

## FCC Part 15C Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                       |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC15C_RM-509_24.doc                                                                                                                                                                                                                                                                                                                 | <b>Date of Report:</b>            | 25-Feb-2010                                                                                                           |
| <b>Number of pages:</b>                                 | 21                                                                                                                                                                                                                                                                                                                                   | <b>Customer's Contact person:</b> | Ralph Schwarz                                                                                                         |
| <b>Testing laboratory:</b>                              | TCC Nokia Tampere Laboratory<br>P.O. Box 68<br>Sinitaival 5<br>FIN-33720 TAMPERE, FINLAND<br>Tel. +358 (0) 7180 46800<br>Fax. +358 (0) 7180 46880                                                                                                                                                                                    | <b>Customer:</b>                  | Nokia Corporation<br>Lise Meitner Strasse 10<br>89081 ULM<br>GERMANY<br>Tel. +49 731 1754 0<br>Fax. +49 731 1754 6800 |
| <b>FCC listing no.:</b>                                 | 94436                                                                                                                                                                                                                                                                                                                                |                                   |                                                                                                                       |
| <b>IC recognition no.:</b>                              | 661AK-1                                                                                                                                                                                                                                                                                                                              |                                   |                                                                                                                       |
| <b>Tested devices/ accessories:</b>                     | <b>Phone RM-509 / Battery BL-4S, AC charger AC-8E, Headset HS-105</b>                                                                                                                                                                                                                                                                |                                   |                                                                                                                       |
| <b>FCC ID:</b>                                          | PPIRM-509H                                                                                                                                                                                                                                                                                                                           | <b>IC:</b>                        | 661U-RM509                                                                                                            |
| <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 RSS-GEN (Issue 2, June 2007) 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>             |                                                                                                                                                                                                                                                                                                                                      |                                   |                                                                                                                       |

**Sami Lehtonen, System Specialist, EMC**

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

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Date of receipt               | 14-Aug-2009                                                     |
| Testing completed             | 19-Aug-2009                                                     |
| The customer's contact person | Ralph Schwarz                                                   |
| Test Plan referred to         | T:\Projects\RM-509\TestPlan_RS\RS_testplan_RM-509_CR_HW0410.xls |
| Notes                         | -                                                               |
| Document name                 | FCC15C_RM-509_24.doc                                            |

### 1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900 and WCDMA Band I/IV(1700)/VIII) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

| Product    | Type   | SN                          | HW   | MV | SW   | DUT   |
|------------|--------|-----------------------------|------|----|------|-------|
| Phone      | RM-509 | 004401106632801             | 0410 | -  | 3.10 | 41978 |
| Phone      | RM-509 | 004401106632843             | 0410 | -  | 3.10 | 41977 |
| Battery    | BL-4S  | 3820668095140100000;0670577 | -    | -  | -    | 41979 |
| AC charger | AC-8E  | 1103338411070317367;0675387 | -    | -  | -    | 41980 |
| Headset    | HS-105 | 0694287913411200016         | -    | -  | -    | 41981 |

### 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)      | A8.4 (2)                      | Conducted peak output power          | PASSED |
| 15.247(d)         | A8.5                          | Band edge compliance of RF emissions | PASSED |
| 15.247(d)         | A8.5                          | Spurious RF conducted emissions      | PASSED |
| 15.247(d), 15.209 | A8.5                          | Spurious radiated emissions          | PASSED |
| 15.207            | 7.2.2                         | AC powerline conducted emissions     | NP     |
| 15.247(a)(1)      | A8.1 (a)                      | 20 dB bandwidth                      | NP     |
| 15.247(a)(1)      | A8.1 (b)                      | Carrier frequency separation         | NP     |
| 15.247(a)(1)(iii) | A8.1 (d)                      | Number of hopping frequencies        | NP     |
| 15.247(a)(1)(iii) | A8.1 (d)                      | Time of occupancy                    | NP     |

PASSED

The EUT complies with the essential requirements in the standard.

FAILED

The EUT does not comply with the essential requirements in the standard.

NP

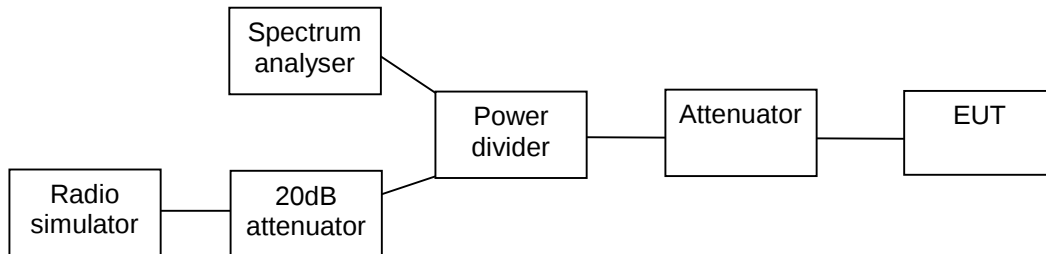
The test was not performed by the TCC Nokia Tampere Laboratory.

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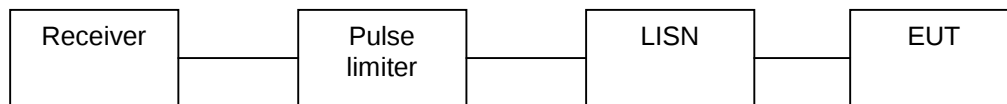
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## 2. Test setups

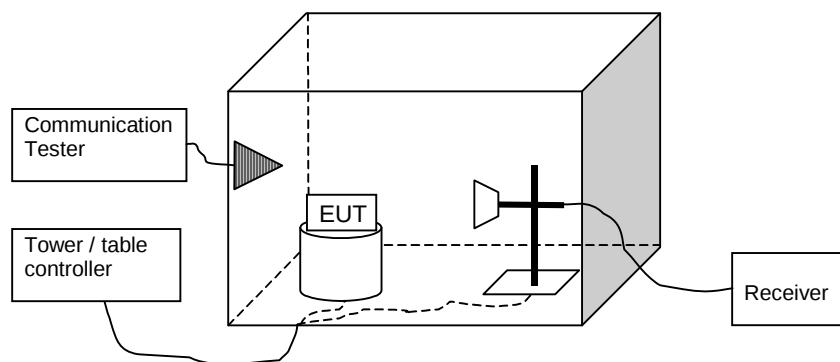
### 2.1. Conducted RF test setup



### 2.2. AC powerline conducted emissions test setup



### 2.3. Radiated test setup



### 3. Conducted peak output power (FCC §15.247(b)(1), RSS-210 A8.4 (2))

|                                                 |                 |
|-------------------------------------------------|-----------------|
| EUT with DUT number                             | RM-509 DUT41977 |
| Accessories with DUT numbers                    | BL-4S DUT 41979 |
| Operation Voltage [V] / [Hz]                    | Nominal         |
| Result                                          | PASSED          |
| Remarks                                         | -               |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 22 / 45 / 101.5 |
| Date of measurements                            | 19-Aug-2009     |
| Measured by                                     | Hannu Söderholm |

