Conducted test results

No.1-6998/23-01-12_TR1-A201-R1

February 05, 2024

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

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Table of Content

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:00:45
Ambit temp [°C] | humidity [rel%]	27.2 | 34
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:00:52
Ambit temp [°C] | humidity [rel%]	27.2 | 34
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x00 0xFF 0x00 0x01
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 00 FF 00 01 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

NA # Peak output power 3MHz/3MHz ~ BT LE 1 Msps

References

TC start	13.12.2023 13:00:58
Ambit temp [°C] | humidity [rel%]	27.2 | 34
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Peak OP 3MHz/3MHz - 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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

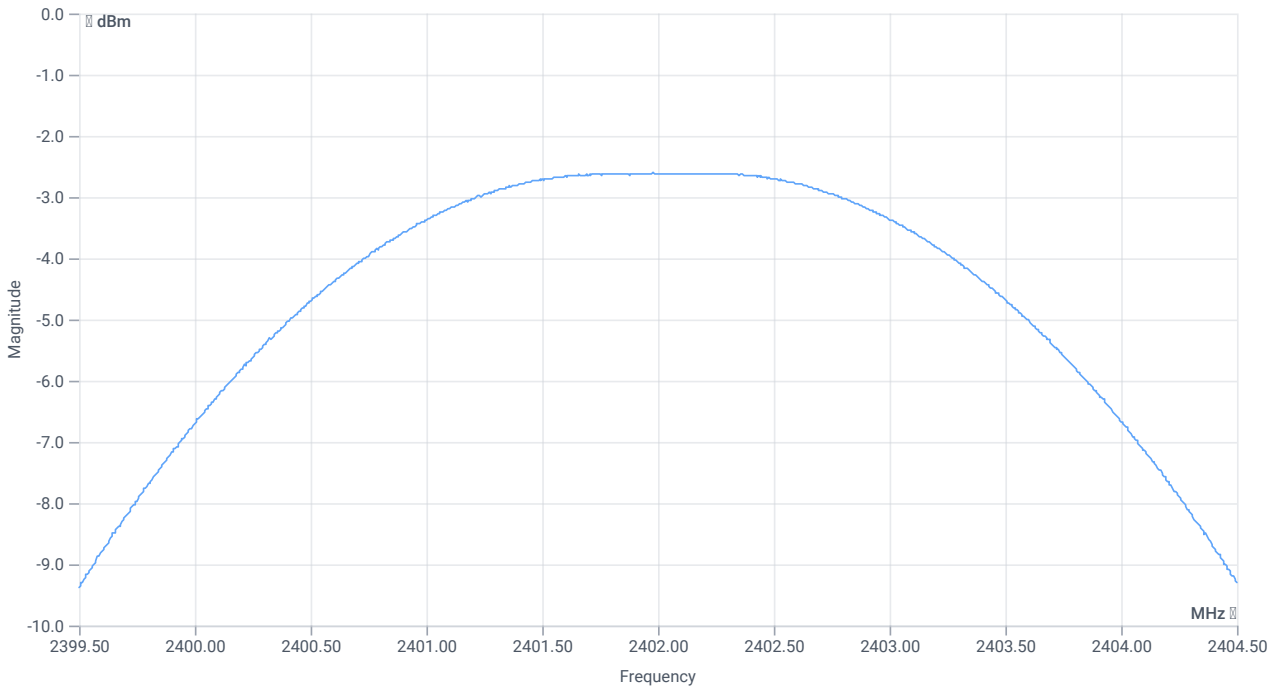
Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.48	dBm	INFO
Ref. Frequency	---	---	2402.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.52 | 11.29 | 15
Start [MHz] | Stop [MHz]	2399.500 | 2404.500
RBW [MHz] | VBW [MHz]	3.000000 | 3.000000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 10 | 1001 | SWE



Peak output power

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	---	---	-2.61	dBm	INFO
Peak Power	---	---	0.548277	mW	INFO
Frequency at Peak	---	---	2401.98	MHz	INFO

Verdict
PASS

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

References

TC start	13.12.2023 13:01:29
Ambit temp [°C] | humidity [rel%]	27.2 | 34
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
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.	---	---	-2.49	dBm	INFO
Ref. Frequency	---	---	2402.300	MHz	INFO

READ SA SETTINGS:

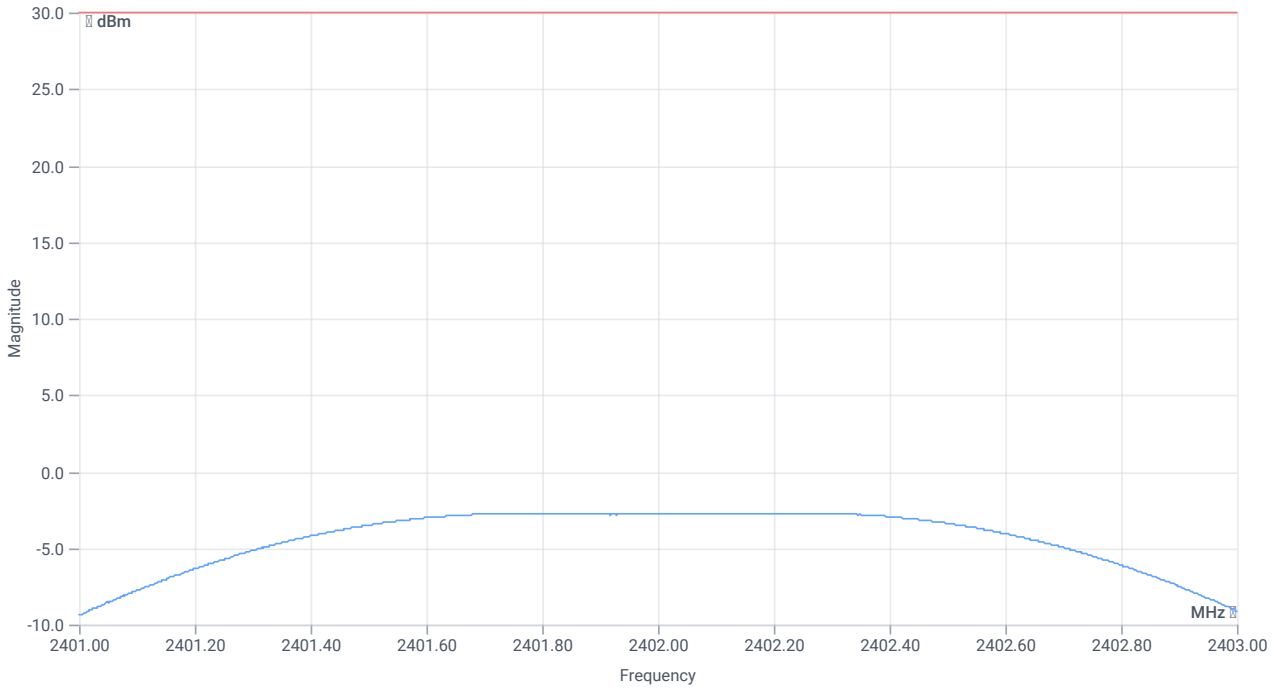
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.51 | 11.29 | 10
Start [MHz] | Stop [MHz]	2401.000 | 2403.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

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]	7.51 | 11.29 | 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	-2.71	dBm	PASS
Peak Power	---	1000	0.535797	mW	PASS
Frequency at Peak	---	---	2402.23	MHz	INFO

Verdict

PASS

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

References

TC start	13.12.2023 13:02:14
Ambit temp [°C] | humidity [rel%]	27.3 | 34
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

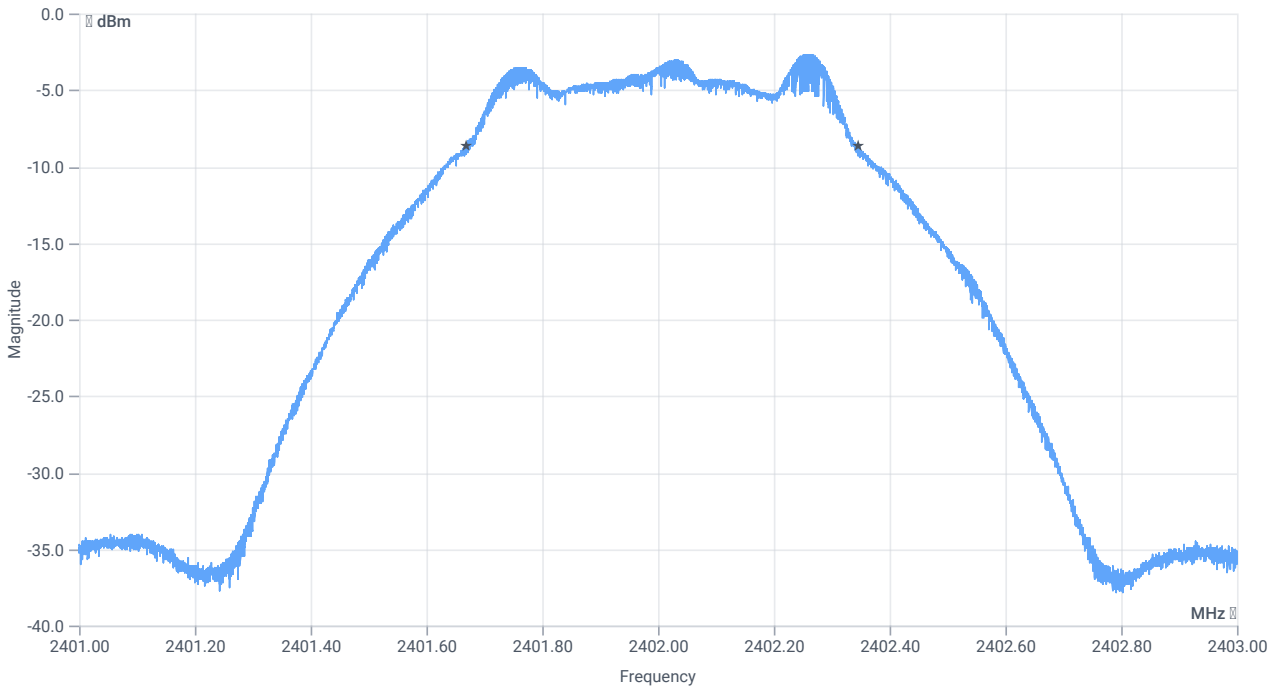
Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.48	dBm	INFO
Ref. Frequency	---	---	2402.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.52 | 11.29 | 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



BW 6dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	---	675	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	13.12.2023 13:02:45
Ambit temp [°C] | humidity [rel%]	27.3 | 34
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

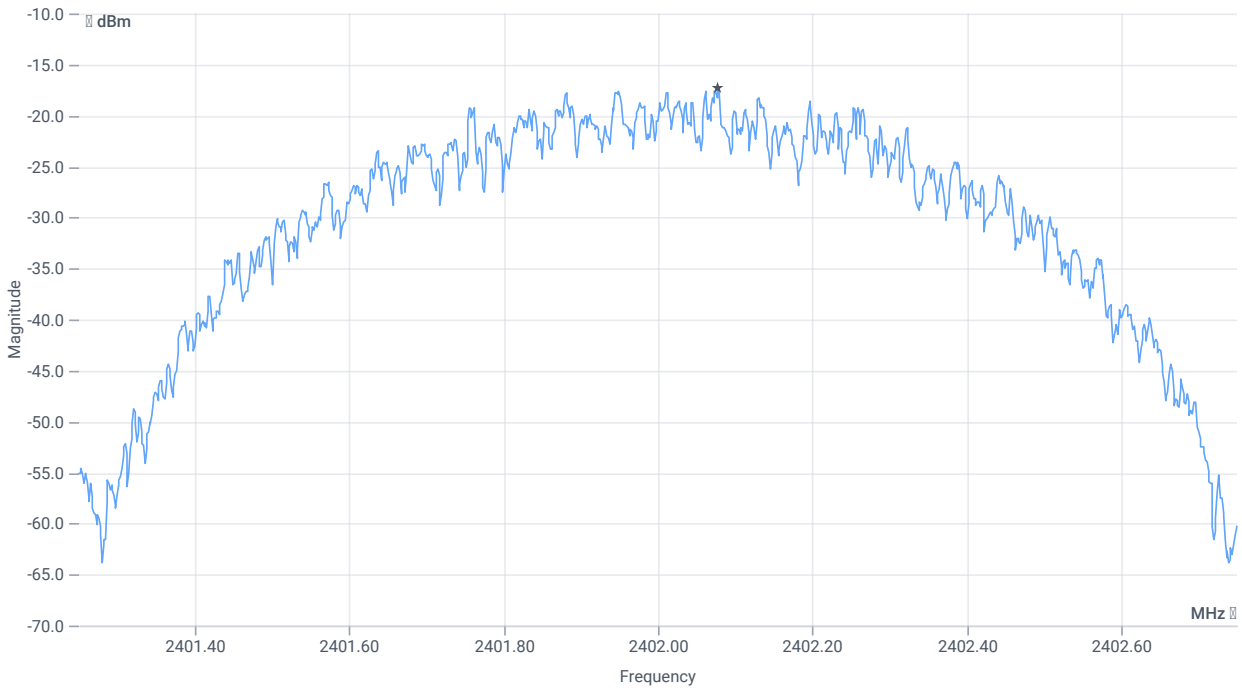
Test at TX 2402 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.46	dBm	INFO
Ref. Frequency	---	---	2402.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.54 | 11.29 | 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



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-17.23	dBm/3KHz	PASS

Verdict

PASS

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

References

TC start	13.12.2023 13:03:26
Ambit temp [°C] | humidity [rel%]	27.3 | 34
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

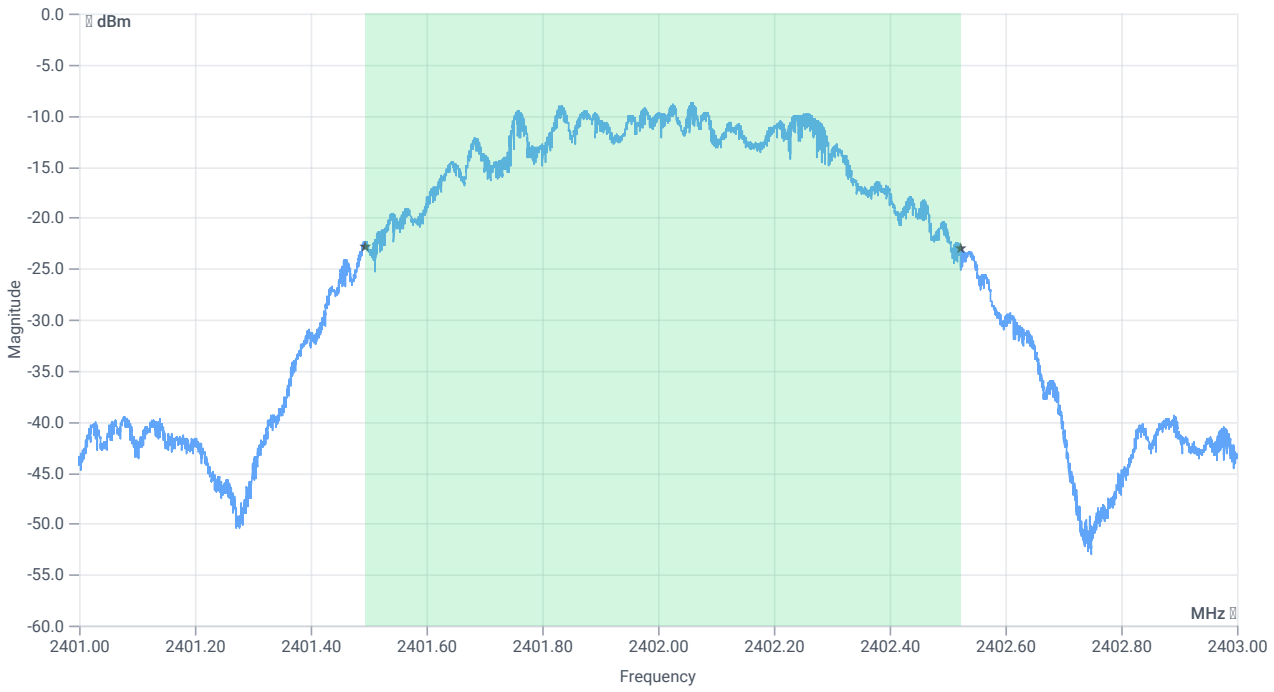
Test at TX 2402 MHz

RESULT: Reference Power cond.

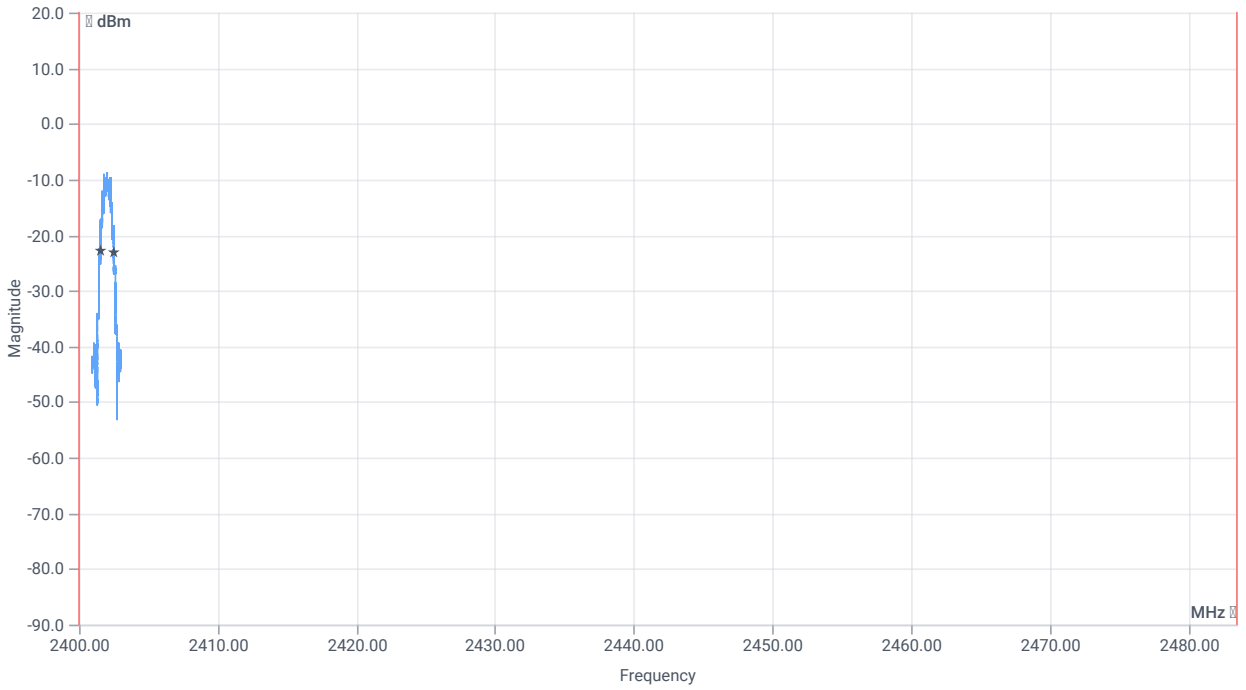
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.50	dBm	INFO
Ref. Frequency	---	---	2402.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.50 | 11.29 | 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



