FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-1104_10.docx	**Date of Report:**	25-Sep-2015
Number of pages:	179	**Customer's Contact person:**	Jari Rontu
Testing laboratory:	TCC Microsoft Salo Laboratory P.O.Box(86) Joensuunkatu 7E FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 71 80 44122	**Customer:**	Microsoft P.O.Box(86) Joensuunkatu 7E FIN-24101 SALO, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 71 80 44122
FCC listing no.: **IC recognition no.:**	533467 661V-1		
Tested devices/ accessories:	**Phone RM-1104 / Dummy Battery SD-244R / Headset WH-308**		
FCC ID:	PYASTT	**IC:**	661X-STT
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Part 15 Subpart E, ANSI C63.4 (2014), DTS procedures KDB 789033 D02 v01, IC standards, RSS-210 (Issue 8, December 2010). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".**		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Microsoft.		
Test Results:	**The EUT complies with the requirements in respect of all parameters subject to the test.** The test results relate only to devices specified in this document		
Date and signature for the contents:	Hannu Söderholm 2015.09.25 09:35:20 +03'00'		

Hannu Söderholm, Engineer, EMC

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1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	15-Jun-2015
Testing completed	03-Sep-2015
The customer's contact person	Jari Rontu
Test Plan referred to	T:\Projects\RM-1104\TestPlan\RS_TestPlan_RM-1104_EMC_FCC.xlsm
Notes	-
Document name	T:\Projects\RM-1104\EMC\FCC15E_RM-1104_10.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:
GSM/WCDMA/WLAN/Bluetooth
The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-1104	004402742178886ö059X034	2012	-	01062.00000.15233.39000	100007
Dummy Battery	SD-244R	-	V.1	-	-	100021
Headset	WH-308	51251B1	-	-	-	100029

1.2. Summary of Test Results

5 GHz RLAN:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.407(a)	A9.2	Conducted peak output power	PASSED
15.407(b)	A9.2	Band edge compliance of RF emissions	NP
15.407(b)	A9.2	Spurious radiated emissions	NP
15.407(b)(6)	A9.2	AC powerline conducted emissions	NP
	A9.2	6dB(bandwidth)	PASSED
	A9.2	26dB(bandwidth)	PASSED
15.407(a)	A9.2	Maximum power spectral density	PASSED

PASSED	The EUT complies with the essential requirements in the standard.
FAILED	The EUT does not comply with the essential requirements in the standard.
NP	The test was not performed by the TCC Microsoft Laboratory.

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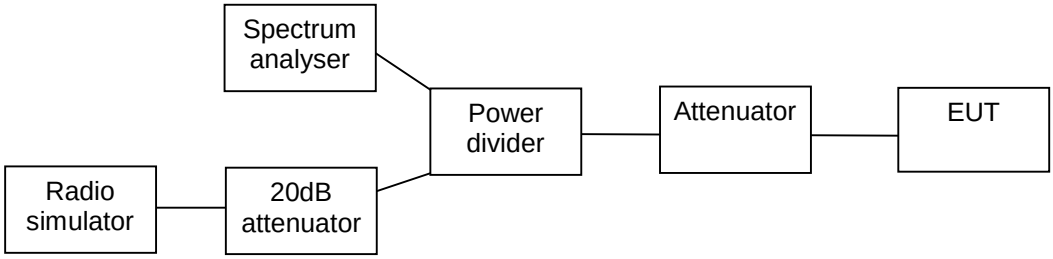
2. Conducted peak output power
(FCC §15.407(a), RSS-210 A9.2)

EUT with DUT number	RM-1104, DUT 100007
Accessories with DUT numbers	SD-244R, DUT 100021 ; WH-308, DUT 100029
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [ºC] / Humidity [%RH] / Air Pressure [kPa]	20 / 49 / 101.2
Date of measurements	03-Sep-2015
Measured by	Jari Keto

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D02 v01 and IC standard RSS-210.

Limits for Maximum conducted output power measurements

Frequency range [MHz]	Limit [mW] / (dBm)	Limit [dBm]	Limit [dBm] for B=20 MHz
5150-5250	250 (24)	-	24
5250-5350	250 (24)	11+10 log B	24
5470-5725	250 (24)	11+10 log B	24
5725-5850	1000 (30)	-	30

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2.3. Power results summary

Channel / fC [MHz]	Mode	Modulation	Data rate	Level [dBm]
36 / 5180	802.11a MIMO	BPSK	9 Mbps	18.68
40 / 5200	802.11a MIMO	BPSK	9 Mbps	18.74
48 / 5240	802.11a MIMO	BPSK	9 Mbps	19.04
52 / 5260	802.11a MIMO	BPSK	9 Mbps	19.02
60 / 5300	802.11a MIMO	BPSK	9 Mbps	19.09
64 / 5320	802.11a MIMO	BPSK	9 Mbps	19.26
100 / 5500	802.11a MIMO	BPSK	9 Mbps	19.69
116 / 5580	802.11a MIMO	BPSK	9 Mbps	19.56
140 / 5700	802.11a MIMO	BPSK	9 Mbps	19.54
149 / 5745	802.11a MIMO	BPSK	9 Mbps	19.61
157 / 5785	802.11a MIMO	BPSK	9 Mbps	19.6
165 / 5825	802.11a MIMO	BPSK	9 Mbps	19.72
36+40 / 5190	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	19.59
44+48 / 5230	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	19.58
52+56 / 5270	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	19.69
60+64 / 5310	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	19.74
100+104 / 5510	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	20.17
108+112 / 5550	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	20.17
132+136 / 5670	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	19.87
149+153 / 5755	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	20.1
157+161 / 5795	802.11n MIMO	BPSK	13.5 / 15.0 Mbps	20.24
36-48 / 5210	802.11ac MIMO	BPSK	29.3 / 32.5 Mbps	18.13
52-64 / 5290	802.11ac MIMO	BPSK	29.3 / 32.5 Mbps	18.33
100-112 / 5530	802.11ac MIMO	BPSK	29.3 / 32.5 Mbps	19
149-161 / 5775	802.11ac MIMO	BPSK	29.3 / 32.5 Mbps	18.89
36 / 5180	802.11a MIMO	QPSK	18 Mbps	18.85
40 / 5200	802.11a MIMO	QPSK	18 Mbps	18.72
48 / 5240	802.11a MIMO	QPSK	18 Mbps	19.01
52 / 5260	802.11a MIMO	QPSK	18 Mbps	19.03
60 / 5300	802.11a MIMO	QPSK	18 Mbps	19.1
64 / 5320	802.11a MIMO	QPSK	18 Mbps	19.3
100 / 5500	802.11a MIMO	QPSK	18 Mbps	19.69
116 / 5580	802.11a MIMO	QPSK	18 Mbps	19.62
140 / 5700	802.11a MIMO	QPSK	18 Mbps	19.57
149 / 5745	802.11a MIMO	QPSK	18 Mbps	19.7
157 / 5785	802.11a MIMO	QPSK	18 Mbps	19.66
165 / 5825	802.11a MIMO	QPSK	18 Mbps	19.8
36+40 / 5190	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.31
44+48 / 5230	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.35
52+56 / 5270	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.47
60+64 / 5310	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.53
100+104 / 5510	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	20.02
108+112 / 5550	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.99
132+136 / 5670	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.73
149+153 / 5755	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	19.89
157+161 / 5795	802.11n MIMO	QPSK	40.5 / 45.0 Mbps	20.07

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36-48 / 5210	802.11ac MIMO	16QAM	175.5 / 195.0 Mbps	18
52-64 / 5290	802.11ac MIMO	16QAM	175.5 / 195.0 Mbps	18.21
100-112 / 5530	802.11ac MIMO	16QAM	175.5 / 195.0 Mbps	18.88
149-161 / 5775	802.11ac MIMO	16QAM	175.5 / 195.0 Mbps	18.85

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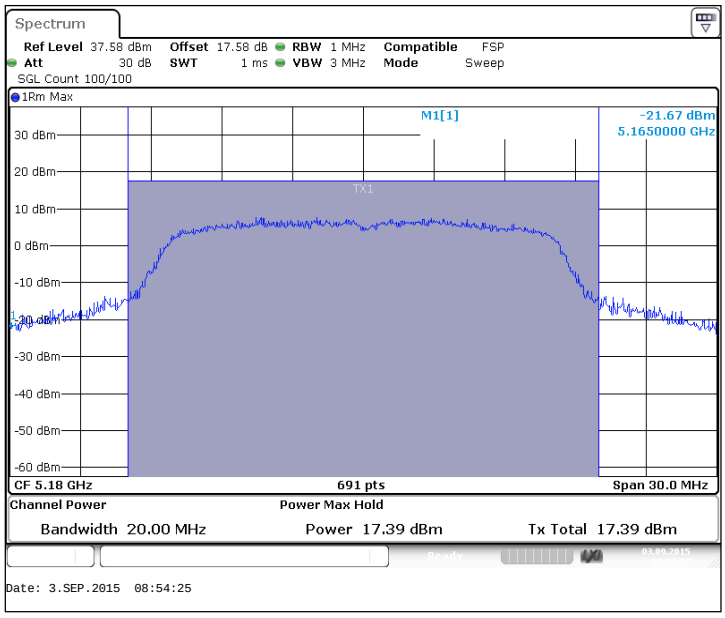
2.4. 5 GHz RLAN Test results

2.4.1 802.11a MIMO mode, BPSK modulation, 9 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36 / 5180	18.68	17.39	12.77	1.4	1.4	1.4	24	24	PASSED
40 / 5200	18.74	17.13	13.66	1.4	1.4	1.4	24	24	PASSED
48 / 5240	19.04	17.42	13.95	1.4	1.4	1.4	24	24	PASSED
52 / 5260	19.02	17.45	13.84	1.4	1.4	1.4	24	24	PASSED
60 / 5300	19.09	17.44	14.07	1.4	1.4	1.4	24	24	PASSED
64 / 5320	19.26	17.6	14.29	1.4	1.4	1.4	24	24	PASSED
100 / 5500	19.69	18.08	14.59	1.4	1.4	1.4	24	24	PASSED
116 / 5580	19.56	17.96	14.45	1.4	1.4	1.4	24	24	PASSED
140 / 5700	19.54	18.01	14.25	1.4	1.4	1.4	24	24	PASSED
149 / 5745	19.61	18.07	14.34	1.4	1.4	1.4	30	30	PASSED
157 / 5785	19.6	18.19	14.03	1.4	1.4	1.4	30	30	PASSED
165 / 5825	19.72	18.28	14.22	1.4	1.4	1.4	30	30	PASSED

Main (36 / 5180)



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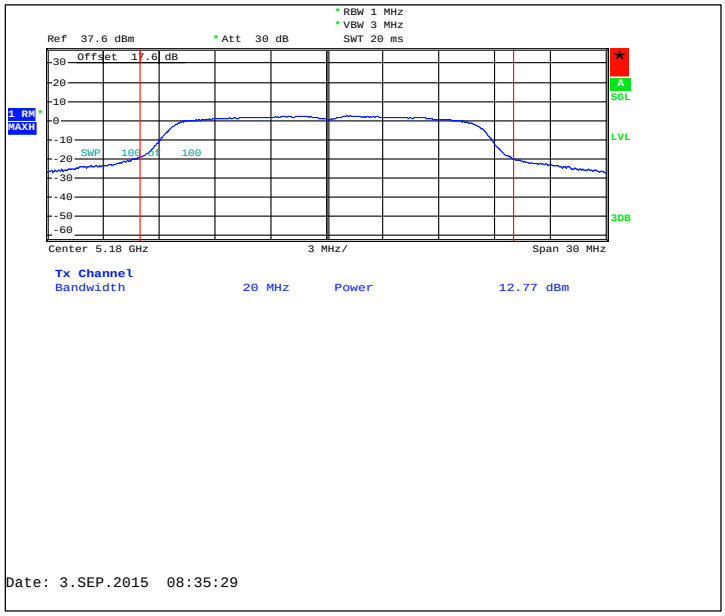
Aux (36 / 5180)



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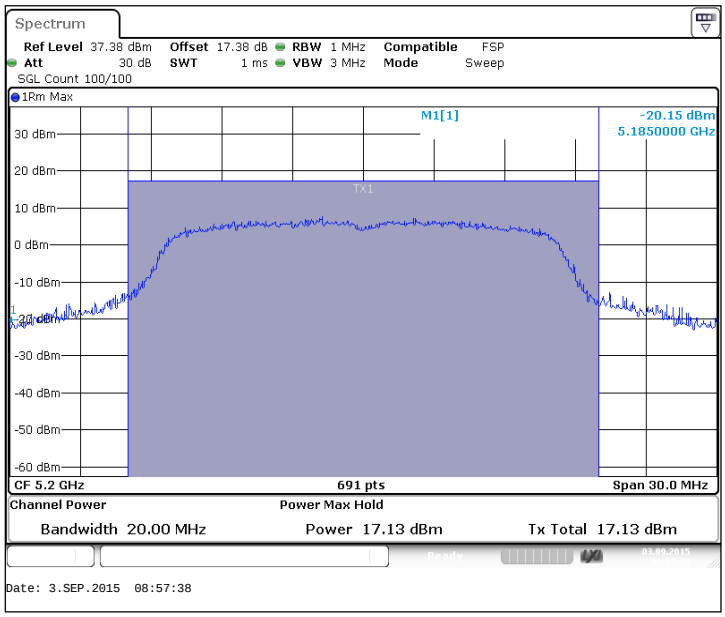

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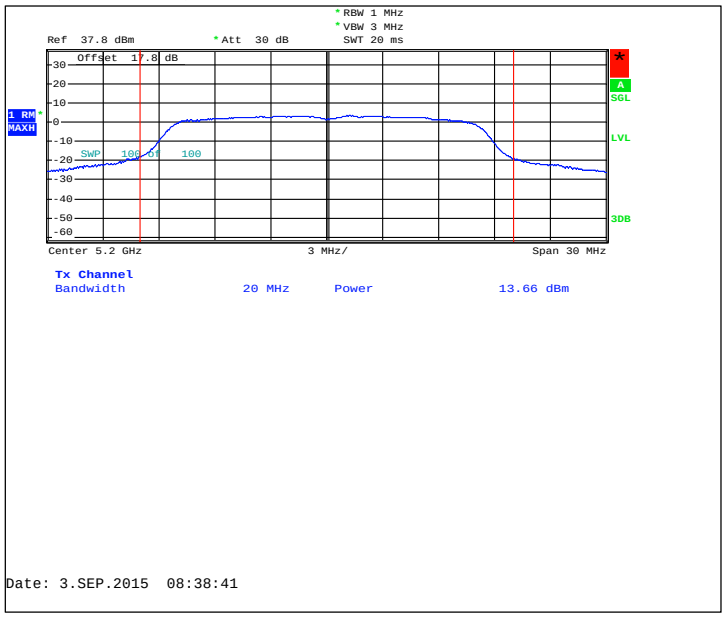

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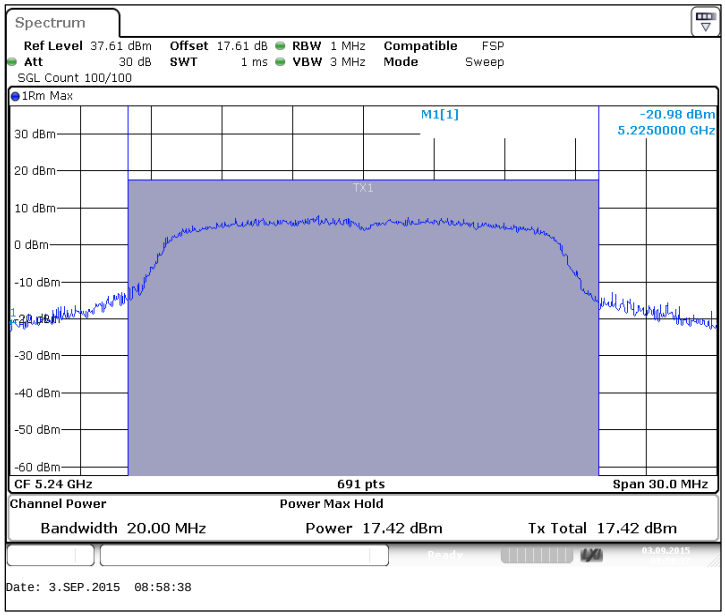

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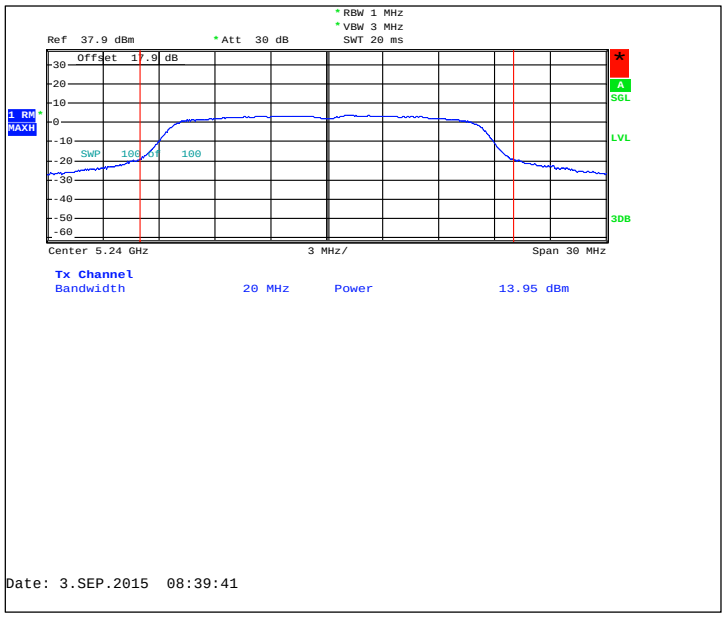

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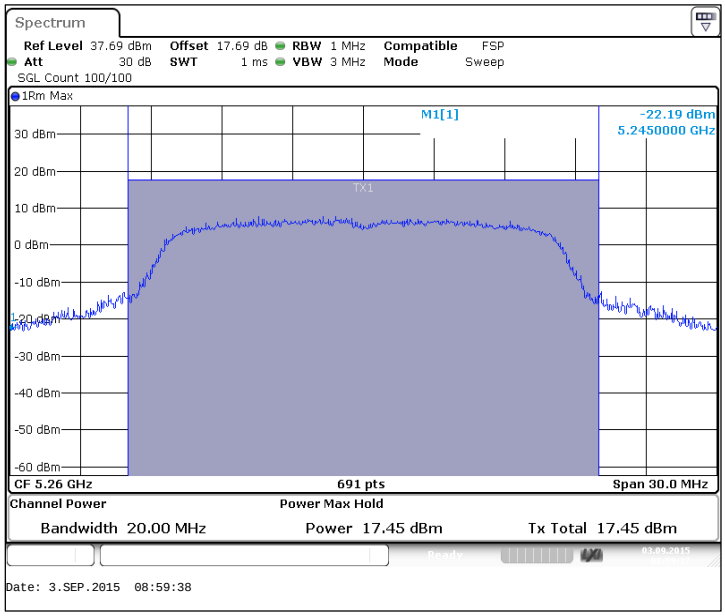

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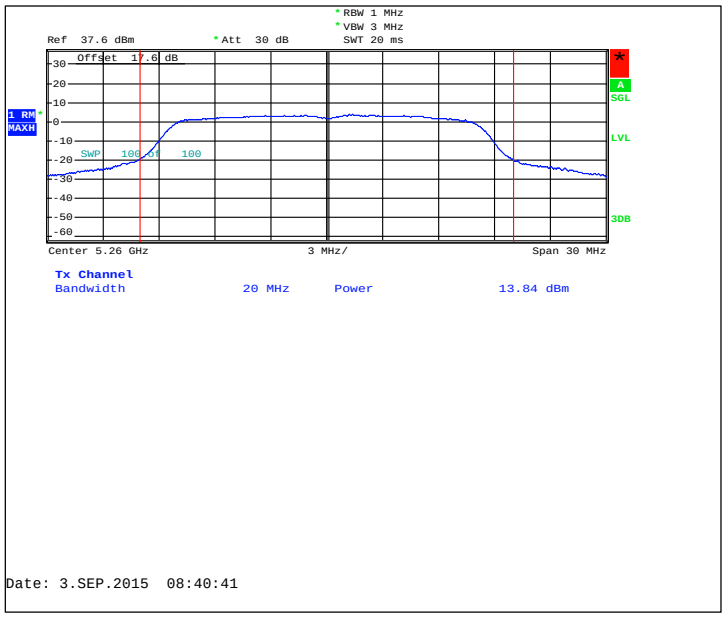
Aux (52 / 5260)



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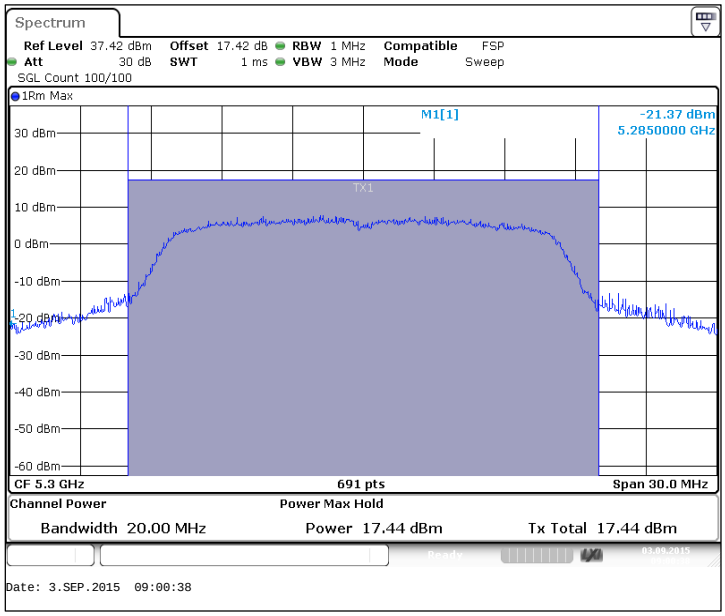

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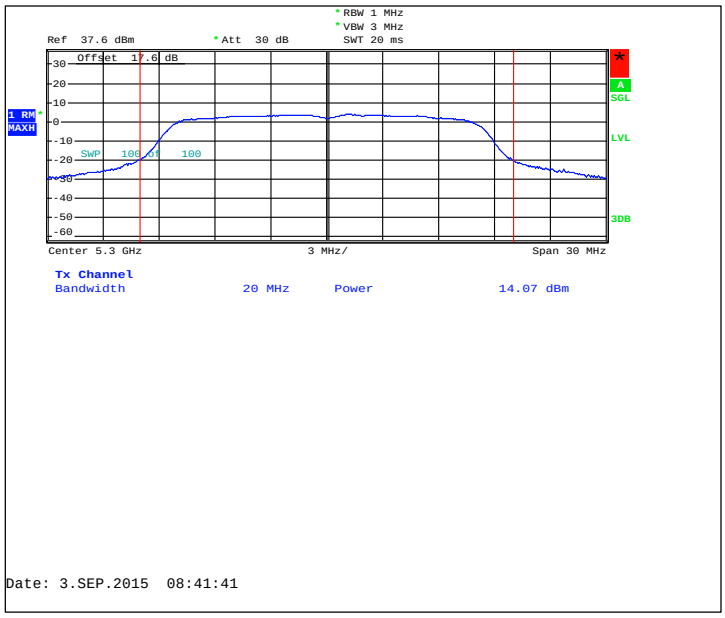

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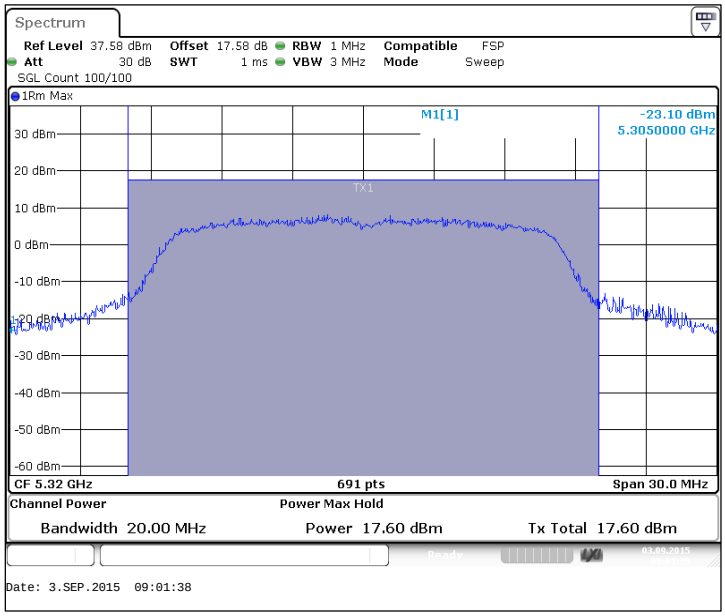

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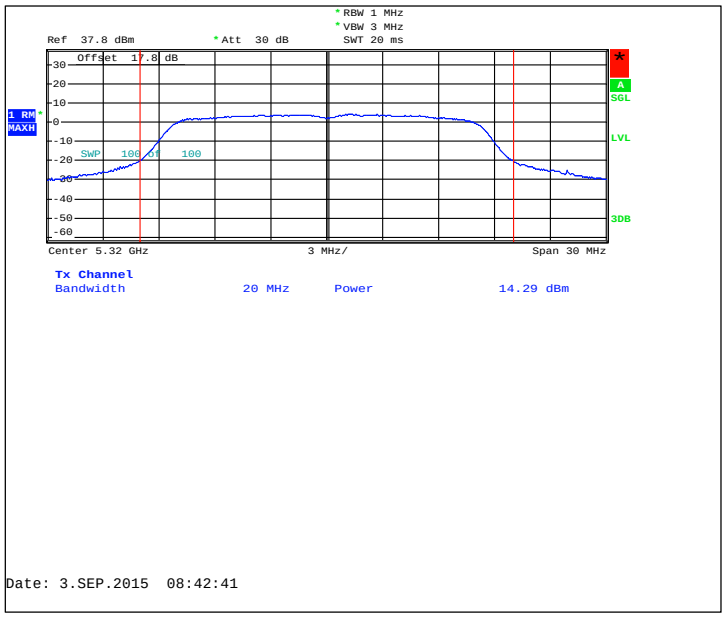

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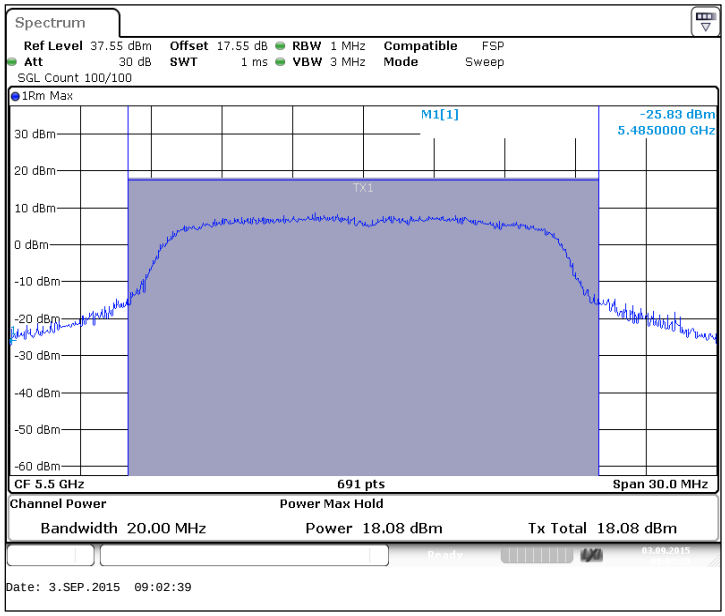

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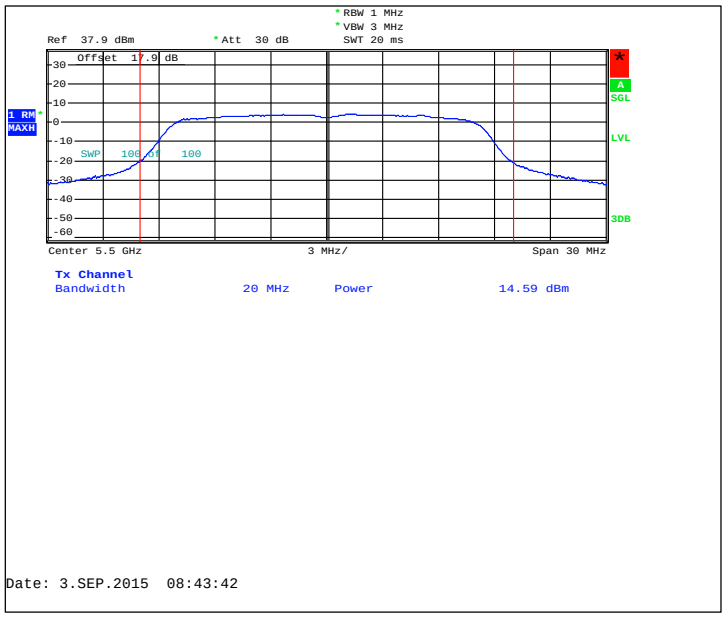
Aux (100 / 5500)



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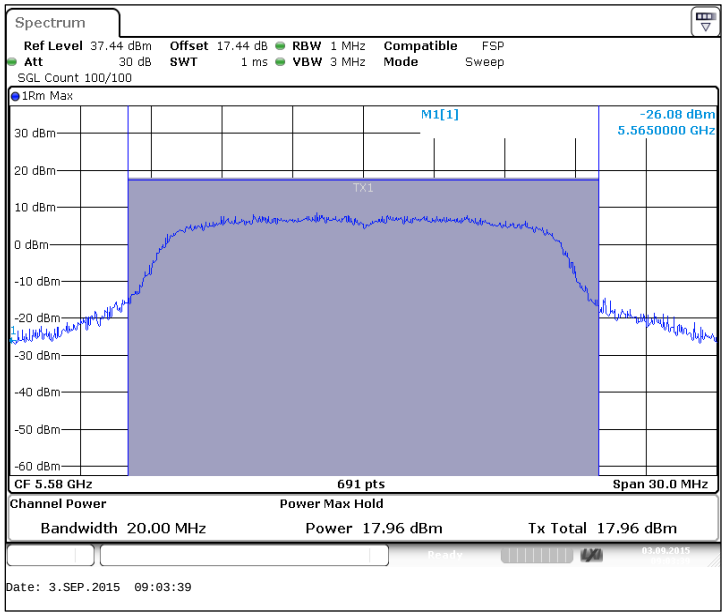

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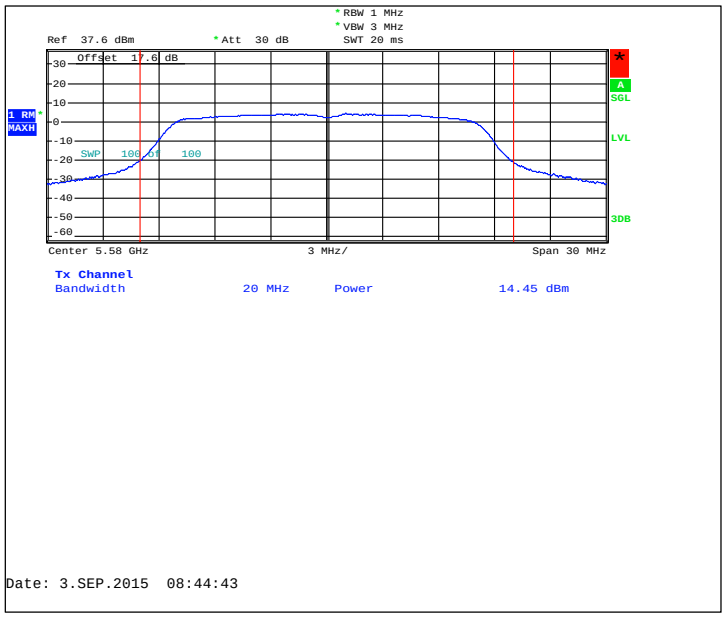

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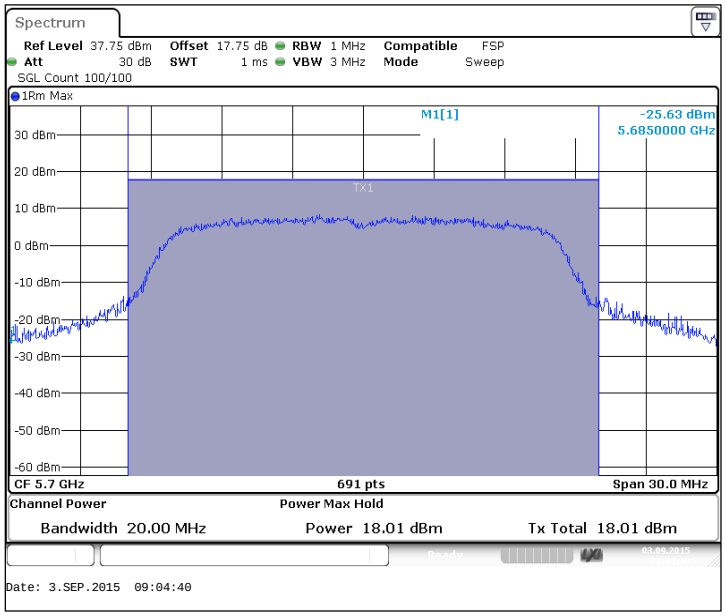

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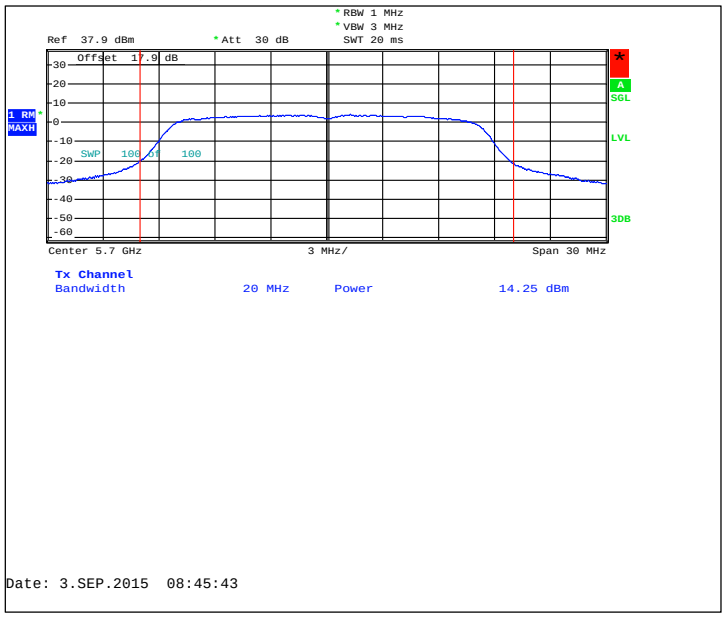
Aux (140 / 5700)



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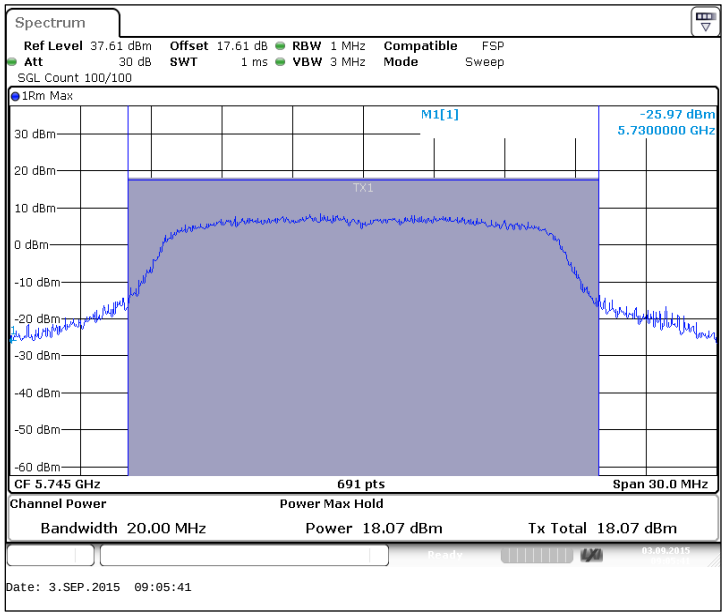

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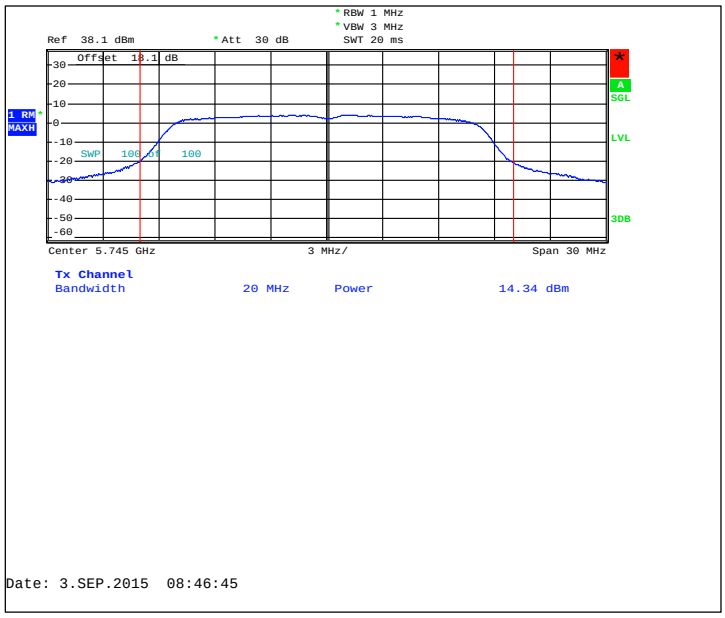
Aux (149 / 5745)



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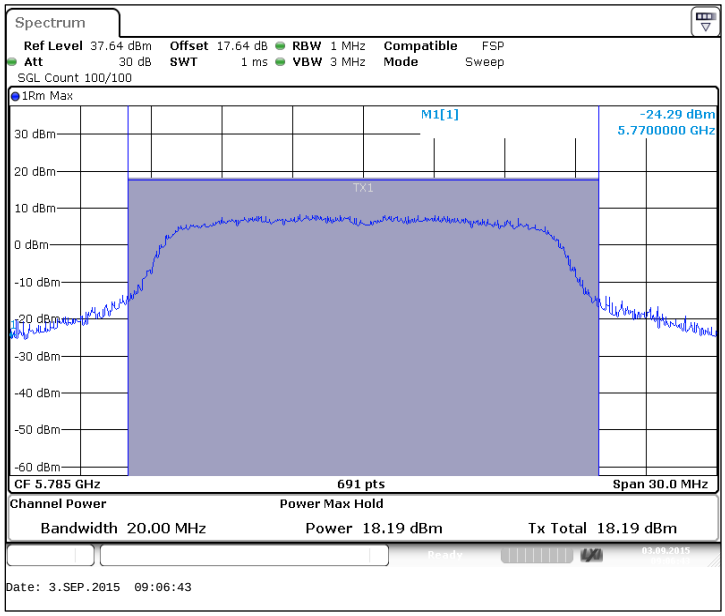

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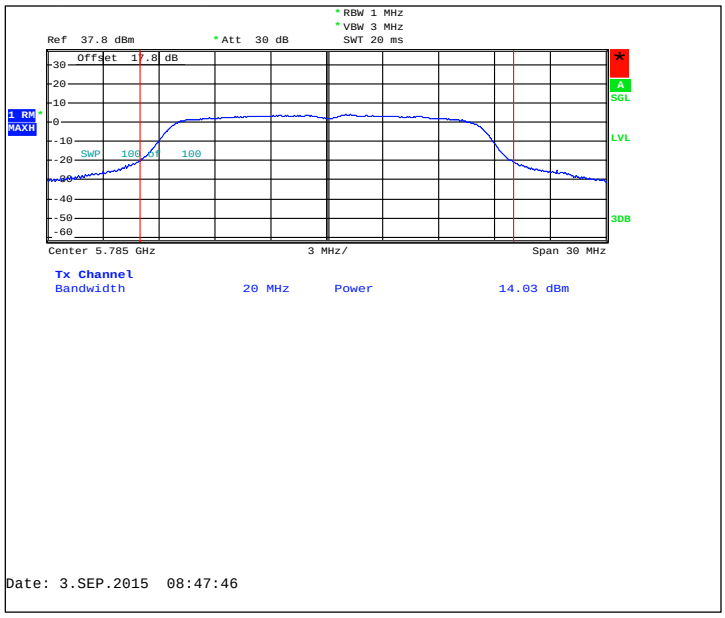

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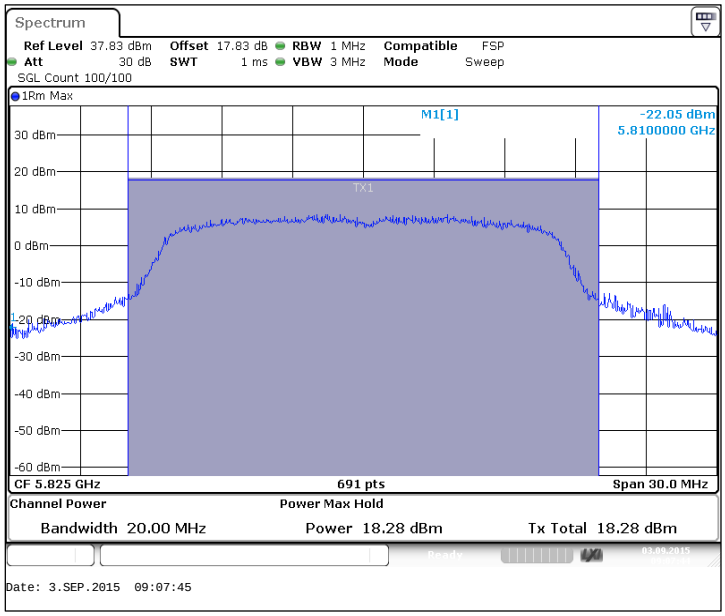

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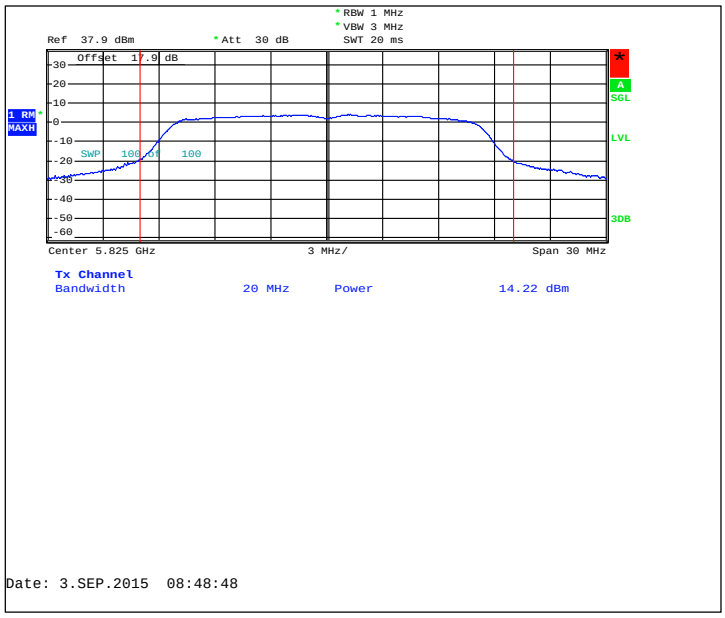

2.4.2 802.11n MIMO mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_C [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36+40 / 5190	19.59	18.03	14.4	1.4	1.4	1.4	24	24	PASSED
44+48 / 5230	19.58	17.95	14.53	1.4	1.4	1.4	24	24	PASSED
52+56 / 5270	19.69	18.11	14.55	1.4	1.4	1.4	24	24	PASSED
60+64 / 5310	19.74	18.04	14.85	1.4	1.4	1.4	24	24	PASSED
100+104 / 5510	20.17	18.58	15.05	1.4	1.4	1.4	24	24	PASSED
108+112 / 5550	20.17	18.58	15.05	1.4	1.4	1.4	24	24	PASSED
132+136 / 5670	19.87	18.25	14.79	1.4	1.4	1.4	24	24	PASSED
149+153 / 5755	20.1	18.58	14.82	1.4	1.4	1.4	30	30	PASSED
157+161 / 5795	20.24	18.79	14.75	1.4	1.4	1.4	30	30	PASSED

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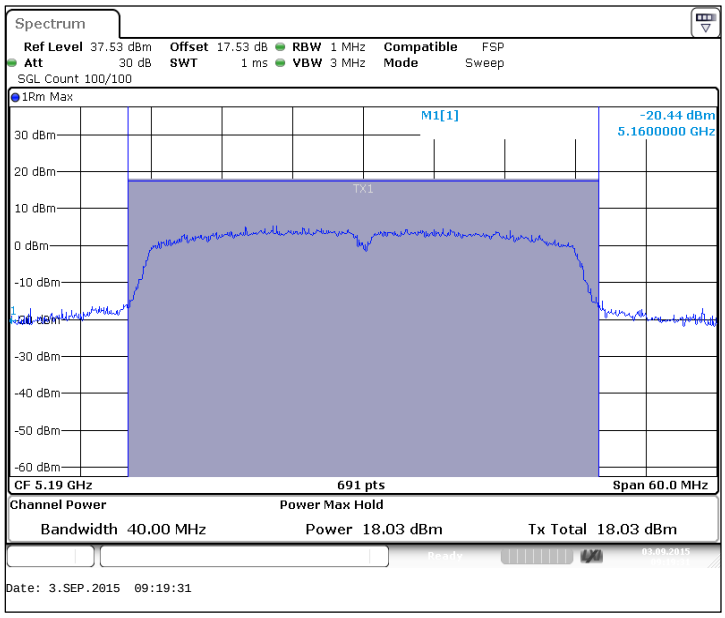
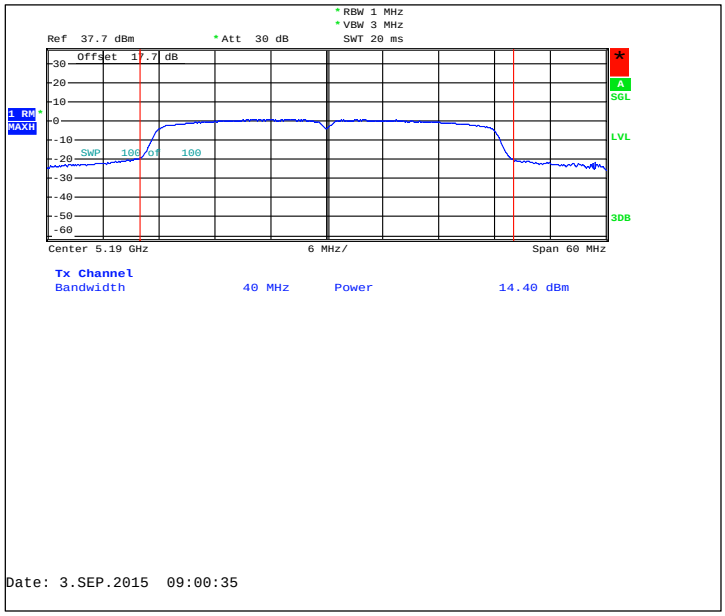
Main (36+40 / 5190)



Aux (36+40 / 5190)



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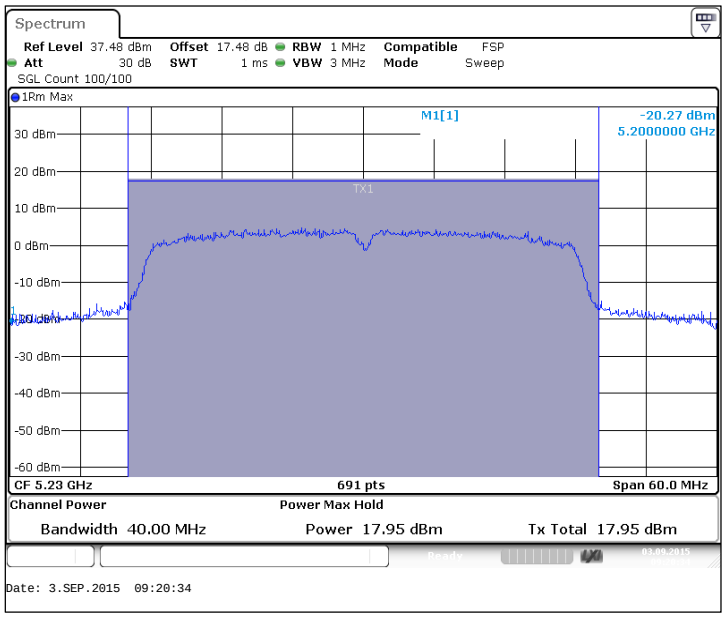
Main (44+48 / 5230)



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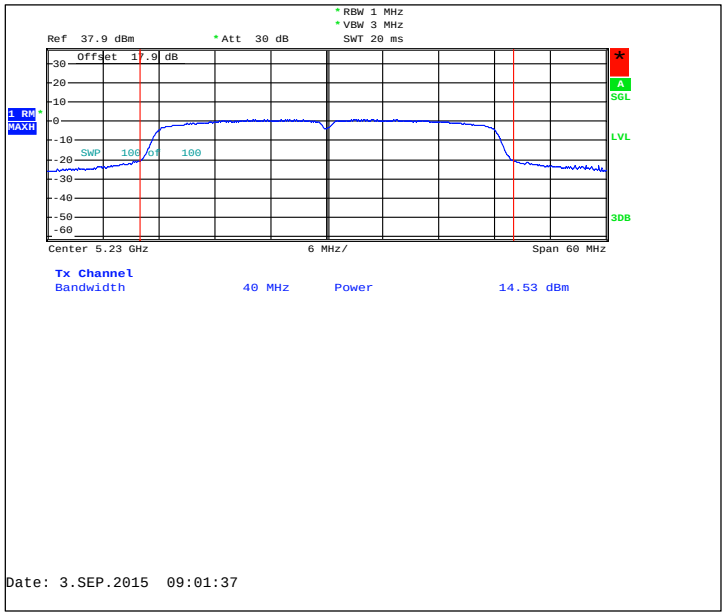

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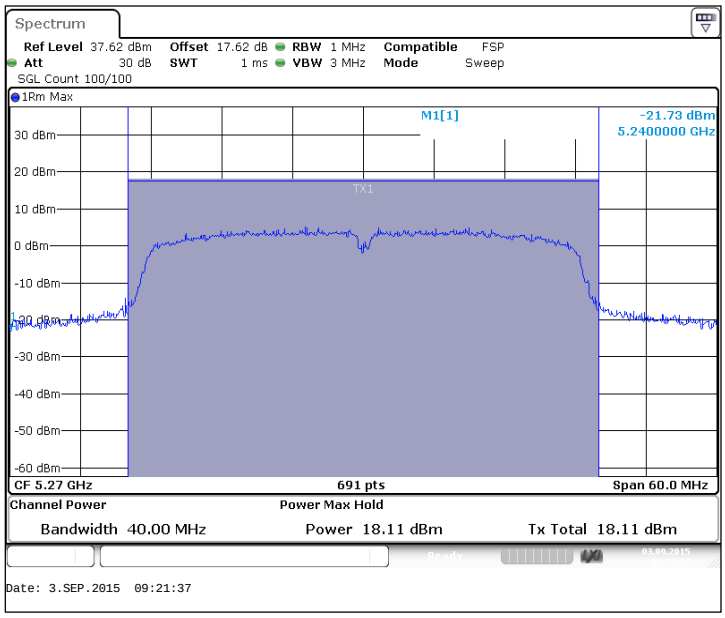
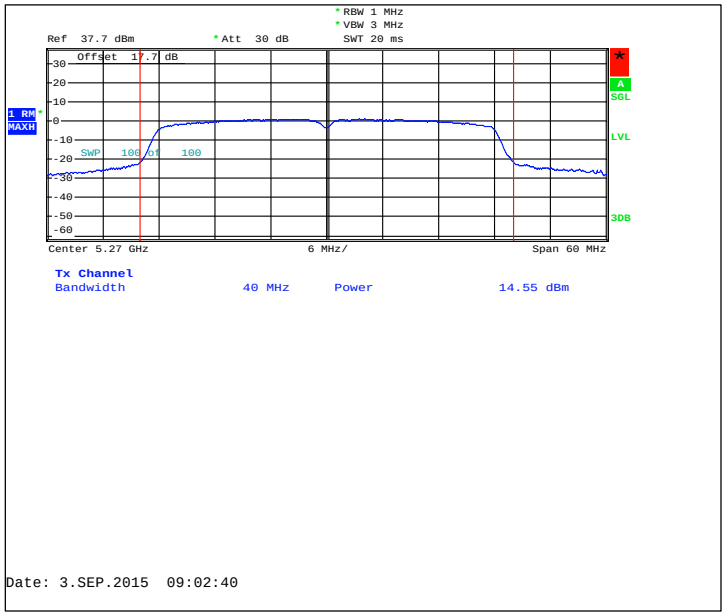
Main (52+56 / 5270)



Aux (52+56 / 5270)



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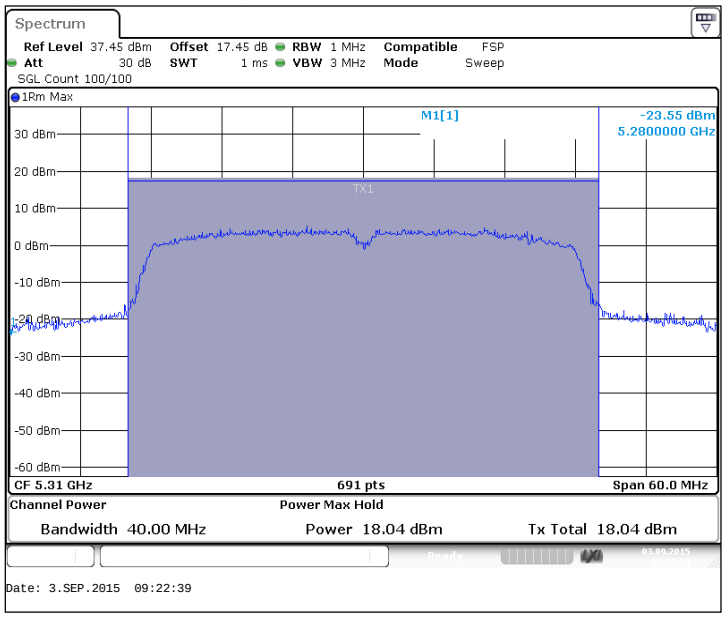
Main (60+64 / 5310)



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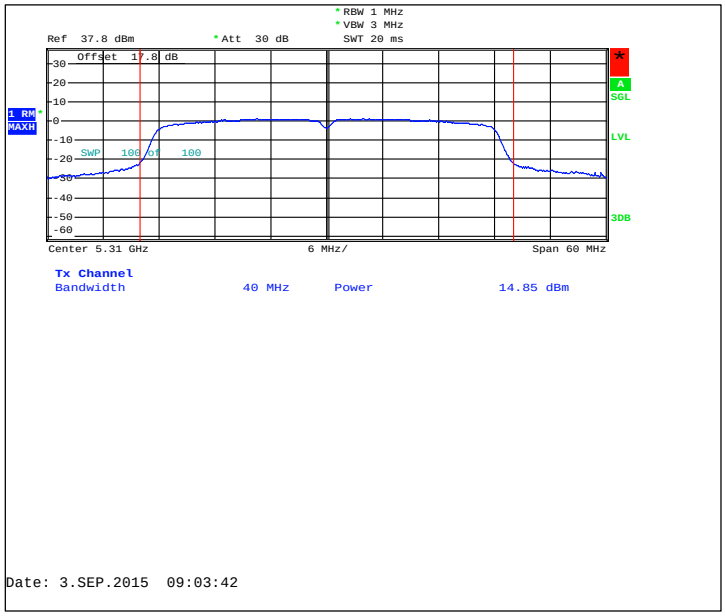

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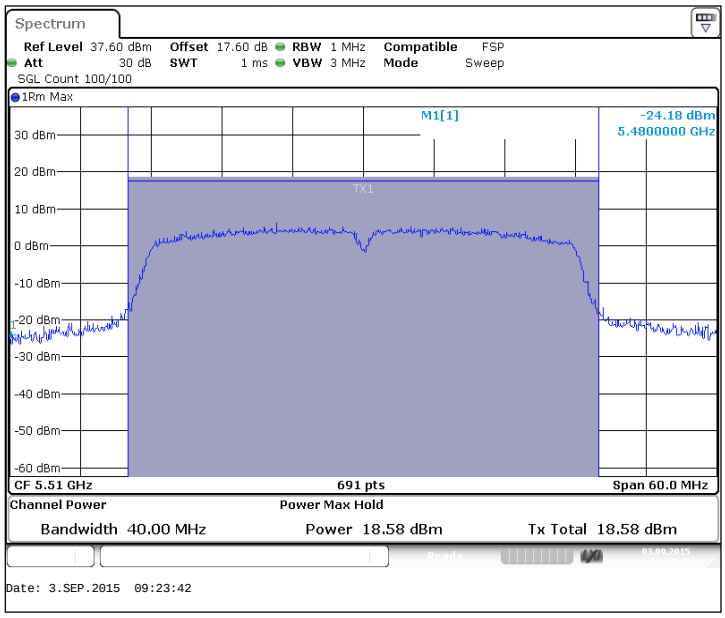
Main (100+104 / 5510)



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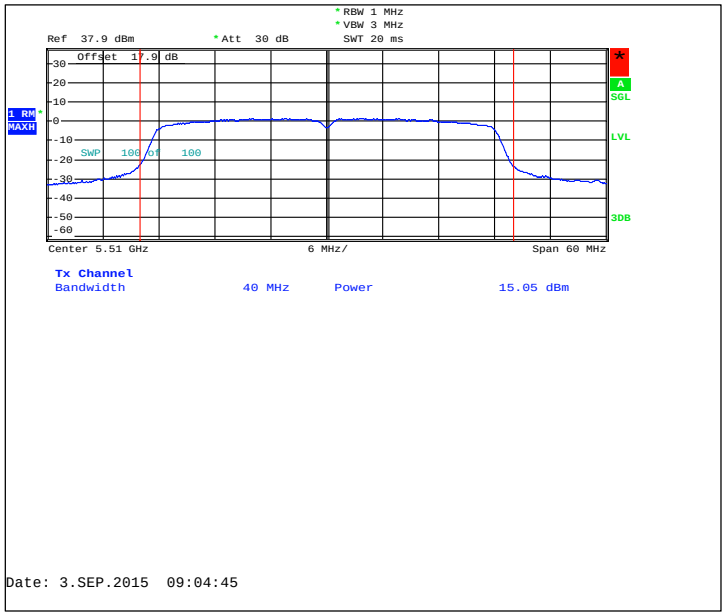

