

FCC Part 15C Compliance Test Report

Test Report no.:	FCC15CWLAN_RM-878_13.docx	Date of Report:	24-Sep-2012
Number of pages:	79	Customer's Contact person:	Jerald Williams
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Phone RM-878 / Battery BP-4W / AC-Charger AC-50U / Headset WH-902		
FCC ID:	QMNRM-878	IC:	661X-RM878
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), DTS procedures KDB 558074, 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:			

Kalle Hannila, Engineer, EMC

1. Summary for FCC Part 15C Compliance Test Report

Date of receipt	03-Sep-2012
Testing completed	21-Sep-2012
The customer's contact person	Jerald Williams
Test Plan referred to	T:\Projects\RM-878\TestPlan\RS_testplan_RM-878_EMC_FCC_SAR.xlsm
Notes	-
Document name	T:\Projects\RM-878\EMC\FCC15CWLAN_RM-878_13.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-878	-	0205	-	1530.0035.8516.9754.12312	16666
Battery	BP-4W	-	-	-	-	16667
AC-Charger	AC-50U	409049215427050147660675620	-	-	-	16562
Headset	WH-902	209E2R	-	-	-	16563

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
15.247(b)(1)	A8.4 (4)	Conducted peak output power	PASSED
15.247(d), 15.205(b)	A8.5	Band edge compliance of RF emissions	PASSED
15.247(d)	A8.5	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8.5	Spurious radiated emissions	PASSED
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(2)	A8.2 (a)	6dB(bandwidth)	PASSED
15.247(e)	A8.2 (b)	Power spectral density	PASSED

WLAN:

Section in CFR 47	Section in RSS-GEN or RSS-210	Name of the test	Result
15.247(b)(1)	A8(0.4(4))	Conducted peak output power	PASSED
15.247(d), 15.205(b)	A8(0.5)	Band edge compliance of RF emissions	NP
15.247(d)	A8(0.5)	Spurious RF conducted emissions	PASSED
15.247(d), 15.209	A8(0.5)	Spurious radiated emissions	NP
15.207	7.2.2	AC powerline conducted emissions	PASSED
15.247(a)(2)	A8(0.1(1))	6dB(bandwidth)	PASSED
15.247(e)	A8(0.1(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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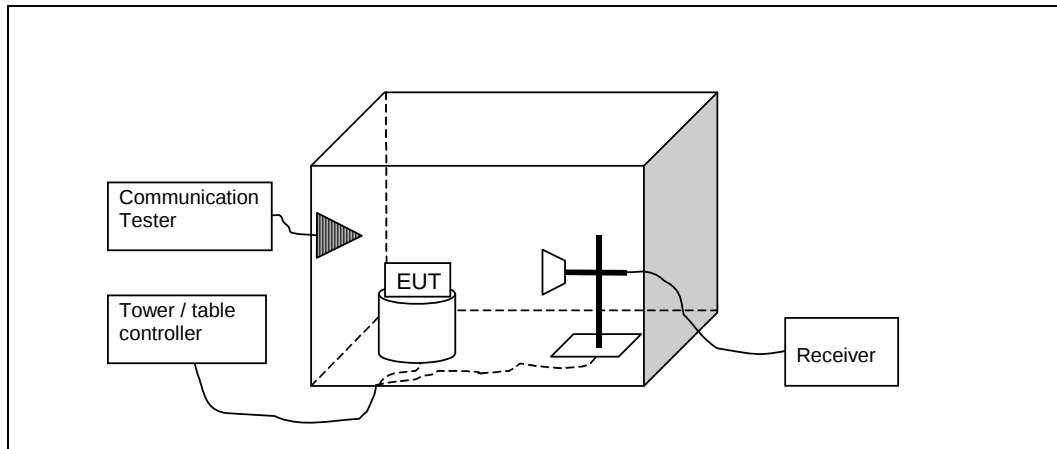
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2. Band edge compliance of RF emissions (FCC §15.247(d), 15.205(b), RSS-210 A8.5)

EUT with DUT number	RM-878, DUT 16666
Accessories with DUT numbers	BP-4W, DUT 16667 ; AC-50U, DUT 16562 ; WH-902, DUT 16563
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 38 / 101.2
Date of measurements	19-Sep-2012
Measured by	Kalle Hannila / Jari Keto

2.1.1 Test setup



2.2. Test method and limit

The measurement is made according to KDB558074 and IC standard RSS-210.

The limit for 5 GHz RLAN is -20 dBc.

When the fundamental value in E [dBuV/m] column is at least 20 dB higher than the out of band emission, the result is pass.

The measurement results are obtained as described below:

$$E [dB\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

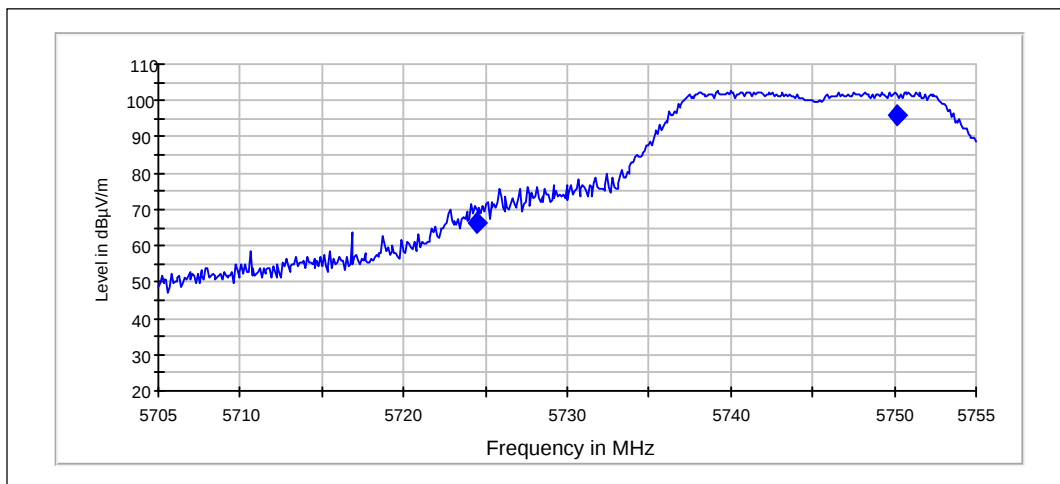
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit
Below 2390 and above 2483.5	54 dBuV/m (avg) and 74 dBuV/m (pk)
Below 5725 and above 5825	-20dBc

2.3. 5 GHz RLAN test results

2.3.1 OFDM, BPSK modulation, 9 Mbps data rate.

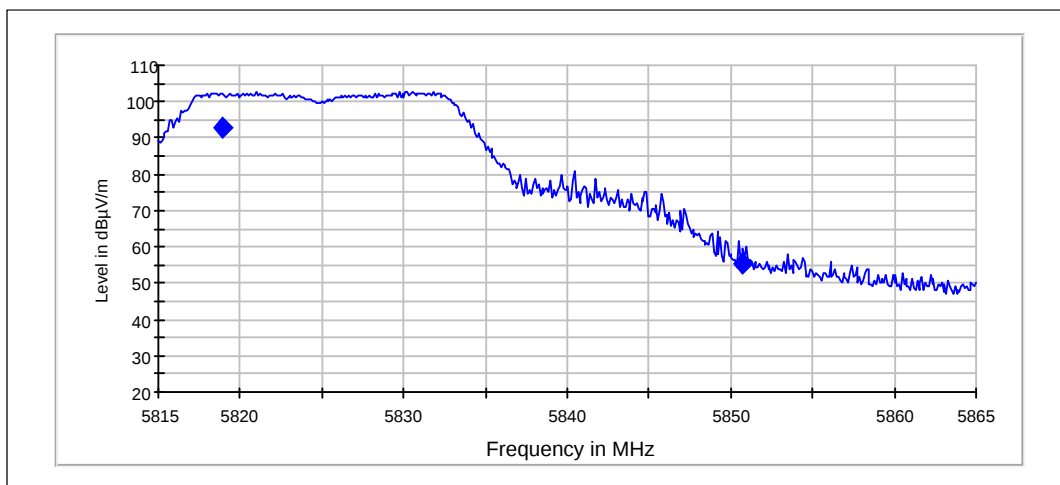
Channel 149 / 5745MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
5724.519	66.51	2116.655	64.57	1.94	PASSED
5750.15	96.1	63796.962	93.89	2.22	PASSED

Channel 165 / 5825MHz

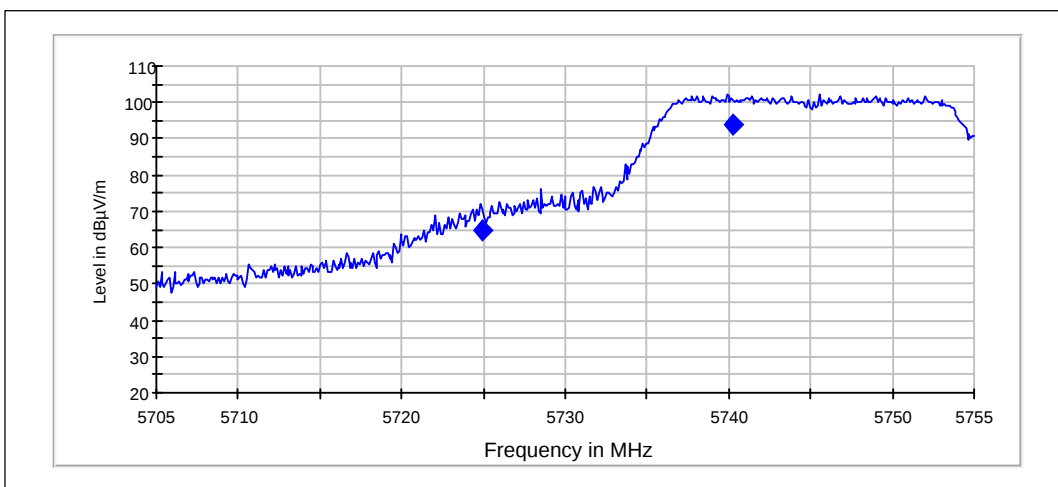


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
5818.888	92.94	44371.08	90.18	2.76	PASSED
5850.721	55.33	583.983	52.21	3.12	PASSED

2.3.2 n-mode, 20 MHz CBW, 64-QAM modulation, 52.0 / 57.8 Mbps data rate.

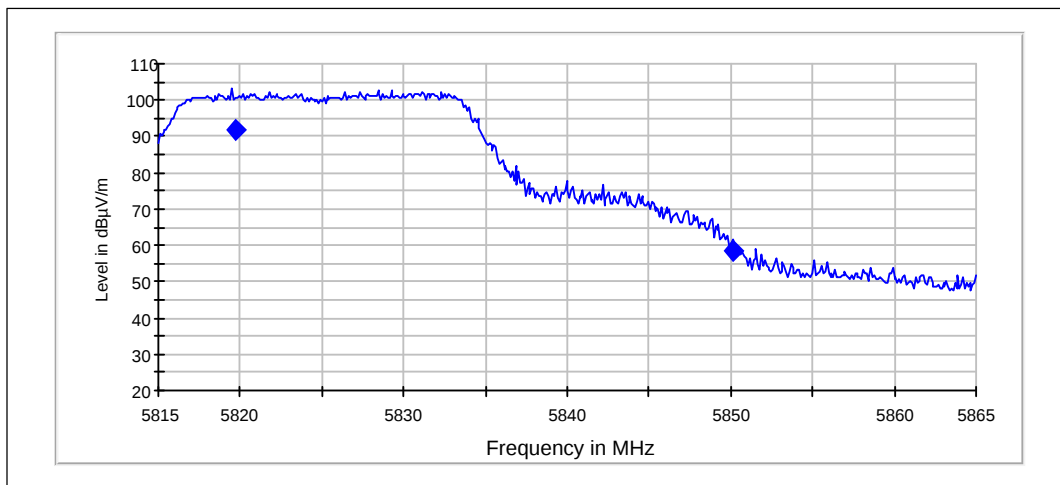
Channel 149 / 5745MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
5724.96	64.72	1722.662	62.79	1.94	PASSED
5740.291	93.94	49779.439	91.86	2.08	PASSED

Channel 165 / 5825MHz

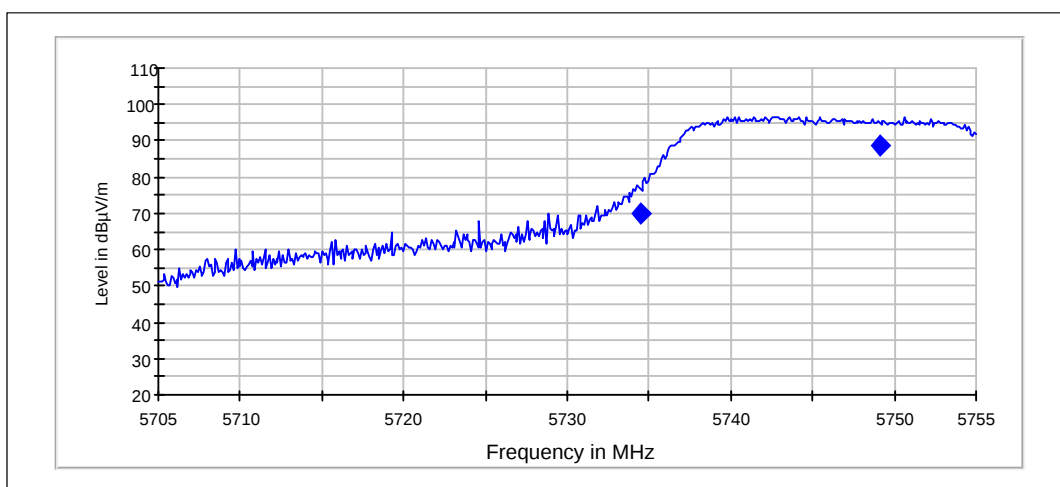


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
5819.729	91.72	38547.836	88.95	2.77	PASSED
5850.12	58.56	847.325	55.44	3.13	PASSED

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

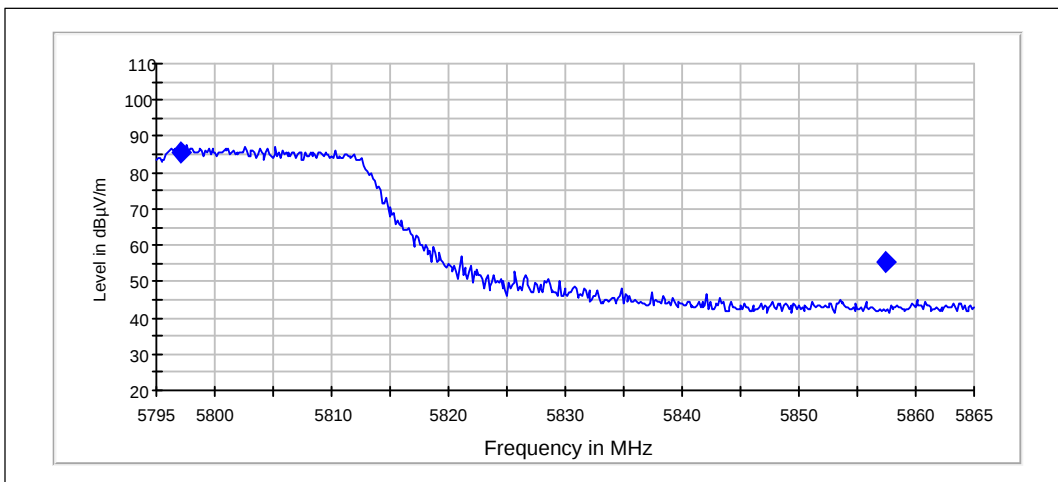
Channel 149+153 / 5755MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
5734.479	67.98	3155.005	65	2	PASSED
5749.108	88.79	27501.096	86.59	2.2	PASSED

Channel 157+161 / 5795MHz

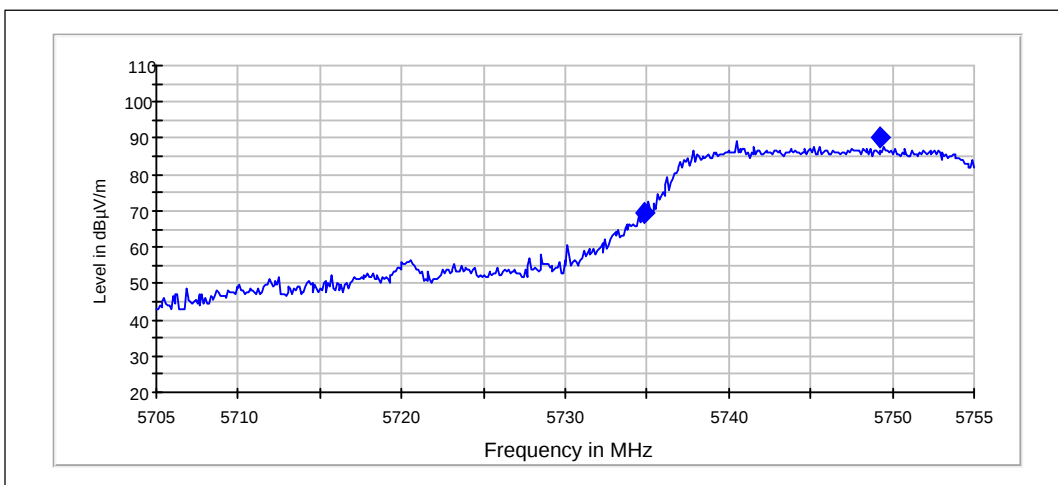


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Results
5797.084	85.75	19379.832	83.36	2.39	PASSED
5857.395	55.42	590.269	52.33	3.09	PASSED

2.3.4 n-mode, 40 MHz CBW, 64-QAM modulation, 52 / 57.8 Mbps data rate.

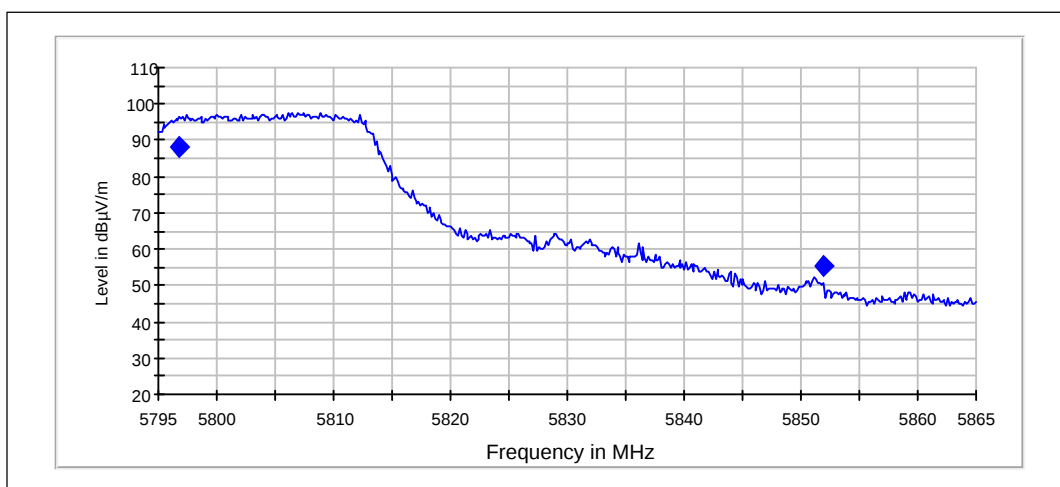
Channel 149+153 / 5755MHz



Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
5734.88	69.26	2902.686	67.26	2.01	PASSED
5749.248	90.3	32722.765	88.09	2.21	PASSED

Channel 157+161 / 5795MHz



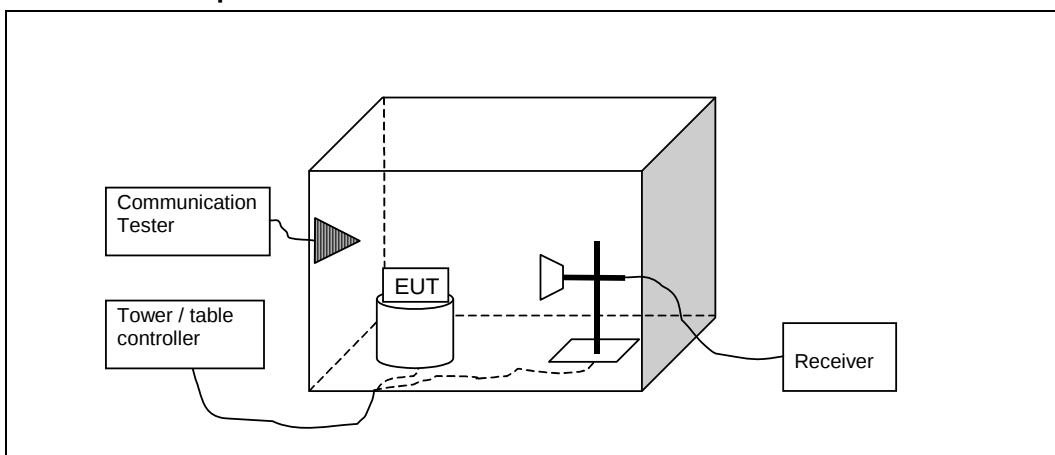
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dB μ V/m]	E [μ V/m]	U _{RX} [dB μ V]	A _{TOT} [dB]	Results
5796.703	88.22	25760.246	85.83	2.39	PASSED
5851.924	55.21	575.771	52.1	3.11	PASSED

3. Spurious radiated emissions (FCC §15.247(d), §15.209, RSS-210 A8.5)

EUT with DUT number	RM-878, DUT 16666
Accessories with DUT numbers	BP-4W, DUT 16667 ; AC-50U, DUT 16562 ; WH-902, DUT 16563
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19 / 38 / 101.4
Date of measurements	19-Sep-2012
Measured by	Kalle Hannila / Jari Keto

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to ANSI C63.4 and IC standard RSS-210 as follows:
The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The measurement results are obtained as described below:

$$E [dB\mu V/m] = U_{RX} + A_{TOT}$$

Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable loss, antenna factor and preamplifier gain ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

Limits for spurious radiated emissions measurements (3 m measurement distance)

Frequency range [MHz]	Limit [$\mu V/m$]	Limit [$dB\mu V/m$]	Detector
30 - 88	100	40	Quasi peak
88 – 216	150	43.5	Quasi peak
216 – 960	200	46	Quasi peak
960 – 1000	500	54	Quasi peak
Above 1000	500	54	Average
Above 1000	5000	74	Peak

3.3. 5 GHz RLAN test results

3.3.1 OFDM, BPSK modulation, 9 Mbps data rate.

Channel 149 / 5745MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11489.678	67.32	2322.737	49.76	17.56	6.7	74	PASSED
11490.7	67.7	2426.331	50.14	17.56	6.3	74	PASSED
17235	50.7	342.689	39.6	11.1	74.5	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
177.775	28.32	26.071	46.47	-18.15	15.2	43.5	PASSED
177.782	27.89	24.788	46.04	-18.15	15.6	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11489.678	53.1	451.7	35.54	17.56	0.9	54	PASSED
11490.7	52.98	445.708	35.42	17.56	1	54	PASSED
17235	38.19	81.19	27.09	11.1	---	---	PASSED

Channel 157 / 5785MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11568.738	60.04	1004.269	42.95	17.09	13.9	74	PASSED
11571.8	58.16	809.003	41.1	17.06	15.8	74	PASSED
17355.6	52.21	408.037	40.6	11.61	16	68.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
164.948	28.21	25.722	47.44	-19.23	15.3	43.5	PASSED
176.515	27.99	25.102	45.91	-17.92	15.5	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11568.738	46.42	209.315	29.33	17.09	7.6	54	PASSED
11571.8	45.3	183.971	28.24	17.06	8.7	54	PASSED
17355.6	38.97	88.828	27.36	11.61	---	---	PASSED

Channel 165 / 5825MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11649.303	60.58	1068.932	44	16.58	13.4	74	PASSED
11651.5	59.26	918.015	42.7	16.56	14.7	74	PASSED
17433.4	52.95	444.222	40.85	12.1	72.3	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
164.948	28.44	26.43	47.67	-19.23	15.1	43.5	PASSED
178.195	28.87	27.762	47.09	-18.22	14.7	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11649.303	46.38	208.497	29.8	16.58	7.6	54	PASSED
11651.5	46.24	205.093	29.68	16.56	7.7	54	PASSED
17433.4	39.78	97.488	27.68	12.1	---	---	PASSED

3.3.2 n-mode, 20 MHz CBW, 64-QAM modulation, 52.0 / 57.8 Mbps data rate.

