

# Measurement Results

No.1-5761/23-01-02\_Annex\_MR

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## Test logging

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Lab Manager  
Radio Labs

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## EUT Information

### EUT DEFINITION

Manufacturer	SAGEMCOM BROADBAND SAS
Type	VSB3918 UHD ALT US
Serial Number	622432194559
Setup Number	1.0
Version SW	NI
Version FW	NI
Version HW	NI
Comment 1	
Comment 2	
Temperature [°C] Min	0
Temperature [°C] Nom	20
Temperature [°C] Max	40
Voltage [V] Min	16
Voltage [V] Nom	16
Voltage [V] Max	16

## FCC 15.247 # Maximum peak conducted output power FHSS ~ BT Classic Basic rate

### Test References

TC Start	02.02.2023 10:32:44
Ambit Temp [°C]   Humidity [rel%]	23.3   32
System Version	3.3.4.4
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - BT Classic Basic Rate
Add. Information	

### EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT Classic Basic rate
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2441
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

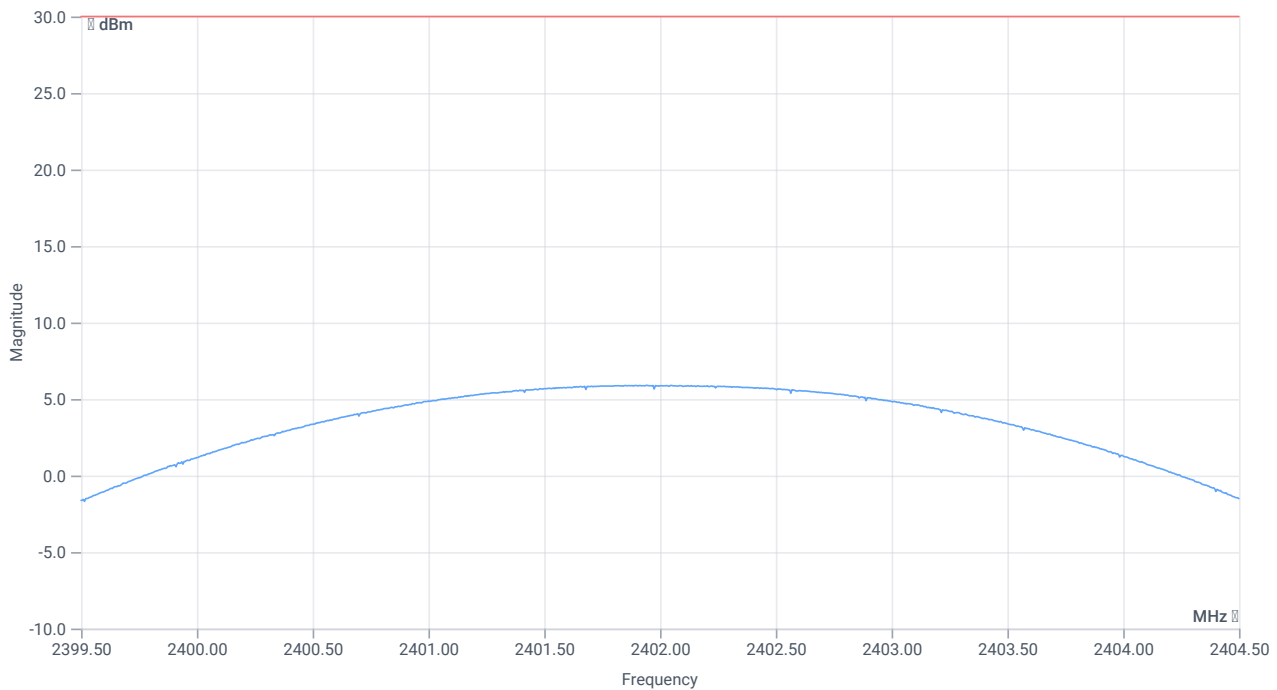
## Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.64	dBm	INFO
Ref. Frequency	--	--	2402.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	15.64   11.09   20
Start [MHz]   Stop [MHz]	2399.500   2404.500
RBW [MHz]   VBW [MHz]	3.000000   10.000000
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	--	30.00	5.9	dBm	PASS
Peak Power	--	1000	3.890451	mW	PASS
Frequency at Peak	--	--	2401.945	MHz	INFO

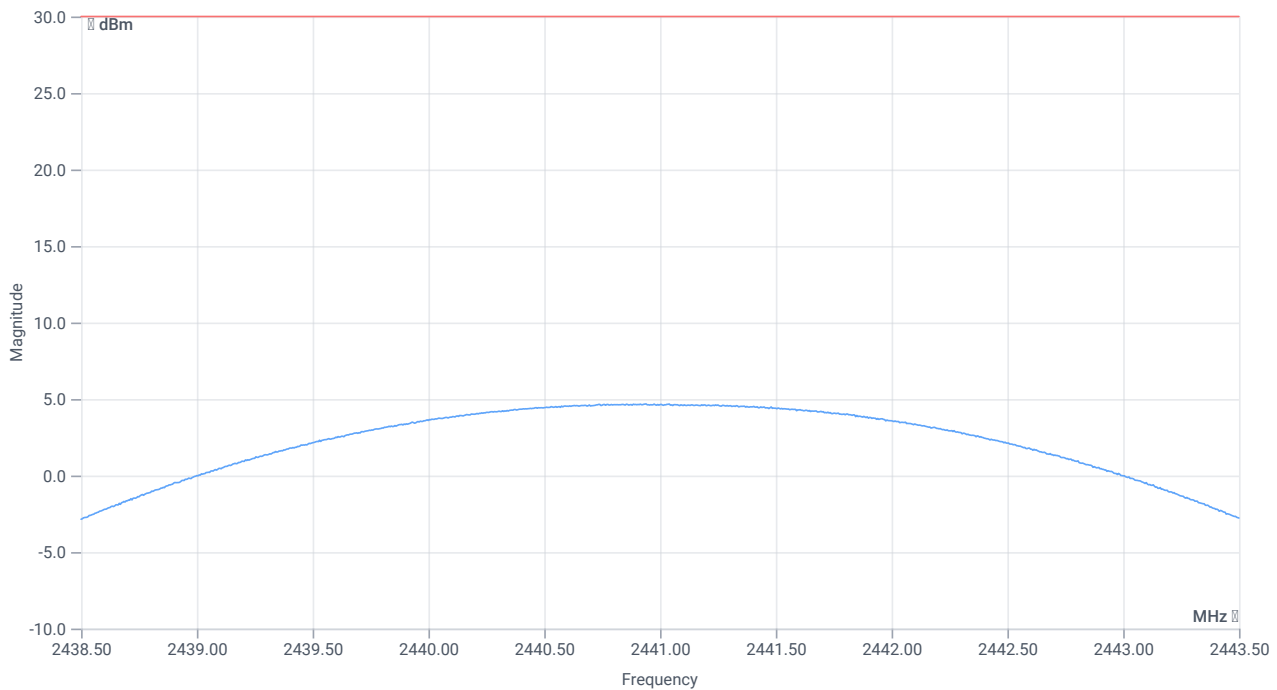
## Test at TX 2441 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	4.30	dBm	INFO
Ref. Frequency	--	--	2441.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	14.30   11.16   20
Start [MHz]   Stop [MHz]	2438.500   2443.500
RBW [MHz]   VBW [MHz]	3.000000   10.000000
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	--	30.00	4.68	dBm	PASS
Peak Power	--	1000	2.93765	mW	PASS
Frequency at Peak	--	--	2440.94	MHz	INFO

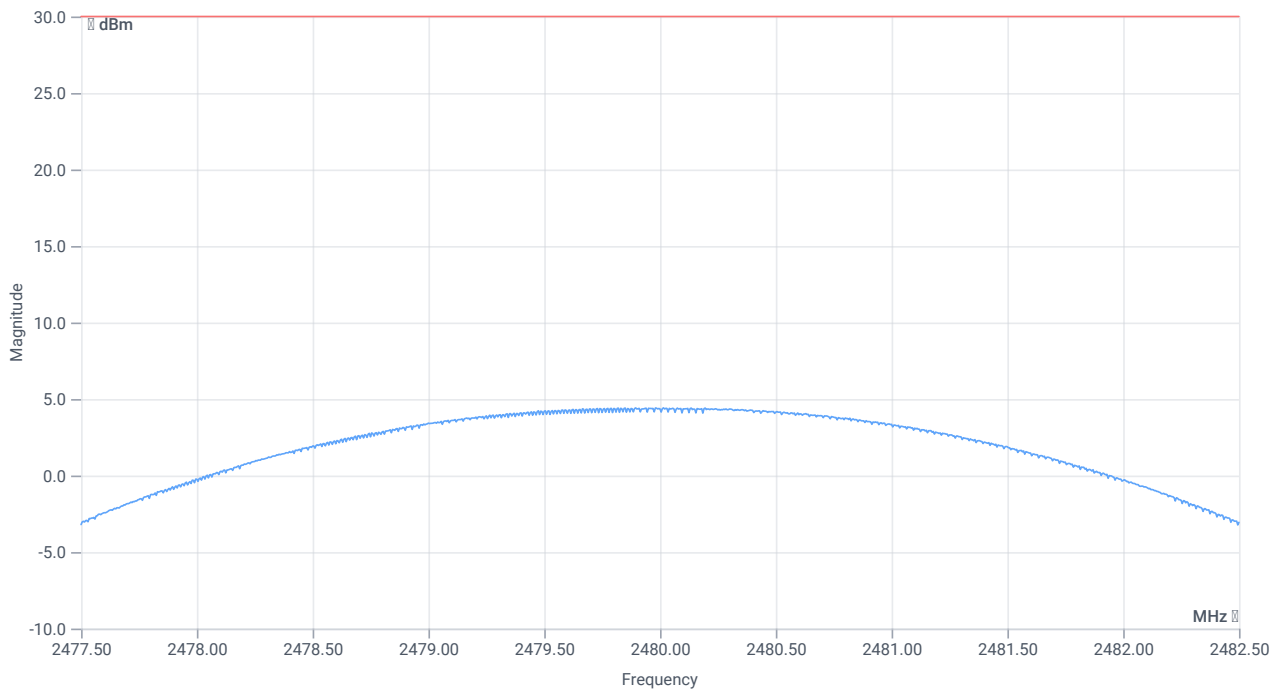
## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	4.04	dBm	INFO
Ref. Frequency	--	--	2480.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	14.04   11.21   20
Start [MHz]   Stop [MHz]	2477.500   2482.500
RBW [MHz]   VBW [MHz]	3.000000   10.000000
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	--	30.00	4.42	dBm	PASS
Peak Power	--	1000	2.766942	mW	PASS
Frequency at Peak	--	--	2480.015	MHz	INFO



Verdict

PASS

# FCC 15.247 # Number of hopping channels FHSS ~ BT Classic Basic rate

## Test References

TC Start	02.02.2023 10:34:15
Ambit Temp [°C]   Humidity [rel%]	23.5   32
System Version	3.3.4.4
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Number Of Hopping Channels FHSS - BT Classic Basic Rate
Add. Information	

## EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT Classic Basic rate
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2441
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

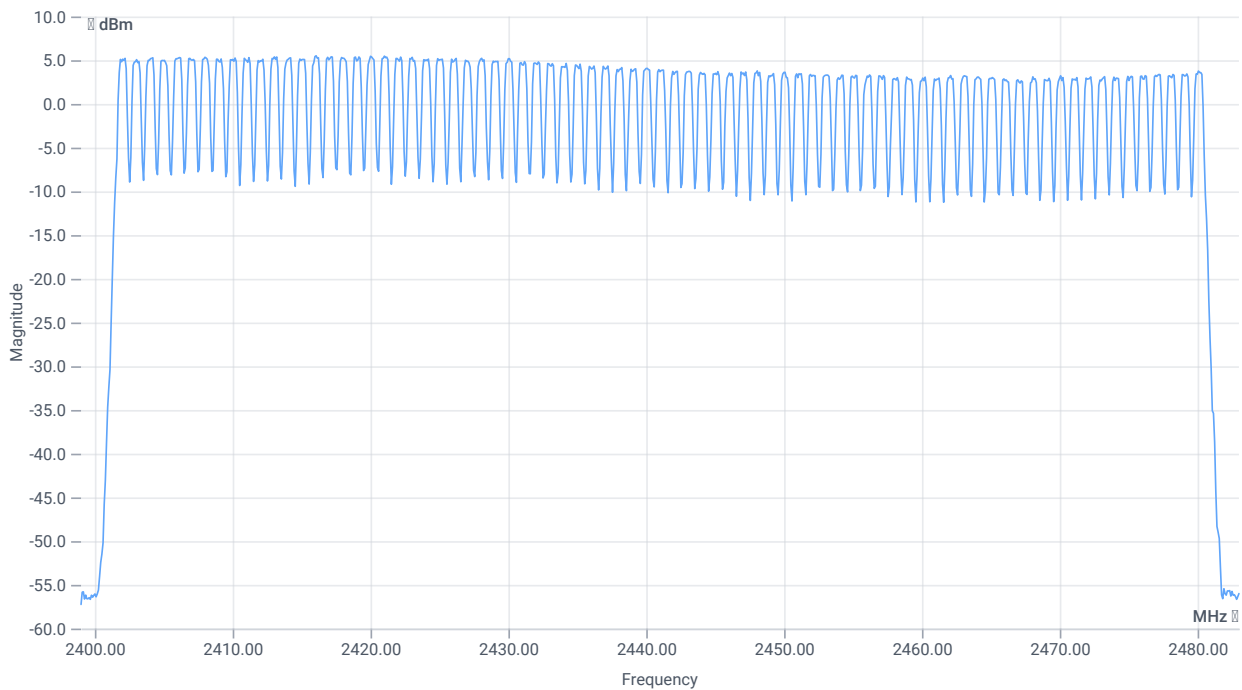
## Test at TX hopping MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	5.80	dBm	INFO
Ref. Frequency	---	---	2416.920	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	10.80   11.16   15
Start [MHz]   Stop [MHz]	2399.000   2483.000
RBW [MHz]   VBW [MHz]	0.200000   0.500000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	1   10000   1001   SWE