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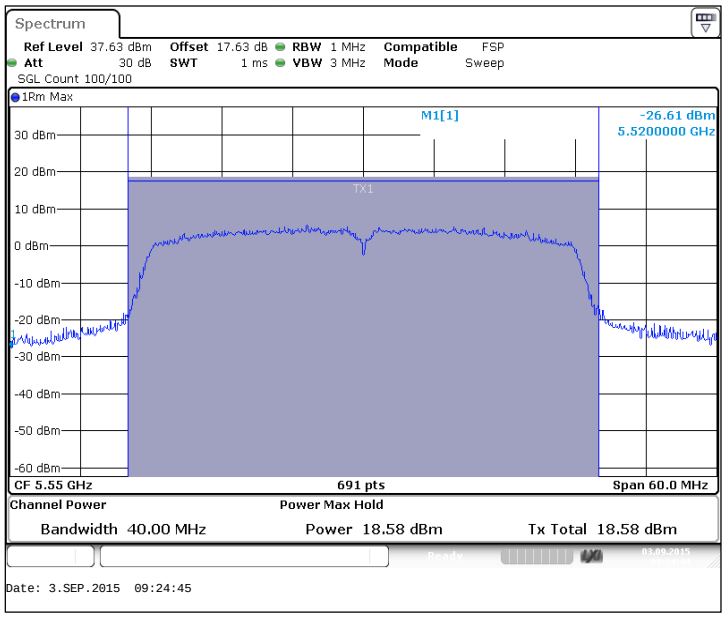
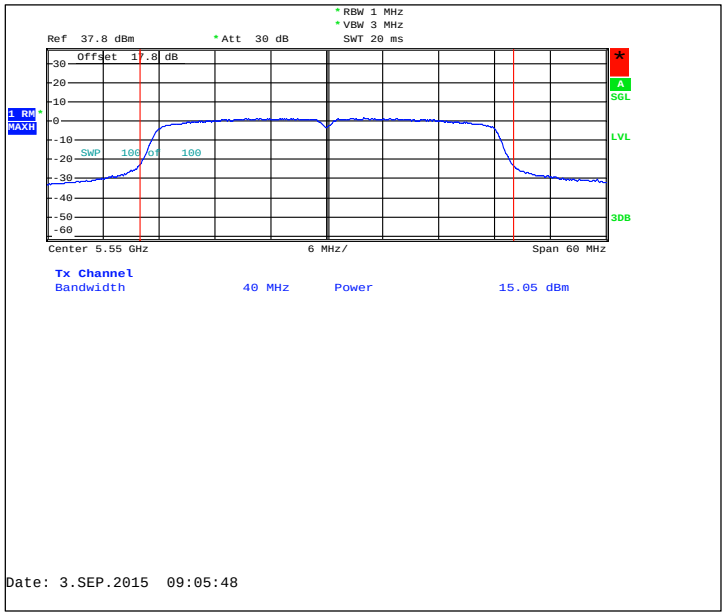
Main (108+112 / 5550)



Aux (108+112 / 5550)



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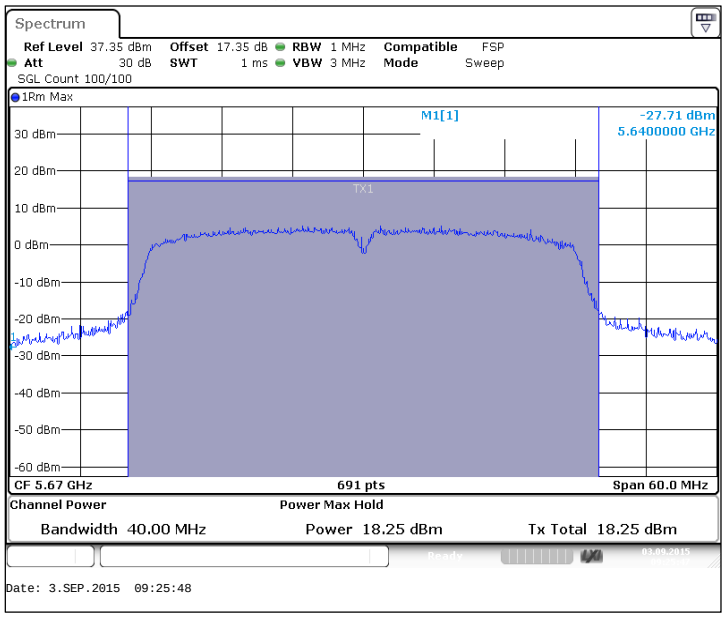
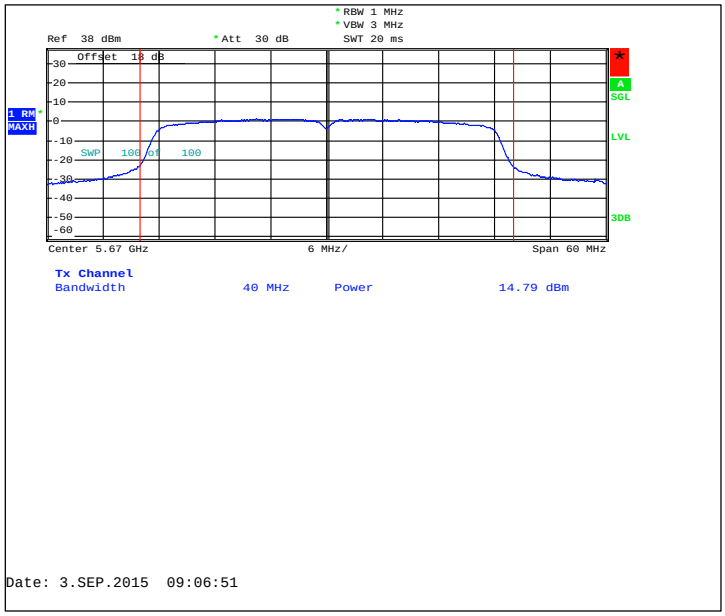
Main (132+136 / 5670)



Aux (132+136 / 5670)



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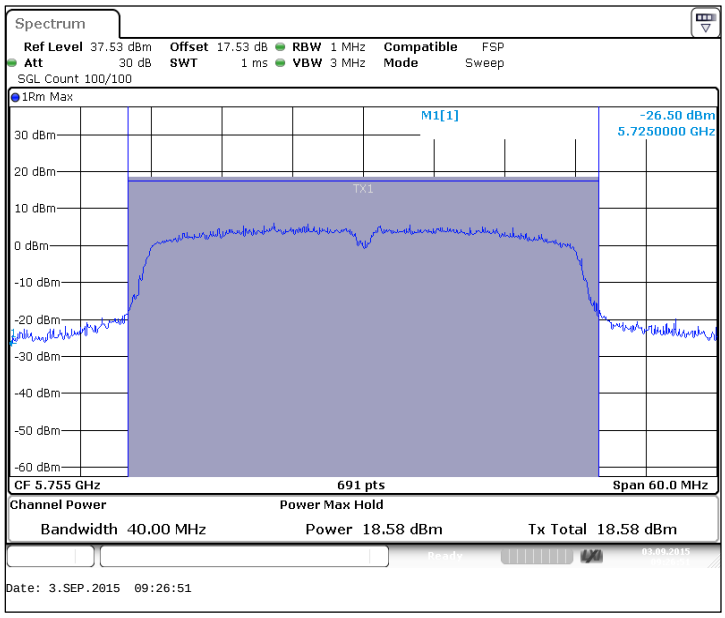
Main (149+153 / 5755)



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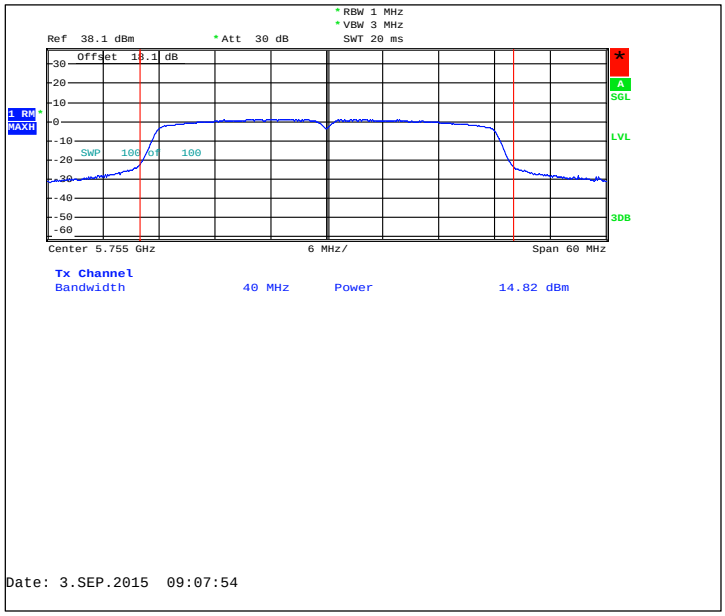

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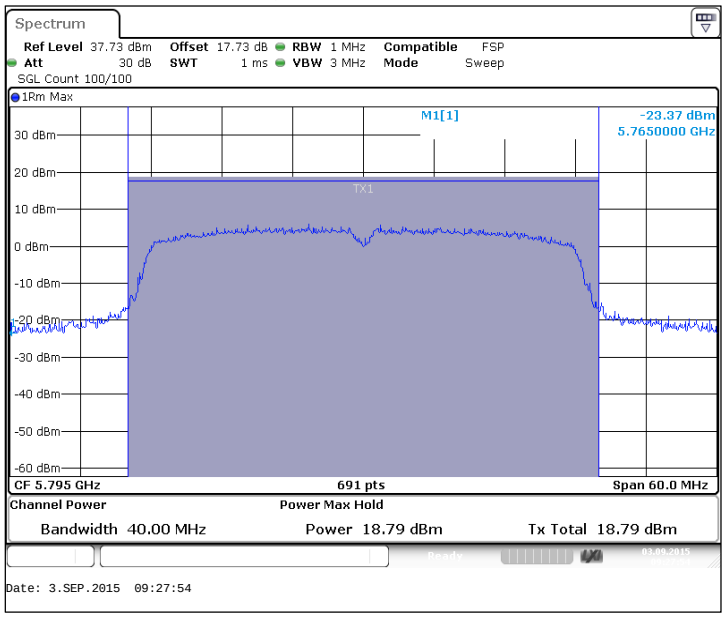
Main (157+161 / 5795)



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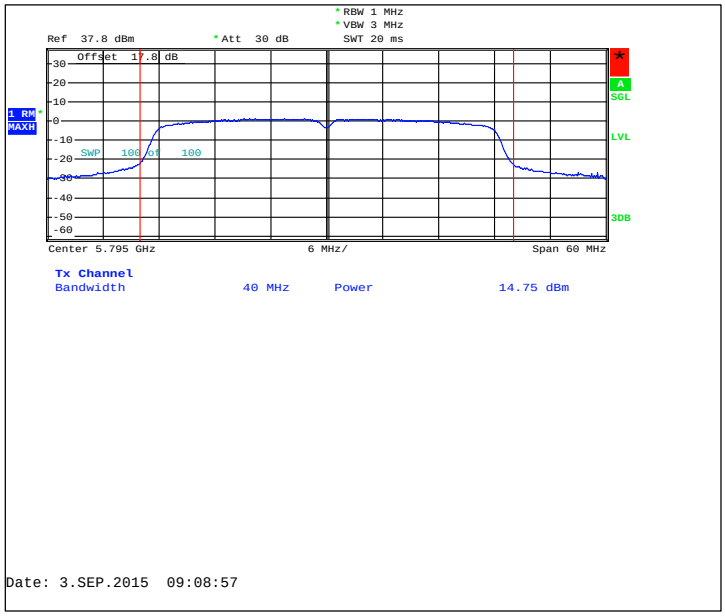

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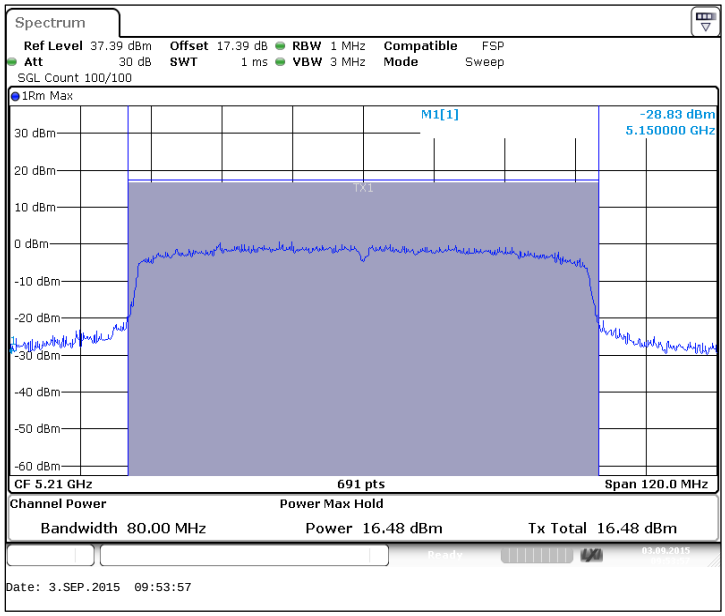
2.4.3 802.11ac MIMO mode, BPSK modulation, 29.3 / 32.5 Mbps data rate

Channel / f_C [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36-48 / 5210	18.13	16.48	13.12	1.4	1.4	1.4	24	24	PASSED
52-64 / 5290	18.33	16.74	13.17	1.4	1.4	1.4	24	24	PASSED
100-112 / 5530	19	17.44	13.8	1.4	1.4	1.4	24	24	PASSED
149-161 / 5775	18.89	17.34	13.66	1.4	1.4	1.4	30	30	PASSED

Main (36-48 / 5210)



Aux (36-48 / 5210)

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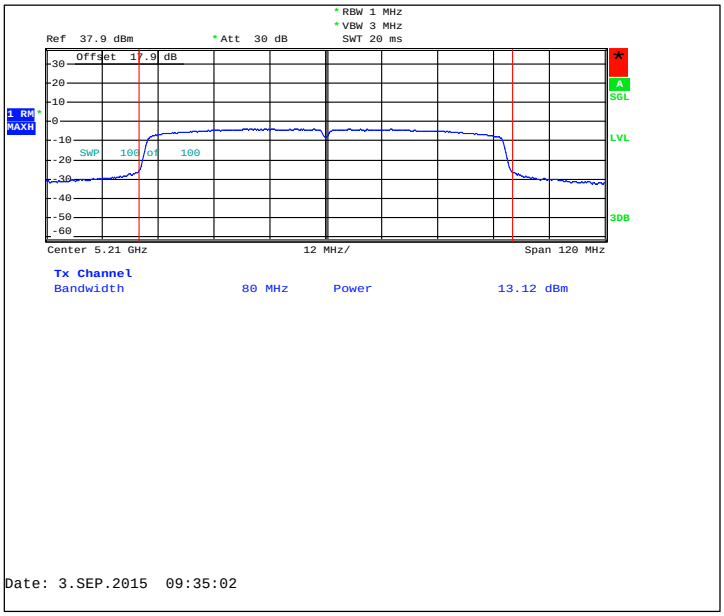

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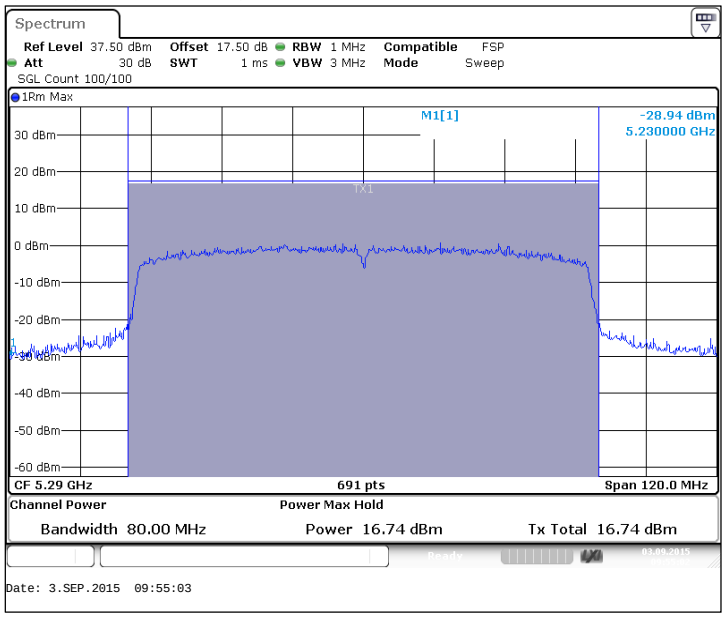
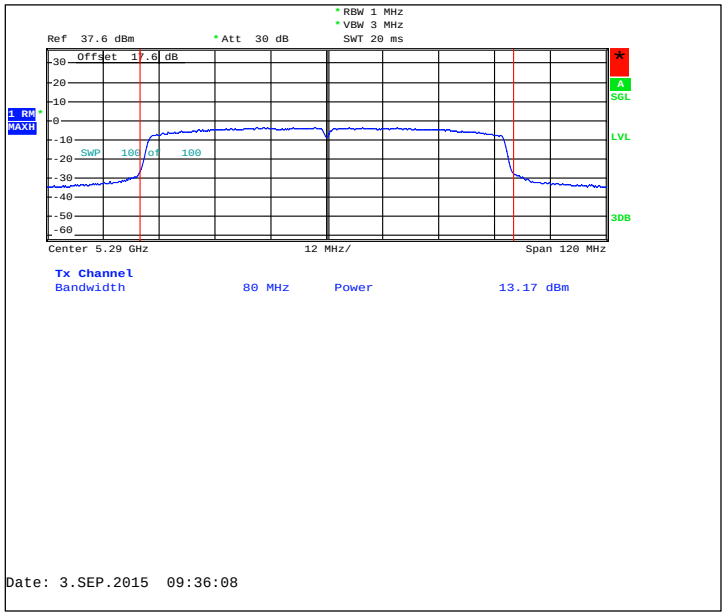
Main (52-64 / 5290)



Aux (52-64 / 5290)



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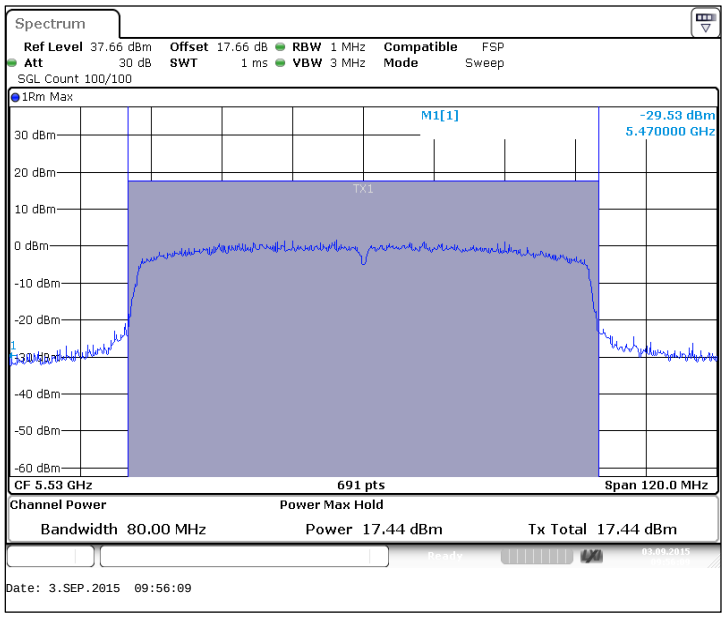
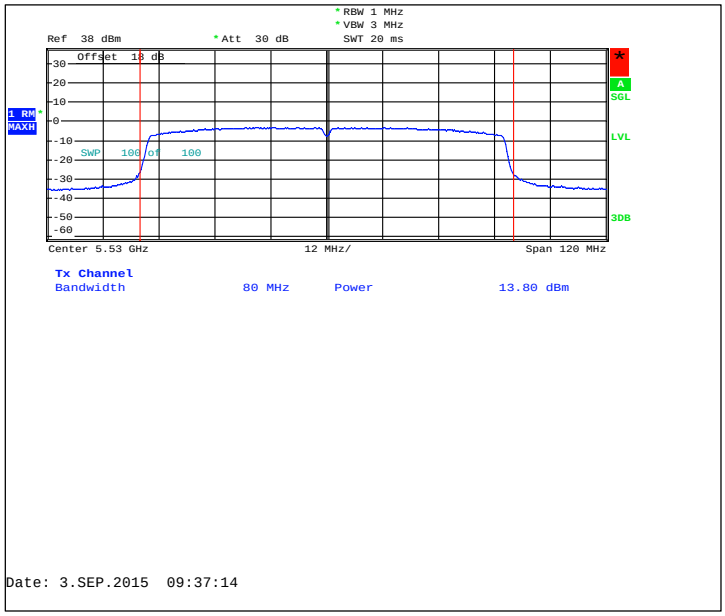
Main (100-112 / 5530)



Aux (100-112 / 5530)



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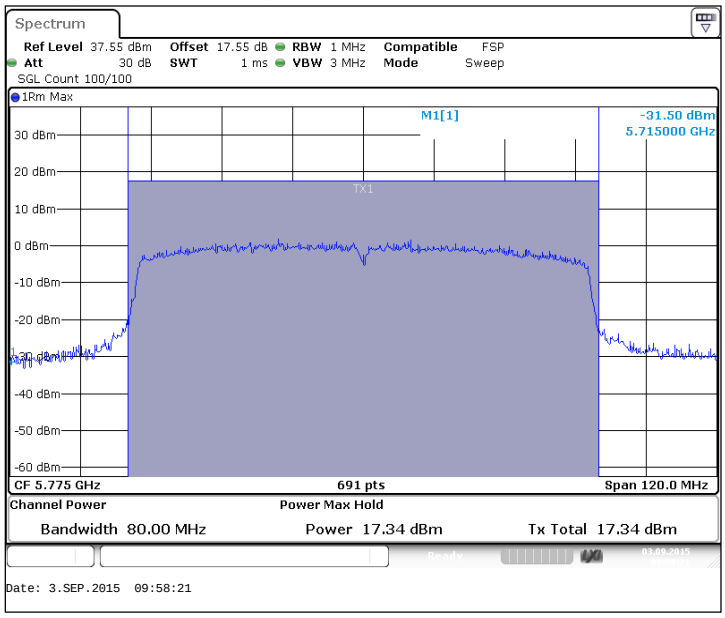
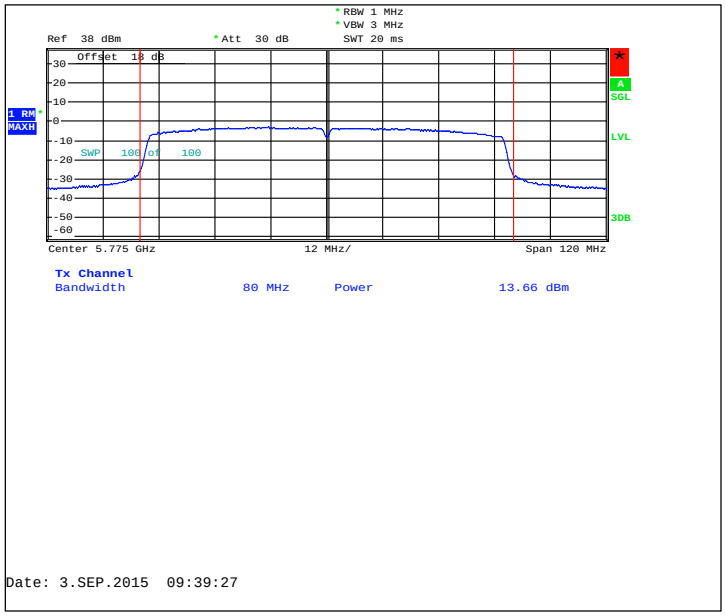
Main (149-161 / 5775)



Aux (149-161 / 5775)



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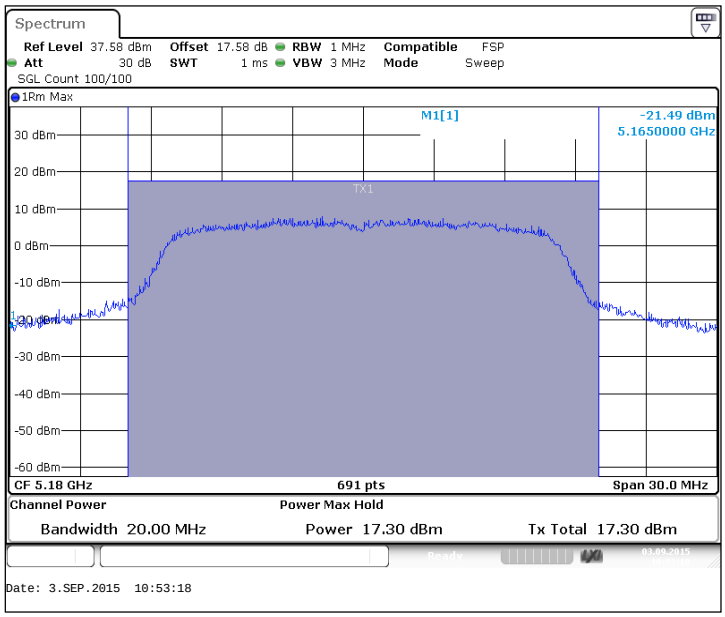
2.4.4 802.11a MIMO mode, QPSK modulation, 18 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36 / 5180	18.85	17.3	13.62	1.4	1.4	1.4	24	24	PASSED
40 / 5200	18.72	17.09	13.69	1.4	1.4	1.4	24	24	PASSED
48 / 5240	19.01	17.36	14.01	1.4	1.4	1.4	24	24	PASSED
52 / 5260	19.03	17.44	13.87	1.4	1.4	1.4	24	24	PASSED
60 / 5300	19.1	17.43	14.14	1.4	1.4	1.4	24	24	PASSED
64 / 5320	19.3	17.65	14.31	1.4	1.4	1.4	24	24	PASSED
100 / 5500	19.69	18.04	14.68	1.4	1.4	1.4	24	24	PASSED
116 / 5580	19.62	17.99	14.56	1.4	1.4	1.4	24	24	PASSED
140 / 5700	19.57	18.02	14.35	1.4	1.4	1.4	24	24	PASSED
149 / 5745	19.7	18.16	14.44	1.4	1.4	1.4	30	30	PASSED
157 / 5785	19.66	18.24	14.12	1.4	1.4	1.4	30	30	PASSED
165 / 5825	19.8	18.35	14.31	1.4	1.4	1.4	30	30	PASSED

Main (36 / 5180)



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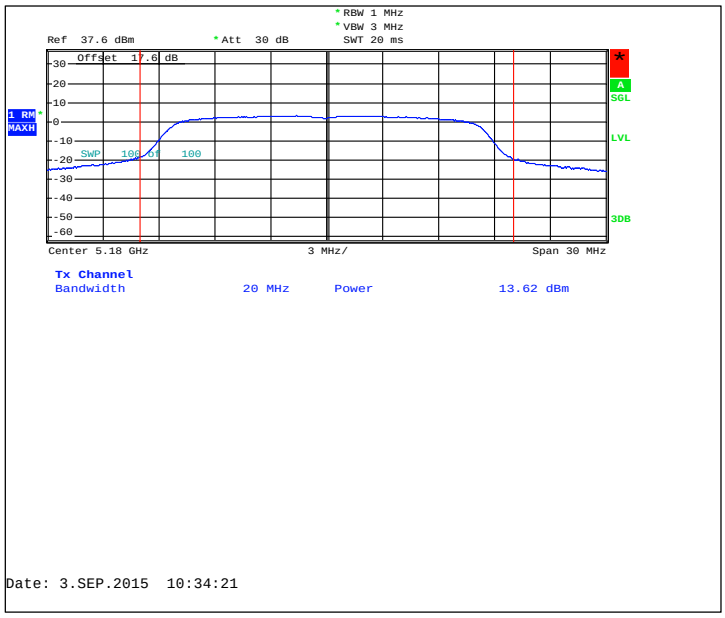
Aux (36 / 5180)



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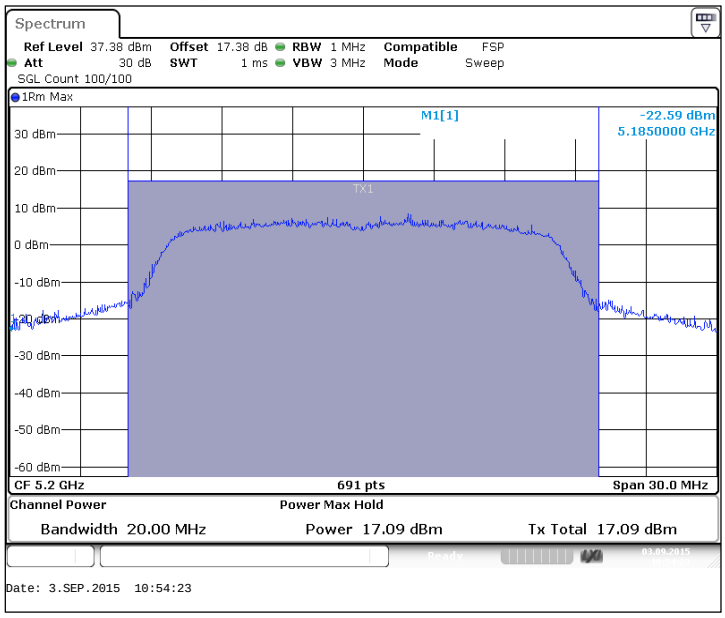
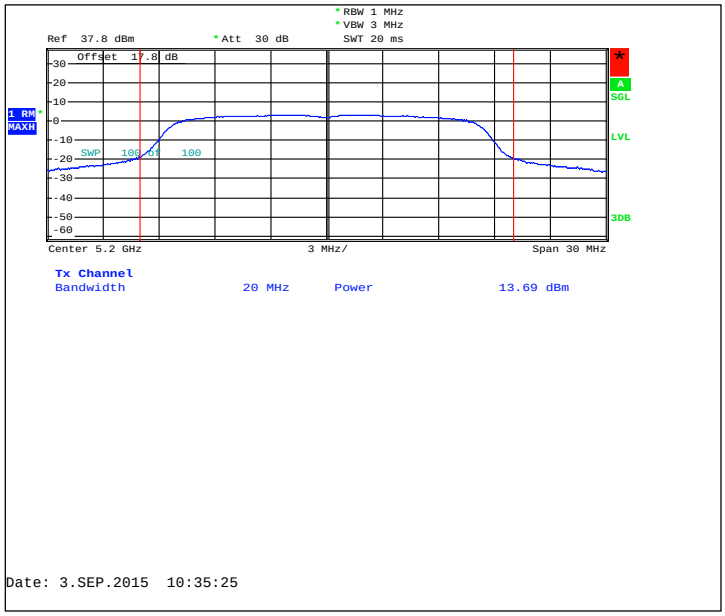
Main (40 / 5200)



Aux (40 / 5200)



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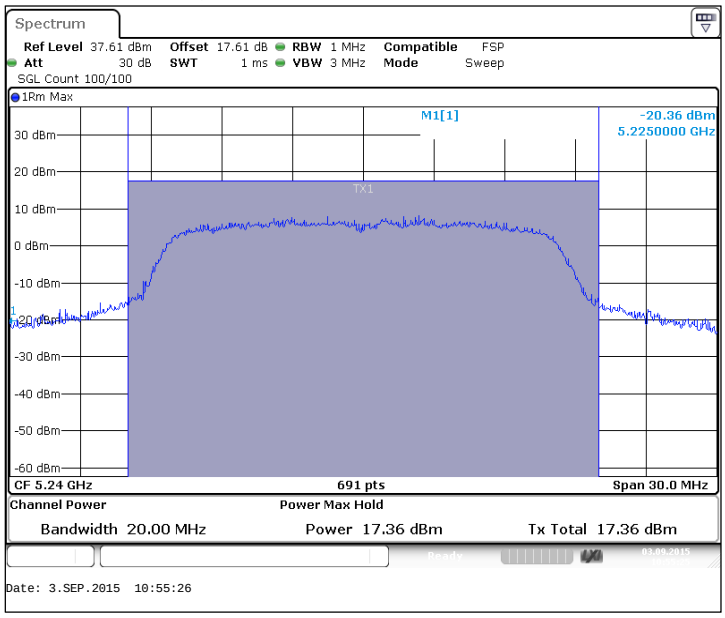
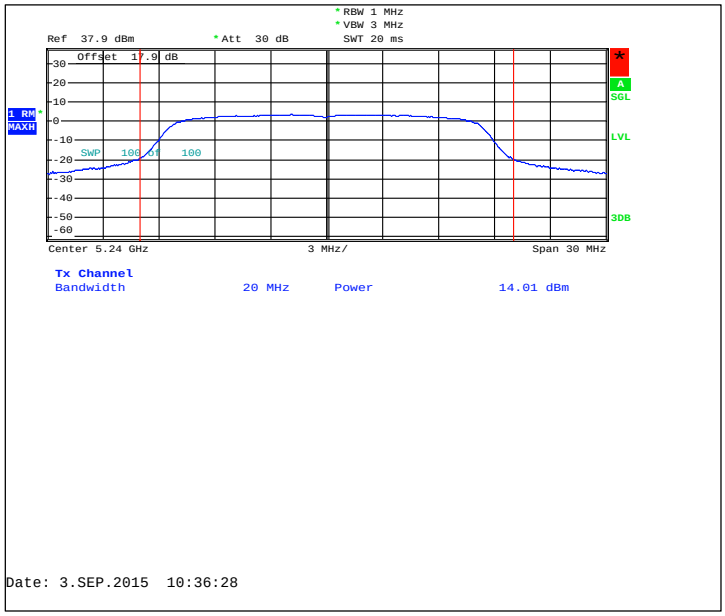
Main (48 / 5240)



Aux (48 / 5240)



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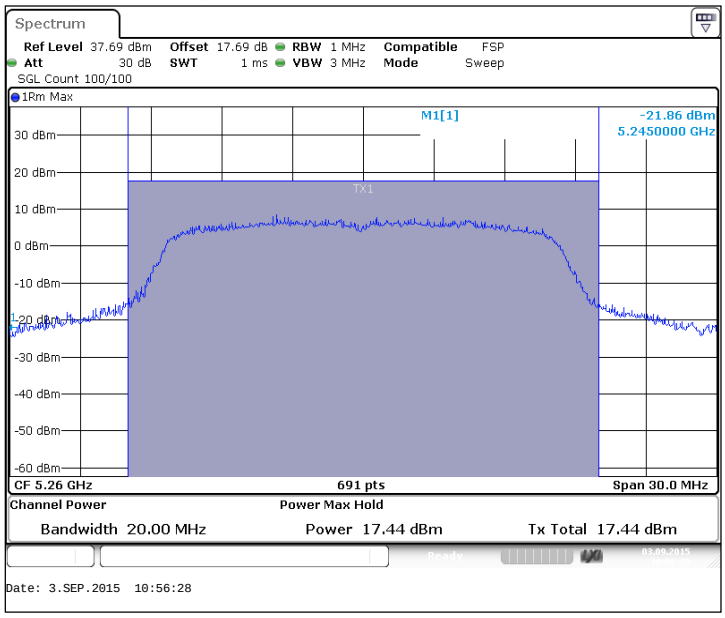
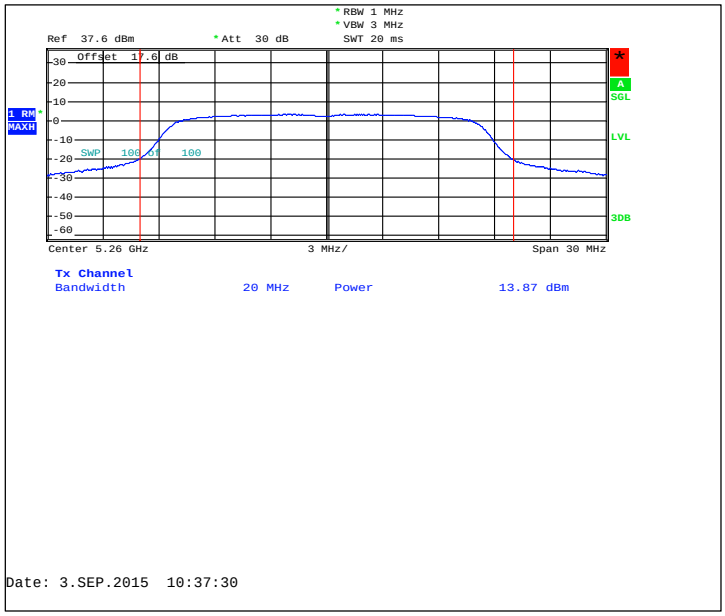
Main (52 / 5260)



Aux (52 / 5260)



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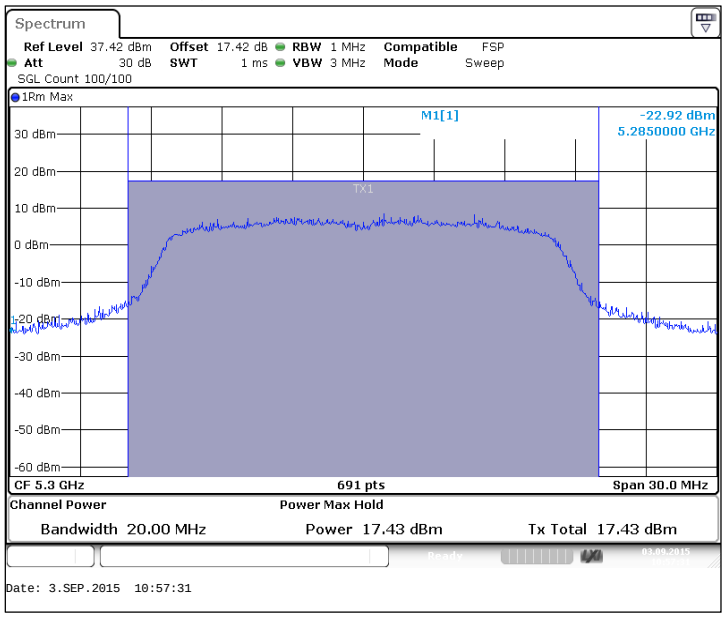
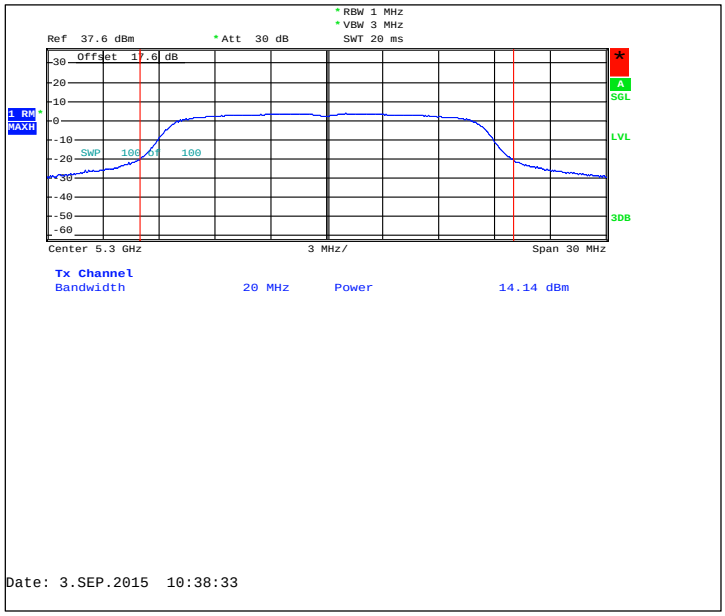


Aux (60 / 5300)



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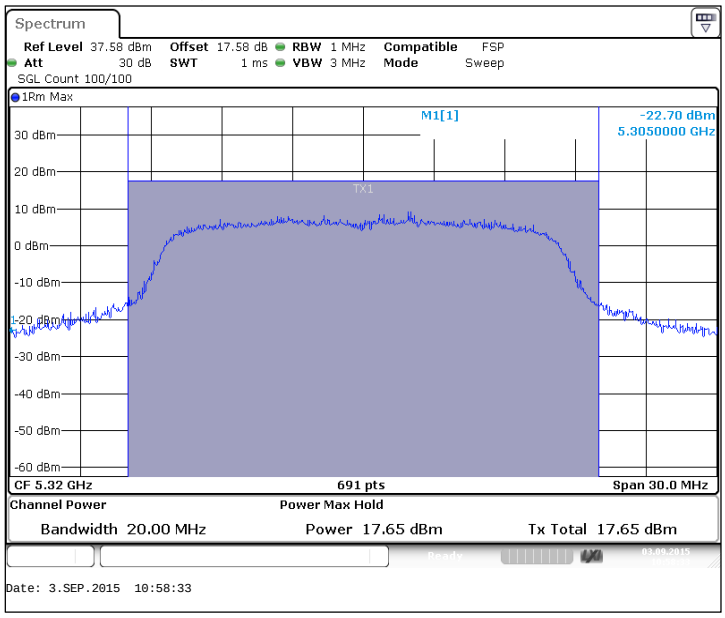
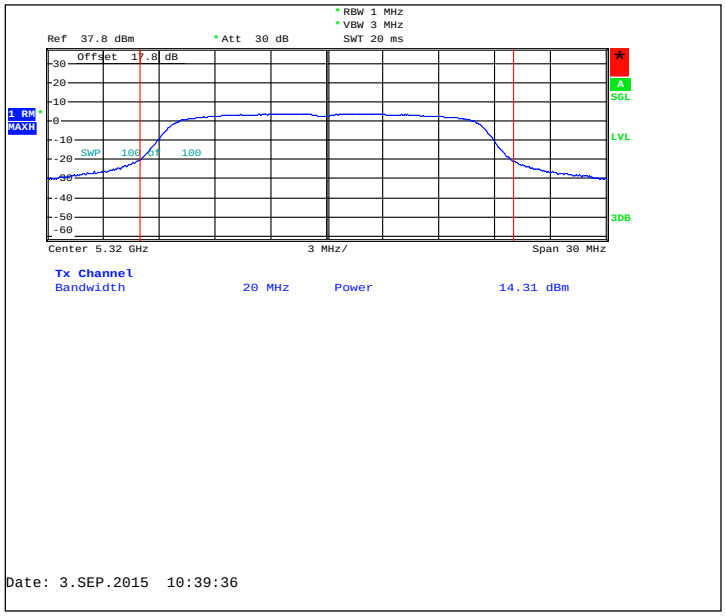
Main (64 / 5320)



Aux (64 / 5320)



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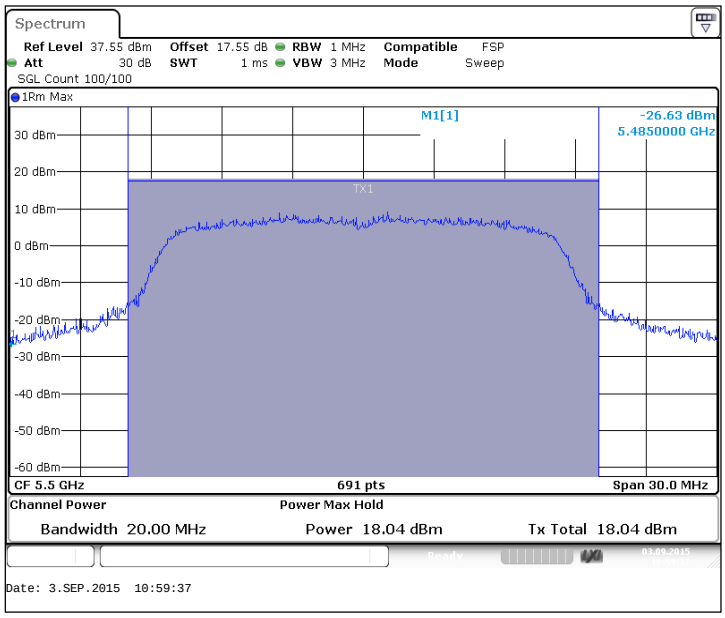
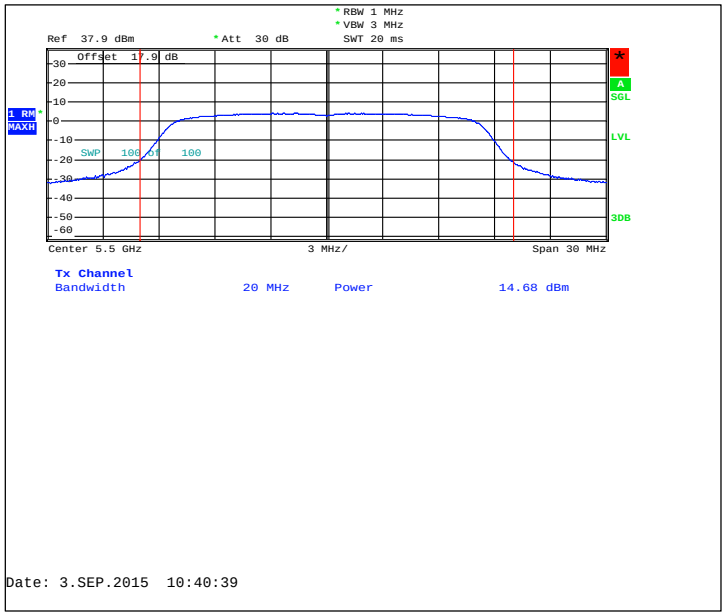
Main (100 / 5500)



Aux (100 / 5500)



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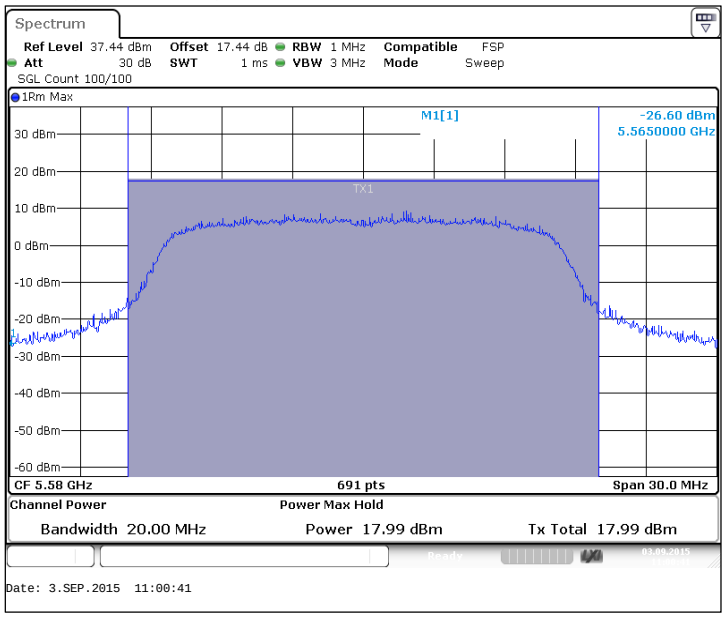
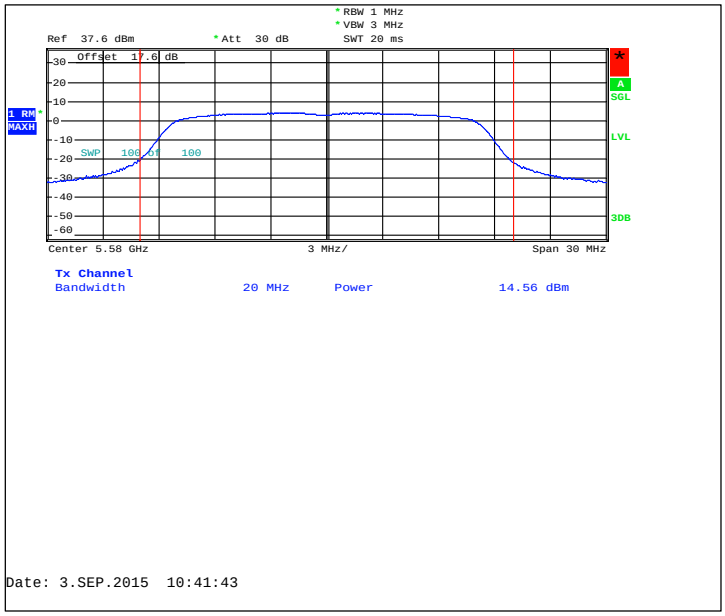
Main (116 / 5580)



Aux (116 / 5580)



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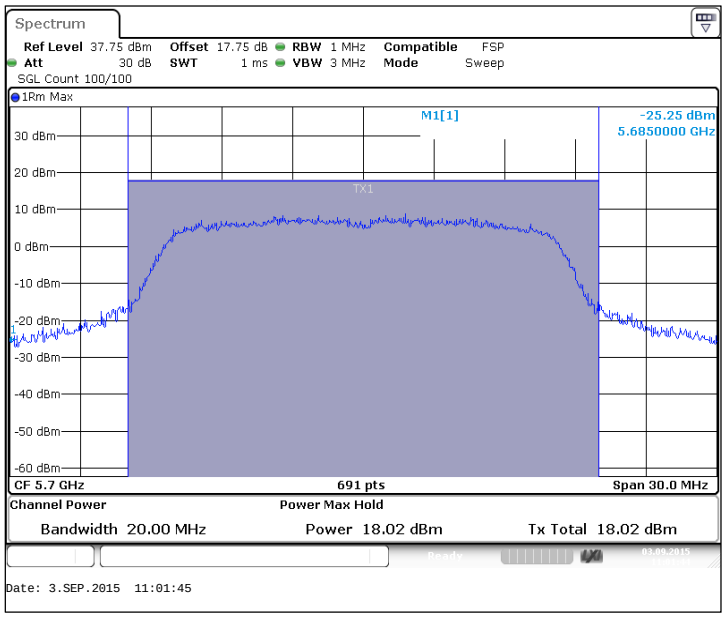
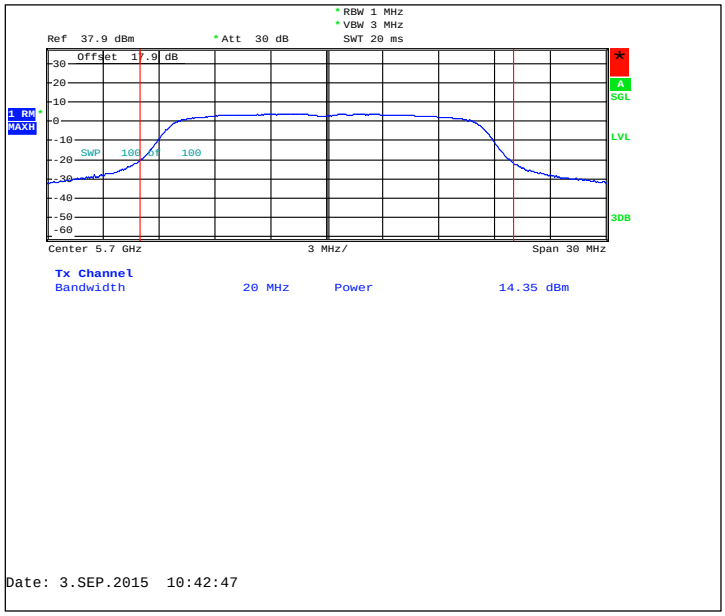
Main (140 / 5700)



Aux (140 / 5700)



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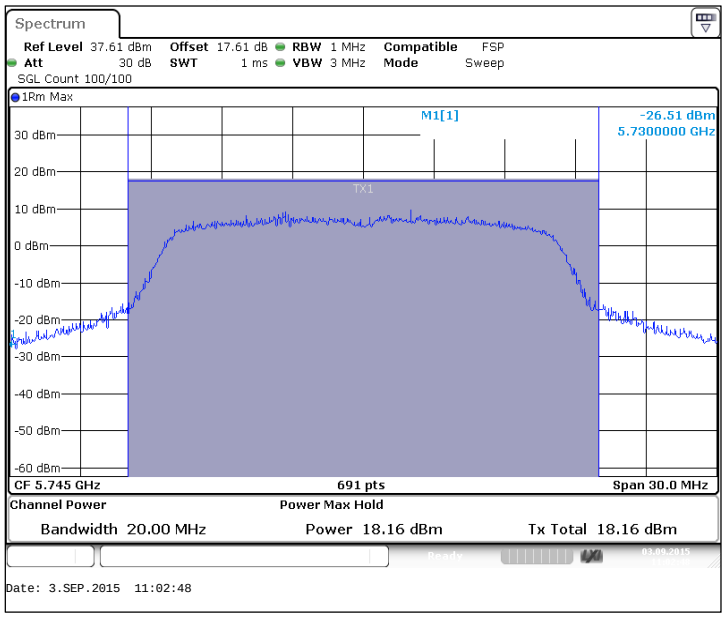
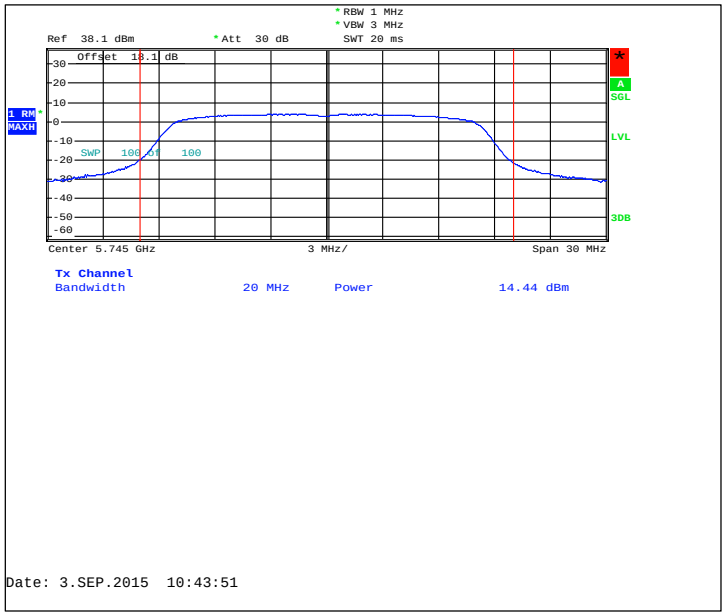
Main (149 / 5745)



Aux (149 / 5745)



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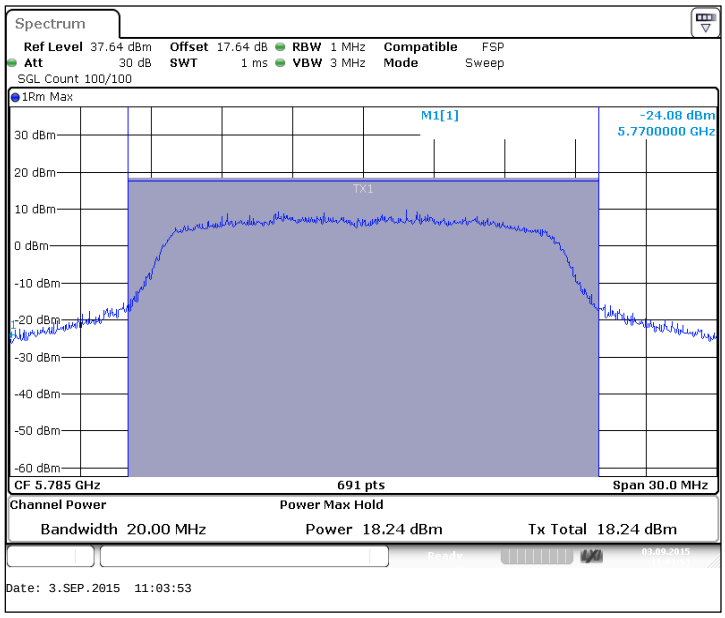
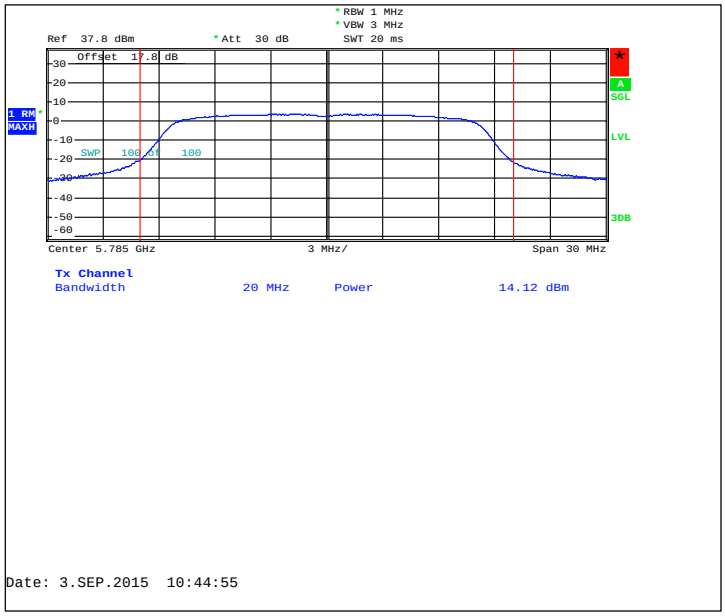
Main (157 / 5785)



Aux (157 / 5785)



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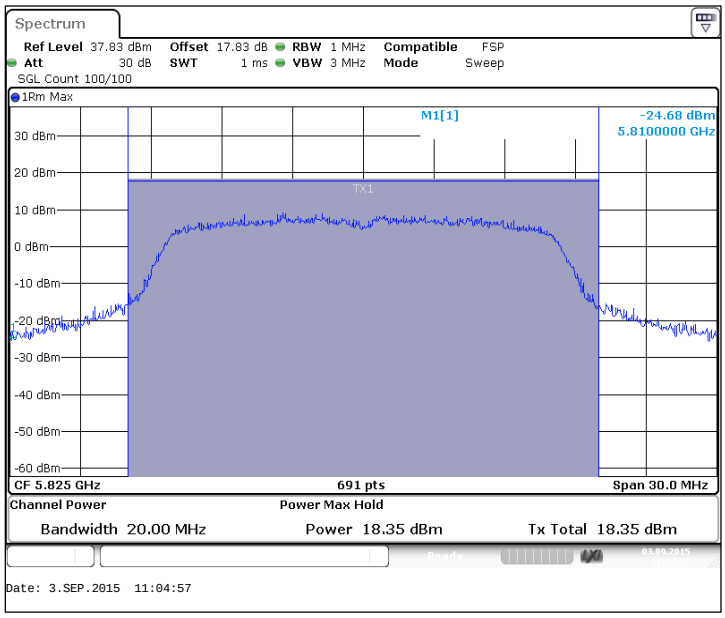
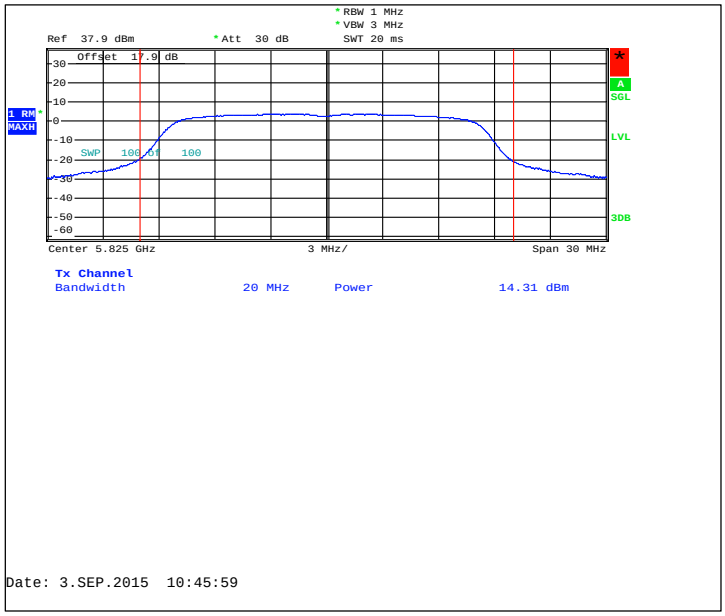
Main (165 / 5825)



