

# Conducted test results

No.1-7077/23-01-04\_TR1-A201-R1

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January 17, 2024

Test Standard(s)	FCC 15.247 ISED RSS247
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## Table of Content

NA # Message with SA scan ~	3
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	4
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	6
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	9
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	13
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	16
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	19
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	21
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	24
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	28
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	31
FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	34
FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	36
NA # Message with SA scan ~	38
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	39
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	41
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	44
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	48
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	51
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	54
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	56
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	59
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	63
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	66
FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	69
FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	71
NA # Message with SA scan ~	73
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	74
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	76
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	79
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	83
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	86
FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode	89
FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode	91
FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode	94
FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode	98
FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode	101
FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	104
FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz	106

## NA # Message with SA scan ~

### References

TC start	12.01.2024 13:13:28
Ambit temp [°C]   humidity [rel%]	22.9   26
System version	4.7.1.5
Standard   Version	NA   NI
Method	
Description	Message with SA Scan b mode
Information	

### Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	12.01.2024 13:13:28
Message	set WLAN2G4 to b mode, Frequency [MHz] 2412 ,

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

### Verdict

INFO

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:13:38
Ambit temp [°C]   humidity [rel%]	22.9   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

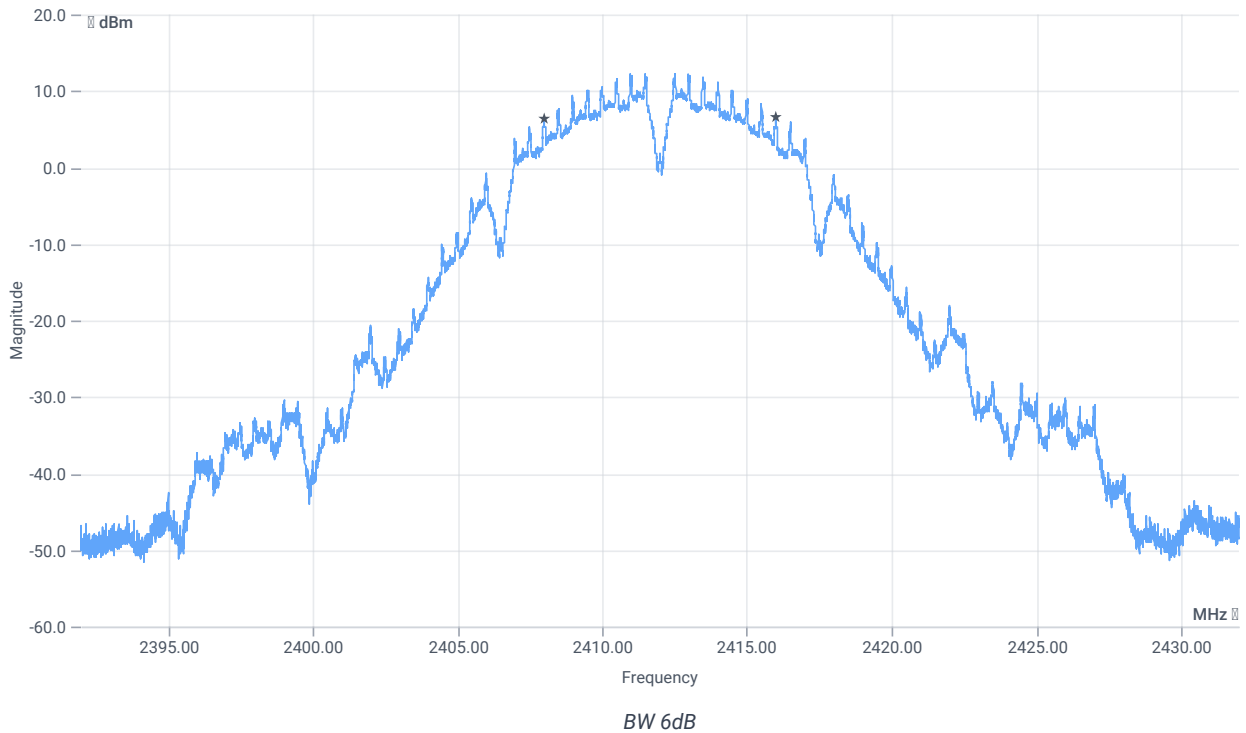
## Test at TX 2412 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.74	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.74   13.85   25
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	7984	kHz	PASS

Verdict

PASS

## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:14:12
Ambit temp [°C]   humidity [rel%]	22.9   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2412 MHz

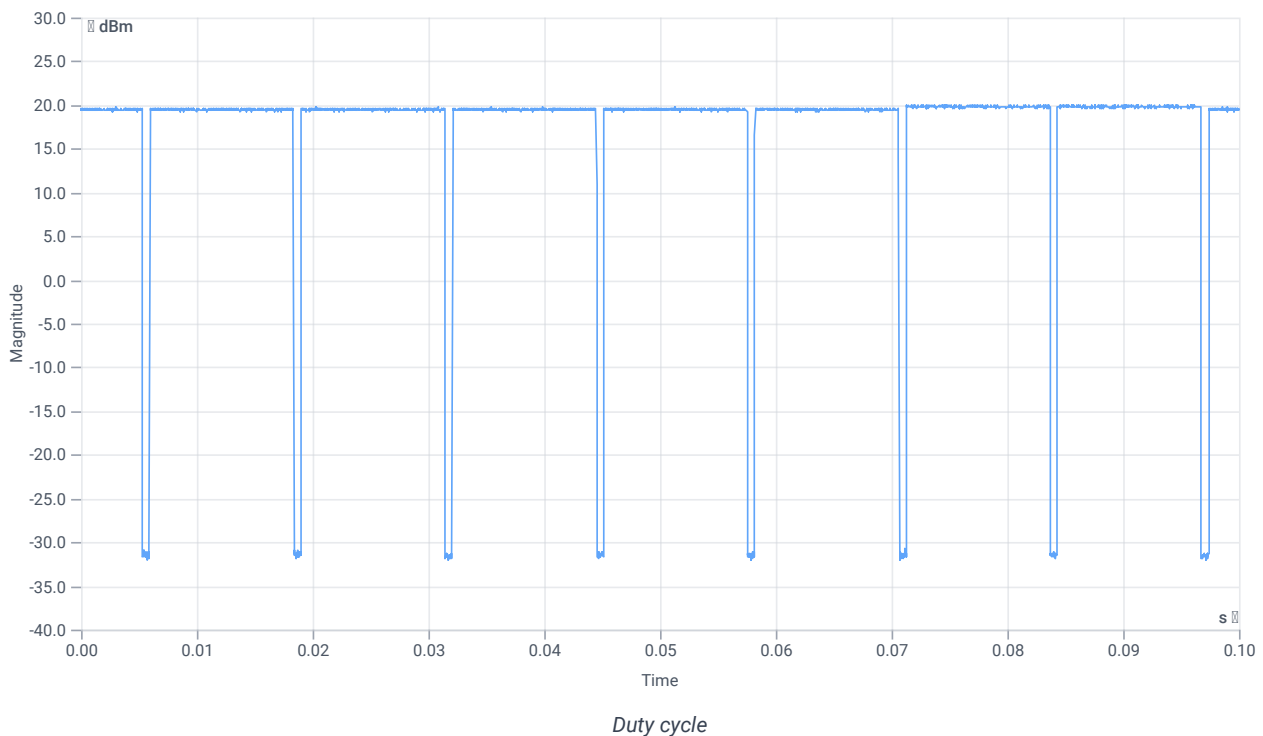
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.69	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

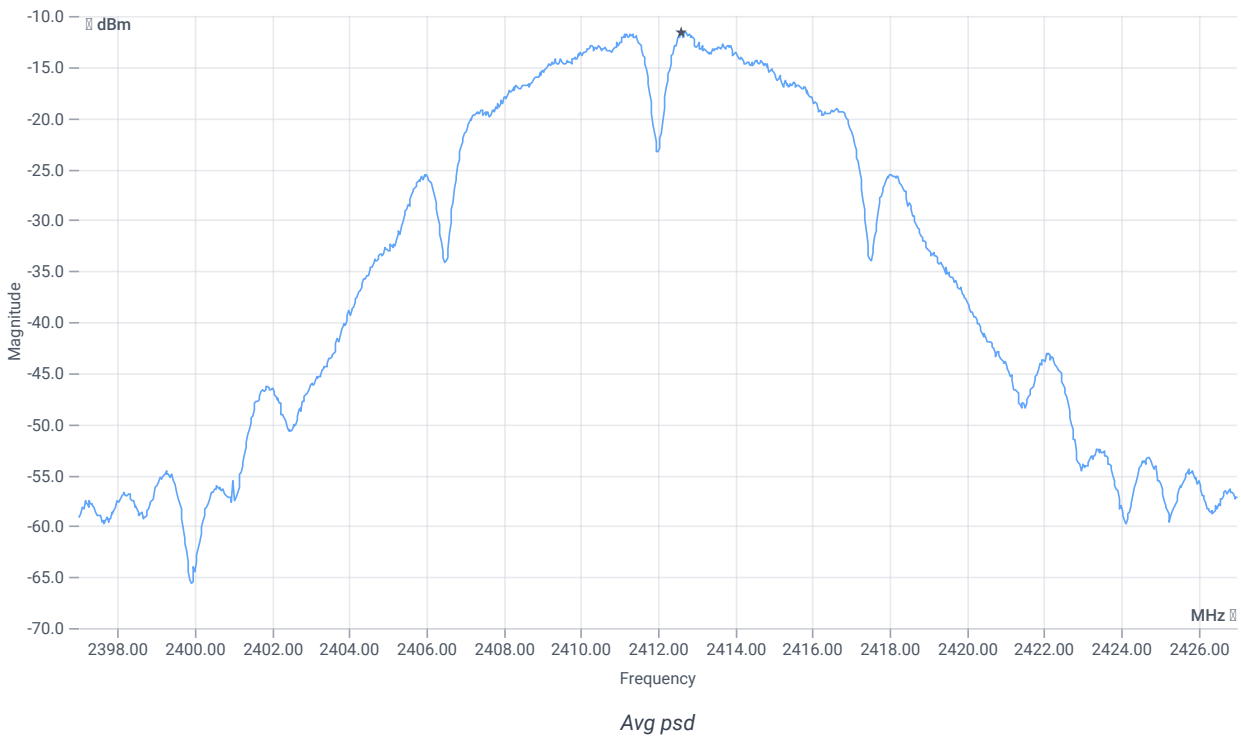
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:7					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO



## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.69   13.85   25
Start [MHz]   Stop [MHz]	2397.000   2427.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-11.6	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-11.37	dBm/3kHz	PASS

Verdict

PASS



# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 13:15:15
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

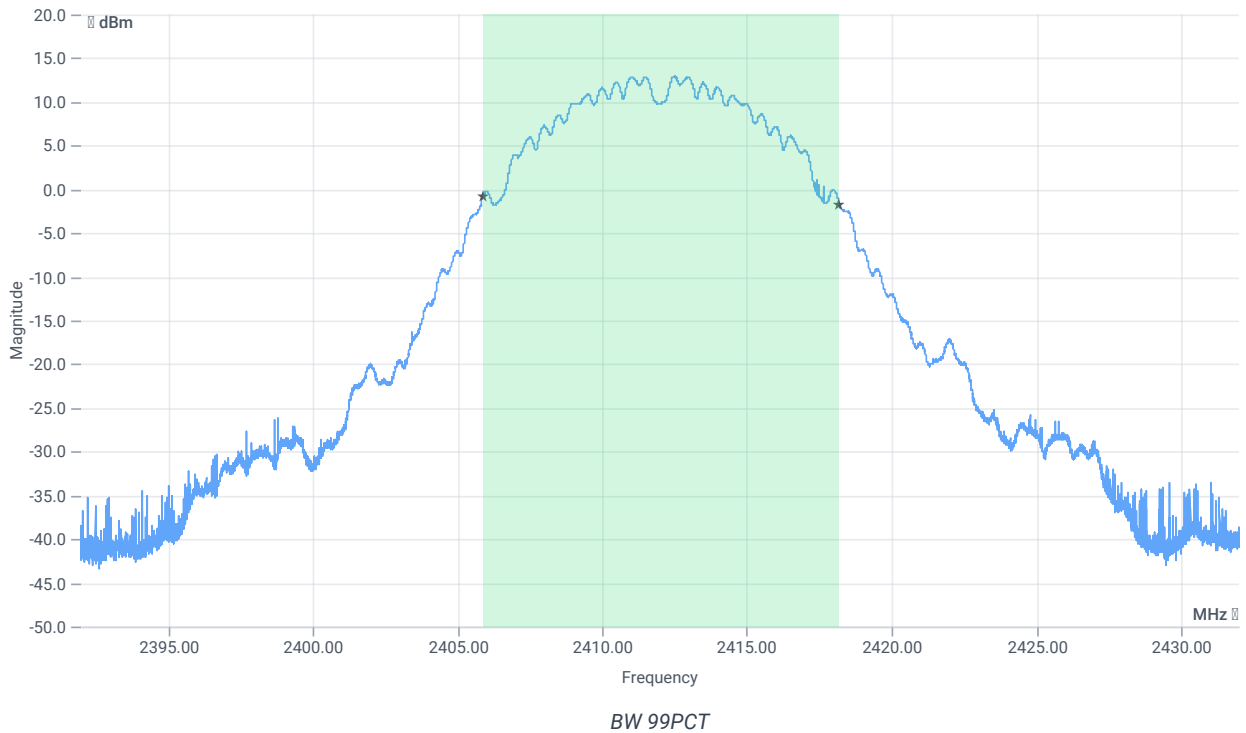
## Test at TX 2412 MHz

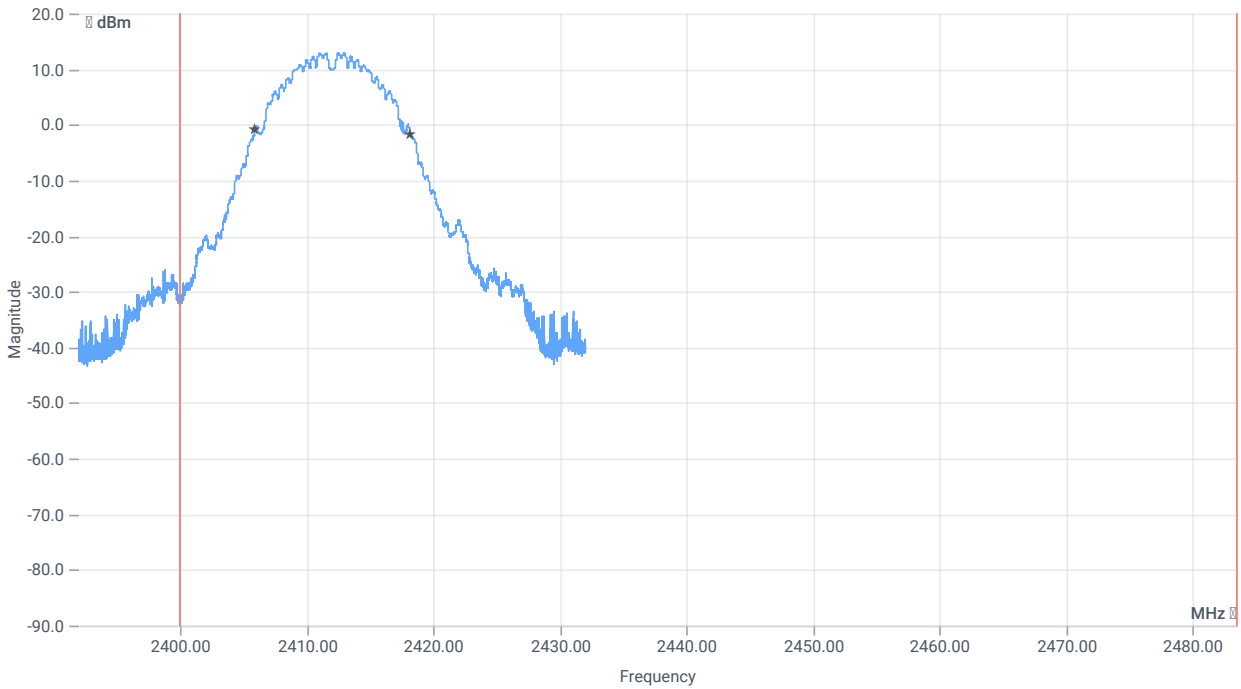
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.66	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.66   13.85   25
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE

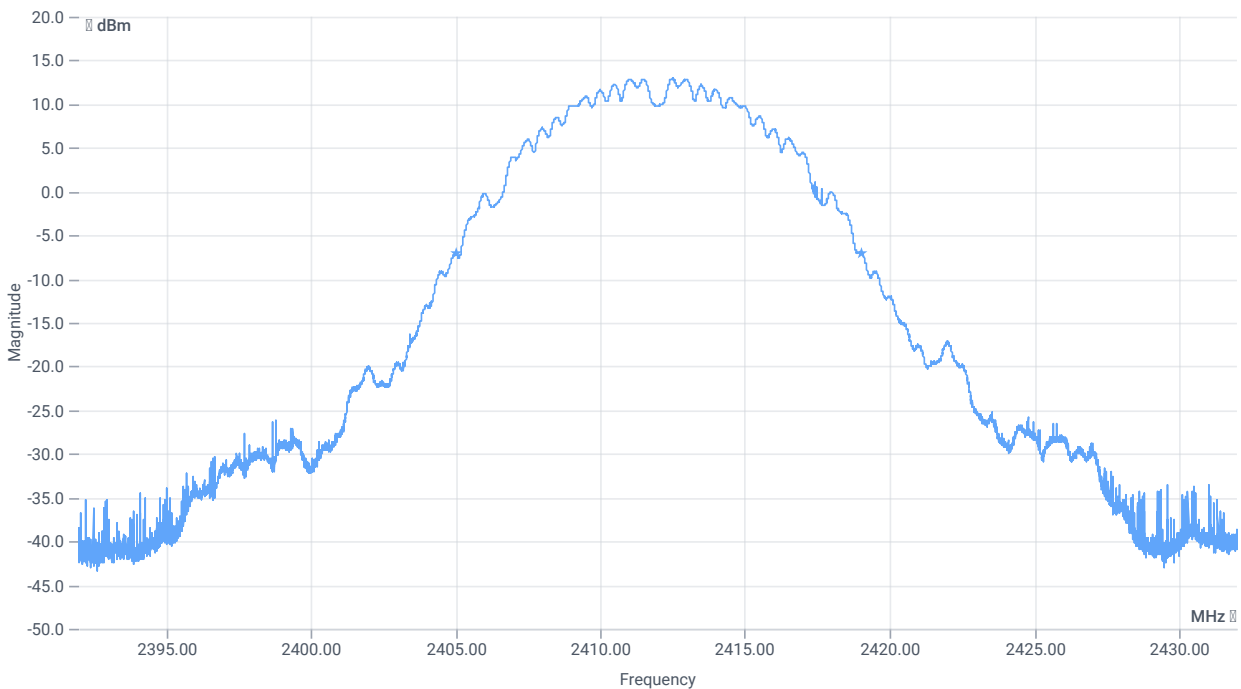




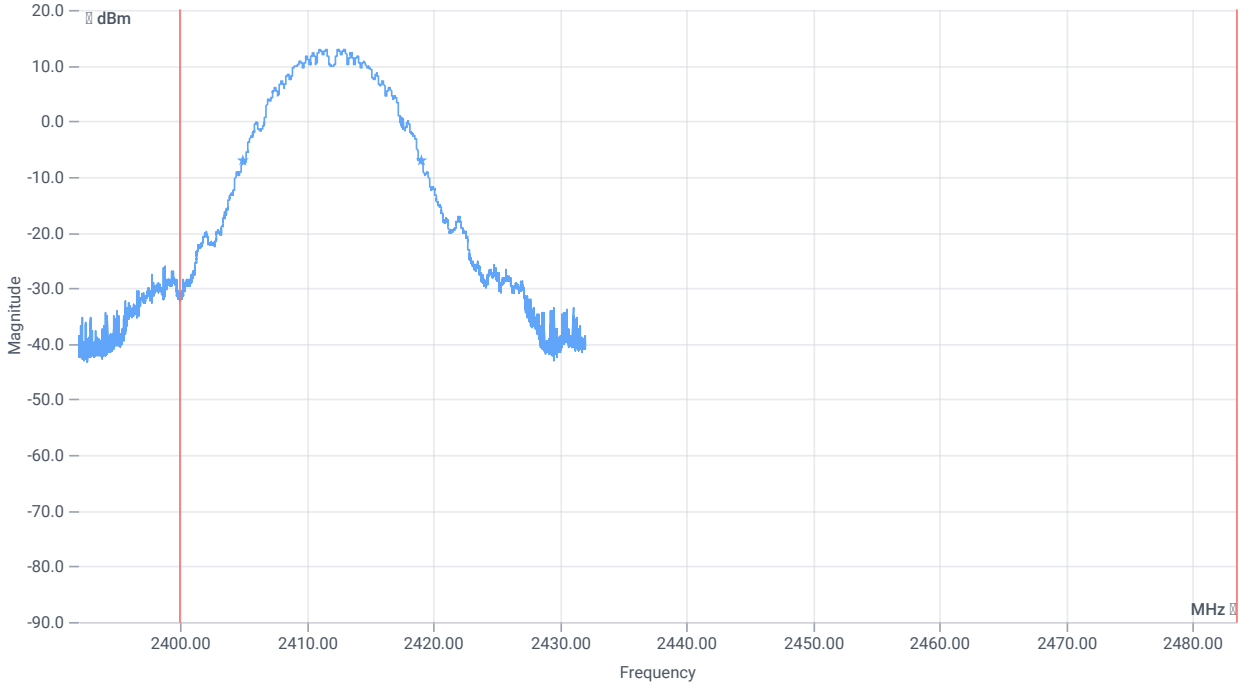
BW within Band 99PCT

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12303.000	kHz	INFO
T1 99%	2400.000000	--	2405.8846	MHz	PASS
T2 99%	--	2483.500000	2418.1874	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	14048	kHz	INFO
T1 20DB	2400.000000	--	2405.0040	MHz	PASS
T2 20dB	--	2483.500000	2419.0520	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:15:54
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

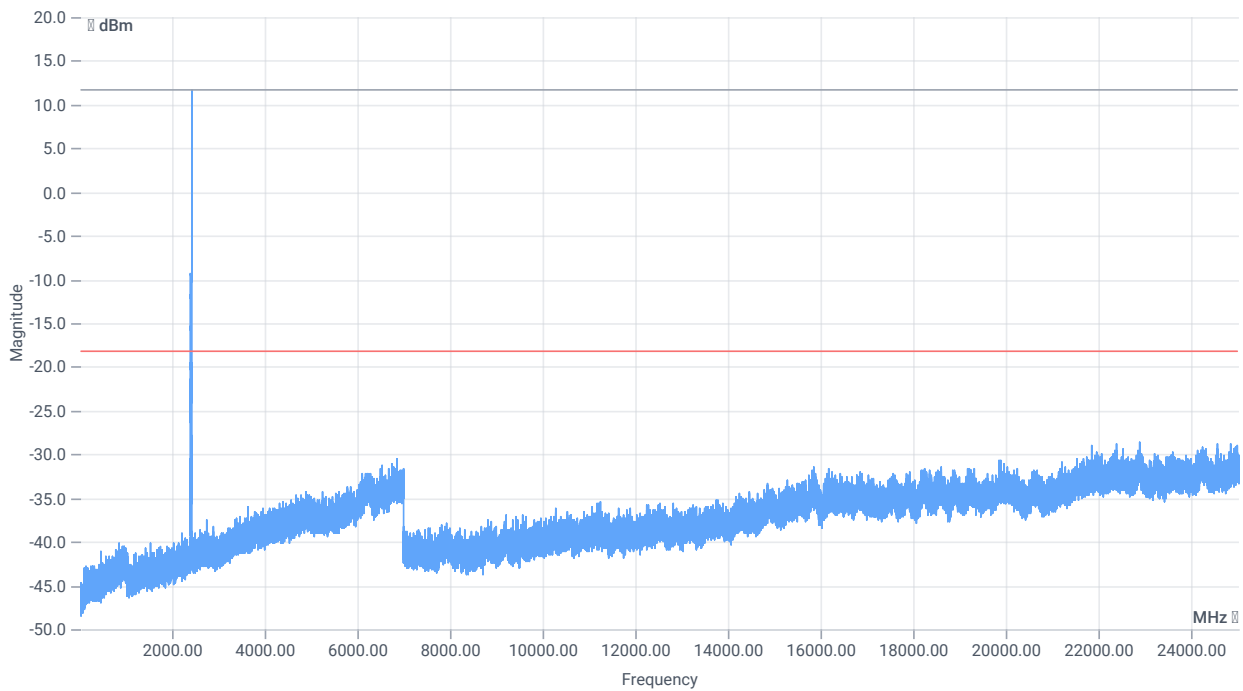
### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2412 MHz

RESULT: Reference Power cond.