Number of hopping channels

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Hopp channel (rounded)	---	---	2402	MHz	INFO
Hopp channel (rounded)	---	---	2403	MHz	INFO
Hopp channel (rounded)	---	---	2404	MHz	INFO

**RESULT**

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Hopp channel (rounded)	--	--	2405	MHz	INFO
Hopp channel (rounded)	--	--	2406	MHz	INFO
Hopp channel (rounded)	--	--	2407	MHz	INFO
Hopp channel (rounded)	--	--	2408	MHz	INFO
Hopp channel (rounded)	--	--	2409	MHz	INFO
Hopp channel (rounded)	--	--	2410	MHz	INFO
Hopp channel (rounded)	--	--	2411	MHz	INFO
Hopp channel (rounded)	--	--	2412	MHz	INFO
Hopp channel (rounded)	--	--	2413	MHz	INFO
Hopp channel (rounded)	--	--	2414	MHz	INFO
Hopp channel (rounded)	--	--	2415	MHz	INFO
Hopp channel (rounded)	--	--	2416	MHz	INFO
Hopp channel (rounded)	--	--	2417	MHz	INFO
Hopp channel (rounded)	--	--	2418	MHz	INFO
Hopp channel (rounded)	--	--	2419	MHz	INFO
Hopp channel (rounded)	--	--	2420	MHz	INFO
Hopp channel (rounded)	--	--	2421	MHz	INFO
Hopp channel (rounded)	--	--	2422	MHz	INFO
Hopp channel (rounded)	--	--	2423	MHz	INFO
Hopp channel (rounded)	--	--	2424	MHz	INFO
Hopp channel (rounded)	--	--	2425	MHz	INFO
Hopp channel (rounded)	--	--	2426	MHz	INFO
Hopp channel (rounded)	--	--	2427	MHz	INFO
Hopp channel (rounded)	--	--	2428	MHz	INFO
Hopp channel (rounded)	--	--	2429	MHz	INFO

**RESULT**

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Hopp channel (rounded)	--	--	2430	MHz	INFO
Hopp channel (rounded)	--	--	2431	MHz	INFO
Hopp channel (rounded)	--	--	2432	MHz	INFO
Hopp channel (rounded)	--	--	2433	MHz	INFO
Hopp channel (rounded)	--	--	2434	MHz	INFO
Hopp channel (rounded)	--	--	2435	MHz	INFO
Hopp channel (rounded)	--	--	2436	MHz	INFO
Hopp channel (rounded)	--	--	2437	MHz	INFO
Hopp channel (rounded)	--	--	2438	MHz	INFO
Hopp channel (rounded)	--	--	2439	MHz	INFO
Hopp channel (rounded)	--	--	2440	MHz	INFO
Hopp channel (rounded)	--	--	2441	MHz	INFO
Hopp channel (rounded)	--	--	2442	MHz	INFO
Hopp channel (rounded)	--	--	2443	MHz	INFO
Hopp channel (rounded)	--	--	2444	MHz	INFO
Hopp channel (rounded)	--	--	2445	MHz	INFO
Hopp channel (rounded)	--	--	2446	MHz	INFO
Hopp channel (rounded)	--	--	2447	MHz	INFO
Hopp channel (rounded)	--	--	2448	MHz	INFO
Hopp channel (rounded)	--	--	2449	MHz	INFO
Hopp channel (rounded)	--	--	2450	MHz	INFO
Hopp channel (rounded)	--	--	2451	MHz	INFO
Hopp channel (rounded)	--	--	2452	MHz	INFO
Hopp channel (rounded)	--	--	2453	MHz	INFO
Hopp channel (rounded)	--	--	2454	MHz	INFO

**RESULT**

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Hopp channel (rounded)	--	--	2455	MHz	INFO
Hopp channel (rounded)	--	--	2456	MHz	INFO
Hopp channel (rounded)	--	--	2457	MHz	INFO
Hopp channel (rounded)	--	--	2458	MHz	INFO
Hopp channel (rounded)	--	--	2459	MHz	INFO
Hopp channel (rounded)	--	--	2460	MHz	INFO
Hopp channel (rounded)	--	--	2461	MHz	INFO
Hopp channel (rounded)	--	--	2462	MHz	INFO
Hopp channel (rounded)	--	--	2463	MHz	INFO
Hopp channel (rounded)	--	--	2464	MHz	INFO
Hopp channel (rounded)	--	--	2465	MHz	INFO
Hopp channel (rounded)	--	--	2466	MHz	INFO
Hopp channel (rounded)	--	--	2467	MHz	INFO
Hopp channel (rounded)	--	--	2468	MHz	INFO
Hopp channel (rounded)	--	--	2469	MHz	INFO
Hopp channel (rounded)	--	--	2470	MHz	INFO
Hopp channel (rounded)	--	--	2471	MHz	INFO
Hopp channel (rounded)	--	--	2472	MHz	INFO
Hopp channel (rounded)	--	--	2473	MHz	INFO
Hopp channel (rounded)	--	--	2474	MHz	INFO
Hopp channel (rounded)	--	--	2475	MHz	INFO
Hopp channel (rounded)	--	--	2476	MHz	INFO
Hopp channel (rounded)	--	--	2477	MHz	INFO
Hopp channel (rounded)	--	--	2478	MHz	INFO
Hopp channel (rounded)	--	--	2479	MHz	INFO

**RESULT**

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Hopp channel (rounded)	--	--	2480	MHz	INFO
$\Sigma$ Hopping channels	15	--	79	Number	PASS

## Verdict

PASS



## FCC 15.247 # Carrier frequency separation FHSS ~ BT Classic Basic rate

### Test References

TC Start	02.02.2023 10:35:07
Ambit Temp [°C]   Humidity [rel%]	23.6   31
System Version	3.3.4.4
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Carrier Frequency Separation FHSS - BT Classic Basic Rate
Add. Information	

### EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT Classic Basic rate
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2402
Frequency mid to test	False   Freq [MHz] 2441
Frequency high to test	False   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

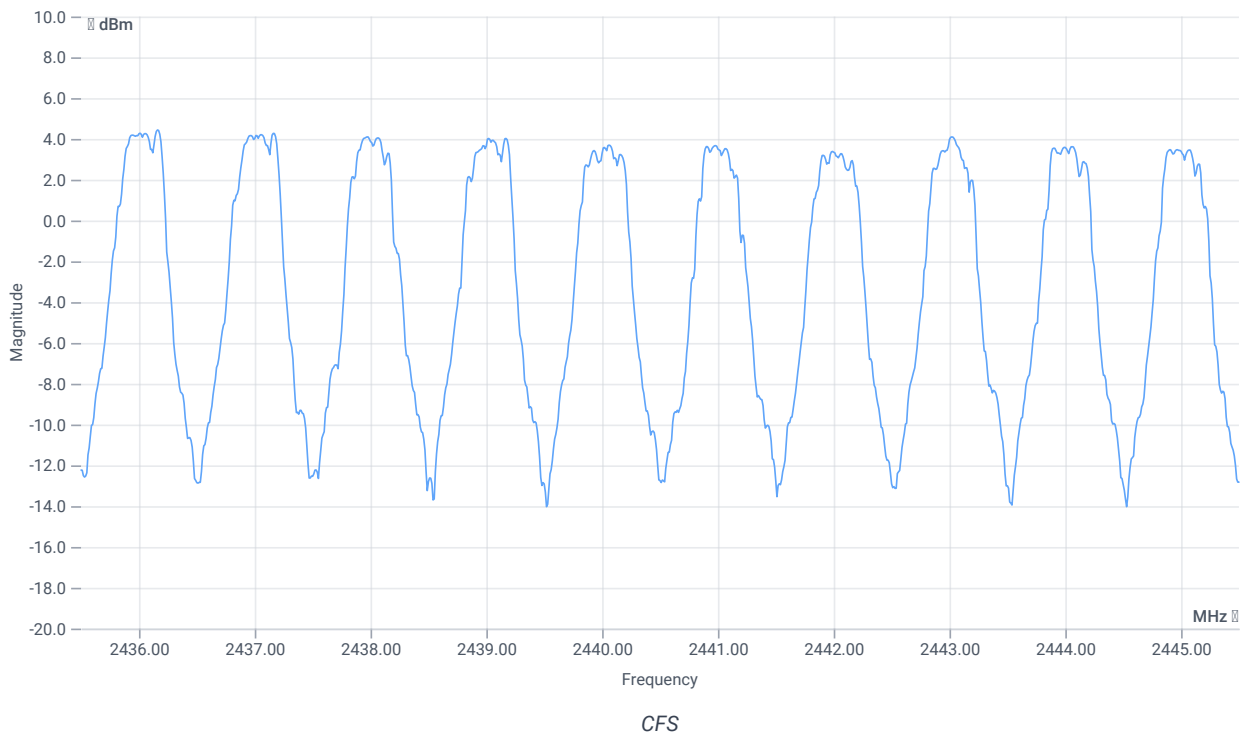
## Test at TX hopping MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.59	dBm	INFO
Ref. Frequency	--	--	2415.920	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	10.59   11.16   15
Start [MHz]   Stop [MHz]	2435.500   2445.500
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	1   20000   1001   SWE



### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
1 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
1 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
2 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
2 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
3 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS

**RESULT**

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
3 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
4 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
4 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
5 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
5 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
6 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
6 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
7 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
7 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
8 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
8 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
9 CFS n to n+1 (rnd)	0.025	--	1	MHz	PASS
9 CFS n to n+1 (rnd)	0.667 (2/3 Nom.BW)	--	1	MHz	PASS
Carrier Freq. (rnd)	--	--	2436	MHz	INFO
Carrier Freq. (rnd)	--	--	2437	MHz	INFO
Carrier Freq. (rnd)	--	--	2438	MHz	INFO
Carrier Freq. (rnd)	--	--	2439	MHz	INFO
Carrier Freq. (rnd)	--	--	2440	MHz	INFO
Carrier Freq. (rnd)	--	--	2441	MHz	INFO
Carrier Freq. (rnd)	--	--	2442	MHz	INFO
Carrier Freq. (rnd)	--	--	2443	MHz	INFO
Carrier Freq. (rnd)	--	--	2444	MHz	INFO
Carrier Freq. (rnd)	--	--	2445	MHz	INFO

Verdict

**PASS**

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT Classic Basic rate

### Test References

TC Start	02.02.2023 10:37:11
Ambit Temp [°C]   Humidity [rel%]	23.9   31
System Version	3.3.4.4
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT - 20dB FHSS - BT Classic Basic Rate
Add. Information	

### EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT Classic Basic rate
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2441
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

