

# Measurement Results

1-7901/19-01-13\_Annex\_MR\_A\_1

[Test logging](#)

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## IUT Summary

IUT DEFINITION	
Manufacturer	Parrot Automotive SAS
Type	IVI
Serial No.	see BT Address
Setup No.	NI
SW Version	NI
HW Version	NI
Comment 1	NI
Comment 2	NI

IUT Common Settings	
Tlow [°C]	-40
Tmid [°C]	20
Thigh [°C]	85
Vlow [V]	9
Vmid [V]	13.5
Vhigh [V]	16
Imax [A]	3
Auto Control enabled Power Supply   Climatic Box	Yes   No
Antenna Gain [dBi]	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	False   TXpayload 255   RXpayload 255
Longrange S8 supported	False   TXpayload 255   RXpayload 255
Longrange S2 supported	False   TXpayload 255   RXpayload 255
Signaling Settings	None   HCI   1   B24K   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	Yes
Switch Matrix & Pathcompensation enabled	Yes

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

Test References	
TC Start	29.07.2019 10:17:53
System Version	1.0.0.16
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 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
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

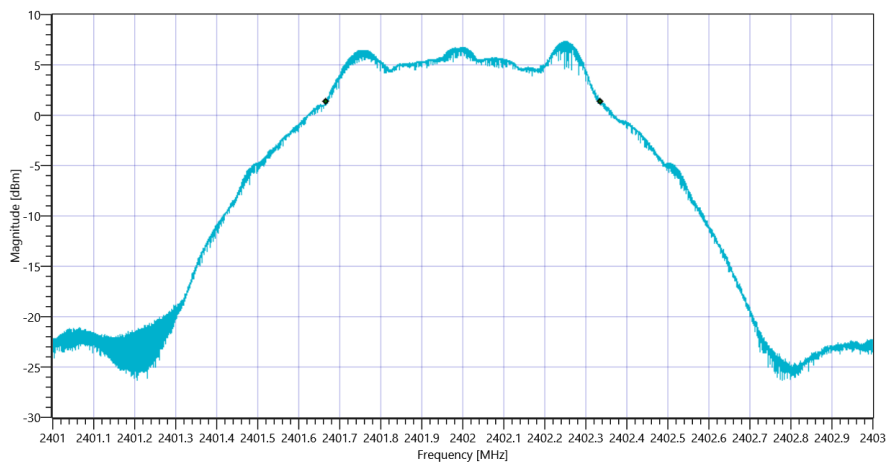
## Test at TX 2402 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.48
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	20
Freq. Start [MHz]	2401.000
Freq. Stop [MHz]	2403.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: DTS Bandwidth

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	669	kHz	Information



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 MspS DTS BW \_29072019\_101841.png

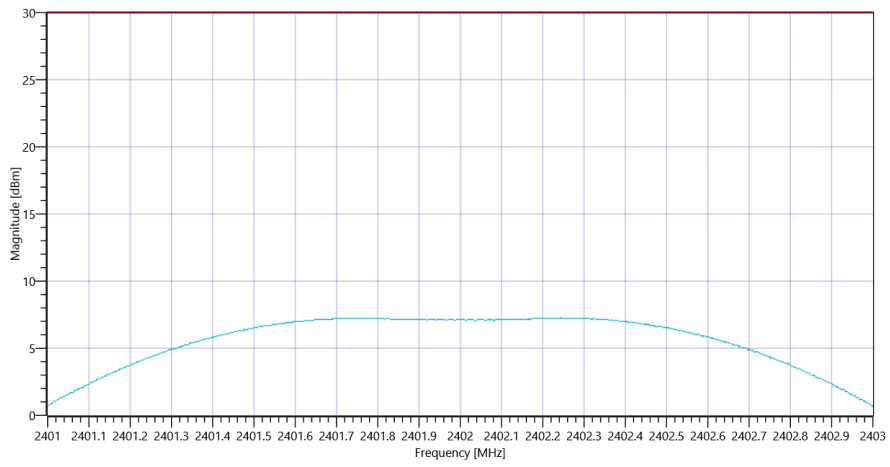
### READ SA SETTINGS:

Ref. Level [dBm]	17.48
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	25
Freq. Start [MHz]	2401.000
Freq. Stop [MHz]	2403.000
Resolution BW. [MHz]	1.000000
Video BW. [MHz]	5.000000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	1001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Maximum\_Peak\_Conducted\_Output\_Power\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	7.25	dBm	PASS
Peak Power	---	1000	5.308844	mW	PASS

Frequency at Peak	--	--	2402.244	MHz	Information
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Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_29072019\_101855.png

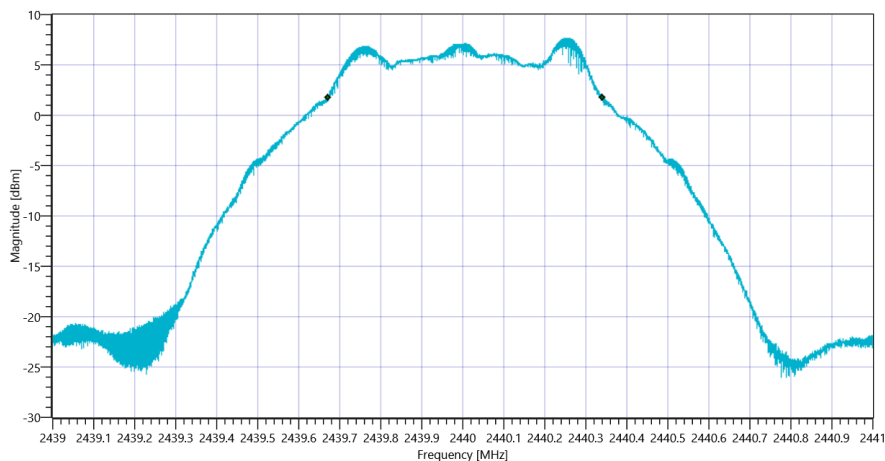
## Test at TX 2440 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.79
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	20
Freq. Start [MHz]	2439.000
Freq. Stop [MHz]	2441.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: DTS Bandwidth

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



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 MspS DTS BW \_29072019\_101932.png

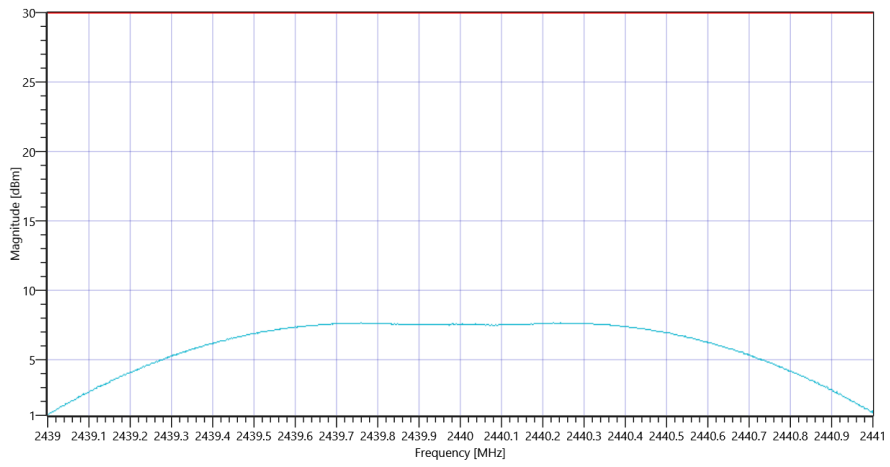
### READ SA SETTINGS:

Ref. Level [dBm]	17.79
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	25
Freq. Start [MHz]	2439.000
Freq. Stop [MHz]	2441.000
Resolution BW. [MHz]	1.000000
Video BW. [MHz]	5.000000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	1001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Maximum\_Peak\_Conducted\_Output\_Power\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	7.65	dBm	PASS
Peak Power	---	1000	5.821032	mW	PASS

Frequency at Peak	--	--	2440.242	MHz	Information
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Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_29072019\_101947.png



