

## FCC Part 15C Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                      |                                   |                                                                                                               |
|---------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | Cph_FCC_0532_04.doc                                                                                                                                                                                                                                  | <b>Date of Report:</b>            | 17-08-2005                                                                                                    |
| <b>Number of pages:</b>                                 | 30                                                                                                                                                                                                                                                   | <b>Customer's Contact person:</b> | Ole Sørensen                                                                                                  |
| <b>Testing laboratory:</b>                              | TCC Nokia Copenhagen Laboratory<br>Frederikskaj<br>1790 COPENHAGEN V<br>DENMARK<br>Tel. +45 33 292929<br>Fax. +45 33 292934                                                                                                                          | <b>Client:</b>                    | Nokia Corporation<br>Frederikskaj<br>1790 COPENHAGEN V<br>DENMARK<br>Tel. +45 33 292929<br>Fax. +45 33 292934 |
| <b>FCC listing no.:</b>                                 | 99059                                                                                                                                                                                                                                                |                                   |                                                                                                               |
| <b>IC recognition no.:</b>                              | 4820 and 4820-1                                                                                                                                                                                                                                      |                                   |                                                                                                               |
| <b>Tested devices/ accessories:</b>                     | <b>Phone; RM-111, AC-Charger; AC-1C, Headset; HS-35</b>                                                                                                                                                                                              |                                   |                                                                                                               |
| <b>FCC ID:</b>                                          | QTKRM-111                                                                                                                                                                                                                                            | <b>IC:</b>                        | 661AD-RM111                                                                                                   |
| <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) and IC standard RSS-210. 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>             |                                                                                                                                                                                                                                                      |                                   |                                                                                                               |

**Allan Franch Henriksen, Engineer**

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

|                               |                                                               |
|-------------------------------|---------------------------------------------------------------|
| Date of receipt               | 22-07-2005                                                    |
| Testing completed             | 17-08-2005                                                    |
| The customer's contact person | Ole Sørensen                                                  |
| Test Plan referred to         | T:\Projects\RM-111\EMC\Test Plans\EMC_Testplan_for_RM-111.xls |
| Notes                         | None                                                          |
| Document name                 | T:\Projects\RM-111\EMC\Results\FCC\Cph_FCC_0532_04.doc        |

### 1.1. EUT and Accessory Information

The EUT is a Triple band (GSM 900, 1800, 1900) mobile phone with GPRS, EGPRS and Bluetooth. Bluetooth is tested with maximum rated TX power.

| Product    | Type   | SN                              | HW   | MV  | SW    | DUT   |
|------------|--------|---------------------------------|------|-----|-------|-------|
| Phone      | RM-111 | 004400/66/166283/1              | 0350 | -   | 03.55 | 28976 |
| Phone      | RM-111 | 004400/66/166282/3              | 0350 | -   | 03.55 | 28980 |
| Phone      | RM-111 | 004400/66/167779/7              | 0305 | -   | 03.53 | 28573 |
| AC-Charger | AC-1C  | 0675353<br>394349L214410000072A | 2.4  | 2.0 | -     | 28987 |
| AC-Charger | AC-1C  | 0675353<br>394349L214410000031A | 2.4  | 2.0 | -     | 28981 |
| Headset    | HS-35  | -                               | -    | -   | -     | 28982 |
| AC-Charger | AC-1E  | 394349L503410629837 A           | -    | -   | -     | 28574 |
| Headset    | HS-35  | -                               | -    | -   | -     | 28576 |

### 1.2. Summary of Test Results

#### Bluetooth:

| Section in CFR 47 | Section in RSS-210 | Name of the test                     | Result |
|-------------------|--------------------|--------------------------------------|--------|
| 15.247(b)(1)      | 6.2.2(o)(a3)       | Peak output power                    | Passed |
| 15.247(c)         | 6.2.2 (o)(e1)      | Band edge compliance of RF emissions | Passed |
| 15.247(c)         | 6.2.2 (o)(e1)      | Spurious RF conducted emissions      | Passed |
| 15.247(c), 15.209 | 6.2.2 (o)(e1)      | Spurious radiated emissions          | Passed |
| 15.207            | 6.6                | AC powerline conducted emissions     | Passed |
| 15.247(a)(1)      | 6.2.2(o)(a3)       | 20 dB bandwidth                      | Passed |
| 15.247(a)(1)      | 6.2.2(o)(a1)       | Carrier frequency separation         | Passed |
| 15.247(a)(1)(iii) | Amend I(ii)        | Number of hopping frequencies        | Passed |
| 15.247(a)(1)(iii) | Amend I(ii)        | Time of occupancy                    | Passed |

PASSED  
FAILED  
NP

The EUT complies with the essential requirements in the standard.  
The EUT does not comply with the essential requirements in the standard.  
The test was not performed by the TCC Nokia Copenhagen Laboratory.

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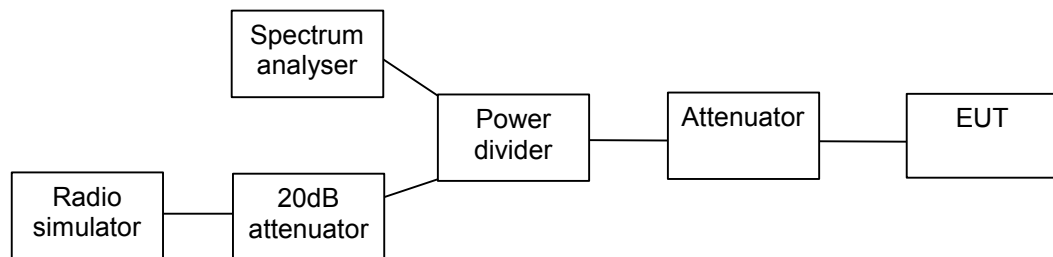
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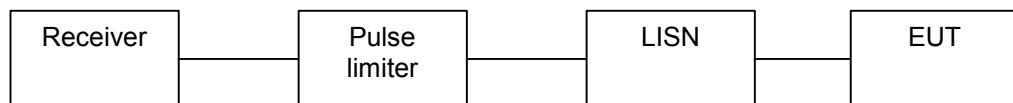
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## 2. Test setups

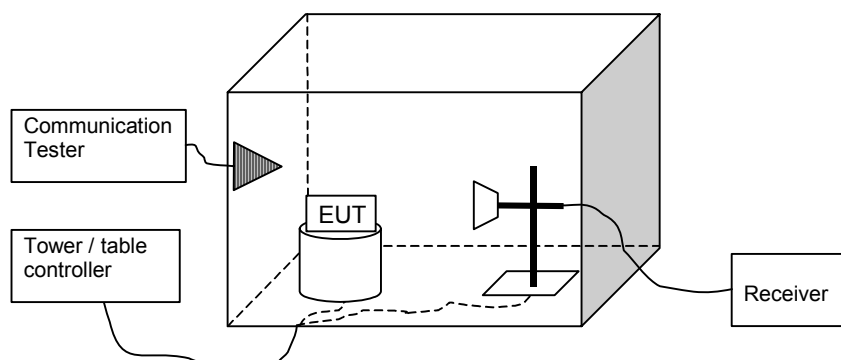
### 2.1. Conducted RF test setup



### 2.2. AC powerline conducted emissions test setup



### 2.3. Spurious radiated emissions test setup



### 3. Peak output power (FCC §15.247(b)(1), RSS-210 6.2.2(o)(a3))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             | None                             |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

