

## FCC Part 15B Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                                                                                                                  |                                   |                                                                                                                                            |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | Cph_FCC_0904_04.doc                                                                                                                                                                                                                                                                                                                                                              | <b>Date of Report:</b>            | 20-Jan-2009                                                                                                                                |
| <b>Number of pages:</b>                                 | 8                                                                                                                                                                                                                                                                                                                                                                                | <b>Customer's Contact person:</b> | Jyrki Juvani                                                                                                                               |
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| <b>FCC listing no.:</b>                                 | 99059                                                                                                                                                                                                                                                                                                                                                                            |                                   |                                                                                                                                            |
| <b>IC recognition no.:</b>                              | 661AD-1                                                                                                                                                                                                                                                                                                                                                                          |                                   |                                                                                                                                            |
| <b>Tested devices/ accessories:</b>                     | <b>Phone; RM-432 (HW 0310), Battery; BL-4CT, AC Charger; AC-10C, USB Cable; CA-101, Headset; HS-45, Audio Adapter; AD-54</b>                                                                                                                                                                                                                                                     |                                   |                                                                                                                                            |
| <b>FCC ID:</b>                                          | LJPRM-432                                                                                                                                                                                                                                                                                                                                                                        | <b>IC:</b>                        | 661E-RM432                                                                                                                                 |
| <b>Supplement reports:</b>                              | None                                                                                                                                                                                                                                                                                                                                                                             |                                   |                                                                                                                                            |
| <b>Testing has been carried out in accordance with:</b> | CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22 and IC standards RSS-132 (Issue 2, September 2005), RSS-133 (Issue 4, February 2008), RSS-139 (Issue 1, February 2008) and RSS-210 (Issue 7, June 2007). 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 for the contents:</b>             |                                                                                                                                                                                                                                                                                                                                                                                  |                                   |                                                                                                                                            |

Allan F. Henriksen, Manager

## 1. Summary for FCC Part 15B Compliance Test Report

|                               |                                                        |
|-------------------------------|--------------------------------------------------------|
| Date of receipt               | 17-Dec-2008                                            |
| Testing completed             | 20-Jan-2009                                            |
| The customer's contact person | Jyrki Juvani                                           |
| Test Plan referred to         | T:\Projects\RM-432\TestPlan_RS\RS_testPlan_RM-432.xls  |
| Notes                         | None                                                   |
| Document name                 | T:\Projects\RM-432\EMC\Results\FCC\Cph_FCC_0904_04.doc |

### 1.1. EUT and Accessory Information

The EUT is a 4-band (GSM850/900/1800/1900) mobile phone with GPRS, EGPRS and Bluetooth. GSM bands are tested in idle mode. Bluetooth is tested with maximum rated TX power.

| Product       | Type   | SN                          | HW   | MV | SW       | DUT   |
|---------------|--------|-----------------------------|------|----|----------|-------|
| Phone         | RM-432 | 004401/10/180464/5          | 0310 | -  | v002.003 | 26831 |
| Battery       | BL-4CT | 3820668325225460285;0670565 | -    | -  | -        | 26822 |
| AC Charger    | AC-10C | 3997918142240100310;0675412 | -    | -  | -        | 26821 |
| USB cable     | CA-101 | 07306348286A01313217        | -    | -  | -        | 26816 |
| Headset       | HS-45  | 0694235815201B21402         | -    | -  | -        | 26811 |
| Audio adapter | AD-54  | 07508388016J2100087         | -    | -  | -        | 26813 |

### 1.2. Summary of Test Results

#### Bluetooth:

| Section in CFR 47 | Section in ICES-003 | Name of the test                  | Result |
|-------------------|---------------------|-----------------------------------|--------|
| 15.107, a         | 5.3                 | AC power line conducted emissions | NP     |
| 15.109, a         | 5.5                 | Radiated emissions                | 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.

