

FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-846_09	Date of Report:	05-Nov-2012
Number of pages:	81	Customer's Contact person:	Juha Paukku
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FCC listing no.:	94436		
IC recognition no.:	661AK-1		
Tested devices/ accessories:	Phone RM-846 / Battery BL-4J / AC charger AC-50E / Data cable CA-190CD / Headset WH-108		
FCC ID:	PDNRM-846	IC:	661R-RM846
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart E, ANSI C63.4 (2003), DTS procedures KDB 789033 D01, 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 Nokia.		
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:			

Jari Jantunen, System Manager, EMC

1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	02-Oct-2012
Testing completed	22-Oct-2012
The customer's contact person	Juha Paukku
Test Plan referred to	T:\Projects\RM-846\TestPlan\RS_testplan_RM-846.xlsm
Notes	-
Document name	T:\Projects\RM-846\EMC\FCC15E_RM-846_09.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-846	004402471069694	1640	-	1030.1801.9200.9900.133	42913
Battery	BL-4J	49554022630A0100872;0670616	LG PWB ver. 2.1	-	-	42914
Phone	RM-846	004402471069629	1640	FAV5	1030.51.9200.9903.145	42928
Battery	BL-4J	49554022630A0105584;0670616	LG PWB ver. 2.1	-	-	42925
AC Charger	AC-50E	5321402345011100458;0675619	1.1	0.2	-	42916
Data Cable	CA-190CD	-	-	-	-	42918
Headset	WH-108	-	4.0	4.0	-	42927

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(a)(6)	A9.2	Peak excursion	PASSED
15.407(b)	A9.2	Spurious radiated emissions	NP
15.407(b)(6)	A9.2	AC powerline conducted emissions	PASSED
-	A9.2	26dB(bandwidth)	PASSED
15.407(a)	A9.2	Power spectral density	PASSED

PASSED
FAILED
NP

The EUT complies with the essential requirements in the standard.
The EUT does not comply with the essential requirements in the standard.
The test was not performed by the TCC Nokia Laboratory.

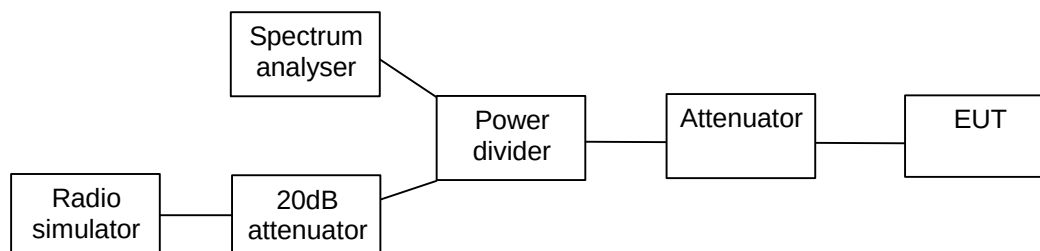
CONTENTS

1. Summary for FCC Part 15E Compliance Test Report.....	2
1.1. EUT and Accessory Information.....	2
1.2. Summary of Test Results	2
2. Maximum conducted output power (FCC §15.407 (a), RSS-210 A9.2)	4
2.1. Test Setup	4
2.2. Test method and limit	4
2.3. Power results summary, all modes, modulations and data rates	5
2.4. Power results summary, selected modes and modulations	6
2.5. 5 GHz RLAN Test results	7
3. Peak excursion (FCC §15.407 (a), RSS-210 A9.2)	25
3.1. Test Setup	25
3.2. Test method and limit	25
3.3. 5 GHz RLAN Test results	26
4. AC powerline conducted emissions (FCC §15.407 (b) (6), RSS-210 A9.2).....	44
4.1. Test Setup	44
4.2. Test method and limit	44
4.3. WLAN Test results.....	45
5. 26 dB bandwidth.....	46
5.1. Test Setup	46
5.2. Test method and limit	46
5.3. 5 GHz RLAN Test results	47
6. Peak power spectral density (FCC §15.407(a), RSS-210 A9.2)	65
6.1. Test Setup	65
6.2. Test method and limit	65
6.3. 5 GHz RLAN Test results	66
7. Test Equipment.....	80
7.1. Conducted measurements	80
7.2. Radiated measurements	80

2. Maximum conducted output power (FCC §15.407 (a), RSS-210 A9.2)

EUT with DUT number	RM-846, DUT 42913
Accessories with DUT numbers	BL-4J, DUT 42914
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21-22 / 48-50 / 98.8-99.4
Date of measurements	11 and 15-Oct-2012
Measured by	Jari Jantunen

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D01 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	50 (17)	4+10 log B	17
5250-5350	250 (24)	11+10 log B	24
5470-5725	250 (24)	11+10 log B	24
5725-5825	1000 (30)	17+10 log B	30

2.3. Power results summary, all modes, modulations and data rates

Channel / fC [MHz]	Mode	Modulation	Data rate	Level [dBm]
36 / 5180	OFDM	BPSK	6 Mbps	13.93
36 / 5180	OFDM	BPSK	9 Mbps	13.98
36 / 5180	OFDM	QPSK	12 Mbps	14.03
36 / 5180	OFDM	QPSK	18 Mbps	14.05
36 / 5180	OFDM	16-QAM	24 Mbps	14.32
36 / 5180	OFDM	16-QAM	36 Mbps	13.4
36 / 5180	OFDM	64-QAM	48 Mbps	12.26
36 / 5180	OFDM	64-QAM	54 Mbps	11.33
36 / 5180	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	11.94
36 / 5180	n-mode, 20 MHz CBW	QPSK	13.0 / 14.4 Mbps	12.01
36 / 5180	n-mode, 20 MHz CBW	QPSK	19.5 / 21.7 Mbps	11
36 / 5180	n-mode, 20 MHz CBW	16-QAM	26.0 / 28.9 Mbps	11.33
36 / 5180	n-mode, 20 MHz CBW	16-QAM	39.0 / 43.3 Mbps	10.35
36 / 5180	n-mode, 20 MHz CBW	64-QAM	52.0 / 57.8 Mbps	10.42
36 / 5180	n-mode, 20 MHz CBW	64-QAM	58.5 / 65.0 Mbps	9.38
36 / 5180	n-mode, 20 MHz CBW	64-QAM	65.0 / 72.2 Mbps	9.42
36+40 / 5190	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.72
36+40 / 5190	n-mode, 40 MHz CBW	QPSK	27.0 / 30.0 Mbps	10.97
36+40 / 5190	n-mode, 40 MHz CBW	QPSK	40.5 / 45.0 Mbps	11.24
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.47
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	81.0 / 90.0 Mbps	9.97
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	108.0 / 120.0 Mbps	10.4
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	121.5 / 135.0 Mbps	9.01
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	135.0 / 150.0 Mbps	8.89

2.4. Power results summary, selected modes and modulations

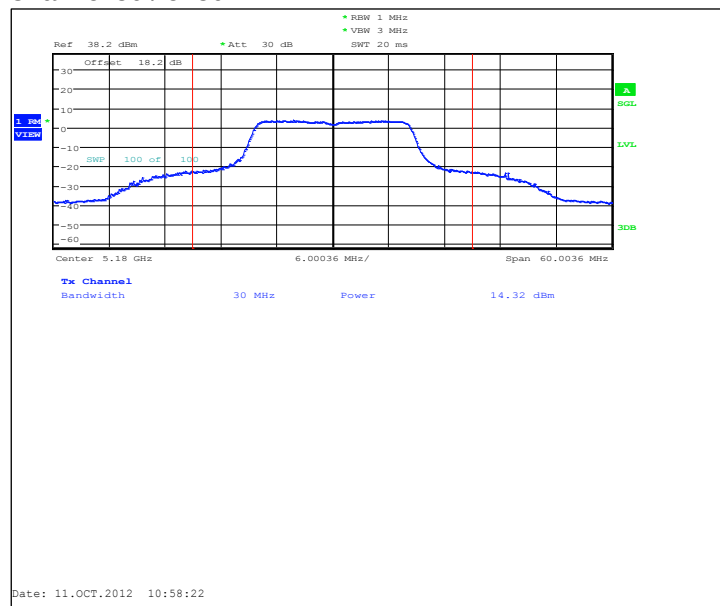
Channel / fC [MHz]	Mode	Modulation	Data rate	Level [dBm]
36 / 5180	OFDM	16-QAM	24 Mbps	14.32
40 / 5200	OFDM	16-QAM	24 Mbps	14.1
48 / 5240	OFDM	16-QAM	24 Mbps	14.12
52 / 5260	OFDM	16-QAM	24 Mbps	14.21
60 / 5300	OFDM	16-QAM	24 Mbps	14.18
64 / 5320	OFDM	16-QAM	24 Mbps	14.19
100 / 5500	OFDM	16-QAM	24 Mbps	14.55
116 / 5580	OFDM	16-QAM	24 Mbps	14.75
140 / 5700	OFDM	16-QAM	24 Mbps	14.75
36+40 / 5190	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.72
44+48 / 5230	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.94
52+56 / 5270	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.45
60+64 / 5310	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.6
100+104 / 5510	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.07
108+112 / 5550	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.23
132+136 / 5670	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.05
36 / 5180	OFDM	BPSK	9 Mbps	13.98
40 / 5200	OFDM	BPSK	9 Mbps	13.83
48 / 5240	OFDM	BPSK	9 Mbps	13.89
52 / 5260	OFDM	BPSK	9 Mbps	13.99
60 / 5300	OFDM	BPSK	9 Mbps	13.85
64 / 5320	OFDM	BPSK	9 Mbps	13.81
100 / 5500	OFDM	BPSK	9 Mbps	14.24
116 / 5580	OFDM	BPSK	9 Mbps	14.38
140 / 5700	OFDM	BPSK	9 Mbps	14.31
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.47
44+48 / 5230	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11
52+56 / 5270	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	10.89
60+64 / 5310	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	10.96
100+104 / 5510	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.56
108+112 / 5550	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.7
132+136 / 5670	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.6

2.5. 5 GHz RLAN Test results

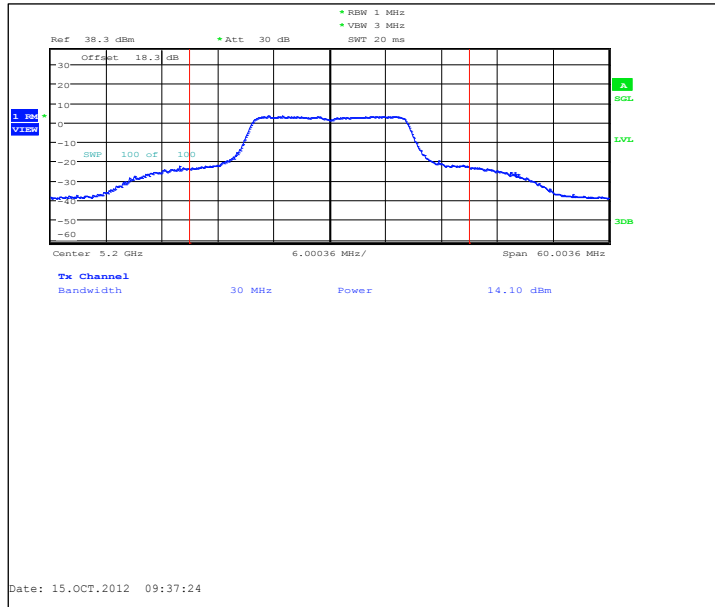
2.5.1 OFDM mode, 16-QAM modulation, 24 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
36 / 5180	14.32	27.04	PASSED
40 / 5200	14.1	25.704	PASSED
48 / 5240	14.12	25.823	PASSED
52 / 5260	14.21	26.363	PASSED
60 / 5300	14.18	26.182	PASSED
64 / 5320	14.19	26.242	PASSED
100 / 5500	14.55	28.51	PASSED
116 / 5580	14.75	29.854	PASSED
140 / 5700	14.75	29.854	PASSED

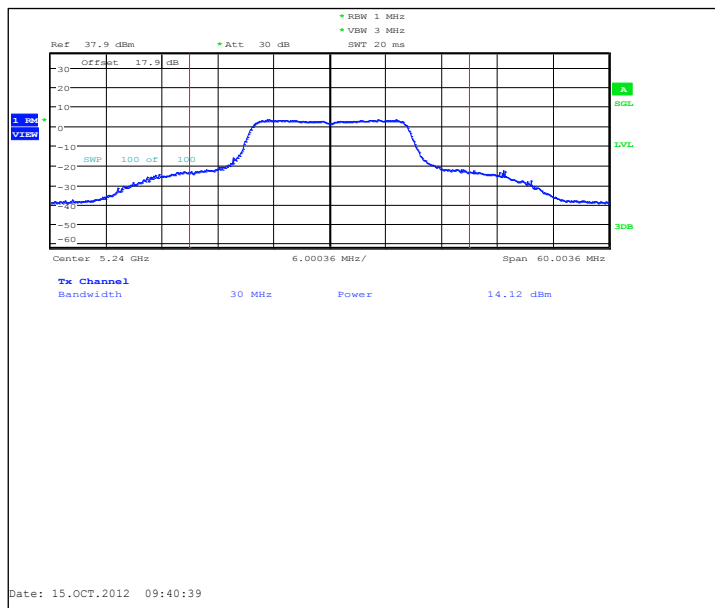
Channel 36 / 5180MHz



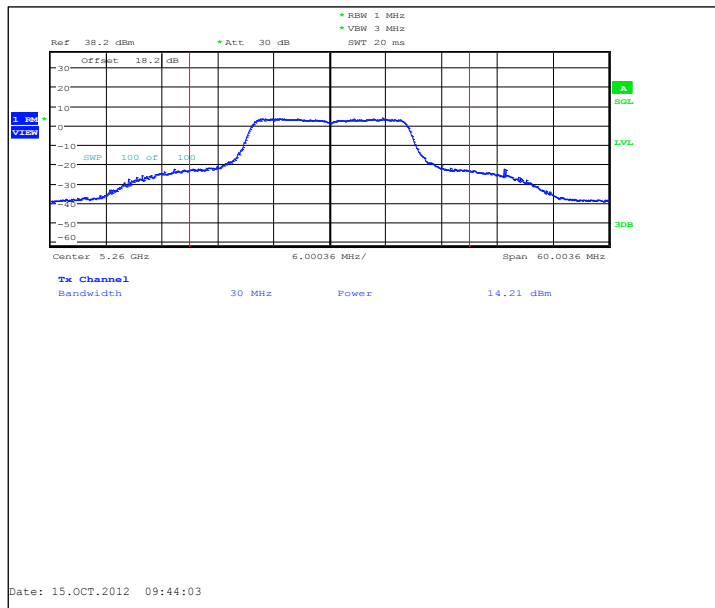
Channel 40 / 5200MHz



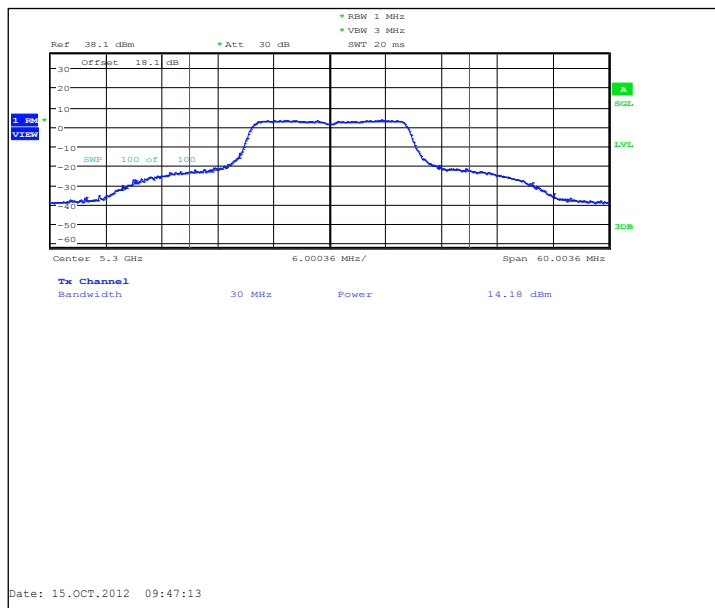
Channel 48 / 5240MHz



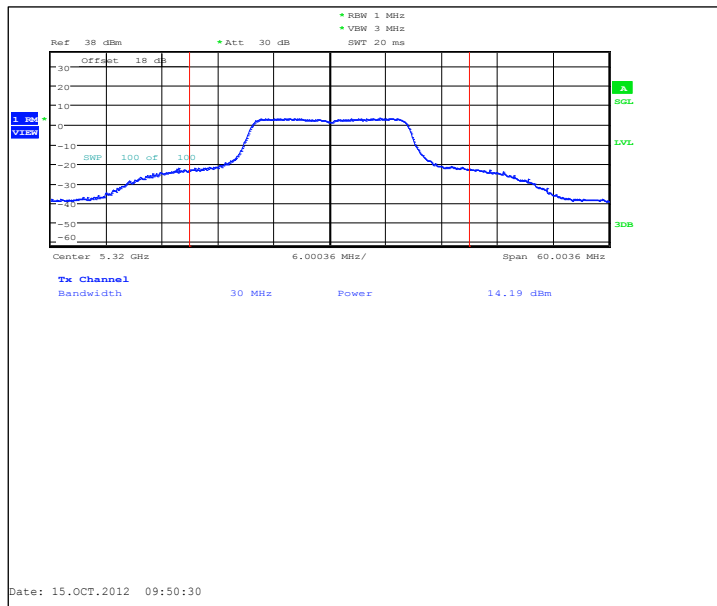
Channel 52 / 5260MHz



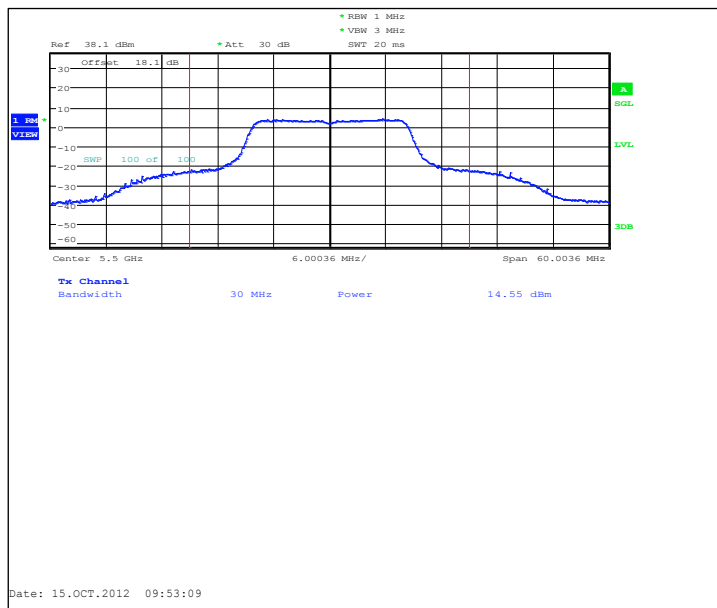
Channel 60 / 5300MHz



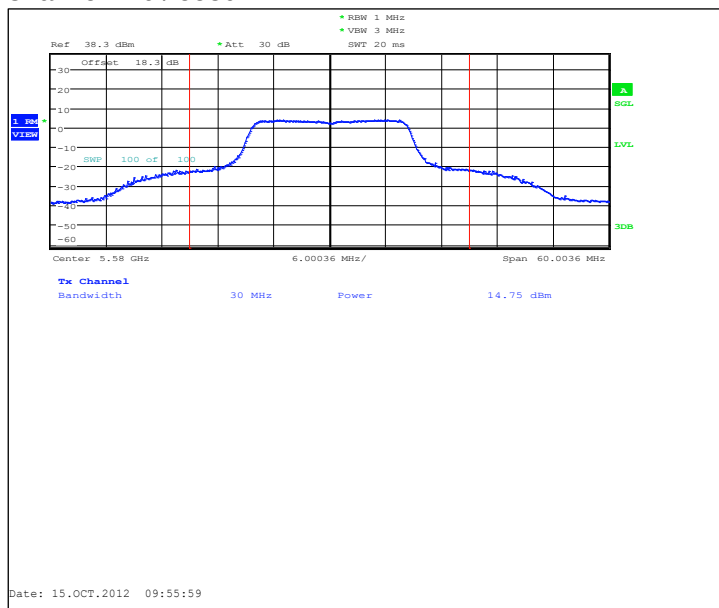
Channel 64 / 5320MHz



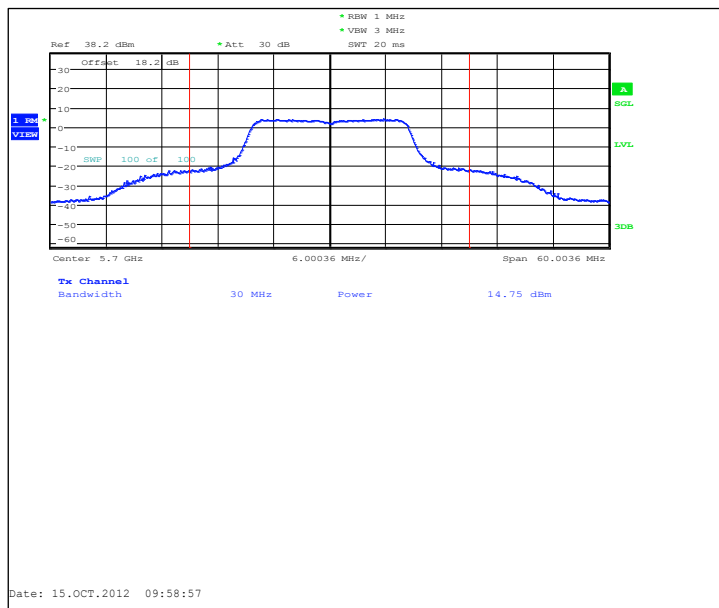
Channel 100 / 5500MHz



Channel 116 / 5580MHz



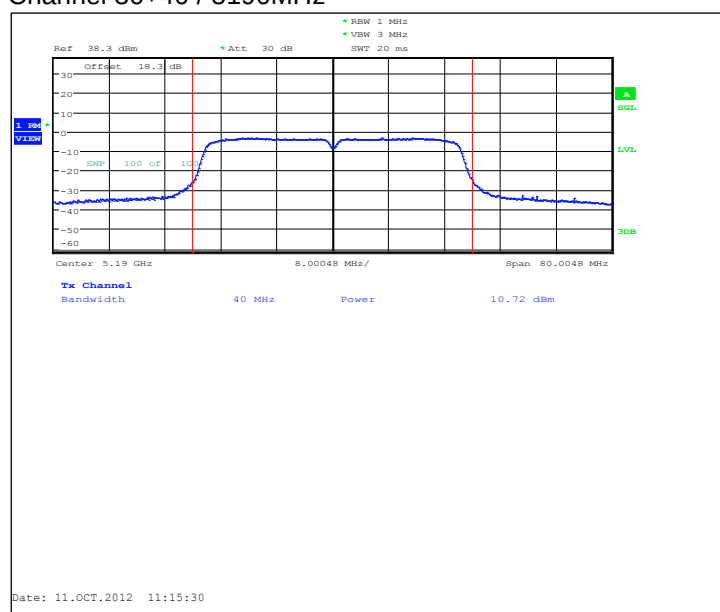
Channel 140 / 5700MHz



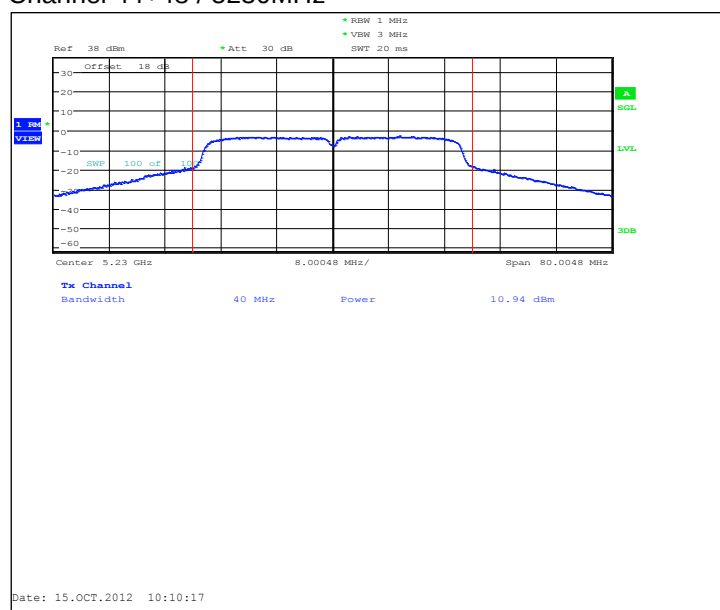
2.5.2 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
36+40 / 5190	10.72	11.803	PASSED
44+48 / 5230	10.94	12.417	PASSED
52+56 / 5270	10.45	11.092	PASSED
60+64 / 5310	10.6	11.482	PASSED
100+104 / 5510	11.07	12.794	PASSED
108+112 / 5550	11.23	13.274	PASSED
132+136 / 5670	11.05	12.735	PASSED

