

FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-877_11.docx	Date of Report:	08-Apr-2013
Number of pages:	79	Customer's Contact person:	Huhtala Tero Johannes
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	Customer:	Nokia Corporation P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880
FCC listing no.:	94436		
IC recognition no.:	661AK-1		
Tested devices/ accessories:	Phone RM-877 / Battery BV-5XW / AC charger AC-60U / Charging data cable CA-190CD / Headset WH-208		
FCC ID:	PDNB	IC:	661R-B
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. 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:			

Timo Raiskio, Specialist, EMC

1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	12-Feb-2013
Testing completed	11-Mar-2013
The customer's contact person	Huhtala Tero Johannes
Test Plan referred to	T:\Projects\RM-877\TestPlan\RS_testplan_RM-877.xlsm
Notes	-
Document name	T:\Projects\RM-877\EMC\FCC15E_RM-877_11.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-877	004402471263198	1000		3012.0000.1304.10019	42978
Battery	BV-5XW		LG 2.3			42971
AC charger	AC-60U	4090493047580200312;0675678	B1.0 HW0.2 MW0.2 PV02	-	-	42973
Charging data cable	CA-190CD	0730456246628	-	-	-	42977
Headset	WH-208	1411621	-	-	-	42831
Phone	RM-877	004402471265484	1000	-	3012.0000.1304.10019	42984
Charging data cable	CA-190CD	07304562465628	-	-	-	42976

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.

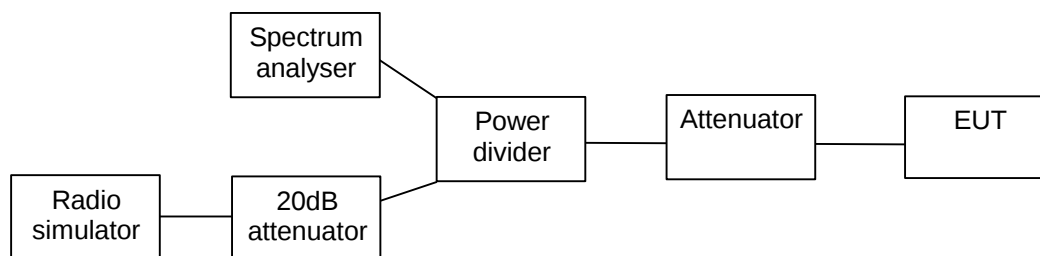
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2. Maximum conducted output power (FCC §15.407 (a), RSS-210 A9.2)

EUT with DUT number	RM-877, DUT 42978
Accessories with DUT numbers	BV-5XW, DUT 42971 ; AC-60U, DUT 42973 ; CA-190CD, DUT 42977 ; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 38 / 102.1
Date of measurements	19-Feb-2013
Measured by	Timo Raiskio

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

Channel / fC [MHz]	Mode	Modulation	Data rate	Level [dBm]
36 / 5180	OFDM	BPSK	6 Mbps	13.14
36 / 5180	OFDM	BPSK	9 Mbps	13.15
36 / 5180	OFDM	QPSK	12 Mbps	13.13
36 / 5180	OFDM	QPSK	18 Mbps	13.24
36 / 5180	OFDM	16-QAM	24 Mbps	13.4
36 / 5180	OFDM	16-QAM	36 Mbps	13.52
36 / 5180	OFDM	64-QAM	48 Mbps	12.45
36 / 5180	OFDM	64-QAM	54 Mbps	11.49
36 / 5180	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	12.17
36 / 5180	n-mode, 20 MHz CBW	QPSK	13.0 / 14.4 Mbps	12.26
36 / 5180	n-mode, 20 MHz CBW	QPSK	19.5 / 21.7 Mbps	12.21
36 / 5180	n-mode, 20 MHz CBW	16-QAM	26.0 / 28.9 Mbps	12.5
36 / 5180	n-mode, 20 MHz CBW	16-QAM	39.0 / 43.3 Mbps	11.46
36 / 5180	n-mode, 20 MHz CBW	64-QAM	52.0 / 57.8 Mbps	11.61
36 / 5180	n-mode, 20 MHz CBW	64-QAM	58.5 / 65.0 Mbps	10.51
36 / 5180	n-mode, 20 MHz CBW	64-QAM	65.0 / 72.2 Mbps	10.45
36+40 / 5190	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.23
36+40 / 5190	n-mode, 40 MHz CBW	QPSK	27.0 / 30.0 Mbps	11.33
36+40 / 5190	n-mode, 40 MHz CBW	QPSK	40.5 / 45.0 Mbps	11.42
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.48
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	81.0 / 90.0 Mbps	10.57
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	108.0 / 120.0 Mbps	9.43
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	121.5 / 135.0 Mbps	8.07
36+40 / 5190	n-mode, 40 MHz CBW	64-QAM	135.0 / 150.0 Mbps	8.36

2.4. Power results summary, selected modes

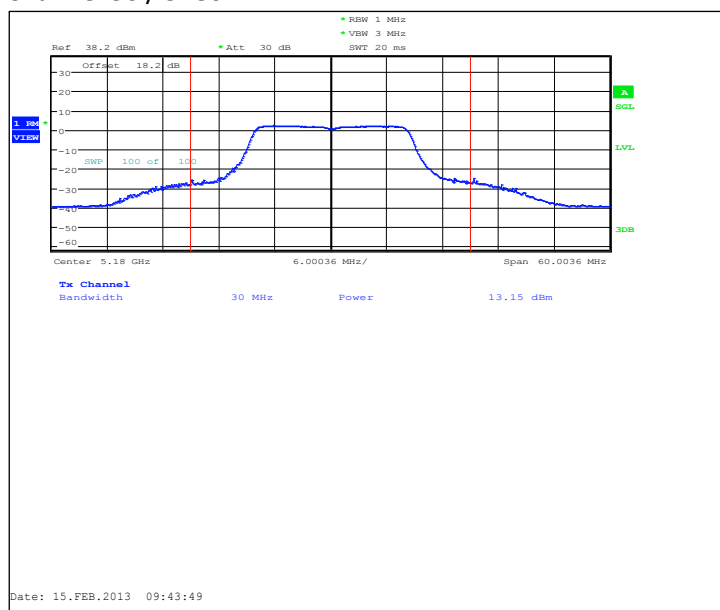
Channel / fC [MHz]	Mode	Modulation	Data rate	Level [dBm]
36 / 5180	OFDM	BPSK	9 Mbps	13.15
40 / 5200	OFDM	BPSK	9 Mbps	12.95
48 / 5240	OFDM	BPSK	9 Mbps	13.02
52 / 5260	OFDM	BPSK	9 Mbps	13.09
60 / 5300	OFDM	BPSK	9 Mbps	13.05
64 / 5320	OFDM	BPSK	9 Mbps	12.98
100 / 5500	OFDM	BPSK	9 Mbps	13.45
116 / 5580	OFDM	BPSK	9 Mbps	14.07
140 / 5700	OFDM	BPSK	9 Mbps	10.97
36 / 5180	OFDM	16-QAM	36 Mbps	13.52
40 / 5200	OFDM	16-QAM	36 Mbps	13.27
48 / 5240	OFDM	16-QAM	36 Mbps	13.23
52 / 5260	OFDM	16-QAM	36 Mbps	13.43
60 / 5300	OFDM	16-QAM	36 Mbps	13.23
64 / 5320	OFDM	16-QAM	36 Mbps	13.43
100 / 5500	OFDM	16-QAM	36 Mbps	13.84
116 / 5580	OFDM	16-QAM	36 Mbps	14.39
140 / 5700	OFDM	16-QAM	36 Mbps	11.41
36+40 / 5190	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.23
44+48 / 5230	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.08
52+56 / 5270	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.28
60+64 / 5310	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.22
100+104 / 5510	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	10.85
108+112 / 5550	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	11.99
132+136 / 5670	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	12.22
36+40 / 5190	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.48
44+48 / 5230	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.65
52+56 / 5270	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.56
60+64 / 5310	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.45
100+104 / 5510	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	11.07
108+112 / 5550	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	12.27
132+136 / 5670	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	12.47

2.5. 5 GHz RLAN Test results

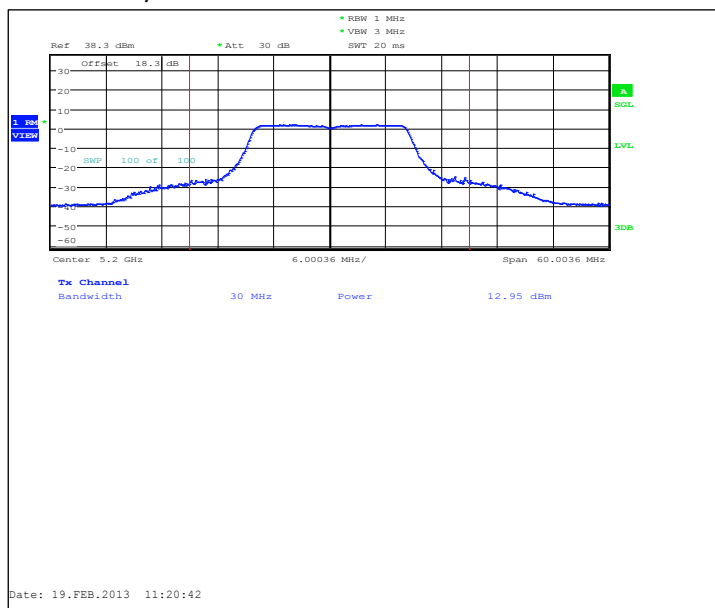
2.5.1 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
36 / 5180	13.15	20.654	PASSED
40 / 5200	12.95	19.724	PASSED
48 / 5240	13.02	20.045	PASSED
52 / 5260	13.09	20.37	PASSED
60 / 5300	13.05	20.184	PASSED
64 / 5320	12.98	19.861	PASSED
100 / 5500	13.45	22.131	PASSED
116 / 5580	14.07	25.527	PASSED
140 / 5700	10.97	12.503	PASSED

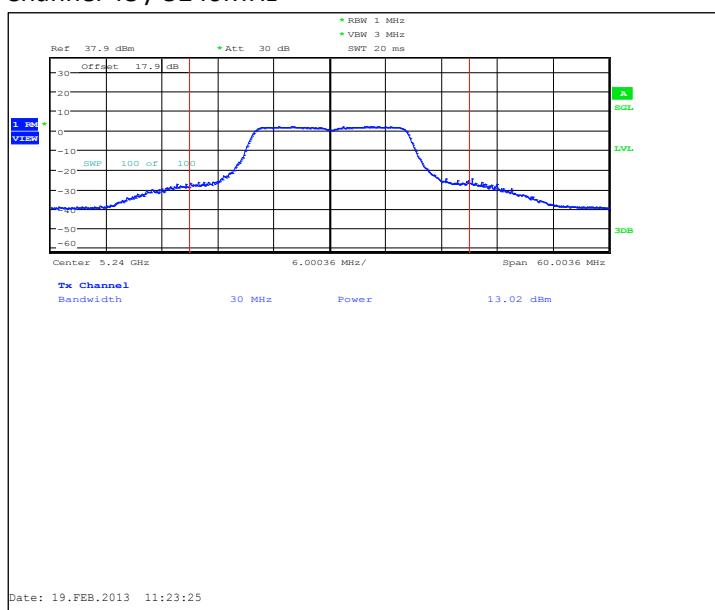
Channel 36 / 5180MHz



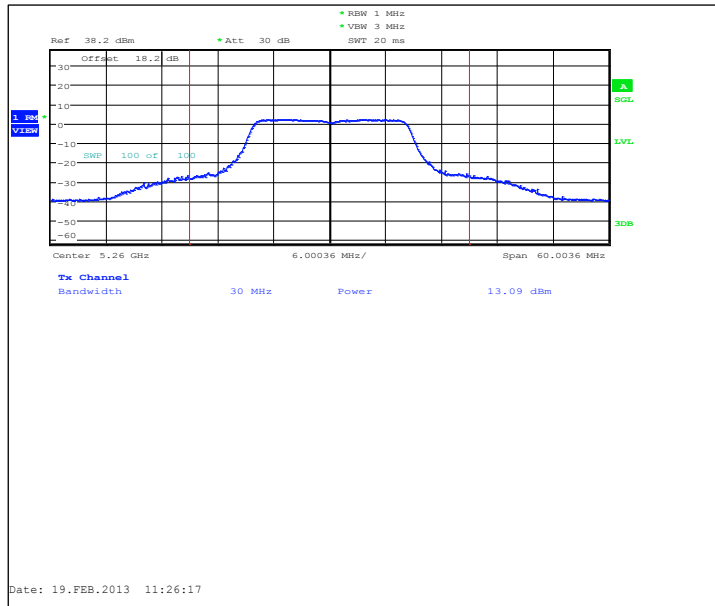
Channel 40 / 5200MHz



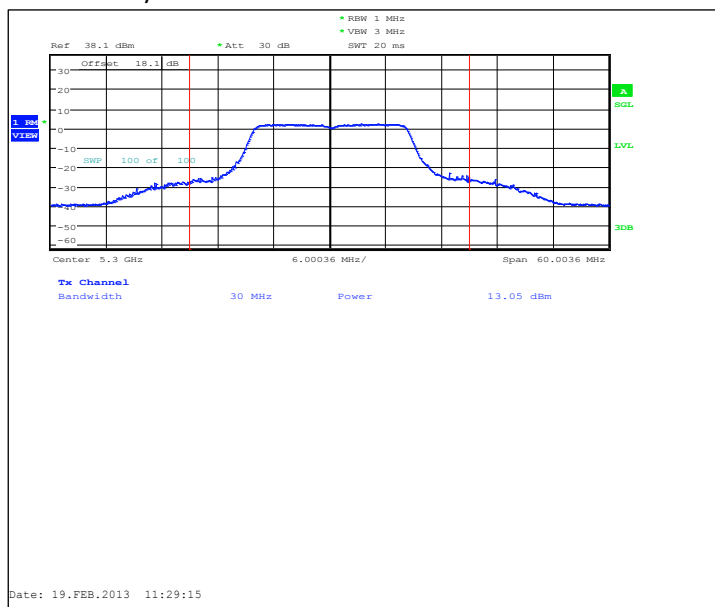
Channel 48 / 5240MHz



Channel 52 / 5260MHz



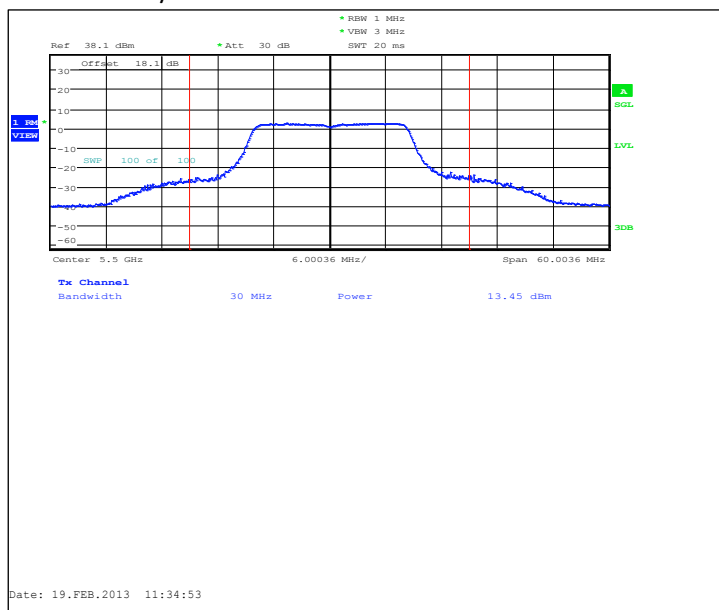
Channel 60 / 5300MHz



Channel 64 / 5320MHz



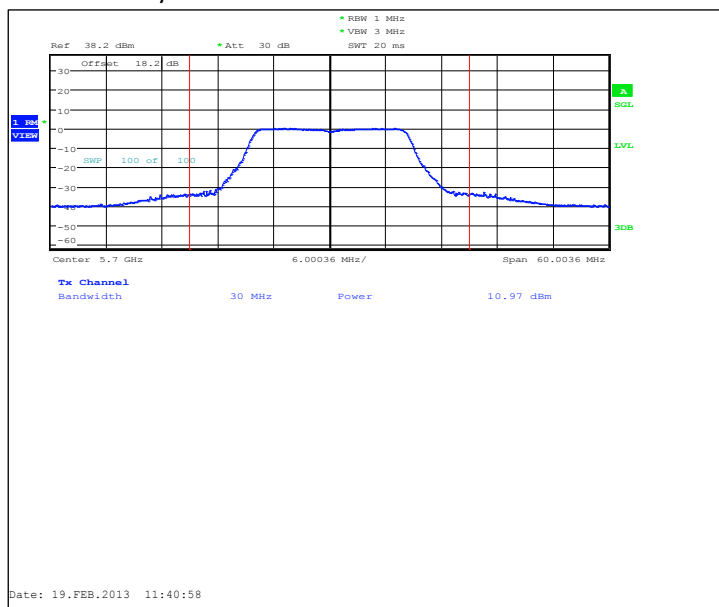
Channel 100 / 5500MHz



Channel 116 / 5580MHz



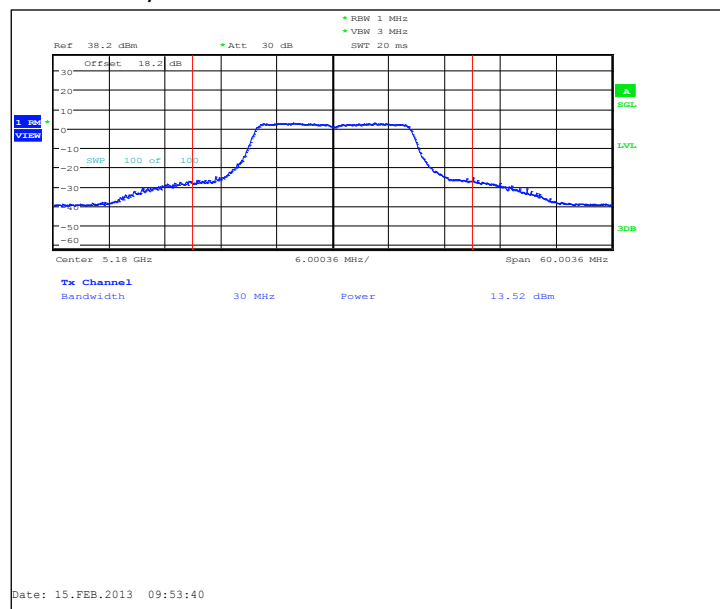
Channel 140 / 5700MHz



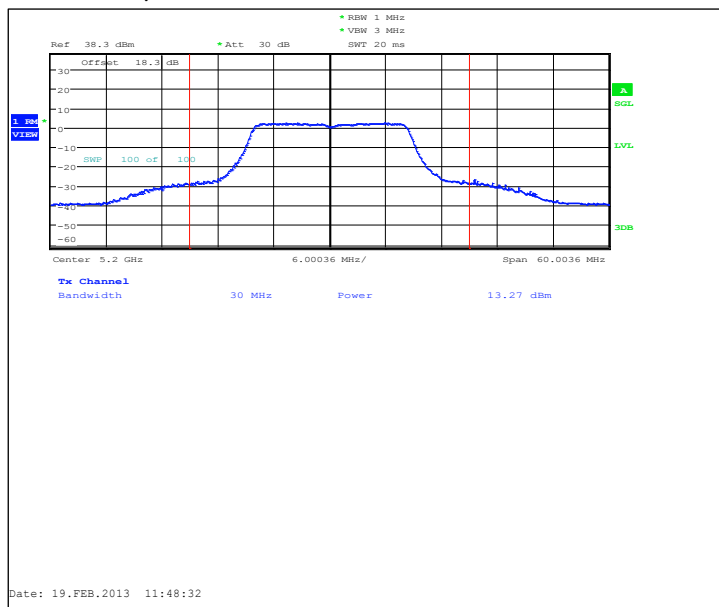
2.5.2 OFDM mode, 16-QAM modulation, 36 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
36 / 5180	13.52	22.491	PASSED
40 / 5200	13.27	21.232	PASSED
48 / 5240	13.23	21.038	PASSED
52 / 5260	13.43	22.029	PASSED
60 / 5300	13.23	21.038	PASSED
64 / 5320	13.43	22.029	PASSED
100 / 5500	13.84	24.21	PASSED
116 / 5580	14.39	27.479	PASSED
140 / 5700	11.41	13.836	PASSED

