

Measurement Results

1-9746/19-01-05_Annex_MR_A_1

[Test logging](#)

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Document authorized:

Mihail Dorongovskij
Lab Manager
Radio Communications

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IUT Summary

IUT DEFINITION & Common settings	
Manufacturer	Mahr GmbH
Type	MarCal 18EWRI; Multimar 25EWRI
Serial No. Setup No.	02010247 1.0
SW Version HW Version	NI NI
Comment 1 2	
Tlow Tmid Thigh [°C]	10 20 45
Vlow Vmid Vhigh [V] @Imax [A]	2.4 3 3.3 @1
Auto Control enabled Power Supply Climatic Box	No No
Antenna Gain [dBi]	0
Additional Path Loss [dB]	0

IUT Common Settings 2G4	
Hopping supported	No
Burst length [ms]	10
Nominal Bandwidth [MHz]	1.5
User Interaction	Yes

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

Test References	
TC Start	05.03.2020 10:04:20
System Version	1.0.0.33
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] 2403
Frequency mid to test	True Freq [MHz] 2439
Frequency high to test	True Freq [MHz] 2475
Switched Path	IUT - SignalingUnit - SpectrumAnalyzer
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

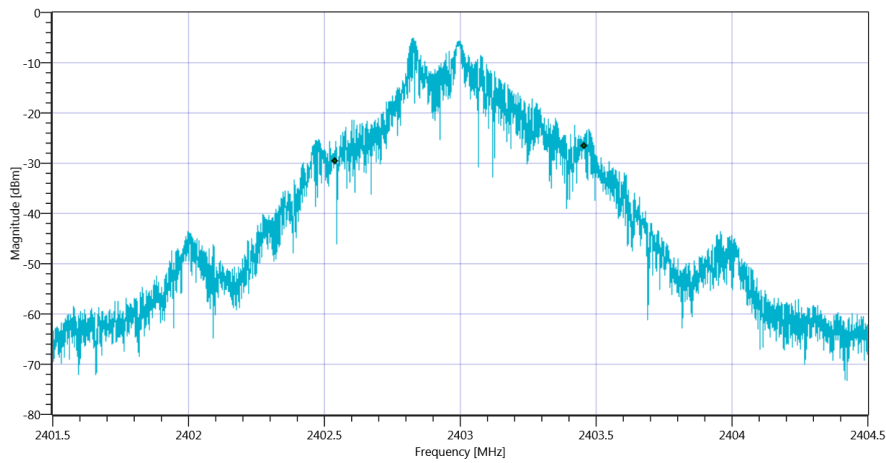
Test at TX 2403 MHz

READ SA SETTINGS:

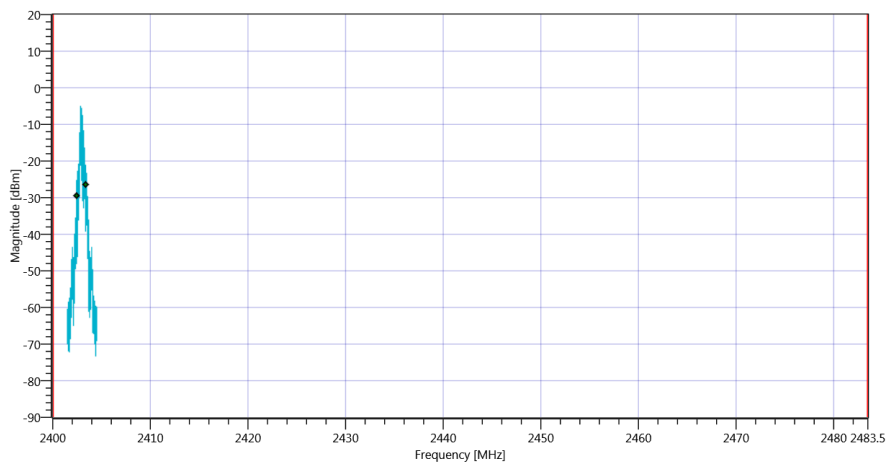
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-0.98 9.81 5
Start [MHz] Stop [MHz]	2401.500 2404.500
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 1000 10001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	916	kHz	INFO
T1 99%	2400.000000	---	2402.5389	MHz	PASS
T2 99%	---	2483.500000	2403.4551	MHz	PASS



