

Measurements Results

No.1-4221/22-01-10_Annex_MR2

Test logging

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Document authorized:

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Lab Manager
Radio Labs

Message with SA scan ~

Test References

TC Start	22.03.2023 15:38:55
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
Test Specification	-
Test Method	
TC Version	0.0.1
My Description	Message with SA Scan n-HT20 mode
Add. Information	

Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	22.03.2023 15:38:56
Message	set WLAN2G4 to n-HT20 mode, Frequency [MHz] 2412 ,

Test Equipment

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

Verdict

INFO

Common 2G4 # Peak output power 3MHz/3MHz ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:39:11
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
Test Specification	Common 2G4 - none
Test Method	
TC Version	0.0.1
My Description	Peak OP 3MHz/3MHz WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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

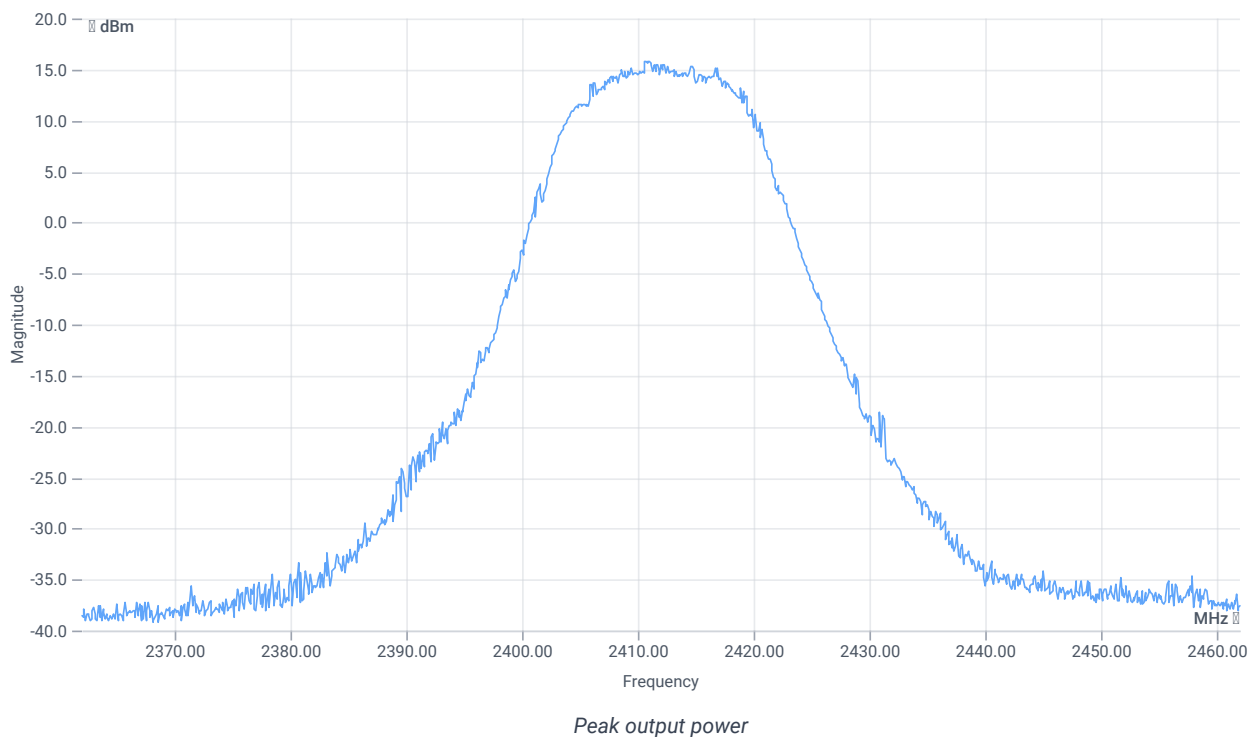
Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.07	dBm	INFO
Ref. Frequency	---	---	2413.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	19.07 14.43 20
Start [MHz] Stop [MHz]	2362.000 2462.000
RBW [MHz] VBW [MHz]	3.000000 3.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	1000 10 1001 SWE



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	15.85	dBm	INFO
Peak Power	---	---	38.459178	mW	INFO
Frequency at Peak	---	---	2410.7	MHz	INFO

Verdict

PASS

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

Test References

TC Start	22.03.2023 15:39:41
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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	1
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]	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

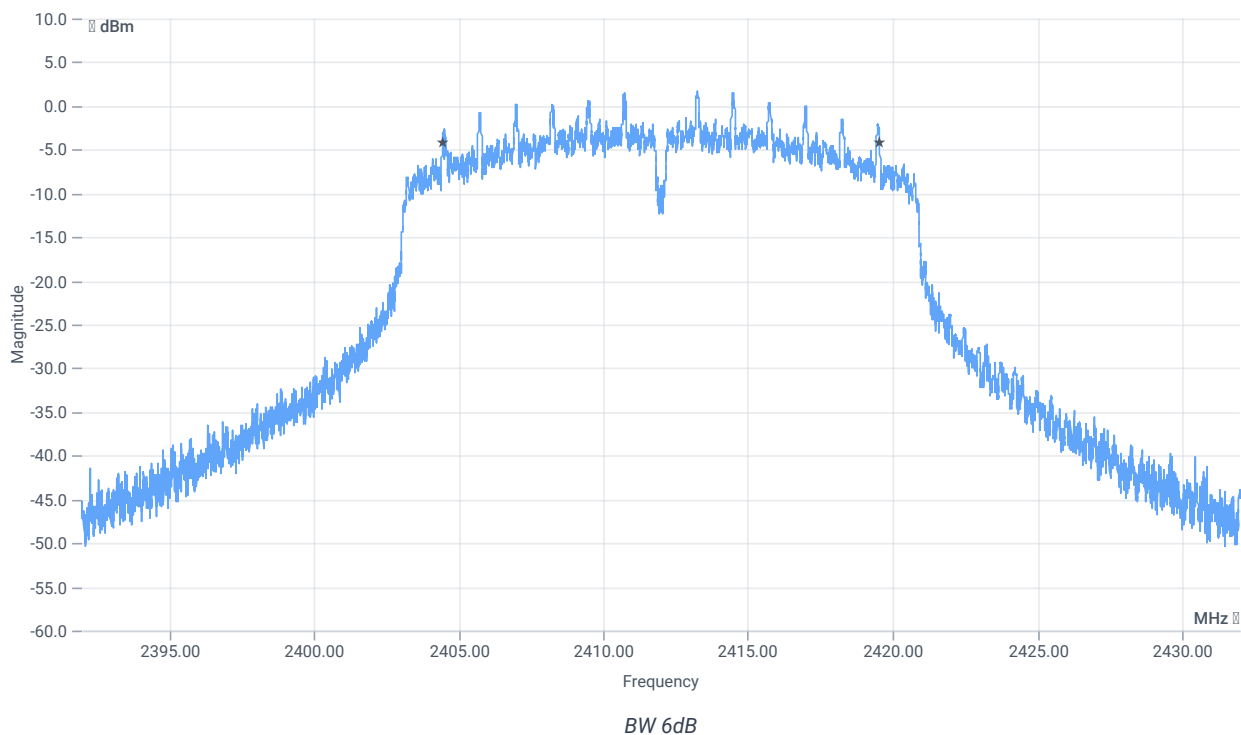
Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.14	dBm	INFO
Ref. Frequency	---	---	2413.800	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	14.14 14.43 15
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	---	15100	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:40:14
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 psd DTS - WLAN2G4 nHT20_mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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

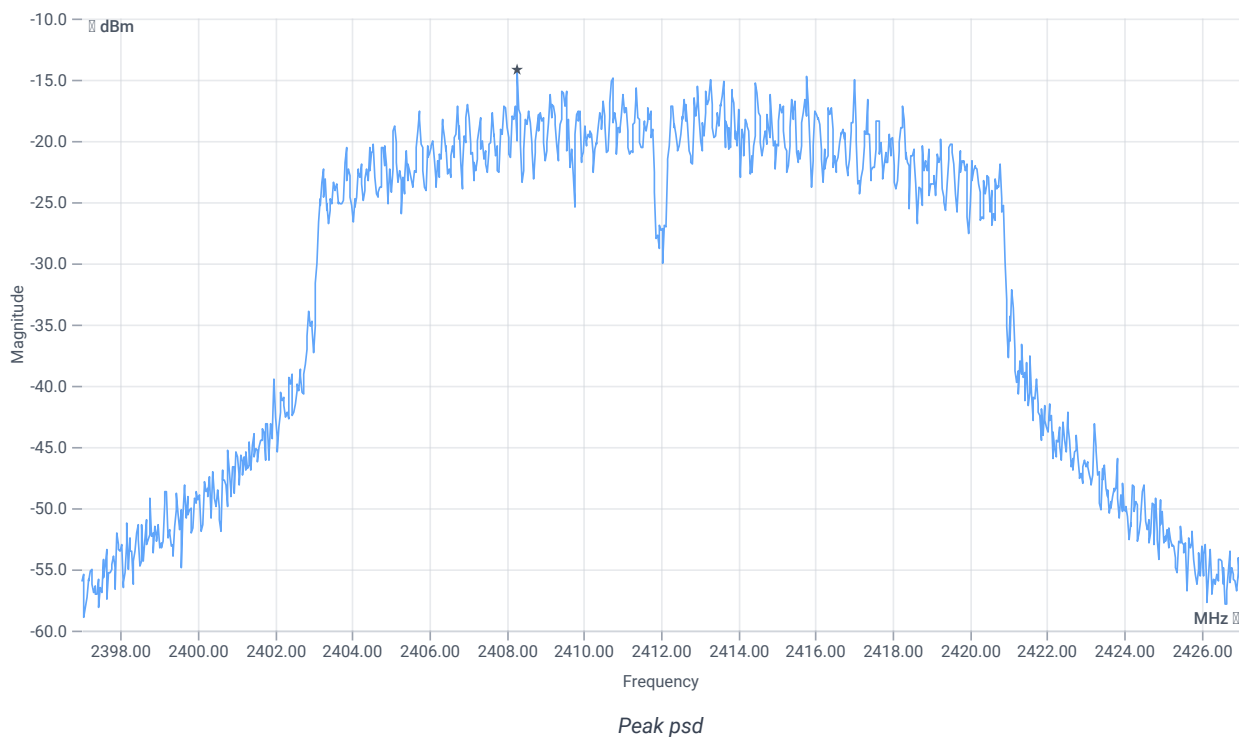
Test at TX 2412 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.46	dBm	INFO
Ref. Frequency	---	---	2413.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	14.46 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
Peak psd	---	8	-14.2	dBm/3KHz	PASS

Verdict

PASS

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

Test References

TC Start	22.03.2023 15:40:54
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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	1
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]	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

