

Measurement Results

1-8277/19-01-03_Annex_MR_A_1

[Test logging](#)

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IUT Summary

| IUT DEFINITION | |
|----------------|-------------------|
| Manufacturer | Oticon Medical AB |
| Type | Ponto 4 |
| Serial No. | 56938835 |
| Setup No. | NI |
| SW Version | NI |
| HW Version | NI |
| Comment 1 | NI |
| Comment 2 | NI |

| IUT Common Settings | |
|--------------------------------------------------|---------|
| Tlow [°C] | 0 |
| Tmid [°C] | 20 |
| Thigh [°C] | 40 |
| Vlow [V] | 1.1 |
| Vmid [V] | 1.4 |
| Vhigh [V] | 1.4 |
| Imax [A] | 1 |
| Auto Control enabled Power Supply Climatic Box | No No |
| Antenna Gain [dBi] | 0 |
| Additional Path Loss [dB] | 0.8 |

| IUT Common Settings BT Low Energy | |
|------------------------------------------|-------------------------------------------------------|
| Intermodulation Value N | 3 |
| Image Freq. Low Mid High [MHz] | -2 -2 -2 |
| Power Class | 2 |
| 1 Mbps supported | True TXpayload 255 RXpayload 128 |
| 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 | USB_RS232 HCI 7 B96K None S1 XONXOFF On |
| Signaling RF Settings | RF1com 0 0 On |
| User Interaction | No |
| Switch Matrix & Pathcompensation enabled | Yes |

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

| Test References | |
|----------------------------|---------------------------------------------------------------------------------------------|
| TC Start | 29.04.2019 13:11:12 |
| System Version | 1.0.0.14 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW \geq DTS Bandwidth |
| Class / TC Version / TC ID | TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1 TCID_FCC15247_3 |
| 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 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

Test at TX 2402 MHz

RESULT: DTM Connection check

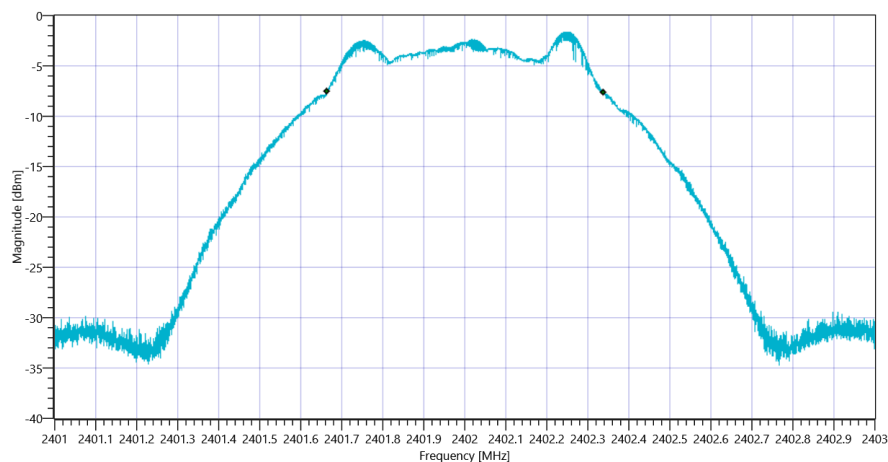
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.30 |
| Ref. Lev. offs [dB] | 10.59 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2401.000 |
| Freq. Stop [MHz] | 2403.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: DTS Bandwidth

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|-------------|
| DTS Bandwidth (6dB) | --- | --- | 674 | kHz | Information |

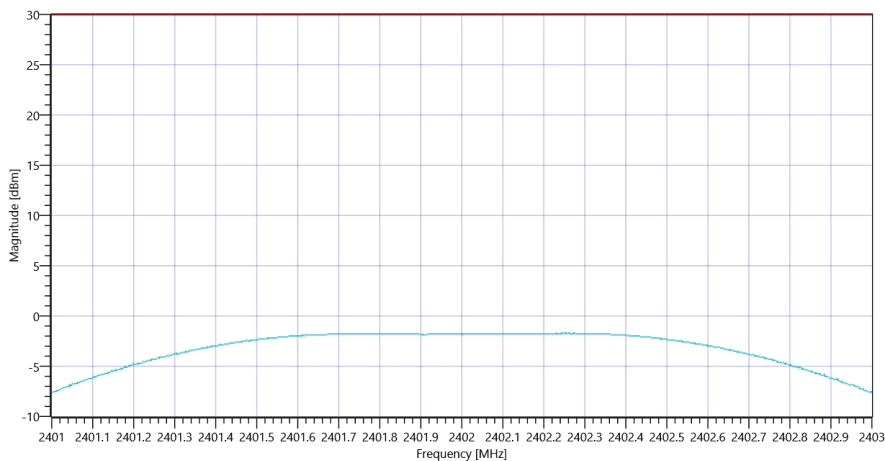


Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW _29042019_131137.png

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 8.30 |
| Ref. Lev. offs [dB] | 10.59 |
| Input Attenuation [dB] | 15 |
| Freq. Start [MHz] | 2401.000 |
| Freq. Stop [MHz] | 2403.000 |
| Resolution BW. [MHz] | 1.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 1001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -1.73 | dBm | PASS |
| Peak Power | --- | 1000 | 0.671429 | mW | PASS |
| Frequency at Peak | --- | --- | 2402.25 | MHz | Information |



Test at TX 2440 MHz

RESULT: DTM Connection check

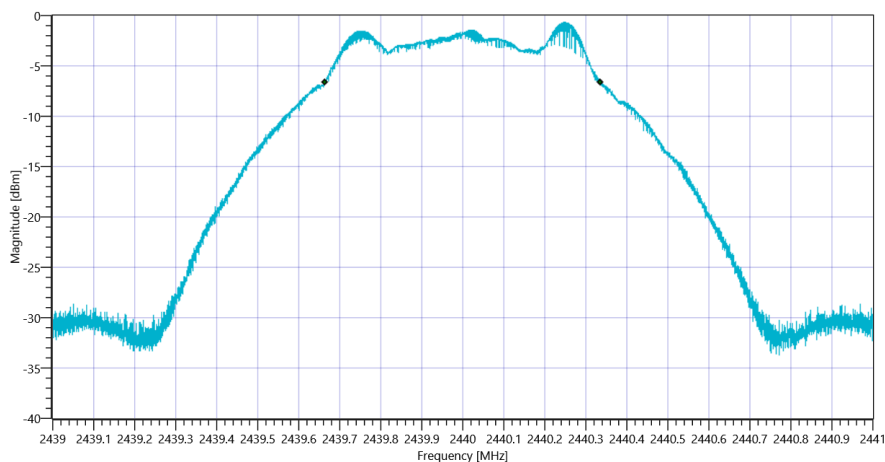
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 4.29 |
| Ref. Lev. offs [dB] | 10.71 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2439.000 |
| Freq. Stop [MHz] | 2441.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: DTS Bandwidth

