

FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RX-114_17.docx	Date of Report:	19-Sep-2013
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Device RX-114 / AC-Charger AC-300 / Headset WH-208		
FCC ID:	QMNA	IC:	661X-A
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:			

Kalle Hannila, System Manager, EMC

1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	19-Jul-2013
Testing completed	02-Sep-2013
The customer's contact person	Jamie Lee
Test Plan referred to	T:\Projects\RX-114\TestPlan\RS_testplan_RX-114.xlsm
Notes	-
Document name	T:\Projects\RX-114\EMC\FCC15E_RX-114_17.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
Device	RX-114	004402473513624	0108	-	9471_1032_1322_v1.2.2	17630
AC-Charger	AC-300	-	-	-	-	17632
Headset	WH-208	2332271	-	-	-	17375
Device	RX-114	004402473514366	0108	-	9471_1032_1322_v1.2.2	17662
AC-charger	AC-300	1325000334	1.0	-	-	17626
Headset	WH-208	2131731	CE	-	-	17586

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

PASSED
FAILED
NP

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

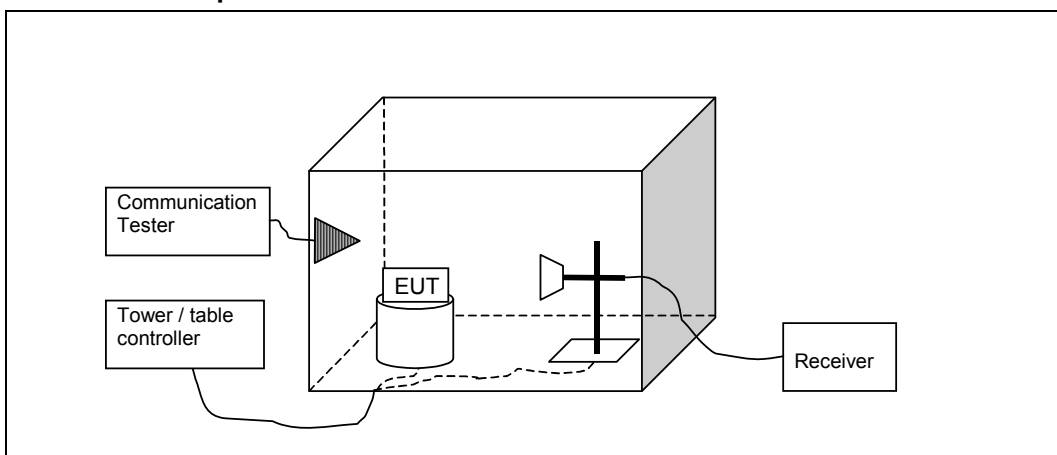
CONTENTS

1. Summary for FCC Part 15E Compliance Test Report.....	2
1.1. EUT and Accessory Information.....	2
1.2. Summary of Test Results.....	2
2. Spurious radiated emissions (FCC §15.407 (b), RSS-210 A9.2).....	4
2.2. Test method and limit.....	4
2.3. 5 GHz RLAN test results	6
3. Band edge compliance of RF emissions (FCC §15.407 (b), RSS-210 A9.2).....	21
3.2. Test method and limit.....	21
3.3. 5 GHz RLAN test results	22
4. AC powerline conducted emissions (FCC §15.207, RSS-GEN 7.2.2)	46
4.1. Test Setup.....	46
4.2. Test method and limit.....	46
4.3. 5 GHz RLAN Test results	47
5. Test Equipment.....	48
5.1. Conducted measurements	48
5.2. Radiated measurements	48

2. Spurious radiated emissions (FCC §15.407 (b), RSS-210 A9.2)

EUT with DUT number	RX-114, DUT 17630
Accessories with DUT numbers	AC-300, DUT 17632 ; WH-208, DUT 17375
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 70 / 101.4
Date of measurements	02-Sep-2013
Measured by	Kalle Hannila

2.1.1 Test setup



2.2. Test method and limit

The measurement is made the following way:

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)
There are 2 sets of limit lines. Part 15.209 limits apply below 1 GHz and on restricted bands above 1GHz. The other limits are described in the table below.

Frequency range [MHz]	Limit [dBm / MHz]
5150 - 5250	1 GHz – 5.15 GHz, 5.35 GHz – 40 GHz: -27
5250 - 5350	1 GHz – 5.25 GHz, 5.35 GHz – 40 GHz: -27
5470 - 5725	1 GHz – 5.47 GHz, 5.725 GHz – 40 GHz: -27
5725 - 5825	1 GHz – 5.715 GHz, 5.835 GHz – 40 GHz: -27 5.715 GHz – 5.725 GHz, 5.825 GHz – 5.835 GHz: -17

2.3. 5 GHz RLAN test results, Both Transmit Chains Active

2.3.1 802.11a, BPSK modulation, 6 Mbps data rate.

Channel 36 / 5180MHz

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
10350.9	52.03	399.577	39.91	12.12	16.2	68	PASSED
15532.6	50.18	322.812	40.56	9.63	23.8	74	PASSED
20724	55.18	573.984	39.91	15.27	18.8	74	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
10350.9	39.23	91.485	27.11	12.12	---	---	PASSED
15532.6	37.13	71.829	27.51	9.63	16.9	54	PASSED
20724	42.13	127.806	26.86	15.27	11.9	54	PASSED

Channel 40 / 5200MHz

MaxPeak

P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Height [cm]	Polarization	Results
10398.7	10279.37	119.33	170	V	PASSED
15598.2	15481.41	116.79	170	V	PASSED

QuasiPeak

Frequency [MHz]	QuasiPeak [dBμV/m]	Height [cm]	Polarization	Azimuth [deg]	Elevation [deg]	Margin [dB]	Limit [dBμV/m]	Results
48.795	27.967	170	V	22	0	12	40	PASSED
51.219	23.375	170	H	1	0	16.6	40	PASSED

Channel 48 / 5240MHz

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
10488.3	52.72	432.364	39.79	12.93	15.5	68	PASSED
15715.8	50.23	324.788	40.29	9.94	23.7	74	PASSED
20960.2	55	562.6	40.03	14.97	19	74	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
10488.3	40.03	100.3	27.1	12.93	---	---	PASSED
15715.8	37.04	71.138	27.1	9.94	17	54	PASSED
20960.2	42.15	128.027	27.18	14.97	11.9	54	PASSED

Channel 52 / 5260MHz

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
10510.6	53.05	449.418	40.17	12.89	15.2	68	PASSED
15772.8	50.27	326.362	40.29	9.98	23.7	74	PASSED
21047.5	55.14	571.61	40.04	15.11	18.8	74	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
10510.6	40.09	101.007	27.21	12.89	---	---	PASSED
15772.8	37.19	72.36	27.21	9.98	16.8	54	PASSED
21047.5	42.15	128.115	27.05	15.11	11.8	54	PASSED

Channel 60 / 5300MHz

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
10598	53.22	458.3	40.94	12.28	15	68	PASSED
15901.5	49.56	300.538	39.79	9.78	24.4	74	PASSED
21199.9	54.58	535.55	39.27	15.31	19.4	74	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
31.38	37.56	75.544	41.93	-4.37	2.4	40	PASSED
37.486	36.21	64.617	44.56	-8.35	3.8	40	PASSED
37.642	36.11	63.87	44.56	-8.45	3.9	40	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
10598	39.99	99.919	27.71	12.28	---	---	PASSED
15901.5	36.63	67.866	26.86	9.78	17.4	54	PASSED
21199.9	41.99	125.806	26.68	15.31	12	54	PASSED

Channel 64 / 5320MHz

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
10647.1	52.64	428.647	40.29	12.35	21.3	74	PASSED
15955.4	48.74	273.464	39.14	9.6	25.2	74	PASSED
21281.9	55.3	582.17	39.78	15.52	18.7	74	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
10647.1	39.92	99.106	27.57	12.35	14.1	54	PASSED
15955.4	36.02	63.27	26.42	9.6	18	54	PASSED
21281.9	42.3	130.257	26.78	15.52	11.7	54	PASSED

Channel 100 / 5500MHz

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
10997.1	53.1	451.648	40.3	12.8	20.9	74	PASSED
16502.8	49.52	299.226	39.91	9.61	18.7	68	PASSED
21993.9	55.44	591.425	40.56	14.89	12.8	68	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
10997.1	40.49	105.816	27.69	12.8	13.5	54	PASSED
16502.8	35.77	61.475	26.16	9.61	---	---	PASSED
21993.9	41.89	124.337	27.01	14.89	---	---	PASSED

Channel 116 / 5580MHz

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
11158.1	53.41	468.166	41.07	12.34	20.6	74	PASSED
16738.2	49.72	306.302	40.16	9.56	18.5	68	PASSED
22319.3	55.15	571.874	40.3	14.85	18.8	74	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
31.38	37.49	74.938	41.86	-4.37	2.5	40	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
11158.1	40.08	100.902	27.74	12.34	13.9	54	PASSED
16738.2	36.54	67.166	26.98	9.56	---	---	PASSED
22319.3	41.74	122.11	26.89	14.85	12.3	54	PASSED

Channel 140 / 5700MHz

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
11405.2	53.66	481.781	40.81	12.85	20.3	74	PASSED
17099.7	47.95	249.747	38.53	9.42	20.3	68	PASSED
22809.2	55.42	590.473	40.68	14.74	18.6	74	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
11405.2	40.61	107.226	27.76	12.85	13.4	54	PASSED
17099.7	35.38	58.776	25.96	9.42	---	---	PASSED
22809.2	42.58	134.54	27.84	14.74	11.4	54	PASSED

2.3.2 802.11n, 64QAM modulation, 52.0 / 57.8 Mbps data rate.

