

FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-846_39	Date of Report:	21-May-2013
Number of pages:	39	Customer's Contact person:	Paukku Juha Kalervo
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Phone RM-846 / Battery BL-4J / Headset WH-108 / AC-charger AC-50C		
FCC ID:	PDNRM-846X	IC:	661R-RM846
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart E, ANSI C63.4 (2003), DTS procedures KDB 789033 D01, IC standards, RSS-210 (Issue 8, December 2010). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signature for the contents:			

Jari Jantunen, System Manager, EMC

1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	29-Oct-2012
Testing completed	08-Nov-2012
The customer's contact person	Pauku Juha Kalervo
Test Plan referred to	T:\Projects\RM-846\TestPlan\RS_testplan_RM-846.xlsm
Notes	-
Document name	T:\Projects\RM-846\EMC\FCC15E_RM-846_39.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-846	ZSA047376	1640	-	1030.1801.9200.9900.133	16830
Battery	BL-4J	49554022630A010591460670616	-	-	-	16831
Headset	WH-108	-	-	-	-	16804
AC-charger	AC-50C	409049236358060010960675622	-	-	-	16789

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

PASSED

The EUT complies with the essential requirements in the standard.

FAILED

The EUT does not comply with the essential requirements in the standard.

NP

The test was not performed by the TCC Nokia Laboratory.

The test results of PDNRM-846 are re-used for certification of the PDNRM-846X. The table above indicates the results, which will be re-used.

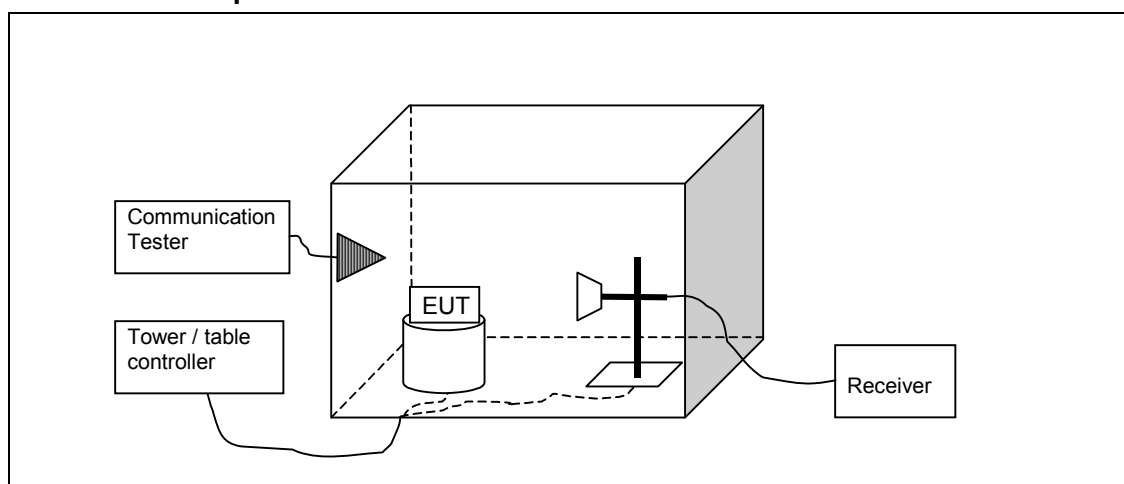
CONTENTS

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. Test Equipment.....	21
3.1. Conducted measurements	21
3.2. Radiated measurements	21
4. Band edge compliance of RF emissions (FCC §15.407 (b), RSS-210 A9.2)	23
4.2. Test method and limit	23
4.3. 5 GHz RLAN test results	24

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

EUT with DUT number	RM-846, DUT 16830
Accessories with DUT numbers	BL-4J, DUT 16831 ; WH-108, DUT 16804 ; AC-50C, DUT 16789
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 38 / 100
Date of measurements	30-Oct-2012
Measured by	Jari Keto / 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

2.3.1 A-mode, 20 MHz CBW, BPSK modulation, 9 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
10356.713	60.64	1076.217	45.57	15.07	17.6	78.2	PASSED
10360.8	60.69	1082.555	45.57	15.12	17.5	78.2	PASSED
15540.6	52.06	400.774	41.72	10.34	26.1	78.2	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
929.34	23.56	15.073	27.29	-3.73	22.4	46	PASSED
936.582	23.37	14.745	27.23	-3.86	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
10356.713	46.13	202.442	31.06	15.07	---	---	PASSED
10360.8	46.03	200.286	30.91	15.12	---	---	PASSED
15540.6	38.81	87.177	28.47	10.34	15.2	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
10401.7	64.31	1643.236	48.71	15.6	13.9	78.2	PASSED
15601.5	52.11	403.088	41.35	10.76	26.1	78.2	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
891.596	22.93	14.01	27.3	-4.37	23.1	46	PASSED
920.934	23.41	14.812	27.23	-3.82	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
10401.7	50.31	327.793	34.71	15.6	---	---	PASSED
15601.5	39.18	90.939	28.42	10.76	14.8	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
10479	61.87	1239.653	46.35	15.53	16.3	78.2	PASSED
10481.362	57.34	735.783	41.84	15.5	20.9	78.2	PASSED
15721.7	51.72	385.612	40.85	10.87	26.5	78.2	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
923.634	23.49	14.942	27.23	-3.74	22.5	46	PASSED
947.459	23.25	14.534	27.24	-3.99	22.8	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
10479	47.67	241.88	32.15	15.53	---	---	PASSED
10481.362	44.69	171.613	29.19	15.5	---	---	PASSED
15721.7	39.01	89.187	28.14	10.87	15	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
10521.2	60.49	1057.426	45.05	15.44	17.7	78.2	PASSED
10526.15	60.5	1058.644	45.05	15.45	17.7	78.2	PASSED
15778.2	51.79	388.687	40.98	10.81	26.4	78.2	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
928.956	23.5	14.968	27.23	-3.73	22.5	46	PASSED
947.579	23.19	14.429	27.18	-3.99	22.8	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
10521.2	46.49	211.033	31.05	15.44	---	---	PASSED
10526.15	46.22	204.574	30.77	15.45	---	---	PASSED
15778.2	38.9	88.105	28.09	10.81	15.1	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
11001.3	57.93	788.315	42.33	15.6	20.3	78.2	PASSED
16498.6	50.88	350.106	39.85	11.03	27.3	78.2	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
906.229	23.02	14.15	27.11	-4.09	23	46	PASSED
917.323	23.27	14.563	27.17	-3.9	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
11001.3	44.87	175.146	29.27	15.6	9.1	54	PASSED
16498.6	38.17	80.956	27.14	11.03	---	---	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
10599	59.92	990.946	44.62	15.3	18.3	78.2	PASSED
15901.1	51.2	363.245	40.47	10.73	27	78.2	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
948.185	23.25	14.534	27.23	-3.98	22.8	46	PASSED
955.181	23.34	14.681	27.3	-3.96	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
10599	46.21	204.456	30.91	15.3	---	---	PASSED
15901.1	38.66	85.694	27.93	10.73	15.3	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
10640.4	65.6	1904.364	50.38	15.23	12.6	78.2	PASSED
10641.279	66.85	2201.152	51.62	15.23	11.3	78.2	PASSED
15958.5	51.12	359.542	40.6	10.52	27.1	78.2	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
932.184	23.46	14.89	27.23	-3.77	22.5	46	PASSED
958.594	23.51	14.974	27.42	-3.91	22.5	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
10640.4	51.18	362.076	35.96	15.23	2.8	54	PASSED
10641.279	51.58	379.315	36.35	15.23	2.4	54	PASSED
15958.5	38.06	80.002	27.54	10.52	15.9	54	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
11158.321	60.94	1114.423	45.81	15.14	17.3	78.2	PASSED
11161.5	60.82	1098.753	45.68	15.14	17.4	78.2	PASSED
16739.3	52.1	402.532	40.98	11.12	26.1	78.2	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
928.44	23.51	14.974	27.24	-3.73	22.5	46	PASSED
934.938	23.41	14.806	27.23	-3.82	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
11158.321	47.14	227.405	32.01	15.14	6.9	54	PASSED
11161.5	46.62	214.338	31.48	15.14	7.4	54	PASSED
16739.3	38.84	87.519	27.72	11.12	---	---	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
11394.89	57.63	761.377	41.95	15.68	20.6	78.2	PASSED
11399.6	59.82	979.828	44.1	15.72	18.4	78.2	PASSED
17099.3	52.05	400.498	40.22	11.83	26.1	78.2	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
851.321	22.04	12.646	27.04	-5	24	46	PASSED
932.298	23.33	14.672	27.11	-3.78	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
11394.89	44.49	167.61	28.81	15.68	9.5	54	PASSED
11399.6	46.6	213.796	30.88	15.72	7.4	54	PASSED
17099.3	38.69	86	26.86	11.83	---	---	PASSED

2.3.2 A-mode, 20 MHz CBW, 16QAM modulation, 24 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
10359.3	65.47	1877.587	50.37	15.1	12.7	78.2	PASSED
10359.617	65.48	1878.452	50.38	15.11	12.7	78.2	PASSED
15540.1	51.55	378.181	41.22	10.34	26.6	78.2	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
240.88	21.35	11.686	38.34	-16.99	24.6	46	PASSED
240.934	32.19	40.672	49.18	-16.99	13.8	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
10359.3	51.58	379.097	36.48	15.1	---	---	PASSED
10359.617	50.98	354.16	35.88	15.11	---	---	PASSED
15540.1	38.7	86.07	28.37	10.34	15.3	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
10398.5	61.78	1227.298	46.19	15.59	16.4	78.2	PASSED
15602	51.74	386.189	40.98	10.76	26.5	78.2	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
933.234	23.31	14.644	27.1	-3.79	22.7	46	PASSED
958.624	23.32	14.655	27.23	-3.91	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
10398.5	48.12	254.712	32.53	15.59	---	---	PASSED
15602	39.03	89.454	28.27	10.76	15	54	PASSED

