

## FCC Part 15C Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                        |                                   |                                                                                                                                        |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC15CBT_RM-1045_27.docx                                                                                                                                                                                                                                               | <b>Date of Report:</b>            | 02-May-2014                                                                                                                            |
| <b>Number of pages:</b>                                 | 7                                                                                                                                                                                                                                                                      | <b>Customer's Contact person:</b> | Tia Melava                                                                                                                             |
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| <b>FCC listing no.:</b>                                 | 94436                                                                                                                                                                                                                                                                  |                                   |                                                                                                                                        |
| <b>IC recognition no.:</b>                              | 661AK-1                                                                                                                                                                                                                                                                |                                   |                                                                                                                                        |
| <b>Tested devices/ accessories:</b>                     | <b>Phone RM-1045 / Charger AC-60E / USB Cable CA-190CD / Headset WH-208</b>                                                                                                                                                                                            |                                   |                                                                                                                                        |
| <b>FCC ID:</b>                                          | PDNRM-1045                                                                                                                                                                                                                                                             | <b>IC:</b>                        | 661R-RM1045                                                                                                                            |
| <b>Supplement reports:</b>                              | -                                                                                                                                                                                                                                                                      |                                   |                                                                                                                                        |
| <b>Testing has been carried out in accordance with:</b> | CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards. 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>             |                                                                                                                                                                                                                                                                        |                                   |                                                                                                                                        |

Timo Raiskio, Specialist, EMC & SAR

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

|                               |                                                       |
|-------------------------------|-------------------------------------------------------|
| Date of receipt               | 25-huhti-2014                                         |
| Testing completed             | 30-Apr-2014                                           |
| The customer's contact person | Tia Melava                                            |
| Test Plan referred to         | T:\Projects\RM-1045\TestPlan\RS_Testplan_RM-1045.xlsm |
| Notes                         | -                                                     |
| Document name                 | T:\Projects\RM-1045\EMC\FCC15CBT_RM-1045_27.docx      |

### 1.1. EUT and Accessory Information

The EUT is a mobile phone with following features:

GSM/WCDMA/WLAN/Bluetooth

The EUT is tested with maximum rated TX power.

Devices under tests

| Product   | Type     | SN              | HW   | MV | SW                      | DUT   |
|-----------|----------|-----------------|------|----|-------------------------|-------|
| Phone     | RM-1045  | 004402478608833 | 1004 | -  | 02061.00037.14145.00001 | 43163 |
| Charger   | AC-60E   |                 |      |    |                         | 43161 |
| USB Cable | CA-190CD |                 |      |    |                         | 43162 |
| Headset   | WH-208   | -               | -    | -  | -                       | 43035 |

### 1.2. Summary of Test Results

Bluetooth:

| Section in CFR 47    | Section in RSS-GEN or RSS-210 | Name of the test                     | Result |
|----------------------|-------------------------------|--------------------------------------|--------|
| 15.247(b)(1)         | A8(0.4(2))                    | Conducted peak output power          | -      |
| 15.247(d), 15.205(b) | A8(0.5)                       | Band edge compliance of RF emissions | -      |
| 15.247(d)            | A8(0.5)                       | Spurious RF conducted emissions      | -      |
| 15.247(d), 15.209    | A8(0.5)                       | Spurious radiated emissions          | -      |
| 15.207               | 7.2.2                         | AC powerline conducted emissions     | PASSED |
| 15.247(a)(1)         | A8(0.1(1))                    | 20dB(bandwidth)                      | -      |
| 15.247(a)(1)         | A8(0.1(2))                    | Carrier frequency separation         | -      |
| 15.247(a)(1)(iii)    | A8(0.1(4))                    | Number of hopping frequencies        | -      |
| 15.247(a)(1)(iii)    | A8(0.1(4))                    | Time of occupancy                    | -      |

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 15C Compliance Test Report.....</b>                    | <b>2</b> |
| 1.1. EUT and Accessory Information.....                                           | 2        |
| 1.2. Summary of Test Results .....                                                | 2        |
| <b>2. AC powerline conducted emissions<br/>(FCC §15.207, RSS-210 7.2.2) .....</b> | <b>4</b> |
| 2.1. Test Setup .....                                                             | 4        |
| 2.2. Test method and limit .....                                                  | 4        |
| 2.3. Bluetooth Test results .....                                                 | 5        |
| <b>3. Test Equipment.....</b>                                                     | <b>6</b> |
| 3.1. Conducted measurements .....                                                 | 6        |
| 3.2. Radiated measurements .....                                                  | 6        |

## 2. AC powerline conducted emissions (FCC §15.207, RSS-210 7.2.2)

|                                                        |                                                             |
|--------------------------------------------------------|-------------------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-1045, DUT 43163                                          |
| <b>Accessories with DUT numbers</b>                    | AC-60E, DUT 43161 ; CA-190CD, DUT 43162 ; WH-208, DUT 43035 |
| <b>Operation Voltage [V] / [Hz]</b>                    | Nominal                                                     |
| <b>Results</b>                                         | PASSED                                                      |
| <b>Remarks</b>                                         | -                                                           |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 23 / 39 / 100.7                                             |
| <b>Date of measurements</b>                            | 30-Apr-2014                                                 |
| <b>Measured by</b>                                     | Timo Raiskio                                                |

### 2.1. Test Setup



### 2.2. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-GEN as follows:

The EUT is placed on a wooden table 80 cm above the reference groundplane.