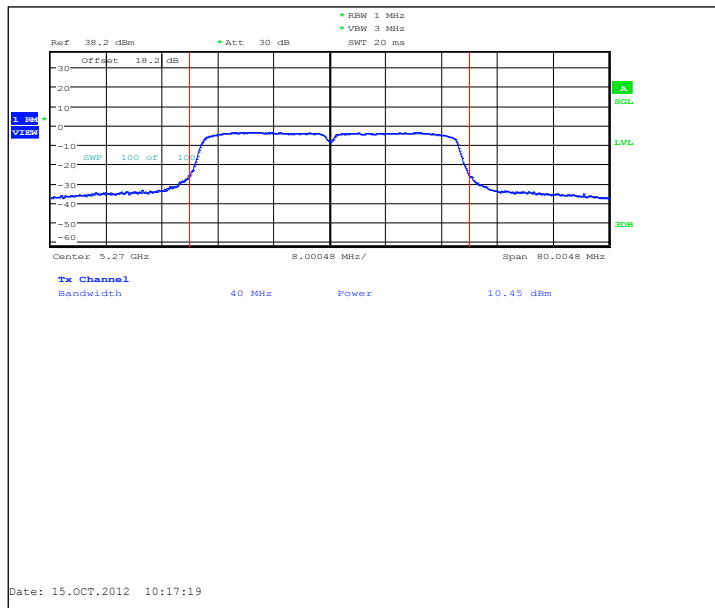
Channel 36+40 / 5190MHz



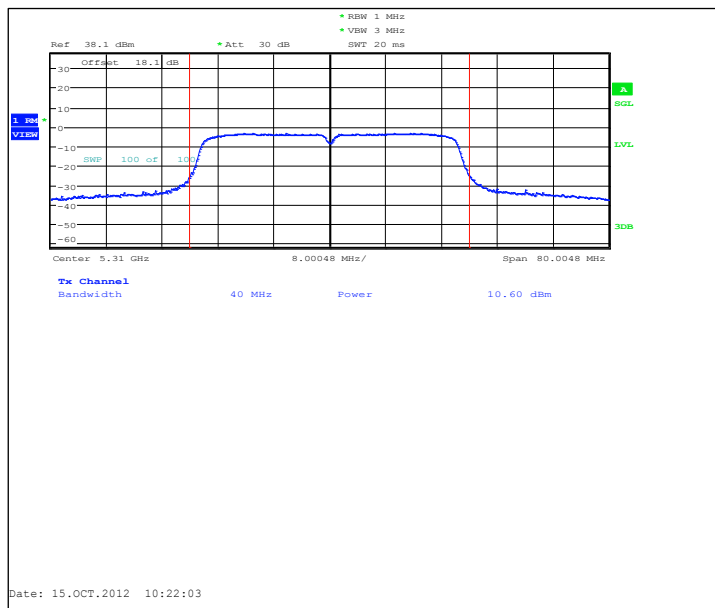
Channel 44+48 / 5230MHz



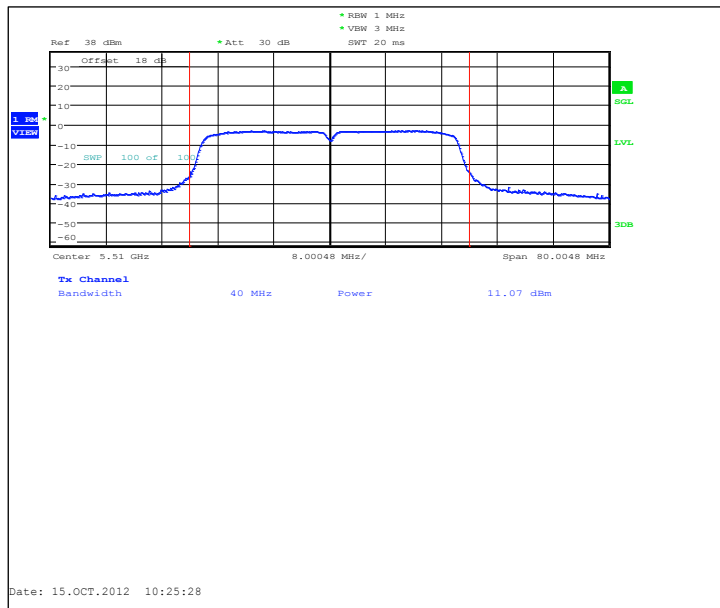
Channel 52+56 / 5270MHz



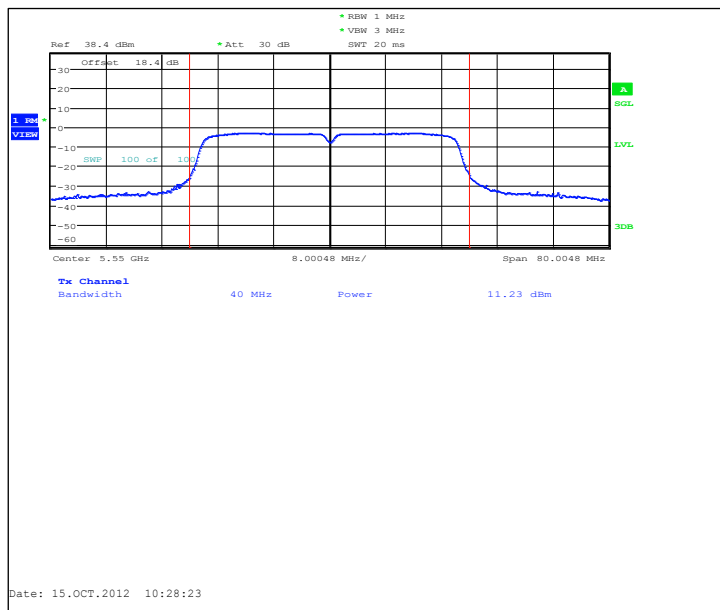
Channel 60+64 / 5310MHz



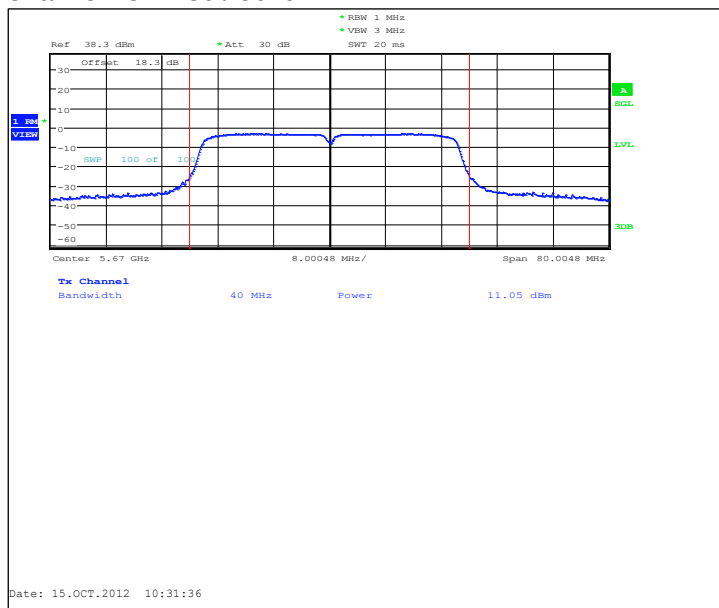
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



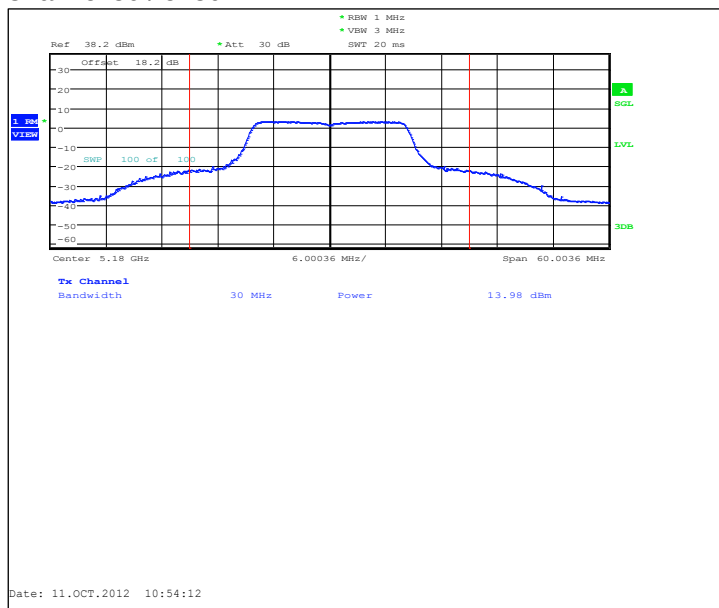
Channel 132+136 / 5670MHz



2.5.3 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
36 / 5180	13.98	25.003	PASSED
40 / 5200	13.83	24.155	PASSED
48 / 5240	13.89	24.491	PASSED
52 / 5260	13.99	25.061	PASSED
60 / 5300	13.85	24.266	PASSED
64 / 5320	13.81	24.044	PASSED
100 / 5500	14.24	26.546	PASSED
116 / 5580	14.38	27.416	PASSED
140 / 5700	14.31	26.977	PASSED

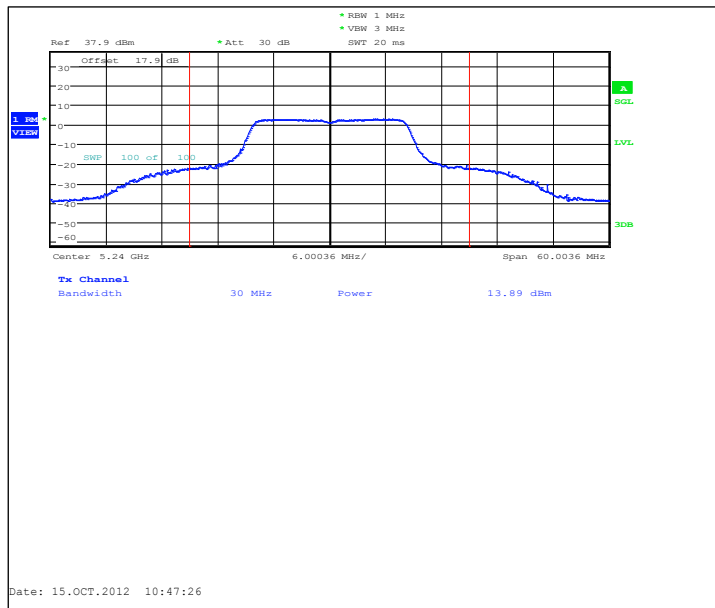
Channel 36 / 5180MHz



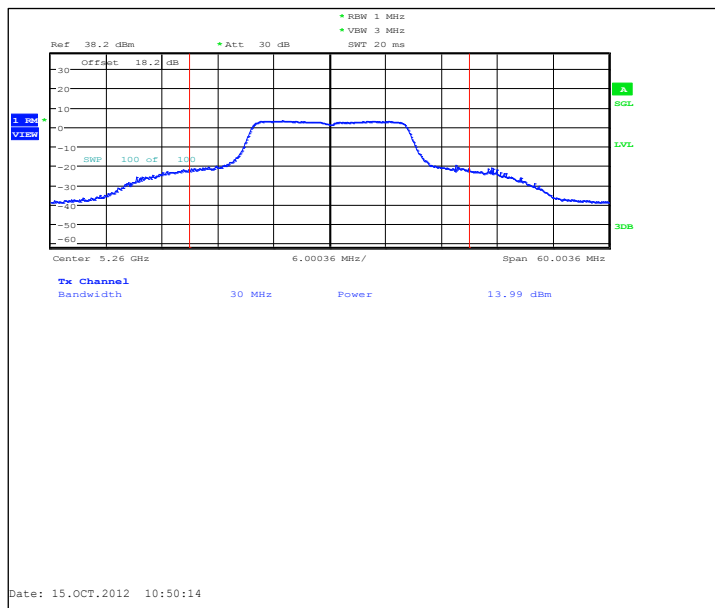
Channel 40 / 5200MHz



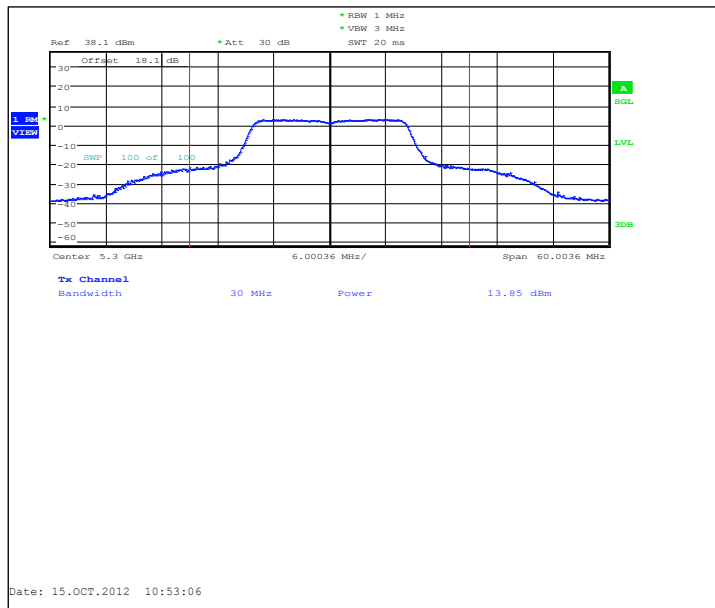
Channel 48 / 5240MHz



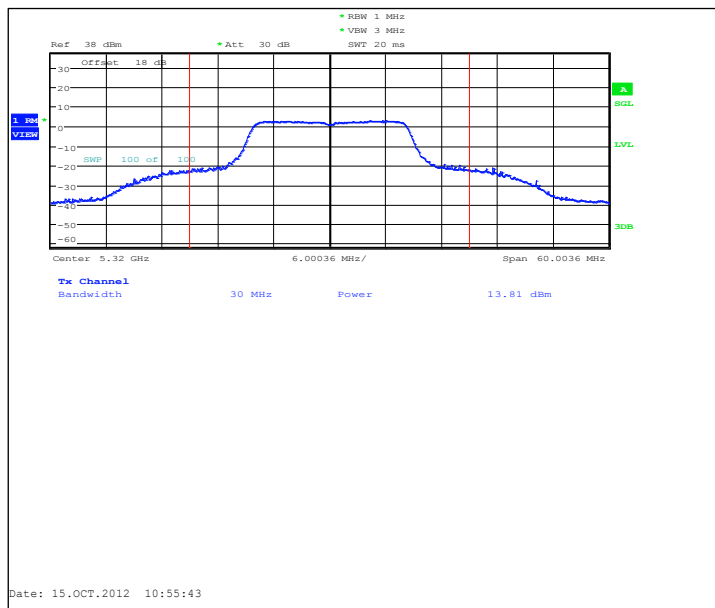
Channel 52 / 5260MHz



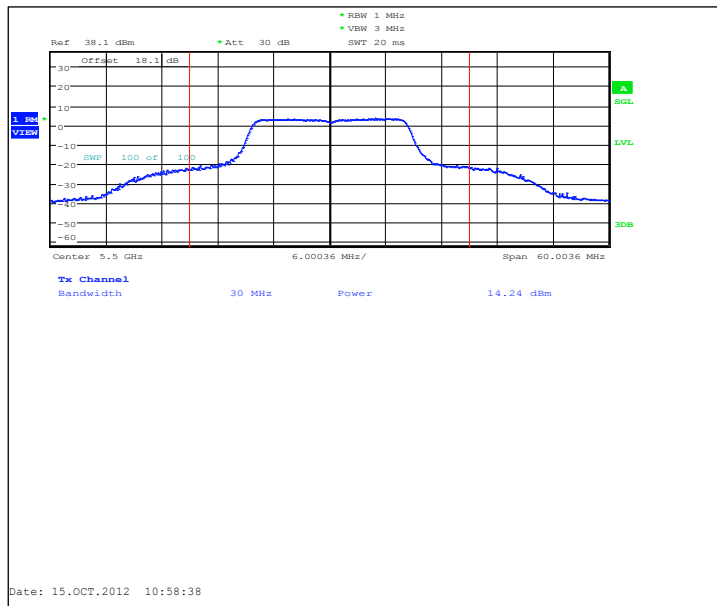
Channel 60 / 5300MHz



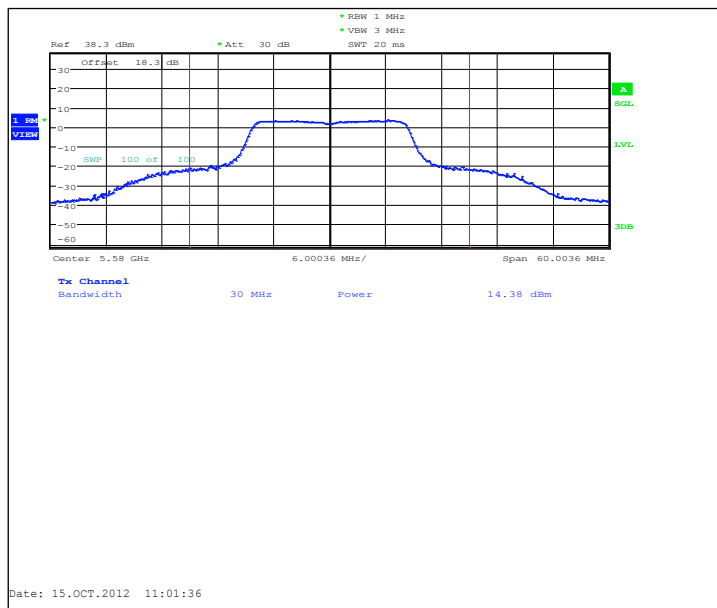
Channel 64 / 5320MHz



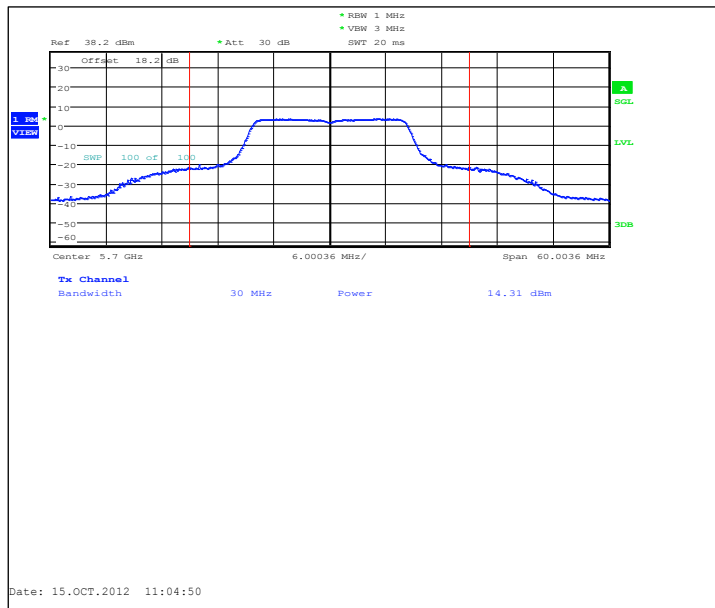
Channel 100 / 5500MHz



Channel 116 / 5580MHz



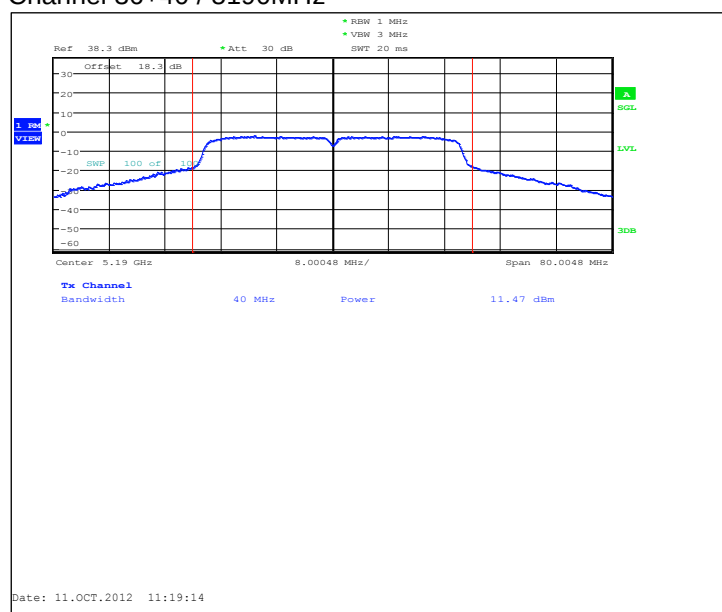
Channel 140 / 5700MHz



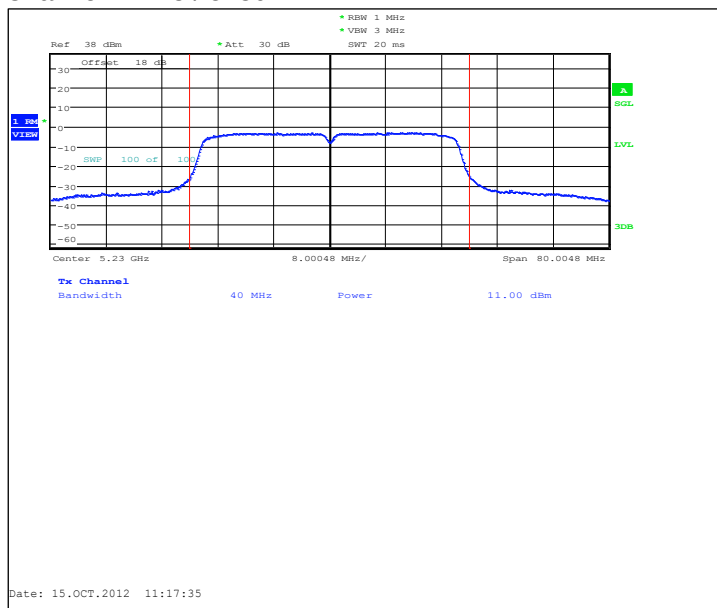
2.5.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
36+40 / 5190	11.47	14.028	PASSED
44+48 / 5230	11	12.589	PASSED
52+56 / 5270	10.89	12.274	PASSED
60+64 / 5310	10.96	12.474	PASSED
100+104 / 5510	11.56	14.322	PASSED
108+112 / 5550	11.7	14.791	PASSED
132+136 / 5670	11.6	14.454	PASSED

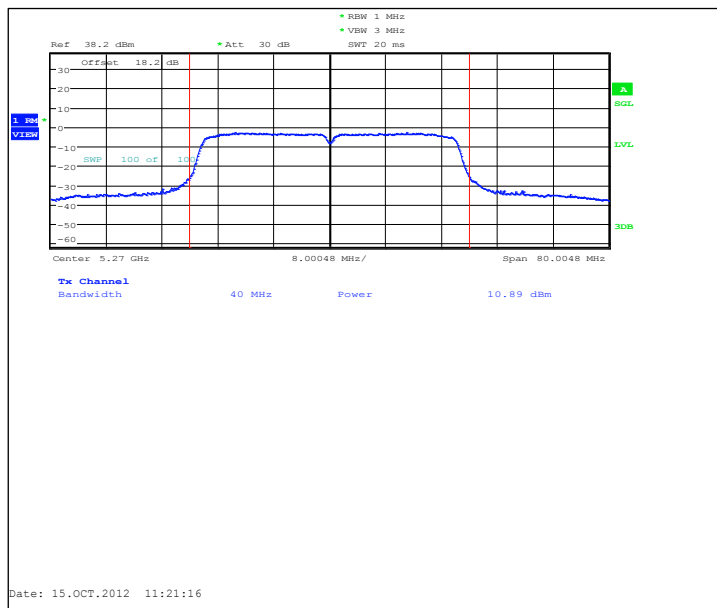
Channel 36+40 / 5190MHz



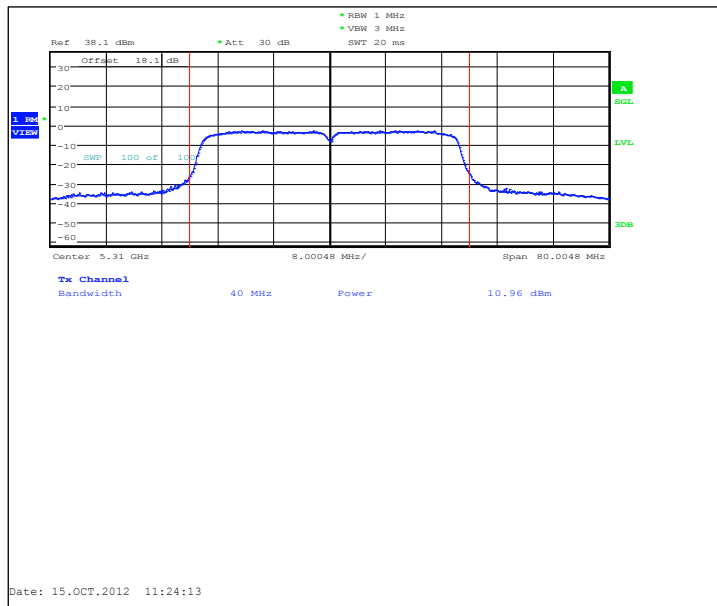
Channel 44+48 / 5230MHz



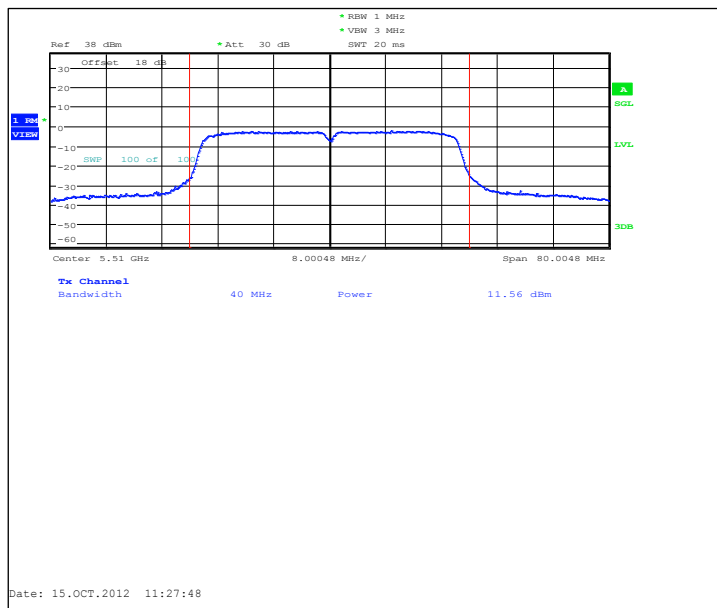
Channel 52+56 / 5270MHz



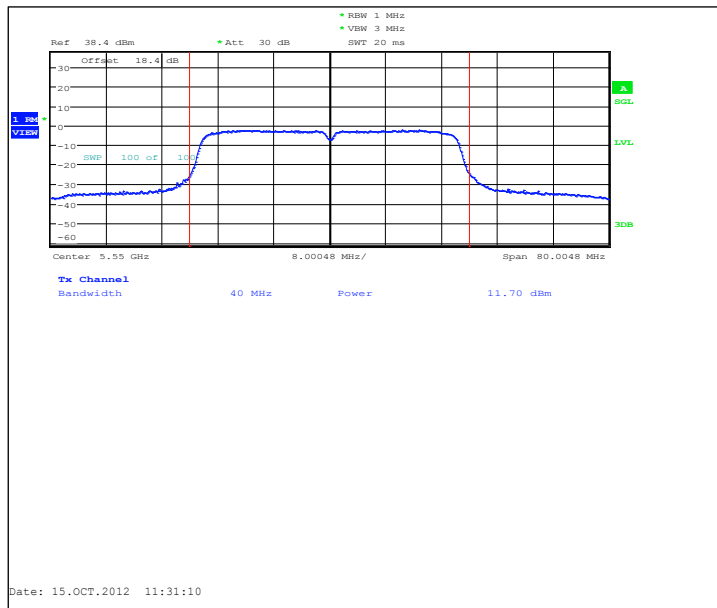
Channel 60+64 / 5310MHz



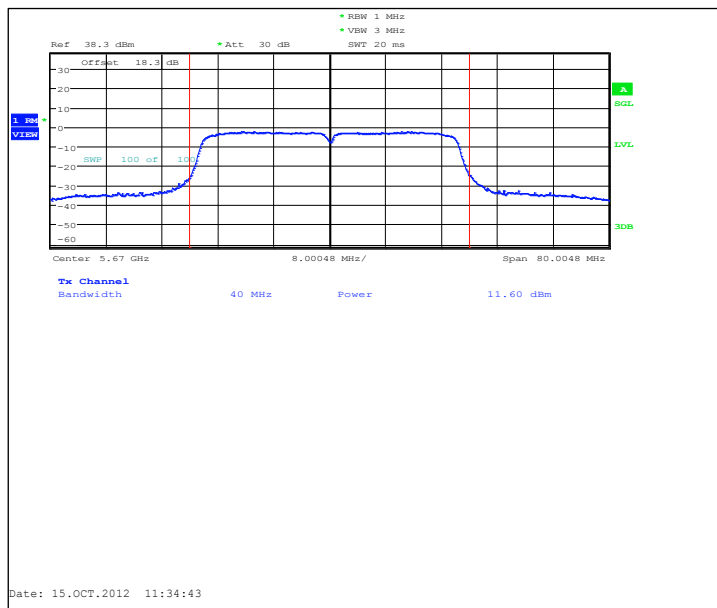
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



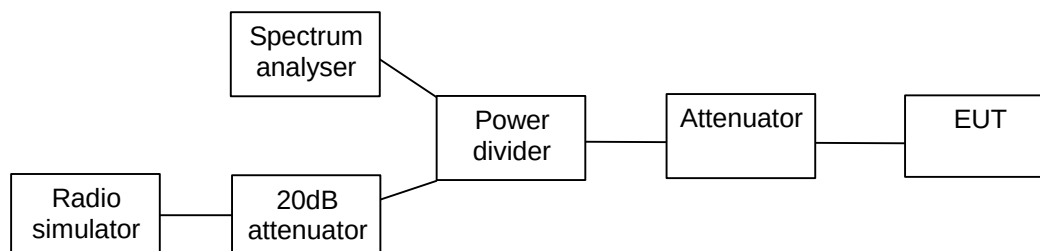
Channel 132+136 / 5670MHz



3. Peak excursion (FCC §15.407 (a), RSS-210 A9.2)

EUT with DUT number	RM-846, DUT 42913
Accessories with DUT numbers	BL-4J, DUT 42914
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 50 / 99.4
Date of measurements	15-Oct-2012
Measured by	Jari Jantunen

3.1. Test Setup



3.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D01 and IC standard RSS-210.

