

## FCC Part 15C Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                        |                                   |                                                                                                                        |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC15CWLAN_RM-845_29.docx                                                                                                                                                                                                                                                              | <b>Date of Report:</b>            | 17-Oct-2012                                                                                                            |
| <b>Number of pages:</b>                                 | 12                                                                                                                                                                                                                                                                                     | <b>Customer's Contact person:</b> | Abadilla Victoria                                                                                                      |
| <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, Inc.<br>16620 West Bernardo Drive<br>San Diego, CA 92127<br>USA<br>Tel. +1 858 831 5000<br>Fax. +1 858 385 1598 |
| <b>FCC listing no.:</b>                                 | 533467                                                                                                                                                                                                                                                                                 |                                   |                                                                                                                        |
| <b>IC recognition no.:</b>                              | 661V-1                                                                                                                                                                                                                                                                                 |                                   |                                                                                                                        |
| <b>Tested devices/ accessories:</b>                     | <b>Phone RM-845 / Battery BP-4W / WLC Back Cover CC-3059 / Wireless Charger DT-900 / AC-charger AC-301E</b>                                                                                                                                                                            |                                   |                                                                                                                        |
| <b>FCC ID:</b>                                          | QMNRM-845                                                                                                                                                                                                                                                                              | <b>IC:</b>                        | 661X-RM845                                                                                                             |
| <b>Supplement reports:</b>                              | -                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                        |
| <b>Testing has been carried out in accordance with:</b> | <b>CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2003), DTS procedures KDB 558074, IC standards, RSS-210 (Issue 8, December 2010). 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>             |                                                                                                                                                                                                                                                                                        |                                   |                                                                                                                        |

Kalle Hannila, System Manager, EMC

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

|                               |                                                             |
|-------------------------------|-------------------------------------------------------------|
| Date of receipt               | 27-Jul-2012                                                 |
| Testing completed             | 10-Oct-2012                                                 |
| The customer's contact person | Abadilla Victoria                                           |
| Test Plan referred to         | T:\Projects\RM-845\TestPlan\RS_testplan_RM-845_CC-3041.xlsm |
| Notes                         | -                                                           |
| Document name                 | T:\Projects\RM-845\EMC\FCC15CWLAN_RM-845_29.docx            |

### 1.1. EUT and Accessory Information

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

Devices under tests

| Product          | Type    | SN                          | HW   | MV   | SW                        | DUT   |
|------------------|---------|-----------------------------|------|------|---------------------------|-------|
| Phone            | RM-845  | 352875050016806             | 0209 | -    | 1525.0003.8422.9710.12271 | 16613 |
| Battery          | BP-4W   | -                           | -    | -    | -                         | 16667 |
| WLC Back Cover   | CC-3059 | NJ012252K02V04              | -    | -    | -                         | 16743 |
| Wireless Charger | DT-900  | 06770932225w00002           | 4.4  | 1.0  | 2.3.0.4995                | 16615 |
| AC-charger       | AC-301E | 409049221658020149380675638 | 0.34 | 0.12 | -                         | 16616 |

### 1.2. Summary of Test Results

WLAN:

| Section in CFR 47    | Section in RSS-GEN or RSS-210 | Name of the test                     | Result |
|----------------------|-------------------------------|--------------------------------------|--------|
| 15.247(b)(1)         | A8.4 (4)                      | Conducted peak output power          | NP     |
| 15.247(d), 15.205(b) | A8.5                          | Band edge compliance of RF emissions | NP     |
| 15.247(d)            | A8.5                          | Spurious RF conducted emissions      | NP     |
| 15.247(d), 15.209    | A8.5                          | Spurious radiated emissions          | PASSED |
| 15.207               | 7.2.2                         | AC powerline conducted emissions     | NP     |
| 15.247(a)(2)         | A8.2 (a)                      | 6dB(bandwidth)                       | NP     |
| 15.247(e)            | A8.2 (b)                      | Power spectral density               | 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.

