

# Measurement Results

No.1-3977/22-03-03\_Annex\_MR\_A3

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## Test logging

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## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:47:16
Ambit Temp [°C]   Humidity [rel%]	18.5   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

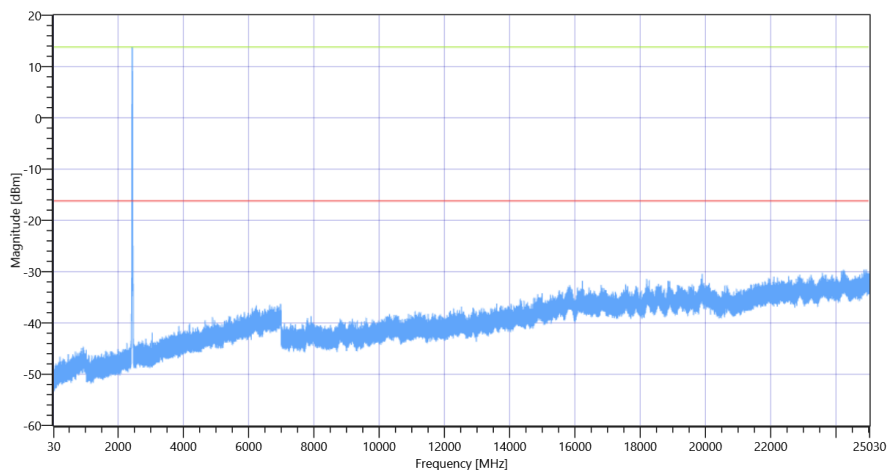
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.53	dBm	INFO
Ref. Frequency	---	---	2433.600	MHz	INFO

### READ SA SETTINGS:

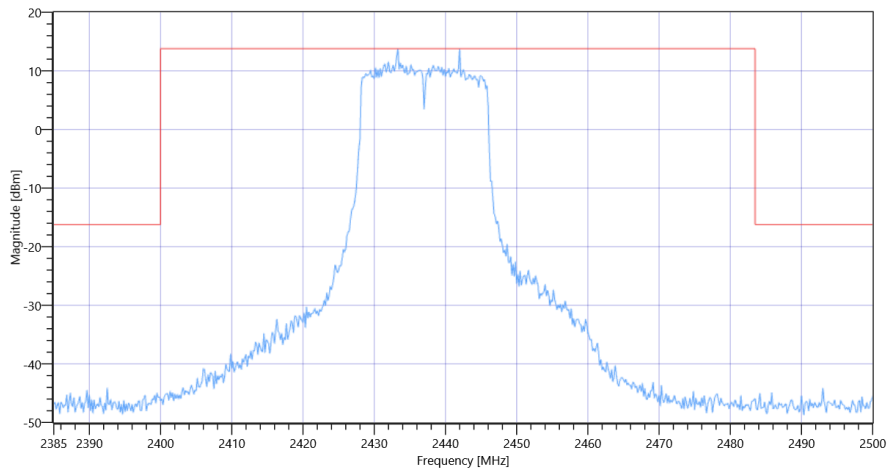
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.53   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2433.33 MHz	---	---	13.79	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24924.667 MHz	0	---	13.37	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:46:14
Ambit Temp [°C]   Humidity [rel%]	18.4   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	21.98	dBm	INFO
Ref. Frequency	--	--	2432.700	MHz	INFO

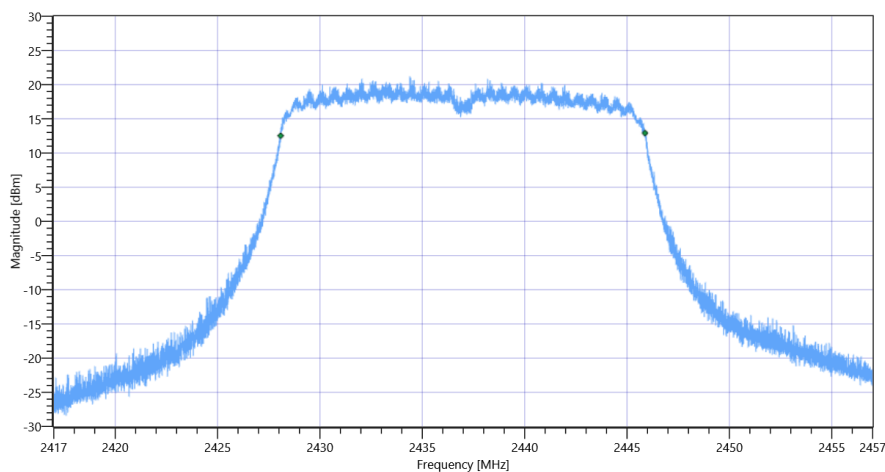
## READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.98   5   40
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

## RESULT

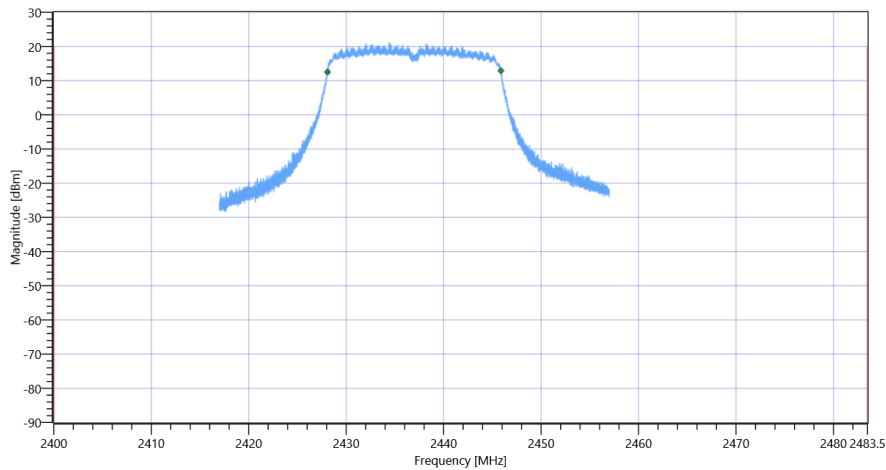
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	17794.000	kHz	INFO
T1 99%	2400.000000	--	2428.0809	MHz	PASS
T2 99%	--	2483.500000	2445.8751	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

## Plot: Bandwidth within Band

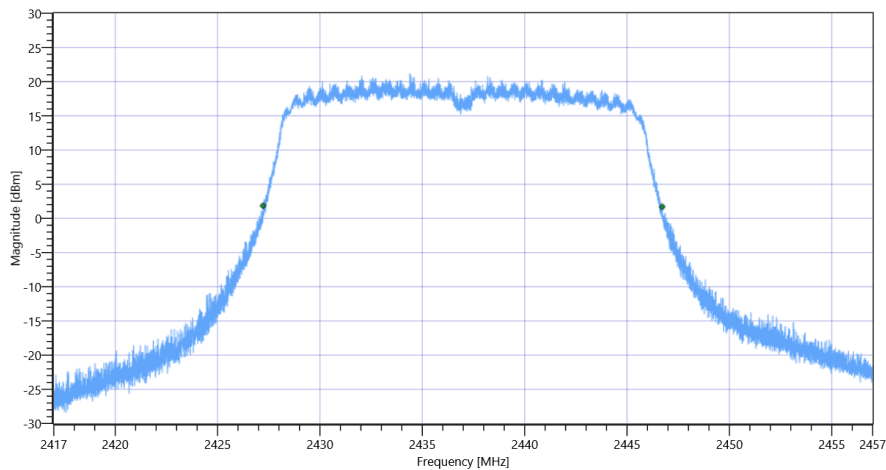


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

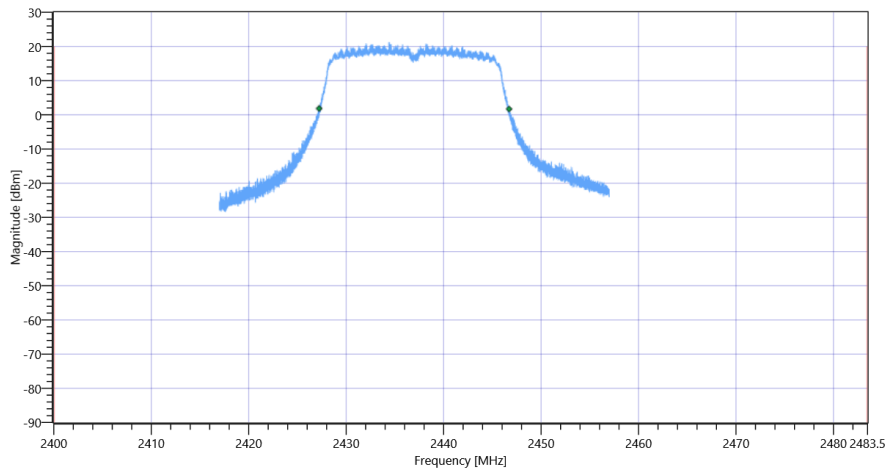
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19492	kHz	INFO
T1 20dB	2400.000000	---	2427.2240	MHz	PASS
T2 20dB	---	2483.500000	2446.7160	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



*FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode*



## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:45:06
Ambit Temp [°C]   Humidity [rel%]	18.5   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	22.13	dBm	INFO
Ref. Frequency	--	--	2433.300	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

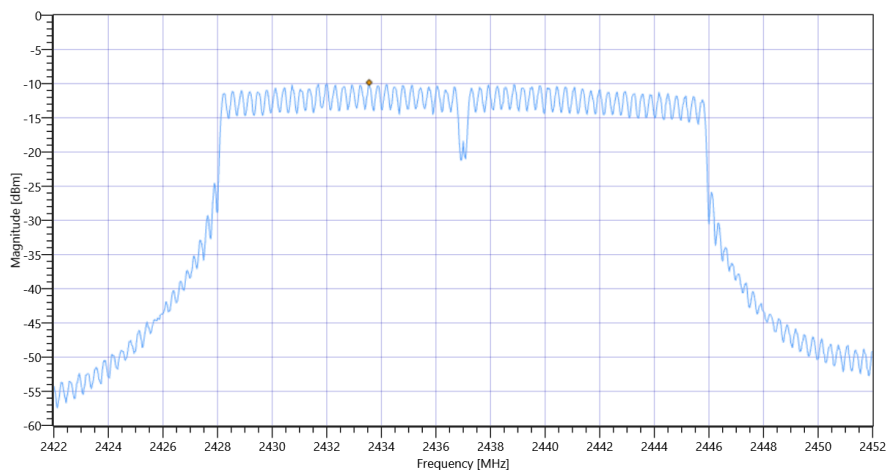
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.13   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.83	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.83	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:44:27
Ambit Temp [°C]   Humidity [rel%]	18.5   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

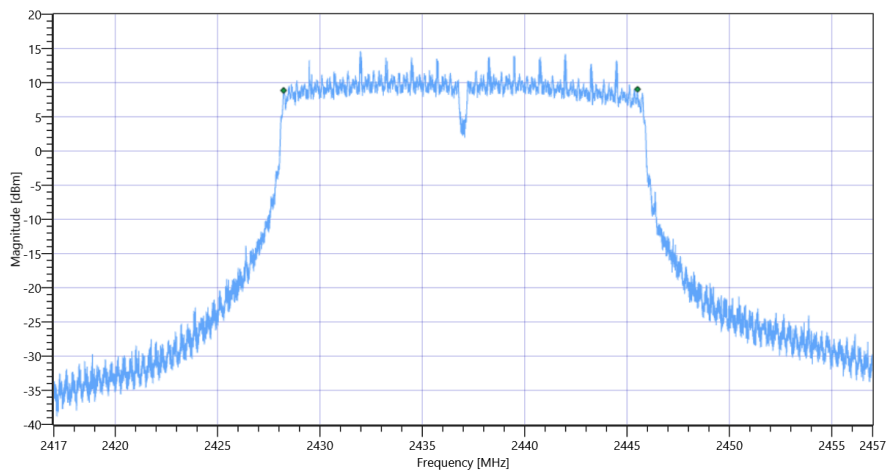
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	23.86	dBm	INFO
Ref. Frequency	---	---	2431.010	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	28.86   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	17288	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:34:09
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

