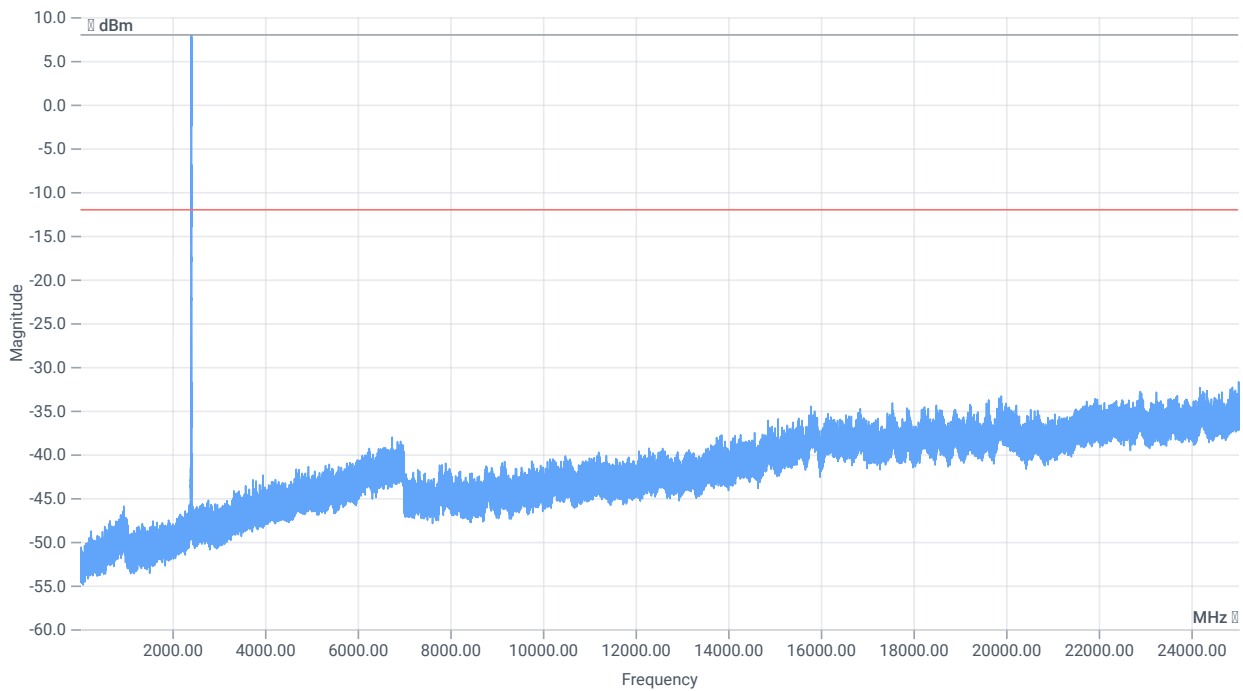


## Test at TX 2412 MHz

RESULT: Reference Power cond.

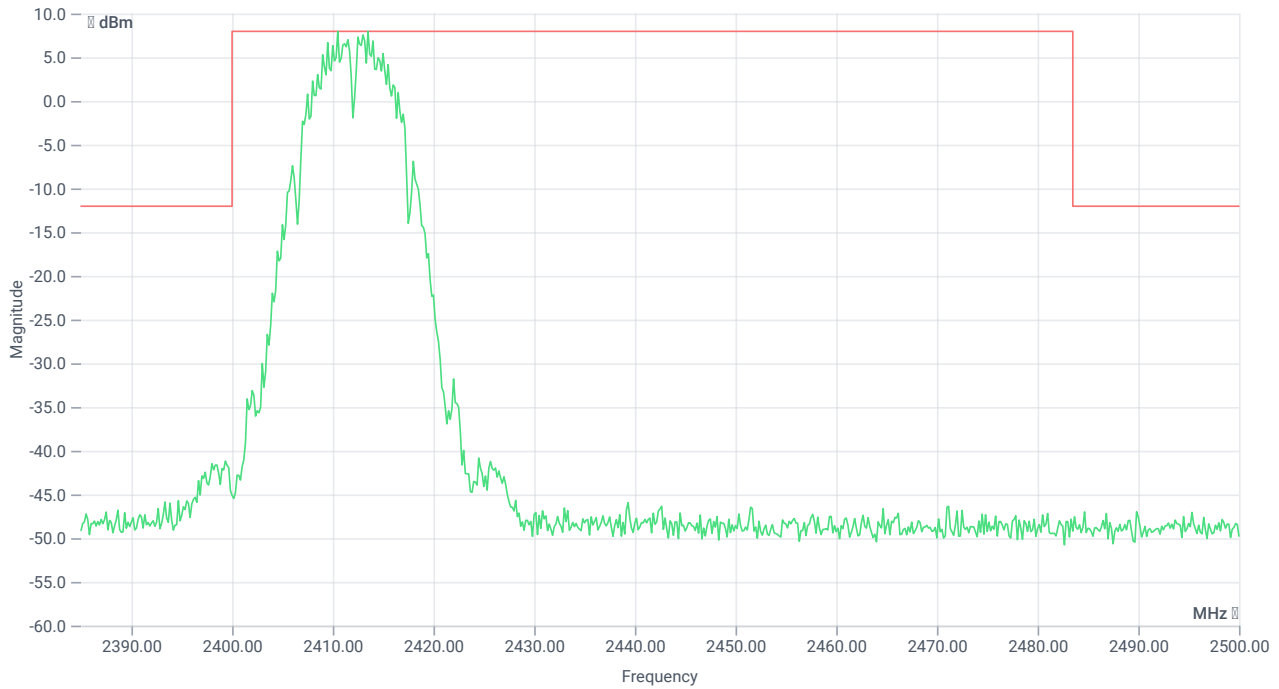
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.61	dBm	INFO
Ref. Frequency	--	--	2413.100	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.61   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   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2410.50 MHz	--	--	7.96	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24888.667 MHz	0	--	20.3	dB	INFO

## Verdict

PASS

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

## Test References

TC Start	07.02.2023 16:20:13
Ambit Temp [°C]   Humidity [rel%]	23.6   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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