Channel 149 / 5745MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11489.2	61.3	1161.181	43.74	17.57	12.7	74	PASSED
11490.986	63	1411.887	45.44	17.56	11	74	PASSED
17234.6	51.09	358.426	39.99	11.1	74.1	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
164.978	29.07	28.396	48.3	-19.23	14.5	43.5	PASSED
176.485	28.2	25.71	46.11	-17.91	15.3	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11489.2	47.62	240.519	30.06	17.57	6.4	54	PASSED
11490.986	48.88	278.067	31.32	17.56	5.1	54	PASSED
17234.6	38.17	81.003	27.07	11.1	---	---	PASSED

Channel 165 / 5825MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11648.5	60.06	1006.352	43.47	16.59	13.9	74	PASSED
11650.503	60.83	1100.272	44.26	16.57	13.1	74	PASSED

17434.1	52.96	444.58	40.86	12.1	72.3	125.2	PASSED
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Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
176.485	28.46	26.494	46.37	-17.91	15.1	43.5	PASSED
176.522	28.22	25.775	46.14	-17.92	15.3	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11648.5	46.96	222.844	30.37	16.59	7	54	PASSED
11650.503	46.49	211.057	29.92	16.57	7.5	54	PASSED
17434.1	39.81	97.78	27.71	12.1	---	---	PASSED

Channel 157 / 5785MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11570.9	63.92	1570.001	46.85	17.07	10.1	74	PASSED
11572.846	65.39	1859.516	48.35	17.04	8.6	74	PASSED
17353.5	51.85	391.471	40.23	11.62	16.4	68.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
164.588	28.17	25.604	47.4	-19.23	15.4	43.5	PASSED
177.752	27.98	25.052	46.12	-18.14	15.5	43.5	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11570.9	49.33	292.718	32.26	17.07	4.7	54	PASSED
11572.846	50.16	322.218	33.12	17.04	3.8	54	PASSED
17353.5	38.98	88.879	27.36	11.62	---	---	PASSED

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

Channel 149+153 / 5755MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
10733.771	58.94	884.606	41.85	17.09	15	74	PASSED
11509	59.49	942.649	41.97	17.52	14.5	74	PASSED
17268	51.05	356.821	39.99	11.07	74.2	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
922.127	23.51	14.976	27.3	-3.79	22.5	46	PASSED

932.044	23.52	15.004	27.29	-3.77	22.5	46	PASSED
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Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
10733.771	44.76	173.021	27.67	17.09	9.2	54	PASSED
11509	46.31	206.8	28.79	17.52	7.7	54	PASSED
17268	38.24	81.658	27.18	11.07	---	---	PASSED

Channel 157+161 / 5795MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11073.644	57.83	779.202	40.85	16.98	16.1	74	PASSED
11590.1	57.9	784.784	40.98	16.92	16.1	74	PASSED
17388.1	52.46	419.807	40.6	11.86	72.8	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
949.455	23.31	14.64	27.29	-3.98	22.7	46	PASSED
951.243	23.38	14.755	27.36	-3.98	22.6	46	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11073.644	45.02	178.156	28.04	16.98	9	54	PASSED
11590.1	44.75	172.763	27.83	16.92	9.2	54	PASSED
17388.1	39.17	90.908	27.31	11.86	---	---	PASSED

3.3.4 n-mode, 40 MHz CBW, 64-QAM modulation, 52 / 57.8 Mbps data rate.

Channel 149+153 / 5755MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11453.614	58.54	845.571	40.85	17.69	15.4	74	PASSED
11511.9	60.59	1070.779	43.07	17.52	13.4	74	PASSED
17265.8	51.29	366.733	40.24	11.06	73.9	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
910.571	23.11	14.3	27.17	-4.06	22.9	46	PASSED
932.62	23.45	14.878	27.23	-3.78	22.6	46	PASSED

Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11453.614	45.52	188.821	27.83	17.69	8.5	54	PASSED
11511.9	46.65	215.006	29.13	17.52	7.3	54	PASSED

17265.8	38.19	81.227	27.14	11.06	---	---	PASSED
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Channel 157+161 / 5795MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11531.862	59.13	905.107	41.71	17.42	14.8	74	PASSED
11589.4	57.28	730.887	40.36	16.92	16.7	74	PASSED
17386.1	51.95	395.685	40.11	11.84	73.3	125.2	PASSED

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
879.541	22.82	13.837	27.29	-4.47	23.2	46	PASSED
937.612	23.35	14.706	27.23	-3.88	22.7	46	PASSED

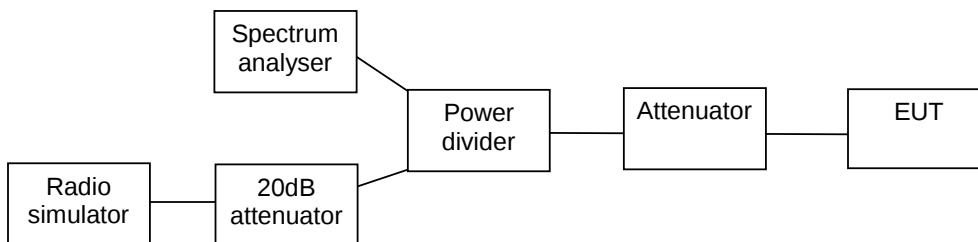
Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11531.862	45.51	188.582	28.09	17.42	8.5	54	PASSED
11589.4	44.6	169.766	27.68	16.92	9.4	54	PASSED
17386.1	39.11	90.261	27.27	11.84	---	---	PASSED

4. Conducted peak output power (15.247(b)(1), RSS-210 A8.4 (4))

EUT with DUT number	RM-878, DUT 16639
Accessories with DUT numbers	BP-4W, DUT 16640
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 43 / 100
Date of measurements	19-Sep-2012
Measured by	Tomi Lipponen

4.1. Test Setup



4.2. Test method and limit

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

Limits for conducted peak output power measurements

Frequency range [MHz]	Limit [W]	Limit [dBm]
2400 – 2483.5 5725 - 5850	<= 1	<= 30

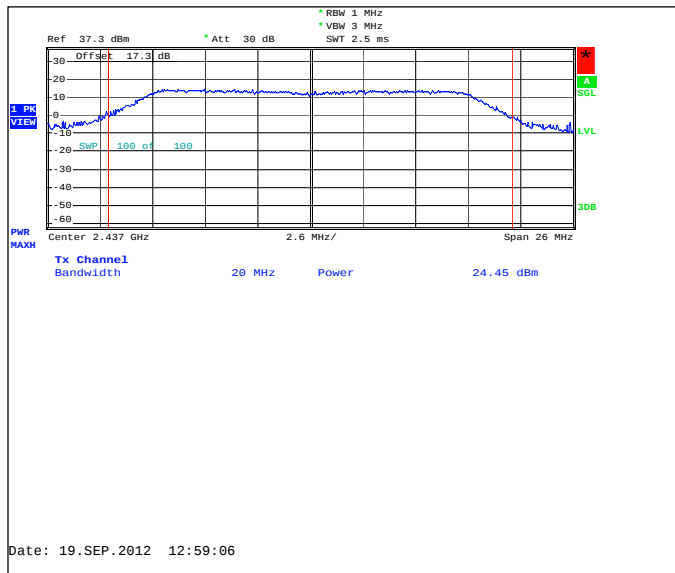
4.3. WLAN Test results

WLAN 2.4 GHz, peak output power [dBm]	
Mode & data speed	Ch 6
b-mode WLAN DSSS 1 Mbps	21.13
b-mode WLAN DSSS 2 Mbps	21.34
b-mode WLAN DSSS 5.5 Mbps	22.83
b-mode WLAN DSSS 11 Mbps	23.89
g-mode WLAN OFDM 6 Mbps	24.45
g-mode WLAN OFDM 9 Mbps	24.4
g-mode WLAN OFDM 12 Mbps	23.28
g-mode WLAN OFDM 18 Mbps	23.33
g-mode WLAN OFDM 24 Mbps	22.86
g-mode WLAN OFDM 36 Mbps	22.9
g-mode WLAN OFDM 48 Mbps	22.08
g-mode WLAN OFDM 54 Mbps	22.06
n-mode MCS 0: OFDM 6.5 / 7.25 Mbps	23.65
n-mode MCS 1: OFDM 13.0 / 14.4 Mbps	23.41
n-mode MCS 2: OFDM 19.5 / 21.7 Mbps	23.42
n-mode MCS 3: OFDM 26.0 / 28.9 Mbps	23.75
n-mode MCS 4: OFDM 39.0 / 43.3 Mbps	22
n-mode MCS 5: OFDM 52.0 / 57.8 Mbps	22.02
n-mode MCS 6: OFDM 58.5 / 65.0 Mbps	21.95
n-mode MCS 7: OFDM 65.0 / 72.2 Mbps	22.06
n-mode MCS 0: OFDM 13.5 / 15.0 Mbps	19.13
n-mode MCS 1: OFDM 27.0 / 30.0 Mbps	18.57
n-mode MCS 2: OFDM 40.5 / 45.0 Mbps	18.54
n-mode MCS 3: OFDM 54.0 / 60.0 Mbps	18.9
n-mode MCS 4: OFDM 81.0 / 90.0 Mbps	18.78
n-mode MCS 5: OFDM 108.0 / 120.0 Mbps	18.85
n-mode MCS 6: OFDM 121.5 / 135.0 Mbps	18.8
n-mode MCS 7: OFDM 135.0 / 150.0 Mbps	18.94

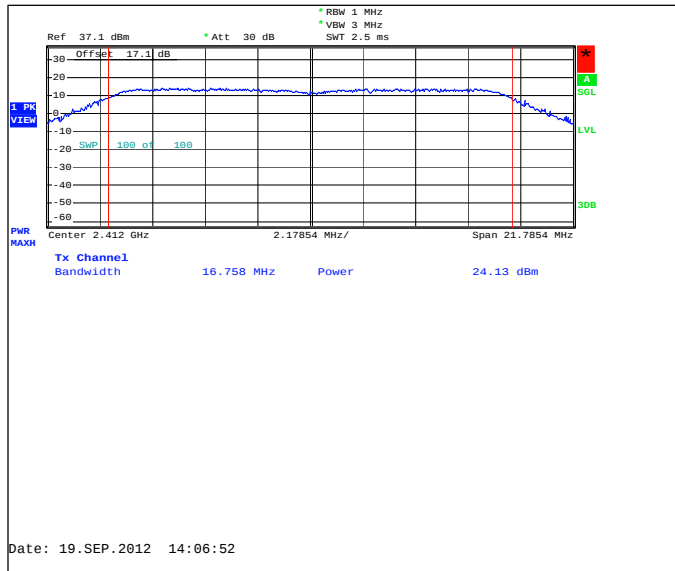
4.3.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _C [MHz]	P [dBm]	P [mW]	Result
6 / 2437	24.45	278.612	PASSED
1 / 2412	24.13	258.821	PASSED
11 / 2462	23.92	246.604	PASSED

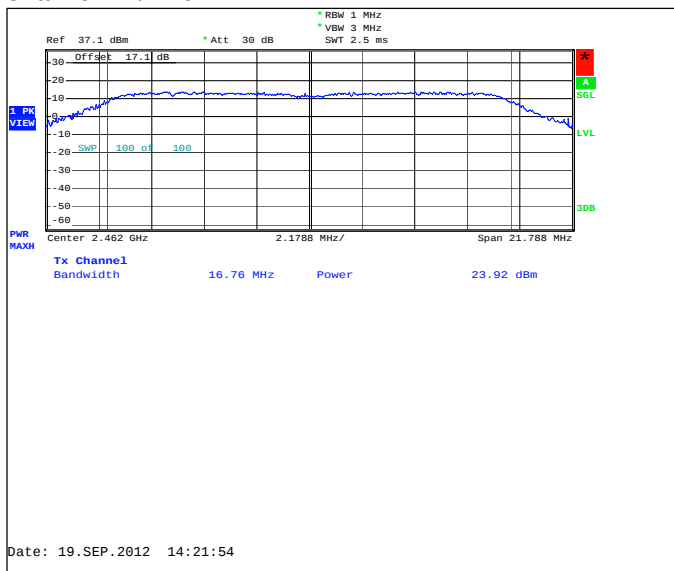
Channel 6 / 2437 MHz



Channel 1 / 2412 MHz



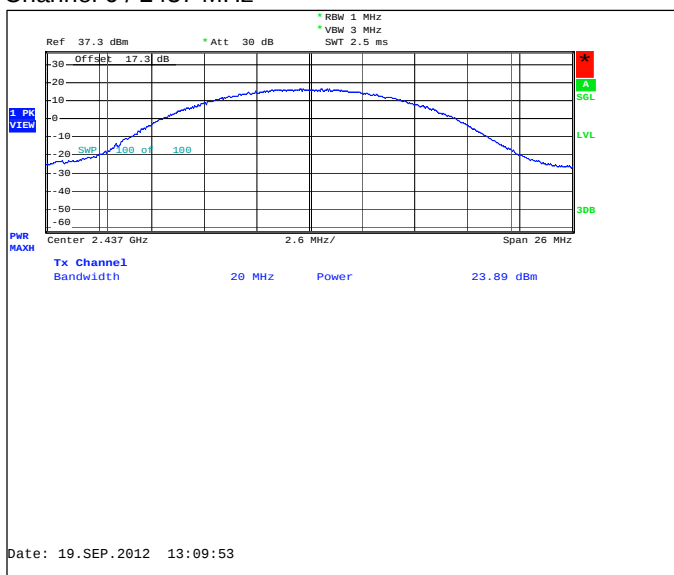
Channel 11 / 2462 MHz



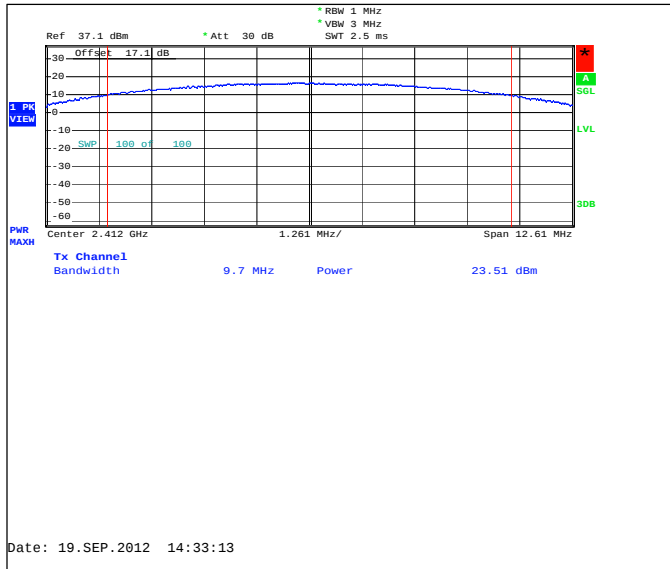
4.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
6 / 2437	23.89	244.906	PASSED
1 / 2412	23.51	224.388	PASSED
11 / 2462	23.28	212.814	PASSED

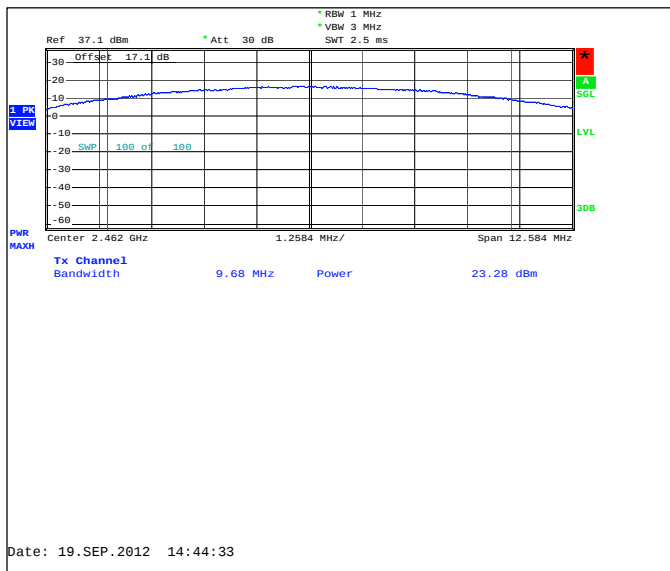
Channel 6 / 2437 MHz



Channel 1 / 2412 MHz



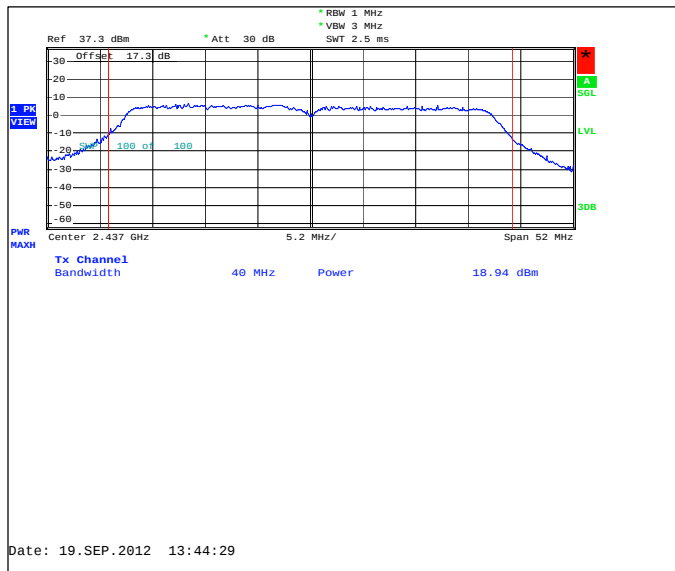
Channel 11 / 2462 MHz



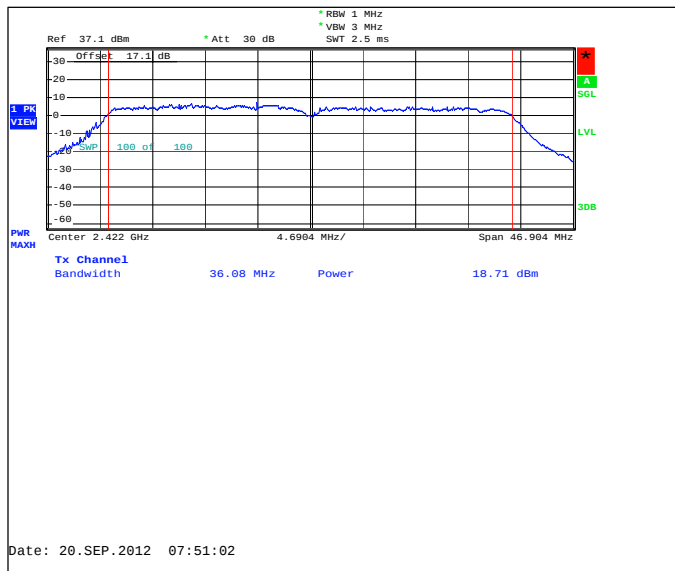
4.3.3 n-mode, 40 MHz CBW mode, 64-QAM modulation, 135.0 / 150.0 Mbps data rate

Channel / f _C [MHz]	P [dBm]	P [mW]	Result
4-8 / 2437	18.94	78.343	PASSED
1-5 / 2422	18.71	74.302	PASSED
7-11 / 2452	18.68	73.79	PASSED

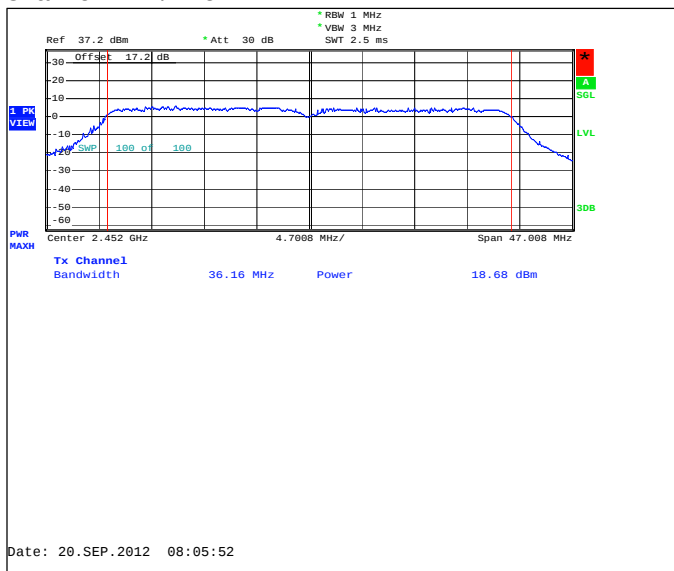
Channel 4-8 / 2437 MHz



Channel 1-5 / 2422 MHz



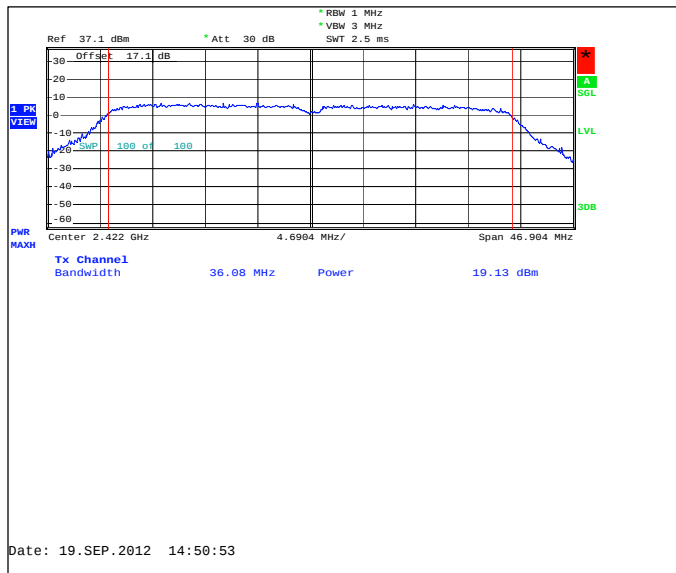
Channel 7-11 / 2452 MHz



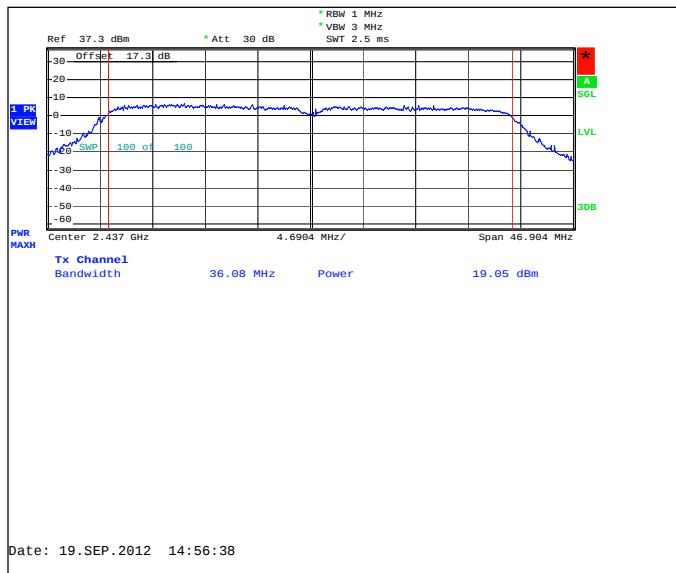
4.3.4 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _C [MHz]	P [dBm]	P [mW]	Result
1-5 / 2422	19.13	81.846	PASSED
4-8 / 2437	19.05	80.353	PASSED
7-11 / 2452	18.88	77.268	PASSED

