Measurement Results

1-0437/20-01-05_log3_conducted

Test logging

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EUT Summary

IUT DEFINITION & Common settings	
Manufacturer	KUNBUS GmbH
Type	KE2640MODA1
Serial No. | Setup No.	Device 2 | Antenna gain 5
SW Version | HW Version	1.0.1 | PR100335R01
Comment 1 | 2	
Tlow | Tmid | Thigh [°C]	-40 | 20 | 85
Vlow | Vmid | Vhigh [V] @Imax [A]	5 | 5 | 5 @1
Auto Control enabled Power Supply | Climatic Box	No | No
Additional Path Loss [dB]	0.7

IUT Common Settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	2.5
User Interaction	No

1. FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4

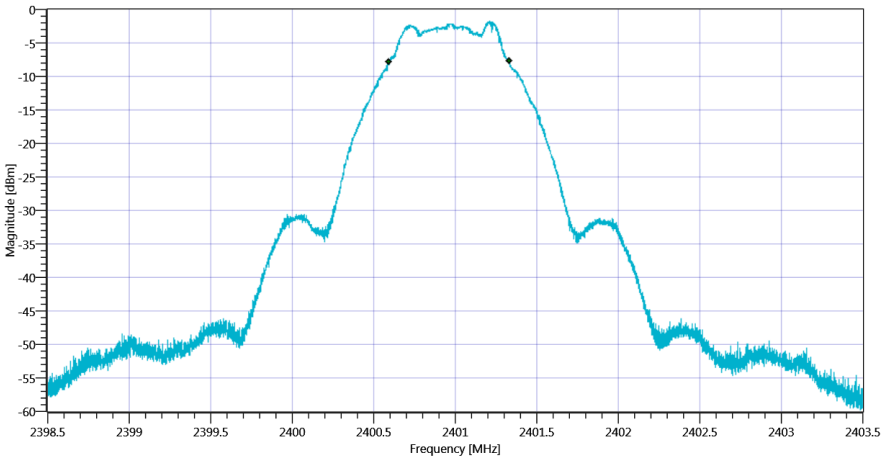
Test References	
TC Start	09.12.2020 14:47:25
Ambit Temp [°C] | Humidity [rel%]	25.6 | 22
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Class / TC Version	TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS4 - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2401 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	4.32 | 16.26 | 5
Start [MHz] | Stop [MHz]	2398.500 | 2403.500
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 10001 | SWE

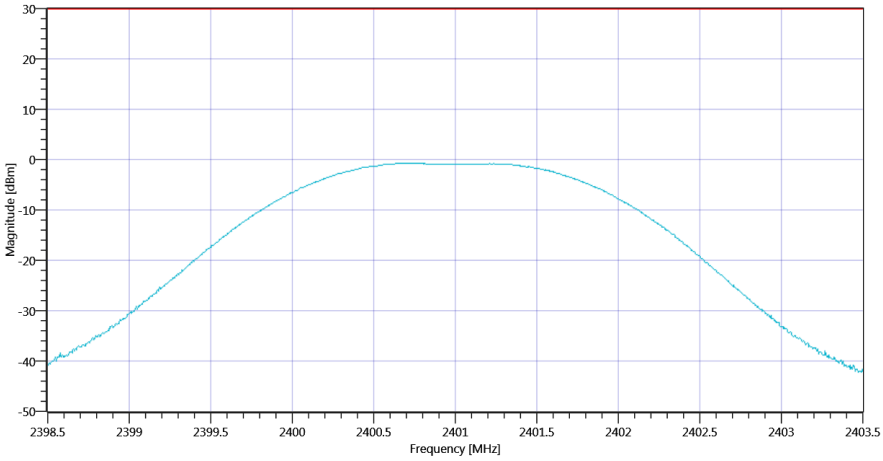
DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	743	kHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4 DTS BW_09122020_144752.png

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	9.32 | 16.26 | 10
Start [MHz] | Stop [MHz]	2398.500 | 2403.500
RBW [MHz] | VBW [MHz]	1.000000 | 5.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 1001 | SWE

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	-0.73	dBm	PASS
Peak Power	---	1000	0.845279	mW	PASS
Frequency at Peak	---	---	2400.73	MHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4_09122020_144808.png

TEST FINISHED		
General Verdict	09.12.2020 14:48:08 / RT: 43 s	PASS

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

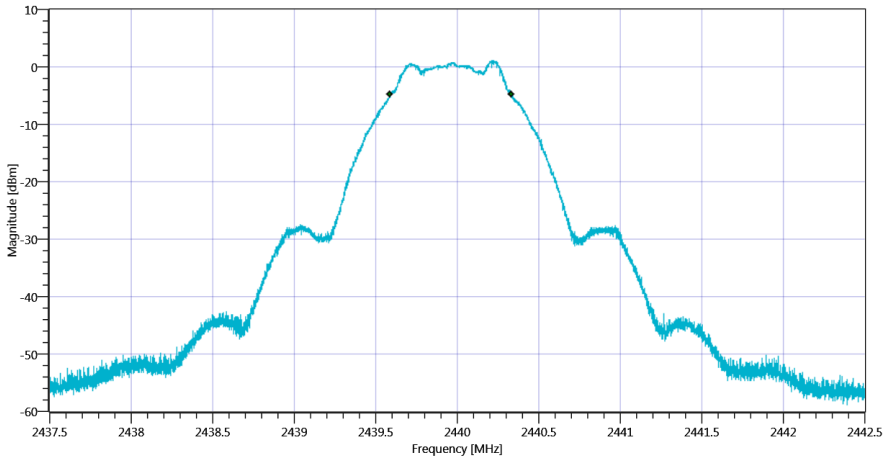
Test References	
TC Start	09.12.2020 15:03:49
Ambit Temp [°C] | Humidity [rel%]	24.8 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Class / TC Version	TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS4 - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2440 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.03 | 16.18 | 10
Start [MHz] | Stop [MHz]	2437.500 | 2442.500
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 10001 | SWE

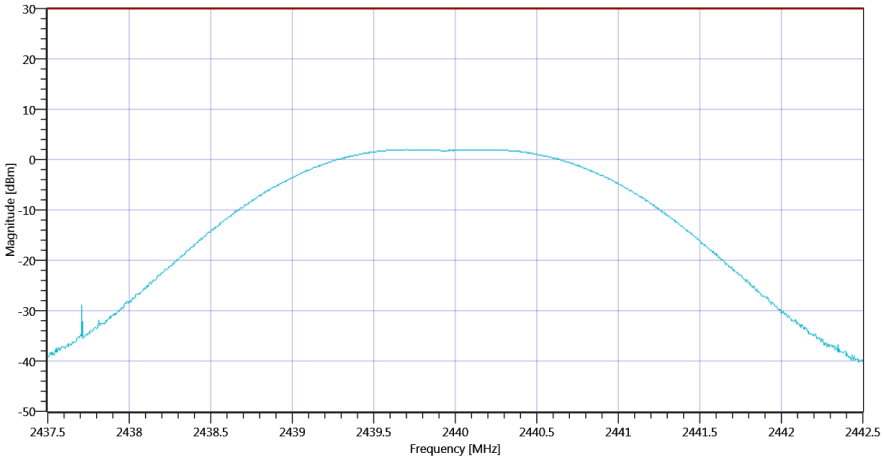
DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	741	kHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4 DTS BW_09122020_150417.png

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	12.03 | 16.18 | 15
Start [MHz] | Stop [MHz]	2437.500 | 2442.500
RBW [MHz] | VBW [MHz]	1.000000 | 5.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 1001 | SWE

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	1.99	dBm	PASS
Peak Power	---	1000	1.581248	mW	PASS
Frequency at Peak	---	---	2439.7	MHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4_09122020_150434.png

