

FCC Part 22/24 Compliance Test Report

Test Report no.:	Cph_FCC_0837_03.doc	Date of Report:	10-Sep-2008
Number of pages:	12	Customer's Contact person:	Xu Shanshan

Testing laboratory:	TCC Nokia Copenhagen Laboratory Frederikskaj 1790 COPENHAGEN V DENMARK Tel. +45 33 292929 Fax. +45 33 292934	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.:	99059		
IC recognition no.:	661AD-1		

Tested devices/ accessories: **Phone: RM-439 (hw0212), Battery: BL-4S, Headset: HS-105
AC charger: AC-3U**

FCC ID:	QTLRM-439	IC:	661AB-RM439
----------------	-----------	------------	-------------

Supplement reports: None

Testing has been carried out in accordance with: **CFR 47, FCC rules Parts 22 and 24, TIA-603-C-2004 and IC standards RSS-GEN (Issue 2, June 2007), RSS-132 (Issue 2, September 2005) and RSS-133 (Issue 4, February 2008). 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:

Jan Engelbrechtsen, Test System Manager

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

Date of receipt	21-Aug-2008
Testing completed	10-Sep-2008
The customer's contact person	Xu Shanshan
Test Plan referred to	T:\Projects\RM-439\TestPlan_RS\RS_Testplan_RM-439.xls
Notes	None
Document name	T:\Projects\RM-439\EMC\Results\FCC\Cph_FCC_0837_03.doc

1.1. EUT and Accessory Information

The EUT is a 2-band (GSM850/1900) mobile phone with GPRS, EGPRS and Bluetooth. The EUT is tested with maximum rated TX power, modulated with pseudo random bit sequence (PRBS9).

Product	Type	SN	HW	MV	SW	DUT
Phone	RM-439	001004/00/332634/6	0212	-	f107w41_08w31	26118
Battery	BL-4S	3820668266210316193;0670577	-	-	-	26122
Headset	HS-105	0694299803502100526	0.2	0.5	-	26946
AC charger	AC-3U	4419297472052100254;0675372	-	-	-	26945

1.2. Summary of Test Results

GSM 850:

Section in CFR 47	Section in <i>RSS-GEN</i> or <i>RSS-132</i>	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	Passed
§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	Passed
§2.1055(d)	4.3	Frequency stability, voltage variation	Passed

GSM 1900:

Section in CFR 47	Section in <i>RSS-GEN</i> or <i>RSS-133</i>	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	Passed
§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	NP
§2.1055(a)	6.3	Frequency stability, temperature variation	Passed
§2.1055(d)	6.3	Frequency stability, voltage variation	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 Copenhagen Laboratory.

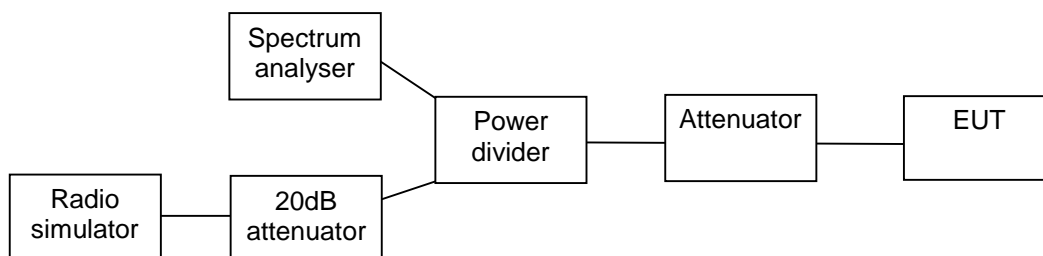
CONTENTS

1. Summary for FCC Part 22/24 Compliance Test Report	2
1.1. EUT and Accessory Information	2
1.2. Summary of Test Results	2
2. 99 % occupied bandwidth (FCC §2.1049(h), RSS-GEN 4.6.1)	4
2.1. Test setup	4
2.2. Test method and limit	4
2.3. GSM 850 Test results	5
2.4. GSM 1900 Test results	6
3. Frequency stability, temperature variation (FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3)	7
3.1. Test setup	7
3.2. Test method and limit	7
3.3. GSM 850 Test results	8
3.4. GSM 1900 Test results	8
4. Frequency stability, voltage variation (FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3)	9
4.1. Test setup	9
4.2. Test method and limit	9
4.3. GSM 850 Test results	10
4.4. GSM 1900 Test results	10
5. Test Equipment	11
5.1. Conducted measurements	11
5.2. Radiated measurements	11

