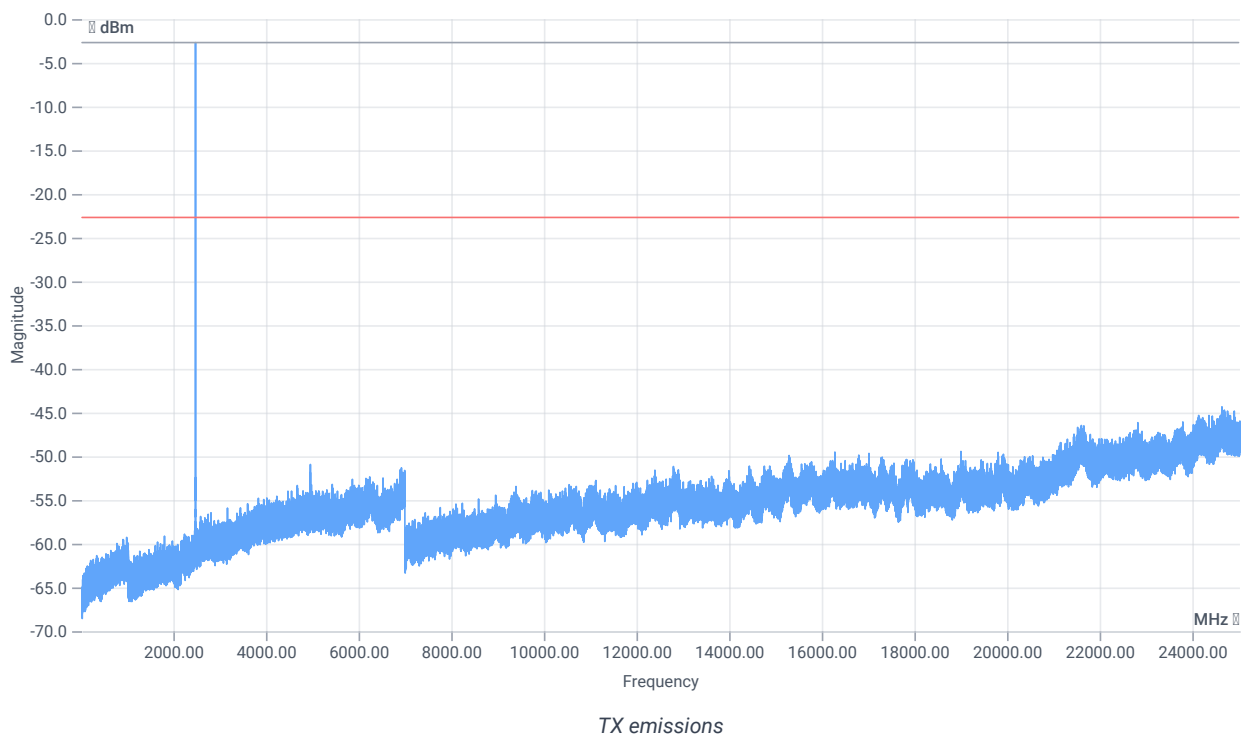


## Test at TX 2480 MHz

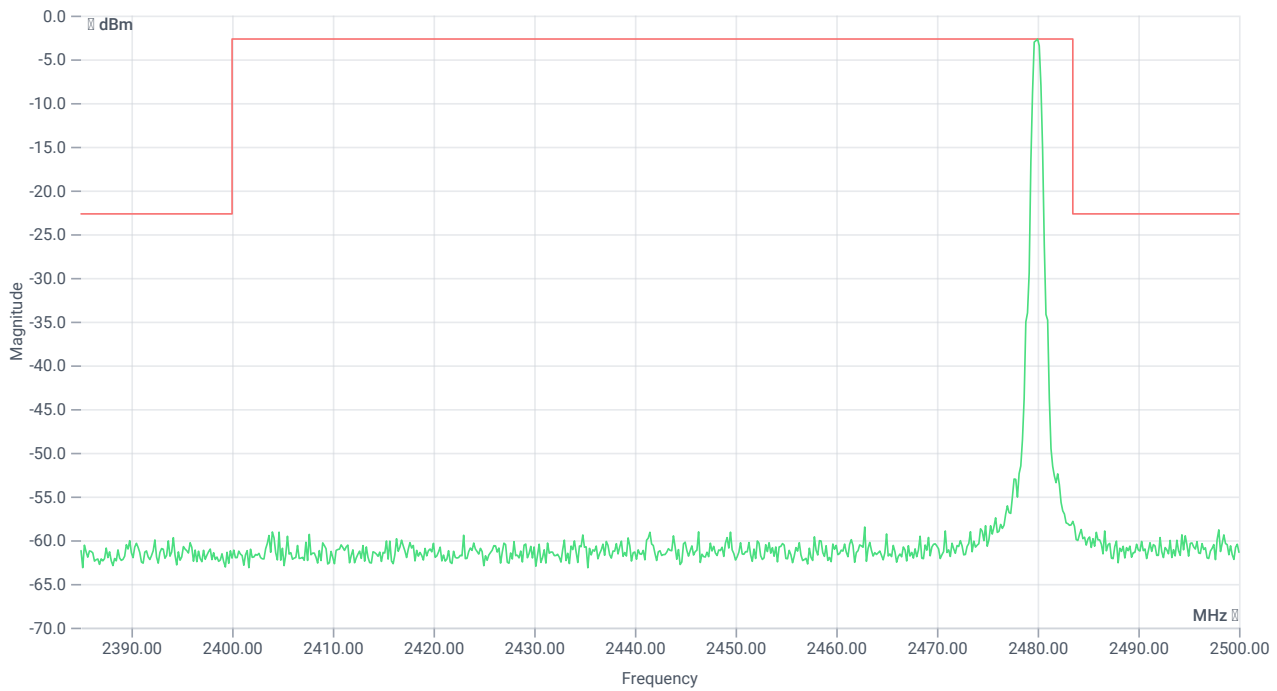
RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.32    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2480.100 | MHz  | INFO    |



### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | -1.32   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   3001   SWE |



TX emissions band zoomed

## RESULT

| Test Description                 | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|----------------------------------|-------------|-------------|----------|------|---------|
| Reference @ 2480.00 MHz          | ---         | ---         | -2.68    | dBm  | INFO    |
| No peaks detected                | ---         | ---         |          |      | PASS    |
| Lowest margin to limit 24641 MHz | 0           | ---         | 21.66    | dB   | INFO    |

## Verdict

PASS

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

### Test References

|                                   |                                                                   |
|-----------------------------------|-------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:02:26                                               |
| Ambit Temp [°C]   Humidity [rel%] | 25.0   24                                                         |
| System Version                    | 3.3.4.3                                                           |
| Test Specification                | FCC 15.247 -                                                      |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth     |
| TC Version                        | 0.0.1                                                             |
| My Description                    | FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 2 Msps |
| Add. Information                  |                                                                   |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

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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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.88    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2404.400 | MHz  | INFO    |

### READ SA SETTINGS:

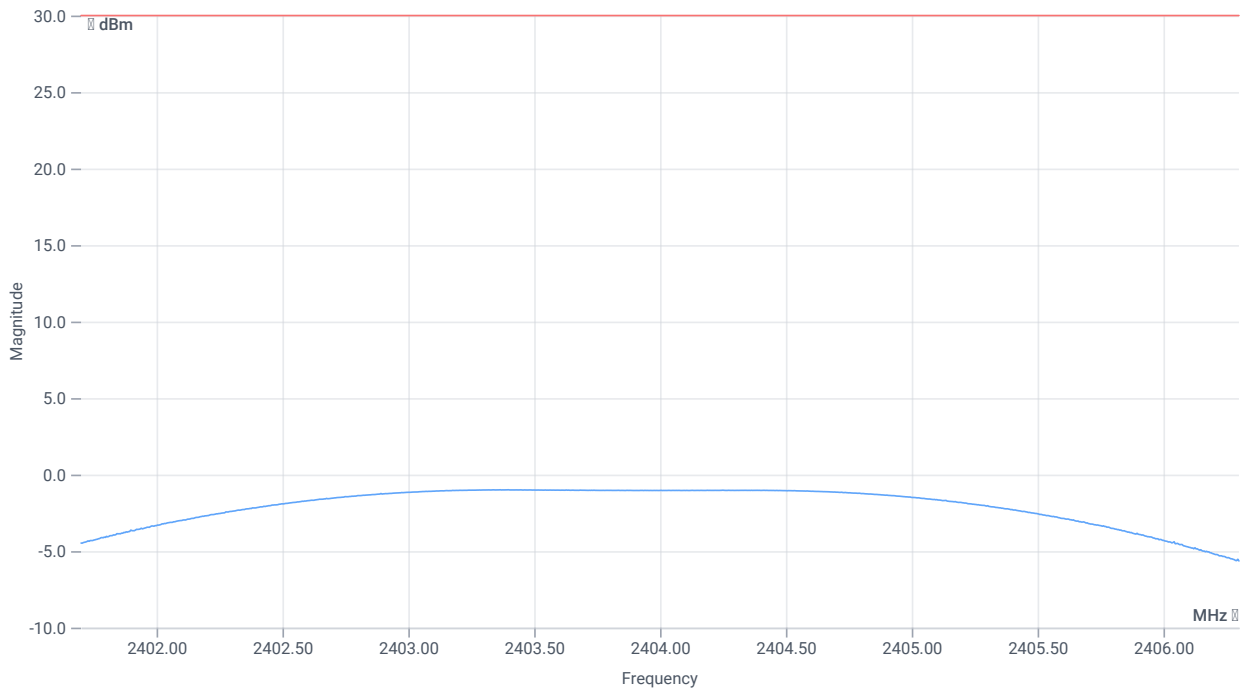
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.12   11.1   10       |
| Start [MHz]   Stop [MHz]                             | 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

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 1376     | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 9.12   11.1   15      |
| Start [MHz]   Stop [MHz]                             | 2401.700   2406.300   |
| RBW [MHz]   VBW [MHz]                                | 3.000000   10.000000  |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -0.99    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.796159 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2403.398 | MHz  | INFO    |

## Verdict

PASS

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

### Test References

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| TC Start                          | 24.01.2023 10:03:08                         |
| Ambit Temp [°C]   Humidity [rel%] | 25.0   24                                   |
| System Version                    | 3.3.4.3                                     |
| Test Specification                | FCC 15.247 -                                |
| Test Method                       |                                             |
| TC Version                        | 0.0.1                                       |
| My Description                    | FCC 15.247 Bandwidth 6dB DTS - BT LE 2 Msps |
| Add. Information                  |                                             |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

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

## Test Equipment

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

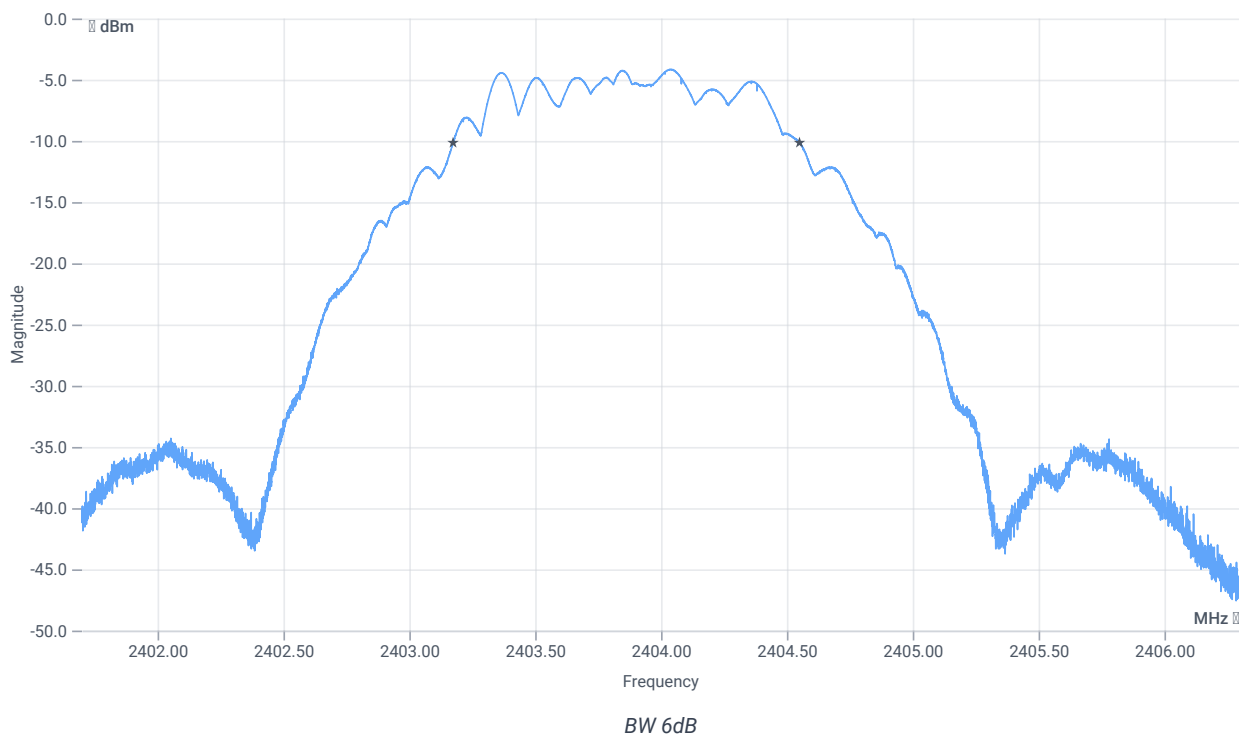
## Test at TX 2404 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.88    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2404.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.12   11.1   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 |



### RESULT

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | 500         | ---         | 1376     | kHz  | PASS    |

### Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE 2 Msps

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:03:38                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 25.0   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE 2 Msps                                                  |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

