# Measurement Results

1-6563/18-01-04_log1_conducted

Test logging

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# Table of Content


IUT Summary 3
1. Common2G4 Peak OP 3MHz/3MHz ~ BT LE 1 Msps 4
2. FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps 8
3. FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps 15
4. FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps 19
5. FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 23
6. FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 30
7. FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps 34

# IUT Summary

| IUT DEFINITION & Common settings | |
|---|---|
| Manufacturer | Hamilton Bonaduz AG |
| Type | VisiTrace DO 120 |
| Serial No. \| Setup No. | 544743 \| 1.0 |
| SW Version \| HW Version | NI \| NI |
| Comment 1 \| 2 | \| |
| Tlow \| Tmid \| Thigh [°C] | -20 \| 20 \| 140 |
| Vlow \| Vmid \| Vhigh [V] @Imax [A] | 18.0 \| 24 \| 30.0 @1 |
| Auto Control enabled Power Supply \| Climatic Box | No \| No |
| Antenna Gain [dBi] | 0 |
| Additional Path Loss [dB] | 0.7 |

| IUT Common Settings BT Low Energy | |
|---|---|
| Intermodulation Value N | 3 |
| Image Freq. Low \| Mid \| High [MHz] | 0 \| 0 \| 0 |
| Power Class | 2 |
| 1 Mbps supported | True \| TXpayload 37 \| RXpayload 37 |
| 2 Mbps supported | False \| TXpayload 255 \| RXpayload 255 |
| Longrange S8 supported | False \| TXpayload 255 \| RXpayload 255 |
| Longrange S2 supported | False \| TXpayload 255 \| RXpayload 255 |
| Signaling Settings | WS_USB_RS232 \| TWO \| 100 \| 19200 \| None \| S1 \| None \| On |
| Signaling RF Settings | RF1com \| 0 \| 0 \| On \| |
| User Interaction | No |
| Switch Matrix & Pathcompensation enabled | Yes |

# 1. Common2G4 Peak OP 3MHz/3MHz ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 11:42:58 |
| System Version | 1.0.0.32 |
| Test Specification | None |
| Test Method | |
| Class / TC Version | TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 Version: 0.0.1 |
| My Description | Peak Output Power conducted 3MHz/3MHz - BT LE 1 Msps |
| Add. Information | |

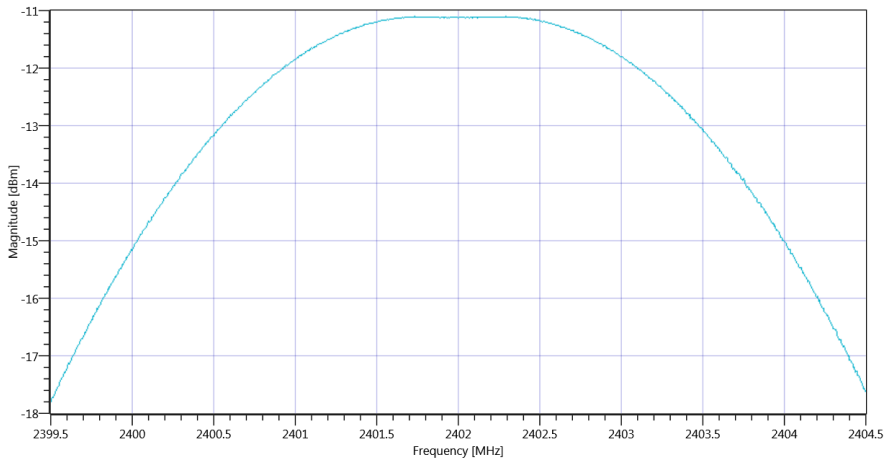
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -0.74 \| 10.51 \| 5 |
| Start [MHz] \| Stop [MHz] | 2399.500 \| 2404.500 |
| RBW [MHz] \| VBW [MHz] | 3.000000 \| 3.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 10 \| 1001 \| SWE |

| RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | --- | -11.1 | dBm | Info |
| Peak Power | --- | --- | 0.077625 | mW | Info |
| Frequency at Peak | --- | --- | 2401.73 | MHz | Info |



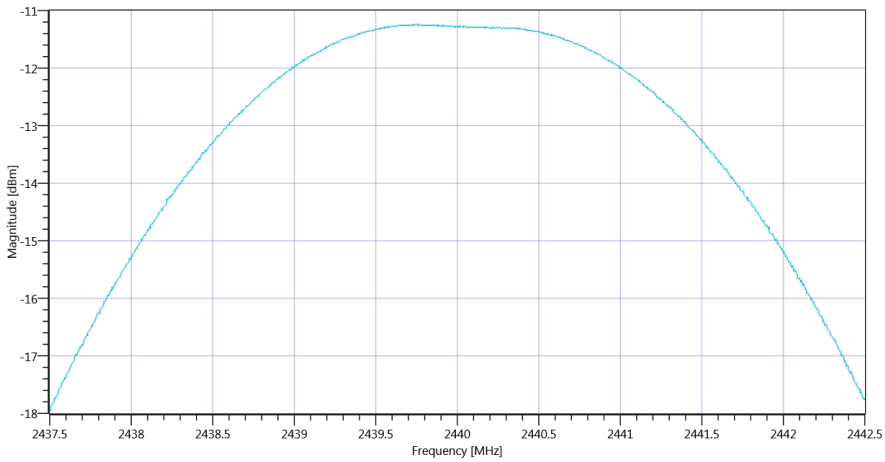

Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_17022020_114327.png

## Test at TX 2440 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -1.10 \| 10.6 \| 5 |
| Start [MHz] \| Stop [MHz] | 2437.500 \| 2442.500 |
| RBW [MHz] \| VBW [MHz] | 3.000000 \| 3.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 10 \| 1001 \| SWE |

| RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | --- | -11.24 | dBm | Info |
| Peak Power | --- | --- | 0.075162 | mW | Info |
| Frequency at Peak | --- | --- | 2439.76 | MHz | Info |



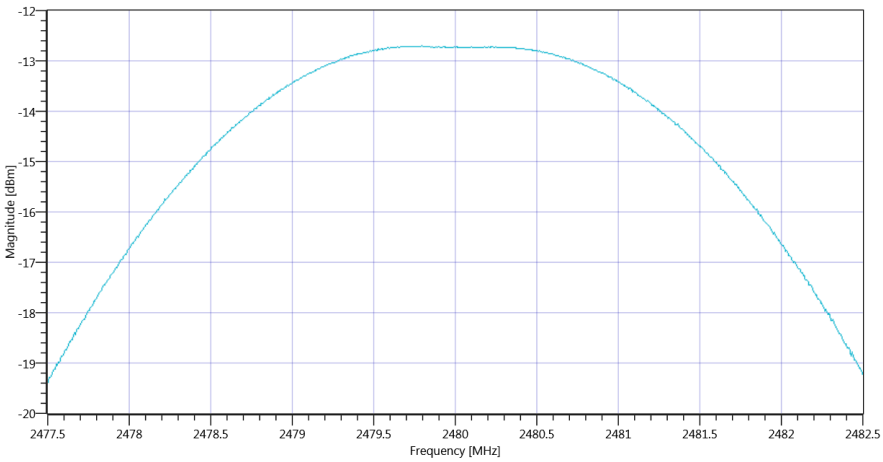

Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_17022020_114353.png

## Test at TX 2480 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -2.75 \| 10.65 \| 5 |
| Start [MHz] \| Stop [MHz] | 2477.500 \| 2482.500 |
| RBW [MHz] \| VBW [MHz] | 3.000000 \| 3.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 10 \| 1001 \| SWE |

| RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | --- | -12.7 | dBm | Info |
| Peak Power | --- | --- | 0.053703 | mW | Info |
| Frequency at Peak | --- | --- | 2479.795 | MHz | Info |




Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_17022020_114420.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 11:44:21 / RT: 83 s | PASS |

# 2. FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 10:45:26 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth |
| Class / TC Version | TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1 |
| My Description | FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps |
| Add. Information | |

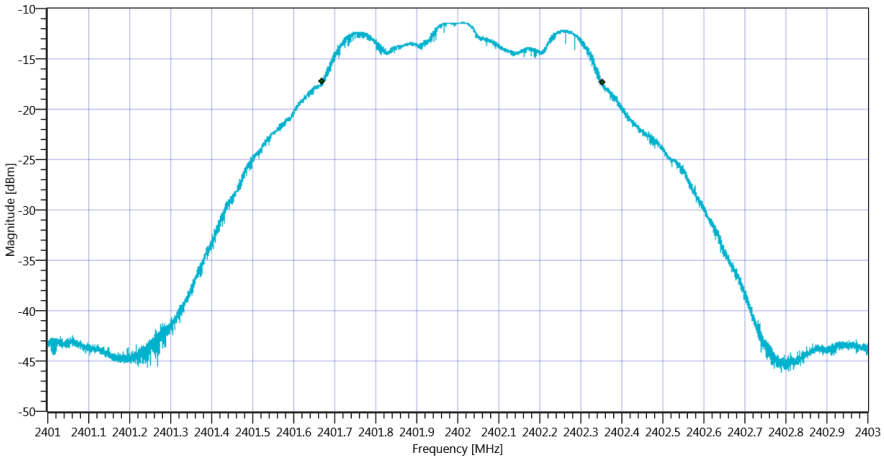
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.88 \| 10.51 \| 0 |
| Start [MHz] \| Stop [MHz] | 2401.000 \| 2403.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

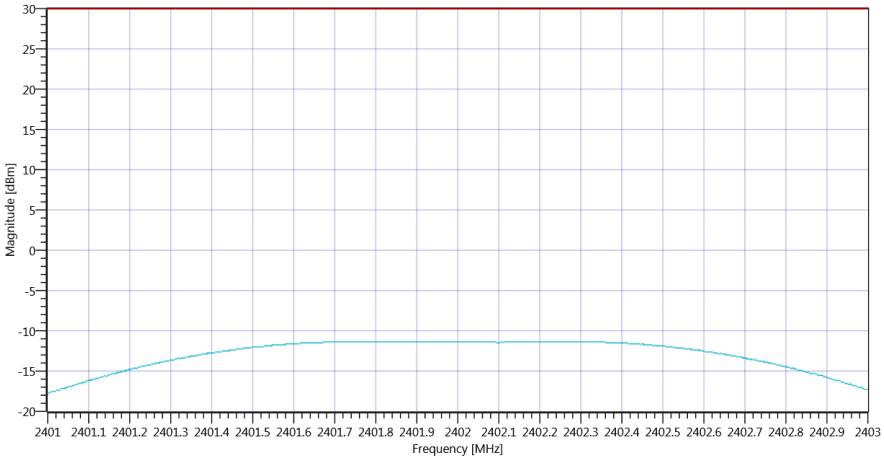
| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 683 | kHz | INFO |




Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW_17022020_104555.png

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -0.88 \| 10.51 \| 5 |
| Start [MHz] \| Stop [MHz] | 2401.000 \| 2403.000 |
| RBW [MHz] \| VBW [MHz] | 1.000000 \| 5.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | 30.00 | -11.35 | dBm | PASS |
| Peak Power | --- | 1000 | 0.073282 | mW | PASS |
| Frequency at Peak | --- | --- | 2402.274 | MHz | INFO |



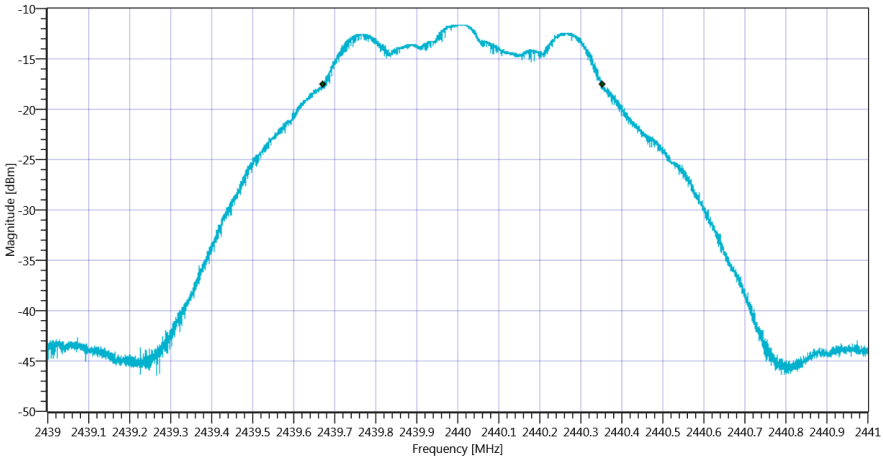

Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_17022020_104612.png

## Test at TX 2440 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -6.22 \| 10.6 \| 0 |
| Start [MHz] \| Stop [MHz] | 2439.000 \| 2441.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

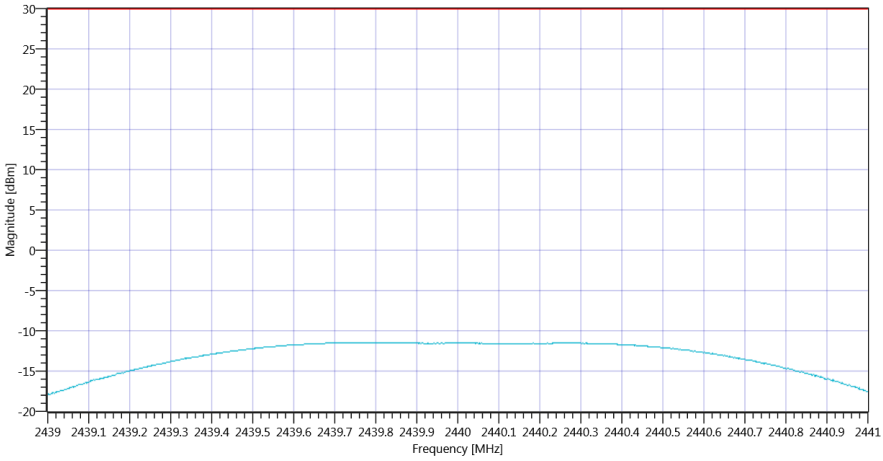
| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 682 | kHz | INFO |




Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW_17022020_104639.png

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -1.22 \| 10.6 \| 5 |
| Start [MHz] \| Stop [MHz] | 2439.000 \| 2441.000 |
| RBW [MHz] \| VBW [MHz] | 1.000000 \| 5.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | 30.00 | -11.49 | dBm | PASS |
| Peak Power | --- | 1000 | 0.070958 | mW | PASS |
| Frequency at Peak | --- | --- | 2439.794 | MHz | INFO |