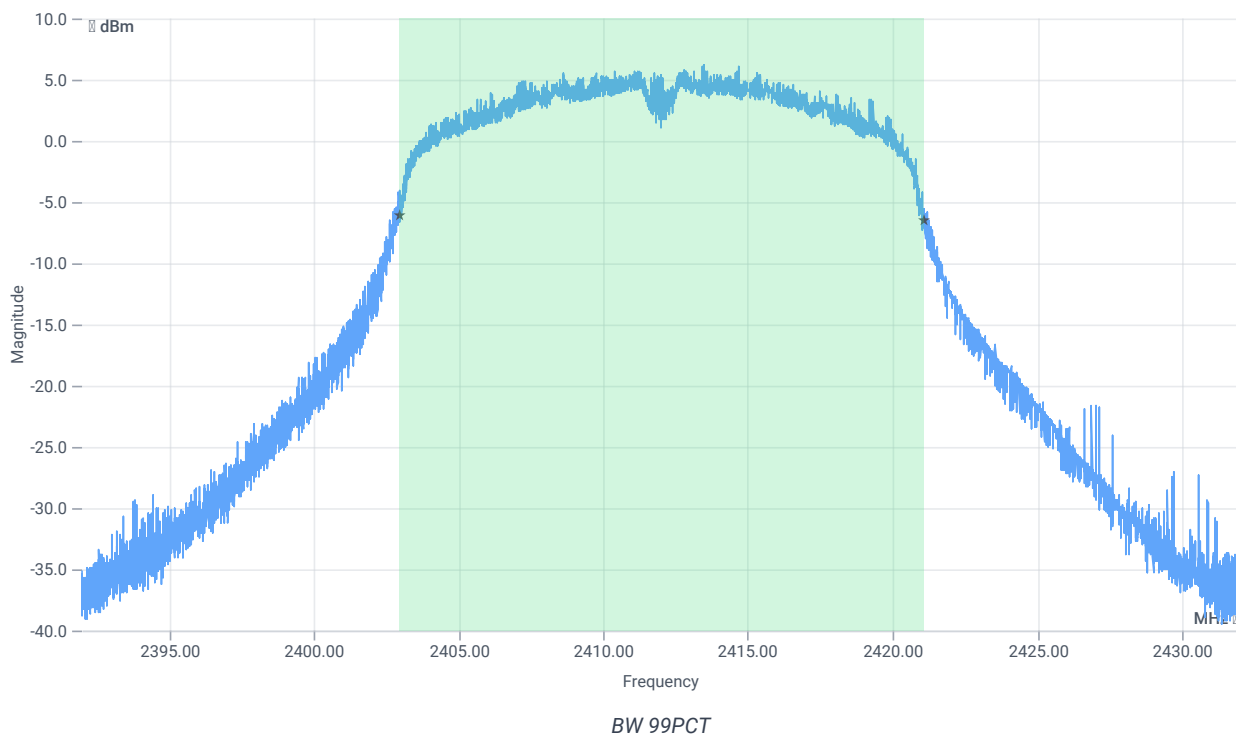
Test at TX 2412 MHz

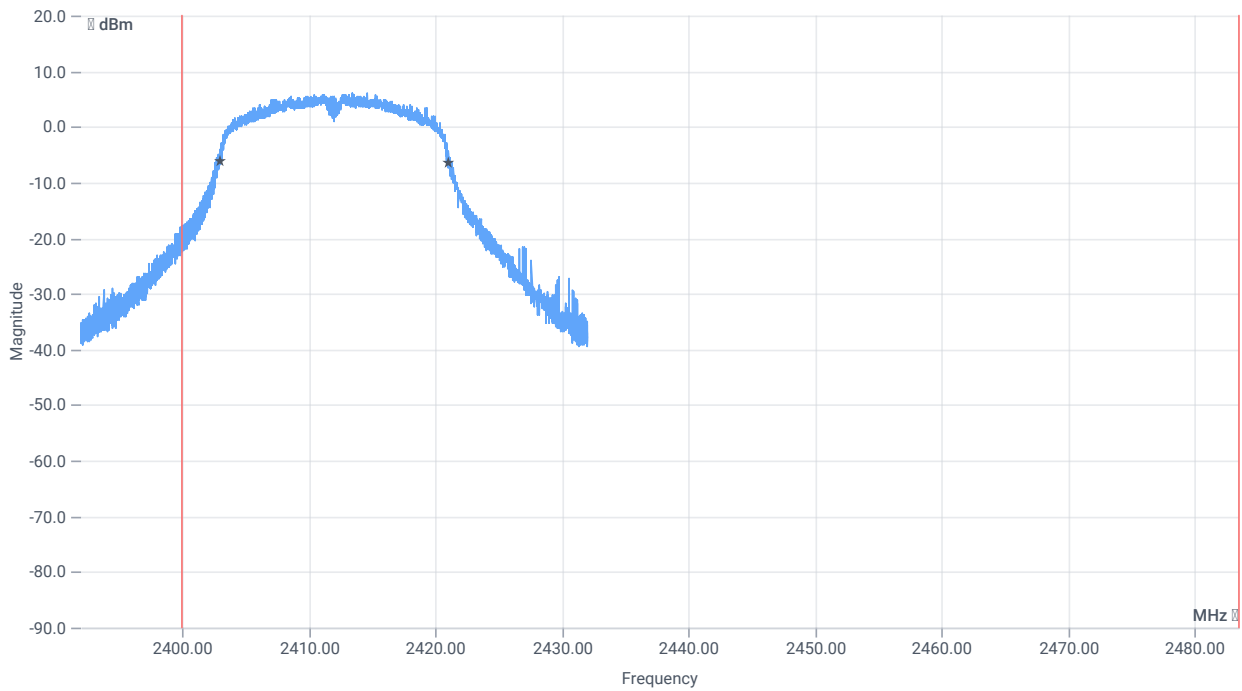
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.84	dBm	INFO
Ref. Frequency	---	---	2415.000	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	13.84 14.43 15
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

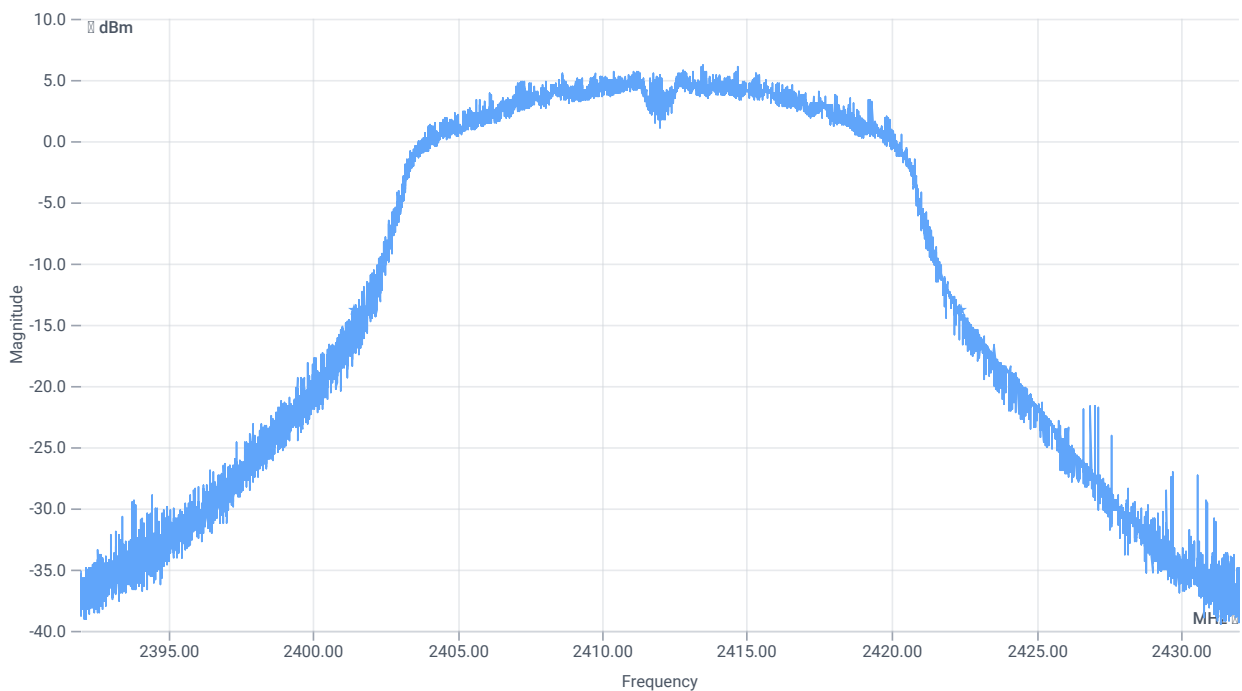




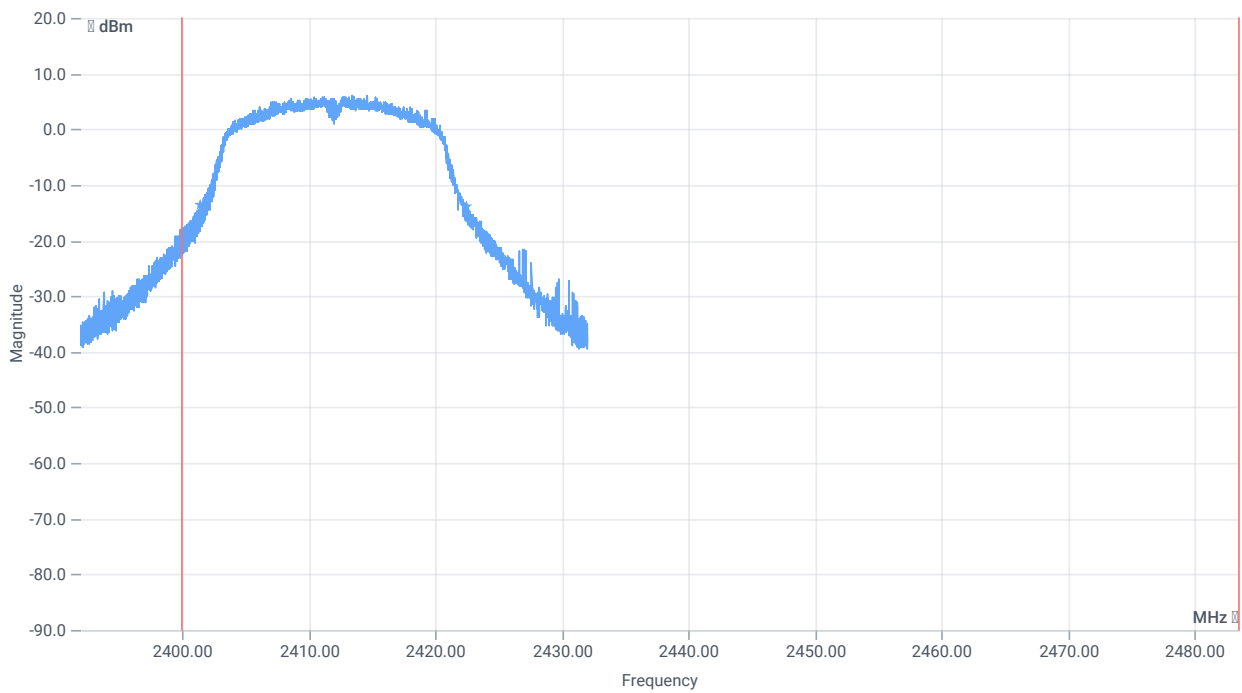
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	18102.000	kHz	INFO
T1 99%	2400.000000	---	2402.9729	MHz	PASS
T2 99%	---	2483.500000	2421.0751	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	20996	kHz	INFO
T1 20dB	2400.000000	---	2401.4120	MHz	PASS
T2 20dB	---	2483.500000	2422.4080	MHz	PASS

