300 GHz   |
| Span            | 2.000 MHz        | 2.000 MHz     |
| RBW             | 10.000 kHz       | >= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 400              | ~ 400         |
| Sweeptime       | 189.648 $\mu$ s  | AUTO          |
| Reference Level | -5.000 dBm       | -5.000 dBm    |
| Attenuation     | 15.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | FFT              | AUTO          |
| Preamp          | off              | off           |

## Band Edge low (2402 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |

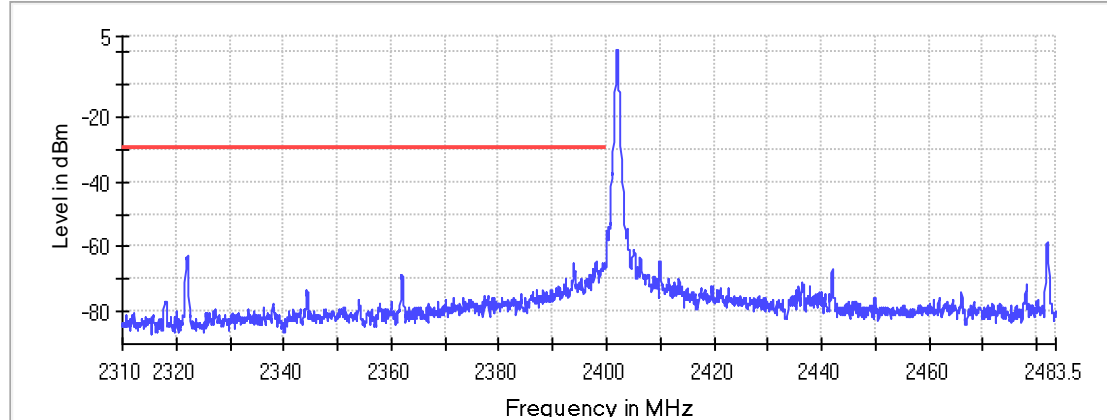
### Inband Peak

| Frequency (MHz) | Level (dBm) |
|-----------------|-------------|
| 2401.975000     | 0.8         |

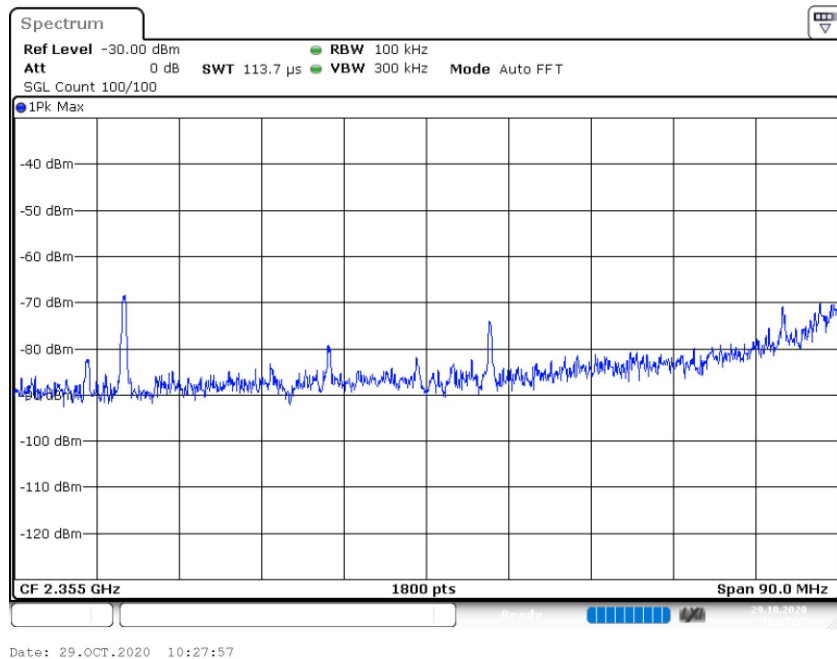
### Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) | Result |
|-----------------|-------------|-------------|-------------|--------|
| 2322.075000     | -63.0       | 33.8        | -29.2       | PASS   |
| 2321.925000     | -63.0       | 33.9        | -29.2       | PASS   |
| 2321.875000     | -63.1       | 33.9        | -29.2       | PASS   |
| 2322.125000     | -63.2       | 34.0        | -29.2       | PASS   |
| 2321.825000     | -63.4       | 34.3        | -29.2       | PASS   |
| 2321.975000     | -63.5       | 34.3        | -29.2       | PASS   |
| 2322.025000     | -63.7       | 34.5        | -29.2       | PASS   |
| 2321.775000     | -64.3       | 35.1        | -29.2       | PASS   |
| 2398.025000     | -64.7       | 35.5        | -29.2       | PASS   |
| 2399.975000     | -64.7       | 35.5        | -29.2       | PASS   |
| 2322.175000     | -64.7       | 35.5        | -29.2       | PASS   |
| 2397.975000     | -64.8       | 35.6        | -29.2       | PASS   |
| 2399.275000     | -64.8       | 35.6        | -29.2       | PASS   |
| 2399.575000     | -64.9       | 35.7        | -29.2       | PASS   |
| 2399.525000     | -65.0       | 35.8        | -29.2       | PASS   |

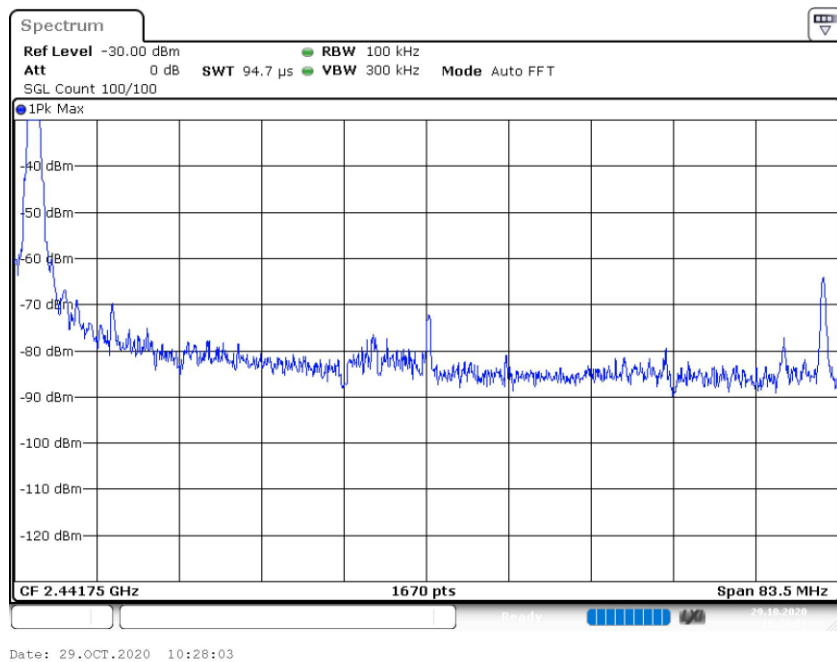
Band Edge



Band Edge Connector 1\_0



### Band Edge Connector 1\_1



### Measurement 1

| Setting         | Instrument Value | Target Value   |
|-----------------|------------------|----------------|
| Start Frequency | 2.31000 GHz      | 2.31000 GHz    |
| Stop Frequency  | 2.40000 GHz      | 2.40000 GHz    |
| Span            | 90.000 MHz       | 90.000 MHz     |
| RBW             | 100.000 kHz      | <= 100.000 kHz |
| VBW             | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints     | 1800             | ~ 1800         |
| Sweeptime       | 113.672 μs       | AUTO           |
| Reference Level | -30.000 dBm      | -30.000 dBm    |



|             |          |          |
|-------------|----------|----------|
| Attenuation | 0.000 dB | AUTO     |
| Detector    | MaxPeak  | MaxPeak  |
| SweepCount  | 100      | 100      |
| Filter      | 3 dB     | 3 dB     |
| Trace Mode  | Max Hold | Max Hold |
| Sweeptype   | FFT      | AUTO     |
| Preamp      | off      | off      |

## Measurement 2

| Setting         | Instrument Value | Target Value   |
|-----------------|------------------|----------------|
| Start Frequency | 2.40000 GHz      | 2.40000 GHz    |
| Stop Frequency  | 2.48350 GHz      | 2.48350 GHz    |
| Span            | 83.500 MHz       | 83.500 MHz     |
| RBW             | 100.000 kHz      | <= 100.000 kHz |
| VBW             | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints     | 1670             | ~ 1670         |
| SweepTime       | 94.727 µs        | AUTO           |
| Reference Level | -30.000 dBm      | -30.000 dBm    |
| Attenuation     | 0.000 dB         | AUTO           |
| Detector        | MaxPeak          | MaxPeak        |
| SweepCount      | 100              | 100            |
| Filter          | 3 dB             | 3 dB           |
| Trace Mode      | Max Hold         | Max Hold       |
| Sweeptype       | FFT              | AUTO           |
| Preamp          | off              | off            |

## Tx Spurious Emission (2402 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |

### Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

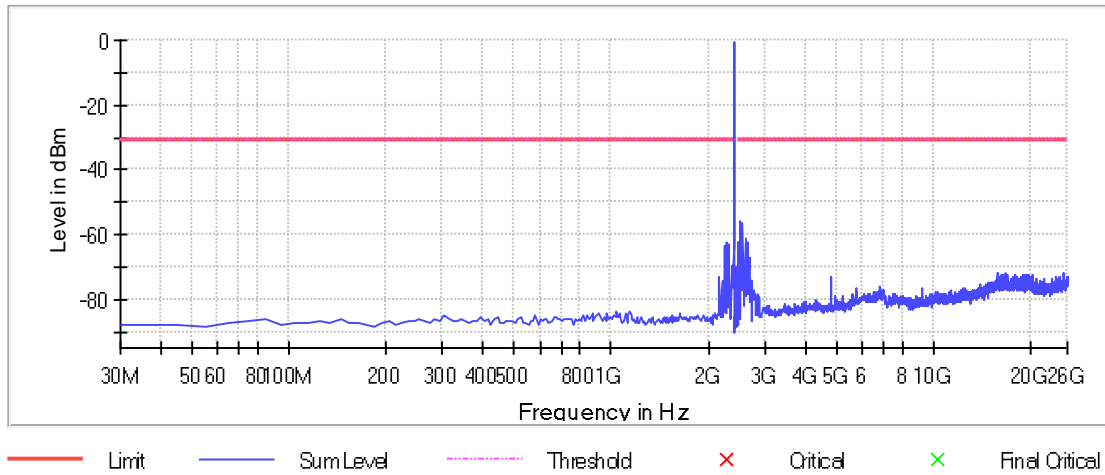
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 2518.479919     | -56.1       | 25.4        | -30.7       |
| 2558.456970     | -56.6       | 25.9        | -30.7       |
| 2598.434020     | -61.4       | 30.7        | -30.7       |
| 2638.411071     | -62.1       | 31.4        | -30.7       |
| 2285.483193     | -62.3       | 31.6        | -30.7       |
| 2325.315126     | -62.8       | 32.1        | -30.7       |
| 2245.651261     | -63.6       | 32.9        | -30.7       |
| 2395.021008     | -63.8       | 33.1        | -30.7       |
| 2678.388122     | -66.8       | 36.1        | -30.7       |
| 2365.147059     | -69.8       | 39.1        | -30.7       |
| 15740.889397    | -71.7       | 41.0        | -30.7       |
| 25375.358585    | -72.0       | 41.3        | -30.7       |
| 16810.275499    | -72.1       | 41.4        | -30.7       |
| 19548.703464    | -72.2       | 41.5        | -30.7       |
| 18909.070654    | -72.2       | 41.6        | -30.7       |

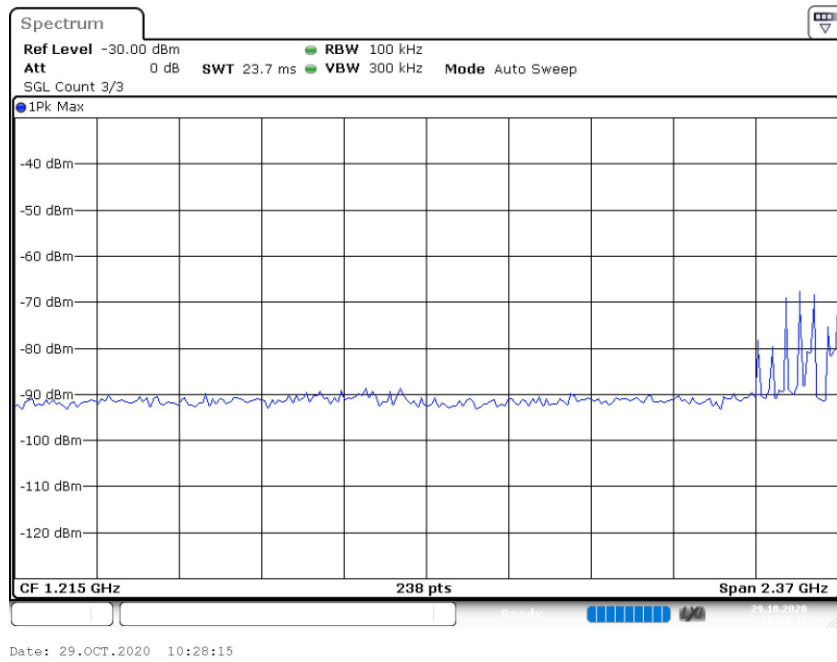
### Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 30.000000             | 2400.000000          | 1               | 1                 |
| 2400.000000           | 2483.500000          | 1               | 1                 |
| 2483.500000           | 26000.000000         | 1               | 1                 |