Limits for peak excursion measurements

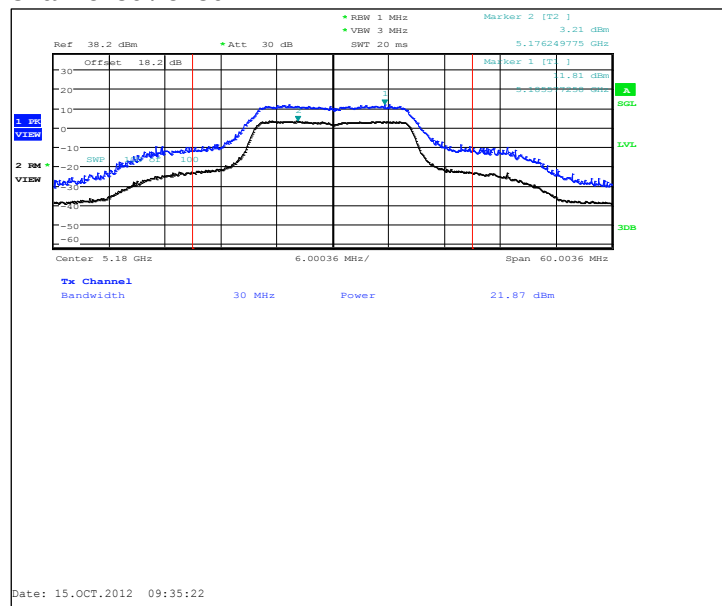
Limit [dB]
<= 13

3.3. 5 GHz RLAN Test results

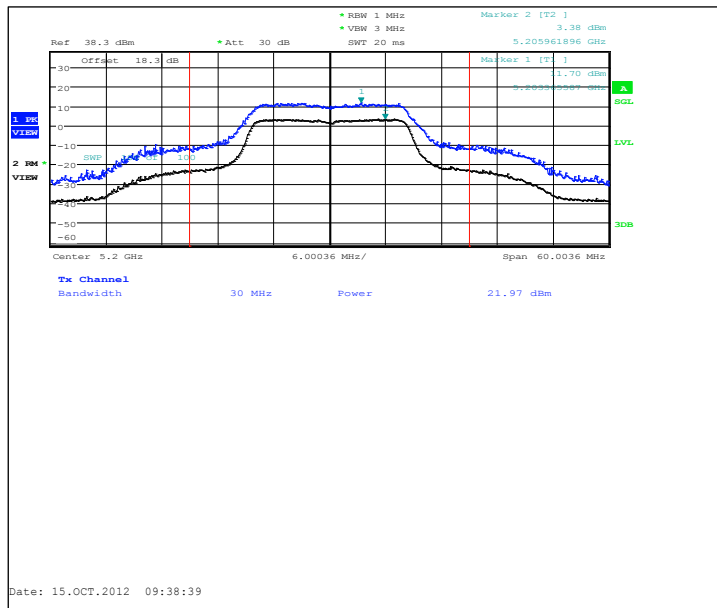
3.3.1 OFDM mode, 16-QAM modulation, 24 Mbps data rate

Channel / f _c [MHz]	Peak excursion [dB]	Result
36 / 5180	8.6	PASSED
40 / 5200	8.32	PASSED
48 / 5240	8.58	PASSED
52 / 5260	8.16	PASSED
60 / 5300	8.36	PASSED
64 / 5320	8.51	PASSED
100 / 5500	8.62	PASSED
116 / 5580	8.27	PASSED
140 / 5700	8.4	PASSED

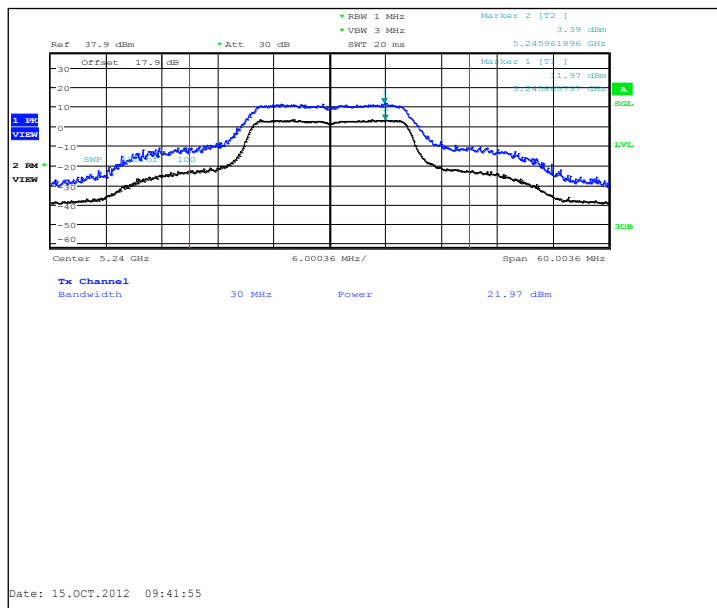
Channel 36 / 5180MHz



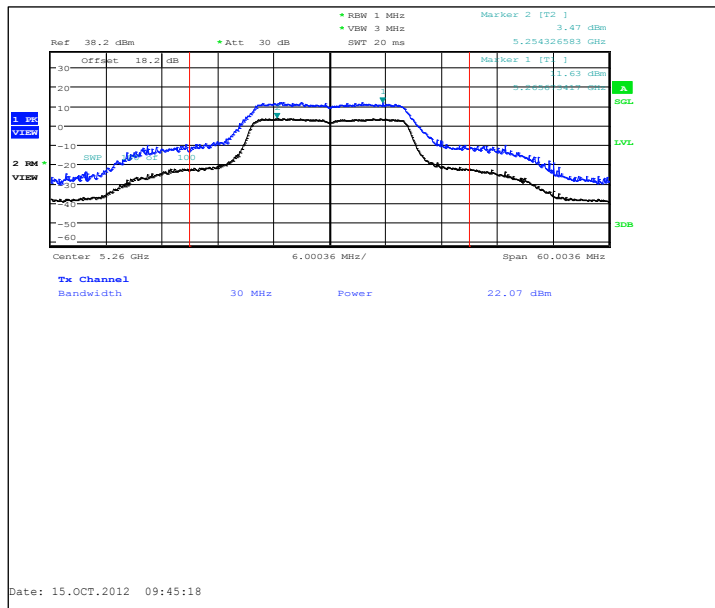
Channel 40 / 5200MHz



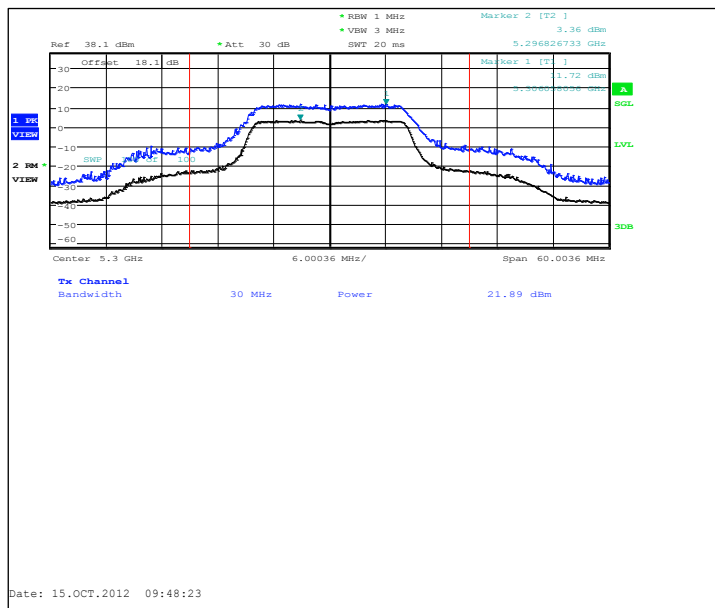
Channel 48 / 5240MHz



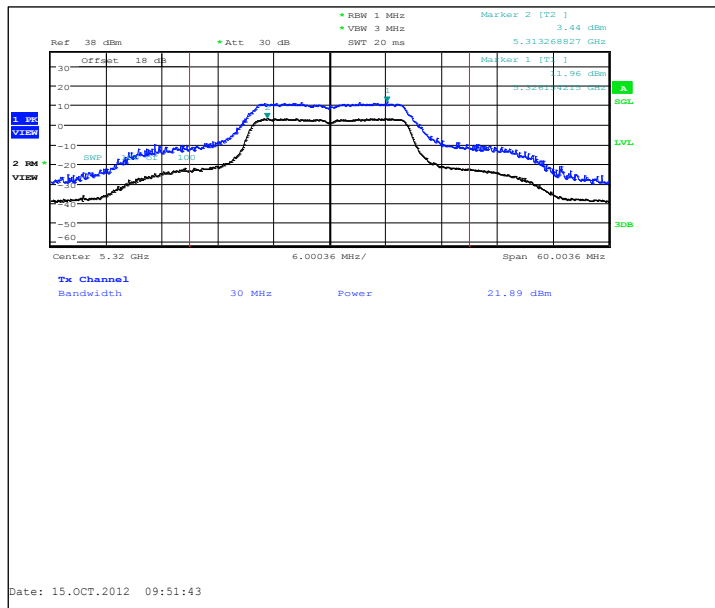
Channel 52 / 5260MHz



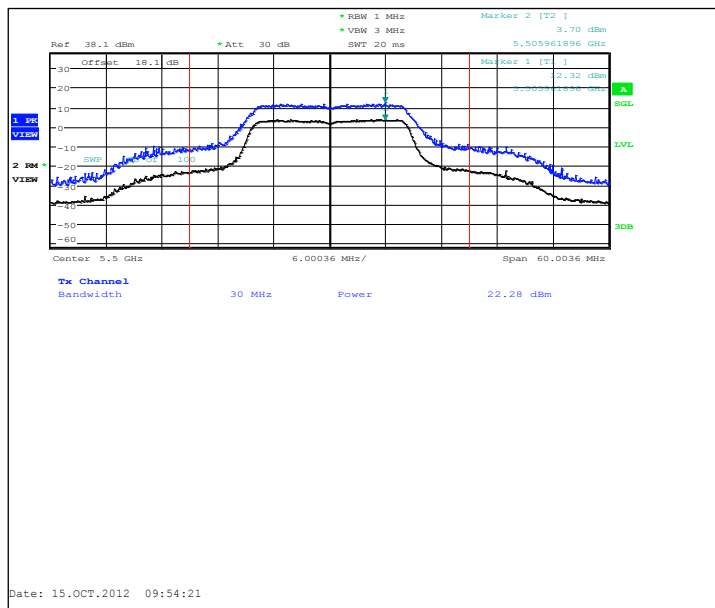
Channel 60 / 5300MHz



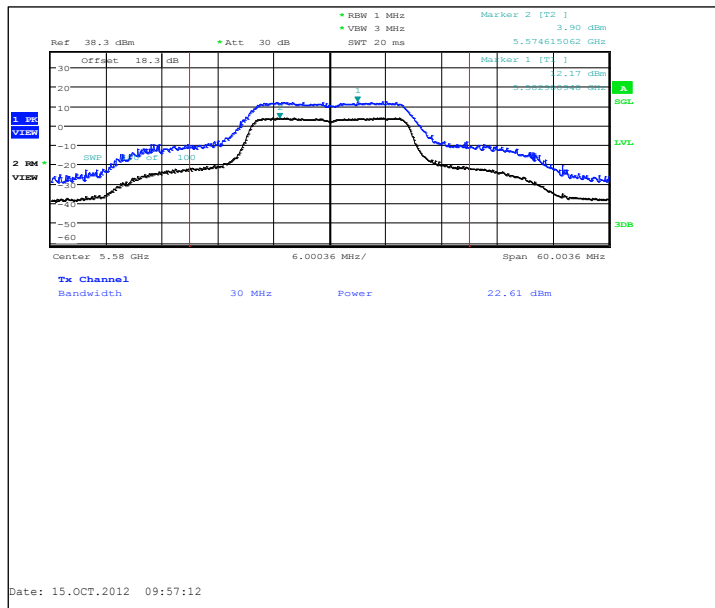
Channel 64 / 5320MHz



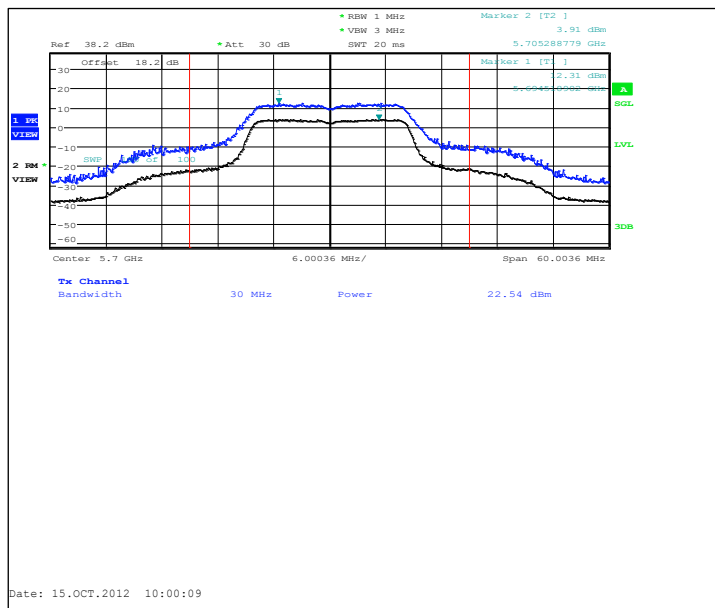
Channel 100 / 5500MHz



Channel 116 / 5580MHz



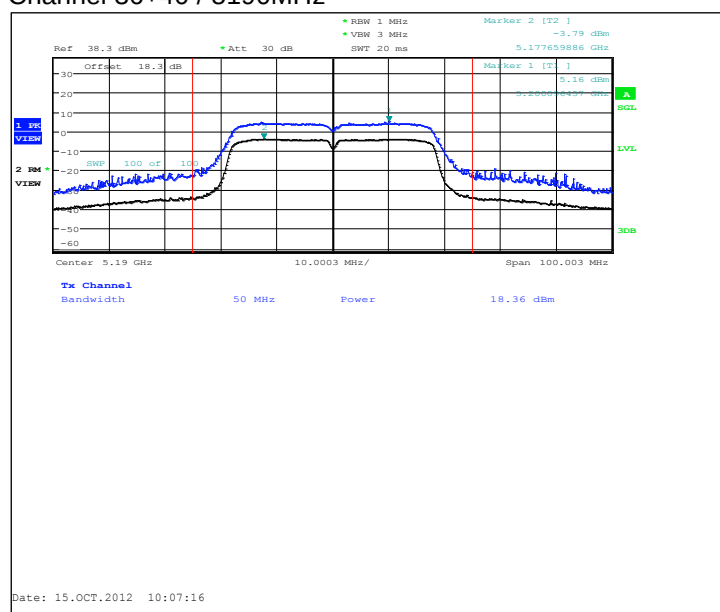
Channel 140 / 5700MHz



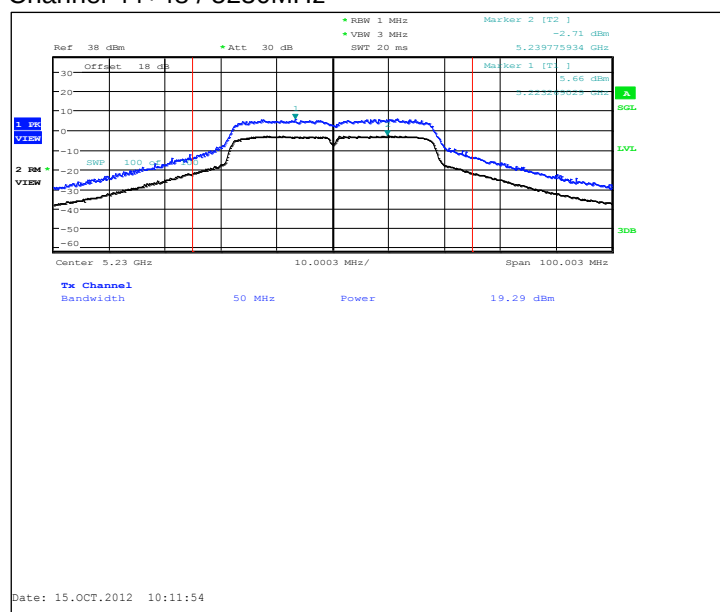
3.3.2 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_c [MHz]	Peak excursion [dB]	Result
36+40 / 5190	8.95	PASSED
44+48 / 5230	8.38	PASSED
52+56 / 5270	8.56	PASSED
60+64 / 5310	8.47	PASSED
100+104 / 5510	8.17	PASSED
108+112 / 5550	8.46	PASSED
132+136 / 5670	8.56	PASSED

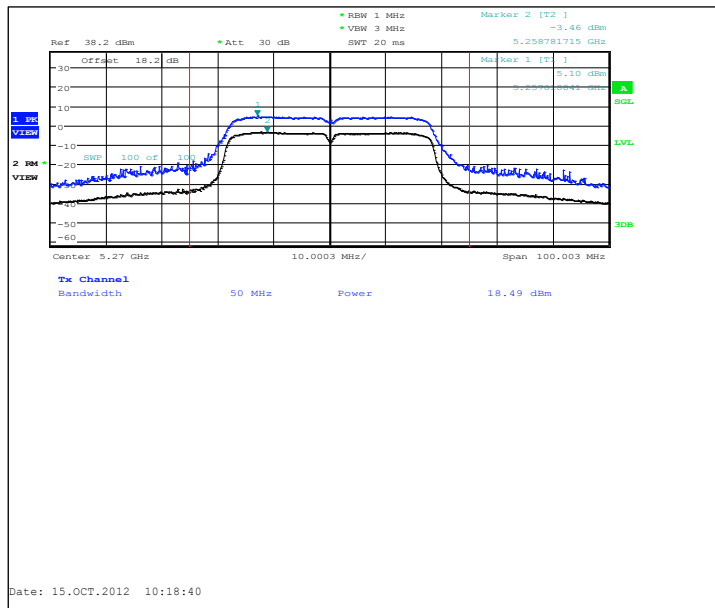
Channel 36+40 / 5190MHz



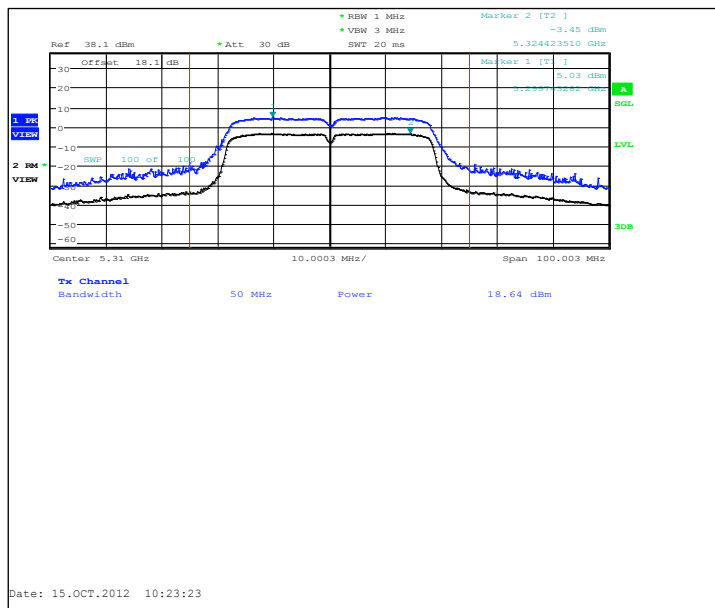
Channel 44+48 / 5230MHz



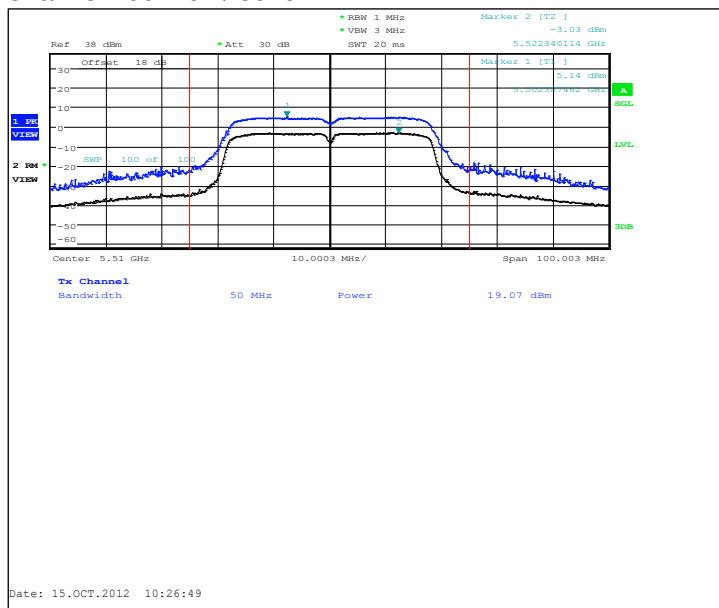
Channel 52+56 / 5270MHz



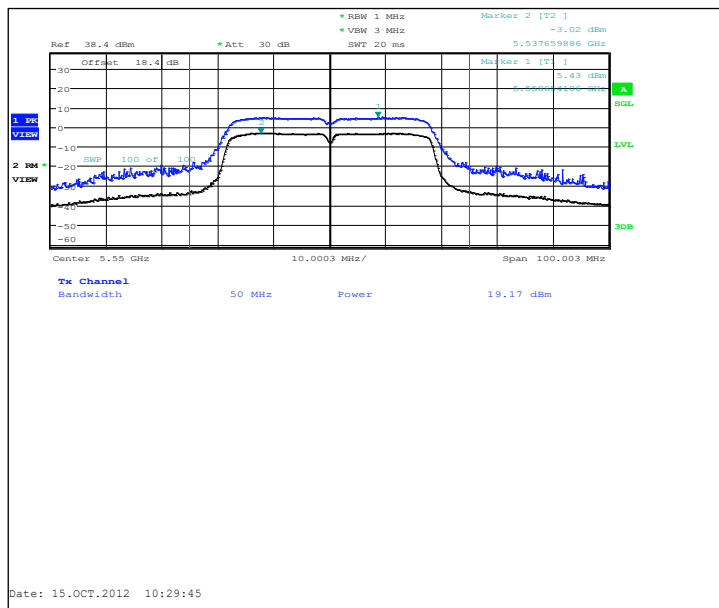
Channel 60+64 / 5310MHz



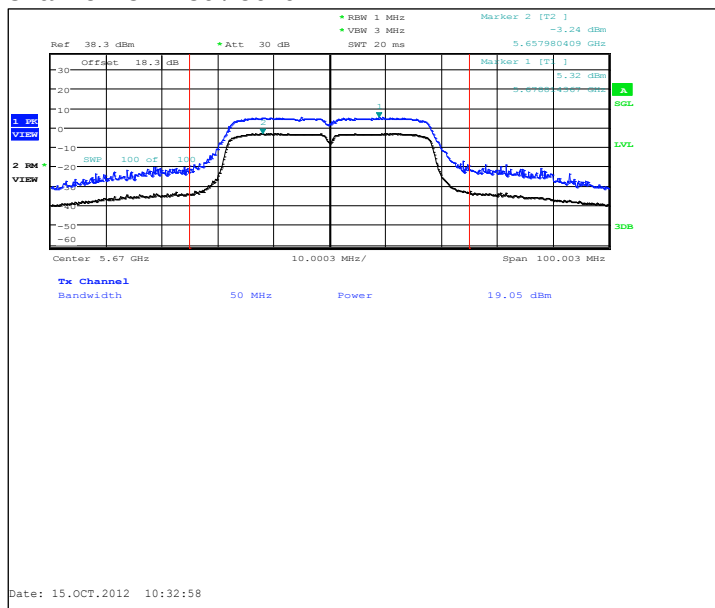
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



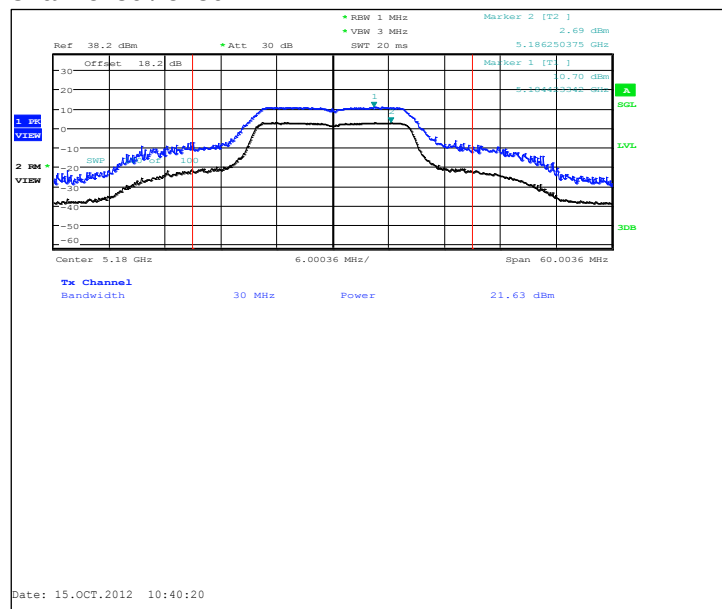
Channel 132+136 / 5670MHz



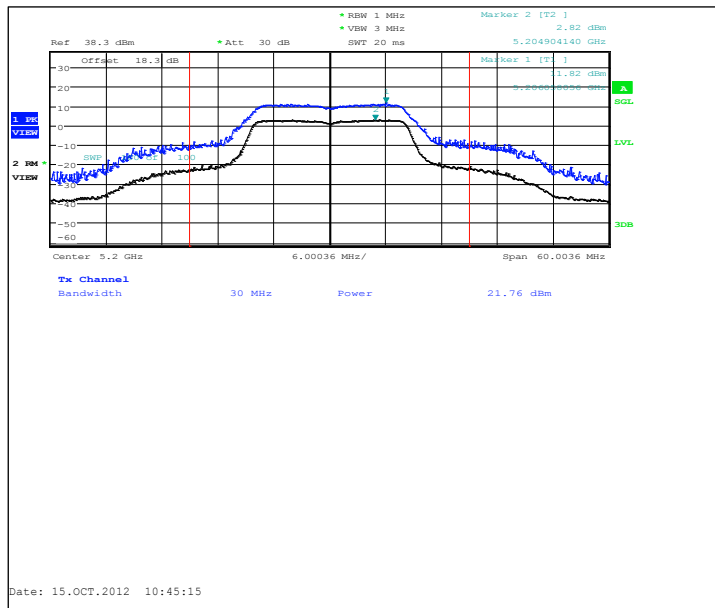
3.3.3 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f_c [MHz]	Peak excursion [dB]	Result
36 / 5180	8	PASSED
40 / 5200	9	PASSED
48 / 5240	8.47	PASSED
52 / 5260	8.16	PASSED
60 / 5300	8.61	PASSED
64 / 5320	8.17	PASSED
100 / 5500	8.51	PASSED
116 / 5580	9.17	PASSED
140 / 5700	8.14	PASSED