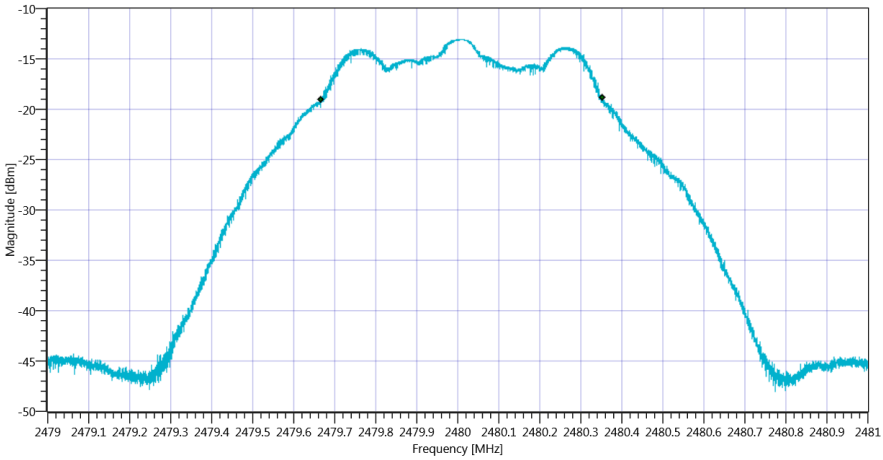

Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_17022020_104656.png

## Test at TX 2480 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -7.76 \| 10.65 \| 0 |
| Start [MHz] \| Stop [MHz] | 2479.000 \| 2481.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

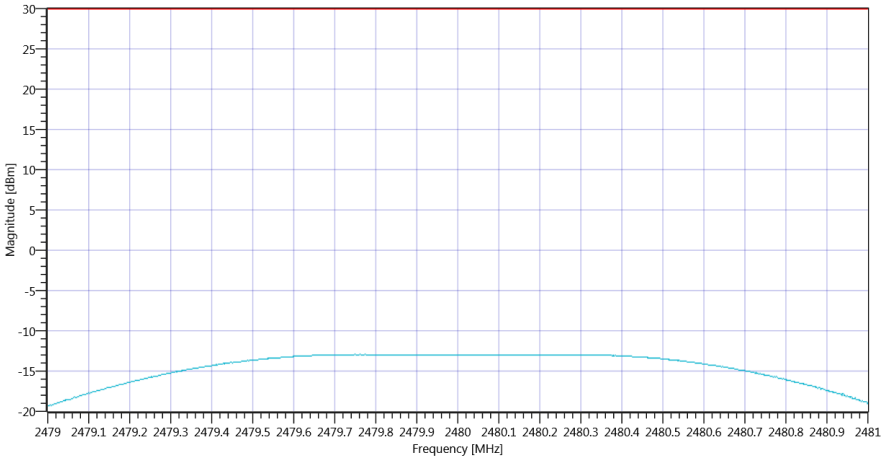
| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 687 | kHz | INFO |




Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW_17022020_104724.png

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -2.76 \| 10.65 \| 5 |
| Start [MHz] \| Stop [MHz] | 2479.000 \| 2481.000 |
| RBW [MHz] \| VBW [MHz] | 1.000000 \| 5.000000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | 30.00 | -12.95 | dBm | PASS |
| Peak Power | --- | 1000 | 0.050699 | mW | PASS |
| Frequency at Peak | --- | --- | 2479.762 | MHz | INFO |




Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_17022020_104741.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 10:47:42 / RT: 135 s | PASS |

# 3. FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 10:47:46 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | 99 |
| Class / TC Version | TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1 |
| My Description | FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msps |
| Add. Information | |

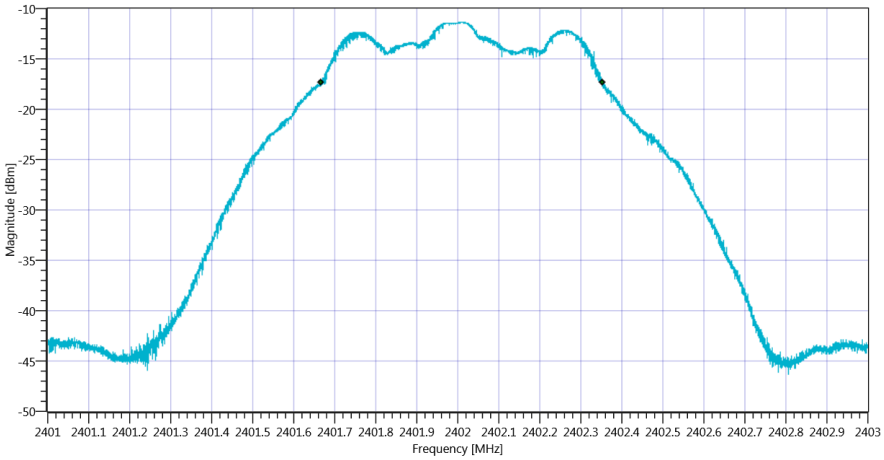
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.80 \| 10.51 \| 0 |
| Start [MHz] \| Stop [MHz] | 2401.000 \| 2403.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | 500 | --- | 685 | kHz | PASS |



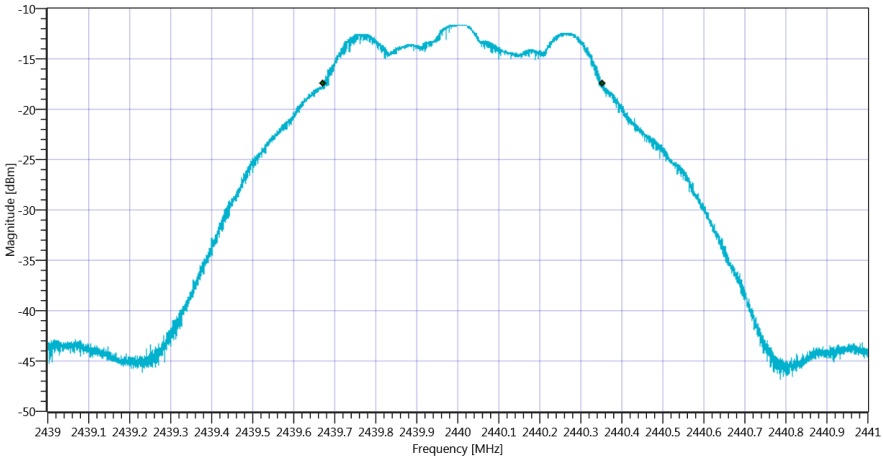

Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_17022020_104815.png

## Test at TX 2440 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -6.14 \| 10.6 \| 0 |
| Start [MHz] \| Stop [MHz] | 2439.000 \| 2441.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | 500 | --- | 682 | kHz | PASS |



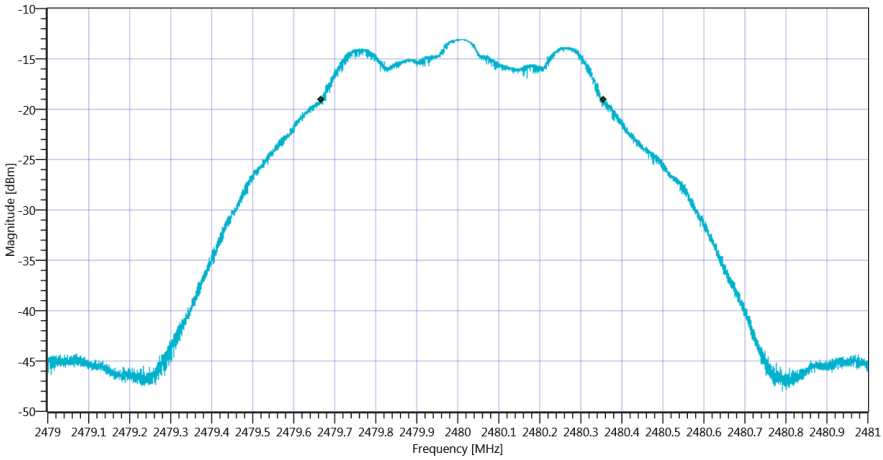

Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_17022020_104843.png

## Test at TX 2480 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -7.86 \| 10.65 \| 0 |
| Start [MHz] \| Stop [MHz] | 2479.000 \| 2481.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | 500 | --- | 688 | kHz | PASS |




Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_17022020_104910.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 10:49:11 / RT: 84 s | PASS |

# 4. FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 10:49:15 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| Class / TC Version | TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1 |
| My Description | FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps |
| Add. Information | |