TEST FINISHED		
General Verdict	09.12.2020 15:04:34 / RT: 45 s	PASS

3. FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4

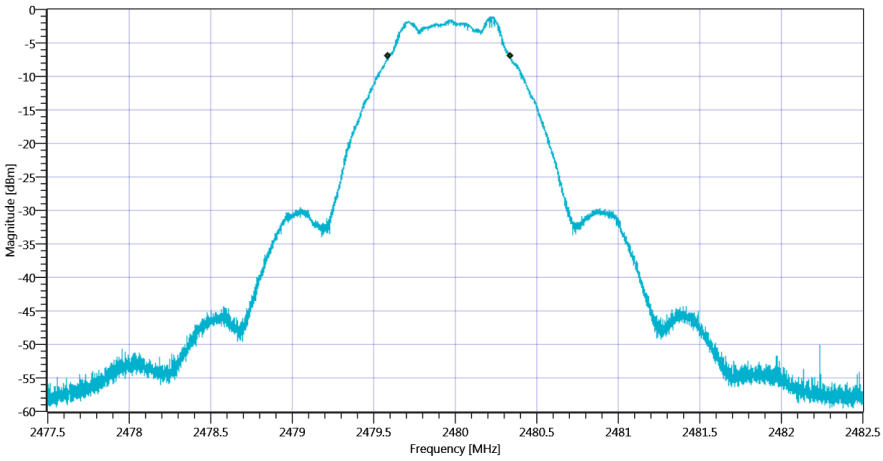
Test References	
TC Start	09.12.2020 15:12:44
Ambit Temp [°C] | Humidity [rel%]	24.6 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.3.1.1 RBW ≥ DTS Bandwidth
Class / TC Version	TC_VM_FCC15247_Maximum_Peak_Conducted_Output_Power_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Maximum Peak Output Power Conducted DTS4 - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2480 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	5.13 | 16.11 | 5
Start [MHz] | Stop [MHz]	2477.500 | 2482.500
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 10001 | SWE

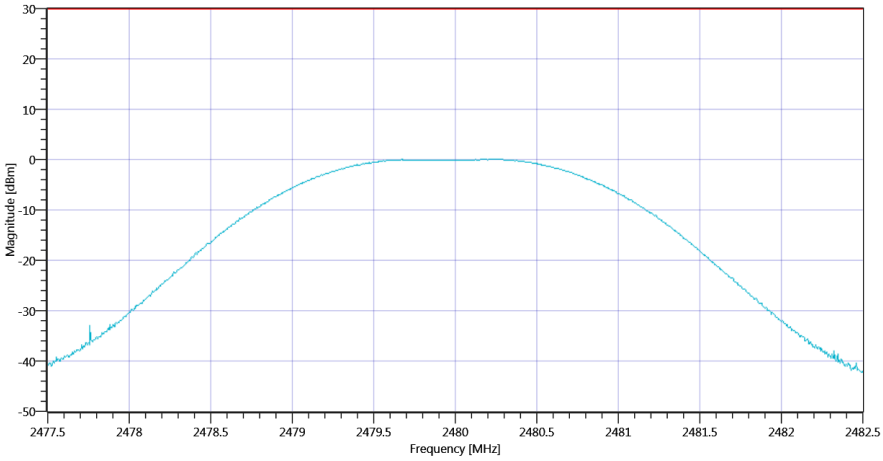
DTS Bandwidth					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
DTS Bandwidth (6dB)	---	---	747	kHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4 DTS BW_09122020_151312.png

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	10.13 | 16.11 | 10
Start [MHz] | Stop [MHz]	2477.500 | 2482.500
RBW [MHz] | VBW [MHz]	1.000000 | 5.000000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	50 | 200 | 1001 | SWE

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Peak Power	---	30.00	0.07	dBm	PASS
Peak Power	---	1000	1.016249	mW	PASS
Frequency at Peak	---	---	2480.18	MHz	INFO



Plot_FCC Part 15.247 Maximum Peak Conducted Output Power DTS ~ Generic 2G4_09122020_151328.png

TEST FINISHED		
General Verdict	09.12.2020 15:13:29 / RT: 44 s	PASS

4. FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 14:48:12
Ambit Temp [°C] | Humidity [rel%]	25.5 | 22
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	99
Class / TC Version	TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Bandwidth 6DB DTS - Generic 2G4
Add. Information	

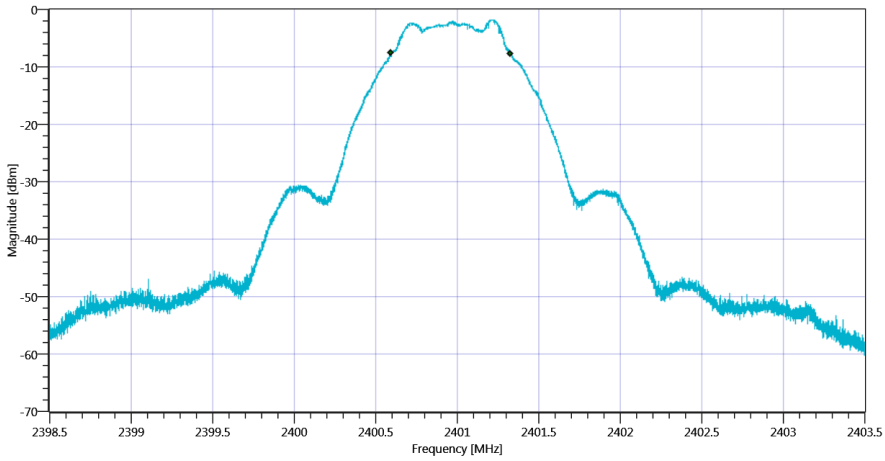
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2401 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	4.20 | 16.26 | 5
Start [MHz] | Stop [MHz]	2398.500 | 2403.500
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	---	734	kHz	PASS



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4_09122020_144840.png

TEST FINISHED		
General Verdict	09.12.2020 14:48:41 / RT: 28 s	PASS

5. FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:04:38
Ambit Temp [°C] | Humidity [rel%]	24.8 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	99
Class / TC Version	TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Bandwidth 6DB DTS - Generic 2G4
Add. Information	

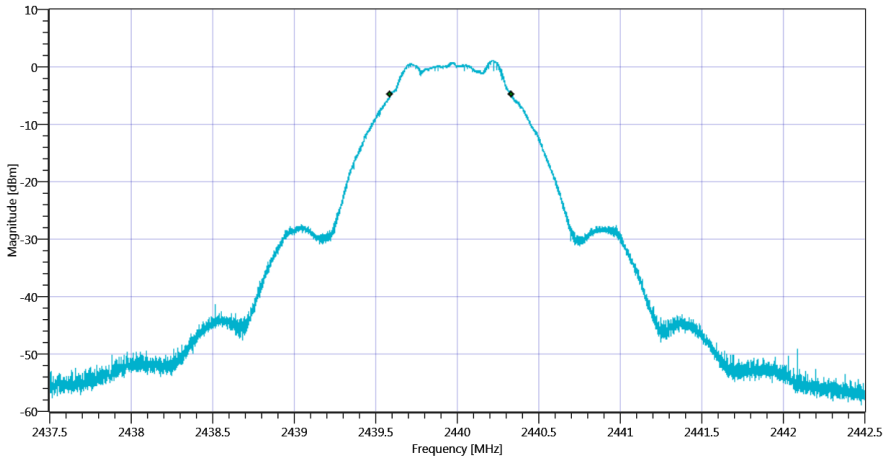
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2440 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.00 | 16.18 | 10
Start [MHz] | Stop [MHz]	2437.500 | 2442.500
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	---	745	kHz	PASS



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4_09122020_150506.png

TEST FINISHED		
General Verdict	09.12.2020 15:05:07 / RT: 28 s	PASS

6. FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:13:33
Ambit Temp [°C] | Humidity [rel%]	24.6 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	99
Class / TC Version	TC_VM_FCC15247_Bandwidth_6dB_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Bandwidth 6DB DTS - Generic 2G4
Add. Information	