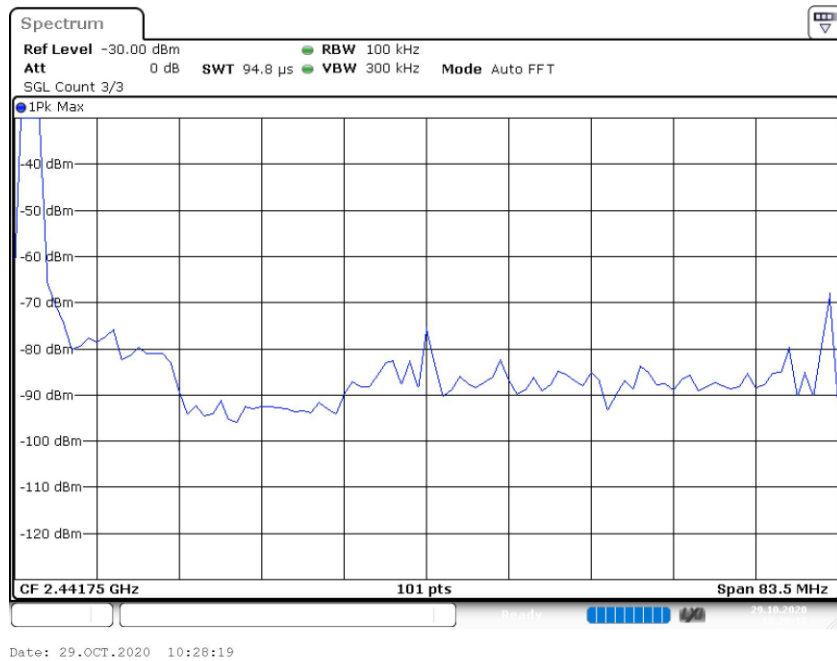
### Spurious



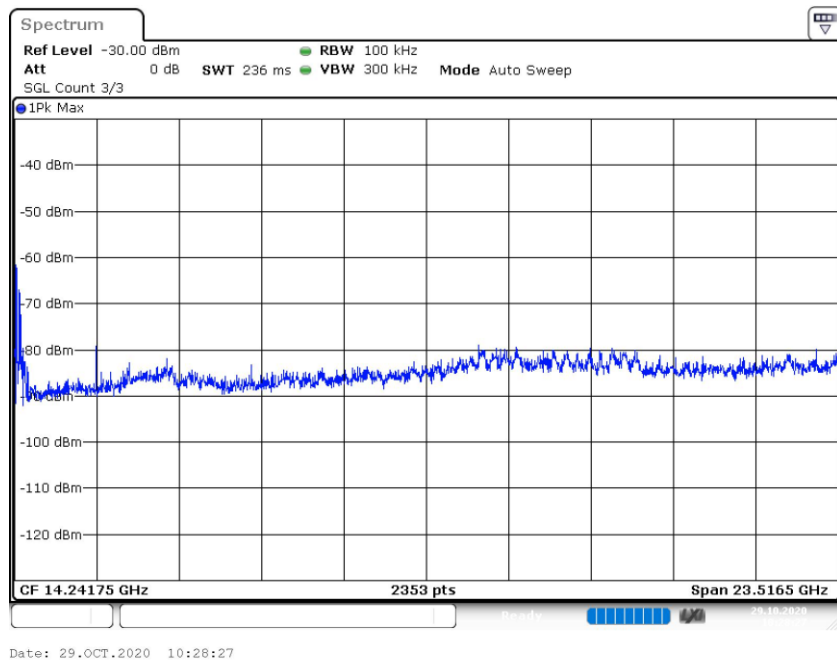
### Spurious Connector 1\_0



### Spurious Connector 1\_1



## Spurious Connector 1\_2



## Pre Measurement 1

| Setting         | Instrument Value | Target Value       |
|-----------------|------------------|--------------------|
| RBW             | 100.000 kHz      | $\leq$ 100.000 kHz |
| VBW             | 300.000 kHz      | $\geq$ 300.000 kHz |
| SweepPoints     | 238              | $\sim$ 238         |
| SweepTime       | 23.700 ms        | AUTO               |
| Reference Level | -30.000 dBm      | -30.000 dBm        |
| Attenuation     | 0.000 dB         | AUTO               |

|            |          |          |
|------------|----------|----------|
| Detector   | MaxPeak  | MaxPeak  |
| SweepCount | 3        | 3        |
| Filter     | 3 dB     | 3 dB     |
| Trace Mode | Max Hold | Max Hold |
| SweepType  | Sweep    | AUTO     |
| Preamp     | off      | off      |

## Emissions in restricted frequency bands (Average) (2402 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2402.000000         | PASS   |

### Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

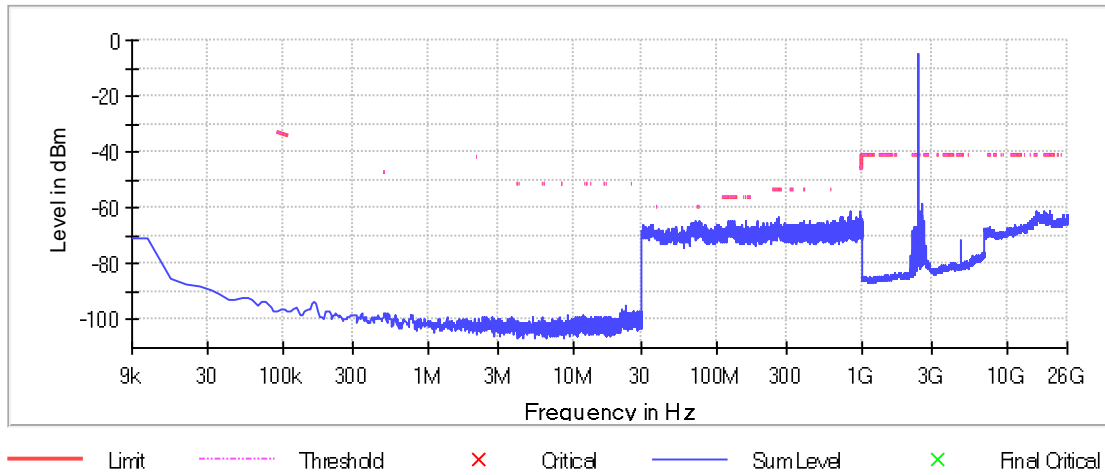
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 74.275000       | -65.9       | 6.0         | -59.9       |
| 73.925000       | -66.3       | 6.4         | -59.9       |
| 73.875000       | -66.3       | 6.4         | -59.9       |
| 74.325000       | -66.4       | 6.5         | -59.9       |
| 74.025000       | -66.4       | 6.5         | -59.9       |
| 74.075000       | -66.5       | 6.6         | -59.9       |
| 73.225000       | -67.0       | 7.1         | -59.9       |
| 73.425000       | -67.1       | 7.2         | -59.9       |
| 73.475000       | -67.2       | 7.3         | -59.9       |
| 73.575000       | -67.2       | 7.3         | -59.9       |
| 73.525000       | -67.3       | 7.4         | -59.9       |
| 73.175000       | -67.3       | 7.4         | -59.9       |
| 74.525000       | -67.4       | 7.5         | -59.9       |
| 74.225000       | -67.4       | 7.5         | -59.9       |
| 74.575000       | -67.4       | 7.5         | -59.9       |

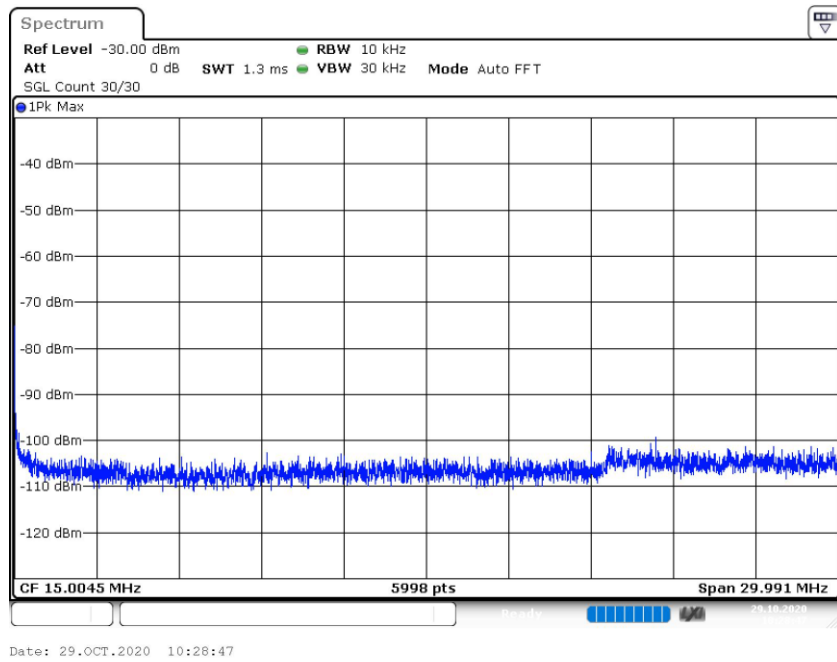
### Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 0.009000              | 30.000000            | 2               | 2                 |
| 30.000000             | 1000.000000          | 2               | 2                 |
| 1000.000000           | 7000.000000          | 1               | 1                 |
| 7000.000000           | 26000.000000         | 1               | 1                 |

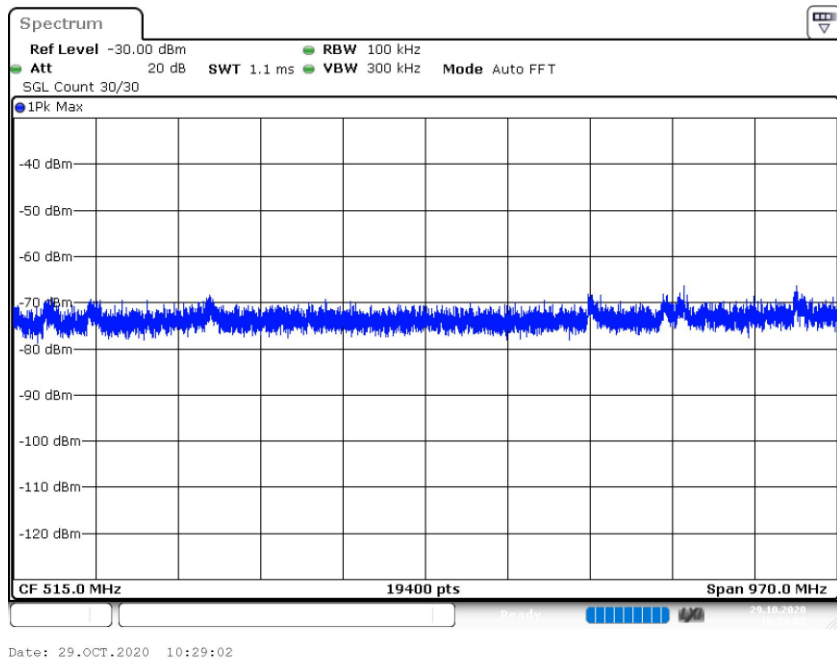
### Restricted Band



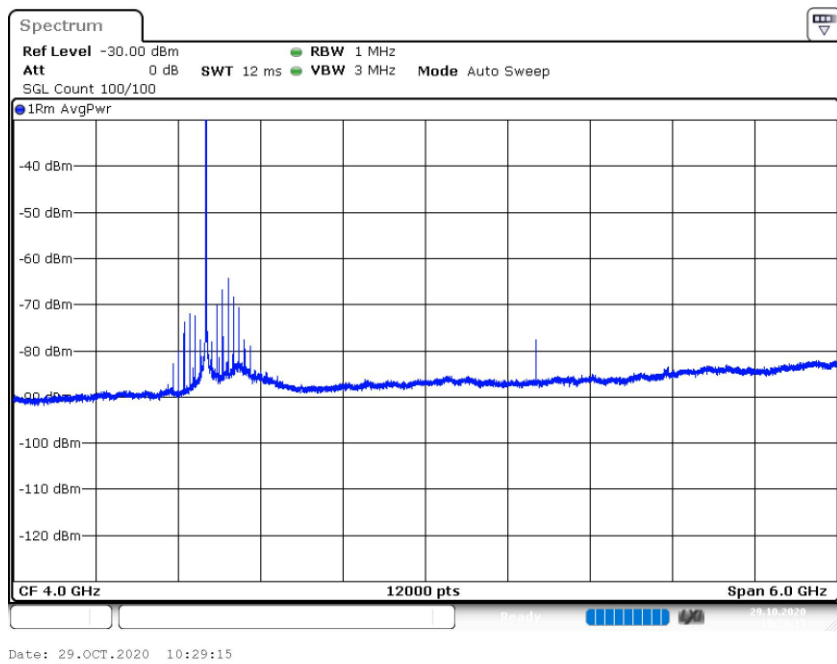
### Restricted Band Connector 1\_0



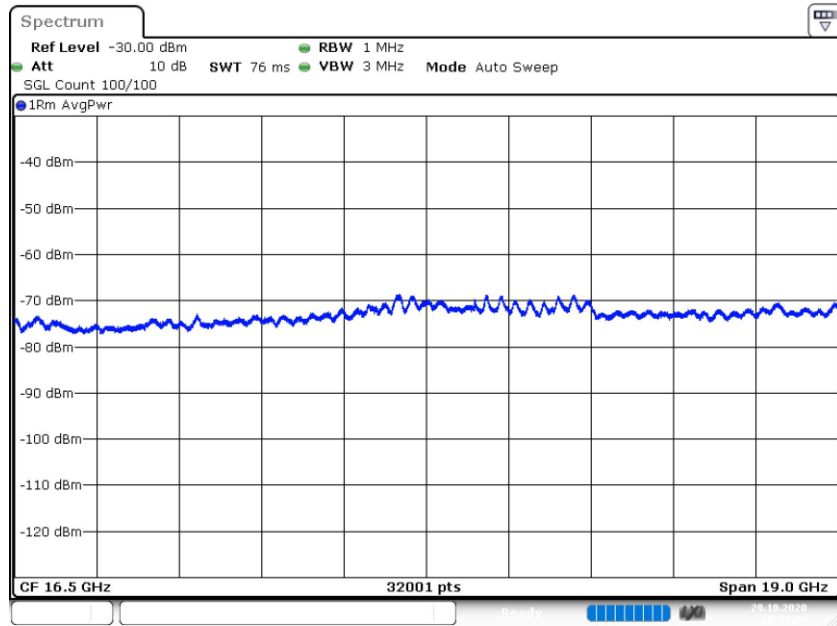
### Restricted Band Connector 1\_1



Restricted Band Connector 1\_2



Restricted Band Connector 1\_3



Date: 29.OCT.2020 10:30:06

## Pre Measurement 1

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 1.000 MHz        | <= 1.000 MHz  |
| VBW             | 3.000 MHz        | >= 3.000 MHz  |
| SweepPoints     | 12000            | ~ 12000       |
| Sweptime        | 12.000 ms        | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | RMS              | RMS           |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Average Power    | Average Power |
| Sweeptype       | Sweep            | AUTO          |
| Preamp          | off              | off           |

