

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-845_10	Date of Report:	13-Aug-2012
Number of pages:	17	Customer's Contact person:	Victoria Abadilla
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FCC listing no.:	533467		
IC recognition no.:	661V-1		
Tested devices/ accessories:	Phone RM-845 / Battery BP-4W / AC-Charger AC-50U / Headset WH-902		
FCC ID:	QMNRM-845	IC:	661X-RM845
Supplement reports:	-		
Testing has been carried out in accordance with:	CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22, RSS-132 (Issue 2, September 2005), RSS-133 (Issue 5, February 2009), RSS-210 (Issue 8, December 2010). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
Documentation:	The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.		
Test Results:	The EUT complies with the requirements in respect of all parameters subject to the test. The test results relate only to devices specified in this document		
Date and signature for the contents:			

Kalle Hannila, Engineer, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	30-Jul-2012
Testing completed	08-Aug-2012
The customer's contact person	Victoria Abadilla
Test Plan referred to	T:\Projects\RM-845\TestPlan\RS_testplan_RM-845.xlsm
Notes	-
Document name	T:\Projects\RM-845\EMC\FCC15B_RM-845_10.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:
GSM/CDMA/WCDMA/Bluetooth
The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-845	352875050016897	0209		1521.0003.8422.9710.12271	16577
Battery	BP-4W	393213215514010114800670671	-	-	-	16578
AC-Charger	AC-50U	409049215427050147600675620	-	-	-	16562
Headset	WH-902	209E2R	-	-	-	16563
USB-Cable	CA-190-D	07304562125t2f	-	-	-	16586
Laptop	T61p	4FIL44044	-	-	-	16517
Phone	RM-845	352875050016830	0209	-	1525.000308422.9710.12271	16606
Battery	BP-4W	3932132274140100464;0670672	-	-	-	16607

1.2. Summary of Test Results

GSM850:

Section in CFR 47	Section in ICES-003 (RSS-132)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	PASSED
15.109, a	5.5 (4.6)	Radiated emissions	PASSED

CDMA800:

Section in CFR 47	Section in ICES-003 (RSS-132)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (4.6)	Radiated emissions	NP

WCDMA 850 (Band V):

Section in CFR 47	Section in ICES-003 (RSS-132)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (4.6)	Radiated emissions	NP

GSM1900:

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	PASSED

CDMA1900:

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
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15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	NP

WCDMA 1900 (Band II):

Section in CFR 47	Section in ICES-003 (RSS-133)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	NP

WLAN:

Section in CFR 47	Section in ICES-003 (RSS-139)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	NP

LTE700 Upper (Band 13):

Section in CFR 47	Section in ICES-003 (RSS-139)	Name of the test	Result
15.107, a	5.3	AC powerline conducted emissions	NP
15.109, a	5.5 (6.6)	Radiated emissions	PASSED

PASSED
FAILED
NP

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

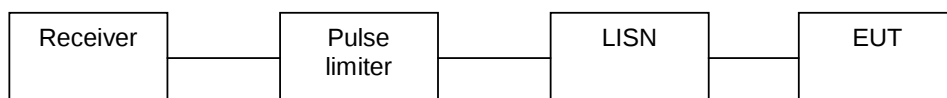
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2. AC powerline conducted emissions (FCC §15.107, ICES-003 section 5.3)

EUT with DUT number	RM-845, DUT 16606
Accessories with DUT numbers	BP-4W, DUT 16607 ; T61p, DUT 16517
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101.2
Date of measurements	08-Aug-2012
Measured by	Sami Lehtonen

2.1. Test Setup



2.2. Test method and limit

The measurement is made according to ANSI C63.4-2003 as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