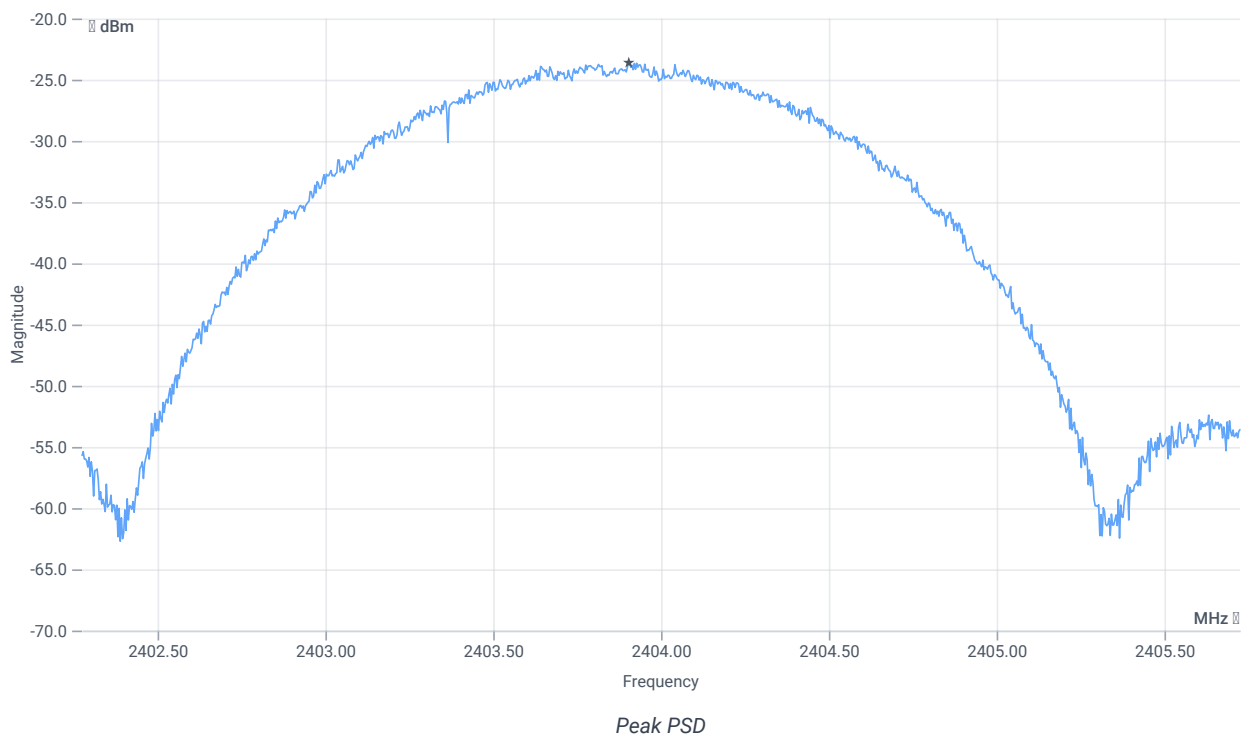
## Test at TX 2404 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.96    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2404.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.04   11.1   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 |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -23.61   | dBm/3KHz | PASS    |

Verdict

PASS

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

### Test References

|                                   |                                                    |
|-----------------------------------|----------------------------------------------------|
| TC Start                          | 24.01.2023 10:04:18                                |
| Ambit Temp [°C]   Humidity [rel%] | 25.0   24                                          |
| System Version                    | 3.3.4.3                                            |
| Test Specification                | FCC 15.247, ISED RSS247 -                          |
| Test Method                       |                                                    |
| TC Version                        | 0.0.2                                              |
| My Description                    | FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 Msps |
| Add. Information                  |                                                    |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

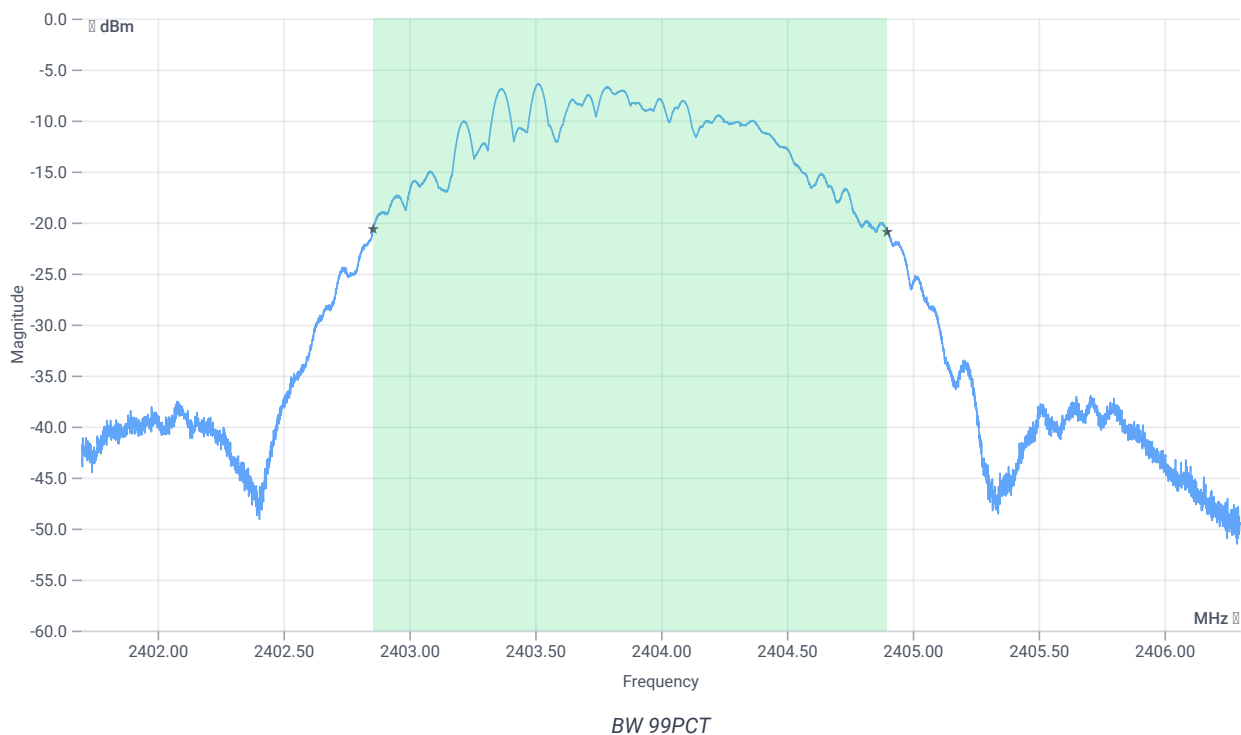
## Test at TX 2404 MHz

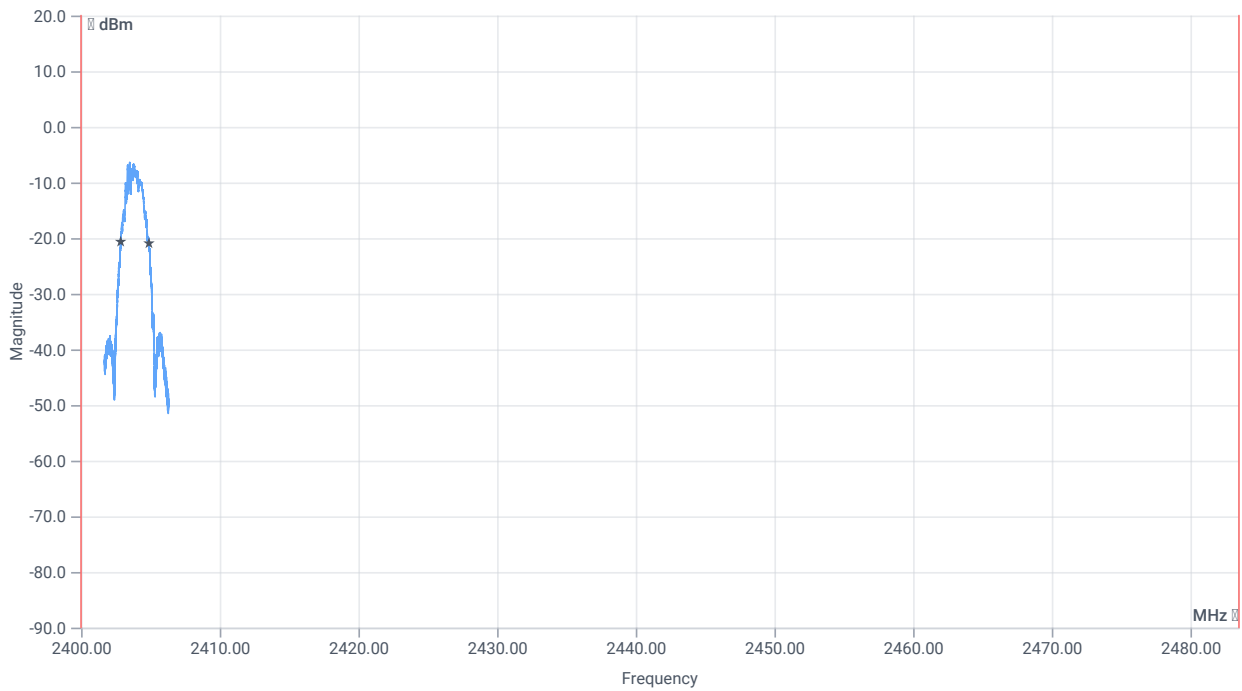
RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.88    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2403.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.12   11.1   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 |

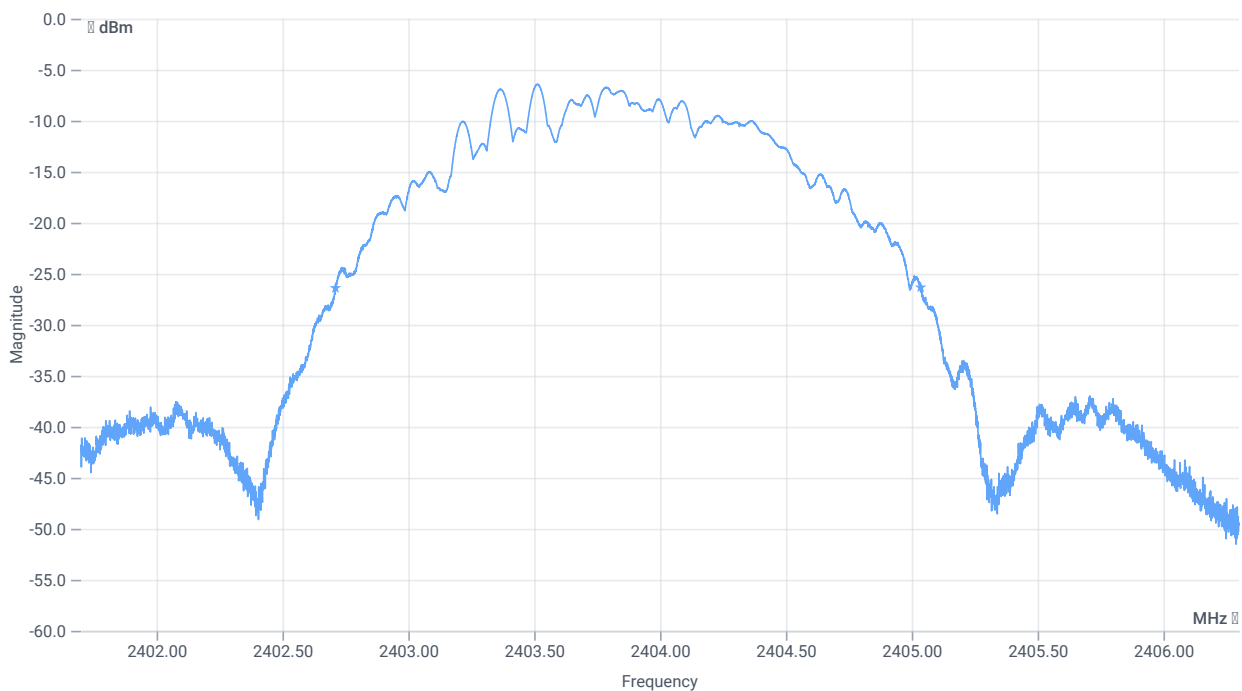




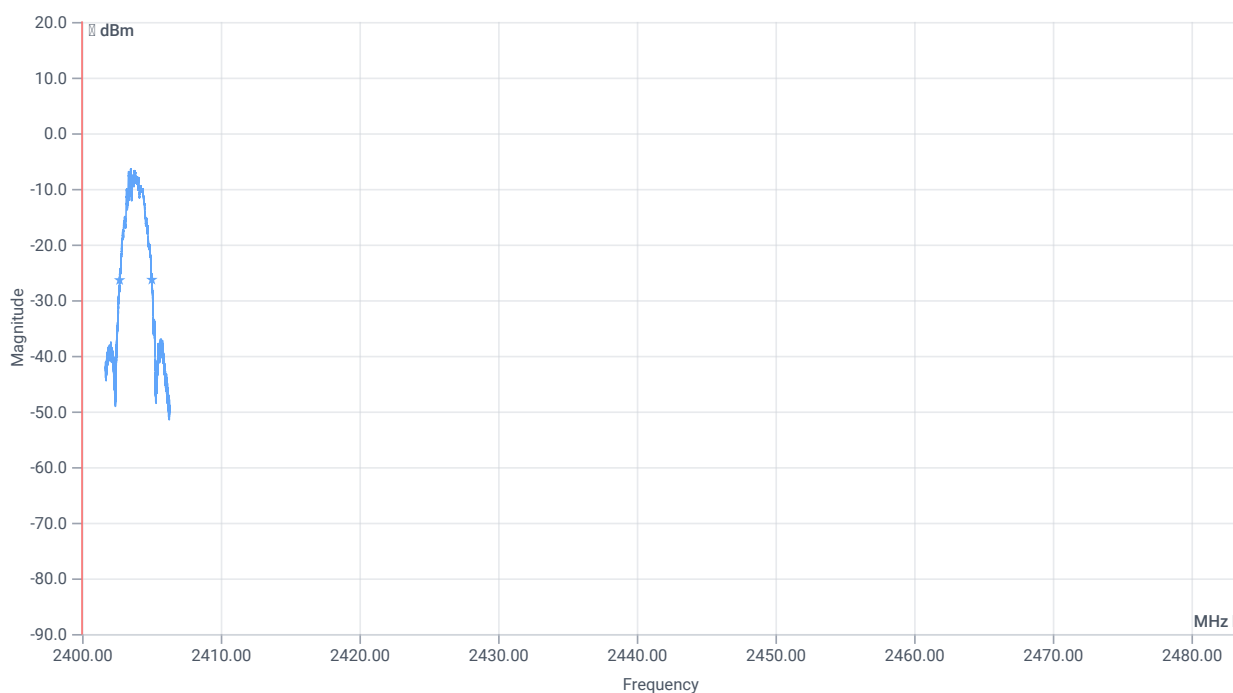
*BW within Band 99PCT*

## RESULT

| Test Description | Lower Limit | Upper Limit | Measured  | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|---------|
| Bandwidth 99%    | ---         | ---         | 2041.000  | kHz  | INFO    |
| T1 99%           | 2400.000000 | ---         | 2402.8570 | MHz  | PASS    |
| T2 99%           | ---         | 2483.500000 | 2404.8983 | MHz  | PASS    |