## Pre Measurement 2

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 5998             | ~ 5998        |
| Sweptime        | 1.327 ms         | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 30               | 30            |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | FFT              | AUTO          |
| Preamp          | off              | off           |

## RF output power (2442 MHz; 30.000 dBm; 1 MHz)

## Result

| DUT Frequency (MHz) | Gated RMS (dBm) | Limit Max (dBm) | Gated EIRP (dBm) | DutyCycle (%) | Result |
|---------------------|-----------------|-----------------|------------------|---------------|--------|
| 2442.000000         | -7.2            | 30.0            | -7.2             | 100.000       | PASS   |



### OSP PowerMeter settings

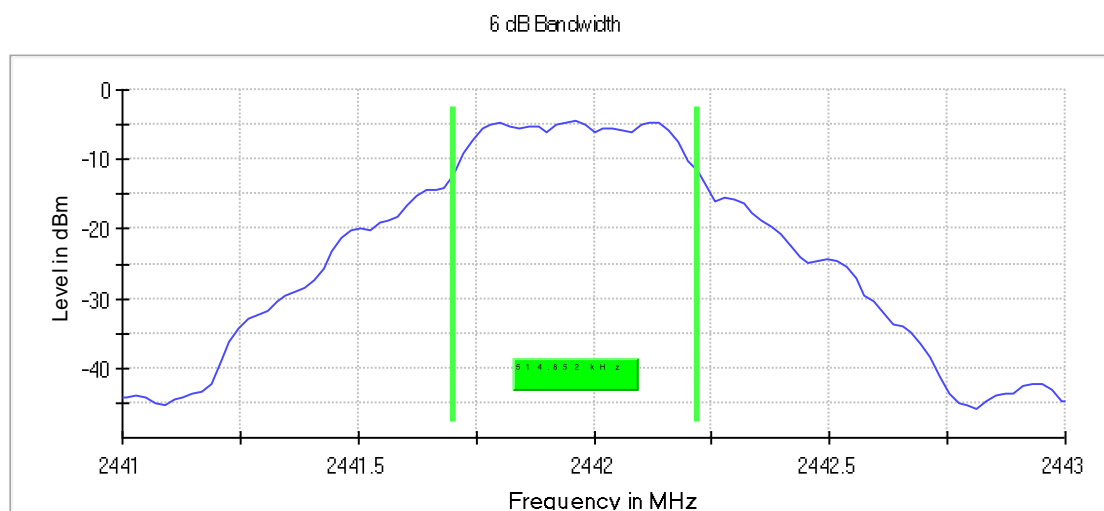
| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Measurement Time | 1.000 s          | 1.000 s       |
| Points           | 1000000          | 1000000       |
| Time resolution  | 1.000 $\mu$ s    | 1.000 $\mu$ s |

### Minimum Emission Bandwidth 6 dB (2442 MHz; 30.000 dBm; 1 MHz)

#### 6 dB Bandwidth

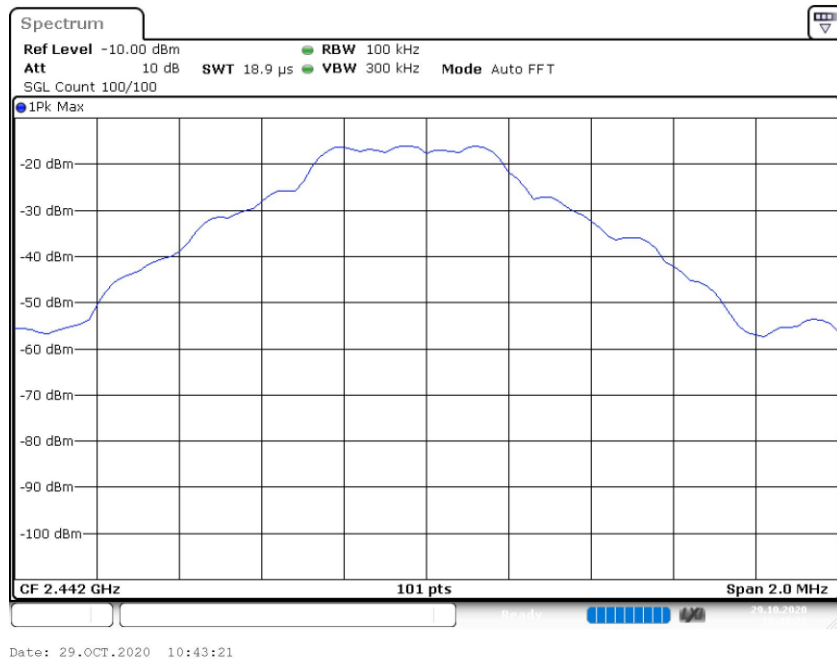
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2442.000000         | 0.514852        | 0.500000        | ---             | 2441.702970          | 2442.217822           |

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2442.000000         | -4.5            | PASS   |



Bandwidth





## Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.44100 GHz      | 2.44100 GHz   |
| Stop Frequency  | 2.44300 GHz      | 2.44300 GHz   |
| Span            | 2.000 MHz        | 2.000 MHz     |
| RBW             | 100.000 kHz      | ~ 100.000 kHz |
| VBW             | 300.000 kHz      | ~ 300.000 kHz |
| SweepPoints     | 101              | ~ 40          |
| Sweeptime       | 18.938 $\mu$ s   | AUTO          |
| Reference Level | -10.000 dBm      | -10.000 dBm   |
| Attenuation     | 10.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | FFT              | AUTO          |
| Preamp          | off              | off           |

## Peak Power Spectral Density (2442 MHz; 30.000 dBm; 1 MHz)

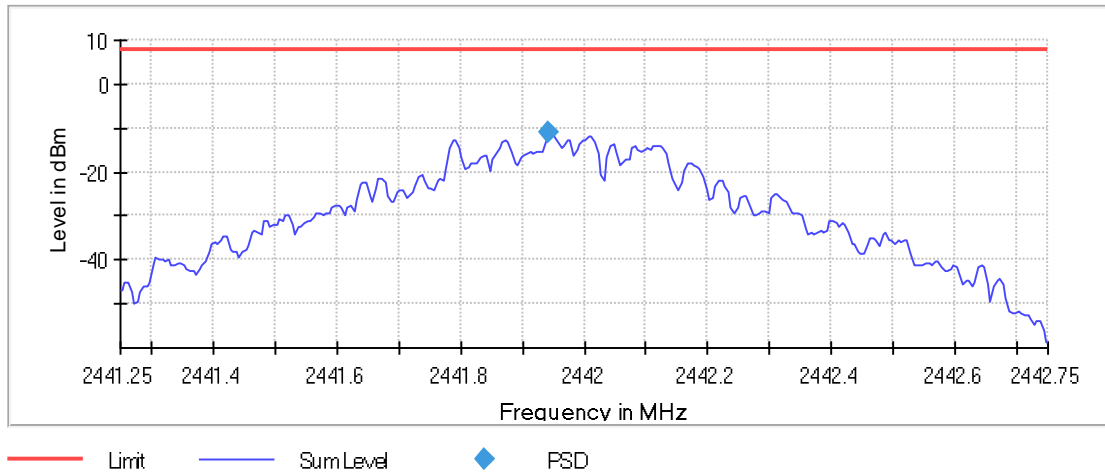
### Result

| DUT Frequency (MHz) | Frequency (MHz) | PSD (dBm) | Limit Max (dBm) | Result |
|---------------------|-----------------|-----------|-----------------|--------|
| 2442.000000         | 2441.942500     | -11.110   | 8.0             | PASS   |

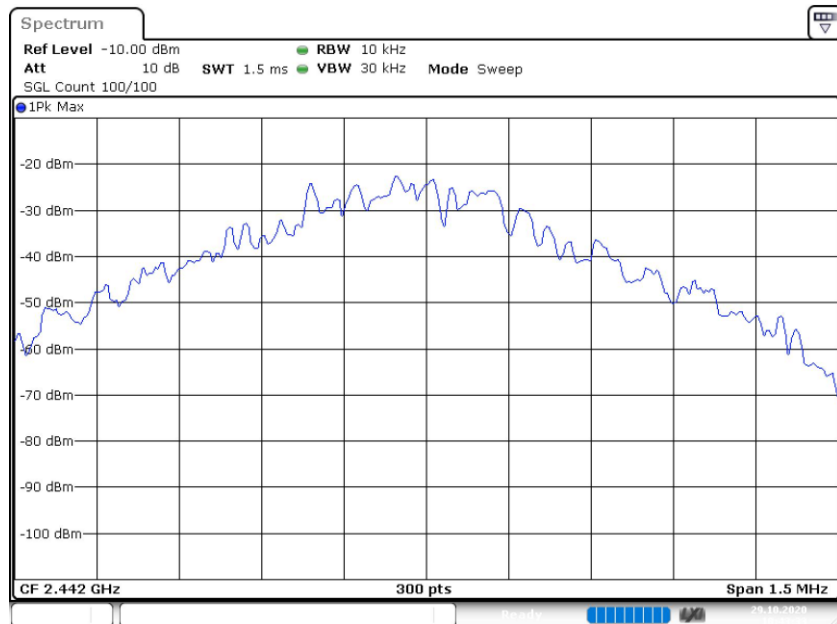
### Ports

| Port | State |
|------|-------|
| 1    | used  |

### Peak Power Spectral Density



### PSD Connector 1



Date: 29.OCT.2020 10:43:33

### Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.44125 GHz      | 2.44125 GHz   |
| Stop Frequency  | 2.44275 GHz      | 2.44275 GHz   |
| Span            | 1.500 MHz        | 1.500 MHz     |
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 300              | ~ 300         |
| Sweeptime       | 1.500 ms         | AUTO          |
| Reference Level | -10.000 dBm      | -10.000 dBm   |
| Attenuation     | 10.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | Sweep            | Sweep         |
| Preamp          | off              | off           |

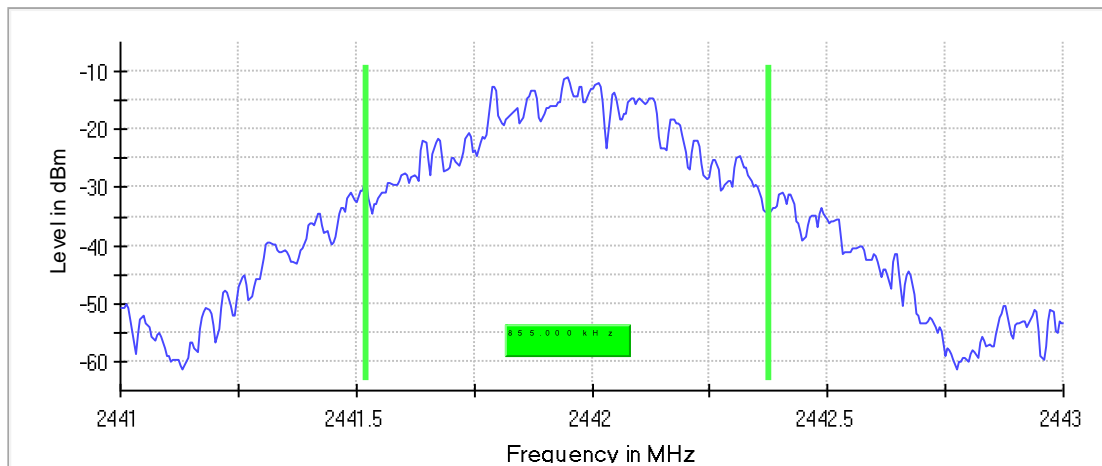
# Occupied Channel Bandwidth 99% (2442 MHz; 30.000 dBm; 1 MHz)