Aux (165 / 5825)



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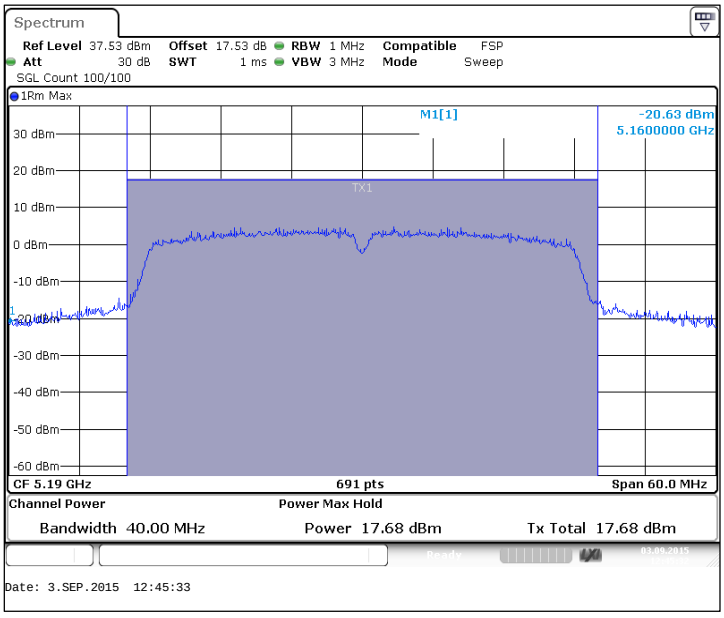
2.4.5 802.11n MIMO mode, QPSK modulation, 40.5 / 45.0 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36+40 / 5190	19.31	17.68	14.27	1.4	1.4	1.4	24	24	PASSED
44+48 / 5230	19.35	17.65	14.45	1.4	1.4	1.4	24	24	PASSED
52+56 / 5270	19.47	17.83	14.45	1.4	1.4	1.4	24	24	PASSED
60+64 / 5310	19.53	17.78	14.73	1.4	1.4	1.4	24	24	PASSED
100+104 / 5510	20.02	18.39	14.98	1.4	1.4	1.4	24	24	PASSED
108+112 / 5550	19.99	18.36	14.95	1.4	1.4	1.4	24	24	PASSED
132+136 / 5670	19.73	18.1	14.71	1.4	1.4	1.4	24	24	PASSED
149+153 / 5755	19.89	18.3	14.76	1.4	1.4	1.4	30	30	PASSED
157+161 / 5795	20.07	18.59	14.67	1.4	1.4	1.4	30	30	PASSED

Main (36+40 / 5190)



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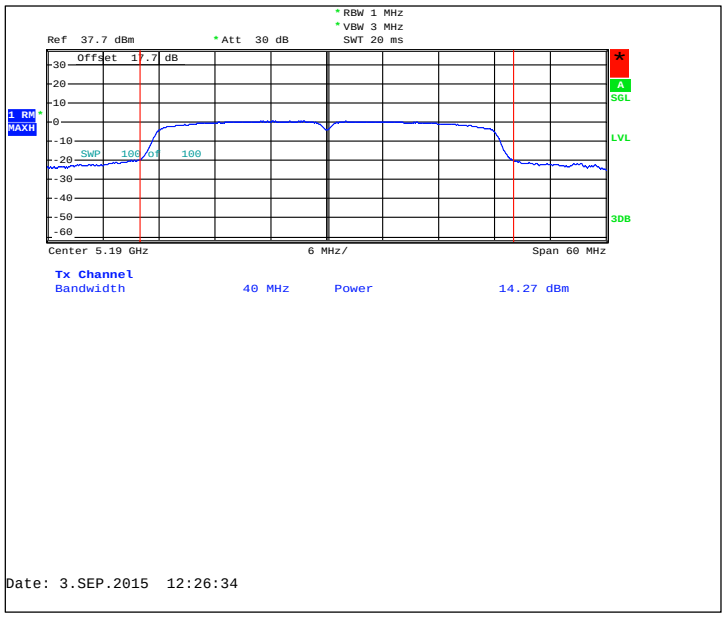
Aux (36+40 / 5190)



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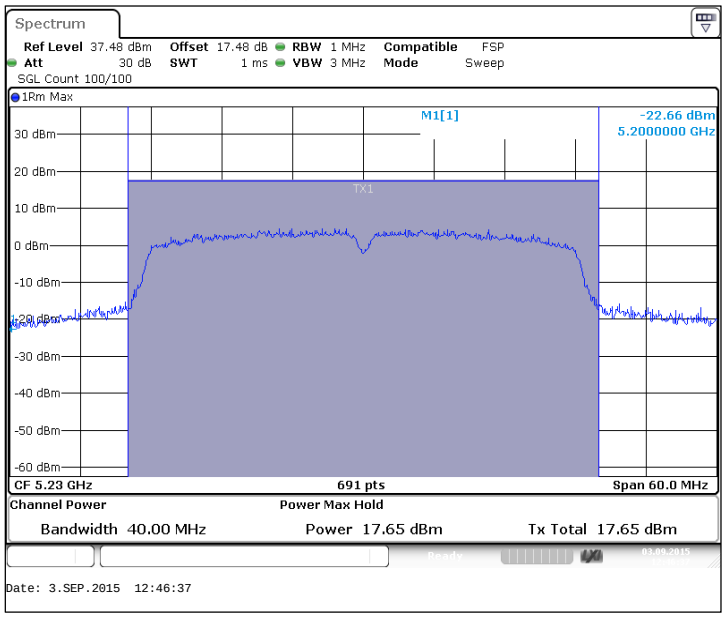
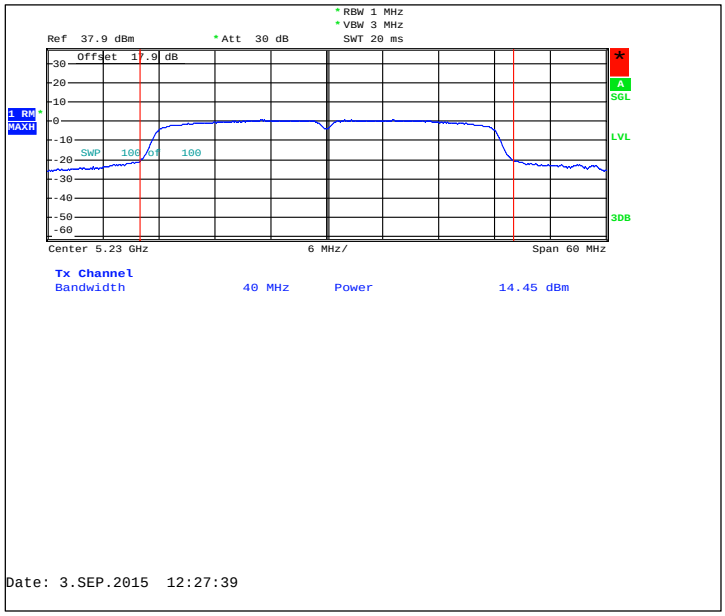
Main (44+48 / 5230)



Aux (44+48 / 5230)



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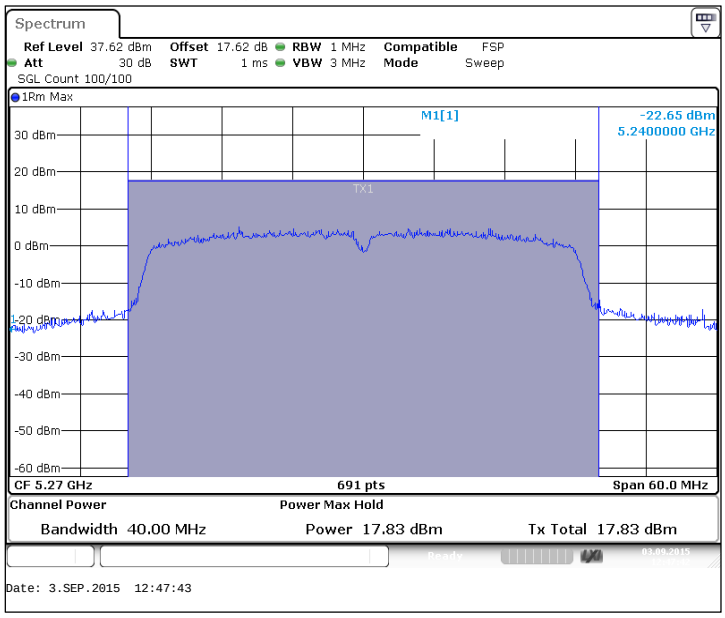
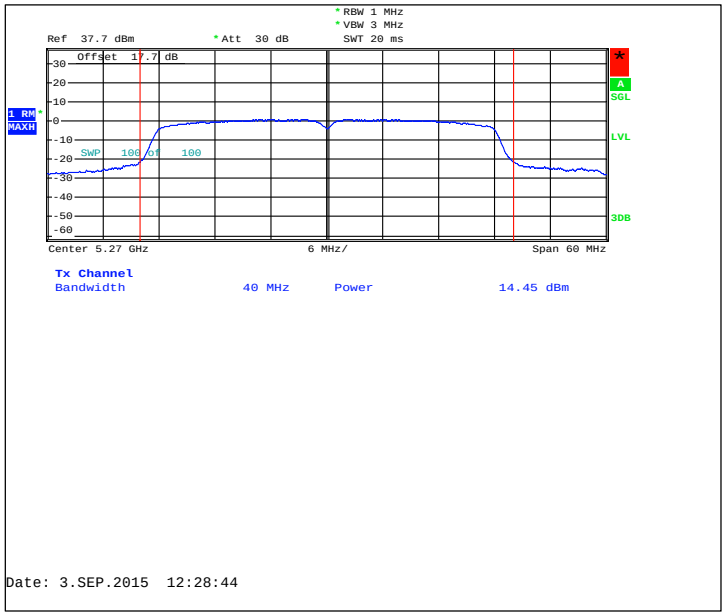
Main (52+56 / 5270)



Aux (52+56 / 5270)



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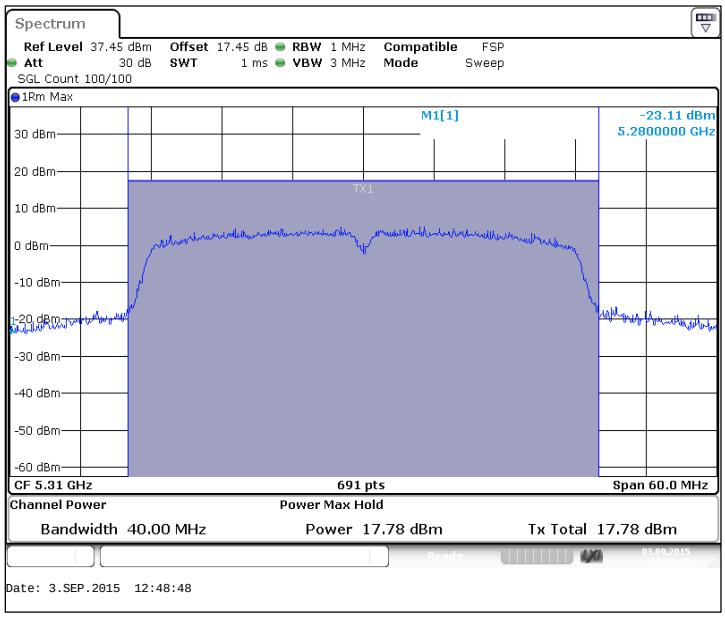
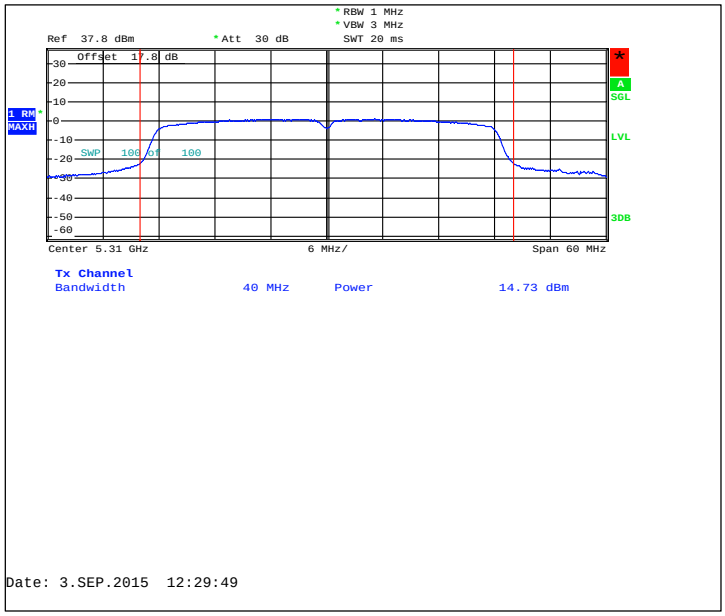
Main (60+64 / 5310)



Aux (60+64 / 5310)



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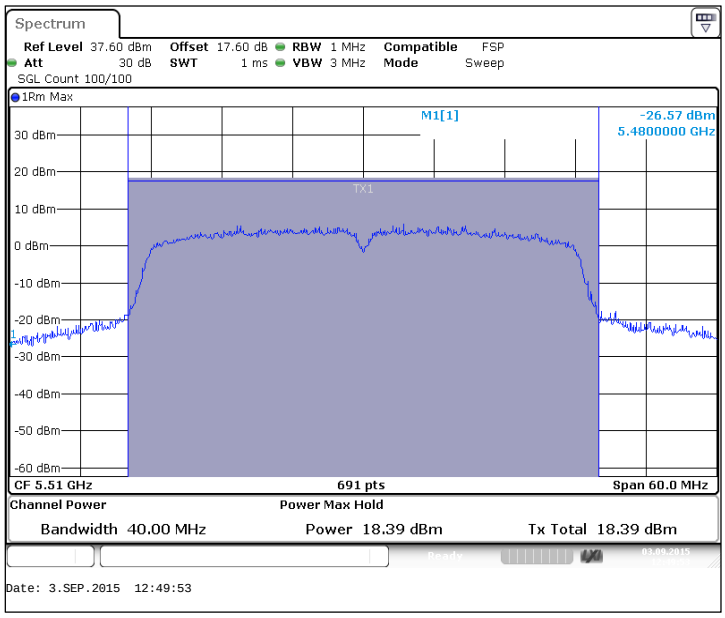
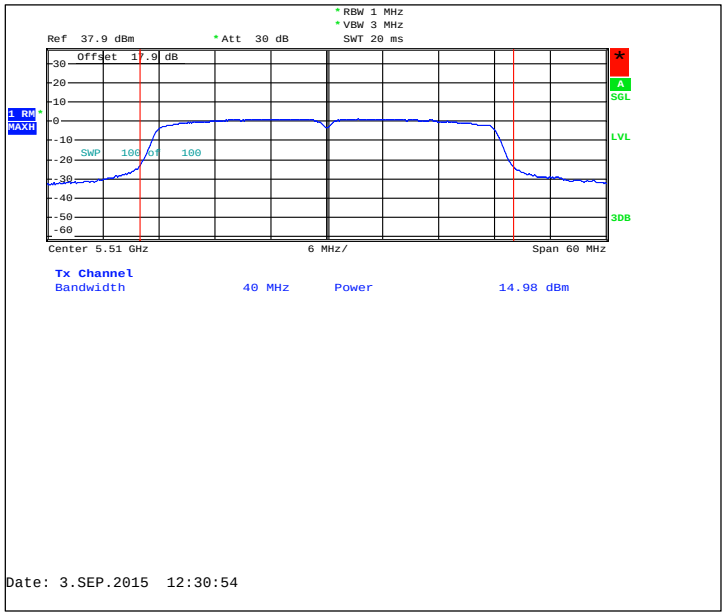
Main (100+104 / 5510)



Aux (100+104 / 5510)



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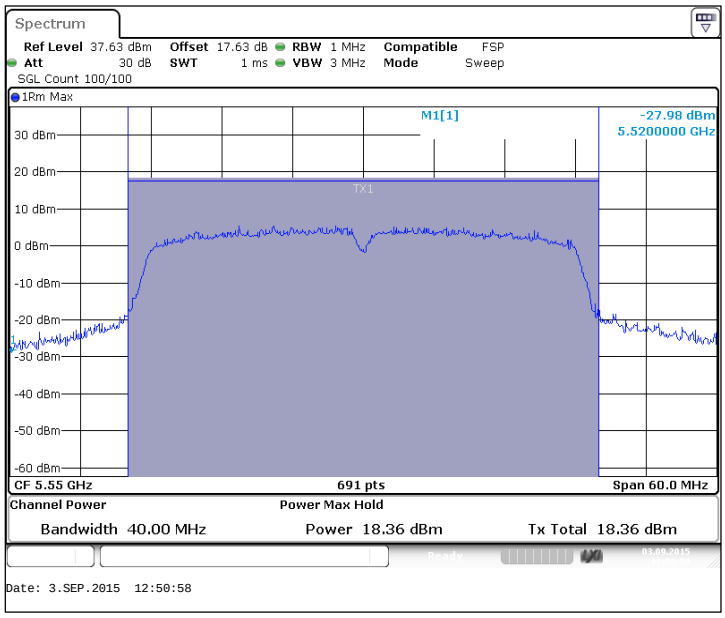
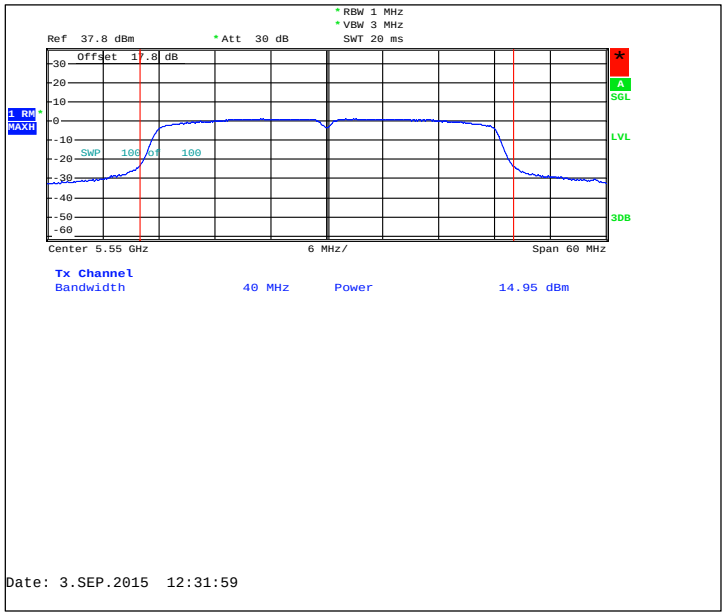
Main (108+112 / 5550)



Aux (108+112 / 5550)



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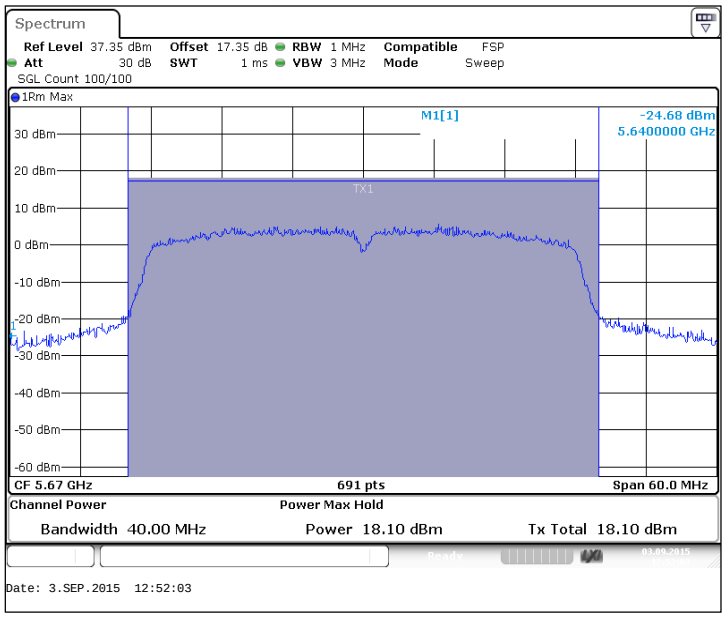
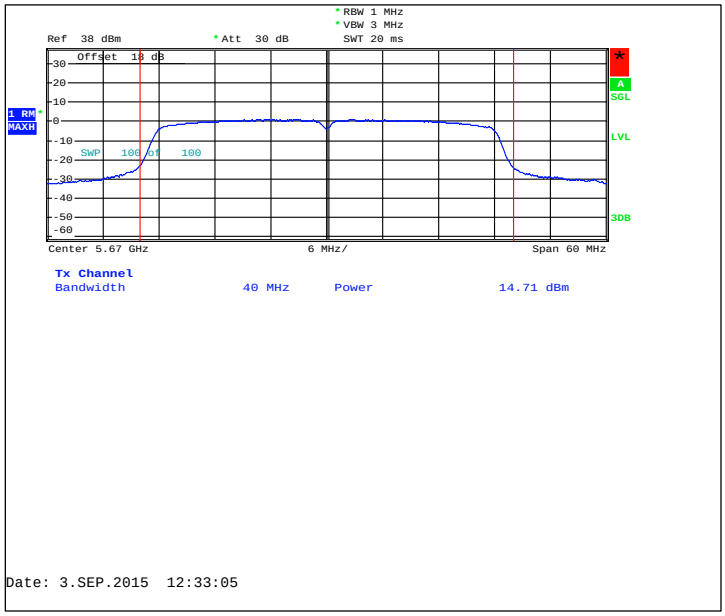
Main (132+136 / 5670)



Aux (132+136 / 5670)



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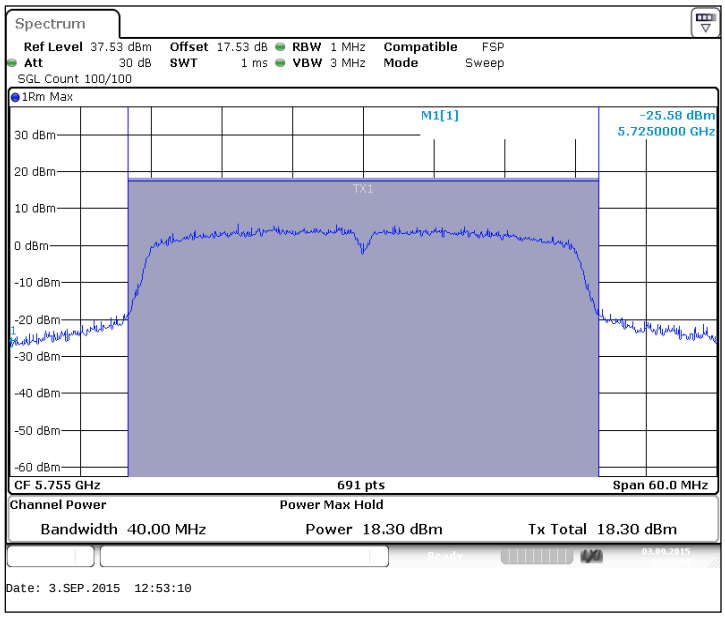
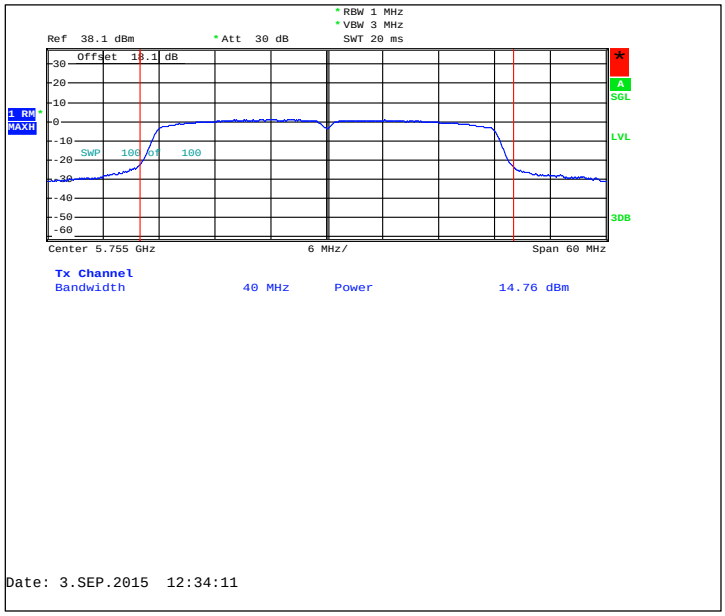
Main (149+153 / 5755)



Aux (149+153 / 5755)



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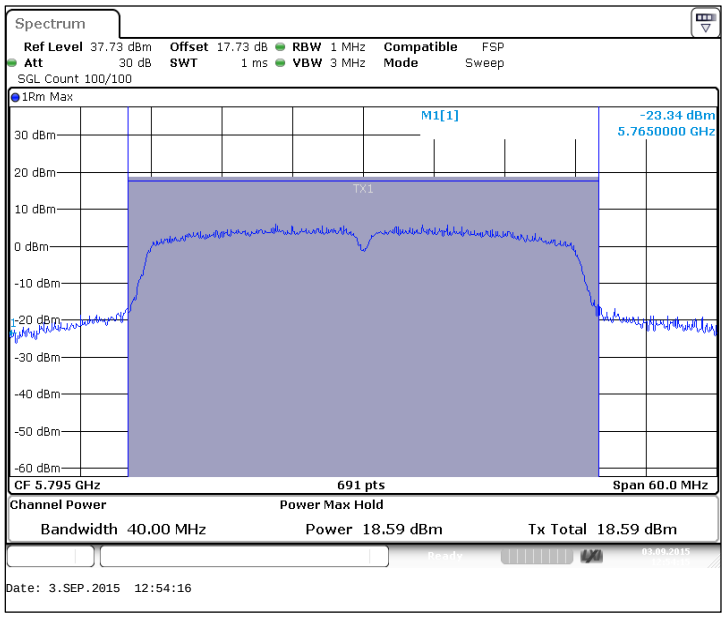
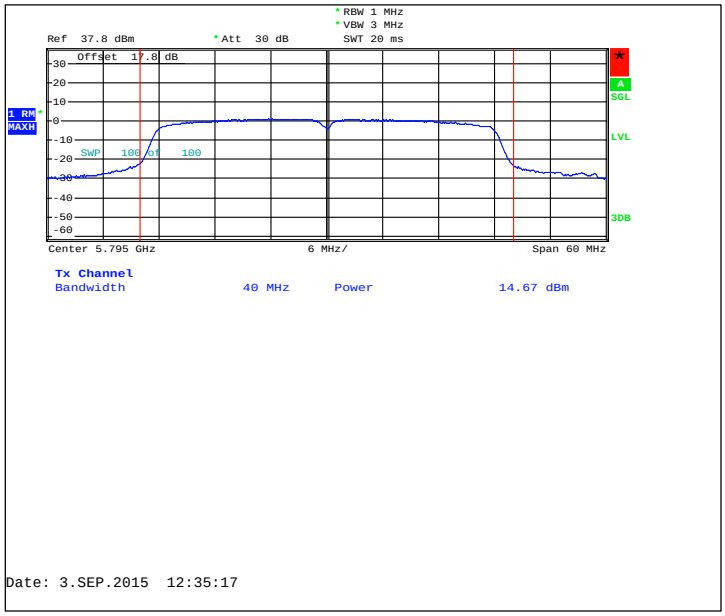
Main (157+161 / 5795)



Aux (157+161 / 5795)



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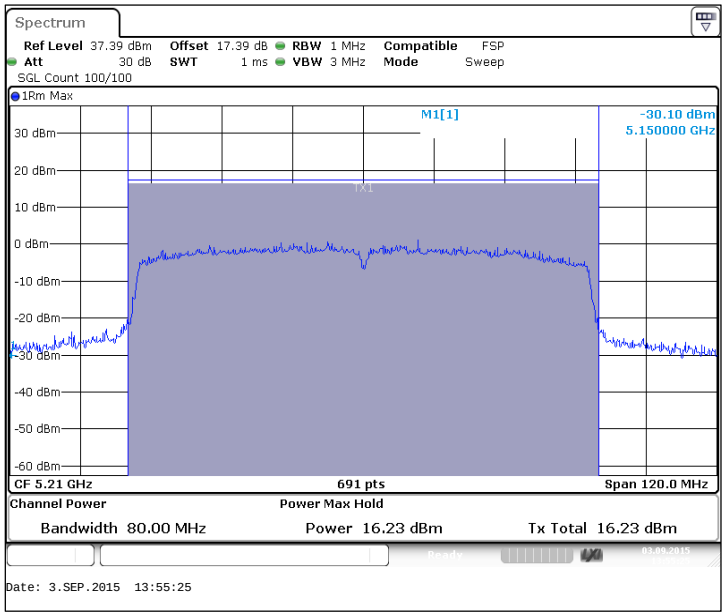
2.4.6 802.11ac MIMO mode, 16QAM modulation, 175.5 / 195.0 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36-48 / 5210	18	16.23	13.24	1.4	1.4	1.4	24	24	PASSED
52-64 / 5290	18.21	16.54	13.27	1.4	1.4	1.4	24	24	PASSED
100-112 / 5530	18.88	17.19	13.95	1.4	1.4	1.4	24	24	PASSED
149-161 / 5775	18.85	17.24	13.76	1.4	1.4	1.4	30	30	PASSED

Main (36-48 / 5210)



Aux (36-48 / 5210)

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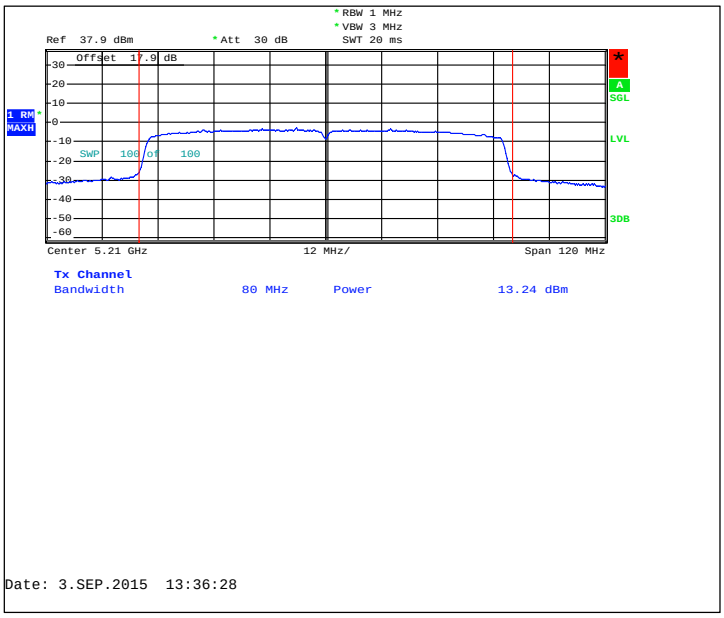

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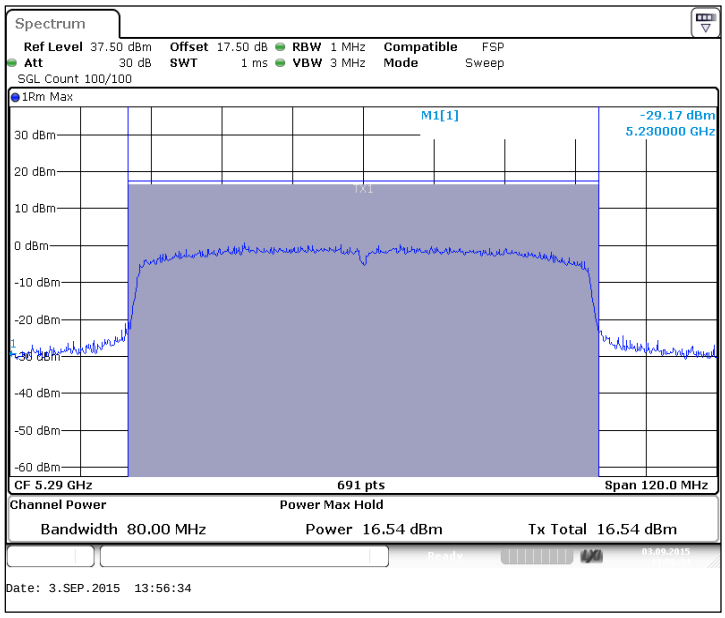
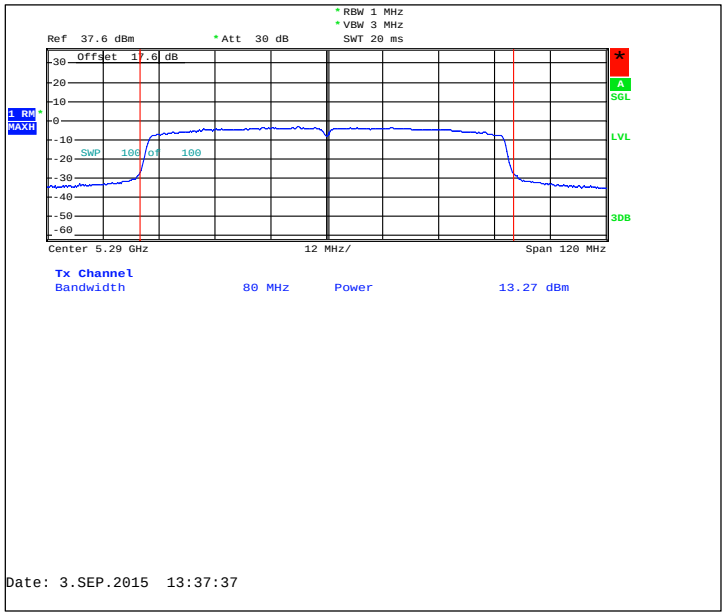
Main (52-64 / 5290)



Aux (52-64 / 5290)



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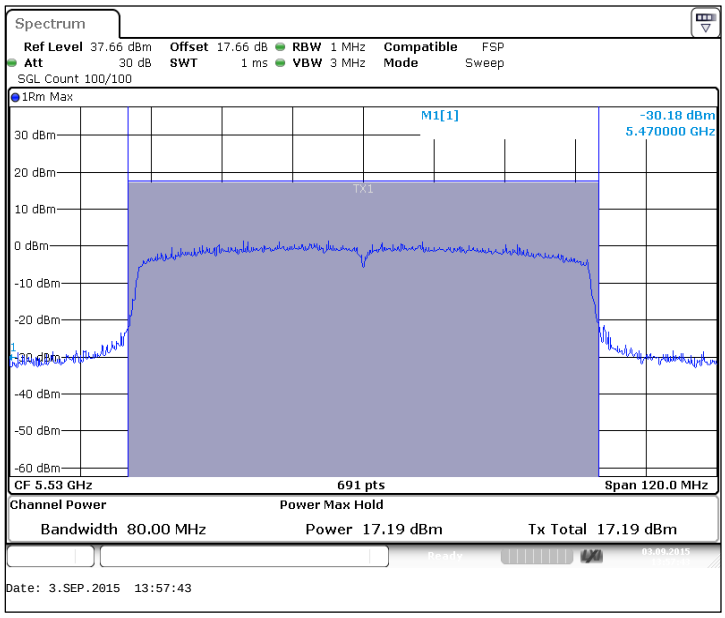
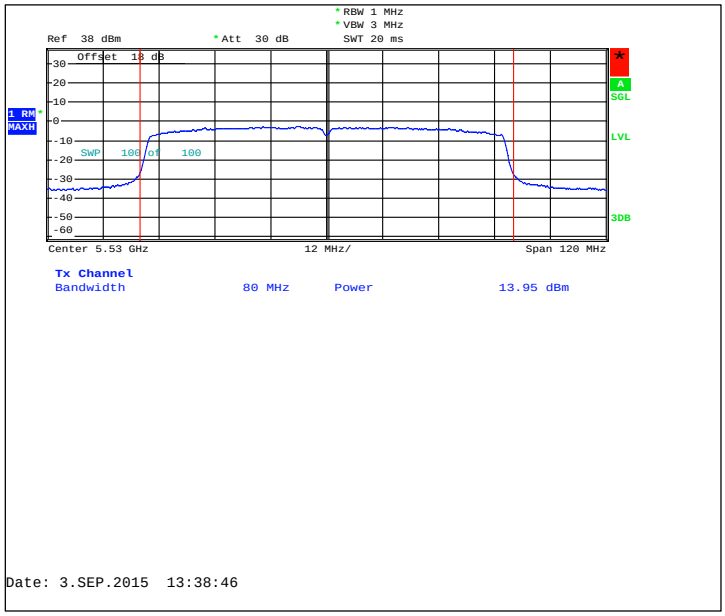
Main (100-112 / 5530)



Aux (100-112 / 5530)



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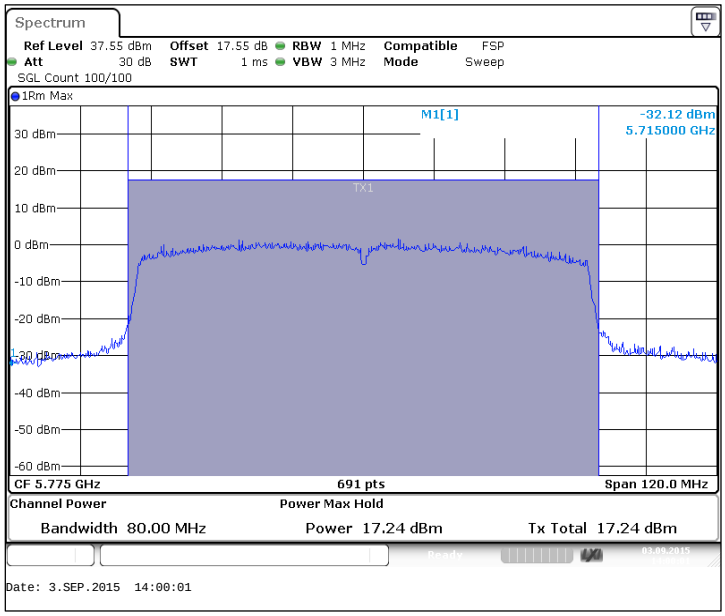
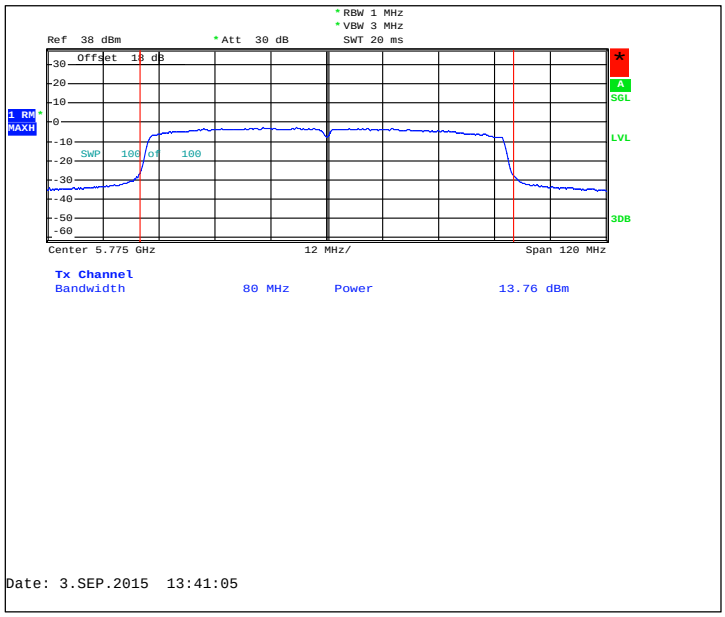
Main (149-161 / 5775)



Aux (149-161 / 5775)



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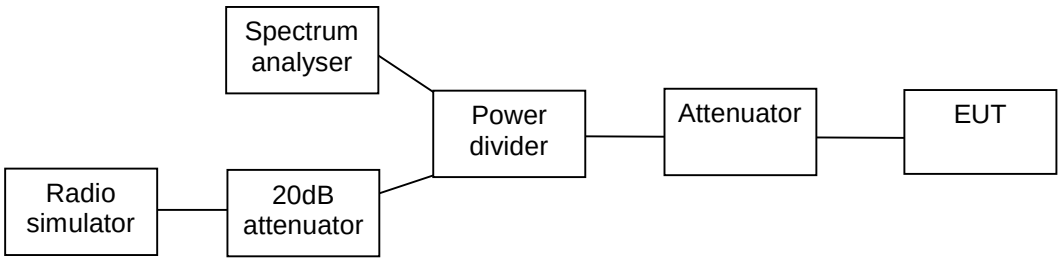
3. 6dB(bandwidth)
(FCC § , RSS-210 A9.2)

EUT with DUT number	RM-1104, DUT 100007
Accessories with DUT numbers	SD-244R, DUT 100021 ; WH-308, DUT 100029
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 49 / 101.2
Date of measurements	01-Jul-2015
Measured by	Jari Keto

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210.

Limits for 6 dB bandwidth measurements

Limit [kHz]
>= 500

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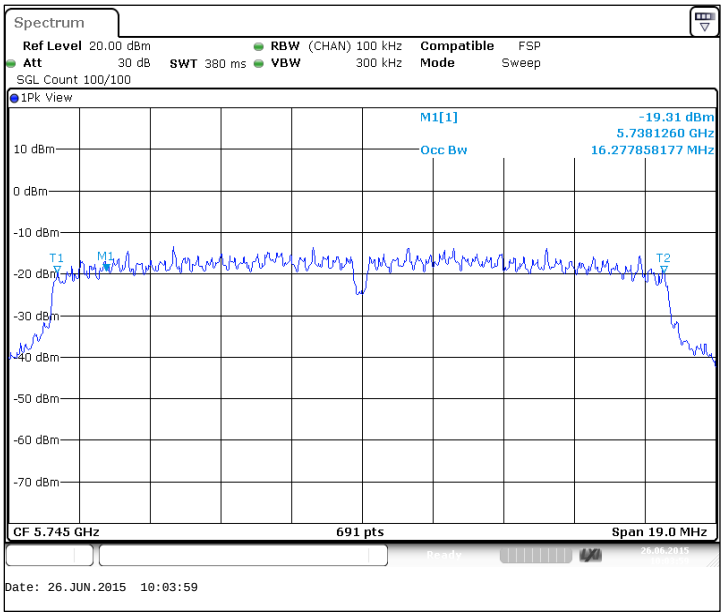
3.3. 5 GHz RLAN Test results

3.3.1 802.11a mode, BPSK modulation, 6 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
149 / 5745 MAIN	16277.9	PASSED
157 / 5785 MAIN	16277.9	PASSED
165 / 5825 MAIN	16277.9	PASSED
157 / 5785 AUX	16250.4	PASSED
165 / 5825 AUX	16277.9	PASSED
149 / 5745 AUX	16277.9	PASSED

Channel 149 / 5745MHz



Channel 157 / 5785MHz

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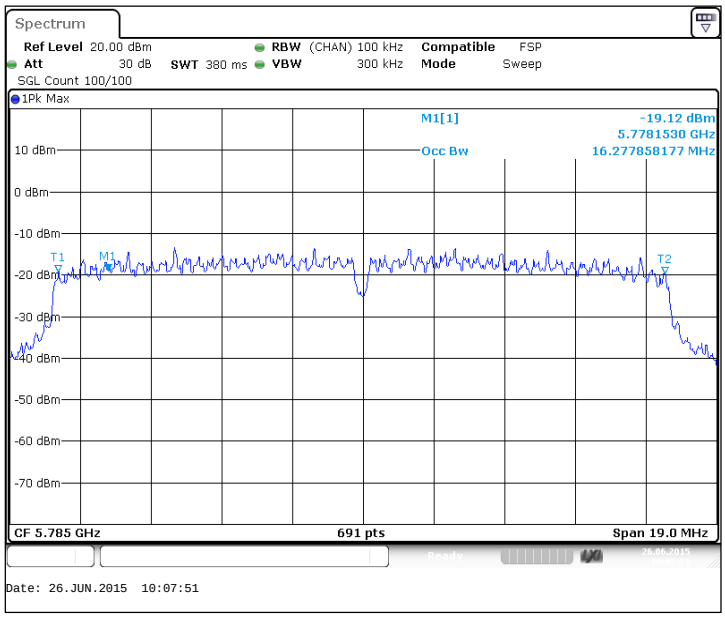
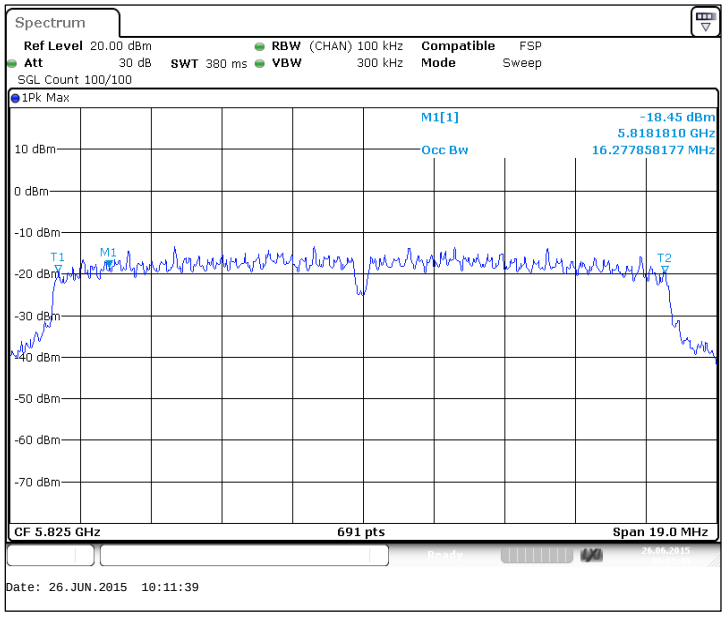


Channel 165 / 5825MHz



Channel 157 / 5785MHz

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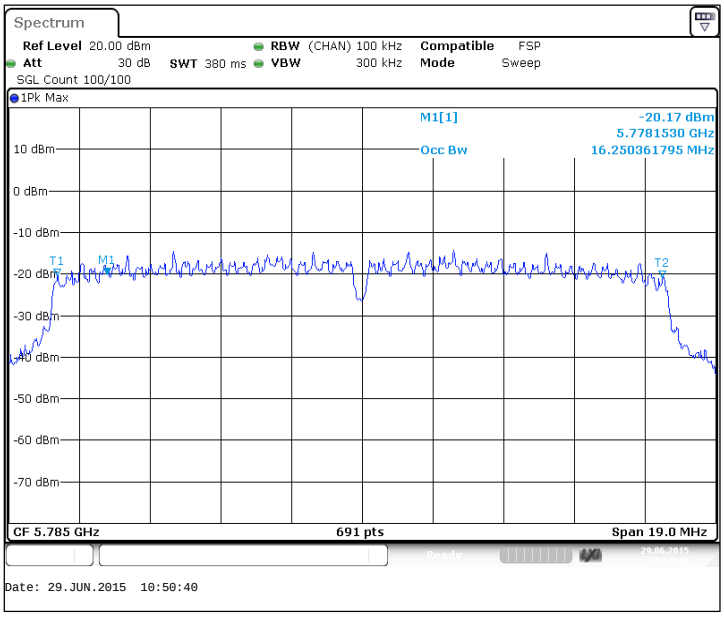
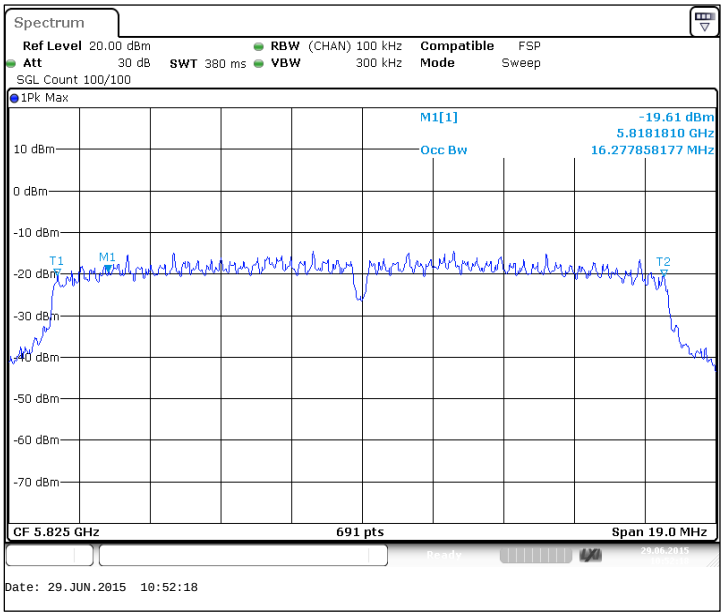


Channel 165 / 5825MHz



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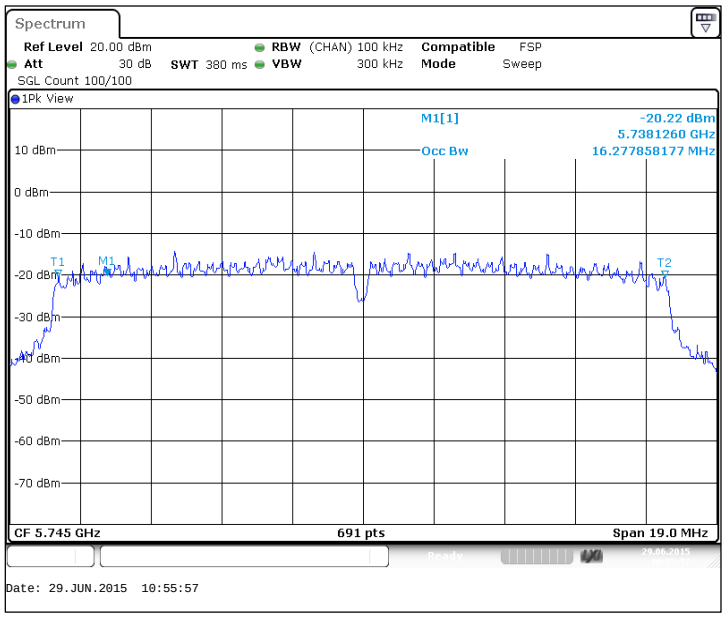
Channel 149 / 5745MHz



3.3.2 802.11a mode, QPSK modulation, 18 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
149 / 5745 MAIN	16277.9	PASSED
157 / 5785 MAIN	16277.9	PASSED
165 / 5825 MAIN	16277.9	PASSED
149 / 5745 AUX	16277.9	PASSED
157 / 5785 AUX	16277.9	PASSED
165 / 5825 AUX	16277.9	PASSED

Channel 149 / 5745MHz

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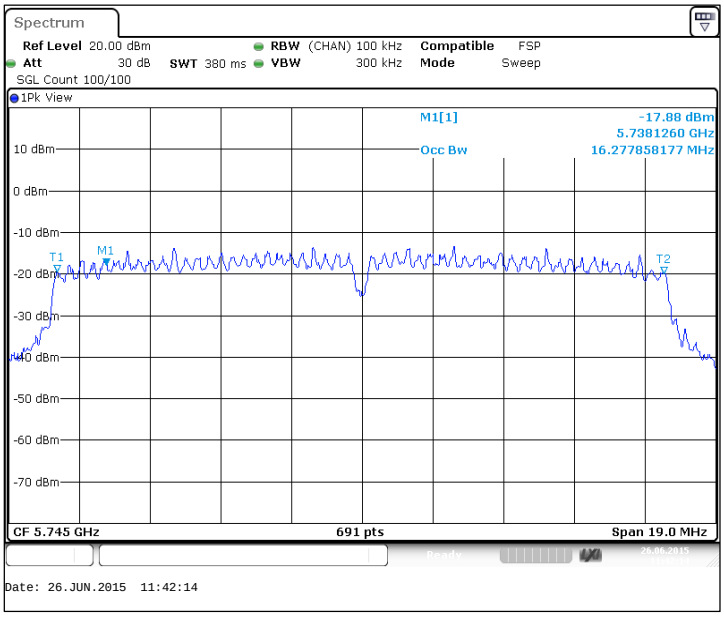
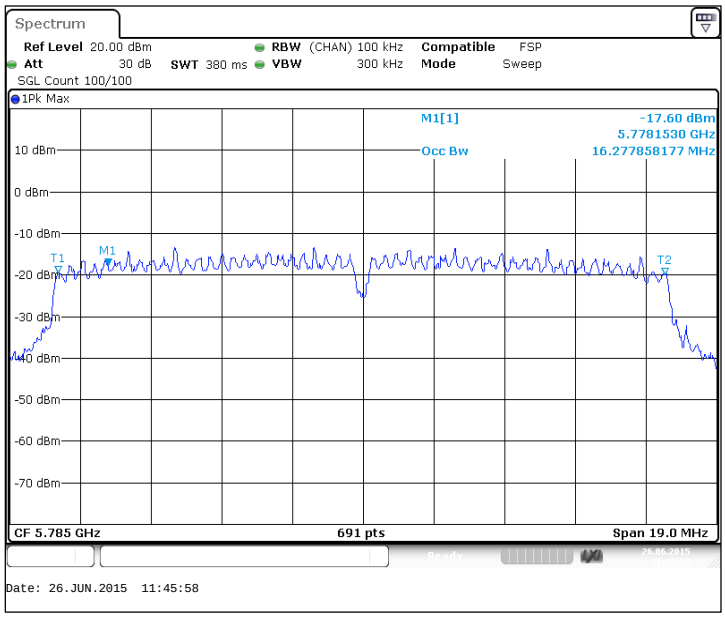
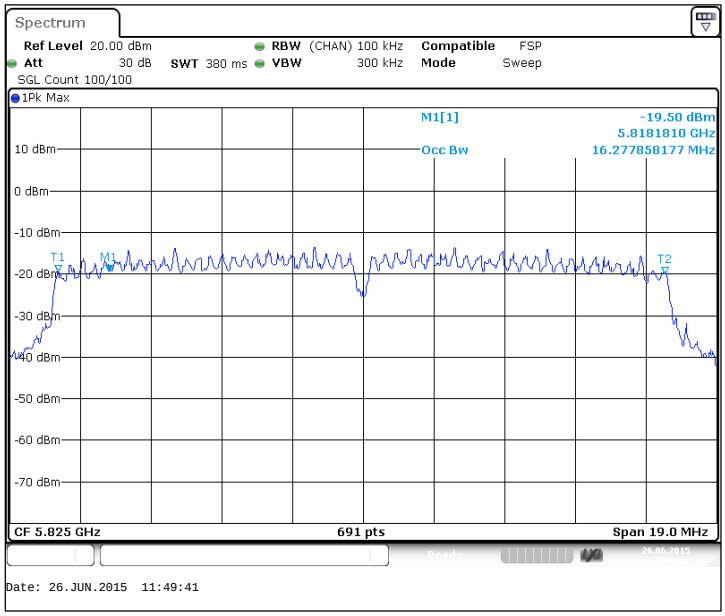

Spectrum
Ref Level 20.00 dBm
RBW (CHAN) 100 kHz
Compatible FSP
Att 30 dB
SWT 380 ms
VBW 300 kHz
Mode Sweep
SGL Count 100/100
1Pk View
M1[1]
-17.88 dBm
5.7381260 GHz
Occ Bw
16.277858177 MHz
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
T1
M1
T2
CF 5.745 GHz
691 pts
Span 19.0 MHz
Date: 26.JUN.2015 11:42:14

Channel 157 / 5785MHz



Channel 165 / 5825MHz



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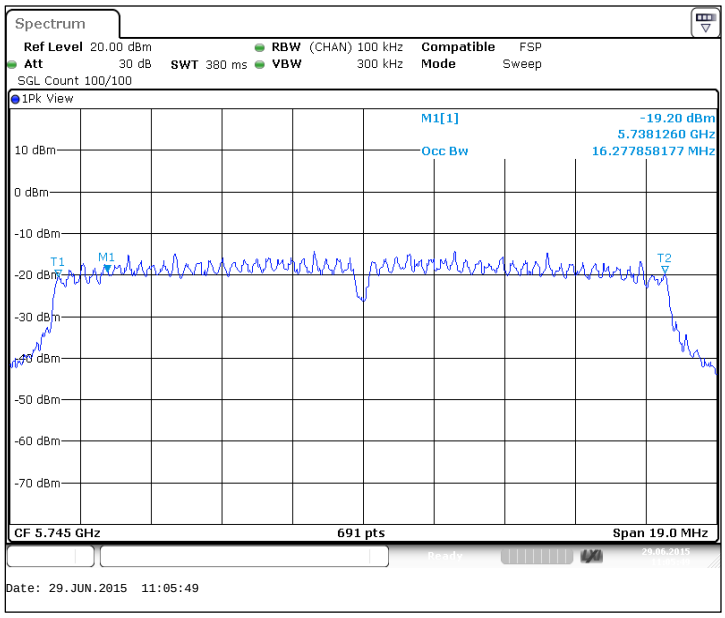
Channel 149 / 5745MHz



