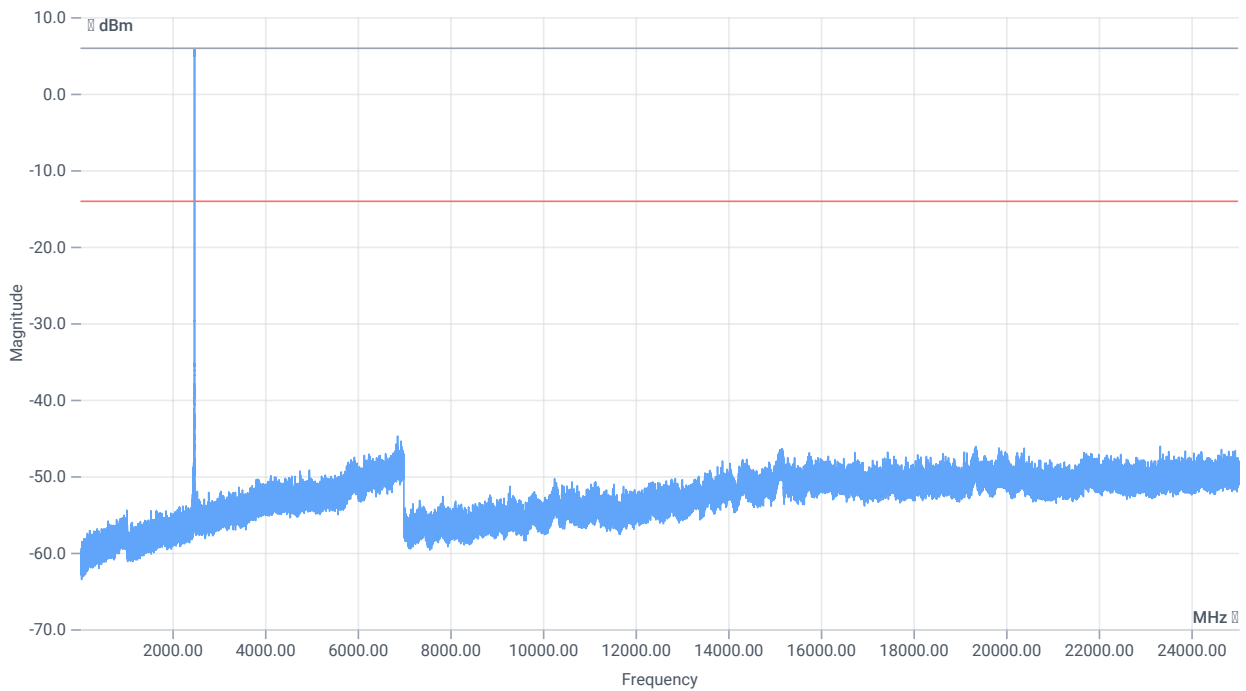


## Test at TX 2480 MHz

RESULT: Reference Power cond.

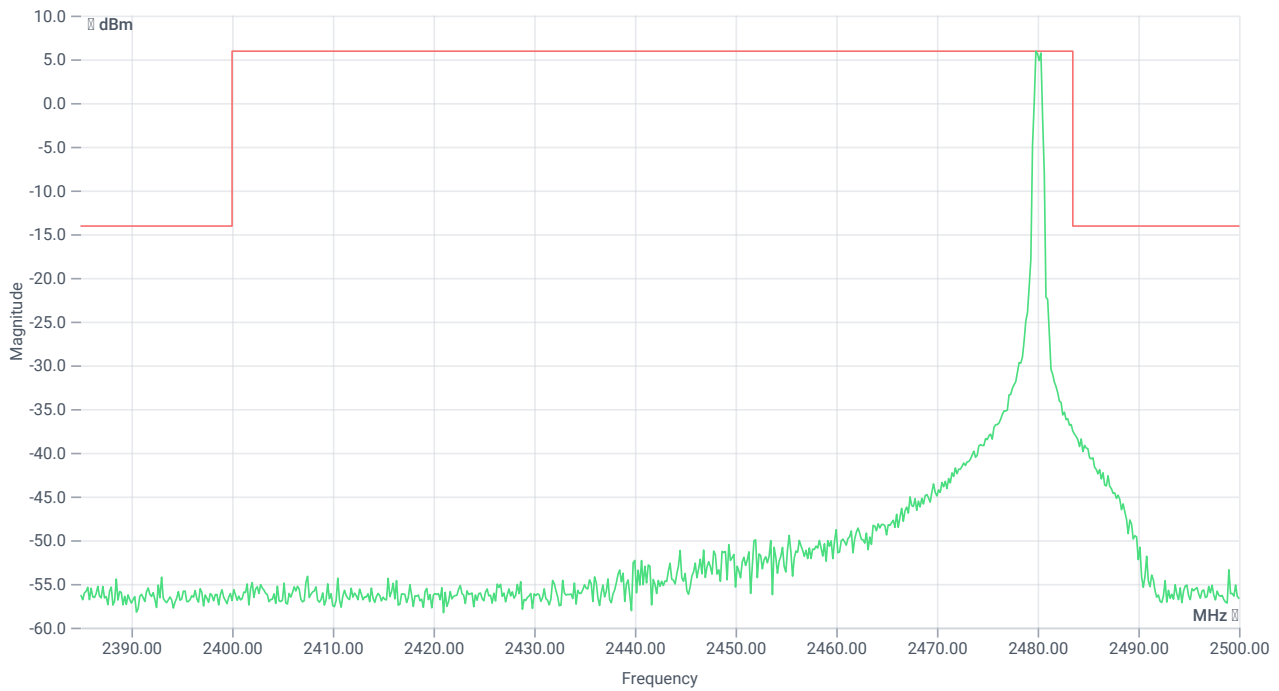
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	6.81	dBm	INFO
Ref. Frequency	--	--	2480.100	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	6.81   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	200   25   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2479.83 MHz	--	--	5.92	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 2483.667 MHz	0	--	23.79	dB	INFO

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps

## Test References

TC Start	22.02.2023 15:51:52
Ambit Temp [°C]   Humidity [rel%]	28.7   25
System Version	3.5.0.2
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

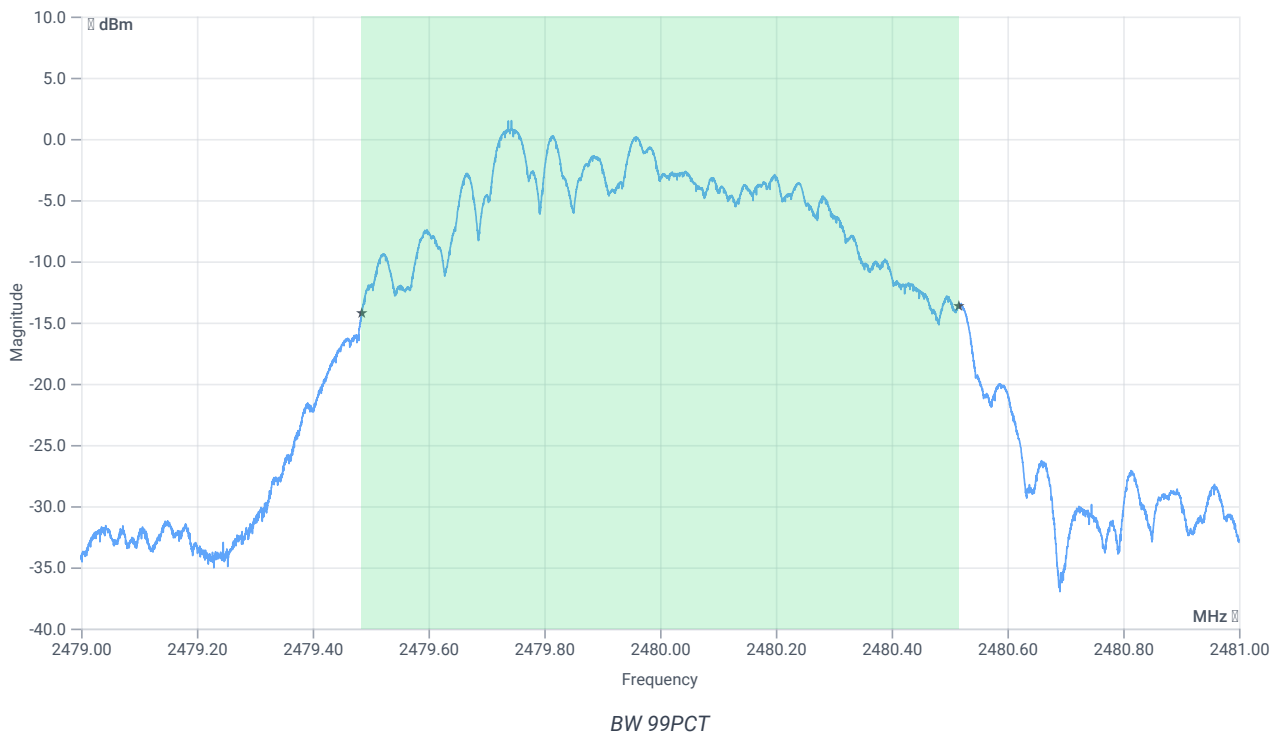
## Test at TX 2480 MHz

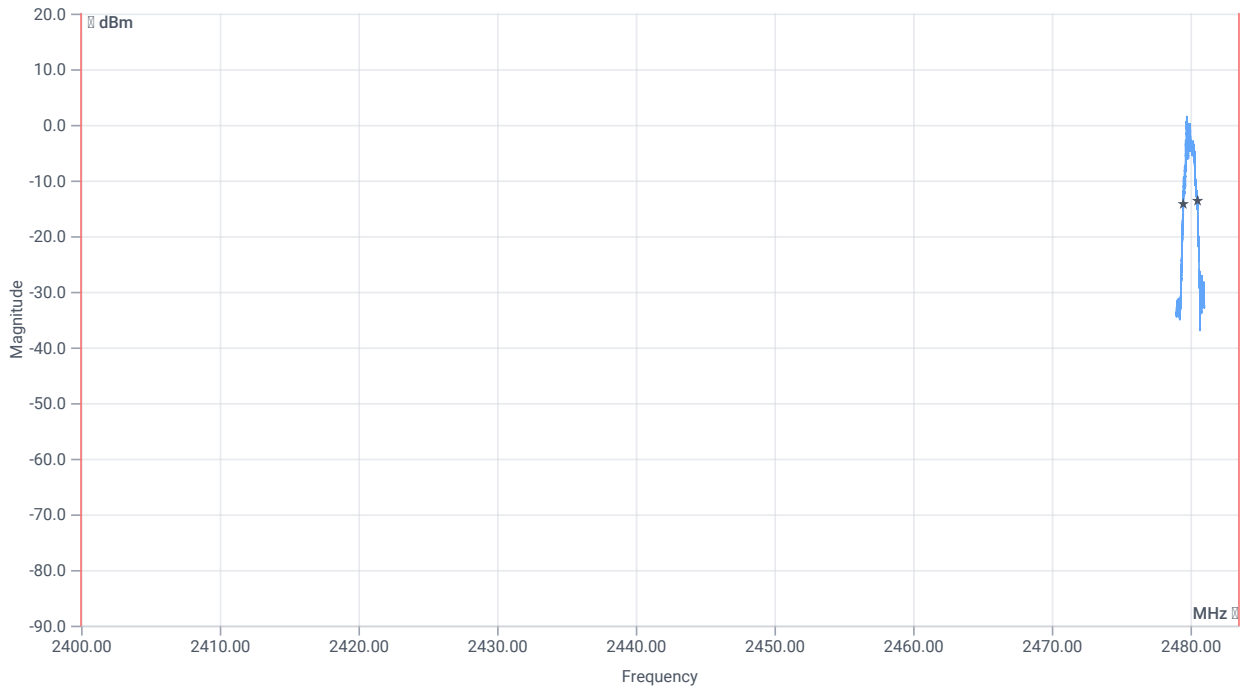
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	6.87	dBm	INFO
Ref. Frequency	--	--	2480.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	11.87   10.85   20
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