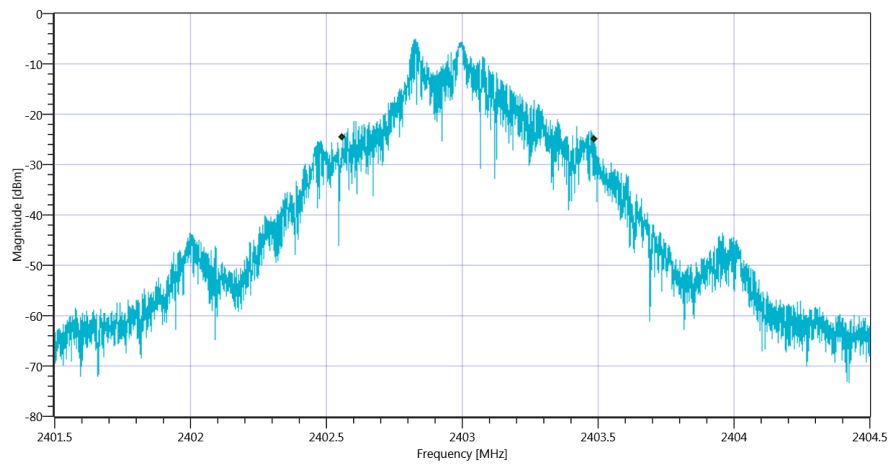
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_05032020_100533.png



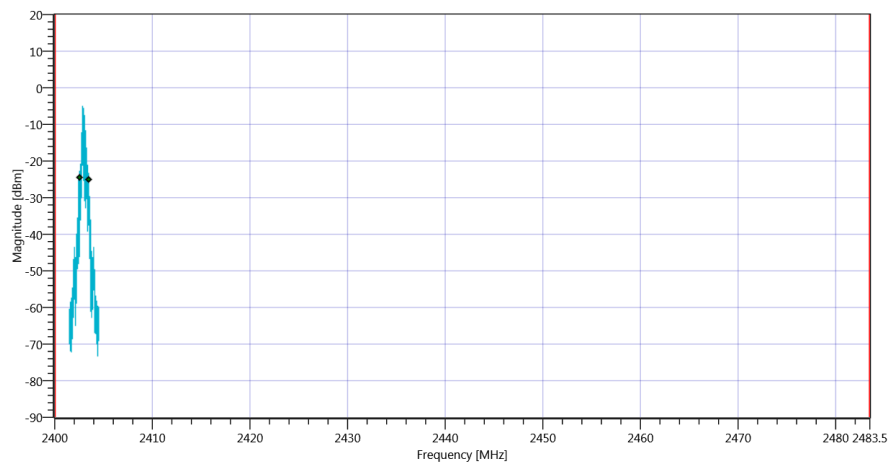
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100537.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	927	kHz	INFO
T1 20dB	2400.000000	---	2402.5587	MHz	PASS
T2 20dB	---	2483.500000	2403.4854	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_05032020_100543.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100546.png

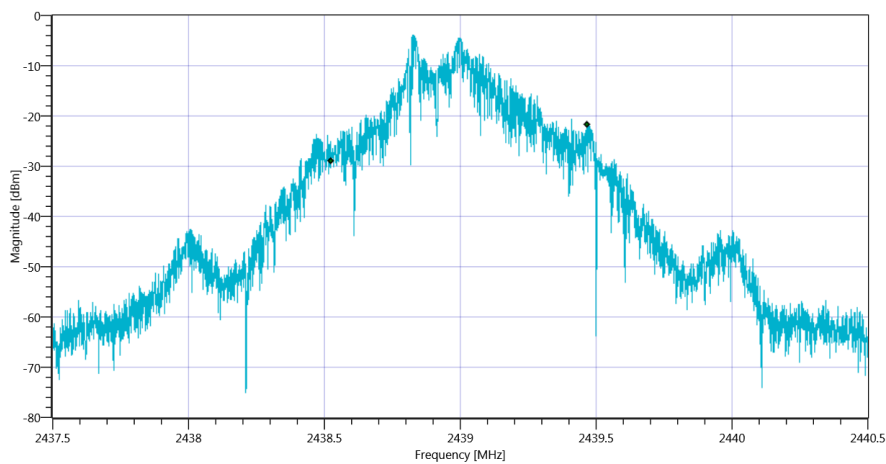
Test at TX 2439 MHz

READ SA SETTINGS:

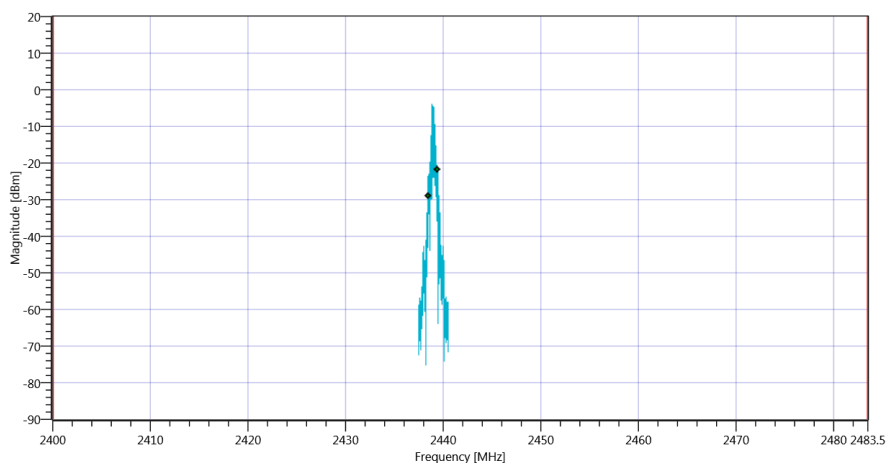
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-0.28 9.9 5
Start [MHz] Stop [MHz]	2437.500 2440.500
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 1000 10001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	941	kHz	INFO
T1 99%	2400.000000	---	2438.5248	MHz	PASS
T2 99%	---	2483.500000	2439.4659	MHz	PASS



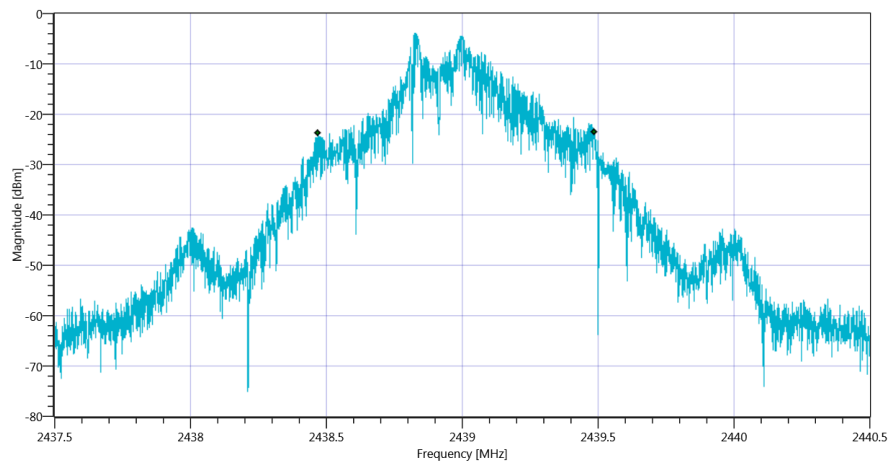
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_05032020_100659.png



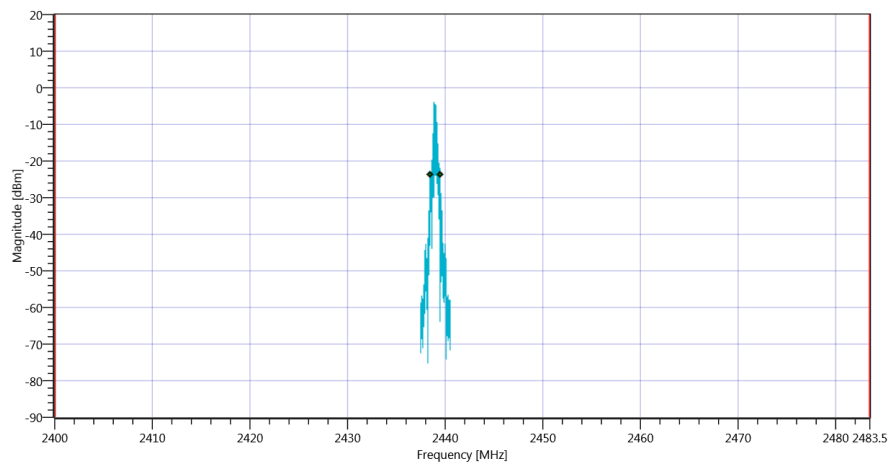
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100703.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1017	kHz	INFO
T1 20dB	2400.000000	---	2438.4699	MHz	PASS
T2 20dB	---	2483.500000	2439.4869	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_05032020_100709.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100713.png