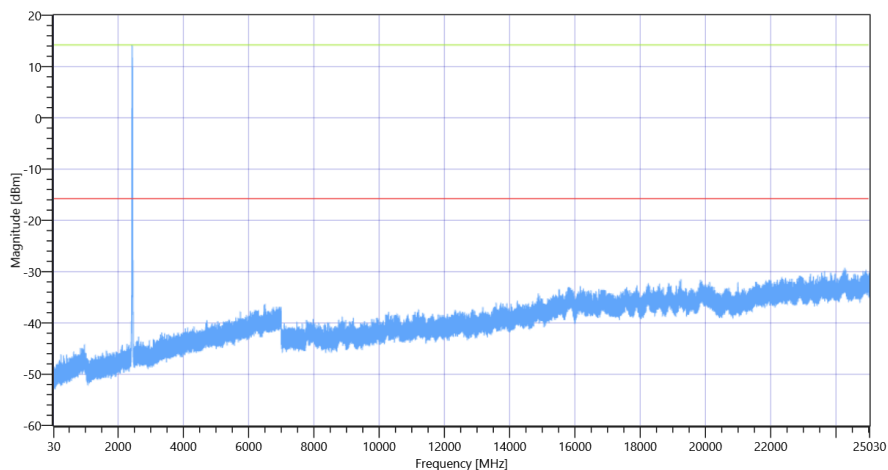
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.45	dBm	INFO
Ref. Frequency	---	---	2433.400	MHz	INFO

### READ SA SETTINGS:

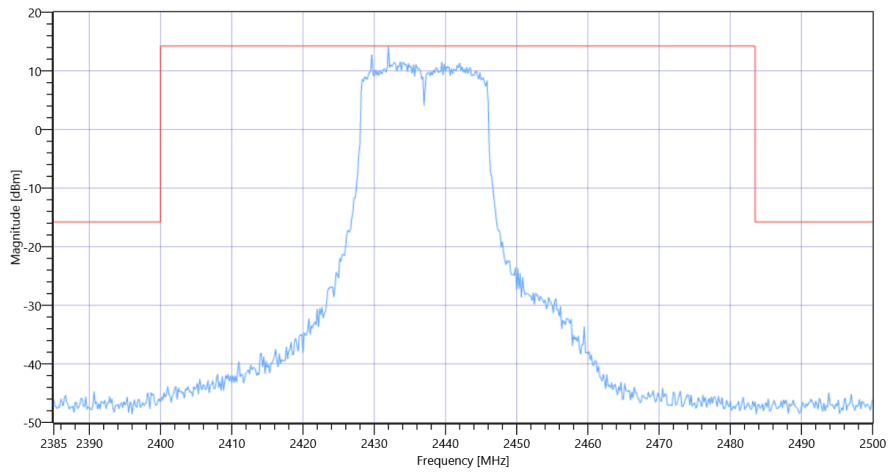
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.45   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2432.00 MHz	---	---	14.21	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 30 MHz	0	---	-149.48	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:33:09
Ambit Temp [°C]   Humidity [rel%]	18.5   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.49	dBm	INFO
Ref. Frequency	---	---	2432.900	MHz	INFO

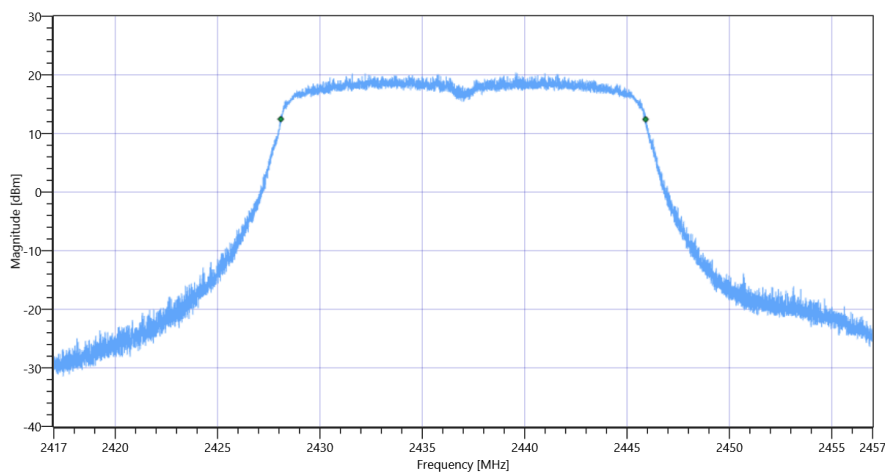
## READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.49   5   40
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

## RESULT

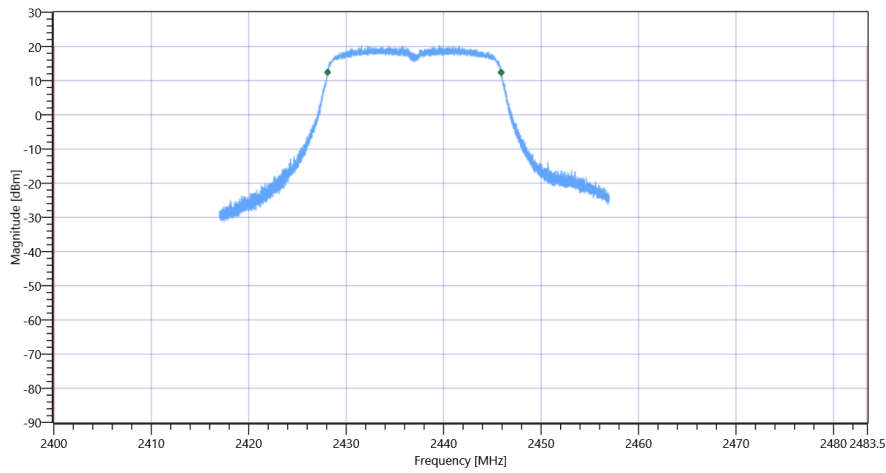
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17818.000	kHz	INFO
T1 99%	2400.000000	---	2428.0889	MHz	PASS
T2 99%	---	2483.500000	2445.9071	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

## Plot: Bandwidth within Band

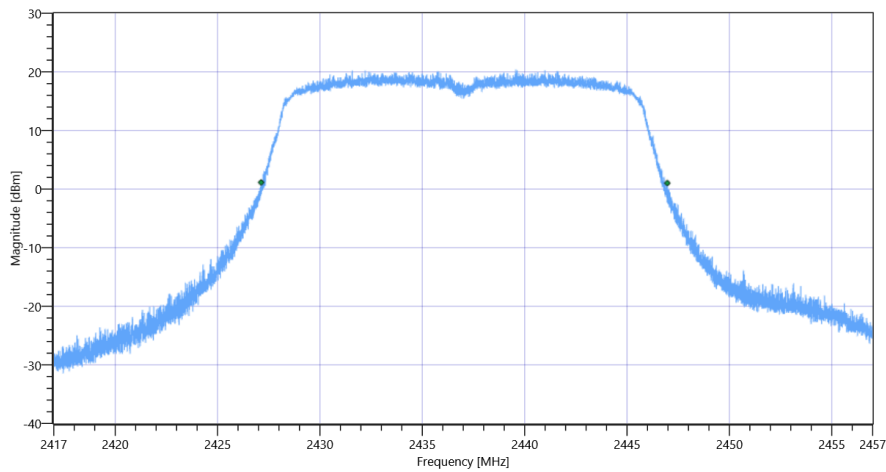


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

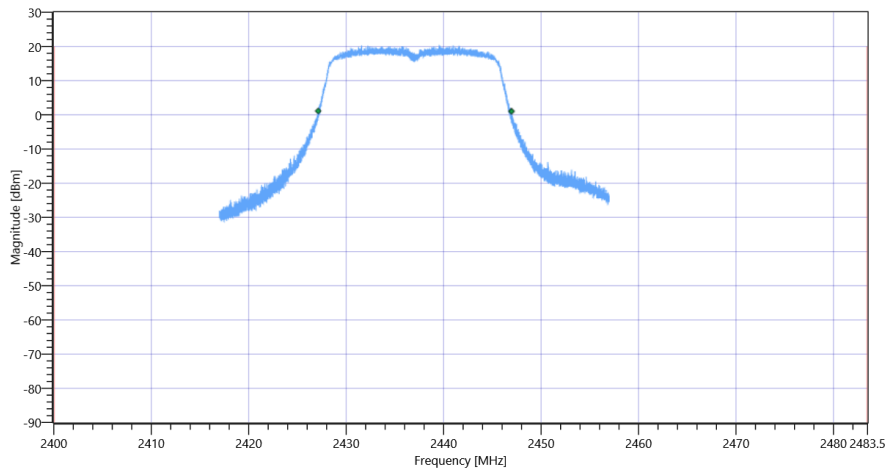
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19840	kHz	INFO
T1 20dB	2400.000000	---	2427.1280	MHz	PASS
T2 20dB	---	2483.500000	2446.9680	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:32:01
Ambit Temp [°C]   Humidity [rel%]	18.5   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	23.59	dBm	INFO
Ref. Frequency	--	--	2435.400	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

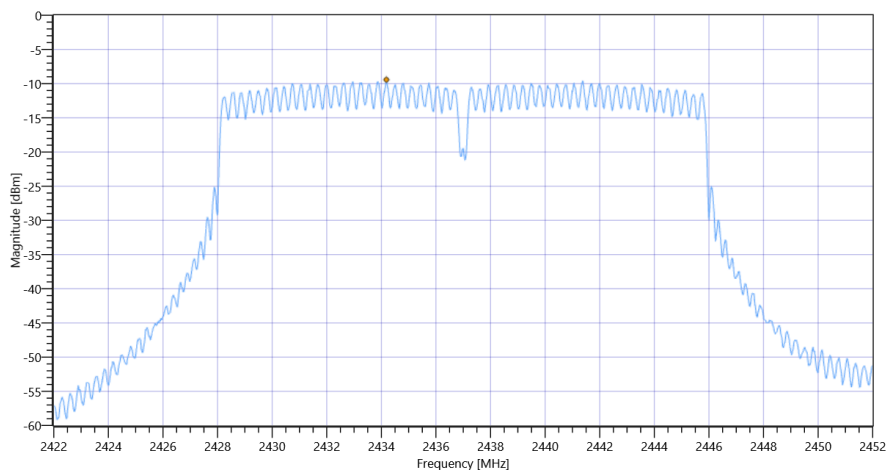
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	28.59   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.42	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.42	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:31:22
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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 2437 MHz

RESULT: Reference Power cond.

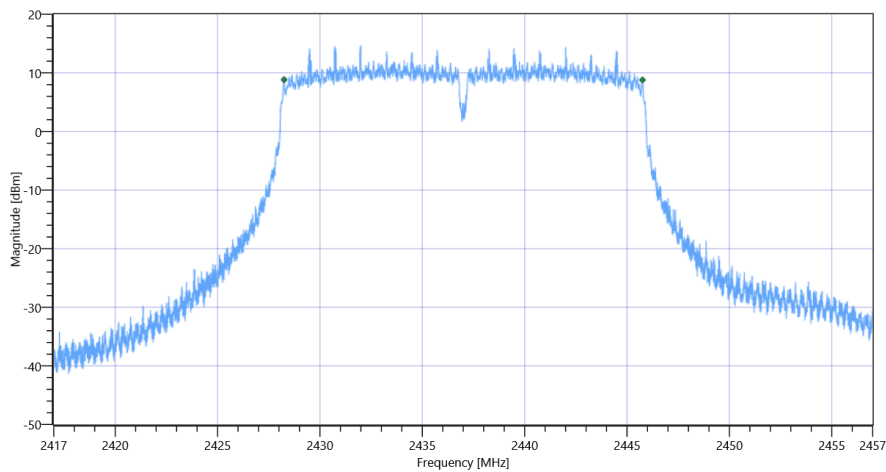
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	21.94	dBm	INFO
Ref. Frequency	---	---	2433.400	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.94   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	17504	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:21:04
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