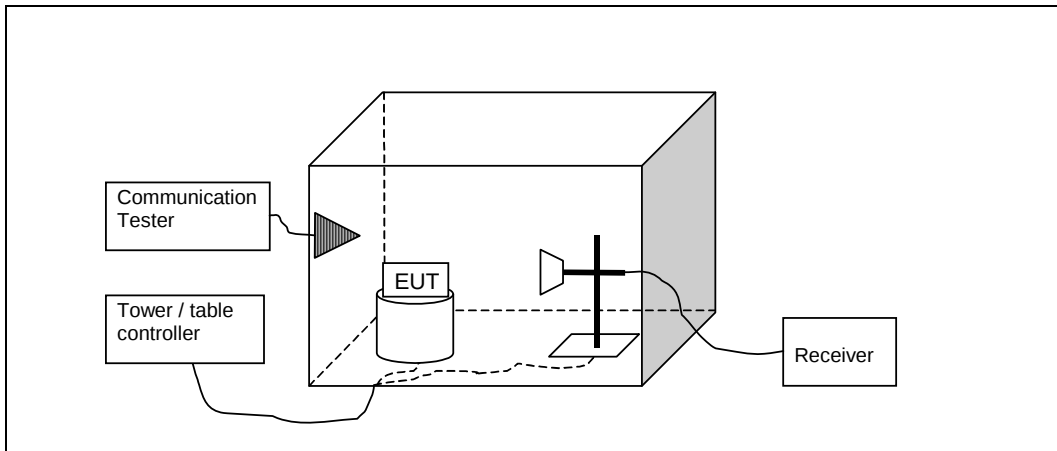
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## 2. Spurious radiated emissions (FCC §15.247(d), §15.209, RSS-210 A8.5)

|                                                        |                                                                                |
|--------------------------------------------------------|--------------------------------------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-845, DUT 16613                                                              |
| <b>Accessories with DUT numbers</b>                    | BP-4W, DUT 16667 ; CC-3059, DUT 16743 ; DT-900, DUT 16615 ; AC-301E, DUT 16616 |
| <b>Operation Voltage [V] / [Hz]</b>                    | Nominal                                                                        |
| <b>Results</b>                                         | PASSED                                                                         |
| <b>Remarks</b>                                         | -                                                                              |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 20 / 46 / 101.3                                                                |
| <b>Date of measurements</b>                            | 04-Oct-2012                                                                    |
| <b>Measured by</b>                                     | Kalle Hannila / Jari Keto                                                      |

### 2.1.1 Test setup



### 2.2. Test method and limit

The measurement is made according to DTS procedures KDB 558074 and IC standard RSS-210 as follows:

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with absorbers on the floor and measuring antenna at fixed height using 2-axis EUT position system.

The Final Measurement is performed in the Semi-Anechoic Chamber with conducting metal floor, if the Preliminary Measurement results are closer than 20 dB to the permissible value.

The EUT is placed at nonconductive plate at the turntable center.

For each suspected frequency, the turntable is rotated 360 degrees and antenna is scanned from 1 to 4 m. This is repeated for both horizontal and vertical receive antenna polarizations.

The emissions less than 20 dB below the permissible value are reported.

The 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 ( $A_{TOT} = L_{CABLES} + A_F - G_{PREAMP}$ ).

Limits for spurious radiated emissions measurements (3 m measurement distance)

| Frequency range [MHz] | Limit [ $\mu\text{V/m}$ ] | Limit [dB $\mu\text{V/m}$ ] | Detector   |
|-----------------------|---------------------------|-----------------------------|------------|
| 30 - 88               | 100                       | 40                          | Quasi peak |
| 88 – 216              | 150                       | 43.5                        | Quasi peak |
| 216 – 960             | 200                       | 46                          | Quasi peak |
| 960 – 1000            | 500                       | 54                          | Quasi peak |
| Above 1000            | 500                       | 54                          | Average    |
| Above 1000            | 5000                      | 74                          | Peak       |

## 2.3. WLAN test results

### 2.3.1 B-mode, 20 MHz CBW, QPSK modulation, 11 Mbps data rate.

Channel 6 / 2442 MHz

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

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | $U_{RX}$ [dB $\mu\text{V}$ ] | $A_{TOT}$ [dB] | Margin | Limit [dB $\mu\text{V/m}$ ] | Results |
|-----------------|-------------------------|-----------------------|------------------------------|----------------|--------|-----------------------------|---------|
| 4878.8          | 42.46                   | 132.724               | 41.01                        | 1.45           | 31.5   | 73.979                      | PASSED  |
| 7321.3          | 50.06                   | 318.346               | 40.38                        | 9.68           | 23.9   | 73.979                      | PASSED  |
| 11400.1         | 57.77                   | 773.393               | 40.38                        | 17.39          | 16.2   | 73.979                      | PASSED  |
| 17999.4         | 55.57                   | 600.482               | 41.13                        | 14.44          | 18.4   | 73.979                      | PASSED  |