Verdict

PASS

FCC 15.247 # TX spurious conducted 20dBc ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:41:30
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 DTS - WLAN2G4 nHT20_mode

Add. Information

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

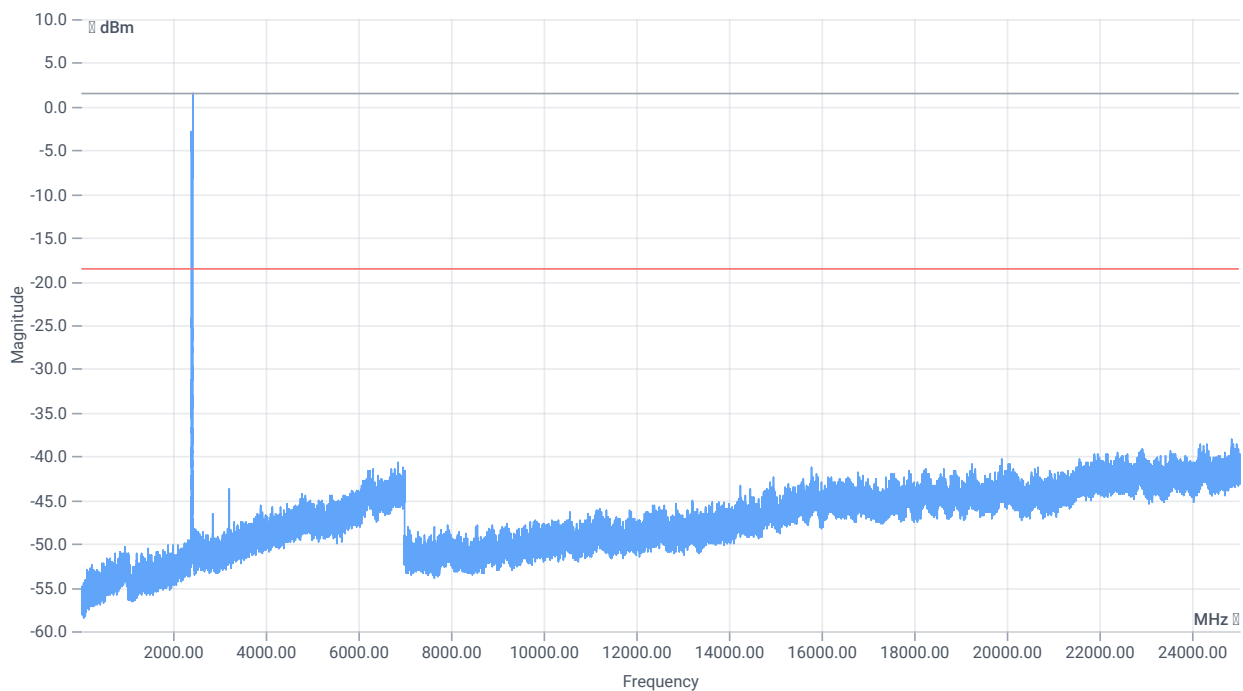
Test Equipment

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.

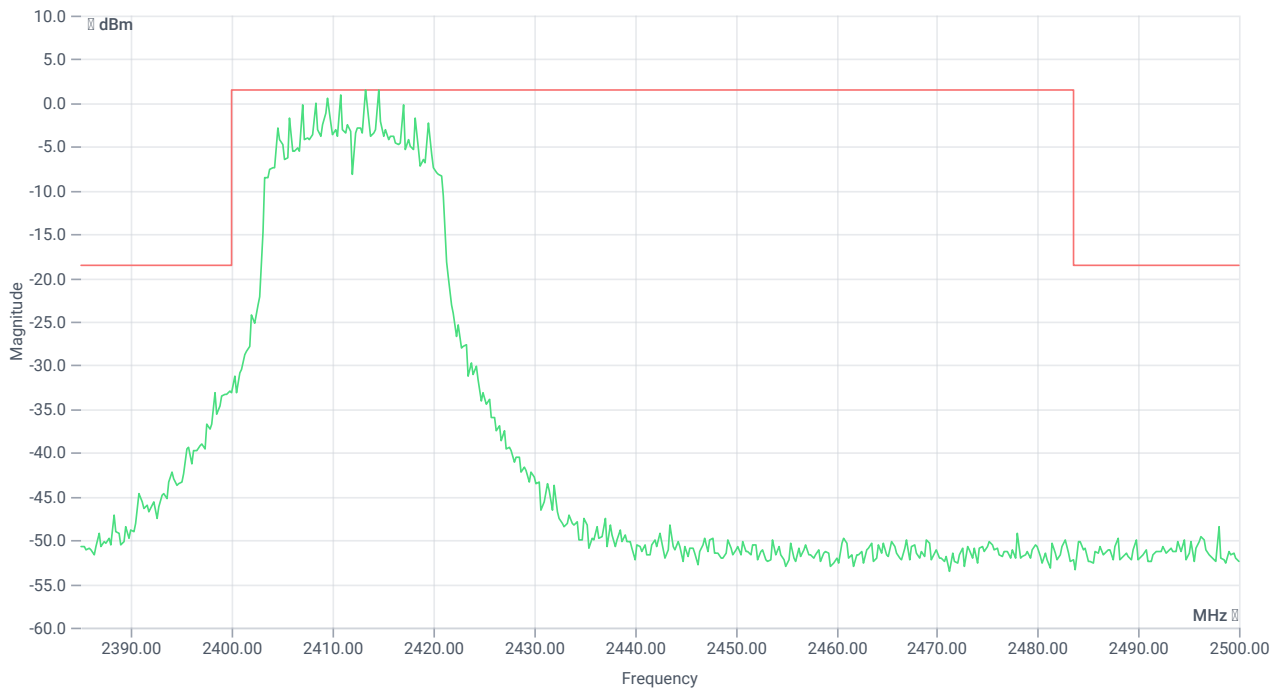
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.14	dBm	INFO
Ref. Frequency	---	---	2413.100	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	9.14 0 25
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 2001 SWE



TX emissions band zoomed

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2413.25 MHz	---	---	1.48	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.75 MHz	0	---	14.34	dB	INFO

Verdict

PASS

FCC 15.247 # Peak output power PM DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:48:47
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 Peak output power PM DTS - WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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>
Peak power	---	30	22.04	dBm	PASS

Verdict

PASS

Message with SA scan ~

Test References

TC Start	22.03.2023 15:48:58
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
Test Specification	-
Test Method	
TC Version	0.0.1
My Description	Message with SA Scan n-HT20 mode
Add. Information	

Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	22.03.2023 15:48:58
Message	set WLAN2G4 to n-HT20 mode, Frequency [MHz] 2437 ,

Test Equipment

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

Verdict

INFO

Common 2G4 # Peak output power 3MHz/3MHz ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:52:43
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
Test Specification	Common 2G4 - none
Test Method	
TC Version	0.0.1
My Description	Peak OP 3MHz/3MHz WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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

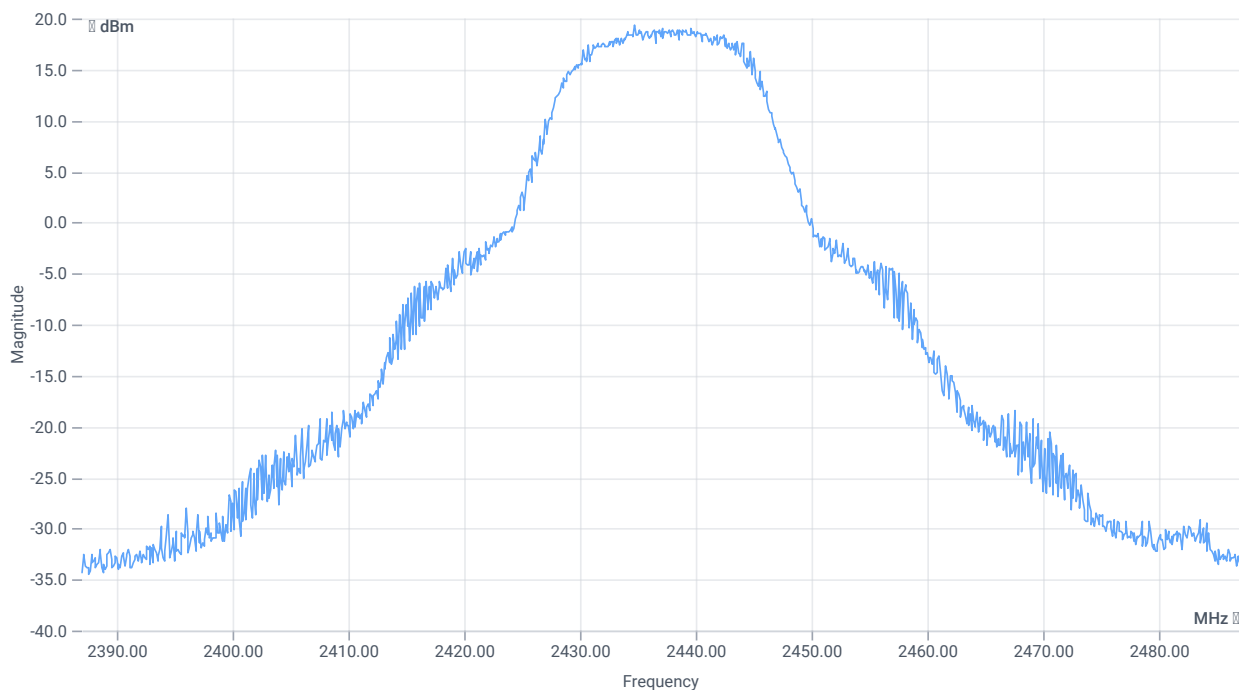
Test at TX 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	13.64	dBm	INFO
Ref. Frequency	---	---	2433.800	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	23.64 14.2 25
Start [MHz] Stop [MHz]	2387.000 2487.000
RBW [MHz] VBW [MHz]	3.000000 3.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	1000 10 1001 SWE



Peak output power

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	19.3	dBm	INFO
Peak Power	---	---	85.113804	mW	INFO
Frequency at Peak	---	---	2434.7	MHz	INFO

Verdict

PASS

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

Test References

TC Start	22.03.2023 15:53:13
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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	1
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]	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