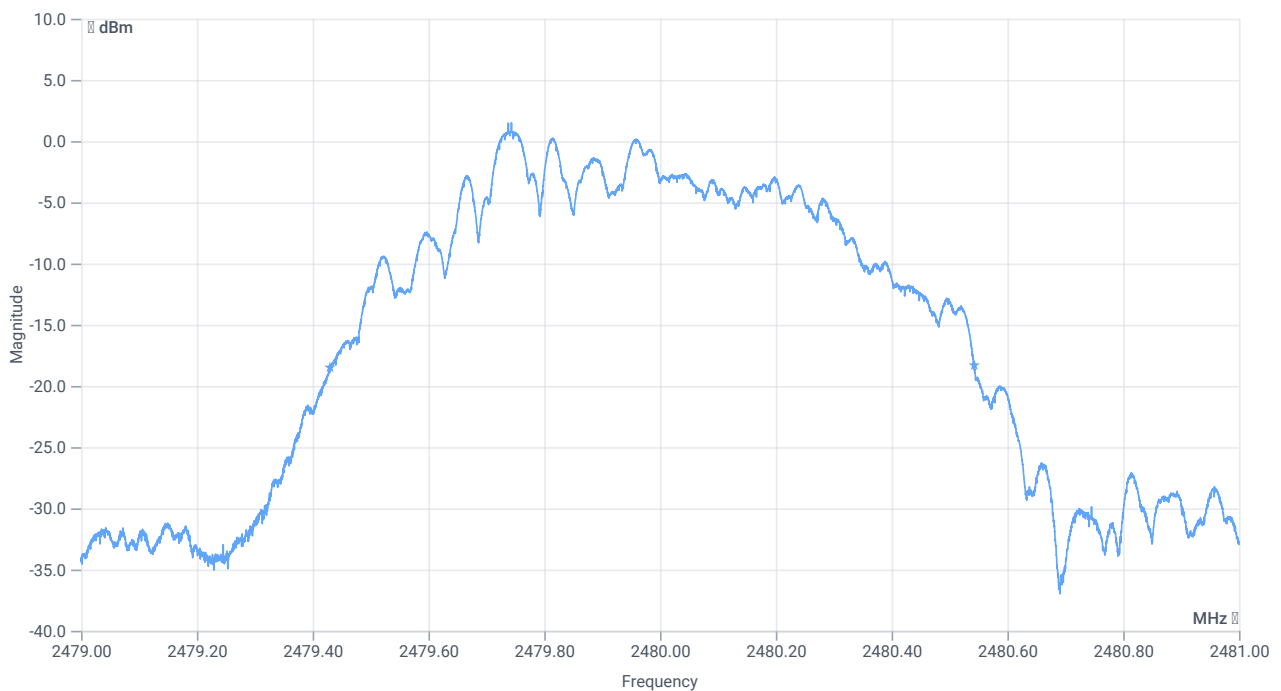




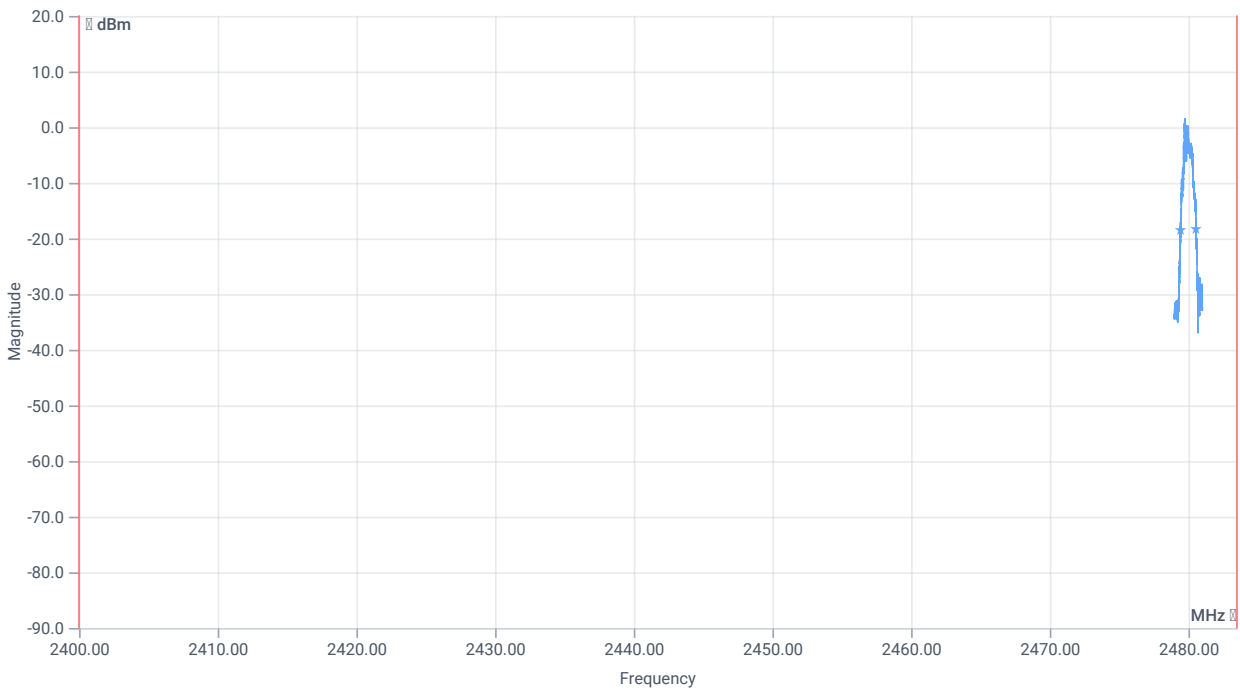
BW within Band 99PCT

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	1031.000	kHz	INFO
T1 99%	2400.000000	--	2479.4849	MHz	PASS
T2 99%	--	2483.500000	2480.5161	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1113	kHz	INFO
T1 20DB	2400.000000	--	2479.4300	MHz	PASS
T2 20dB	--	2483.500000	2480.5428	MHz	PASS

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE 1 Msps

### Test References

TC Start	22.02.2023 15:51:12
Ambit Temp [°C]   Humidity [rel%]	28.7   25
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
TC Version	0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment



## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

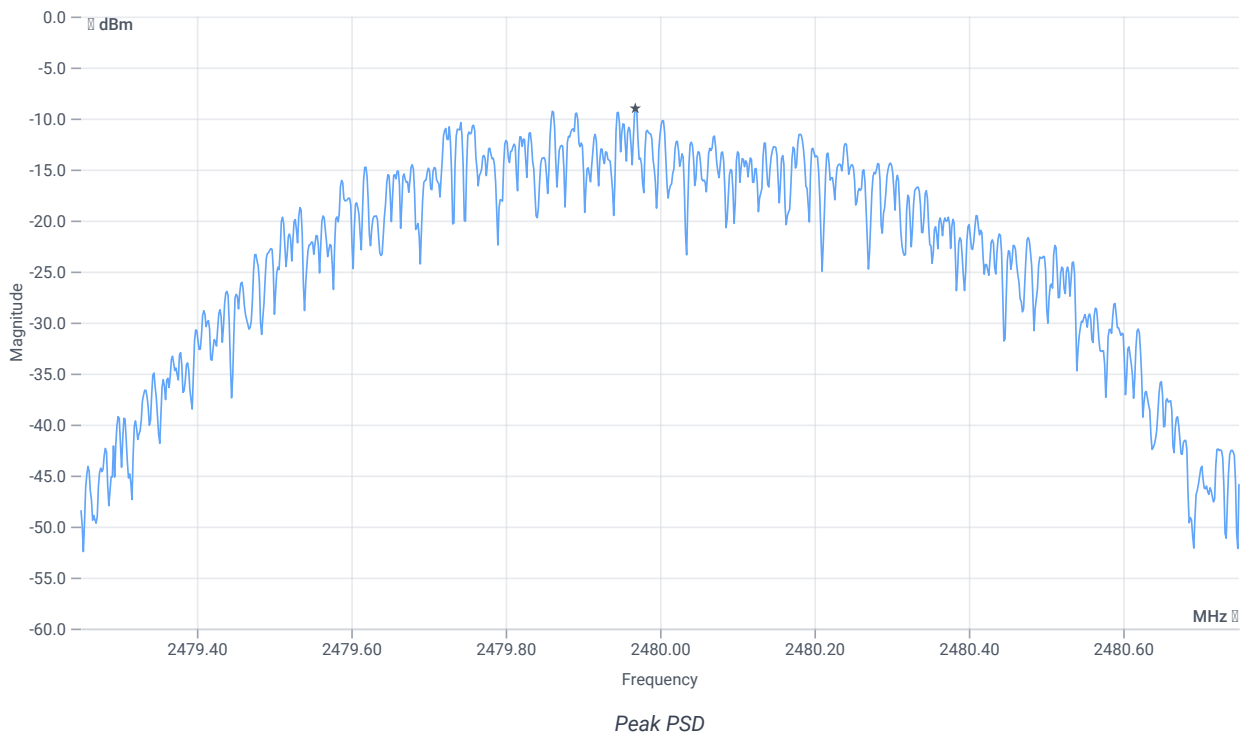
## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	6.77	dBm	INFO
Ref. Frequency	--	--	2479.900	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	11.77   10.85   20
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	-9.01	dBm/3KHz	PASS