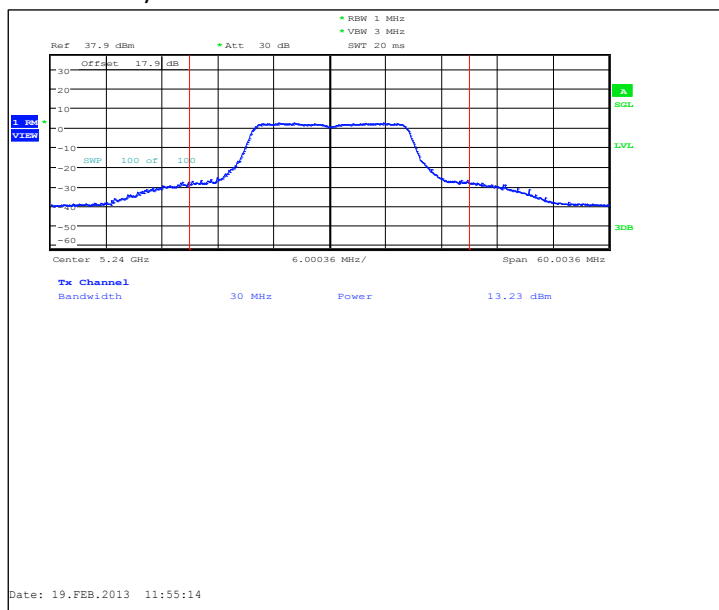
Channel 36 / 5180MHz



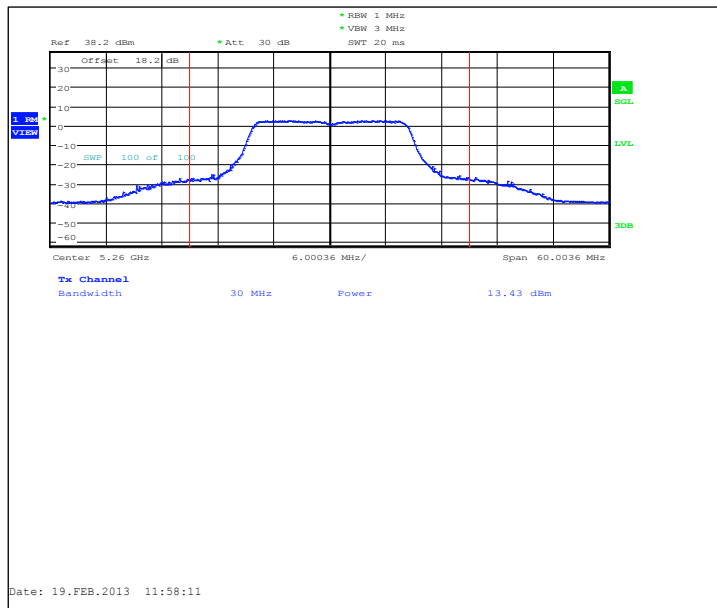
Channel 40 / 5200MHz



Channel 48 / 5240MHz



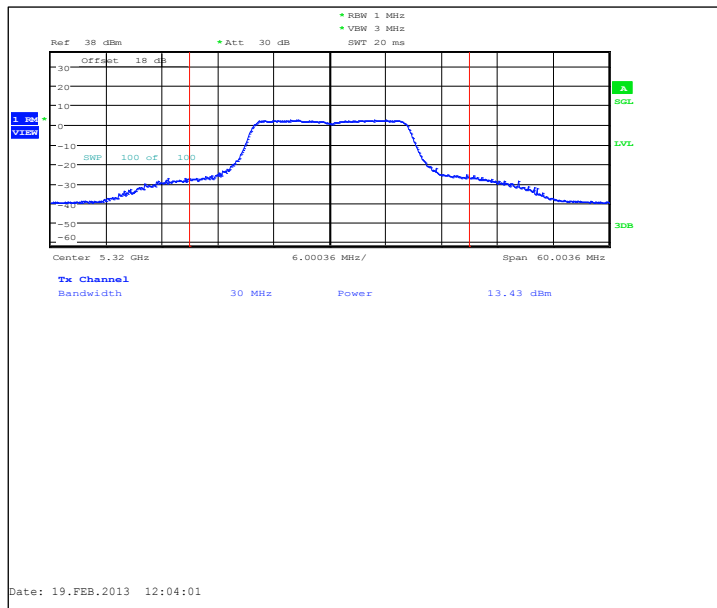
Channel 52 / 5260MHz



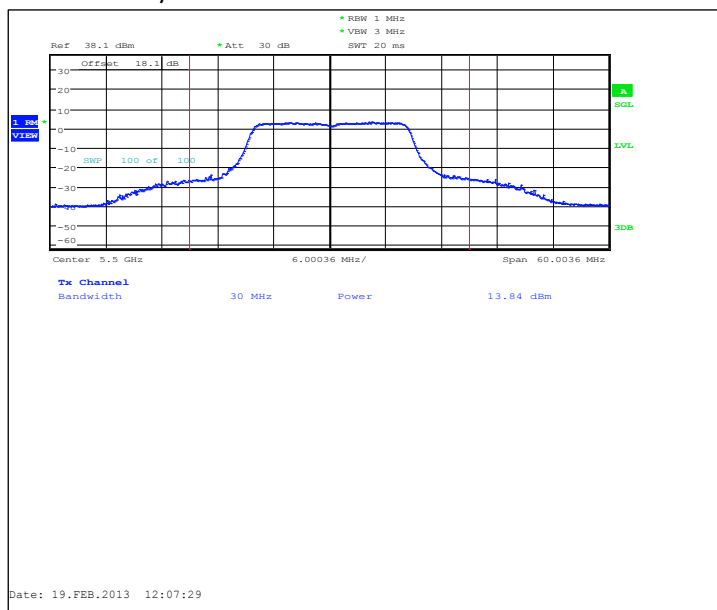
Channel 60 / 5300MHz



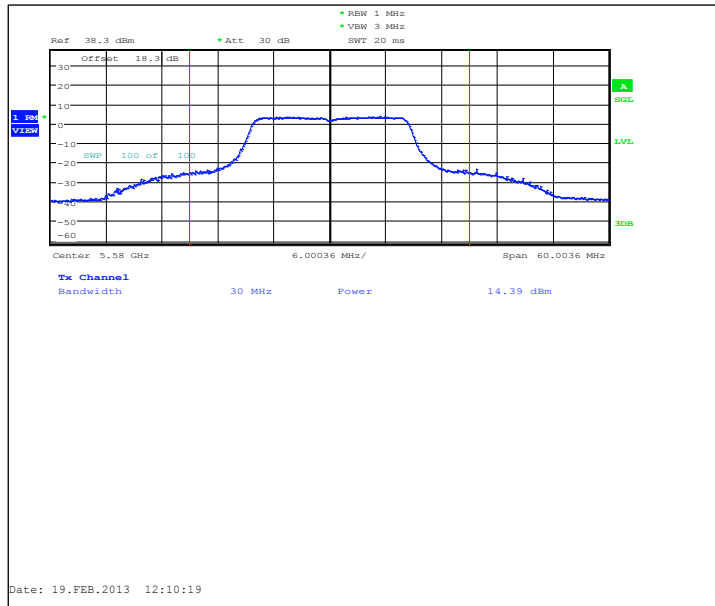
Channel 64 / 5320MHz



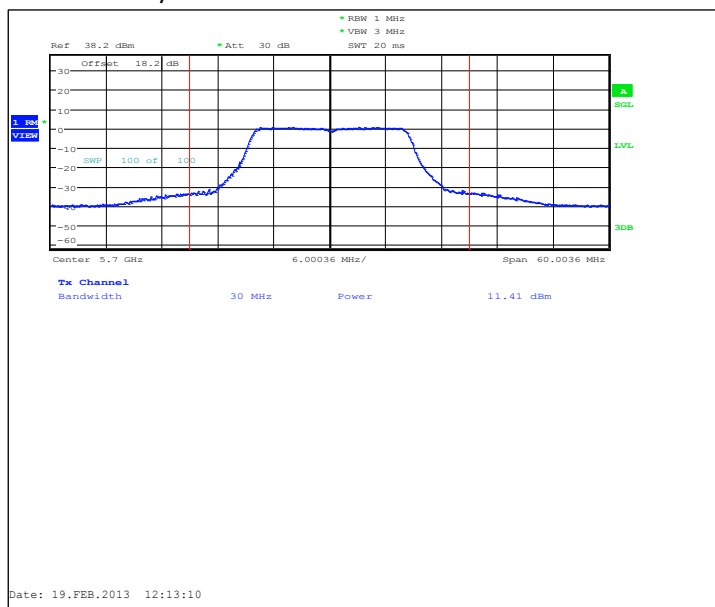
Channel 100 / 5500MHz



Channel 116 / 5580MHz



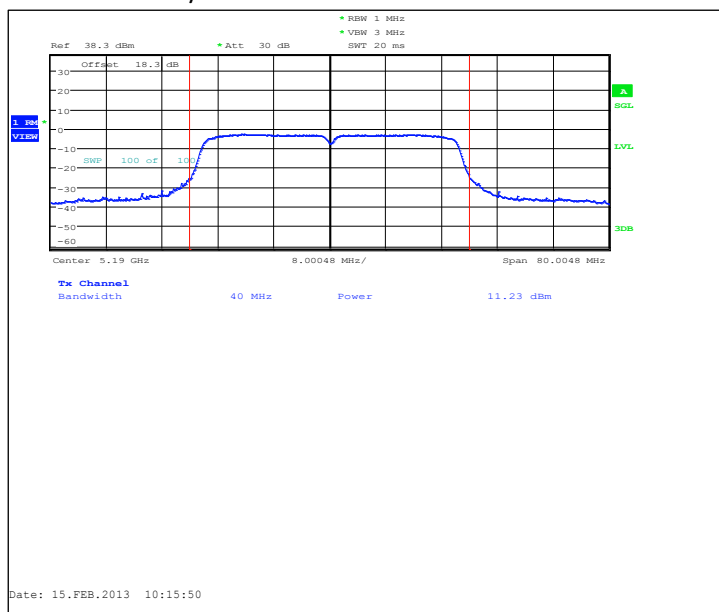
Channel 140 / 5700MHz



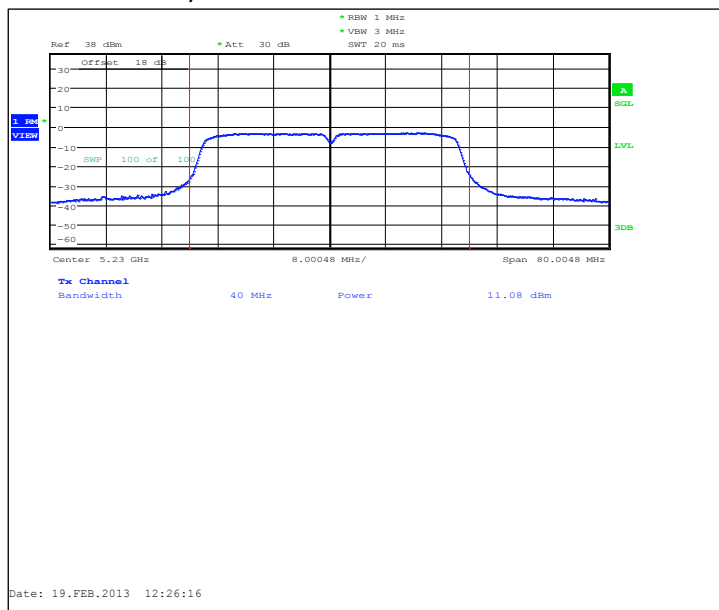
2.5.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
36+40 / 5190	11.23	13.274	PASSED
44+48 / 5230	11.08	12.823	PASSED
52+56 / 5270	11.28	13.428	PASSED
60+64 / 5310	11.22	13.243	PASSED
100+104 / 5510	10.85	12.162	PASSED
108+112 / 5550	11.99	15.812	PASSED
132+136 / 5670	12.22	16.672	PASSED

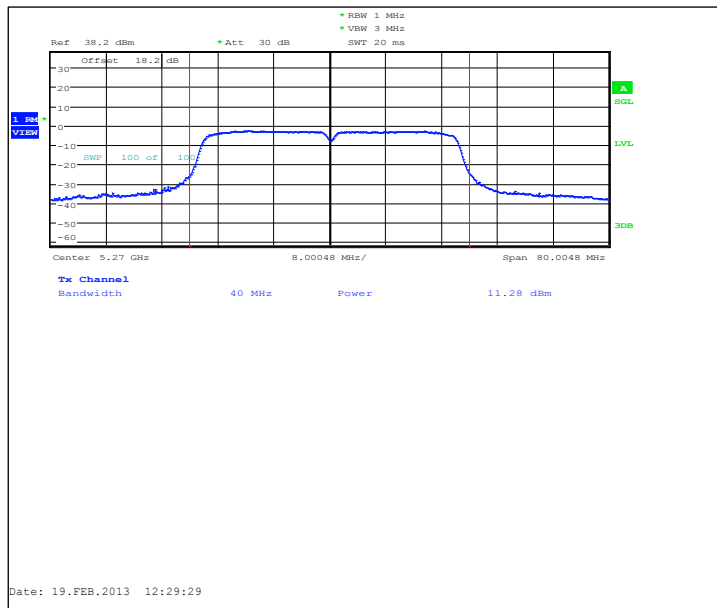
Channel 36+40 / 5190MHz



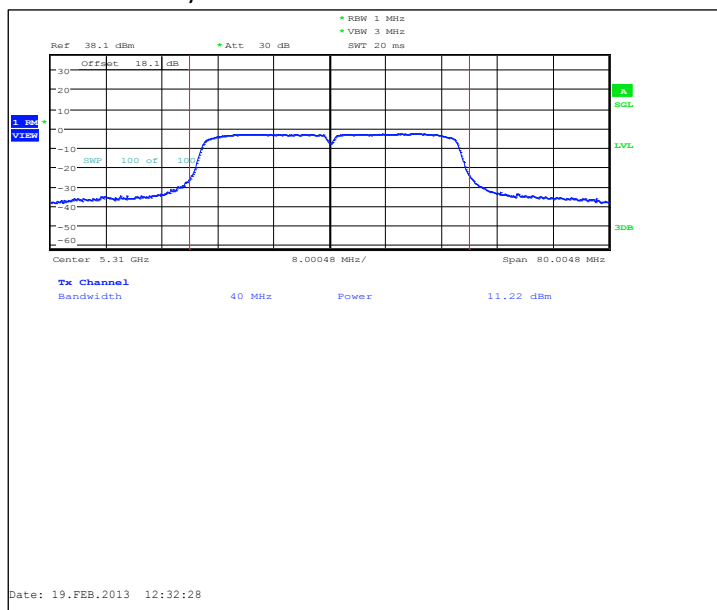
Channel 44+48 / 5230MHz



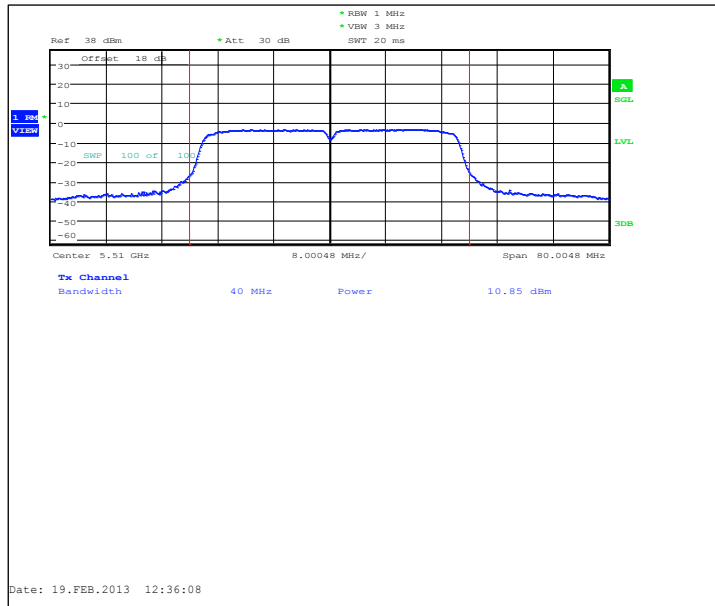
Channel 52+56 / 5270MHz



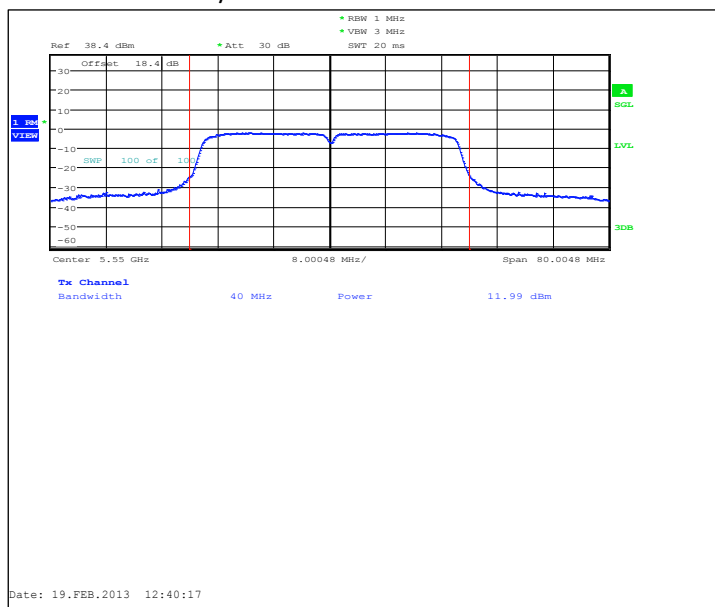
Channel 60+64 / 5310MHz



Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



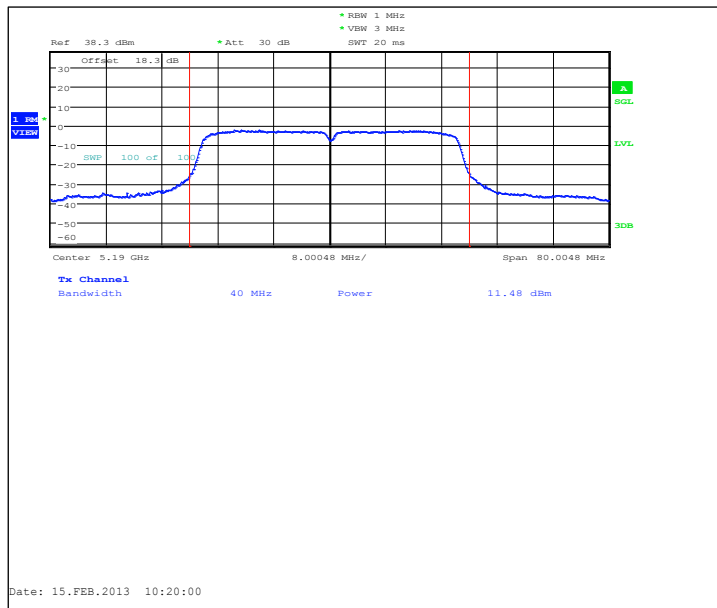
Channel 132+136 / 5670MHz



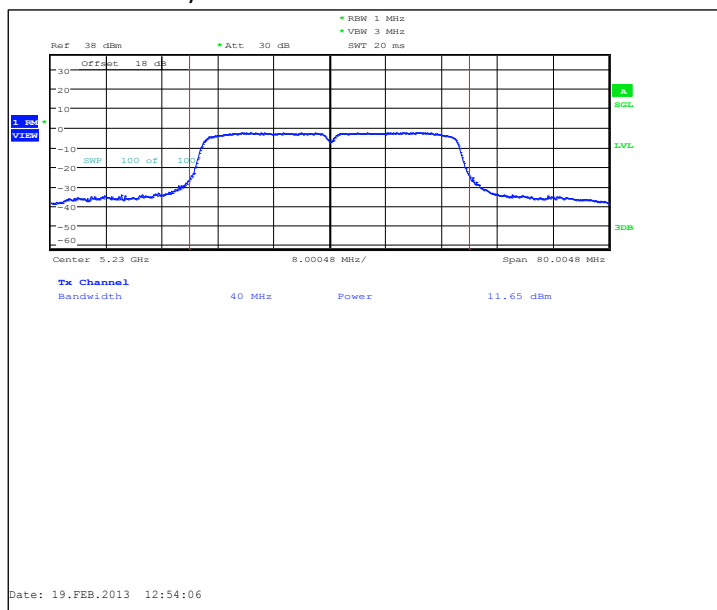
2.5.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
36+40 / 5190	11.48	14.06	PASSED
44+48 / 5230	11.65	14.622	PASSED
52+56 / 5270	11.56	14.322	PASSED
60+64 / 5310	11.45	13.964	PASSED
100+104 / 5510	11.07	12.794	PASSED
108+112 / 5550	12.27	16.866	PASSED
132+136 / 5670	12.47	17.66	PASSED

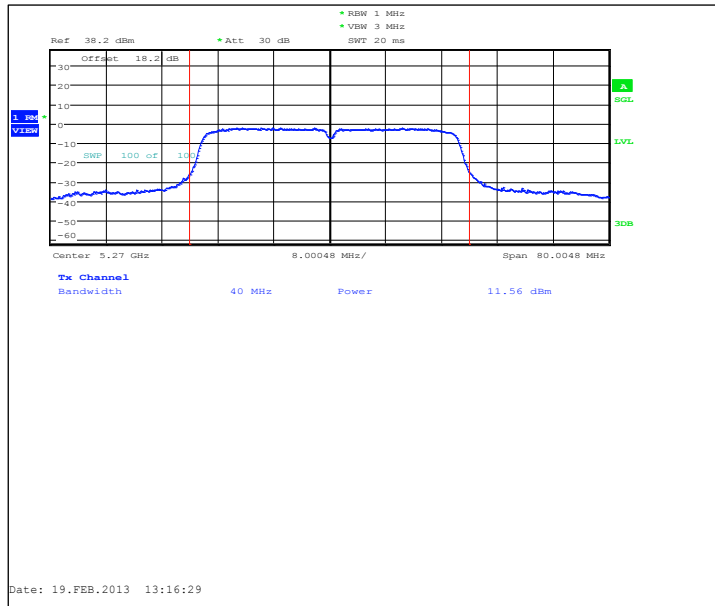
Channel 36+40 / 5190MHz



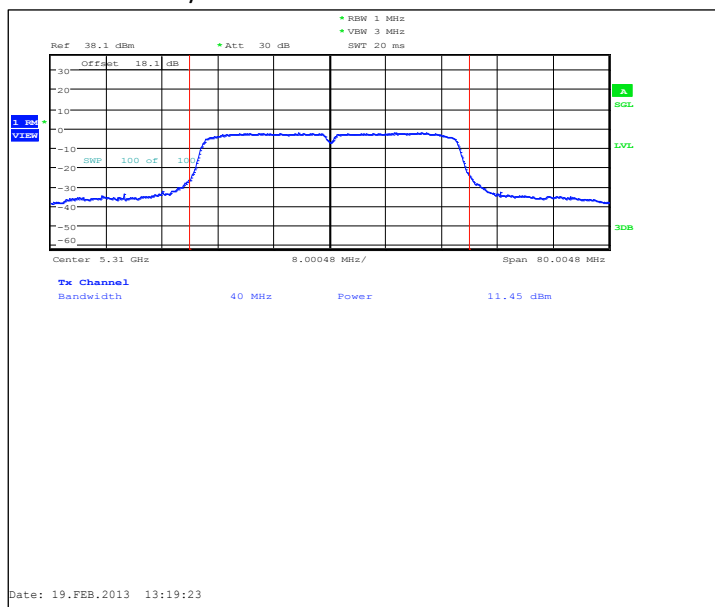
Channel 44+48 / 5230MHz



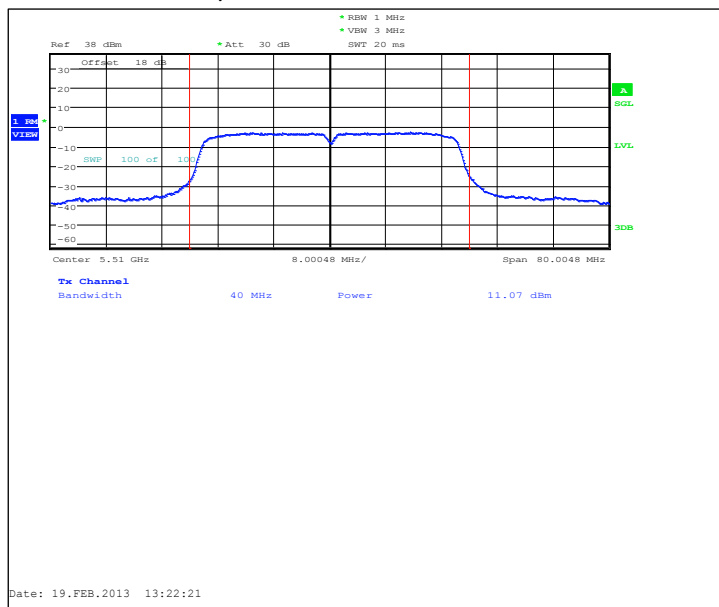
Channel 52+56 / 5270MHz



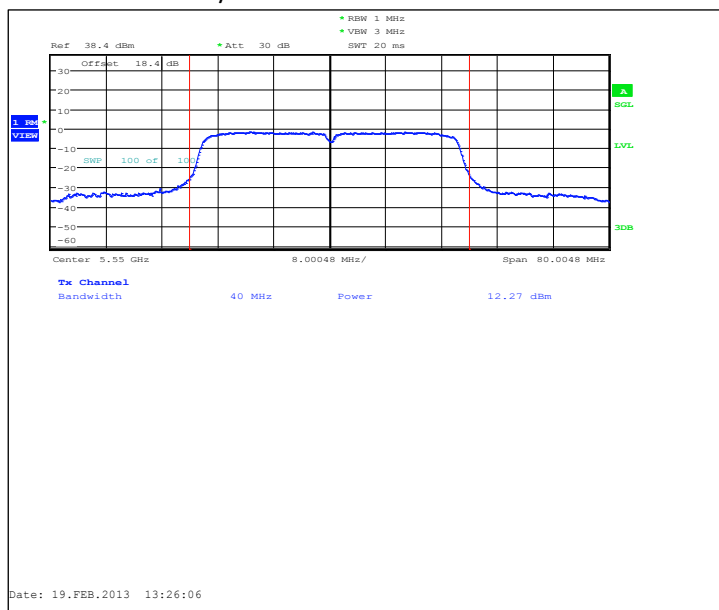
Channel 60+64 / 5310MHz



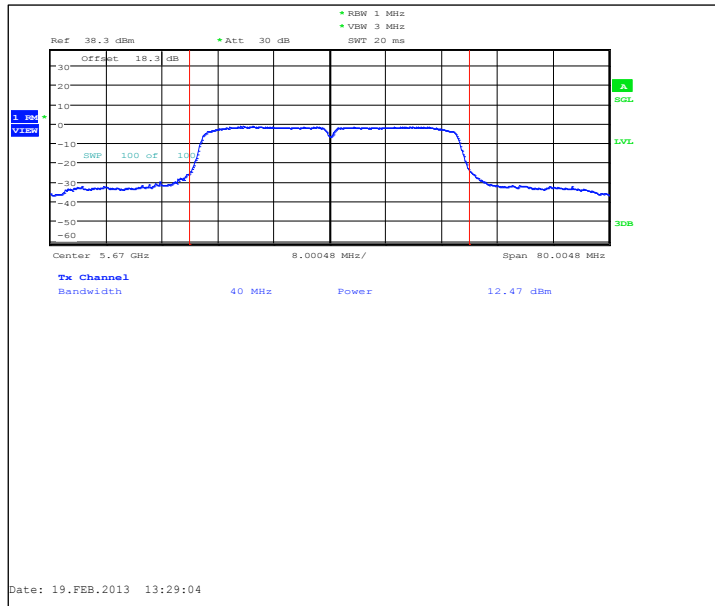
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



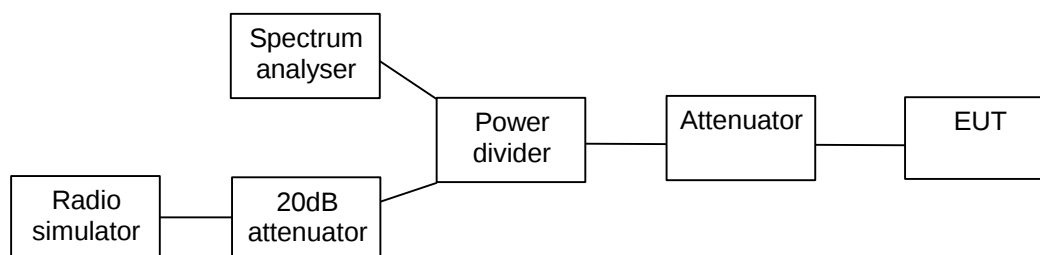
Channel 132+136 / 5670MHz



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

EUT with DUT number	RM-877, DUT 42978
Accessories with DUT numbers	BV-5XW, DUT 42971 ; AC-60U, DUT 42973 ; CA-190CD, DUT 42977 ; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 38 / 102.1
Date of measurements	19-Feb-2013
Measured by	Timo Raiskio

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

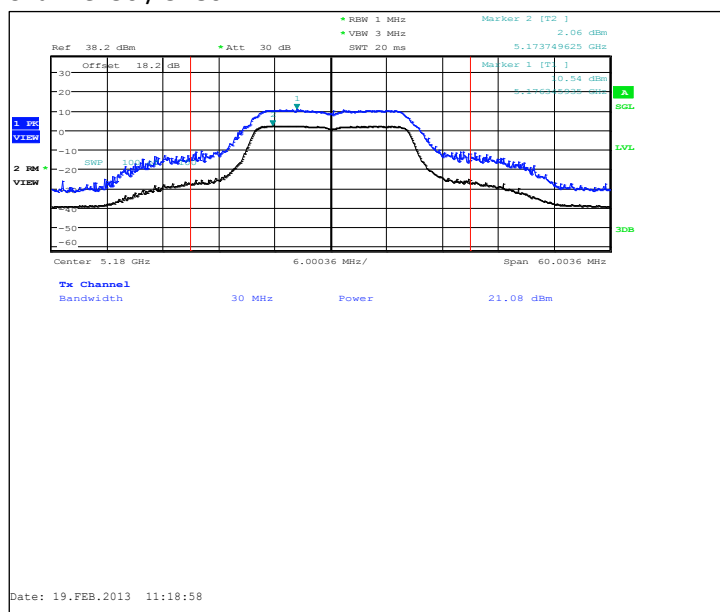
Limit [dB]
<= 13

3.3. 5 GHz RLAN Test results

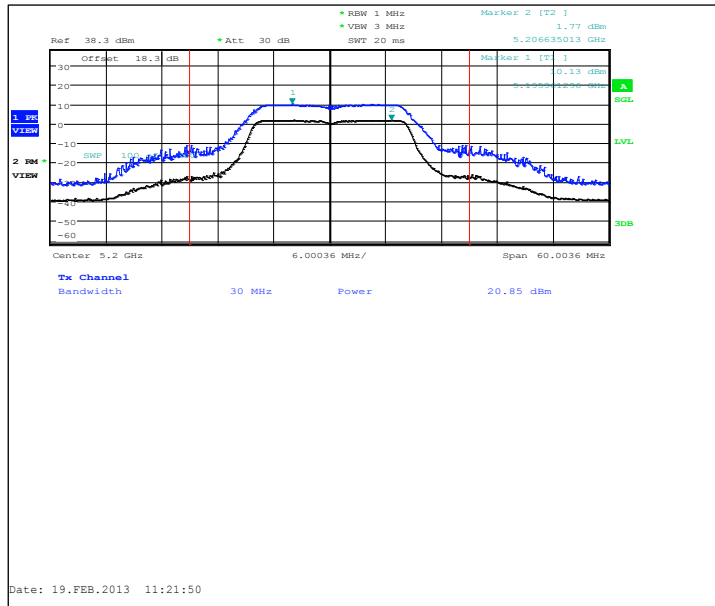
3.3.1 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f _c [MHz]	Peak excursion [dB]	Result
36 / 5180	8.48	PASSED
40 / 5200	8.37	PASSED
48 / 5240	8.49	PASSED
52 / 5260	8.39	PASSED
60 / 5300	8.26	PASSED
64 / 5320	8.32	PASSED
100 / 5500	8.03	PASSED
116 / 5580	8.26	PASSED
140 / 5700	8.43	PASSED