Channel 36 / 5180MHz

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
10370	52.48	420.775	40.29	12.19	15.7	68	PASSED
15542	50.23	324.713	40.55	9.68	23.7	74	PASSED
20722.3	55.06	566.044	39.79	15.28	18.9	74	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
10370	39.18	91.012	26.99	12.19	---	---	PASSED
15542	37.22	72.569	27.54	9.68	16.8	54	PASSED
20722.3	42.17	128.366	26.9	15.28	11.8	54	PASSED

Channel 40 / 5200MHz

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
10400.5	52.72	432.713	40.29	12.43	15.5	68	PASSED
15599.4	50.12	320.442	40.3	9.82	23.9	74	PASSED
20799.5	55.22	576.435	39.92	15.3	18.8	74	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
31.32	37.75	77.197	42.08	-4.33	2.2	40	PASSED
31.38	37.76	77.259	42.13	-4.37	2.2	40	PASSED
37.672	36.06	63.54	44.53	-8.47	3.9	40	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
10400.5	39.76	97.32	27.33	12.43	---	---	PASSED
15599.4	37.23	72.694	27.41	9.82	16.8	54	PASSED
20799.5	42.54	133.906	27.24	15.3	11.5	54	PASSED

Channel 48 / 5240MHz

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
10478.7	52.58	425.647	39.65	12.93	15.6	68	PASSED
15712.5	50.09	319.669	40.16	9.93	23.9	74	PASSED
20954.7	54.99	561.436	40.04	14.95	19	74	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
10478.7	40	99.977	27.07	12.93	---	---	PASSED
15712.5	37.06	71.302	27.13	9.93	16.9	54	PASSED
20954.7	42.15	128.13	27.2	14.95	11.8	54	PASSED

Channel 52 / 5260MHz

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
10514.5	53.49	472.335	40.61	12.88	14.7	68	PASSED
15782.4	50.15	321.588	40.22	9.93	23.8	74	PASSED
21048.2	55.32	583.714	40.21	15.11	18.7	74	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
10514.5	40.26	103.05	27.38	12.88	---	---	PASSED
15782.4	37.22	72.611	27.29	9.93	16.8	54	PASSED
21048.2	42.28	129.957	27.17	15.11	11.7	54	PASSED

Channel 60 / 5300MHz

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
10598	53.64	481.061	41.36	12.28	14.6	68	PASSED
15899.5	49.84	310.349	40.09	9.75	24.1	74	PASSED
21198.1	55.26	579.429	39.96	15.3	18.7	74	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
31.92	34.29	51.838	39.02	-4.73	5.7	40	PASSED
37.672	35.74	61.214	44.21	-8.47	4.3	40	PASSED
37.756	35.81	61.702	44.33	-8.52	4.2	40	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
10598	40.14	101.566	27.86	12.28	---	---	PASSED
15899.5	36.73	68.644	26.98	9.75	17.3	54	PASSED
21198.1	42.14	127.953	26.84	15.3	11.9	54	PASSED

Channel 64 / 5320MHz

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
10640	53.18	455.879	40.87	12.31	20.8	74	PASSED
15961.9	48.62	269.743	39.07	9.55	25.4	74	PASSED
21281	54.97	560.661	39.45	15.52	19	74	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
10640	40.11	101.228	27.8	12.31	13.9	54	PASSED
15961.9	36.06	63.504	26.51	9.55	17.9	54	PASSED
21281	42.41	131.978	26.89	15.52	11.6	54	PASSED

Channel 100 / 5500MHz

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
10999.9	54.17	510.799	41.37	12.8	19.8	74	PASSED
16497.7	48.91	279.029	39.32	9.59	19.3	68	PASSED
22003.5	54.42	525.957	39.58	14.84	13.8	68	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
10999.9	40.6	107.201	27.8	12.8	13.4	54	PASSED
16497.7	35.96	62.828	26.37	9.59	---	---	PASSED
22003.5	42.04	126.474	27.2	14.84	---	---	PASSED

Channel 116 / 5580MHz

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
11158.4	53.08	450.921	40.74	12.34	20.9	74	PASSED
16739.6	49.5	298.607	39.96	9.54	18.7	68	PASSED
22318.5	54.56	534.503	39.71	14.85	19.4	74	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
31.74	34.54	53.333	39.15	-4.61	5.5	40	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
11158.4	40.17	101.941	27.83	12.34	13.8	54	PASSED
16739.6	36.66	68.053	27.12	9.54	---	---	PASSED
22318.5	41.9	124.38	27.05	14.85	12.1	54	PASSED

Channel 140 / 5700MHz

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
11391	53.55	475.609	40.87	12.68	20.4	74	PASSED
17103.5	49.42	295.665	39.97	9.45	18.8	68	PASSED
22800.6	55.59	602.074	40.86	14.73	18.4	74	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
11391	40.52	106.121	27.84	12.68	13.5	54	PASSED
17103.5	35.54	59.827	26.09	9.45	---	---	PASSED
22800.6	42.66	135.831	27.93	14.73	11.3	54	PASSED

2.3.3 802.11n, BPSK modulation, 13.5 / 15.0 Mbps data rate.

Channel 36+40 / 5190MHz

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
10382.7	52.16	405.322	39.97	12.19	16.1	68	PASSED
15568.6	50.04	317.614	40.35	9.69	23.9	74	PASSED
20761.3	55.49	594.84	40.22	15.27	18.5	74	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
33.06	35.78	61.518	41.25	-5.47	4.2	40	PASSED
33.062	35.97	62.842	41.44	-5.47	4	40	PASSED
37.736	35.67	60.737	44.18	-8.51	4.3	40	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
10382.7	39.38	93.132	27.19	12.19	---	---	PASSED
15568.6	37.25	72.853	27.56	9.69	16.8	54	PASSED
20761.3	42.69	136.348	27.42	15.27	11.3	54	PASSED

Channel 44+48 / 5230MHz

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
10444.8	52.8	436.667	39.96	12.84	15.4	68	PASSED
15572	50.05	318.053	40.35	9.7	23.9	74	PASSED
20686.6	54.8	549.414	39.33	15.47	19.2	74	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
10444.8	40.18	102.141	27.34	12.84	---	---	PASSED
15572	37.27	73.055	27.57	9.7	16.7	54	PASSED
20686.6	42.41	132.008	26.94	15.47	11.6	54	PASSED

Channel 52+56 / 5270MHz

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
10539.3	53.38	466.498	40.74	12.64	14.9	68	PASSED
15809	50.08	319.301	40.08	10	23.9	74	PASSED
21084	56.34	655.843	41.25	15.1	17.6	74	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
32.672	36.17	64.35	41.39	-5.22	3.8	40	PASSED
32.79	35.84	61.966	41.13	-5.29	4.2	40	PASSED
33	35.29	58.143	40.72	-5.43	4.7	40	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
10539.3	40.45	105.293	27.81	12.64	---	---	PASSED
15809	37.04	71.121	27.04	10	17	54	PASSED
21084	42.29	130.092	27.2	15.1	11.7	54	PASSED

Channel 60+64 / 5310MHz

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
10600	53.01	447.198	40.74	12.27	15.2	68	PASSED
15928.4	49.39	294.815	39.83	9.56	24.6	74	PASSED
21234	55.74	612.068	40.35	15.39	18.2	74	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
10600	40.13	101.461	27.86	12.27	13.9	54	PASSED
15928.4	36.6	67.569	27.04	9.56	17.4	54	PASSED
21234	42.13	127.791	26.74	15.39	11.9	54	PASSED

Channel 100+104 / 5510MHz

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
11004.1	53.62	479.954	40.86	12.76	20.4	74	PASSED
16522.4	48.55	267.516	38.83	9.72	19.7	68	PASSED
22035.2	55.86	620.869	41	14.86	18.1	74	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
11004.1	40.53	106.267	27.77	12.76	13.5	54	PASSED
16522.4	35.88	62.223	26.16	9.72	---	---	PASSED
22035.2	42.31	130.512	27.45	14.86	11.7	54	PASSED

Channel 108+112 / 5550MHz

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
11098	53.55	476.047	40.99	12.56	20.4	74	PASSED
16647	49.56	300.573	39.96	9.6	18.7	68	PASSED
22202.7	56.25	649.008	41.12	15.13	17.7	74	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
32.912	36.05	63.467	41.42	-5.37	3.9	40	PASSED
33.15	36.36	65.773	41.89	-5.53	3.6	40	PASSED
33.15	36.36	65.773	41.89	-5.53	3.6	40	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
11098	40.33	103.92	27.77	12.56	13.7	54	PASSED
16647	36.55	67.182	26.95	9.6	---	---	PASSED
22202.7	42.77	137.594	27.64	15.13	11.2	54	PASSED

Channel 132+136 / 5670MHz

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
11347.6	53.58	477.529	41.36	12.22	20.4	74	PASSED
17015.5	48.84	276.535	39.71	9.13	19.4	68	PASSED
22690	55.54	598.343	40.48	15.06	18.4	74	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
11347.6	40.22	102.542	28	12.22	13.8	54	PASSED
17015.5	35.52	59.669	26.39	9.13	---	---	PASSED
22690	42.59	134.757	27.53	15.06	11.4	54	PASSED

2.3.4 802.11n, QPSK modulation, 40.5 / 45.0 Mbps data rate.