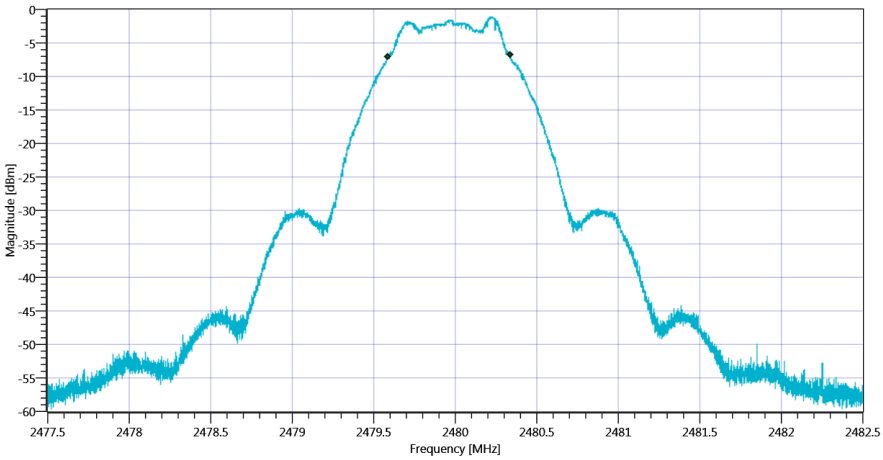
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2480 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	5.16 | 16.11 | 5
Start [MHz] | Stop [MHz]	2477.500 | 2482.500
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	---	754	kHz	PASS



Plot_FCC Part 15.247 Bandwidth 6dB DTS ~ Generic 2G4_09122020_151401.png

TEST FINISHED		
General Verdict	09.12.2020 15:14:01 / RT: 28 s	PASS

7. FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 14:48:45
Ambit Temp [°C] | Humidity [rel%]	25.5 | 22
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - Generic 2G4
Add. Information	

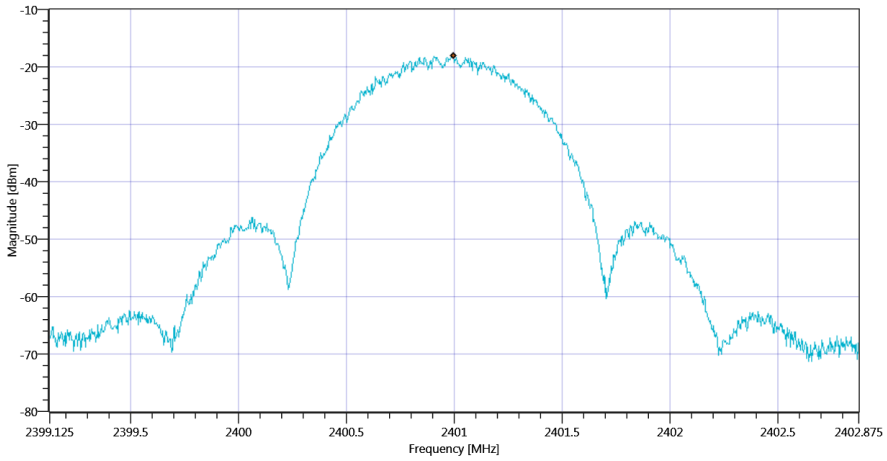
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2401 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	4.17 | 16.26 | 5
Start [MHz] | Stop [MHz]	2399.125 | 2402.875
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	1000 | 20 | 1001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-18.13	dBm/3KHz	PASS



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4_09122020_144922.png

TEST FINISHED		
General Verdict	09.12.2020 14:49:23 / RT: 37 s	PASS

8. FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:05:11
Ambit Temp [°C] | Humidity [rel%]	24.7 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - Generic 2G4
Add. Information	

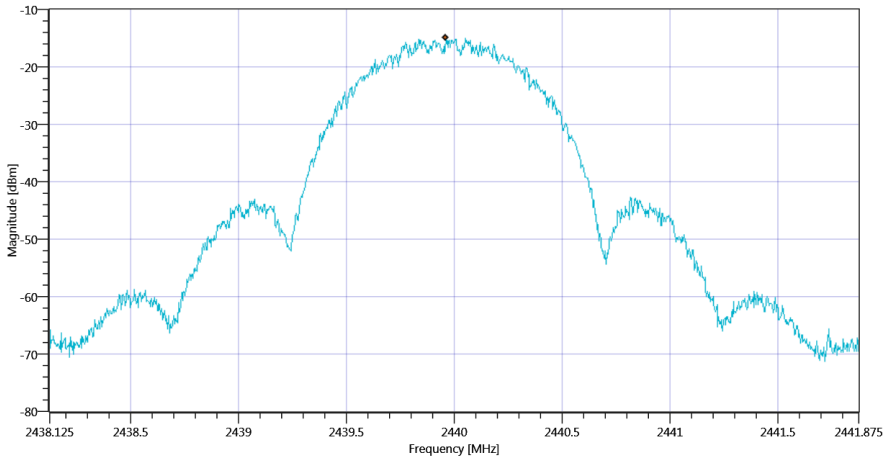
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2440 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.06 | 16.18 | 10
Start [MHz] | Stop [MHz]	2438.125 | 2441.875
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	1000 | 20 | 1001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-14.87	dBm/3KHz	PASS



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4_09122020_150549.png

TEST FINISHED		
General Verdict	09.12.2020 15:05:49 / RT: 37 s	PASS

9. FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:14:06
Ambit Temp [°C] | Humidity [rel%]	24.6 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - Chapter 8.4 DTS maximum power spectral density level in the fundamental emission
Class / TC Version	TC_VM_FCC15247_Peak_Power_Spectral_Density_DTS_V01 Version: 0.0.1
My Description	FCC 15.247 Peak Power Spectral Density DTS - Generic 2G4
Add. Information	

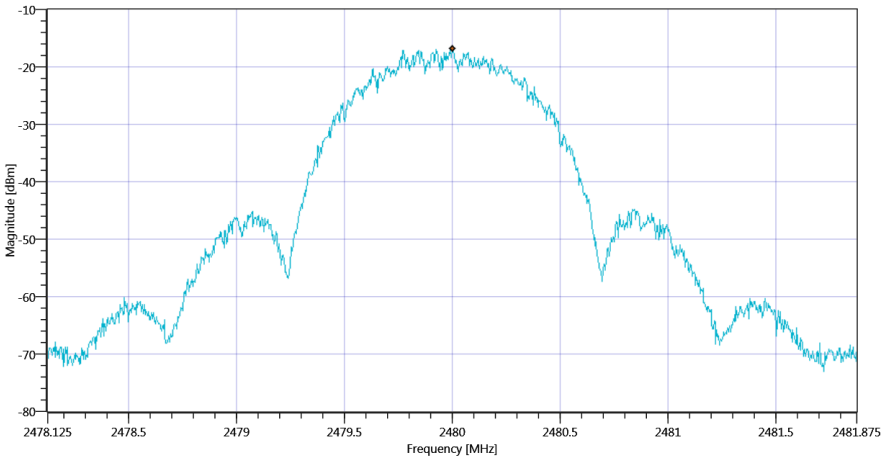
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2480 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	5.08 | 16.11 | 5
Start [MHz] | Stop [MHz]	2478.125 | 2481.875
RBW [MHz] | VBW [MHz]	0.003000 | 0.010000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	1000 | 20 | 1001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Max Peak power Density	---	8	-16.86	dBm/3KHz	PASS



Plot_FCC Part 15.247 Peak Power Spectral Density DTS ~ Generic 2G4_09122020_151443.png

TEST FINISHED		
General Verdict	09.12.2020 15:14:44 / RT: 38 s	PASS

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

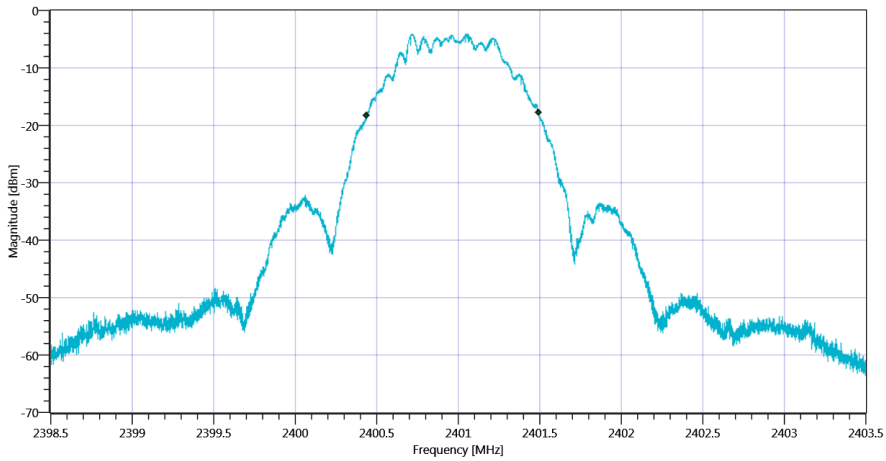
Test References	
TC Start	09.12.2020 14:49:27
Ambit Temp [°C] | Humidity [rel%]	25.4 | 22
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20DB DTS - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