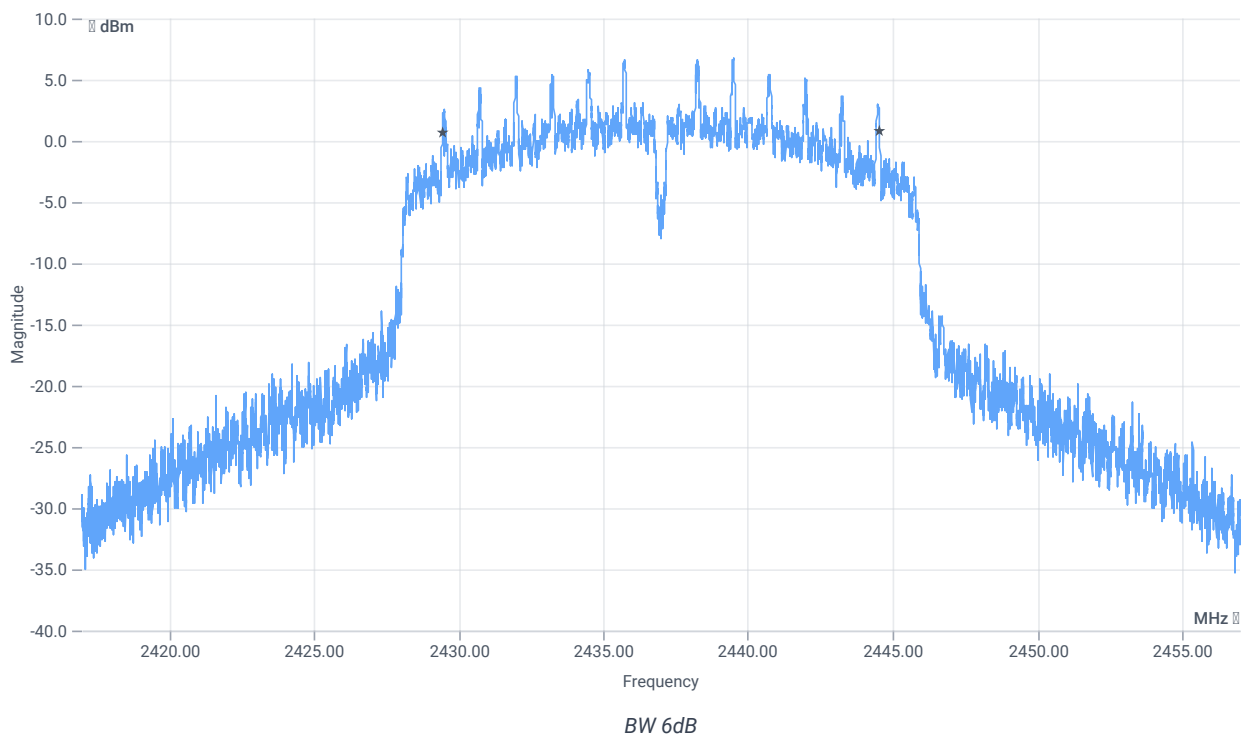
Test at TX 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	13.43	dBm	INFO
Ref. Frequency	---	---	2438.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.43 14.2 20
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	---	15104	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:53:45
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 psd DTS - WLAN2G4 nHT20_mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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

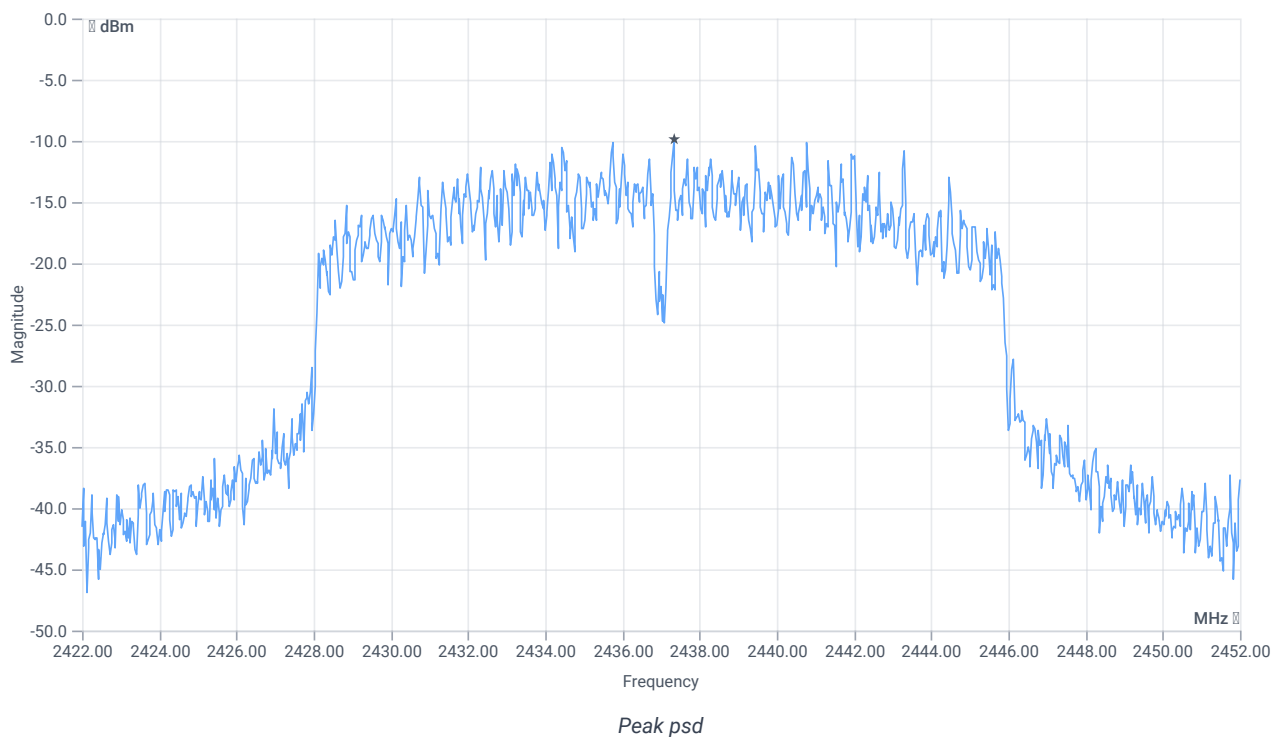
Test at TX 2437 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	13.15	dBm	INFO
Ref. Frequency	---	---	2435.400	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.15 14.2 20
Start [MHz] Stop [MHz]	2422.000 2452.000
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
Peak psd	---	8	-9.88	dBm/3KHz	PASS

Verdict

PASS

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

Test References

TC Start	22.03.2023 15:54:26
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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	1
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]	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

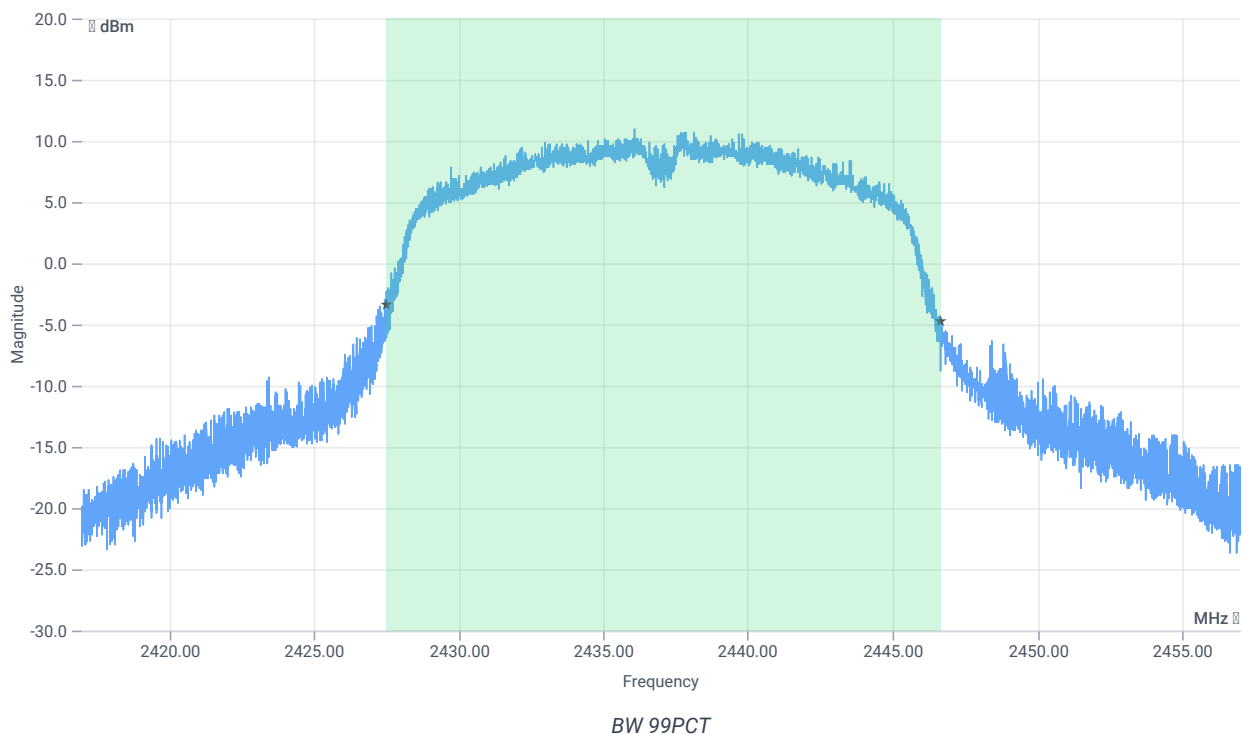
Test at TX 2437 MHz

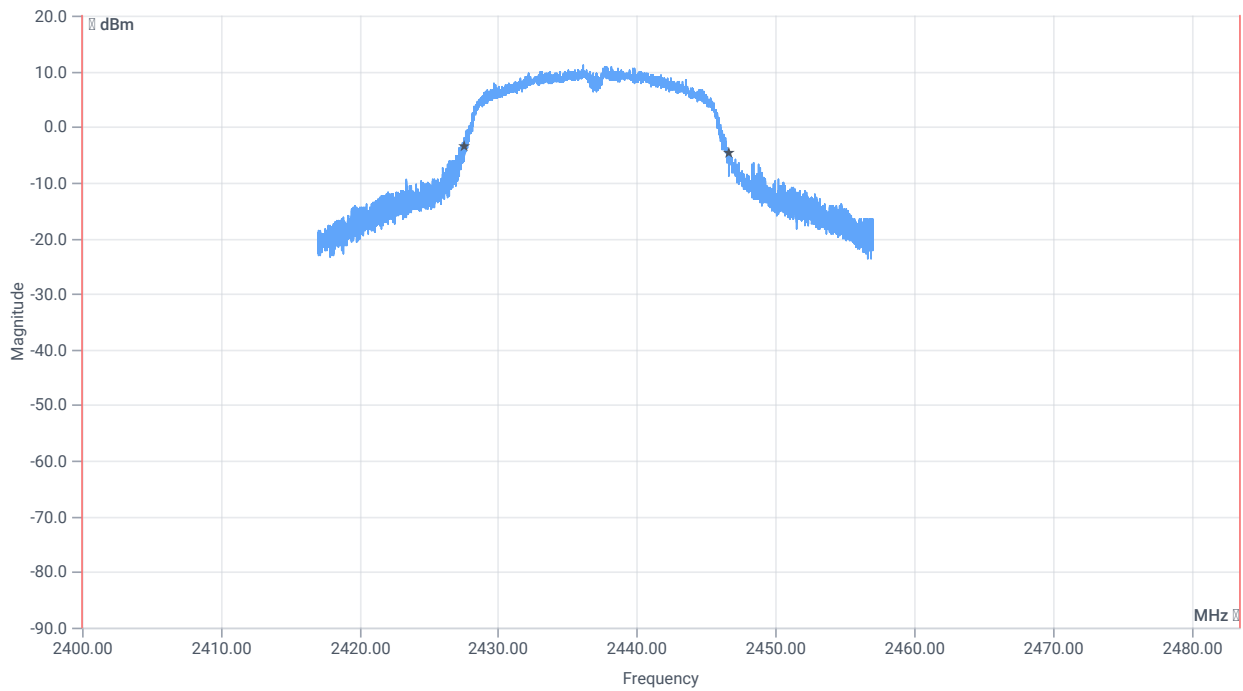
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	13.07	dBm	INFO
Ref. Frequency	---	---	2439.400	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.07 14.2 20
Start [MHz] Stop [MHz]	2417.000 2457.000
RBW [MHz] VBW [MHz]	0.500000 2.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE

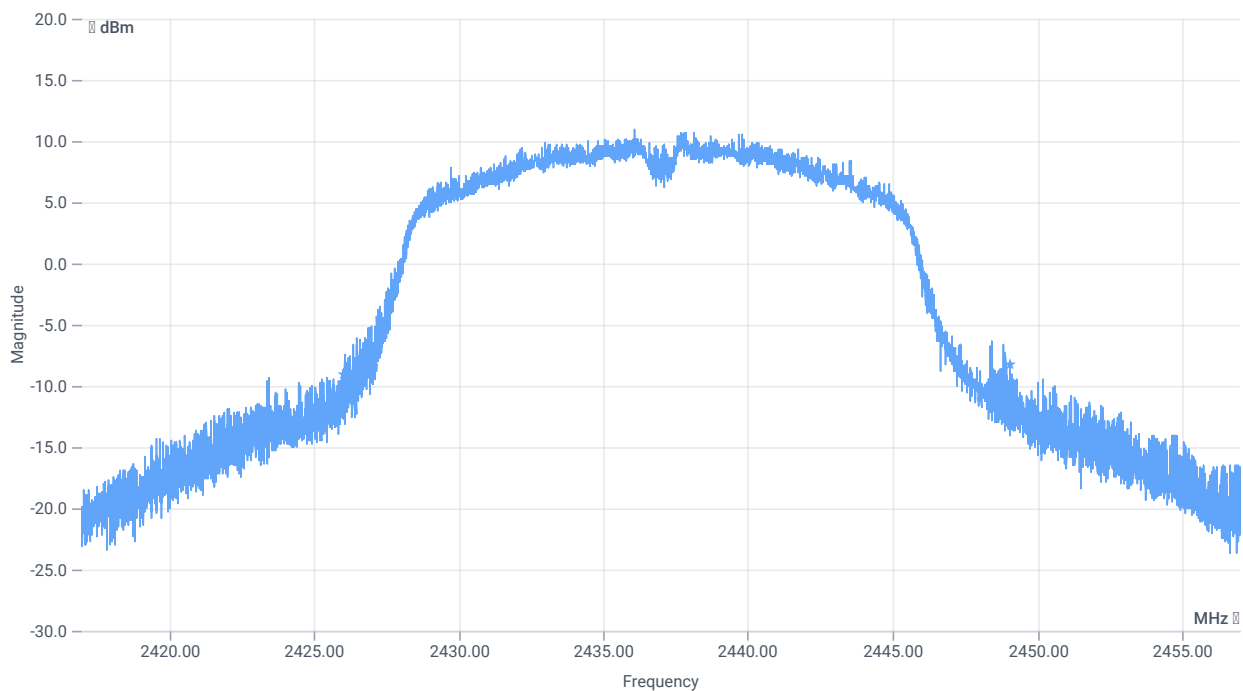




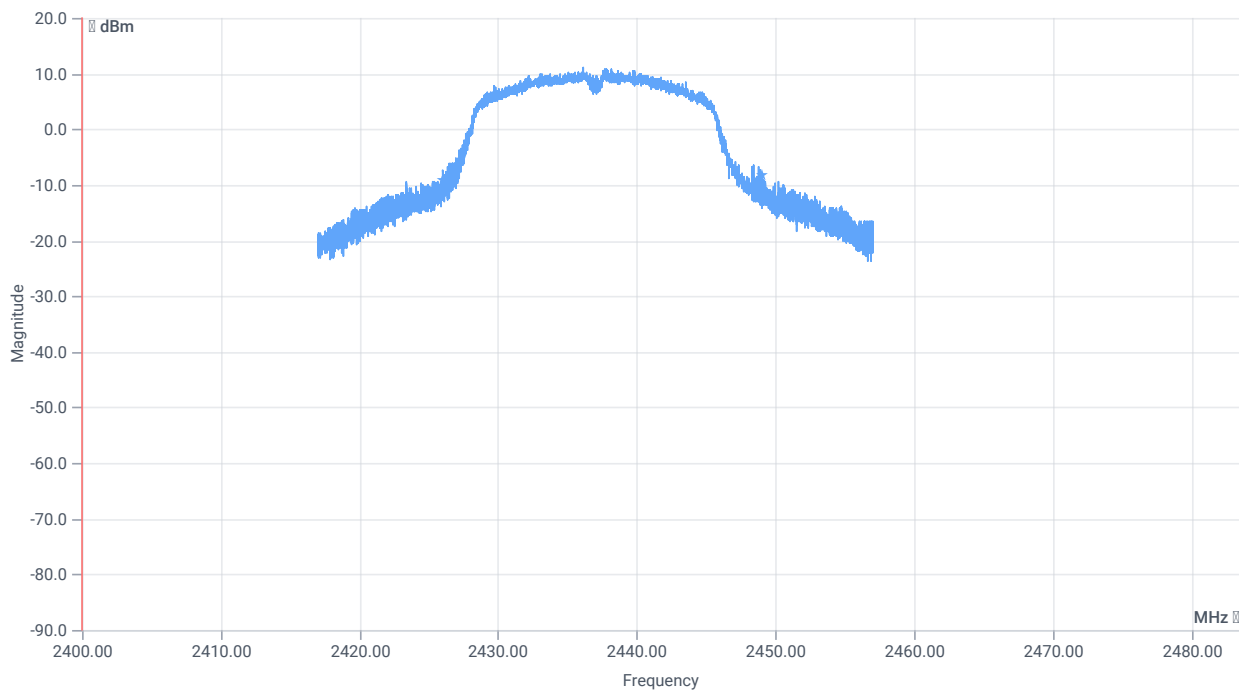
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	19134.000	kHz	INFO
T1 99%	2400.000000	---	2427.5169	MHz	PASS
T2 99%	---	2483.500000	2446.6510	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	23032	kHz	INFO
T1 20dB	2400.000000	---	2426.0280	MHz	PASS
T2 20dB	---	2483.500000	2449.0600	MHz	PASS

Verdict

PASS

FCC 15.247 # TX spurious conducted 20dBc ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 15:55:01
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 DTS - WLAN2G4 nHT20_mode

Add. Information

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

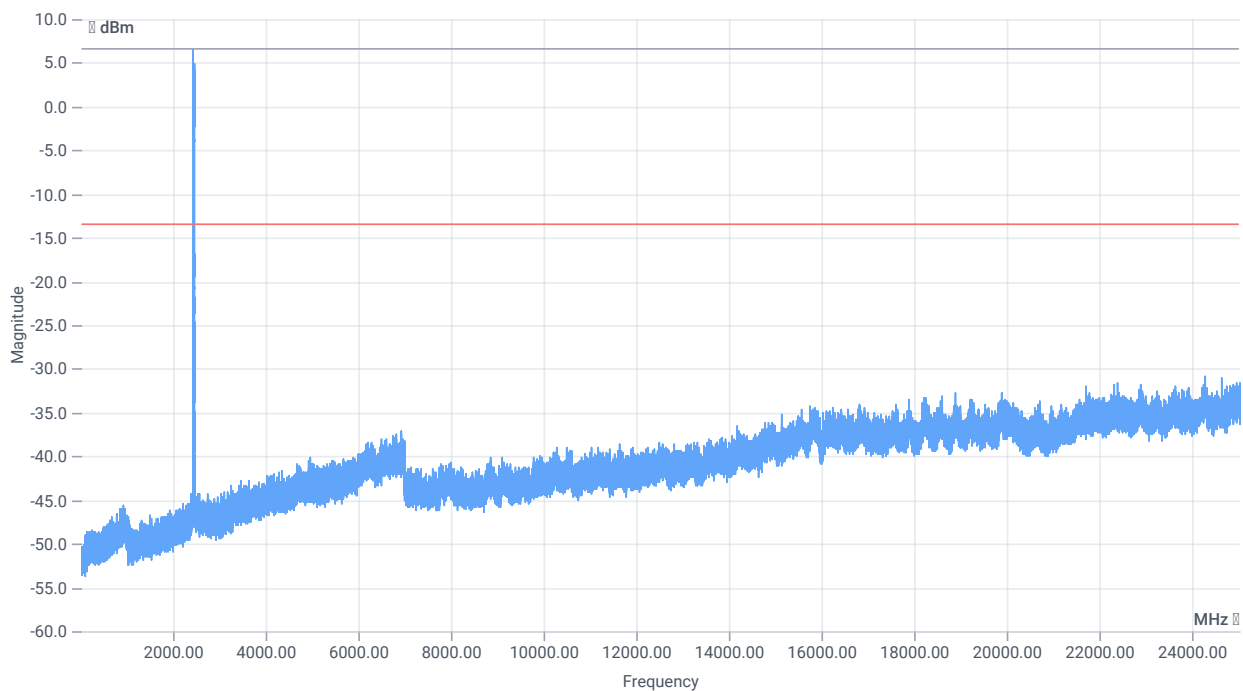
Test Equipment

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

Test at TX 2437 MHz

RESULT: Reference Power cond.

