

## FCC Part 22/24 Compliance Test Report

<b>Test Report no.:</b>	Bej_FCC_0747_03.doc	<b>Date of Report:</b>	30.11.2007
<b>Number of pages:</b>	6	<b>Customer's Contact person:</b>	Dai Xuejun
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<b>FCC listing no.:</b>	884453		
<b>IC recognition no.:</b>	4917		
<b>Tested devices/ accessories:</b>	<b>Phone RM-391 / Battery BL-4B, AC-charger AC-3, Headset HS-47.</b>		
<b>FCC ID:</b>	QTLRM-391	<b>IC:</b>	661AB-RM391
<b>Supplement reports:</b>	-		
<b>Testing has been carried out in accordance with:</b>	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 3, June 2005). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		
<b>Documentation:</b>	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.		
<b>Test Results:</b>	<b>The EUT complies with the requirements in respect of all parameters subject to the test.</b> The test results relate only to devices specified in this document.		
<b>Date and signature for the contents:</b>			

Yin Hongpeng, Engineer

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

Date of receipt	20.11.2007
Testing completed	23.12.2007
The customer's contact person	Dai Xuejun
Test Plan referred to	T:\Projects\RM-391\TestPlan_RS\RS_Testspan_RM-391.xls
Notes	-
Document name	T:\Projects\RM-391\EMC\Results\FCC\Bej_FCC_0747_03.doc

### 1.1. EUT and Accessory Information

The EUT is a 2-band (GSM850/1900) mobile phone with GPRS 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-391	001004/00/261373/6	0424	-	pt06w47_07 w46_fam	50739
Battery	BL-4B	0670501382066N513A10100157	-	-	-	50575
AC-Charger	AC-3	3997916506292100005:0675370	-	-	-	50578
Headset	HS-47	0694579651502105972	-	-	-	50727

### 1.2. Summary of Test Results

#### GSM 850:

Section in CFR 47	Section in RSS-GEN or RSS-132	Name of the test	Result
§2.1046(a), 22.913(a)	4.6, 4.4	Conducted RF output power	NP
§22.913(a)	4.6, 4.4	Radiated RF output power	NP
§2.1049(h)	4.4.1	99 % occupied bandwidth	NP
§22.917(a)	4.7, 4.5	Band edge compliance	NP
§22.917(a), §2.1051	4.7, 4.5	Spurious emissions at antenna terminals	NP
§22.917(a), §2.1053	4.7, 4.5	Spurious radiated emissions	PASSED
§2.1055(a)	4.5, 4.3	Frequency stability, temperature variation	NP
§2.1055(d)	4.5, 4.3	Frequency stability, voltage variation	NP

#### GSM 1900:

Section in CFR 47	Section in RSS-133	Name of the test	Result
§2.1046(a)	6.2	Conducted RF output power	NP
§24.232(b)	6.2	Radiated RF output power	NP
§2.1049(h)	5.6	99 % occupied bandwidth	NP
§24.238(a)	6.3	Band edge compliance	NP
§24.238(a), §2.1051	6.3	Spurious emissions at antenna terminals	NP
§24.238(a), §2.1053	6.3	Spurious radiated emissions	PASSED
§2.1055(a)	7	Frequency stability, temperature variation	NP
§2.1055(d)	7	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 Beijing Laboratory.

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## CONTENTS

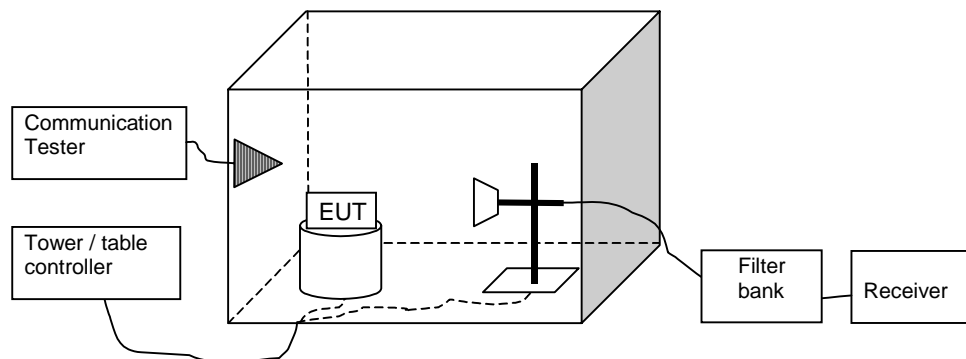
<b>1. Summary for FCC Part 22/24 Compliance Test Report .....</b>	<b>2</b>
1.1. EUT and Accessory Information .....	2
1.2. Summary of Test Results .....	2
<b>2. Spurious radiated emissions (FCC §22.917(a), §24.238(a), §2.1053, RSS-GEN 4.7, RSS-132 4.5, RSS-133 6.3) .....</b>	<b>4</b>
2.1. Test setup .....	4
2.2. Test method and limit .....	4
2.3. GSM 850 Test results .....	5
2.4. GSM 1900 Test results .....	5
<b>3. Test Equipment.....</b>	<b>6</b>
3.1. Conducted measurements .....	6
3.2. Radiated measurements .....	6

## 2. Spurious radiated emissions

(FCC §22.917(a), §24.238(a), §2.1053, RSS-GEN 4.7, RSS-132 4.5, RSS-133 6.3)