#### 3.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

Limits for conducted peak output power measurements

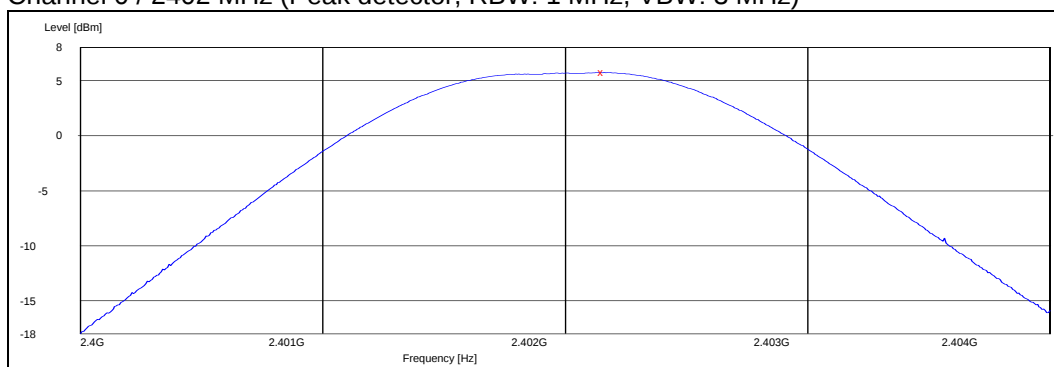
| Frequency range [MHz] | Limit [W] | Limit [dBm] |
|-----------------------|-----------|-------------|
| 2400 – 2483.5         | ≤ 1       | ≤ 30        |

## 3.2. Bluetooth Test results

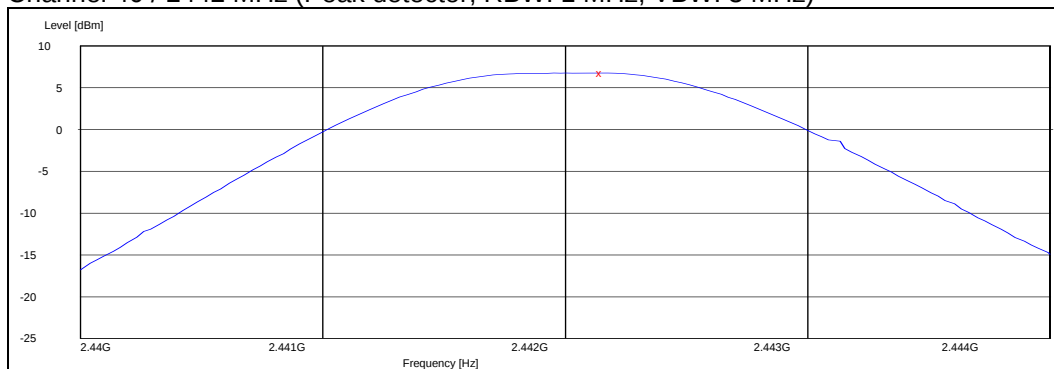
### 3.2.1 GFSK modulation, PRBS packet type

| Channel / $f_c$ [MHz] | P [dBm] | P [mW] | Result |
|-----------------------|---------|--------|--------|
| 0 / 2402              | 5.80    | 3.802  | PASSED |
| 40 / 2442             | 6.80    | 4.786  | PASSED |
| 78 / 2480             | 7.40    | 5.495  | PASSED |

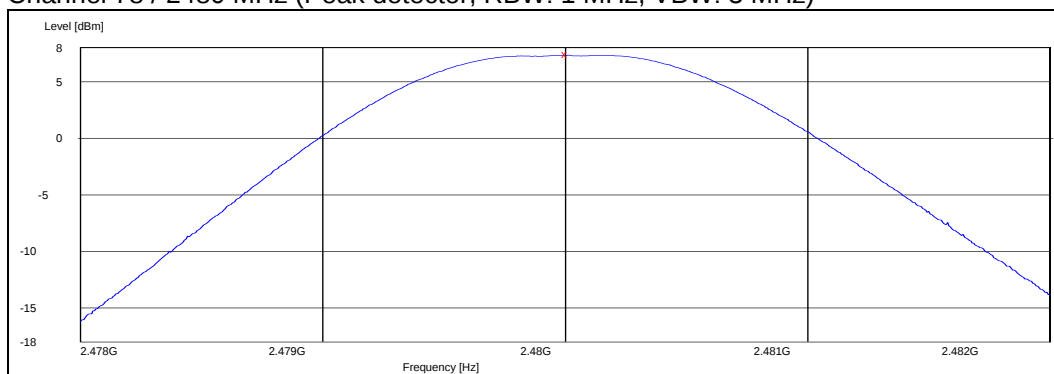
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



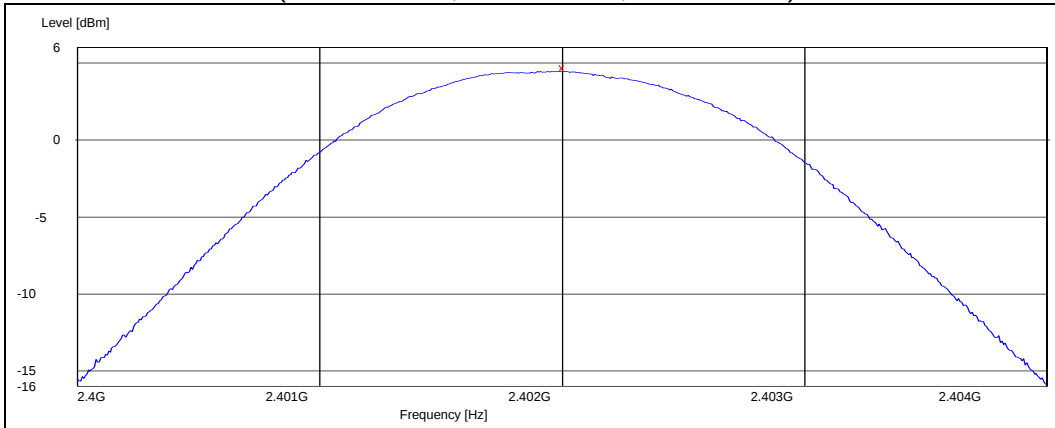
Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