Channel 36+40 / 5190MHz

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
10383.9	52.69	430.824	40.48	12.21	15.5	68	PASSED
15570.4	51.18	362.201	41.48	9.7	22.8	74	PASSED
20758.8	55.48	594.224	40.22	15.26	18.5	74	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
32.852	36.24	64.834	41.57	-5.33	3.8	40	PASSED
32.91	36.11	63.922	41.48	-5.37	3.9	40	PASSED
33	36.27	65.095	41.7	-5.43	3.7	40	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
10383.9	39.41	93.444	27.2	12.21	---	---	PASSED
15570.4	37.27	72.996	27.57	9.7	16.7	54	PASSED
20758.8	42.67	136.019	27.41	15.26	11.3	54	PASSED

Channel 44+48 / 5230MHz

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
10449.3	53.23	458.511	40.35	12.88	15	68	PASSED
15582.4	49.88	311.997	40.09	9.8	24.1	74	PASSED
20665.7	55.39	588.369	39.83	15.56	18.6	74	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
10449.3	40.22	102.601	27.34	12.88	---	---	PASSED
15582.4	37.36	73.748	27.57	9.8	16.6	54	PASSED
20665.7	42.38	131.447	26.82	15.56	11.6	54	PASSED

Channel 52+56 / 5270MHz

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
10542.6	52.96	444.785	40.35	12.62	15.3	68	PASSED
15811.1	49.59	301.648	39.58	10.01	24.4	74	PASSED
21079.7	55.17	573.258	40.09	15.08	18.8	74	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
33.09	36.31	65.366	41.8	-5.49	3.7	40	PASSED
33.09	36.22	64.744	41.71	-5.49	3.8	40	PASSED
33.092	35.88	62.259	41.37	-5.49	4.1	40	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
10542.6	40.42	104.954	27.81	12.62	---	---	PASSED
15811.1	37	70.811	26.99	10.01	17	54	PASSED
21079.7	42.25	129.554	27.17	15.08	11.8	54	PASSED

Channel 60+64 / 5310MHz

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
10600	53.39	467.197	41.12	12.27	14.8	68	PASSED
15923.8	49.52	299.295	39.96	9.56	24.5	74	PASSED
21221	55.23	577.298	39.84	15.39	18.8	74	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
10600	40.1	101.135	27.83	12.27	13.9	54	PASSED
15923.8	36.61	67.671	27.05	9.56	17.4	54	PASSED
21221	42.16	128.277	26.77	15.39	11.8	54	PASSED

Channel 100+104 / 5510MHz

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
11016.4	53.52	474.133	40.74	12.78	20.5	74	PASSED
16543	48.73	273.181	39.07	9.66	19.5	68	PASSED
22050.2	55.7	609.397	40.74	14.96	18.3	74	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
11016.4	40.46	105.427	27.68	12.78	13.5	54	PASSED
16543	35.84	61.966	26.18	9.66	---	---	PASSED
22050.2	42.7	136.474	27.74	14.96	11.3	54	PASSED

Channel 108+112 / 5550MHz

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
11102	53.18	455.774	40.61	12.57	20.8	74	PASSED
16646.1	49.43	296.04	39.84	9.59	18.8	68	PASSED
22200.3	56.88	697.991	41.73	15.15	17.1	74	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
33.06	36.47	66.581	41.94	-5.47	3.5	40	PASSED
33.15	36.37	65.864	41.9	-5.53	3.6	40	PASSED
37.676	35.55	59.876	44.02	-8.47	4.5	40	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
11102	40.42	105.003	27.85	12.57	13.6	54	PASSED
16646.1	36.53	67.097	26.94	9.59	---	---	PASSED
22200.3	42.79	137.88	27.64	15.15	11.2	54	PASSED

Channel 132+136 / 5670MHz

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
11340.7	53.21	457.509	41	12.21	20.8	74	PASSED
16992.9	48.44	264.15	39.33	9.11	19.8	68	PASSED
22665.6	55.47	593.813	40.22	15.26	18.5	74	PASSED

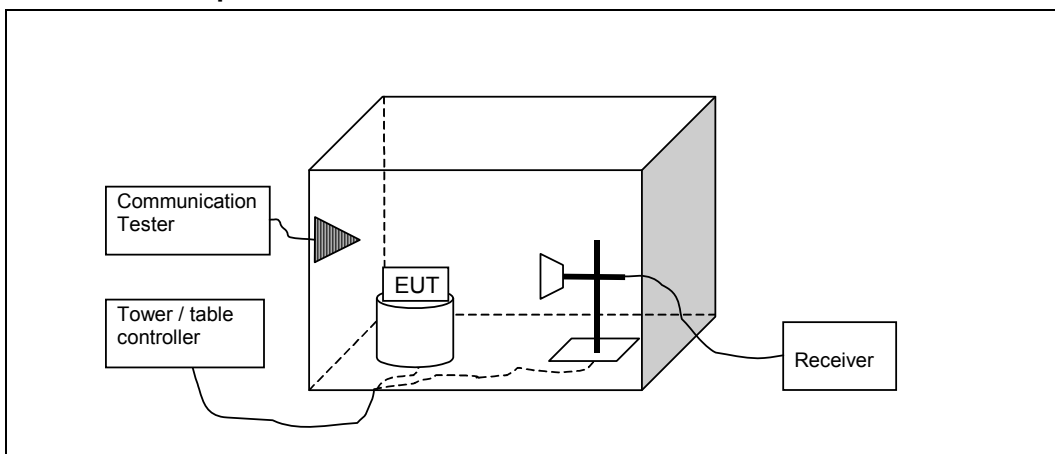
Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
11340.7	40.24	102.742	28.03	12.21	13.8	54	PASSED
16992.9	35.74	61.214	26.63	9.11	---	---	PASSED
22665.6	42.57	134.369	27.32	15.26	11.4	54	PASSED

3. Band edge compliance of RF emissions (FCC §15.407 (b), RSS-210 A9.2)

EUT with DUT number	RX-114, DUT 17630
Accessories with DUT numbers	AC-300, DUT 17632 ; WH-208, DUT 17375
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 70 / 101.4
Date of measurements	02-Sep-2013
Measured by	Kalle Hannila

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to KDB 789033 and IC standard RSS-210.
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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

The limits in the table below are listed for the 100 MHz span around the band edges.

$$P [W] = (10 \text{ to power } (P [dBm / 10]) / 1000.$$

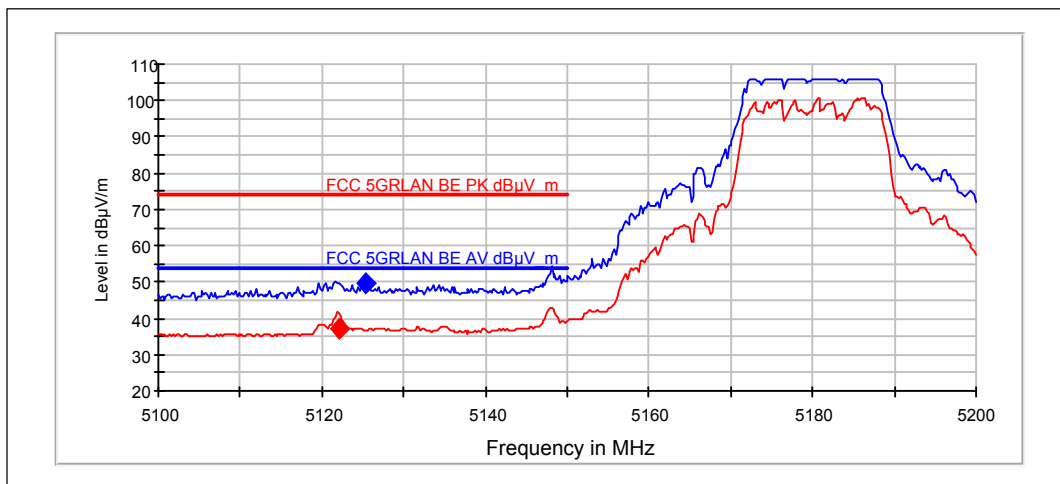
$$E [dB\mu V/m] = 20 * \text{LOG} ((\text{square root } (30 * P [W]) / 3 \text{ m}) * 1000000)$$

Frequency range [MHz]	Limit [dBm / MHz]	Limit dBuV/m @ 3m
5150 - 5250	$\leq 5.150 \text{ GHz}$ and ≥ 5.350 : 54 dBuV/m (avg), 74 dBuV/m (pk)	68.23
5250 - 5350	$\leq 5.150 \text{ GHz}$ and $\geq 5.350 \text{ GHz}$: 54 dBuV/m (avg), 74 dBuV/m (pk)	68.23
5470 - 5725	$\leq 5.460 \text{ GHz}$: 54 dBuV/m (avg), 74 dBuV/m (pk) 5.460 – 5.470 GHz: -27 dBm/MHz (pk)	68.23
5725 - 5825	5.825 – 5.835 GHz: -17 dBm/MHz (pk) $\geq 5.835 \text{ GHz}$: -27 dBm/MHz (pk)	68.23 78.23

3.3. 5 GHz RLAN test results, Both Transmit Chains Active

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

Channel 36 / 5180MHz



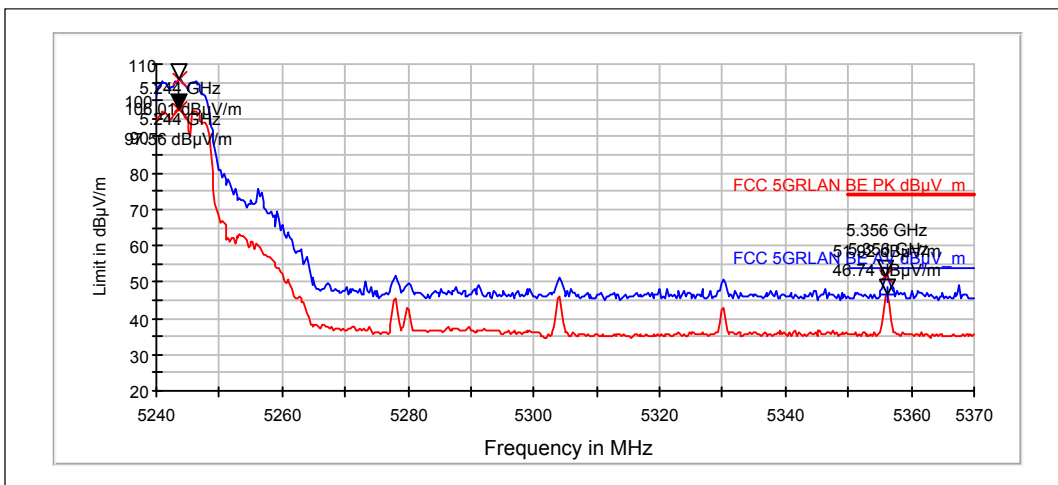
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5125.451	49.81	309.528	44.14	5.67	24.2	74	PASSED

