

Conducted test results

No.1-6579/23-01-12_TR1-A201

October 25, 2023

Test Standard(s) FCC 15.247 - NI
 FCC 15.247, ISED RSS247 - NI

This document is electronically signed and valid without handwritten signature.
Public keys for verification of the electronic signatures can be requested at the testing laboratory.

Authorized

Michael Dorongovski

Lab Manager
Radio Labs

Table of Content

FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 1 Msps	3
FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 1 Msps	6
FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 1 Msps	9
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps	12
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps	17
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 1 Msps	22
FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msps	27
FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msps	31
FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 1 Msps	35
FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps	39
FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps	42
FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps	45
FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 1 Msps	48
FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 1 Msps	52
FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 1 Msps	56

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

References

TC start	20.10.2023 11:58:30
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

Equipment

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

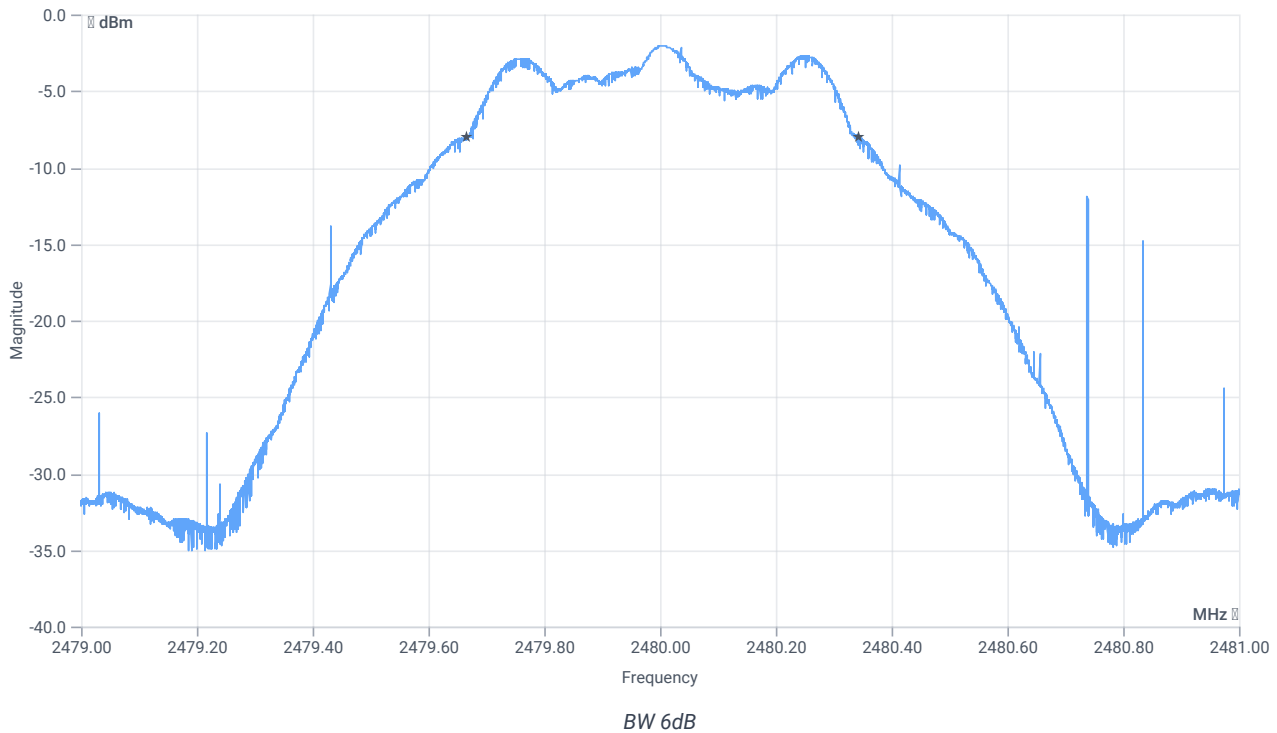
Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.82	dBm	INFO
Ref. Frequency	--	--	2479.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.18 11.21 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	677	kHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:15:36
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

Equipment

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

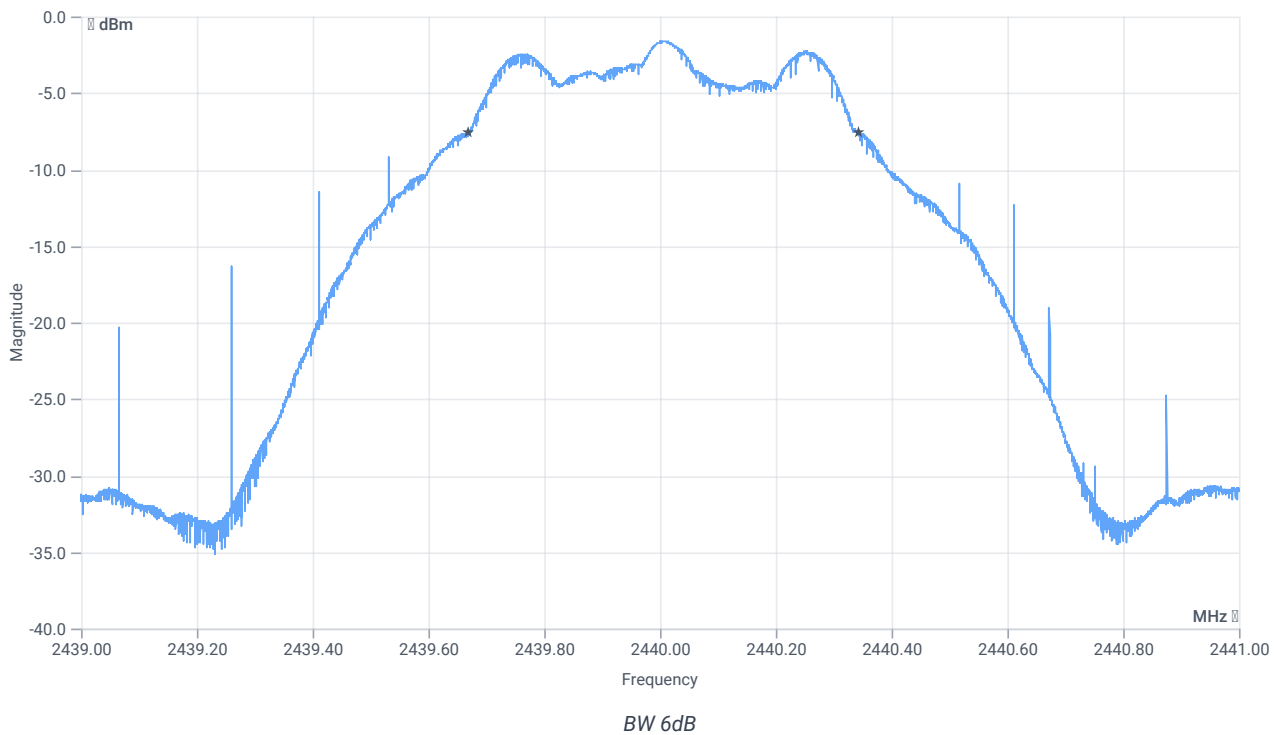
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.38	dBm	INFO
Ref. Frequency	--	--	2440.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.62 11.16 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	676	kHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:00:30
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

Equipment

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

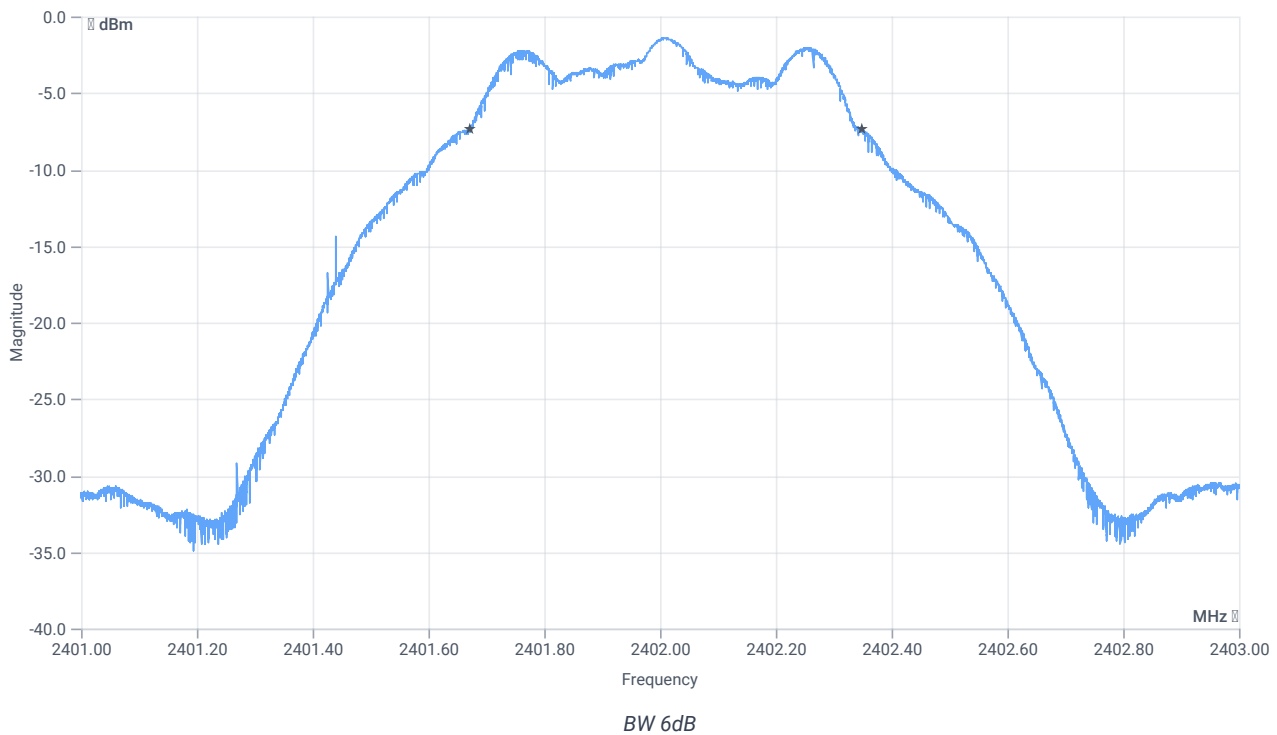
Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.22	dBm	INFO
Ref. Frequency	--	--	2401.800	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.78 11.09 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	679	kHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:59:43
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247, ISED RSS247 NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