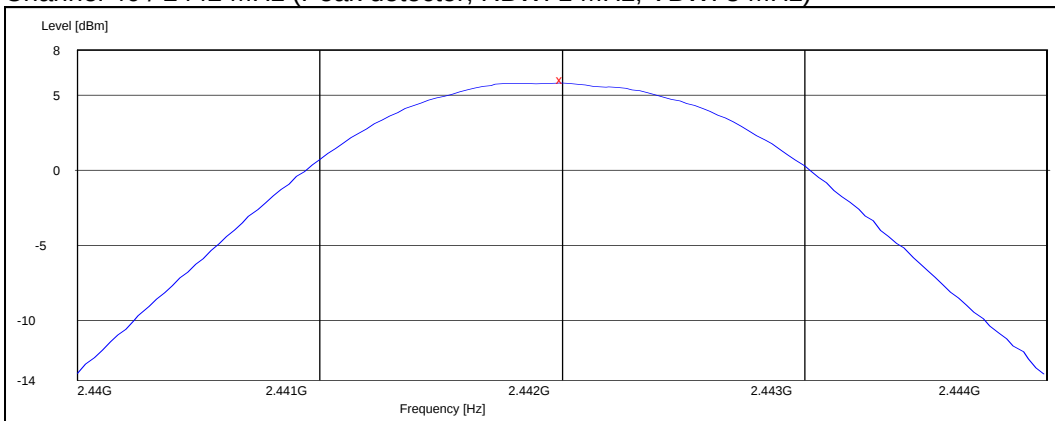
### 3.2.2 8DPSK modulation, PRBS packet type

| Channel / $f_c$ [MHz] | P [dBm] | P [mW] | Result |
|-----------------------|---------|--------|--------|
| 0 / 2402              | 4.70    | 2.951  | PASSED |
| 40 / 2442             | 6.00    | 3.981  | PASSED |
| 78 / 2480             | 6.70    | 4.677  | PASSED |

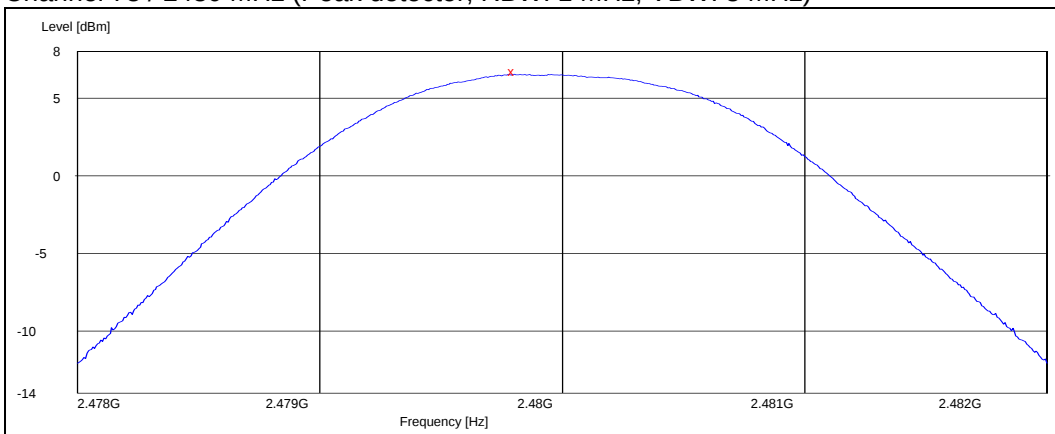
Channel 0 / 2402 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 40 / 2442 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



Channel 78 / 2480 MHz (Peak detector, RBW: 1 MHz, VBW: 3 MHz)



#### 4. Band edge compliance of RF emissions (FCC §15.247(d), RSS-210 A8.5)

|                                                 |                                                    |
|-------------------------------------------------|----------------------------------------------------|
| EUT with DUT number                             | RM-509 DUT 41978                                   |
| Accessories with DUT numbers                    | BL-4S DUT 41979, AC-8E DUT 41980, HS-105 DUT 41981 |
| Operation Voltage [V] / [Hz]                    | 115 / 60                                           |
| Result                                          | PASSED                                             |
| Remarks                                         | -                                                  |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 23 / 50 / 100.5                                    |
| Date of measurements                            | 18-Aug-2009                                        |
| Measured by                                     | Jari Jantunen                                      |

##### 4.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

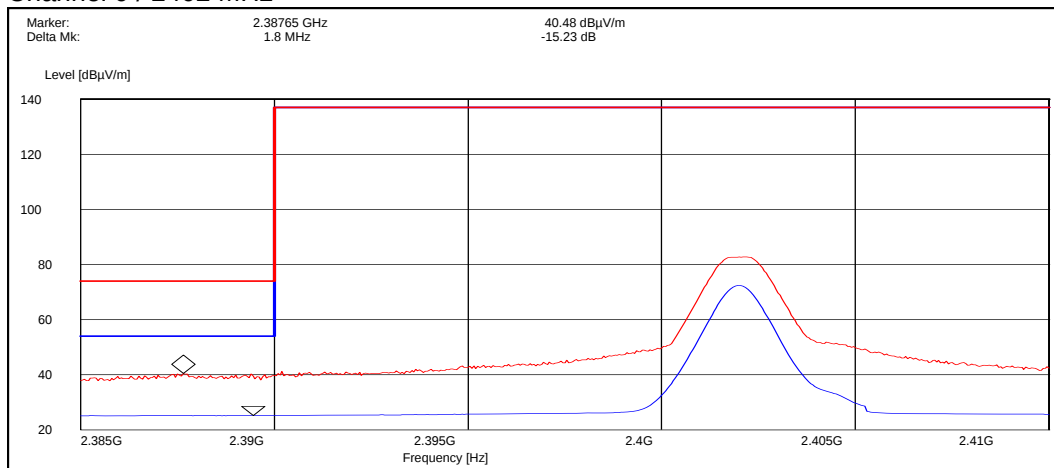
Limits for band edge compliance of RF emissions measurements (3 m measurement distance)

| Frequency range [MHz]       | Limit Average [dBμV/m] | Limit Peak [dBμV/m] |
|-----------------------------|------------------------|---------------------|
| Below 2390 and above 2483.5 | ≤ 54                   | ≤ 74                |

