

Measurement Results

No.1-9546/19-04-02_Annex_MR_A1

Test logging

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Test/s performed:

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EUT Information

EUT DEFINITION	
Manufacturer	Profoto AB
Type	PCA5537
Serial Number	7E5-19-01-03
Setup Number	1.0
Version SW	faa57df6
Version FW	NI
Version HW	A7
Comment 1	PS230
Comment 2	
Temperature [°C] Min	-20
Temperature [°C] Nom	20
Temperature [°C] Max	55
Voltage [V] Min	3
Voltage [V] Nom	4.5
Voltage [V] Max	6

FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

Test References

TC Start	29.03.2022 14:46:07
Ambit Temp [°C] Humidity [rel%]	23.0 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT - 20DB FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4

Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter

Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	True Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51

Test at TX 2479.3 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.02	dBm	INFO
Ref. Frequency	---	---	2479.500	MHz	INFO

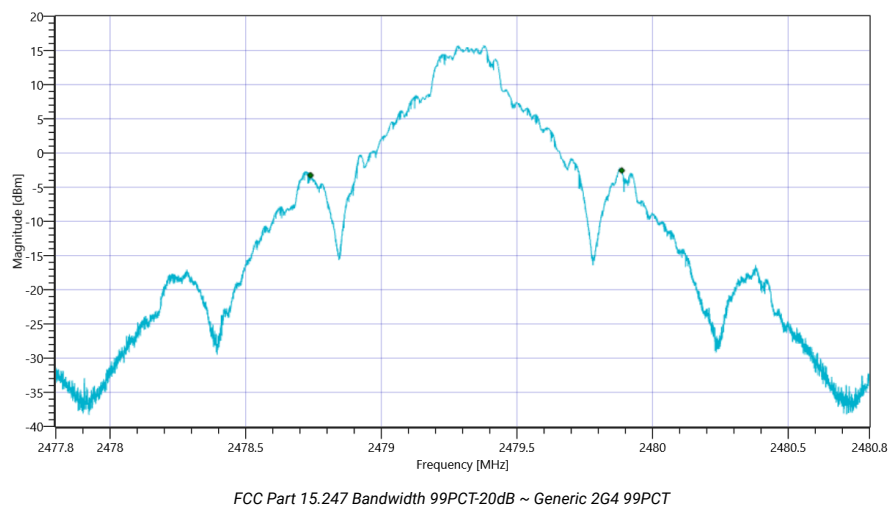
READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	23.02 11.4 30
Start [MHz] Stop [MHz]	2477.800 2480.800
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE

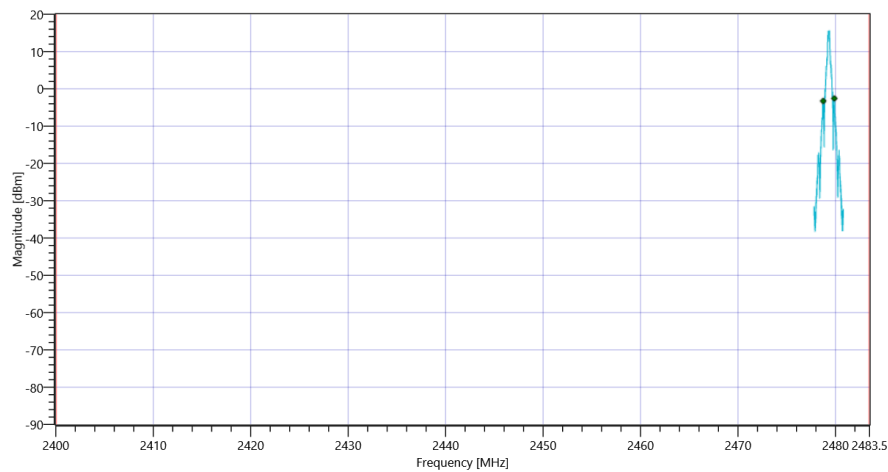
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1147.385	kHz	INFO
T1 99%	2400.000000	---	2478.7391	MHz	PASS
T2 99%	---	2483.500000	2479.8864	MHz	PASS

Plot: Bandwidth only



Plot: Bandwidth within Band

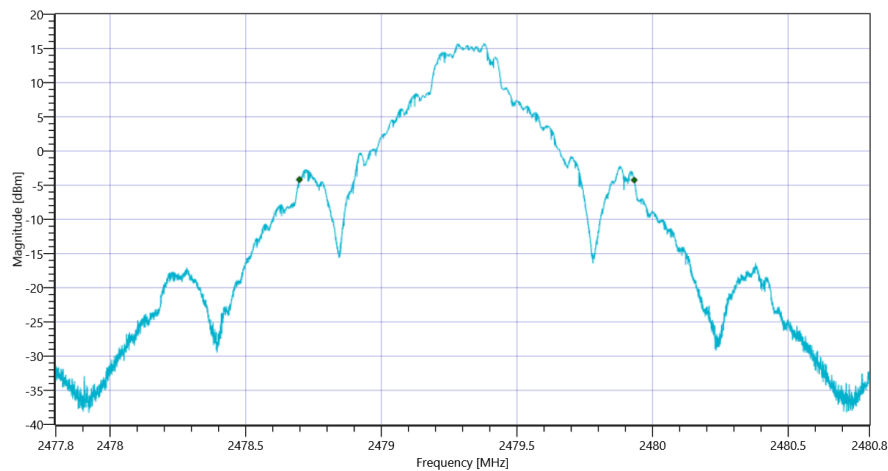


FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

RESULT

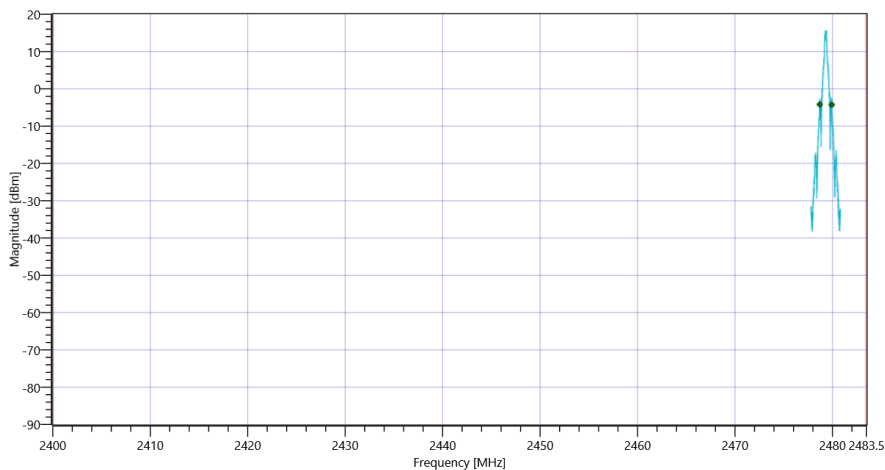
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1235	kHz	INFO
T1 20dB	2400.000000	---	2478.6979	MHz	PASS
T2 20dB	---	2483.500000	2479.9324	MHz	PASS

Plot: Bandwidth only



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB

Plot: Bandwidth within Band



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

General verdict	PASS
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FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:18:26
Ambit Temp [°C] Humidity [rel%]	23.0 26
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT - 20DB FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	True Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2447 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.14	dBm	INFO
Ref. Frequency	---	---	2447.200	MHz	INFO