Average (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
5122.044	37.36	73.799	31.67	5.69	16.6	54	PASSED

Channel 48 / 5240MHz



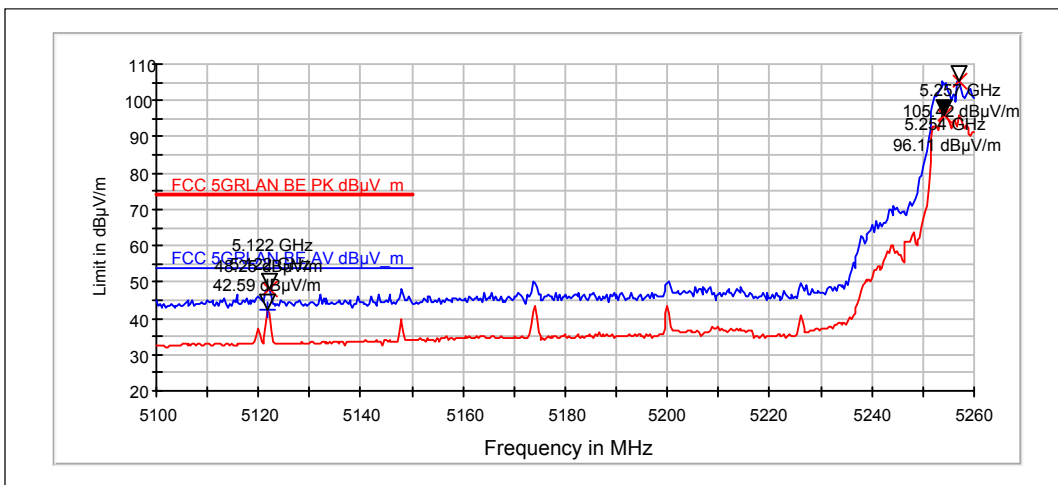
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	PK2 [dBμV/m]	Results
5356	51.92	394.594	47.57	4.35	5243.647	106.011	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	AV2 [dBμV/m]	Results
5356	46.74	217.27	42.39	4.35	5243.647	97.562	PASSED

Channel 52 / 5260MHz



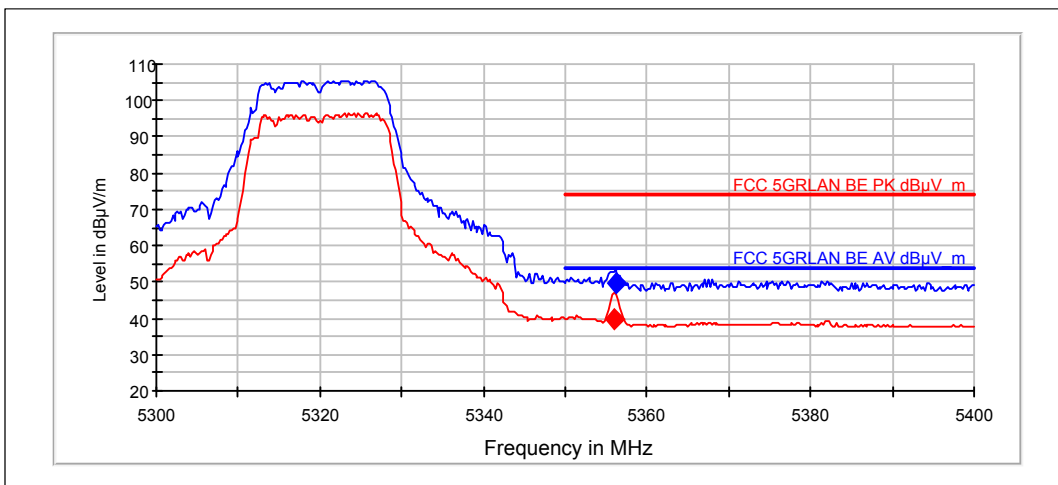
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	PK2 [dBμV/m]	Results
5122	48.25	258.583	42.56	5.69	5257.114	105.421	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	AV2 [dBμV/m]	Results
5122	42.59	134.788	36.9	5.69	5254.228	96.112	PASSED

Channel 64 / 5320MHz



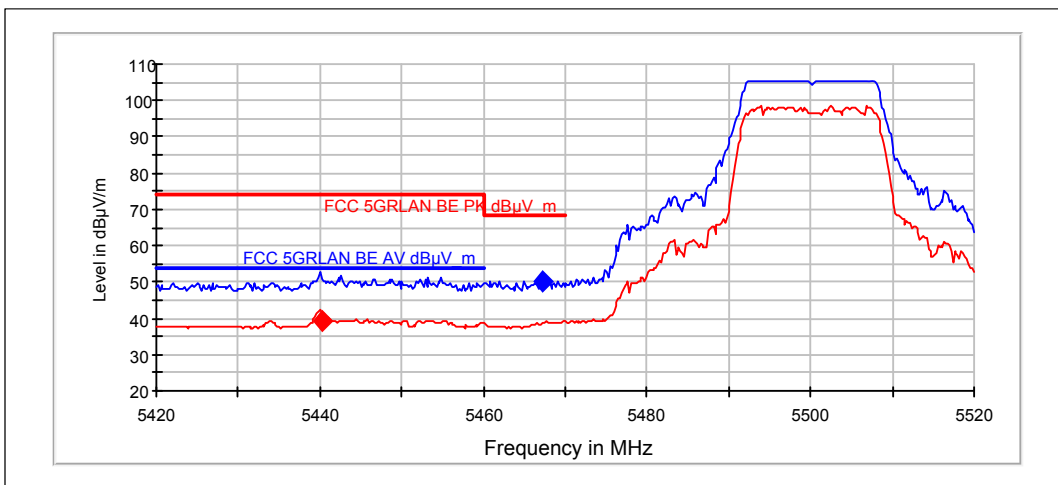
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5356.212	49.71	305.95	45.36	4.35	24.3	74	PASSED

Average (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
5356.012	39.91	99.015	35.56	4.35	14.1	54	PASSED

Channel 100 / 5500MHz



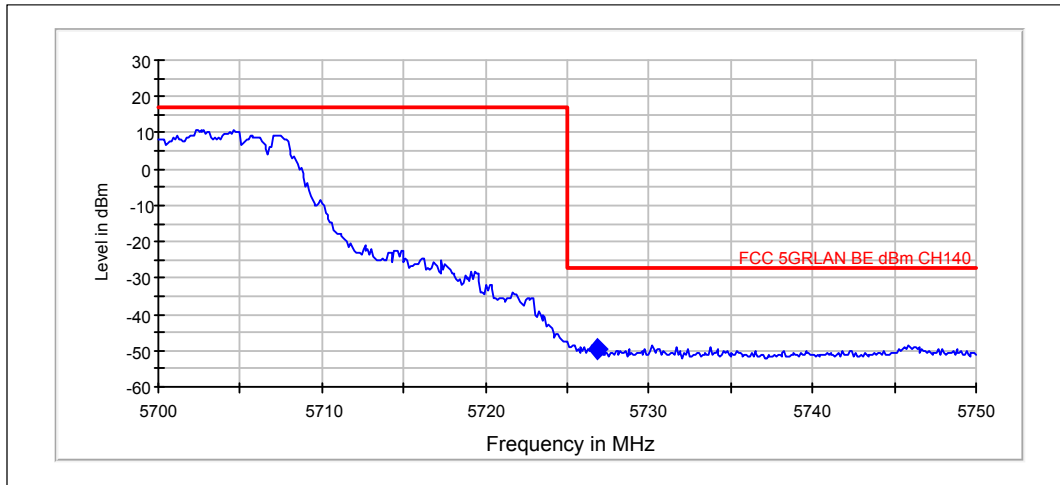
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5467.194	50.12	320.516	45.56	4.56	18.1	68	PASSED

Average (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
5440.341	39.04	89.536	34.54	4.5	15	54	PASSED

Channel 140 / 5700MHz

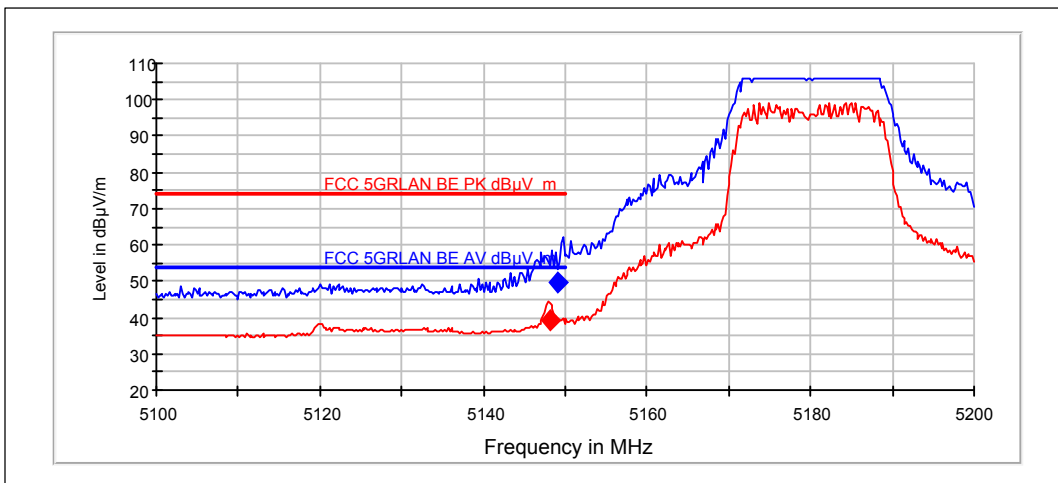


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5726.858	-49.49	0.01124	-63.52	14.03	22.5	-27	PASSED

3.3.2 802.11n, 64QAM modulation, 52.0 / 57.8 Mbps data rate.

