FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-923_07.docx	**Date of Report:**	07-Nov-2012
Number of pages:	10	**Customer's Contact person:**	Hu Helen
Testing laboratory:	TCC Nokia Beijing Laboratory Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550	**Customer:**	Nokia Corporation Beijing Economic and Technological Development Area No.5 Donghuan Zhonglu Beijing PRC China 100176 Tel. +86 10 8711 8888 Fax. +86 10 8711 4550
FCC listing no.: **IC recognition no.:**	975940 661AH-1		
Tested devices/ accessories:	**Phone RM-923 / Battery BP-3L / AC-charger AC-20E / Headset WH-902**		
FCC ID:	QTLRM-923	**IC:**	-
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:	Sherina Gao Digitally signed by Sherina Gao DN: cn=Sherina Gao, o=PSCL, ou=NOKIA, email=sherina.gao@nokia.com, c=CN Date: 2012.11.07 13:36:40 +08'00'		

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1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	16-Oct-2012
Testing completed	30-Oct-2012
The customer's contact person	Hu Helen
Test Plan referred to	T:\Projects\RM-923\TestPlan\RS_testplan_RM-923.xlsm
Notes	-
Document name	FCC15B_RM-923_07.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-923	004402471590087	1001	-	1102.0000.8779.12418	53011
Battery	BP-3L	495540217205010816O;0670635	-	-	-	52821
AC-charger	AC--20E	4868672244120505773;0675628		-	-	53013
Headset	WH-902	126582R	-	-	-	53015

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

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

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

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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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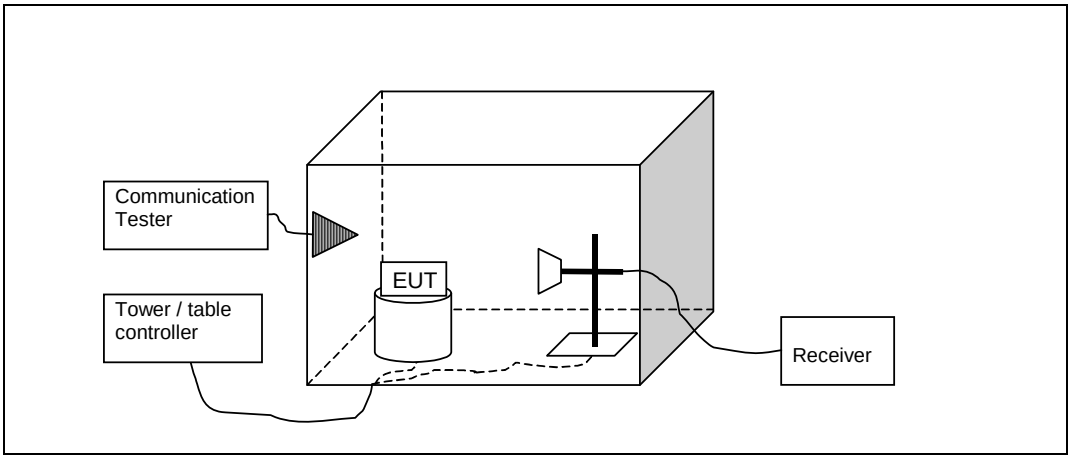
2. Radiated emissions

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

EUT with DUT number	RM-923, DUT 53011
Accessories with DUT numbers	BP-3L, DUT 52821 ; AC-20E, DUT 53013 ; WH-902, DUT 53015
Operation Voltage [V] / [Hz]	115/60
Results	PASSED
Remarks	FM Radio active during GSM850 idle mode. GPS active during GSM1900 idle mode.
Temp [^{o}C] / Humidity [%RH] / Air Pressure [kPa]	23/40/101.7
Date of measurements	29-Oct-2012 to 30-Oct-2012
Measured by	Gao Sherina

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.

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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 ($A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$).