2. 99 % occupied bandwidth
(FCC §2.1049(h), RSS-GEN 4.6.1)

EUT with DUT number	RM-439 dut 26118, BL-4S dut 26122
Accessories with DUT numbers	HS-105 dut 26946, AC-3U dut 26945
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.2 / 53.5 102.31
Date of measurements	09-Sep-2008
Measured by	Jan Engelbrechtsen

2.1. Test setup



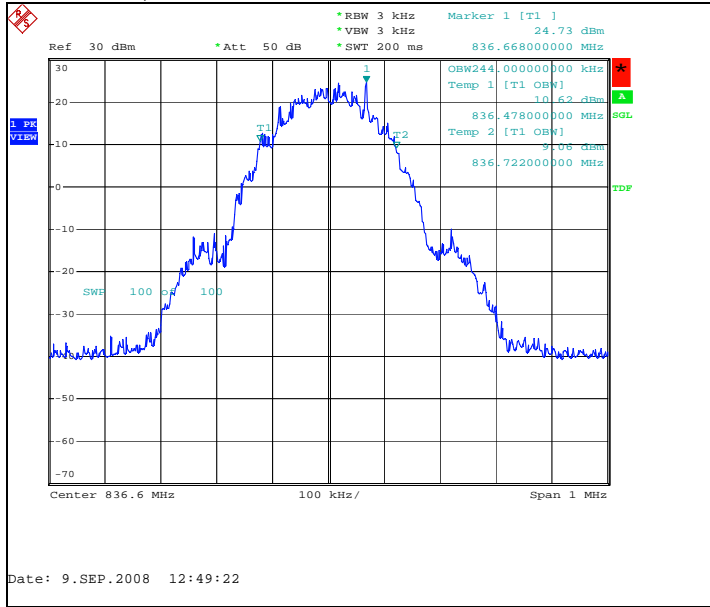
2.2. Test method and limit

The measurement is made according to FCC rules parts 22 and 24 and IC standard RSS-GEN.

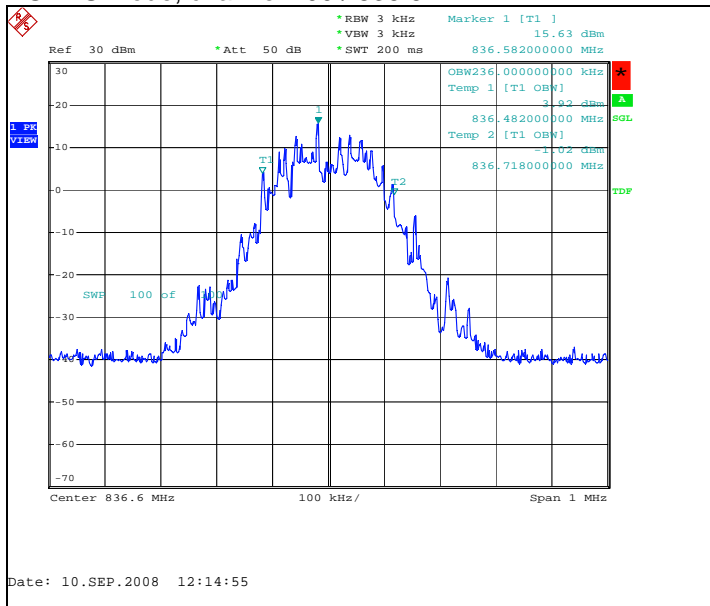
2.3. GSM 850 Test results

Operation mode (TX on)	99% occupied bandwidth [kHz]
GSM	244.000
EGPRS	236.000

GSM mode, channel 190 / 836.6 MHz



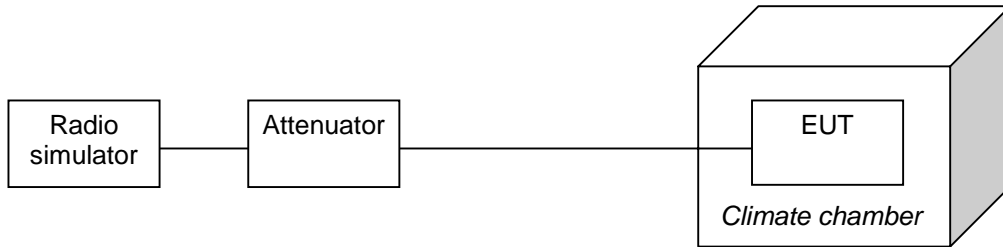
EGPRS mode, channel 190 / 836.6 MHz



3. Frequency stability, temperature variation
(FCC §2.1055(a), RSS-132 4.3, RSS-133 6.3)

EUT with DUT number	RM-439 dut 26118, BL-4S dut 26122
Accessories with DUT numbers	HS-105 dut 26946, AC-3U dut 26945
Operation Voltage [V] / [Hz]	Nominal
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	22.2 / 53.5 102.31
Date of measurements	09-Sep-2008
Measured by	Jan Engelbrechtsen