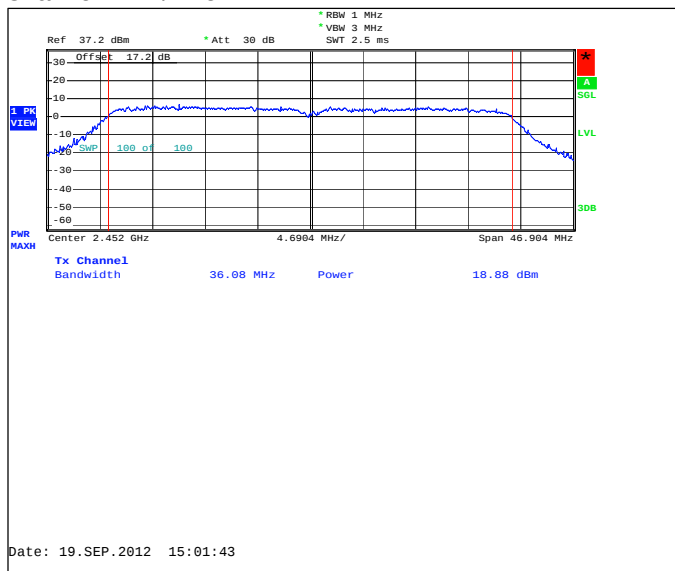
Channel 1-5 / 2422 MHz



Channel 4-8 / 2437 MHz



Channel 7-11 / 2452 MHz



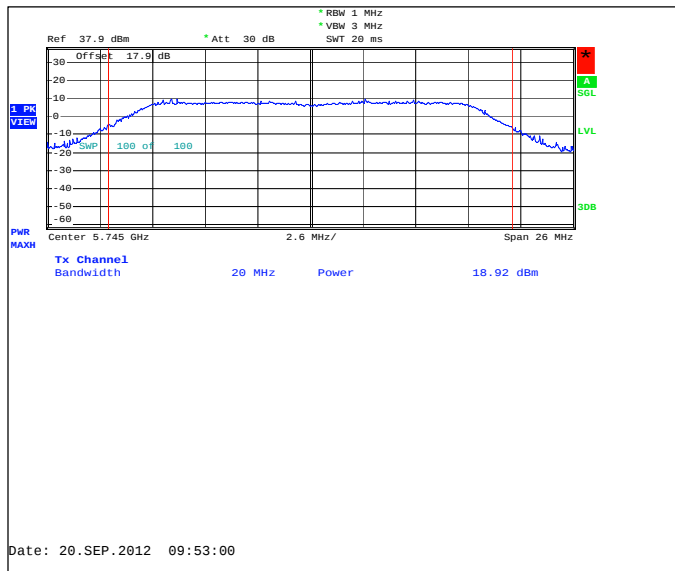
4.4. 5 GHz RLAN Test results

Channel / f _c [MHz]	Mode	Modulation	Data rate	Level [dBm]
149 / 5745	OFDM	BPSK	6 Mbps	18.92
149 / 5745	OFDM	BPSK	9 Mbps	18.59
149 / 5745	OFDM	QPSK	12 Mbps	18.61
149 / 5745	OFDM	QPSK	18 Mbps	18.5
149 / 5745	OFDM	16-QAM	24 Mbps	18.8
149 / 5745	OFDM	16-QAM	36 Mbps	18.9
149 / 5745	OFDM	64-QAM	48 Mbps	18.9
149 / 5745	OFDM	64-QAM	54 Mbps	18.96
149 / 5745	n-mode, 20 MHz CBW	BPSK	6.5 / 7.25 Mbps	18.44
149 / 5745	n-mode, 20 MHz CBW	QPSK	13.0 / 14.4 Mbps	18.61
149 / 5745	n-mode, 20 MHz CBW	QPSK	19.5 / 21.7 Mbps	18.6
149 / 5745	n-mode, 20 MHz CBW	16-QAM	26.0 / 28.9 Mbps	18.82
149 / 5745	n-mode, 20 MHz CBW	16-QAM	39.0 / 43.3 Mbps	18.92
149 / 5745	n-mode, 20 MHz CBW	64-QAM	52.0 / 57.8 Mbps	18.86
149 / 5745	n-mode, 20 MHz CBW	64-QAM	58.5 / 65.0 Mbps	18.96
149 / 5745	n-mode, 20 MHz CBW	64-QAM	65.0 / 72.2 Mbps	18.89
149+153 / 5755	n-mode, 40 MHz CBW	BPSK	13.5 / 15.0 Mbps	16.06
149+153 / 5755	n-mode, 40 MHz CBW	QPSK	27.0 / 30.0 Mbps	15.59
149+153 / 5755	n-mode, 40 MHz CBW	QPSK	40.5 / 45.0 Mbps	15.68
149+153 / 5755	n-mode, 40 MHz CBW	16-QAM	54.0 / 60.0 Mbps	15.96
149+153 / 5755	n-mode, 40 MHz CBW	16-QAM	81.0 / 90.0 Mbps	15.86
149+153 / 5755	n-mode, 40 MHz CBW	64-QAM	108.0 / 120.0 Mbps	15.95
149+153 / 5755	n-mode, 40 MHz CBW	64-QAM	121.5 / 135.0 Mbps	15.96
149+153 / 5755	n-mode, 40 MHz CBW	64-QAM	135.0 / 150.0 Mbps	15.93

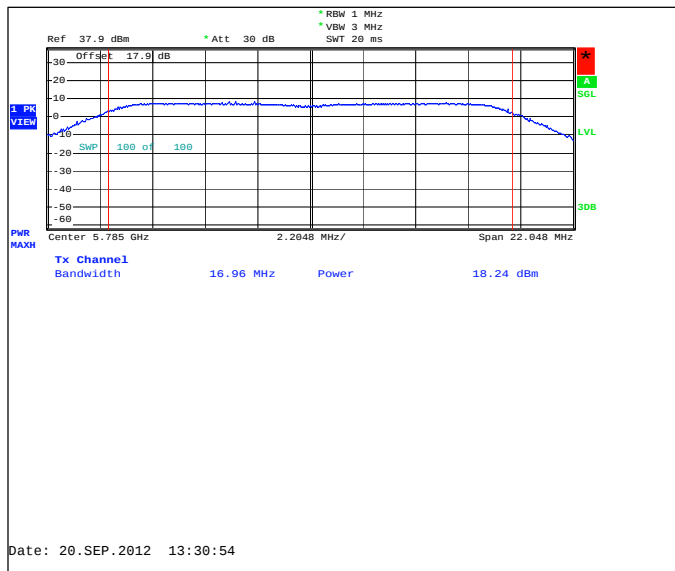
4.4.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
149 / 5745	18.92	77.983	PASSED
157 / 5785	18.24	66.681	PASSED
165 / 5825	18.35	68.391	PASSED

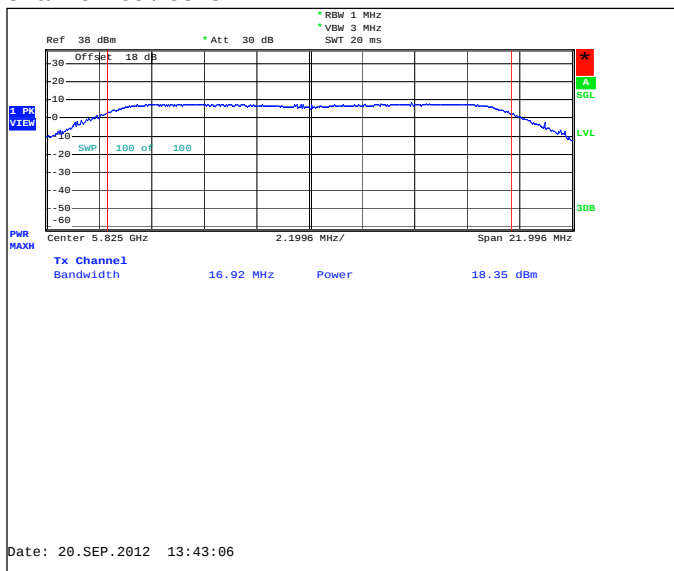
Channel 149 / 5745MHz



Channel 157 / 5785MHz



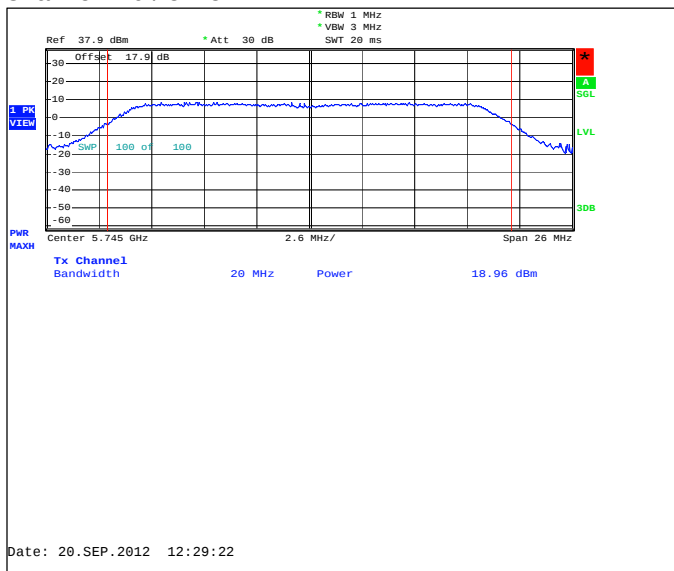
Channel 165 / 5825MHz



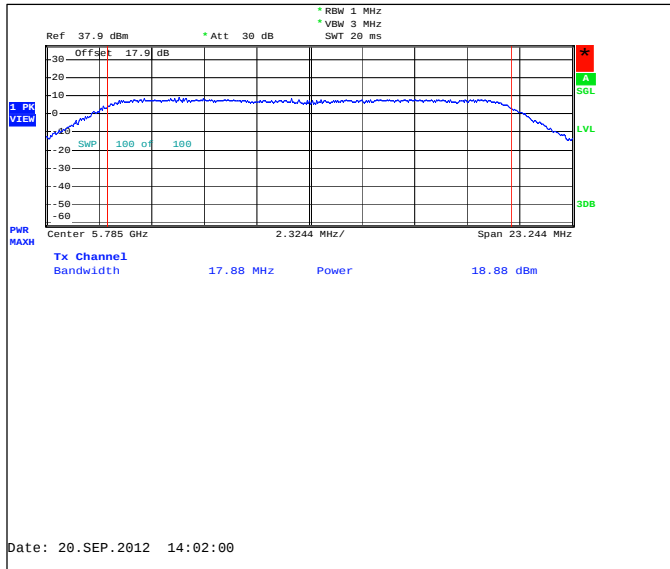
4.4.2 n-mode, 20 MHz CBW mode, 64-QAM modulation, 58.5 / 65.0 Mbps data rate

Channel / f_c [MHz]	P [dBm]	P [mW]	Result
149 / 5745	18.96	78.705	PASSED
157 / 5785	18.88	77.268	PASSED
165 / 5825	18.83	76.384	PASSED

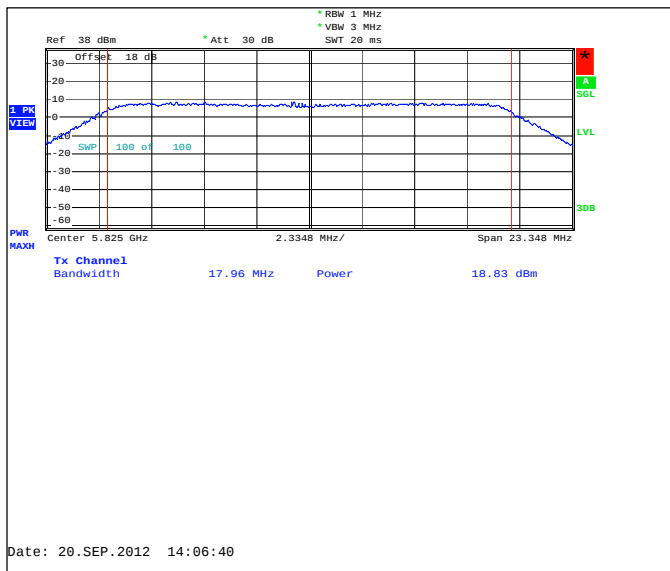
Channel 149 / 5745MHz



Channel 157 / 5785MHz



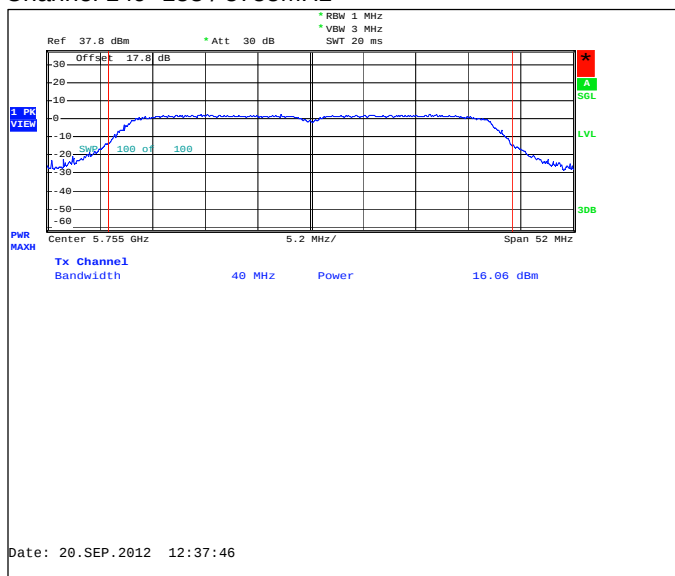
Channel 165 / 5825MHz



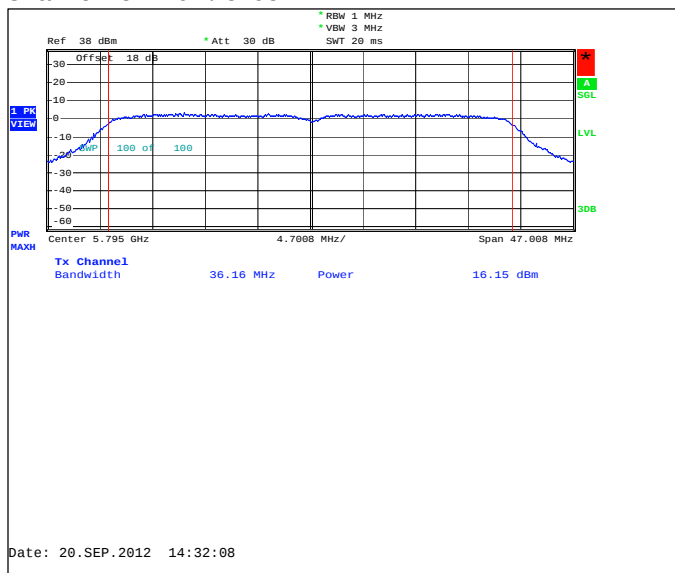
4.4.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
149+153 / 5755	16.06	40.365	PASSED
157+161 / 5795	16.15	41.21	PASSED

Channel 149+153 / 5755MHz



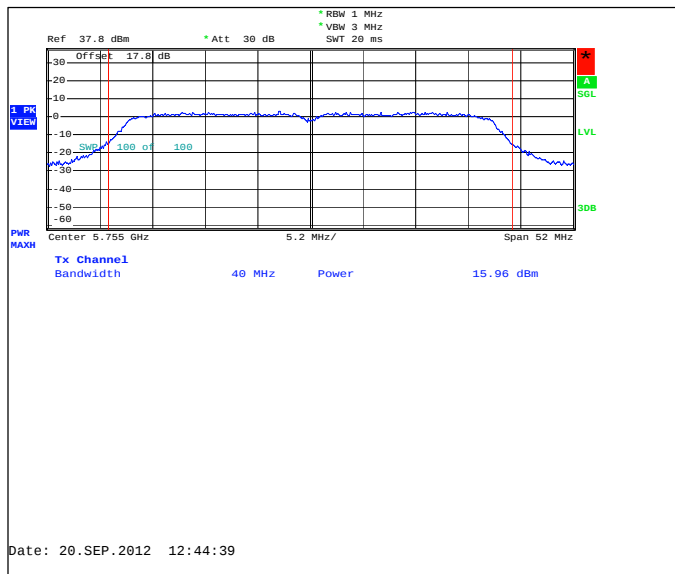
Channel 157+161 / 5795MHz



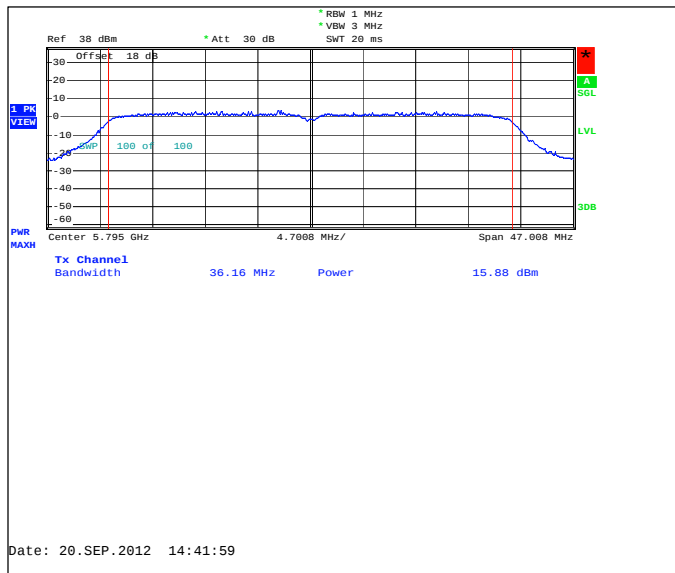
4.4.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 121.5 / 135.0 Mbps data rate

Channel / f _c [MHz]	P [dBm]	P [mW]	Result
149+153 / 5755	15.96	39.446	PASSED
157+161 / 5795	15.88	38.726	PASSED

Channel 149+153 / 5755MHz



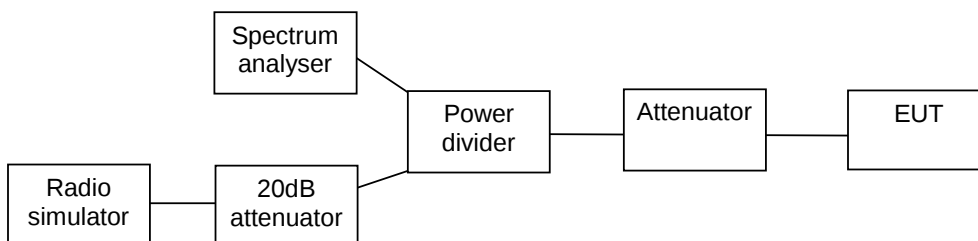
Channel 157+161 / 5795MHz



5. Spurious RF conducted emissions (FCC §15.247(d), RSS-210 A8.5)

EUT with DUT number	RM-878, DUT 16639
Accessories with DUT numbers	BP-4W, DUT 16640
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 43 / 100
Date of measurements	19-Sep-2012
Measured by	Tomi Lipponen

5.1. Test Setup



5.2. Test method and limit

The measurement is made according to Public notice KDB 558 074 and IC standard RSS-210.

The reference level for the -20 dBc measurement was obtained as instructed in section 5.4.1.1 of the KDB 558074, using 5-30 % wider span than the EBW.

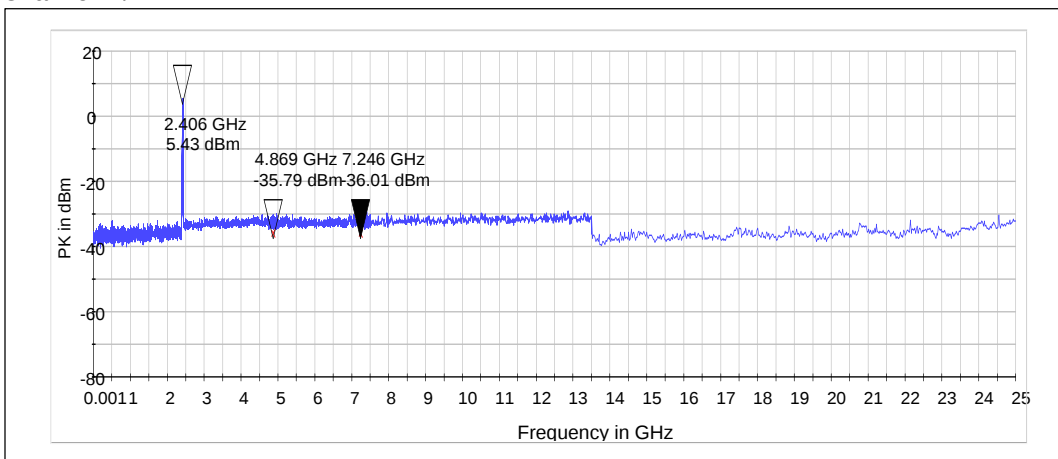
Limits for spurious RF conducted emissions measurements

Frequency range [MHz]	Limit [dBc]
1 – 25000	<= -20

5.3. WLAN Test results

5.3.1 OFDM mode, BPSK modulation, 6 Mbps data rate

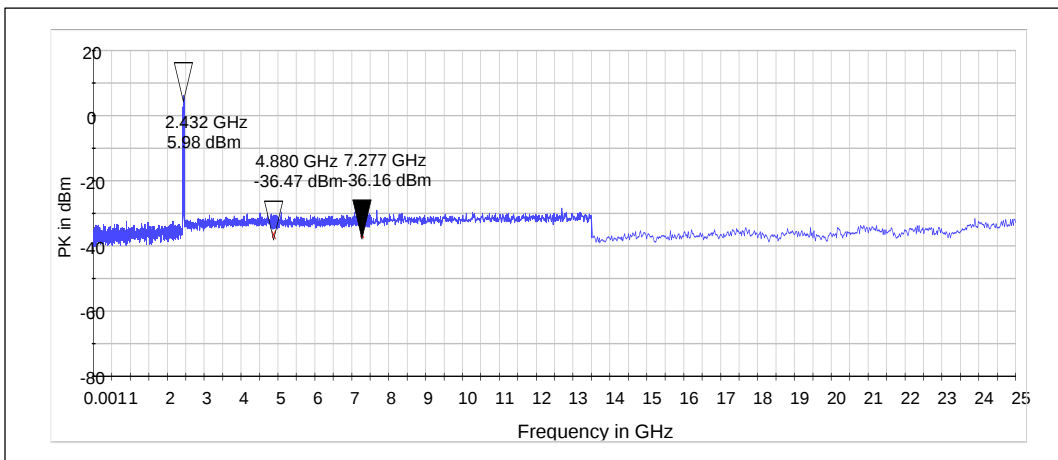
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4869.2	-35.79	PASSED
7245.6	-36.01	PASSED

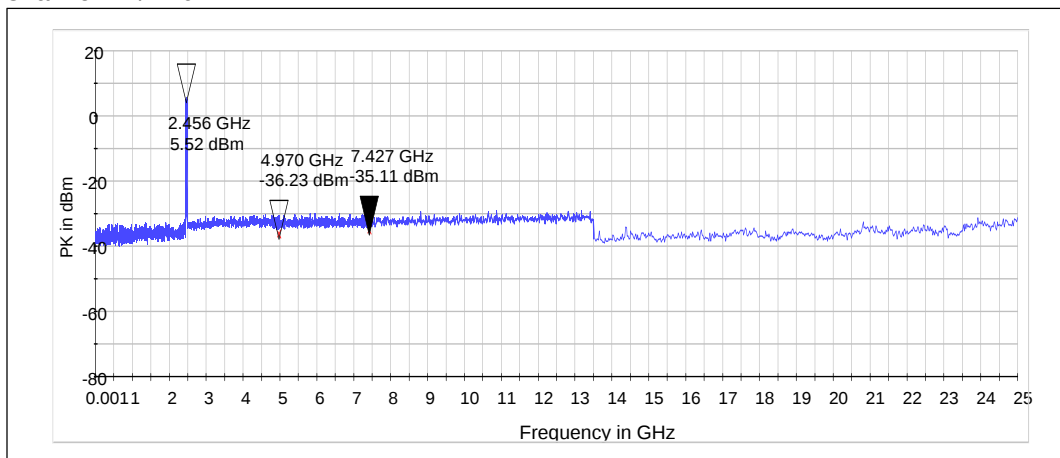
Channel 6 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4880	-36.47	PASSED
7277.4	-36.16	PASSED

Channel 11 / 2462 MHz

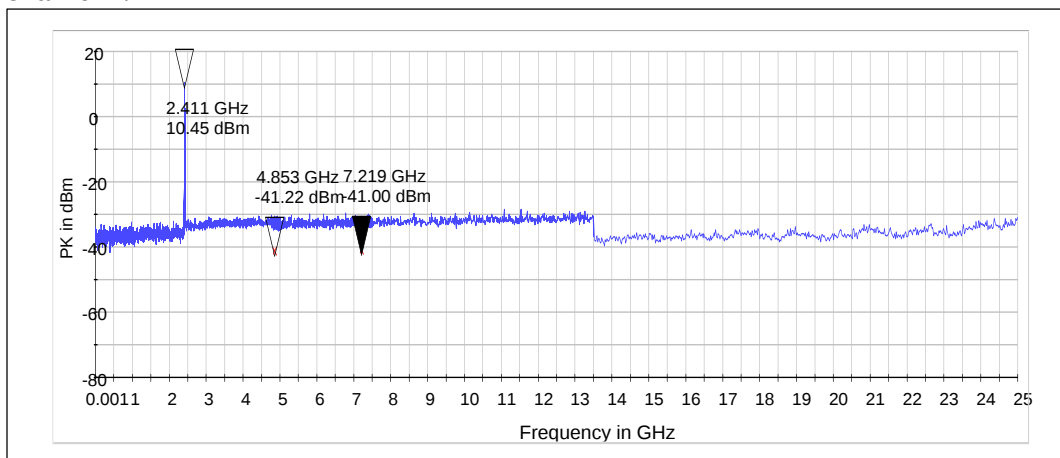


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4970.4	-36.23	PASSED
7426.8	-35.11	PASSED