The EUT is connected via LISN to a test power supply.

The measurement results are obtained as described below:

$$U [dB\mu V] = U_{RX} + A_{TOT}$$

Where  $U_{RX}$  is receiver reading and  $A_{TOT}$  is total correction factor including cable and pulse limiter attenuations.

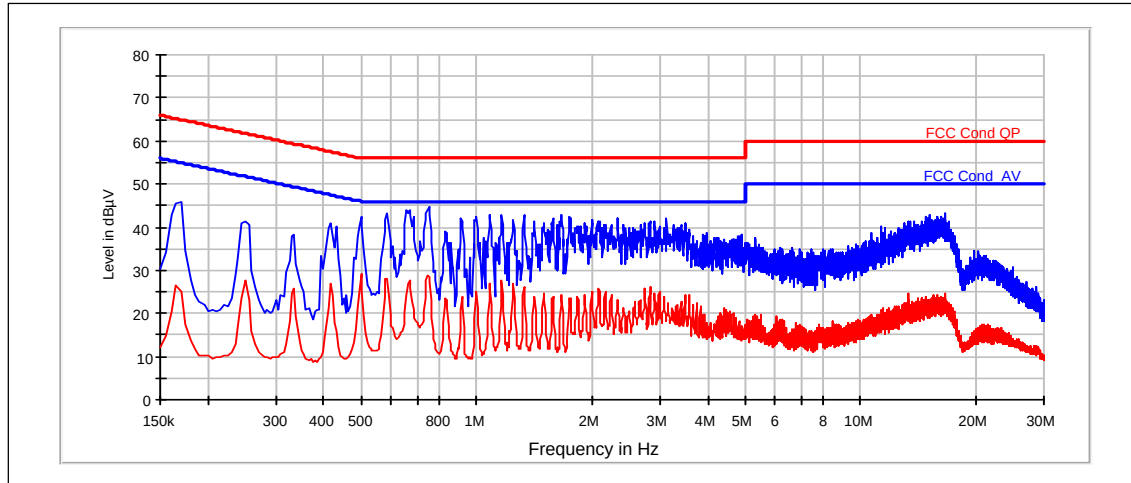
CISPR 22 Class B limits

| Frequency range [MHz] | Quasi peak limit [dBμV] | Average limit [dBμV] |
|-----------------------|-------------------------|----------------------|
| 0.15 - 0.5            | 66 - 56                 | 56 - 46              |
| 0.5 - 5               | 56                      | 46                   |
| 5 - 30                | 60                      | 50                   |

## 2.3. Bluetooth Test results

### 2.3.1 BPSK modulation, PRBS packet type

Channel 40 / 2442 MHz



### 3. Test Equipment

#### 3.1. Conducted measurements

| Eq. No  | Equipment                           | Type        | Manufacturer  | Used in                 |
|---------|-------------------------------------|-------------|---------------|-------------------------|
| TM38112 | Power supply                        | 6632A       | Agilent       | 22/24/27, 15C, 15E      |
| TM38114 | Power supply                        | 6632A       | Agilent       | 22/24/27, 15C, 15E      |
| TM37773 | Communication Tester                | CMU200      | R&S           | 22/24/27, 15B           |
| TM30600 | Impulse limiter                     | ESH3-Z2     | R&S           | 15C, 15B                |
| TM26490 | LISN 50 µH                          | ESH3-Z5     | R&S           | 15C, 15B                |
| TM26491 | LISN 50 µH                          | ESH3-Z5     | R&S           | 15C, 15B                |
| TM37610 | Spectrum Analyzer                   | FSU26       | R&S           | 22/24/27, 15C, 15E      |
| TM23007 | Oscilloscope                        | TDS684B     | Tektronix     | 15E                     |
| TM22806 | Battery                             | BAT 20/E    | Fiskars       | 15C, 15B                |
| TM22805 | UPS                                 | PS 20/1.2   | Fiskars       | 15C, 15B                |
| -       | Temperature and humidity logger     | 175-H2      | Testo         | 15C, 15B                |
| -       | Temperature and humidity logger     | 175-H2      | Testo         | 22/24/27, 15C           |
| -       | Air pressure and temperature logger | 635-2       | Testo         | 22/24/27, 15C, 15B      |
| -       | Air pressure sensor                 | 0638-1835   | Testo         | 22/24/27, 15C, 15B      |
| -       | Temperature test chamber            | VT 4002     | Vötsch        | 22/24/27                |
| 2001    | Bluetooth tester                    | CBT         | R&S           | 15C, 15B                |
| 2009    | LISN 50 µH                          | ENV216      | R&S           | 15C, 15B                |
| 2010    | LISN 50 µH                          | ENV216      | R&S           | 15C, 15B                |
| 2012    | Power splitter                      | 11667B      | Agilent       | 22/24/27, 15C           |
| 2013    | Attenuator                          | 8493C       | Agilent       | 22/24/27, 15C           |
| 2014    | Attenuator                          | 8493C       | Agilent       | 22/24/27, 15C           |
| 2019    | Power splitter                      | ZN2PD-9G-S+ | Mini-Circuits | 15E                     |
| 2020    | Power splitter                      | ZN2PD-9G-S+ | Mini-Circuits | 15E                     |
| 2021    | Communication Tester                | CMW500      | R&S           | 22/24/27                |
| 2022    | Communication Tester                | CMU200      | R&S           | 22/24/27                |
| 2023    | Spectrum Analyzer                   | ESMI-RF     | R&S           | 15B/15C                 |
| 2024    | Analyzer display unit               | ESAI-D      | R&S           | 15B/15C                 |
| 2026    | Signal Generator                    | SMF 100A    | R&S           | 22/24/27, 15C, 15E, 15B |