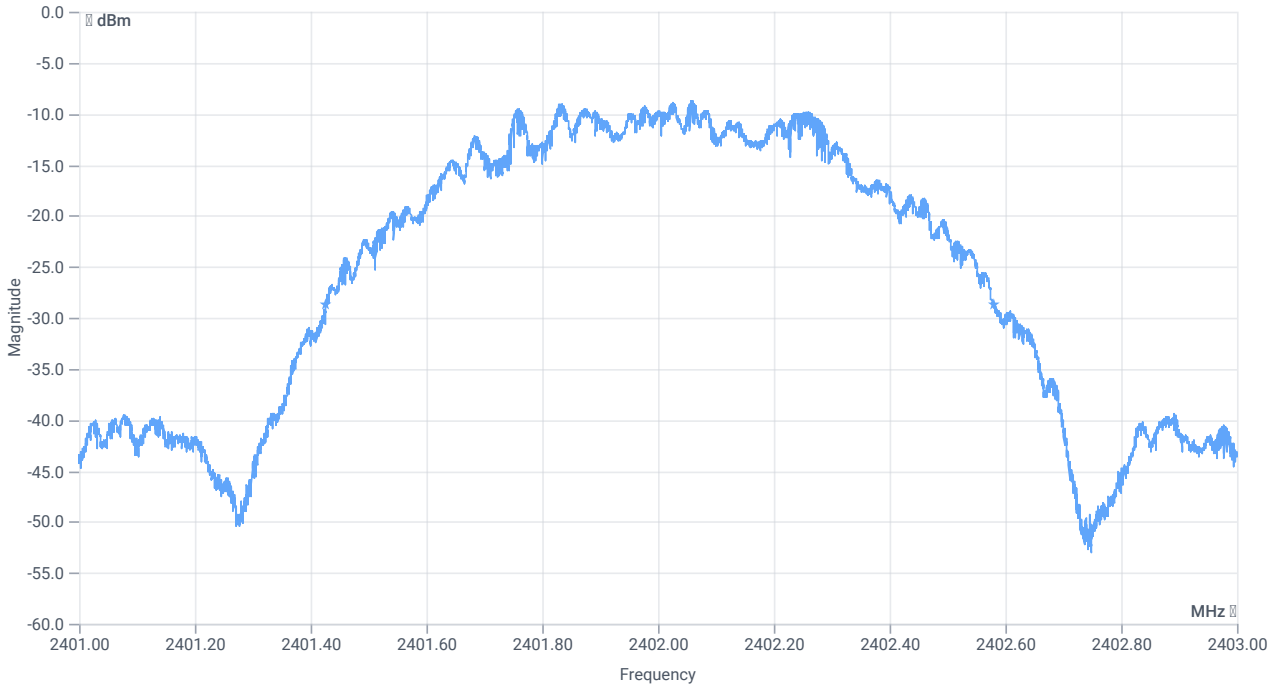
BW 99PCT



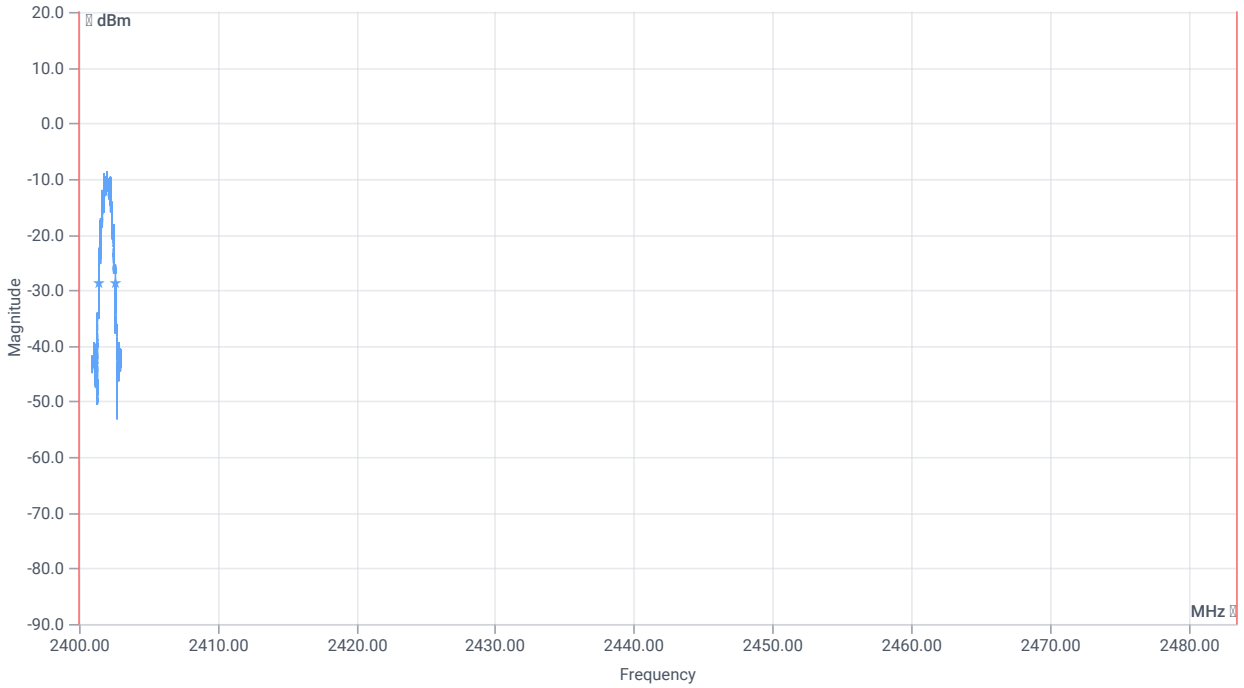
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	1027.000	kHz	INFO
T1 99%	2400.000000	---	2401.4957	MHz	PASS
T2 99%	---	2483.500000	2402.5231	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	1155	kHz	INFO
T1 20DB	2400.000000	---	2401.4258	MHz	PASS
T2 20dB	---	2483.500000	2402.5812	MHz	PASS

Verdict
PASS

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

References

TC start	13.12.2023 13:04:06
Ambit temp [°C] | humidity [rel%]	27.3 | 34
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

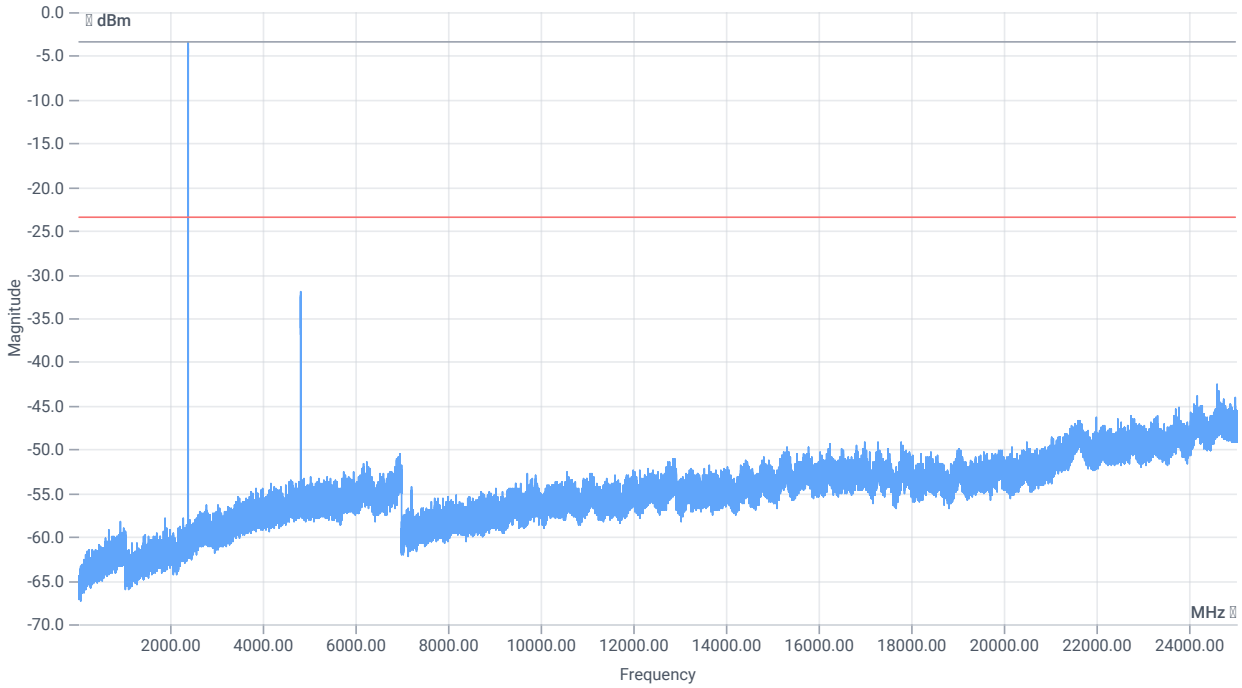
Equipment

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

Test at TX 2402 MHz

RESULT: Reference Power cond.

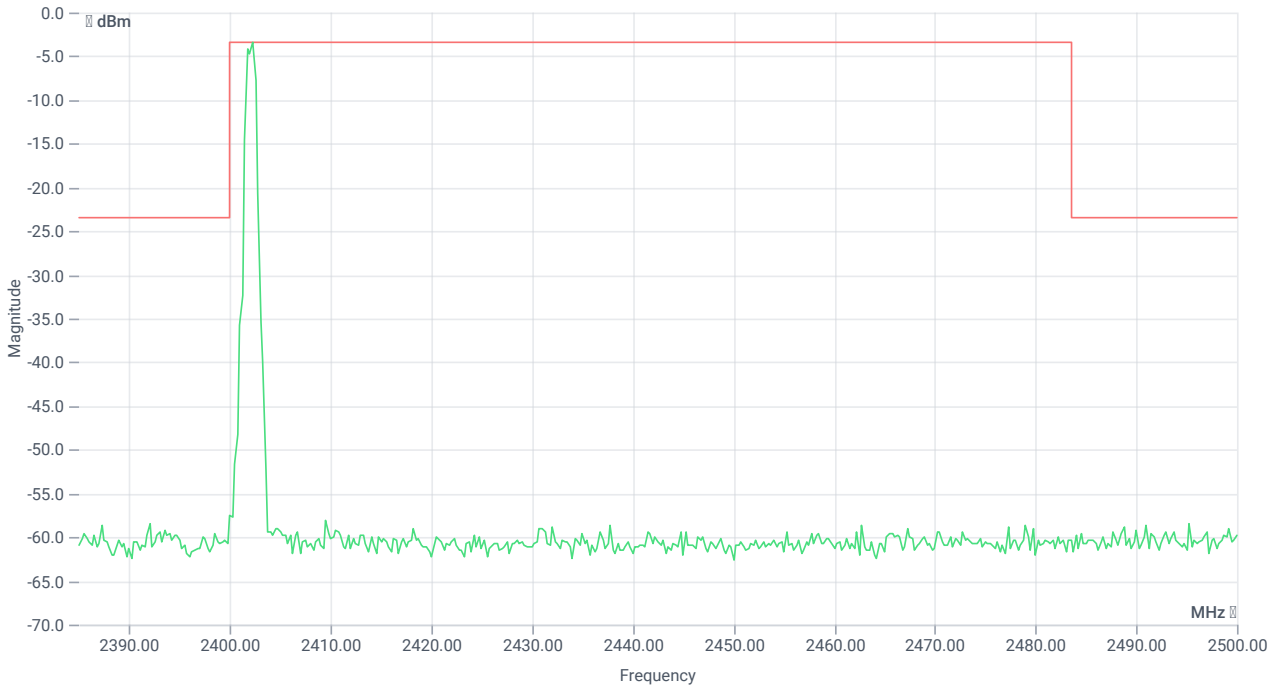
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.46	dBm	INFO
Ref. Frequency	---	---	2402.300	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.46 | 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 @ 2402.25 MHz	---	---	-3.40	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 4804 MHz	0	---	8.52	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:10:53
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:10:59
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x13 0xFF 0x00 0x01
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 13 FF 00 01 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

NA # Peak output power 3MHz/3MHz ~ BT LE 1 Msps

References

TC start	13.12.2023 13:11:06
Ambit temp [°C] | humidity [rel%]	27.4 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Peak OP 3MHz/3MHz - 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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

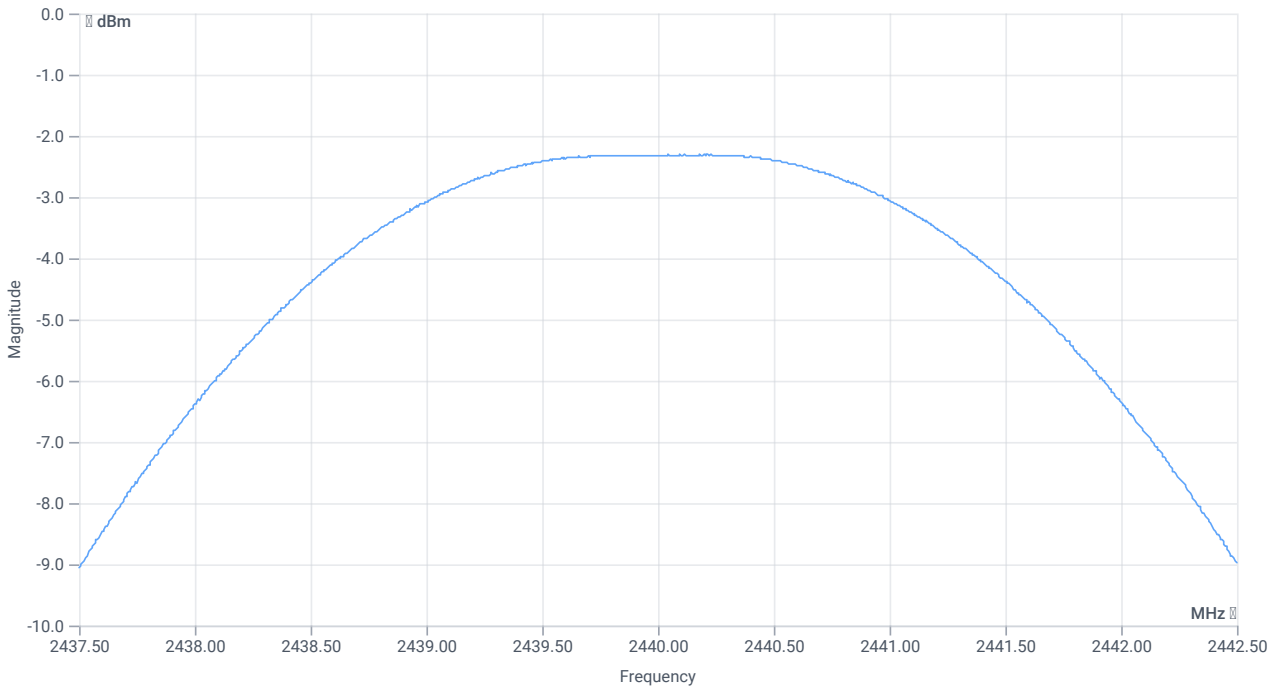
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.18	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.82 | 11.36 | 15
Start [MHz] | Stop [MHz]	2437.500 | 2442.500
RBW [MHz] | VBW [MHz]	3.000000 | 3.000000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 10 | 1001 | SWE



Peak output power

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	---	---	-2.3	dBm	INFO
Peak Power	---	---	0.588844	mW	INFO
Frequency at Peak	---	---	2440.115	MHz	INFO

Verdict
PASS

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

References

TC start	13.12.2023 13:11:36
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
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.	---	---	-2.18	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO

READ SA SETTINGS:

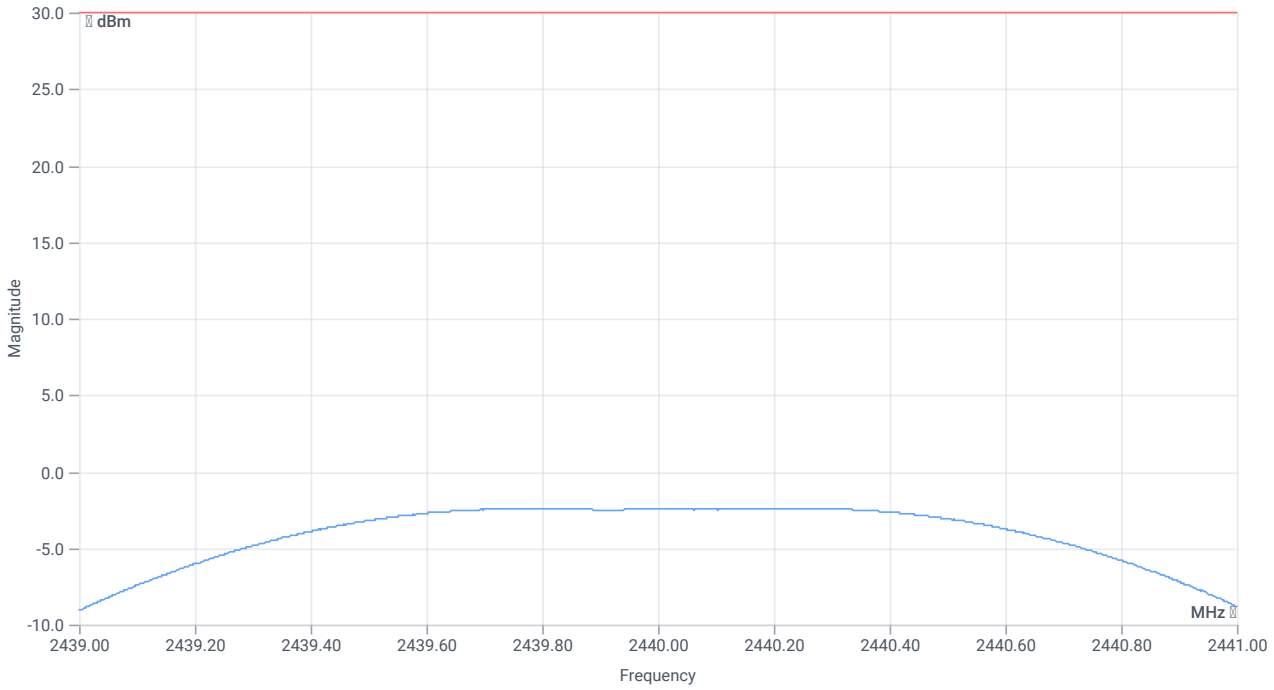
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.82 | 11.36 | 10
Start [MHz] | Stop [MHz]	2439.000 | 2441.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	---	---	673	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.82 | 11.36 | 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	-2.41	dBm	PASS
Peak Power	---	1000	0.574116	mW	PASS
Frequency at Peak	---	---	2440.258	MHz	INFO

Verdict

PASS

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

References

TC start	13.12.2023 13:12:21
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

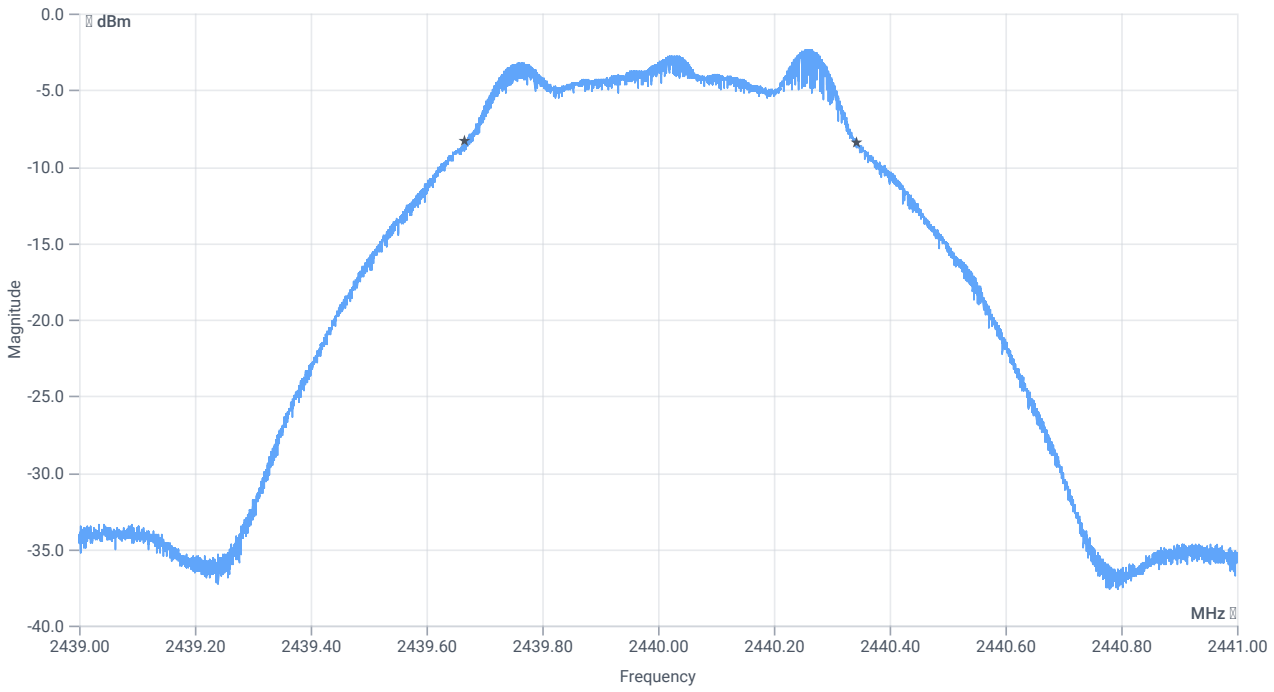
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.18	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.82 | 11.36 | 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



BW 6dB

RESULT

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

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	13.12.2023 13:12:53
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

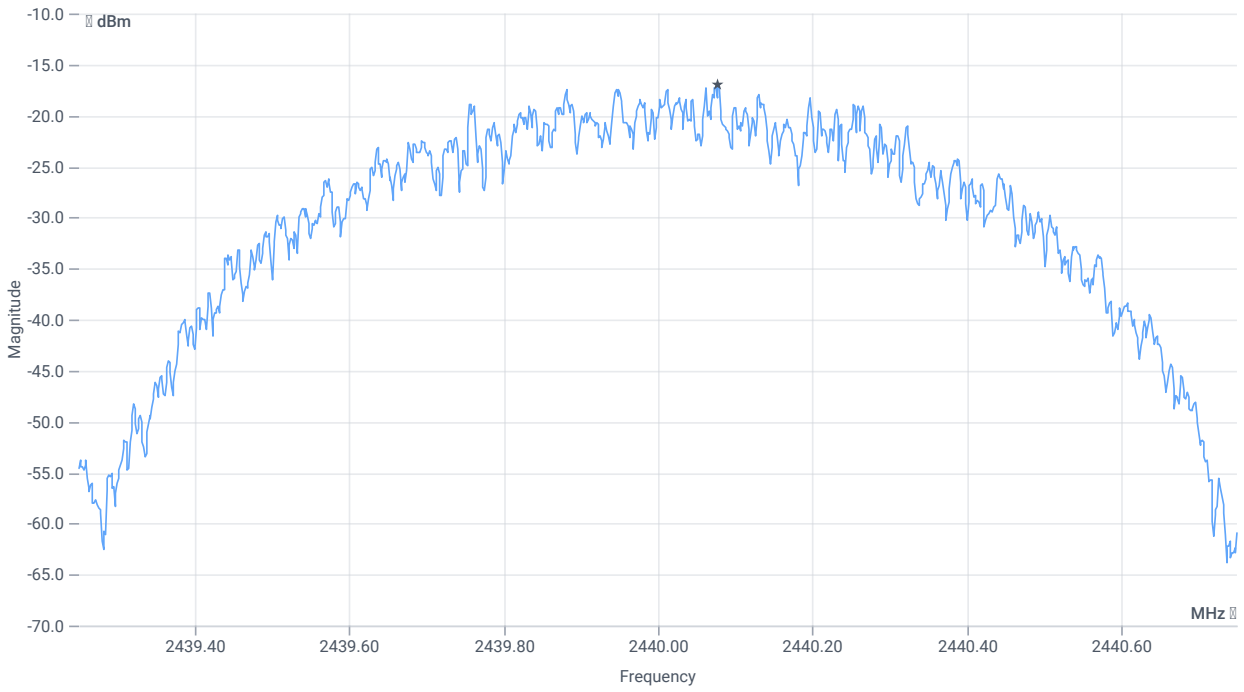
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.20	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.80 | 11.36 | 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



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-17	dBm/3KHz	PASS

Verdict

PASS

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

References

TC start	13.12.2023 13:13:34
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

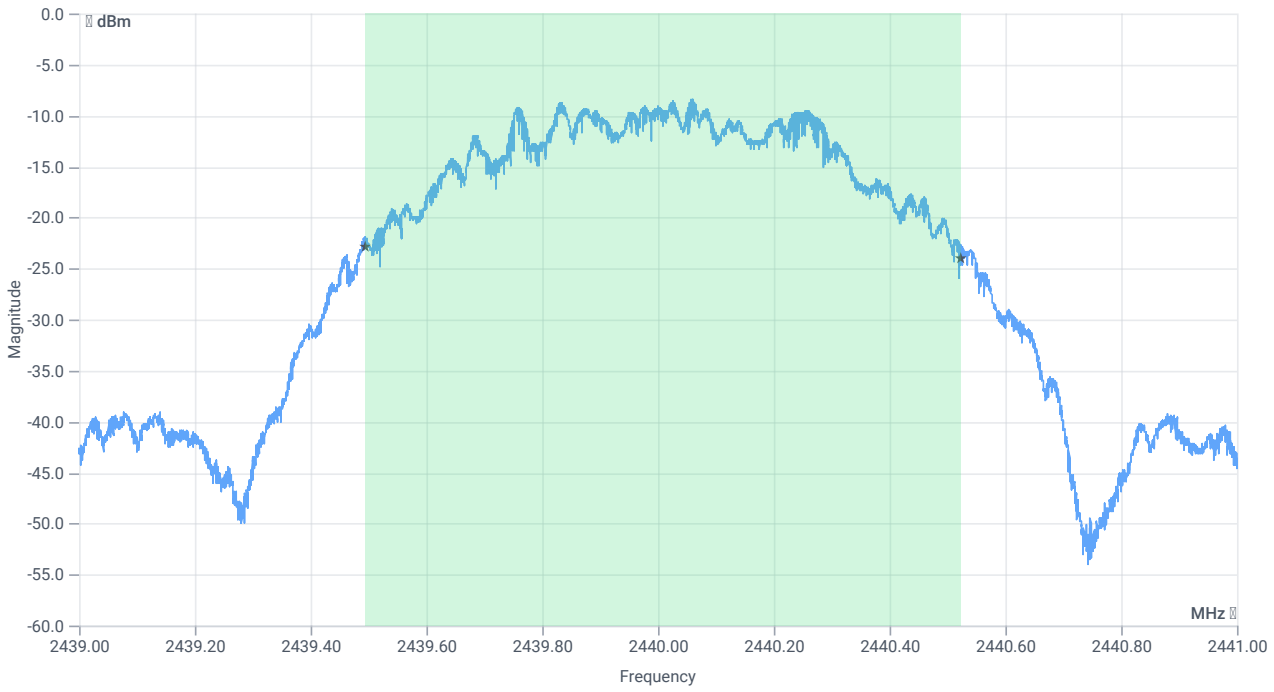
Test at TX 2440 MHz

RESULT: Reference Power cond.

