

# Measurement Results

1-9205/19-02-03\_log1\_conducted

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## IUT Summary

IUT DEFINITION & Common settings	
Manufacturer	Panasonic Industrial Devices Europe GmbH
Type	PAN1740A
Serial No.   Setup No.	NI   1.0
SW Version   HW Version	01   02
Comment 1   2	
Tlow   Tmid   Thigh [°C]	-40   20   85
Vlow   Vmid   Vhigh [V] @Imax [A]	5.0   5.0   5.0 @1
Auto Control enabled Power Supply   Climatic Box	No   No
Antenna Gain [dBi]	0
Additional Path Loss [dB]	1.2

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 255   RXpayload 255
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   24   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## 1. Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps

Test References	
TC Start	09.12.2019 11:48:11
System Version	1.0.0.24
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 - BT LE 1 Msps
Add. Information	

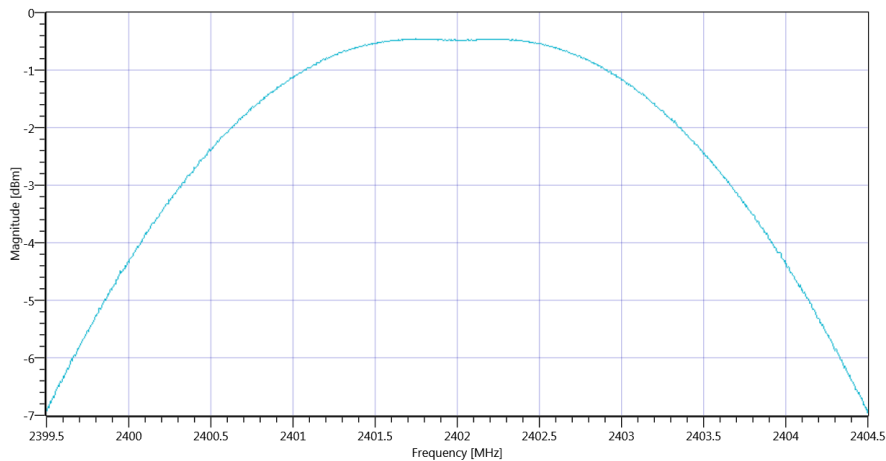
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   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	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.56   11.01   15
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	---	---	-0.46	dBm	Information
Peak Power	---	---	0.899498	mW	Information
Frequency at Peak	---	---	2401.745	MHz	Information



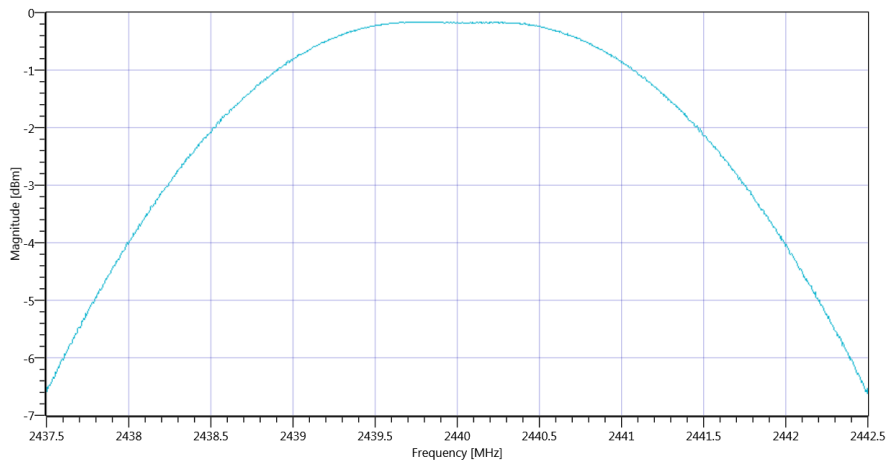
Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps\_09122019\_114837.png

## Test at TX 2440 MHz

RESULT: DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.89   11.1   15
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	---	---	-0.16	dBm	Information
Peak Power	---	---	0.963829	mW	Information
Frequency at Peak	---	---	2439.765	MHz	Information



Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps\_09122019\_114901.png

## Test at TX 2480 MHz

### RESULT: DTM Connection check

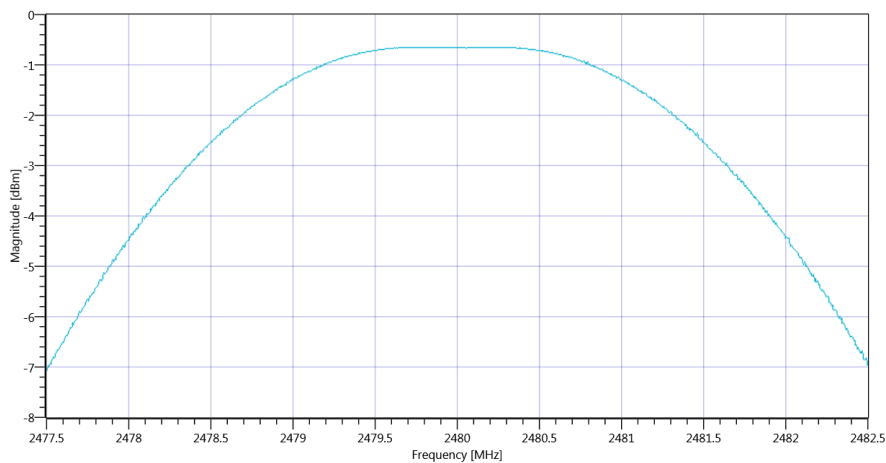
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.37   11.15   15				
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	---	---	-0.65	dBm	Information
Peak Power	---	---	0.860994	mW	Information
Frequency at Peak	---	---	2479.715	MHz	Information



Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps\_09122019\_114925.png

### TEST FINISHED

General Verdict

09.12.2019 11:49:25 / RT: 74 s

PASS

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

Test References	
TC Start	09.12.2019 11:51:48
System Version	1.0.0.24
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 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
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60



## Test at TX 2402 MHz

### RESULT: DTM Connection check

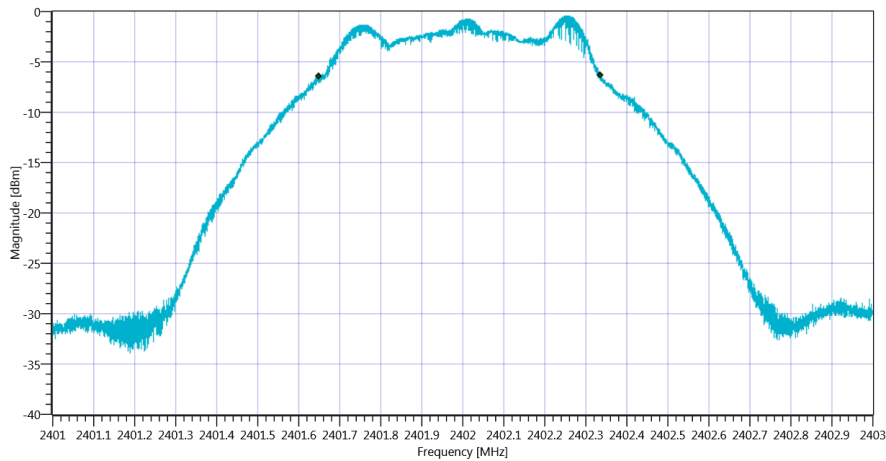
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.54   11.01   10				
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)	---	---	687	kHz	Information