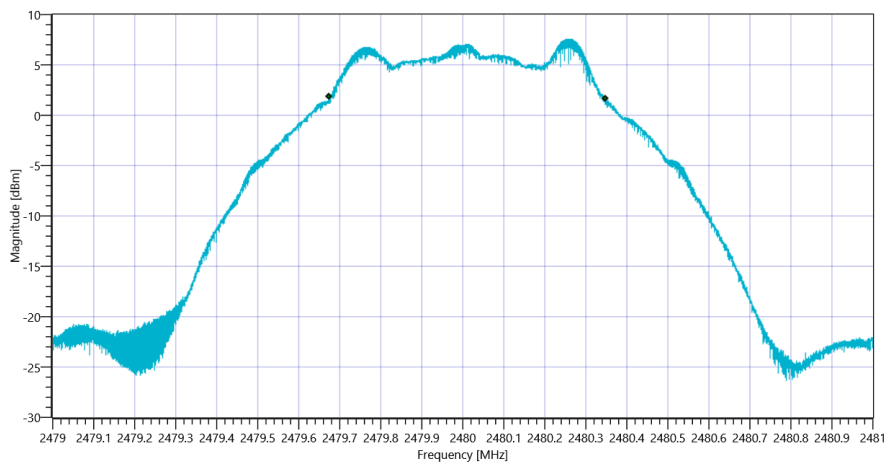
## Test at TX 2480 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.63
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	20
Freq. Start [MHz]	2479.000
Freq. Stop [MHz]	2481.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: DTS Bandwidth

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	673	kHz	Information



Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 MspS DTS BW \_29072019\_102023.png

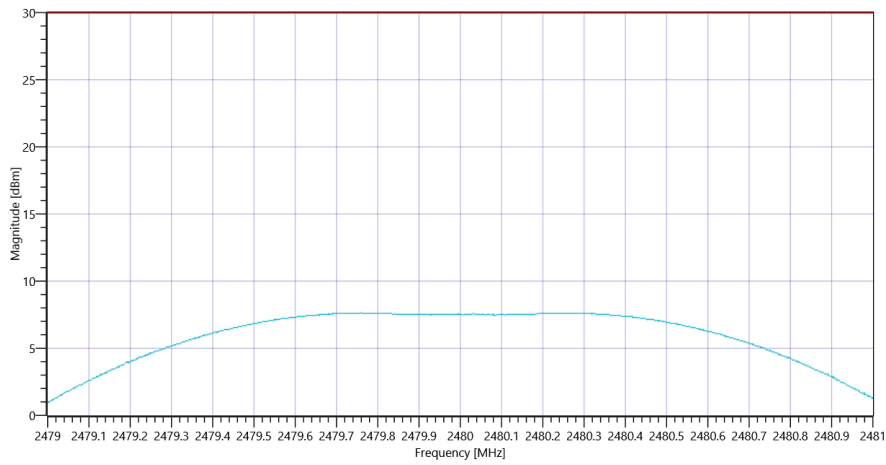
### READ SA SETTINGS:

Ref. Level [dBm]	17.63
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	25
Freq. Start [MHz]	2479.000
Freq. Stop [MHz]	2481.000
Resolution BW. [MHz]	1.000000
Video BW. [MHz]	5.000000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	1001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Maximum\_Peak\_Conducted\_Output\_Power\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	7.65	dBm	PASS
Peak Power	---	1000	5.821032	mW	PASS

Frequency at Peak	--	--	2479.76	MHz	Information
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Plot\_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ BT LE 1 Msps\_29072019\_102038.png

TEST FINISHED		
General Verdict	29.07.2019 10:20:38 / RT: 165 s	PASS

## 2. FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msp/s

Test References	
TC Start	29.07.2019 10:20:42
System Version	1.0.0.16
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/s
Add. Information	

Test Parameter	
Technology to test	BT LE 1 Msp/s
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

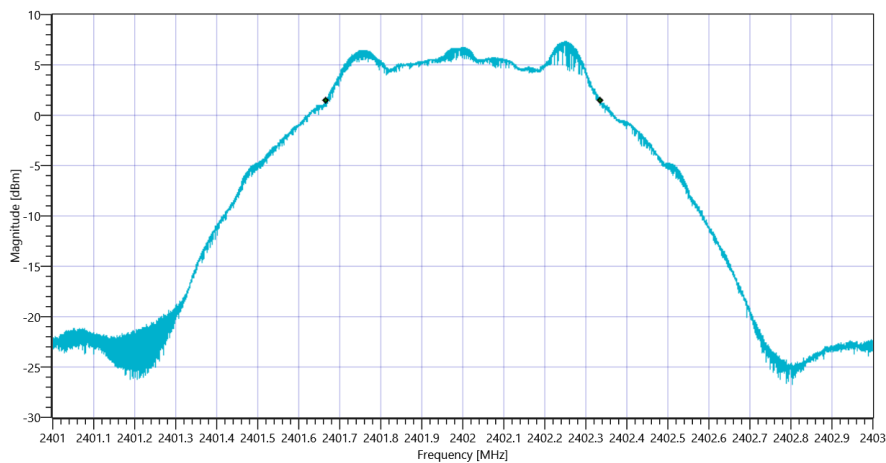
## Test at TX 2402 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.46
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	20
Freq. Start [MHz]	2401.000
Freq. Stop [MHz]	2403.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Bandwidth\_6dB\_DTS\_V01

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



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_29072019\_102139.png

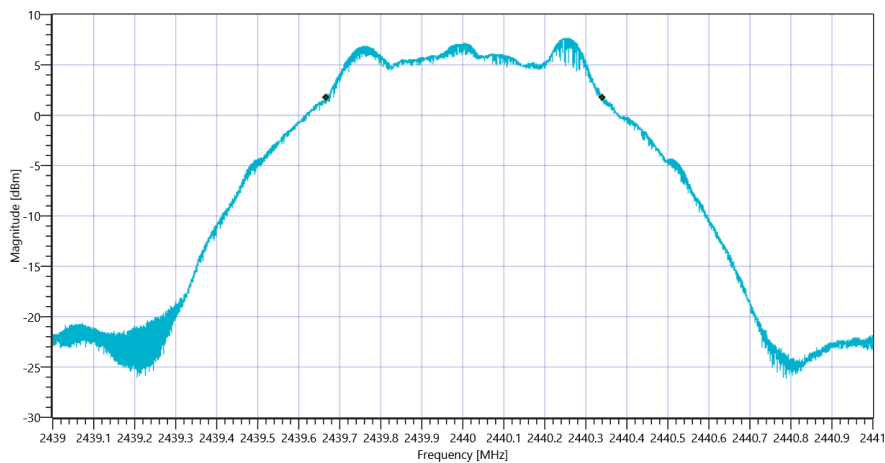
## Test at TX 2440 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.79
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	20
Freq. Start [MHz]	2439.000
Freq. Stop [MHz]	2441.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Bandwidth\_6dB\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	674	kHz	PASS



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_29072019\_102215.png

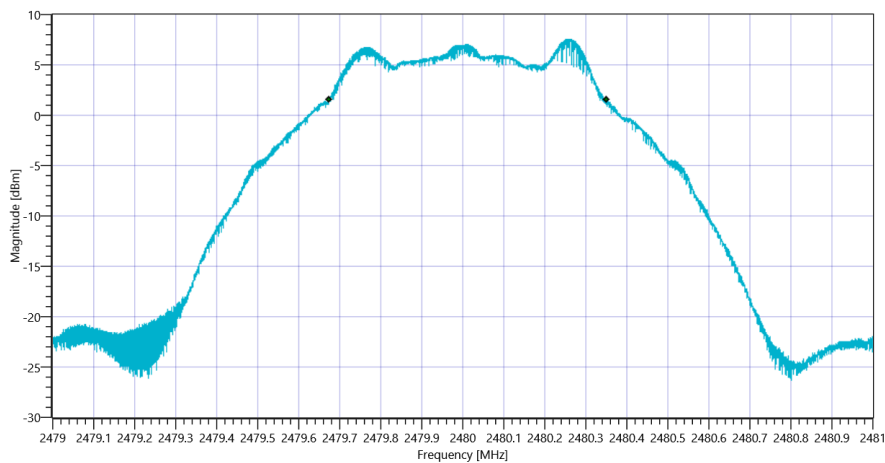
## Test at TX 2480 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	12.61
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	20
Freq. Start [MHz]	2479.000
Freq. Stop [MHz]	2481.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Bandwidth\_6dB\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	677	kHz	PASS