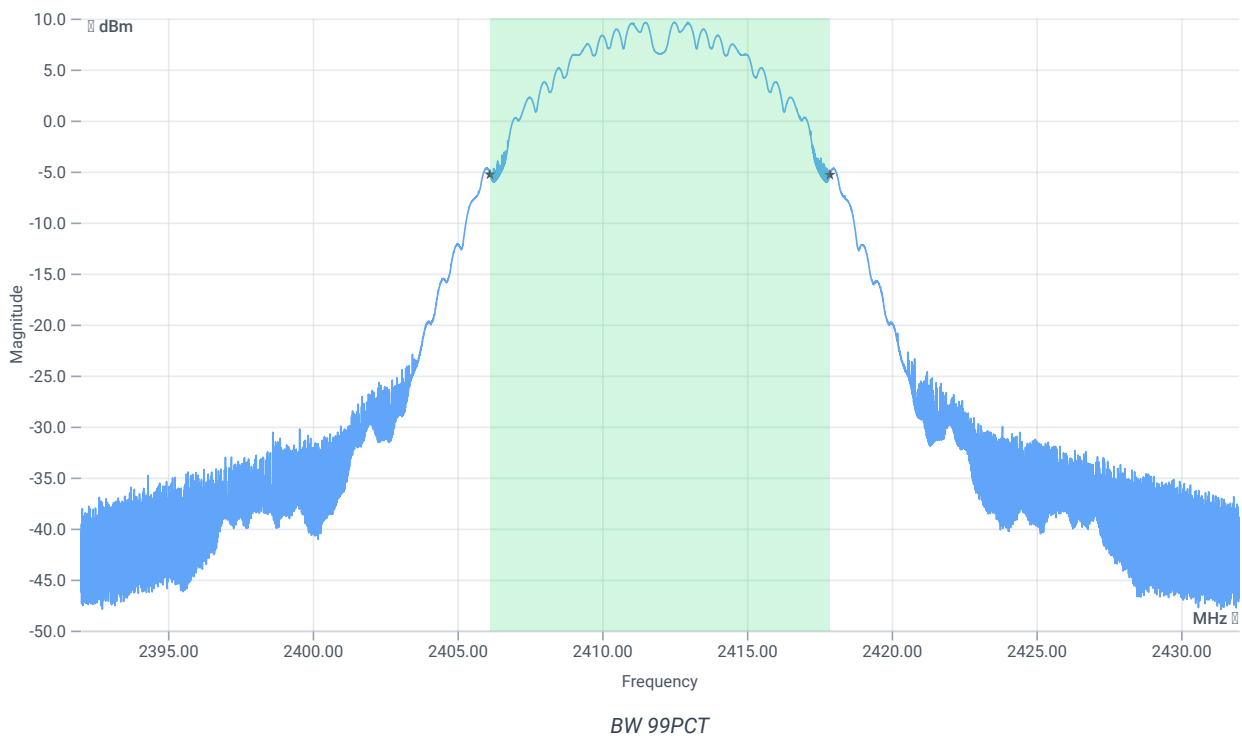
## Test at TX 2412 MHz

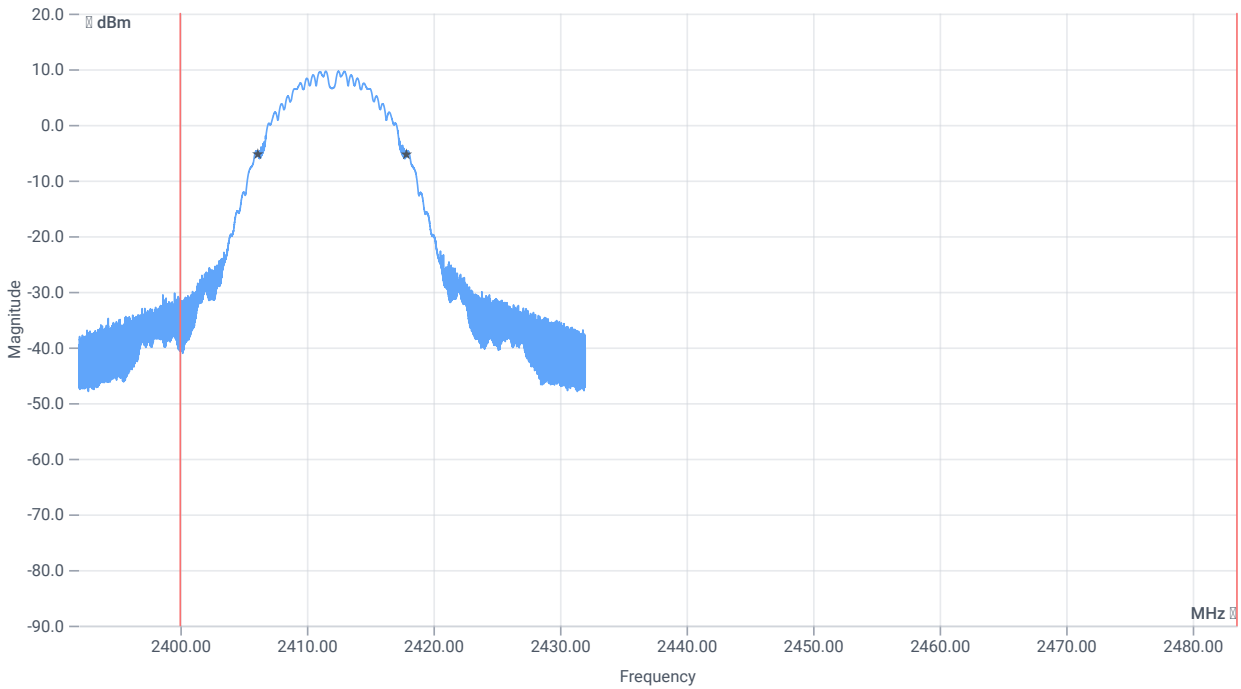
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.56	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.56   14.43   20
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