3.1. Test setup



3.2. Test method and limit

The measurement is made according to FCC rules parts 22 and 24 and IC standards RSS-132 and RSS-133 as follows:

- a) The climate chamber temperature is set to the maximum value and the temperature is allowed to stabilize.
- b) The EUT is placed in the chamber.
- c) The EUT is set in idle mode for 15 minutes.
- d) The EUT is set to transmit.
- e) The transmit frequency error was measured immediately.
- f) The steps c - e were repeated for each temperature.

Limits for frequency stability, temperature variation measurements

Frequency deviation [ppm]
± 2.5

3.3. GSM 850 Test results

GSM mode, channel 190 / 836.6 MHz

Temperature [°C]	Deviation [Hz]	Deviation [ppm]
50	-13	-0.0155
40	-9	-0.0108
30	-27	-0.0323
20	-20	-0.0239
10	-16	-0.0191
0	-9	-0.0108
-10	-26	-0.0311
-20	-22	-0.0263

Phone switches off at -30°C

3.4. GSM 1900 Test results

GSM mode, channel 661 / 1880.0 MHz

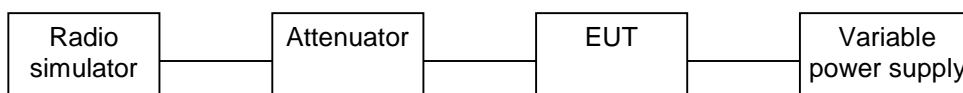
Temperature [°C]	Deviation [Hz]	Deviation [ppm]
50	+28	+0.0149
40	-38	-0.0202
30	+28	+0.0149
20	-42	-0.0224
10	-53	-0.0282
0	-43	-0.0229
-10	-27	-0.0144
-20	+46	+0.0245

Phone switches off at -30°C

4. Frequency stability, voltage variation
(FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3)

EUT with DUT number	RM-439 dut 26118
Accessories with DUT numbers	HS-105 dut 26946
Operation Voltage [V] / [Hz]	Dummy battery, DC power supply
Result	Passed
Remarks	None
Temp [°C] / Humidity [%RH] / Air Pressure [kPa]	21.6 / 58.5 102.02
Date of measurements	10-Sep-2008
Measured by	Jan Engelbrechtsen

4.1. Test setup



4.2. Test method and limit

The measurement is made according to FCC rules parts 22 and 24 and IC standards RSS-132 and RSS-133 as follows:

The EUT battery was replaced with an adjustable power supply. The frequency stability was measured at nominal voltage and at the battery cut-off point.

Limits for frequency stability, voltage variation measurements

Frequency deviation [ppm]
± 2.5

4.3. GSM 850 Test results

GSM mode, channel 190 / 836.6 MHz

Voltage level [V]	Deviation [Hz]	Deviation [ppm]
Battery cut-off point / 3.40	-26	-0.0311
Nominal / 3.70	-14	-0.0167

4.4. GSM 1900 Test results

GSM mode, channel 661 / 1880.0 MHz

Voltage level [V]	Deviation [Hz]	Deviation [ppm]
Battery cut-off point / 3.40	-42	-0.0223
Nominal / 3.70	46	0.0245

5. Test Equipment

5.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
13037	Power Supply 0-15V 10A	EA3012	LP Instruments	15C, 15B
13513	Pulse Limiter 9KHz-30MHz	ESH3Z2	Rohde&Schwarz	15C, 15B
13666	EMI Test Reciever 9KHz-2,5GHz	ESPC	Rohde&Schwarz	15C, 15B
13935	Two Lines Artificial Mains Network	ESH3-Z5	Rohde&Schwarz	15C, 15B
16995	Directional Coupler 20dB 0,5-2,0 GHz SMA Conn.	1538RA-20	Weinschel	15C, 15B
18772	Shielded Chamber	RFD-100	ETS-Lindgren	15C, 15B
19171	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	15C, 15B
11386	System DC Power Supply	HP6632A	Hewlett Packard	22/24/27, 15C, 15B
19678	Spectrum Analyzer 26 GHz	FSP	Rohde&Schwarz	22/24/27, 15C, 15B
16601	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
19625	Vötsch Climatic Chamber	VT4002EMC	Vötsch	22/24/27, 15C, 15B
13357	Rohde & Schwartz Signal Generator	SMP02	Rohde&Schwarz	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B