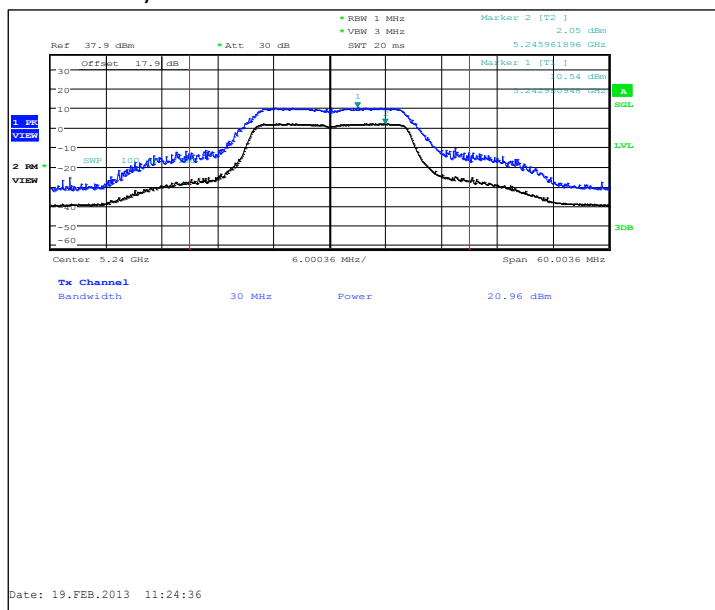
Channel 36 / 5180MHz



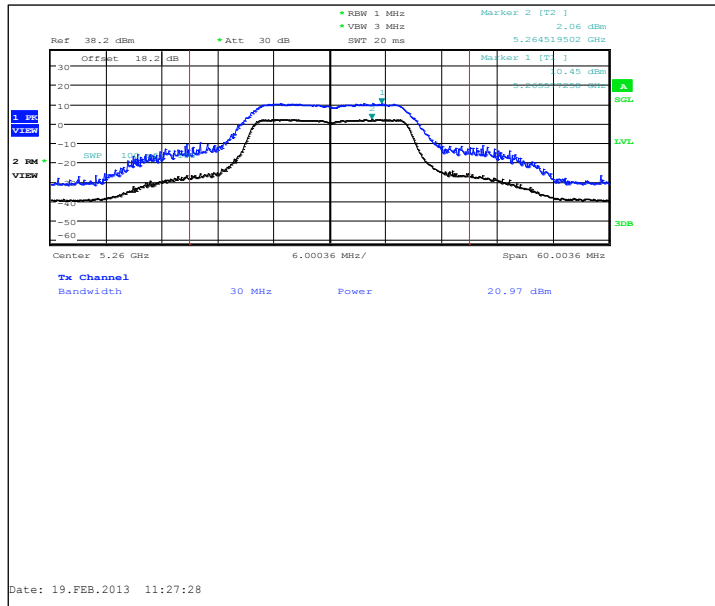
Channel 40 / 5200MHz



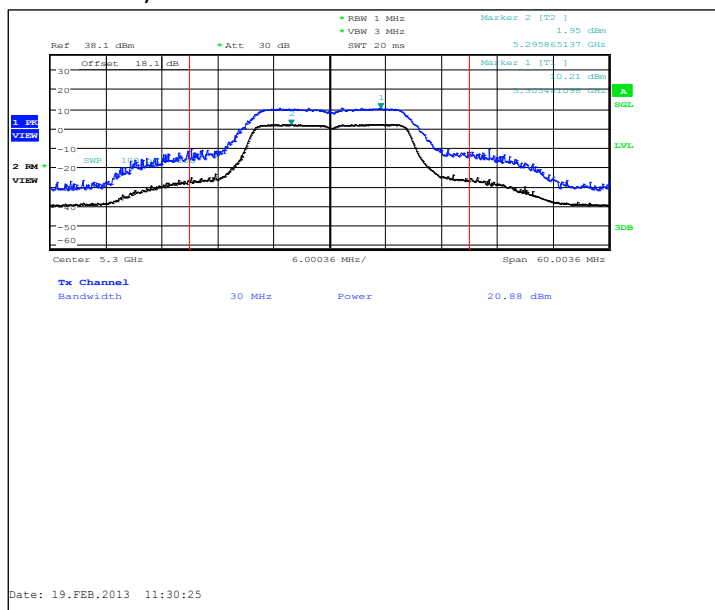
Channel 48 / 5240MHz



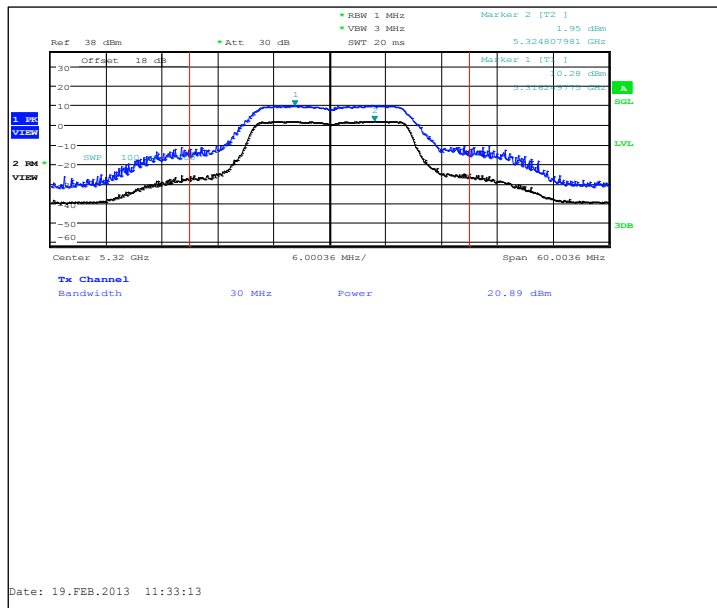
Channel 52 / 5260MHz



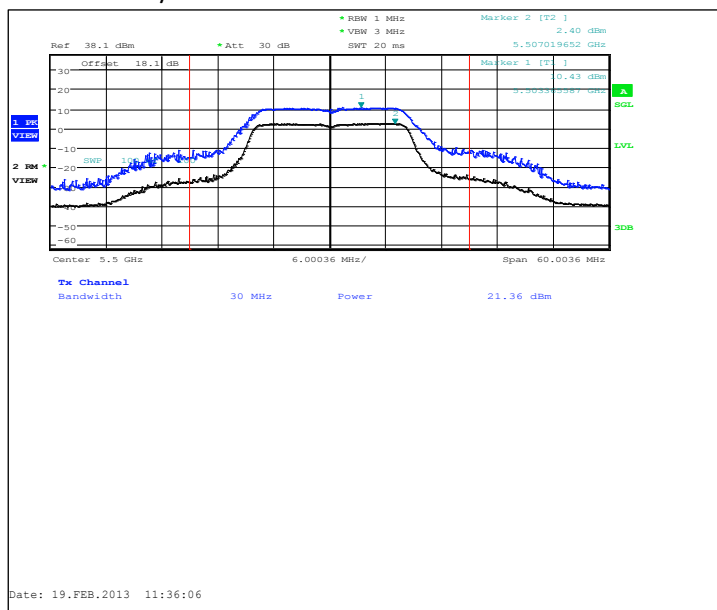
Channel 60 / 5300MHz



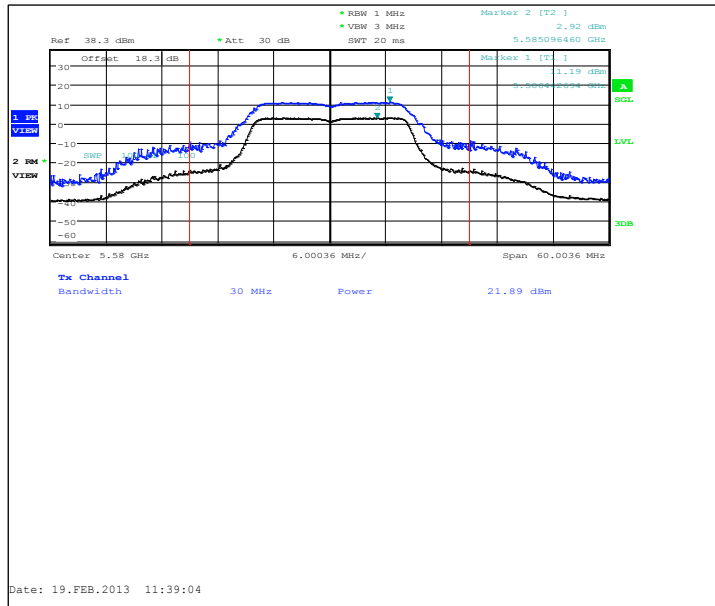
Channel 64 / 5320MHz



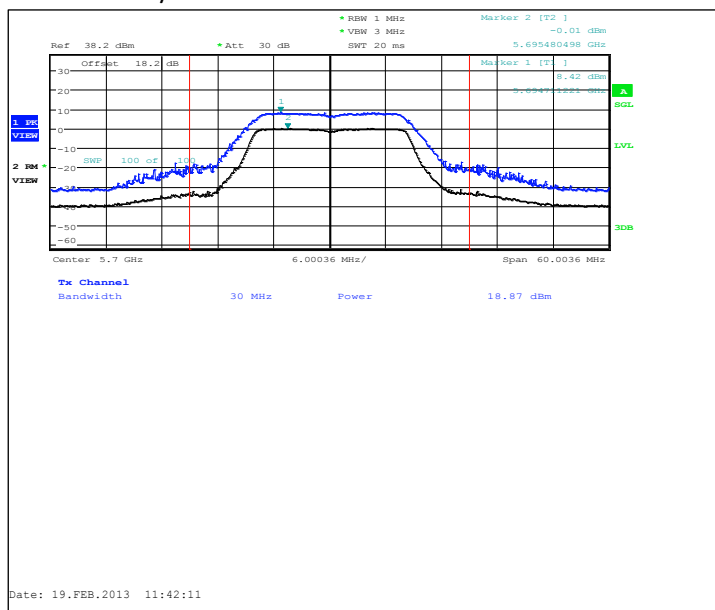
Channel 100 / 5500MHz



Channel 116 / 5580MHz



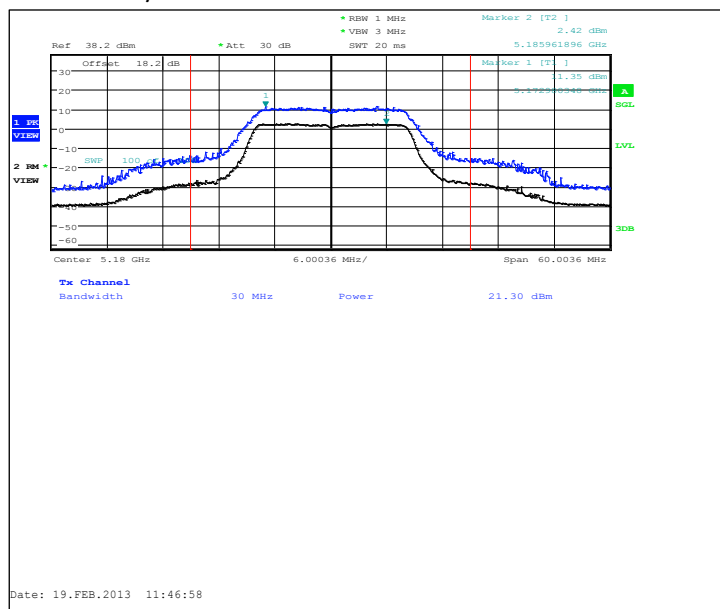
Channel 140 / 5700MHz



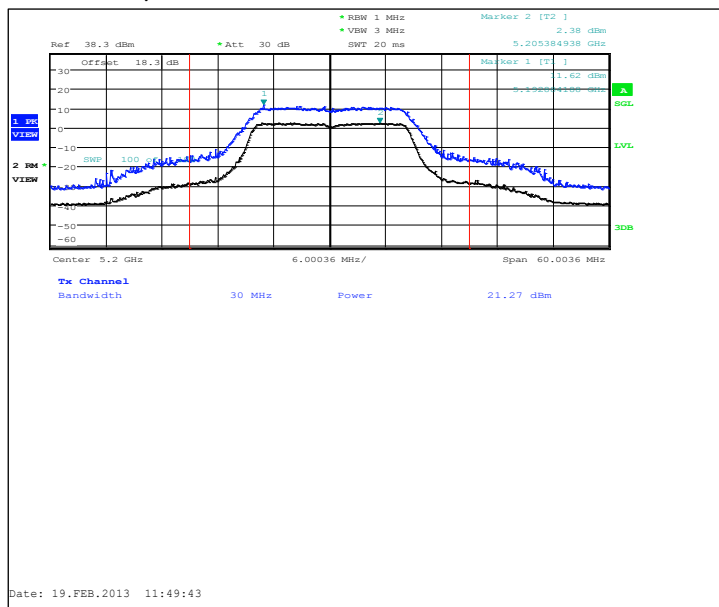
3.3.2 OFDM mode, 16-QAM modulation, 36 Mbps data rate

Channel / f_c [MHz]	Peak excursion [dB]	Result
36 / 5180	8.92	PASSED
40 / 5200	9.24	PASSED
48 / 5240	9.07	PASSED
52 / 5260	9.34	PASSED
60 / 5300	8.99	PASSED
64 / 5320	9.22	PASSED
100 / 5500	8.77	PASSED
116 / 5580	8.08	PASSED
140 / 5700	9.37	PASSED

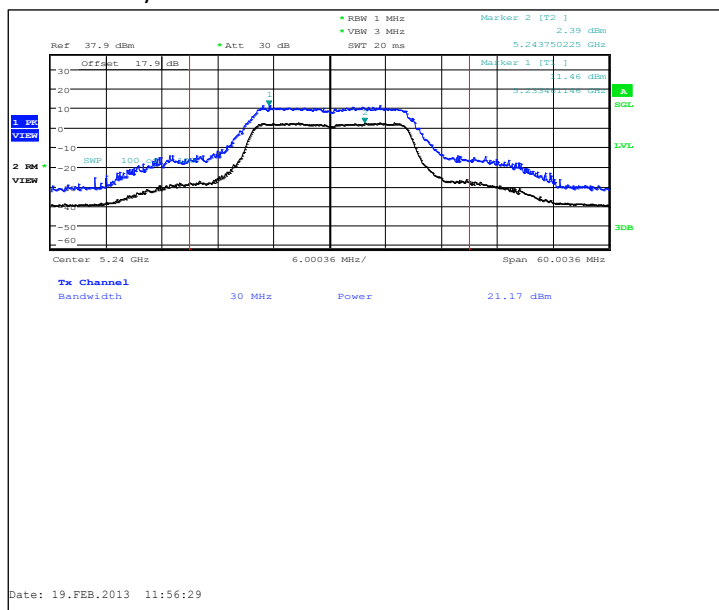
Channel 36 / 5180MHz



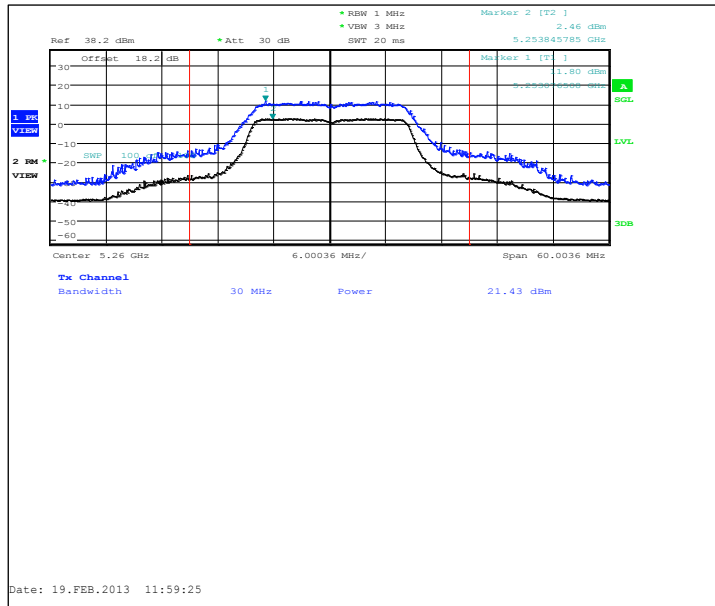
Channel 40 / 5200MHz



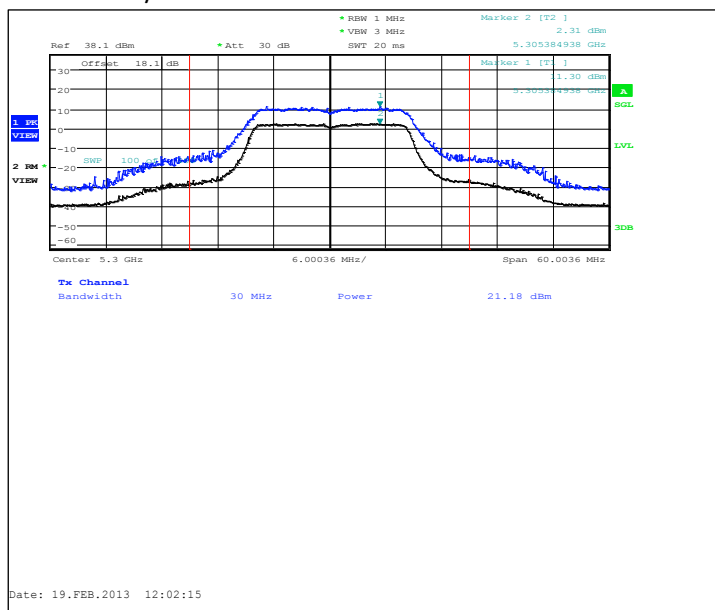
Channel 48 / 5240MHz



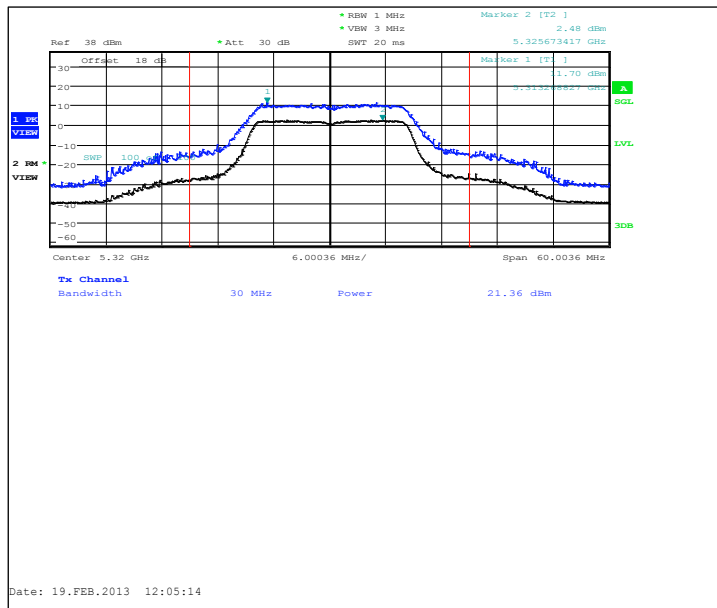
Channel 52 / 5260MHz



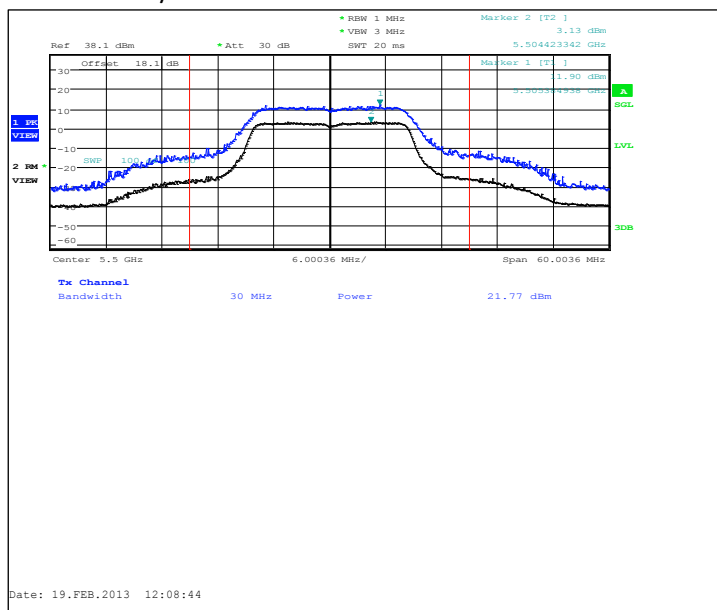
Channel 60 / 5300MHz



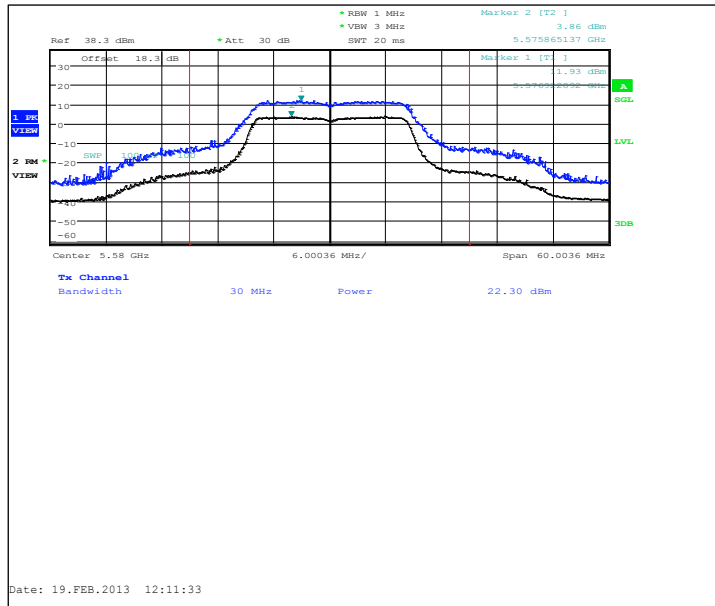
Channel 64 / 5320MHz



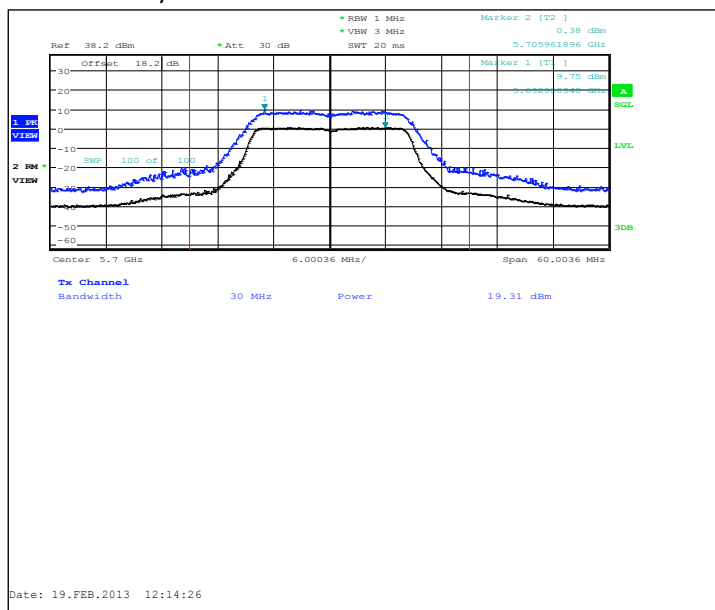
Channel 100 / 5500MHz



Channel 116 / 5580MHz



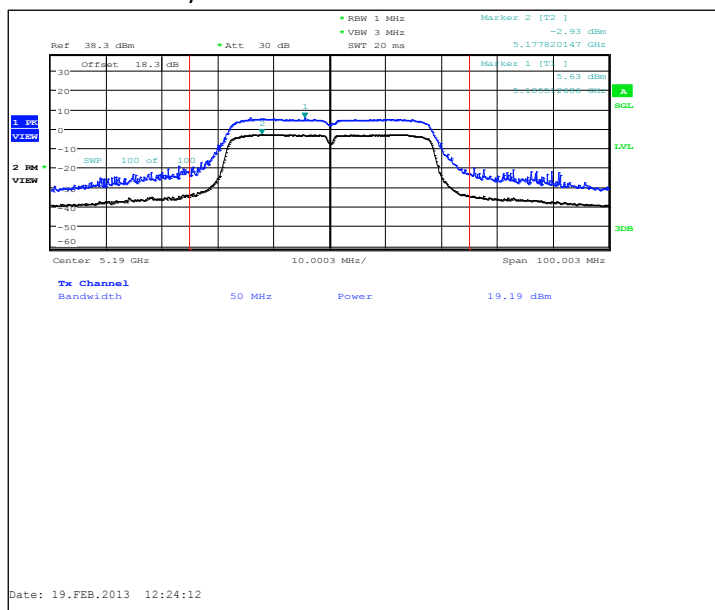
Channel 140 / 5700MHz



3.3.3 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	8.56	PASSED
44+48 / 5230	9.48	PASSED
52+56 / 5270	8.49	PASSED
60+64 / 5310	8.56	PASSED
100+104 / 5510	8.47	PASSED
108+112 / 5550	8.88	PASSED
132+136 / 5670	7.81	PASSED

Channel 36+40 / 5190MHz



Ref 38 dBm • Att 30 dB • RBW 1 MHz Marker 2 [T2] -3.02 dBm
 • VBW 3 MHz 5.24016979 GHz
 SWT 20 ms

