



## Accredited testing-laboratory

**DAR registration number: DAT-P-176/94-D1**

**Federal Motor Transport Authority (KBA)  
DAR registration number: KBA-P 00070-97**

**Recognized by the Federal Communications Commission**

**Anechoic chamber registration no.: 90462 (FCC)**

**Anechoic chamber registration no.: 3463A-1 (IC)**

**Certification ID: DE 0001**

**Accreditation ID: DE 0002**

**Accredited Bluetooth® Test Facility (BQTF)**

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### Annex to Test

**report no.** : 2-4883-30-02/08  
**Type identification** : AAC-1052101-BV  
**Applicant** : Sony Ericsson Mobile Communications AB  
**FCC ID** : PY7A1052101  
**IC Certification No** : 4170B-A1052101  
**Test standards** : 47 CFR Part 15  
RSS - 210 Issue 7



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## 1 General information

### 1.1 Notes

The test results of this test report relate exclusively to the test item specified in 3.1.1. The CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

#### Test laboratory manager:

2008-05-10

Jakob Reschke

Date

Name

Signature



#### Technical responsibility for area of testing:

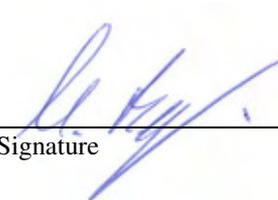
2008-05-10

Michael Berg

Date

Name

Signature



## 1.2 Testing laboratory

CETECOM ICT Services GmbH

Untertürkheimer Straße 6 - 10

66117 Saarbrücken

Germany

Phone: + 49 681 5 98 - 0

Fax: + 49 681 5 98 - 9075

e-mail: info@ICT.cetecom.de

Internet: http://www.cetecom-ict.de

**State of accreditation:** The test laboratory (area of testing) is accredited according to  
DIN EN ISO/IEC 17025  
DAR registration number: DAT-P-176/94-D1

**Accredited by:** Federal Motor Transport Authority (KBA)  
DAR registration number: KBA-P 00070-97

Testing location, if different from CETECOM ICT Services GmbH:

Name :  
Street :  
Town :  
Country :  
Phone :  
Fax :

## 1.3 Details of applicant

|                   |   |
|-------------------|---|
| <b>Name:</b>      | <b>Sony Ericsson Mobile Communications AB</b> |
| <b>Street:</b>    | <b>Nya Vattentornet</b>                       |
| <b>Town:</b>      | <b>22188 Lund</b>                             |
| <b>Country:</b>   | <b>Sweden</b>                                 |
| <b>Telephone:</b> | <b>+46-46-19-3000</b>                         |
| <b>Fax:</b>       | <b>+46-46-19-3295</b>                         |
| <b>Contact:</b>   | <b>Peter Lindeborg</b>                        |
| <b>E-mail:</b>    | <b>peter.lindeborg@sonyericsson.com</b>       |
| <b>Telephone:</b> | <b>+46-46-212-6180</b>                        |

## 1.4 Application details

|  |                   |
|--|-------------------|
| <b>Date of receipt of order:</b>                         | <b>2008-04-28</b> |
| <b>Date of receipt of test item:</b>                     | <b>2008-05-08</b> |
| <b>Date of start test:</b>                               | <b>2008-05-08</b> |
| <b>Date of end test:</b>                                 | <b>2008-05-10</b> |
| <b>Persons(s) who have been present during the test:</b> | <b>-/-</b>        |

---

## 2 Technical tests

### 2.1 Details of manufacturer

|          |  |
|----------|--|
| Name:    | Sony Ericsson Mobile Communications AB |
|          |  |
| Street:  | Nya Vattentorget                       |
| Town:    | 22188 Lund                             |
| Country: | Sweden                                 |

### 2.2 Test item(s) and test configuration

No.: 1      Standard Charger (CST-75)      with      AAC-1052101-BV

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### 3 Summary of Measurement Results and list of all performed test cases

- No deviations from the technical specifications were ascertained
- There were deviations from the technical specifications ascertained

| Section in this Report | Test Name   | Verdict |
|------------------------|---|---------|
| 5.1                    | Conducted limits<br>CFR Part 15.207, 15.107<br>RSS 210, Issue 7, Section 6.6 , 7.4  | Pass    |
| 5.2                    | Receiver spurious emission radiated (Idle mode)<br>CFR Part SUBCLAUSE § 15.109<br>RSS 210, Issue 7, Section 7.3 Receiver<br>Spurious Emissions (Radiated) | Pass    |

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## **4 Measurements and results**

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber.

The receiving antennas are conforming to specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test set-ups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received.

The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.4-2003 clause 4.2.

Antennas are conforming to ANSI C63.2-1996 item 15.

9 kHz – 150 kHz ,Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.

150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna.

