

## FCC Part 22/24 Compliance Test Report

|                                                                 |                                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                                                                                       |
|-----------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                         | FCC22&24_RM-833_06.docx                                                                                                                                                                                                                                                                                              | <b>Date of Report:</b>            | 19-Jan-2012                                                                                                                                                                           |
| <b>Number of pages:</b>                                         | 7                                                                                                                                                                                                                                                                                                                    | <b>Customer's Contact person:</b> | David Zhang                                                                                                                                                                           |
| <b>Testing laboratory:</b>                                      | TCC Nokia Salo Laboratory<br>P.O.Box(86)<br>Joensuunkatu 7H / Kiila 1B<br>FIN-24101 SALO, FINLAND<br>Tel. +358 (0) 7180 08000<br>Fax. +358 (0) 7180 45220                                                                                                                                                            | <b>Customer:</b>                  | Nokia Corporation<br>Beijing Economic and<br>Technological Development Area<br>No.5 Donghuan Zhonglu<br>Beijing<br>PRC China 100176<br>Tel. +86 10 8711 8888<br>Fax. +86 10 8711 4550 |
| <b>FCC listing no.:</b>                                         | 533467                                                                                                                                                                                                                                                                                                               |                                   |                                                                                                                                                                                       |
| <b>IC recognition no.:</b>                                      | 661V-1                                                                                                                                                                                                                                                                                                               |                                   |                                                                                                                                                                                       |
| <b>Tested devices/<br/>accessories:</b>                         | <b>Phone RM-833 / Dummy Battery SD-4 / Headset WH-102</b>                                                                                                                                                                                                                                                            |                                   |                                                                                                                                                                                       |
| <b>FCC ID:</b>                                                  | QTLRM-833                                                                                                                                                                                                                                                                                                            | <b>IC:</b>                        | -                                                                                                                                                                                     |
| <b>Supplement reports:</b>                                      | -                                                                                                                                                                                                                                                                                                                    |                                   |                                                                                                                                                                                       |
| <b>Testing has been<br/>carried out in<br/>accordance with:</b> | 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". |                                   |                                                                                                                                                                                       |
| <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><br>The test results relate only to devices specified in this document                                                                                                                                                |                                   |                                                                                                                                                                                       |
| <b>Date and signature<br/>for the contents:</b>                 |                                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                                                                                       |

**Sami Lehtonen, System Specialist, EMC**

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

|                               |                                                    |
|-------------------------------|----------------------------------------------------|
| Date of receipt               | 11-Jan-2012                                        |
| Testing completed             | 14-Jan-2012                                        |
| The customer's contact person | David Zhang                                        |
| Test Plan referred to         | T:\Projects\RM-833\TestPlan\RS_testplan_RM-833.xls |
| Notes                         | -                                                  |
| Document name                 | T:\Projects\RM-833\EMC\FCC22&24_RM-833_06.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, modulated with pseudo random bit sequence (PRBS9).

Devices under tests

| Product       | Type   | SN                  | HW   | MV | SW      | DUT   |
|---------------|--------|---------------------|------|----|---------|-------|
| Phone         | RM-833 | 004402138010693     | 0202 | -  | ma20.11 | 16144 |
| Dummy Battery | SD-4   | 27.09.2011/103618   | -    | -  | -       | 16153 |
| Headset       | WH-102 | 06943231401B3104011 | -    | -  | -       | 16148 |

### 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     | PASSED |

#### 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     |
| §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 | NP     |
| §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 Laboratory.

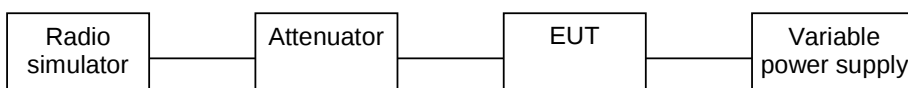
## CONTENTS

|                                                                                                       |          |
|-------------------------------------------------------------------------------------------------------|----------|
| <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. Frequency stability, voltage variation<br/>(FCC §2.1055(d), RSS-132 4.3, RSS-133 6.3) .....</b> | <b>4</b> |
| 2.1. Test Setup.....                                                                                  | 4        |
| 2.2. Test method and limit.....                                                                       | 4        |
| 2.3. GSM 1900 Test results .....                                                                      | 5        |
| 2.4. GSM 850 Test results .....                                                                       | 5        |
| <b>3. Test Equipment.....</b>                                                                         | <b>6</b> |
| 3.1. Conducted measurements .....                                                                     | 6        |
| 3.2. Radiated measurements .....                                                                      | 6        |