Offset 18 dB Marker 1 [T1] 5.23372935 GHz -3.46 dBm

1. PR VIEW 8GL

2. PR VIEW 1VL

3DB

Center 5.23 GHz 10.0003 MHz/ Span 100.003 MHz

Tx Channel 50 MHz Power 18.97 dBm

Date: 19.FEB.2013 12:27:31

Ref 38.2 dBm * Att 30 dB * RBW 1 MHz Marker 2 [T2] -2.88 dBm
 * VBN 3 MHz * SWT 20 ms 5.257980409 GHz

Offset 18.2 dB Marker 1 [T1] 5.62 dBm
 5.265525183 GHz

1 PR VIEW SGL

2 RM VIEW LVL

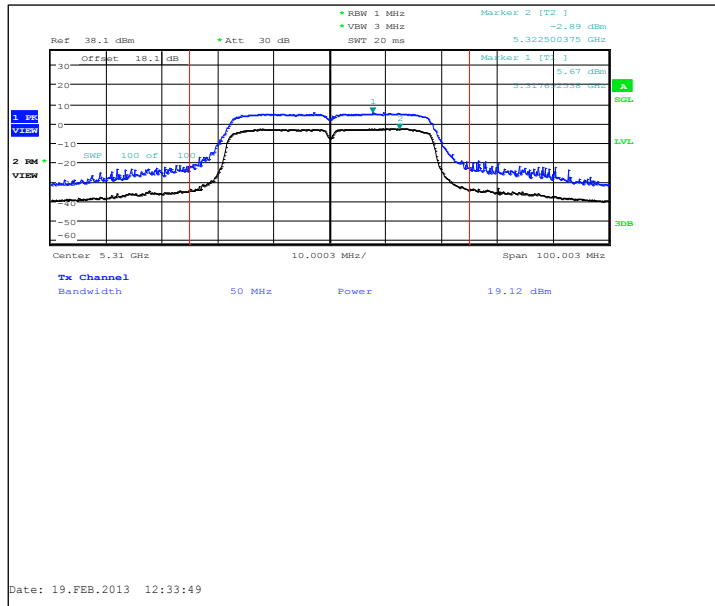
3dB

Center 5.27 GHz 10.0003 MHz/ Span 100.003 MHz

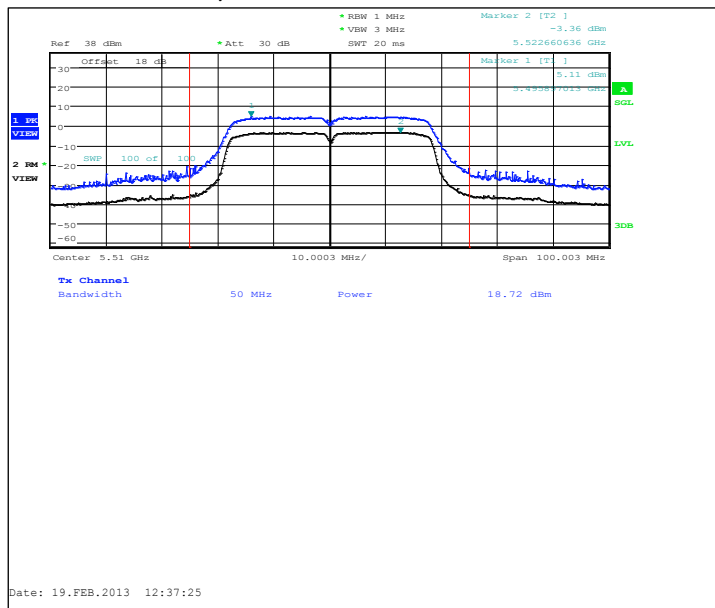
Tx Channel
 Bandwidth 50 MHz Power 19.16 dBm

Date: 19.FEB.2013 12:30:44

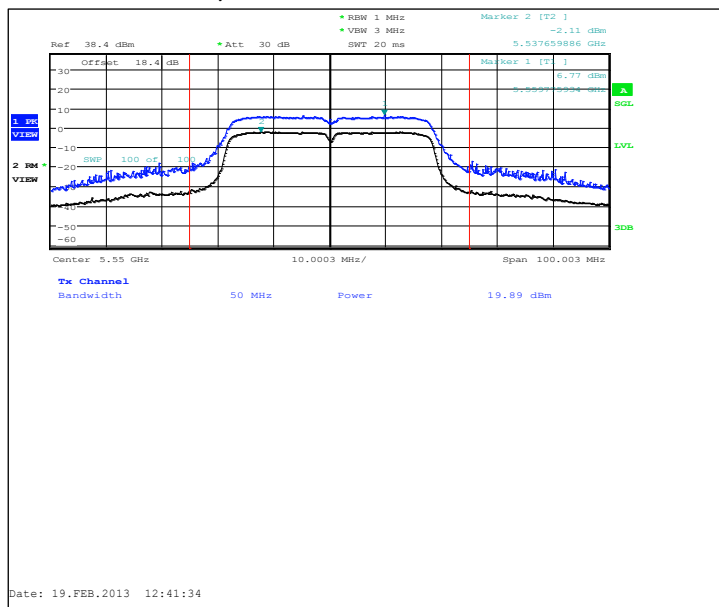
Channel 60+64 / 5310MHz



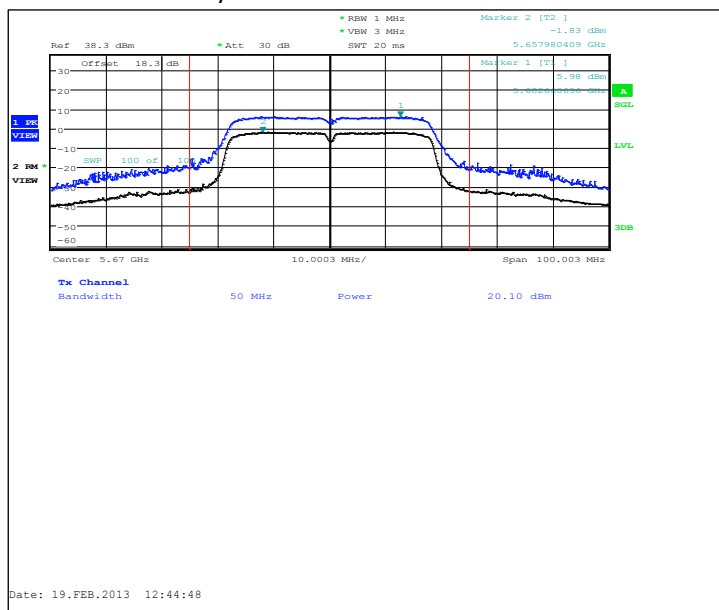
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



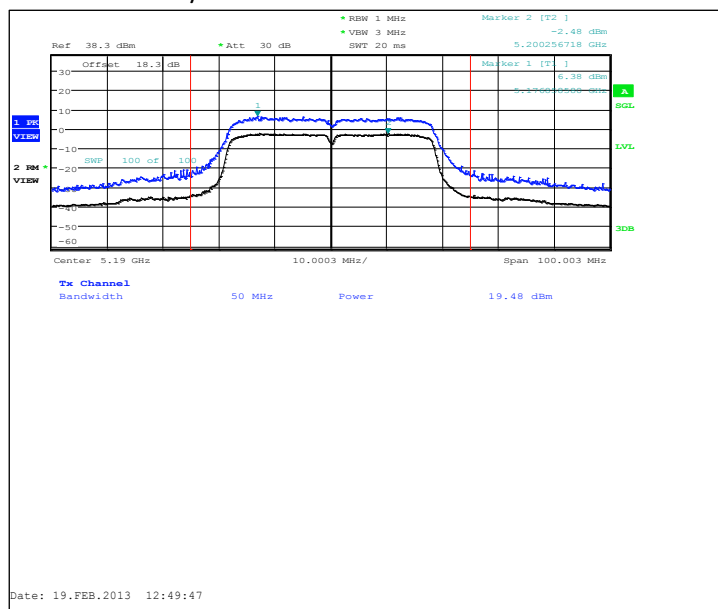
Channel 132+136 / 5670MHz



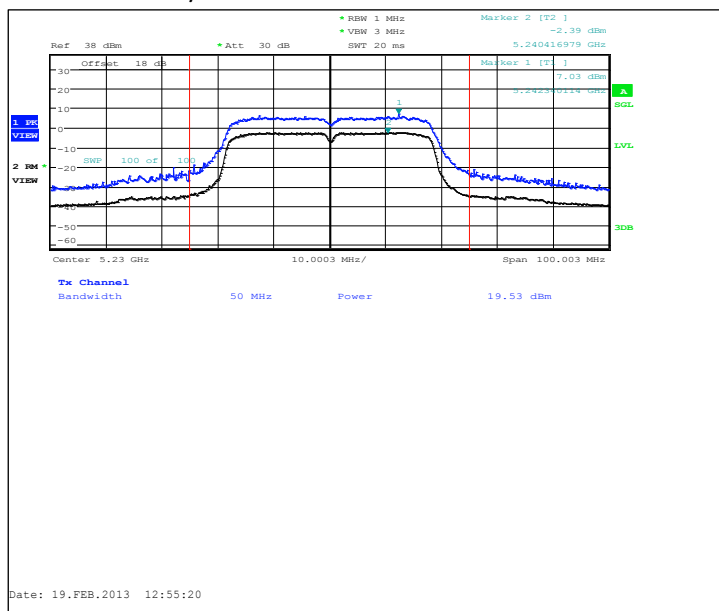
3.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f_c [MHz]	Peak excursion [dB]	Result
36+40 / 5190	8.86	PASSED
44+48 / 5230	9.41	PASSED
52+56 / 5270	8.62	PASSED
60+64 / 5310	9.12	PASSED
100+104 / 5510	8.36	PASSED
108+112 / 5550	8.53	PASSED
132+136 / 5670	8.69	PASSED

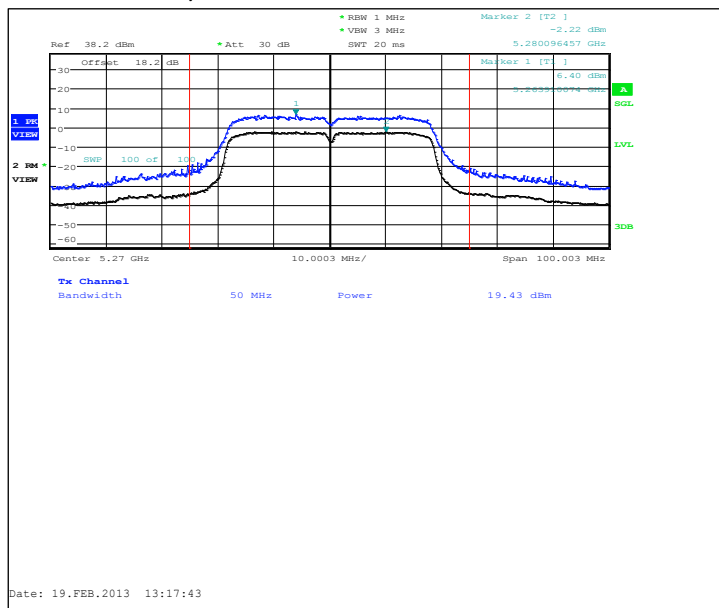
Channel 36+40 / 5190MHz



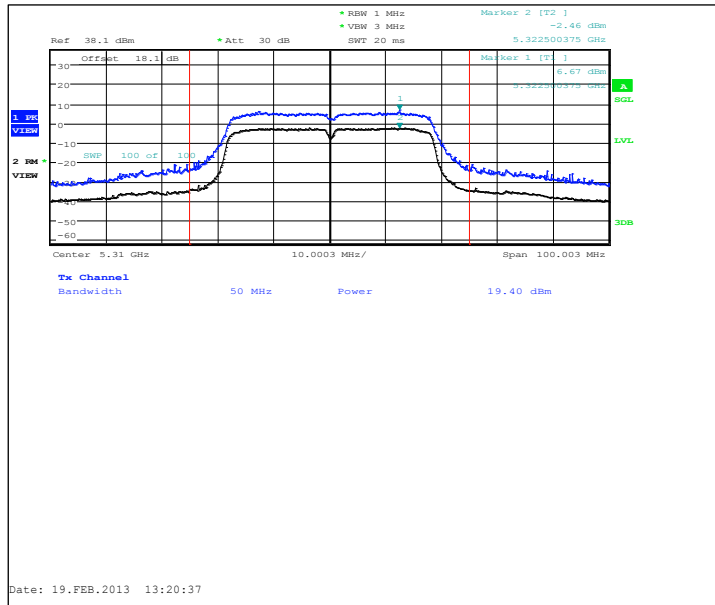
Channel 44+48 / 5230MHz



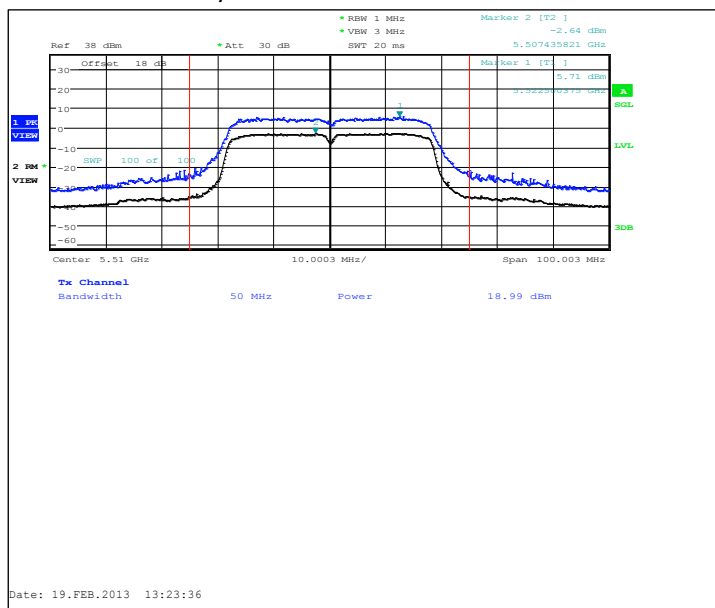
Channel 52+56 / 5270MHz



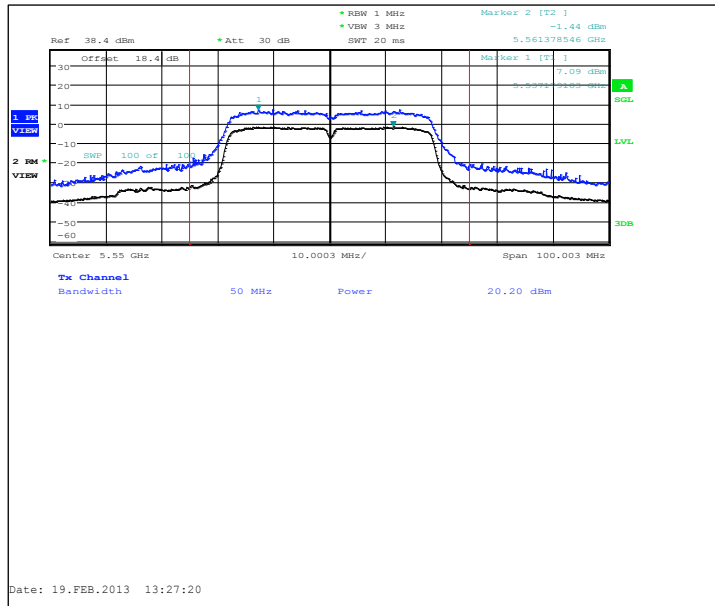
Channel 60+64 / 5310MHz



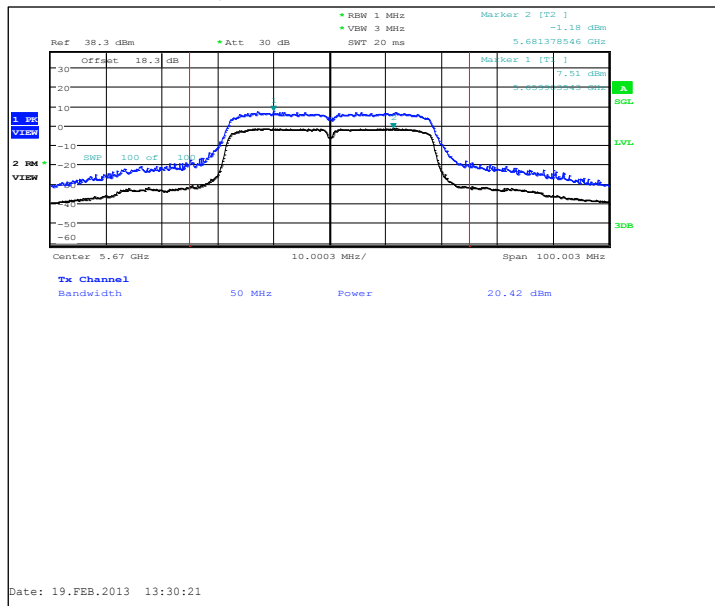
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



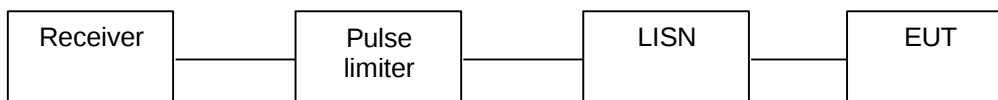
Channel 132+136 / 5670MHz



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

EUT with DUT number	RM-877, DUT 42984
Accessories with DUT numbers	BV-5XW, DUT 42971 ; AC-60U, DUT 42973 ; CA-190CD, DUT 42976 ; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	110v / 60Hz
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 48 / 101
Date of measurements	11-Mar-2013
Measured by	Timo Raiskio

4.1. Test Setup



4.2. Test method and limit

FCC15E_RM-877_11.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:

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

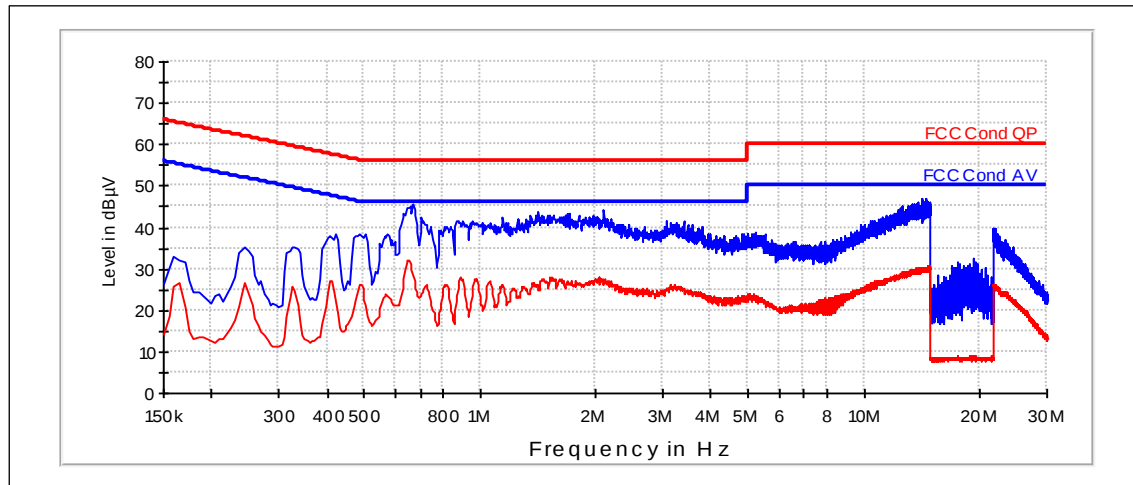
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

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. 5 GHz RLAN Test results

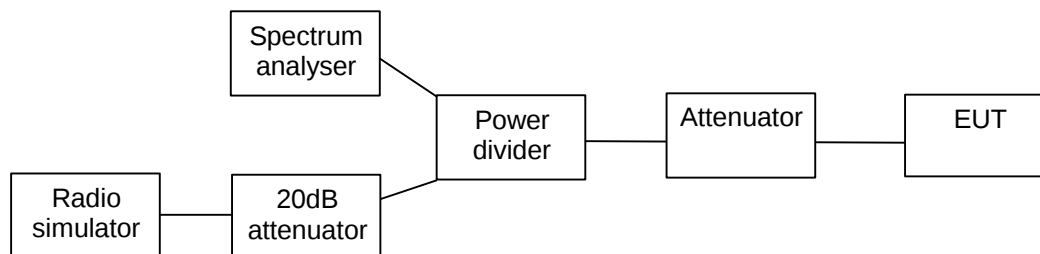
4.3.1 OFDM mode, 16-QAM modulation, 36 Mbps data rate



5. 26 dB bandwidth

EUT with DUT number	RM-877, DUT 42978
Accessories with DUT numbers	BV-5XW, DUT 42971 ; AC-60U, DUT 42973 ; CA-190CD, DUT 42977 ; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 38 / 102.1
Date of measurements	19-Feb-2013
Measured by	Timo Raiskio

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

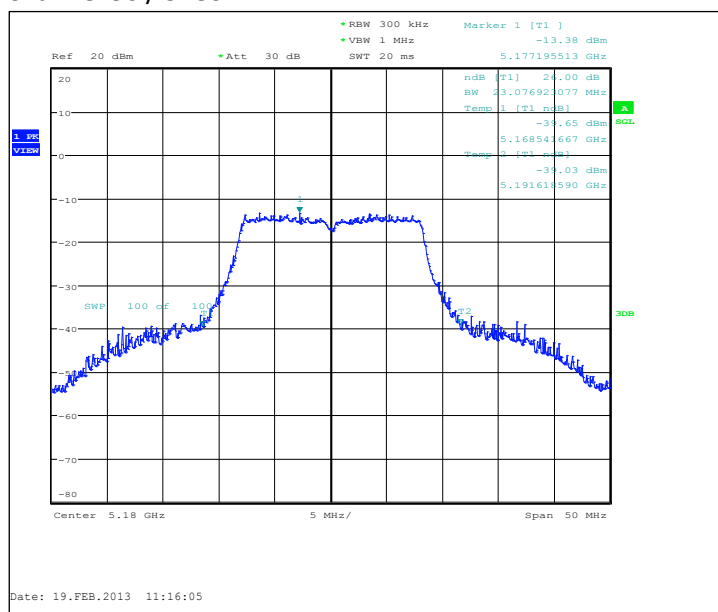
Limit [kHz]
No limit

5.3. 5 GHz RLAN Test results

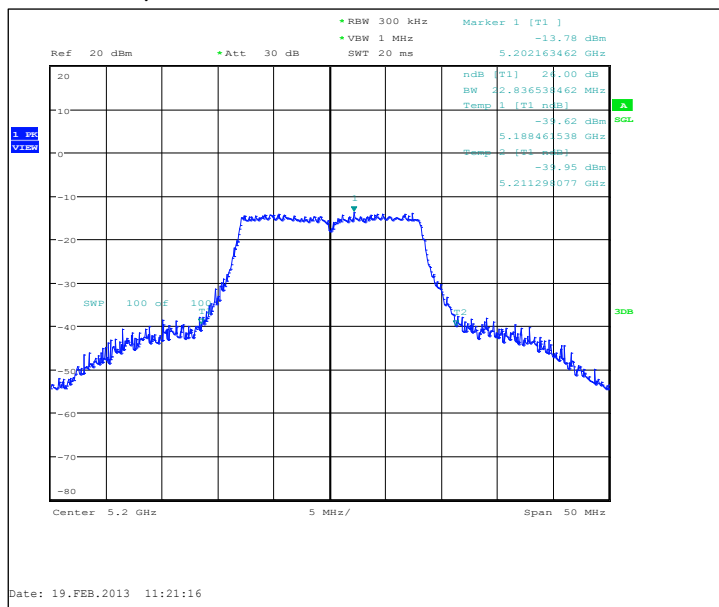
5.3.1 OFDM mode, BPSK modulation, 9 Mbps data rate

Channel / f _c [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180	23076.9	PASSED
40 / 5200	22836.5	PASSED
48 / 5240	22916.7	PASSED
52 / 5260	23477.6	PASSED
60 / 5300	22836.5	PASSED
64 / 5320	23157.1	PASSED
100 / 5500	22996.8	PASSED
116 / 5580	24118.6	PASSED
140 / 5700	22596.2	PASSED