Channel 48 / 5124MHz

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
10480.862	61.05	1127.847	45.55	15.5	17.2	78.2	PASSED
10481.5	60.77	1093.075	45.28	15.5	17.4	78.2	PASSED
15718.1	51.95	395.822	41.1	10.85	26.2	78.2	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
911.041	23.05	14.207	27.11	-4.06	23	46	PASSED
946.265	23.06	14.217	27.05	-3.99	22.9	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
10480.862	47.4	234.45	31.9	15.5	---	---	PASSED
10481.5	47.91	248.514	32.42	15.5	---	---	PASSED
15718.1	38.94	88.542	28.09	10.85	15.1	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
10518.7	60.71	1084.926	45.28	15.43	17.5	78.2	PASSED
10524.55	59.43	936.591	43.97	15.46	18.8	78.2	PASSED
15780.9	51.64	382.12	40.85	10.8	26.6	78.2	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
942.887	23.27	14.568	27.23	-3.96	22.7	46	PASSED
959.818	23.52	15.004	27.42	-3.9	22.5	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
10518.7	46.97	223.177	31.54	15.43	---	---	PASSED
10524.55	46.17	203.517	30.71	15.46	---	---	PASSED
15780.9	38.83	87.398	28.04	10.8	15.2	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
10598.3	57.9	784.964	42.61	15.29	20.3	78.2	PASSED
15900.2	51.87	392.283	41.14	10.73	26.3	78.2	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
893.966	22.84	13.863	27.17	-4.33	23.2	46	PASSED
897.674	22.95	14.041	27.17	-4.22	23.1	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
10598.3	44.71	171.91	29.42	15.29	---	---	PASSED
15900.2	38.5	84.149	27.77	10.73	15.5	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
10639	59.11	903.025	43.9	15.21	19.1	78.2	PASSED
10641.279	59.65	960.838	44.42	15.23	18.5	78.2	PASSED
15959.4	50.4	331.246	39.89	10.51	27.8	78.2	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
928.29	23.51	14.974	27.24	-3.73	22.5	46	PASSED
930.774	23.36	14.718	27.11	-3.75	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
10639	45.73	193.464	30.52	15.21	8.3	54	PASSED
10641.279	45.94	198.221	30.71	15.23	8.1	54	PASSED
15959.4	37.88	78.343	27.37	10.51	16.1	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
10999.7	58	794.145	42.37	15.63	20.2	78.2	PASSED
11003.504	58.04	797.903	42.49	15.55	20.2	78.2	PASSED
16498.6	51.18	362.035	40.15	11.03	27	78.2	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
894.416	22.84	13.874	27.17	-4.33	23.2	46	PASSED
940.763	23.16	14.391	27.1	-3.94	22.8	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
10999.7	44.8	173.72	29.17	15.63	9.2	54	PASSED
11003.504	44.58	169.453	29.03	15.55	9.4	54	PASSED
16498.6	38.12	80.566	27.09	11.03	---	---	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
11400.9	60.15	1016.834	44.43	15.72	18.1	78.2	PASSED
11403.506	61.19	1147.361	45.47	15.72	17	78.2	PASSED
17100.7	51.74	386.322	39.89	11.85	26.5	78.2	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
904.129	23.05	14.213	27.17	-4.12	22.9	46	PASSED
955.091	23.21	14.468	27.17	-3.96	22.8	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
11400.9	46.63	214.536	30.91	15.72	7.4	54	PASSED
11403.506	46.44	209.991	30.72	15.72	7.6	54	PASSED
17100.7	38.87	87.781	27.02	11.85	---	---	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	61.05	1128.886	45.92	15.14	17.1	78.2	PASSED
11162.525	60.54	1064.388	45.39	15.15	17.7	78.2	PASSED
16739.8	51.94	395.276	40.82	11.12	26.3	78.2	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
240.814	14.29	5.181	31.28	-16.99	31.7	46	PASSED
240.85	29.73	30.669	46.72	-16.99	16.3	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
11158.4	47.07	225.736	31.94	15.14	6.9	54	PASSED
11162.525	46.87	220.623	31.72	15.15	7.1	54	PASSED
16739.8	38.87	87.831	27.75	11.12	---	---	PASSED

2.3.3 N-mode, 40 MHz CBW, BPSK modulation, 13.5/15 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
10383.4	55.72	610.731	40.33	15.4	22.5	78.2	PASSED
10384.162	56.48	666.577	41.07	15.41	21.7	78.2	PASSED
15567.7	51.35	369.36	40.82	10.53	26.9	78.2	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
907.259	23.08	14.263	27.17	-4.09	22.9	46	PASSED
926.86	23.58	15.099	27.3	-3.72	22.4	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
10383.4	42.77	137.626	27.38	15.4	---	---	PASSED
10384.162	42.8	138.023	27.39	15.41	---	---	PASSED
15567.7	38.8	87.126	28.27	10.53	15.2	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
10455.918	56.14	641.505	40.69	15.45	22.1	78.2	PASSED
10462	56.56	672.822	41.07	15.49	21.6	78.2	PASSED
15572.3	51.75	386.946	41.19	10.56	26.4	78.2	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
924.301	23.51	14.974	27.24	-3.73	22.5	46	PASSED
928.792	23.57	15.078	27.3	-3.73	22.4	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
10455.918	43.15	143.681	27.7	15.45	---	---	PASSED
10462	43.45	148.765	27.96	15.49	---	---	PASSED
15572.3	38.85	87.579	28.29	10.56	15.2	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
10538.3	59.06	897.532	43.69	15.37	19.1	78.2	PASSED
10541.29	58.78	868.96	43.43	15.35	19.4	78.2	PASSED
15813.4	51.24	364.796	40.44	10.8	27	78.2	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
913.241	23.28	14.592	27.29	-4.01	22.7	46	PASSED
927.268	23.64	15.202	27.36	-3.72	22.4	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
10538.3	45.68	192.221	30.31	15.37	---	---	PASSED
10541.29	45.24	182.789	29.89	15.35	---	---	PASSED
15813.4	38.62	85.33	27.82	10.8	15.4	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
10623.4	58.42	834.065	43.3	15.12	19.8	78.2	PASSED
10637.479	57.51	750.585	42.31	15.2	20.7	78.2	PASSED
15926.5	51.01	355.386	40.57	10.44	27.2	78.2	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
909.713	23.16	14.39	27.23	-4.07	22.8	46	PASSED
933.04	23.51	14.973	27.3	-3.79	22.5	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
10623.4	45.24	182.705	30.12	15.12	8.8	54	PASSED
10637.479	44	158.489	28.8	15.2	10	54	PASSED
15926.5	38.16	80.872	27.72	10.44	15.8	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
11013.432	57.22	725.855	41.67	15.55	21	78.2	PASSED
11020.8	56.41	661.531	40.82	15.6	21.8	78.2	PASSED
16529.1	51.39	371.15	40.31	11.08	26.8	78.2	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
928.036	23.51	14.978	27.23	-3.72	22.5	46	PASSED
944.367	23.13	14.332	27.11	-3.98	22.9	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
11013.432	43.42	148.201	27.87	15.55	10.6	54	PASSED
11020.8	43.34	146.91	27.75	15.6	10.7	54	PASSED
16529.1	38.1	80.38	27.02	11.08	---	---	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
11096.5	56.31	653.507	40.95	15.36	21.9	78.2	PASSED
11098.5	57.27	730.634	41.91	15.36	20.9	78.2	PASSED
16651.5	51.99	397.649	40.82	11.18	26.2	78.2	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
872.93	22.54	13.394	27.17	-4.63	23.5	46	PASSED
915.353	23.16	14.388	27.11	-3.95	22.8	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
11096.5	43.41	148.013	28.05	15.36	10.6	54	PASSED
11098.5	43.95	157.58	28.59	15.36	10	54	PASSED
16651.5	38.98	88.92	27.81	11.18	---	---	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
11335.973	56.41	661.378	41.07	15.34	21.8	78.2	PASSED
11342.5	56.91	700.729	41.55	15.36	21.3	78.2	PASSED
17007	51.43	372.735	39.68	11.75	26.8	78.2	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
896.97	22.92	14.002	27.17	-4.25	23.1	46	PASSED
919.744	23.32	14.65	27.17	-3.85	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
11335.973	43.39	147.656	28.05	15.34	10.6	54	PASSED
11342.5	43.86	155.991	28.5	15.36	10.1	54	PASSED
17007	38.66	85.743	26.91	11.75	---	---	PASSED