Plot\_FCC Part 15.247 Bandwidth 6dB DTS ~ BT LE 1 Msps\_29072019\_102255.png

### TEST FINISHED

General Verdict

29.07.2019 10:22:55 / RT: 132 s

PASS

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

Test References	
TC Start	29.07.2019 10:22:59
System Version	1.0.0.16
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version / TC ID	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1   TCID_FCC15247_6
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps
Add. Information	

Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

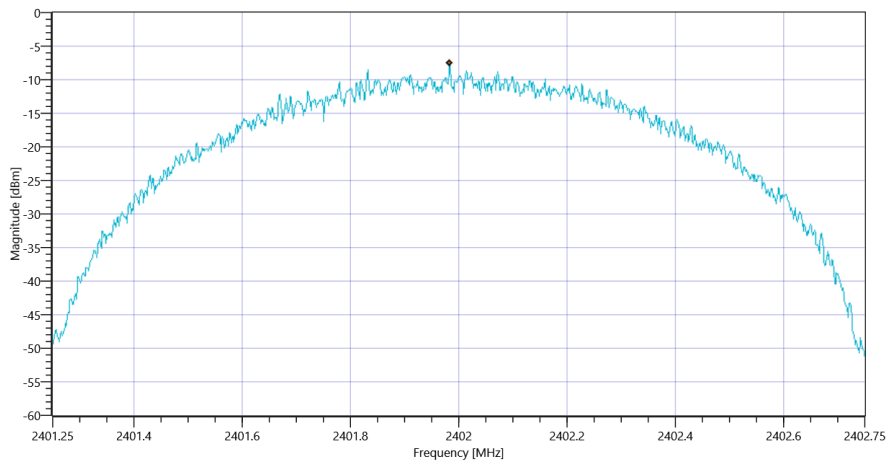
## Test at TX 2402 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	13.13
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	20
Freq. Start [MHz]	2401.250
Freq. Stop [MHz]	2402.750
Resolution BW. [MHz]	0.003000
Video BW. [MHz]	0.010000
Detector	POS
Sweep Time [ms]	1000
Sweep Points/Section	1001
Sweep Count	20
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Peak\_Power\_Spectral\_Density\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-7.53	dBm/3KHz	PASS



Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_29072019\_102351.png



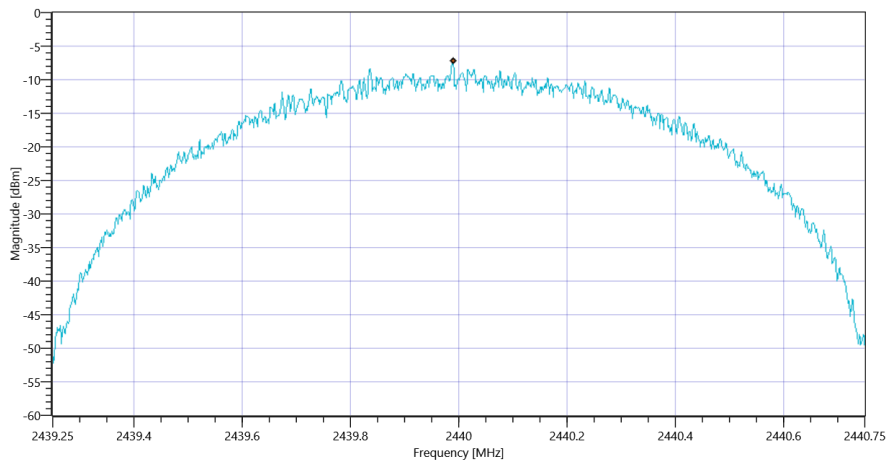
## Test at TX 2440 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	13.49
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	20
Freq. Start [MHz]	2439.250
Freq. Stop [MHz]	2440.750
Resolution BW. [MHz]	0.003000
Video BW. [MHz]	0.010000
Detector	POS
Sweep Time [ms]	1000
Sweep Points/Section	1001
Sweep Count	20
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Peak\_Power\_Spectral\_Density\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-7.2	dBm/3KHz	PASS



Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_29072019\_102440.png

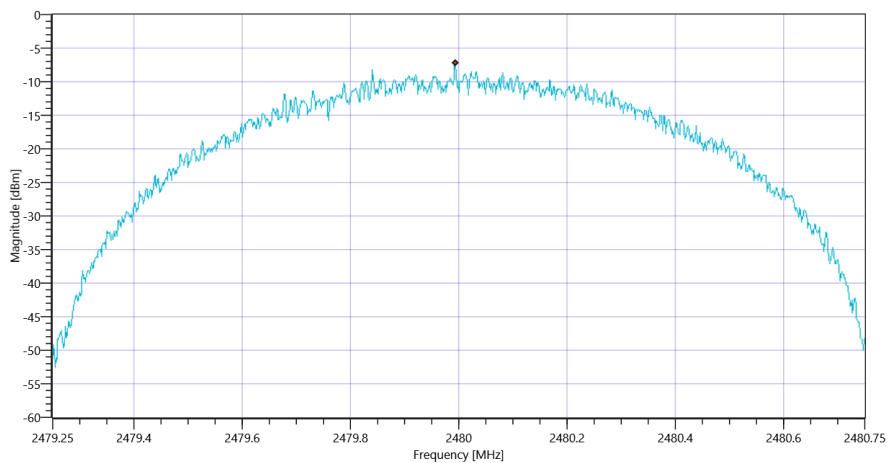
## Test at TX 2480 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	13.35
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	20
Freq. Start [MHz]	2479.250
Freq. Stop [MHz]	2480.750
Resolution BW. [MHz]	0.003000
Video BW. [MHz]	0.010000
Detector	POS
Sweep Time [ms]	1000
Sweep Points/Section	1001
Sweep Count	20
Sweep Mode	MAXH
Used Sweep Type	SWE

### RESULT: TC\_VM\_FCC15247\_Peak\_Power\_Spectral\_Density\_DTS\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-7.31	dBm/3KHz	PASS



Plot\_FCC Part 15.247 Peak Power Spectral Density DTS ~ BT LE 1 Msps\_29072019\_102527.png

### TEST FINISHED

General Verdict

29.07.2019 10:25:27 / RT: 148 s

PASS

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

Test References	
TC Start	29.07.2019 10:25:31
System Version	1.0.0.16
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version / TC ID	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2   TCID_FCC15247_2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
Add. Information	

Test Parameter	
Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

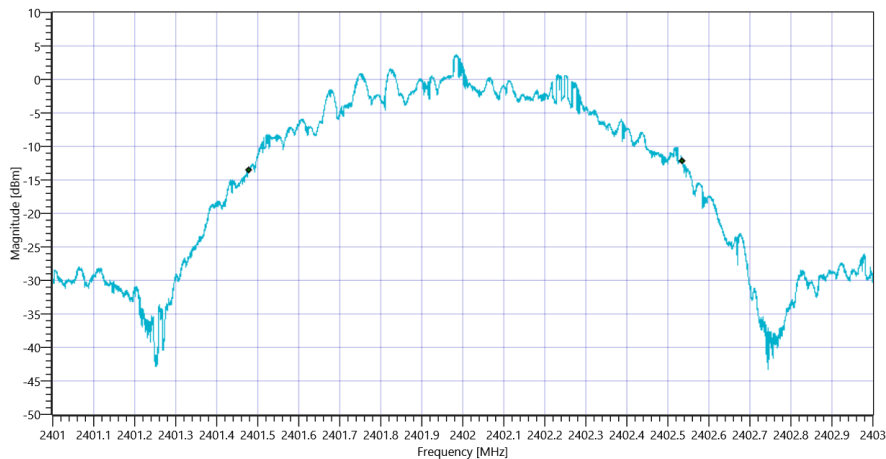
## Test at TX 2402 MHz

### READ SA SETTINGS:

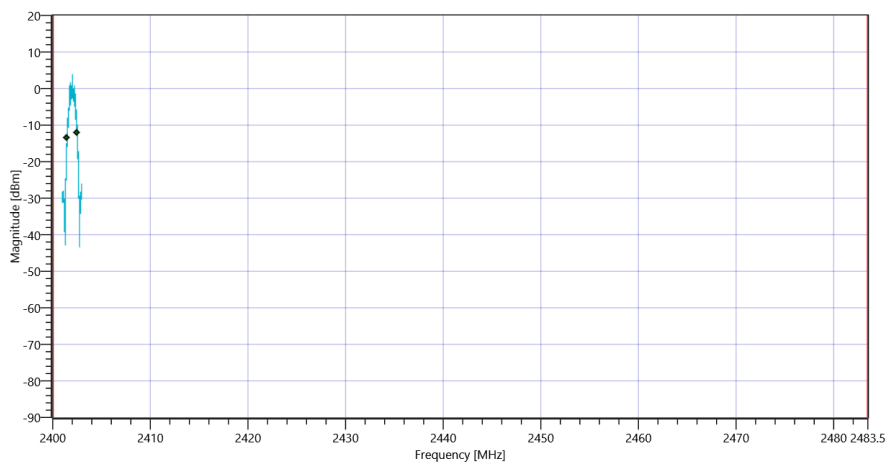
Ref. Level [dBm]	13.12
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	20
Freq. Start [MHz]	2401.000
Freq. Stop [MHz]	2403.000
Resolution BW. [MHz]	0.020000
Video BW. [MHz]	0.050000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1056	kHz	Information
T1 99%	2400.000000	---	2401.4801	MHz	PASS
T2 99%	---	2483.500000	2402.5363	MHz	PASS