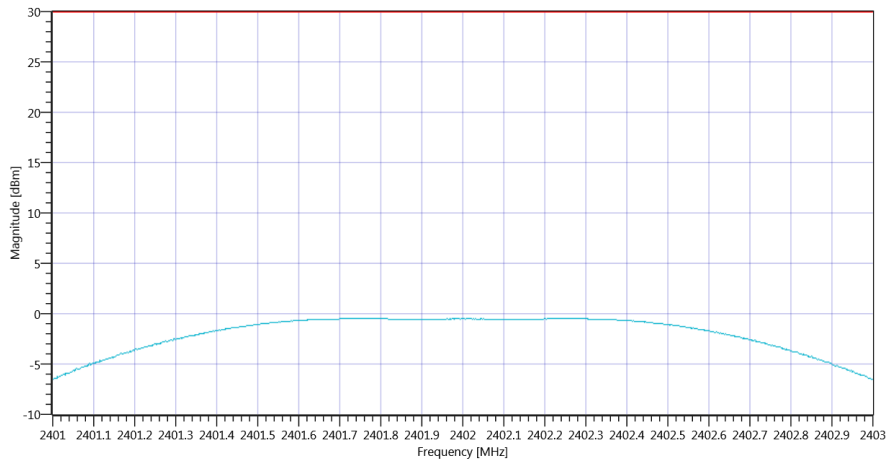
Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW \_09122019\_115214.png

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.54   11.01   15				
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	-0.51	dBm	PASS
Peak Power	---	1000	0.889201	mW	PASS
Frequency at Peak	---	---	2401.756	MHz	Information



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_09122019\_115228.png

## Test at TX 2440 MHz

### RESULT: DTM Connection check

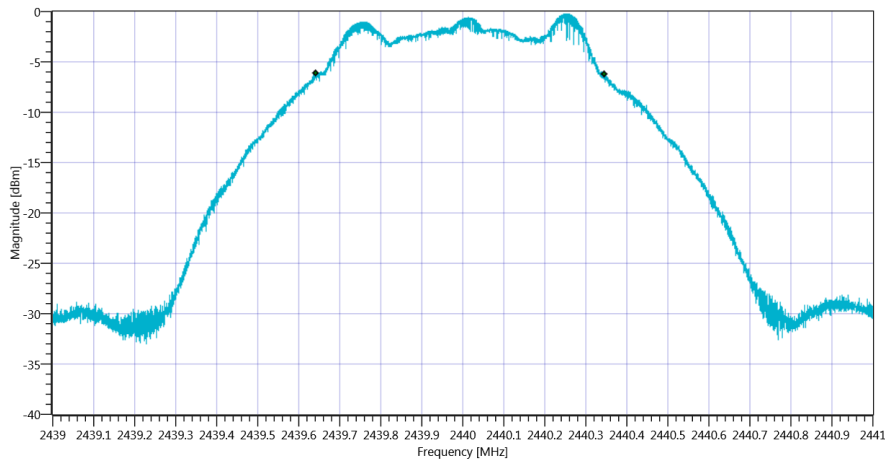
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.86   11.1   10				
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)	---	---	702	kHz	Information

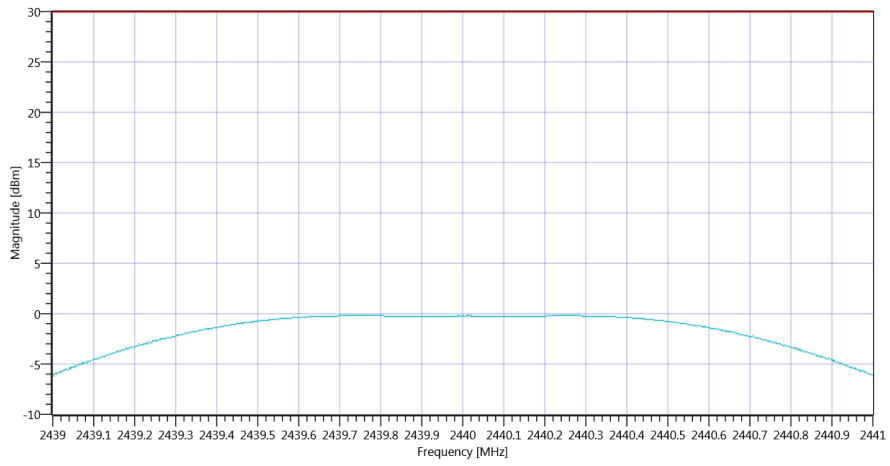


### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.86   11.1   15				
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	-0.21	dBm	PASS
Peak Power	---	1000	0.952796	mW	PASS
Frequency at Peak	---	---	2439.748	MHz	Information



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_09122019\_115308.png

## Test at TX 2480 MHz

### RESULT: DTM Connection check

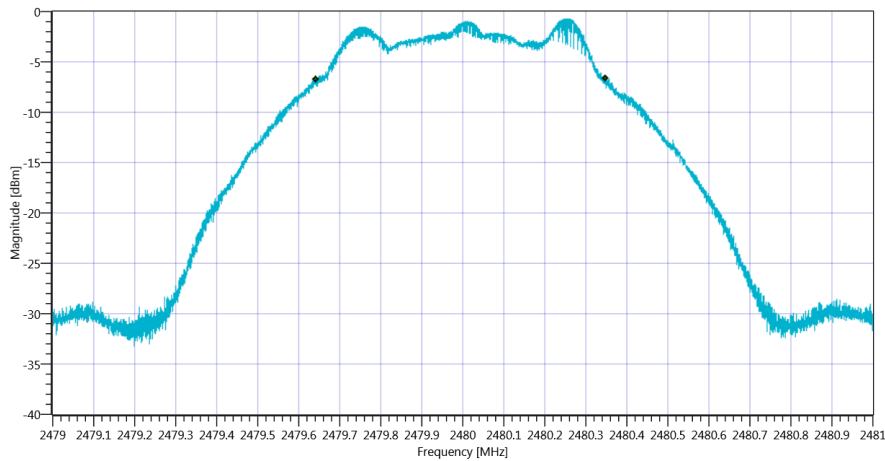
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.37   11.15   10				
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)	---	---	706	kHz	Information



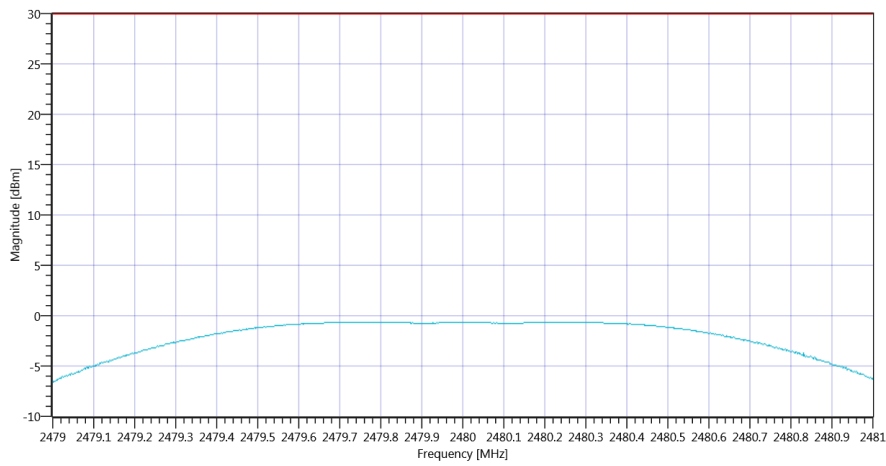
Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps DTS BW \_09122019\_115334.png