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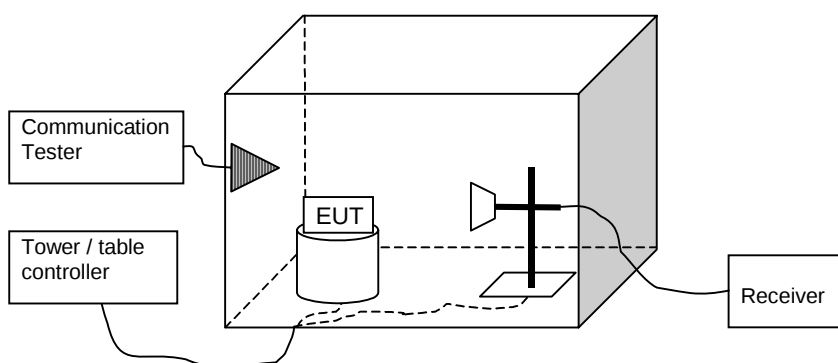
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## 2. Radiated emissions

(FCC §15.109, ICES-003 section 5.5, RSS-132 4.6, RSS-133 6.6, RSS-139 6.6)

|                                                        |                                                                                        |
|--------------------------------------------------------|----------------------------------------------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-432 DUT 26831                                                                       |
| <b>Accessories with DUT numbers</b>                    | BL-4CT DUT 26822, AC-10C DUT 26821, CA-101 DUT 26816, HS-45 DUT 26811, AD-54 DUT 26813 |
| <b>Operation Voltage [V] / [Hz]</b>                    | 115 / 50                                                                               |
| <b>Result</b>                                          | Passed                                                                                 |
| <b>Remarks</b>                                         | Phone tested with FM radio active.                                                     |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 20 / 41 / 99.1                                                                         |
| <b>Date of measurements</b>                            | 19-Jan-2008                                                                            |
| <b>Measured by</b>                                     | Christian Andersen                                                                     |

### 2.1. Test setup



### 2.2. Test method and limit

The measurement is made according to ANSI C63.4-2003as follows:

The measurement is performed in the Semi-Anechoic Chamber with conducting metal floor.

The measurement distance is 3 m.

The EUT is placed on a nonconductive plate at 80 cm height.

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 measurement results are obtained as described below:

$$E [\mu\text{V/m}] = U_{RX} + A_{TOT}$$

Where  $U_{RX}$  is receiver reading and  $A_{TOT}$  is total correction factor including cable loss, antenna factor and preamplifier gain ( $A_{TOT} = L_{CABLES} + AF - G_{PREAMP}$ ).

CISPR 22 and FCC Part 15 Class B limits (3 m measurement distance)

| Frequency range [MHz] | Quasi peak limit [dBμV/m] | Average limit [dBμV/m] | Peak limit [dBμV/m] |
|-----------------------|---------------------------|------------------------|---------------------|
| 30 – 230              | 40                        | -                      | -                   |
| 230 – 1000            | 47                        | -                      | -                   |
| Above 1000            | -                         | 54                     | 74                  |

## 2.3. Bluetooth Test results

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4804.000000     | 38.20      | 81.28    | 38.10                  | 0.1                   | HORIZONTAL   | Passed |
| 7206.000000     | 43.50      | 149.62   | 34.60                  | 8.9                   | VERTICAL     | Passed |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4804.000000     | 25.20      | 18.20    | 25.10                  | 0.1                   | HORIZONTAL   | Passed |
| 7206.000000     | 30.00      | 31.62    | 21.10                  | 8.9                   | VERTICAL     | Passed |

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 74.327054       | 2.40       | 1.32     | 28.00                  | -25.6                 | HORIZONTAL   | Passed |
| 98.056112       | 50.70      | 342.77   | 74.50                  | -23.8                 | HORIZONTAL   | Passed |
| 136.892585      | 15.10      | 5.69     | 40.10                  | -25.0                 | VERTICAL     | Passed |
| 169.239679      | 22.40      | 13.18    | 47.80                  | -25.4                 | VERTICAL     | Passed |

\*98.0 MHz frequency is coming from FM radio tester and thus ignored.