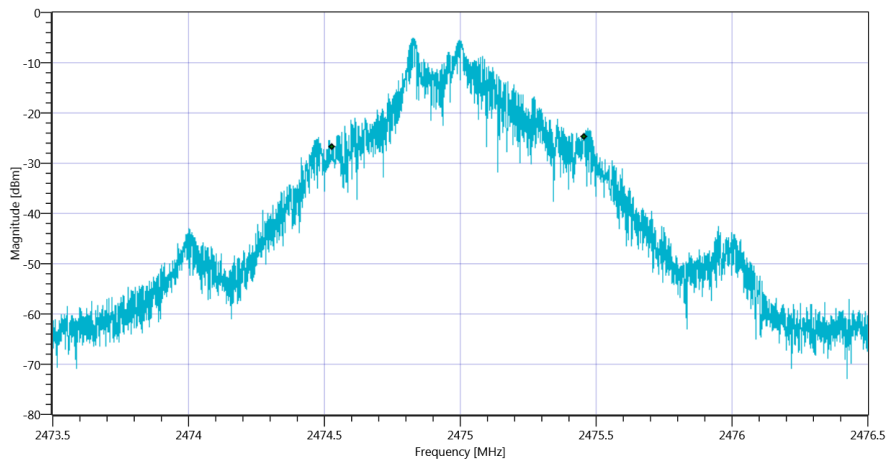
Test at TX 2475 MHz

READ SA SETTINGS:

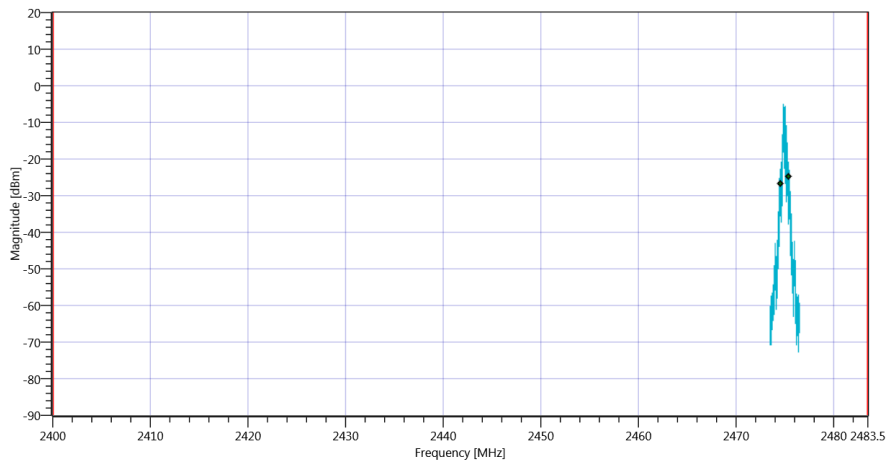
RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	-1.40 9.94 5
Start [MHz] Stop [MHz]	2473.500 2476.500
RBW [MHz] VBW [MHz]	0.030000 0.100000
Detector TraceMode	POS MAXH
Sweep: Time [ms] Count Points per Section Type	50 1000 10001 SWE

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 99%	---	---	929	kHz	INFO
T1 99%	2400.000000	---	2474.5287	MHz	PASS
T2 99%	---	2483.500000	2475.4578	MHz	PASS



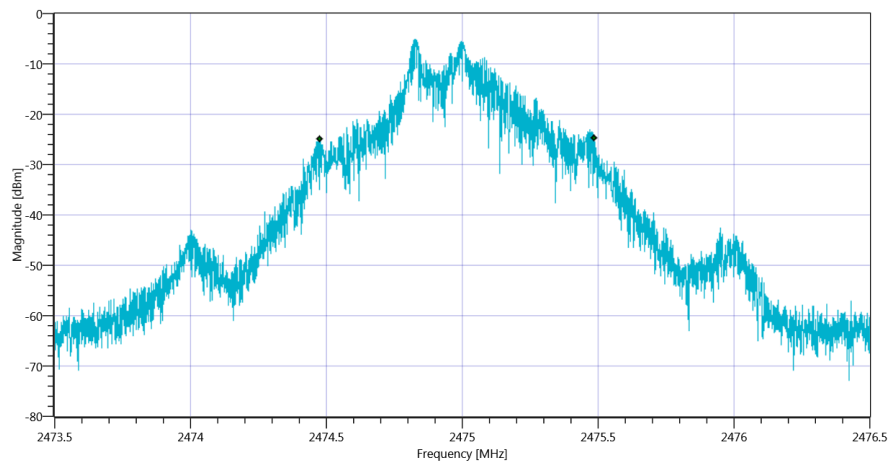
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 99PCT_05032020_100831.png



