

## FCC Part 15C Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                            |                                   |                                                                                                               |
|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC_RFID_RM-531_16.doc                                                                                                                                                                                                                                                                     | <b>Date of Report:</b>            | 11-Dec-2009                                                                                                   |
| <b>Number of pages:</b>                                 | 19                                                                                                                                                                                                                                                                                         | <b>Customer's Contact person:</b> | Jan Rasmussen                                                                                                 |
| <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>Customer:</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>                              | 661AD-1                                                                                                                                                                                                                                                                                    |                                   |                                                                                                               |
| <b>Tested devices/ accessories:</b>                     | <b>Phone: RM-531 (HW ); Battery: BL-4U</b>                                                                                                                                                                                                                                                 |                                   |                                                                                                               |
| <b>FCC ID:</b>                                          | QTKRM-531                                                                                                                                                                                                                                                                                  | <b>IC:</b>                        | 661AD-RM531                                                                                                   |
| <b>Supplement reports:</b>                              | None                                                                                                                                                                                                                                                                                       |                                   |                                                                                                               |
| <b>Testing has been carried out in accordance with:</b> | CFR 47, FCC rules Part 15 Subpart C, ANSI C63.4 (2009), Public Notice DA 00-705, DTS procedures KDB 558074, IC standards RSS-GEN and RSS-210. 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>             |                                                                                                                                                                                                                                                                                            |                                   |                                                                                                               |
|                                                         | <b>Ruben Hansen, System Manager, EMC</b>                                                                                                                                                                                                                                                   |                                   |                                                                                                               |

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

|                                      |                                                       |
|--------------------------------------|-------------------------------------------------------|
| <b>Date of receipt</b>               | 16-Nov-2009                                           |
| <b>Testing completed</b>             | 11-Dec-2009                                           |
| <b>The customer's contact person</b> | Jan Rasmussen                                         |
| <b>Test Plan referred to</b>         | T:\Projects\RM-531\TestPlan_RS\RS_testplan_RM-531.xls |
| <b>Notes</b>                         | None                                                  |
| <b>Document name</b>                 | FCC_RFID_RM-531_16                                    |

### 1.1. EUT and Accessory Information

The EUT is a 6-band (GSM850/900/1800/1900 and WCDMA Band I/V(850)) mobile phone with GPRS, EGPRS, Bluetooth and RFID.

The RFID module is tested with maximum rated TX power.

| Product       | Type   | SN                          | HW   | MV | SW    | DUT   |
|---------------|--------|-----------------------------|------|----|-------|-------|
| Phone         | RM-531 | 004401108311834             | 0200 | -  | 04.00 | 24608 |
| Battery       | BL-4U  | 4620408311010106476;0670560 | -    | -  | -     | 24821 |
| Charger       | AC-8   | 1103339192340304131;0675387 | -    | -  | -     | 24793 |
| Headset       | HS-105 | 0694287913411200175         | -    | -  | -     | 24927 |
| Dummy Battery | SD-37B | -                           | -    | -  | -     | 24817 |

### 1.2. Summary of Test Results

| Section in CFR 47 | Section in RSS-210 |                     | Result |
|-------------------|--------------------|---------------------|--------|
| 15.209            | 2.7                | Radiated Emission   | Passed |
| 15.225 (a)        | A2.6               | Radiated Emission   | Passed |
|                   |                    | Occupied Bandwidth  | Passed |
| 15.225 (e)        | A2.6               | Frequency Stability | Passed |

PASSED  
FAILED  
NP

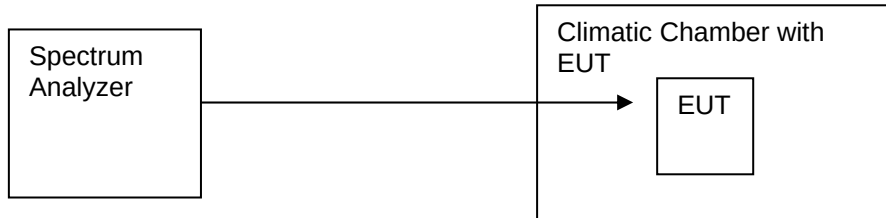
The EUT complies with the essential requirements in the standard.  
The EUT does not comply with the essential requirements in the standard.  
The test was not performed by the TCC Nokia Copenhagen Laboratory.

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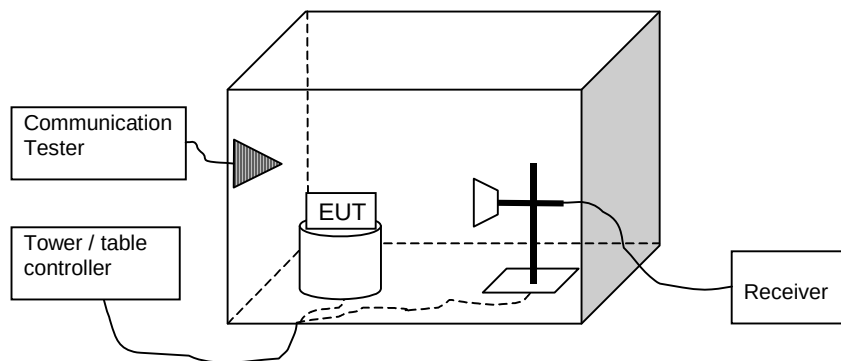
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## 2. Test setups