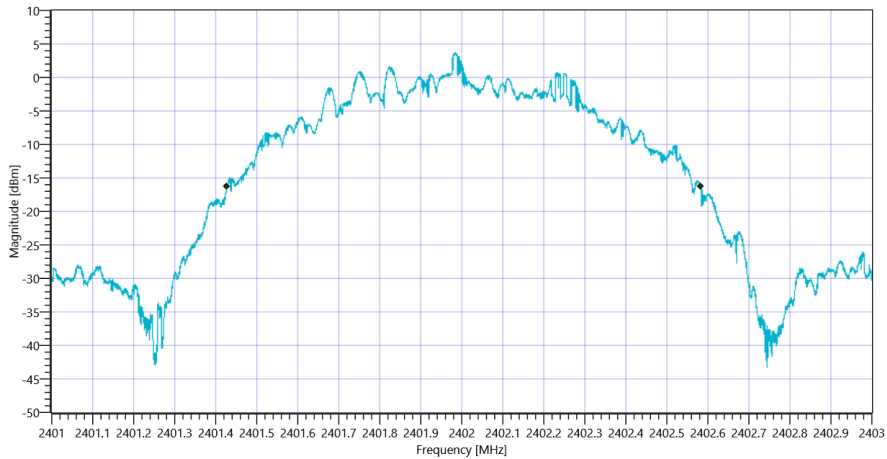


Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps 99PCT\_29072019\_102616.png

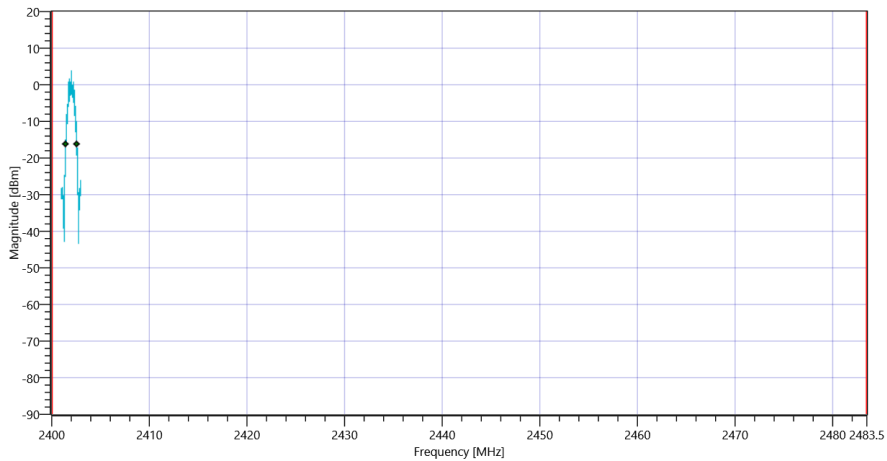


Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps\_29072019\_102619.png

RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1155	kHz	Information
T1 20dB	2400.000000	--	2401.4278	MHz	PASS
T2 20dB	--	2483.500000	2402.5832	MHz	PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 29072019\_102622.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 29072019\_102625.png

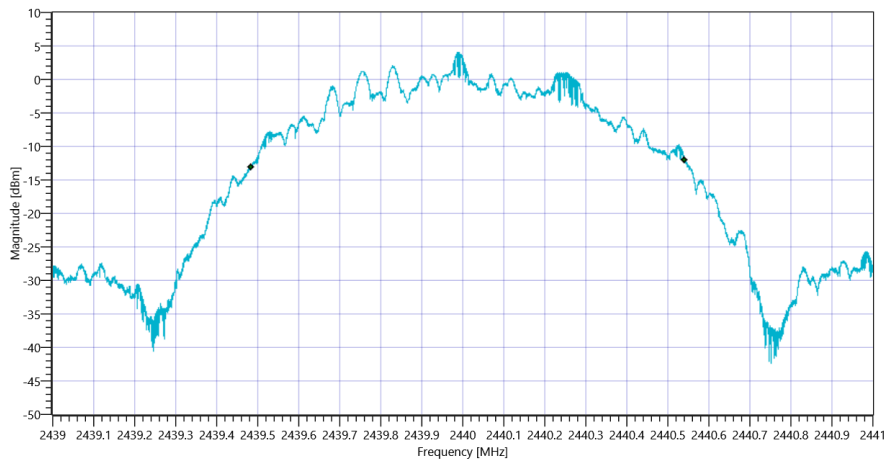
## Test at TX 2440 MHz

### READ SA SETTINGS:

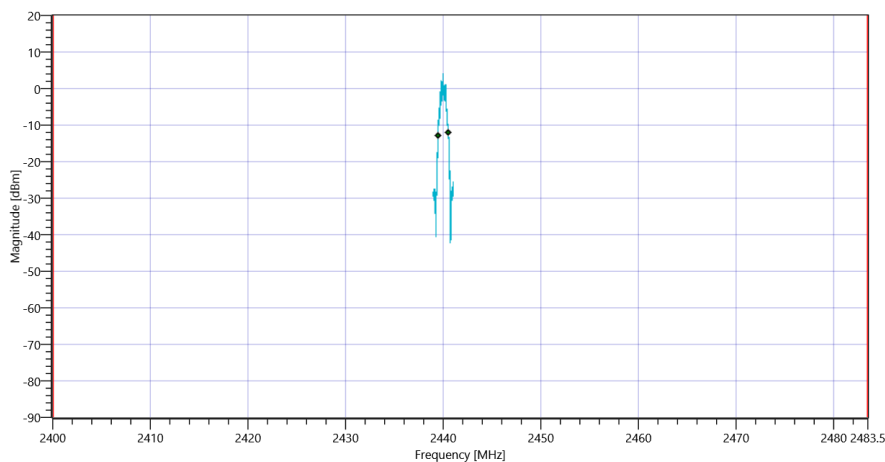
Ref. Level [dBm]	13.48
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	20
Freq. Start [MHz]	2439.000
Freq. Stop [MHz]	2441.000
Resolution BW. [MHz]	0.020000
Video BW. [MHz]	0.050000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1056	kHz	Information
T1 99%	2400.000000	---	2439.4849	MHz	PASS
T2 99%	---	2483.500000	2440.5405	MHz	PASS

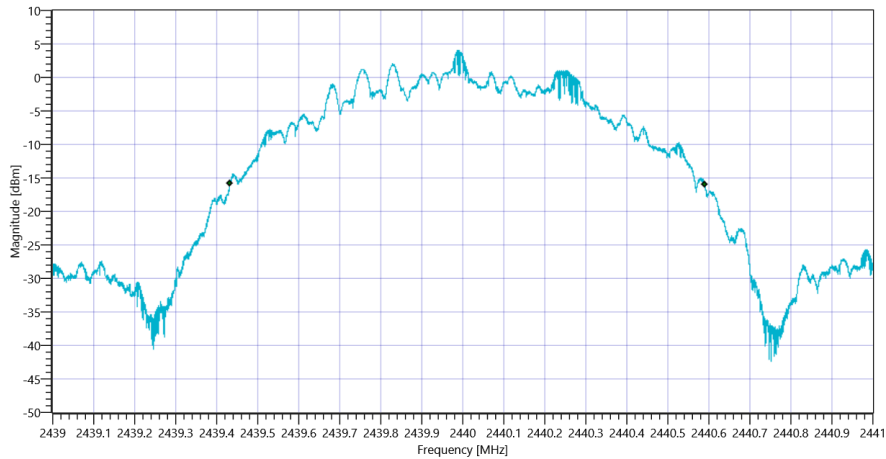


Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps 99PCT\_29072019\_102709.png

