

FCC Part 15E Compliance Test Report

Test Report no.:	FCC15E_RM-1104_27	Date of Report:	29-Oct-2015
Number of pages:	62	Customer's Contact person:	Jari Rontu
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Phone RM-1104 / Battery (Samsung) BV-T5E / Charger AC-100E / Headset WH-308		
FCC ID:	PYASST	IC:	661X-STT
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart E, ANSI C63.4 (2014), DTS procedures KDB 789033 D02 v01, 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 Microsoft.		
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:			

Hannu Söderholm, Engineer, EMC

1. Summary for FCC Part 15E Compliance Test Report

Date of receipt	07-Jan-2015
Testing completed	20-Jul-2015
The customer's contact person	Tia Melava
Test Plan referred to	T:\Projects\RM-1104\TestPlan\RS_TestPlan_RM-1104_EMC_FCC.xlsm
Notes	-
Document name	T:\Projects\RM-1104\EMC\FCC15E_RM-1104_27.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-1104	004402742176864;059X034	2012	S2	01066.00001.15257.14000	100206
Battery (Samsung)	BV-T5E	4181575182S10605359;0670775	V6	-	-	100208
Charger	AC-100E	409049512558030174860675758	0.3	B2.0	-	100196
Headset	WH-308	-	-	-	-	100195

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(b)	A9.2	Spurious radiated emissions	PASSED
15.407(b)(6)	A9.2	AC powerline conducted emissions	PASSED
	A9.2	6dB(bandwidth)	NP
	A9.2	26dB(bandwidth)	NP
15.407(a)	A9.2	Maximum power spectral density	NP

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 Microsoft Laboratory.

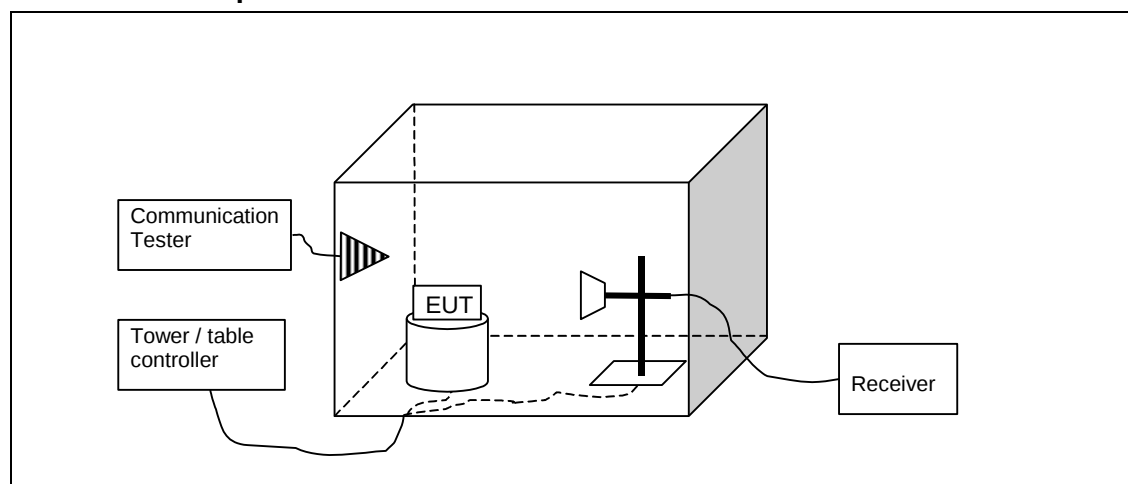
CONTENTS

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. Band edge compliance of RF emissions (FCC §15.407(b), RSS-210 A9.2)	4
2.2. Test method and limit	4
2.3. 5 GHz RLAN test results	5
3. Spurious radiated emissions (FCC §15.407(b), RSS-210 A9.2)	35
3.2. Test method and limit	35
3.3. 5 GHz RLAN test results	37
4. AC powerline conducted emissions (FCC §15.407(b)(6), RSS-210 A9.2).....	58
4.1. Test Setup	58
4.2. Test method and limit	58
4.3. 5 GHz RLAN Test results	59
5. Test Equipment.....	61
5.1. Conducted measurements	61
5.2. Radiated measurements	61

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

EUT with DUT number	RM-1104, DUT 100206
Accessories with DUT numbers	BV-T5E, DUT 100208 ; AC-100E, DUT 100196 ; WH-308, DUT 100195
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	MIMO Antenna 1 + Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 45 / 103.0
Date of measurements	20-Jul-2015
Measured by	Kalle Hannila / Ville Mannermaa

2.1.1 Test setup



2.2. 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.

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

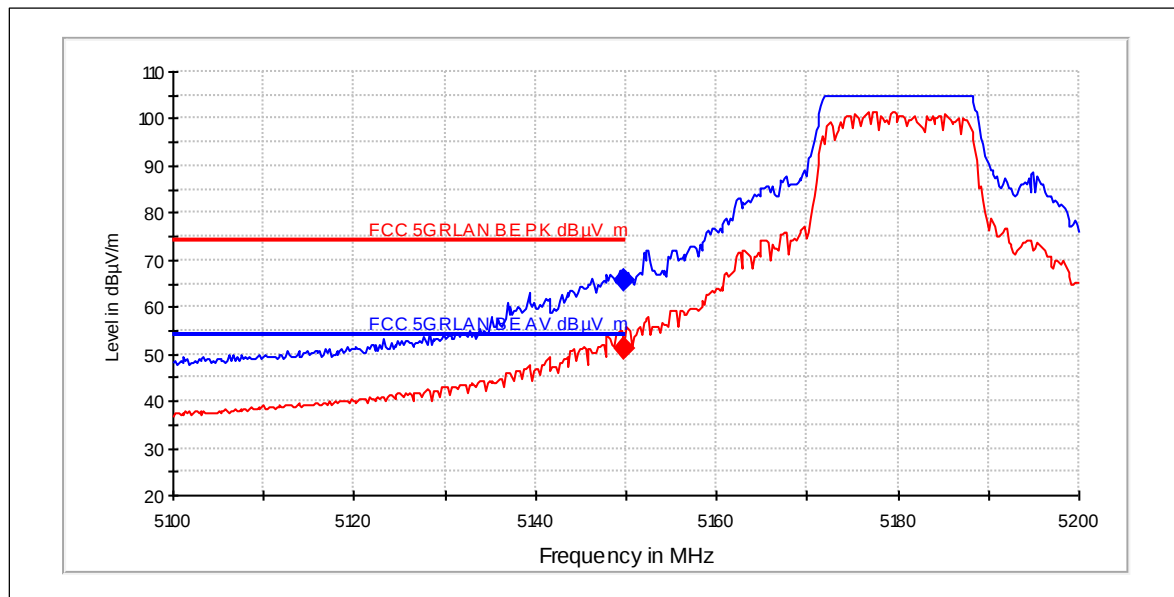
$$E [dB\mu V/m] = 20 * \text{LOG} ((\text{square root } (30 * P [W]) / 3 \text{ m}) * 1000000)$$

Frequency range [MHz]	Limit
5150 - 5250	$\leq 5.150 \text{ GHz: } 54 \text{ dB}\mu V/m \text{ (avg), } 74 \text{ dB}\mu V/m \text{ (pk)}$
5250 - 5350	$\geq 5.350 \text{ GHz: } 54 \text{ dB}\mu V/m \text{ (avg), } 74 \text{ dB}\mu V/m \text{ (pk)}$
5470 - 5725	$\leq 5.460 \text{ GHz: } 54 \text{ dB}\mu V/m \text{ (avg), } 74 \text{ dB}\mu V/m \text{ (pk)}$ $5.460 - 5.470 \text{ GHz: } -27 \text{ dBm/MHz (pk) equals } 68.23 \text{ dB}\mu V/m @ 3\text{m}$
5725 - 5850	$5.715 - 5.725 \text{ GHz and } 5.850 - 5.860 \text{ GHz: } -17 \text{ dBm/MHz (pk) i.e. } 78.23 \text{ dB}\mu V/m @ 3\text{m}$ $\leq 5.715 \text{ GHz and } \geq 5.860 \text{ GHz: } -27 \text{ dBm/MHz (pk) i.e. } 68.23 \text{ dB}\mu V/m @ 3\text{m}$

2.3. 5 GHz RLAN test results, MIMO Antenna 1 + Antenna 2

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

Channel 36 / 5180MHz



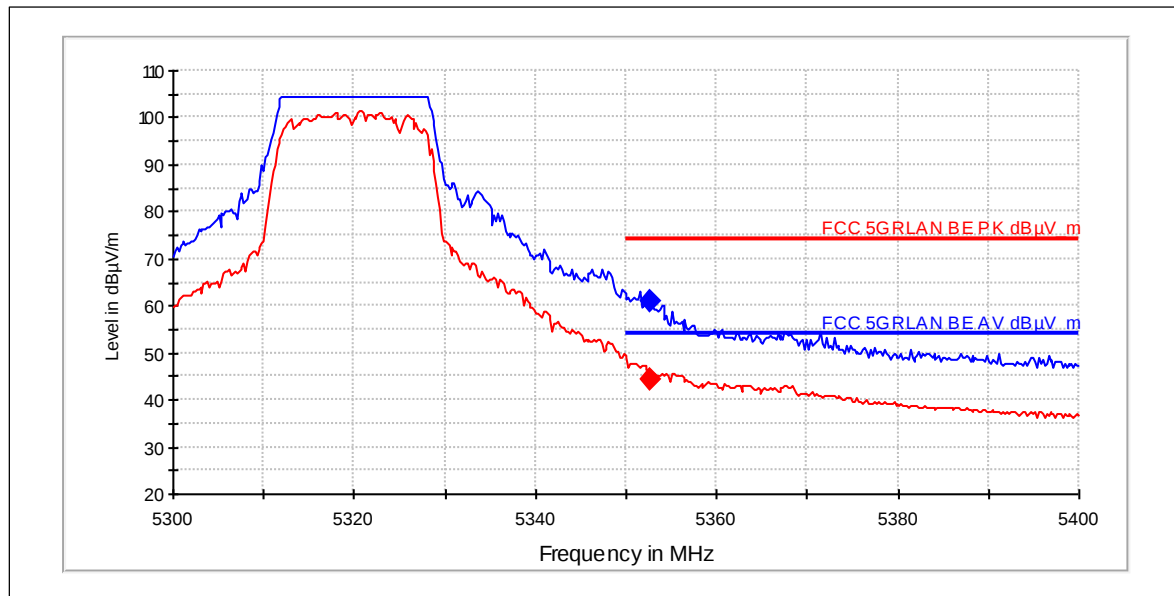
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.699	65.64	74	8.36	170	H	11	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.699	51.02	54	2.98	170	H	11	0	PASSED

Channel 64 / 5320MHz



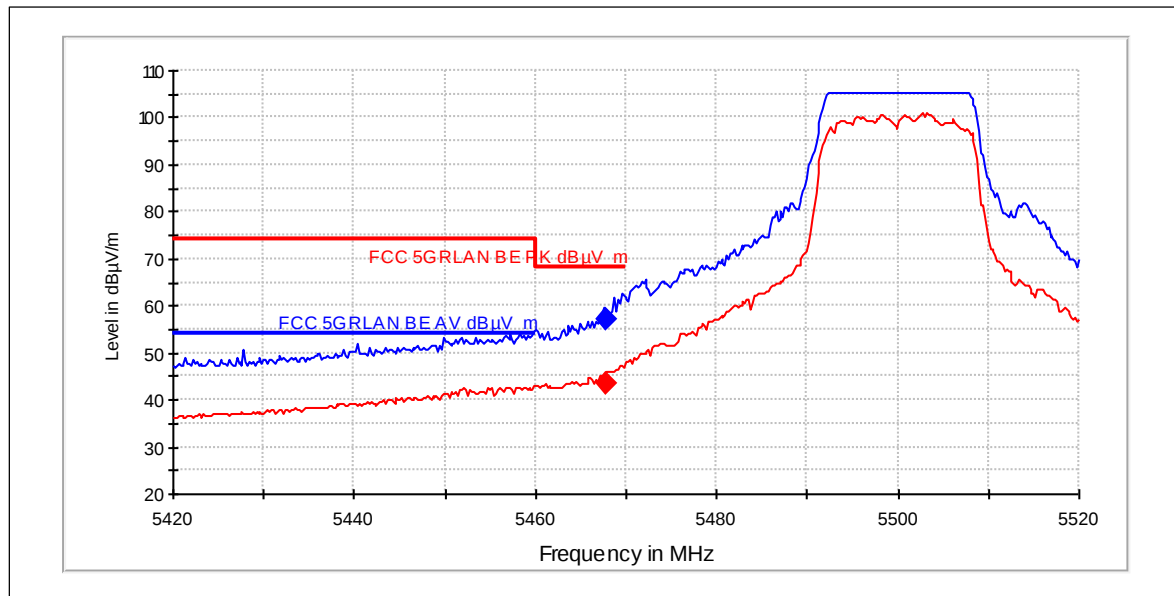
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5352.605	60.92	74	13.08	170	V	22	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5352.605	44.5	54	9.5	170	V	22	0	PASSED

Channel 100 / 5500MHz



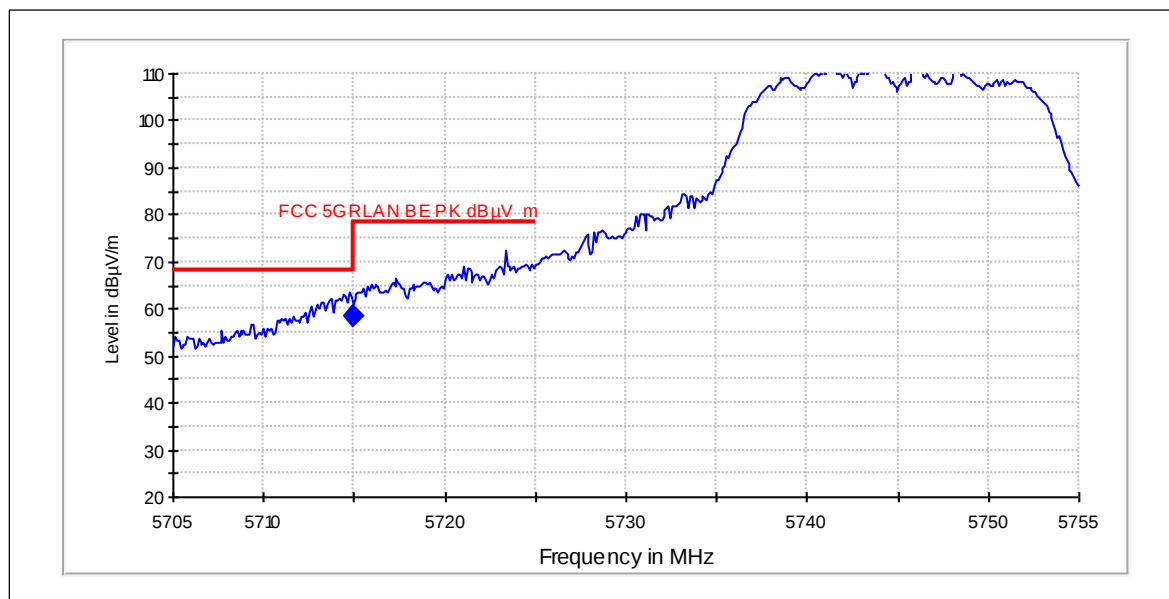
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5467.796	56.94	68.2	11.26	170	H	14	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5467.796	43.49	---	---	170	H	14	0	PASSED