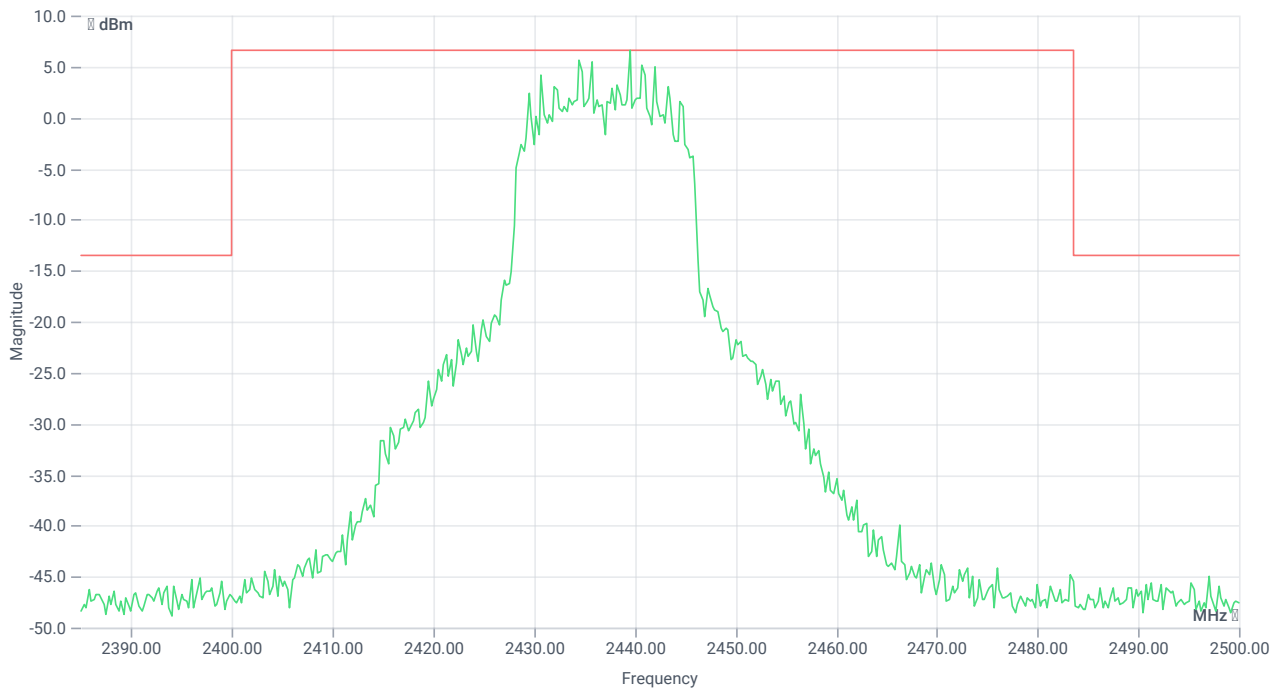
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	12.88	dBm	INFO
Ref. Frequency	---	---	2435.400	MHz	INFO



TX emissions

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	12.88 0 30
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 2001 SWE



TX emissions band zoomed

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2439.50 MHz	---	---	6.52	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24285 MHz	0	---	17.33	dB	INFO

Verdict

PASS

FCC 15.247 # Peak output power PM DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 16:02:18
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
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 Peak output power PM DTS - WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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]	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 2437 MHz

RESULT

<i>Test description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Peak power	---	30	22.8	dBm	PASS

Verdict

PASS

Message with SA scan ~

Test References

TC Start	22.03.2023 16:02:29
Ambit Temp [°C] Humidity [rel%]	24.4 33
System Version	4.0.0.1
Test Specification	-
Test Method	
TC Version	0.0.1
My Description	Message with SA Scan n-HT20 mode
Add. Information	

Test Parameter

Switched Path	EUT - SignalingUnit - SpectrumAnalyzer
Message start	22.03.2023 16:02:30
Message	set WLAN2G4 to n-HT20 mode, Frequency [MHz] 2462

Test Equipment

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

Verdict

INFO

Common 2G4 # Peak output power 3MHz/3MHz ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 16:07:58
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
Test Specification	Common 2G4 - none
Test Method	
TC Version	0.0.1
My Description	Peak OP 3MHz/3MHz WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
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

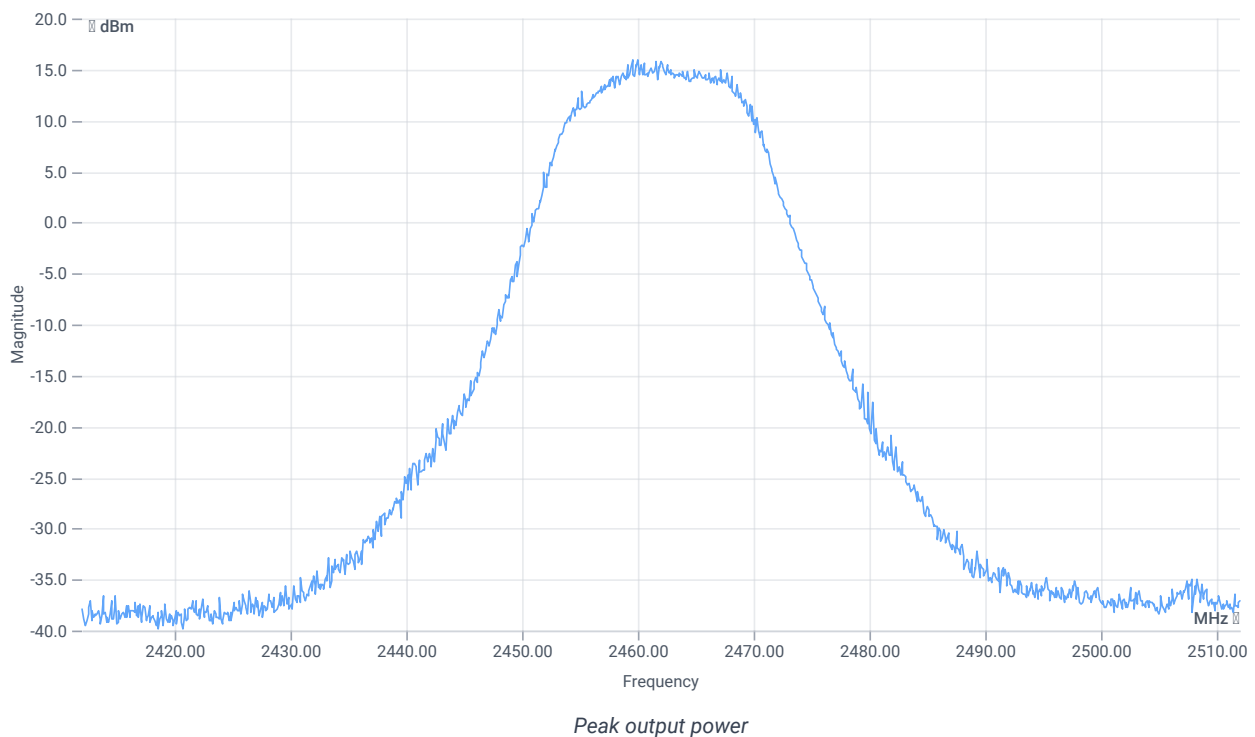
Test at TX 2462 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.62	dBm	INFO
Ref. Frequency	---	---	2460.600	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.62 14.04 20
Start [MHz] Stop [MHz]	2412.000 2512.000
RBW [MHz] VBW [MHz]	3.000000 3.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	1000 10 1001 SWE



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	---	15.94	dBm	INFO
Peak Power	---	---	39.264494	mW	INFO
Frequency at Peak	---	---	2460	MHz	INFO

Verdict

PASS

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

Test References

TC Start	22.03.2023 16:08:27
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
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	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
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

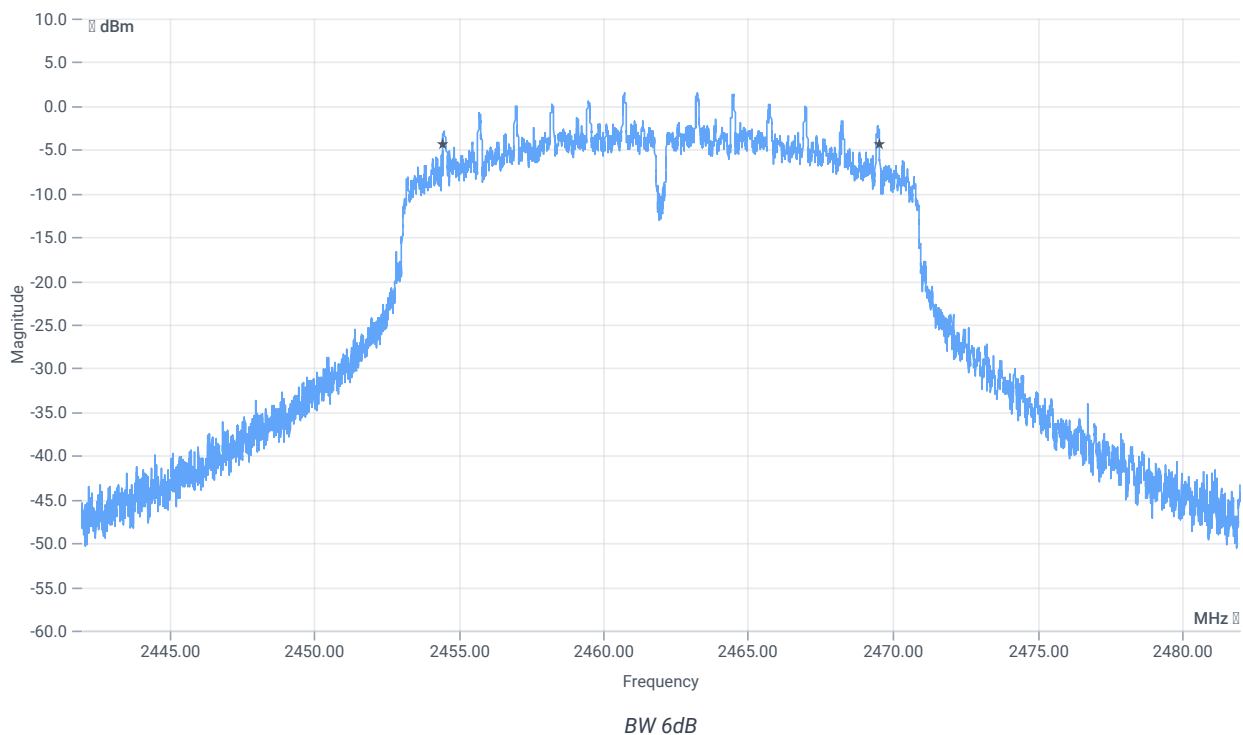
Test at TX 2462 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.76	dBm	INFO
Ref. Frequency	---	---	2460.900	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	13.76 14.04 15
Start [MHz] Stop [MHz]	2442.000 2482.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE



RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	500	---	15096	kHz	PASS

Verdict

PASS

FCC 15.247 # Peak psd DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 16:09:00
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
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 psd DTS - WLAN2G4 nHT20_mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
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