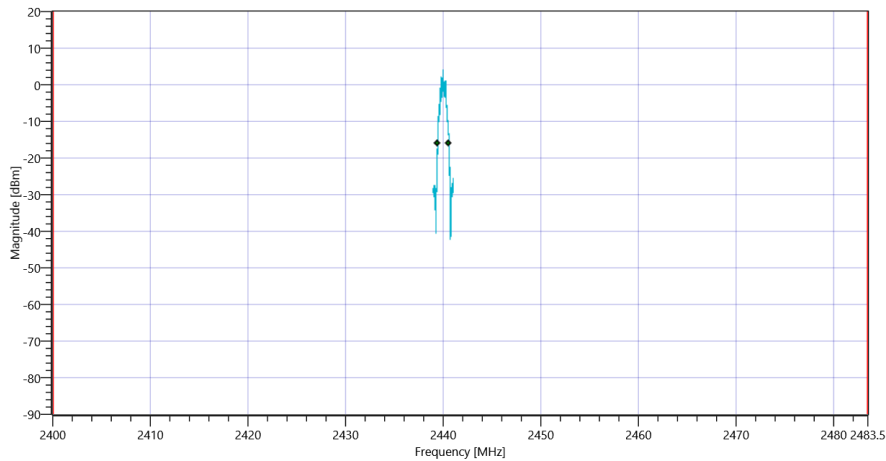


Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps\_29072019\_102712.png

RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1157	kHz	Information
T1 20dB	2400.000000	--	2439.4322	MHz	PASS
T2 20dB	--	2483.500000	2440.5892	MHz	PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 29072019\_102716.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 Msps 29072019\_102719.png

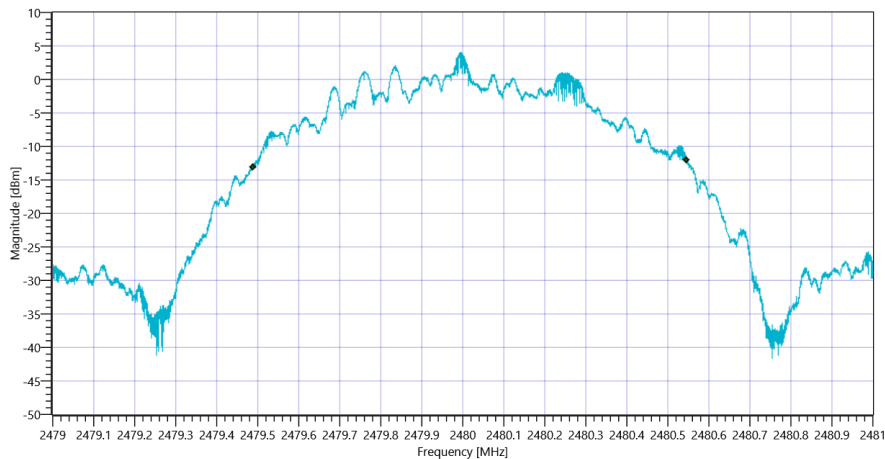
## Test at TX 2480 MHz

### READ SA SETTINGS:

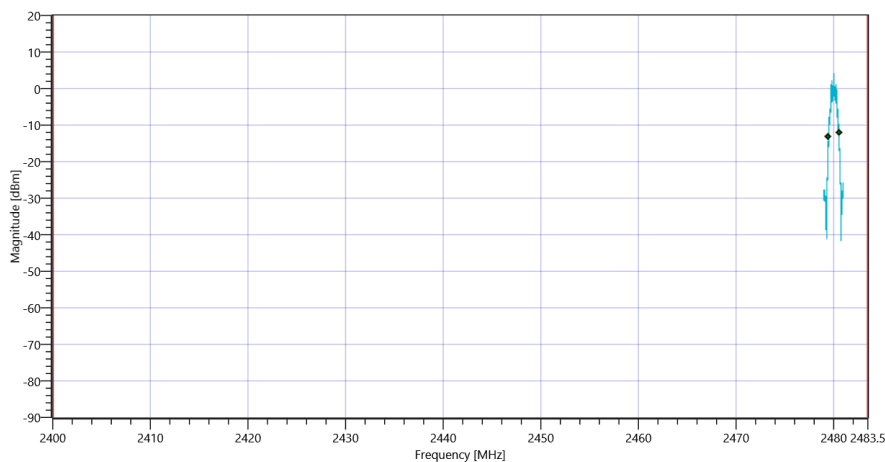
Ref. Level [dBm]	13.37
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	20
Freq. Start [MHz]	2479.000
Freq. Stop [MHz]	2481.000
Resolution BW. [MHz]	0.020000
Video BW. [MHz]	0.050000
Detector	POS
Sweep Time [ms]	50
Sweep Points/Section	10001
Sweep Count	200
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1056	kHz	Information
T1 99%	2400.000000	---	2479.4889	MHz	PASS
T2 99%	---	2483.500000	2480.5449	MHz	PASS



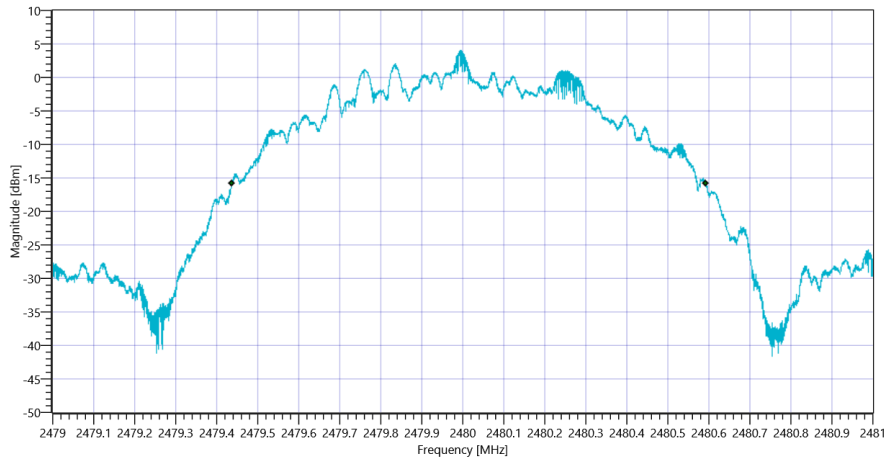
Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps 99PCT\_29072019\_102758.png



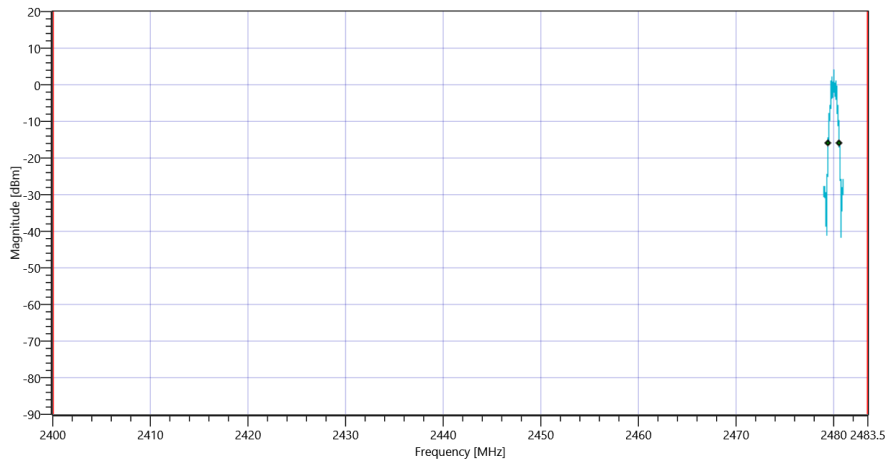
Plot\_FCC Part 15.247 Bandwidth 99PCT:20dB ~ BT LE 1 Msps\_29072019\_102801.png



RESULT: TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1157	kHz	Information
T1 20dB	2400.000000	--	2479.4360	MHz	PASS
T2 20dB	--	2483.500000	2480.5930	MHz	PASS



