

Measurement Results

No.1-4774/22-01-09_Annex_MR

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Document authorized:



cn=Michael Dorongovski, o=CTC
advanced GmbH, ou=DOR-210422,
email=Michael.Dorongovski@ctcadv
anced.com, c=DE
2023.03.01 13:37:46 +01'00'

Michael Dorongovski
Lab Manager
Radio Labs

FCC 15.247 # TX spurious conducted 20dBc ~ BT Classic EDR 8DPSK

Test References

TC Start	23.02.2023 10:53:30
Ambit Temp [°C] Humidity [rel%]	28.0 28
System Version	3.5.0.3
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 EDR 8DPSK
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)	F44EFD4F7ADB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

Test Parameter

Technology to test	BT Classic EDR 8DPSK
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

Test Equipment

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

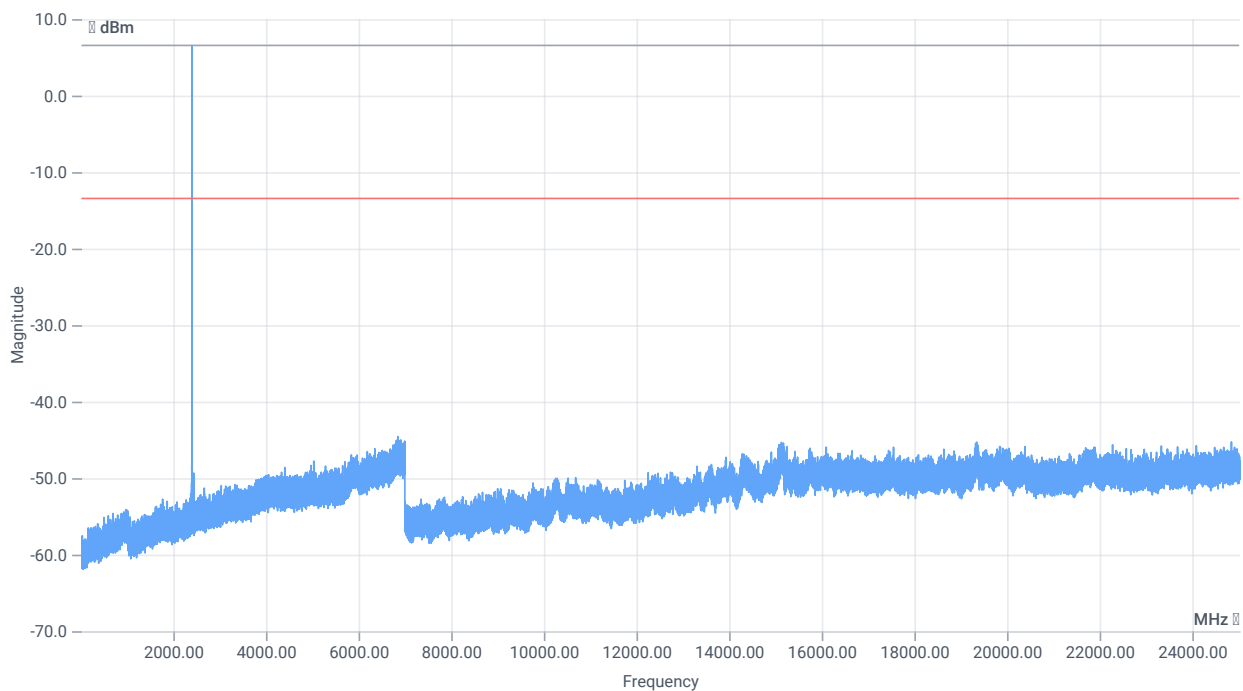
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.62

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

Test at TX 2402 MHz

RESULT: Reference Power cond.

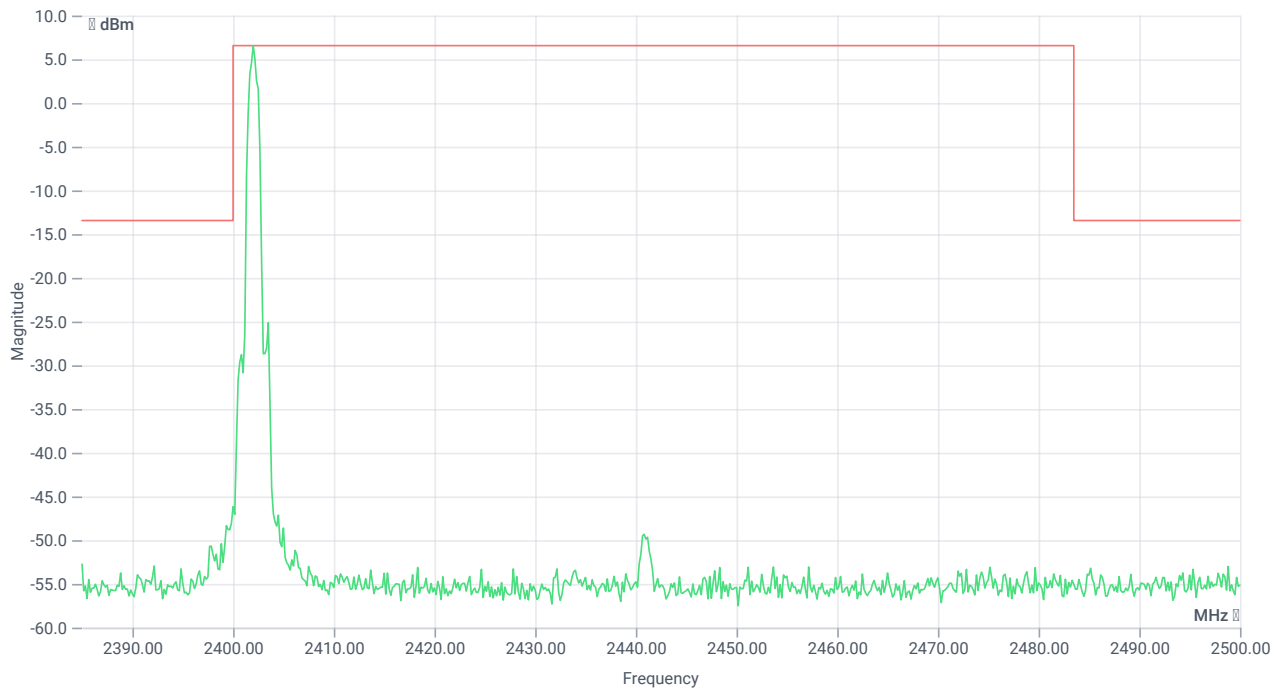
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.36	dBm	INFO
Ref. Frequency	---	---	2402.000	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.36 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