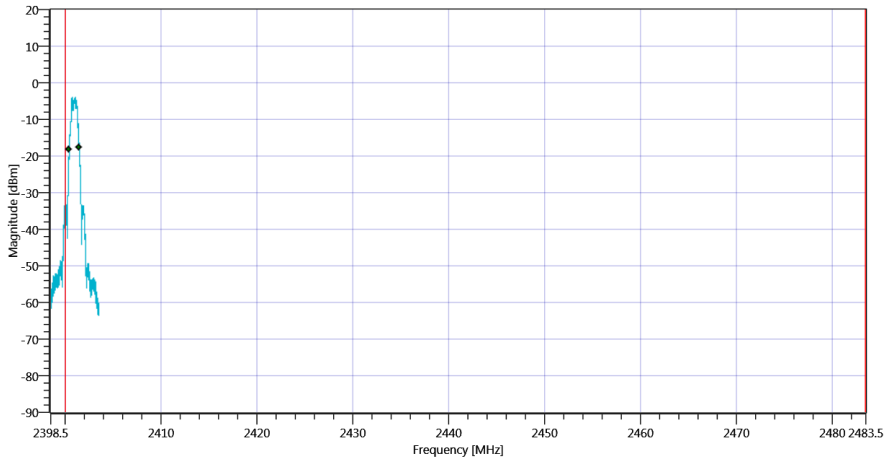
Test at TX 2401 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	4.19 | 16.26 | 5
Start [MHz] | Stop [MHz]	2398.500 | 2403.500
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
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%	---	---	1051	kHz	INFO
T1 99%	2400.000000	---	2400.4396	MHz	PASS
T2 99%	---	2483.500000	2401.4910	MHz	PASS

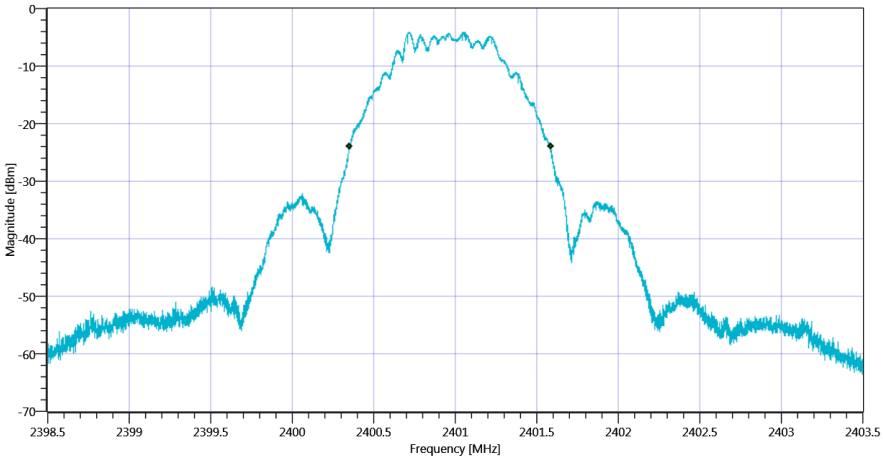


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_09122020_144955.png

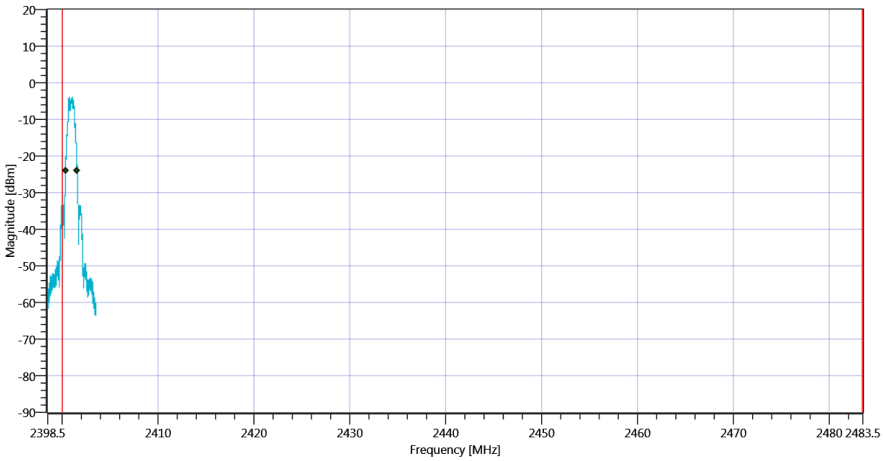


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_144959.png

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1235	kHz	INFO
T1 20DB	2400.000000	---	2400.3490	MHz	PASS
T2 20dB	---	2483.500000	2401.5840	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_09122020_145004.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_145008.png

TEST FINISHED		
General Verdict	09.12.2020 14:50:08 / RT: 41 s	PASS

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

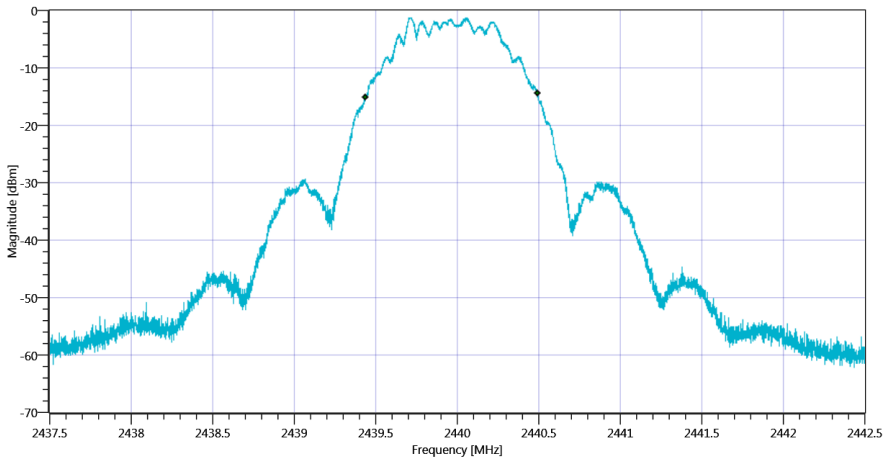
Test References	
TC Start	09.12.2020 15:05:54
Ambit Temp [°C] | Humidity [rel%]	24.8 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20DB DTS - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

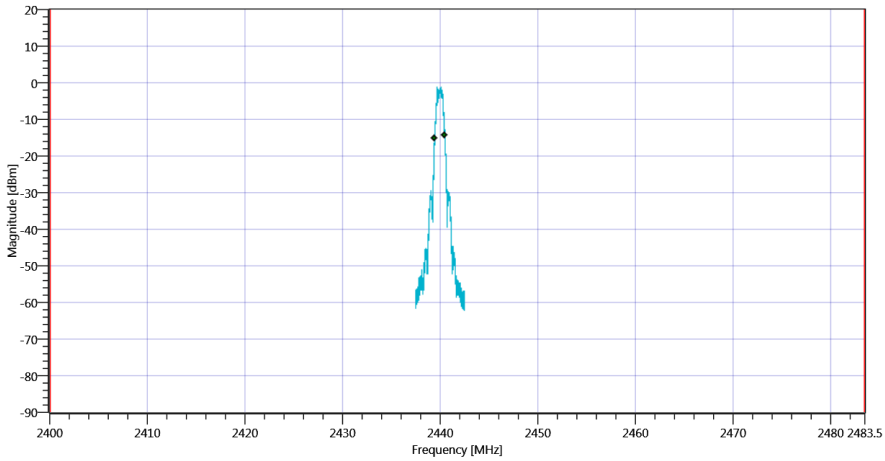
Test at TX 2440 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	7.01 | 16.18 | 10
Start [MHz] | Stop [MHz]	2437.500 | 2442.500
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
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%	---	---	1056	kHz	INFO
T1 99%	2400.000000	---	2439.4361	MHz	PASS
T2 99%	---	2483.500000	2440.4920	MHz	PASS

