

Measurement Results

1-0447/20-02-02_log1_conducted

[Test logging](#)

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IUT Summary

IUT DEFINITION & Common settings	
Manufacturer	Servus Intralogistics GmbH
Type	Safedi
Serial No. Setup No.	NI 1.0
SW Version HW Version	NI NI
Comment 1 2	
Tlow Tmid Thigh [°C]	0 20 40
Vlow Vmid Vhigh [V] @Imax [A]	3.7 3.7 3.7 @1
Auto Control enabled Power Supply Climatic Box	No No
Antenna Gain [dBi] (only considered if explicitly mentioned in testresult)	0
Additional Path Loss [dB]	0

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	True TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	USB_RS232 TW0 50 19200 None S1 None On
Signaling RF Settings	RF1com 0 0 On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

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

Test References	
TC Start	27.07.2020 10:28:44
Ambit Temp [°C] Humidity [rel%]	23.8 52
System Version	1.0.0.49
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Common2G4_Peak_Output_Power_Conducted_3MHz_3MHz_V01 Version: 0.0.1
My Description	Peak Output Power conducted 3MHz/3MHz - BT LE 1 Msps
Add. Information	

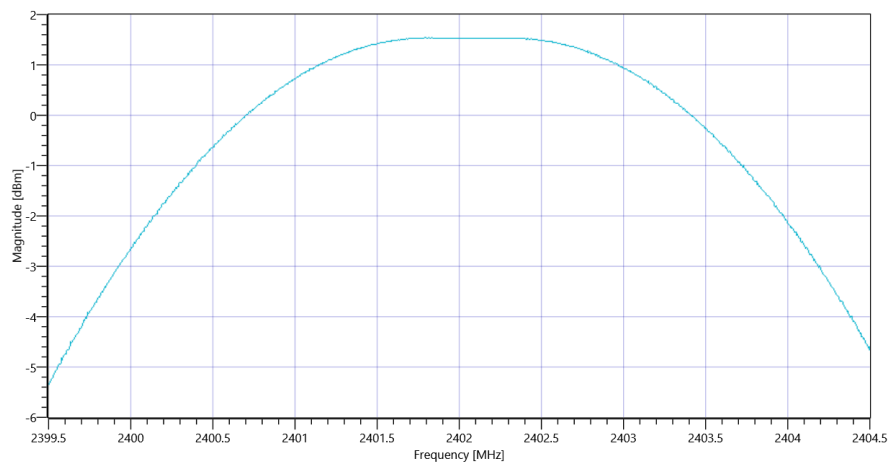
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			11.39 10.09 20		
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	1.54	dBm	Info
Peak Power	---	---	1.425608	mW	Info
Frequency at Peak	---	---	2401.79	MHz	Info



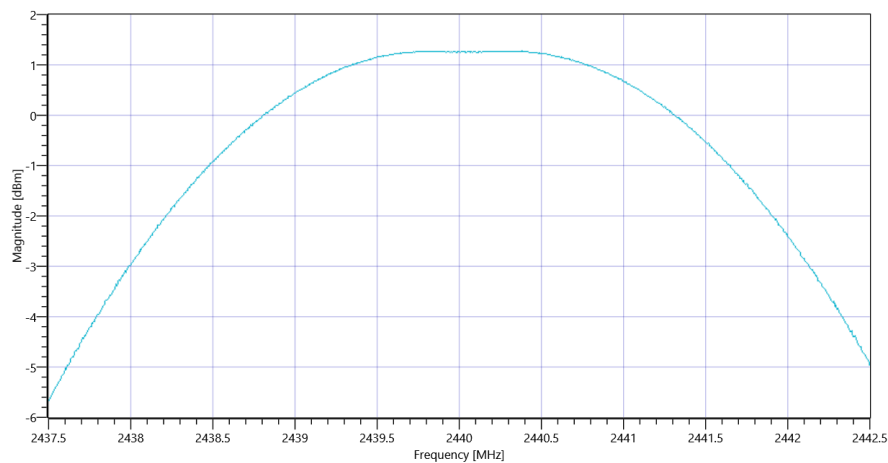
Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_27072020_102912.png

Test at TX 2440 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			11.10 10.1 20		
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	1.28	dBm	Info
Peak Power	---	---	1.342765	mW	Info
Frequency at Peak	---	---	2440.38	MHz	Info



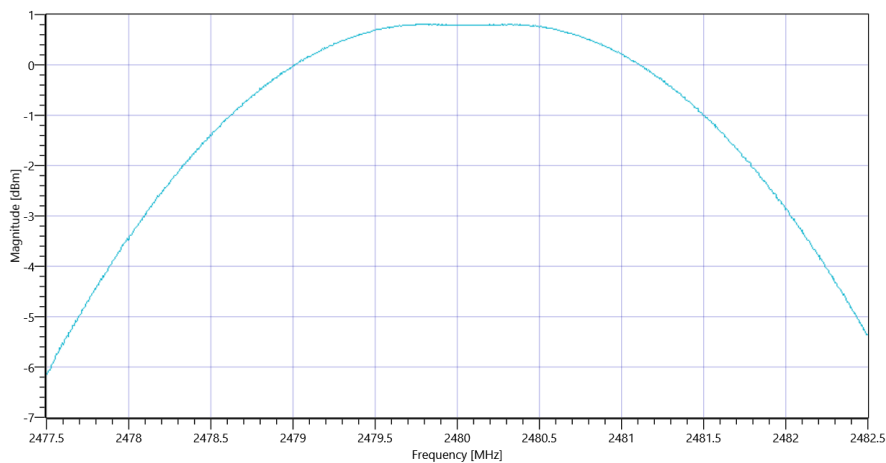
Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_27072020_102942.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	10.68 10.15 20				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	0.81	dBm	Info
Peak Power	---	---	1.205036	mW	Info
Frequency at Peak	---	---	2479.905	MHz	Info



Plot_Common2G4 Peak OP 3MHz-3MHz ~ BT LE 1 Msps_27072020_103013.png

TEST FINISHED		
General Verdict	27.07.2020 10:30:14 / RT: 89 s	PASS

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

Test References	
TC Start	27.07.2020 10:30:18
Ambit Temp [°C] Humidity [rel%]	24.0 51
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Class / TC Version	TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps
Add. Information	

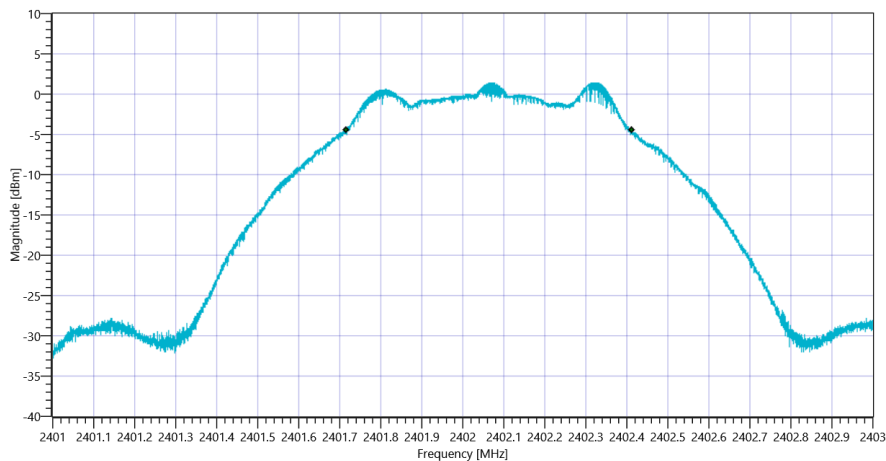
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

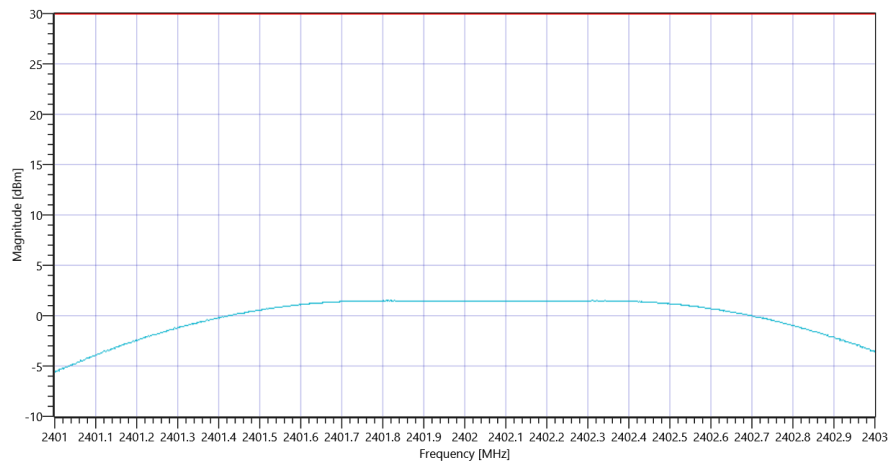
READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	6.33 10.09 15				
Start [MHz] Stop [MHz]	2401.000 2403.000				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	697	kHz	INFO



READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	11.33 10.09 20				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	1.49	dBm	PASS
Peak Power	---	1000	1.409289	mW	PASS
Frequency at Peak	---	---	2401.812	MHz	INFO



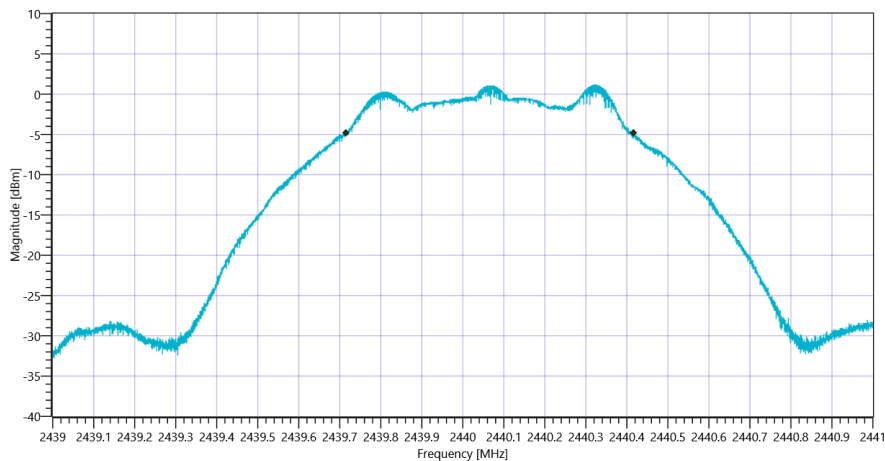
Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_27072020_103101.png

Test at TX 2440 MHz

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

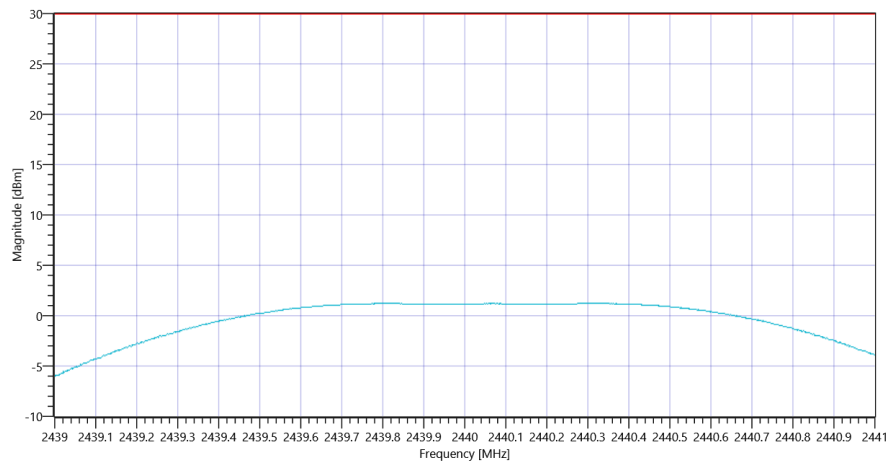
READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	6.02 10.1 15				
Start [MHz] Stop [MHz]	2439.000 2441.000				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	702	kHz	INFO



READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	11.02 10.1 20				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	1.2	dBm	PASS
Peak Power	---	1000	1.318257	mW	PASS
Frequency at Peak	---	---	2440.328	MHz	INFO



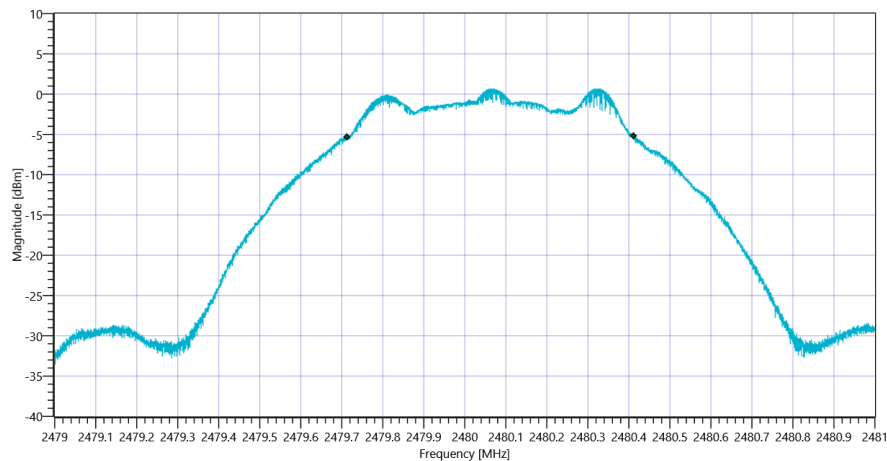
Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_27072020_103148.png