#### 3.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

Limits for peak output power measurements

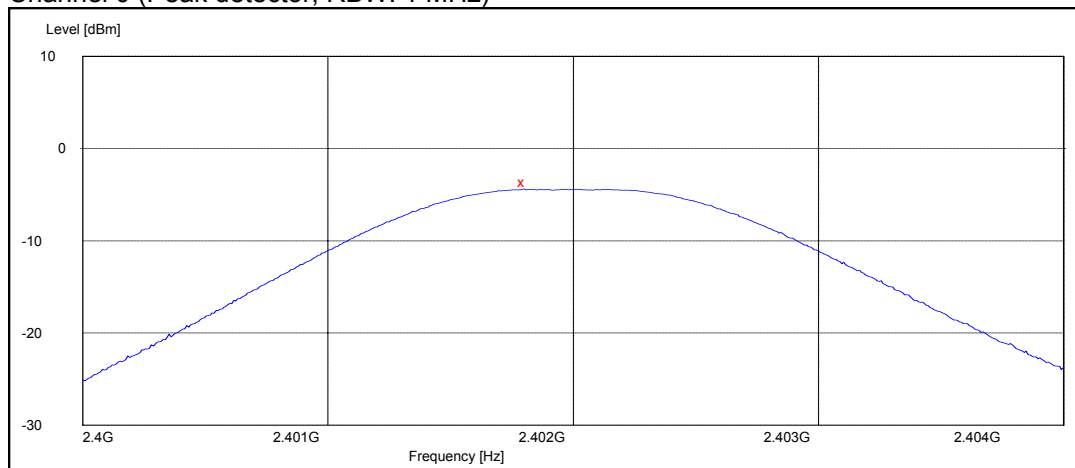
| <b>Frequency range [MHz]</b> | <b>Limit [W]</b> | <b>Limit [dBm]</b> |
|------------------------------|------------------|--------------------|
| 2400 – 2483.5                | ≤ 1              | ≤ 30               |

## 3.2. Bluetooth Test results

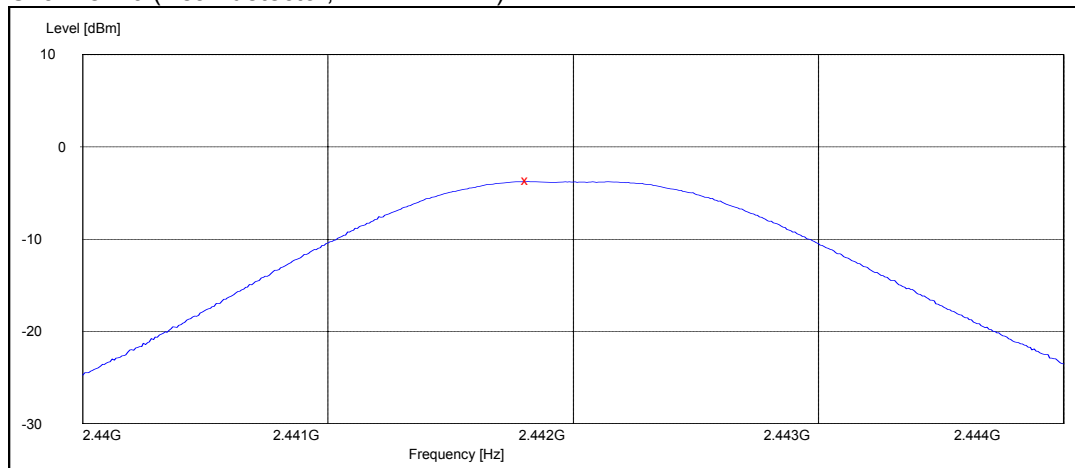
### 3.2.1 GSKF modulation, PRBS packet type

| Channel | P [dBm] | P [mW] | Result |
|---------|---------|--------|--------|
| 0       | -3.60   | 0.437  | Passed |
| 40      | -3.60   | 0.437  | Passed |
| 78      | -3.60   | 0.437  | Passed |

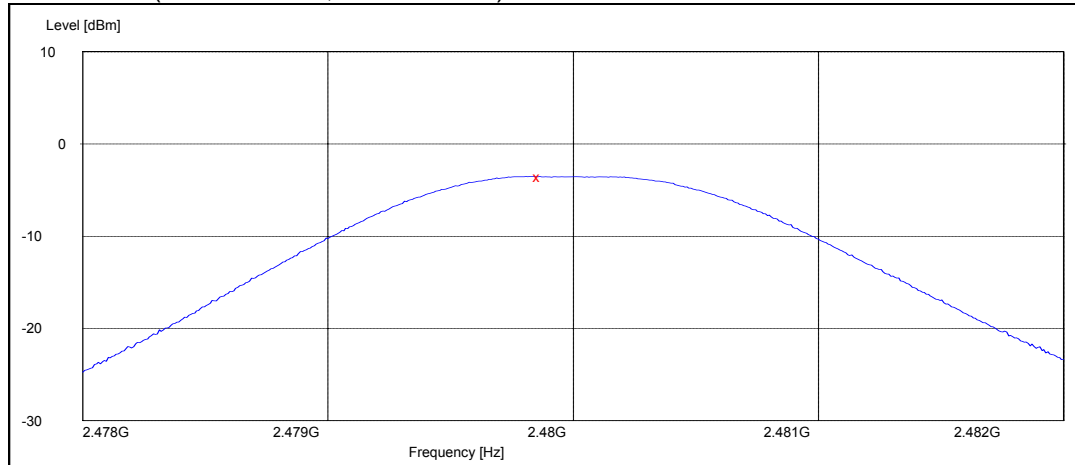
Channel 0 (Peak detector, RBW: 1 MHz)



Channel 40 (Peak detector, RBW: 1 MHz)



Channel 78 (Peak detector, RBW: 1 MHz)



#### 4. Band edge compliance of RF emissions (FCC §15.247(c), RSS-210 6.2.2(o)(e1))

|                                                         |                                      |
|---------------------------------------------------------|--------------------------------------|
| <b>EUT with DUT number</b>                              | RM-111 Dut # 28976                   |
| <b>Accessories with DUT numbers</b>                     | AC-1C Dut # 28981, HS-35 Dut # 28982 |
| <b>Operation Voltage [V] / [Hz]</b>                     | 230V                                 |
| <b>Result</b>                                           | Passed                               |
| <b>Remarks</b>                                          | None                                 |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [mbar]</b> | 22 / 45 / 1009                       |
| <b>Date of measurements</b>                             | 09 <sup>th</sup> August 2005         |
| <b>Measured by</b>                                      | Christian Andersen                   |