Peak (RBW: 1 MHz, VBW: 1 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4916.331663     | 38.90      | 88.10    | 38.70                  | 0.2                   | HORIZONTAL   | Passed |
| 4916.339679     | 38.70      | 86.10    | 38.50                  | 0.2                   | VERTICAL     | Passed |
| 7315.625251     | 42.10      | 127.35   | 32.90                  | 9.2                   | HORIZONTAL   | Passed |
| 7333.167335     | 43.20      | 144.54   | 34.10                  | 9.1                   | HORIZONTAL   | Passed |
| 7418.339679     | 43.40      | 147.91   | 34.10                  | 9.3                   | HORIZONTAL   | Passed |
| 17472.947896    | 52.10      | 402.72   | 29.10                  | 23.0                  | VERTICAL     | Passed |
| 17996.487976    | 57.90      | 785.24   | 28.60                  | 29.3                  | VERTICAL     | Passed |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 4919.831663     | 24.20            | 16.22          | 23.90                        | 0.3                   | HORIZONTAL   | Passed |
| 4921.839679     | 23.50            | 14.96          | 23.20                        | 0.3                   | VERTICAL     | Passed |
| 7309.625251     | 30.00            | 31.62          | 20.70                        | 9.3                   | HORIZONTAL   | Passed |
| 7331.167335     | 30.10            | 31.99          | 21.00                        | 9.1                   | HORIZONTAL   | Passed |
| 7422.339679     | 30.50            | 33.50          | 21.20                        | 9.3                   | HORIZONTAL   | Passed |
| 17473.947896    | 39.30            | 92.26          | 16.30                        | 23.0                  | VERTICAL     | Passed |
| 17997.987976    | 45.00            | 177.83         | 15.70                        | 29.3                  | VERTICAL     | Passed |

TX mode, channel 78 / 2480 MHz

Peak (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 4960.000000     | 40.60            | 107.15         | 40.30                        | 0.3                   | HORIZONTAL   | Passed |
| 7440.000000     | 45.50            | 188.36         | 36.00                        | 9.5                   | HORIZONTAL   | Passed |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 4960.000000     | 28.00            | 25.12          | 27.70                        | 0.3                   | HORIZONTAL   | Passed |
| 7440.000000     | 31.80            | 38.90          | 22.30                        | 9.5                   | HORIZONTAL   | Passed |

### 3. Test Equipment

#### 3.1. 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 $\mu$ Wave Mux                  | 10-785B-522                     | Pickering              | 22/24/27, 15C, 15B |
| 14021  | Relay Dual 6 Chnl $\mu$ Wave Mux               | 10-785-522                      |                        | 22/24/27, 15C, 15B |
|        | Relay Dual 6 Chnl $\mu$ Wave 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 WHK3.0/18G-10ss          | WHJS3000-10SS                   | Wainwright             | 22/24/27, 15C, 15B |
| 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               | HFH2-Z2                         | Rohde&Schwarz          | 15C, 15B           |

| Eq. No | Equipment                                      | Type     | Manufacturer  | Used in            |
|--------|------------------------------------------------|----------|---------------|--------------------|
|        | MHz                                            |          |               |                    |
| 14993  | EMI Test Receiver 9KHz-2750MHz                 | ESCS30   | Rohde&Schwarz | 22/24/27, 15C, 15B |
| 15191  | Turntable Controller 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<br>SMA m Conn.  | -----    | NMP Cph       | 22/24/27, 15C, 15B |
| 19375  | Resonant Dipole Antenna 1900MHz<br>SMA m Conn. | -----    | NMP Cph       | 22/24/27, 15C, 15B |
| 20168  | Bluetooth EDR Tester                           | CBT      | Rohde&Schwarz | 22/24/27, 15C, 15B |