BW 20dB



BW within Band 20dB

## RESULT

| Test Description | Lower Limit | Upper Limit | Measured  | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|---------|
| Bandwidth 20dB   | ---         | ---         | 2325      | kHz  | INFO    |
| T1 20dB          | 2400.000000 | ---         | 2402.7106 | MHz  | PASS    |
| T2 20dB          | ---         | 2483.500000 | 2405.0355 | MHz  | PASS    |

Verdict

PASS

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

### Test References

|                                   |                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:04:54                                                                                              |
| Ambit Temp [°C]   Humidity [rel%] | 25.0   24                                                                                                        |
| System Version                    | 3.3.4.3                                                                                                          |
| Test Specification                | FCC 15.247 -                                                                                                     |
| Test Method                       | IF DTS then 8.5 DTS emissions in non-restricted frequency bands:<br>Subclause 11.11 of ANSI C63.10 is applicable |
| TC Version                        | 0.0.1                                                                                                            |
| My Description                    | FCC 15.247 TX Emissions Conducted DTS - BT LE 2 Msps                                                             |
| Add. Information                  |                                                                                                                  |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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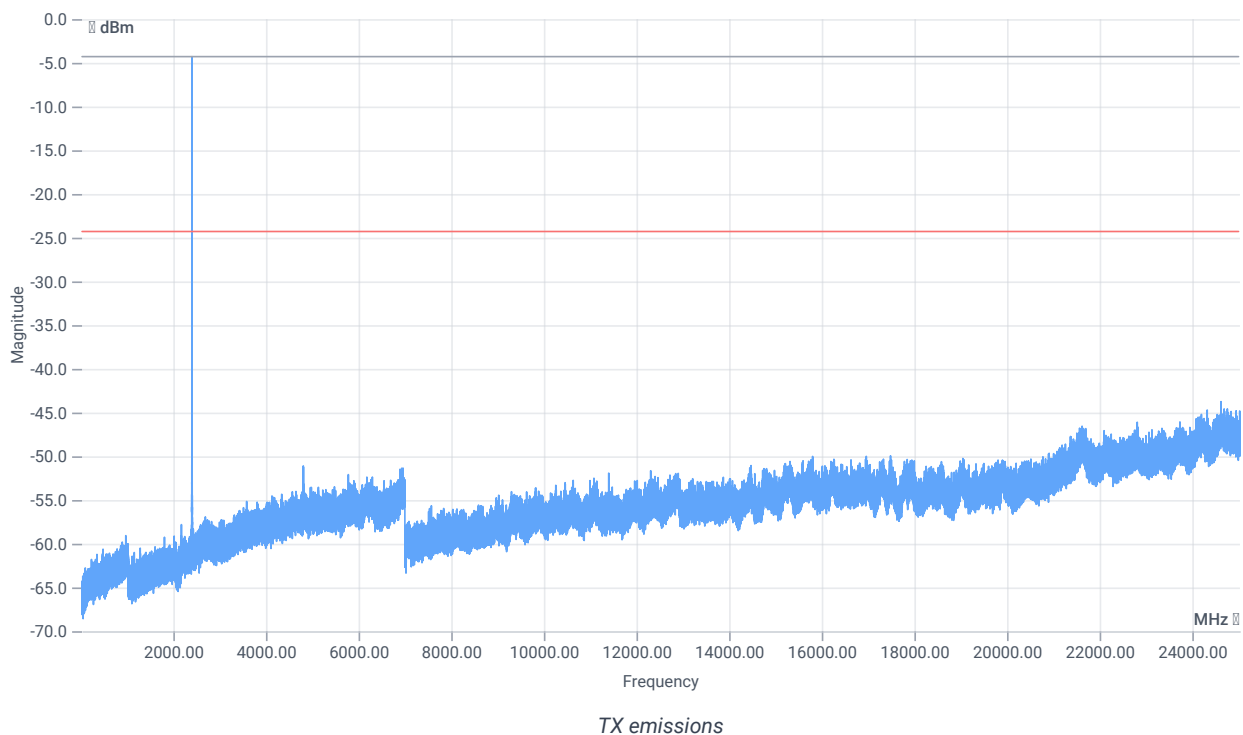
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

## Test at TX 2404 MHz

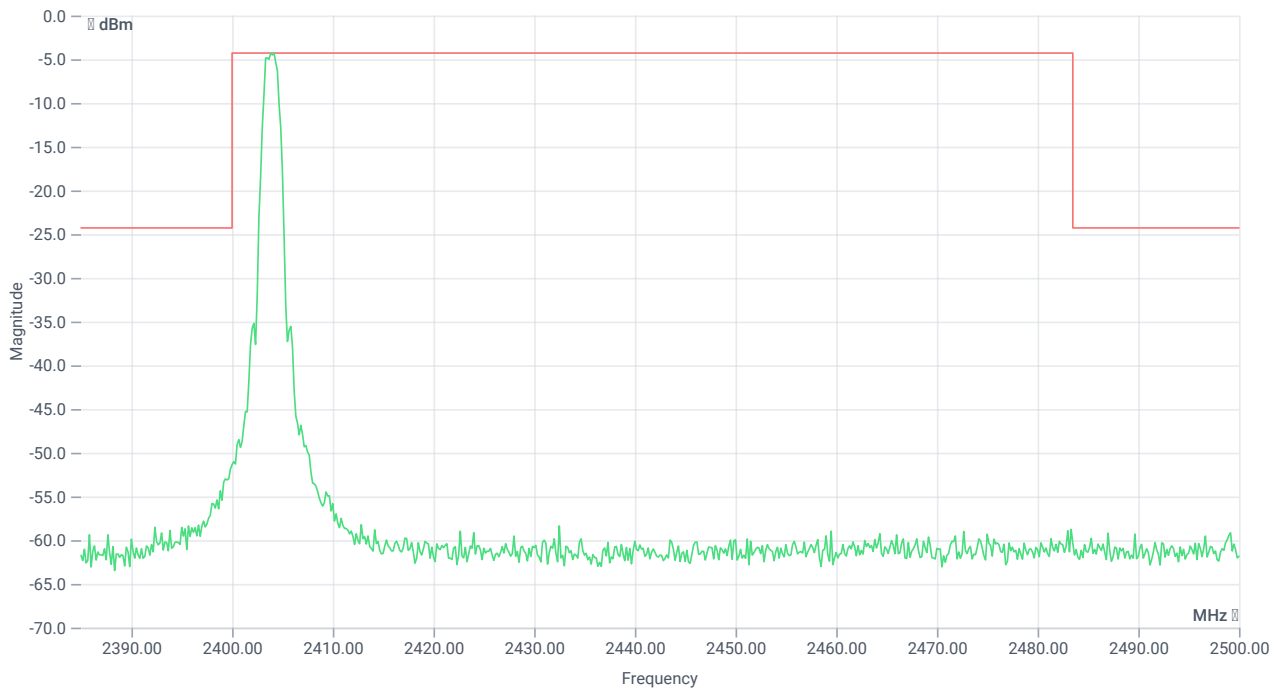
RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.84    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2403.400 | MHz  | INFO    |



### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | -0.84   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   3001   SWE |



TX emissions band zoomed

## RESULT

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Reference @ 2404.17 MHz       | ---         | ---         | -4.29    | dBm  | INFO    |
| No peaks detected             | ---         | ---         |          |      | PASS    |
| Lowest margin to limit 30 MHz | 0           | ---         | -134.8   | dB   | INFO    |

## Verdict

PASS

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

### Test References

|                                   |                                                                   |
|-----------------------------------|-------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:15:14                                               |
| Ambit Temp [°C]   Humidity [rel%] | 25.2   24                                                         |
| System Version                    | 3.3.4.3                                                           |
| Test Specification                | FCC 15.247 -                                                      |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth     |
| TC Version                        | 0.0.1                                                             |
| My Description                    | FCC 15.247 Maximum Peak Output Power Conducted DTS - BT LE 2 Msps |
| Add. Information                  |                                                                   |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test 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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.35    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.400 | MHz  | INFO    |

### READ SA SETTINGS:

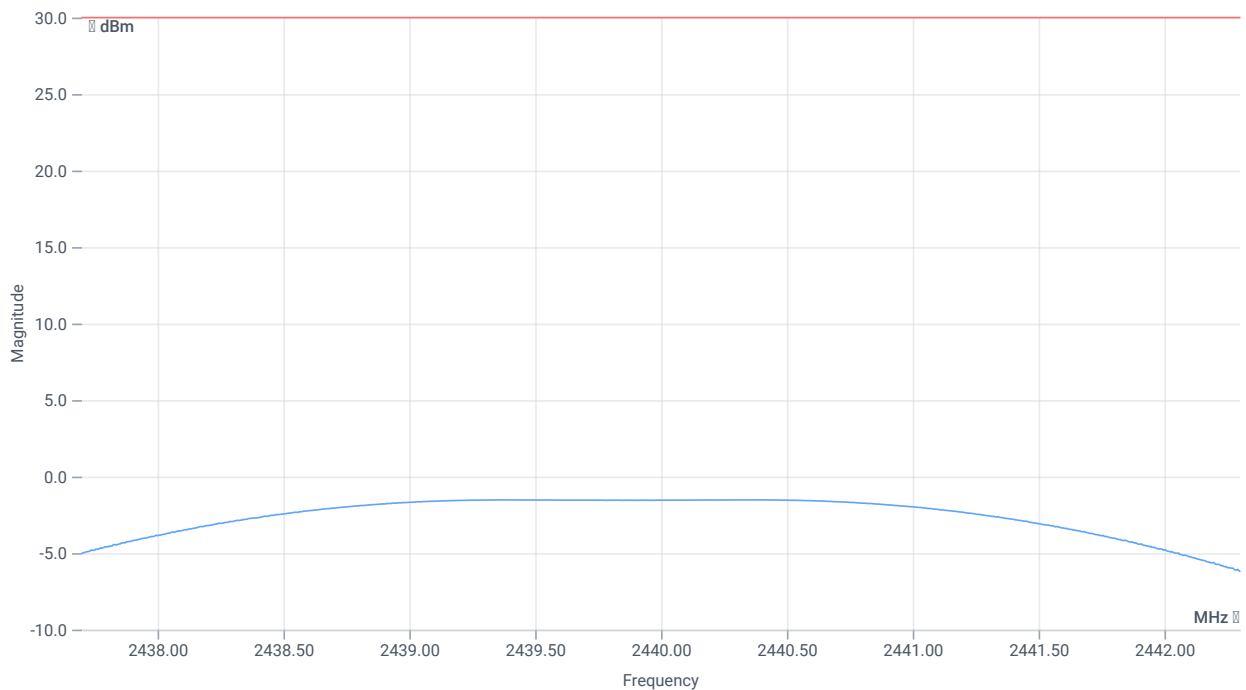
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.65   11.16   10      |
| Start [MHz]   Stop [MHz]                             | 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

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 1374     | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 8.65   11.16   15     |
| Start [MHz]   Stop [MHz]                             | 2437.700   2442.300   |
| RBW [MHz]   VBW [MHz]                                | 3.000000   10.000000  |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.52    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.704693 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2439.43  | MHz  | INFO    |

Verdict

PASS

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

### Test References

|                                   |                                             |
|-----------------------------------|---------------------------------------------|
| TC Start                          | 24.01.2023 10:15:56                         |
| Ambit Temp [°C]   Humidity [rel%] | 25.2   24                                   |
| System Version                    | 3.3.4.3                                     |
| Test Specification                | FCC 15.247 -                                |
| Test Method                       |                                             |
| TC Version                        | 0.0.1                                       |
| My Description                    | FCC 15.247 Bandwidth 6dB DTS - BT LE 2 Msps |
| Add. Information                  |                                             |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