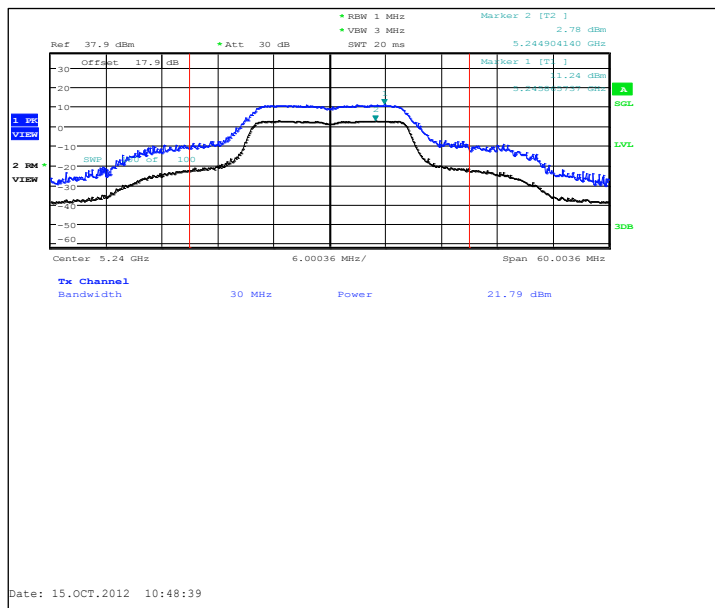
Channel 36 / 5180MHz



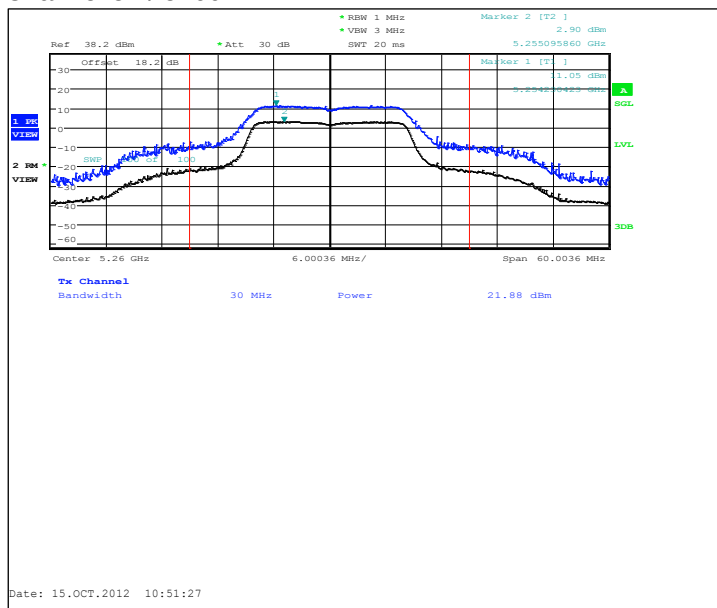
Channel 40 / 5200MHz



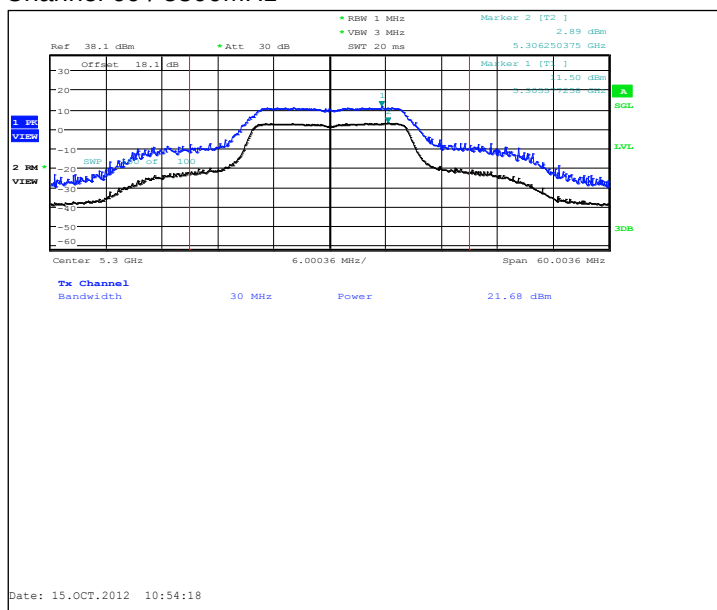
Channel 48 / 5240MHz



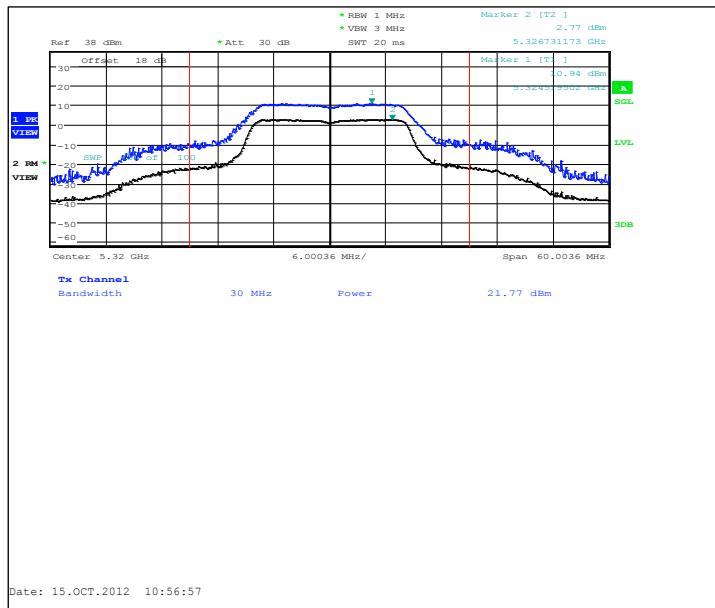
Channel 52 / 5260MHz



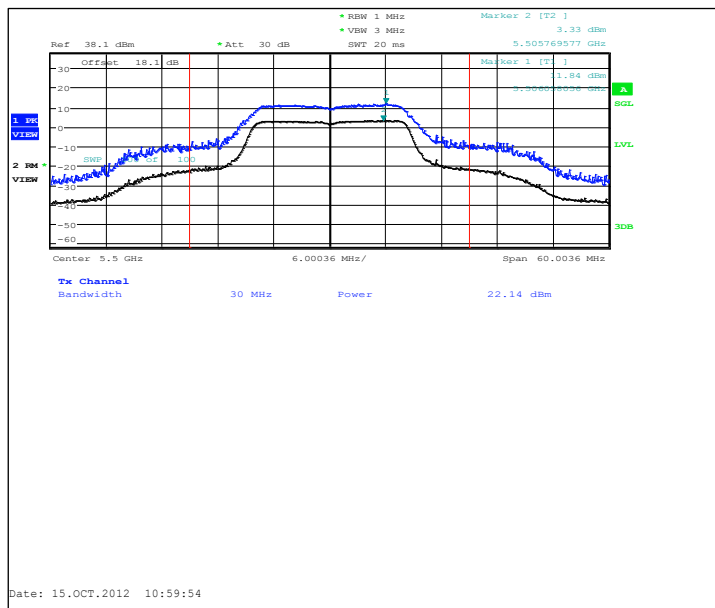
Channel 60 / 5300MHz



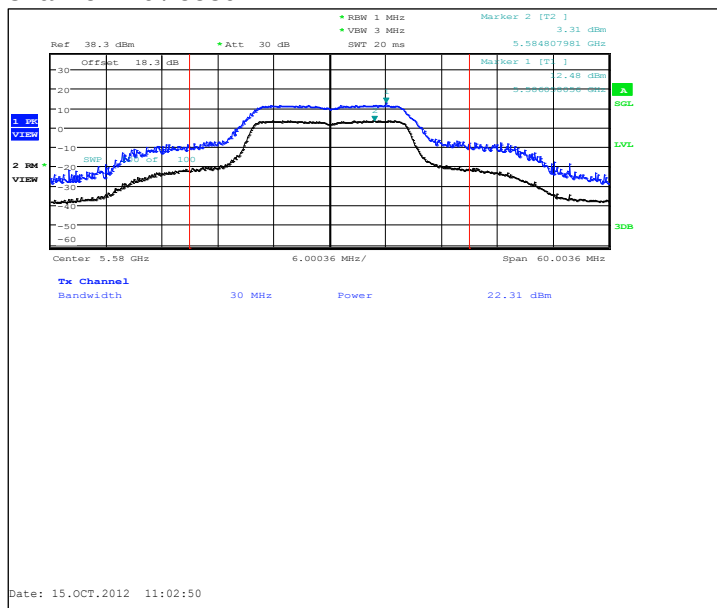
Channel 64 / 5320MHz



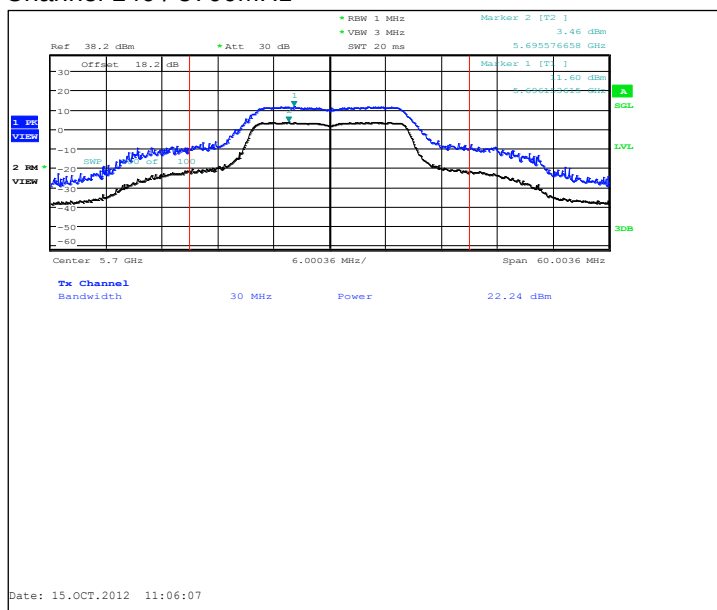
Channel 100 / 5500MHz



Channel 116 / 5580MHz



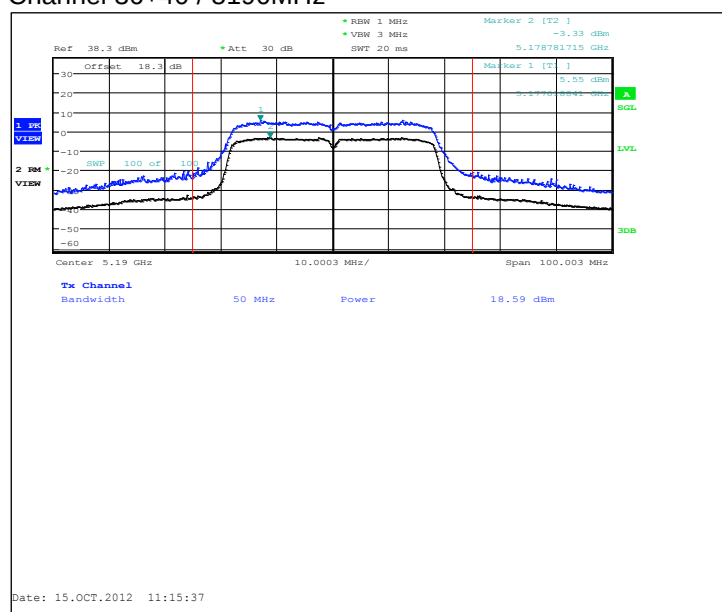
Channel 140 / 5700MHz



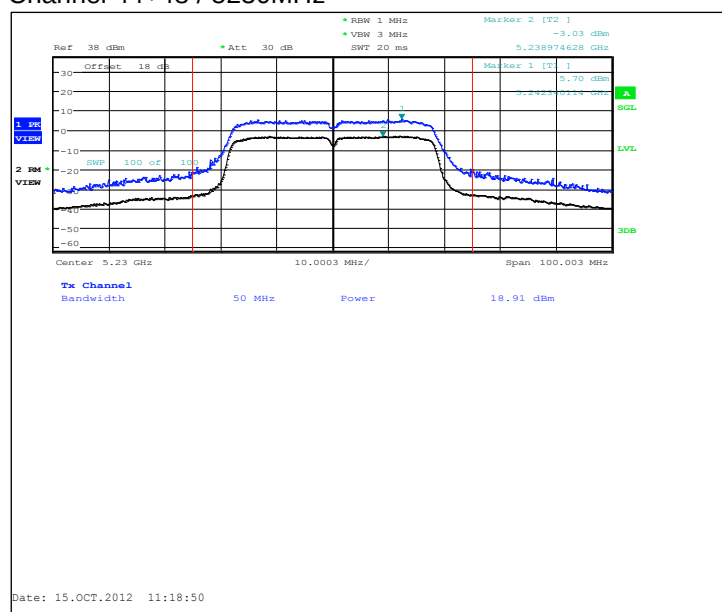
3.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f _c [MHz]	Peak excursion [dB]	Result
36+40 / 5190	8.88	PASSED
44+48 / 5230	8.72	PASSED
52+56 / 5270	8.75	PASSED
60+64 / 5310	8.79	PASSED
100+104 / 5510	8.54	PASSED
108+112 / 5550	8.81	PASSED
132+136 / 5670	9.06	PASSED

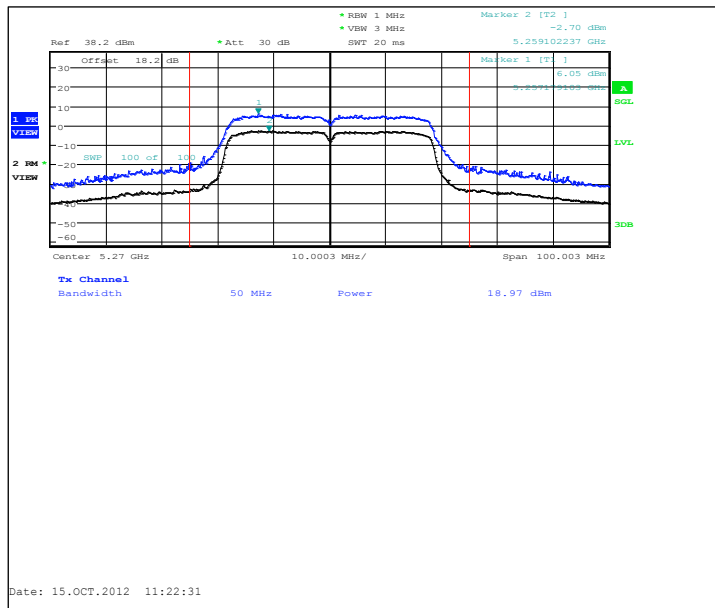
Channel 36+40 / 5190MHz



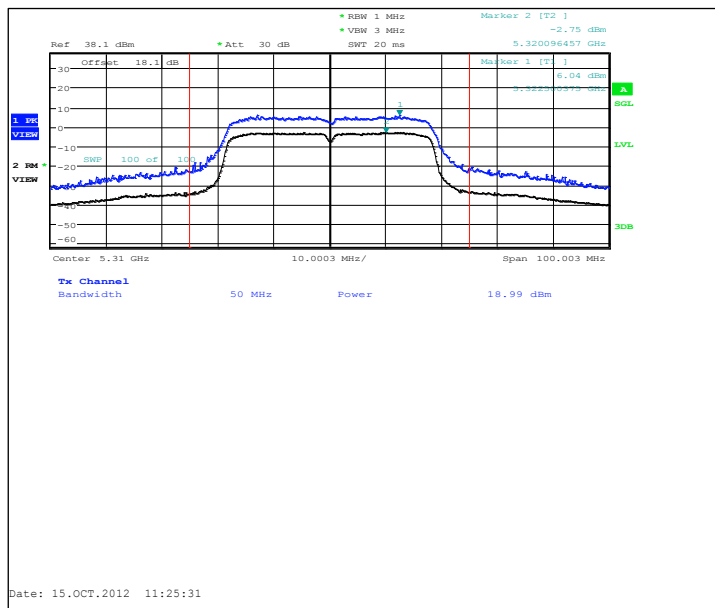
Channel 44+48 / 5230MHz



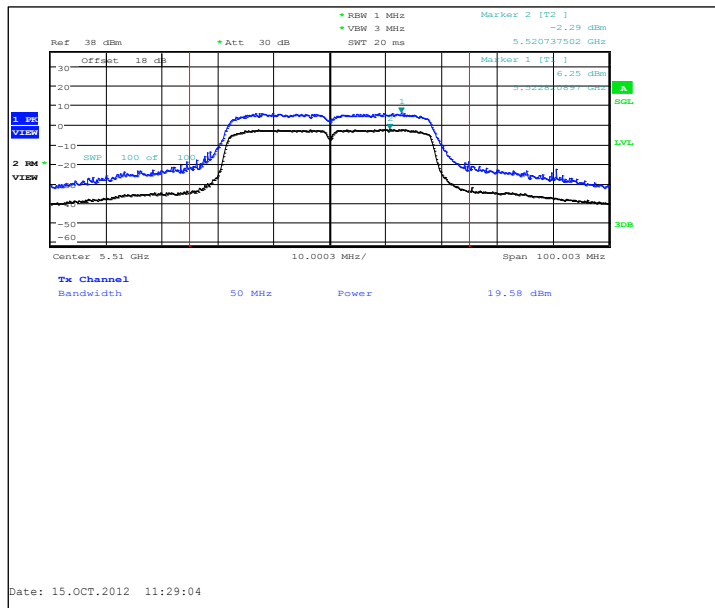
Channel 52+56 / 5270MHz



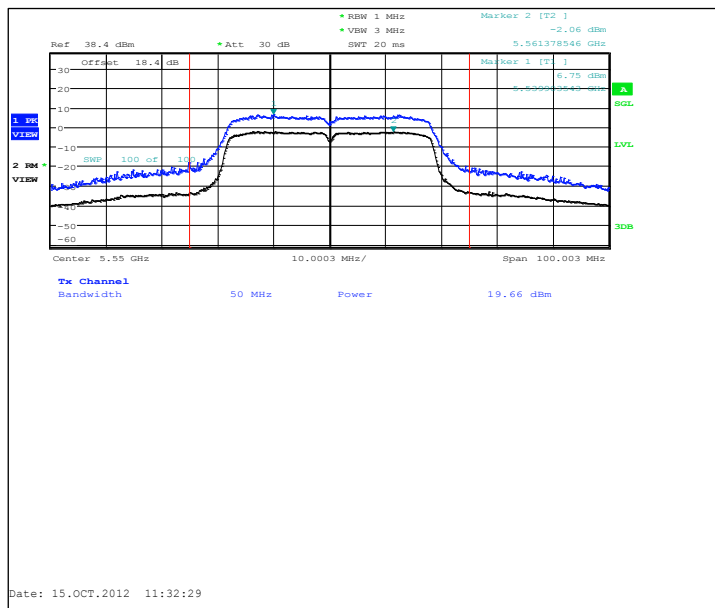
Channel 60+64 / 5310MHz



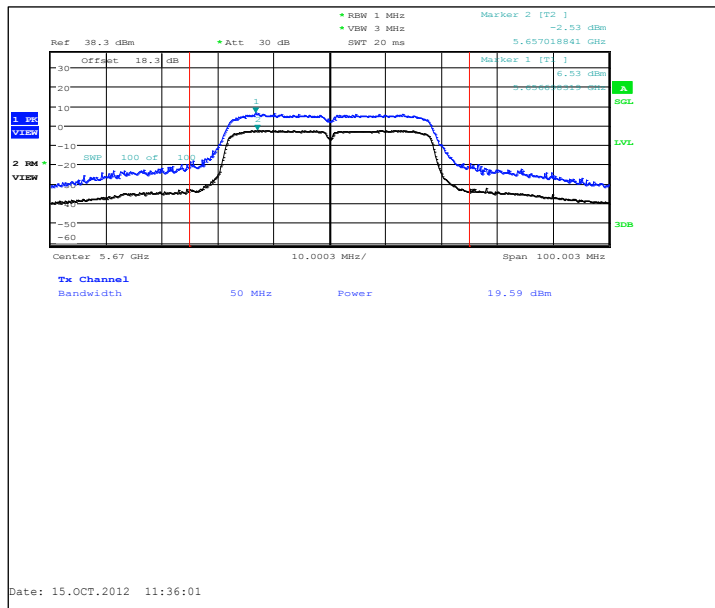
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



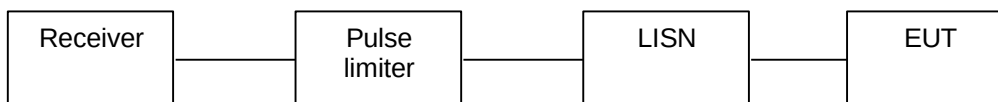
Channel 132+136 / 5670MHz



4. AC powerline conducted emissions (FCC §15.407 (b) (6), RSS-210 A9.2)

EUT with DUT number	RM-846, DUT 42928
Accessories with DUT numbers	BL-4J, DUT 42925 ; AC-50E, DUT 42916 ; CA-190CD, DUT 42918 ; WH-108, DUT 42927
Operation Voltage [V] / [Hz]	110 / 60
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 59 / 100.0
Date of measurements	19-Oct-2012
Measured by	Timo Raiskio

4.1. Test Setup



4.2. Test method and limit

FCC15E_RM-846_09.docx The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

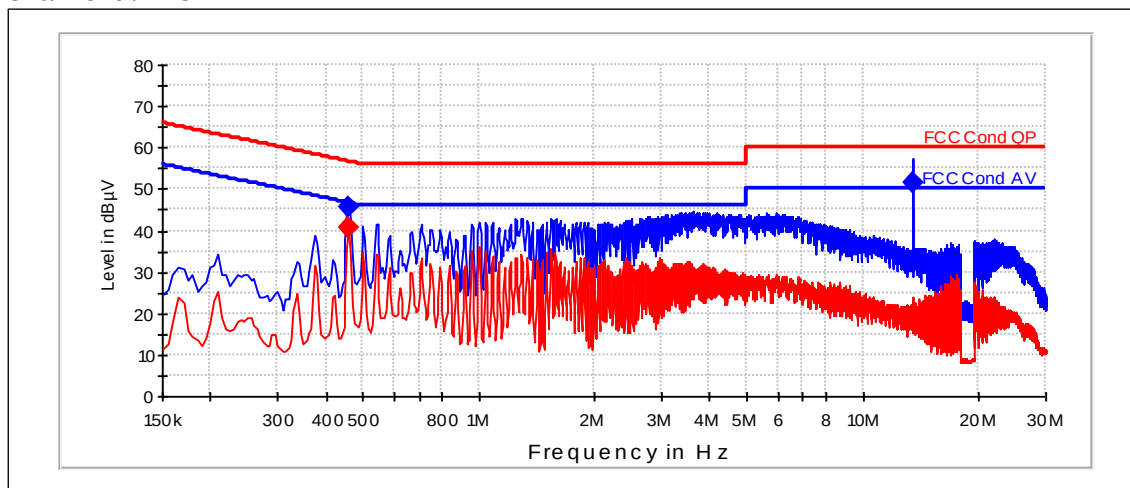
CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

4.3. WLAN Test results

4.3.1 OFDM mode, 16-QAM modulation, 24 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.46	45.65	N	PASSED
13.565	51.54	L1	PASSED

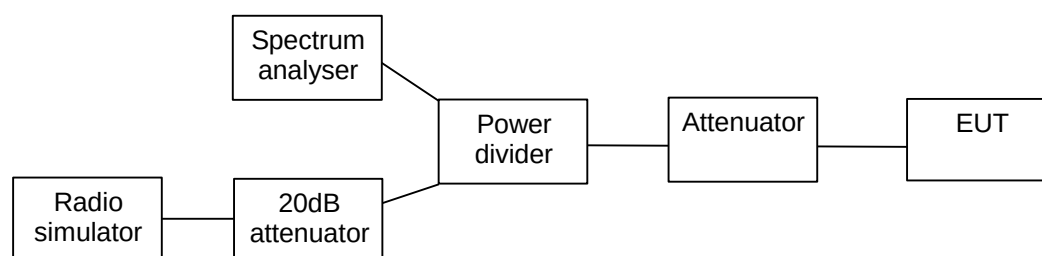
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.46	40.65	N	PASSED

5. 26 dB bandwidth

EUT with DUT number	RM-846, DUT 42913
Accessories with DUT numbers	BL-4J, DUT 42914
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20-22 / 48-52 / 99.4-101.1
Date of measurements	15.. 22-Oct-2012
Measured by	Jari Jantunen

5.1. Test Setup



5.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D01 and IC standard RSS-210.