## 99 % Bandwidth

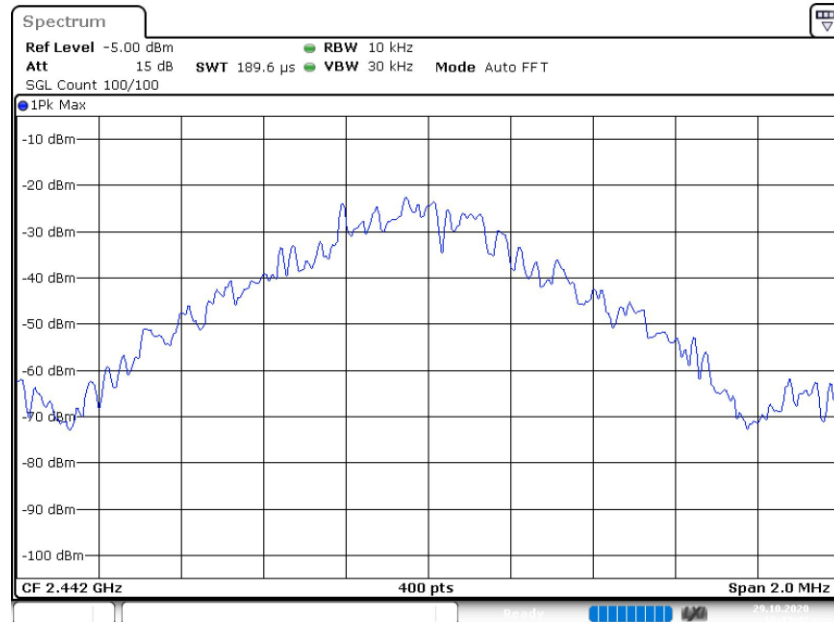
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2442.000000         | 0.855000        | ---             | ---             | 2441.522500          | 2442.377500           |

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2442.000000         | PASS   |

99 %Bandwidth



## Bandwidth



Date: 29.OCT.2020 10:43:42

## Measurement

| Setting         | Instrument Value | Target Value |
|-----------------|------------------|--------------|
| Start Frequency | 2.44100 GHz      | 2.44100 GHz  |
| Stop Frequency  | 2.44300 GHz      | 2.44300 GHz  |
| Span            | 2.000 MHz        | 2.000 MHz    |

|                 |            |               |
|-----------------|------------|---------------|
| RBW             | 10.000 kHz | >= 10.000 kHz |
| VBW             | 30.000 kHz | >= 30.000 kHz |
| SweepPoints     | 400        | ~ 400         |
| Sweeptime       | 189.648 µs | AUTO          |
| Reference Level | -5.000 dBm | -5.000 dBm    |
| Attenuation     | 15.000 dB  | AUTO          |
| Detector        | MaxPeak    | MaxPeak       |
| SweepCount      | 100        | 100           |
| Filter          | 3 dB       | 3 dB          |
| Trace Mode      | Max Hold   | Max Hold      |
| Sweeptype       | FFT        | AUTO          |
| Preamp          | off        | off           |

## Tx Spurious Emission (2442 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2442.000000         | PASS   |

### Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

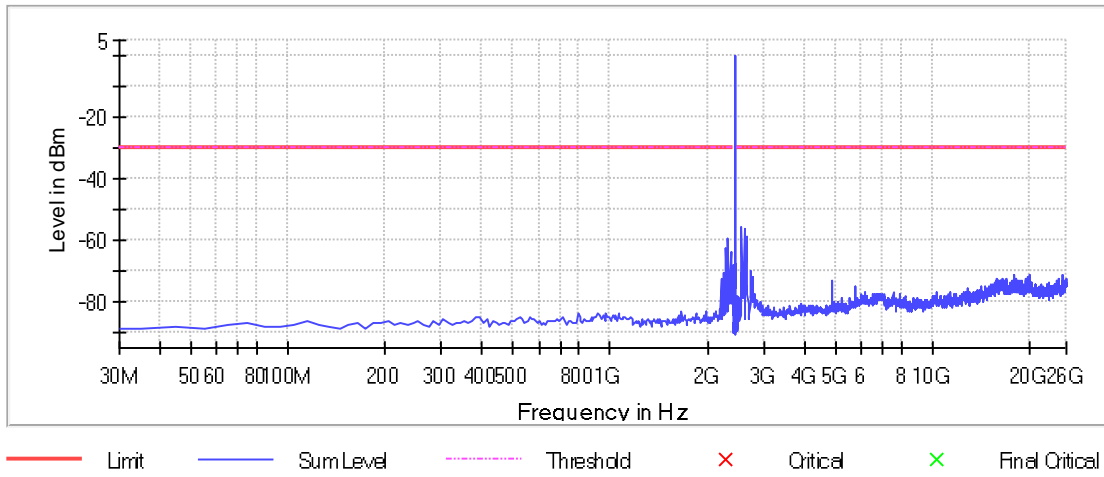
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 2558.456970     | -55.5       | 25.7        | -29.8       |
| 2598.434020     | -56.2       | 26.4        | -29.8       |
| 2638.411071     | -58.5       | 28.7        | -29.8       |
| 2325.315126     | -59.5       | 29.7        | -29.8       |
| 2285.483193     | -62.5       | 32.7        | -29.8       |
| 2365.147059     | -63.6       | 33.8        | -29.8       |
| 2718.365172     | -70.2       | 40.4        | -29.8       |
| 2538.468445     | -70.4       | 40.6        | -29.8       |
| 2245.651261     | -70.8       | 41.0        | -29.8       |
| 25285.410221    | -71.3       | 41.5        | -29.8       |
| 19898.502656    | -71.4       | 41.6        | -29.8       |
| 17869.667340    | -71.4       | 41.6        | -29.8       |
| 19848.531343    | -71.9       | 42.0        | -29.8       |
| 19868.519868    | -71.9       | 42.1        | -29.8       |
| 2758.342223     | -72.0       | 42.2        | -29.8       |

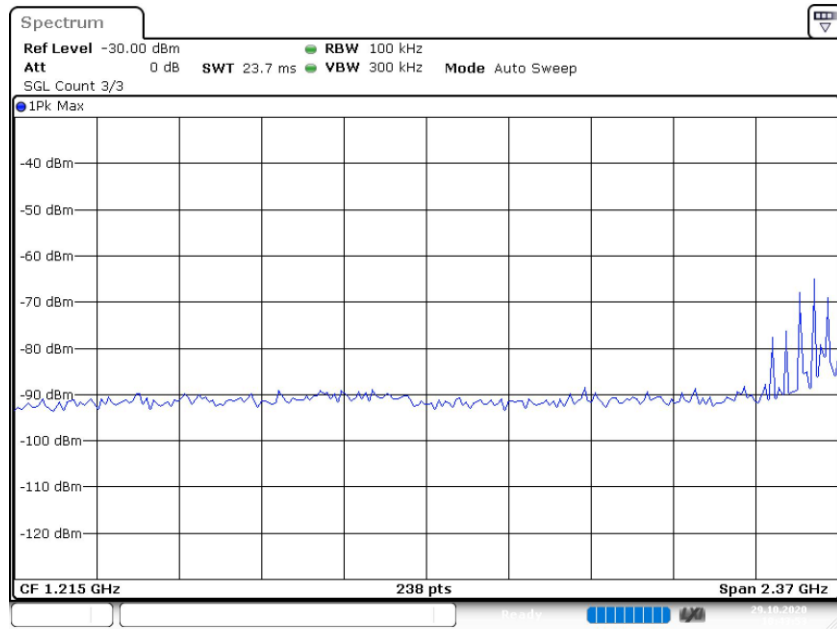
### Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 30.000000             | 2400.000000          | 1               | 1                 |
| 2400.000000           | 2483.500000          | 1               | 1                 |
| 2483.500000           | 26000.000000         | 1               | 1                 |

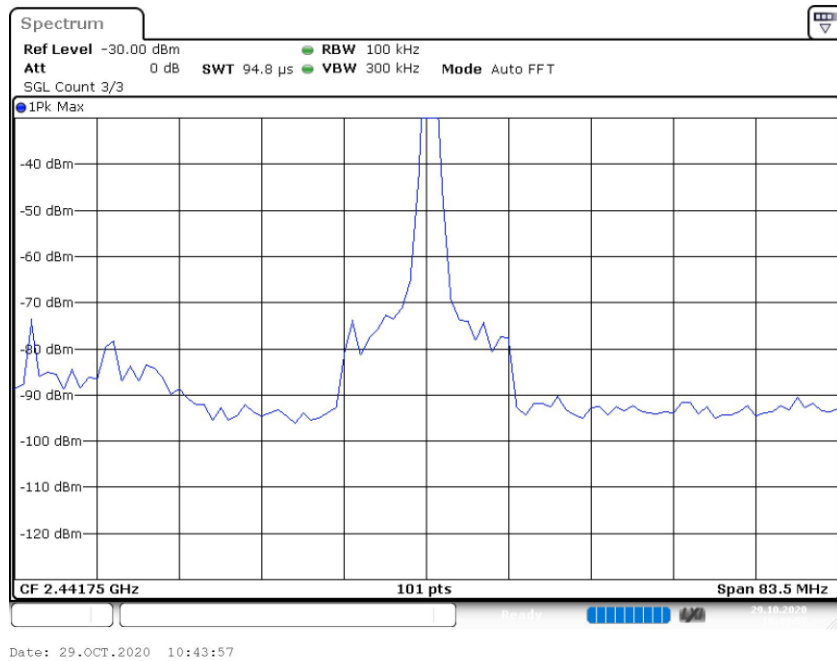
### Spurious



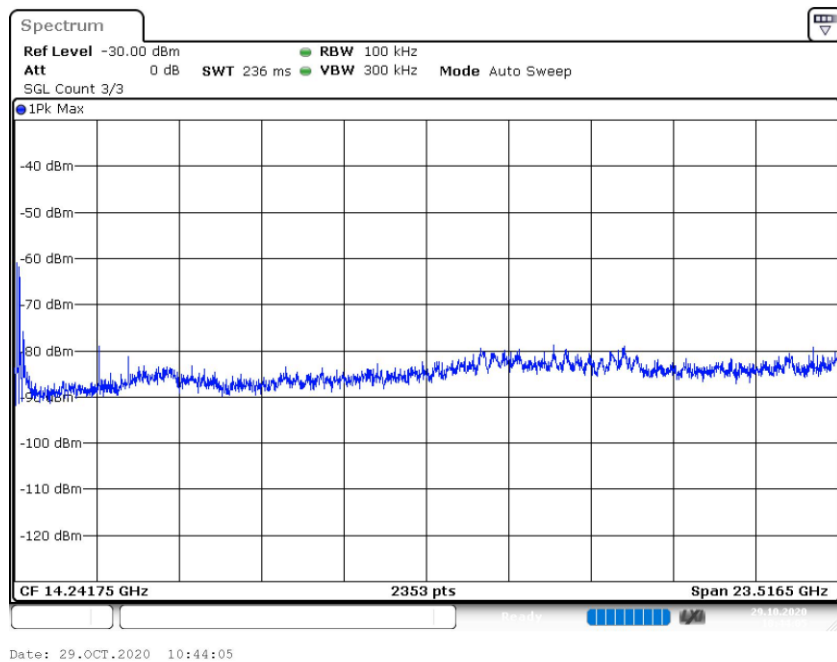
### Spurious Connector 1\_0



### Spurious Connector 1\_1



## Spurious Connector 1\_2



## Pre Measurement 1

| Setting         | Instrument Value | Target Value       |
|-----------------|------------------|--------------------|
| RBW             | 100.000 kHz      | $\leq$ 100.000 kHz |
| VBW             | 300.000 kHz      | $\geq$ 300.000 kHz |
| SweepPoints     | 238              | $\sim$ 238         |
| Sweptime        | 23.700 ms        | AUTO               |
| Reference Level | -30.000 dBm      | -30.000 dBm        |
| Attenuation     | 0.000 dB         | AUTO               |
| Detector        | MaxPeak          | MaxPeak            |
| SweepCount      | 3                | 3                  |
| Filter          | 3 dB             | 3 dB               |

|            |          |          |
|------------|----------|----------|
| Trace Mode | Max Hold | Max Hold |
| Sweep type | Sweep    | AUTO     |
| Preamp     | off      | off      |

## Emissions in restricted frequency bands (Average) (2442 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2442.000000         | PASS   |

### Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

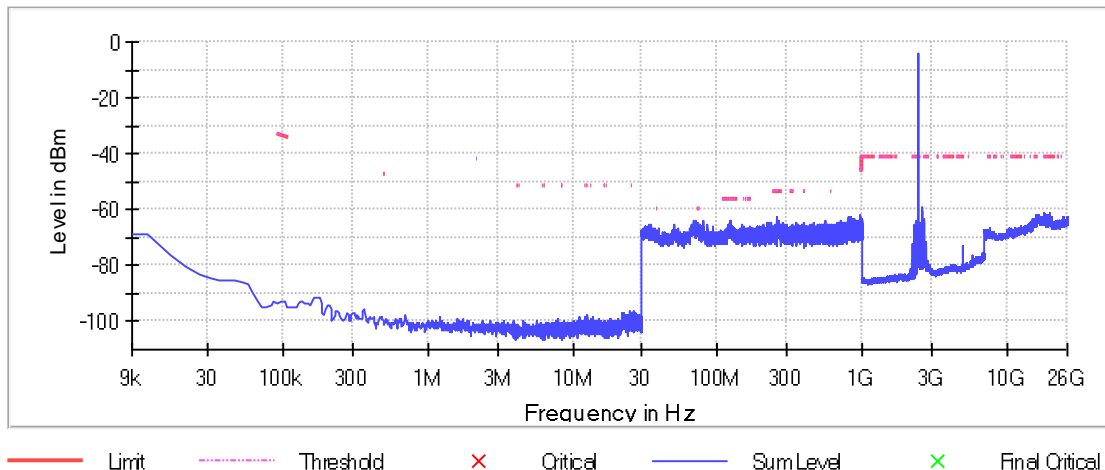
### Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 73.325000       | -66.4       | 6.5         | -59.9       |
| 73.525000       | -66.7       | 6.8         | -59.9       |
| 73.175000       | -66.7       | 6.8         | -59.9       |
| 73.275000       | -66.7       | 6.8         | -59.9       |
| 74.825000       | -66.7       | 6.8         | -59.9       |
| 73.475000       | -66.8       | 6.9         | -59.9       |
| 73.375000       | -66.8       | 6.9         | -59.9       |
| 73.225000       | -66.9       | 7.0         | -59.9       |
| 73.625000       | -67.2       | 7.3         | -59.9       |
| 73.025000       | -67.2       | 7.3         | -59.9       |
| 74.875000       | -67.3       | 7.4         | -59.9       |
| 75.025000       | -67.4       | 7.5         | -59.9       |
| 73.675000       | -67.6       | 7.7         | -59.9       |
| 121.525000      | -64.1       | 7.7         | -56.4       |
| 120.975000      | -64.1       | 7.7         | -56.4       |