Verdict

PASS

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

### Test References

TC Start	22.02.2023 15:50:42
Ambit Temp [°C]   Humidity [rel%]	28.7   25
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msp
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70
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## Test Equipment

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Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

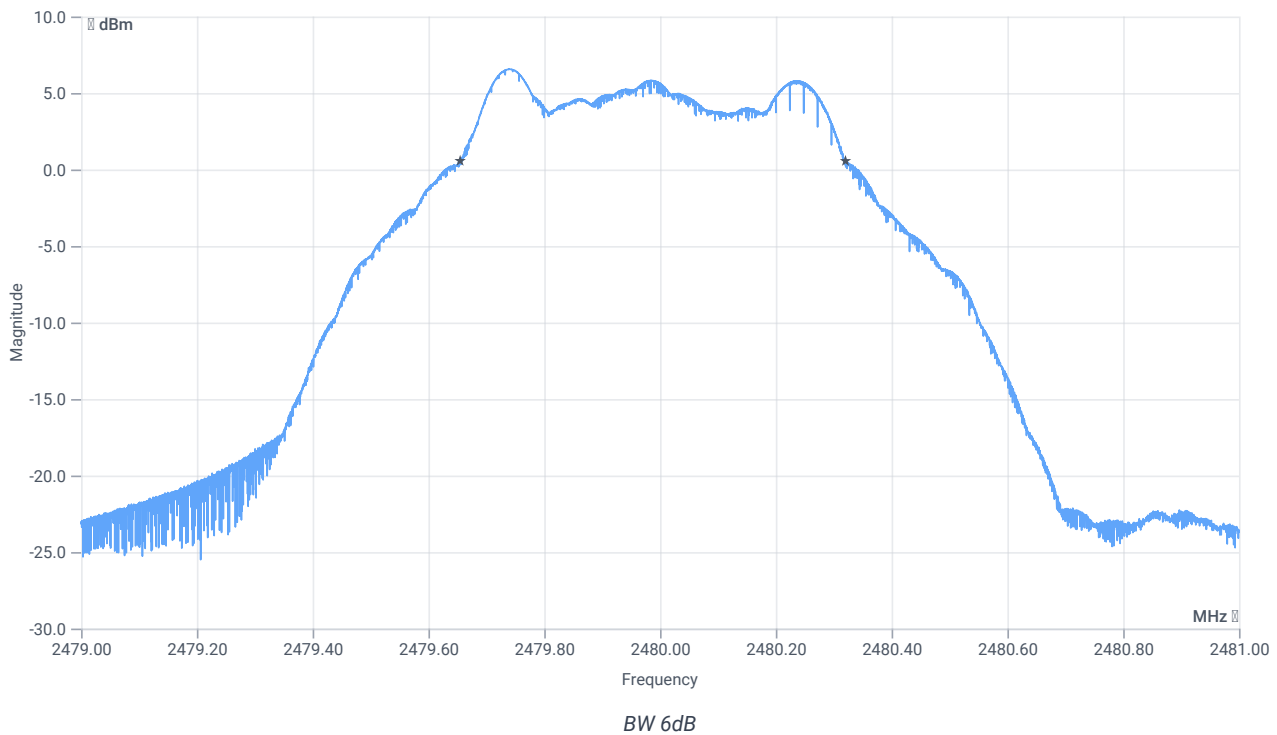
## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	6.83	dBm	INFO
Ref. Frequency	--	--	2479.900	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	11.83   10.85   20
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	--	666	kHz	PASS

Verdict

PASS

# FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msp

## Test References

TC Start	22.02.2023 15:49:58
Ambit Temp [°C]   Humidity [rel%]	28.8   25
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msp
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	6.83	dBm	INFO
Ref. Frequency	--	--	2479.900	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	11.83   10.85   20
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

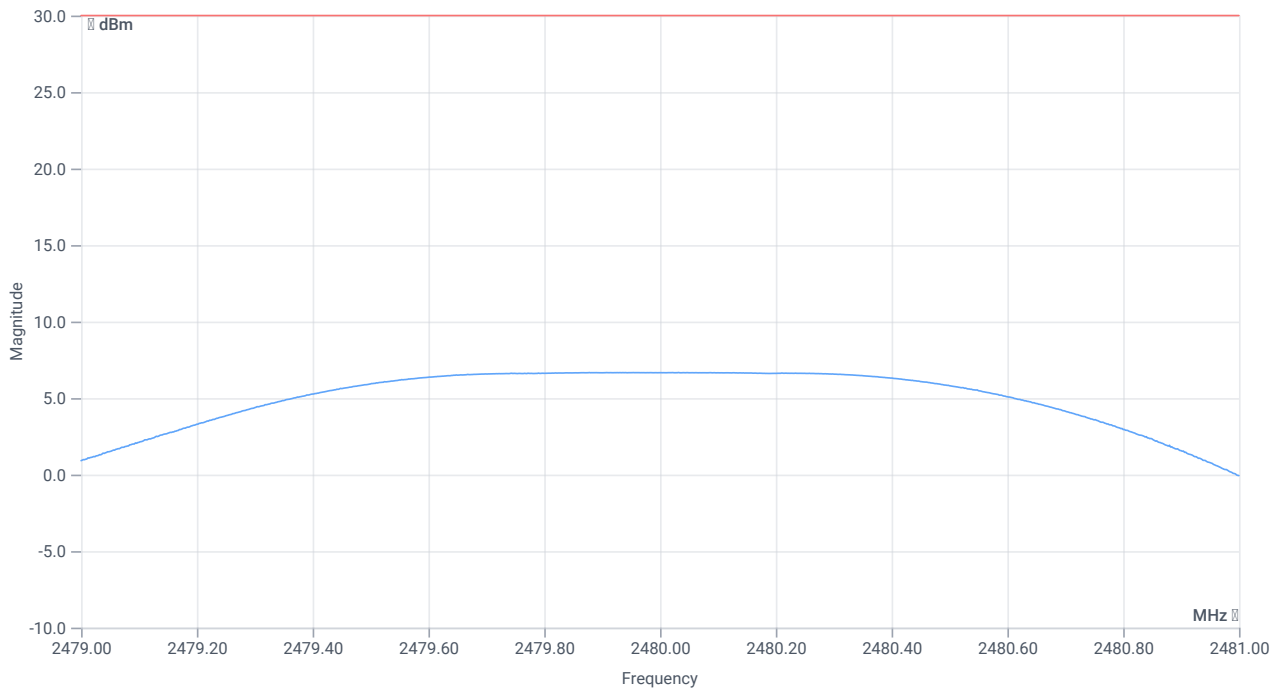
### DTS Bandwidth

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	--	--	664	kHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	16.83   10.85   25
Start [MHz]   Stop [MHz]	2479.000   2481.000
RBW [MHz]   VBW [MHz]	1.000000   3.000000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   1001   SWE





Peak output power

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	--	30.00	6.67	dBm	PASS
Peak Power	--	1000	4.645153	mW	PASS
Frequency at Peak	--	--	2480.032	MHz	INFO

Verdict

PASS

## FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 1 Msp

### Test References

TC Start	22.02.2023 15:41:12
Ambit Temp [°C]   Humidity [rel%]	28.9   26
System Version	3.5.0.2
Test Specification	FCC 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
TC Version	0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msp
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

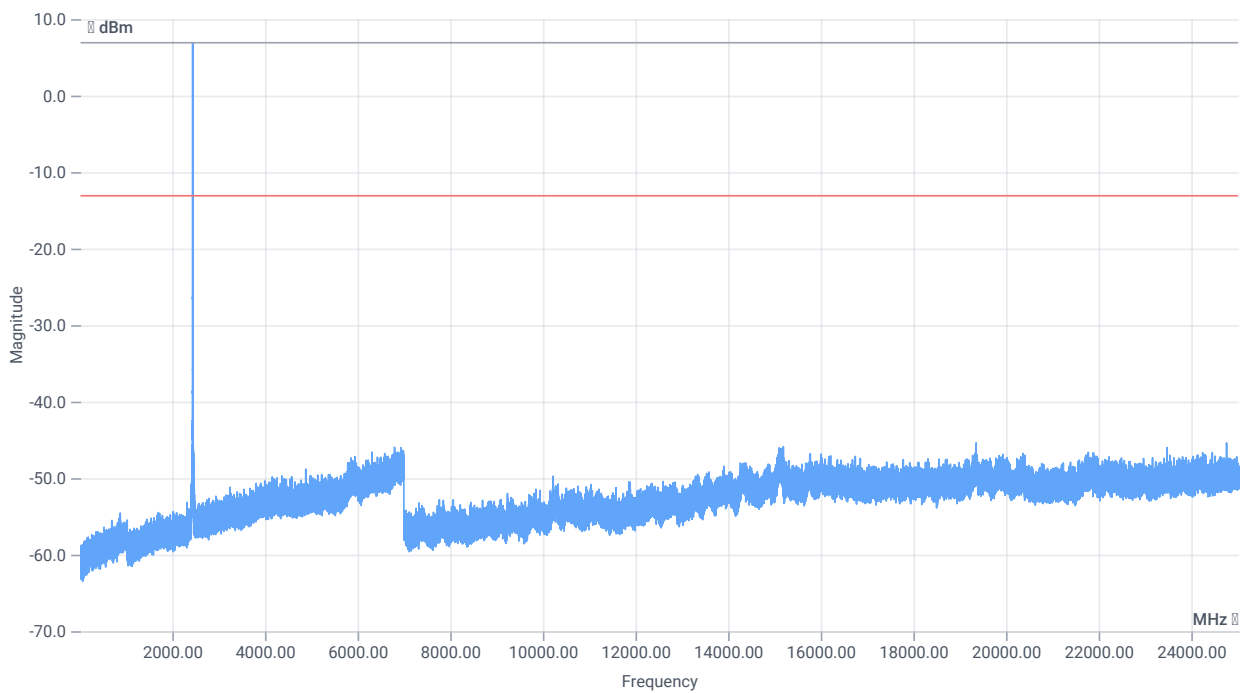
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

## Test at TX 2440 MHz

RESULT: Reference Power cond.