Test at TX 2480 MHz

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

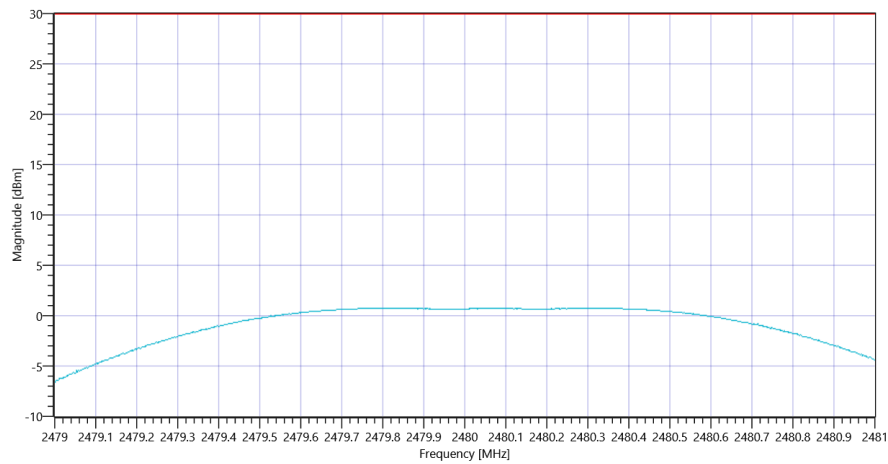
READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.57 10.15 15				
Start [MHz] Stop [MHz]	2479.000 2481.000				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	699	kHz	INFO



READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	10.57 10.15 20				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	0.72	dBm	PASS
Peak Power	---	1000	1.180321	mW	PASS
Frequency at Peak	---	---	2480.34	MHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps_27072020_103236.png

TEST FINISHED

General Verdict

27.07.2020 10:32:36 / RT: 138 s

PASS

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

Test References	
TC Start	27.07.2020 10:32:40
Ambit Temp [°C] Humidity [rel%]	24.3 50
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	99
Class / TC Version	TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msps
Add. Information	

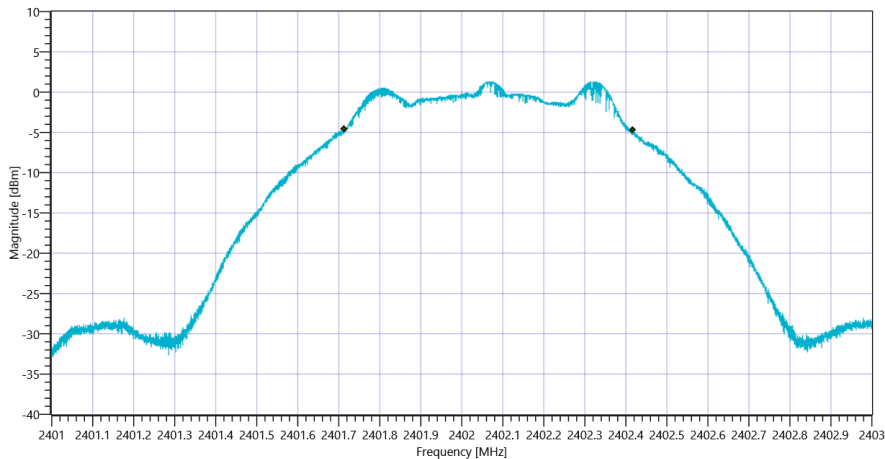
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	6.22 10.09 15	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	703	kHz	PASS



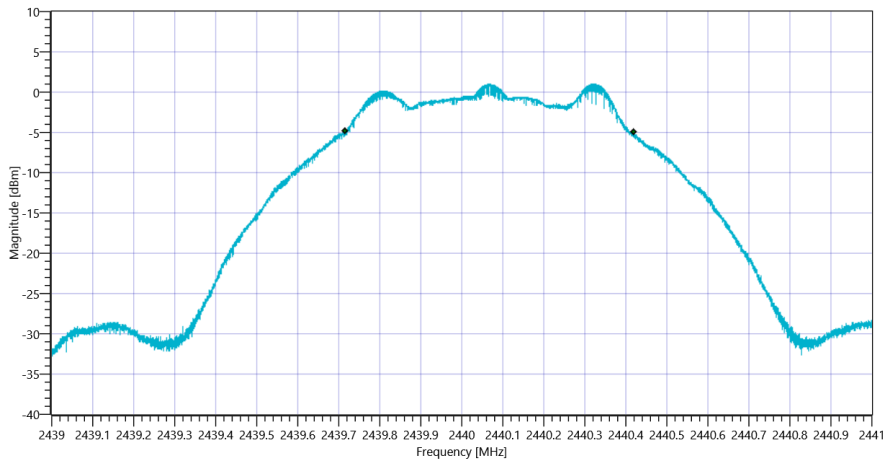
Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_27072020_103308.png

Test at TX 2440 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.96 10.1 15	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	702	kHz	PASS



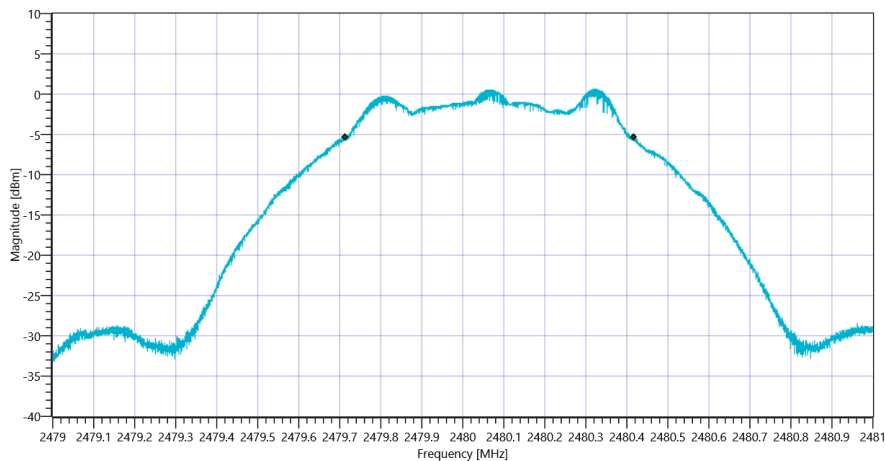
Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_27072020_103339.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.50 10.15 15				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	702	kHz	PASS



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps_27072020_103411.png

TEST FINISHED		
General Verdict	27.07.2020 10:34:11 / RT: 90 s	PASS

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

Test References	
TC Start	27.07.2020 10:34:15
Ambit Temp [°C] Humidity [rel%]	24.5 50
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps
Add. Information	

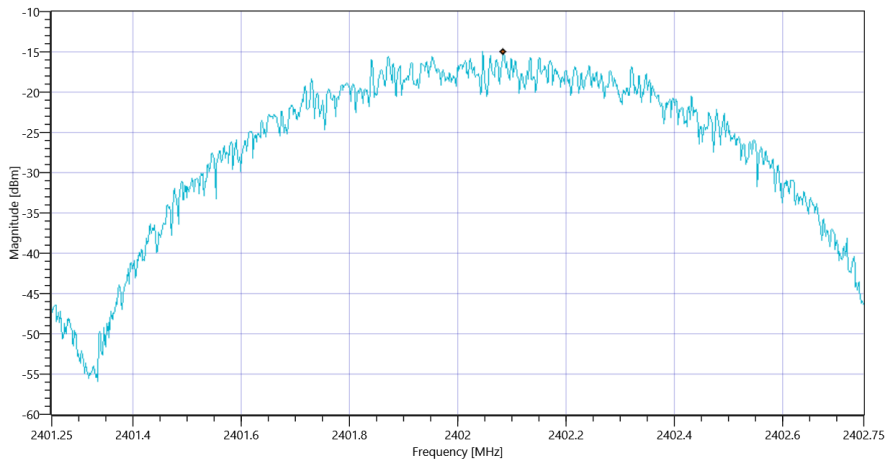
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	6.18 10.09 15	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-14.99	dBm/3KHz	PASS



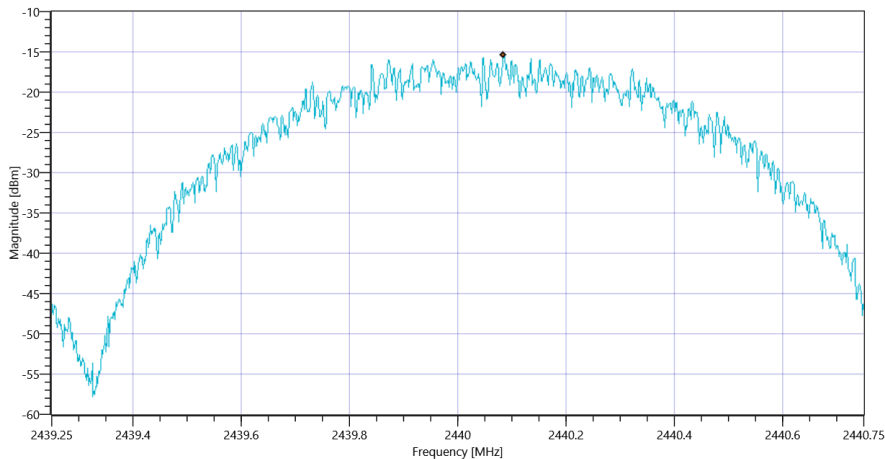
Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_27072020_103453.png

Test at TX 2440 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.89 10.1 15	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-15.37	dBm/3KHz	PASS



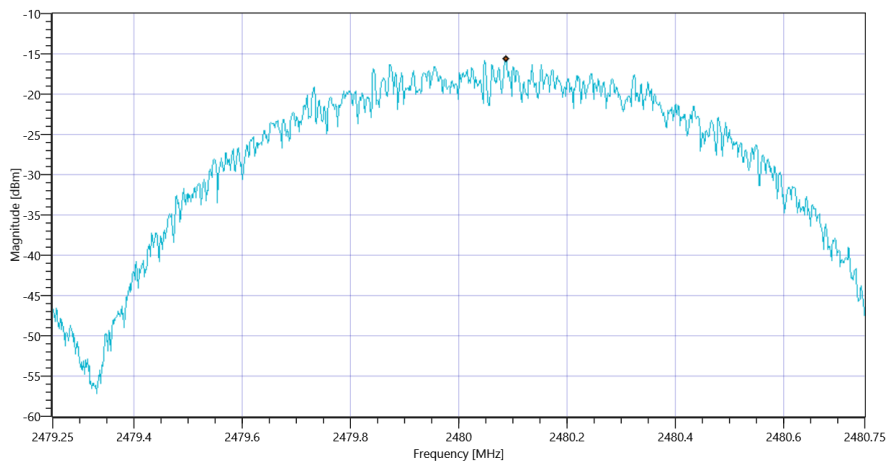
Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps_27072020_103533.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.43 10.15 15				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-15.69	dBm/3KHz	PASS



TEST FINISHED		
General Verdict	27.07.2020 10:36:15 / RT: 119 s	PASS

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

Test References	
TC Start	27.07.2020 10:36:19
Ambit Temp [°C] Humidity [rel%]	24.7 49
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
Add. Information	

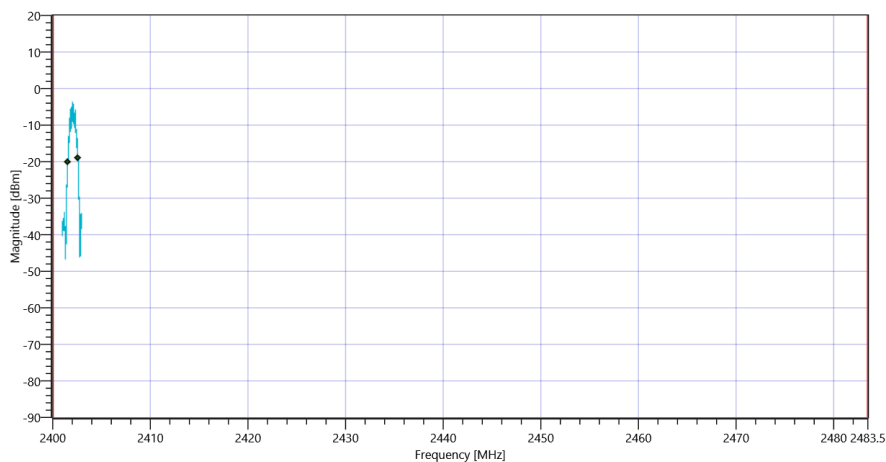
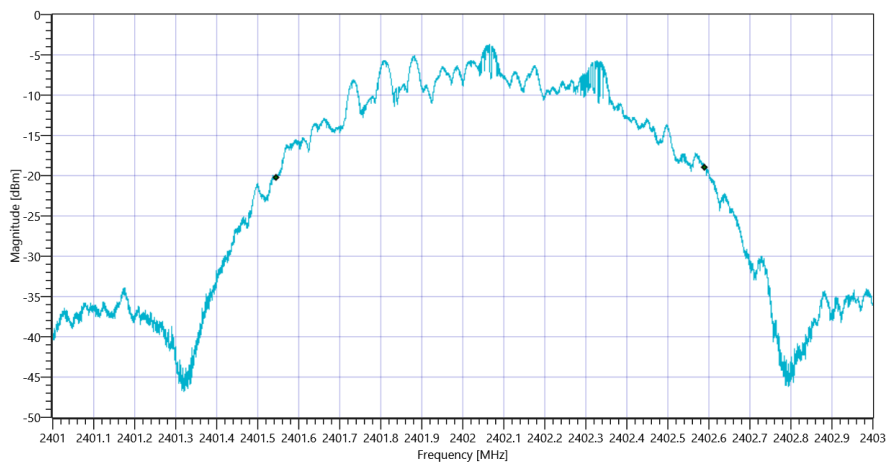
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			6.11 10.09 15		
Start [MHz] Stop [MHz]			2401.000 2403.000		
RBW [MHz] VBW [MHz]			0.020000 0.100000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1045	kHz	INFO
T1 99%	2400.000000	---	2401.5450	MHz	PASS
T2 99%	---	2483.500000	2402.5901	MHz	PASS



RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1163	kHz	INFO
T1 20DB	2400.000000	---	2401.4858	MHz	PASS

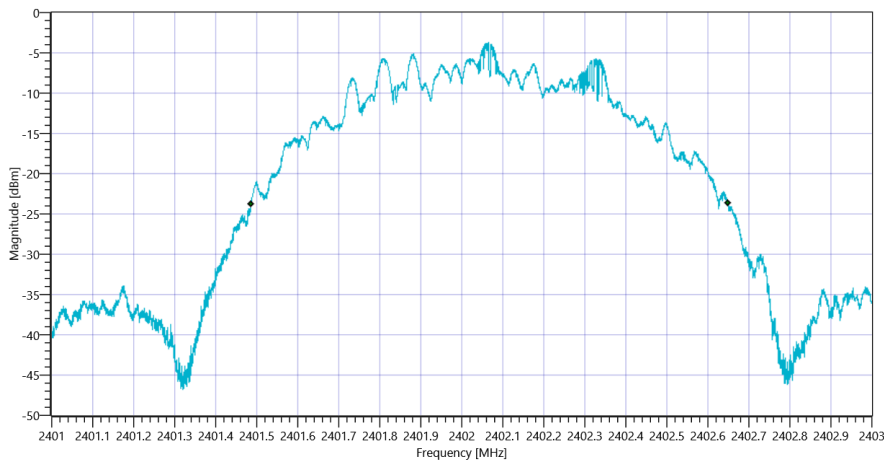
T2 20dB

2483.500000

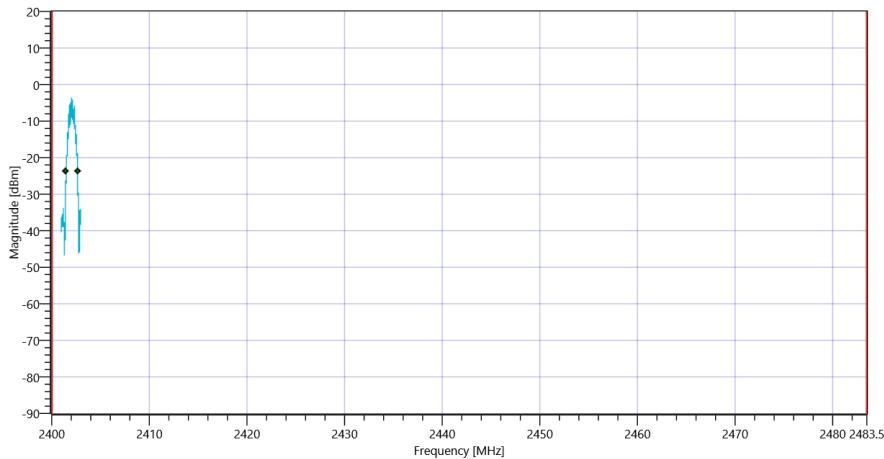
2402.6492

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 20dB_27072020_103656.png



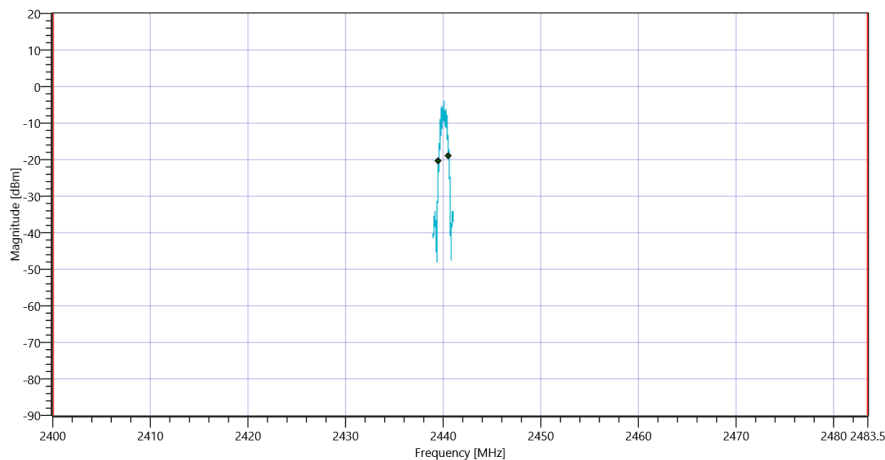
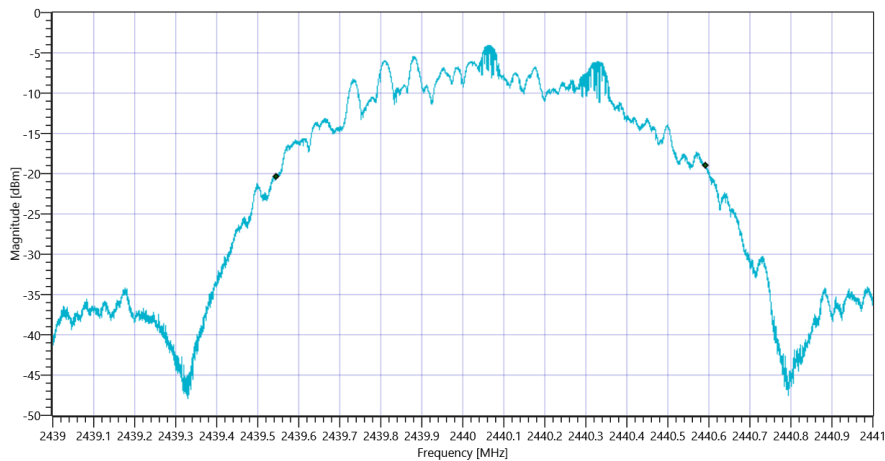
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_27072020_103659.png

Test at TX 2440 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.79 10.1 15		
Start [MHz] Stop [MHz]			2439.000 2441.000		
RBW [MHz] VBW [MHz]			0.020000 0.100000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1047	kHz	INFO
T1 99%	2400.000000	---	2439.5452	MHz	PASS
T2 99%	---	2483.500000	2440.5919	MHz	PASS



RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1163	kHz	INFO
T1 20DB	2400.000000	---	2439.4872	MHz	PASS

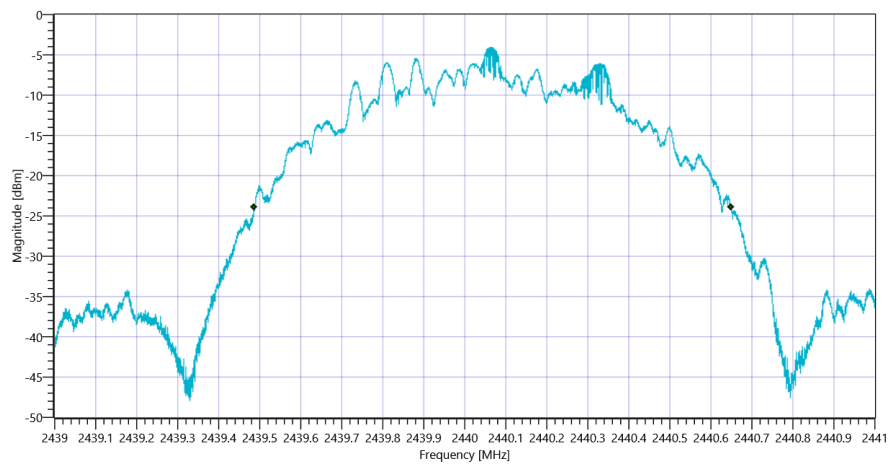
T2 20dB

2483.500000

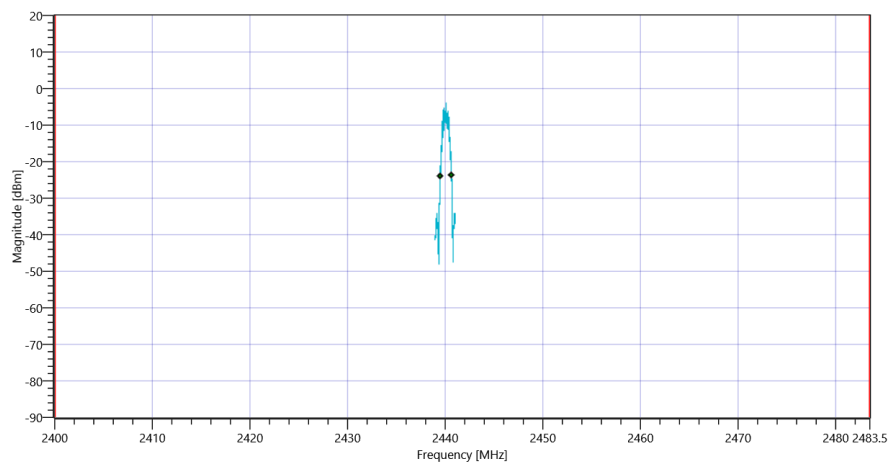
2440.6500

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 27072020_103740.png



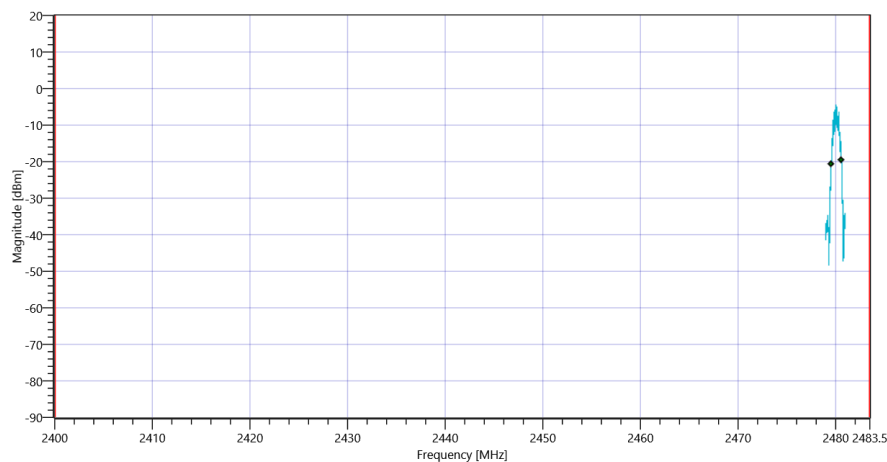
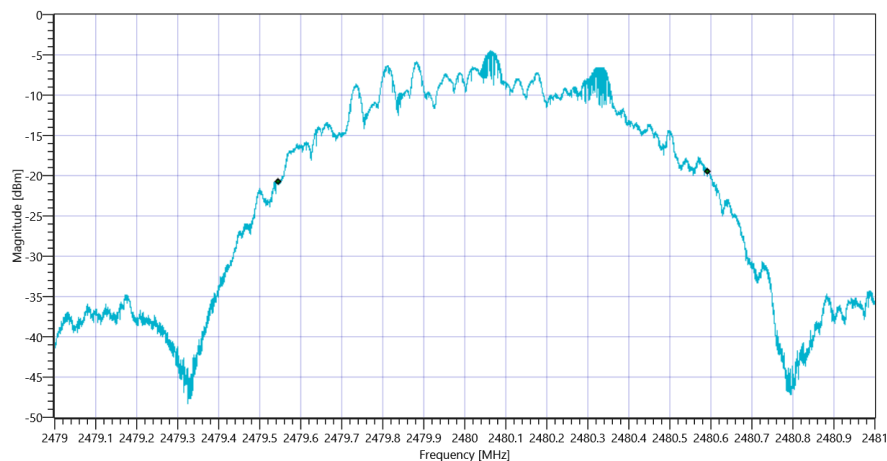
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 27072020_103744.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.37 10.15 15		
Start [MHz] Stop [MHz]			2479.000 2481.000		
RBW [MHz] VBW [MHz]			0.020000 0.100000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1048	kHz	INFO
T1 99%	2400.000000	---	2479.5450	MHz	PASS
T2 99%	---	2483.500000	2480.5931	MHz	PASS



RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1162	kHz	INFO
T1 20DB	2400.000000	---	2479.4880	MHz	PASS