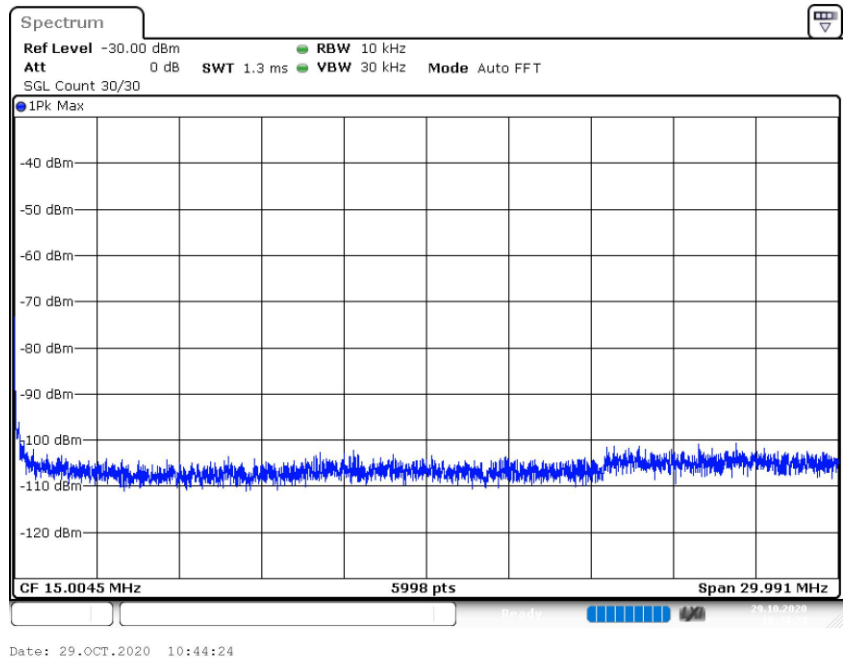
### Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 0.009000              | 30.000000            | 2               | 2                 |
| 30.000000             | 1000.000000          | 2               | 2                 |
| 1000.000000           | 7000.000000          | 1               | 1                 |
| 7000.000000           | 26000.000000         | 1               | 1                 |

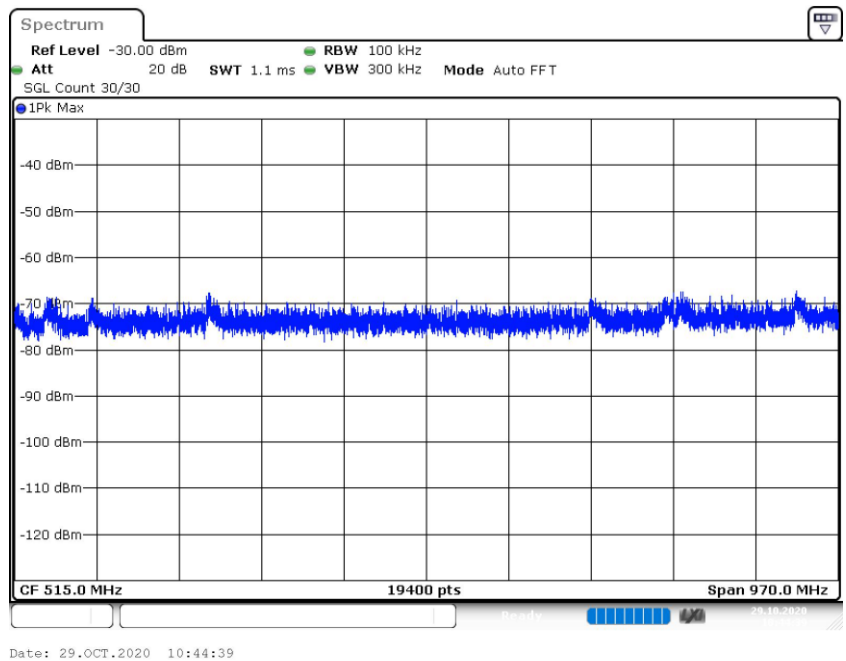
Restricted Band



### Restricted Band Connector 1\_0

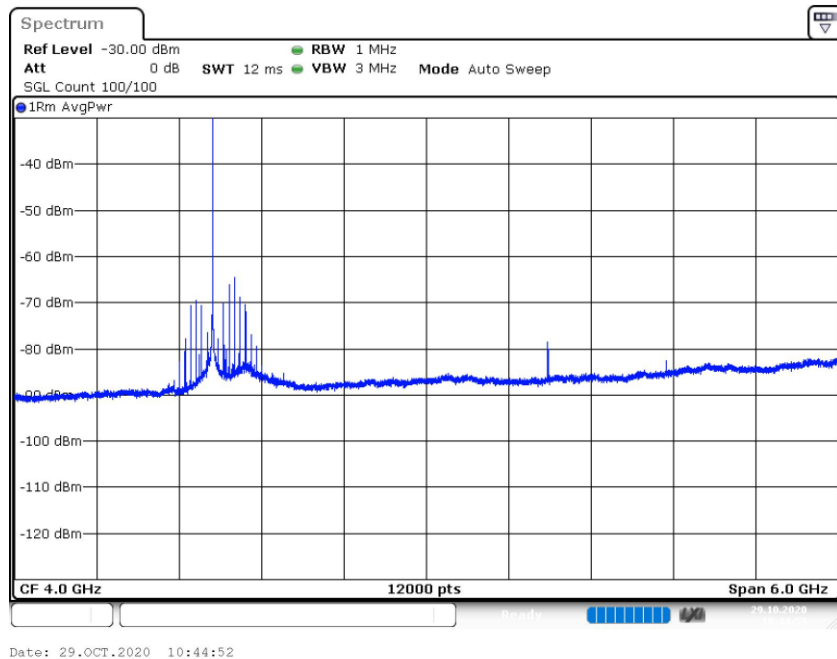


### Restricted Band Connector 1\_1

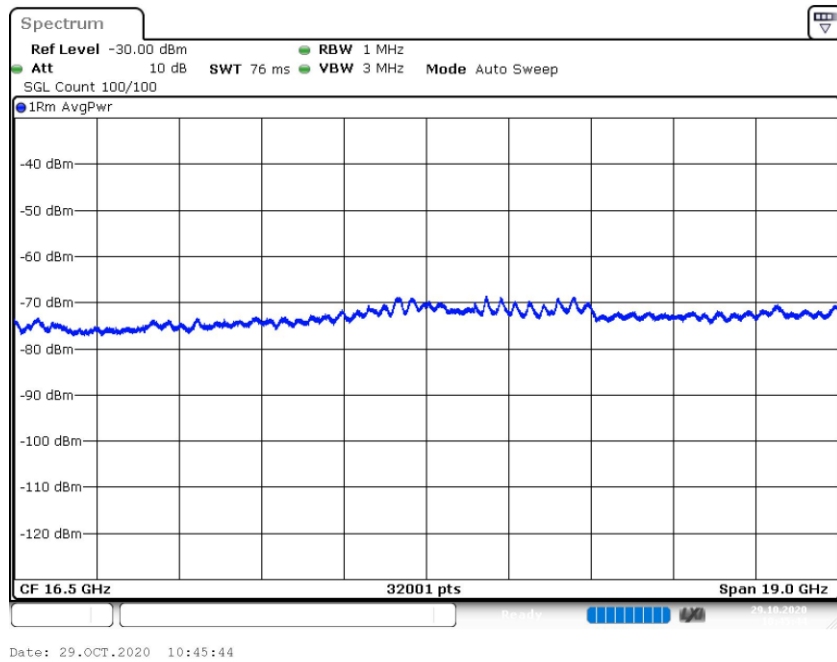


### Restricted Band Connector 1\_2





### Restricted Band Connector 1\_3



### Pre Measurement 1

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 1.000 MHz        | <= 1.000 MHz  |
| VBW             | 3.000 MHz        | >= 3.000 MHz  |
| SweepPoints     | 12000            | ~ 12000       |
| SweepTime       | 12.000 ms        | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | RMS              | RMS           |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Average Power    | Average Power |

|           |       |      |
|-----------|-------|------|
| Sweeptype | Sweep | AUTO |
| Preamp    | off   | off  |

## Pre Measurement 2

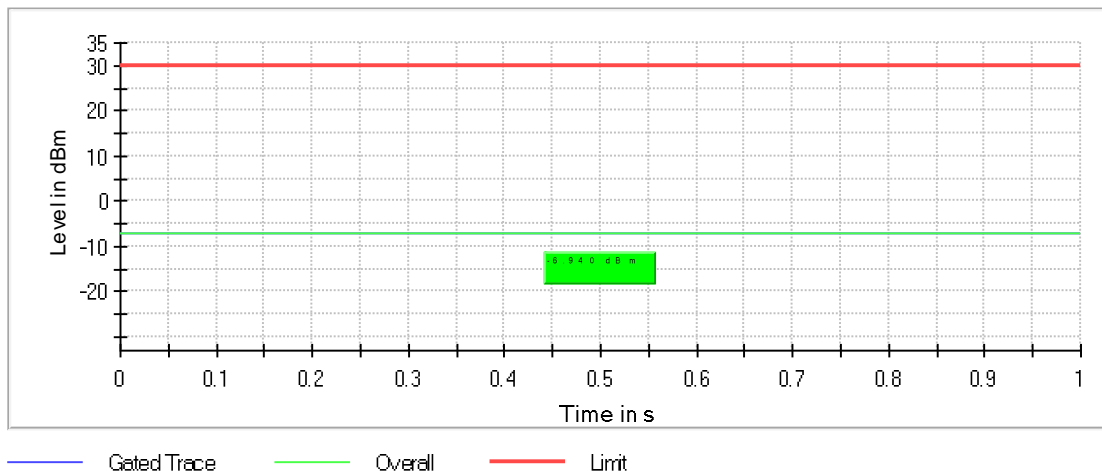
| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 5998             | ~ 5998        |
| SweepTime       | 1.327 ms         | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 30               | 30            |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | FFT              | AUTO          |
| Preamp          | off              | off           |

## RF output power (2480 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Gated RMS (dBm) | Limit Max (dBm) | Gated EIRP (dBm) | DutyCycle (%) | Result |
|---------------------|-----------------|-----------------|------------------|---------------|--------|
| 2480.000000         | -6.9            | 30.0            | -6.9             | 100.000       | PASS   |

Gated Trace



## OSP PowerMeter settings

| Setting          | Instrument Value | Target Value  |
|------------------|------------------|---------------|
| Measurement Time | 1.000 s          | 1.000 s       |
| Points           | 1000000          | 1000000       |
| Time resolution  | 1.000 $\mu$ s    | 1.000 $\mu$ s |

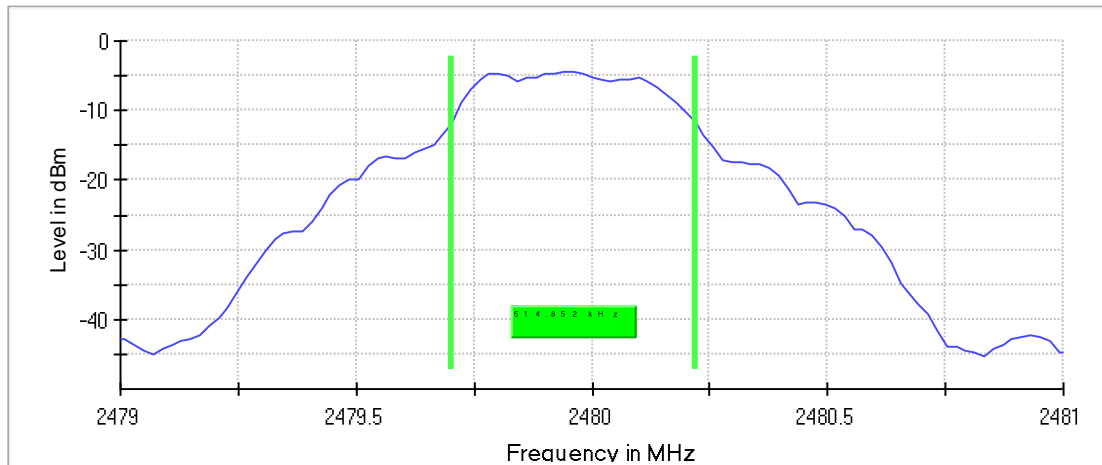
## Minimum Emission Bandwidth 6 dB (2480 MHz; 30.000 dBm; 1 MHz)