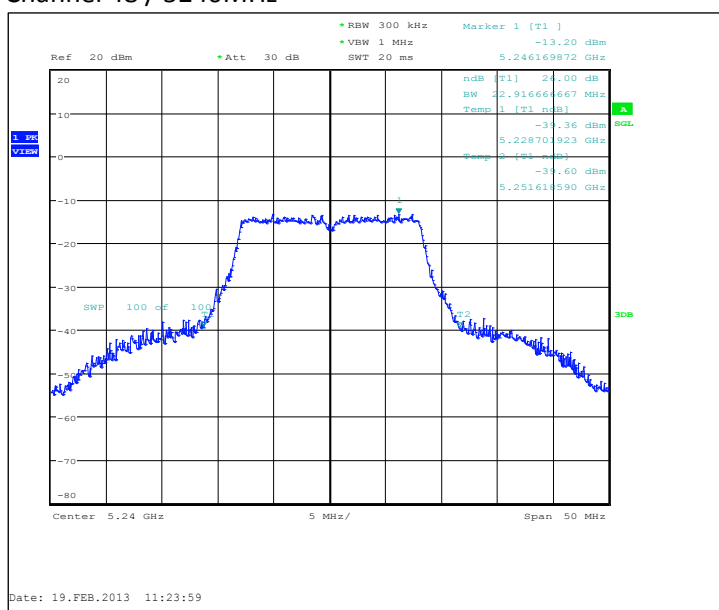
Channel 36 / 5180MHz



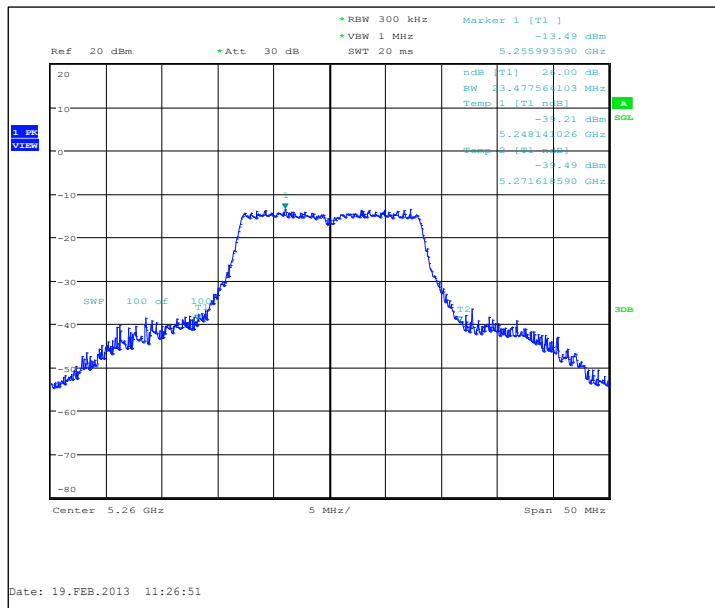
Channel 40 / 5200MHz



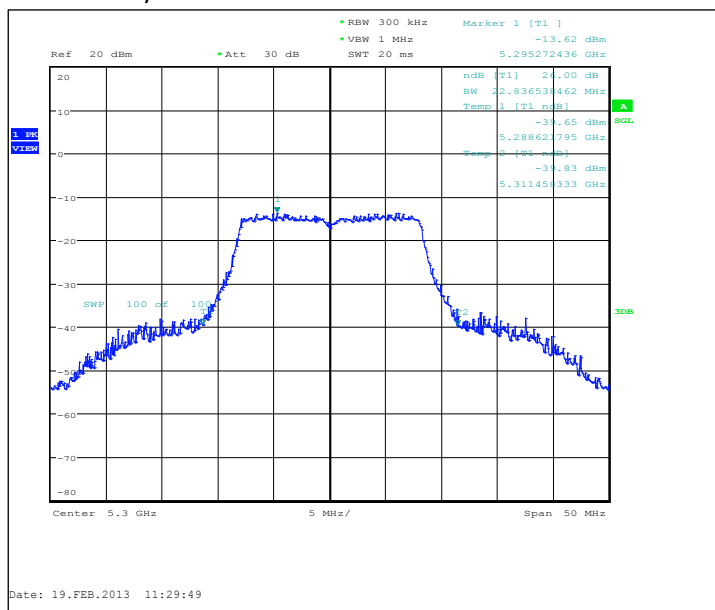
Channel 48 / 5240MHz



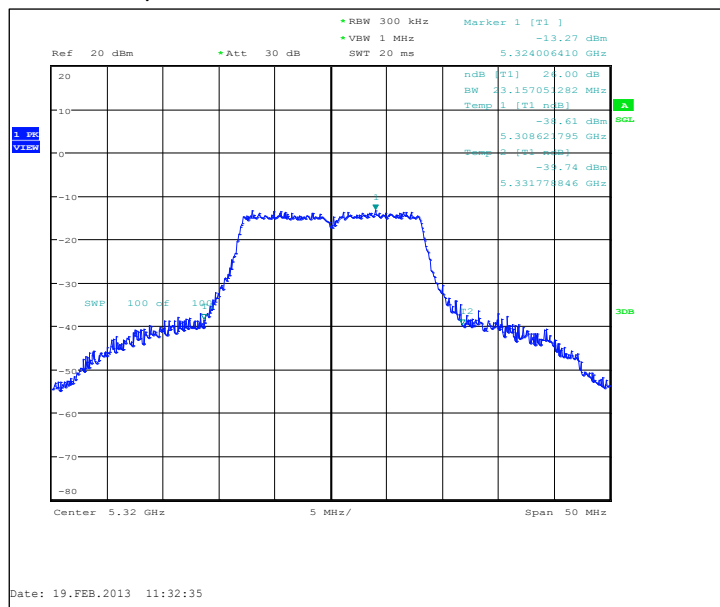
Channel 52 / 5260MHz



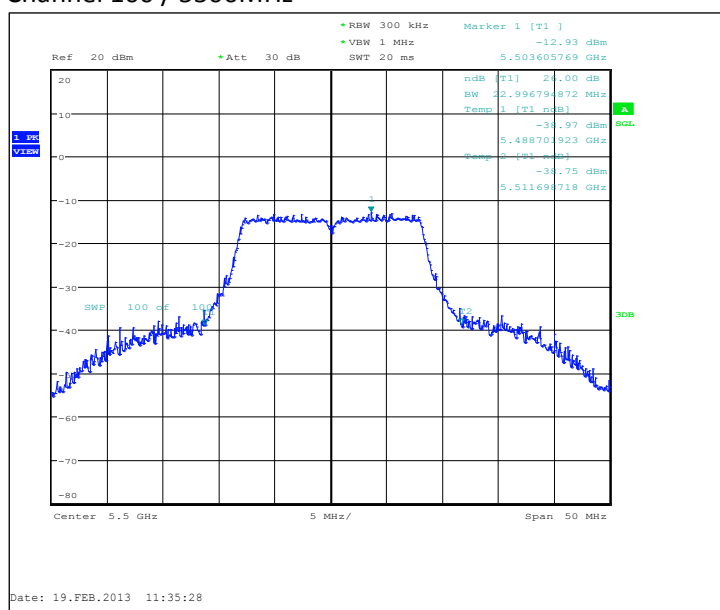
Channel 60 / 5300MHz



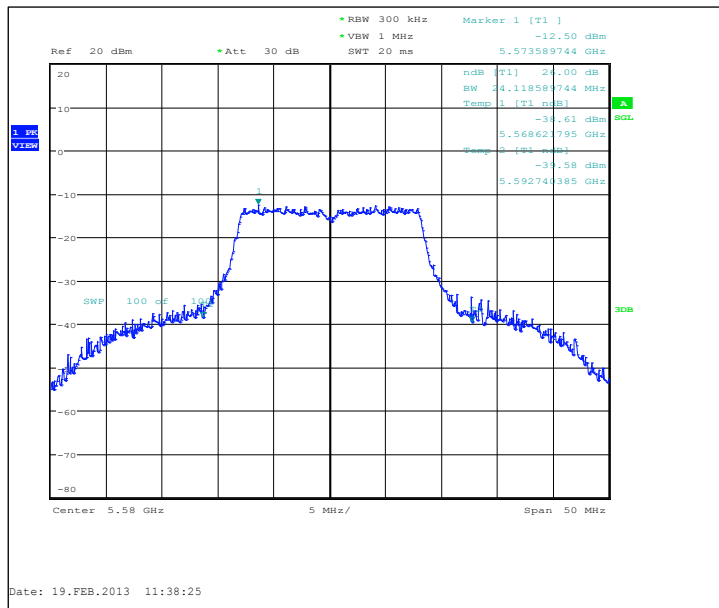
Channel 64 / 5320MHz



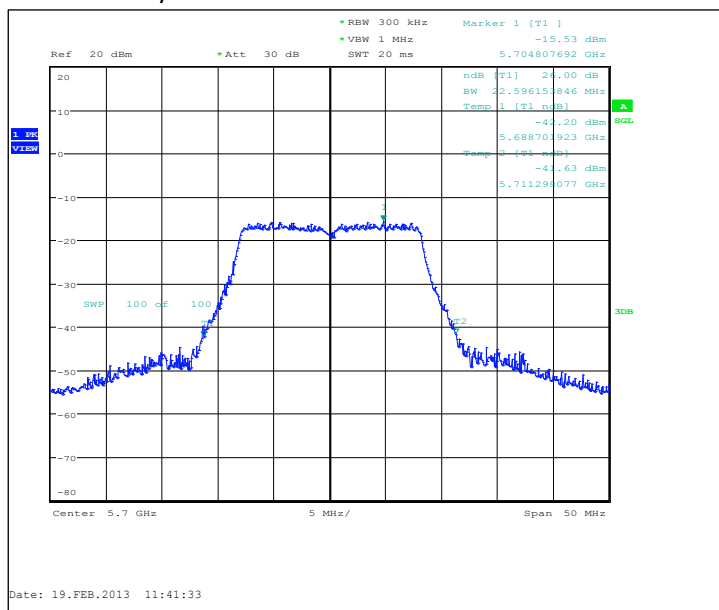
Channel 100 / 5500MHz



Channel 116 / 5580MHz



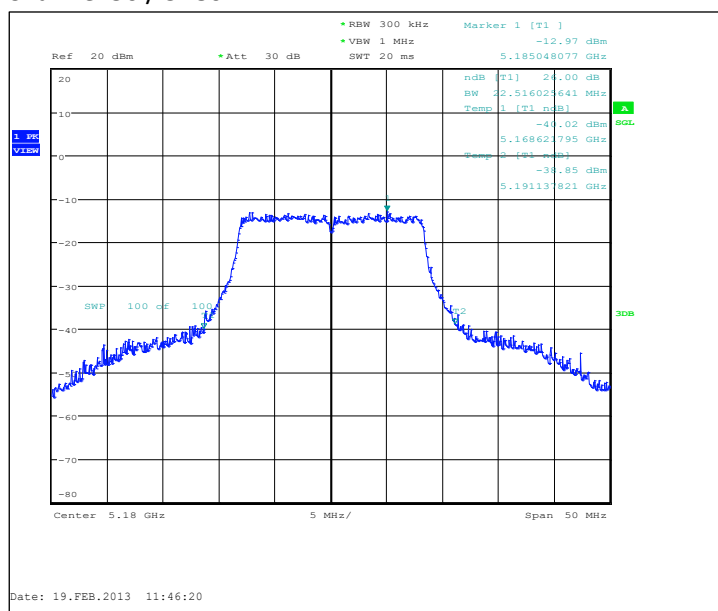
Channel 140 / 5700MHz



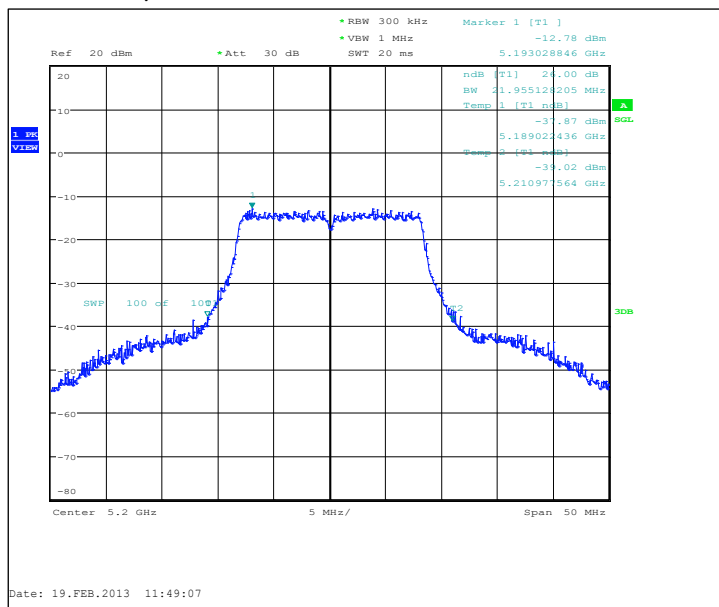
5.3.2 OFDM mode, 16-QAM modulation, 36 Mbps data rate

Channel / f_c [MHz]	26 dB bandwidth [kHz]	Result
36 / 5180	22516	PASSED
40 / 5200	21955.1	PASSED
48 / 5240	22596.2	PASSED
52 / 5260	22756.4	PASSED
60 / 5300	22916.7	PASSED
64 / 5320	22516	PASSED
100 / 5500	22596.2	PASSED
116 / 5580	22916.7	PASSED
140 / 5700	22115.4	PASSED

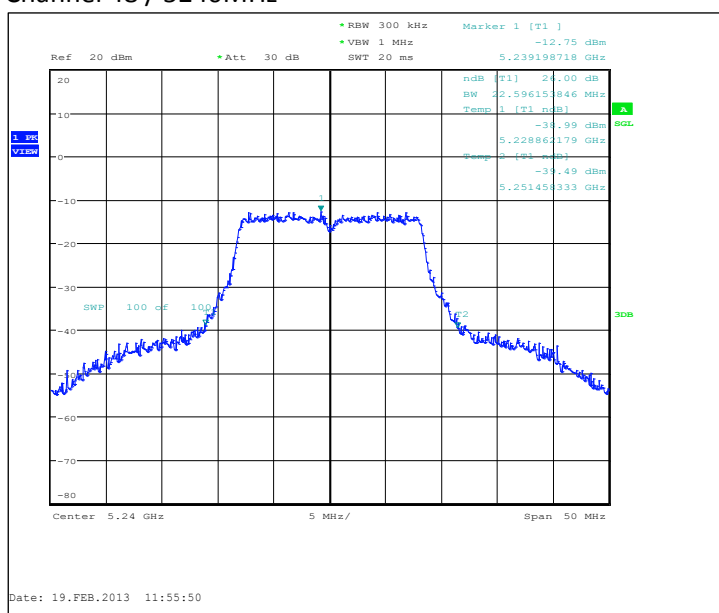
Channel 36 / 5180MHz



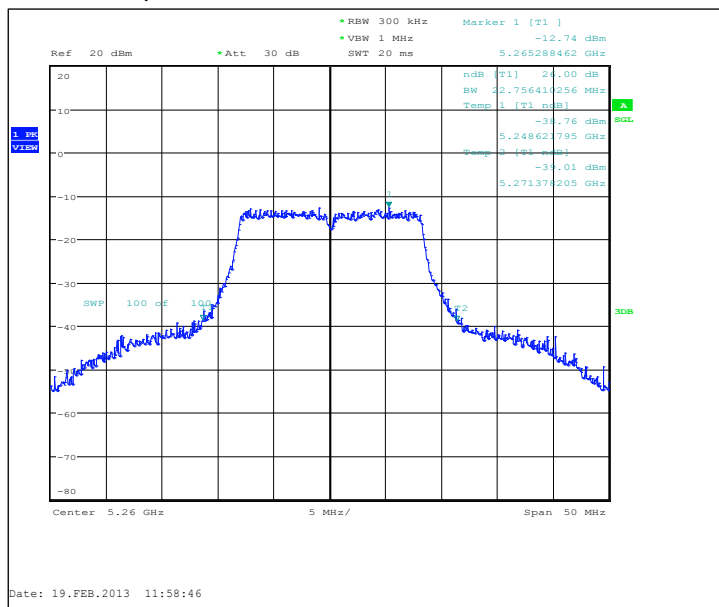
Channel 40 / 5200MHz



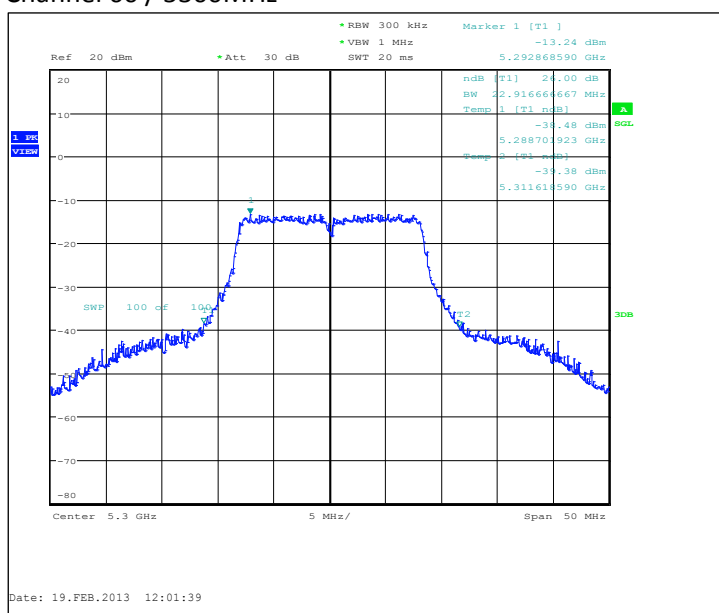
Channel 48 / 5240MHz



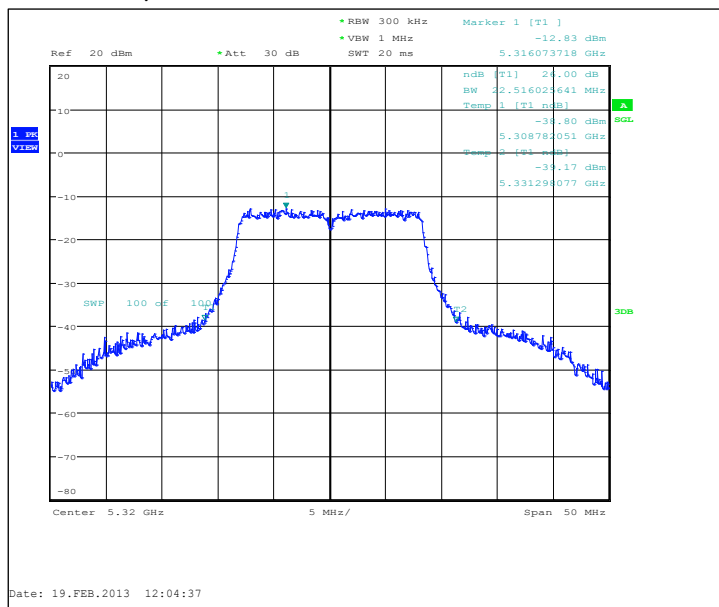
Channel 52 / 5260MHz



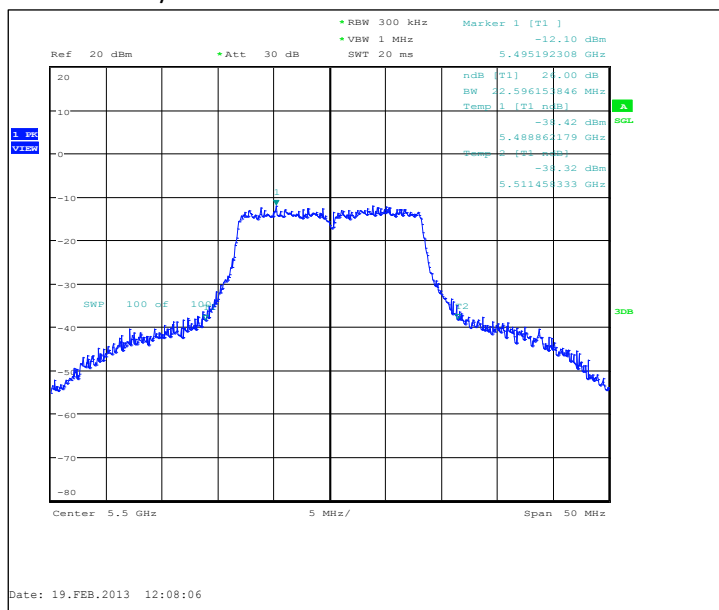
Channel 60 / 5300MHz



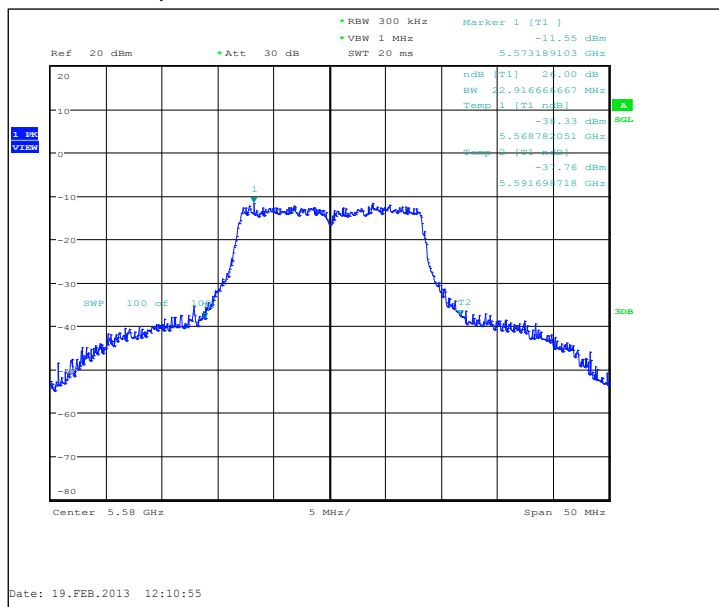
Channel 64 / 5320MHz



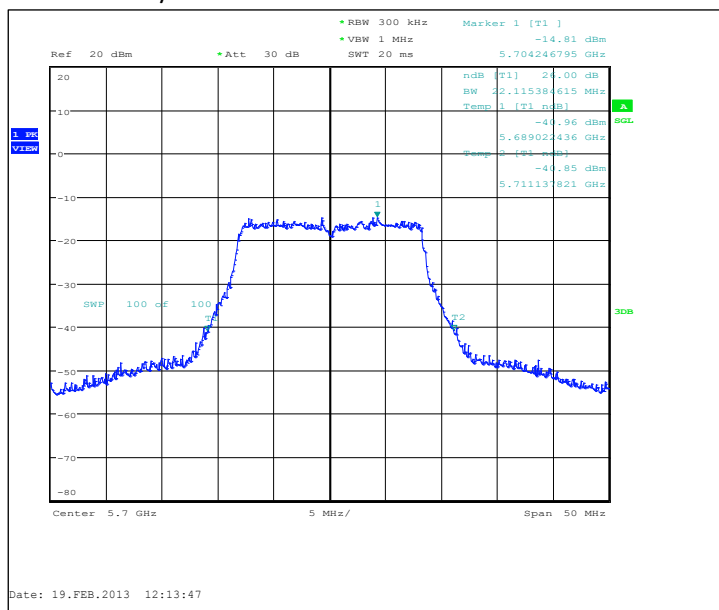
Channel 100 / 5500MHz



Channel 116 / 5580MHz



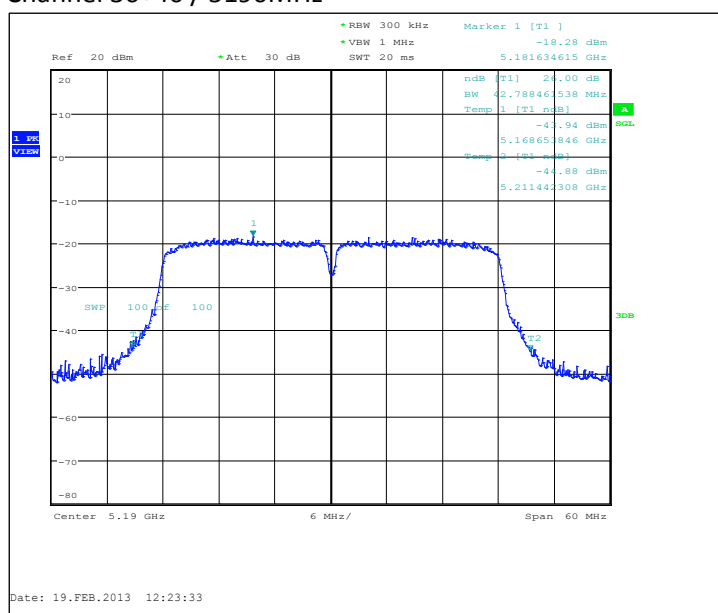
Channel 140 / 5700MHz



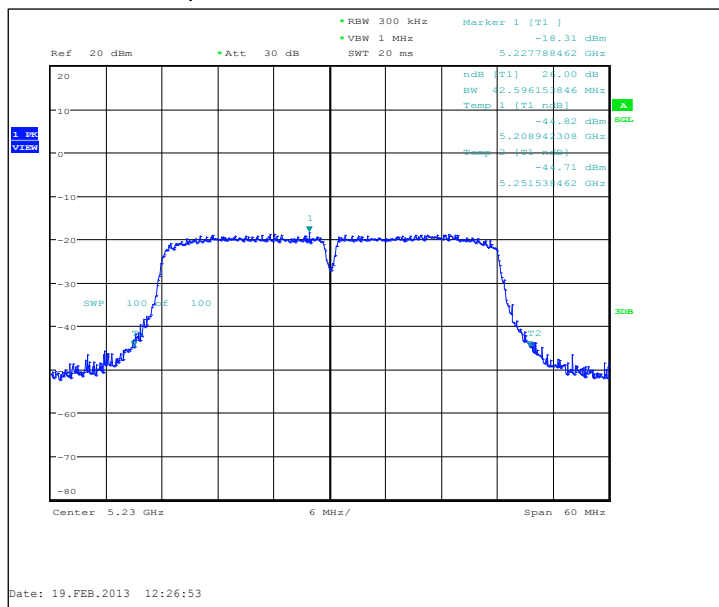
5.3.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _c [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190	42788.5	PASSED
44+48 / 5230	42596.2	PASSED
52+56 / 5270	42500	PASSED
60+64 / 5310	42500	PASSED
100+104 / 5510	42500	PASSED
108+112 / 5550	43365.4	PASSED
132+136 / 5670	43365.4	PASSED