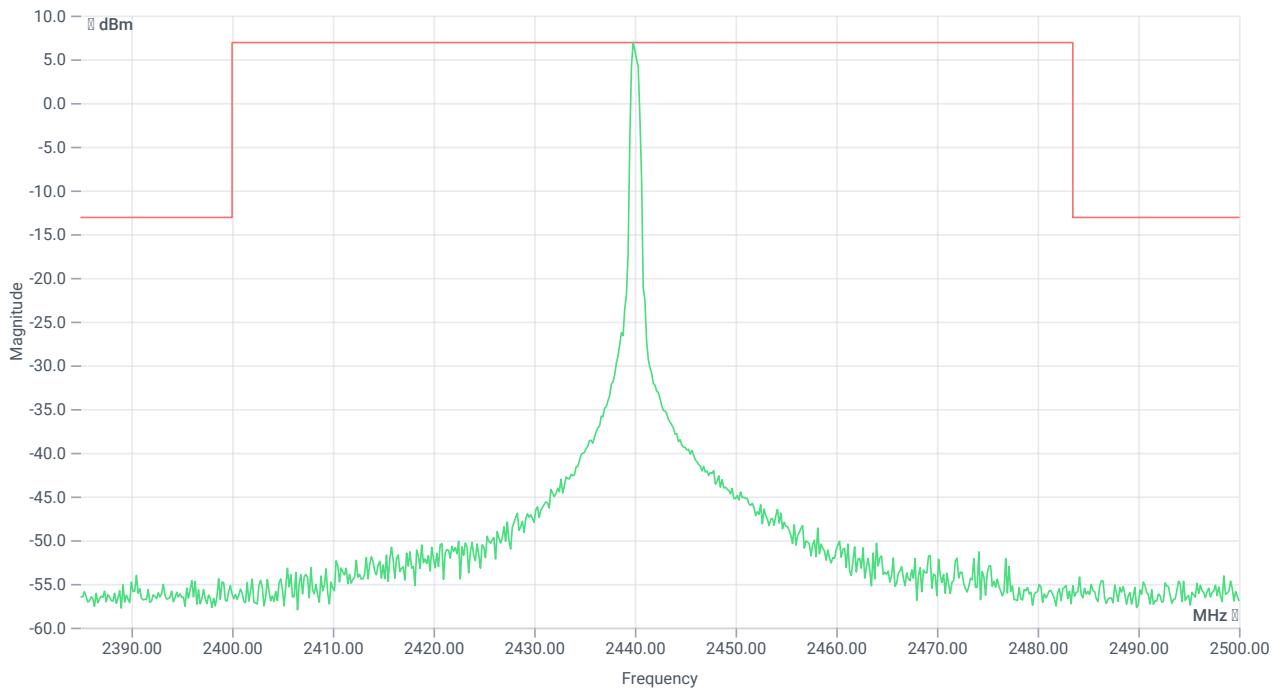
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.34	dBm	INFO
Ref. Frequency	--	--	2440.100	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	7.34   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	200   25   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2439.83 MHz	--	--	6.91	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-139.15	dB	INFO

## Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps

## Test References

TC Start	22.02.2023 15:40:44
Ambit Temp [°C]   Humidity [rel%]	28.8   26
System Version	3.5.0.2
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

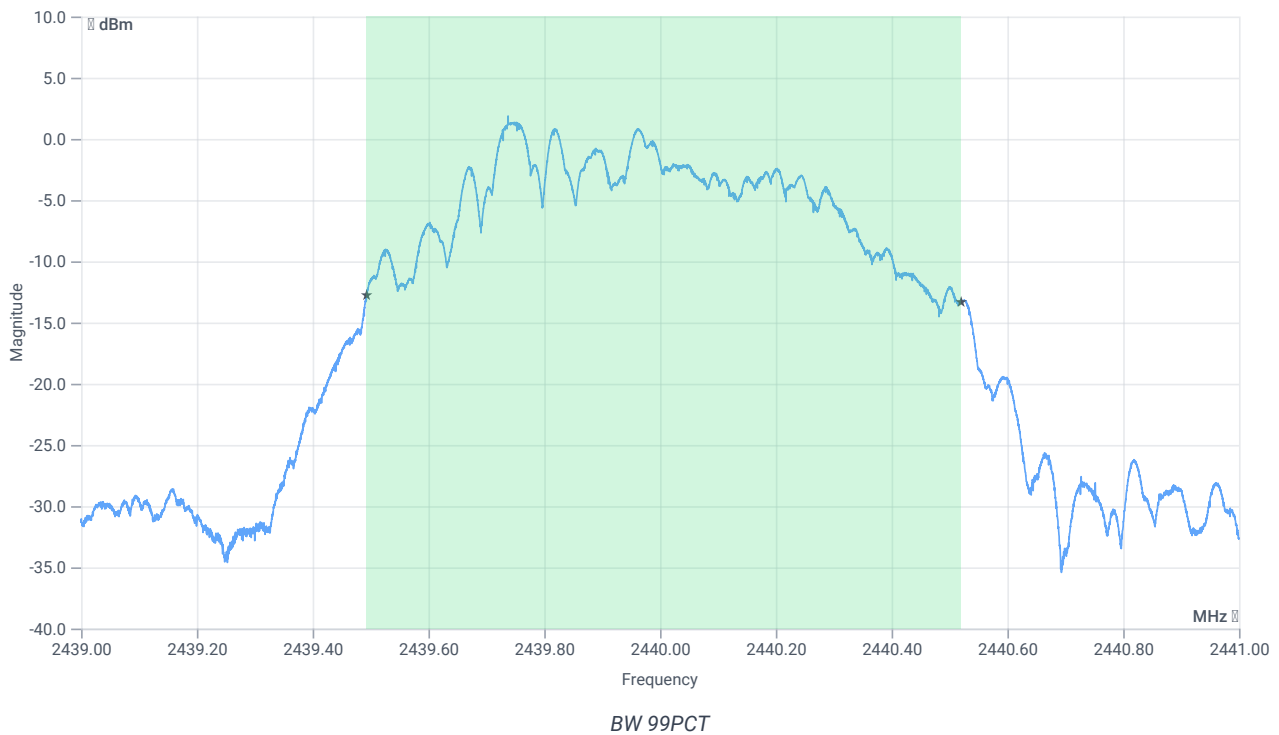
## Test at TX 2440 MHz

RESULT: Reference Power cond.

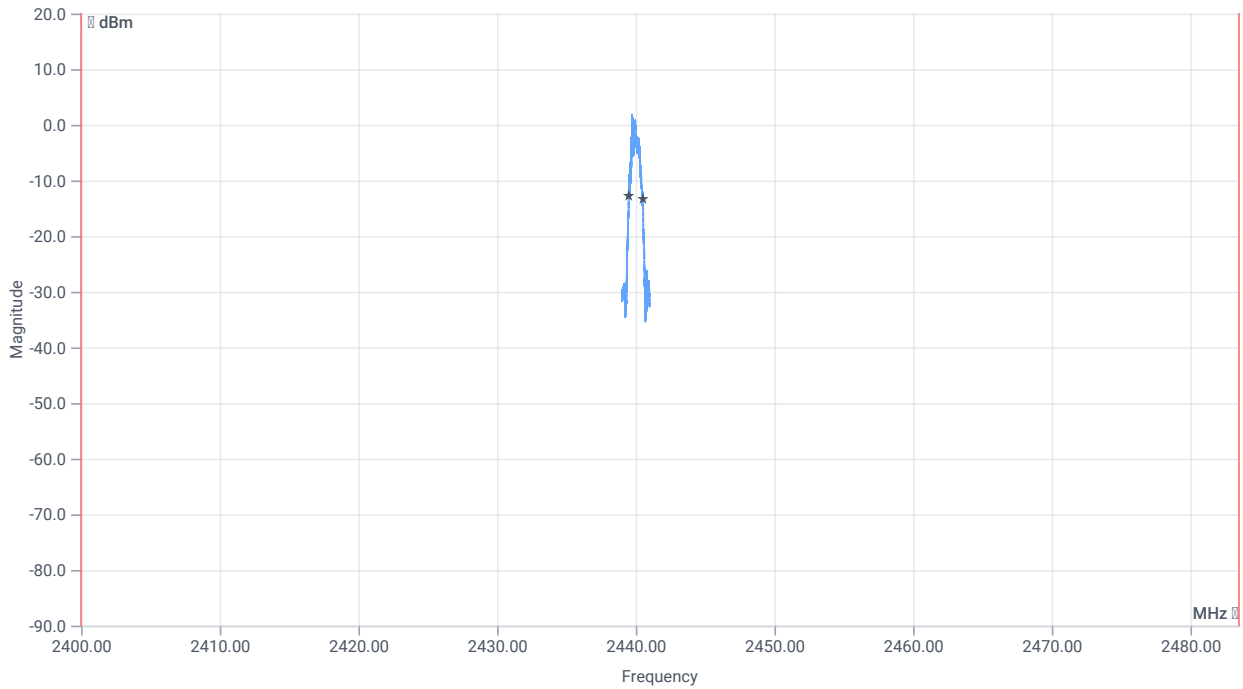
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.35	dBm	INFO
Ref. Frequency	--	--	2440.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.35   10.8   20
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