##### 4.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

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

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

## 4.2. Bluetooth Test results

### 4.2.1 GFSK modulation, PRBS packet type

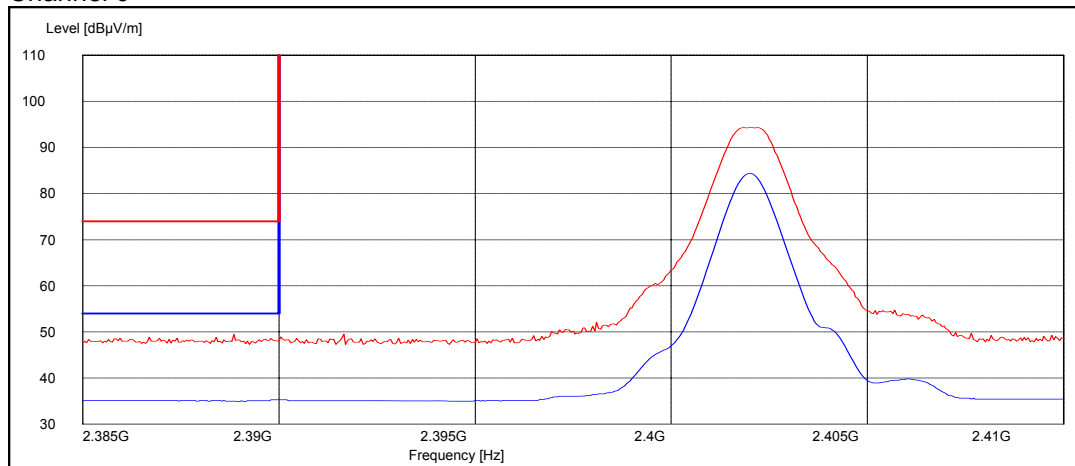
Average (RBW: 1 MHz)

| Channel              | E [dB $\mu$ V/m] | Result |
|----------------------|------------------|--------|
| 0                    | 35.29            | Passed |
| 78                   | 38.89            | Passed |
| Hopping on, low end  | 34.89            | Passed |
| Hopping on, high end | 36.05            | Passed |

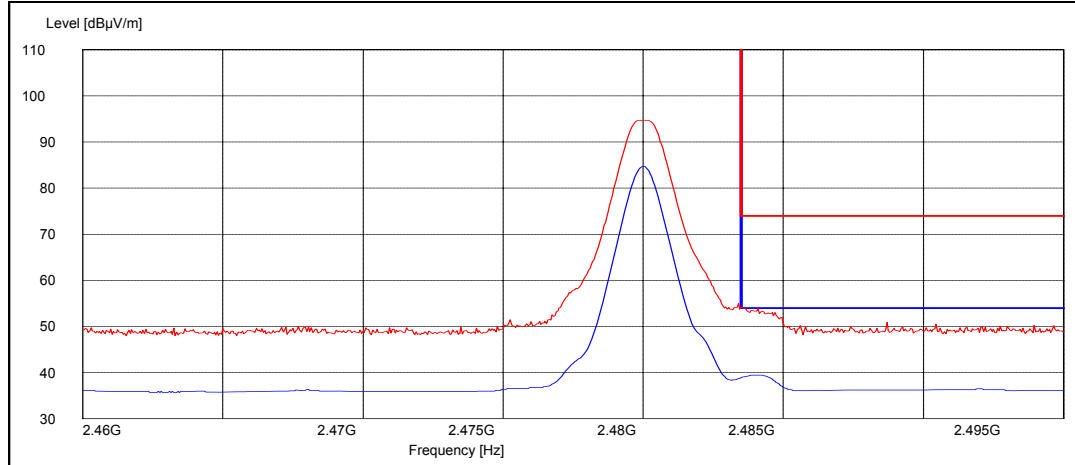
Peak (RBW: 1 MHz)

| Channel              | E [dB $\mu$ V/m] | Result |
|----------------------|------------------|--------|
| 0                    | 48.03            | Passed |
| 78                   | 54.28            | Passed |
| Hopping on, low end  | 47.66            | Passed |
| Hopping on, high end | 53.34            | Passed |

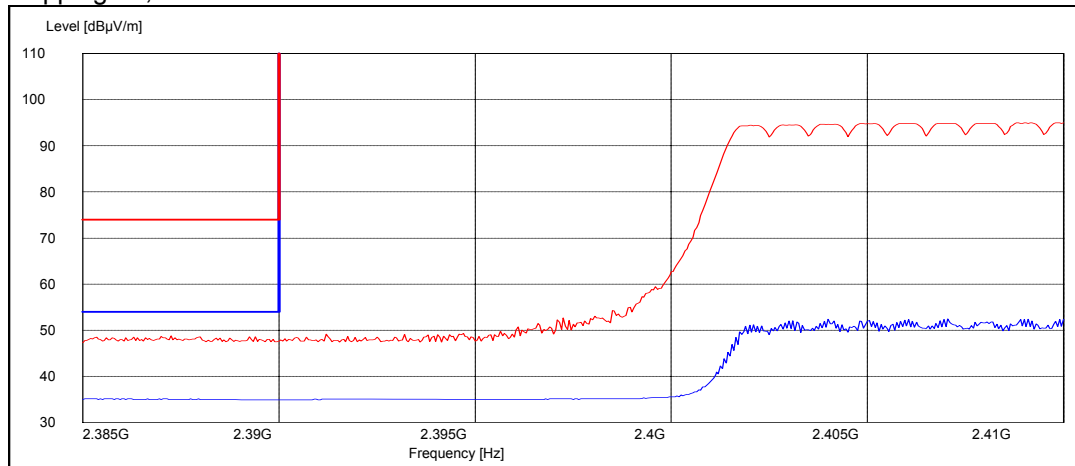
Channel 0



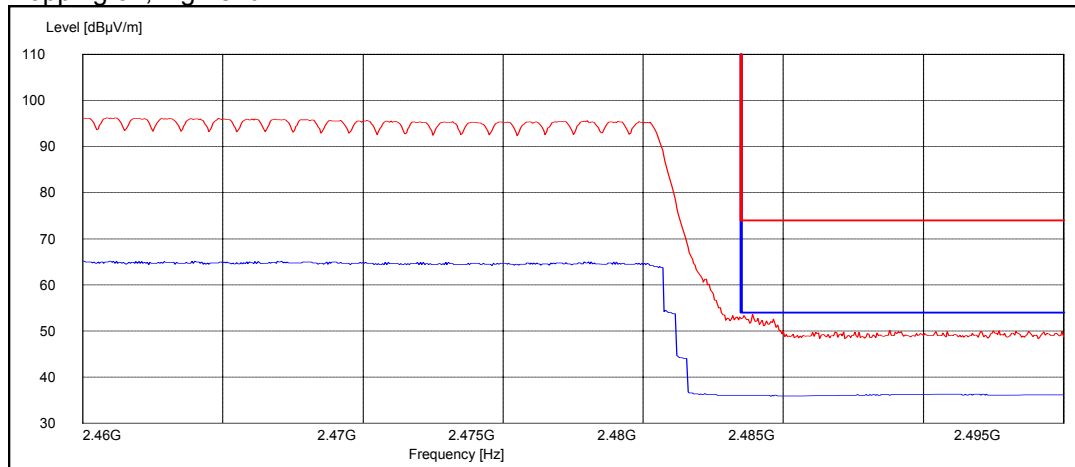
### Channel 78



### Hopping on, low end



### Hopping on, high end



## 5. Spurious RF conducted emissions (FCC §15.247(c), RSS-210 6.2.2(o)(e1))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             |                                  |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