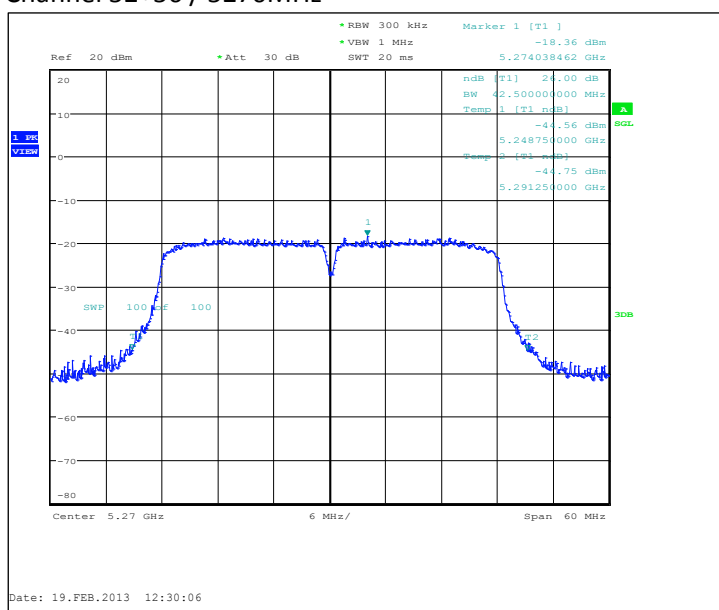
Channel 36+40 / 5190MHz



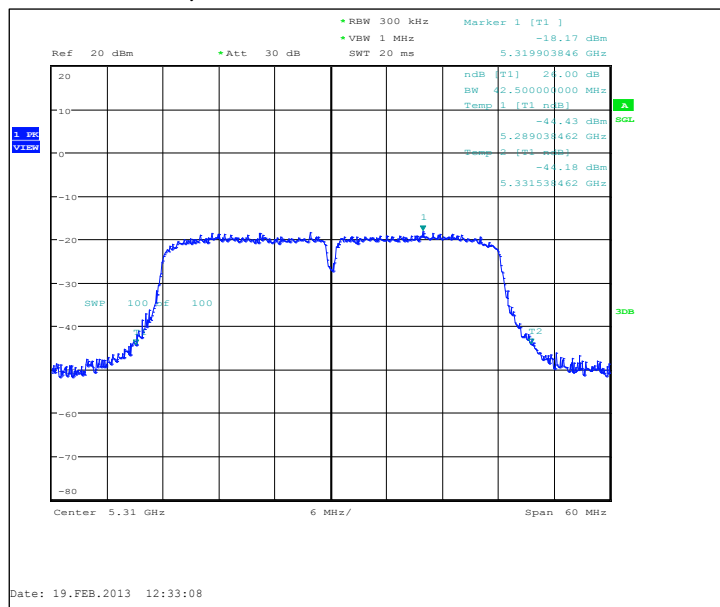
Channel 44+48 / 5230MHz



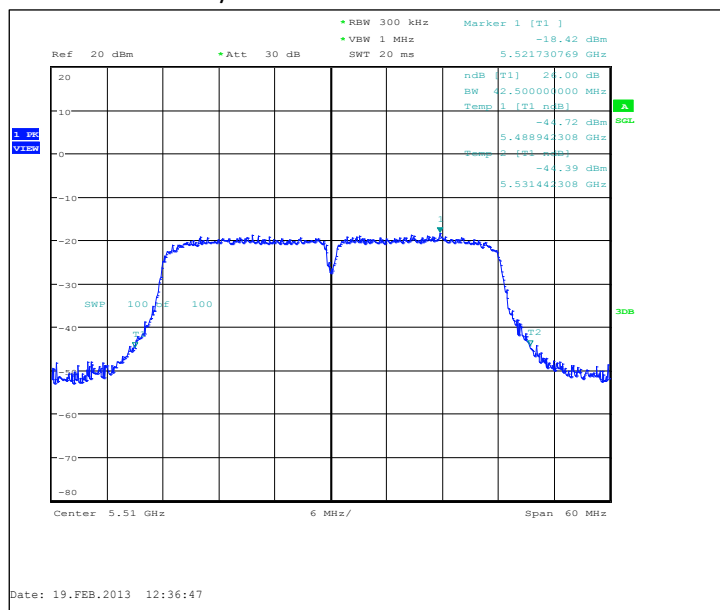
Channel 52+56 / 5270MHz



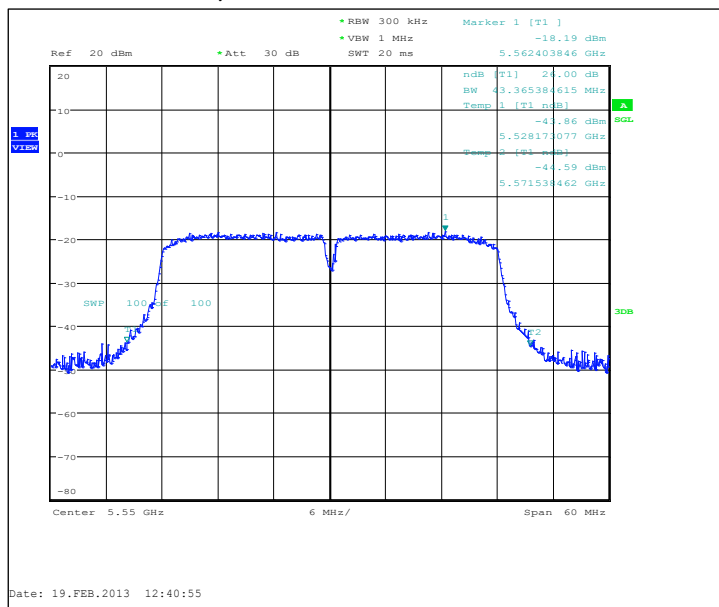
Channel 60+64 / 5310MHz



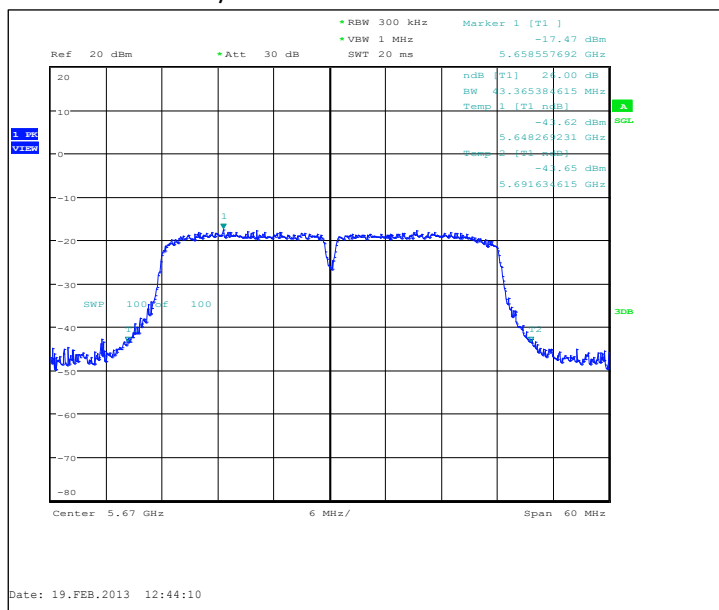
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



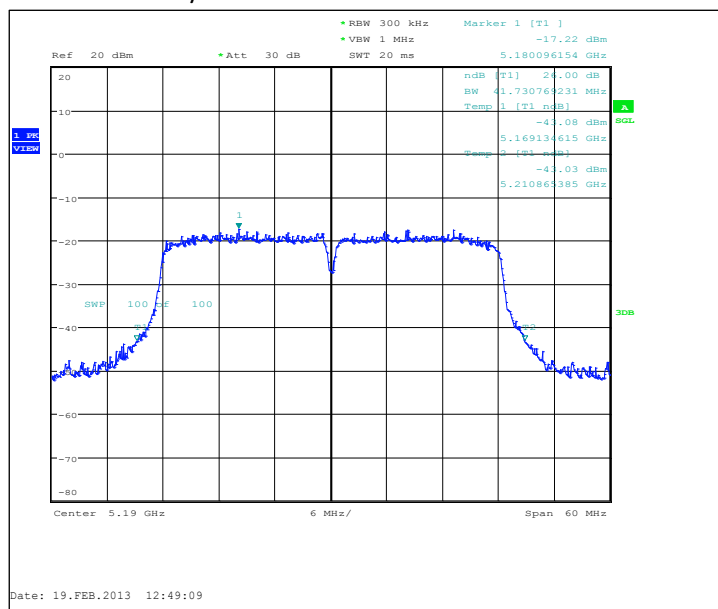
Channel 132+136 / 5670MHz



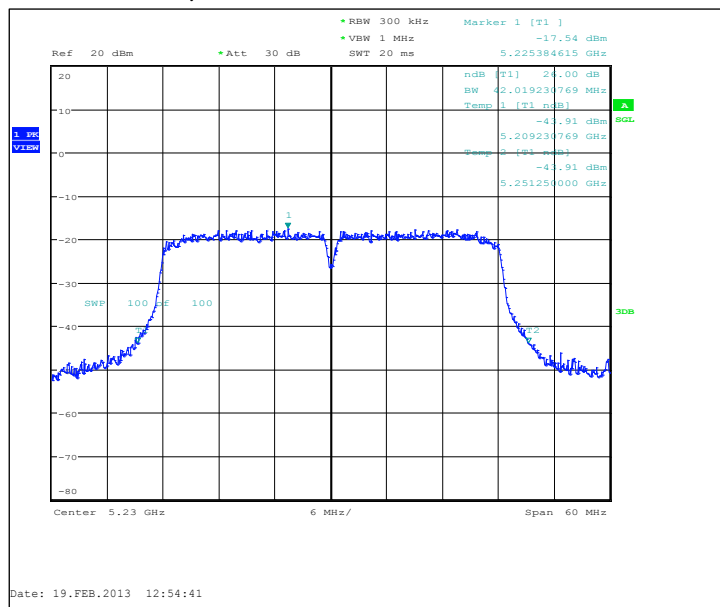
5.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

Channel / f_c [MHz]	26 dB bandwidth [kHz]	Result
36+40 / 5190	41730.8	PASSED
44+48 / 5230	42019.2	PASSED
52+56 / 5270	41826.9	PASSED
60+64 / 5310	42115.4	PASSED
100+104 / 5510	41923.1	PASSED
108+112 / 5550	42403.8	PASSED
132+136 / 5670	42019.2	PASSED

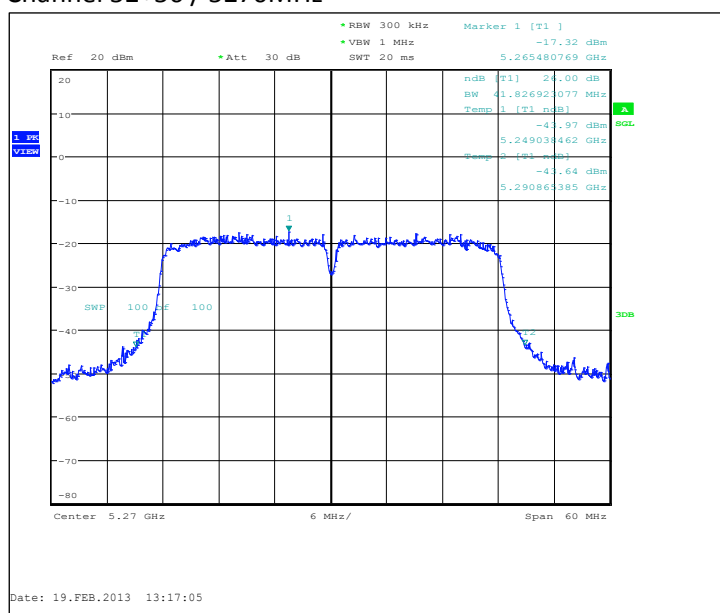
Channel 36+40 / 5190MHz



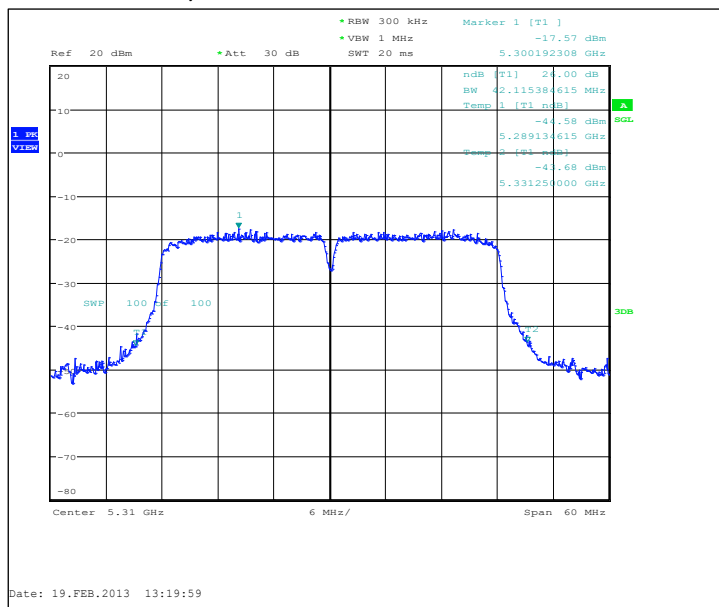
Channel 44+48 / 5230MHz



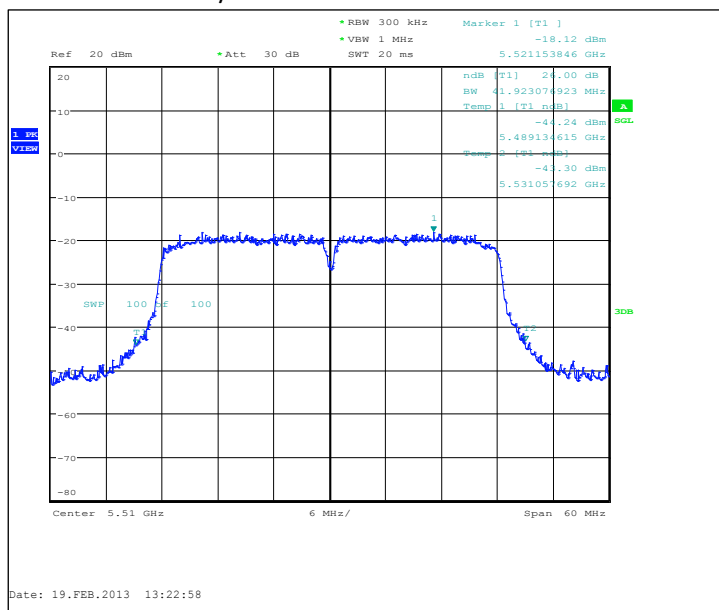
Channel 52+56 / 5270MHz



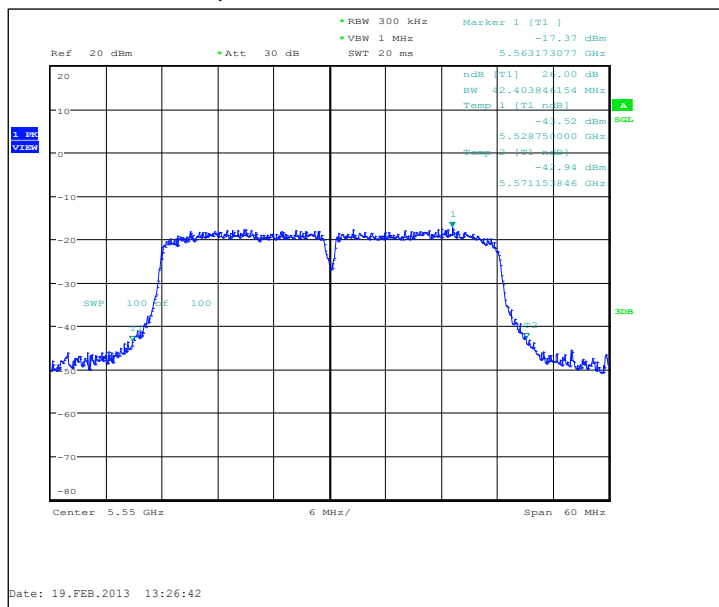
Channel 60+64 / 5310MHz



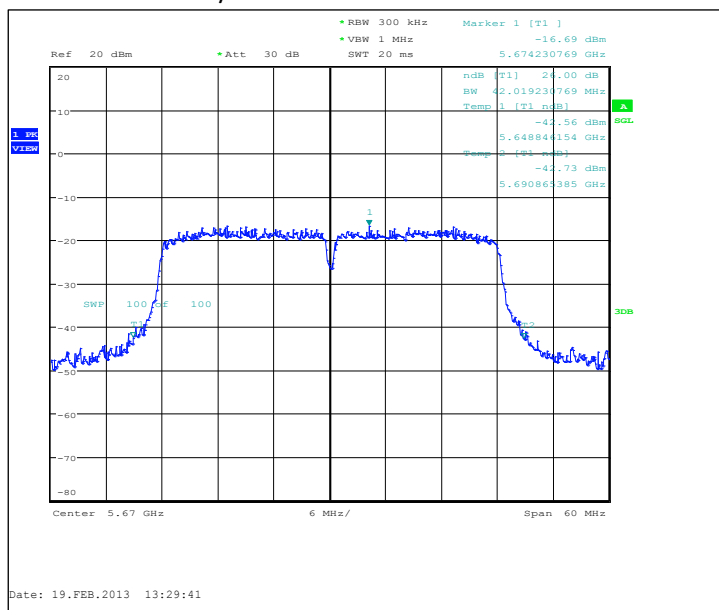
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



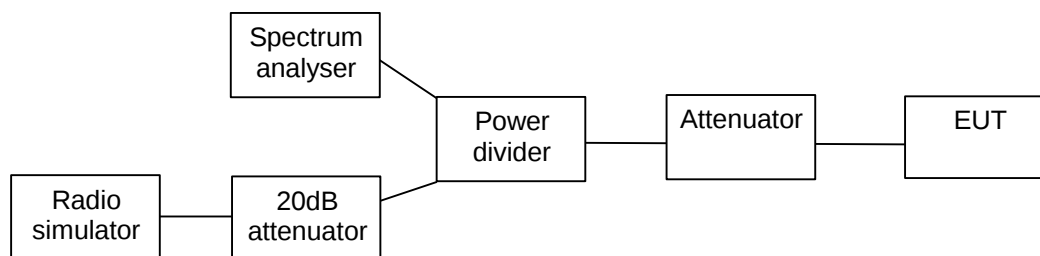
Channel 132+136 / 5670MHz



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

EUT with DUT number	RM-877, DUT 42978
Accessories with DUT numbers	BV-5XW, DUT 42971 ; AC-60U, DUT 42973 ; CA-190CD, DUT 42977 ; WH-208, DUT 42831
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 38 / 102.1
Date of measurements	19-Feb-2013
Measured by	Timo Raiskio

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

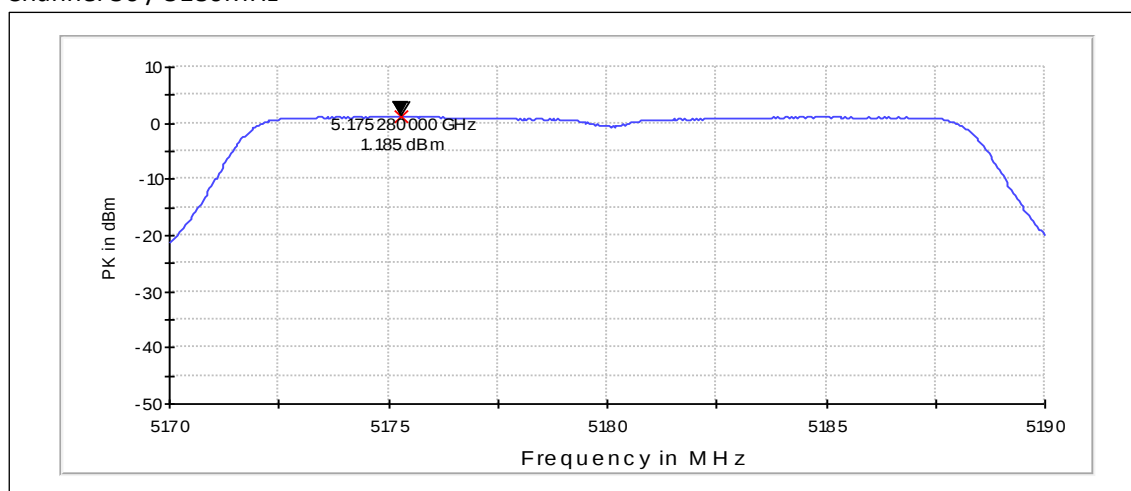
6.3. 5 GHz RLAN Test results

6.3.1 OFDM mode, BPSK modulation, 9 Mbps data rate

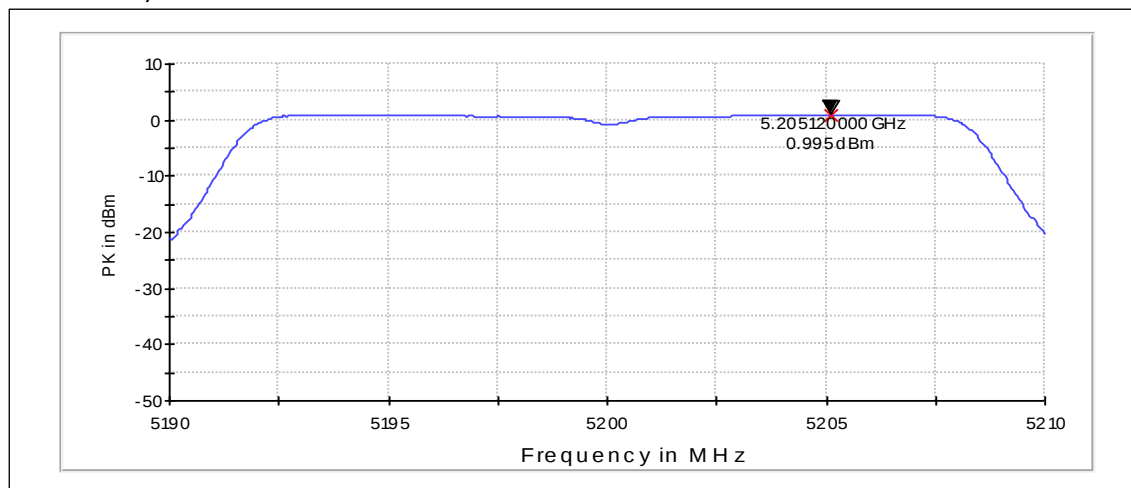
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f _c [MHz]	P [dBm]	Result
36 / 5180	1.19	PASSED
40 / 5200	0.99	PASSED
48 / 5240	1.07	PASSED
52 / 5260	1.21	PASSED
60 / 5300	1.09	PASSED
64 / 5320	1.17	PASSED
100 / 5500	1.55	PASSED
116 / 5580	2.17	PASSED
140 / 5700	-0.96	PASSED