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

## Test Equipment

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

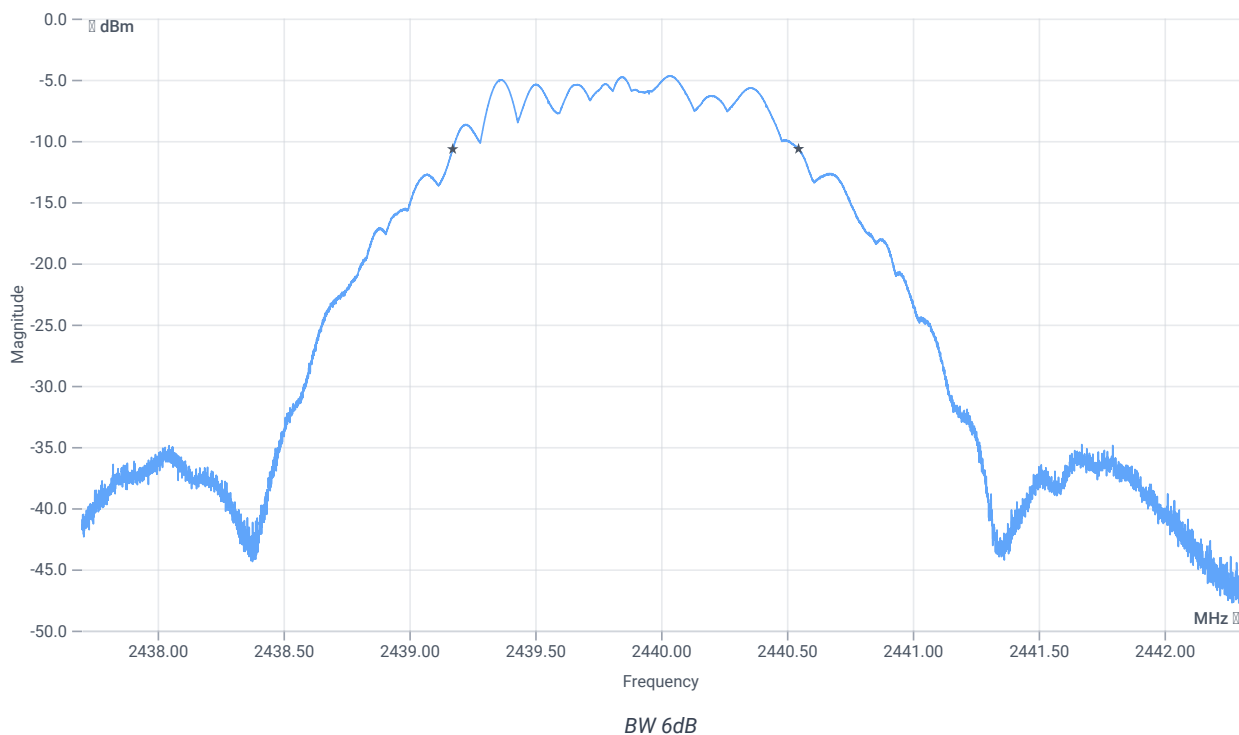
## Test at TX 2440 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.37    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.63   11.16   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 |



### RESULT

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | 500         | ---         | 1374     | kHz  | PASS    |

### Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE 2 Msps

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:16:26                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 25.2   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE 2 Msps                                                  |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

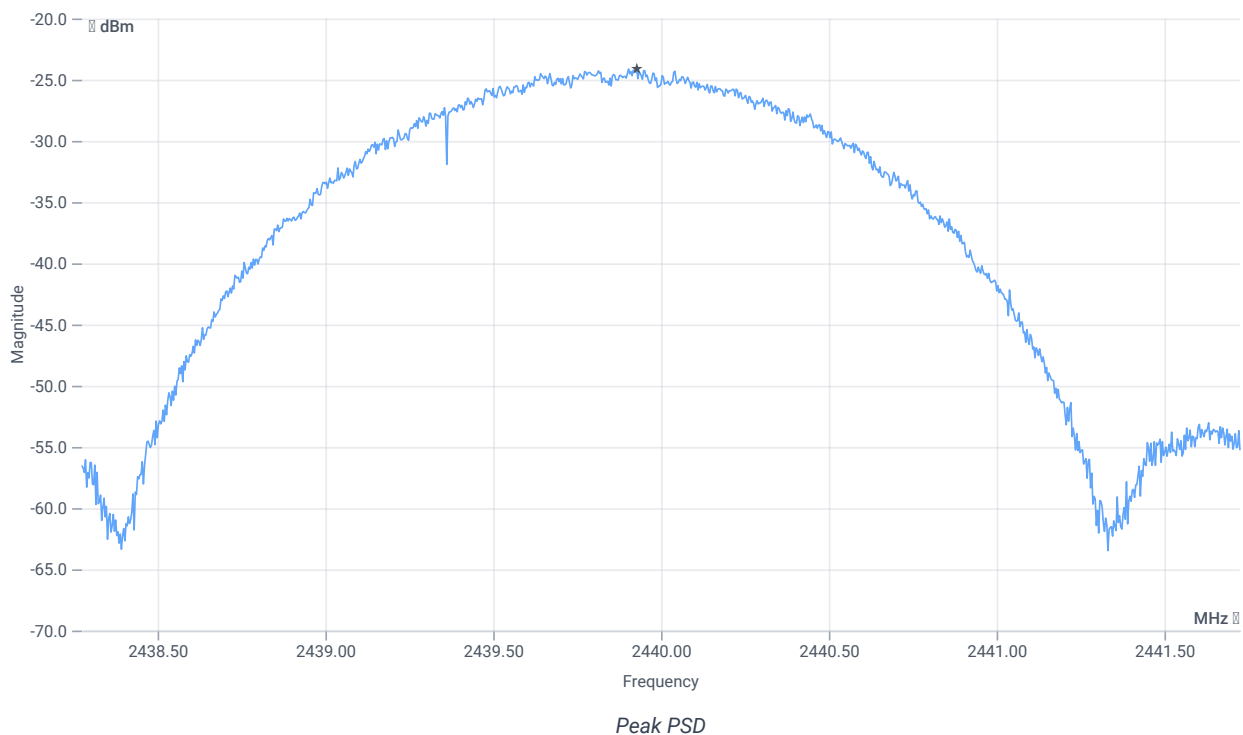
## Test at TX 2440 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.35    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.65   11.16   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 |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -24.11   | dBm/3KHz | PASS    |

Verdict

PASS

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

## Test References

|                                   |                                                    |
|-----------------------------------|----------------------------------------------------|
| TC Start                          | 24.01.2023 10:17:06                                |
| Ambit Temp [°C]   Humidity [rel%] | 25.2   24                                          |
| System Version                    | 3.3.4.3                                            |
| Test Specification                | FCC 15.247, ISED RSS247 -                          |
| Test Method                       |                                                    |
| TC Version                        | 0.0.2                                              |
| My Description                    | FCC 15.247 Bandwidth 99PCT-20dB DTS - BT LE 2 Msps |
| Add. Information                  |                                                    |

## EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

## Test Equipment

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

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

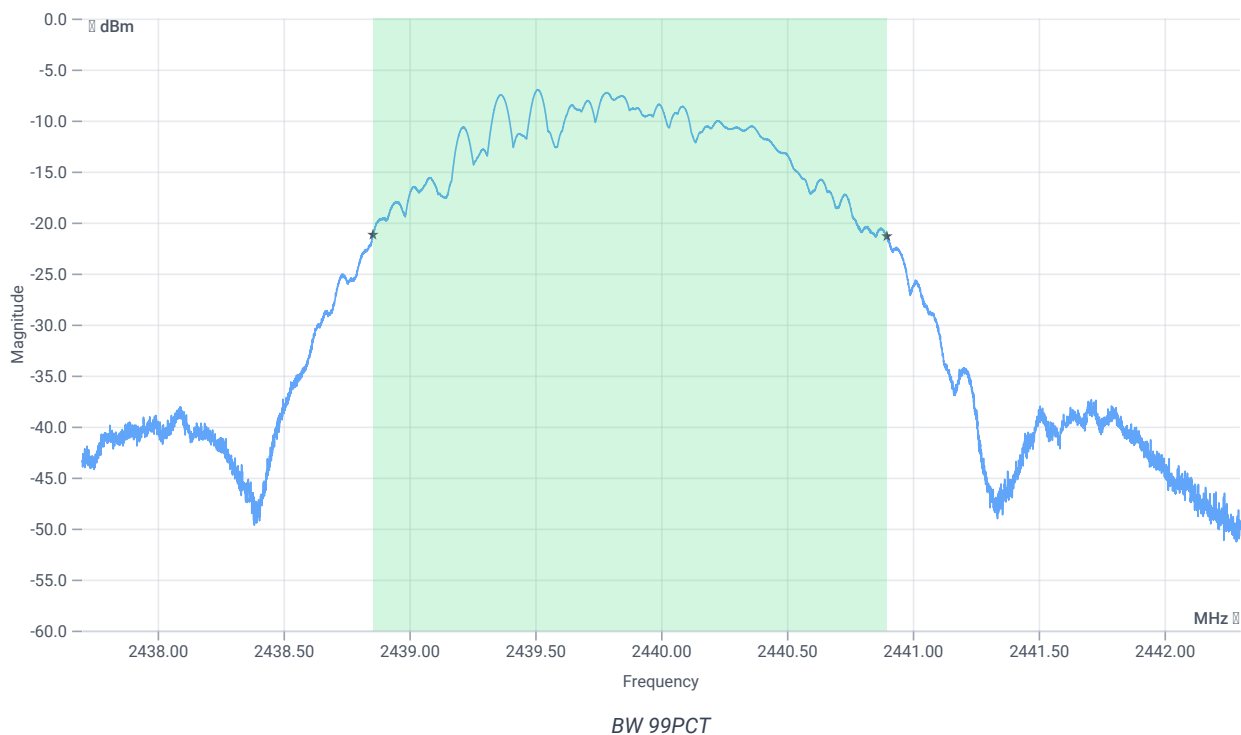
## Test at TX 2440 MHz

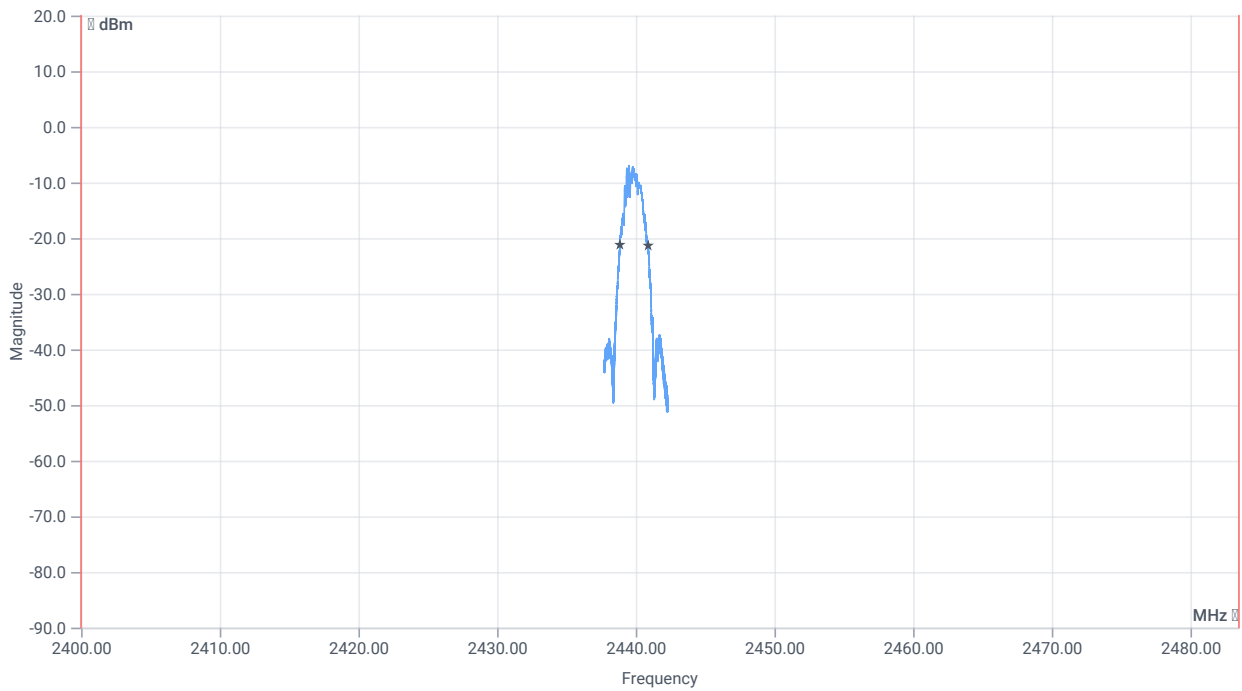
RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.31    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.400 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.69   11.16   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 |