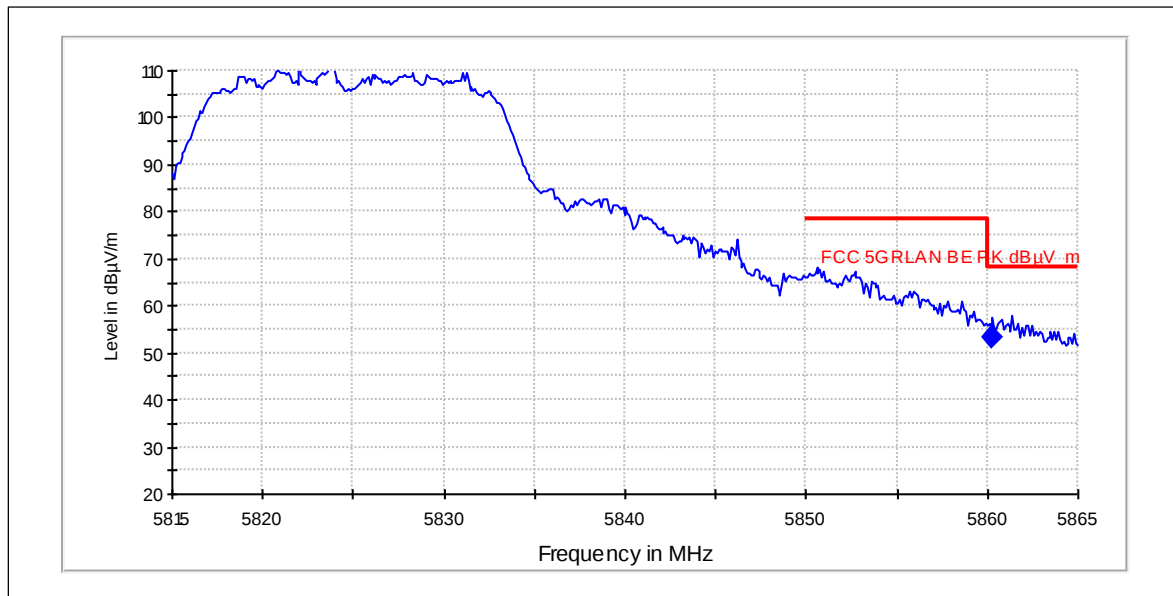
Channel 149 / 5745MHz



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

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5714.94	58.54	68.23	9.69	170	H	0	0	PASSED

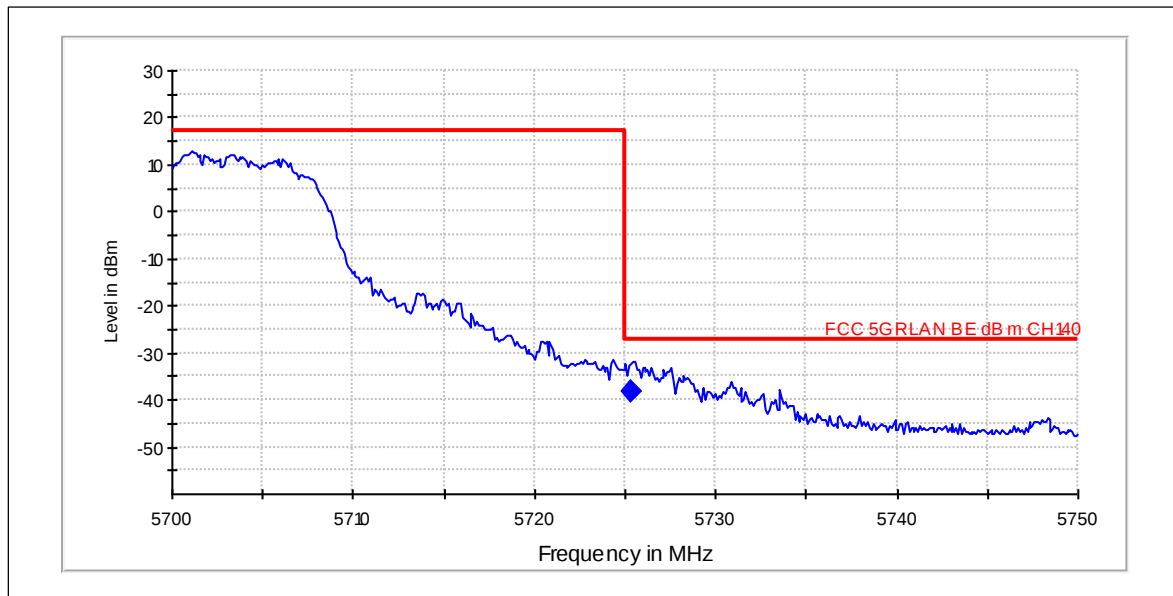
Channel 165 / 5825MHz



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

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5860.22	53.18	68.23	15.05	170	H	22	0	PASSED

Channel 140 / 5700MHz

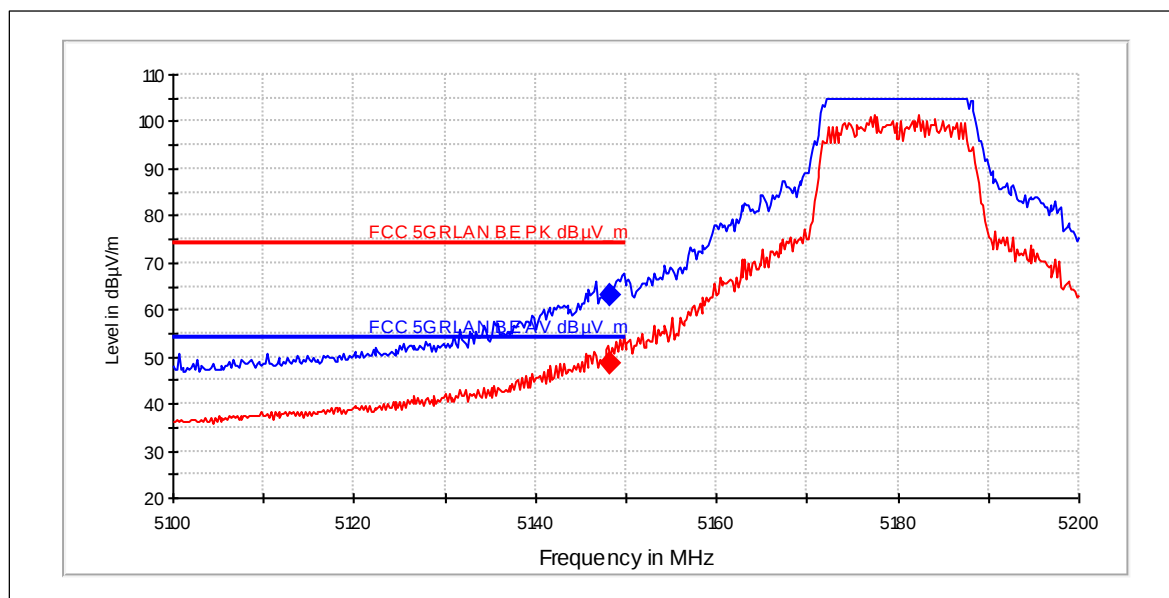


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5725.351	-38.39	-27	11.39	170	V	22	0	PASSED

2.3.2 802.11a, QPSK modulation, 18 Mbps data rate.

Channel 36 / 5180MHz



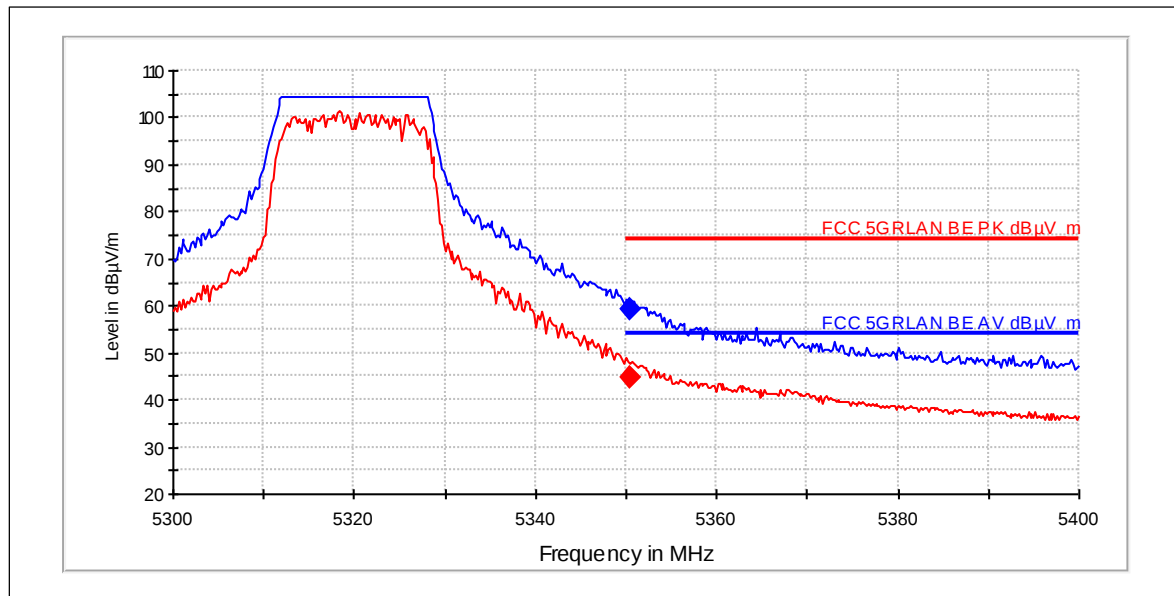
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5148.196	63	74	11	170	H	8	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5148.196	48.48	54	5.52	170	H	8	0	PASSED

Channel 64 / 5320MHz



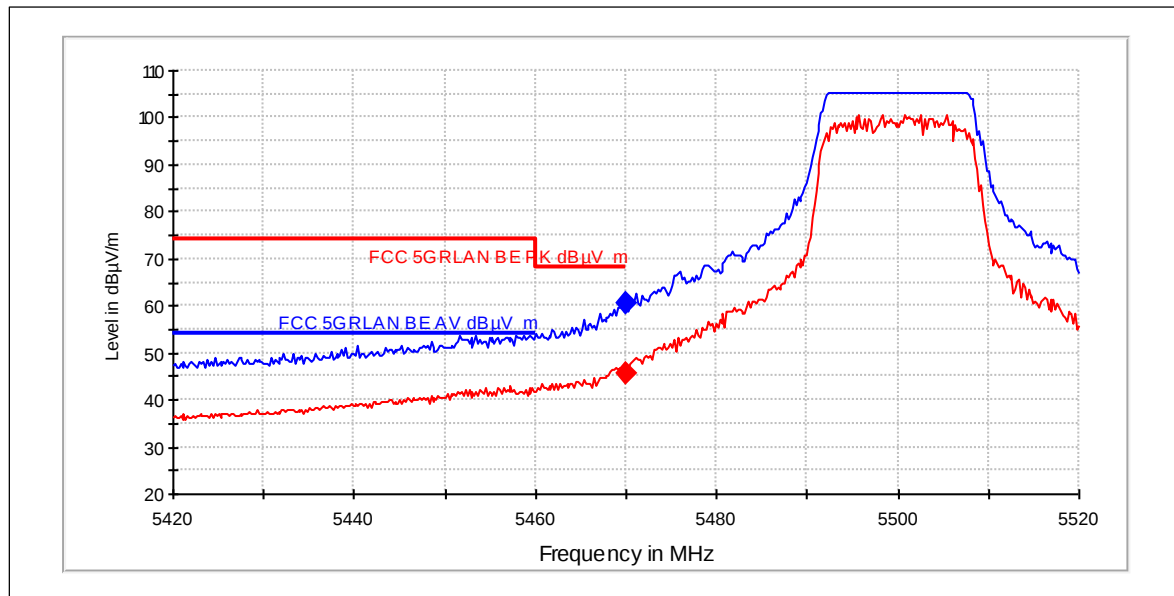
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5350.401	59.39	74	14.61	170	H	-17	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5350.401	44.87	54	9.13	170	H	-17	0	PASSED

Channel 100 / 5500MHz



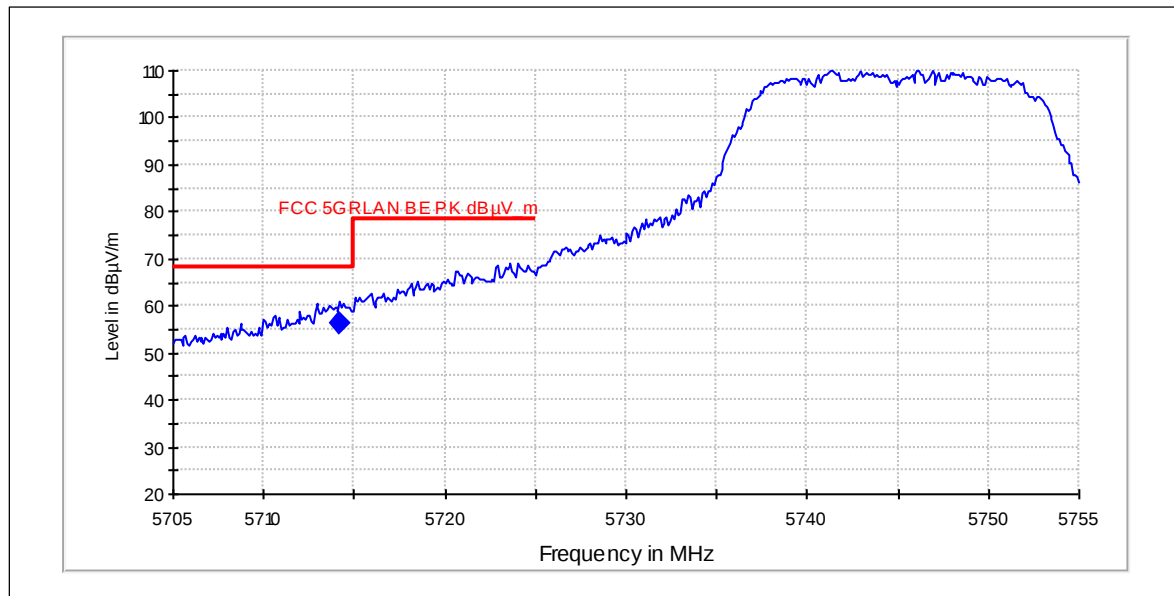
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5470	60.36	68.2	7.84	170	H	-3	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5470	45.38	---	---	170	H	-3	0	PASSED

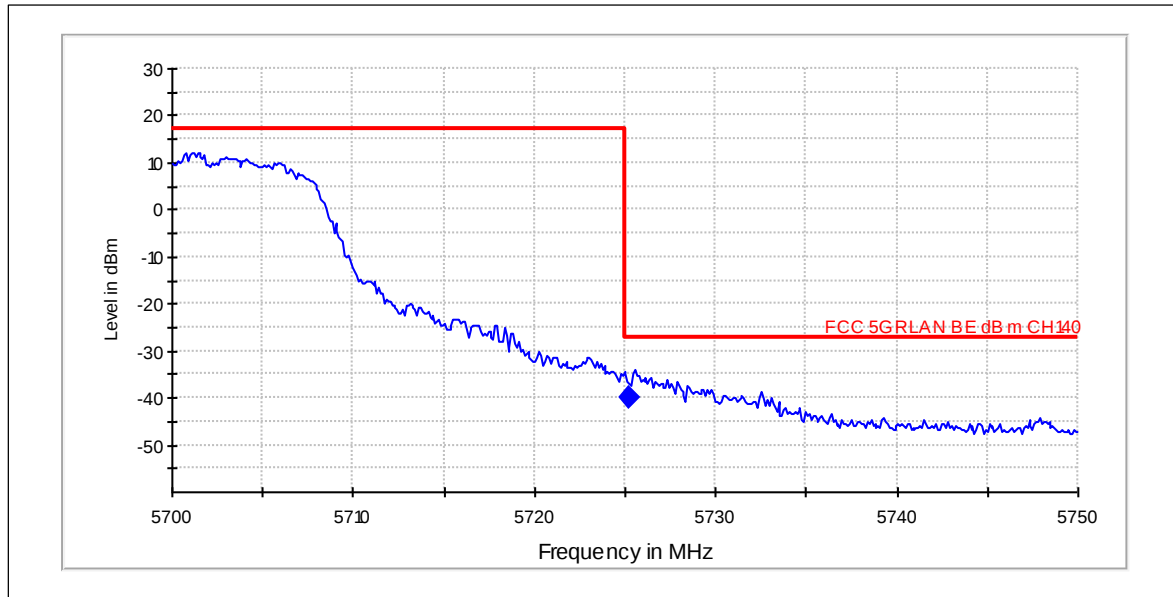
Channel 149 / 5745MHz



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

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5714.218	56.34	68.23	11.89	170	H	-11	0	PASSED