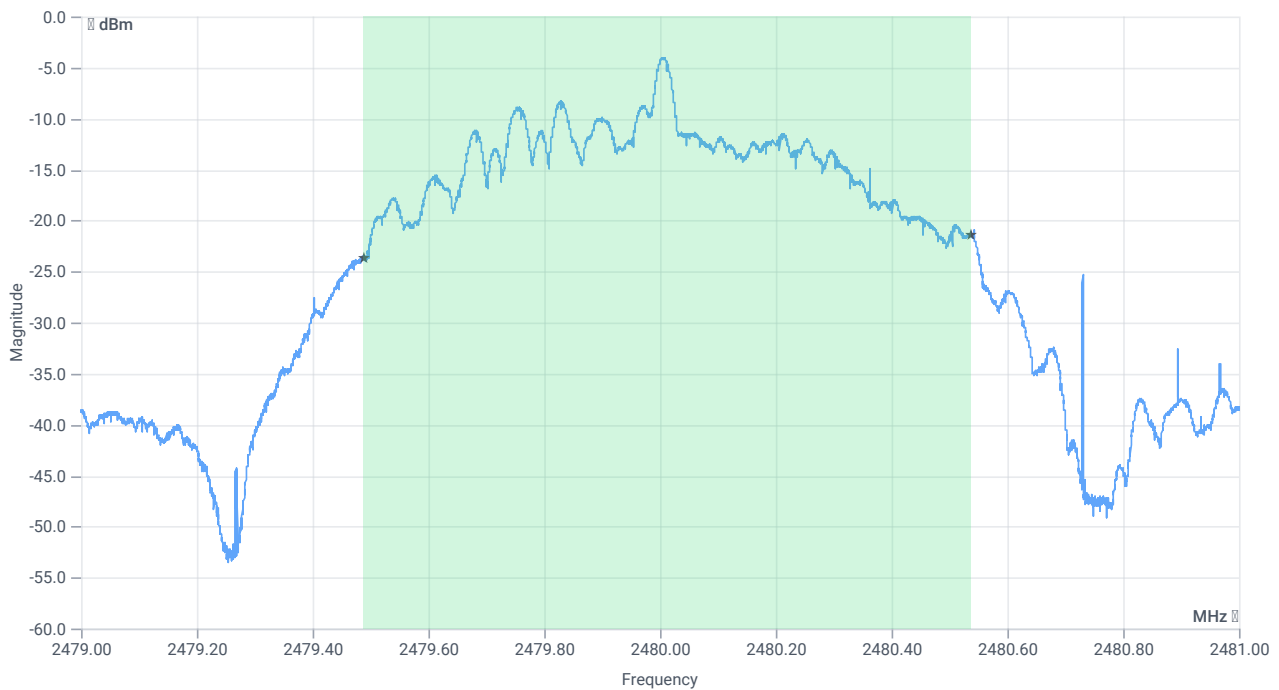
Test at TX 2480 MHz

RESULT: Reference Power cond.

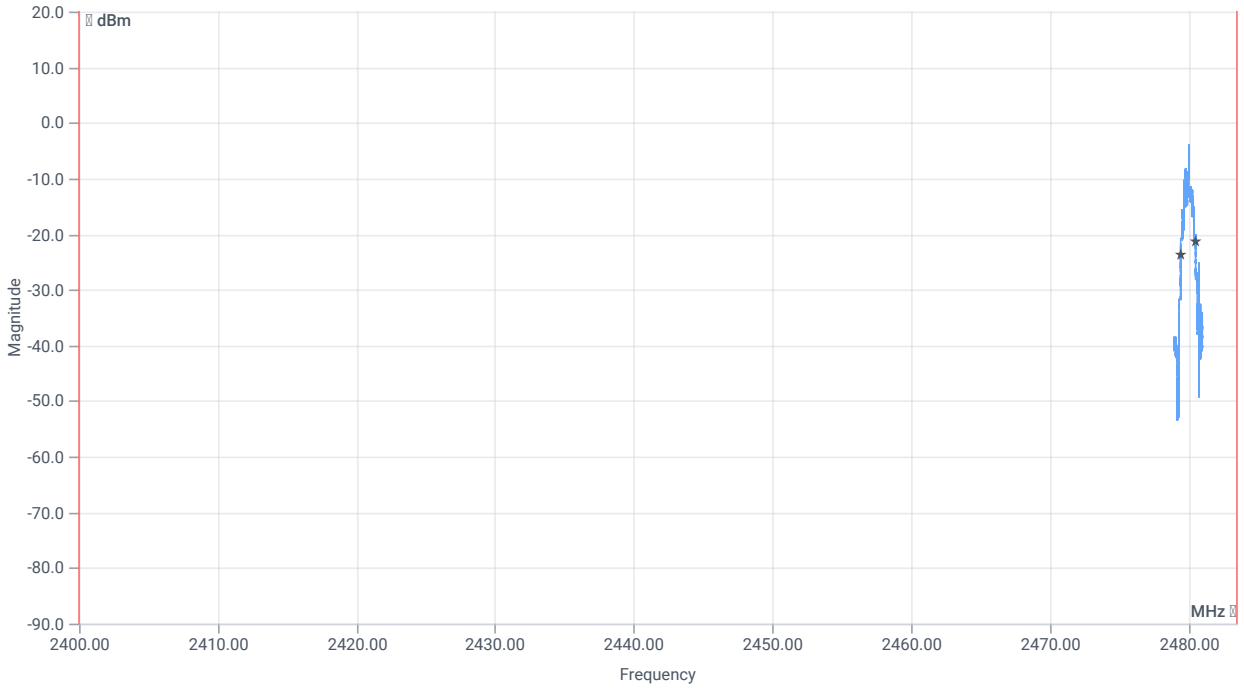
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.78	dBm	INFO
Ref. Frequency	--	--	2480.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.22 11.21 10
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