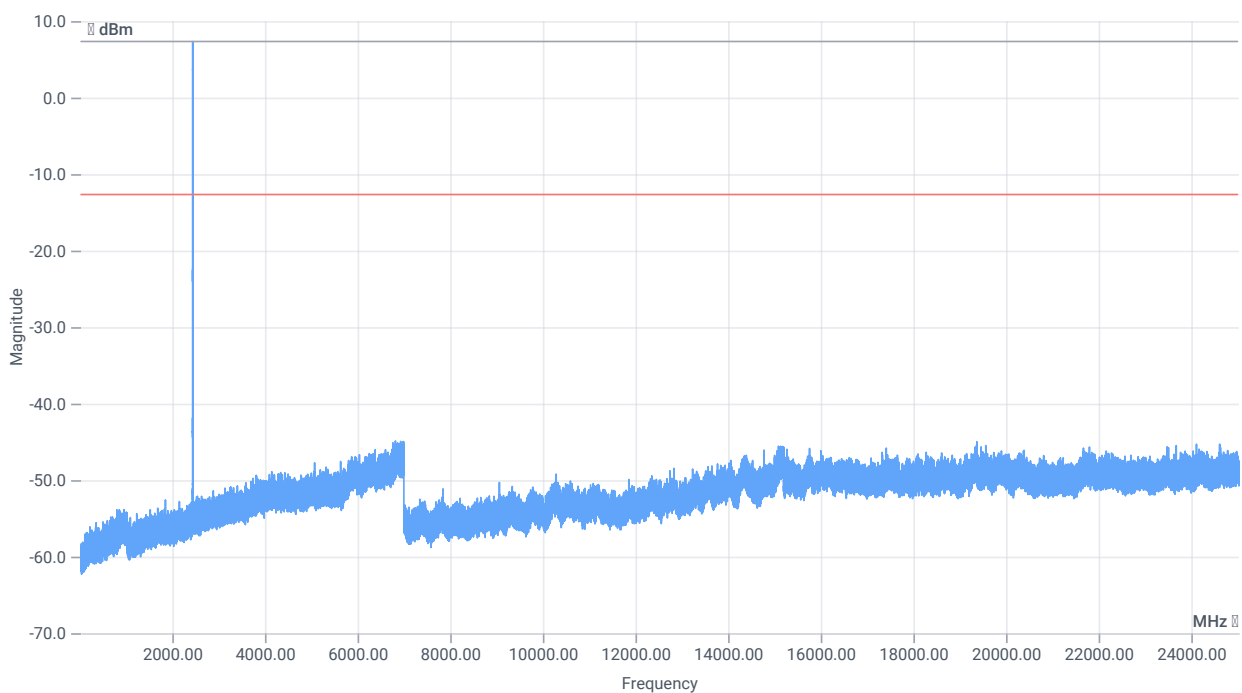
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2402.00 MHz	---	---	6.56	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 6848.833 MHz	0	---	31.13	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.	---	---	8.87	dBm	INFO
Ref. Frequency	---	---	2441.000	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.87 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

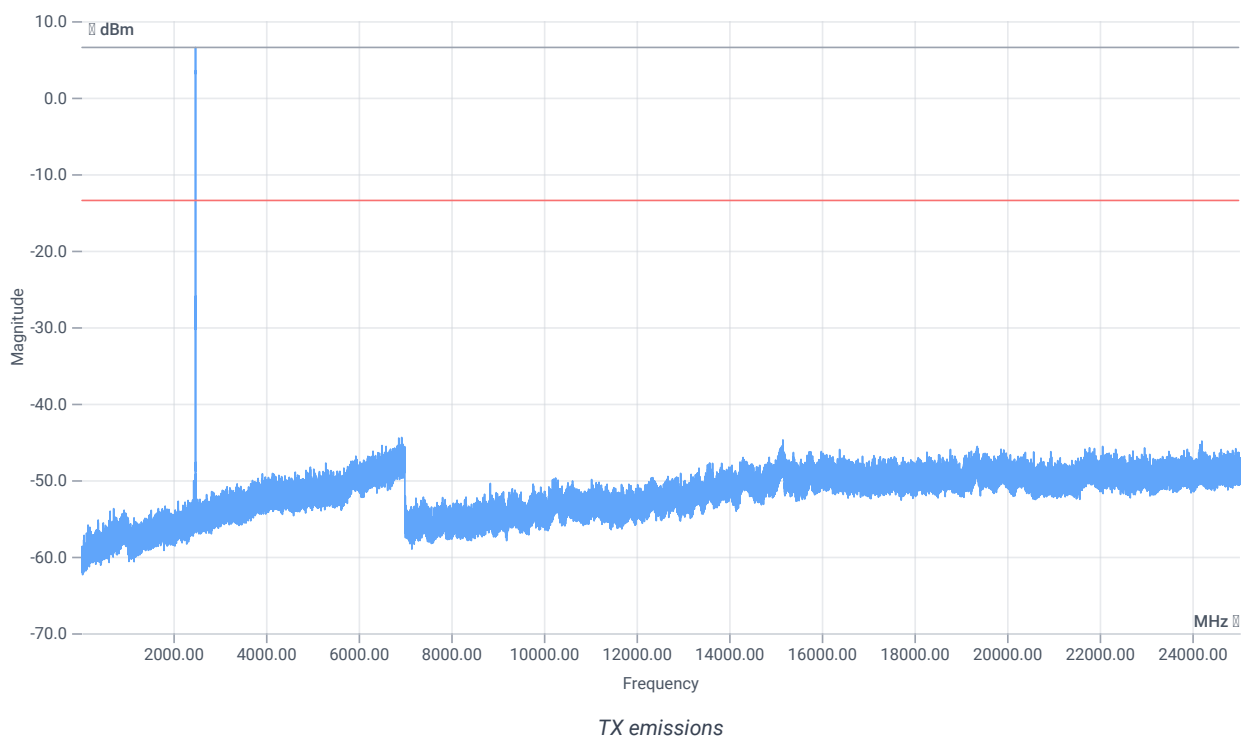
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2441.00 MHz	---	---	7.34	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 6817.5 MHz	0	---	32.21	dB	INFO

Test at TX 2480 MHz

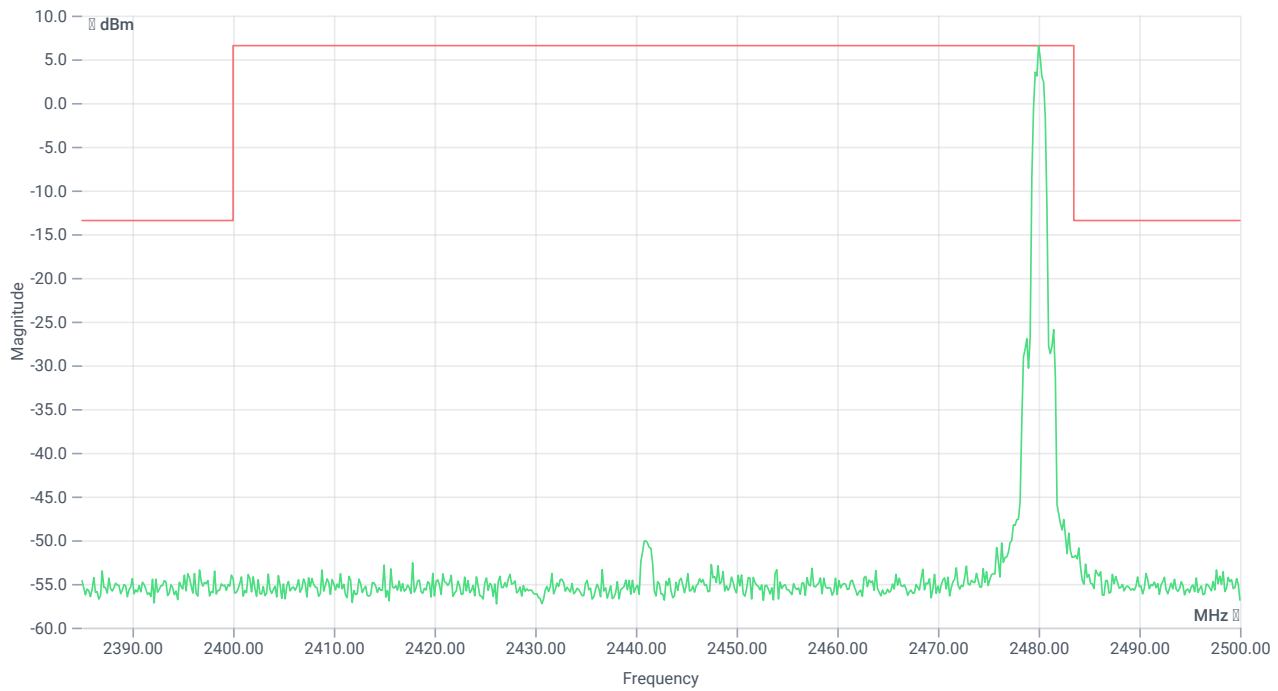
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.41	dBm	INFO
Ref. Frequency	---	---	2480.000	MHz	INFO



READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.41 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



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2480.00 MHz	---	---	6.56	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 6931.5 MHz	0	---	30.98	dB	INFO

Verdict

PASS

FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT Classic EDR 8DPSK

Test References

TC Start	23.02.2023 10:51:46
Ambit Temp [°C] Humidity [rel%]	27.9 28
System Version	3.5.0.3
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 8DPSK
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)	F44EFD4F7ADB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

Test Parameter

Technology to test	BT Classic EDR 8DPSK
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

Test Equipment

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

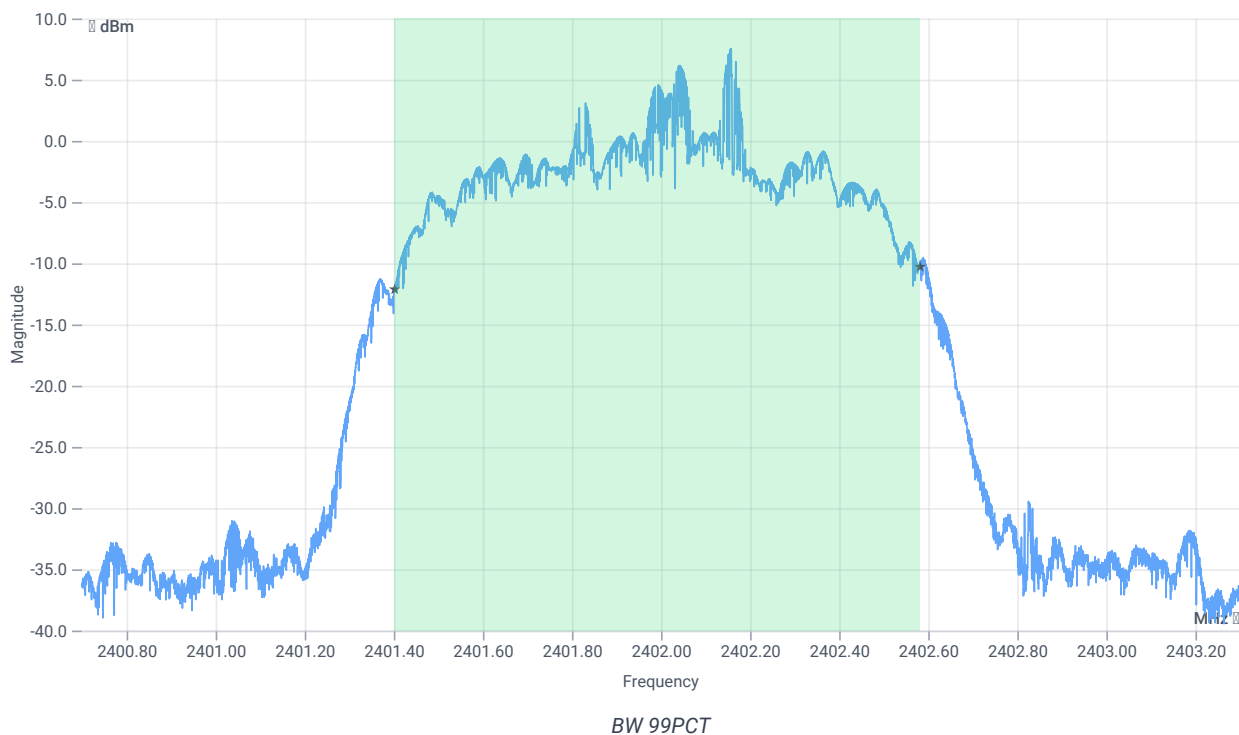
Test at TX 2402 MHz

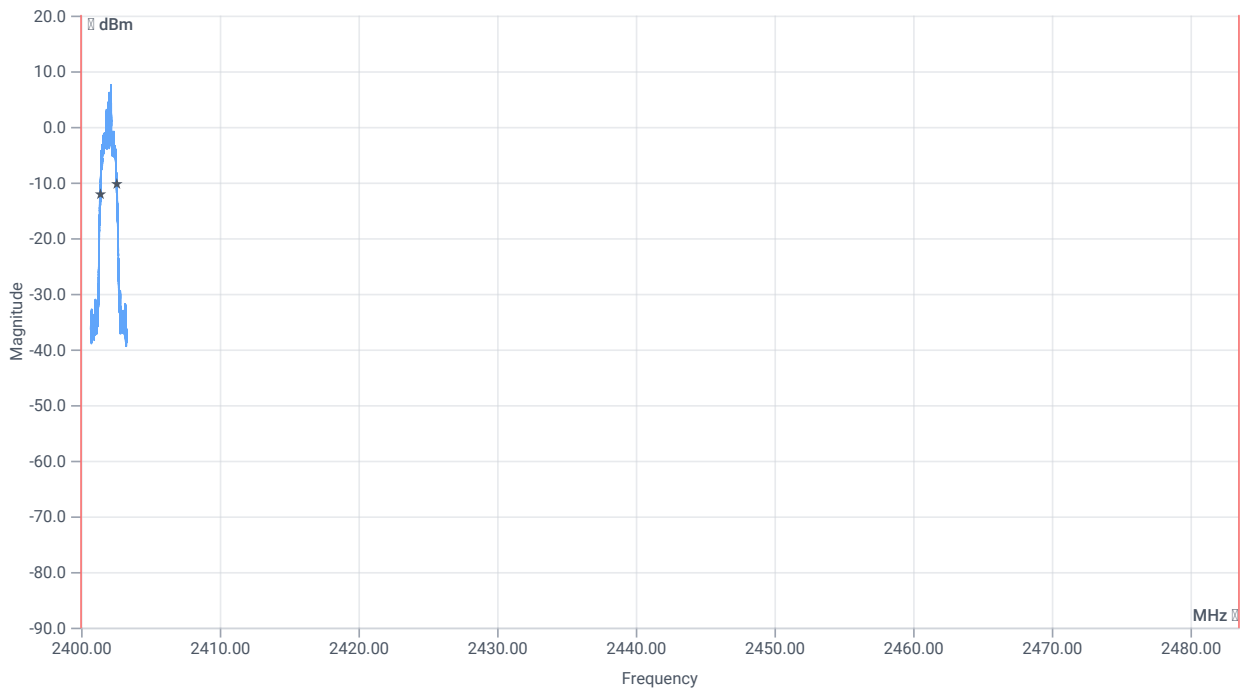
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.09	dBm	INFO
Ref. Frequency	---	---	2401.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	13.09 10.79 20
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