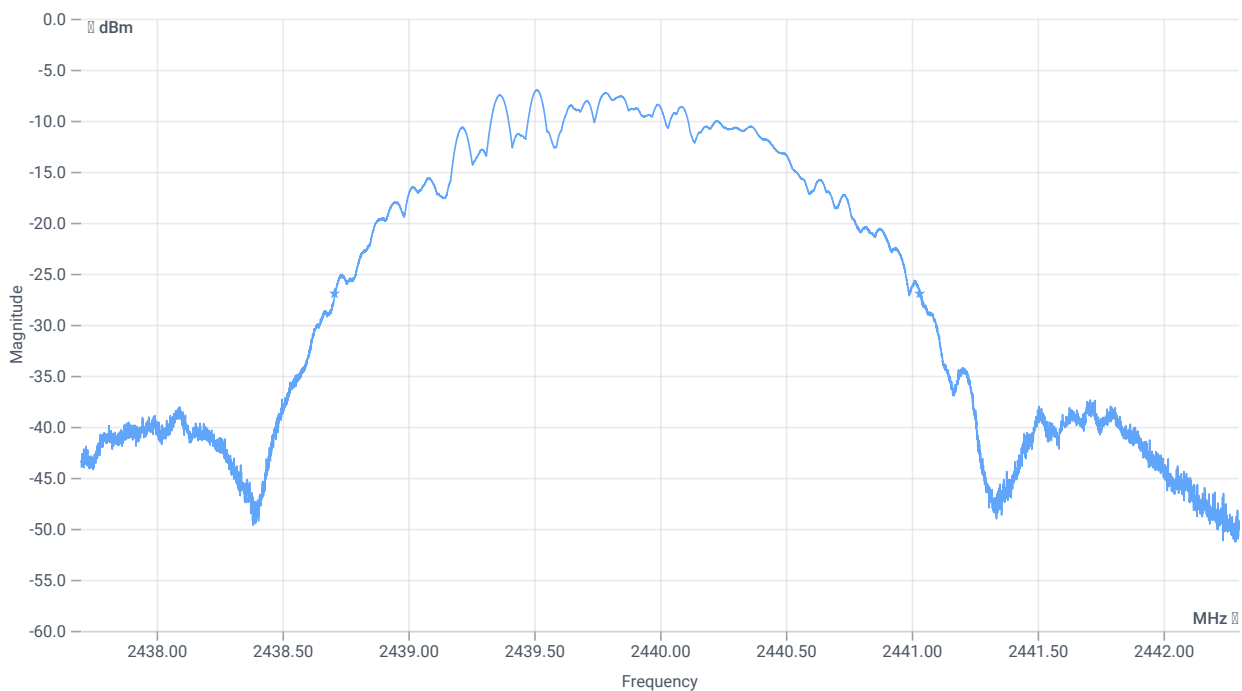




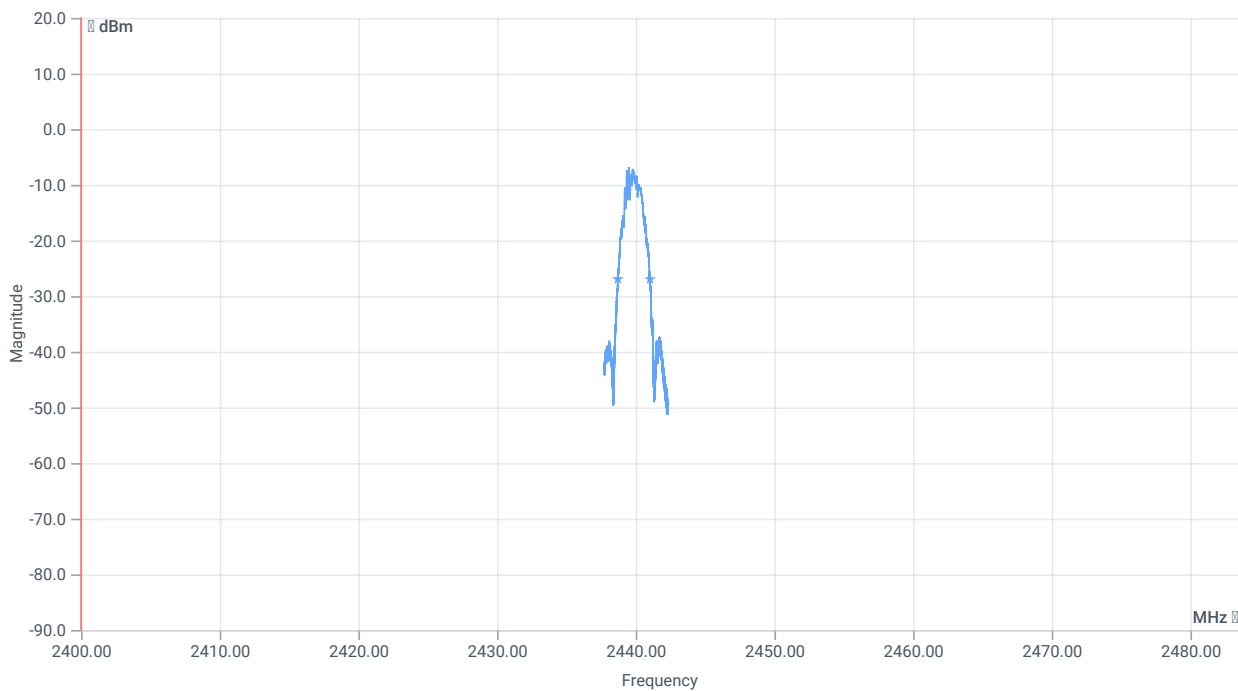
BW within Band 99PCT

## RESULT

| Test Description | Lower Limit | Upper Limit | Measured  | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|---------|
| Bandwidth 99%    | ---         | ---         | 2042.000  | kHz  | INFO    |
| T1 99%           | 2400.000000 | ---         | 2438.8556 | MHz  | PASS    |
| T2 99%           | ---         | 2483.500000 | 2440.8974 | MHz  | PASS    |



BW 20dB



BW within Band 20dB

## RESULT

| Test Description | Lower Limit | Upper Limit | Measured  | Unit | Verdict |
|------------------|-------------|-------------|-----------|------|---------|
| Bandwidth 20dB   | ---         | ---         | 2325      | kHz  | INFO    |
| T1 20dB          | 2400.000000 | ---         | 2438.7069 | MHz  | PASS    |
| T2 20dB          | ---         | 2483.500000 | 2441.0318 | MHz  | PASS    |

Verdict

PASS

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

### Test References

|                                   |                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 10:17:42                                                                                              |
| Ambit Temp [°C]   Humidity [rel%] | 25.2   24                                                                                                        |
| System Version                    | 3.3.4.3                                                                                                          |
| Test Specification                | FCC 15.247 -                                                                                                     |
| Test Method                       | IF DTS then 8.5 DTS emissions in non-restricted frequency bands:<br>Subclause 11.11 of ANSI C63.10 is applicable |
| TC Version                        | 0.0.1                                                                                                            |
| My Description                    | FCC 15.247 TX Emissions Conducted DTS - BT LE 2 Msps                                                             |
| Add. Information                  |                                                                                                                  |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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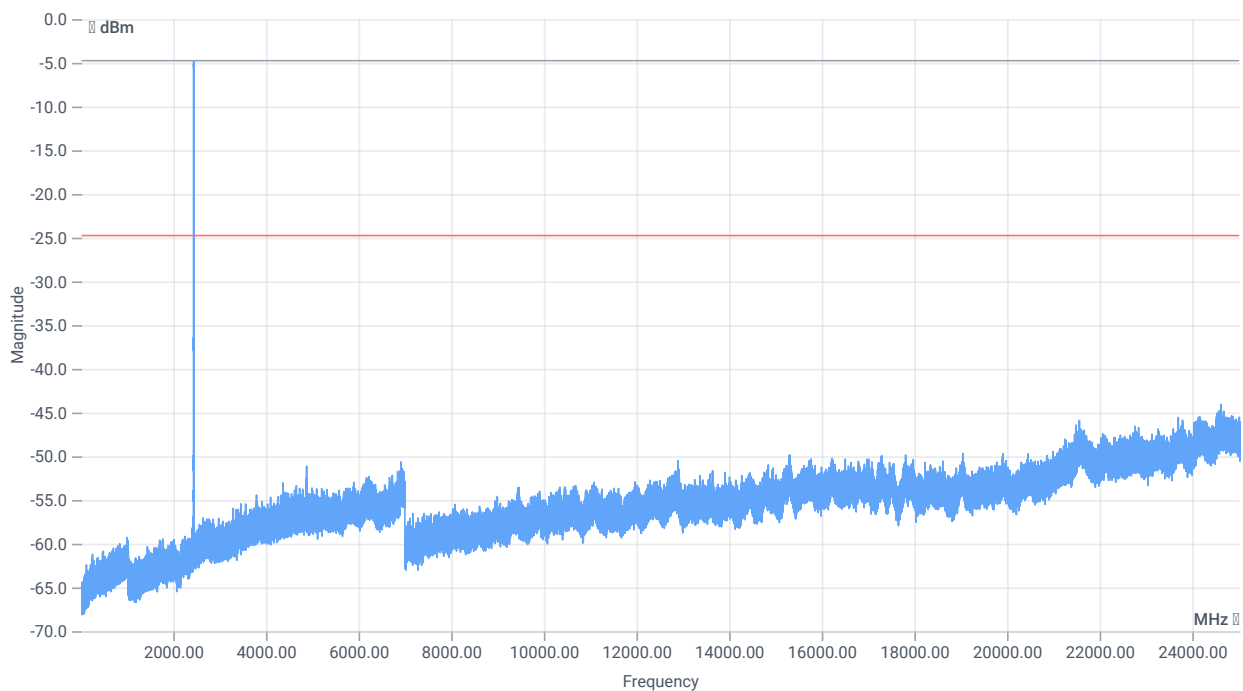
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

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

## Test at TX 2440 MHz

RESULT: Reference Power cond.

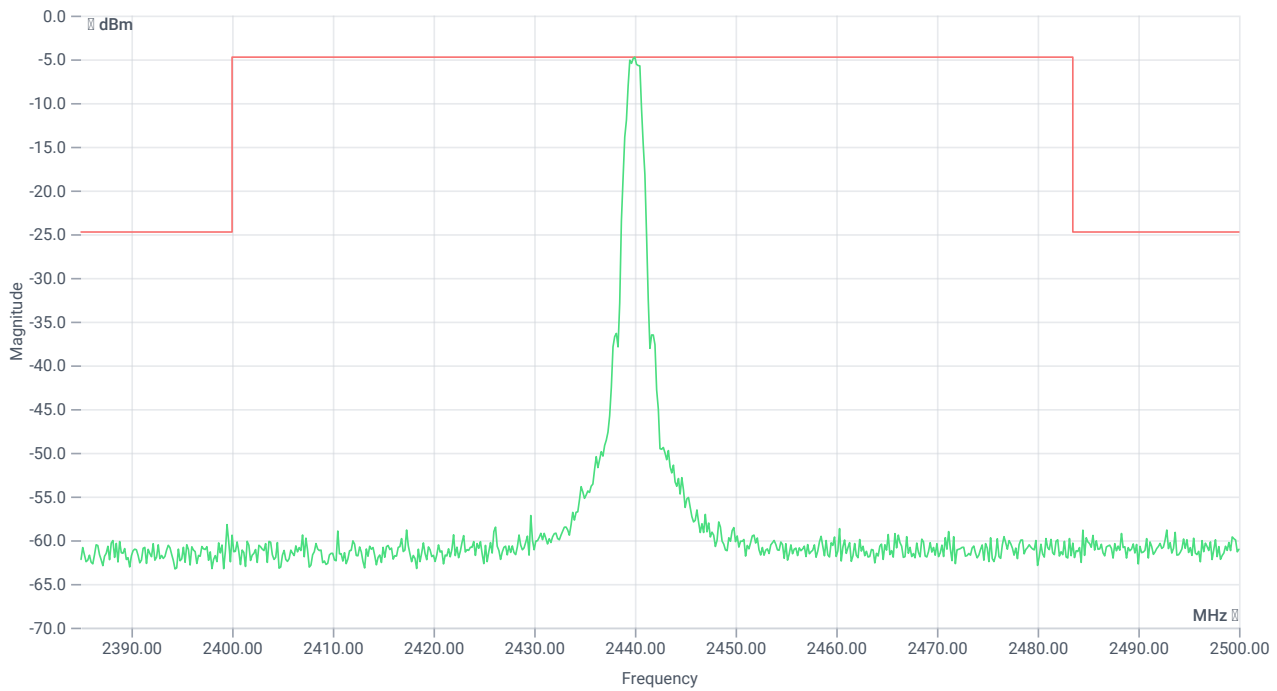
| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.44    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2439.400 | MHz  | INFO    |



TX emissions

## READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | -1.44   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   3001   SWE |



## RESULT

| Test Description                   | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|------------------------------------|-------------|-------------|----------|------|---------|
| Reference @ 2440.00 MHz            | ---         | ---         | -4.76    | dBm  | INFO    |
| No peaks detected                  | ---         | ---         |          |      | PASS    |
| Lowest margin to limit 24624.5 MHz | 0           | ---         | 19.29    | dB   | INFO    |

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S2

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:34:48                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 26.1   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S2                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | True   Freq [MHz] 2402                 |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

---

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

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

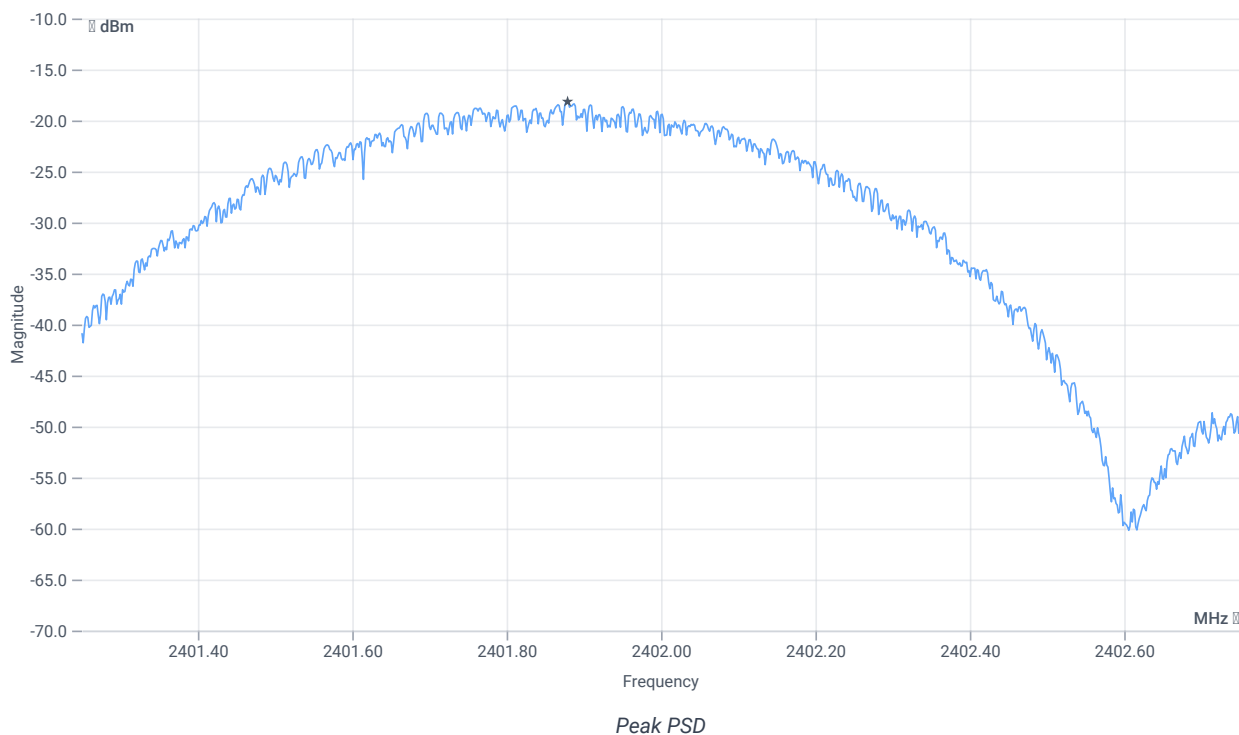
## Test at TX 2402 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.81    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2401.600 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.19   11.09   10      |
| Start [MHz]   Stop [MHz]                             | 2401.250   2402.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -18.15   | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S2