Limits for 26 dB bandwidth measurements

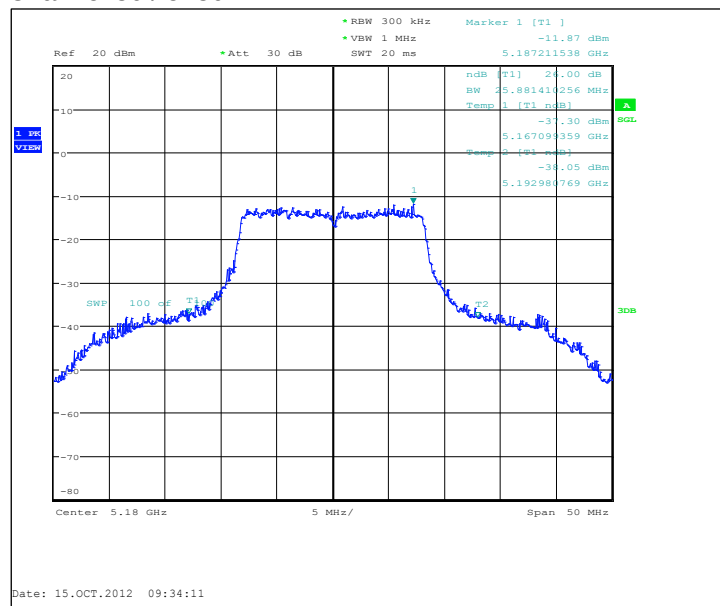
Limit [kHz]
No limit

5.3. 5 GHz RLAN Test results

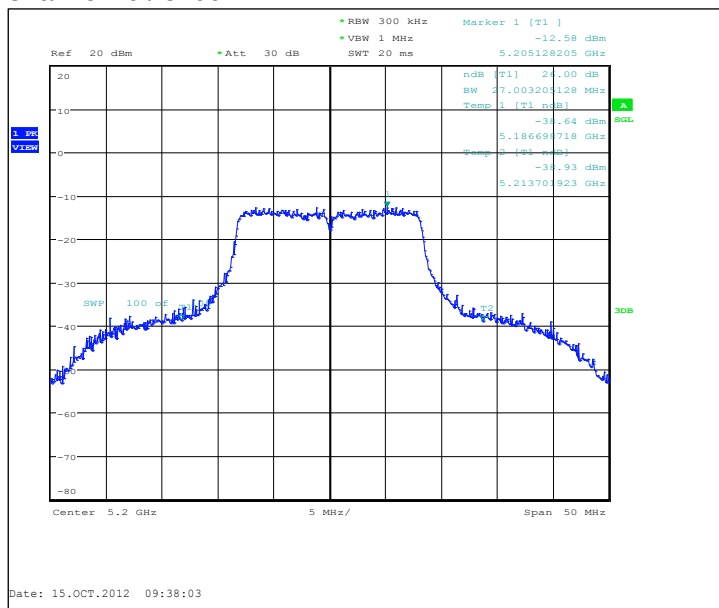
5.3.1 OFDM mode, 16-QAM modulation, 24 Mbps data rate

Channel / f _c [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180	25881.4	PASSED
40 / 5200	27003.2	PASSED
48 / 5240	24118.6	PASSED
52 / 5260	25881.4	PASSED
60 / 5300	26762.8	PASSED
64 / 5320	26442.3	PASSED
100 / 5500	24359	PASSED
116 / 5580	26041.7	PASSED
140 / 5700	25721.2	PASSED

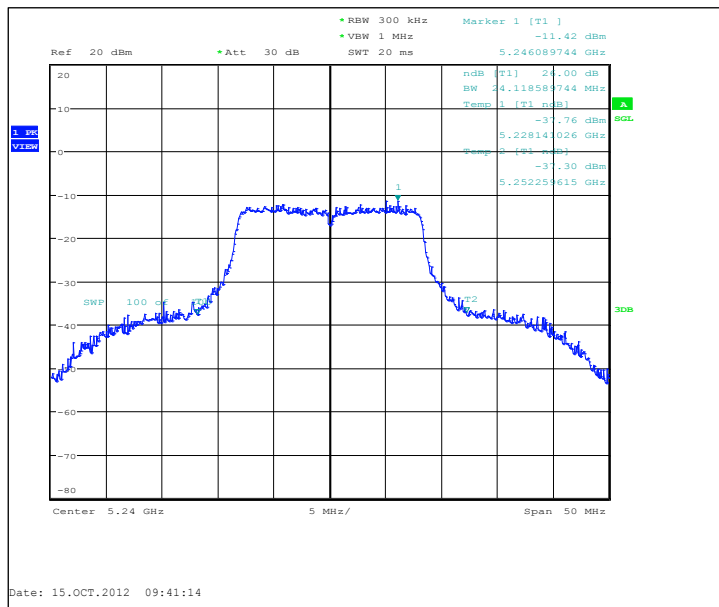
Channel 36 / 5180MHz



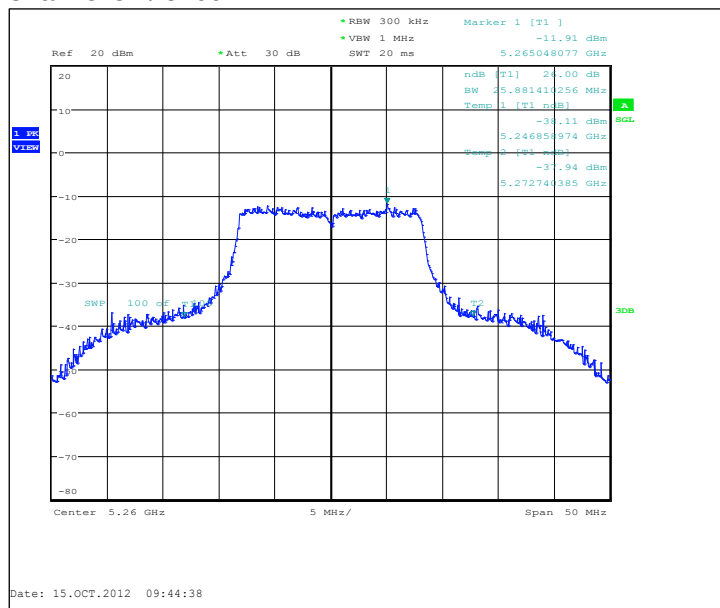
Channel 40 / 5200MHz



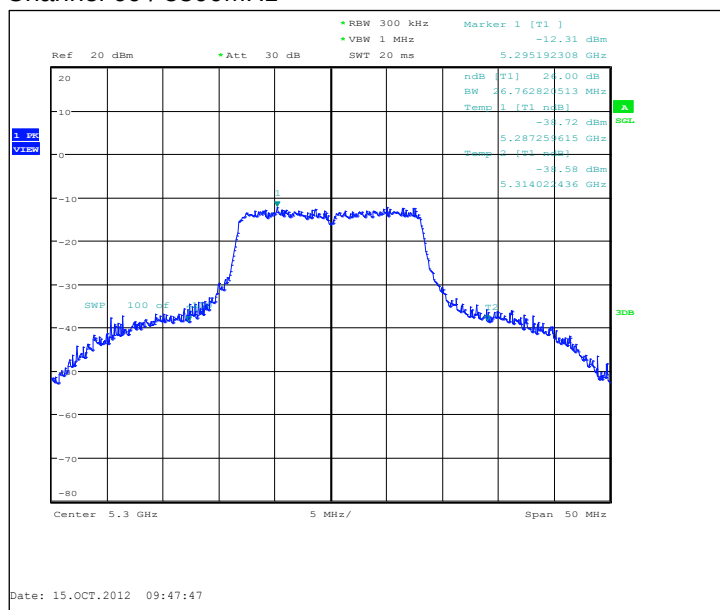
Channel 48 / 5240MHz



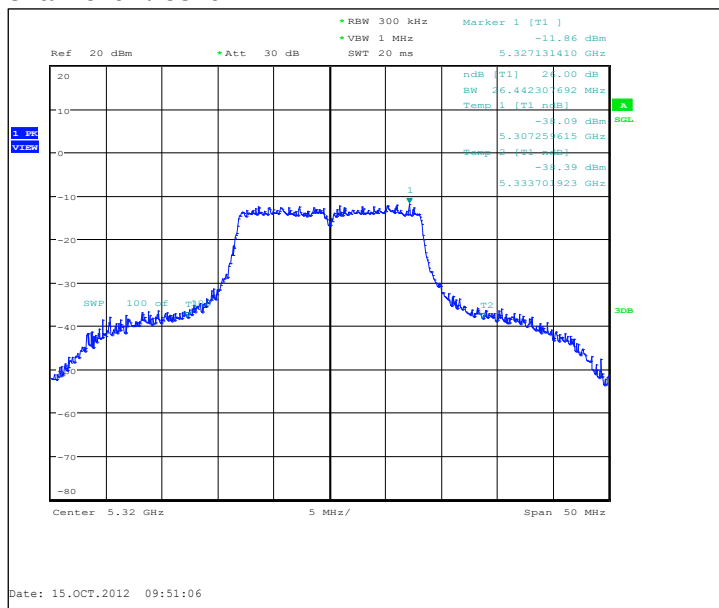
Channel 52 / 5260MHz



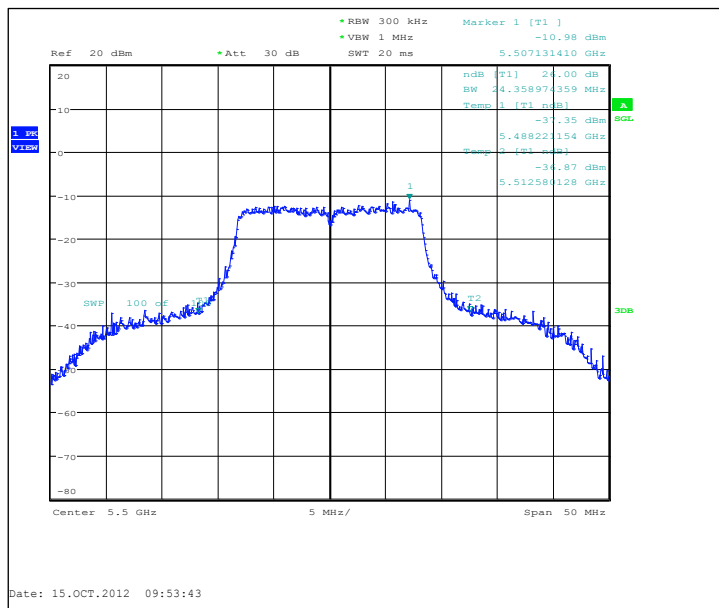
Channel 60 / 5300MHz



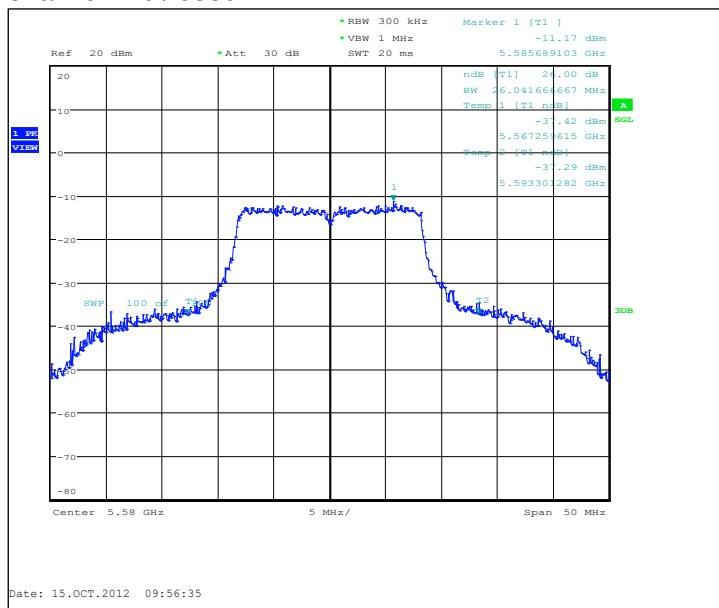
Channel 64 / 5320MHz



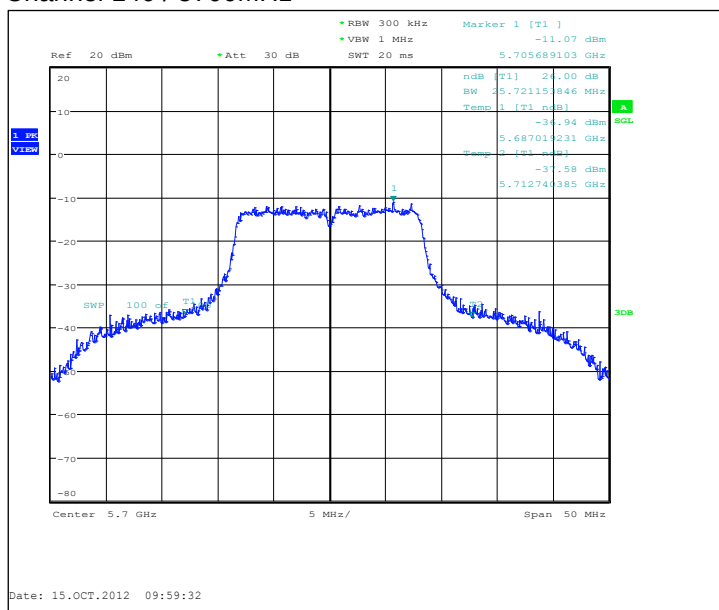
Channel 100 / 5500MHz



Channel 116 / 5580MHz



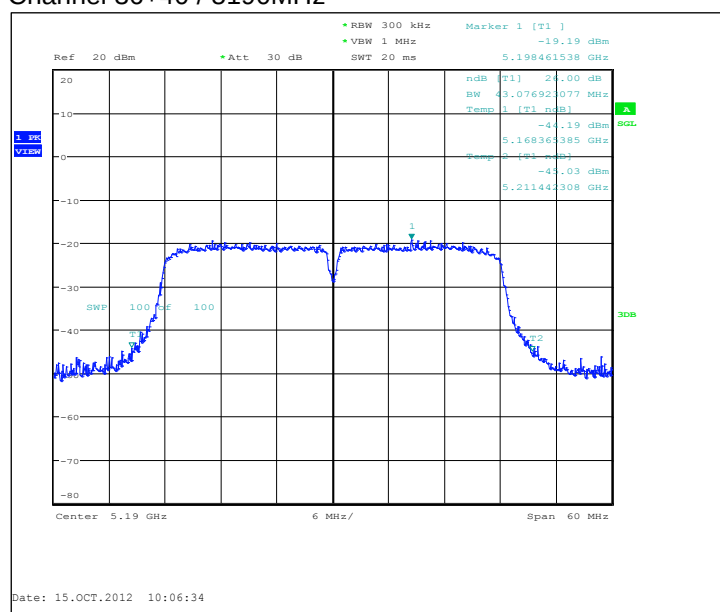
Channel 140 / 5700MHz



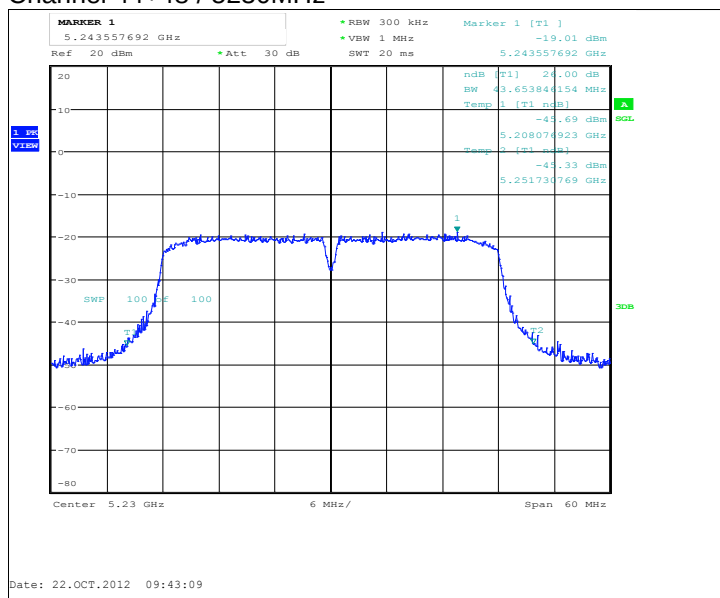
5.3.2 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _c [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190	43076.9	PASSED
44+48 / 5230	43653.8	PASSED
52+56 / 5270	42211.5	PASSED
60+64 / 5310	43076.9	PASSED
100+104 / 5510	42500	PASSED
108+112 / 5550	43653.8	PASSED
132+136 / 5670	42884.6	PASSED

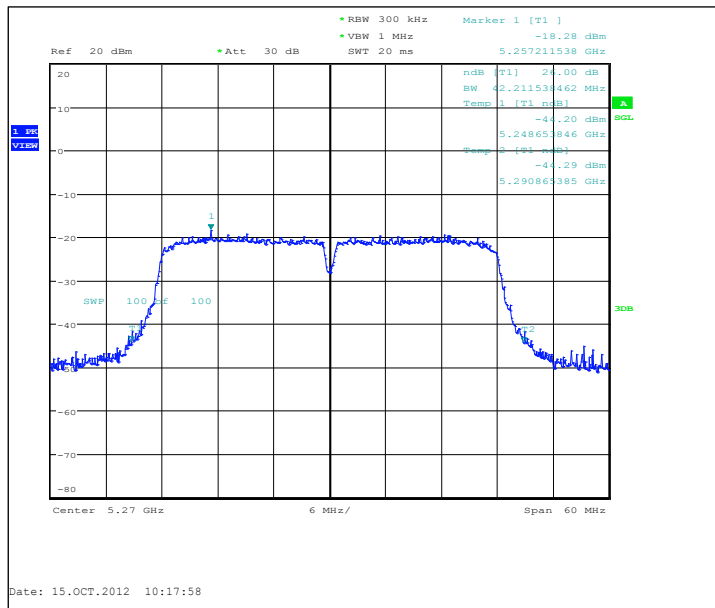
Channel 36+40 / 5190MHz



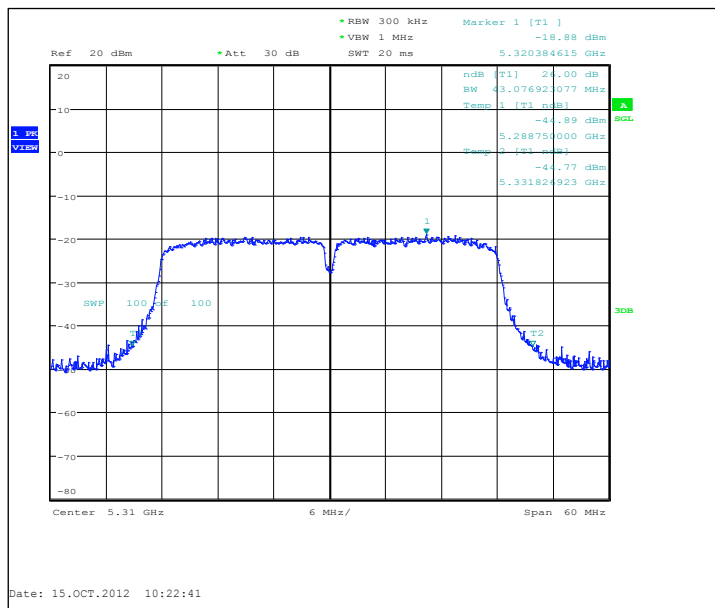
Channel 44+48 / 5230MHz



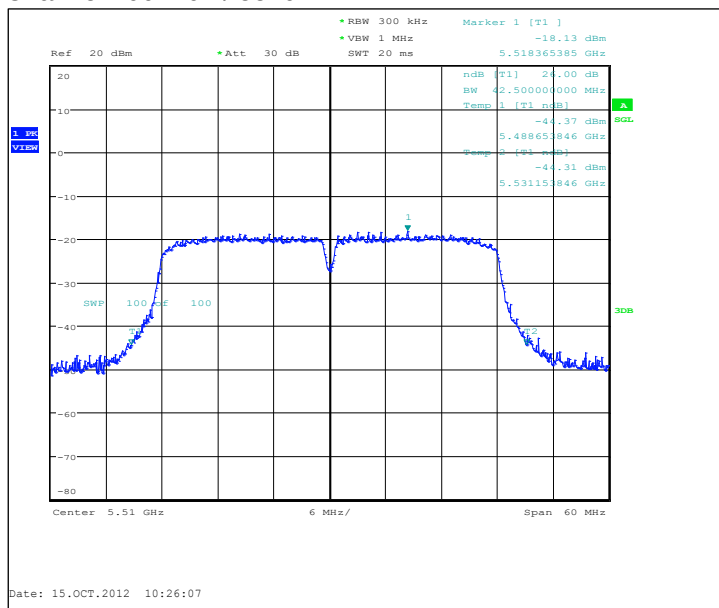
Channel 52+56 / 5270MHz



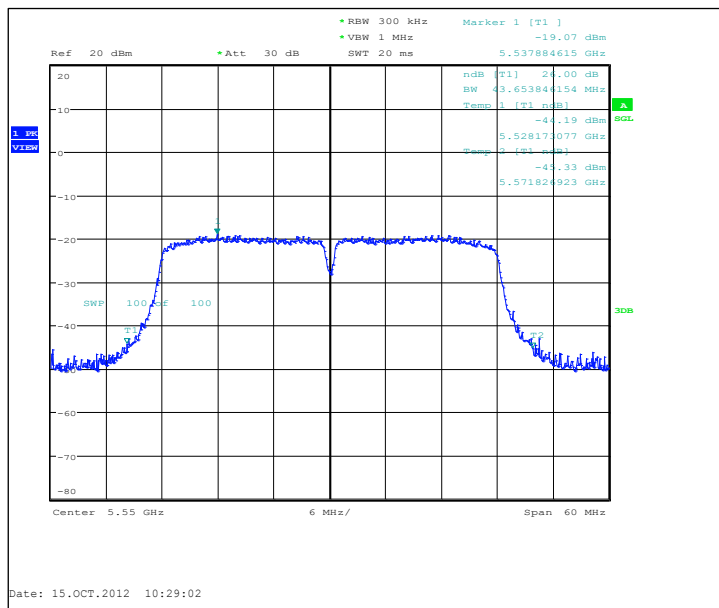
Channel 60+64 / 5310MHz



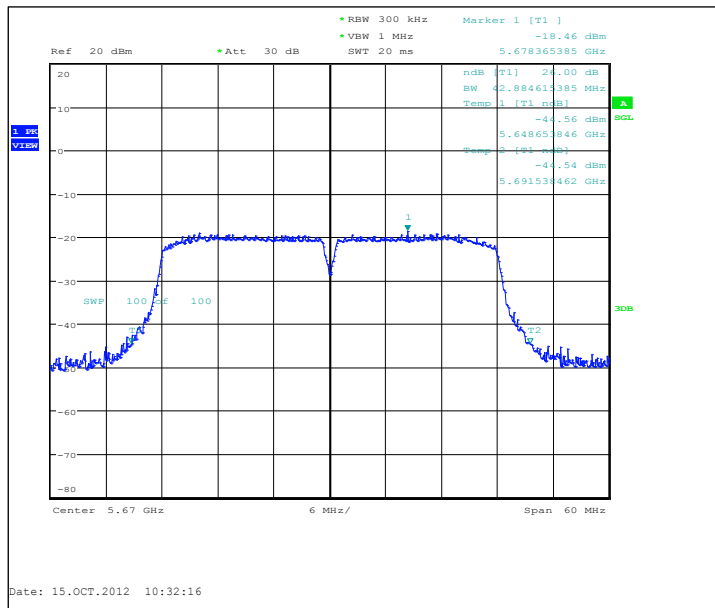
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



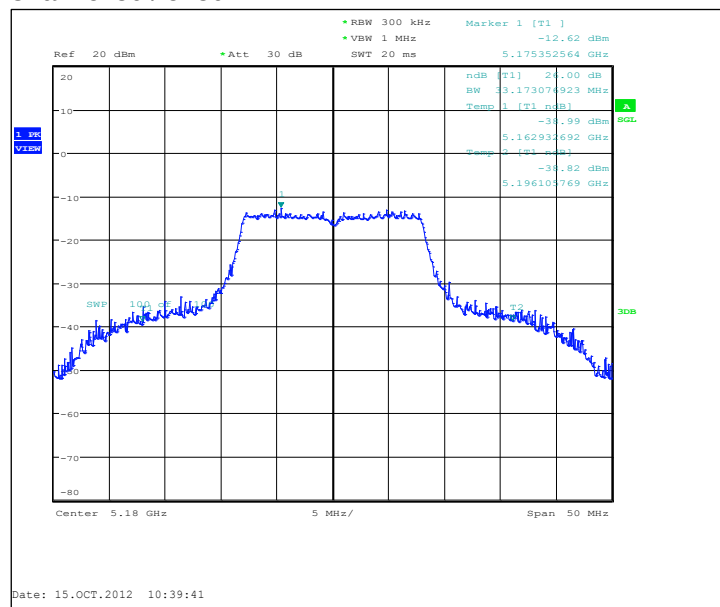
Channel 132+136 / 5670MHz



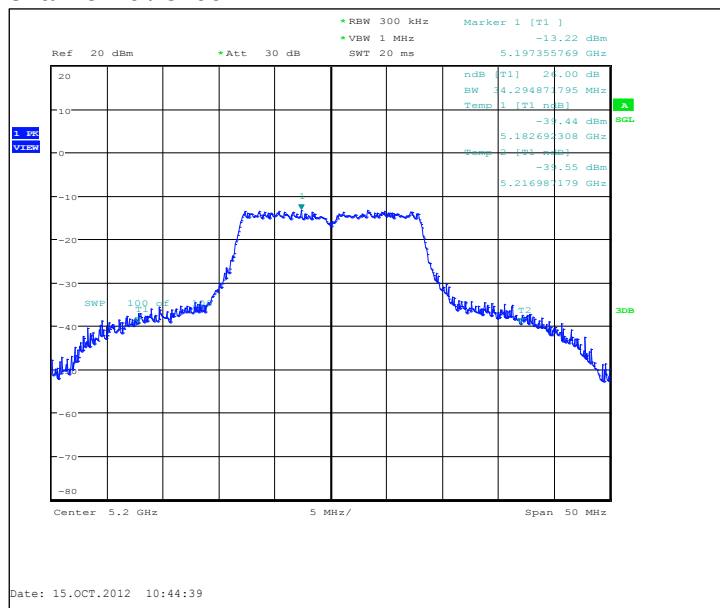
5.3.3 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f_c [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180	33173.1	PASSED
40 / 5200	34294.9	PASSED
48 / 5240	33974.4	PASSED
52 / 5260	34455.1	PASSED
60 / 5300	33573.7	PASSED
64 / 5320	34054.5	PASSED
100 / 5500	32772.4	PASSED
116 / 5580	35977.6	PASSED
140 / 5700	34535.3	PASSED