## Test Equipment

---

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

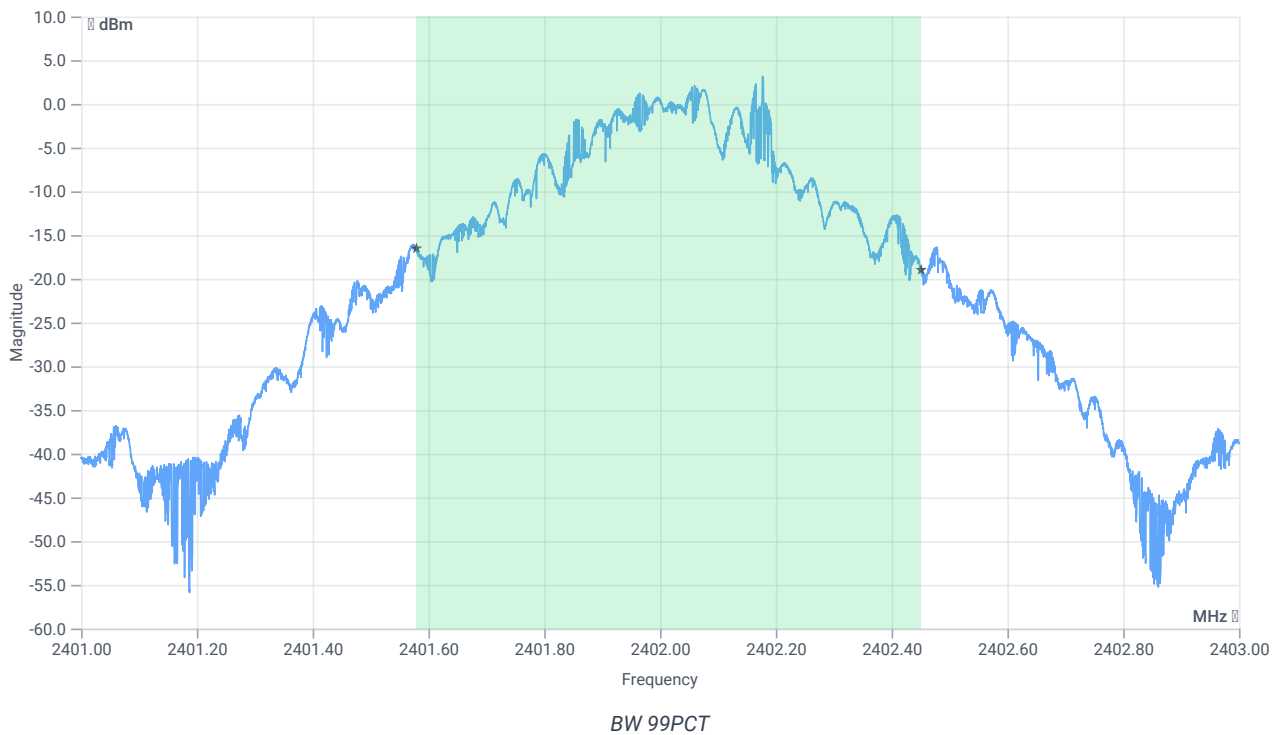
## Test at TX 2402 MHz

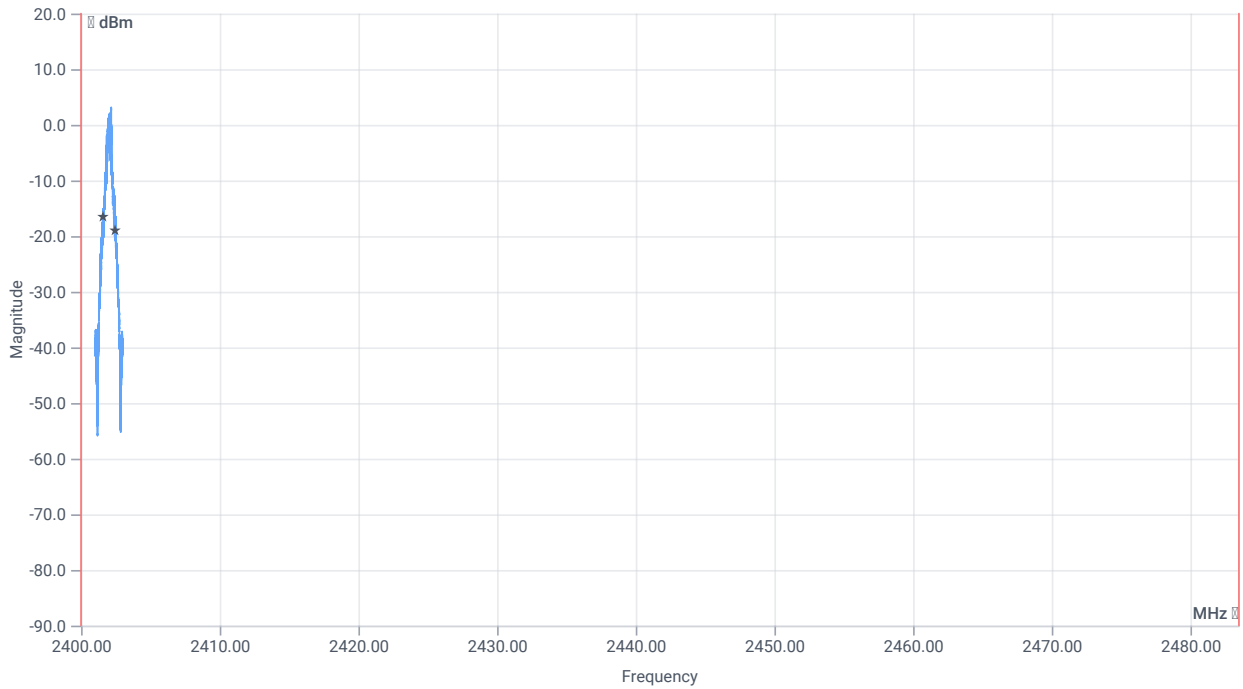
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.36	dBm	INFO
Ref. Frequency	--	--	2402.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	10.36   11.09   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

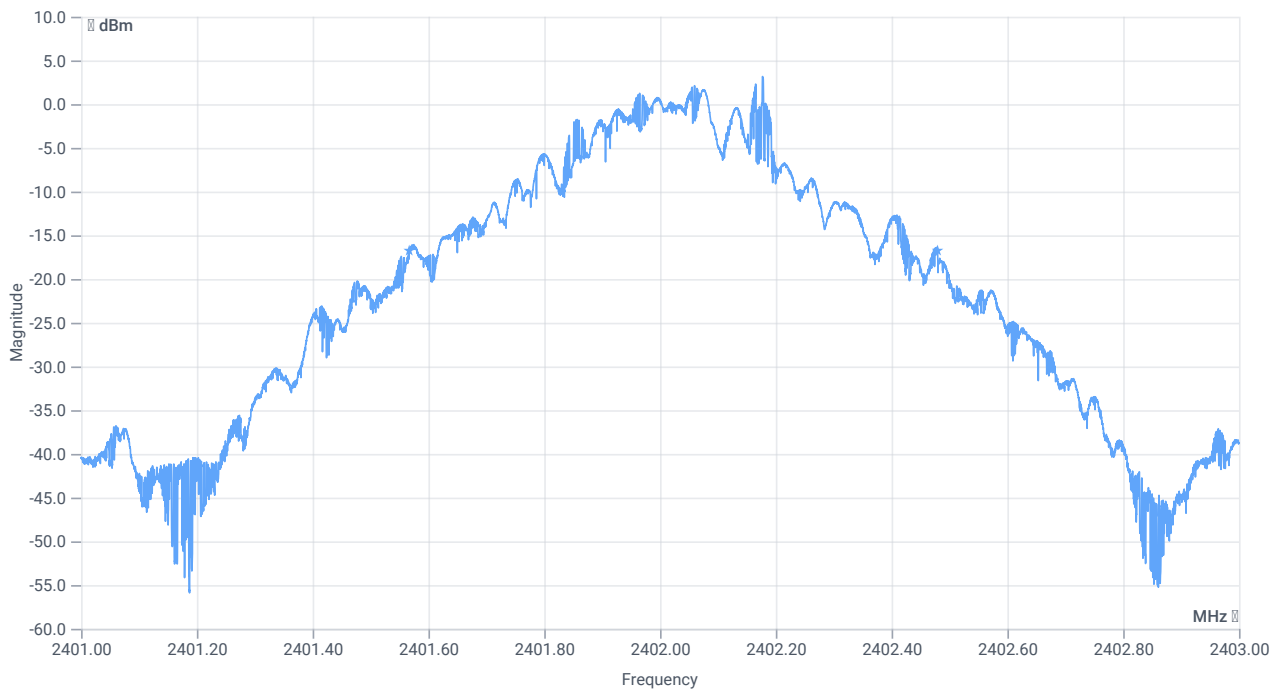




BW within Band 99PCT

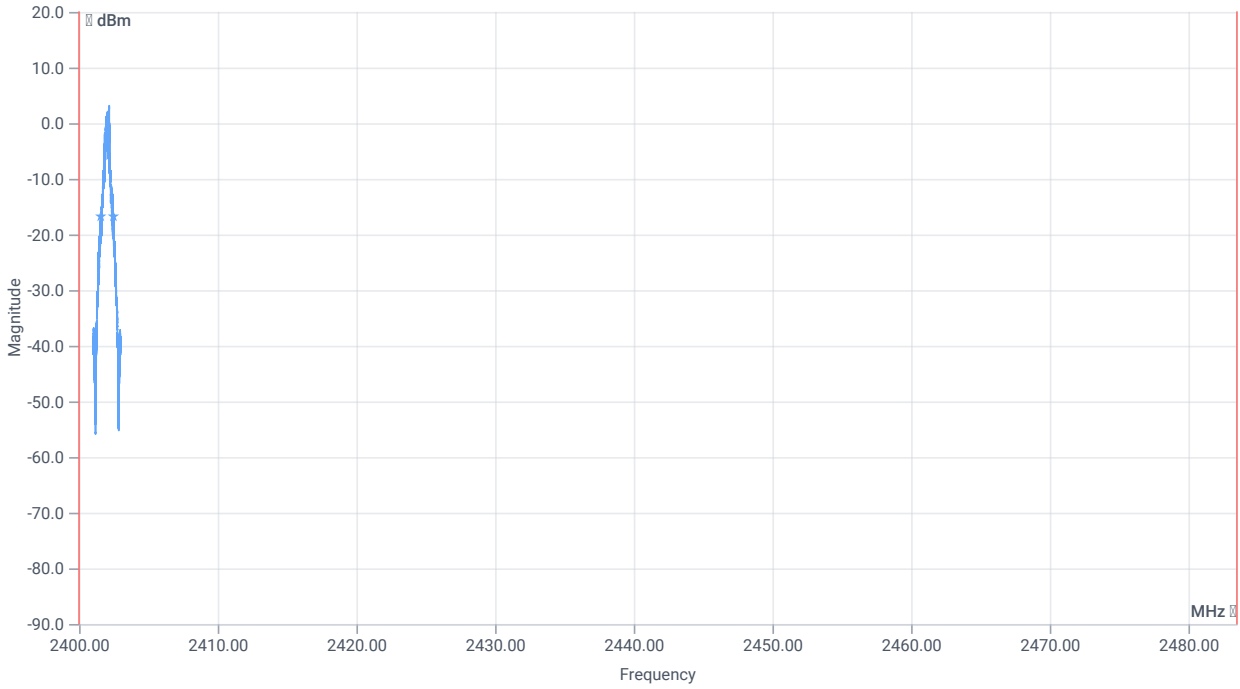
## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	872.000	kHz	INFO
T1 99%	2400.000000	--	2401.5794	MHz	PASS
T2 99%	--	2483.500000	2402.4510	MHz	PASS





BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	913	kHz	INFO
T1 20DB	2400.000000	--	2401.5668	MHz	PASS
T2 20dB	--	2483.500000	2402.4794	MHz	PASS

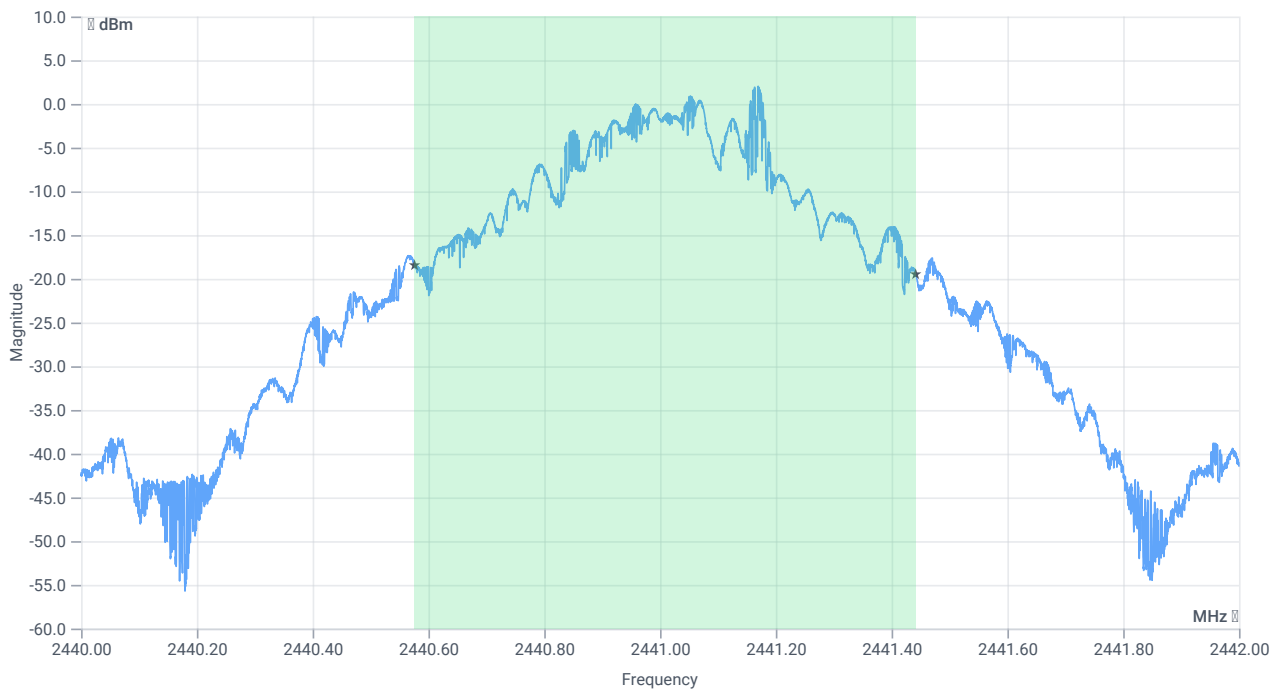
## Test at TX 2441 MHz

RESULT: Reference Power cond.

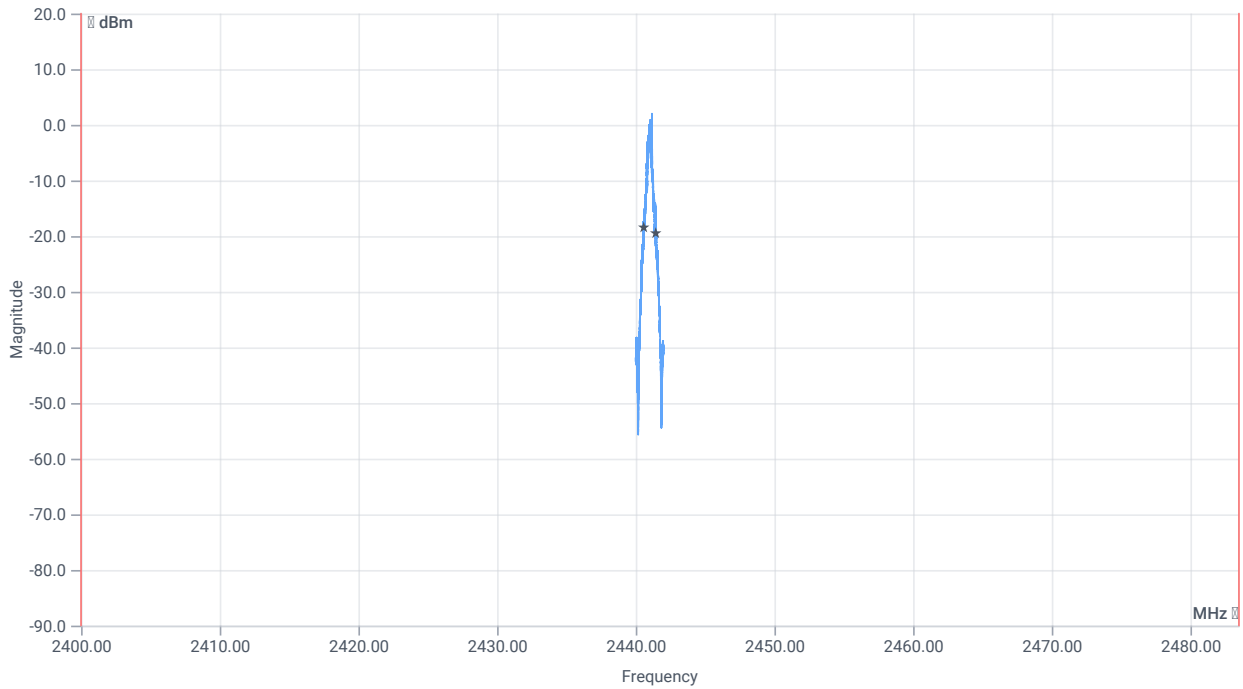
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	4.15	dBm	INFO
Ref. Frequency	--	--	2441.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	9.15   11.16   15
Start [MHz]   Stop [MHz]	2440.000   2442.000
RBW [MHz]   VBW [MHz]	0.020000   0.100000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE