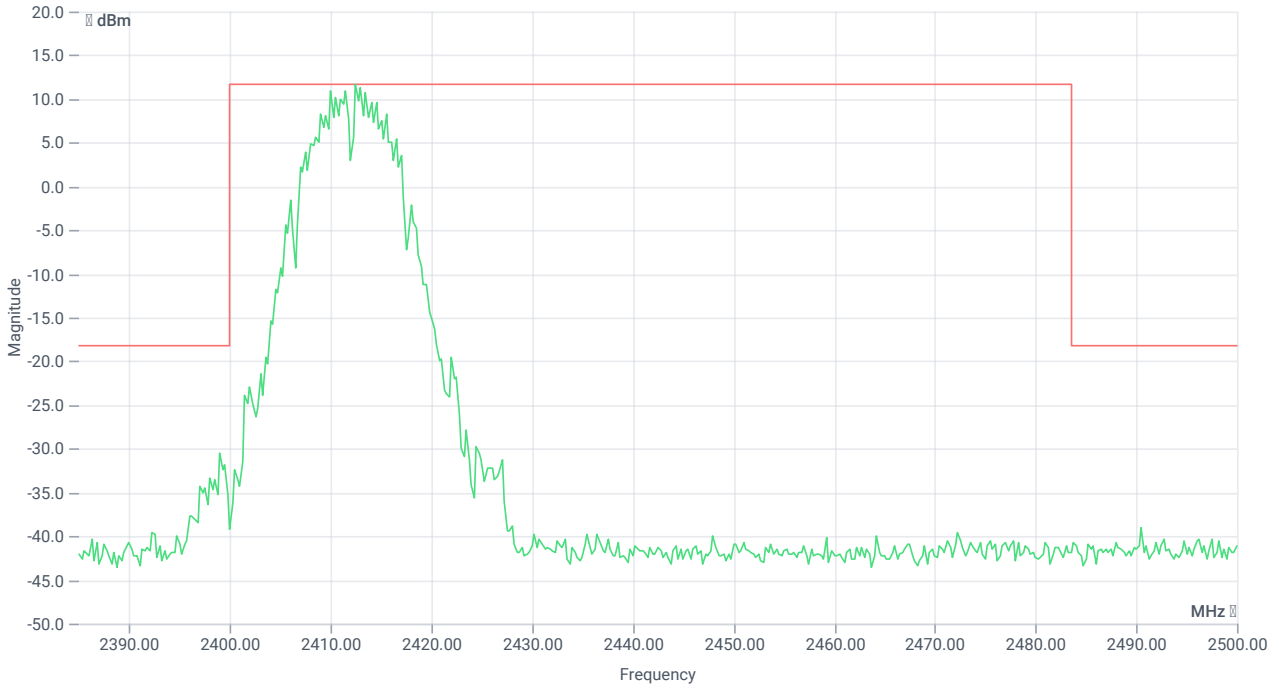
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.62	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	15.62   0   35
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE



TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2412.50 MHz	--	--	11.71	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-154.38	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:22:37
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI



## Test at TX 2412 MHz

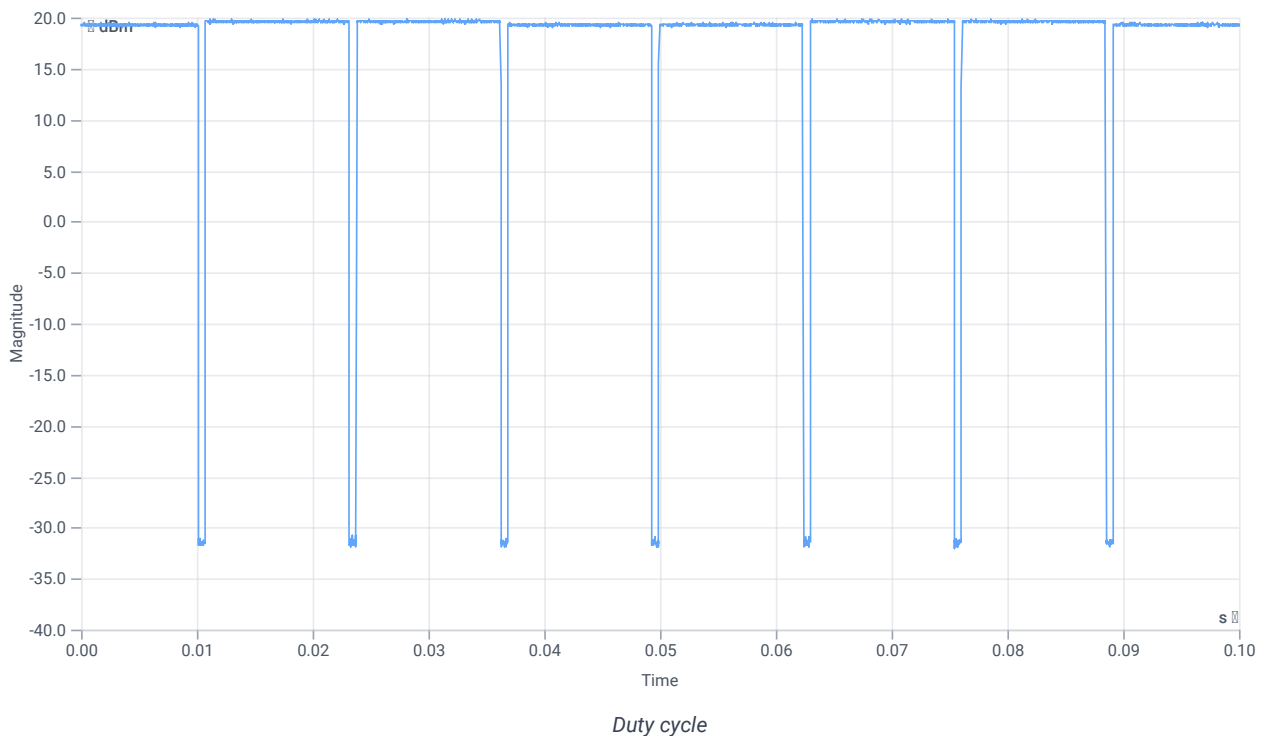
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.58	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

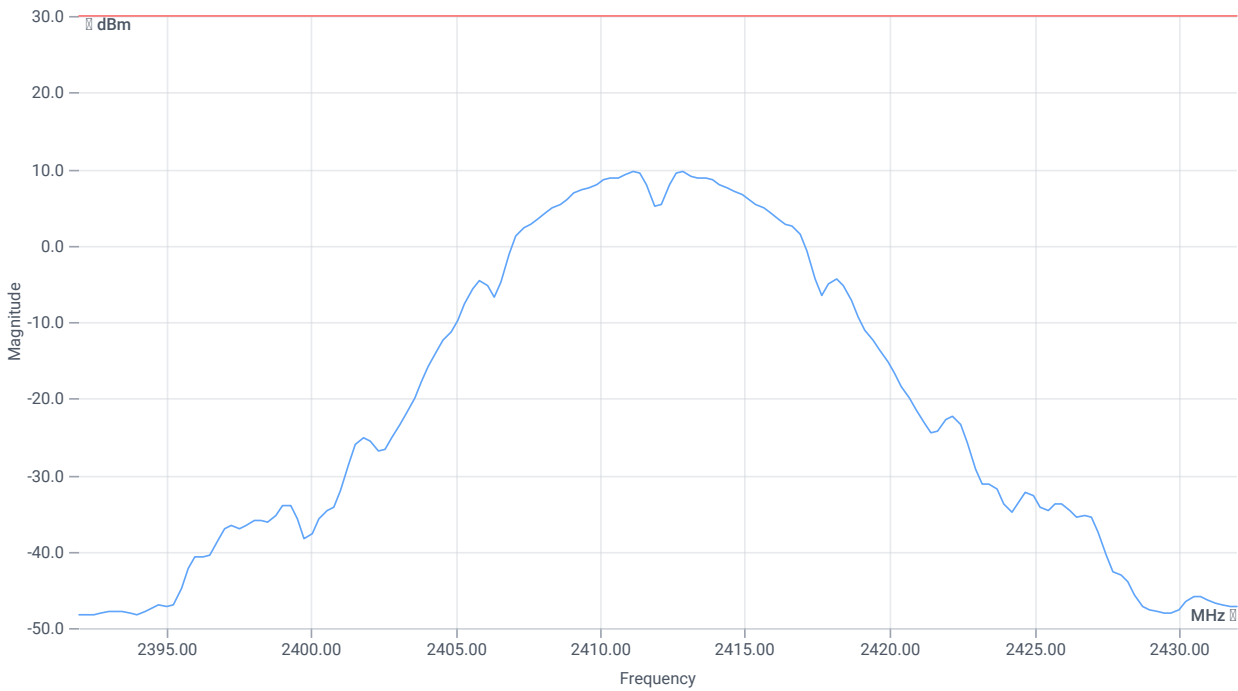
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT						
Result Summary											
Number of detected Bursts:6											
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO						
Duty Cycle max	--	--	0.232	dB	INFO						
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO						
Duty Cycle min	--	--	0.232	dB	INFO						
Max TX Burst Length	--	--	12.4	ms	INFO						
Min Gap Length	--	--	0.675	ms	INFO </tr <tr> <td>Max Gap Length</td> <td>--</td> <td>--</td> <td>0.675</td> <td>ms</td> <td>INFO</td> </tr>	Max Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO						



## Avg output power SA DTS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	25.58   13.85   30
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	19.87	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	20.1	dBm	PASS

Verdict

PASS

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:23:52
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

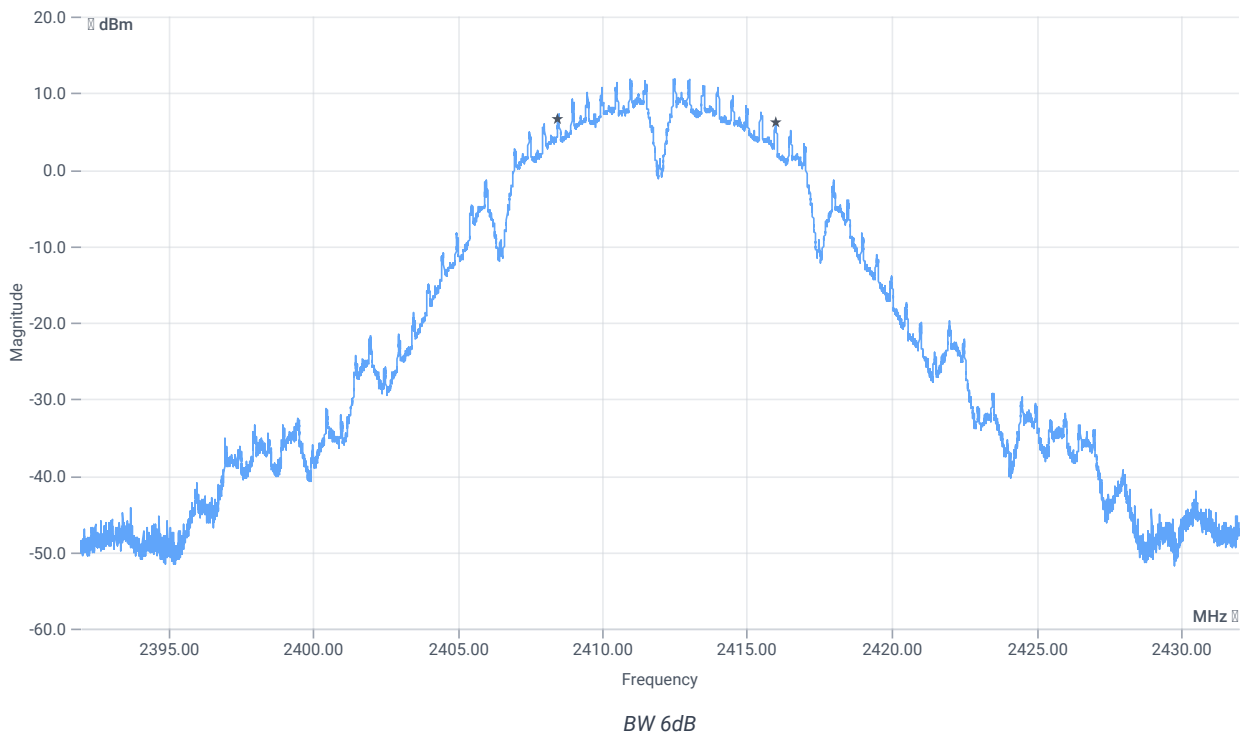
## Test at TX 2412 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.23	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.23   13.85   25
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	7528	kHz	PASS

Verdict

PASS

## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:24:26
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2412 MHz

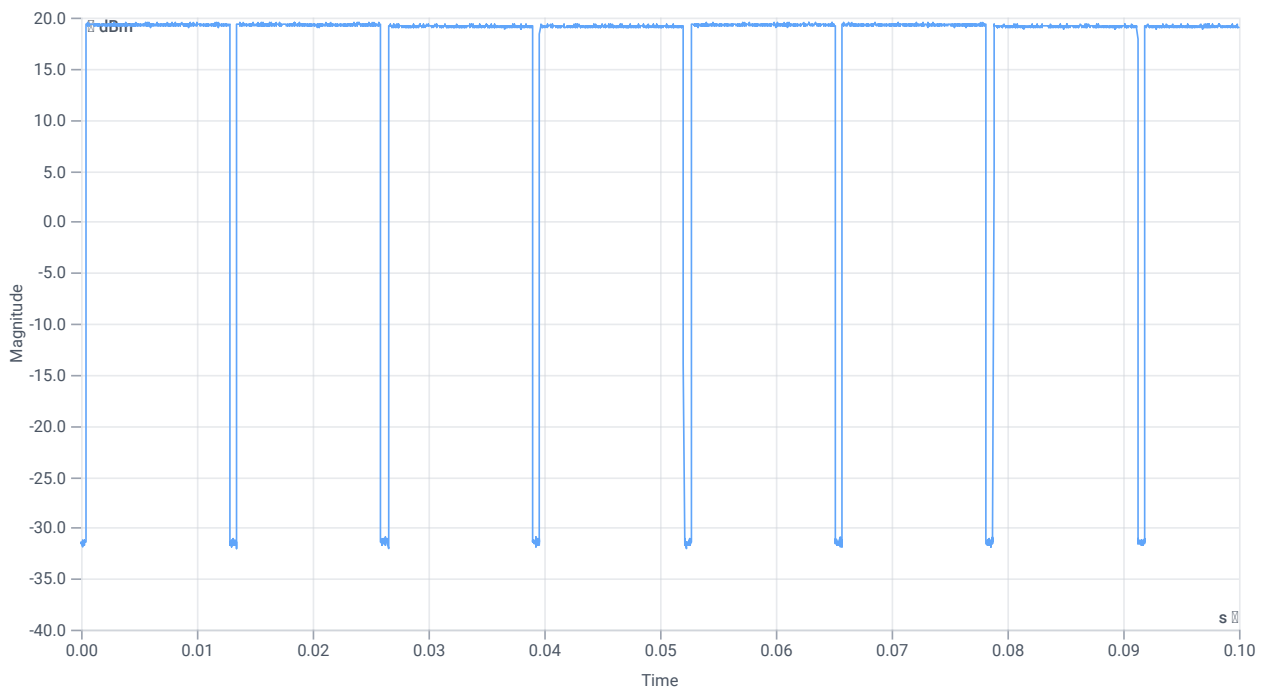
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.25	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:6					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

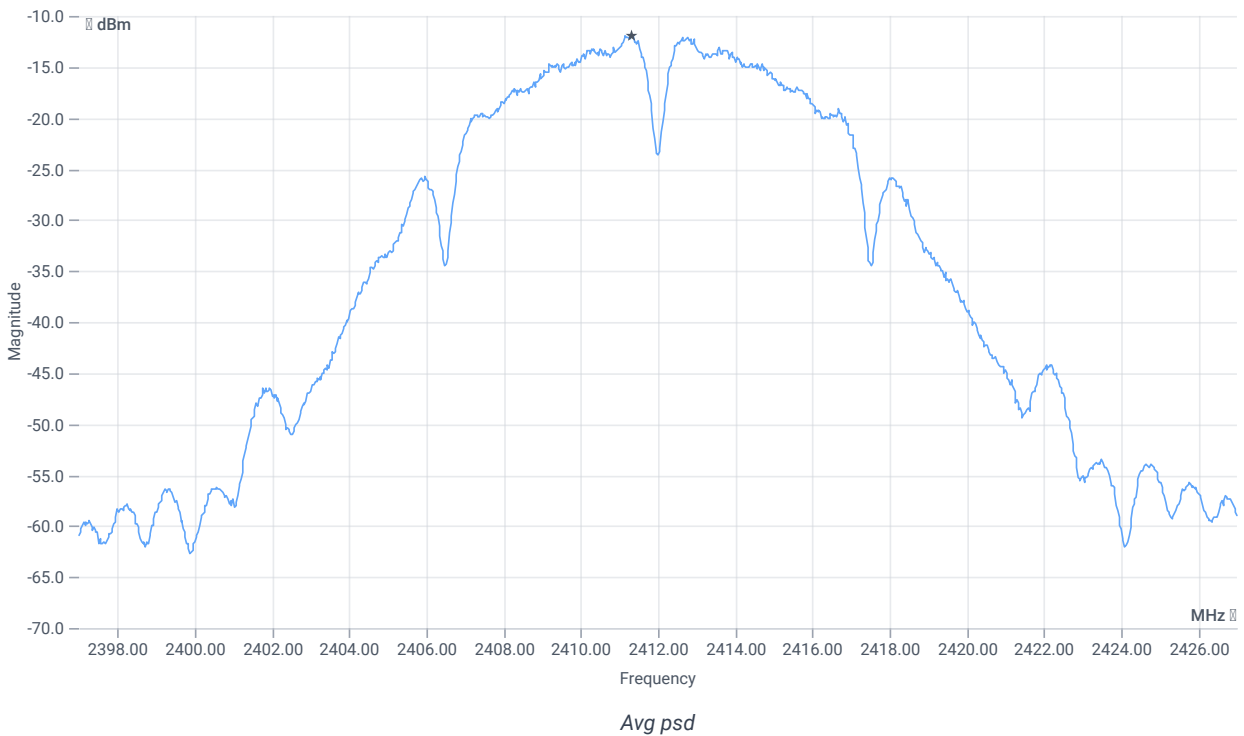


Duty cycle

## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.25   13.85   25
Start [MHz]   Stop [MHz]	2397.000   2427.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-11.92	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-11.69	dBm/3kHz	PASS

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 13:25:30
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI



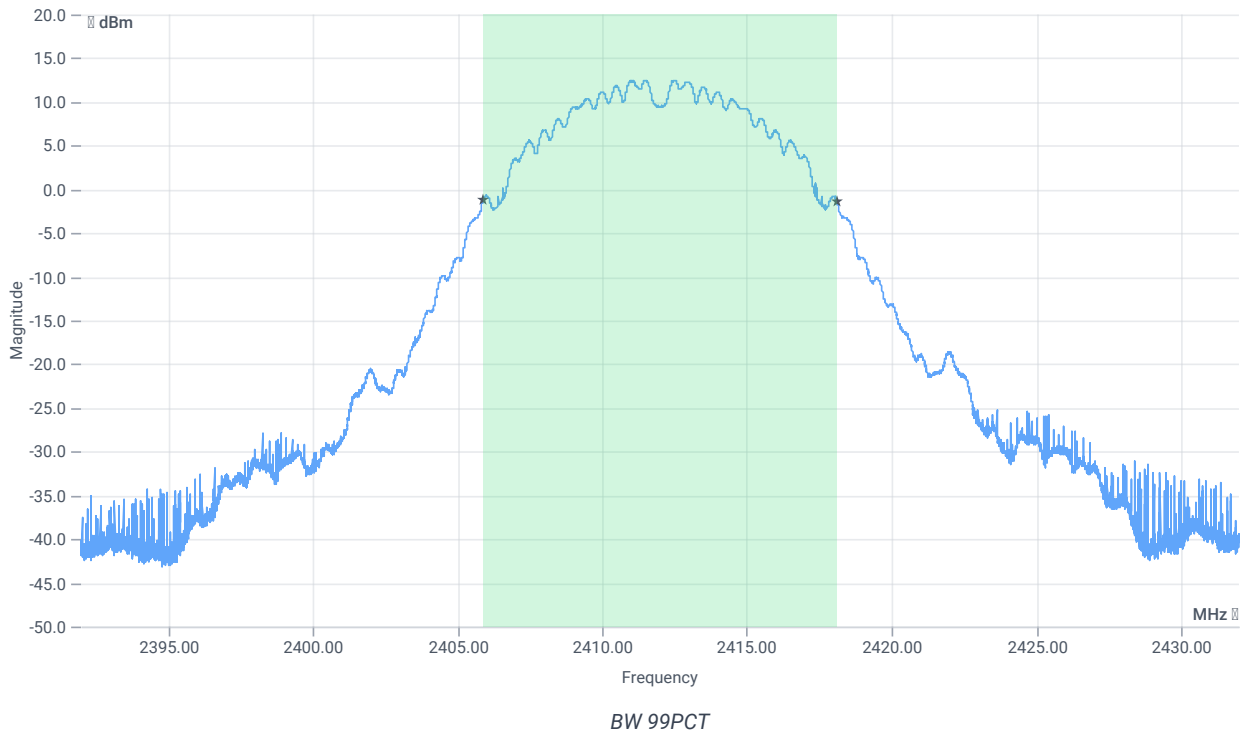
## Test at TX 2412 MHz

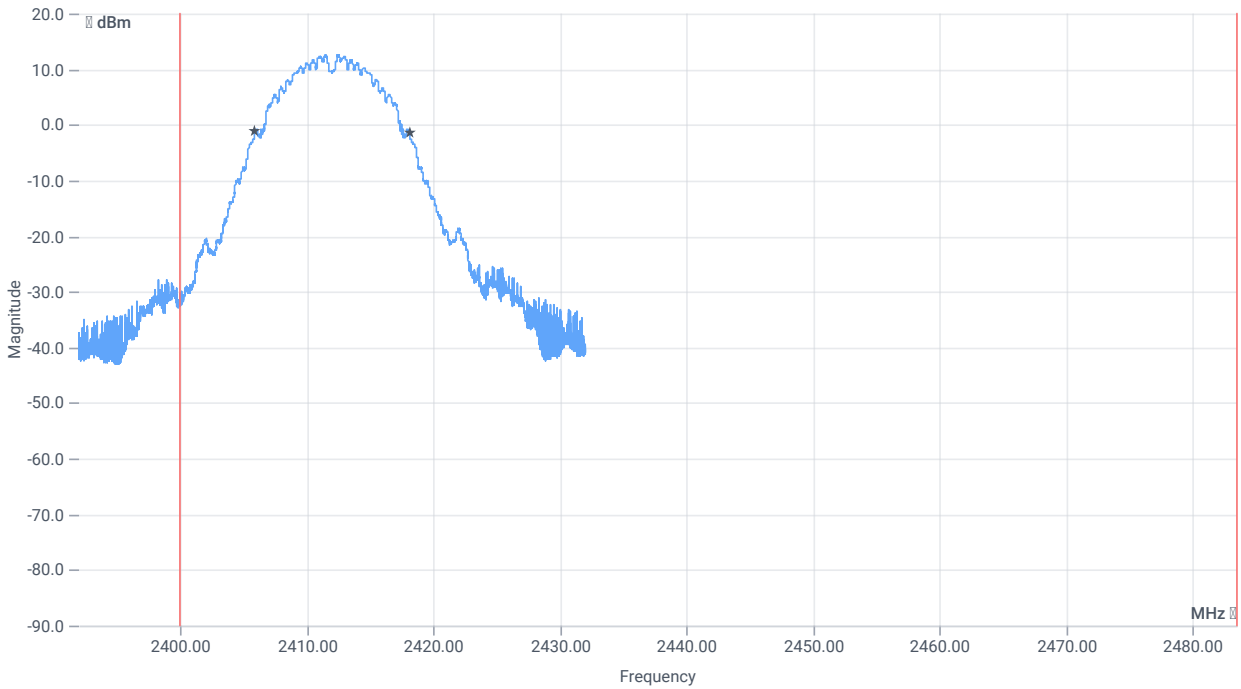
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.21	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.21   13.85   25
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE