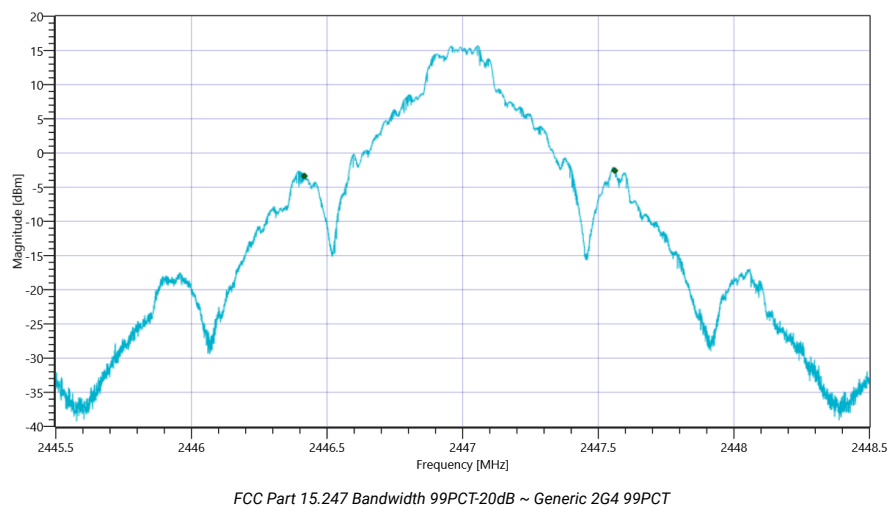
READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	23.14 11.37 30
Start [MHz] Stop [MHz]	2445.500 2448.500
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE

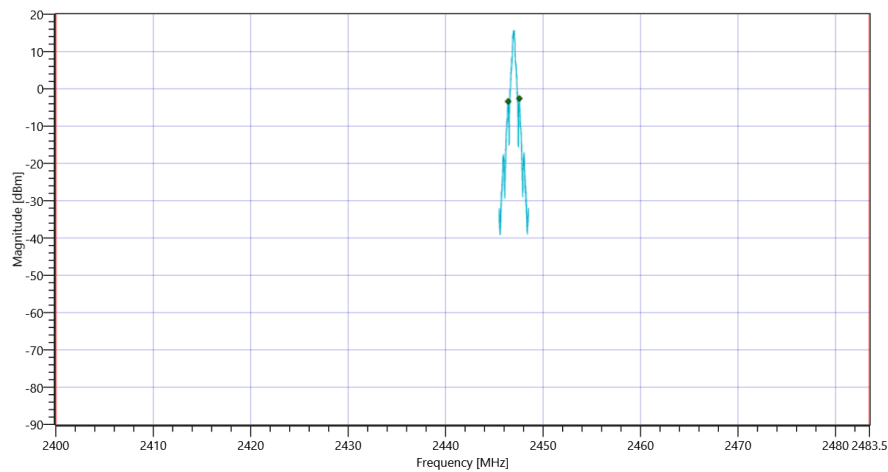
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1144.086	kHz	INFO
T1 99%	2400.000000	---	2446.4166	MHz	PASS
T2 99%	---	2483.500000	2447.5606	MHz	PASS

Plot: Bandwidth only



Plot: Bandwidth within Band

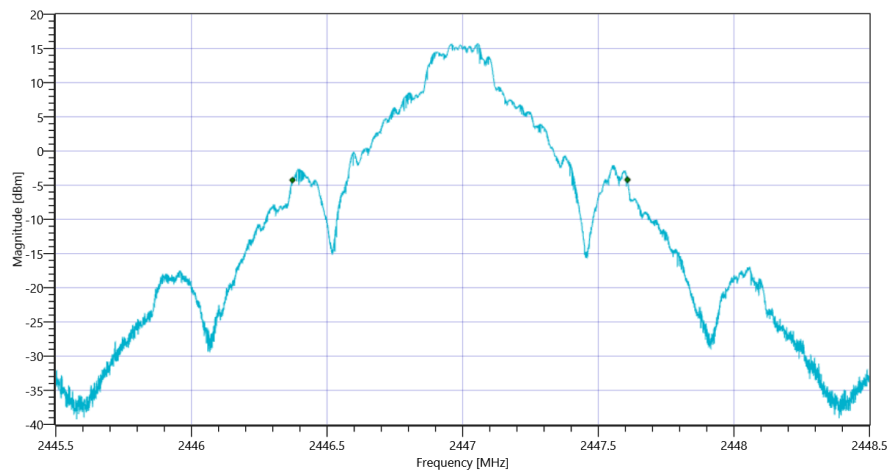


FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

RESULT

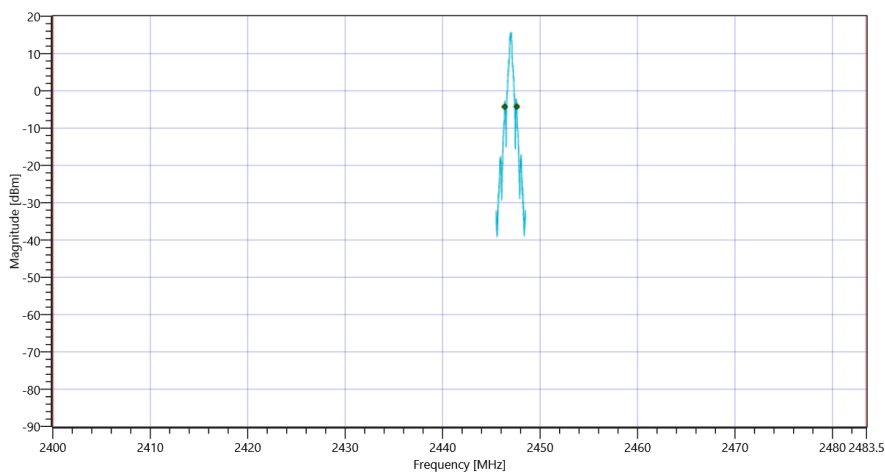
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1235	kHz	INFO
T1 20dB	2400.000000	---	2446.3724	MHz	PASS
T2 20dB	---	2483.500000	2447.6075	MHz	PASS

Plot: Bandwidth only



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB

Plot: Bandwidth within Band



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:01:45
Ambit Temp [°C] Humidity [rel%]	23.1 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.2
My Description	FCC 15.247 Bandwidth 99PCT - 20DB FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2404 MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.59	dBm	INFO
Ref. Frequency	---	---	2404.200	MHz	INFO

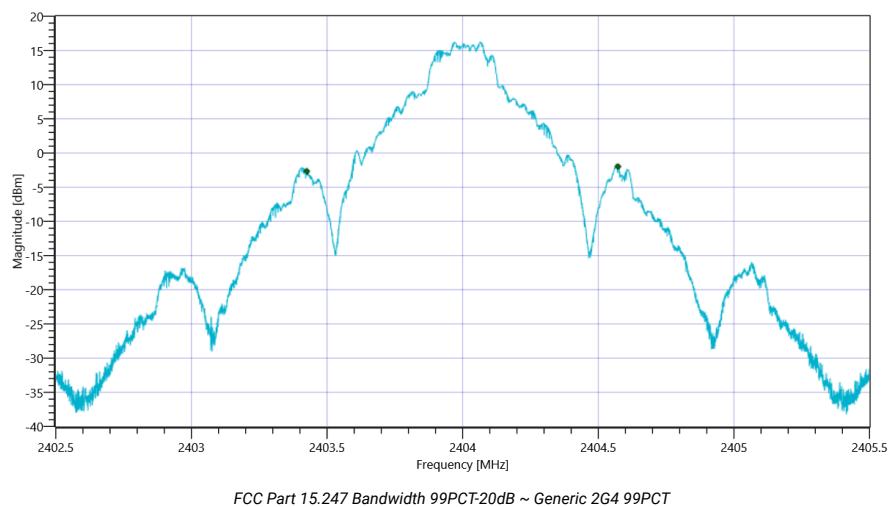
READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	23.59 11.3 30
Start [MHz] Stop [MHz]	2402.500 2405.500
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 200 10001 SWE