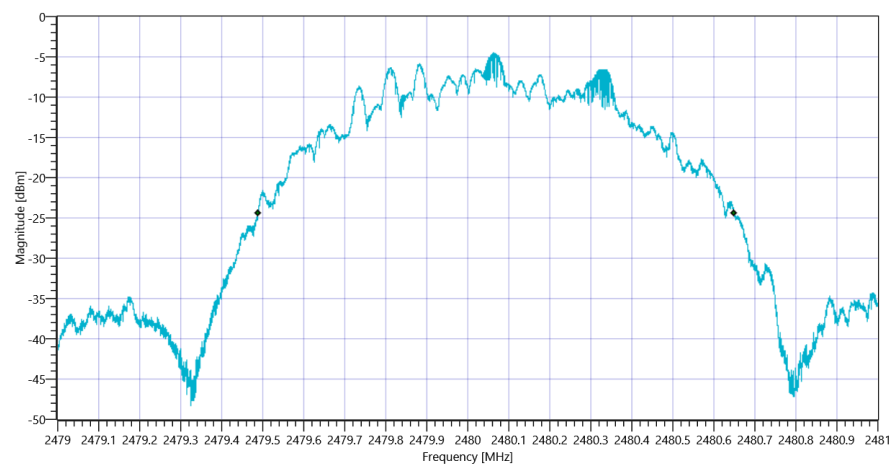
T2 20dB

2483.500000

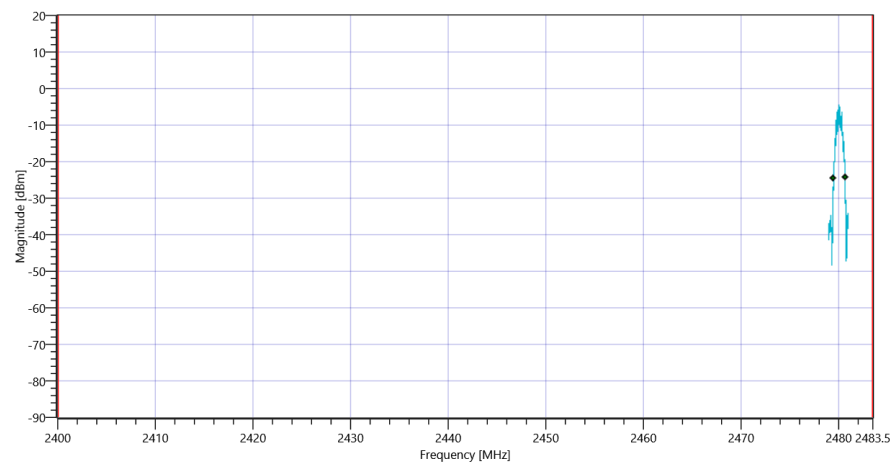
2480.6496

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_27072020_103826.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps_27072020_103830.png

TEST FINISHED

General Verdict

27.07.2020 10:38:30 / RT: 131 s

PASS

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

Test References	
TC Start	27.07.2020 10:38:35
Ambit Temp [°C] Humidity [rel%]	25.0 48
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable.
Class / TC Version	TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msp
Add. Information	

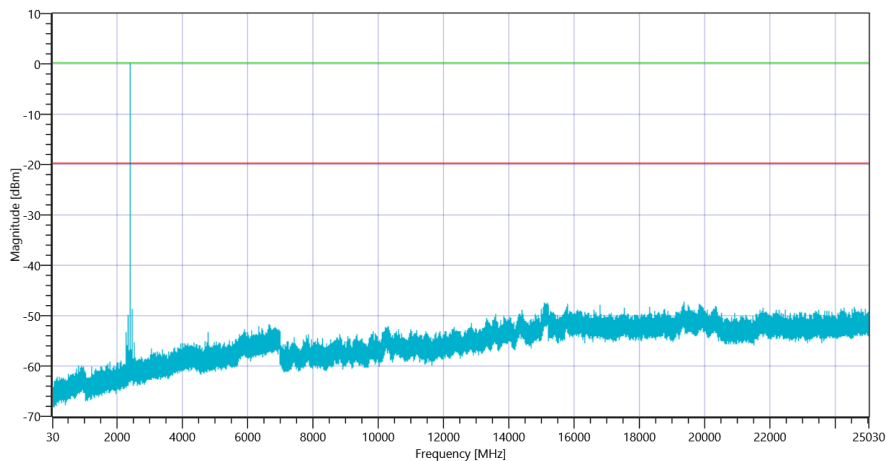
Test Parameter	
Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

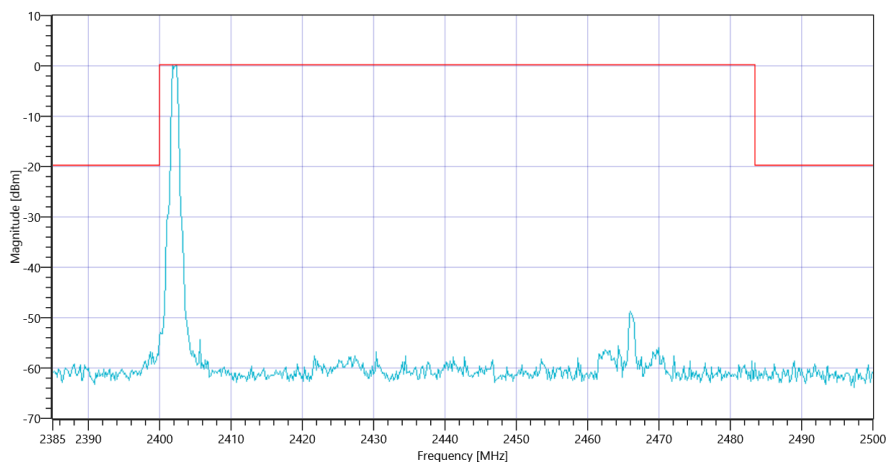
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	1.44 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.33 MHz	---	---	0.30	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 19358.833 MHz	0	---	27.57	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402_27072020_104322.png



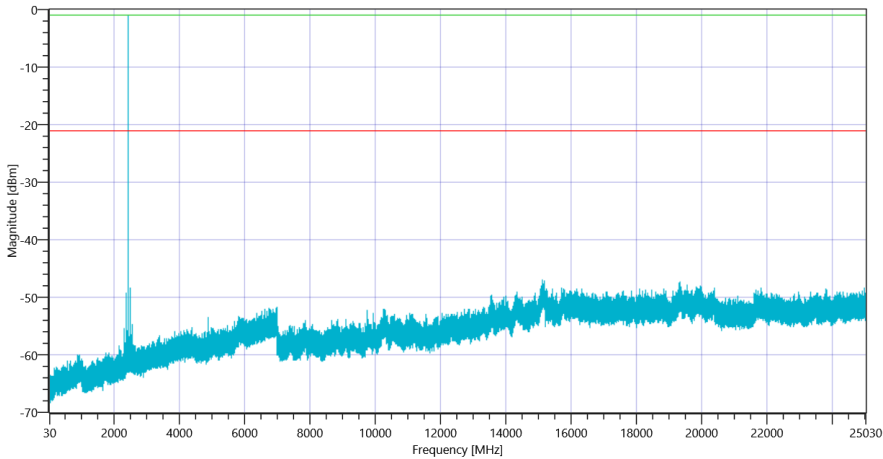
Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402_27072020_104325.png

Test at TX 2440 MHz

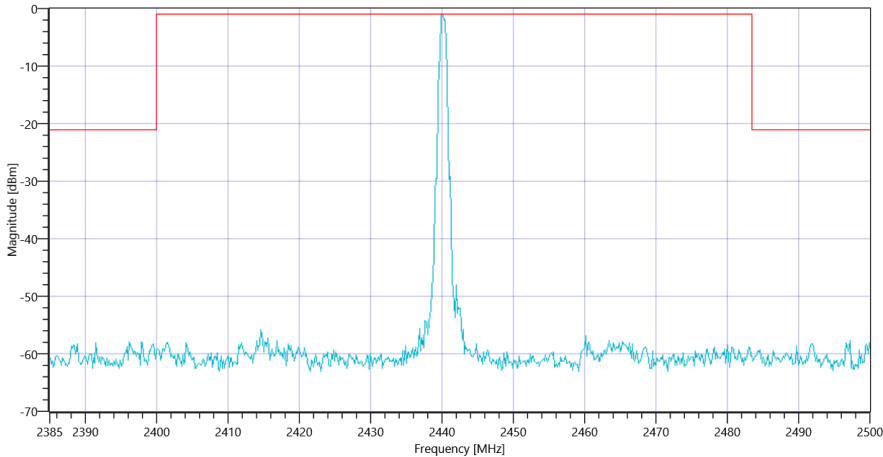
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:	
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	1.24 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.00 MHz	---	---	-0.99	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 15131.5 MHz	0	---	25.96	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2440_27072020_104817.png



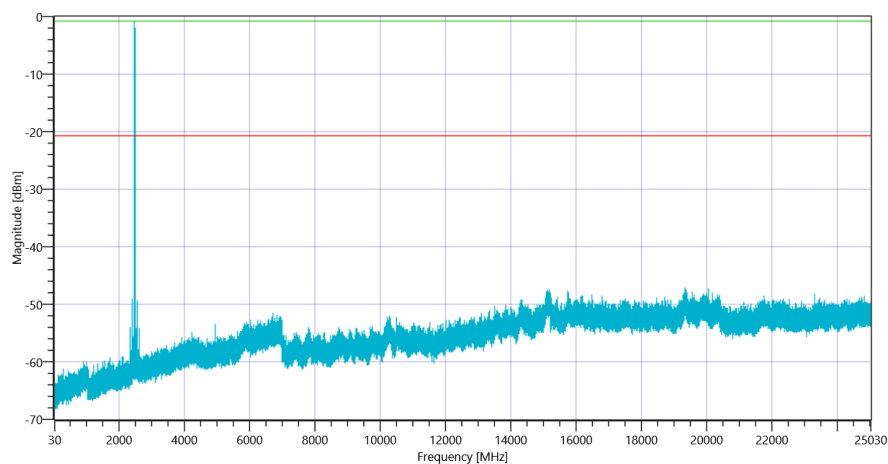
Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2440_27072020_104819.png

Test at TX 2480 MHz

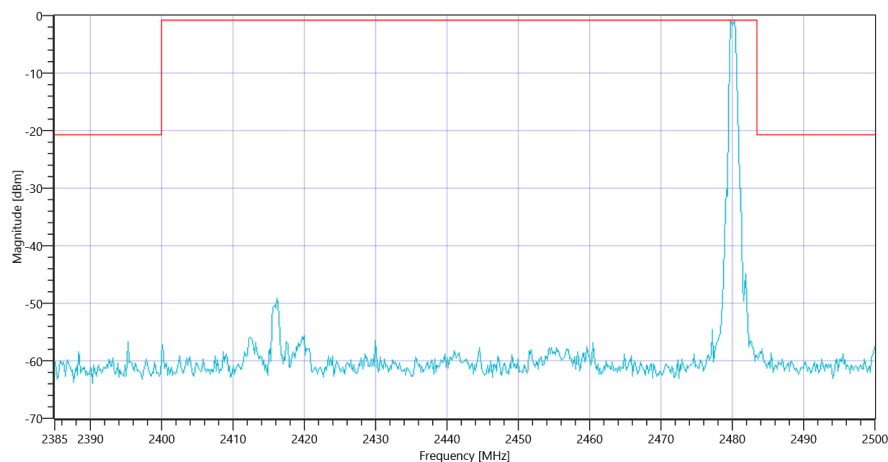
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			0.55 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.33 MHz	---	---	-0.75	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 19348.667 MHz	0	---	26.47	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2480_27072020_105311.png



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2480_27072020_105314.png

TEST FINISHED		
General Verdict	27.07.2020 10:53:16 / RT: 880 s	PASS

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

Test References	
TC Start	27.07.2020 10:53:20
Ambit Temp [°C] Humidity [rel%]	26.4 46
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.2 Peak Detection
Class / TC Version	TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 Version: 0.0.1
My Description	FCC 15.247 Restricted Band Edge Conducted Peak DTS - BT LE 1 Msps
Add. Information	

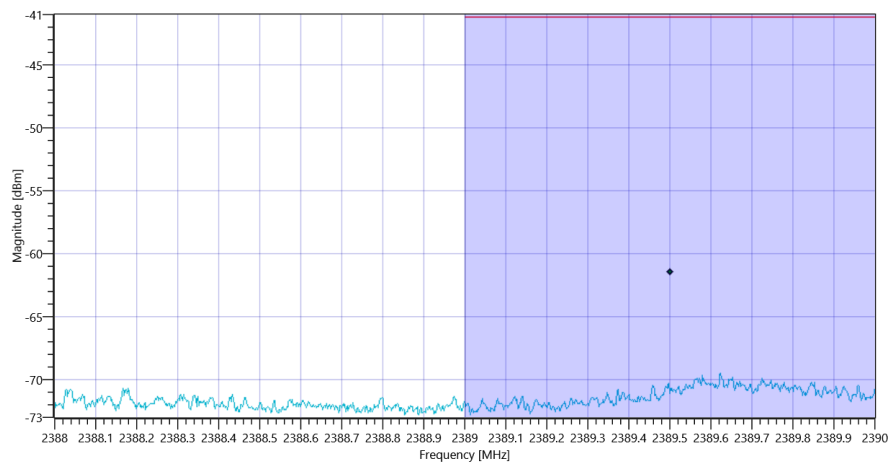
Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	False Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.77 10.09 15		
Start [MHz] Stop [MHz]			2388.000 2390.000		
RBW [MHz] VBW [MHz]			0.100000 0.002000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			8 300 1001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Band Power without Antenna Gain	---	-41.23	-61.48	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-61.48	dBm	PASS