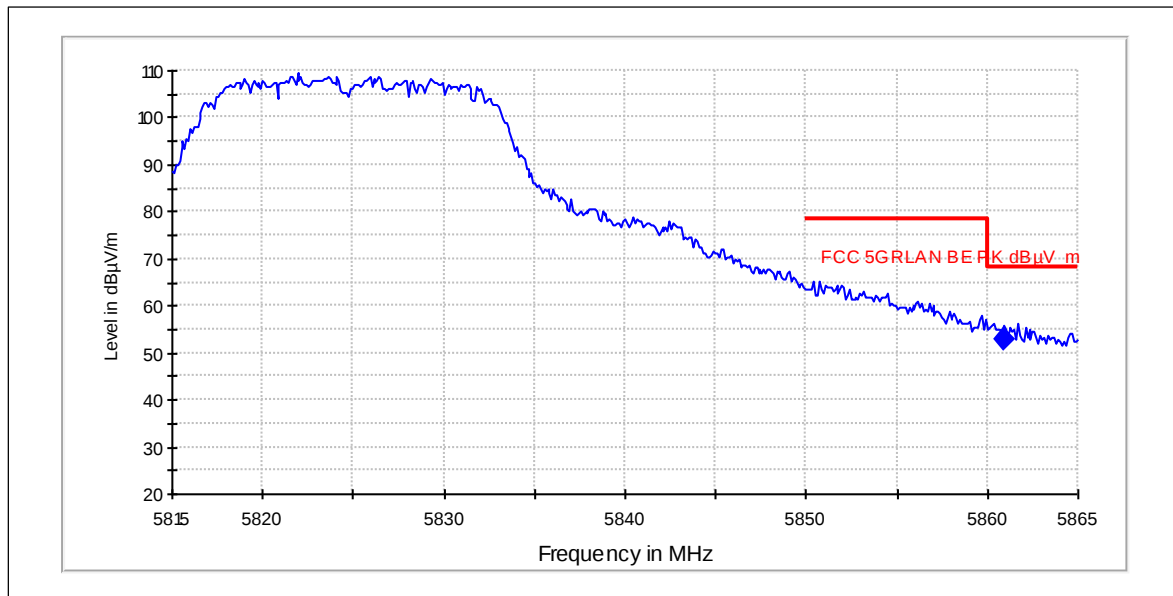
Channel 140 / 5700MHz



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

Frequency [MHz]	MaxPeak [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5725.2	-39.91	-27	12.91	170	V	22	0	PASSED

Channel 165 / 5825MHz

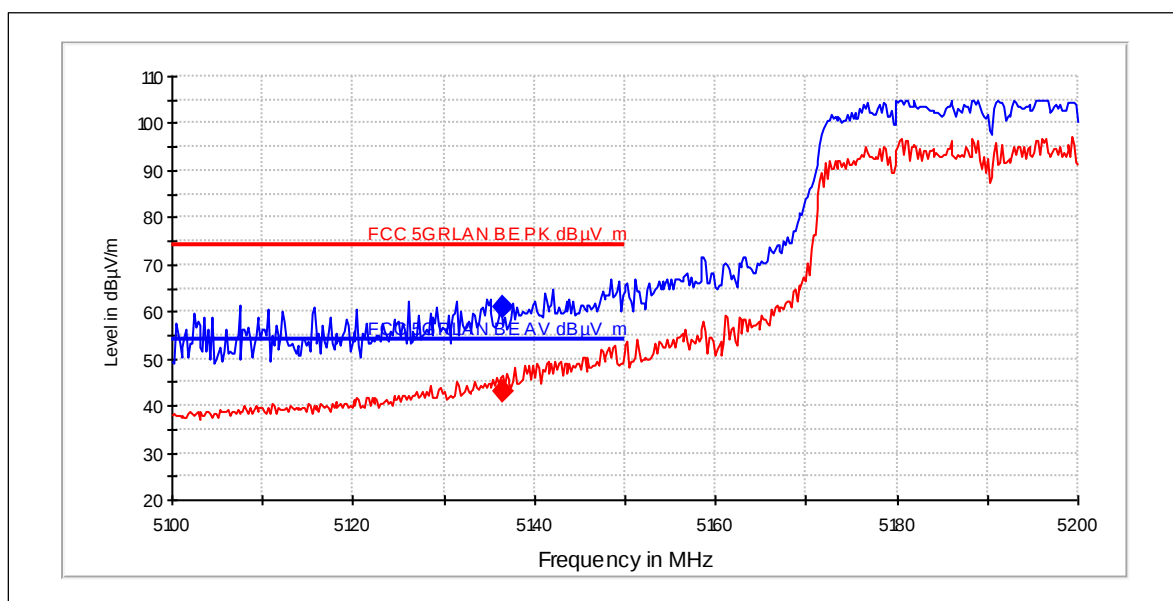


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5860.912	52.97	68.23	15.26	170	H	22	0	PASSED

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

Channel 36+40 / 5190MHz



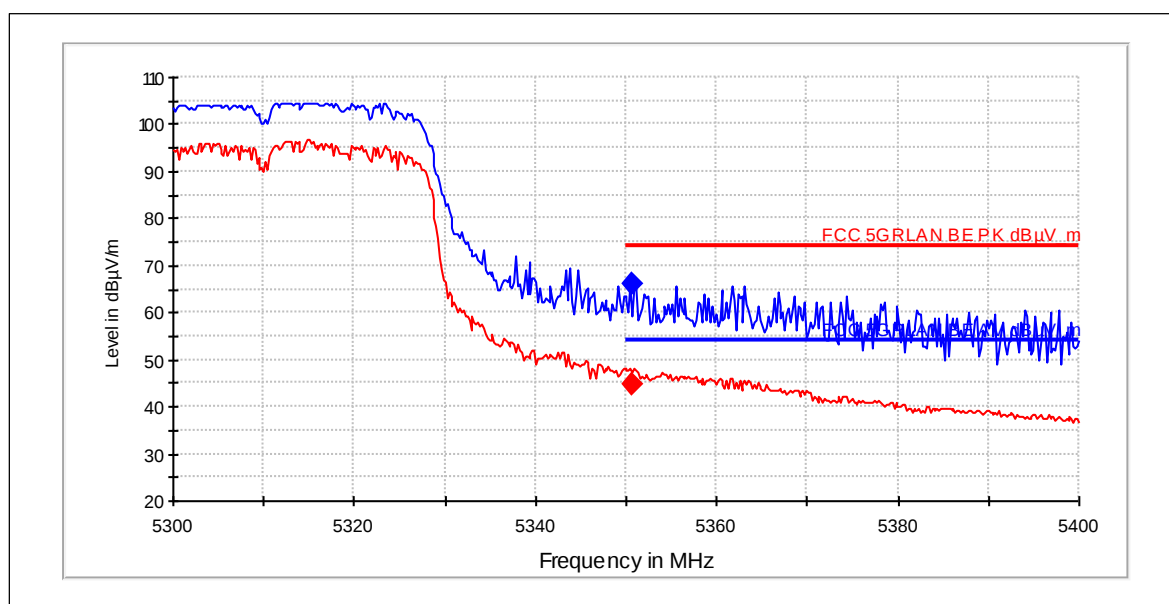
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5136.573	60.98	74	13.02	170	V	22	0	PASSED

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

Frequency [MHz]	Average [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5136.573	43.13	54	10.87	170	V	22	0	PASSED

Channel 60+64 / 5310MHz.



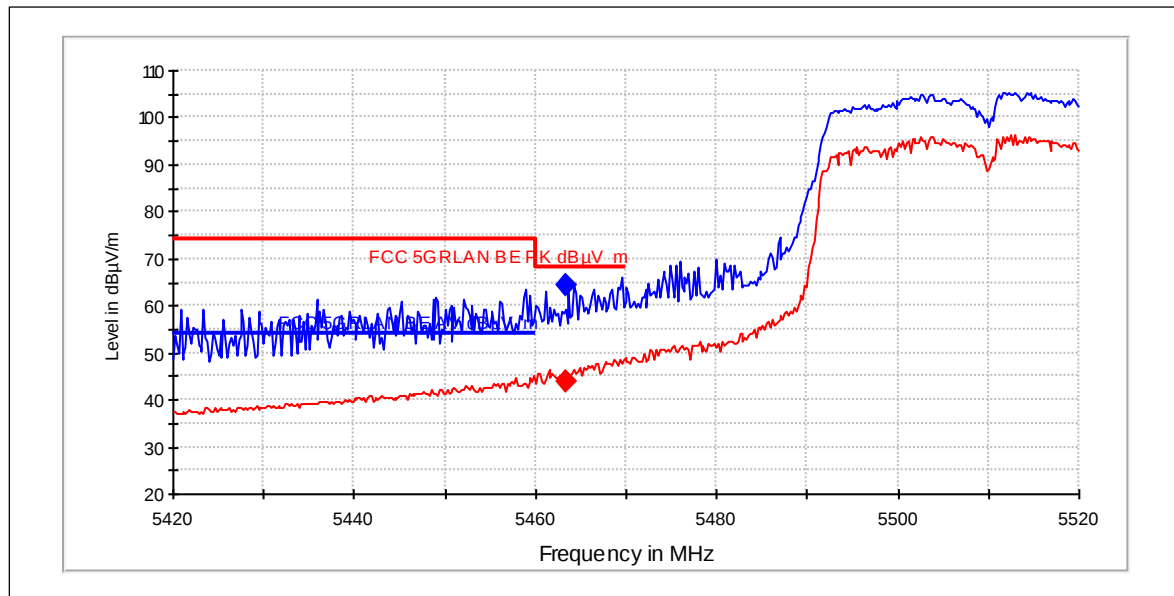
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5350.701	66.26	74	7.74	170	H	22	0	PASSED

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

Frequency [MHz]	Average [dB μ V/m]	Limit [dB μ V/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5350.701	44.87	54	9.13	170	H	22	0	PASSED

Channel 100+104 / 5510MHz.



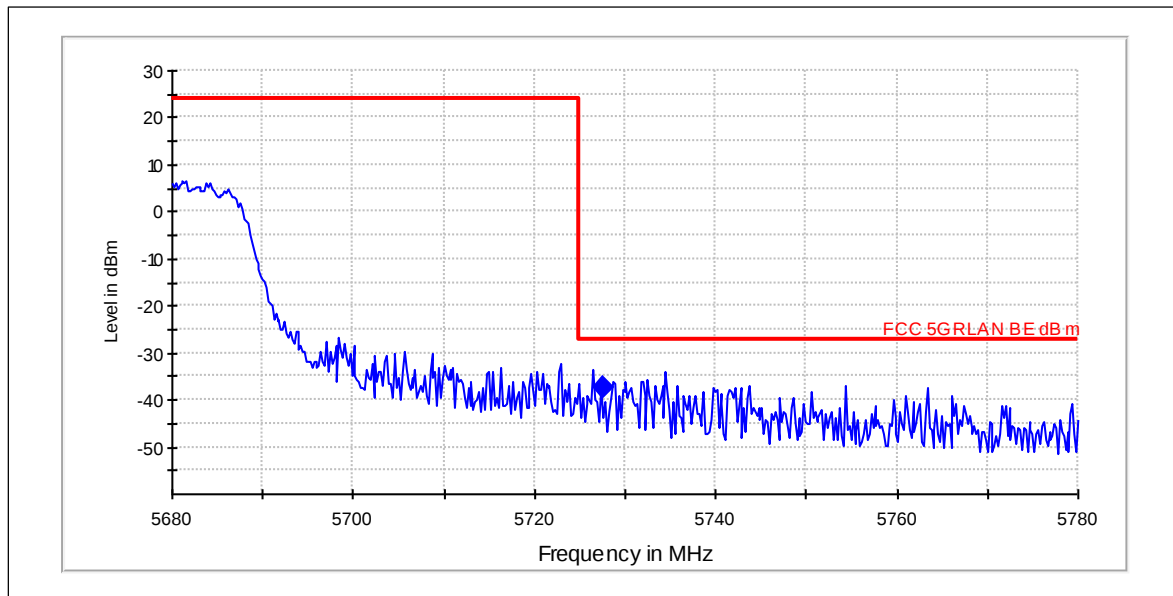
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5463.387	64.43	68.2	3.77	170	H	22	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5463.387	43.94	---	---	170	H	22	0	PASSED

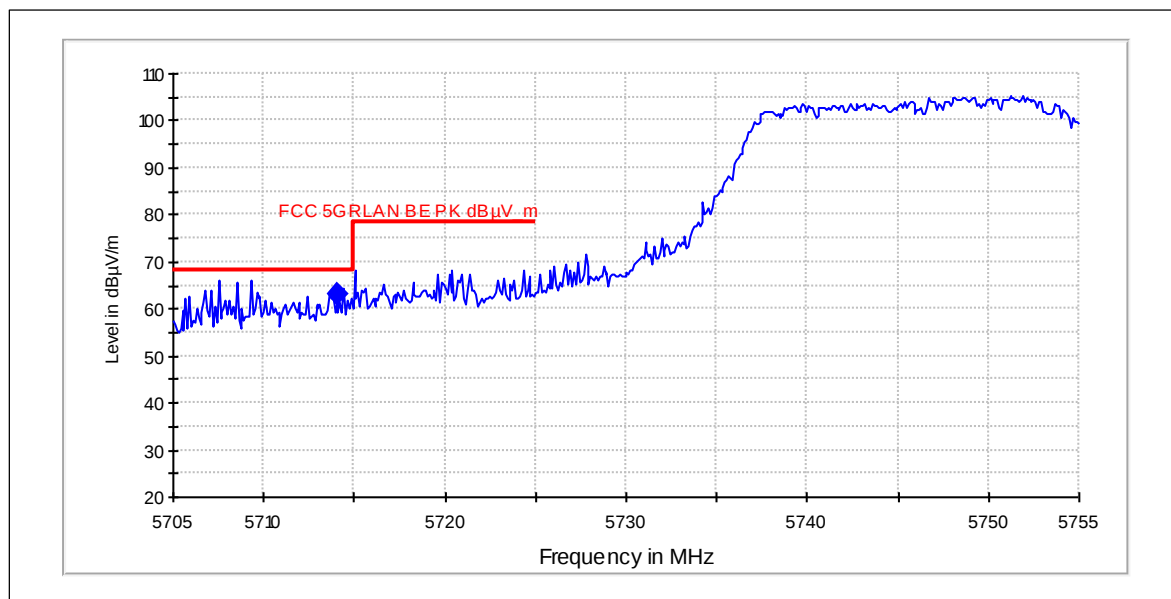
Channel 132+136 / 5670MHz, TxPwr 12.



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

Frequency [MHz]	MaxPeak [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5727.535	-37.51	-27	10.51	170	V	22	0	PASSED

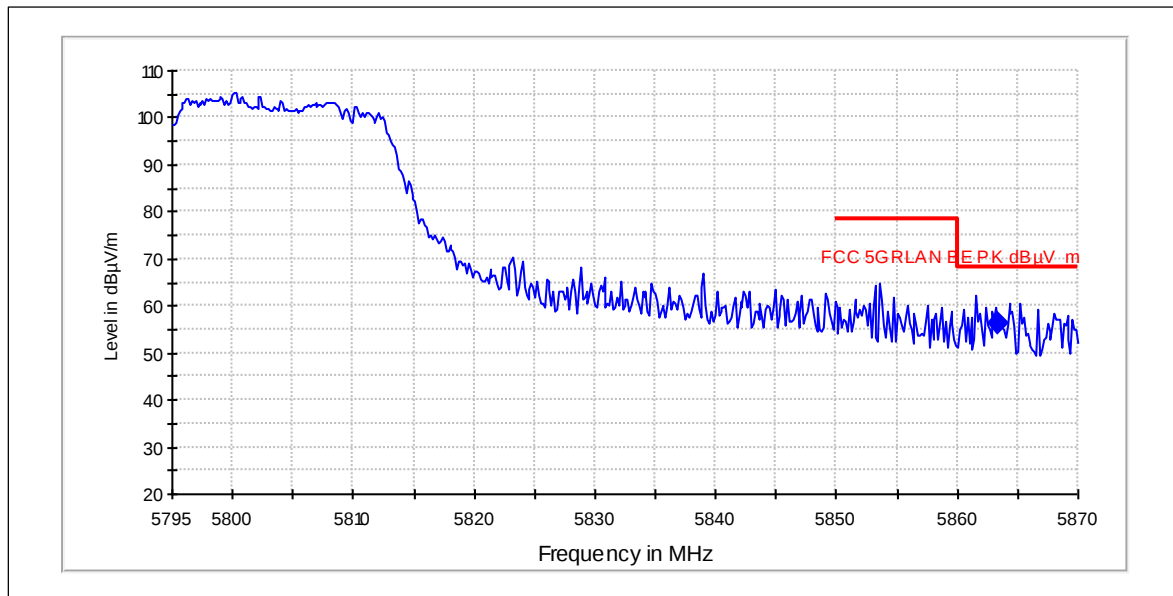
Channel 149+153 / 5755MHz.