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.37   11.15   15				
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	-0.68	dBm	PASS
Peak Power	---	1000	0.855067	mW	PASS
Frequency at Peak	---	---	2479.792	MHz	Information



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_09122019\_115349.png

TEST FINISHED

General Verdict

09.12.2019 11:53:49 / RT: 120 s

PASS

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

Test References	
TC Start	09.12.2019 11:53:53
System Version	1.0.0.24
Test Specification	FCC Part 15.247
Test Method	99
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 Msp
Add. Information	

Test Parameter	
Technology to test	BT LE 1 Msp
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	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

## Test at TX 2402 MHz

RESULT: DTM Connection check

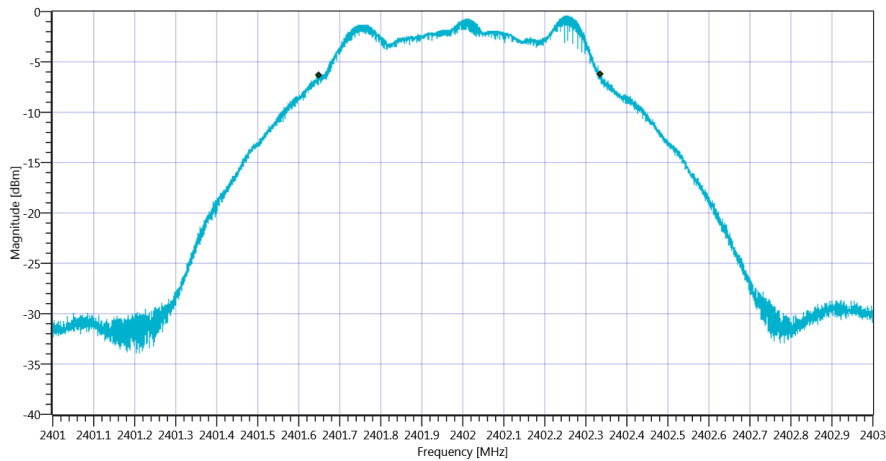
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.53   11.01   10				
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	---	686	kHz	PASS



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_09122019\_115418.png

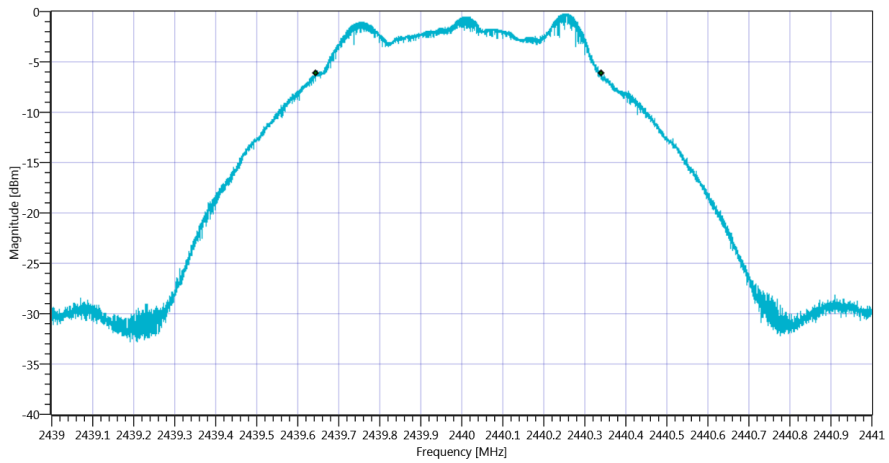


## Test at TX 2440 MHz

RESULT: DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.84   11.1   10
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	---	697	kHz	PASS



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_09122019\_115443.png

## Test at TX 2480 MHz

**RESULT: DTM Connection check**

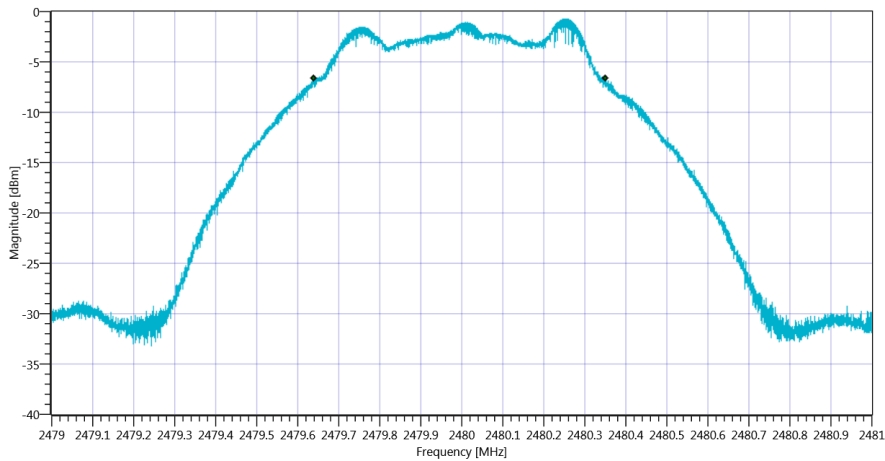
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.33   11.15   10				
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	---	711	kHz	PASS



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_09122019\_115508.png

**TEST FINISHED**

General Verdict	09.12.2019 11:55:09 / RT: 75 s	PASS
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## 4. FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps

Test References	
TC Start	09.12.2019 11:55:12
System Version	1.0.0.24
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	

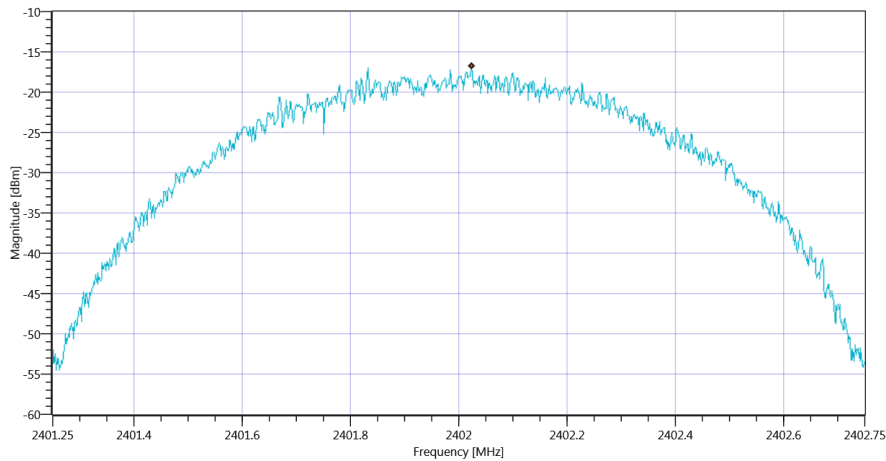
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