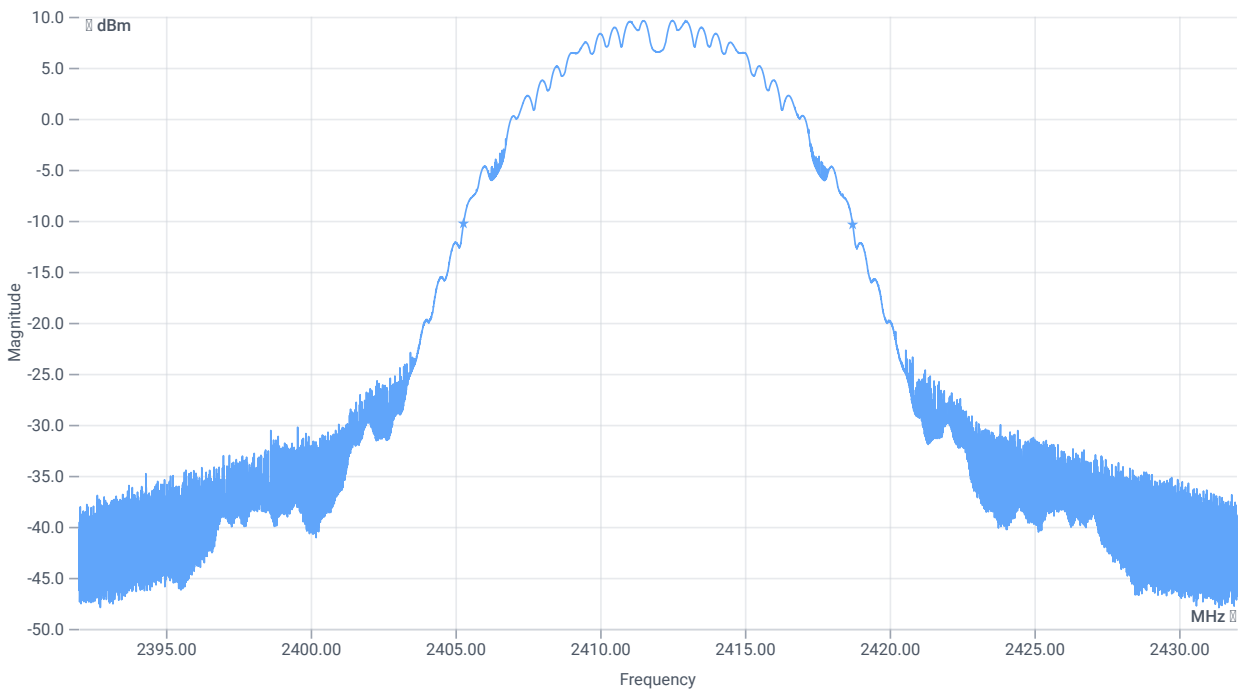




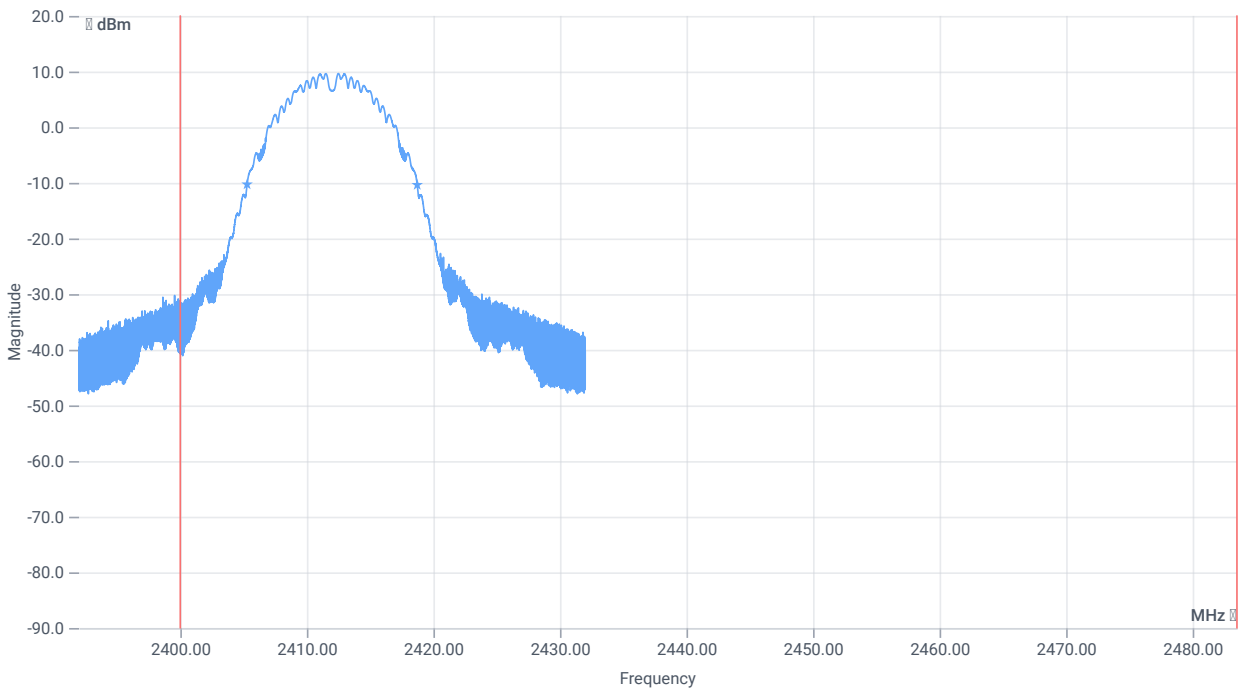
*BW within Band 99PCT*

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	11739.000	kHz	INFO
T1 99%	2400.000000	--	2406.1286	MHz	PASS
T2 99%	--	2483.500000	2417.8674	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	13444	kHz	INFO
T1 20DB	2400.000000	--	2405.2800	MHz	PASS
T2 20dB	--	2483.500000	2418.7240	MHz	PASS

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ WLAN2G4 b mode

### Test References

TC Start	07.02.2023 16:19:32
Ambit Temp [°C]   Humidity [rel%]	23.6   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

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

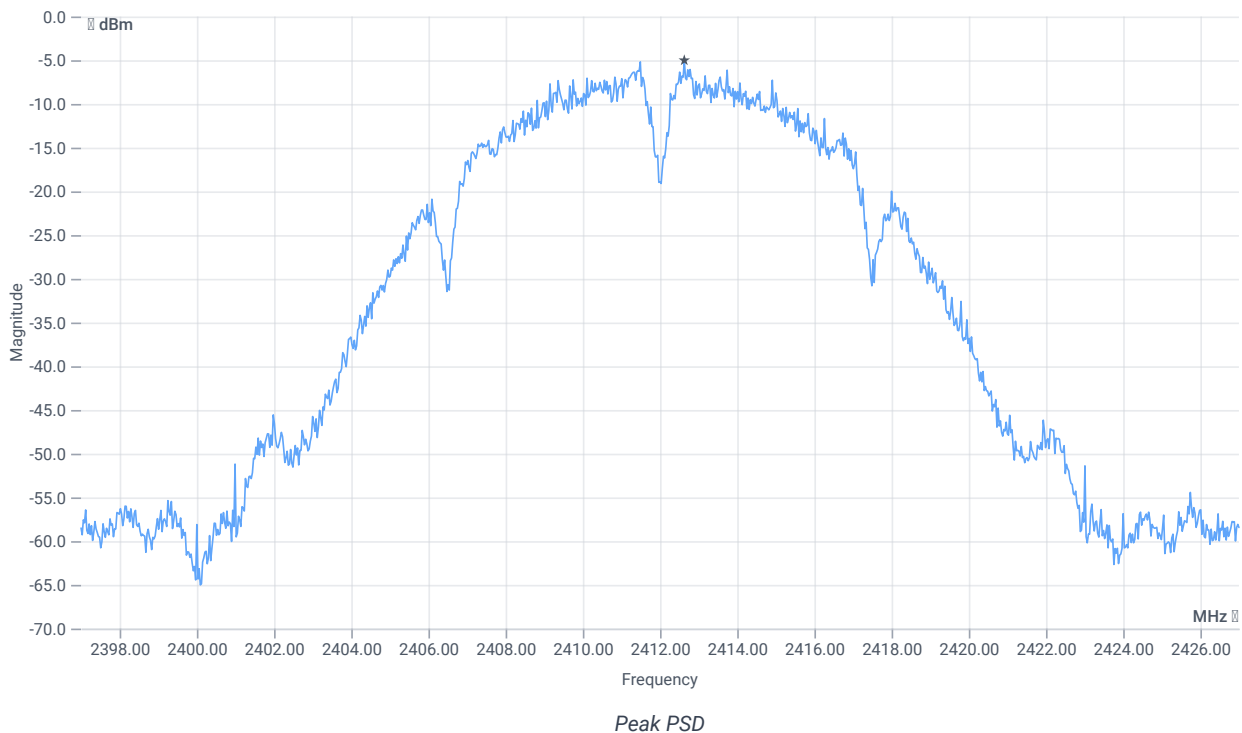
## Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.52	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.52   14.43   20
Start [MHz]   Stop [MHz]	2397.000   2427.000
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 Density	--	8	-5.01	dBm/3KHz	PASS

Verdict

PASS



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

### Test References

TC Start	07.02.2023 16:18:58
Ambit Temp [°C]   Humidity [rel%]	23.7   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