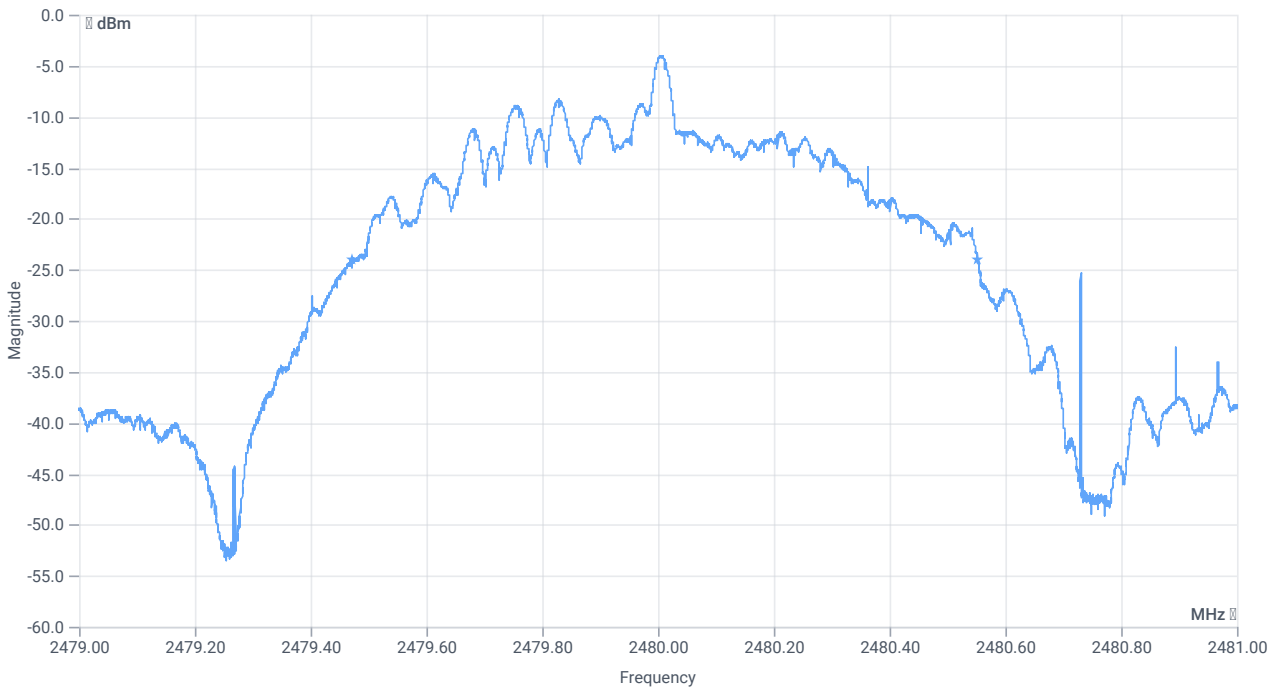
BW 99PCT



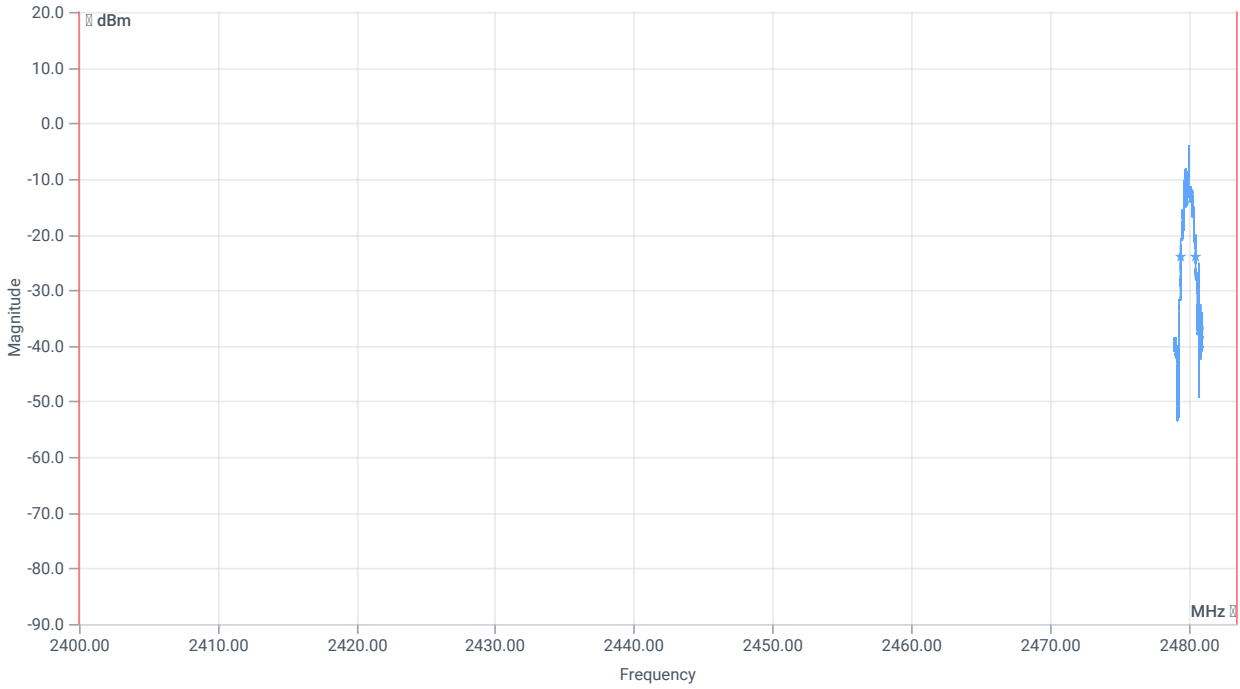
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	1050.000	kHz	INFO
T1 99%	2400.000000	--	2479.4885	MHz	PASS
T2 99%	--	2483.500000	2480.5381	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	1080	kHz	INFO
T1 20dB	2400.000000	--	2479.4718	MHz	PASS
T2 20dB	--	2483.500000	2480.5522	MHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:16:49
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247, ISED RSS247 NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

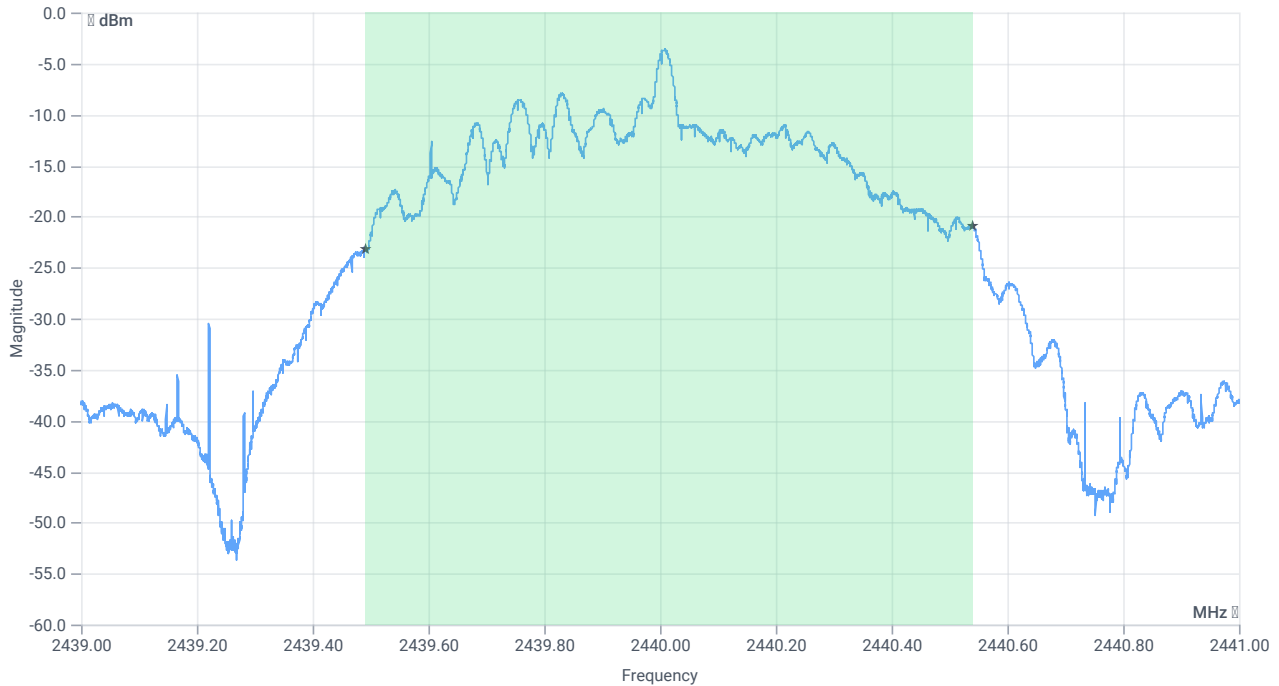
Test at TX 2440 MHz

RESULT: Reference Power cond.

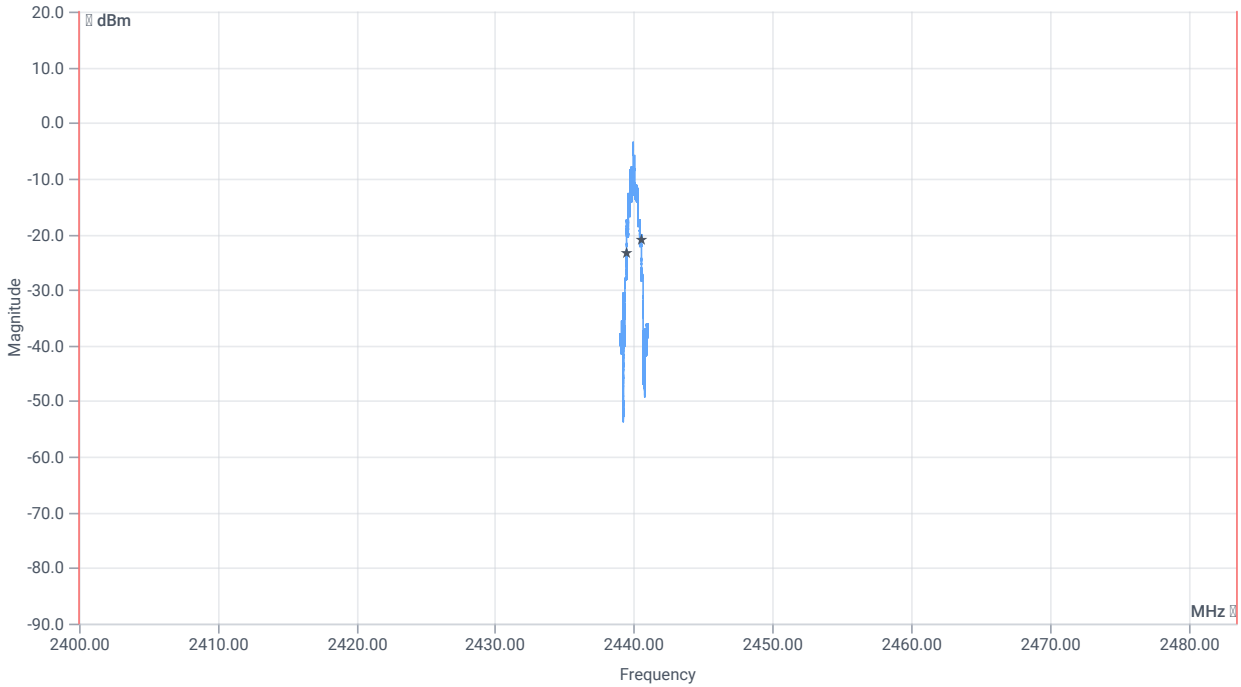
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.39	dBm	INFO
Ref. Frequency	--	--	2440.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.61 11.16 10
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