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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3. GSM850 test results; FM radio on

RX mode, channel 128 / 869.2 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
3475.9	41.45	118.127	43.42	-1.97	32.6	74	PASSED
6953.9	52.89	440.91	47.76	5.13	21.1	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
3475.9	28.57	26.816	30.54	-1.97	25.4	54	PASSED
6953.9	39.93	99.152	34.8	5.13	14.1	54	PASSED

RX mode, channel 190 / 881.6 MHz

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
30.03	21.31	11.628	29.96	-8.65	18.7	40	PASSED
30.78	25.69	19.255	28.89	-3.2	14.3	40	PASSED
43.226	18.95	8.857	36.78	-17.83	21.1	40	PASSED
98.096	34.27	51.671	57.79	-23.52	9.2	43.5	PASSED
457.785	26.72	21.665	43.71	-16.99	19.3	46	PASSED
686.604	29.19	28.791	42.45	-13.26	16.8	46	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
3000.4	41.24	115.319	42.88	-1.64	32.8	74	PASSED
3527.5	41.04	112.694	43.42	-2.38	33	74	PASSED
7044.992	45.68	192.265	40.5	5.18	28.3	74	PASSED
7054.3	45.91	197.447	40.77	5.14	28.1	74	PASSED
7050.199	45.56	189.714	40.5	5.06	28.4	74	PASSED
7070.239	45.95	198.335	40.77	5.18	28.1	74	PASSED
7837.671	45.99	199.228	41.42	4.57	28	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
3000.4	28.46	26.47	30.1	-1.64	25.5	54	PASSED
3527.5	27.98	25.055	30.36	-2.38	26	54	PASSED
7044.992	32.96	44.453	27.78	5.18	21	54	PASSED
7054.3	33.05	44.937	27.91	5.14	20.9	54	PASSED
7050.199	32.85	43.878	27.79	5.06	21.2	54	PASSED
7070.239	33.11	45.217	27.93	5.18	20.9	54	PASSED
7837.671	32.85	43.888	28.28	4.57	21.2	54	PASSED

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RX mode, channel 251 / 893.8 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
3574.6	40.43	105.087	42.74	-2.31	33.6	74	PASSED
7149.9	46.14	202.698	41.03	5.11	27.9	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
3574.6	27.87	24.734	30.18	-2.31	26.1	54	PASSED
7149.9	32.97	44.499	27.86	5.11	21	54	PASSED

3.1. GSM1900 test results; GPS active

RX mode, channel 512 / 1930.2 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
3860.6	42.2	128.751	42.88	-0.68	31.8	74	PASSED
7718.6	45.58	190.086	41.16	4.42	28.4	74	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
3860.6	29.17	28.734	29.85	-0.68	24.8	54	PASSED
7718.6	32.39	41.644	27.97	4.42	21.6	54	PASSED

RX mode, channel 661 / 1960.0 MHz

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
30.42	27.61	24.002	30.55	-2.94	12.4	40	PASSED
30.57	23.76	15.408	32.81	-9.05	16.2	40	PASSED
48.874	4.88	1.754	26.85	-21.97	35.1	40	PASSED
69.881	2.69	1.363	28.41	-25.72	37.3	40	PASSED
69.974	1.01	1.124	26.71	-25.7	39	40	PASSED
70.557	2.28	1.3	27.9	-25.62	37.7	40	PASSED
70.565	0.96	1.116	26.58	-25.62	39	40	PASSED
72.902	0.99	1.121	26.3	-25.31	39	40	PASSED
74.258	1.58	1.199	26.71	-25.13	38.4	40	PASSED
78.375	1.69	1.214	26.52	-24.83	38.3	40	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
3001.6	41.37	117.112	43.01	-1.64	32.6	74	PASSED
3920.4	42.56	134.307	43.28	-0.72	31.4	74	PASSED
7038.076	46.15	202.955	40.9	5.25	27.9	74	PASSED
7057.112	46.74	217.245	41.54	5.2	27.3	74	PASSED
7078.455	46.31	206.681	41.04	5.28	27.7	74	PASSED
7854.808	46.41	209.122	41.8	4.61	27.6	74	PASSED
7840.6	45.6	190.612	41.03	4.57	28.4	74	PASSED