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

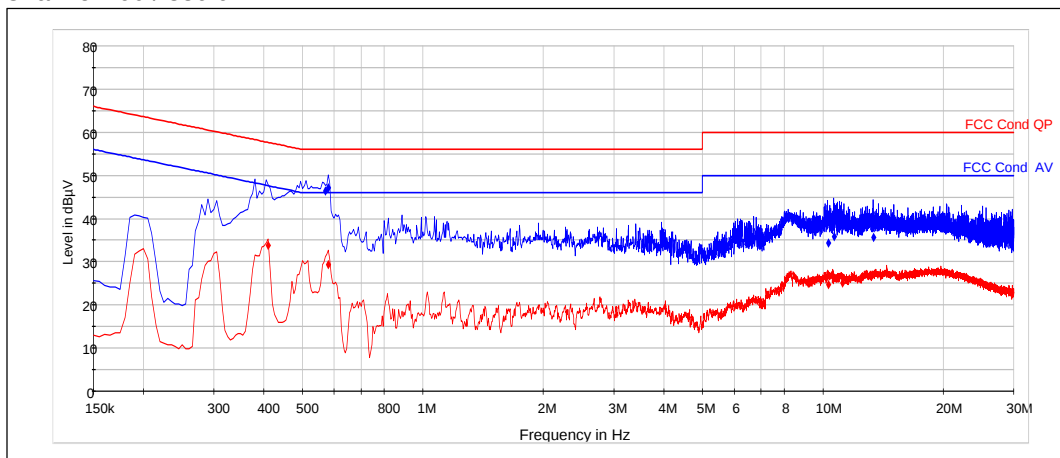
Where U_{RX} is receiver reading and A_{TOT} is total correction factor including cable and pulse limiter attenuations.

CISPR 22 Class B limits

Frequency range [MHz]	Quasi peak limit [dBμV]	Average limit [dBμV]
0.15 - 0.5	66 - 56	56 - 46
0.5 - 5	56	46
5 - 30	60	50

2.3. GSM 850 Test results

Channel 190 / 836.6 MHz



QuasiPeak (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.57	46.35	N	PASSED
0.58	47.05	N	PASSED
10.32	34.4	L1	PASSED
10.675	35.83	L1	PASSED
13.38	35.67	L1	PASSED

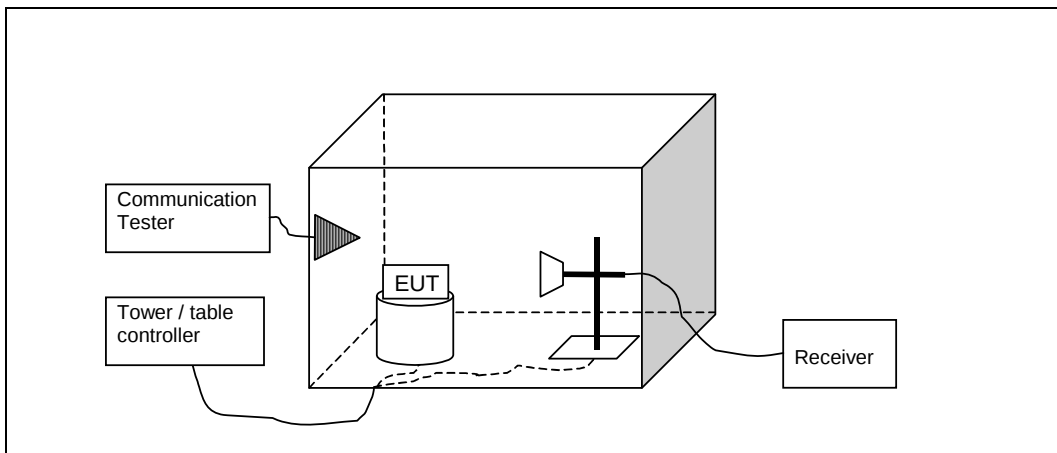
Average (RBW: 9 kHz)

Frequency [MHz]	U [dBμV]	Line	Result
0.41	33.69	L1	PASSED
0.58	29.24	L1	PASSED
10.32	24.71	L1	PASSED
11.2	25.08	L1	PASSED
14.42	27.33	L1	PASSED

3. Radiated emissions (FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6)

EUT with DUT number	RM-845, DUT 16577
Accessories with DUT numbers	BP-4W, DUT 16578 ; AC-50U, DUT 16562 ; WH-902, DUT 16563
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	*Continuous data transfer was active between the phone and the computer during the test."
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21 / 40 / 101.6
Date of measurements	31-Jul-2012
Measured by	Kalle Hannila / Jari Keto

3.1.1 Test setup



3.2. Test method and limit

The measurement is made according to ANSI C63.4-2003as follows:

The measurement is performed in the Semi-Anechoic Chamber with conducting metal floor.