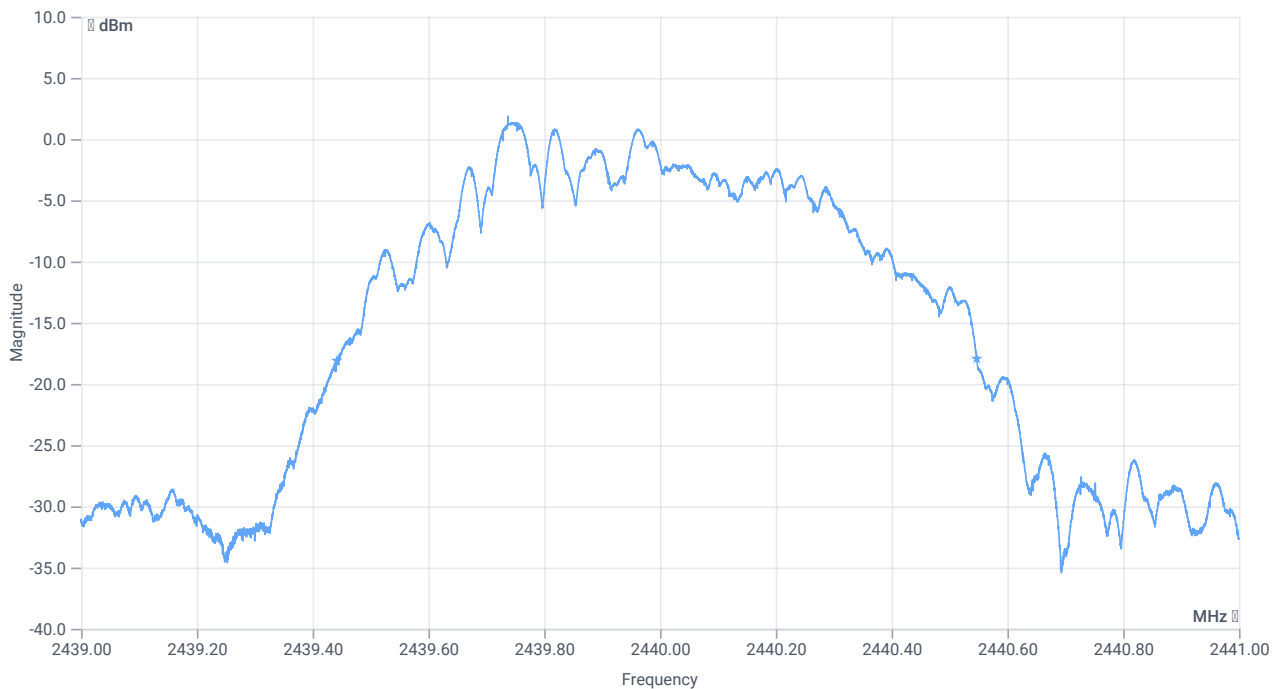




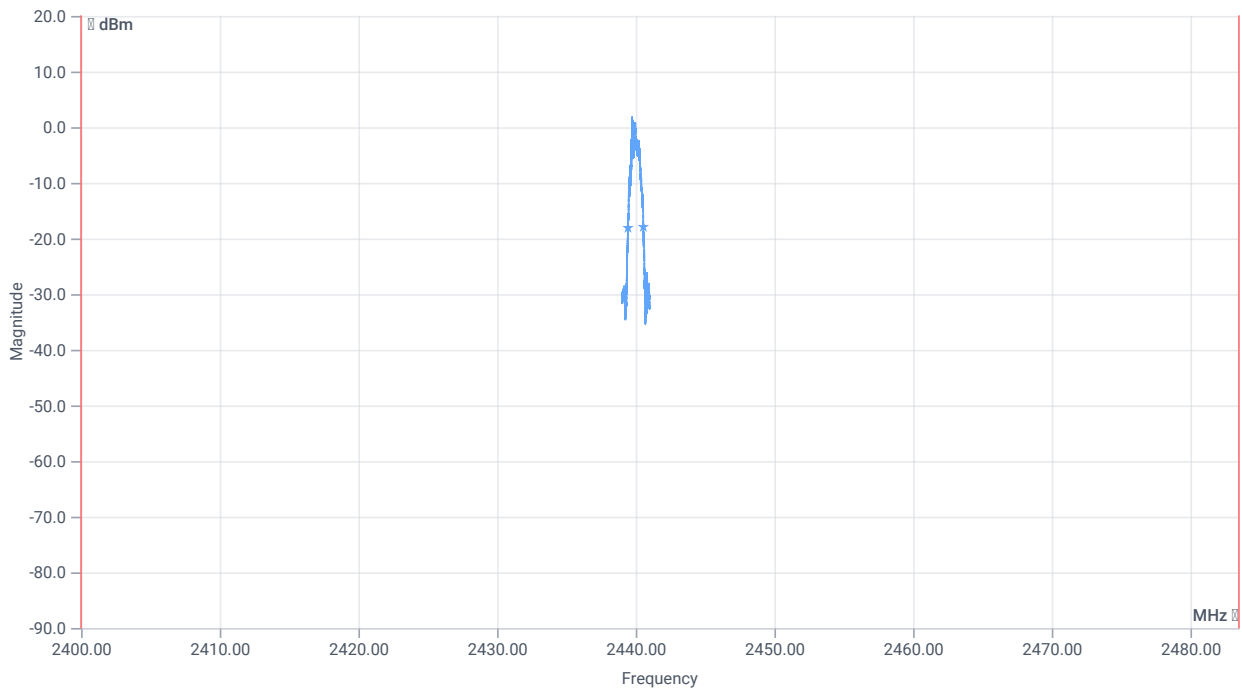
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	1027.000	kHz	INFO
T1 99%	2400.000000	--	2439.4933	MHz	PASS
T2 99%	--	2483.500000	2440.5201	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1105	kHz	INFO
T1 20DB	2400.000000	--	2439.4418	MHz	PASS
T2 20dB	--	2483.500000	2440.5472	MHz	PASS

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE 1 Msps

### Test References

TC Start	22.02.2023 15:40:04
Ambit Temp [°C]   Humidity [rel%]	28.9   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
TC Version	0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

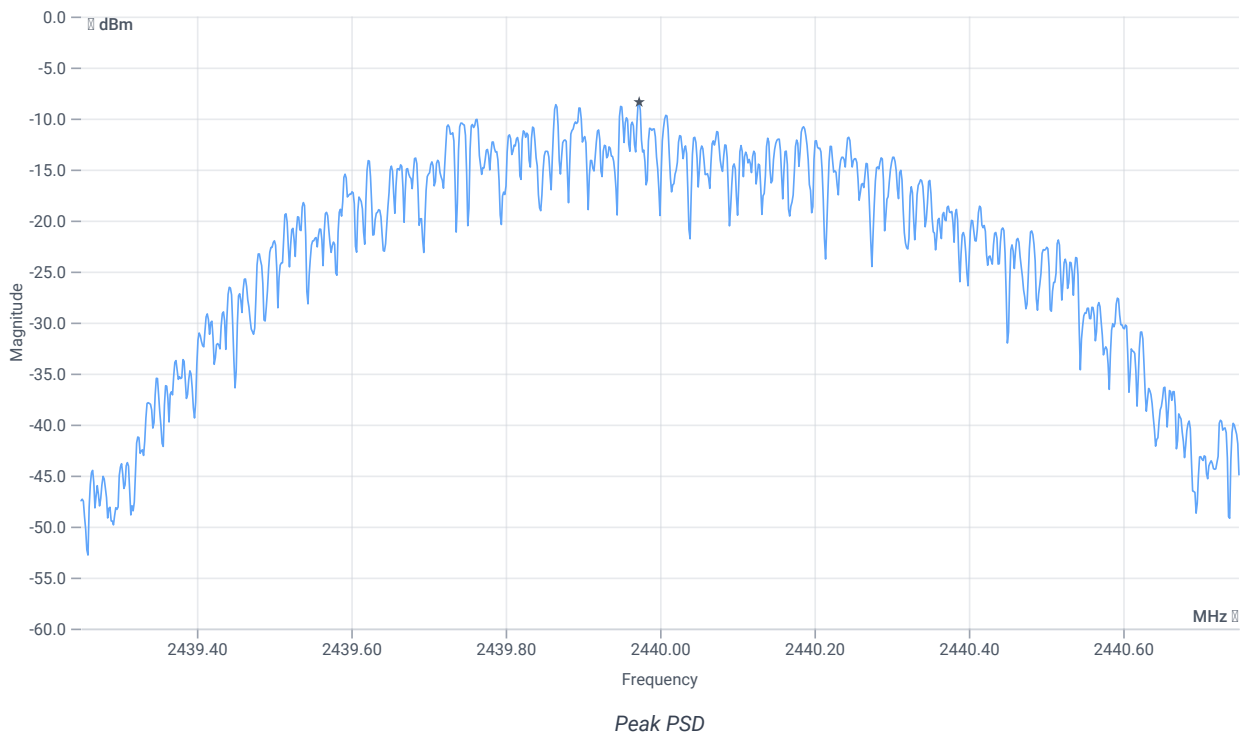
## Test at TX 2440 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.32	dBm	INFO
Ref. Frequency	--	--	2440.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.32   10.8   20
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	-8.39	dBm/3KHz	PASS

Verdict

PASS

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

### Test References

TC Start	22.02.2023 15:39:33
Ambit Temp [°C]   Humidity [rel%]	28.8   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msp
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70
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## Test Equipment

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Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

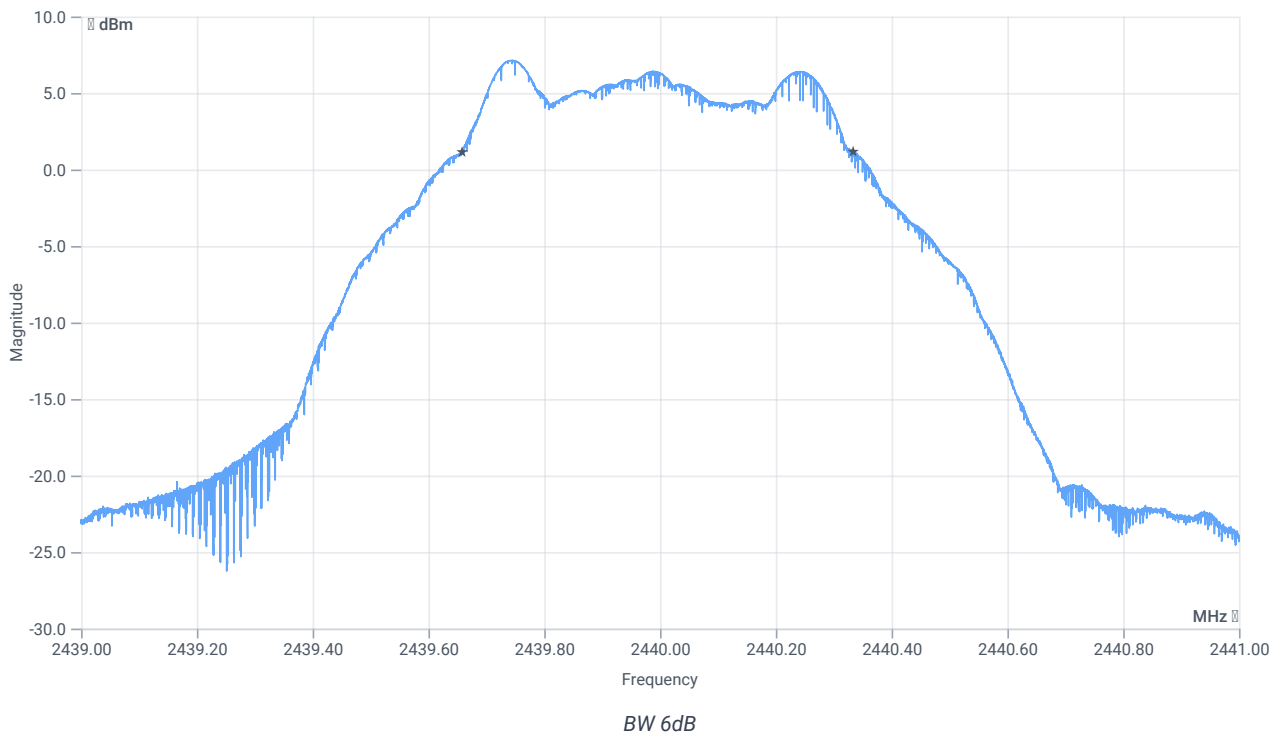
## Test at TX 2440 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.34	dBm	INFO
Ref. Frequency	--	--	2439.900	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.34   10.8   20
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	--	675	kHz	PASS

Verdict

PASS



# FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msps

## Test References

TC Start	22.02.2023 15:38:50
Ambit Temp [°C]   Humidity [rel%]	28.8   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

## Test at TX 2440 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.36	dBm	INFO
Ref. Frequency	--	--	2440.200	MHz	INFO