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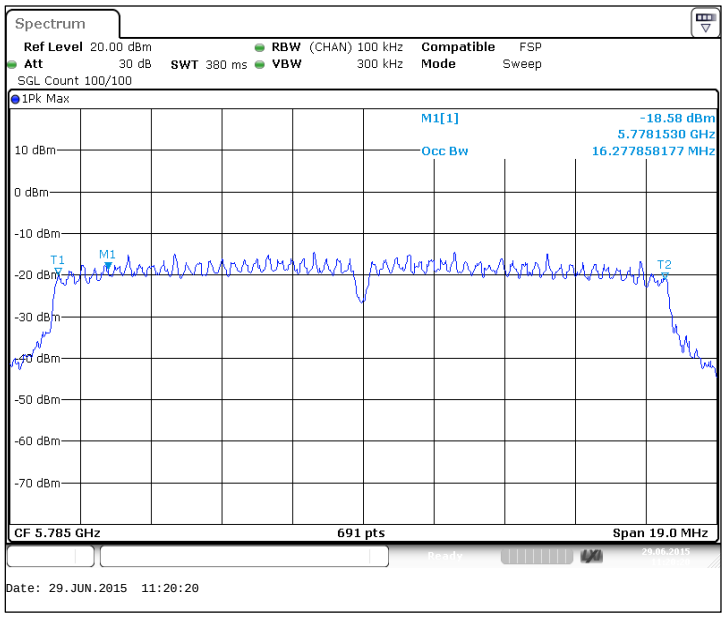
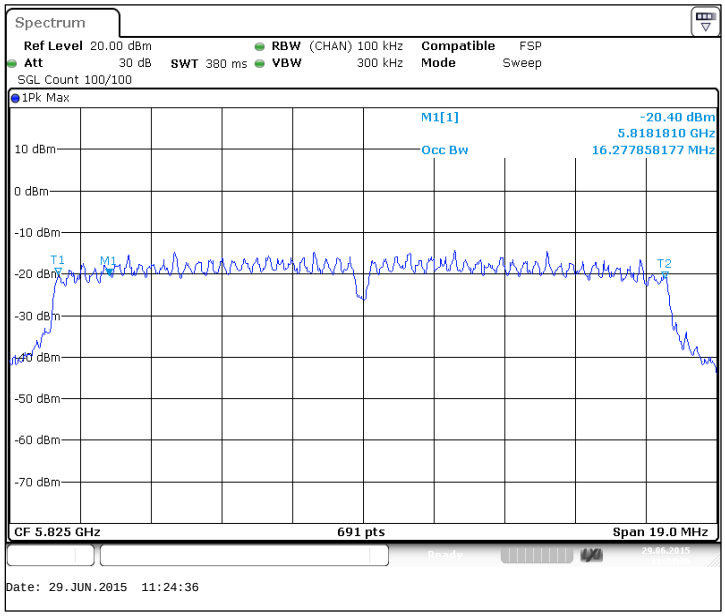
Channel 157 / 5785MHz



Channel 165 / 5825MHz



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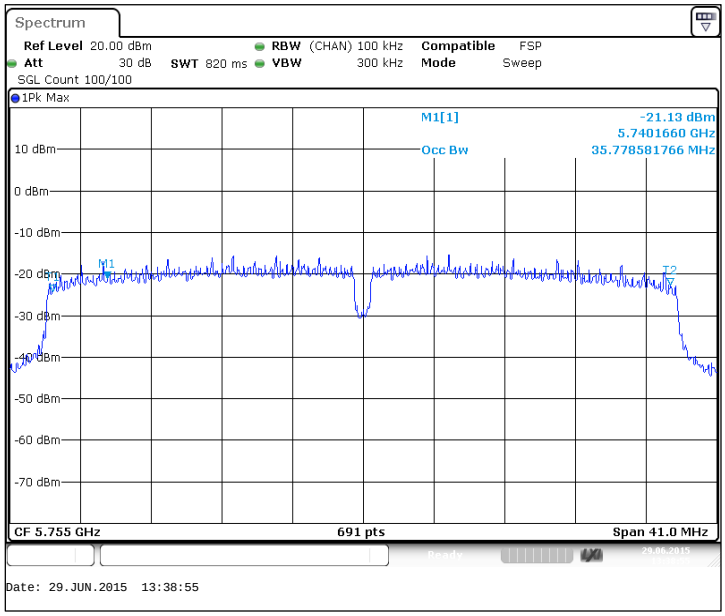
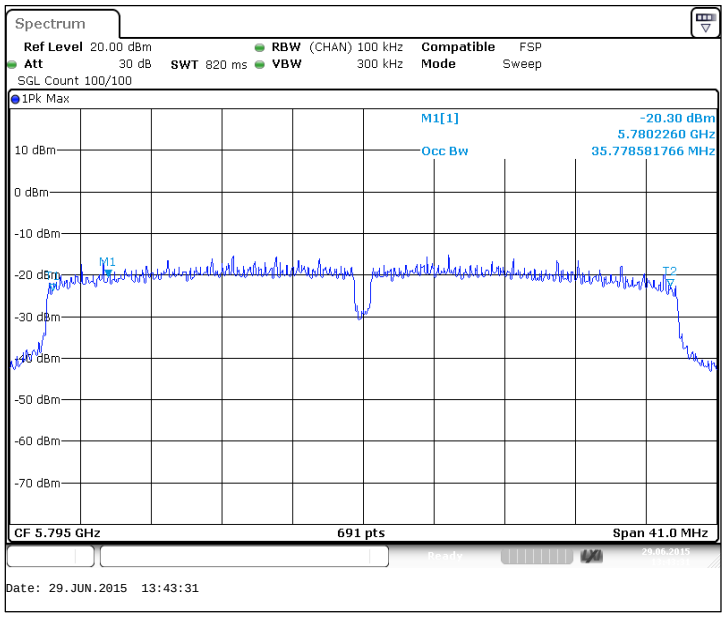
3.3.3 802.11n mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
149+153 / 5755 MAIN	35778.6	PASSED
157+161 / 5795 MAIN	35778.6	PASSED
149+153 / 5755 AUX	35778.6	PASSED
157+161 / 5795 AUX	35778.6	PASSED

Channel 149+153 / 5755MHz



Channel 157+161 / 5795MHz



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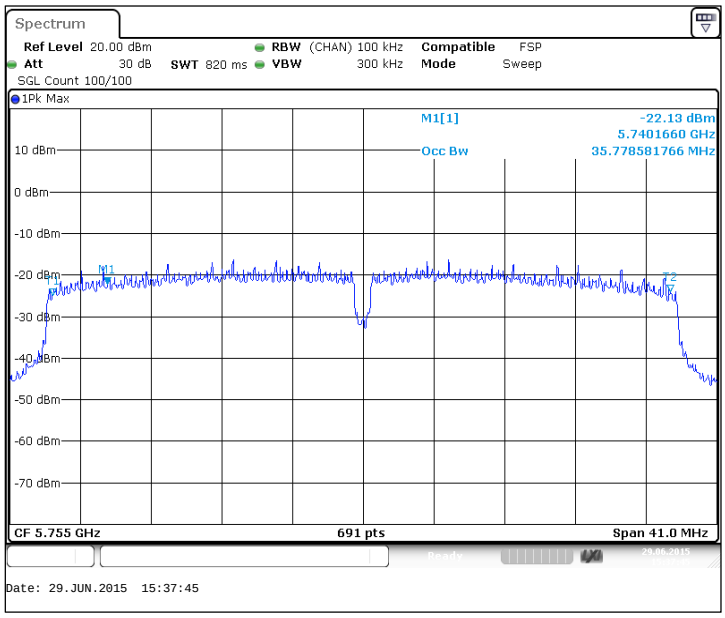
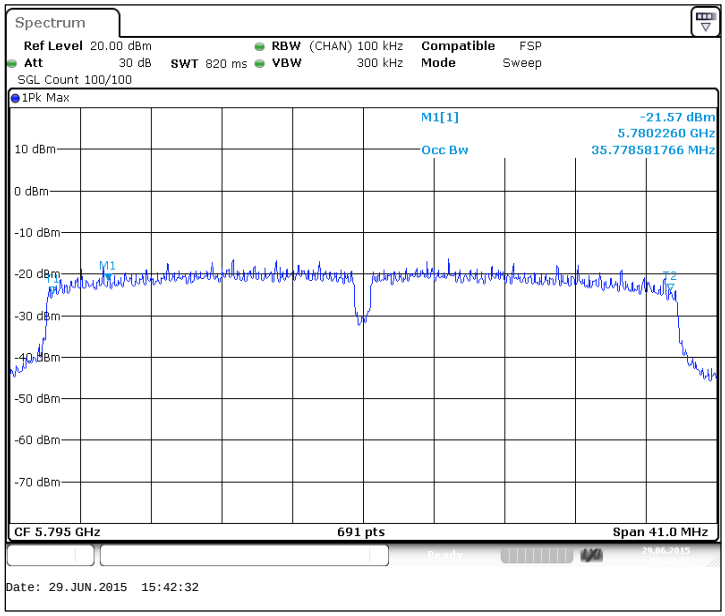
Channel 149+153 / 5755MHz



Channel 157+161 / 5795MHz



3.3.4 802.11n mode, QPSK modulation, 27.0 / 30.0 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
149+153 / 5755 MAIN	35837.9	PASSED
157+161 / 5795 MAIN	35837.9	PASSED
149+153 / 5755 AUX	35778.6	PASSED
157+161 / 5795 AUX	35778.6	PASSED

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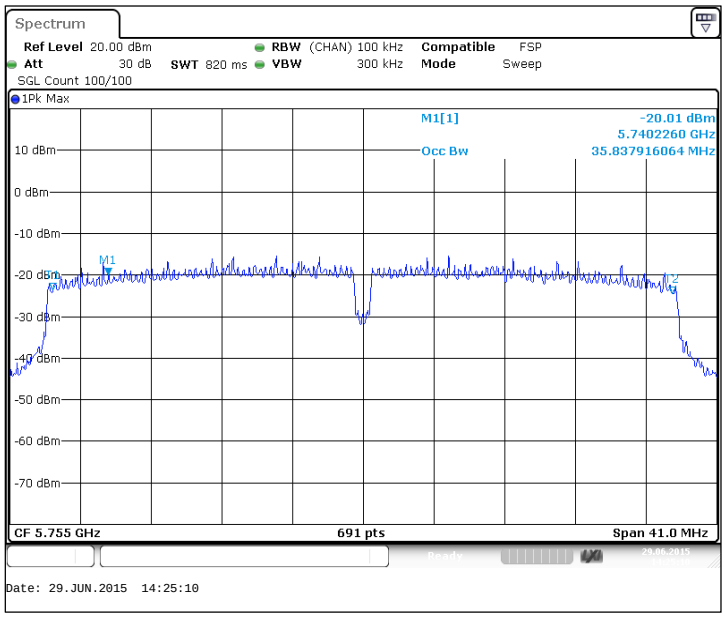
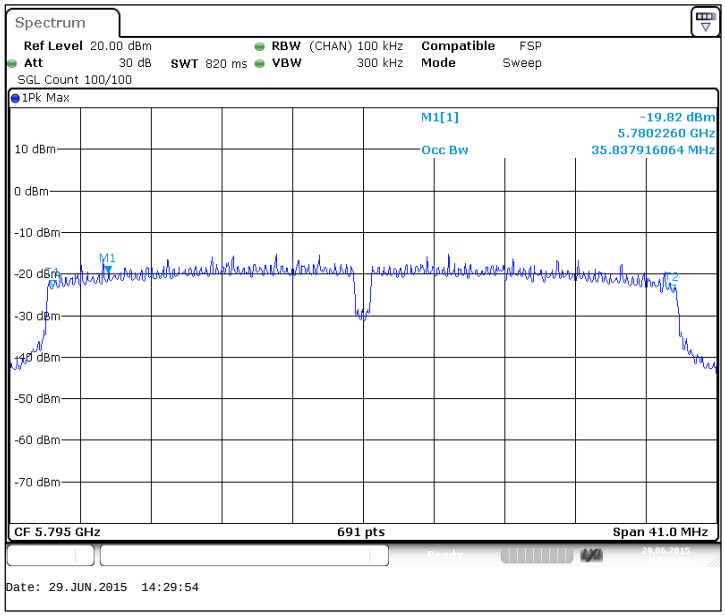
Channel 149+153 / 5755MHz



Channel 157+161 / 5795MHz



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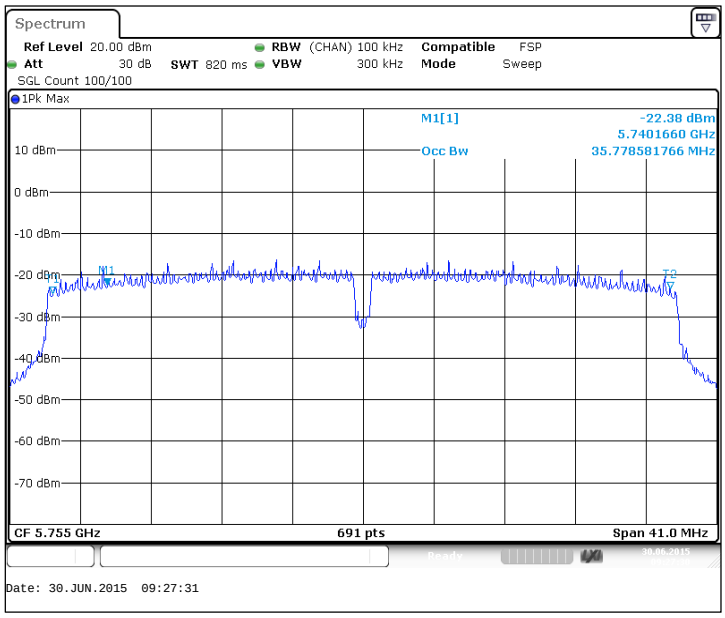
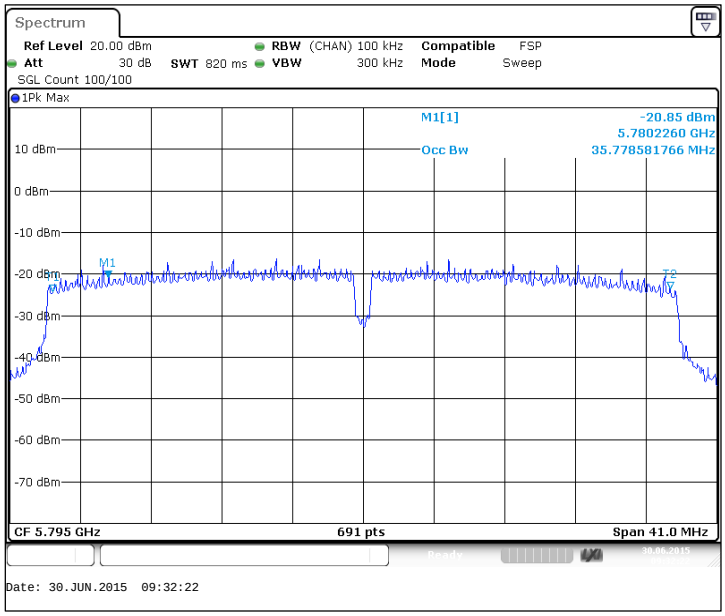
Channel 149+153 / 5755MHz



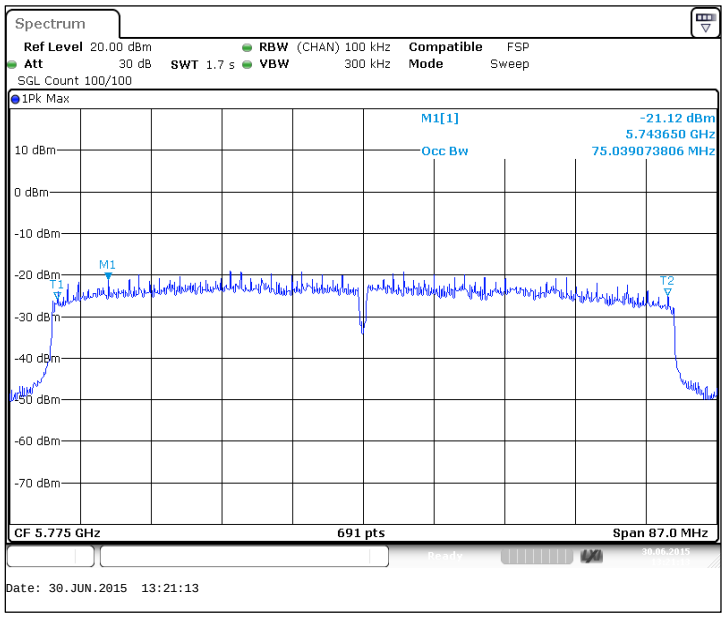
Channel 157+161 / 5795MHz



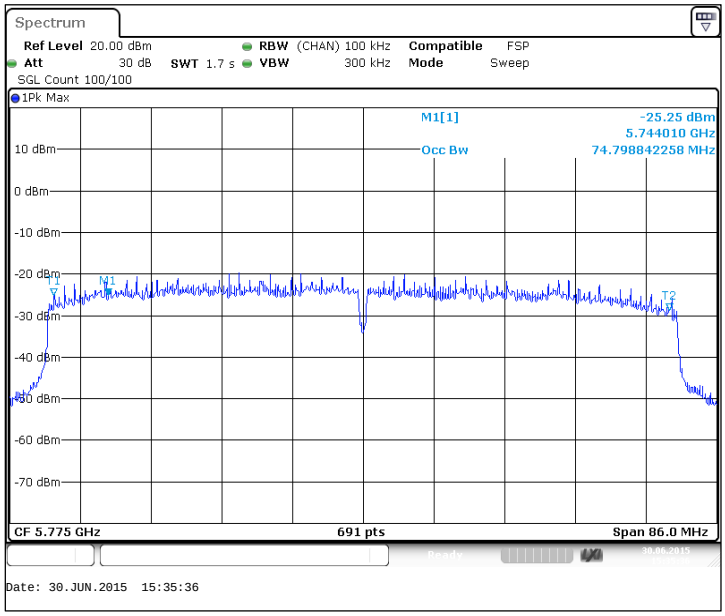
3.3.5 802.11ac mode, BPSK modulation, 29.3 / 32.5 Mbps data rate

Channel / f_C [MHz]	6 dB bandwidth [kHz]	Result
149-161 / 5775 MAIN	75039.1	PASSED
149-161 / 5775	74798.8	PASSED

Channel 149-161 / 5775MHz



Channel 149-161 / 5775MHz



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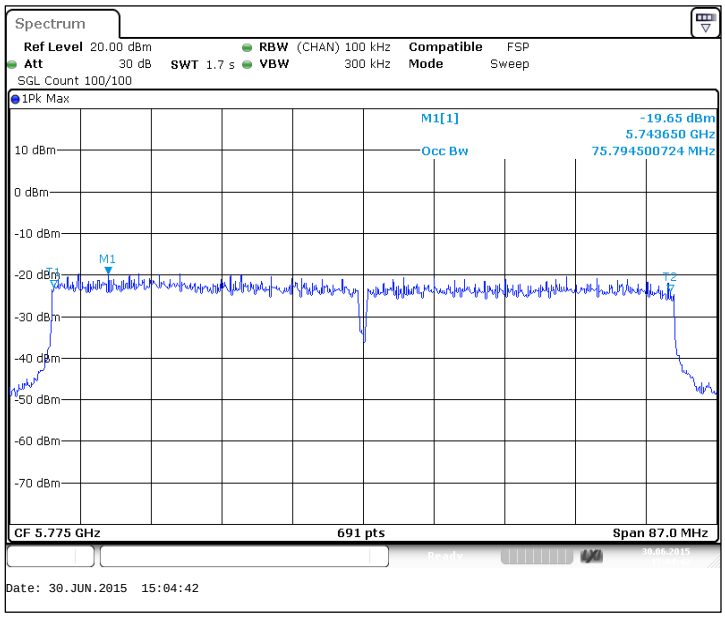
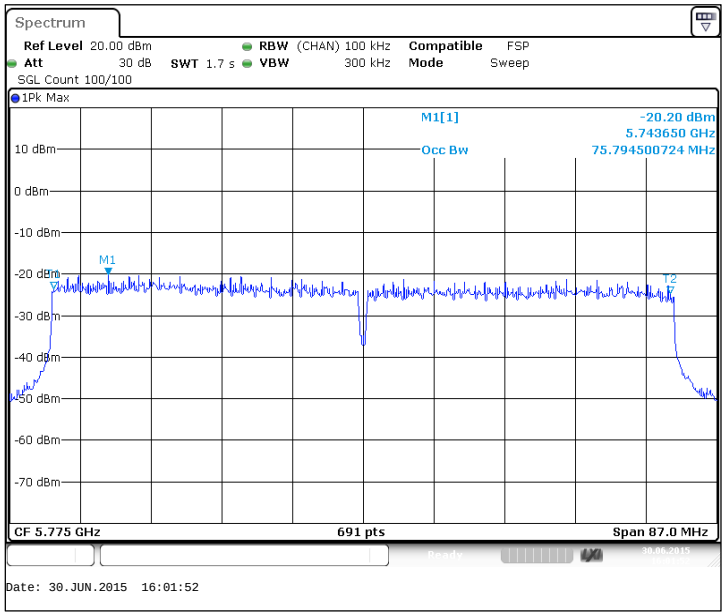
3.3.6 802.11ac mode, 16QAM modulation, 175.5 / 195.0 Mbps data rate

Channel / fc [MHz]	6 dB bandwidth [kHz]	Result
149-161 / 5775 MAIN	75794.5	PASSED
149-161 / 5775	75794.5	PASSED

Channel 149-161 / 5775MHz



Channel 149-161 / 5775MHz



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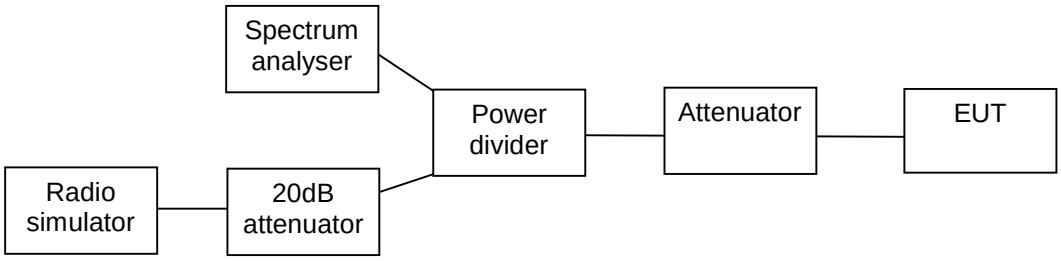
4. 26dB(bandwidth)

EUT with DUT number	RM-1104, DUT 100007
Accessories with DUT numbers	WH-308, DUT 100029
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 49 / 101.2
Date of measurements	26-Jun-2015
Measured by	Jari Keto

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D02 v01 and IC standard RSS-210.

Limits for 26 dB bandwidth measurements

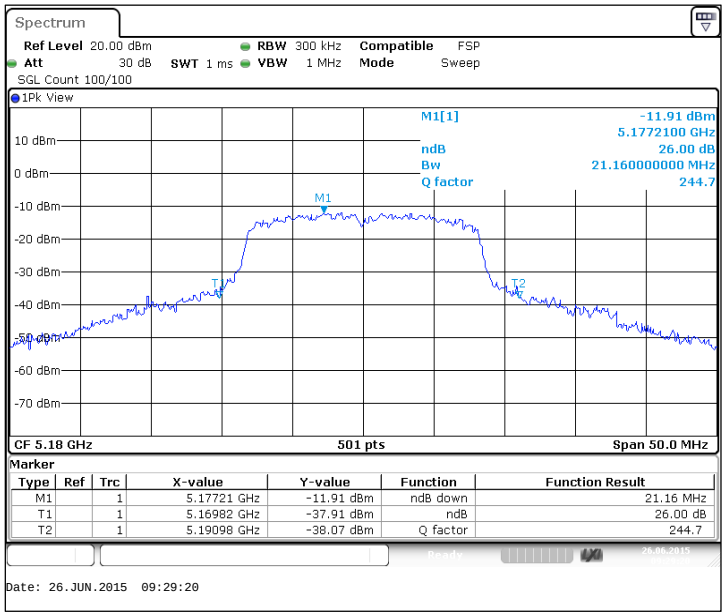
Limit [kHz]
No limit

4.3. 5 GHz RLAN Test results

4.3.1 802.11a mode, BPSK modulation, 6 Mbps data rate

Channel / f_C [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180 MAIN	21160	PASSED
40 / 5200 MAIN	19960	PASSED
48 / 5240 MAIN	21660	PASSED
52 / 5260 MAIN	21260	PASSED
60 / 5300 MAIN	21660	PASSED
64 / 5320 MAIN	21260	PASSED
100 / 5500 MAIN	20260	PASSED
116 / 5580 MAIN	19160	PASSED
140 / 5700 MAIN	19560	PASSED
36 / 5180 AUX	20260	PASSED
40 / 5200 AUX	21860	PASSED
48 / 5240 AUX	21160	PASSED
52 / 5260 AUX	20860	PASSED
60 / 5300 AUX	20060	PASSED
64 / 5320 AUX	20260	PASSED
100 / 5500 AUX	19460	PASSED
116 / 5580 AUX	18860	PASSED
140 / 5700 AUX	19360	PASSED

Channel 36 / 5180MHz



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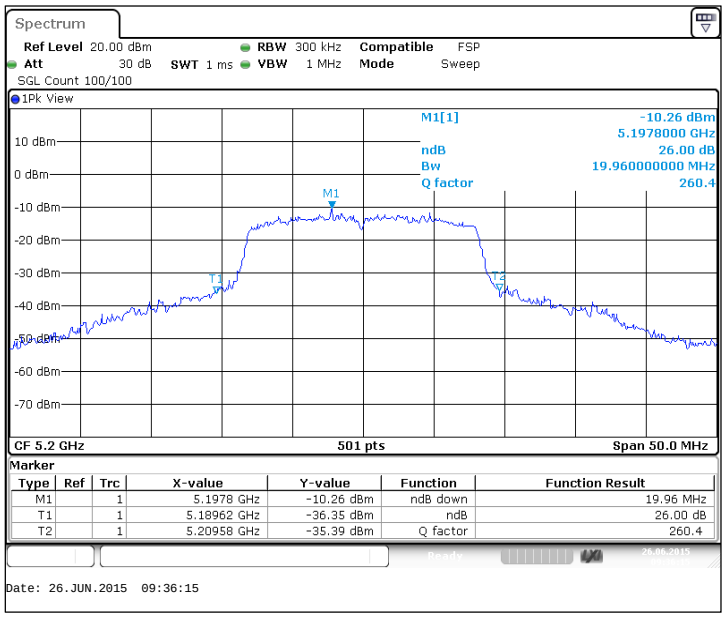
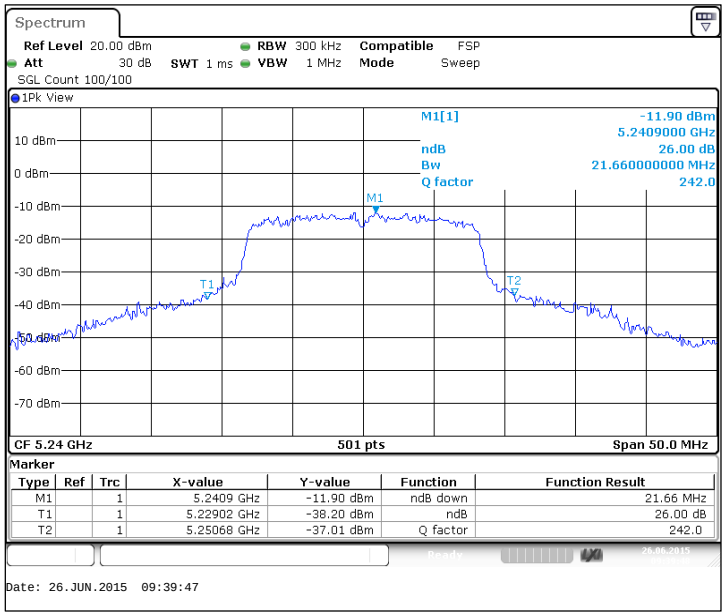
Channel 40 / 5200MHz



Channel 48 / 5240MHz



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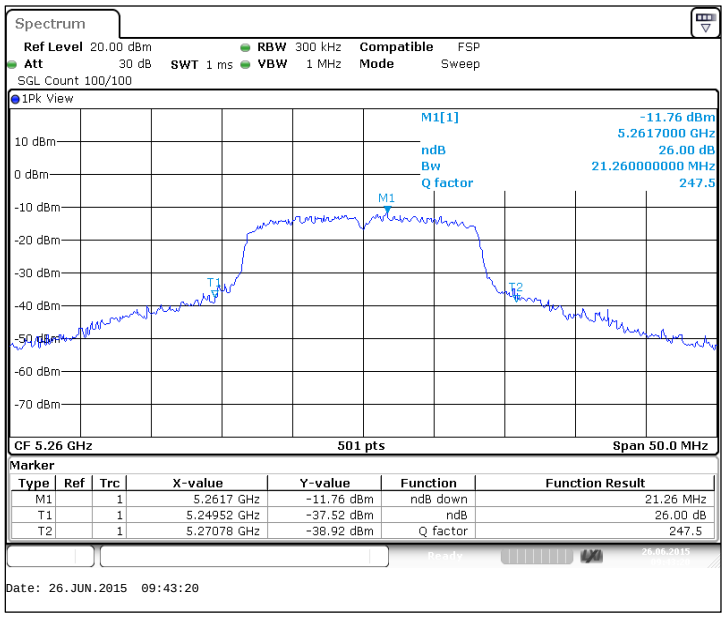
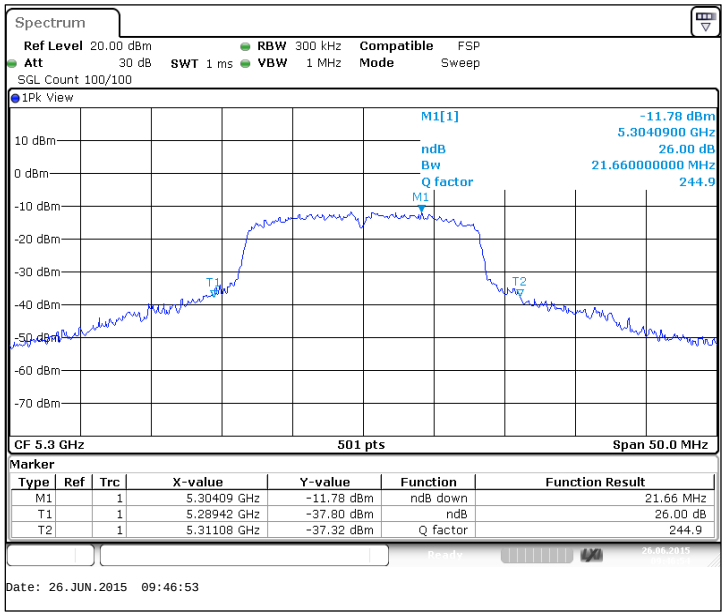
Channel 52 / 5260MHz



Channel 60 / 5300MHz



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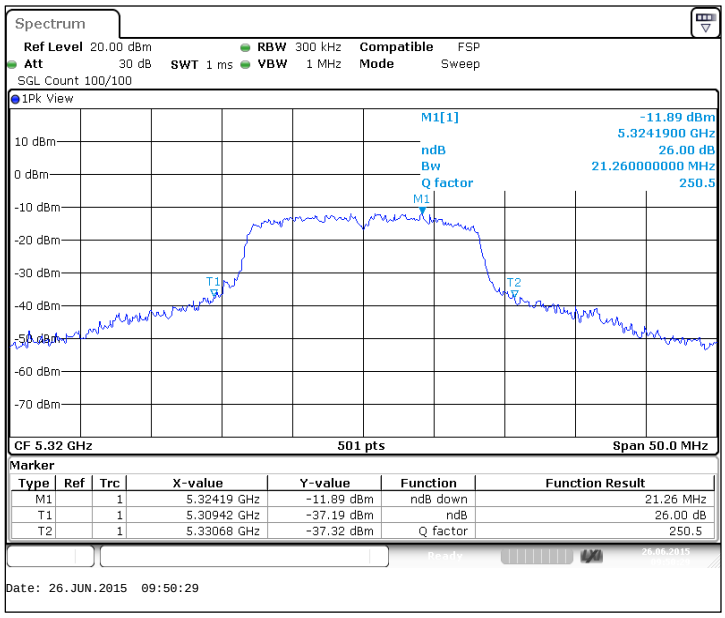
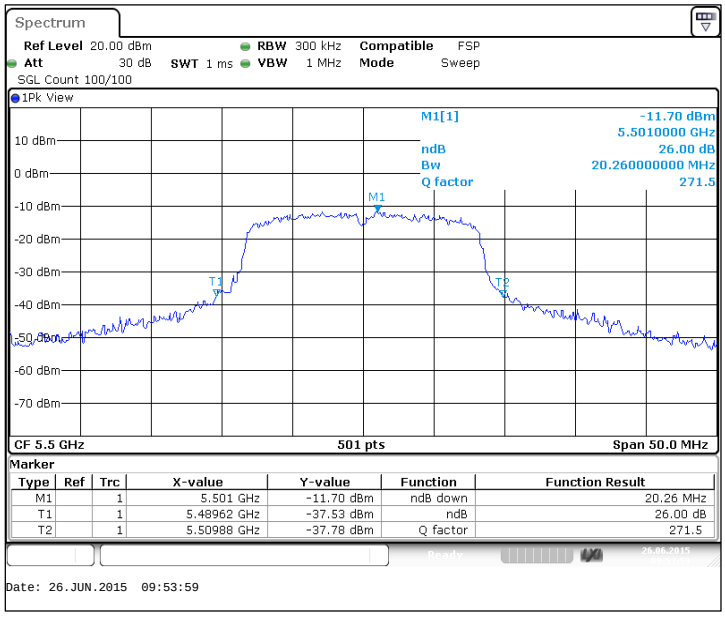
Channel 64 / 5320MHz



Channel 100 / 5500MHz



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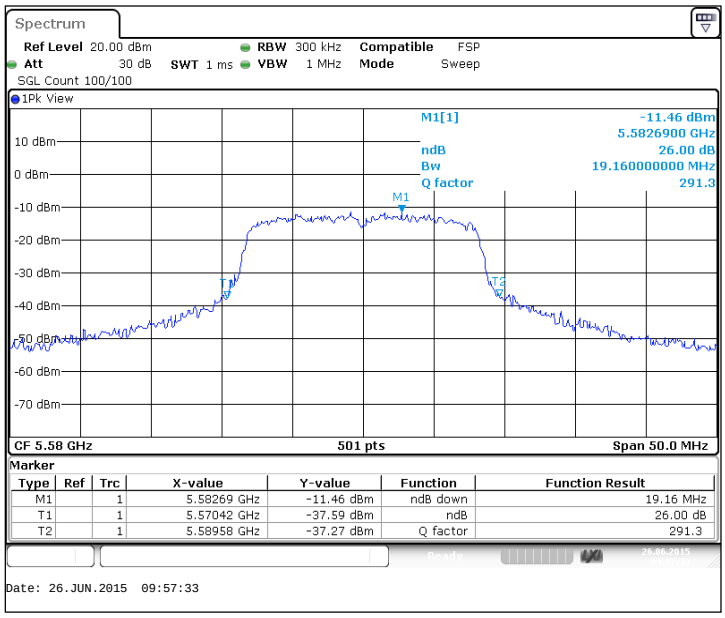
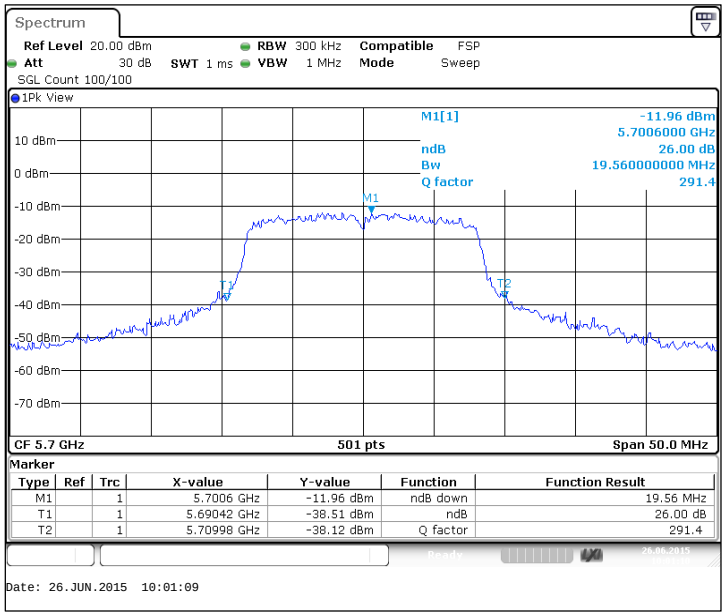
Channel 116 / 5580MHz



Channel 140 / 5700MHz



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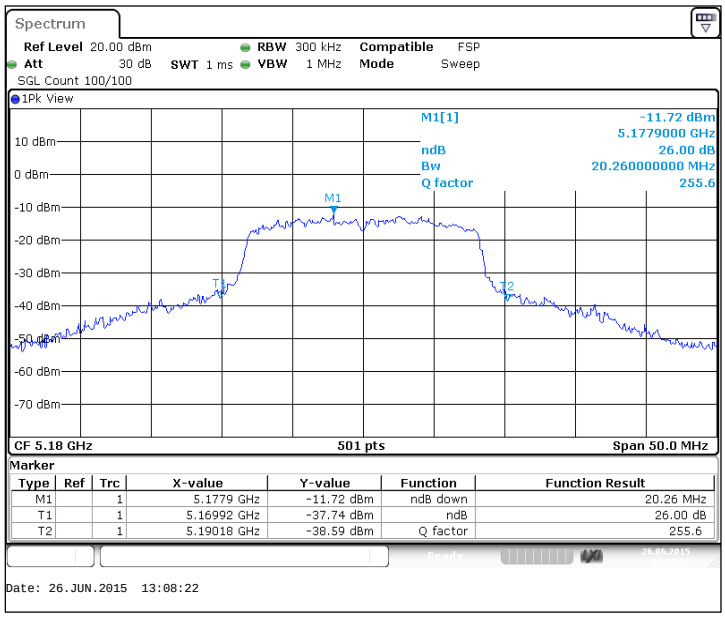
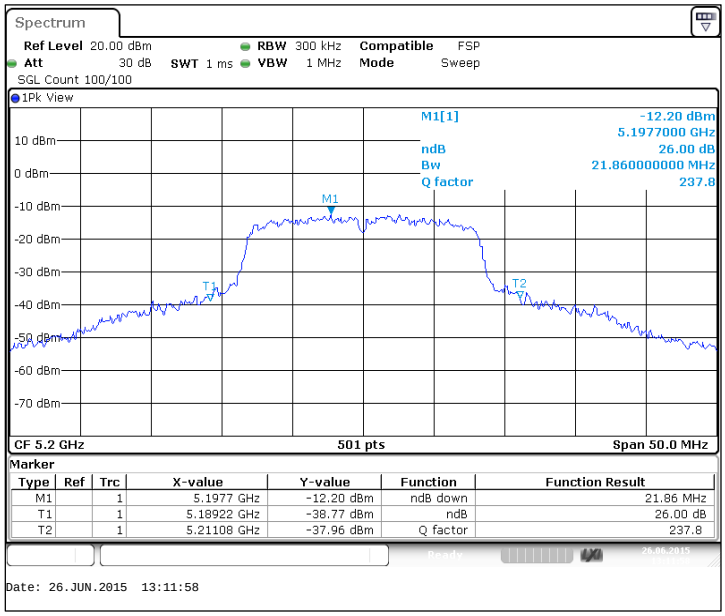
Channel 36 / 5180MHz



Channel 40 / 5200MHz



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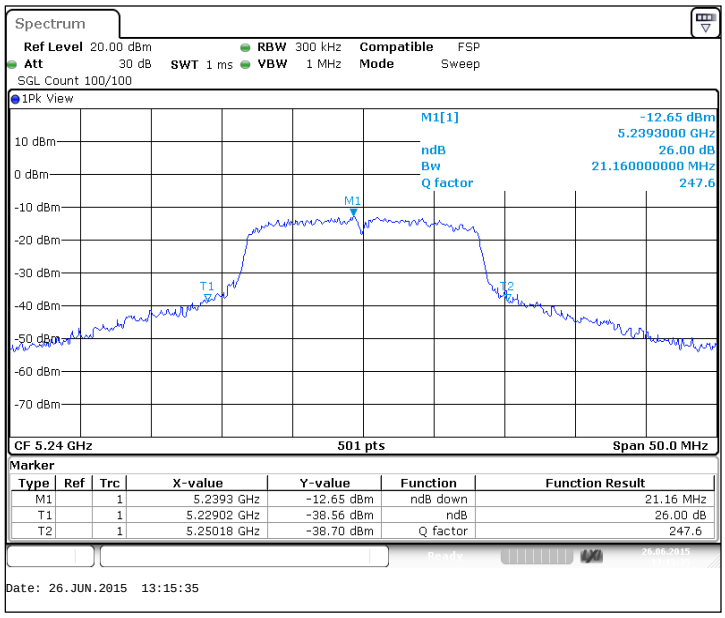
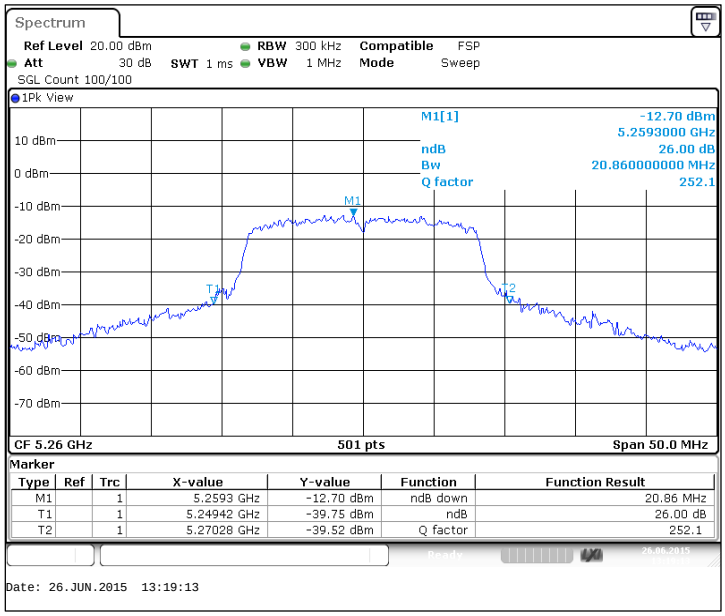
Channel 48 / 5240MHz



Channel 52 / 5260MHz



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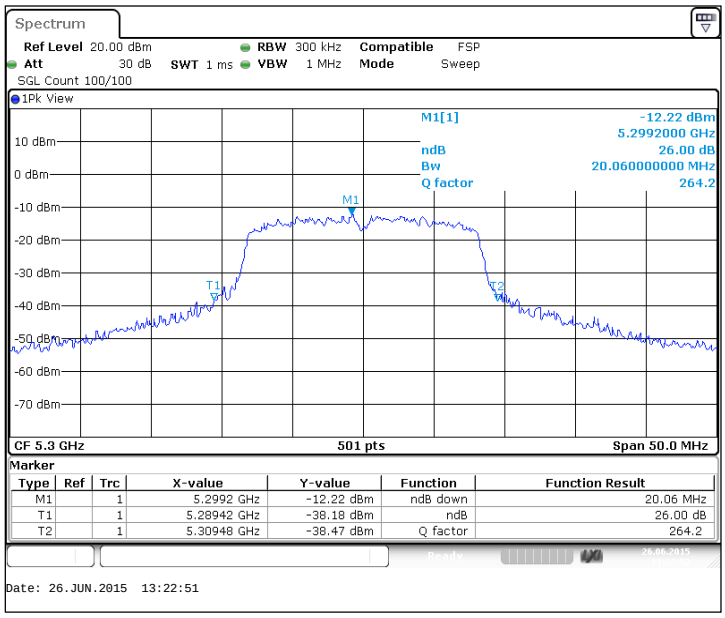
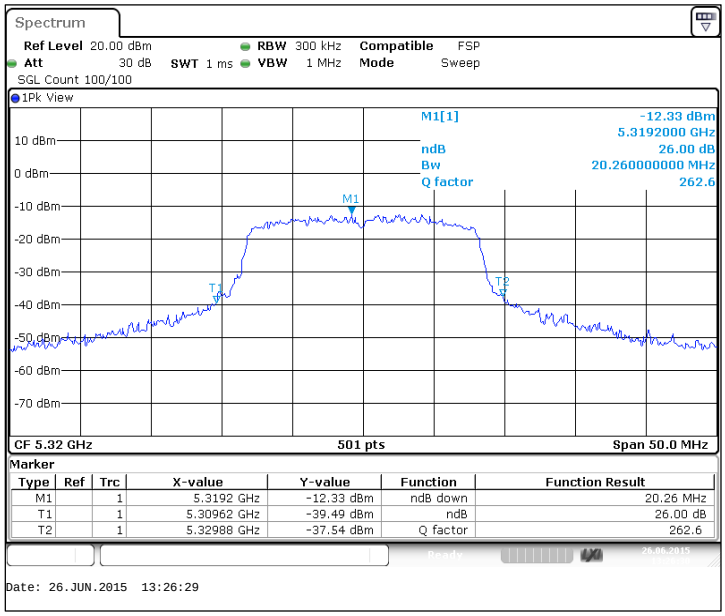
Channel 60 / 5300MHz



Channel 64 / 5320MHz



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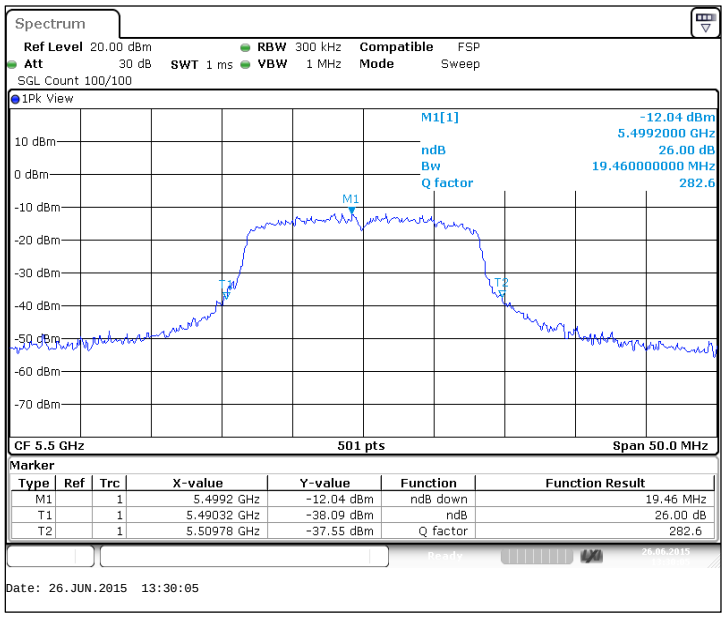
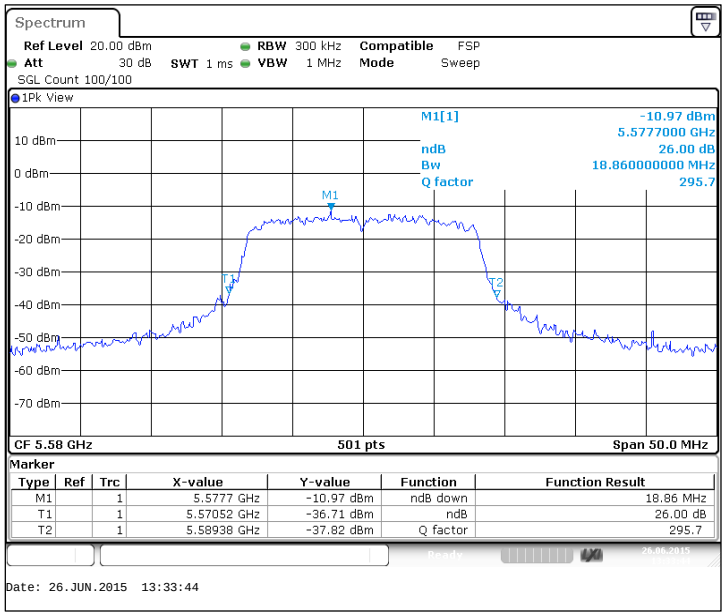
Channel 100 / 5500MHz



Channel 116 / 5580MHz



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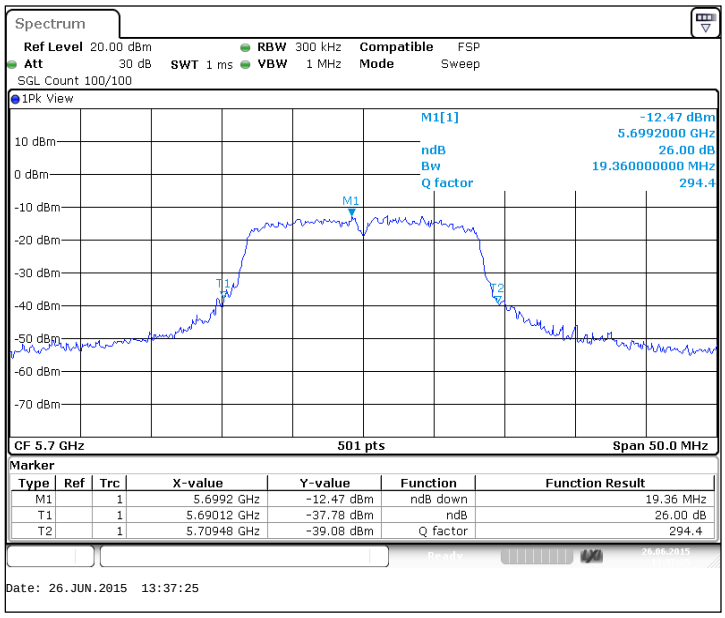
Channel 140 / 5700MHz



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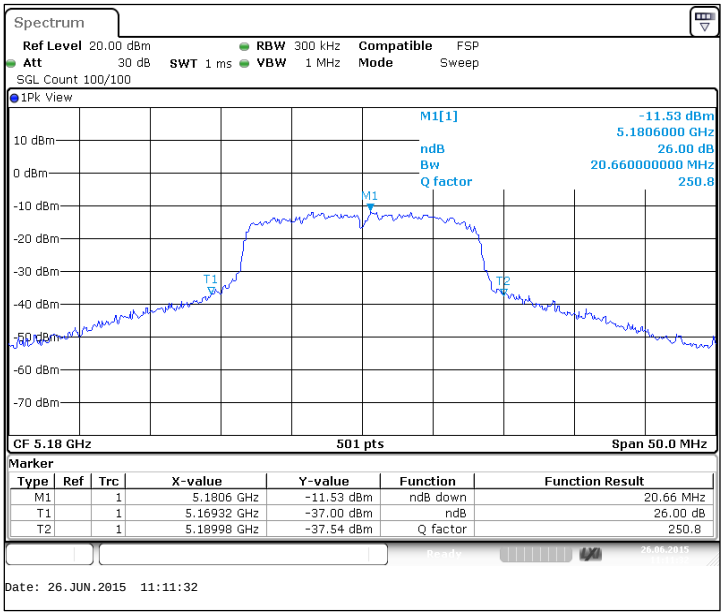
4.3.2 802.11a mode, QPSK modulation, 18 Mbps data rate

Channel / f_C [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180 MAIN	20660	PASSED
40 / 5200 MAIN	20960	PASSED
48 / 5240 MAIN	20560	PASSED
52 / 5260 MAIN	20560	PASSED
60 / 5300 MAIN	20160	PASSED
64 / 5320 MAIN	20160	PASSED
100 / 5500 MAIN	19060	PASSED
116 / 5580 MAIN	19160	PASSED
140 / 5700 MAIN	18760	PASSED
36 / 5180 AUX	22260	PASSED
40 / 5200 AUX	21660	PASSED
48 / 5240 AUX	19760	PASSED
52 / 5260 AUX	19360	PASSED
60 / 5300 AUX	19260	PASSED
64 / 5320 AUX	19560	PASSED
100 / 5500 AUX	19160	PASSED
116 / 5580 AUX	19360	PASSED
140 / 5700 AUX	18960	PASSED

Channel 36 / 5180MHz



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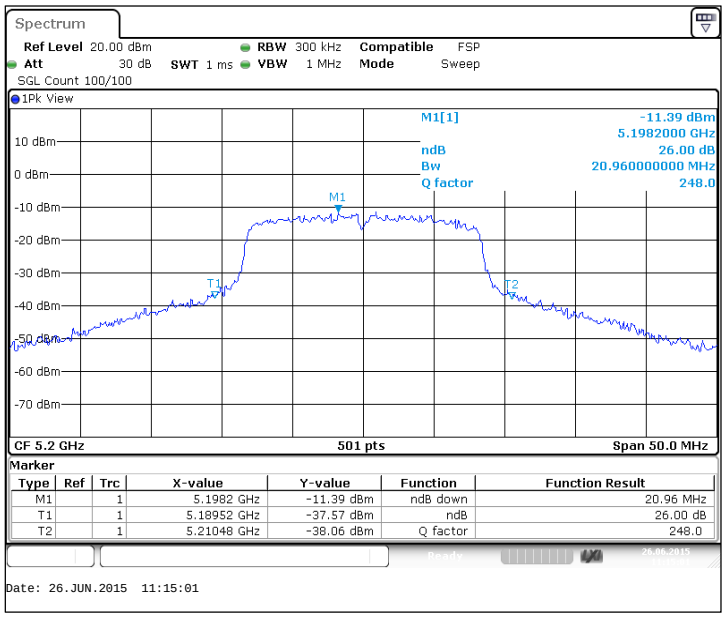
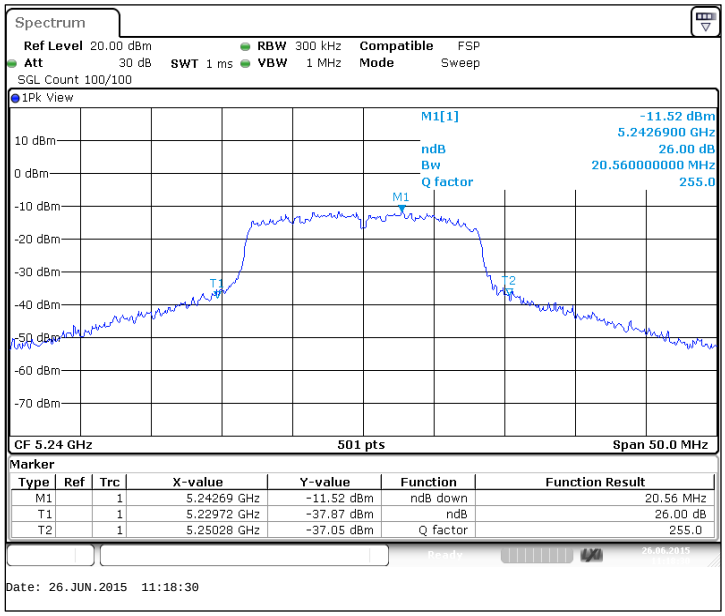
Channel 40 / 5200MHz



Channel 48 / 5240MHz



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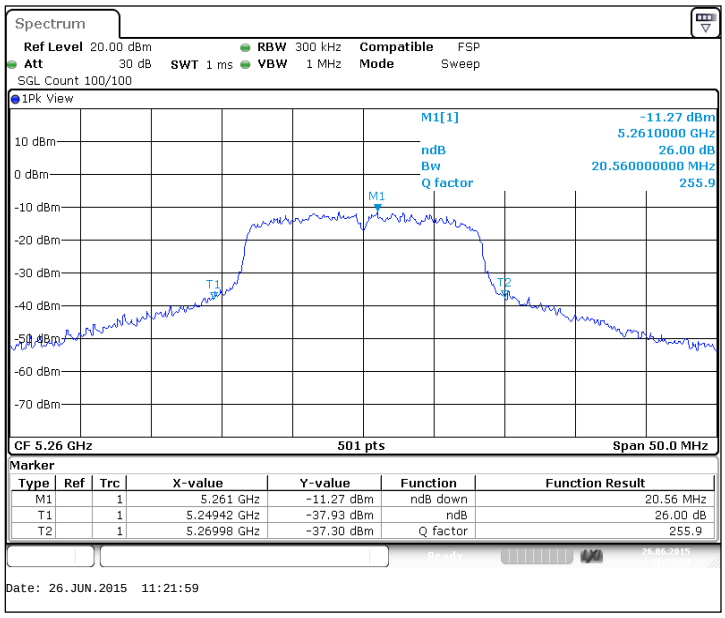
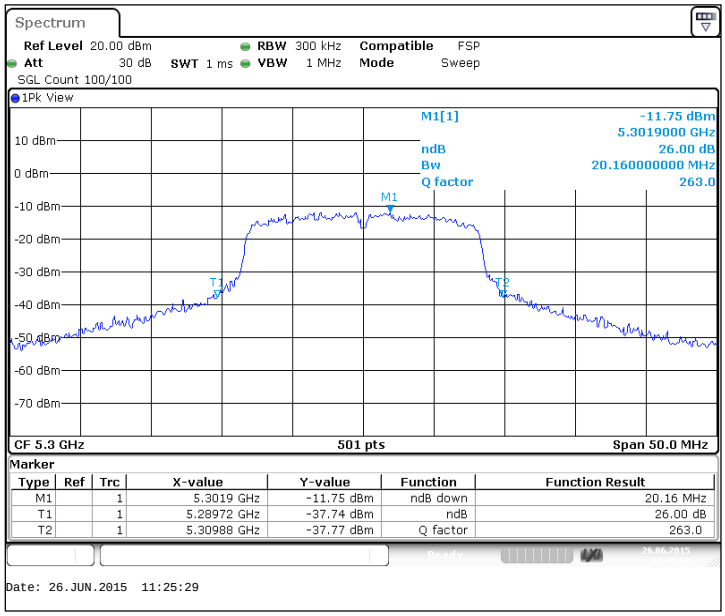
Channel 52 / 5260MHz



Channel 60 / 5300MHz



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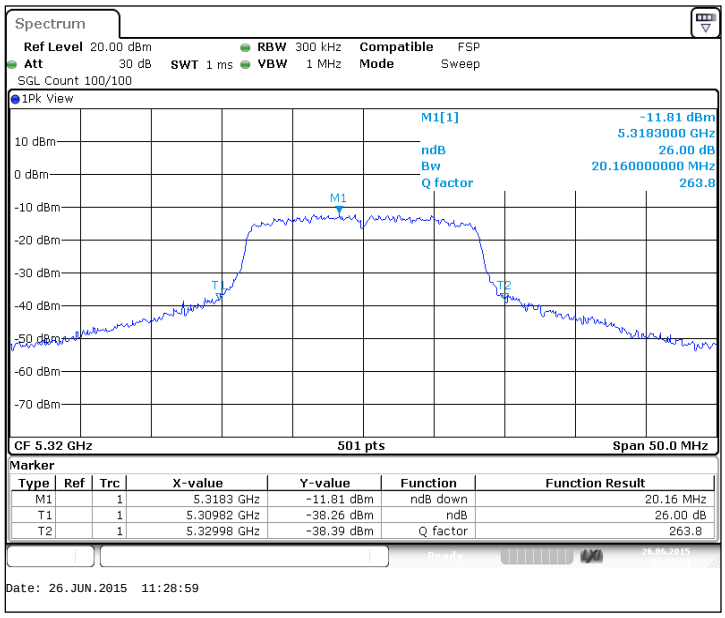
Channel 64 / 5320MHz