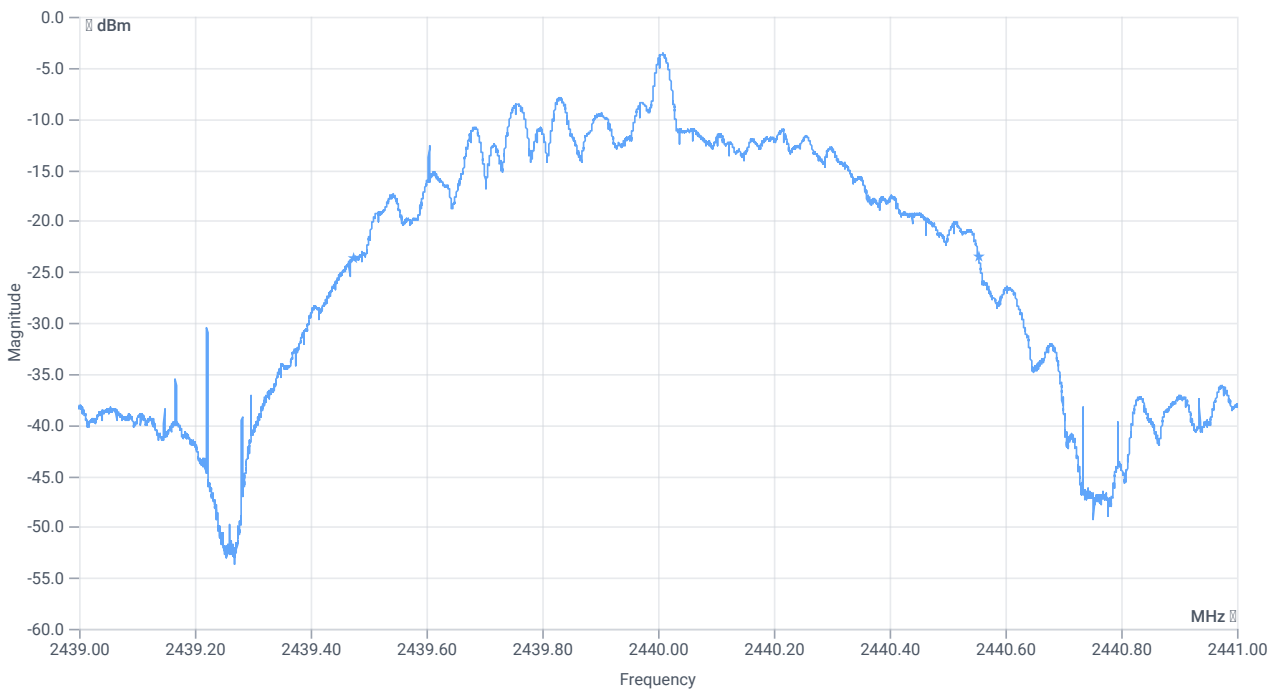
BW 99PCT



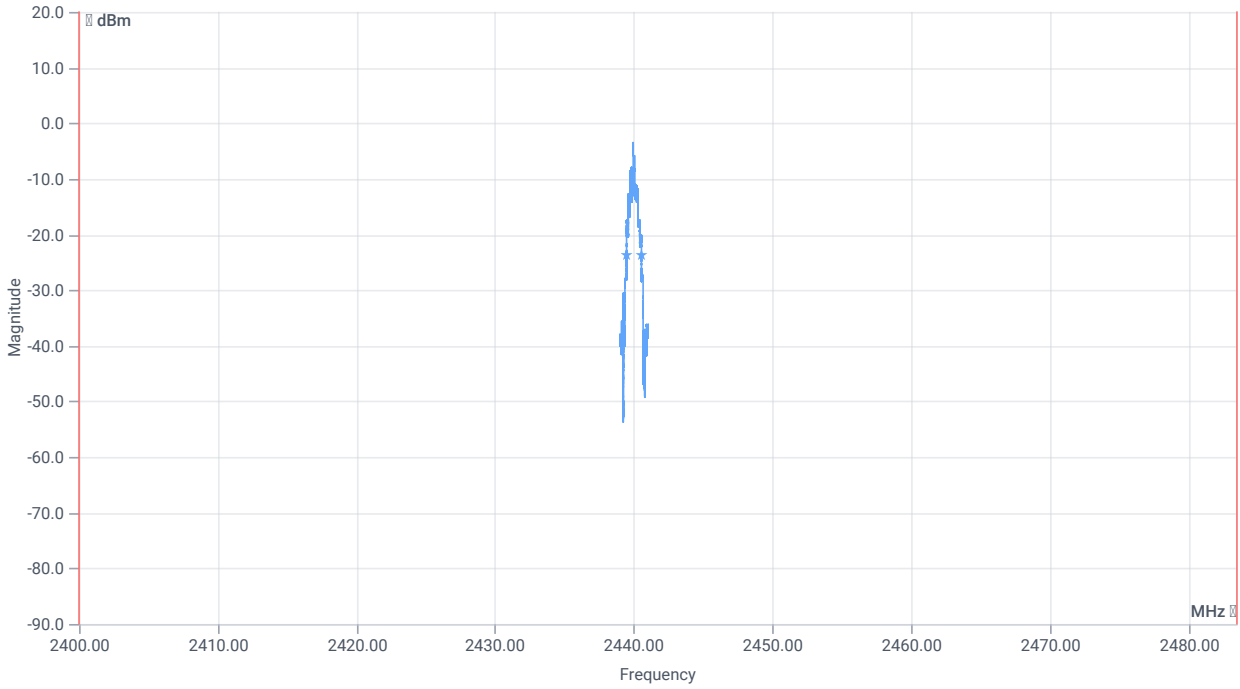
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	1049.000	kHz	INFO
T1 99%	2400.000000	--	2439.4901	MHz	PASS
T2 99%	--	2483.500000	2440.5395	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	1080	kHz	INFO
T1 20dB	2400.000000	--	2439.4738	MHz	PASS
T2 20dB	--	2483.500000	2440.5538	MHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:01:43
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247, ISED RSS247 NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

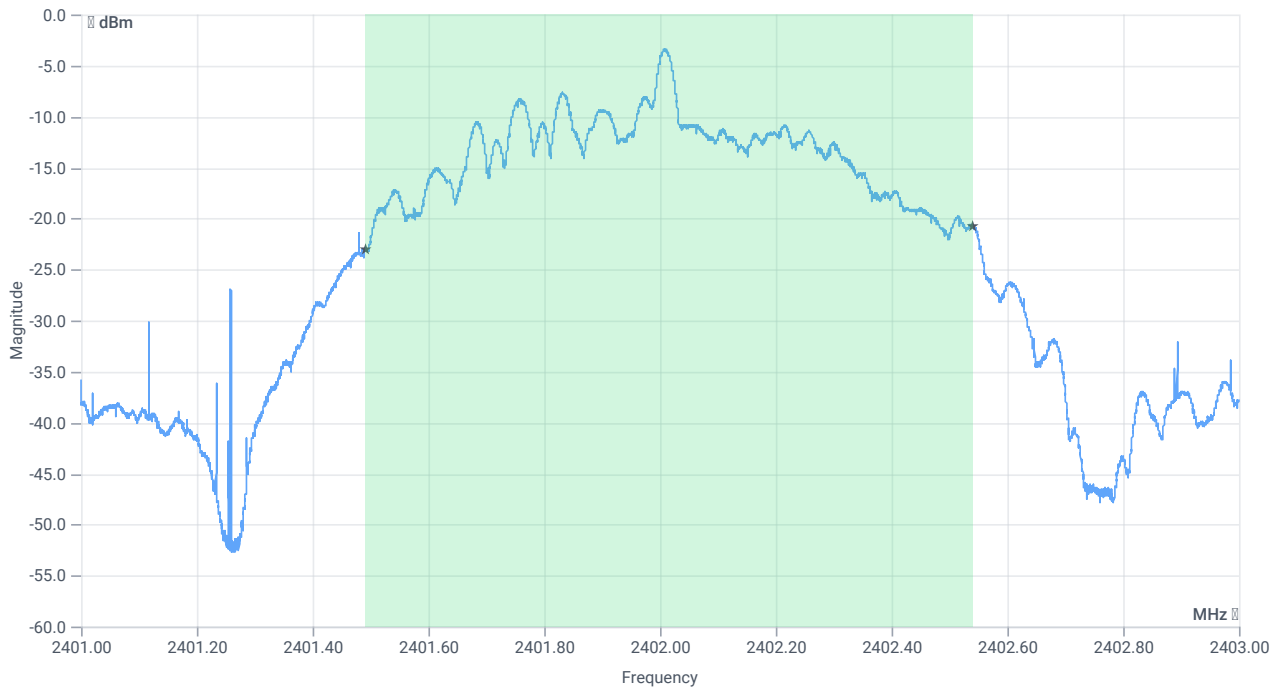
Test at TX 2402 MHz

RESULT: Reference Power cond.

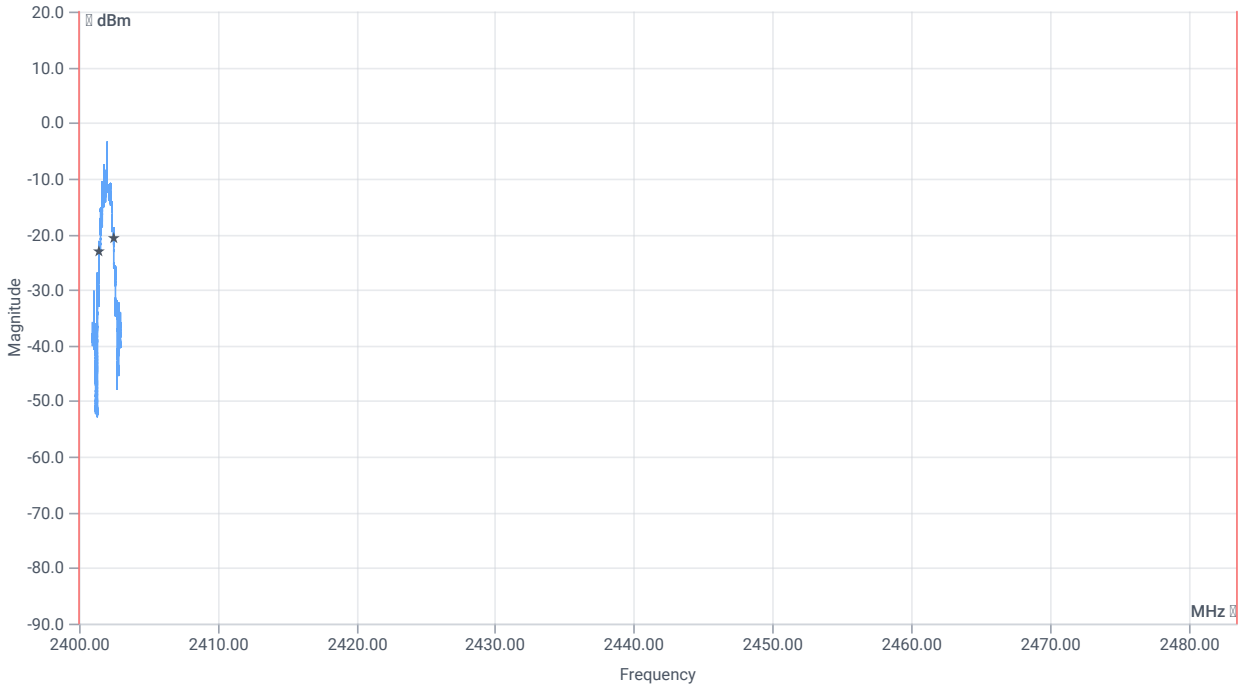
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.13	dBm	INFO
Ref. Frequency	--	--	2402.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.87 11.09 10
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