Channel 36 / 5180MHz



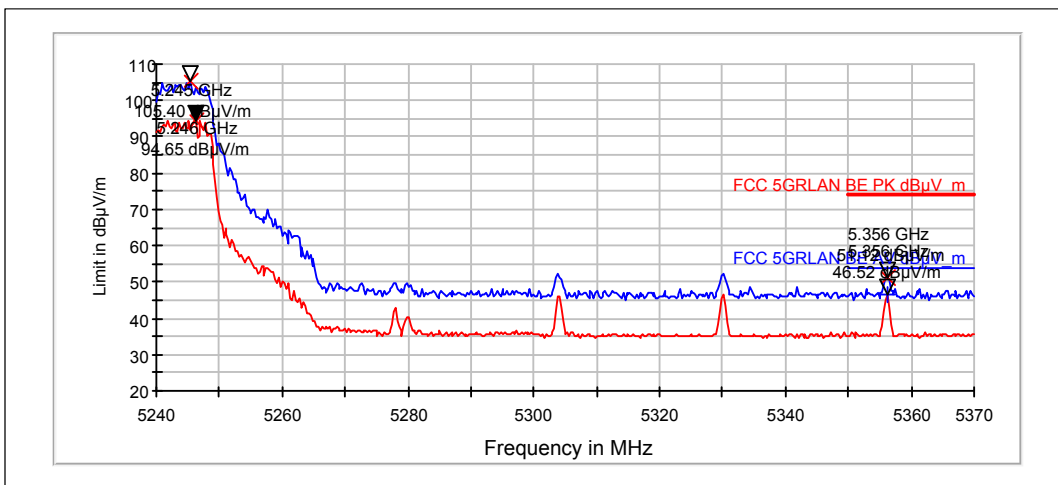
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5148.998	49.4	295.257	44.03	5.37	24.6	74	PASSED

Average (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
5148.096	39.35	92.747	33.98	5.37	14.7	54	PASSED

Channel 48 / 5240MHz



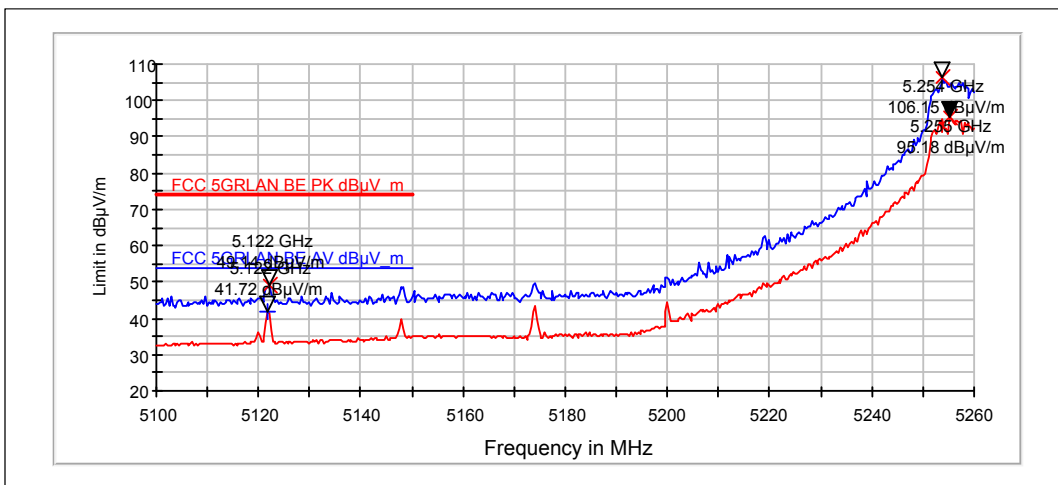
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	PK2 [dBμV/m]	Results
5356	51.12	359.584	46.77	4.35	5245.471	105.398	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	AV2 [dBμV/m]	Results
5356	46.52	211.787	42.17	4.35	5246.253	94.647	PASSED

Channel 52 / 5260MHz



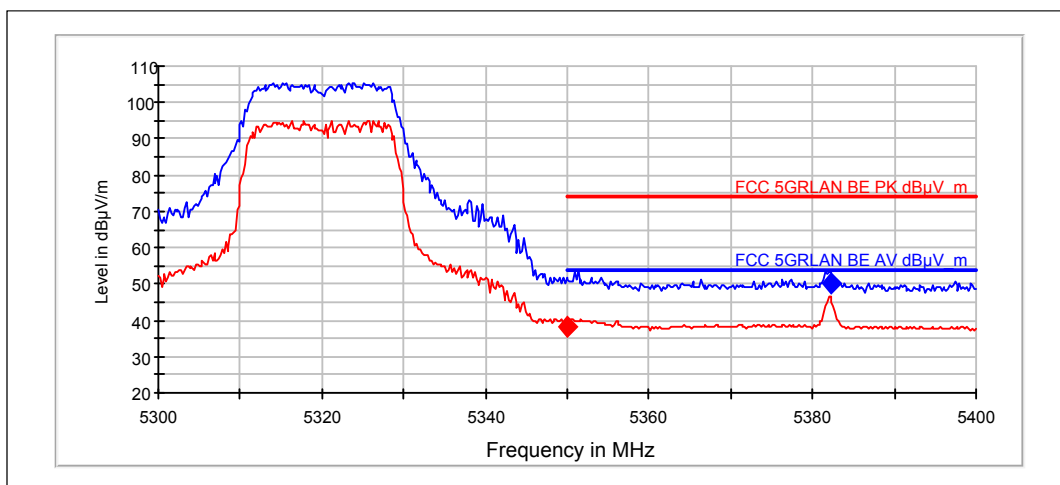
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	PK2 [dBμV/m]	Results
5122	49.14	286.517	43.45	5.69	5253.908	106.151	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Frequency2 [MHz]	AV2 [dBμV/m]	Results
5122	41.72	121.955	36.03	5.69	5255.19	95.18	PASSED

Channel 64 / 5320MHz



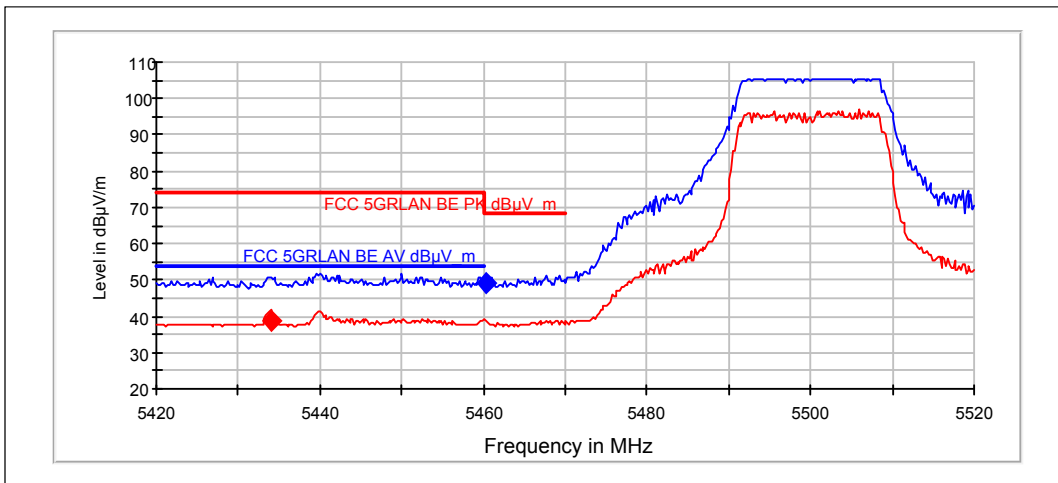
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5382.265	50.24	325.012	45.78	4.46	23.8	74	PASSED

Average (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
5350	38.02	79.634	33.68	4.34	16	54	PASSED

Channel 100 / 5500MHz



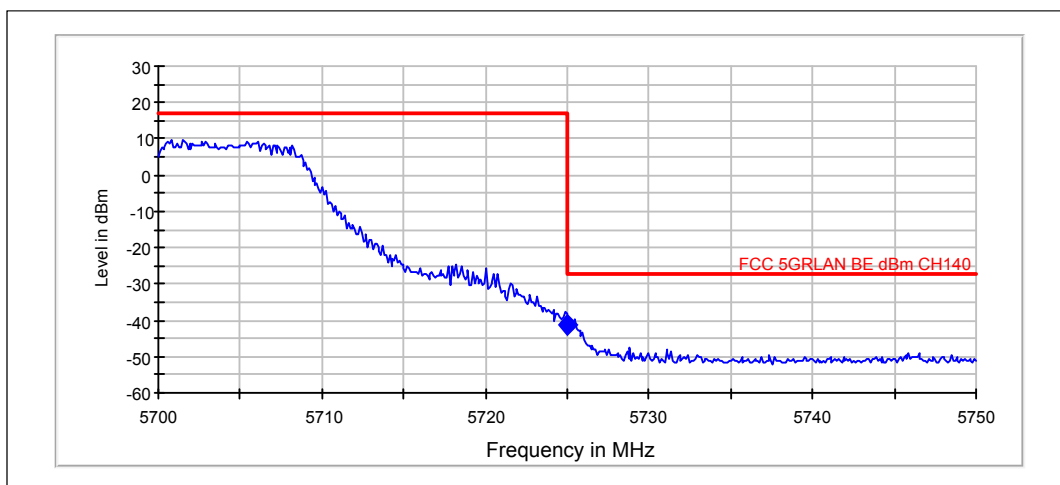
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5460.281	49.38	294.408	44.84	4.54	18.8	68	PASSED