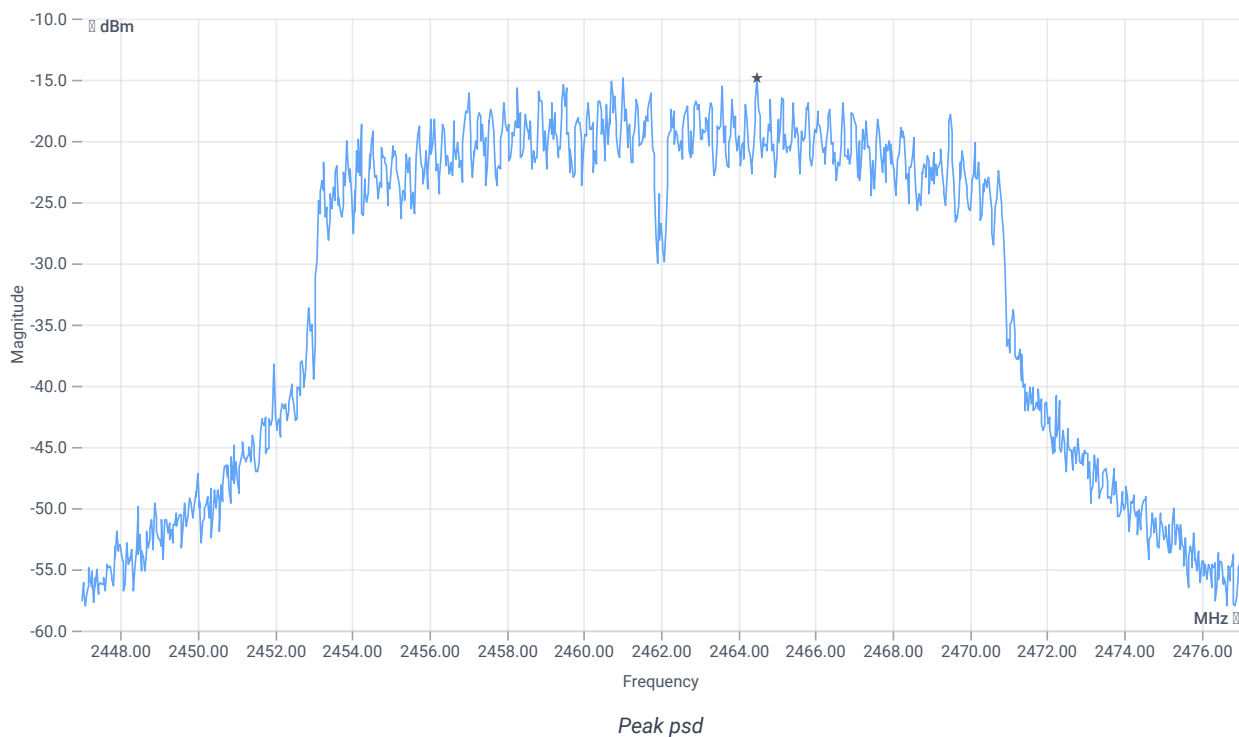
Test at TX 2462 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.37	dBm	INFO
Ref. Frequency	---	---	2460.700	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	14.37 14.04 20
Start [MHz] Stop [MHz]	2447.000 2477.000
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
Peak psd	---	8	-14.89	dBm/3KHz	PASS

Verdict

PASS

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

Test References

TC Start	22.03.2023 16:09:40
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
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	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
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

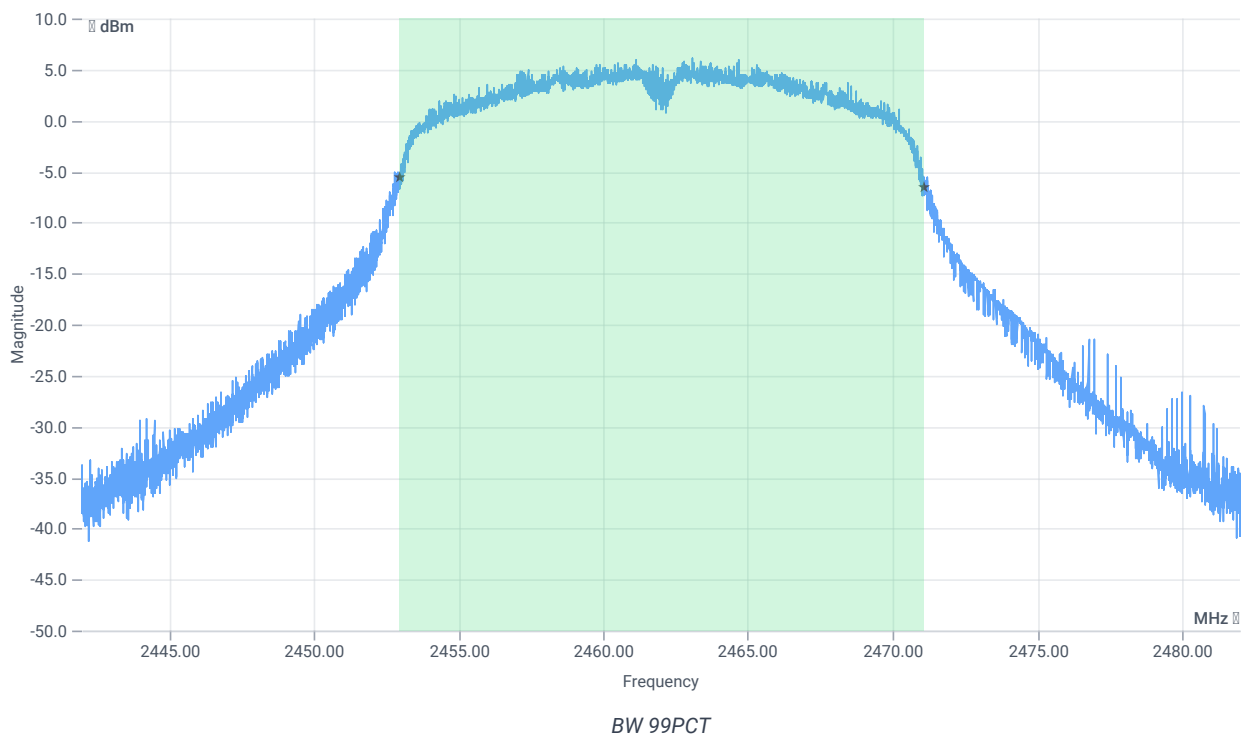
Test at TX 2462 MHz

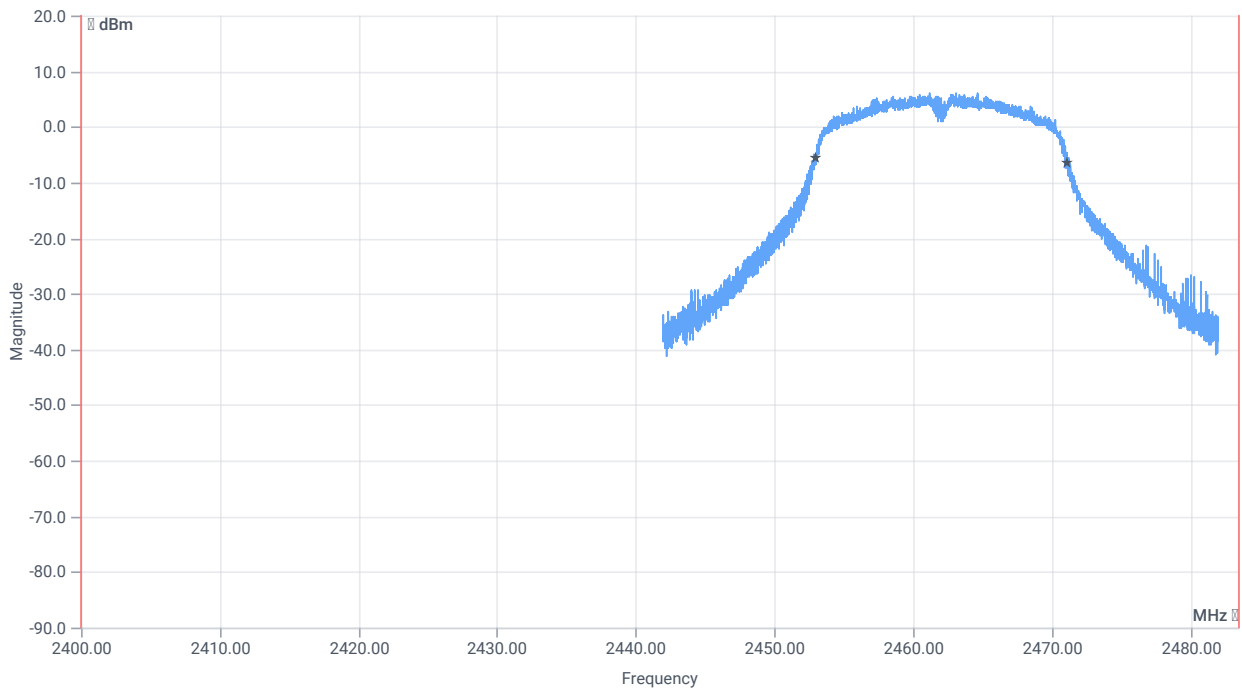
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	9.01	dBm	INFO
Ref. Frequency	---	---	2460.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	14.01 14.04 15
Start [MHz] Stop [MHz]	2442.000 2482.000
RBW [MHz] VBW [MHz]	0.500000 2.000000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE