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

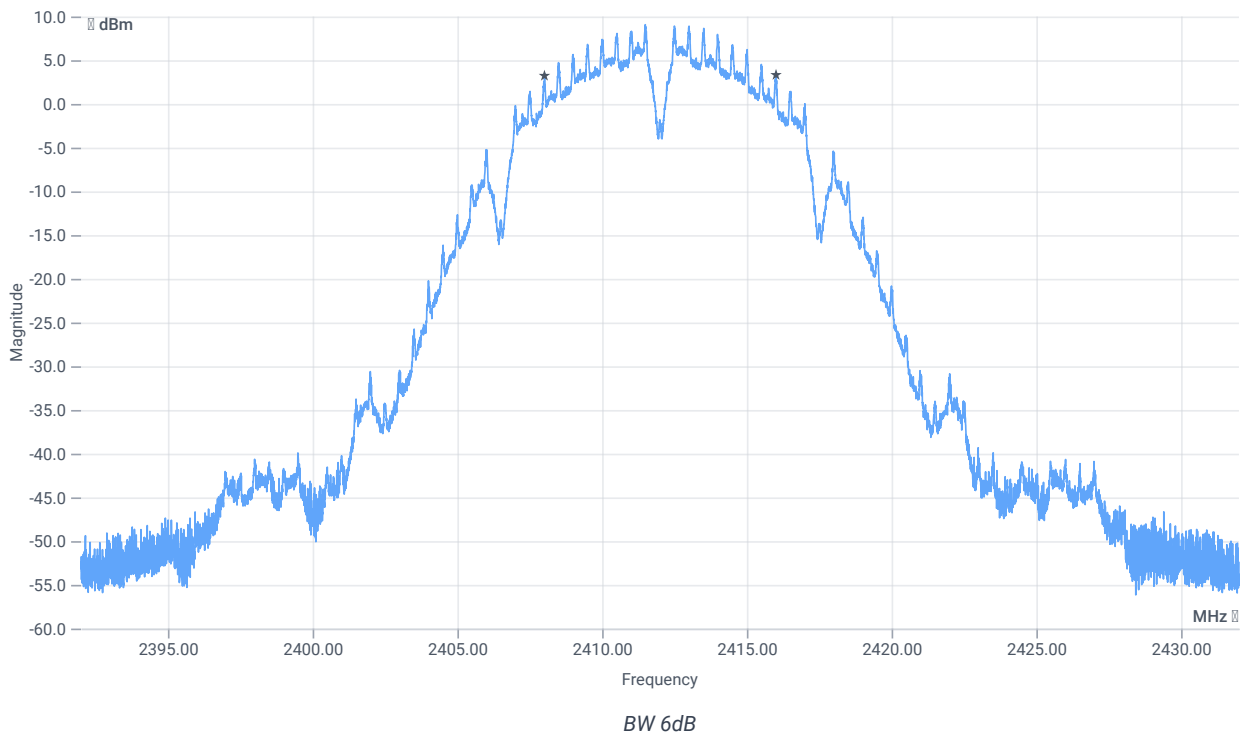
## Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.57	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.57   14.43   20
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	--	8000	kHz	PASS

Verdict

PASS

## FCC 15.247 # Maximum peak conducted output power PM DTS ~ WLAN2G4 b mode

### Test References

TC Start	07.02.2023 16:18:17
Ambit Temp [°C]   Humidity [rel%]	23.6   25
System Version	3.3.4.3
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.3 PKPM1 Peak-reading Power Meter Method
TC Version	0.0.1
My Description	FCC 15.247 Max Peak Output Power Powermeter Conducted DTS - WLAN2G4 b mode

Add. 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
Switched Path	EUT - SignalingUnit - PowerMeter

### Test Equipment

Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI

Power sensor,Keysight Technologies,U2021XA,MY59190010,A.04.06

## Test at TX 2412 MHz

### RESULT

<i>Test Description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Found Peak cond.	--	--	22.11	dBm	PASS

Verdict

PASS

# FCC 15.247 # Restricted band edge conducted avg DC corrected DTS (eirp) ~ WLAN2G4 b mode

## Test References

TC Start	07.02.2023 16:17:37
Ambit Temp [°C]   Humidity [rel%]	23.6   25
System Version	3.3.4.3
Test Specification	FCC 15.247 -
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.4 Trace averaging across on- and off-times of the EUT transmissions followed by duty cycle correction
TC Version	0.0.1
My Description	FCC 15.247 Restricted Band Edge Cond. Avg DC corrected DTS - WLAN2G4 b mode

Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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

## Antenna Gain Table

Freq [MHz]	Gain [dBi]
2400	4.85
2483.5	4.85

## Test at TX 2412 MHz

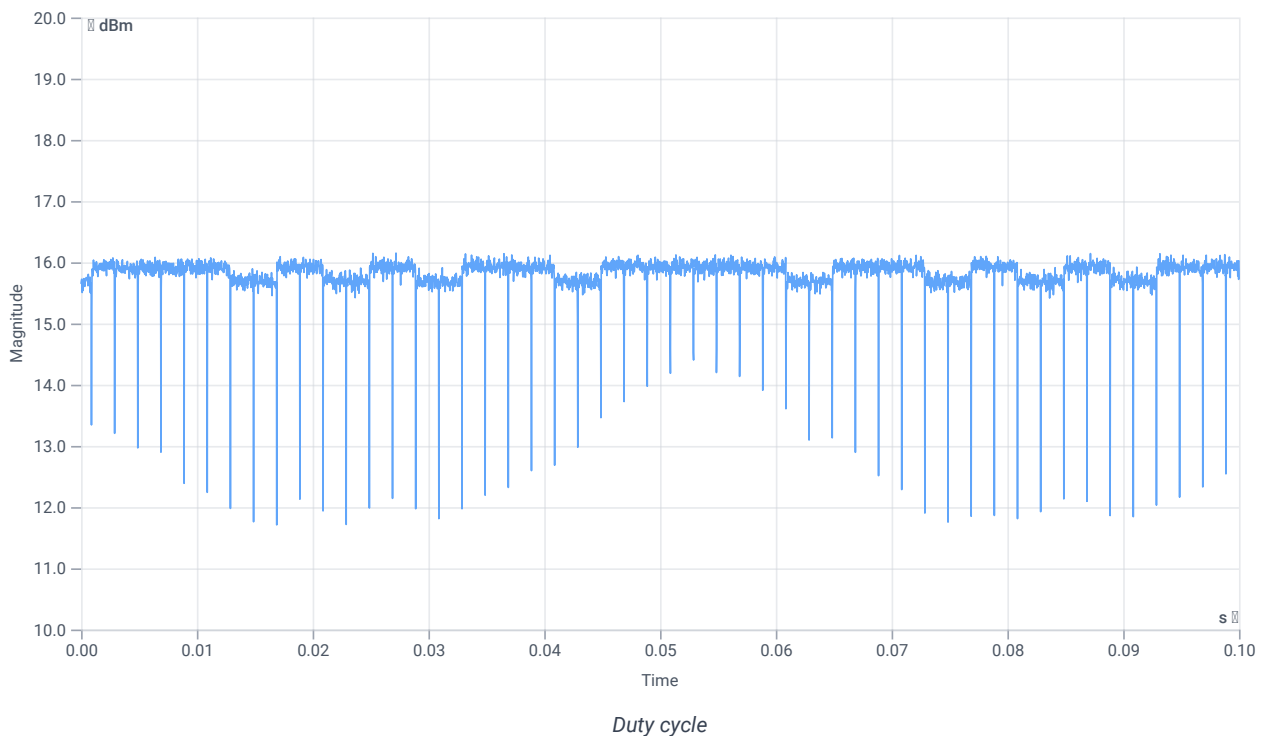
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.41	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

## Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
No enough Bursts detected, Duty Cycle Burst Ratio set to 1					
Duty Cycle (Burst Ratio) max	--	--	1	--	INFO
Duty Cycle max	--	--	0	dB	INFO
Duty Cycle (Burst Ratio) min	--	--	1	--	INFO
Duty Cycle min	--	--	0	dB	INFO



## Band Edge conducted

READ SA SETTINGS:

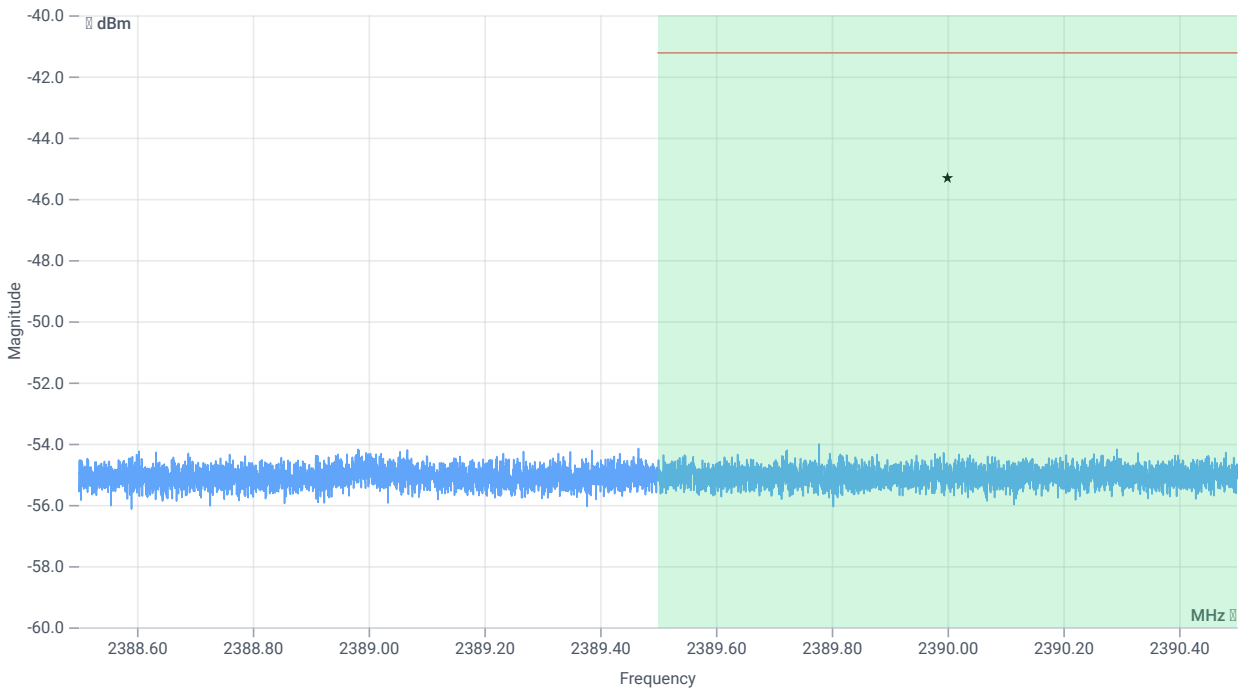
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.41   14.43   25
Start [MHz]   Stop [MHz]	2388.500   2390.500

**READ SA SETTINGS:**

RBW [MHz]   VBW [MHz]	0.100000   0.500000
Detector   TraceMode	RMS   AVER
Sweep: Time [ms]   Count   Points per Section   Type	32   300   32000   SWE

**Antenna Gain**

Considered Antenna Gain: [dBi]:	4.85 @ 2390MHz
---------------------------------	----------------



*Restricted band edge*

**RESULT**

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle worst case	--	--	0	dB	INFO
Band Power Avg	--	--	-45.32	dBm	INFO
Band Power Avg DC corrected	--	-41.23	-45.32	dBm	PASS

**Verdict**

**PASS**

## FCC 15.247 # TX spurious conducted 20dBc ~ WLAN2G4 b mode

### Test References

TC Start	07.02.2023 16:10:52
Ambit Temp [°C]   Humidity [rel%]	23.7   25
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: Subclause 11.11 of ANSI C63.10 is applicable
TC Version	0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

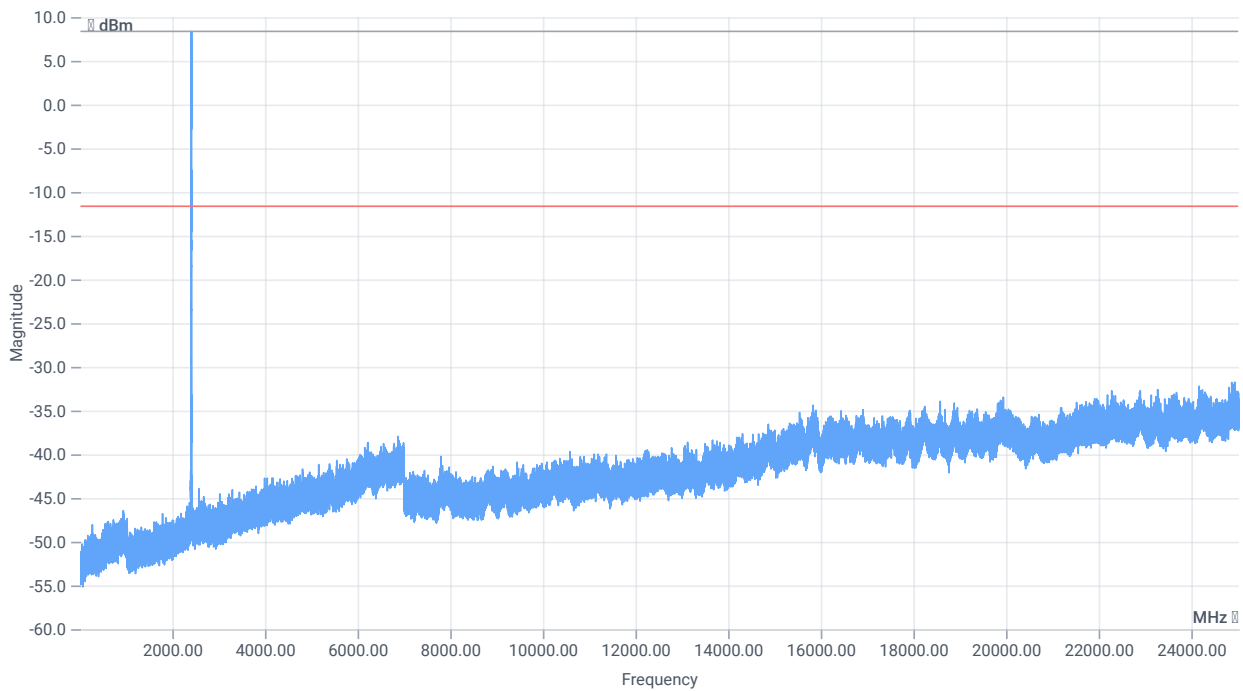
Signal analyzer,Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.70
Switch matrix,CTCadvanced,SPM-4 NI DAQ,28016133,NI



## Test at TX 2412 MHz

RESULT: Reference Power cond.