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|-------------|
| DTS Bandwidth (6dB) | --- | --- | 672 | kHz | Information |

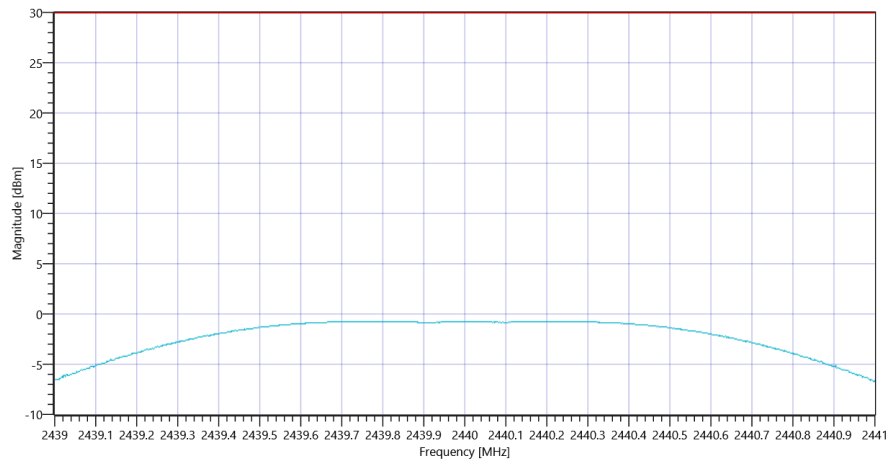


Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW _29042019_131216.png

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 9.29 |
| Ref. Lev. offs [dB] | 10.71 |
| Input Attenuation [dB] | 15 |
| Freq. Start [MHz] | 2439.000 |
| Freq. Stop [MHz] | 2441.000 |
| Resolution BW. [MHz] | 1.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 1001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -0.78 | dBm | PASS |
| Peak Power | --- | 1000 | 0.835603 | mW | PASS |
| Frequency at Peak | --- | --- | 2439.734 | MHz | Information |



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_29042019_131231.png

Test at TX 2480 MHz

RESULT: DTM Connection check

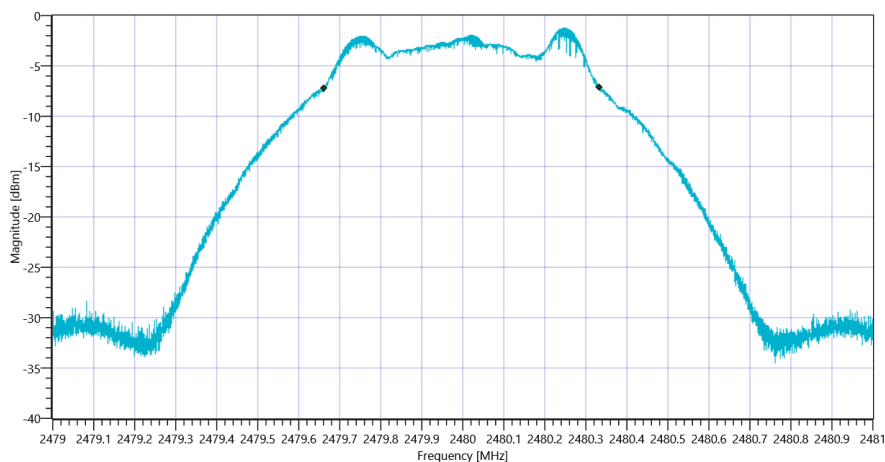
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.76 |
| Ref. Lev. offs [dB] | 10.76 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2479.000 |
| Freq. Stop [MHz] | 2481.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: DTS Bandwidth

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|-------------|
| DTS Bandwidth (6dB) | --- | --- | 670 | kHz | Information |

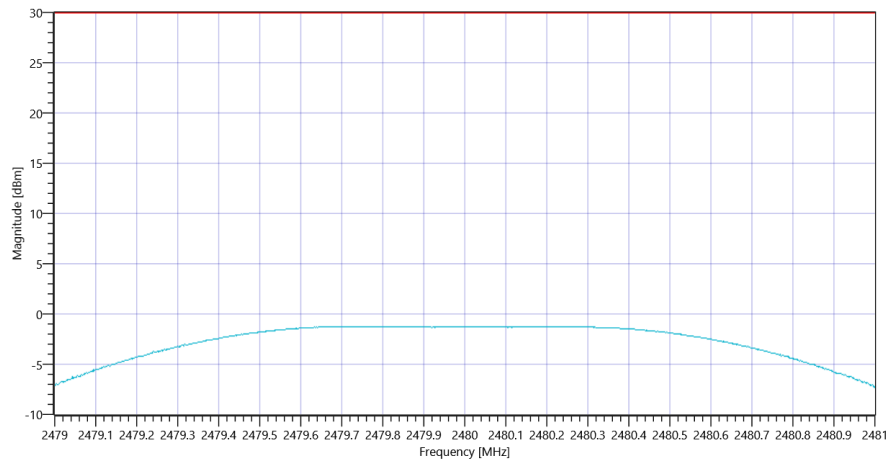


Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW _29042019_131256.png

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 8.76 |
| Ref. Lev. offs [dB] | 10.76 |
| Input Attenuation [dB] | 15 |
| Freq. Start [MHz] | 2479.000 |
| Freq. Stop [MHz] | 2481.000 |
| Resolution BW. [MHz] | 1.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 1001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -1.24 | dBm | PASS |
| Peak Power | --- | 1000 | 0.751623 | mW | PASS |
| Frequency at Peak | --- | --- | 2479.726 | MHz | Information |



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_29042019_131310.png

| TEST FINISHED | | |
|-----------------|---------------------------------|------|
| General Verdict | 29.04.2019 13:13:11 / RT: 118 s | PASS |

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

| Test References | |
|----------------------------|-----------------------------------------------------------------------|
| TC Start | 29.04.2019 13:13:15 |
| System Version | 1.0.0.14 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V05 - Chapter 8.2 DTS Bandwidth |
| Class / TC Version / TC ID | TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1 TCID_FCC15247_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 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