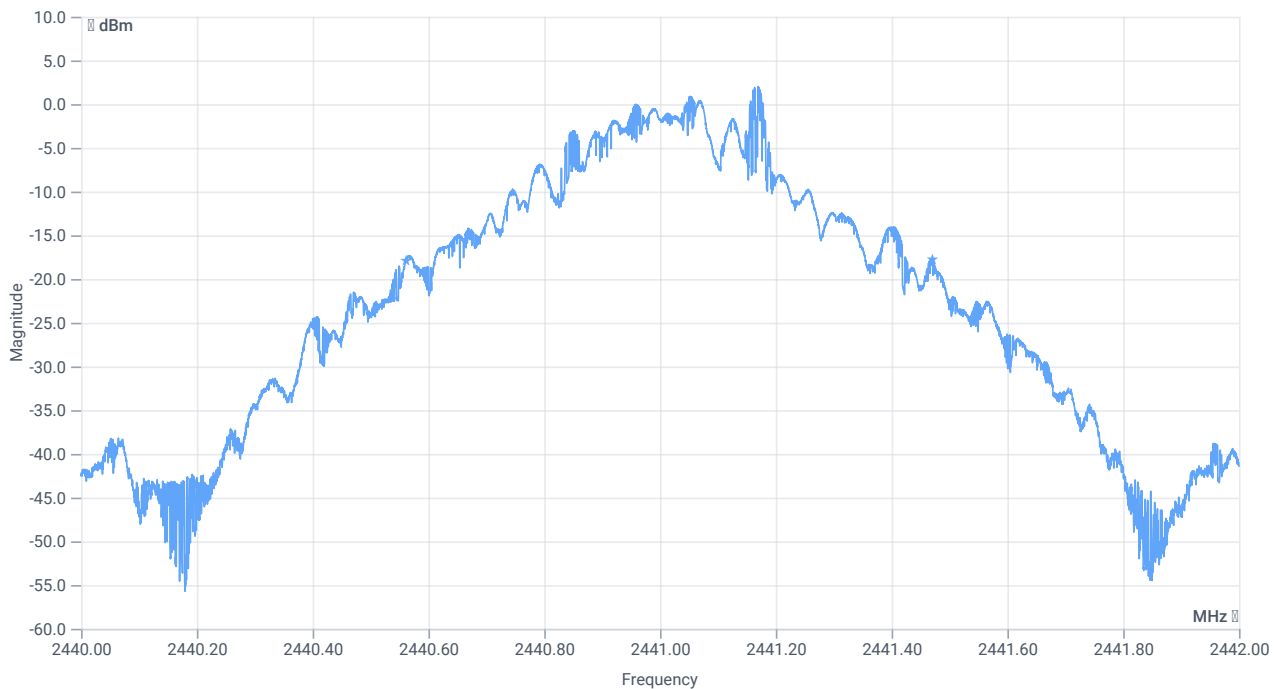
BW 99PCT



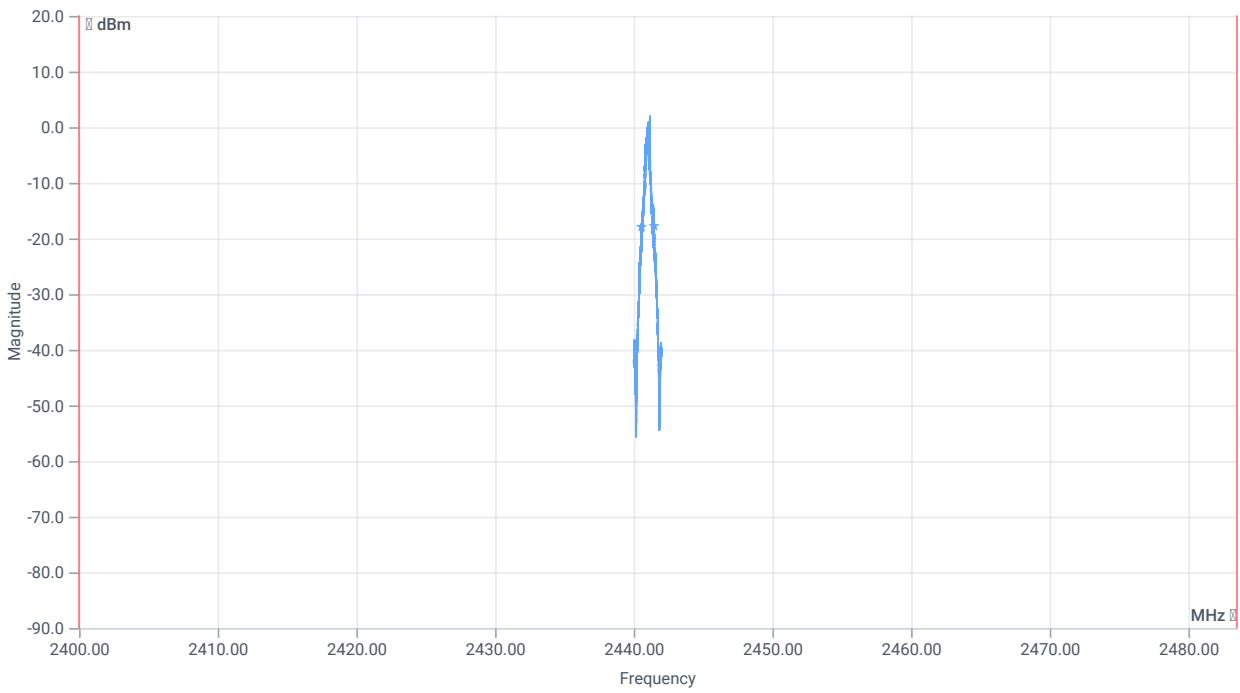
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	866.000	kHz	INFO
T1 99%	2400.000000	--	2440.5760	MHz	PASS
T2 99%	--	2483.500000	2441.4416	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	909	kHz	INFO
T1 20DB	2400.000000	--	2440.5614	MHz	PASS
T2 20dB	--	2483.500000	2441.4706	MHz	PASS

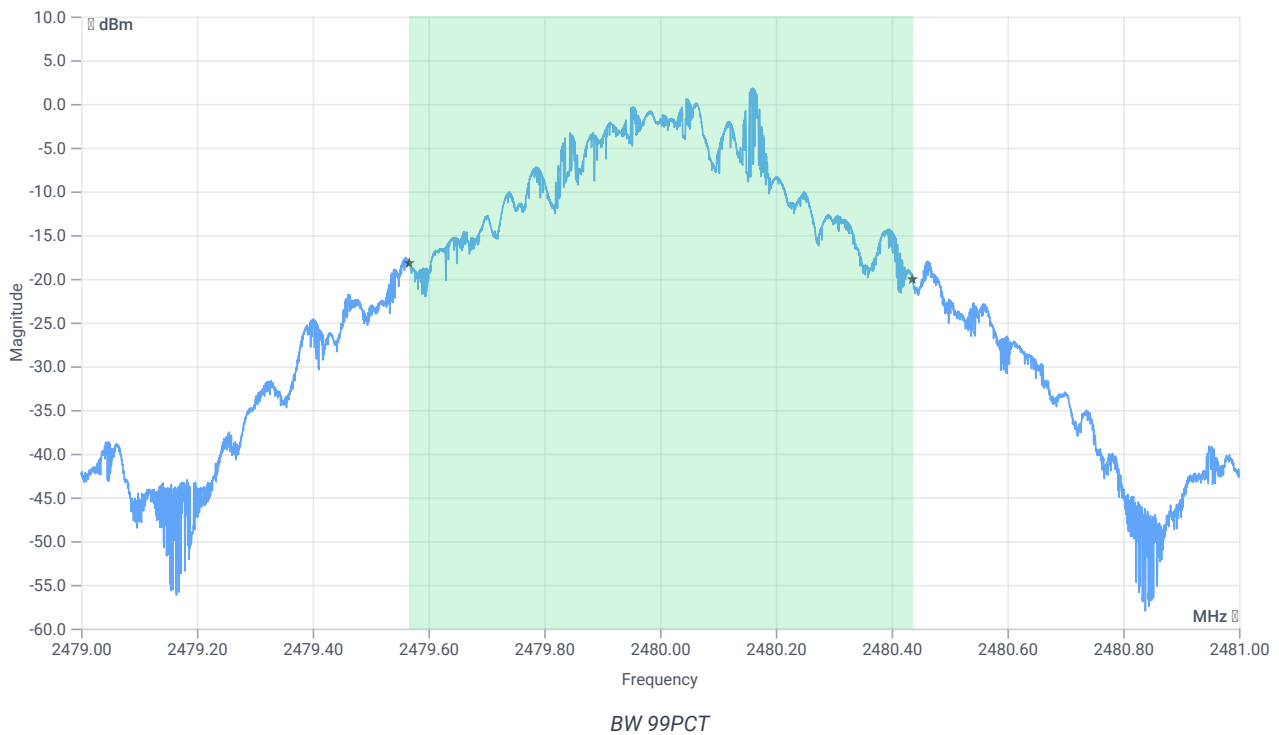
## Test at TX 2480 MHz

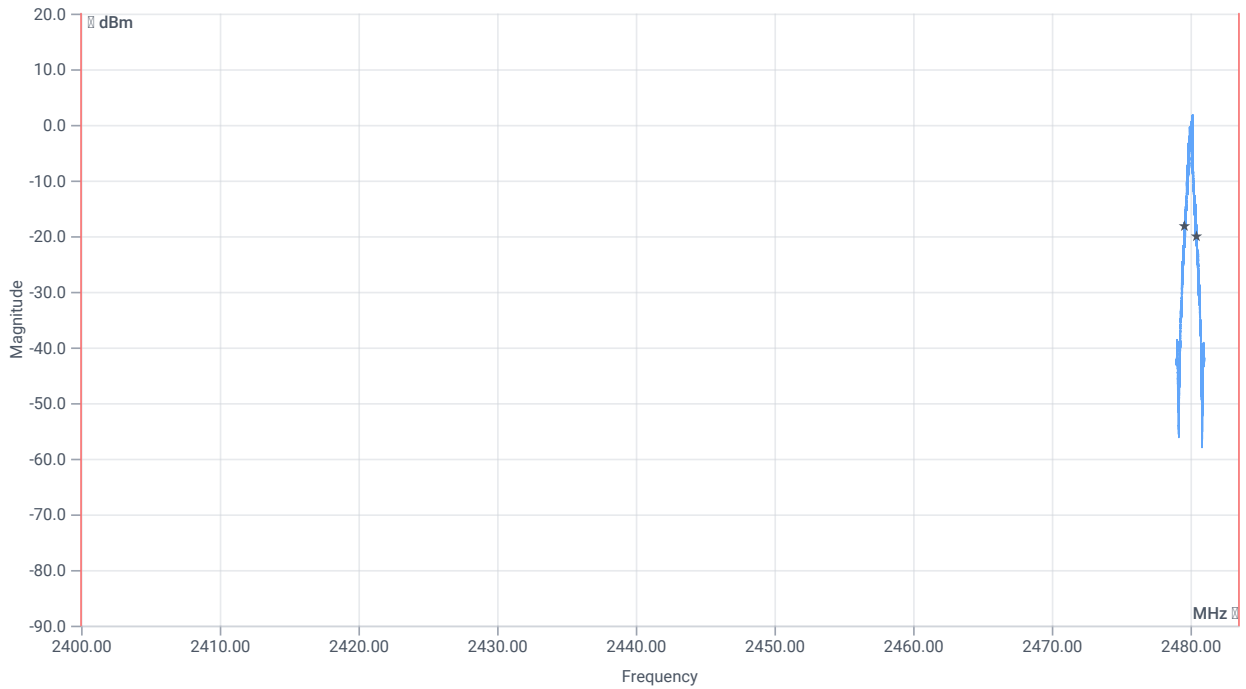
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	3.81	dBm	INFO
Ref. Frequency	--	--	2480.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	8.81   11.21   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