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

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | $U_{RX}$ [dB $\mu\text{V}$ ] | $A_{TOT}$ [dB] | Margin | Limit [dB $\mu\text{V/m}$ ] | Results |
|-----------------|-------------------------|-----------------------|------------------------------|----------------|--------|-----------------------------|---------|
| 30.27           | 25.33                   | 18.48                 | 29.34                        | -4.01          | 14.7   | 40                          | PASSED  |
| 33.3            | 24.67                   | 17.11                 | 30.63                        | -5.96          | 15.3   | 40                          | PASSED  |

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

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | $U_{RX}$ [dB $\mu\text{V}$ ] | $A_{TOT}$ [dB] | Margin | Limit [dB $\mu\text{V/m}$ ] | Results |
|-----------------|-------------------------|-----------------------|------------------------------|----------------|--------|-----------------------------|---------|
| 4878.8          | 29.52                   | 29.916                | 28.07                        | 1.45           | 24.5   | 53.98                       | PASSED  |
| 7321.3          | 37.3                    | 73.249                | 27.62                        | 9.68           | 16.7   | 53.98                       | PASSED  |
| 11400.1         | 45.24                   | 182.894               | 27.85                        | 17.39          | 8.7    | 53.98                       | PASSED  |
| 17999.4         | 42.4                    | 131.78                | 27.96                        | 14.44          | 11.6   | 53.98                       | PASSED  |

Channel 1 / 2412 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4823.2          | 41.21      | 114.934  | 39.75                  | 1.46                  | 32.8   | 73.979         | PASSED  |
| 7237.7          | 50.71      | 343.163  | 40.51                  | 10.21                 | 74.5   | 125.23         | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4823.2          | 28.64      | 27.046   | 27.18                  | 1.46                  | 25.3   | 53.98          | PASSED  |
| 7237.7          | 37.35      | 73.663   | 27.15                  | 10.21                 | ---    | ---            | PASSED  |

Channel 11 / 2462 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4923.9          | 42.7       | 136.443  | 41.01                  | 1.69                  | 31.3   | 73.979         | PASSED  |
| 7388            | 50.18      | 322.738  | 40.38                  | 9.8                   | 23.8   | 73.979         | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4923.9          | 30.24      | 32.505   | 28.55                  | 1.69                  | 23.7   | 53.98          | PASSED  |
| 7388            | 37.33      | 73.561   | 27.53                  | 9.8                   | 16.6   | 53.98          | PASSED  |

### 2.3.2 G-mode, 20 MHz CBW, BPSK modulation, 6 Mbps data rate.

Channel 6 / 2442 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4881.1          | 42.35      | 131.069  | 40.88                  | 1.47                  | 31.6   | 73.979         | PASSED  |
| 7318            | 50.07      | 318.713  | 40.38                  | 9.69                  | 23.9   | 73.979         | PASSED  |
| 11475.554       | 58.24      | 816.959  | 40.63                  | 17.62                 | 15.7   | 73.979         | PASSED  |
| 17999.2         | 55.2       | 575.241  | 40.76                  | 14.44                 | 18.8   | 73.979         | PASSED  |

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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 46.911          | 27.34      | 23.273   | 42.3                   | -14.96                | 12.7   | 40             | PASSED  |
| 52.323          | 28.04      | 25.232   | 46.87                  | -18.83                | 12     | 40             | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4881.1          | 29.63      | 30.301   | 28.16                  | 1.47                  | 24.4   | 53.98          | PASSED  |
| 7318            | 37.29      | 73.164   | 27.6                   | 9.69                  | 16.7   | 53.98          | PASSED  |
| 11475.554       | 45.46      | 187.478  | 27.85                  | 17.62                 | 8.5    | 53.98          | PASSED  |
| 17999.2         | 42.41      | 131.917  | 27.97                  | 14.44                 | 11.6   | 53.98          | PASSED  |

Channel 1 / 2412 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4823.3          | 41.47      | 118.372  | 40.01                  | 1.46                  | 32.5   | 73.979         | PASSED  |
| 7234.7          | 51.27      | 365.89   | 41.01                  | 10.26                 | 74     | 125.23         | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4823.3          | 28.61      | 26.934   | 27.15                  | 1.46                  | 25.4   | 53.98          | PASSED  |
| 7234.7          | 37.57      | 75.596   | 27.31                  | 10.26                 | ---    | ---            | PASSED  |