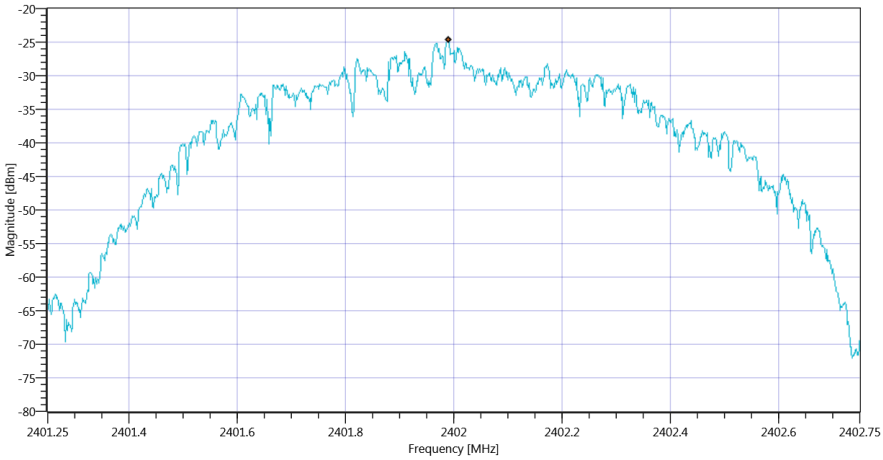
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.76 \| 10.51 \| 0 |
| Start [MHz] \| Stop [MHz] | 2401.250 \| 2402.750 |
| RBW [MHz] \| VBW [MHz] | 0.003000 \| 0.010000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 20 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Max Peak power Density | --- | 8 | -24.67 | dBm/3KHz | PASS |



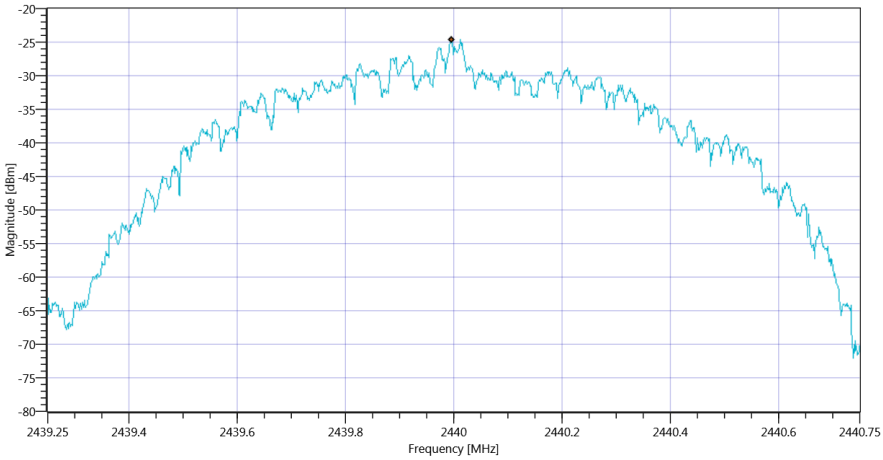

Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_17022020_104954.png

## Test at TX 2440 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -6.08 \| 10.6 \| 0 |
| Start [MHz] \| Stop [MHz] | 2439.250 \| 2440.750 |
| RBW [MHz] \| VBW [MHz] | 0.003000 \| 0.010000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 20 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Max Peak power Density | --- | 8 | -24.66 | dBm/3KHz | PASS |



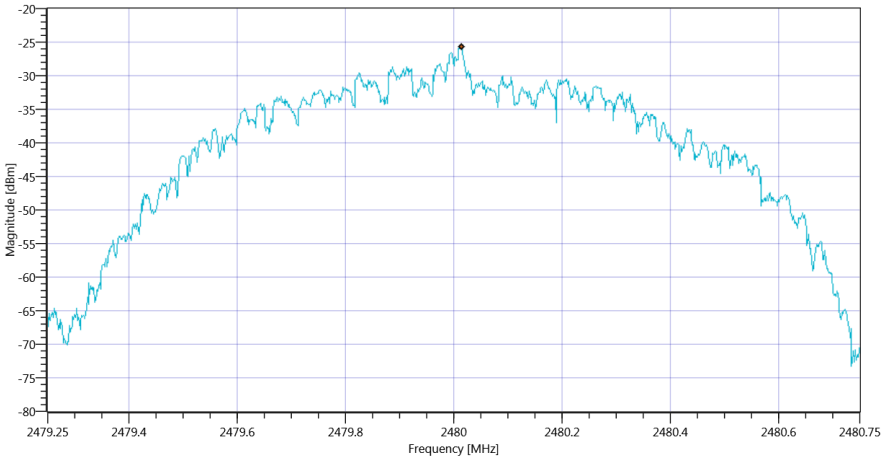

Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_17022020_105030.png

## Test at TX 2480 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -7.81 \| 10.65 \| 0 |
| Start [MHz] \| Stop [MHz] | 2479.250 \| 2480.750 |
| RBW [MHz] \| VBW [MHz] | 0.003000 \| 0.010000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 1000 \| 20 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Max Peak power Density | --- | 8 | -25.76 | dBm/3KHz | PASS |




Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_17022020_105106.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 10:51:07 / RT: 111 s | PASS |

# 5. FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 10:51:11 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | |
| Class / TC Version | TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2 |
| My Description | FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps |
| Add. Information | |

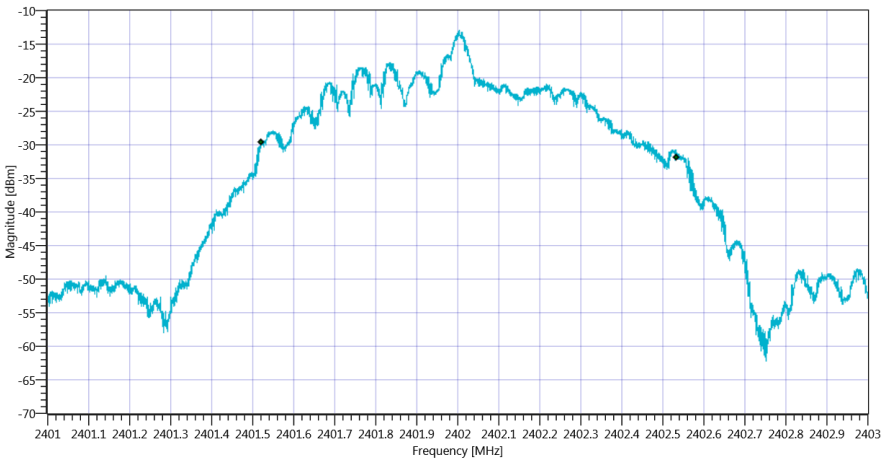
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

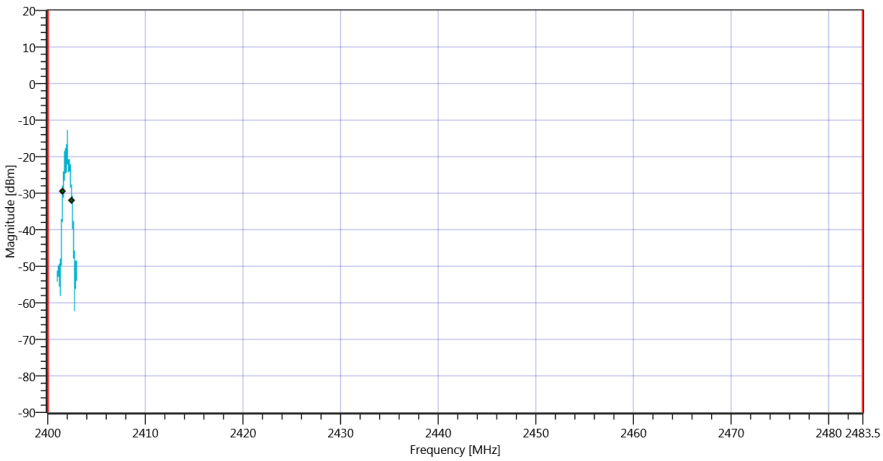
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.79 \| 10.51 \| 0 |
| Start [MHz] \| Stop [MHz] | 2401.000 \| 2403.000 |
| RBW [MHz] \| VBW [MHz] | 0.020000 \| 0.050000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 99% | --- | --- | 1012 | kHz | INFO |
| T1 99% | 2400.000000 | --- | 2401.5212 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2402.5329 | MHz | PASS |