### READ SA SETTINGS:

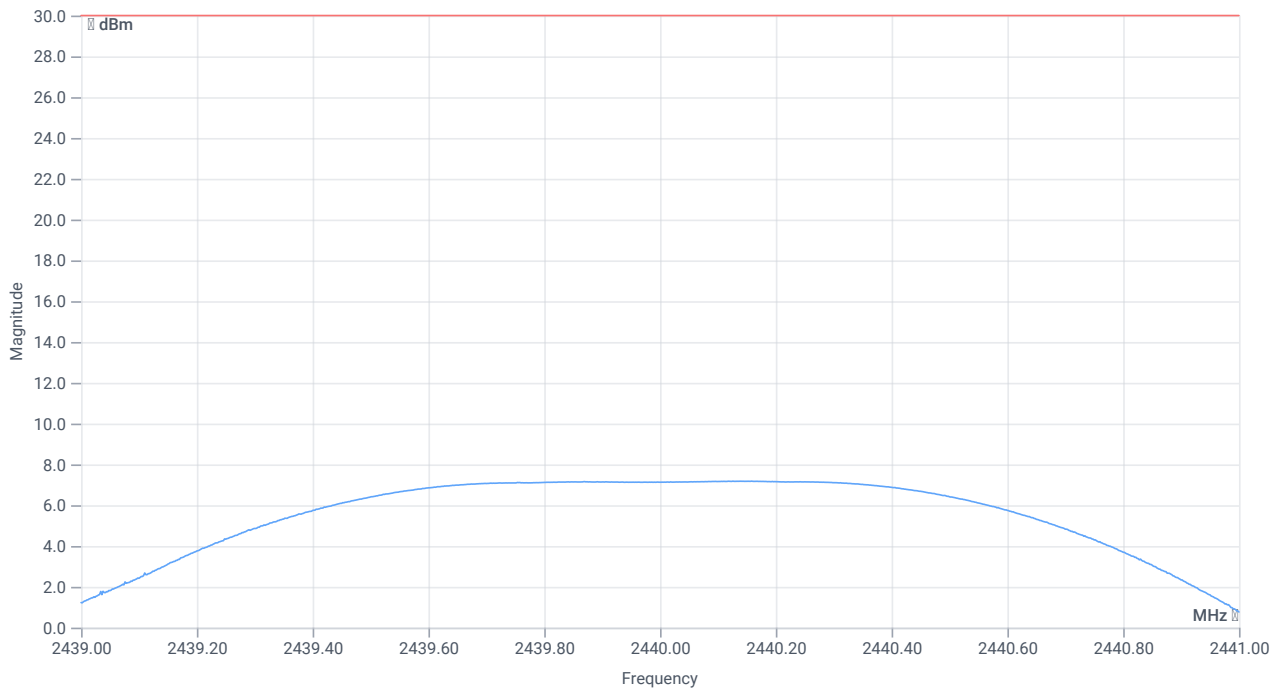
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.36   10.8   20
Start [MHz]   Stop [MHz]	2439.000   2441.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE

### DTS Bandwidth

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	--	--	682	kHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.36   10.8   25
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



Peak output power

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	--	30.00	7.18	dBm	PASS
Peak Power	--	1000	5.223962	mW	PASS
Frequency at Peak	--	--	2440.158	MHz	INFO

Verdict

PASS

## FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 1 Msps

### Test References

TC Start	22.02.2023 15:31:42
Ambit Temp [°C]   Humidity [rel%]	28.7   26
System Version	3.5.0.2
Test Specification	FCC 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
TC Version	0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msps
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

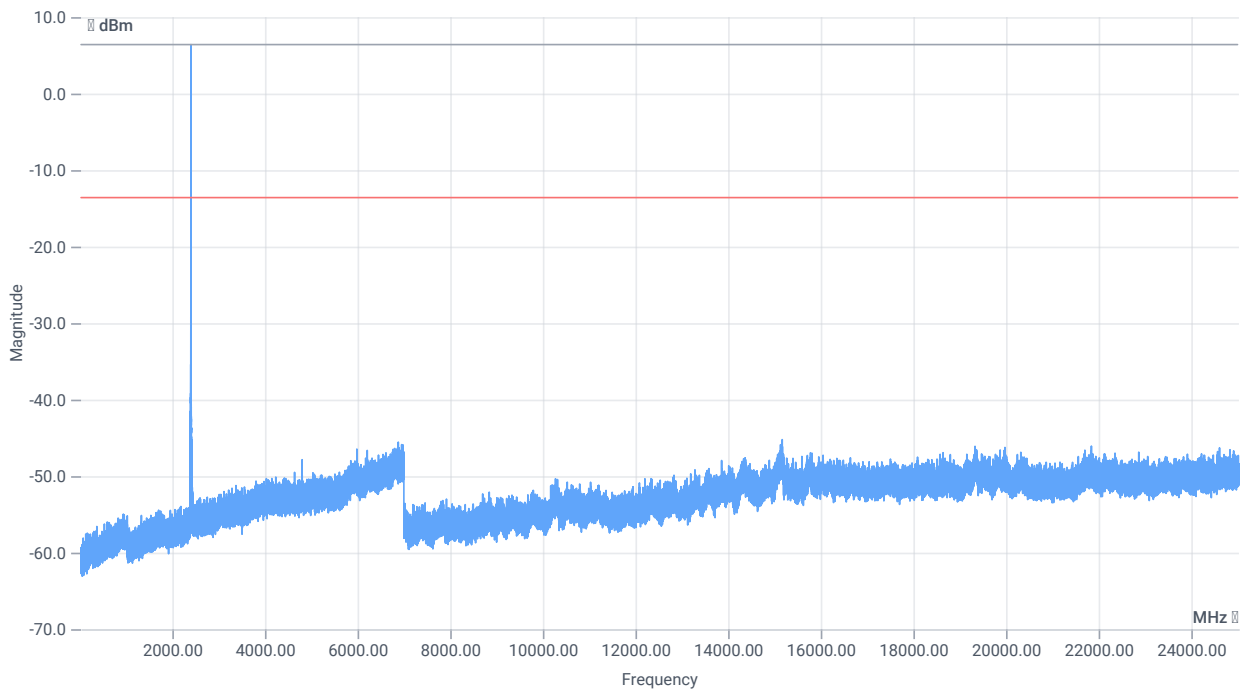
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

## Test at TX 2402 MHz

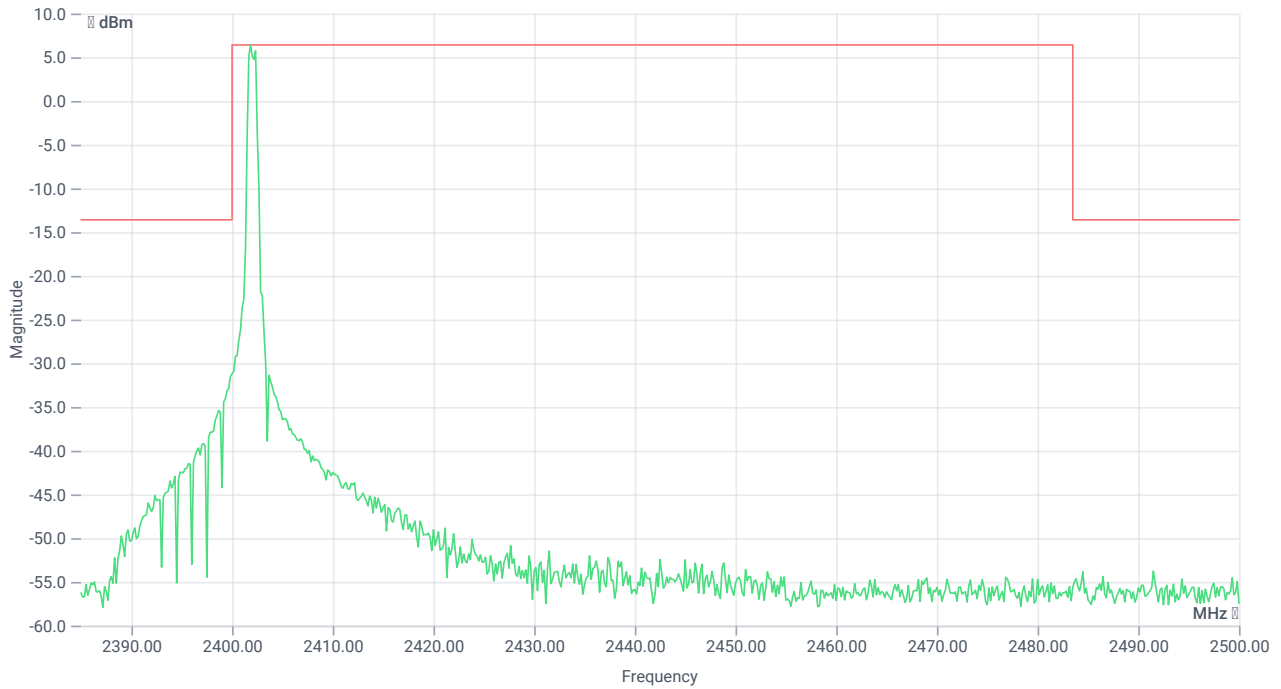
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.04	dBm	INFO
Ref. Frequency	--	--	2401.800	MHz	INFO



### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	7.04   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	200   25   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2401.83 MHz	--	--	6.41	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 2399.833 MHz	0	--	17.91	dB	INFO

## Verdict

PASS



# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps

## Test References

TC Start	22.02.2023 15:31:05
Ambit Temp [°C]   Humidity [rel%]	28.7   26
System Version	3.5.0.2
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