## 4.2. Bluetooth Test results

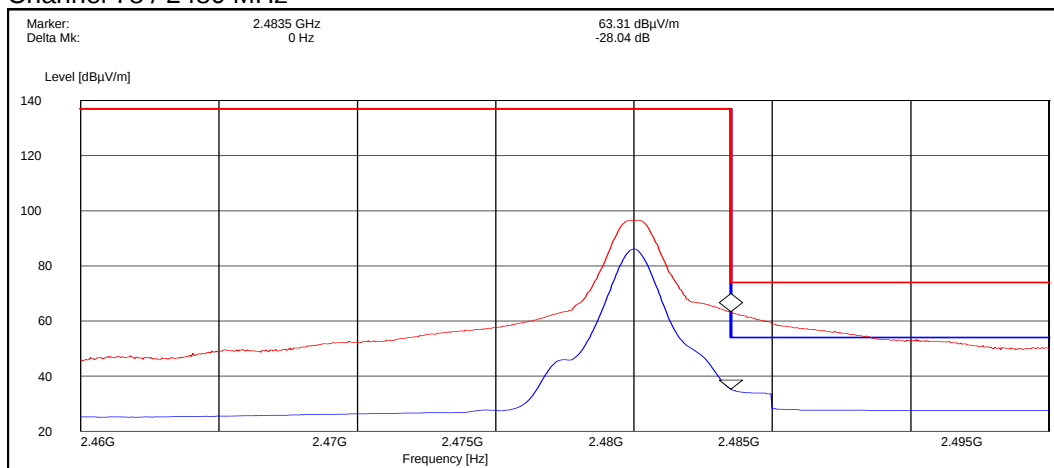
### 4.2.1 GFSK modulation, PRBS packet type

Channel 0 / 2402 MHz



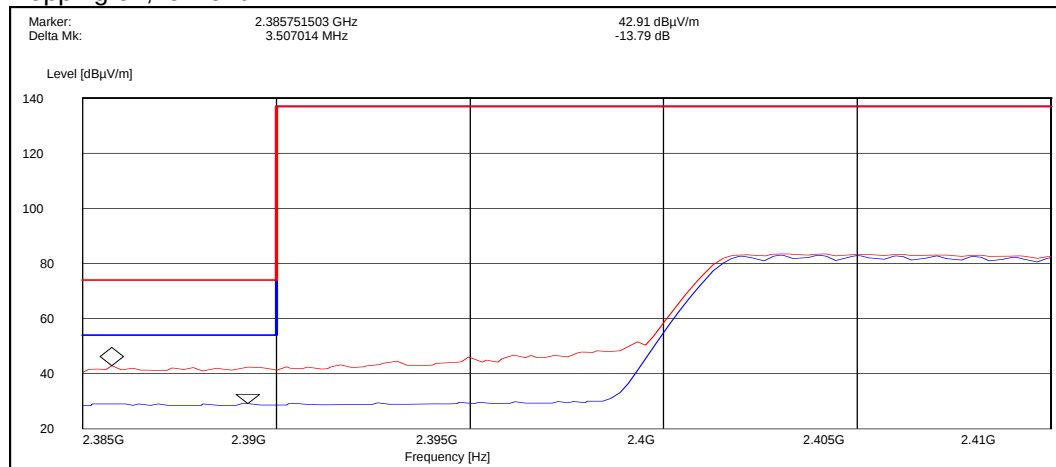
| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 40.50            | PASSED |
| Average               | 25.30            | PASSED |

Channel 78 / 2480 MHz



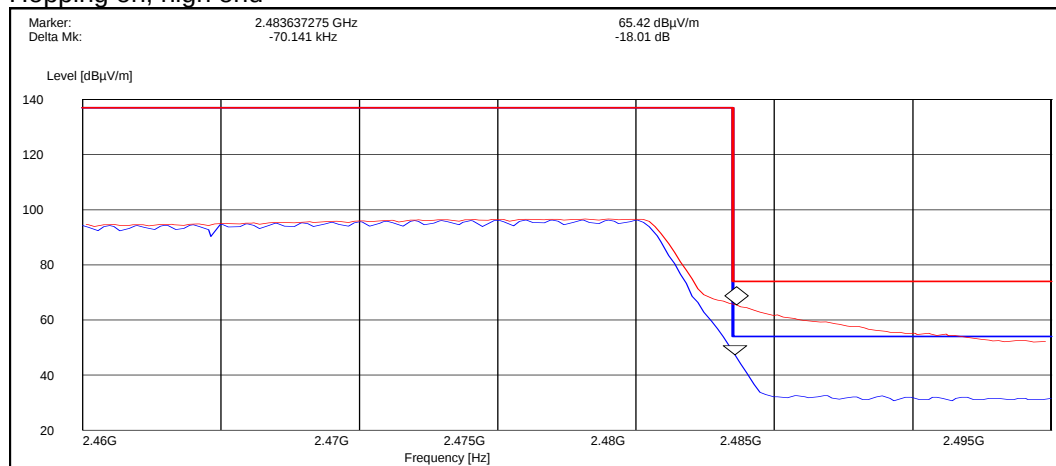
| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 63.30            | PASSED |
| Average               | 35.30            | PASSED |

### Hopping on, low end



| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 42.90            | PASSED |
| Average               | 29.10            | PASSED |

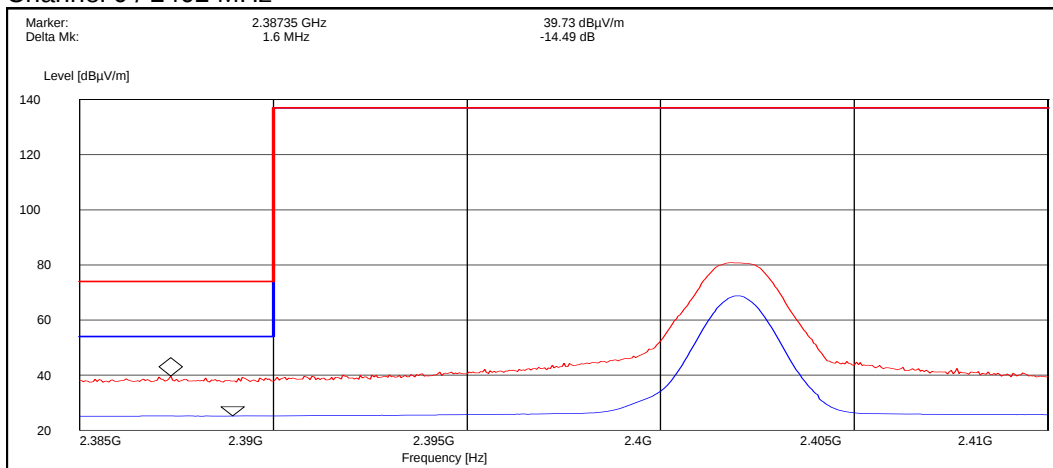
### Hopping on, high end



| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 65.40            | PASSED |
| Average               | 47.40            | PASSED |