5.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

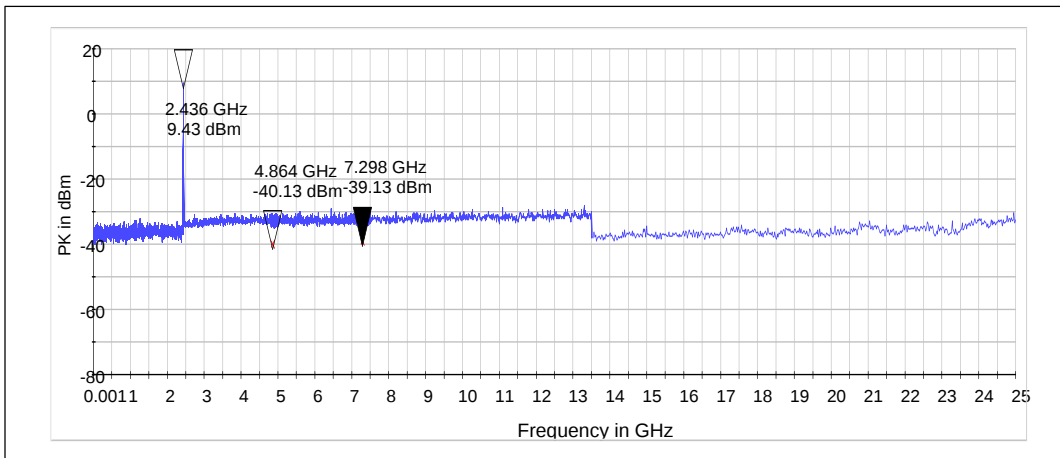
Channel 1 / 2412 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4852.8	-41.22	PASSED
7218.6	-41	PASSED

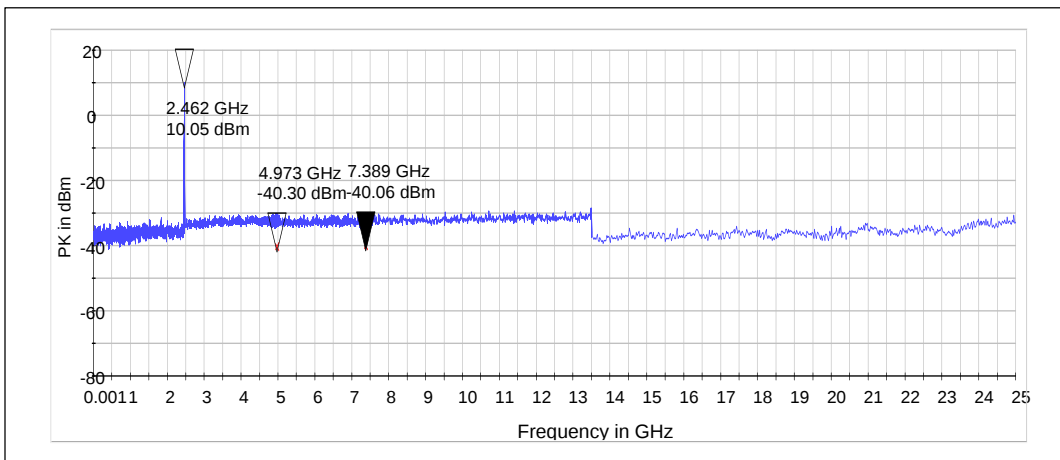
Channel 6 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4863.6	-40.13	PASSED
7298.4	-39.13	PASSED

Channel 11 / 2462 MHz

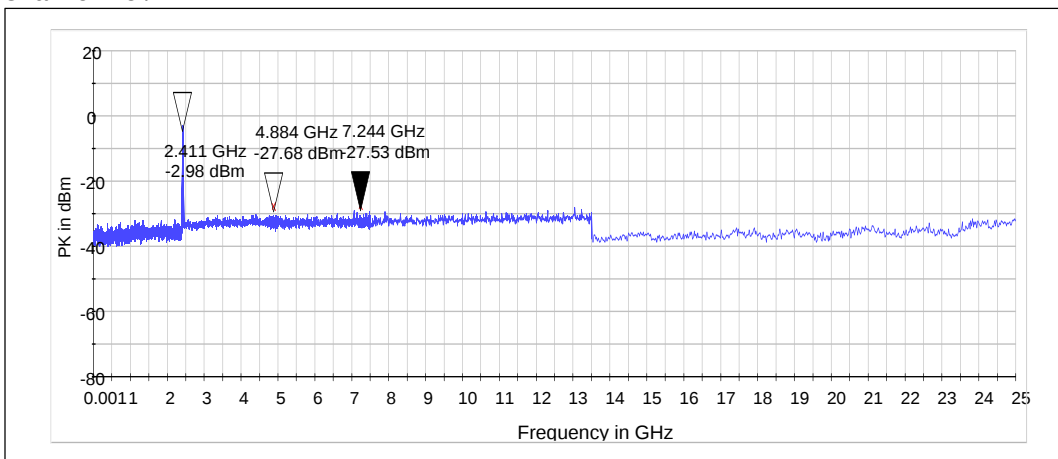


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4973.2	-40.3	PASSED
7389	-40.06	PASSED

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

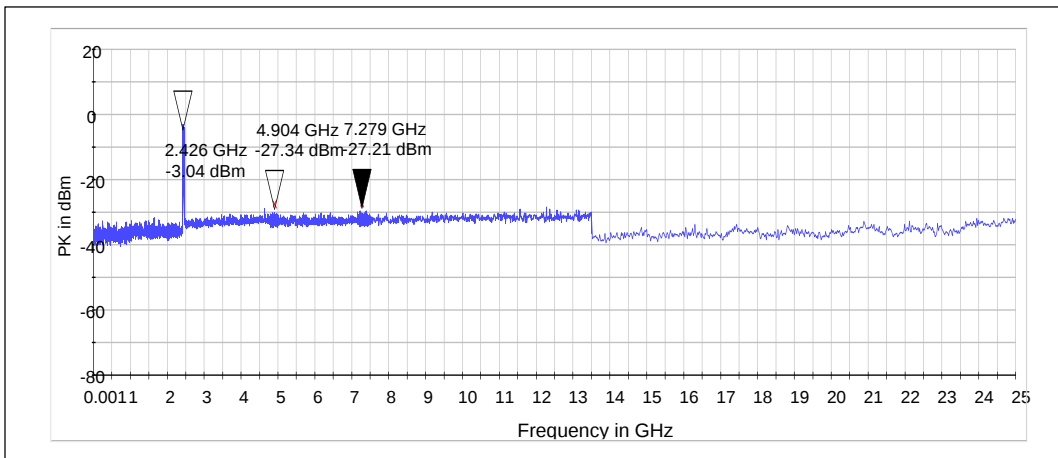
Channel 1-5 / 2422 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4884.4	-27.68	PASSED
7243.8	-27.53	PASSED

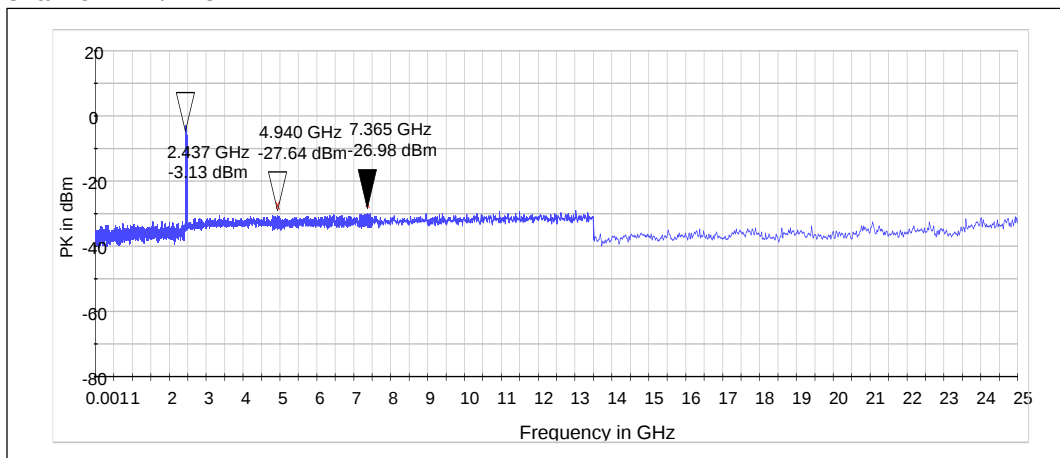
Channel 4-8 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4903.6	-27.34	PASSED
7278.6	-27.21	PASSED

Channel 7-11 / 2452 MHz

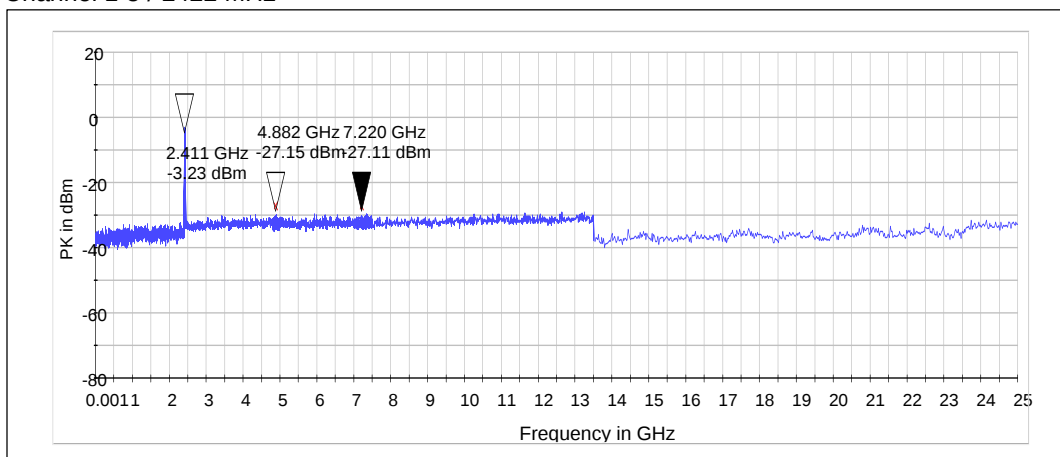


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4940	-27.64	PASSED
7365	-26.98	PASSED

5.3.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 135.0 / 150.0 Mbps data rate

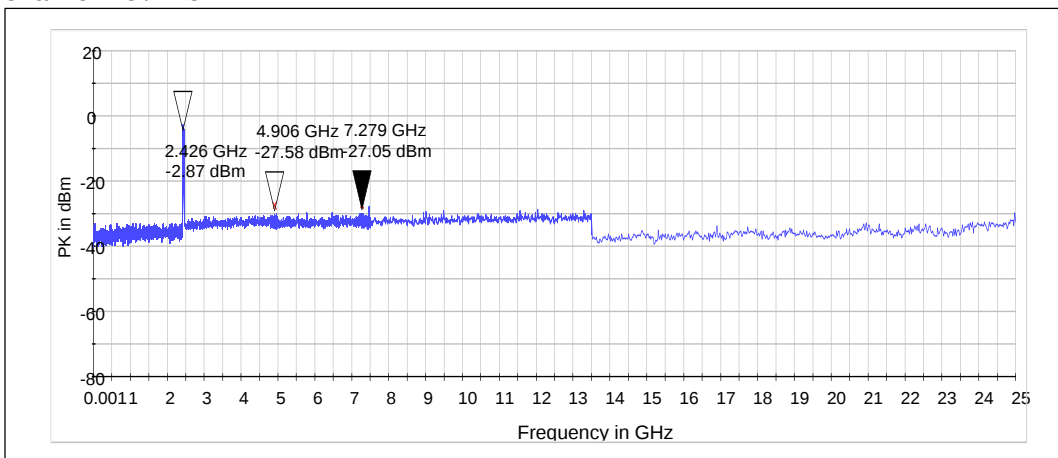
Channel 1-5 / 2422 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4881.6	-27.15	PASSED
7219.8	-27.11	PASSED

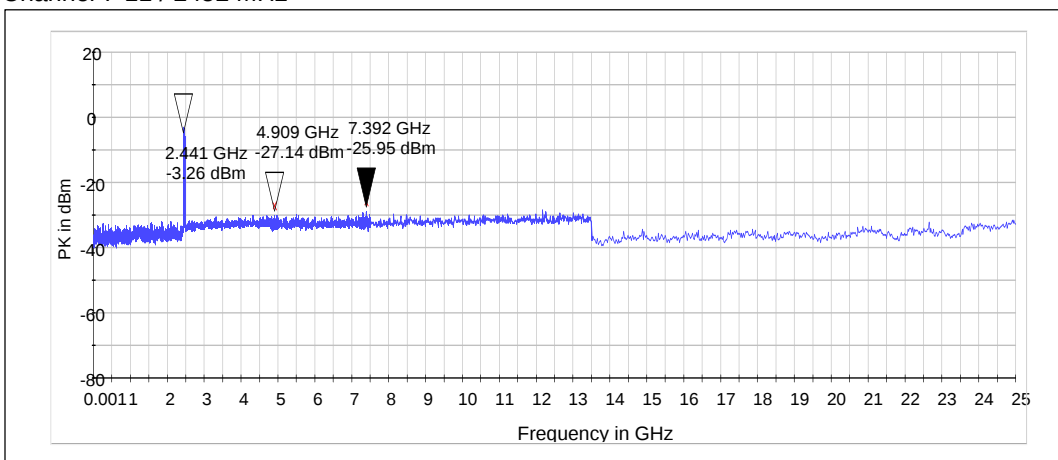
Channel 4-8 / 2437 MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4905.6	-27.58	PASSED
7279.2	-27.05	PASSED

Channel 7-11 / 2452 MHz



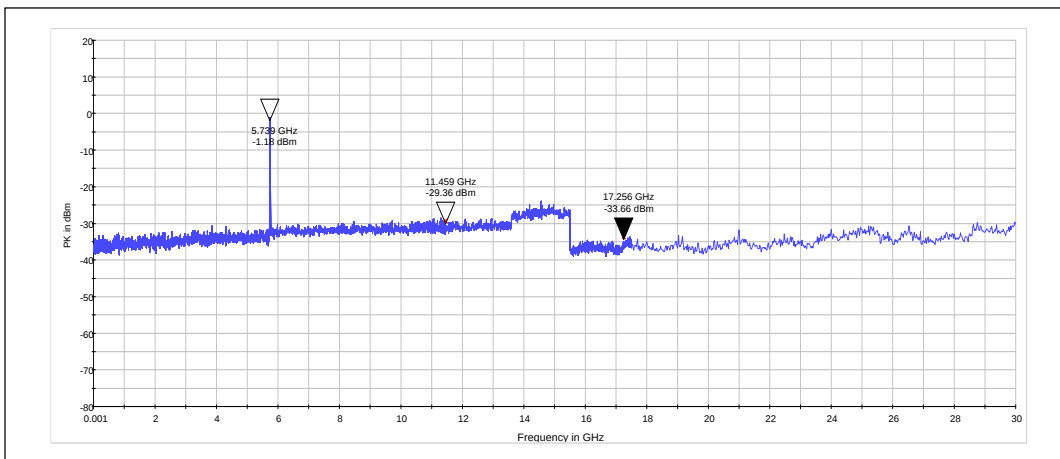
Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
4908.8	-27.14	PASSED
7392	-25.95	PASSED

5.4. 5 GHz RLAN Test results

5.4.1 OFDM mode, BPSK modulation, 6 Mbps data rate

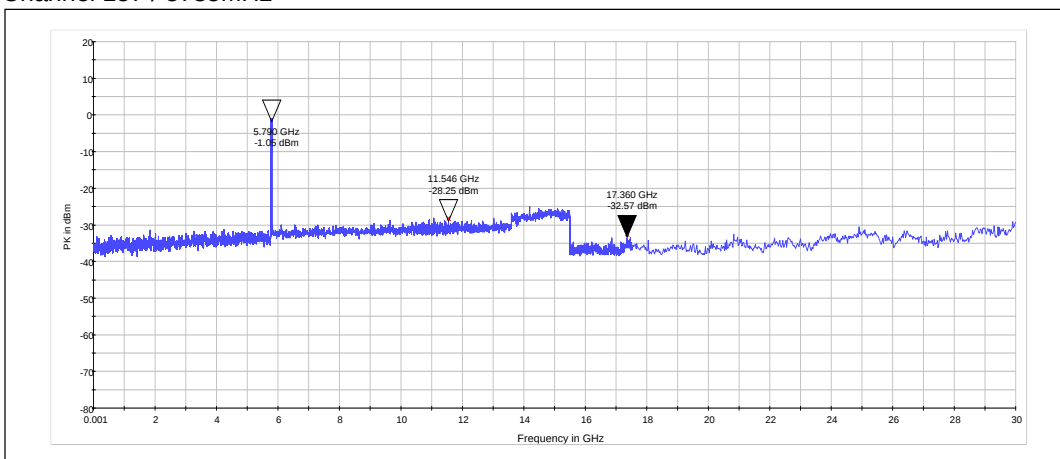
Channel 149 / 5745MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11459.2	-29.36	PASSED
17256	-33.66	PASSED

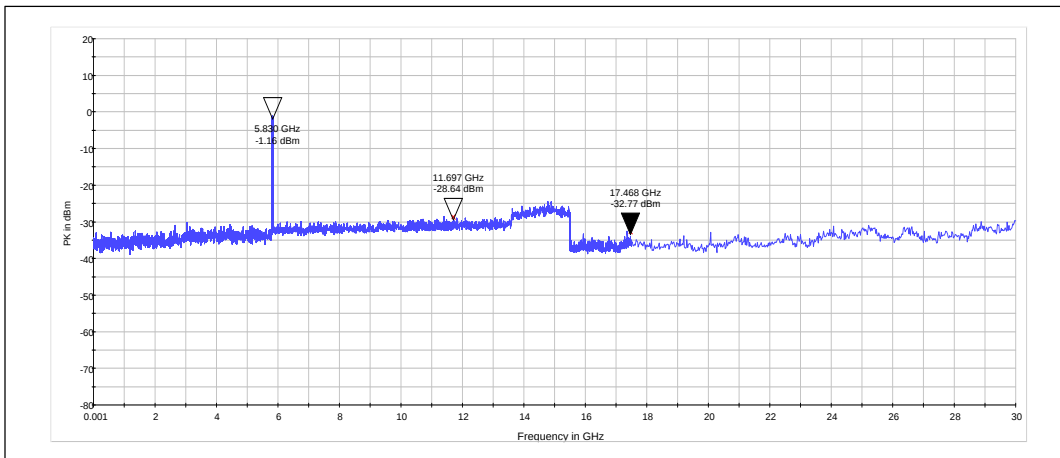
Channel 157 / 5785MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11546	-28.25	PASSED
17360	-32.57	PASSED

Channel 165 / 5825MHz

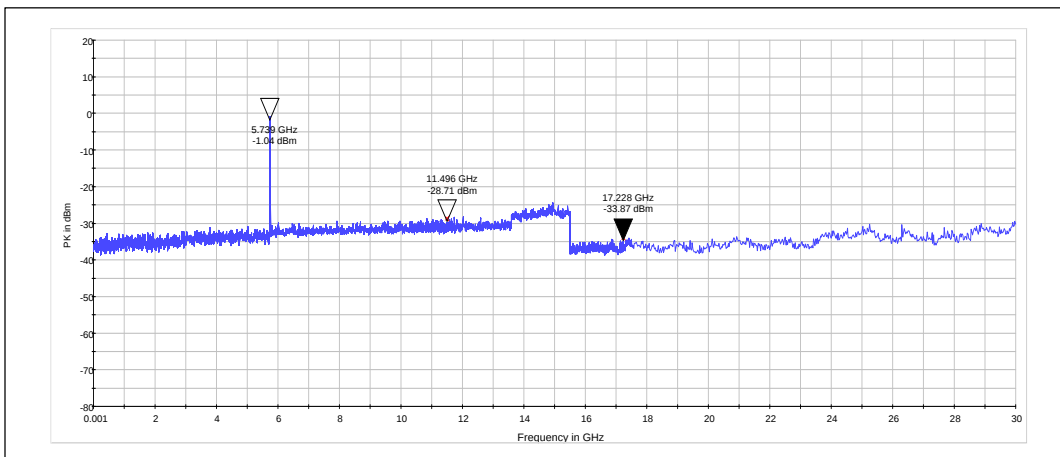


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11697.2	-28.64	PASSED
17468	-32.77	PASSED

5.4.2 n-mode, 20 MHz CBW mode, 64-QAM modulation, 58.5 / 65.0 Mbps data rate

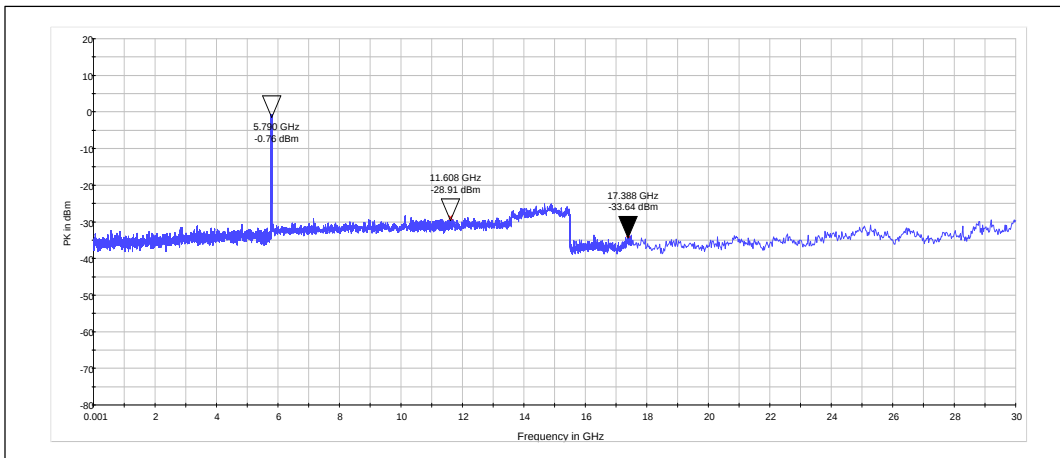
Channel 149 / 5745MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11495.6	-28.71	PASSED
17228	-33.87	PASSED

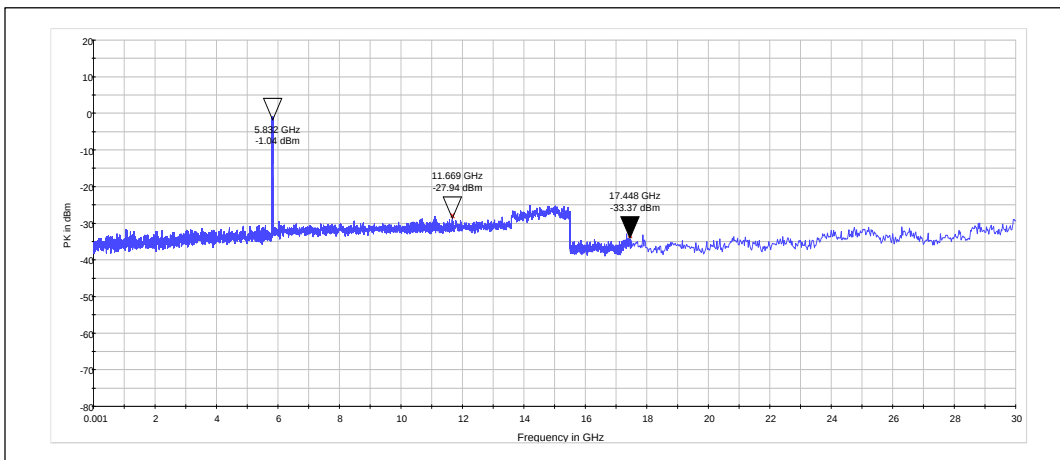
Channel 157 / 5785MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11607.6	-28.91	PASSED
17388	-33.64	PASSED