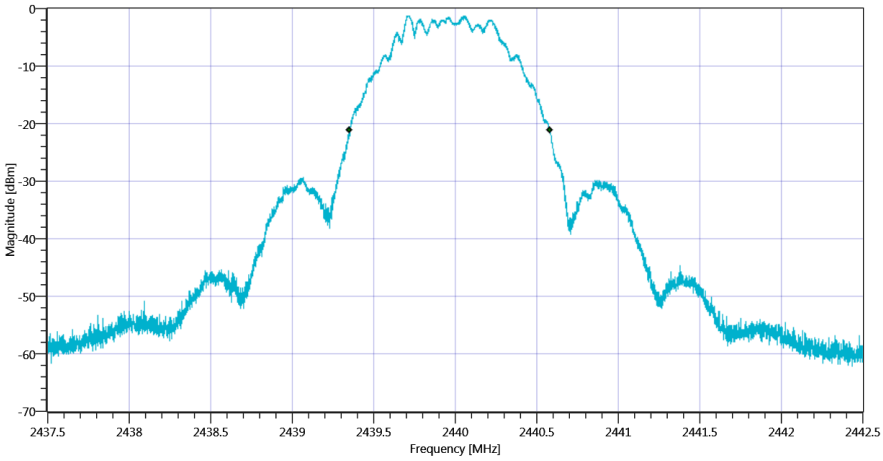


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_09122020_150622.png

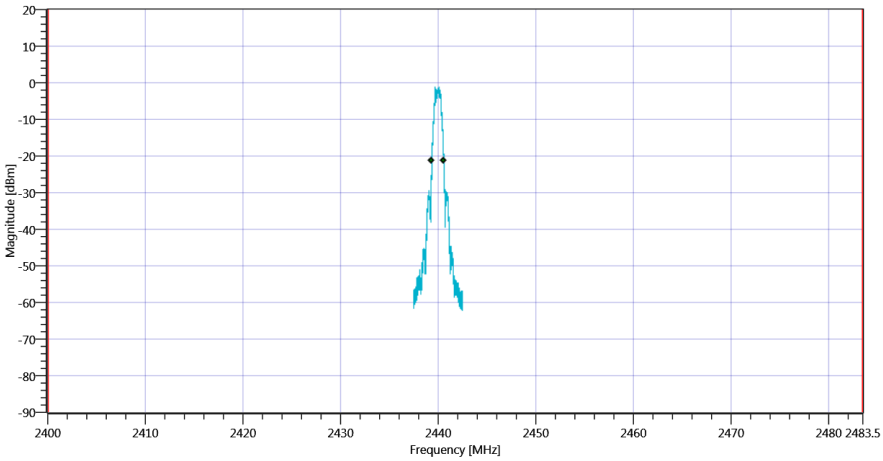


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_150626.png

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1232	kHz	INFO
T1 20DB	2400.000000	---	2439.3510	MHz	PASS
T2 20dB	---	2483.500000	2440.5830	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_09122020_150631.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_150635.png

TEST FINISHED		
General Verdict	09.12.2020 15:06:35 / RT: 41 s	PASS

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

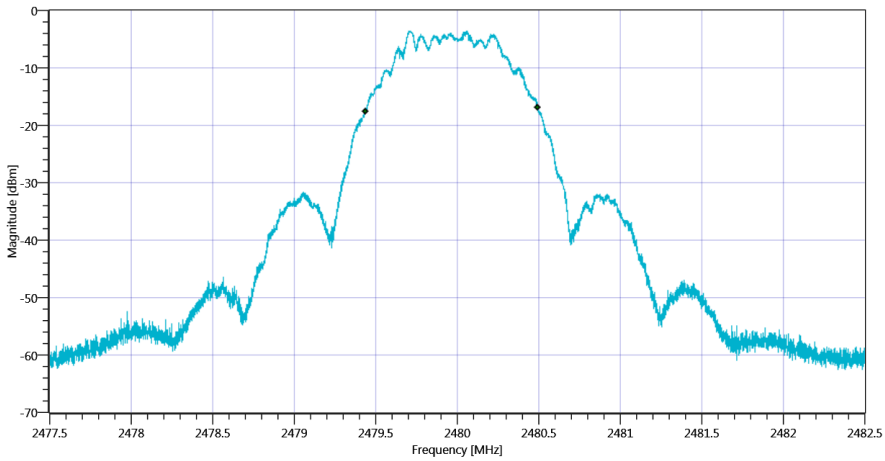
Test References	
TC Start	09.12.2020 15:14:48
Ambit Temp [°C] | Humidity [rel%]	24.6 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	
Class / TC Version	TC_VM_FCC15247_Bandwidth_99PCT_20dB_DTS_FHSS_V01 Version: 0.0.2
My Description	FCC 15.247 Bandwidth 99PCT-20DB DTS - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

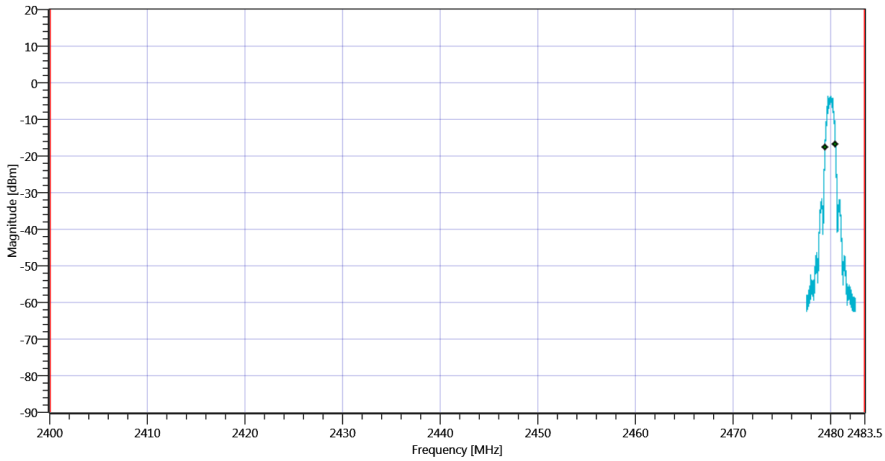
Test at TX 2480 MHz

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	5.09 | 16.11 | 5
Start [MHz] | Stop [MHz]	2477.500 | 2482.500
RBW [MHz] | VBW [MHz]	0.050000 | 0.200000
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%	---	---	1061	kHz	INFO
T1 99%	2400.000000	---	2479.4351	MHz	PASS
T2 99%	---	2483.500000	2480.4960	MHz	PASS