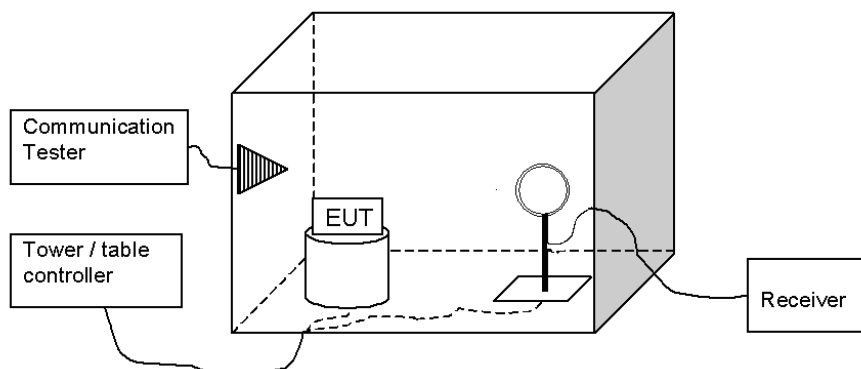
### 2.1. Voltage Stability test setup



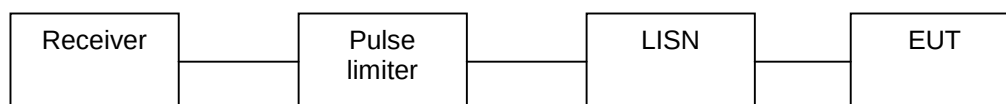
### 2.2. Radiated Emission 30 to 1000 MHz



### 2.3. Radiated Emission 9 kHz to 30 MHz



### 2.4. AC power line conducted emissions test setup



### 3. Radiated Emissions

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-531 DUT 24608                                  |
| Accessories with DUT numbers                    | BL-4U DUT 24821, AC-8 DUT 24793, HS-105 DUT 24927 |
| Operation Voltage [V] / [Hz]                    | Battery                                           |
| Result                                          | Passed                                            |
| Remarks                                         | None                                              |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 23 / 38 / 1003                                    |
| Date of measurements                            | 27-Nov-2009                                       |
| Measured by                                     | Ruben Hansen                                      |

#### 3.1. Test method and limit

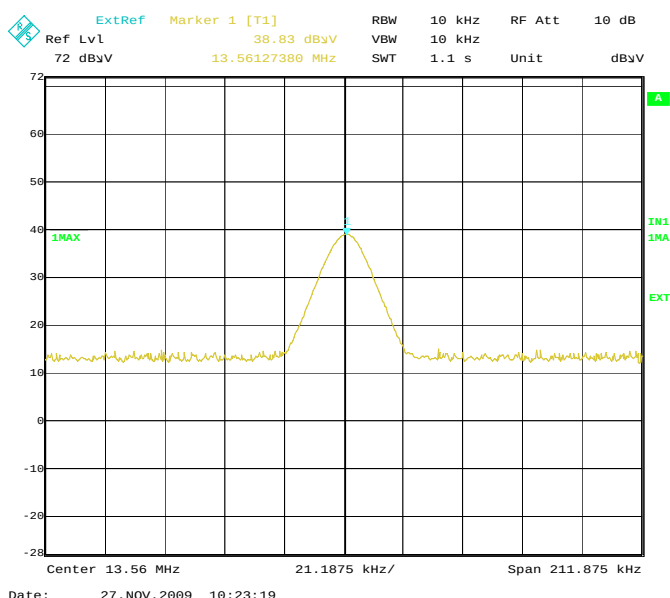
The measurement is made according to FCC rules part 15.225 and IC standard RSS-210 Section 2.7

#### 3.2. RFID Test results

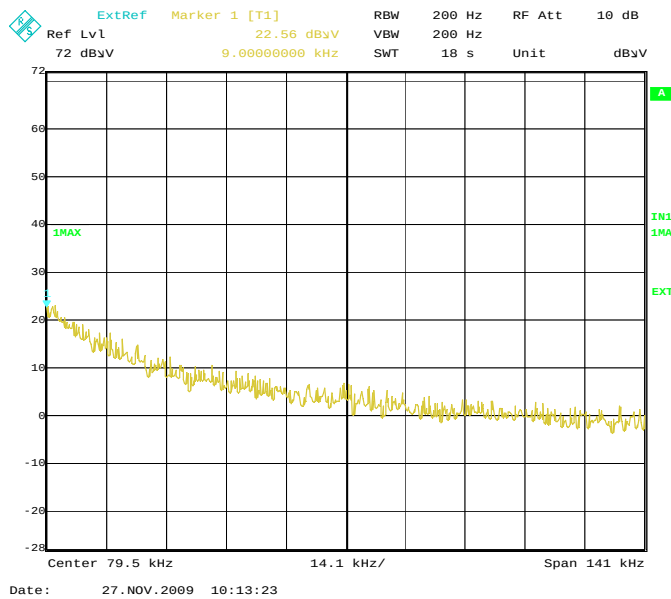
##### Radiated Emission 9 kHz – 30 MHz, 3 meter distance

| Frequency [MHz] | Reading [dBμV] | Correction [dB] | Result [dBμV/m] | Limit [dBμV/m] | Margin [dB] |
|-----------------|----------------|-----------------|-----------------|----------------|-------------|
| 13.56           | 38.83          | 20.0            | 58.83           | 124            | 66.17       |