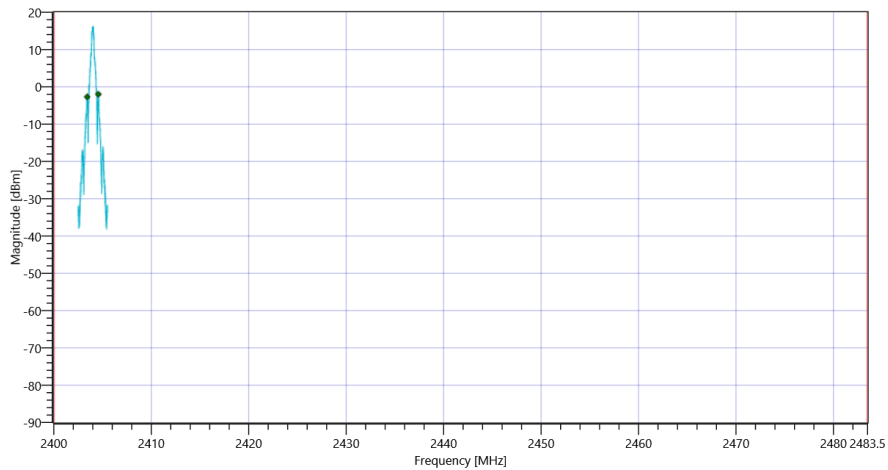
RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	1147.085	kHz	INFO
T1 99%	2400.000000	---	2403.4256	MHz	PASS
T2 99%	---	2483.500000	2404.5726	MHz	PASS

Plot: Bandwidth only



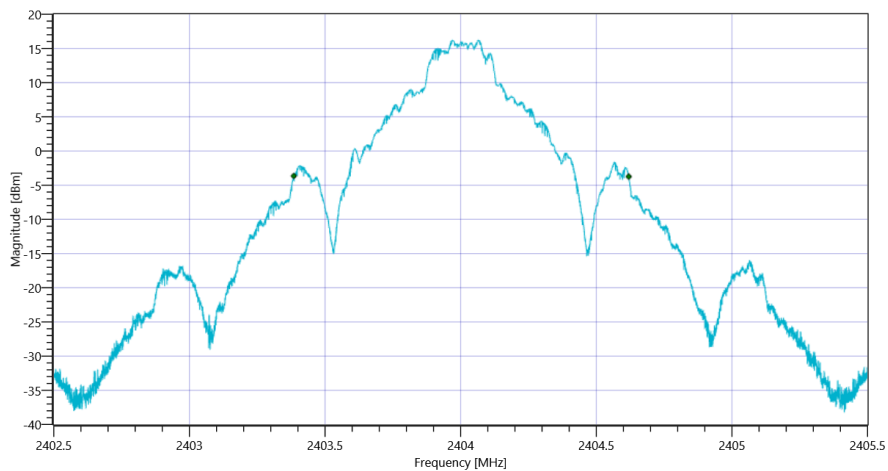
Plot: Bandwidth within Band



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

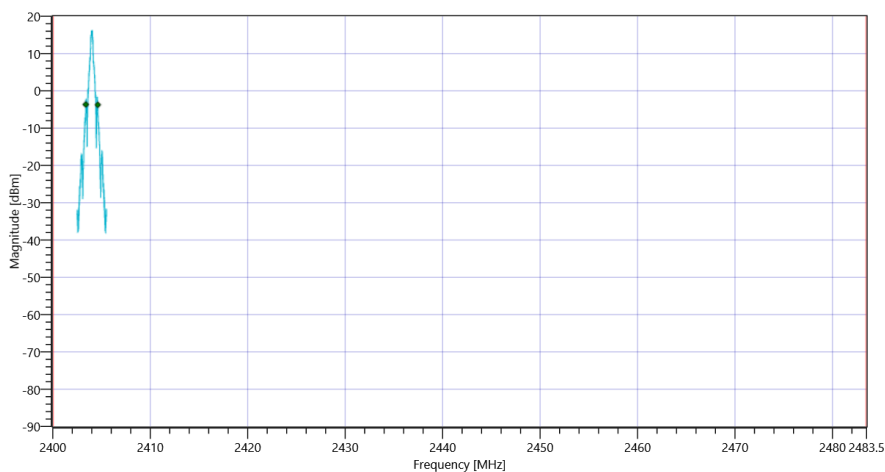
RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1235	kHz	INFO
T1 20dB	2400.000000	---	2403.3847	MHz	PASS
T2 20dB	---	2483.500000	2404.6195	MHz	PASS

Plot: Bandwidth only



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB

Plot: Bandwidth within Band



FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4

General verdict	PASS
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FCC Part 15.247 Carrier Frequency Separation FHSS ~ Generic 2G4

Test References	
TC Start	29.03.2022 15:21:37
Ambit Temp [°C] Humidity [rel%]	23.4 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Carrier Frequency Separation FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX hopping MHz

RESULT: Reference Power cond.

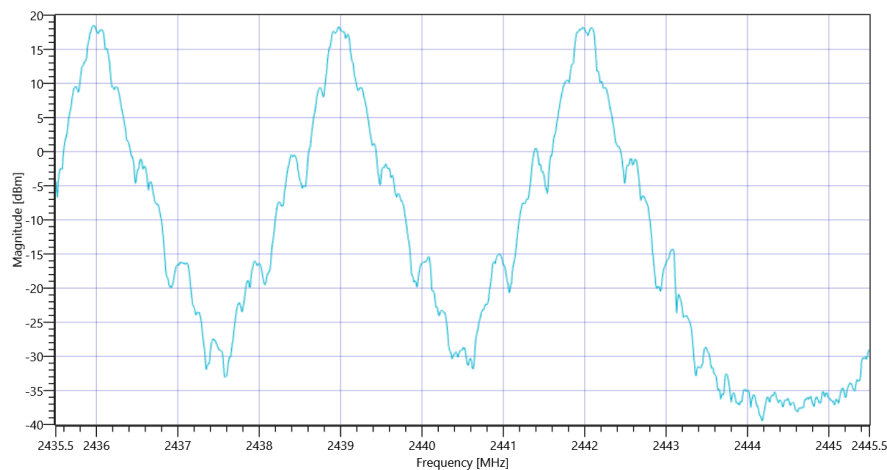
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	19.02	dBm	INFO
Ref. Frequency	---	---	2403.940	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	24.02 11.36 30
Start [MHz] Stop [MHz]	2435.500 2445.500
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	1 20000 1001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
1 CFS n to n+1 (rnd)	0.025	---	3	MHz	PASS
1 CFS n to n+1 (rnd)	1 (2/3 Nom.BW)	---	3	MHz	PASS
2 CFS n to n+1 (rnd)	0.025	---	3	MHz	PASS
2 CFS n to n+1 (rnd)	1 (2/3 Nom.BW)	---	3	MHz	PASS
Carrier Freq. (rnd)	---	---	2436	MHz	INFO
Carrier Freq. (rnd)	---	---	2439	MHz	INFO
Carrier Freq. (rnd)	---	---	2442	MHz	INFO



General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:45:25
Ambit Temp [°C] Humidity [rel%]	23.0 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	True Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2479.3 MHz

RESULT: Reference Power cond.

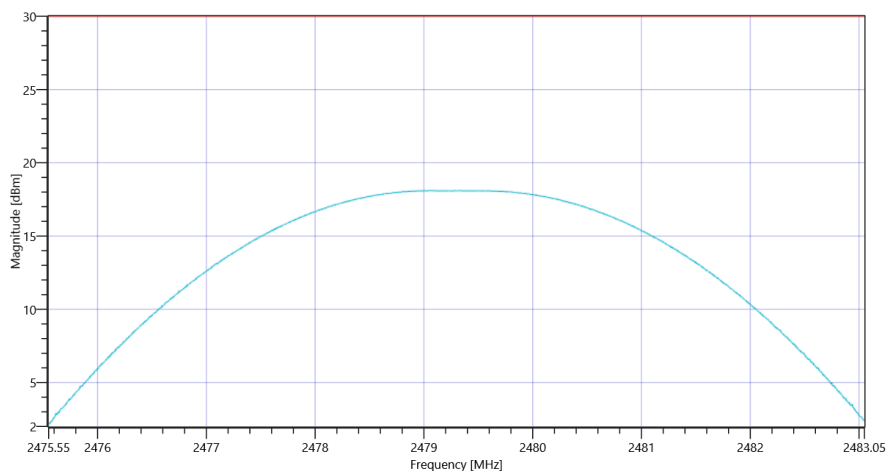
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.02	dBm	INFO
Ref. Frequency	---	---	2479.300	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	28.02 11.4 35
Start [MHz] Stop [MHz]	2475.550 2483.050
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	18.1	dBm	PASS
Peak Power	---	1000	64.565423	mW	PASS
Frequency at Peak	---	---	2479.053	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

Test References

TC Start	29.03.2022 14:17:44
Ambit Temp [°C] Humidity [rel%]	23.0 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4

Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter

Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	True Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51

Test at TX 2447 MHz

RESULT: Reference Power cond.