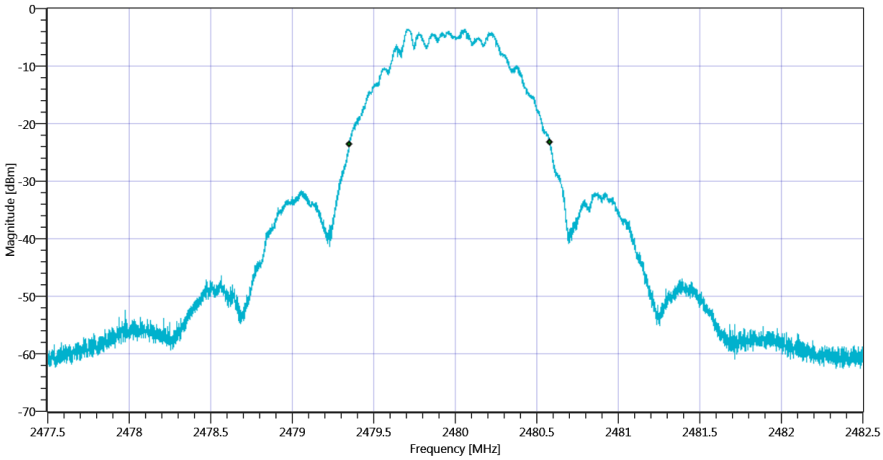


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_09122020_151516.png

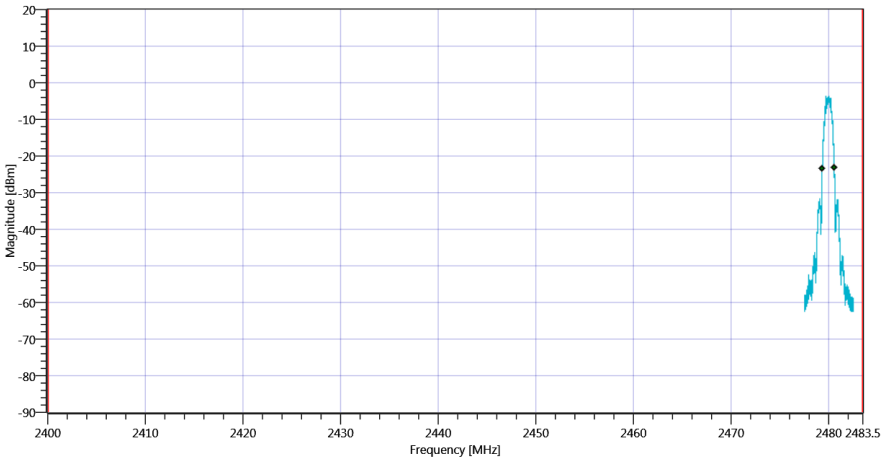


Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_151520.png

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1233	kHz	INFO
T1 20DB	2400.000000	---	2479.3495	MHz	PASS
T2 20dB	---	2483.500000	2480.5820	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_09122020_151525.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_09122020_151529.png

TEST FINISHED		
General Verdict	09.12.2020 15:15:30 / RT: 41 s	PASS

13. FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4

Test References	
TC Start	09.12.2020 14:50:13
Ambit Temp [°C] | Humidity [rel%]	25.3 | 22
System Version	1.0.1.2
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.
Class / TC Version	TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - Generic 2G4
Add. Information	

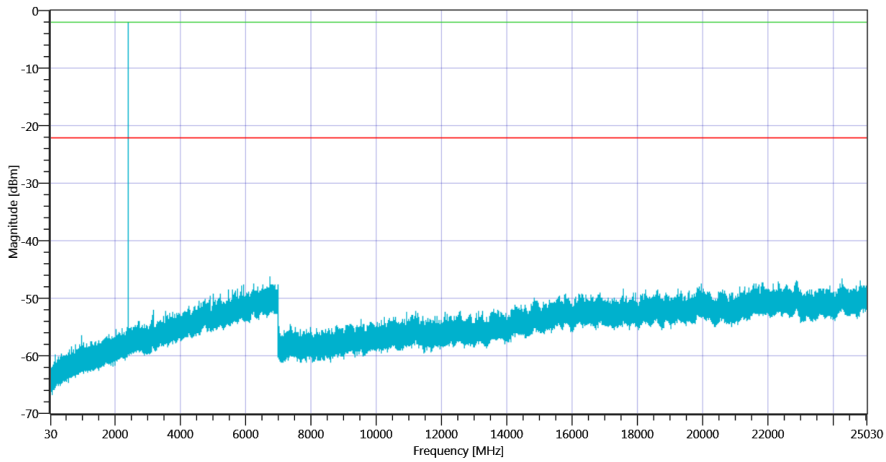
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2401 MHz

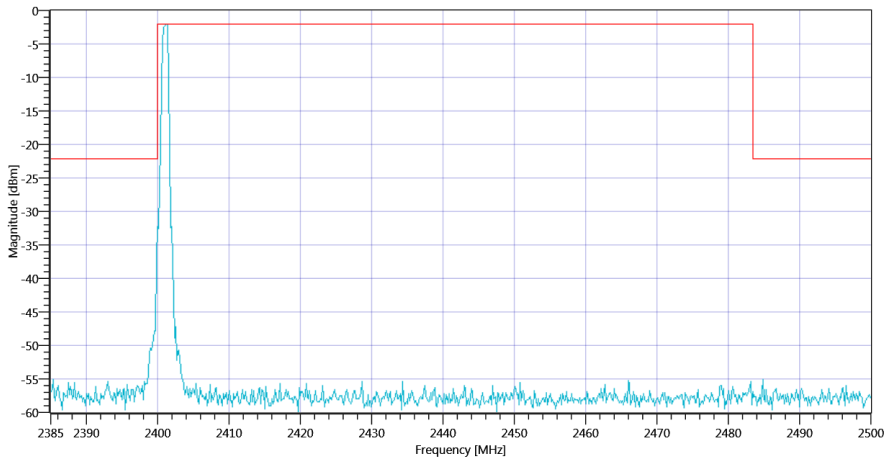
READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	-0.79 | 0 | 15
Start [MHz] | Stop [MHz]	24530.000 | 25030.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	500 | 8 | 3001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2401.33 MHz	---	---	-2.11	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 2399.833 MHz	0	---	14.86	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2401_09122020_145501.png



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2401_09122020_145504.png

TEST FINISHED		
General Verdict	09.12.2020 14:55:05 / RT: 292 s	PASS

14. FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:06:40
Ambit Temp [°C] | Humidity [rel%]	24.7 | 23
System Version	1.0.1.2
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.
Class / TC Version	TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - Generic 2G4
Add. Information	

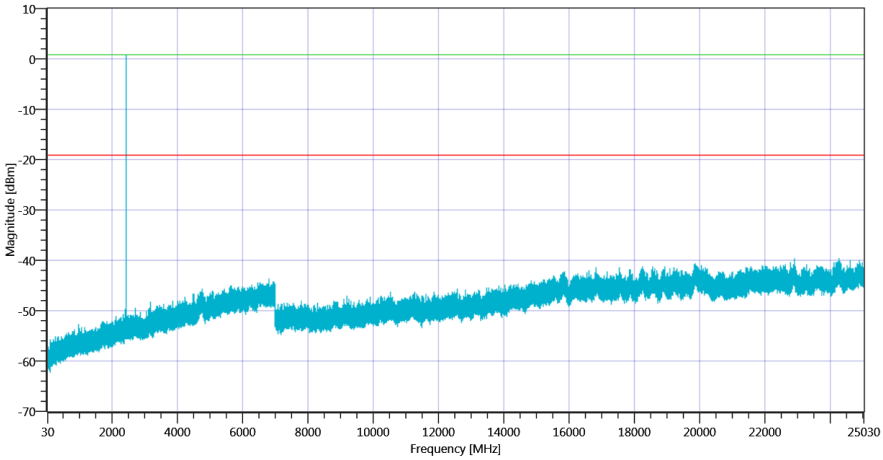
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	True | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2440 MHz

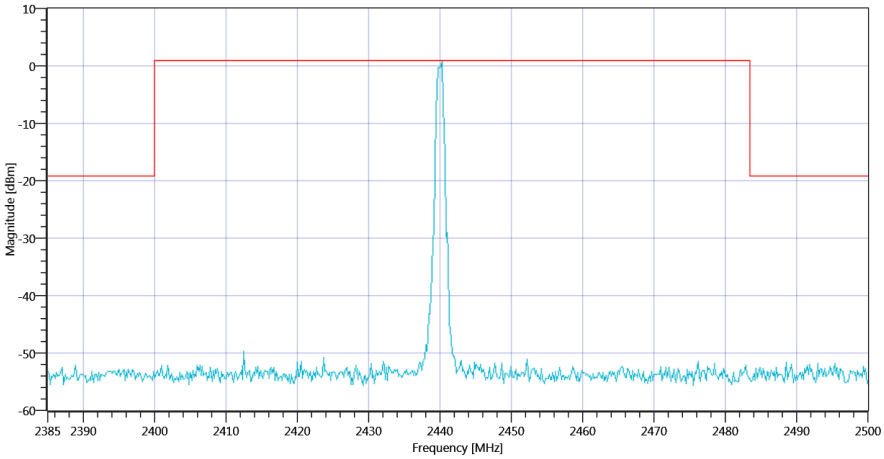
READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	2.02 | 0 | 20
Start [MHz] | Stop [MHz]	24530.000 | 25030.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	500 | 8 | 3001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2440.33 MHz	---	---	0.89	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24260.167 MHz	0	---	20.47	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2440_09122020_151127.png