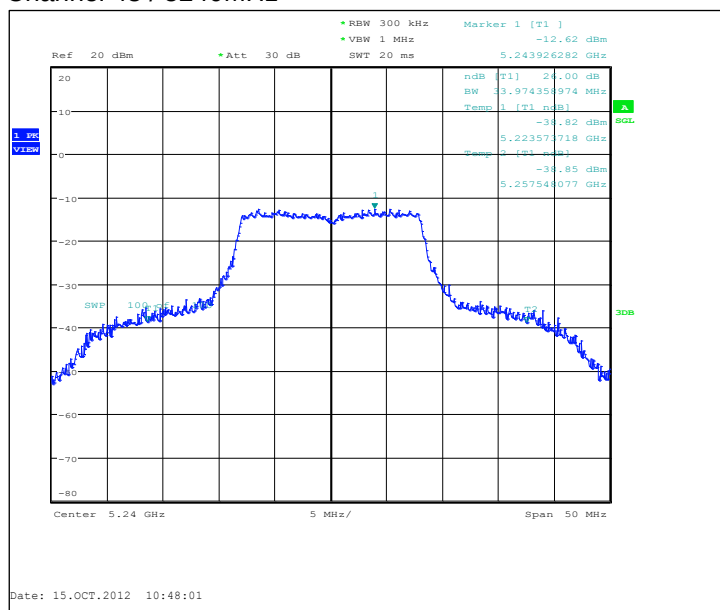
Channel 36 / 5180MHz



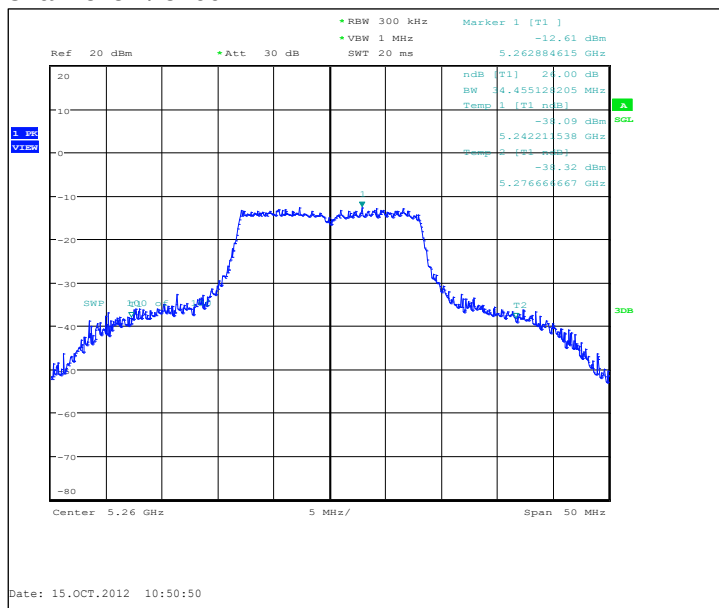
Channel 40 / 5200MHz



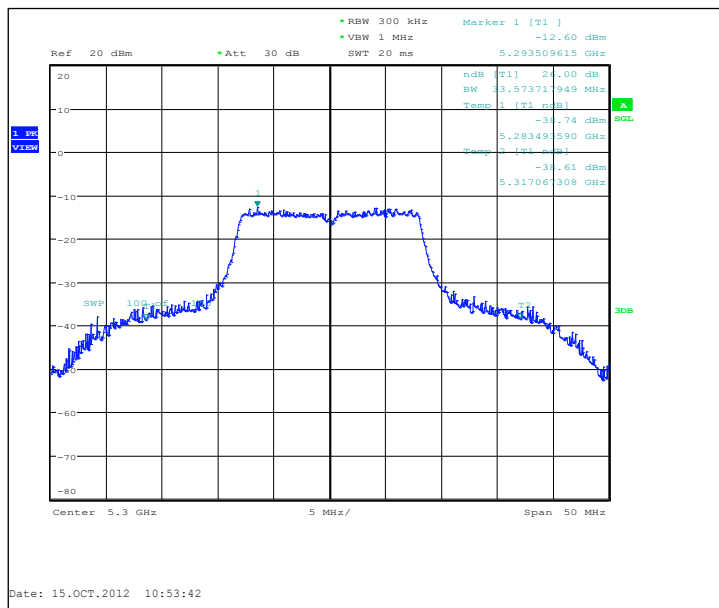
Channel 48 / 5240MHz



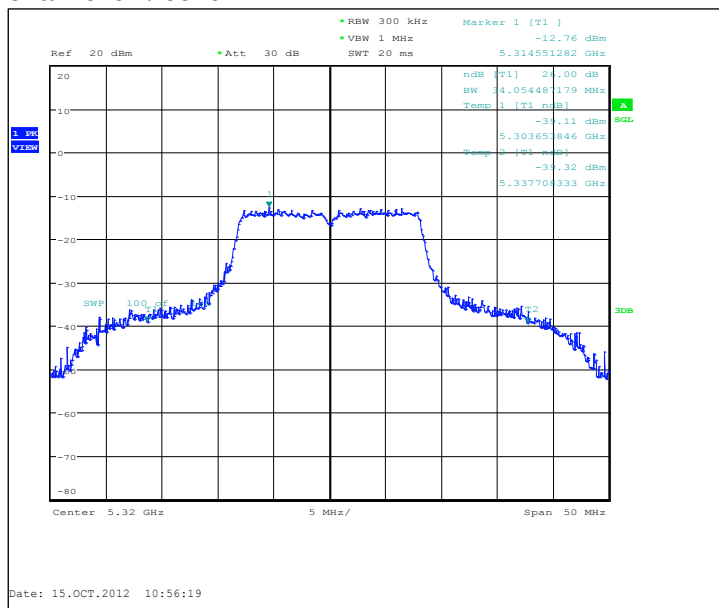
Channel 52 / 5260MHz



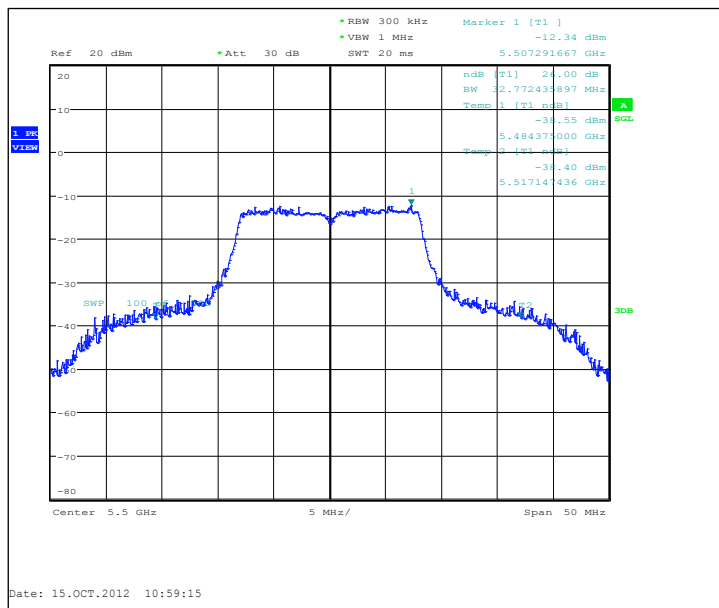
Channel 60 / 5300MHz



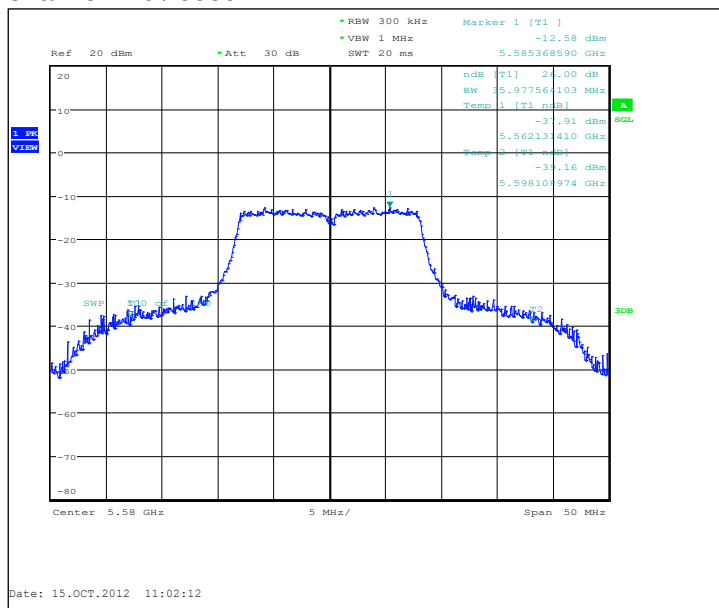
Channel 64 / 5320MHz



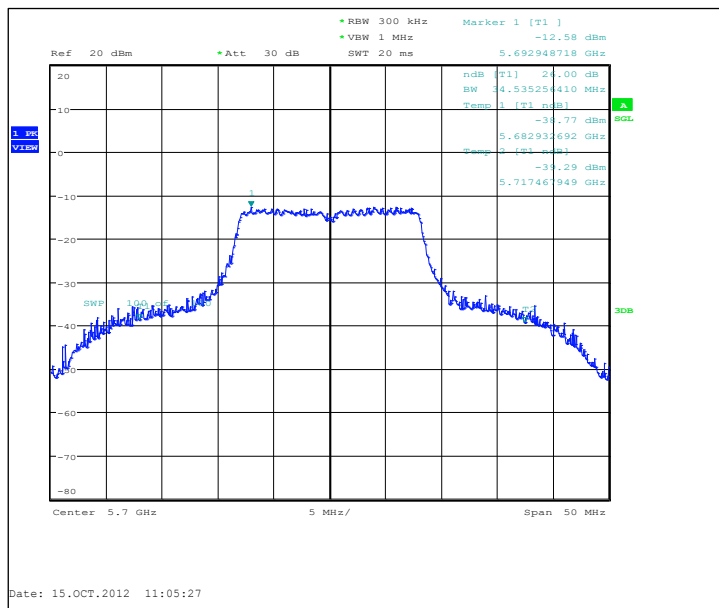
Channel 100 / 5500MHz



Channel 116 / 5580MHz



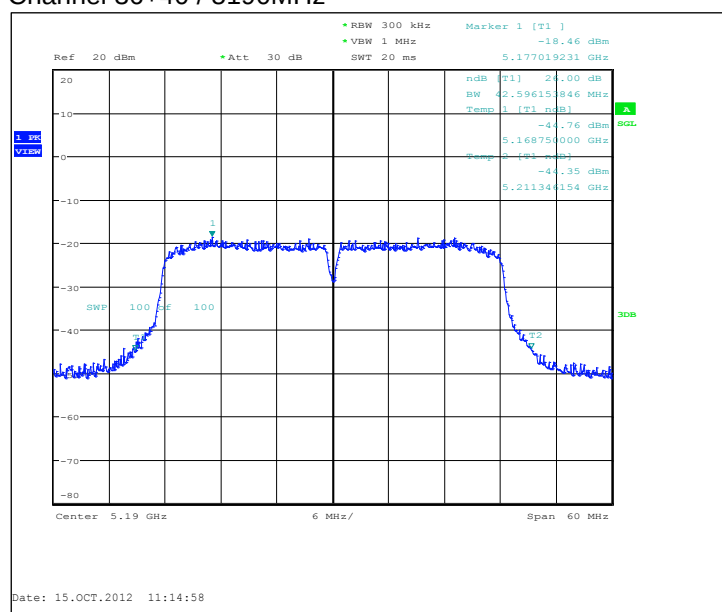
Channel 140 / 5700MHz



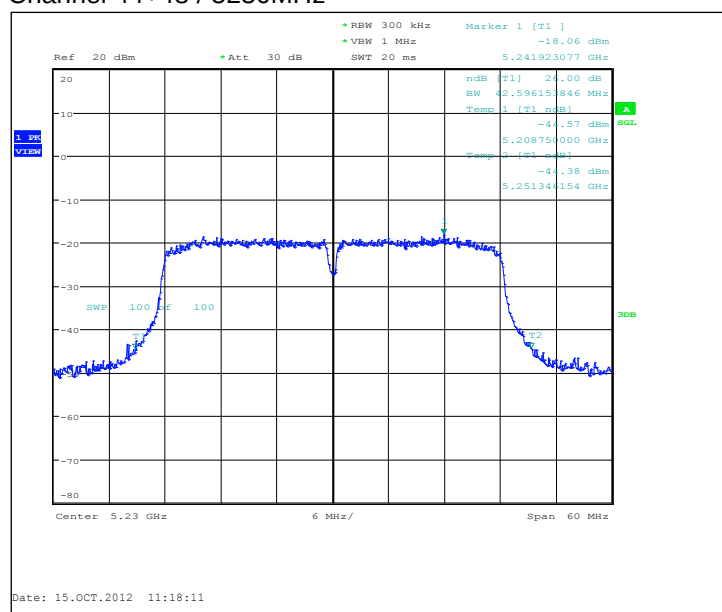
5.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f _c [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190	42596.2	PASSED
44+48 / 5230	42596.2	PASSED
52+56 / 5270	42500	PASSED
60+64 / 5310	41634.6	PASSED
100+104 / 5510	42307.7	PASSED
108+112 / 5550	41923.1	PASSED
132+136 / 5670	42211.5	PASSED

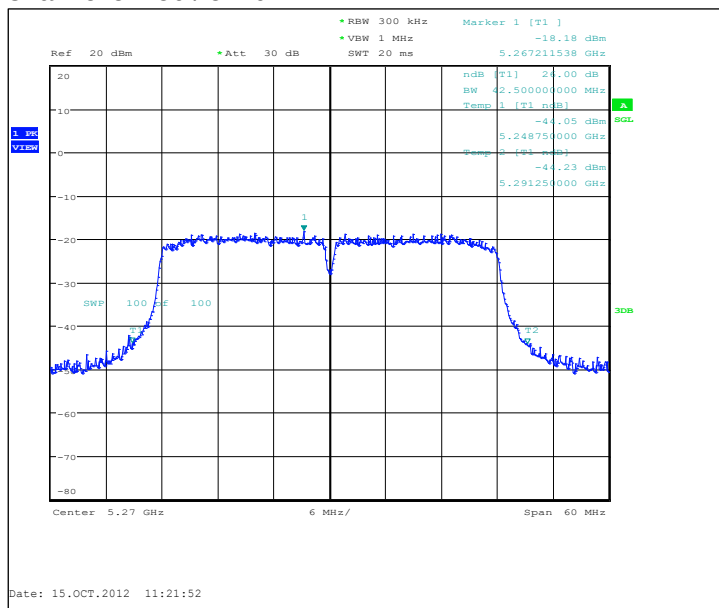
Channel 36+40 / 5190MHz



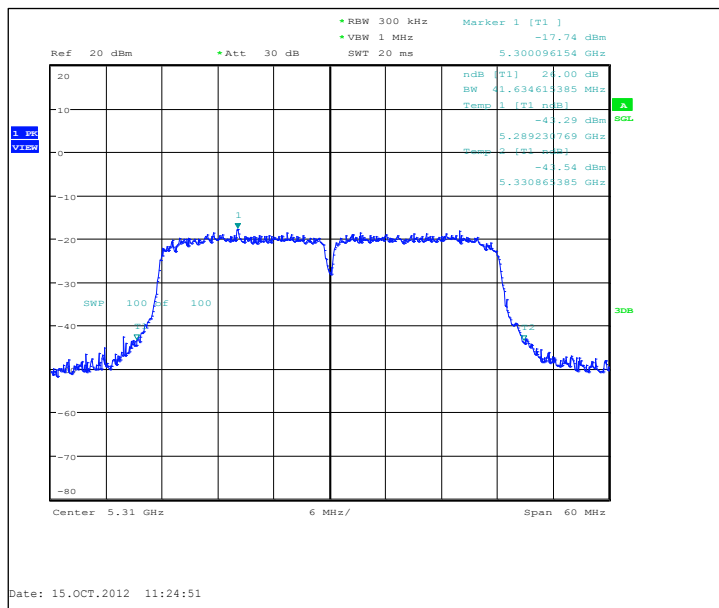
Channel 44+48 / 5230MHz



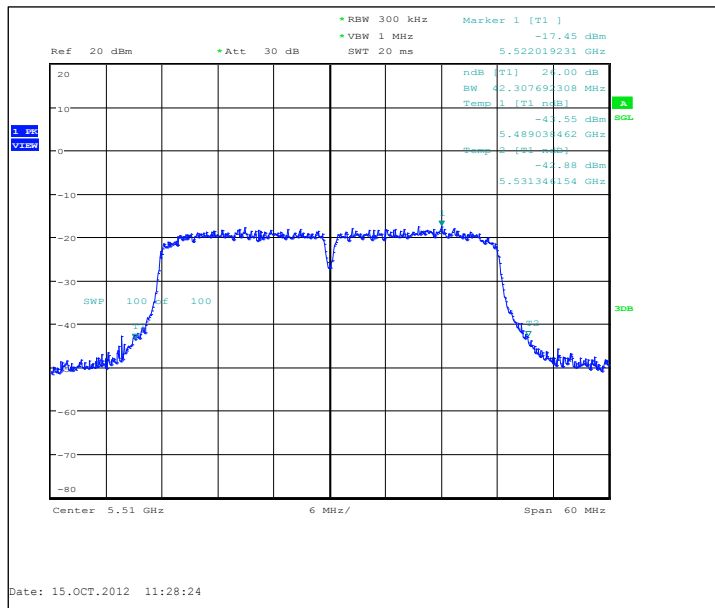
Channel 52+56 / 5270MHz



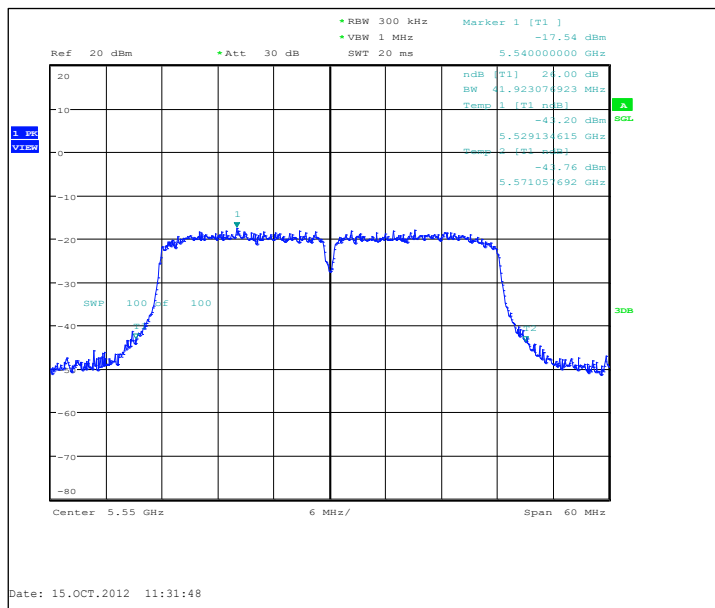
Channel 60+64 / 5310MHz



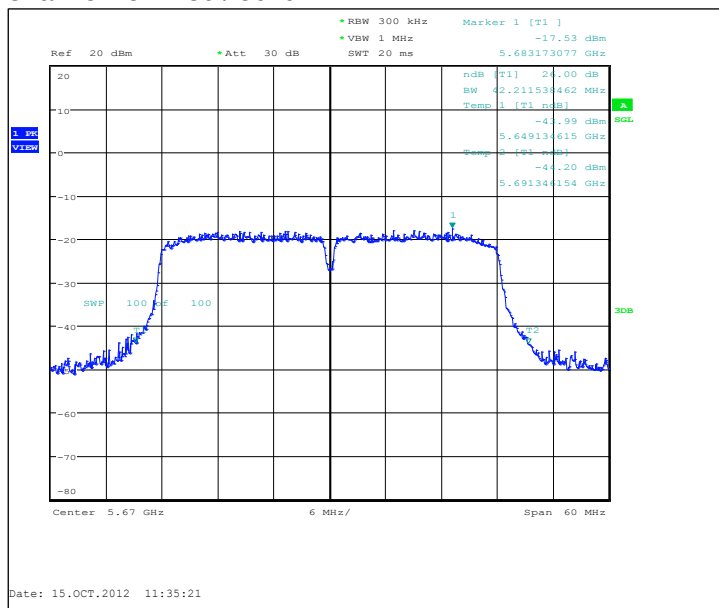
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



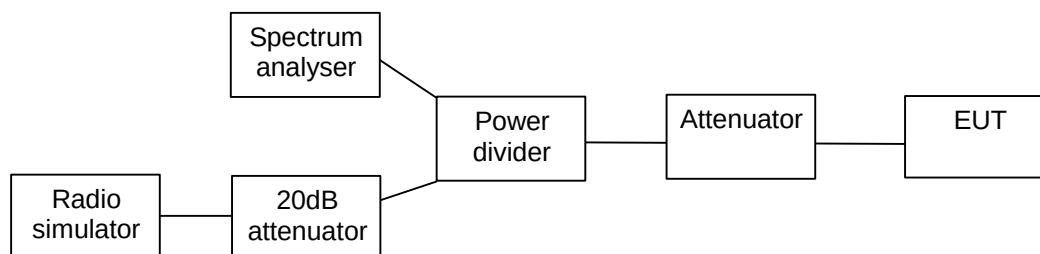
Channel 132+136 / 5670MHz



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

EUT with DUT number	RM-846, DUT 42913
Accessories with DUT numbers	BL-4J, DUT 42914
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 50 / 99.4
Date of measurements	15-Oct-2012
Measured by	Jari Jantunen

6.1. Test Setup



6.2. Test method and limit

The measurement is made according to Public Notice KDB 789033 D01 and IC standard RSS-210.

Limits for power spectral density measurements

Frequency range [MHz]	Limit [dBm]
5150-5250	4
5250-5350	11
5470-5725	11
5725-5825	17

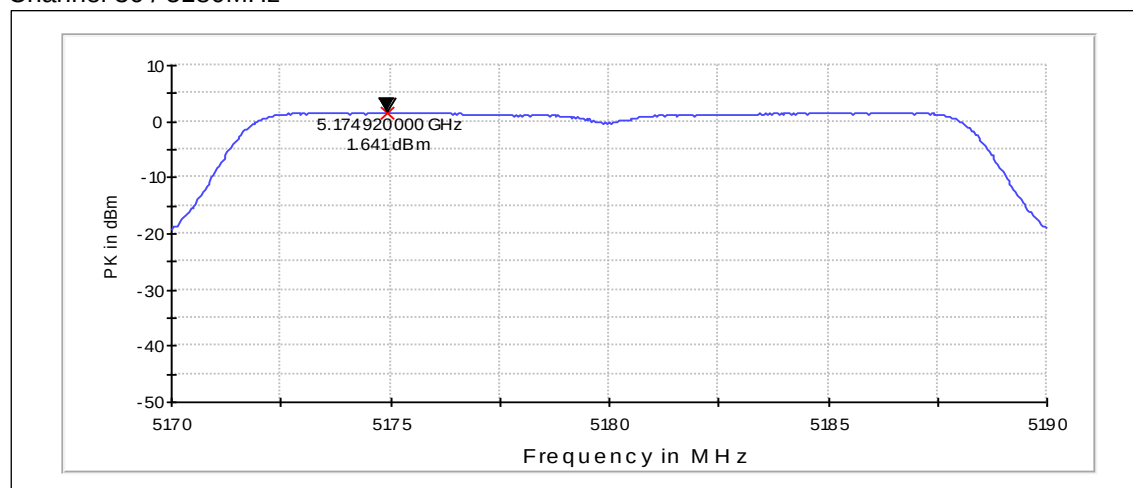
6.3. 5 GHz RLAN Test results

6.3.1 OFDM mode, 16-QAM modulation, 24 Mbps data rate

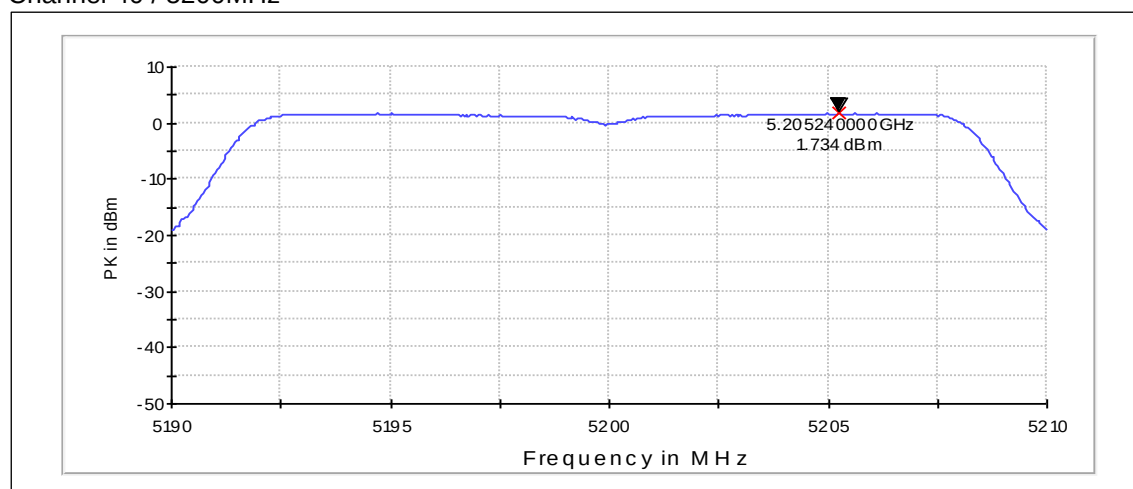
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f_c [MHz]	P [dBm]	Result
36 / 5180	1.64	PASSED
40 / 5200	1.73	PASSED
48 / 5240	1.86	PASSED
52 / 5260	1.86	PASSED
60 / 5300	1.83	PASSED
64 / 5320	1.92	PASSED
100 / 5500	2.19	PASSED
116 / 5580	2.36	PASSED
140 / 5700	2.34	PASSED