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

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5714.098	63.13	68.23	5.1	170	H	22	0	PASSED

Channel 157+161 / 5795MHz.

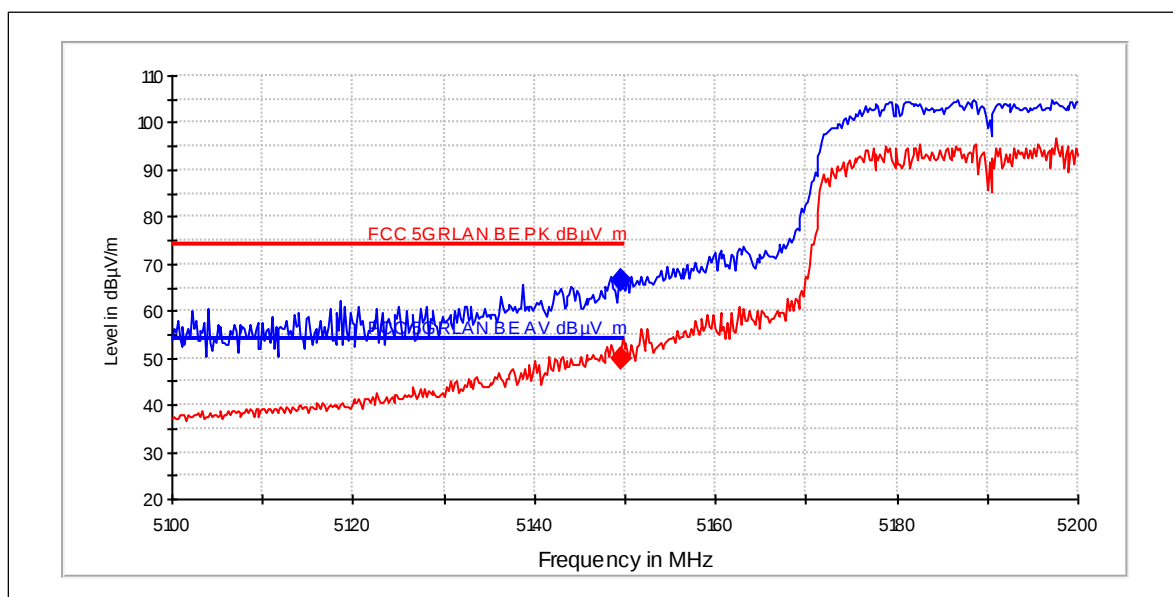


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5863.387	56.09	68.23	12.14	170	H	-8	0	PASSED

2.3.4 802.11n, QPSK modulation, 27.0 / 30.0 Mbps data rate.

Channel 36+40 / 5190MHz.



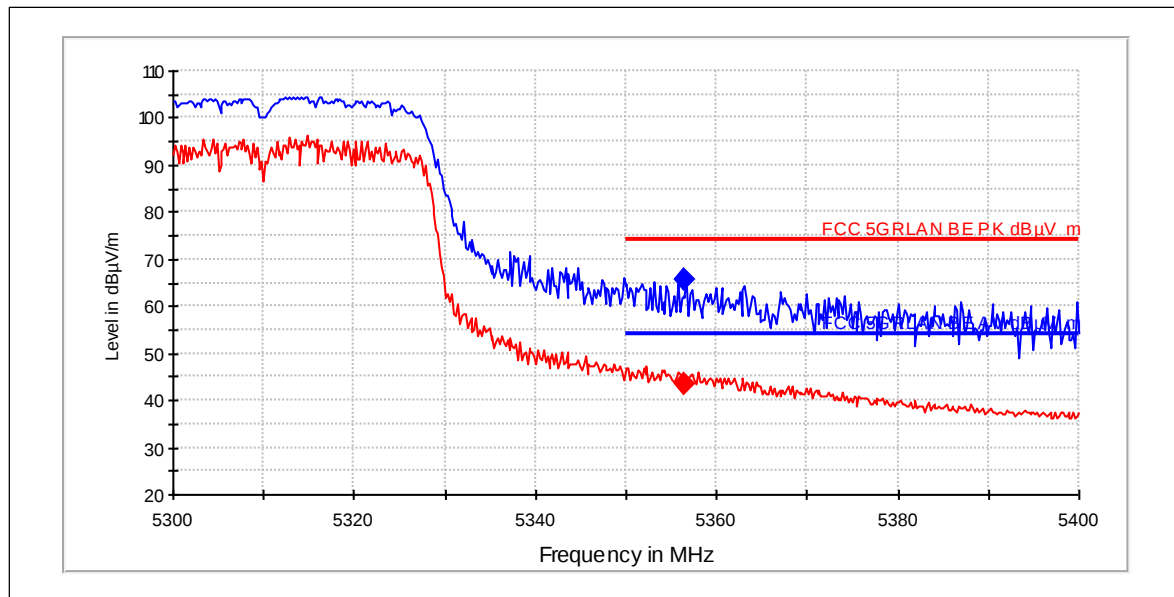
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.599	66.31	74	7.69	170	H	3	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.599	49.77	54	4.23	170	H	3	0	PASSED

Channel 60+64 / 5310MHz.



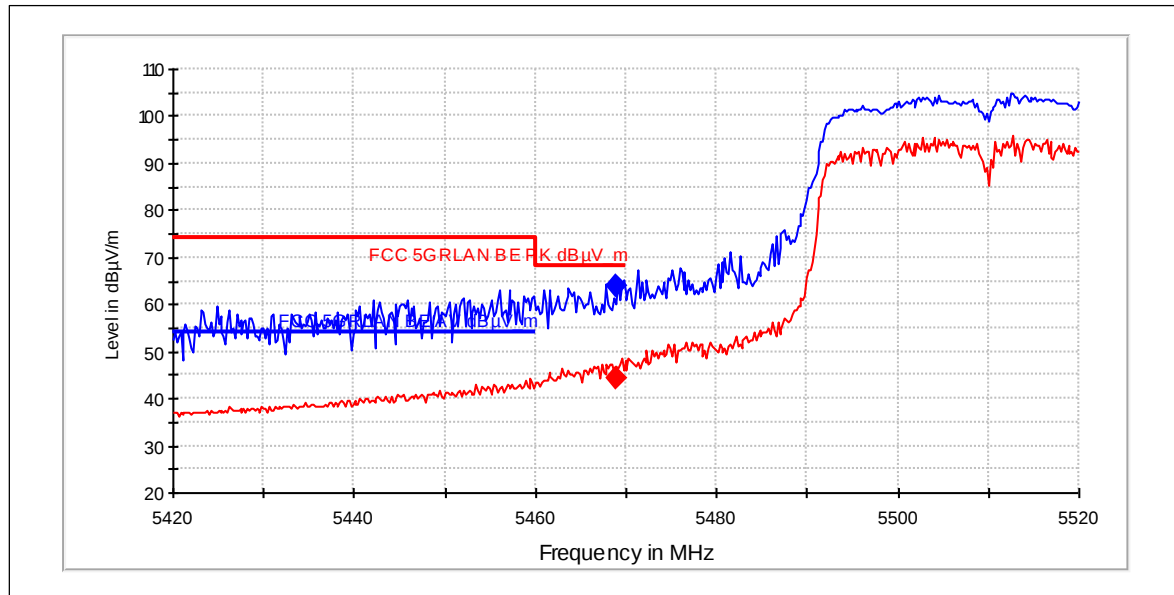
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5356.313	65.54	74	8.46	170	H	18	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5356.313	43.25	54	10.75	170	H	18	0	PASSED

Channel 100+104 / 5510MHz.



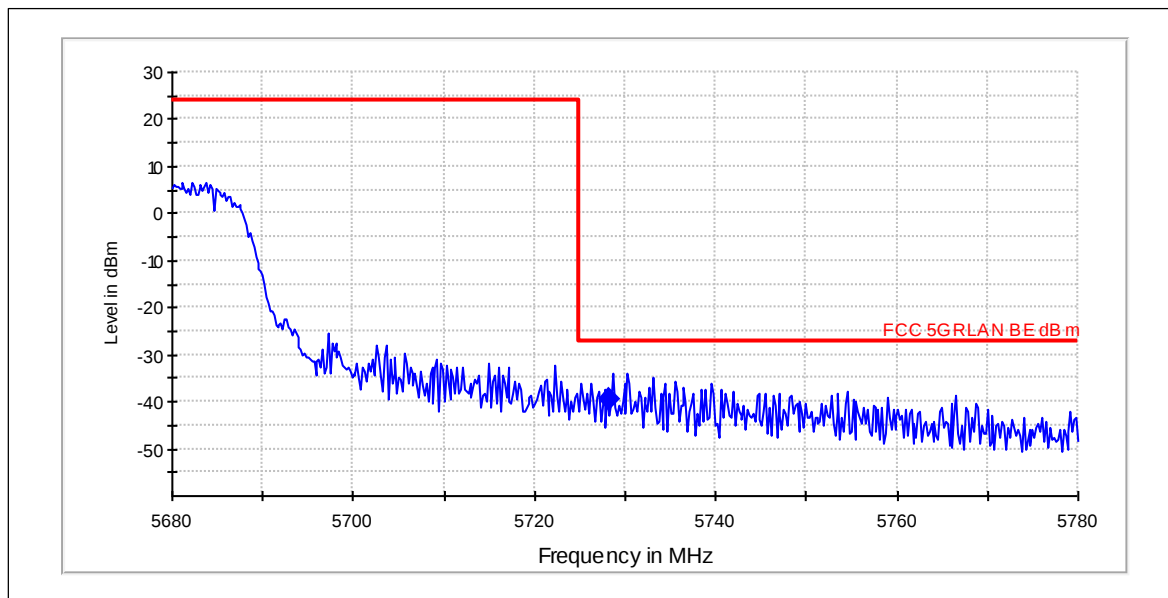
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5468.798	63.91	68.2	4.29	170	H	22	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5468.798	44.12	---	---	170	H	22	0	PASSED

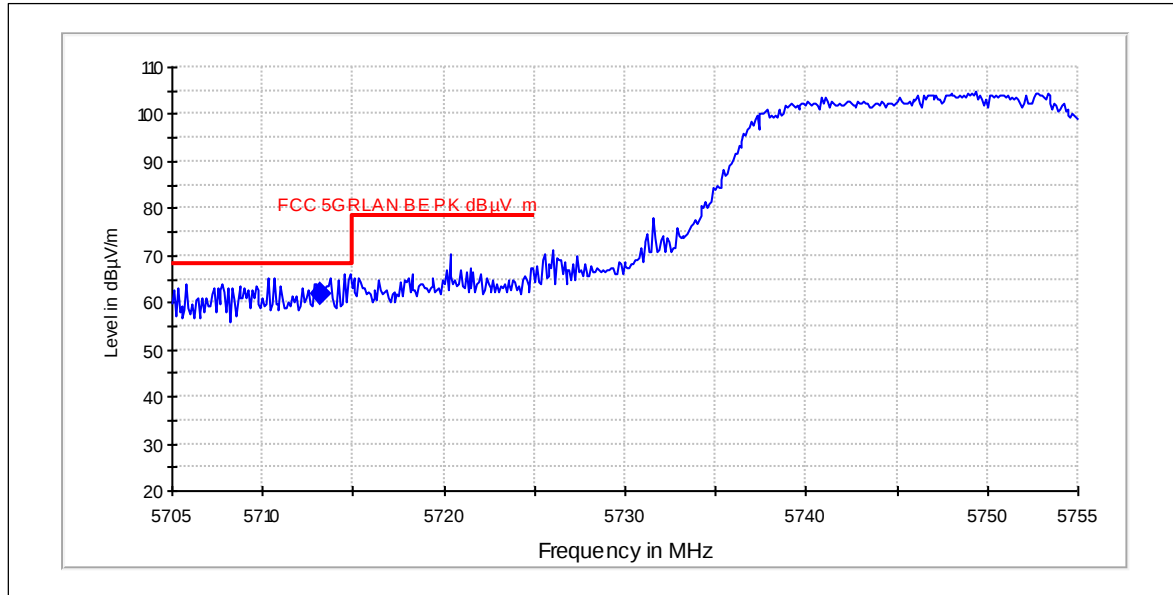
Channel 132+136 / 5670MHz.



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

Frequency [MHz]	MaxPeak [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5728.307	-39.5	-27	12.5	170	H	-4	0	PASSED

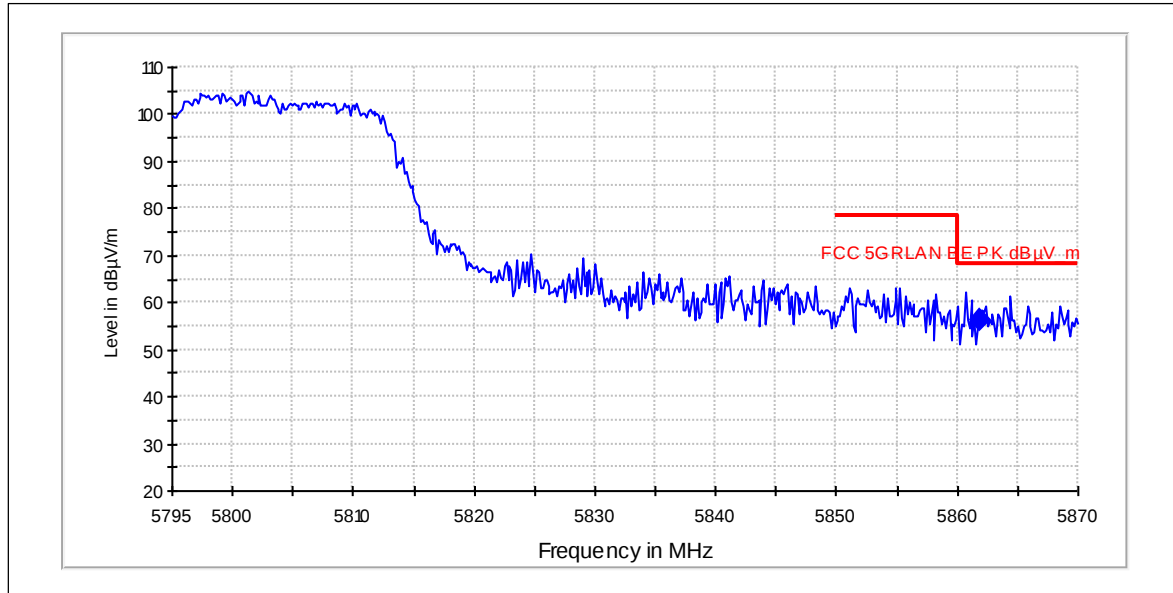
Channel 149+153 / 5755MHz.



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

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5713.216	62	68.23	6.23	170	H	22	0	PASSED

Channel 157+161 / 5795MHz.

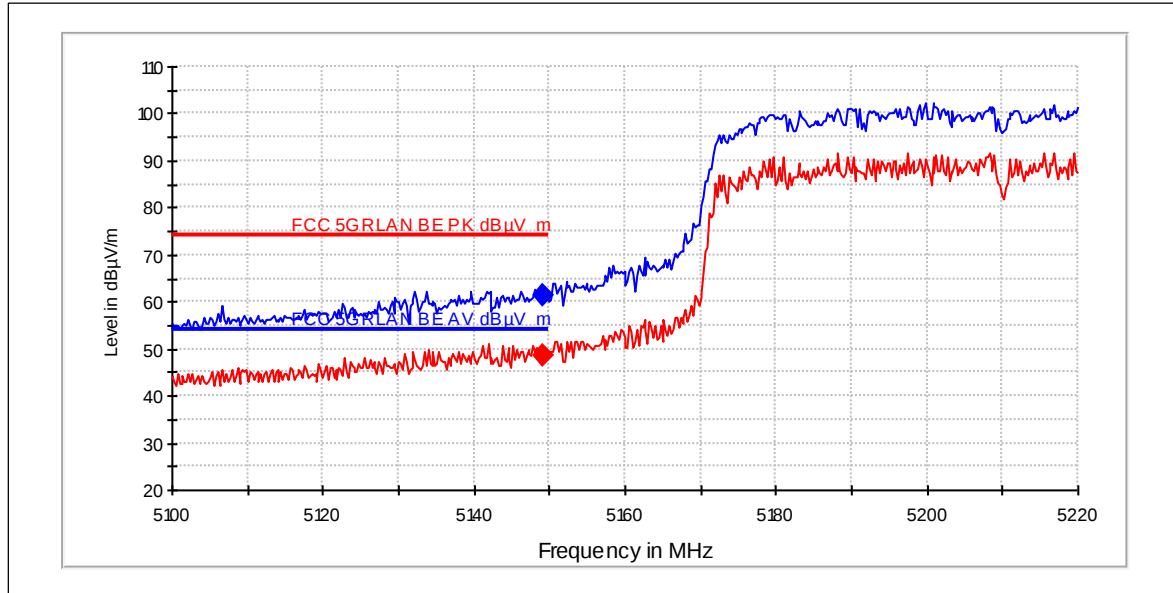


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5861.904	56.07	68.23	12.16	170	H	-10	0	PASSED

2.3.5 802.11ac, BPSK modulation, 29.3 / 32.5 Mbps data rate.