5.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
18416	Universal Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
15742	Programmable Relay Switching System	-----	Pickering	22/24/27, 15C, 15B
14020	Power Supply Module Relay Switching System 45W	10-910-002	Pickering	22/24/27, 15C, 15B
15743	Power Supply Module Relay Switching System 50W	10-910L-001	Pickering	22/24/27, 15C, 15B
16490	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
	RS-232/IEEE-488.2 Interface	10-921-001	Pickering	22/24/27, 15C, 15B
20078	Relay 2x6 Chnl µWave Mux	10-785B-522	Pickering	22/24/27, 15C, 15B
14021	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
	Relay Dual 6 Chnl µWave Mux	10-785-522		22/24/27, 15C, 15B
17644	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16948	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
16949	Dual 6 Channel MUX Microwave Relay SMA 50 Ohm	10-785-522	Pickering	22/24/27, 15C, 15B
18792	Multi Device Controller	2090	ETS-EMCO	22/24/27, 15C, 15B
14963	RF Preamplifier 100MHz-4GHz (Metal Chassis)	AFS3-00100400	Miteq/NMP Cph	22/24/27, 15C, 15B
18861	EMI Test Receiver 20Hz-26,5GHz	ESI	Rohde&Schwarz	22/24/27, 15C, 15B
20335	Ultra Broadband Antenna Ultralog 30-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
18773	Shielded Chamber	RFD-100	ETS-Lindgren	22/24/27, 15C, 15B
18774	Shielded Chamber	RFSD-F/A-100	ETS-Lindgren	22/24/27, 15C, 15B
19151	High Pass Filter 3GHz	WHJS3000-10SS	Wainwright	22/24/27, 15C, 15B

Eq. No	Equipment	Type	Manufacturer	Used in
	WHK3.0/18G-10ss			
13937	Ultra Stable Notch Filter 850MHz	WRCA902.4-0.2/40-6SS	Wainwright Instruments	22/24/27, 15C, 15B
13936	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright Instruments	22/24/27, 15C, 15B
14114	Highpass filter	WHK1000-12SS	Wainwright Instruments	22/24/27, 15C, 15B
14188	Ultra Stable Notch Filter 902,4MHz	WRCA902.4-0.2/40-6SS	Wainwright	22/24/27, 15C, 15B
14187	Ultra Stable Notch Filter 1747,5MHz	WRCD1747.5-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
16633	Ultra Stable Notch Filter 1880,0MHz	WRCD1880.0-0.2/40-10SS	Wainwright	22/24/27, 15C, 15B
19587	BT/WLAN Band Reject Filter	WRCG2400/2483-2390/2493-35/10SS	Wainwright	22/24/27, 15C, 15B
20115	WDCMA Band 2 filter		Wainwright	24, 15C, 15B
20114	WDCMA Band 4 filter	WRCG1737/1743-1733/1747-40/6SS	Wainwright	27, 15C, 15B
20116	WDCMA Band 5&6 filter	WRCG832/83/-825/845-40/5SS	Wainwright	22, 15C, 15B
18323	Band reject filter 1947-1953MHz 40dB	WRCG1947/1953-1940/1960-40/6SS	Wainwright	22/24/27, 15C, 15B
20031	Double Ridged Broadband Horn	BBHA 9120 D	SCHWARZBECK	22/24/27, 15C, 15B
19966	Magnetic Loop Antenna 9 kHz - 30 MHz	HFH2-Z2	Rohde&Schwarz	15C, 15B
14993	EMI Test Receiver 9KHz-2750MHz	ESCS30	Rohde&Schwarz	22/24/27, 15C, 15B
15191	Turntable Contoller Unit	G-800SDX	YAESU	22/24/27, 15C, 15B
14900	Antenna Controller	HD100	HD GmbH	22/24/27, 15C, 15B
19374	Resonant Dipole Antenna 850MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
19375	Resonant Dipole Antenna 1900MHz SMA m Conn.	-----	NMP Cph	22/24/27, 15C, 15B
20168	Bluetooth EDR Tester	CBT	Rohde&Schwarz	22/24/27, 15C, 15B