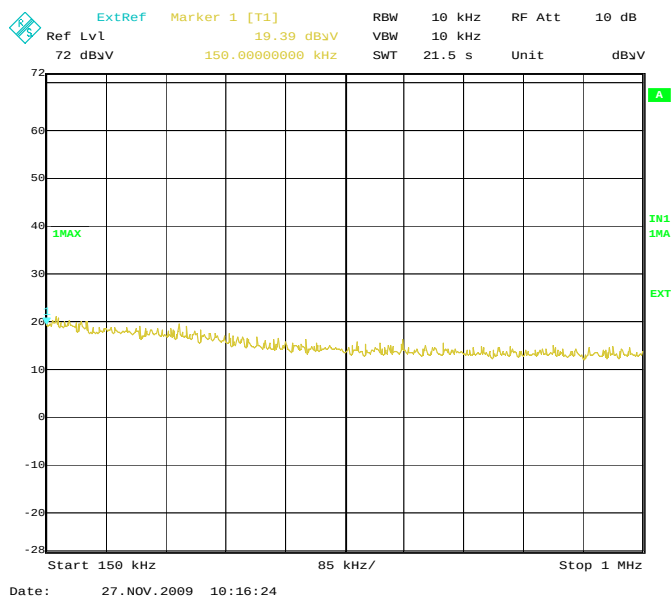
#### 3.3. TX Fundamental, H-Field



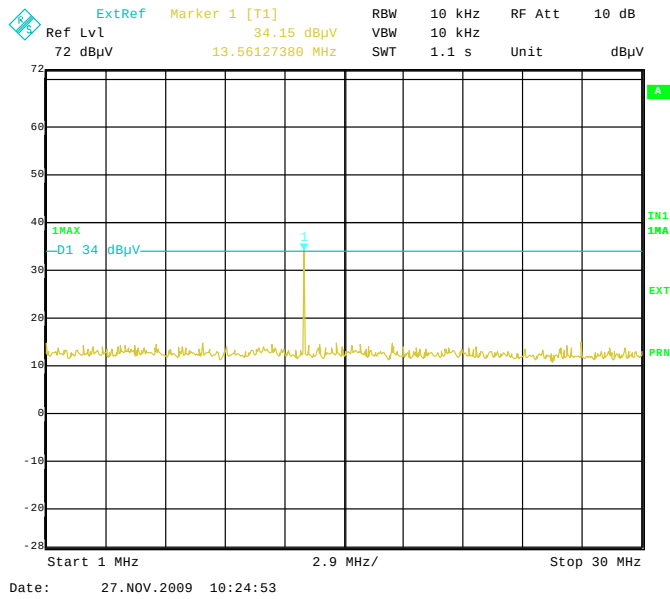
### 3.4. Radiated Emission, 9 kHz to 30 MHz



### Radiated Emission 9 – 150 kHz



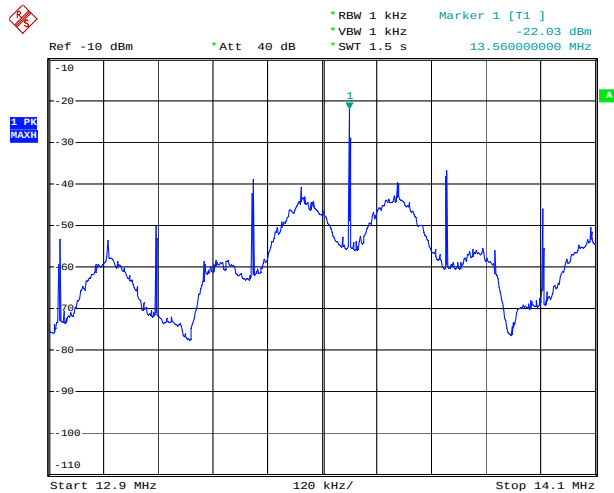
### Radiated Emission 150 – 1000 kHz



Radiated Emission 1 - 30 MHz



### 3.5. Frequency Mask 12.9 to 14.1 MHz



Date: 30.NOV.2009 09:56:00

Marker 13.56 MHz is 58.83 dB/uV corrected, see 3.2

### 3.6. Radiated emissions 30 – 1000 MHz

|                                                 |                                                   |
|-------------------------------------------------|---------------------------------------------------|
| EUT with DUT number                             | RM-531 DUT 24608                                  |
| Accessories with DUT numbers                    | BL-4U DUT 24821, AC-8 DUT 24793, HS-105 DUT 24927 |
| Operation Voltage [V] / [Hz]                    | Battery                                           |
| Result                                          | Passed                                            |
| Remarks                                         | None                                              |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 23 / 38 / 1003                                    |
| Date of measurements                            | 10-Dec-2009                                       |
| Measured by                                     | Christian Andersen                                |