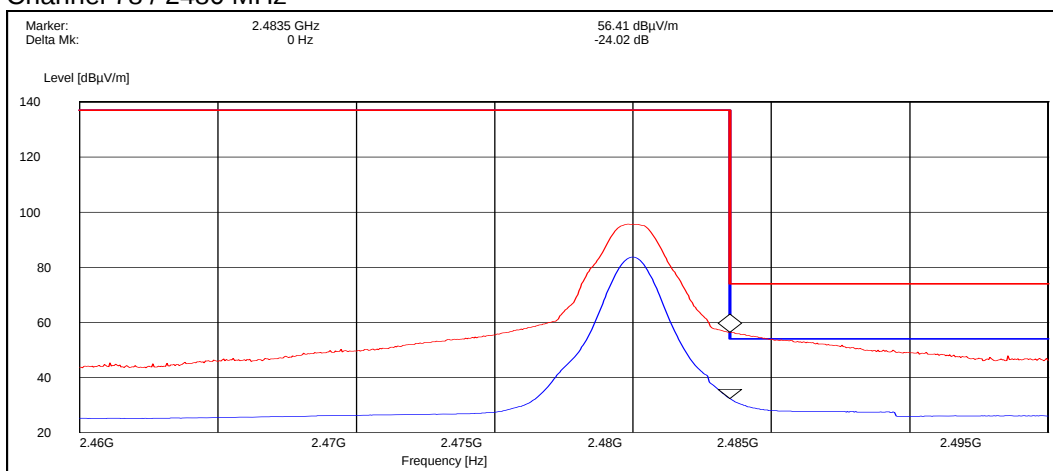
#### 4.2.2 8DPSK modulation, PRBS packet type

##### Channel 0 / 2402 MHz



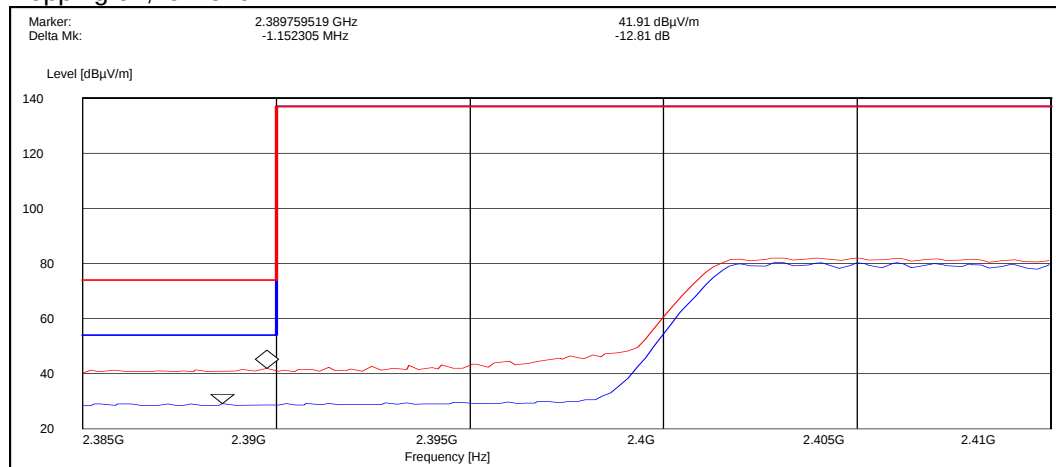
| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 39.70            | PASSED |
| Average               | 25.20            | PASSED |

##### Channel 78 / 2480 MHz



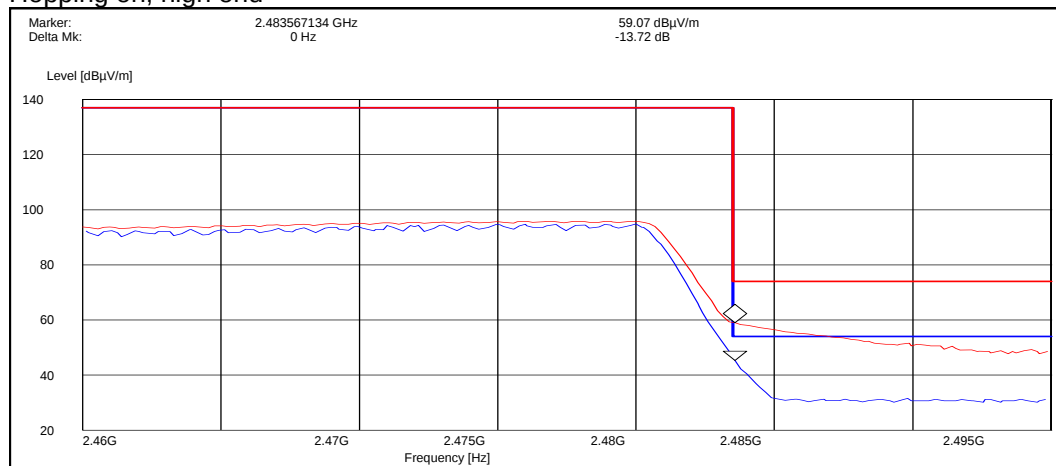
| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 56.40            | PASSED |
| Average               | 32.40            | PASSED |

### Hopping on, low end



| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 41.90            | PASSED |
| Average               | 29.10            | PASSED |

### Hopping on, high end



| Detector (RBW: 1 MHz) | E [dB $\mu$ V/m] | Result |
|-----------------------|------------------|--------|
| Peak                  | 59.10            | PASSED |
| Average               | 45.40            | PASSED |

## 5. Spurious RF conducted emissions (FCC §15.247(d), RSS-A8.5)

|                                                 |                 |
|-------------------------------------------------|-----------------|
| EUT with DUT number                             | RM-509 DUT41977 |
| Accessories with DUT numbers                    | BL-4S DUT 41979 |
| Operation Voltage [V] / [Hz]                    | Nominal         |
| Result                                          | PASSED          |
| Remarks                                         | -               |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 22 / 45 / 101.5 |
| Date of measurements                            | 19-Aug-2009     |
| Measured by                                     | Hannu Söderholm |

### 5.1. Test method and limit

The measurement is made according to Public notice DA 00-705 and IC standard RSS-210.