## Test at TX 2402 MHz

RESULT: DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.53   11.01   10
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	-16.85	dBm/3KHz	PASS



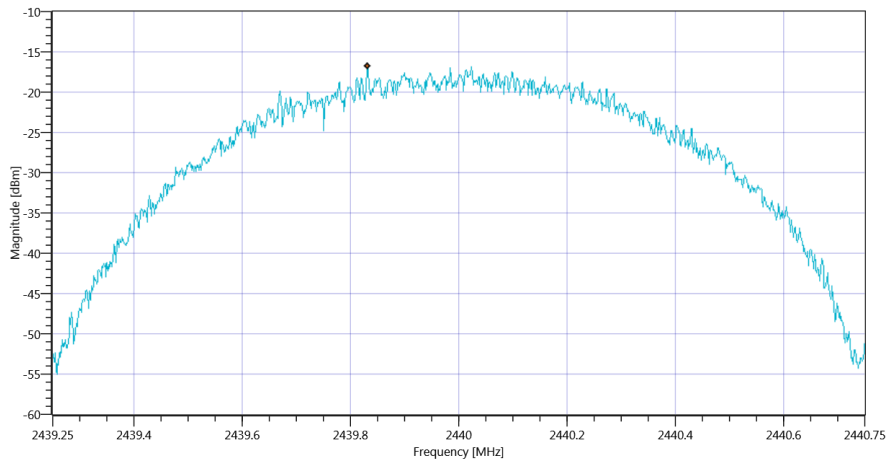
Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_09122019\_115547.png

## Test at TX 2440 MHz

RESULT: DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.83   11.1   10
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	-16.79	dBm/3KHz	PASS



Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_09122019\_115621.png

## Test at TX 2480 MHz

**RESULT: DTM Connection check**

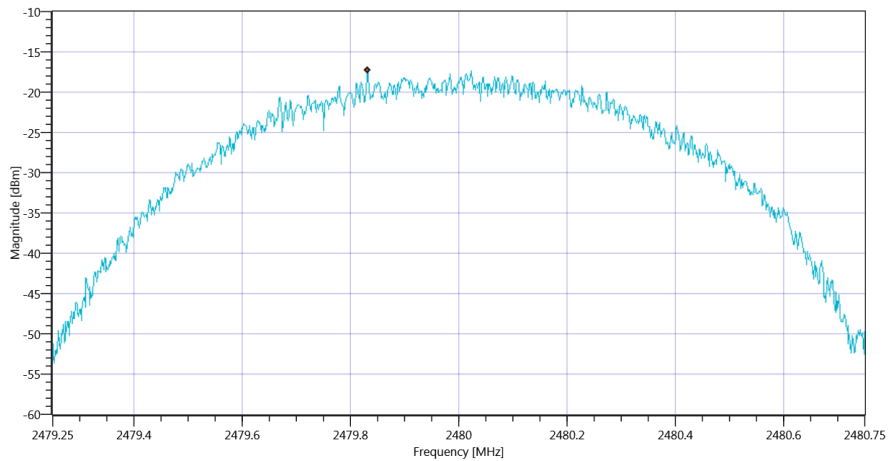
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.34   11.15   10				
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	-17.35	dBm/3KHz	PASS



Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_09122019\_115655.png

**TEST FINISHED**

General Verdict	09.12.2019 11:56:55 / RT: 102 s	PASS
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## 5. FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps

Test References	
TC Start	09.12.2019 11:56:59
System Version	1.0.0.24
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
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

## Test at TX 2402 MHz

RESULT: DTM Connection check

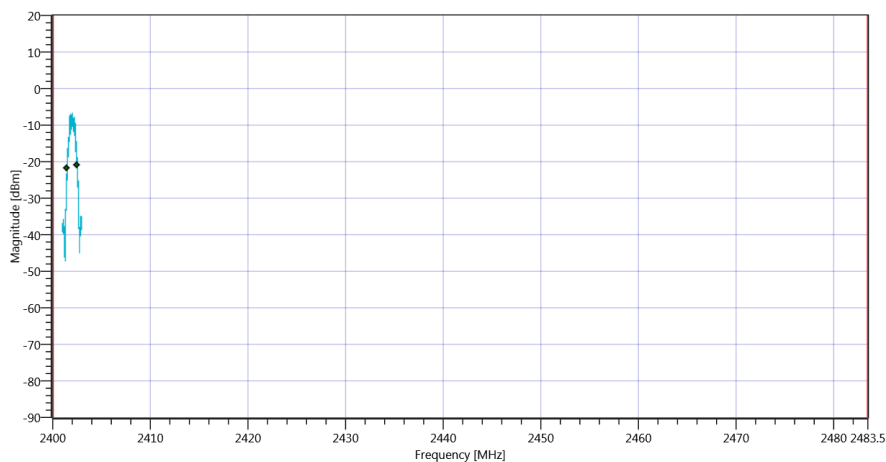
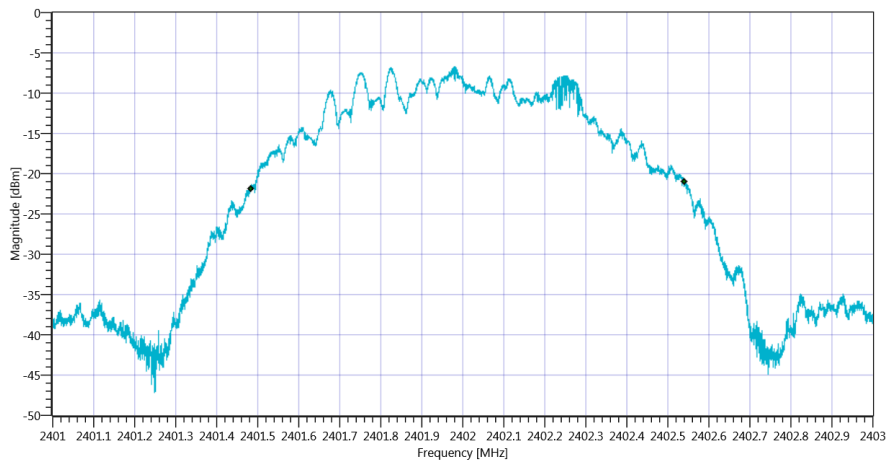
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.48   11.01   10				
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%	---	---	1056	kHz	Information
T1 99%	2400.000000	---	2401.4839	MHz	PASS
T2 99%	---	2483.500000	2402.5403	MHz	PASS



RESULT: TC\_VM\_FCC15247\_Bandwidth\_99PCT\_20dB\_DTS\_FHSS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1214	kHz	Information
T1 20dB	2400.000000	---	2401.3998	MHz	PASS