The measurement distance is 3 m.

The EUT is placed on a nonconductive plate at 80 cm height.

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:

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

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

CISPR 22 and FCC Part 15 Class B limits (3 m measurement distance)

Frequency range [MHz]	Quasi peak limit [dB μ V/m]	Average limit [dB μ V/m]	Peak limit [dB μ V/m]
30 - 230	40	-	-
230 – 1000	47	-	-
Above 1000	-	54	74

3.3. LTE700 Upper (Band 13) test results

Channel 23205 / 779.5 MHz

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
1495.1	37.49	74.912	42.94	-5.45	36.5	74	PASSED
2243.7	43.53	150.089	42.69	0.84	30.5	74	PASSED
3000.7	37.16	72.119	44.38	-7.22	36.8	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
1495.1	24.65	17.08	30.1	-5.45	29.4	54	PASSED
2243.7	30.84	34.85	30	0.84	23.2	54	PASSED
3000.7	24.66	17.106	31.88	-7.22	29.3	54	PASSED

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Channel 23205 / 779.5 MHz

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
1563.127	41.51	119.028	47.84	-6.33	32.5	74	PASSED
2338.982	42.17	128.307	43.2	-1.03	31.8	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
30	26.76	21.787	37.51	-10.75	13.2	40	PASSED
39.412	17.72	7.687	34.7	-16.98	22.3	40	PASSED
875.01	23.48	14.925	33.83	-10.35	22.5	46	PASSED
940.351	27.15	22.767	36.99	-9.84	18.9	46	PASSED
949.078	35.11	56.97	45.13	-10.02	10.9	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
1563.127	23.92	15.709	30.25	-6.33	30.1	54	PASSED
2338.982	28.86	27.743	29.89	-1.03	25.1	54	PASSED

Channel 23230 / 782 MHz

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
7820.141	46.15	203.049	43.98	2.17	27.8	74	PASSED
7827.755	46.31	206.728	44.12	2.19	27.7	74	PASSED
7847.292	46.13	202.558	43.85	2.28	27.9	74	PASSED
7856.011	46.73	216.92	44.38	2.35	27.3	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
7820.141	33.22	45.835	31.05	2.17	20.8	54	PASSED
7827.755	33.13	45.316	30.94	2.19	20.9	54	PASSED
7847.292	33.18	45.577	30.9	2.28	20.8	54	PASSED
7856.011	33	44.648	30.65	2.35	21	54	PASSED

Channel 23230 / 782 MHz

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
1500.3	37.69	76.613	42.95	-5.26	36.3	74	PASSED
2253.1	44.02	158.928	43.33	0.7	30	74	PASSED
3000.1	37.42	74.319	44.64	-7.22	36.6	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
1500.3	24.91	17.595	30.17	-5.26	29.1	54	PASSED
2253.1	30.91	35.12	30.22	0.7	23.1	54	PASSED
3000.1	24.72	17.221	31.94	-7.22	29.3	54	PASSED

Channel 23255 / 784.5 MHz

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
1506.4	38.14	80.677	43.34	-5.2	35.9	74	PASSED
2261.9	43.78	154.454	43.2	0.58	30.2	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
1506.4	25	17.781	30.2	-5.2	29	54	PASSED
2261.9	30.7	34.281	30.12	0.58	23.3	54	PASSED

3.4. GSM850 test results FM receiver active

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
3477.4	36.52	66.988	44.49	-7.97	37.5	74	PASSED
6954.2	44.87	175.085	45.03	-0.16	29.1	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
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3477.4	23.84	15.565	31.81	-7.97	30.2	54	PASSED
6954.2	32.37	41.538	32.53	-0.16	21.6	54	PASSED