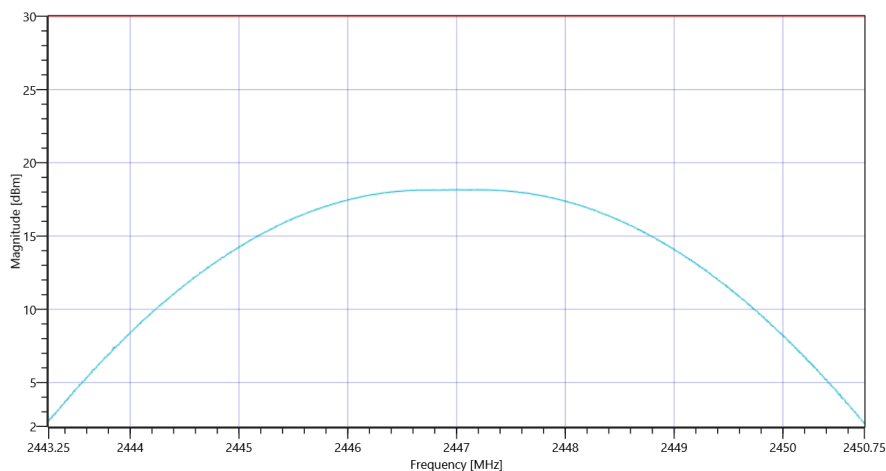
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.14	dBm	INFO
Ref. Frequency	---	---	2447.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	28.14 11.37 35
Start [MHz] Stop [MHz]	2443.250 2450.750
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	18.15	dBm	PASS
Peak Power	---	1000	65.313055	mW	PASS
Frequency at Peak	---	---	2447.247	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:01:03
Ambit Temp [°C] Humidity [rel%]	23.1 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2404 MHz

RESULT: Reference Power cond.

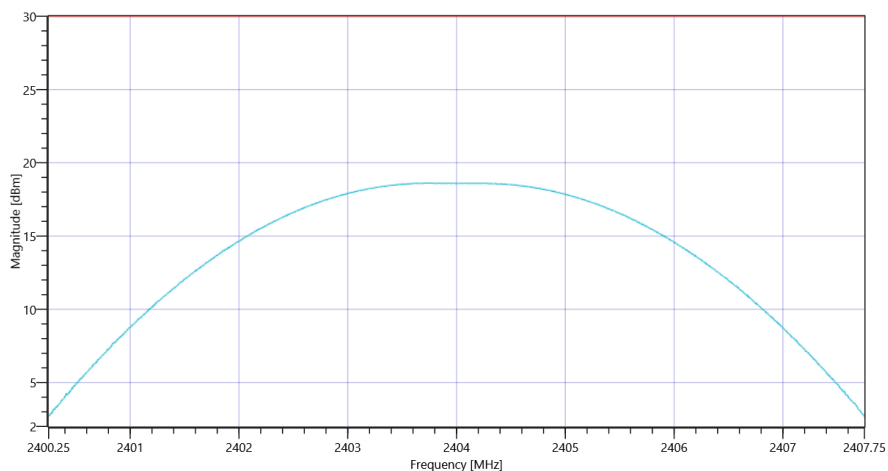
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.59	dBm	INFO
Ref. Frequency	---	---	2404.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	28.59 11.3 35
Start [MHz] Stop [MHz]	2400.250 2407.750
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	18.61	dBm	PASS
Peak Power	---	1000	72.610596	mW	PASS
Frequency at Peak	---	---	2403.738	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Number Of Hopping Channels FHSS ~ Generic 2G4

Test References	
TC Start	29.03.2022 15:24:16
Ambit Temp [°C] Humidity [rel%]	23.4 25
System Version	3.0.5.9
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Number Of Hopping Channels FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
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-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	

Test at TX hopping MHz

RESULT: Reference Power cond.

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	19.01	dBm	INFO
Ref. Frequency	---	---	2403.840	MHz	INFO

READ SA SETTINGS:

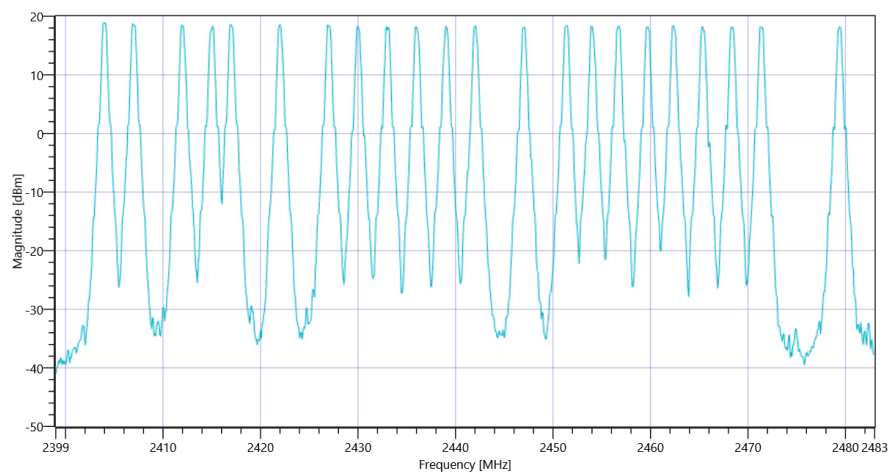
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	24.01 11.36 30
Start [MHz] Stop [MHz]	2399.000 2483.000
RBW [MHz] VBW [MHz]	0.200000 0.500000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	1 10000 1001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Hopp channel (rounded)	---	---	2404	MHz	INFO
Hopp channel (rounded)	---	---	2407	MHz	INFO
Hopp channel (rounded)	---	---	2412	MHz	INFO
Hopp channel (rounded)	---	---	2415	MHz	INFO
Hopp channel (rounded)	---	---	2417	MHz	INFO
Hopp channel (rounded)	---	---	2422	MHz	INFO
Hopp channel (rounded)	---	---	2427	MHz	INFO
Hopp channel (rounded)	---	---	2430	MHz	INFO
Hopp channel (rounded)	---	---	2433	MHz	INFO
Hopp channel (rounded)	---	---	2436	MHz	INFO
Hopp channel (rounded)	---	---	2439	MHz	INFO
Hopp channel (rounded)	---	---	2442	MHz	INFO
Hopp channel (rounded)	---	---	2447	MHz	INFO
Hopp channel (rounded)	---	---	2451	MHz	INFO
Hopp channel (rounded)	---	---	2454	MHz	INFO
Hopp channel (rounded)	---	---	2457	MHz	INFO
Hopp channel (rounded)	---	---	2460	MHz	INFO
Hopp channel (rounded)	---	---	2462	MHz	INFO
Hopp channel (rounded)	---	---	2465	MHz	INFO

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Hopp channel (rounded)	---	---	2468	MHz	INFO
Hopp channel (rounded)	---	---	2471	MHz	INFO
Hopp channel (rounded)	---	---	2479	MHz	INFO
Σ Hopping channels	15	---	22	Number	PASS



FCC Part 15.247 Number Of Hopping Channels FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4

Test References

TC Start	29.03.2022 14:47:17
Ambit Temp [°C] Humidity [rel%]	23.1 25
System Version	3.0.5.9
Test Specification	FCC Part 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 FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4

Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter

Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	True Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment

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

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

Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51

Test at TX 2479.3 MHz

RESULT: Reference Power cond.

