

FCC Part 15B Compliance Test Report

Test Report no.:	FCC15B_RM-864_05.docx	Date of Report:	04-Sep-2012
Number of pages:	9	Customer's Contact person:	Wang Jason
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.:	975940		
IC recognition no.:	661AH-1		
Tested devices/ accessories:	Phone RM-864 / Battery BL-5C / AC-charger AC-11E / Headset WH-109		
FCC ID:	QTLRM-864	IC:	661AB-RM864
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). 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:			

Gao Sherina, Engineer, EMC

1. Summary for FCC Part 15B Compliance Test Report

Date of receipt	27-Aug-2012
Testing completed	30-Aug-2012
The customer's contact person	Wang Jason
Test Plan referred to	T:\Projects\RM-864\TestPlan\RS_testplan_RM-864.xlsm
Notes	-
Document name	FCC15B_RM-864_05.docx

1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-864	004402139615680	0302	-	esECL_12w33	52845
Battery	BL-5C	0670650437995S044110609873	-	-	-	52841
AC-charger	AC-11E	4090491452160503514;0675479	-	-	-	52842
Headset	WH-109	772	0.1	0.2	-	52831

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

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.

CONTENTS

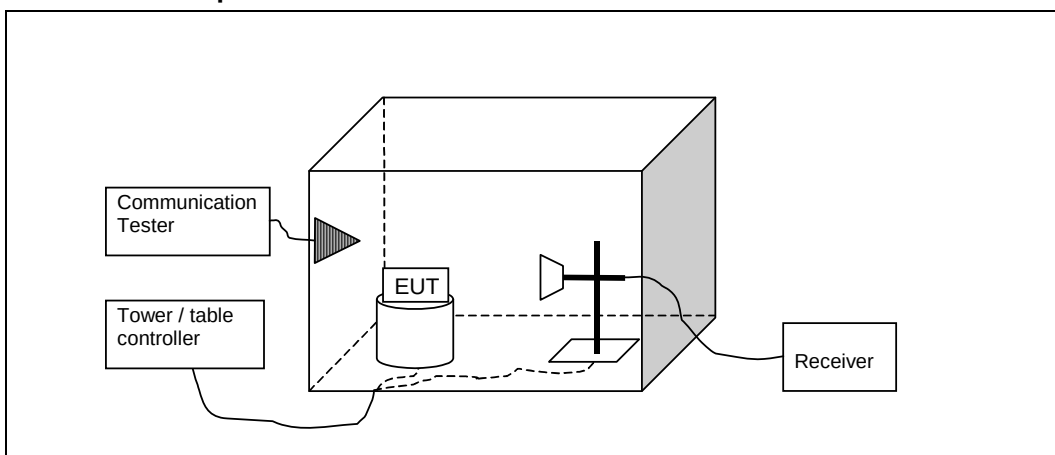
1. Summary for FCC Part 15B Compliance Test Report.....	2
1.1. EUT and Accessory Information.....	2
1.2. Summary of Test Results.....	2
2. Radiated emissions	
(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6)	4
2.2. Test method and limit.....	4
2.3. GSM850 test results.....	6
2.4. GSM1900 test results.....	7
3. Test Equipment.....	9
3.1. Conducted measurements	9
3.2. Radiated measurements	9

2. Radiated emissions

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

EUT with DUT number	RM-864, DUT 52845
Accessories with DUT numbers	BL-5C, DUT 52841 ; AC-11E, DUT 52842 ; WH-109, DUT 52831
Operation Voltage [V] / [Hz]	115 / 60
Results	PASSED
Remarks	FM radio was active during testing.
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22 / 60 / 100.3
Date of measurements	30-Aug-2012
Measured by	Zou Ming

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.

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

2.3. GSM850 test results

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
3475.6	41.75	122.321	43.71	-1.96	32.2	74	PASSED
6954.9	53.03	448.229	47.91	5.13	21	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
3475.6	28.61	26.943	30.57	-1.96	25.4	54	PASSED
6954.9	40.05	100.543	34.93	5.13	14	54	PASSED

RX mode, channel 190 / 881.6 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
2920.84	48.93	279.705	43.02	5.91	25.1	74	PASSED
3001.6	41.66	121.074	43.3	-1.64	32.3	74	PASSED
3526.7	41.61	120.42	43.98	-2.37	32.4	74	PASSED
7035.369	46.27	205.921	41.03	5.24	27.7	74	PASSED
7051.3	46.51	211.471	41.43	5.08	27.5	74	PASSED
7067.334	46.08	201.372	40.9	5.18	27.9	74	PASSED
7075.452	46.2	204.221	40.9	5.3	27.8	74	PASSED
7860.622	45.96	198.609	41.29	4.67	28	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
30.06	23.2	14.449	25.88	-2.68	16.8	40	PASSED
38.959	14.14	5.093	28.84	-14.7	25.9	40	PASSED
43.247	25.99	19.925	43.83	-17.84	14	40	PASSED
98.096	37.29	73.207	60.81	-23.52	2.7	40	PASSED
907.636	17.23	7.265	27.67	-10.44	29.8	47	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
2920.84	36.16	64.269	30.25	5.91	17.8	54	PASSED
3001.6	28.6	26.906	30.24	-1.64	25.4	54	PASSED
3526.7	28.2	25.692	30.57	-2.37	25.8	54	PASSED
7035.369	33.16	45.473	27.92	5.24	20.8	54	PASSED
7051.3	33.1	45.206	28.02	5.08	20.9	54	PASSED
7067.334	33.14	45.399	27.96	5.18	20.9	54	PASSED
7075.452	33.35	46.521	28.05	5.3	20.6	54	PASSED
7860.622	33.07	45.019	28.4	4.67	20.9	54	PASSED