Average (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
5434.128	38.47	83.859	33.98	4.49	15.5	54	PASSED

Channel 140 / 5700MHz

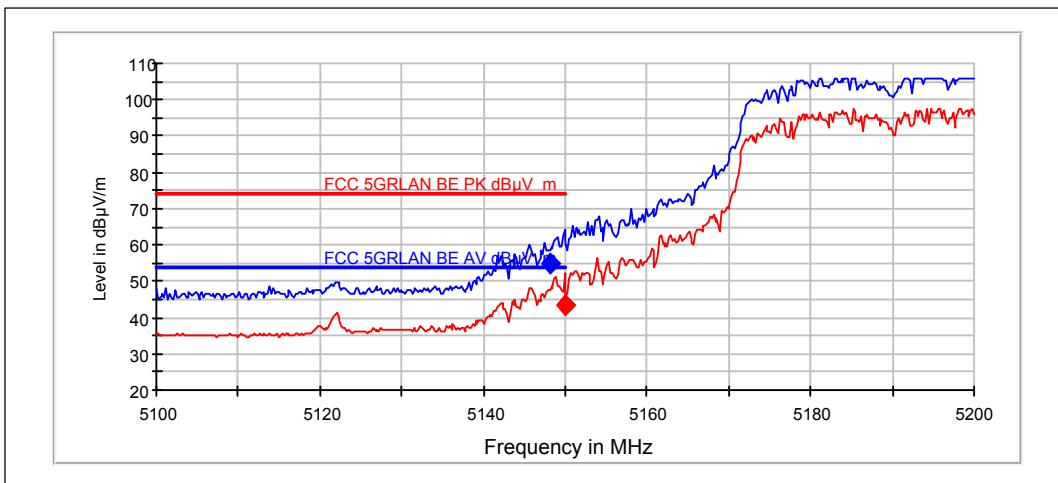


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5725.004	-41.11	0.07754	-55.38	14.27	14.1	-27	PASSED

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

Channel 36+40 / 5190MHz



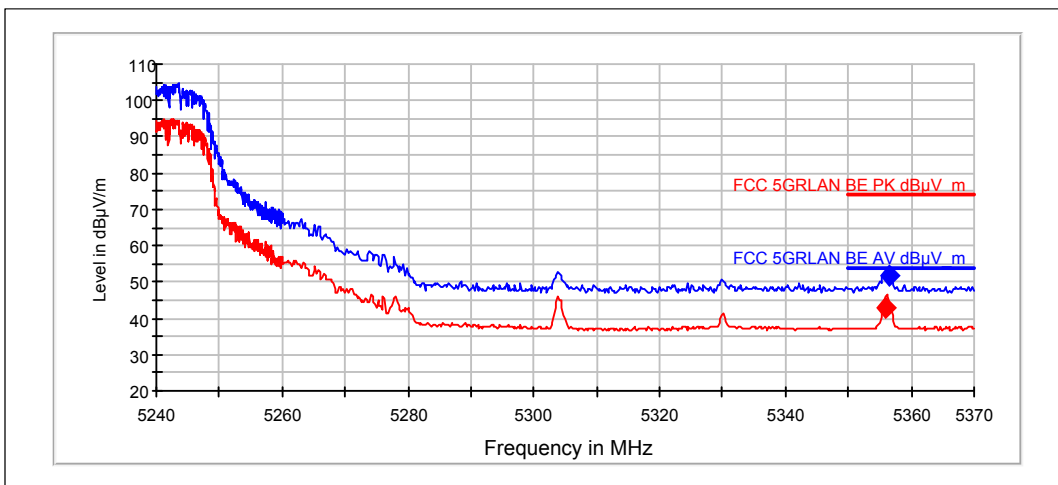
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5148.196	54.69	542.625	49.32	5.37	19.3	74	PASSED

Average (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
5150	43.43	148.44	38.06	5.37	10.6	54	PASSED

Channel 44+48 / 5230MHz



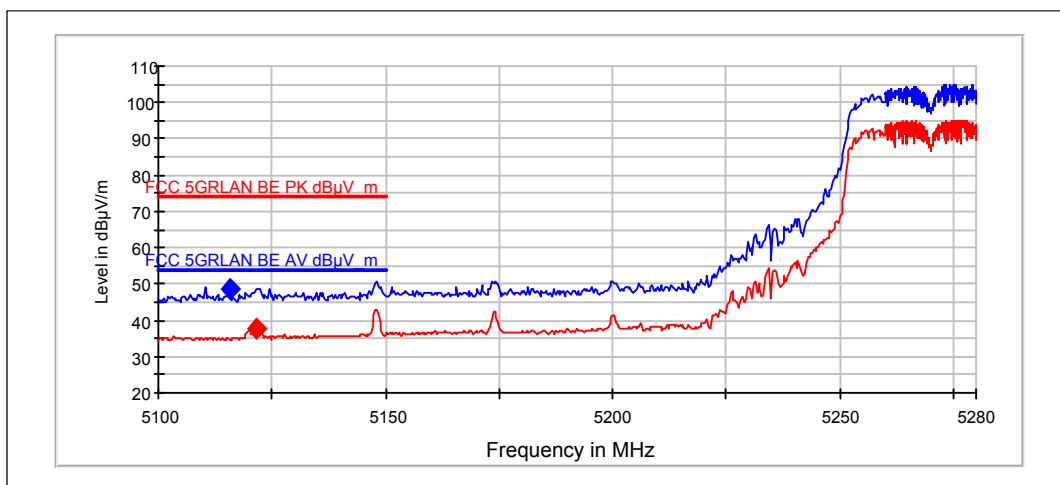
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5356.413	51.88	392.6	47.53	4.35	22.1	74	PASSED

Average (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
5356.052	42.77	137.515	38.42	4.35	11.2	54	PASSED

Channel 52+56 / 5270MHz



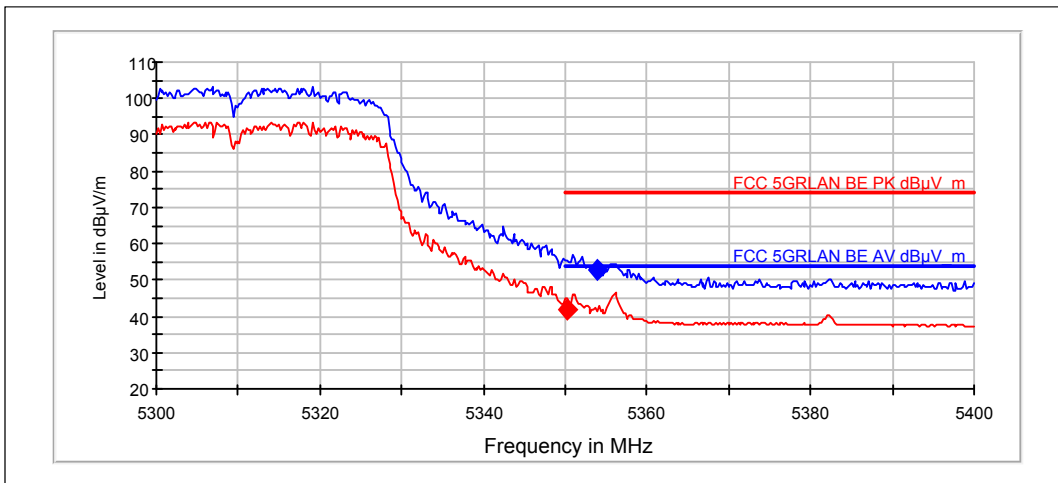
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5115.556	48.62	269.712	42.89	5.73	25.4	74	PASSED

Average (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
5121.769	37.73	77.028	32.04	5.69	16.3	54	PASSED

Channel 60+64 / 5310MHz



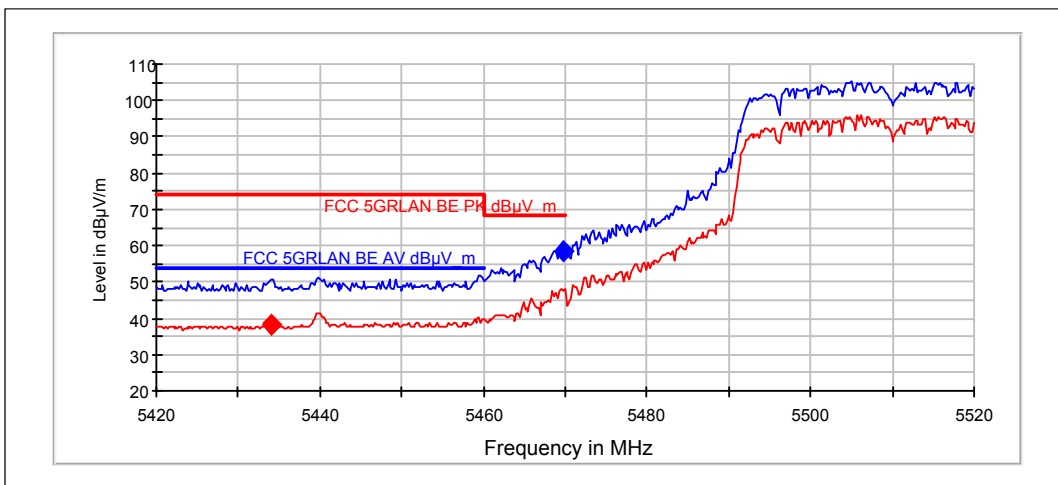
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5353.808	52.72	432.464	48.37	4.35	21.3	74	PASSED

Average (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
5350.301	41.84	123.581	37.5	4.34	12.2	54	PASSED