Channel 11 / 2462 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4922.8          | 43.3       | 146.134  | 41.62                  | 1.68                  | 30.7   | 73.979         | PASSED  |
| 7384.2          | 50.27      | 326.287  | 40.5                   | 9.77                  | 23.7   | 73.979         | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4922.8          | 30.23      | 32.453   | 28.55                  | 1.68                  | 23.8   | 53.98          | PASSED  |
| 7384.2          | 37.22      | 72.644   | 27.45                  | 9.77                  | 16.8   | 53.98          | PASSED  |

### 2.3.3 n-mode, 20 MHz CBW, BPSK modulation, 6.5/7.25 Mbps data rate.

Channel 6 / 2442 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4880.6          | 42.78      | 137.784  | 42.09                  | 0.69                  | 31.2   | 74             | PASSED  |
| 7321.7          | 49.71      | 305.985  | 40.11                  | 9.6                   | 24.3   | 74             | PASSED  |
| 11523.042       | 57.32      | 734.26   | 41.11                  | 16.21                 | 16.7   | 74             | PASSED  |
| 17999.1         | 57.62      | 760.326  | 40.86                  | 16.76                 | 16.4   | 74             | PASSED  |

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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 930.75          | 24.73      | 17.246   | 27.1                   | -2.37                 | 21.3   | 46             | PASSED  |
| 937.859         | 24.58      | 16.941   | 26.98                  | -2.4                  | 21.4   | 46             | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4880.6          | 28.8       | 27.536   | 28.11                  | 0.69                  | 25.2   | 54             | PASSED  |
| 7321.7          | 36.99      | 70.713   | 27.39                  | 9.6                   | 17     | 54             | PASSED  |
| 11523.042       | 44.15      | 161.25   | 27.94                  | 16.21                 | 9.8    | 54             | PASSED  |
| 17999.1         | 44.57      | 169.258  | 27.81                  | 16.76                 | 9.4    | 54             | PASSED  |

Channel 1 / 2412 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4824.7          | 40.98      | 111.944  | 40.12                  | 0.87                  | 33     | 74             | PASSED  |
| 7236.3          | 49.54      | 299.813  | 40.49                  | 9.05                  | 75.7   | 125.2          | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4824.7          | 28.09      | 25.366   | 27.23                  | 0.87                  | 25.9   | 54             | PASSED  |
| 7236.3          | 36.23      | 64.796   | 27.18                  | 9.05                  | ---    | ---            | PASSED  |

Channel 11 / 2462 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4925.5          | 42.23      | 129.241  | 41.48                  | 0.75                  | 31.8   | 74             | PASSED  |
| 7384.4          | 49.68      | 304.895  | 39.99                  | 9.69                  | 24.3   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4925.5          | 29.31      | 29.198   | 28.56                  | 0.75                  | 24.7   | 54             | PASSED  |
| 7384.4          | 36.94      | 70.267   | 27.25                  | 9.69                  | 17     | 54             | PASSED  |

## 2.3.4 n-mode, 40 MHz CBW, BPSK modulation, 13.5/15 Mbps data rate.

Channel 6 / 2442 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4878.9          | 41.18      | 114.485  | 40.49                  | 0.69                  | 32.8   | 74             | PASSED  |
| 7321.4          | 49.84      | 310.42   | 40.24                  | 9.6                   | 24.1   | 74             | PASSED  |
| 10947.696       | 56.47      | 665.733  | 40.49                  | 15.98                 | 17.5   | 74             | PASSED  |
| 17998           | 58.24      | 816.112  | 41.48                  | 16.76                 | 15.7   | 74             | PASSED  |

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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 100.036         | 25.57      | 18.991   | 42.57                  | -17                   | 18     | 43.5           | PASSED  |
| 112.013         | 29.91      | 31.3     | 46.41                  | -16.5                 | 13.6   | 43.5           | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4878.9          | 28.67      | 27.146   | 27.98                  | 0.69                  | 25.3   | 54             | PASSED  |
| 7321.4          | 36.97      | 70.583   | 27.37                  | 9.6                   | 17     | 54             | PASSED  |
| 10947.696       | 43.49      | 149.503  | 27.51                  | 15.98                 | 10.5   | 54             | PASSED  |
| 17998           | 44.54      | 168.597  | 27.78                  | 16.76                 | 9.4    | 54             | PASSED  |

