

## **GSM850 test report For RH-54**

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## 1 LABORATORY INFORMATION


Test laboratory:	TCC Beijing Nokia Tower, Pacific Century Place, Chaoyang district, Beijing, China, 100027  Tel. +86 10 65392828 Fax. +86 10 65393824
FCC registration number:	FCC 884453 (Dec.11, 2003)
IC file number:	IC 4917 (Feb 16, 2004)

## 2 CUSTOMER INFORMATION

Client:	Nokia Denmark/Copenhagen Frederikskaj 1790 COPENHAGEN V  Tel. +45(823)33-292929 Fax. +45-33-292934
Contact person:	Ole Hoffmann Sorensen
Receipt of EUT:	2004-09-01
Date of testing:	2004-09-03
Date of report:	2004-09-03

The tests listed in this report have been done to demonstrate compliance with the applicable requirements in FCC rules Part 22 and IC standard RSS-132.

Contents approved:


Tu Yuhua EMC Team Leader

### 3 SUMMARY OF TEST RESULTS

Section in CFR 47	Section in RSS-132		Result
22.913 (a)	6.4	radiated RF output	PASS

PASS

Pass

FAIL

Fail

X

Measured, but there is no applicable performance criteria

-

Not done

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## 4 EUT INFORMATION

The EUT and accessories used in the tests are listed below. Later in this report only EUT numbers are used as reference.

	Device	Type	S/N	EUT number
<b>EUT</b>	GSM850 mobile phone	RH-54	00100400/166940/ 8	D0796
<b>Accessories</b>	Battery	BL-4C	067038911124313 631	D0798

Notes: -

### 4.1 EUT description

The EUT is a GSM850 mobile phone

The EUT was not modified during the tests.

## 5 EUT TEST SETUPS

For each test the EUT was exercised to find out the worst case of operation modes and device configuration.

The test setup photographs are in a separate document as referenced in section 9.

## 6 APPLICABLE STANDARDS

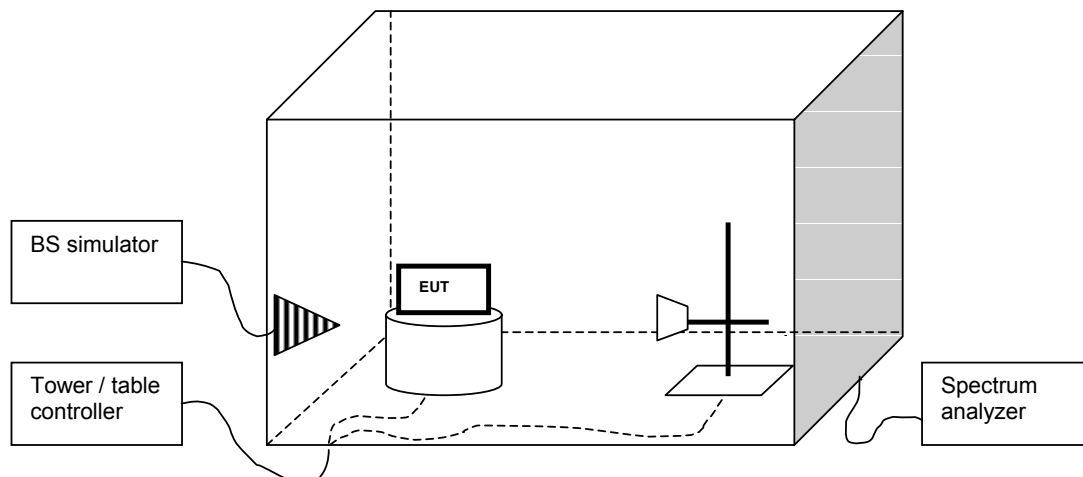
The tests were performed in guidance of CFR 47 part 22, part 2, ANSI/TIA/EIA-603-A and RSS-132. Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method" for each test case.