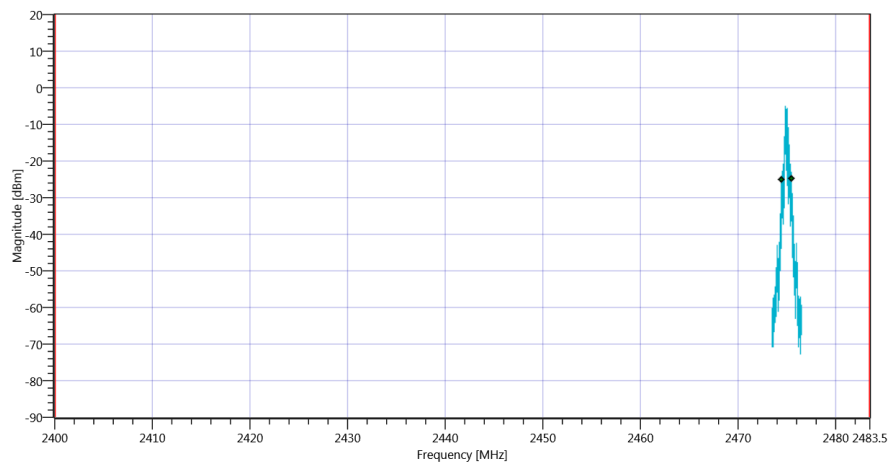
Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100835.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Bandwidth 20dB	---	---	1009	kHz	INFO
T1 20dB	2400.000000	---	2474.4768	MHz	PASS
T2 20dB	---	2483.500000	2475.4860	MHz	PASS



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4 20dB_05032020_100841.png



Plot_FCC Part 15.247 Bandwidth 99PCT-20dB ~ Generic 2G4_05032020_100845.png

TEST FINISHED

General Verdict

05.03.2020 10:08:45 / RT: 265 s

PASS

2. Hardcopy Spectrum Analyzer ~

Test References

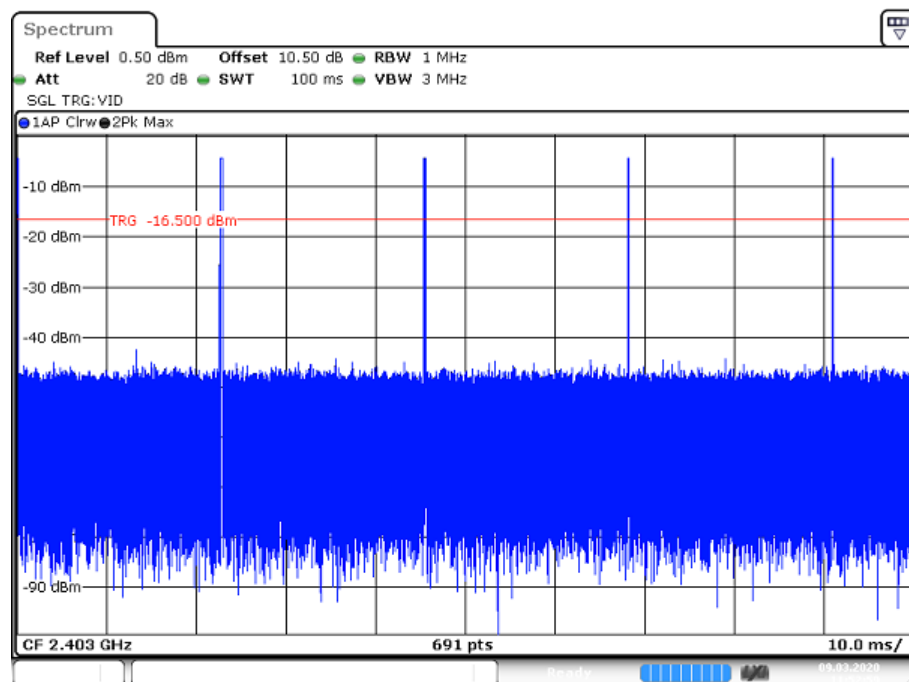
TC Start	09.03.2020 11:52:16
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2403.000 2403.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Date: 9 MAR 2020 11:52:59