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 MspS 20dB\_29072019\_102805.png



Plot\_FCC Part 15.247 Bandwidth 99PCT-20dB ~ BT LE 1 MspS 20dB\_29072019\_102808.png

TEST FINISHED		
General Verdict	29.07.2019 10:28:08 / RT: 157 s	PASS

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

Test References	
TC Start	29.07.2019 10:28:13
System Version	1.0.0.16
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
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

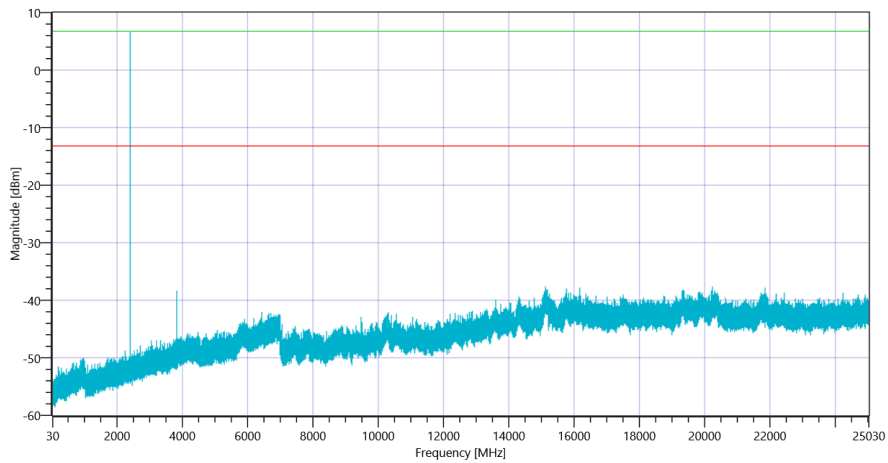
## Test at TX 2402 MHz

### READ SA SETTINGS:

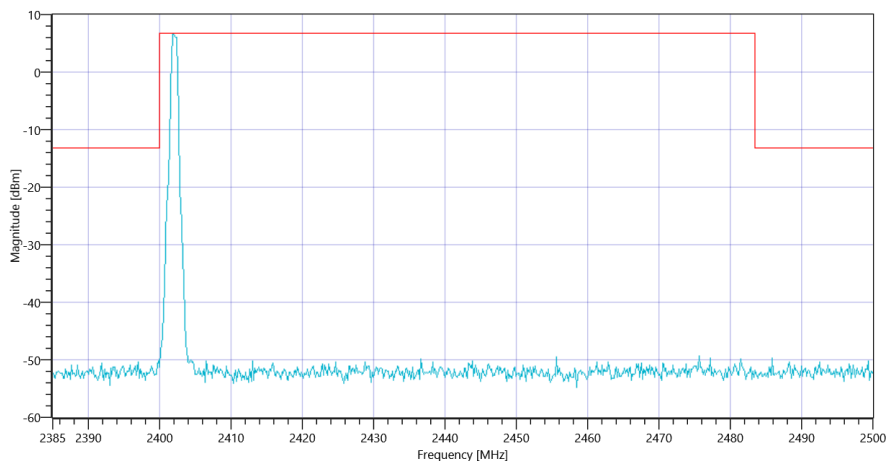
Ref. Level [dBm]	13.33
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	500
Sweep Points/Section	3001
Sweep Count	8
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.00 MHz	---	---	6.78	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402\_29072019\_103316.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2402\_29072019\_103319.png

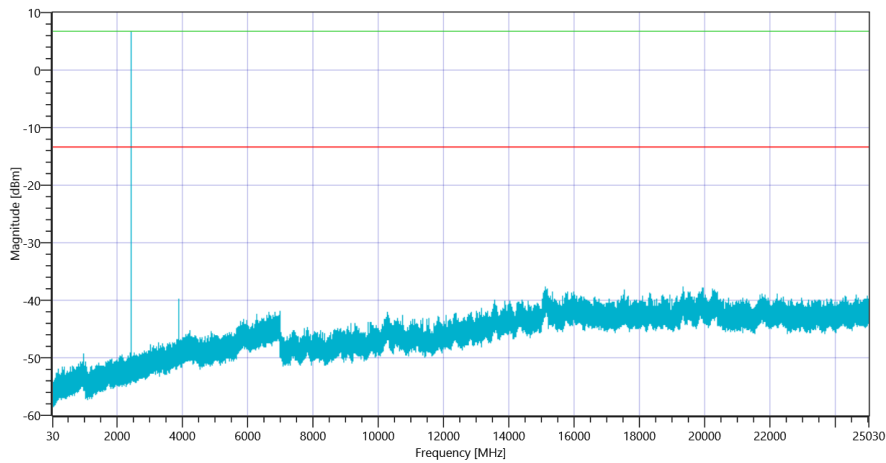
## Test at TX 2440 MHz

### READ SA SETTINGS:

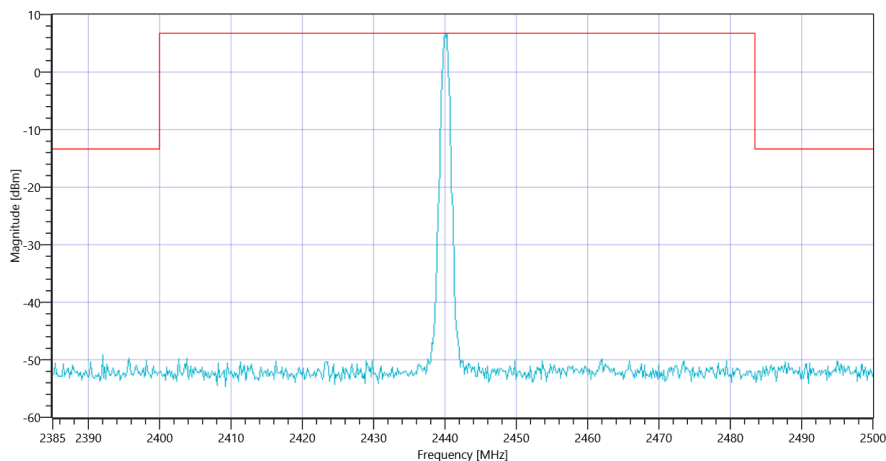
Ref. Level [dBm]	13.57
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	500
Sweep Points/Section	3001
Sweep Count	8
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.33 MHz	---	---	6.67	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2440\_29072019\_103849.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 Msps 2440\_29072019\_103851.png

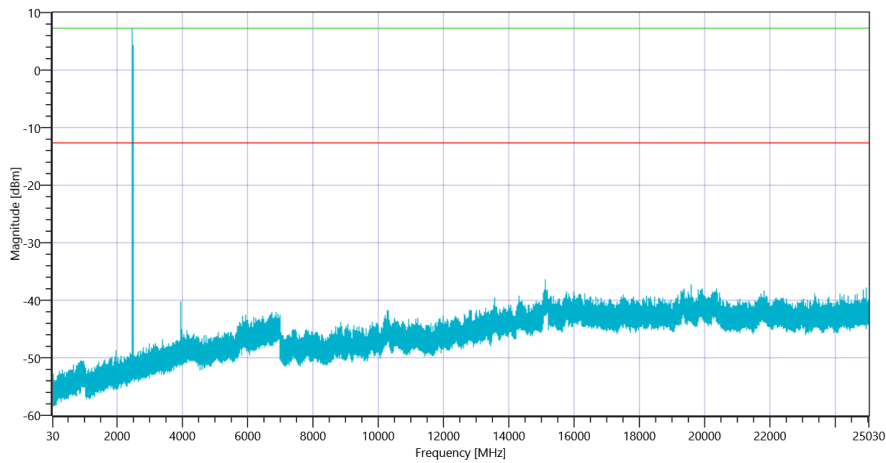
## Test at TX 2480 MHz

### READ SA SETTINGS:

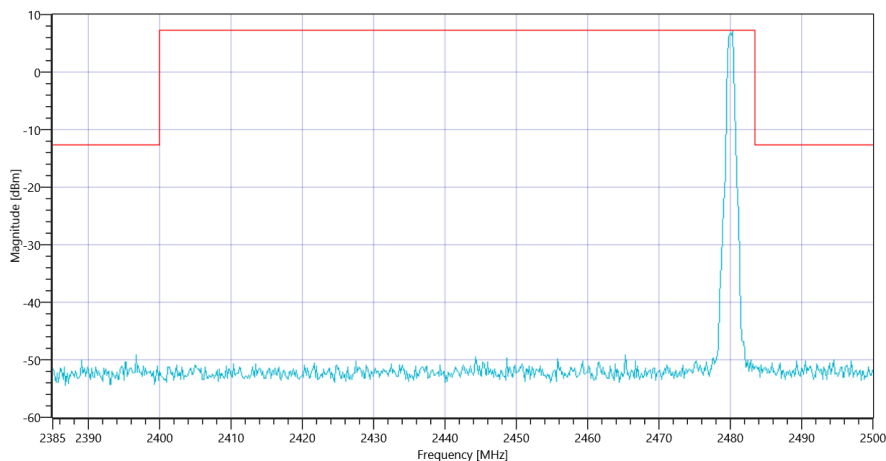
Ref. Level [dBm]	13.31
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.300000
Detector	POS
Sweep Time [ms]	500
Sweep Points/Section	3001
Sweep Count	8
Sweep Mode	MAXH
Used Sweep Type	SWE