Test at TX 2402 MHz

RESULT: DTM Connection check

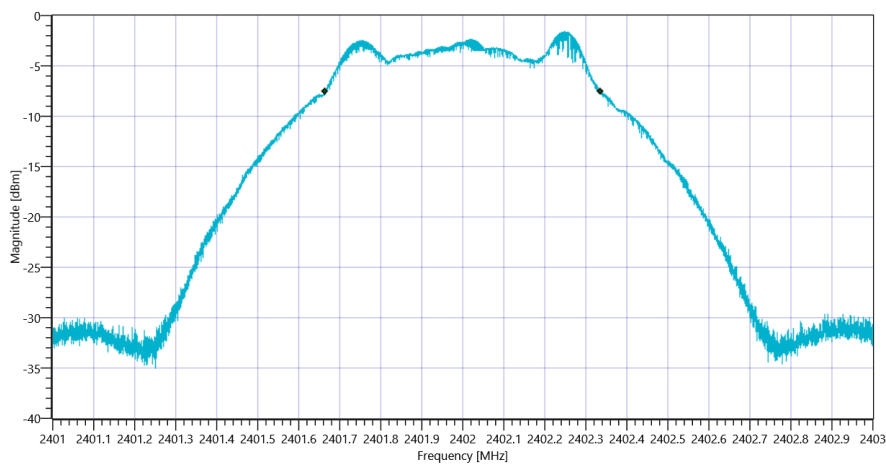
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.33 |
| Ref. Lev. offs [dB] | 10.59 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2401.000 |
| Freq. Stop [MHz] | 2403.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | 500 | --- | 670 | kHz | PASS |



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_29042019_131340.png

Test at TX 2440 MHz

RESULT: DTM Connection check

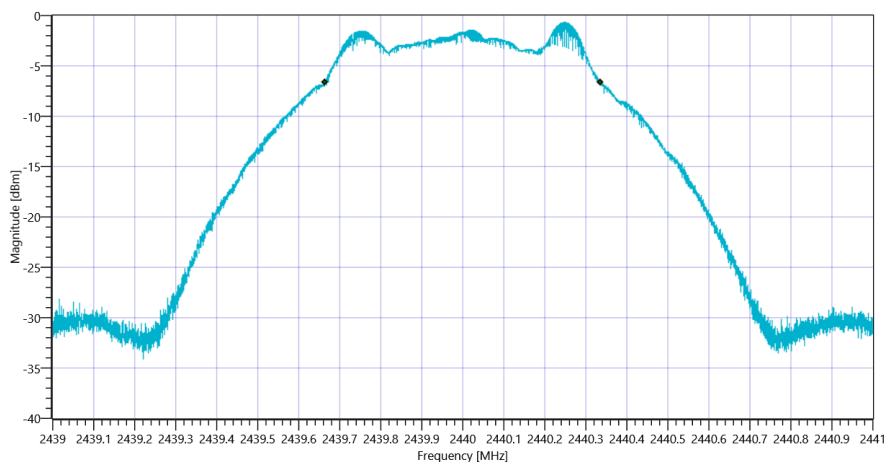
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 4.28 |
| Ref. Lev. offs [dB] | 10.71 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2439.000 |
| Freq. Stop [MHz] | 2441.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | 500 | --- | 671 | kHz | PASS |



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_29042019_131404.png

Test at TX 2480 MHz

RESULT: DTM Connection check

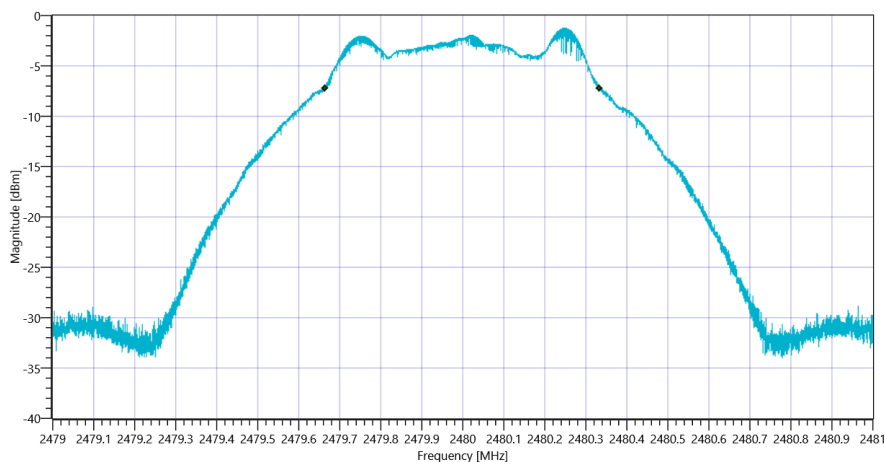
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.73 |
| Ref. Lev. offs [dB] | 10.76 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2479.000 |
| Freq. Stop [MHz] | 2481.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_6dB_DTS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | 500 | --- | 670 | kHz | PASS |



TEST FINISHED

General Verdict

29.04.2019 13:14:28 / RT: 73 s

PASS

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

| Test References | |
|----------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start | 29.04.2019 13:14:32 |
| System Version | 1.0.0.14 |
| 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 ID | TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1 TCID_FCC15247_6 |
| 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 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

Test at TX 2402 MHz

RESULT: DTM Connection check

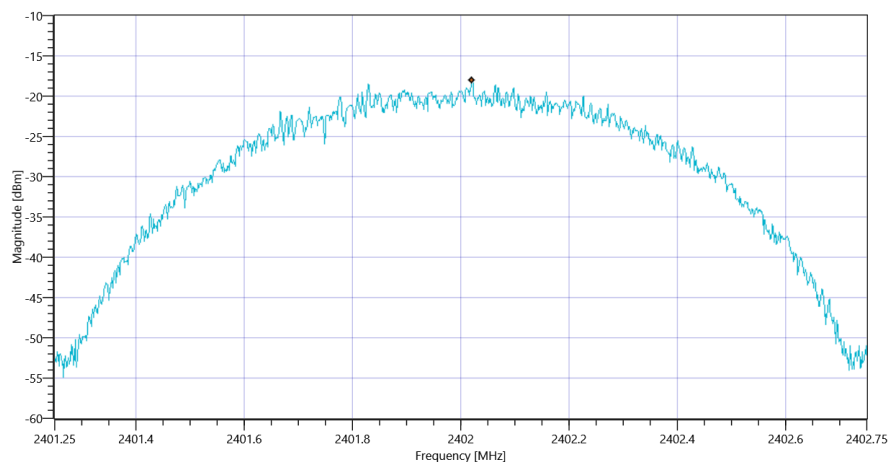
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.35 |
| Ref. Lev. offs [dB] | 10.59 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2401.250 |
| Freq. Stop [MHz] | 2402.750 |
| Resolution BW. [MHz] | 0.003000 |
| Video BW. [MHz] | 0.010000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 20 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -18.05 | dBm/3KHz | PASS |