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2440_09122020_151130.png

TEST FINISHED		
General Verdict	09.12.2020 15:11:32 / RT: 292 s	PASS

15. FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:15:34
Ambit Temp [°C] | Humidity [rel%]	24.6 | 23
System Version	1.0.1.2
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.
Class / TC Version	TC_VM_FCC15247_TX_Emissions_Conducted_V01 Version: 0.0.1
My Description	FCC 15.247 TX Emissions Conducted DTS - Generic 2G4
Add. Information	

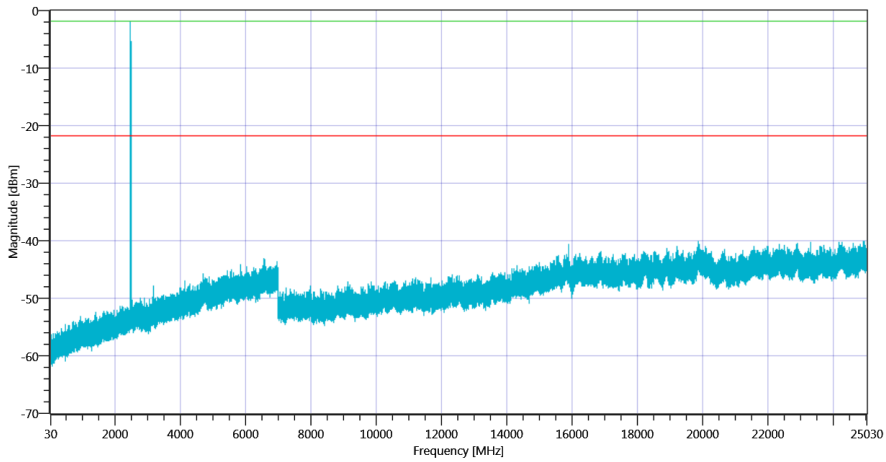
Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

Test at TX 2480 MHz

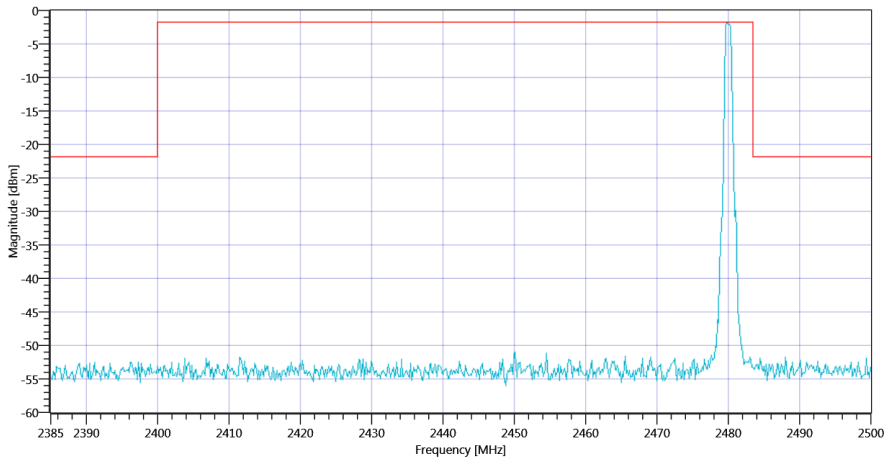
READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	0.06 | 0 | 20
Start [MHz] | Stop [MHz]	24530.000 | 25030.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.300000
Detector | TraceMode	POS | MAXH
Sweep: Time [ms] | Count | Points per Section | Type	500 | 8 | 3001 | SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Reference @ 2479.83 MHz	---	---	-1.79	dBm	INFO
No peaks detected	---	---			PASS
Lowest margin to limit 24946.167 MHz	0	---	18.26	dB	INFO



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2480_09122020_152022.png



Plot_FCC Part 15.247 TX Spurious Conduced ~ Generic 2G4 2480_09122020_152025.png

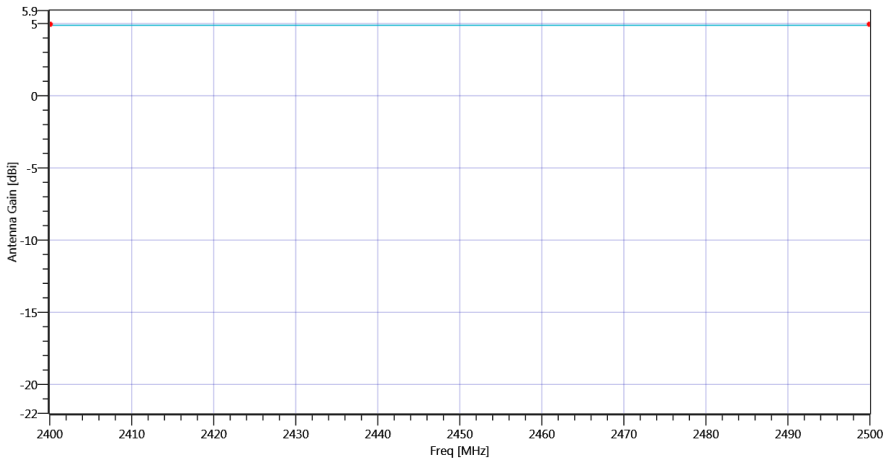
TEST FINISHED		
General Verdict	09.12.2020 15:20:27 / RT: 292 s	PASS

16. FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4

Test References	
TC Start	09.12.2020 14:55:10
Ambit Temp [°C] | Humidity [rel%]	25.0 | 22
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.4 Trace averaging across on- and off-times of the EUT transmissions followed by duty cycle correction
Class / TC Version	TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Avg_DC_corrected_V01 Version: 0.0.1
My Description	FCC 15.247 Restricted Band Edge Cond. Avg DC corrected DTS - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	True | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	False | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

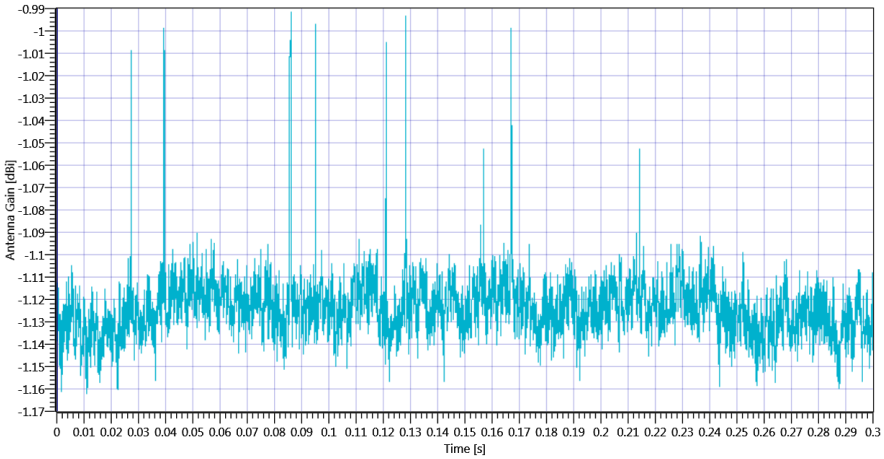
Antenna Gain Table	
Freq [MHz]	Gain [dBi]
2400	4.9
2500	4.9