2.3.4 N-mode, 40 MHz CBW, 16QAM modulation, 54/60 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
10377.4	57.59	757.443	42.29	15.3	20.6	78.2	PASSED
10390.886	55.7	609.537	40.19	15.51	22.5	78.2	PASSED
15569.1	52.33	413.571	41.79	10.54	25.9	78.2	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
240.71	28.36	26.179	45.36	-17	17.6	46	PASSED
246.349	10.45	3.329	27.24	-16.79	35.6	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
10377.4	44.02	158.818	28.72	15.3	---	---	PASSED
10390.886	42.88	139.252	27.37	15.51	---	---	PASSED
15569.1	38.91	88.156	28.37	10.54	15.1	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
10458.9	56.53	670.888	41.06	15.47	21.7	78.2	PASSED
10460.426	56.91	700.245	41.43	15.48	21.3	78.2	PASSED
15571.1	51.62	381.022	41.07	10.55	26.6	78.2	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
918.821	23.3	14.617	27.17	-3.87	22.7	46	PASSED
948.171	23.19	14.429	27.17	-3.98	22.8	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
10458.9	43.84	155.525	28.37	15.47	---	---	PASSED
10460.426	43.85	155.758	28.37	15.48	---	---	PASSED
15571.1	38.9	88.135	28.35	10.55	15.1	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
10542.186	56.41	661.15	41.07	15.34	21.8	78.2	PASSED
10543.9	56.02	632.412	40.69	15.33	22.2	78.2	PASSED
15806.9	51.31	367.536	40.57	10.74	26.9	78.2	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
923.404	23.36	14.715	27.11	-3.75	22.6	46	PASSED
956.787	23.36	14.718	27.3	-3.94	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
10542.186	43.26	145.479	27.92	15.34	---	---	PASSED
10543.9	43.31	146.454	27.98	15.33	---	---	PASSED
15806.9	38.61	85.222	27.87	10.74	15.4	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
10621.438	57.6	758.84	42.46	15.14	20.6	78.2	PASSED
10623	58.09	802.786	42.97	15.12	20.1	78.2	PASSED
15931.8	51.58	379.359	41.11	10.47	26.6	78.2	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
911.897	23.19	14.438	27.23	-4.04	22.8	46	PASSED
920.548	23.34	14.686	27.17	-3.83	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
10621.438	44.76	173.041	29.62	15.14	9.2	54	PASSED
10623	44.9	175.711	29.78	15.12	9.1	54	PASSED
15931.8	38.28	82.026	27.81	10.47	15.7	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
11019.1	56.7	683.675	41.12	15.58	21.5	78.2	PASSED
11020.032	56.33	655.315	40.74	15.59	21.9	78.2	PASSED
16528.4	50.94	352.33	39.86	11.08	27.3	78.2	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
928.36	23.57	15.083	27.3	-3.73	22.4	46	PASSED
944.991	23.25	14.533	27.24	-3.99	22.8	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
11019.1	43.36	147.299	27.78	15.58	10.6	54	PASSED
11020.032	43.68	152.704	28.09	15.59	10.3	54	PASSED
16528.4	38.17	80.993	27.09	11.08	---	---	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
11097.7	56.84	695.104	41.48	15.36	21.4	78.2	PASSED
11110.112	56.6	675.927	41.24	15.36	21.6	78.2	PASSED
16648.8	52.18	406.443	40.99	11.19	26	78.2	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
913.991	23.24	14.524	27.23	-3.99	22.8	46	PASSED
938.799	23.32	14.661	27.23	-3.91	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
11097.7	43.56	150.661	28.2	15.36	10.4	54	PASSED
11110.112	43.59	151.252	28.23	15.36	10.4	54	PASSED
16648.8	39.01	89.197	27.82	11.19	---	---	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
11330.661	58.17	809.935	42.84	15.33	20	78.2	PASSED
11337.6	58.32	823.664	42.97	15.35	19.9	78.2	PASSED
17012.3	51.34	368.978	39.6	11.74	26.9	78.2	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
240.86	29.83	31.024	46.82	-16.99	16.2	46	PASSED
925.288	23.59	15.115	27.3	-3.71	22.4	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
11330.661	44.74	172.484	29.41	15.33	9.3	54	PASSED
11337.6	45.4	186.123	30.05	15.35	8.6	54	PASSED
17012.3	38.71	86.218	26.97	11.74	---	---	PASSED

3. Test Equipment

3.1. 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	-

3.2. Radiated measurements

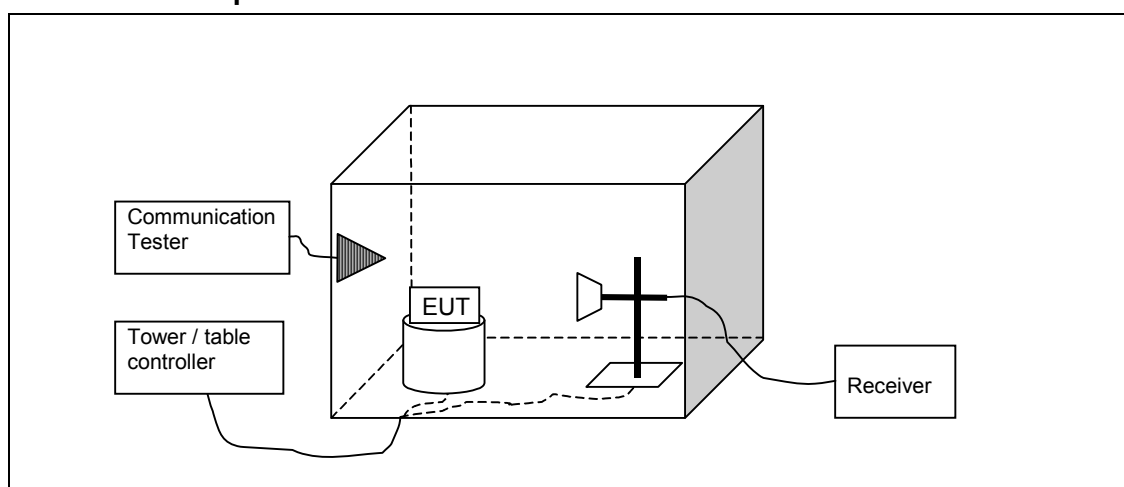
Eq. No	Equipment	Type	Manufacturer	Used in
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
6038	Data Logger	Testo 580	Testo	-
6014	Substitute Calibration Cable	Sucoflex 104PB	Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	-
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	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	-
-	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	-

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

EUT with DUT number	RM-846, DUT 16830
Accessories with DUT numbers	BL-4J, DUT 16831 ; WH-108, DUT 16804 ; AC-50C, DUT 16789
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	20 / 38 / 100
Date of measurements	30-Oct-2012
Measured by	Jari Keto / Kalle Hannila

4.1.1 Test setup



4.2. 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.

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

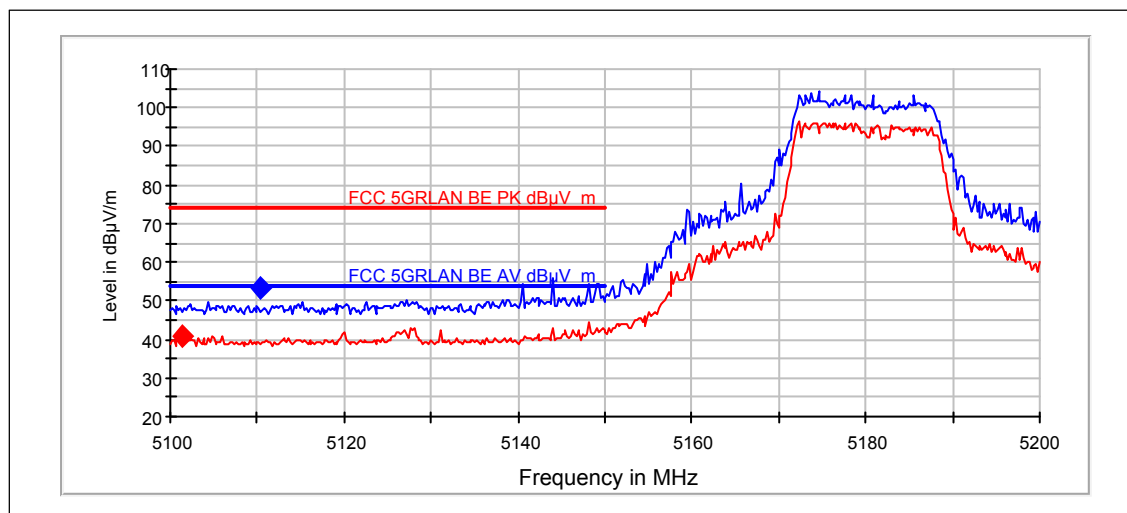
$$E [dB\mu V/m] = 20 * \text{LOG} ((\text{square root } (30 * P [W]) / 3 \text{ m}) * 1000000)$$

Frequency range [MHz]	Limit [dBm / MHz]	Limit dBuV/m @ 3m
5150 - 5250	≤ 5.150 GHz: 54 dBuV/m (avg), 74 dBuV/m (pk)	68.23
5250 - 5350	≥ 5.350 GHz: 54 dBuV/m (avg), 74 dBuV/m (pk)	68.23
5470 - 5725	≤ 5.460 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) ≥ 5.835 GHz: -27 dBm/MHz (pk)	68.23 78.23

4.3. 5 GHz RLAN test results

4.3.1 A-mode, 20 MHz CBW, BPSK modulation, 9 Mbps data rate.

Channel 36 / 5180MHz



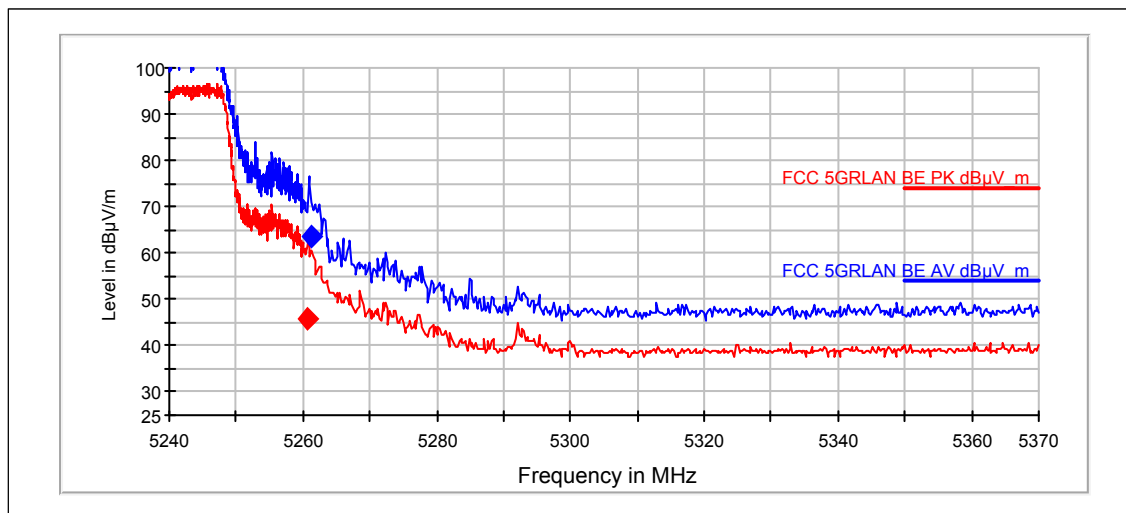
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5110.421	53.06	449.521	51.6	1.46	20.9	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
5101.303	40.56	106.672	38.99	1.57	13.4	54	PASSED