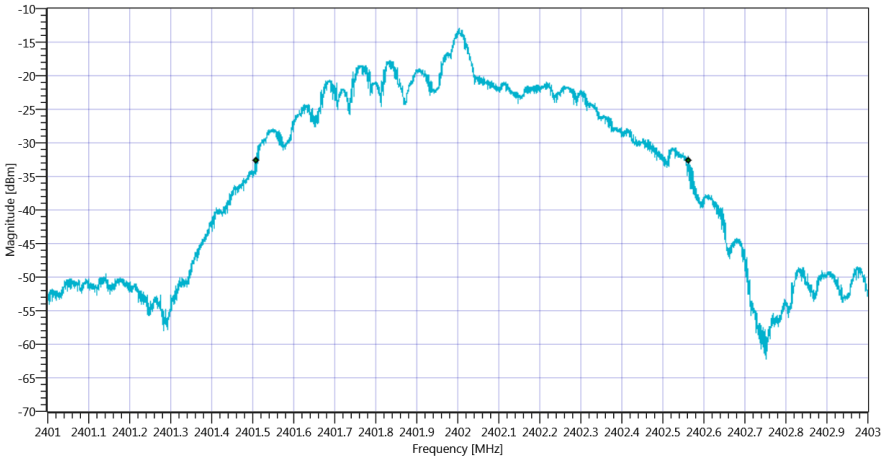

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_17022020_105141.png



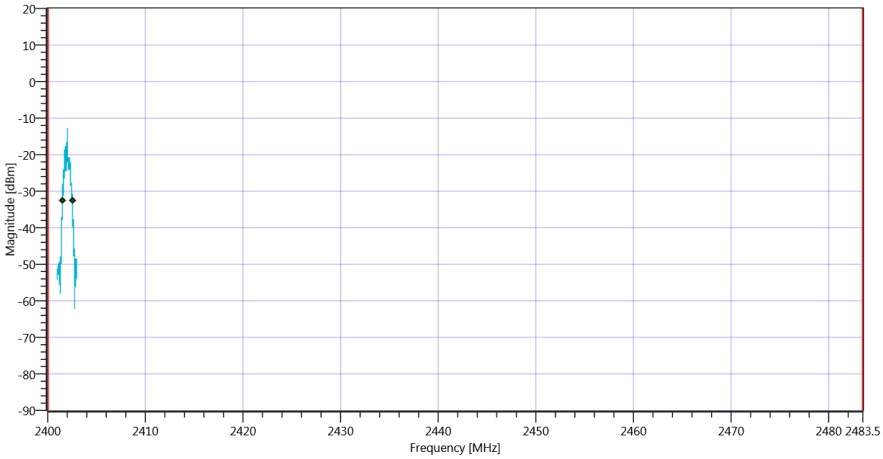

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105146.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1056 | kHz | INFO |
| T1 20DB | 2400.000000 | --- | 2401.5080 | MHz | PASS |

| | | | | | |
|---|---|---|---|---|---|
| T2 20dB | --- | 2483.500000 | 2402.5640 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_17022020_105151.png



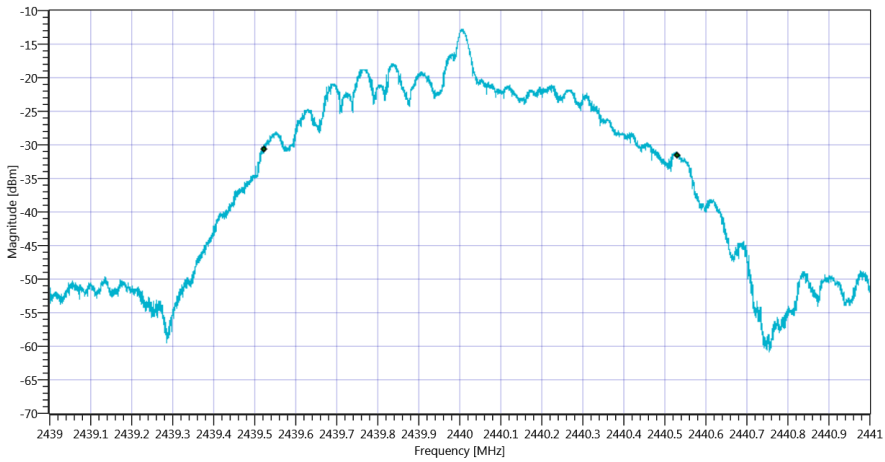

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105156.png

## Test at TX 2440 MHz

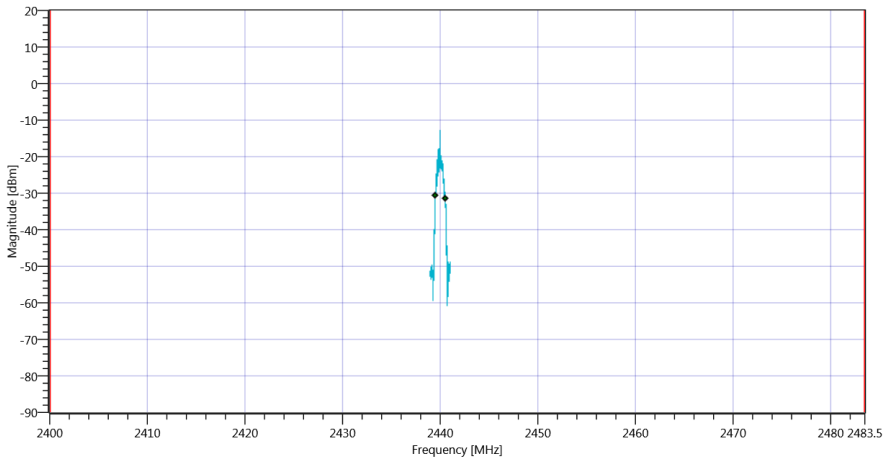
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -6.18 \| 10.6 \| 0 |
| Start [MHz] \| Stop [MHz] | 2439.000 \| 2441.000 |
| RBW [MHz] \| VBW [MHz] | 0.020000 \| 0.050000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 99% | --- | --- | 1007 | kHz | INFO |
| T1 99% | 2400.000000 | --- | 2439.5230 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2440.5301 | MHz | PASS |