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
1926.254	38.45	83.647	42.69	-4.24	35.6	74	PASSED
2430.859	41.18	114.499	42.32	-1.14	32.8	74	PASSED
2436.071	45.04	178.567	46.08	-1.04	29	74	PASSED
2458.02	43.14	143.615	42.56	0.58	30.9	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
31.47	14.26	5.164	25.95	-11.69	25.7	40	PASSED
850.018	17.98	7.921	29.92	-11.94	28	46	PASSED
940.411	31.84	39.089	41.68	-9.84	14.2	46	PASSED
942.919	17.34	7.36	28.36	-11.02	28.7	46	PASSED
949.048	35.55	59.924	45.57	-10.02	10.4	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
1926.254	25.96	19.863	30.2	-4.24	28	54	PASSED
2430.859	28.57	26.813	29.71	-1.14	25.4	54	PASSED
2436.071	28.68	27.171	29.72	-1.04	25.3	54	PASSED
2458.02	30.11	32.018	29.53	0.58	23.9	54	PASSED

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
7060.021	45.18	181.489	44.5	0.68	28.8	74	PASSED
7832.461	46.44	209.894	44.23	2.21	27.6	74	PASSED
7852.503	46.02	199.963	43.71	2.31	28	74	PASSED
7852.807	45.89	197.061	43.57	2.32	28.1	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
7060.021	32.38	41.572	31.7	0.68	21.6	54	PASSED
7832.461	33.15	45.426	30.94	2.21	20.9	54	PASSED
7852.503	33.03	44.823	30.72	2.31	21	54	PASSED
7852.807	33.02	44.776	30.7	2.32	21	54	PASSED

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
3002	37.28	73.097	44.5	-7.22	36.7	74	PASSED
3526.2	36.67	68.116	44.23	-7.56	37.3	74	PASSED
7051.7	45.24	182.852	44.62	0.62	28.8	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
30.12	20.67	10.797	25.5	-4.83	19.3	40	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3002	24.62	17.016	31.84	-7.22	29.4	54	PASSED
3526.2	24.04	15.92	31.6	-7.56	30	54	PASSED
7051.7	32.61	42.687	31.99	0.62	21.4	54	PASSED

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
3576	37.24	72.753	44.63	-7.39	36.8	74	PASSED
7152.1	44.96	177.031	44.36	0.6	29	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3576	24.11	16.047	31.5	-7.39	29.9	54	PASSED
7152.1	32.29	41.167	31.69	0.6	21.7	54	PASSED

3.5. GSM850 test results, Laptop and Data peripherals

*Continuous data transfer was active between the phone and the computer during the test."

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
3478.6	36.62	67.749	44.59	-7.97	37.4	74	PASSED
6953.7	45.08	179.535	45.24	-0.16	28.9	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3478.6	24	15.853	31.97	-7.97	30	54	PASSED
6953.7	32.48	42.053	32.64	-0.16	21.5	54	PASSED

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
2474.545	41.81	123.197	42.52	-0.71	32.2	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
72.616	18.51	8.423	43.72	-25.21	21.5	40	PASSED
220.217	13.32	4.632	35.87	-22.55	32.7	46	PASSED
280.418	15.85	6.204	35.98	-20.13	30.1	46	PASSED
284.962	14.83	5.514	34.94	-20.11	31.2	46	PASSED
297.496	15	5.621	34.78	-19.78	31	46	PASSED
663.698	31.87	39.201	46.03	-14.16	14.1	46	PASSED
903.898	21.2	11.487	32.27	-11.07	24.8	46	PASSED
940.381	28	25.116	39	-11	18	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
2474.545	28.74	27.356	29.45	-0.71	25.3	54	PASSED

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
7816.433	45.83	195.637	43.67	2.16	28.2	74	PASSED
7826.951	46.25	205.376	44.06	2.19	27.7	74	PASSED
7833.966	46.28	206.11	44.06	2.22	27.7	74	PASSED
7857.711	46.3	206.49	43.94	2.36	27.7	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
7816.433	33.22	45.788	31.06	2.16	20.8	54	PASSED
7826.951	33.07	45.045	30.88	2.19	20.9	54	PASSED
7833.966	33.27	46.073	31.05	2.22	20.7	54	PASSED
7857.711	33.13	45.363	30.77	2.36	20.9	54	PASSED