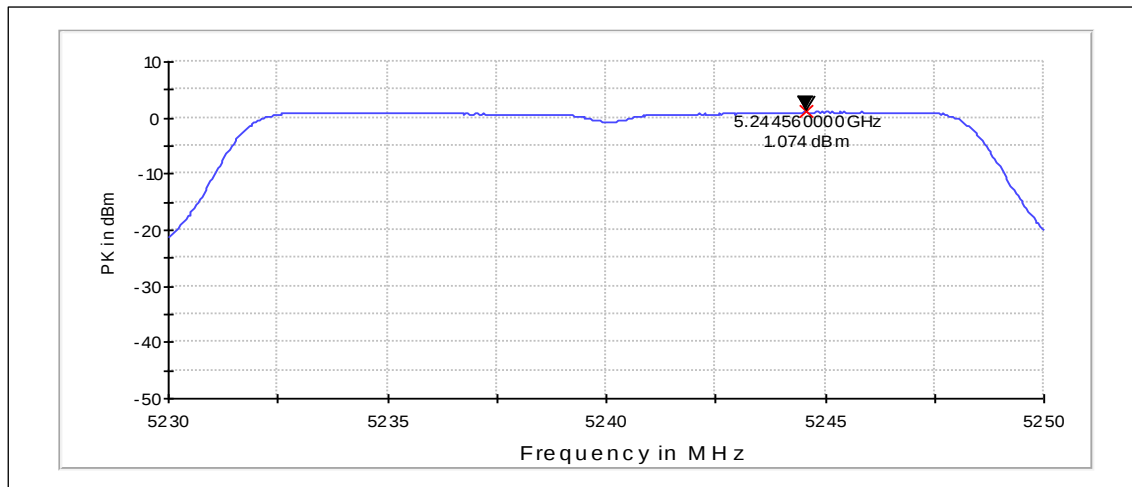
Channel 36 / 5180MHz



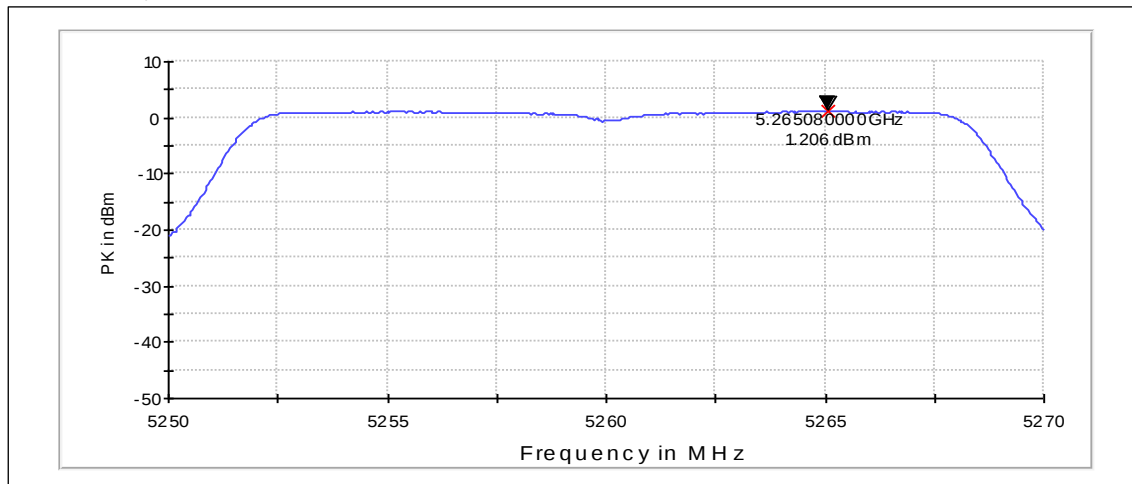
Channel 40 / 5200MHz



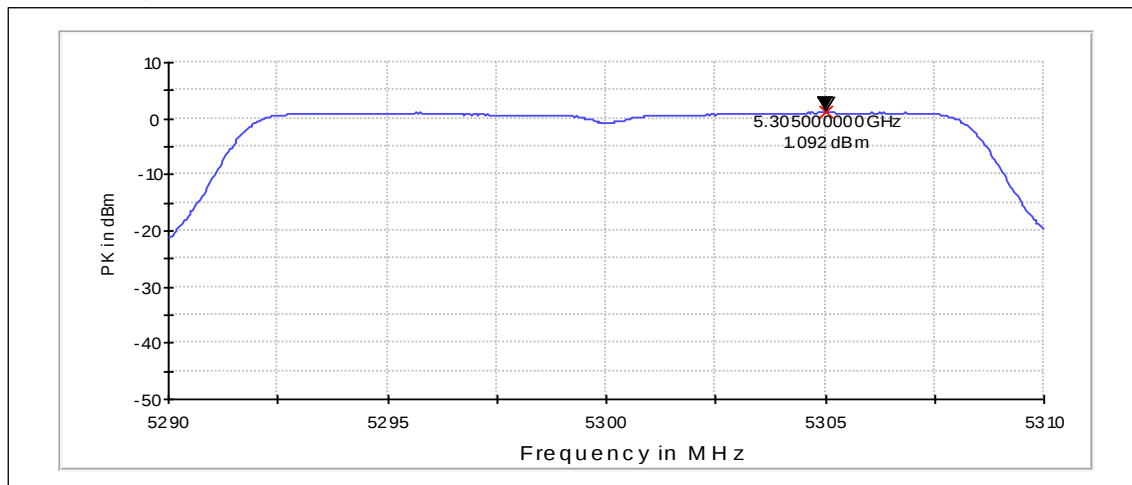
Channel 48 / 5240MHz



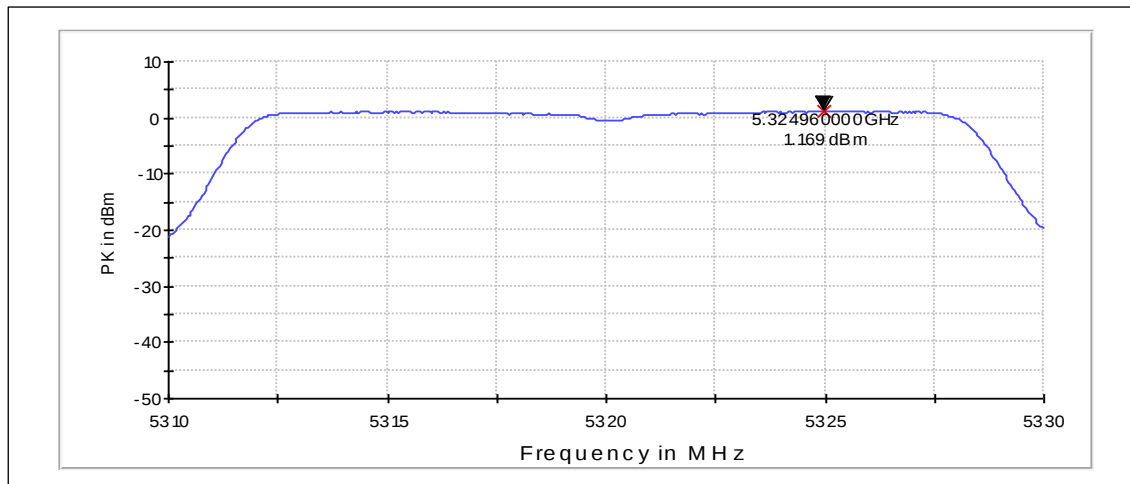
Channel 52 / 5260MHz



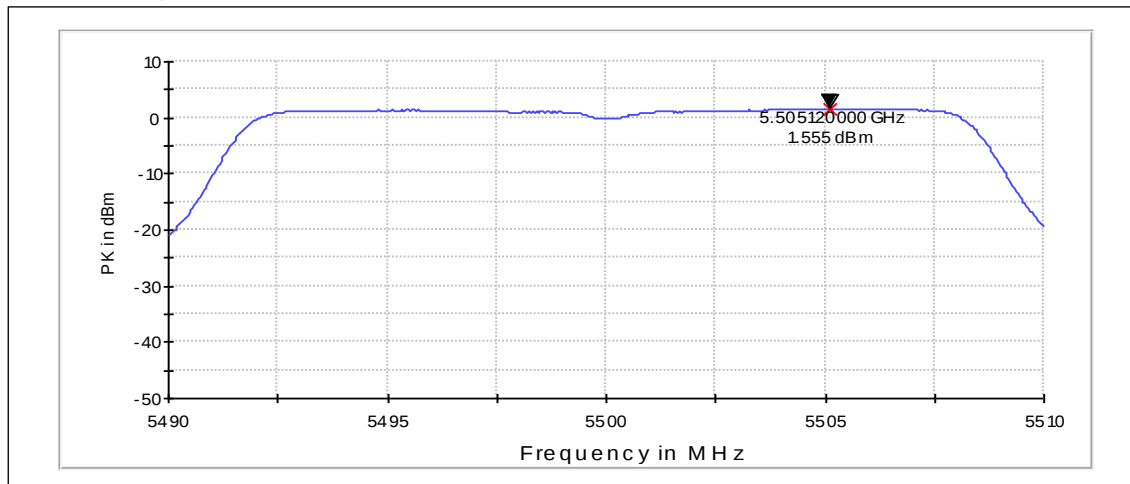
Channel 60 / 5300MHz



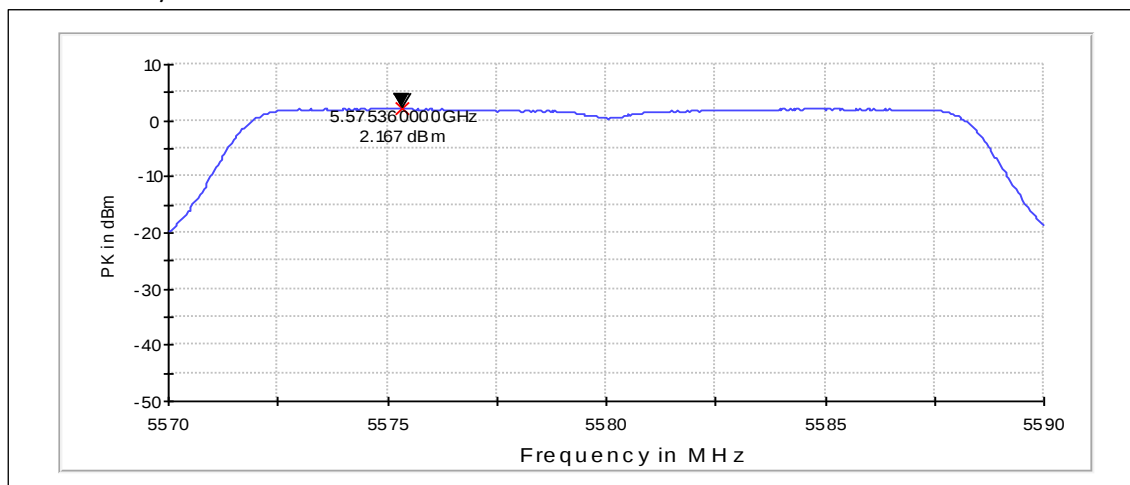
Channel 64 / 5320MHz



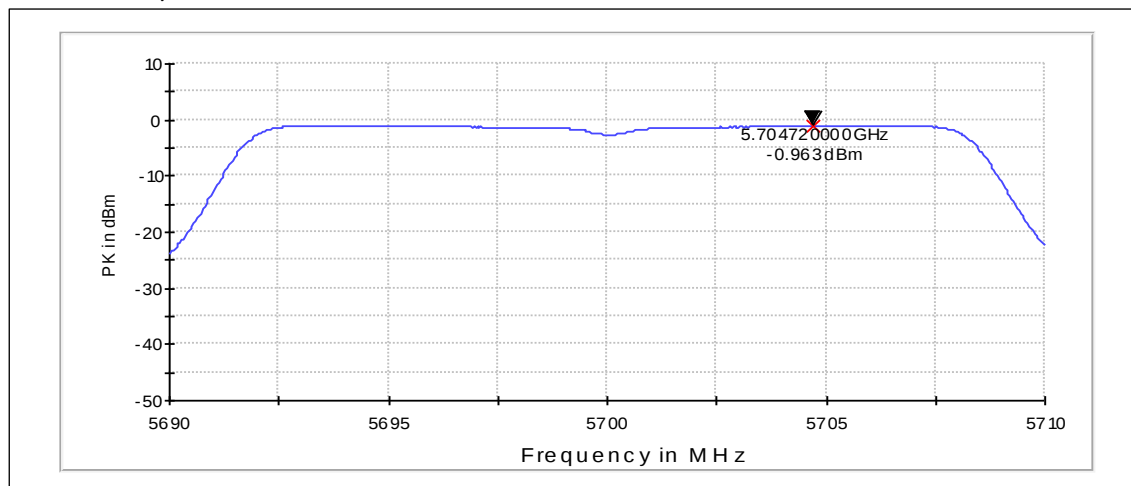
Channel 100 / 5500MHz



Channel 116 / 5580MHz



Channel 140 / 5700MHz

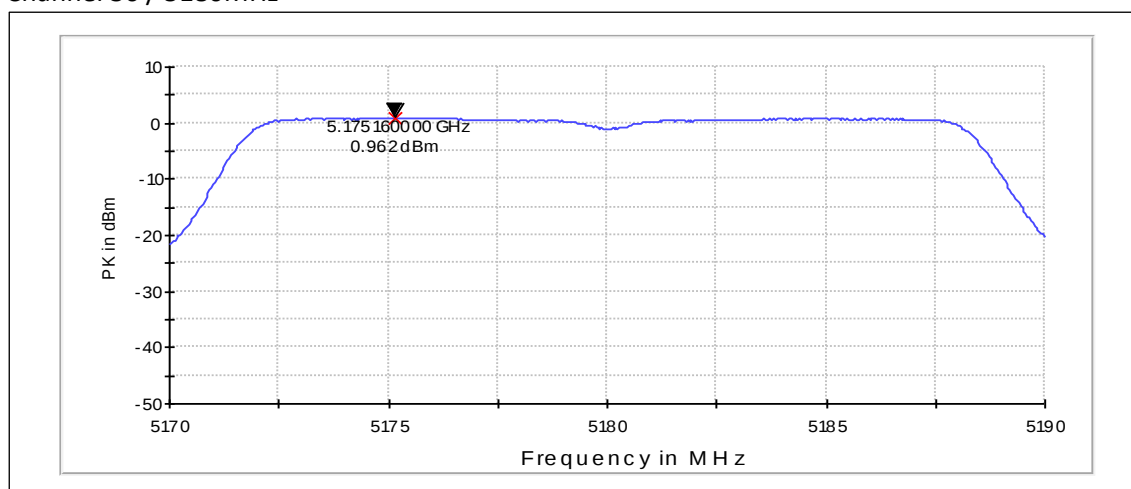


6.3.2 OFDM mode, 16-QAM modulation, 36 Mbps data rate

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

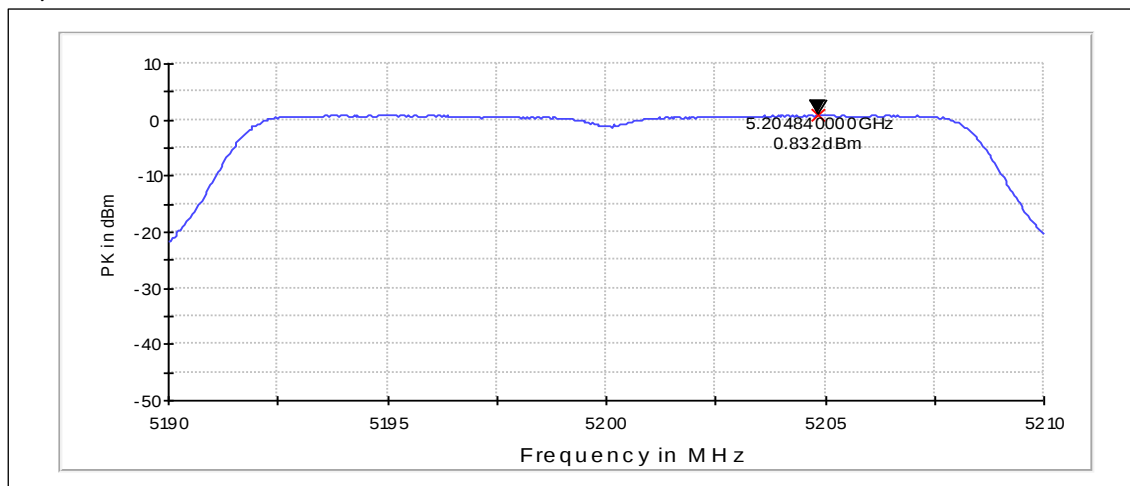
Channel / f_c [MHz]	P [dBm]	Result
36 / 5180	0.96	PASSED
40 / 5200	0.83	PASSED
48 / 5240	0.88	PASSED
52 / 5260	1.03	PASSED
60 / 5300	0.9	PASSED
64 / 5320	1.1	PASSED
100 / 5500	1.5	PASSED
116 / 5580	2.08	PASSED
140 / 5700	-1.01	PASSED

Channel 36 / 5180MHz

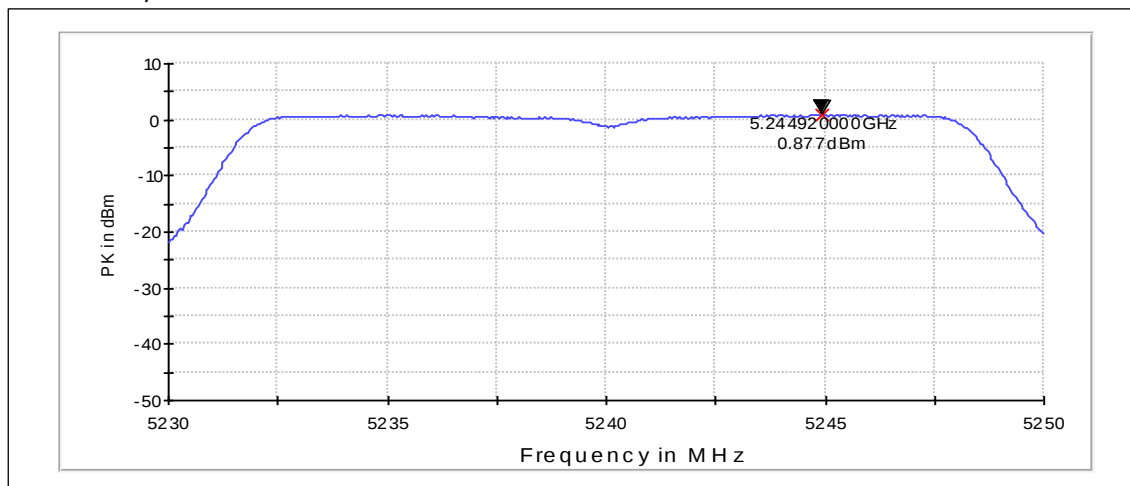


Channel

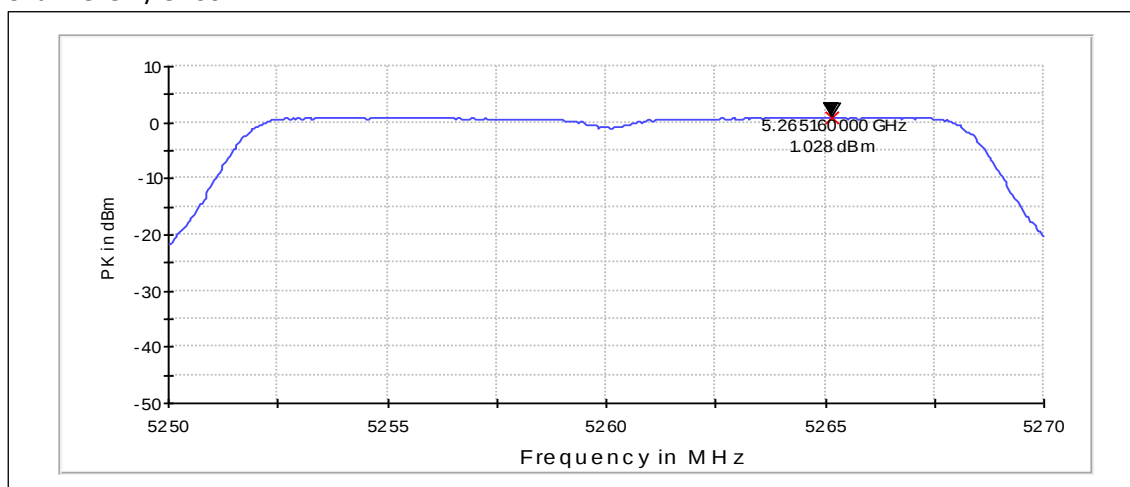
40 / 5200MHz



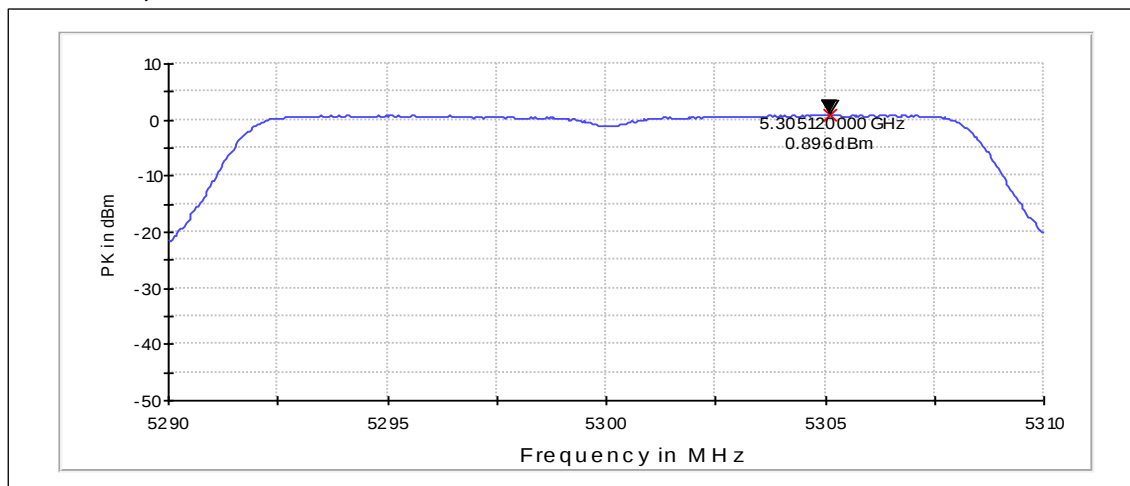
Channel 48 / 5240MHz



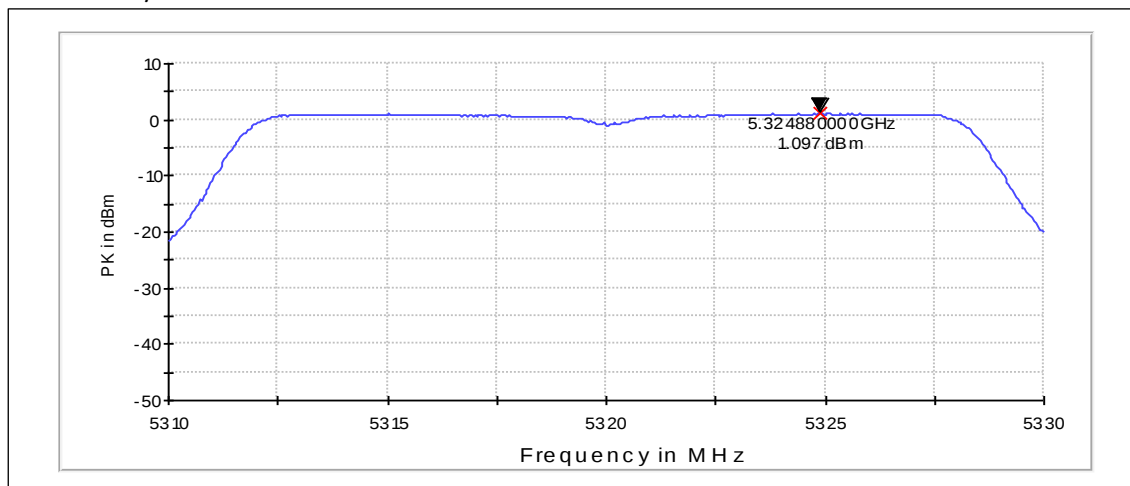
Channel 52 / 5260MHz



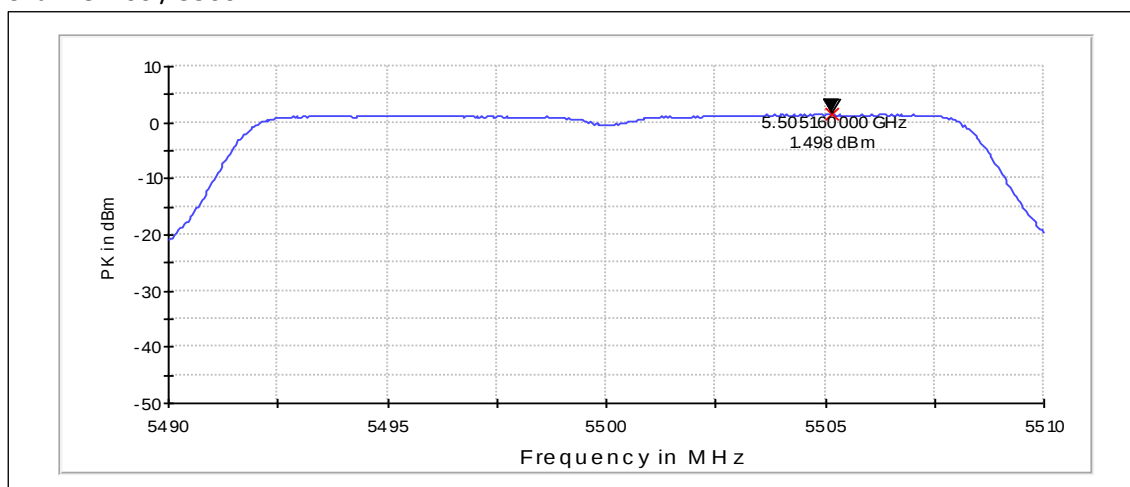
Channel 60 / 5300MHz



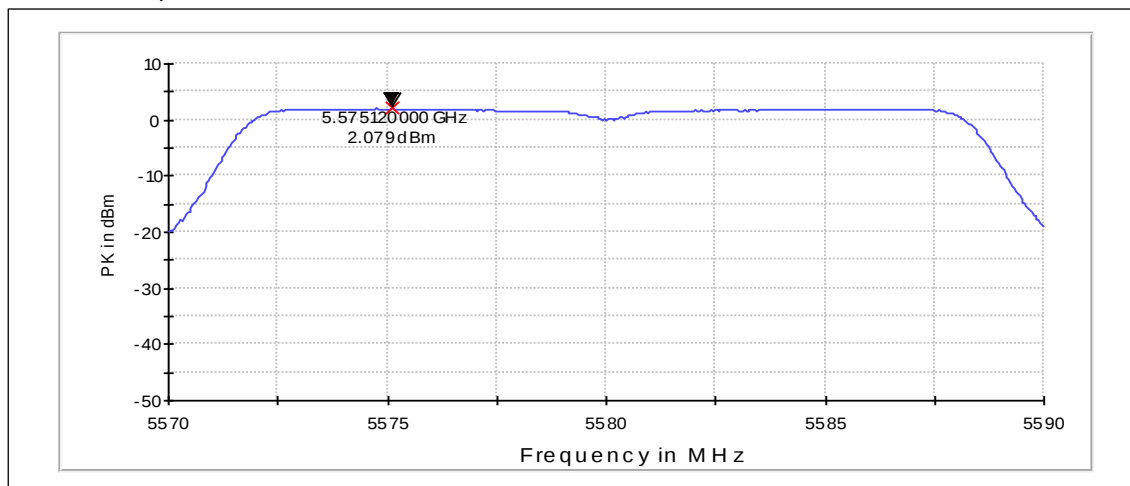
Channel 64 / 5320MHz



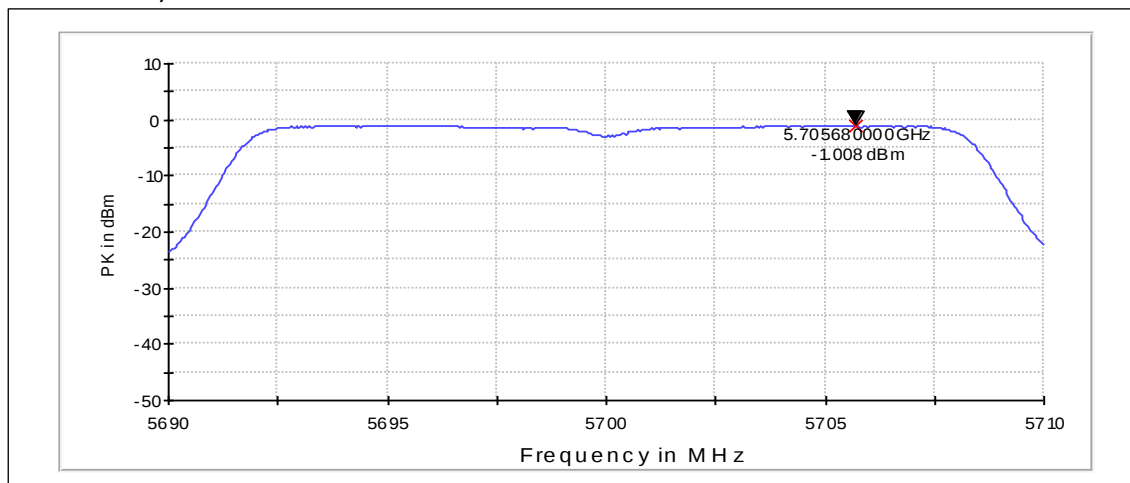
Channel 100 / 5500MHz



Channel 116 / 5580MHz



Channel 140 / 5700MHz

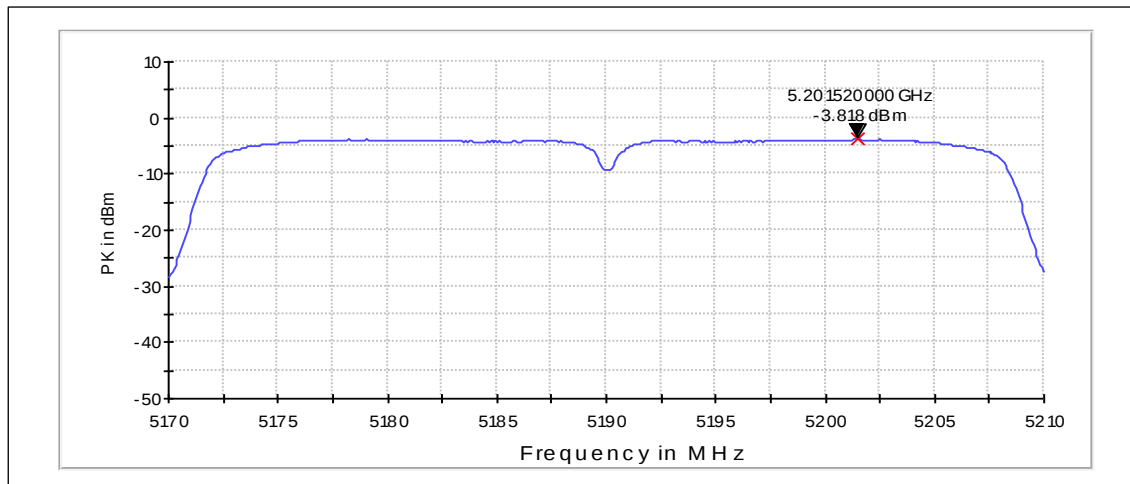


6.3.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

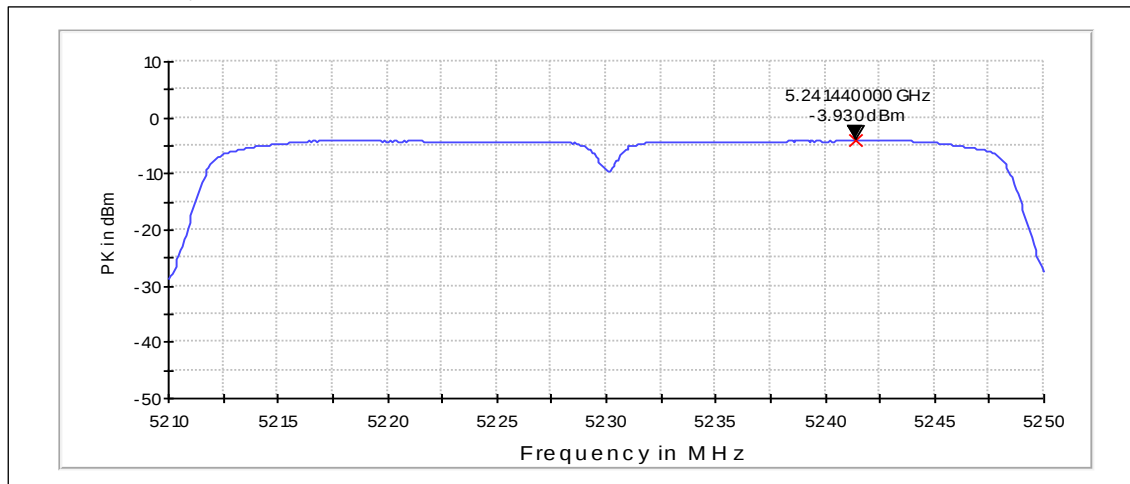
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f _c [MHz]	P [dBm]	Result
36+40 / 5190	-3.82	PASSED
44+48 / 5230	-3.93	PASSED
52+56 / 5270	-3.88	PASSED
60+64 / 5310	-3.8	PASSED
100+104 / 5510	-4.21	PASSED
108+112 / 5550	-3.13	PASSED
132+136 / 5670	-2.73	PASSED