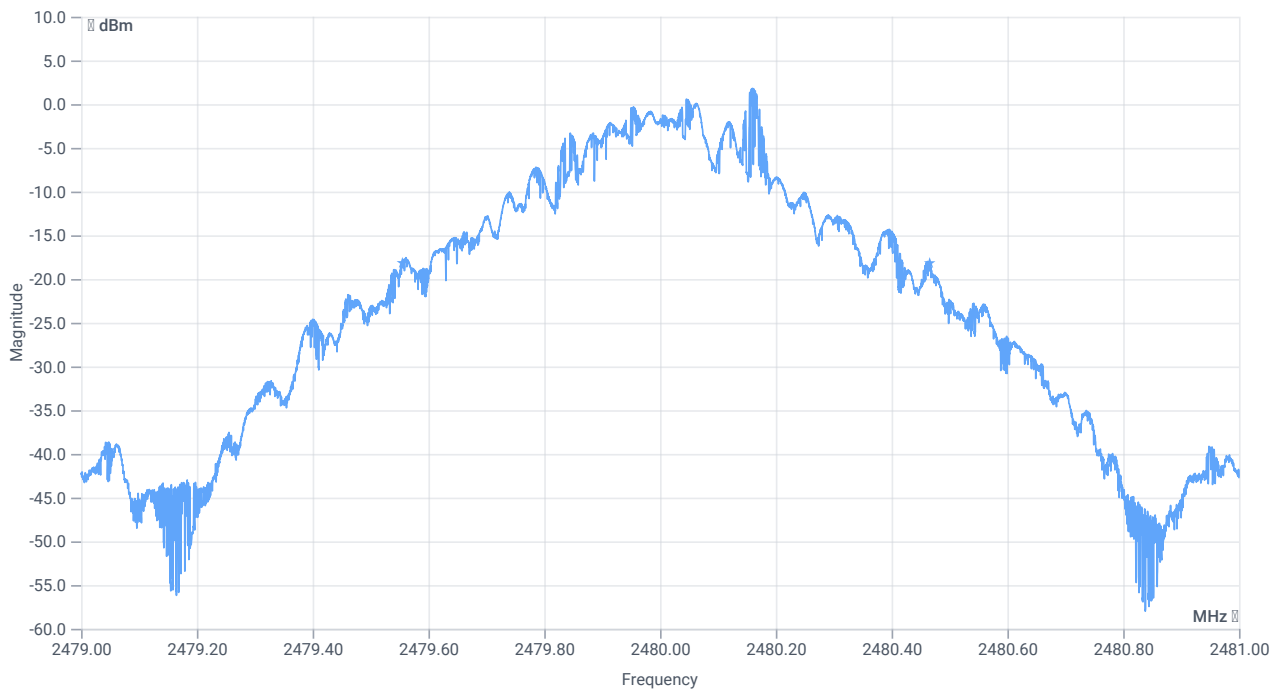




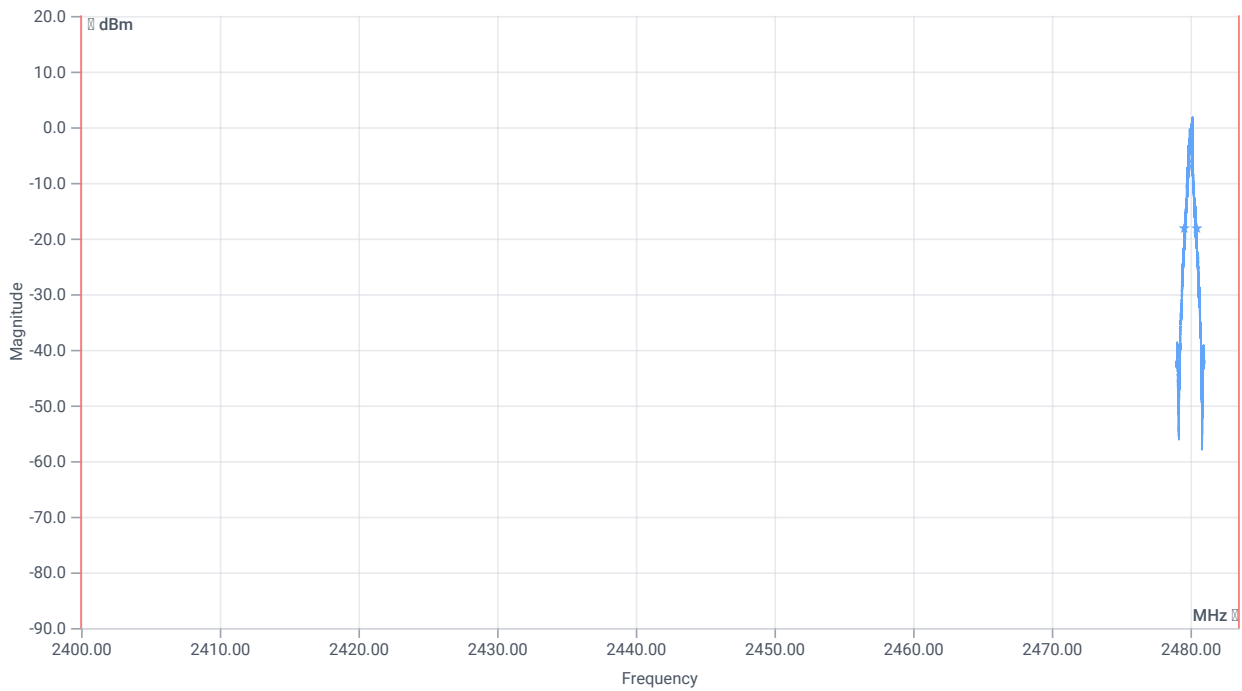
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	869.000	kHz	INFO
T1 99%	2400.000000	--	2479.5668	MHz	PASS
T2 99%	--	2483.500000	2480.4360	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	911	kHz	INFO
T1 20dB	2400.000000	--	2479.5550	MHz	PASS
T2 20dB	--	2483.500000	2480.4658	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 20dBc ~ BT Classic Basic rate

### Test References

TC Start	02.02.2023 10:38:59
Ambit Temp [°C]   Humidity [rel%]	24.1   30
System Version	3.3.4.4
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 FHSS - BT Classic Basic Rate
Add. Information	

### EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT Classic Basic rate
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2441
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment



## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

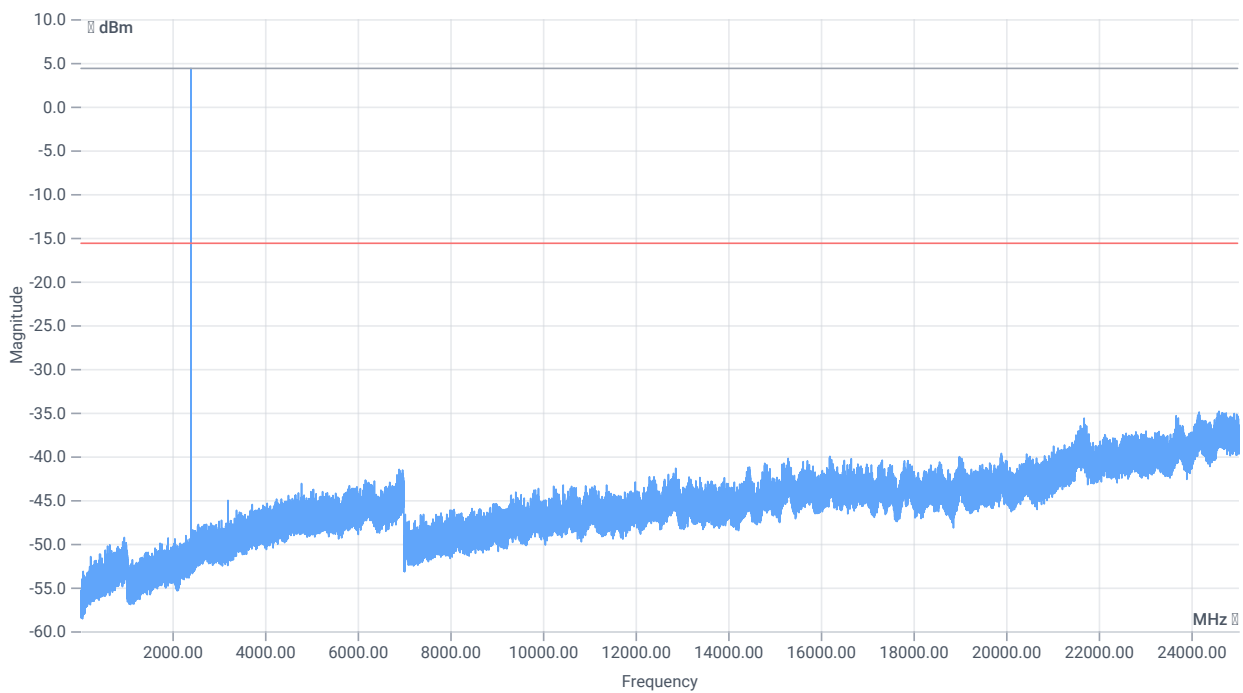
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

## Test at TX 2402 MHz

RESULT: Reference Power cond.

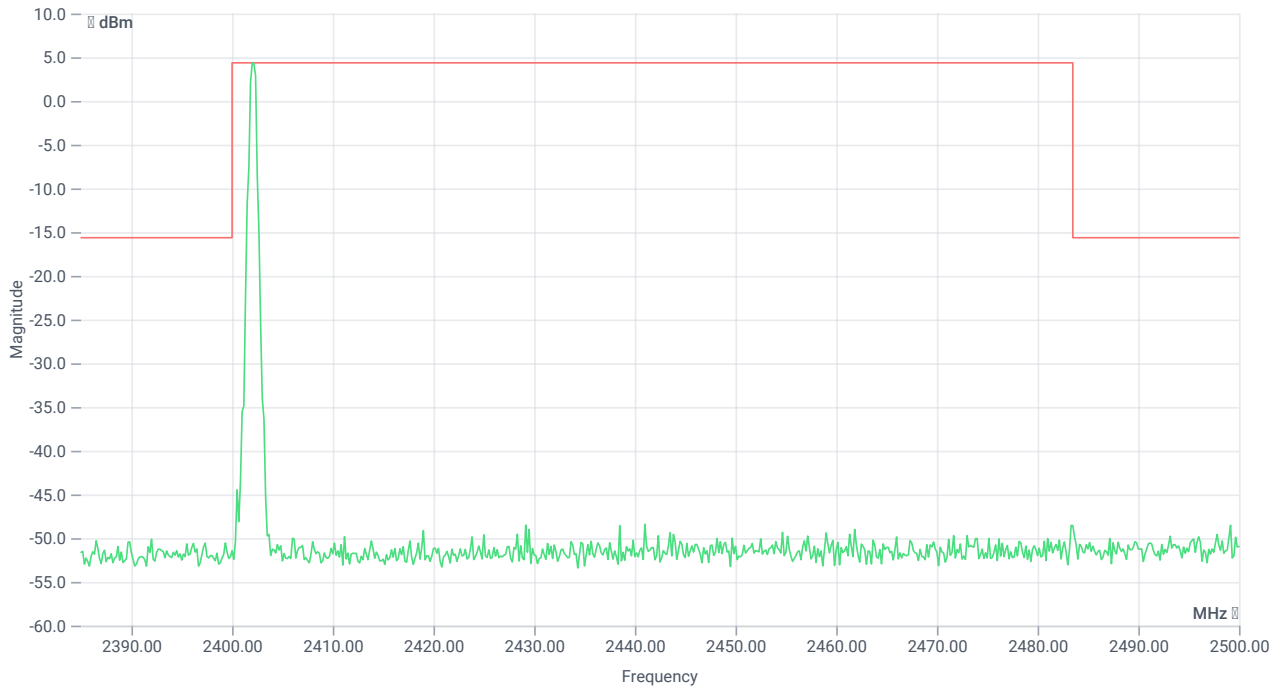
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.35	dBm	INFO
Ref. Frequency	--	--	2402.200	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	5.35   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

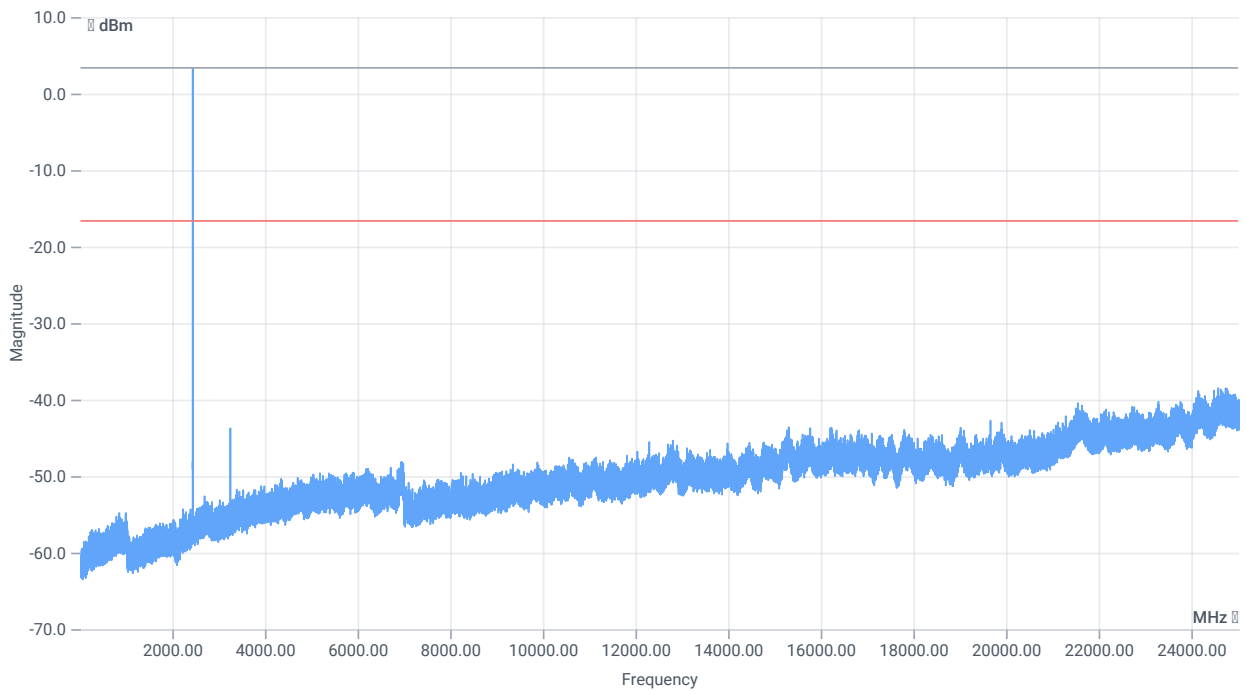
## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.00 MHz	--	--	4.36	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24599.333 MHz	0	--	19.21	dB	INFO

## Test at TX 2441 MHz

RESULT: Reference Power cond.

