# Measurement Results

1-5191/17-01-11_log1_conducted

## Test logging

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# IUT Summary

| IUT DEFINITION | |
|---|---|
| Manufacturer | Sennheiser electronic |
| Type | XS Wireless Digital |
| Serial No. | 1288000127 |
| Setup No. | NI |
| SW Version | 0.0.29 |
| HW Version | KG001015024430579094T15G800010008 |
| Comment 1 | TEs-02 |
| Comment 2 | NI |

| IUT Common Settings | |
|---|---|
| Tlow [°C] | -10 |
| Tmid [°C] | 20 |
| Thigh [°C] | 55 |
| Vlow [V] | 3 |
| Vmid [V] | 3.7 |
| Vhigh [V] | 4.2 |
| Imax [A] | 1 |
| Antenna Gain [dBi] | 0.8 |
| Additional Path Loss [dB] | 1.1 |

| IUT Common Settings 2G4 Init Values from IUT file | |
|---|---|
| Hopping supported | No |
| Frequency low [MHz] | 2403 |
| Frequency mid [MHz] | 2443 |
| Frequency high [MHz] | 2481 |
| Burst length [ms] | 1 |
| Nominal Bandwidth [MHz] | 1.4 |
| User Interaction | Yes |

# 1. FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4

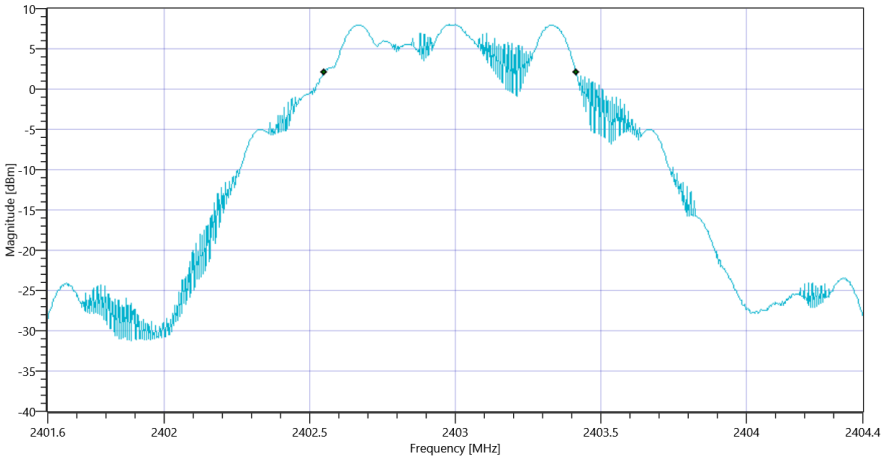
| Test References | |
|---|---|
| TC Start | 30.07.2018 16:43:23 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V04 - Chapter 9.1.1 RBW >= DTS Bandwidth |
| Class / TC Version / TC ID | TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1 \| TCID_FCC15247_3 |
| My Description | FCC 15.247 Maximum Peak Output Power Conducted DTS4 - Generic 2G4 |
| Add. Information | |

| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.60 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2401.600 |
| Freq. Stop [MHz] | 2404.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 0.868 | MHz | Information |

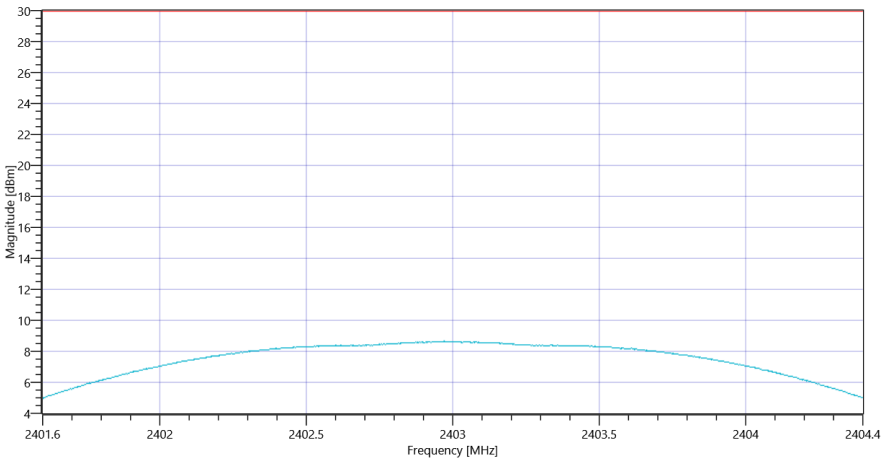



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4 DTS BW _30072018_164402.png

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 18.60 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2401.600 |
| Freq. Stop [MHz] | 2404.400 |
| Resolution BW. [MHz] | 2.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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 | 8.66 | dBm | PASS |
| Peak Power | --- | 1000 | 7.345139 | mW | PASS |

| | | | | | |
|---|---|---|---|---|---|
| Frequency at Peak | --- | --- | 2402.969 | MHz | Information |

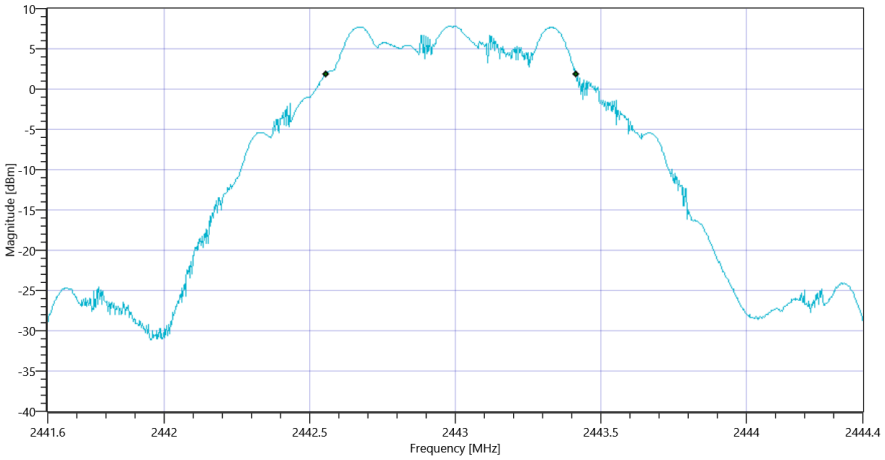



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4_30072018_164416.png

## Test at TX 2443 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.35 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2441.600 |
| Freq. Stop [MHz] | 2444.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 0.86 | MHz | Information |

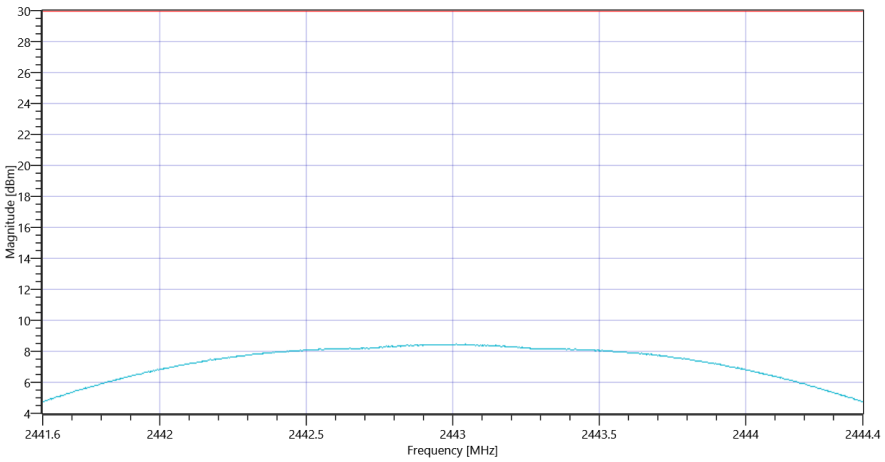



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4 DTS BW _30072018_164510.png

