

## FCC Part 15B Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                                                                                    |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC15B_RM-840_06.docx                                                                                                                                                                                                                                                                                | <b>Date of Report:</b>            | 12-Dec-2012                                                                                                                                                                        |
| <b>Number of pages:</b>                                 | 8                                                                                                                                                                                                                                                                                                    | <b>Customer's Contact person:</b> | Wang Kelly.J                                                                                                                                                                       |
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| <b>FCC listing no.:</b>                                 | 975940                                                                                                                                                                                                                                                                                               |                                   |                                                                                                                                                                                    |
| <b>IC recognition no.:</b>                              | 661AH-1                                                                                                                                                                                                                                                                                              |                                   |                                                                                                                                                                                    |
| <b>Tested devices/ accessories:</b>                     | <b>Phone RM-840 / Battery BL-4U / AC Charger AC-20E / Headset WH-109</b>                                                                                                                                                                                                                             |                                   |                                                                                                                                                                                    |
| <b>FCC ID:</b>                                          | QTLRM-840                                                                                                                                                                                                                                                                                            | <b>IC:</b>                        | -                                                                                                                                                                                  |
| <b>Supplement reports:</b>                              | -                                                                                                                                                                                                                                                                                                    |                                   |                                                                                                                                                                                    |
| <b>Testing has been carried out in accordance with:</b> | <b>CFR 47, FCC rules Part 15 Subpart B, ANSI C63.4 (2003), ICES-003, CISPR 22, 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> |                                   |                                                                                                                                                                                    |
| <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>             |                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                                                                                    |

**Zou Ming, Engineer, EMC**

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

|                               |                                                     |
|-------------------------------|-----------------------------------------------------|
| Date of receipt               | 03-Dec-2012                                         |
| Testing completed             | 11-Dec-2012                                         |
| The customer's contact person | Wang Kelly.J                                        |
| Test Plan referred to         | T:\Projects\RM-840\TestPlan\RS_Testplan_RM-840.xlsm |
| Notes                         | -                                                   |
| Document name                 | FCC15B_RM-840_06.docx                               |

### 1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:  
GSM/WCDMA/Bluetooth  
The EUT is tested with maximum rated TX power.

Devices under tests

| Product    | Type   | SN                          | HW   | MV | SW               | DUT   |
|------------|--------|-----------------------------|------|----|------------------|-------|
| Phone      | RM-840 | 004402471863872             | 0301 | -  | busECL3G_12w47.S | 53044 |
| Battery    | BL-4U  | 4955402155061418961;0670560 | -    | -  | -                | 53034 |
| AC Charger | AC-20E | 4868672204340503457;0675628 | -    | -  | -                | 53036 |
| Headset    | WH-109 | 2375171                     | -    | -  | -                | 53038 |

### 1.2. Summary of Test Results

**GSM850:**

| Section in CFR 47 | Section in ICES-003 (RSS-132) | Name of the test                 | Result |
|-------------------|-------------------------------|----------------------------------|--------|
| 15.107, a         | 5.3                           | AC powerline conducted emissions | NP     |
| 15.109, a         | 5.5 (4.6)                     | Radiated emissions               | PASSED |

**GSM1900:**

| Section in CFR 47 | Section in ICES-003 (RSS-133) | Name of the test                 | Result |
|-------------------|-------------------------------|----------------------------------|--------|
| 15.107, a         | 5.3                           | AC powerline conducted emissions | NP     |
| 15.109, a         | 5.5 (6.6)                     | Radiated emissions               | NP     |

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.