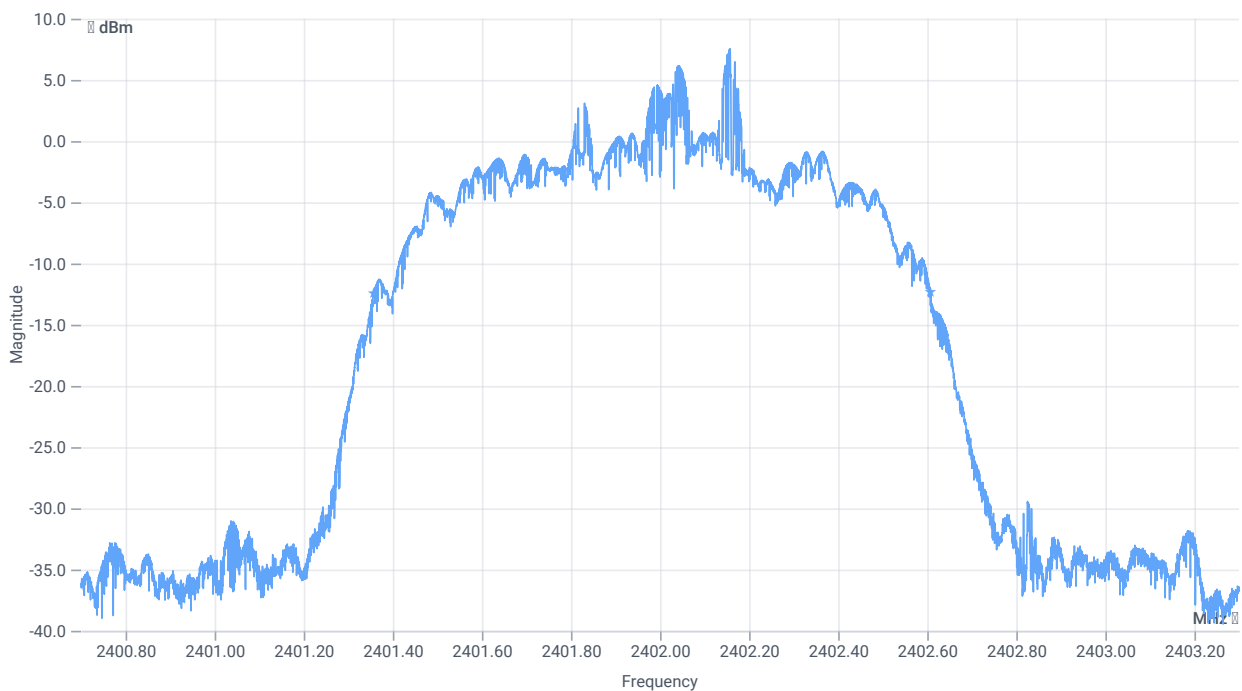




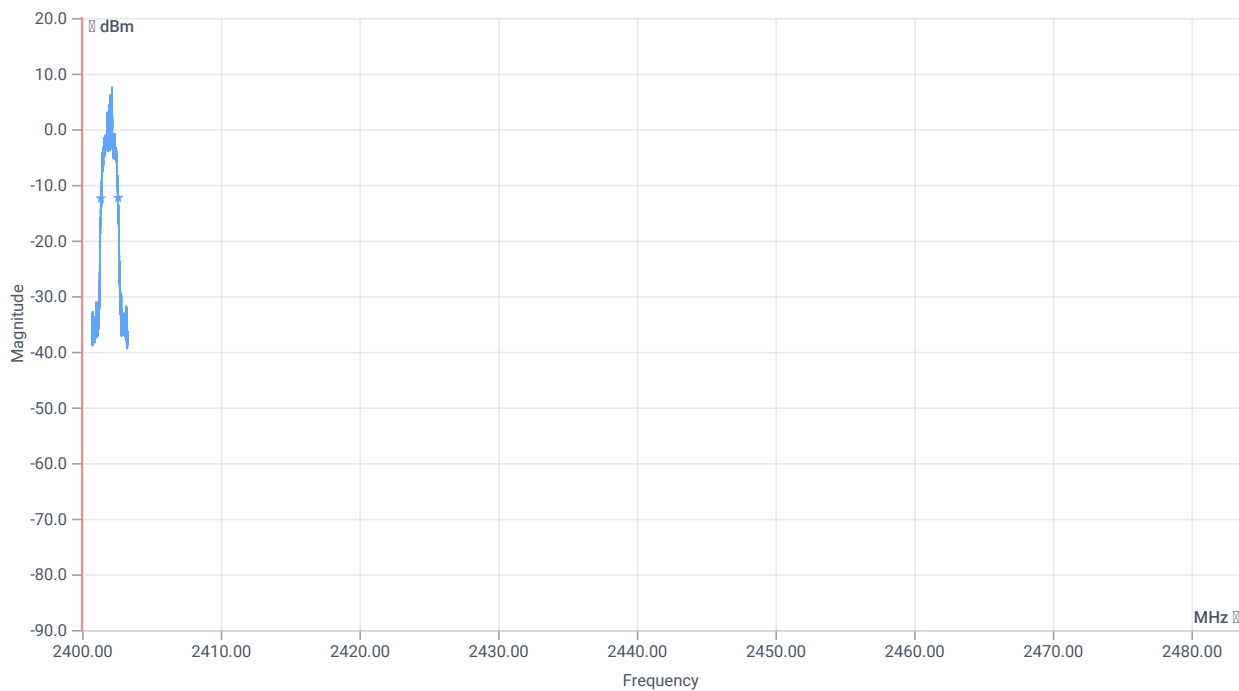
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1180.000	kHz	INFO
T1 99%	2400.000000	---	2401.4021	MHz	PASS
T2 99%	---	2483.500000	2402.5818	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1250	kHz	INFO
T1 20dB	2400.000000	---	2401.3568	MHz	PASS
T2 20dB	---	2483.500000	2402.6071	MHz	PASS