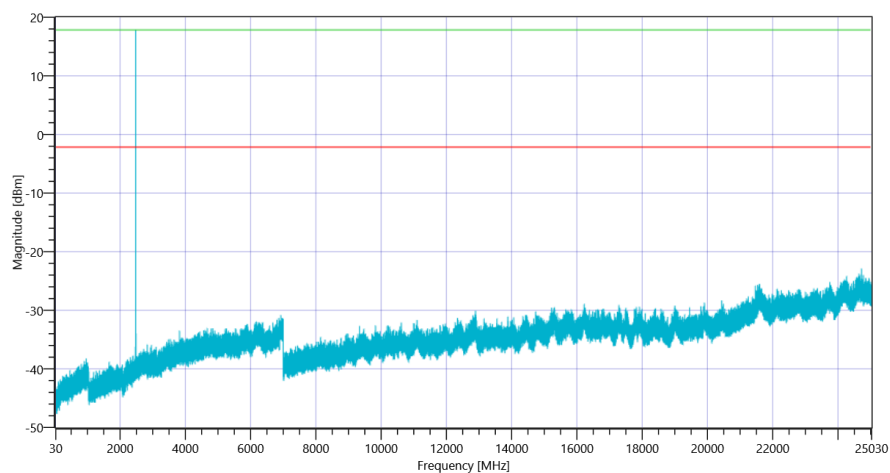
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.03	dBm	INFO
Ref. Frequency	---	---	2479.500	MHz	INFO

READ SA SETTINGS:

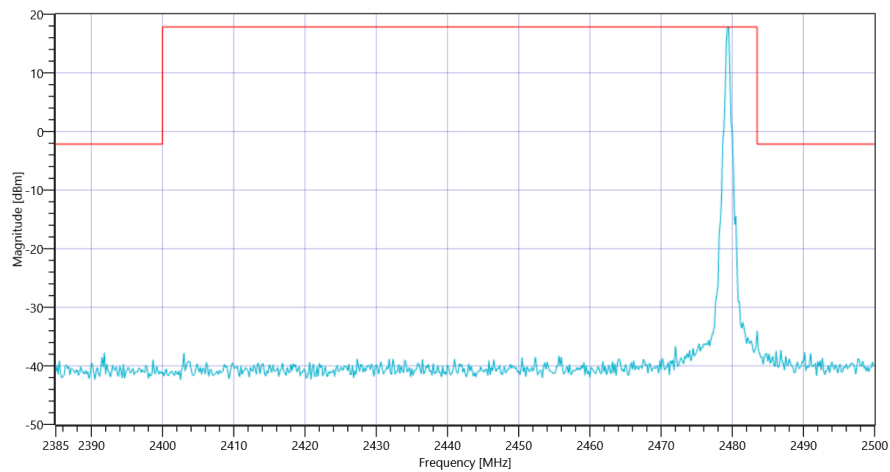
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.03 0 35
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 3001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2479.33 MHz	---	---	17.84	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 30 MHz	0	---	-155.16	dB	INFO



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2479.3



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2479.3

General verdict

PASS

FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:19:30
Ambit Temp [°C] Humidity [rel%]	23.1 25
System Version	3.0.5.9
Test Specification	FCC Part 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 FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	True Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2447 MHz

RESULT: Reference Power cond.

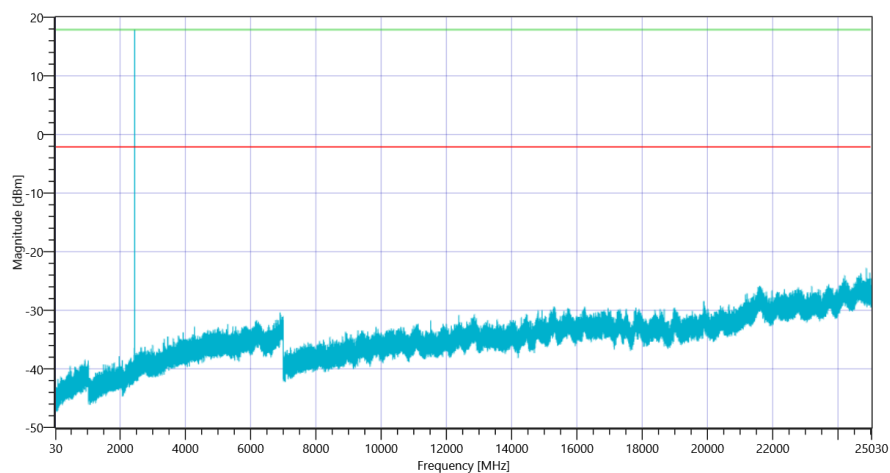
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.14	dBm	INFO
Ref. Frequency	---	---	2447.200	MHz	INFO

READ SA SETTINGS:

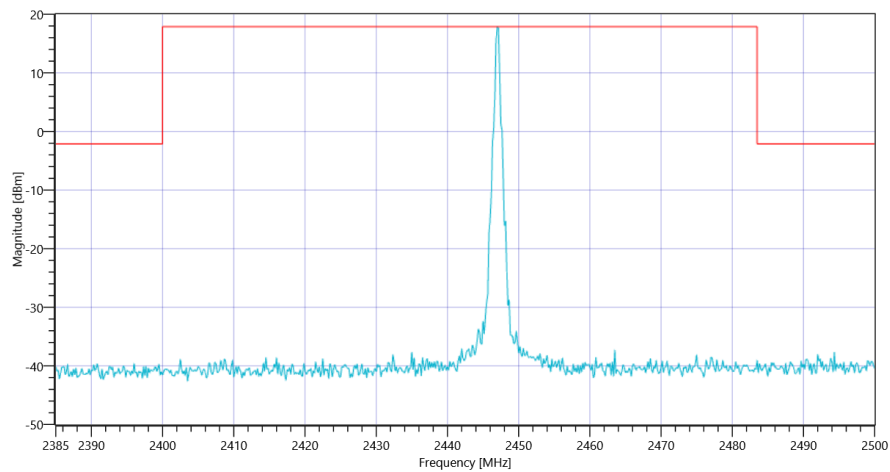
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.14 0 35
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 3001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2447.00 MHz	---	---	17.89	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24870.5 MHz	0	---	20.7	dB	INFO



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2447



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2447

General verdict

PASS

FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4

Test References	
TC Start	29.03.2022 14:02:50
Ambit Temp [°C] Humidity [rel%]	23.1 25
System Version	3.0.5.9
Test Specification	FCC Part 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 FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,31534892,NI	
Power supply,HAMEG,HMP2020,026640516,HW50010002/SW2.51	

Test at TX 2404 MHz

RESULT: Reference Power cond.