### 3.7. Test method and limit

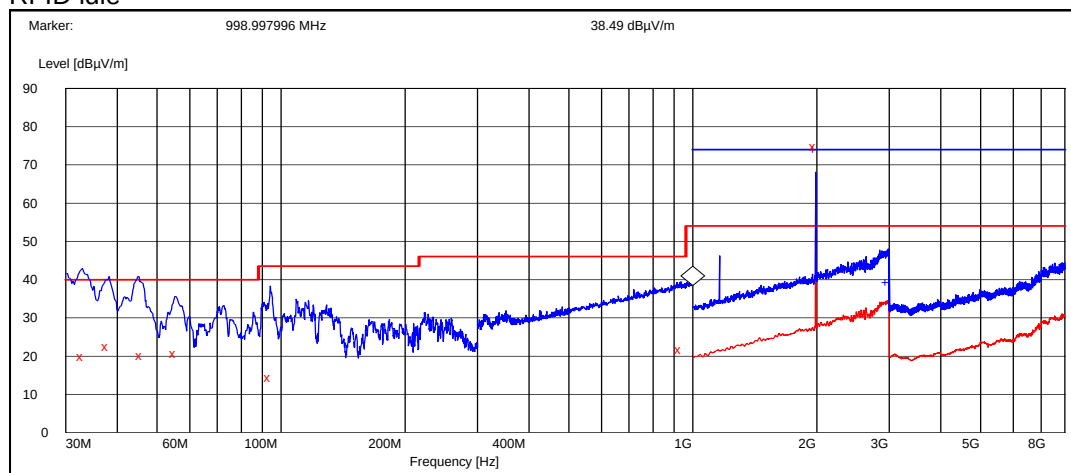
The measurement is made according to FCC rules part 15.225 and IC standard RSS-210 Section 2.7.

### 3.8. RFID Test results

#### 3.8.1 Modulated State

### 3.9. Phone allocated at GSM 1900 channel

RFID idle



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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 32.985772       | 20.10      | 10.12    | 27.30                  | -7.20                 | VERTICAL     | Passed |
| 38.076353       | 22.60      | 13.49    | 33.10                  | -10.50                | VERTICAL     | Passed |
| 45.950301       | 20.20      | 10.23    | 36.00                  | -15.80                | VERTICAL     | Passed |
| 55.550501       | 20.80      | 10.96    | 43.30                  | -22.50                | VERTICAL     | Passed |
| 94.108417       | 14.40      | 5.25     | 32.70                  | -18.30                | HORIZONTAL   | Passed |
| 936.371743      | 21.90      | 12.45    | 27.70                  | -5.80                 | HORIZONTAL   | 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 |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 1989.979960     | 74.90      | 5559.04  | 73.00                  | 1.90                  | VERTICAL     | Passed |

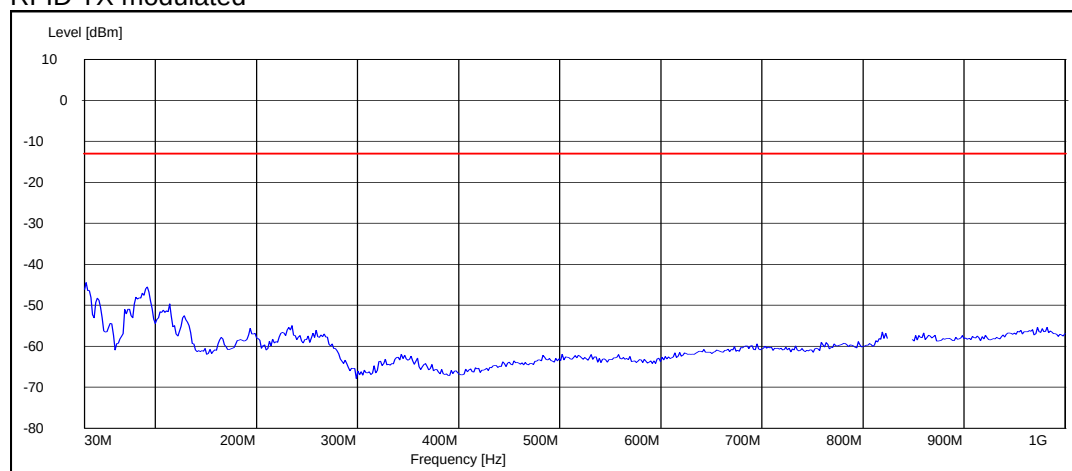
\*1989.9 MHz frequency is coming from communication tester and thus ignored.

Average (RBW: 1 MHz)

| Frequency [MHz] | E [dBμV/m] | E [μV/m] | U <sub>RX</sub> [dBμV] | A <sub>TOT</sub> [dB] | Polarisation | Result |
|-----------------|------------|----------|------------------------|-----------------------|--------------|--------|
| 1989.979960     | 74.00      | 5011.87  | 72.10                  | 1.90                  | VERTICAL     | Passed |
| 2979.965932     | 39.40      | 93.33    | 28.90                  | 10.50                 | HORIZONTAL   | Passed |

\*1989.9 MHz frequency is coming from communication tester and thus ignored.

RFID TX modulated



#### 4. AC power line conducted emissions (FCC §15.207, RSS-GEN 7.2.2)

|                                                        |                                                   |
|--------------------------------------------------------|---------------------------------------------------|
| <b>EUT with DUT number</b>                             | RM-531 DUT 24608                                  |
| <b>Accessories with DUT numbers</b>                    | BL-4U DUT 24821, AC-8 DUT 24793, HS-105 DUT 24927 |
| <b>Operation Voltage [V] / [Hz]</b>                    | 3.8 VDC (Battery)                                 |
| <b>Result</b>                                          | Passed                                            |
| <b>Remarks</b>                                         | None                                              |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 23 / 39 / 1002                                    |
| <b>Date of measurements</b>                            | 26-Nov-2009                                       |
| <b>Measured by</b>                                     | Ruben Hansen                                      |

##### 4.1. Test method and limit

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

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

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

The measurement results are obtained as described below:

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

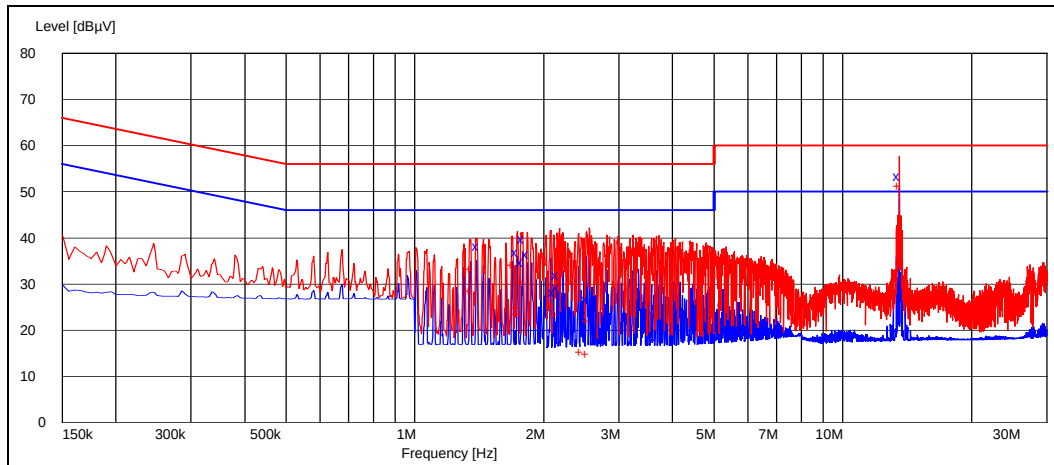
Where  $U_{RX}$  is receiver reading and  $A_{TOT}$  is total correction factor including cable and pulse limiter attenuations.

CISPR 22 Class B limits

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

## 4.2. RFID Modulated Test results

### 4.2.1 RFID TX On, Modulated, GSM 1900 Idle Mode



### 4.2.2

### 4.2.3

### 4.2.4 Quasi peak (RBW: 9 kHz)

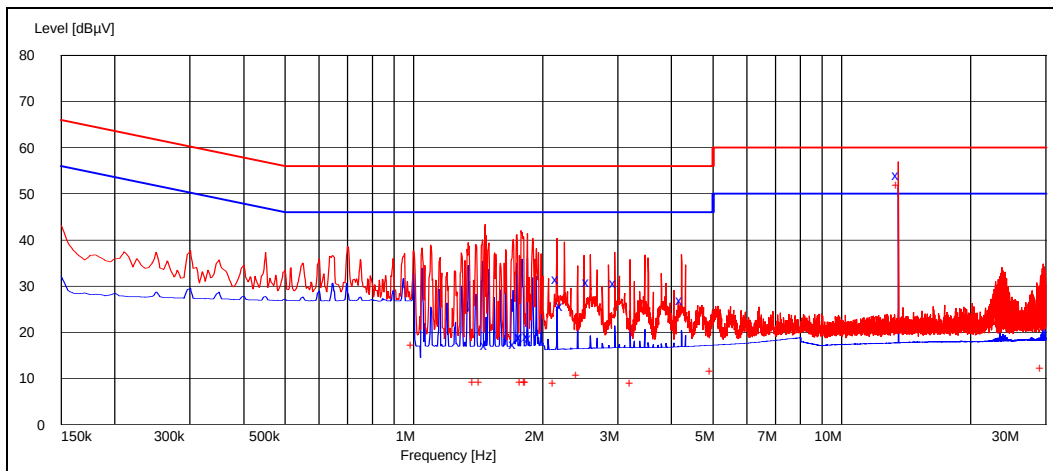
Quasi peak (RBW: 9 kHz)

| Frequency [MHz] | U [dBμV] | Line | Result |
|-----------------|----------|------|--------|
| 1.405000        | 38.20    | N    | Passed |
| 1.735000        | 37.00    | N    | Passed |
| 1.785000        | 34.70    | L1   | Passed |
| 1.795000        | 39.70    | N    | Passed |
| 1.835000        | 36.50    | N    | Passed |
| 2.120000        | 28.30    | N    | Passed |
| 2.160000        | 31.90    | N    | Passed |
| 2.170000        | 29.30    | N    | Passed |
| 2.500000        | 23.30    | L1   | Passed |
| 2.535000        | 26.80    | L1   | Passed |
| 13.560000       | 53.30    | L1   | Passed |

Average (RBW: 9 kHz)

| Frequency [MHz] | U [dBμV] | Line | Result |
|-----------------|----------|------|--------|
| 1.350000        | 28.50    | N    | Passed |
| 1.355000        | 33.30    | N    | Passed |
| 1.695000        | 34.20    | N    | Passed |
| 1.735000        | 24.80    | N    | Passed |
| 1.745000        | 23.50    | N    | Passed |
| 1.790000        | 30.40    | N    | Passed |
| 2.100000        | 25.20    | N    | Passed |
| 2.145000        | 23.50    | N    | Passed |
| 2.450000        | 15.30    | N    | Passed |
| 2.530000        | 14.80    | L1   | Passed |
| 2.540000        | 22.00    | N    | Passed |
| 13.560000       | 51.30    | N    | Passed |

#### 4.2.5 RFID TX On Unmodulated, GSM 1900 Idle Mode



##### Quasi peak (RBW: 9 kHz)

| Frequency [MHz] | U [dBμV] | Line | Result |
|-----------------|----------|------|--------|
| 1.480000        | 17.30    | N    | Passed |
| 1.725000        | 17.40    | N    | Passed |
| 1.780000        | 19.00    | N    | Passed |
| 1.790000        | 19.00    | N    | Passed |
| 1.860000        | 19.10    | N    | Passed |
| 1.875000        | 18.80    | N    | Passed |
| 2.175000        | 31.50    | N    | Passed |
| 2.225000        | 25.60    | N    | Passed |
| 2.560000        | 30.80    | N    | Passed |
| 2.965000        | 30.60    | N    | Passed |
| 4.225000        | 27.00    | N    | Passed |
| 13.560000       | 54.10    | L1   | Passed |