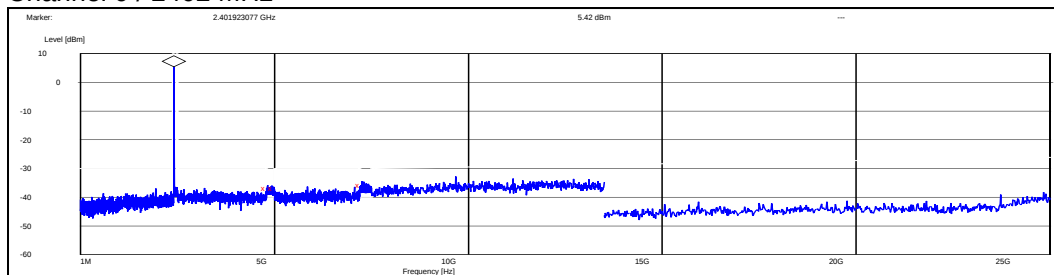
Limits for spurious RF conducted emissions measurements

| Frequency range [MHz] | Limit [dBc] |
|-----------------------|-------------|
| 1 – 25000             | ≤ -20       |

## 5.2. Bluetooth Test results

### 5.2.1 GFSK modulation, PRBS packet type

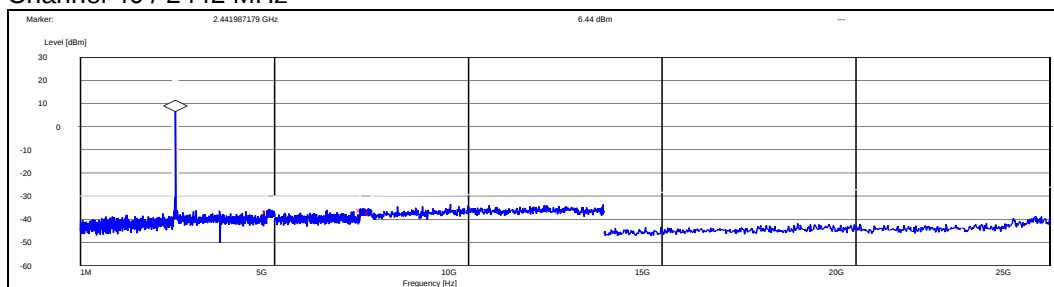
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4825.320513     | -42.217118 | PASSED |
| 5000.000000     | -42.317118 | PASSED |
| 7259.615385     | -41.417118 | PASSED |

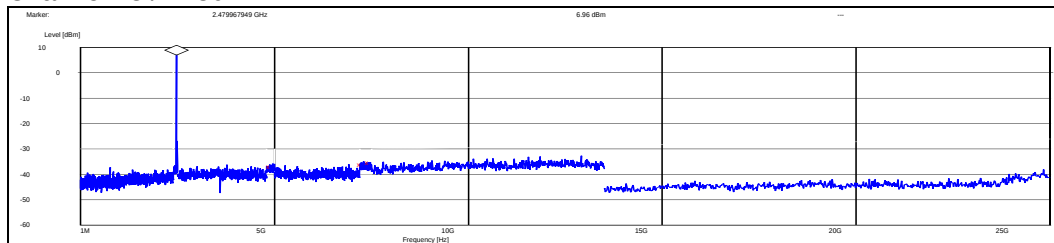
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4854.807692     | -43.444193 | PASSED |
| 7287.980769     | -42.644193 | PASSED |
| 7500.000000     | -43.244193 | PASSED |

Channel 78 / 2480 MHz

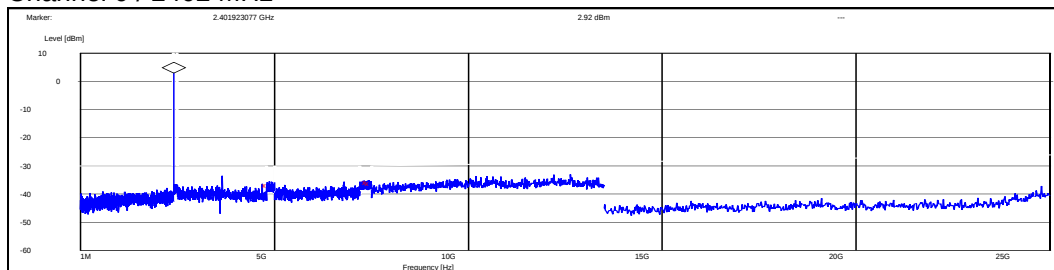


Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4962.179487     | -43.856352 | PASSED |
| 7295.673077     | -43.156352 | PASSED |
| 7500.000000     | -42.356352 | PASSED |

## 5.2.2 8DPSK modulation, PRBS packet type

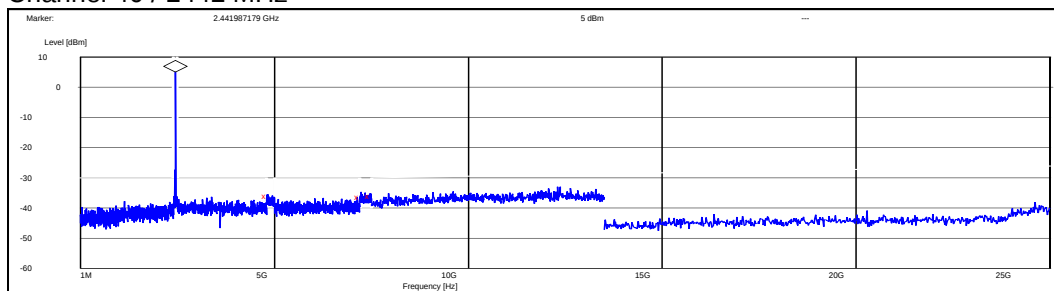
Channel 0 / 2402 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4861.858974     | -39.715394 | PASSED |
| 7436.057692     | -38.715394 | PASSED |
| 7500.000000     | -39.015394 | PASSED |