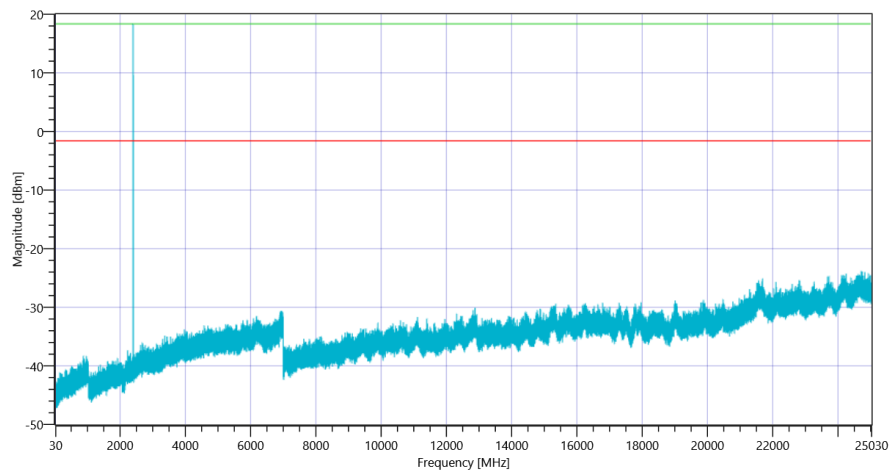
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.59	dBm	INFO
Ref. Frequency	---	---	2404.200	MHz	INFO

READ SA SETTINGS:

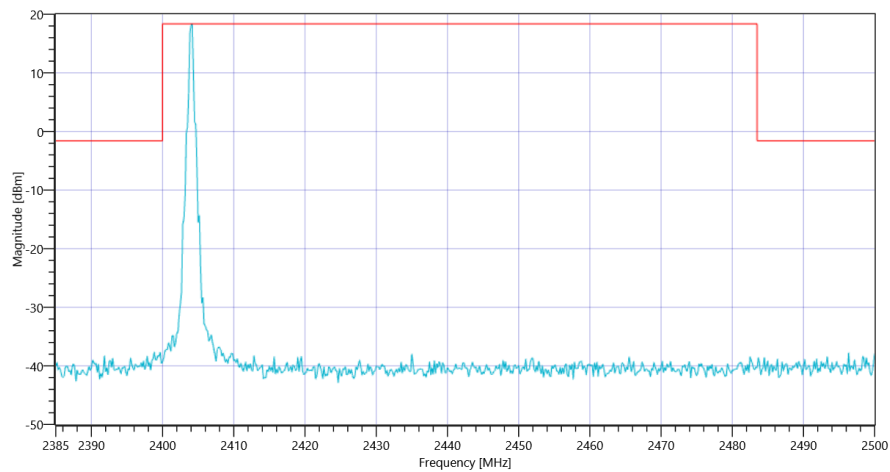
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	18.59 0 35
Start [MHz] Stop [MHz]	24530.000 25030.000
RBW [MHz] VBW [MHz]	0.100000 0.300000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	200 25 3001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2404.17 MHz	---	---	18.38	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24710.833 MHz	0	---	22.22	dB	INFO



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2404



FCC Part 15.247 TX Spurious Conducted 20dBc ~ Generic 2G4 2404

General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4 Gain

Test References	
TC Start	12.10.2021 10:34:48
Ambit Temp [°C] Humidity [rel%]	22.5 39
System Version	3.0.2.1
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	True Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70	
Signaling unit,Rohde&Schwarz,CMW,1201.0002k75/100683,3.7.171	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI	
Power supply,Agilent Technologies,N5767A,US14J1569PB.00.06,REV:F	

Test at TX 2404 MHz

RESULT: Reference Power cond.

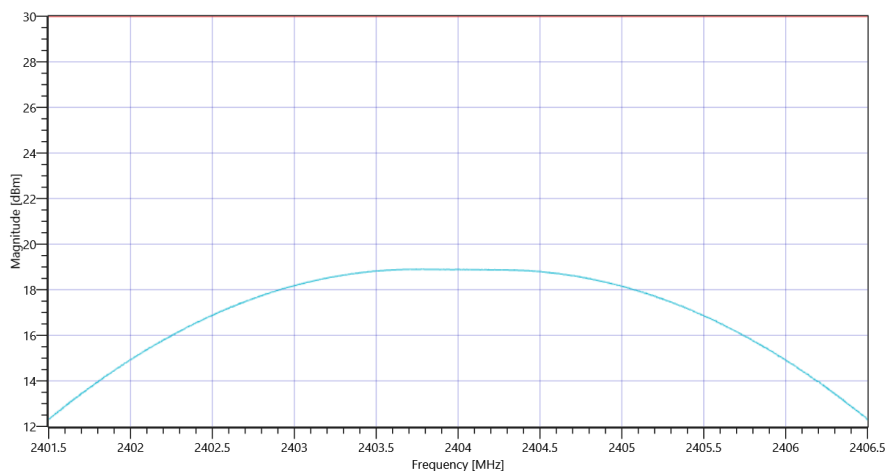
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	19.01	dBm	INFO
Ref. Frequency	---	---	2404.000	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	29.01 10.8 35
Start [MHz] Stop [MHz]	2401.500 2406.500
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	18.9	dBm	PASS
Peak Power	---	1000	77.624712	mW	PASS
Frequency at Peak	---	---	2403.78	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4 Gain

Test References	
TC Start	12.10.2021 13:16:10
Ambit Temp [°C] Humidity [rel%]	22.4 40
System Version	3.0.2.1
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	True Freq [MHz] 2447
Frequency high to test	False Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI	
Power supply,Agilent Technologies,N5767A,US14J1569PB,00.06,REV:F	

Test at TX 2447 MHz

RESULT: Reference Power cond.

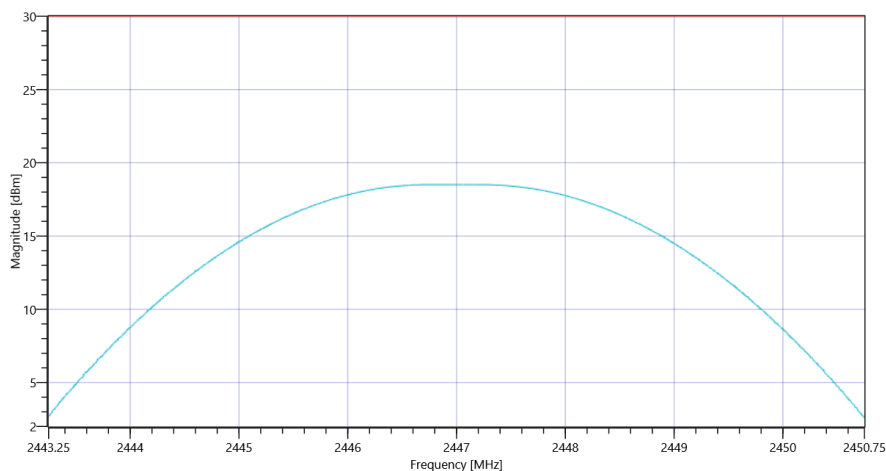
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	18.59	dBm	INFO
Ref. Frequency	---	---	2447.200	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	28.59 10.8 35
Start [MHz] Stop [MHz]	2443.250 2450.750
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	18.51	dBm	PASS
Peak Power	---	1000	70.957777	mW	PASS
Frequency at Peak	---	---	2446.76	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4 Gain

Test References	
TC Start	12.10.2021 14:01:48
Ambit Temp [°C] Humidity [rel%]	22.9 39
System Version	3.0.2.1
Test Specification	FCC Part 15.247
Test Method	
TC Version	0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted FHSS - Generic 2G4
Add. Information	

EUT Common settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	No

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	nom
Voltage	nom
Frequency low to test	False Freq [MHz] 2404
Frequency mid to test	False Freq [MHz] 2447
Frequency high to test	True Freq [MHz] 2479.3
Auto Control enabled Power Supply Climatic Box	Yes No
Additional Path Loss [dB]	0.7
Switched Path	EUT - SignalingUnit - SpectrumAnalyzer

Test Equipment	
Signal analyzer,Rohde&Schwarz,FSV-30,1321.3008K30/103809,3.70	
Switch matrix,CTCadvanced,RSM-1 NI DAQ,29655273,NI	
Power supply,Agilent Technologies,N5767A,US14J1569PB,00.06,REV:F	

Test at TX 2479.3 MHz

RESULT: Reference Power cond.

