FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-750_104	**Date of Report:**	18-Apr-2012
Number of pages:	9	**Customer's Contact person:**	Janne Sarna
Testing laboratory:	TCC Nokia Tampere Laboratory P.O. Box 68 Sinitaival 5 FIN-33720 TAMPERE, FINLAND Tel. +358 (0) 7180 46800 Fax. +358 (0) 7180 46880	**Customer:**	Nokia Corporation P.O. Box 300 Yrttipellontie 6 FIN-90230 OULU, FINLAND Tel. +358 (0) 7180 08000 Fax. +358 (0) 7180 58300
FCC listing no.: **IC recognition no.:**	94436 661AK-1		
Tested devices/ accessories:	**Phone RM-750 / Battery BL-4U / AC charger AC-8E / Headset WH-102**		
FCC ID:	QTKRM-750X	**IC:**	661AD-RM750
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-139 (Issue 2, February 2009). 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:	Hannu Söderholm 2012.04.18 09:16:49 +03'00'		

Hannu Söderholm, Senior Engineer, EMC

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1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	28-Feb-2012
Testing completed	07-Feb-2012
The customer's contact person	Janne Sarna
Test Plan referred to	T:\Projects\RM-750\TestPlan\RS_testplan_RM-750_CR_HW3000.xls
Notes	-
Document name	T:\Projects\RM-750\EMC\New FCC ID\FCC15B_RM-750_104.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, modulated with pseudo random bit sequence (PRBS9).

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-750	351680051742793	3000	-	011.033	42794
Battery	BL-4U	495540150309110784306705 60	-	-	-	42795
AC charger	AC-8E	1103338312100301185;0675387	-	-	-	42607
Headset	WH-102	0694323135611D25038	-	-	-	42796

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	NP
15.109, a	5.5 (4.6)	Radiated emissions	PASSED

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

WCDMA 1700 (Band IV):

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	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.

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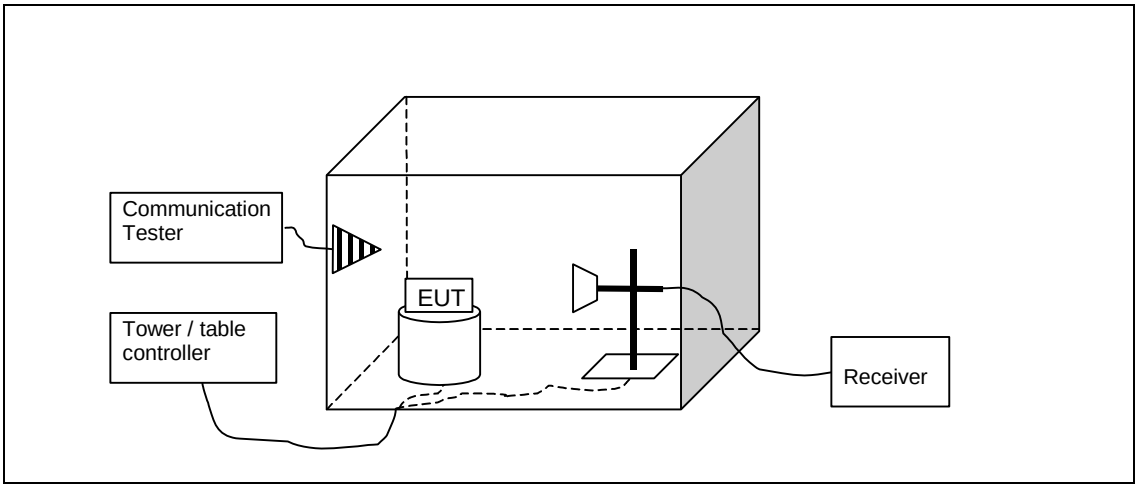
2. Radiated emissions

(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)

EUT with DUT number	RM-750, DUT 42794
Accessories with DUT numbers	BL-4U, DUT 42795 ; AC-8E, DUT 42607 ; WH-102, DUT 42796
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	24 / 51 / 101
Date of measurements	05-Mar-2012
Measured by	Timo Raiskio

2.1.1 Test Setup



2.2. 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.

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

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

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2.3. GSM850 Test results

Substitution method could not be utilized as no emissions above noise floor were found during measurements.