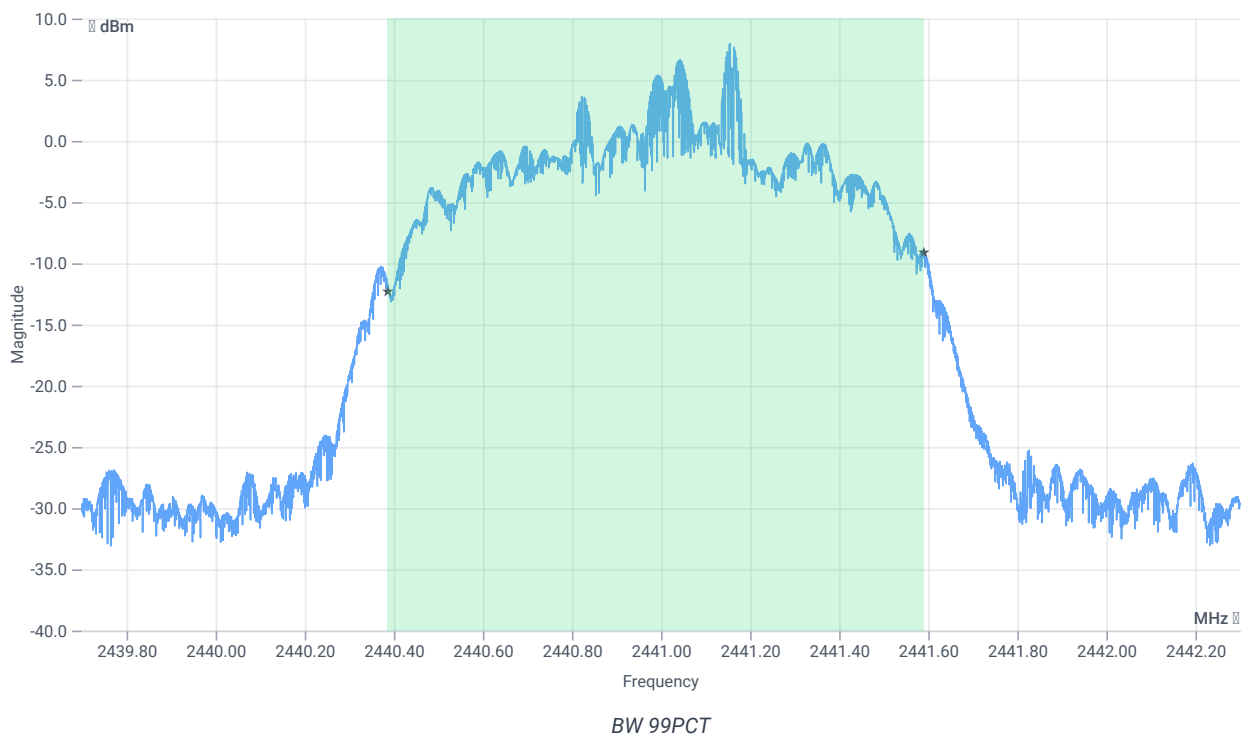
Test at TX 2441 MHz

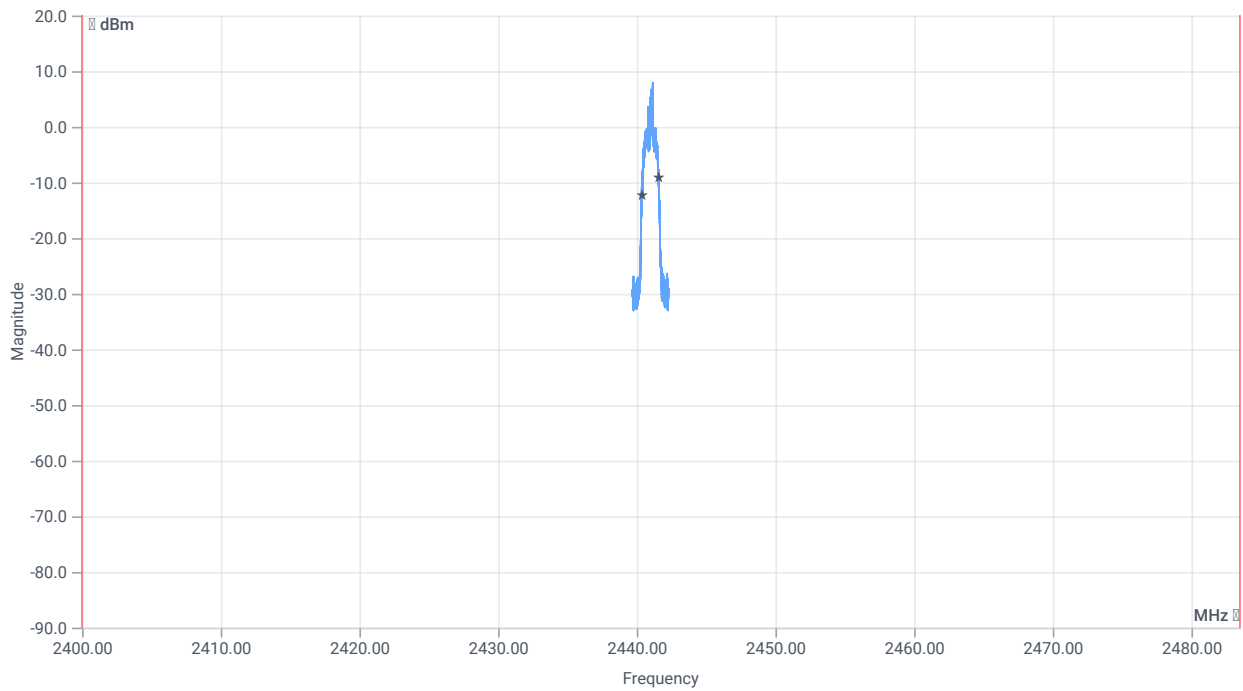
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.78	dBm	INFO
Ref. Frequency	---	---	2441.100	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	13.78 10.8 20
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

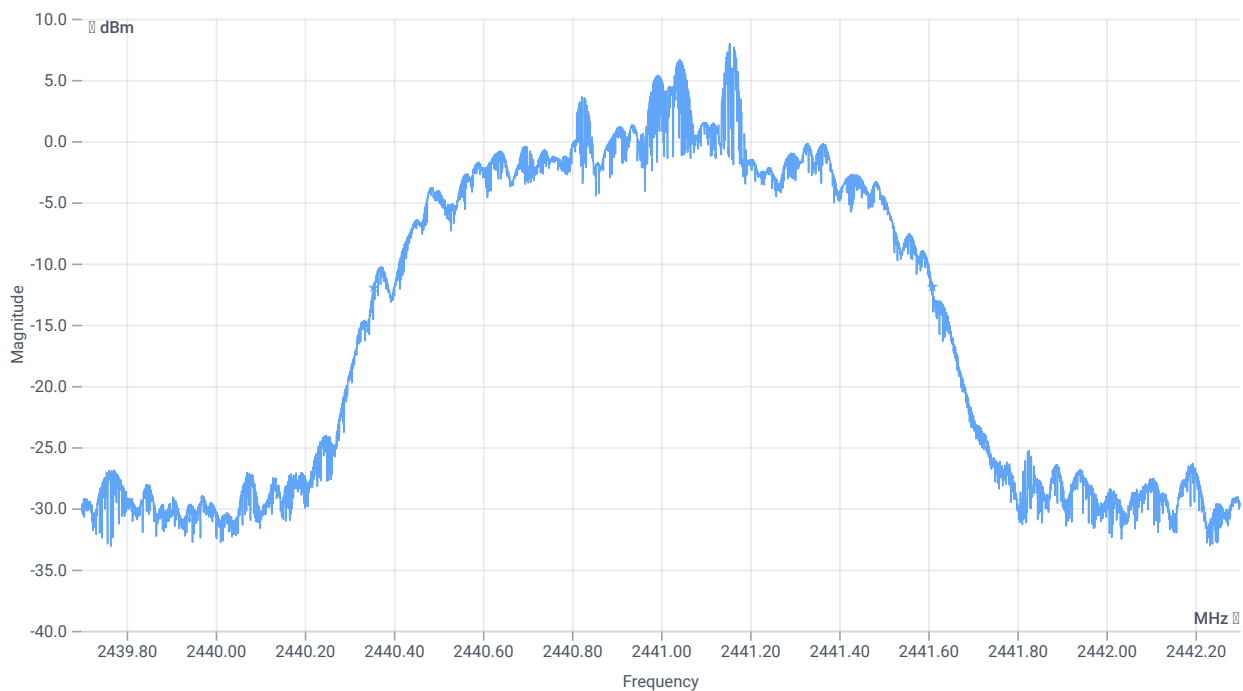




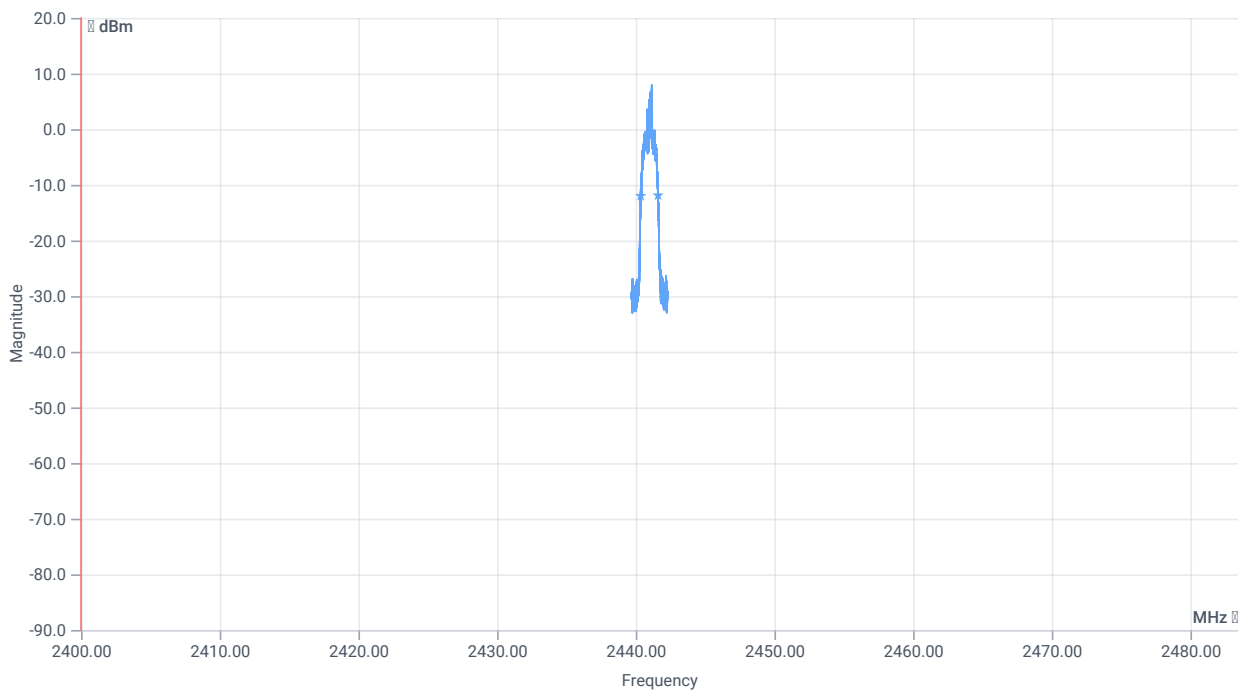
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1204.000	kHz	INFO
T1 99%	2400.000000	---	2440.3865	MHz	PASS
T2 99%	---	2483.500000	2441.5901	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1255	kHz	INFO
T1 20dB	2400.000000	---	2440.3549	MHz	PASS
T2 20dB	---	2483.500000	2441.6094	MHz	PASS