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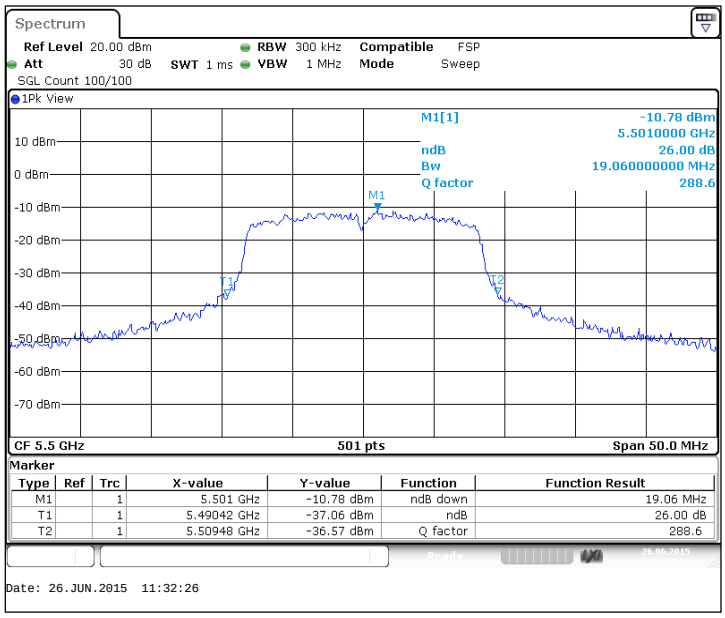
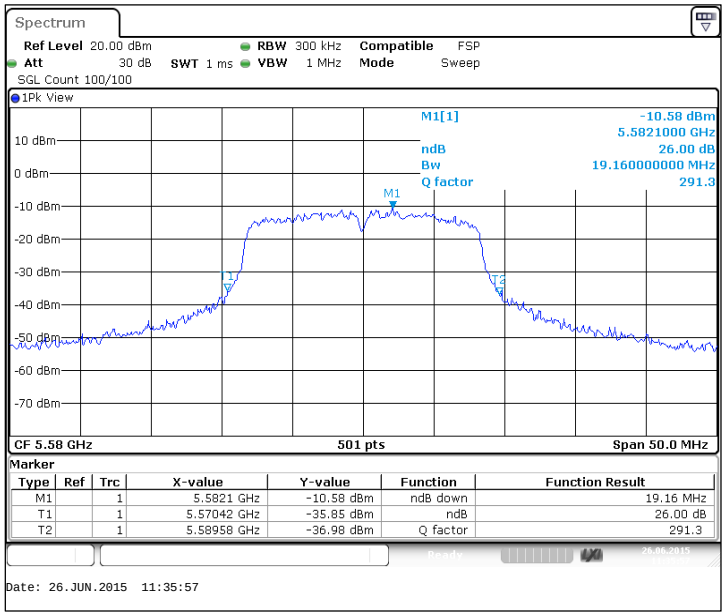
Channel 100 / 5500MHz



Channel 116 / 5580MHz



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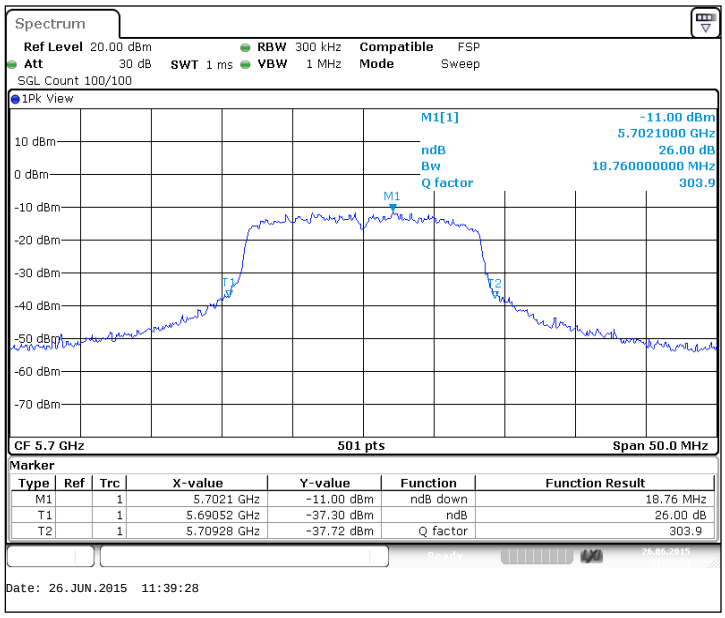
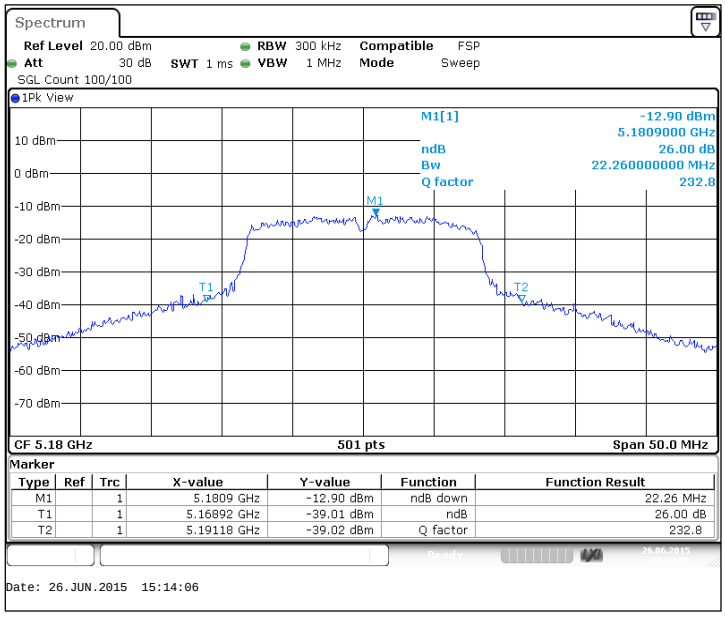
Channel 140 / 5700MHz



Channel 36 / 5180MHz



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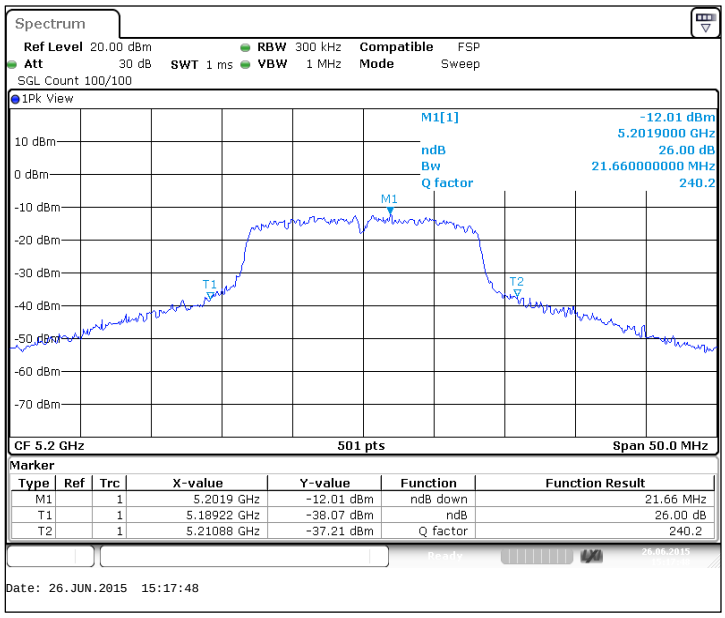
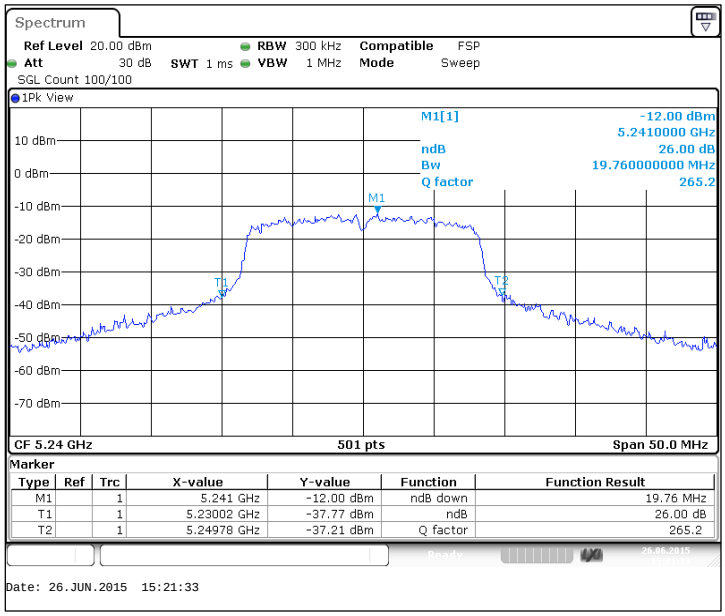
Channel 40 / 5200MHz



Channel 48 / 5240MHz



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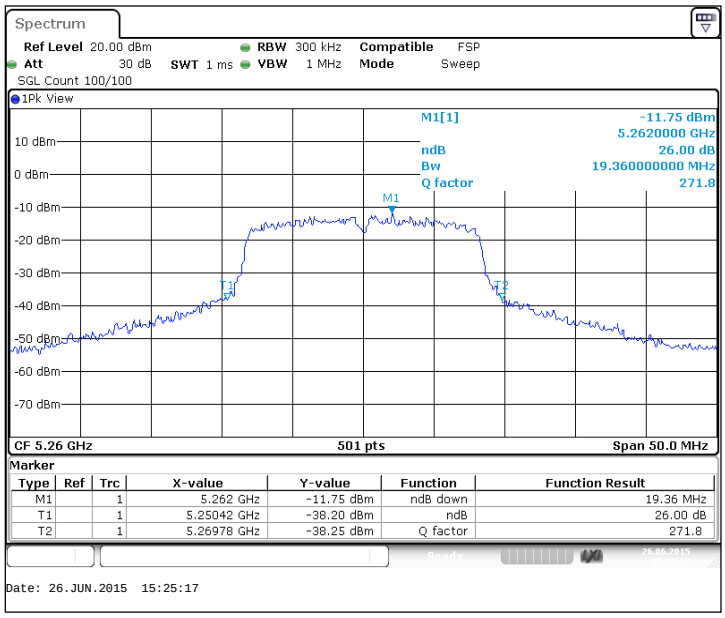
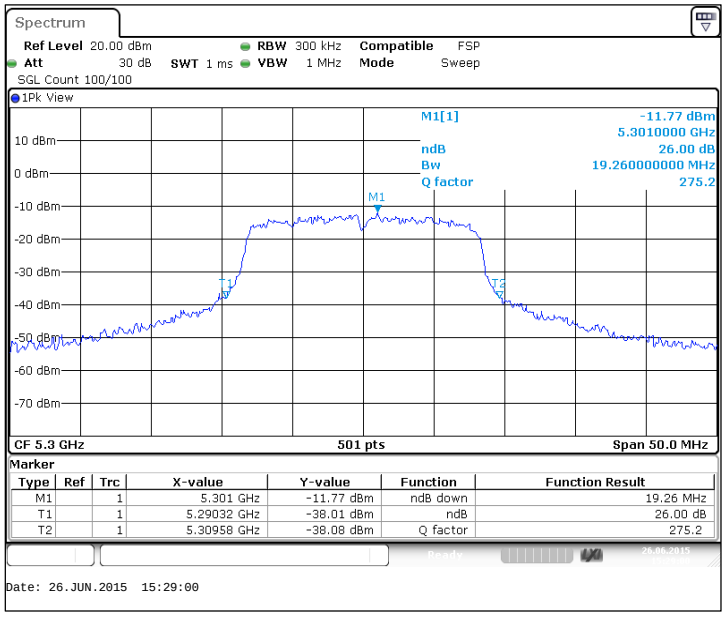
Channel 52 / 5260MHz



Channel 60 / 5300MHz



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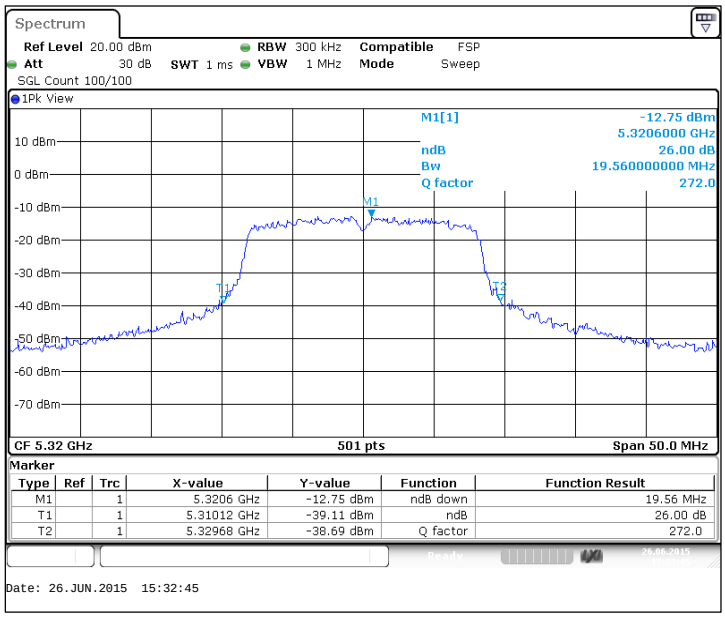
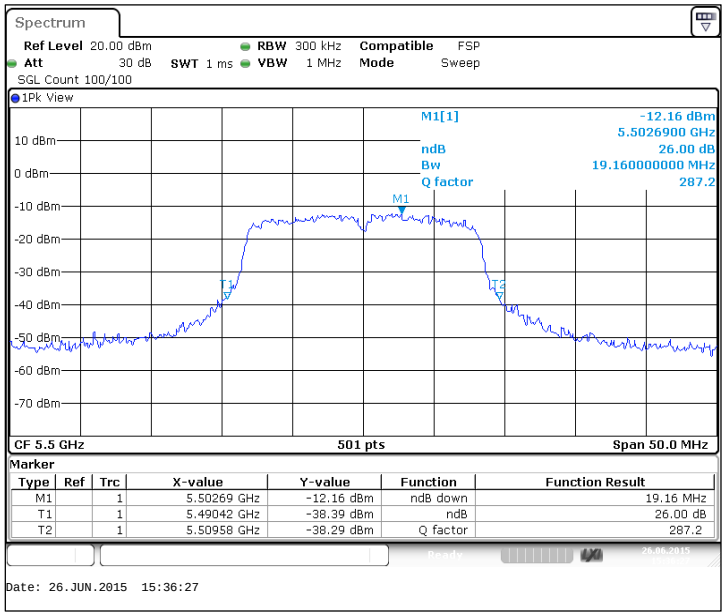
Channel 64 / 5320MHz



Channel 100 / 5500MHz



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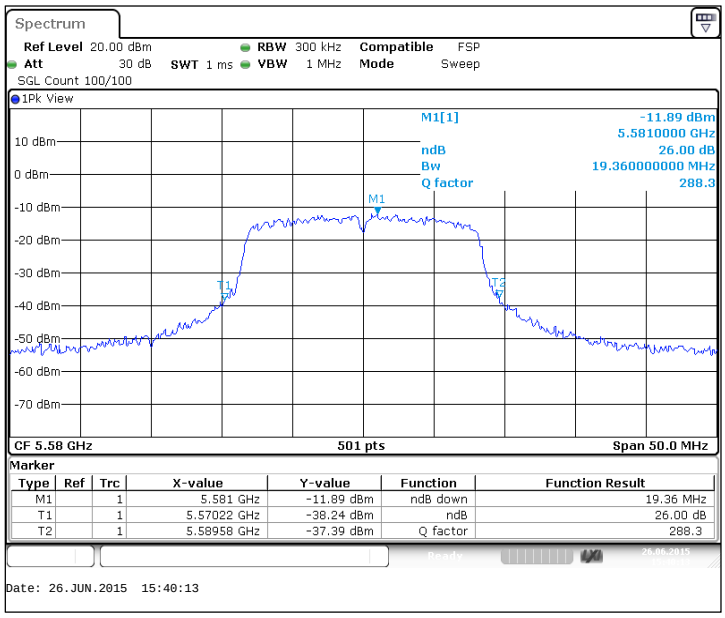
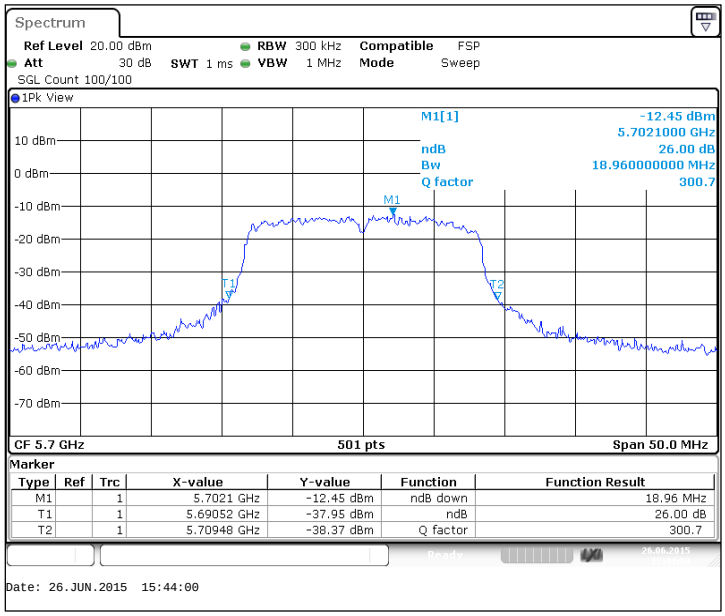
Channel 116 / 5580MHz



Channel 140 / 5700MHz



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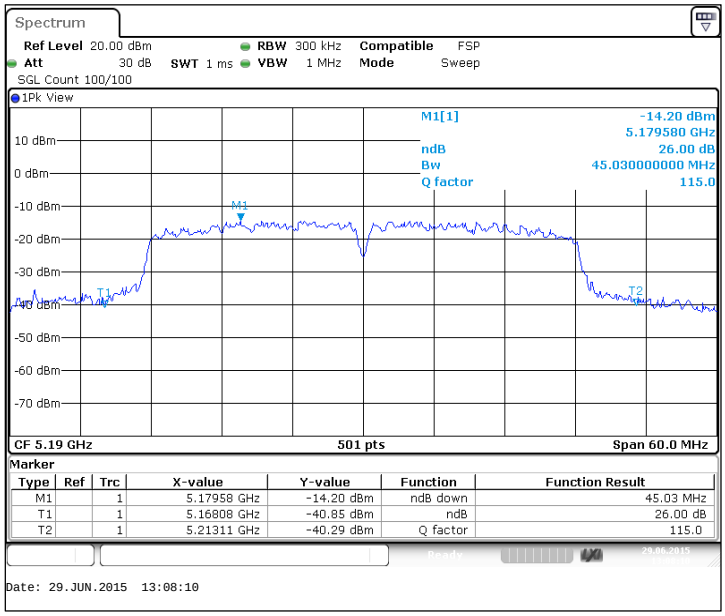
4.3.3 802.11n mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_C [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190 MAIN	45030	PASSED
44+48 / 5230 MAIN	50900	PASSED
52+56 / 5270 MAIN	47900	PASSED
60+64 / 5310 MAIN	48620	PASSED
100+104 / 5510 MAIN	41560	PASSED
108+112 / 5550 MAIN	40480	PASSED
132+136 / 5670 MAIN	39880	PASSED
36+40 / 5190 AUX	52220	PASSED
44+48 / 5230 AUX	47780	PASSED
52+56 / 5270 AUX	44190	PASSED
60+64 / 5310 AUX	42510	PASSED
100+104 / 5510 AUX	39760	PASSED
108+112 / 5550 AUX	40000	PASSED
132+136 / 5670 AUX	39640	PASSED

Channel 36+40 / 5190MHz



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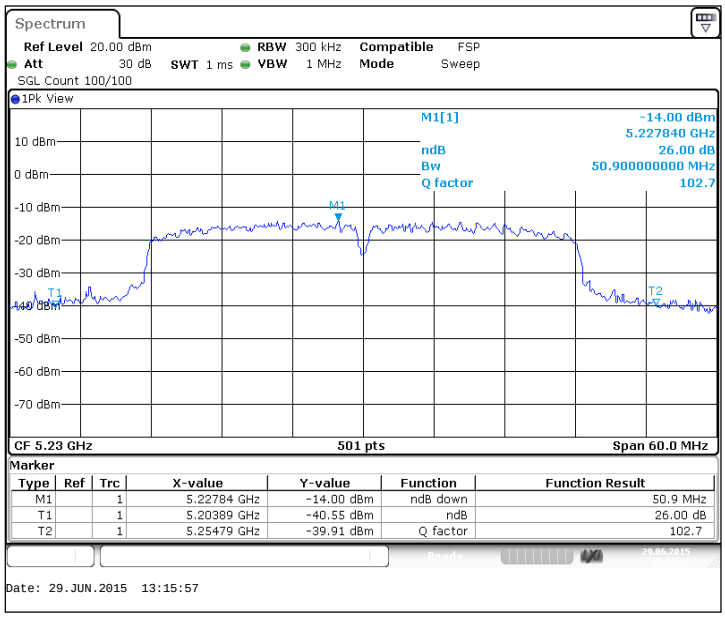
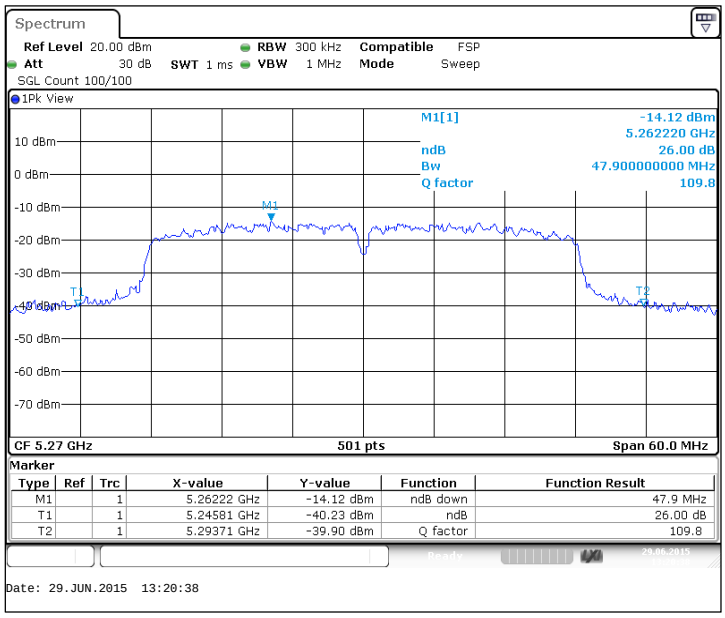
Channel 44+48 / 5230MHz



Channel 52+56 / 5270MHz



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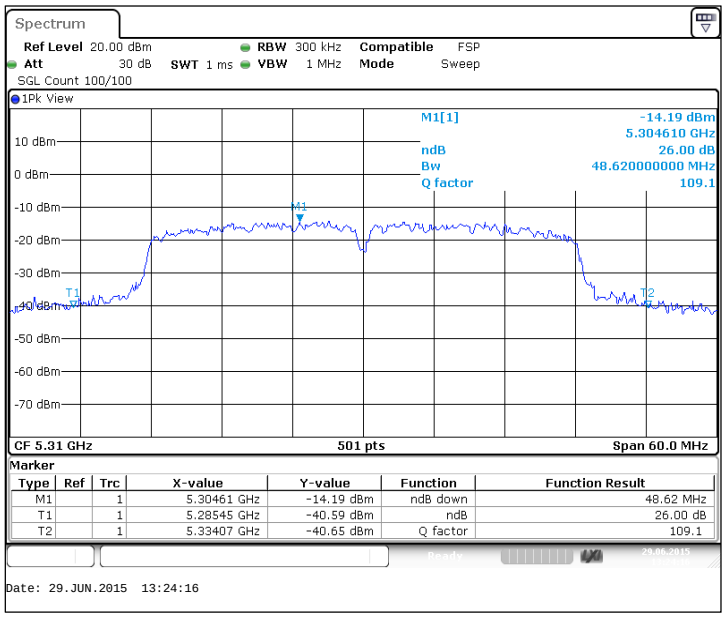
Channel 60+64 / 5310MHz



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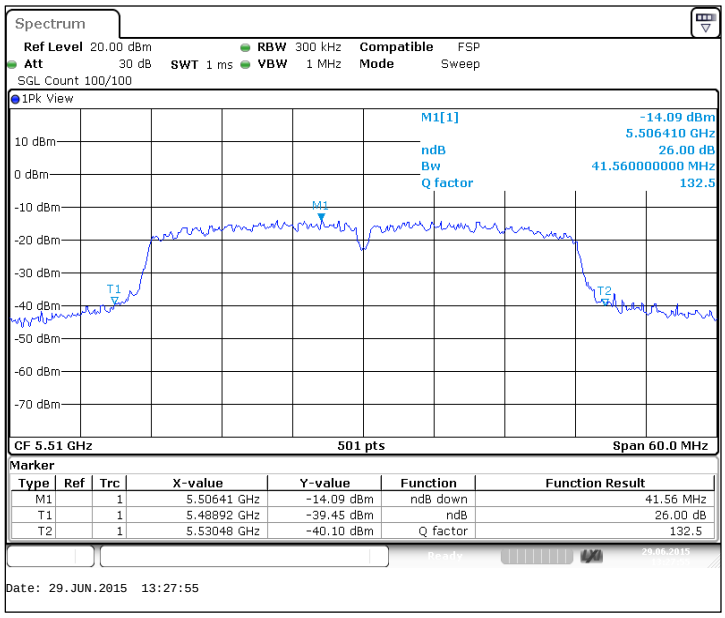
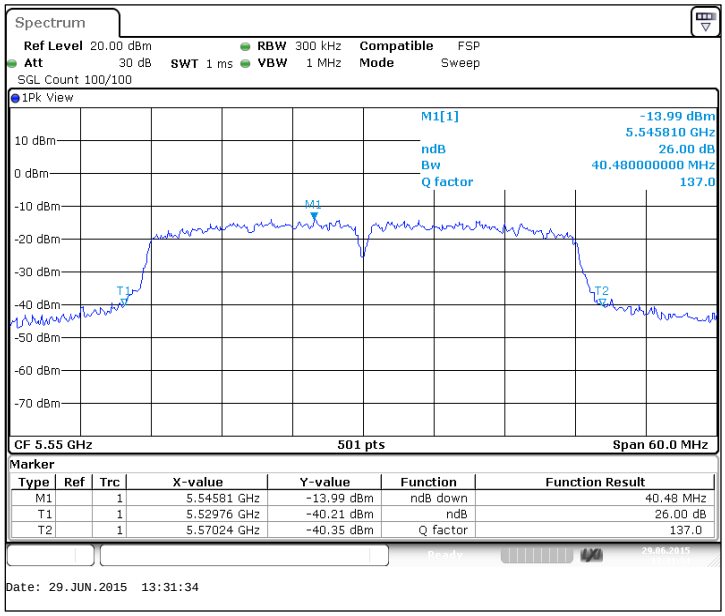
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



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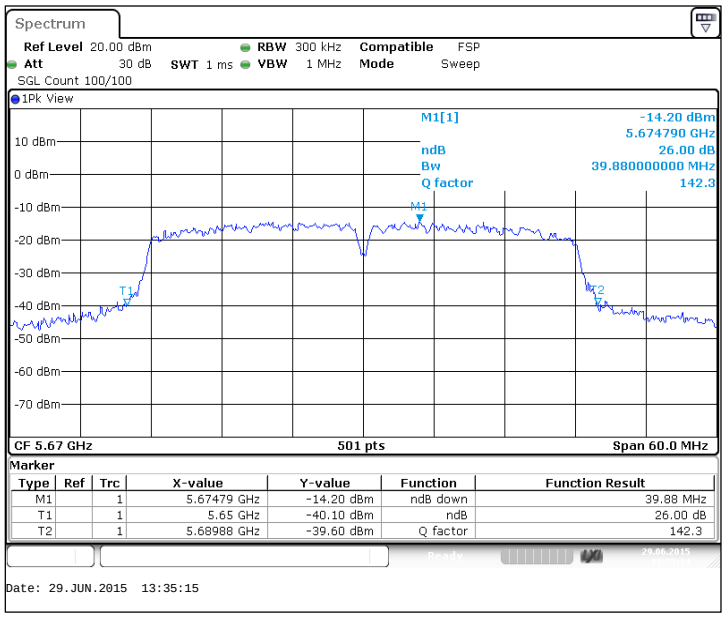
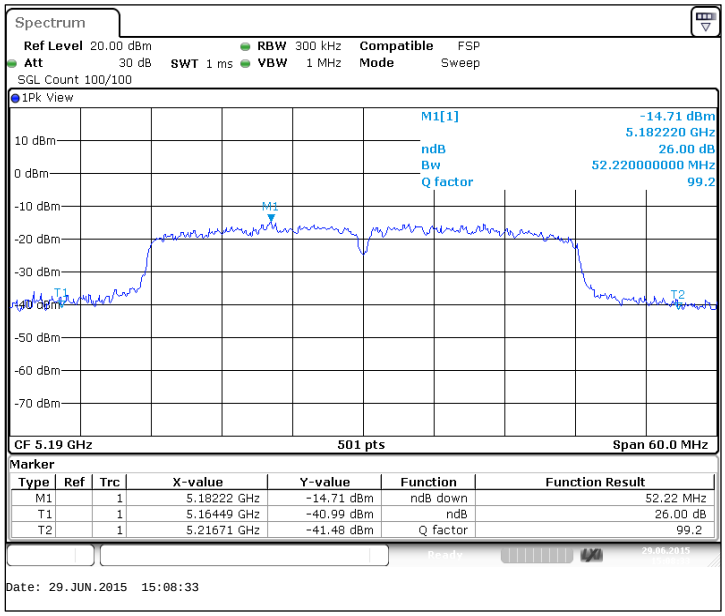
Channel 132+136 / 5670MHz



Channel 36+40 / 5190MHz



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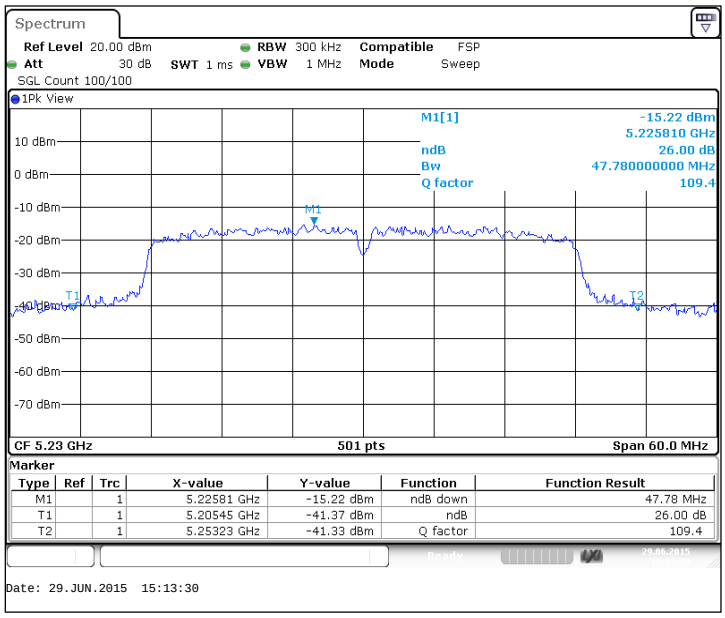
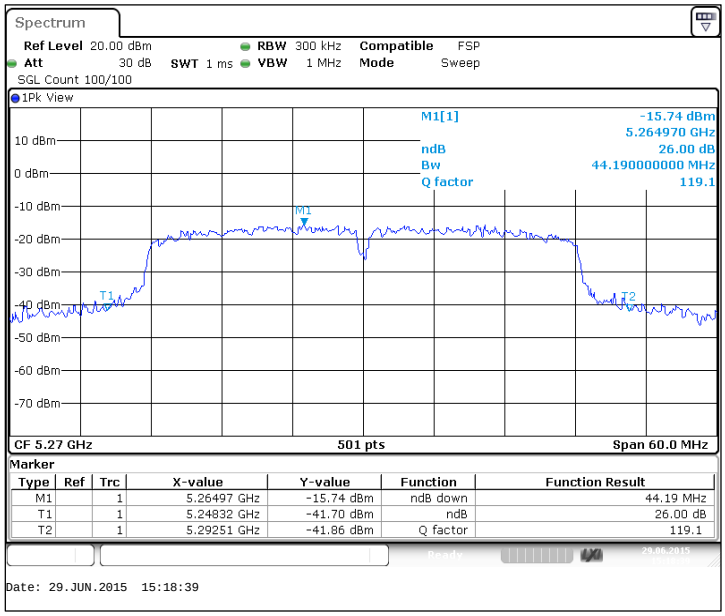
Channel 44+48 / 5230MHz



Channel 52+56 / 5270MHz



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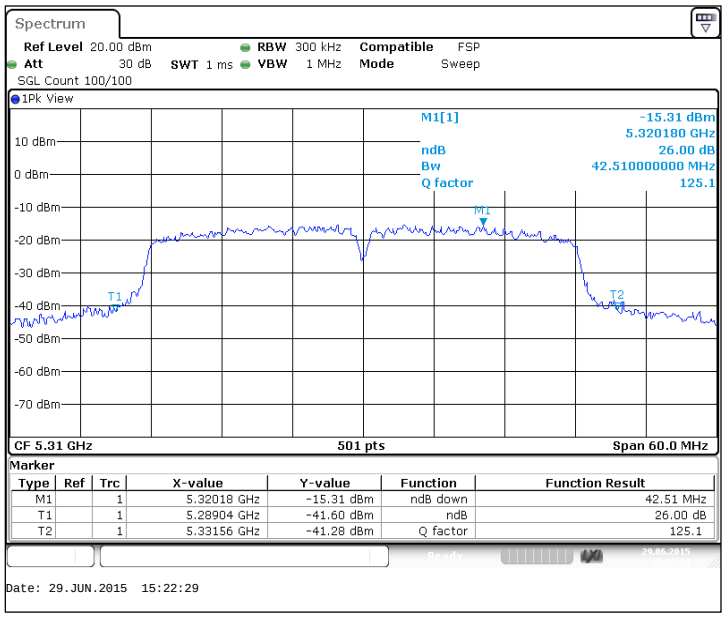
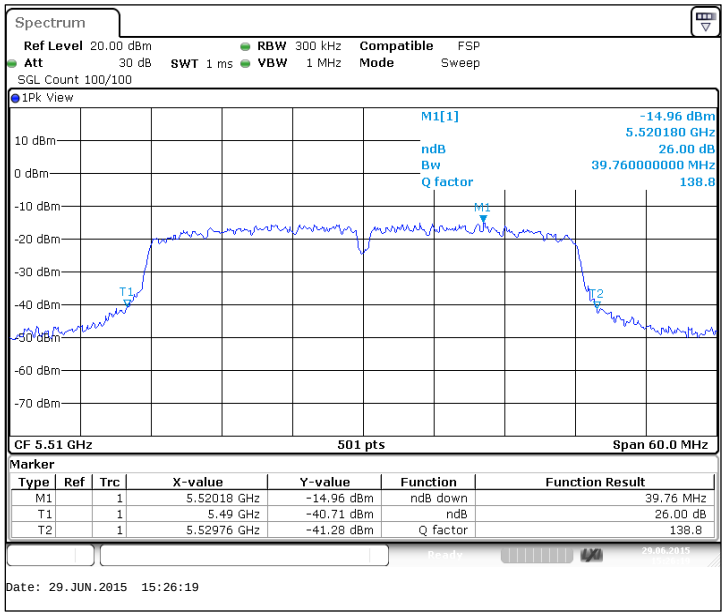
Channel 60+64 / 5310MHz



Channel 100+104 / 5510MHz



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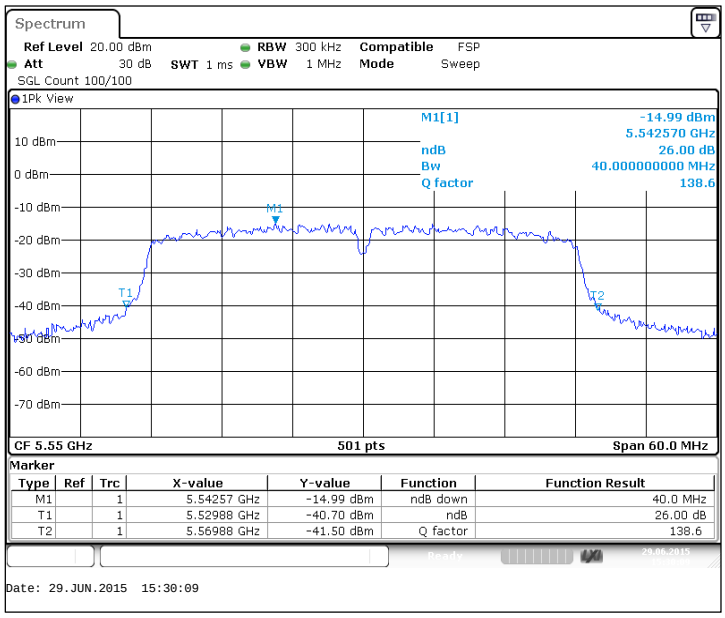
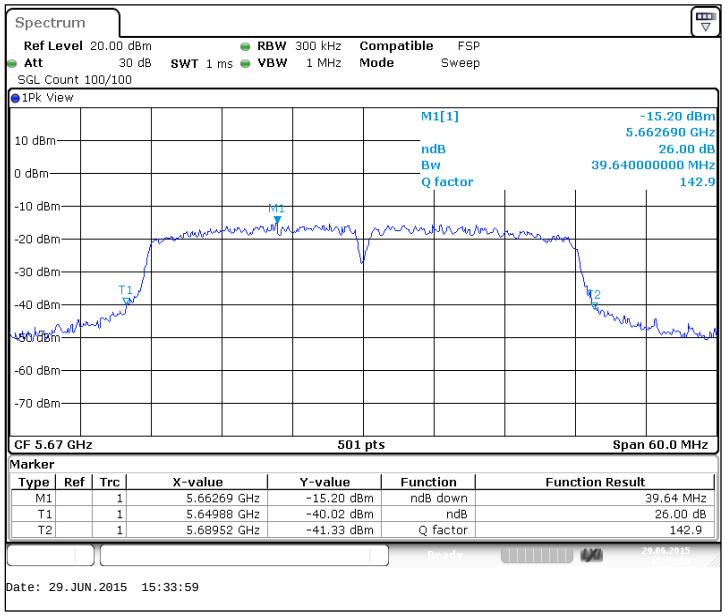
Channel 108+112 / 5550MHz



Channel 132+136 / 5670MHz



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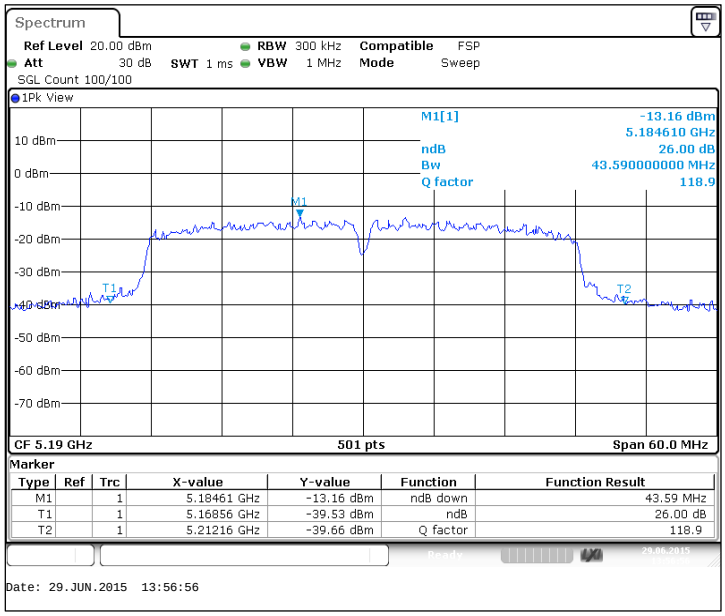
4.3.4 802.11n mode, QPSK modulation, 27.0 / 30.0 Mbps data rate

Channel / f_C [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190 MAIN	43590	PASSED
44+48 / 5230 MAIN	44790	PASSED
52+56 / 5270 MAIN	41440	PASSED
60+64 / 5310 MAIN	42630	PASSED
100+104 / 5510 MAIN	40480	PASSED
108+112 / 5550 MAIN	40120	PASSED
132+136 / 5670 MAIN	40360	PASSED
36+40 / 5190 AUX	46830	PASSED
44+48 / 5230 AUX	43590	PASSED
52+56 / 5270 AUX	41680	PASSED
60+64 / 5310 AUX	40240	PASSED
100+104 / 5510 AUX	39160	PASSED
108+112 / 5550 AUX	39160	PASSED
132+136 / 5670 AUX	39520	PASSED

Channel 36+40 / 5190MHz



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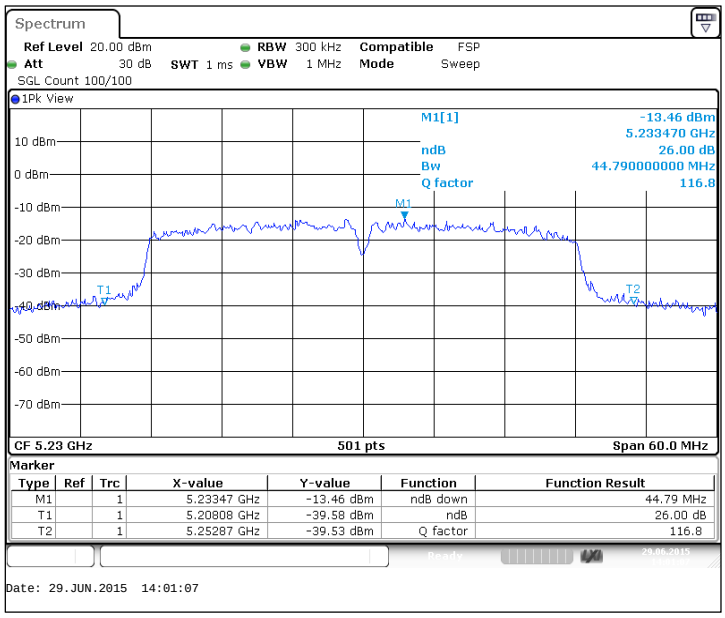
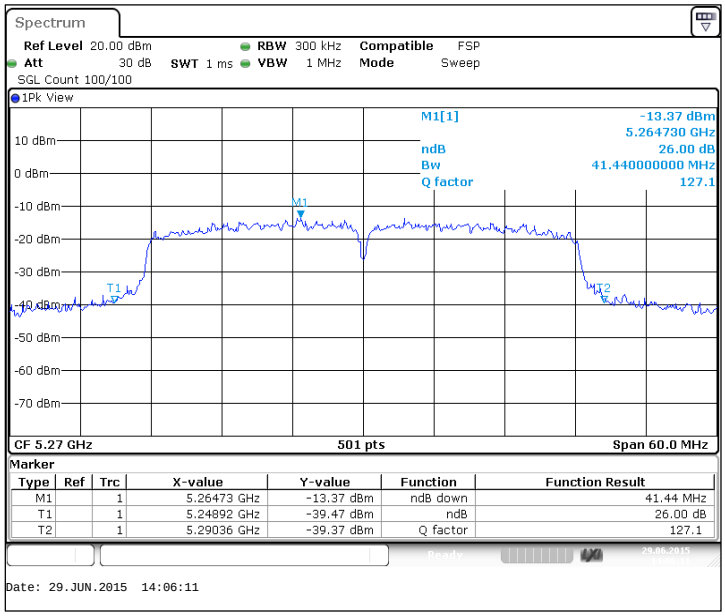
Channel 44+48 / 5230MHz



Channel 52+56 / 5270MHz



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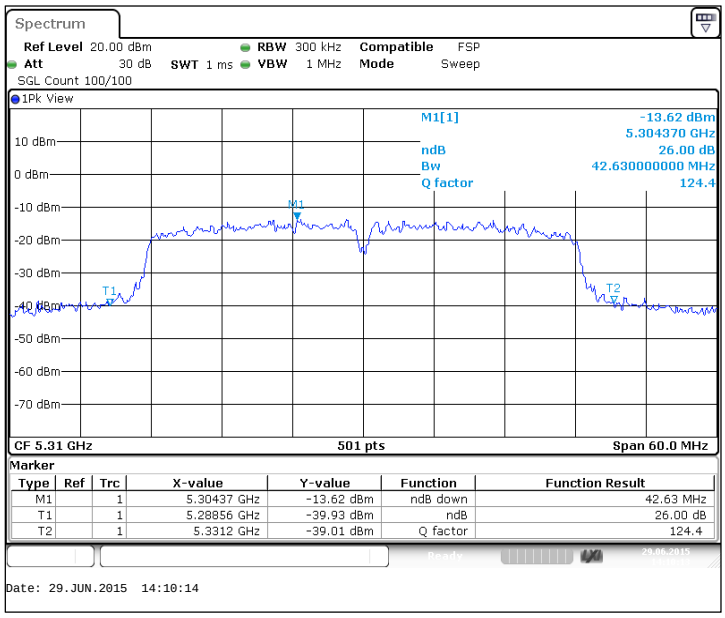
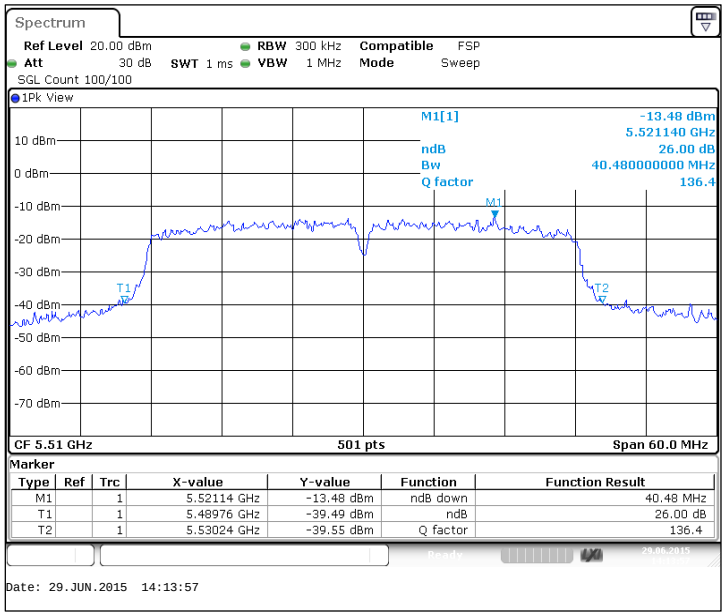
Channel 60+64 / 5310MHz



Channel 100+104 / 5510MHz



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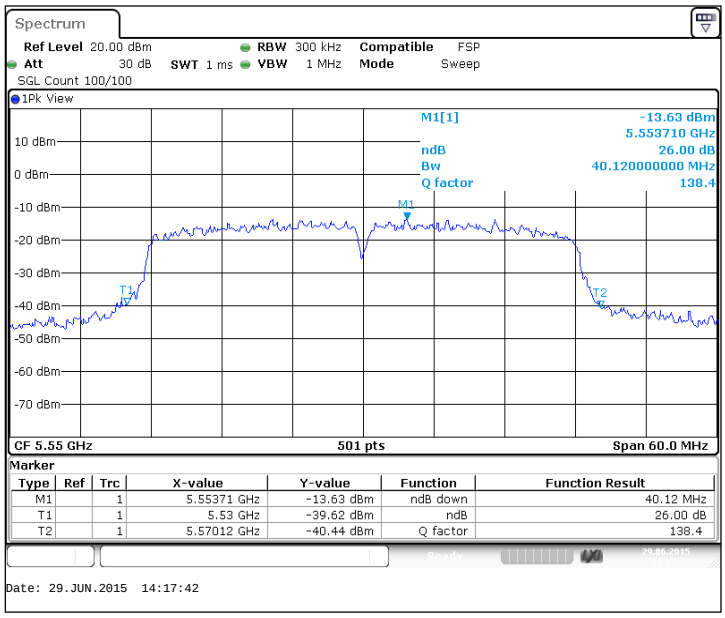
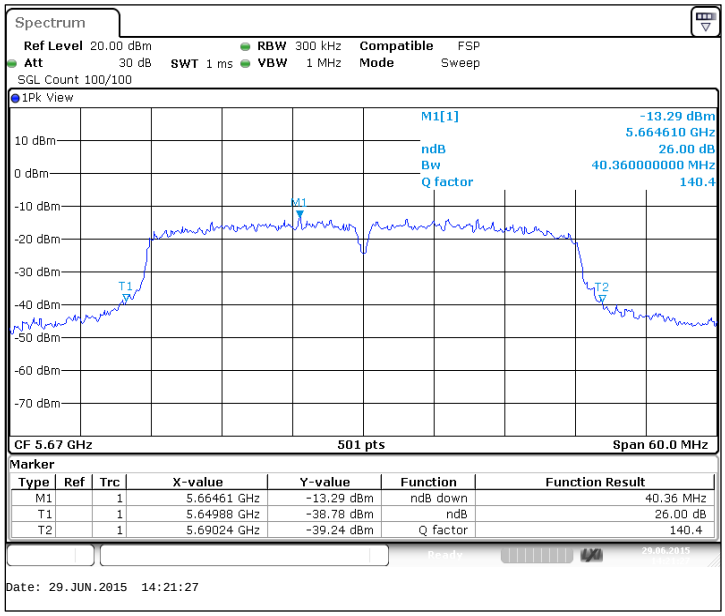
Channel 108+112 / 5550MHz



Channel 132+136 / 5670MHz



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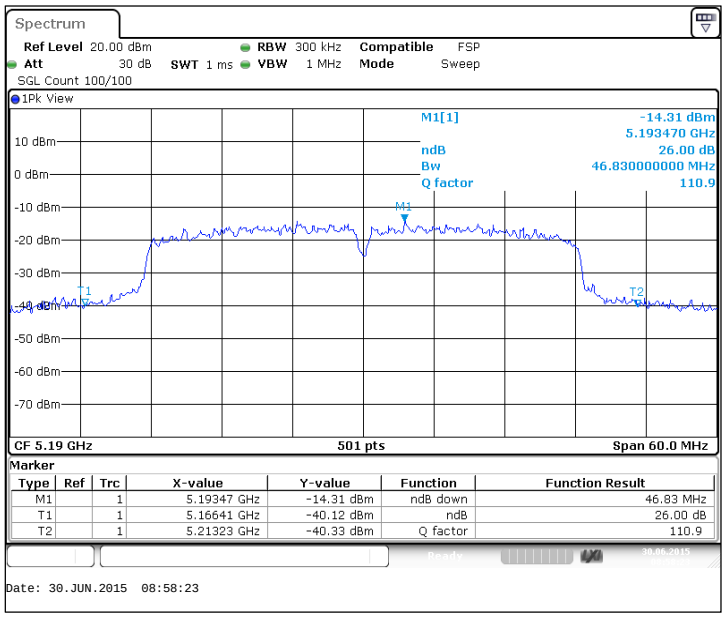
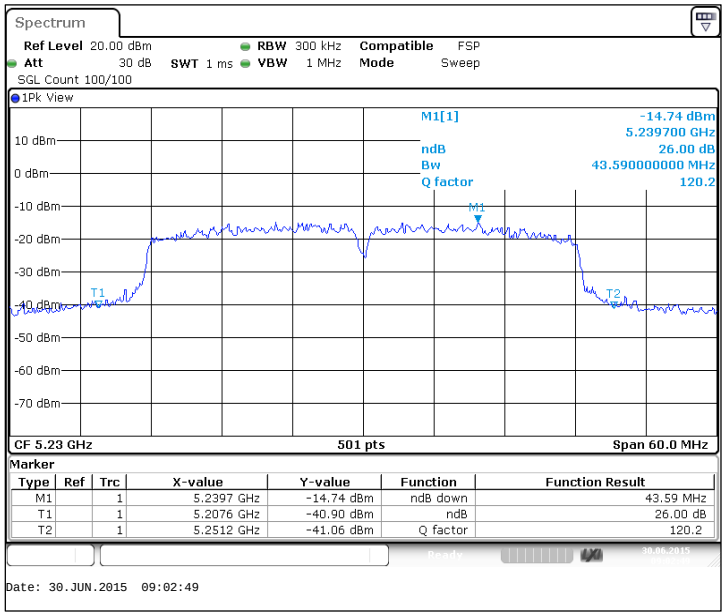
Channel 36+40 / 5190MHz



Channel 44+48 / 5230MHz



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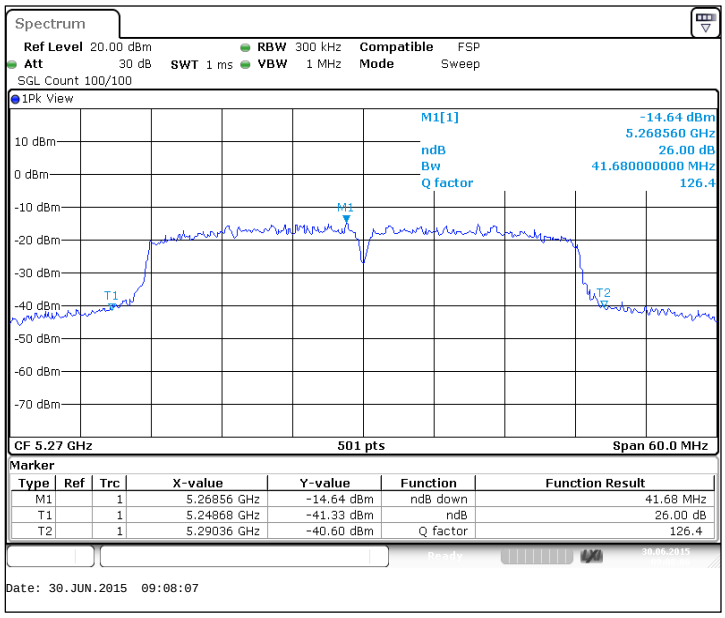
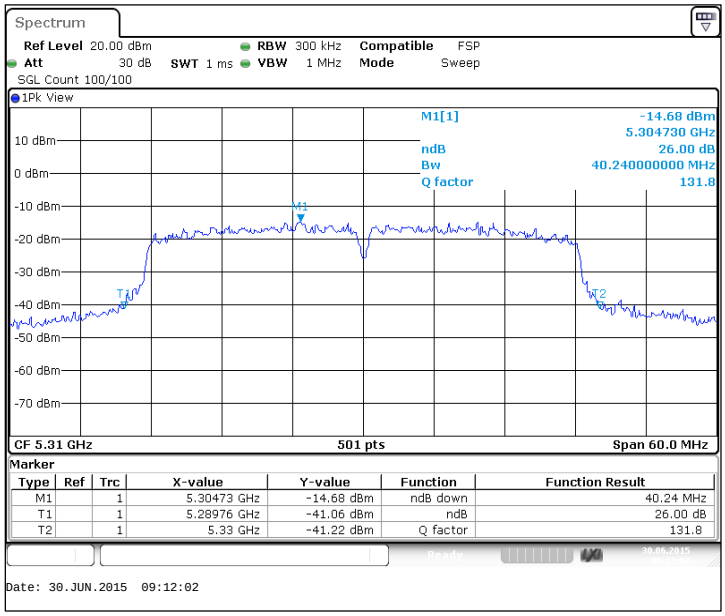
Channel 52+56 / 5270MHz



Channel 60+64 / 5310MHz



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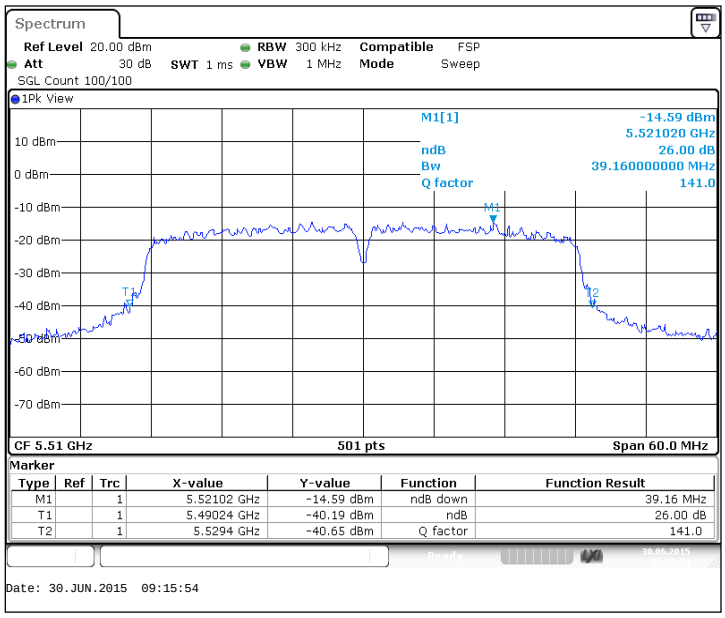
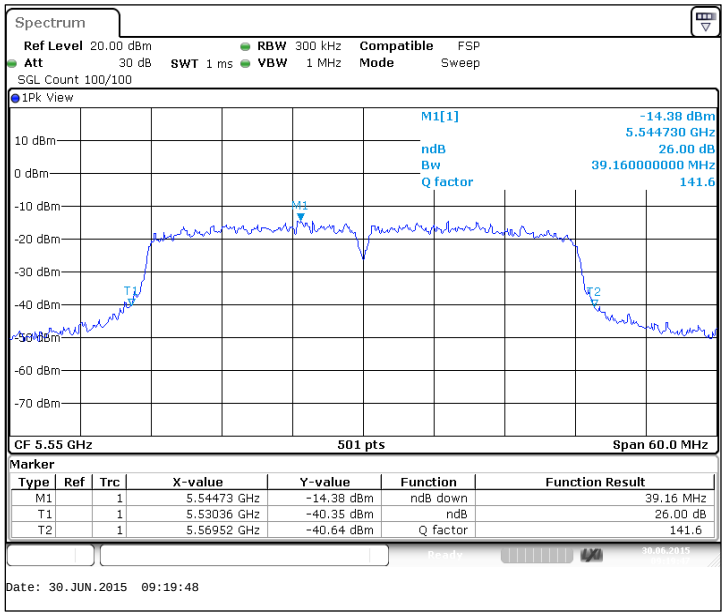
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