### 5.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

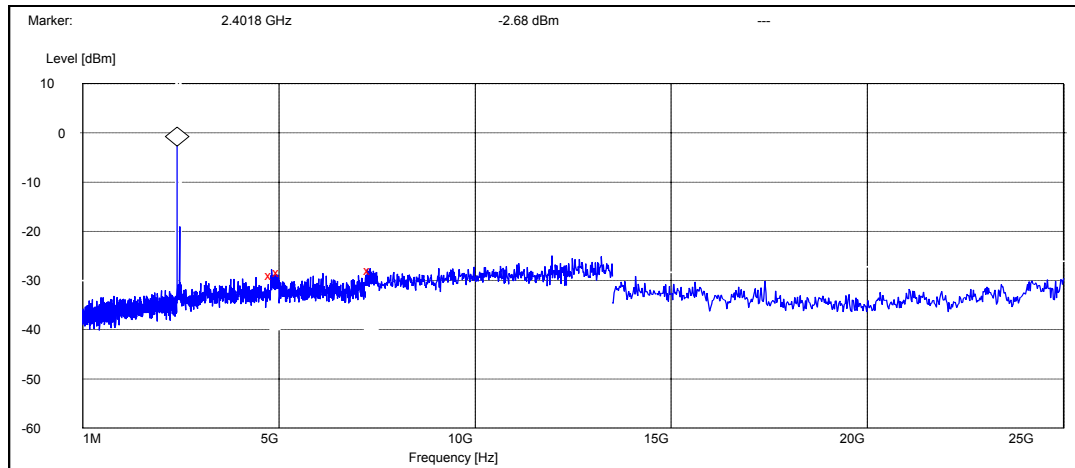
Limits for spurious RF conducted emissions measurements

| <b>Frequency range [MHz]</b> | <b>Limit [dBc]</b> |
|------------------------------|--------------------|
| 1 – 25000                    | ≤ -20              |

## 5.2. Bluetooth Test results

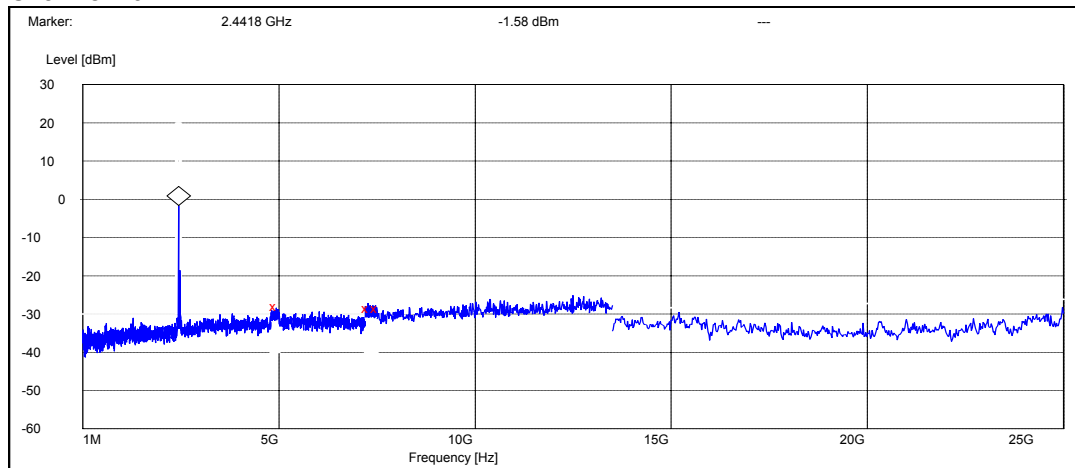
### 5.2.1 GFSK modulation, PRBS packet type

Channel 0



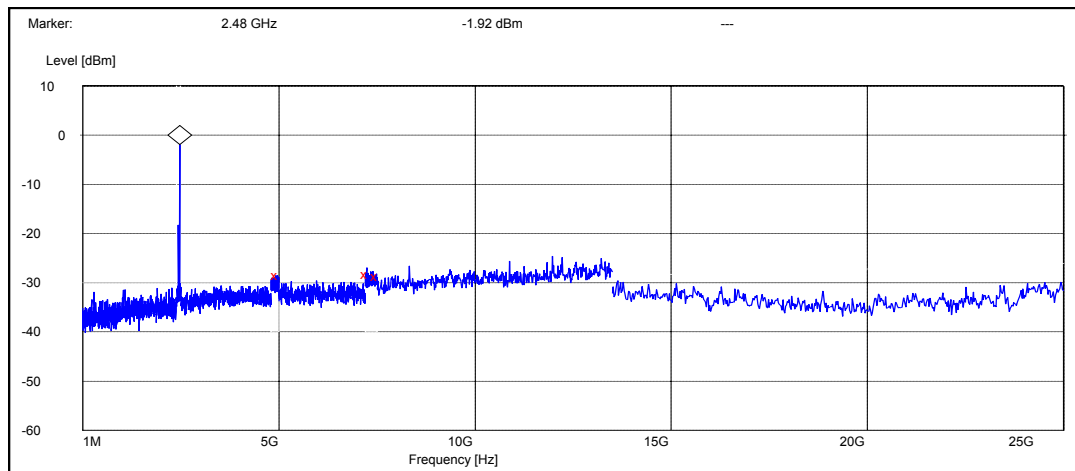
| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4818.800000     | -26.316913 | Pass   |
| 5000.000000     | -25.716913 | Pass   |
| 7325.400000     | -25.316913 | Pass   |

Channel 40



| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4934.800000     | -26.416689 | Pass   |
| 7273.200000     | -27.016689 | Pass   |
| 7500.000000     | -26.916689 | Pass   |

Channel 78



| Frequency [MHz] | P [dBc]    | Result |
|-----------------|------------|--------|
| 4957.200000     | -26.581996 | Pass   |
| 7245.000000     | -26.381996 | Pass   |
| 7500.000000     | -26.681996 | Pass   |

## 6. Spurious radiated emissions (FCC §15.247(c), §15.209, RSS-210 6.2.2(o)(e1))

|                                                         |                                      |
|---------------------------------------------------------|--------------------------------------|
| <b>EUT with DUT number</b>                              | RM-111 Dut # 28976                   |
| <b>Accessories with DUT numbers</b>                     | AC-1C Dut # 28981, HS-35 Dut # 28982 |
| <b>Operation Voltage [V] / [Hz]</b>                     | 230V                                 |
| <b>Result</b>                                           | Passed                               |
| <b>Remarks</b>                                          | None                                 |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [mbar]</b> | 22 / 45 / 1009                       |
| <b>Date of measurements</b>                             | 09 <sup>th</sup> August 2005         |
| <b>Measured by</b>                                      | Christian Andersen                   |

### 6.1. Test method and limit

The measurement is made according to FCC rules part 15.247 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 centre.