30 MHz - 200 MHz: Quasi Peak measurement, 120 KHz Bandwidth, biconical antenna

200MHz - 1GHz: Quasi Peak measurement, 120 KHz Bandwidth, log periodic antenna

>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.109 and 15.107

## 5 Annex A: FCC Part 15 Subpart B

### 5.1 Conducted Limits

#### Reference

|      |                                     |
|------|-------------------------------------|
| FCC: | CFR Part 15.207, 15.107             |
| IC:  | RSS 210, Issue 7, Section 6.6 , 7.4 |

Limits: § 15.107 / 15.207

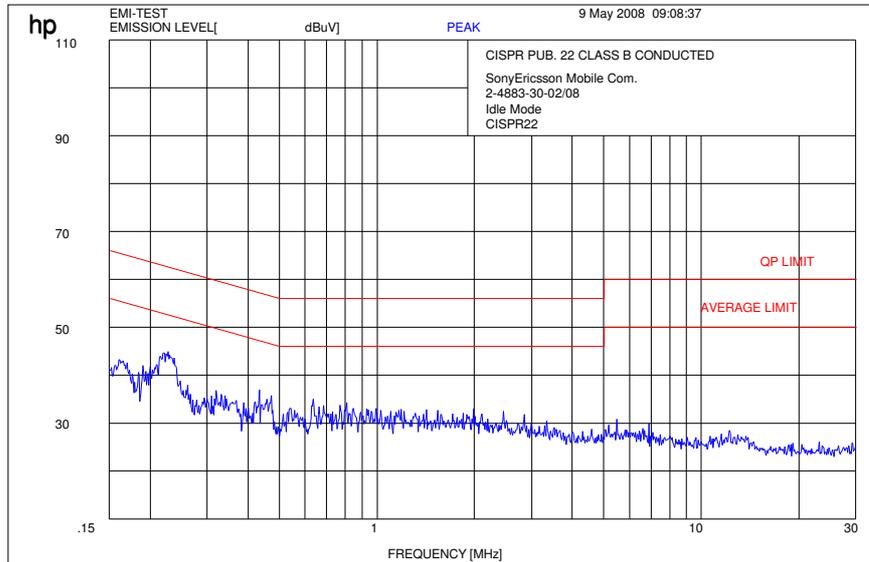
| Frequency of Emission (MHz) | Conducted Limit (dBµV) |            |
|-----------------------------|------------------------|------------|
|                             | Quasi-peak             | Average    |
| 0.15 – 0.5                  | 66 to 56 *             | 56 to 46 * |
| 0.5 – 5                     | 56                     | 46         |
| 5 - 30                      | 60                     | 50         |

\* Decreases with the logarithm of the frequency

## PCS 1900

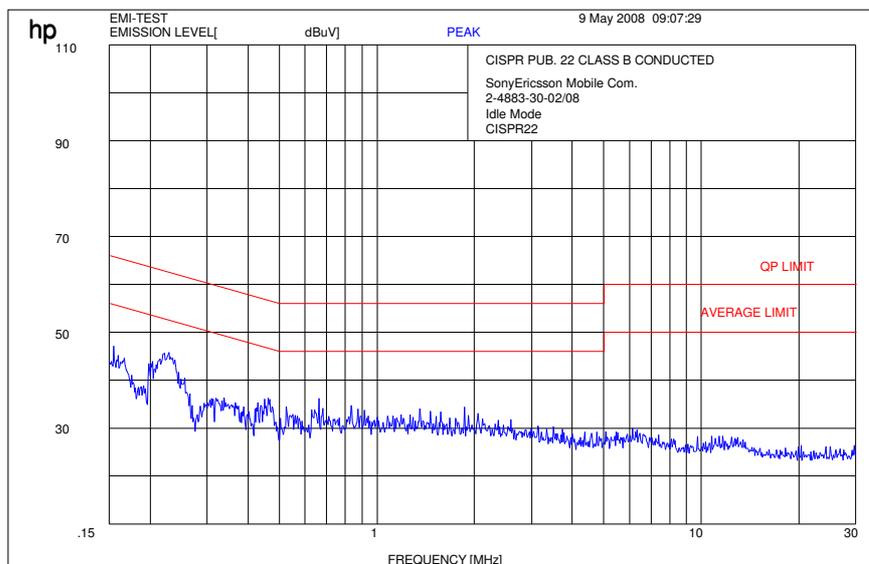
Plot 1: (Neutral Line)