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_29042019_131507.png

Test at TX 2440 MHz

RESULT: DTM Connection check

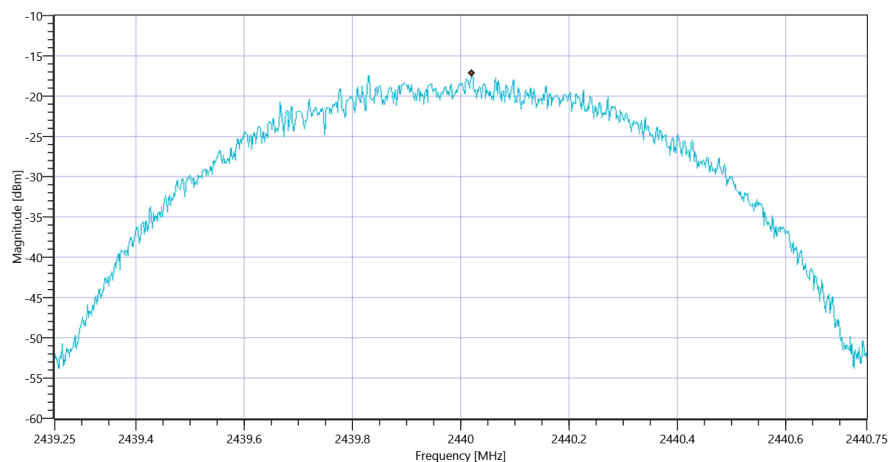
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 4.28 |
| Ref. Lev. offs [dB] | 10.71 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2439.250 |
| Freq. Stop [MHz] | 2440.750 |
| Resolution BW. [MHz] | 0.003000 |
| Video BW. [MHz] | 0.010000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 20 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -17.2 | dBm/3KHz | PASS |



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_29042019_131541.png

Test at TX 2480 MHz

RESULT: DTM Connection check

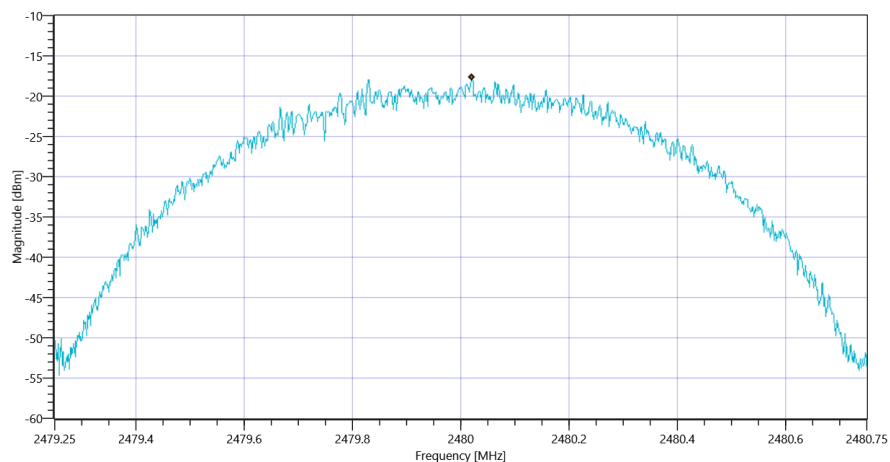
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.74 |
| Ref. Lev. offs [dB] | 10.76 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2479.250 |
| Freq. Stop [MHz] | 2480.750 |
| Resolution BW. [MHz] | 0.003000 |
| Video BW. [MHz] | 0.010000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 20 |
| Sweep Mode | MAXH |
| Used Sweep Type | 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 | -17.69 | dBm/3KHz | PASS |



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_29042019_131615.png

TEST FINISHED

General Verdict

29.04.2019 13:16:15 / RT: 102 s

PASS

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

| Test References | |
|----------------------------|-----------------------------------------------------------------------------------|
| TC Start | 29.04.2019 13:16:19 |
| System Version | 1.0.0.14 |
| Test Specification | FCC Part 15.247 |
| Test Method | |
| Class / TC Version / TC ID | TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2 TCID_FCC15247_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 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

Test at TX 2402 MHz

RESULT: DTM Connection check

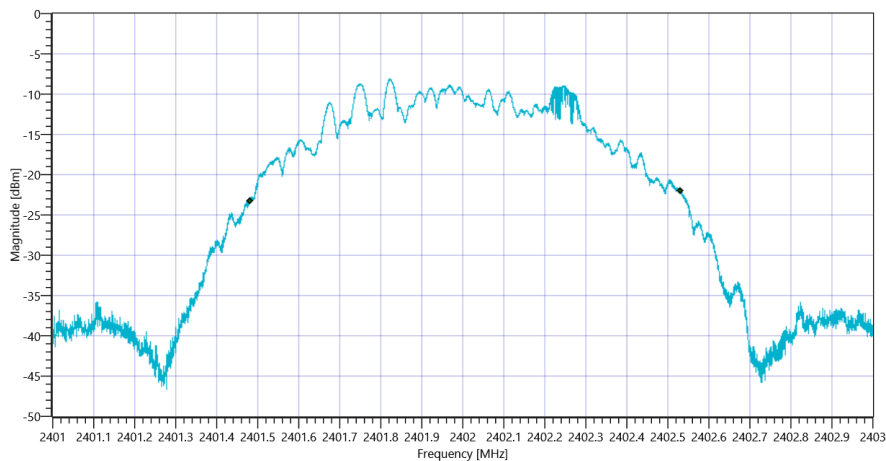
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

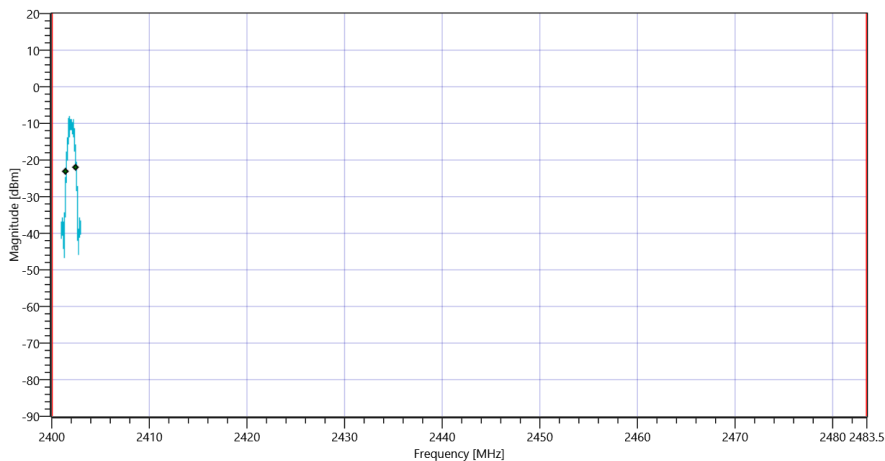
| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.34 |
| Ref. Lev. offs [dB] | 10.59 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2401.000 |
| Freq. Stop [MHz] | 2403.000 |
| Resolution BW. [MHz] | 0.020000 |
| Video BW. [MHz] | 0.050000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|-------------|
| Bandwidth 99% | --- | --- | 1050 | kHz | Information |
| T1 99% | 2400.000000 | --- | 2401.4815 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2402.5315 | MHz | PASS |