Channel 48 / 5124MHz



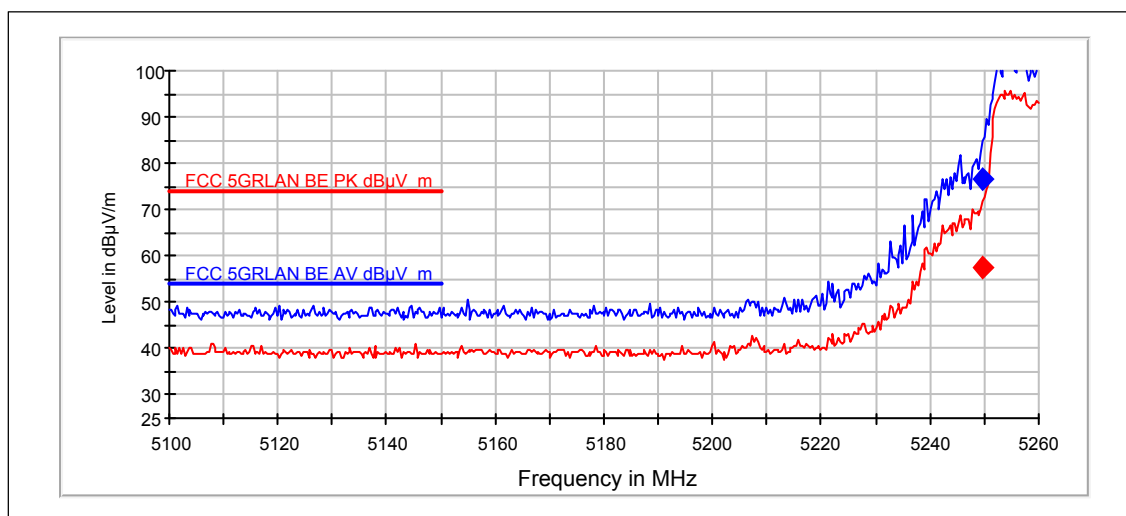
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5261.202	63.51	1497.614	63.05	0.47	---	---	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
5260.601	45.64	191.404	45.18	0.46	---	---	PASSED

Channel 52 / 5260MHz



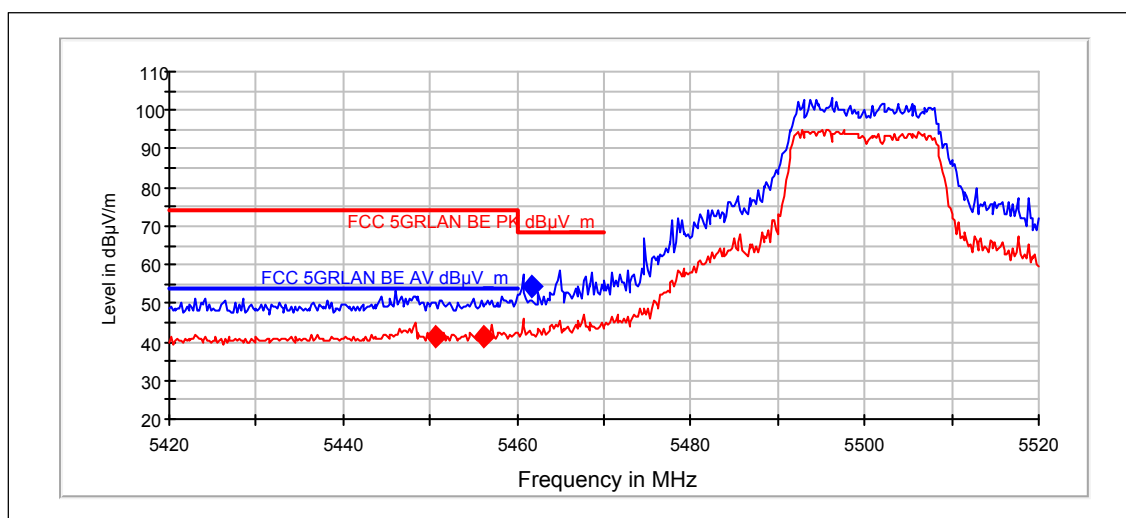
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5249.86	76.77	6895.25	76.25	0.52	---	---	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
5249.86	57.43	743.789	56.91	0.52	---	---	PASSED

Channel 100 / 5500MHz



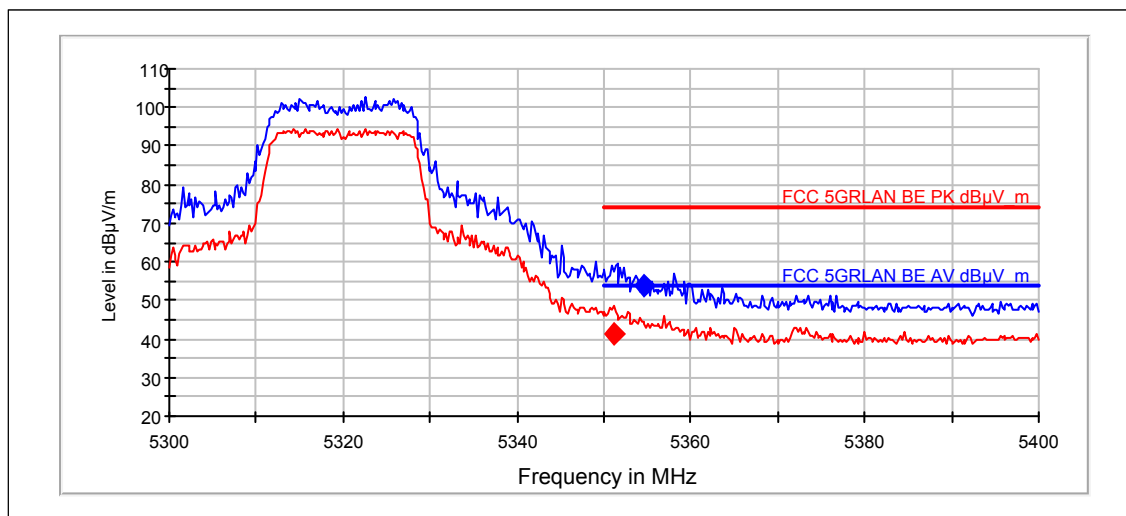
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5461.683	54.29	518.322	53.46	0.83	13.9	68.2	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
5450.711	41.22	115.014	40.36	0.86	12.8	54	PASSED
5456.072	41.1	113.54	40.26	0.84	12.9	54	PASSED

Channel 64 / 5320MHz



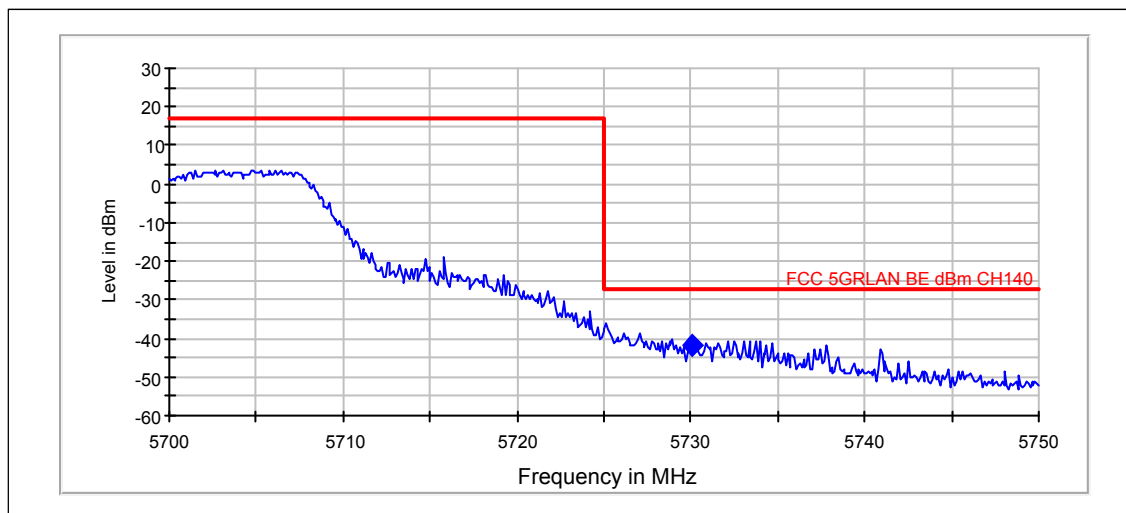
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5354.609	53.68	482.836	53.33	0.35	20.3	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
5351.102	41.5	118.837	41.17	0.33	12.5	54	PASSED