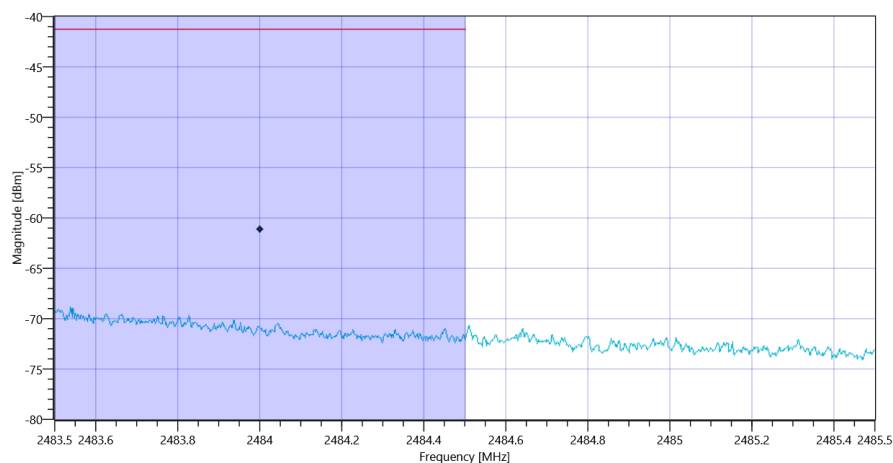
Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Video Avg ~ BT LE 1 Msps_27072020_105340.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.07 10.15 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		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Band Power without Antenna Gain	---	-41.23	-61.2	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-61.2	dBm	PASS



Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Video Avg ~ BT LE 1 Msps_27072020_105404.png

TEST FINISHED		
General Verdict	27.07.2020 10:54:04 / RT: 44 s	PASS

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

Test References	
TC Start	27.07.2020 10:54:08
Ambit Temp [°C] Humidity [rel%]	26.5 45
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Class / TC Version	TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 2 Msps
Add. Information	

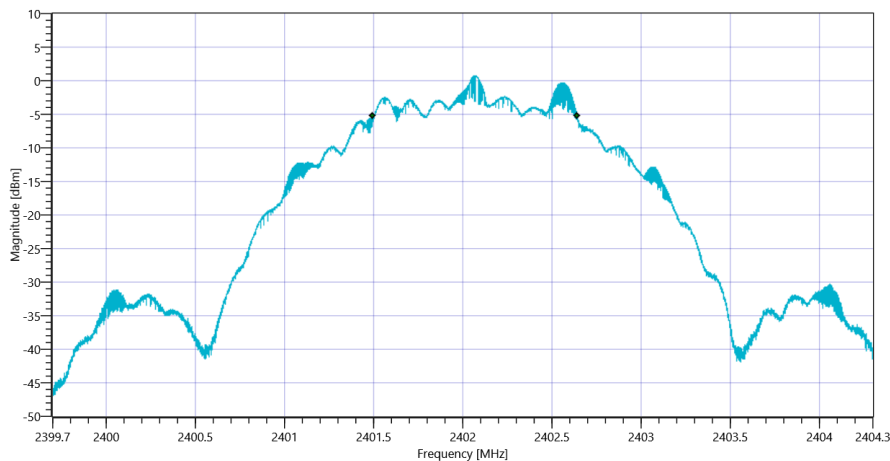
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

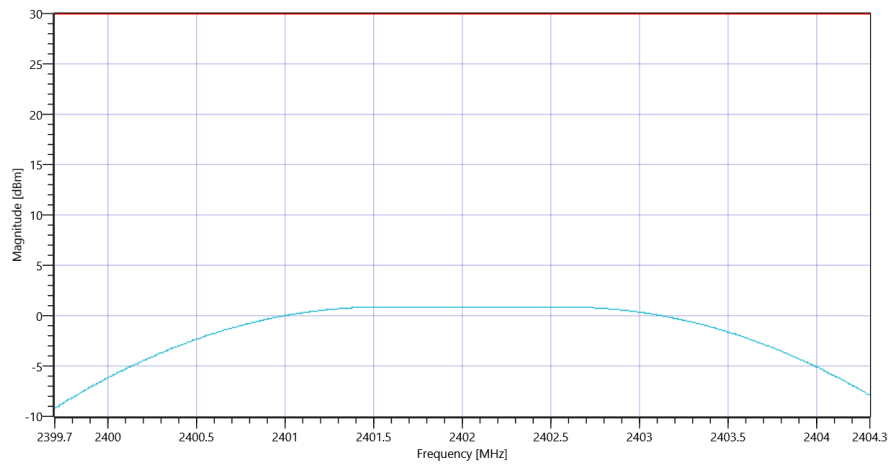
READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.73 10.09 15				
Start [MHz] Stop [MHz]	2399.700 2404.300				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	1150	kHz	INFO



READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	10.73 10.09 20				
Start [MHz] Stop [MHz]	2399.700 2404.300				
RBW [MHz] VBW [MHz]	2.000000 5.000000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 1001 SWE				

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	0.87	dBm	PASS
Peak Power	---	1000	1.2218	mW	PASS
Frequency at Peak	---	---	2401.559	MHz	INFO



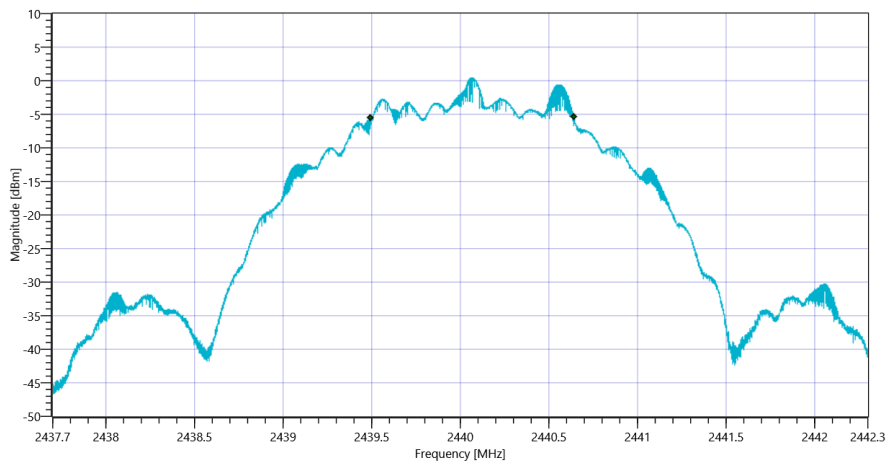
Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 2 Msps_27072020_105452.png

Test at TX 2440 MHz

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

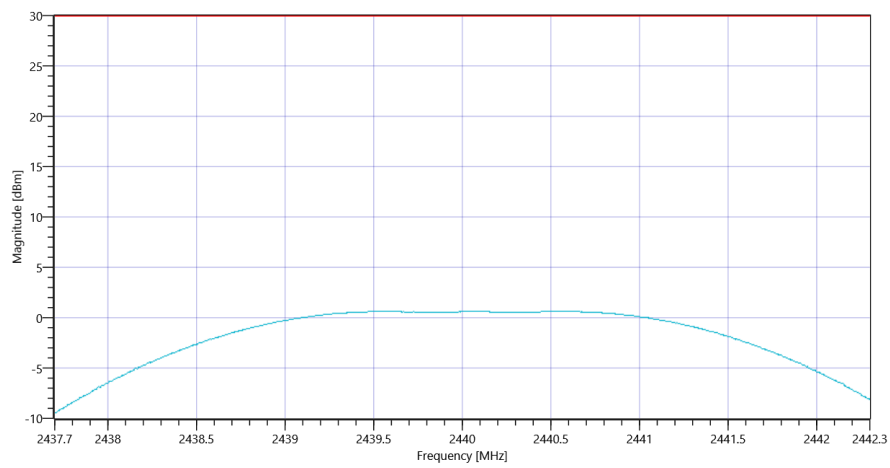
READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.47 10.1 15				
Start [MHz] Stop [MHz]	2437.700 2442.300				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	1146	kHz	INFO



READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	10.47 10.1 20				
Start [MHz] Stop [MHz]	2437.700 2442.300				
RBW [MHz] VBW [MHz]	2.000000 5.000000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 1001 SWE				

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	0.62	dBm	PASS
Peak Power	---	1000	1.153453	mW	PASS
Frequency at Peak	---	---	2440.574	MHz	INFO



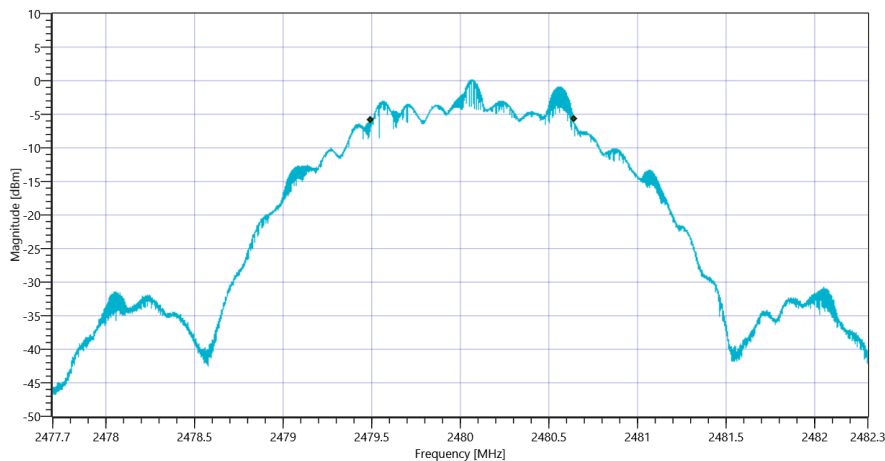
Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 2 Msps_27072020_105540.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.08 10.15 10				
Start [MHz] Stop [MHz]	2477.700 2482.300				
RBW [MHz] VBW [MHz]	0.100000 0.300000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE				

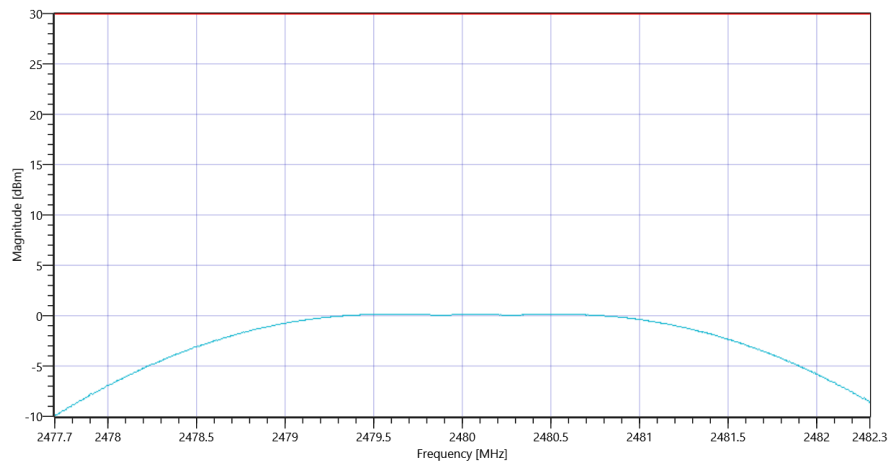
DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	1147	kHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 2 Msps DTS BW_27072020_105611.png

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	10.08 10.15 15				
Start [MHz] Stop [MHz]	2477.700 2482.300				
RBW [MHz] VBW [MHz]	2.000000 5.000000				
Detector TraceMode	POS MAXH				
Sweep: Time [ms] Count Points per Section Type	50 200 1001 SWE				

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	0.13	dBm	PASS
Peak Power	---	1000	1.030386	mW	PASS
Frequency at Peak	---	---	2479.573	MHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 2 Msps_27072020_105627.png

TEST FINISHED

General Verdict

27.07.2020 10:56:28 / RT: 139 s

PASS

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

Test References	
TC Start	27.07.2020 10:56:32
Ambit Temp [°C] Humidity [rel%]	26.7 45
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	99
Class / TC Version	TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 2 Msps
Add. Information	

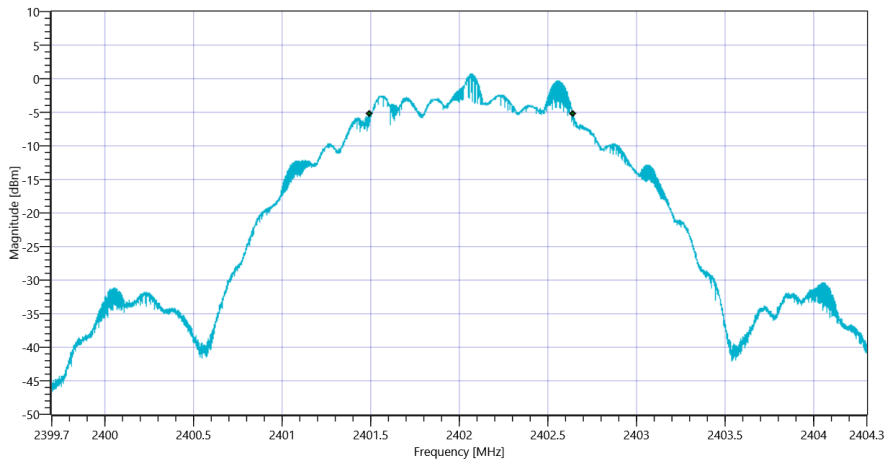
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.74 10.09 15	
Start [MHz] Stop [MHz]	2399.700 2404.300	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	1148	kHz	PASS