### 6 dB Bandwidth

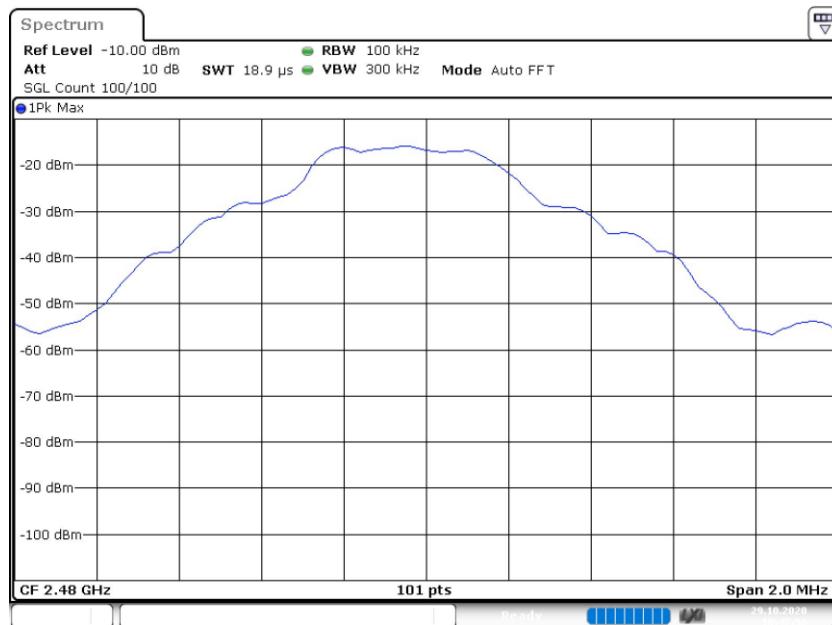
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 0.514852        | 0.500000        | ---             | 2479.702970          | 2480.217822           |

| DUT Frequency (MHz) | Max Level (dBm) | Result |
|---------------------|-----------------|--------|
| 2480.000000         | -4.3            | PASS   |

6 dB Bandwidth



### Bandwidth



Date: 29.OCT.2020 10:47:50

### Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency  | 2.48100 GHz      | 2.48100 GHz   |
| Span            | 2.000 MHz        | 2.000 MHz     |
| RBW             | 100.000 kHz      | ~ 100.000 kHz |
| VBW             | 300.000 kHz      | ~ 300.000 kHz |
| SweepPoints     | 101              | ~ 40          |
| Sweeptime       | 18.938 $\mu$ s   | AUTO          |
| Reference Level | -10.000 dBm      | -10.000 dBm   |
| Attenuation     | 10.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |

|            |          |          |
|------------|----------|----------|
| Trace Mode | Max Hold | Max Hold |
| Sweep type | FFT      | AUTO     |
| Preamp     | off      | off      |

## Peak Power Spectral Density (2480 MHz; 30.000 dBm; 1 MHz)

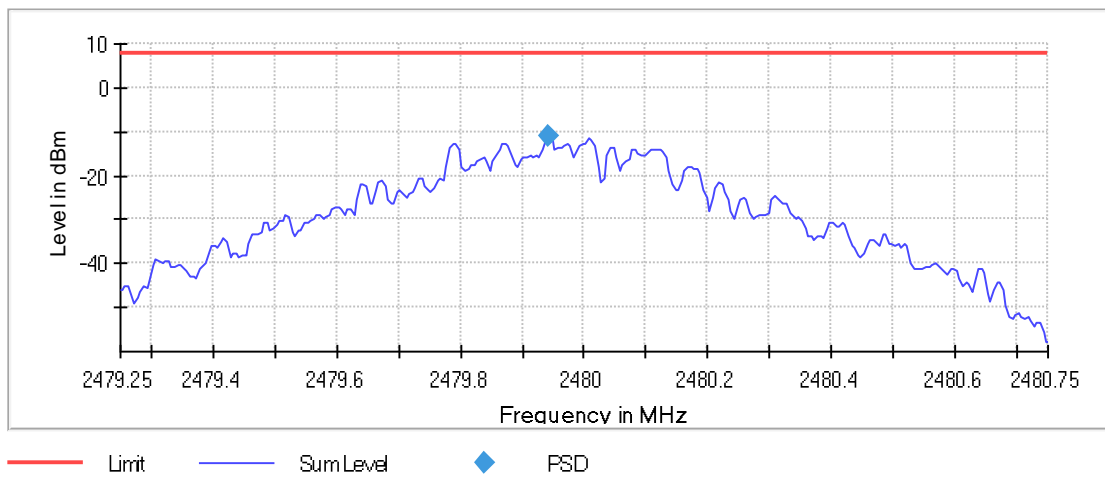
### Result

| DUT Frequency (MHz) | Frequency (MHz) | PSD (dBm) | Limit Max (dBm) | Result |
|---------------------|-----------------|-----------|-----------------|--------|
| 2480.000000         | 2479.942500     | -10.850   | 8.0             | PASS   |

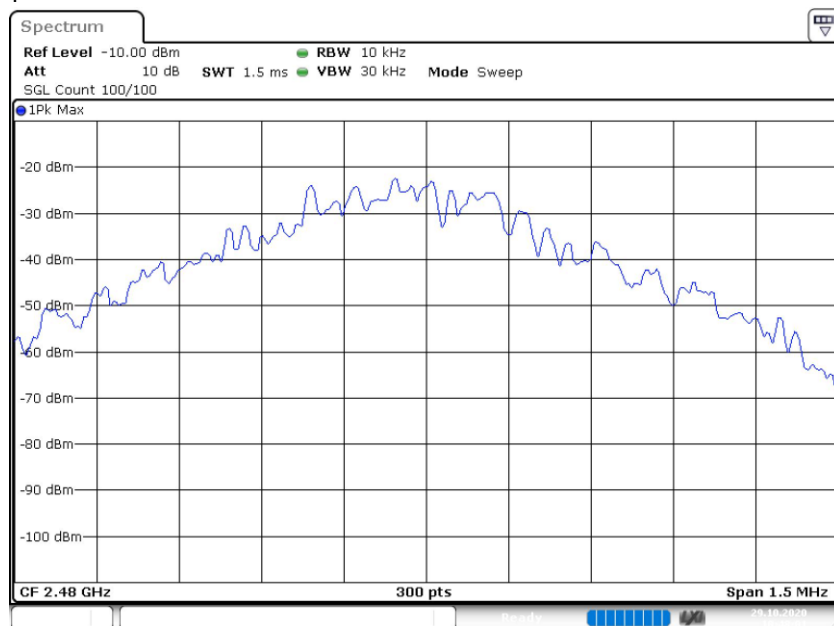
### Ports

| Port | State |
|------|-------|
| 1    | used  |

Peak Power Spectral Density



### PSD Connector 1



Date: 29.OCT.2020 10:48:01

## Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.47925 GHz      | 2.47925 GHz   |
| Stop Frequency  | 2.48075 GHz      | 2.48075 GHz   |
| Span            | 1.500 MHz        | 1.500 MHz     |
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 300              | ~ 300         |
| SweepTime       | 1.500 ms         | AUTO          |
| Reference Level | -10.000 dBm      | -10.000 dBm   |
| Attenuation     | 10.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| SweepType       | Sweep            | Sweep         |
| Preamp          | off              | off           |

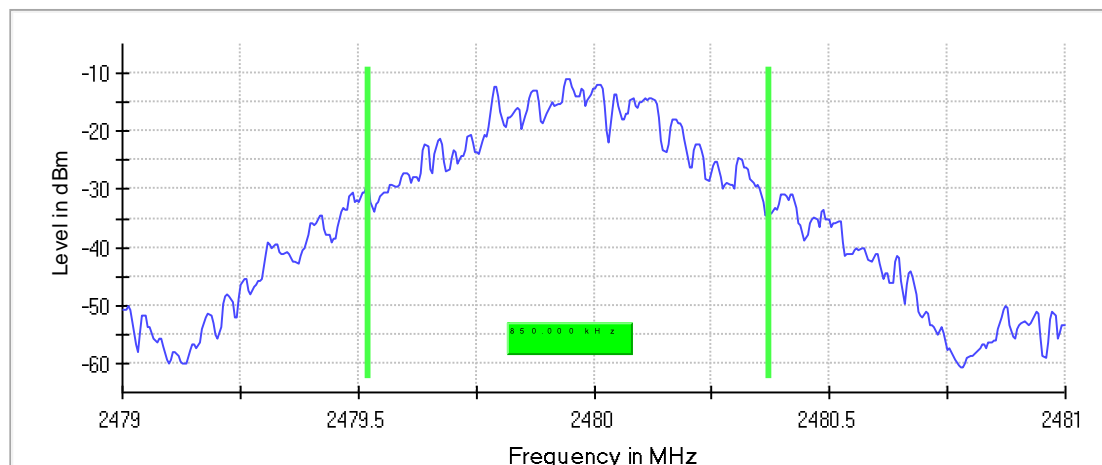
**Occupied Channel Bandwidth 99% (2480 MHz; 30.000 dBm; 1 MHz)**

### 99 % Bandwidth

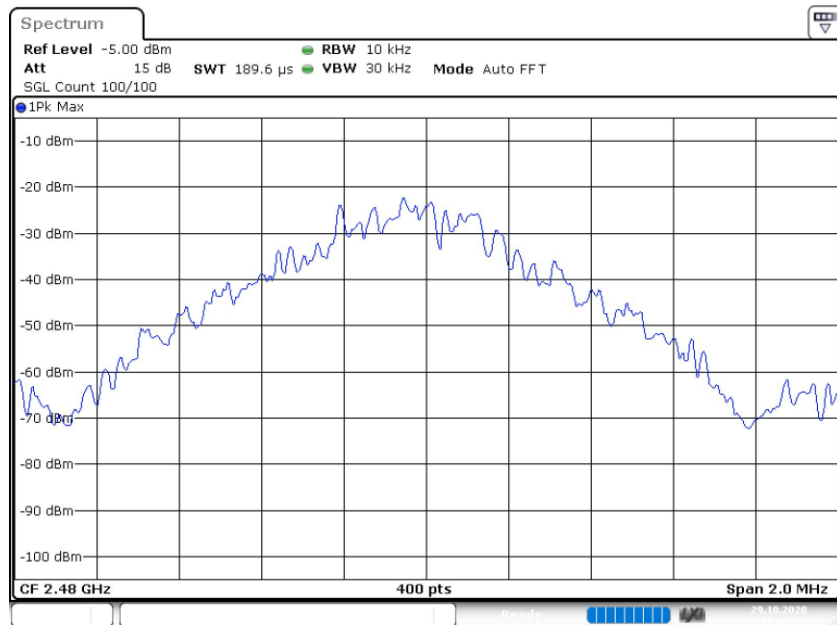
| DUT Frequency (MHz) | Bandwidth (MHz) | Limit Min (MHz) | Limit Max (MHz) | Band Edge Left (MHz) | Band Edge Right (MHz) |
|---------------------|-----------------|-----------------|-----------------|----------------------|-----------------------|
| 2480.000000         | 0.850000        | ---             | ---             | 2479.522500          | 2480.372500           |

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |

99 %Bandwidth



Bandwidth



Date: 29.OCT.2020 10:48:09

## Measurement

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| Start Frequency | 2.47900 GHz      | 2.47900 GHz   |
| Stop Frequency  | 2.48100 GHz      | 2.48100 GHz   |
| Span            | 2.000 MHz        | 2.000 MHz     |
| RBW             | 10.000 kHz       | >= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 400              | ~ 400         |
| Sweeptime       | 189.648 μs       | AUTO          |
| Reference Level | -5.000 dBm       | -5.000 dBm    |
| Attenuation     | 15.000 dB        | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| SweepType       | FFT              | AUTO          |
| Preamp          | off              | off           |

## Band Edge high (2480 MHz; 30.000 dBm; 1 MHz)

### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |

### Inband Peak

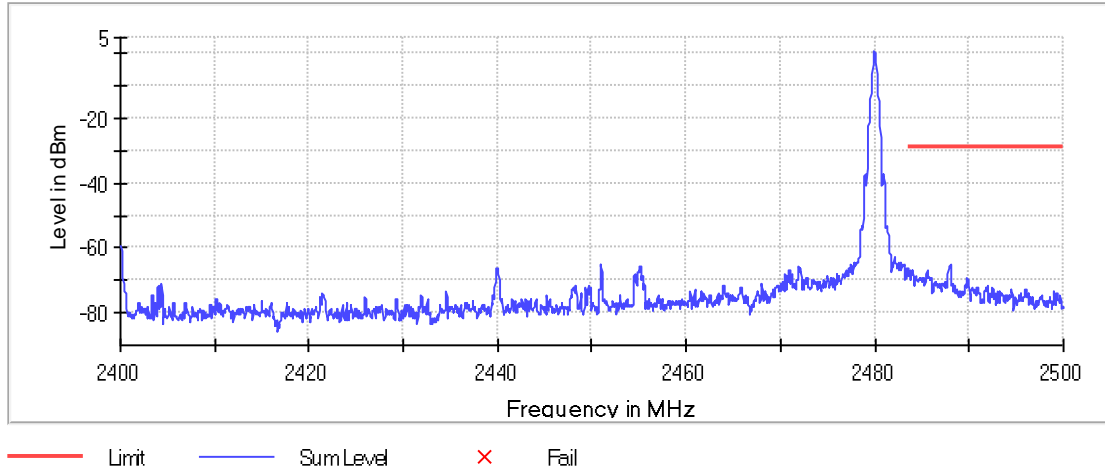
| Frequency (MHz) | Level (dBm) |
|-----------------|-------------|
| 2479.975000     | 1.0         |