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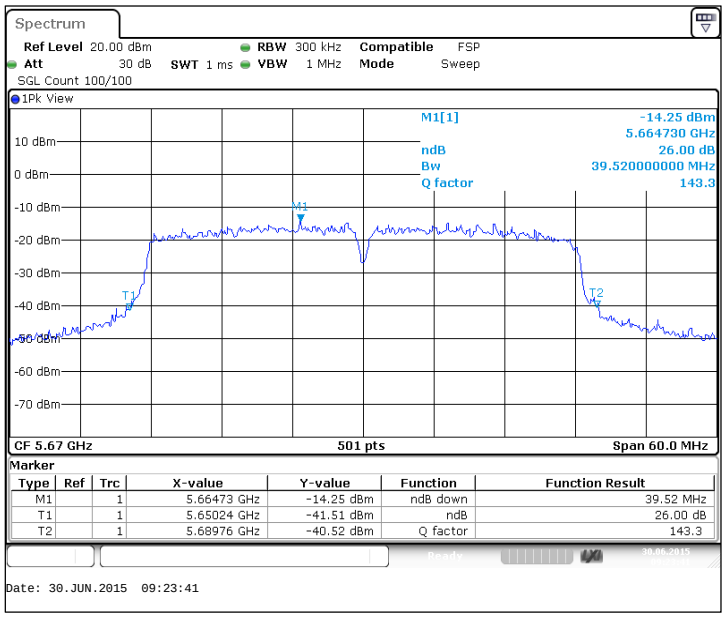
Channel 132+136 / 5670MHz



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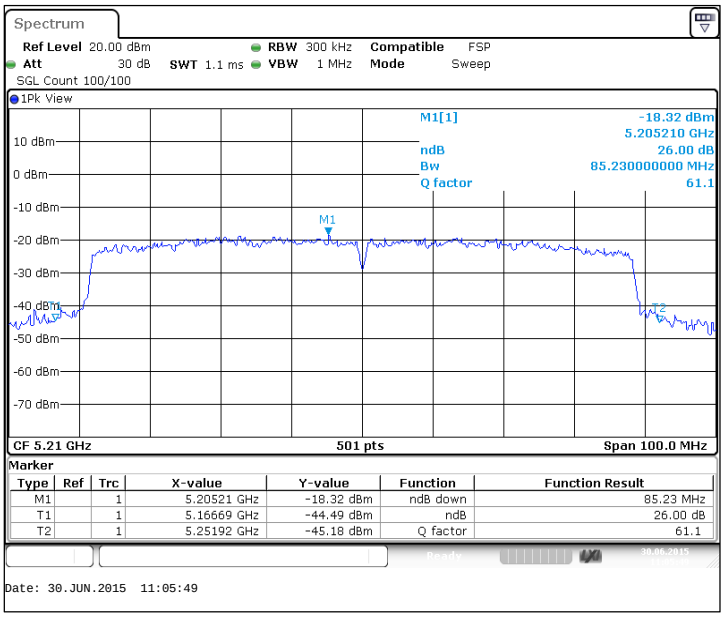
4.3.5 802.11ac mode, BPSK modulation, 29.3 / 32.5 Mbps data rate

Channel / fc [MHz]	26 dB bandwidth [kHz]	Result
36-48 / 5210 MAIN	85230	PASSED
52-64 / 5290 MAIN	82440	PASSED
100-112 / 5530 MAIN	81440	PASSED
36-48 / 5210	85830	PASSED
52-64 / 5290	82240	PASSED
100-112 / 5530	80840	PASSED

Channel 36-48 / 5210MHz



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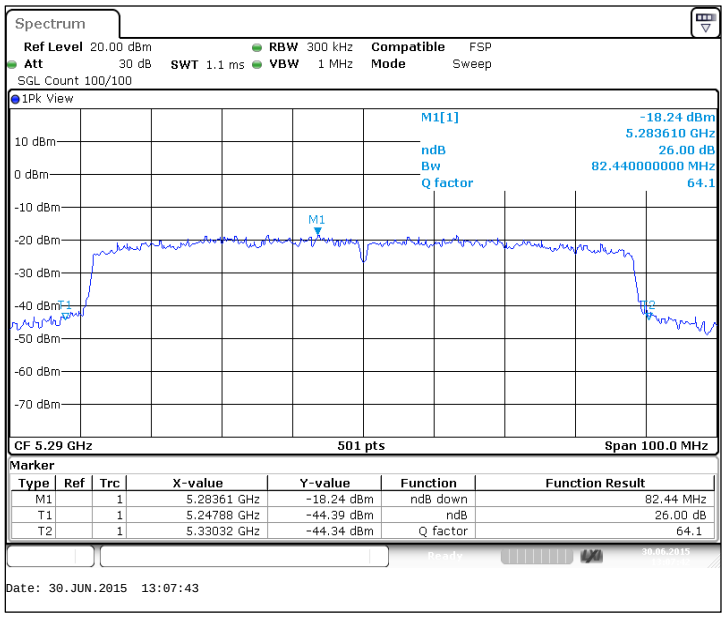
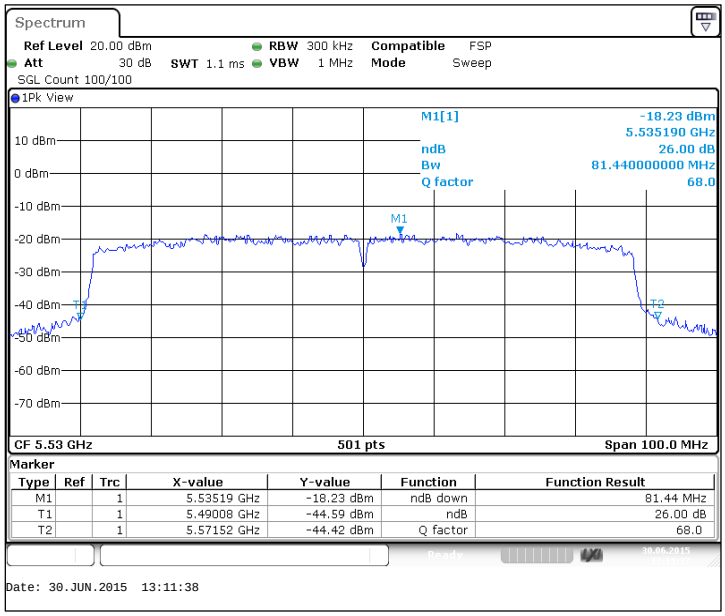
Channel 52-64 / 5290MHz



Channel 100-112 / 5530MHz



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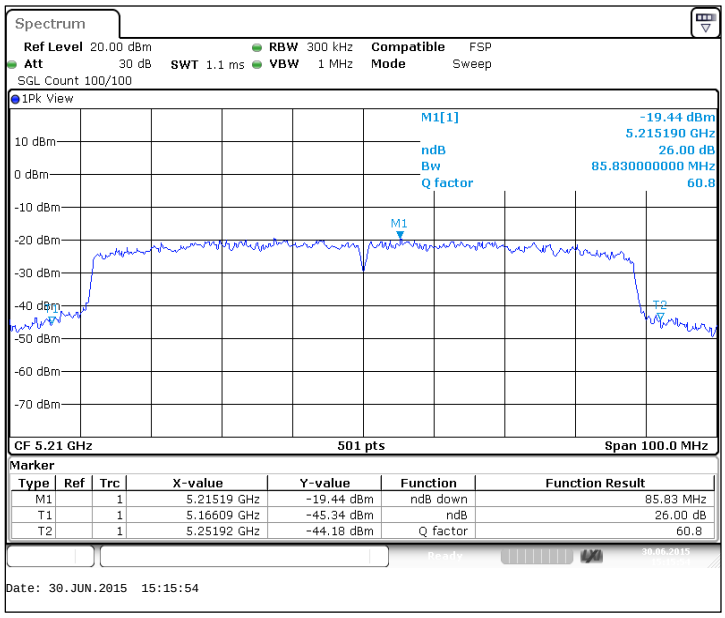
Channel 36-48 / 5210MHz



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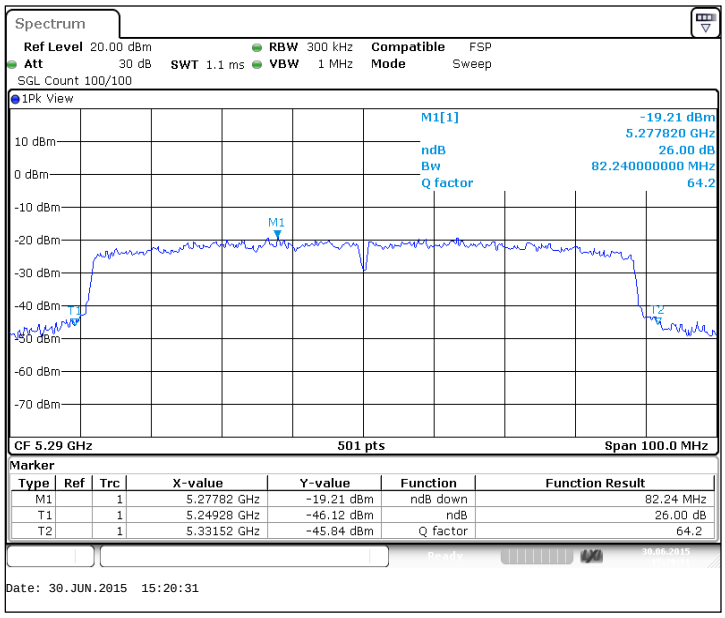
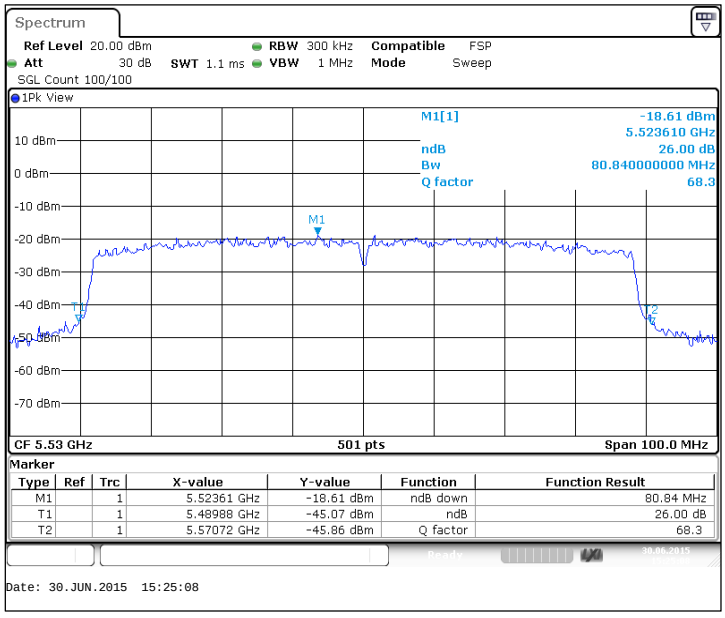
Channel 52-64 / 5290MHz



Channel 100-112 / 5530MHz



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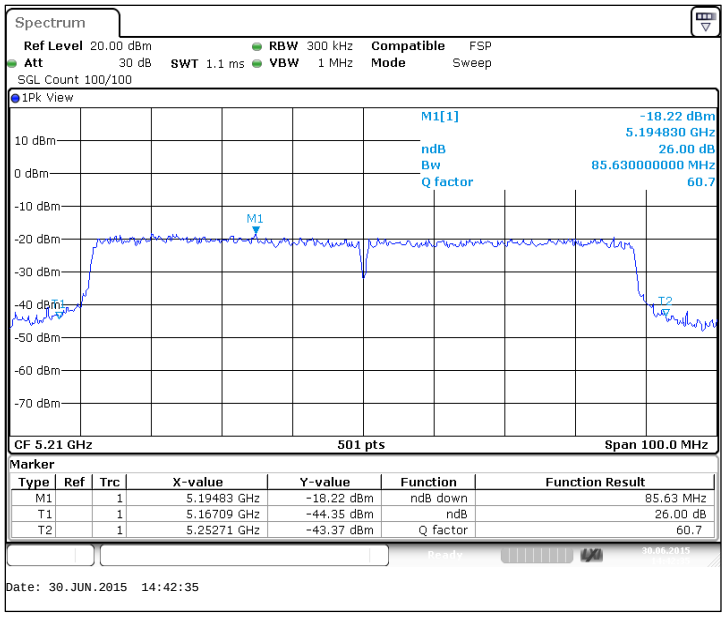
4.3.6 802.11ac mode, 16QAM modulation, 175.5 / 195.0 Mbps data rate

Channel / f_C [MHz]	26 dB bandwidth [kHz]	Result
36-48 / 5210 MAIN	85630	PASSED
52-64 / 5290 MAIN	86030	PASSED
100-112 / 5530 MAIN	83430	PASSED
36-48 / 5210	85430	PASSED
52-64 / 5290	85430	PASSED
100-112 / 5530	83830	PASSED

Channel 36-48 / 5210MHz



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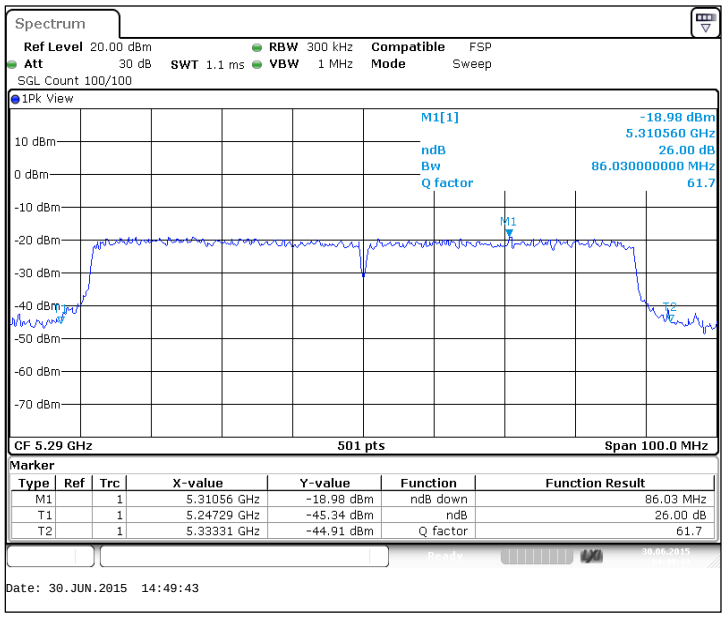
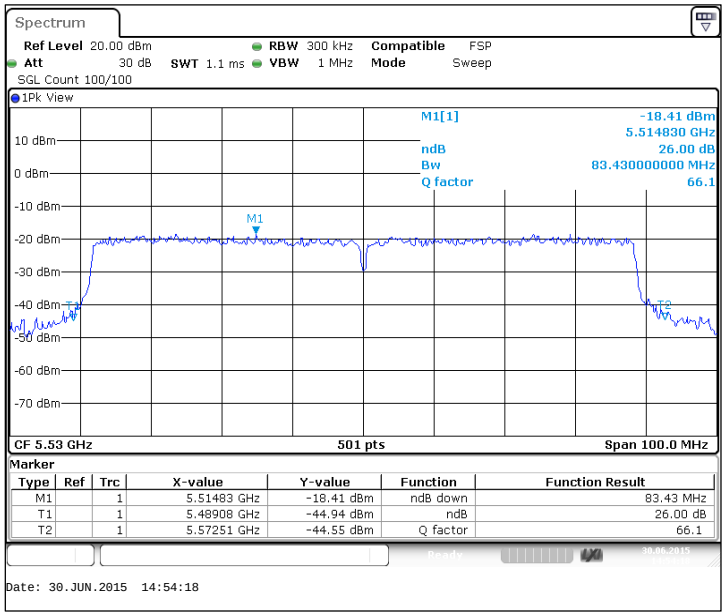
Channel 52-64 / 5290MHz



Channel 100-112 / 5530MHz



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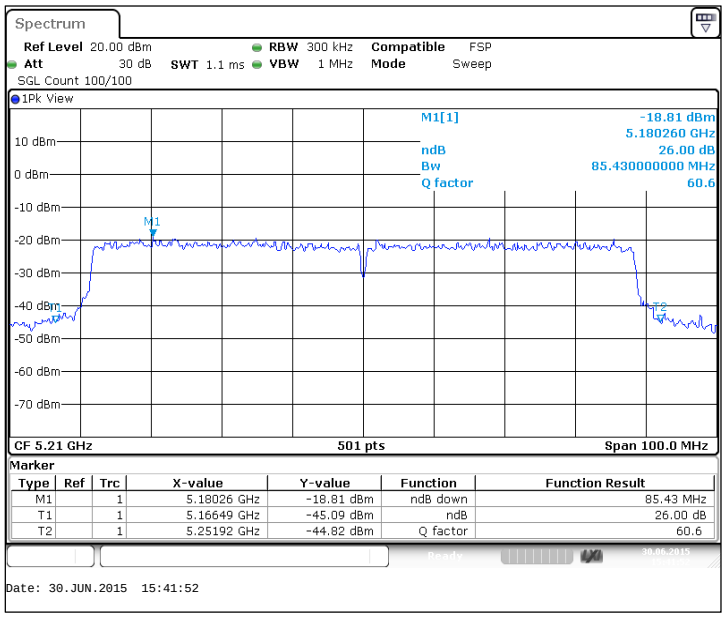
Channel 36-48 / 5210MHz



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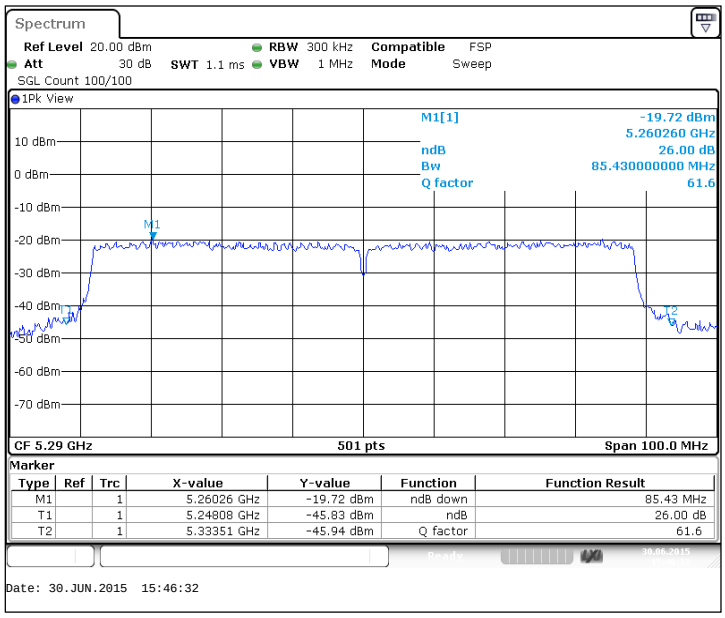
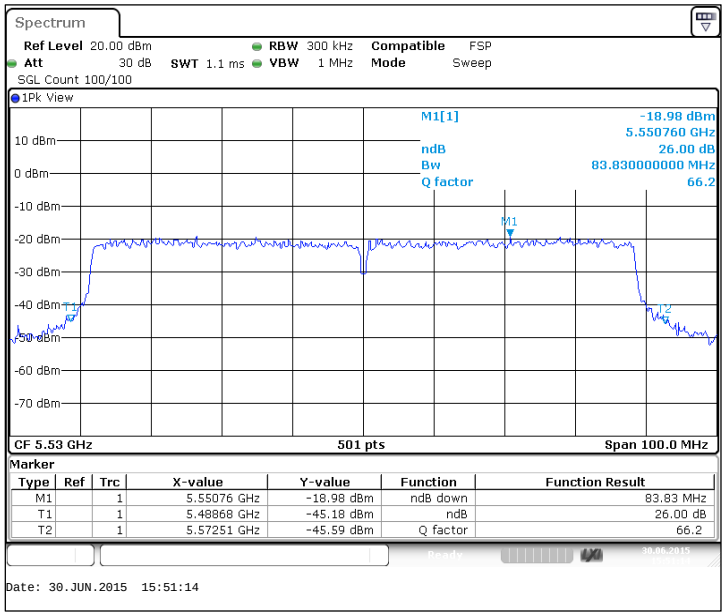
Channel 52-64 / 5290MHz



Channel 100-112 / 5530MHz



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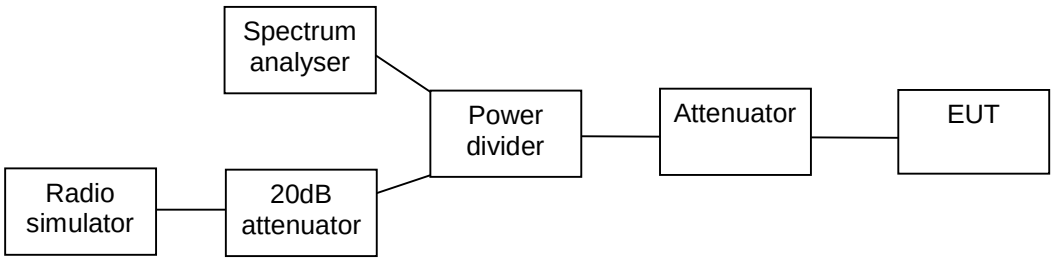
5. Maximum power spectral density
(FCC §15.407(a), RSS-210 A9.2)

EUT with DUT number	RM-1104, DUT 100007
Accessories with DUT numbers	SD-244R, DUT 100021 ; WH-308, DUT 100029
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 49 / 101.2
Date of measurements	01-Jul-2015
Measured by	Jari Keto

5.1. Test Setup



5.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D02 v01 and IC standard RSS-210.

Limits for maximum power spectral density measurements

Frequency range [MHz]	Limit [dBm]
5150-5250	11 dBm / MHz
5250-5350	11 dBm / MHz
5470-5725	11 dBm / MHz
5725-5850	30 dBm / 500 kHz

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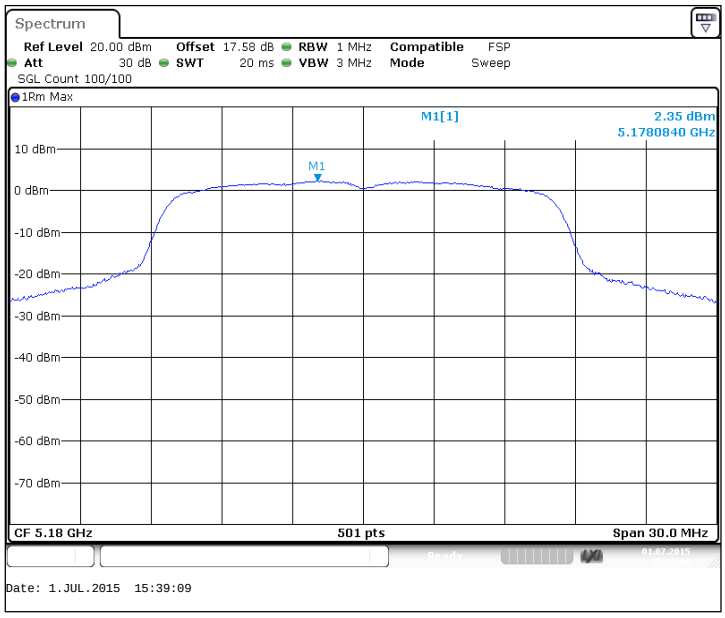
5.3. 5 GHz RLAN Test results

5.3.1 802.11a MIMO mode, BPSK modulation, 9 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36 / 5180	5.98	2.35	3.5	3.5	1.4	3.5	11	11	PASSED
40 / 5200	6.09	2.44	3.63	3.5	1.4	3.5	11	11	PASSED
48 / 5240	6.3	2.71	3.8	3.5	1.4	3.5	11	11	PASSED
52 / 5260	6.33	2.89	3.71	3.5	1.4	3.5	11	11	PASSED
60 / 5300	6.42	3.1	3.71	3.5	1.4	3.5	11	11	PASSED
64 / 5320	6.56	3.28	3.81	3.5	1.4	3.5	11	11	PASSED
100 / 5500	7.3	4.09	4.47	3.5	1.4	3.5	11	11	PASSED
116 / 5580	7.13	3.97	4.26	3.5	1.4	3.5	11	11	PASSED
140 / 5700	7.03	4.04	4	3.5	1.4	3.5	11	11	PASSED
149 / 5745	4.76	1.69	1.81	3.5	1.4	3.5	30	30	PASSED
157 / 5785	4.71	1.68	1.72	3.5	1.4	3.5	30	30	PASSED
165 / 5825	4.85	1.88	1.81	3.5	1.4	3.5	30	30	PASSED

Main (36 / 5180)



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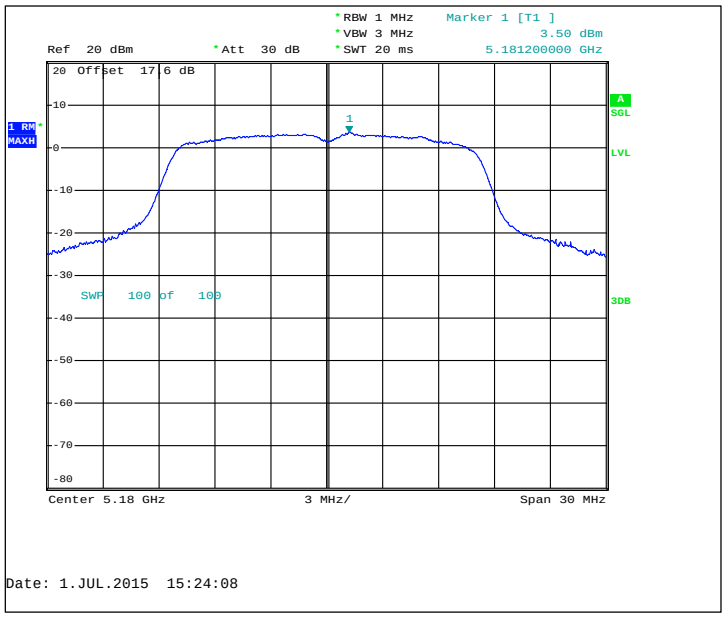
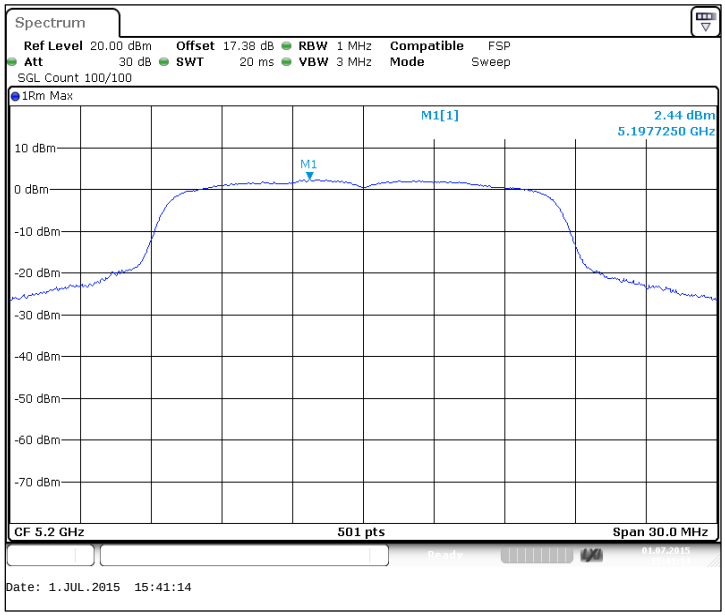
Aux (36 / 5180)



Main (40 / 5200)



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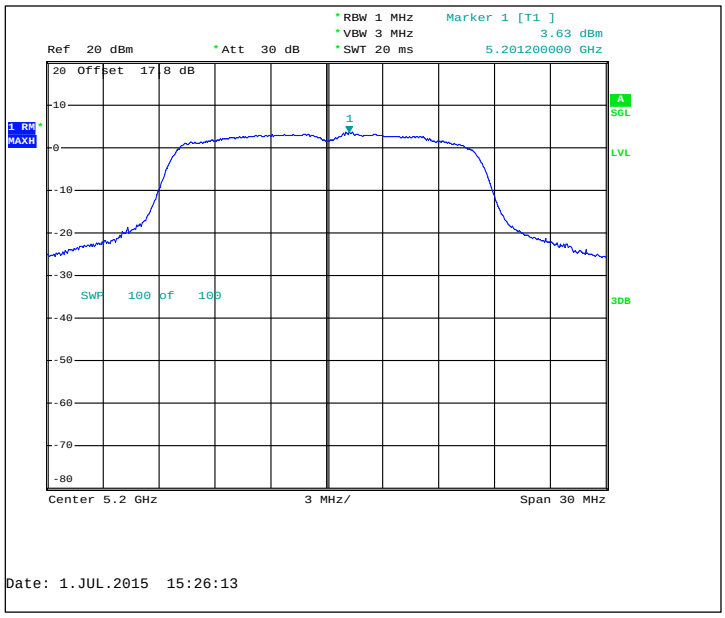
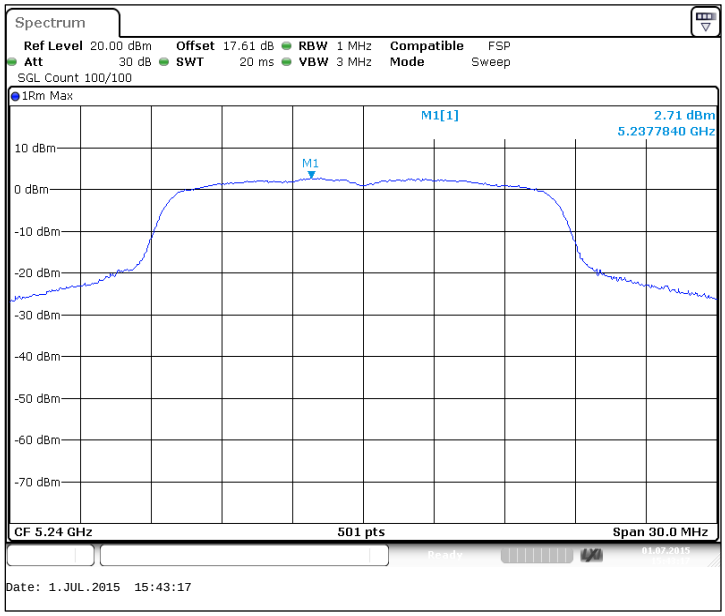
Aux (40 / 5200)



Main (48 / 5240)



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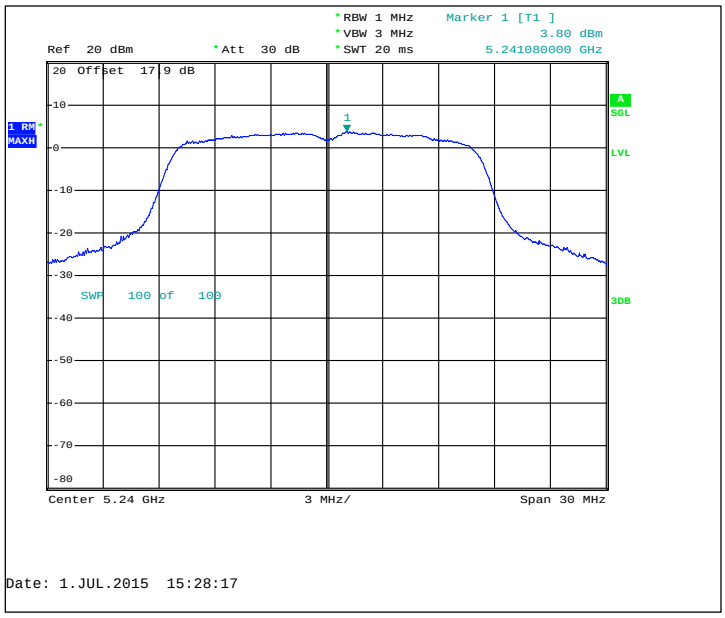
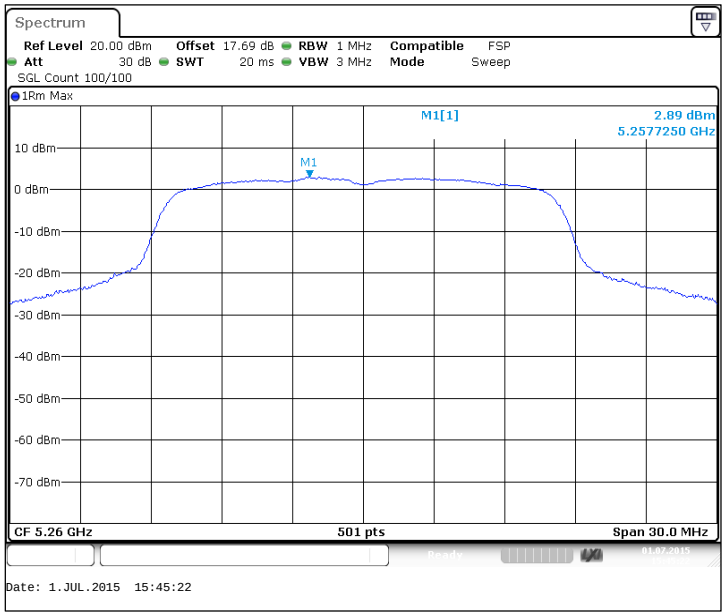
Aux (48 / 5240)



Main (52 / 5260)



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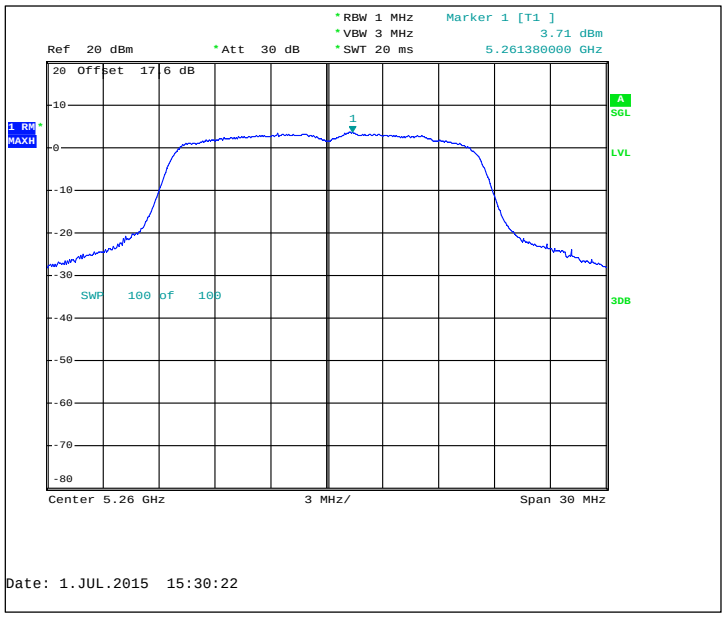
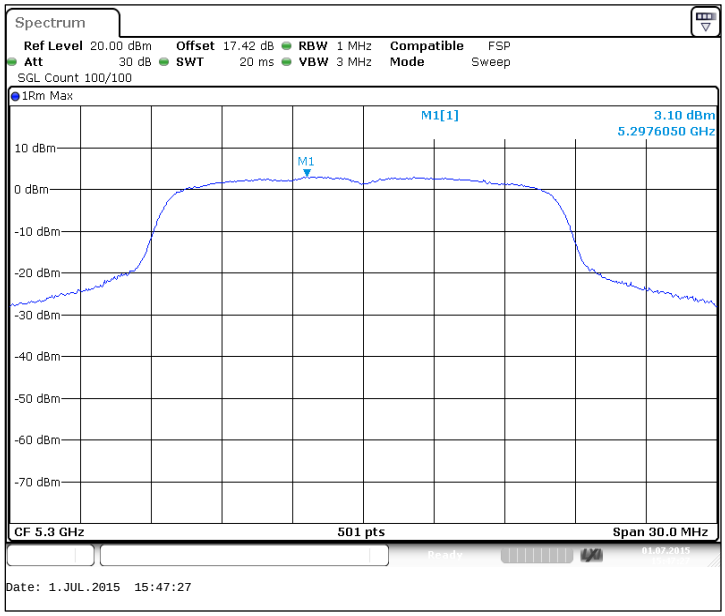
Aux (52 / 5260)



Main (60 / 5300)



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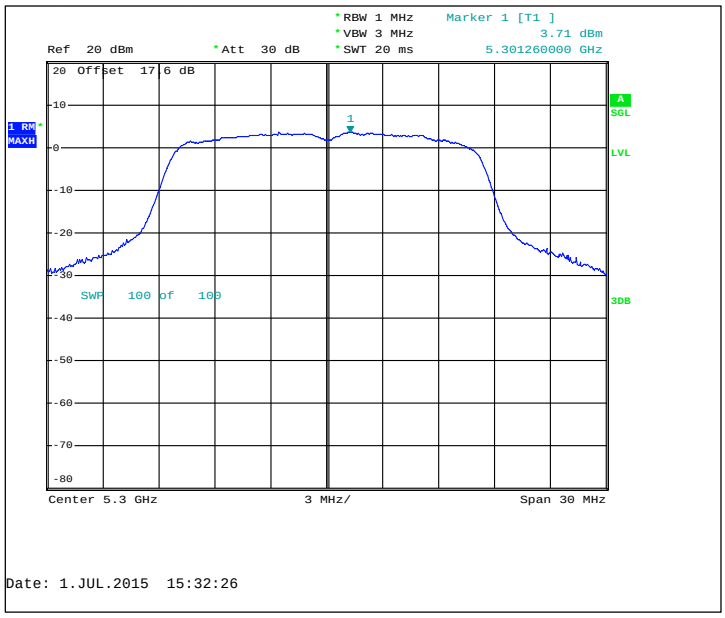
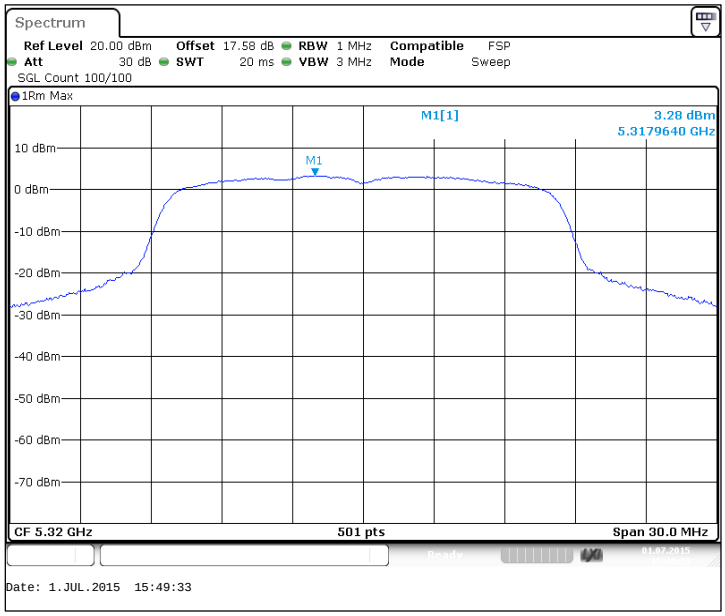
Aux (60 / 5300)



Main (64 / 5320)



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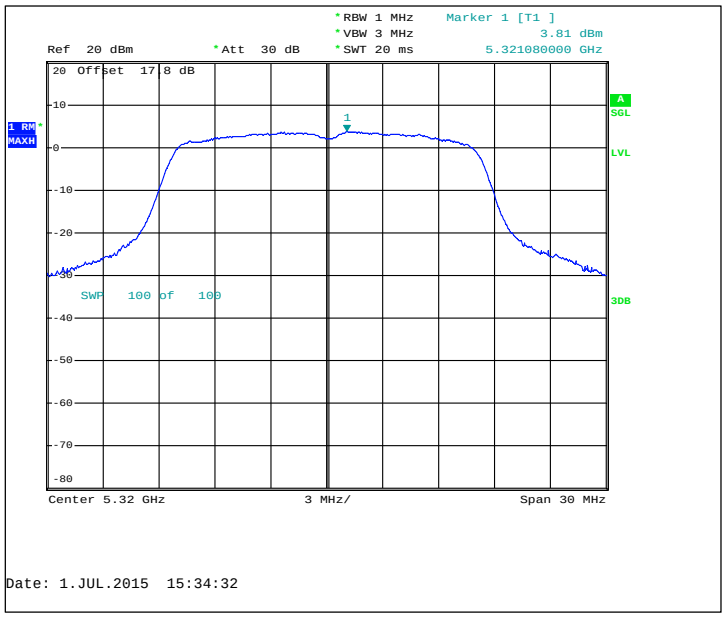
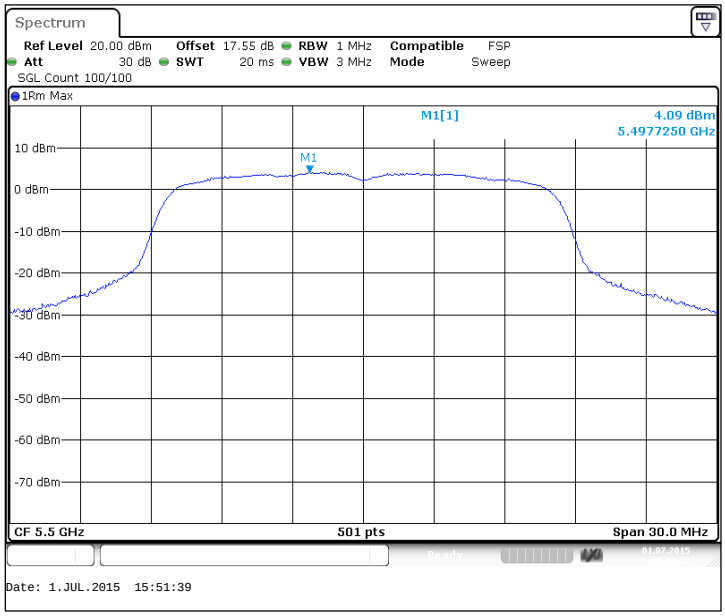
Aux (64 / 5320)



Main (100 / 5500)



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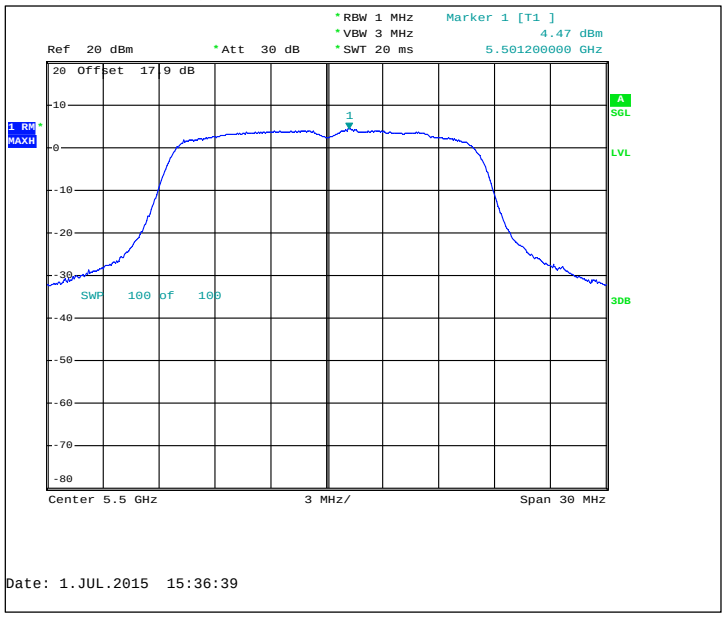
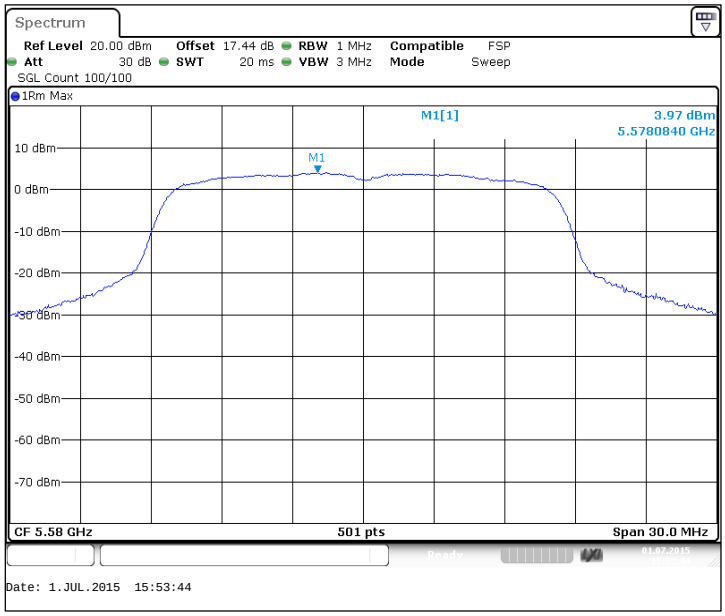
Aux (100 / 5500)



Main (116 / 5580)



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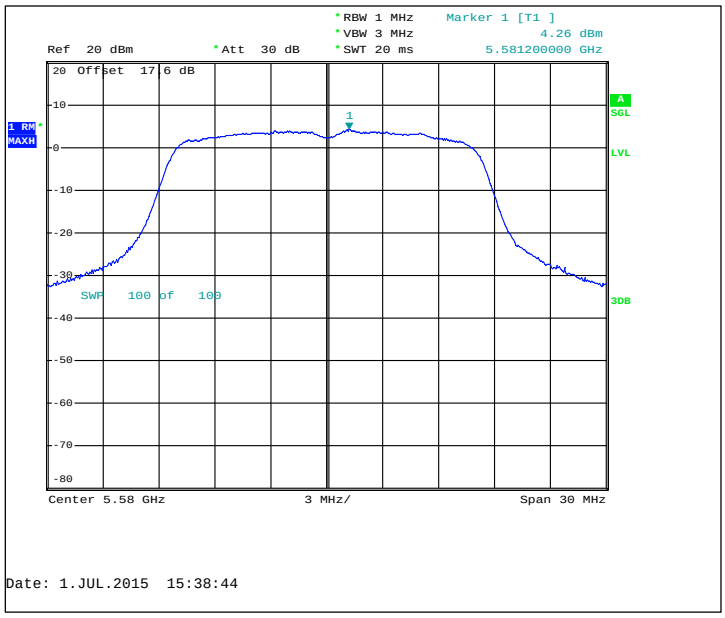
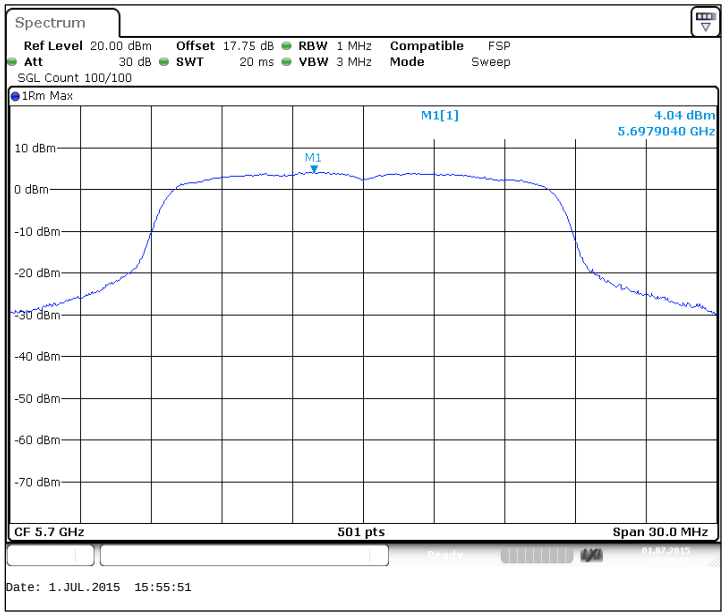
Aux (116 / 5580)



Main (140 / 5700)



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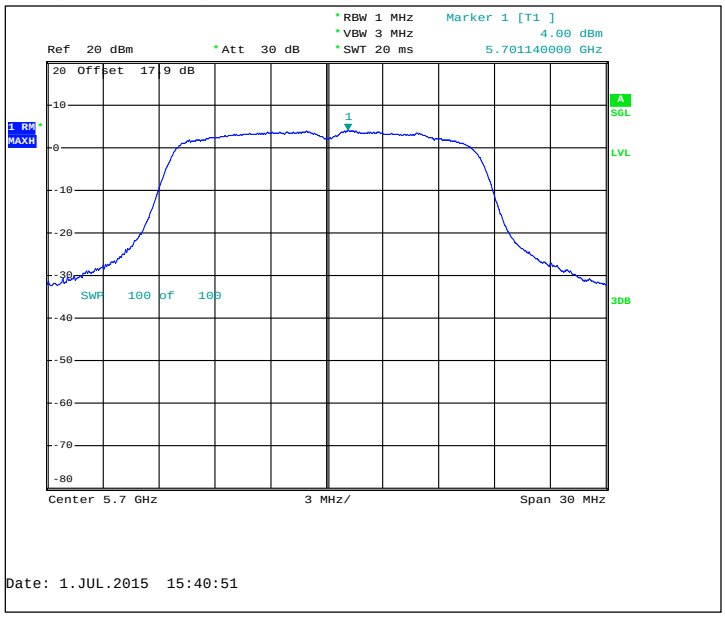
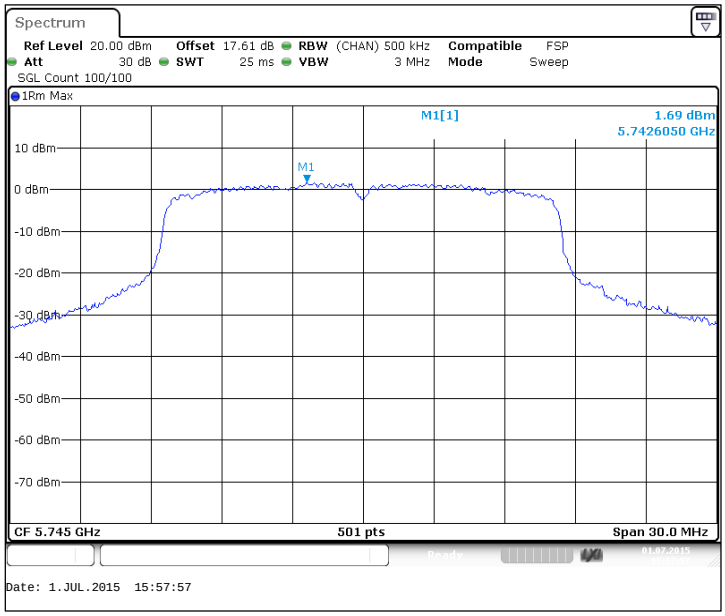
Aux (140 / 5700)



Main (149 / 5745)



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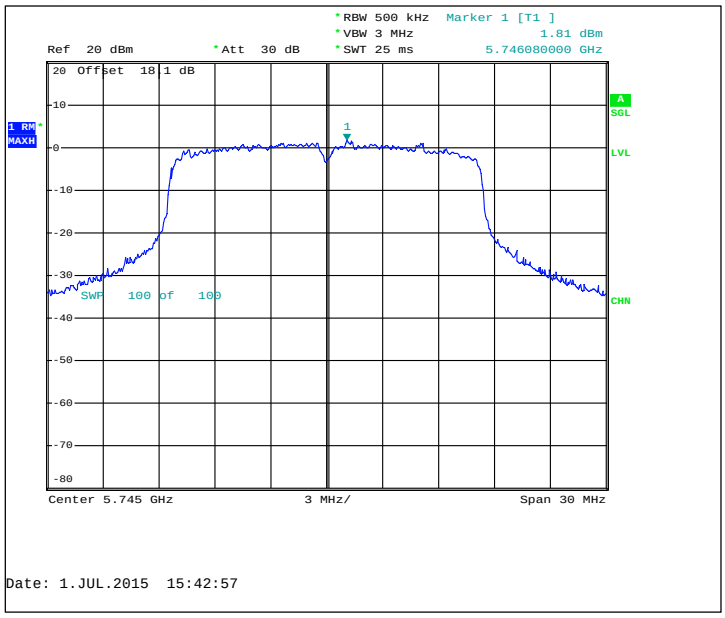
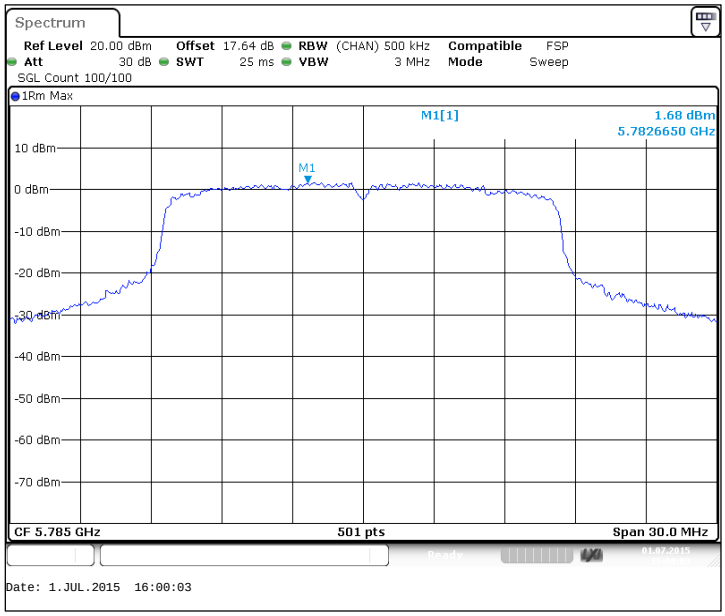
Aux (149 / 5745)



Main (157 / 5785)



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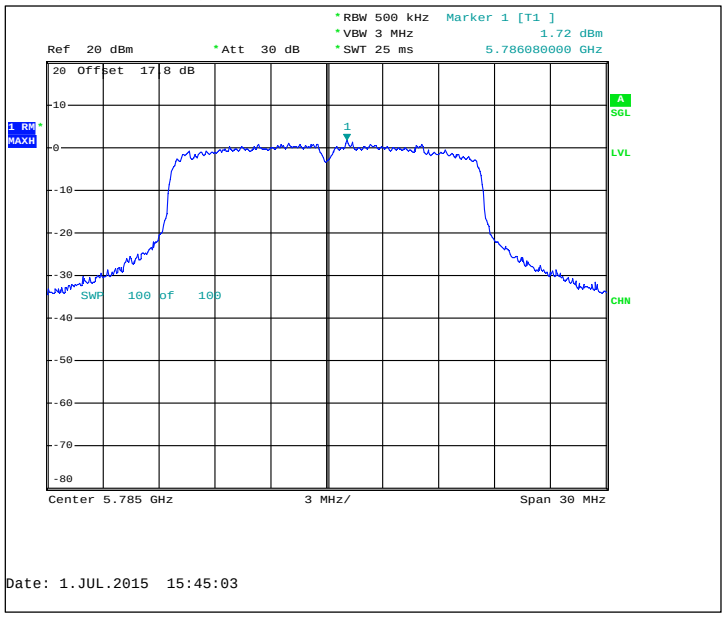
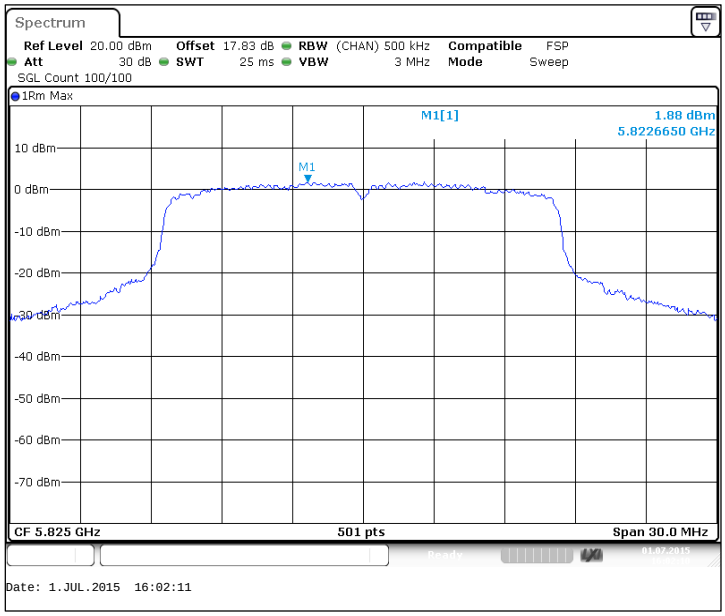
Aux (157 / 5785)



Main (165 / 5825)



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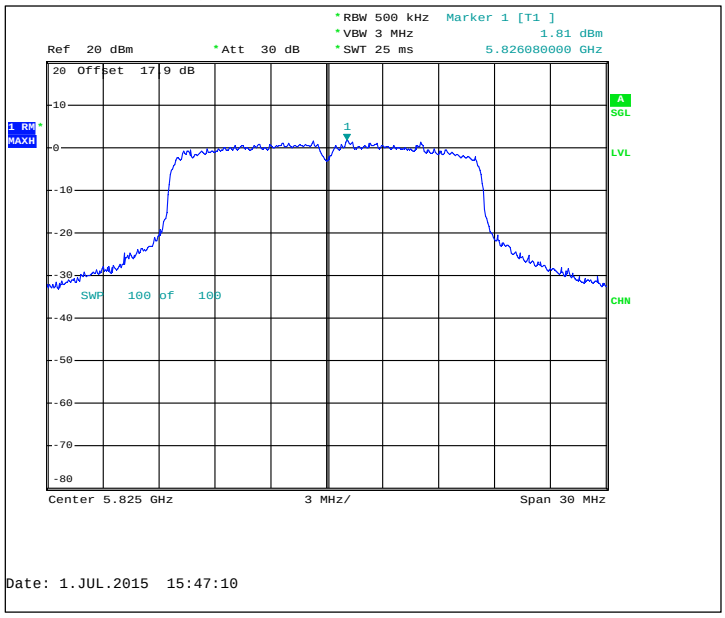
Aux (165 / 5825)