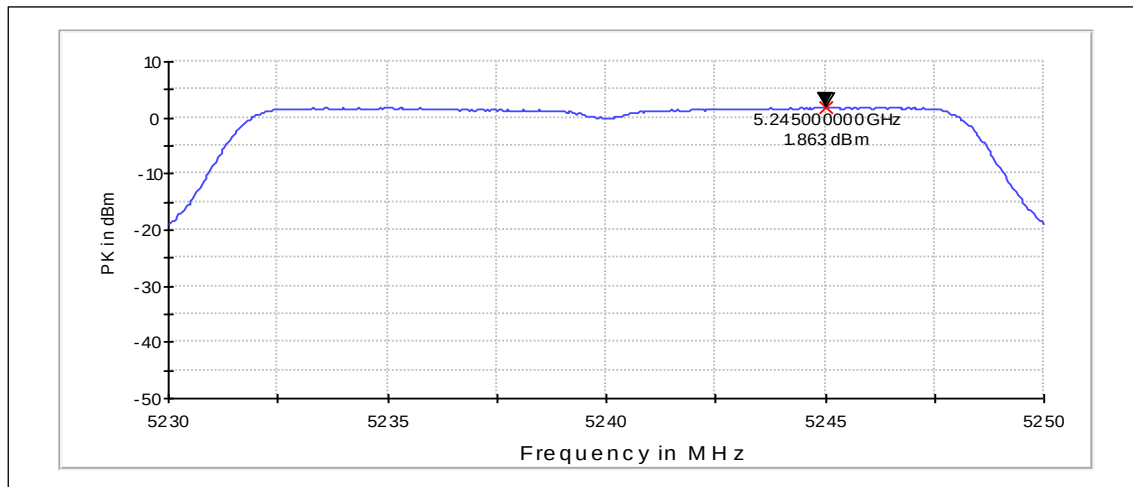
Channel 36 / 5180MHz



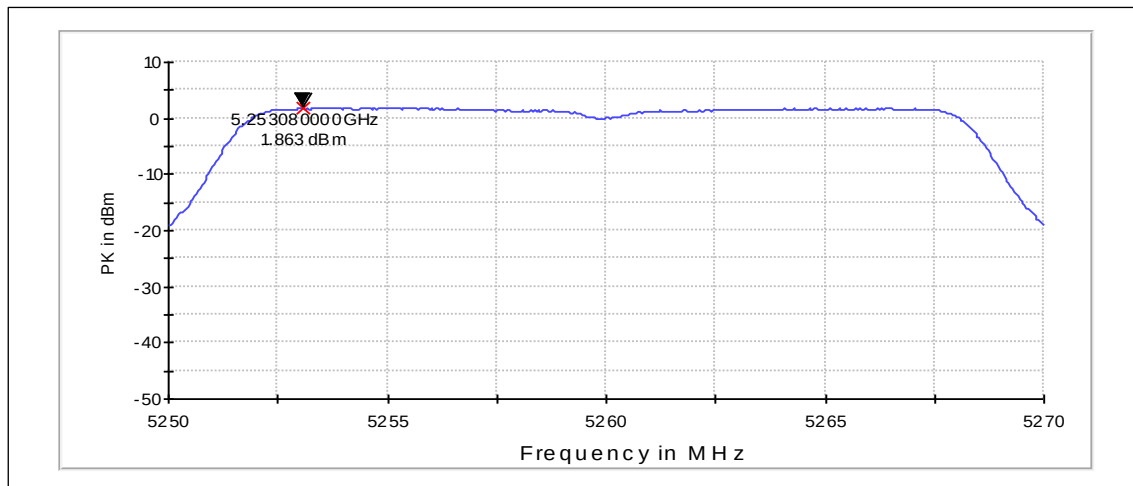
Channel 40 / 5200MHz



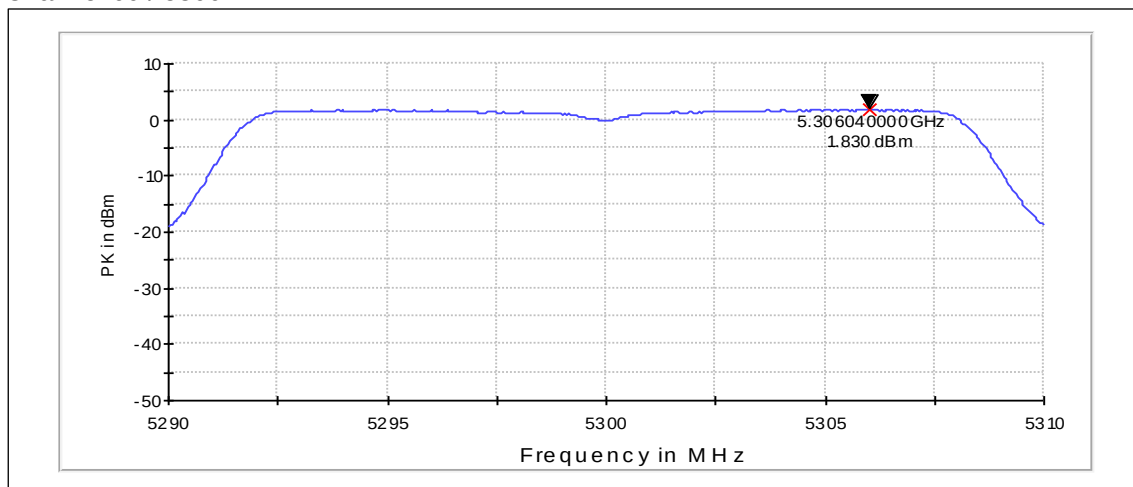
Channel 48 / 5240MHz



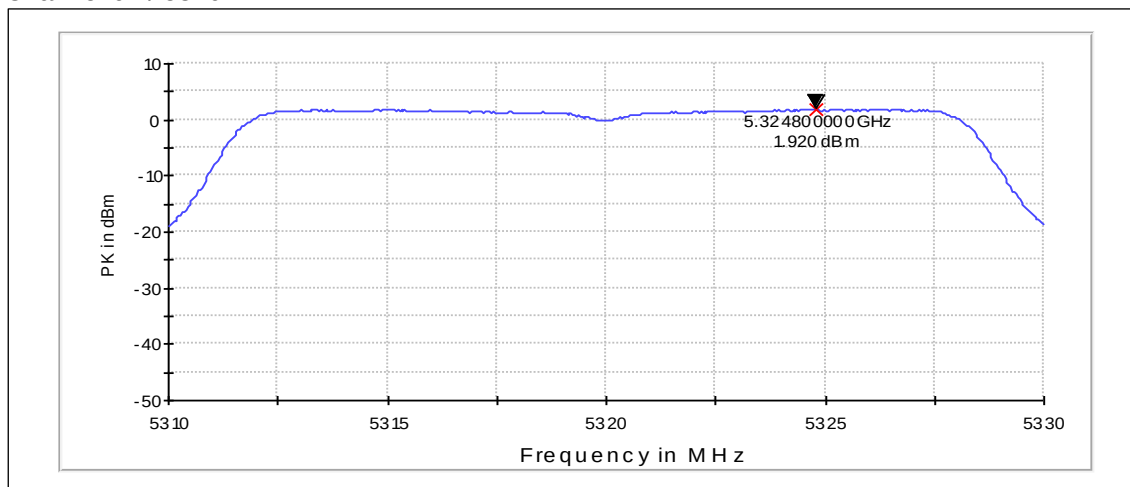
Channel 52 / 5260MHz



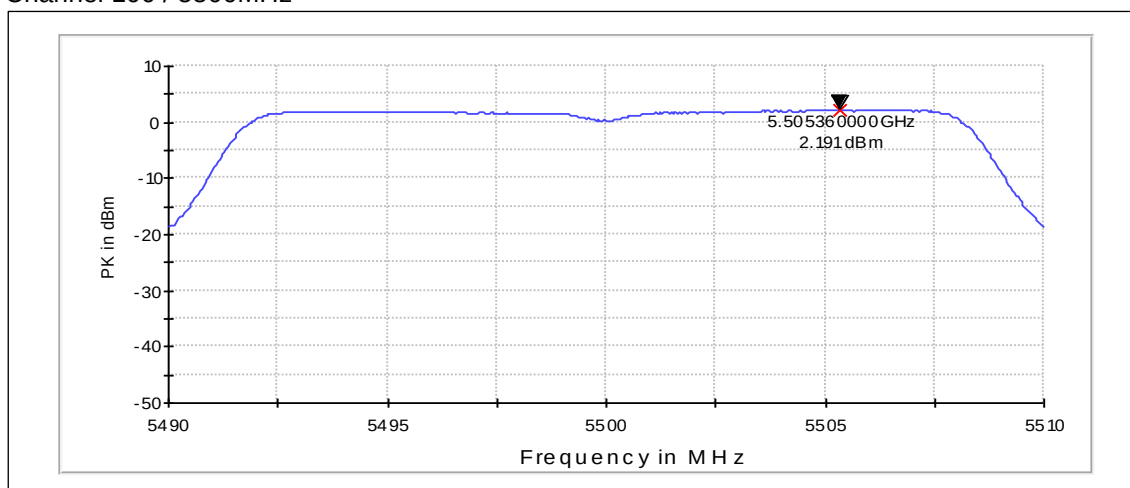
Channel 60 / 5300MHz



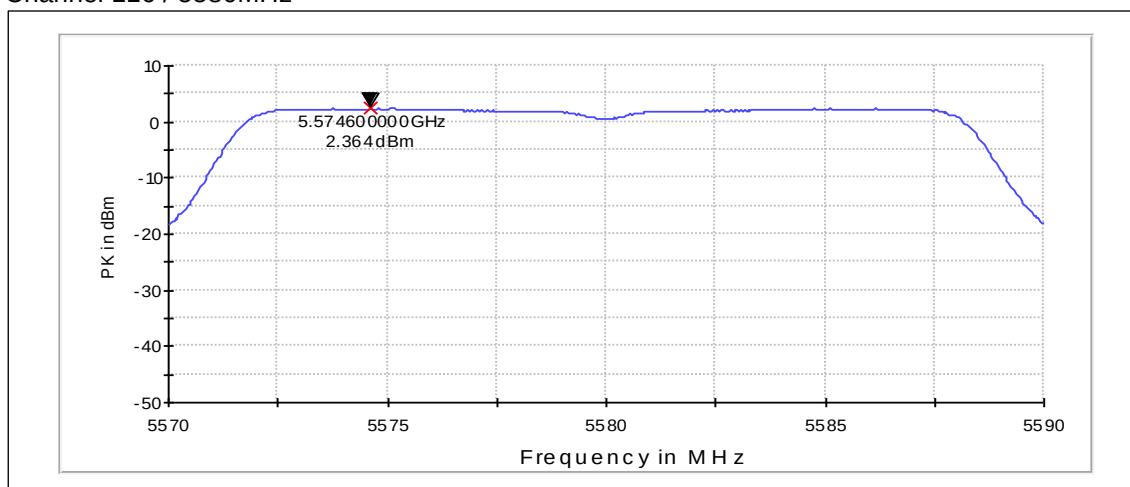
Channel 64 / 5320MHz



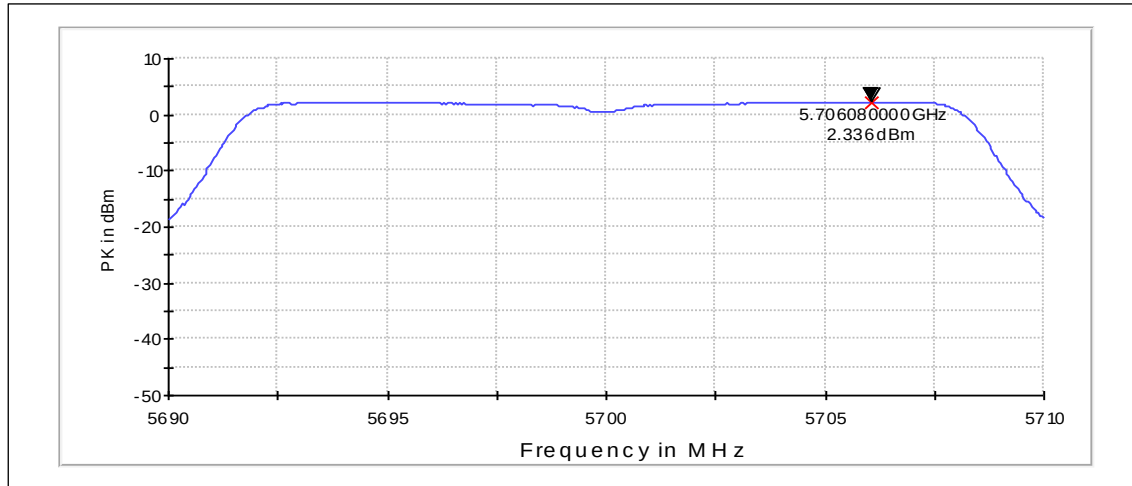
Channel 100 / 5500MHz



Channel 116 / 5580MHz



Channel 140 / 5700MHz

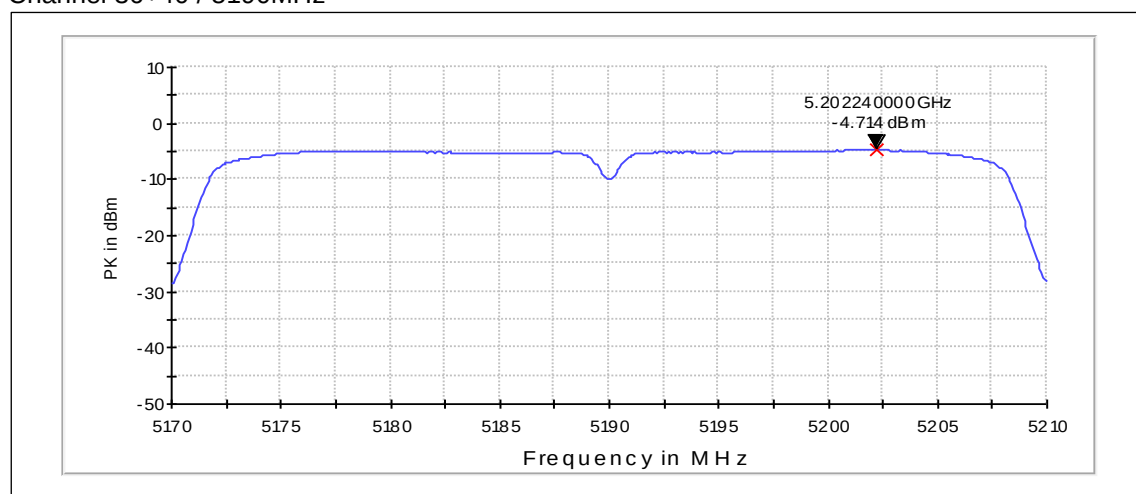


6.3.2 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

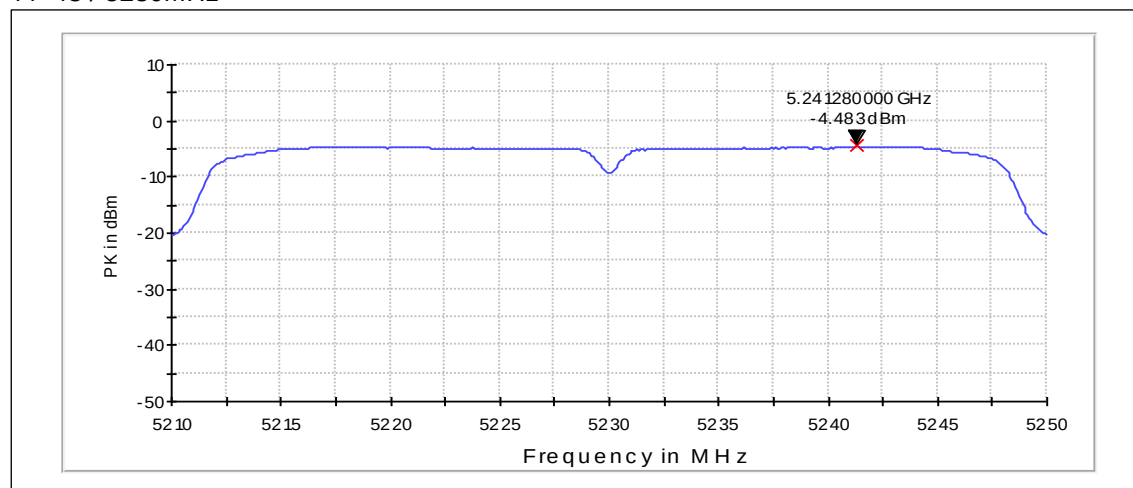
Channel / f_c [MHz]	P [dBm]	Result
36+40 / 5190	-4.71	PASSED
44+48 / 5230	-4.48	PASSED
52+56 / 5270	-4.46	PASSED
60+64 / 5310	-4.39	PASSED
100+104 / 5510	-3.81	PASSED
108+112 / 5550	-3.8	PASSED
132+136 / 5670	-3.92	PASSED

Channel 36+40 / 5190MHz

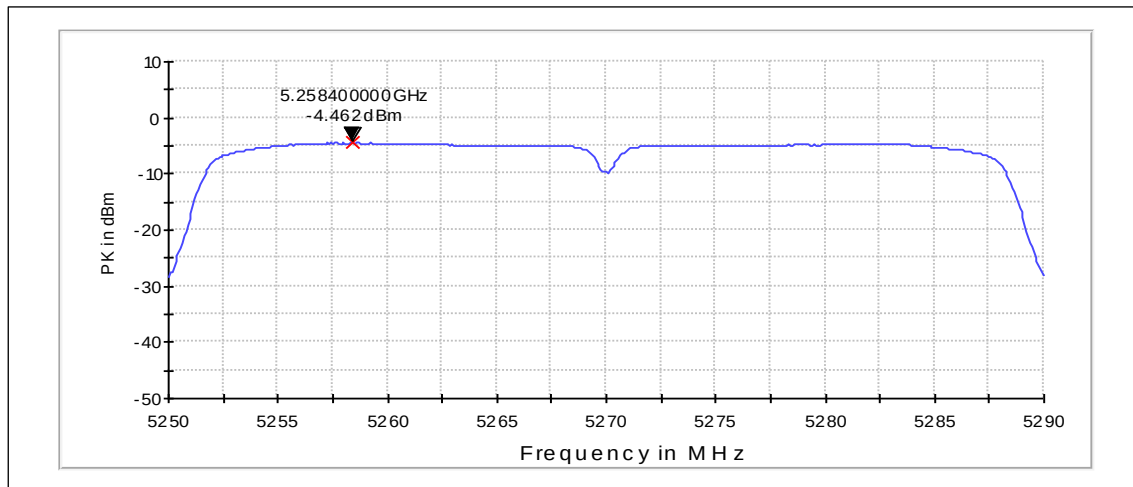


Channel

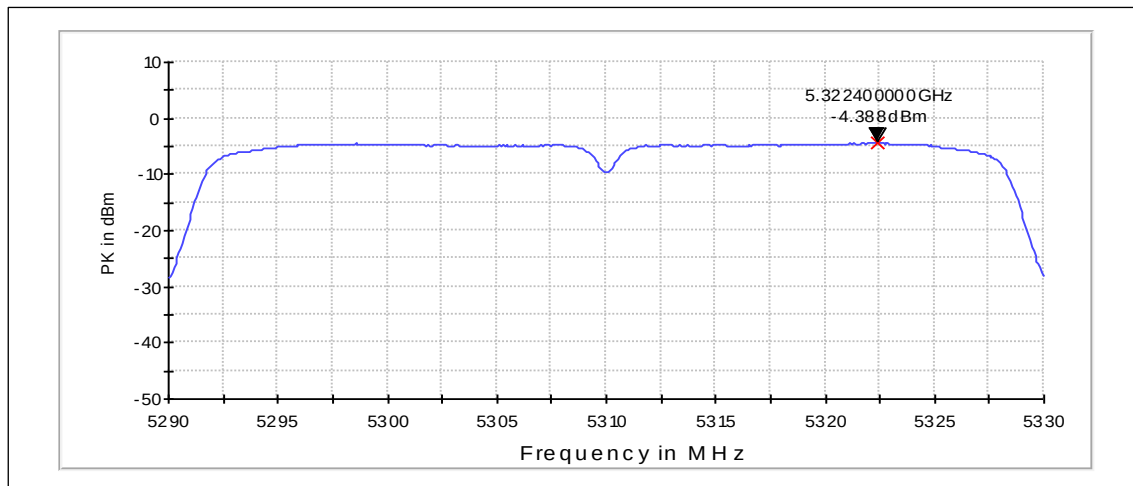
44+48 / 5230MHz



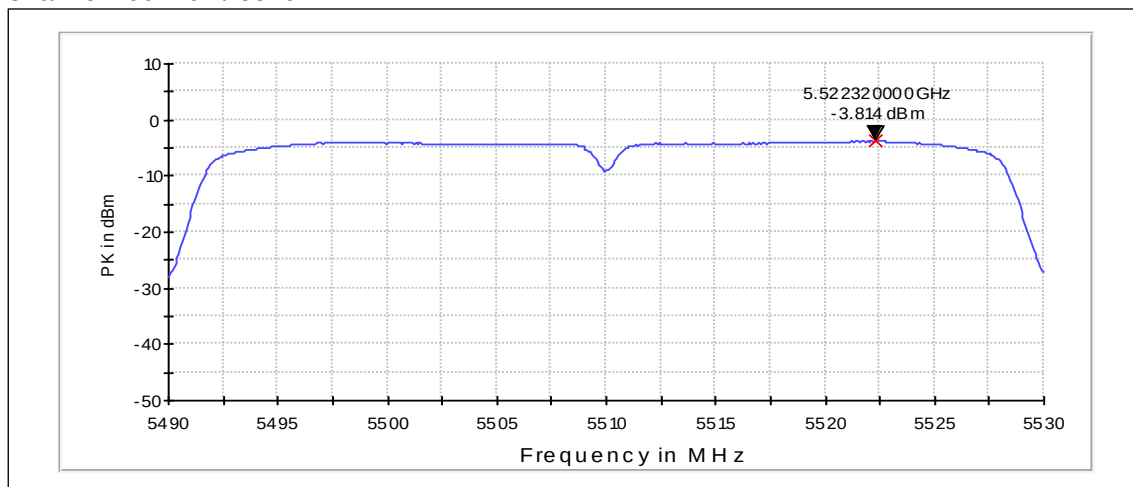
Channel 52+56 / 5270MHz



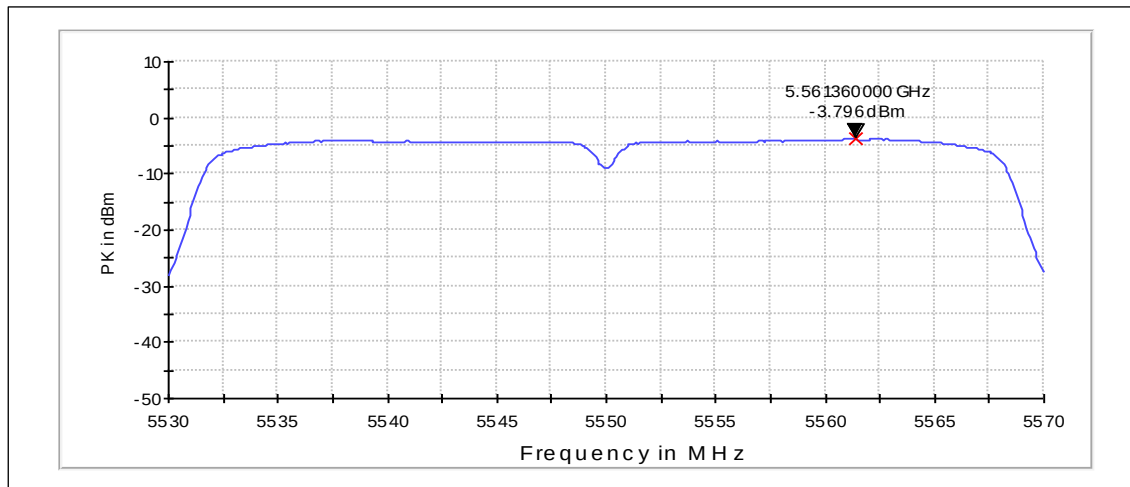
Channel 60+64 / 5310MHz



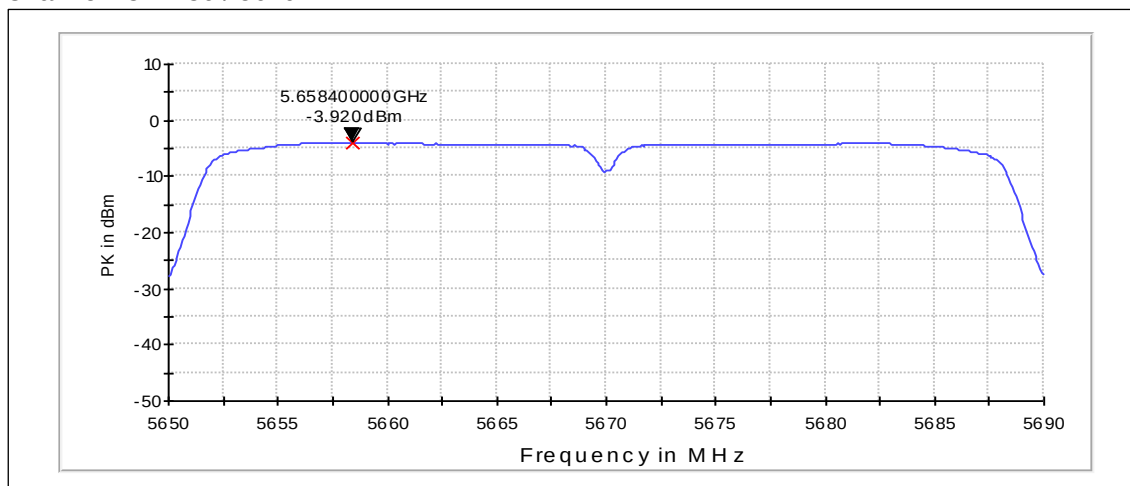
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



Channel 132+136 / 5670MHz

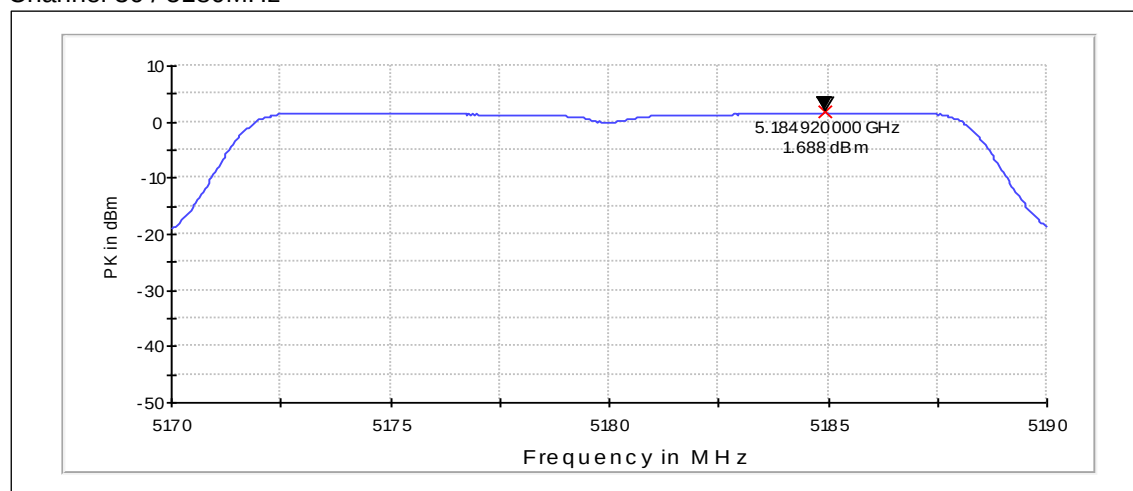


6.3.3 OFDM mode, BPSK modulation, 9 Mbps data rate

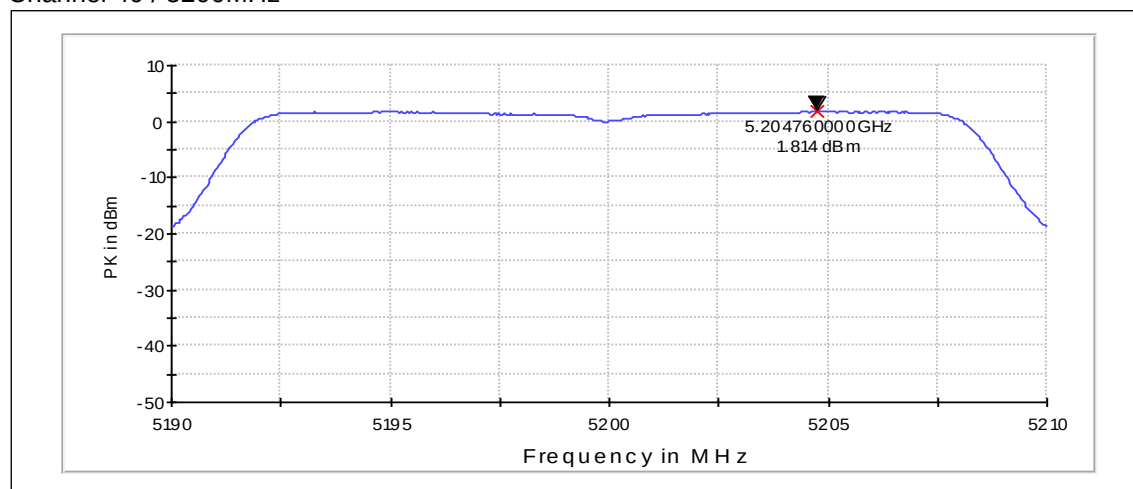
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f_c [MHz]	P [dBm]	Result
36 / 5180	1.69	PASSED
40 / 5200	1.81	PASSED
48 / 5240	1.97	PASSED
52 / 5260	1.95	PASSED
60 / 5300	1.91	PASSED
64 / 5320	2.01	PASSED
100 / 5500	2.3	PASSED
116 / 5580	2.41	PASSED
140 / 5700	2.44	PASSED