Channel 36-48 / 5210MHz.



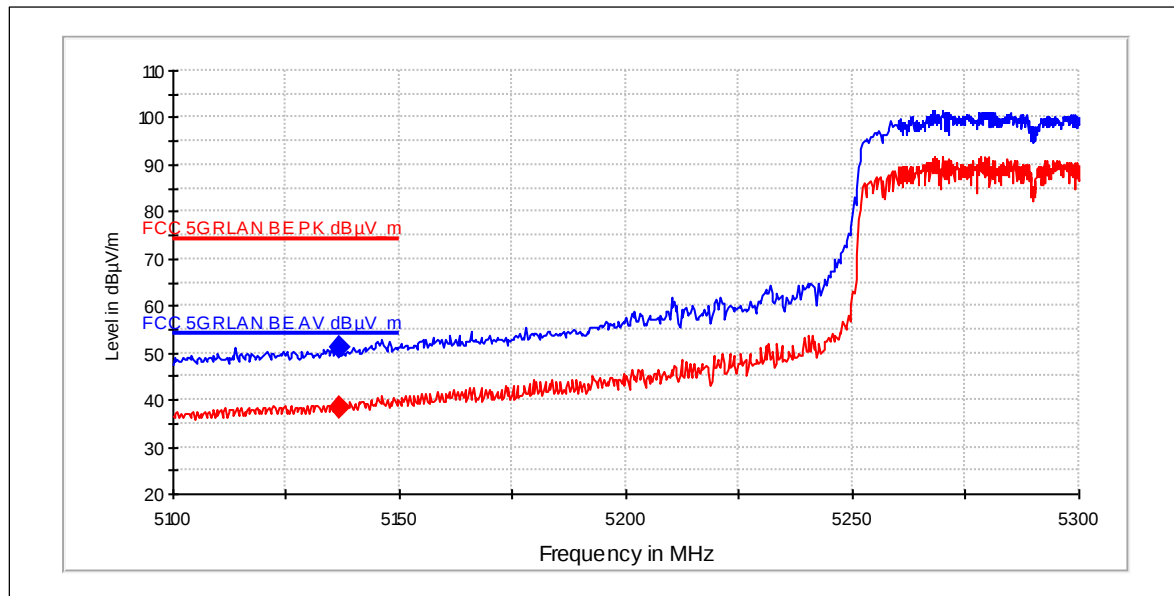
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.098	61.19	74	12.81	170	H	9	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.098	48.65	54	5.35	170	H	9	0	PASSED

Channel 52-64 / 5290MHz.



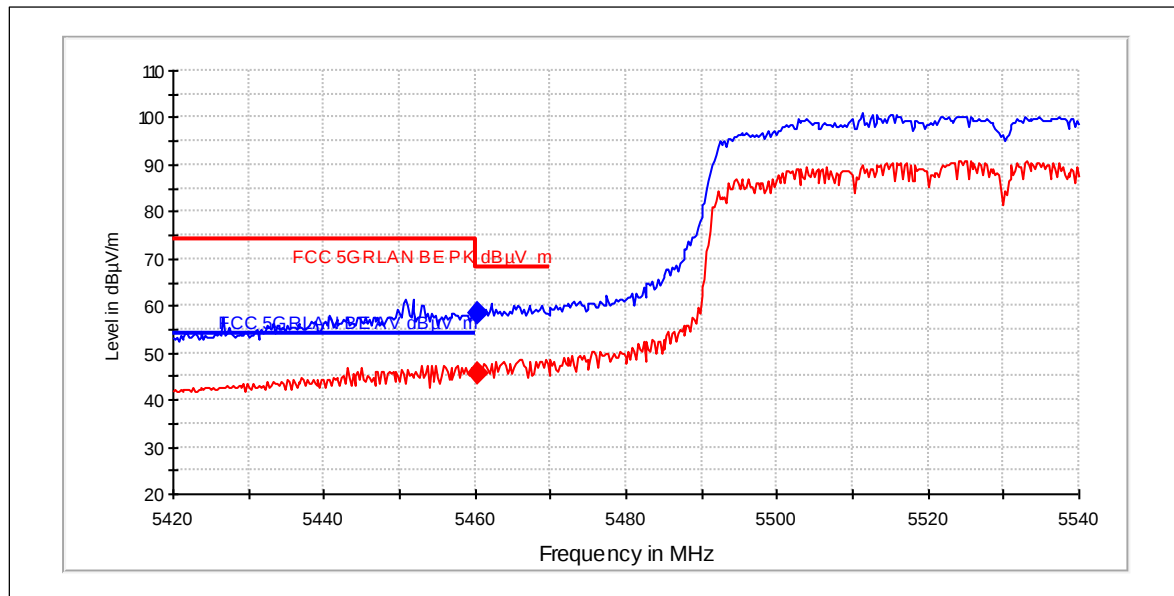
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5136.698	51.21	74	22.79	170	V	22	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5136.698	38.31	54	15.69	170	V	22	0	PASSED

Channel 100-112 / 5530MHz.



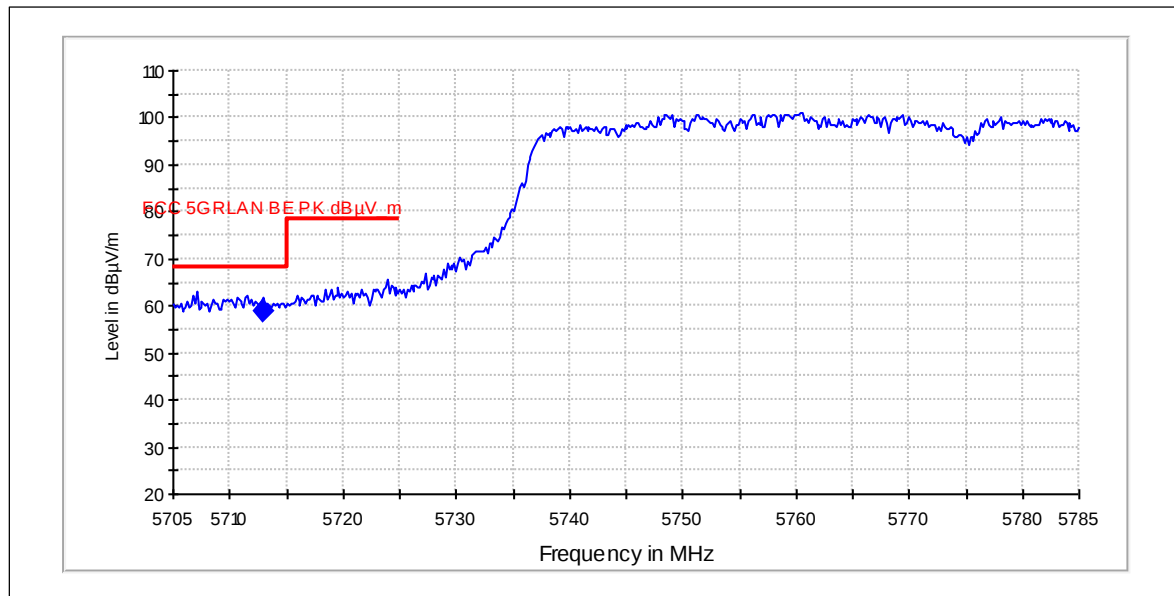
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5460.281	58.23	68.2	9.97	170	H	-4	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5460.281	45.45	---	---	170	H	-4	0	PASSED

Channel 149-161 / 5775MHz.

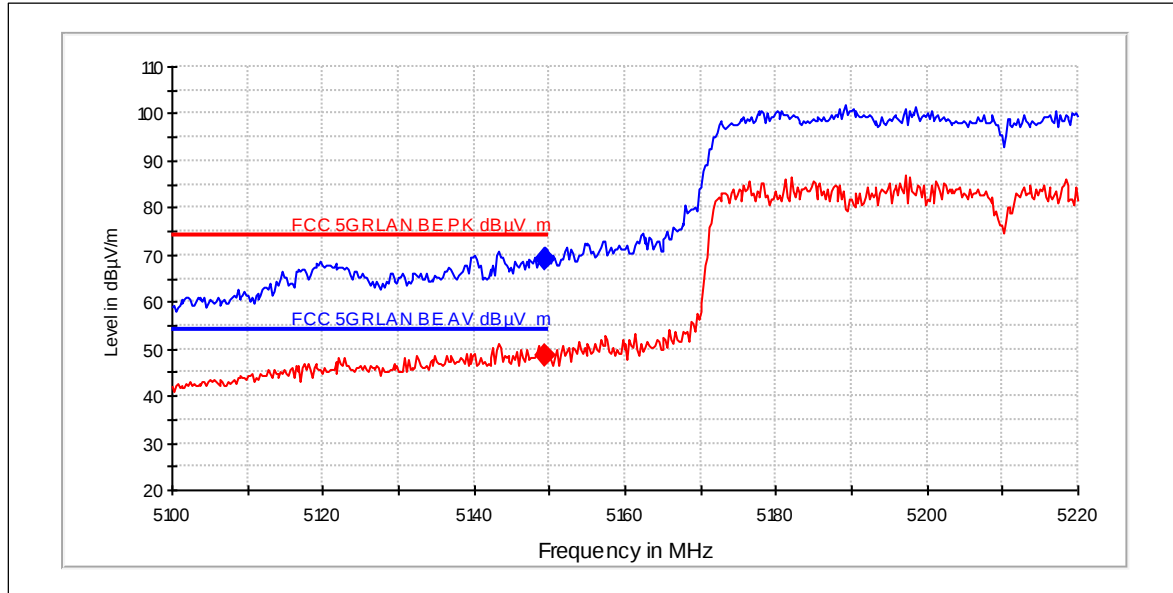


Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5712.936	58.65	68.23	9.58	170	H	3	0	PASSED

2.3.6 802.11ac, 16QAM modulation, 175.5 / 195.0 Mbps data rate.

Channel 36-48 / 5210MHz.



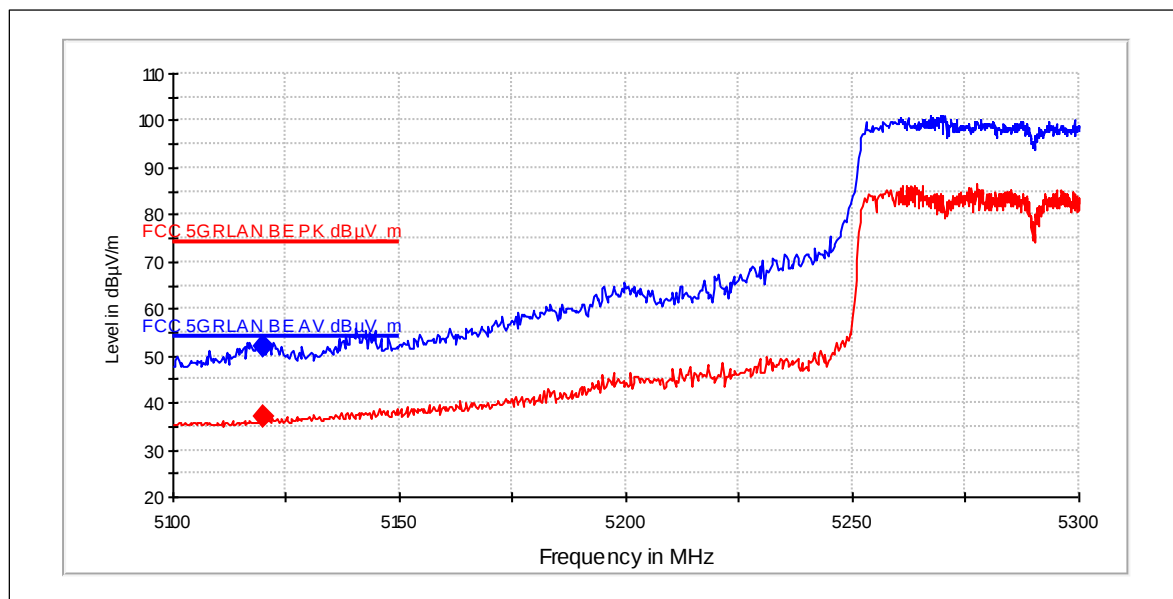
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.299	69.24	74	4.76	170	V	22	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5149.299	48.65	54	5.35	170	V	22	0	PASSED

Channel 52-64 / 5290MHz.



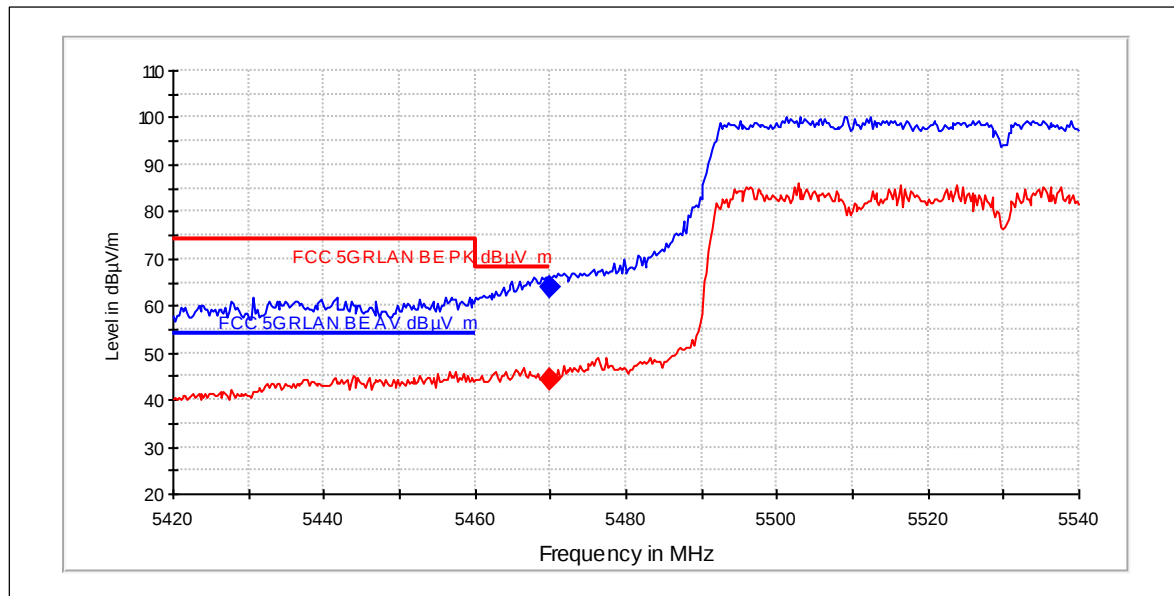
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5120.115	51.91	74	22.09	170	V	1	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5120.115	36.93	54	17.07	170	V	1	0	PASSED

Channel 100-112 / 5530MHz.