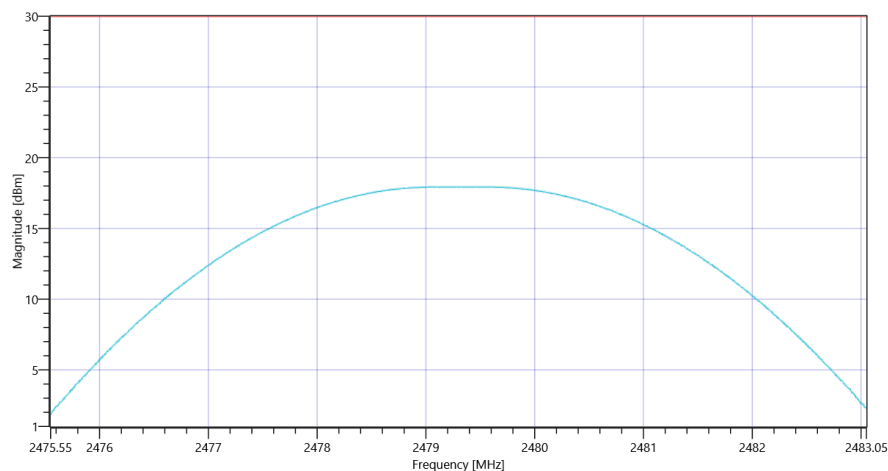
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Ref. Power 1MHz/1MHz cond.	---	---	17.98	dBm	INFO
Ref. Frequency	---	---	2479.500	MHz	INFO

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	27.98 10.85 35
Start [MHz] Stop [MHz]	2475.550 2483.050
RBW [MHz] VBW [MHz]	3.000000 10.000000
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	---	30.00	17.93	dBm	PASS
Peak Power	---	1000	62.086903	mW	PASS
Frequency at Peak	---	---	2479.577	MHz	INFO



FCC Part 15.247 Maximum Peak Conducted Output Power FHSS ~ Generic 2G4

General verdict

PASS

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:35:41
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

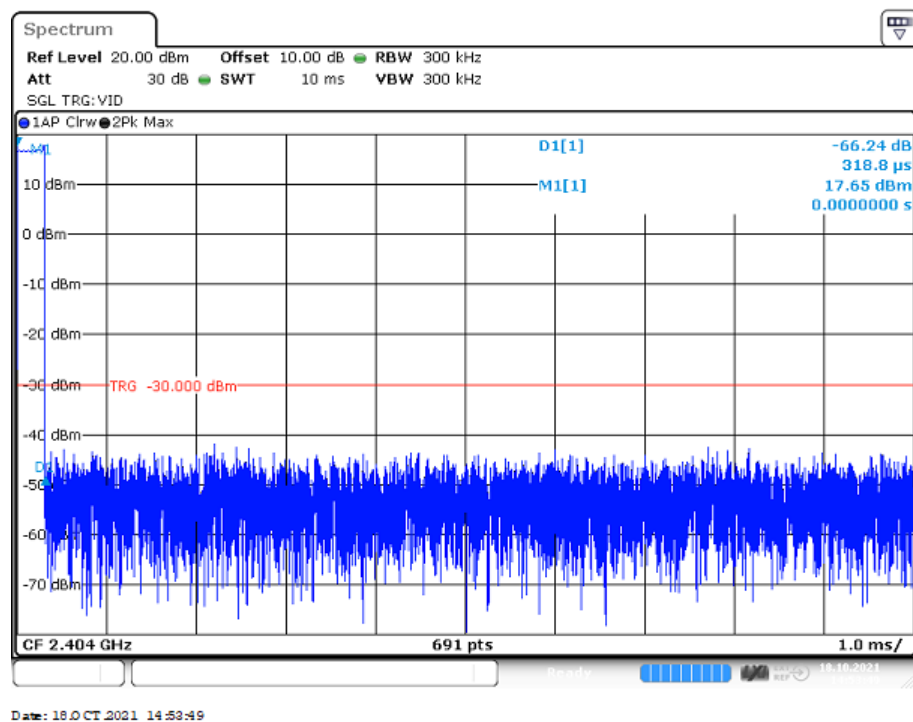
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2404.000 2404.000
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	10 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	-66.238	dB	INFO

General verdict	INFO
-----------------	------

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:36:12
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

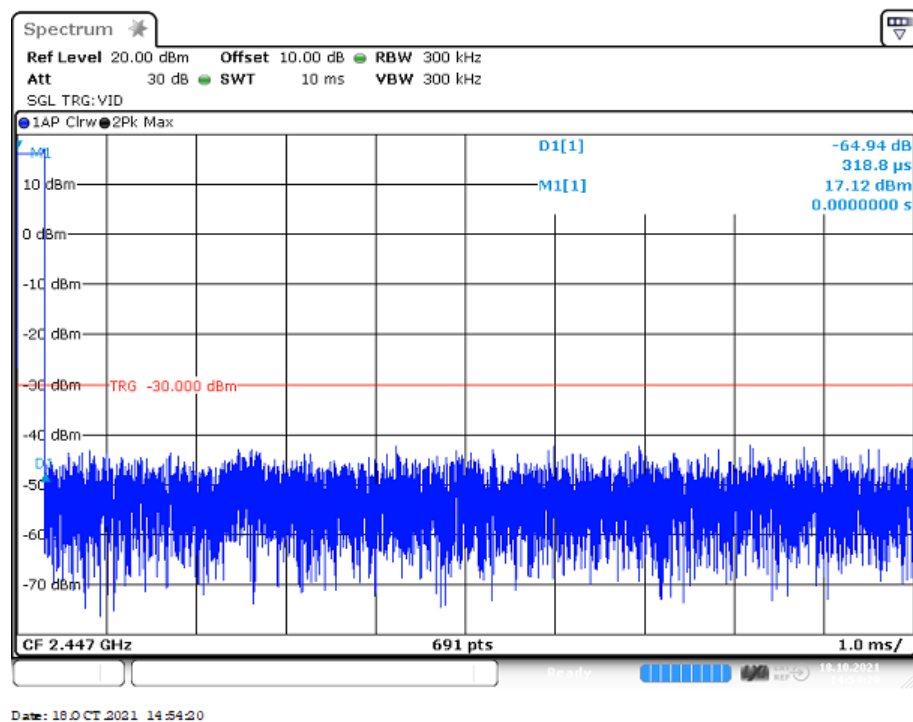
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2447.000 2447.000
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	10 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	-64.937	dB	INFO

General verdict	INFO
-----------------	------

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:37:05
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

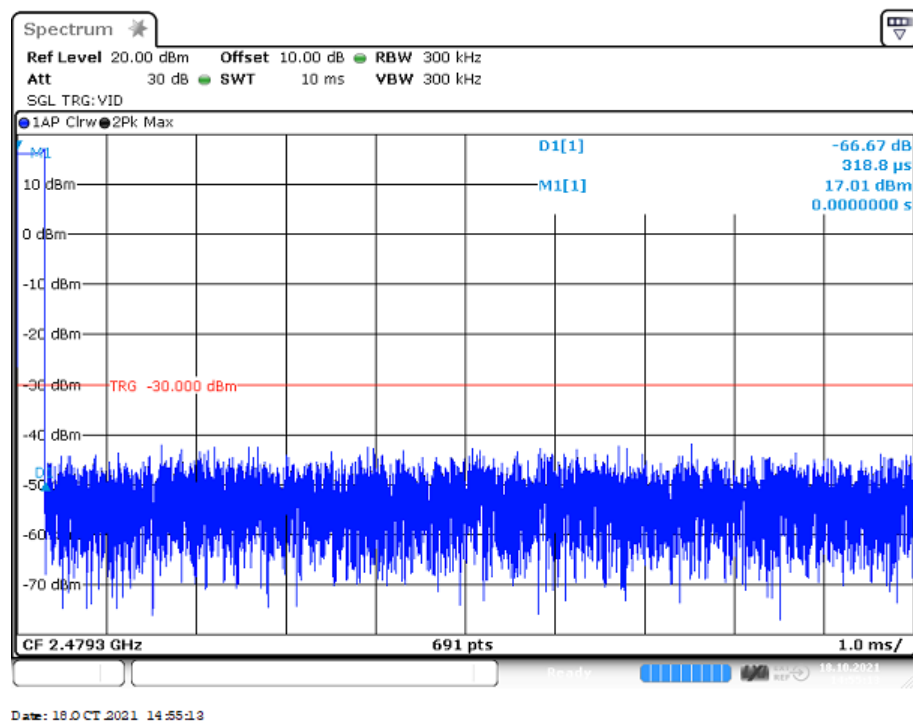
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2479.300 2479.300
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	10 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	-66.675	dB	INFO