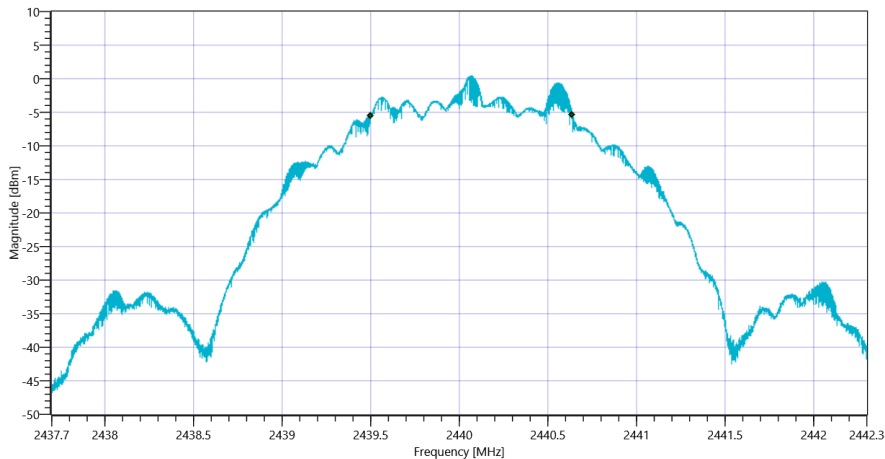


Test at TX 2440 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.47 10.1 15	
Start [MHz] Stop [MHz]	2437.700 2442.300	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	1140	kHz	PASS



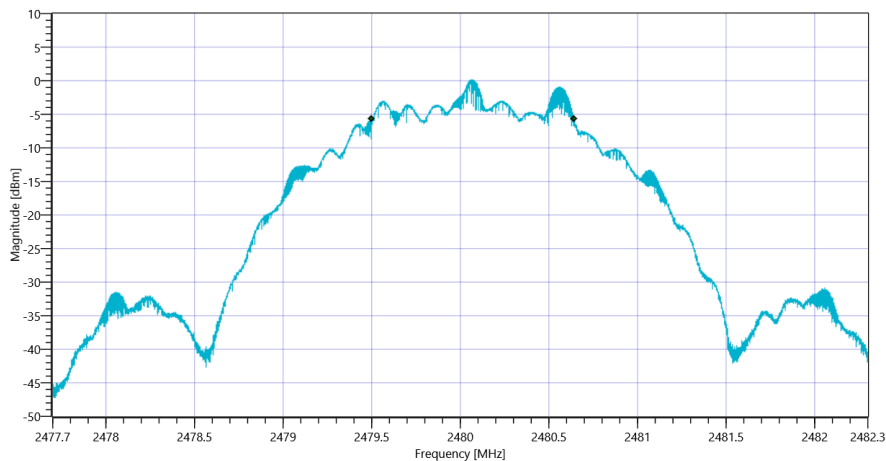
Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 2 Msps_27072020_105731.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.04 10.15 10				
Start [MHz] Stop [MHz]	2477.700 2482.300				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	1144	kHz	PASS



TEST FINISHED		
General Verdict	27.07.2020 10:58:03 / RT: 91 s	PASS

10. FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 2 Msps

Test References	
TC Start	27.07.2020 10:58:08
Ambit Temp [°C] Humidity [rel%]	26.8 45
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 2 Msps
Add. Information	

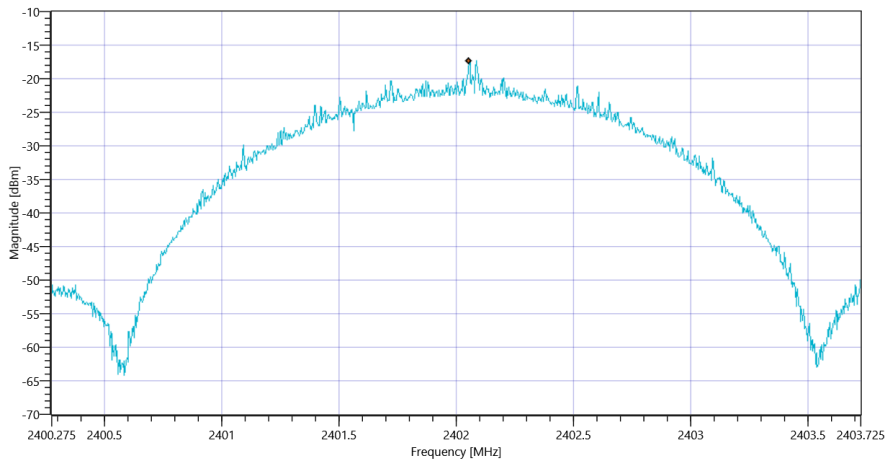
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.73 10.09 15	
Start [MHz] Stop [MHz]	2400.275 2403.725	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-17.35	dBm/3KHz	PASS



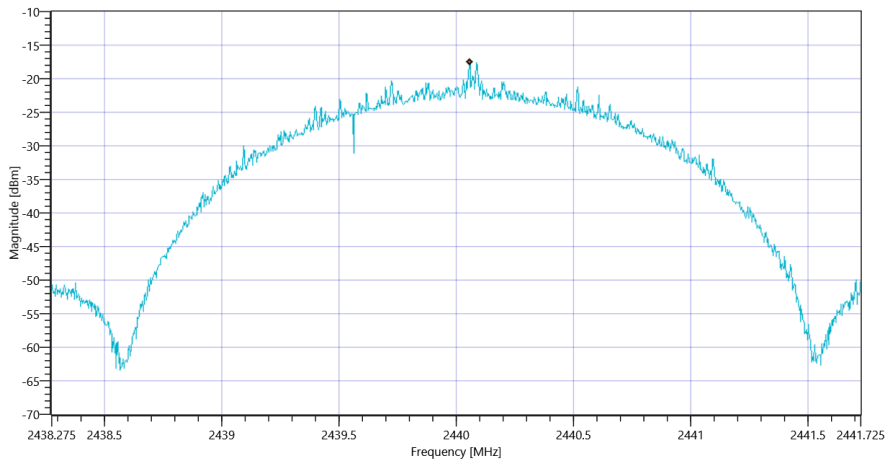
Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 2 Msps_27072020_105845.png

Test at TX 2440 MHz

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

READ SA SETTINGS:		
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.42 10.1 15	
Start [MHz] Stop [MHz]	2438.275 2441.725	
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-17.63	dBm/3KHz	PASS



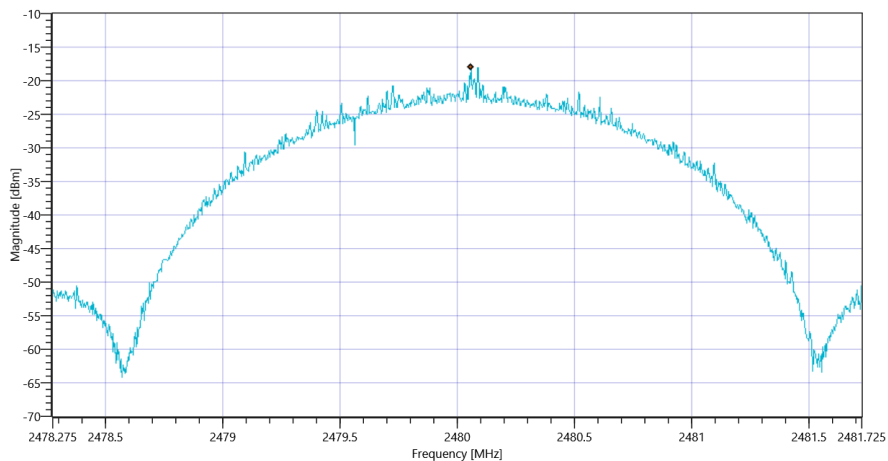
Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 2 Msps_27072020_105926.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	5.00 10.15 10				
Start [MHz] Stop [MHz]	2478.275 2481.725				
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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-17.94	dBm/3KHz	PASS



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 2 Msps_27072020_110007.png

TEST FINISHED		
General Verdict	27.07.2020 11:00:08 / RT: 120 s	PASS

11. FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps

Test References	
TC Start	27.07.2020 11:00:12
Ambit Temp [°C] Humidity [rel%]	27.0 45
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 Msps
Add. Information	

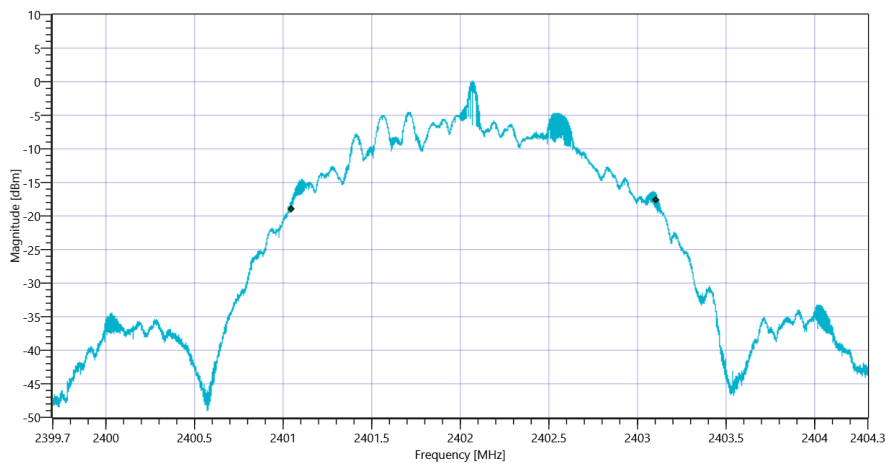
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

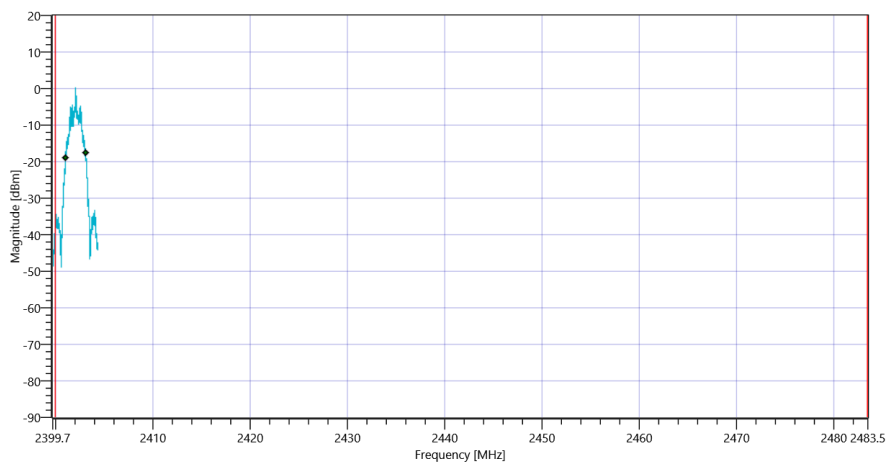
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.68 10.09 15		
Start [MHz] Stop [MHz]			2399.700 2404.300		
RBW [MHz] VBW [MHz]			0.050000 0.200000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	2058	kHz	INFO
T1 99%	2400.000000	---	2401.0474	MHz	PASS
T2 99%	---	2483.500000	2403.1053	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps 99PCT_27072020_110041.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps_27072020_110045.png

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	2141	kHz	INFO
T1 20DB	2400.000000	---	2401.0119	MHz	PASS