T2 20dB

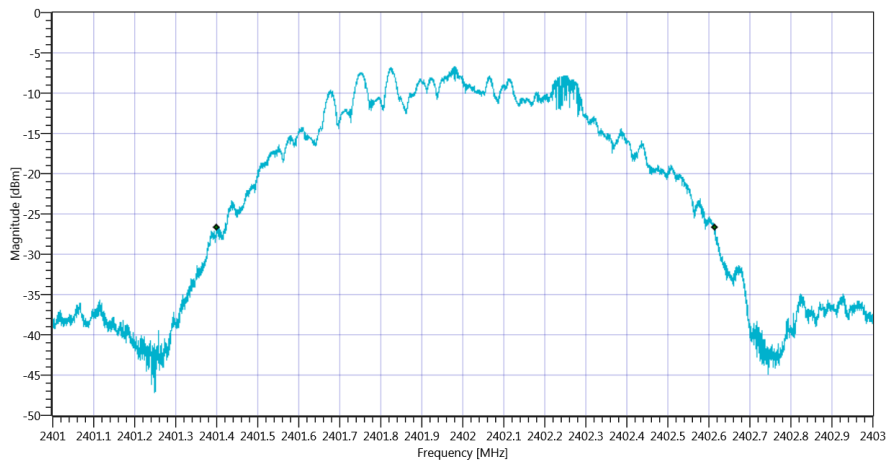
--

2483.50000

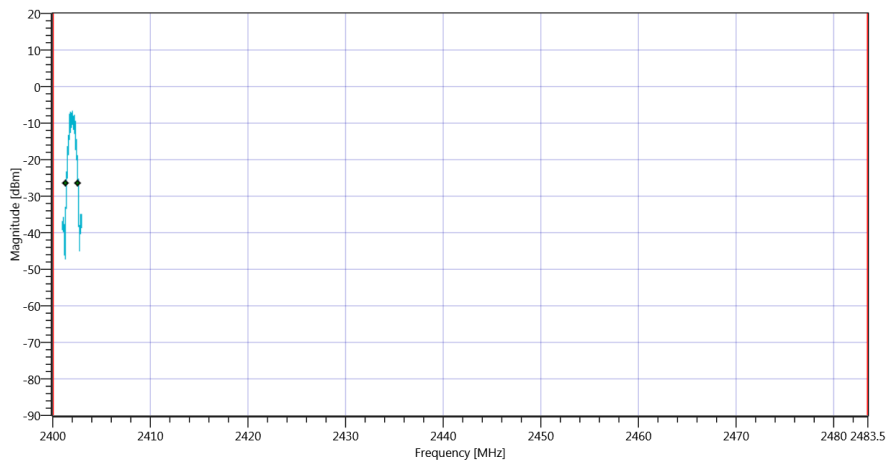
2402.6136

MHz

PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB\_09122019\_115732.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps\_09122019\_115735.png

## Test at TX 2440 MHz

**RESULT: DTM Connection check**

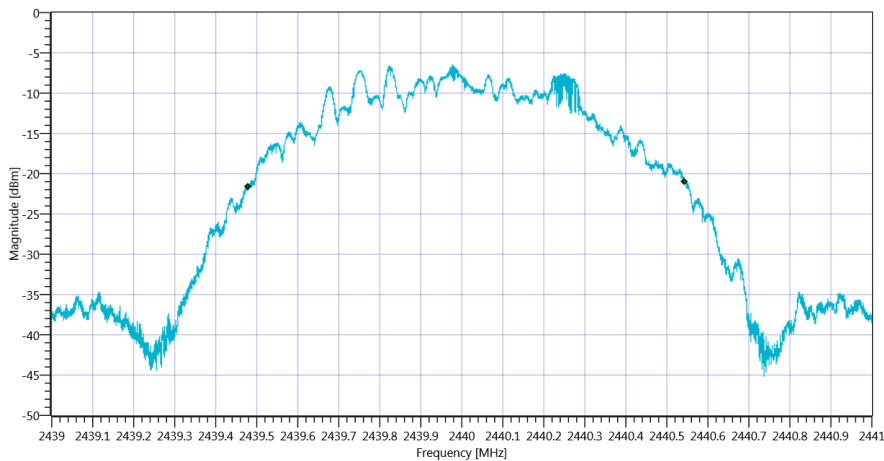
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

**READ SA SETTINGS:**

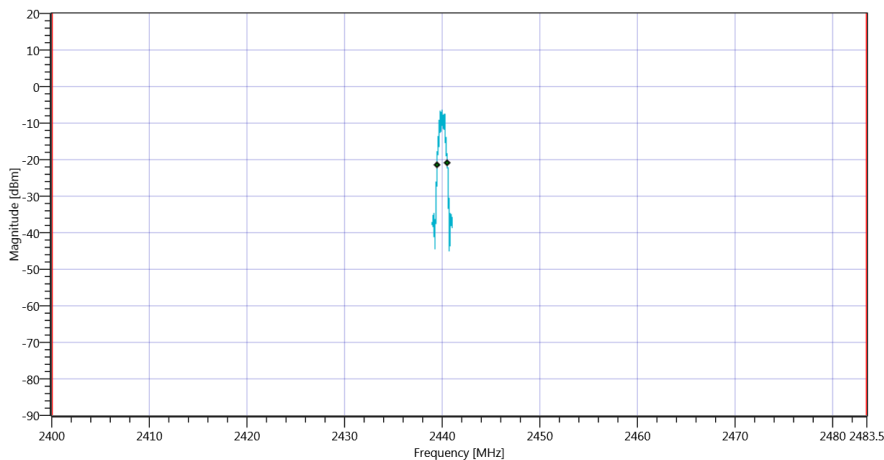
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.83   11.1   10				
Start [MHz]   Stop [MHz]	2439.000   2441.000				
RBW [MHz]   VBW [MHz]	0.020000   0.050000				
Detector   TraceMode	POS   MAXH				
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE				

**RESULT: TC\_VM\_FCC15247\_Bandwidth\_99PCT\_20dB\_DTS\_FHSS\_V01**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1063	kHz	Information
T1 99%	2400.000000	---	2439.4799	MHz	PASS
T2 99%	---	2483.500000	2440.5433	MHz	PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps\_09122019\_115801.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps\_09122019\_115804.png

**RESULT: TC\_VM\_FCC15247\_Bandwidth\_99PCT\_20dB\_DTS\_FHSS\_V01**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1216	kHz	Information
T1 20dB	2400.000000	---	2439.3994	MHz	PASS