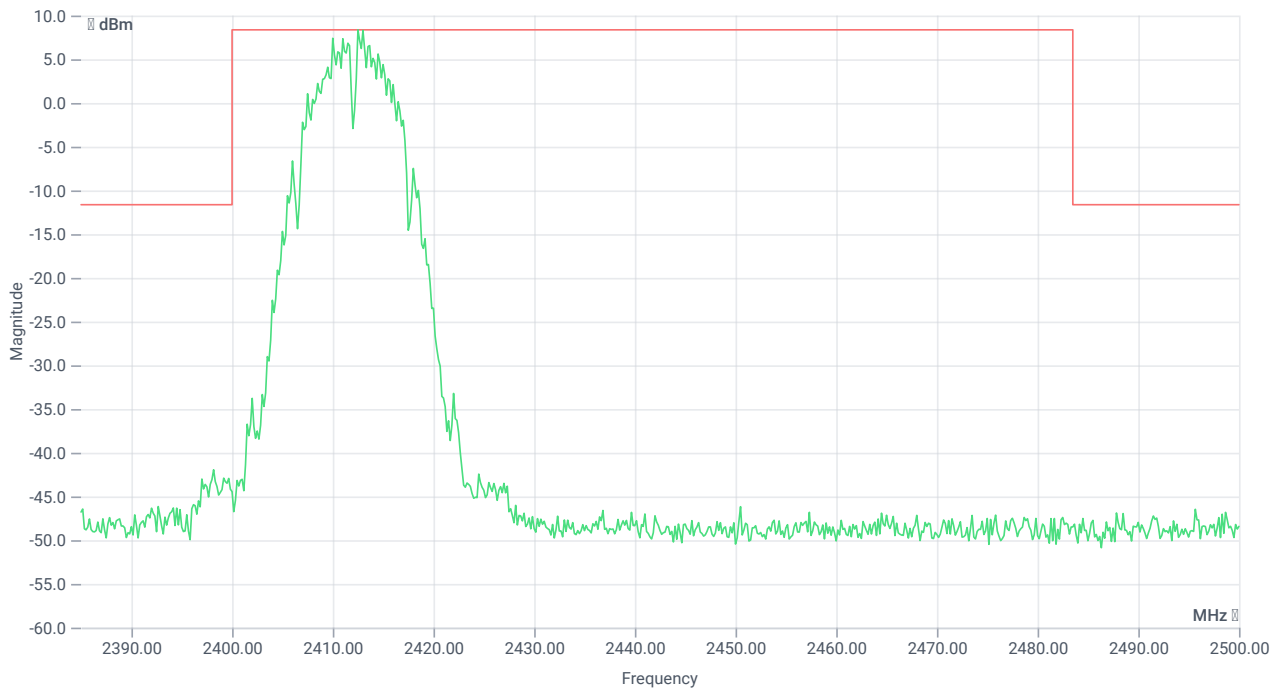
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.13	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO



TX emissions

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	12.13   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   3001   SWE



TX emissions band zoomed

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2412.50 MHz	--	--	8.37	dBm	INFO
No peaks detected	--	--			PASS
Lowest margin to limit 24938.5 MHz	0	--	20.11	dB	INFO

## Verdict

PASS

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

## Test References

TC Start	07.02.2023 16:10:16
Ambit Temp [°C]   Humidity [rel%]	23.7   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