Channel 100+104 / 5510MHz



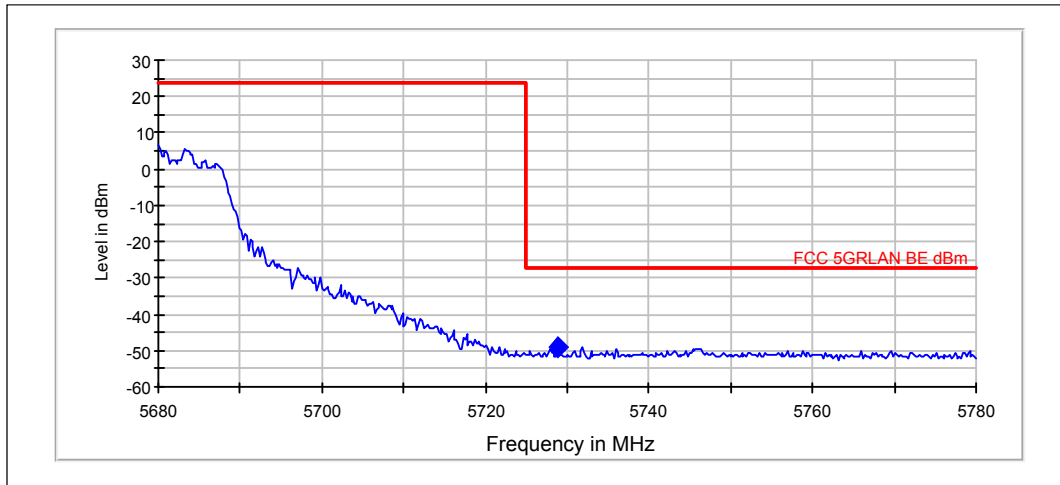
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5469.8	58.31	822.716	53.74	4.57	9.9	68	PASSED

Average (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
5434.128	38.18	81.059	33.69	4.49	15.8	54	PASSED

Channel 132+136 / 5670MHz

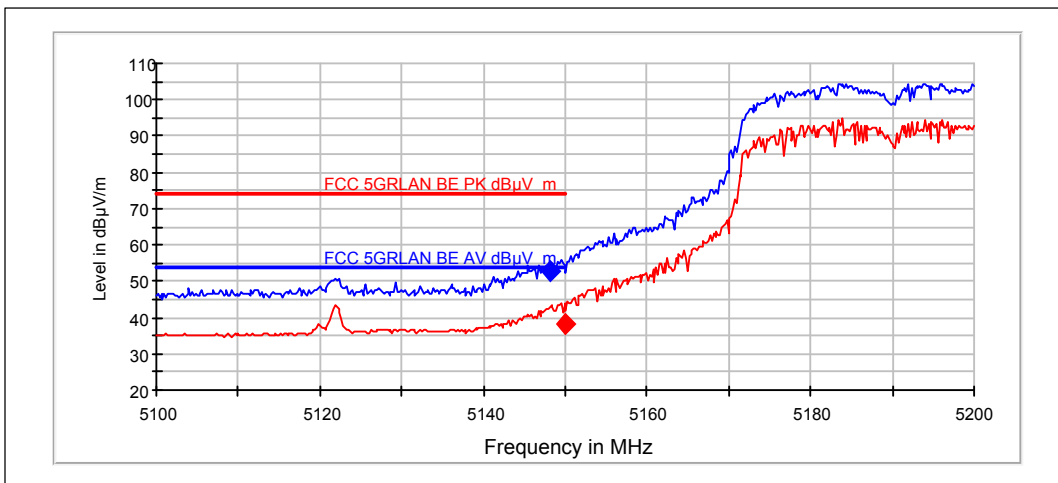


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5728.762	-49.18	0.01209	-63.38	14.2	22.2	-27	PASSED

3.3.4 802.11n, QPSK modulation, 40.5 / 45.0 Mbps data rate.

Channel 36+40 / 5190MHz



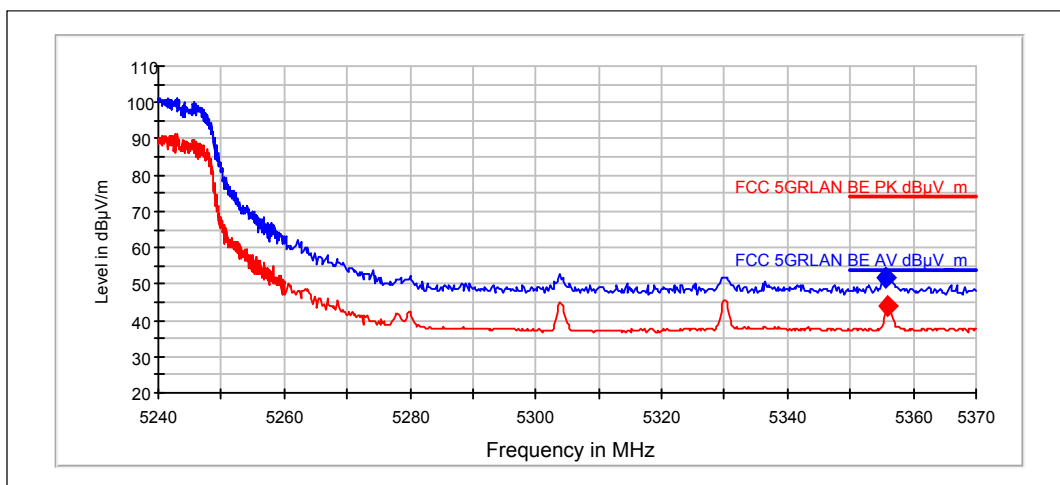
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5148.096	52.55	424.18	47.18	5.37	21.4	74	PASSED

Average (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
5150	38.11	80.408	32.74	5.37	15.9	54	PASSED

Channel 44+48 / 5230MHz



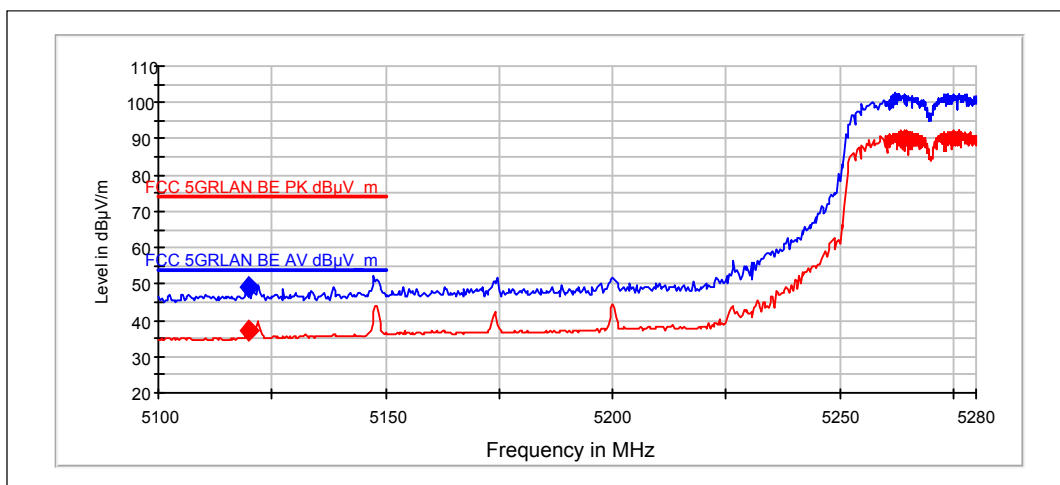
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5355.731	51.67	383.089	47.32	4.35	22.3	74	PASSED

Average (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
5355.892	44.06	159.514	39.71	4.35	9.9	54	PASSED

Channel 52+56 / 5270MHz



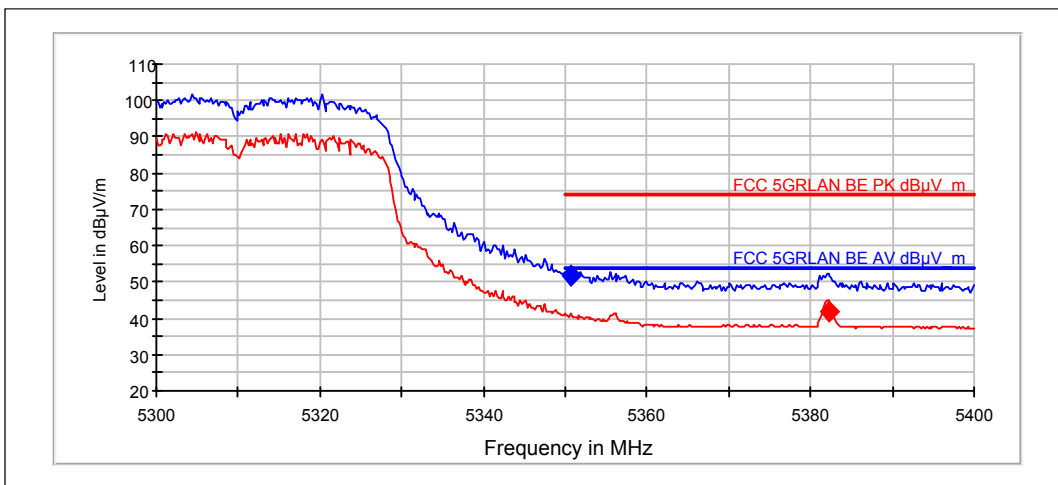
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5119.765	49.31	292.213	43.6	5.71	24.7	74	PASSED

Average (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
5120.065	37.37	73.901	31.67	5.7	16.6	54	PASSED