HC_09032020_115218.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					

TEST FINISHED

General Verdict

09.03.2020 11:52:33 / RT: 16 s

PASS

3. Hardcopy Spectrum Analyzer ~

Test References

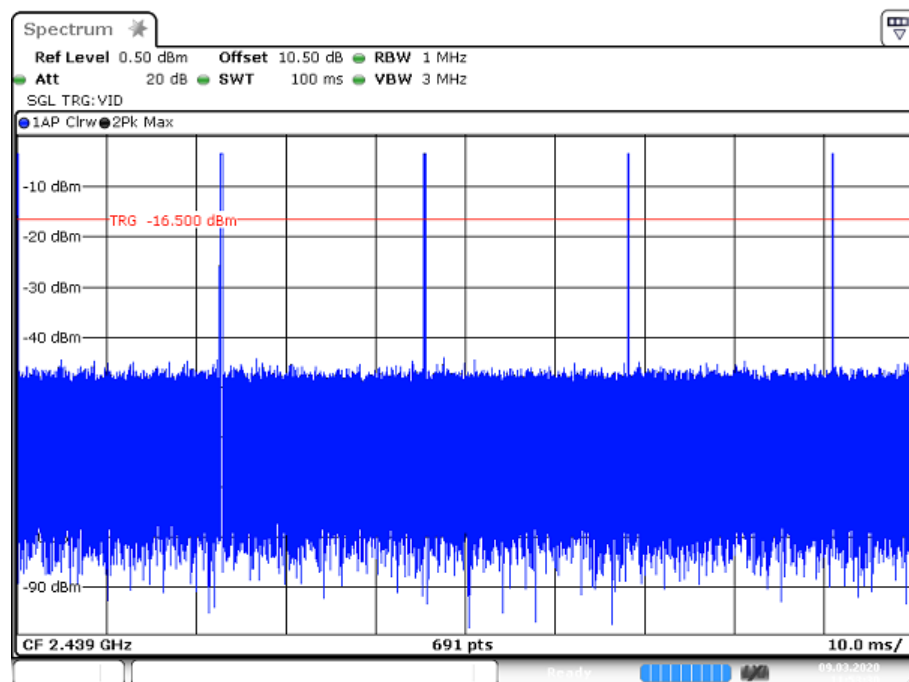
TC Start	09.03.2020 11:52:47
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2439.000 2439.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Date: 9 MAR 2020 11:53:20

HC_09032020_115249.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					

TEST FINISHED

General Verdict

09.03.2020 11:53:03 / RT: 16 s

PASS

4. Hardcopy Spectrum Analyzer ~

Test References

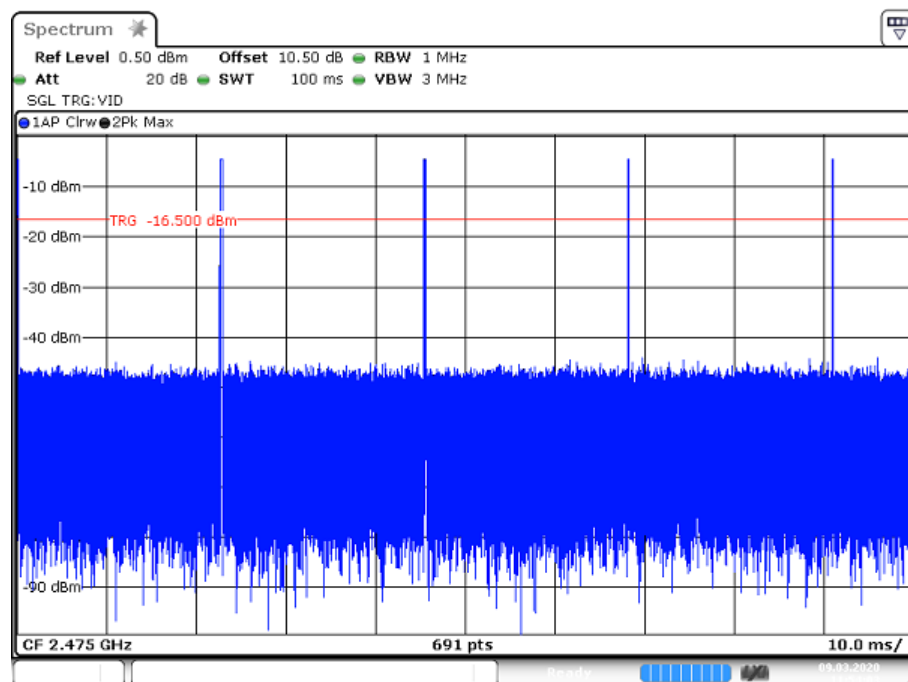
TC Start	09.03.2020 11:53:20
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2475.000 2475.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	100 0 691 SWE