## Measurements

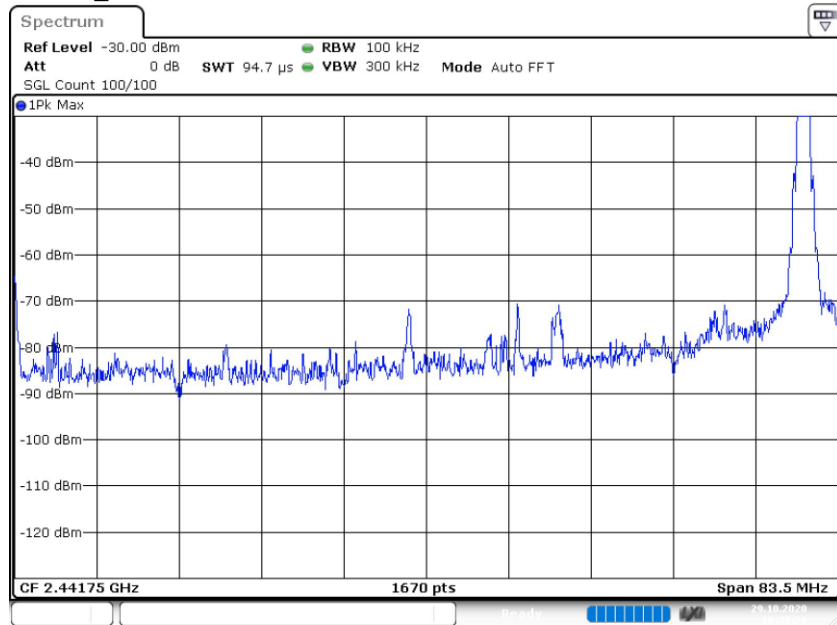
| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) | Result |
|-----------------|-------------|-------------|-------------|--------|
| 2488.025000     | -65.3       | 36.3        | -29.0       | PASS   |
| 2487.975000     | -65.9       | 36.8        | -29.0       | PASS   |
| 2487.925000     | -66.0       | 36.9        | -29.0       | PASS   |
| 2487.825000     | -66.3       | 37.2        | -29.0       | PASS   |
| 2487.875000     | -66.3       | 37.3        | -29.0       | PASS   |
| 2483.725000     | -66.9       | 37.9        | -29.0       | PASS   |
| 2484.025000     | -67.1       | 38.0        | -29.0       | PASS   |

|             |       |      |       |      |
|-------------|-------|------|-------|------|
| 2485.525000 | -67.1 | 38.1 | -29.0 | PASS |
| 2485.575000 | -67.1 | 38.1 | -29.0 | PASS |
| 2484.075000 | -67.3 | 38.2 | -29.0 | PASS |
| 2488.075000 | -67.5 | 38.4 | -29.0 | PASS |
| 2483.775000 | -67.6 | 38.6 | -29.0 | PASS |
| 2483.975000 | -67.7 | 38.6 | -29.0 | PASS |
| 2483.525000 | -67.8 | 38.7 | -29.0 | PASS |
| 2485.475000 | -67.8 | 38.8 | -29.0 | PASS |

Band Edge

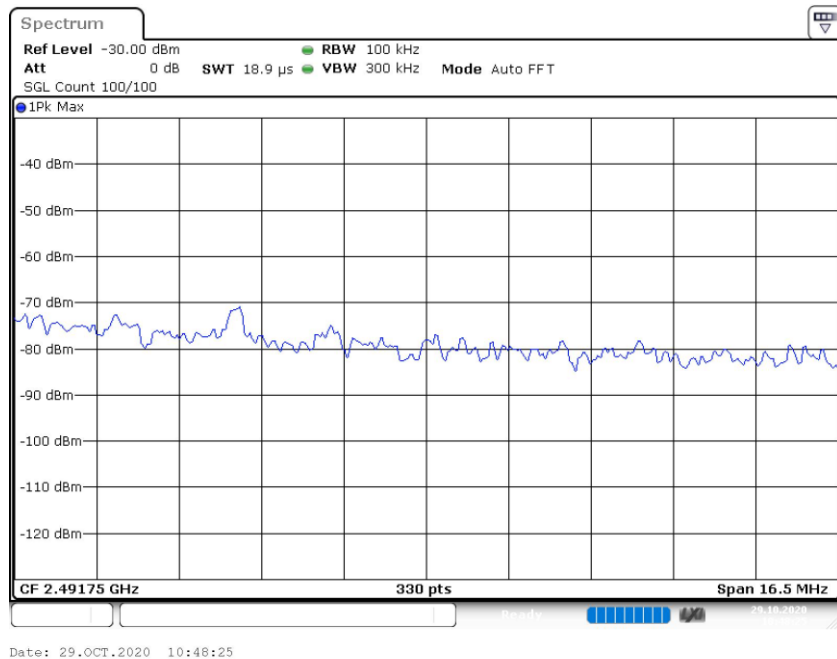


Band Edge Connector 1\_0



Date: 29.OCT.2020 10:48:21

Band Edge Connector 1\_1



## Measurement 1

| Setting         | Instrument Value | Target Value       |
|-----------------|------------------|--------------------|
| Start Frequency | 2.40000 GHz      | 2.40000 GHz        |
| Stop Frequency  | 2.48350 GHz      | 2.48350 GHz        |
| Span            | 83.500 MHz       | 83.500 MHz         |
| RBW             | 100.000 kHz      | $\leq$ 100.000 kHz |
| VBW             | 300.000 kHz      | $\geq$ 300.000 kHz |
| SweepPoints     | 1670             | $\sim$ 1670        |
| SweepTime       | 94.727 $\mu$ s   | AUTO               |
| Reference Level | -30.000 dBm      | -30.000 dBm        |
| Attenuation     | 0.000 dB         | AUTO               |
| Detector        | MaxPeak          | MaxPeak            |
| SweepCount      | 100              | 100                |
| Filter          | 3 dB             | 3 dB               |
| Trace Mode      | Max Hold         | Max Hold           |
| SweepType       | FFT              | AUTO               |
| Preamp          | off              | off                |

## Measurement 2

| Setting         | Instrument Value | Target Value       |
|-----------------|------------------|--------------------|
| Start Frequency | 2.48350 GHz      | 2.48350 GHz        |
| Stop Frequency  | 2.50000 GHz      | 2.50000 GHz        |
| Span            | 16.500 MHz       | 16.500 MHz         |
| RBW             | 100.000 kHz      | $\leq$ 100.000 kHz |
| VBW             | 300.000 kHz      | $\geq$ 300.000 kHz |
| SweepPoints     | 330              | $\sim$ 330         |
| SweepTime       | 18.945 $\mu$ s   | AUTO               |
| Reference Level | -30.000 dBm      | -30.000 dBm        |
| Attenuation     | 0.000 dB         | AUTO               |
| Detector        | MaxPeak          | MaxPeak            |
| SweepCount      | 100              | 100                |
| Filter          | 3 dB             | 3 dB               |
| Trace Mode      | Max Hold         | Max Hold           |
| SweepType       | FFT              | AUTO               |
| Preamp          | off              | off                |



# Tx Spurious Emission (2480 MHz; 30.000 dBm; 1 MHz)

## Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |

## Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

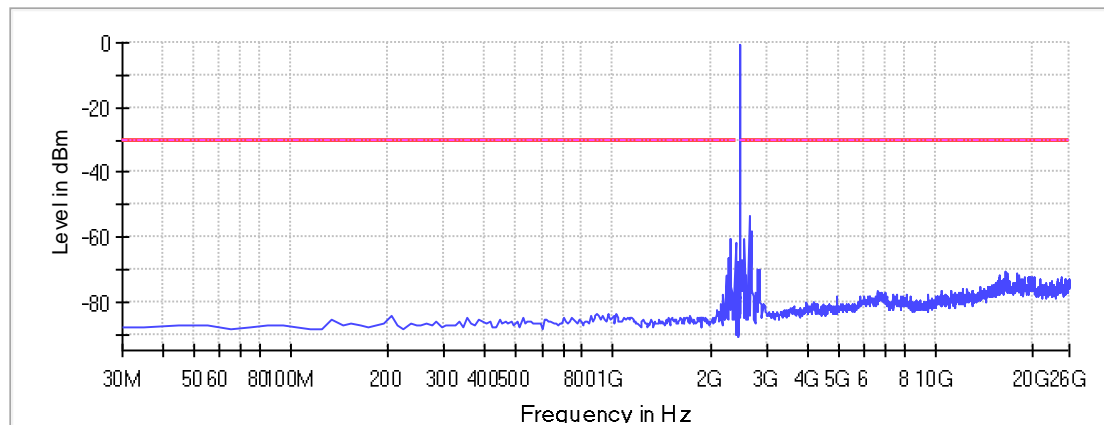
## Pre Measurements

| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 2638.411071     | -53.3       | 22.9        | -30.4       |
| 2678.388122     | -58.1       | 27.7        | -30.4       |
| 2315.357143     | -60.4       | 30.0        | -30.4       |
| 2558.456970     | -60.5       | 30.2        | -30.4       |
| 2395.021008     | -61.6       | 31.2        | -30.4       |
| 2275.525210     | -66.8       | 36.4        | -30.4       |
| 2518.479919     | -67.2       | 36.9        | -30.4       |
| 2798.319273     | -69.9       | 39.5        | -30.4       |
| 2838.296324     | -69.9       | 39.5        | -30.4       |
| 16540.430408    | -70.9       | 40.5        | -30.4       |
| 16660.361560    | -71.0       | 40.6        | -30.4       |
| 17889.655865    | -71.1       | 40.7        | -30.4       |
| 2578.445495     | -71.5       | 41.2        | -30.4       |
| 15820.843498    | -71.9       | 41.6        | -30.4       |
| 2235.693277     | -72.0       | 41.6        | -30.4       |

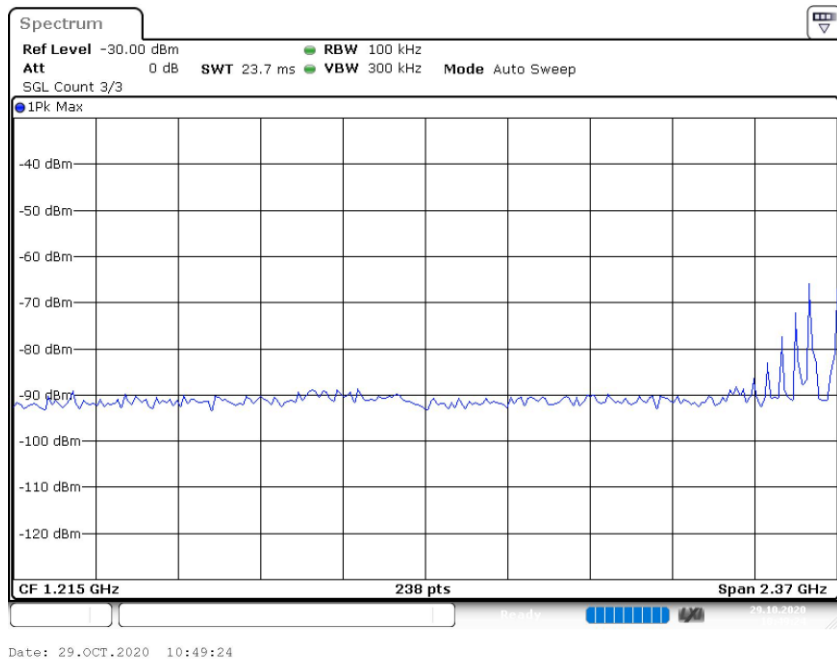
## Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 30.000000             | 2400.000000          | 1               | 1                 |
| 2400.000000           | 2483.500000          | 1               | 1                 |
| 2483.500000           | 26000.000000         | 1               | 1                 |

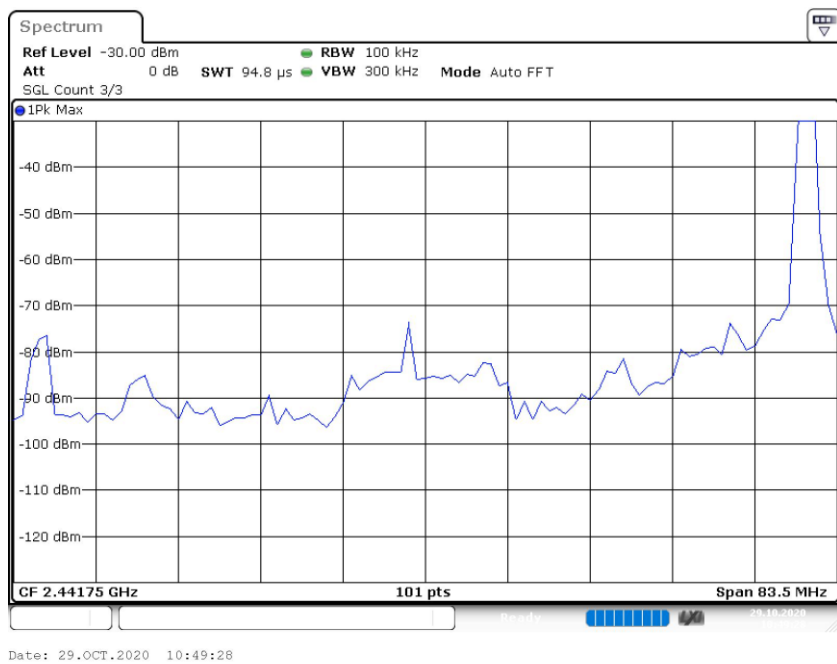
Spurious



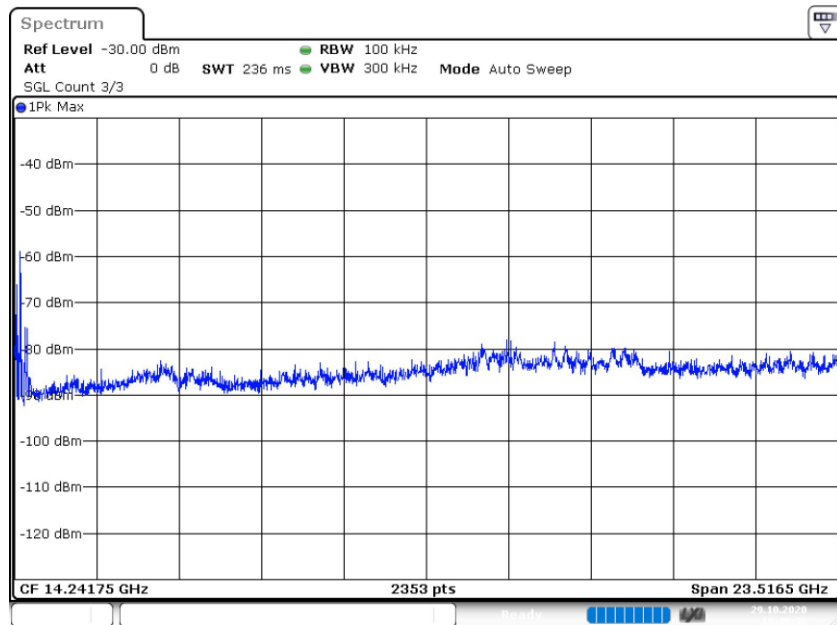
Spurious Connector 1\_0



### Spurious Connector 1\_1



### Spurious Connector 1\_2



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### Pre Measurement 1

| Setting         | Instrument Value | Target Value   |
|-----------------|------------------|----------------|
| RBW             | 100.000 kHz      | <= 100.000 kHz |
| VBW             | 300.000 kHz      | >= 300.000 kHz |
| SweepPoints     | 238              | ~ 238          |
| SweepTime       | 23.700 ms        | AUTO           |
| Reference Level | -30.000 dBm      | -30.000 dBm    |
| Attenuation     | 0.000 dB         | AUTO           |
| Detector        | MaxPeak          | MaxPeak        |
| SweepCount      | 3                | 3              |
| Filter          | 3 dB             | 3 dB           |
| Trace Mode      | Max Hold         | Max Hold       |
| SweepType       | Sweep            | AUTO           |
| Preamp          | off              | off            |