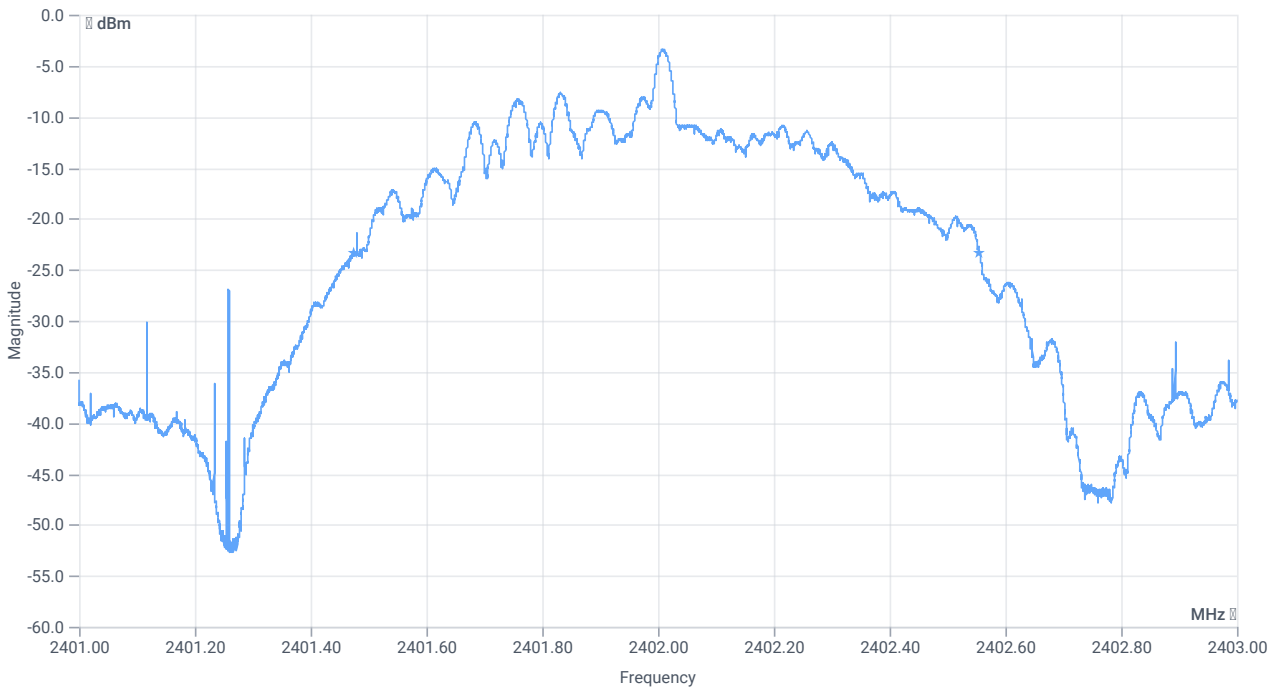
BW 99PCT



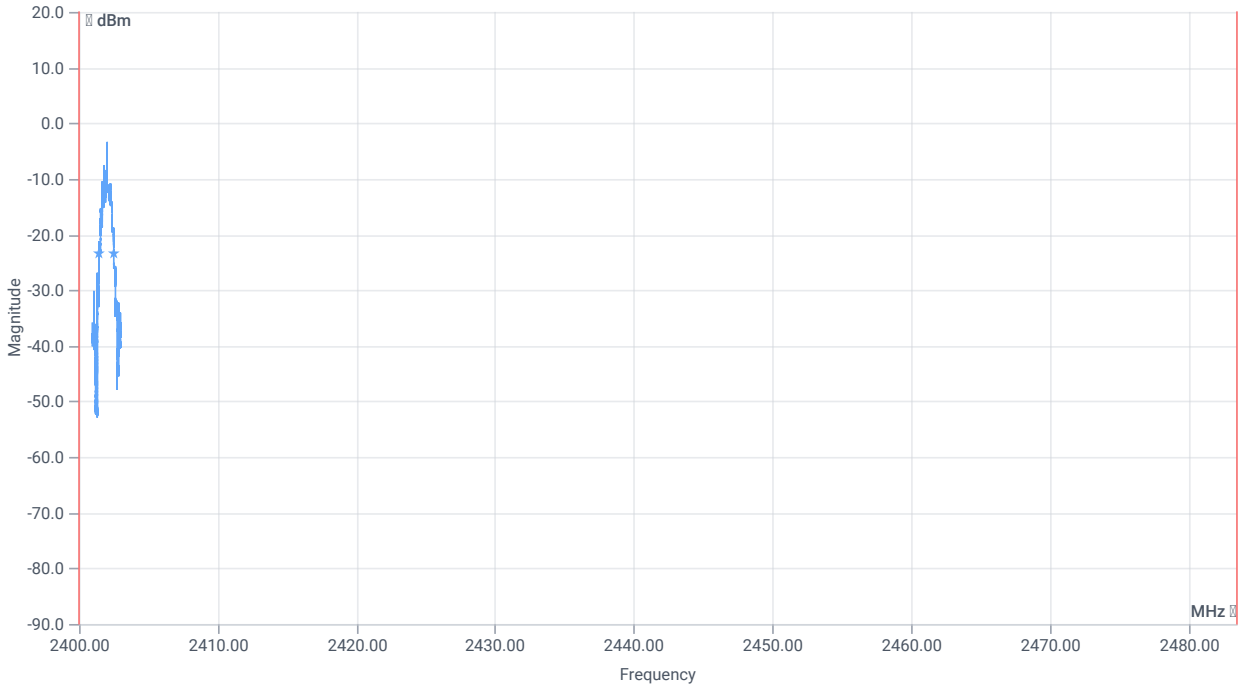
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	1050.000	kHz	INFO
T1 99%	2400.000000	--	2401.4907	MHz	PASS
T2 99%	--	2483.500000	2402.5411	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	1081	kHz	INFO
T1 20dB	2400.000000	--	2401.4738	MHz	PASS
T2 20dB	--	2483.500000	2402.5552	MHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 11:57:45
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

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

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.84	dBm	INFO
Ref. Frequency	--	--	2480.200	MHz	INFO

READ SA SETTINGS:

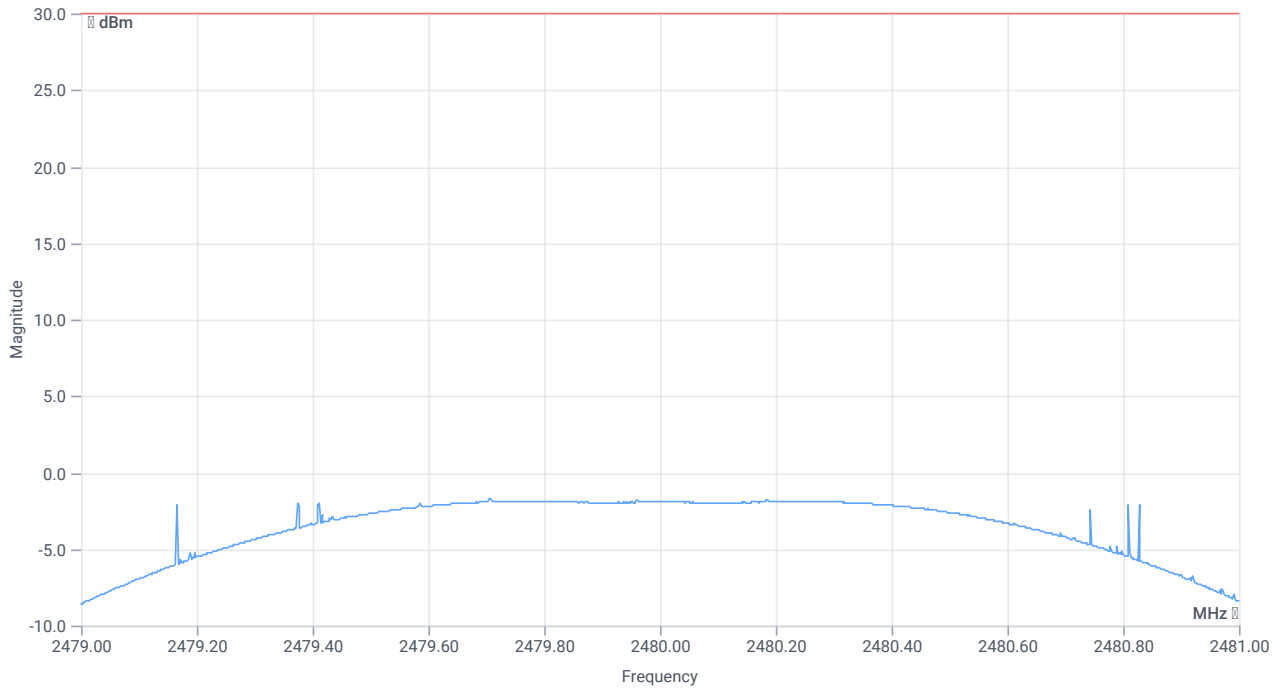
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.16 11.21 10
Start [MHz] Stop [MHz]	2479.000 2481.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: time [ms] count points per Section type	50 200 10001 SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	--	--	678	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.16 11.21 15
Start [MHz] Stop [MHz]	2479.000 2481.000
RBW [MHz] VBW [MHz]	1.000000 5.000000
Detector TraceMode	POS MAXH
Sweep: time [ms] count points per Section type	50 200 1001 SWE



Peak output power

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	--	30.00	-1.69	dBm	PASS
Peak Power	--	1000	0.677642	mW	PASS
Frequency at Peak	--	--	2479.706	MHz	INFO

Verdict

PASS

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

References

TC start	20.10.2023 11:14:51
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

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

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.42	dBm	INFO
Ref. Frequency	--	--	2440.300	MHz	INFO

READ SA SETTINGS:

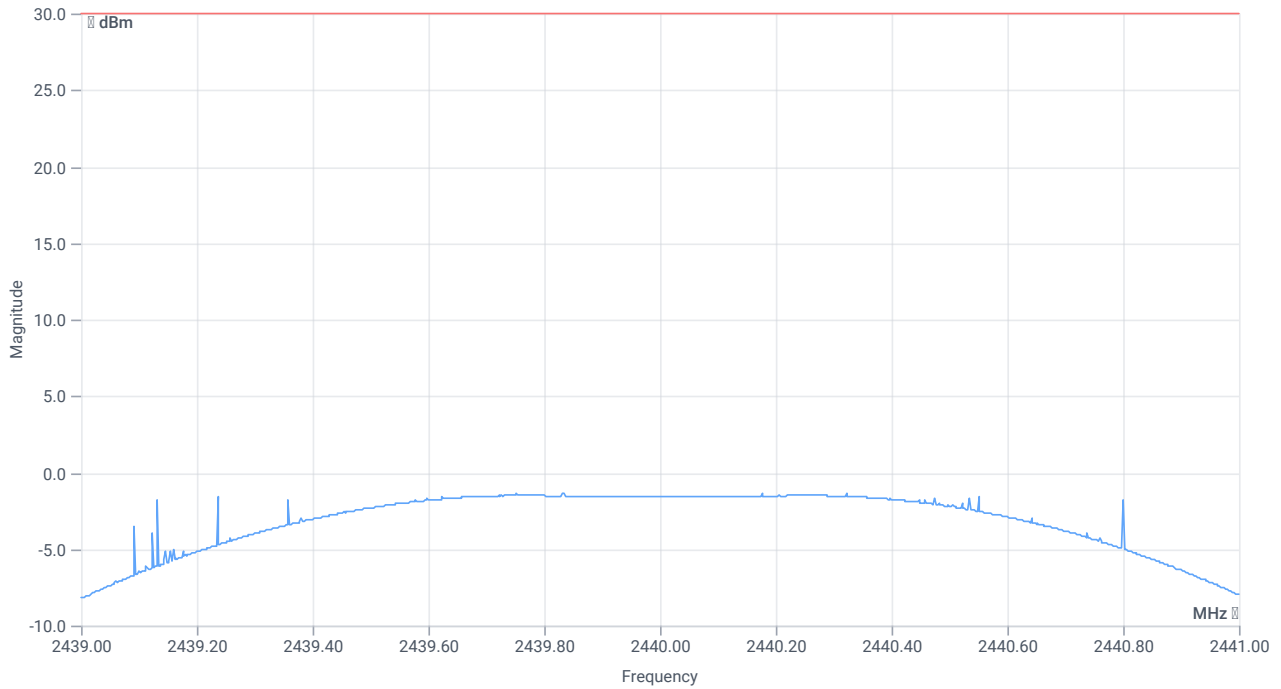
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.58 11.16 10
Start [MHz] Stop [MHz]	2439.000 2441.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: time [ms] count points per Section type	50 200 10001 SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	--	--	678	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.58 11.16 15
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	--	30.00	-1.31	dBm	PASS
Peak Power	--	1000	0.739605	mW	PASS
Frequency at Peak	--	--	2439.834	MHz	INFO

Verdict

PASS

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

References

TC start	20.10.2023 10:59:46
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Description	FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

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

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.14	dBm	INFO
Ref. Frequency	--	--	2402.300	MHz	INFO

READ SA SETTINGS:

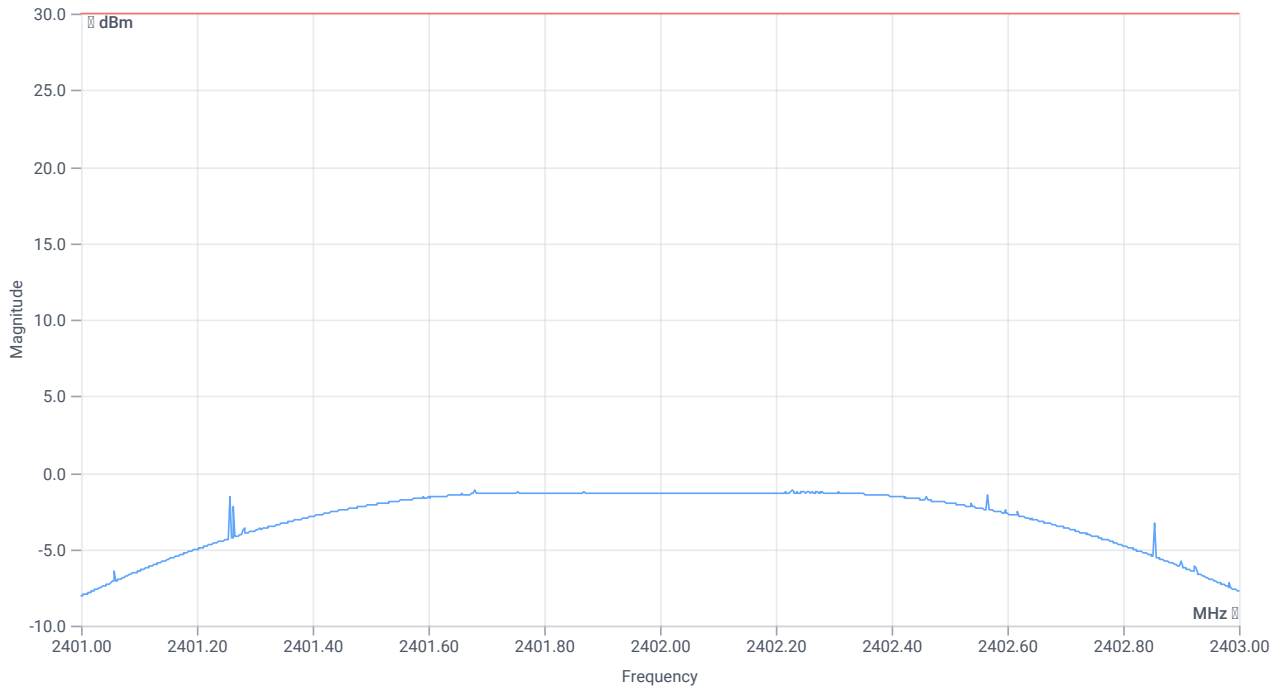
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.86 11.09 10
Start [MHz] Stop [MHz]	2401.000 2403.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: time [ms] count points per Section type	50 200 10001 SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	--	--	678	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.86 11.09 15
Start [MHz] Stop [MHz]	2401.000 2403.000
RBW [MHz] VBW [MHz]	1.000000 5.000000
Detector TraceMode	POS MAXH
Sweep: time [ms] count points per Section type	50 200 1001 SWE



Peak output power

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	--	30.00	-1.14	dBm	PASS
Peak Power	--	1000	0.76913	mW	PASS
Frequency at Peak	--	--	2402.228	MHz	INFO

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	20.10.2023 11:59:02
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Description	FCC 15.247 Peak psd DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

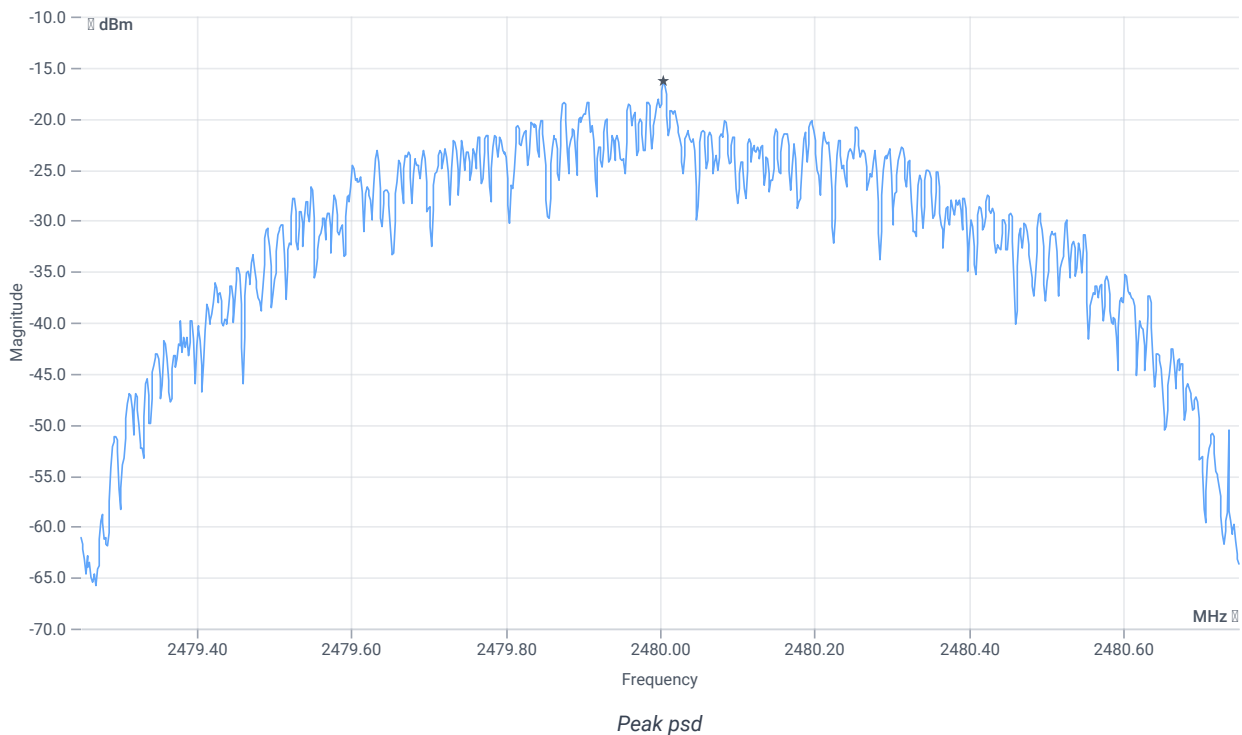
Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.79	dBm	INFO
Ref. Frequency	--	--	2480.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.21 11.21 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	--	8	-16.3	dBm/3KHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	20.10.2023 11:16:08
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Description	FCC 15.247 Peak psd DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