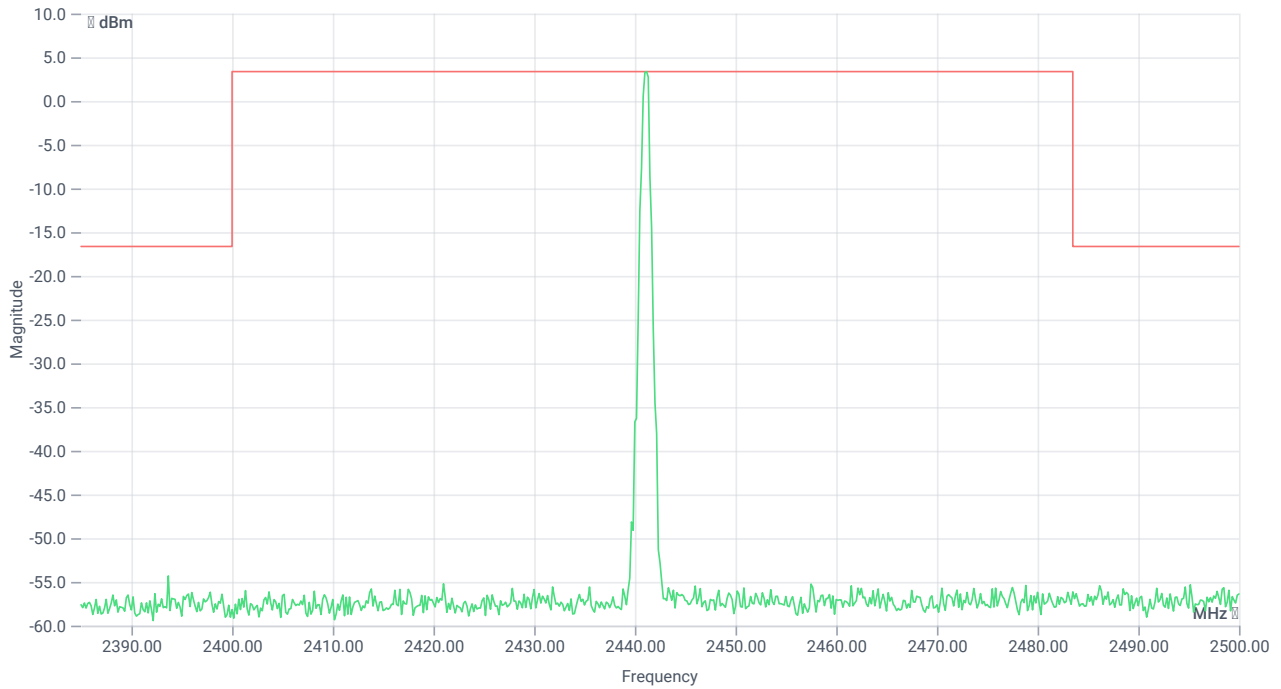
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	3.99	dBm	INFO
Ref. Frequency	--	--	2440.900	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	3.99   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	200   25   3001   SWE



TX emissions band zoomed

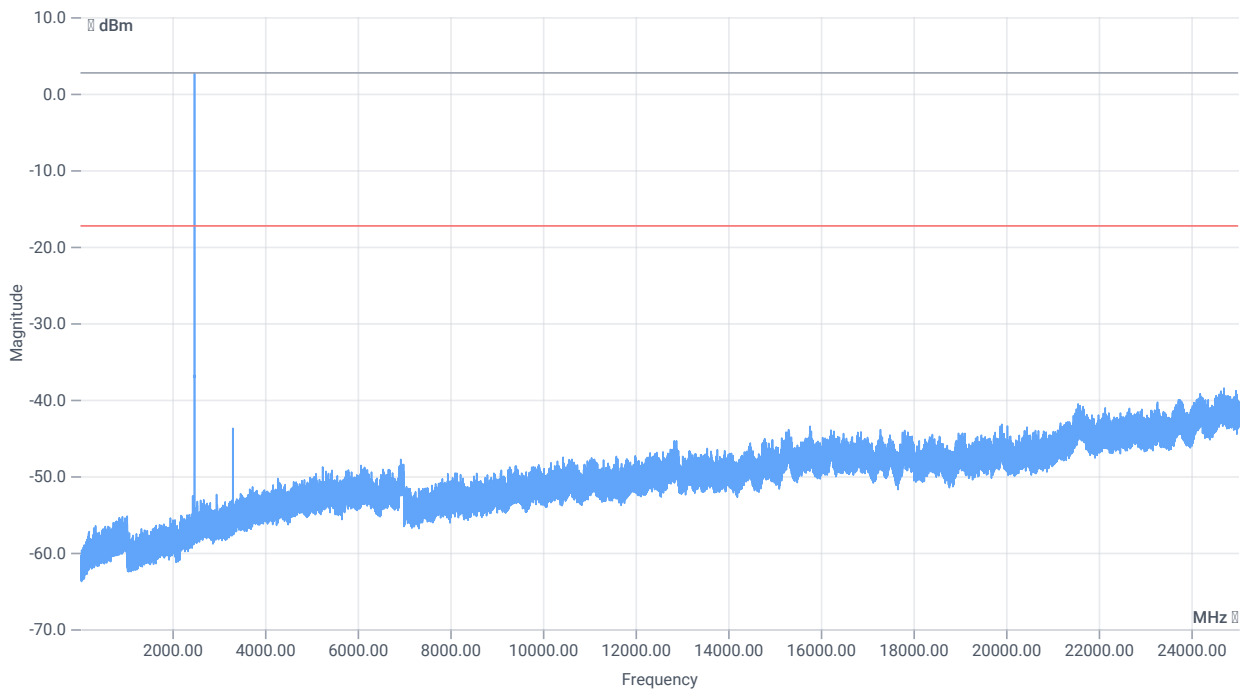
## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2441.17 MHz	--	--	3.36	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24583.167 MHz	0	--	21.85	dB	INFO

## Test at TX 2480 MHz

RESULT: Reference Power cond.

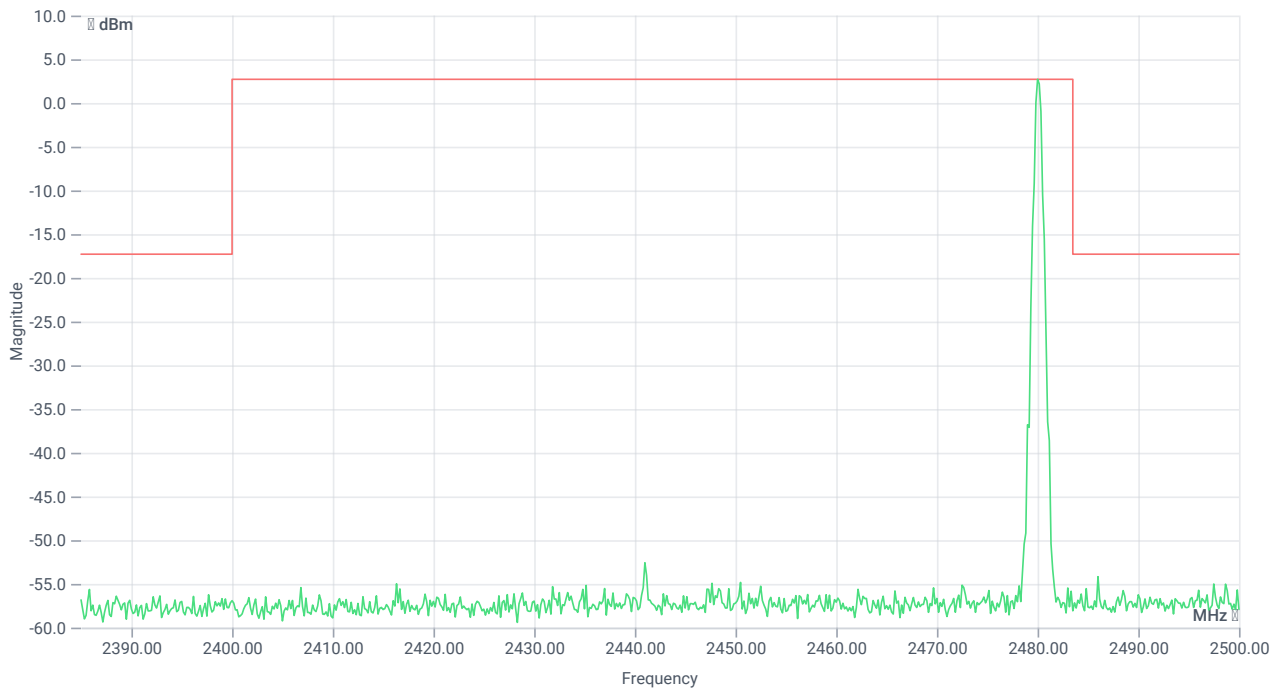
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	3.64	dBm	INFO
Ref. Frequency	--	--	2479.900	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	3.64   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	200   25   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.00 MHz	--	--	2.71	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24707.667 MHz	0	--	21.19	dB	INFO

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power FHSS ~ BT Classic EDR Pi/4DQPSK

### Test References

TC Start	02.02.2023 10:59:00
Ambit Temp [°C]   Humidity [rel%]	25.8   28
System Version	3.3.4.4
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - BT Classic EDR Pi/4DQPSK
Add. Information	

### EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

### Test Parameter

Technology to test	BT Classic EDR Pi/4DQPSK
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2441
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer



## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

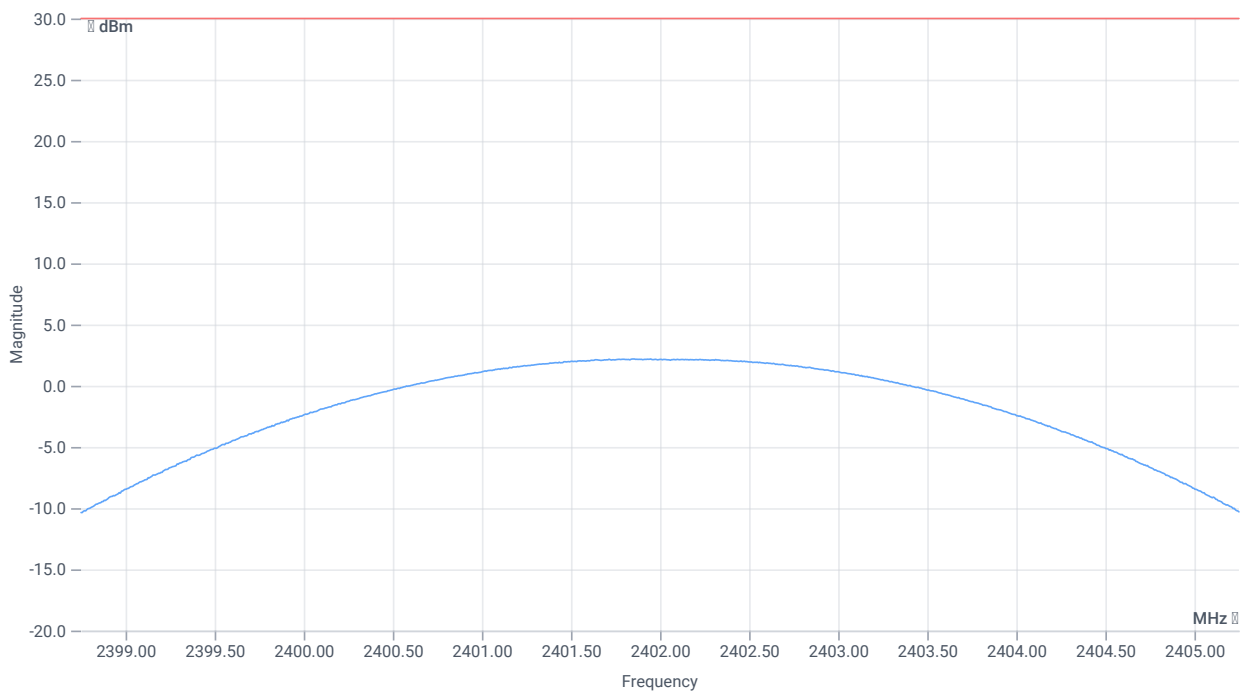
## Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	1.32	dBm	INFO
Ref. Frequency	--	--	2402.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	11.32   11.09   20
Start [MHz]   Stop [MHz]	2398.750   2405.250
RBW [MHz]   VBW [MHz]	3.000000   10.000000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	1000   10   1001   SWE



Peak output power

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	--	30.00	2.19	dBm	PASS
Peak Power	--	1000	1.65577	mW	PASS
Frequency at Peak	--	--	2401.948	MHz	INFO

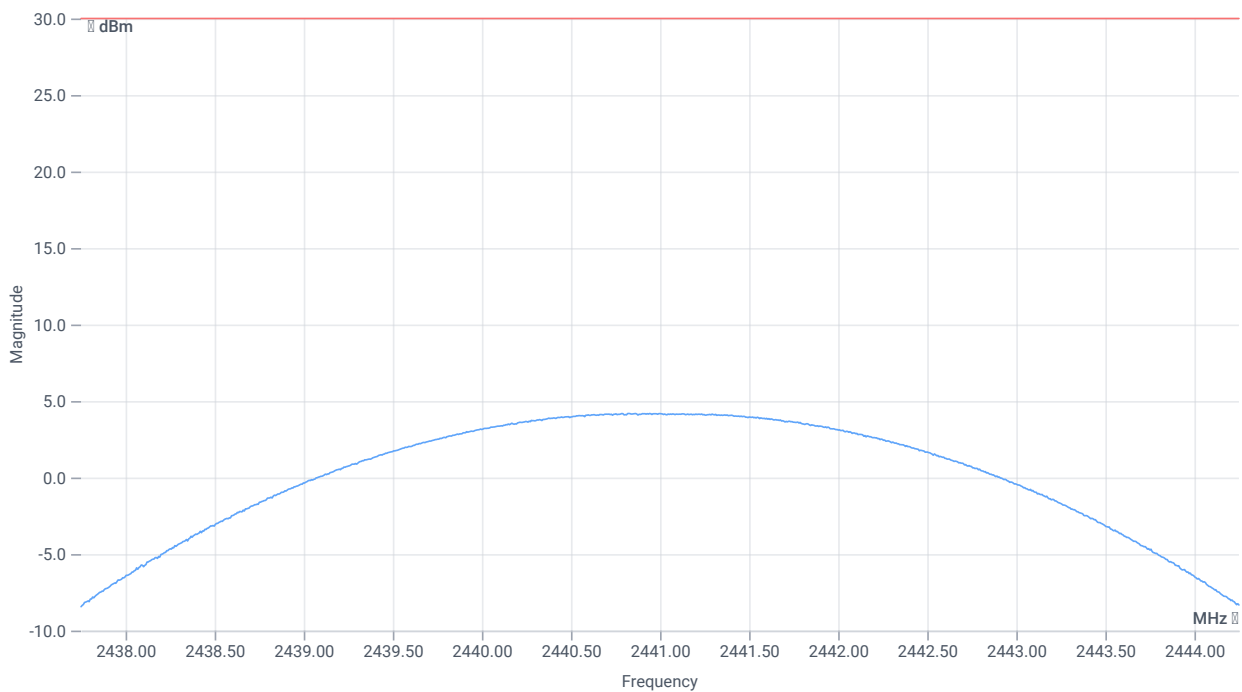
## Test at TX 2441 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	2.68	dBm	INFO
Ref. Frequency	--	--	2441.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.68   11.16   20
Start [MHz]   Stop [MHz]	2437.750   2444.250
RBW [MHz]   VBW [MHz]	3.000000   10.000000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	1000   10   1001   SWE