RX mode, channel 128 / 869.2 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3475.3	38.35	82.718	43.98	-5.63	HORIZONTAL	PASSED
6952.7	47.35	232.97	46.93	0.42	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3475.3	25.67	19.218	31.3	-5.63	HORIZONTAL	PASSED
6952.7	34.35	52.149	33.93	0.42	VERTICAL	PASSED

RX mode, channel 190 / 881.6 MHz
Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
30.09	27.79	24.505	55.32	-27.53	VERTICAL	PASSED
33.018	22.48	13.3	51.14	-28.66	VERTICAL	PASSED
37.785	13.75	4.87	44.28	-30.53	VERTICAL	PASSED
912.662	15.57	6.007	37.78	-22.21	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
7829.757	45.35	185.119	42.8	2.55	VERTICAL	PASSED
7835.271	44.69	171.633	42.15	2.54	VERTICAL	PASSED
7846.195	45.05	178.752	42.55	2.5	VERTICAL	PASSED
7854.408	45.38	185.845	42.92	2.46	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
7829.757	32.1	40.258	29.55	2.55	VERTICAL	PASSED
7835.271	32.13	40.397	29.59	2.54	VERTICAL	PASSED
7846.195	32.16	40.546	29.66	2.5	VERTICAL	PASSED
7854.408	32.34	41.381	29.88	2.46	HORIZONTAL	PASSED

RX mode, channel 251 / 893.8 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3575.6	39.14	90.584	44.65	-5.51	HORIZONTAL	PASSED
7149.4	43.81	155.078	42.54	1.27	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3575.6	25.31	18.437	30.82	-5.51	HORIZONTAL	PASSED
7149.4	30.82	34.734	29.55	1.27	HORIZONTAL	PASSED

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2.4. GSM1900 Test results

Substitution method could not be utilized as no emissions above noise floor were found during measurements.

RX mode, channel 512 / 1930.2 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3860.9	39.42	93.53	42.54	-3.12	HORIZONTAL	PASSED
7719.5	45.02	178.135	42.67	2.35	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3860.9	26.67	21.543	29.79	-3.12	HORIZONTAL	PASSED
7719.5	31.76	38.712	29.41	2.35	VERTICAL	PASSED

RX mode, channel 661 / 1960.0 MHz
Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
30.21	18.75	8.657	46.33	-27.58	VERTICAL	PASSED
33.03	25.34	18.486	54	-28.66	VERTICAL	PASSED
37.845	14.75	5.465	45.3	-30.55	VERTICAL	PASSED
910.492	15.61	6.03	37.94	-22.33	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
1960.119	48.4	263.027	60.8	-12.4	HORIZONTAL	PASSED
7836.571	44.95	176.705	42.42	2.53	VERTICAL	PASSED
7839.575	45.04	178.587	42.54	2.5	HORIZONTAL	PASSED
7848.393	45.3	183.971	42.8	2.5	VERTICAL	PASSED
7855.613	45.64	191.514	43.18	2.46	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
1960.119	44.14	160.972	56.54	-12.4	HORIZONTAL	PASSED
7836.571	32.06	40.087	29.53	2.53	VERTICAL	PASSED
7839.575	32.13	40.411	29.63	2.5	HORIZONTAL	PASSED
7848.393	32.16	40.57	29.66	2.5	VERTICAL	PASSED
7855.613	32.25	40.964	29.79	2.46	HORIZONTAL	PASSED

RX mode, channel 810 / 1989.8 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3980.5	39.89	98.696	42.93	-3.04	VERTICAL	PASSED
7959.2	45.53	189.104	42.92	2.61	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
3980.5	27.09	22.631	30.13	-3.04	VERTICAL	PASSED
7959.2	32.25	40.987	29.64	2.61	HORIZONTAL	PASSED

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2.5. WCDMA 1700 (Band IV) Test results

Substitution method could not be utilized as no emissions above noise floor were found during measurements.

RX mode, channel 1537 / 2112.4 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4223	38.87	87.821	42.8	-3.93	VERTICAL	PASSED
6337.3	44.47	167.302	45.54	-1.07	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4223	26.49	21.098	30.42	-3.93	VERTICAL	PASSED
6337.3	32.01	39.861	33.08	-1.07	HORIZONTAL	PASSED

RX mode, channel 1637 / 2132.4 MHz
Quasi peak (RBW: 120 kHz, VBW: 300 kHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
30	18.25	8.175	45.75	-27.5	VERTICAL	PASSED
33.016	22.17	12.84	50.83	-28.66	VERTICAL	PASSED
38.016	11.07	3.577	41.69	-30.62	VERTICAL	PASSED
910.192	16.61	6.768	37.99	-21.38	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2133.565	49.44	296.483	59.78	-10.34	HORIZONTAL	PASSED
7826.453	45.61	190.656	43.06	2.55	HORIZONTAL	PASSED
7837.676	45.17	181.405	42.67	2.5	HORIZONTAL	PASSED
7858.517	44.87	175.206	42.41	2.46	HORIZONTAL	PASSED
7863.43	45	177.889	42.54	2.46	HORIZONTAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
2133.565	35.01	56.318	45.35	-10.34	HORIZONTAL	PASSED
7826.453	32.05	40.018	29.5	2.55	HORIZONTAL	PASSED
7837.676	32.16	40.565	29.66	2.5	HORIZONTAL	PASSED
7858.517	32.23	40.879	29.77	2.46	HORIZONTAL	PASSED
7863.43	32.27	41.063	29.81	2.46	HORIZONTAL	PASSED