Channel 140 / 5700MHz

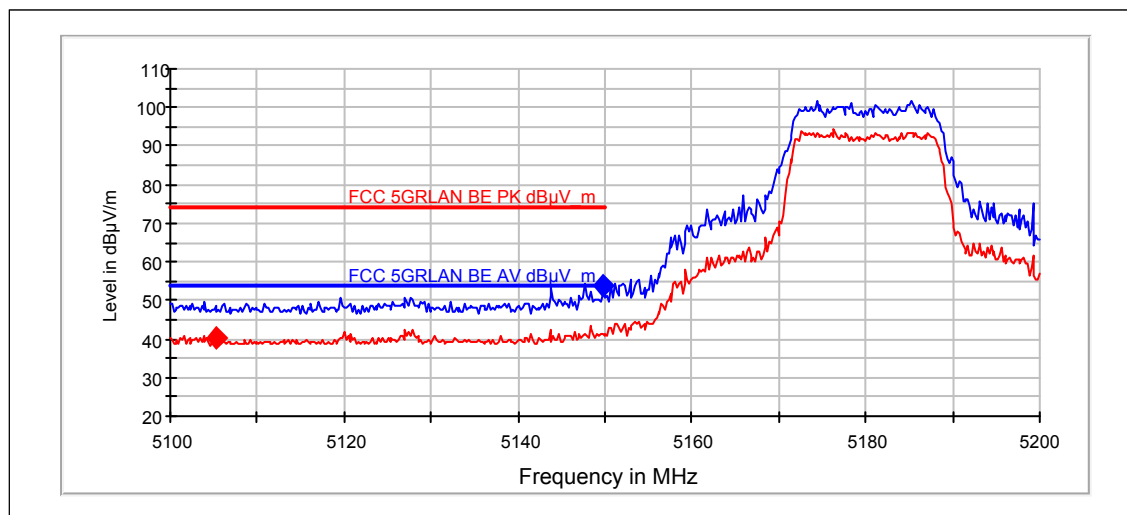


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5730.014	-41.79	0.06625	-55.66	13.87	14.8	-27	PASSED

4.3.2 A-mode, 20 MHz CBW, 16QAM modulation, 24 Mbps data rate.

Channel 36 / 5180MHz



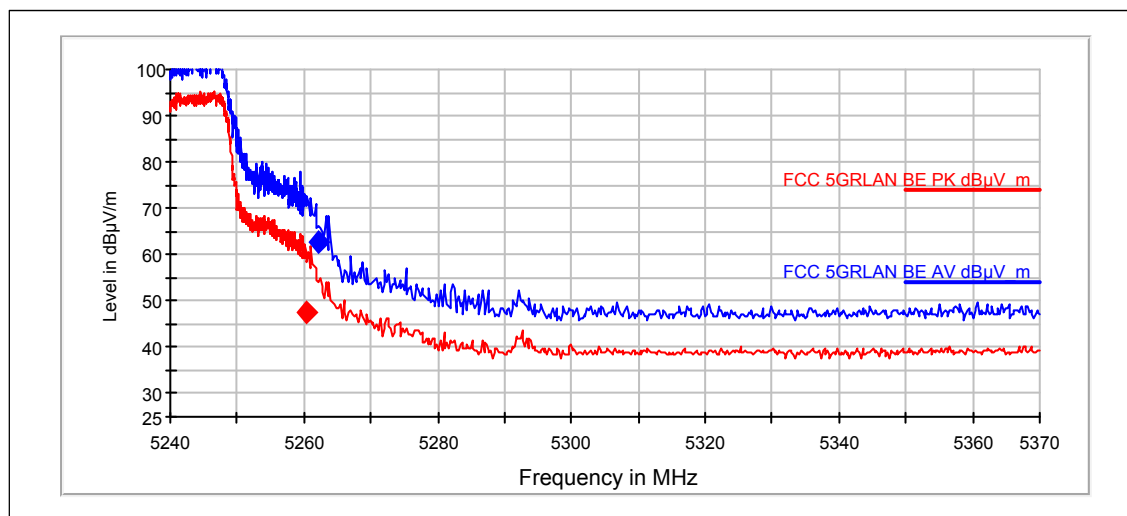
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5149.699	53.98	500.207	52.57	1.41	20	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
5105.411	40.41	104.87	38.89	1.52	13.6	54	PASSED

Channel 48 / 5124MHz



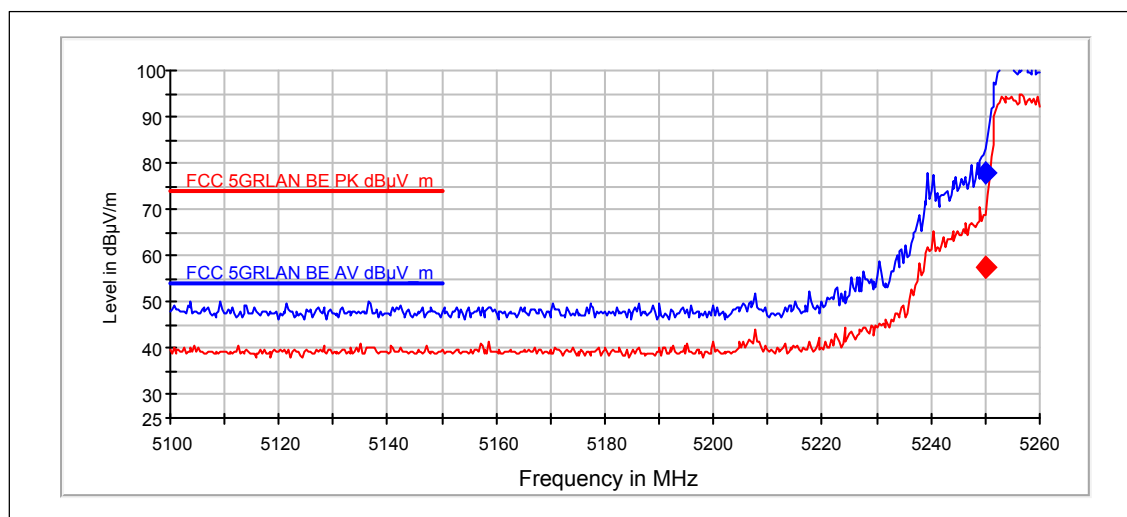
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5262.044	62.86	1389.473	62.39	0.47	---	---	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
5260.481	47.75	243.978	47.29	0.46	---	---	PASSED

Channel 52 / 5260MHz



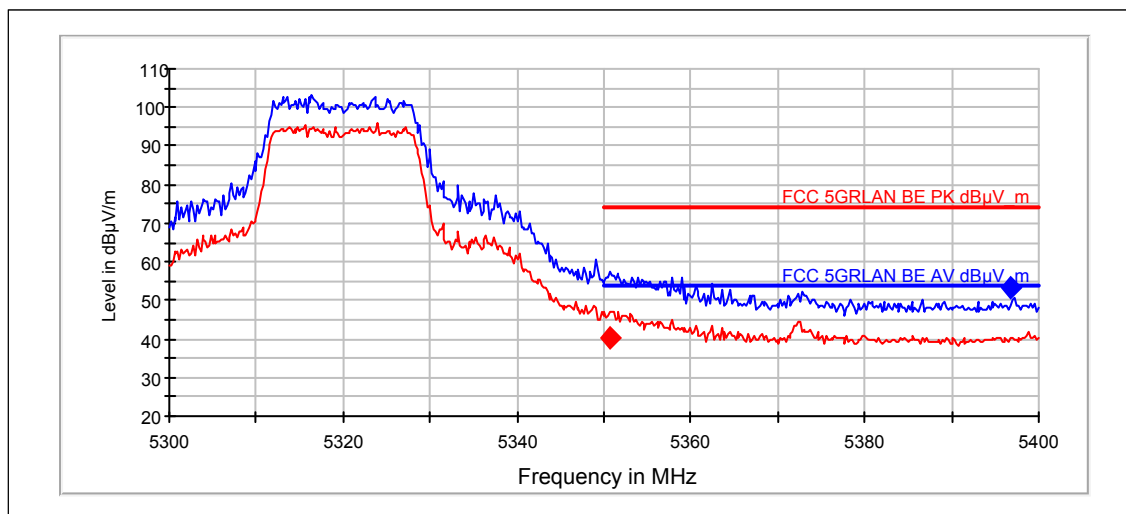
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5250	77.9	7855.973	77.38	0.52	---	---	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
5250	57.53	752.575	57.01	0.52	---	---	PASSED

Channel 64 / 5320MHz



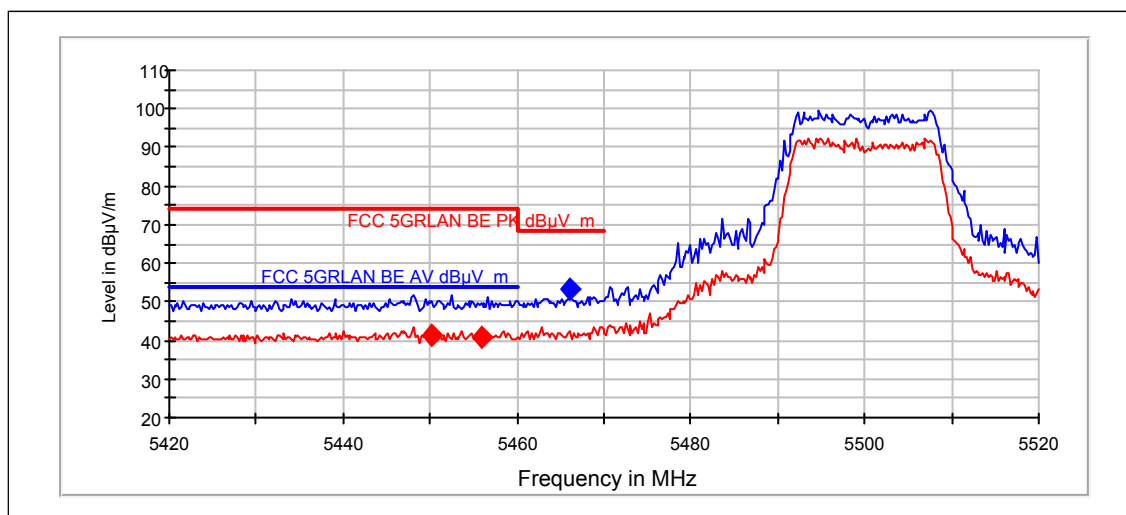
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5396.693	53.37	465.908	52.86	0.51	20.6	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
5350.802	40.53	106.255	40.2	0.33	13.5	54	PASSED