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 18.35 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2441.600 |
| Freq. Stop [MHz] | 2444.400 |
| Resolution BW. [MHz] | 2.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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 | 8.46 | dBm | PASS |
| Peak Power | --- | 1000 | 7.014553 | mW | PASS |

| | | | | | |
|---|---|---|---|---|---|
| Frequency at Peak | --- | --- | 2443.011 | MHz | Information |

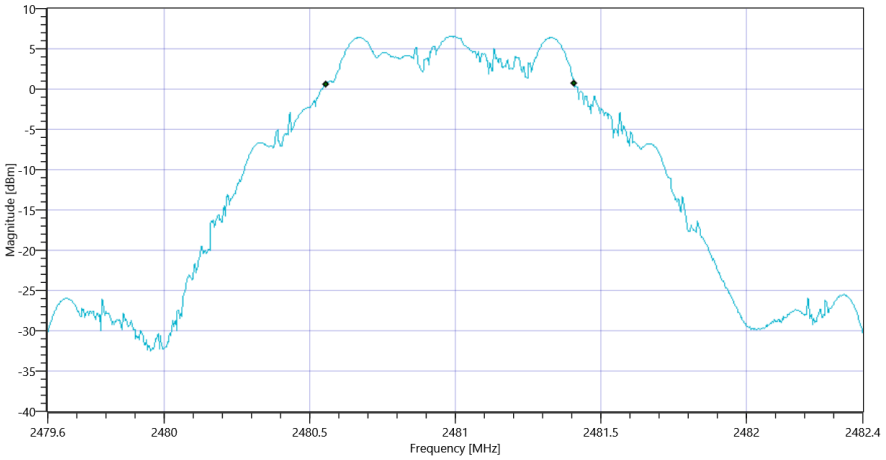



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4_30072018_164525.png

## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.10 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2479.600 |
| Freq. Stop [MHz] | 2482.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

| RESULT: DTS Bandwidth | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| DTS Bandwidth (6dB) | --- | --- | 0.854 | MHz | Information |

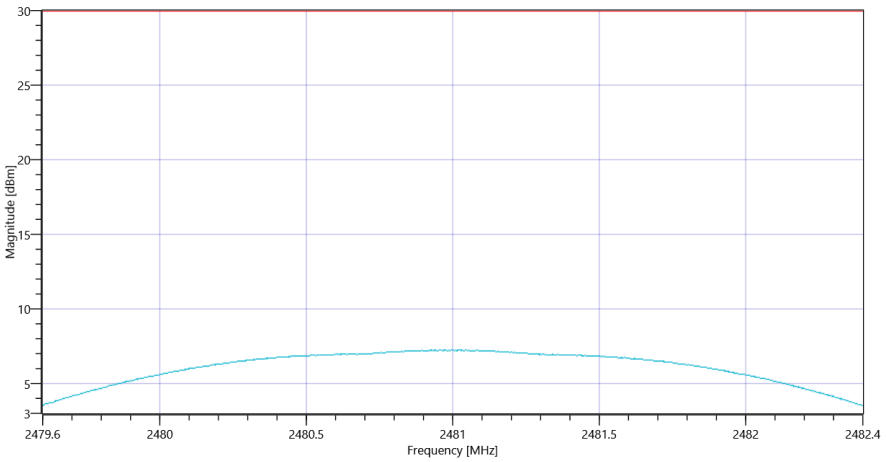



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4 DTS BW _30072018_164614.png

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 17.10 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2479.600 |
| Freq. Stop [MHz] | 2482.400 |
| Resolution BW. [MHz] | 2.000000 |
| Video BW. [MHz] | 5.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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 | 7.25 | dBm | PASS |
| Peak Power | --- | 1000 | 5.308844 | mW | PASS |

| | | | | | |
|---|---|---|---|---|---|
| Frequency at Peak | --- | --- | 2481.003 | MHz | Information |




Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS Generic 2G4_30072018_164629.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 16:46:29 / RT: 186 s | PASS |

# 2. FCC Part 15.247 Bandwidth 6dB DTS Generic 2G4

| Test References | |
|---|---|
| TC Start | 30.07.2018 16:46:31 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V04 - Chapter 8.1 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 - Generic 2G4 |
| Add. Information | |

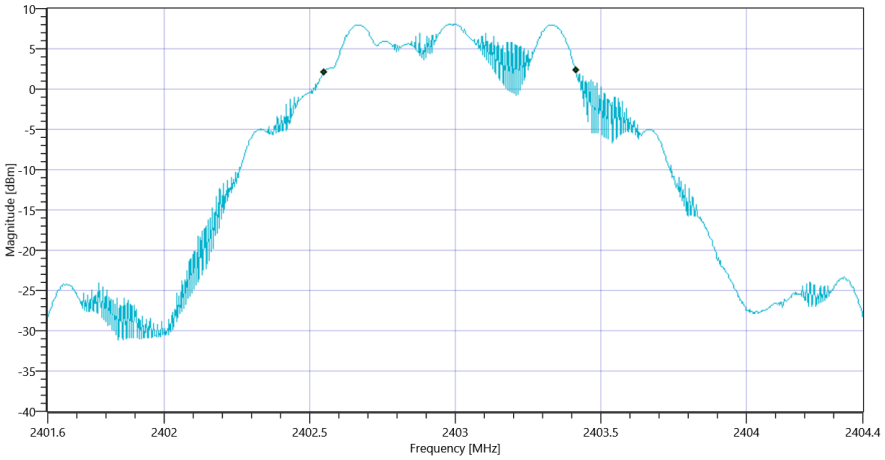
| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.61 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2401.600 |
| Freq. Stop [MHz] | 2404.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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) | 0.500 | --- | 0.865 | MHz | PASS |



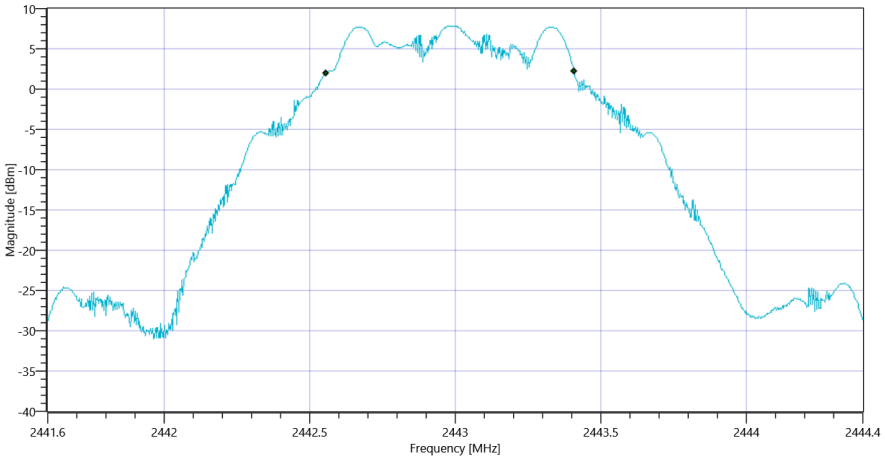

Plot_FCC Part 15.247 Bandwidth 6dB DTS Generic 2G4_30072018_164712.png

## Test at TX 2443 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.37 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2441.600 |
| Freq. Stop [MHz] | 2444.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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) | 0.500 | --- | 0.854 | MHz | PASS |