## Test Equipment

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

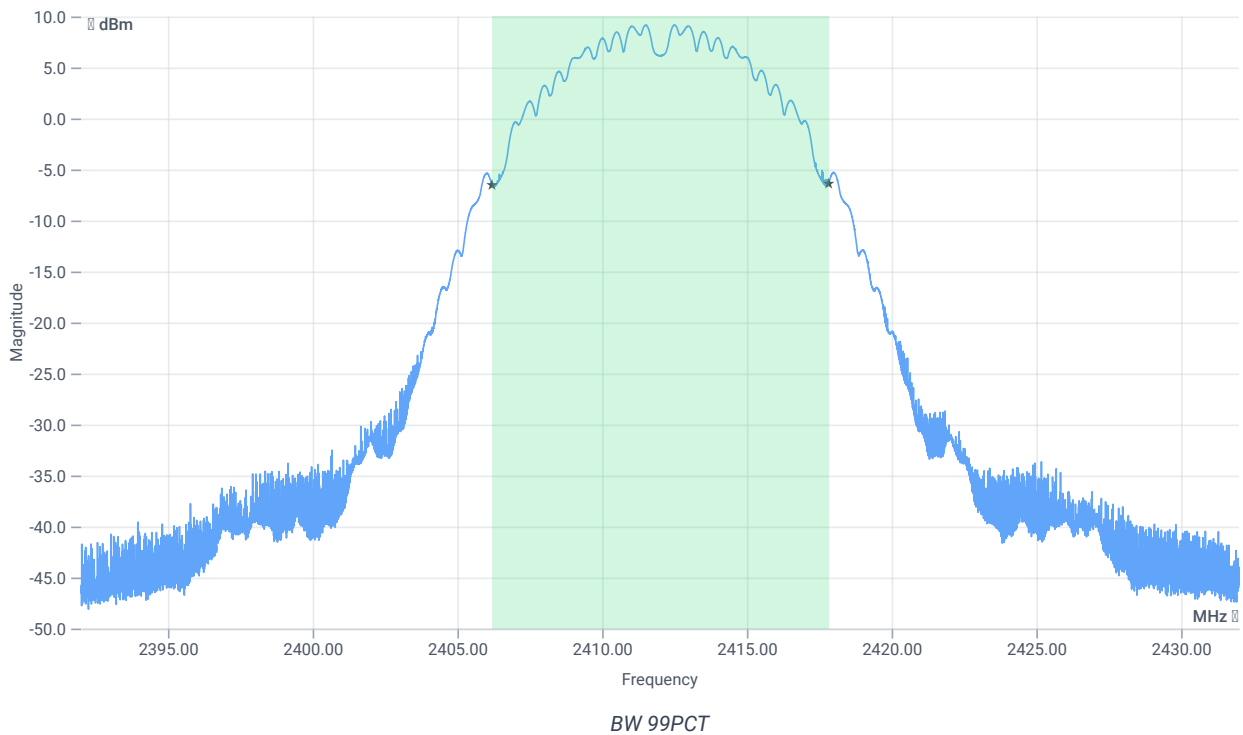
## Test at TX 2412 MHz

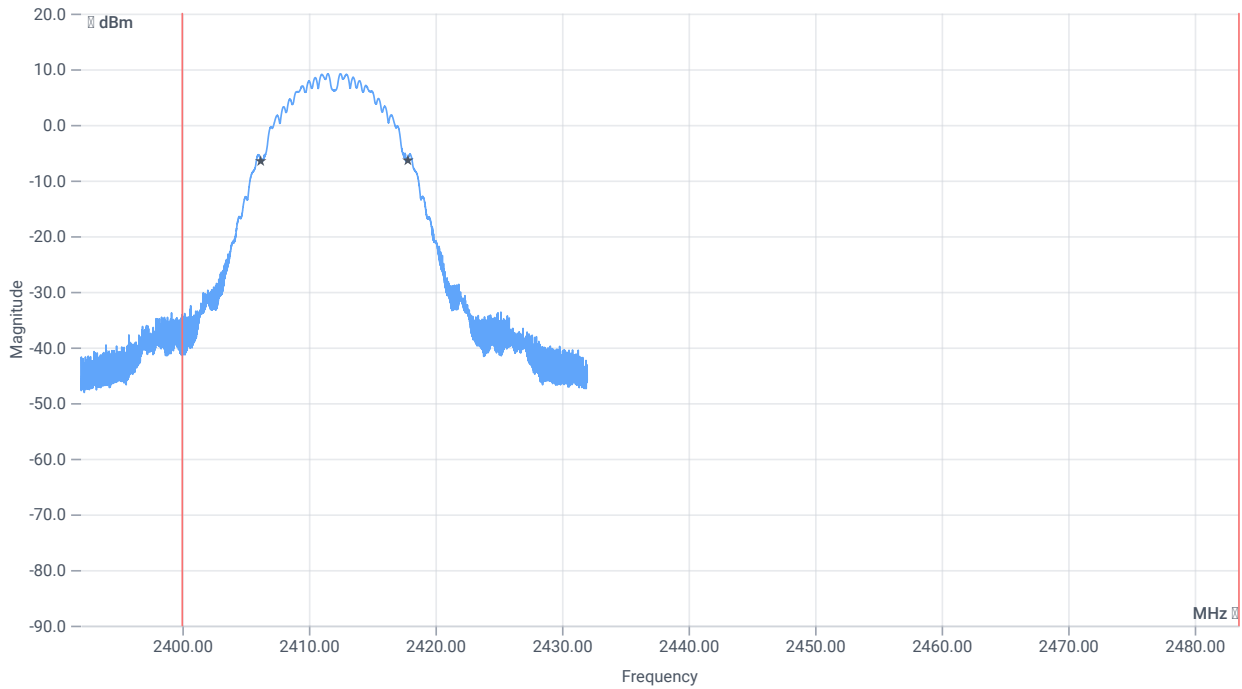
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.15	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.15   14.43   20
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

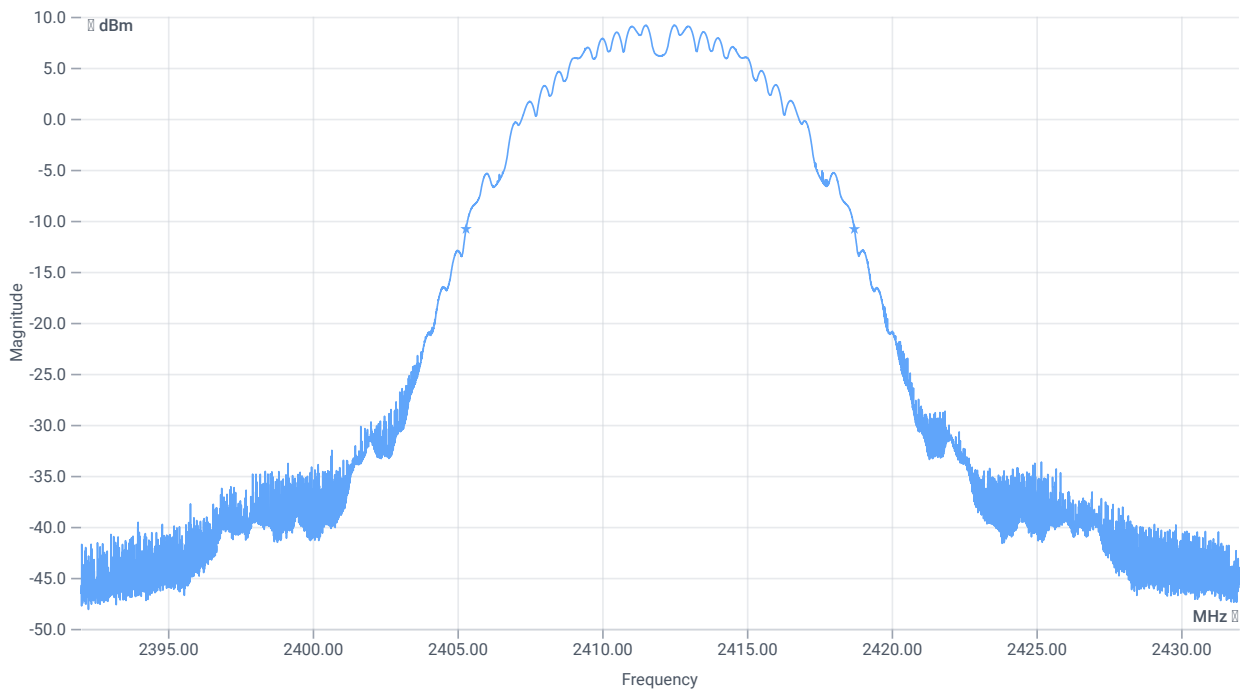




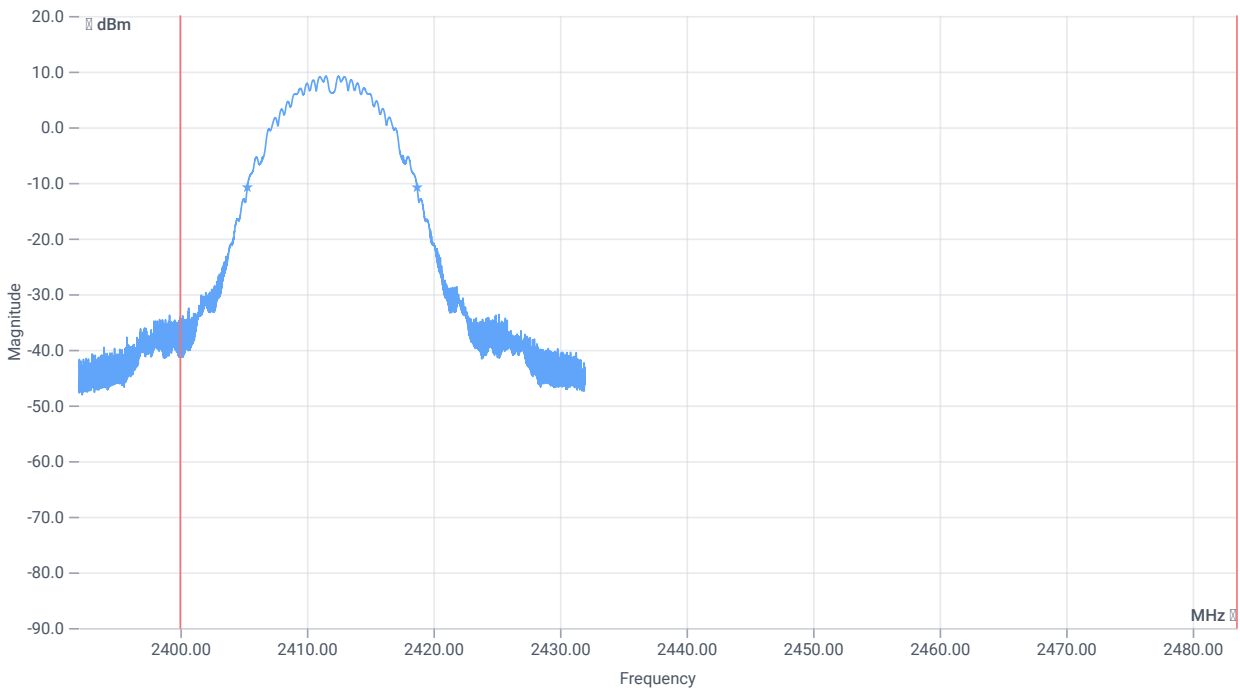
BW within Band 99PCT

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	11631.000	kHz	INFO
T1 99%	2400.000000	--	2406.1966	MHz	PASS
T2 99%	--	2483.500000	2417.8274	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	--	--	13416	kHz	INFO
T1 20dB	2400.000000	--	2405.3000	MHz	PASS
T2 20dB	--	2483.500000	2418.7160	MHz	PASS