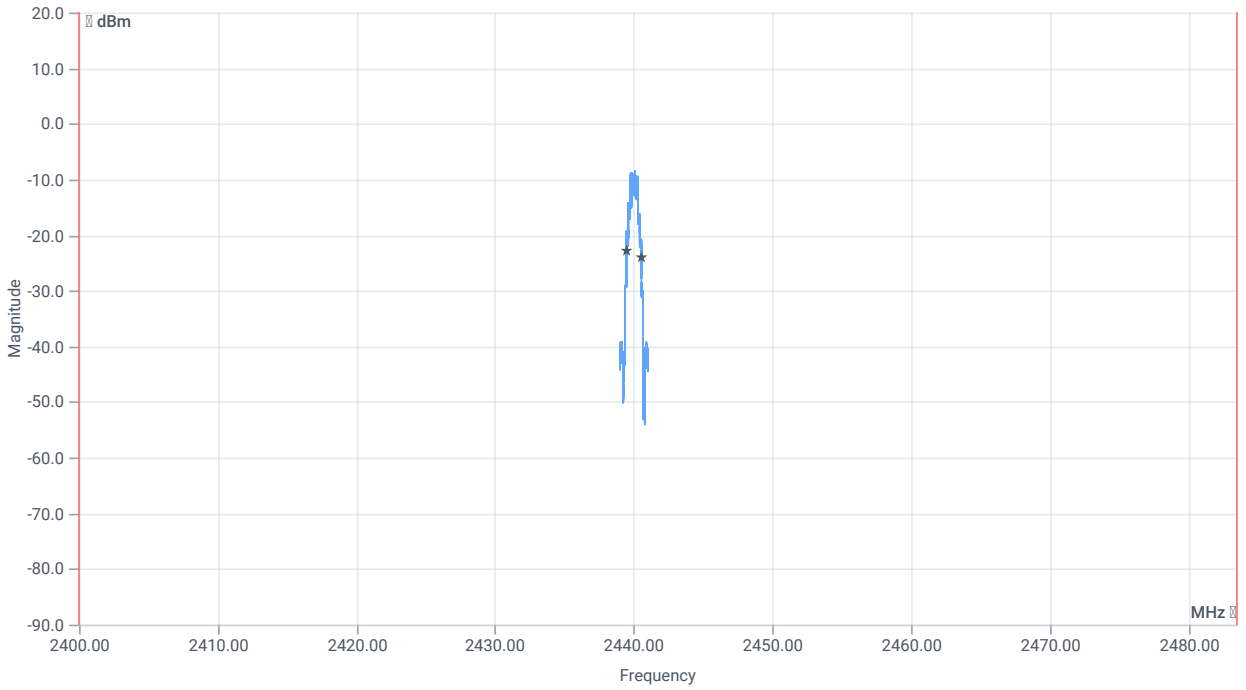
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.20	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.80 | 11.36 | 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



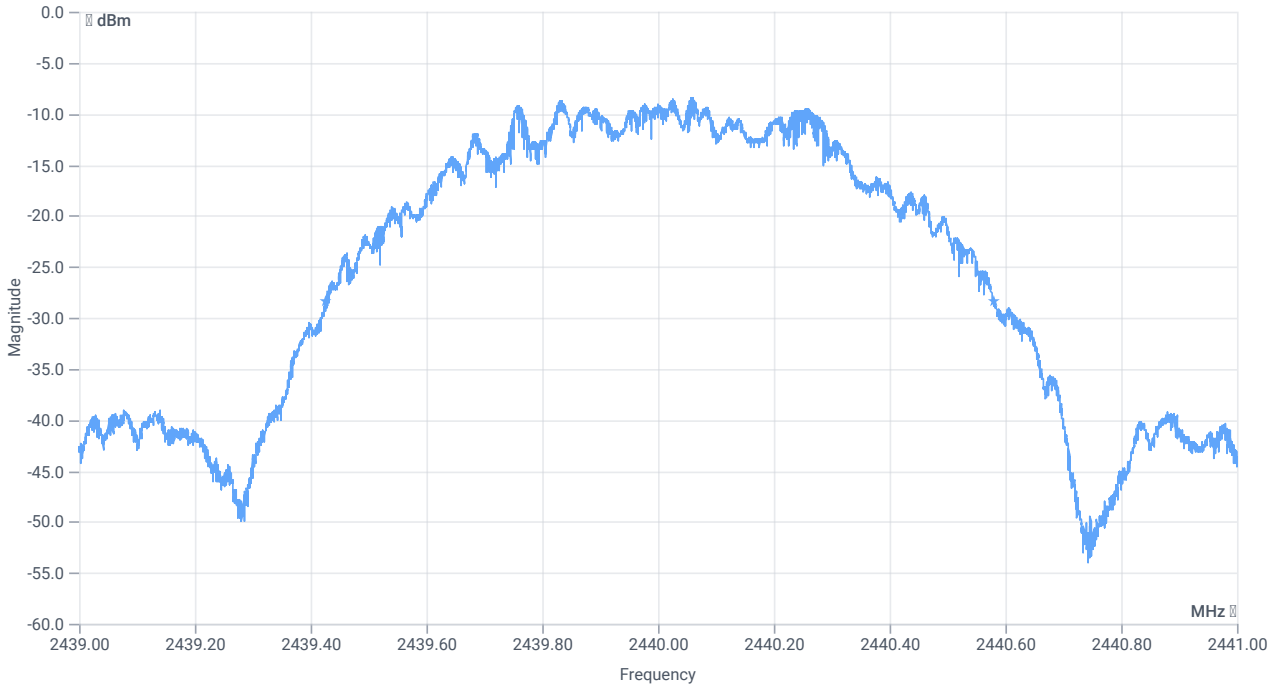
BW 99PCT



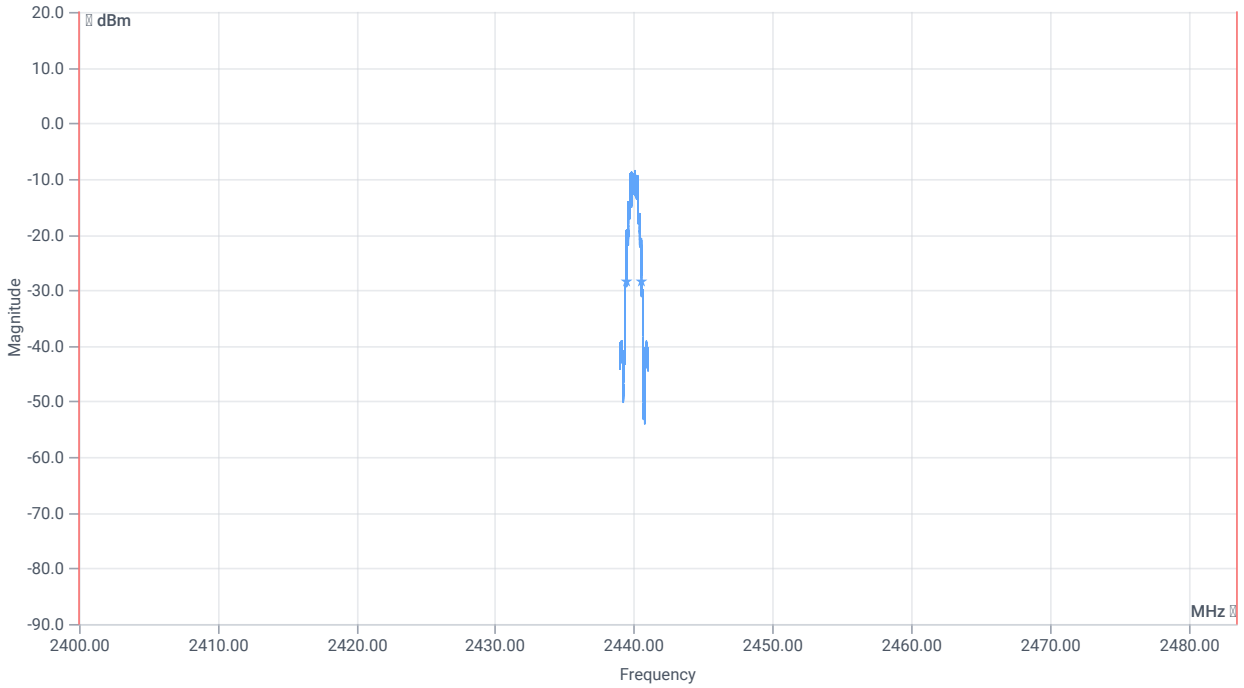
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	1027.000	kHz	INFO
T1 99%	2400.000000	---	2439.4949	MHz	PASS
T2 99%	---	2483.500000	2440.5223	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	1153	kHz	INFO
T1 20DB	2400.000000	---	2439.4258	MHz	PASS
T2 20dB	---	2483.500000	2440.5792	MHz	PASS

Verdict
PASS

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

References

TC start	13.12.2023 13:14:13
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

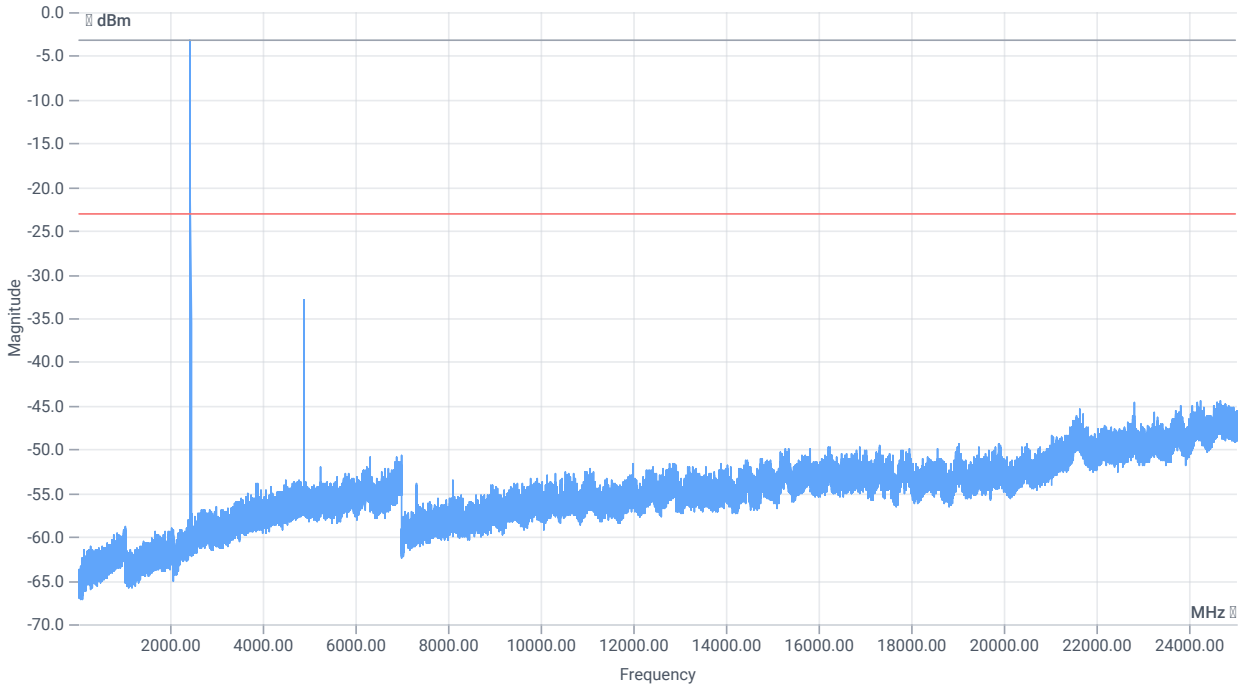
Equipment

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

Test at TX 2440 MHz

RESULT: Reference Power cond.

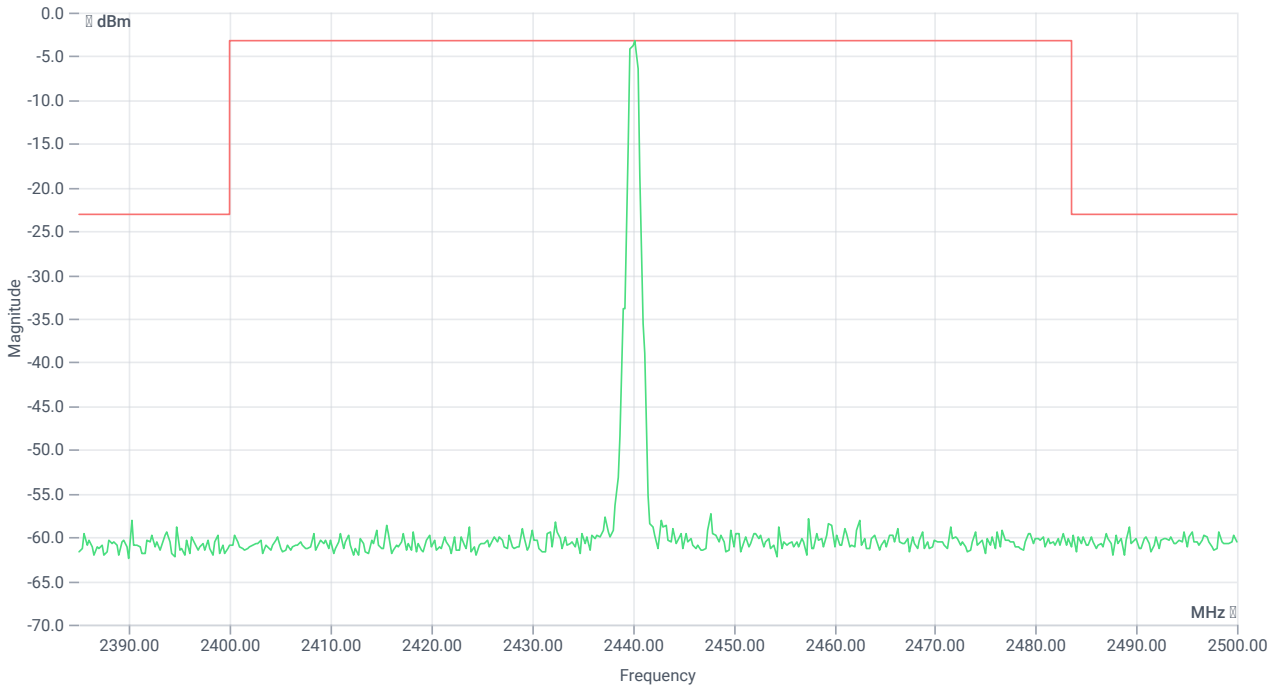
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.23	dBm	INFO
Ref. Frequency	---	---	2440.300	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.23 | 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 @ 2440.25 MHz	---	---	-3.17	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 30 MHz	0	---	-134.89	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:21:00
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:21:07
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x27 0xFF 0x00 0x01
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 27 FF 00 01 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

NA # Peak output power 3MHz/3MHz ~ BT LE 1 Msps

References

TC start	13.12.2023 13:21:14
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Peak OP 3MHz/3MHz - 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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

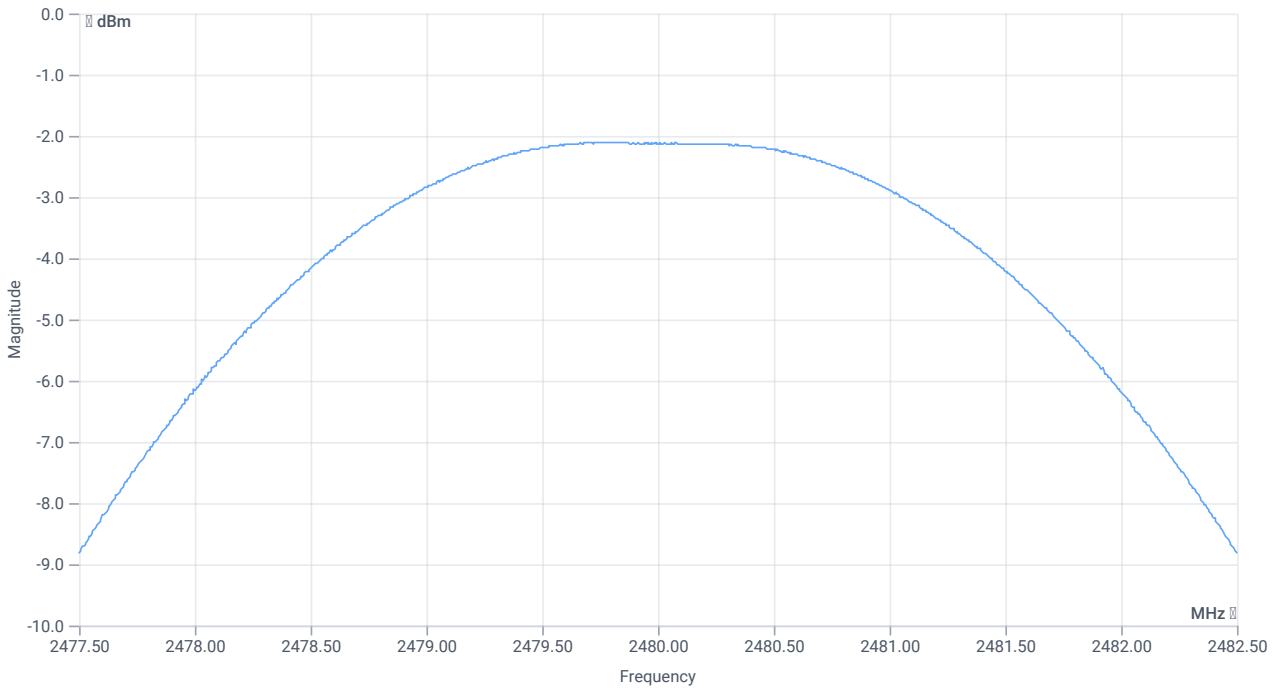
Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.00	dBm	INFO
Ref. Frequency	---	---	2480.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	8.00 | 11.41 | 15
Start [MHz] | Stop [MHz]	2477.500 | 2482.500
RBW [MHz] | VBW [MHz]	3.000000 | 3.000000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 10 | 1001 | SWE



Peak output power

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak Power	---	---	-2.11	dBm	INFO
Peak Power	---	---	0.615177	mW	INFO
Frequency at Peak	---	---	2479.795	MHz	INFO

Verdict
PASS

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

References

TC start	13.12.2023 13:21:44
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
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.	---	---	-2.02	dBm	INFO
Ref. Frequency	---	---	2480.300	MHz	INFO

READ SA SETTINGS:

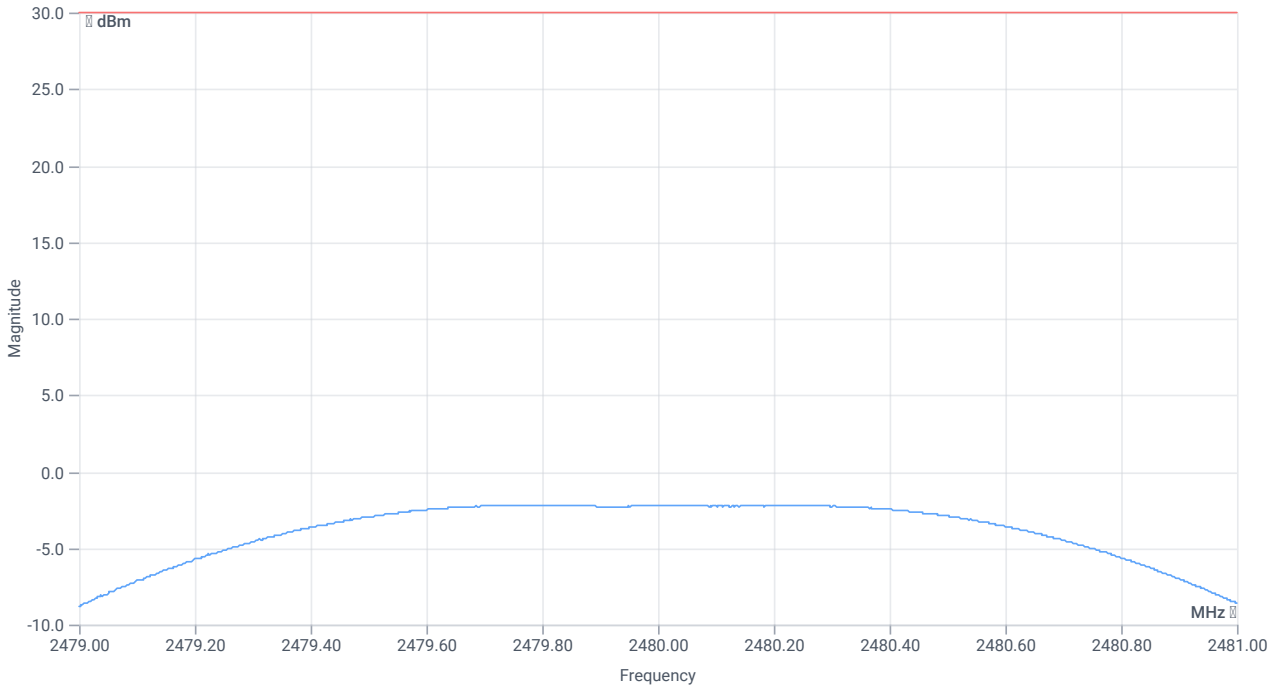
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.98 | 11.41 | 10
Start [MHz] | Stop [MHz]	2479.000 | 2481.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	---	---	674	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.98 | 11.41 | 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	-2.21	dBm	PASS
Peak Power	---	1000	0.601174	mW	PASS
Frequency at Peak	---	---	2479.752	MHz	INFO

Verdict

PASS

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

References

TC start	13.12.2023 13:22:29
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

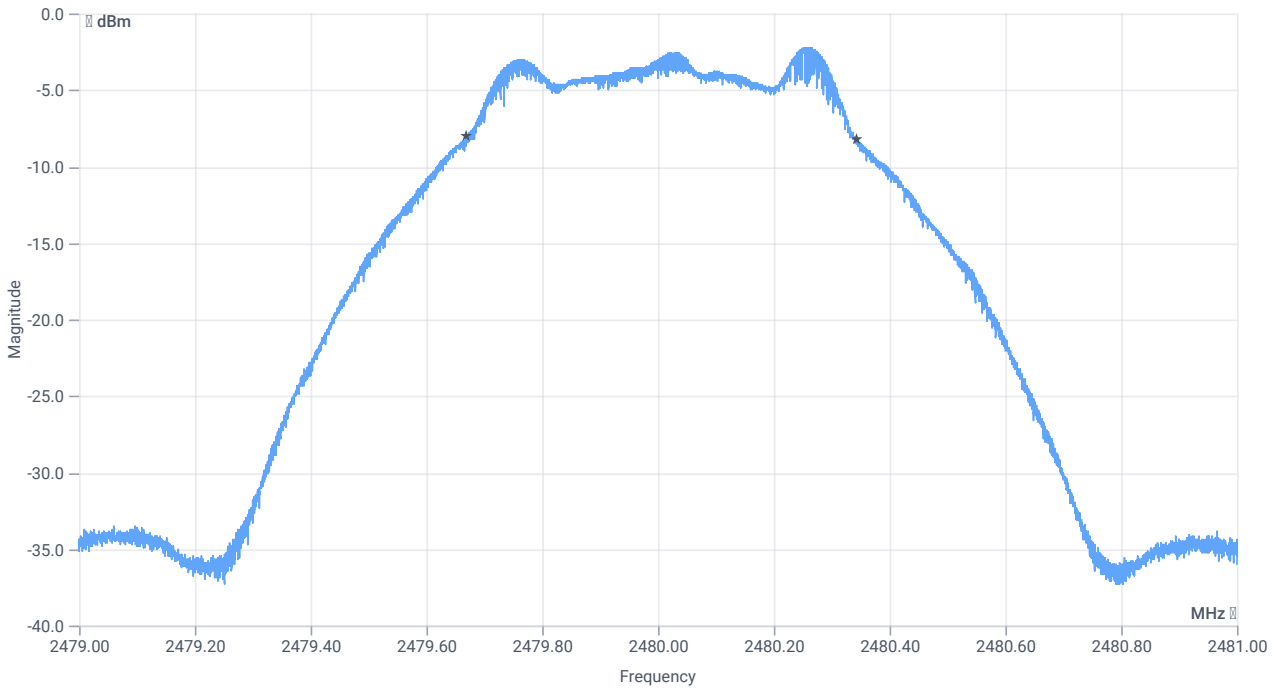
Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.04	dBm	INFO
Ref. Frequency	---	---	2480.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.96 | 11.41 | 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



BW 6dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	---	675	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 1 Msps

References

TC start	13.12.2023 13:23:00
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

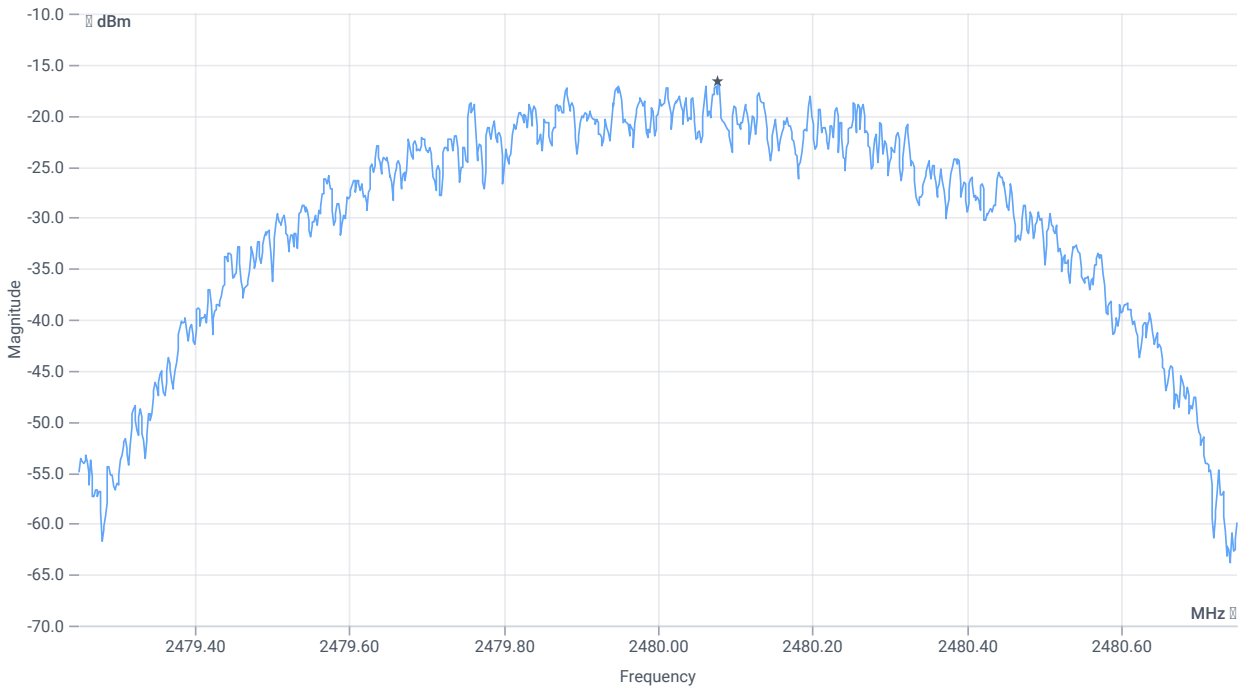
Test at TX 2480 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.05	dBm	INFO
Ref. Frequency	---	---	2480.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.95 | 11.41 | 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



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-16.7	dBm/3KHz	PASS

Verdict

PASS

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

References

TC start	13.12.2023 13:23:41
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

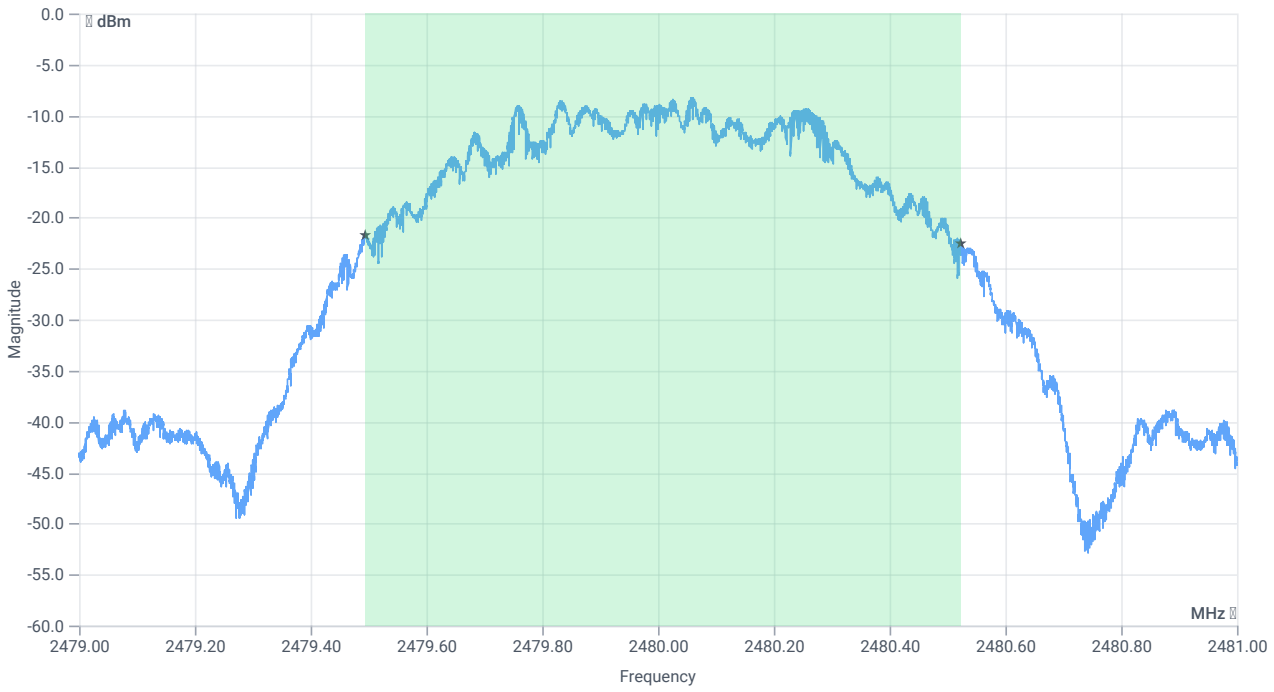
Test at TX 2480 MHz

RESULT: Reference Power cond.

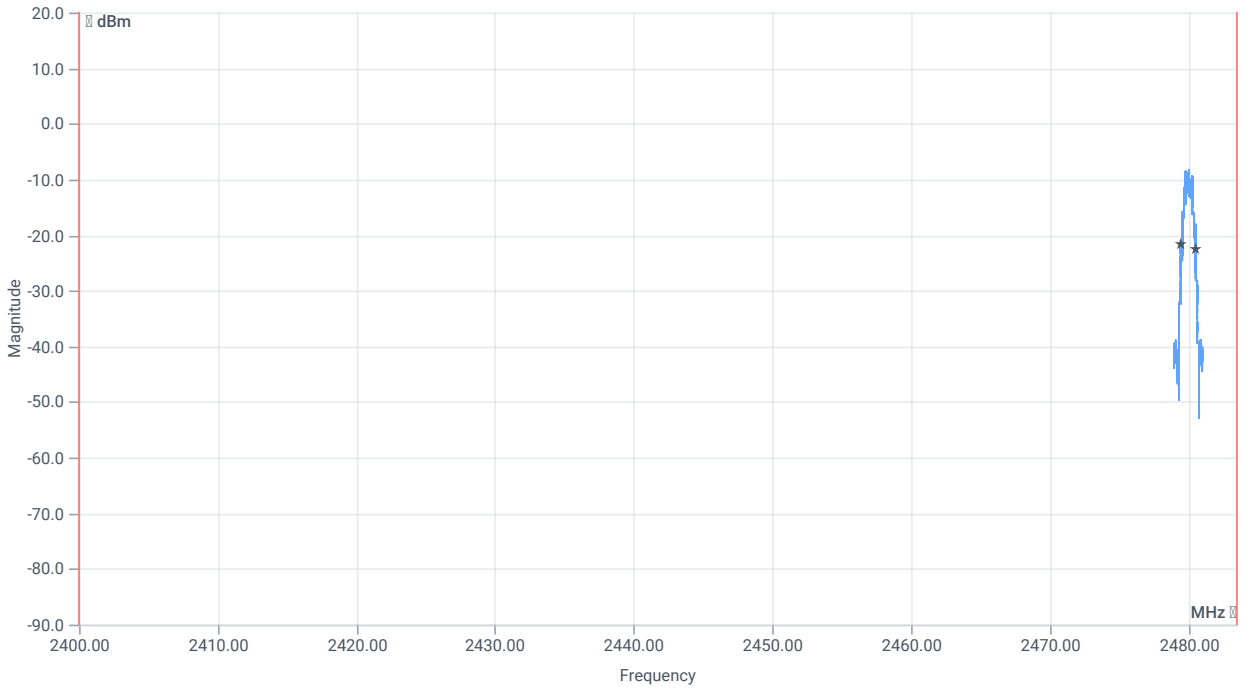
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.03	dBm	INFO
Ref. Frequency	---	---	2480.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.97 | 11.41 | 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



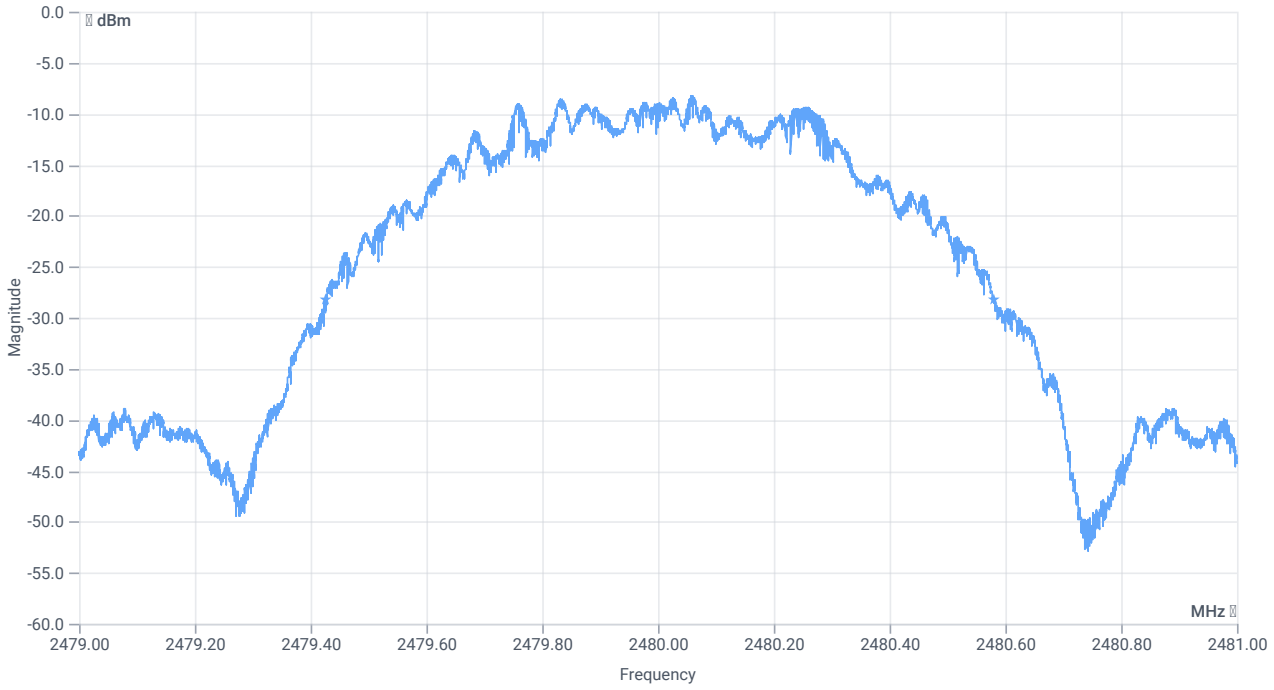
BW 99PCT



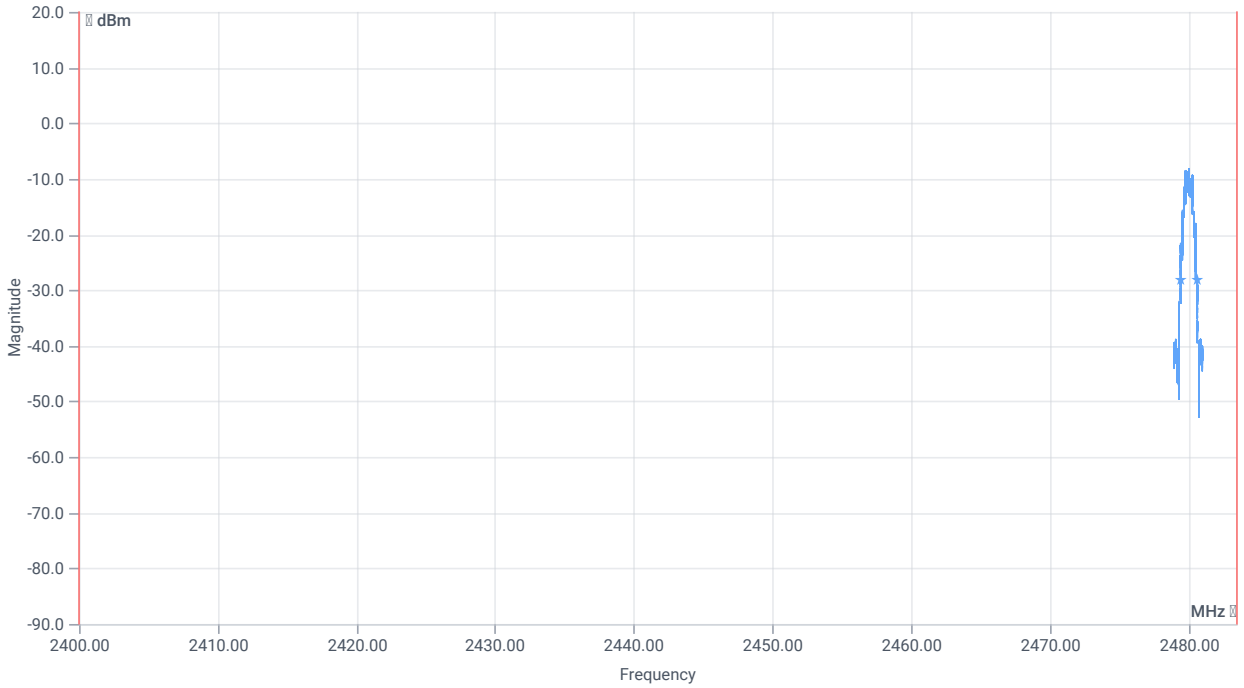
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	1027.000	kHz	INFO
T1 99%	2400.000000	---	2479.4949	MHz	PASS
T2 99%	---	2483.500000	2480.5221	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	1153	kHz	INFO
T1 20DB	2400.000000	---	2479.4258	MHz	PASS
T2 20dB	---	2483.500000	2480.5788	MHz	PASS

Verdict
PASS

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

References

TC start	13.12.2023 13:24:21
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

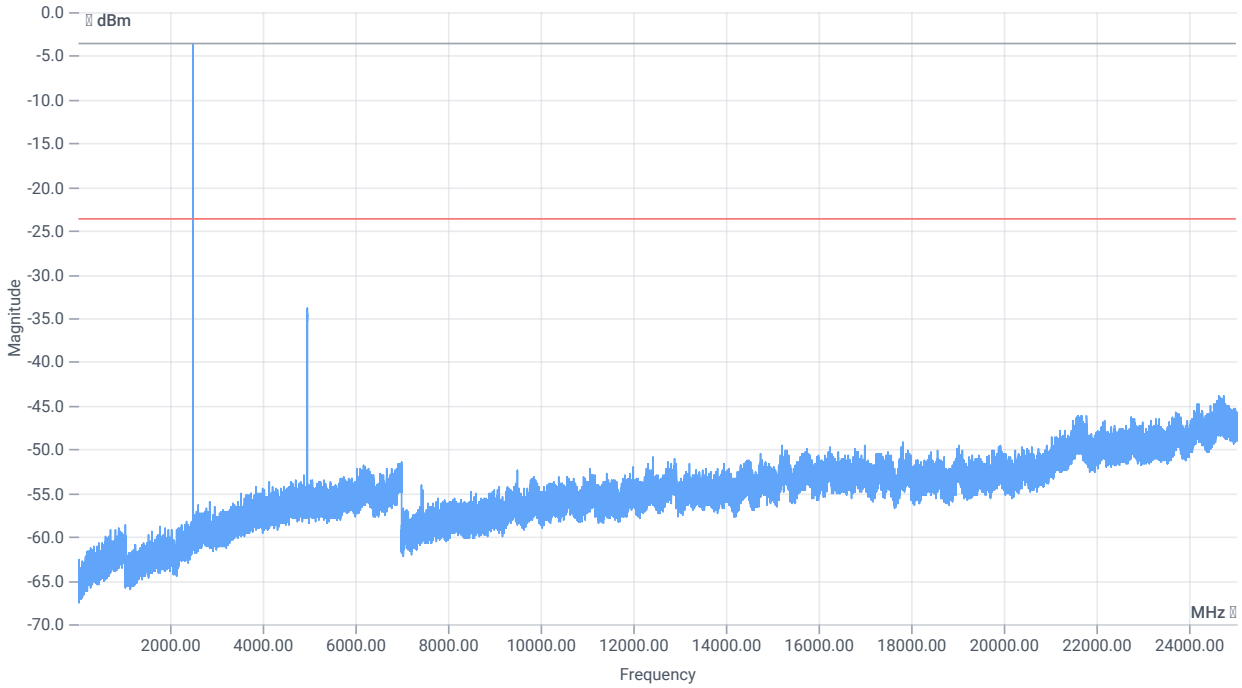
Equipment

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

Test at TX 2480 MHz

RESULT: Reference Power cond.