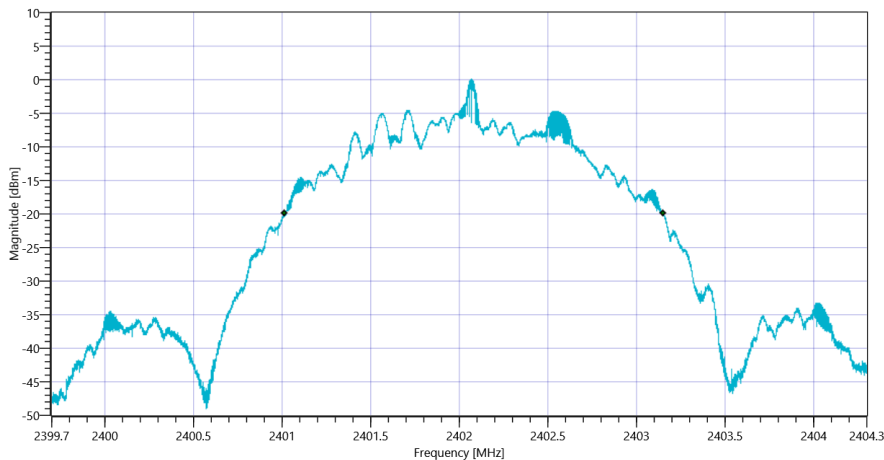
T2 20dB

2483.500000

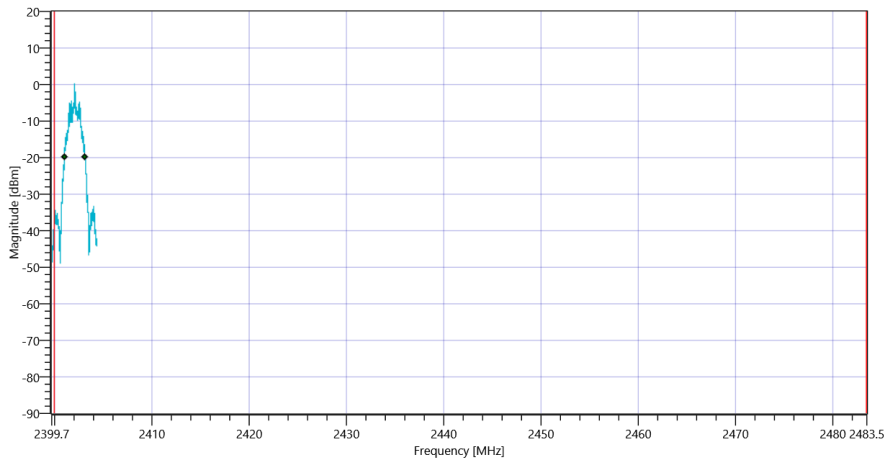
2403.1528

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps 20dB_27072020_110049.png



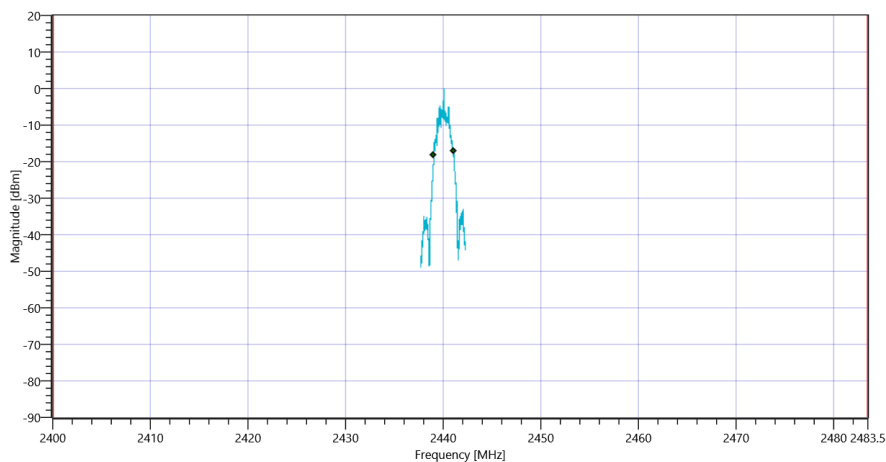
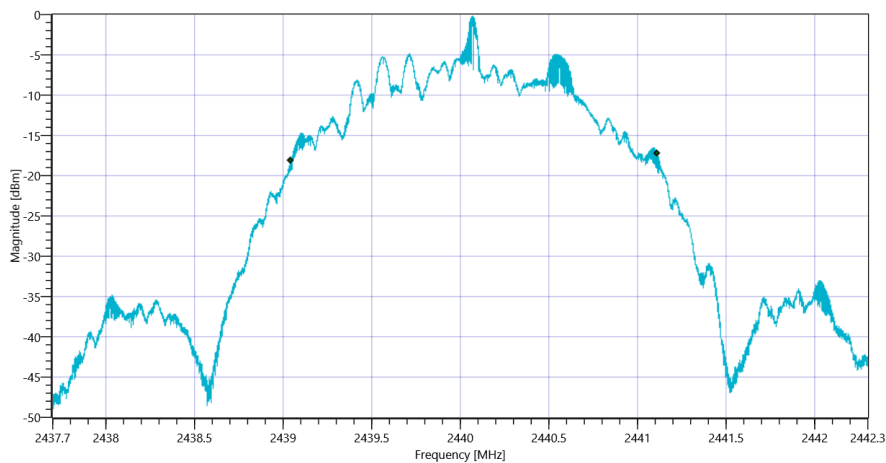
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps_27072020_110053.png

Test at TX 2440 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.43 10.1 15		
Start [MHz] Stop [MHz]			2437.700 2442.300		
RBW [MHz] VBW [MHz]			0.050000 0.200000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	2064	kHz	INFO
T1 99%	2400.000000	---	2439.0451	MHz	PASS
T2 99%	---	2483.500000	2441.1094	MHz	PASS



RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	2145	kHz	INFO
T1 20DB	2400.000000	---	2439.0110	MHz	PASS

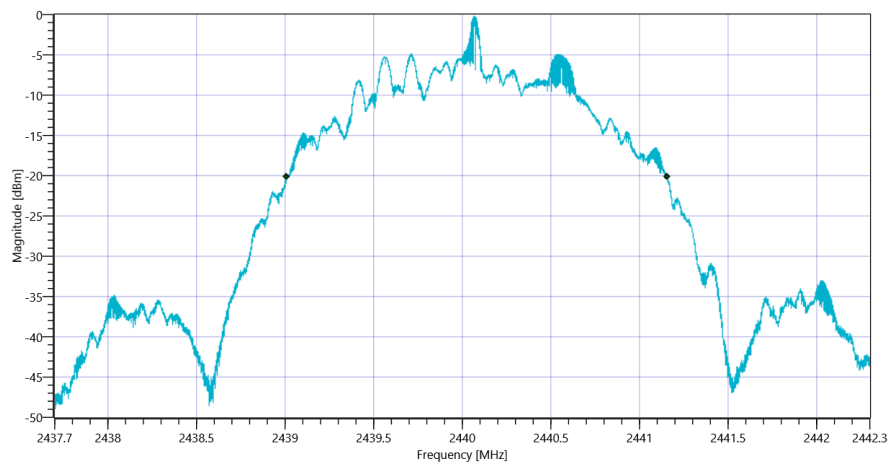
T2 20dB

2483.500000

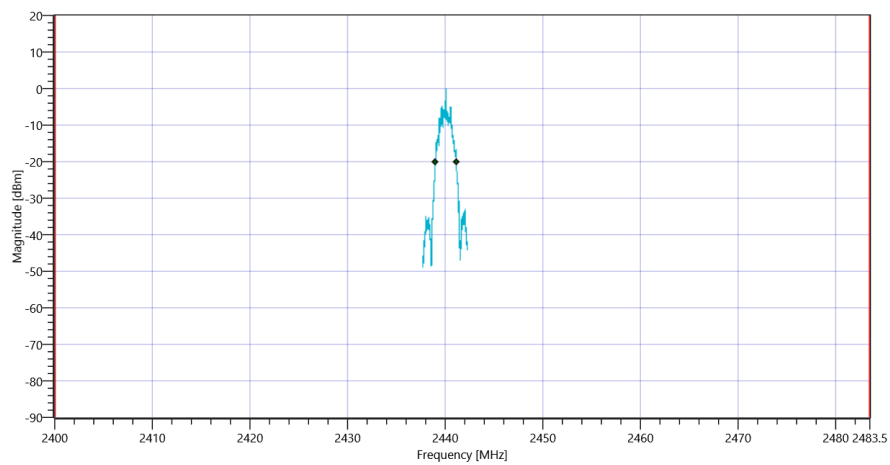
2441.1564

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps 20dB_27072020_110134.png



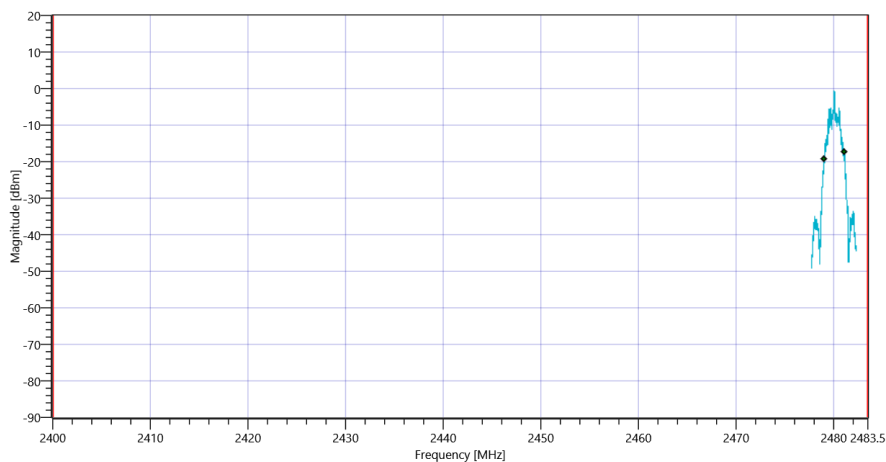
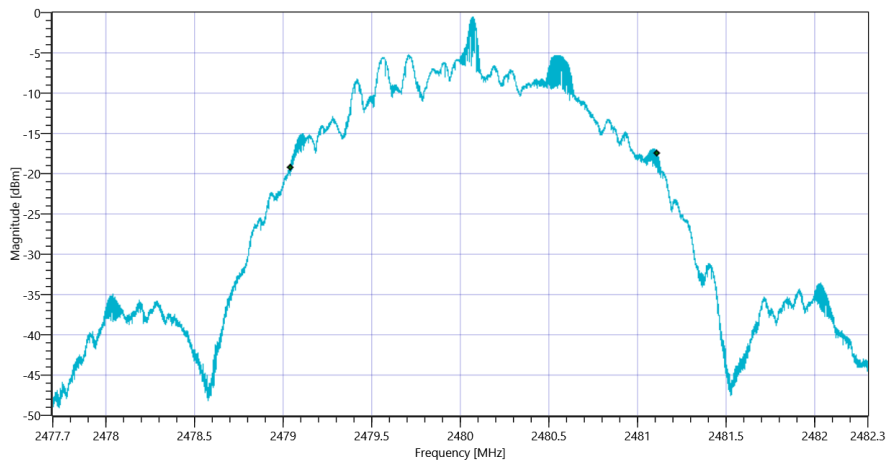
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps_27072020_110138.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.04 10.15 10		
Start [MHz] Stop [MHz]			2477.700 2482.300		
RBW [MHz] VBW [MHz]			0.050000 0.200000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			50 200 10001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	2065	kHz	INFO
T1 99%	2400.000000	---	2479.0451	MHz	PASS
T2 99%	---	2483.500000	2481.1103	MHz	PASS



RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	2150	kHz	INFO
T1 20DB	2400.000000	---	2479.0101	MHz	PASS

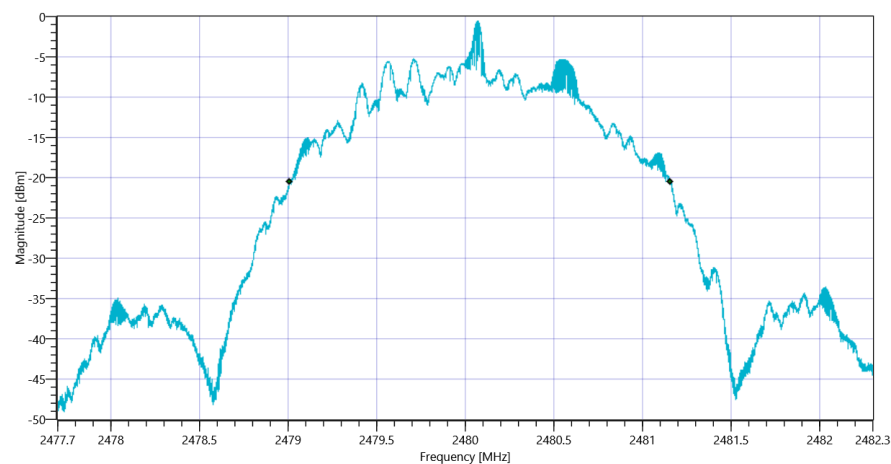
T2 20dB

2483.500000

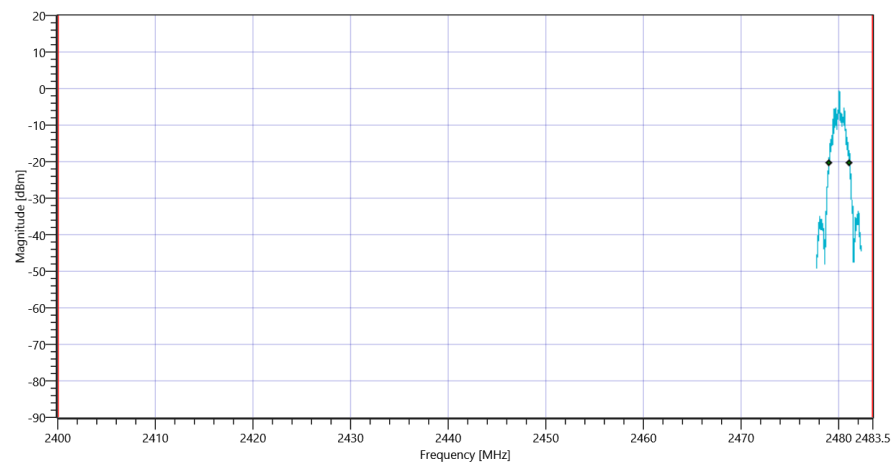
2481.1597

MHz

PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps 20dB_27072020_110220.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 2 Msps_27072020_110224.png