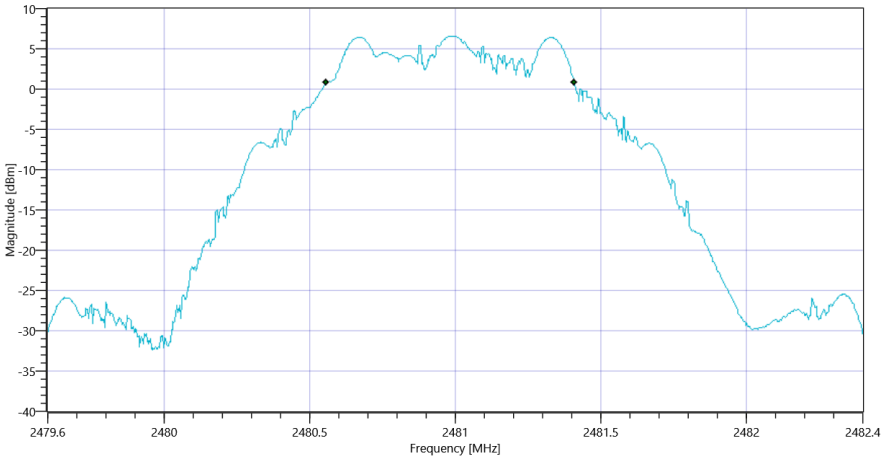

Plot_FCC Part 15.247 Bandwidth 6dB DTS Generic 2G4_30072018_164754.png

## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.14 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2479.600 |
| Freq. Stop [MHz] | 2482.400 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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) | 0.500 | --- | 0.854 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 6dB DTS Generic 2G4_30072018_164836.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 16:48:36 / RT: 125 s | PASS |

# 3. FCC Part 15.247 Peak Power Spectral Density DTS Generic 2G4

| Test References | |
|---|---|
| TC Start | 30.07.2018 16:48:38 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V04 - Chapter 10.2 Peak PSD |
| 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 - Generic 2G4 |
| Add. Information | |

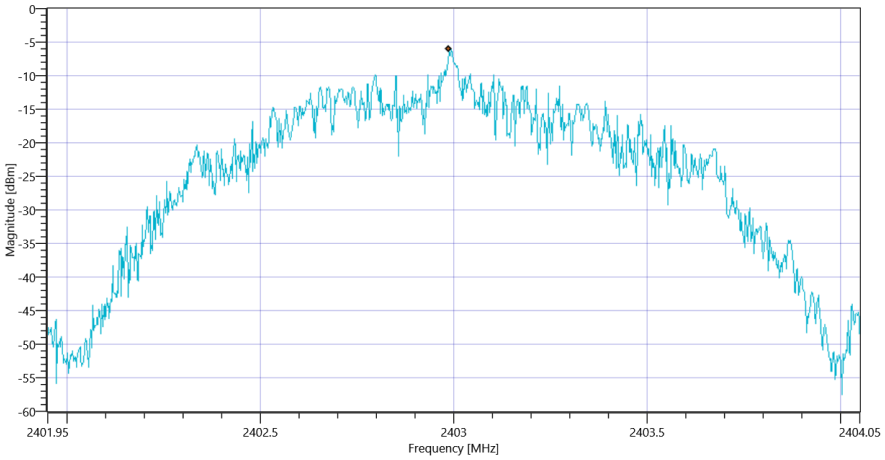
| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.68 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2401.950 |
| Freq. Stop [MHz] | 2404.050 |
| 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 | -6.02 | dBm/3KHz | PASS |

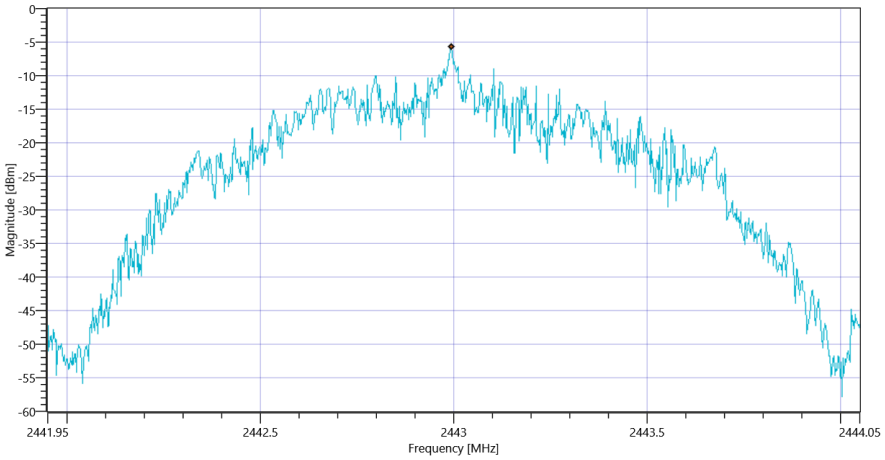



Plot_FCC Part 15.247 Peak Power Spectral Density DTS Generic 2G4_30072018_164937.png

## Test at TX 2443 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.40 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2441.950 |
| Freq. Stop [MHz] | 2444.050 |
| 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 | -5.74 | dBm/3KHz | PASS |

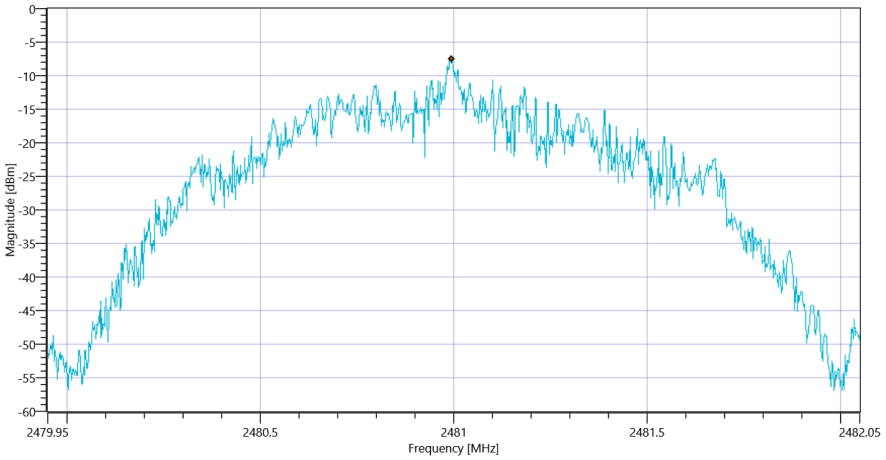



Plot_FCC Part 15.247 Peak Power Spectral Density DTS Generic 2G4_30072018_165026.png

## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.16 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2479.950 |
| Freq. Stop [MHz] | 2482.050 |
| 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 | -7.5 | dBm/3KHz | PASS |




Plot_FCC Part 15.247 Peak Power Spectral Density DTS Generic 2G4_30072018_165116.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 16:51:16 / RT: 157 s | PASS |

# 4. FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4

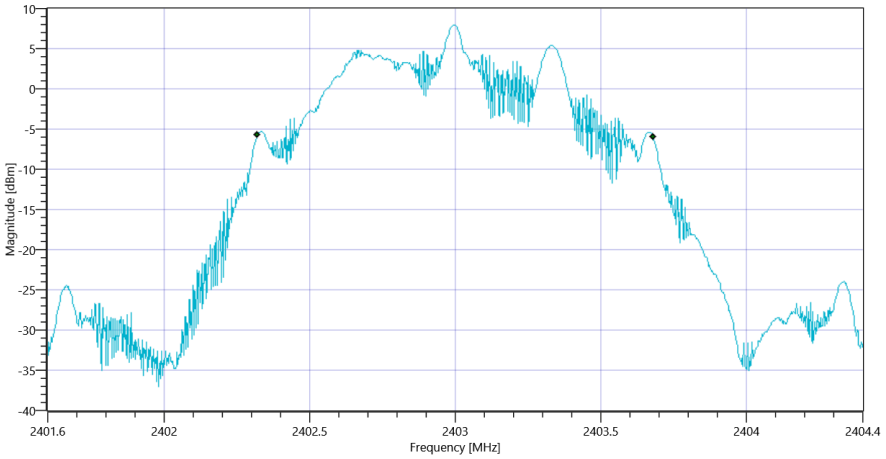
| Test References | |
|---|---|
| TC Start | 30.07.2018 16:51:17 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | |
| Class / TC Version / TC ID | TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2 \| TCID_FCC15247_2 |
| My Description | FCC 15.247 Bandwidth 99PCT - 20dB DTS - Generic 2G4 |
| Add. Information | |

| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

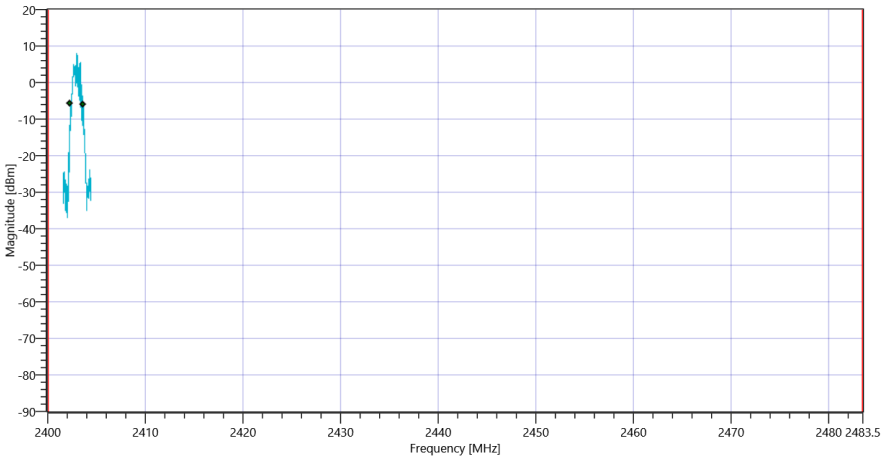
## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.68 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2401.600 |
| Freq. Stop [MHz] | 2404.400 |
| Resolution BW. [MHz] | 0.050000 |
| Video BW. [MHz] | 0.100000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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% | --- | --- | 1.359 | MHz | Information |
| T1 | 2400.000000 | --- | 2402.3203 | MHz | PASS |
| T2 | --- | 2483.500000 | 2403.6797 | MHz | PASS |

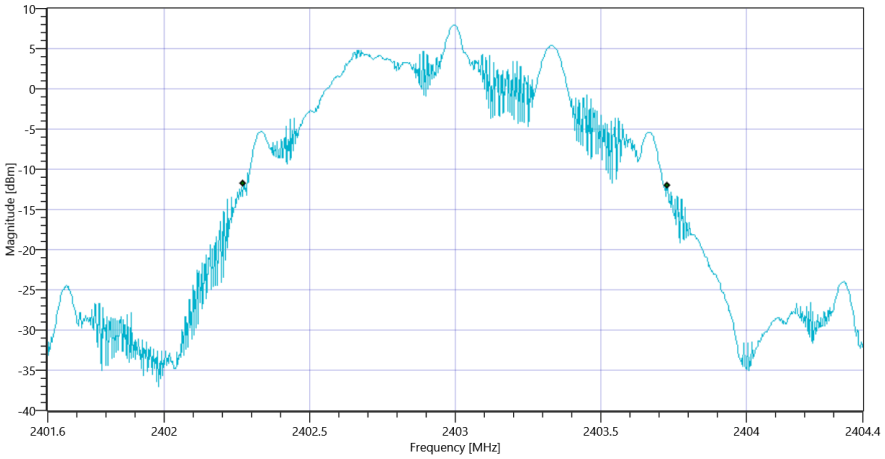



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 99PCT_30072018_165205.png

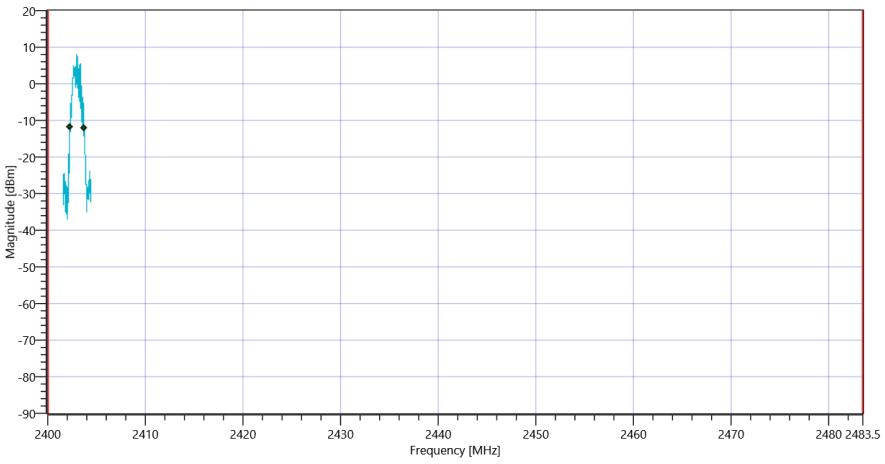



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165208.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1.456 | MHz | Information |
| T1 20dB | 2400.000000 | --- | 2402.2720 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2403.7280 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 20dB_30072018_165211.png



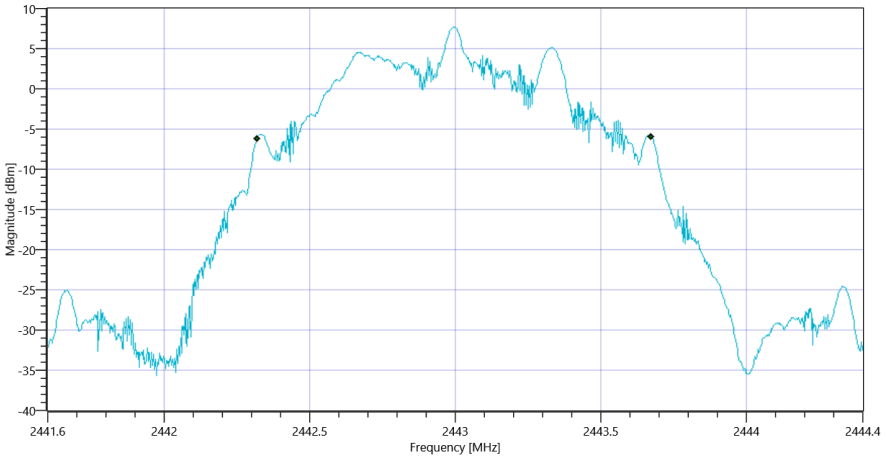

Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165214.png

## Test at TX 2443 MHz

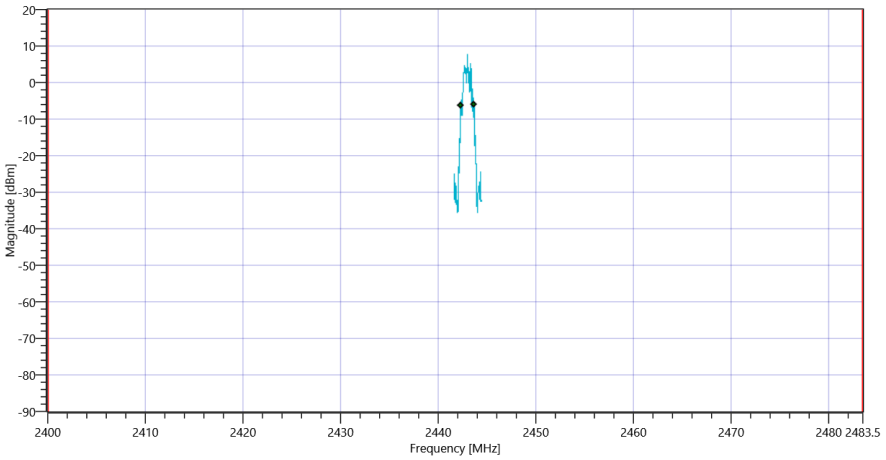
| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.47 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2441.600 |
| Freq. Stop [MHz] | 2444.400 |
| Resolution BW. [MHz] | 0.050000 |
| Video BW. [MHz] | 0.100000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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% | --- | --- | 1.354 | MHz | Information |
| T1 | 2400.000000 | --- | 2442.3203 | MHz | PASS |
| T2 | --- | 2483.500000 | 2443.6741 | MHz | PASS |