Plot__GainTable_09122020_145515.png

Test at TX 2401 MHz

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

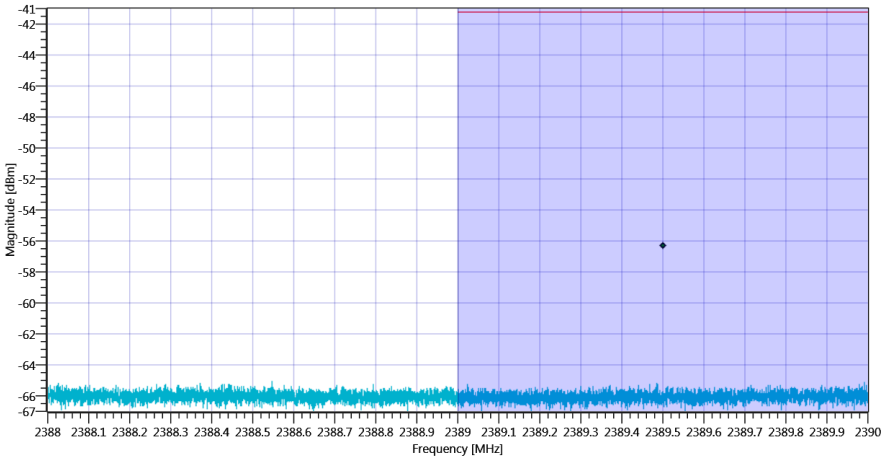


Plot_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4 2401 MHz - DutyCycle_09122020_145530.png

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	9.19 | 16.26 | 10
Start [MHz] | Stop [MHz]	2388.000 | 2390.000
RBW [MHz] | VBW [MHz]	0.100000 | 0.500000
Detector | TraceMode	RMS | AVER
Sweep: Time [ms] | Count | Points per Section | Type	32 | 300 | 32000 | SWE

Antenna Gain	
Considered Antenna Gain: [dBi]:	4.9 @ 2389.5MHz

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cylce worst case	---	---	0	dB	INFO
Band Power Avg	---	---	-56.34	dBm	INFO
Band Power Avg DC corrected	---	---	-56.34	dBm	PASS



Plot_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4_09122020_145553.png

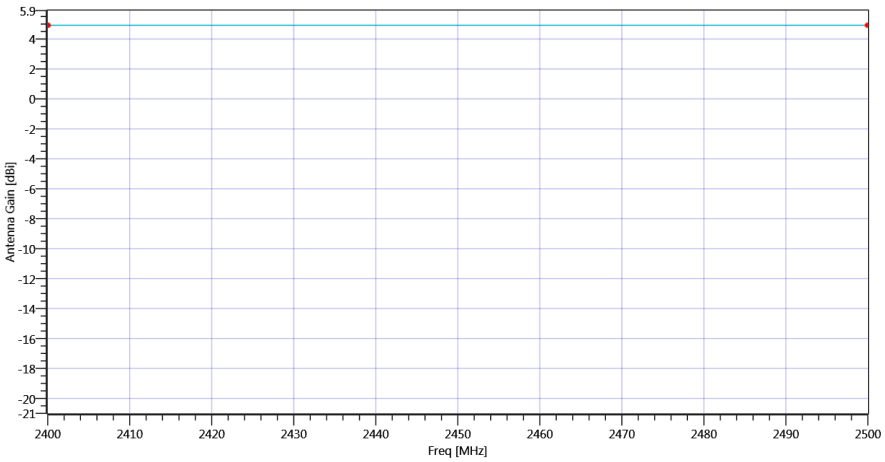
TEST FINISHED		
General Verdict	09.12.2020 14:55:54 / RT: 43 s	PASS

17. FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4

Test References	
TC Start	09.12.2020 15:20:31
Ambit Temp [°C] | Humidity [rel%]	24.5 | 23
System Version	1.0.1.2
Test Specification	FCC Part 15.247
Test Method	DTS: KDB 558074 D01 V05 - 8.7.3 Integration Method; ANSI C63.10-2013 11.13.3.4 Trace averaging across on- and off-times of the EUT transmissions followed by duty cycle correction
Class / TC Version	TC_VM_FCC15247_Restricted_Band_Edge_Conducted_Avg_DC_corrected_V01 Version: 0.0.1
My Description	FCC 15.247 Restricted Band Edge Cond. Avg DC corrected DTS - Generic 2G4
Add. Information	

Test Parameter	
Technology to test	Generic 2G4
Antenna Port used	1
Temperature	mid
Voltage	mid
Frequency low to test	False | Freq [MHz] 2401
Frequency mid to test	False | Freq [MHz] 2440
Frequency high to test	True | Freq [MHz] 2480
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	| SA: Rohde&Schwarz,FSV-40,1307.9002K40/101042,3.60

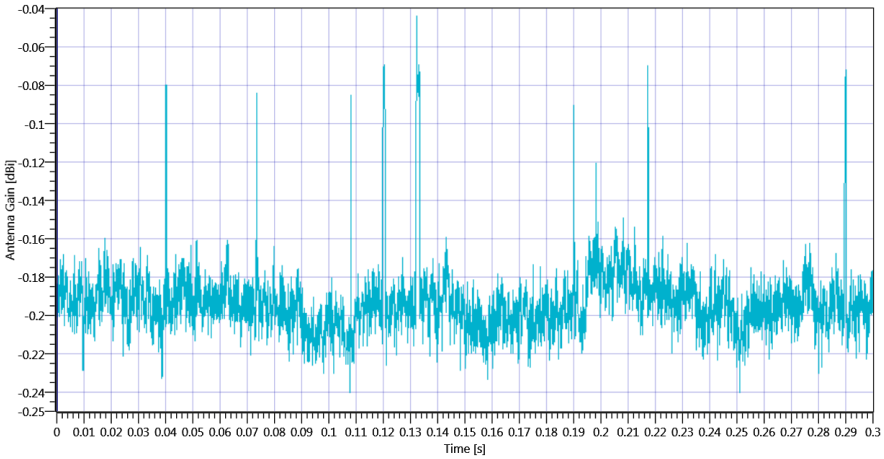
Antenna Gain Table	
Freq [MHz]	Gain [dBi]
2400	4.9
2500	4.9



Plot__GainTable_09122020_152036.png

Test at TX 2480 MHz

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

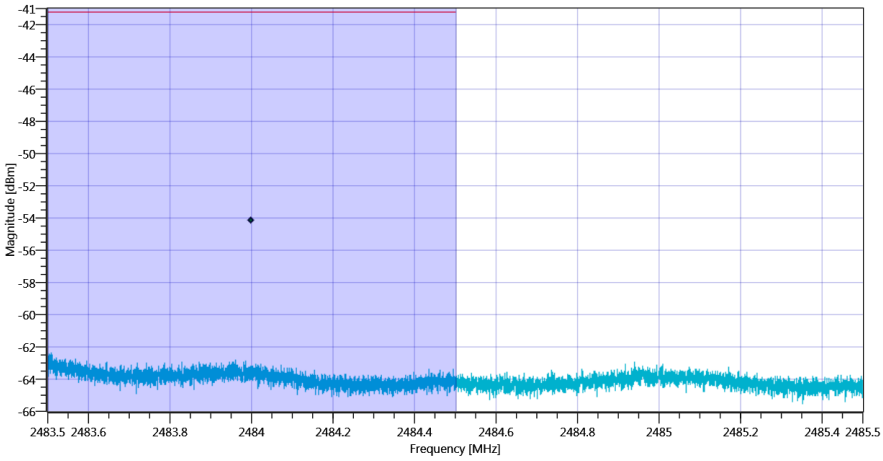


Plot_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4 2480 MHz - DutyCycle_09122020_152051.png

READ SA SETTINGS:	
RefLevel [dBm] | RefLevelOffset [dB] | InpAtt [dB]	10.10 | 16.11 | 10
Start [MHz] | Stop [MHz]	2483.500 | 2485.500
RBW [MHz] | VBW [MHz]	0.100000 | 0.500000
Detector | TraceMode	RMS | AVER
Sweep: Time [ms] | Count | Points per Section | Type	32 | 300 | 32000 | SWE

Antenna Gain	
Considered Antenna Gain: [dBi]:	4.9 @ 2484MHz

RESULT					
Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Duty Cylce worst case	---	---	0	dB	INFO
Band Power Avg	---	---	-54.16	dBm	INFO
Band Power Avg DC corrected	---	---	-54.16	dBm	PASS



Plot_FCC Part 15.247 Restricted Band Edge Conducted Avg DC corrected DTS (eirp) ~ Generic 2G4_09122020_152115.png

TEST FINISHED		
General Verdict	09.12.2020 15:21:15 / RT: 44 s	PASS

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