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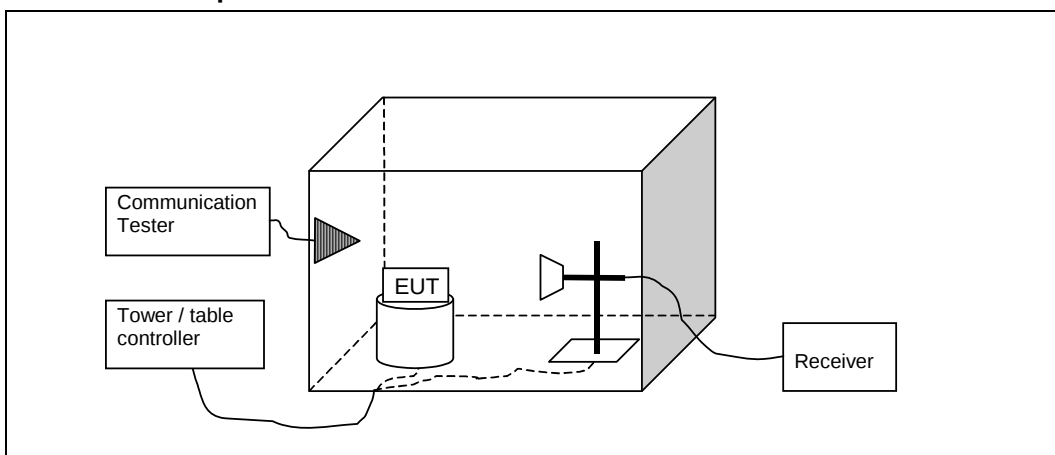
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## 2. Radiated emissions

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

|                                                        |                                                          |
|--------------------------------------------------------|----------------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-840, DUT 53044                                        |
| <b>Accessories with DUT numbers</b>                    | BL-4U, DUT 53034 ; AC-20E, DUT 53036 ; WH-109, DUT 53038 |
| <b>Operation Voltage [V] / [Hz]</b>                    | 115/60                                                   |
| <b>Results</b>                                         | PASSED                                                   |
| <b>Remarks</b>                                         | FM Radio active during GSM850 idle mode.                 |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 20/30/102.1                                              |
| <b>Date of measurements</b>                            | 11-Dec-2012                                              |
| <b>Measured by</b>                                     | Zou Ming                                                 |

### 2.1.1 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:

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

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

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

| Frequency range [MHz] | Quasi peak limit [dB $\mu$ V/m] | Average limit [dB $\mu$ V/m] | Peak limit [dB $\mu$ V/m] |
|-----------------------|---------------------------------|------------------------------|---------------------------|
| 30 - 230              | 40                              | -                            | -                         |
| 230 – 1000            | 47                              | -                            | -                         |
| 1000 - 3000           | -                               | 50                           | 70                        |
| Above 3000            | -                               | 54                           | 74                        |

## 2.3. GSM850 test results; FM Radio on

RX mode, channel 128 / 869.2 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 3475.5          | 41.79      | 122.885  | 43.75                  | -1.96                 | 32.2   | 74             | PASSED  |
| 6952.2          | 52.83      | 438.077  | 47.7                   | 5.13                  | 21.2   | 74             | PASSED  |

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

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 3475.5          | 28.97      | 28.09    | 30.93                  | -1.96                 | 25     | 54             | PASSED  |
| 6952.2          | 40.24      | 102.742  | 35.11                  | 5.13                  | 13.8   | 54             | PASSED  |

RX mode, channel 190 / 881.6 MHz

Quasi peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 30.06           | 23.56      | 15.061   | 26.24                  | -2.68                 | 16.4   | 40             | PASSED  |
| 30.72           | 18.33      | 8.247    | 27.48                  | -9.15                 | 21.7   | 40             | PASSED  |
| 39.479          | 18.54      | 8.457    | 33.56                  | -15.02                | 21.5   | 40             | PASSED  |
| 43.487          | 20.35      | 10.411   | 38.38                  | -18.03                | 19.6   | 40             | PASSED  |
| 154.609         | 19.99      | 9.983    | 45.02                  | -25.03                | 20     | 40             | PASSED  |
| 157.665         | 17.32      | 7.345    | 42.3                   | -24.98                | 22.7   | 40             | PASSED  |
| 160.791         | 20.38      | 10.441   | 45.32                  | -24.94                | 19.6   | 40             | PASSED  |