TEST FINISHED

General Verdict

27.07.2020 11:02:24 / RT: 132 s

PASS

12. FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps

Test References	
TC Start	27.07.2020 11:02:29
Ambit Temp [°C] Humidity [rel%]	27.1 44
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable.
Class / TC Version	TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 2 Msps
Add. Information	

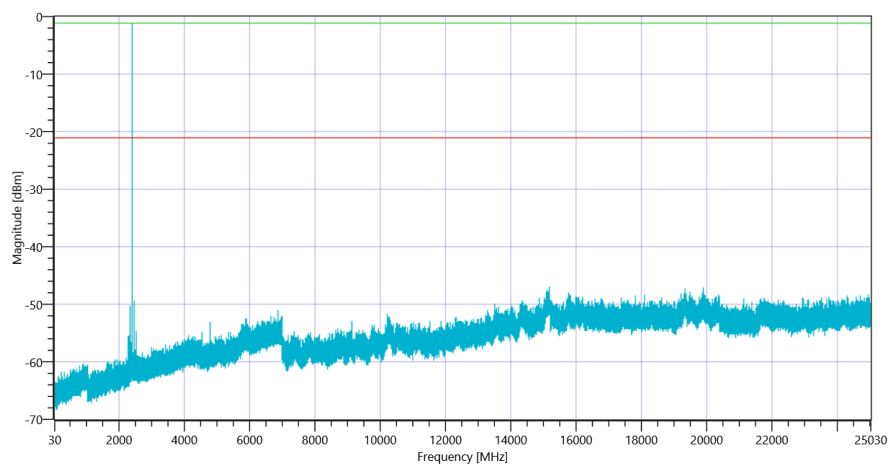
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	True Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

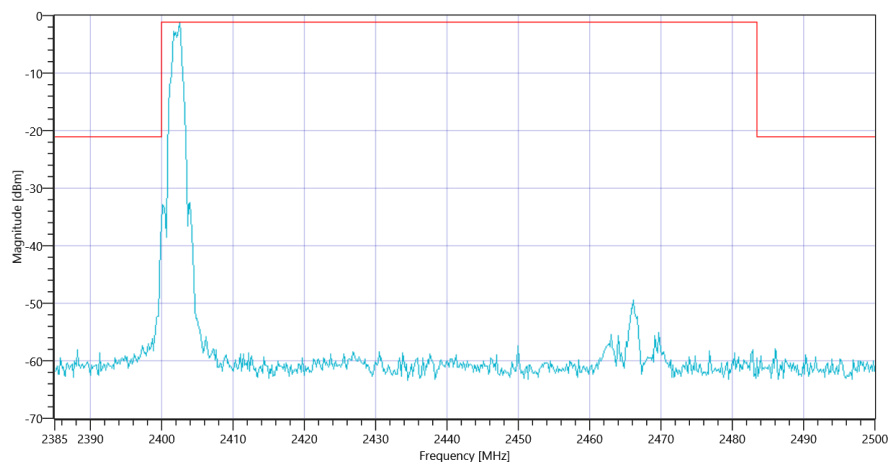
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			1.11 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.50 MHz	---	---	-1.10	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.833 MHz	0	---	17.87	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2402_27072020_110716.png



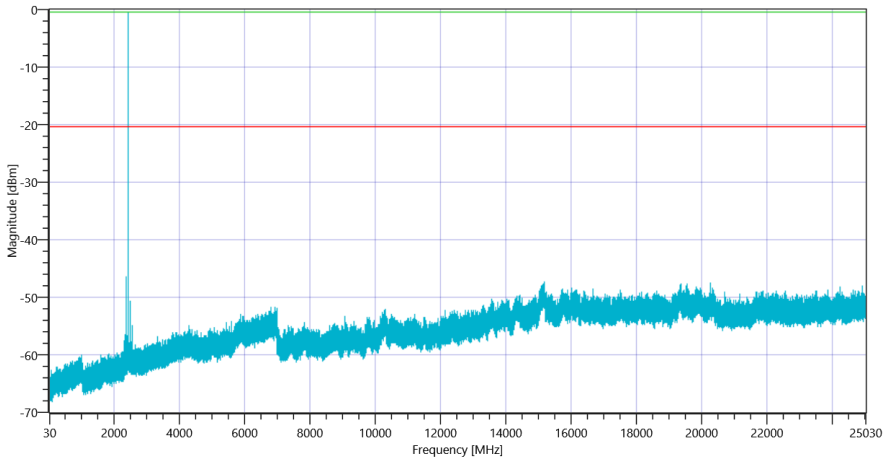
Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2402_27072020_110719.png

Test at TX 2440 MHz

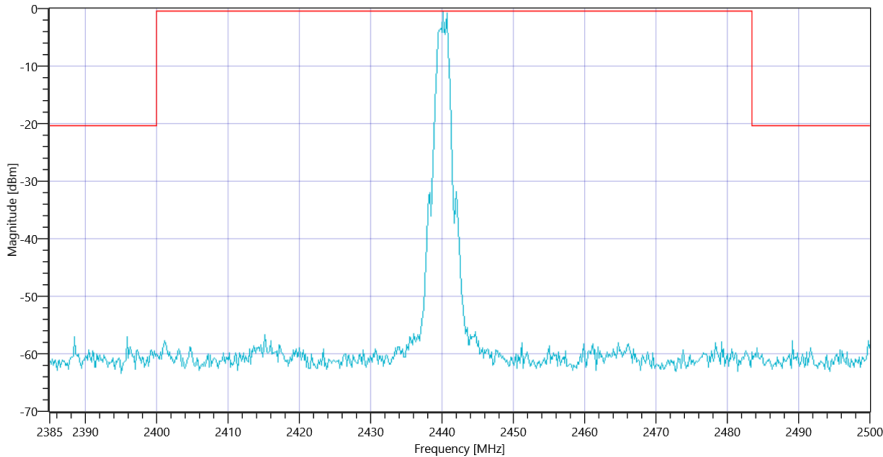
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:	
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.90 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.17 MHz	---	---	-0.45	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2375.833 MHz	0	---	26.06	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2440_27072020_111211.png



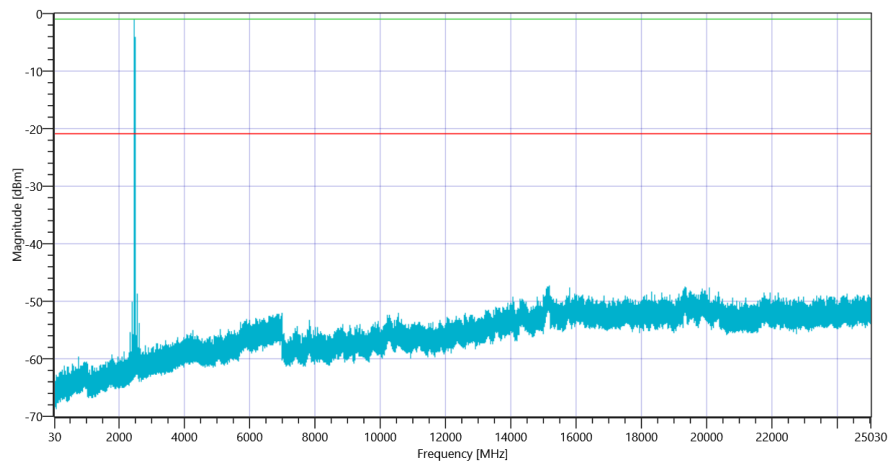
Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2440_27072020_111214.png

Test at TX 2480 MHz

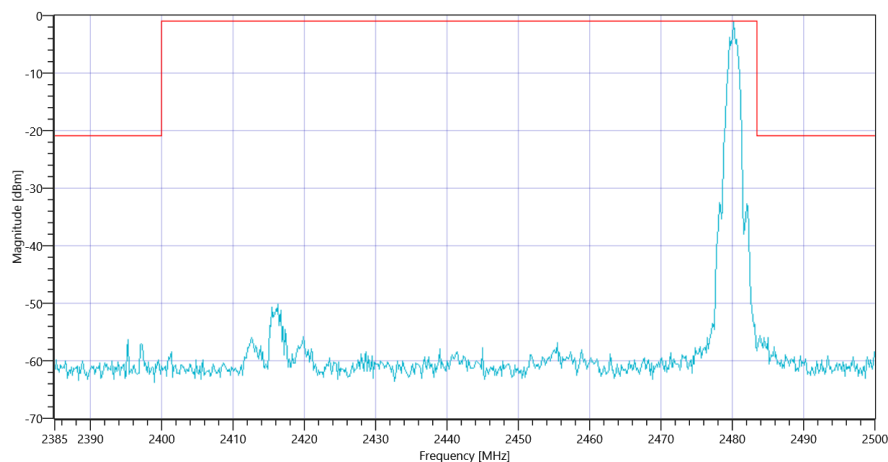
DTM Connection check					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Connection result	---	---	---	---	PASS

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			0.27 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					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.17 MHz	---	---	-0.93	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 15182 MHz	0	---	26.39	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2480_27072020_111706.png



Plot_FCC Part 15.247 TX Spurious Conducted ~ BT LE 2 Msps 2480_27072020_111709.png

TEST FINISHED		
General Verdict	27.07.2020 11:17:10 / RT: 881 s	PASS

13. FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Video Avg ~ BT LE 2 Msps

Test References	
TC Start	27.07.2020 11:17:15
Ambit Temp [°C] Humidity [rel%]	27.7 44
System Version	1.0.0.49
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.2 Peak Detection
Class / TC Version	TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Peak_V01 Version: 0.0.1
My Description	FCC 15.247 Restricted Band Edge Conducted Peak DTS - BT LE 2 Msps
Add. Information	

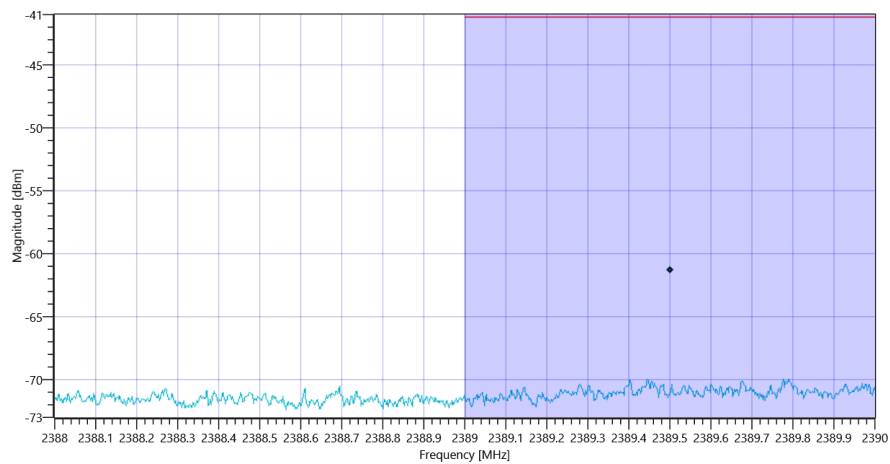
Test Parameter	
Technology to test	BT LE 2 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True Freq [MHz] 2402
Frequency mid to test	False Freq [MHz] 2440
Frequency high to test	True Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.170 SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.60

Test at TX 2402 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]			5.65 10.09 15		
Start [MHz] Stop [MHz]			2388.000 2390.000		
RBW [MHz] VBW [MHz]			0.100000 0.002000		
Detector TraceMode			POS MAXH		
Sweep: Time [ms] Count Points per Section Type			8 300 1001 SWE		

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Band Power without Antenna Gain	---	-41.23	-61.29	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-61.29	dBm	PASS



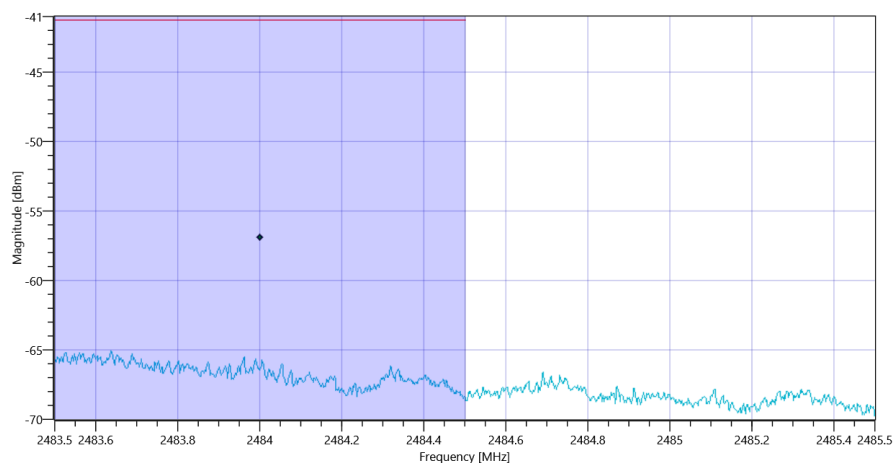
Plot_FCC Part 15.247 Restricted Band Edge Conducted Peak DTS Video Avg ~ BT LE 2 Msps_27072020_111735.png

Test at TX 2480 MHz

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

READ SA SETTINGS:					
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	4.93 10.15 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				

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Band Power without Antenna Gain	---	-41.23	-56.91	dBm	Information
Band Power incl. Antenna Gain	---	-41.23	-56.91	dBm	PASS



TEST FINISHED		
General Verdict	27.07.2020 11:17:59 / RT: 44 s	PASS

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