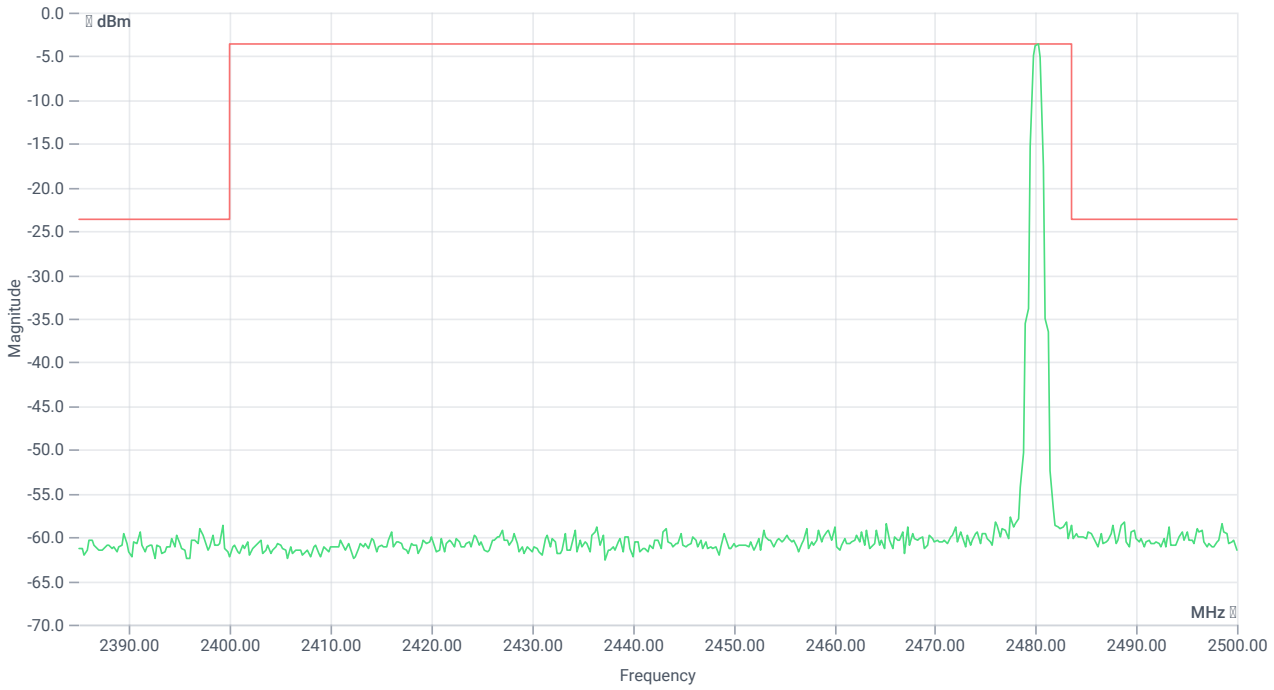
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.05	dBm	INFO
Ref. Frequency	---	---	2480.300	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.05 | 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 @ 2480.25 MHz	---	---	-3.69	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 4960 MHz	0	---	10.11	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:31:07
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:31:14
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x01 0xFF 0x00 0x02
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 01 FF 00 02 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:31:21
Ambit temp [°C] | humidity [rel%]	27.5 | 33
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

Test at TX 2404 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.43	dBm	INFO
Ref. Frequency	---	---	2404.500	MHz	INFO

READ SA SETTINGS:

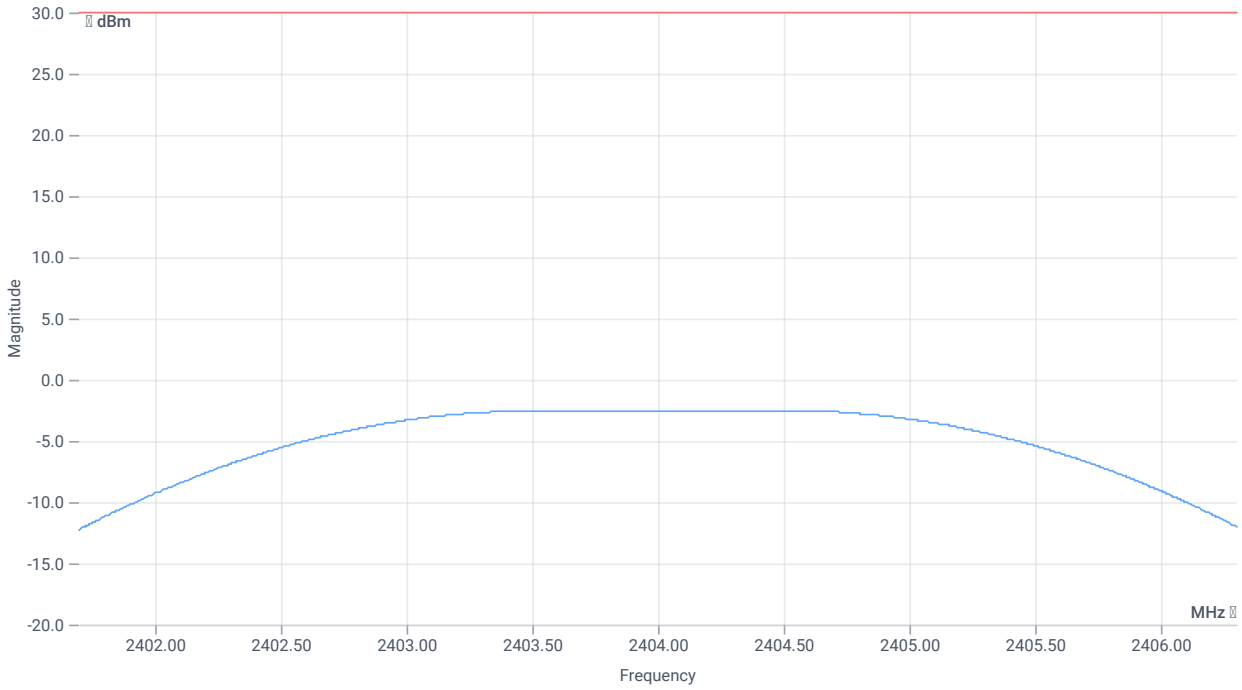
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.57 | 11.3 | 10
Start [MHz] | Stop [MHz]	2401.700 | 2406.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	---	---	1172	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.57 | 11.3 | 15
Start [MHz] | Stop [MHz]	2401.700 | 2406.300
RBW [MHz] | VBW [MHz]	2.000000 | 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	-2.5	dBm	PASS
Peak Power	---	1000	0.562341	mW	PASS
Frequency at Peak	---	---	2404.528	MHz	INFO

Verdict

PASS

FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:32:05
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
Standard | Version	FCC 15.247 | NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

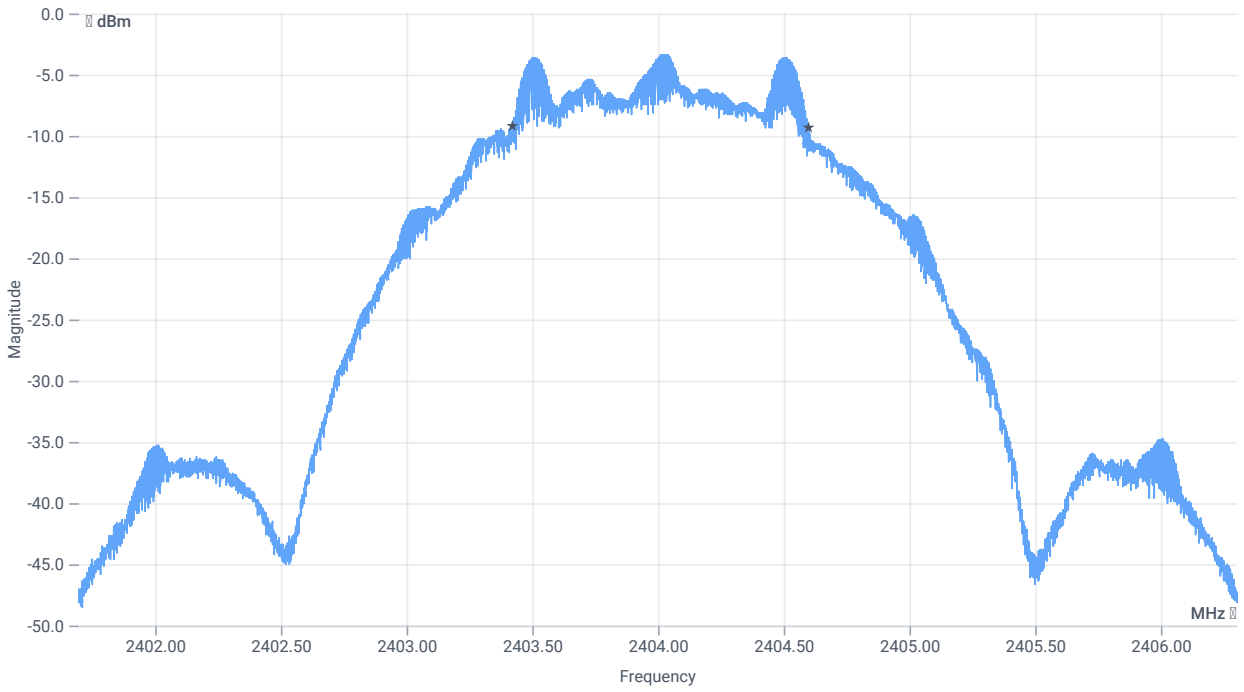
Test at TX 2404 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.46	dBm	INFO
Ref. Frequency	---	---	2404.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.54 | 11.3 | 10
Start [MHz] | Stop [MHz]	2401.700 | 2406.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



BW 6dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	---	1174	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:32:37
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

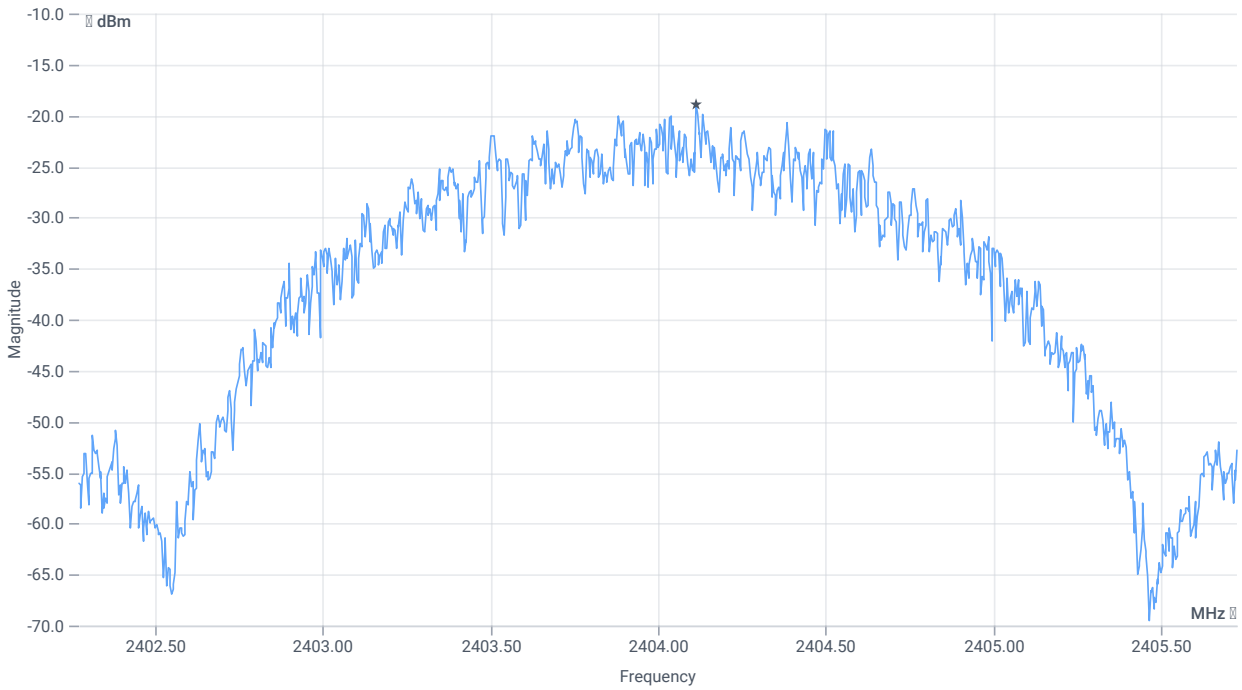
Test at TX 2404 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.44	dBm	INFO
Ref. Frequency	---	---	2404.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.56 | 11.3 | 10
Start [MHz] | Stop [MHz]	2402.275 | 2405.725
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 20 | 1001 | SWE



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-18.84	dBm/3KHz	PASS

Verdict

PASS

FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 2 Msps

References

TC start	13.12.2023 13:33:18
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
Standard | Version	FCC 15.247, ISED RSS247 | NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

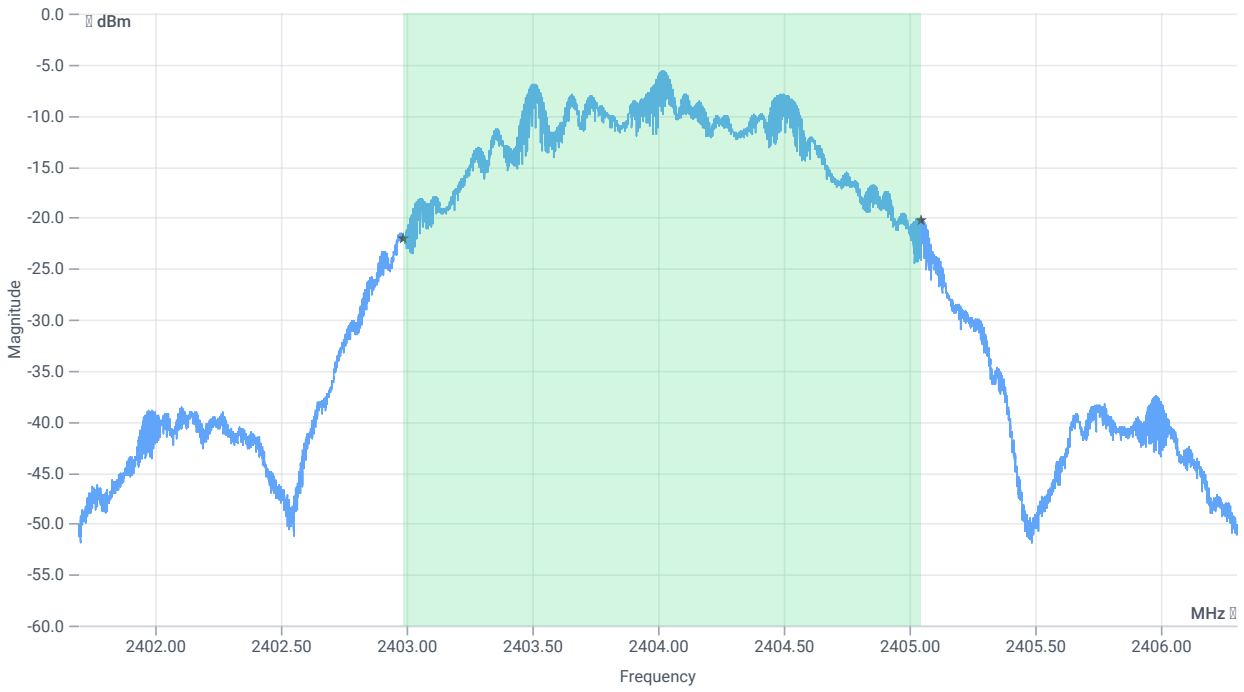
Test at TX 2404 MHz

RESULT: Reference Power cond.

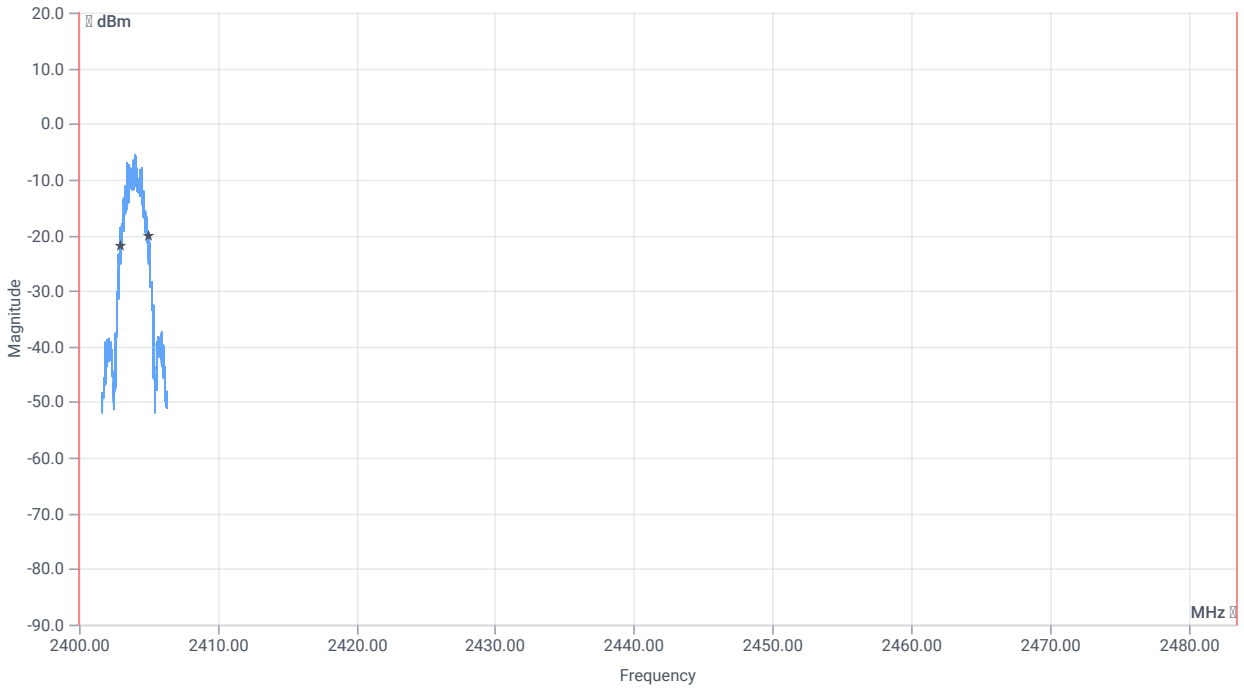
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.33	dBm	INFO
Ref. Frequency	---	---	2404.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.67 | 11.3 | 10
Start [MHz] | Stop [MHz]	2401.700 | 2406.300
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