Peak output power

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	--	30.00	4.19	dBm	PASS
Peak Power	--	1000	2.624219	mW	PASS
Frequency at Peak	--	--	2440.825	MHz	INFO

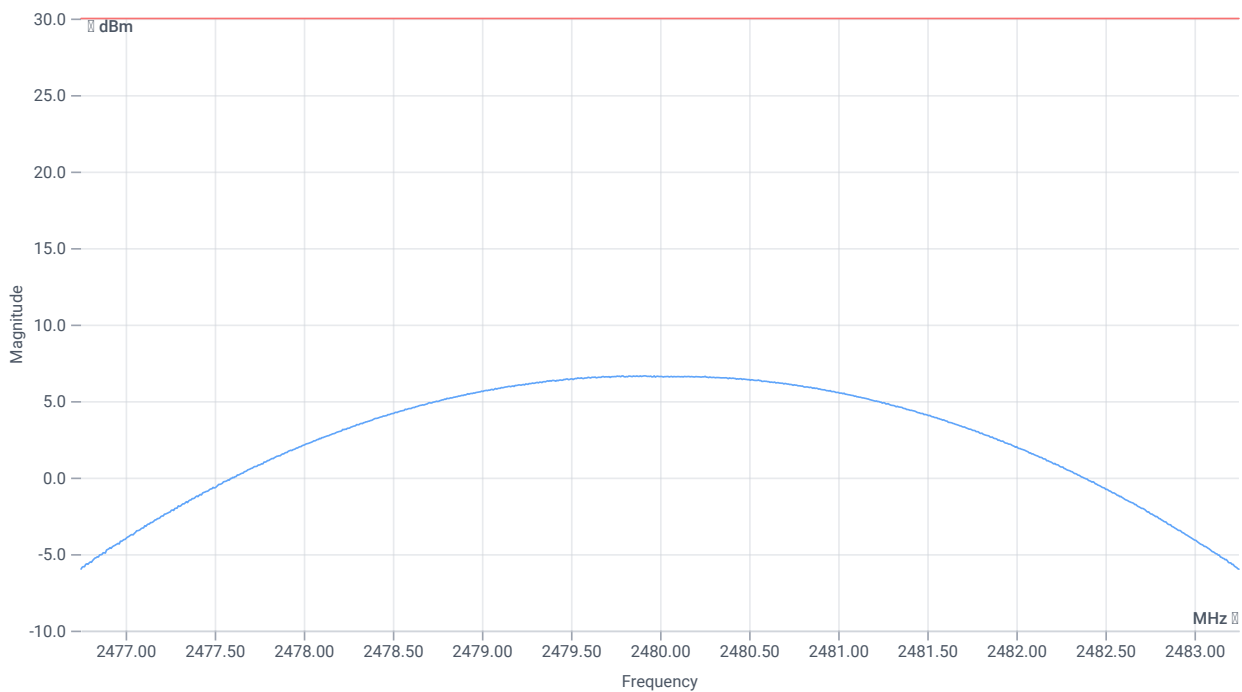
## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.67	dBm	INFO
Ref. Frequency	--	--	2480.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	15.67   11.21   20
Start [MHz]   Stop [MHz]	2476.750   2483.250
RBW [MHz]   VBW [MHz]	3.000000   10.000000
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	--	30.00	6.65	dBm	PASS
Peak Power	--	1000	4.62381	mW	PASS
Frequency at Peak	--	--	2479.916	MHz	INFO

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT Classic EDR Pi/4DQPSK

## Test References

TC Start	02.02.2023 11:00:29
Ambit Temp [°C]   Humidity [rel%]	25.9   28
System Version	3.3.4.4
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT - 20dB FHSS - BT Classic EDR Pi/4DQPSK
Add. Information	

## EUT Common Settings BT Classic

Intermodulation Value N	3
Image Freq. Low   Mid   High [MHz]	0   0   0
Power Class	1
Power Control	Enhanced
Longest Supported Packet Type	DH5
RF Supported	Basic Rate True   EDR Pi/4DQPSK True   EDR 8DPSK True
Testmode	LOOPback
Perform Inquiry	Yes
EUT BT Address (if Inquiry No)	0123456789AB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

## Test Parameter

Technology to test	BT Classic EDR Pi/4DQPSK
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2402
Frequency mid to test	True   Freq [MHz] 2441
Frequency high to test	True   Freq [MHz] 2480
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	0.5
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

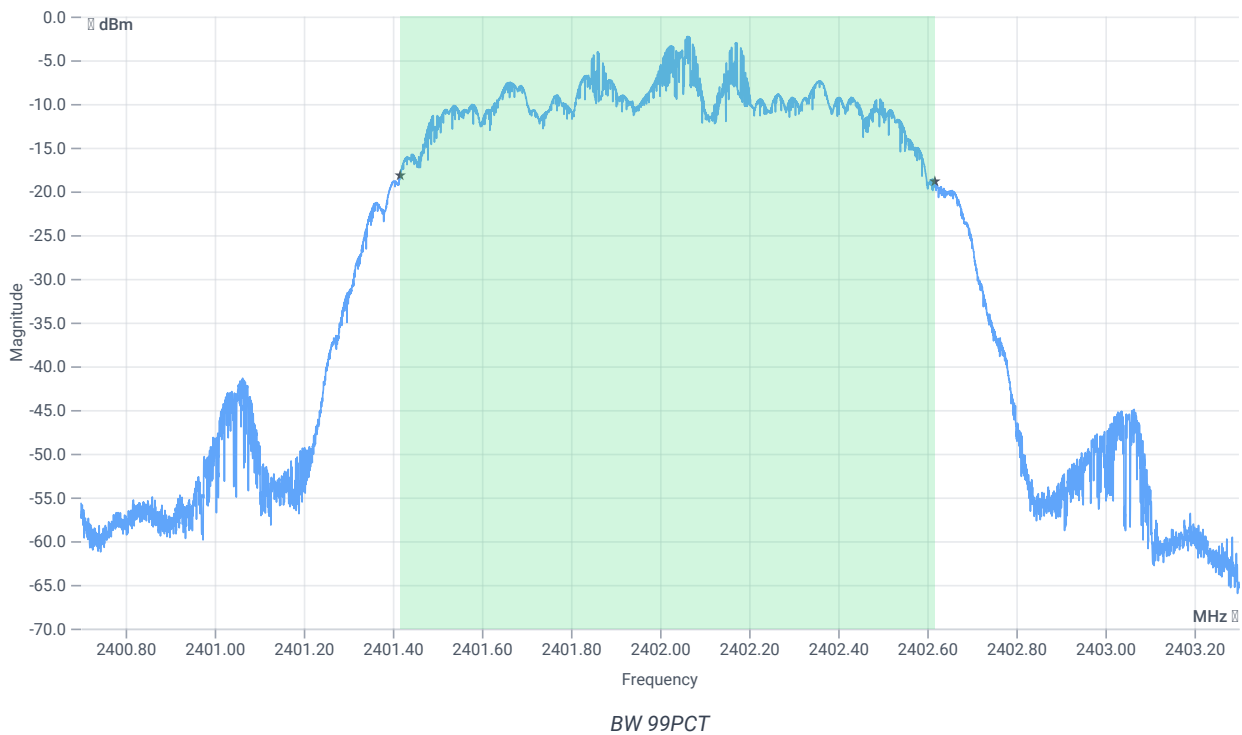
## Test at TX 2402 MHz

RESULT: Reference Power cond.

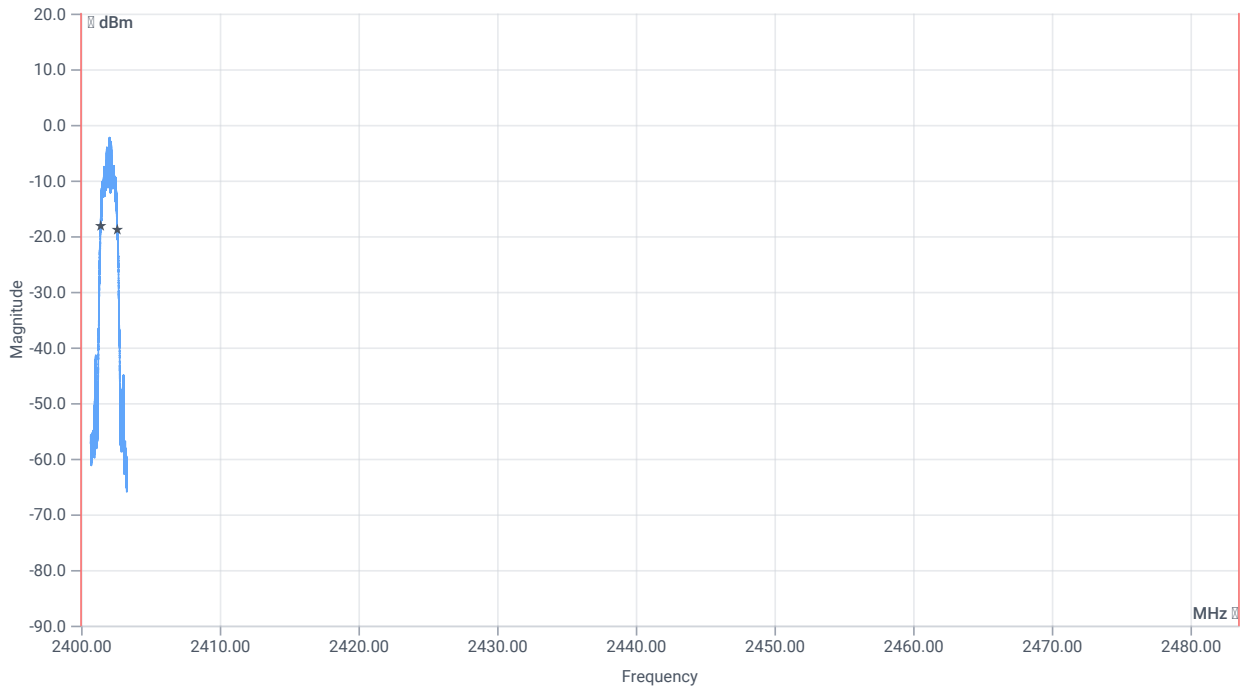
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	0.99	dBm	INFO
Ref. Frequency	--	--	2402.300	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	5.99   11.09   10
Start [MHz]   Stop [MHz]	2400.700   2403.300
RBW [MHz]   VBW [MHz]	0.030000   0.100000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE



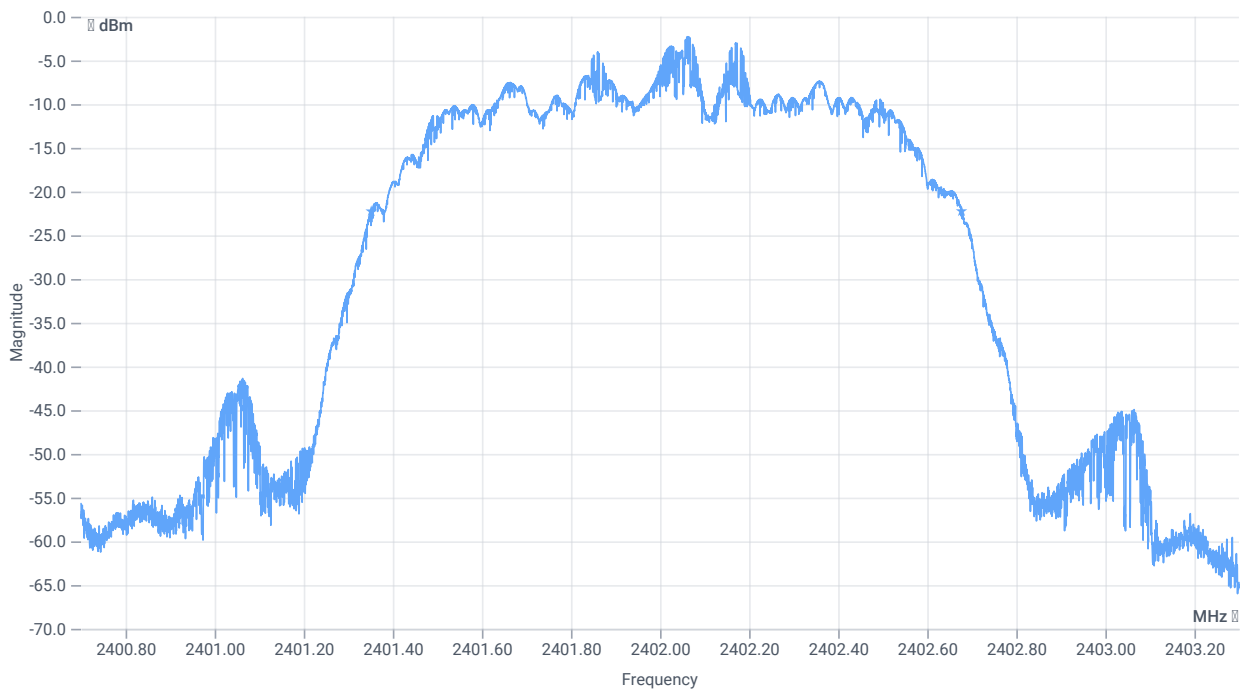




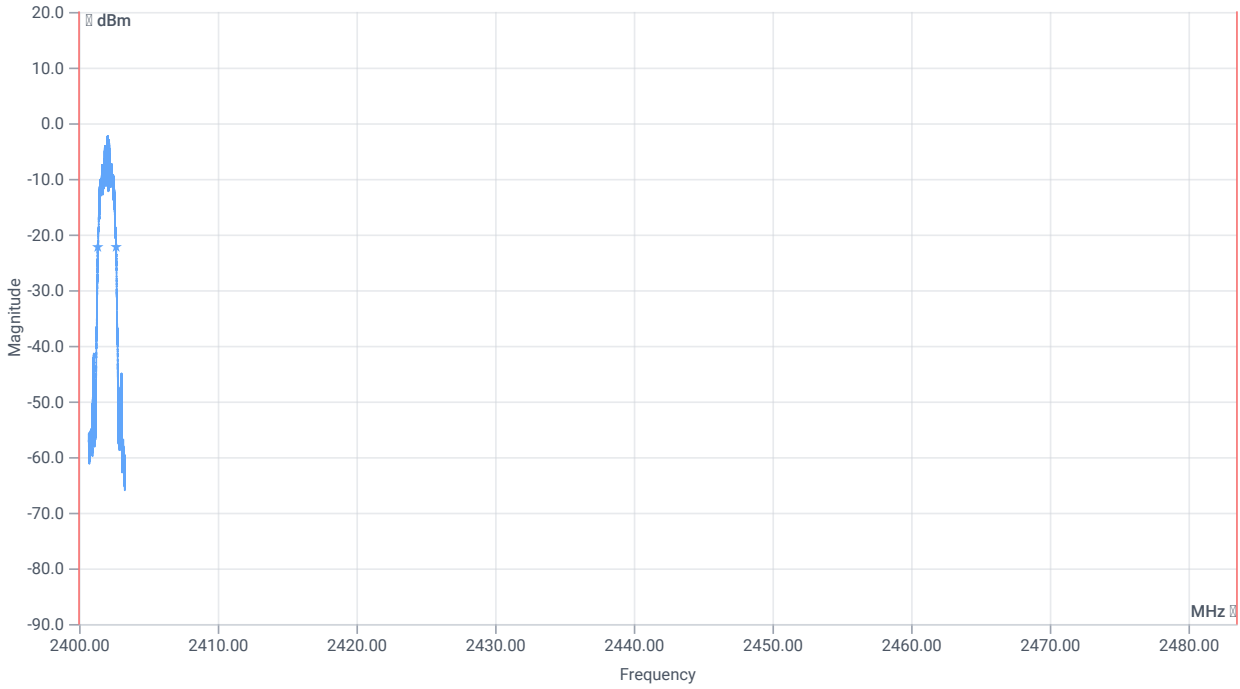
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	1201.000	kHz	INFO
T1 99%	2400.000000	--	2401.4166	MHz	PASS
T2 99%	--	2483.500000	2402.6172	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1325	kHz	INFO
T1 20DB	2400.000000	--	2401.3516	MHz	PASS
T2 20dB	--	2483.500000	2402.6770	MHz	PASS