##### Average (RBW: 9 kHz)

| Frequency [MHz] | U [dBμV] | Line | Result |
|-----------------|----------|------|--------|
| 0.995000        | 17.20    | N    | Passed |
| 1.385000        | 9.20     | N    | Passed |
| 1.435000        | 9.20     | N    | Passed |
| 1.790000        | 9.10     | N    | Passed |
| 1.830000        | 9.20     | N    | Passed |
| 1.845000        | 9.20     | N    | Passed |
| 2.135000        | 9.00     | L1   | Passed |
| 2.420000        | 10.70    | L1   | Passed |
| 3.235000        | 9.00     | N    | Passed |
| 4.975000        | 11.60    | N    | Passed |
| 13.560000       | 52.00    | N    | Passed |
| 29.420000       | 12.20    | N    | Passed |

## 5. 26 dB bandwidth

|                                                  |                         |
|--------------------------------------------------|-------------------------|
| EUT with DUT number                              | RM-531 DUT 24608        |
| Accessories with DUT numbers                     | Dummy battery DUT 24817 |
| Operation Voltage [V] / [Hz]                     | 3.8 VDC                 |
| Result                                           | Passed                  |
| Remarks                                          | None                    |
| Temp [°C] / Humidity [%RH] / Air Pressure [mBar] | 23 / 38 / 1003          |
| Date of measurements                             | 30-Nov-2009             |
| Measured by                                      | Ruben Hansen            |

### 5.1. Test setup

A small loop antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer.

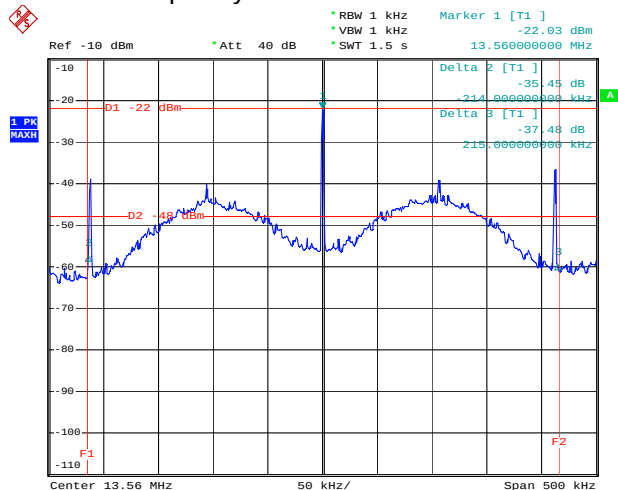
### 5.2. Test method and limit

The Test was carried out with the EUT in Test mode with modulation on.

### 5.3. RFID Test results

| Operation mode (TX on) | occupied bandwidth [kHz] |
|------------------------|--------------------------|
| RFID, modulated        | 429                      |

RFID TX Frequency = 13.56 MHz



Date: 30.NOV.2009 10:05:51

## 6. Frequency stability, temperature variation

FCC 47 CFR Part 15 section 15.225 (e) [2] and RSS-210 A2.6

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| <b>EUT with DUT number</b>                             | RM-531 DUT 24608        |
| <b>Accessories with DUT numbers</b>                    | Dummy battery DUT 24817 |
| <b>Operation Voltage [V] / [Hz]</b>                    | 3.8 VDC                 |
| <b>Result</b>                                          | Passed                  |
| <b>Remarks</b>                                         | None                    |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 23 / 38 / 1003          |
| <b>Date of measurements</b>                            | 30-Nov-2009             |
| <b>Measured by</b>                                     | Ruben Hansen            |

### 6.1. Test setup

The EUT was placed in a Climatic Chamber. A small whip antenna was placed close to the EUT, and connected to the measuring Spectrum Analyzer. Measurement performed without modulation on TX.

### 6.2. Test method and limit

The measurement is made according to FCC rules FCC 47 CFR Part 15 section 15.225 (e) [2] and RSS-210 A2.6

- The EUT is placed in the chamber in transmit mode.
- The climate chamber temperature is set to the maximum value and allowed to stabilize.
- The transmit frequency is measured.
- Temperature is lowered to the next temperature value and allowed to stabilize.
- The steps c - d is repeated for each temperature.

Limits for frequency stability, temperature variation measurements

| <b>Frequency deviation [%]</b> |
|--------------------------------|
| ± 0.01                         |

### 6.3. RFID Test results

Continuous transmission 13.56 MHz

| <b>Temperature [°C]</b> | <b>Frequency [MHz]</b> | <b>Deviation [KHz]</b> | <b>Deviation [%]</b> |
|-------------------------|------------------------|------------------------|----------------------|
| 50                      | 13.56028               | + 0.28                 | 0.00203              |
| 40                      | 13.56028               | + 0.28                 | 0.00203              |
| 30                      | 13.56043               | + 0.43                 | 0.00315              |
| 20                      | 13.56058               | + 0.58                 | 0.00427              |
| 10                      | 13.56043               | + 0.43                 | 0.00315              |
| 0                       | 13.56058               | + 0.58                 | 0.00427              |
| -10                     | 13.56043               | + 0.43                 | 0.00315              |
| -20                     | 13.56043               | + 0.43                 | 0.00315              |