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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.33 MHz	---	---	7.27	dBm	Information
No peaks detected	---	---			PASS



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2480\_29072019\_104347.png



Plot\_FCC Part 15.247 TX Spurious Conducted ~ BT LE 1 MspS 2480\_29072019\_104349.png

### TEST FINISHED

General Verdict

29.07.2019 10:43:51 / RT: 937 s

PASS

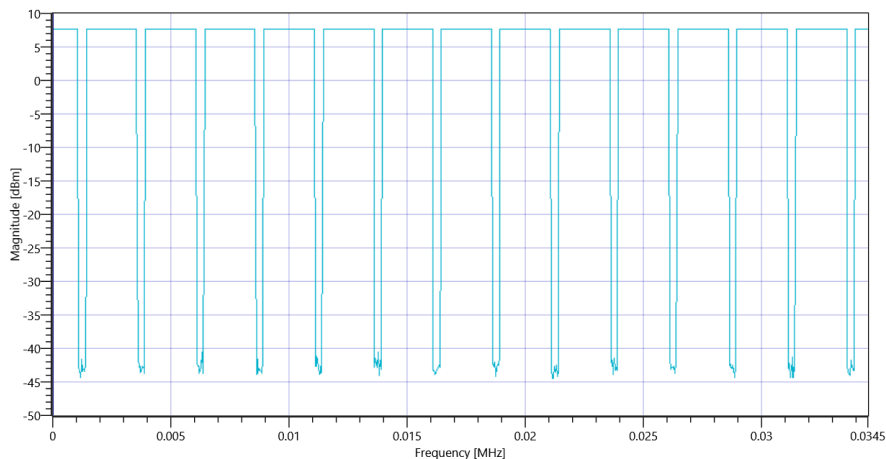
## 6. FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS ~ BT LE 1 Msps

Test References	
TC Start	29.07.2019 10:43:54
System Version	1.0.0.16
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.4 Trace averaging across on- and off-times of the EUT transmissions followed by duty cycle correction
Class / TC Version / TC ID	TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Avg_DC_corrected_V01 Version: 0.0.1   TCID_FCC15247_7
My Description	FCC 15.247 Restricted Band Edge Cond. Avg DC corrected 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
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

## Test at TX 2402 MHz

RESULT: Duty Cycle evaluation					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Result Duty Cycles					
Duty Cycle (Burst Ratio) 1	---	---	0.833	---	Information
Duty Cycle (Burst Ratio) 2	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 3	---	---	0.833	---	Information
Duty Cycle (Burst Ratio) 4	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 5	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 6	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 7	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 8	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 9	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 10	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 11	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 12	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) max	---	---	0.847	---	Information
Duty Cycle max	---	---	0.721	dB	Information
Duty Cycle (Burst Ratio) min	---	---	0.833	---	Information
Duty Cycle min	---	---	0.794	dB	Information

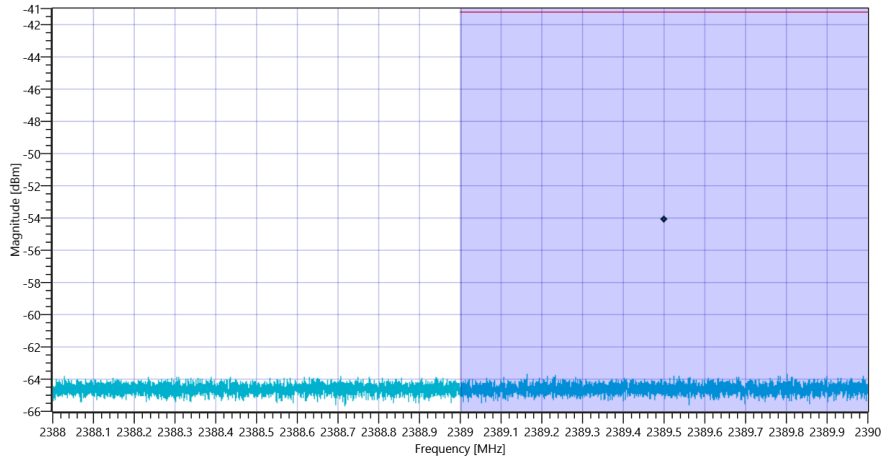


Plot\_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS ~ BT LE 1 MspS 2402 MHz - Duty Cycle\_29072019\_104509.png

READ SA SETTINGS:	
Ref. Level [dBm]	17.96
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	25
Freq. Start [MHz]	2388.000
Freq. Stop [MHz]	2390.000
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.500000
Detector	RMS
Sweep Time [ms]	32
Sweep Points/Section	32000
Sweep Count	300
Sweep Mode	AVER
Used Sweep Type	SWE
Marker Method	Band Power

RESULT: TC\_VM\_FCC15247\_Restricted\_Band\_Edge\_Conducted\_Avg\_DC\_corrected\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle worst case	---	---	0.794	dB	Information
Band Power without Antenna Gain Avg	---	---	-54.88	dBm	Information
Band Power without Antenna Gain Avg DC corrected	---	---	-54.086	dBm	Information
Band Power incl. Antenna Gain Avg DC corrected	---	-41.23	-54.086	dBm	PASS

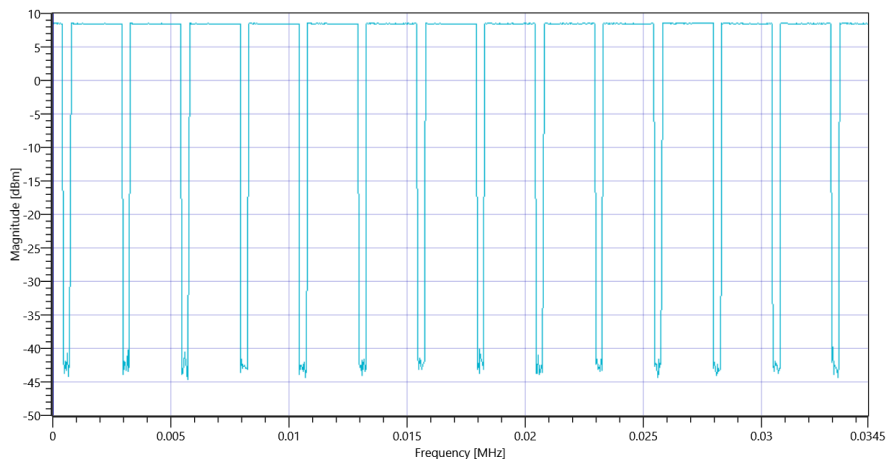


Plot\_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS ~ BT LE 1 Msps\_29072019\_104528.png



## Test at TX 2480 MHz

RESULT: Duty Cycle evaluation					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Result Duty Cycles					
Duty Cycle (Burst Ratio) 1	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 2	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 3	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 4	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 5	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 6	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 7	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 8	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 9	---	---	0.847	---	Information
Duty Cycle (Burst Ratio) 10	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 11	---	---	0.836	---	Information
Duty Cycle (Burst Ratio) 12	---	---	0.833	---	Information
Duty Cycle (Burst Ratio) max	---	---	0.847	---	Information
Duty Cycle max	---	---	0.721	dB	Information
Duty Cycle (Burst Ratio) min	---	---	0.833	---	Information
Duty Cycle min	---	---	0.794	dB	Information