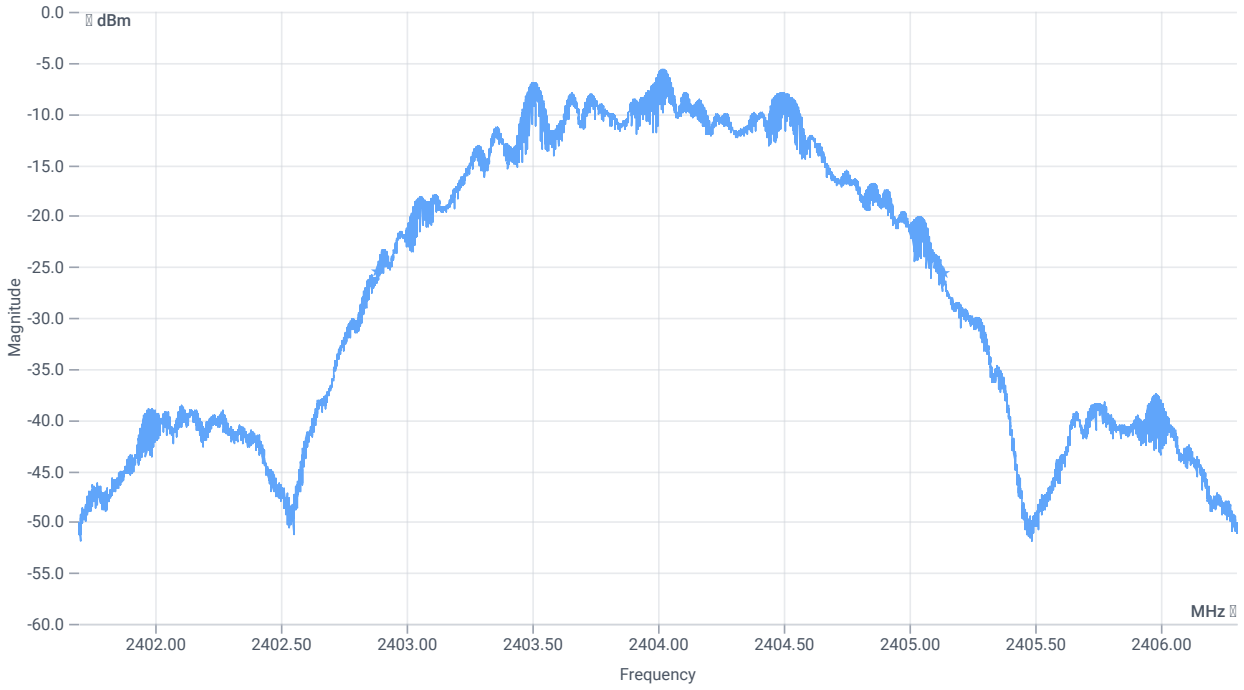
BW 99PCT



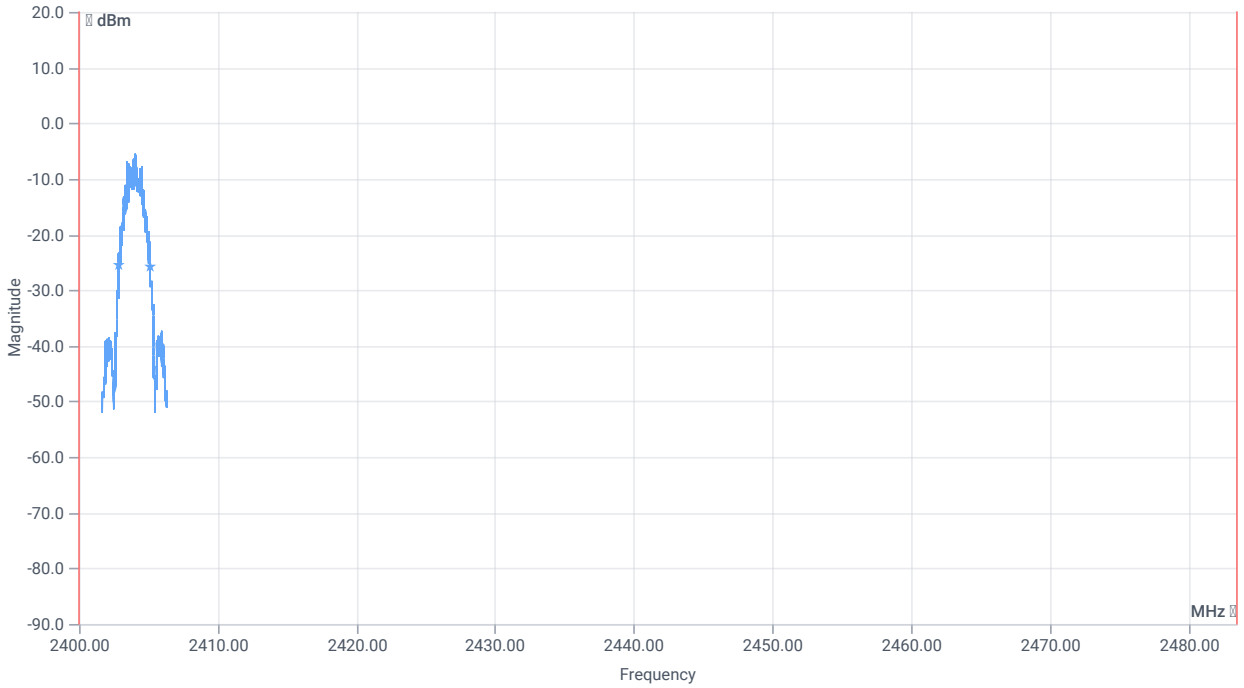
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	2053.000	kHz	INFO
T1 99%	2400.000000	---	2402.9895	MHz	PASS
T2 99%	---	2483.500000	2405.0423	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	2250	kHz	INFO
T1 20DB	2400.000000	---	2402.8840	MHz	PASS
T2 20dB	---	2483.500000	2405.1344	MHz	PASS

Verdict
PASS

FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 2 Msps

References

TC start	13.12.2023 13:33:57
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

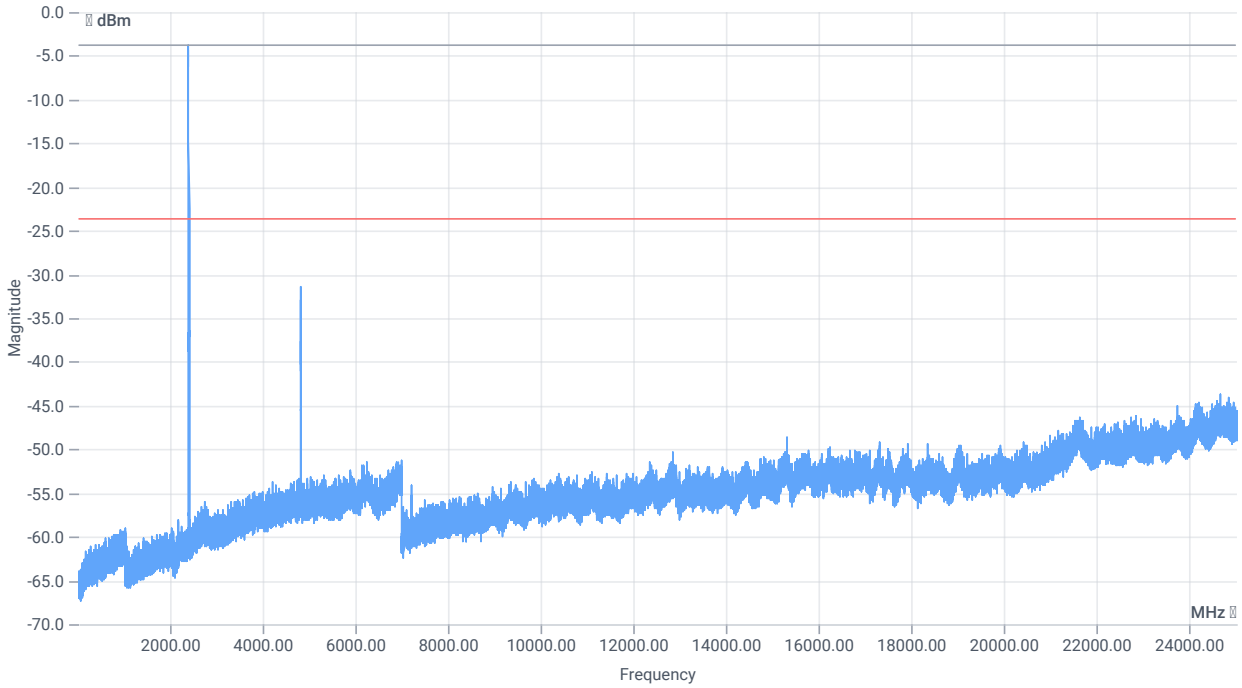
Equipment

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

Test at TX 2404 MHz

RESULT: Reference Power cond.

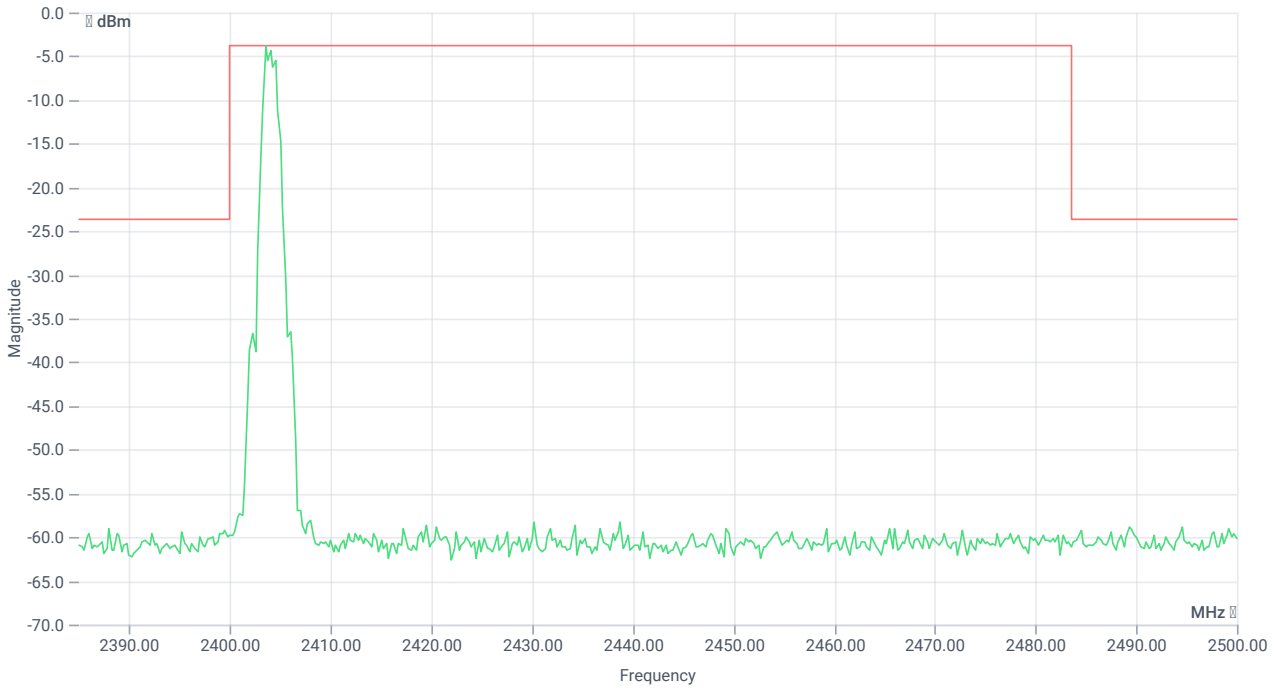
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.45	dBm	INFO
Ref. Frequency	---	---	2404.500	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.45 | 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 @ 2403.50 MHz	---	---	-3.73	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 4809 MHz	0	---	7.64	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:40:44
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:40:50
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x13 0xFF 0x00 0x02
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 13 FF 00 02 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:40:57
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
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.	---	---	-2.22	dBm	INFO
Ref. Frequency	---	---	2440.500	MHz	INFO

READ SA SETTINGS:

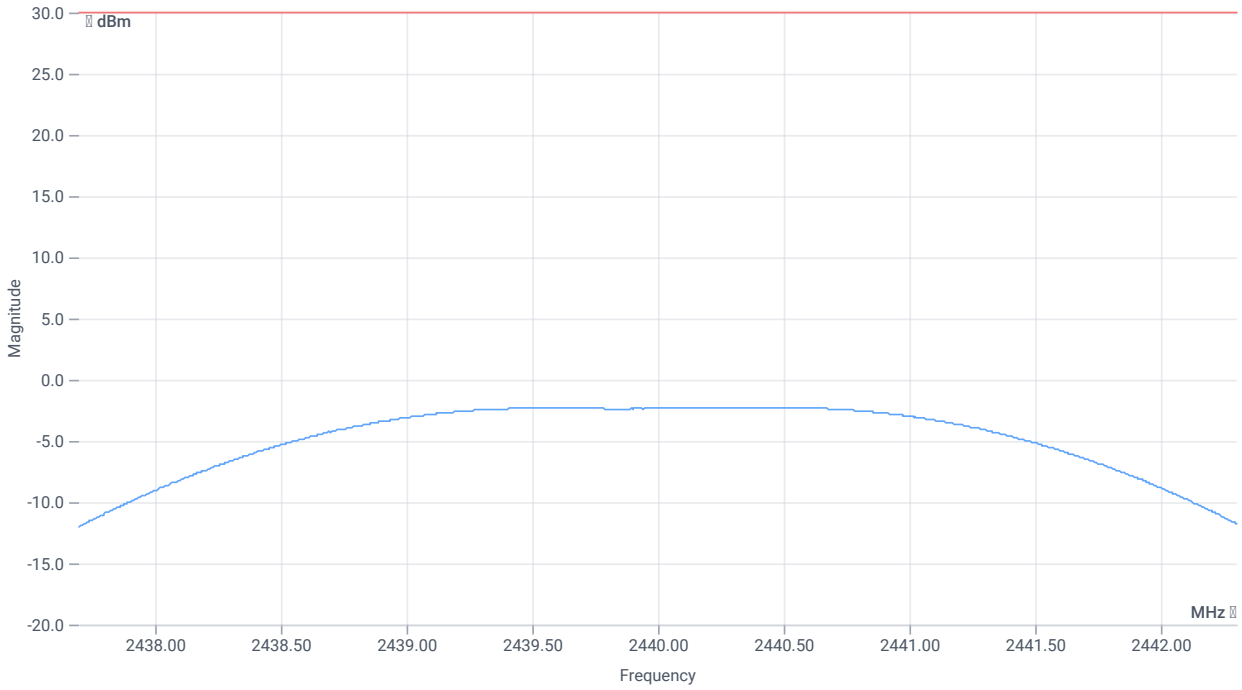
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.78 | 11.36 | 10
Start [MHz] | Stop [MHz]	2437.700 | 2442.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	---	---	1171	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.78 | 11.36 | 15
Start [MHz] | Stop [MHz]	2437.700 | 2442.300
RBW [MHz] | VBW [MHz]	2.000000 | 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	-2.28	dBm	PASS
Peak Power	---	1000	0.591562	mW	PASS
Frequency at Peak	---	---	2440.501	MHz	INFO

Verdict

PASS

FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:41:42
Ambit temp [°C] | humidity [rel%]	27.6 | 33
System version	4.7.1.4
Standard | Version	FCC 15.247 | NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

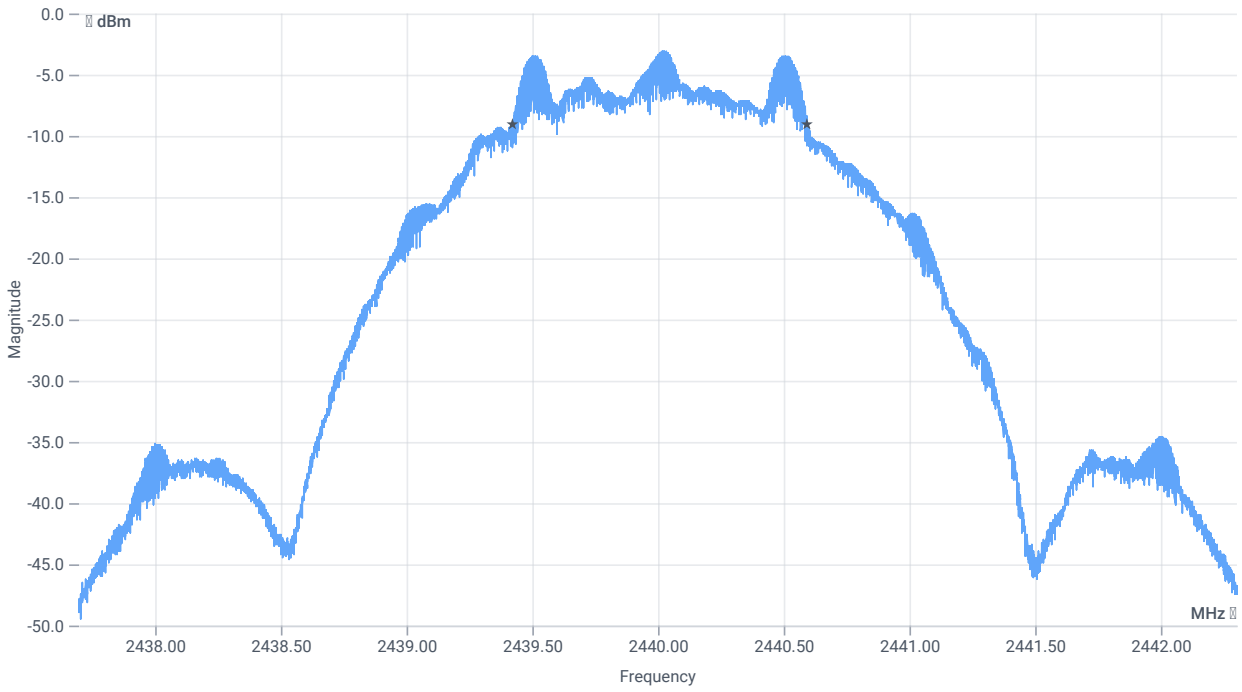
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.22	dBm	INFO
Ref. Frequency	---	---	2440.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.78 | 11.36 | 10
Start [MHz] | Stop [MHz]	2437.700 | 2442.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



BW 6dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	---	1169	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:42:14
Ambit temp [°C] | humidity [rel%]	27.6 | 32
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

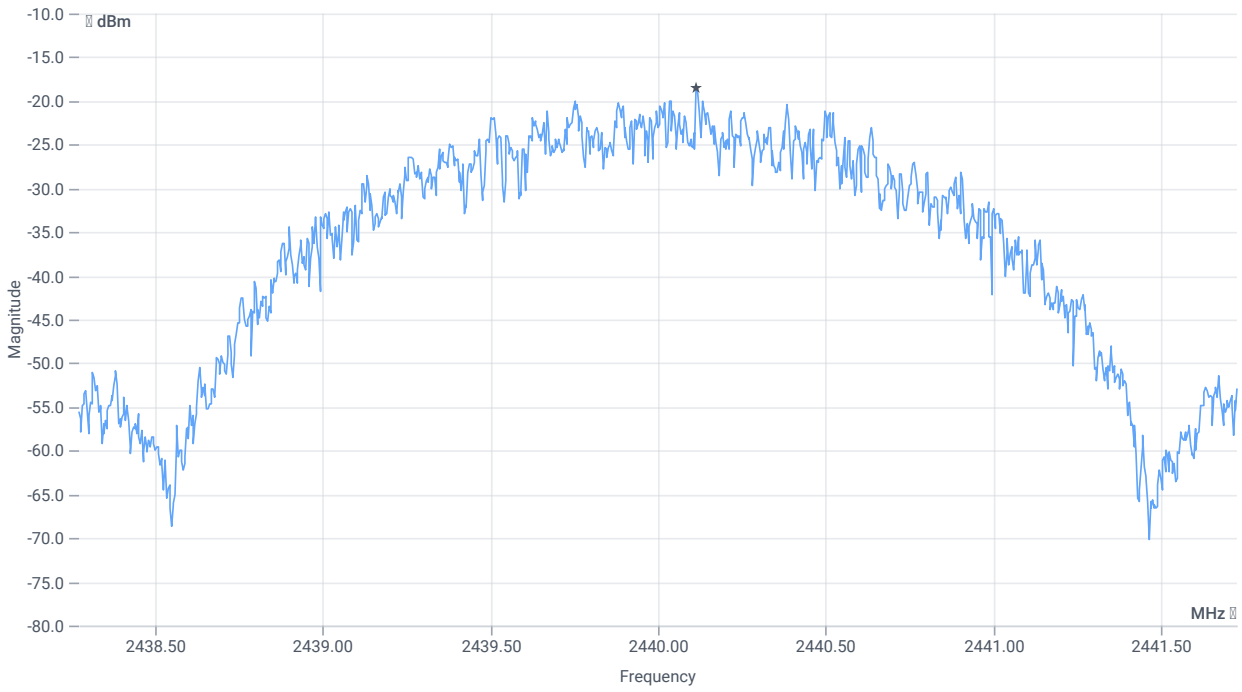
Test at TX 2440 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.26	dBm	INFO
Ref. Frequency	---	---	2440.600	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.74 | 11.36 | 10
Start [MHz] | Stop [MHz]	2438.275 | 2441.725
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 20 | 1001 | SWE



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-18.5	dBm/3KHz	PASS

Verdict

PASS

FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 2 Msps

References

TC start	13.12.2023 13:42:55
Ambit temp [°C] | humidity [rel%]	27.6 | 32
System version	4.7.1.4
Standard | Version	FCC 15.247, ISED RSS247 | NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

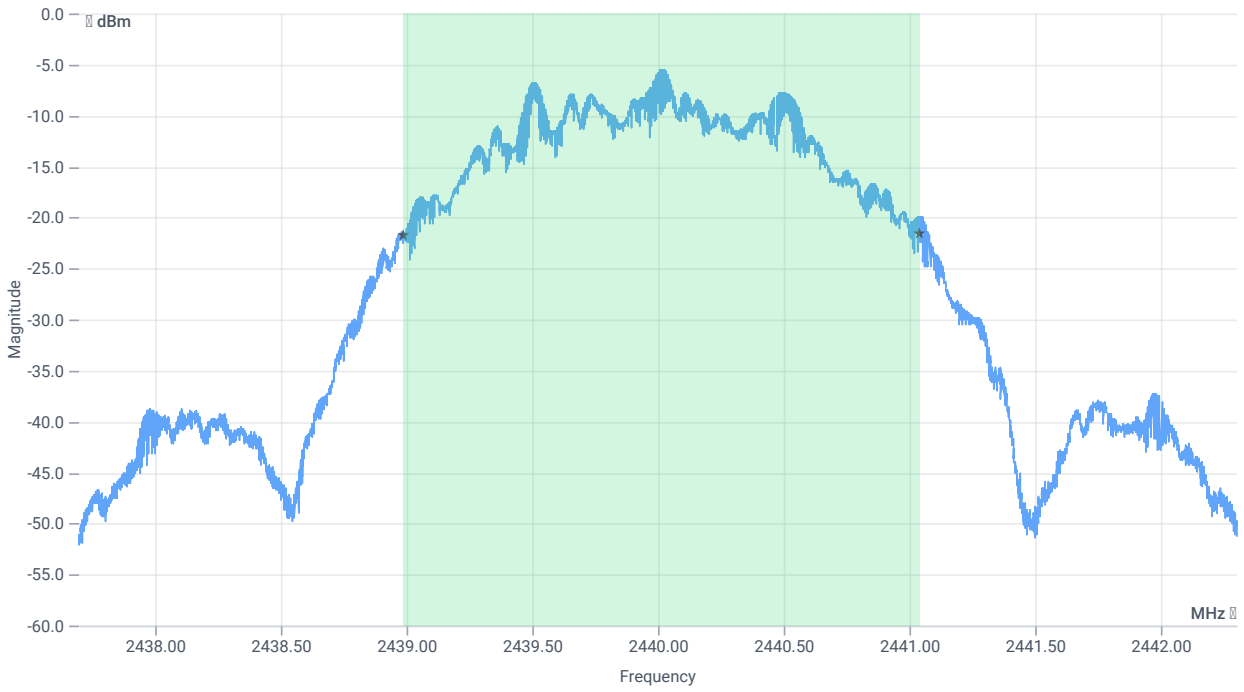
Test at TX 2440 MHz

RESULT: Reference Power cond.