## 7. Frequency stability, voltage variation

FCC 47 CFR Part 15 section 15.225 (e) [2] and RSS-210 A2.6

|                                                        |                         |
|--------------------------------------------------------|-------------------------|
| <b>EUT with DUT number</b>                             | RM-531 DUT 24608        |
| <b>Accessories with DUT numbers</b>                    | Dummy battery DUT 24817 |
| <b>Operation Voltage [V] / [Hz]</b>                    | 3.8 VDC                 |
| <b>Result</b>                                          | Passed                  |
| <b>Remarks</b>                                         | None                    |
| <b>Temp [°C] / Humidity [%RH] / Air Pressure [kPa]</b> | 23 / 38 / 1003          |
| <b>Date of measurements</b>                            | 30-Nov-2009             |
| <b>Measured by</b>                                     | Ruben Hansen            |

### 7.1. Test method and limit

The EUT battery was replaced with a dummy battery and an adjustable power supply. The frequency stability was measured at nominal voltage 3.8 Volt and at manufacturer specified minimum voltage 3.5 Volt and maximum voltage 4.2 Volt.  
Measurement performed without modulation on TX.

Limits for frequency stability, voltage variation measurements

| <b>Frequency deviation [%]</b> |
|--------------------------------|
| ± 0.01                         |

### 7.2. RFID Test results

Continuous transmission at 13.560 MHz

| <b>Voltage level [V]</b> | <b>Deviation [Hz]</b> | <b>Deviation [%]</b> |
|--------------------------|-----------------------|----------------------|
| Nominal 3.8              | 0                     | 0.000                |
| Minimum 3.5              | 0                     | 0.000                |
| Maximum 4.2              | 0                     | 0.000                |

## 8. Test Equipment

### 8.1. Conducted measurements

| Eq. No | Equipment                                      | Type      | Manufacturer    | Used in         |
|--------|------------------------------------------------|-----------|-----------------|-----------------|
| 13037  | Power Supply 0-15V 10A                         | EA3012    | LP Instruments  | 15C, 15B        |
| 13513  | Pulse Limiter 9KHz-30MHz                       | ESH3Z2    | Rohde&Schwarz   | 15C, 15B        |
| 13666  | EMI Test Receiver 9KHz-2,5GHz                  | ESPC      | Rohde&Schwarz   | 15C, 15B        |
| 13935  | Two Lines Artificial Mains Network             | ESH3-Z5   | Rohde&Schwarz   | 15C, 15B        |
| 16995  | Directional Coupler 20dB 0,5-2,0 GHz SMA Conn. | 1538RA-20 | Weinschel       | 15C, 15B        |
| 18772  | Shielded Chamber                               | RFD-100   | ETS-Lindgren    | 15C, 15B        |
| 19171  | Universal Radio Communication Tester           | CMU200    | Rohde&Schwarz   | 15C, 15B        |
| 11386  | System DC Power Supply                         | HP6632A   | Hewlett Packard | 22/24, 15C, 15B |
| 19678  | Spectrum Analyzer 26 GHz                       | FSP       | Rohde&Schwarz   | 22/24, 15C, 15B |
| 16601  | Universal Radio Communication Tester           | CMU200    | Rohde&Schwarz   | 22/24, 15C, 15B |
| 19625  | Vötsch Climatic Chamber                        | VT4002EMC | Vötsch          | 22/24, 15C, 15B |
| 13357  | Rohde & Schwartz Signal Generator              | SMP02     | Rohde&Schwarz   | 22/24, 15C, 15B |

### 8.2. Radiated measurements

| Eq. No | Equipment                                      | Type          | Manufacturer  | Used in         |
|--------|------------------------------------------------|---------------|---------------|-----------------|
| 18416  | Universal Radio Communication Tester           | CMU200        | Rohde&Schwarz | 22/24, 15C, 15B |
|        | Programmable Relay Switching System            | -----         | Pickering     | 22/24, 15C, 15B |
| 15742  | Programmable Relay Switching System            | -----         | Pickering     | 22/24, 15C, 15B |
| 14020  | Power Supply Module Relay Switching System 45W | 10-910-002    | Pickering     | 22/24, 15C, 15B |
| 15743  | Power Supply Module Relay Switching System 50W | 10-910L-001   | Pickering     | 22/24, 15C, 15B |
| 16490  | RS-232/IEEE-488.2 Interface                    | 10-921-001    | Pickering     | 22/24, 15C, 15B |
|        | RS-232/IEEE-488.2 Interface                    | 10-921-001    | Pickering     | 22/24, 15C, 15B |
| 20078  | Relay 2x6 Chnl $\mu$ Wave Mux                  | 10-785B-522   | Pickering     | 22/24, 15C, 15B |
| 14021  | Relay Dual 6 Chnl $\mu$ Wave Mux               | 10-785-522    |               | 22/24, 15C, 15B |
|        | Relay Dual 6 Chnl $\mu$ Wave Mux               | 10-785-522    |               | 22/24, 15C, 15B |
| 17644  | Dual 6 Channel MUX Microwave Relay SMA 50 Ohm  | 10-785-522    | Pickering     | 22/24, 15C, 15B |
| 16948  | Dual 6 Channel MUX Microwave Relay SMA 50 Ohm  | 10-785-522    | Pickering     | 22/24, 15C, 15B |
| 16949  | Dual 6 Channel MUX Microwave Relay SMA 50 Ohm  | 10-785-522    | Pickering     | 22/24, 15C, 15B |
| 18792  | Multi Device Controller                        | 2090          | ETS-EMCO      | 22/24, 15C, 15B |
| 14963  | RF Preamplifier 100MHz-4GHz (Metal Chassis)    | AFS3-00100400 | Miteq/NMP Cph | 22/24, 15C, 15B |
| 18861  | EMI Test Receiver 20Hz-26,5GHz                 | ESI           | Rohde&Schwarz | 22/24, 15C, 15B |
| 18860  | Ultra Broadband Antenna Ultralog 30-3000MHz    | HL562         | Rohde&Schwarz | 22/24, 15C, 15B |
| 19830  | Ultra Broadband Antenna                        | HL562         | Rohde&Schwarz | 22/24, 15C, 15B |