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

Frequency [MHz]	E [dBµV/m]	E [µV/m]	U_{RX} [dBµV]	A_{TOT} [dB]	Margin	Limit [dBµV/m]	Results
3001.6	28.39	26.257	30.03	-1.64	25.6	54	PASSED
3920.4	28.99	28.158	29.71	-0.72	25	54	PASSED
7038.076	33.04	44.88	27.79	5.25	21	54	PASSED
7057.112	32.88	44.066	27.68	5.2	21.1	54	PASSED
7078.455	33.26	45.999	27.99	5.28	20.7	54	PASSED
7854.808	32.89	44.091	28.28	4.61	21.1	54	PASSED
7840.6	32.83	43.787	28.26	4.57	21.2	54	PASSED

RX mode, channel 810 / 1989.8 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
3978.2	41.19	114.67	42.06	-0.87	32.8	74	PASSED
7959.2	48.17	256.183	43.15	5.02	25.8	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
3978.2	28.82	27.599	29.69	-0.87	25.2	54	PASSED
7959.2	33.75	48.691	28.73	5.02	20.3	54	PASSED

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4. Test Equipment

4.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0069	LISN 50 µH	ESH3-Z5	R&S	15C,15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0191	Pulse Limiter	ESH3-Z2	R&S	15C,15B
BJPCTC0017	Communication Tester	CMU200	R&S	22/24/27, 15C, 15B
BJPCTC0067	Bluetooth Tester	CBT	R&S	22/24/27, 15C
BJPCTC0089	Tempreture Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIB-RS232 convertor	GPIB-RS232	NI	22/24/27, 15C
BJPCTC0112	Power Splitter	11667B	Agilent	22/24/27, 15C
BJPCTC0114	Signal Generator	E8257C	Agilent	22/24/27, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C

4.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	BT / WLAN Antenna	SPA 2400/75/9/0/V	Huber-Suhner	15C, 15B
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCPT0072	Receiver	ESI B26	R&S	22/24/27, 15C, 15B
BJPCPT0130	Relay Switch Unit	TS-RSP	R&S	22/24/27, 15C, 15B
BJPCPT0150	High Pass Filter	WHKS1200-10SS	Wainwright	22/24/27, 15C, 15B
BJPCPT0151	Band Reject Filter	WRCD1880/2000-0.2/40-5SSK	Wainwright	24, 15B
BJPCPT0154	Band Reject Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright	15C, 15B
BJPCPT0162	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0007	Antenna	HL562	R&S	22/24/27, 15C, 15B
BJPCTC0029	Antenna	HF906	R&S	22/24/27, 15C, 15B
BJPCTC0034	Band Reject Filter	WRCT 800/880-0.2/40-5SSK	Wainwright	22, 15B
BJPCTC0049	Preamplifier	Blma 0118-1A-Bt	Bonn	22/24/27, 15C, 15B
BJPCTC0055	Communication Tester	CMU200	R&S	22/24/27,15C,15B
BJPCTC0058	Bluetooth Tester	CBT	R&S	15C, 15B
BJPCTC0064	Band Reject Filter	WRCG1877/1883-1870/1890-40/6SS	Wainwright	24, 15B
BJPCTC0065	Band Reject Filter	WRCG832/838-825/845-40/5SS	Wainwright	27, 15B
BJPCTC0071	Multi-Device Controller	2090	EMCO	22/24/27, 15C, 15B
BJPCTC0072	Anechoic Chamber	3 m Semi / Full Anechoic Chamber	ETS	22/24/27, 15C, 15B
BJPCTC0073	MAST	Model-TR/POL	ETS	22/24/27, 15C, 15B
BJPCTC0074	MAST	Model 2070-2	ETS	22/24/27, 15C, 15B
BJPCTC0075	Turntable	Model 2188	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0096	Preamplifier	AFS4-00100300-20-23P-6	Miteq	22/24/27, 15C, 15B
BJPCTC0113	Receiver	ESI B26	R&S	22/24/27, 15B, 15C
BJPCTC0115	Communication Tester	CMU200	R&S	22/24/27, 15B, 15C
BJPCTC0124	Attenuator	SA18N200W-40	Fairview Microwave	-

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