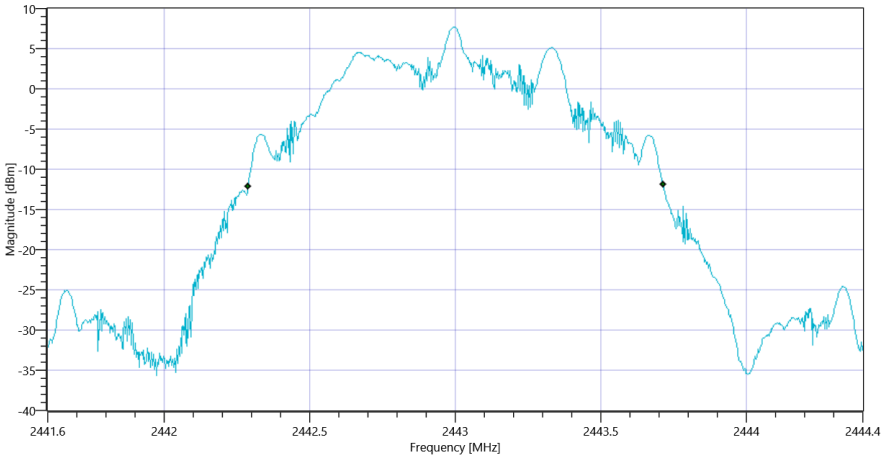



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 99PCT_30072018_165254.png

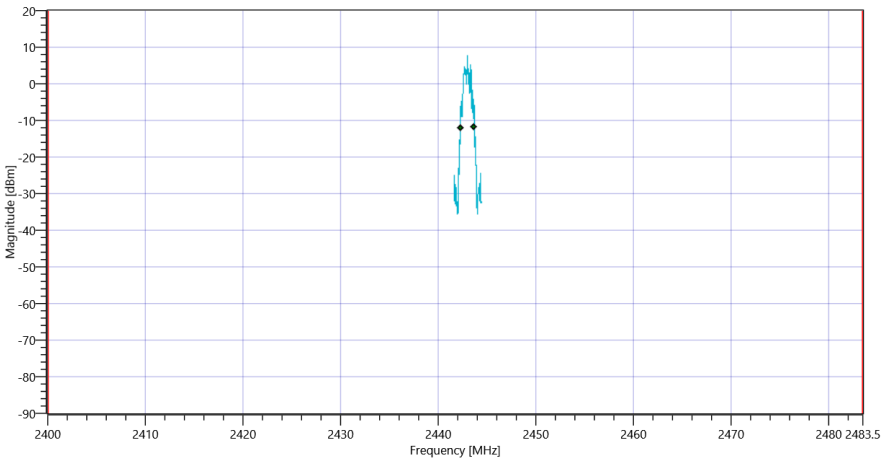



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165257.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Bandwidth 20dB | --- | --- | 1.425 | MHz | Information |
| T1 20dB | 2400.000000 | --- | 2442.2888 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2443.7140 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 20dB_30072018_165301.png

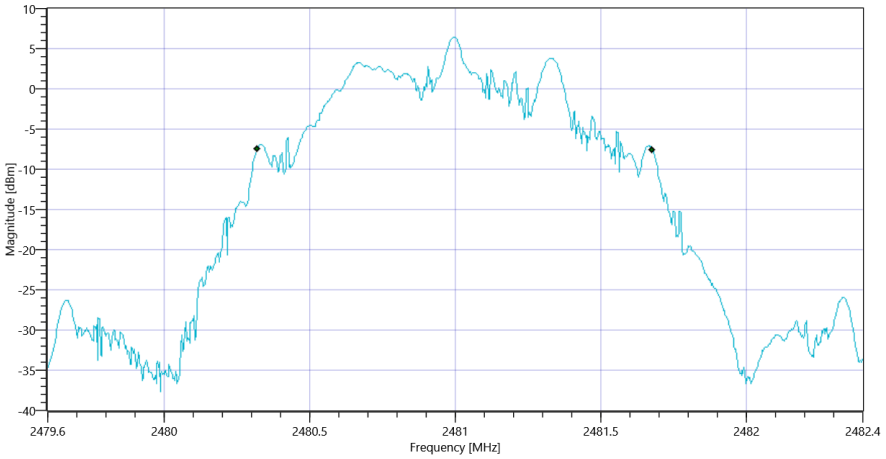



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165304.png

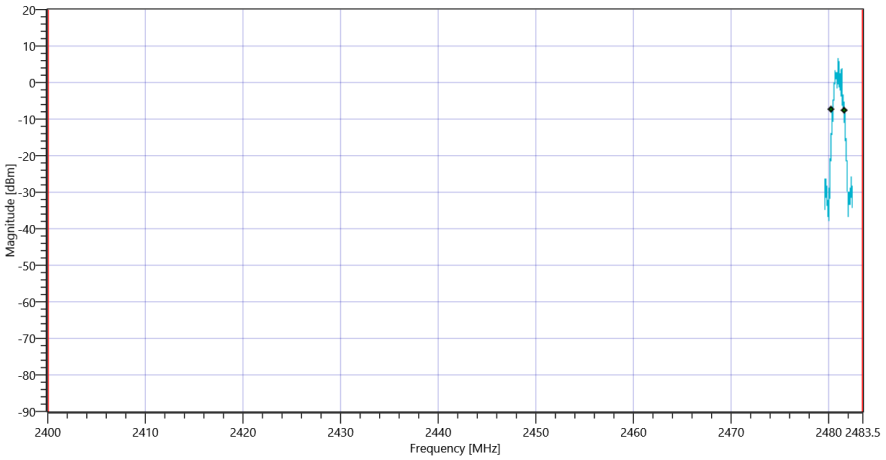
## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.20 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2479.600 |
| Freq. Stop [MHz] | 2482.400 |
| Resolution BW. [MHz] | 0.050000 |
| Video BW. [MHz] | 0.100000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| 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% | --- | --- | 1.357 | MHz | Information |
| T1 | 2400.000000 | --- | 2480.3203 | MHz | PASS |
| T2 | --- | 2483.500000 | 2481.6769 | MHz | PASS |