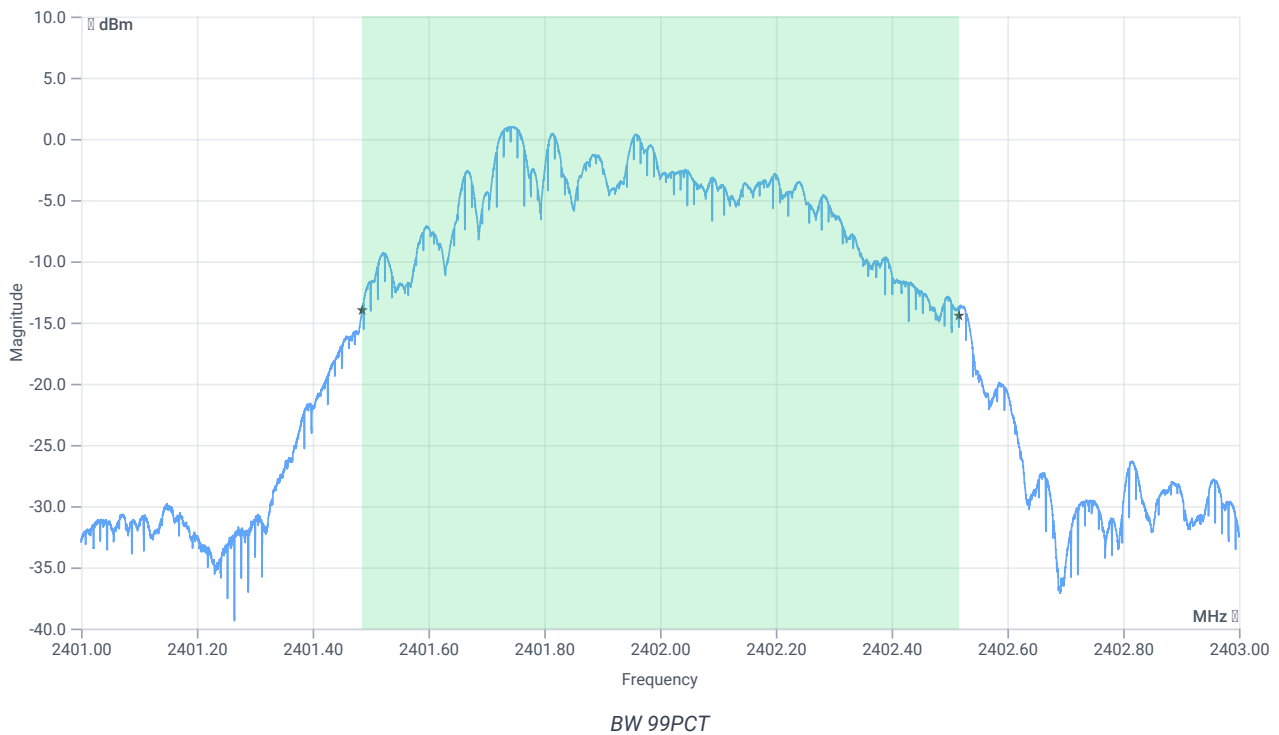
## Test at TX 2402 MHz

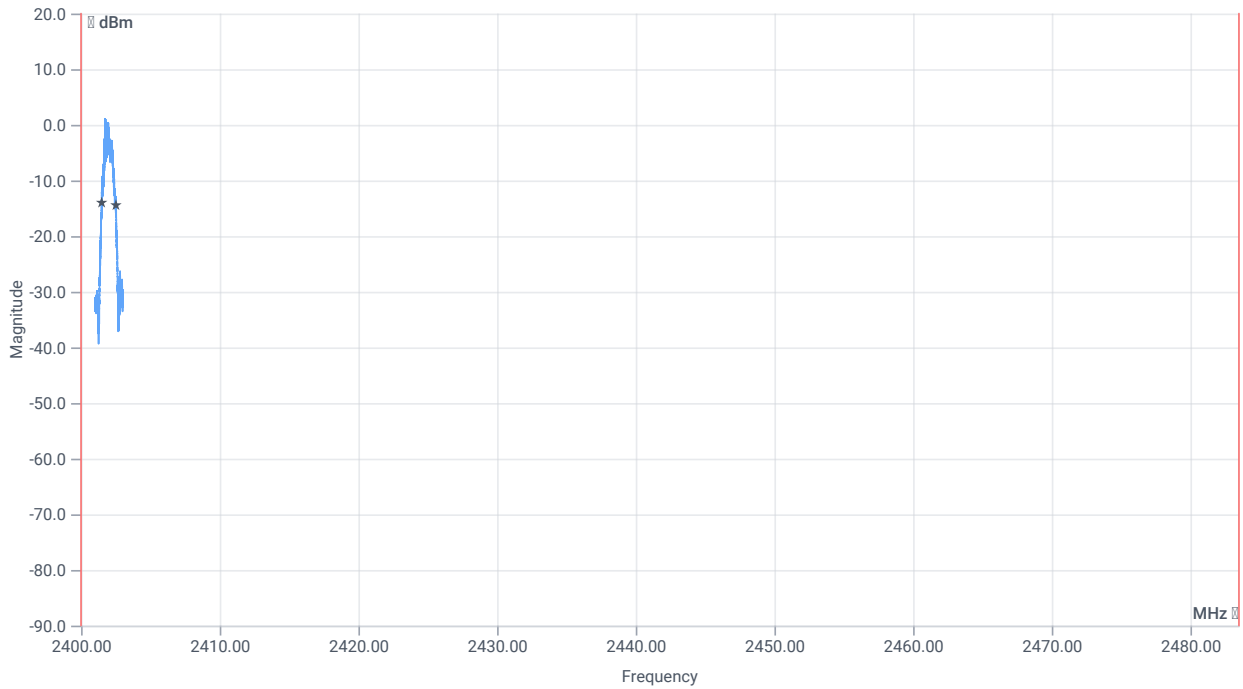
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.02	dBm	INFO
Ref. Frequency	--	--	2401.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.02   10.79   20
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

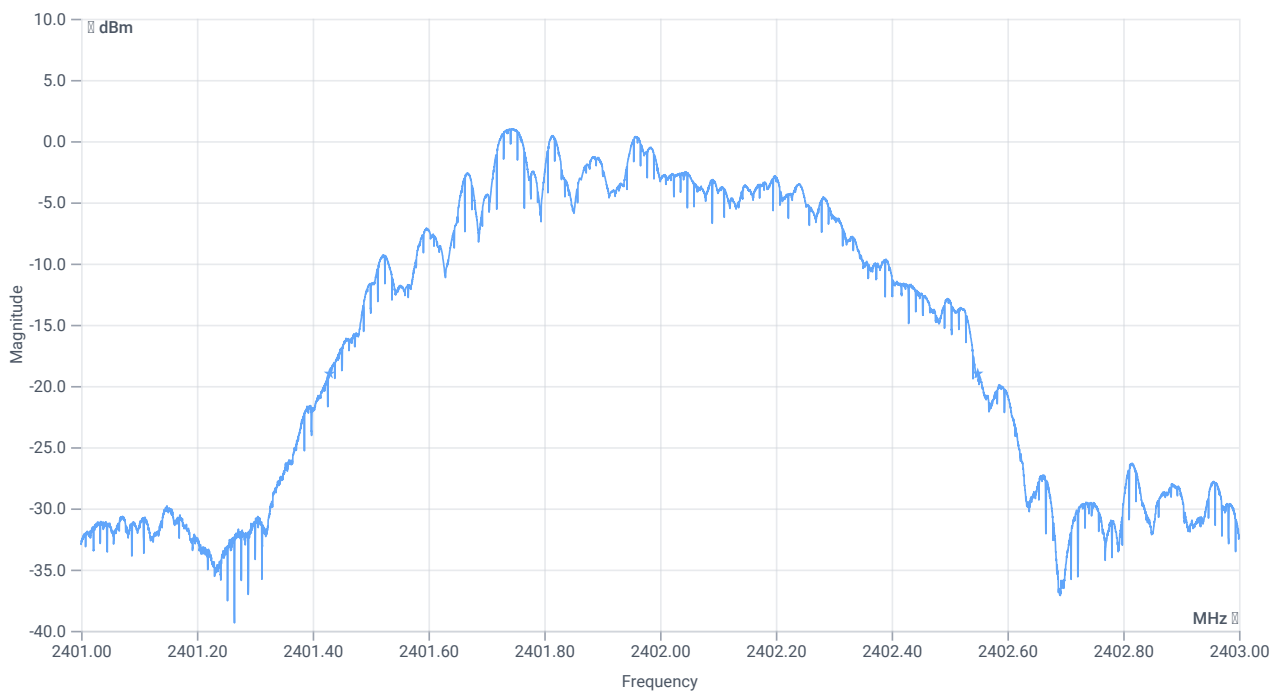




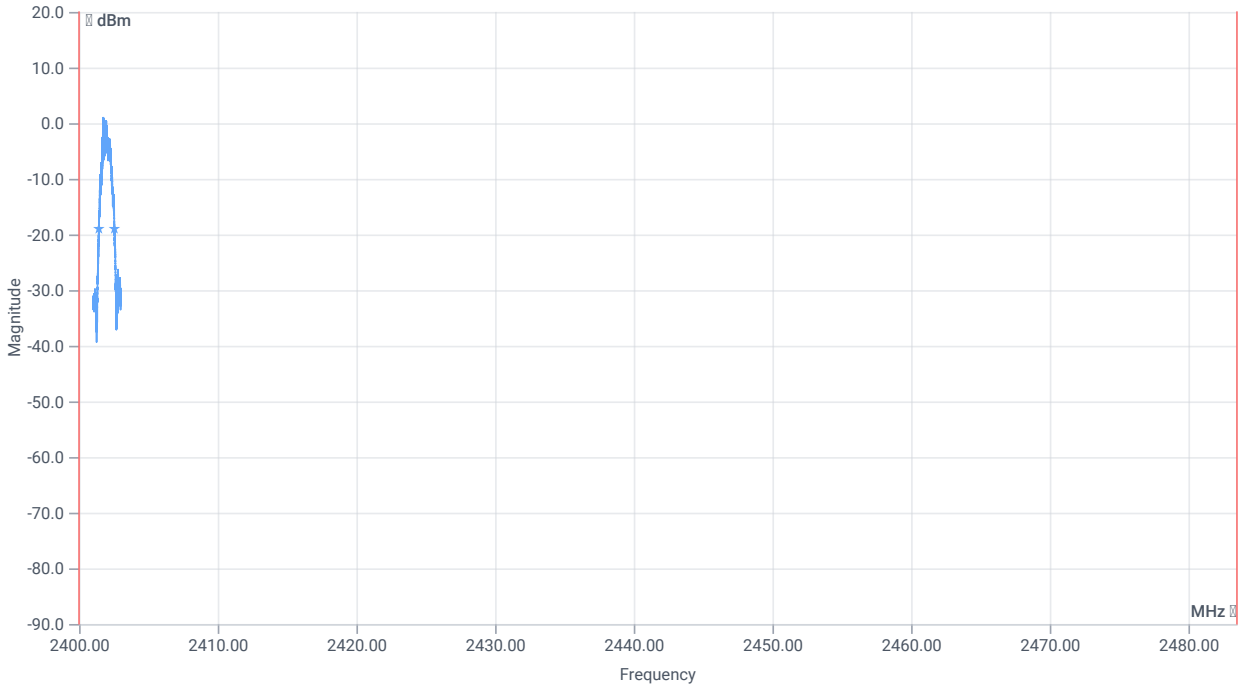
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	1031.000	kHz	INFO
T1 99%	2400.000000	--	2401.4857	MHz	PASS
T2 99%	--	2483.500000	2402.5163	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1120	kHz	INFO
T1 20DB	2400.000000	--	2401.4292	MHz	PASS
T2 20dB	--	2483.500000	2402.5488	MHz	PASS