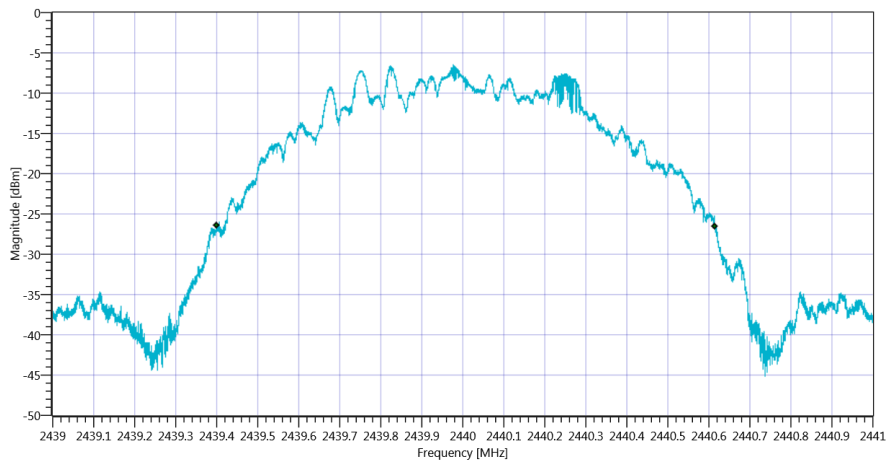
T2 20dB

2483.50000

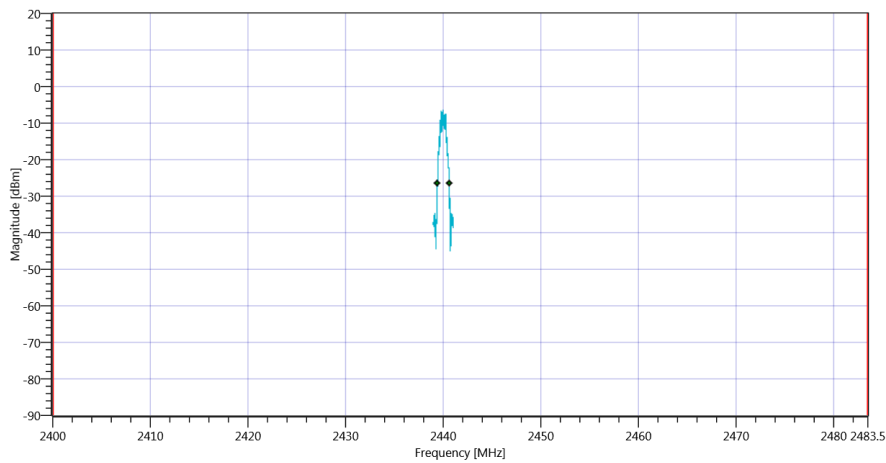
2440.6152

MHz

PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB\_09122019\_115808.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps\_09122019\_115812.png

## Test at TX 2480 MHz

RESULT: DTM Connection check

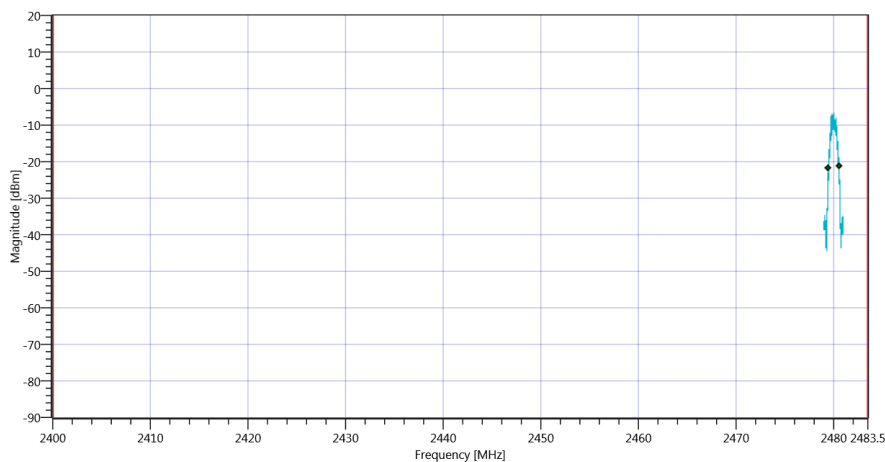
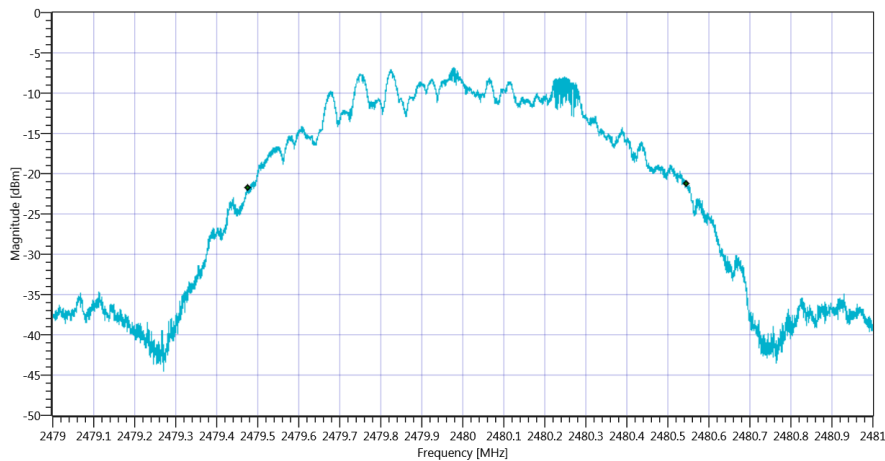
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.32   11.15   10				
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%	---	---	1068	kHz	Information
T1 99%	2400.000000	---	2479.4775	MHz	PASS
T2 99%	---	2483.500000	2480.5453	MHz	PASS



RESULT: TC\_VM\_FCC15247\_Bandwidth\_99PCT\_20dB\_DTS\_FHSS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1226	kHz	Information
T1 20dB	2400.000000	---	2479.3902	MHz	PASS

T2 20dB

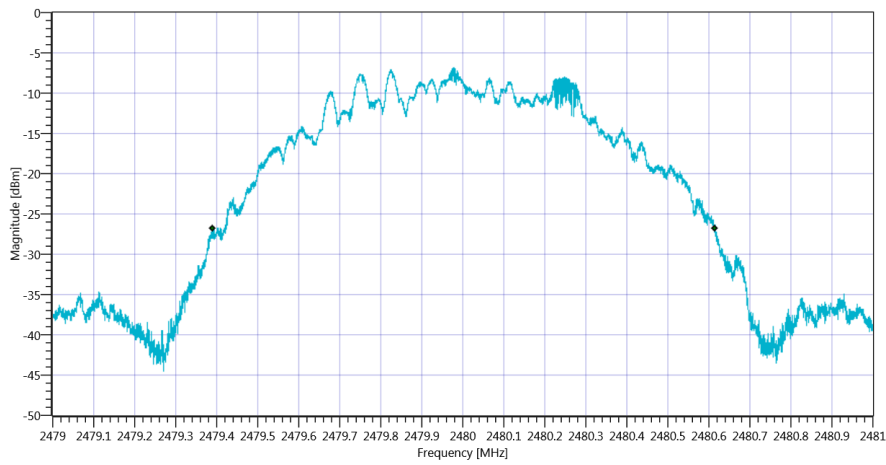
--

2483.50000

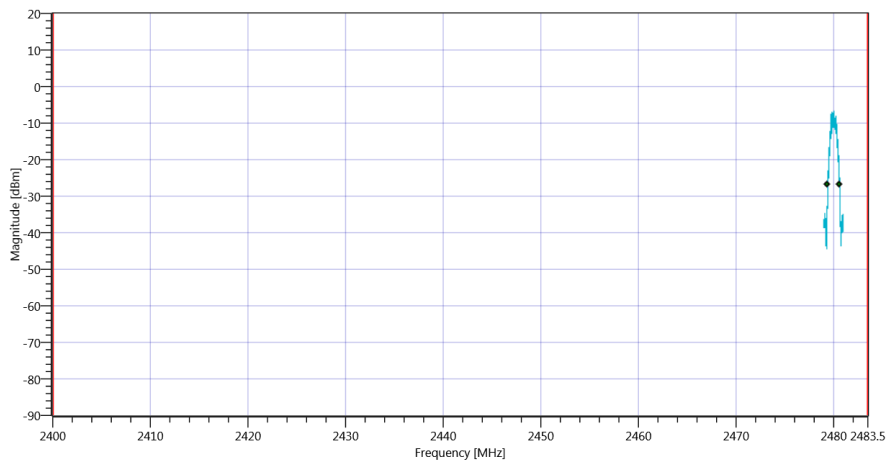
2480.6160

MHz

PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB\_09122019\_115846.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps\_09122019\_115849.png