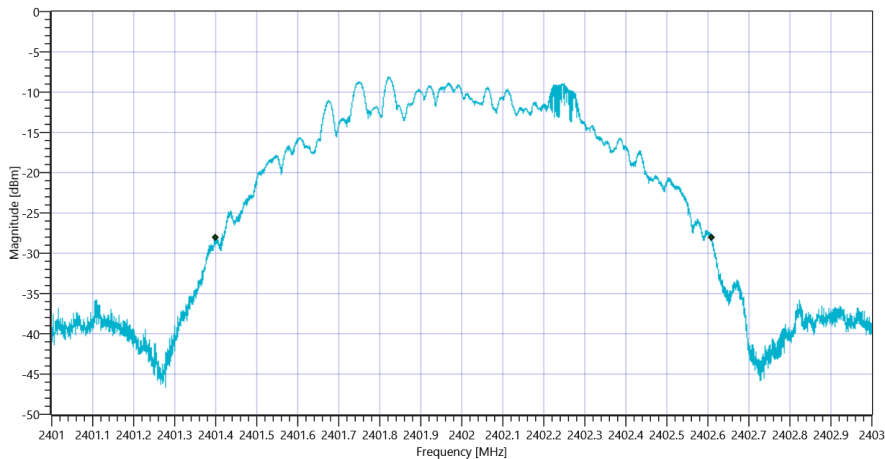


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_29042019_131644.png

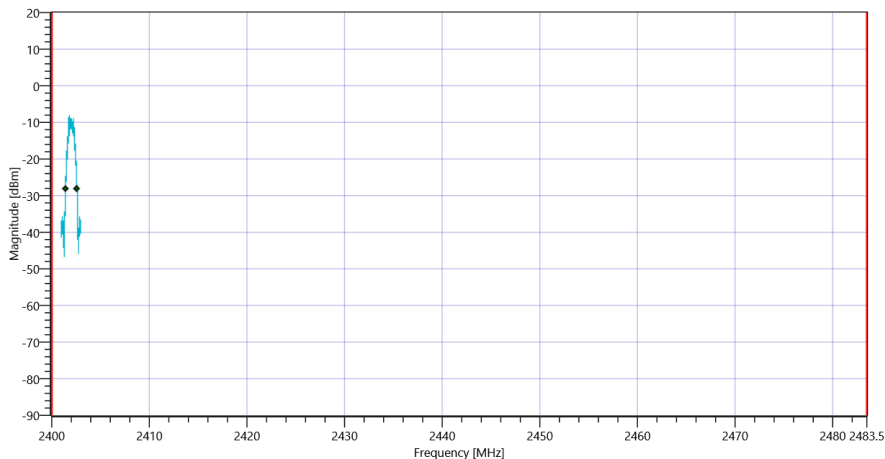


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131647.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|----------------------------------------------------------|-------------|-------------|-----------|------|-------------|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1208 | kHz | Information |
| T1 20dB | 2400.000000 | --- | 2401.4008 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2402.6092 | MHz | PASS |



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_29042019_131650.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131653.png

Test at TX 2440 MHz

RESULT: DTM Connection check

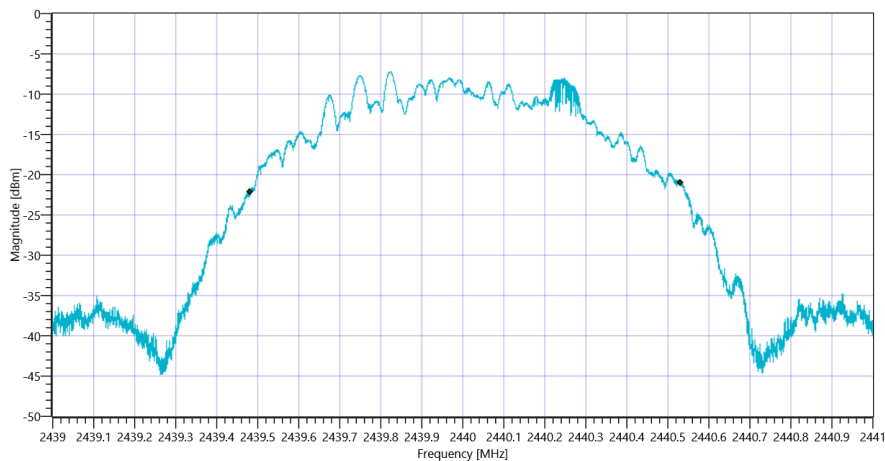
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

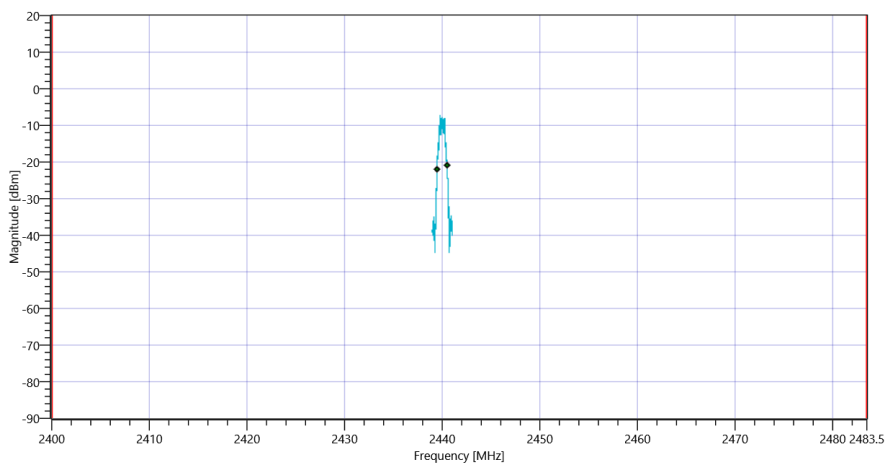
| | |
|------------------------|----------|
| Ref. Level [dBm] | 4.25 |
| Ref. Lev. offs [dB] | 10.71 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2439.000 |
| Freq. Stop [MHz] | 2441.000 |
| Resolution BW. [MHz] | 0.020000 |
| Video BW. [MHz] | 0.050000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|-------------|
| Bandwidth 99% | --- | --- | 1050 | kHz | Information |
| T1 99% | 2400.000000 | --- | 2439.4811 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2440.5309 | MHz | PASS |