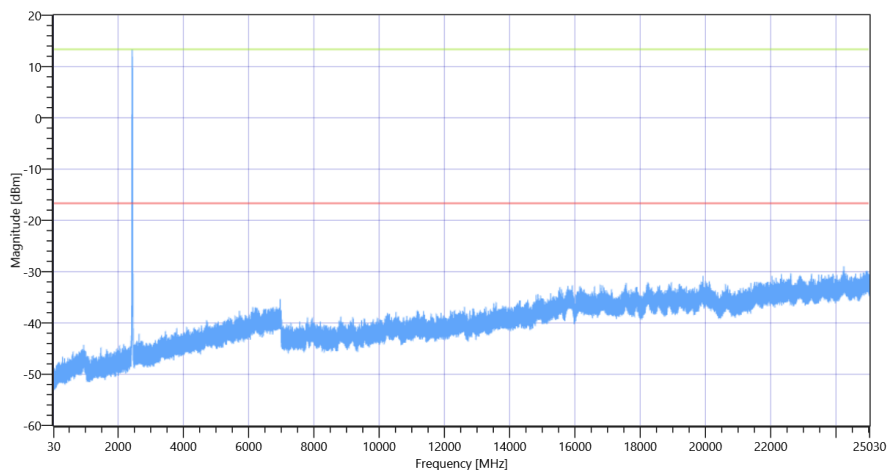
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.67	dBm	INFO
Ref. Frequency	---	---	2434.700	MHz	INFO

### READ SA SETTINGS:

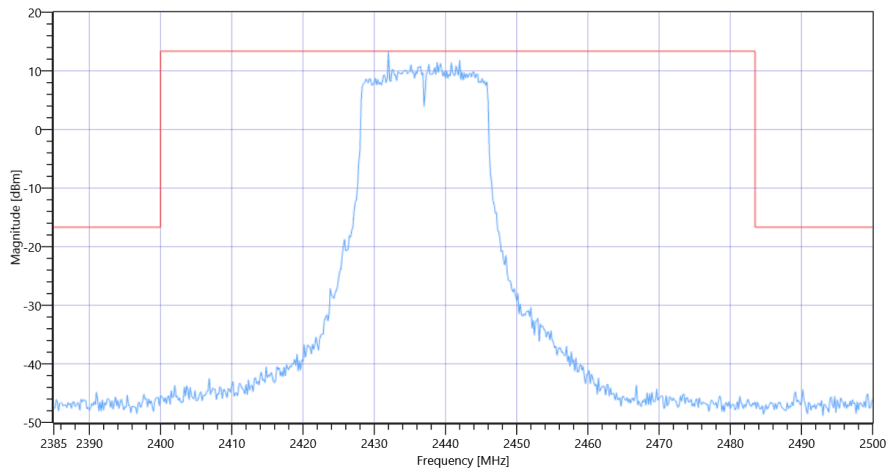
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.67   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2432.00 MHz	---	---	13.33	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24242 MHz	0	---	12.3	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:20:03
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	21.50	dBm	INFO
Ref. Frequency	---	---	2438.700	MHz	INFO

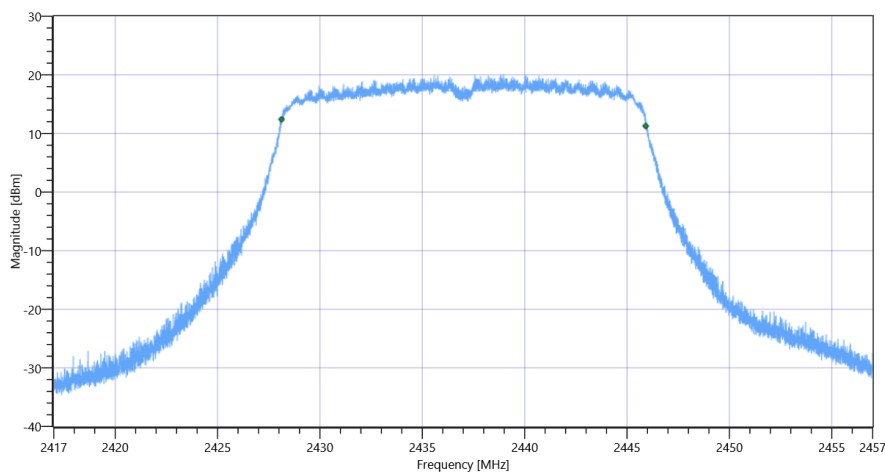
## READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.50   5   40
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

## RESULT

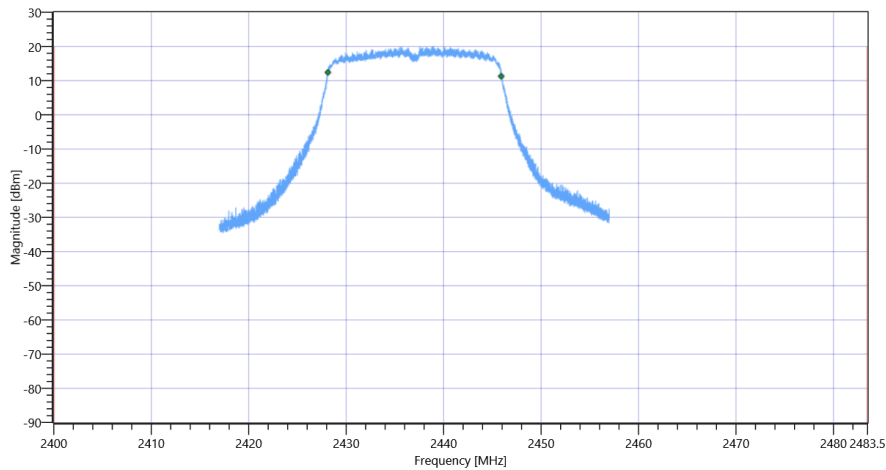
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17786.000	kHz	INFO
T1 99%	2400.000000	---	2428.1249	MHz	PASS
T2 99%	---	2483.500000	2445.9111	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

## Plot: Bandwidth within Band

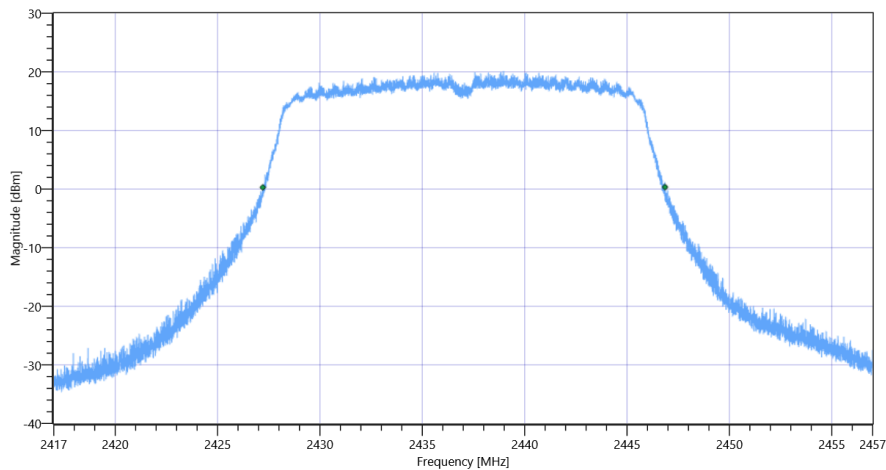


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

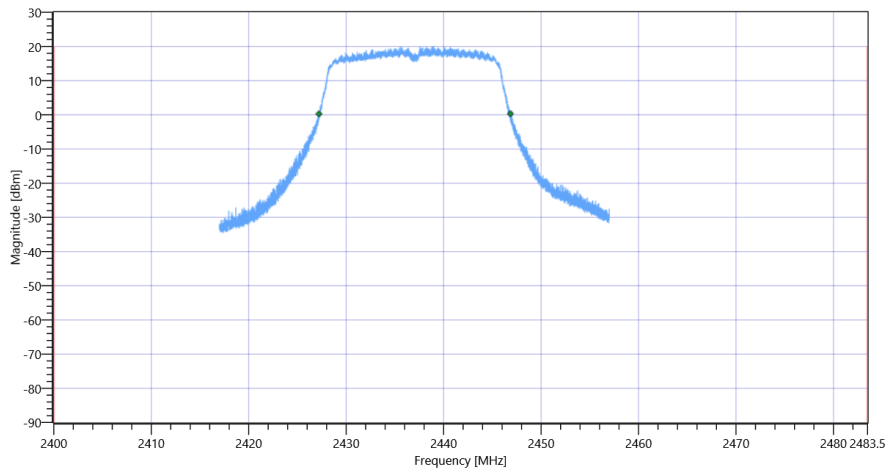
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19648	kHz	INFO
T1 20dB	2400.000000	---	2427.2080	MHz	PASS
T2 20dB	---	2483.500000	2446.8560	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:18:56
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	22.50	dBm	INFO
Ref. Frequency	--	--	2434.600	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

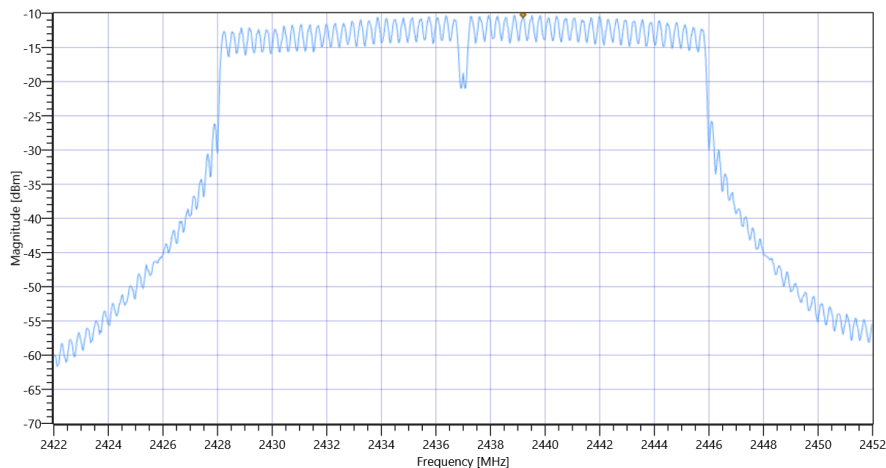
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.50   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-10.22	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-10.22	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode



## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:18:16
Ambit Temp [°C]   Humidity [rel%]	18.6   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

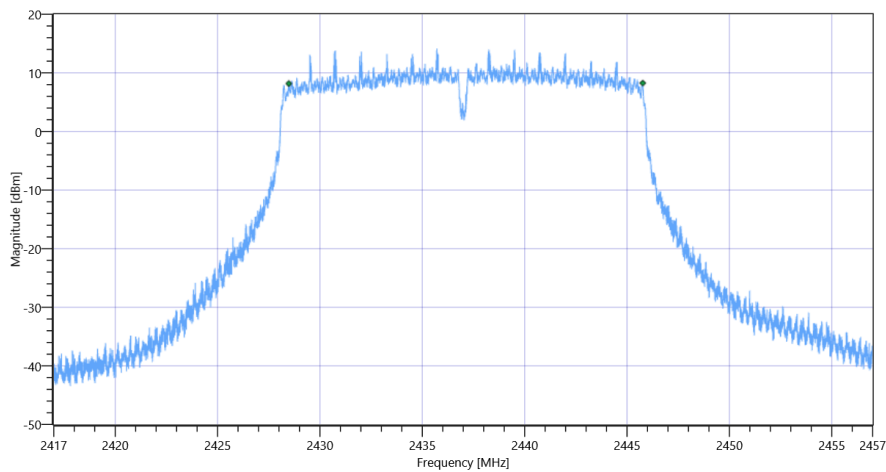
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	23.41	dBm	INFO
Ref. Frequency	---	---	2442.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	28.41   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	17288	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:07:59
Ambit Temp [°C]   Humidity [rel%]	18.7   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

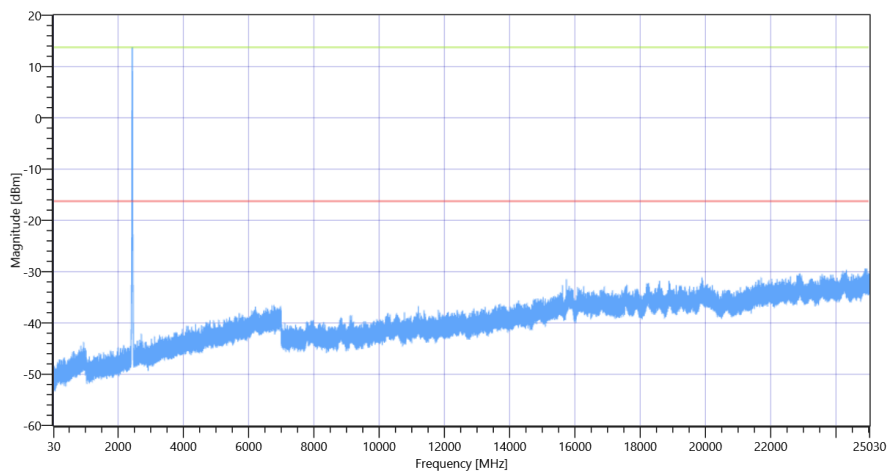
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	21.69	dBm	INFO
Ref. Frequency	---	---	2439.900	MHz	INFO