Channel 165 / 5825MHz

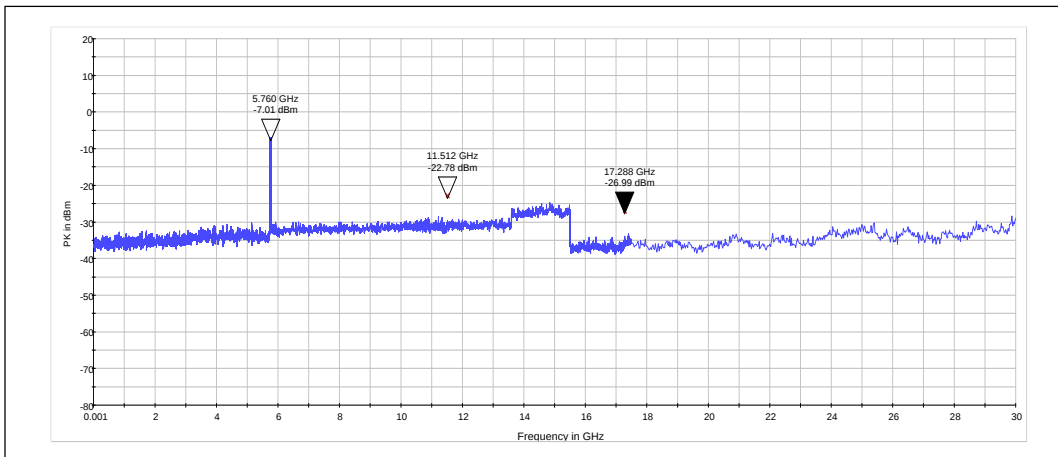


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11669.2	-27.94	PASSED
17448	-33.37	PASSED

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

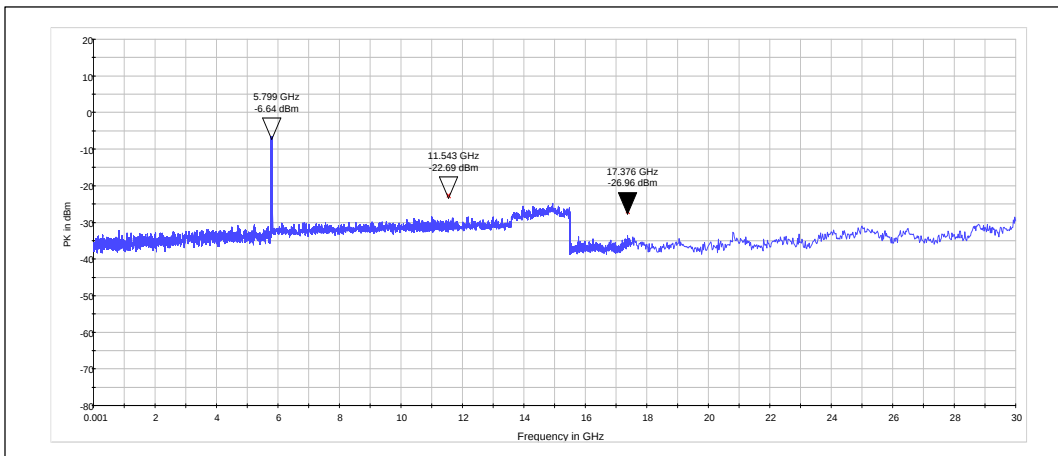
Channel 149+153 / 5755MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11512.4	-22.78	PASSED
17288	-26.99	PASSED

Channel 157+161 / 5795MHz

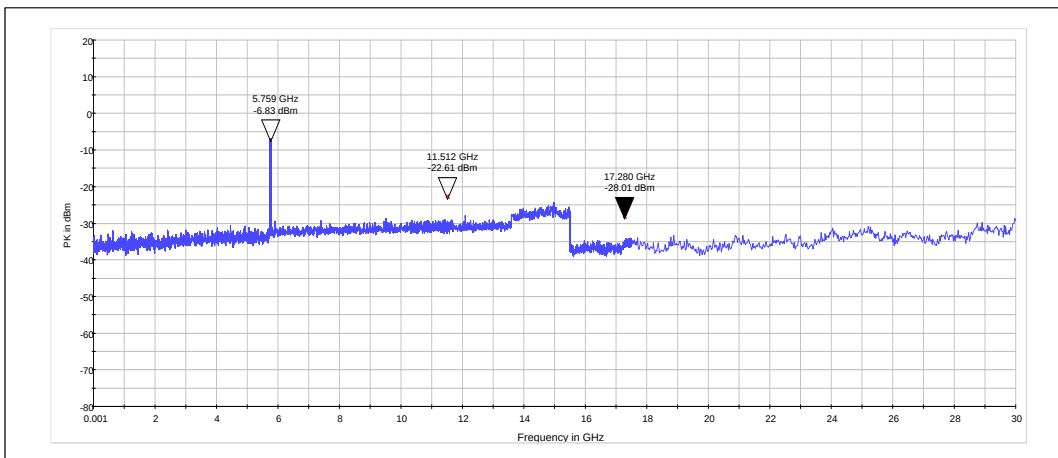


Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11543.2	-22.69	PASSED
17376	-26.96	PASSED

5.4.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 121.5 / 135.0 Mbps data rate

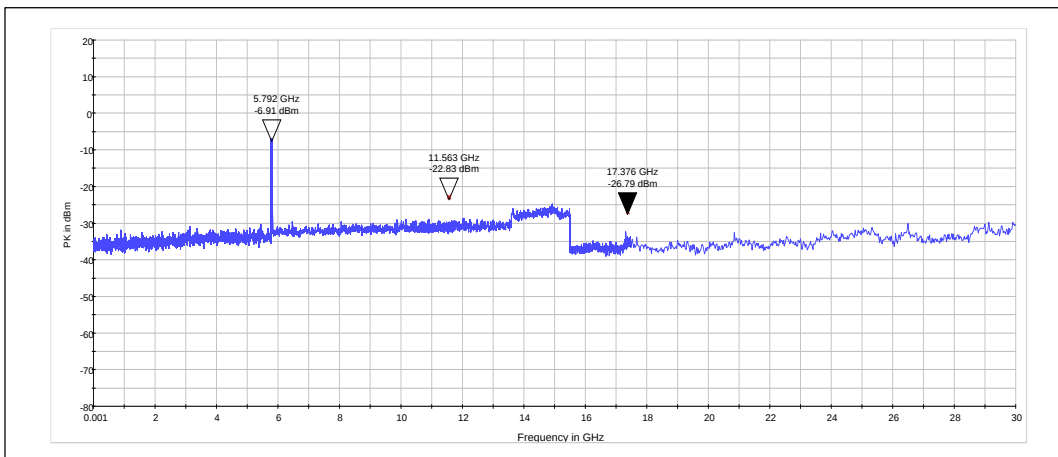
Channel 149+153 / 5755MHz



Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11512.4	-22.61	PASSED
17280	-28.01	PASSED

Channel 157+161 / 5795MHz



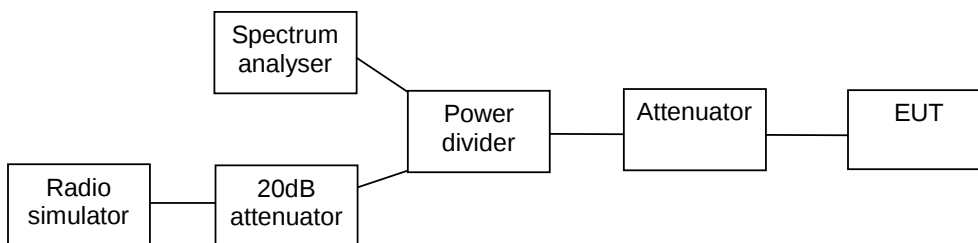
Peak (RBW: 100 kHz, VBW: 300 kHz)

Frequency [MHz]	P [dBc]	Result
11562.8	-22.83	PASSED
17376	-26.79	PASSED

6. 6 dB bandwidth (FCC §15.247(a)(2), RSS-210 A8.2 (1))

EUT with DUT number	RM-878, DUT 16639
Accessories with DUT numbers	BP-4W, DUT 16640
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 43 / 100
Date of measurements	19-Sep-2012
Measured by	Tomi Lipponen

6.1. Test Setup



6.2. 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

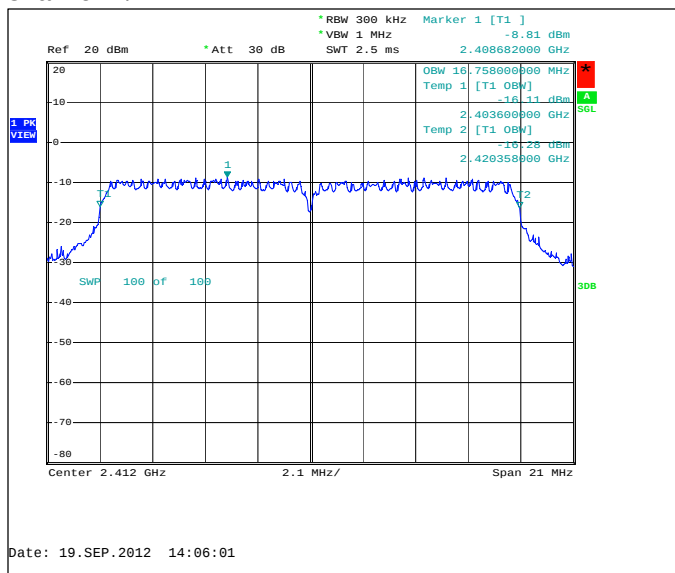
Limit [kHz]
>= 500

6.3. WLAN Test results

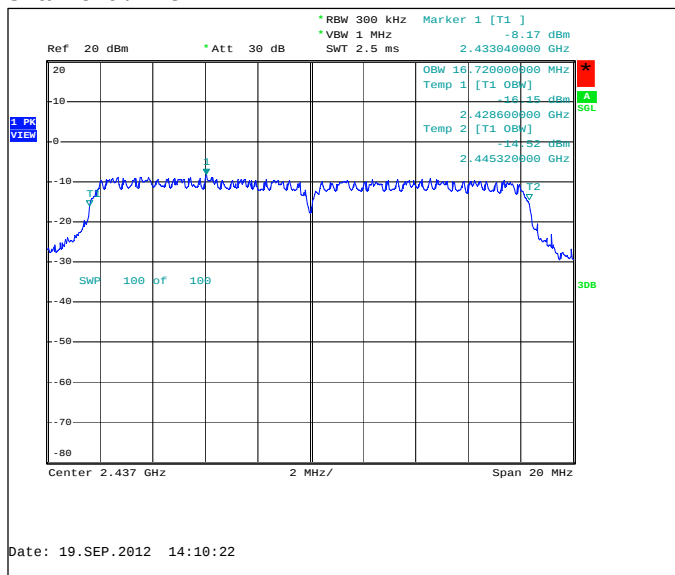
6.3.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	16758	PASSED
6 / 2437	16720	PASSED
11 / 2462	16760	PASSED

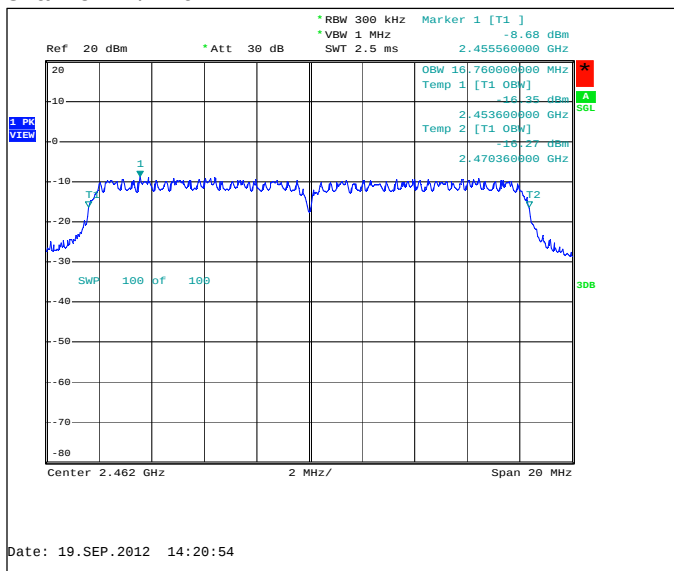
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



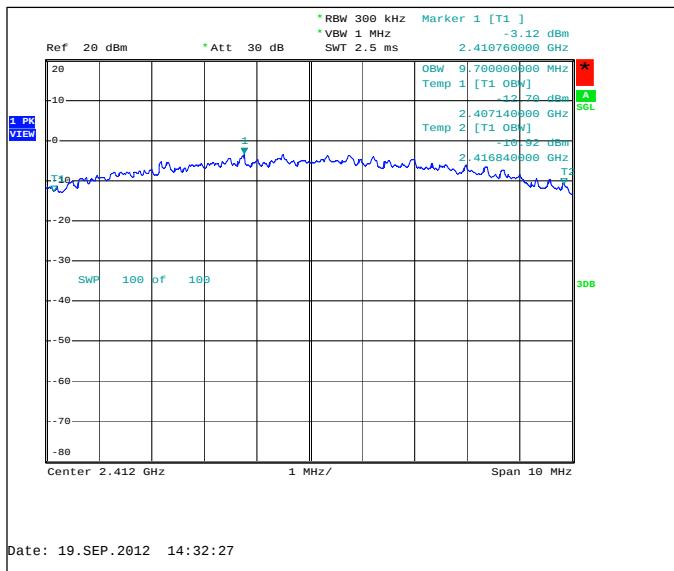
Channel 11 / 2462 MHz



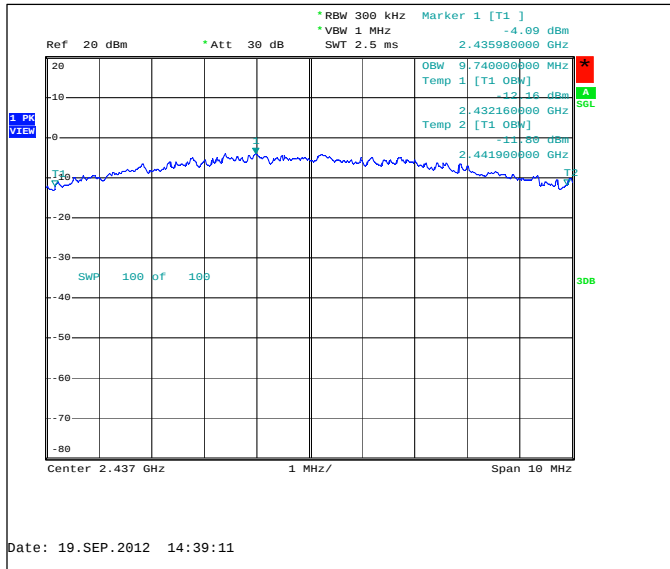
6.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1 / 2412	9700	PASSED
6 / 2437	9740	PASSED
11 / 2462	9680	PASSED

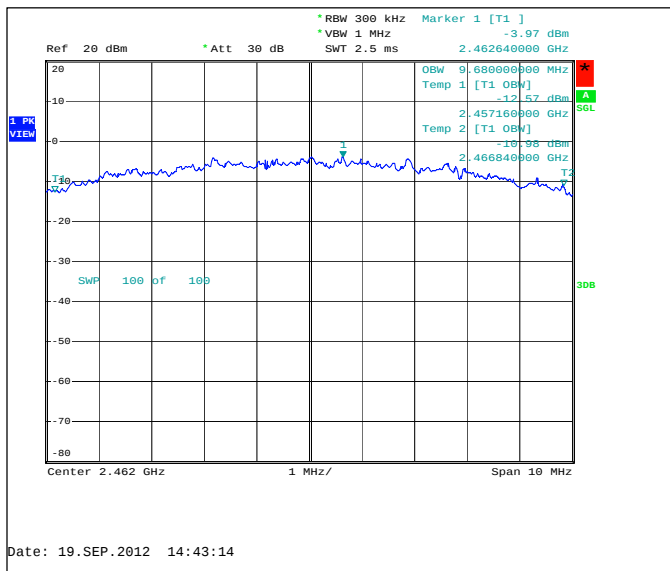
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



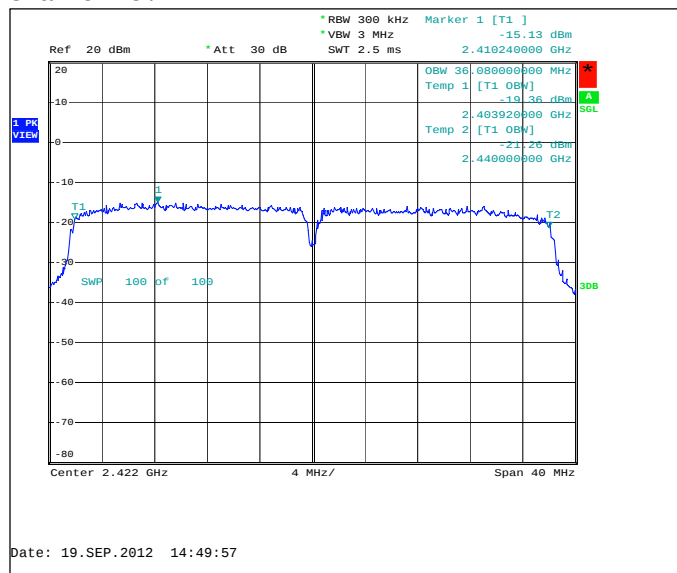
Channel 11 / 2462 MHz



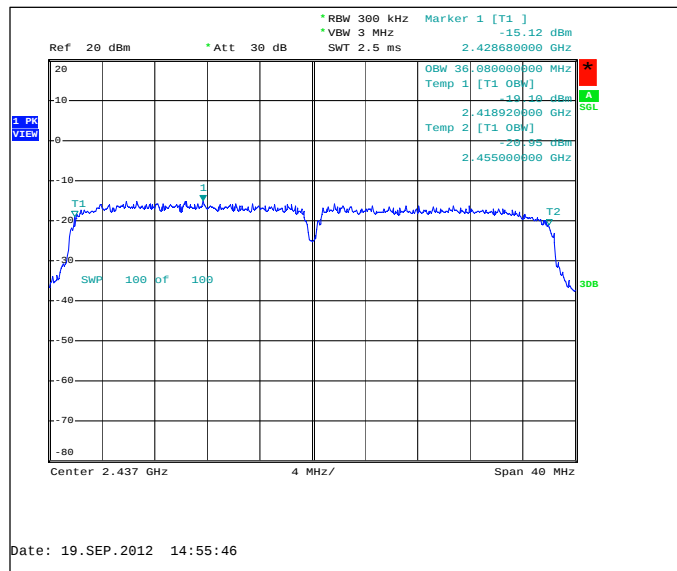
6.3.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1-5 / 2422	36080	PASSED
4-8 / 2437	36080	PASSED
7-11 / 2452	36080	PASSED

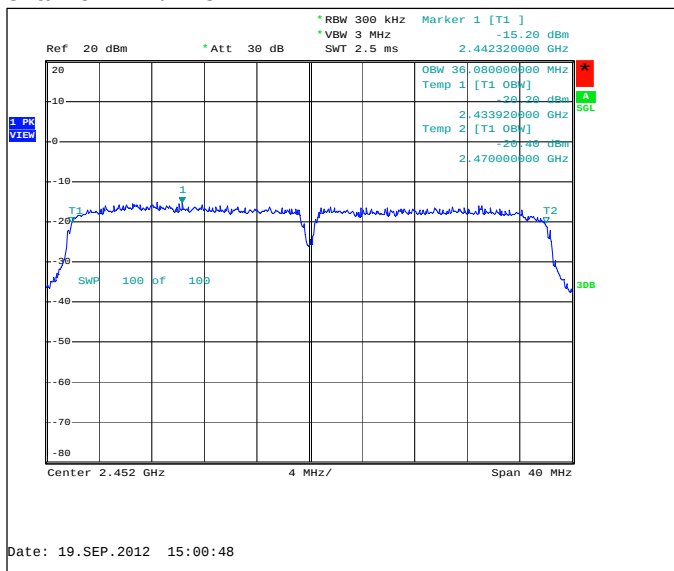
Channel 1-5 / 2422 MHz



Channel 4-8 / 2437 MHz



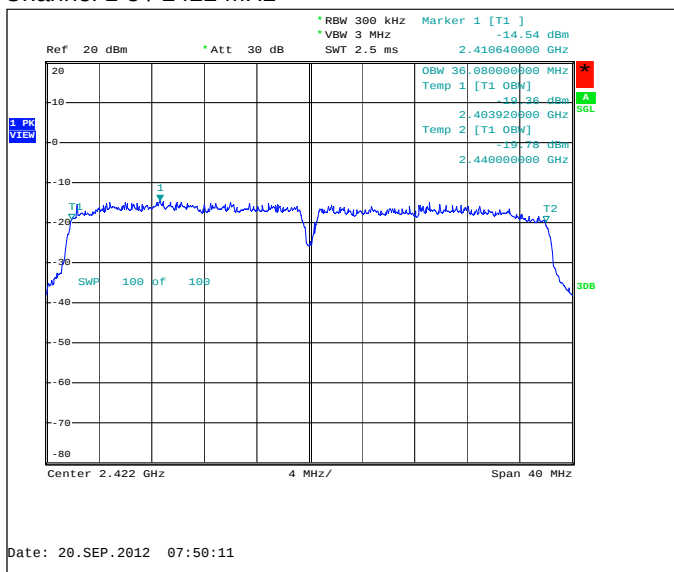
Channel 7-11 / 2452 MHz



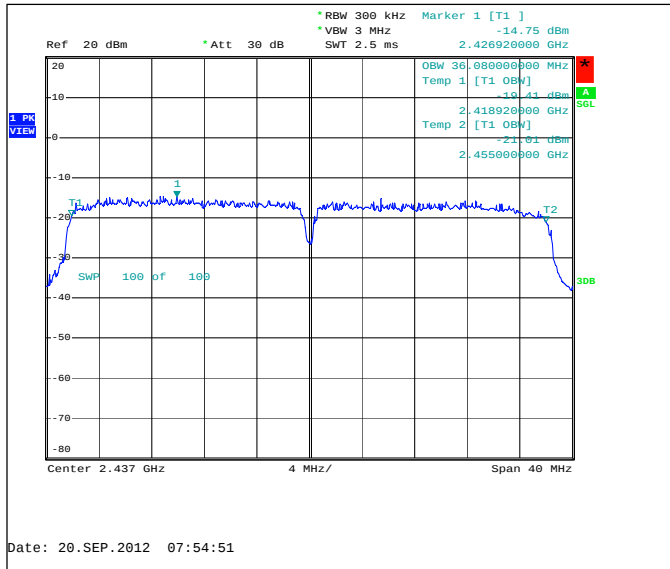
6.3.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 135.0 / 150.0 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
1-5 / 2422	36080	PASSED
4-8 / 2437	36080	PASSED
7-11 / 2452	36160	PASSED