5.3.2 802.11a MIMO mode, QPSK modulation, 18 Mbps data rate

Channel / f_C [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36 / 5180	5.81	2.37	3.19	3.5	1.4	3.5	11	11	PASSED
40 / 5200	5.84	2.3	3.3	3.5	1.4	3.5	11	11	PASSED
48 / 5240	6.14	2.71	3.52	3.5	1.4	3.5	11	11	PASSED
52 / 5260	6.07	2.93	3.18	3.5	1.4	3.5	11	11	PASSED
60 / 5300	6.3	3.02	3.54	3.5	1.4	3.5	11	11	PASSED
64 / 5320	6.69	3.34	4	3.5	1.4	3.5	11	11	PASSED
100 / 5500	7.15	4.22	4.05	3.5	1.4	3.5	11	11	PASSED
116 / 5580	7.04	4.09	3.97	3.5	1.4	3.5	11	11	PASSED
140 / 5700	7.06	4.18	3.9	3.5	1.4	3.5	11	11	PASSED
149 / 5745	4.47	1.73	1.17	3.5	1.4	3.5	30	30	PASSED
157 / 5785	4.61	1.8	1.39	3.5	1.4	3.5	30	30	PASSED
165 / 5825	4.72	1.93	1.49	3.5	1.4	3.5	30	30	PASSED

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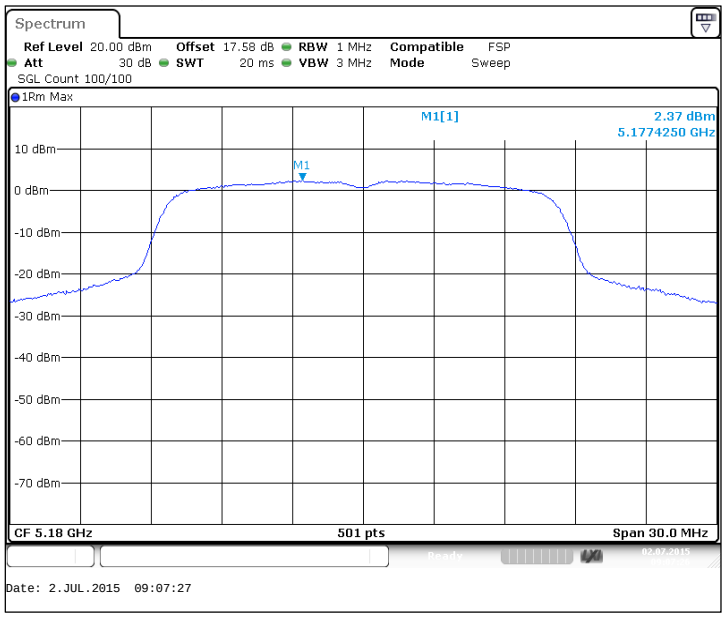
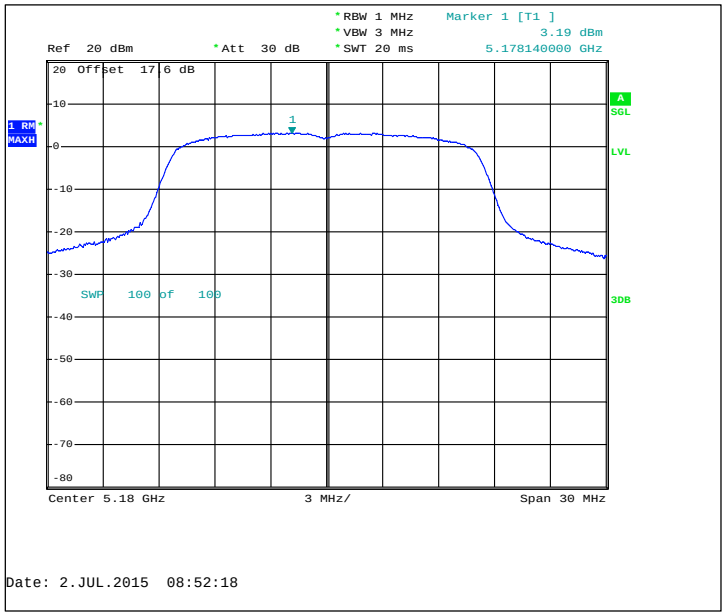
Main (36 / 5180)



Aux (36 / 5180)



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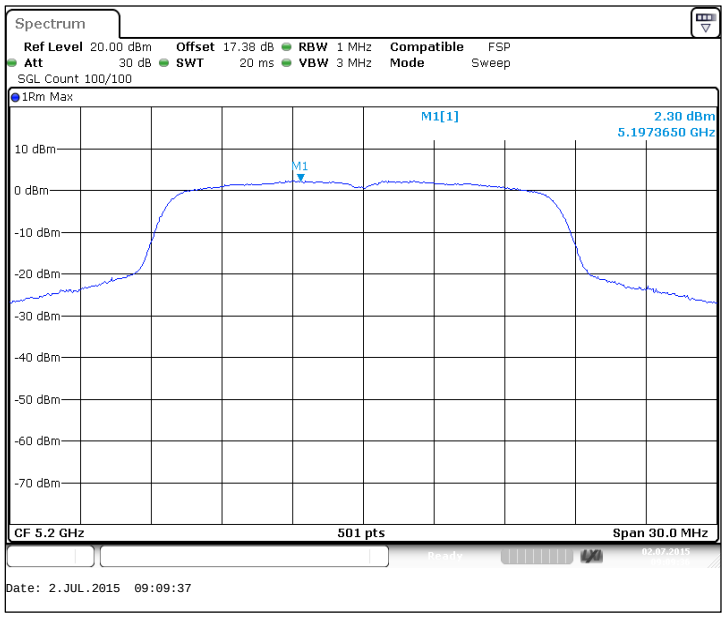
Main (40 / 5200)



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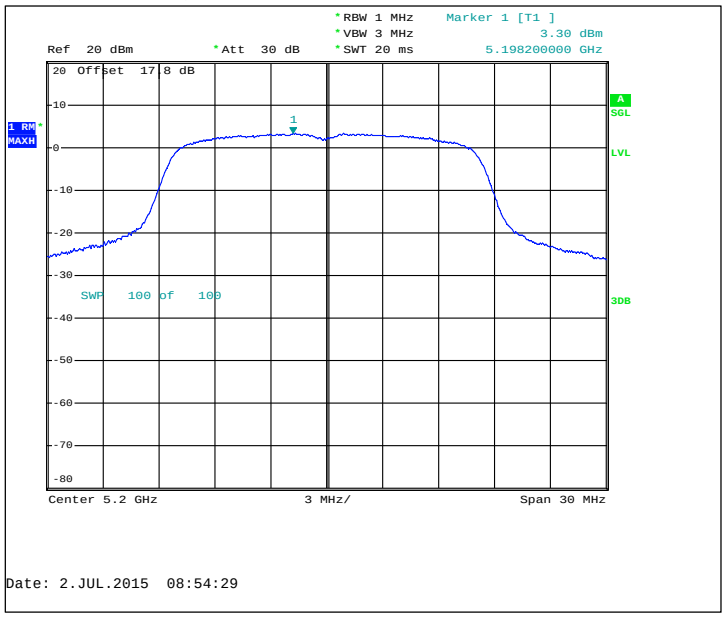
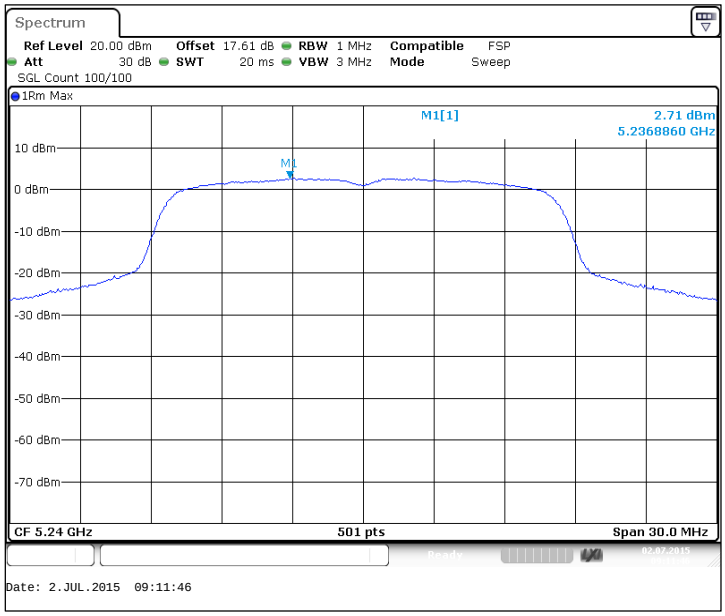
Aux (40 / 5200)



Main (48 / 5240)



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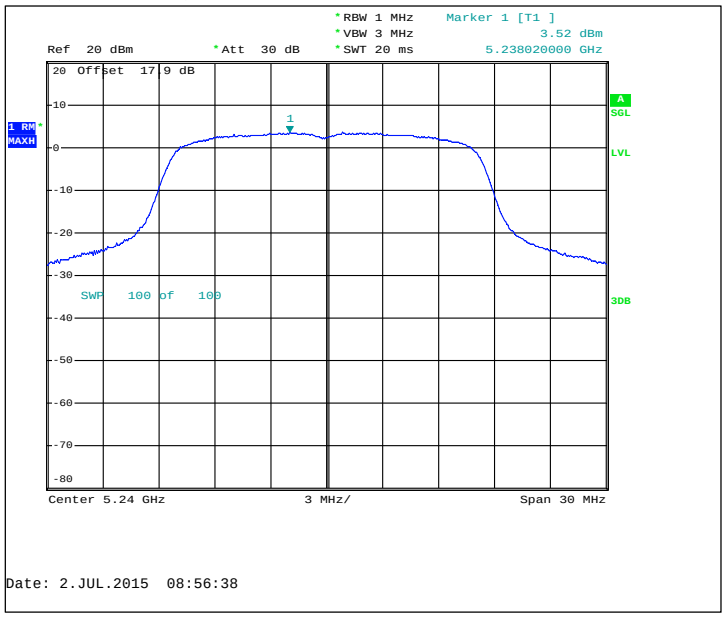
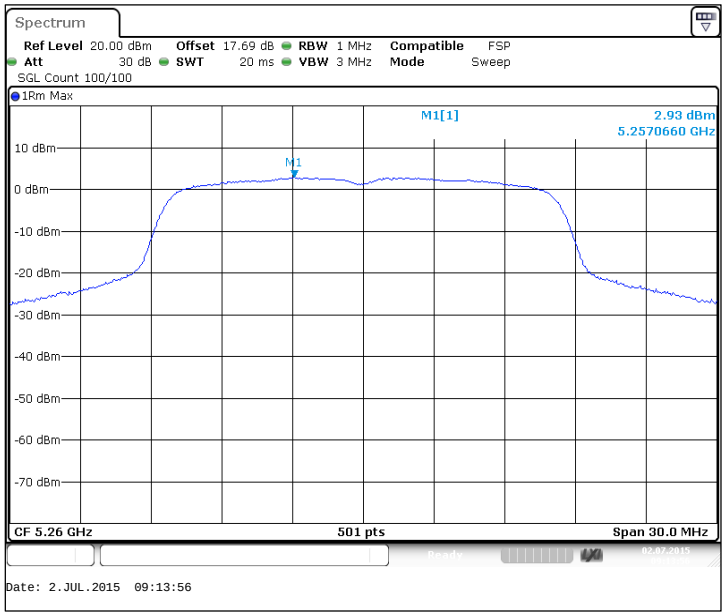
Aux (48 / 5240)



Main (52 / 5260)



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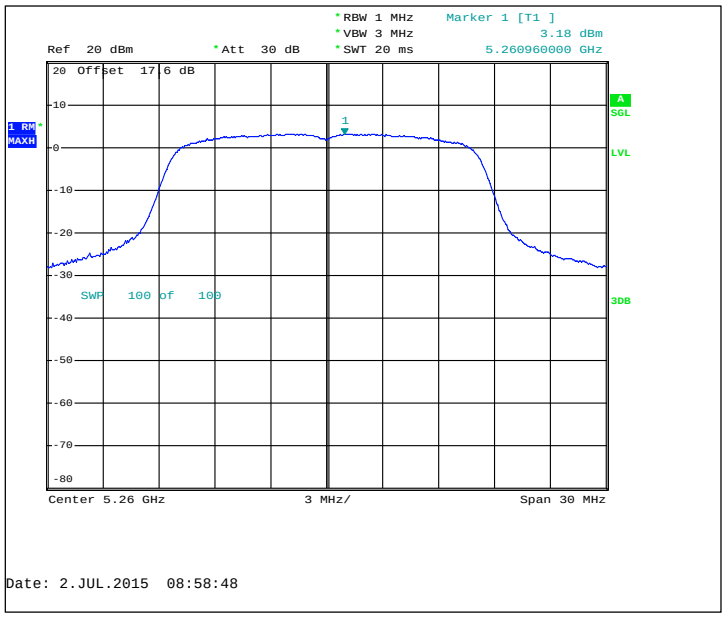
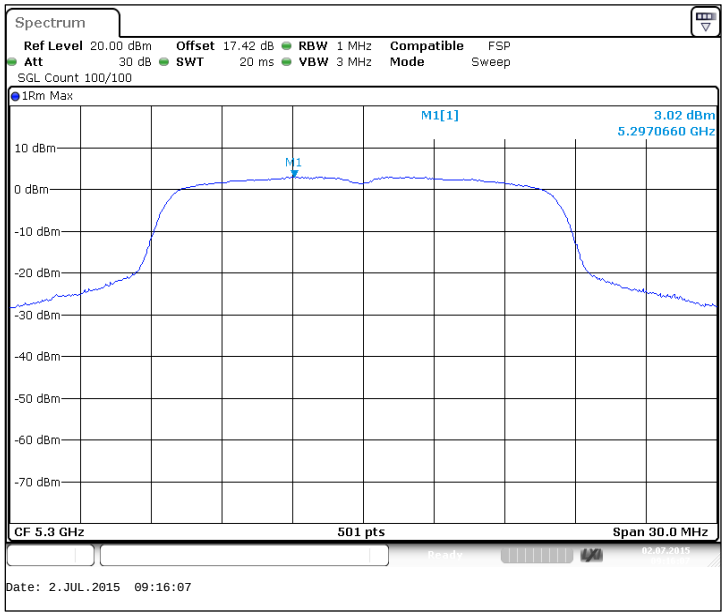
Aux (52 / 5260)



Main (60 / 5300)



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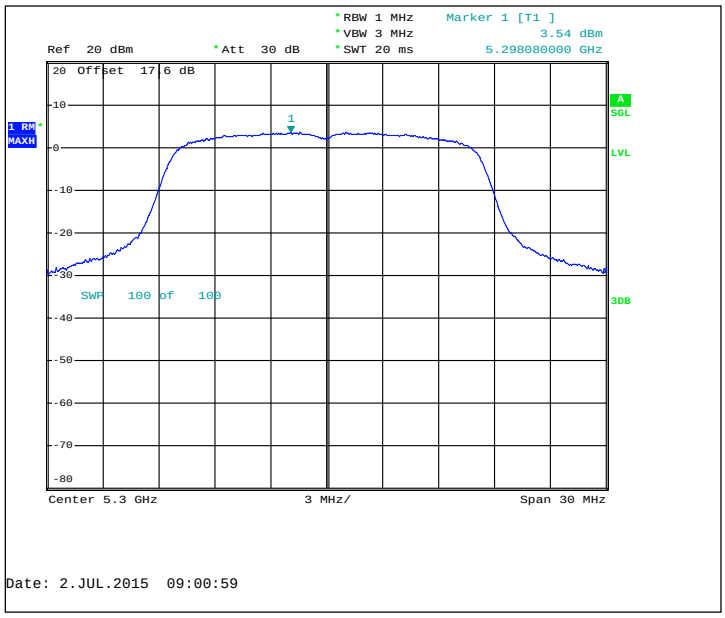
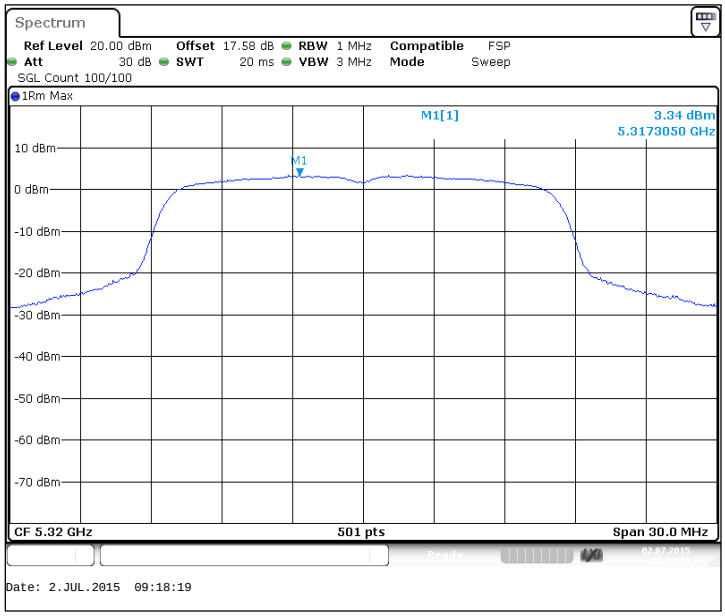
Aux (60 / 5300)



Main (64 / 5320)



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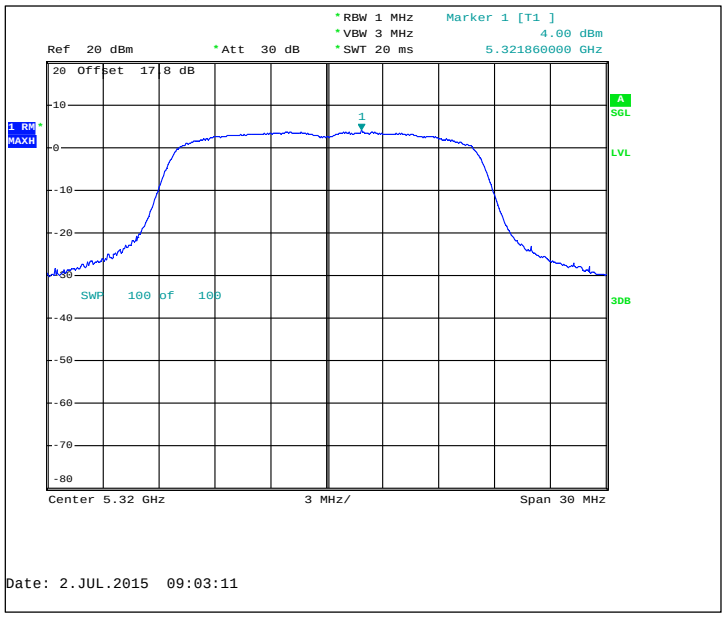
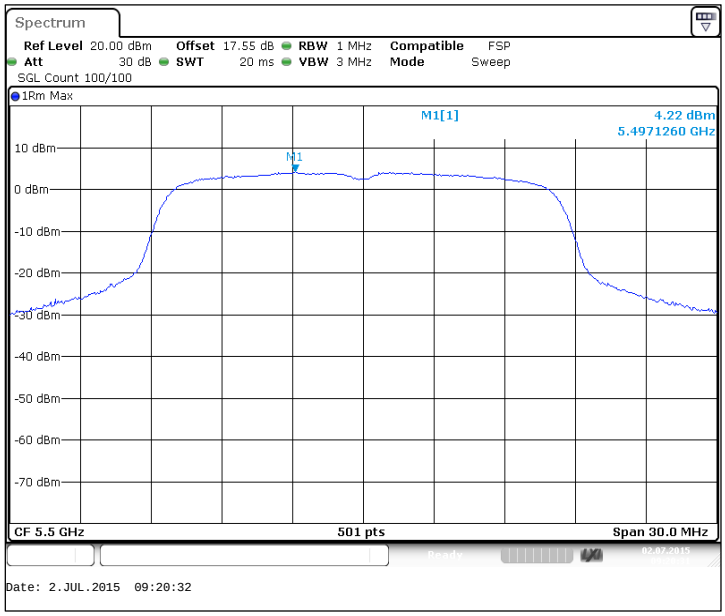
Aux (64 / 5320)



Main (100 / 5500)



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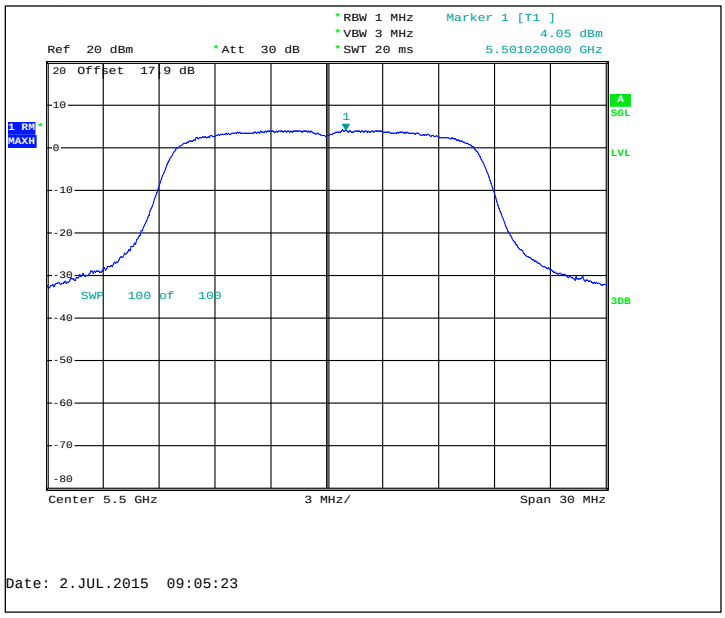
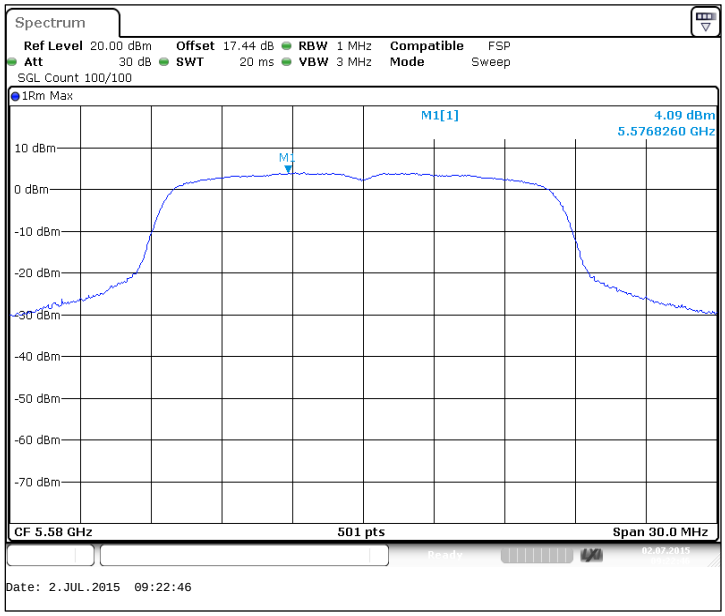
Aux (100 / 5500)



Main (116 / 5580)



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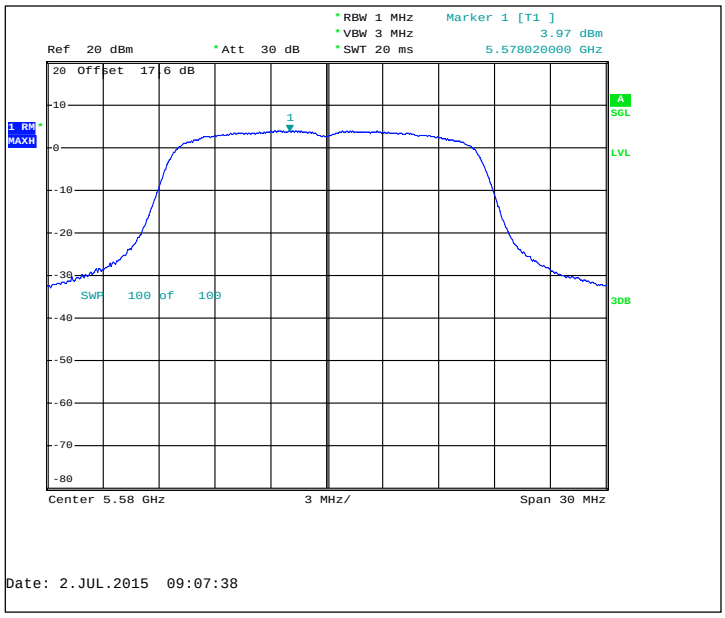
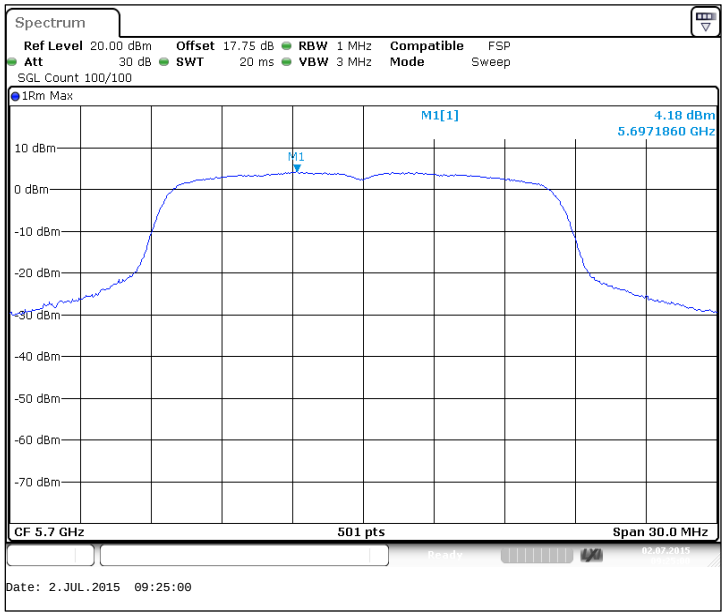
Aux (116 / 5580)



Main (140 / 5700)



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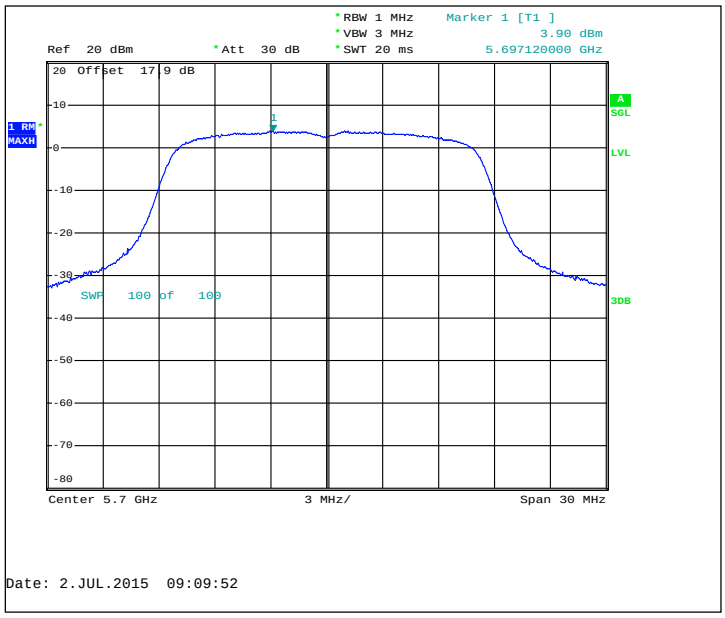
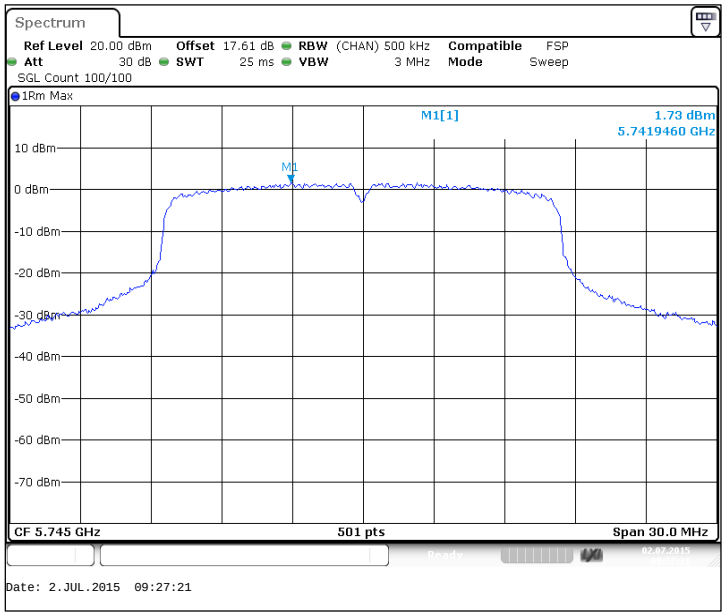
Aux (140 / 5700)



Main (149 / 5745)



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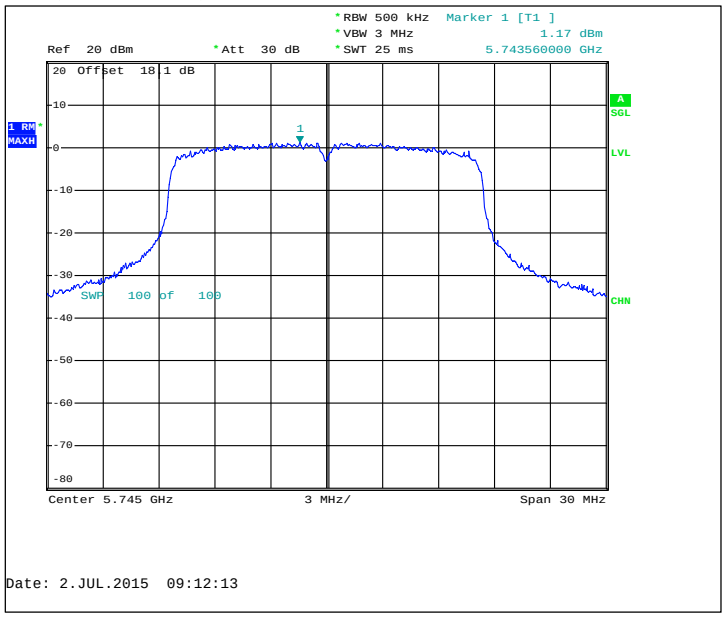
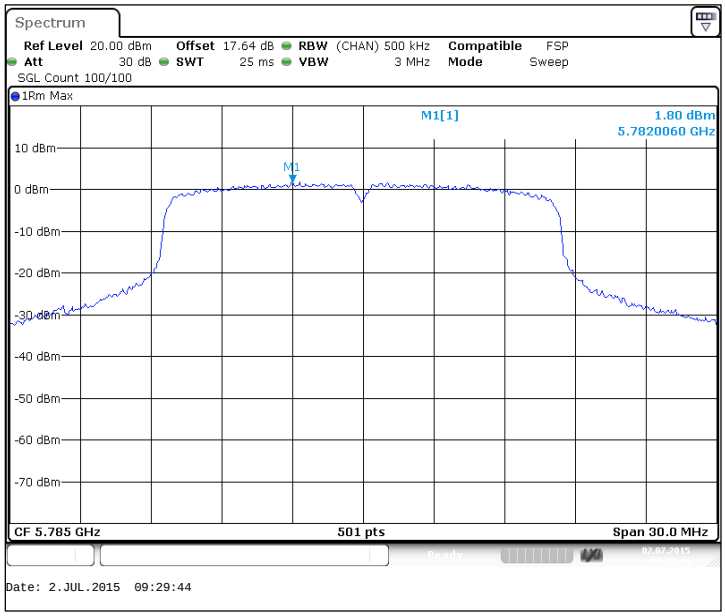
Aux (149 / 5745)



Main (157 / 5785)



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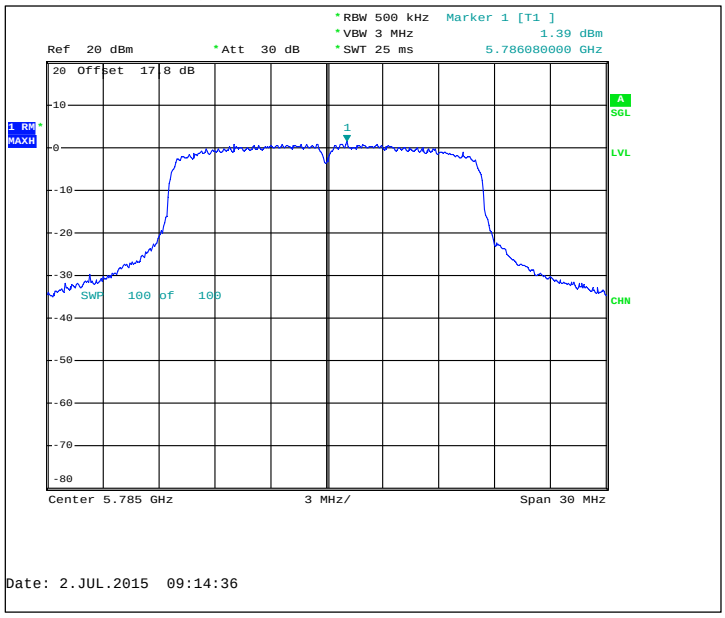
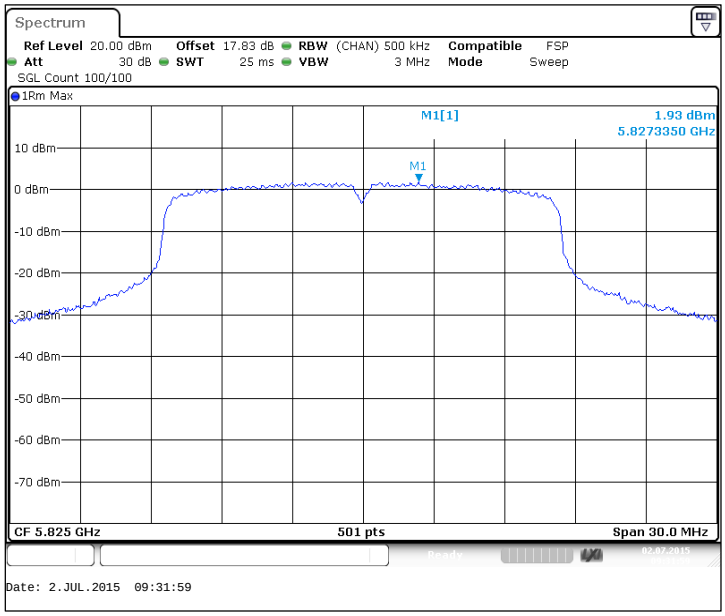
Aux (157 / 5785)



Main (165 / 5825)



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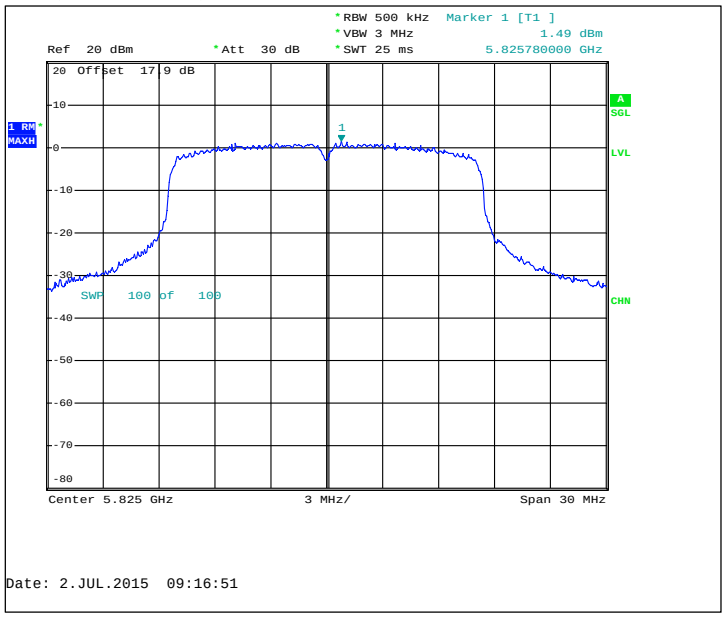
Aux (165 / 5825)



5.3.3 802.11n MIMO mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_C [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36+40 / 5190	3.26	-0.38	0.79	3.5	1.4	3.5	11	11	PASSED
44+48 / 5230	3.37	-0.22	0.88	3.5	1.4	3.5	11	11	PASSED
52+56 / 5270	3.56	0.22	0.85	3.5	1.4	3.5	11	11	PASSED
60+64 / 5310	3.8	0.33	1.2	3.5	1.4	3.5	11	11	PASSED
100+104 / 5510	4.27	1.16	1.36	3.5	1.4	3.5	11	11	PASSED
108+112 / 5550	4.22	1.15	1.27	3.5	1.4	3.5	11	11	PASSED
132+136 / 5670	4.16	1.03	1.27	3.5	1.4	3.5	11	11	PASSED
149+153 / 5755	1.17	-1.75	-1.94	3.5	1.4	3.5	30	30	PASSED
157+161 / 5795	1.3	-1.45	-1.99	3.5	1.4	3.5	30	30	PASSED

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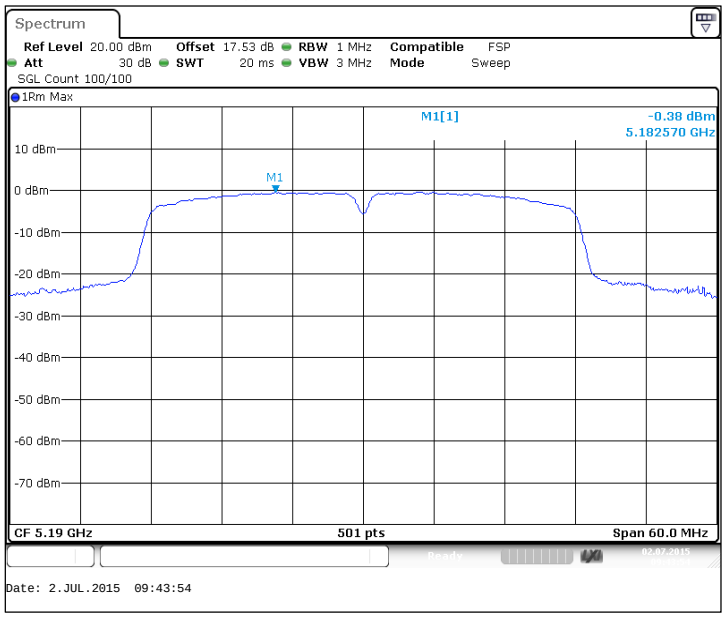
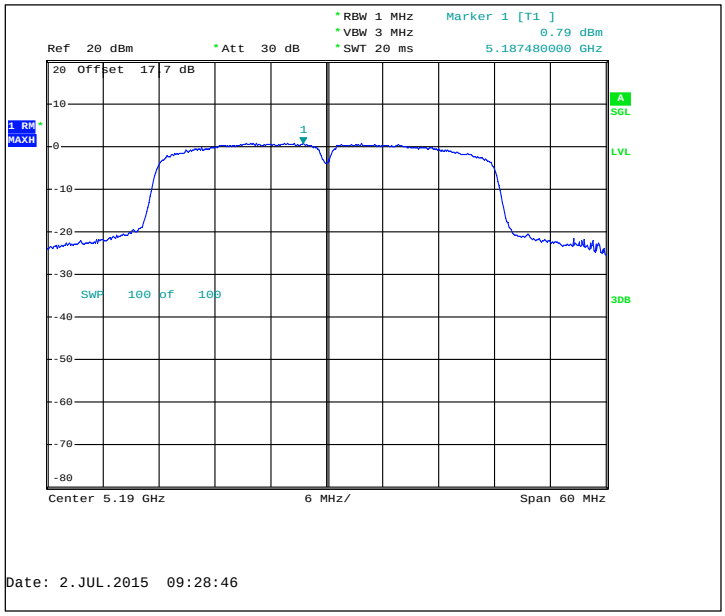
Main (36+40 / 5190)



Aux (36+40 / 5190)



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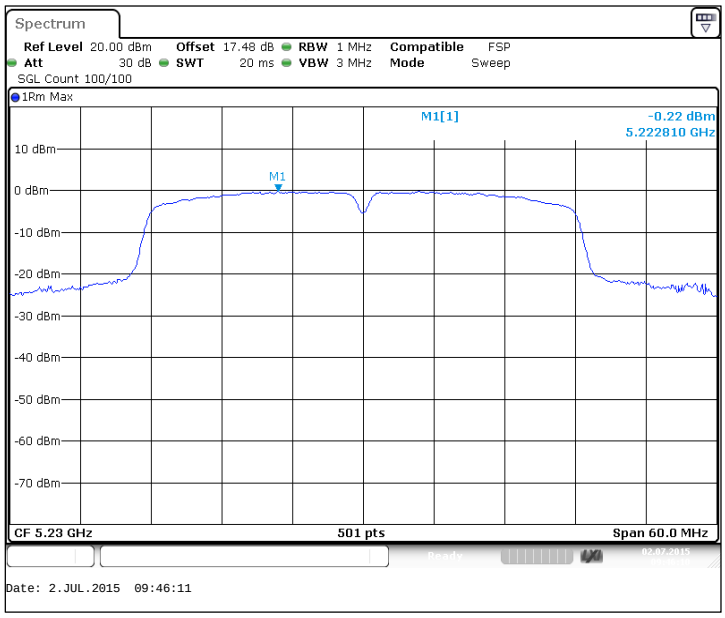
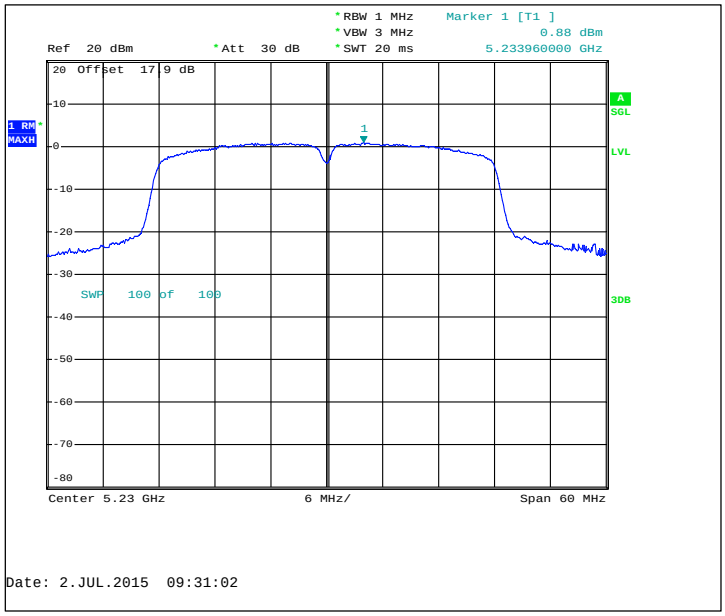
Main (44+48 / 5230)



Aux (44+48 / 5230)



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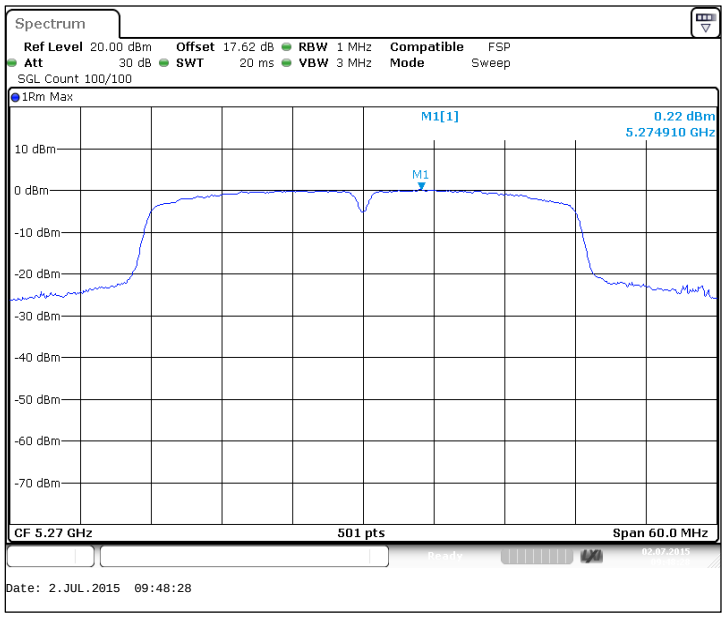
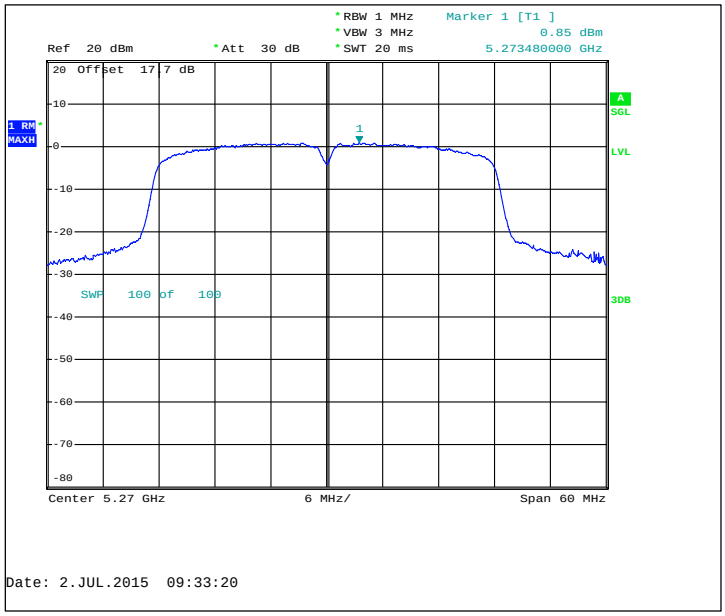
Main (52+56 / 5270)



Aux (52+56 / 5270)



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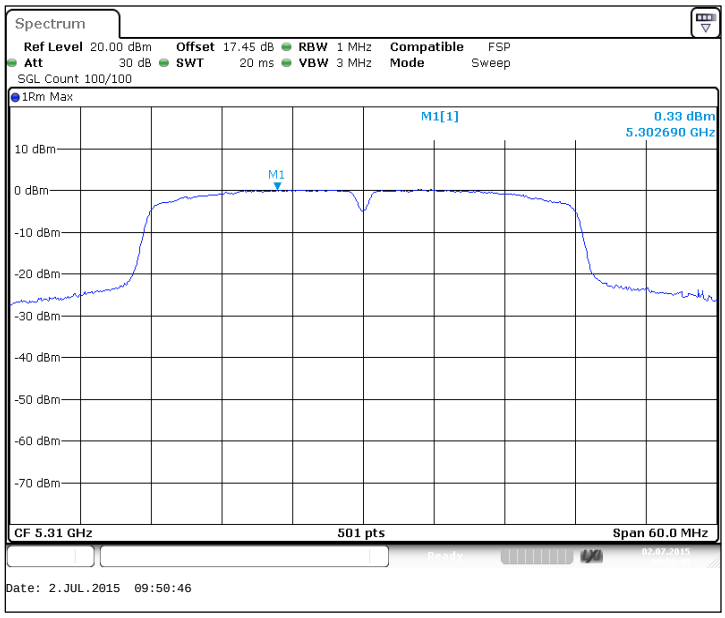
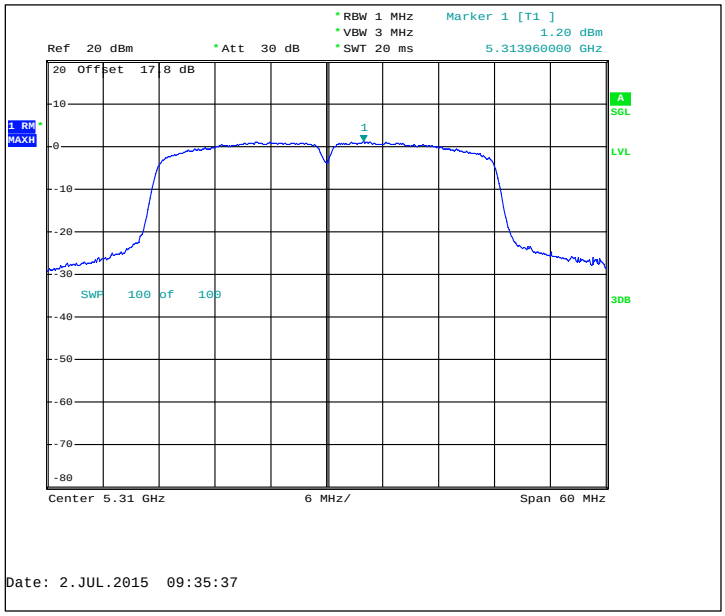
Main (60+64 / 5310)



Aux (60+64 / 5310)



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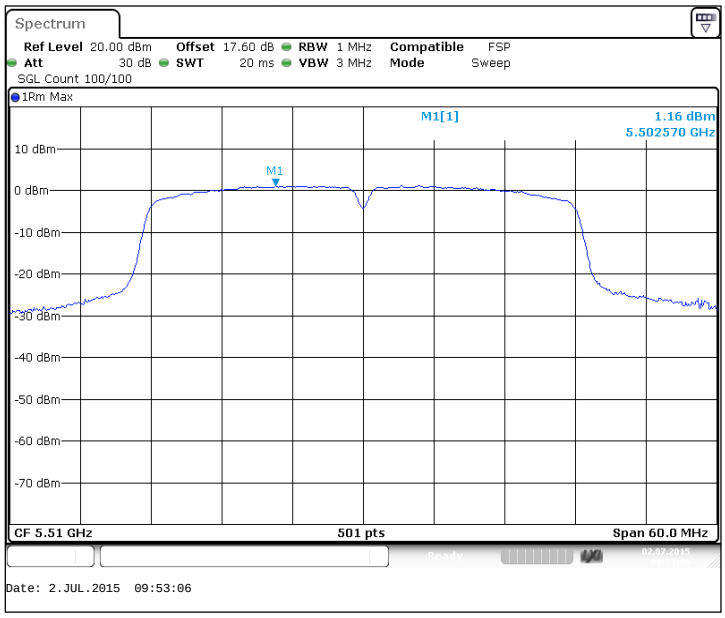
Main (100+104 / 5510)



Aux (100+104 / 5510)

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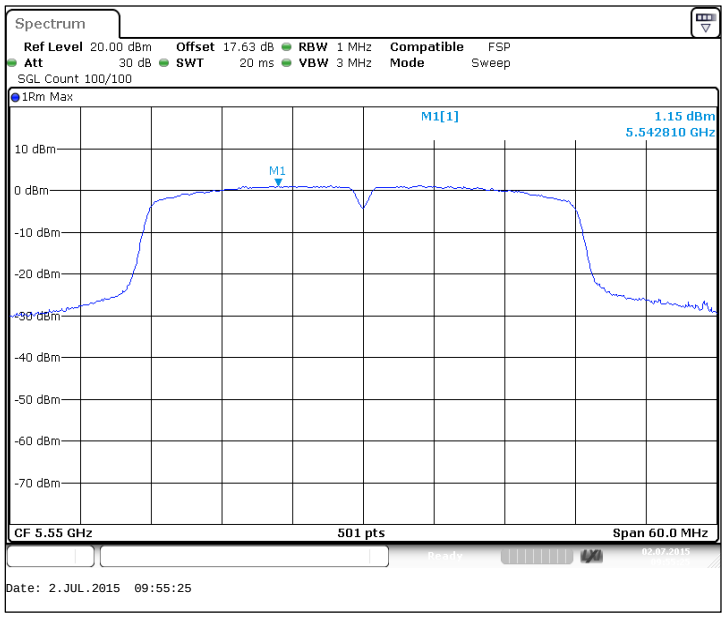
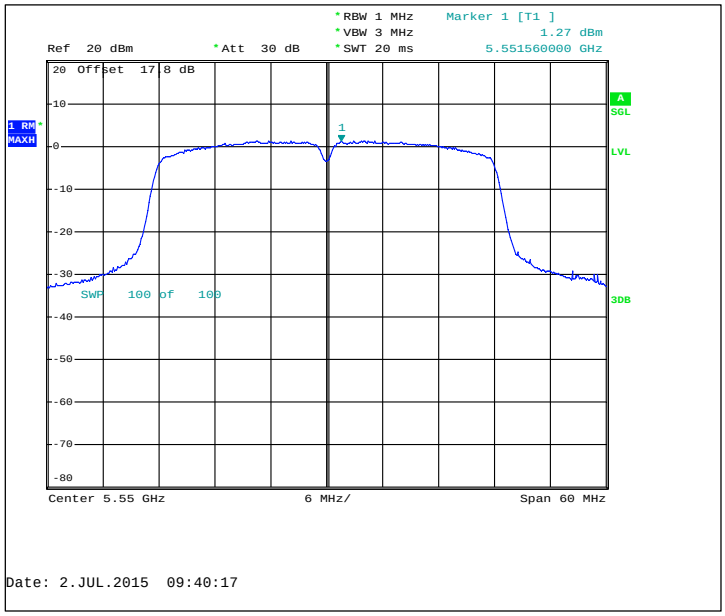
Main (108+112 / 5550)



Aux (108+112 / 5550)



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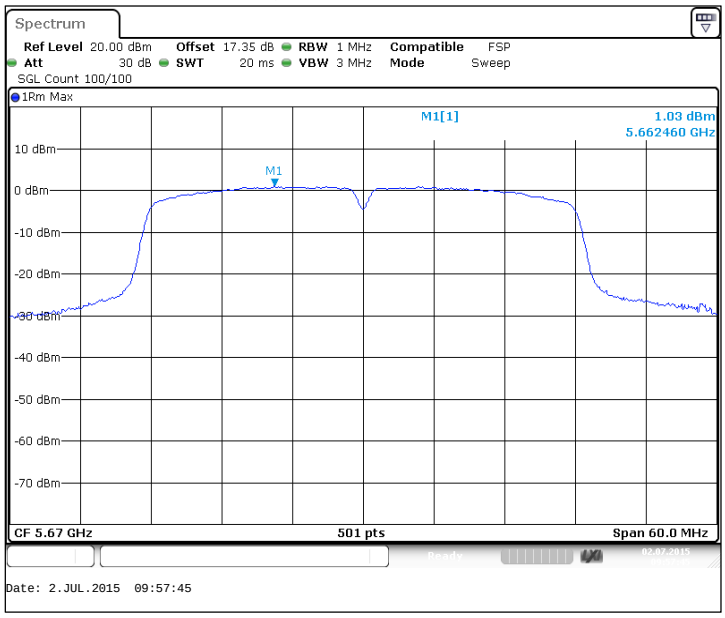
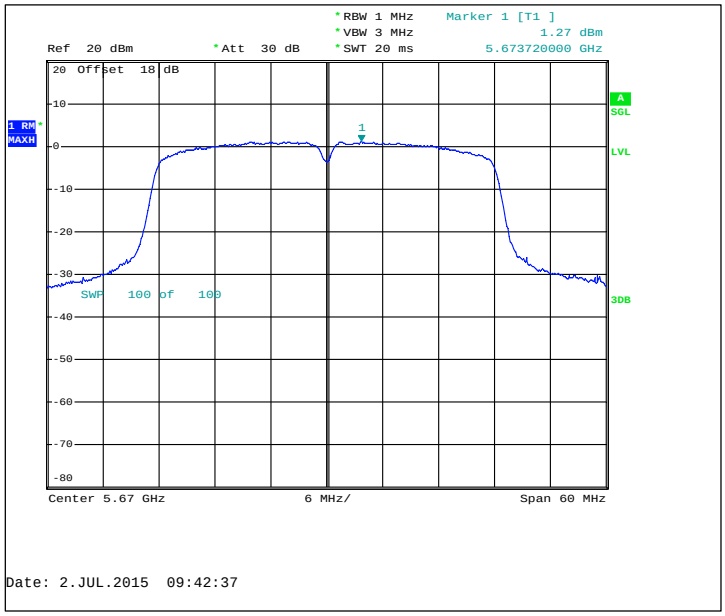
Main (132+136 / 5670)



Aux (132+136 / 5670)



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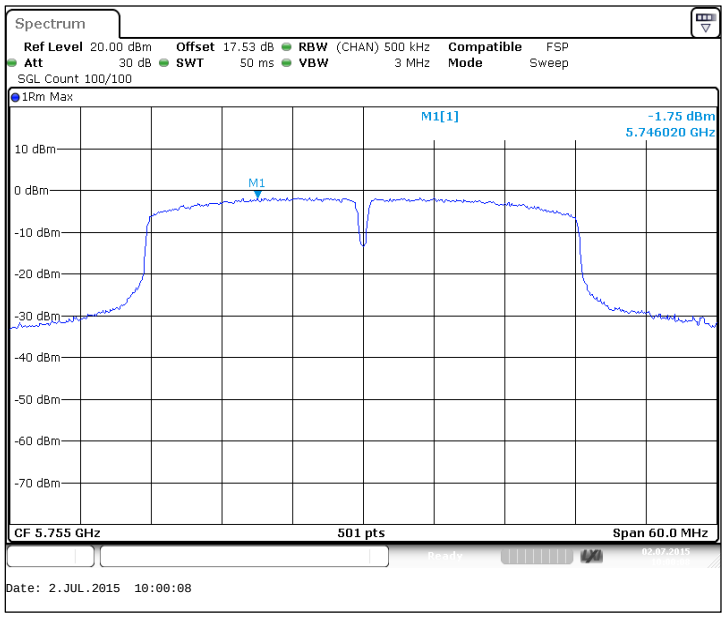
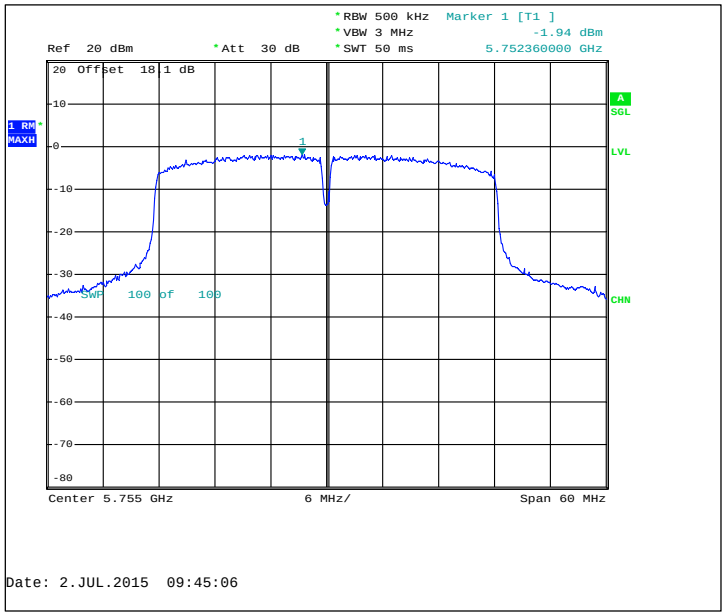
Main (149+153 / 5755)