TEST FINISHED

General Verdict

09.12.2019 11:58:49 / RT: 110 s

PASS

## 6. FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msp

Test References	
TC Start	09.12.2019 11:58:54
System Version	1.0.0.24
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 Msp
Add. Information	

Test Parameter	
Technology to test	BT LE 1 Msp
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	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

## Test at TX 2402 MHz

RESULT: DTM Connection check

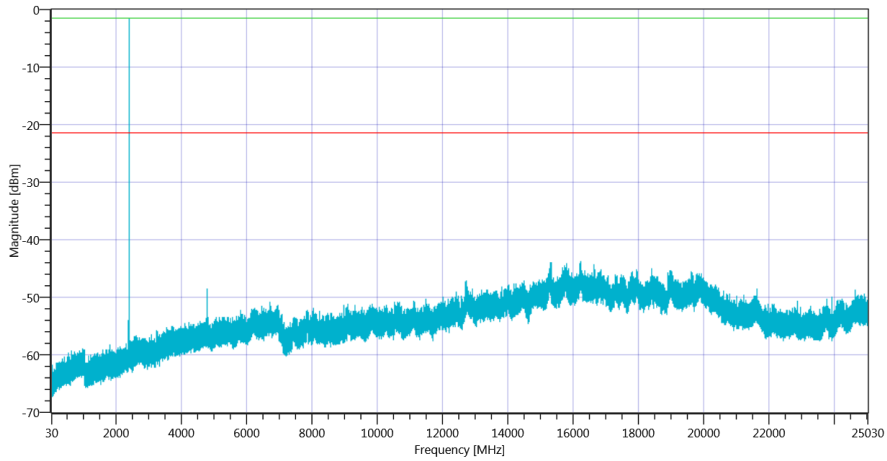
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

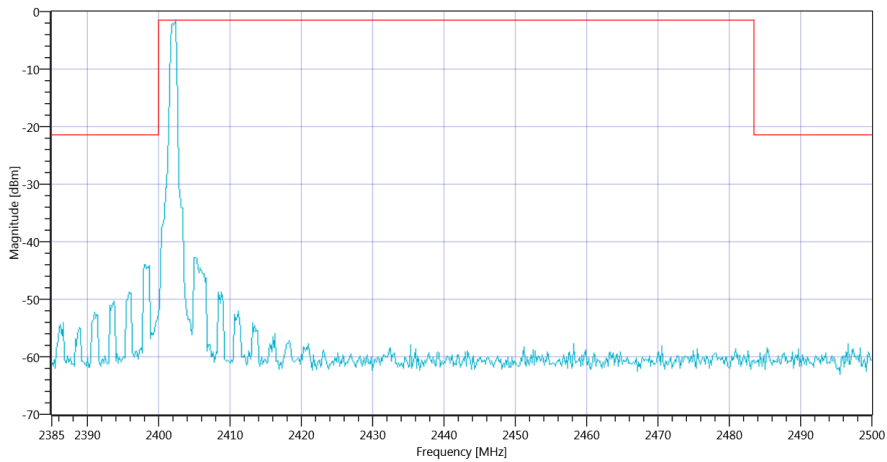
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.95   0   20				
Start [MHz]   Stop [MHz]	24530.000   25030.000				
RBW [MHz]   VBW [MHz]	0.100000   0.300000				
Detector   TraceMode	POS   MAXH				
Sweep: Time [ms]   Count   Points per Section   Type	500   8   3001   SWE				

RESULT: TC\_VM\_FCC15247\_TX\_Emissions\_Conducted\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.33 MHz	---	---	-1.43	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2402\_09122019\_120340.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2402\_09122019\_120343.png

## Test at TX 2440 MHz

RESULT: DTM Connection check

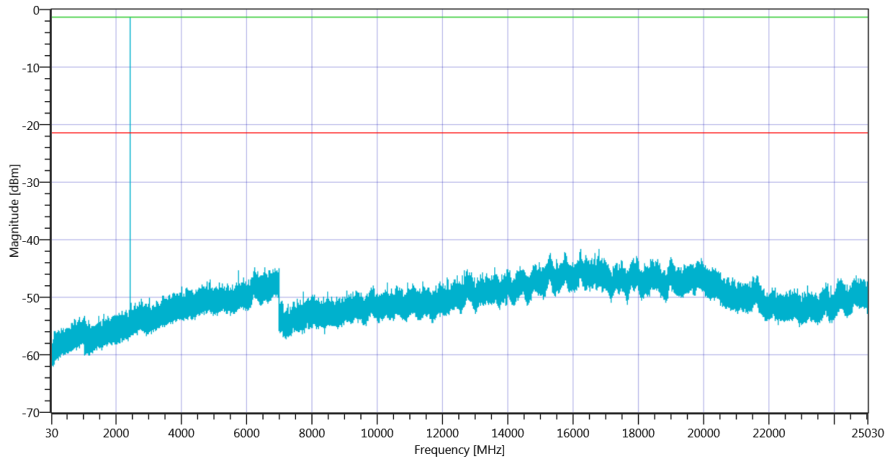
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

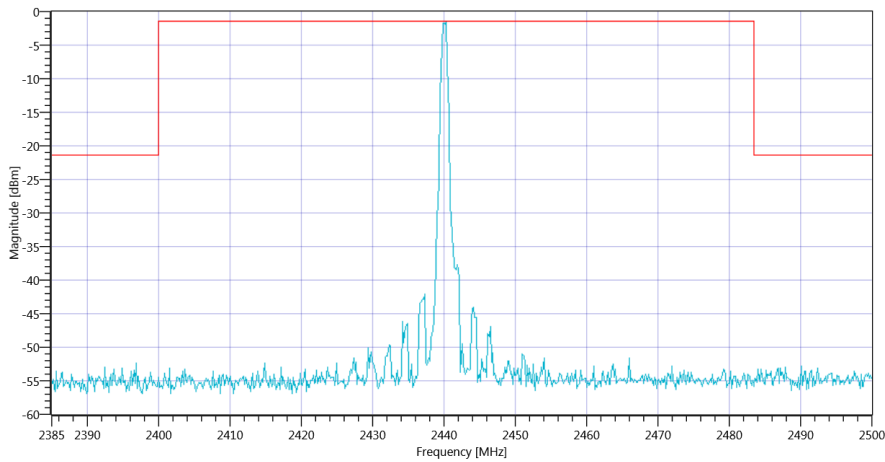
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	5.09   0   25				
Start [MHz]   Stop [MHz]	24530.000   25030.000				
RBW [MHz]   VBW [MHz]	0.100000   0.300000				
Detector   TraceMode	POS   MAXH				
Sweep: Time [ms]   Count   Points per Section   Type	500   8   3001   SWE				