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
3000.2	38.94	88.481	46.16	-7.22	35.1	74	PASSED
3528.2	37.75	77.206	45.24	-7.49	36.2	74	PASSED
7052.5	45.47	187.737	44.84	0.63	28.5	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
30.69	22.2	12.877	25.42	-3.22	17.8	40	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3000.2	27.93	24.926	35.15	-7.22	26.1	54	PASSED
3528.2	24.2	16.218	31.69	-7.49	29.8	54	PASSED

7052.5	32.7	43.167	32.07	0.63	21.3	54	PASSED
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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
3576.4	37.07	71.326	44.46	-7.39	36.9	74	PASSED
7150.8	45.04	178.608	44.46	0.58	29	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3576.4	24.24	16.287	31.63	-7.39	29.8	54	PASSED
7150.8	32.41	41.745	31.83	0.58	21.6	54	PASSED

3.6. GSM1900 test results, GPS active

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
3858.1	37.53	75.275	43.96	-6.43	36.5	74	PASSED
7721.2	45.9	197.151	44.23	1.67	28.1	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3858.1	24.69	17.163	31.12	-6.43	29.3	54	PASSED
7721.2	32.69	43.117	31.02	1.67	21.3	54	PASSED

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
2434.773	41.87	123.994	42.94	-1.07	32.1	74	PASSED
2435.87	41.64	120.781	42.69	-1.05	32.4	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
31.14	22.47	13.291	33.95	-11.48	17.5	40	PASSED
44.722	17.56	7.548	37.95	-20.39	22.4	40	PASSED
733.417	25.64	19.149	37.82	-12.18	20.4	46	PASSED
750.02	26.43	20.96	38.31	-11.88	19.6	46	PASSED
900.01	21.94	12.504	32	-10.06	24.1	46	PASSED
905.218	17.89	7.84	27.84	-9.95	28.1	46	PASSED
940.341	24.81	17.398	34.65	-9.84	21.2	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
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2434.773	28.76	27.413	29.83	-1.07	25.2	54	PASSED
2435.87	28.76	27.428	29.81	-1.05	25.2	54	PASSED

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
7037.872	45.19	181.74	44.89	0.3	28.8	74	PASSED
7819.338	45.87	196.585	43.71	2.17	28.1	74	PASSED
7826.255	46.02	199.986	43.84	2.18	28	74	PASSED
7841.387	46.35	207.659	44.1	2.25	27.7	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
7037.872	32.32	41.305	32.02	0.3	21.7	54	PASSED
7819.338	33.18	45.609	31.02	2.17	20.8	54	PASSED
7826.255	32.97	44.509	30.79	2.18	21	54	PASSED
7841.387	32.98	44.576	30.73	2.25	21	54	PASSED

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
3000.6	37.01	70.876	44.23	-7.22	37	74	PASSED
3921.4	37.74	77.108	44.09	-6.35	36.3	74	PASSED
7838.6	45.56	189.583	43.32	2.24	28.4	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
31.47	23.36	14.718	29.05	-5.69	16.6	40	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3000.6	24.64	17.051	31.86	-7.22	29.4	54	PASSED
3921.4	24.89	17.551	31.24	-6.35	29.1	54	PASSED
7838.6	32.89	44.101	30.65	2.24	21.1	54	PASSED

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
3979.6	37.95	78.959	44.23	-6.28	36.1	74	PASSED
7959.9	47.09	226.256	43.96	3.13	26.9	74	PASSED

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

Frequency [MHz]	E [dBμV/m]	E [μV/m]	U _{RX} [dBμV]	A _{TOT} [dB]	Margin	Limit [dBμV/m]	Results
3979.6	25.13	18.047	31.41	-6.28	28.9	54	PASSED
7959.9	33.91	49.585	30.78	3.13	20.1	54	PASSED

4. Test Equipment

4.1. 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 µH	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	-

4.2. Radiated measurements

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

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