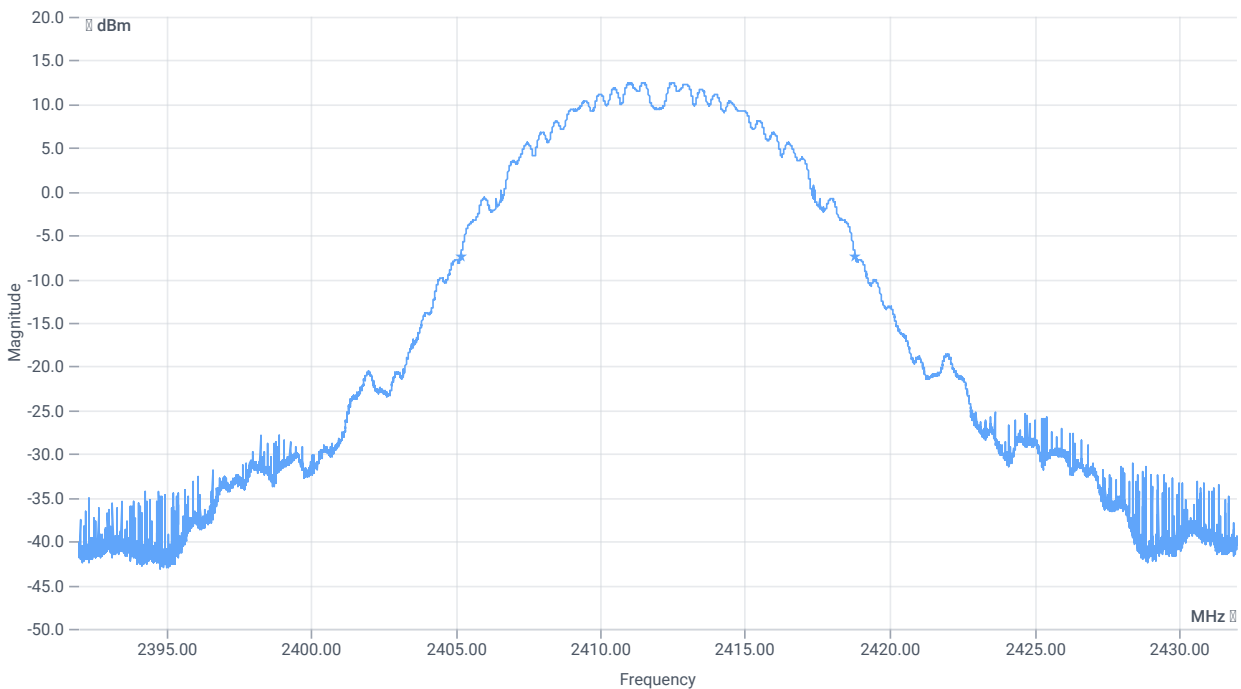




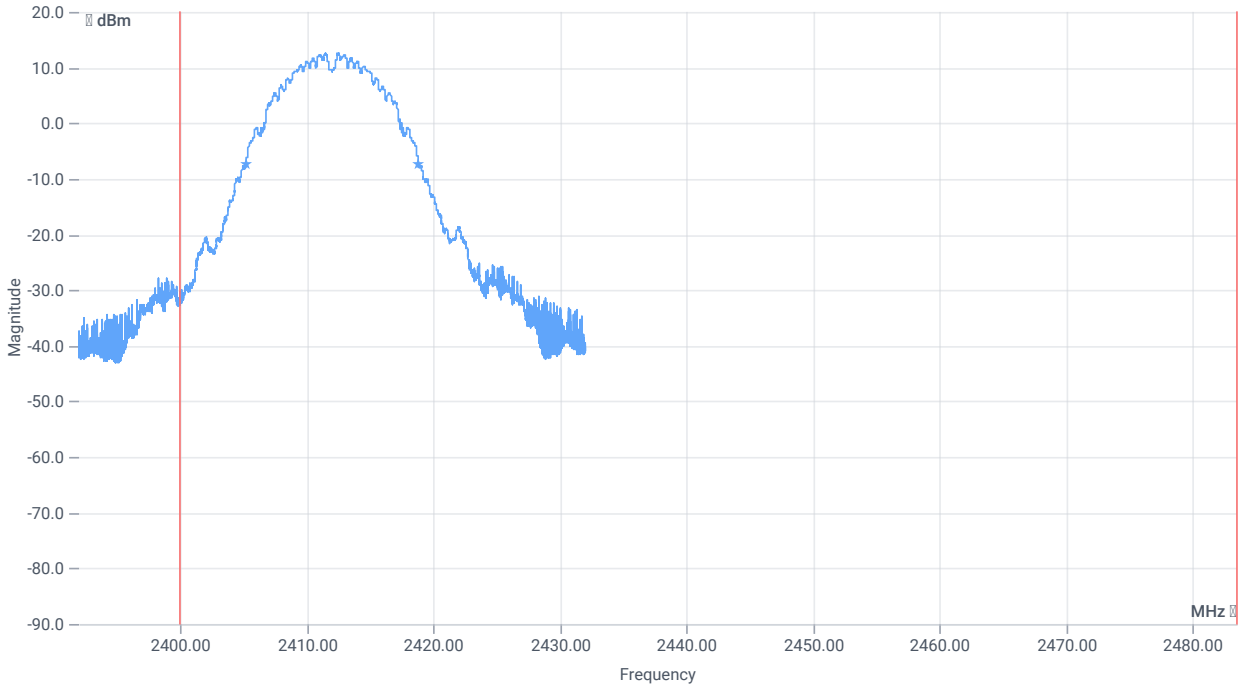
BW within Band 99PCT

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12219.000	kHz	INFO
T1 99%	2400.000000	--	2405.9006	MHz	PASS
T2 99%	--	2483.500000	2418.1194	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	13612	kHz	INFO
T1 20DB	2400.000000	--	2405.2000	MHz	PASS
T2 20dB	--	2483.500000	2418.8120	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:26:07
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

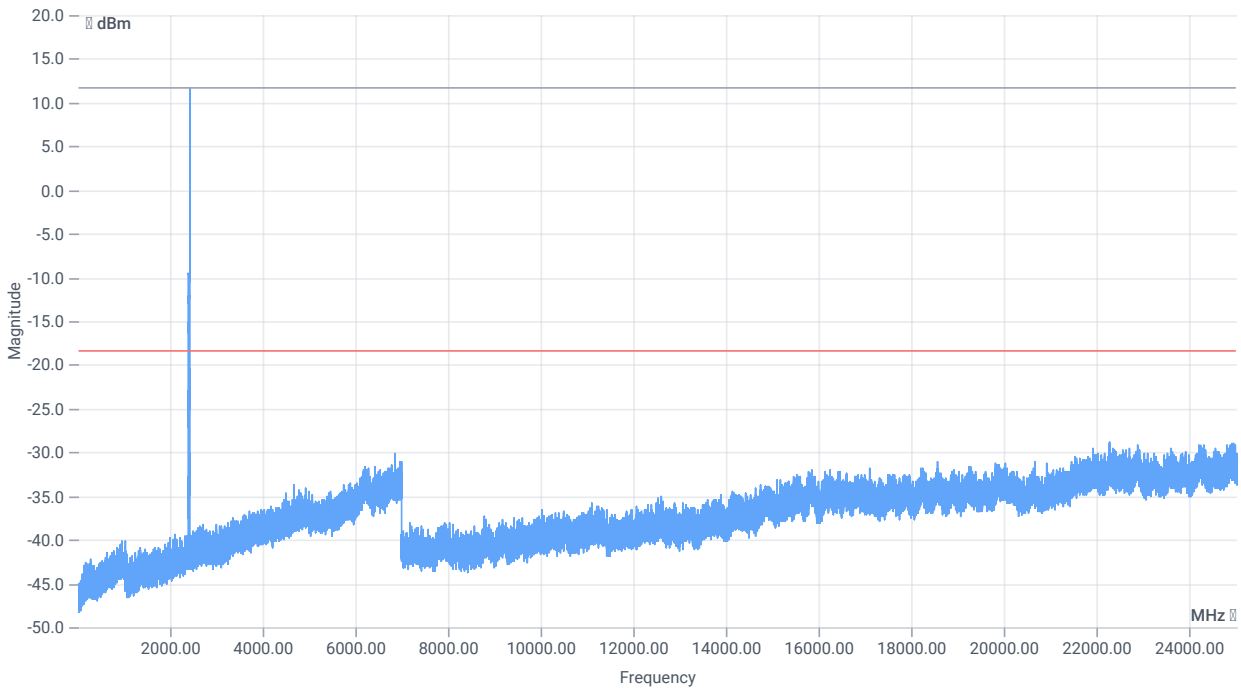
### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2412 MHz

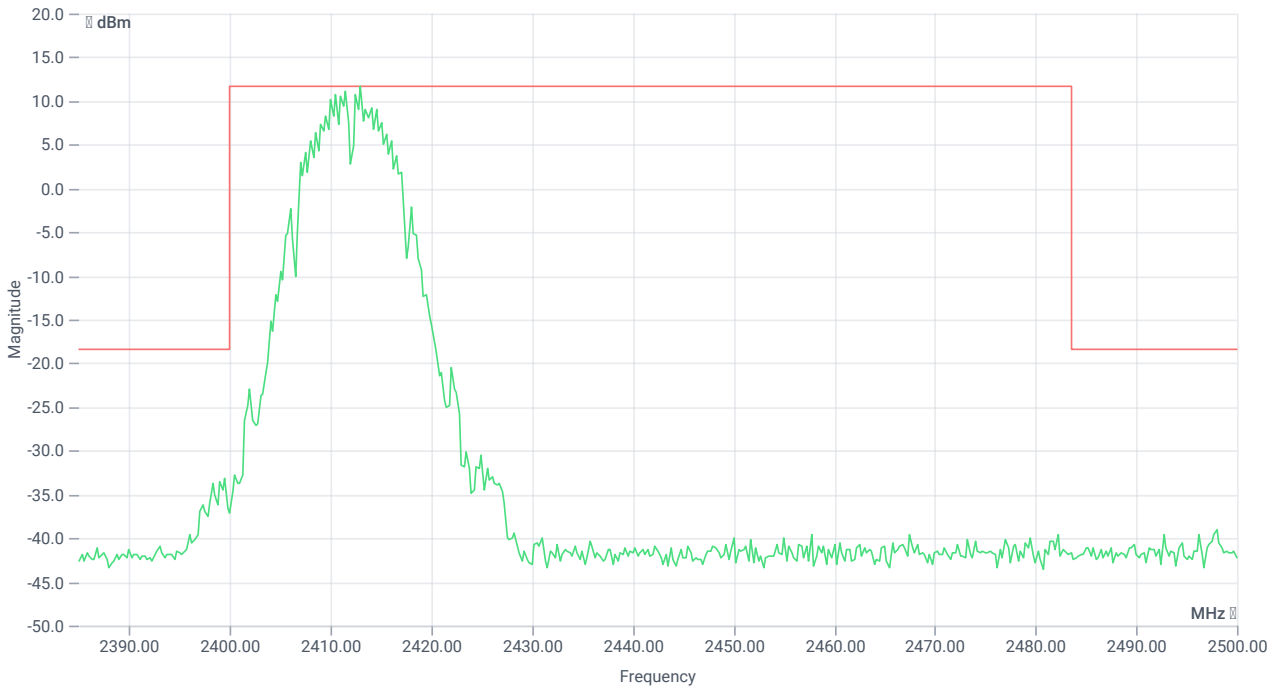
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.14	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO



### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	15.14   0   35
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE



TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2413.00 MHz	--	--	11.64	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-153.85	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:32:50
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2412 MHz

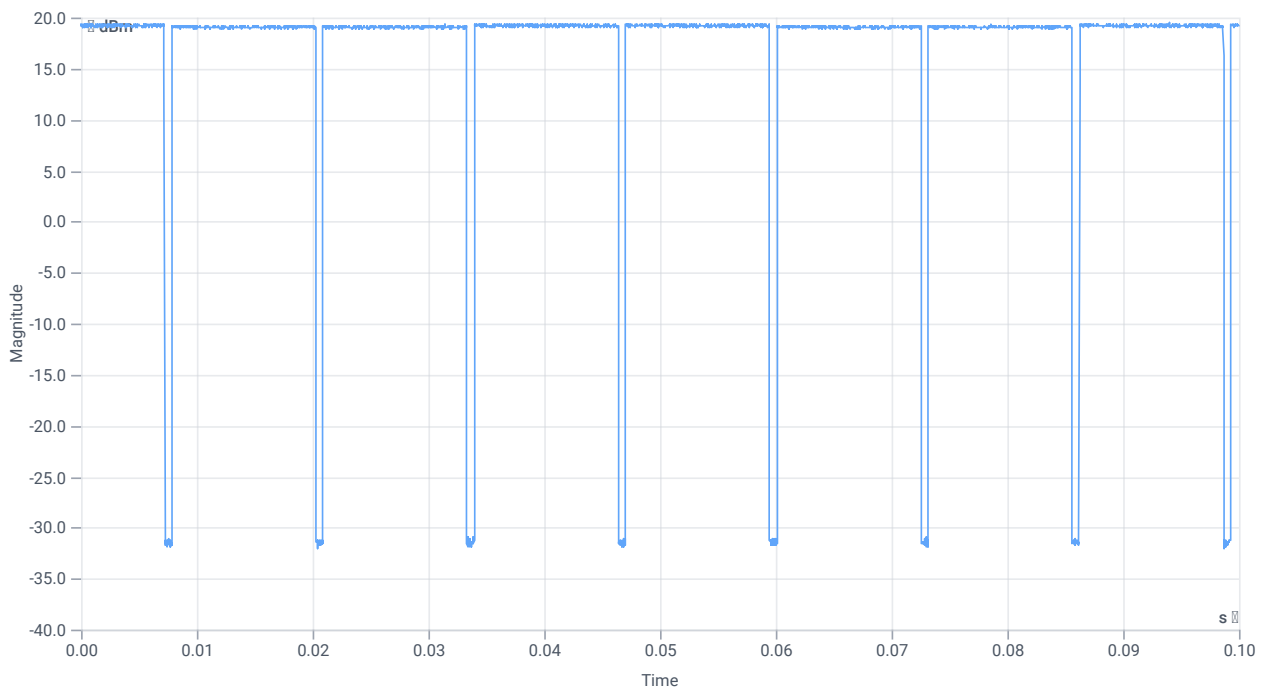
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.12	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:7					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO



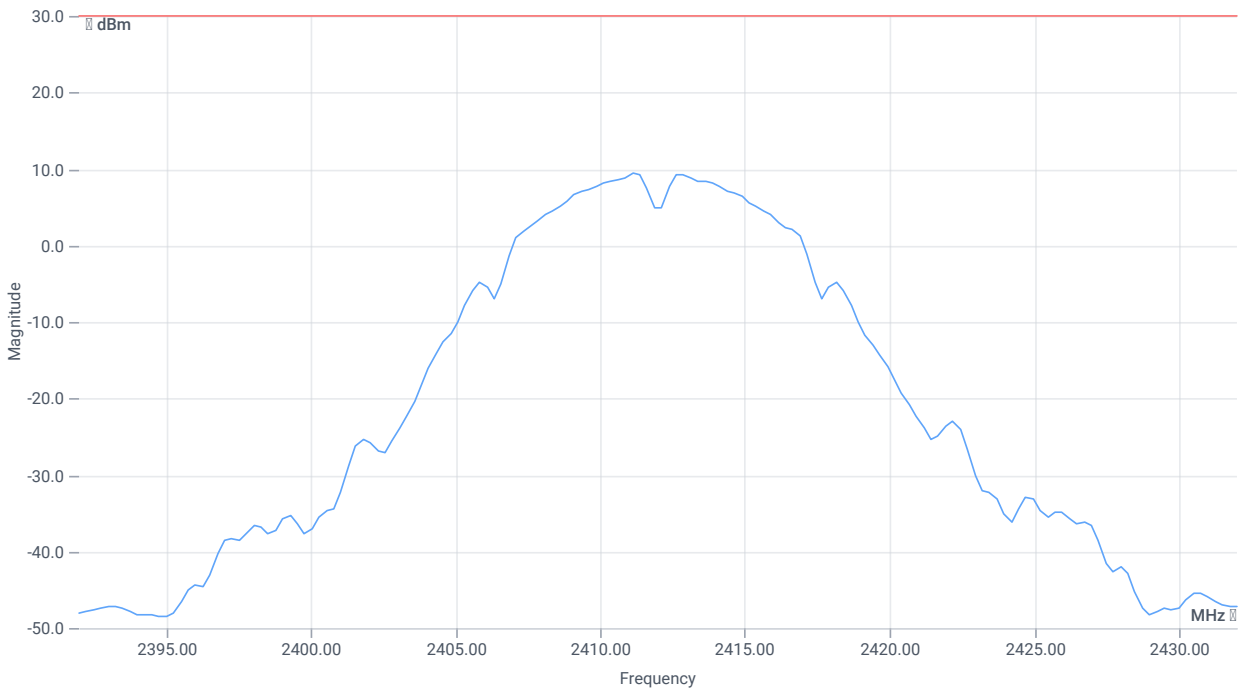
Duty cycle

## Avg output power SA DTS



**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	25.12   13.85   30
Start [MHz]   Stop [MHz]	2392.000   2432.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	19.57	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	19.8	dBm	PASS

Verdict

PASS

## FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

### References

TC start	12.01.2024 13:34:04
Ambit temp [°C]   humidity [rel%]	22.8   24
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg output power SA DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

### Equipment

## Test at TX 2412 MHz

### RESULT Power

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg power DC corr.	--	--	20.1	dBm	INFO
Ant:2 Avg power DC corr.	--	--	19.8	dBm	INFO
$\Sigma$ Avg output power DC corr.	--	30	22.96	dBm	PASS

### Verdict

PASS

# FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

## References

TC start	12.01.2024 13:34:26
Ambit temp [°C]   humidity [rel%]	22.8   24
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg psd DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	True   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

## Equipment

## Test at TX 2412 MHz

### RESULT psd

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg psd DC corr	--	--	-11.37	dBm/3kHz	INFO
Ant:2 Avg psd DC corr	--	--	-11.69	dBm/3kHz	INFO
$\Sigma$ Avg psd DC corr	--	8	-8.52	dBm/3kHz	PASS

Verdict

PASS

## NA # Message with SA scan ~

### References

TC start	12.01.2024 13:34:38
Ambit temp [°C]   humidity [rel%]	22.8   24
System version	4.7.1.5
Standard   Version	NA   NI
Method	
Description	Message with SA Scan b mode
Information	

### Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	12.01.2024 13:34:39
Message	set WLAN2G4 to b mode, Frequency [MHz] 2437 ,

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

### Verdict

INFO

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:35:07
Ambit temp [°C]   humidity [rel%]	22.8   24
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

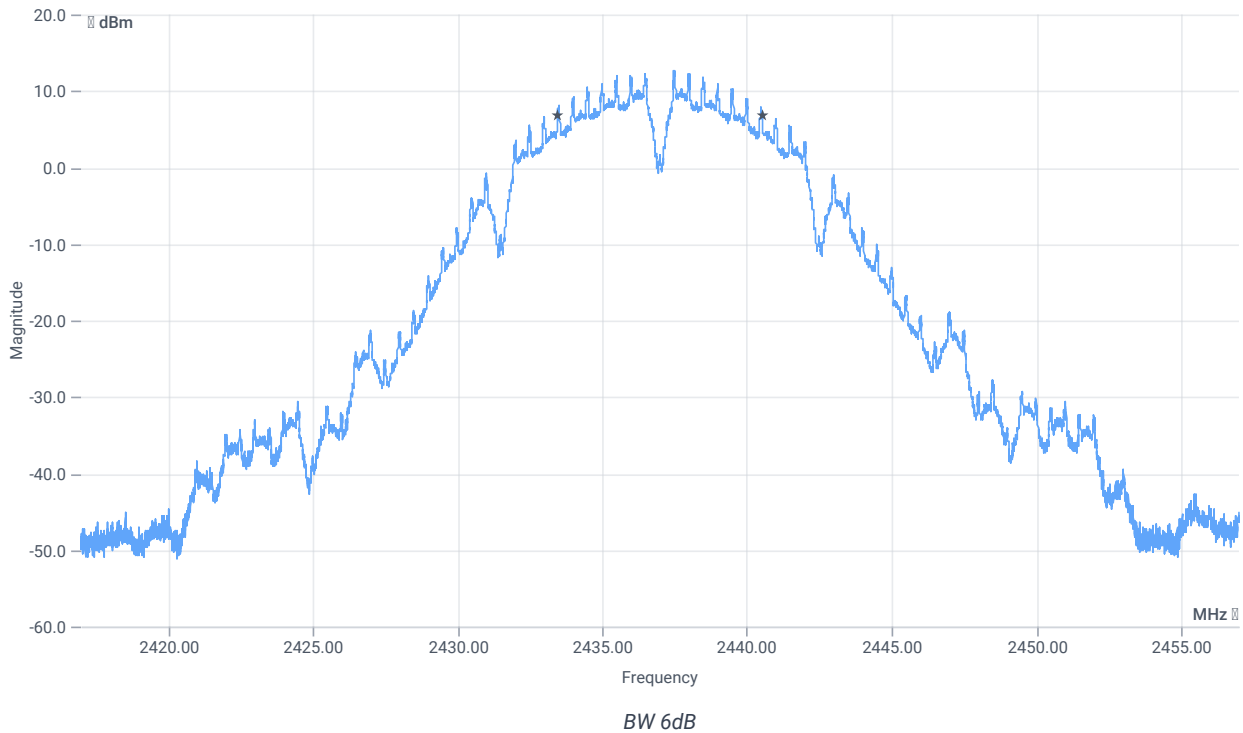
## Test at TX 2437 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.70	dBm	INFO
Ref. Frequency	--	--	2438.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.70   14.01   25
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	7076	kHz	PASS

Verdict

PASS



## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:35:40
Ambit temp [°C]   humidity [rel%]	22.8   24
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2437 MHz

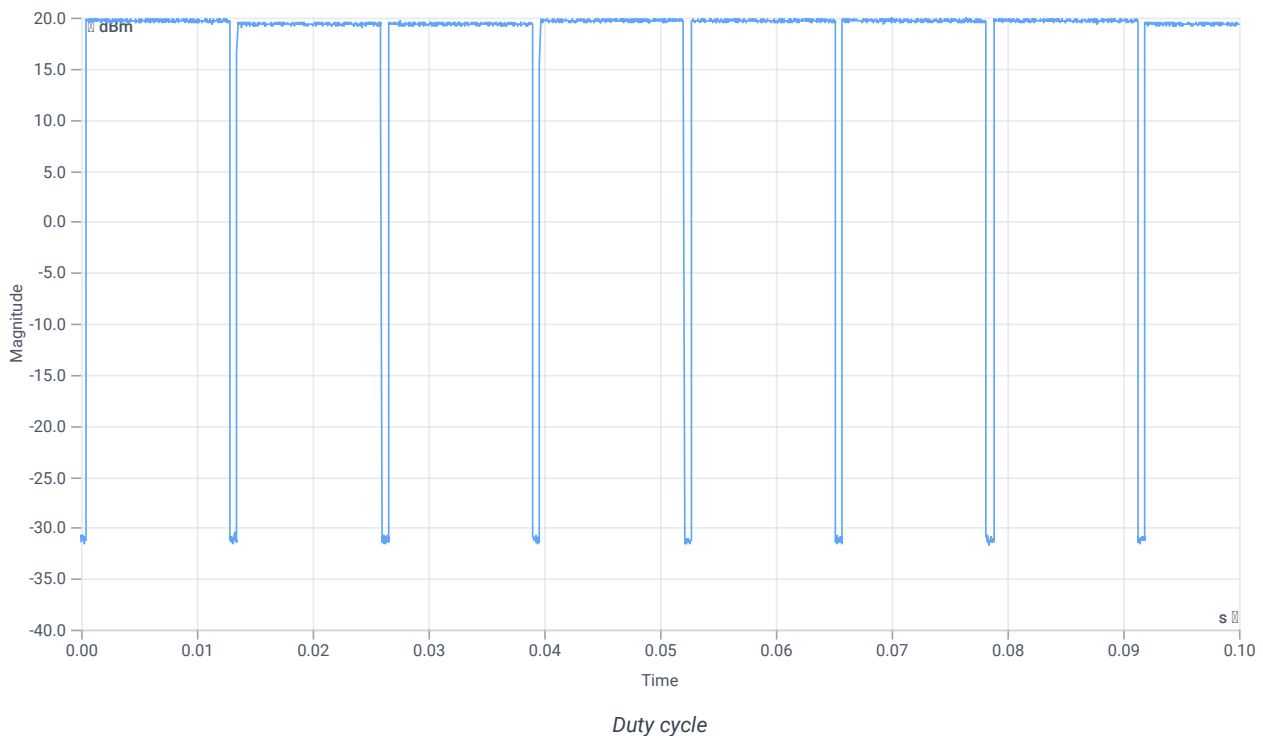
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.56	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

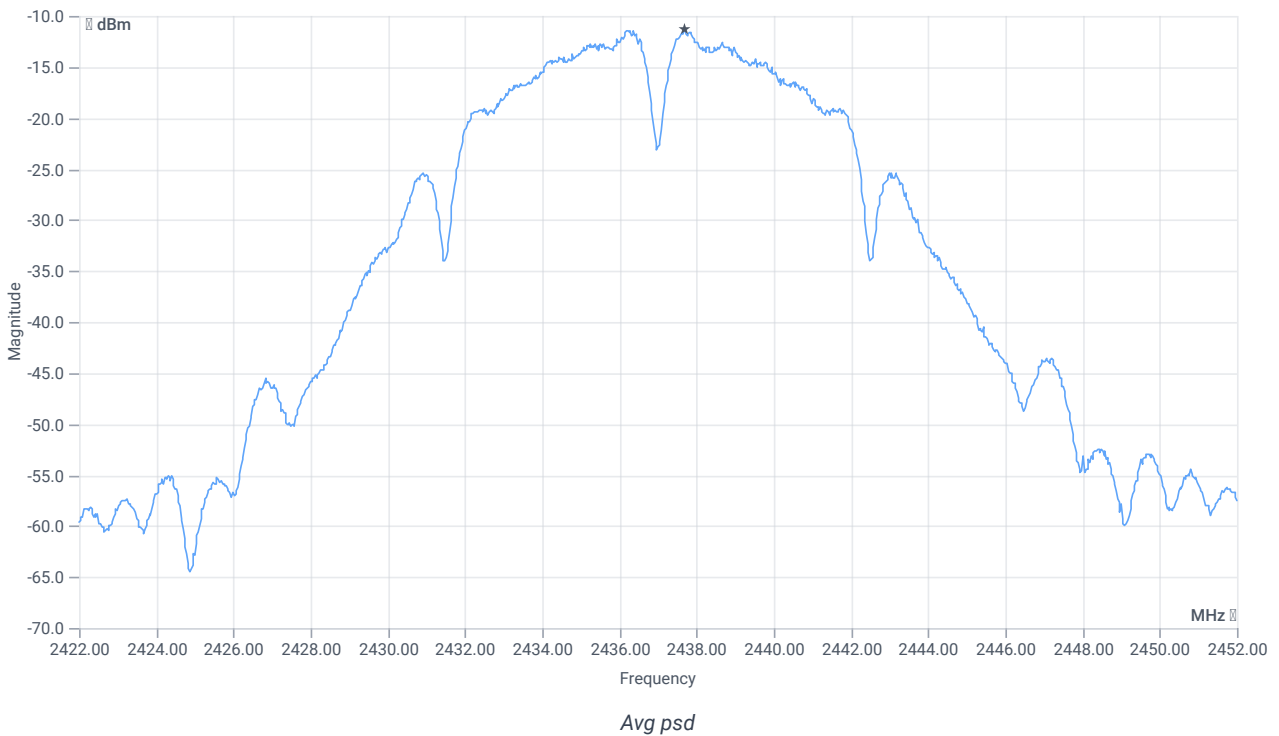
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:6					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	-- <td --	0.675	ms	INFO	



## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.56   14.01   25
Start [MHz]   Stop [MHz]	2422.000   2452.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-11.33	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-11.1	dBm/3kHz	PASS

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 13:36:43
Ambit temp [°C]   humidity [rel%]	22.8   23
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

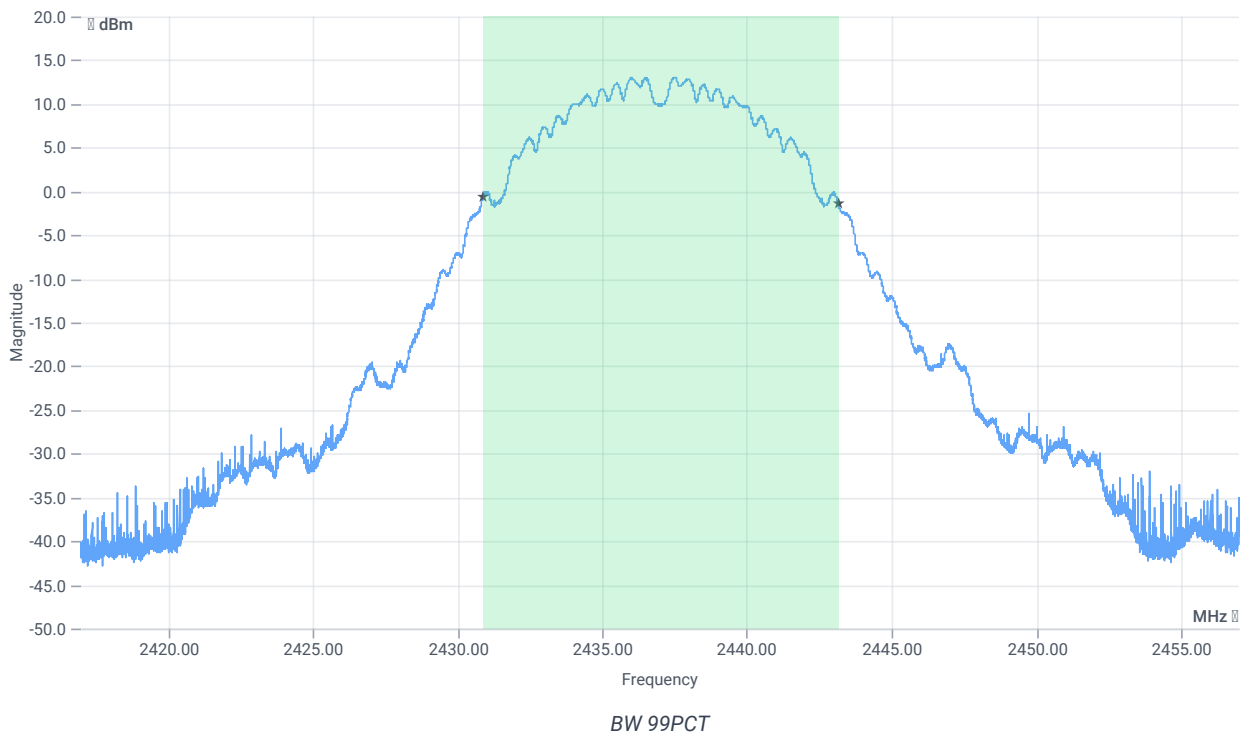
## Test at TX 2437 MHz

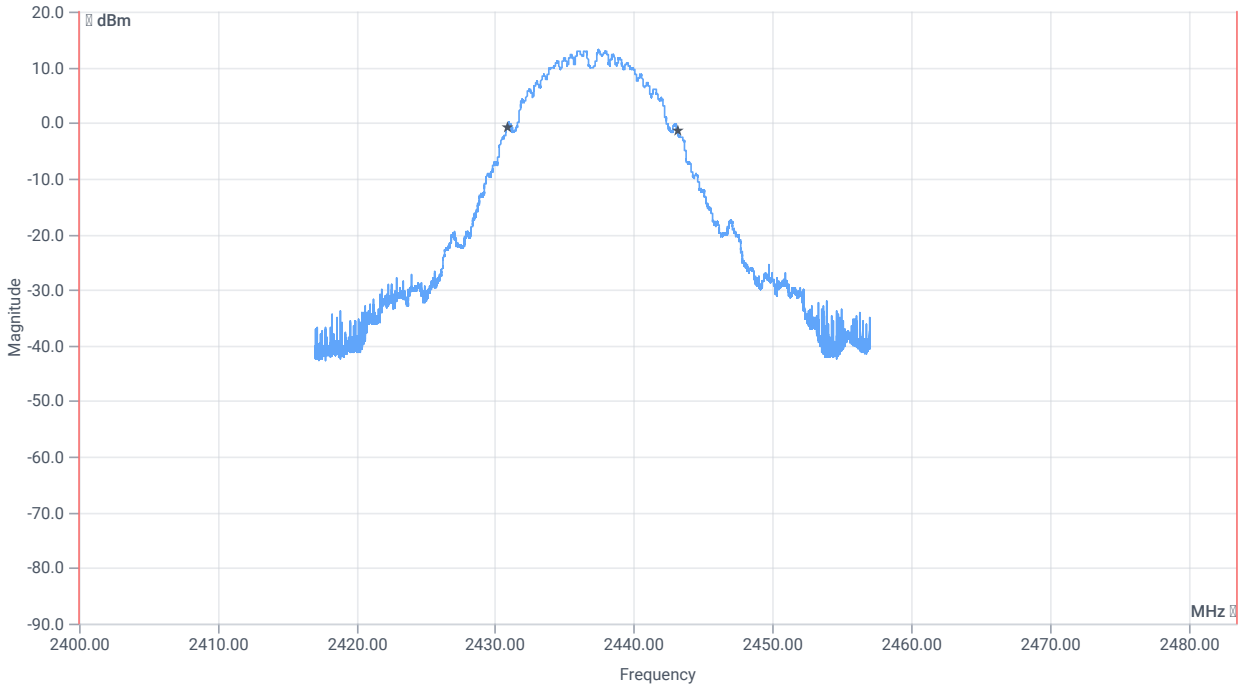
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.59	dBm	INFO
Ref. Frequency	--	--	2438.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	20.59   14.01   25
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE

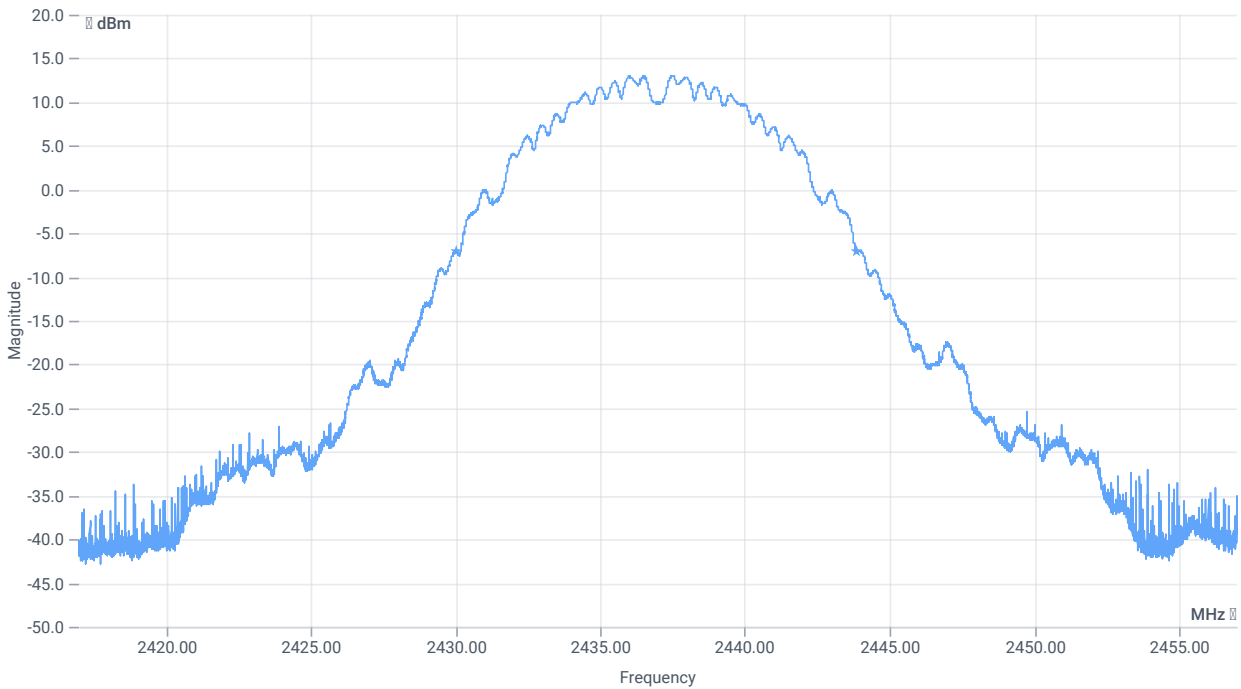




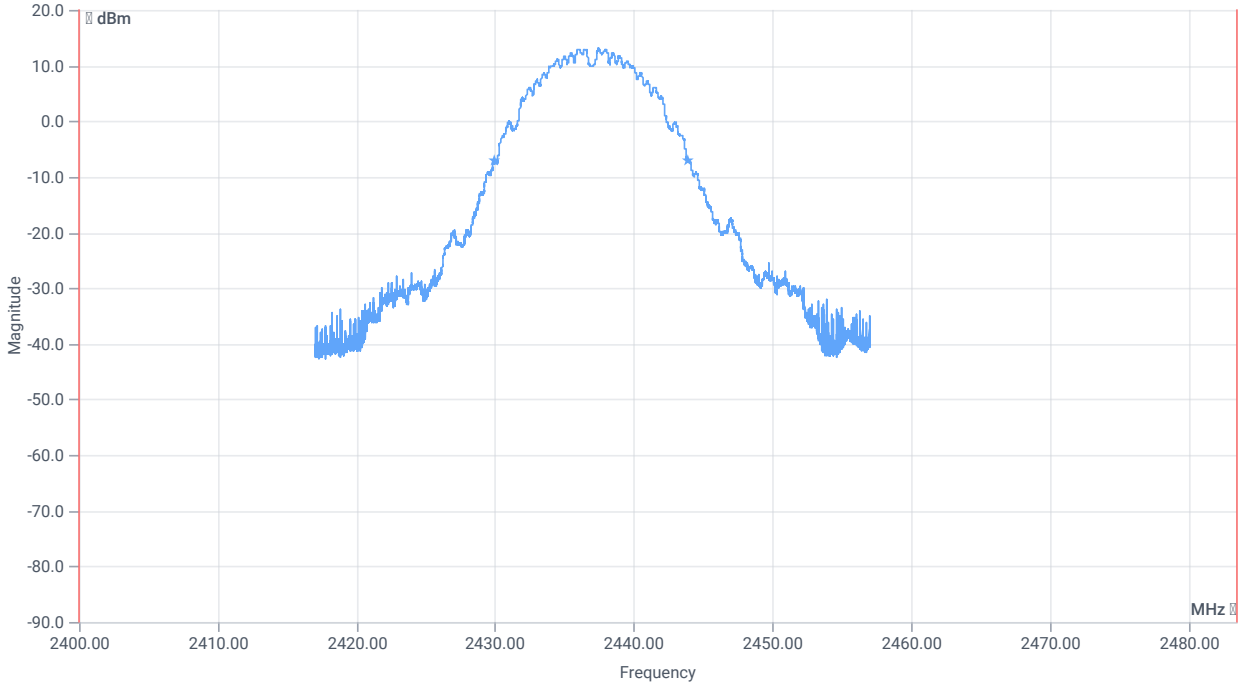
BW within Band 99PCT

**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12279.000	kHz	INFO
T1 99%	2400.000000	--	2430.8766	MHz	PASS
T2 99%	--	2483.500000	2443.1554	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	13844	kHz	INFO
T1 20DB	2400.000000	--	2430.0000	MHz	PASS
T2 20dB	--	2483.500000	2443.8440	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:37:22
Ambit temp [°C]   humidity [rel%]	22.9   23
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

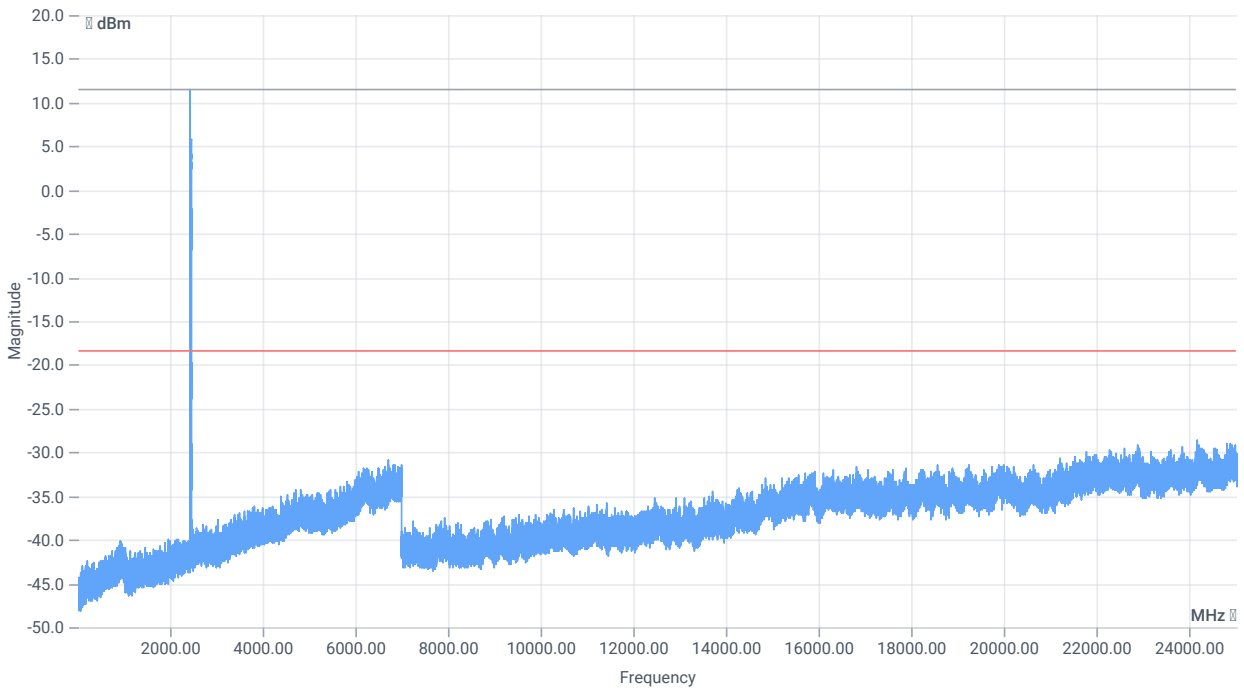
Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI



## Test at TX 2437 MHz

RESULT: Reference Power cond.

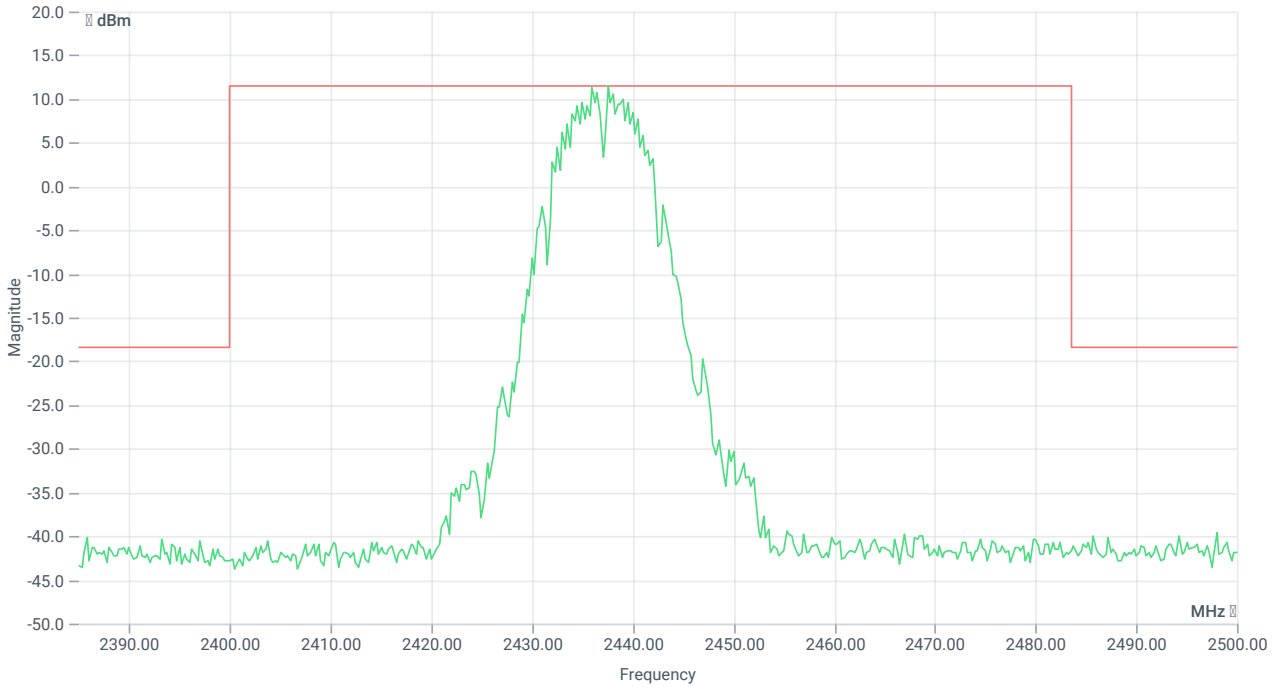
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.68	dBm	INFO
Ref. Frequency	--	--	2438.100	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	15.68   0   35
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE



TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2437.50 MHz	--	--	11.55	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24171.5 MHz	0	--	10.16	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:44:05
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2437 MHz

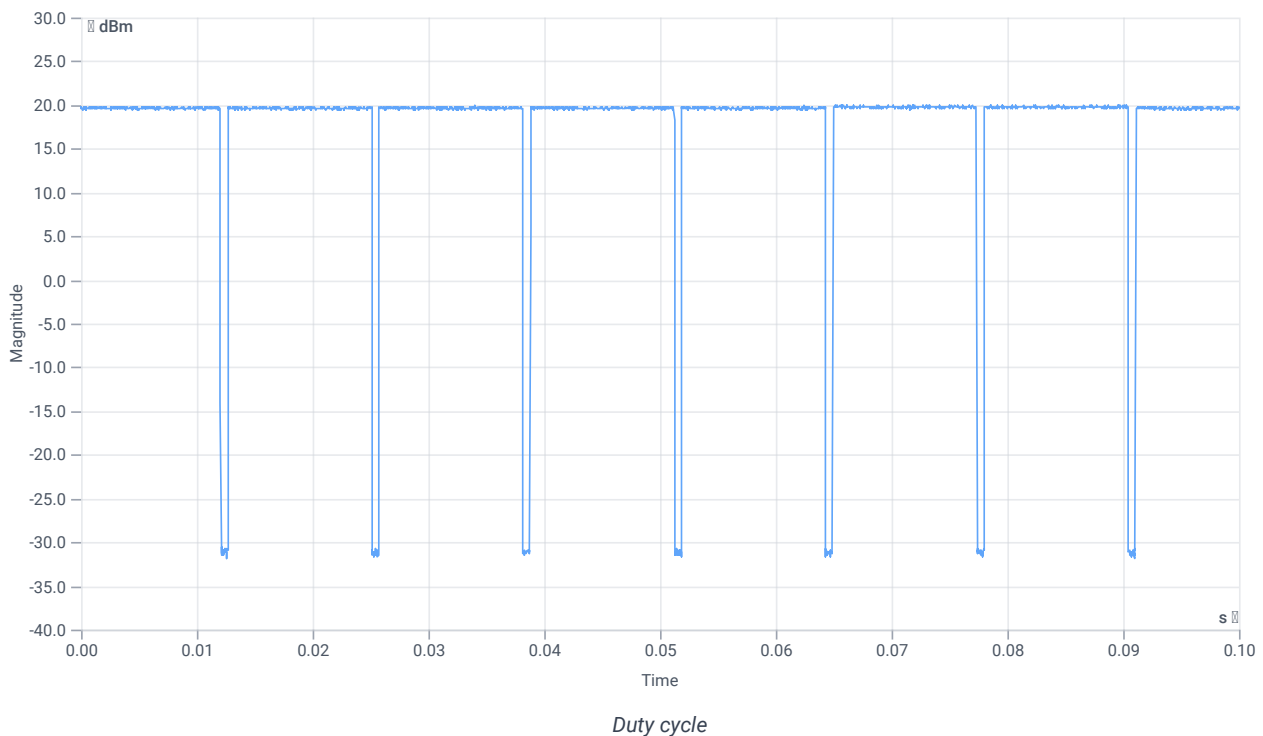
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	15.63	dBm	INFO
Ref. Frequency	--	--	2438.100	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

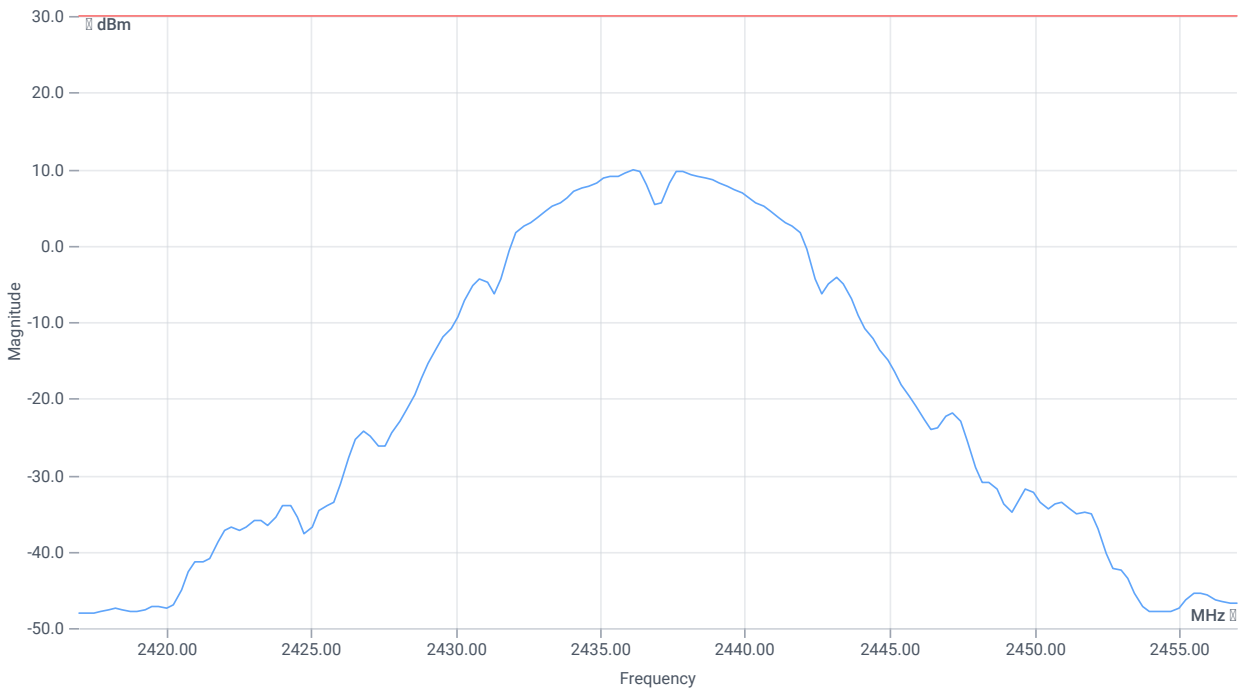
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT						
Result Summary											
Number of detected Bursts:6											
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO						
Duty Cycle max	--	--	0.232	dB	INFO						
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO						
Duty Cycle min	--	--	0.232	dB	INFO						
Max TX Burst Length	--	--	12.4	ms	INFO						
Min Gap Length	--	--	0.675	ms	INFO </tr <tr> <td>Max Gap Length</td> <td>--</td> <td>--</td> <td>0.675</td> <td>ms</td> <td>INFO</td> </tr>	Max Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO						



## Avg output power SA DTS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	25.63   14.01   30
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	20.07	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	20.3	dBm	PASS

Verdict

PASS

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:45:19
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

