FCC Part 22/24 Compliance Test Report

Test Report no.:	FCC22&24_RM-849_18.docx	**Date of Report:**	25-May-2012
Number of pages:	8	**Customer's Contact person:**	Hu Dongji
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-849 / Battery BP-3L / AC Charger AC-50E / USB data cable CA-190CD / Headset WH-208**		
FCC ID:	QTLRM-849	**IC:**	661AB-RM849
Supplement reports:	-		
Testing has been carried out in accordance with:	**CFR 47, FCC rules Parts 22/24 , TIA-603-C-2004 and IC standards, RSS-GEN (Issue 3, December 2010), 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:	Sherina Gao Digitally signed by Sherina Gao DN: cn=Sherina Gao, o=PSCL, ou=NOKIA, email=sherina.gao@nokia.com, c=CN Date: 2012.05.25 14:24:31 +08'00'		

Gao Sherina, Engineer, EMC

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1. Summary for FCC Part 22/24 Compliance Test Report

Date of receipt	27-Apr-2012
Testing completed	09-May-2012
The customer's contact person	Hu Dongji
Test Plan referred to	T:\Projects\RM-849\TestPlan\RS_testplan_RM-849.xls
Notes	-
Document name	FCC22&24_RM-849_18.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-849	004402138942879;059P3M1	2035	-	1100.0000.8773.12150	52727
Battery	BP-3L	3932131515450172307;0670635	-	-	-	52710
AC Charger	AC-50E	4090492071260400827;0675619	-	-	-	52718
USB data cable	CA-190CD	07304571506G2F	-	-	-	52720
Headset	WH-208	1483T41	-	-	-	52715

1.2. Summary of Test Results

GSM850:

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.4	Conducted RF output power	NP
§22.913(a)	4.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§22.917(a)	4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	NP
§2.1055(a)	4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.3	Frequency stability, voltage variation	NP

WCDMA 850 (Band V):

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.4	Conducted RF output power	NP
§22.913(a)	4.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§22.917(a)	4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.3	Frequency stability, voltage variation	NP

GSM1900:

Section in CFR 47	Section in RSS-GEN or RSS-133	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	NP
§24.232(b)	6.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP

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§24.238(a)	6.5	Band edge compliance	NP
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	NP

WCDMA 1900 (Band II):

Section in CFR 47	Section in RSS-GEN or RSS-133	Name of the test	Result
§2.1046(a)	6.4	Conducted RF output power	NP
§24.232(b)	6.4	Radiated RF output power	NP
§2.1049(h)	4.6.1	99 % occupied bandwidth	NP
§24.238(a)	6.5	Band edge compliance	NP
§24.238(a), §2.1051	6.5	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.5	Spurious radiated emissions	PASSED
§2.1055(a)	6.3	Frequency stability, temperature variation	NP
§2.1055(d)	6.3	Frequency stability, voltage variation	NP

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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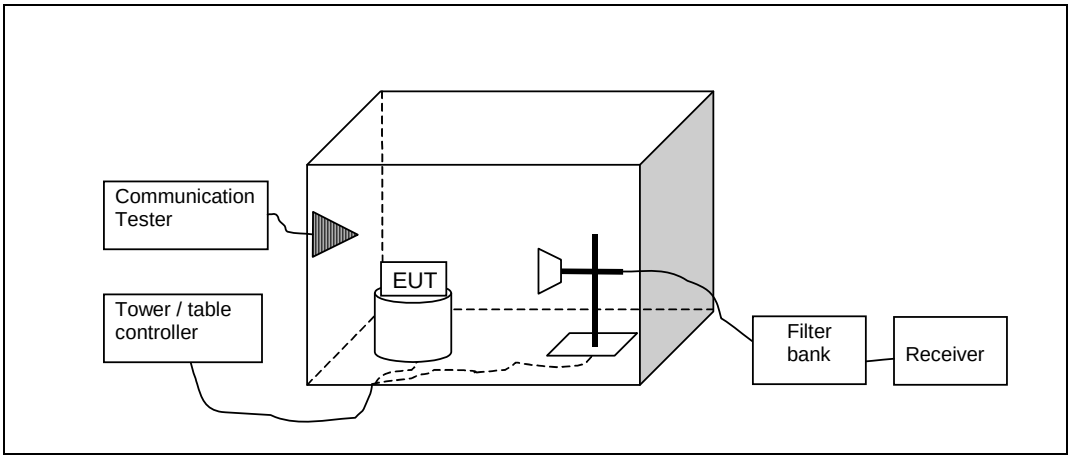
2. Spurious radiated emissions