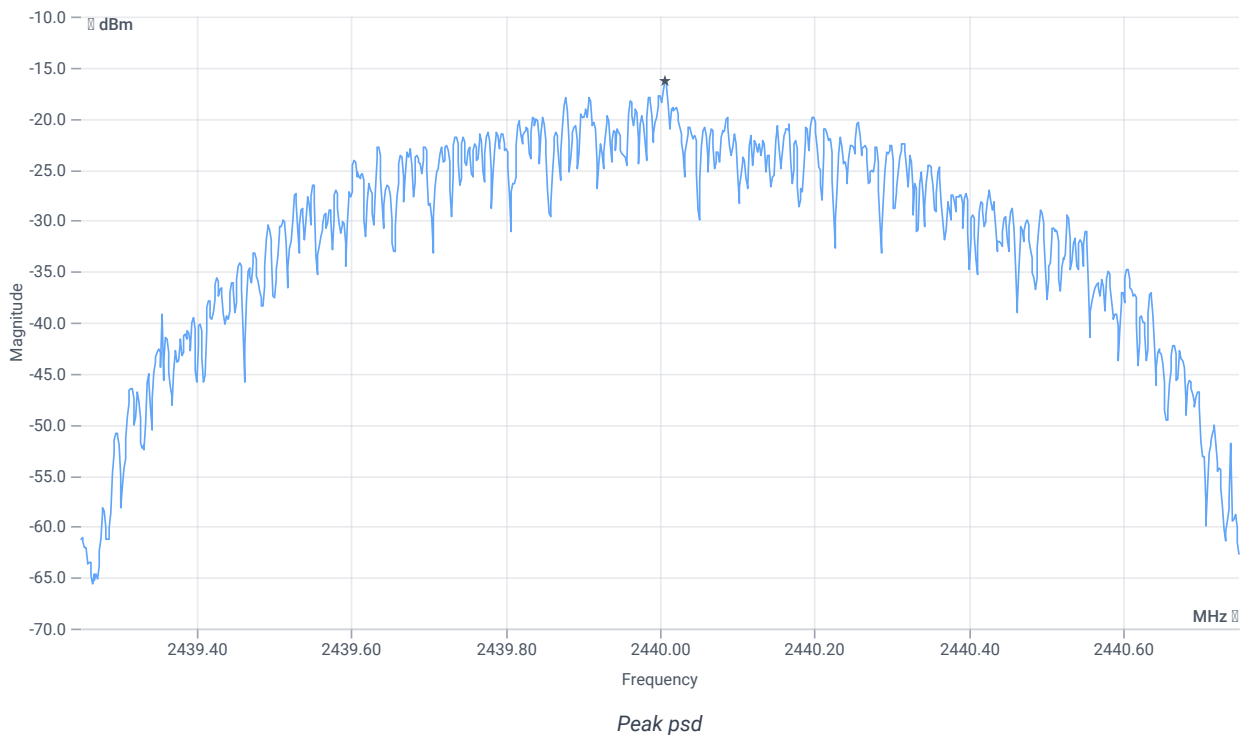
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.37	dBm	INFO
Ref. Frequency	--	--	2440.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.63 11.16 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	--	8	-16.37	dBm/3KHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	20.10.2023 11:01:02
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Description	FCC 15.247 Peak psd DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

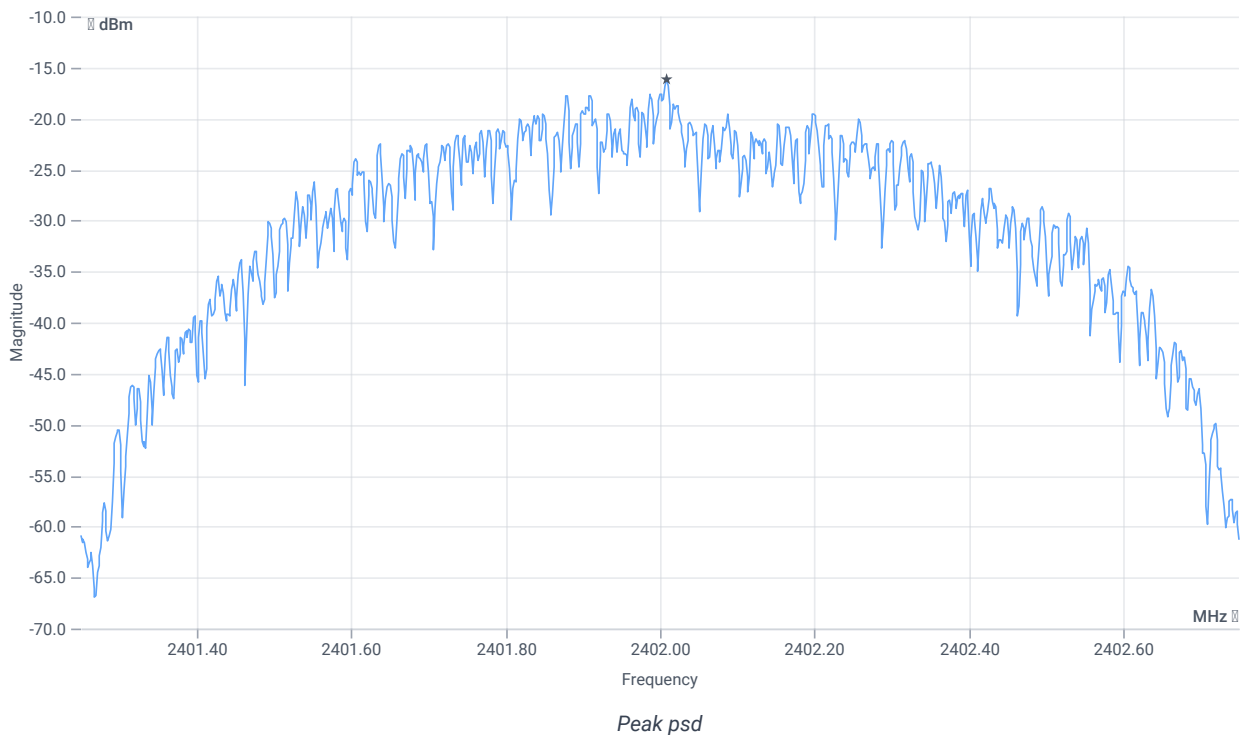
Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.04	dBm	INFO
Ref. Frequency	--	--	2402.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	3.96 11.09 10
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

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	--	8	-16.13	dBm/3KHz	PASS

Verdict

PASS

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

References

TC start	20.10.2023 12:00:23
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

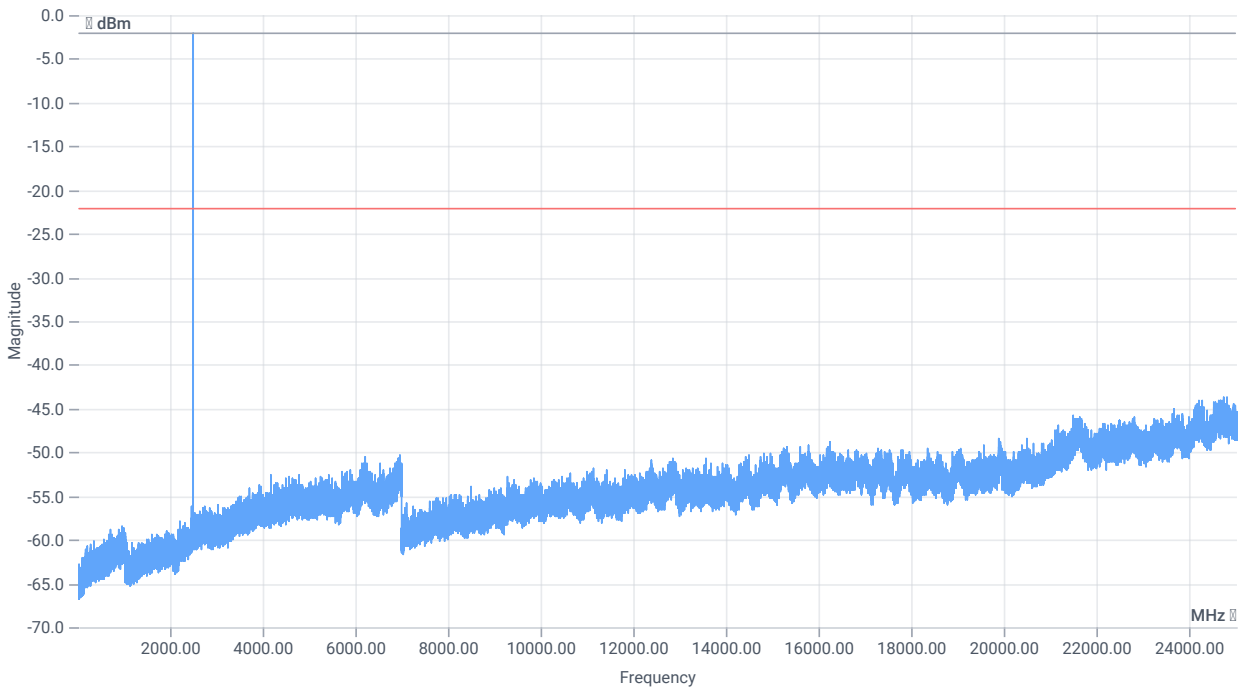
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2480 MHz

RESULT: Reference Power cond.

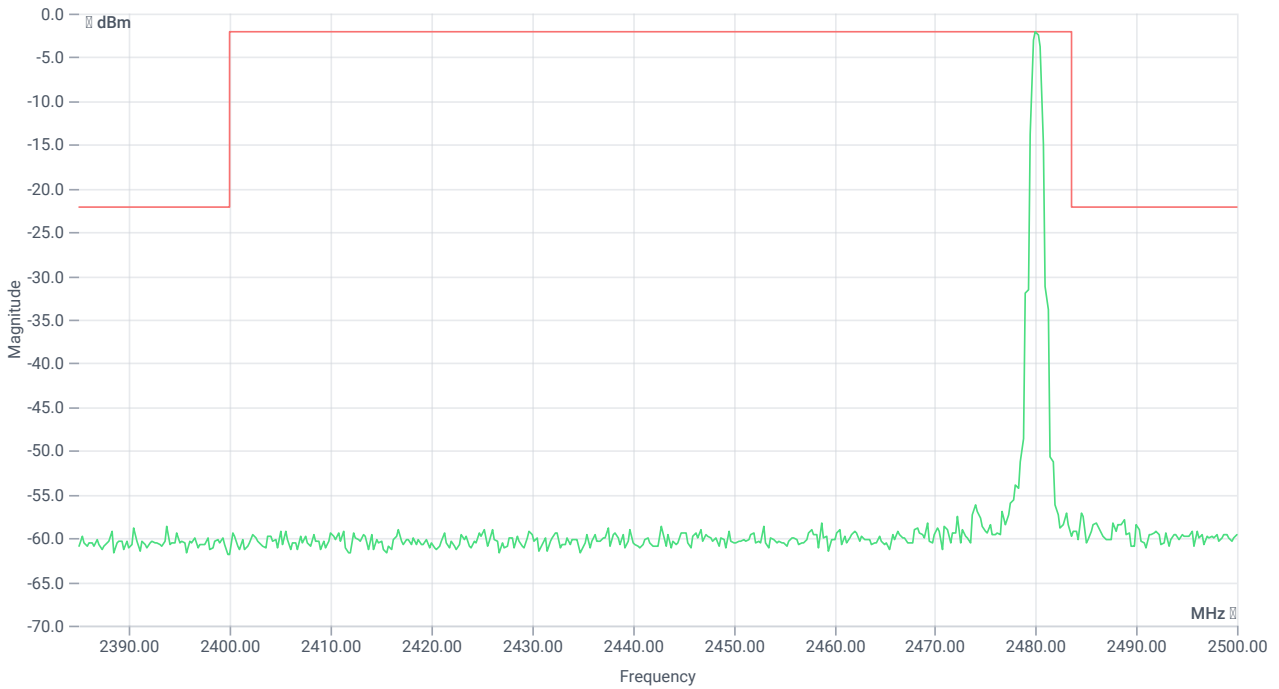
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.75	dBm	INFO
Ref. Frequency	--	--	2480.300	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-1.75 0 15
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 2001 SWE