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
3573.9	41.68	121.325	43.99	-2.31	32.3	74	PASSED
7152	46.01	199.71	40.9	5.11	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
3573.9	28.06	25.299	30.37	-2.31	25.9	54	PASSED
7152	33.06	44.962	27.95	5.11	20.9	54	PASSED

2.4. GSM1900 test results

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
3861.5	42.49	133.199	43.17	-0.68	31.5	74	PASSED
7719.7	45.19	181.844	40.76	4.43	28.8	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
3861.5	29.39	29.465	30.07	-0.68	24.6	54	PASSED
7719.7	32.56	42.482	28.13	4.43	21.4	54	PASSED

RX mode, channel 661 / 1960.0 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
1299.302	36.96	70.494	43.71	-6.75	37	74	PASSED
1309.122	36.66	68.108	43.57	-6.91	37.3	74	PASSED
1319.442	36.69	68.312	43.58	-6.89	37.3	74	PASSED
1323.847	36.37	65.864	43.16	-6.79	37.6	74	PASSED
1343.189	36.16	64.298	43.02	-6.86	37.8	74	PASSED
1344.393	36.71	68.454	43.58	-6.87	37.3	74	PASSED
1361.725	36.85	69.615	43.44	-6.59	37.1	74	PASSED
3001.3	41.66	121.074	43.3	-1.64	32.3	74	PASSED
3920.6	42.72	136.741	43.44	-0.72	31.3	74	PASSED
7028.858	46.26	205.518	41.03	5.23	27.7	74	PASSED
7036.978	46.28	206.016	41.03	5.25	27.7	74	PASSED
7060.625	46.13	202.465	40.9	5.23	27.9	74	PASSED
7839.177	45.73	193.508	41.16	4.57	28.3	74	PASSED
7840.5	45.99	199.365	41.42	4.57	28	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
30.21	23.31	14.632	26.1	-2.79	16.7	40	PASSED
39.427	22.04	12.643	37.03	-14.99	18	40	PASSED
43.507	20.51	10.601	38.56	-18.05	19.5	40	PASSED
98.096	37.47	74.688	60.99	-23.52	2.5	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
1299.302	23.62	15.174	30.37	-6.75	30.4	54	PASSED
1309.122	23.54	15.028	30.45	-6.91	30.5	54	PASSED
1319.442	23.6	15.143	30.49	-6.89	30.4	54	PASSED
1323.847	23.66	15.246	30.45	-6.79	30.3	54	PASSED
1343.189	23.6	15.143	30.46	-6.86	30.4	54	PASSED
1344.393	23.64	15.204	30.51	-6.87	30.4	54	PASSED
1361.725	23.89	15.657	30.48	-6.59	30.1	54	PASSED
3001.3	28.57	26.807	30.21	-1.64	25.4	54	PASSED
3920.6	29.14	28.625	29.86	-0.72	24.9	54	PASSED
7028.858	33.09	45.134	27.86	5.23	20.9	54	PASSED
7036.978	33.12	45.3	27.87	5.25	20.9	54	PASSED
7060.625	33.06	44.957	27.83	5.23	20.9	54	PASSED
7839.177	32.91	44.182	28.34	4.57	21.1	54	PASSED
7840.5	32.84	43.873	28.27	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
3979.4	42.02	126.154	42.9	-0.88	32	74	PASSED
7960.9	45.93	197.902	40.9	5.03	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
3979.4	29.09	28.49	29.97	-0.88	24.9	54	PASSED
7960.9	33.03	44.807	28	5.03	21	54	PASSED

3. Test Equipment

3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
-	RF Emission Software	EMC32 Test Software	R&S	22/24/27, 15C, 15B
BJPCWH0020	DC Power supply	HP6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C, 15B
BJPCPT0069	LISN 50 μ H	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	Temperature Test chamber	VT4002	Votsch industrietechnik	22/24/27, 15C
BJPCTC0090	FSP spectrum analyzer	FSP30	R&S	22/24/27, 15C
BJPCTC0094	GPIO-RS232 convertor	GPIO-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

3.2. 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	-