### READ SA SETTINGS:

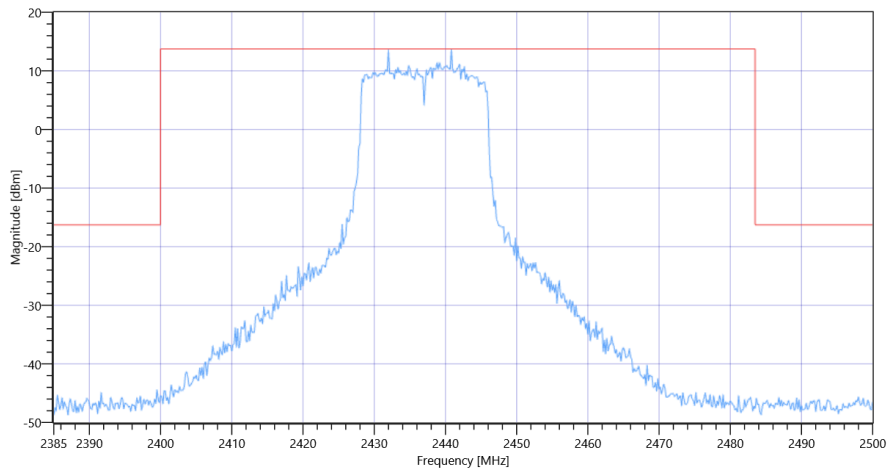
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	21.69   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.83 MHz	---	---	13.73	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 30 MHz	0	---	-149.09	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2437

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:06:58
Ambit Temp [°C]   Humidity [rel%]	18.7   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	21.73	dBm	INFO
Ref. Frequency	--	--	2440.100	MHz	INFO

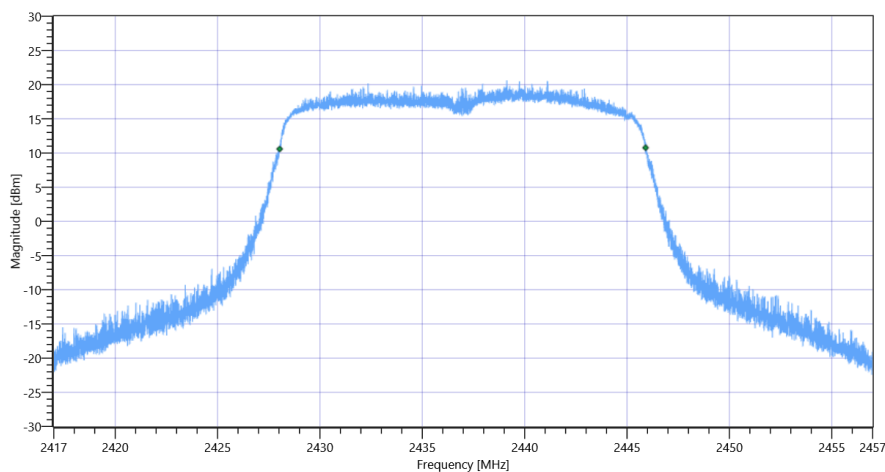
## READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.73   5   40
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

## RESULT

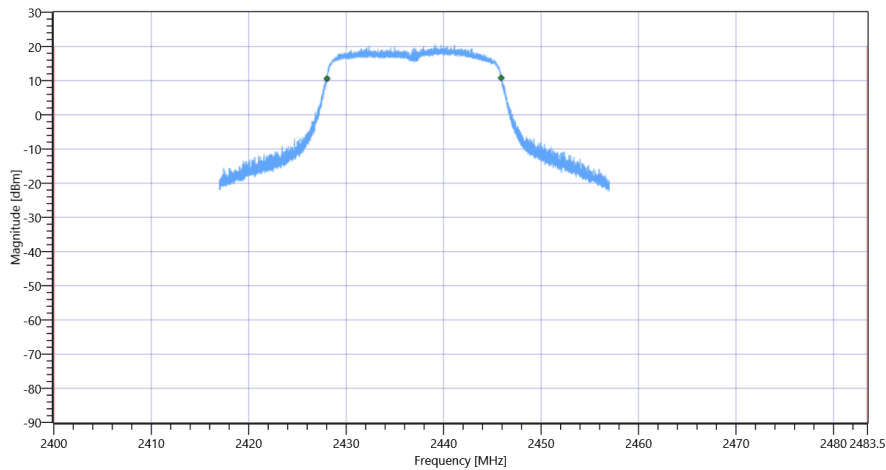
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	--	--	17874.000	kHz	INFO
T1 99%	2400.000000	--	2428.0329	MHz	PASS
T2 99%	--	2483.500000	2445.9071	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

## Plot: Bandwidth within Band

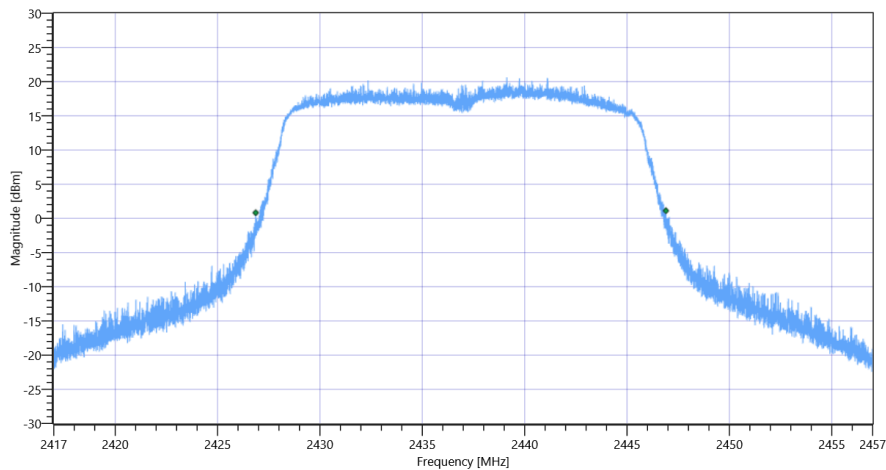


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	20036	kHz	INFO
T1 20dB	2400.000000	---	2426.8640	MHz	PASS
T2 20dB	---	2483.500000	2446.9000	MHz	PASS

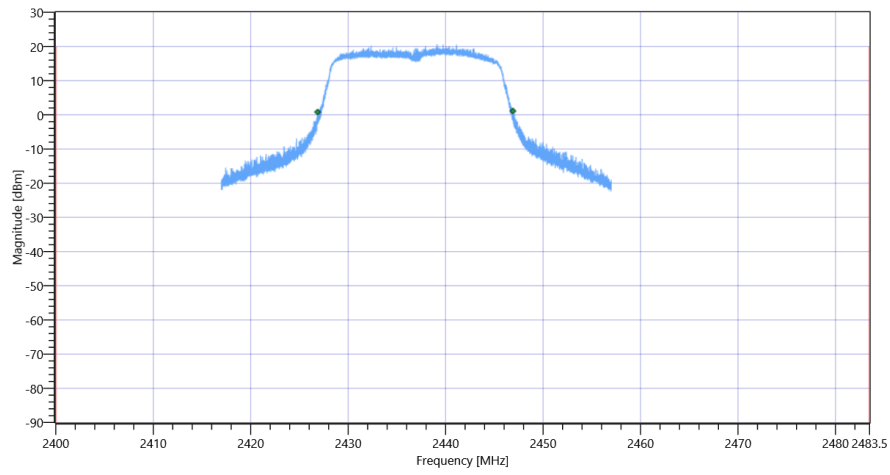
## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band





FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:05:51
Ambit Temp [°C]   Humidity [rel%]	18.7   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	22.16	dBm	INFO
Ref. Frequency	--	--	2440.300	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

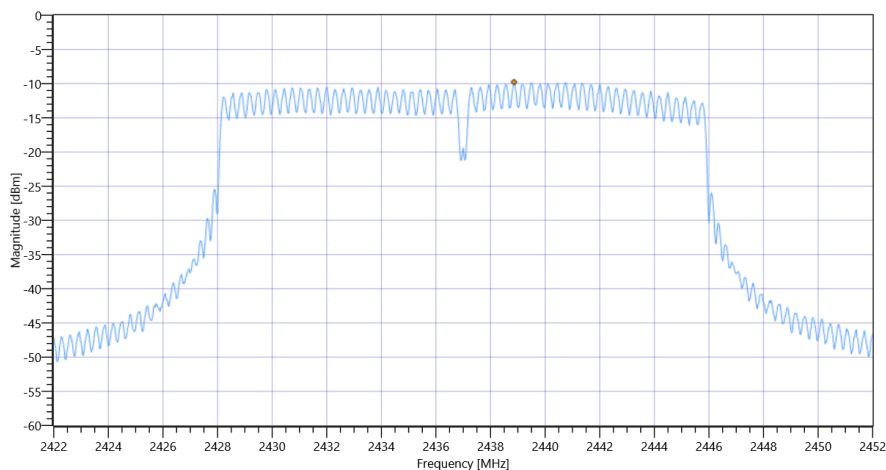
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.16   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.77	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.77	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 13:05:12
Ambit Temp [°C]   Humidity [rel%]	18.8   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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 2437 MHz

RESULT: Reference Power cond.

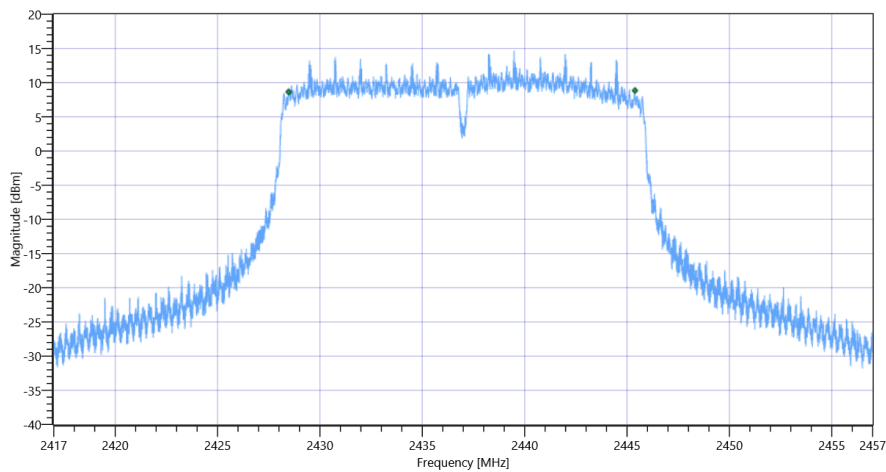
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	21.70	dBm	INFO
Ref. Frequency	---	---	2434.100	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.70   5   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	16916	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:34:31
Ambit Temp [°C]   Humidity [rel%]	18.8   36
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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.