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE 1 Msps

### Test References

TC Start	22.02.2023 15:30:25
Ambit Temp [°C]   Humidity [rel%]	28.7   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
TC Version	0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - BT LE 1 Msps
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msps
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

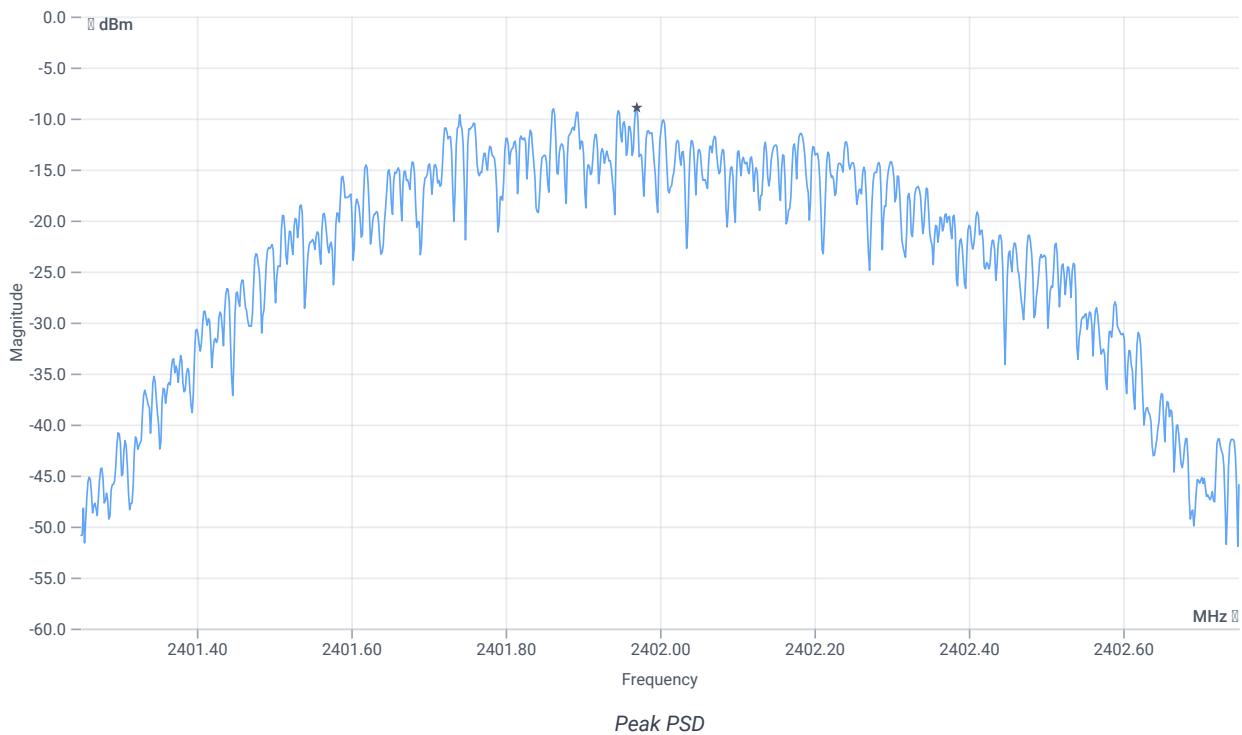
## Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.04	dBm	INFO
Ref. Frequency	--	--	2401.700	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.04   10.79   20
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	-8.94	dBm/3KHz	PASS

Verdict

PASS



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

### Test References

TC Start	22.02.2023 15:29:54
Ambit Temp [°C]   Humidity [rel%]	28.7   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msp
Add. Information	

### EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70
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## Test Equipment

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Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

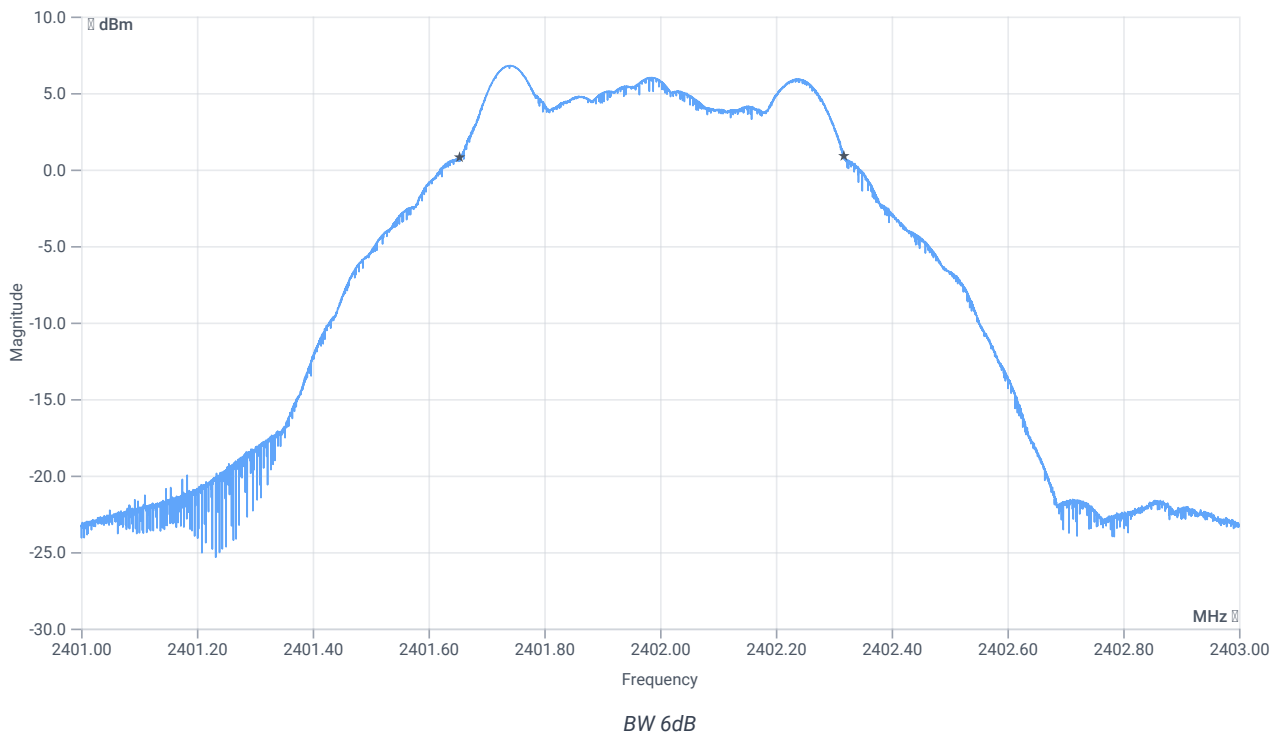
## Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.06	dBm	INFO
Ref. Frequency	--	--	2401.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.06   10.79   20
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	--	664	kHz	PASS

Verdict

PASS

# FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msp

## Test References

TC Start	22.02.2023 15:29:11
Ambit Temp [°C]   Humidity [rel%]	28.7   26
System Version	3.5.0.2
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msp
Add. Information	

## EUT 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	None   HCI   15   115200   None   S1   None   On
Signaling RF Settings	RF1com   0   0   On
User Interaction	No
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT LE 1 Msp
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2440
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI

## Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	7.07	dBm	INFO
Ref. Frequency	--	--	2401.800	MHz	INFO

### READ SA SETTINGS:

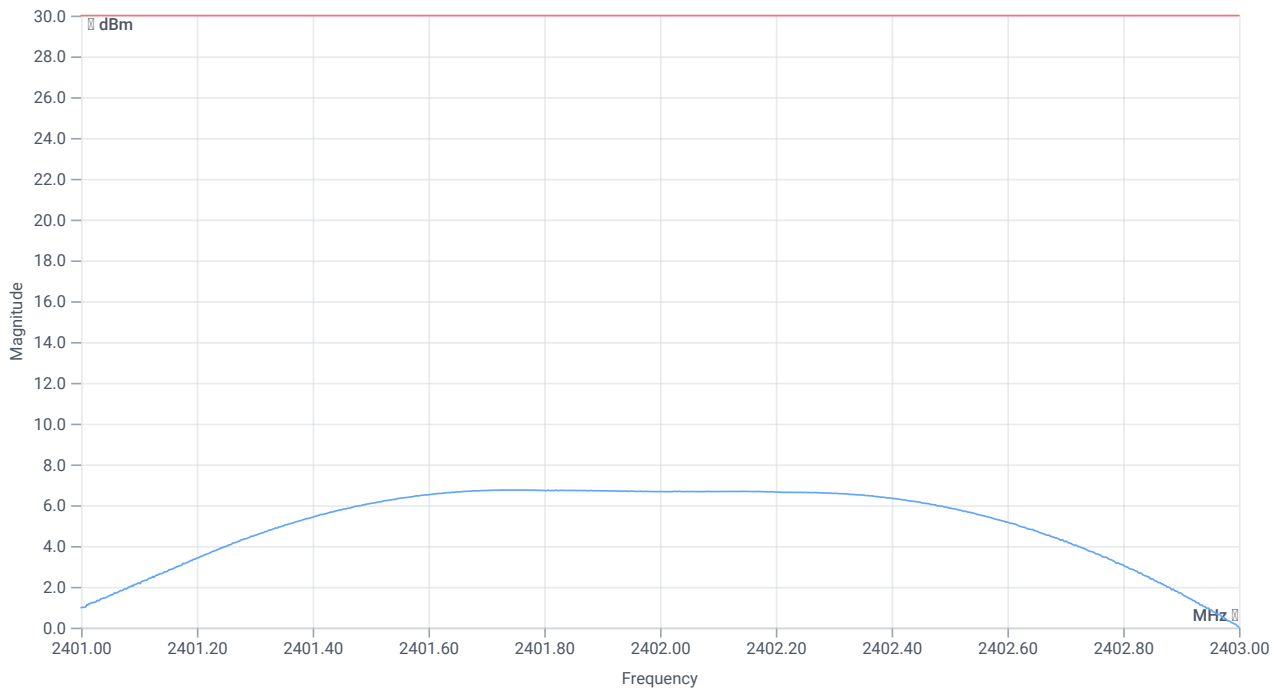
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.07   10.79   20
Start [MHz]   Stop [MHz]	2401.000   2403.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE

### DTS Bandwidth

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	--	--	665	kHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.07   10.79   25
Start [MHz]   Stop [MHz]	2401.000   2403.000
RBW [MHz]   VBW [MHz]	1.000000   3.000000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   1001   SWE



Peak output power

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	--	30.00	6.75	dBm	PASS
Peak Power	--	1000	4.731513	mW	PASS
Frequency at Peak	--	--	2401.766	MHz	INFO

Verdict

PASS

- END OF DOCUMENT -