RESULT: TC\_VM\_FCC15247\_TX\_Emissions\_Conducted\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.33 MHz	---	---	-1.40	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2440\_09122019\_120829.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2440\_09122019\_120832.png



## Test at TX 2480 MHz

RESULT: DTM Connection check

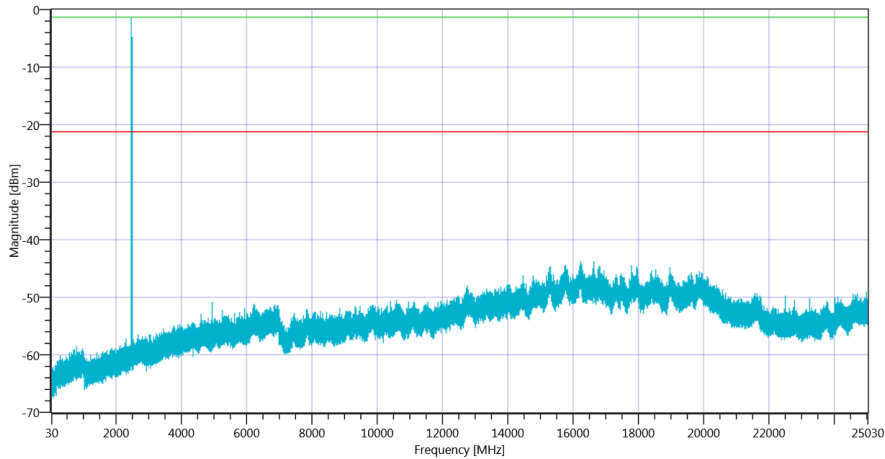
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

READ SA SETTINGS:

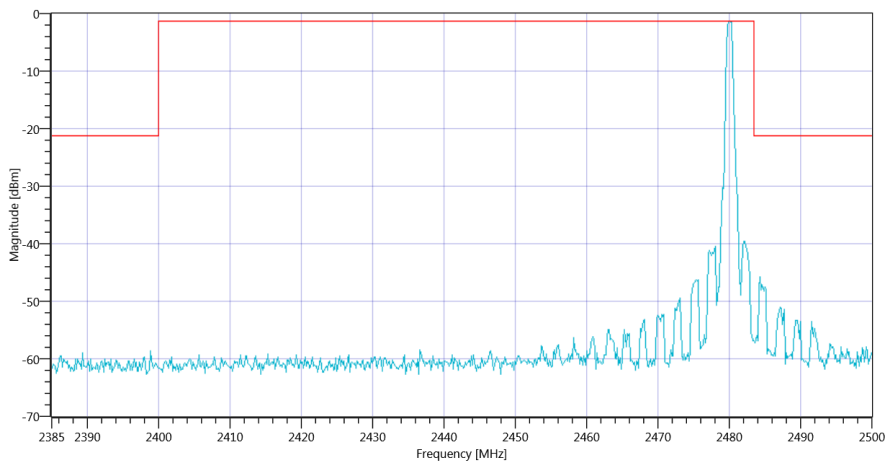
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.62   0   20				
Start [MHz]   Stop [MHz]	24530.000   25030.000				
RBW [MHz]   VBW [MHz]	0.100000   0.300000				
Detector   TraceMode	POS   MAXH				
Sweep: Time [ms]   Count   Points per Section   Type	500   8   3001   SWE				

RESULT: TC\_VM\_FCC15247\_TX\_Emissions\_Conducted\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.00 MHz	---	---	-1.27	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2480\_09122019\_121319.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2480\_09122019\_121321.png

TEST FINISHED

General Verdict

09.12.2019 12:13:23 / RT: 869 s

PASS

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

Test References	
TC Start	09.12.2019 12:13:27
System Version	1.0.0.24
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 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 - BT LE 1 Msps
Add. Information	

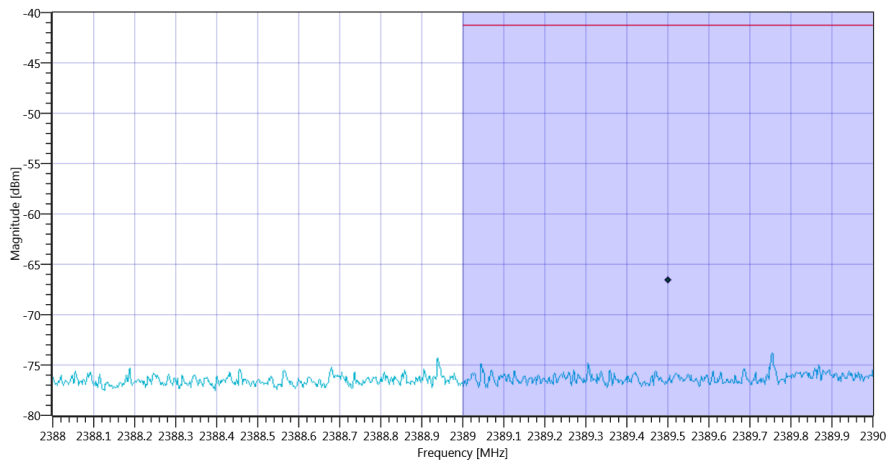
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   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	---	---	---	--	PASS

READ SA SETTINGS:	
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.48   11.01   10
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
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	-66.55	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-66.55	dBm	PASS



Plot\_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps\_09122019\_121344.png

## Test at TX 2480 MHz

### RESULT: DTM Connection check

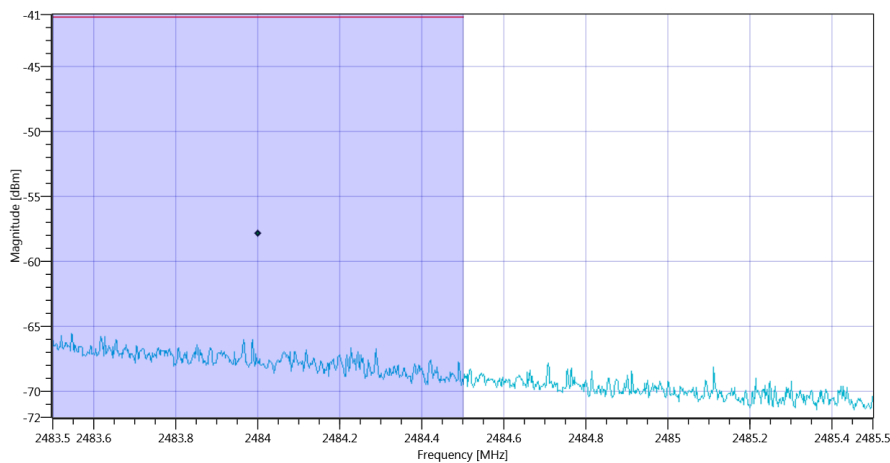
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	--	PASS

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	4.29   11.15   10				
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				
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	-57.85	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-57.85	dBm	PASS



Plot\_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS ~ BT LE 1 Msps\_09122019\_121401.png

### TEST FINISHED

General Verdict

09.12.2019 12:14:01 / RT: 34 s

PASS

- END OF DOCUMENT -