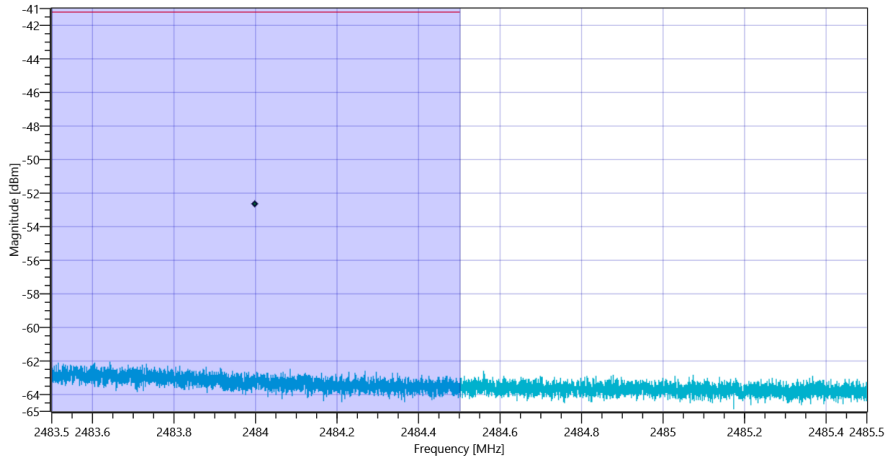


Plot\_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS ~ BT LE 1 MspS 2480 MHz - Duty Cycle\_29072019\_104603.png

READ SA SETTINGS:	
Ref. Level [dBm]	18.54
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	25
Freq. Start [MHz]	2483.500
Freq. Stop [MHz]	2485.500
Resolution BW. [MHz]	0.100000
Video BW. [MHz]	0.500000
Detector	RMS
Sweep Time [ms]	32
Sweep Points/Section	32000
Sweep Count	300
Sweep Mode	AVER
Used Sweep Type	SWE
Marker Method	Band Power

RESULT: TC\_VM\_FCC15247\_Restricted\_Band\_Edge\_Conducted\_Avg\_DC\_corrected\_V01

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle worst case	---	---	0.794	dB	Information
Band Power without Antenna Gain Avg	---	---	-53.49	dBm	Information
Band Power without Antenna Gain Avg DC corrected	---	---	-52.696	dBm	Information
Band Power incl. Antenna Gain Avg DC corrected	---	-41.23	-52.696	dBm	PASS



TEST FINISHED		
General Verdict	29.07.2019 10:46:21 / RT: 146 s	PASS

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

Test References	
TC Start	29.07.2019 13:04:37
System Version	1.0.0.16
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
Pattern	PRBS9
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SigBT: Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.70   SA: Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.40

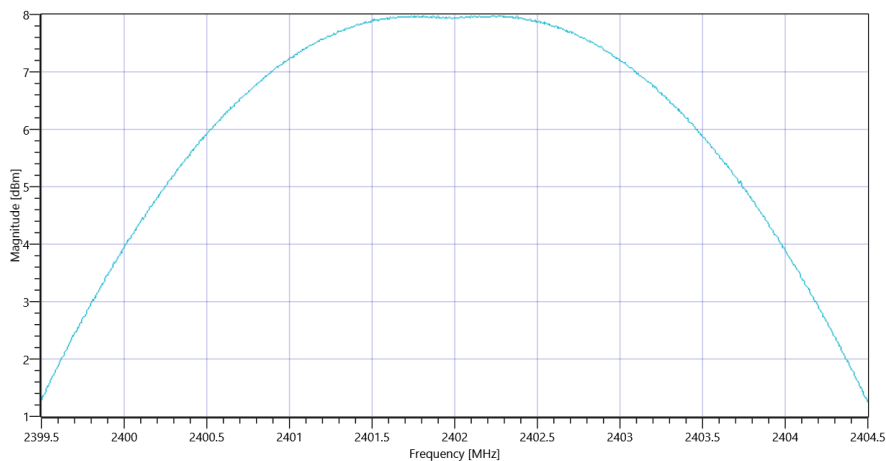
## Test at TX 2402 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	18.20
Ref. Lev. offs [dB]	9.79
Input Attenuation [dB]	25
Freq. Start [MHz]	2399.500
Freq. Stop [MHz]	2404.500
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	7.98	dBm	Information
Peak Power	---	1000	6.280584	mW	Information
Frequency at Peak	---	---	2402.24	MHz	Information



Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msp\_29072019\_130523.png

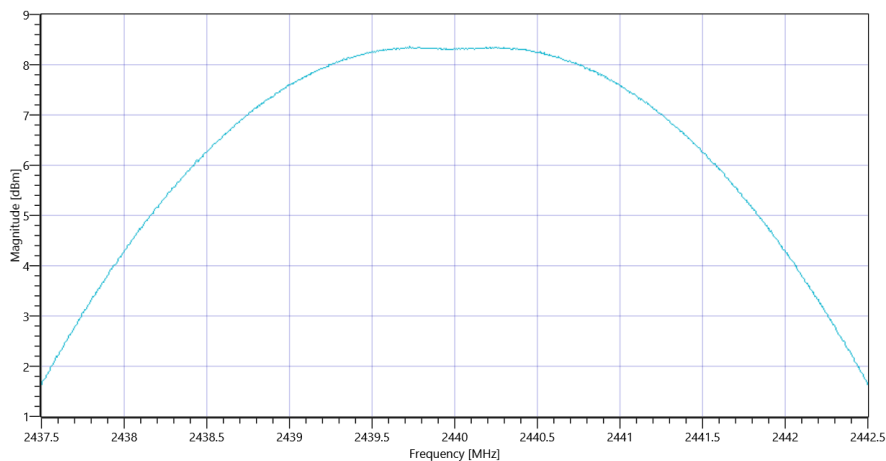
## Test at TX 2440 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	18.51
Ref. Lev. offs [dB]	9.9
Input Attenuation [dB]	25
Freq. Start [MHz]	2437.500
Freq. Stop [MHz]	2442.500
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	8.36	dBm	Information
Peak Power	---	1000	6.854882	mW	Information
Frequency at Peak	---	---	2439.73	MHz	Information



Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps\_29072019\_130612.png

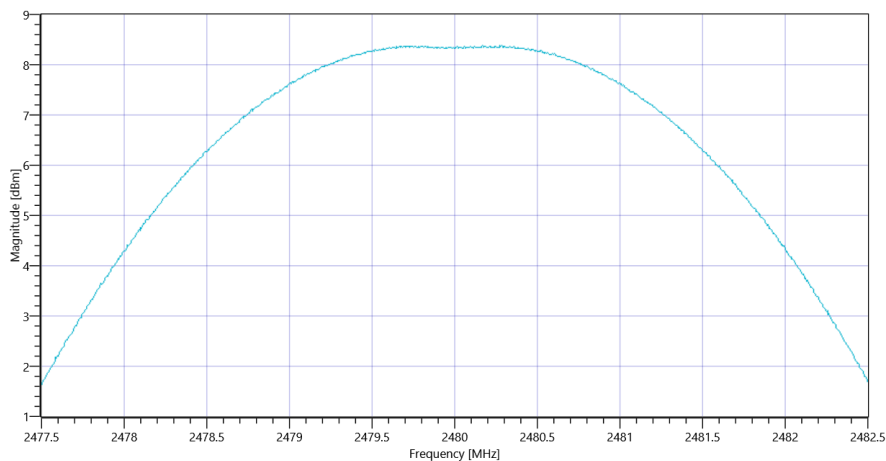
## Test at TX 2480 MHz

### READ SA SETTINGS:

Ref. Level [dBm]	18.36
Ref. Lev. offs [dB]	9.96
Input Attenuation [dB]	25
Freq. Start [MHz]	2477.500
Freq. Stop [MHz]	2482.500
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	8.38	dBm	Information
Peak Power	---	1000	6.886523	mW	Information
Frequency at Peak	---	---	2480.275	MHz	Information



Plot\_Common2G4 Peak Output Power conducted 3MHz\_3MHz ~ BT LE 1 Msps\_29072019\_130729.png

### TEST FINISHED

General Verdict

29.07.2019 13:07:29 / RT: 171 s

PASS

- END OF DOCUMENT -