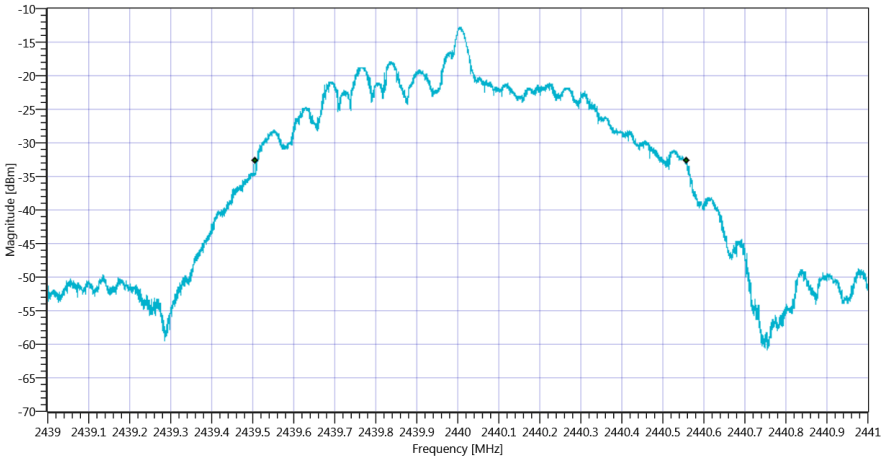

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_17022020_105224.png



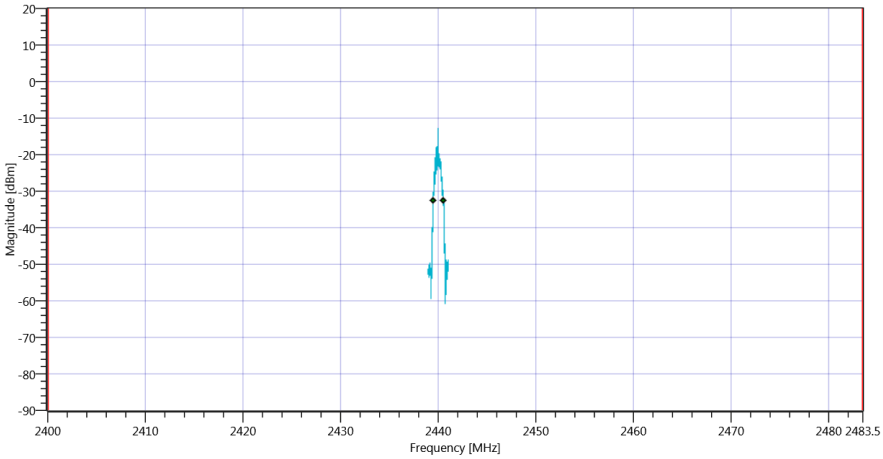

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105229.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1050 | kHz | INFO |
| T1 20DB | 2400.000000 | --- | 2439.5068 | MHz | PASS |

| | | | | | |
|---|---|---|---|---|---|
| T2 20dB | --- | 2483.500000 | 2440.5570 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_17022020_105235.png



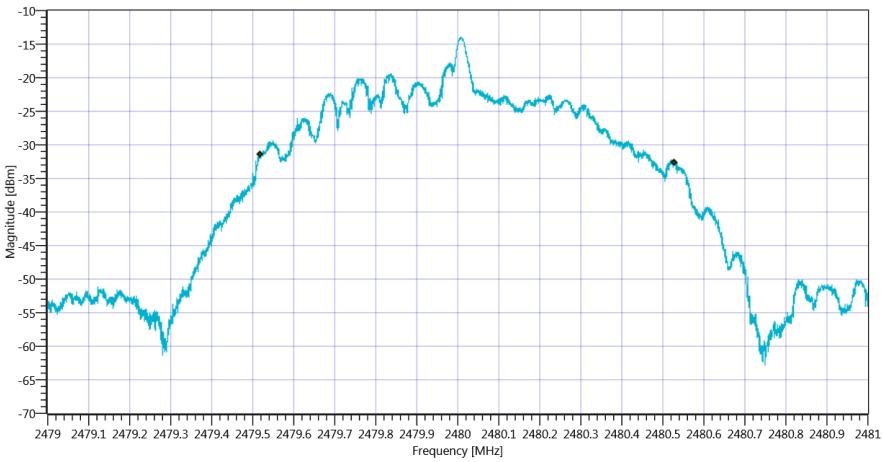

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105239.png

## Test at TX 2480 MHz

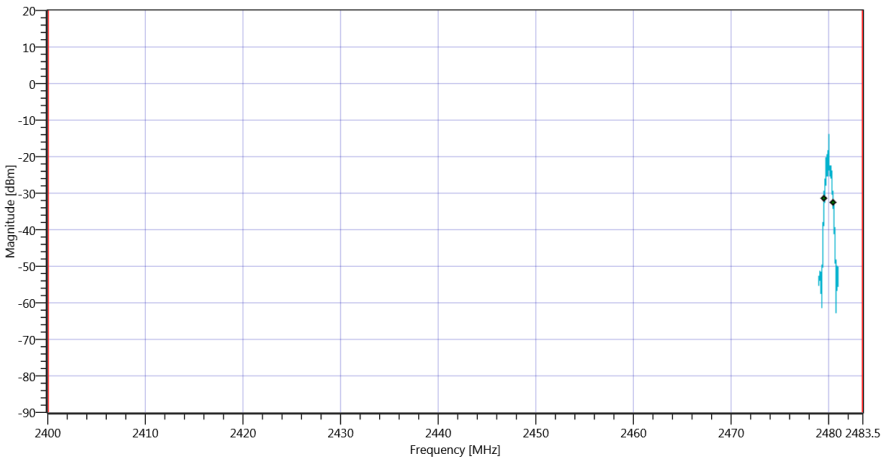
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -7.88 \| 10.65 \| 0 |
| Start [MHz] \| Stop [MHz] | 2479.000 \| 2481.000 |
| RBW [MHz] \| VBW [MHz] | 0.020000 \| 0.050000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 50 \| 200 \| 10001 \| SWE |

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 99% | --- | --- | 1010 | kHz | INFO |
| T1 99% | 2400.000000 | --- | 2479.5188 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2480.5287 | MHz | PASS |



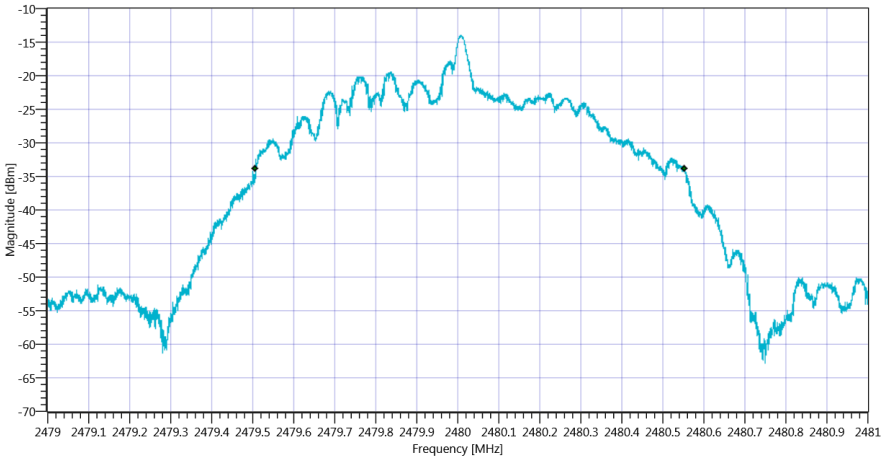

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_17022020_105308.png



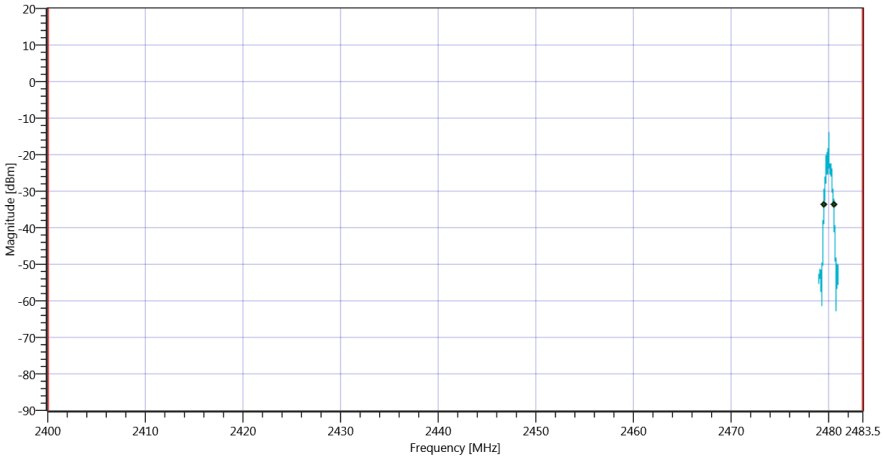

Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105312.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1046 | kHz | INFO |
| T1 20DB | 2400.000000 | --- | 2479.5068 | MHz | PASS |

| | | | | | |
|---|---|---|---|---|---|
| T2 20dB | --- | 2483.500000 | 2480.5528 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_17022020_105318.png




Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_17022020_105322.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 10:53:23 / RT: 131 s | PASS |

# 6. FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 10:53:28 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable. |
| Class / TC Version | TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1 |
| My Description | FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msps |
| Add. Information | |

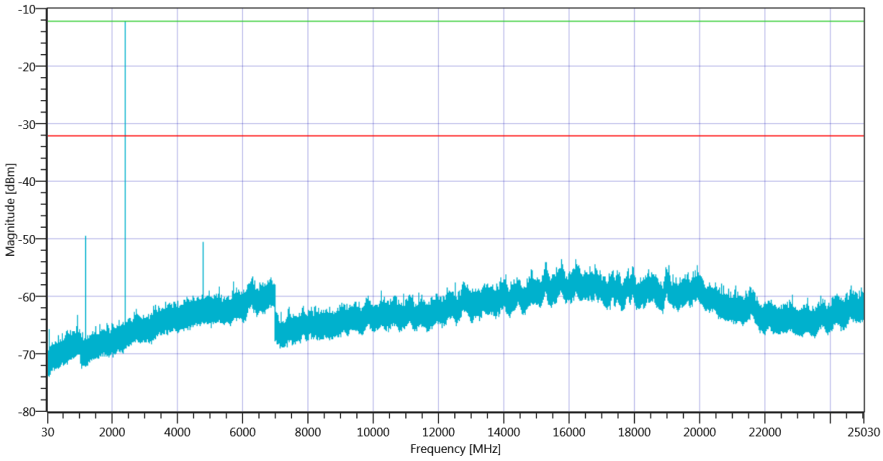
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | True \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

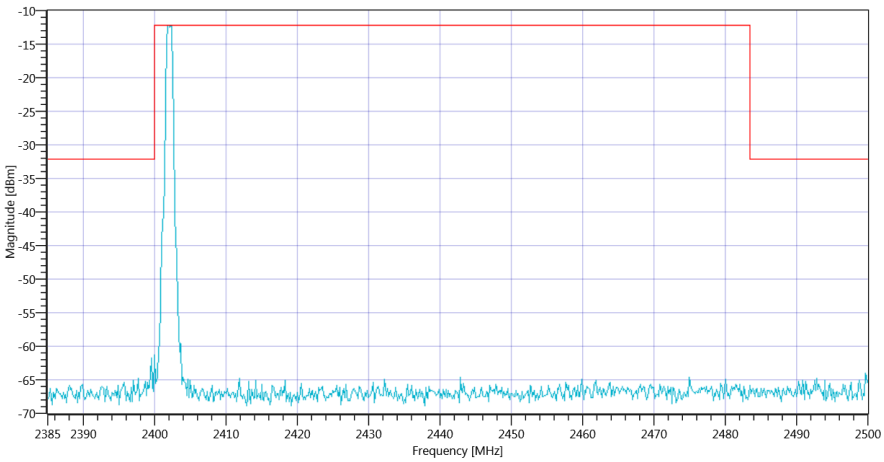
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -4.82 \| 0 \| 15 |
| Start [MHz] \| Stop [MHz] | 24530.000 \| 25030.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 500 \| 8 \| 3001 \| SWE |

| RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Reference @ 2402.33 MHz | --- | --- | -12.15 | dBm | INFO |
| No peaks detected | --- | --- | | | PASS |
| Lowest margin to limit 1201 MHz | 0 | --- | 17.46 | dB | INFO |




Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2402_17022020_105819.png



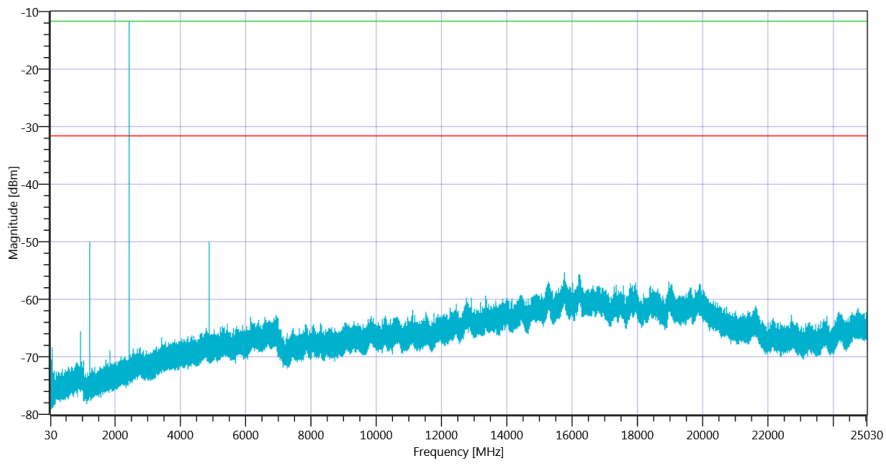

Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2402_17022020_105822.png

## Test at TX 2440 MHz

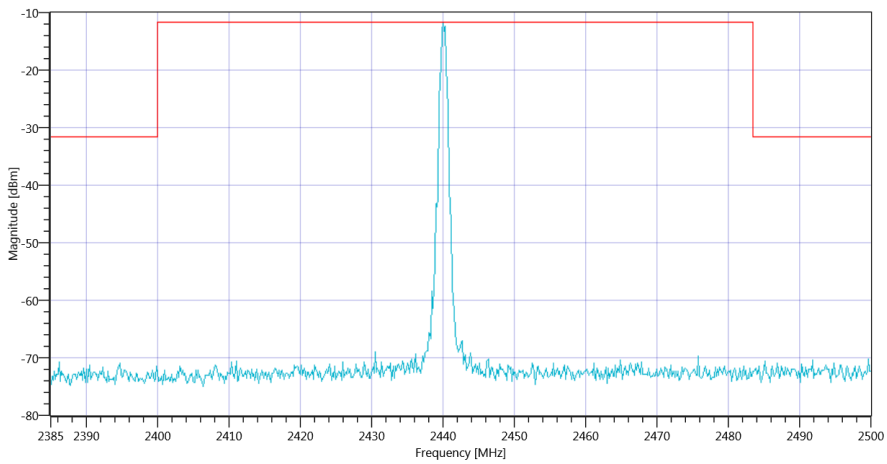
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.23 \| 0 \| 10 |
| Start [MHz] \| Stop [MHz] | 24530.000 \| 25030.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 500 \| 8 \| 3001 \| SWE |

| RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Reference @ 2440.00 MHz | --- | --- | -11.59 | dBm | INFO |
| No peaks detected | --- | --- | | | PASS |
| Lowest margin to limit 1219.833 MHz | 0 | --- | 18.5 | dB | INFO |




Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2440_17022020_110312.png



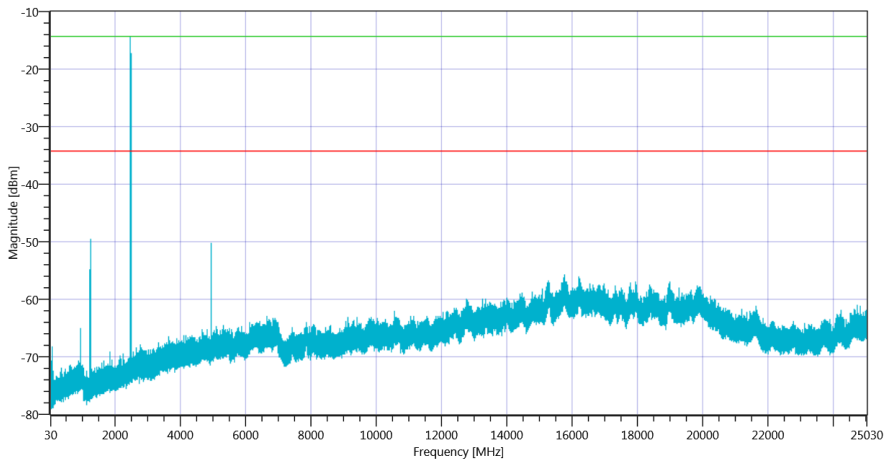

Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2440_17022020_110315.png

## Test at TX 2480 MHz

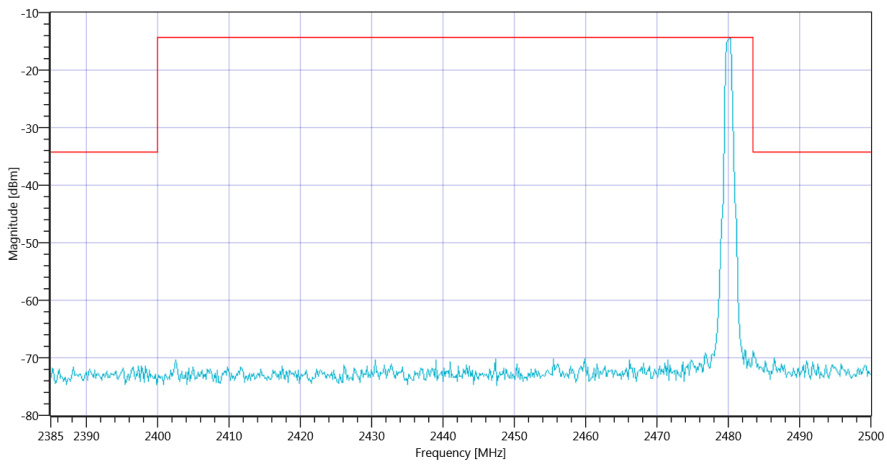
| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -6.61 \| 0 \| 10 |
| Start [MHz] \| Stop [MHz] | 24530.000 \| 25030.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.300000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 500 \| 8 \| 3001 \| SWE |

| RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Reference @ 2480.33 MHz | --- | --- | -14.29 | dBm | INFO |
| No peaks detected | --- | --- | | | PASS |
| Lowest margin to limit 1240 MHz | 0 | --- | 15.35 | dB | INFO |




Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2480_17022020_110805.png




Plot_FCC Part 15.247 TX Spurious Conduced ~ BT LE 1 Msps 2480_17022020_110808.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 11:08:10 / RT: 881 s | PASS |

# 7. FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps

| Test References | |
|---|---|
| TC Start | 17.02.2020 11:08:14 |
| System Version | 1.0.0.32 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.2 Peak Detection |
| Class / TC Version | TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 Version: 0.0.1 |
| My Description | FCC 15.247 Restricted Band Edge Conducted Peak DTS - BT LE 1 Msps |
| Add. Information | |

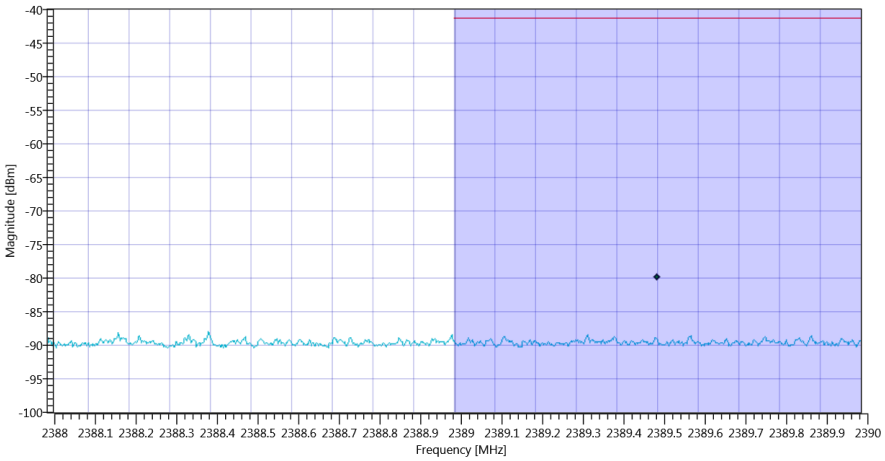
| Test Parameter | |
|---|---|
| Technology to test | BT LE 1 Msps |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2402 |
| Frequency mid to test | False \| Freq [MHz] 2440 |
| Frequency high to test | True \| Freq [MHz] 2480 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60 |

## Test at TX 2402 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -5.79 \| 10.51 \| 0 |
| Start [MHz] \| Stop [MHz] | 2388.000 \| 2390.000 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.002000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 8 \| 300 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Band Power without Antenna Gain | --- | -41.23 | -79.86 | dBm | Information |
| Band Power incl. Antenna Gain | --- | -41.23 | -79.86 | dBm | PASS |



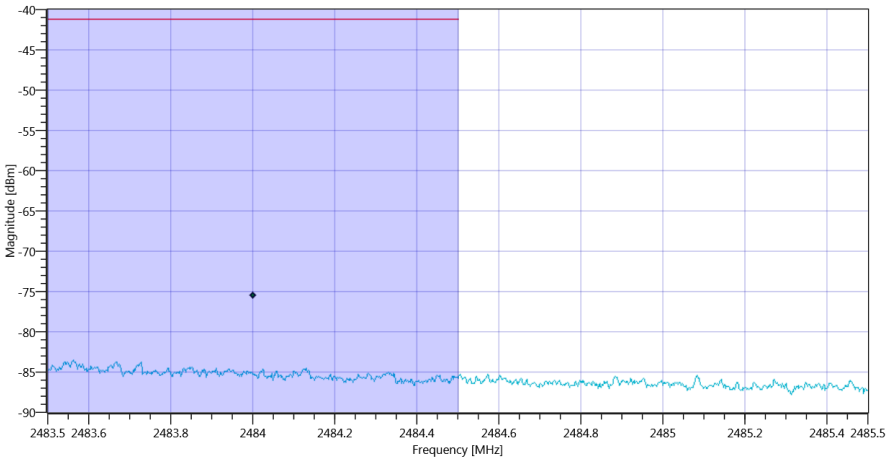

Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps_17022020_110835.png

## Test at TX 2480 MHz

| RESULT: DTM Connection check | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Connection result | --- | --- | --- | -- | RESET OK |

| READ SA SETTINGS: | |
|---|---|
| RefLevel [dBm] \| RefLevelOffset [dB] \| InpAtt [dB] | -7.78 \| 10.65 \| 0 |
| Start [MHz] \| Stop [MHz] | 2483.500 \| 2485.500 |
| RBW [MHz] \| VBW [MHz] | 0.100000 \| 0.002000 |
| Detector \| TraceMode | POS \| MAXH |
| Sweep: Time [ms] \| Count \| Points per Section \| Type | 8 \| 300 \| 1001 \| SWE |

| RESULT: TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Band Power without Antenna Gain | --- | -41.23 | -75.46 | dBm | Information |
| Band Power incl. Antenna Gain | --- | -41.23 | -75.46 | dBm | PASS |




Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps_17022020_110854.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 17.02.2020 11:08:55 / RT: 40 s | PASS |

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