Date: 9 MAR 2020 11:54:03

HC_09032020_115322.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Delta Marker Readout					

TEST FINISHED

General Verdict

09.03.2020 11:53:37 / RT: 16 s

PASS

5. Hardcopy Spectrum Analyzer ~

Test References

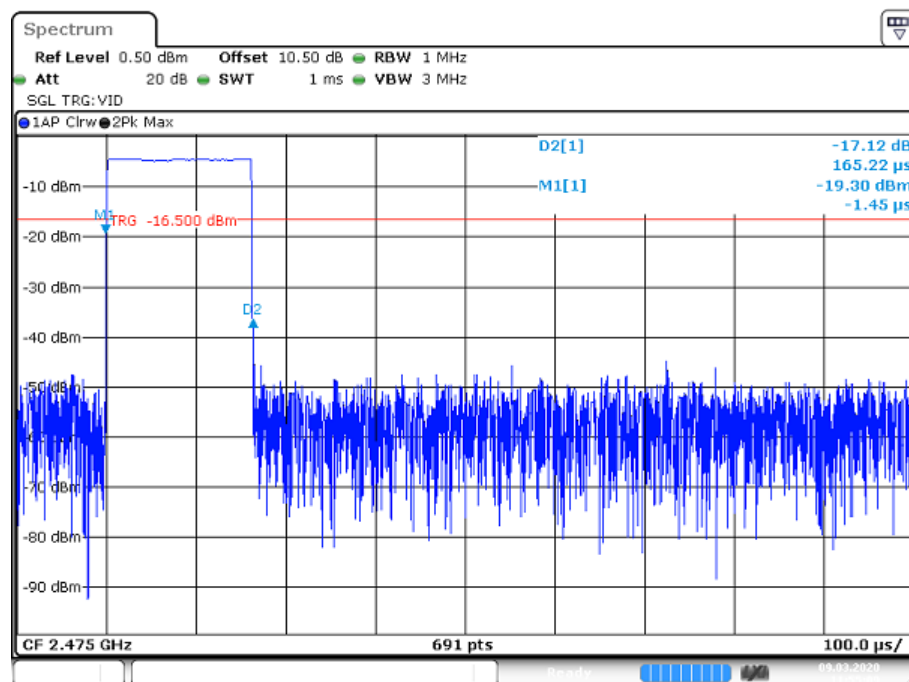
TC Start	09.03.2020 11:54:26
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2475.000 2475.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	1 0 691 SWE



Date: 9 MAR 2020 11:55:09

HC_09032020_115428.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	-0.001	ms	Information

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
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Delta Marker Readout					
Delta Marker 2 Time	---	---	0.165	ms	Information
Delta Marker 2 Level	---	---	-17.123	dB	Information

TEST FINISHED

General Verdict	09.03.2020 11:54:43 / RT: 16 s	PASS
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6. Hardcopy Spectrum Analyzer ~

Test References

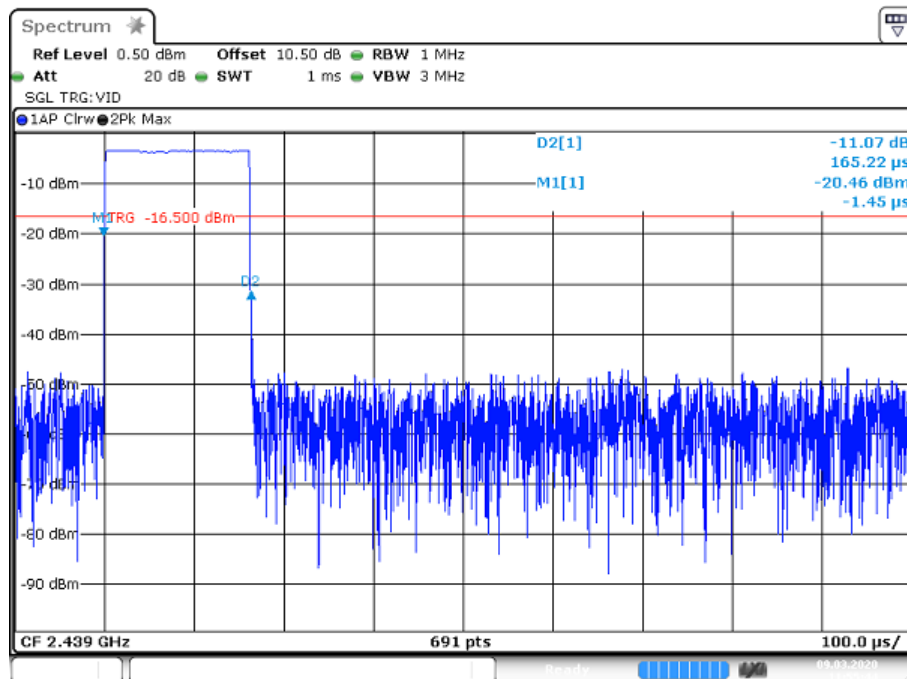
TC Start	09.03.2020 11:55:01
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2439.000 2439.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	1 0 691 SWE