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

|                                                 |                                     |
|-------------------------------------------------|-------------------------------------|
| EUT with DUT number                             | RM-833, DUT 16144                   |
| Accessories with DUT numbers                    | SD-4, DUT 16153 ; WH-102, DUT 16148 |
| Operation Voltage [V] / [Hz]                    | 3.5V, 3.9V, 4.2V                    |
| Results                                         | PASSED                              |
| Remarks                                         | -                                   |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 21 / 35 / 100.2                     |
| Date of measurements                            | 14-Jan-2012                         |
| Measured by                                     | Sami Lehtonen                       |

### 2.1. Test Setup



### 2.2. Test method and limit

The measurement is made according to FCC rules parts 22, 24 and IC standard RSS-132, 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                   |

## 2.3. GSM 1900 Test results

GSM, channel 661 / 1880.0 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.2                   | 1880            | -2.65          | -0.0014         | PASSED |
| Battery cut-off point / 3.9 | 1880            | 3.42           | 0.0018          | PASSED |
| Battery cut-off point / 3.5 | 1880            | -9.56          | -0.0051         | PASSED |

## 2.4. GSM 850 Test results

GSM, channel 190 / 836.6 MHz

| Voltage level [V]           | Frequency [MHz] | Deviation [Hz] | Deviation [ppm] | Result |
|-----------------------------|-----------------|----------------|-----------------|--------|
| Max / 4.2                   | 836.6           | -12.01         | -0.0144         | PASSED |
| Battery cut-off point / 3.9 | 836.6           | -16.92         | -0.0202         | PASSED |
| Battery cut-off point / 3.5 | 836.6           | -14.59         | -0.0174         | PASSED |

### 3. Test Equipment

#### 3.1. Conducted measurements

| Eq. No | Equipment                | Type              | Manufacturer        | Used in            |
|--------|--------------------------|-------------------|---------------------|--------------------|
| 1759   | LISN 50 µH               | ESH3-Z5           | R&S                 | 15C, 15B           |
| 1916   | Communication Tester     | CMTA84            | R&S                 | 15B                |
| 1992   | Signal Generator         | 83630B            | Agilent             | 15C, 15B           |
| 1999   | Receiver                 | ESIB26            | R&S                 | 22/24/27, 15C, 15B |
| 2039   | Power Supply             | PL330QMD          | Thurlby             | 15C, 15B           |
| 2060   | LISN 50 µH               | ESH3-Z5           | R&S                 | 15C, 15B           |
| 2068   | CDN                      | S1                | NMP                 | 15C, 15B           |
| 2097   | Pulse Limiter            | ESH3-Z2           | R&S                 | 15C, 15B           |
| 2156   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2180   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2206   | Signal Generator         | SMX               | R&S                 | 15C, 15B           |
| 2347   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2352   | Spectrum Analyzer        | FSP-30            | R&S                 | 22/24/27, 15C      |
| 2359   | Temperature Test Chamber | VT4002            | Vötsch              | 22/24/27           |
| 2360   | Serial Bus Converter     | Serial 488A       | IO Tech             | 22/24/27           |
| 2362   | Power Supply             | NGPX 70/5         | R&S                 | 22/24/27           |
| 2388   | Bluetooth Tester         | CBT               | R&S                 | 15B                |
| 2389   | Signal Generator         | SMJ 100A          | R&S                 | 15B                |
| 2390   | Directional Coupler      | DC2600            | AR                  | -                  |
| 6009   | GPS Antenna              | SA-700            | Chronos             | 15C                |
| 6010   | GPS Network amplifier    | NLA20FPDC         | GPS Networking, Inc | 15C                |
| 6011   | GPS signal Splitter      | LDCBS1x4          | GPS Networking, Inc | 15C                |
| 6012   | CDN                      | CDN USB/c         | Teseq               | -                  |
| 6015   | Receiver                 | ESI               | R&S                 | 22/24, 15C, 15B    |
| -      | 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     | ES-K1 v.1.71      | R&S                 | 22/24/27, 15C, 15B |
| 6036   | Data Logger              | 175-H2            | Testo               | 22/24/27, 15C, 15B |
| 6038   | Data Logger              | Testo 580         | Testo               | 22/24/27, 15C, 15B |
| 6039   | USB Interface            | 5541765           | Testo               | 22/24/27, 15C, 15B |
| 2059   | V-network                | ESH3-Z6           | R&S                 | -                  |
| 6044   | V-network                | ESH3-Z6           | R&S                 | -                  |
| 6045   | Power splitter           | 11667B            | Agilent             | 22/24/27, 15C      |
| 6046   | Attenuator 10dB          | 8493C             | Agilent             | 22/24/27, 15C      |
| 6047   | Attenuator 20dB          | 8493C             | Agilent             | 22/24/27, 15C      |