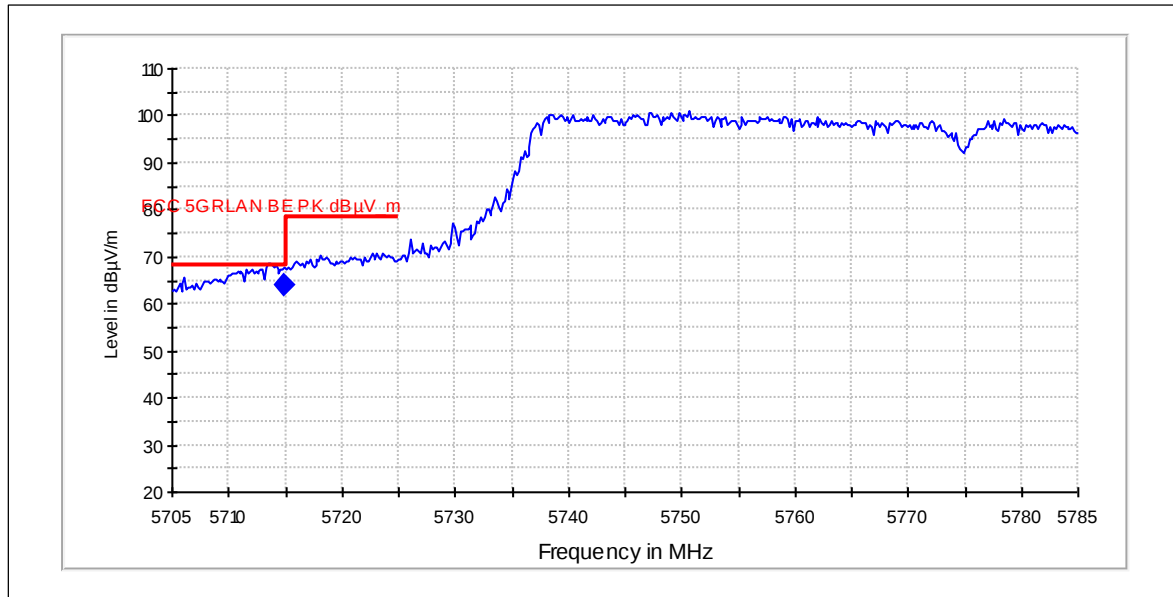
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5470	63.9	68.2	4.3	170	H	-1	0	PASSED

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

Frequency [MHz]	Average [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5470	44.42	---	---	170	H	-1	0	PASSED

Channel 149-161 / 5775MHz.



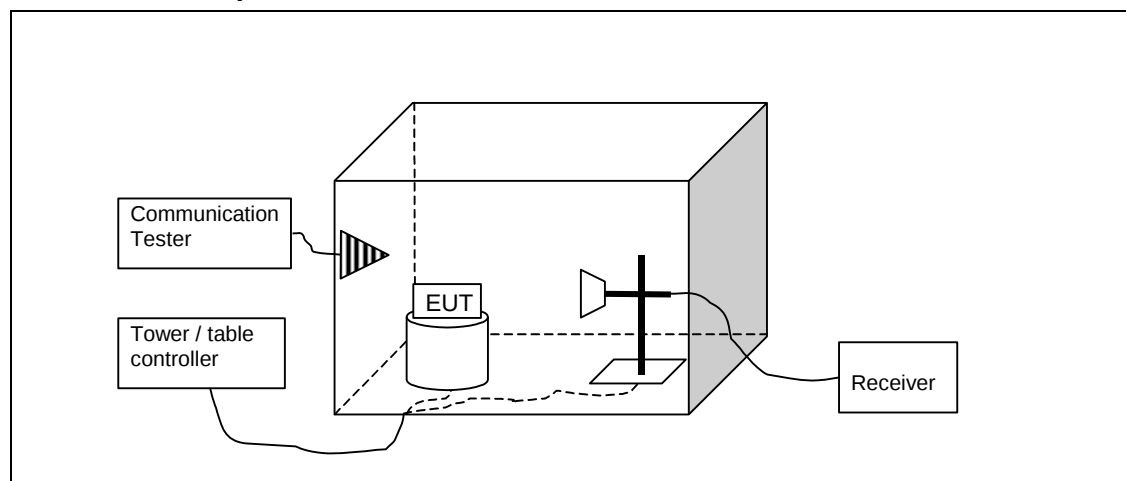
Peak (RBW: 1 MHz, VBW: 3 MHz)

Frequency [MHz]	MaxPeak [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Pol	Azimuth [deg]	Elevation [deg]	Results
5714.98	63.9	68.23	4.33	170	H	22	0	PASSED

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

EUT with DUT number	RM-1104, DUT 100206
Accessories with DUT numbers	BV-T5E, DUT 100208 ; AC-100E, DUT 100196 ; WH-308, DUT 100195
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	MIMO Antenna 1 + Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23 / 45 / 101.9
Date of measurements	15-Jul-2015
Measured by	Kalle Hannila / Ville Mannermaa

3.1.1 Test setup



3.2. 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 is made up to 10th harmonic of the EUT highest TX channel.

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 – 5.15 GHz, 5.35 GHz – 40 GHz: -27
5470 - 5725	1 GHz – 5.47 GHz, 5.725 GHz – 40 GHz: -27
5725 - 5850	1 GHz – 5.715 GHz, 5.860 GHz – 40 GHz: -27 5.715 GHz – 5.725 GHz, 5.850 GHz – 5.860 GHz: -17

3.3. 5 GHz RLAN test results, MIMO Antenna 1 + Antenna 2

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]	Limit [dBμV/m]	Margin	Results
10359.3	52.37	415.432	41.17	11.2	68	15.86	PASSED
15548.3	49.59	301.648	40.49	9.1	74	24.39	PASSED
20724.6	55.88	622.3	40.58	15.3	74	18.1	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10359.3	39.49	94.297	28.29	11.2	---	---	PASSED
15548.3	36.38	65.917	27.28	9.1	54	17.62	PASSED
20724.6	42.74	137.088	27.44	15.3	54	11.26	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]	Limit [dBμV/m]	Margin	Results
5169.256	61.73	1220.394	57.73	4	68	6.5	PASSED
5170.619	63.69	1529.326	59.69	4	68	4.54	PASSED
5228.1	61.59	1200.881	57.99	3.6	68	6.64	PASSED
10399.7	52.95	444.12	41.35	11.6	68	15.28	PASSED
15598.3	49.51	298.882	40.31	9.2	74	24.47	PASSED
20798.2	55.64	605.341	40.24	15.4	74	18.34	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5169.256	44.25	163.117	40.25	4	---	---	PASSED
5170.619	46.06	200.909	42.06	4	---	---	PASSED
5228.1	46.47	210.62	42.87	3.6	---	---	PASSED
10399.7	39.61	95.609	28.01	11.6	---	---	PASSED
15598.3	36.49	66.757	27.29	9.2	54	17.51	PASSED
20798.2	43.06	142.233	27.66	15.4	54	10.94	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]	Limit [dBμV/m]	Margin	Results
10483.4	52.7	431.519	40.7	12	68	15.53	PASSED
15717.1	49.62	302.691	40.42	9.2	74	24.36	PASSED
20952.6	55.49	594.977	40.49	15	74	18.49	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10483.4	39.82	97.949	27.82	12	---	---	PASSED
15717.1	36.68	68.234	27.48	9.2	54	17.32	PASSED
20952.6	42.77	137.562	27.77	15	54	11.23	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]	Limit [dBμV/m]	Margin	Results
10516.6	52.65	429.042	40.65	12	68	15.58	PASSED
15774.6	50.57	337.676	41.17	9.4	74	23.41	PASSED
21041.8	55.63	604.644	40.43	15.2	74	18.35	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10516.6	39.73	96.939	27.73	12	---	---	PASSED
15774.6	36.75	68.786	27.35	9.4	54	17.25	PASSED
21041.8	42.93	140.12	27.73	15.2	54	11.07	PASSED

Channel 60 / 5300MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.606	25.86	19.634	43.86	-18	44	17.66	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5271.359	62.45	1325.867	58.95	3.5	68	5.78	PASSED
5328.4	63.85	1557.758	60.25	3.6	68	4.38	PASSED
10598.8	52.31	412.572	40.91	11.4	68	15.92	PASSED
15899.5	49.6	301.995	40.7	8.9	74	24.38	PASSED
21199.1	56.46	665.273	41.16	15.3	74	17.52	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5271.359	44.1	160.325	40.6	3.5	---	---	PASSED
5328.4	44.86	174.985	41.26	3.6	---	---	PASSED
10598.8	39.15	90.678	27.75	11.4	---	---	PASSED
15899.5	36.18	64.417	27.28	8.9	54	17.82	PASSED

21199.1	42.85	138.835	27.55	15.3	54	11.15	PASSED
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Channel 64 / 5320MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10634.1	53.08	450.817	41.78	11.3	74	20.9	PASSED
15960	53.84	492.04	44.84	9	74	20.14	PASSED
21286.9	55.89	623.017	40.29	15.6	74	18.09	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10634.1	40.05	100.577	28.75	11.3	54	13.95	PASSED
15960	38.19	81.19	29.19	9	54	15.81	PASSED
21286.9	42.91	139.798	27.31	15.6	54	11.09	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]	Limit [dBμV/m]	Margin	Results
10998	52.74	433.511	40.94	11.8	74	21.24	PASSED
16498.9	50.52	335.738	41.12	9.4	68	17.71	PASSED
21992.6	55.32	583.445	39.92	15.4	68	12.91	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10998	39.78	97.499	27.98	11.8	54	14.22	PASSED
16498.9	37.12	71.779	27.72	9.4	---	---	PASSED
21992.6	42.06	126.765	26.66	15.4	---	---	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]	Limit [dBμV/m]	Margin	Results
5552	60.74	1088.93	55.94	4.8	68	7.49	PASSED
11159.3	52.33	413.523	40.93	11.4	74	21.65	PASSED
16738	49.28	291.072	39.38	9.9	68	18.95	PASSED
22318.6	54.53	532.721	39.43	15.1	74	19.45	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5552	42.38	131.522	37.58	4.8	---	---	PASSED
11159.3	39.64	95.94	28.24	11.4	54	14.36	PASSED
16738	36.58	67.453	26.68	9.9	---	---	PASSED
22318.6	41.66	121.06	26.56	15.1	54	12.34	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]	Limit [dBμV/m]	Margin	Results
11408.4	52.61	427.071	40.71	11.9	74	21.37	PASSED
17108.4	49.77	307.964	39.17	10.6	68	18.46	PASSED
22792.9	55.66	606.736	40.26	15.4	74	18.32	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11408.4	39.7	96.605	27.8	11.9	54	14.3	PASSED
17108.4	36.87	69.743	26.27	10.6	---	---	PASSED
22792.9	42.83	138.516	27.43	15.4	54	11.17	PASSED

Channel 149 / 5745MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11484.7	53.37	466.122	41.17	12.2	74	20.61	PASSED
17233.2	51.28	366.438	40.38	10.9	68	16.95	PASSED
22987.5	54.39	524.204	39.29	15.1	74	19.59	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11484.7	40.28	103.276	28.08	12.2	54	13.72	PASSED
17233.2	37.71	76.825	26.81	10.9	---	---	PASSED
22987.5	41.19	114.683	26.09	15.1	54	12.81	PASSED

Channel 157 / 5785MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.586	25.26	18.323	43.26	-18	44	18.26	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5764.6	64.06	1595.879	58.56	5.5	68	4.17	PASSED
5805	64.09	1601.401	58.39	5.7	68	4.14	PASSED
11563.9	53.04	448.745	41.24	11.8	74	20.94	PASSED
17355.5	50.13	320.996	40.03	10.1	68	18.1	PASSED
23146.1	54.77	547.646	39.97	14.8	68	13.46	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5764.6	49.62	302.691	44.12	5.5	---	---	PASSED
5805	47.38	233.884	41.68	5.7	---	---	PASSED
11563.9	39.84	98.175	28.04	11.8	54	14.16	PASSED
17355.5	37.06	71.285	26.96	10.1	---	---	PASSED

23146.1	41.23	115.213	26.43	14.8	---	---	PASSED
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Channel 165 / 5825MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11650.9	52.75	434.01	41.55	11.2	74	21.23	PASSED
17426.4	50.25	325.462	40.35	9.9	68	17.98	PASSED
23303.4	55.26	579.429	39.66	15.6	68	12.97	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11650.9	39.57	95.17	28.37	11.2	54	14.43	PASSED
17426.4	37.05	71.203	27.15	9.9	---	---	PASSED
23303.4	42.55	134.122	26.95	15.6	---	---	PASSED

3.3.2 802.11a, QPSK modulation, 18 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]	Limit [dBμV/m]	Margin	Results
10358.6	52.2	407.38	41	11.2	68	16.03	PASSED
15548.1	49.72	306.196	40.62	9.1	74	24.26	PASSED
20713	55.7	609.537	40.3	15.4	74	18.28	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10358.6	39.35	92.79	28.15	11.2	---	---	PASSED
15548.1	36.32	65.464	27.22	9.1	54	17.68	PASSED
20713	42.55	134.122	27.15	15.4	54	11.45	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]	Limit [dBμV/m]	Margin	Results
5167.171	58.71	861.986	54.71	4	68	9.52	PASSED
5171.9	61.59	1200.881	57.59	4	68	6.64	PASSED
5228.5	60.94	1114.295	57.34	3.6	68	7.29	PASSED
10399.1	52.4	416.869	40.8	11.6	68	15.83	PASSED
15601.3	49.23	289.401	40.03	9.2	74	24.75	PASSED
20798.3	56.15	641.948	40.75	15.4	74	17.83	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
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5167.171	42.95	140.443	38.95	4	---	---	PASSED
5171.9	45.75	193.865	41.75	4	---	---	PASSED
5228.5	44.87	175.186	41.27	3.6	---	---	PASSED
10399.1	39.53	94.733	27.93	11.6	---	---	PASSED
15601.3	36.43	66.298	27.23	9.2	54	17.57	PASSED
20798.3	42.99	141.091	27.59	15.4	54	11.01	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]	Limit [dBμV/m]	Margin	Results
10473.7	53.26	460.257	41.36	11.9	68	14.97	PASSED
15718.6	49.5	298.538	40.3	9.2	74	24.48	PASSED
20965	55.84	619.441	40.84	15	74	18.14	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10473.7	39.71	96.716	27.81	11.9	---	---	PASSED
15718.6	36.54	67.143	27.34	9.2	54	17.46	PASSED
20965	42.96	140.605	27.96	15	54	11.04	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]	Limit [dBμV/m]	Margin	Results
10510.4	53	446.684	41	12	68	15.23	PASSED
15779.7	50.41	331.513	41.01	9.4	74	23.57	PASSED
21044.5	55.51	596.348	40.31	15.2	74	18.47	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10510.4	39.76	97.275	27.76	12	---	---	PASSED
15779.7	36.88	69.823	27.48	9.4	54	17.12	PASSED
21044.5	42.87	139.155	27.67	15.2	54	11.13	PASSED

Channel 60 / 5300MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.582	27.1	22.646	45.1	-18	44	16.42	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5270.6	60.24	1028.016	56.74	3.5	68	7.99	PASSED
5328.4	59.77	973.868	56.17	3.6	68	8.46	PASSED
10598.7	52.27	410.677	40.87	11.4	68	15.96	PASSED

15901.9	49.34	293.089	40.44	8.9	74	24.64	PASSED
21198.9	56.3	653.131	41	15.3	74	17.68	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5270.6	42.97	140.767	39.47	3.5	---	---	PASSED
5328.4	44.96	177.011	41.36	3.6	---	---	PASSED
10598.7	39.16	90.782	27.76	11.4	---	---	PASSED
15901.9	36.22	64.714	27.32	8.9	54	17.78	PASSED
21198.9	42.87	139.155	27.57	15.3	54	11.13	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]	Limit [dBμV/m]	Margin	Results
10649.9	52.86	439.542	41.46	11.4	74	21.12	PASSED
15961.7	53.13	453.419	44.23	8.9	74	20.85	PASSED
21278.9	55.68	608.135	39.98	15.7	74	18.3	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10649.9	39.61	95.609	28.21	11.4	54	14.39	PASSED
15961.7	38.29	82.13	29.39	8.9	54	15.71	PASSED
21278.9	42.88	139.316	27.18	15.7	54	11.12	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]	Limit [dBμV/m]	Margin	Results
10995.1	52.63	428.055	40.83	11.8	74	21.35	PASSED
16500.3	50.28	326.588	40.88	9.4	68	17.95	PASSED
21990.9	54.96	559.758	39.56	15.4	68	13.27	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10995.1	39.73	96.939	27.93	11.8	54	14.27	PASSED
16500.3	37.01	70.876	27.61	9.4	---	---	PASSED
21990.9	42.12	127.644	26.72	15.4	---	---	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]	Limit [dBμV/m]	Margin	Results
5551.9	57.93	787.952	53.13	4.8	68	10.3	PASSED
11159.7	52.77	435.011	41.37	11.4	74	21.21	PASSED
16740.7	50.32	328.095	40.42	9.9	68	17.91	PASSED