RX mode, channel 1738 / 2152.6 MHz
Peak (RBW: 1 MHz, VBW: 1 MHz)

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4304.3	38.98	88.961	43.05	-4.07	VERTICAL	PASSED
6458.3	45.91	197.379	47.05	-1.14	VERTICAL	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Polarisation	Result
4304.3	26.11	20.198	30.18	-4.07	VERTICAL	PASSED
6458.3	32.72	43.246	33.86	-1.14	VERTICAL	PASSED

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3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38112	Power supply	6632A	Agilent	22/24/27, 15C
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
OM06312	Signal Generator	E4422B	Agilent	22/24
TM37678	Communication Tester	CMU200	R&S	15C, 15B
TM30600	Impulse limiter	ESH3-Z2	R&S	15C, 15B
TM26490	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM26491	LISN 50 µH	ESH3-Z5	R&S	15C, 15B
TM37610	Spectrum Analyzer	FSU26	R&S	22/24/27, 15C
TM22806	Battery	BAT 20/E	Fiskars	15C, 15B
TM22805	UPS	PS 20/1.2	Fiskars	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
-	Temperature test chamber	VT 4002	Vötsch	22/24
2058	Receiver	ESPC	R&S	15C, 15B
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
2002	Communication Tester	CMU200	R&S	22/24/27, 15C
2009	LISN 50 µH	ENV216	R&S	15C, 15B
2010	LISN 50 µH	ENV216	R&S	15C, 15B
2012	Power splitter	11667B	Agilent	22/24/27, 15C
2013	Attenuator	8493C	Agilent	22/24/27, 15C
2014	Attenuator	8493C	Agilent	22/24/27, 15C
2019	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2020	Power splitter	ZN2PD-9G-S+	Mini-Circuits	15E
2023	Spectrum Analyzer	ESMI-RF	R&S	15B/15C
2024	Analyzer display unit	ESAI-D	R&S	15B/15C

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3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
TM38114	Power supply	6632A	Agilent	22/24/27, 15C, 15B
TM38631	Signal Generator	83640L	Agilent	22/24/27, 15C, 15B
TM38323	Preamplifier	PA-02 18-26 GHz	EMC Automation	22/24/27, 15C, 15B
-	Antenna	BBHA 9120 D	Schwarzbeck	22/24/27, 15C
TM26497	Antenna	3115	Emco	22/24/27, 15C, 15B
TM37773	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
TM38845	Receiver	ESIB 26	R&S	22/24/27, 15C, 15B
-	Antenna	HL562	R&S	22/24/27, 15C, 15B
-	Turntable	2188	EMCO	22/24/27, 15C, 15B
-	Turntable controller	2090	EMCO	22/24/27, 15C, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15B
-	RF system panel	TS-RSP	R&S	22/24/27, 15C, 15B
-	Mini mast	2075-2	ETS Lindgren	22/24/27, 15C, 15B
TM38843	Mini mast	2075	Emco	22/24/27, 15C, 15B
TM38842	Antenna mast controller	2090	Emco	22/24/27, 15C, 15B
TM30643	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
TM30644	LISN 50 µH	LISN-5-20-2	FCC	22/24/27, 15C, 15B
-	Temperature and humidity logger	175-H2	Testo	22/24/27, 15C, 15B
-	Air pressure and temperature logger	635-2	Testo	22/24/27, 15C, 15B
-	Air pressure sensor	0638-1835	Testo	22/24/27, 15C, 15B
TM39180	Laser distance meter	Disto Pro	Leica	22/24/27, 15C, 15B
TM37523	Preamplifier	AMF-4D-10M-3G-25-20P	Miteq	22/24/27, 15C, 15B
TM37498	Preamplifier	AMF-5D-020180-26-10P	Miteq	22/24/27, 15C, 15B
TM30599	Semi anechoic chambre	UNKNOWN	TDK	22/24/27, 15C, 15B
TM22638	Power supply	OL63743-901	-	22/24/27, 15C, 15B
TM38066	High pass filter	4HC3000/18000-3-KK	Trilithic	22/24/27, 15C, 15B
-	High pass filter	WHKX 1.6/15G-12SS	Wainwright	22/24/27, 15C, 15B
TM37545	Tunable notch filter	800.0/960.0-0.2/40-8SSK	Wainwright	22
TM26512	Tunable notch filter	WRCD1850/1910-0.2/40-10SSK	Wainwright	24
-	Band reject filter	WRCG1877/1883-1870/1890-40/6EE	Wainwright	24
-	Band reject filter	WRCG1729.4/1735.4-1722.4/1742.4-40/6SS	Wainwright	27
-	Band reject filter	WRCG832/838-825/848-40/5SS	Wainwright	22
TM23892	Controller	G-1000SDX	Yaesu	22/24/27
2001	Bluetooth tester	CBT	R&S	22/24/27, 15C, 15B
6023	Antenna	VUBA 9117	Schwarzbeck	22/24/27, 15C

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