Peak (RBW: 1 MHz, VBW: 3 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 2916.833        | 49.34      | 292.988  | 43.62                  | 5.72                  | 20.7   | 70             | PASSED  |
| 3000.3          | 41.43      | 117.883  | 43.07                  | -1.64                 | 32.6   | 74             | PASSED  |
| 3526.3          | 41.11      | 113.606  | 43.48                  | -2.37                 | 32.9   | 74             | PASSED  |
| 7044.485        | 46.29      | 206.205  | 41.1                   | 5.19                  | 27.7   | 74             | PASSED  |
| 7051            | 45.78      | 194.603  | 40.7                   | 5.08                  | 28.2   | 74             | PASSED  |
| 7053.71         | 46.1       | 201.813  | 40.97                  | 5.13                  | 27.9   | 74             | PASSED  |
| 7078.754        | 46.5       | 211.276  | 41.23                  | 5.27                  | 27.5   | 74             | PASSED  |
| 7822.842        | 46.69      | 216.123  | 42.12                  | 4.57                  | 27.3   | 74             | PASSED  |

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

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 2916.833        | 36.27      | 65.103   | 30.55                  | 5.72                  | 13.7   | 50             | PASSED  |
| 3000.3          | 28.83      | 27.634   | 30.47                  | -1.64                 | 25.2   | 54             | PASSED  |
| 3526.3          | 28.44      | 26.424   | 30.81                  | -2.37                 | 25.6   | 54             | PASSED  |
| 7044.485        | 33.16      | 45.499   | 27.97                  | 5.19                  | 20.8   | 54             | PASSED  |
| 7051            | 33.25      | 45.983   | 28.17                  | 5.08                  | 20.7   | 54             | PASSED  |
| 7053.71         | 33.12      | 45.269   | 27.99                  | 5.13                  | 20.9   | 54             | PASSED  |
| 7078.754        | 33.53      | 47.495   | 28.26                  | 5.27                  | 20.5   | 54             | PASSED  |
| 7822.842        | 33.04      | 44.88    | 28.47                  | 4.57                  | 21     | 54             | PASSED  |

RX mode, channel 251 / 893.8 MHz

Peak (RBW: 1 MHz, VBW: 3 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 3573.6          | 41.03      | 112.642  | 43.34                  | -2.31                 | 33     | 74             | PASSED  |
| 7150.9          | 46.71      | 216.621  | 41.6                   | 5.11                  | 27.3   | 74             | PASSED  |

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

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Margin | Limit [dBμV/m] | Results |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 3573.6          | 28.33      | 26.092   | 30.64                  | -2.31                 | 25.7   | 54             | PASSED  |
| 7150.9          | 33.21      | 45.756   | 28.1                   | 5.11                  | 20.8   | 54             | PASSED  |

### 3. Test Equipment

#### 3.1. Conducted measurements

| Eq. No     | Equipment                | Type                | Manufacturer               | Used in            |
|------------|--------------------------|---------------------|----------------------------|--------------------|
| -          | RF Emission Software     | EMC32 Test Software | R&S                        | 22/24/27, 15C, 15B |
| BJPCHW0020 | DC Power supply          | HP6632B             | HP                         | 22/24/27, 15C      |
| BJPCPT0040 | Receiver                 | ESCS30              | R&S                        | 15C, 15B           |
| BJPCPT0069 | LISN 50 $\mu$ H          | ESH3-Z5             | R&S                        | 15C, 15B           |
| BJPCPT0073 | Signal Generator         | SMR 20              | R&S                        | 22/24/27, 15C, 15B |
| BJPCPT0191 | Pulse Limiter            | ESH3-Z2             | R&S                        | 15C, 15B           |
| BJPCTC0017 | Communication Tester     | CMU200              | R&S                        | 22/24/27, 15C, 15B |
| BJPCTC0067 | Bluetooth Tester         | CBT                 | R&S                        | 22/24/27, 15C      |
| BJPCTC0089 | Temperature Test chamber | VT4002              | Votsch<br>industrietechnik | 22/24/27, 15C      |
| BJPCTC0090 | FSP spectrum analyzer    | FSP30               | R&S                        | 22/24/27, 15C      |
| BJPCTC0094 | GPIO-RS232 convertor     | GPIO-RS232          | NI                         | 22/24/27, 15C      |
| BJPCTC0112 | Power Splitter           | 11667B              | Agilent                    | 22/24/27, 15C      |
| BJPCTC0114 | Signal Generator         | E8257C              | Agilent                    | 22/24/27, 15C      |
| BJPCTC0115 | Communication Tester     | CMU200              | R&S                        | 22/24/27, 15B, 15C |