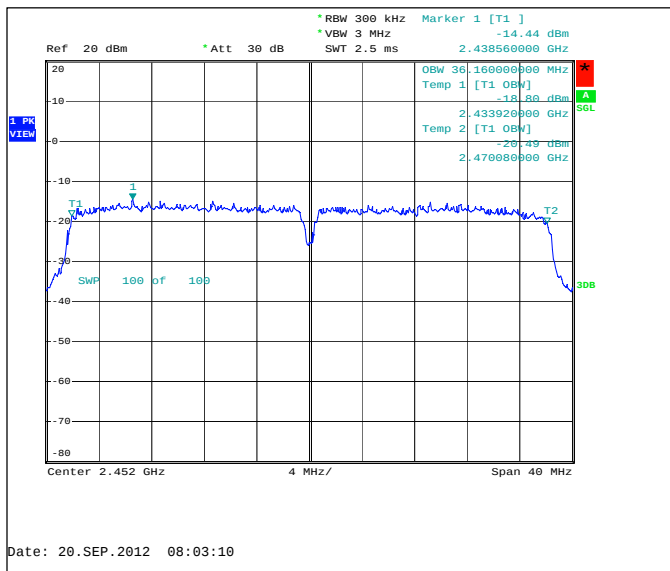
Channel 1-5 / 2422 MHz



Channel 4-8 / 2437 MHz



Channel 7-11 / 2452 MHz

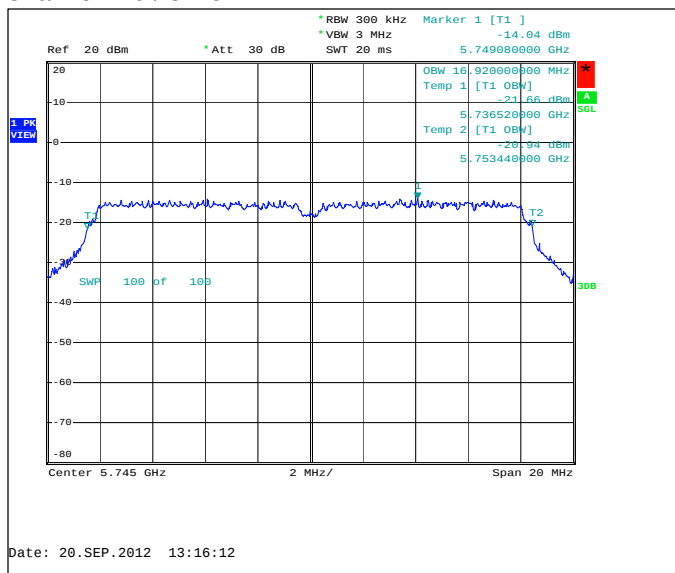


6.4. 5 GHz RLAN Test results

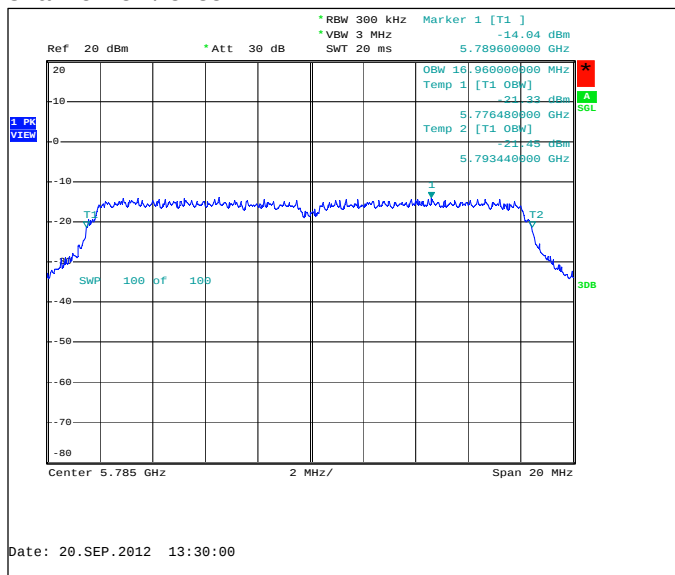
6.4.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel / f_c [MHz]	6 dB bandwidth [kHz]	Result
149 / 5745	16920	PASSED
157 / 5785	16960	PASSED
165 / 5825	16920	PASSED

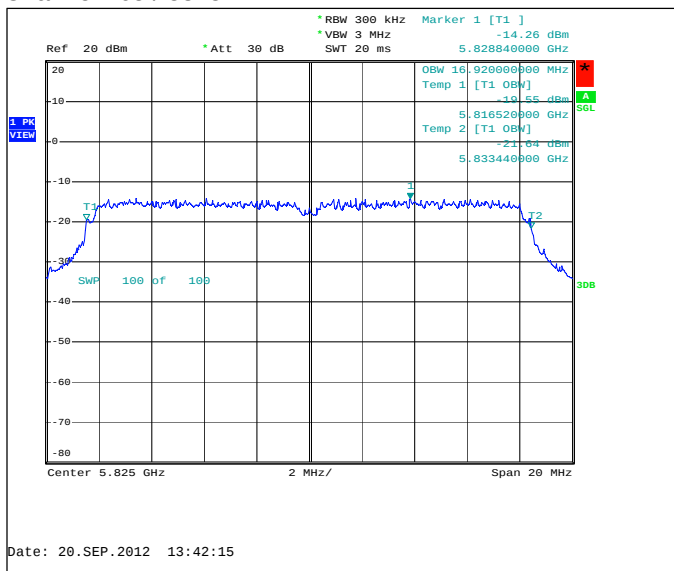
Channel 149 / 5745MHz



Channel 157 / 5785MHz



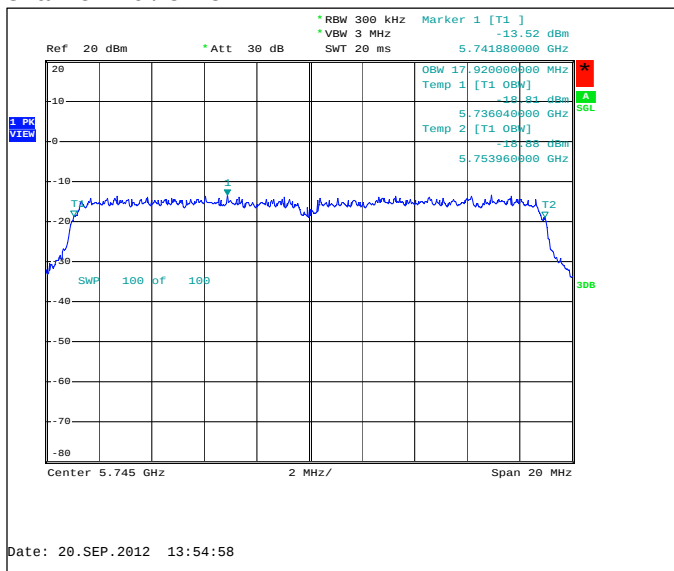
Channel 165 / 5825MHz



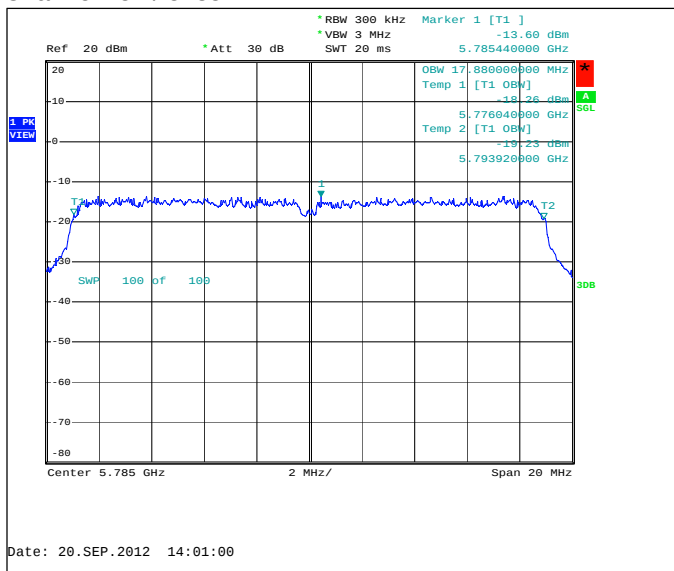
6.4.2 n-mode, 20 MHz CBW mode, 64-QAM modulation, 58.5 / 65.0 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
149 / 5745	17920	PASSED
157 / 5785	17880	PASSED
165 / 5825	17960	PASSED

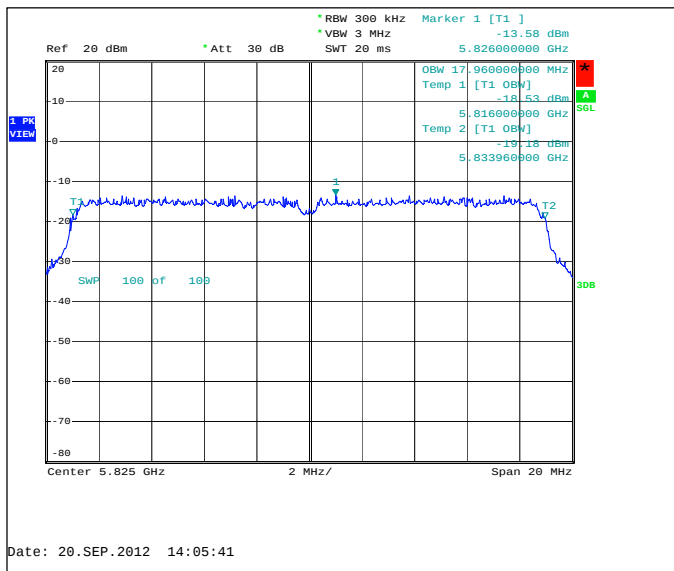
Channel 149 / 5745MHz



Channel 157 / 5785MHz



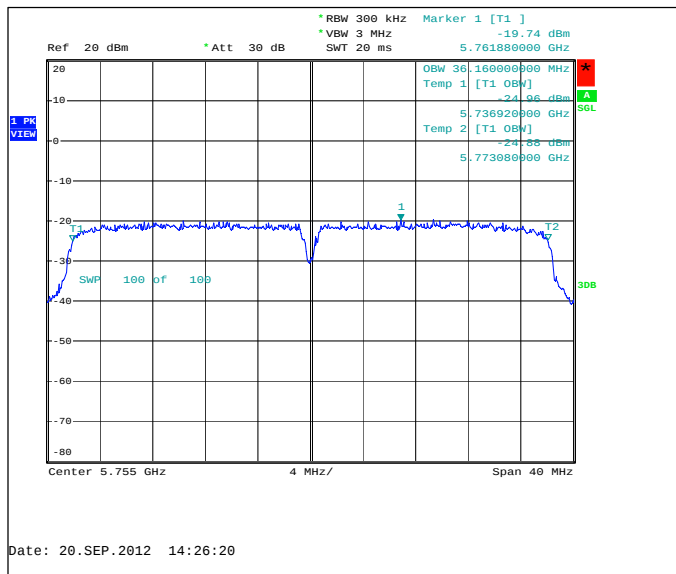
Channel 165 / 5825MHz



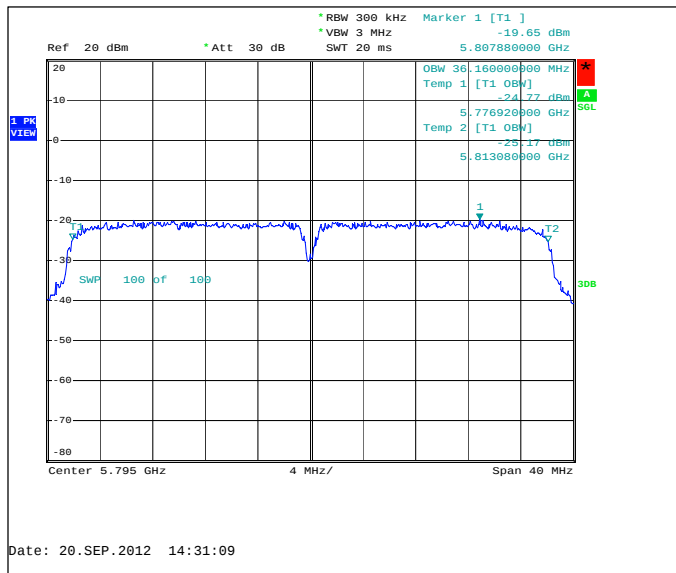
6.4.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
149+153 / 5755	36160	PASSED
157+161 / 5795	36160	PASSED

Channel 149+153 / 5755MHz



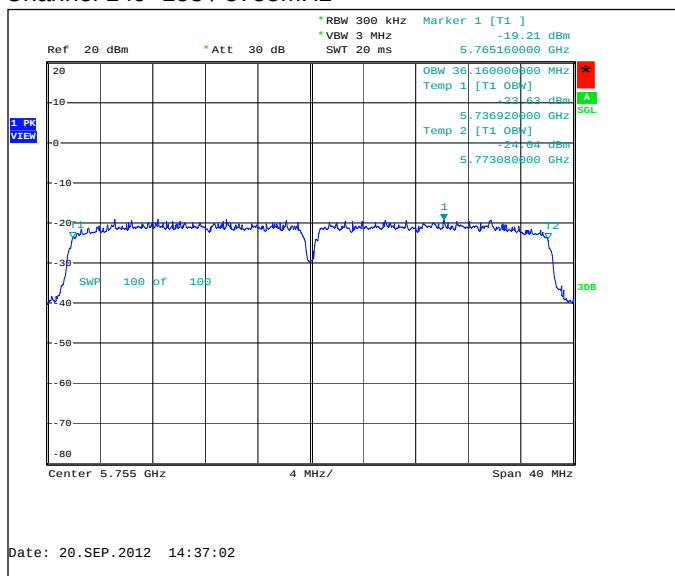
Channel 157+161 / 5795MHz



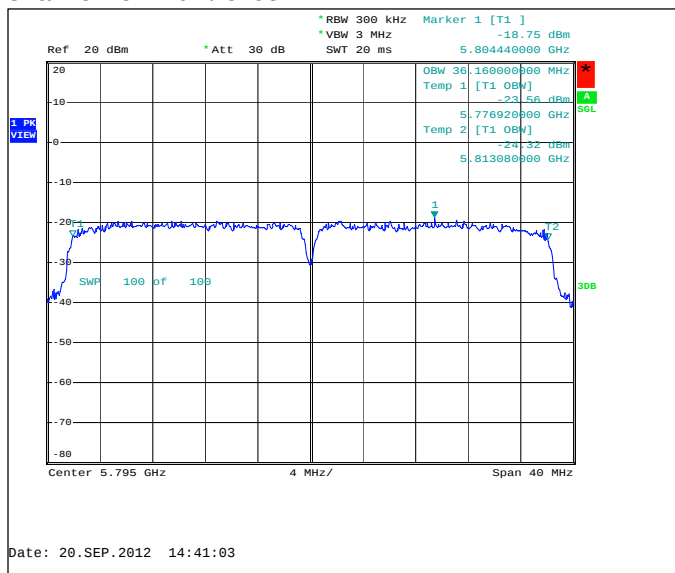
6.4.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 121.5 / 135.0 Mbps data rate

Channel / f _c [MHz]	6 dB bandwidth [kHz]	Result
149+153 / 5755	36160	PASSED
157+161 / 5795	36160	PASSED

Channel 149+153 / 5755MHz



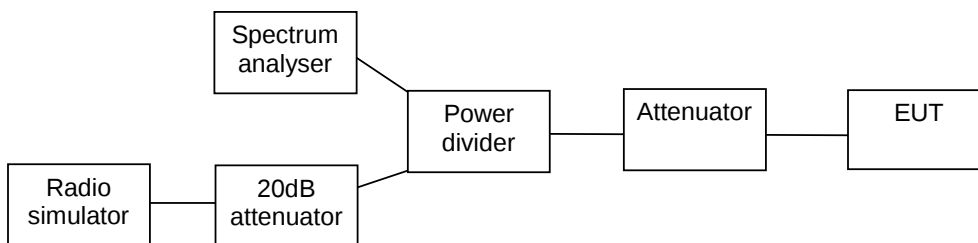
Channel 157+161 / 5795MHz



7. Power spectral density (FCC §15.247(e), RSS-210 A8.2 (2))

EUT with DUT number	RM-878, DUT 16639
Accessories with DUT numbers	BP-4W, DUT 16640
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 43 / 100
Date of measurements	19-Sep-2012
Measured by	Tomi Lipponen

7.1. Test Setup



7.2. Test method and limit

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

Result is corrected by bandwidth correction factor -15.2dB (BWCF = $10\log(3\text{ kHz}/100\text{ kHz}) = -15.2\text{ dB}$).

Limits for power spectral density measurements

Limit [dBm] @ 3 kHz
≤ 8

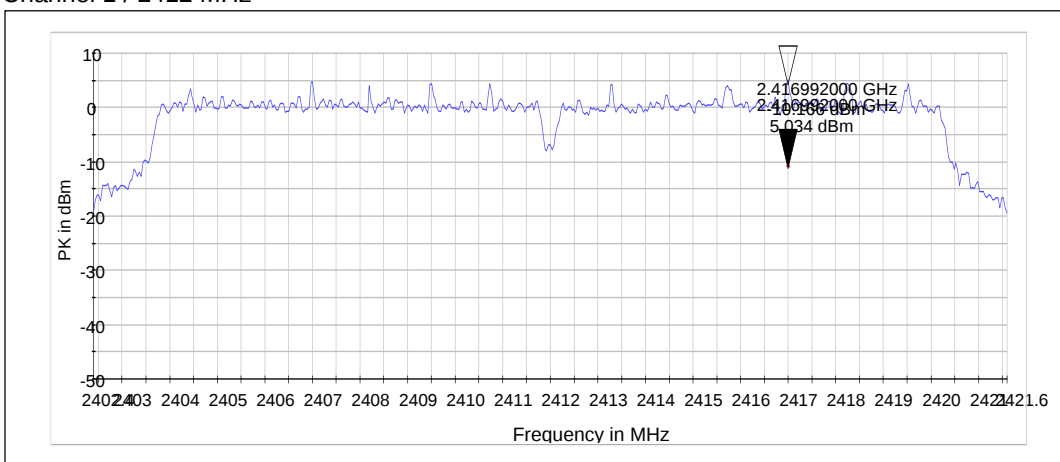
7.3. WLAN Test results

7.3.1 OFDM mode, BPSK modulation, 6 Mbps data rate

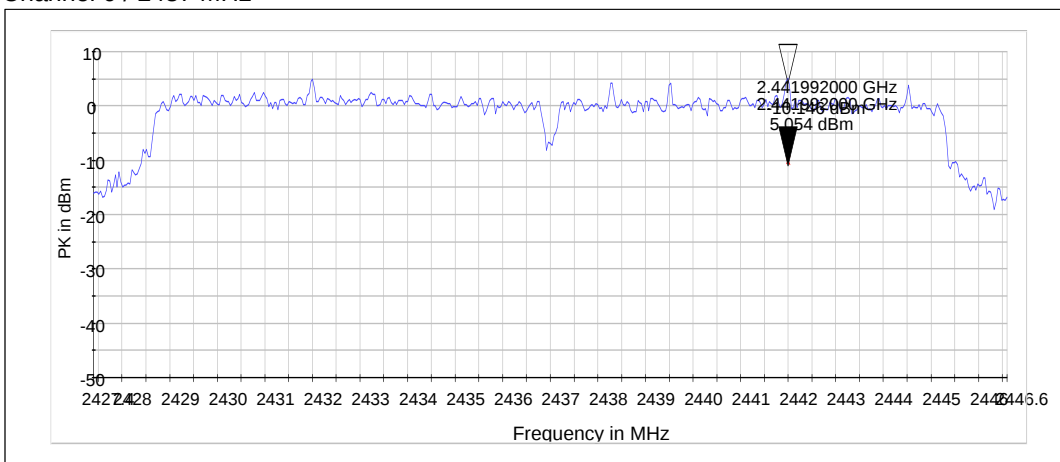
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-10.17	PASSED
6 / 2437	-10.15	PASSED
11 / 2462	-10.09	PASSED

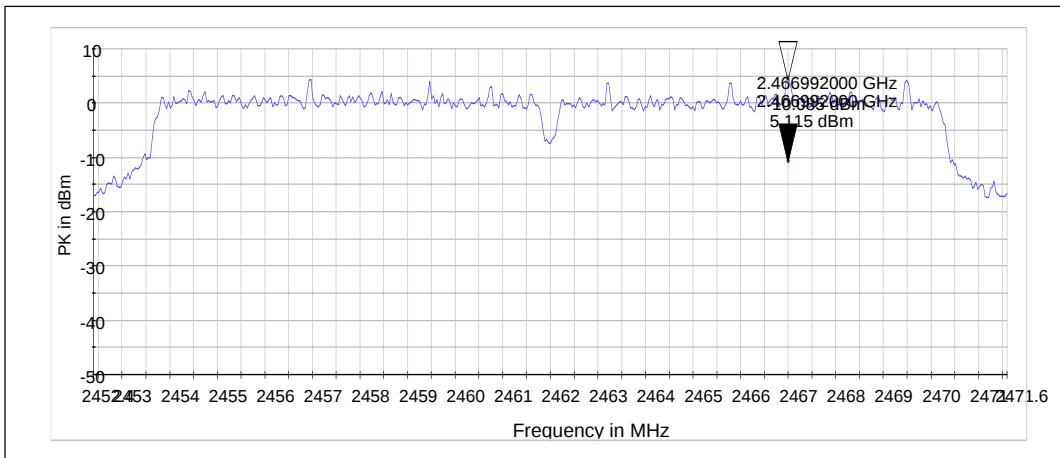
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

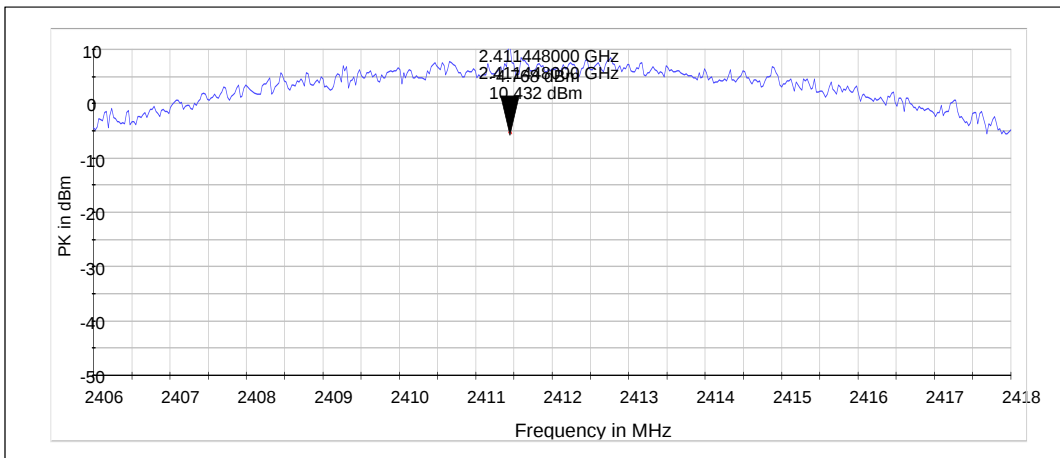


7.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

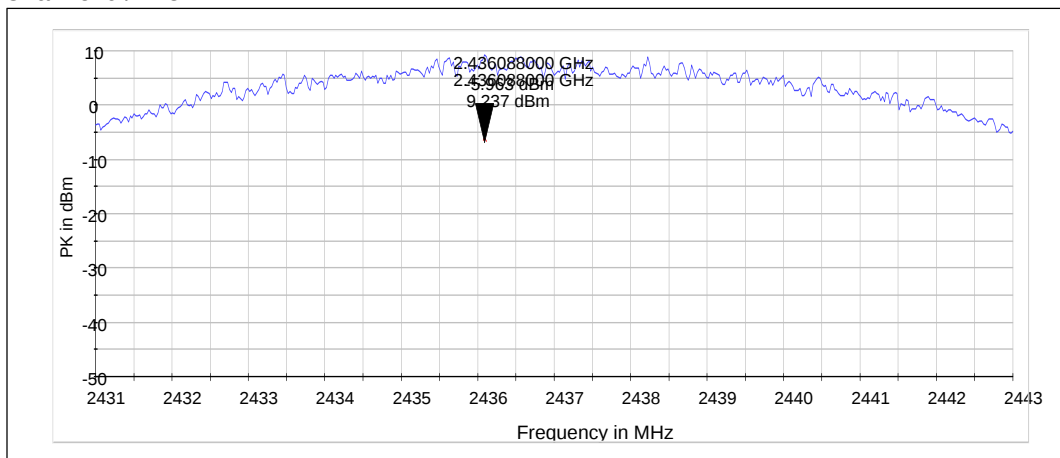
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
1 / 2412	-4.77	PASSED
6 / 2437	-5.96	PASSED
11 / 2462	-5.38	PASSED