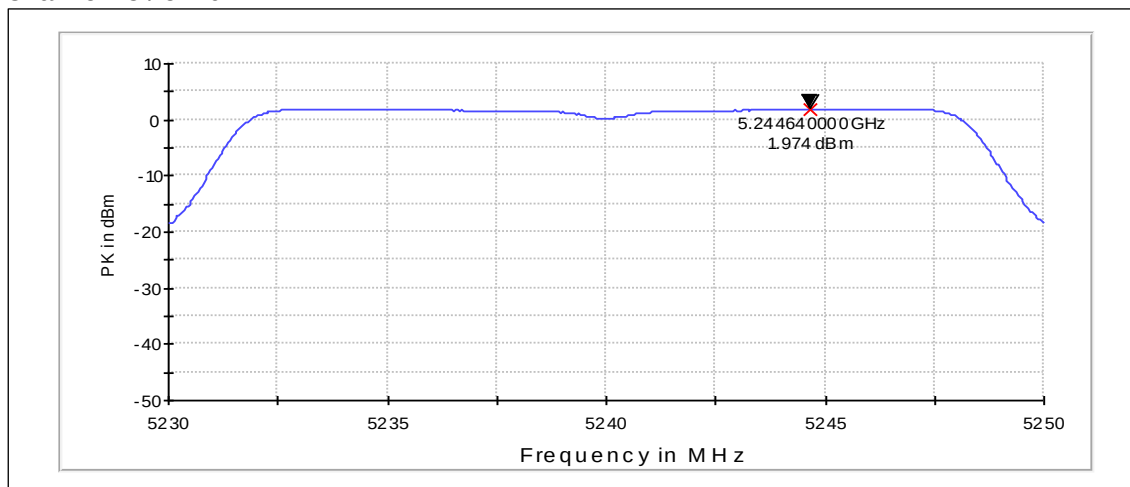
Channel 36 / 5180MHz



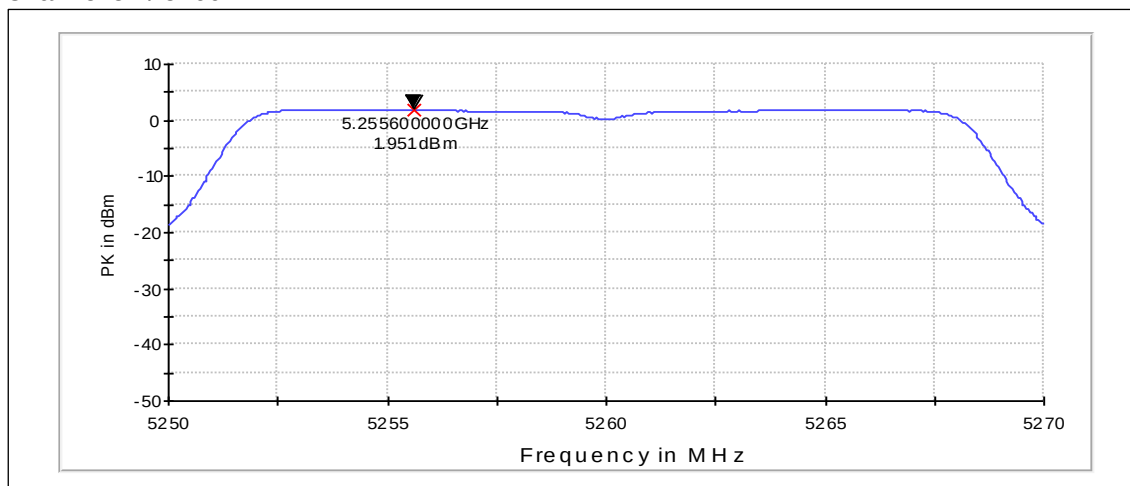
Channel 40 / 5200MHz



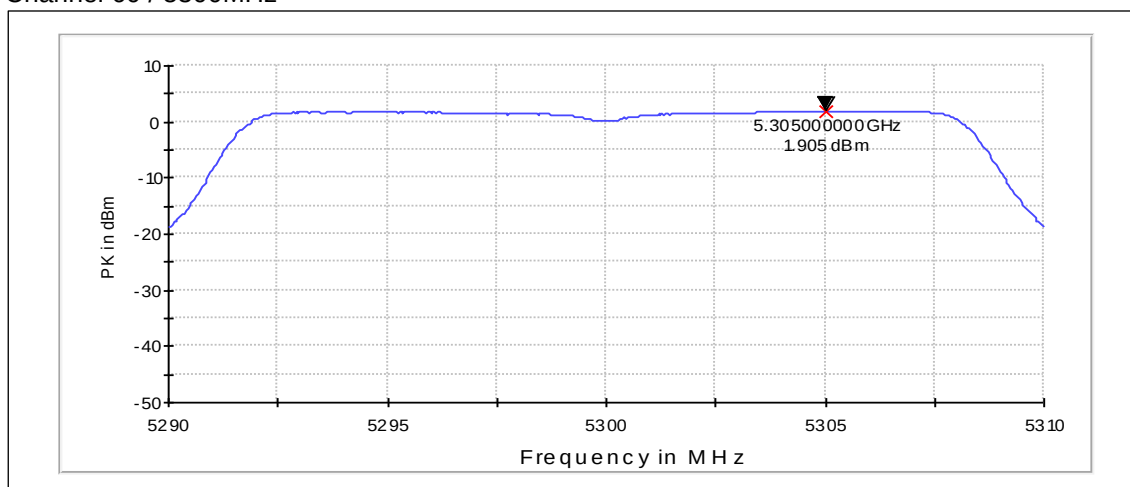
Channel 48 / 5240MHz



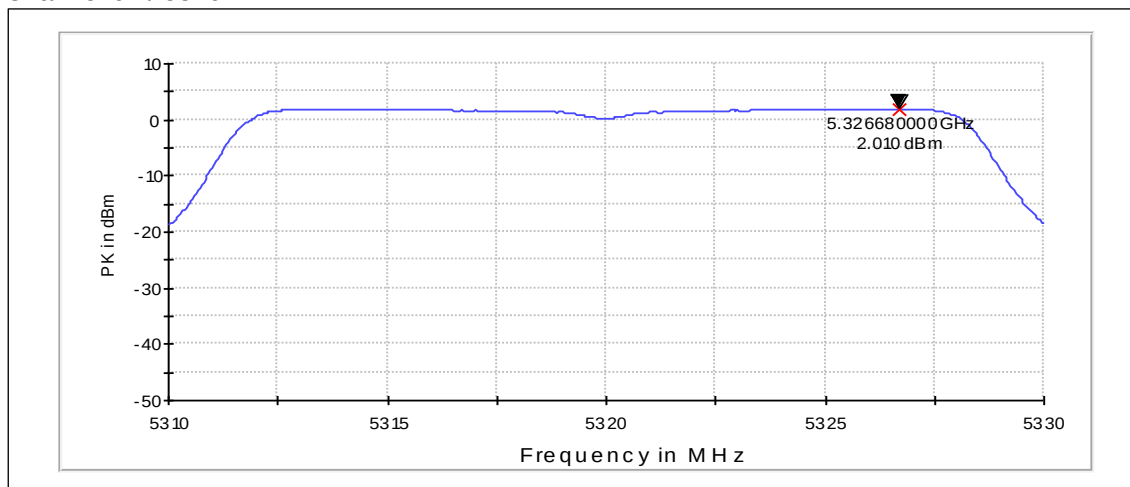
Channel 52 / 5260MHz



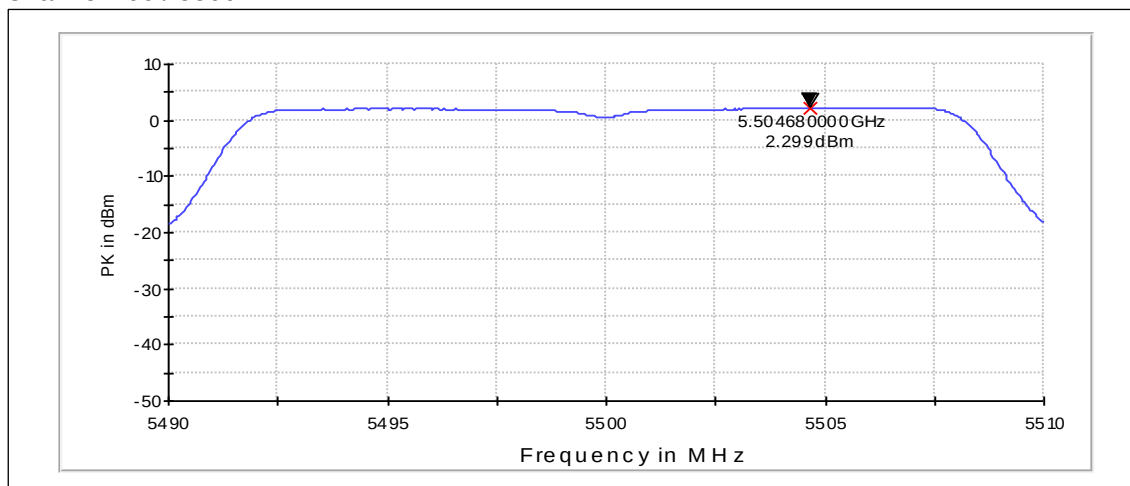
Channel 60 / 5300MHz



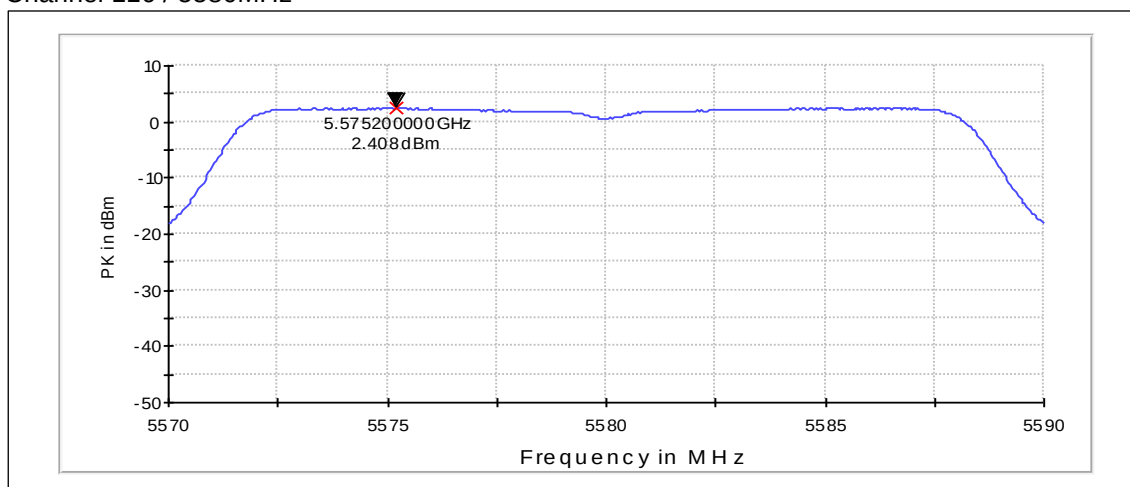
Channel 64 / 5320MHz



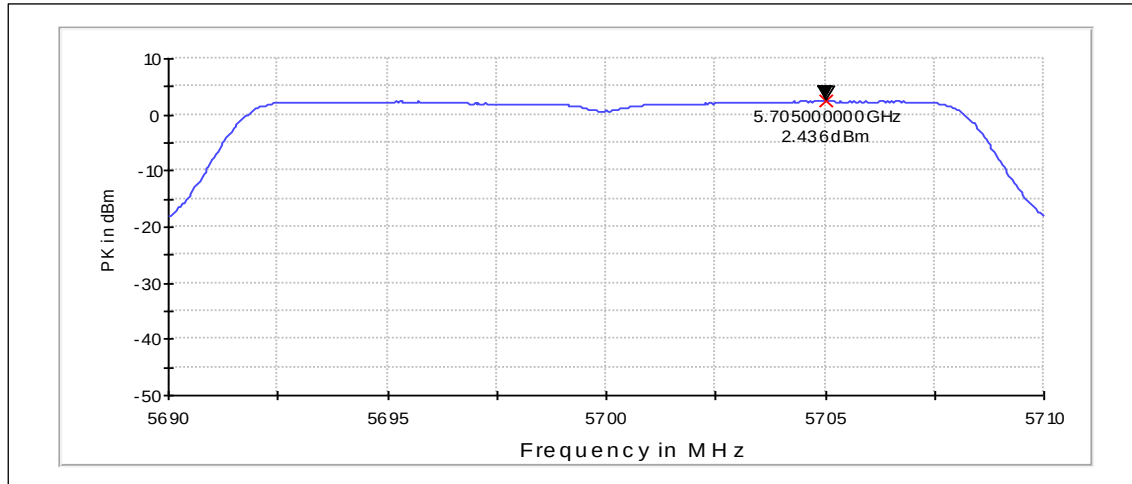
Channel 100 / 5500MHz



Channel 116 / 5580MHz



Channel 140 / 5700MHz

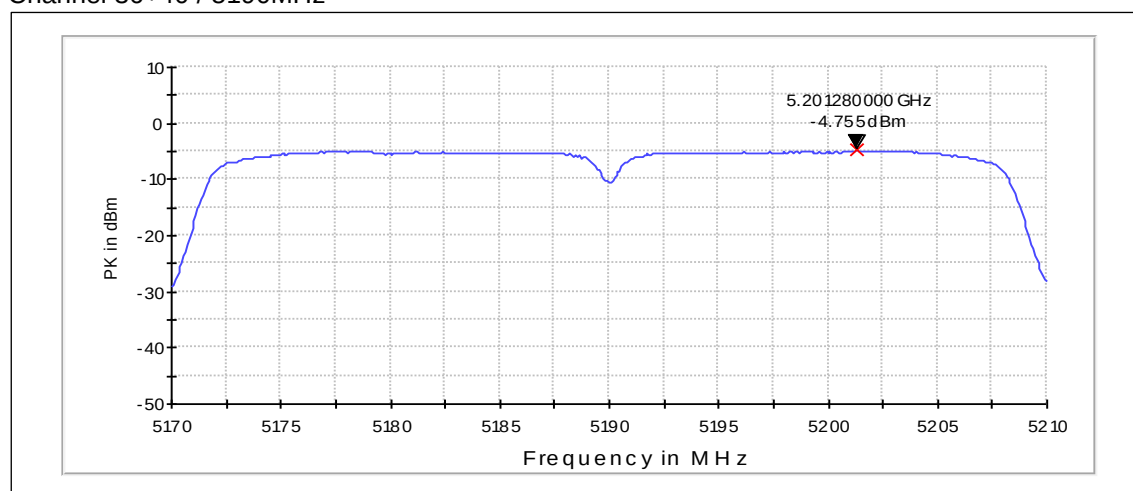


6.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

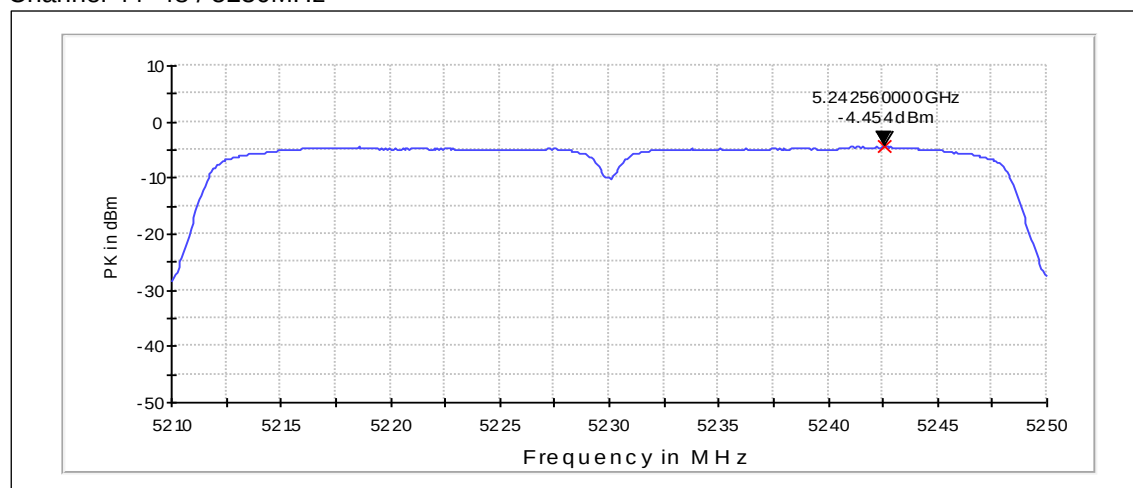
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f_c [MHz]	P [dBm]	Result
36+40 / 5190	-4.75	PASSED
44+48 / 5230	-4.45	PASSED
52+56 / 5270	-4.42	PASSED
60+64 / 5310	-4.43	PASSED
100+104 / 5510	-3.74	PASSED
108+112 / 5550	-3.71	PASSED
132+136 / 5670	-3.76	PASSED

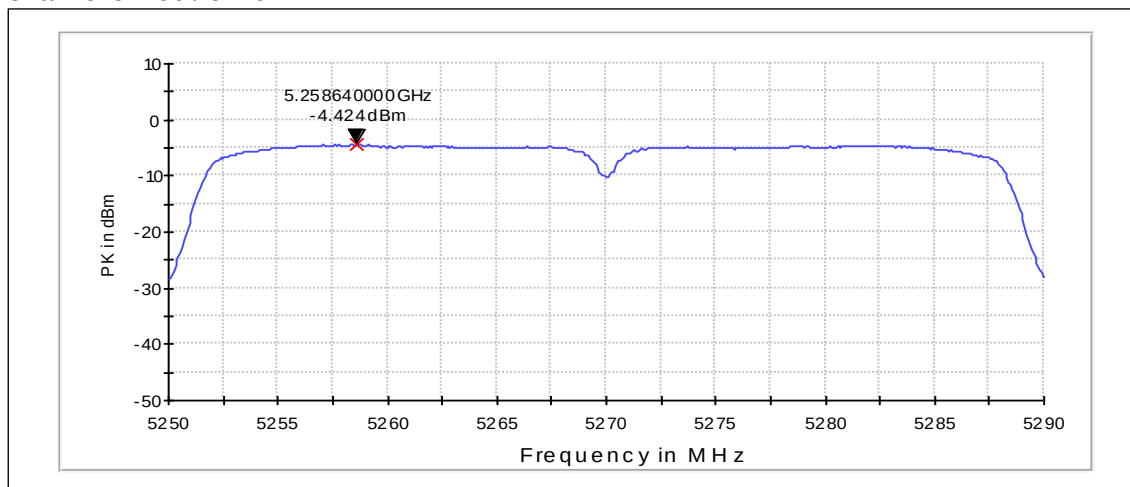
Channel 36+40 / 5190MHz



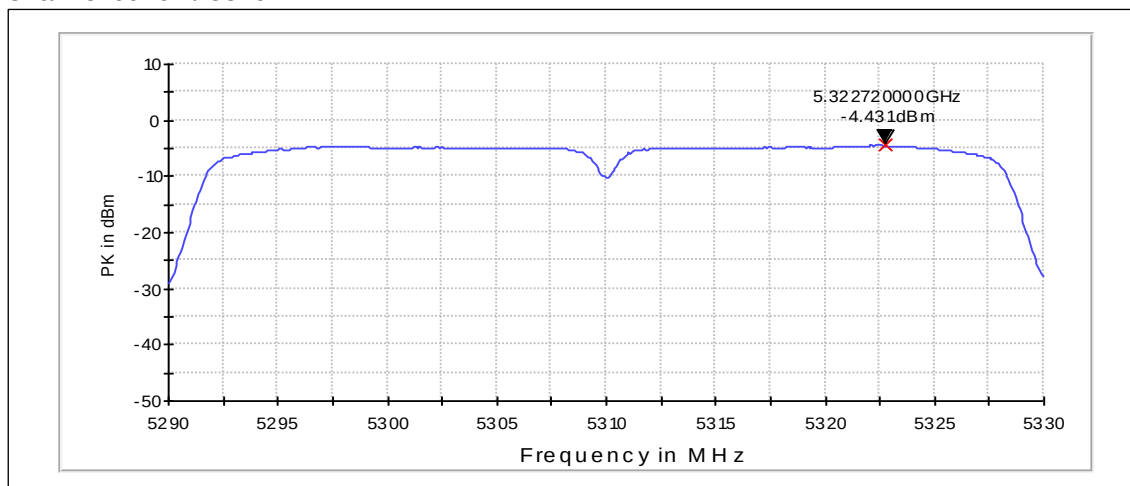
Channel 44+48 / 5230MHz



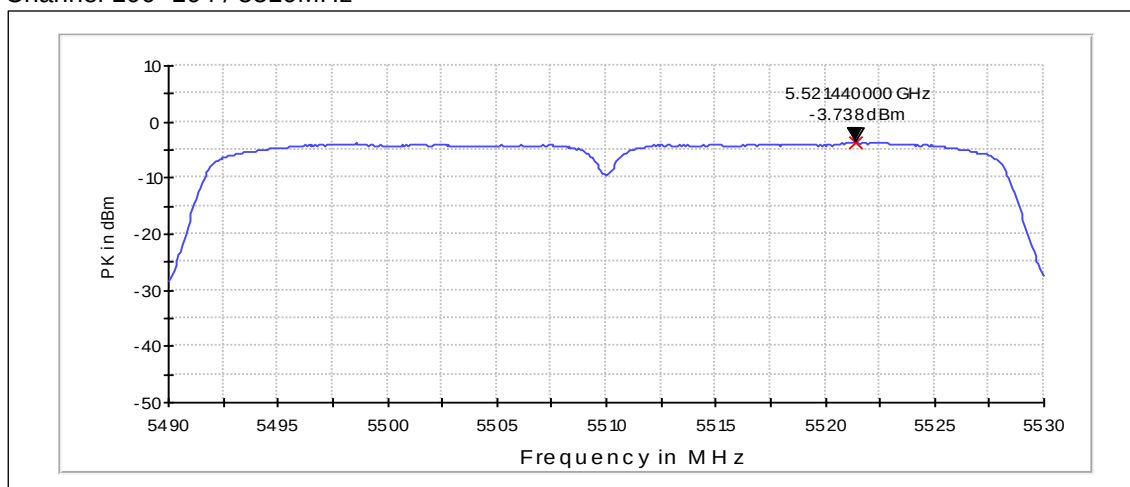
Channel 52+56 / 5270MHz



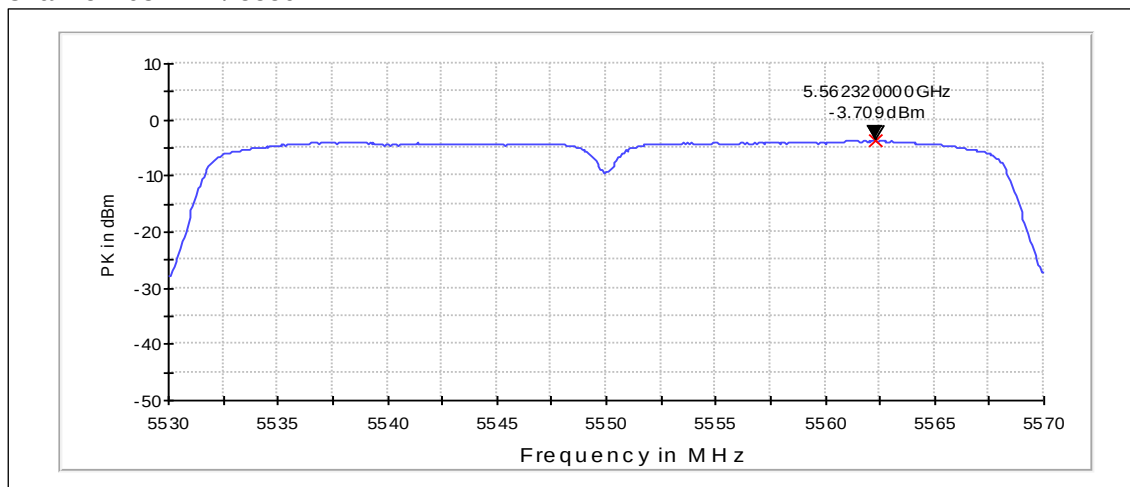
Channel 60+64 / 5310MHz



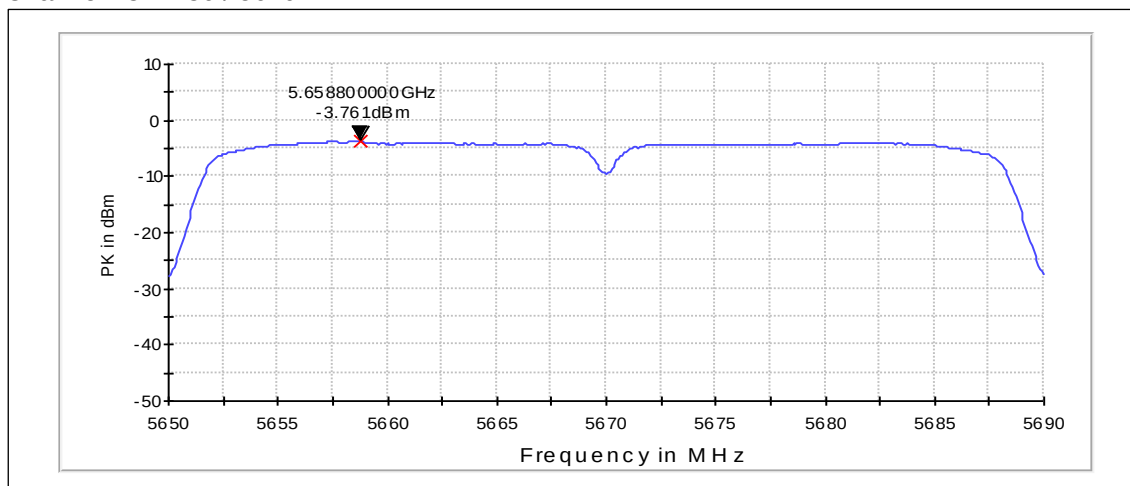
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



Channel 132+136 / 5670MHz



7. Test Equipment

7.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38112	Power supply	6632A	Agilent	22/24/27, 15C, 15E
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15E, 15B
TM37678	Communication Tester	CMU200	R&S	15C, 15B
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C, 15E
TM23007	Oscilloscope	TDS684B	Tektronix	15E
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24/27
2058	Receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	15C, 15B
2002	Communication Tester	CMU200	R&S	22/24/27, 15C
2009	LISN 50 μ H	ENV216	R&S	15C, 15B
2010	LISN 50 μ H	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2021	Communication Tester	CMW500	R&S	22/24/27
2023	Spectrum Analyzer	ESMI-RF	R&S	15B/15C
2024	Analyzer display unit	ESAI-D	R&S	15B/15C

7.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38114	Power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15E, 15B
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM26497	Antenna	3115	Emco	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15B
TM38845	Receiver	ESIB 26	R&S	22/24/27, 15C, 15E, 15B
-	Antenna	HL562	R&S	22/24/27, 15C, 15E, 15B
-	Turntable	2188	EMCO	22/24/27, 15C, 15E, 15B
-	Turntable controller	2090	EMCO	22/24/27, 15C, 15E, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15E, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15E, 15B
-	Mini mast	2075-2	ETS Lindgren	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
TM38843	Mini mast	2075	Emco	22/24/27, 15C, 15B
TM38842	Antenna mast controller	2090	Emco	22/24/27, 15C, 15B
TM30643	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C, 15B
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	Miteq	22/24/27, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	Miteq	22/24/27, 15C, 15B
TM30599	Semi anechoic chambre	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	-	22/24/27, 15C, 15E, 15B
TM38066	High pass filter	WHKX3.0/18G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
2028	High pass filter	WHKX 1.0/15G-12SS	Wainwright	22/24/27, 15C, 15E, 15B
TM37545	Tunable notch filter	800.0/960.0-0.2/40-8SSK	Wainwright	22
TM26512	Tunable notch filter	WRCD1850/1910-0.2/40-10SSK	Wainwright	24
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	24
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
-	Band reject filter	WRCG832/838-825/848-40/5SS	Wainwright	22
TM23892	Controller	G-1000SDX	Yaesu	22/24/27
2001	Bluetooth tester	CBT	R&S	15C, 15B
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27
2021	Communication Tester	CMW500	R&S	22/24/27
2025	Antenna	HFH2-Z2	R&S	15C