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:34:05                                             |
| Ambit Temp [°C]   Humidity [rel%] | 26.1   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S2 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | True   Freq [MHz] 2402                 |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test 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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.77    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2401.700 | MHz  | INFO    |

### READ SA SETTINGS:

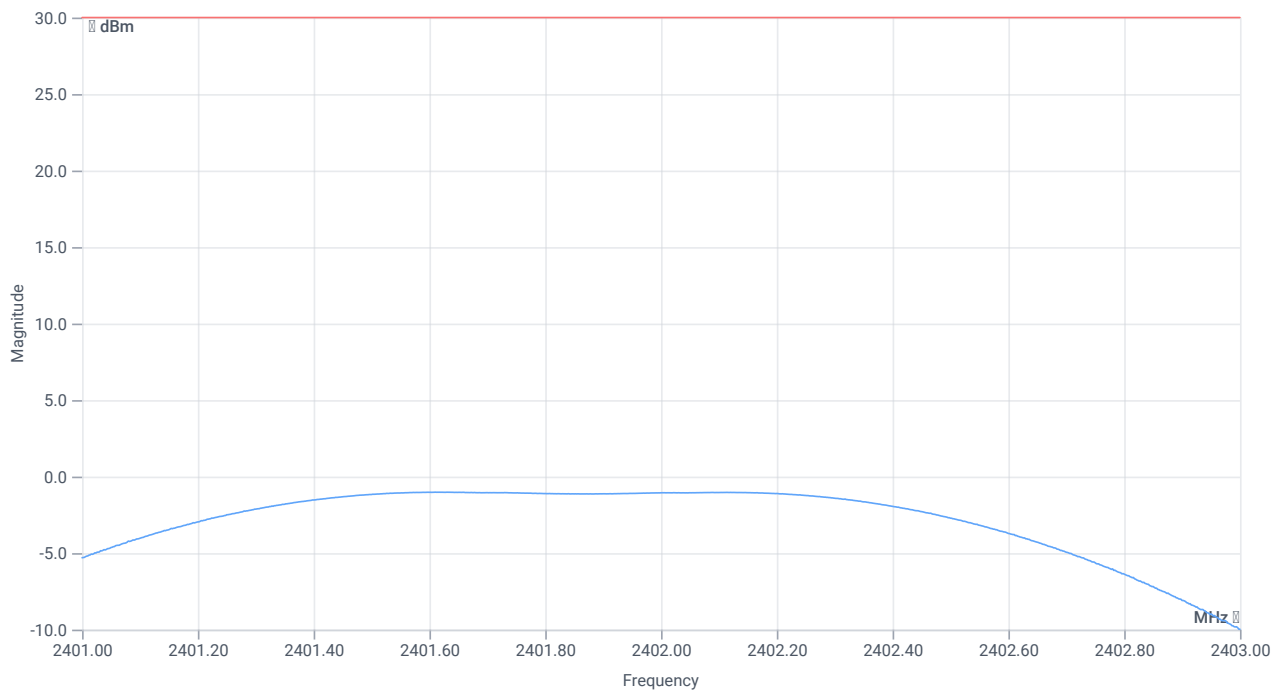
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.23   11.09   10      |
| Start [MHz]   Stop [MHz]                             | 2401.000   2403.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 705      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 9.23   11.09   15     |
| Start [MHz]   Stop [MHz]                             | 2401.000   2403.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.02    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.790679 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2401.61  | MHz  | INFO    |

## Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S2

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:33:01                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 26.1   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S2                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | True   Freq [MHz] 2440                 |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

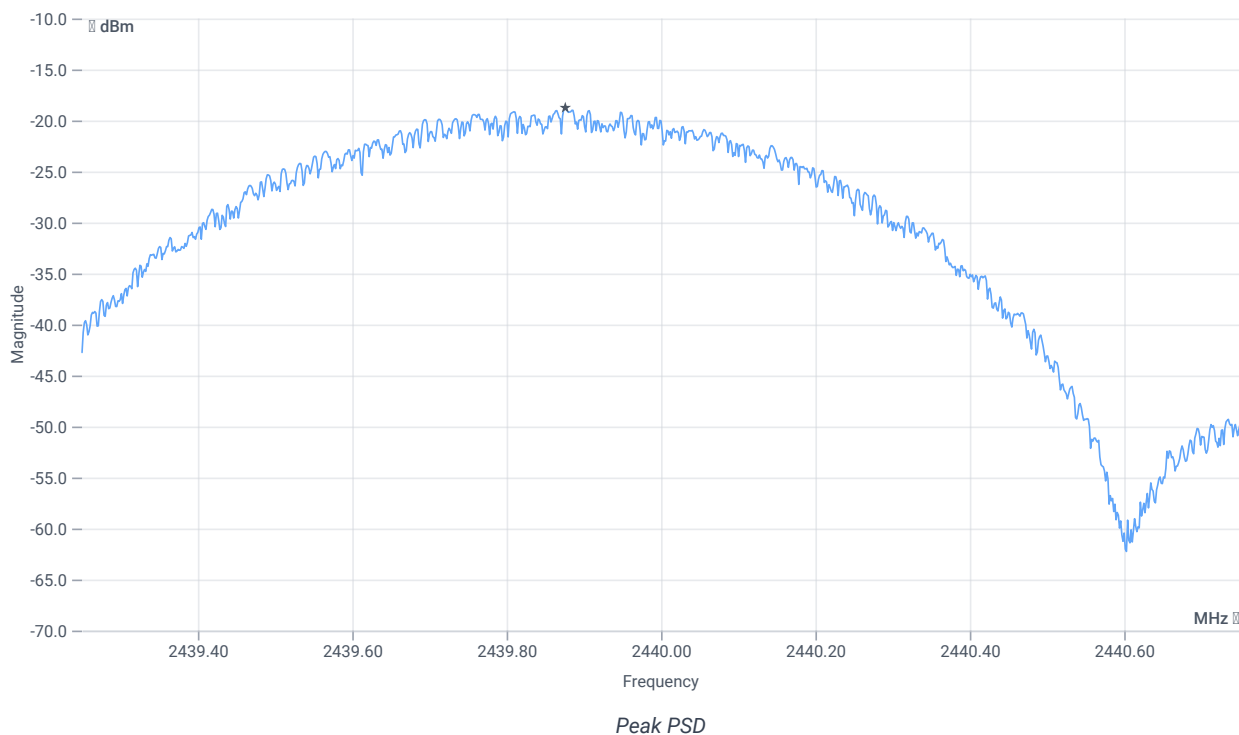
## Test at TX 2440 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.35    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.100 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.65   11.16   10      |
| Start [MHz]   Stop [MHz]                             | 2439.250   2440.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -18.75   | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S2

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:32:18                                             |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S2 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | True   Freq [MHz] 2440                 |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

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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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.32    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.100 | MHz  | INFO    |

### READ SA SETTINGS:

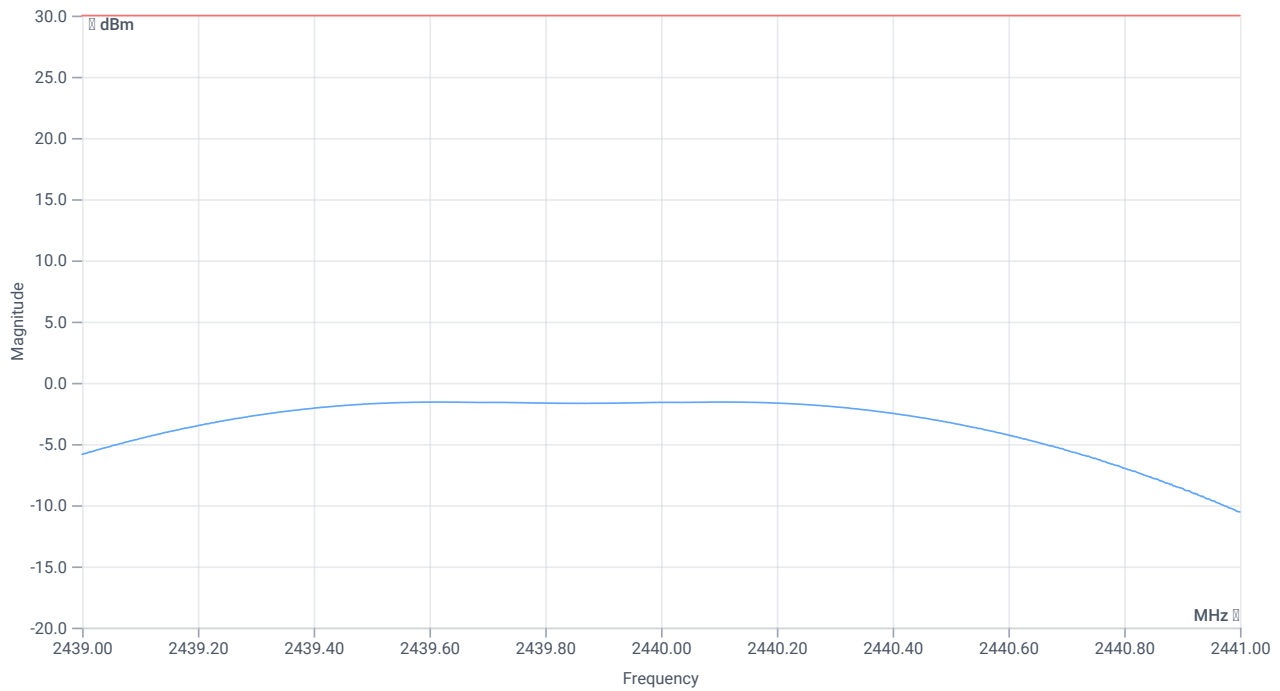
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.68   11.16   10      |
| Start [MHz]   Stop [MHz]                             | 2439.000   2441.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 701      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 8.68   11.16   15     |
| Start [MHz]   Stop [MHz]                             | 2439.000   2441.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.57    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.696627 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2439.61  | MHz  | INFO    |

## Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S2

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:31:05                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S2                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | True   Freq [MHz] 2480                 |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

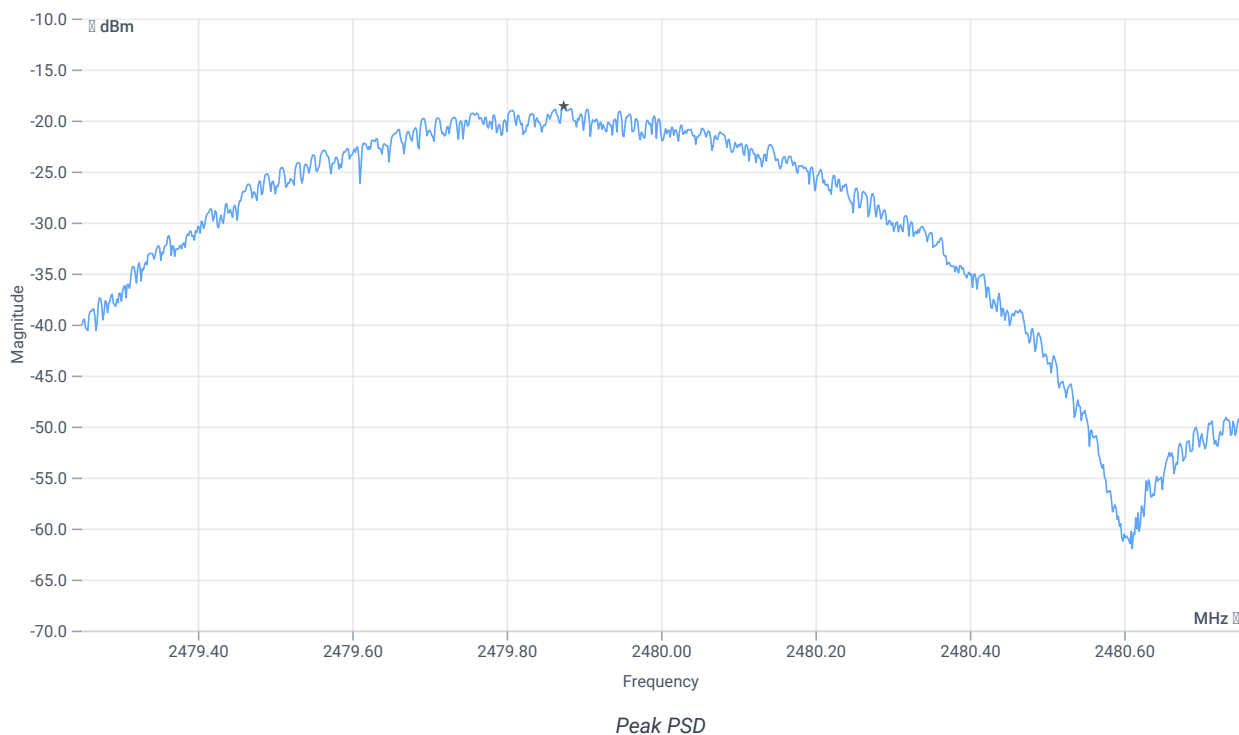
## Test at TX 2480 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.27    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2480.100 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.73   11.21   10      |
| Start [MHz]   Stop [MHz]                             | 2479.250   2480.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -18.58   | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S2