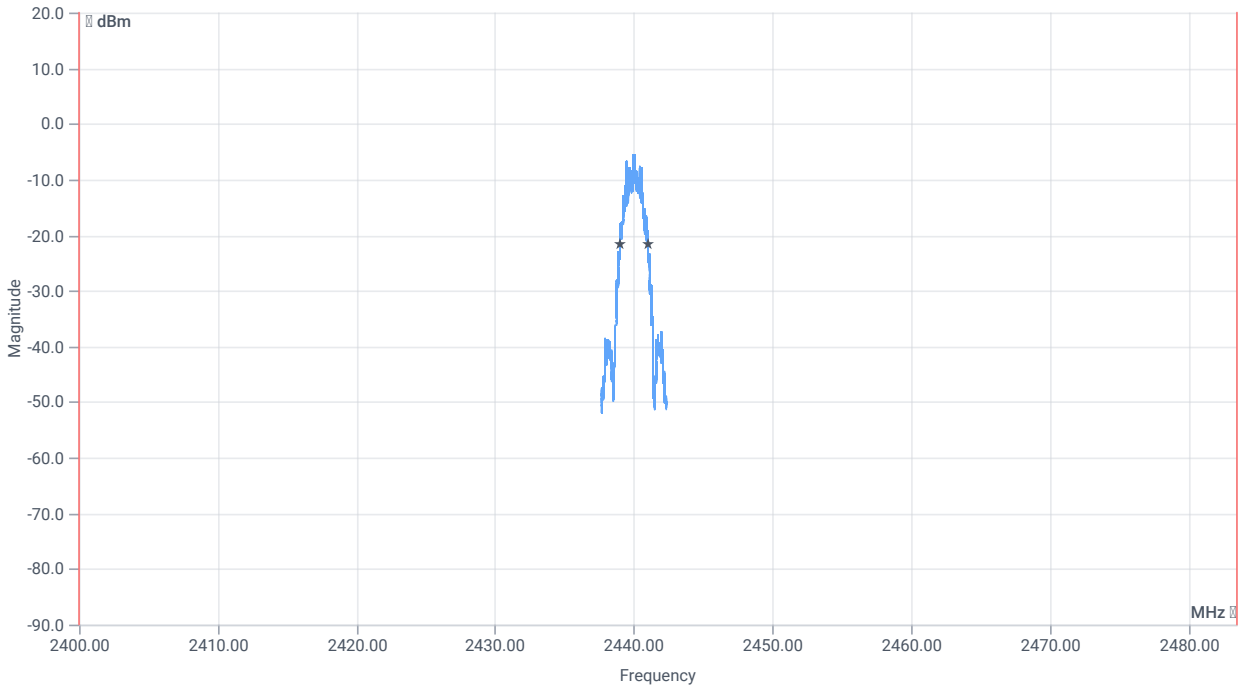
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.09	dBm	INFO
Ref. Frequency	---	---	2440.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.91 | 11.36 | 10
Start [MHz] | Stop [MHz]	2437.700 | 2442.300
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



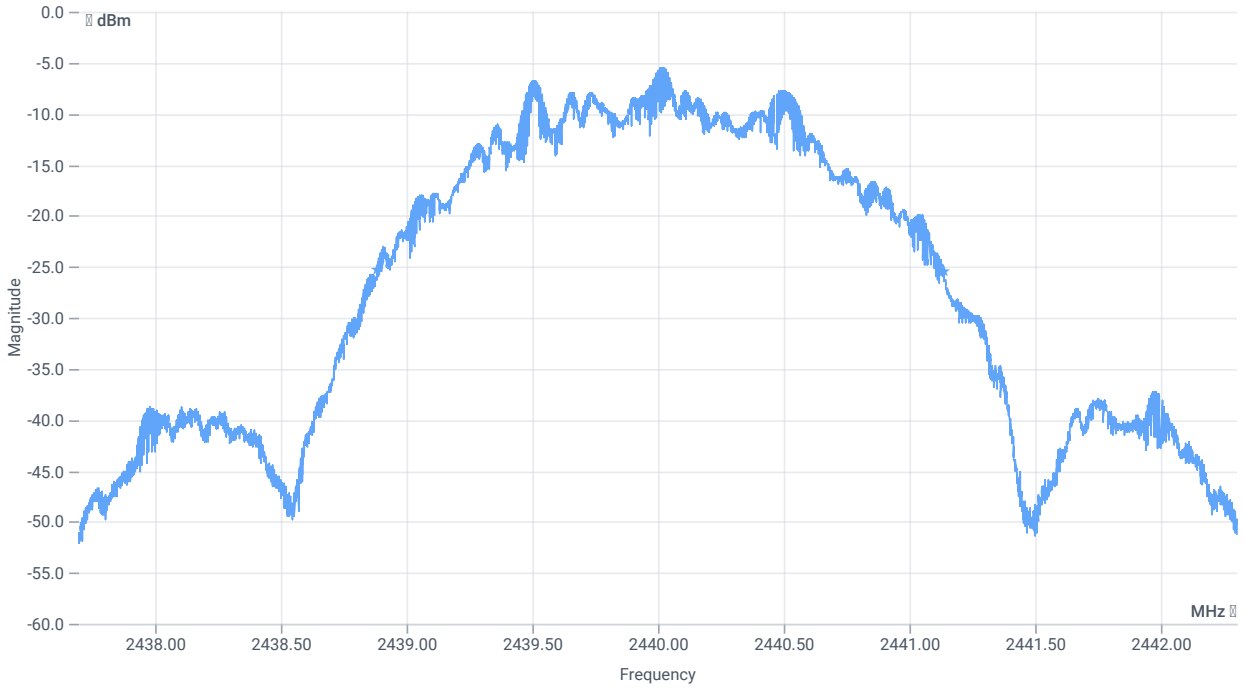
BW 99PCT



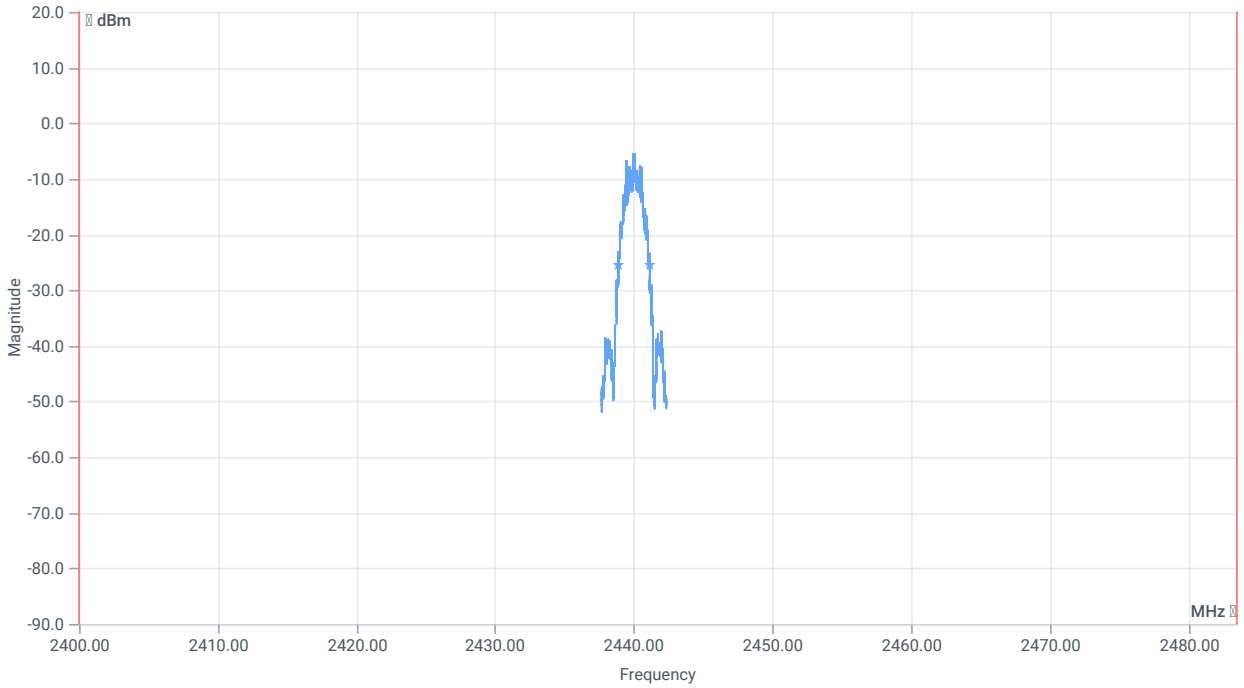
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	2051.000	kHz	INFO
T1 99%	2400.000000	---	2438.9890	MHz	PASS
T2 99%	---	2483.500000	2441.0404	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	2251	kHz	INFO
T1 20DB	2400.000000	---	2438.8836	MHz	PASS
T2 20dB	---	2483.500000	2441.1348	MHz	PASS

Verdict
PASS

FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 2 Msps

References

TC start	13.12.2023 13:43:35
Ambit temp [°C] | humidity [rel%]	27.6 | 32
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

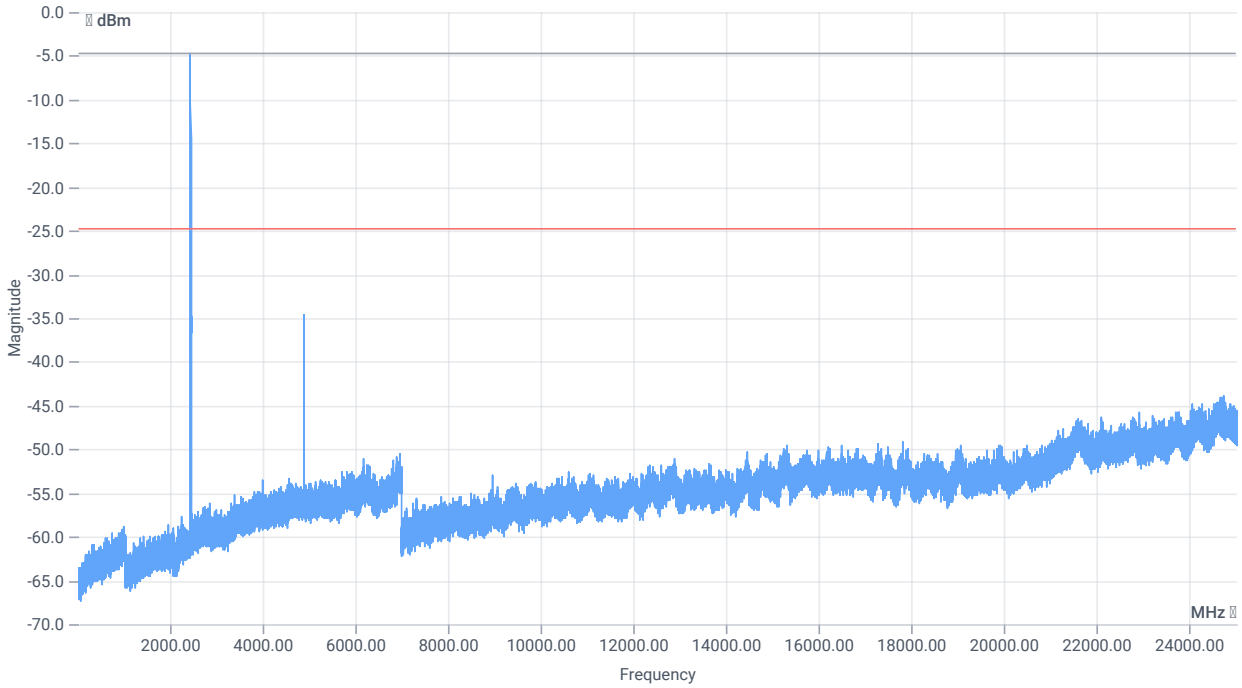
Equipment

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

Test at TX 2440 MHz

RESULT: Reference Power cond.

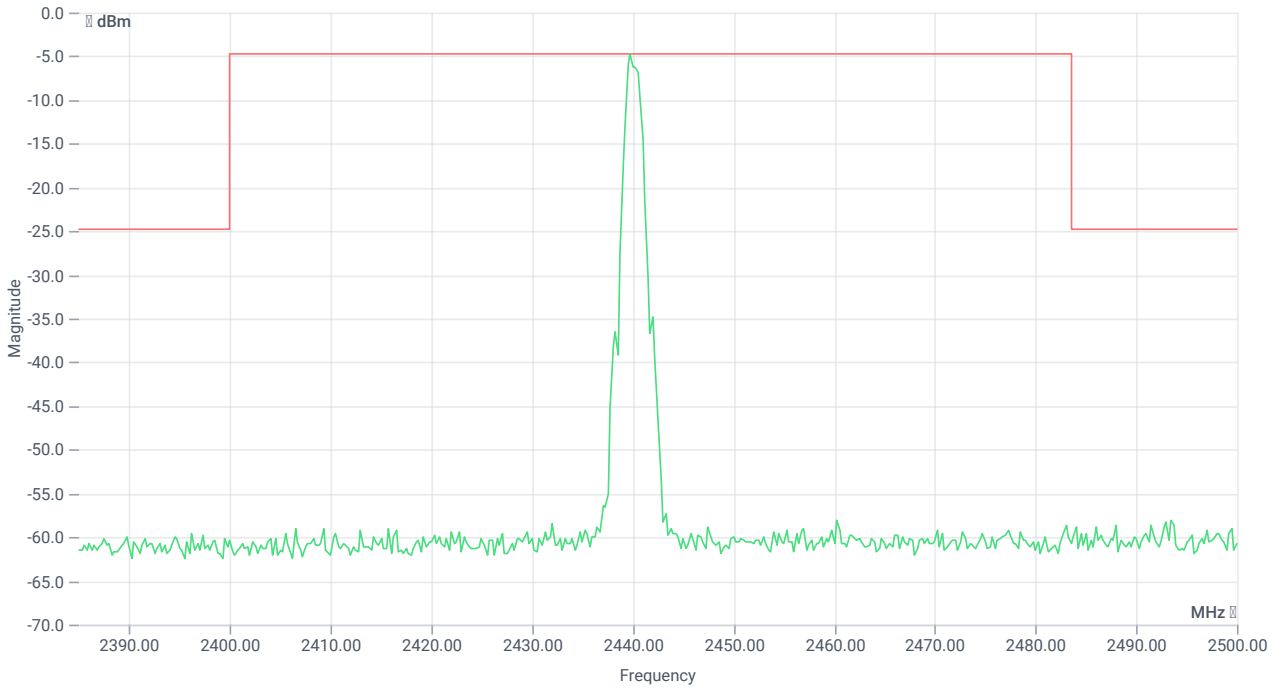
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.12	dBm	INFO
Ref. Frequency	---	---	2440.500	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.12 | 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 @ 2439.75 MHz	---	---	-4.78	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 4880 MHz	0	---	9.91	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:50:21
Ambit temp [°C] | humidity [rel%]	27.5 | 31
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict
INFO

NA # Terminal communication ~ Common

References

TC start	13.12.2023 13:50:28
Ambit temp [°C] | humidity [rel%]	27.5 | 31
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x3F 0x87 0xFC
Output result	< HCI Command: ogf 0x3f, ocf 0x0087, plen 1 FC > HCI Event: 0x0e plen 4 01 87 FC 00

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x0034 0x26 0xFF 0x00 0x02
Output result	< HCI Command: ogf 0x08, ocf 0x0034, plen 4 26 FF 00 02 > HCI Event: 0x0e plen 4 01 34 20 00

Verdict
INFO

FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:50:34
Ambit temp [°C] | humidity [rel%]	27.5 | 31
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

Test at TX 2478 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-1.88	dBm	INFO
Ref. Frequency	---	---	2478.500	MHz	INFO

READ SA SETTINGS:

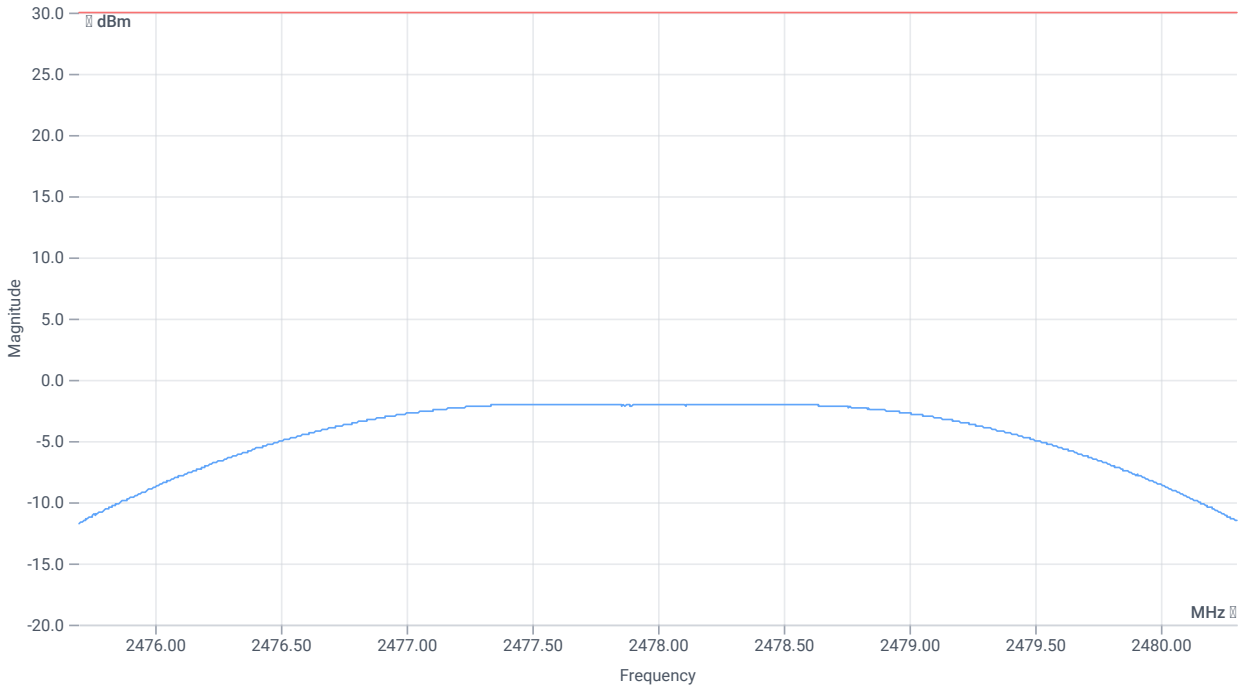
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	3.12 | 11.4 | 10
Start [MHz] | Stop [MHz]	2475.700 | 2480.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE

DTS Bandwidth

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	---	---	1175	kHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	8.12 | 11.4 | 15
Start [MHz] | Stop [MHz]	2475.700 | 2480.300
RBW [MHz] | VBW [MHz]	2.000000 | 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	-2	dBm	PASS
Peak Power	---	1000	0.630957	mW	PASS
Frequency at Peak	---	---	2477.545	MHz	INFO

Verdict

PASS

FCC 15.247 # Bandwidth 6dB DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:51:19
Ambit temp [°C] | humidity [rel%]	27.5 | 31
System version	4.7.1.4
Standard | Version	FCC 15.247 | NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI

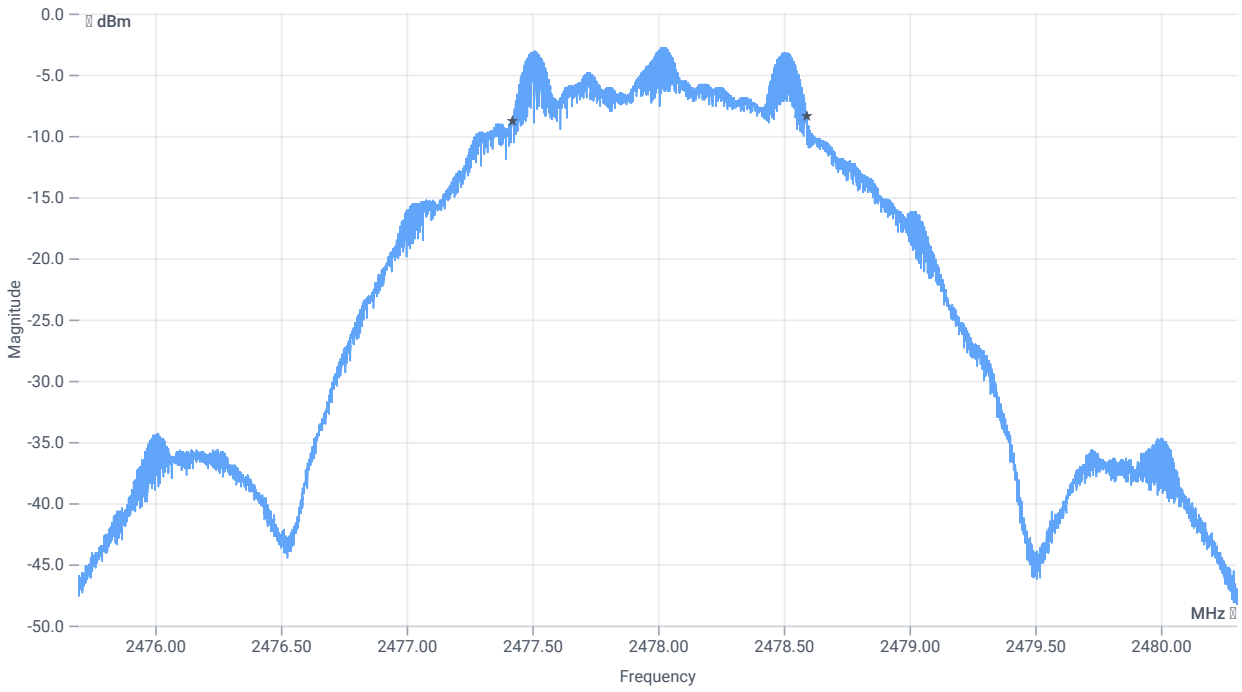
Test at TX 2478 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-1.93	dBm	INFO
Ref. Frequency	---	---	2478.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	3.07 | 11.4 | 10
Start [MHz] | Stop [MHz]	2475.700 | 2480.300
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



BW 6dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	---	1172	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ BT LE 2 Msps

References

TC start	13.12.2023 13:51:51
Ambit temp [°C] | humidity [rel%]	27.4 | 31
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