Channel 60+64 / 5310MHz



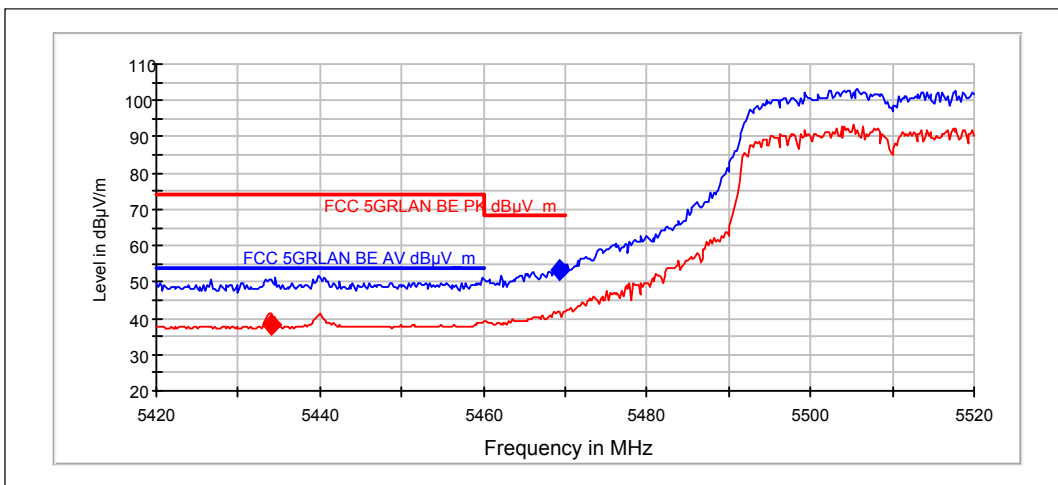
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5350.802	51.78	388.106	47.44	4.34	22.2	74	PASSED

Average (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
5382.265	41.96	125.271	37.5	4.46	12	54	PASSED

Channel 100+104 / 5510MHz



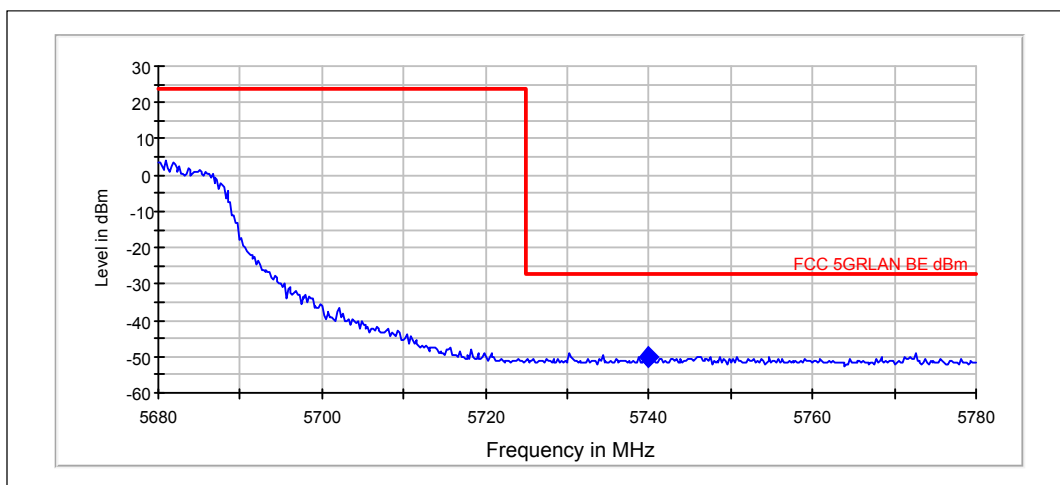
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5469.198	53.54	475.281	48.98	4.57	14.7	68	PASSED

Average (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
5434.128	38.18	81.059	33.69	4.49	15.8	54	PASSED

Channel 132+136 / 5670MHz



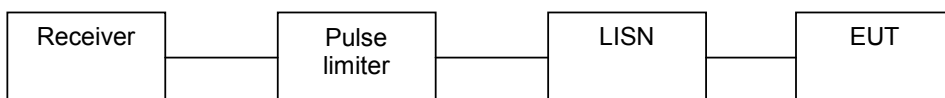
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μ W]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5739.984	-49.9	0.01024	-64.28	14.38	22.9	-27	PASSED

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

EUT with DUT number	RX-114, DUT 17630
Accessories with DUT numbers	AC-300, DUT 17626 ; WH-208, DUT 17586
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 68 / 101.8
Date of measurements	10-Sep-2013
Measured by	Jari Keto

4.1. Test Setup



4.2. Test method and limit

The measurement is made according to procedure KDB 558074 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.

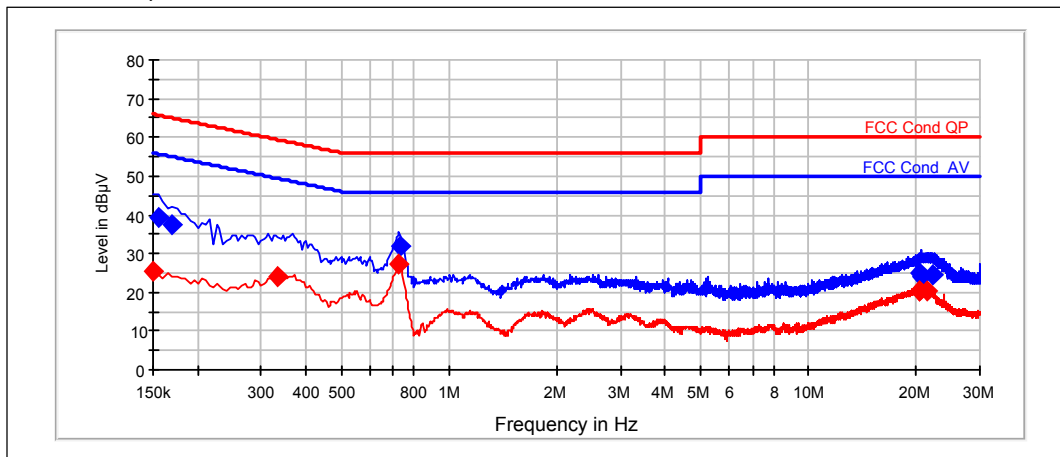
CISPR 22 Class B limits

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

4.3. 5 GHz RLAN Test results

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

Channel 116 / 5580 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.155	39.47	N	PASSED
0.17	37.44	N	PASSED
0.73	32.12	N	PASSED
20.27	25.12	N	PASSED
20.645	23.96	L1	PASSED
22.23	24.44	L1	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.15	25.54	N	PASSED
0.335	24.05	N	PASSED
0.725	27.5	N	PASSED
20.27	20.29	N	PASSED
20.395	20.41	N	PASSED
21.35	20.5	N	PASSED

5. Test Equipment

5.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1759	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
1916	Communication Tester	CMTA84	R&S	15B
1992	Signal Generator	83630B	Agilent	15C, 15B
1999	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2039	Power Supply	PL330QMD	Thurlby	15C, 15B
2059	V-network	ESH3-Z6	R&S	-
2097	Pulse Limiter	ESH3-Z2	R&S	15C, 15B
2156	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2206	Signal Generator	SMX	R&S	15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2352	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C
2359	Temperature Test Chamber	VT4002	Vötsch	22/24/27
2388	Bluetooth Tester	CBT	R&S	15B
2389	Signal Generator	SMJ 100A	R&S	15B
2390	Directional Coupler	DC2600	AR	-
6009	GPS Antenna	SA-700	Chronos	15C
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	15C
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	15C
6012	CDN	CDN USB/c	Teseq	-
6015	Receiver	ESI	R&S	22/24, 15C, 15B
6036	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6038	Data Logger	Testo 580	Testo	22/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B
6044	V-network	ESH3-Z6	R&S	-
6045	Power splitter	11667B	Agilent	22/24/27, 15C
6046	Attenuator 10dB	8493C	Agilent	22/24/27, 15C
6047	Attenuator 20dB	8493C	Agilent	22/24/27, 15C
6094	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
6096	EMC Analyzer	E7405A	HP	-
6098	Signal Generator	8648C	Agilent	-
6103	Bluetooth tester	CBT	R&S	15B
6113	Signal Generator	SMF100A	R&S	22/24/27, 15C 15B
6120	Thermal Chamber	WT 20/40	Weiss	22/24/27, 15C 15B
6121	Power Splitter	HP11667B	Agilent	22/24/27, 15C 15B
6122	Power Splitter	HP11667B	Agilent	22/24/27, 15C 15B
6134	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C
6136	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C
10479	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B

5.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
1917	Communication Tester	CMTA84	R&S	15B
1984	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C, 15B
2009	Signal Generator	SMP 22	R&S	22/24/27, 15C, 15B
2027	CDN	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	CDN	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2029	Power Supply	PL330	Thurlby	22/24/27, 15C
2043	Band Reject Filter	WRCA824/849-0,2-6SS	Wainwright	22
2135	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
2140	Antenna	EMCO93110B	EMCO	22/24/27, 15C
2142	Antenna	3146	EMCO	22/24/27, 15C
2156	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2176	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2353	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	15C
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	22/24/27, 15C, 15B
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2384	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	22
2388	Bluetooth Tester	CBT	R&S	15B
2389	Signal Generator	SMJ 100A	R&S	15B
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
6009	GPS Antenna	SA-700	Chronos	15C
6010	GPS Network amplifier	NLA20FPDC	GPS Networking, Inc	15C
6011	GPS signal Splitter	LDCBS1x4	GPS Networking, Inc	15C
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
6017	Antenna	SBA 9113	Schwarzbeck	22 / 24 / 27
6037	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6038	Data Logger	Testo 580	Testo	22/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B
6087	Antenna	BBHA 9120D	Scharzbeck	22/24/27, 15C
6088	Antenna	VUBA 9117	Scharzbeck	22/24/27, 15C
6089	Antenna	HFH2-Z2	R&S	15C, 15B
6094	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
6103	Bluetooth tester	CBT	R&S	15B
6113	Signal Generator	SMF100A	R&S	22/24/27, 15C 15B
6115	Open switch and control unit	OSP 130	R&S	22/24/27, 15C 15B
6116	Open switch and control unit	OSP 150	R&S	22/24/27, 15C 15B
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	22/24/27
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	-
6135	Notch Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	22/24/27
10479	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B