General verdict	INFO
-----------------	------

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:37:42
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

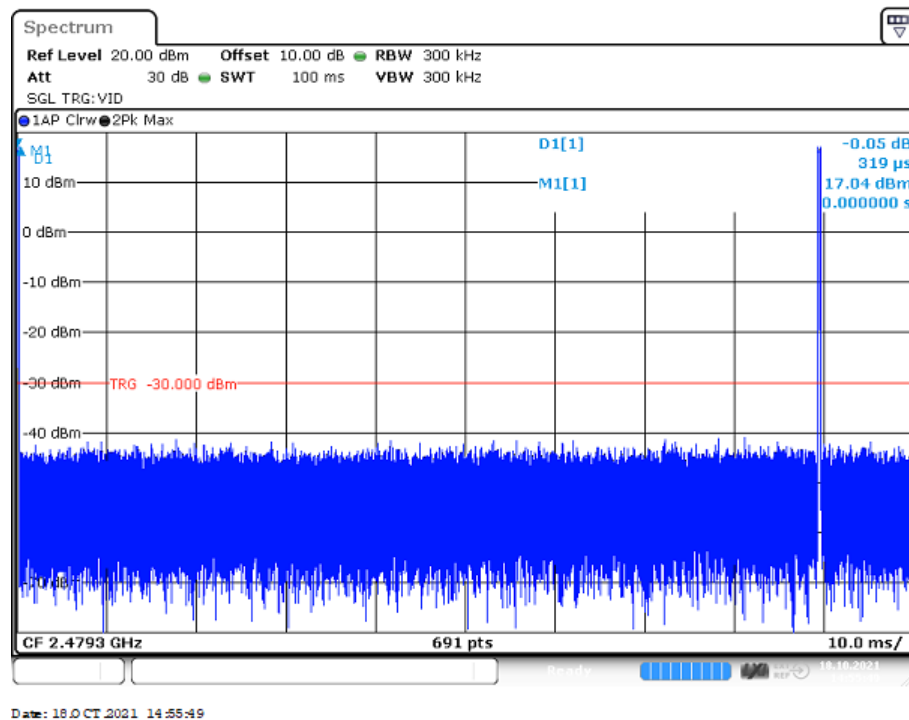
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2479.300 2479.300
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	-0.046	dB	INFO

General verdict				INFO	
-----------------	--	--	--	------	--

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:40:16
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

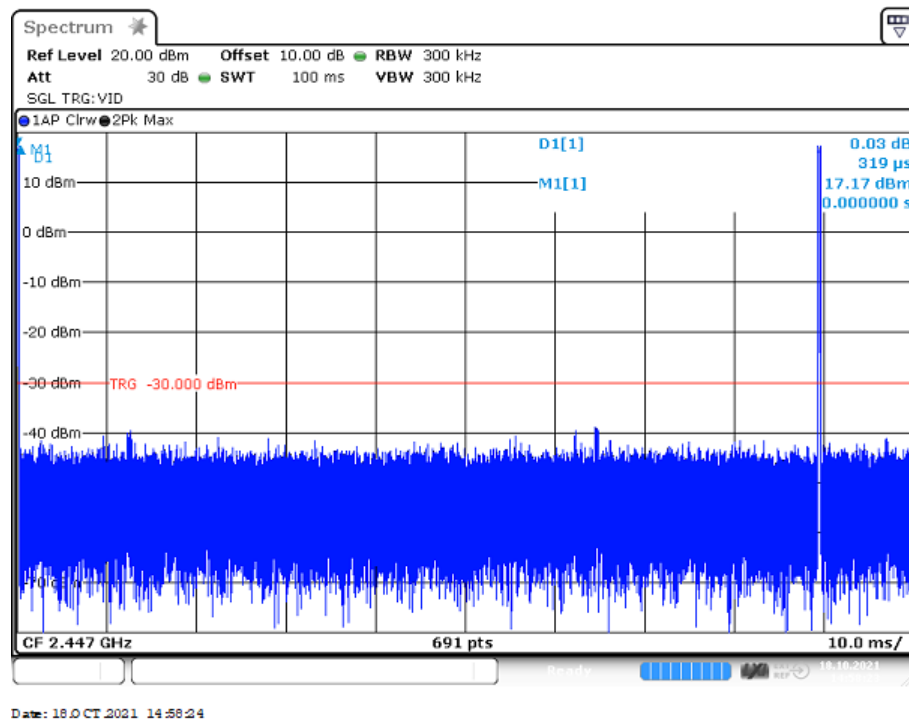
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2447.000 2447.000
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	0.029	dB	INFO

General verdict	INFO
-----------------	------

Hardcopy Spectrum Analyzer ~

Test References

TC Start	18.10.2021 14:40:59
Ambit Temp [°C] Humidity [rel%]	22.7 38
System Version	3.0.2.1
Test Specification	None
Test Method	
TC Version	0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

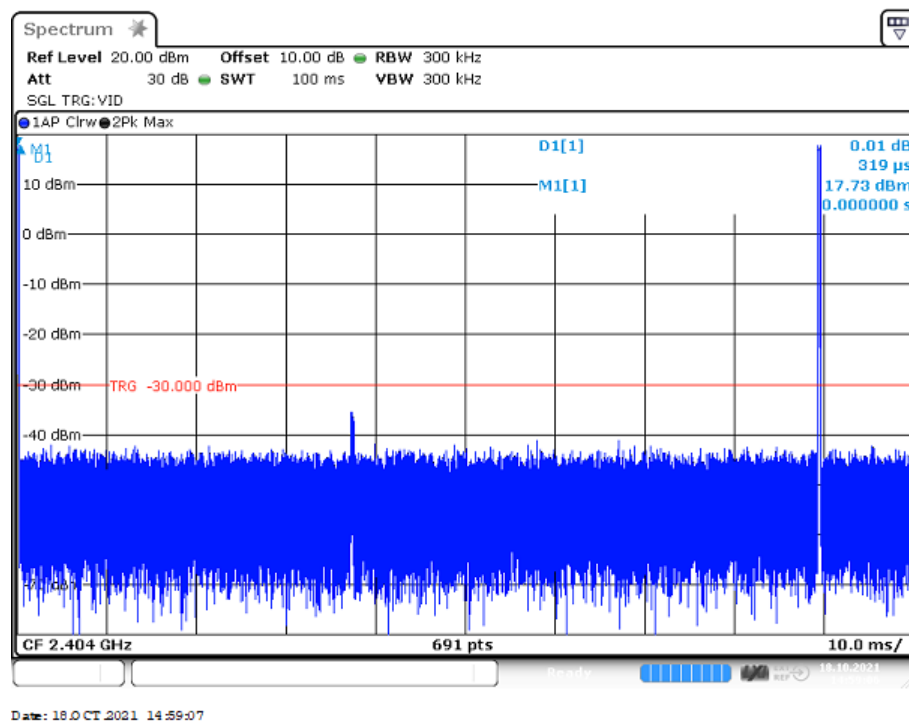
Technology to test	
Switched Path	None

Test Equipment

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

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	20.00 10 30
Start [MHz] Stop [MHz]	2404.000 2404.000
RBW [MHz] VBW [MHz]	0.300000 0.300000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Hardcopy Spectrum Analyzer ~

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	0.000	ms	INFO

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					
Delta Marker 1 Time	---	---	0.319	ms	INFO
Delta Marker 1 Level	---	---	0.010	dB	INFO

General verdict				INFO	
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