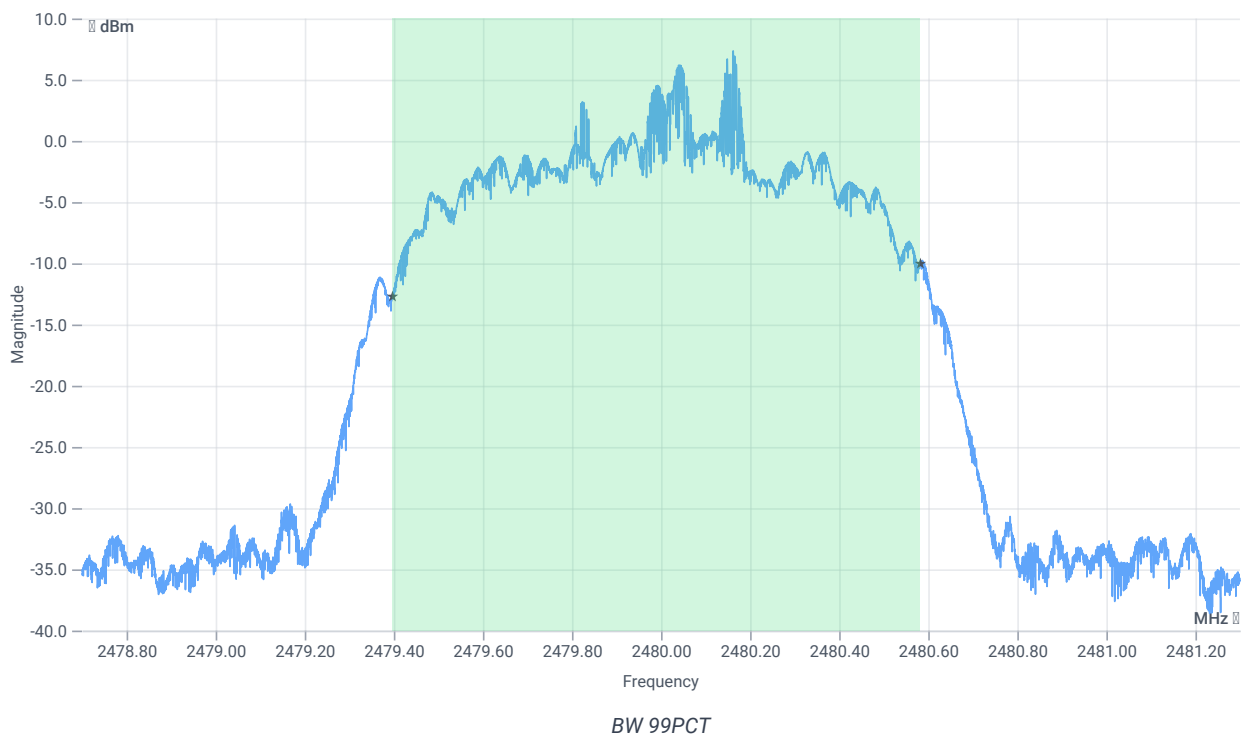
Test at TX 2480 MHz

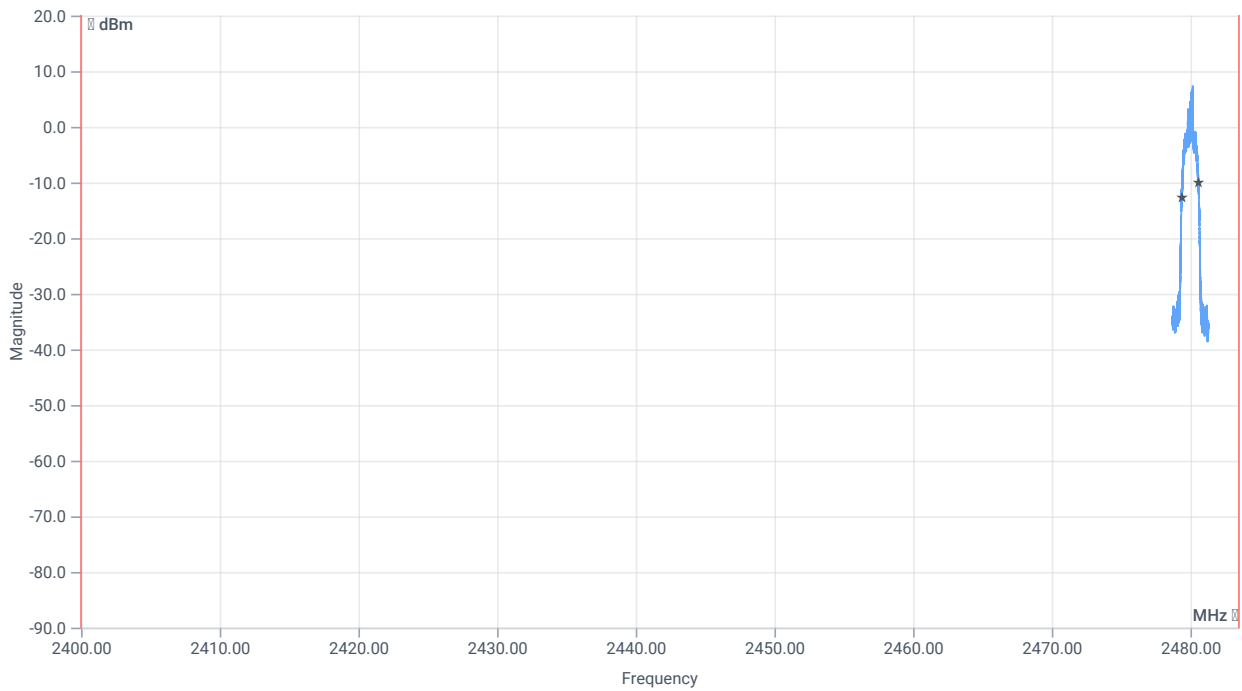
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.01	dBm	INFO
Ref. Frequency	---	---	2479.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	13.01 10.85 20
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