## 7 RADIATED RF OUTPUT POWER

EUT	D0796		
Accessories	D0798		
Temp, Humidity, Air Pressure	19.5 °C	64RH%	1006mbar
Date of measurement	2004-09-03		
FCC rule part	§22.913 (a)		
RSS-132 section	6.4		
Measured by	Jia Dongsheng		
Result	PASS		

### 7.1 Test setup

The EUT was set on a non-conductive turn table in a semi anechoic chamber. In the corner of the chamber there was a communication antenna, which was connected to the BS simulator located outside the chamber. The radiated power from the EUT was measured with an antenna fixed to a antenna tower. The tower and turn table were remotely controlled to turn the EUT and change the antenna polarization. The measured signal was routed from the measuring antenna to the spectrum analyzer. The BS simulator was used to set the TX channel and power level and modulate the TX signal with different bit patterns.



### 7.2 Test method

- The maximum power level was searched by moving the turn table and measuring antenna and manipulating the EUT. This level ( $P_{EUT}$ ) was recorded.
- The EUT was replaced with a substituting antenna.
- The substituting antenna was fed with the power ( $P_{Subst\_TX}$ ) giving a convenient reading on the spectrum analyzer. That reading ( $P_{Subst\_RX}$ ) on spectrum analyzer was recorded.

### 7.3 EUT operation mode

EUT operation mode	TX on, 1 time slot transmission, PRBS 2E9-1 modulation
EUT channel	128, 190, 251
EUT TX power level	4 (33dBm)

### 7.4 Limit

ERP [W]	
FCC	$\leq 7$
IC	$\leq 6.3$

### 7.5 Results

The formula below was used to calculate the ERP.

$$P_{ERP[W]} = \frac{10^{(P_{Subst\_TX[dBm]} + (P_{EUT[dBm]} - P_{Subst\_RX[dBm]}) + G_{Substitute\_antenna[dBd]} - L_{Cable[dB]}) / 10}}{1000}$$

where the variables are as follows:

$P_{EUT [dBm]}$	Measured power level (from step a in 7.2) from the EUT
$P_{Subst\_TX [dBm]}$	Power (from step c in 7.2) fed to the substituting antenna
$P_{Subst\_RX [dBm]}$	Power (from step c in 7.2) received with the spectrum analyzer
$G_{Substitute\_antenna [dBd]}$	Gain of the substitutive antenna over dipole (dBi – 2.15dB)
$L_{Cable [dB]}$	Loss of the cable between signal generator and the substituting antenna

EUT Channel	$P_{EUT [dBm]}$	$P_{Subst TX [dBm]}$	$P_{Subst RX [dBm]}$	Cable loss [dB]	Antenna gain [dBd]	ERP [dBm]	ERP [W]
128	-3.11	5	-32.94	3.53	-3.29	28.01	0.632
190	-2.31	5	-32.48	3.57	-3.31	28.29	0.675
251	-2.9	5	-32.81	3.60	-3.14	28.17	0.656

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## 8 TEST EQUIPMENT

Each test equipment is calibrated once a year.

### 8.1 Radiated measurements

Equipment	Model	Manufacturer
AMPLIFIER	J52-00100400	ROHDE&SCHWARZ
AMPLIFIER	JS2-00100400	MITEQ
ANTENNA	HF906	ROHDE&SCHWARZ
ANTENNA	HF906	ROHDE&SCHWARZ
ANTENNA	VUBA 9117	SWARZBECK
DC SOURCE	66319B	AGILENT
FILTER	WRCT 800.880 – 0.2/40 – 5SSK	Wainwright Instruments GmbH
REFERENCE GENERATOR	CG-520	COM-POWER
RELAY UNIT	TS-RSP	ROHDE&SCHWARZ
RELAY UNIT	TS-RSP	ROHDE&SCHWARZ
RELAY UNIT	512670	SPINNER
SIGNAL GENERATOR	SMR 20	ROHDE&SCHWARZ
TEST RECEIVER	ESI 26	ROHDE&SCHWARZ



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## **9 TEST SETUP PHOTOGRAPHS**

See "RH-54\_test\_setup\_photographs.doc".