### Emissions in restricted frequency bands (Average) (2480 MHz; 30.000 dBm; 1 MHz)

#### Result

| DUT Frequency (MHz) | Result |
|---------------------|--------|
| 2480.000000         | PASS   |

### Final measurements

| Frequency (MHz) | Level Pre Measurement (dBm) | level (dBm) | Limit (dBm) | Margin (dB) | Result |
|-----------------|-----------------------------|-------------|-------------|-------------|--------|
| ---             | ---                         | ---         | ---         | ---         | ---    |

### Pre Measurements

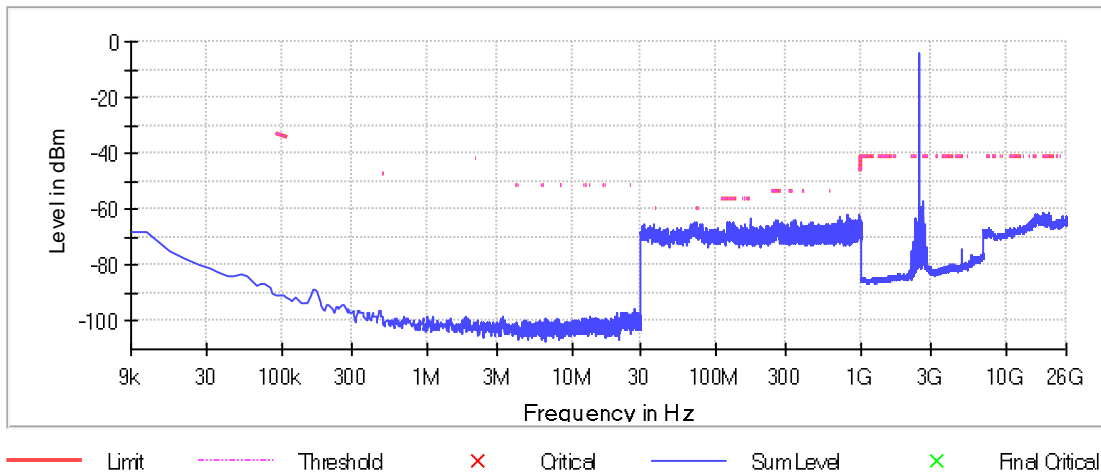
| Frequency (MHz) | Level (dBm) | Margin (dB) | Limit (dBm) |
|-----------------|-------------|-------------|-------------|
| 73.325000       | -65.9       | 6.0         | -59.9       |
| 73.375000       | -66.3       | 6.4         | -59.9       |
| 74.175000       | -66.5       | 6.6         | -59.9       |
| 74.125000       | -66.5       | 6.6         | -59.9       |
| 73.475000       | -66.8       | 6.9         | -59.9       |
| 73.425000       | -66.8       | 6.9         | -59.9       |
| 170.275000      | -63.3       | 6.9         | -56.4       |

|            |       |     |       |
|------------|-------|-----|-------|
| 73.275000  | -66.8 | 6.9 | -59.9 |
| 73.925000  | -67.0 | 7.1 | -59.9 |
| 170.325000 | -63.6 | 7.2 | -56.4 |
| 170.225000 | -63.7 | 7.3 | -56.4 |
| 37.525000  | -67.3 | 7.4 | -59.9 |
| 73.075000  | -67.3 | 7.4 | -59.9 |
| 73.875000  | -67.4 | 7.5 | -59.9 |
| 73.575000  | -67.5 | 7.6 | -59.9 |

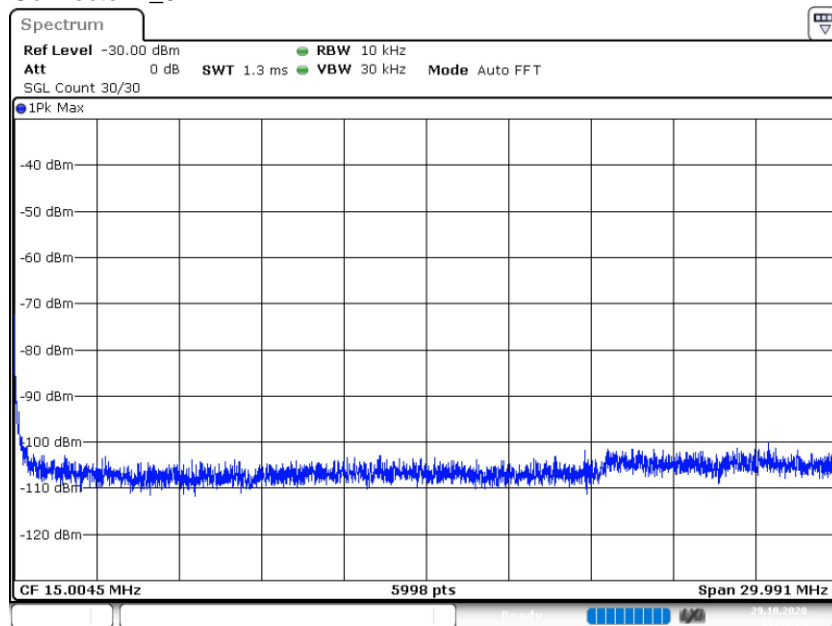
## Measurement Settings

| Start Frequency (MHz) | Stop Frequency (MHz) | Pre Measurement | Final Measurement |
|-----------------------|----------------------|-----------------|-------------------|
| 0.009000              | 30.000000            | 2               | 2                 |
| 30.000000             | 1000.000000          | 2               | 2                 |
| 1000.000000           | 7000.000000          | 1               | 1                 |
| 7000.000000           | 26000.000000         | 1               | 1                 |

Restricted Band

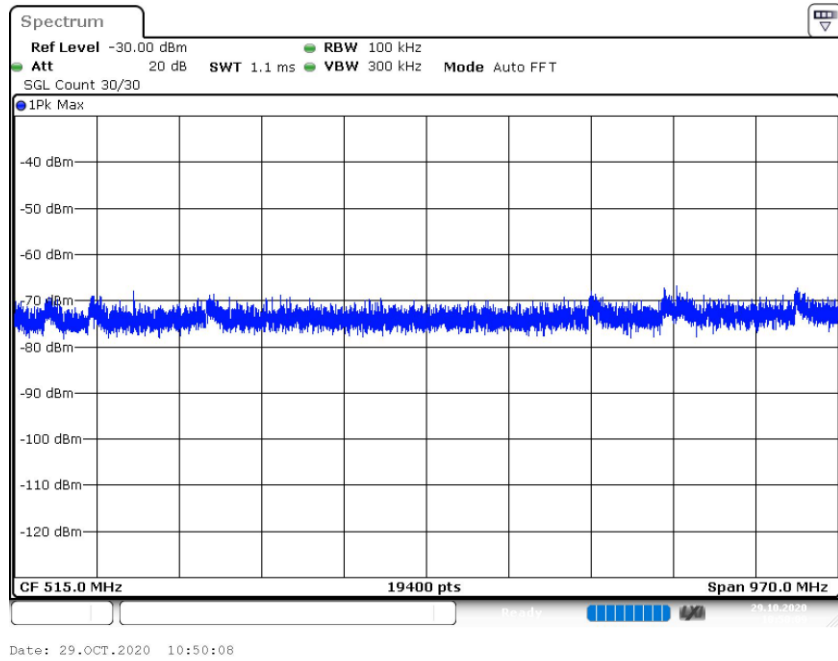


## Restricted Band Connector 1\_0

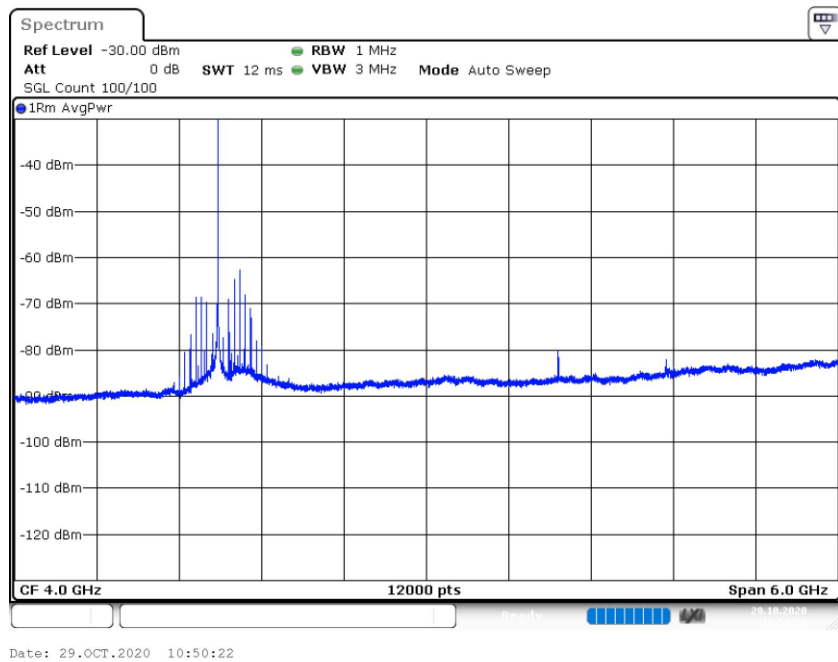


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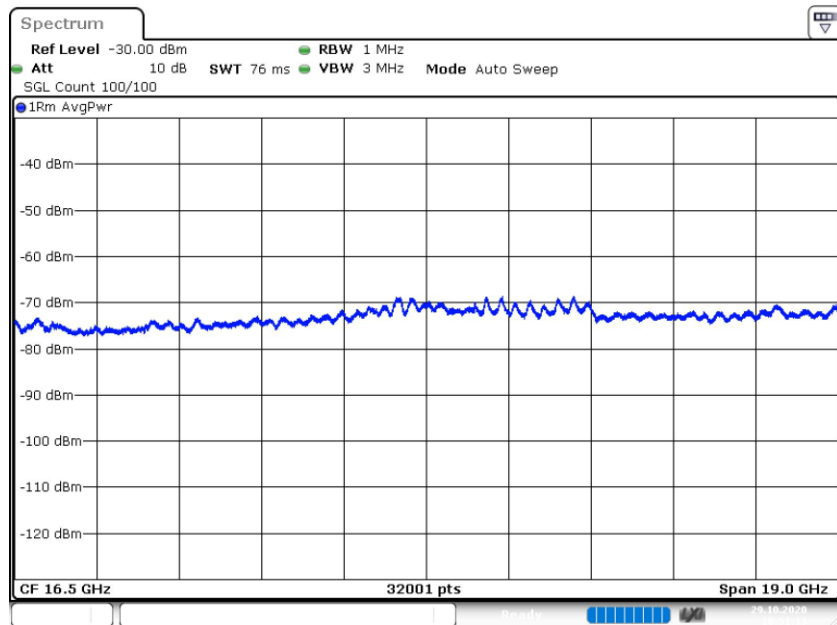
### Restricted Band Connector 1\_1



### Restricted Band Connector 1\_2



### Restricted Band Connector 1\_3



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### Pre Measurement 1

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 1.000 MHz        | <= 1.000 MHz  |
| VBW             | 3.000 MHz        | >= 3.000 MHz  |
| SweepPoints     | 12000            | ~ 12000       |
| Sweeptime       | 12.000 ms        | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | RMS              | RMS           |
| SweepCount      | 100              | 100           |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Average Power    | Average Power |
| Sweeptype       | Sweep            | AUTO          |
| Preamp          | off              | off           |

### Pre Measurement 2

| Setting         | Instrument Value | Target Value  |
|-----------------|------------------|---------------|
| RBW             | 10.000 kHz       | <= 10.000 kHz |
| VBW             | 30.000 kHz       | >= 30.000 kHz |
| SweepPoints     | 5998             | ~ 5998        |
| Sweeptime       | 1.327 ms         | AUTO          |
| Reference Level | -30.000 dBm      | -30.000 dBm   |
| Attenuation     | 0.000 dB         | AUTO          |
| Detector        | MaxPeak          | MaxPeak       |
| SweepCount      | 30               | 30            |
| Filter          | 3 dB             | 3 dB          |
| Trace Mode      | Max Hold         | Max Hold      |
| Sweeptype       | FFT              | AUTO          |
| Preamp          | off              | off           |

-- End of Annex ---