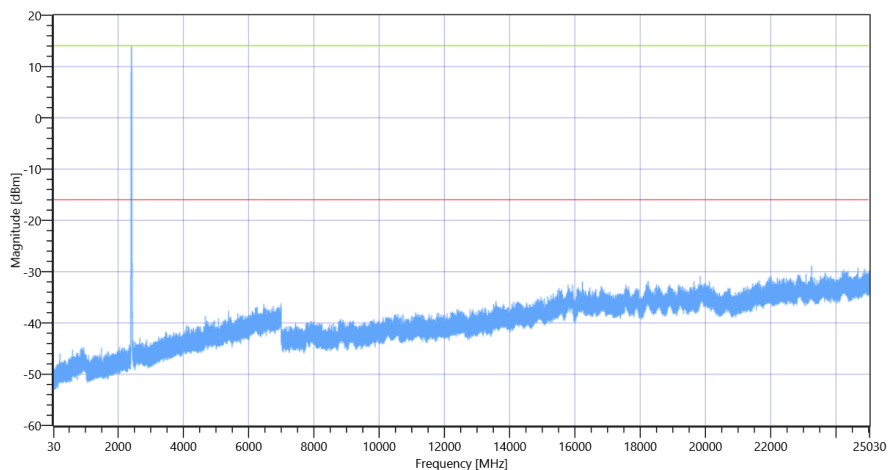
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.42	dBm	INFO
Ref. Frequency	---	---	2409.400	MHz	INFO

### READ SA SETTINGS:

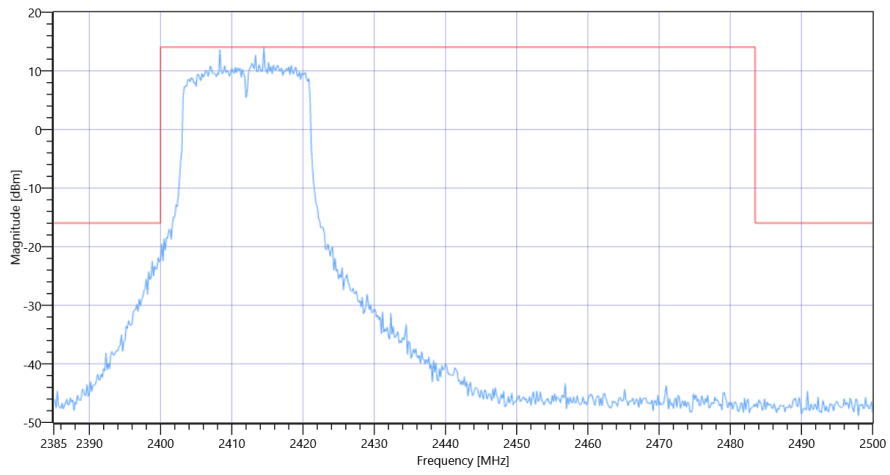
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.42   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2414.50 MHz	---	---	14.05	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.667 MHz	0	---	5.93	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412



## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:33:31
Ambit Temp [°C]   Humidity [rel%]	18.8   36
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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.	---	---	21.46	dBm	INFO
Ref. Frequency	---	---	2407.300	MHz	INFO

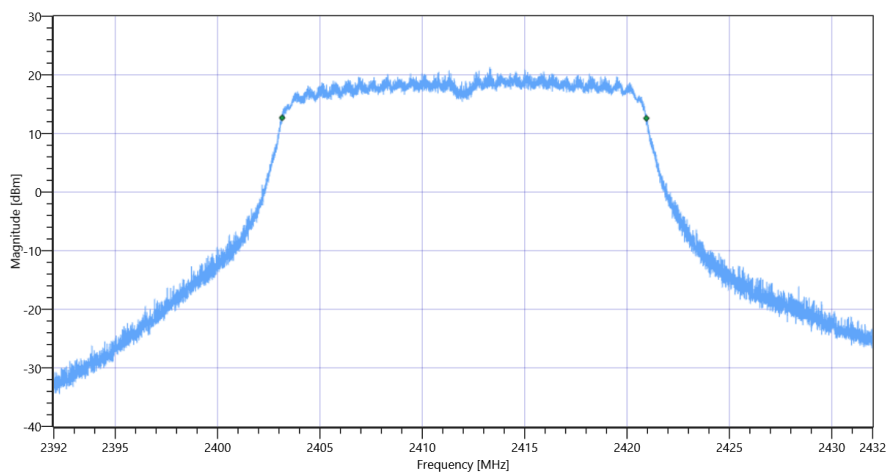
### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.46   5.23   40
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

### RESULT

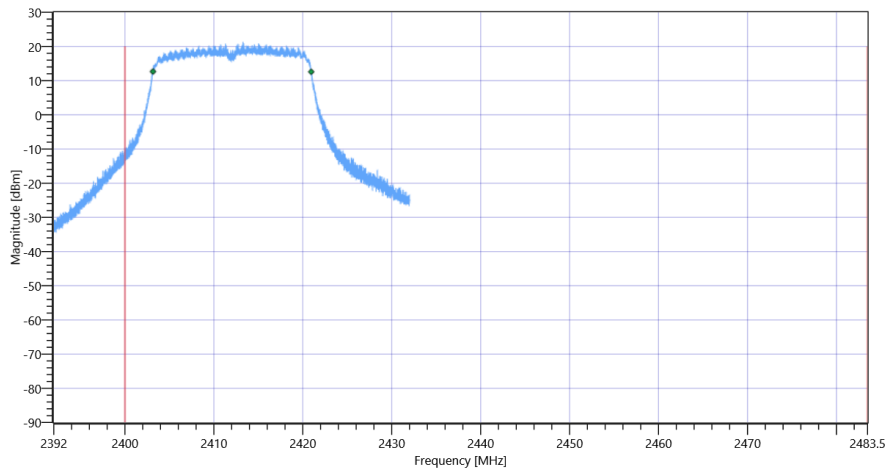
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17790.000	kHz	INFO
T1 99%	2400.000000	---	2403.1529	MHz	PASS
T2 99%	---	2483.500000	2420.9431	MHz	PASS

### Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

### Plot: Bandwidth within Band

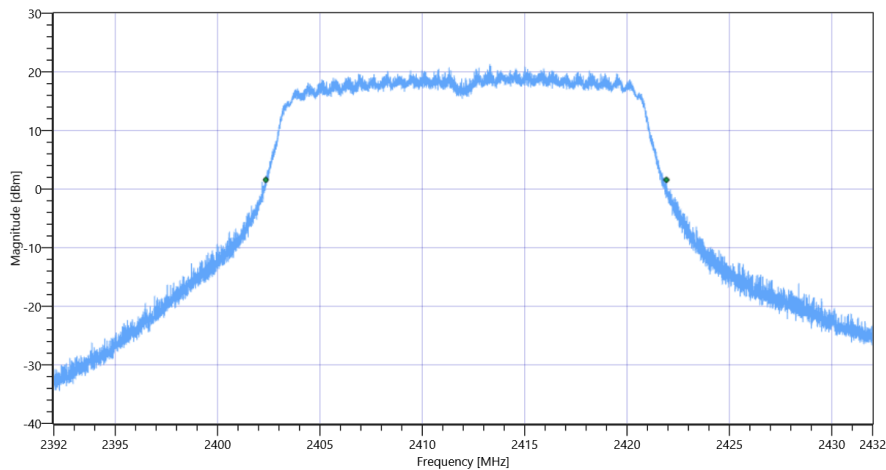


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

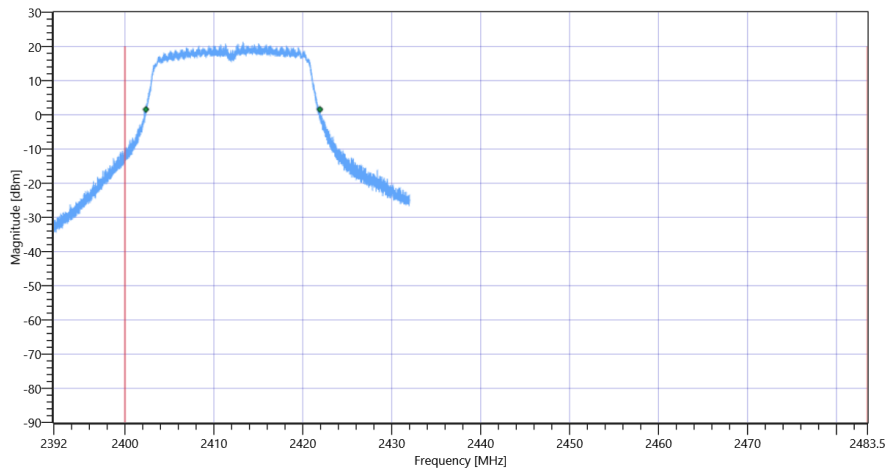
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19568	kHz	INFO
T1 20dB	2400.000000	---	2402.3560	MHz	PASS
T2 20dB	---	2483.500000	2421.9240	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:32:24
Ambit Temp [°C]   Humidity [rel%]	18.8   36
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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.	--	--	22.34	dBm	INFO
Ref. Frequency	--	--	2414.800	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

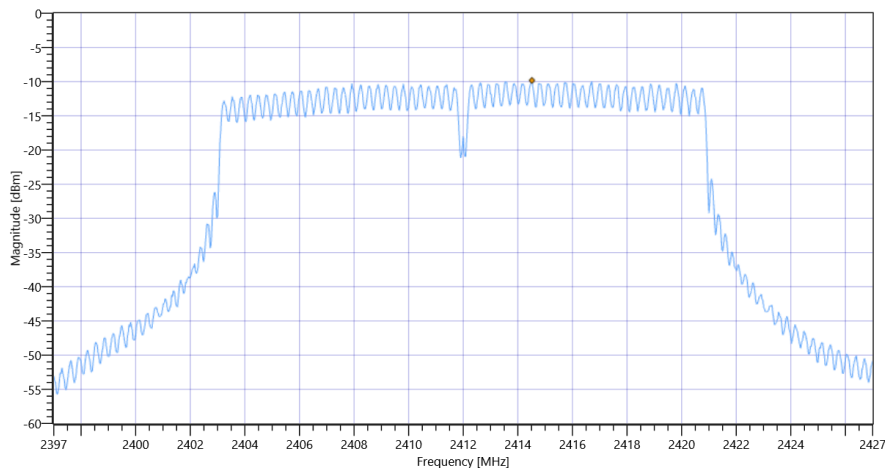
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.34   5.23   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.82	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.82	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:31:43
Ambit Temp [°C]   Humidity [rel%]	18.8   36
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
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]	-10
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.

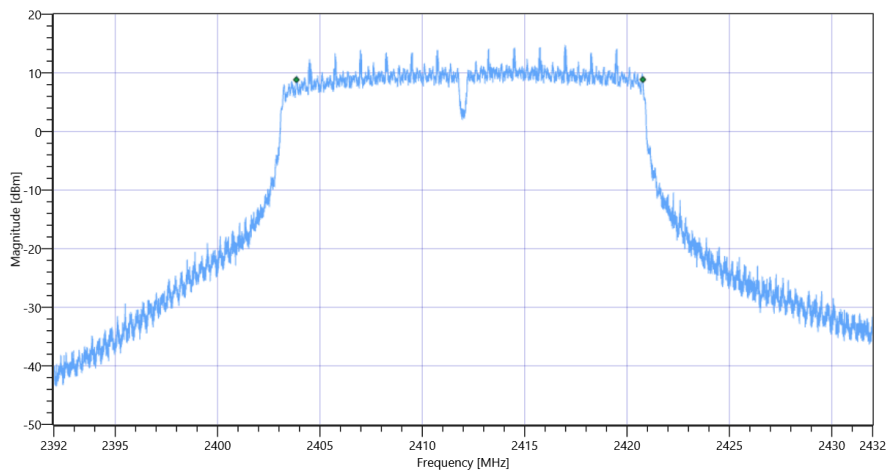
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	23.23	dBm	INFO
Ref. Frequency	---	---	2415.300	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	28.23   5.23   40
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	---	16924	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode



## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:21:27
Ambit Temp [°C]   Humidity [rel%]	18.9   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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.