#### 3.2. Radiated measurements

| Eq. No     | Equipment               | Type                              | Manufacturer       | Used in            |
|------------|-------------------------|-----------------------------------|--------------------|--------------------|
| -          | 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    | EMC32 Test Software               | R&S                | 22/24/27, 15C, 15B |
| BJPCPT0072 | Receiver                | ESI B26                           | R&S                | 22/24/27, 15C, 15B |
| BJPCPT0130 | Relay Switch Unit       | TS-RSP                            | R&S                | 22/24/27, 15C, 15B |
| BJPCPT0150 | High Pass Filter        | WHKS1200-10SS                     | Wainwright         | 22/24/27, 15C, 15B |
| BJPCPT0151 | Band Reject Filter      | WRCD1880/2000-0.2/40-5SSK         | Wainwright         | 24, 15B            |
| BJPCPT0154 | Band Reject Filter      | WRCT2402/2480-2400/2483.5-30-20SS | Wainwright         | 15C, 15B           |
| BJPCPT0162 | Antenna                 | HF906                             | R&S                | 22/24/27, 15C, 15B |
| BJPCTC0007 | Antenna                 | HL562                             | R&S                | 22/24/27, 15C, 15B |
| BJPCTC0029 | Antenna                 | HF906                             | R&S                | 22/24/27, 15C, 15B |
| BJPCTC0034 | Band Reject Filter      | WRCT 800/880-0.2/40-5SSK          | Wainwright         | 22, 15B            |
| BJPCTC0049 | Preamplifier            | Blma 0118-1A-Bt                   | Bonn               | 22/24/27, 15C, 15B |
| BJPCTC0055 | Communication Tester    | CMU200                            | R&S                | 22/24/27, 15C, 15B |
| BJPCTC0058 | Bluetooth Tester        | CBT                               | R&S                | 15C, 15B           |
| BJPCTC0064 | Band Reject Filter      | WRCG1877/1883-1870/1890-40/6SS    | Wainwright         | 24, 15B            |
| BJPCTC0065 | Band Reject Filter      | WRCG832/838-825/845-40/5SS        | Wainwright         | 27, 15B            |
| BJPCTC0071 | Multi-Device Controller | 2090                              | EMCO               | 22/24/27, 15C, 15B |
| BJPCTC0072 | Anechoic Chamber        | 3 m Semi / Full Anechoic Chamber  | ETS                | 22/24/27, 15C, 15B |
| BJPCTC0073 | MAST                    | Model-TR/POL                      | ETS                | 22/24/27, 15C, 15B |
| BJPCTC0074 | MAST                    | Model 2070-2                      | ETS                | 22/24/27, 15C, 15B |
| BJPCTC0075 | Turntable               | Model 2188                        | ETS-EMCO           | 22/24/27, 15C, 15B |
| BJPCTC0096 | Preamplifier            | AFS4-00100300-20-23P-6            | Miteq              | 22/24/27, 15C, 15B |
| BJPCTC0113 | Receiver                | ESI B26                           | R&S                | 22/24/27, 15B, 15C |
| BJPCTC0115 | Communication Tester    | CMU200                            | R&S                | 22/24/27, 15B, 15C |
| BJPCTC0124 | Attenuator              | SA18N200W-40                      | Fairview Microwave | -                  |