Channel 100 / 5500MHz



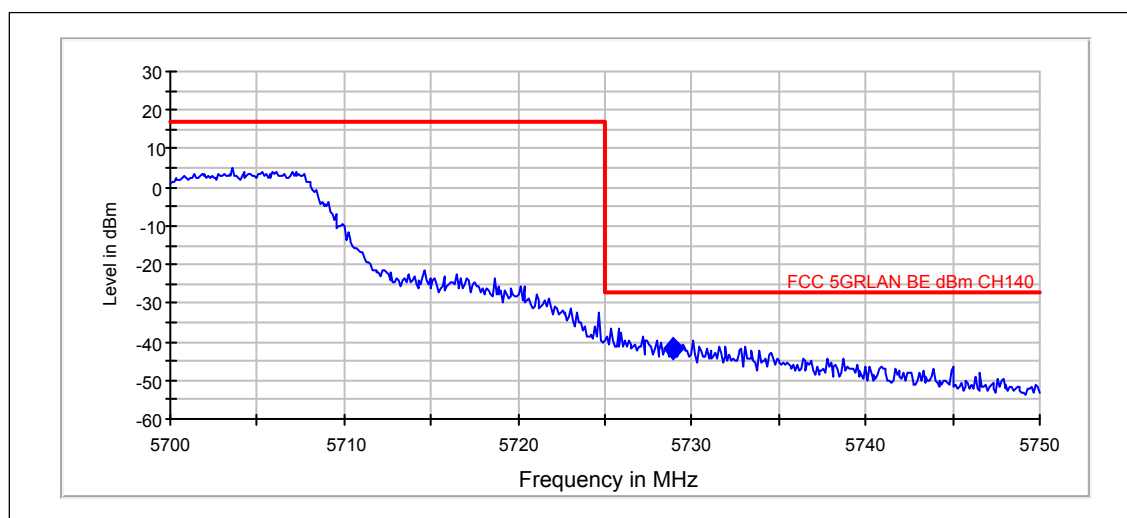
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5466.192	53.55	475.773	52.74	0.81	14.7	68.2	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
5450.261	41.14	113.972	40.28	0.86	12.9	54	PASSED
5455.922	40.97	111.802	40.13	0.84	13	54	PASSED

Channel 140 / 5700MHz

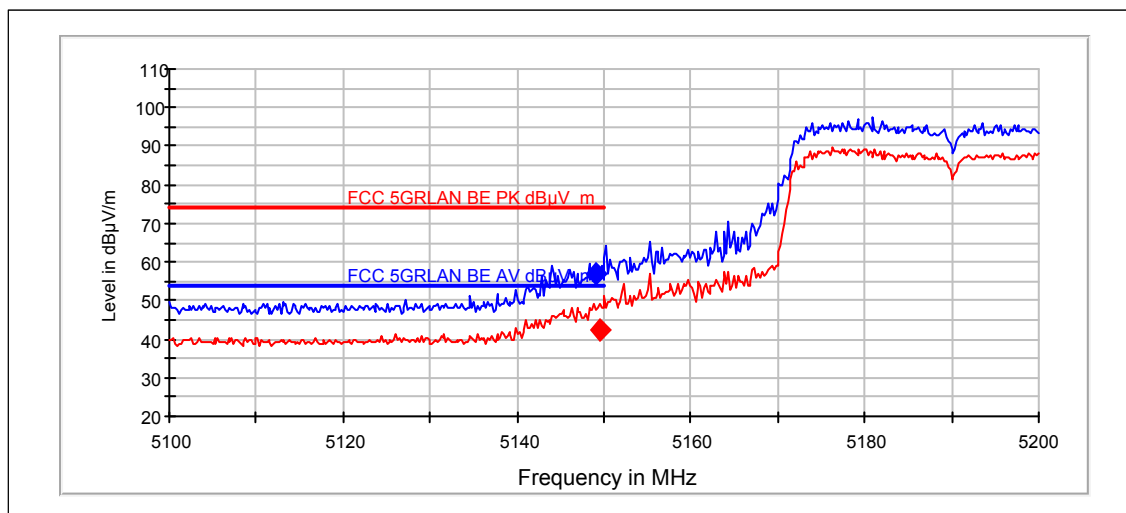


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5728.912	-41.97	0.06349	-55.86	13.89	15	-27	PASSED

4.3.3 N-mode, 40 MHz CBW, BPSK modulation, 13.5/15 Mbps data rate.

Channel 36+40 / 5190MHz



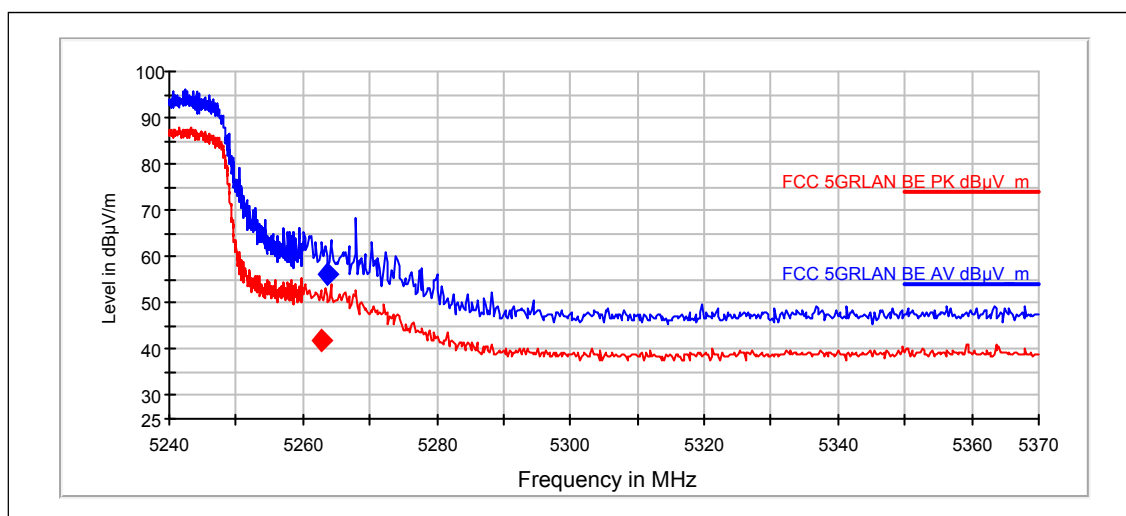
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5149.098	56.68	682.339	55.26	1.42	17.3	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
5149.599	42.18	128.529	40.77	1.41	11.8	54	PASSED

Channel 44+48 / 5230MHz



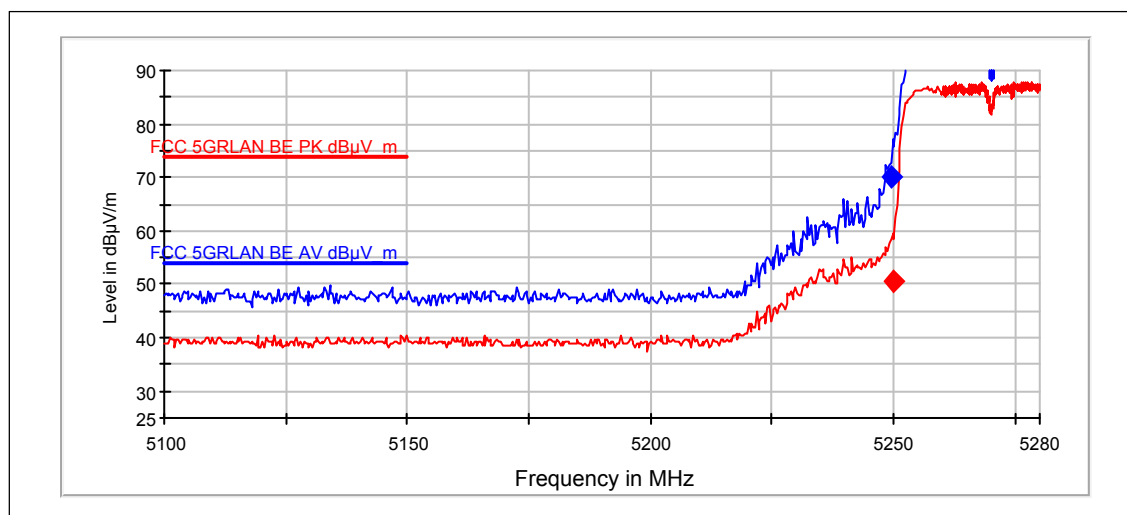
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5263.727	56.13	640.251	55.66	0.47	---	---	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
5262.886	41.95	125.199	41.48	0.47	---	---	PASSED