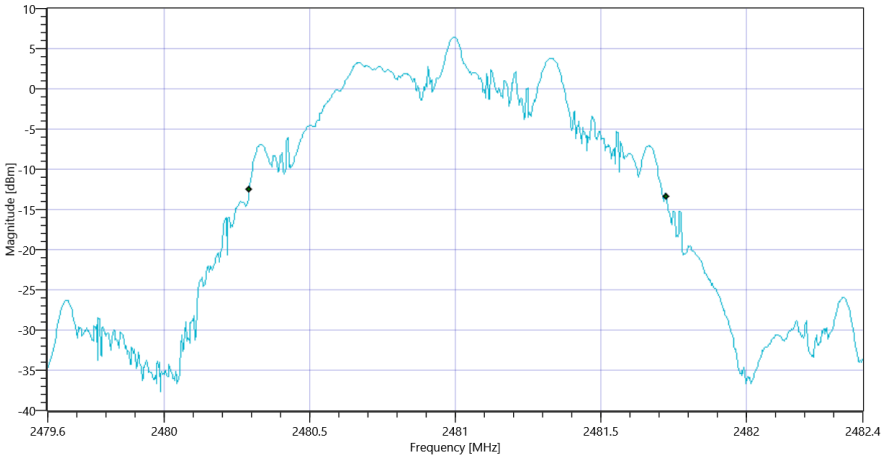



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 99PCT_30072018_165344.png

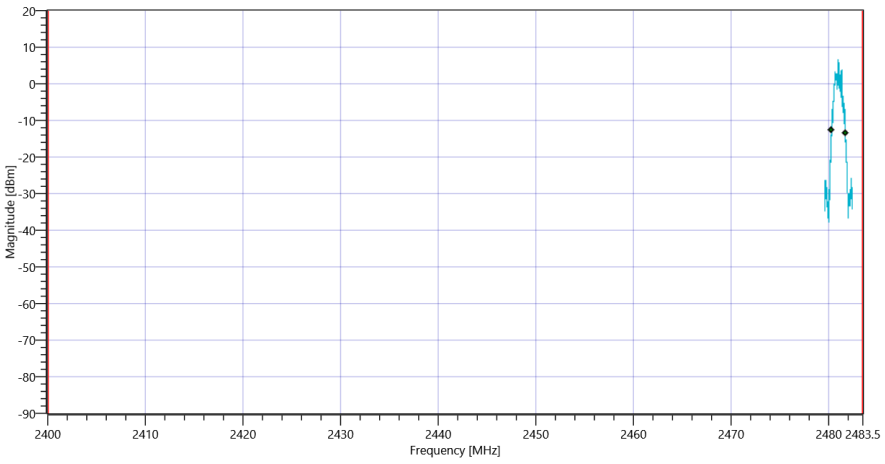



Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165347.png

| RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 | | | | | |
|---|---|---|---|---|---|
| **Test Description** | **Lower Limit** | **Upper Limit** | **Measured** | **Unit** | **Verdict** |
| Bandwidth 20dB | --- | --- | 1.434 | MHz | Information |
| T1 20dB | 2400.000000 | --- | 2480.2916 | MHz | PASS |
| T2 20dB | --- | 2483.500000 | 2481.7252 | MHz | PASS |




Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4 20dB_30072018_165351.png




Plot_FCC Part 15.247 Bandwidth 99PCT - 20dB Generic 2G4_30072018_165354.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 16:53:54 / RT: 156 s | PASS |

# 5. FCC Part 15.247 TX Spurious Conduced Generic 2G4

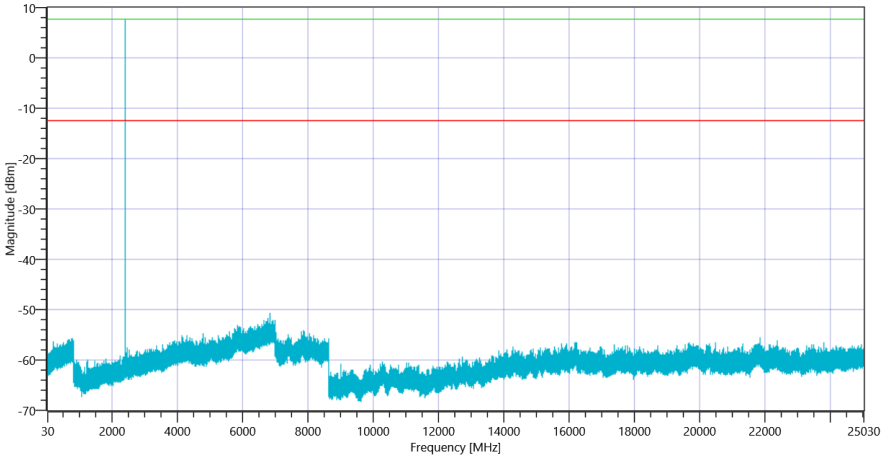
| Test References | |
|---|---|
| TC Start | 30.07.2018 16:53:56 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | |
| Class / TC Version / TC ID | TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1 \| TCID_FCC15247_8 |
| My Description | FCC 15.247 TX Emissions Conducted DTS - Generic 2G4 |
| Add. Information | |

| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

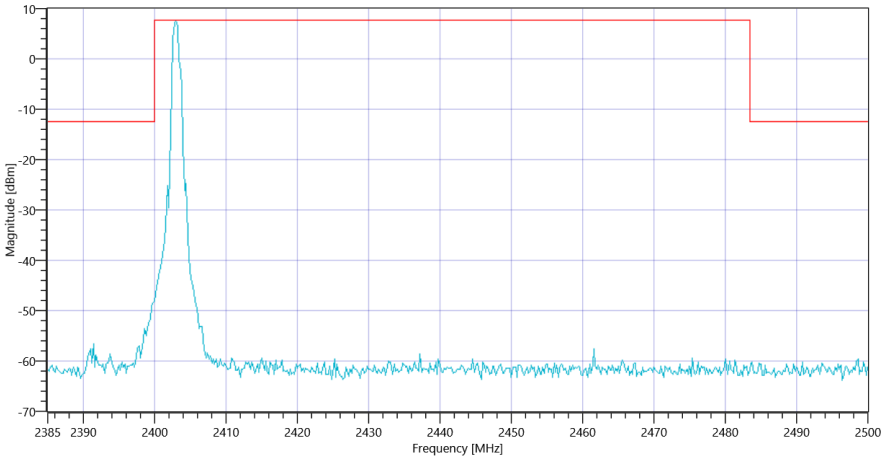
## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.66 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 1001 |
| Sweep Count | 3 |
| 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 @ 2403.00 MHz | --- | --- | 7.63 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |




Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2403_30072018_165950.png

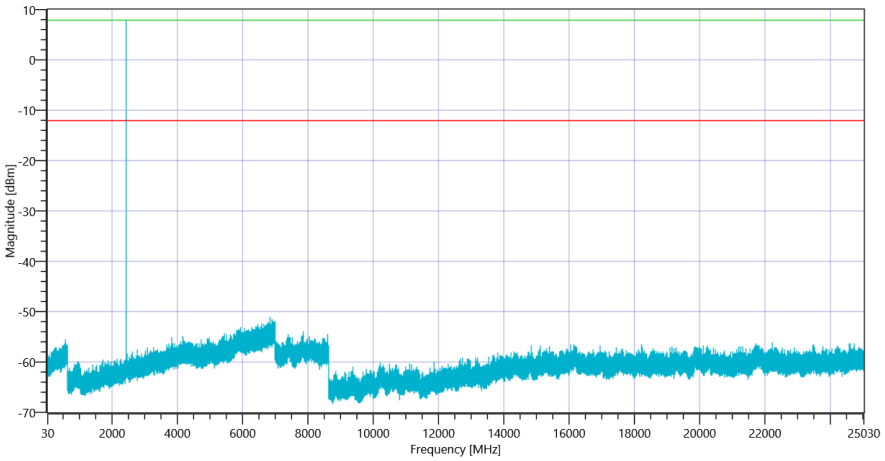



Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2403_30072018_165953.png

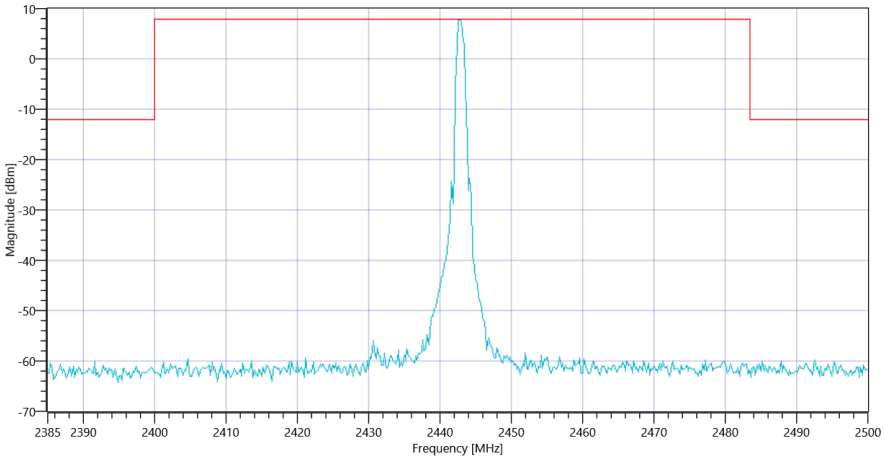
## Test at TX 2443 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.57 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 1001 |
| Sweep Count | 3 |
| 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 @ 2442.60 MHz | --- | --- | 7.87 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |




Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2443_30072018_170931.png



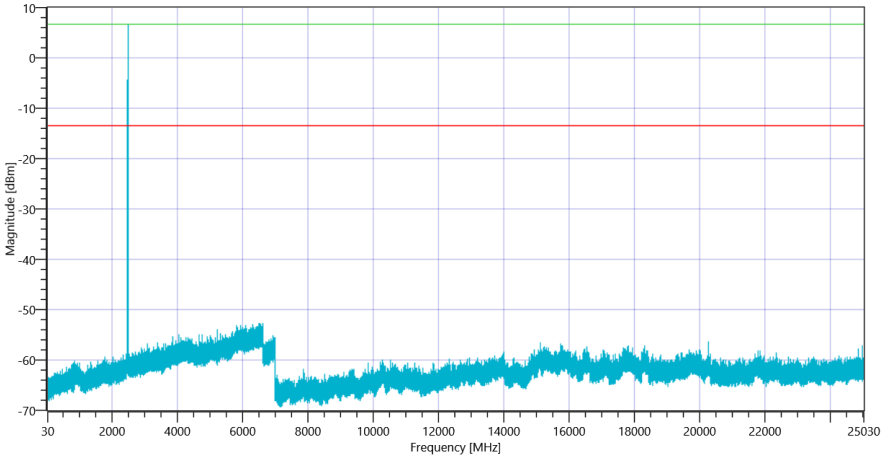

Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2443_30072018_170933.png

## Test at TX 2481 MHz

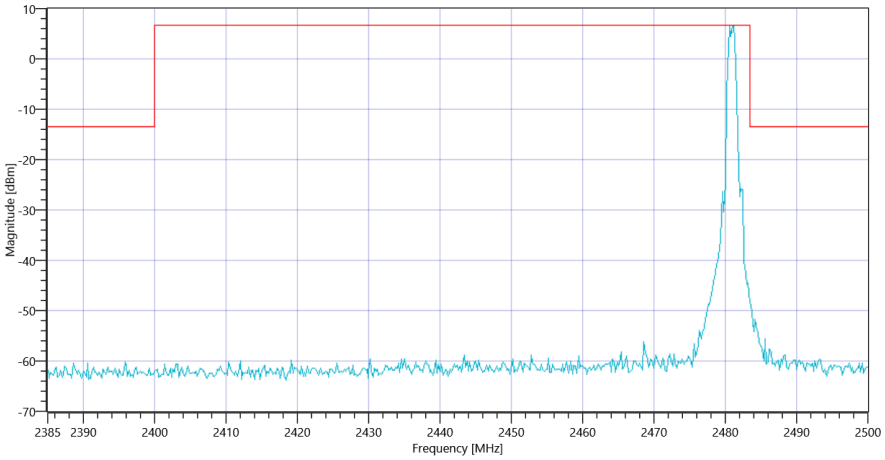
| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.39 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.300000 |
| Detector | POS |
| Sweep Time [ms] | 500 |
| Sweep Points/Section | 1001 |
| Sweep Count | 3 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_FCC15247_TX_Emissions_Conducted_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---|---|---|---|---|---|
| Reference @ 2481.00 MHz | --- | --- | 6.59 | dBm | Information |
| No peaks detected | --- | --- | | | PASS |




Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2481_30072018_172138.png




Plot_FCC Part 15.247 TX Spurious Conduced Generic 2G4 2481_30072018_172140.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 17:21:41 / RT: 1665 s | PASS |

# 6. FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Generic 2G4

| Test References | |
|---|---|
| TC Start | 30.07.2018 17:21:43 |
| System Version | 1.0.0.9 |
| Test Specification | FCC Part 15.247 |
| Test Method | DTS: KDB 558074 D01 V04 - 13.3.3 EUT transmissions with max hold |
| Class / TC Version / TC ID | TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 Version: 0.0.1 \| TCID_FCC15247_7 |
| My Description | FCC 15.247 Restricted Band Edge Conducted Peak DTS - Generic 2G4 |
| Add. Information | |

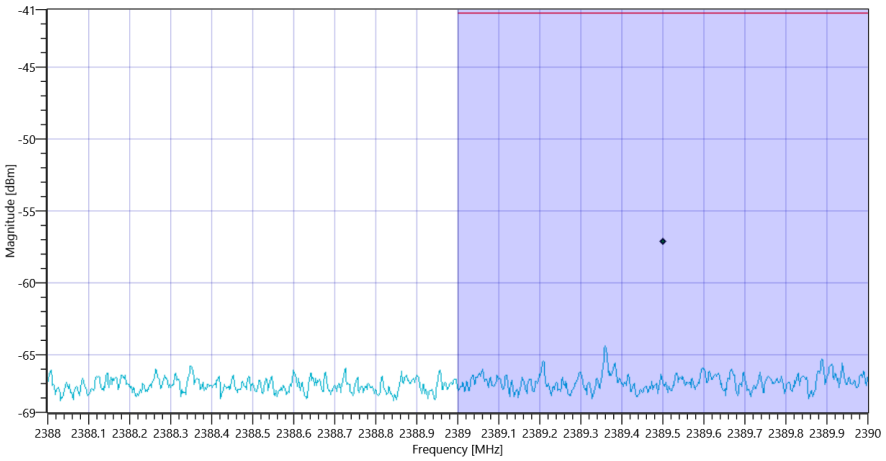
| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | False \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 13.94 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2388.000 |
| Freq. Stop [MHz] | 2390.000 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.005000 |
| Detector | POS |
| Sweep Time [ms] | 3 |
| Sweep Points/Section | 1001 |
| Sweep Count | 300 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |
| Marker Method | Band Power |

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 | -57.13 | dBm | Information |
| Band Power incl. Antenna Gain | --- | -41.23 | -56.33 | dBm | PASS |



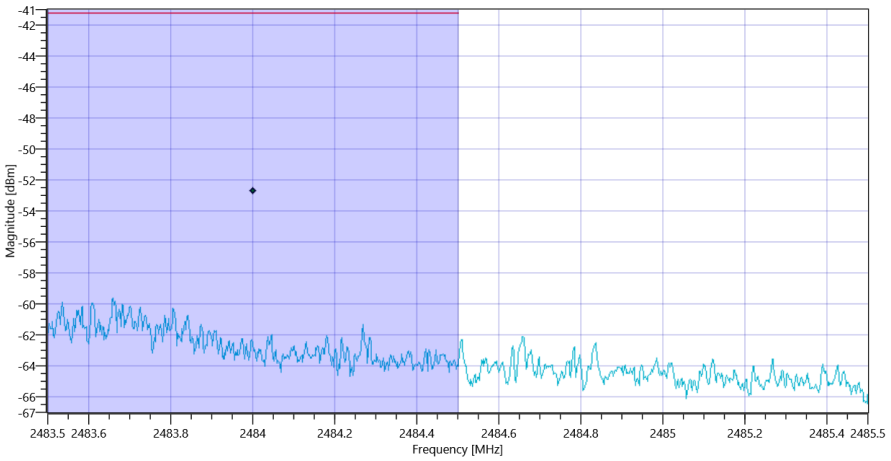

Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Generic 2G4_30072018_173703.png

## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 12.46 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 20 |
| Freq. Start [MHz] | 2483.500 |
| Freq. Stop [MHz] | 2485.500 |
| Resolution BW. [MHz] | 0.100000 |
| Video BW. [MHz] | 0.005000 |
| Detector | POS |
| Sweep Time [ms] | 3 |
| Sweep Points/Section | 1001 |
| Sweep Count | 300 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |
| Marker Method | Band Power |