Verdict

PASS

## FCC 15.247 # Peak power spectral density DTS ~ WLAN2G4 b mode

### Test References

TC Start	07.02.2023 16:09:35
Ambit Temp [°C]   Humidity [rel%]	23.6   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

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

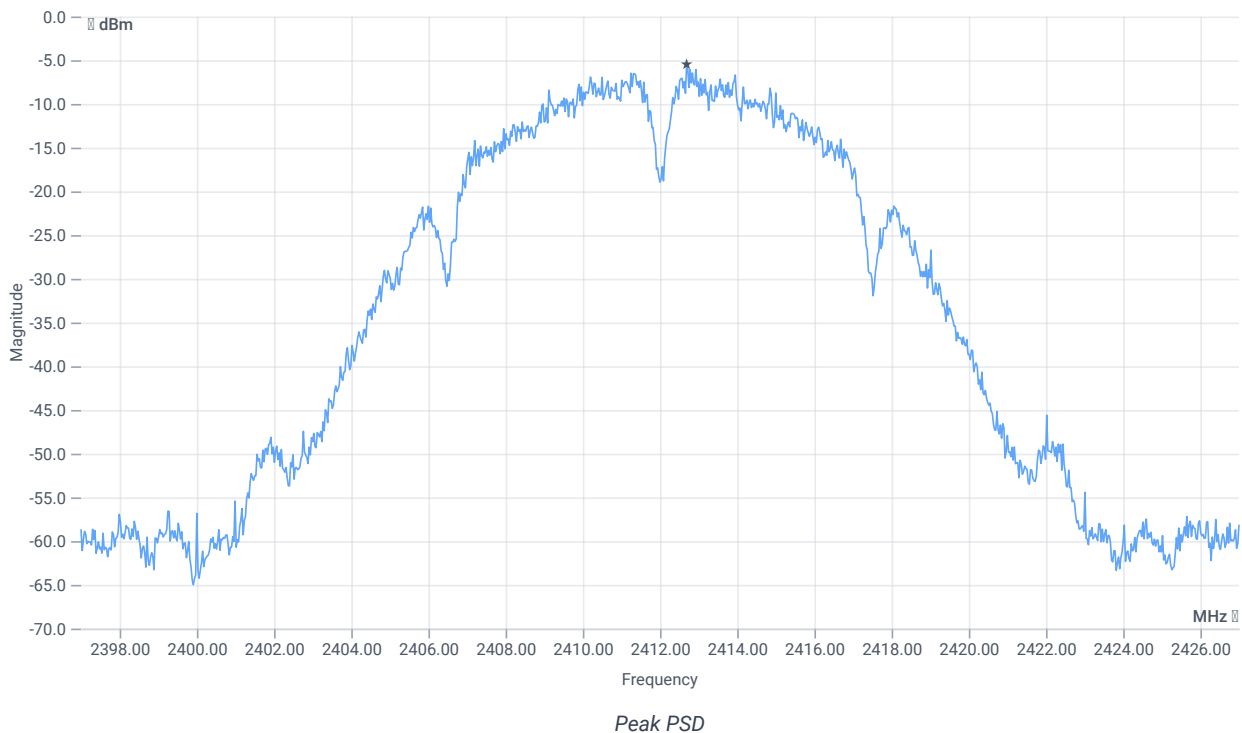
## Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.18	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.18   14.43   20
Start [MHz]   Stop [MHz]	2397.000   2427.000
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 Density	--	8	-5.47	dBm/3KHz	PASS

Verdict

PASS



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

### Test References

TC Start	07.02.2023 16:09:01
Ambit Temp [°C]   Humidity [rel%]	23.6   25
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 - WLAN2G4 b mode
Add. 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
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

### Test Equipment

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

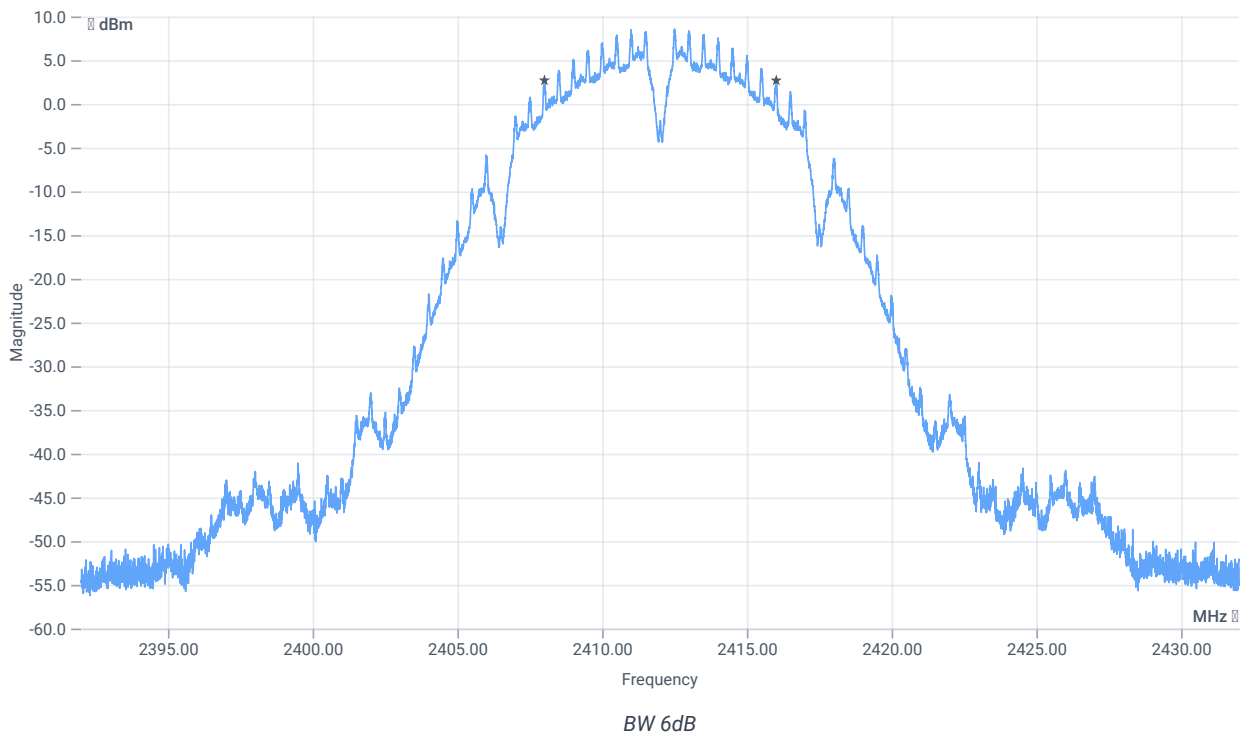
## Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	12.01	dBm	INFO
Ref. Frequency	--	--	2413.200	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	17.01   14.43   20
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	--	8008	kHz	PASS

Verdict

PASS

- END OF DOCUMENT -