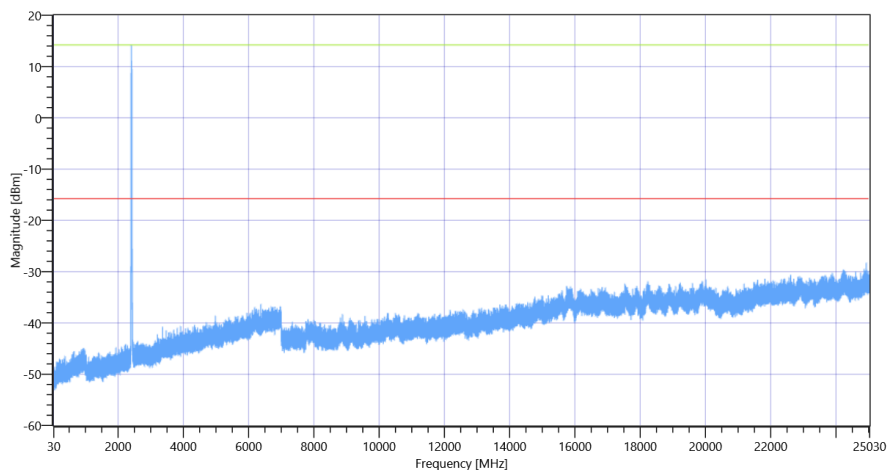
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.47	dBm	INFO
Ref. Frequency	---	---	2410.900	MHz	INFO

### READ SA SETTINGS:

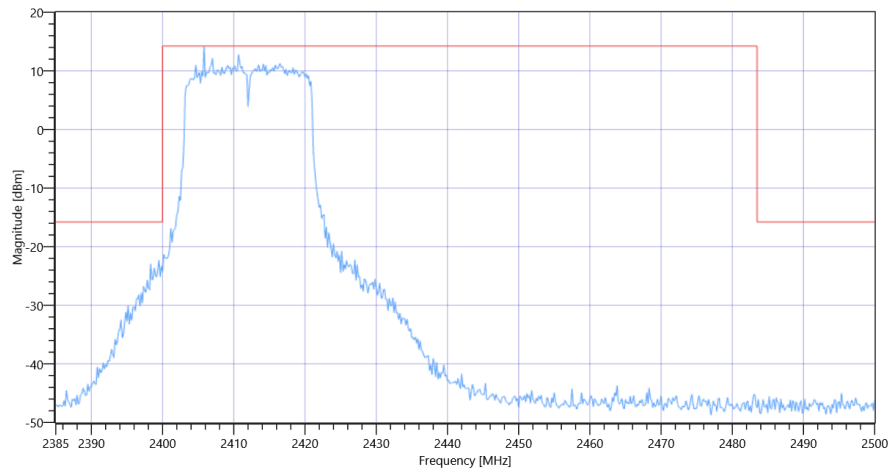
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.47   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2405.83 MHz	---	---	14.21	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.5 MHz	0	---	6.49	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:20:27
Ambit Temp [°C]   Humidity [rel%]	18.9   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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.	---	---	22.29	dBm	INFO
Ref. Frequency	---	---	2416.400	MHz	INFO

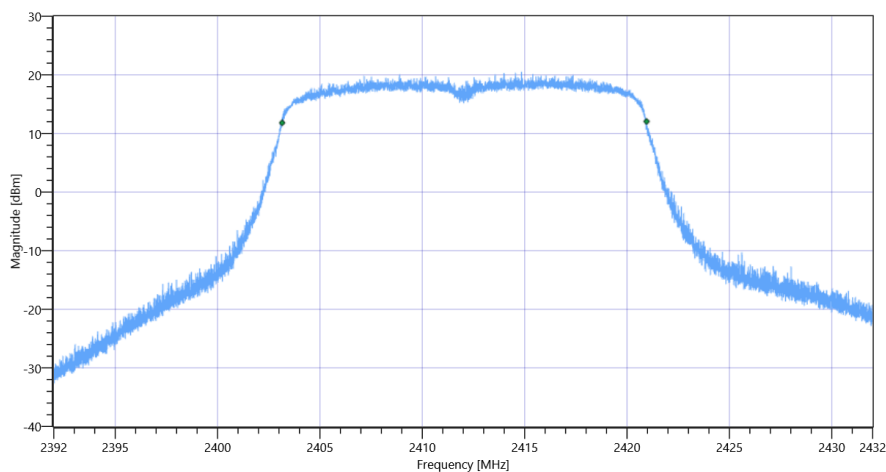
### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.29   5.23   40
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

### RESULT

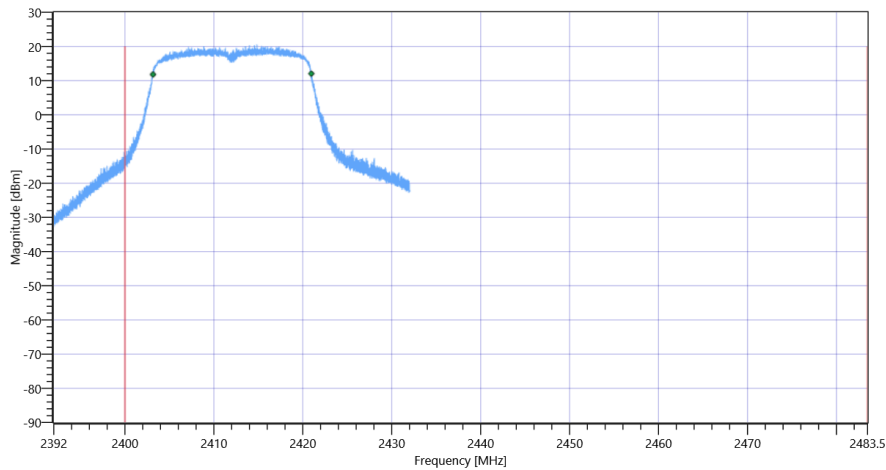
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17802.000	kHz	INFO
T1 99%	2400.000000	---	2403.1529	MHz	PASS
T2 99%	---	2483.500000	2420.9551	MHz	PASS

### Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

### Plot: Bandwidth within Band

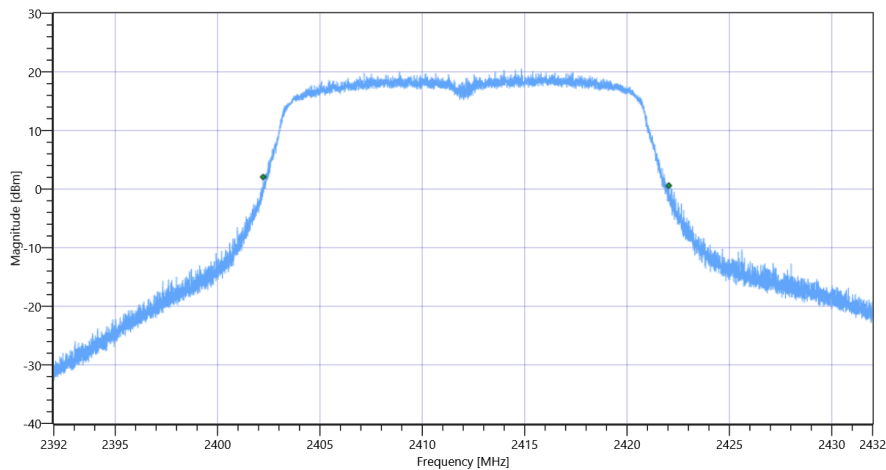


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

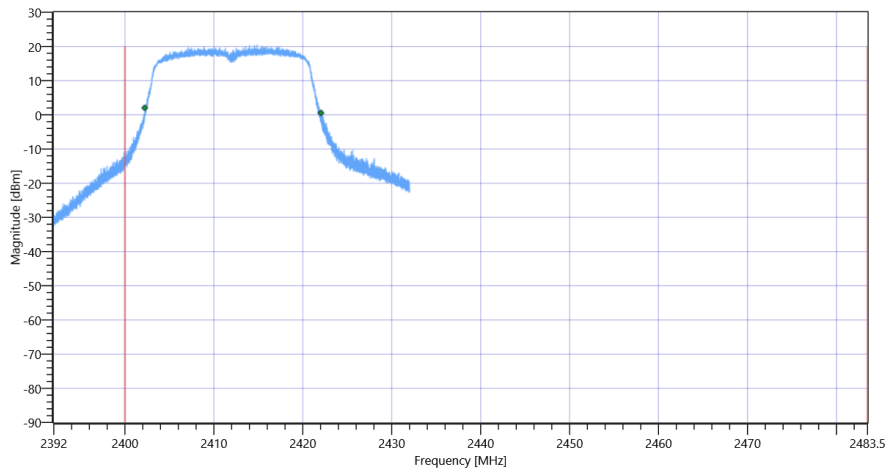
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19808	kHz	INFO
T1 20dB	2400.000000	---	2402.2280	MHz	PASS
T2 20dB	---	2483.500000	2422.0360	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:19:20
Ambit Temp [°C]   Humidity [rel%]	18.9   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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.	--	--	21.95	dBm	INFO
Ref. Frequency	--	--	2409.800	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

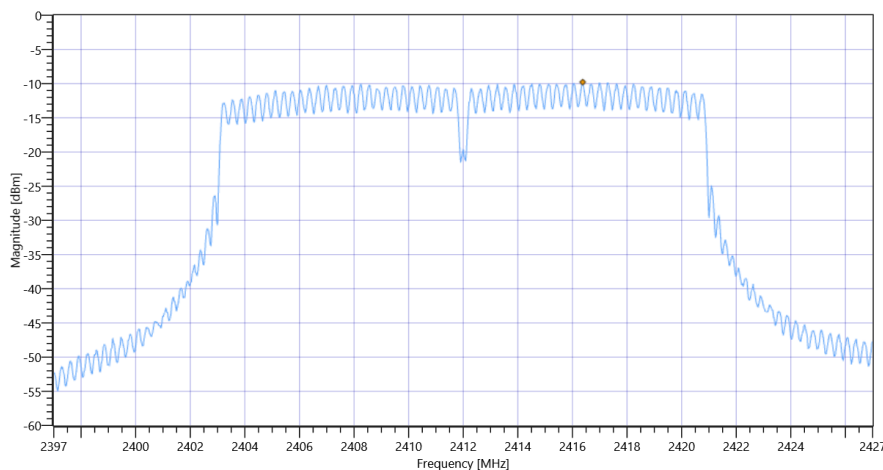
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.95   5.23   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.78	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.78	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:18:40
Ambit Temp [°C]   Humidity [rel%]	18.9   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	3
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]	-10
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.

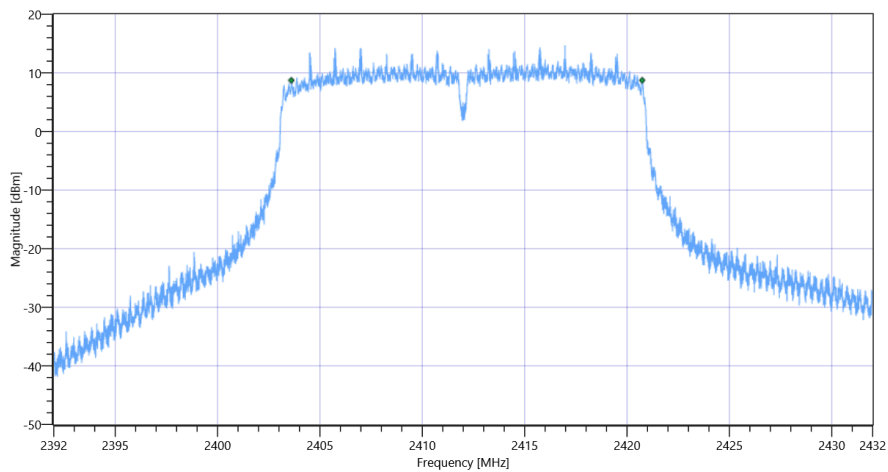
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	21.67	dBm	INFO
Ref. Frequency	---	---	2408.900	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	26.67   5.23   40
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	---	17140	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:08:24
Ambit Temp [°C]   Humidity [rel%]	19.0   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.

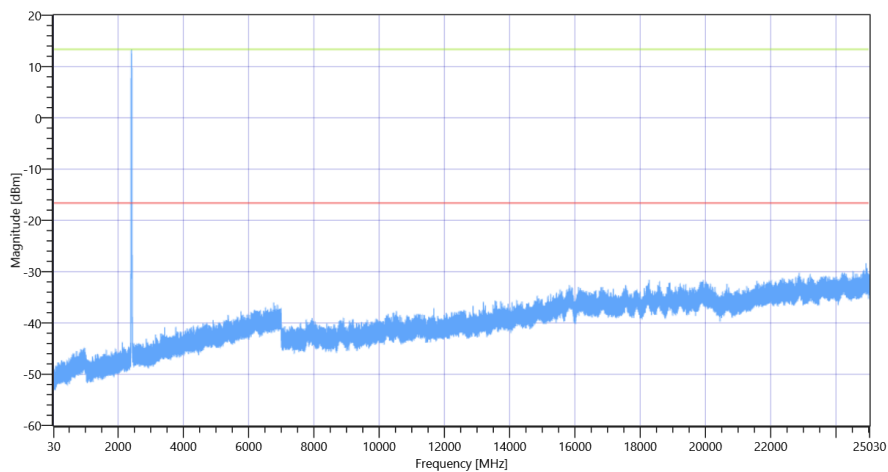
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.12	dBm	INFO
Ref. Frequency	---	---	2410.800	MHz	INFO