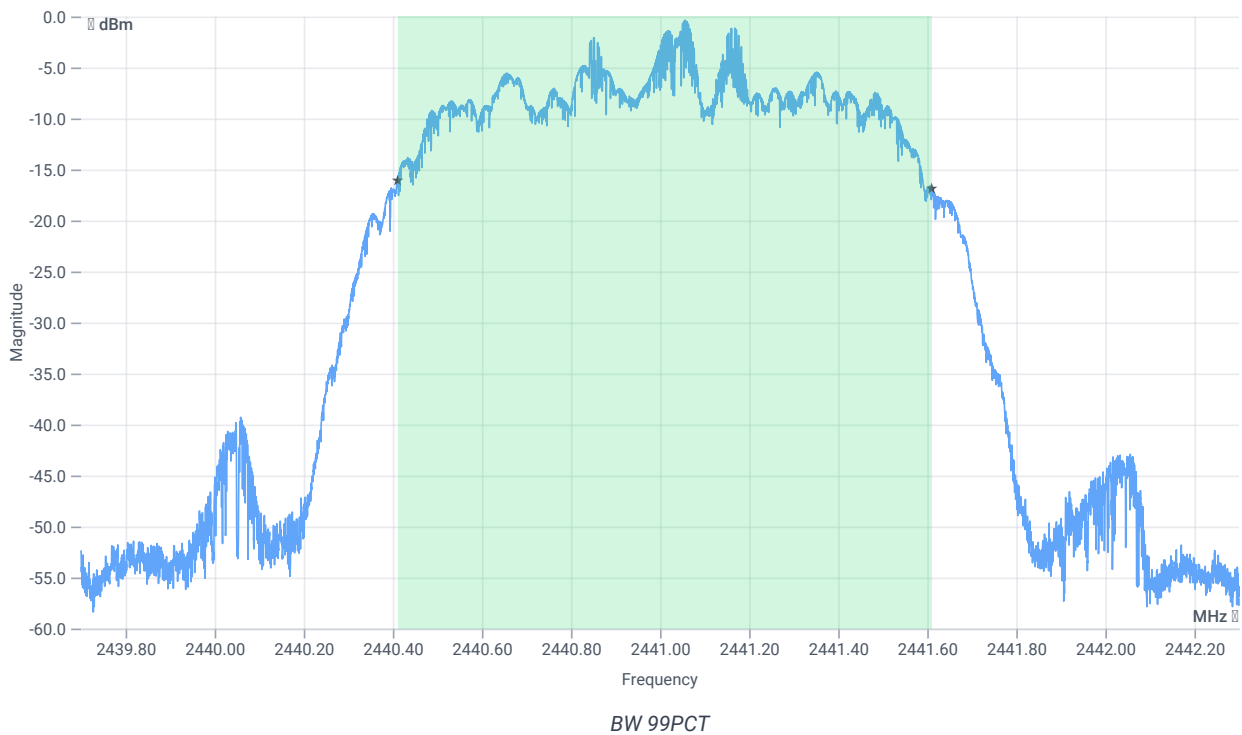
## Test at TX 2441 MHz

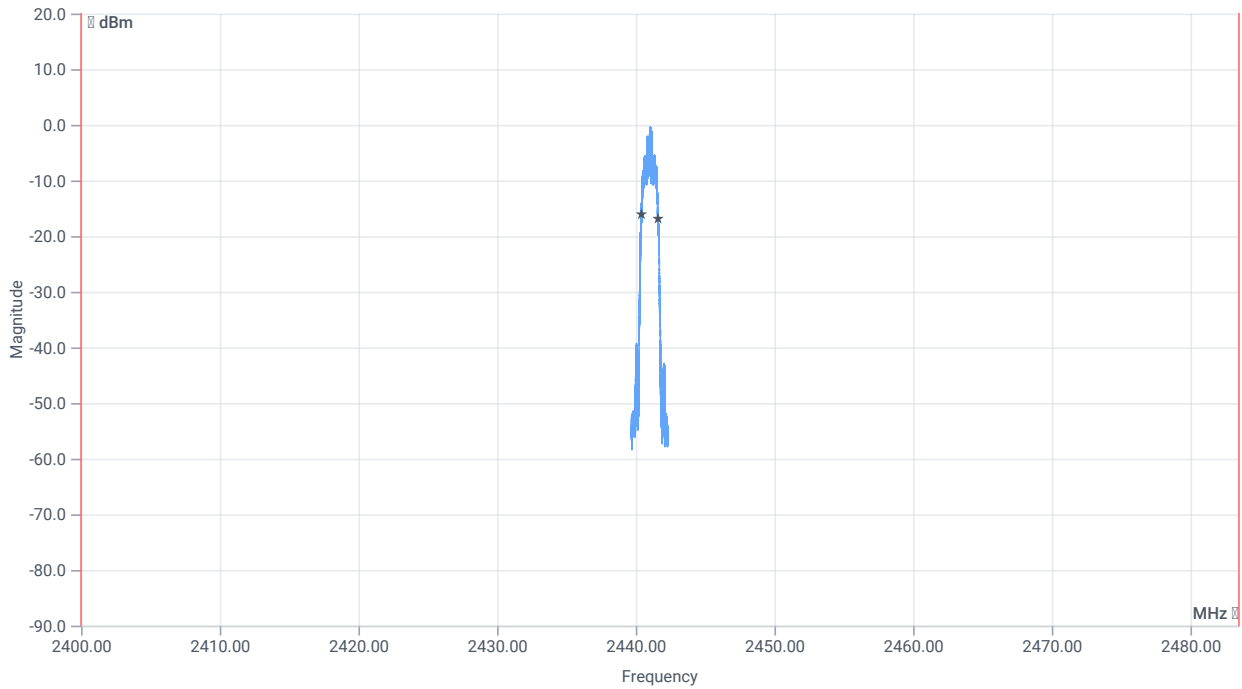
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	3.05	dBm	INFO
Ref. Frequency	--	--	2441.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	8.05   11.16   15
Start [MHz]   Stop [MHz]	2439.700   2442.300
RBW [MHz]   VBW [MHz]	0.030000   0.100000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE

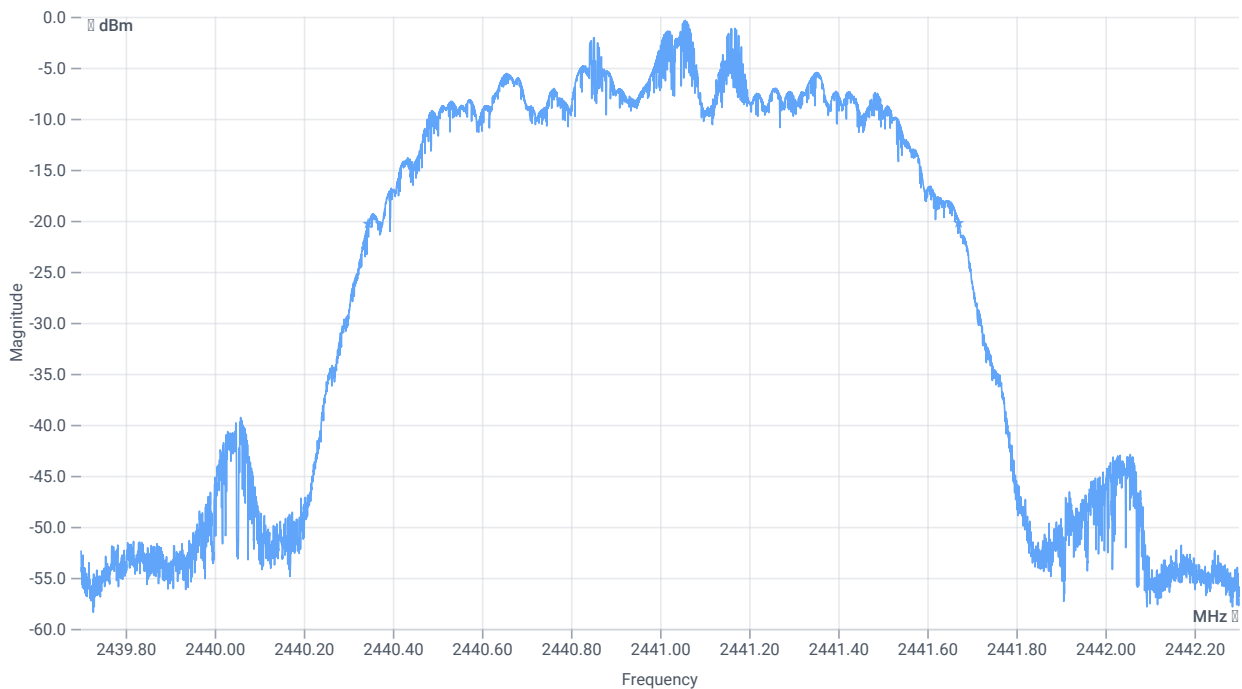




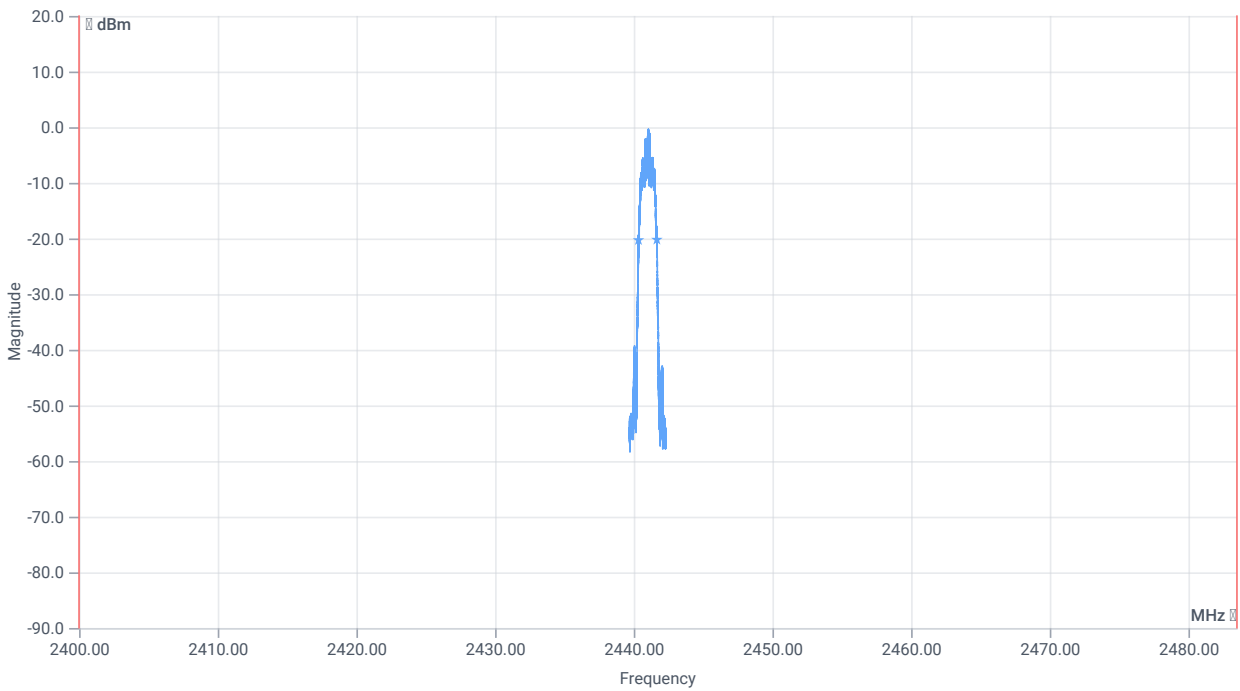
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	1199.000	kHz	INFO
T1 99%	2400.000000	--	2440.4109	MHz	PASS
T2 99%	--	2483.500000	2441.6099	MHz	PASS



BW 20dB



BW within Band 20dB

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	1326	kHz	INFO
T1 20DB	2400.000000	--	2440.3445	MHz	PASS
T2 20dB	--	2483.500000	2441.6705	MHz	PASS

## Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	5.74	dBm	INFO
Ref. Frequency	--	--	2479.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	10.74   11.21   15
Start [MHz]   Stop [MHz]	2478.700   2481.300
RBW [MHz]   VBW [MHz]	0.030000   0.100000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	50   200   10001   SWE