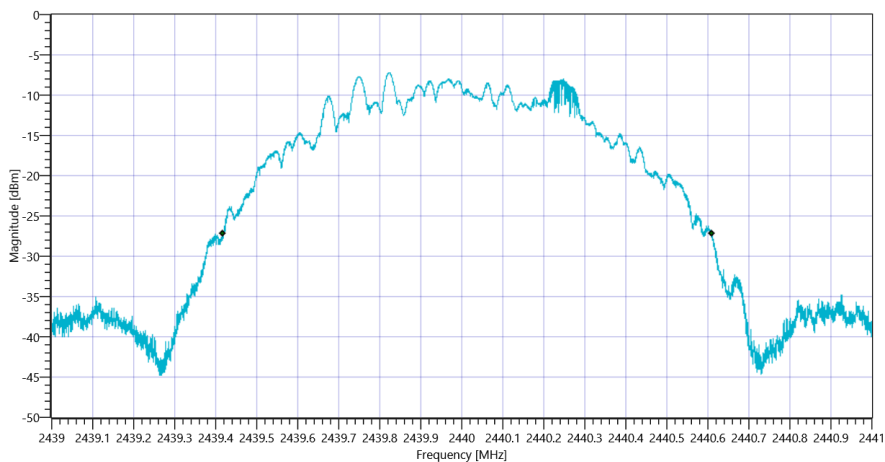


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_29042019_131718.png

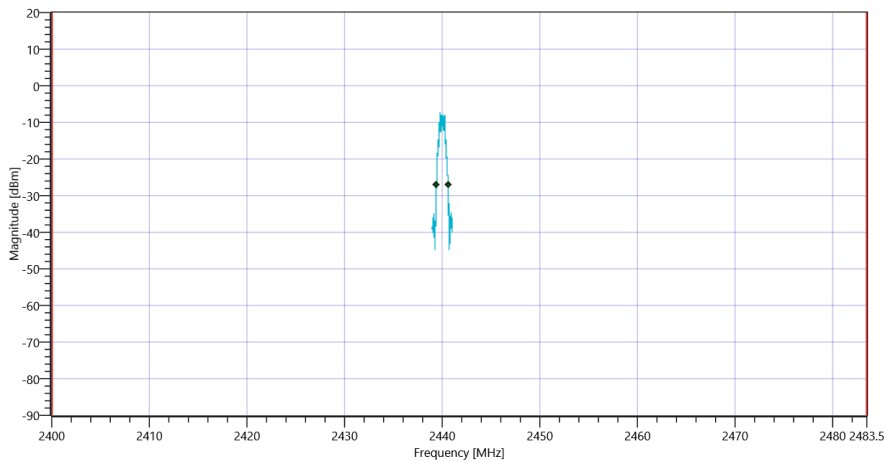


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131721.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|----------------------------------------------------------|-------------|-------------|-----------|------|-------------|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1193 | kHz | Information |
| T1 20dB | 2400.000000 | --- | 2439.4176 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2440.6104 | MHz | PASS |



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_29042019_131725.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131728.png

Test at TX 2480 MHz

RESULT: DTM Connection check

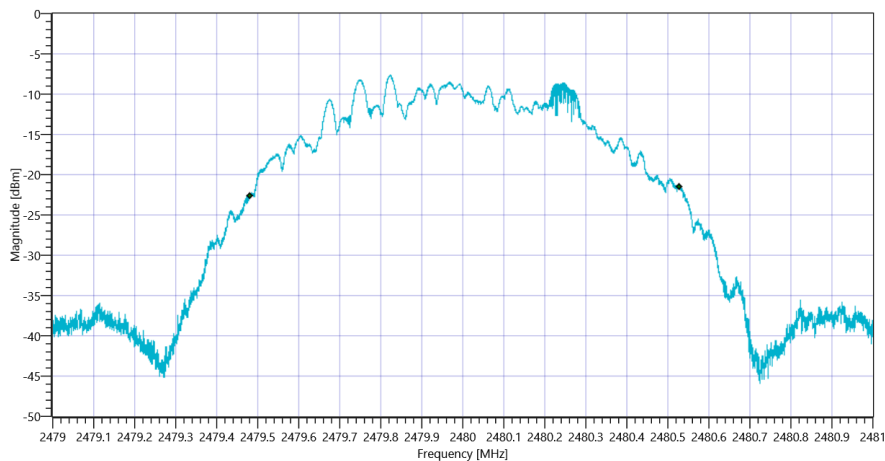
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

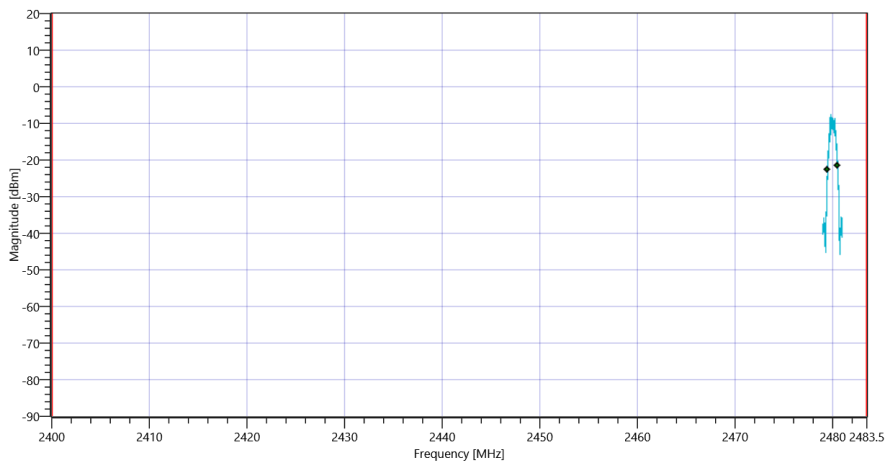
| | |
|------------------------|----------|
| Ref. Level [dBm] | 3.76 |
| Ref. Lev. offs [dB] | 10.76 |
| Input Attenuation [dB] | 10 |
| Freq. Start [MHz] | 2479.000 |
| Freq. Stop [MHz] | 2481.000 |
| Resolution BW. [MHz] | 0.020000 |
| Video BW. [MHz] | 0.050000 |
| Detector | POS |
| Sweep Time [ms] | 50 |
| Sweep Points/Section | 10001 |
| Sweep Count | 200 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|-------------|
| Bandwidth 99% | --- | --- | 1049 | kHz | Information |
| T1 99% | 2400.000000 | --- | 2479.4803 | MHz | PASS |
| T2 99% | --- | 2483.500000 | 2480.5293 | MHz | PASS |