### READ SA SETTINGS:

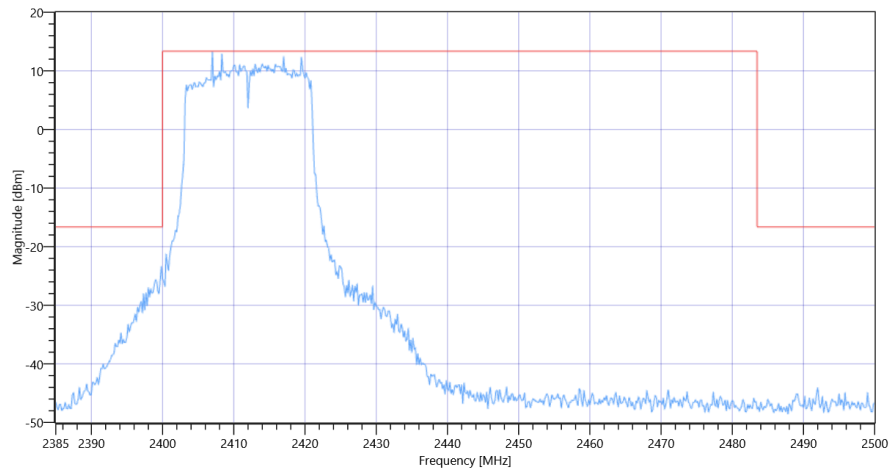
RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.12   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2407.00 MHz	---	---	13.35	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.833 MHz	0	---	6.7	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:07:24
Ambit Temp [°C]   Humidity [rel%]	19.0   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.	---	---	22.89	dBm	INFO
Ref. Frequency	---	---	2413.900	MHz	INFO

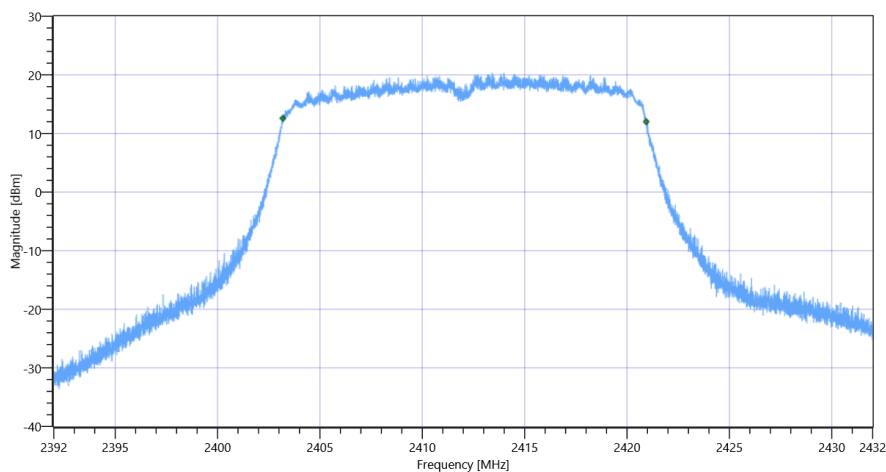
### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.89   5.23   40
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

### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17746.000	kHz	INFO
T1 99%	2400.000000	---	2403.1889	MHz	PASS
T2 99%	---	2483.500000	2420.9351	MHz	PASS

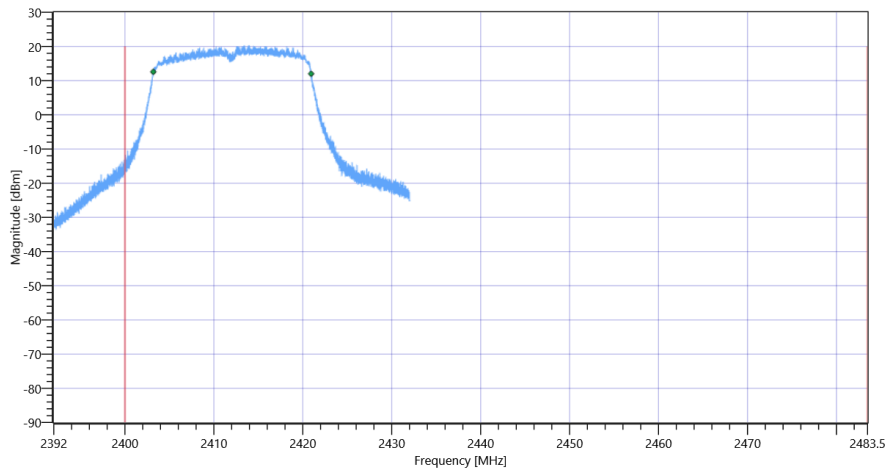
### Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

### Plot: Bandwidth within Band



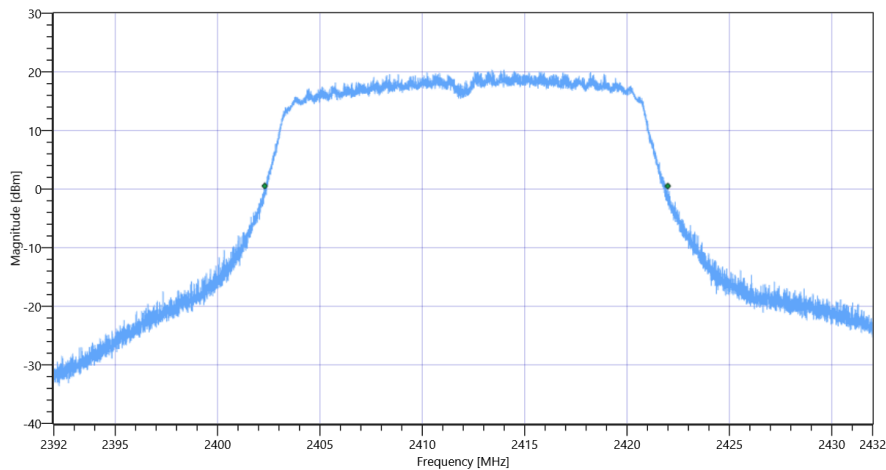


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

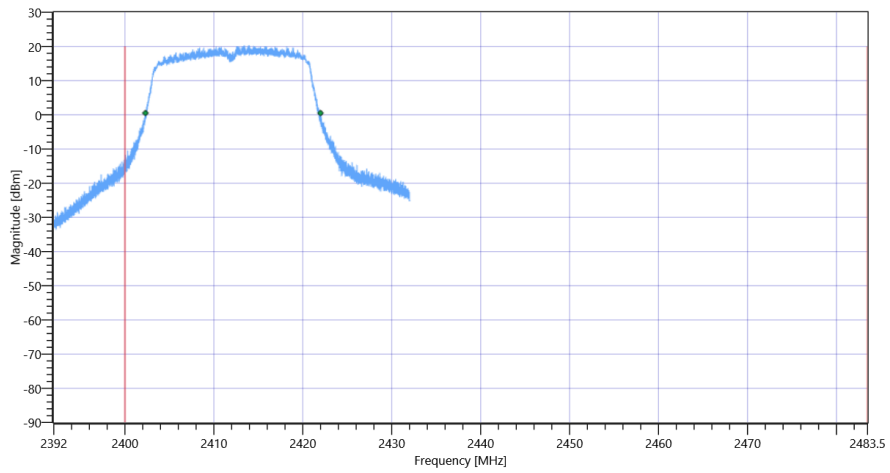
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19684	kHz	INFO
T1 20dB	2400.000000	---	2402.3040	MHz	PASS
T2 20dB	---	2483.500000	2421.9880	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:06:18
Ambit Temp [°C]   Humidity [rel%]	19.0   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.	--	--	22.66	dBm	INFO
Ref. Frequency	--	--	2416.900	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	--	--	0	dB	DC > 98% defined

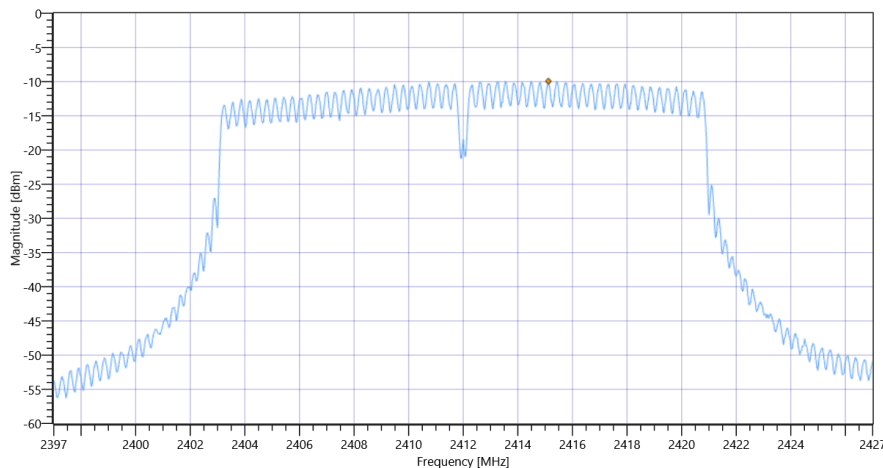
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.66   5.23   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	--	--	-9.93	dBm	INFO
Duty cycle correction	--	--	0	dB	INFO
Avg PSD DC corrected	--	8	-9.93	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 12:05:38
Ambit Temp [°C]   Humidity [rel%]	19.0   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.

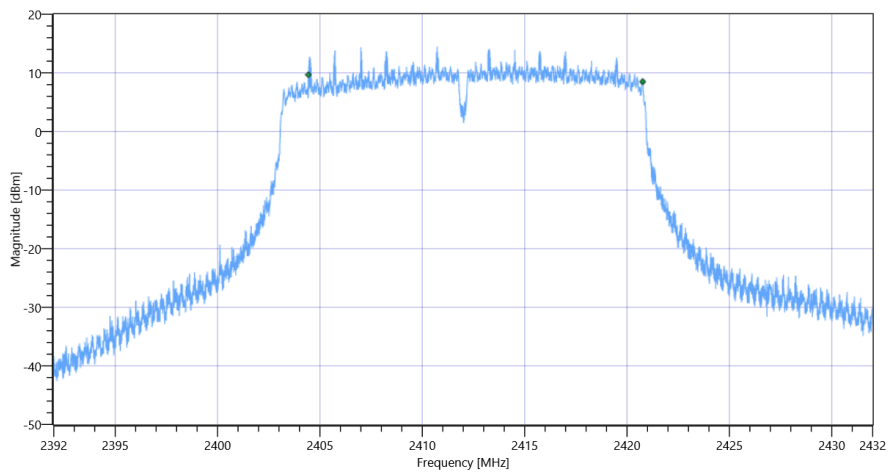
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	--	--	22.04	dBm	INFO
Ref. Frequency	--	--	2416.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.04   5.23   40
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	--	16332	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 11:55:24
Ambit Temp [°C]   Humidity [rel%]	19.1   35
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.

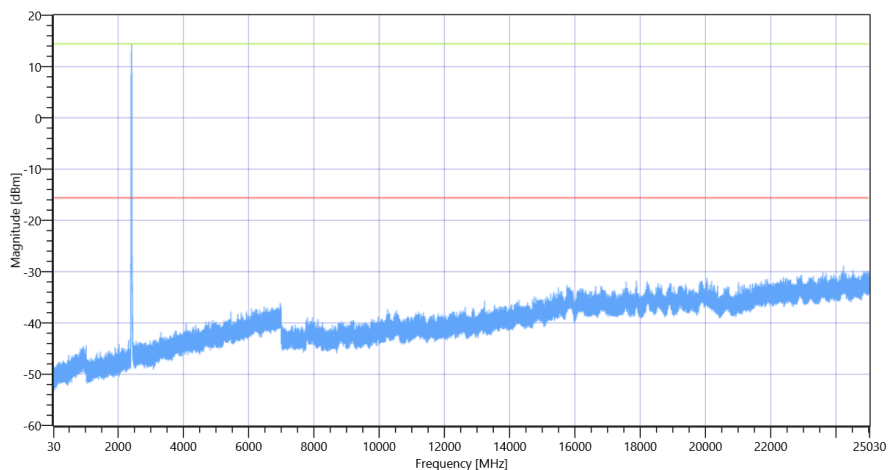
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.97	dBm	INFO
Ref. Frequency	---	---	2414.600	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	22.97   0   40
Start [MHz]   Stop [MHz]	24530.000   25030.000
RBW [MHz]   VBW [MHz]	0.100000   0.300000
Detector   TraceMode	POS   MAXH
Sweep: Time [ms]   Count   Points per Section   Type	200   25   3001   SWE