#### 3.2. Radiated measurements

| Eq. No  | Equipment                       | Type        | Manufacturer | Used in                 |
|---------|---------------------------------|-------------|--------------|-------------------------|
| -       | Antenna                         | BBHA 9120 D | Schwarzbeck  | 22/24/27, 15C           |
| TM37678 | Communication Tester            | CMU200      | R&S          | 22/24/27, 15B           |
| TM38845 | Receiver                        | ESIB 26     | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Antenna                         | HL562       | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Turntable                       | 2188        | EMCO         | 22/24/27, 15C, 15E, 15B |
| -       | Turntable controller            | 2090        | EMCO         | 22/24/27, 15C, 15E, 15B |
| -       | RF system panel                 | OSP130      | R&S          | 22/24/27, 15C, 15E, 15B |
| -       | Mini mast                       | 2075-2      | ETS Lindgren | 22/24/27, 15C, 15B      |
| TM38843 | Mini mast                       | 2075        | Emco         | 22/24/27, 15C, 15B      |
| TM38842 | Antenna mast controller         | 2090        | Emco         | 22/24/27, 15C, 15B      |
| TM30643 | LISN 50 µH                      | LISN-5-20-2 | FCC          | 22/24/27, 15C, 15B      |
| TM30644 | LISN 50 µH                      | LISN-5-20-2 | FCC          | 22/24/27, 15C, 15B      |
| -       | Temperature and humidity logger | 175-H2      | Testo        | 22/24/27, 15C, 15B      |

| Eq. No  | Equipment                           | Type                                   | Manufacturer | Used in                 |
|---------|-------------------------------------|----------------------------------------|--------------|-------------------------|
| -       | Air pressure and temperature logger | 635-2                                  | Testo        | 22/24/27, 15C, 15B      |
| -       | Air pressure sensor                 | 0638-1835                              | Testo        | 22/24/27, 15C, 15B      |
| TM37523 | Preamplifier                        | AMF-4D-10M-3G-25-20P                   | Miteq        | 22/24/27, 15C, 15B      |
| TM37498 | Preamplifier                        | AMF-5D-020180-26-10P                   | Miteq        | 22/24/27, 15C, 15B      |
| TM30599 | Semi anechoic chamber               | UNKNOWN                                | TDK          | 22/24/27, 15C, 15B      |
| TM22638 | Power supply                        | OL63743-901                            | -            | 22/24/27, 15C, 15E, 15B |
| TM38066 | High pass filter                    | WHKX3.0/18G-12SS                       | Wainwright   | 22/24/27, 15C, 15E, 15B |
| 2028    | High pass filter                    | WHKX 1.0/15G-12SS                      | Wainwright   | 22/24/27, 15C, 15E, 15B |
| TM37545 | Tunable notch filter                | 800.0/960.0-0.2/40-8SSK                | Wainwright   | 22                      |
| TM26512 | Tunable notch filter                | WRCD1850/1910-0.2/40-10SSK             | Wainwright   | 24                      |
| -       | Band reject filter                  | WRCG1877/1883-1870/1890-40/6EE         | Wainwright   | 24                      |
| -       | Band reject filter                  | WRCG1729.4/1735.4-1722.4/1742.4-40/6SS | Wainwright   | 27                      |
| TM23892 | Controller                          | G-1000SDX                              | Yaesu        | 22/24/27, 15C, 15E      |
| 2001    | Bluetooth tester                    | CBT                                    | R&S          | 15C, 15B                |
| 6023    | Antenna                             | VUBA 9117                              | Schwarzbeck  | 22/24/27                |
| 2021    | Communication Tester                | CMW500                                 | R&S          | 22/24/27                |
| 2025    | Antenna                             | HFH2-Z2                                | R&S          | 15C                     |
| 2026    | Signal Generator                    | SMF 100A                               | R&S          | 22/24/27, 15C, 15E, 15B |
| 2052    | Antenna                             | BBHA 9120 D                            | Schwarzbeck  | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH18S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH20S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |
| -       | Antenna                             | QSH20S20                               | Q-Par        | 22/24/27, 15C, 15B, 15E |