<b>EUT with DUT number</b>	RM-391 DUT50739
<b>Accessories with DUT numbers</b>	BL-4B DUT50575;AC-3 DUT50578;HS-47 DUT50727
<b>Operation Voltage [V] / [Hz]</b>	115 / 60
<b>Result</b>	PASSED
<b>Remarks</b>	Phone was tested with flip open
<b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b>	20 / 64 / 102.1
<b>Date of measurements</b>	22.11.2007
<b>Measured by</b>	Yin Hongpeng

### 2.1. 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 the 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:

$$A_{SUBST} = P_{SUBST\_TX} - P_{SUBST\_RX} - L_{SUBST\_CABLES} + G_{SUBST\_TX\_ANT}$$

Where  $A_{SUBST}$  is the final substitution correction including receive antenna gain.  $P_{SUBST\_TX}$  is signal generator level,  $P_{SUBST\_RX}$  is receiver level,  $L_{SUBST\_CABLES}$  is cable losses including both TX and RX cables and  $G_{SUBST\_TX\_ANT}$  is substitution antenna gain.

The measurement results are obtained as described below:

$$P [dBm] = P_{MEAS} + A_{TOT}$$

Where  $P_{MEAS}$  is receiver reading in dBm and  $A_{TOT}$  is total correction factor including cable loss, preamplifier gain and substitution correction ( $A_{TOT} = L_{CABLES} - G_{PREAMP} + A_{SUBST}$ ).

Limits for spurious radiated emissions measurements

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

### 2.3. GSM 850 Test results

Flip open

GSM mode, channel 190 / 836.6 MHz

Frequency [MHz]	P [dBm]	P [μW]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
1673.143287	-40.10	0.09772	-38.20	-1.90	HORIZONTAL	PASSED
2509.820641	-47.60	0.01738	-54.20	6.60	VERTICAL	PASSED
3346.197395	-55.30	0.00295	-66.00	10.70	HORIZONTAL	PASSED

### 2.4. GSM 1900 Test results

Flip open

GSM mode, channel 661 / 1880.0 MHz

Frequency [MHz]	P [dBm]	P [μW]	P <sub>MEAS</sub> [dBm]	A <sub>TOT</sub> [dB]	Polarisation	Result
3760.023046	-34.60	0.34674	-48.50	13.90	VERTICAL	PASSED
5640.278557	-38.00	0.15849	-54.30	16.30	HORIZONTAL	PASSED
7520.042084	-37.30	0.18621	-59.10	21.80	HORIZONTAL	PASSED

### 3. Test Equipment

#### 3.1. Conducted measurements

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0039	LISN	ESH3-Z5	BJPCPT0039	15C, 15B
BJPCPT0040	TEST RECEIVER	ESCS30	BJPCPT0040	15C, 15B
BJPCPT0069	LISN	ESH3-Z5	BJPCPT0069	15C, 15B
BJPCPT0079	LISN	ESH3-Z5	BJPCPT0079	15C, 15B
BJPCPT0191	PULSE LIMITER	ESH3-Z2	BJPCPT0191	15C, 15B

#### 3.2. Radiated measurements

Eq. No	Equipment	Type	Manufacturer	Used in
BJPCPT0129	Relay Unit	TS-RSP	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0130	Relay Unit	TS-RSP	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0080	Device Controller	EMCO2090	ETS-EMCO	22/24/27, 15C, 15B
BJPCTC0048	RF Pre-amplifier 10MHz-3GHz (Metal chassis)	AFS4-00100300-10-10P-4	MITEQ	22/24/27, 15C, 15B
BJPCTC0007	Ultra Broadband Antenna 30MHz-3000MHz	HL562	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0162	Horn Antenna 1GHz-18GHz	HF906	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0029	Horn Antenna 1GHz-18GHz	HF906	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0049	RF pre-amplifier 3GHz-18GHz	BLMA-0118-1A-BT	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCTC0046	Shielding Enclosure	3M Test Site	ETS-Lindgren	22/24/27, 15C, 15B
BJPCTC0047	Turntable	Model 2088-1.23	ETS-EMCO	22/24/27, 15C, 15B
BJPCPT0072	EMI Test Receiver 20Hz-26.5GHz	ESIB26	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0150	High Pass filter	WHKS 1200-10SS	Wainwright instruments	22/24/27, 15C, 15B
BJPCTC0034	Notch Filter	WRCT800/880-0.2/40-5SSK	Wainwright instruments	22, 15B
BJPCPT0151	Notch Filter	WRCD1800/2000-0.2/40-5SSK	Wainwright instruments	24, 15B
BJPCTC0017	Radio Communication Tester	CMU200	Rohde&Schwarz	22/24/27, 15C, 15B
BJPCPT0154	Filter	WRCT2402/2480-2400/2483.5-30-20SS	Wainwright instruments	15C, 15B
BJPCTC0058	Bluetooth tester	CBT	Rohde&Schwarz	15C, 15B
BJPCTC0064	WCDMA II FILTER	WRCG1877/1883-1870/1890-40/6SS	Wainwright instruments	24, 15B
BJPCTC0065	WCDMA V FILTER	WRCG832/838-825/845-40/5SS	Wainwright instruments	22, 15B