Channel 52+56 / 5270MHz



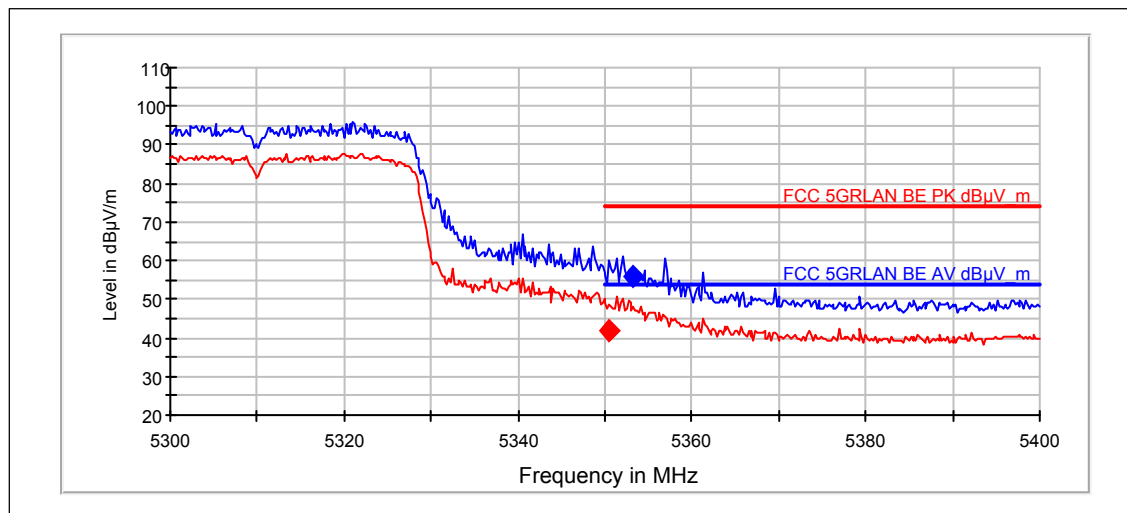
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5249.719	70.09	3194.479	69.57	0.52	---	---	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
5250	50.52	335.854	50	0.52	---	---	PASSED

Channel 60+64 / 5310MHz



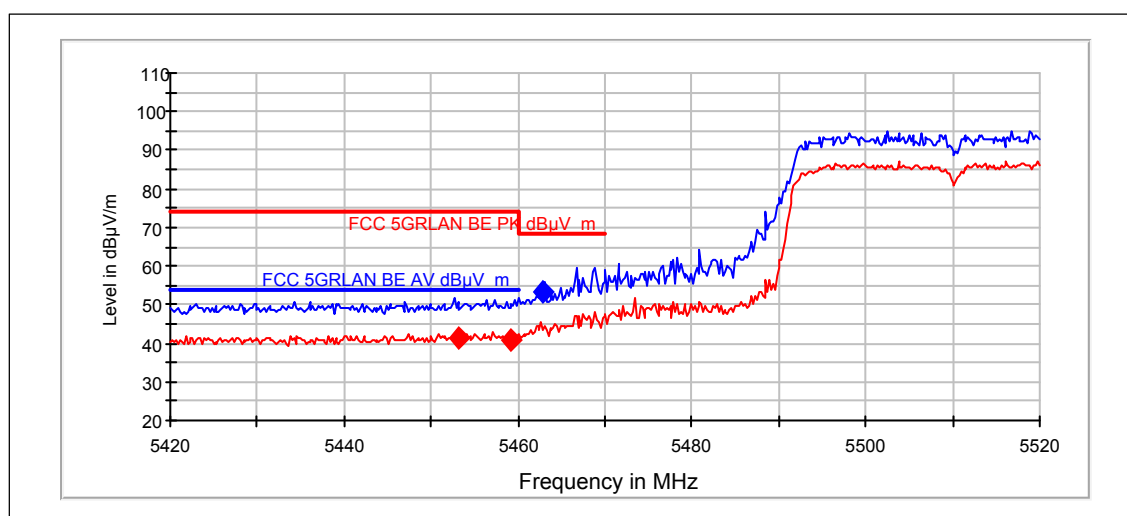
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5353.307	55.87	621.227	55.53	0.35	18.1	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
5350.401	41.6	120.268	41.27	0.33	12.4	54	PASSED

Channel 100+104 / 5510MHz



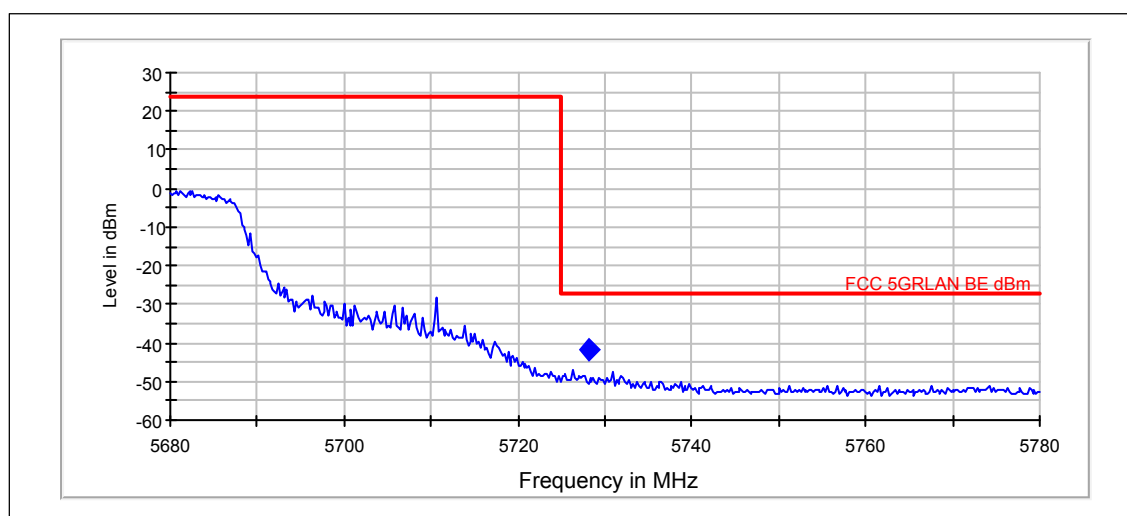
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5462.886	53.48	472.28	52.66	0.82	14.7	68.2	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
5453.066	41.1	113.488	40.25	0.85	12.9	54	PASSED
5459.128	41.02	112.396	40.19	0.83	13	54	PASSED

Channel 132+136 / 5670MHz

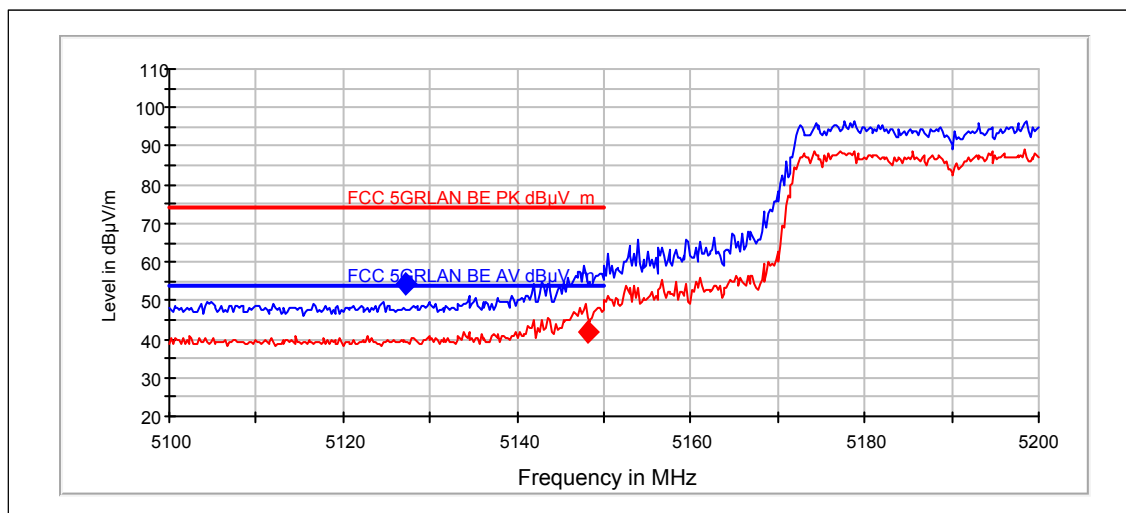


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5728.21	-41.93	0.06418	-55.86	13.93	14.9	-27	PASSED

4.3.4 N-mode, 40 MHz CBW, 16QAM modulation, 54/60 Mbps data rate.

Channel 36+40 / 5190MHz



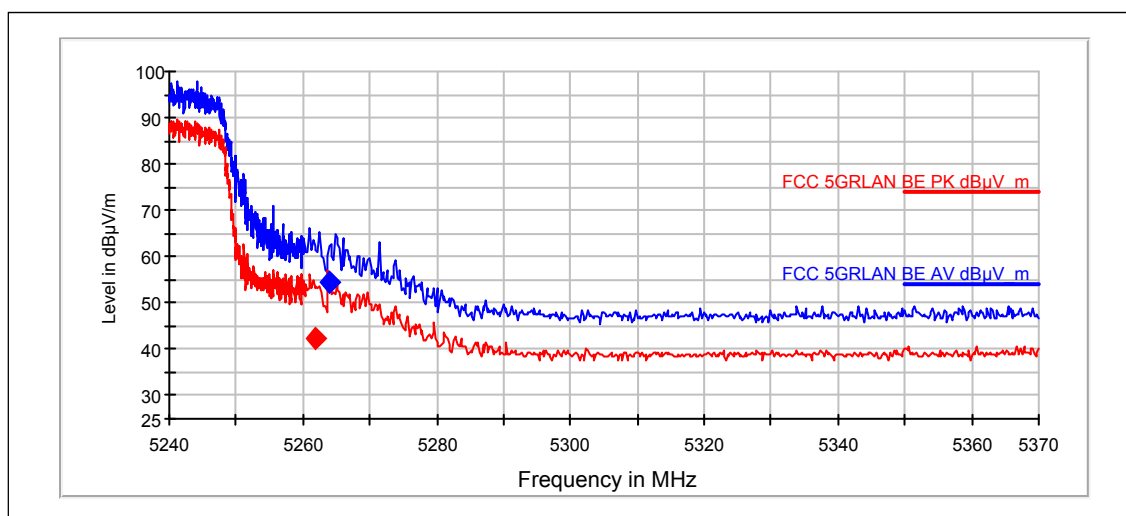
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5127.255	54.24	515.288	52.91	1.33	19.8	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
5148.196	42.1	127.35	40.68	1.42	11.9	54	PASSED