#### 3.2. Radiated measurements

| Eq. No | Equipment            | Type                   | Manufacturer | Used in            |
|--------|----------------------|------------------------|--------------|--------------------|
| 1917   | Communication Tester | CMTA84                 | R&S          | 15B                |
| 1988   | Antenna              | HL562                  | R&S          | 22/24/27, 15C, 15B |
| 1989   | Relay Switch Unit    | TS-RSP                 | R&S          | 22/24/27, 15C, 15B |
| 2009   | Signal Generator     | SMP 22                 | R&S          | 22/24/27, 15C, 15B |
| 2027   | CDN                  | M2 (modified) DC1      | MEB          | 22/24/27, 15C, 15B |
| 2028   | CDN                  | M3 (modified) DC2      | MEB          | 22/24/27, 15C, 15B |
| 2029   | Power Supply         | PL330                  | Thurlby      | 22/24/27, 15C      |
| 2043   | Band Reject Filter   | WRCA824/849-0,2-6SS    | Wainwright   | 22                 |
| 2047   | Band Reject Filter   | WRCC1800/2000-0.2-10SS | Wainwright   | 24                 |
| 2051   | High Pass Filter     | 4HC1700-1-KK           | R&S          | 22                 |
| 2109   | Power Supply         | PL330QMD               | Thurlby      | 22/24/27, 15C, 15B |
| 2116   | Controller           | EMCO 2090              | ETS          | 22/24/27, 15C, 15B |
| 2135   | CDN                  | CDN 801-M3             | Lüthi        | 22/24/27, 15C, 15B |

| Eq. No | Equipment                       | Type                                   | Manufacturer        | Used in            |
|--------|---------------------------------|----------------------------------------|---------------------|--------------------|
| 2150   | High Pass Filter                | F-15041                                | RLC                 | 22/24/27, 15C      |
| 2156   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2176   | CDN                             | CDN 801-M3                             | Lüthi               | 22/24/27, 15C, 15B |
| 2180   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2188   | Preamplifier                    | AFS4-00100300-20-23P-6                 | Miteq               | 22/24/27, 15C, 15B |
| 2347   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2348   | Controller                      | G-1000DXC                              | Yaesu               | 22/24/27, 15C, 15B |
| 2349   | Computer Controller             | GS-232B                                | Yaesu               | 22/24/27, 15C, 15B |
| 2350   | Preamplifier                    | AMF-6D-020180-29-20P                   | Miteq               | 22/24/27, 15C, 15B |
| 2353   | Receiver                        | ESIB26                                 | R&S                 | 22/24/27, 15C, 15B |
| 2357   | Band Reject Filter              | WRCG2400/2483-2390/2493-35/10SS        | Wainwright          | 15C                |
| 2361   | Anechoic Chamber                | 3 m Semi / Full Anechoic Chamber       | Euroshield          | 22/24/27, 15C, 15B |
| 2364   | Band Reject Filter              | WRCG1877/1883 - 1870/1890-40/6SS       | Wainwright          | 24                 |
| 2366   | Relay Switch Unit               | TS-RSP                                 | R&S                 | 22/24/27, 15C, 15B |
| 2384   | Band Reject Filter              | WRCG832/838-825/845-40/5SS             | Wainwright          | 22                 |
| 2388   | Bluetooth Tester                | CBT                                    | R&S                 | 15B                |
| 2389   | Signal Generator                | SMJ 100A                               | R&S                 | 15B                |
| 2391   | Band Reject Filter              | WRCG1729.4/1735.4-1722.4/1742.4-40/6SS | Wainwright          | 27                 |
| 6009   | GPS Antenna                     | SA-700                                 | Chronos             | 15C                |
| 6010   | GPS Network amplifier           | NLA20FPDC                              | GPS Networking, Inc | 15C                |
| 6011   | GPS signal Splitter             | LDCBS1x4                               | GPS Networking, Inc | 15C                |
| 6014   | Substitute Calibration Cable    | Sucoflex 104PB                         | Suhner              | -                  |
| -      | 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            | ES-K1 v.1.71                           | R&S                 | 22/24/27, 15C, 15B |
| -      | RF immunity / Emission Software | EMC32                                  | R&S                 | 22/24/27, 15C, 15B |
| 6037   | Data Logger                     | 175-H2                                 | Testo               | 22/24/27, 15C, 15B |
| 6038   | Data Logger                     | Testo 580                              | Testo               | 22/24/27, 15C, 15B |
| 6039   | USB Interface                   | 5541765                                | Testo               | 22/24/27, 15C, 15B |