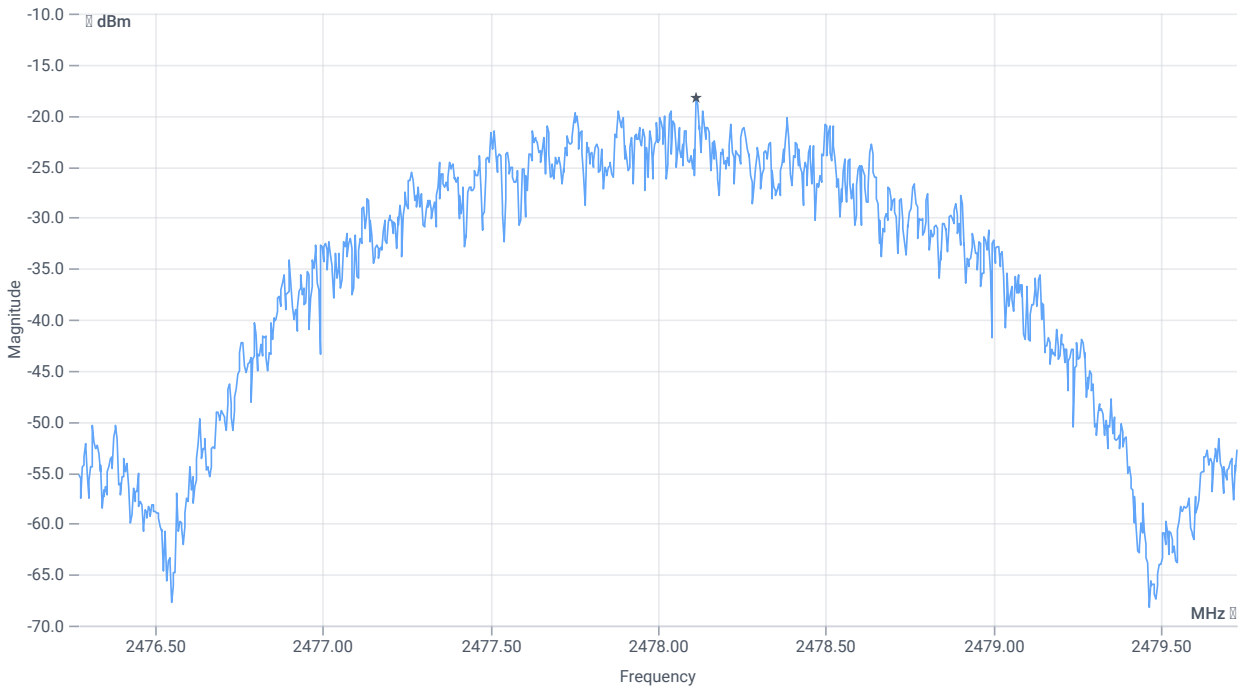
Test at TX 2478 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-1.94	dBm	INFO
Ref. Frequency	---	---	2478.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	3.06 | 11.4 | 10
Start [MHz] | Stop [MHz]	2476.275 | 2479.725
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	1000 | 20 | 1001 | SWE



Peak psd

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Peak psd	---	8	-18.23	dBm/3KHz	PASS

Verdict

PASS

FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ BT LE 2 Msps

References

TC start	13.12.2023 13:52:32
Ambit temp [°C] | humidity [rel%]	27.4 | 31
System version	4.7.1.4
Standard | Version	FCC 15.247, ISED RSS247 | NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

Equipment

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

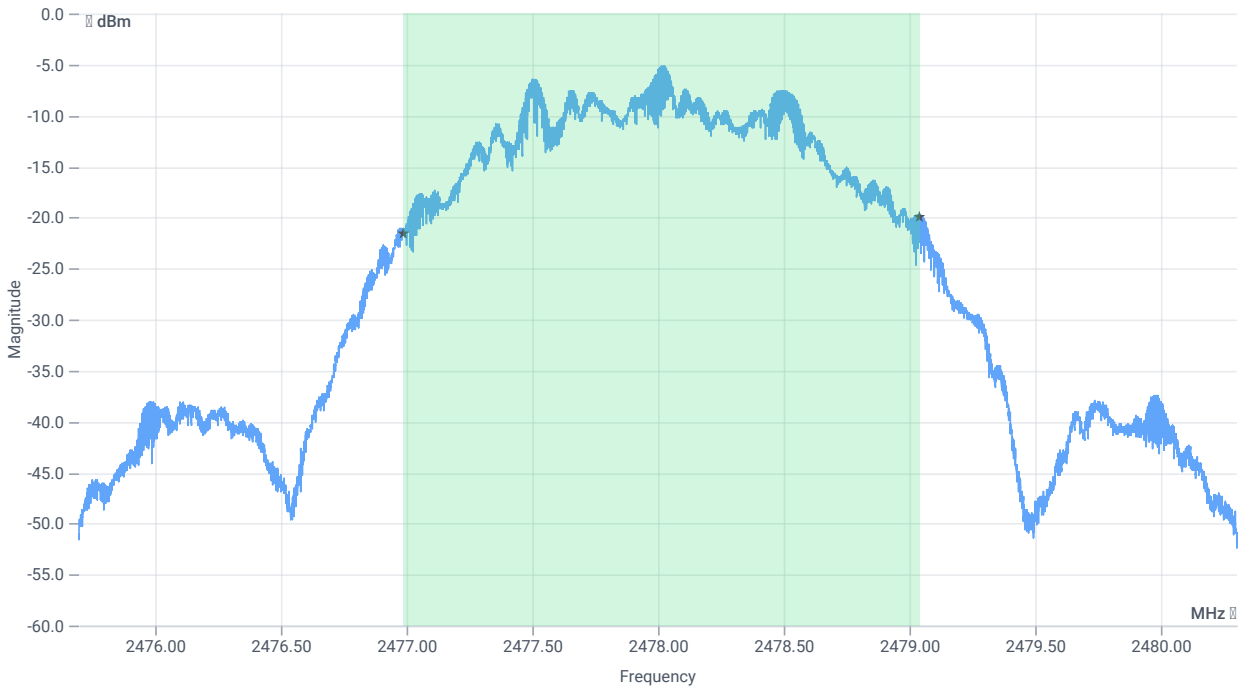
Test at TX 2478 MHz

RESULT: Reference Power cond.

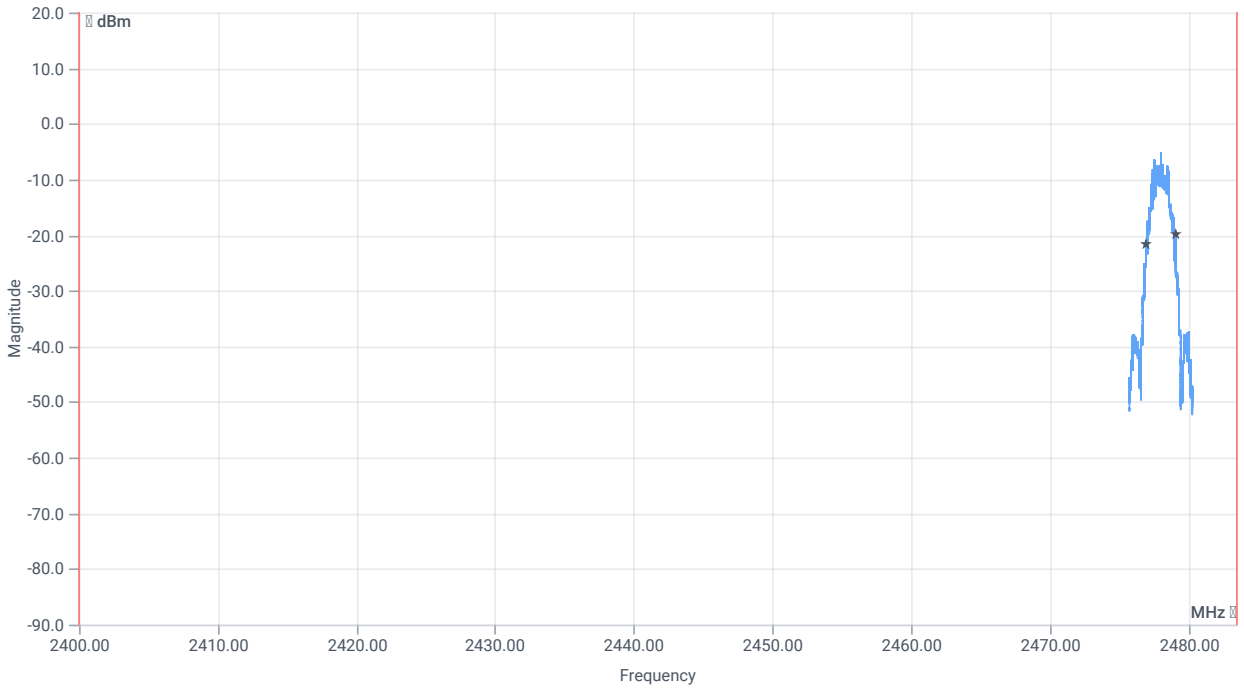
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-1.82	dBm	INFO
Ref. Frequency	---	---	2478.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	3.18 | 11.4 | 10
Start [MHz] | Stop [MHz]	2475.700 | 2480.300
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
Detector | TraceMode	POS | MAXH
Sweep: time [ms] | count | points per Section | type	50 | 200 | 10001 | SWE



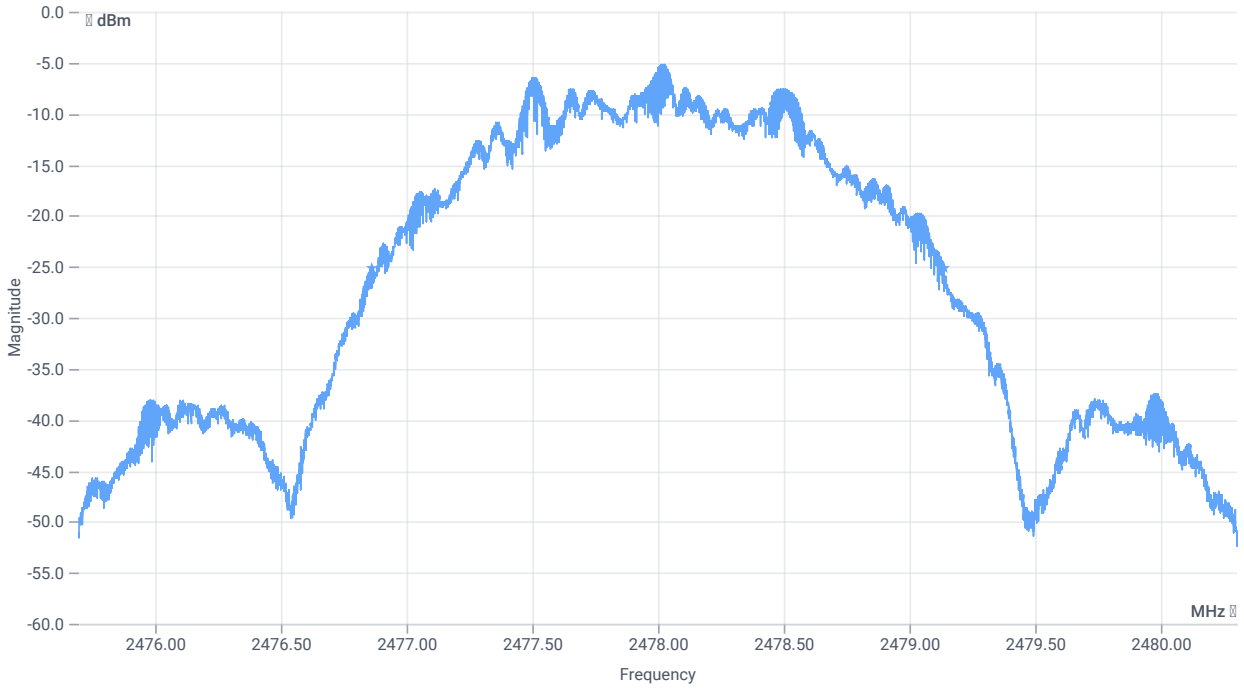
BW 99PCT



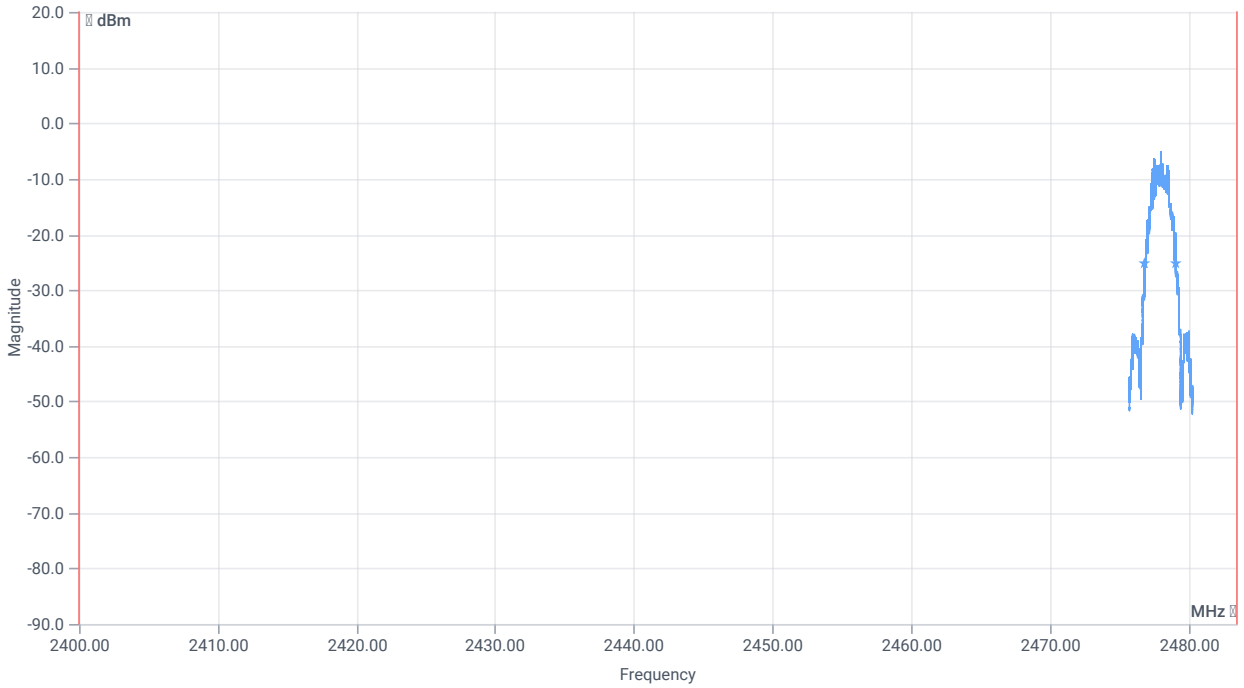
BW within Band 99PCT

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	---	---	2051.000	kHz	INFO
T1 99%	2400.000000	---	2476.9881	MHz	PASS
T2 99%	---	2483.500000	2479.0390	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	---	---	2270	kHz	INFO
T1 20DB	2400.000000	---	2476.8652	MHz	PASS
T2 20dB	---	2483.500000	2479.1353	MHz	PASS

Verdict
PASS

FCC 15.247 # TX spurious conducted 20dBc ~ BT LE 2 Msps

References

TC start	13.12.2023 13:53:11
Ambit temp [°C] | humidity [rel%]	27.4 | 31
System version	4.7.1.4
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 2 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 2 Msps
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False | Freq [MHz] 2404
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2478
Auto control enabled power supply | Climatic Box	No | No
Additional path loss [dB]	0.7
Full path name | type	EUT - SignalingUnit - SpectrumAnalyzer

Equipment

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

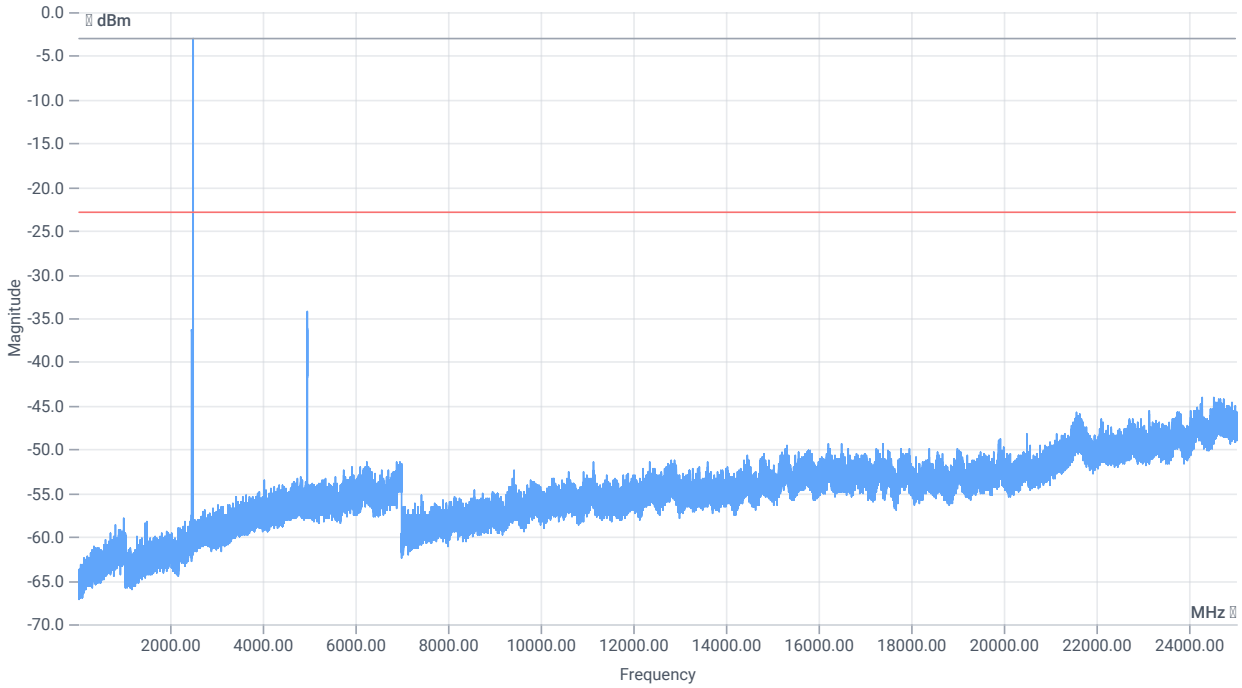
Equipment

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

Test at TX 2478 MHz

RESULT: Reference Power cond.

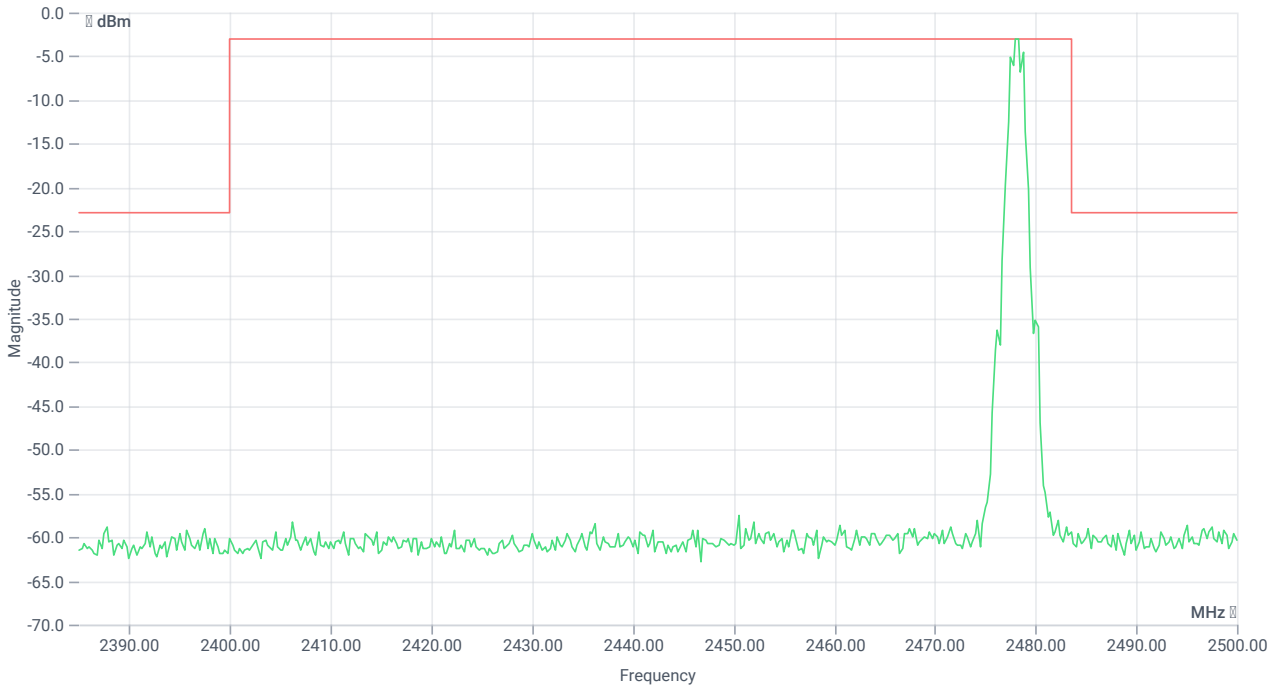
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	---	---	-2.05	dBm	INFO
Ref. Frequency	---	---	2478.500	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-2.05 | 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 @ 2478.25 MHz	---	---	-2.97	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 4955 MHz	0	---	11.26	dB	INFO

Verdict
PASS

NA # Terminal communication ~ Common

References

TC start	13.12.2023 14:12:37
Ambit temp [°C] | humidity [rel%]	27.1 | 31
System version	4.7.1.4
Standard | Version	NA | NI
Method	
Description	Terminal communication SSH
Information	

Test Parameter

Command	hcitool -i hci0 cmd 0x08 0x001F
Output result	< HCI Command: ogf 0x08, ocf 0x001f, plen 0 > HCI Event: 0x0e plen 6 01 1F 20 00 00 00

Verdict

INFO

- END OF DOCUMENT -