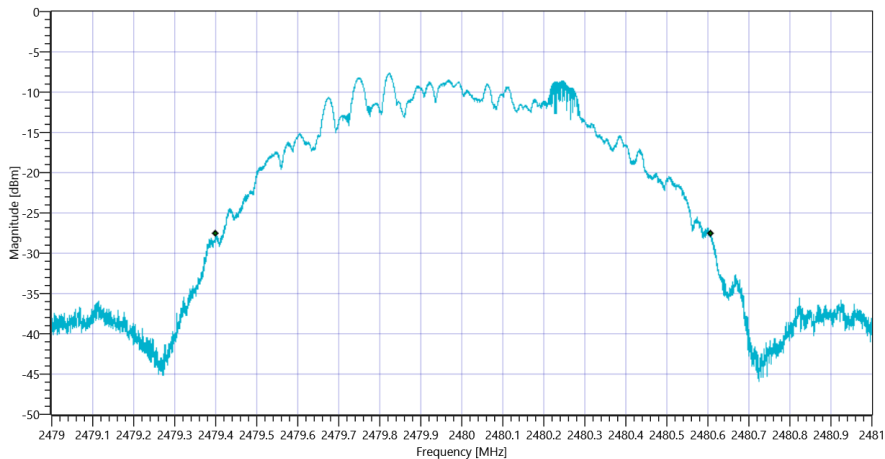


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 99PCT_29042019_131753.png

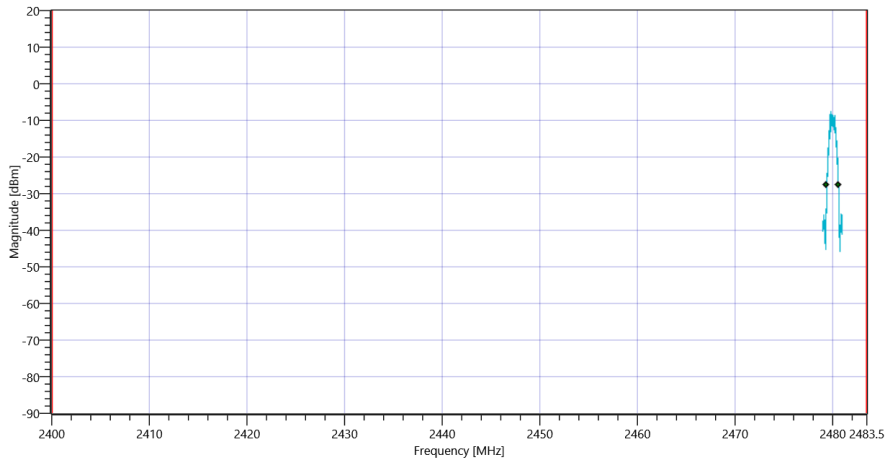


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131756.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|----------------------------------------------------------|-------------|-------------|-----------|------|-------------|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1206 | kHz | Information |
| T1 20dB | 2400.000000 | --- | 2479.4012 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2480.6068 | MHz | PASS |



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_29042019_131800.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_29042019_131803.png

TEST FINISHED

General Verdict

29.04.2019 13:18:03 / RT: 104 s

PASS

5. FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps

| Test References | |
|----------------------------|----------------------------------------------------------------------------------------------------------------|
| TC Start | 29.04.2019 13:18:07 |
| System Version | 1.0.0.14 |
| 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 ID | TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1 TCID_FCC15247_8 |
| 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 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

Test at TX 2402 MHz

RESULT: DTM Connection check

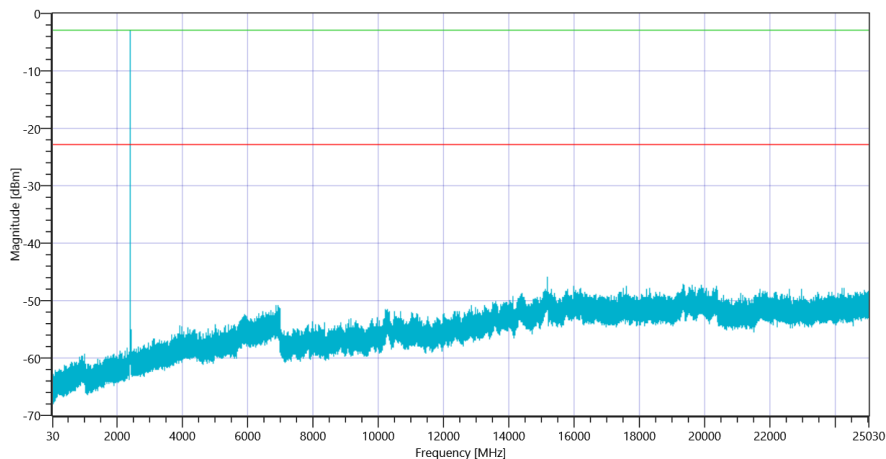
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

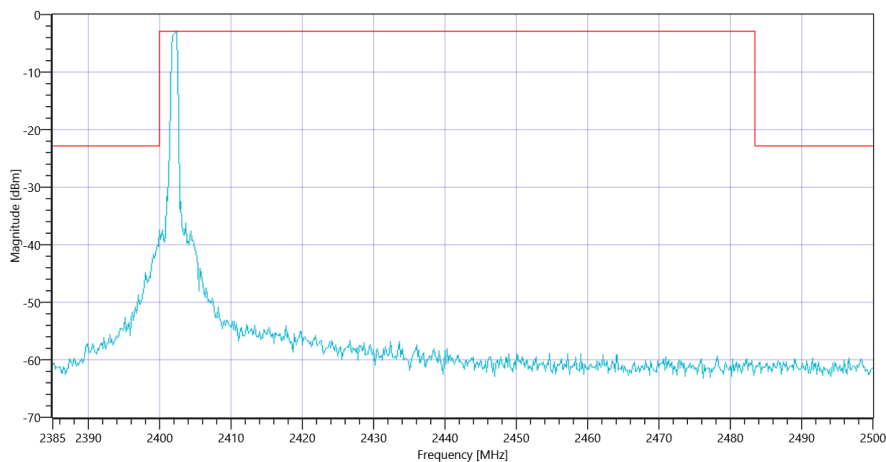
| | |
|----------------------|----------|
| Ref. Level [dBm] | 4.16 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 3001 |
| Sweep Count | 8 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------|-------------|-------------|----------|------|-------------|
| Reference @ 2402.33 MHz | --- | --- | -2.90 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402_29042019_132249.png