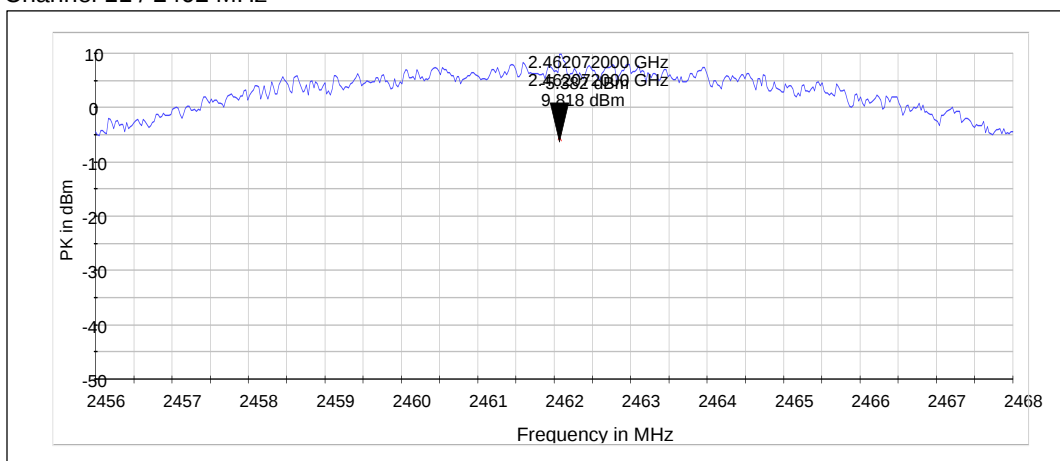
Channel 1 / 2412 MHz



Channel 6 / 2437 MHz



Channel 11 / 2462 MHz

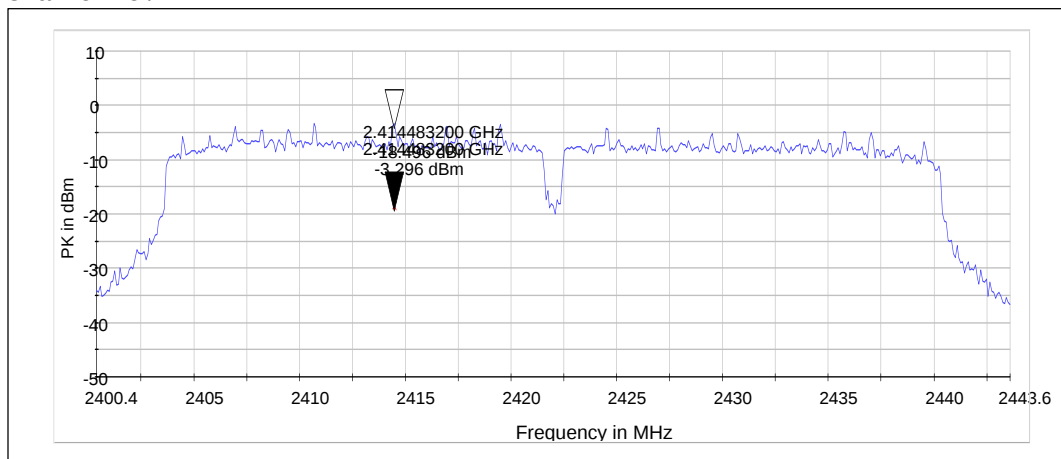


7.3.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

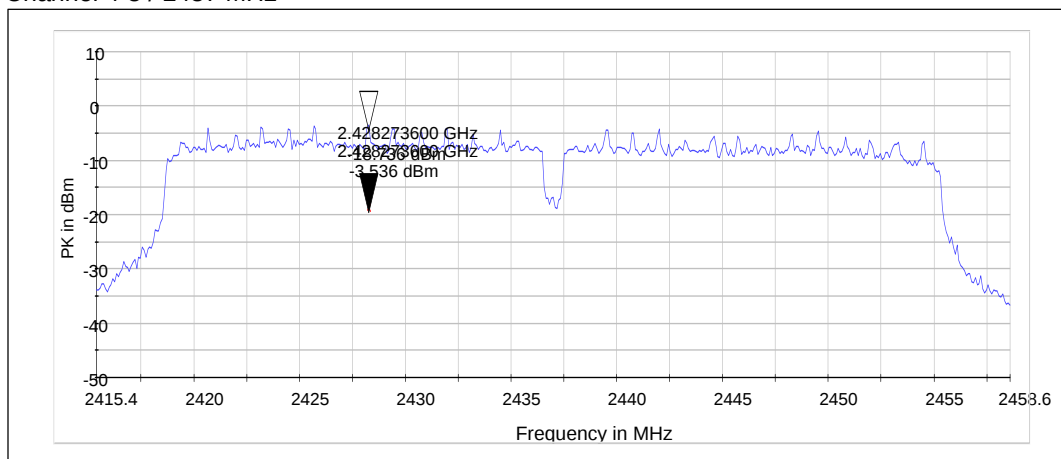
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f _c [MHz]	P [dBm]	Result
1-5 / 2422	-18.5	PASSED
4-8 / 2437	-18.74	PASSED
7-11 / 2452	-18.73	PASSED

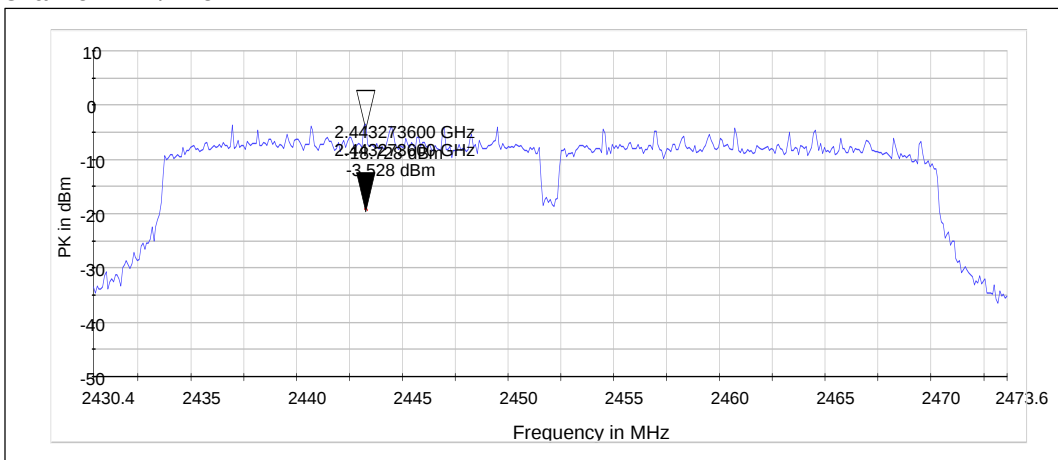
Channel 1-5 / 2422 MHz



Channel 4-8 / 2437 MHz



Channel 7-11 / 2452 MHz

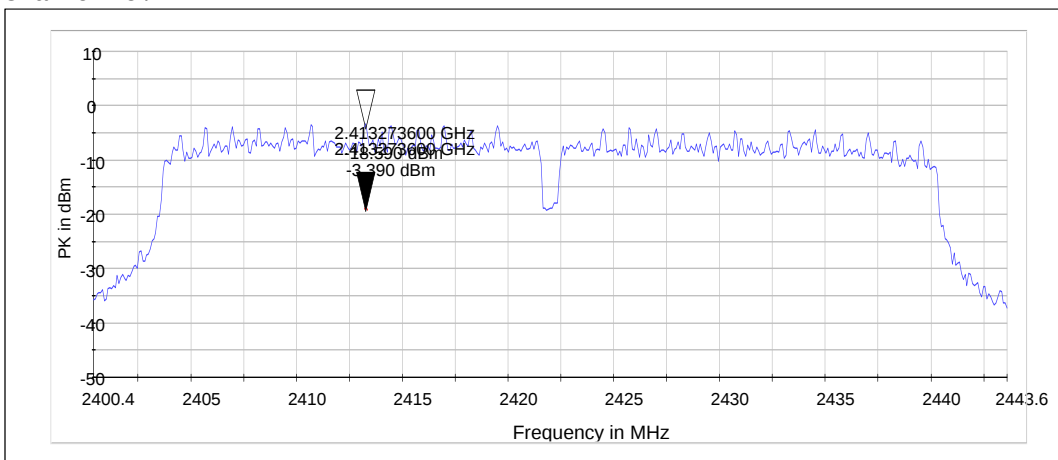


7.3.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 135.0 / 150.0 Mbps data rate

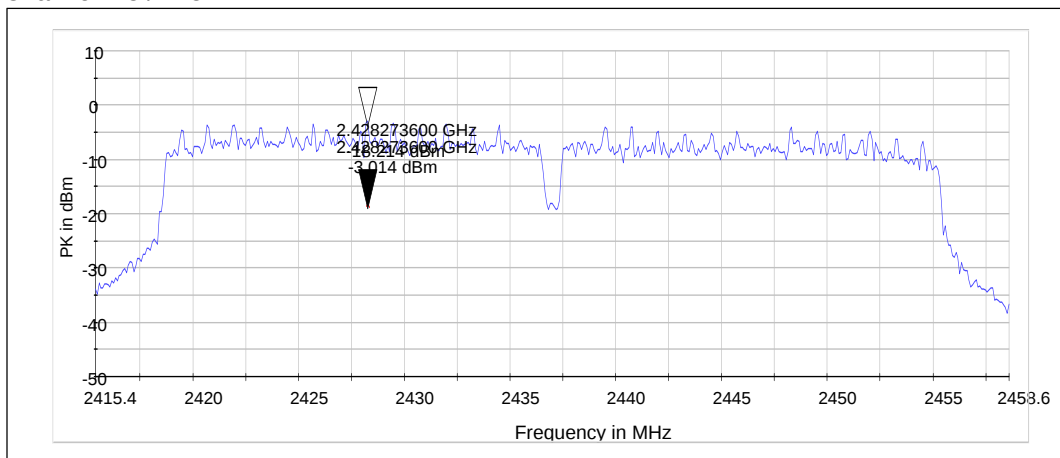
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
1-5 / 2422	-18.59	PASSED
4-8 / 2437	-18.21	PASSED
7-11 / 2452	-18.59	PASSED

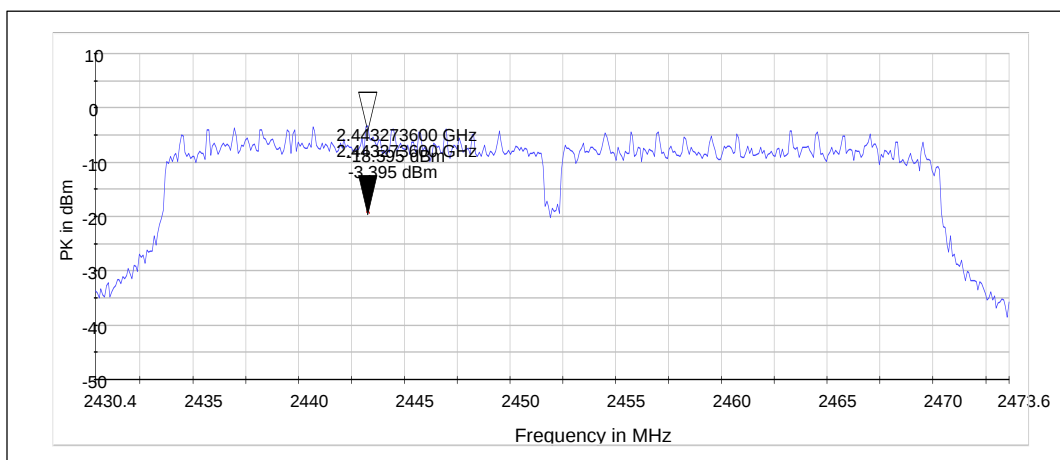
Channel 1-5 / 2422 MHz



Channel 4-8 / 2437 MHz



Channel 7-11 / 2452 MHz



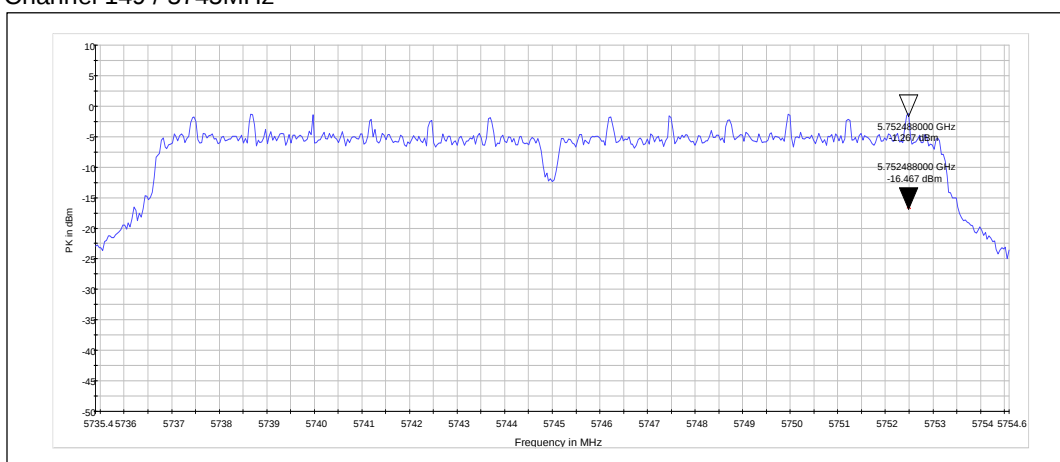
7.4. 5 GHz RLAN Test results

7.4.1 OFDM mode, BPSK modulation, 6 Mbps data rate

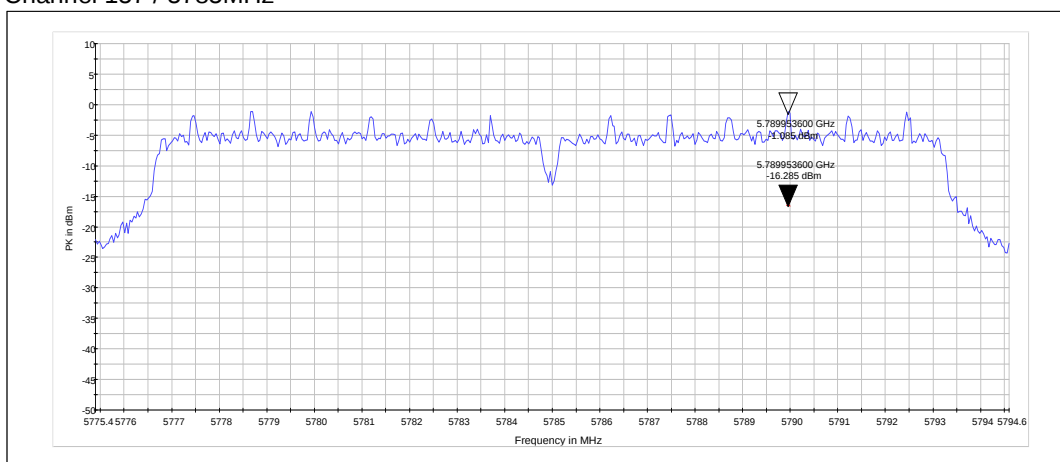
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
149 / 5745	-16.47	PASSED
157 / 5785	-16.29	PASSED
165 / 5825	-16.4	PASSED

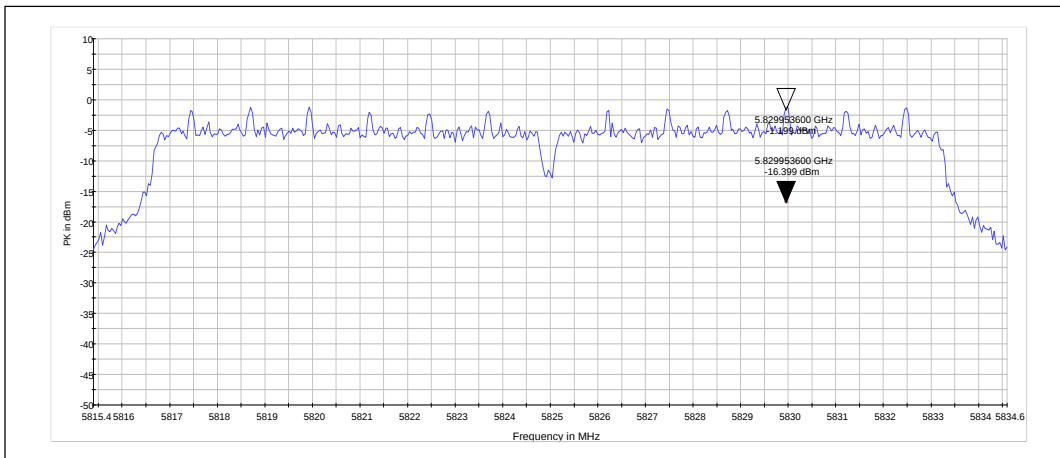
Channel 149 / 5745MHz



Channel 157 / 5785MHz



Channel 165 / 5825MHz

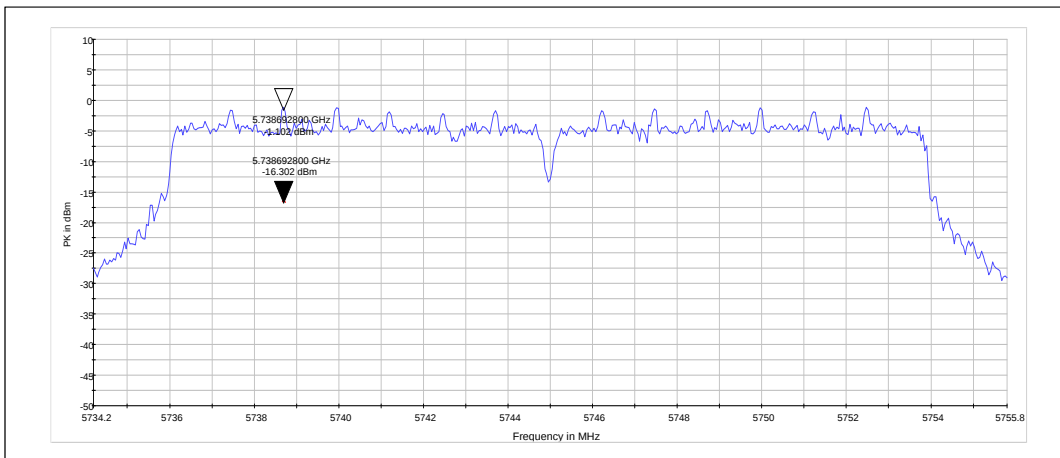


7.4.2 n-mode, 20 MHz CBW mode, 64-QAM modulation, 58.5 / 65.0 Mbps data rate

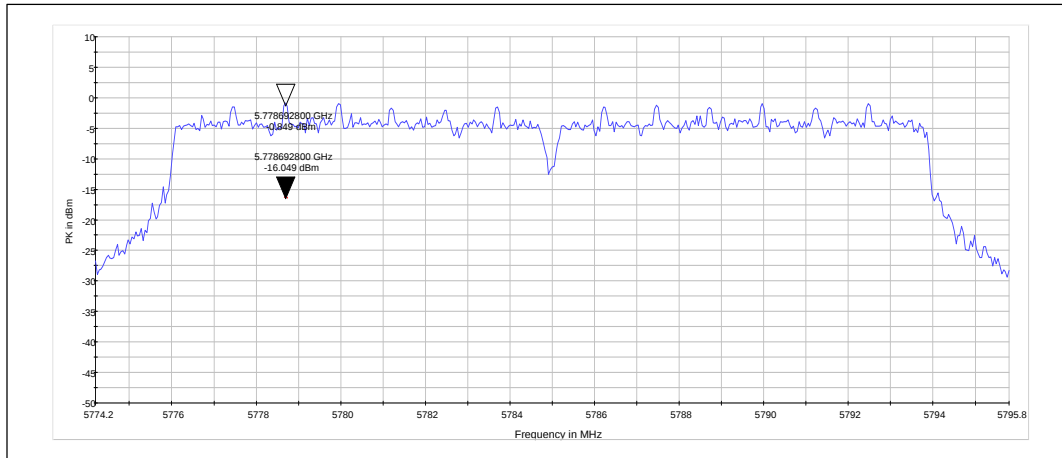
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f _c [MHz]	P [dBm]	Result
149 / 5745	-16.3	PASSED
157 / 5785	-16.05	PASSED
165 / 5825	-16.29	PASSED

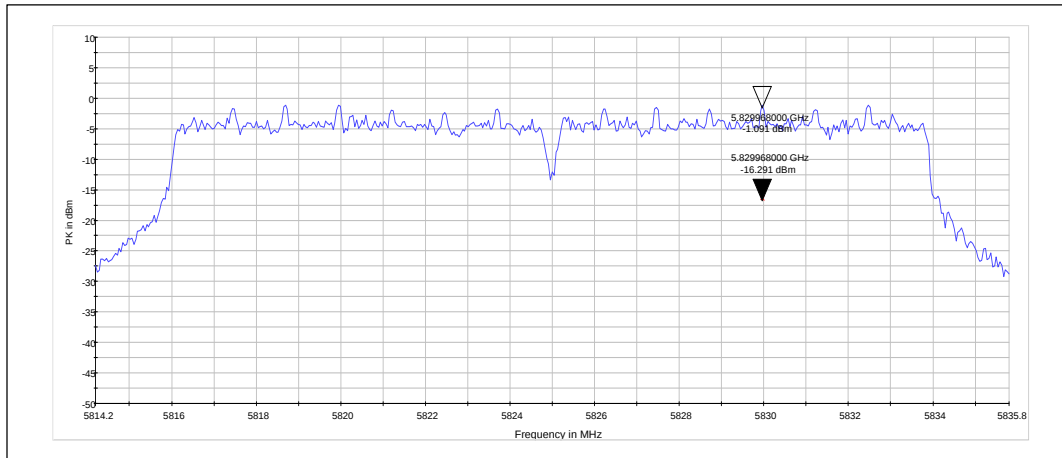
Channel 149 / 5745MHz



Channel 157 / 5785MHz



Channel 165 / 5825MHz

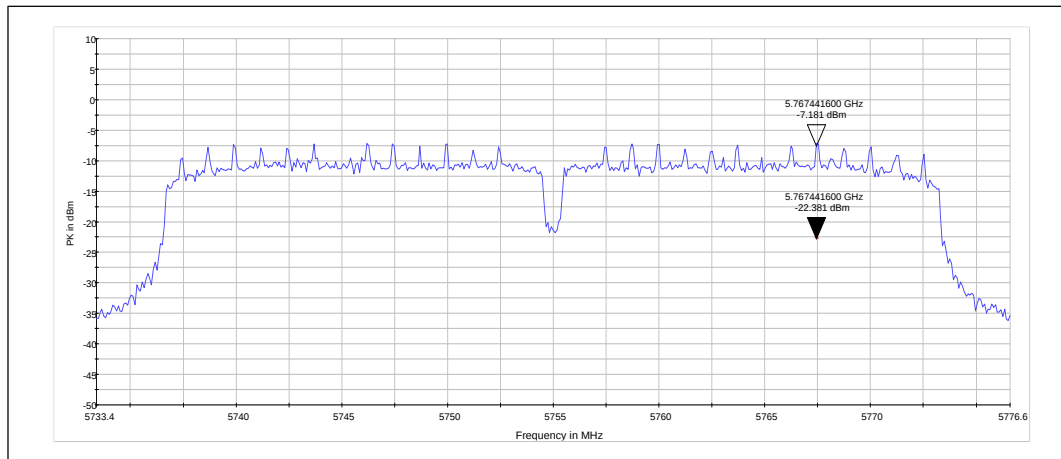


7.4.3 n-mode, 40 MHz CBW mode, BPSK modulation, 13.5 / 15.0 Mbps data rate

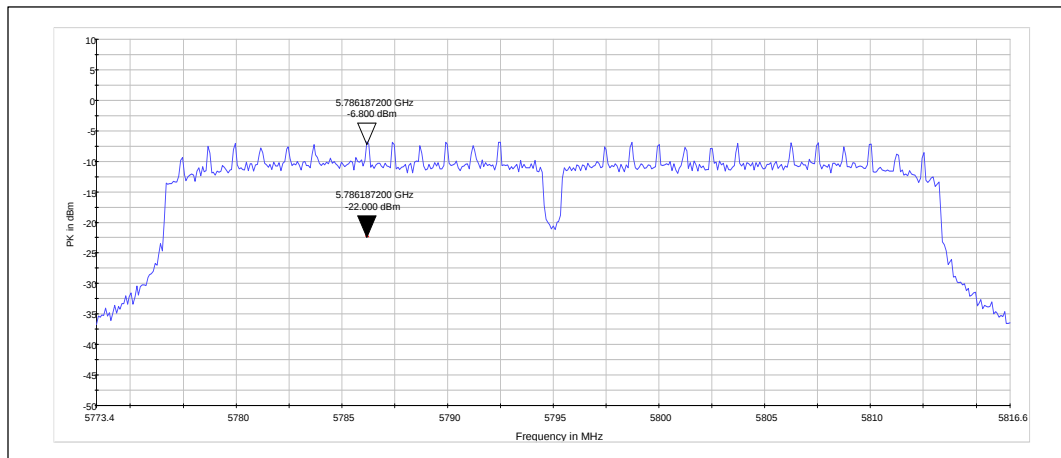
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
149+153 / 5755	-22.38	PASSED
157+161 / 5795	-22	PASSED