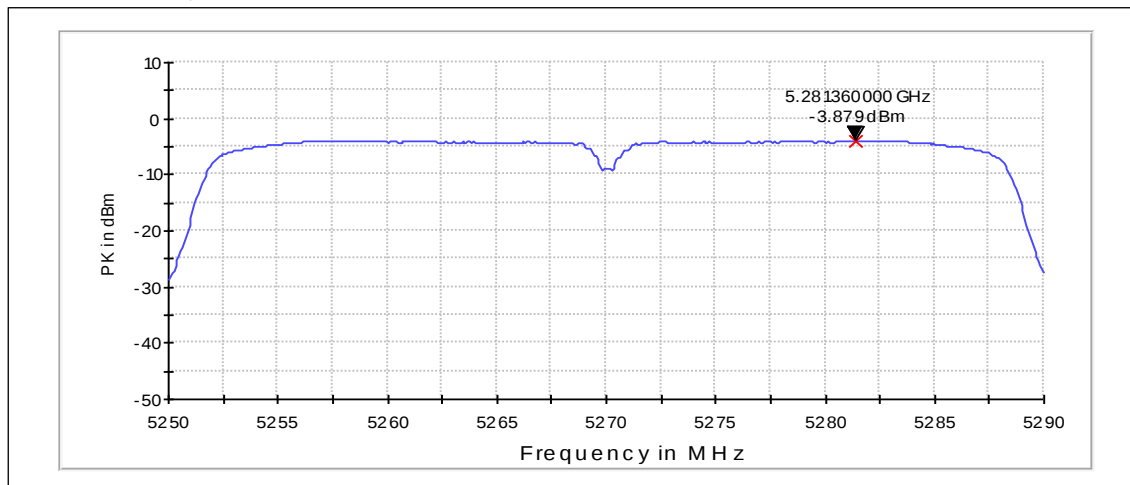
Channel 36+40 / 5190MHz



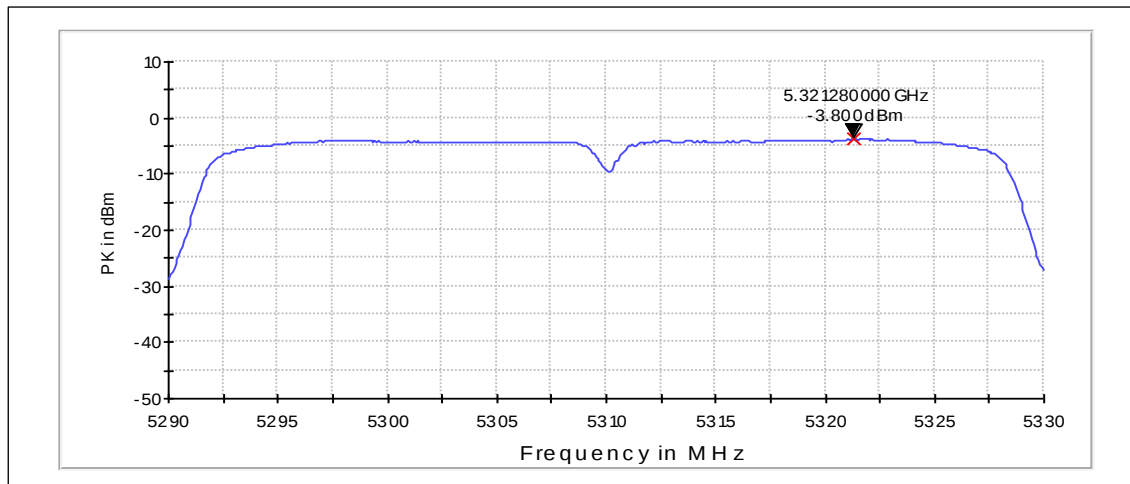
Channel 44+48 / 5230MHz



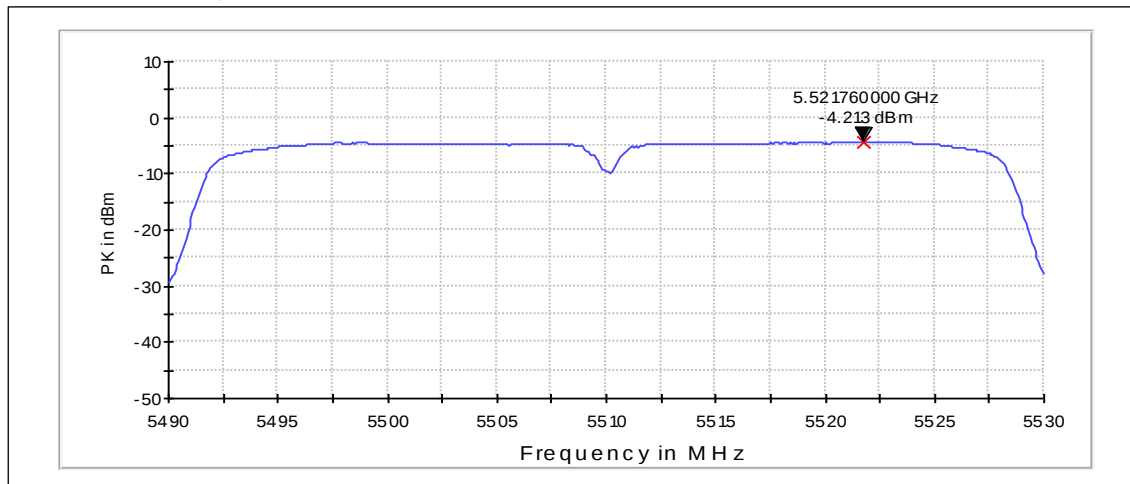
Channel 52+56 / 5270MHz



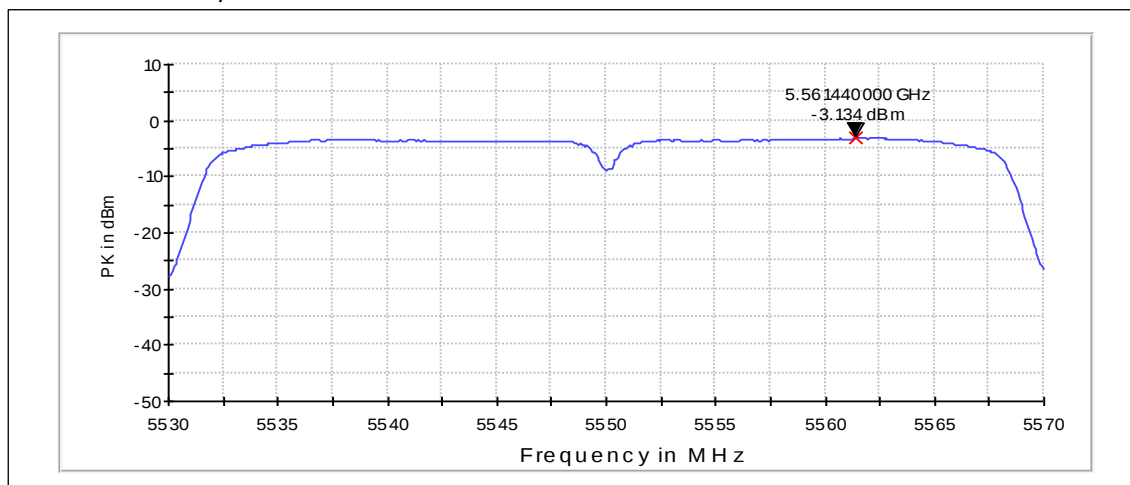
Channel 60+64 / 5310MHz



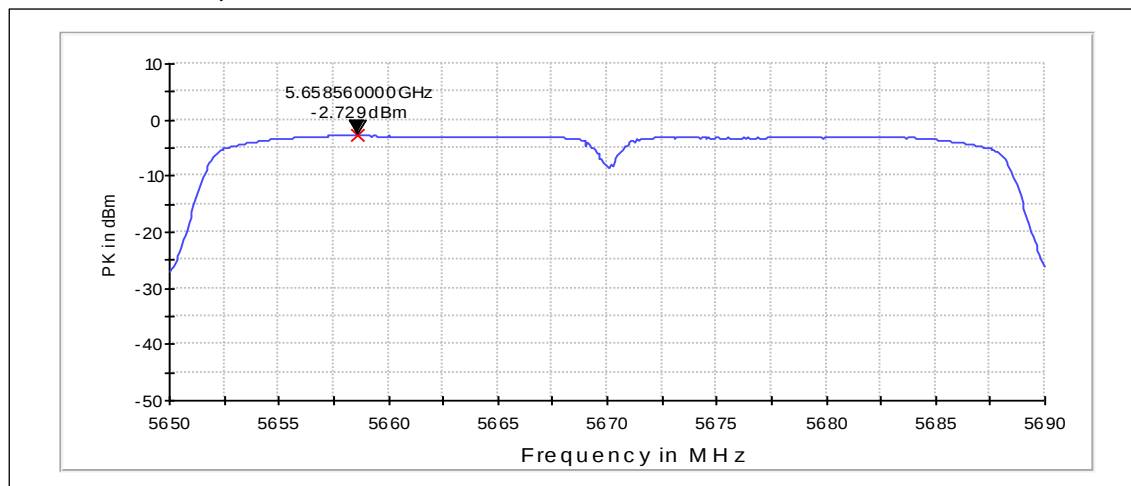
Channel 100+104 / 5510MHz



Channel 108+112 / 5550MHz



Channel 132+136 / 5670MHz

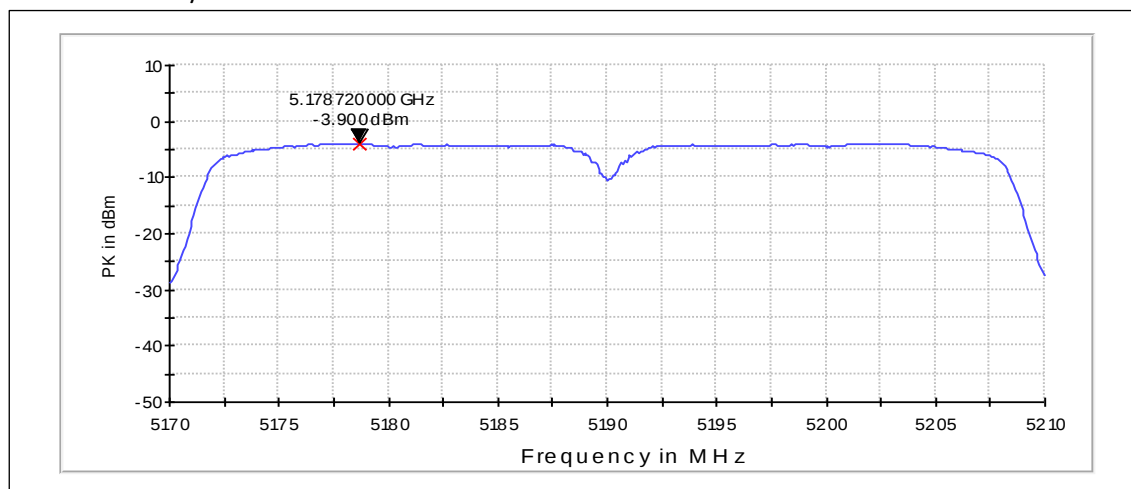


6.3.4 n-mode, 40 MHz CBW mode, 16-QAM modulation, 54.0 / 60.0 Mbps data rate

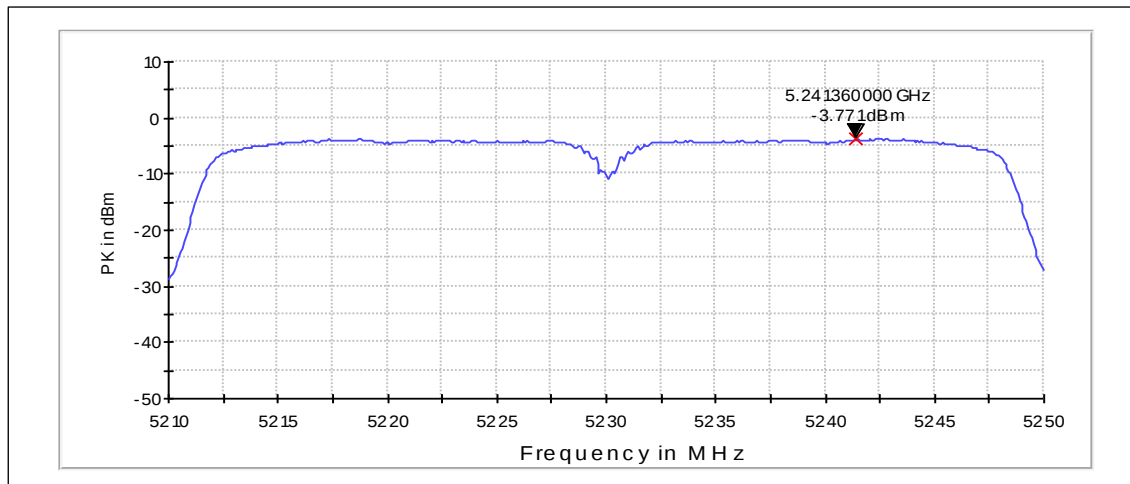
RMS detector (RBW: 1 MHz, VBW: 3 MHz, Video averaging)

Channel / f_c [MHz]	P [dBm]	Result
36+40 / 5190	-3.9	PASSED
44+48 / 5230	-3.77	PASSED
52+56 / 5270	-3.94	PASSED
60+64 / 5310	-3.89	PASSED
100+104 / 5510	-4.26	PASSED
108+112 / 5550	-3.12	PASSED
132+136 / 5670	-2.78	PASSED

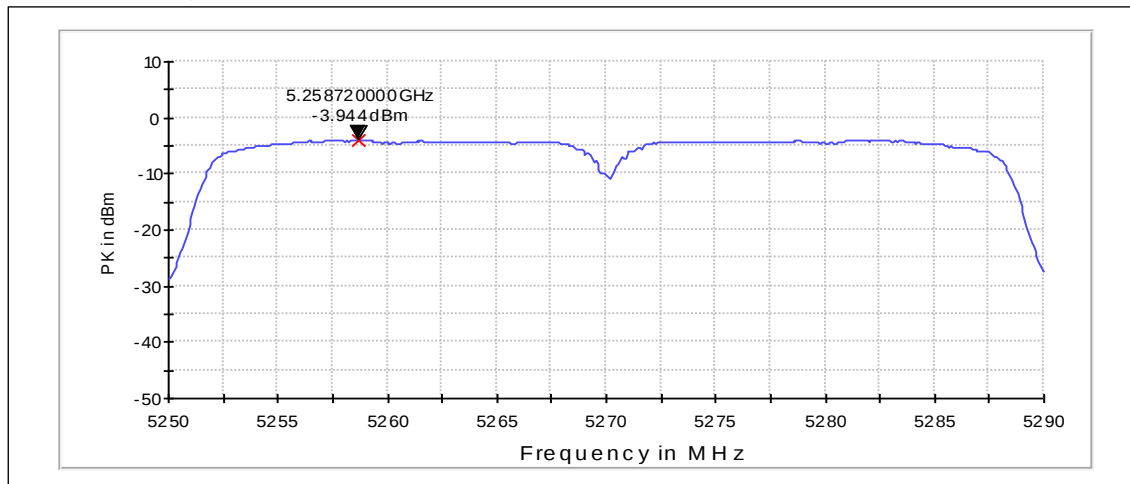
Channel 36+40 / 5190MHz



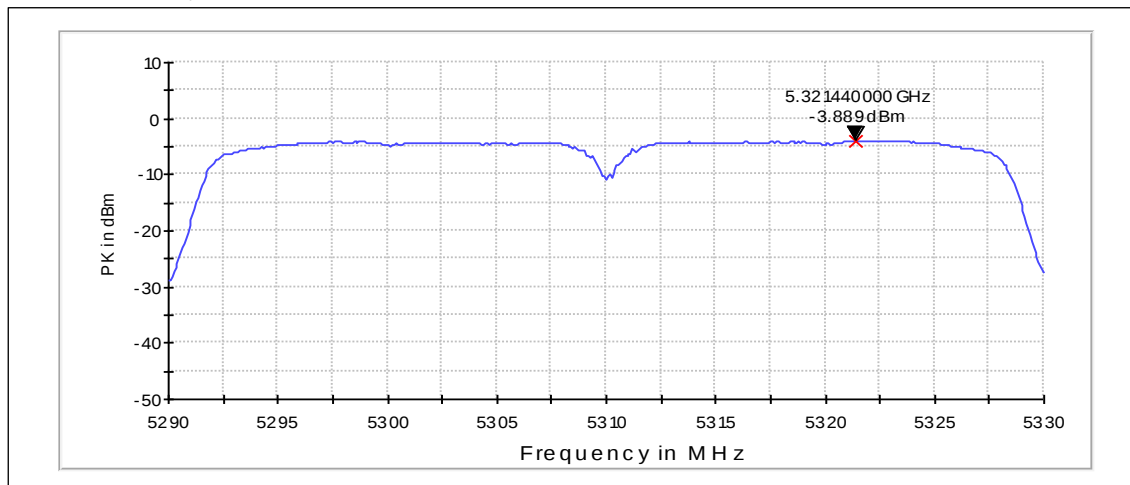
Channel 44+48 / 5230MHz



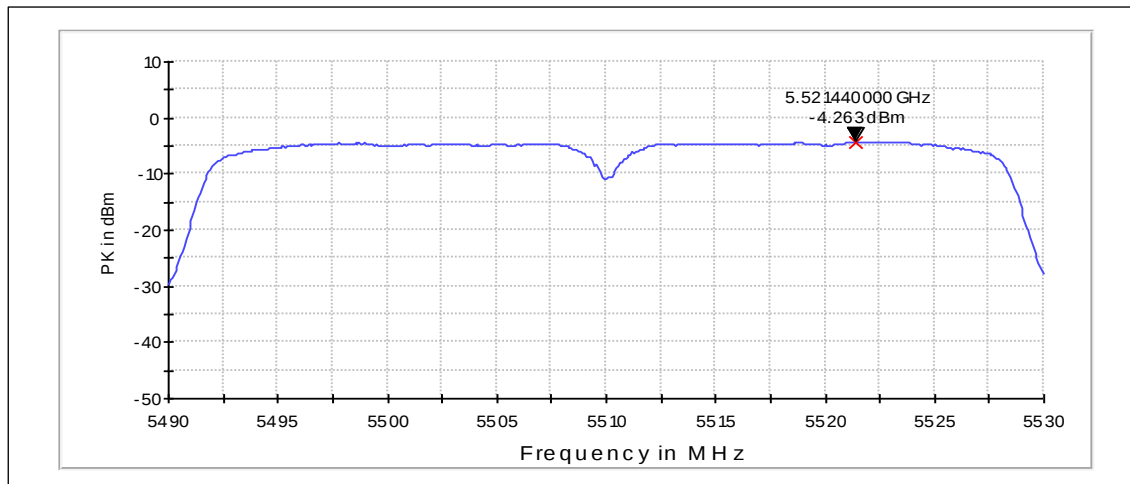
Channel 52+56 / 5270MHz



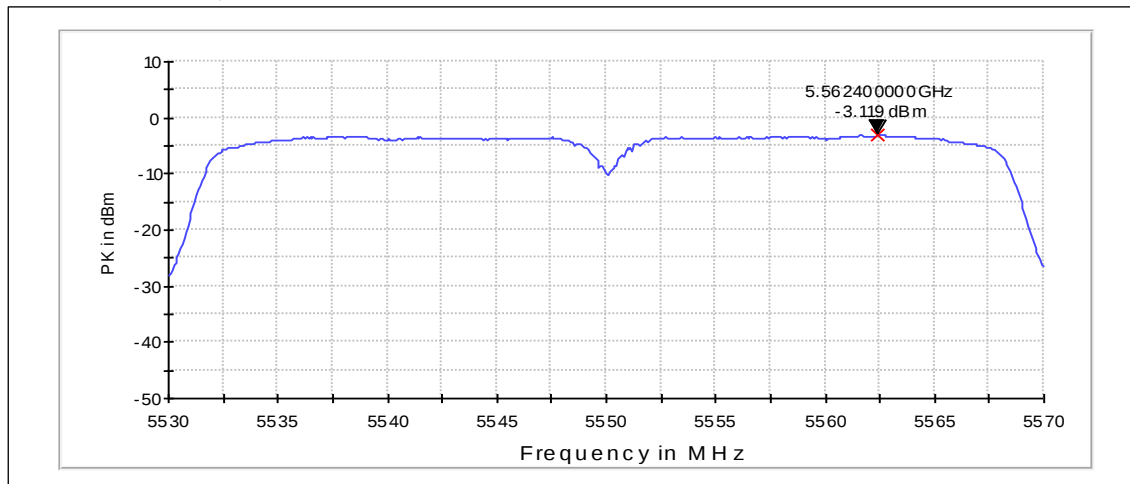
Channel 60+64 / 5310MHz



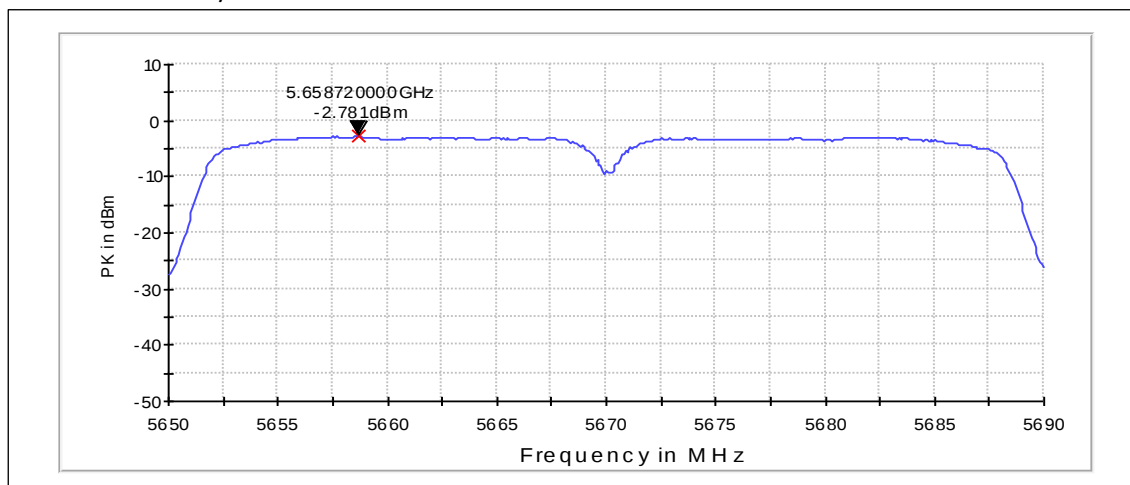
Channel 100+104 / 5510MHz



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 µH	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 µH	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 µH	ENV216	R&S	15C, 15B
2010	LISN 50 µH	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