TX emissions band zoomed

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2480.00 MHz	--	--	-2.09	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24735.75 MHz	0	--	21.59	dB	INFO

Verdict

PASS

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

References

TC start	20.10.2023 11:17:28
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

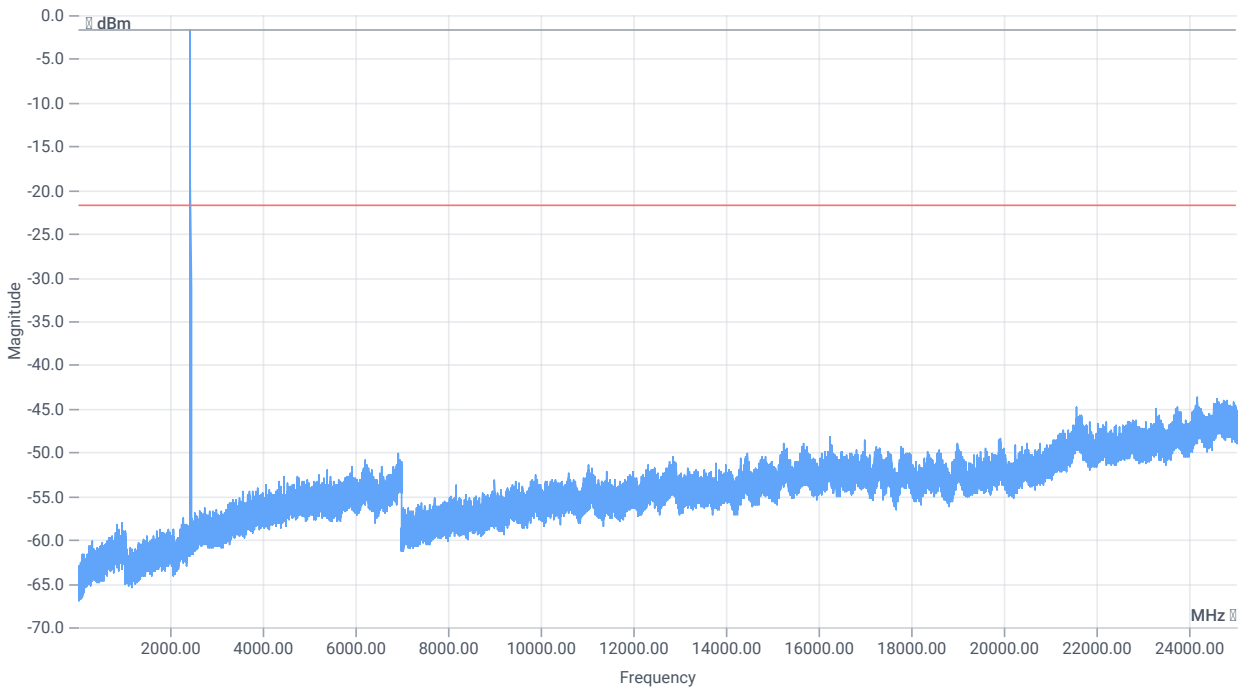
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.25	dBm	INFO
Ref. Frequency	--	--	2440.300	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-1.25 0 15
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 2001 SWE



TX emissions band zoomed

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2440.00 MHz	--	--	-1.70	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24161 MHz	0	--	21.92	dB	INFO

Verdict

PASS

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

References

TC start	20.10.2023 11:02:23
Ambit temp [°C] humidity [rel%]	0.0 0
System version	4.7.0.0
Standard Version	FCC 15.247 NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted DTS - BT LE 1 Msps
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	False TXpayload 255 RXpayload 255
Longrange S8 supported	False TXpayload 255 RXpayload 255
Longrange S2 supported	False TXpayload 255 RXpayload 255
Signaling Settings	None HCI 1 2400 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]	0.5
Full path name type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

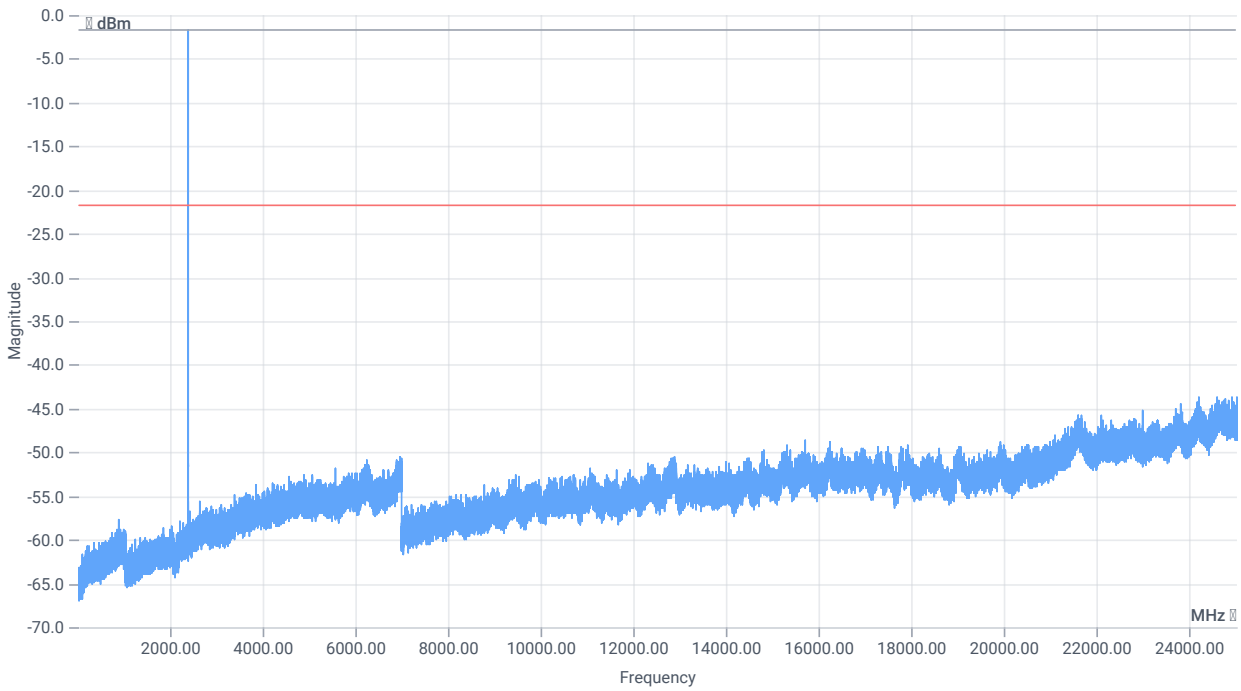
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/102550,4.0.190

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

Test at TX 2402 MHz

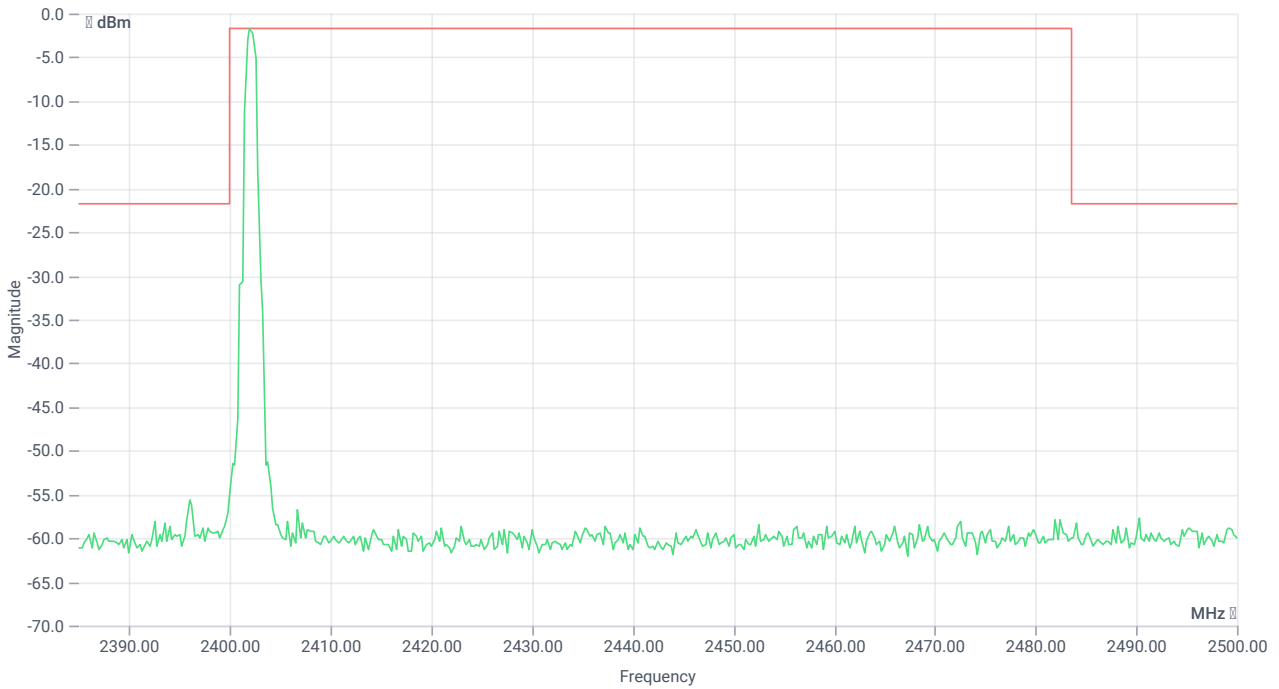
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	-1.18	dBm	INFO
Ref. Frequency	--	--	2402.300	MHz	INFO



READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-1.18 0 15
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 2001 SWE



TX emissions band zoomed

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2402.00 MHz	--	--	-1.68	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24927.25 MHz	0	--	21.96	dB	INFO

Verdict

PASS

- END OF DOCUMENT -