Channel 149+153 / 5755MHz



Channel 157+161 / 5795MHz

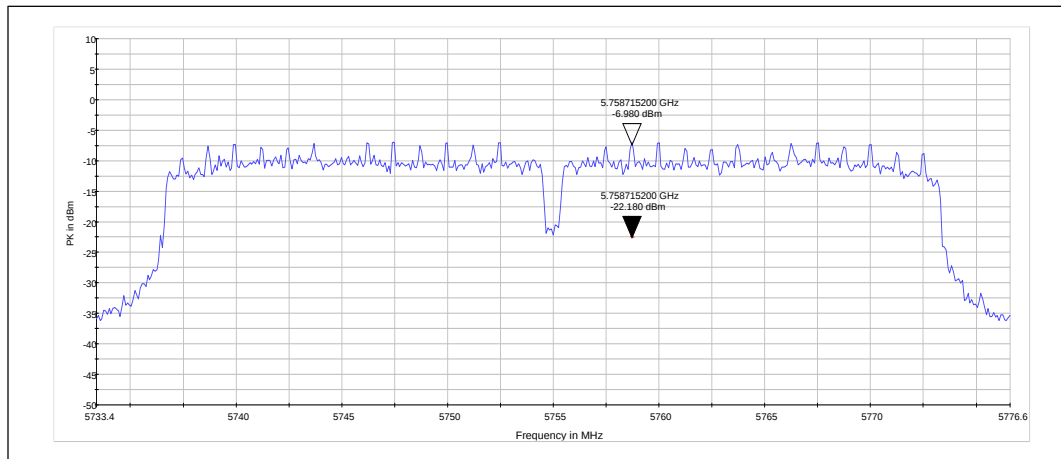


7.4.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 121.5 / 135.0 Mbps data rate

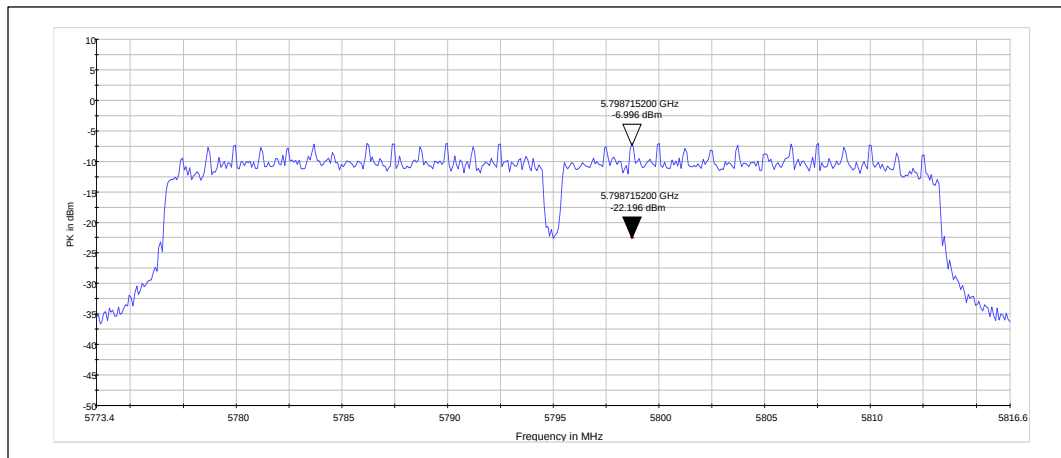
Peak (RBW: 100 kHz, VBW: 300 kHz, Max hold)

Channel / f_c [MHz]	P [dBm]	Result
149+153 / 5755	-22.18	PASSED
157+161 / 5795	-22.2	PASSED

Channel 149+153 / 5755MHz



Channel 157+161 / 5795MHz



8. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

EUT with DUT number	RM-878, DUT 16639
Accessories with DUT numbers	BP-4W, DUT 16640
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 43 / 100
Date of measurements	21-Sep-2012
Measured by	Tomi Lipponen

8.1. Test Setup



8.2. Test method and limit

The measurement is made according to procedure KDB 558074 D01 and IC standard RSS-GEN as follows:

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.

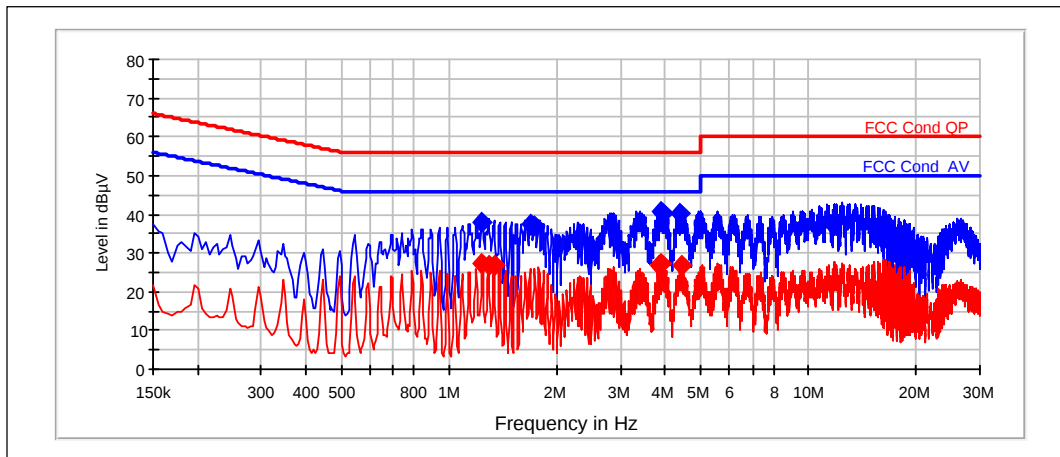
CISPR 22 Class B limits

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

8.3. WLAN Test results

8.3.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

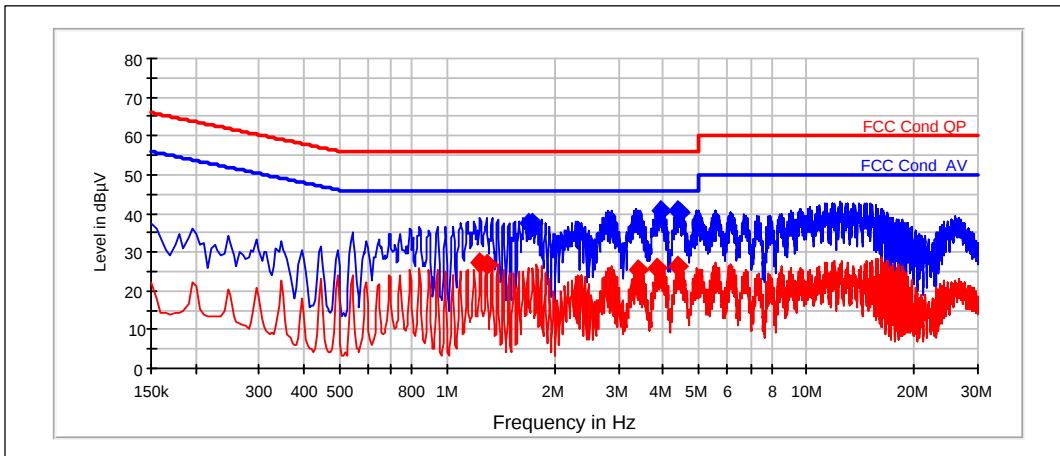
Frequency [MHz]	U [dBμV]	Line	Result
1.235	37.73	L1	PASSED
1.68	37.42	L1	PASSED
1.73	37.21	L1	PASSED
3.9	40.62	L1	PASSED
3.91	40.11	L1	PASSED
4.395	40.41	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.235	27.21	L1	PASSED
1.285	26.97	L1	PASSED
1.335	26.66	L1	PASSED
3.85	26.84	L1	PASSED
3.9	27.33	L1	PASSED
4.445	26.87	L1	PASSED

8.3.2 DSSS mode, QPSK modulation, 11 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

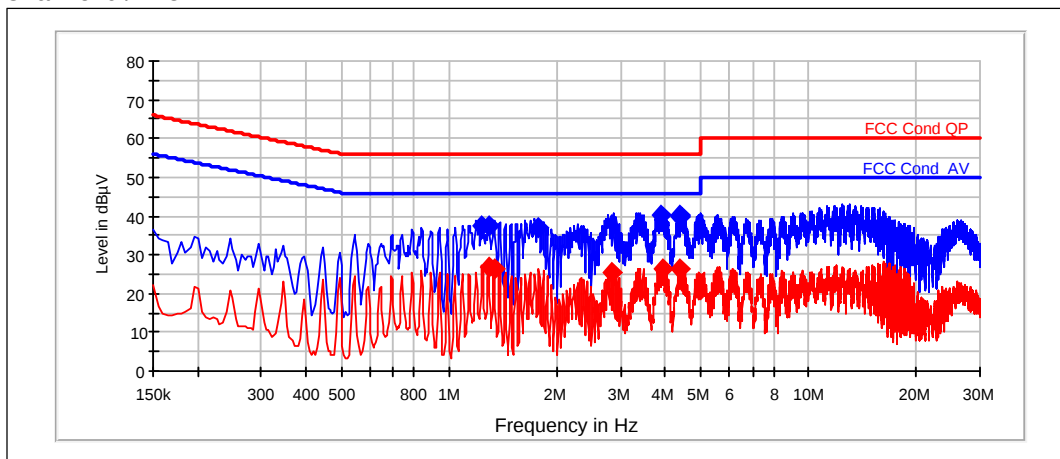
Frequency [MHz]	U [dBμV]	Line	Result
1.685	37.41	L1	PASSED
1.73	37.37	L1	PASSED
3.91	40.58	L1	PASSED
4.395	40.5	L1	PASSED
4.445	40.37	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.235	27.08	L1	PASSED
1.285	27.02	L1	PASSED
3.415	25.54	L1	PASSED
3.855	25.71	L1	PASSED
4.395	26.22	L1	PASSED

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

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

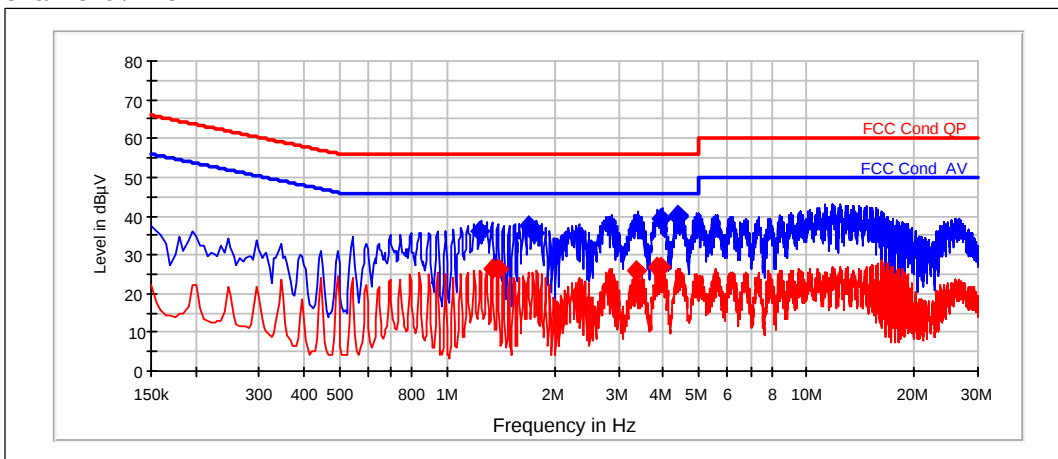
Frequency [MHz]	U [dBμV]	Line	Result
1.235	37.5	L1	PASSED
1.285	37.44	L1	PASSED
1.78	37.06	L1	PASSED
3.9	40.25	L1	PASSED
4.395	40.23	L1	PASSED
4.405	39.72	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.285	26.63	L1	PASSED
1.335	26.53	L1	PASSED
2.82	25.43	L1	PASSED
3.91	26.48	L1	PASSED
4.405	26.18	L1	PASSED

8.3.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 135.0 / 150.0 Mbps data rate

Channel 6 / 2437 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.235	36.12	L1	PASSED
1.685	37.41	L1	PASSED
1.74	35.58	L1	PASSED
3.95	39.41	L1	PASSED
4.405	39.95	L1	PASSED
4.41	40.16	L1	PASSED

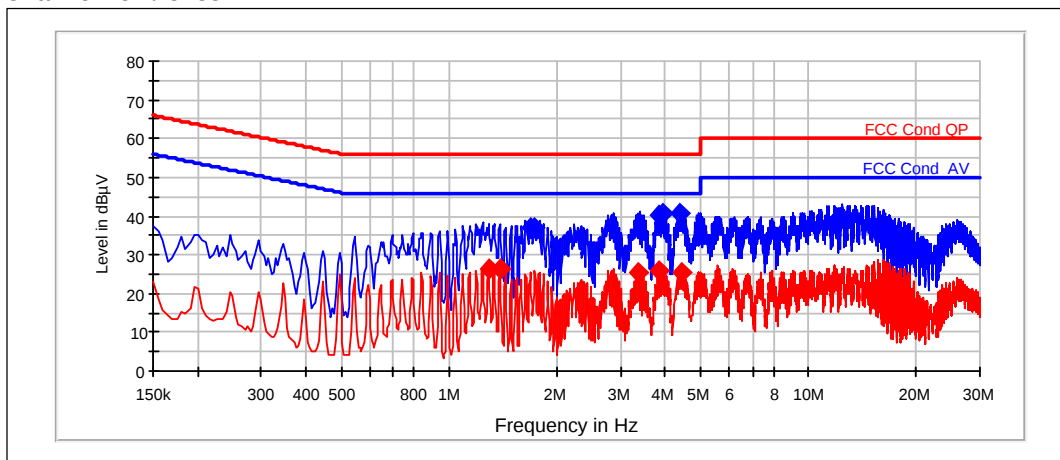
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.335	26.46	L1	PASSED
1.385	26.25	L1	PASSED
3.365	25.82	L1	PASSED
3.86	26.8	L1	PASSED
3.91	26.69	L1	PASSED

8.4. 5 GHz RLAN Test results

8.4.1 OFDM mode, BPSK modulation, 6 Mbps data rate

Channel 157 / 5785 MHz



QuasiPeak (RBW: 9 kHz)

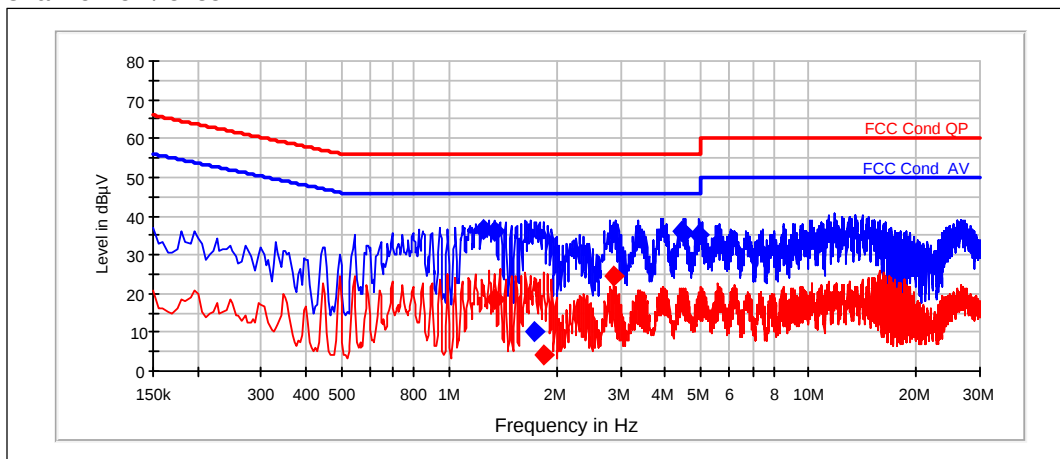
Frequency [MHz]	U [dBμV]	Line	Result
1.685	36.99	L1	PASSED
1.735	37.03	L1	PASSED
3.86	40.34	L1	PASSED
3.91	40.89	L1	PASSED
4.405	40.47	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.285	26.57	L1	PASSED
1.385	26.46	L1	PASSED
3.365	25.62	L1	PASSED
3.86	26.08	L1	PASSED
4.46	25.52	L1	PASSED

8.4.2 n-mode, 20 MHz CBW mode, 64-QAM modulation, 58.5 / 65.0 Mbps data rate

Channel 157 / 5785 MHz



QuasiPeak (RBW: 9 kHz)

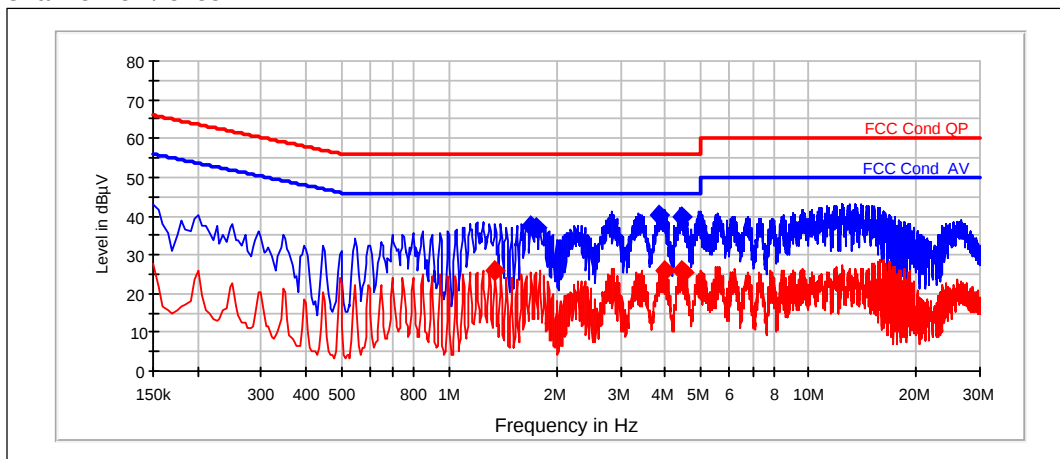
Frequency [MHz]	U [dBμV]	Line	Result
1.24	36.74	L1	PASSED
1.34	35.96	L1	PASSED
1.735	10.4	L1	PASSED
4.435	36.18	N	PASSED
4.485	35.74	N	PASSED
4.975	35.33	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.345	18.47	L1	PASSED
1.84	4.06	L1	PASSED
2.865	24.59	L1	PASSED
15.765	21.43	L1	PASSED

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

Channel 151 / 5755 MHz



QuasiPeak (RBW: 9 kHz)

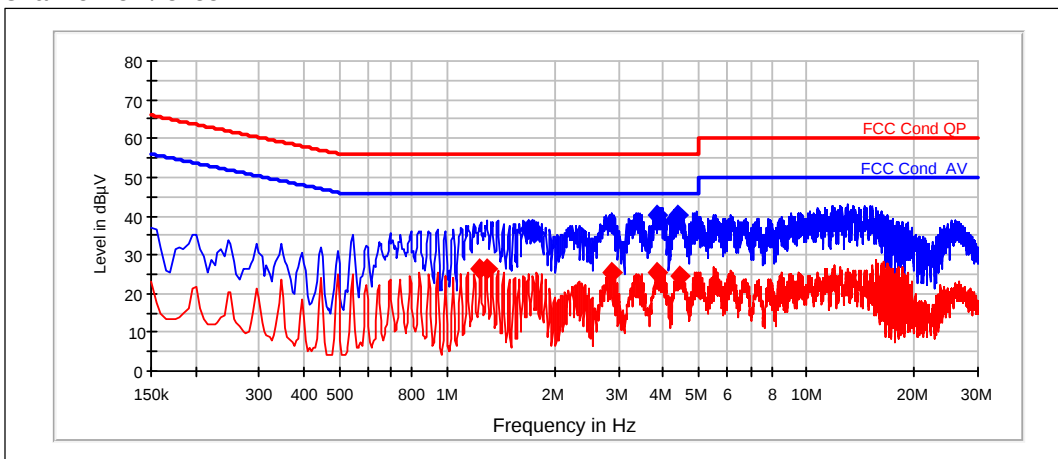
Frequency [MHz]	U [dBμV]	Line	Result
1.69	37.25	L1	PASSED
1.74	36.91	L1	PASSED
3.86	40.14	L1	PASSED
4.42	39.9	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.34	26.04	L1	PASSED
3.97	25.92	L1	PASSED
4.42	25.73	L1	PASSED
4.47	25.6	L1	PASSED

8.4.4 n-mode, 40 MHz CBW mode, 64-QAM modulation, 121.5 / 135.0 Mbps data rate

Channel 151 / 5755 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.69	36.59	L1	PASSED
1.735	36.62	L1	PASSED
1.74	35.75	L1	PASSED
3.86	40.01	L1	PASSED
4.275	39.01	L1	PASSED
4.405	40.25	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
1.235	26.2	L1	PASSED
1.285	26.13	L1	PASSED
2.87	25.22	L1	PASSED
3.86	25.65	L1	PASSED
4.42	24.6	L1	PASSED

9. Test Equipment

9.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6038	Data Logger	Testo 580	Testo	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
6015	Receiver	ESI	R&S	-
2059	V-network	ESH3-Z6	R&S	-
6044	V-network	ESH3-Z6	R&S	-
1759	LISN 50 μ H	ESH3-Z5	R&S	-
2390	Directional Coupler	DC2600	AR	-
1916	Communication Tester	CMTA84	R&S	-
6012	CDN	CDN USB/c	Teseq	-
2388	Bluetooth Tester	CBT	R&S	-
6046	Attenuator 10dB	8493C	Agilent	-
6047	Attenuator 20dB	8493C	Agilent	-
6036	Data Logger	175-H2	Testo	-
6045	Power Splitter	11667B	Agilent	-
6039	USB Interface	5541765	Testo	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6096	EMC Analyzer	E7405A	HP	-
6098	Signal Generator	8648C	Agilent	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6120	Thermal Chamber	WT 20/40	Weiss	-
6121	Power Splitter	HP11667B	Agilent	-
6122	Power Splitter	HP11667B	Agilent	-
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	-
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	-
2359	Temperature Test Chamber	VT4002	Vötsch	-
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
1999	Receiver	ESIB26	R&S	-
2352	Spectrum Analyzer	FSP-30	R&S	-
2097	Pulse Limiter	ESH3-Z2	R&S	-
2039	Power Supply	PL330QMD	Thurlby	-
1992	Signal Generator	83630B	Agilent	-
2206	Signal Generator	SMX	R&S	-

9.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
6038	Data Logger	Testo 580	Testo	-
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
2389	Signal Generator	SMJ 100A	R&S	-
6009	GPS Antenna	SA-700	Chronos	-

Eq. No	Equipment	Type	Manufacturer	Used in
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	-
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	-
1988	Antenna	HL562	R&S	-
-	RF immunity / Emission Software	EMC32	R&S	-
1917	Communication Tester	CMTA84	R&S	-
2388	Bluetooth Tester	CBT	R&S	-
6037	Data Logger	175-H2	Testo	-
6039	USB Interface	5541765	Testo	-
6087	Antenna	BBHA 9120D	Scharzbeck	-
6088	Antenna	VUBA 9117	Scharzbeck	-
6089	Antenna	HFH2-Z2	R&S	-
10479	Communication Tester	CMW500	R&S	-
6094	Communication Tester	CMW500	R&S	-
6103	Bluetooth tester	CBT	R&S	-
6113	Signal Generator	SMF100A	R&S	-
6115	Open switch and control unit	OSP 130	R&S	-
6116	Open switch and control unit	OSP 150	R&S	-
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	-
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	-
6135	Notch Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	-
2140	Antenna	EMCO93110B	EMCO	-
2142	Antenna	3146	EMCO	-
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	-
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22
2347	Communication Tester	CMU200	R&S	-
2180	Communication Tester	CMU200	R&S	-
2156	Communication Tester	CMU200	R&S	-
2176	CDN	CDN 801-M3	Lüthi	-
2027	CDN	M2 (modified) DC1	MEB	-
2028	CDN	M3 (modified) DC2	MEB	-
1984	Antenna	BBHA 9120 D	Schwarzbeck	-
6017	Antenna	SBA 9113	Schwarzbeck	-
2009	Signal Generator	SMP 22	R&S	-
2029	Power Supply	PL330	Thurlby	-
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	-
2353	Receiver	ESIB26	R&S	-
2135	CDN	CDN 801-M3	Lüthi	-