22321.4	54.55	533.949	39.35	15.2	74	19.43	PASSED
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Average (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5551.9	42.84	138.676	38.04	4.8	---	---	PASSED
11159.7	39.69	96.494	28.29	11.4	54	14.31	PASSED
16740.7	36.54	67.143	26.64	9.9	---	---	PASSED
22321.4	41.67	121.199	26.47	15.2	54	12.33	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]	Limit [dBμV/m]	Margin	Results
11400.9	53.08	450.817	41.18	11.9	74	20.9	PASSED
17105.9	49.4	295.121	38.8	10.6	68	18.83	PASSED
22796.3	56.15	641.948	40.85	15.3	74	17.83	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11400.9	39.56	95.06	27.66	11.9	54	14.44	PASSED
17105.9	36.71	68.47	26.11	10.6	---	---	PASSED
22796.3	42.8	138.038	27.5	15.3	54	11.2	PASSED

Channel 149 / 5745MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11484.2	53.76	487.528	41.56	12.2	74	20.22	PASSED
17236.3	50.8	346.737	39.9	10.9	68	17.43	PASSED
22987.1	54.43	526.623	39.33	15.1	74	19.55	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11484.2	40.3	103.514	28.1	12.2	54	13.7	PASSED
17236.3	37.12	71.779	26.22	10.9	---	---	PASSED
22987.1	41.18	114.551	26.08	15.1	54	12.82	PASSED

Channel 157 / 5785MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.598	27.24	23.014	45.24	-18	44	16.28	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5764.9	63.68	1527.566	58.18	5.5	68	4.55	PASSED
5805.1	63.19	1443.777	57.49	5.7	68	5.04	PASSED
11561.6	53.34	464.515	41.44	11.9	74	20.64	PASSED
17345.2	50.17	322.478	39.97	10.2	68	18.06	PASSED
23133.8	54.36	522.396	39.56	14.8	68	13.87	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5764.9	49.85	310.814	44.35	5.5	---	---	PASSED
5805.1	46.12	202.302	40.42	5.7	---	---	PASSED
11561.6	39.93	99.197	28.03	11.9	54	14.07	PASSED
17345.2	37.16	72.111	26.96	10.2	---	---	PASSED
23133.8	41.29	116.011	26.49	14.8	---	---	PASSED

Channel 165 / 5825MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11650.9	52.75	434.01	41.55	11.2	74	21.23	PASSED
17426.4	50.25	325.462	40.35	9.9	68	17.98	PASSED
23303.4	55.26	579.429	39.66	15.6	68	12.97	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11650.9	39.57	95.17	28.37	11.2	54	14.43	PASSED
17426.4	37.05	71.203	27.15	9.9	---	---	PASSED
23303.4	42.55	134.122	26.95	15.6	---	---	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]	Limit [dBμV/m]	Margin	Results
5128.516	64.38	1655.77	60.28	4.1	74	9.6	PASSED
5248.1	62.57	1344.312	59.07	3.5	68	5.66	PASSED
5269.644	58.95	886.135	55.45	3.5	68	9.28	PASSED
10384	52.34	414	40.94	11.4	68	15.89	PASSED
15569.9	49.03	282.813	40.03	9	74	24.95	PASSED
20759.6	55.61	603.254	40.31	15.3	74	18.37	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5128.516	48.72	272.898	44.62	4.1	54	5.28	PASSED
5248.1	45.85	196.11	42.35	3.5	---	---	PASSED
5269.644	40.77	109.27	37.27	3.5	---	---	PASSED
10384	39.38	93.111	27.98	11.4	---	---	PASSED
15569.9	36.16	64.269	27.16	9	54	17.84	PASSED
20759.6	42.71	136.616	27.41	15.3	54	11.29	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]	Limit [dBμV/m]	Margin	Results
10468.5	52.67	430.031	40.67	12	68	15.56	PASSED
15554.4	49.58	301.301	40.58	9	74	24.4	PASSED
20677.8	55.23	577.431	39.53	15.7	74	18.75	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10468.5	39.7	96.605	27.7	12	---	---	PASSED
15554.4	36.24	64.863	27.24	9	54	17.76	PASSED
20677.8	42.59	134.741	26.89	15.7	54	11.41	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]	Limit [dBμV/m]	Margin	Results
5185.391	56.02	632.412	52.02	4	68	12.21	PASSED
5189.537	57.19	723.602	53.19	4	68	11.04	PASSED
5210.917	60.72	1086.426	56.92	3.8	68	7.51	PASSED
10544	52.29	411.623	40.59	11.7	68	15.94	PASSED
15806.3	49.45	296.825	40.05	9.4	74	24.53	PASSED
21077	55.82	618.016	40.62	15.2	74	18.16	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5185.391	37.32	73.451	33.32	4	---	---	PASSED
5189.537	37.68	76.56	33.68	4	---	---	PASSED
5210.917	43.62	151.705	39.82	3.8	---	---	PASSED
10544	39.74	97.051	28.04	11.7	---	---	PASSED
15806.3	36.44	66.374	27.04	9.4	54	17.56	PASSED
21077	42.4	131.826	27.2	15.2	54	11.6	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]	Limit [dBμV/m]	Margin	Results
10600	52.72	432.514	41.32	11.4	68	15.51	PASSED
15927.7	51.72	385.478	42.82	8.9	74	22.26	PASSED
21242.8	56.25	649.382	40.85	15.4	74	17.73	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10600	39.16	90.782	27.76	11.4	54	14.84	PASSED
15927.7	37.79	77.535	28.89	8.9	54	16.21	PASSED
21242.8	43.3	146.218	27.9	15.4	54	10.7	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]	Limit [dBμV/m]	Margin	Results
11008.6	53.35	465.05	41.45	11.9	74	20.63	PASSED
16520.4	49.16	287.078	39.76	9.4	68	19.07	PASSED
22023.1	55.25	578.762	40.05	15.2	74	18.73	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11008.6	39.79	97.611	27.89	11.9	54	14.21	PASSED
16520.4	36.09	63.753	26.69	9.4	---	---	PASSED
22023.1	42.08	127.057	26.88	15.2	54	11.92	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]	Limit [dBμV/m]	Margin	Results
5490.072	59.45	938.642	55.05	4.4	68	8.78	PASSED
5614.29	60.01	1001.152	55.01	5	68	8.22	PASSED
5630.348	57.05	712.033	52.05	5	68	11.18	PASSED
11096.2	53.2	457.088	41.5	11.7	74	20.78	PASSED

16648	49.65	303.739	39.75	9.9	68	18.58	PASSED
22203.8	55.71	610.239	40.31	15.4	74	18.27	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5490.072	40.49	105.803	36.09	4.4	---	---	PASSED
5614.29	40.12	101.391	35.12	5	---	---	PASSED
5630.348	37.3	73.282	32.3	5	---	---	PASSED
11096.2	40.18	102.094	28.48	11.7	54	13.82	PASSED
16648	36.57	67.375	26.67	9.9	---	---	PASSED
22203.8	42.92	139.959	27.52	15.4	54	11.08	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]	Limit [dBμV/m]	Margin	Results
11322.7	52.53	423.156	41.23	11.3	74	21.45	PASSED
17023.1	49.06	283.792	38.86	10.2	68	19.17	PASSED
22664.9	56	630.957	40.3	15.7	74	17.98	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11322.7	39.51	94.515	28.21	11.3	54	14.49	PASSED
17023.1	36.12	63.973	25.92	10.2	---	---	PASSED
22664.9	42.7	136.458	27	15.7	54	11.3	PASSED

Channel 149+153 / 5755MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5678.387	55.84	619.441	50.64	5.2	68	12.39	PASSED
5684.458	56.97	705.505	51.77	5.2	68	11.26	PASSED
5695.807	59.09	900.534	53.89	5.2	68	9.14	PASSED
11513.1	53.27	460.787	41.17	12.1	74	20.71	PASSED
17261.1	51.26	365.595	40.46	10.8	68	16.97	PASSED
23017.6	54.82	550.808	39.72	15.1	74	19.16	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5678.387	37.16	72.111	31.96	5.2	---	---	PASSED
5684.458	37.67	76.472	32.47	5.2	---	---	PASSED
5695.807	42.12	127.644	36.92	5.2	---	---	PASSED
11513.1	39.88	98.628	27.78	12.1	54	14.12	PASSED
17261.1	37.11	71.697	26.31	10.8	---	---	PASSED
23017.6	41.23	115.213	26.13	15.1	54	12.77	PASSED

Channel 157+161 / 5795MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11600.9	52.28	411.15	40.88	11.4	74	21.7	PASSED
17378.2	50.71	343.163	40.61	10.1	68	17.52	PASSED
23175.8	56.01	631.684	40.91	15.1	68	12.22	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11600.9	39.38	93.111	27.98	11.4	54	14.62	PASSED
17378.2	37.39	74.046	27.29	10.1	---	---	PASSED
23175.8	42.48	133.045	27.38	15.1	---	---	PASSED

3.3.4 802.11n, QPSK modulation, 27.0 / 30.0 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]	Limit [dBμV/m]	Margin	Results
5123.126	63.2	1445.44	59	4.2	74	10.78	PASSED
5133.239	64.73	1723.852	60.63	4.1	74	9.25	PASSED
5250.5	62.03	1263.281	58.53	3.5	68	6.2	PASSED
10377.4	52.81	437.019	41.51	11.3	68	15.42	PASSED
15569.6	49.43	296.142	40.43	9	74	24.55	PASSED
20760.7	55.75	613.056	40.45	15.3	74	18.23	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5123.126	46.55	212.569	42.35	4.2	54	7.45	PASSED
5133.239	49.26	290.402	45.16	4.1	54	4.74	PASSED
5250.5	46.35	207.73	42.85	3.5	---	---	PASSED
10377.4	39.48	94.189	28.18	11.3	---	---	PASSED
15569.6	36.16	64.269	27.16	9	54	17.84	PASSED
20760.7	42.74	137.088	27.44	15.3	54	11.26	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]	Limit [dBμV/m]	Margin	Results
10459	52.82	437.522	40.82	12	68	15.41	PASSED
15569.7	49.3	291.743	40.3	9	74	24.68	PASSED
20660.2	55.6	602.56	39.9	15.7	74	18.38	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10459	39.77	97.387	27.77	12	---	---	PASSED
15569.7	36.18	64.417	27.18	9	54	17.82	PASSED
20660.2	42.72	136.773	27.02	15.7	54	11.28	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]	Limit [dBμV/m]	Margin	Results
5201.041	59.14	905.733	55.24	3.9	68	9.09	PASSED
5206.35	59.85	982.879	56.05	3.8	68	8.38	PASSED
5213.9	62.63	1353.63	58.93	3.7	68	5.6	PASSED
10541.1	52.56	424.62	40.86	11.7	68	15.67	PASSED
15810.2	49.15	286.748	39.75	9.4	74	24.83	PASSED
21078.4	56.08	636.796	40.88	15.2	74	17.9	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5201.041	40.46	105.439	36.56	3.9	---	---	PASSED
5206.35	43.58	151.008	39.78	3.8	---	---	PASSED
5213.9	44.97	177.215	41.27	3.7	---	---	PASSED
10541.1	39.65	96.051	27.95	11.7	---	---	PASSED
15810.2	36.32	65.464	26.92	9.4	54	17.68	PASSED
21078.4	42.41	131.978	27.21	15.2	54	11.59	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]	Limit [dBμV/m]	Margin	Results
10600	52.83	438.026	41.43	11.4	68	15.4	PASSED
15920.8	51.4	371.535	42.5	8.9	74	22.58	PASSED
21250.4	56.21	646.398	40.71	15.5	74	17.77	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
10600	39.16	90.782	27.76	11.4	54	14.84	PASSED
15920.8	37.75	77.179	28.85	8.9	54	16.25	PASSED
21250.4	43.36	147.231	27.86	15.5	54	10.64	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]	Limit [dBμV/m]	Margin	Results
11023.3	52.7	431.519	41	11.7	74	21.28	PASSED
16539.6	48.63	270.085	39.13	9.5	68	19.6	PASSED
22027.4	54.97	560.402	39.77	15.2	74	19.01	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11023.3	39.57	95.17	27.87	11.7	54	14.43	PASSED
16539.6	35.85	62.015	26.35	9.5	---	---	PASSED
22027.4	42.12	127.644	26.92	15.2	54	11.88	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]	Limit [dBμV/m]	Margin	Results
5470.715	56.72	685.488	52.32	4.4	68	11.51	PASSED
5480.562	59.73	969.393	55.33	4.4	68	8.5	PASSED
5614.59	60.65	1077.705	55.65	5	68	7.58	PASSED
11097.2	53.47	471.52	41.77	11.7	74	20.51	PASSED
16653	49.33	292.752	39.53	9.8	68	18.9	PASSED
22200.6	56	630.957	40.6	15.4	74	17.98	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5470.715	36.39	65.993	31.99	4.4	---	---	PASSED
5480.562	38.25	81.752	33.85	4.4	---	---	PASSED
5614.59	40.01	100.115	35.01	5	---	---	PASSED
11097.2	40.19	102.212	28.49	11.7	54	13.81	PASSED
16653	36.47	66.604	26.67	9.8	---	---	PASSED
22200.6	42.99	141.091	27.59	15.4	54	11.01	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]	Limit [dBμV/m]	Margin	Results
11335.8	52.47	420.243	41.07	11.4	74	21.51	PASSED
16996	49.78	308.319	39.68	10.1	68	18.45	PASSED
22673.6	56.05	634.6	40.45	15.6	74	17.93	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11335.8	39.69	96.494	28.29	11.4	54	14.31	PASSED
16996	36.07	63.606	25.97	10.1	---	---	PASSED
22673.6	42.89	139.476	27.29	15.6	54	11.11	PASSED

Channel 149+153 / 5755MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5684.665	56.97	705.505	51.77	5.2	68	11.26	PASSED
5699	60.22	1025.652	55.02	5.2	68	8.01	PASSED
5834.215	56.05	634.6	50.25	5.8	68	12.18	PASSED
11507.6	52.56	424.62	40.46	12.1	74	21.42	PASSED
17267.1	50.1	319.89	39.4	10.7	68	18.13	PASSED
23017.3	54.29	518.203	39.19	15.1	74	19.69	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5684.665	37.93	78.795	32.73	5.2	---	---	PASSED
5699	42.56	134.276	37.36	5.2	---	---	PASSED
5834.215	36.98	70.632	31.18	5.8	---	---	PASSED
11507.6	40.07	100.809	27.97	12.1	54	13.93	PASSED
17267.1	36.98	70.632	26.28	10.7	---	---	PASSED
23017.3	41.26	115.611	26.16	15.1	54	12.74	PASSED

Channel 157+161 / 5795MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11573.7	52.75	434.01	40.95	11.8	74	21.23	PASSED
17368	50.38	330.37	40.28	10.1	68	17.85	PASSED
23172.7	54.95	559.114	39.95	15	68	13.28	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
11573.7	39.88	98.628	28.08	11.8	54	14.12	PASSED
17368	37.25	72.862	27.15	10.1	---	---	PASSED
23172.7	42.39	131.674	27.39	15	---	---	PASSED

3.3.5 802.11ac, BPSK modulation, 29.3 / 32.5 Mbps data rate.