Date: 9 MAR 2020 11:55:44

HC_09032020_115503.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	-0.001	ms	Information

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
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Delta Marker Readout					
Delta Marker 2 Time	---	---	0.165	ms	Information
Delta Marker 2 Level	---	---	-11.067	dB	Information

TEST FINISHED		
General Verdict	09.03.2020 11:55:17 / RT: 16 s	PASS

7. Hardcopy Spectrum Analyzer ~

Test References

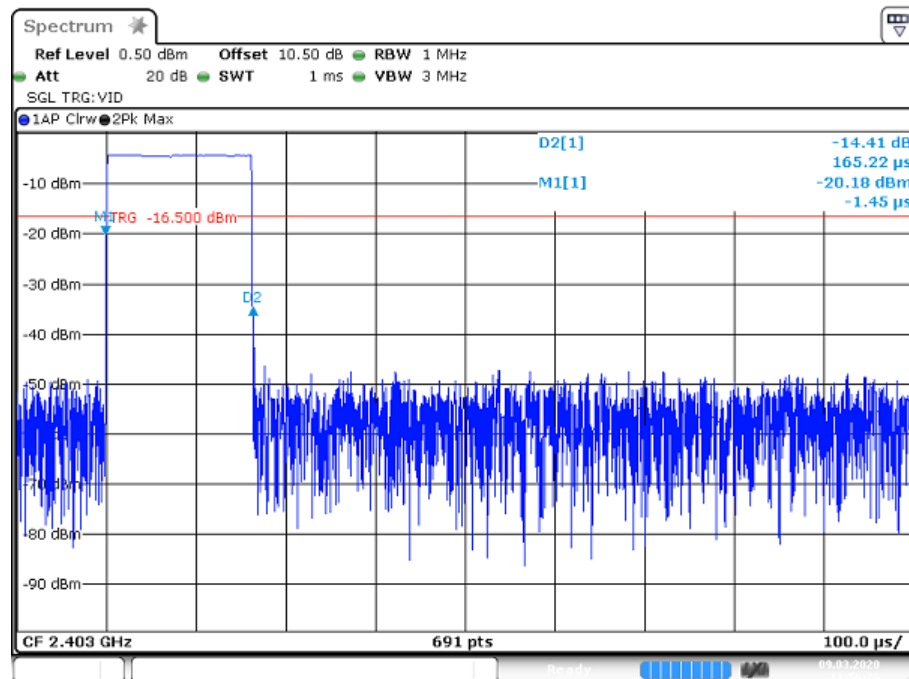
TC Start	09.03.2020 11:55:44
System Version	1.0.0.33
Test Specification	None
Test Method	
Class / TC Version	TC_VM_Hardcopy_Spectrum_Analyzer_V01 Version: 0.0.1
My Description	Hardcopy Spectrum Analyzer
Add. Information	

Test Parameter

Technology to test	
Switched Path	--
Devices in use	SA: Rohde&Schwarz,FSV-30,1321.3008K30/103170,3.60

READ SA SETTINGS:

RefLevel [dBm] RefLevelOffset [dB] InpAtt [dB]	0.50 10.5 20
Start [MHz] Stop [MHz]	2403.000 2403.000
RBW [MHz] VBW [MHz]	1.000000 3.000000
Detector TraceMode	APE WRIT
Sweep: Time [ms] Count Points per Section Type	1 0 691 SWE



Date: 9 MAR 2020 11:56:27

HC_09032020_115546.png

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
Marker Readout					
Marker 1 Time	---	---	-0.001	ms	Information

RESULT

Test Description	Lower Limit	Upper Limit	Measured	Unit	Verdict
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Delta Marker Readout					
Delta Marker 2 Time	---	---	0.165	ms	Information
Delta Marker 2 Level	---	---	-14.412	dB	Information

TEST FINISHED		
General Verdict	09.03.2020 11:56:00 / RT: 16 s	PASS

- END OF DOCUMENT -