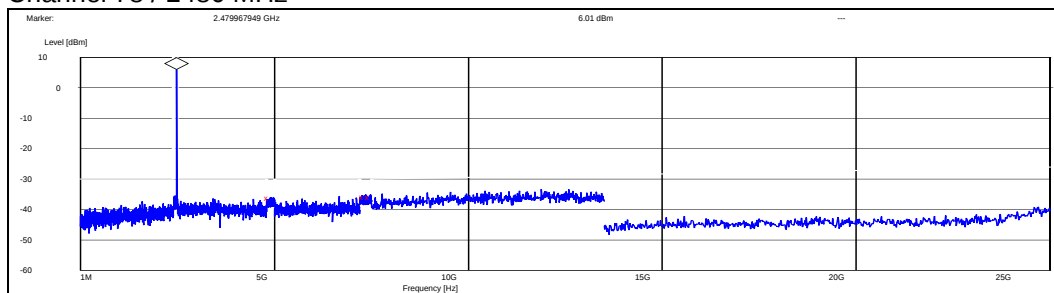
Channel 40 / 2442 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4839.102564     | -41.097255 | PASSED |
| 7229.326923     | -41.397255 | PASSED |
| 7500.000000     | -40.997255 | PASSED |

Channel 78 / 2480 MHz



Peak (RBW: 100 kHz, VBW: 100 kHz)

| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4914.423077     | -42.212306 | PASSED |
| 7350.480769     | -42.012306 | PASSED |
| 7500.000000     | -42.012306 | PASSED |

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

|                                                 |                                                    |
|-------------------------------------------------|----------------------------------------------------|
| EUT with DUT number                             | RM-509 DUT 41978                                   |
| Accessories with DUT numbers                    | BL-4S DUT 41979, AC-8E DUT 41980, HS-105 DUT 41981 |
| Operation Voltage [V] / [Hz]                    | 115 / 60                                           |
| Result                                          | PASSED                                             |
| Remarks                                         | -                                                  |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 23 / 50 / 100.5                                    |
| Date of measurements                            | 18-Aug-2009                                        |
| Measured by                                     | Jari Jantunen                                      |

### 6.1. Test method and limit

The measurement is made according to Public notice DA 00-705 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:

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

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

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       |

## 6.2. Bluetooth Test results

### 6.2.1 GFSK modulation, PRBS packet type

TX mode, channel 0 / 2402 MHz

Peak (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | U <sub>RX</sub> [dB $\mu\text{V}$ ] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 4804.000000     | 43.20                   | 144.54                | 44.30                               | -1.1                  | HORIZONTAL   | PASSED |
| 7206.000000     | 42.80                   | 138.04                | 40.00                               | 2.8                   | VERTICAL     | PASSED |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | U <sub>RX</sub> [dB $\mu\text{V}$ ] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 4804.000000     | 29.90                   | 31.26                 | 31.00                               | -1.1                  | HORIZONTAL   | PASSED |
| 7206.000000     | 29.90                   | 31.26                 | 27.10                               | 2.8                   | HORIZONTAL   | PASSED |

TX mode, channel 40 / 2442 MHz

Quasi peak (RBW: 120 kHz)

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | U <sub>RX</sub> [dB $\mu\text{V}$ ] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 33.145291       | 36.50                   | 66.83                 | 47.40                               | -10.9                 | VERTICAL     | PASSED |
| 38.176353       | 28.50                   | 26.61                 | 42.70                               | -14.2                 | VERTICAL     | PASSED |
| 73.386573       | 20.20                   | 10.23                 | 44.00                               | -23.8                 | HORIZONTAL   | PASSED |
| 74.169940       | 20.30                   | 10.35                 | 44.00                               | -23.7                 | HORIZONTAL   | PASSED |

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

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | U <sub>RX</sub> [dB $\mu\text{V}$ ] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 4884.269539     | 43.70                   | 153.11                | 45.10                               | -1.4                  | HORIZONTAL   | PASSED |
| 7314.625251     | 43.30                   | 146.22                | 39.90                               | 3.4                   | VERTICAL     | PASSED |
| 7317.631263     | 43.30                   | 146.22                | 39.90                               | 3.4                   | VERTICAL     | PASSED |
| 9769.037074     | 56.10                   | 638.26                | 48.60                               | 7.5                   | VERTICAL     | PASSED |
| 17886.269539    | 53.50                   | 473.15                | 33.90                               | 19.6                  | VERTICAL     | PASSED |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu\text{V/m}$ ] | E [ $\mu\text{V/m}$ ] | U <sub>RX</sub> [dB $\mu\text{V}$ ] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 4884.769539     | 27.40                   | 23.44                 | 28.80                               | -1.4                  | HORIZONTAL   | PASSED |
| 7313.625251     | 30.60                   | 33.88                 | 27.20                               | 3.4                   | VERTICAL     | PASSED |
| 7313.631263     | 30.70                   | 34.28                 | 27.30                               | 3.4                   | VERTICAL     | PASSED |
| 9768.037074     | 41.90                   | 124.45                | 34.40                               | 7.5                   | VERTICAL     | PASSED |

|              |       |        |       |      |          |        |
|--------------|-------|--------|-------|------|----------|--------|
| 17887.269539 | 40.70 | 108.39 | 21.10 | 19.6 | VERTICAL | PASSED |
|--------------|-------|--------|-------|------|----------|--------|

TX mode, channel 78 / 2480 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4960.000000     | 44.60      | 169.82   | 45.10                  | -0.5                  | VERTICAL     | PASSED |
| 7440.000000     | 45.10      | 179.89   | 41.60                  | 3.5                   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4960.000000     | 31.00      | 35.48    | 31.50                  | -0.5                  | VERTICAL     | PASSED |
| 7440.000000     | 30.70      | 34.28    | 27.20                  | 3.5                   | VERTICAL     | PASSED |

## 6.2.2 8DPSK modulation, PRBS packet type

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     | 40.60      | 107.15   | 41.70                  | -1.1                  | VERTICAL     | PASSED |
| 7206.000000     | 42.60      | 134.90   | 39.80                  | 2.8                   | 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     | 29.30      | 29.17    | 30.40                  | -1.1                  | VERTICAL     | PASSED |
| 7206.000000     | 29.90      | 31.26    | 27.10                  | 2.8                   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 37.676353       | 18.90      | 8.81     | 32.80                  | -13.9                 | VERTICAL     | PASSED |

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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4883.769539     | 43.10      | 142.89   | 44.60                  | -1.5                  | VERTICAL     | PASSED |
| 4953.901804     | 40.10      | 101.16   | 40.60                  | -0.5                  | HORIZONTAL   | PASSED |
| 7270.537074     | 42.70      | 136.46   | 39.40                  | 3.3                   | HORIZONTAL   | PASSED |
| 7316.125251     | 43.00      | 141.25   | 39.60                  | 3.4                   | VERTICAL     | PASSED |
| 17905.313627    | 54.10      | 506.99   | 34.10                  | 20.0                  | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4884.769539     | 27.40      | 23.44    | 28.80                  | -1.4                  | VERTICAL     | PASSED |
| 4952.401804     | 27.50      | 23.71    | 28.10                  | -0.6                  | HORIZONTAL   | PASSED |
| 7271.037074     | 30.30      | 32.73    | 27.00                  | 3.3                   | HORIZONTAL   | PASSED |

|              |       |        |       |      |          |        |
|--------------|-------|--------|-------|------|----------|--------|
| 7309.125251  | 30.60 | 33.88  | 27.10 | 3.5  | VERTICAL | PASSED |
| 17906.813627 | 41.00 | 112.20 | 21.10 | 19.9 | VERTICAL | PASSED |