(FCC §22.917(a), §2.1053, §24.238(a), §2.1053, RSS-132 4.5, RSS-133 6.5)

EUT with DUT number	RM-849, DUT 52727
Accessories with DUT numbers	BP-3L, DUT 52710 ; AC-50E, DUT 52718 ; CA-190CD, DUT 52720 ; WH-208, DUT 52715
Operation Voltage [V] / [Hz]	Nominal
Results	PASSED
Remarks	-
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	23/42/101.1
Date of measurements	09-May-2012
Measured by	Zou Ming

2.1.1 Test Setup



2.2. Test method and limit

The measurement is made according to TIA-603-C-2004 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on 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 substitution method is used. Substitution values at each frequencies are measured beforehand and saved to the test software.The substitution corrections are obtained as described below:

ASUBST = PSUBST TX - PSUBST RX - LSUBST CABLES + GSUBST TX ANT

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Where ASUBST is the final substitution correction including receive antenna gain. PSUBST TX is signal generator level, PSUBST RX is receiver level, LSUBST CABLES is cable losses including both TX and RX cables and GSUBST TX ANT is substitution antenna gain.

The measurement results are obtained as described below:

P[dBm] = PMEAS + ATOT

Where PMEAS is receiver reading in dBm and ATOT is total correction factor including cable loss and substitution correction (ATOT = LCABLES - GPREAMP + ASUBST).

Limits for spurious radiated emissions measurements

Operation band	Frequency range [MHz]	Limit [dBm]
GSM 850 / WCDMA 850	30 - 8500	-13
GSM 1900 / WCDMA 1900 WCDMA 1700 / LTE 1700	30 - 18000	-13

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2.3. WCDMA 850 (Band V) TX Test results

FDD mode, 4175 / 835.0 MHz

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
847.584	-43.79	0.04178	-77.07	33.28	VERTICAL	PASSED
847.6	-44.02	0.03963	-77.3	33.28	VERTICAL	PASSED
847.616	-42.66	0.0542	-75.94	33.28	VERTICAL	PASSED
847.741	-45.18	0.03034	-78.48	33.3	VERTICAL	PASSED
847.95	-44.9	0.03236	-78.24	33.34	VERTICAL	PASSED

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

2.4. GSM1900 TX Test results

GSM mode, Channel 661 / 1880.0 MHz

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
2782.615	-45.9	0.0257	-63.27	17.37	HORIZONTAL	PASSED
2802.189	-45.72	0.02679	-63.34	17.62	HORIZONTAL	PASSED
2869.481	-44.89	0.03243	-63.48	18.59	HORIZONTAL	PASSED
2910.586	-43.78	0.04188	-62.88	19.1	HORIZONTAL	PASSED
2943.487	-44.27	0.03741	-63.05	18.78	VERTICAL	PASSED
2995.042	-44.93	0.03214	-63.84	18.91	HORIZONTAL	PASSED

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

2.5. GSM1900-E1 TX Test results

EGPRS mode, Channel 661 / 1880.0 MHz

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
2725.721	-47.11	0.01945	-63.45	16.34	HORIZONTAL	PASSED
2800.525	-45.28	0.02965	-62.83	17.55	HORIZONTAL	PASSED
2883.787	-43.76	0.04207	-62.72	18.96	VERTICAL	PASSED
2907.618	-43.78	0.04188	-62.72	18.94	HORIZONTAL	PASSED
2913.853	-43.62	0.04345	-62.82	19.2	HORIZONTAL	PASSED
2983.904	-44.73	0.03365	-63.78	19.05	HORIZONTAL	PASSED

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

2.6. WCDMA 1900 (Band II) TX Test results

FDD mode, Channel 9400 / 1880.0 MHz

Frequency [MHz]	P [dBm]	P [µW]	P_{MEAS} [dBm]	A_{TOT} [dB]	Polarisation	Result
2882.704	-44.52	0.03532	-62.52	18	VERTICAL	PASSED
2979.695	-45.63	0.02735	-63.33	17.7	HORIZONTAL	PASSED
14238.758	-45.23	0.02999	-68.48	23.25	HORIZONTAL	PASSED

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

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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
BJPCHW0020	DC Power supply	Hp6632B	HP	22/24/27, 15C
BJPCPT0040	Receiver	ESCS30	R&S	15C,15B
BJPCPT0073	Signal Generator	SMR 20	R&S	22/24/27, 15C, 15B
BJPCPT0079	LISN 50 µH	ESH3-Z5	R&S	15C,15B
BJPCPT0131	Communication Tester	CMU200	R&S	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	E8357C	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	-

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