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

#### Channel 0

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     | 41.44                   | 118.03                | 33.54                               | 7.90                  | VERTICAL     | Passed |
| 7206.000000     | 45.44                   | 187.07                | 32.94                               | 12.50                 | HORIZONTAL   | 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     | 30.54                   | 33.65                 | 22.64                               | 7.90                  | VERTICAL     | Passed |
| 7206.000000     | 32.14                   | 40.46                 | 19.64                               | 12.50                 | HORIZONTAL   | Passed |

#### Channel 40

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 |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 37.695391       | 13.90                   | 4.95                  | 29.50                               | -15.60                | VERTICAL     | Passed |
| 74.367535       | 15.30                   | 5.82                  | 39.20                               | -23.90                | HORIZONTAL   | Passed |
| 75.169940       | 20.10                   | 10.12                 | 43.80                               | -23.70                | HORIZONTAL   | Passed |
| 941.183768      | 63.20                   | 1445.44               | 69.90                               | -6.70                 | VERTICAL     | Passed |

\*941.2 MHz frequency is coming from communication tester and thus ignored.

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 |
|-----------------|-------------------------|-----------------------|-------------------------------------|-----------------------|--------------|--------|
| 2442.084168     | 48.60                   | 269.15                | 40.60                               | 8.00                  | VERTICAL     | Passed |
| 2802.613226     | 51.40                   | 371.54                | 39.90                               | 11.50                 | VERTICAL     | Passed |
| 2904.311623     | 51.80                   | 389.05                | 39.70                               | 12.10                 | VERTICAL     | Passed |
| 4884.269539     | 42.64                   | 135.52                | 34.44                               | 8.20                  | HORIZONTAL   | Passed |
| 7326.653307     | 42.34                   | 130.92                | 29.94                               | 12.40                 | HORIZONTAL   | Passed |
| 12488.969940    | 44.04                   | 159.22                | 25.44                               | 18.60                 | HORIZONTAL   | Passed |
| 17850.195391    | 54.34                   | 521.19                | 26.24                               | 28.10                 | HORIZONTAL   | Passed |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 2442.084168     | 35.70            | 60.95          | 27.70                        | 8.00                  | VERTICAL     | Passed |
| 2805.113226     | 38.20            | 81.28          | 26.70                        | 11.50                 | VERTICAL     | Passed |
| 2906.311623     | 39.10            | 90.16          | 27.00                        | 12.10                 | VERTICAL     | Passed |
| 4883.769539     | 29.74            | 30.69          | 21.54                        | 8.20                  | HORIZONTAL   | Passed |
| 7326.153307     | 29.34            | 29.31          | 16.94                        | 12.40                 | HORIZONTAL   | Passed |
| 17850.695391    | 41.24            | 115.35         | 13.14                        | 28.10                 | HORIZONTAL   | Passed |

### Channel 78

Peak (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 4960.000000     | 43.94            | 157.40         | 35.64                        | 8.30                  | HORIZONTAL   | Passed |
| 7440.000000     | 41.94            | 125.03         | 29.04                        | 12.90                 | HORIZONTAL   | Passed |

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dB $\mu$ V/m] | E [ $\mu$ V/m] | U <sub>RX</sub> [dB $\mu$ V] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------------|----------------|------------------------------|-----------------------|--------------|--------|
| 4960.000000     | 31.74            | 38.64          | 23.44                        | 8.30                  | HORIZONTAL   | Passed |
| 7440.000000     | 28.24            | 25.82          | 15.34                        | 12.90                 | HORIZONTAL   | Passed |

## 7. AC powerline conducted emissions (FCC §15.207, RSS-210 6.6)

|                                                            |                                                           |
|------------------------------------------------------------|-----------------------------------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 Dut # 28980                                        |
| <b>Accessories with DUT numbers</b>                        | AC-1C Dut # 28987, HS-35 Dut # 28982                      |
| <b>Operation Voltage [V] / [Hz]</b>                        | 230V                                                      |
| <b>Result</b>                                              | Passed                                                    |
| <b>Remarks</b>                                             | FM Radio active in GSM 1900 RX mode.<br>BT in TX ON mode. |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.9 / 54.5<br>1004                                       |
| <b>Date of measurements</b>                                | 11-08-2005                                                |
| <b>Measured by</b>                                         | Allan F. Henriksen                                        |