TX mode, channel 78 / 2480 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4960.000000     | 43.20      | 144.54   | 43.70                  | -0.5                  | VERTICAL     | PASSED |
| 7440.000000     | 43.20      | 144.54   | 39.70                  | 3.5                   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 4960.000000     | 31.40      | 37.15    | 31.90                  | -0.5                  | VERTICAL     | PASSED |
| 7440.000000     | 30.00      | 31.62    | 26.50                  | 3.5                   | HORIZONTAL   | PASSED |

## 7. Test Equipment

### 7.1. Conducted measurements

| Eq. No  | Equipment                  | Type        | Manufacturer | Used in            |
|---------|----------------------------|-------------|--------------|--------------------|
| TM30597 | Power splitter             | 11667A      | Agilent      | 22/24/27, 15C      |
| TM37499 | Power splitter             | 11667A      | Agilent      | 22/24/27, 15C      |
| TM38111 | Multimeter                 | 34401A      | Agilent      | 22/24/27, 15C      |
| TM38112 | DC power supply            | 6632A       | Agilent      | 22/24/27, 15C      |
| TM22901 | Attenuator                 | 8496A       | Agilent      | 22/24/27, 15C      |
| TM30636 | Artificial mains net       | L2-16       | PMM          | 15C, 15B           |
| TM37678 | Radio communication tester | CMU-200     | R&S          | 22/24/27, 15C, 15B |
| TM37773 | Radio communication tester | CMU-200     | R&S          | 22/24/27, 15C, 15B |
| TM30600 | Pulse Limiter              | ESH3-Z2     | R&S          | 15C, 15B           |
| TM26490 | LISN 50 $\mu$ H            | ESH3-Z5     | R&S          | 15C, 15B           |
| TM37610 | Spectrum analyzer          | FSU         | R&S          | 22/24/27, 15C      |
| TM22835 | Multimeter                 | 87          | Fluke        | 15C, 15B           |
| TM37500 | Microwave switch system    | 7116-MSW    | Keithley     | 22/24/27, 15C, 15B |
| TM22638 | Power supply               | OL63743-901 | Transmatic   | 22/24/27, 15C, 15B |
|         | Temperature chamber        | VT4002      | Vötsch       | 22/24/27, 15C      |
| 2058    | EMI Test receiver          | ESPC        | R&S          | 15C, 15B           |
| 2001    | Bluetooth tester           | CBT         | R&S          | 22/24/27, 15C, 15B |
| 2002    | Radio communication tester | CMU-200     | R&S          | 22/24/27, 15C, 15B |

### 7.2. Radiated measurements

| Eq. No  | Equipment                       | Type                          | Manufacturer   | Used in            |
|---------|---------------------------------|-------------------------------|----------------|--------------------|
| TM30599 | 3m semi-anechoic chamber        |                               | TDK            | 22/24/27, 15C, 15B |
| TM38845 | EMI receiver                    | ESI 40                        | R&S            | 22/24/27, 15C, 15B |
| TM37498 | Preamplifier                    | AMF-5D-020180-26-10P          | MITEQ          | 22/24/27, 15C, 15B |
| TM37523 | Preamplifier                    | AMF-4D-10M-3G-25-20P          | MITEQ          | 22/24/27, 15C, 15B |
| TM37516 | Biconilog antenna               | HL562                         | R&S            | 22/24/27, 15C, 15B |
| TM26496 | Double ridged waveguide antenna | 3115                          | EMCO           | 22/24/27, 15C, 15B |
| TM39158 | Horn antenna                    | 3116                          | EMCO           | 22/24/27, 15C, 15B |
| TM26492 | Reference dipole set            | UHAP/VHAP                     | Schwarzbeck    | 22/24/27, 15C, 15B |
| TM37501 | Dipole antenna                  | 3125-870                      | EMCO           | 22/24/27           |
| TM37502 | Dipole antenna                  | 3125-1880                     | EMCO           | 22/24/27           |
| TM37773 | Radio communication tester      | CMU-200                       | R&S            | 22/24/27, 15C, 15B |
| TM38631 | Signal generator                | 83640L                        | Agilent        | 22/24/27, 15C, 15B |
| TM38066 | High pass filter                | 4HC3000/18000-3-KK            | Trilithic      | 22/24/27, 15C, 15B |
| TM26511 | Tunable notch filter            | WRCA870                       | Wainwright     | 22/24/27           |
| TM38215 | Tunable notch filter            | WRCD1850/1910-0.2/40          | Wainwright     | 22/24/27           |
| TM38214 | Band reject filter              | WRCT 2402/2480-2400/2483.5-30 | Wainwright     | 15C                |
| TM30642 | Mast/Turntable controller       | HD-100                        | Deisel         | 22/24/27, 15C, 15B |
| TM26500 | Turntable                       | DS412                         | Deisel         | 22/24/27, 15C, 15B |
| TM38842 | Antenna mast controller         | 2090                          | EMCO           | 22/24/27, 15C, 15B |
| TM38843 | Antenna mast                    | 2075                          | EMCO           | 22/24/27, 15C, 15B |
| TM38114 | DC power supply                 | 6632A                         | Agilent        | 22/24/27, 15C, 15B |
| TM38323 | Preamplifier                    | PA-02 18-26 GHz               | EMC Automation | 22/24/27, 15C, 15B |
| TM37678 | Radio communication tester      | CMU-200                       | R&S            | 22/24/27, 15C, 15B |
| TM22638 | Power supply                    | OL63743-901                   | Transmatic     | 22/24/27, 15C, 15B |
| TM23892 | Yaesu controller                | G-1000SDX                     | Yaesu          | 22/24/27, 15C, 15B |
| 2001    | Bluetooth tester                | CBT                           | R&S            | 22/24/27, 15C, 15B |

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| Eq. No | Equipment                  | Type    | Manufacturer | Used in            |
|--------|----------------------------|---------|--------------|--------------------|
| 2002   | Radio communication tester | CMU-200 | R&S          | 22/24/27, 15C, 15B |