Channel 3 / 2412 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4822.4          | 41.23      | 115.239  | 40.36                  | 0.87                  | 32.7   | 74             | PASSED  |
| 7234.5          | 48.95      | 280.124  | 39.87                  | 9.09                  | 76.3   | 125.2          | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4822.4          | 27.93      | 24.914   | 27.06                  | 0.87                  | 26.1   | 54             | PASSED  |
| 7234.5          | 36.24      | 64.893   | 27.16                  | 9.09                  | ---    | ---            | PASSED  |

Channel 9 / 2462 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4924.9          | 42.1       | 127.394  | 41.35                  | 0.75                  | 31.9   | 74             | PASSED  |
| 7386.8          | 49.93      | 313.617  | 40.24                  | 9.69                  | 24.1   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------|----------------|---------|
| 4924.9          | 29.21      | 28.87    | 28.46                  | 0.75                  | 24.8   | 54             | PASSED  |
| 7386.8          | 36.89      | 69.863   | 27.2                   | 9.69                  | 17.1   | 54             | PASSED  |

### 3. Test Equipment

#### 3.1. Conducted measurements

| Eq. No | Equipment                | Type              | Manufacturer        | Used in |
|--------|--------------------------|-------------------|---------------------|---------|
| 6038   | Data Logger              | Testo 580         | Testo               | -       |
| -      | BT / WLAN Antenna        | SPA 2400/75/9/0/V | Huber-Suhner        | -       |
| -      | BT / WLAN Antenna        | SPA 2400/75/9/0/V | Huber-Suhner        | -       |
| 2389   | Signal Generator         | SMJ 100A          | R&S                 | -       |
| 6009   | GPS Antenna              | SA-700            | Chronos             | -       |
| 6010   | GPS Network amplifier    | NLA20FPDC         | GPS Networking, Inc | -       |
| 6011   | GPS signal Splitter      | LDCBS1x4          | GPS Networking, Inc | -       |
| 6015   | Receiver                 | ESI               | R&S                 | -       |
| 2059   | V-network                | ESH3-Z6           | R&S                 | -       |
| 6044   | V-network                | ESH3-Z6           | R&S                 | -       |
| 1759   | LISN 50 µH               | ESH3-Z5           | R&S                 | -       |
| 2390   | Directional Coupler      | DC2600            | AR                  | -       |
| 1916   | Communication Tester     | CMTA84            | R&S                 | -       |
| 6012   | CDN                      | CDN USB/c         | Teseq               | -       |
| 2388   | Bluetooth Tester         | CBT               | R&S                 | -       |
| 6046   | Attenuator 10dB          | 8493C             | Agilent             | -       |
| 6047   | Attenuator 20dB          | 8493C             | Agilent             | -       |
| 6036   | Data Logger              | 175-H2            | Testo               | -       |
| 6045   | Power Splitter           | 11667B            | Agilent             | -       |
| 6039   | USB Interface            | 5541765           | Testo               | -       |
| 10479  | Communication Tester     | CMW500            | R&S                 | -       |
| 6094   | Communication Tester     | CMW500            | R&S                 | -       |
| 6096   | EMC Analyzer             | E7405A            | HP                  | -       |
| 6098   | Signal Generator         | 8648C             | Agilent             | -       |
| 6103   | Bluetooth tester         | CBT               | R&S                 | -       |
| 6113   | Signal Generator         | SMF100A           | R&S                 | -       |
| 6120   | Thermal Chamber          | WT 20/40          | Weiss               | -       |
| 6121   | Power Splitter           | HP11667B          | Agilent             | -       |
| 6122   | Power Splitter           | HP11667B          | Agilent             | -       |
| 6134   | Attenuator 10dB          | BW-S10-2W263+     | Mini-Circuits       | -       |
| 6136   | Attenuator 20dB          | BW-S20-2W263+     | Mini-Circuits       | -       |
| 2359   | Temperature Test Chamber | VT4002            | Vötsch              | -       |
| 2347   | Communication Tester     | CMU200            | R&S                 | -       |
| 2180   | Communication Tester     | CMU200            | R&S                 | -       |
| 2156   | Communication Tester     | CMU200            | R&S                 | -       |
| 1999   | Receiver                 | ESIB26            | R&S                 | -       |
| 2352   | Spectrum Analyzer        | FSP-30            | R&S                 | -       |
| 2097   | Pulse Limiter            | ESH3-Z2           | R&S                 | -       |
| 2039   | Power Supply             | PL330QMD          | Thurlby             | -       |
| 1992   | Signal Generator         | 83630B            | Agilent             | -       |
| 2206   | Signal Generator         | SMX               | R&S                 | -       |