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:30:23                                             |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S2 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S2                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | True   Freq [MHz] 2480                 |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

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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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.29    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2480.100 | MHz  | INFO    |

### READ SA SETTINGS:

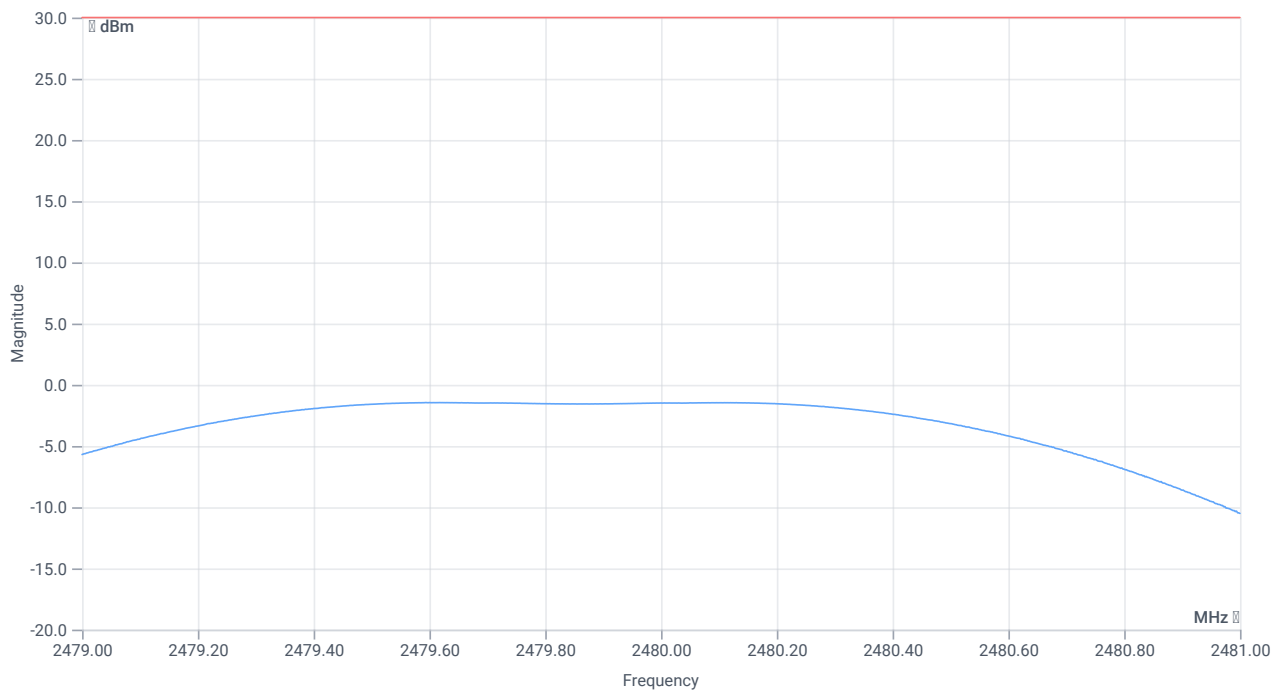
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.71   11.21   10      |
| Start [MHz]   Stop [MHz]                             | 2479.000   2481.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 700      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 8.71   11.21   15     |
| Start [MHz]   Stop [MHz]                             | 2479.000   2481.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.45    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.716143 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2479.594 | MHz  | INFO    |

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S8

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:29:13                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S8                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | True   Freq [MHz] 2480                 |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

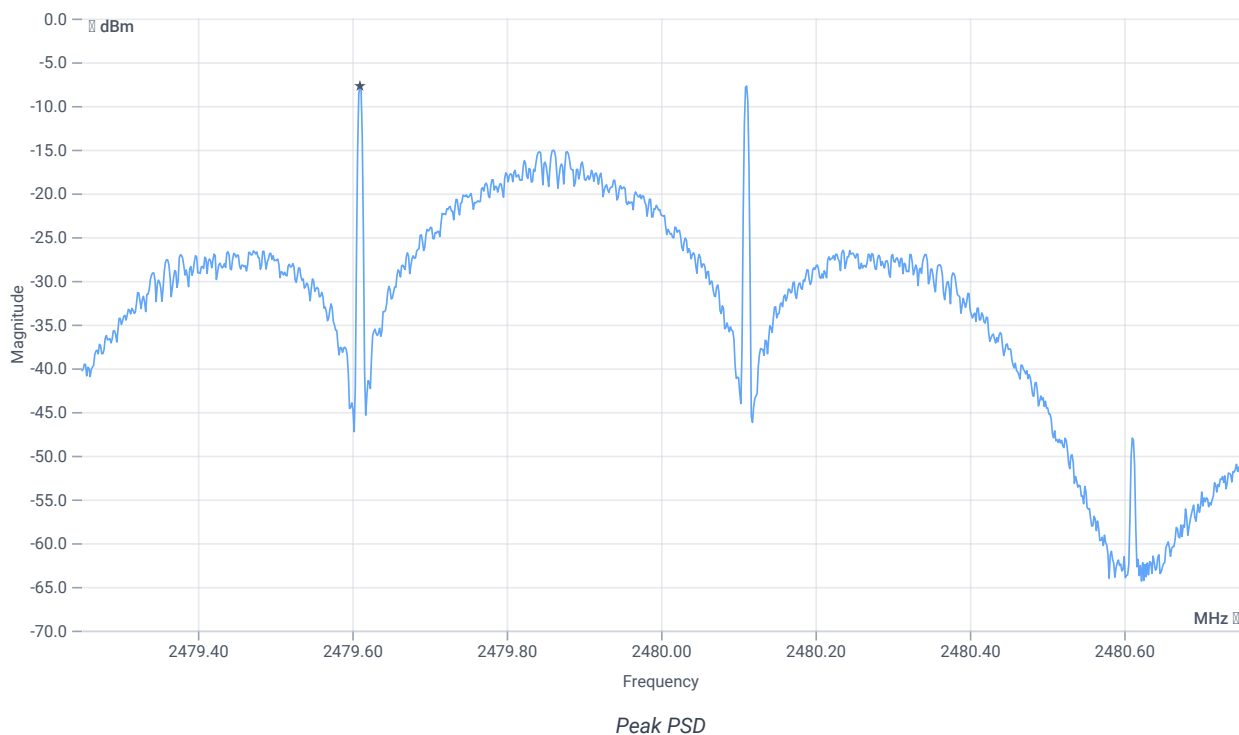
## Test at TX 2480 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.19    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2480.100 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.81   11.21   10      |
| Start [MHz]   Stop [MHz]                             | 2479.250   2480.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -7.72    | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S8

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:28:30                                             |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S8 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | True   Freq [MHz] 2480                 |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test 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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.14    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2480.100 | MHz  | INFO    |

### READ SA SETTINGS:

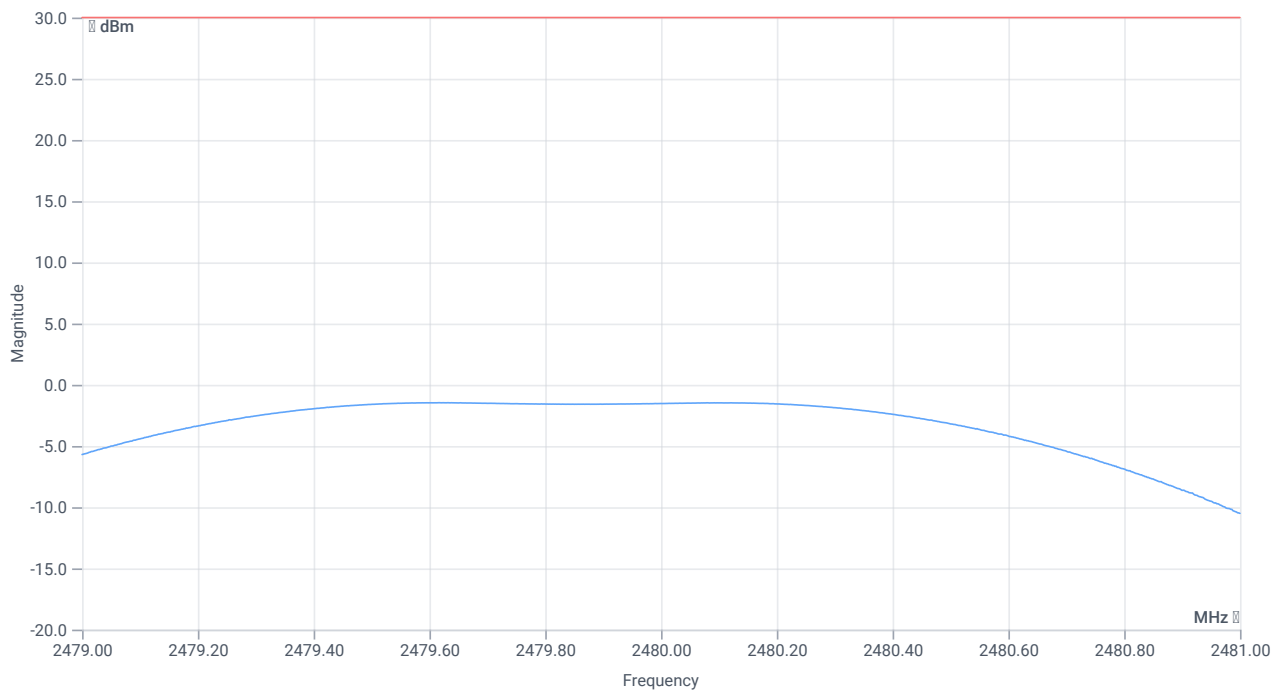
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.86   11.21   10      |
| Start [MHz]   Stop [MHz]                             | 2479.000   2481.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 673      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 8.86   11.21   15     |
| Start [MHz]   Stop [MHz]                             | 2479.000   2481.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.46    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.714496 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2479.632 | MHz  | INFO    |

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S8

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:27:13                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 26.0   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S8                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | True   Freq [MHz] 2440                 |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

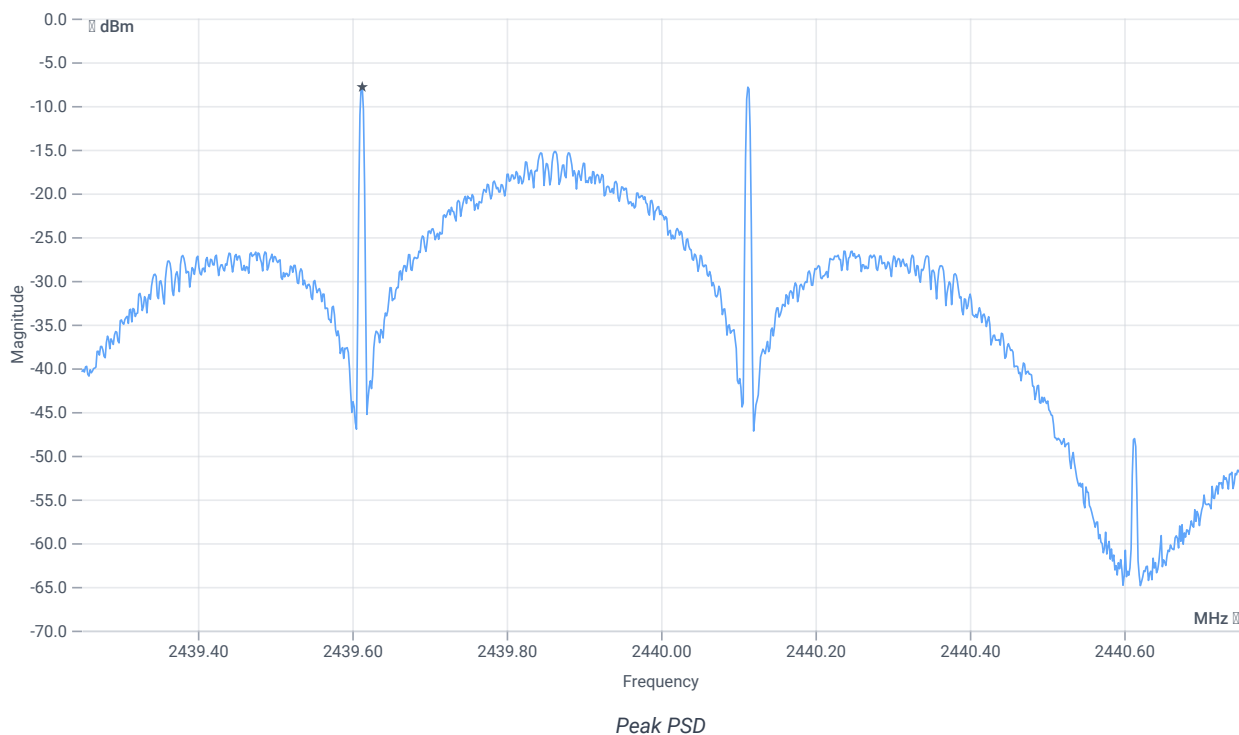
## Test at TX 2440 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.37    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.100 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.63   11.16   10      |
| Start [MHz]   Stop [MHz]                             | 2439.250   2440.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -7.84    | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S8

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:26:30                                             |
| Ambit Temp [°C]   Humidity [rel%] | 25.9   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S8 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | False   Freq [MHz] 2402                |
| Frequency mid to test                            | True   Freq [MHz] 2440                 |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

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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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -1.33    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2440.100 | MHz  | INFO    |