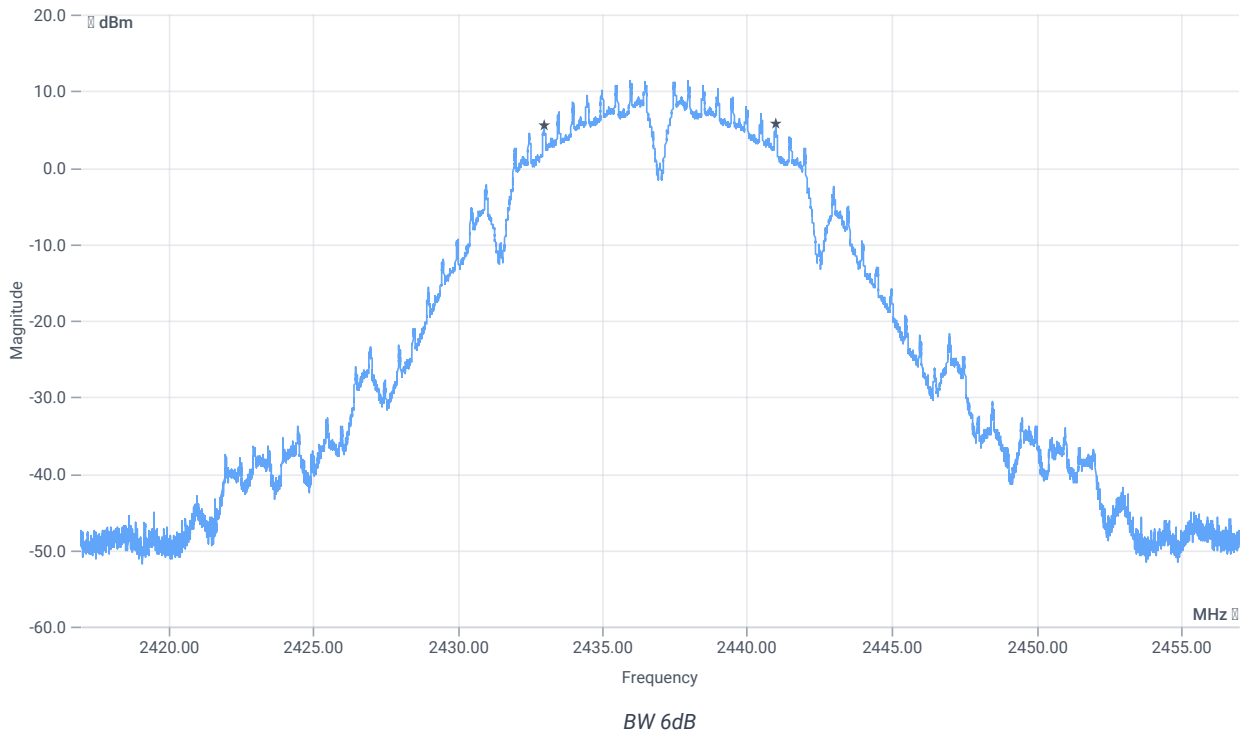
## Test at TX 2437 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.64	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.64   14.01   25
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	8012	kHz	PASS

Verdict

PASS

## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:45:52
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI



## Test at TX 2437 MHz

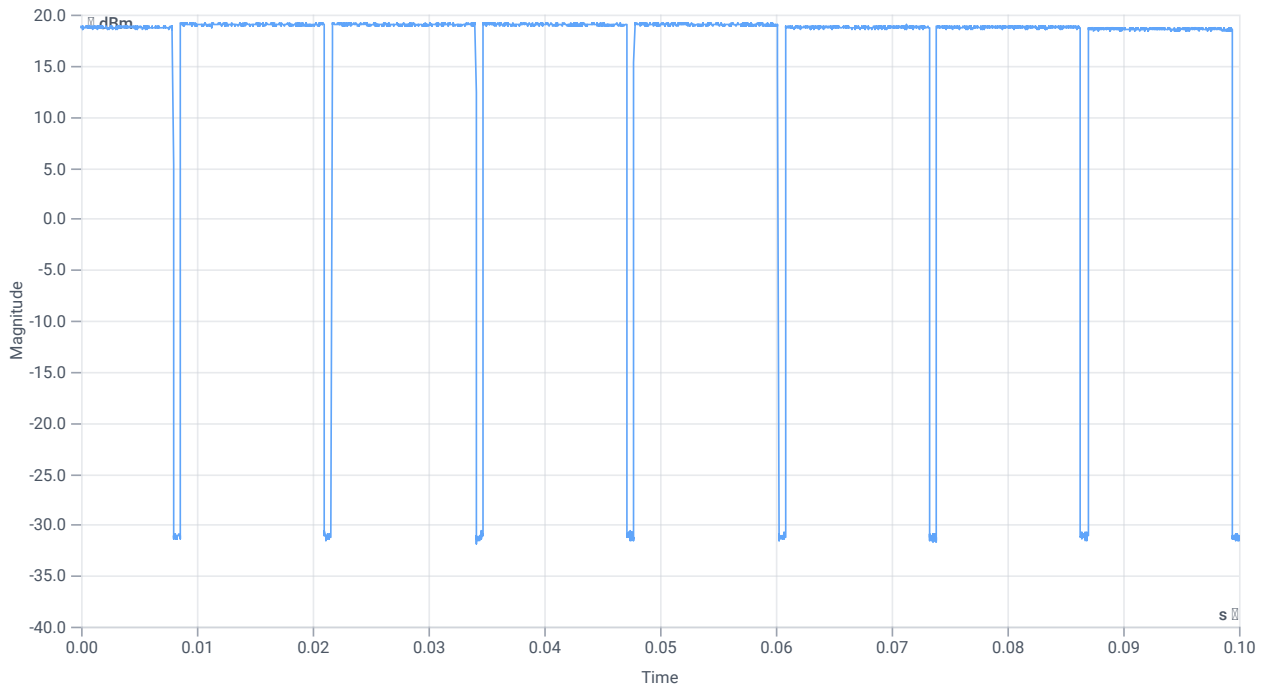
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.65	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:6					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

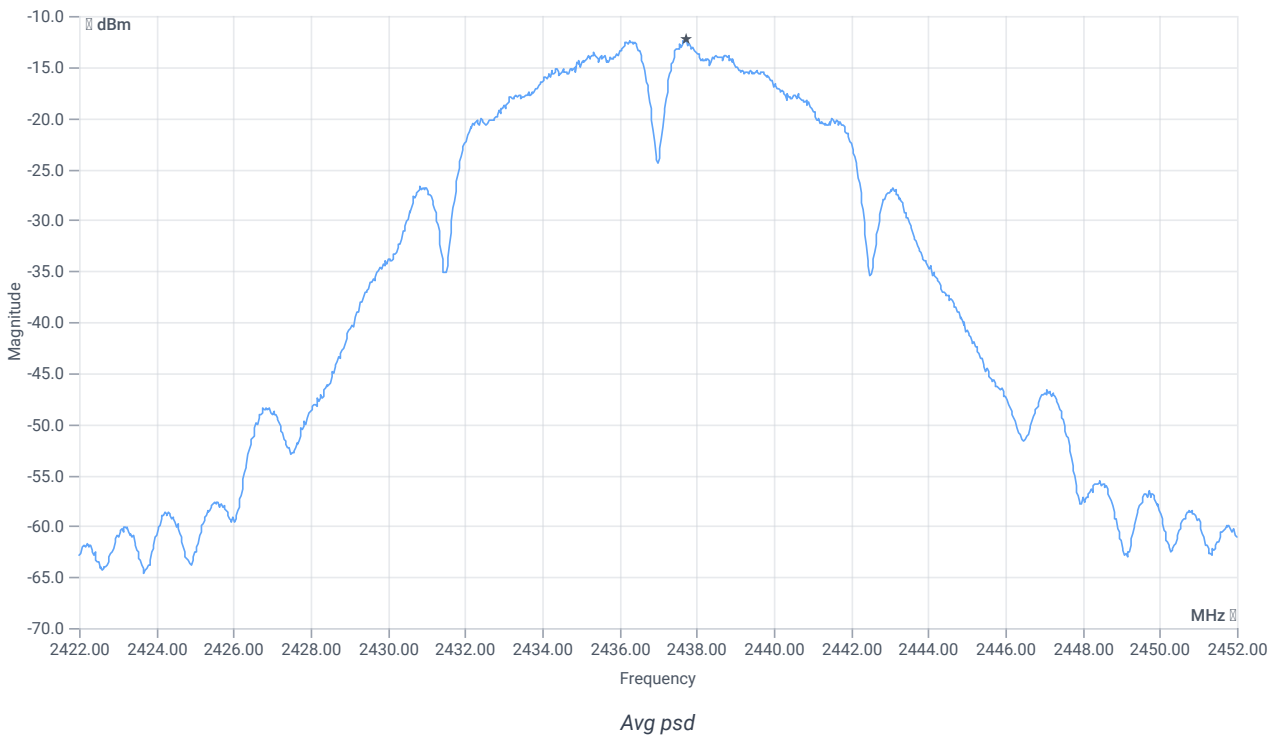


Duty cycle

## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.65   14.01   25
Start [MHz]   Stop [MHz]	2422.000   2452.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-12.32	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-12.09	dBm/3kHz	PASS

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 13:46:57
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

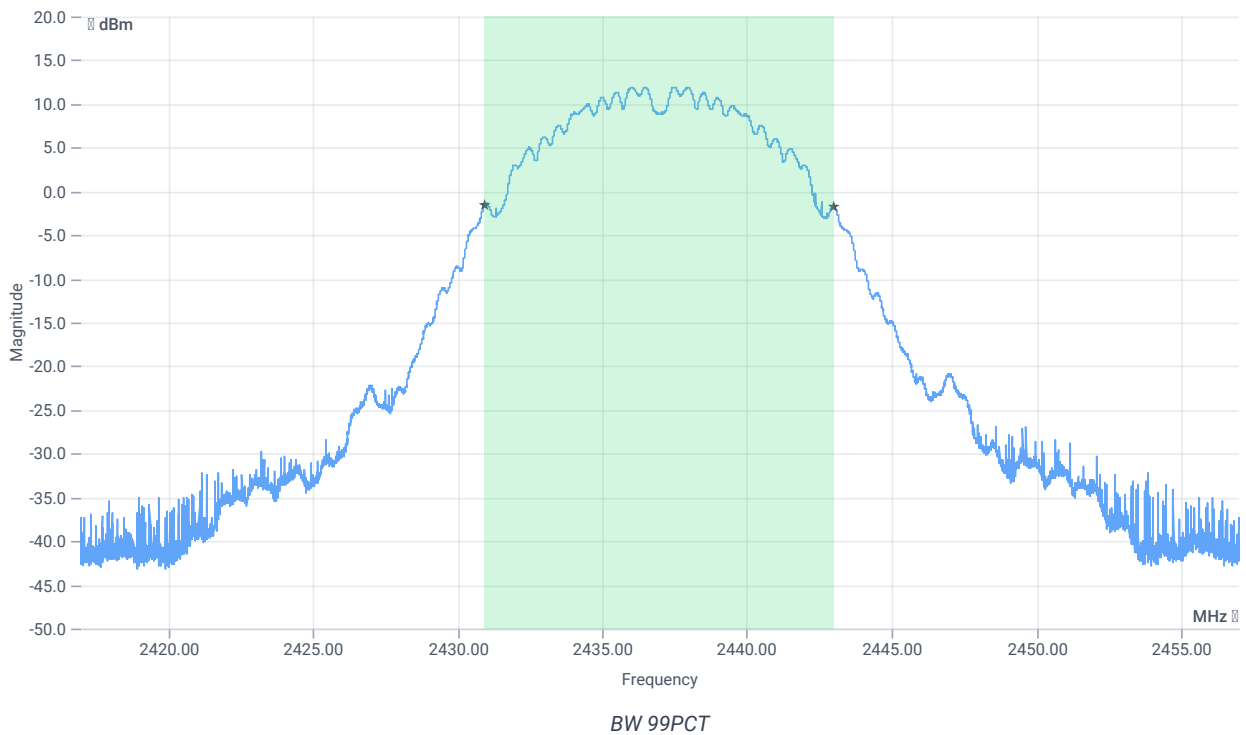
## Test at TX 2437 MHz

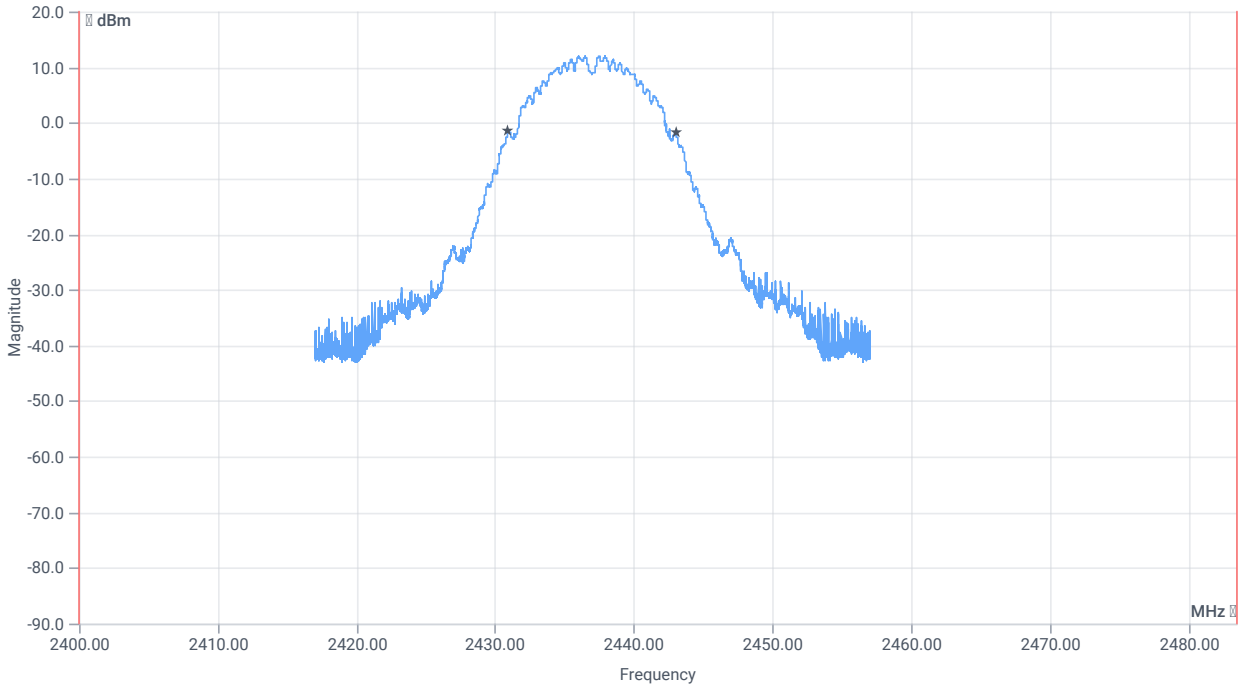
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.62	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.62   14.01   25
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE

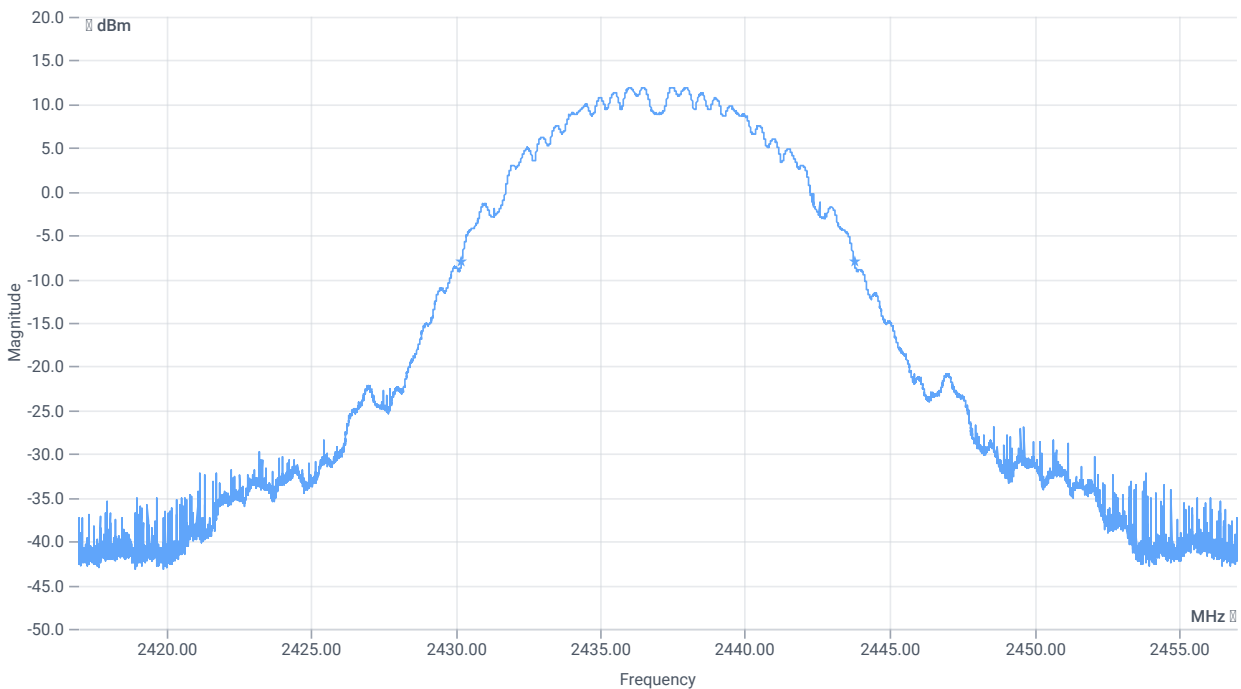




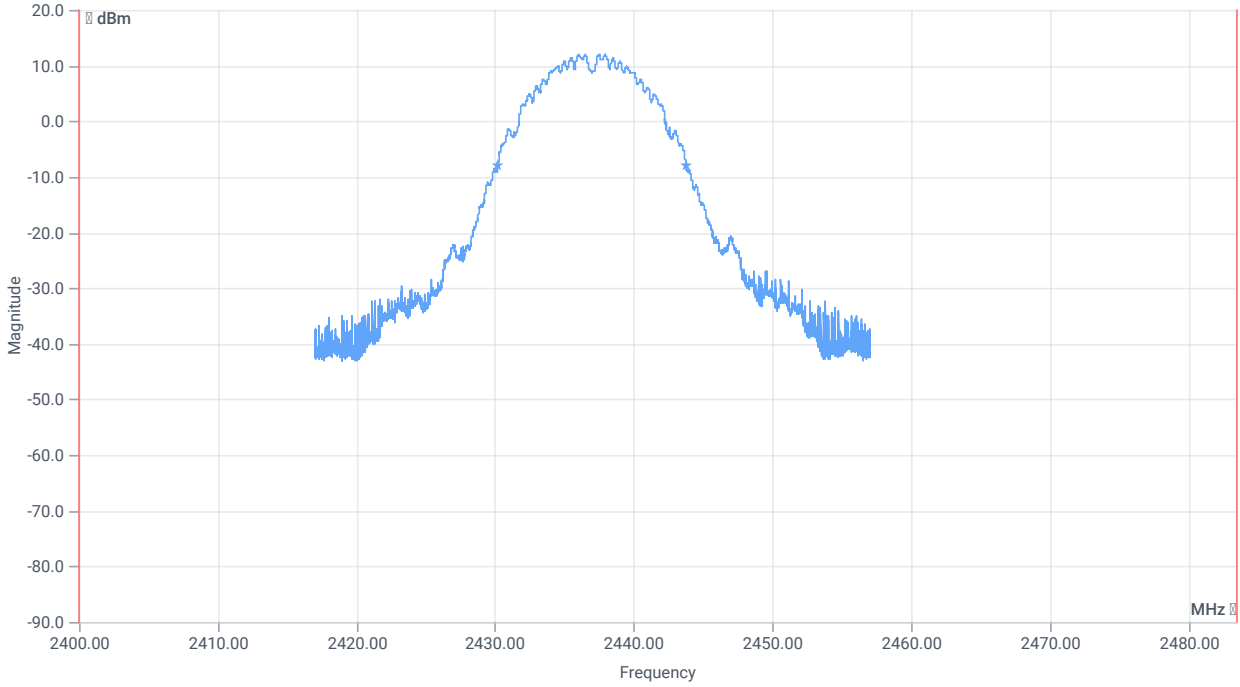
*BW within Band 99PCT*

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12067.000	kHz	INFO
T1 99%	2400.000000	--	2430.9486	MHz	PASS
T2 99%	--	2483.500000	2443.0154	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	13560	kHz	INFO
T1 20DB	2400.000000	--	2430.2160	MHz	PASS
T2 20dB	--	2483.500000	2443.7760	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:47:33
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

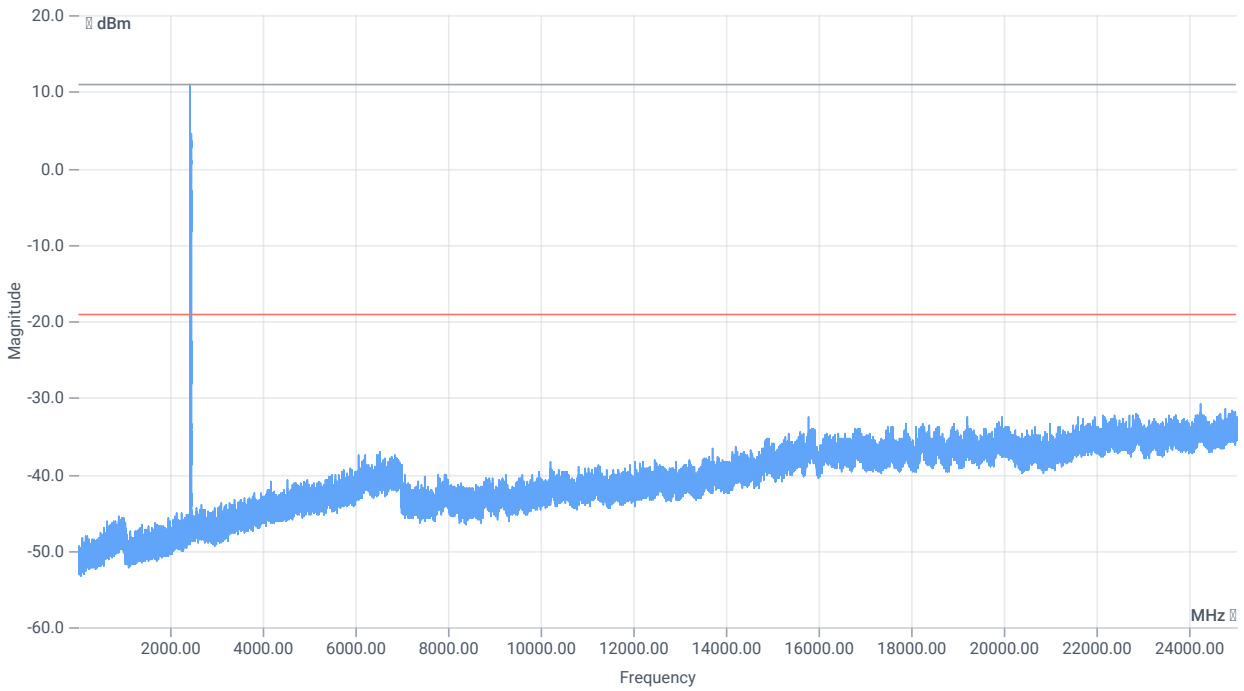
### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2437 MHz

RESULT: Reference Power cond.