Channel 36-48 / 5210MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.582	27.07	22.568	45.07	-18	44	16.45	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5330.1	55.52	597.035	51.92	3.6	68	12.71	PASSED
5341.652	59.03	894.335	55.43	3.6	68	9.2	PASSED
10419.8	52.88	440.555	41.08	11.8	68	15.35	PASSED
15626	50.23	324.713	40.73	9.5	74	23.75	PASSED
20841	57	707.946	41.6	15.4	74	16.98	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5330.1	40.48	105.682	36.88	3.6	---	---	PASSED
5341.652	40.15	101.742	36.55	3.6	---	---	PASSED
10419.8	39.73	96.939	27.93	11.8	---	---	PASSED
15626	36.97	70.55	27.47	9.5	54	17.03	PASSED
20841	43.22	144.877	27.82	15.4	54	10.78	PASSED

Channel 52-64 / 5290MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.588	26.44	20.989	44.44	-18	44	17.08	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5166.124	55.16	572.796	51.16	4	68	13.07	PASSED
5167.619	56.17	643.428	52.17	4	68	12.06	PASSED
10577.6	52.49	421.211	41.09	11.4	68	15.74	PASSED
15870.6	48.55	267.609	39.65	8.9	74	25.43	PASSED
21165.5	55.37	586.813	40.17	15.2	74	18.61	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5166.124	40.97	111.815	36.97	4	---	---	PASSED
5167.619	40.3	103.514	36.3	4	---	---	PASSED
10577.6	39.29	92.151	27.89	11.4	---	---	PASSED
15870.6	35.64	60.534	26.74	8.9	54	18.36	PASSED
21165.5	42.68	136.144	27.48	15.2	54	11.32	PASSED

Channel 100-112 / 5530MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
201.606	26.89	22.105	44.89	-18	44	16.63	PASSED
201.612	26.91	22.156	44.91	-18	44	16.61	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5646.1	55.78	615.177	50.68	5.1	68	12.45	PASSED
11067.2	52.99	446.17	41.39	11.6	74	20.99	PASSED
16588.4	49.45	296.825	39.65	9.8	68	18.78	PASSED
22126.3	55.6	602.56	40.6	15	74	18.38	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5646.1	40.78	109.396	35.68	5.1	---	---	PASSED
11067.2	39.79	97.611	28.19	11.6	54	14.21	PASSED
16588.4	36.21	64.64	26.41	9.8	---	---	PASSED
22126.3	42.28	130.017	27.28	15	54	11.72	PASSED

Channel 149-161 / 5775MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
30	23.14	14.355	26.34	-3.2	40	16.86	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5650.586	54.3	518.8	49.2	5.1	68	13.93	PASSED
5655.462	55.16	572.796	50.06	5.1	68	13.07	PASSED
11542.8	52.88	440.555	40.88	12	74	21.1	PASSED
17321	50.8	346.737	40.2	10.6	68	17.43	PASSED
23092.7	54.84	552.077	39.54	15.3	74	19.14	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5650.586	38.92	88.308	33.82	5.1	---	---	PASSED
5655.462	39.59	95.389	34.49	5.1	---	---	PASSED
11542.8	39.94	99.312	27.94	12	54	14.06	PASSED
17321	37.53	75.249	26.93	10.6	---	---	PASSED
23092.7	41.23	115.213	25.93	15.3	54	12.77	PASSED

3.3.6 802.11ac, 16QAM modulation, 175.5 / 195.0 Mbps data rate.

Channel 36-48 / 5210MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5092.018	61.9	1244.515	57.7	4.2	74	12.08	PASSED
5330.4	58.21	813.767	54.61	3.6	68	10.02	PASSED
5349.552	55.31	582.774	51.71	3.6	68	12.92	PASSED
10426	52.43	418.312	40.63	11.8	68	15.8	PASSED
15632	50.28	326.588	40.88	9.4	74	23.7	PASSED
20845.6	56.25	649.382	40.85	15.4	74	17.73	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5092.018	41.77	122.603	37.57	4.2	54	12.23	PASSED
5330.4	39.34	92.683	35.74	3.6	---	---	PASSED
5349.552	36.61	67.686	33.01	3.6	---	---	PASSED
10426	39.75	97.163	27.95	11.8	---	---	PASSED
15632	36.87	69.743	27.47	9.4	54	17.13	PASSED
20845.6	43.24	145.211	27.84	15.4	54	10.76	PASSED

Channel 52-64 / 5290MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5164.764	59.79	976.113	55.79	4	68	8.44	PASSED
5164.89	60.57	1067.825	56.57	4	68	7.66	PASSED
5170.237	58.02	796.159	54.02	4	68	10.21	PASSED
10572	52.94	443.609	41.44	11.5	68	15.29	PASSED
15871.3	49.31	292.079	40.41	8.9	74	24.67	PASSED
21162	56.55	672.202	41.35	15.2	74	17.43	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5164.764	40.62	107.399	36.62	4	---	---	PASSED
5164.89	40.46	105.439	36.46	4	---	---	PASSED
5170.237	39.63	95.83	35.63	4	---	---	PASSED
10572	39.37	93.004	27.87	11.5	---	---	PASSED
15871.3	35.65	60.604	26.75	8.9	54	18.35	PASSED
21162	42.58	134.586	27.38	15.2	54	11.42	PASSED

Channel 100-112 / 5530MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5415.035	57.18	722.77	53.08	4.1	74	16.8	PASSED
5646.809	57.81	777.141	52.71	5.1	68	10.42	PASSED
5675.566	53.3	462.381	48.1	5.2	68	14.93	PASSED
11067.7	52.47	420.243	40.87	11.6	74	21.51	PASSED
16588.9	48.92	279.254	39.12	9.8	68	19.31	PASSED
22125.7	55.19	574.778	40.19	15	74	18.79	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5415.035	39.42	93.541	35.32	4.1	54	14.58	PASSED
5646.809	38.58	84.918	33.48	5.1	---	---	PASSED
5675.566	37.59	75.77	32.39	5.2	---	---	PASSED
11067.7	39.8	97.724	28.2	11.6	54	14.2	PASSED
16588.9	36.17	64.343	26.37	9.8	---	---	PASSED
22125.7	42.25	129.569	27.25	15	54	11.75	PASSED

Channel 149-161 / 5775MHz

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5643.448	55.1	568.853	50	5.1	68	13.13	PASSED
5656.349	59.84	981.748	54.74	5.1	68	8.39	PASSED
5891.6	54.79	548.909	48.49	6.3	68	13.44	PASSED
11543.1	52.49	421.211	40.49	12	74	21.49	PASSED
17323.3	50.8	346.737	40.2	10.6	68	17.43	PASSED
23103.2	54.32	519.996	39.12	15.2	74	19.66	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Limit [dBμV/m]	Margin	Results
5643.448	38.19	81.19	33.09	5.1	---	---	PASSED
5656.349	40.37	104.352	35.27	5.1	---	---	PASSED
5891.6	38.29	82.13	31.99	6.3	---	---	PASSED
11543.1	39.88	98.628	27.88	12	54	14.12	PASSED
17323.3	37.59	75.77	26.99	10.6	---	---	PASSED
23103.2	41.12	113.763	25.92	15.2	54	12.88	PASSED

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

EUT with DUT number	RM-1104, DUT 100205
Accessories with DUT numbers	BV-T5E, DUT 100210 ; AC-100E, DUT 100026 ; WH-308, DUT 100028
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	MIMO Antenna 1 + Antenna 2
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	19.4 / 66.5 / 102.3
Date of measurements	03-Jul-2015
Measured by	Tomi Lipponen

4.1. Test Setup



4.2. Test method and limit

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:

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

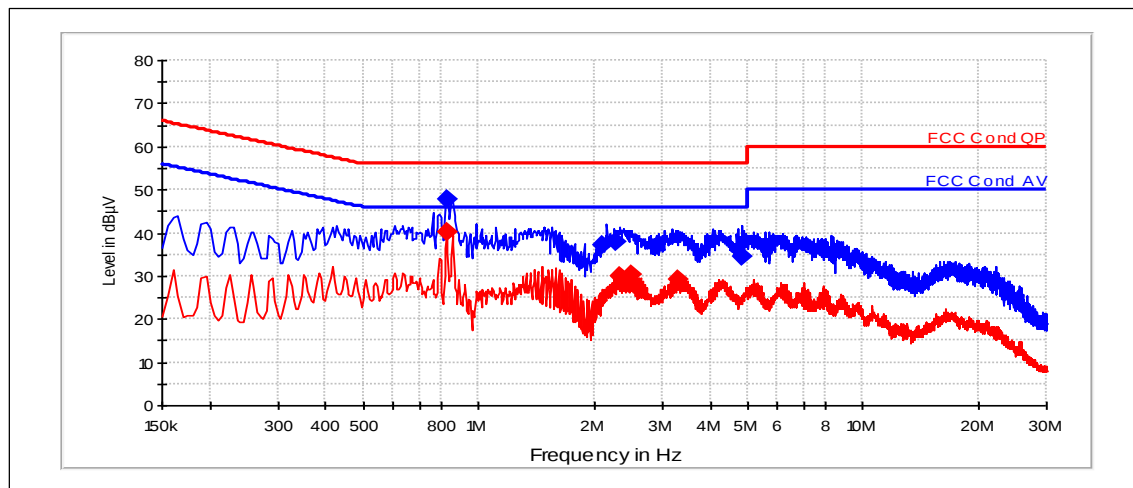
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

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, MIMO Antenna 1 + Antenna 2

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



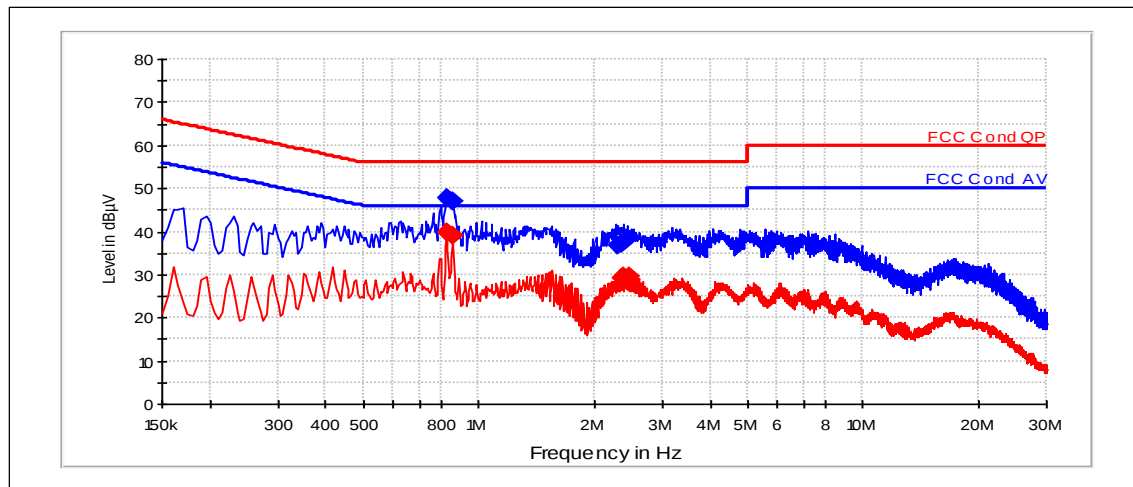
QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.825	47.6	N	PASSED
2.085	37.18	N	PASSED
2.275	37.99	N	PASSED
4.865	34.32	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.825	40.22	N	PASSED
2.315	29.88	N	PASSED
2.505	30.46	N	PASSED
3.3	29.27	N	PASSED

4.3.2 802.11a mode, QPSK modulation, 18 Mbps data rate



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.825	47.67	N	PASSED
0.855	46.94	N	PASSED
2.29	36.67	N	PASSED
2.365	37.19	N	PASSED
2.405	38.07	N	PASSED

Average (RBW: 9 kHz)

Frequency [MHz]	U [dBµV]	Line	Result
0.825	39.94	N	PASSED
0.855	39.12	N	PASSED
2.35	29.3	N	PASSED
2.38	29.71	N	PASSED
2.475	29.58	N	PASSED

5. Test Equipment

5.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B
6044	V-network	ESH3-Z6	R&S	-
2059	V-network	ESH3-Z6	R&S	-
1759	LISN 50 μ H	ESH3-Z5	R&S	22/24/27, 15C, 15B
2097	Pulse Limiter	ESH3-Z2	R&S	22/24/27, 15C, 15B
1999	Receiver	ESIB26	R&S	22/24/27, 15C, 15B
2180	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2390	Directional Coupler	DC2600	AR	-
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
2060	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
1759	LISN 50 μ H	ESH3-Z5	R&S	15C, 15B
2039	Power Supply	PL330QMD	Thurlby	15C, 15B
6036	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
2359	Temperature Test Chamber	VT4002	Vötsch	22/24/27
2352	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C
6109	Communication Tester	CMU200	R&S	22/24/27, 15C
6246	Power Supply	66332A	HP	22/24/27, 15C
1992	Signal Generator	83630B	Agilent	15C, 15B
6098	Signal Generator	8648C	Agilent	-
6046	Attenuator 10dB	8493C	Agilent	22/24/27, 15C
6047	Attenuator 20dB	8493C	Agilent	22/24/27, 15C
6045	Power splitter	11667B	Agilent	22/24/27, 15C
6247	Communication Tester	CBT	R&S	22/24/27, 15C 15B
6052	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6248	Power Supply	6632B	-	22/24/27, 15C 15B
6106	Spectrum Analyzer	FSP-30	R&S	22/24/27, 15C 15B
6113	Signal Generator	SMF100A	R&S	22/24/27, 15C 15B
6202	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6122	Power Splitter	11667B	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
6103	Bluetooth tester	CBT	R&S	22/24/27, 15C 15B
6250	Power Supply	6651A	Agilent	22/24/27, 15C 15B
6108	Communication Tester	CMU200	R&S	22/24/27, 15C 15B
6105	Spectrum Analyzer	FSV-30	R&S	22/24/27, 15C 15B
6251	Temperature Test Chamber	VT4002	Vötsch	22/24/27, 15C 15B
6243	Power Splitter	1167B	Agilent	22/24/27, 15C 15B
6245	Attenuator 10dB	BW-S10-2W263+	Mini-Circuits	22/24/27, 15C 15B
6244	Attenuator 20dB	BW-S20-2W263+	Mini-Circuits	22/24/27, 15C 15B

5.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
2388	Bluetooth Tester	CBT	R&S	15B
10479	Communication Tester	CMW500	R&S	22/24/27, 15C, 15B
2347	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
2009	Signal Generator	SMP 22	R&S	22/24/27, 15C, 15B
2348	Controller	G-1000DXC	Yaesu	22/24/27, 15C, 15B
2349	Computer Controller	g-1000DXC	Yaesu	22/24/27, 15C, 15B
2116	Controller	EMCO 2090	ETS	22/24/27, 15C, 15B
2109	Power Supply	PL330QMD	Thurlby	22/24/27, 15C, 15B
2353	Receiver	ESIB26	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

Eq. No	Equipment	Type	Manufacturer	Used in
6117	Open switch and control unit	OSP 150	R&S	22/24/27, 15C, 15B
6131	Notch Filter	WRCT902.4-0.4/40-8SS	Wainwright	22/24/27, 15C, 15B
6130	Notch Filter	WRCD1880-1.1.25/50-10SS	Wainwright	22/24/27
6159	Band Reject Filter	WRCD1747.8-0.4/40-5SS	Wainwright	22/24/27, 15C, 15B
6158	Band Reject Filter	WRCT836.6-0.4/40-8SS	Wainwright	22/24/27, 15C, 15B
6197	Band Reject Filter	WRCJV2531/2539-2523/2547-60/12SS	Wainwright	22/24/27, 15C, 15B
2231	Band Reject Filter	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
2391	Band Reject Filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
2386	Band Reject Filter	WRCG1764.4/1770.4-1760.4/1774.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2385	Band Reject Filter	WRCG1744.4/1750.4-1740.4/1754.4-40/6SS	Wainwright	22/24/27, 15C, 15B
2357	Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	15C
2188	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
6195	High Pass Filter	-	Wainwright	22/24/27, 15C, 15B
2364	Band Reject Filter	WRCG1877/1883 - 1870/1890-40/6SS	Wainwright	24
2361	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	Euroshield	22/24/27, 15C, 15B
6212	Antenna Array system	-	TCC	22/24/27, 15C, 15B
-	RF immunity / Emission Software	EMC32	R&S	22/24/27, 15C, 15B
6089	Antenna	HFH2-Z2	R&S	15C, 15B
2027	CDN	M2 (modified) DC1	MEB	22/24/27, 15C, 15B
2028	CDN	M3 (modified) DC2	MEB	22/24/27, 15C, 15B
2176	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2135	CDN	CDN 801-M3	Lüthi	22/24/27, 15C, 15B
2029	Power Supply	PL330	Thurlby	22/24/27, 15C
6038	Data Logger	Testo 580	Testo	22/24/27, 15C, 15B
6037	Data Logger	175-H2	Testo	22/24/27, 15C, 15B
6039	USB Interface	5541765	Testo	22/24/27, 15C, 15B

END OF REPORT