### READ SA SETTINGS:

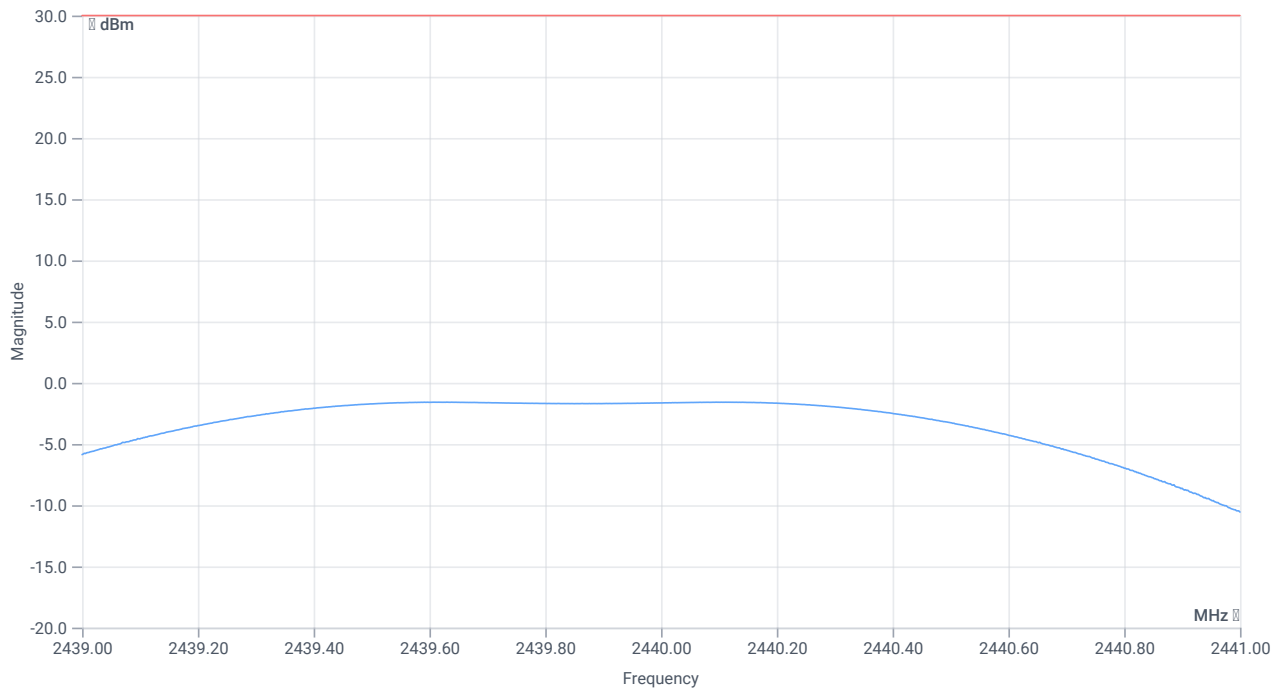
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 3.67   11.16   10      |
| Start [MHz]   Stop [MHz]                             | 2439.000   2441.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 673      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 8.67   11.16   15     |
| Start [MHz]   Stop [MHz]                             | 2439.000   2441.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.58    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.695024 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2439.63  | MHz  | INFO    |

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ BT LE coded S8

### Test References

|                                   |                                                                                                            |
|-----------------------------------|------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:25:21                                                                                        |
| Ambit Temp [°C]   Humidity [rel%] | 25.9   24                                                                                                  |
| System Version                    | 3.3.4.3                                                                                                    |
| Test Specification                | FCC 15.247 -                                                                                               |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission |
| TC Version                        | 0.0.1                                                                                                      |
| My Description                    | FCC 15.247 Peak Power Spectral Density DTS - BT LE coded S8                                                |
| Add. Information                  |                                                                                                            |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | True   Freq [MHz] 2402                 |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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

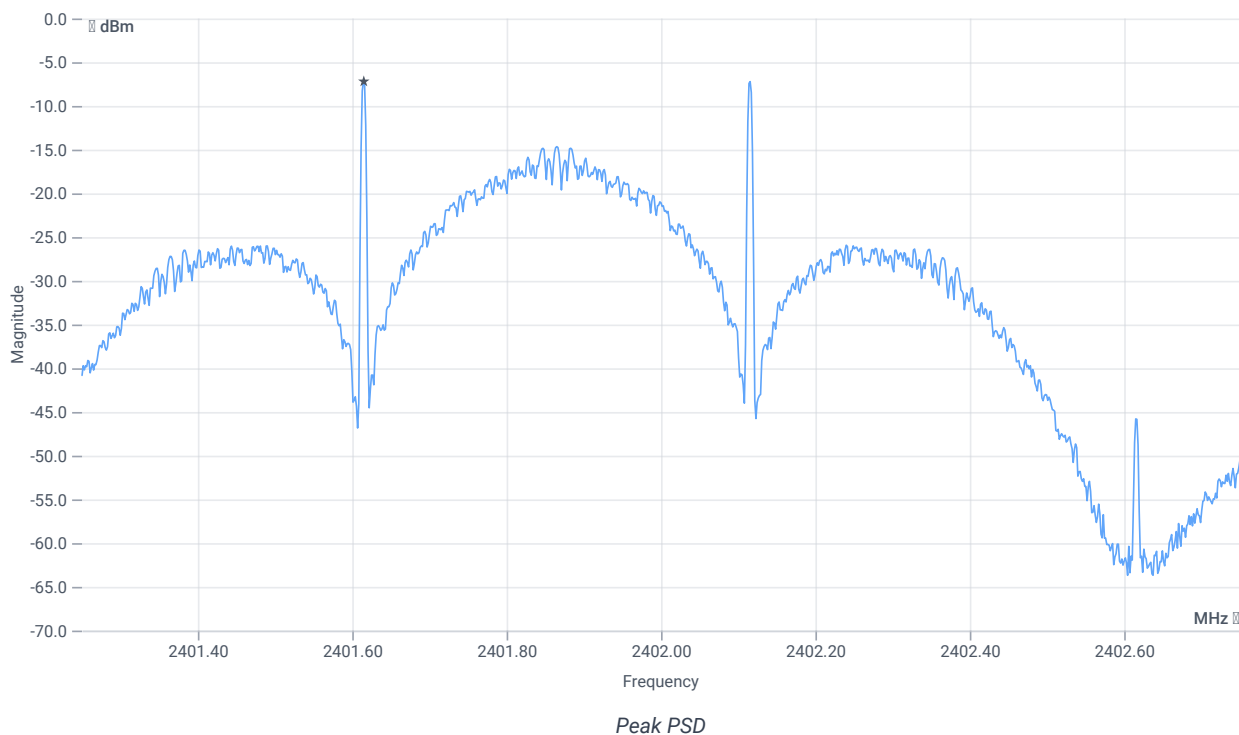
## Test at TX 2402 MHz

RESULT: Reference Power cond.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.80    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2402.100 | MHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.20   11.09   10      |
| Start [MHz]   Stop [MHz]                             | 2401.250   2402.750    |
| RBW [MHz]   VBW [MHz]                                | 0.003000   0.010000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 1000   20   1001   SWE |



### RESULT

| Test Description          | Lower Limit | Upper Limit | Measured | Unit     | Verdict |
|---------------------------|-------------|-------------|----------|----------|---------|
| Max Peak power<br>Density | ---         | 8           | -7.2     | dBm/3KHz | PASS    |

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power DTS ~ BT LE coded S8

### Test References

|                                   |                                                                 |
|-----------------------------------|-----------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:24:38                                             |
| Ambit Temp [°C]   Humidity [rel%] | 25.9   24                                                       |
| System Version                    | 3.3.4.3                                                         |
| Test Specification                | FCC 15.247 -                                                    |
| Test Method                       | DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth   |
| TC Version                        | 0.0.1                                                           |
| My Description                    | FCC 15.247 Max Peak Output Power Conducted DTS - BT LE coded S8 |

Add. Information

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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 coded S8                         |
| Antenna Port used                                | 1                                      |
| Temperature                                      | nom                                    |
| Voltage                                          | nom                                    |
| Frequency low to test                            | True   Freq [MHz] 2402                 |
| Frequency mid to test                            | False   Freq [MHz] 2440                |
| Frequency high to test                           | False   Freq [MHz] 2480                |
| Auto Control enabled Power Supply   Climatic Box | No   No                                |
| Additional Path Loss [dB]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

## Test Equipment

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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.

| Test Description              | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------------------|-------------|-------------|----------|------|---------|
| Ref. Power<br>1MHz/1MHz cond. | ---         | ---         | -0.78    | dBm  | INFO    |
| Ref. Frequency                | ---         | ---         | 2402.100 | MHz  | INFO    |

### READ SA SETTINGS:

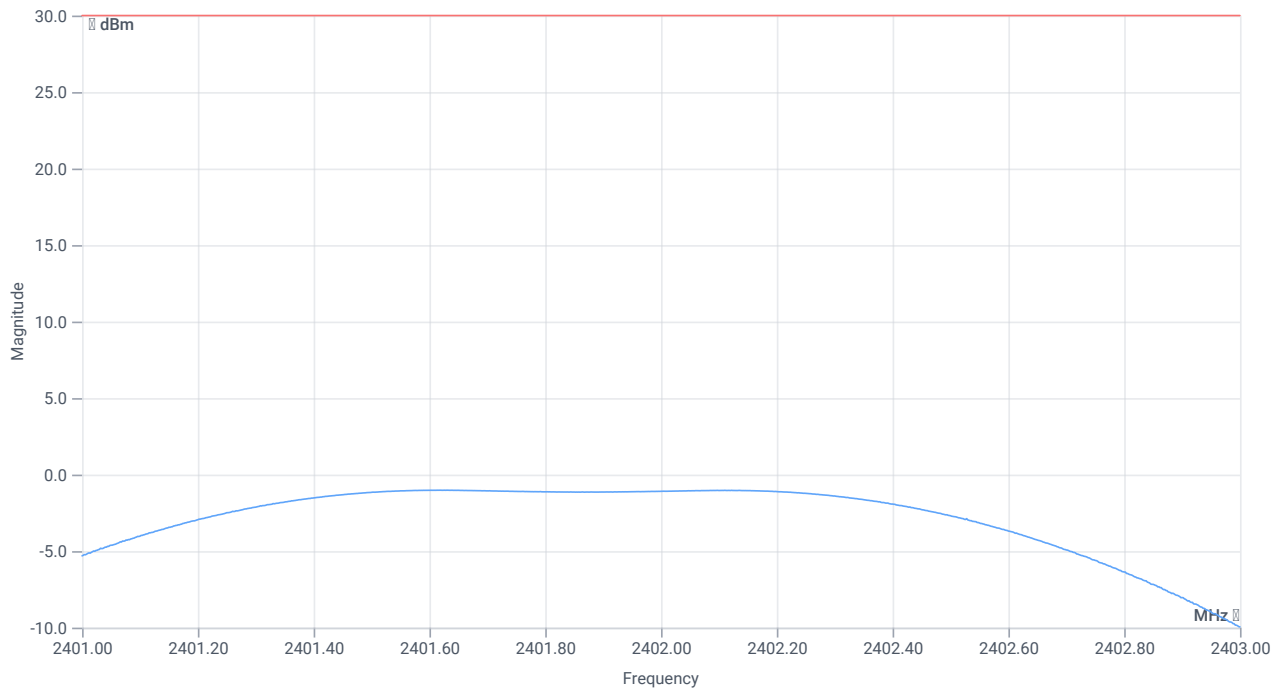
|                                                      |                        |
|------------------------------------------------------|------------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 4.22   11.09   10      |
| Start [MHz]   Stop [MHz]                             | 2401.000   2403.000    |
| RBW [MHz]   VBW [MHz]                                | 0.100000   0.300000    |
| Detector   TraceMode                                 | POS   MAXH             |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   10001   SWE |

### DTS Bandwidth

| Test Description    | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|---------------------|-------------|-------------|----------|------|---------|
| DTS Bandwidth (6dB) | ---         | ---         | 678      | kHz  | INFO    |

### READ SA SETTINGS:

|                                                      |                       |
|------------------------------------------------------|-----------------------|
| RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]   | 9.22   11.09   15     |
| Start [MHz]   Stop [MHz]                             | 2401.000   2403.000   |
| RBW [MHz]   VBW [MHz]                                | 1.000000   5.000000   |
| Detector   TraceMode                                 | POS   MAXH            |
| Sweep: Time [ms]   Count   Points per Section   Type | 50   200   1001   SWE |



Peak output power

## RESULT

| Test Description  | Lower Limit | Upper Limit | Measured | Unit | Verdict |
|-------------------|-------------|-------------|----------|------|---------|
| Peak Power        | ---         | 30.00       | -1.02    | dBm  | PASS    |
| Peak Power        | ---         | 1000        | 0.790679 | mW   | PASS    |
| Frequency at Peak | ---         | ---         | 2401.626 | MHz  | INFO    |

## Verdict

PASS

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

### Test References

|                                   |                                                                                                                  |
|-----------------------------------|------------------------------------------------------------------------------------------------------------------|
| TC Start                          | 24.01.2023 13:09:39                                                                                              |
| Ambit Temp [°C]   Humidity [rel%] | 25.8   24                                                                                                        |
| System Version                    | 3.3.4.3                                                                                                          |
| Test Specification                | FCC 15.247 -                                                                                                     |
| Test Method                       | IF DTS then 8.5 DTS emissions in non-restricted frequency bands:<br>Subclause 11.11 of ANSI C63.10 is applicable |
| TC Version                        | 0.0.1                                                                                                            |
| My Description                    | FCC 15.247 TX Emissions Conducted DTS - BT LE 2 Msps                                                             |
| Add. Information                  |                                                                                                                  |

### EUT Common Settings BT Low Energy

|                                          |                                               |
|------------------------------------------|-----------------------------------------------|
| Intermodulation Value N                  | 3                                             |
| Image Freq. Low   Mid   High [MHz]       | 0   0   0                                     |
| Power Class                              | 2                                             |
| 1 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| 2 Mbps supported                         | True   TXpayload 255   RXpayload 255          |
| Longrange S8 supported                   | True   TXpayload 255   RXpayload 255          |
| Longrange S2 supported                   | True   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]                        | 0.5                                    |
| Switched Path                                    | EUT - SignalingUnit - SpectrumAnalyzer |

### Test Equipment

## Test Equipment

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

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