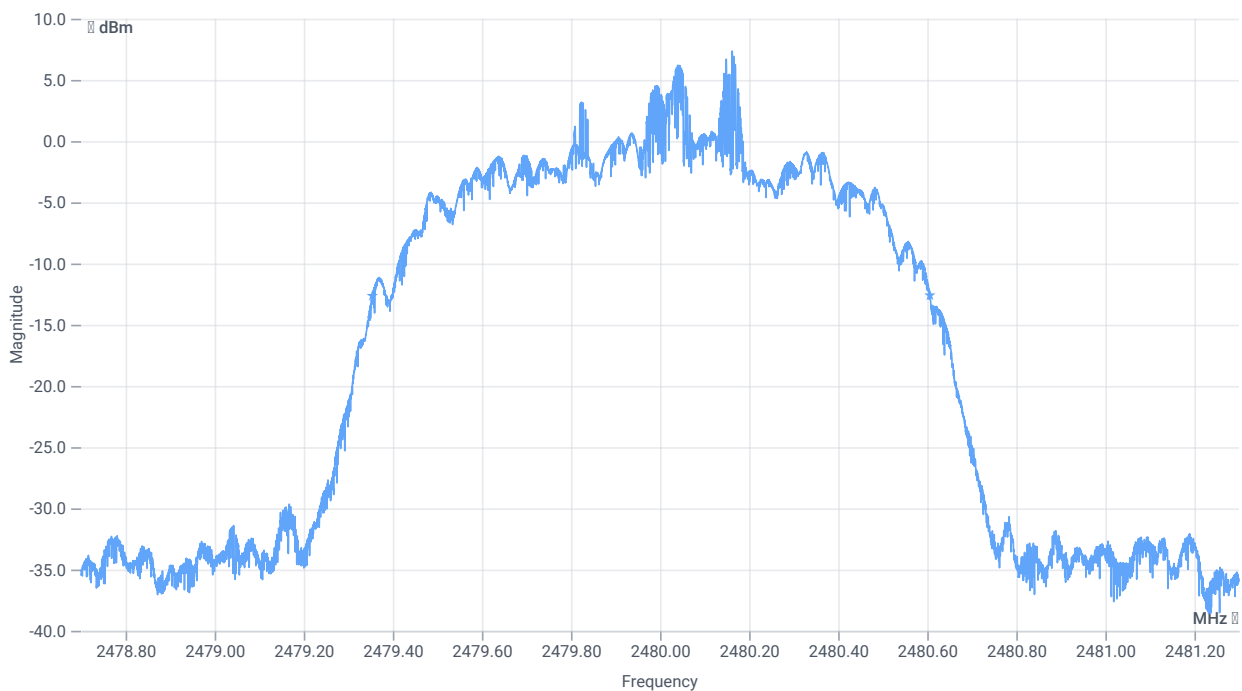




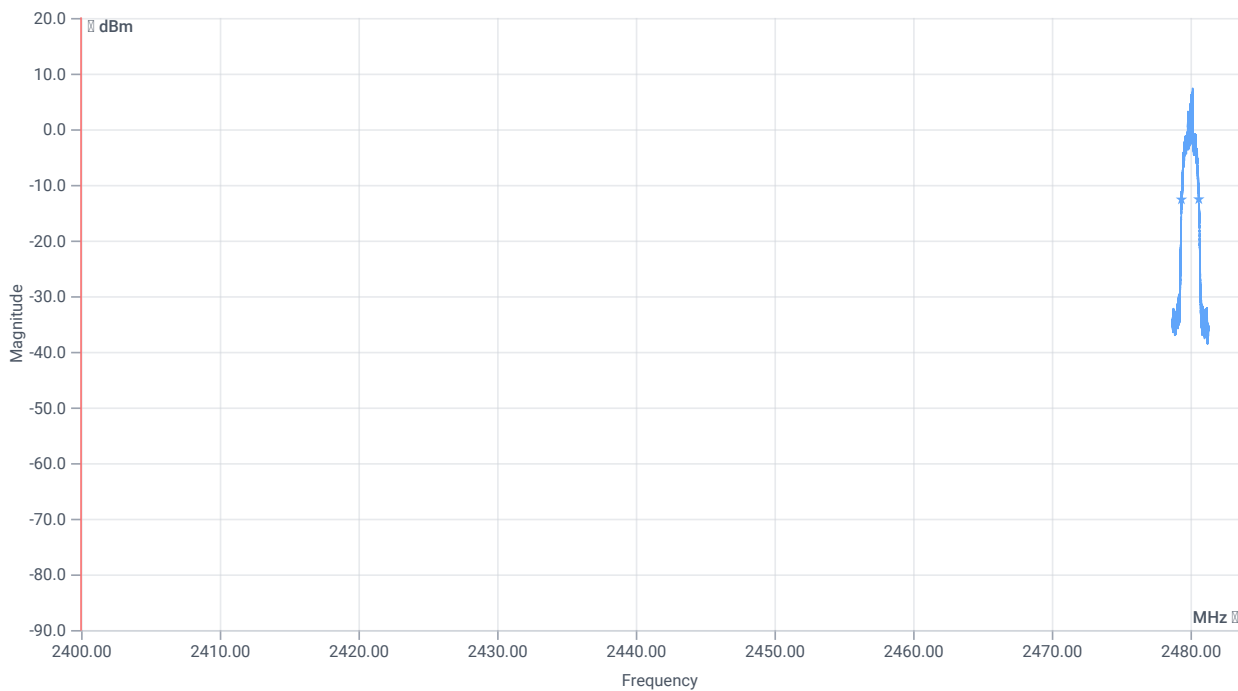
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1185.000	kHz	INFO
T1 99%	2400.000000	---	2479.3971	MHz	PASS
T2 99%	---	2483.500000	2480.5826	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1252	kHz	INFO
T1 20dB	2400.000000	---	2479.3542	MHz	PASS
T2 20dB	---	2483.500000	2480.6061	MHz	PASS

Verdict

PASS

FCC 15.247 # Maximum peak conducted output power FHSS ~ BT Classic EDR 8DPSK

Test References

TC Start	23.02.2023 10:41:33
Ambit Temp [°C] Humidity [rel%]	28.0 28
System Version	3.5.0.3
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 8DPSK
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)	F44EFD4F7ADB
Signaling BT Address	BABEBEDADBAD
Switch Matrix & Pathcompensation enabled	Yes

Test Parameter

Technology to test	BT Classic EDR 8DPSK
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

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

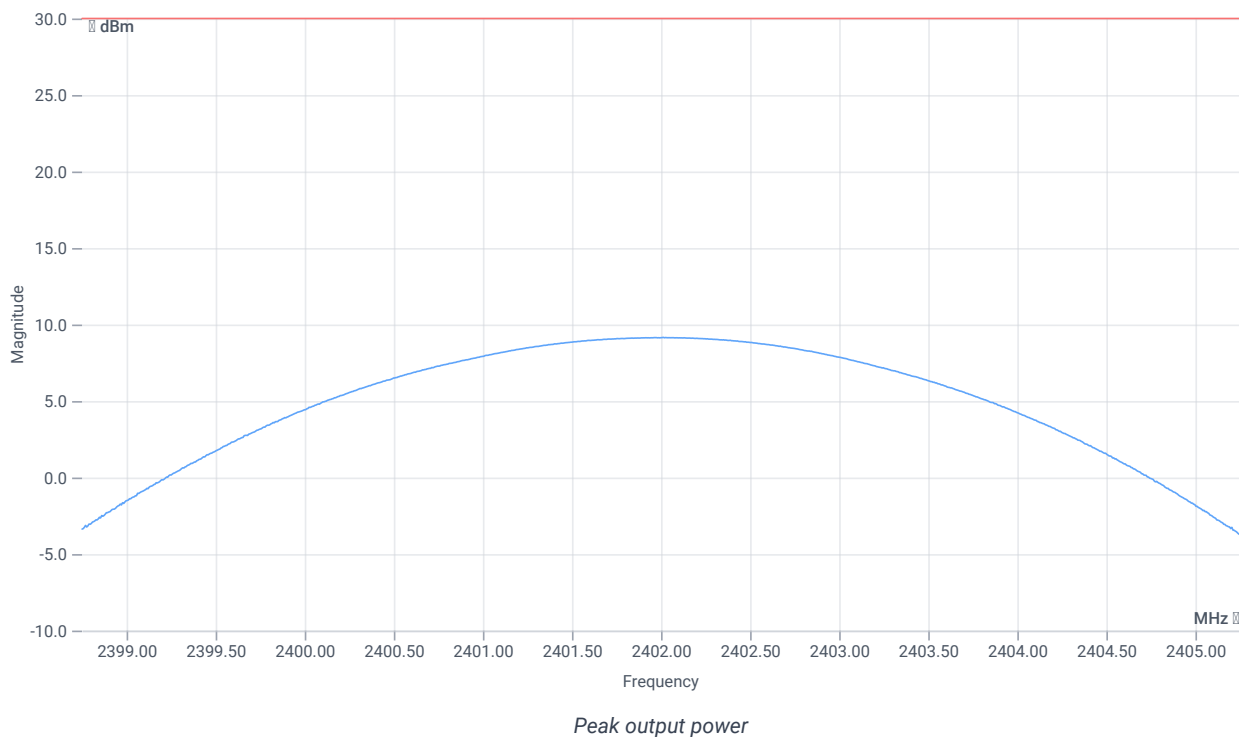
Test at TX 2402 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.50	dBm	INFO
Ref. Frequency	---	---	2401.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.50 10.79 25
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