Channel 44+48 / 5230MHz



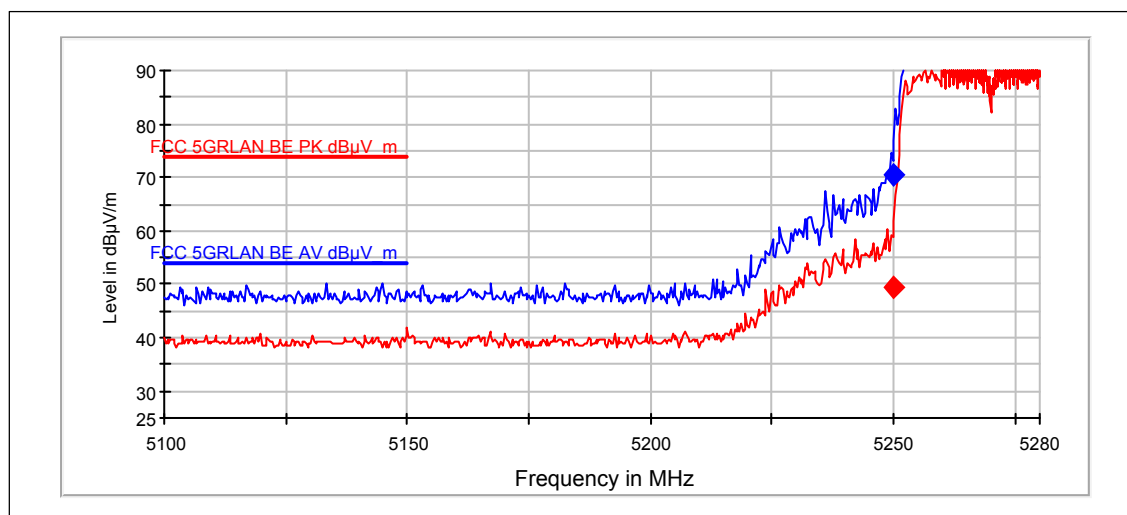
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5263.848	54.43	526.32	53.96	0.47	---	---	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
5261.804	42.15	128.1	41.68	0.47	---	---	PASSED

Channel 52+56 / 5270MHz



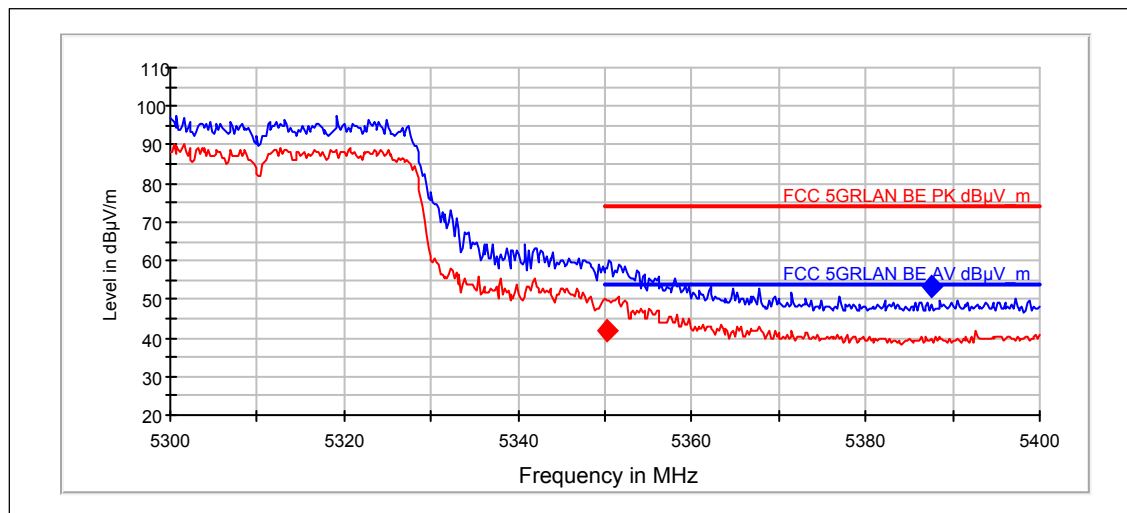
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5249.86	70.3	3274.161	69.78	0.52	---	---	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
5250	49.46	297.098	48.94	0.52	---	---	PASSED

Channel 60+64 / 5310MHz



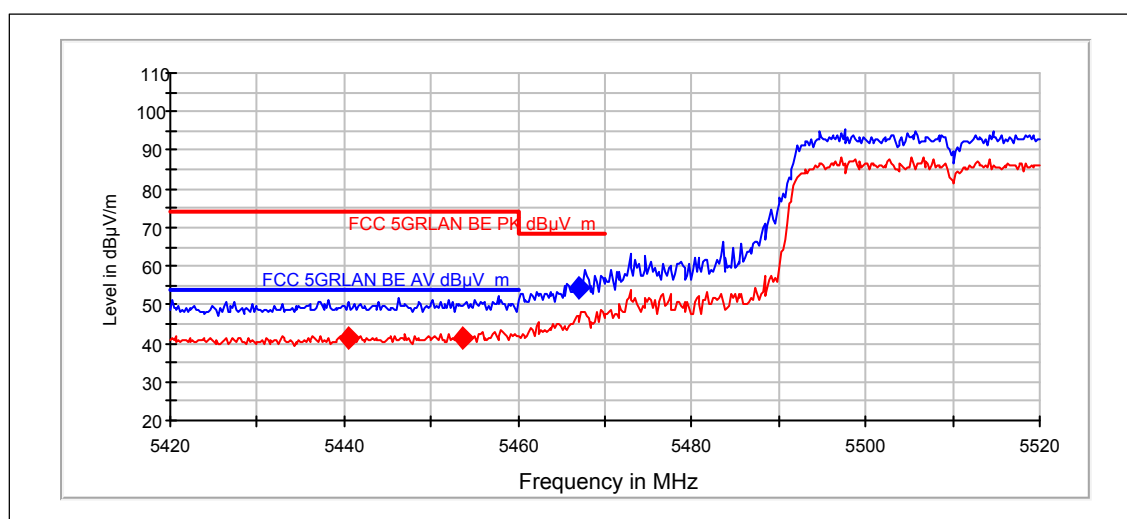
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5387.475	53.5	473.206	53.09	0.41	20.5	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
5350.2	41.6	120.268	41.27	0.33	12.4	54	PASSED

Channel 100+104 / 5510MHz



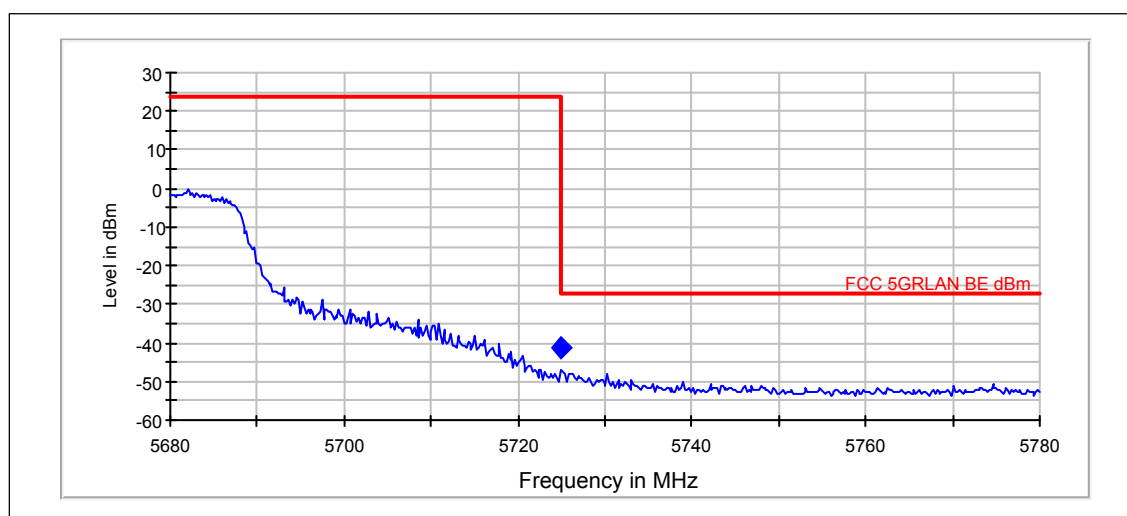
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
5466.994	54.16	510.623	53.35	0.81	14	68.2	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
5440.541	41.39	117.341	40.61	0.78	12.6	54	PASSED
5453.717	41.15	114.143	40.3	0.85	12.9	54	PASSED

Channel 132+136 / 5670MHz



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

Frequency [MHz]	P [dBm]	P [μW]	P _{MEAS} [dBm]	A _{TOT} [dB]	Margin	Limit [dBm]	Results
5725.004	-41.28	0.07442	-55.27	13.99	14.3	-27	PASSED