#### 3.2. Radiated measurements

| Eq. No | Equipment                    | Type                                   | Manufacturer | Used in |
|--------|------------------------------|----------------------------------------|--------------|---------|
| 2391   | Band Reject Filter           | WRCG1729.4/1735.4-1722.4/1742.4-40/6SS | Wainwright   | 27      |
| 6038   | Data Logger                  | Testo 580                              | Testo        | -       |
| 6014   | Substitute Calibration Cable | Sucoflex 104PB                         | Suhner       | -       |
| -      | BT / WLAN Antenna            | SPA 2400/75/9/0/V                      | Huber-Suhner | -       |
| -      | BT / WLAN Antenna            | SPA 2400/75/9/0/V                      | Huber-Suhner | -       |
| 2389   | Signal Generator             | SMJ 100A                               | R&S          | -       |
| 6009   | GPS Antenna                  | SA-700                                 | Chronos      | -       |

| Eq. No | Equipment                       | Type                             | Manufacturer        | Used in |
|--------|---------------------------------|----------------------------------|---------------------|---------|
| 6010   | GPS Network amplifier           | NLA20FPDC                        | GPS Networking, Inc | -       |
| 6011   | GPS signal Splitter             | LDCBS1x4                         | GPS Networking, Inc | -       |
| 1988   | Antenna                         | HL562                            | R&S                 | -       |
| -      | RF immunity / Emission Software | EMC32                            | R&S                 | -       |
| 1917   | Communication Tester            | CMTA84                           | R&S                 | -       |
| 2388   | Bluetooth Tester                | CBT                              | R&S                 | -       |
| 6037   | Data Logger                     | 175-H2                           | Testo               | -       |
| 6039   | USB Interface                   | 5541765                          | Testo               | -       |
| 6087   | Antenna                         | BBHA 9120D                       | Scharzbeck          | -       |
| 6088   | Antenna                         | VUBA 9117                        | Scharzbeck          | -       |
| 6089   | Antenna                         | HFH2-Z2                          | R&S                 | -       |
| 10479  | Communication Tester            | CMW500                           | R&S                 | -       |
| 6094   | Communication Tester            | CMW500                           | R&S                 | -       |
| 6103   | Bluetooth tester                | CBT                              | R&S                 | -       |
| 6113   | Signal Generator                | SMF100A                          | R&S                 | -       |
| 6115   | Open switch and control unit    | OSP 130                          | R&S                 | -       |
| 6116   | Open switch and control unit    | OSP 150                          | R&S                 | -       |
| 6130   | Notch Filter                    | WRCD1880-1.1.25/50-10SS          | Wainwright          | -       |
| 6131   | Notch Filter                    | WRCT902.4-0.4/40-8SS             | Wainwright          | -       |
| 6135   | Notch Filter                    | WRCJV2531/2539-2523/2547-60/12SS | Wainwright          | -       |
| 2140   | Antenna                         | EMCO93110B                       | EMCO                | -       |
| 2142   | Antenna                         | 3146                             | EMCO                | -       |
| 2357   | Band Reject Filter              | WRCG2400/2483-2390/2493-35/10SS  | Wainwright          | -       |
| 2364   | Band Reject Filter              | WRCG1877/1883 - 1870/1890-40/6SS | Wainwright          | 24      |
| 2043   | Band Reject Filter              | WRCA824/849-0,2-6SS              | Wainwright          | 22      |
| 2347   | Communication Tester            | CMU200                           | R&S                 | -       |
| 2180   | Communication Tester            | CMU200                           | R&S                 | -       |
| 2156   | Communication Tester            | CMU200                           | R&S                 | -       |
| 2176   | CDN                             | CDN 801-M3                       | Lüthi               | -       |
| 2027   | CDN                             | M2 (modified) DC1                | MEB                 | -       |
| 2028   | CDN                             | M3 (modified) DC2                | MEB                 | -       |
| 1984   | Antenna                         | BBHA 9120 D                      | Schwarzbeck         | -       |
| 6017   | Antenna                         | SBA 9113                         | Schwarzbeck         | -       |
| 2009   | Signal Generator                | SMP 22                           | R&S                 | -       |
| 2029   | Power Supply                    | PL330                            | Thurlby             | -       |
| 2361   | Anechoic Chamber                | 3 m Semi / Full Anechoic Chamber | Euroshield          | -       |
| 2353   | Receiver                        | ESIB26                           | R&S                 | -       |
| 2135   | CDN                             | CDN 801-M3                       | Lüthi               | -       |