### 7.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210 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.

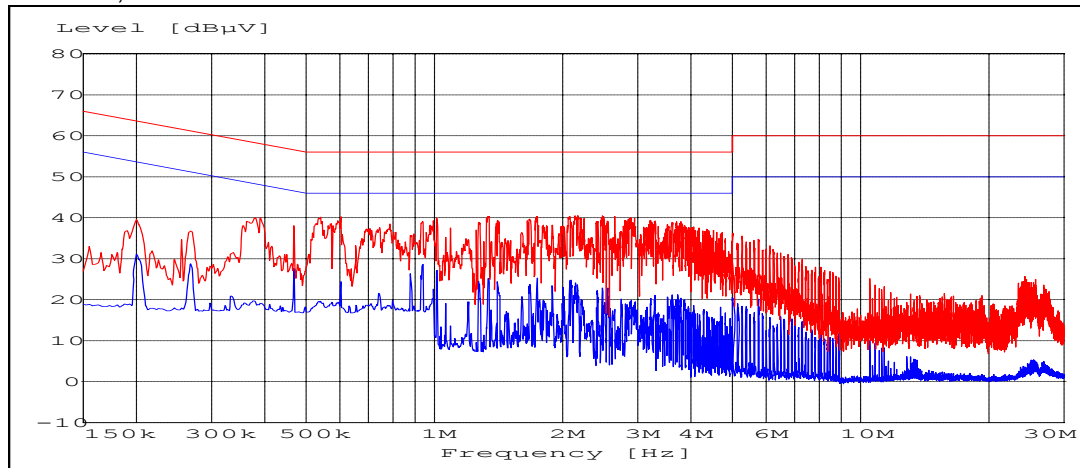
CISPR 22 Class B limits

| 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                   |

## 7.2. Bluetooth Test results

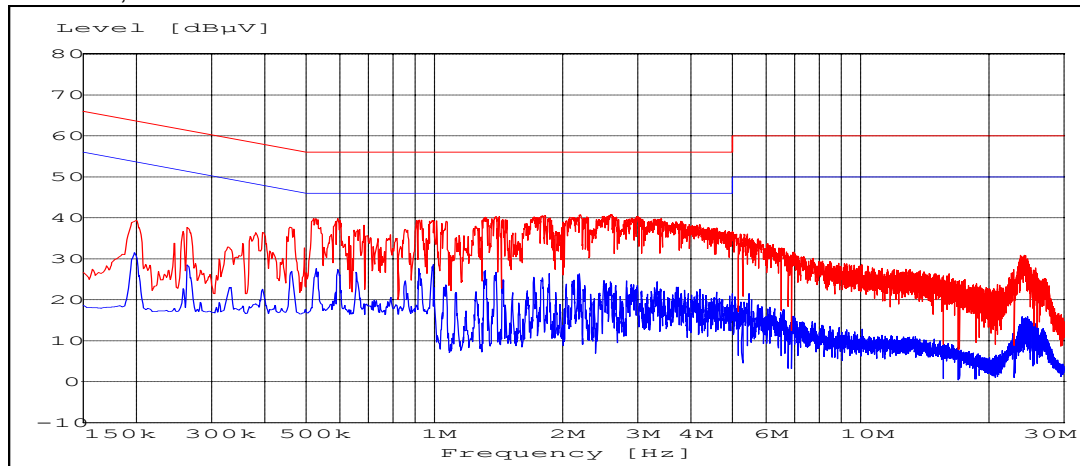
### 7.2.1 GFSK modulation, PRBS packet type

TX mode, channel 40



## 7.3. GSM 1900 Test results

RX mode, channel 661



## 8. 20 dB bandwidth (FCC §15.247(a)(1), RSS-210 6.2.2(o)(a3))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             |                                  |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

### 8.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

Limits for 20 dB bandwidth measurements

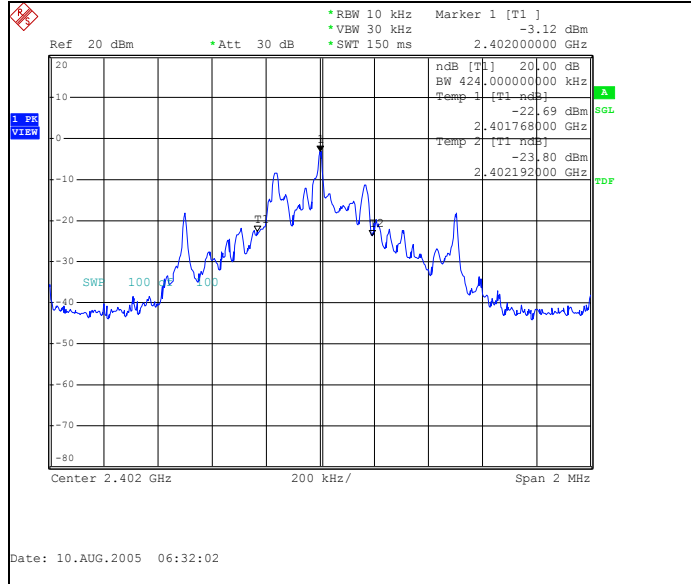
| Limit [MHz] |
|-------------|
| $\leq 1$    |

### 8.2. Bluetooth Test results

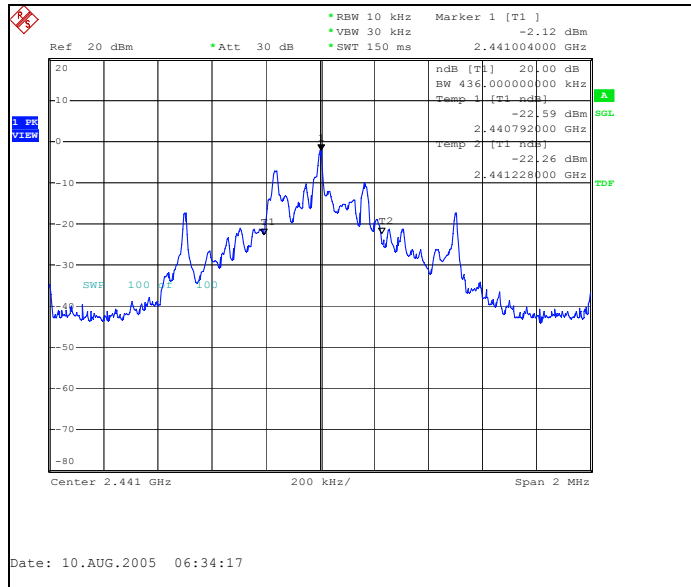
#### 8.2.1 GFSK modulation, PRBS packet type

| Channel | 20 dB bandwidth [kHz] | Result |
|---------|-----------------------|--------|
| 0       | 424.000               | Pass   |
| 40      | 436.000               | Pass   |
| 78      | 424.000               | Pass   |

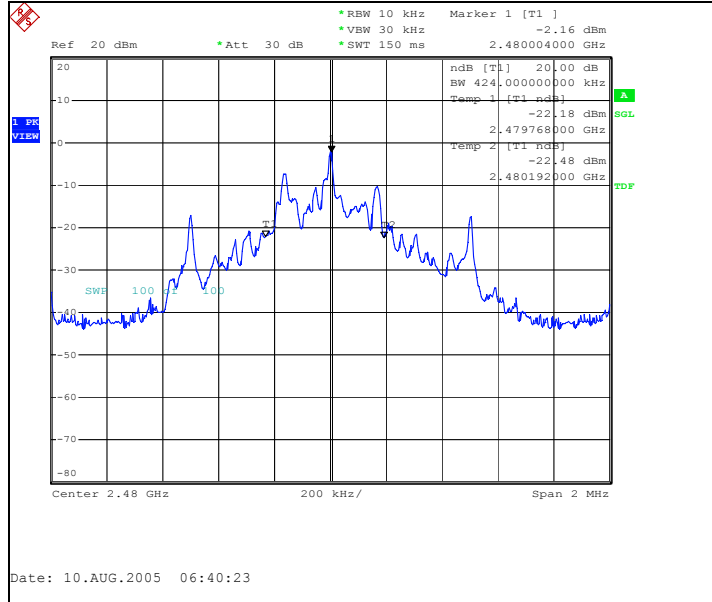
### Channel 0



### Channel 40



## Channel 78



## 9. Carrier frequency separation (FCC §15.247(a)(1), RSS-210 6.2.2(o)(a1))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             |                                  |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