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 | -52.7 | dBm | Information |
| Band Power incl. Antenna Gain | --- | -41.23 | -51.9 | dBm | PASS |




Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Generic 2G4_30072018_173743.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 30.07.2018 17:37:43 / RT: 960 s | PASS |

# 7. Common2G4 Peak Output Power conducted 3MHz_3MHz Generic 2G4

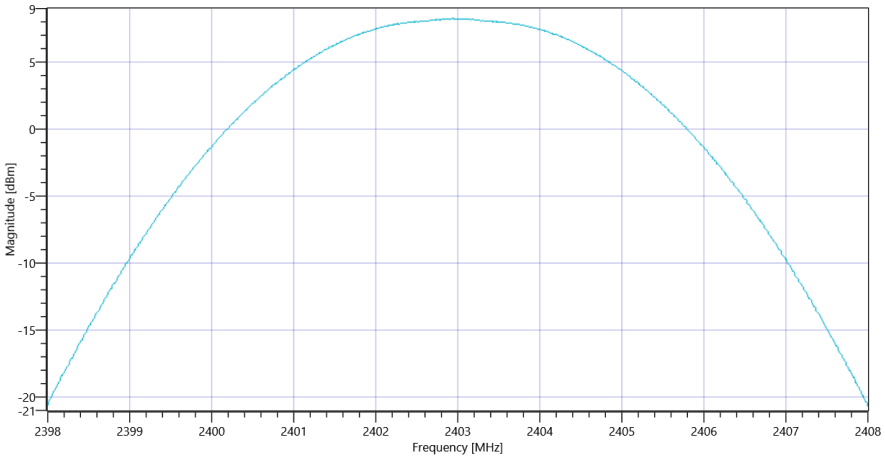
| Test References | |
|---|---|
| TC Start | 01.08.2018 11:34:45 |
| System Version | 1.0.0.9 |
| Test Specification | None |
| Test Method | |
| Class / TC Version / TC ID | TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 Version: 0.0.1 \| TCID_Common2G4_1 |
| My Description | Peak Output Power conducted 3MHz/3MHz - Generic 2G4 |
| Add. Information | |

| Test Parameter | |
|---|---|
| Technology to test | Generic 2G4 |
| Antenna Port used | 1 |
| Temperature | mid |
| Voltage | mid |
| Frequency low to test | True \| Freq [MHz] 2403 |
| Frequency mid to test | True \| Freq [MHz] 2443 |
| Frequency high to test | True \| Freq [MHz] 2481 |
| Pattern | PRBS9 |
| Switched Path | IUT - SignalingUnit - SpectrumAnalyzer |
| Devices in use | SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.40 \| SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40 |

## Test at TX 2403 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 18.18 |
| Ref. Lev. offs [dB] | 10.9 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2398.000 |
| Freq. Stop [MHz] | 2408.000 |
| Resolution BW. [MHz] | 3.000000 |
| Video BW. [MHz] | 3.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

| RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 | | | | | |
|---|---|---|---|---|---|
| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
| Peak Power | --- | 30.00 | 8.25 | dBm | Information |
| Peak Power | --- | 1000 | 6.683439 | mW | Information |
| Frequency at Peak | --- | --- | 2402.95 | MHz | Information |



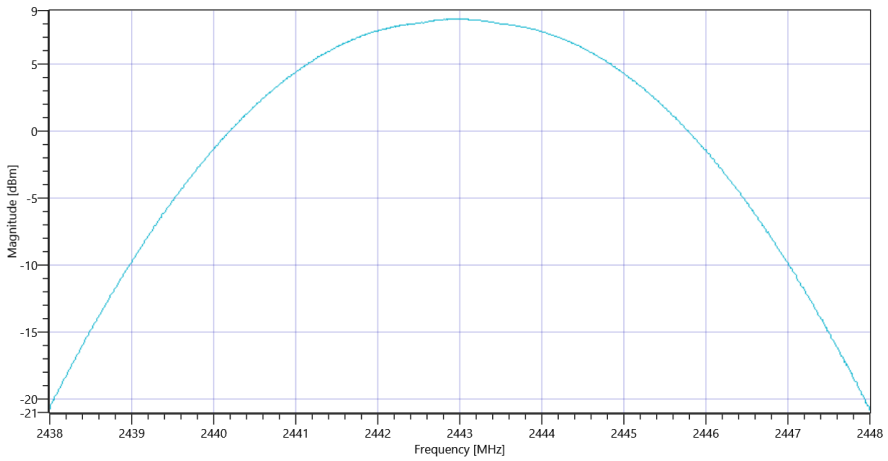

Plot_Common2G4 Peak Output Power conducted 3MHz_3MHz Generic 2G4_01082018_113604.png

## Test at TX 2443 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 18.26 |
| Ref. Lev. offs [dB] | 11.01 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2438.000 |
| Freq. Stop [MHz] | 2448.000 |
| Resolution BW. [MHz] | 3.000000 |
| Video BW. [MHz] | 3.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---|---|---|---|---|---|
| Peak Power | --- | 30.00 | 8.35 | dBm | Information |
| Peak Power | --- | 1000 | 6.839116 | mW | Information |
| Frequency at Peak | --- | --- | 2443.07 | MHz | Information |



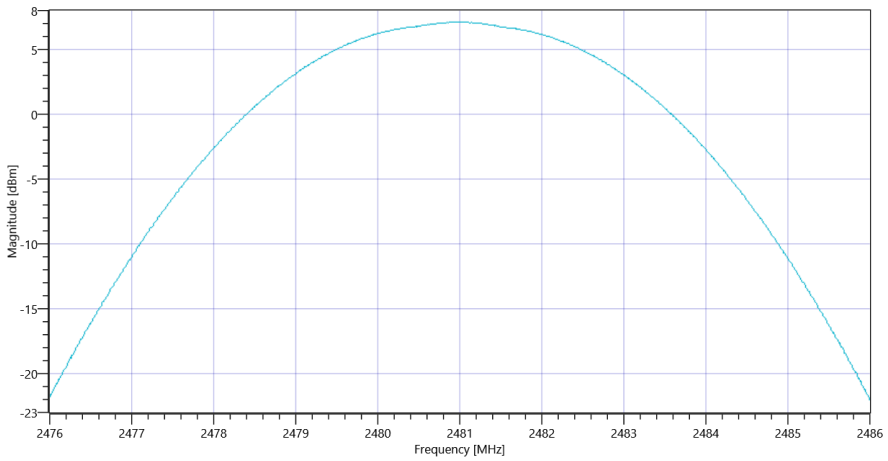

Plot_Common2G4 Peak Output Power conducted 3MHz_3MHz Generic 2G4_01082018_113702.png

## Test at TX 2481 MHz

| READ SA SETTINGS: | |
|---|---|
| Ref. Level [dBm] | 16.94 |
| Ref. Lev. offs [dB] | 11.06 |
| Input Attenuation [dB] | 25 |
| Freq. Start [MHz] | 2476.000 |
| Freq. Stop [MHz] | 2486.000 |
| Resolution BW. [MHz] | 3.000000 |
| Video BW. [MHz] | 3.000000 |
| Detector | POS |
| Sweep Time [ms] | 1000 |
| Sweep Points/Section | 1001 |
| Sweep Count | 10 |
| Sweep Mode | MAXH |
| Used Sweep Type | SWE |

RESULT: TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01

| Test Description | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---|---|---|---|---|---|
| Peak Power | --- | 30.00 | 7.1 | dBm | Information |
| Peak Power | --- | 1000 | 5.128614 | mW | Information |
| Frequency at Peak | --- | --- | 2480.9 | MHz | Information |




Plot_Common2G4 Peak Output Power conducted 3MHz_3MHz Generic 2G4_01082018_113744.png

| TEST FINISHED | | |
|---|---|---|
| General Verdict | 01.08.2018 11:37:44 / RT: 179 s | PASS |