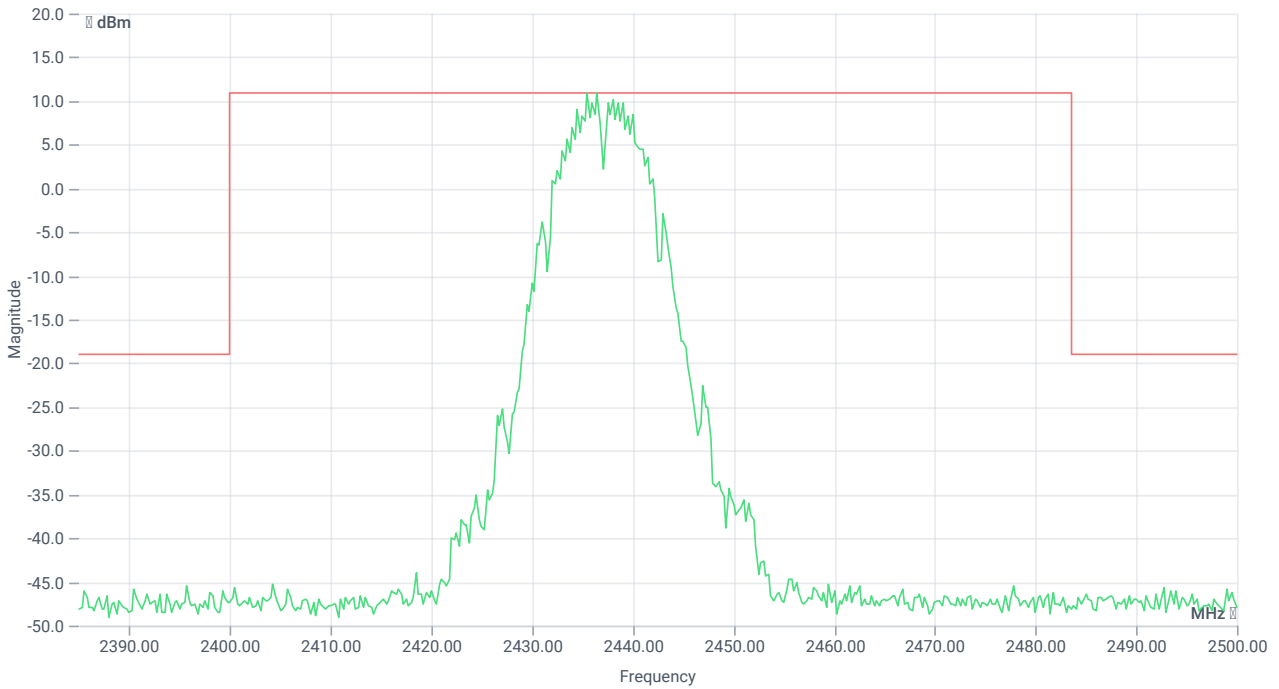
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.65	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO



### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	14.65   0   30
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE





TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2435.50 MHz	--	--	10.96	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-149.34	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:54:17
Ambit temp [°C]   humidity [rel%]	22.7   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2437 MHz

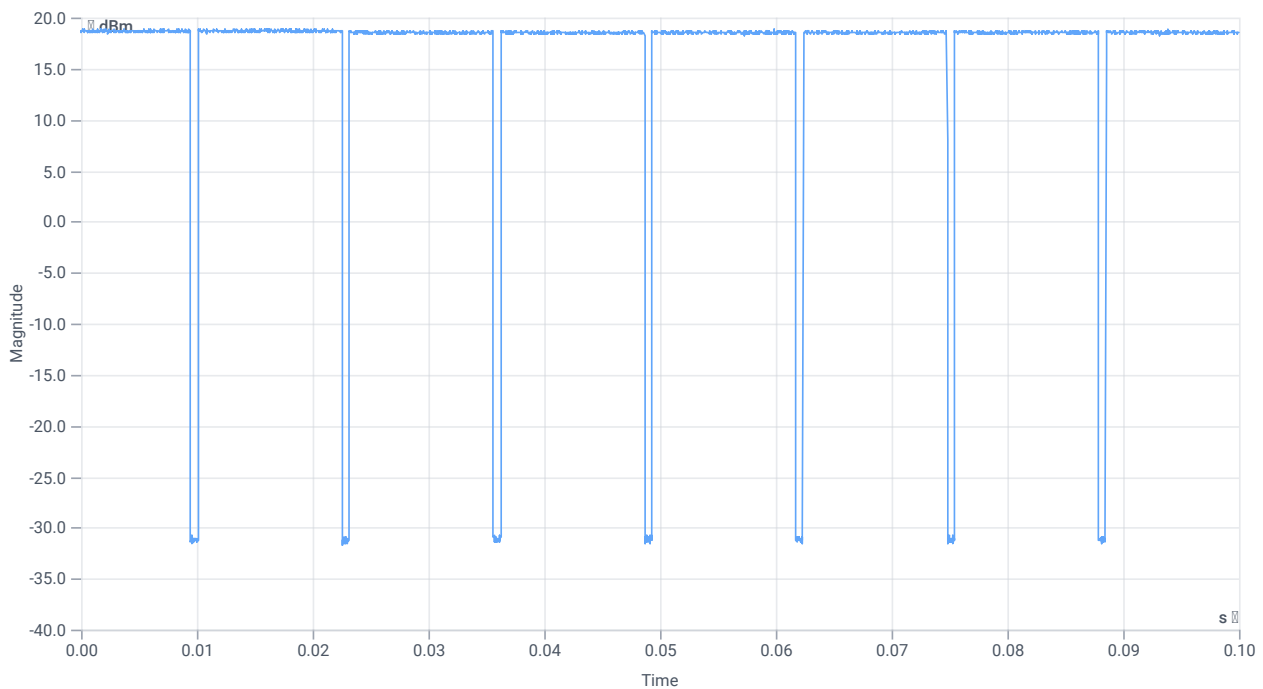
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.62	dBm	INFO
Ref. Frequency	--	--	2438.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:6					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

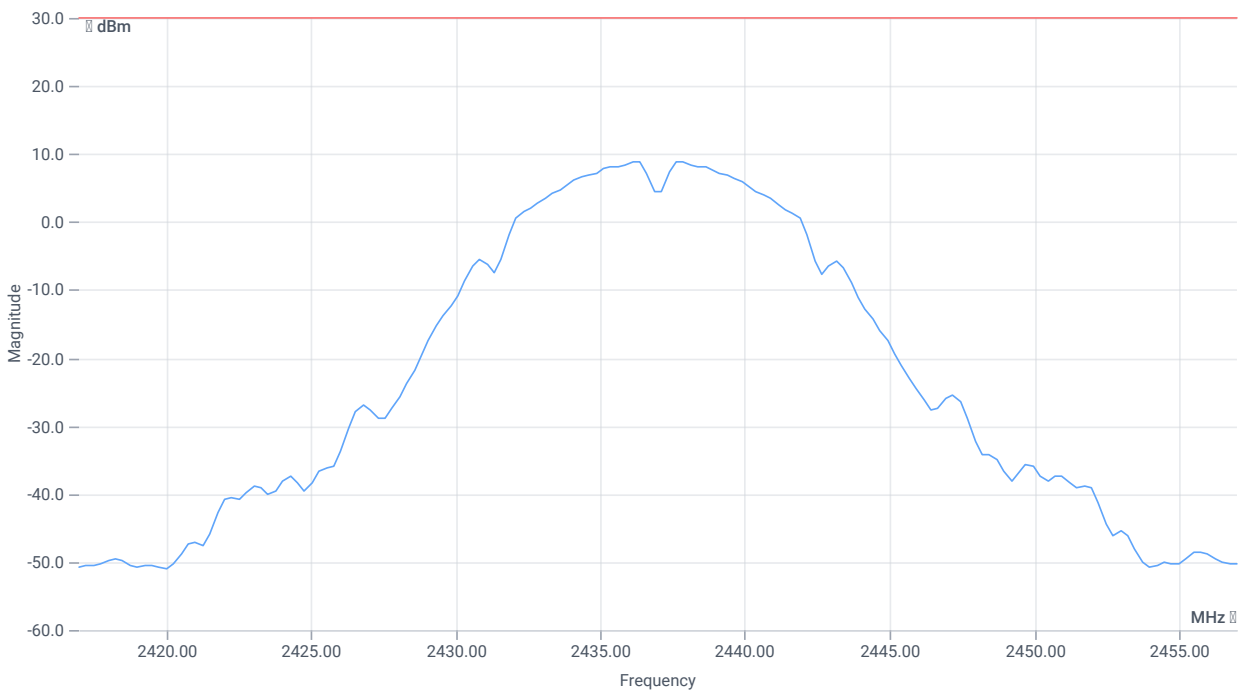


Duty cycle

## Avg output power SA DTS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	24.62   14.01   25
Start [MHz]   Stop [MHz]	2417.000   2457.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	19.1	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	19.33	dBm	PASS

Verdict

PASS

# FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

## References

TC start	12.01.2024 13:55:31
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg output power SA DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

## Equipment

Test at TX 2437 MHz

RESULT Power

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg power DC corr.	--	--	20.3	dBm	INFO
Ant:2 Avg power DC corr.	--	--	19.33	dBm	INFO
Σ Avg output power DC corr.	--	30	22.85	dBm	PASS

Verdict

PASS

# FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

## References

TC start	12.01.2024 13:55:48
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg psd DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	True   Freq [MHz] 2437
Frequency high to test	False   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

## Equipment

## Test at TX 2437 MHz

### RESULT psd

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg psd DC corr	--	--	-11.1	dBm/3kHz	INFO
Ant:2 Avg psd DC corr	--	--	-12.09	dBm/3kHz	INFO
$\Sigma$ Avg psd DC corr	--	8	-8.56	dBm/3kHz	PASS

Verdict

PASS



## NA # Message with SA scan ~

### References

TC start	12.01.2024 13:56:06
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	NA   NI
Method	
Description	Message with SA Scan b mode
Information	

### Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	12.01.2024 13:56:07
Message	set WLAN2G4 to b mode, Frequency [MHz] 2462

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

### Verdict

INFO

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:57:01
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

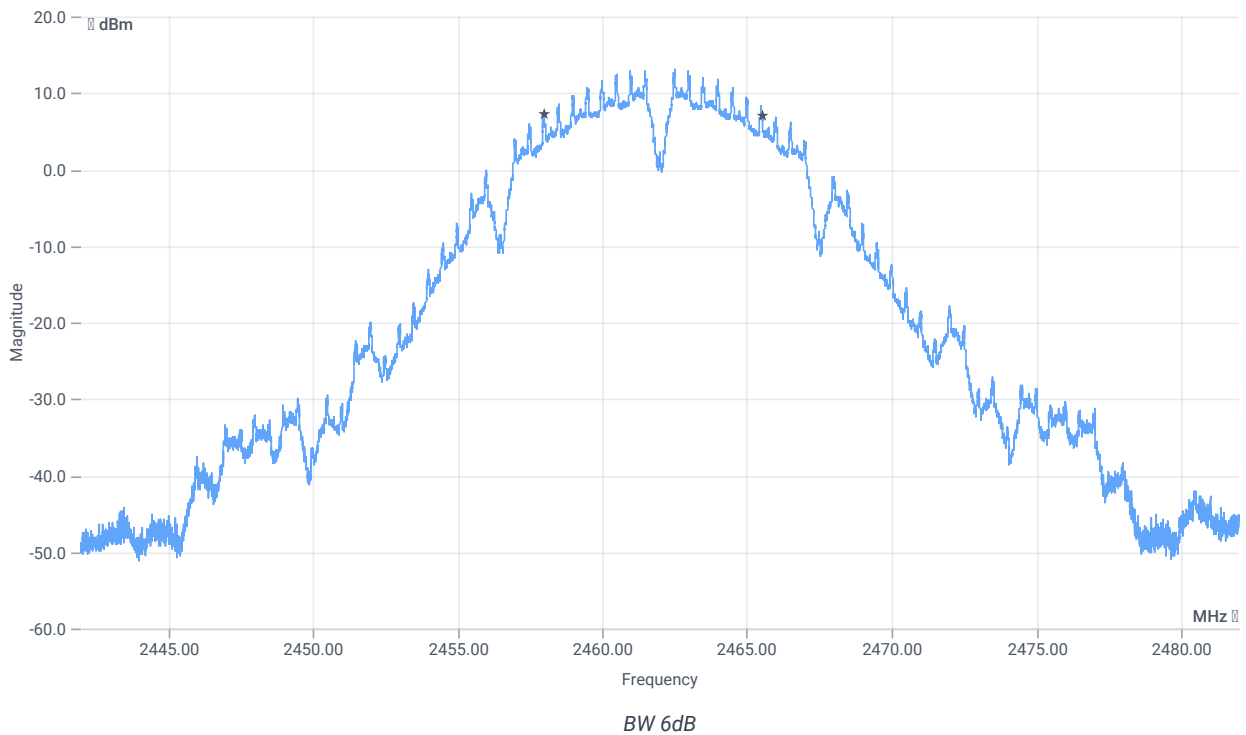
## Test at TX 2462 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	16.11	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	21.11   14.14   25
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	7532	kHz	PASS

Verdict

PASS

## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:57:35
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

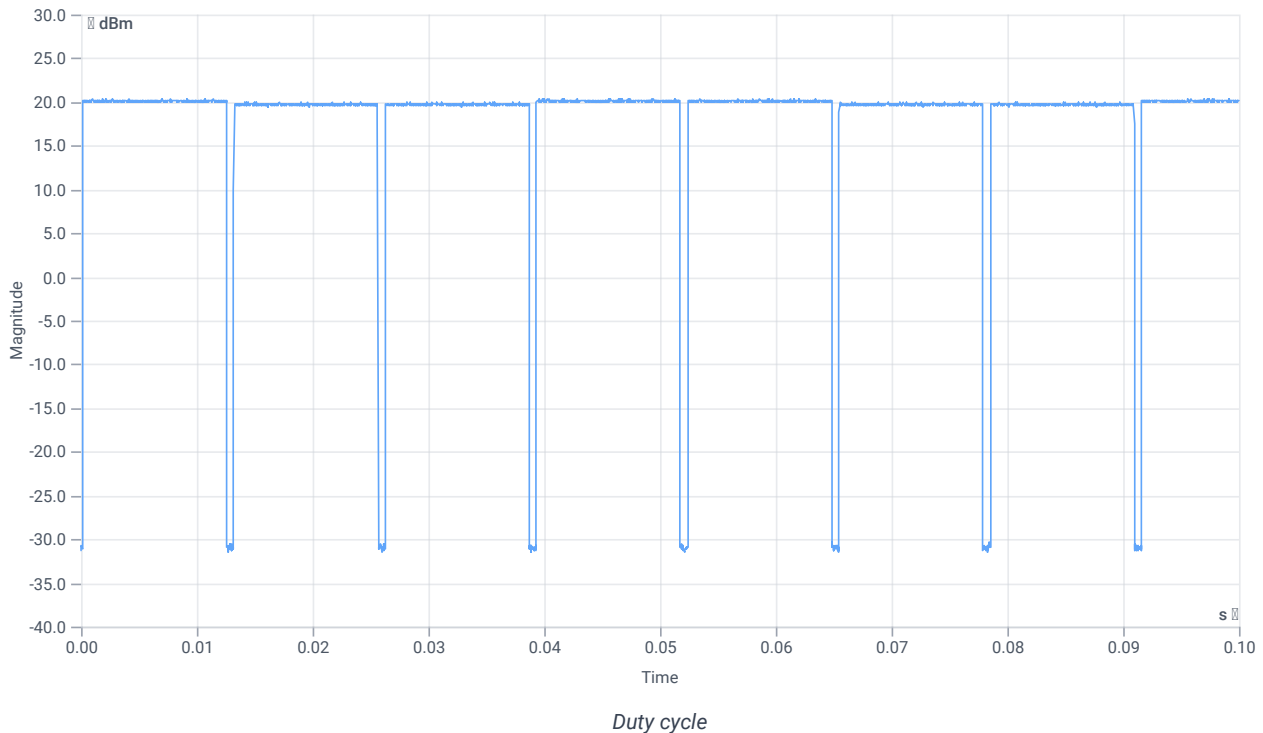
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	16.09	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

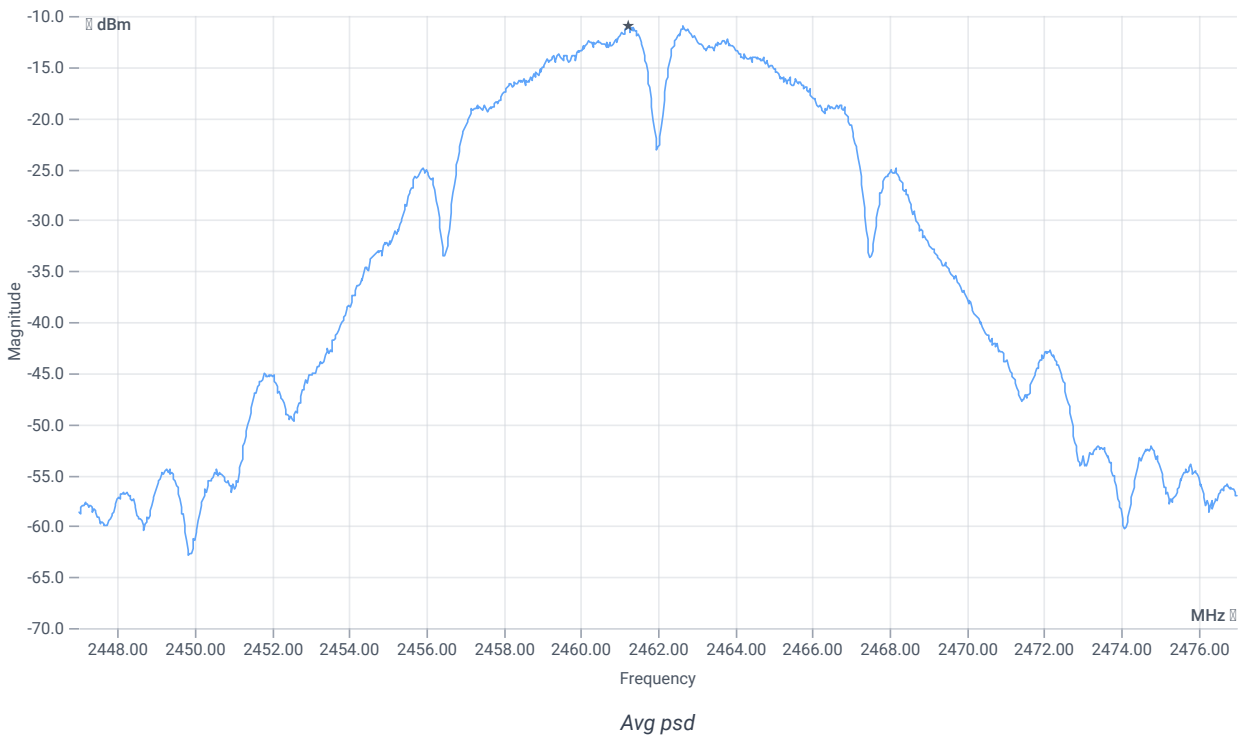
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:6					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO



## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	21.09   14.14   25
Start [MHz]   Stop [MHz]	2447.000   2477.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-10.93	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-10.7	dBm/3kHz	PASS

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 13:58:39
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

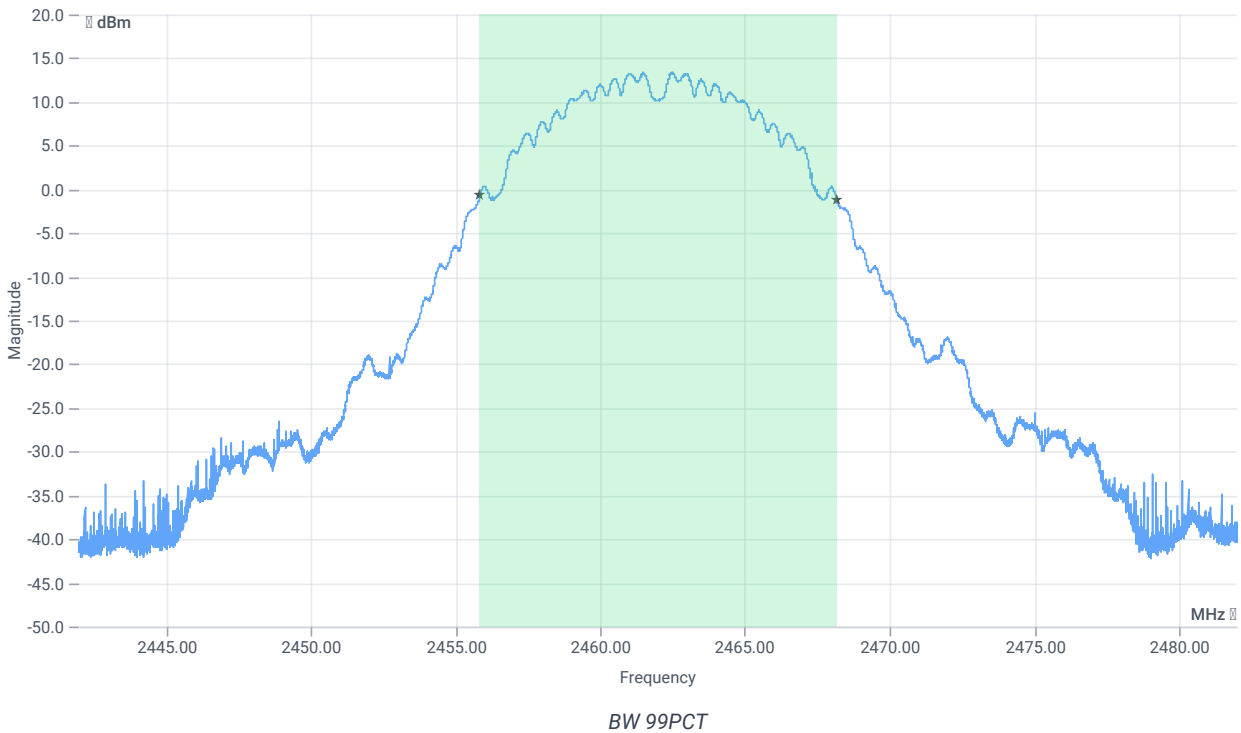
## Test at TX 2462 MHz

RESULT: Reference Power cond.

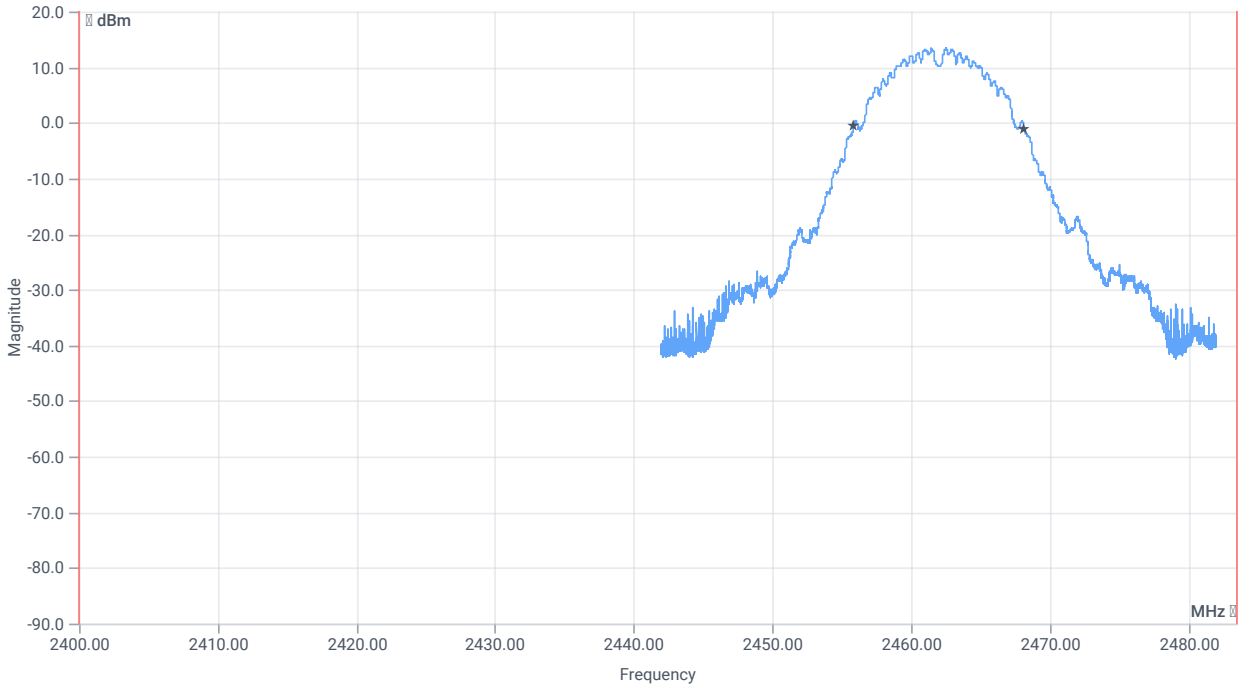
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	16.04	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	21.04   14.14   25
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



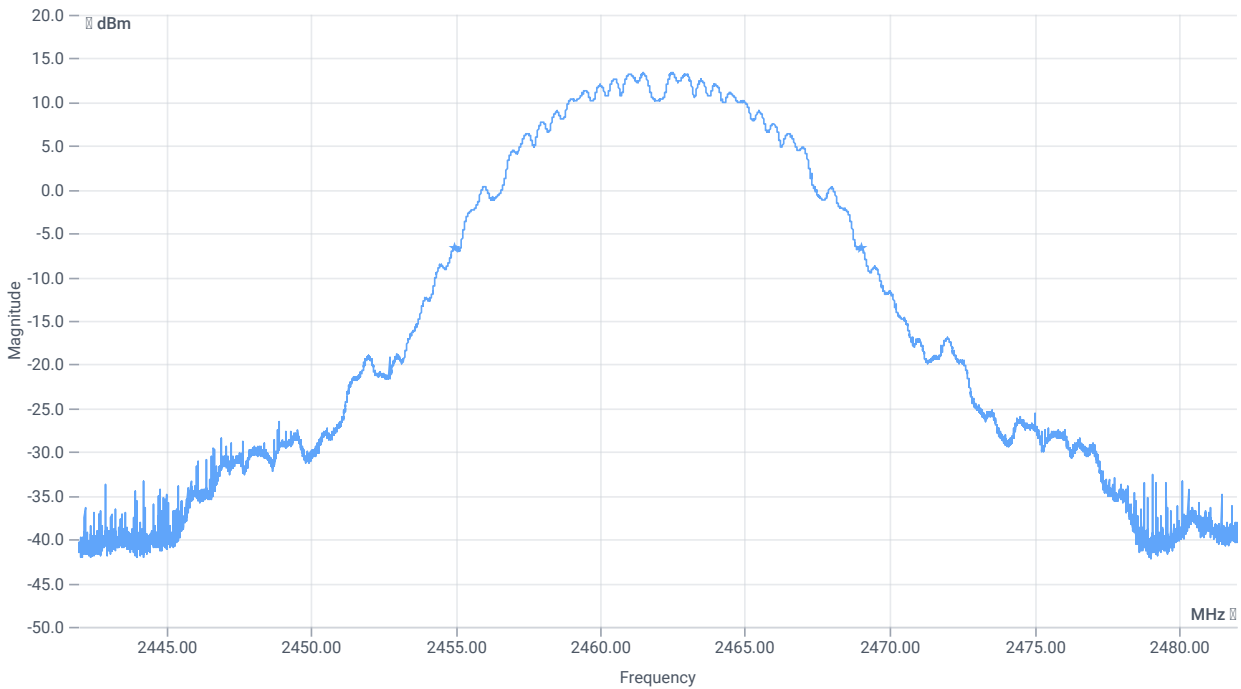




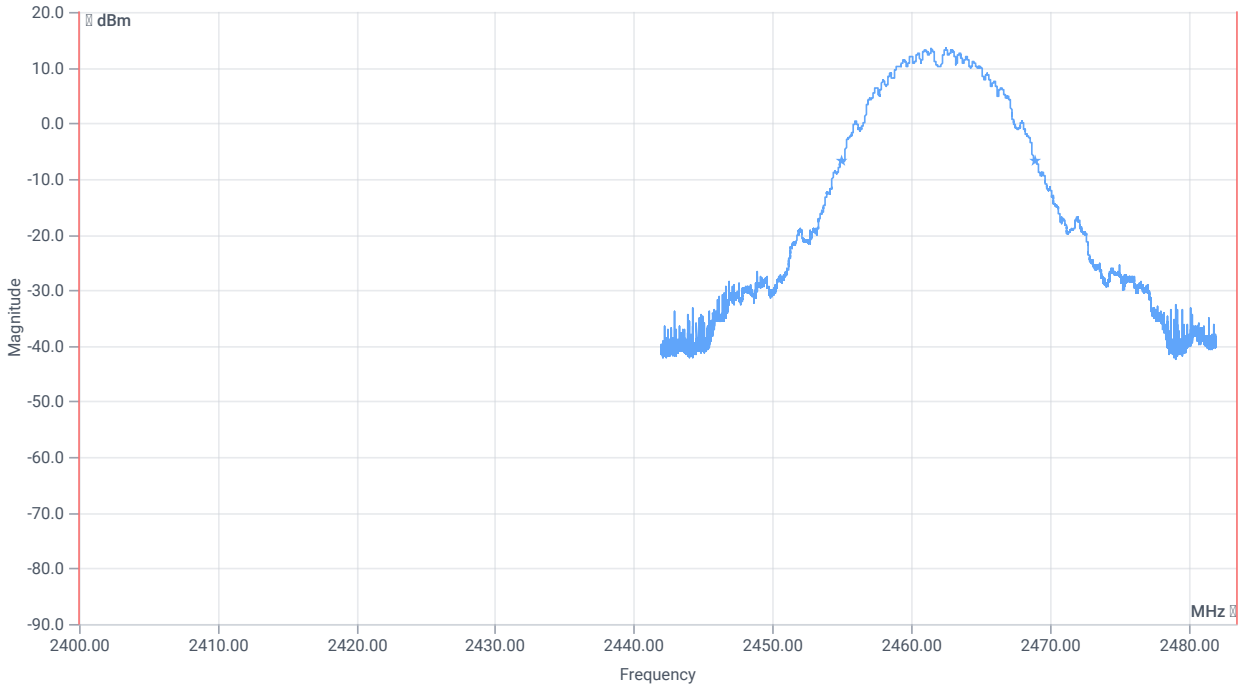
BW within Band 99PCT

**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12311.000	kHz	INFO
T1 99%	2400.000000	--	2455.8566	MHz	PASS
T2 99%	--	2483.500000	2468.1674	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	14052	kHz	INFO
T1 20DB	2400.000000	--	2454.9520	MHz	PASS
T2 20dB	--	2483.500000	2469.0040	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 13:59:16
Ambit temp [°C]   humidity [rel%]	22.8   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