Aux (149+153 / 5755)



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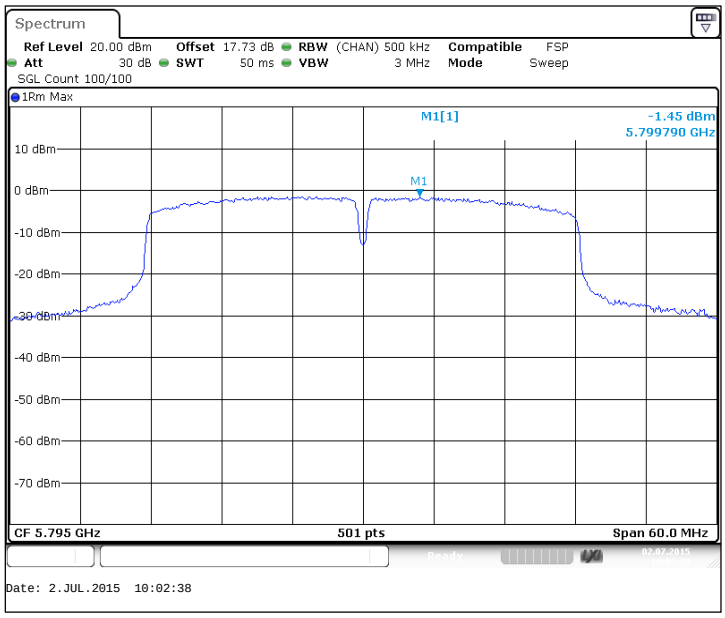
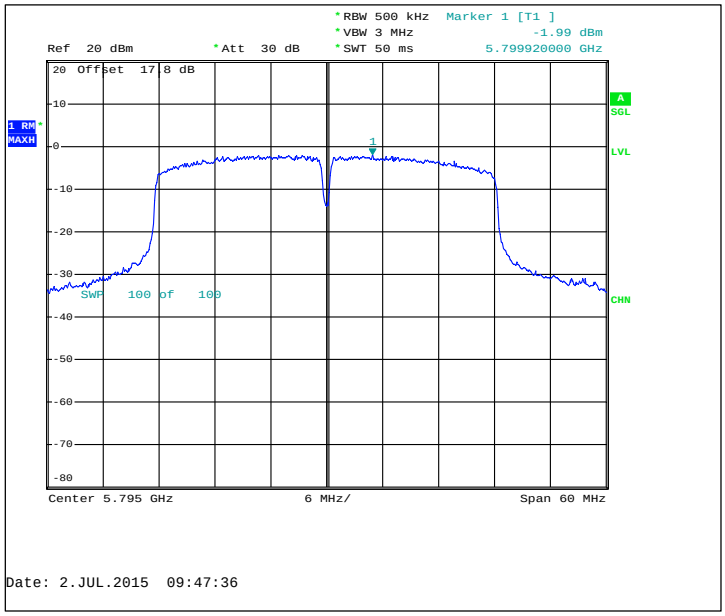
Main (157+161 / 5795)



Aux (157+161 / 5795)



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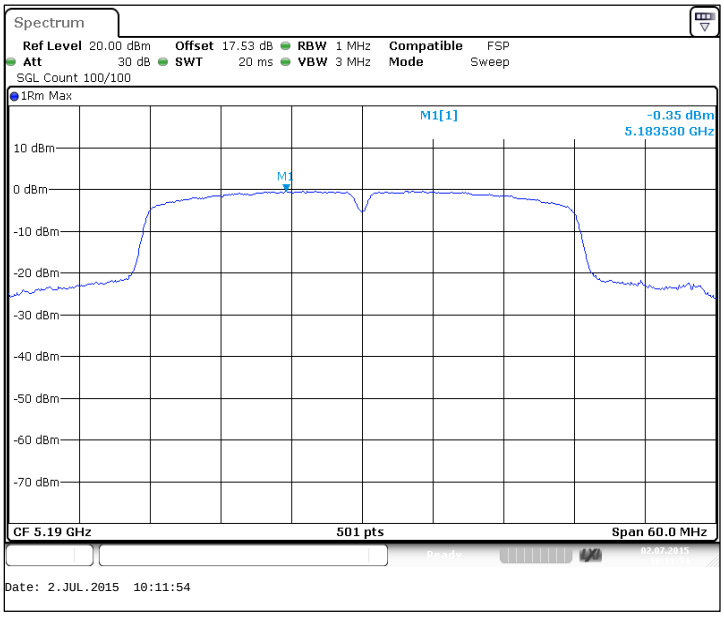
5.3.4 802.11n MIMO mode, QPSK modulation, 40.5 / 45.0 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36+40 / 5190	3.15	-0.35	0.59	3.5	1.4	3.5	11	11	PASSED
44+48 / 5230	3.25	-0.19	0.63	3.5	1.4	3.5	11	11	PASSED
52+56 / 5270	3.39	0.14	0.6	3.5	1.4	3.5	11	11	PASSED
60+64 / 5310	3.61	0.34	0.85	3.5	1.4	3.5	11	11	PASSED
100+104 / 5510	4.08	1.04	1.11	3.5	1.4	3.5	11	11	PASSED
108+112 / 5550	4.1	1.13	1.05	3.5	1.4	3.5	11	11	PASSED
132+136 / 5670	3.97	1.02	0.9	3.5	1.4	3.5	11	11	PASSED
149+153 / 5755	1.37	-1.67	-1.6	3.5	1.4	3.5	30	30	PASSED
157+161 / 5795	1.44	-1.29	-1.87	3.5	1.4	3.5	30	30	PASSED

Main (36+40 / 5190)



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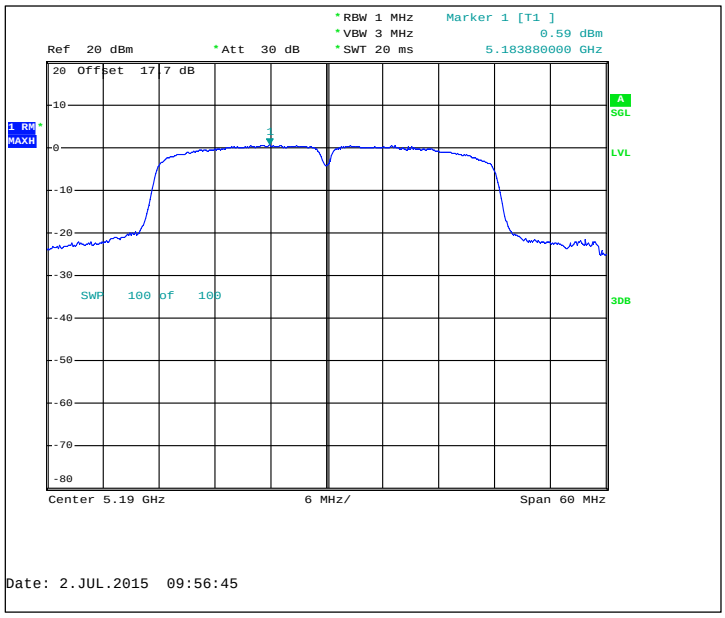
Aux (36+40 / 5190)



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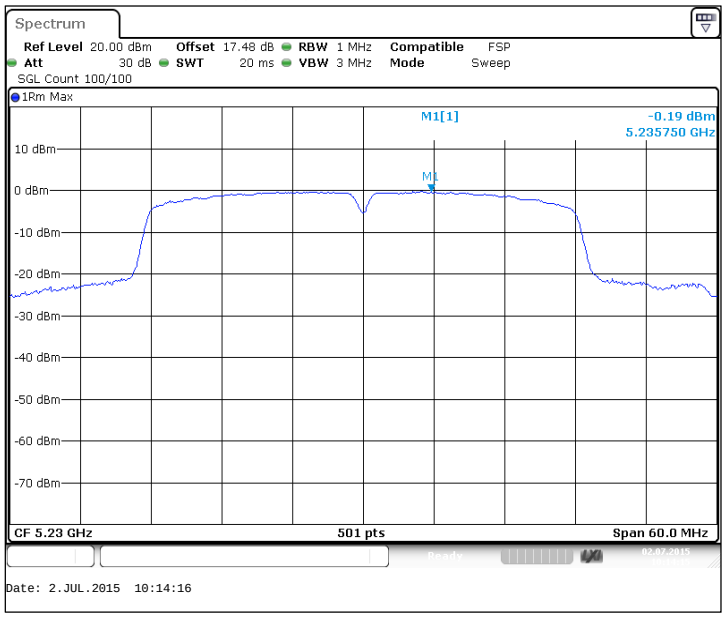
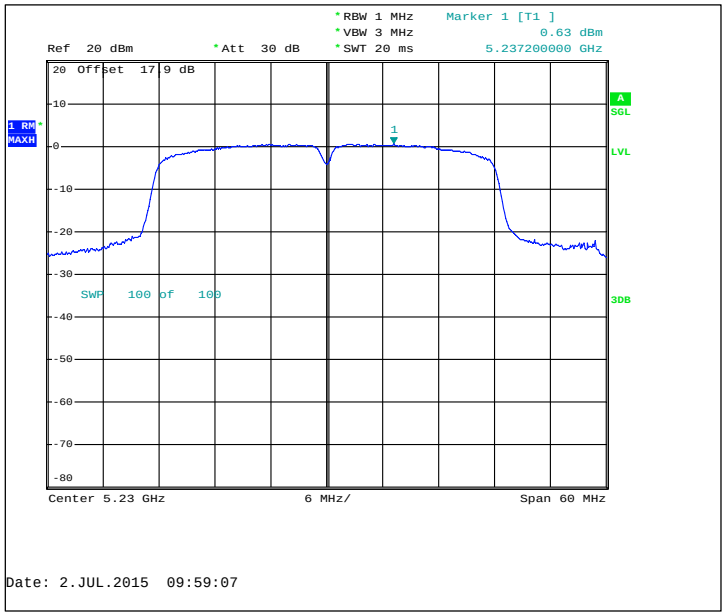
Main (44+48 / 5230)



Aux (44+48 / 5230)



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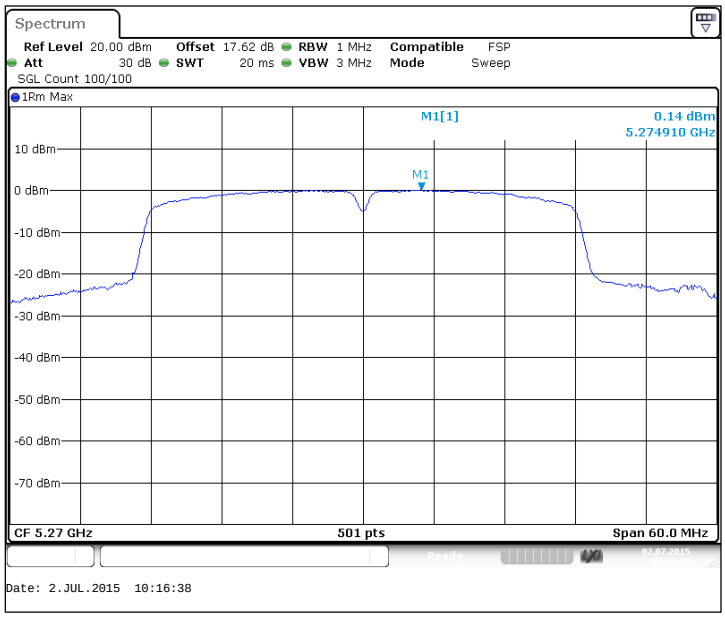
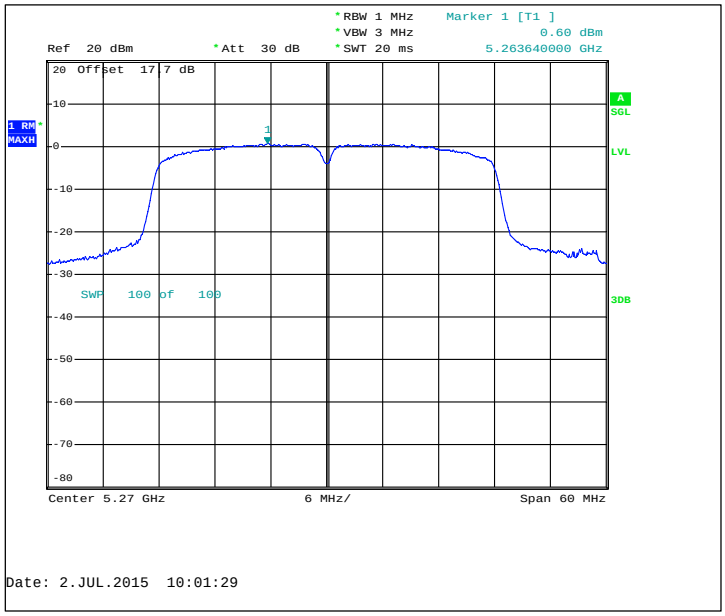
Main (52+56 / 5270)



Aux (52+56 / 5270)



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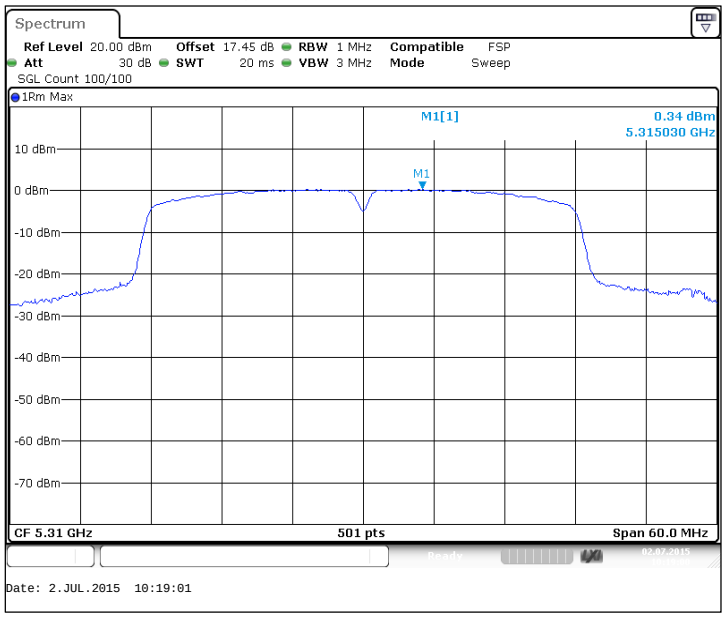
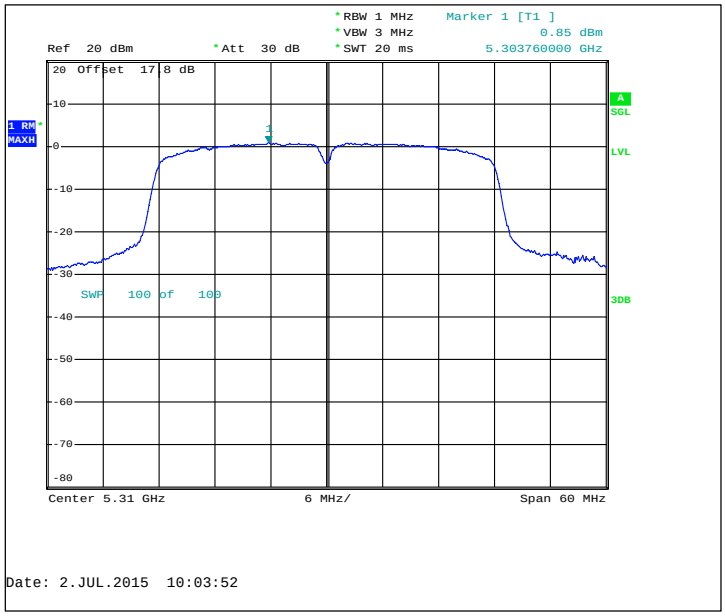
Main (60+64 / 5310)



Aux (60+64 / 5310)



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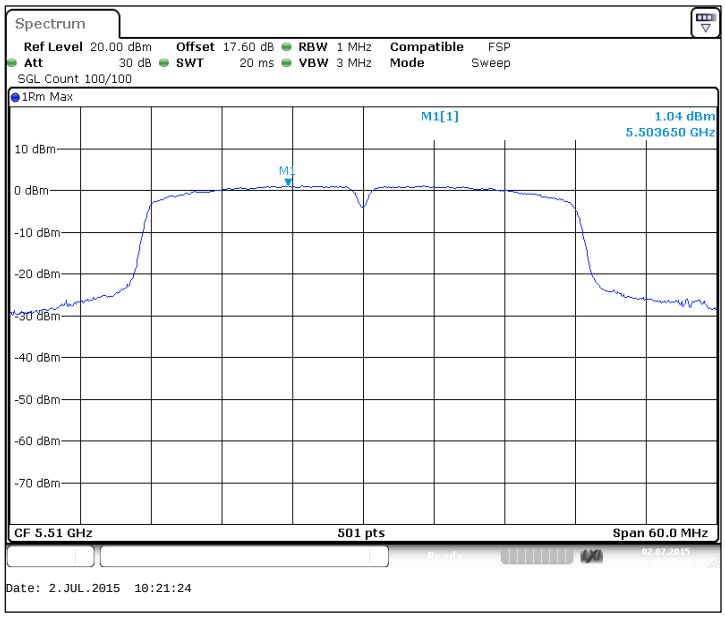
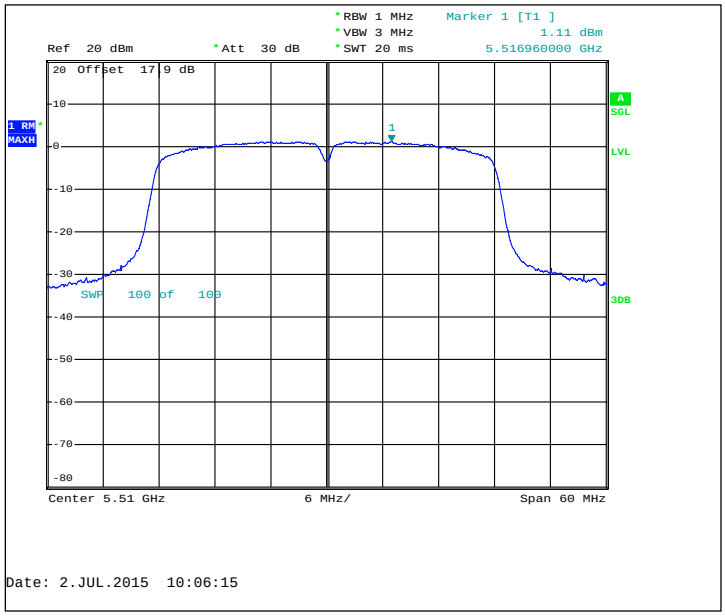
Main (100+104 / 5510)



Aux (100+104 / 5510)



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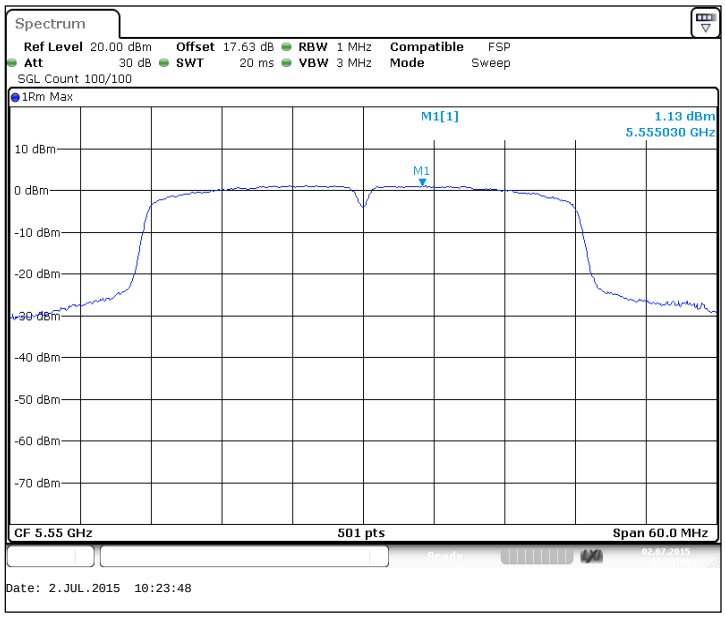
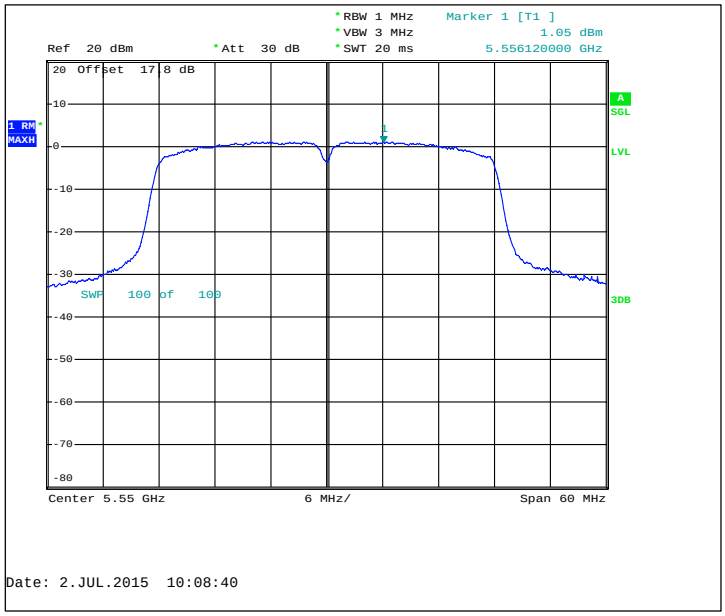
Main (108+112 / 5550)



Aux (108+112 / 5550)



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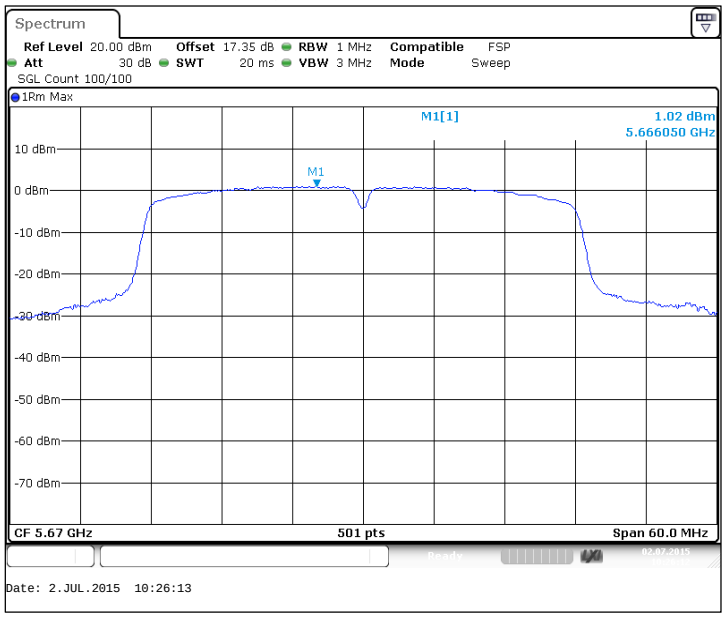
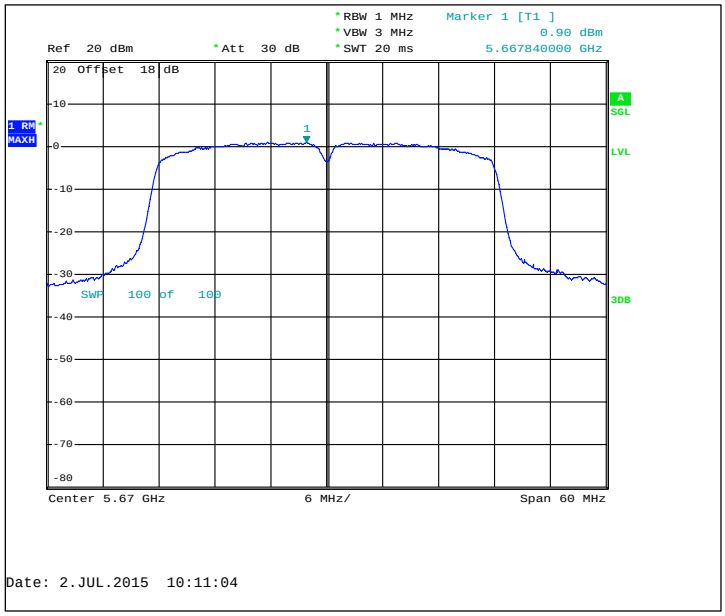
Main (132+136 / 5670)



Aux (132+136 / 5670)



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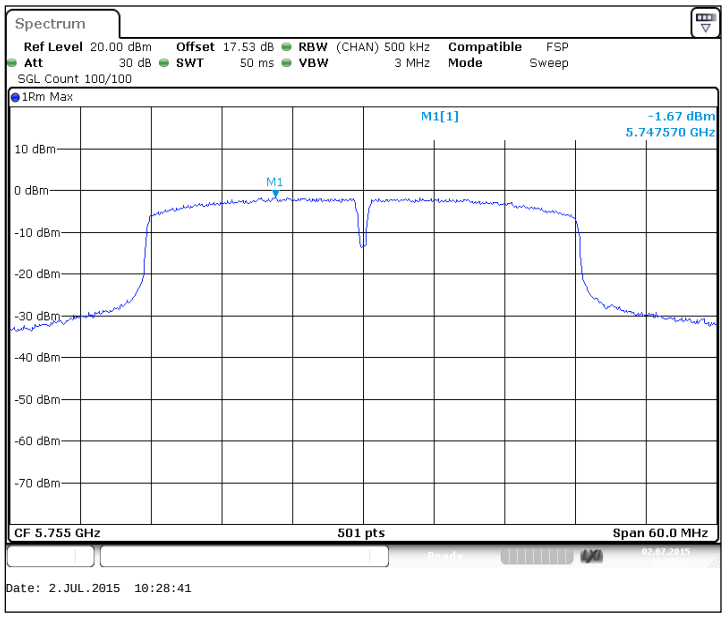
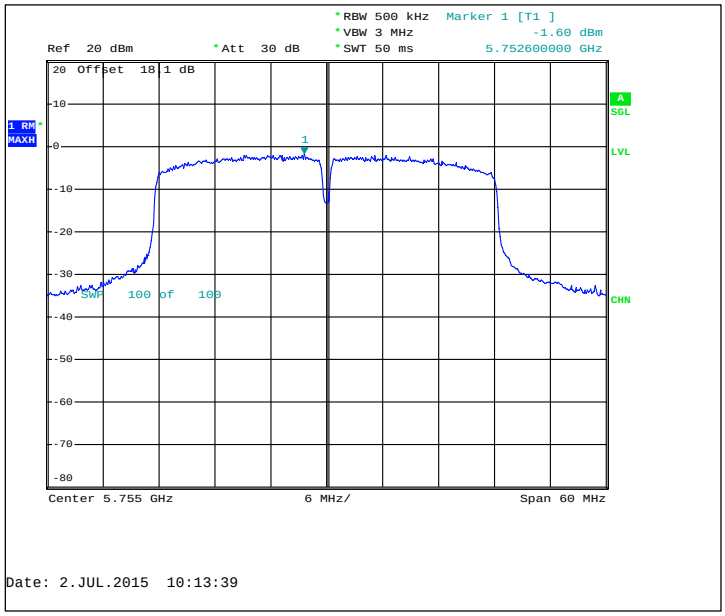
Main (149+153 / 5755)



Aux (149+153 / 5755)



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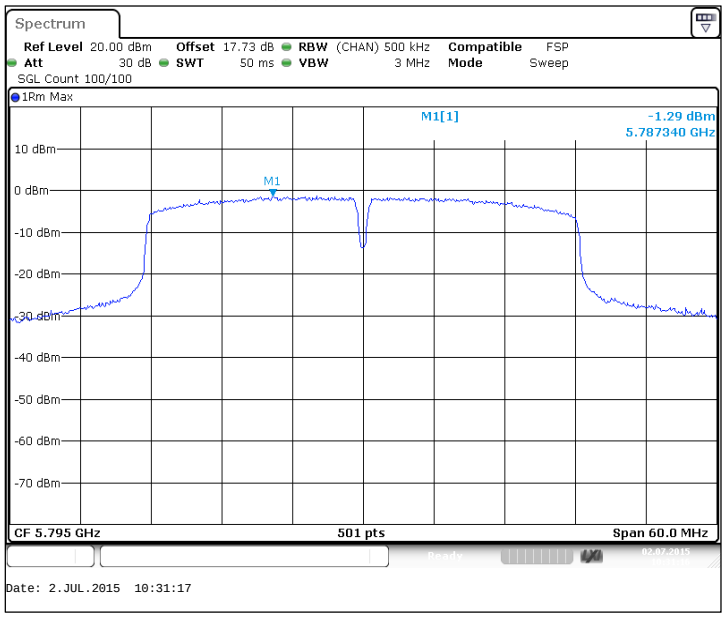
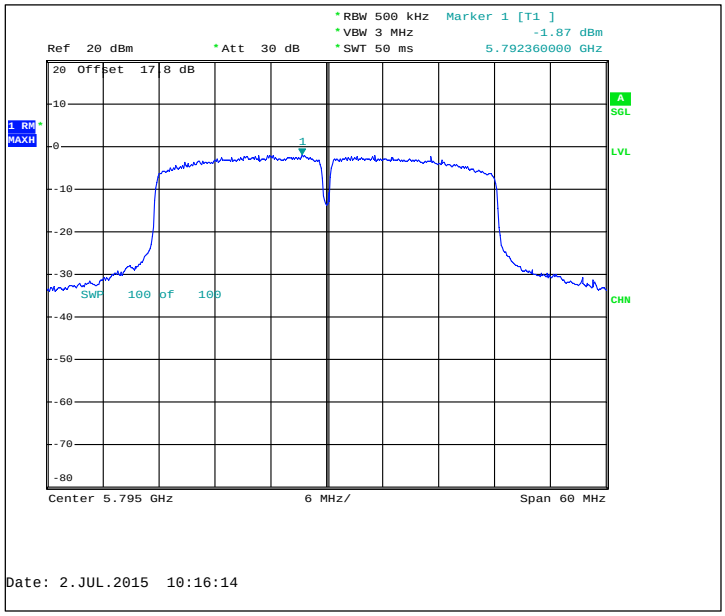
Main (157+161 / 5795)



Aux (157+161 / 5795)



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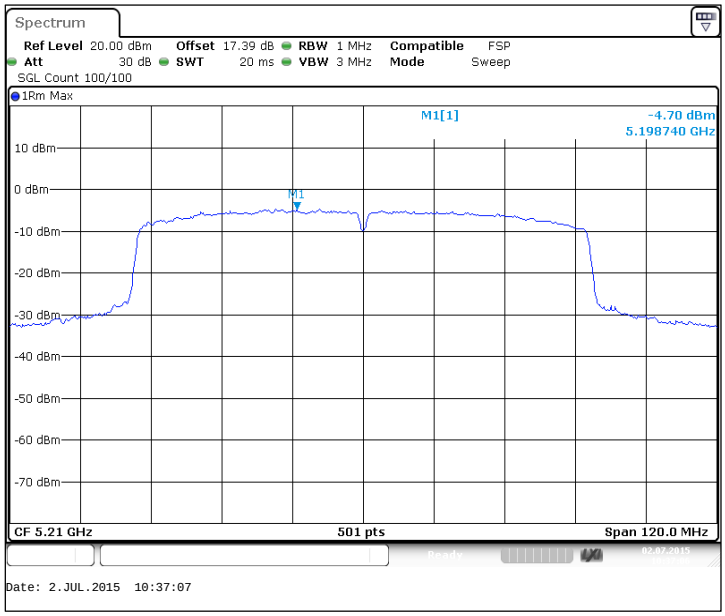
5.3.5 802.11ac MIMO mode, BPSK modulation, 29.3 / 32.5 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36-48 / 5210	-1.09	-4.7	-3.57	3.5	1.4	3.5	11	11	PASSED
52-64 / 5290	-0.96	-4.13	-3.82	3.5	1.4	3.5	11	11	PASSED
100-112 / 5530	0.02	-2.91	-3.07	3.5	1.4	3.5	11	11	PASSED
149-161 / 5775	-3.36	-6.11	-6.65	3.5	1.4	3.5	30	30	PASSED

Main (36-48 / 5210)



Aux (36-48 / 5210)

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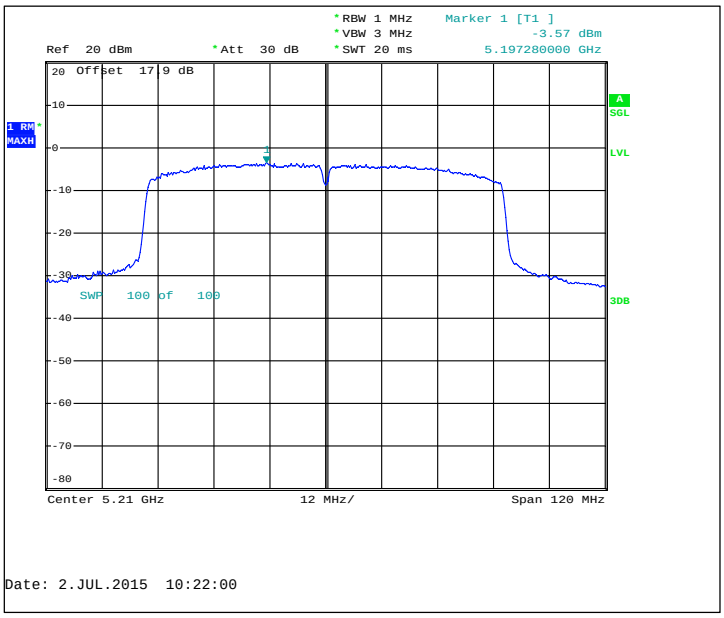

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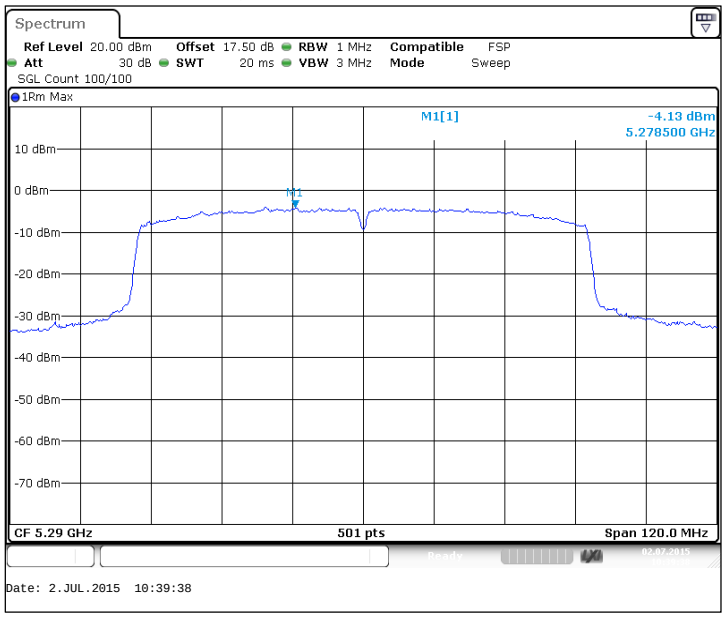
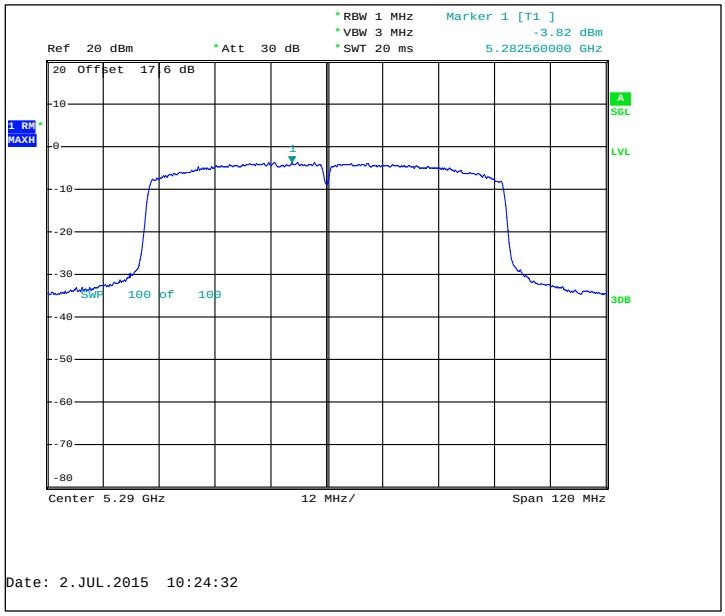
Main (52-64 / 5290)



Aux (52-64 / 5290)



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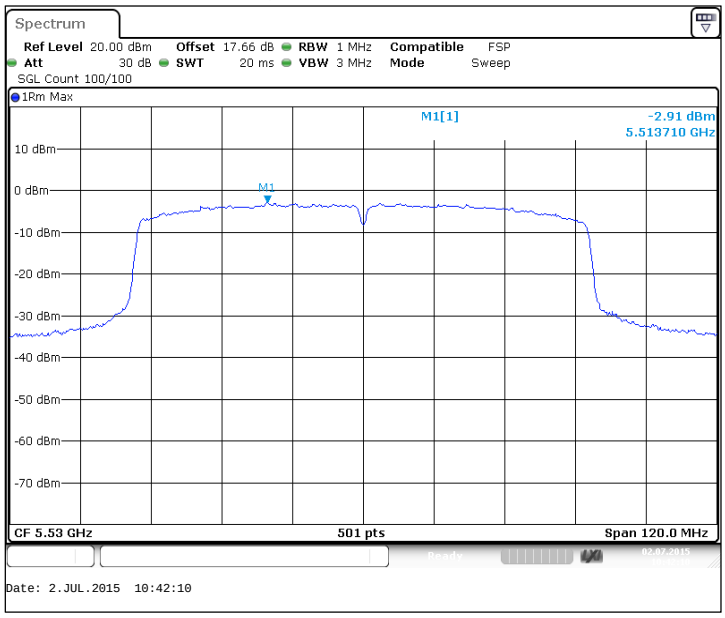
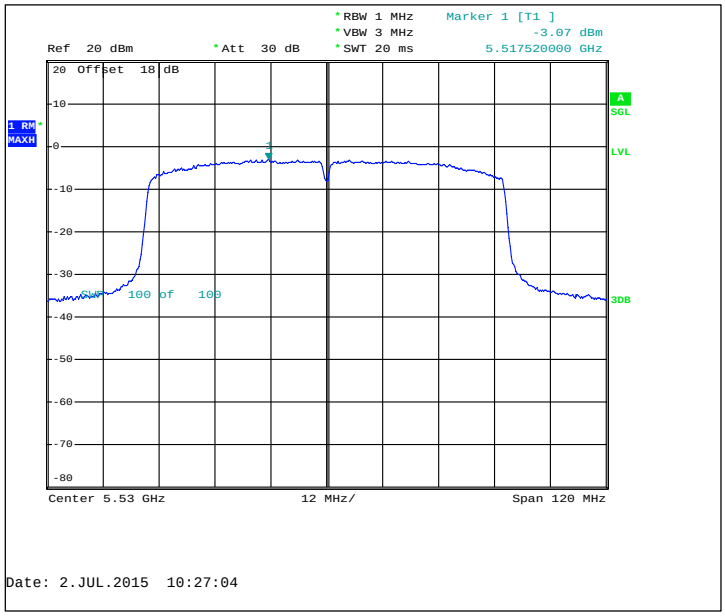
Main (100-112 / 5530)



Aux (100-112 / 5530)



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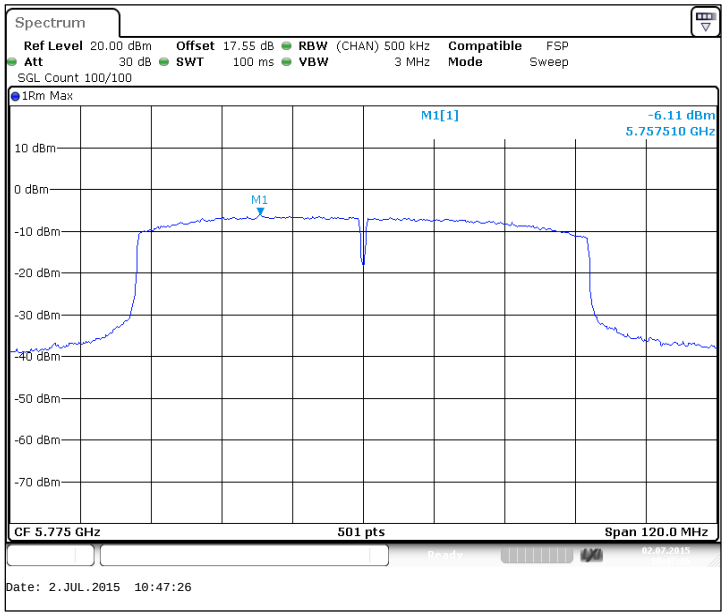
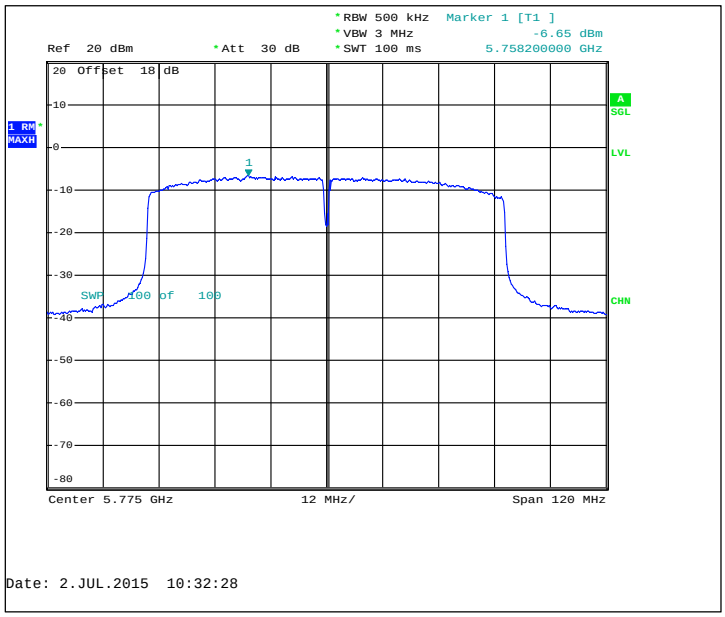
Main (149-161 / 5775)



Aux (149-161 / 5775)



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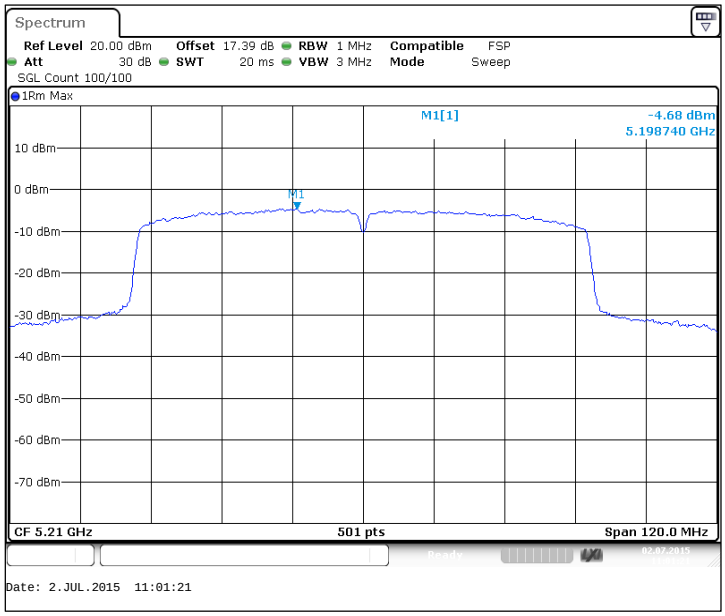
5.3.6 802.11ac MIMO mode, 16QAM modulation, 175.5 / 195.0 Mbps data rate

Channel / fc [MHz]	Sum [dBm]	Main [dBm]	Aux [dBm]	Antenna Gain Main [dBi]	Antenna Gain Aux [dBi]	Antenna Gain DG [dBi]	Limit [dBm]	Limit adjusted [dBm]	Result
36-48 / 5210	-0.96	-4.68	-3.36	3.5	1.4	3.5	11	11	PASSED
52-64 / 5290	-0.78	-4.08	-3.51	3.5	1.4	3.5	11	11	PASSED
100-112 / 5530	0.2	-3	-2.64	3.5	1.4	3.5	11	11	PASSED
149-161 / 5775	-3.47	-6.37	-6.59	3.5	1.4	3.5	30	30	PASSED

Main (36-48 / 5210)



Aux (36-48 / 5210)

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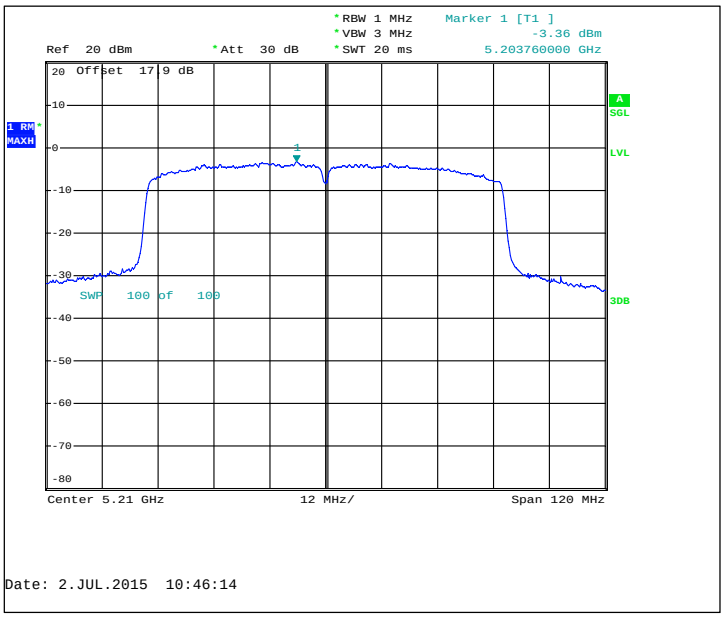

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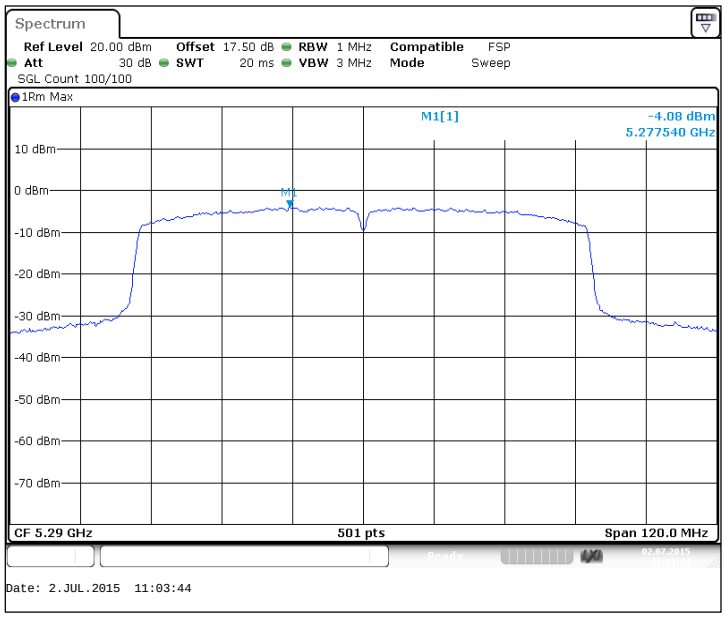
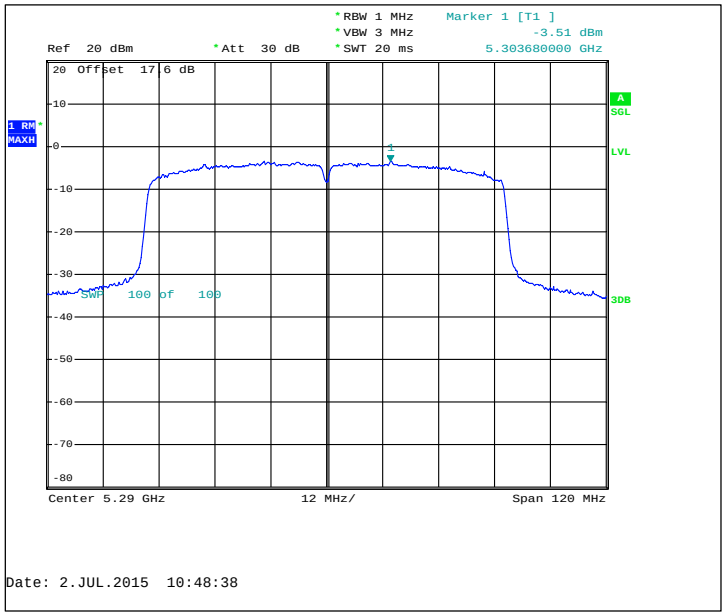
Main (52-64 / 5290)



Aux (52-64 / 5290)



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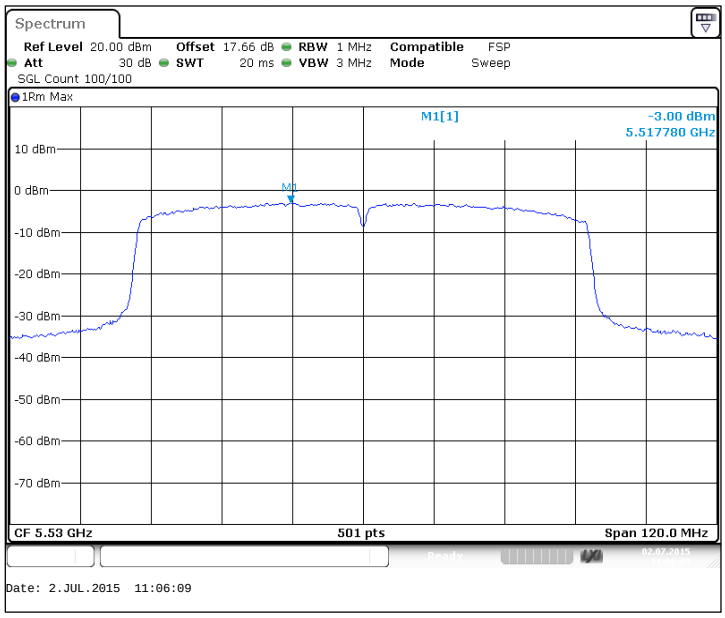
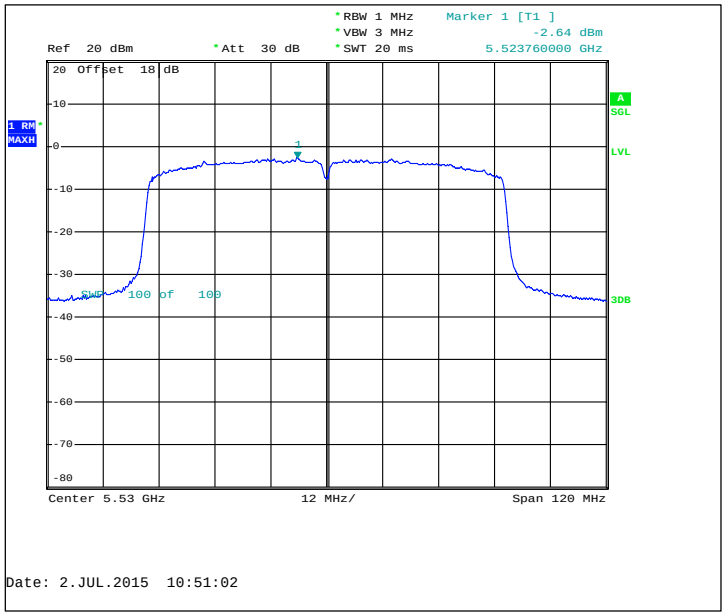
Main (100-112 / 5530)



Aux (100-112 / 5530)



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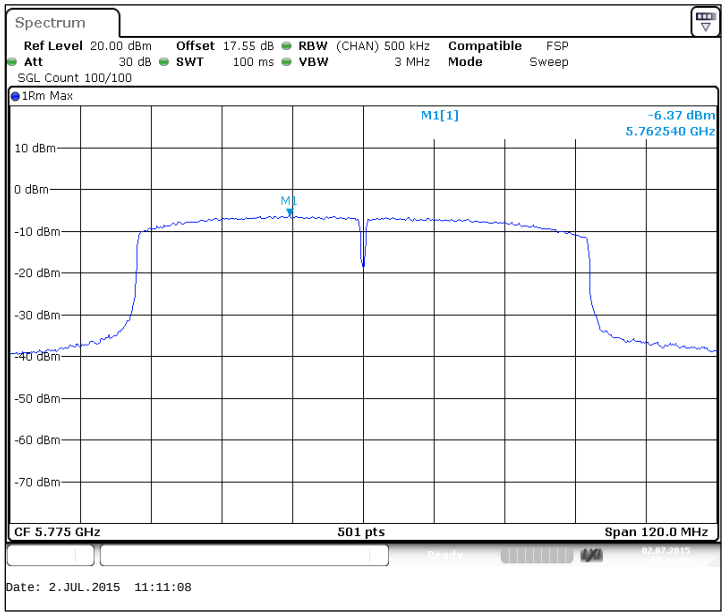
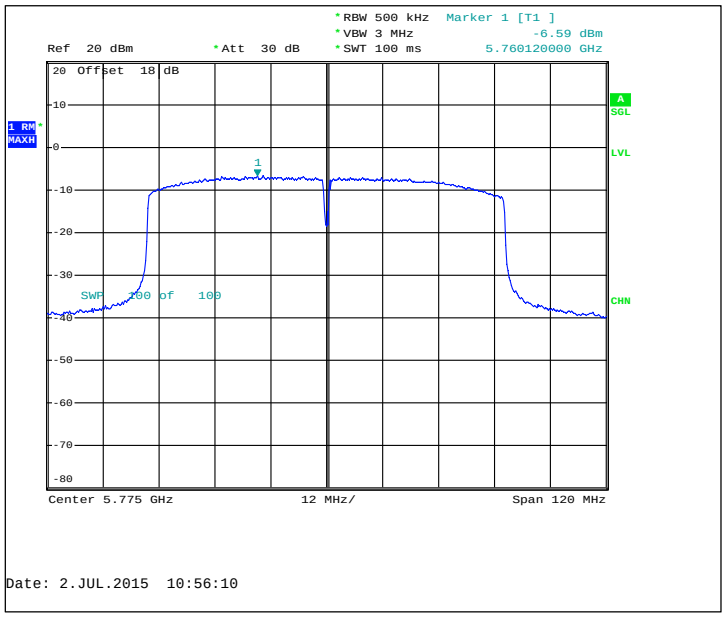
Main (149-161 / 5775)



Aux (149-161 / 5775)



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6. Test Equipment

6.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B
6044	V-network	ESH3-Z6	R&S	-
2059	V-network	ESH3-Z6	R&S	-
1759	LISN 50 µH	ESH3-Z5	R&S	22/24/27, 15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	22/24/27, 15C, 15B
1999	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2390	Directional Coupler	DC2600	AR	-
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
2060	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
1759	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
2039	Power Supply	PL330QMD	Thurlby	15C, 15B
6036	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
2359	Temperature Test Chamber	VT4002	Vötsch	22/24/27
2352	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C
6109	Communication Tester	CMU200	R&S	22/24/27, 15C
6246	Power Supply	66332A	HP	22/24/27, 15C
1992	Signal Generator	83630B	Agilent	15C, 15B
6098	Signal Generator	8648C	Agilent	-
6046	Attenuator 10dB	8493C	Agilent	22/24/27, 15C
6047	Attenuator 20dB	8493C	Agilent	22/24/27, 15C
6045	Power splitter	11667B	Agilent	22/24/27, 15C
6247	Communication Tester	CBT	R&S	22/24/27, 15C 15B
6052	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6248	Power Supply	6632B	-	22/24/27, 15C 15B
6106	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C 15B
6113	Signal Generator	SMF100A	R&S	22/24/27, 15C 15B
6202	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6122	Power Splitter	11667B	Agilent	22/24/27, 15C 15B
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C
6103	Bluetooth tester	CBT	R&S	22/24/27, 15C 15B
6250	Power Supply	6651A	Agilent	22/24/27, 15C 15B
6108	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6105	Spectrum Analyzer	FSV-30	R&S	22/24/27, 15C 15B
6251	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6243	Power Splitter	1167B	Agilent	22/24/27, 15C 15B
6245	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C 15B
6244	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C 15B

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6.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2388	Bluetooth Tester	CBT	R&S	15B
10479	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2009	Signal Generator	SMP 22	R&S	22/24/27, 15C, 15B
2348	Controller	G-1000DXC	Yaesu	22/24/27, 15C, 15B
2349	Computer Controller	g-1000DXC	Yaesu	22/24/27, 15C, 15B
2116	Controller	EMCO 2090	ETS	22/24/27, 15C, 15B
2109	Power Supply	PL330QMD	Thurlby	22/24/27, 15C, 15B
2353	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
6115	Open switch and control unit	OSP 130	R&S	22/24/27, 15C 15B
6116	Open switch and control unit	OSP 150	R&S	22/24/27, 15C 15B
6117	Open switch and control unit	OSP 150	R&S	22/24/27, 15C 15B
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	22/24/27, 15C 15B
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	22/24/27
6159	Band Reject Filter	WRCD1747.8-0.4/40-5SS	Wainwright	22/24/27,15C, 15B
6158	Band Reject Filter	WRCT836.6-0.4/40-8SS	Wainwright	22/24/27,15C, 15B
6197	Band Reject Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	22/24/27,15C, 15B
2231	Band Reject Filter	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27,15C, 15B
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
2386	Band Reject Filter	WRCG1764.4/1770.4-1760.4/1774.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2385	Band Reject Filter	WRCG1744.4/1750.4-1740.4/1754.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	15C
2188	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
6195	High Pass Filter	-	Wainwright	22/24/27, 15C, 15B
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	22/24/27, 15C, 15B
6212	Antenna Array system	-	TCC	22/24/27, 15C, 15B
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
6089	Antenna	HFH2-Z2	R&S	15C, 15B
2027	CDN	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	CDN	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2176	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2135	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2029	Power Supply	PL330	Thurlby	22/24/27, 15C
6038	Data Logger	Testo 580	Testo	22/24/27, 15C, 15B
6037	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B

END OF REPORT

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