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402_29042019_132252.png

Test at TX 2440 MHz

RESULT: DTM Connection check

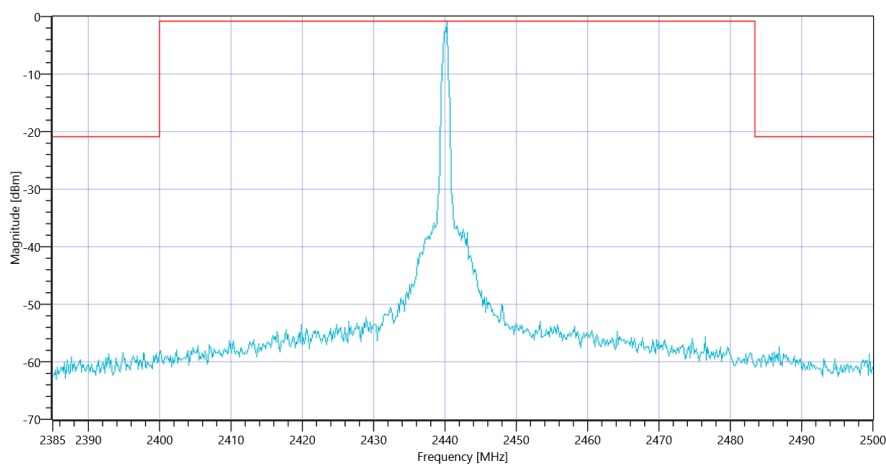
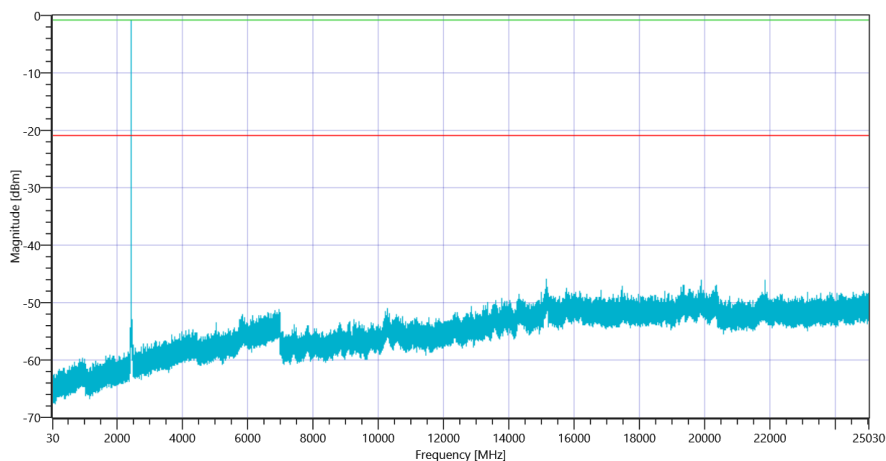
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|----------------------|----------|
| Ref. Level [dBm] | 4.92 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 3001 |
| Sweep Count | 8 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------|-------------|-------------|----------|------|-------------|
| Reference @ 2440.33 MHz | --- | --- | -0.83 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |



Test at TX 2480 MHz

RESULT: DTM Connection check

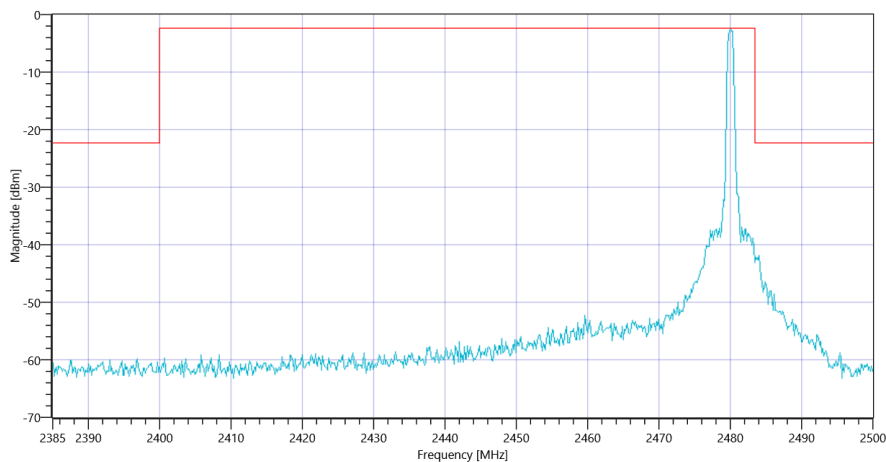
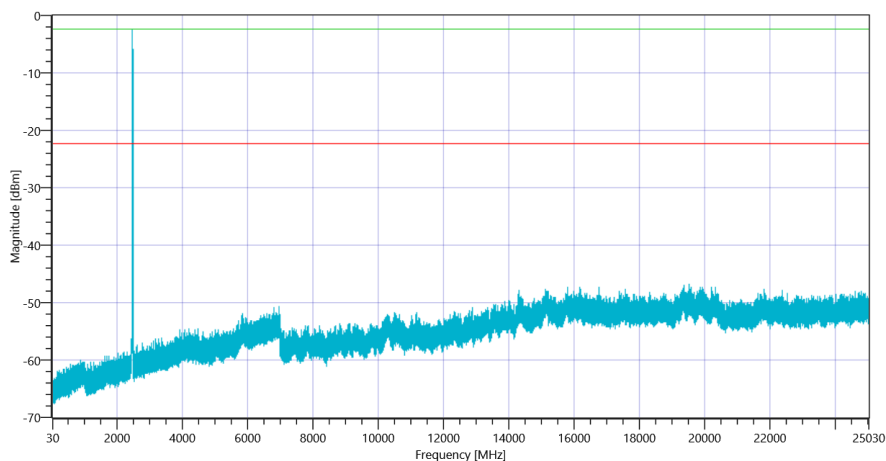
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Connection result | --- | --- | --- | -- | PASS |

READ SA SETTINGS:

| | |
|----------------------|----------|
| Ref. Level [dBm] | 4.41 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 3001 |
| Sweep Count | 8 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------|-------------|-------------|----------|------|-------------|
| Reference @ 2480.00 MHz | --- | --- | -2.32 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |



TEST FINISHED

General Verdict

29.04.2019 13:32:22 / RT: 854 s

PASS

- END OF DOCUMENT -