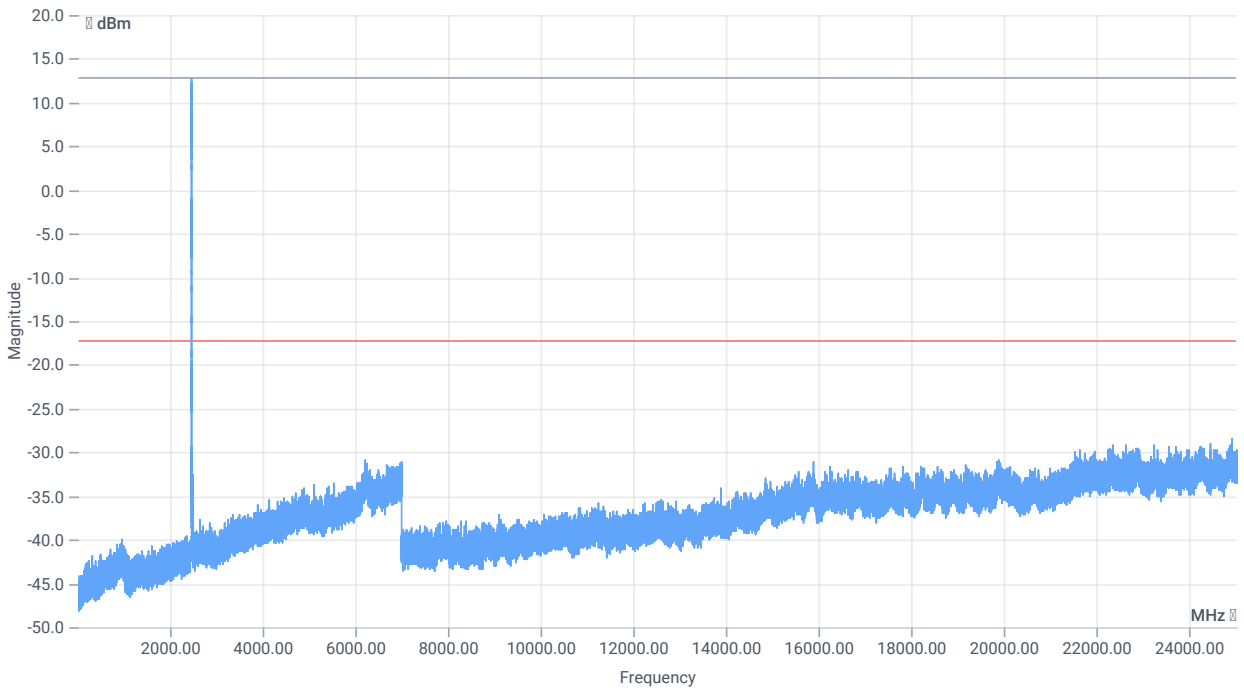
### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

RESULT: Reference Power cond.

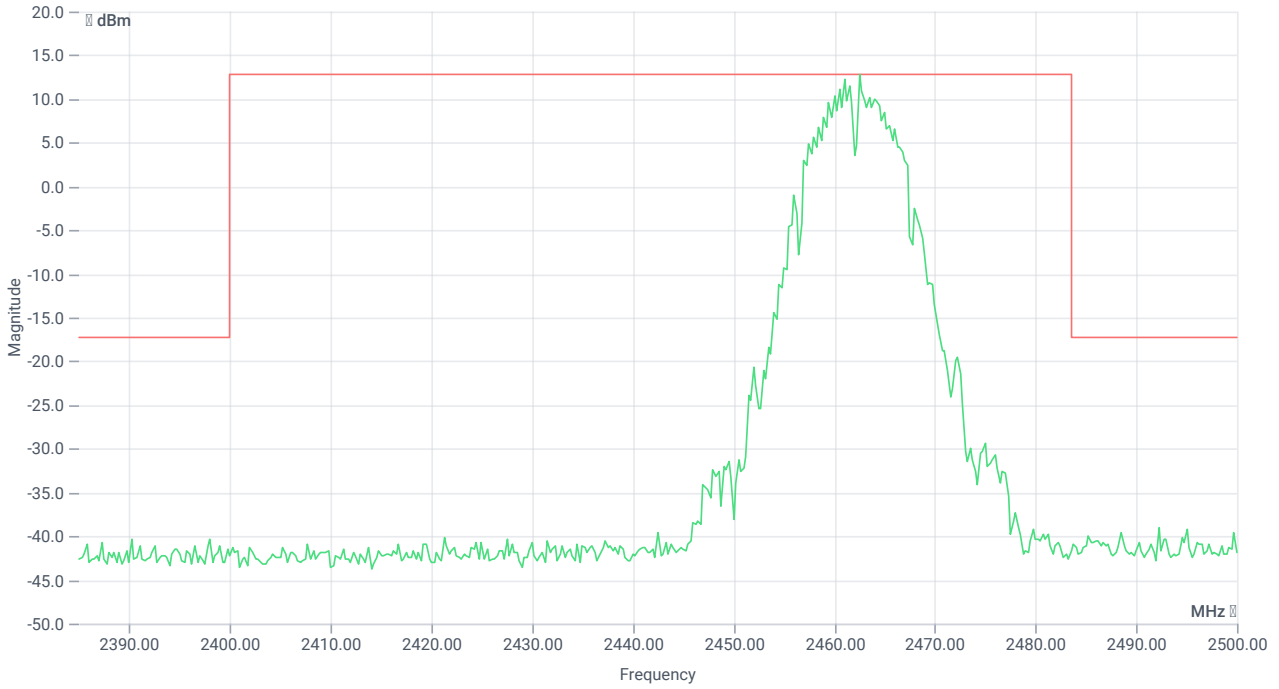
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	16.03	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	16.03   0   35
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE



TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2462.50 MHz	--	--	12.82	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-155.79	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 14:05:59
Ambit temp [°C]   humidity [rel%]	22.8   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

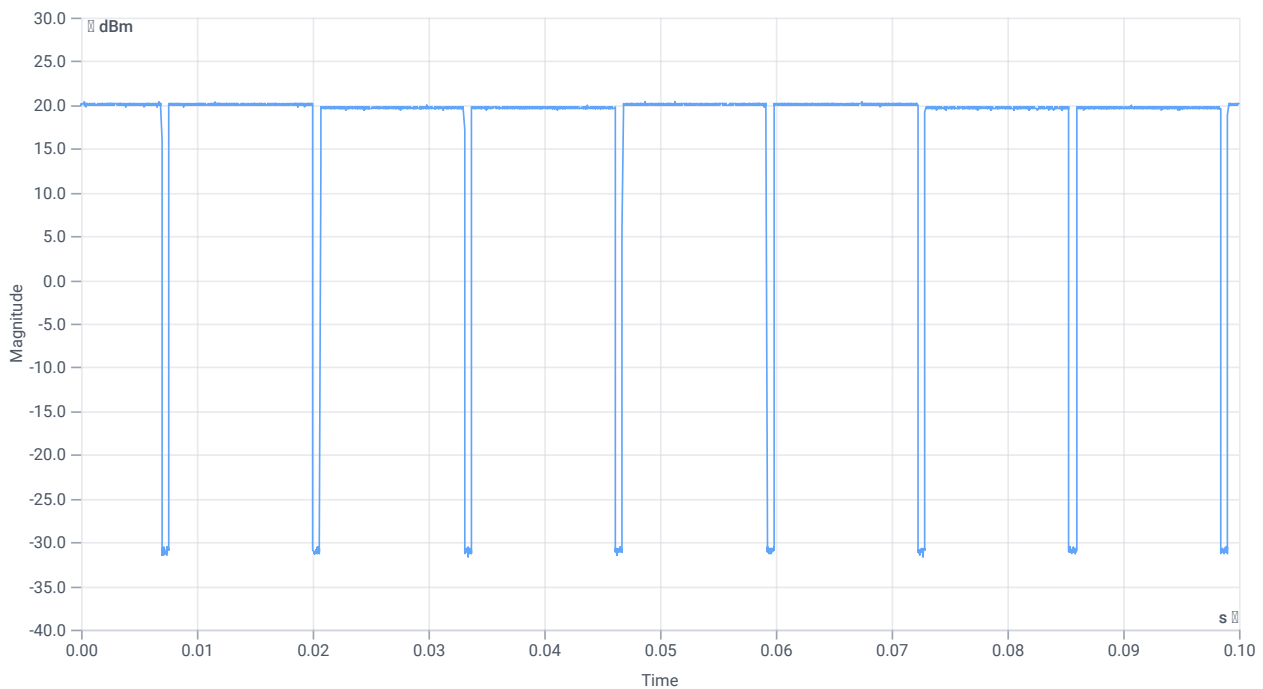
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	16.01	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:7					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

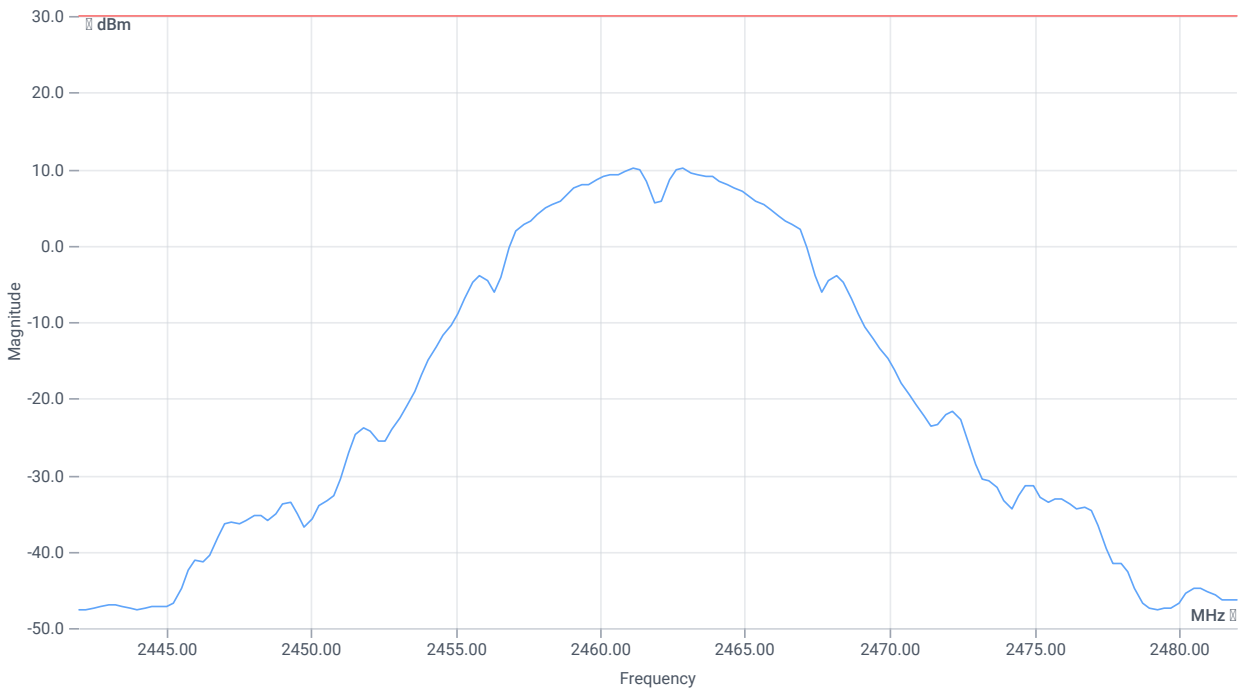


Duty cycle

## Avg output power SA DTS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.01   14.14   30
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	20.35	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	20.58	dBm	PASS

Verdict

PASS



## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 14:07:13
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

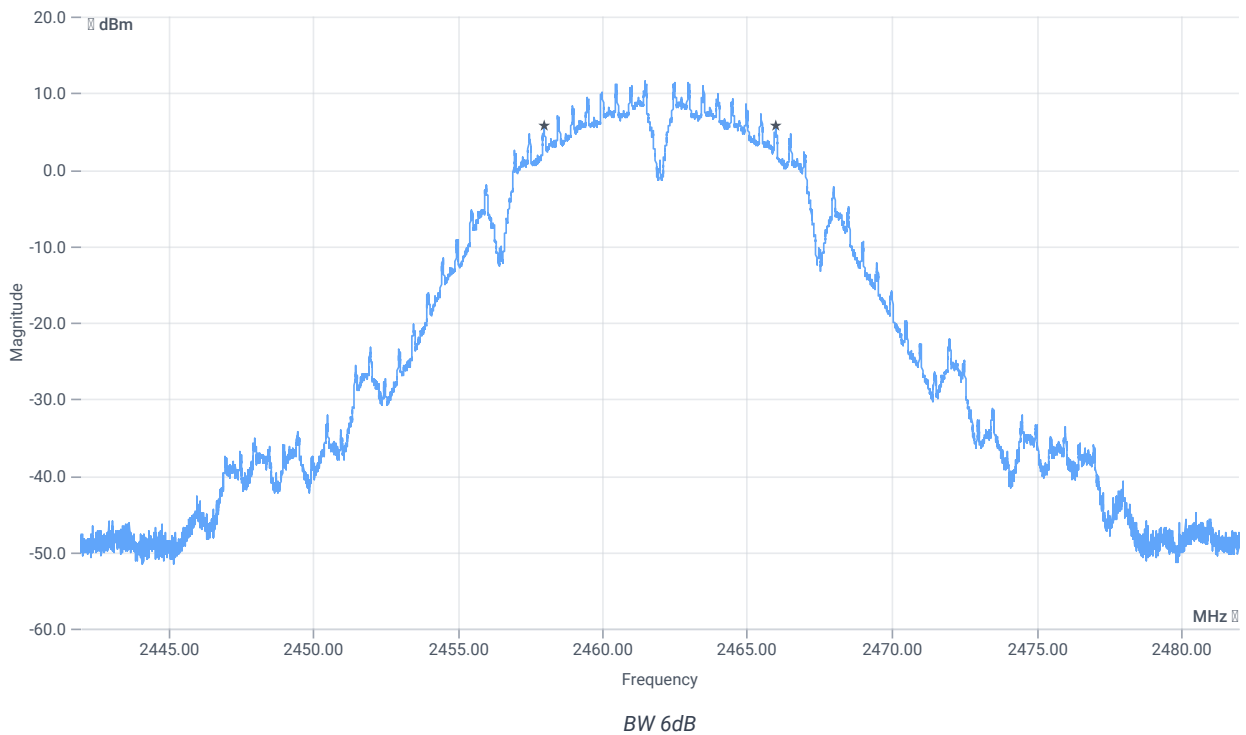
## Test at TX 2462 MHz

RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.78	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.78   14.14   25
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE



### RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
DTS Bandwidth (6dB)	500	--	8016	kHz	PASS

Verdict

PASS

## FCC 15.247 # Avg psd DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 14:07:46
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
Description	FCC 15.247 Avg psd DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

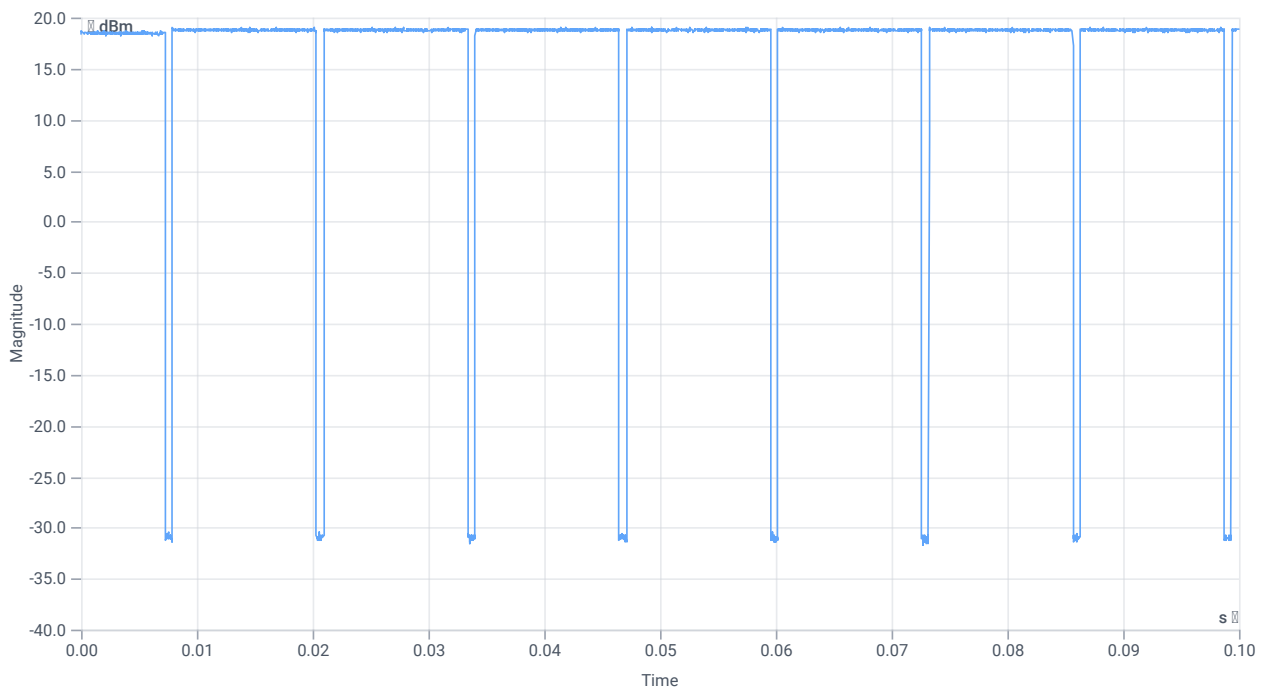
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.81	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:7					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

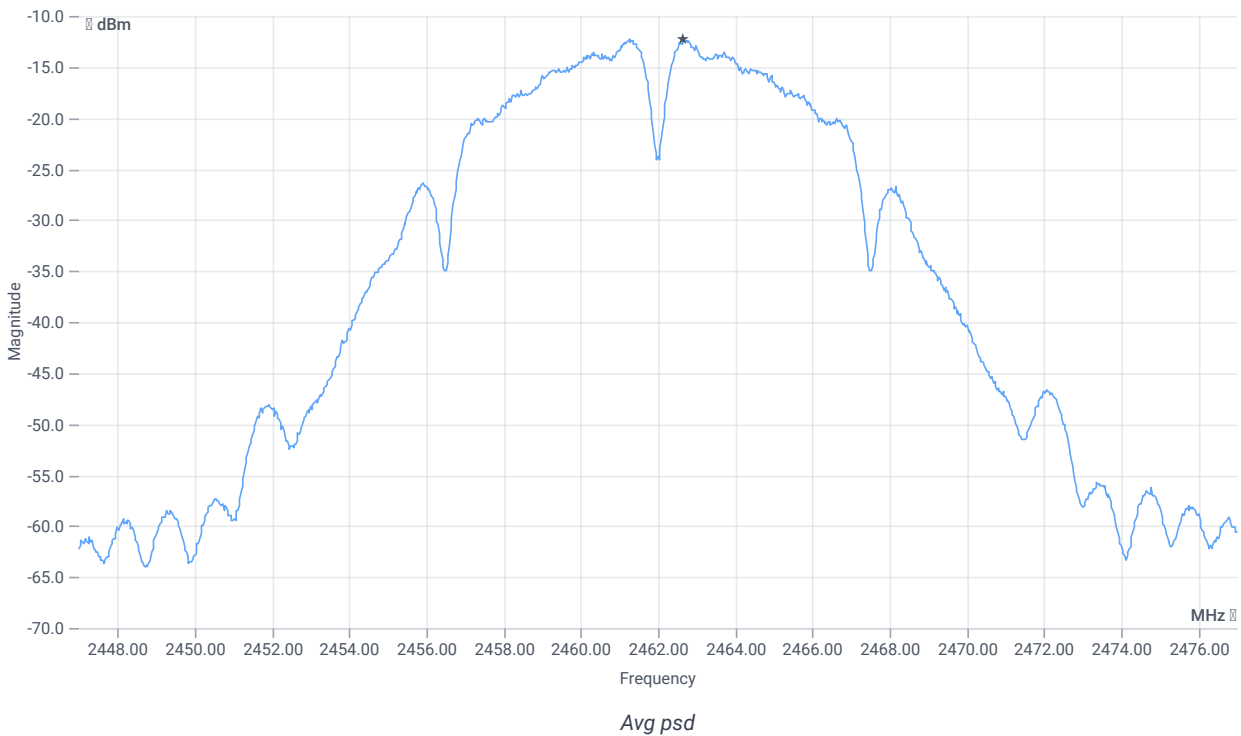


Duty cycle

## Avg. psd

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.81   14.14   25
Start [MHz]   Stop [MHz]	2447.000   2477.000
RBW [MHz]   VBW [MHz]	0.003000   0.010000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	334   100   1001   SWE



**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg psd uncorrected	--	--	-12.29	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg psd DC corrected	--	8	-12.06	dBm/3kHz	PASS

Verdict

PASS

# FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 b mode

## References

TC start	12.01.2024 14:08:51
Ambit temp [°C]   humidity [rel%]	22.7   26
System version	4.7.1.5
Standard   Version	FCC 15.247, ISED RSS247   NI
Method	
Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 b mode
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

## Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

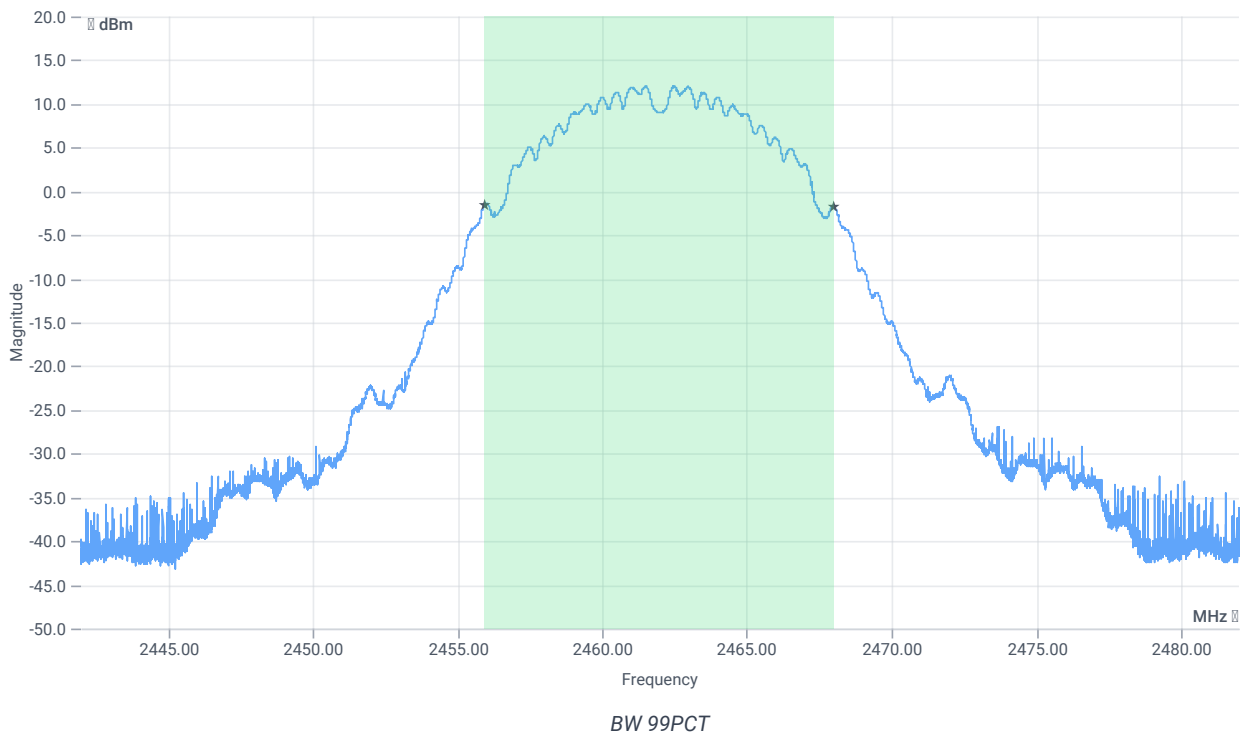
## Test at TX 2462 MHz

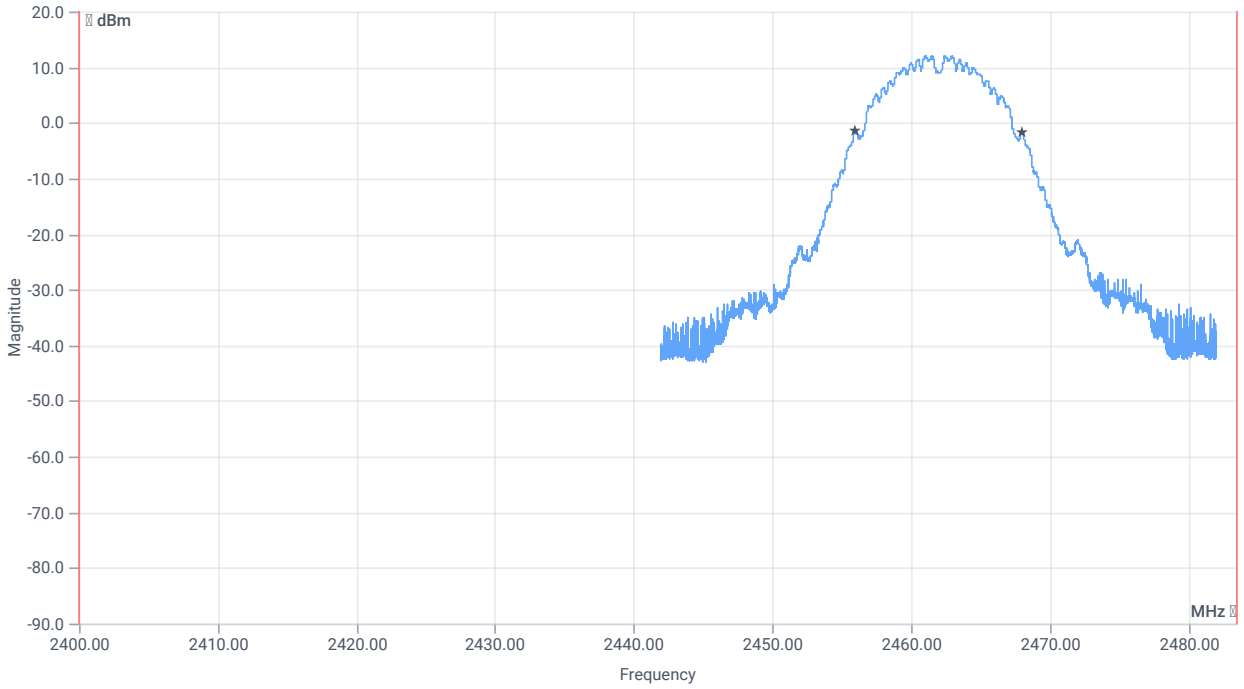
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.74	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	19.74   14.14   25
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	50   200   10001   SWE

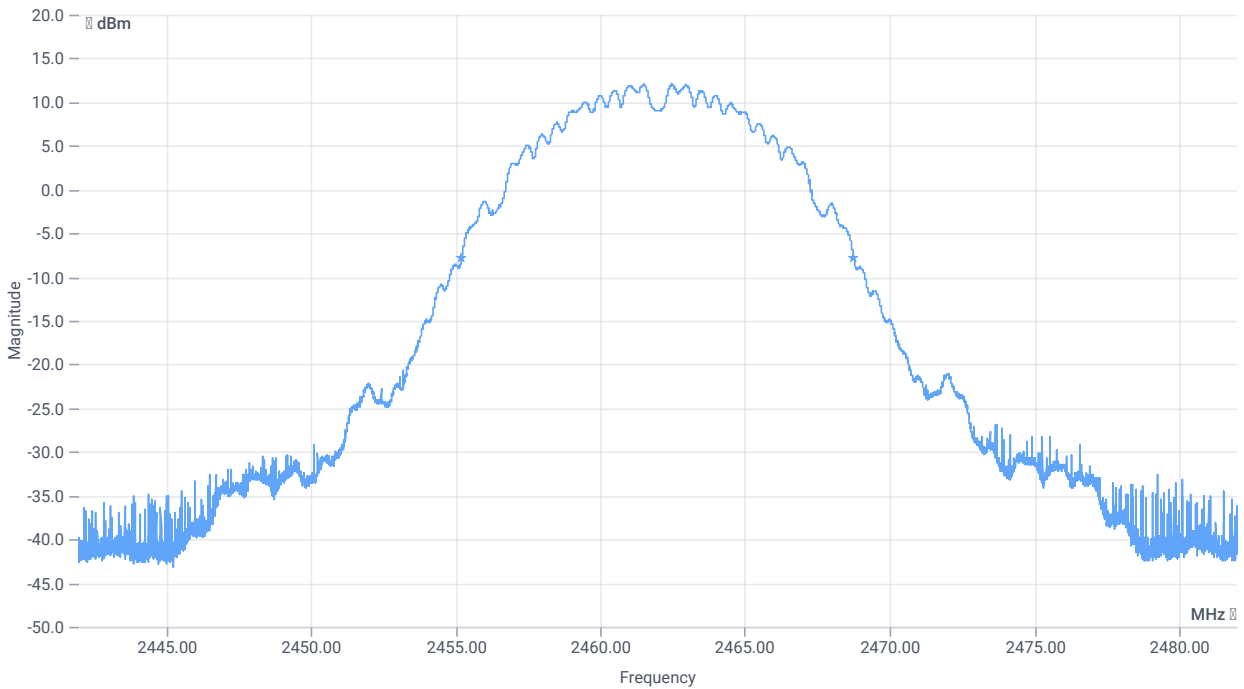




BW within Band 99PCT

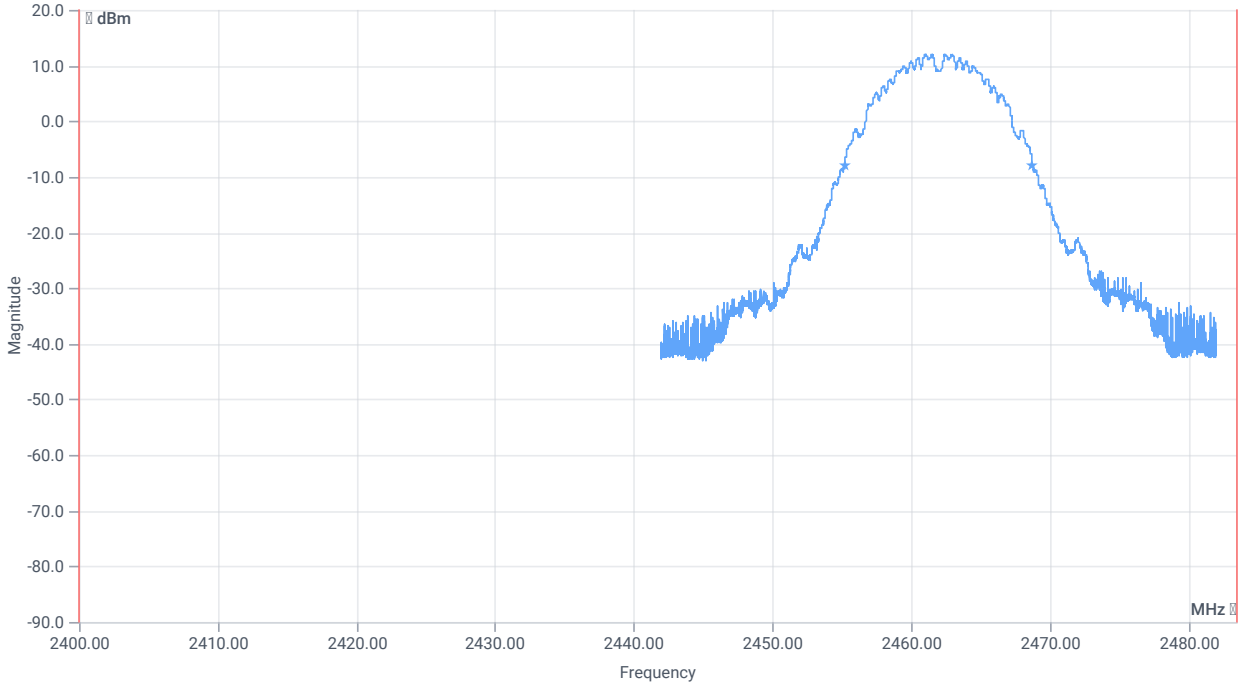
**RESULT**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 99%	--	--	12071.000	kHz	INFO
T1 99%	2400.000000	--	2455.9446	MHz	PASS
T2 99%	--	2483.500000	2468.0154	MHz	PASS





BW 20dB



BW within Band 20dB

RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Bandwidth 20dB	--	--	13552	kHz	INFO
T1 20DB	2400.000000	--	2455.2160	MHz	PASS
T2 20dB	--	2483.500000	2468.7680	MHz	PASS

Verdict

PASS

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 b mode

### References

TC start	12.01.2024 14:09:27
Ambit temp [°C]   humidity [rel%]	22.7   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	IF DTS then 8.5 DTS emissions in non-restricted frequency bands: Subclause 11.11 of ANSI C63.10 is applicable
Description	FCC 15.247 TX Emissions Conducted 30dBc DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

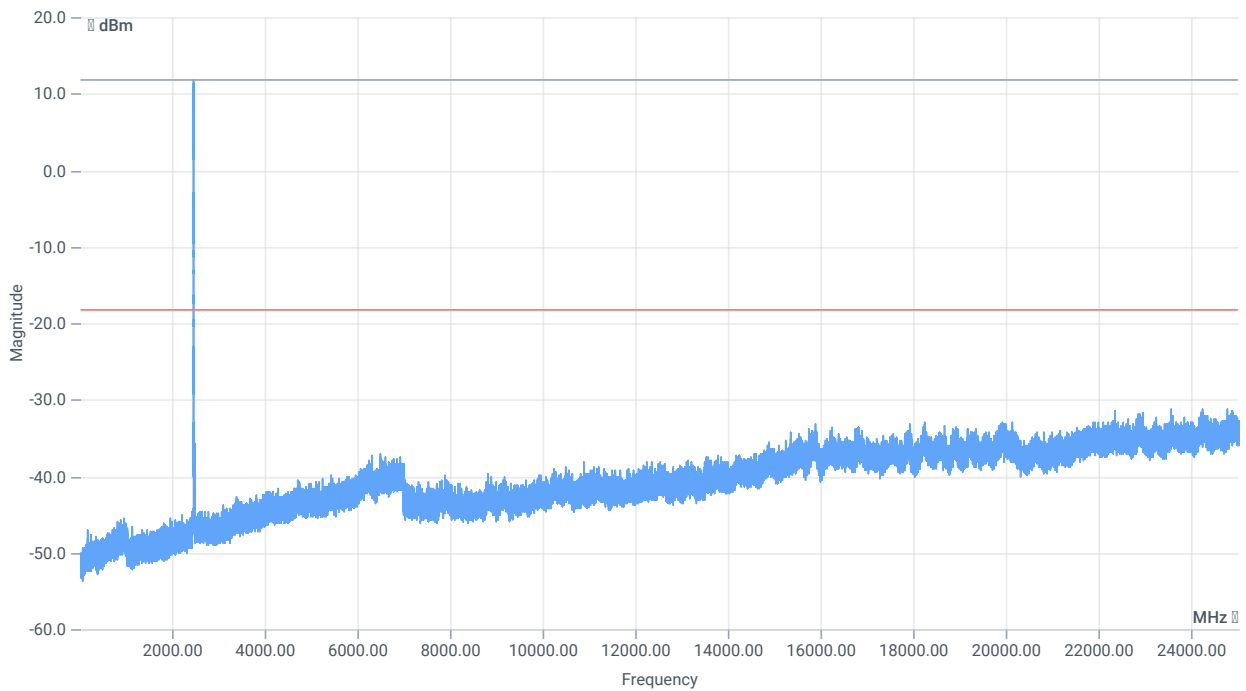
### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

RESULT: Reference Power cond.

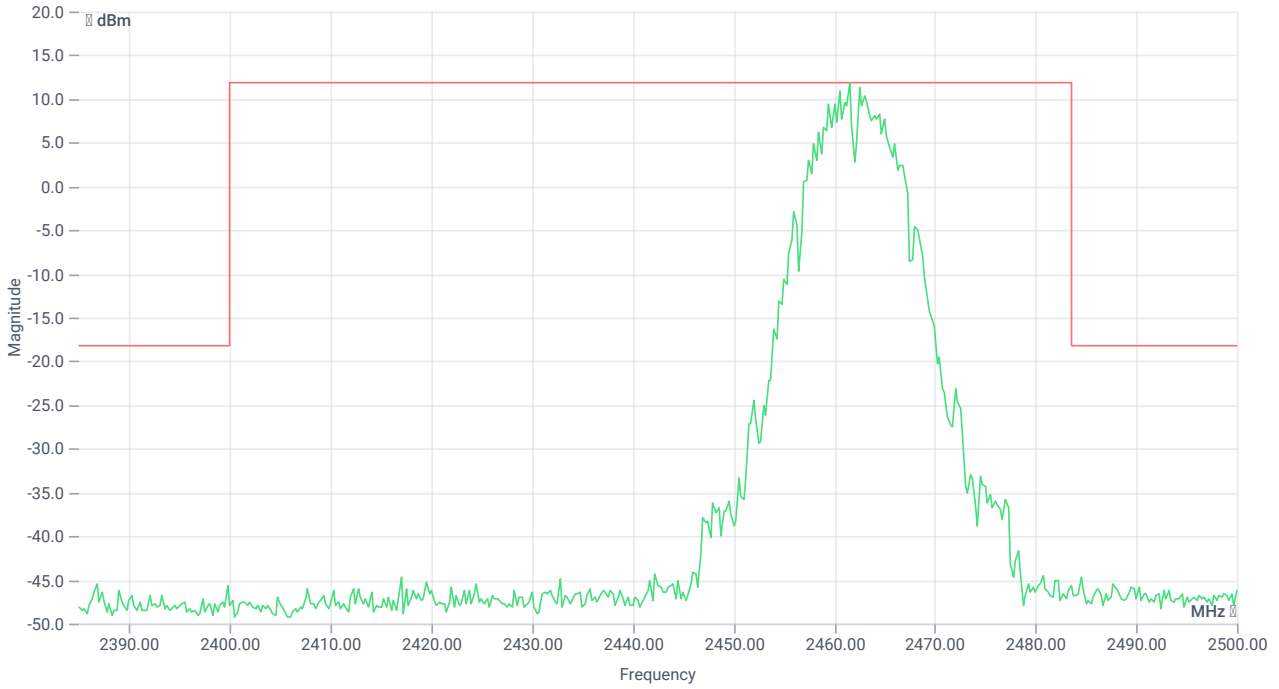
DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.73	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	14.73   0   30
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: time [ms]   count   points per Section   type	200   25   2001   SWE



TX emissions band zoomed

## RESULT

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Reference @ 2461.50 MHz	--	--	11.80	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 30 MHz	0	--	-148.09	dB	INFO

Verdict

PASS

## FCC 15.247 # Avg output power SA DTS ~ WLAN2G4 b mode

### References

TC start	12.01.2024 14:16:11
Ambit temp [°C]   humidity [rel%]	22.9   26
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	ANSI C63.10-2013 Chapter 11.9.2.2.2 or .4
Description	FCC 15.247 Avg output power SA DTS - WLAN2G4 b mode
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	2
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	EUT - SignalingUnit - SpectrumAnalyzer

### Equipment

Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

## Test at TX 2462 MHz

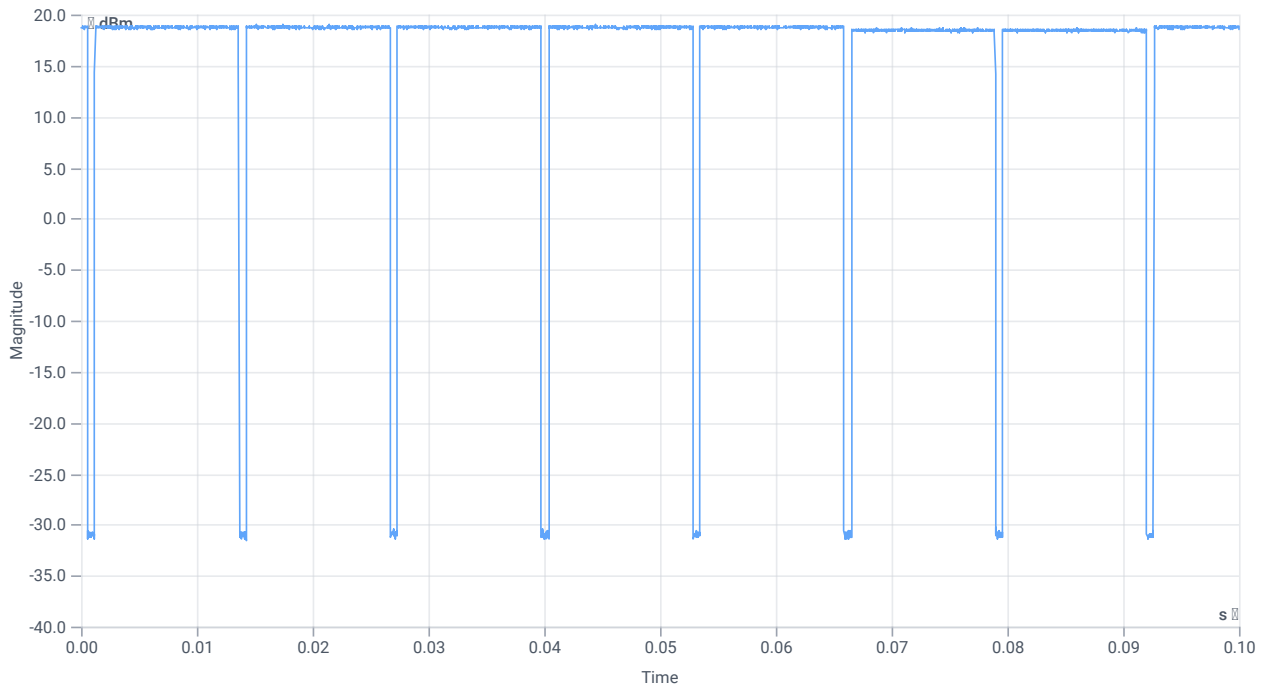
RESULT: Reference Power cond.

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ref. Power 1MHz/1MHz cond.	--	--	14.73	dBm	INFO
Ref. Frequency	--	--	2460.800	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Result Summary					
Number of detected Bursts:7					
Duty Cycle (Burst Ratio) max	--	--	0.948	--	INFO
Duty Cycle max	--	--	0.232	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	0.948	--	INFO
Duty Cycle min	--	--	0.232	dB	INFO
Max TX Burst Length	--	--	12.4	ms	INFO
Min Gap Length	--	--	0.675	ms	INFO
Max Gap Length	--	--	0.675	ms	INFO

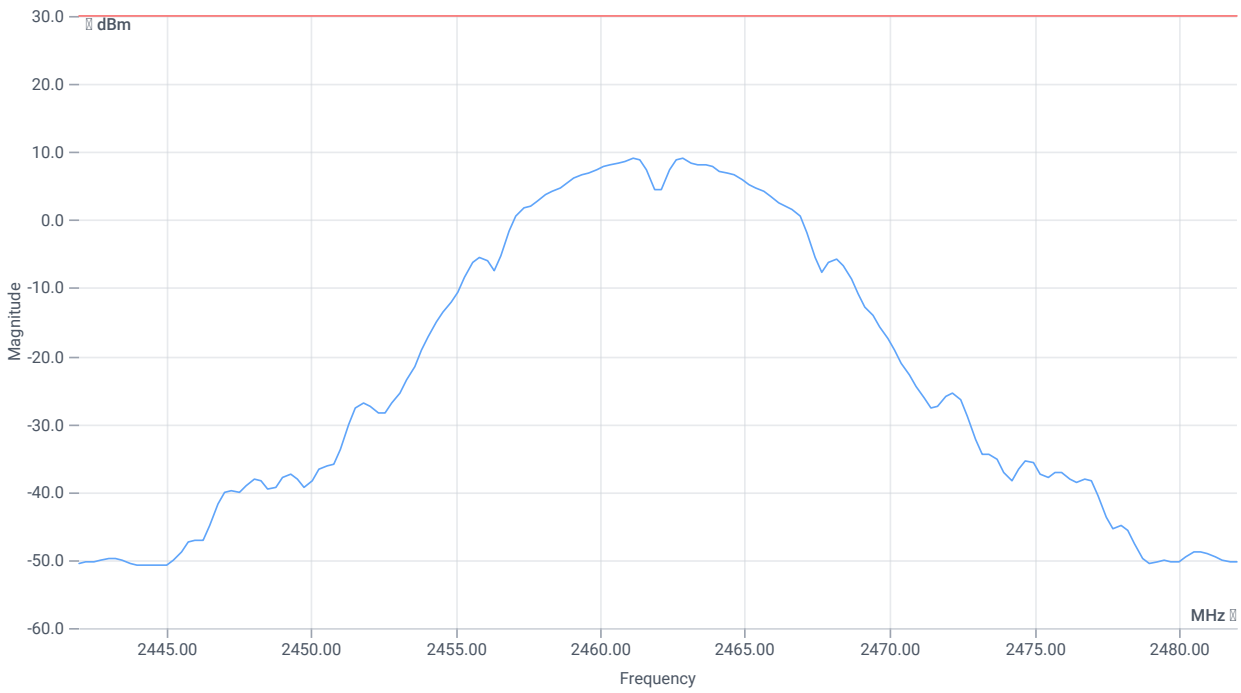


Duty cycle

## Avg output power SA DTS

**READ SA SETTINGS:**

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	24.73   14.14   25
Start [MHz]   Stop [MHz]	2442.000   2482.000
RBW [MHz]   VBW [MHz]	0.500000   2.000000
Detector   TraceMode	RMS   AVER
Sweep: time [ms]   count   points per Section   type	500   100   160   SWE



Avg output power SA DTS

**RESULT (Channel power method)**

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Avg output power uncorrected	--	--	19.2	dBm	INFO
Duty cycle correction	--	--	0.23	dB	INFO
Avg power DC corrected	--	30	19.43	dBm	PASS

**Verdict**

PASS

## FCC 15.247 # MIMO $\Sigma$ Avg output power SA DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

### References

TC start	12.01.2024 14:17:25
Ambit temp [°C]   humidity [rel%]	22.9   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg output power SA DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

### Equipment



## Test at TX 2462 MHz

### RESULT Power

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg power DC corr.	--	--	20.58	dBm	INFO
Ant:2 Avg power DC corr.	--	--	19.43	dBm	INFO
$\Sigma$ Avg output power DC corr.	--	30	23.05	dBm	PASS

### Verdict

PASS

# FCC 15.247 # MIMO $\Sigma$ Avg psd DTS ~ WLAN2G4 b mode 2400-2483.5 MHz

## References

TC start	12.01.2024 14:17:38
Ambit temp [°C]   humidity [rel%]	22.9   25
System version	4.7.1.5
Standard   Version	FCC 15.247   NI
Method	
Description	MIMO $\Sigma$ FCC Avg psd DTS - WLAN2G4 b mode 2400-2483.5 MHz
Information	

## EUT Common Settings WLAN2G4

Number of Antenna Ports	2
User Interaction	No

## Test Parameter

Technology to test	WLAN2G4 b mode
Antenna port used	several
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2412
Frequency mid to test	False   Freq [MHz] 2437
Frequency high to test	True   Freq [MHz] 2462
Auto control enabled power supply   Climatic Box	No   No
Additional path loss [dB]	0.7
Full path name   type	None

## Equipment

## Test at TX 2462 MHz

### RESULT psd

DESCRIPTION	LOWER LIMIT	UPPER LIMIT	MEASURED	UNIT	VERDICT
Ant:1 Avg psd DC corr	--	--	-10.7	dBm/3kHz	INFO
Ant:2 Avg psd DC corr	--	--	-12.06	dBm/3kHz	INFO
$\Sigma$ Avg psd DC corr	--	8	-8.32	dBm/3kHz	PASS

Verdict

PASS

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