### 9.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

Limits for carrier frequency separation measurements

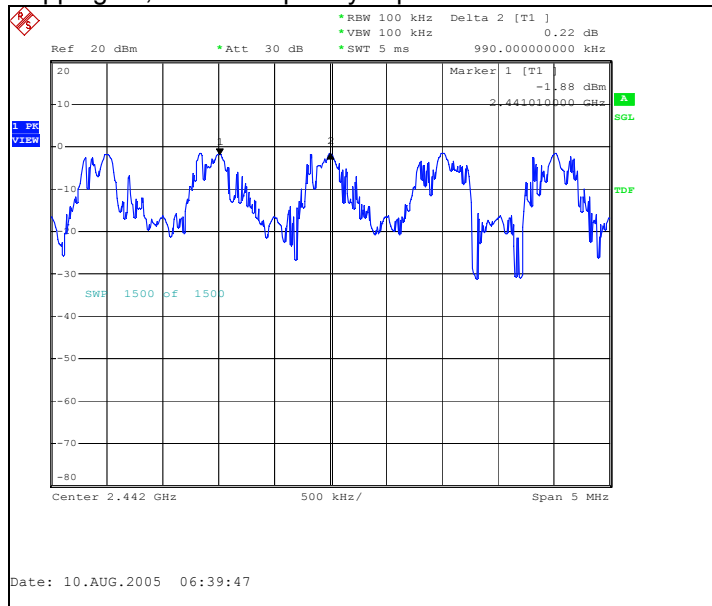
| <b>Limit [MHz]</b>         |
|----------------------------|
| ≥ 0.025 or 20 dB bandwidth |

## 9.2. Bluetooth Test results

### 9.2.1 GFSK modulation, PRBS packet type

| Carrier frequency separation [kHz] | Result |
|------------------------------------|--------|
| 990                                | Pass   |

Hopping on, carrier frequency separation of channels 39 and 40



## 10. Number of hopping frequencies (FCC §15.247(a)(1)(iii), RSS-210 Amend I(ii))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             |                                  |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

### 10.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210.

Limits for number of hopping frequencies measurements

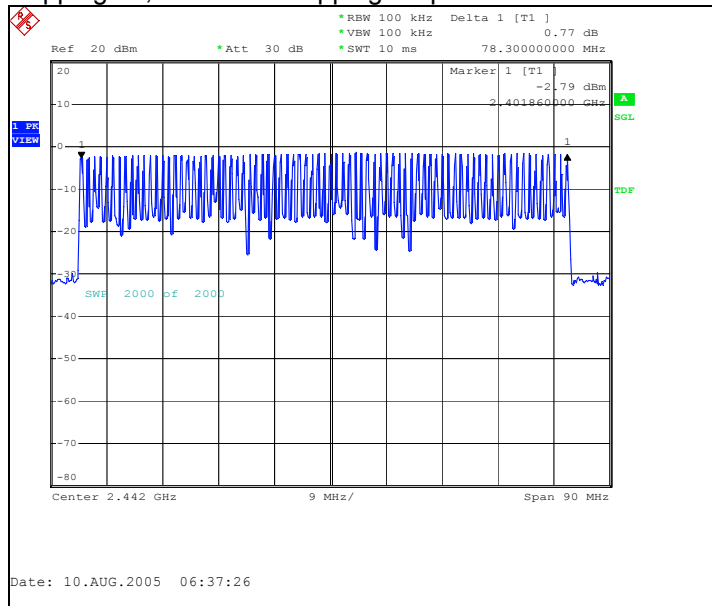
| <b>Limit [number]</b> |
|-----------------------|
| ≥ 75                  |

## 10.2. Bluetooth Test results

### 10.2.1 GFSK modulation, PRBS packet type

| Measured number of hopping frequencies | Result |
|----------------------------------------|--------|
| 79                                     | Pass   |

Hopping on, number of hopping frequencies



## 11. Time of occupancy (FCC §15.247(a)(1)(iii), RSS-210 Amend I(ii))

|                                                            |                                  |
|------------------------------------------------------------|----------------------------------|
| <b>EUT with DUT number</b>                                 | RM-111 dut 28573                 |
| <b>Accessories with DUT numbers</b>                        | AC-1E dut 28574, HS-35 dut 28576 |
| <b>Operation Voltage [V] / [Hz]</b>                        | 220 / 50                         |
| <b>Result</b>                                              | Passed                           |
| <b>Remarks</b>                                             |                                  |
| <b>Temp [°C] / Humidity [%RH] /<br/>Air Pressure [kPa]</b> | 21.7 / 52<br>1002.4              |
| <b>Date of measurements</b>                                | August 10, 2005                  |
| <b>Measured by</b>                                         | Jan Engelbrechtsen               |

### 11.1. Test method and limit

The measurement is made according to FCC rules part 15.247 and IC standard RSS-210 as follows:

The total time of occupancy is get by multiplying the measured number of transmissions occurred during 31.6 second period with the duration of one transmission.

Limits for time of occupancy measurements

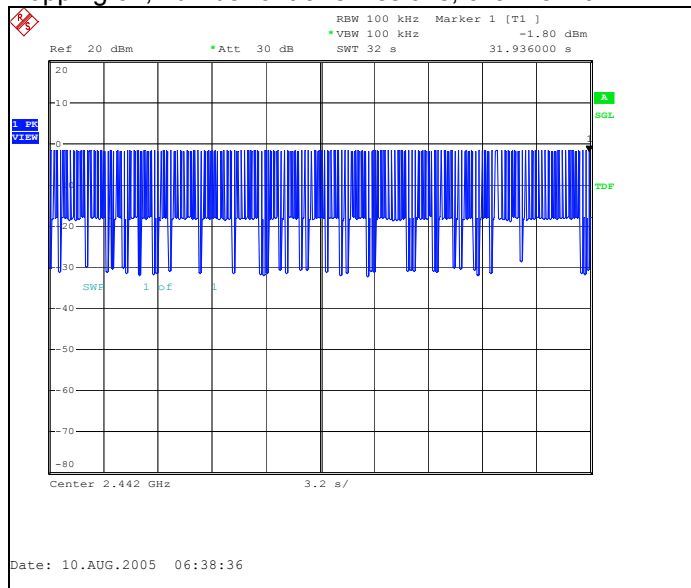
| <b>Limit [s]</b> |
|------------------|
| ≤ 0.4            |

## 11.2. Bluetooth test results

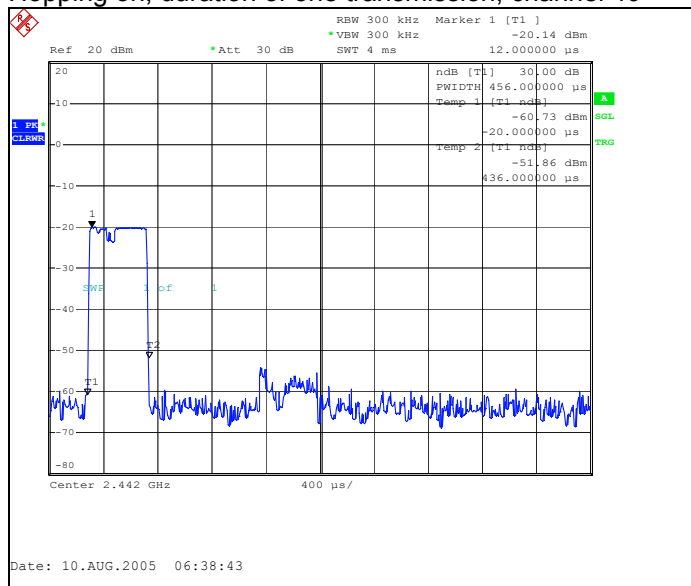
### 11.2.1 GFSK modulation, PRBS packet type

| Measured number of transmissions | Duration of one transmission [μs] | Time of occupancy [s] | Result |
|----------------------------------|-----------------------------------|-----------------------|--------|
| 161                              | 456.000                           | 0.073416              |        |