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	9.16	dBm	PASS
Peak Power	---	1000	8.241381	mW	PASS
Frequency at Peak	---	---	2402.013	MHz	INFO

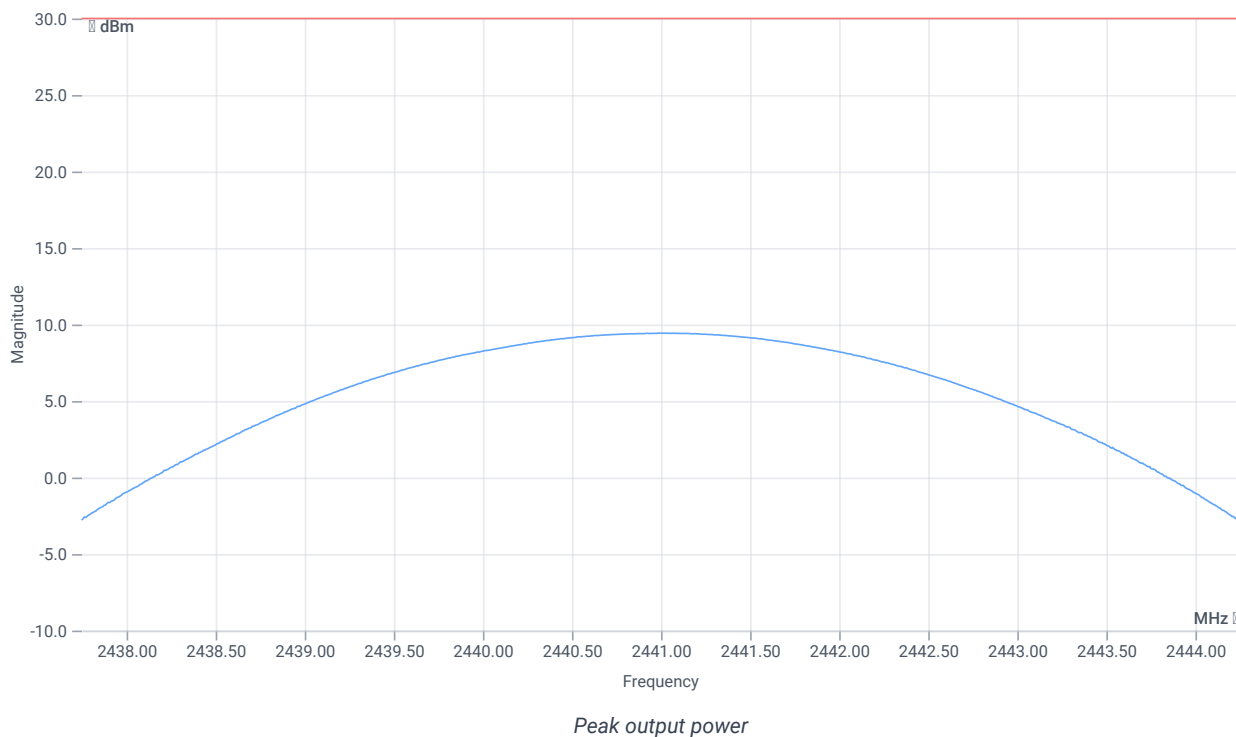
Test at TX 2441 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.64	dBm	INFO
Ref. Frequency	---	---	2441.000	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.64 10.8 25
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



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	9.44	dBm	PASS
Peak Power	---	1000	8.790225	mW	PASS
Frequency at Peak	---	---	2440.987	MHz	INFO

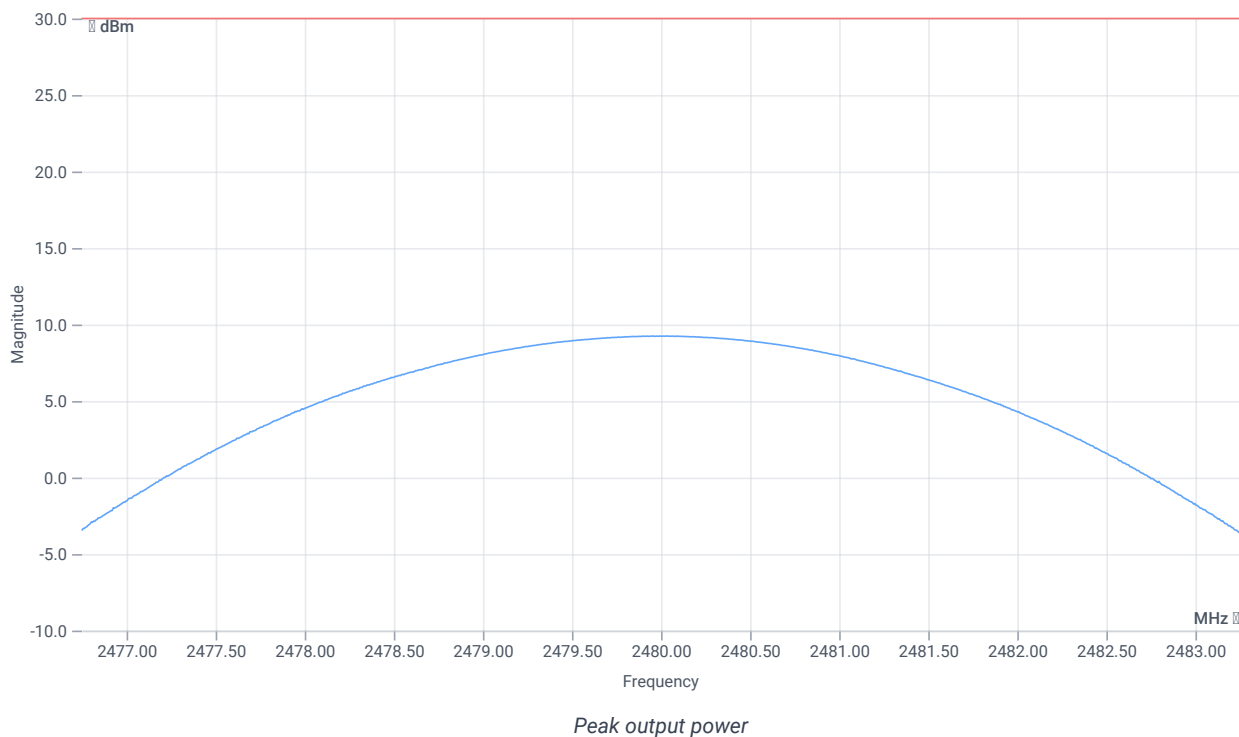
Test at TX 2480 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.18	dBm	INFO
Ref. Frequency	---	---	2479.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.18 10.85 25
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	9.25	dBm	PASS
Peak Power	---	1000	8.413951	mW	PASS
Frequency at Peak	---	---	2480.032	MHz	INFO

Verdict

PASS

FCC 15.247 # TX spurious conducted 20dBc ~ BT Classic EDR Pi/4DQPSK

Test References

TC Start	23.02.2023 10:21:46
Ambit Temp [°C] Humidity [rel%]	28.0 28
System Version	3.5.0.3
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 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)	F44EFD4F7ADB
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

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