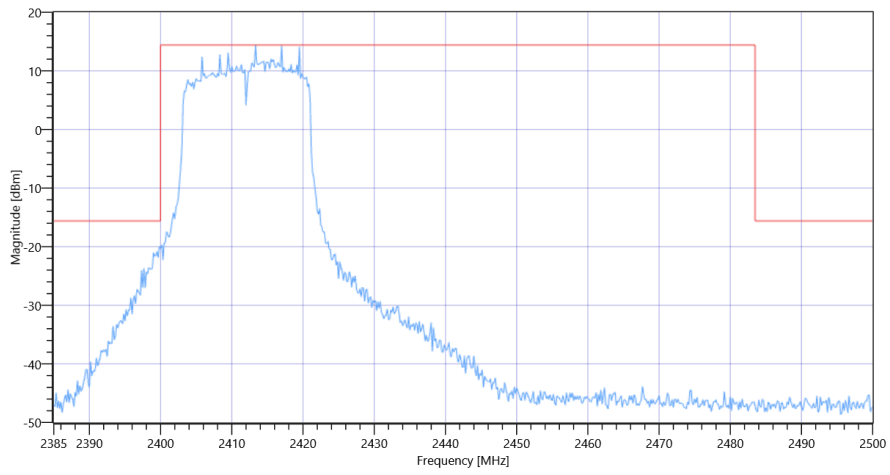
### RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2413.33 MHz	---	---	14.39	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.833 MHz	0	---	4.42	dB	INFO



FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412





FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode 2412

## FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 11:54:25
Ambit Temp [°C]   Humidity [rel%]	19.1   35
System Version	3.3.3.0
Test Specification	FCC 15.247, ISED RSS247 -
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.	---	---	22.34	dBm	INFO
Ref. Frequency	---	---	2414.300	MHz	INFO

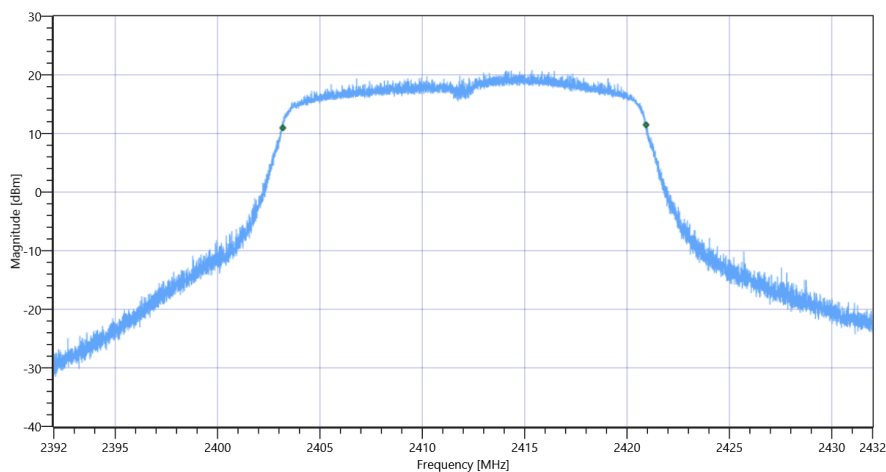
### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.34   5.23   40
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

### RESULT

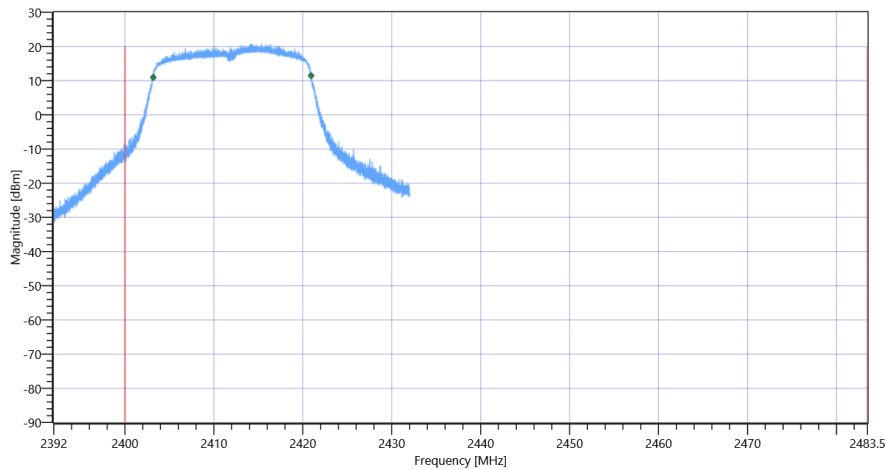
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	17742.000	kHz	INFO
T1 99%	2400.000000	---	2403.1849	MHz	PASS
T2 99%	---	2483.500000	2420.9271	MHz	PASS

### Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 99PCT

### Plot: Bandwidth within Band

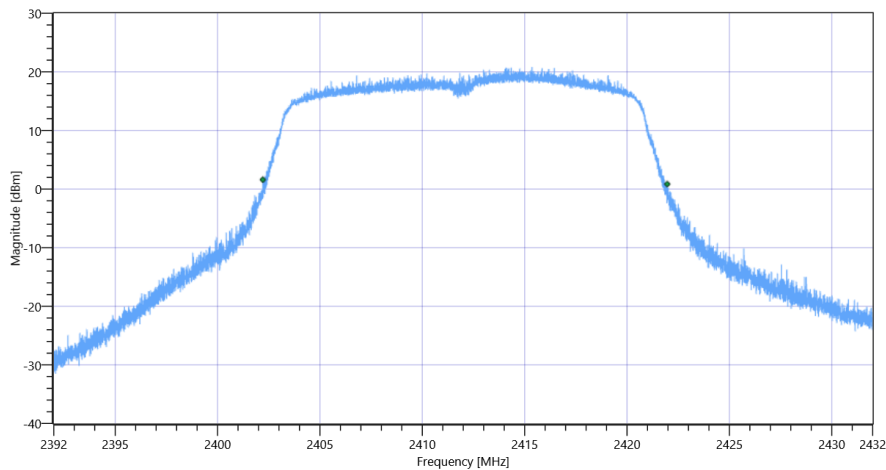


FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## RESULT

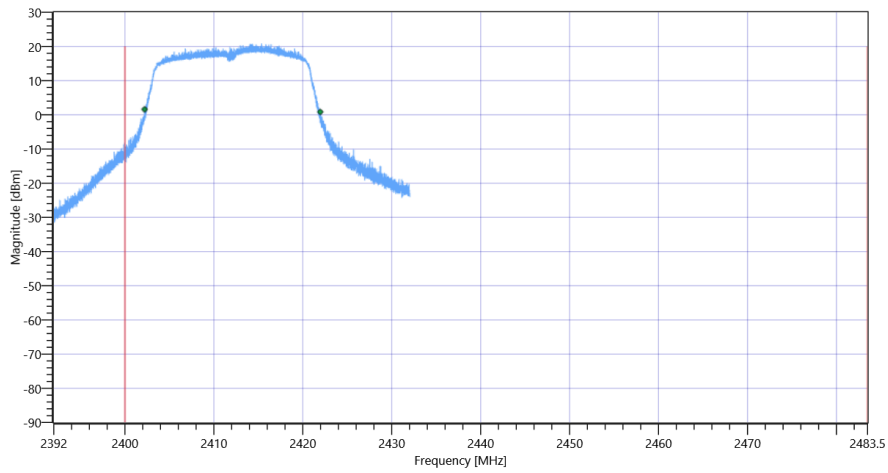
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	19752	kHz	INFO
T1 20dB	2400.000000	---	2402.2120	MHz	PASS
T2 20dB	---	2483.500000	2421.9640	MHz	PASS

## Plot: Bandwidth only



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode 20dB

## Plot: Bandwidth within Band



FCC 15.247, ISED RSS247 # Bandwidth 99PCT and 20dB ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 11:53:19
Ambit Temp [°C]   Humidity [rel%]	19.2   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	ANSI C63.10-2013 Chapter 11.10.5 or.3
TC Version	0.0.1
My Description	FCC 15.247 Avg Power Spectral Density DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.	---	---	23.85	dBm	INFO
Ref. Frequency	---	---	2414.700	MHz	INFO

Evaluation max. Duty Cycle

### Duty Cycle evaluation

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cycle min	---	---	0	dB	DC > 98% defined

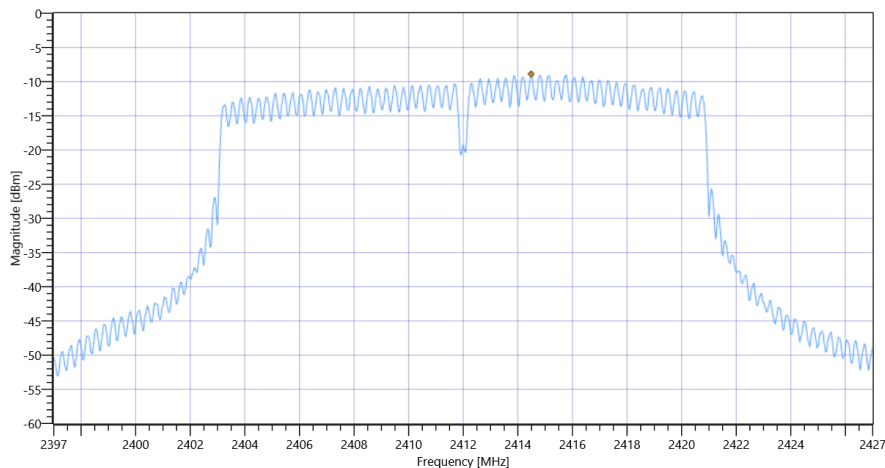
Avg. PSD

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	28.85   5.23   40
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

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Avg PSD uncorrected	---	---	-8.88	dBm	INFO
Duty cycle correction	---	---	0	dB	INFO
Avg PSD DC corrected	---	8	-8.88	dBm/3kHz	PASS



FCC 15.247 # Avg power spectral density DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	05.12.2022 11:52:39
Ambit Temp [°C]   Humidity [rel%]	19.2   35
System Version	3.3.3.0
Test Specification	FCC 15.247 -
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Bandwidth 6dB DTS - WLAN2G4 n-HT20 mode
Add. Information	

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 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]	-10
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.

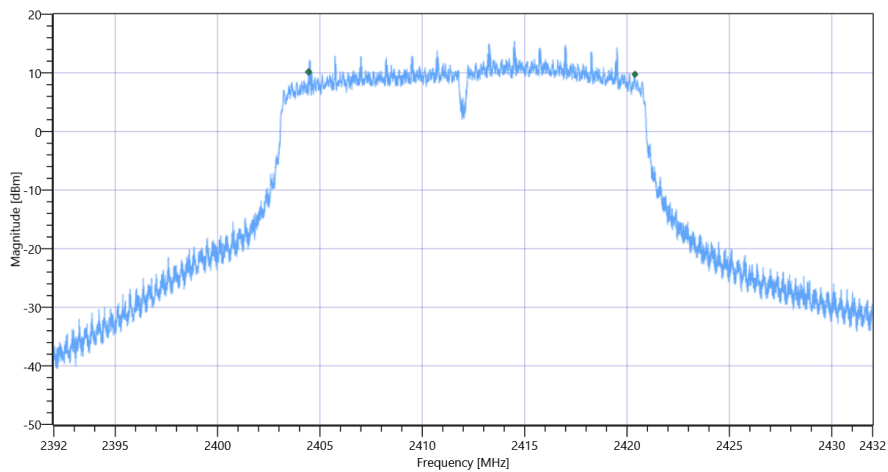
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	22.88	dBm	INFO
Ref. Frequency	---	---	2414.000	MHz	INFO

### READ SA SETTINGS:

RefLevel [dBm]   RefLevelOffset [dB]   InpAtt [dB]	27.88   5.23   40
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	---	15944	kHz	PASS



FCC 15.247 # Bandwidth 6dB DTS ~ WLAN2G4 n-HT20 mode

## FCC 15.247 # TX spurious conducted 30dBc ~ WLAN2G4 n-HT20 mode

### Test References

TC Start	06.12.2022 23:42:10
Ambit Temp [°C]   Humidity [rel%]	22.7   31
System Version	3.3.3.0
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 30dBc DTS DTS - WLAN2G4 n-HT20 mode

Add. Information

### EUT Common Settings WLAN2G4

Number of Antenna Ports	4
User Interaction	No

### Test Parameter

Technology to test	WLAN2G4 n-HT20 mode
Antenna Port used	4
Temperature	nom
Voltage	nom
Frequency low to test	False   Freq [MHz] 2417
Frequency mid to test	False   Freq [MHz] 2457
Frequency high to test	True   Freq [MHz] 2462
Auto Control enabled Power Supply   Climatic Box	No   No
Additional Path Loss [dB]	-10
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