Hopping on, number of transmissions, channel 40



Hopping on, duration of one transmission, channel 40



## 12. Test Equipment

### 12.1. Conducted measurements

| Eq. No | Equipment                                      | Type      | Manufacturer         | Used in |
|--------|------------------------------------------------|-----------|----------------------|---------|
| 13037  | Power Supply 0-15V 10A                         | EA3012    | LP Instruments       | 15B,15C |
| 13513  | Pulse Limiter 9KHz-30MHz                       | ESH3Z2    | Rohde&Schwarz        | 15B,15C |
| 13666  | EMI Test Reciever 9KHz-2,5GHz                  | ESPC      | Rohde&Schwarz        | 15B,15C |
| 13935  | Two Lines Artificial Mains Network             | ESH3-Z5   | Rohde&Schwarz        | 15B,15C |
| 16995  | Directional Coupler 20dB 0,5-2,0 GHz SMA Conn. | 1538RA-20 | Weinschel            | 15B,15C |
| 18772  | Shielded Chamber                               | RFD-100   | ETS-Lindgren         | 15B,15C |
| 19171  | Universal Radio Communication Tester           | CMU200    | Rohde&Schwarz        | 15B,15C |
| 11386  | System DC Power Supply                         | HP6632A   | Hewlett Packard      | 22.24   |
| 11487  | Network analyzer 300KHz-3,0GHz                 | HP8753A   | Hewlett Packard      | 22.24   |
| 11584  | Spectrum analyzer 50Hz-6,5GHz                  | HP8561B   | Hewlett Packard      | 22.24   |
| 13134  | Tracking generator                             | HP85645A  | Hewlett Packard      | 22.24   |
| 13302  | Spectrum Analyzer 9KHz-12.8GHz                 | HP8596E   | Hewlett Packard      | 22.24   |
| 13371  | Temperature Chamber                            | S-1,2C    | Thermotron           | 22.24   |
| 13524  | Digital Radiocomm. Tester                      | CMD55     | Rohde&Schwarz        | 22.24   |
| 14807  | S - Parameter Test Set 300KHz-6GHz             | HP85047A  | Hewlett Packard      | 22.24   |
| 15859  | Digital Radio Communication Test Set           | 4201S     | Wavetek              | 22.24   |
| 17277  | Multimeter Digital 6 1/2 Digit                 | AT34401A  | Agilent Technologies | 22.24   |
| 17796  | Radio Communication Test Set                   | 4400M     | Wavetek              | 22.24   |
| 19374  | Resonant Dipole Antenna 850MHz SMA m Conn.     | -         | NMP Cph              | 22.24   |
| 19375  | Resonant Dipole Antenna 1900MHz SMA m Conn.    | -         | NMP Cph              | 22.24   |
| 13037  | Power Supply 0-15V 10A                         | EA3012    | LP Instruments       | 15B,15C |

### 12.2. Radiated measurements

| Eq. No | Equipment                                   | Type           | Manufacturer  | Used in       |
|--------|---------------------------------------------|----------------|---------------|---------------|
| 14020  | Programmable Relay Switching System         | -              | Pickering     | 15B,15C,22,24 |
| 18792  | Multi Device Controller                     | 2090           | ETS-EMCO      | 15B,15C,22,24 |
| 13829  | Turntable Controller                        | 4630-100       | Comtest       | 15B,15C,22,24 |
| 14963  | RF Preamplifier 100MHz-4GHz (Metal Chassis) | AFS3-00100400  | Miteq/NMP Cph | 15B,15C,22,24 |
| 13668  | BiLog Antenna 30-2000MHz                    | BiLog-CBL6112A | Chase         | 15B,15C,22,24 |
| 18861  | EMI Test Receiver 20Hz-26,5GHz              | ESI            | Rohde&Schwarz | 15B,15C,22,24 |
| 12679  | Dual Log Periodic Antenna 1-18 GHz          | HL025          | Rohde&Schwarz | 15B,15C,22,24 |
| 18860  | Ultra Broadband Antenna                     | HL562          | Rohde&Schwarz | 15B,15C,22,24 |

| Eq. No | Equipment                                   | Type                           | Manufacturer           | Used in       |
|--------|---------------------------------------------|--------------------------------|------------------------|---------------|
|        | Ultralog 30-3000MHz                         |                                |                        |               |
| 18773  | Shielded Chamber                            | RFD-100                        | ETS-Lindgren           | 15B,15C,22,24 |
| 18774  | Shielded Chamber                            | RFSD-F/A-100                   | ETS-Lindgren           | 15B,15C,22,24 |
| 18324  | High Pass Filter 3GHz SMA f Conn            | WHJS3000-10SS                  | Wainwright             | 15B,15C,22,24 |
| 14114  | Highpass Filter 1000MHz-4500MHz             | WHK1000-12SS                   | Wainwright             | 15B,15C,22,24 |
| 13918  | Highpass Filter 2000-4000MHz 50OHM SMA Conn | WHKS2000-10SS                  | Wainwright Instruments | 15B,15C,22,24 |
| 13937  | Ultra Stable Notch Filter 902,4MHz          | WRCA902.4-0.2/40-6SS           | Wainwright Instruments | 15B,15C,22,24 |
| 13936  | Ultra Stable Notch Filter 1747,5MHz         | WRCD1747.5-0.2/40-10SS         | Wainwright Instruments | 15B,15C,22,24 |
| 13917  | Highpass Filter 1000-3000MHz 50OHM SMA Conn | WHKS1000-10SS                  | Wainwright Instruments | 15B,15C,22,24 |
| 14188  | Ultra Stable Notch Filter 902,4MHz          | WRCA902.4-0.2/40-6SS           | Wainwright             | 15B,15C,22,24 |
| 14187  | Ultra Stable Notch Filter 1747,5MHz         | WRCD1747.5-0.2/40-10SS         | Wainwright             | 15B,15C,22,24 |
| 16633  | Ultra Stable Notch Filter 1880,0MHz         | WRCD1880.0-0.2/40-10SS         | Wainwright             | 15B,15C,22,24 |
| 18323  | Band reject filter 1947-1953MHz 40dB        | WRCG1947/1953-1940/1960-40/6SS | Wainwright             | 15B,15C,22,24 |
| 15190  | Infra Red Remote Control Unit               | 4630                           | Emco                   | 22,24,15B,15C |
| 14993  | EMI Test Receiver 9KHz-2750MHz              | ESCS30                         | Rohde&Schwarz          | 22,24,15B,15C |
| 15191  | Turntable Contoller Unit                    | G-800SDX                       | YAESU                  | 22,24,15B,15C |
| 14900  | Antenna Controller                          | HD100                          | HD GmbH                | 22,24,15B,15C |