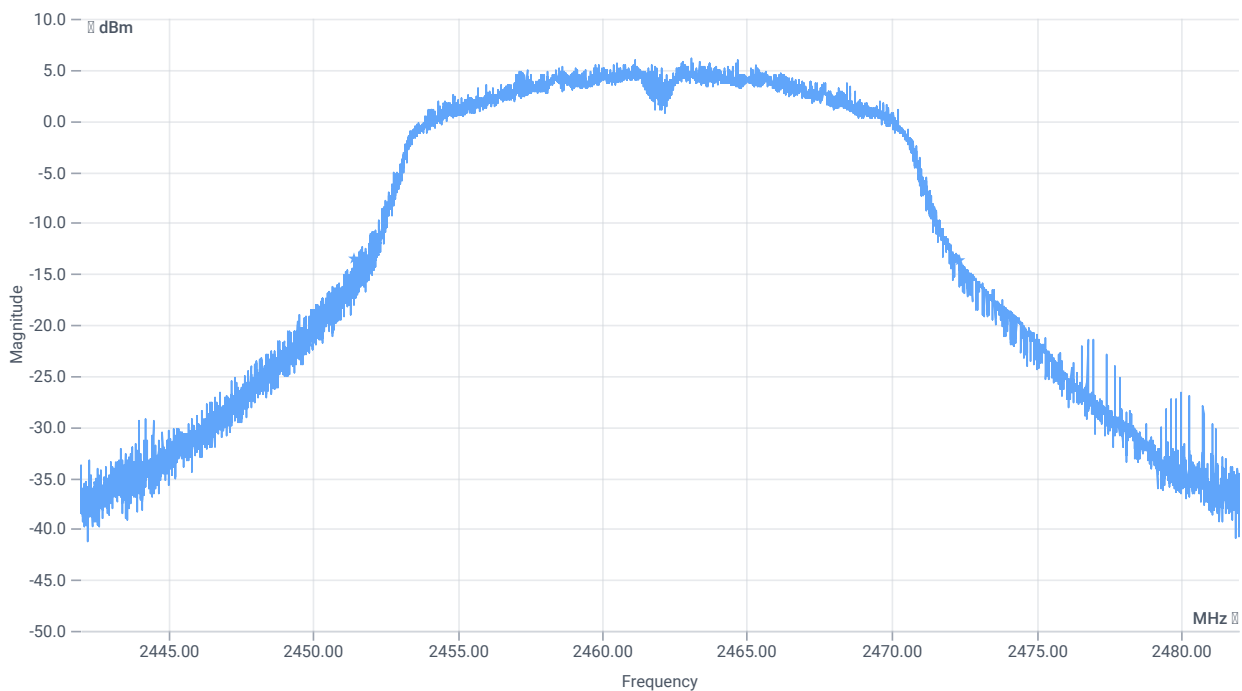




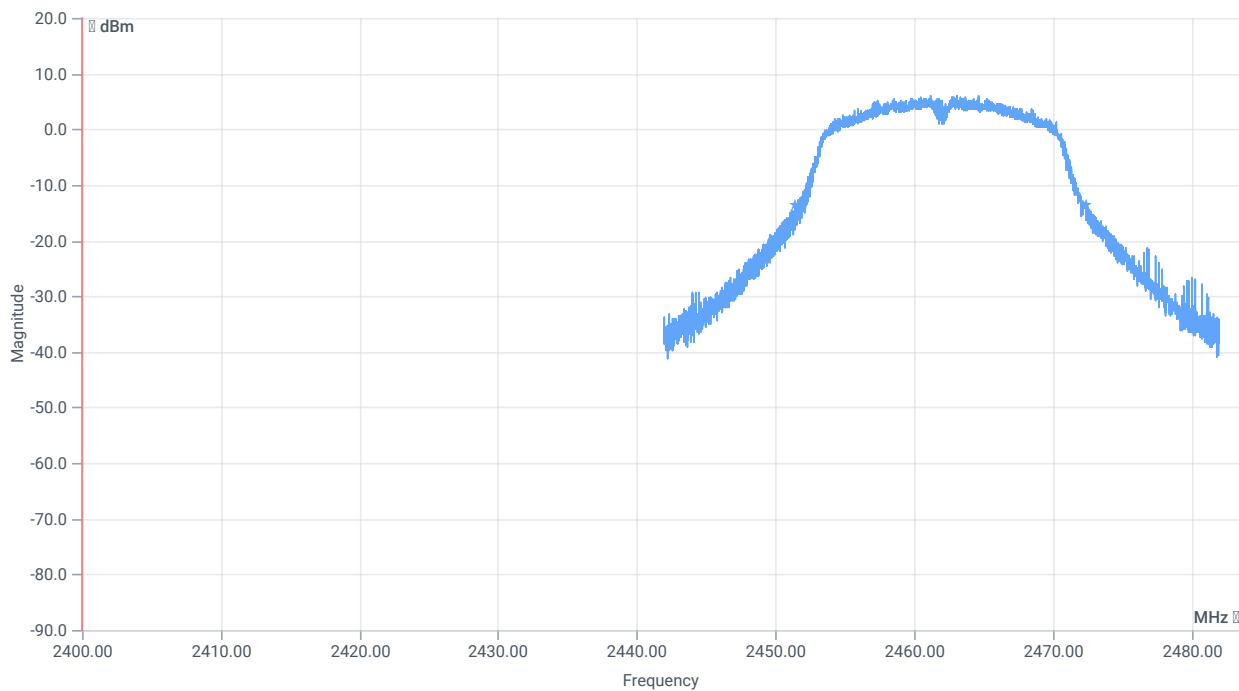
BW within Band 99PCT

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	18118.000	kHz	INFO
T1 99%	2400.000000	---	2452.9809	MHz	PASS
T2 99%	---	2483.500000	2471.0991	MHz	PASS



BW 20dB



BW within Band 20dB

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	20960	kHz	INFO
T1 20dB	2400.000000	---	2451.4080	MHz	PASS
T2 20dB	---	2483.500000	2472.3680	MHz	PASS

Verdict

PASS

FCC 15.247 # TX spurious conducted 20dBc ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 16:10:15
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
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 DTS - WLAN2G4 nHT20_mode

Add. Information

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

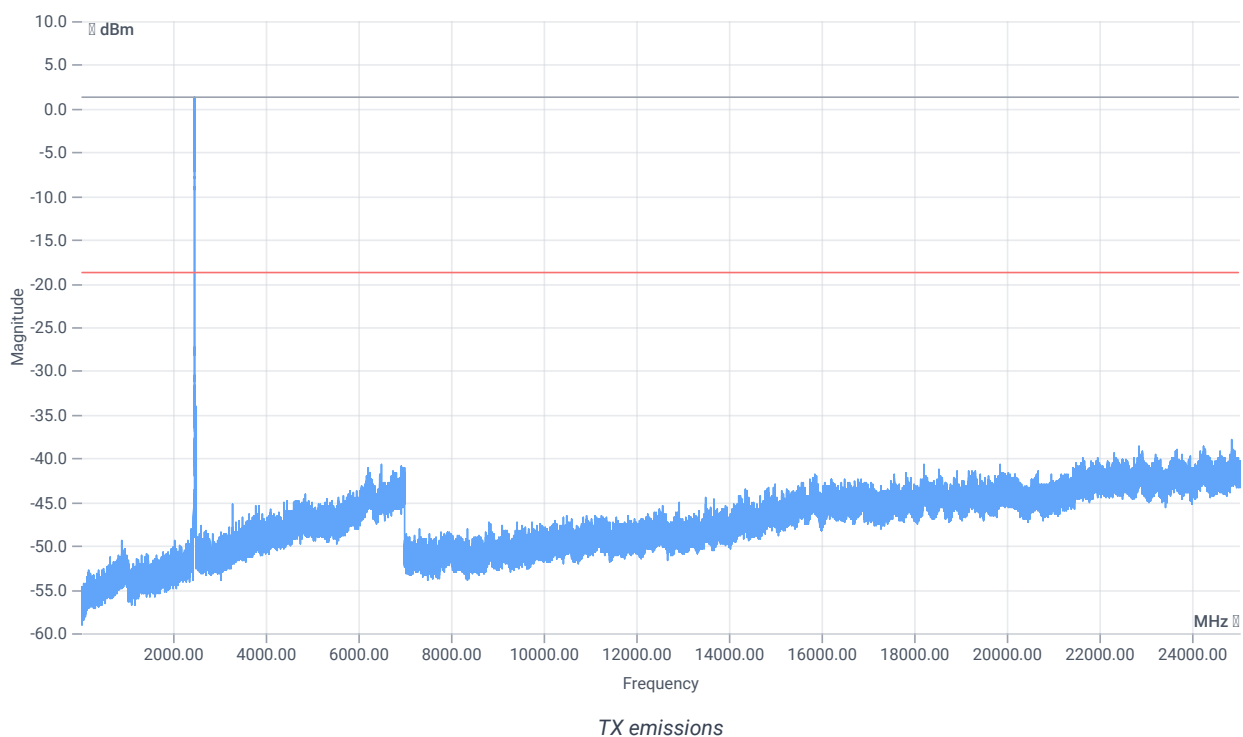
Test Equipment

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

Test at TX 2462 MHz

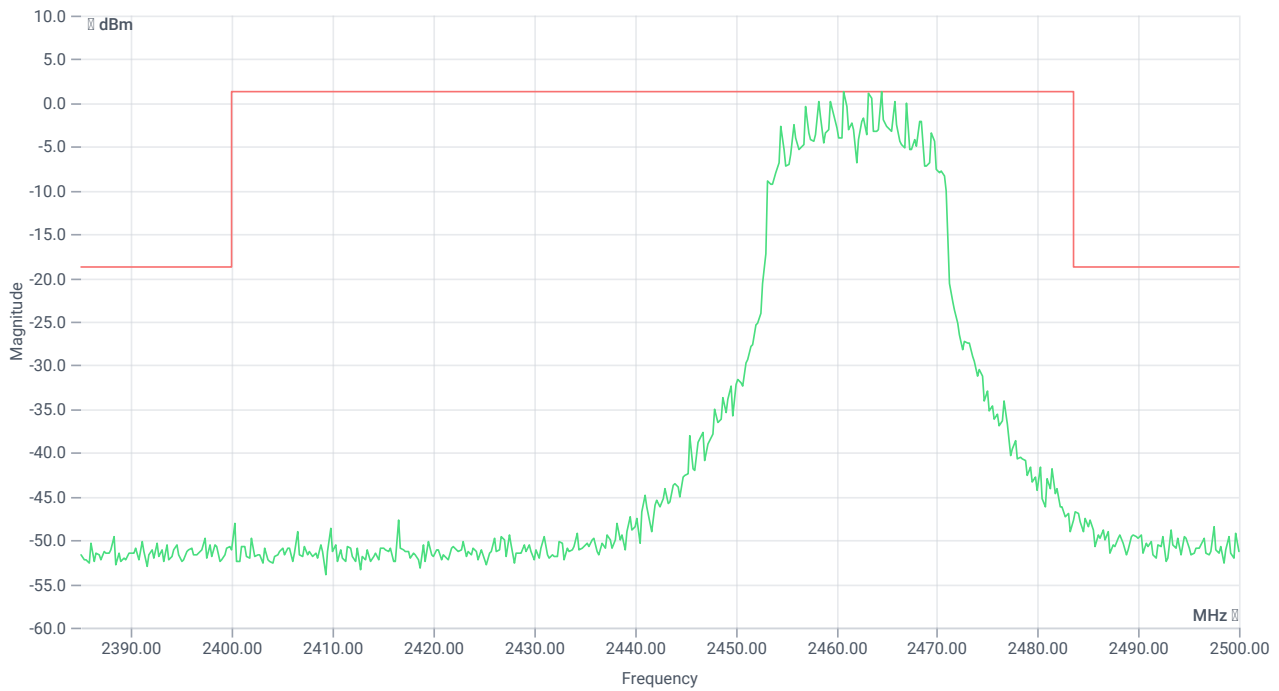
RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	8.34	dBm	INFO
Ref. Frequency	---	---	2461.100	MHz	INFO



READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	8.34 0 25
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 2001 SWE



TX emissions band zoomed

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2464.50 MHz	---	---	1.24	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24866 MHz	0	---	19.2	dB	INFO

Verdict

PASS

FCC 15.247 # Peak output power PM DTS ~ WLAN2G4 n-HT20 mode

Test References

TC Start	22.03.2023 16:17:32
Ambit Temp [°C] Humidity [rel%]	24.5 33
System Version	4.0.0.1
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 Peak output power PM DTS - WLAN2G4 n-HT20 mode
Add. Information	

EUT Common Settings WLAN2G4

Number of Antenna Ports	1
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	False Freq [MHz] 2437
Frequency high to test	True Freq [MHz] 2462
Auto Control enabled Power Supply Climatic Box	No No
Additional Path Loss [dB]	0.7
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 2462 MHz

RESULT

<i>Test description</i>	<i>Lower Limit</i>	<i>Upper Limit</i>	<i>Measured</i>	<i>Unit</i>	<i>Verdict</i>
Peak power	---	30	22.08	dBm	PASS

Verdict

PASS

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