| Eq. No | Equipment                                      | Type                                | Manufacturer           | Used in         |
|--------|------------------------------------------------|-------------------------------------|------------------------|-----------------|
|        | Ultralog 30-3000MHz                            |                                     |                        |                 |
| 18773  | Shielded Chamber                               | RFD-100                             | ETS-Lindgren           | 22/24, 15C, 15B |
| 18774  | Shielded Chamber                               | RFSD-F/A-100                        | ETS-Lindgren           | 22/24, 15C, 15B |
| 19151  | High Pass Filter 3GHz<br>WHK3.0/18G-10ss       | WHJS3000-10SS                       | Wainwright             | 22/24, 15C, 15B |
| 13937  | Ultra Stable Notch Filter 850MHz               | WRCA902.4-0.2/40-6SS                | Wainwright Instruments | 22/24, 15C, 15B |
| 13936  | Ultra Stable Notch Filter<br>1747,5MHz         | WRCD1747.5-0.2/40-10SS              | Wainwright Instruments | 22/24, 15C, 15B |
| 13917  | Highpass Filter 1000-3000MHz<br>50OHM SMA Conn | WHKS1000-10SS                       | Wainwright Instruments | 22/24, 15C, 15B |
| 14188  | Ultra Stable Notch Filter<br>902,4MHz          | WRCA902.4-0.2/40-6SS                | Wainwright             | 22/24, 15C, 15B |
| 14187  | Ultra Stable Notch Filter<br>1747,5MHz         | WRCD1747.5-0.2/40-10SS              | Wainwright             | 22/24, 15C, 15B |
| 16633  | Ultra Stable Notch Filter<br>1880,0MHz         | WRCD1880.0-0.2/40-10SS              | Wainwright             | 22/24, 15C, 15B |
| 19587  | BT/WLAN Band Reject Filter                     | WRCG2400/2483-2390/2493-35/10SS     | Wainwright             | 22/24, 15C, 15B |
|        | WDCMA Band 4 filter                            | WRCG1737/1743-1733/1747-40/6SS      | Wainwright             | 22/24, 15C, 15B |
|        | WDCMA Band 5&6 filter                          | WRCG832/83/-825/845-40/5SS          | Wainwright             | 22/24, 15C, 15B |
|        | WDCMA Band 8 filter                            | WRCG894.6/900.6-890.6/904.6-40/80SS | Wainwright             | 22/24, 15C, 15B |
| 18323  | Band reject filter 1947-1953MHz<br>40dB        | WRCG1947/1953-1940/1960-40/6SS      | Wainwright             | 22/24, 15C, 15B |
| 20031  | Double Ridged Broadband Horn                   | BBHA 9120 D                         | SCHWARZBECK            | 22/24, 15C, 15B |
| 15190  | Infra Red Remote Control Unit                  | 4630                                | Emco                   | 22/24, 15C, 15B |
| 14993  | EMI Test Receiver 9KHz-<br>2750MHz             | ESCS30                              | Rohde&Schwarz          | 22/24, 15C, 15B |
| 15191  | Turntable Contoller Unit                       | G-800SDX                            | YAESU                  | 22/24, 15C, 15B |
| 14900  | Antenna Controller                             | HD100                               | HD GmbH                | 22/24, 15C, 15B |
| 15105  | Attenuator 30dB DC-1000MHz<br>50 Ohm Nf - Nm   | NAT-30                              | Mini-Circuits          | 22/24, 15C, 15B |
| 13302  | Spectrum Analyzer 9KHz-<br>12.8GHz             | HP8596E                             | Hewlett Packard        | 22/24, 15C, 15B |
| 11584  | Spectrum analyzer 50Hz-<br>6,5GHz              | HP8561B                             | Hewlett Packard        | 22/24, 15C, 15B |
| 13134  | Tracking generator                             | HP85645A                            | Hewlett Packard        | 22/24, 15C, 15B |
| 19374  | Resonant Dipole Antenna<br>850MHz SMA m Conn.  | -----                               | NMP Cph                | 22/24, 15C, 15B |
| 19375  | Resonant Dipole Antenna<br>1900MHz SMA m Conn. | -----                               | NMP Cph                | 22/24, 15C, 15B |
| 11487  | Network analyzer 300KHz-<br>3,0GHz             | HP8753A                             | Hewlett Packard        | 22/24, 15C, 15B |
| 14807  | S - Parameter Test Set 300KHz-<br>6GHz         | HP85047A                            | Hewlett Packard        | 22/24, 15C, 15B |
| 17277  | Multimeter Digital 6 1/2 Digit                 | AT34401A                            | Agilent Technologies   | 22/24, 15C, 15B |