Idle Mode: 150 kHz – 30 MHz



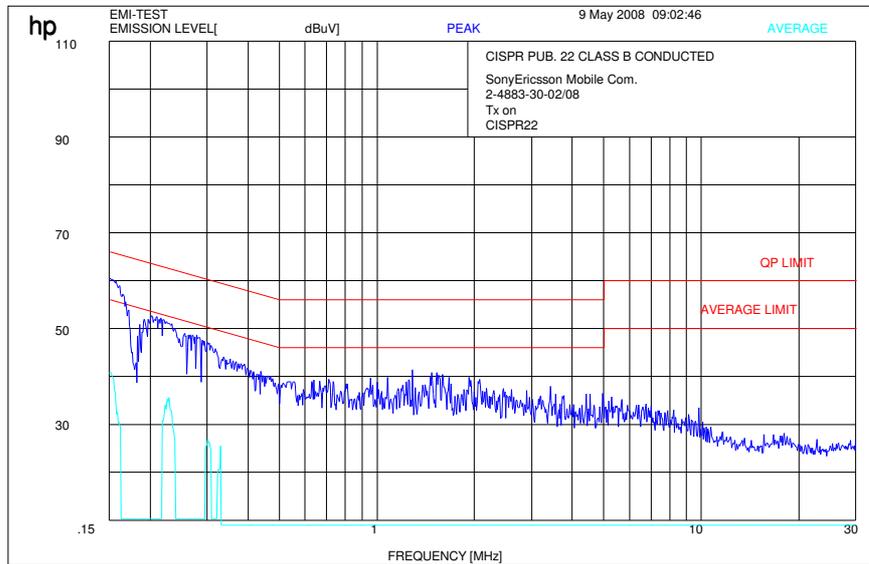
Plot 2: (Phase Line)

Idle Mode: 150 kHz – 30 MHz



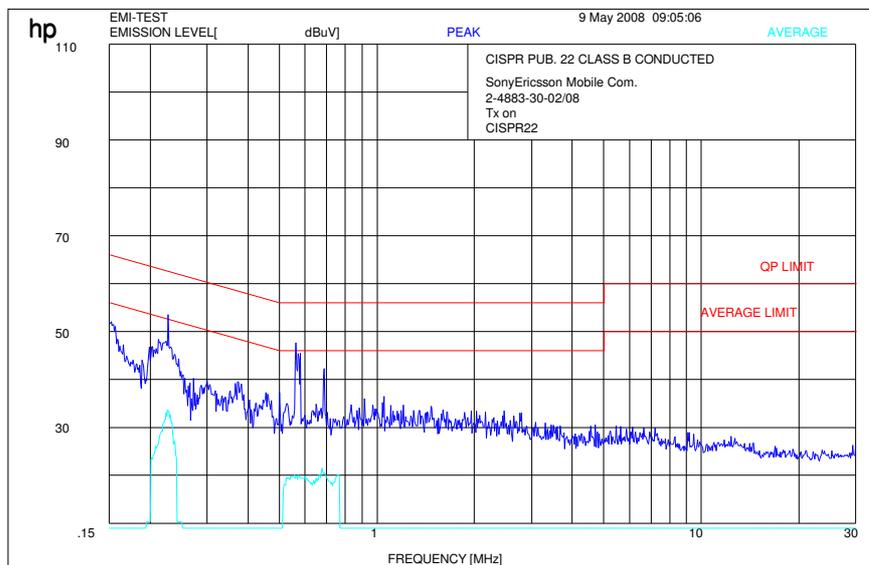
Plot 3: (Neutral Line)

Traffic Mode : 150 kHz – 30 MHz



Plot 4: (Phase Line)

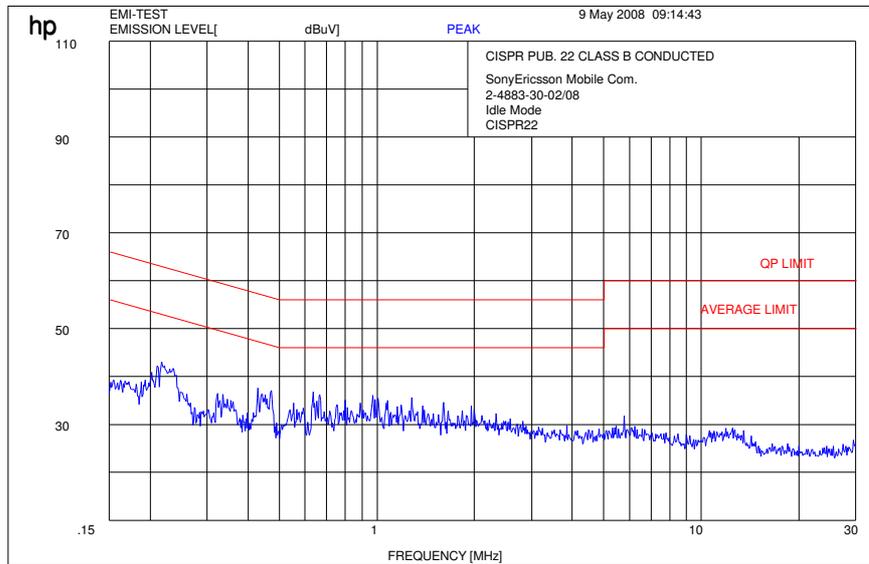
Traffic Mode : 150 kHz – 30 MHz



## PCS 850

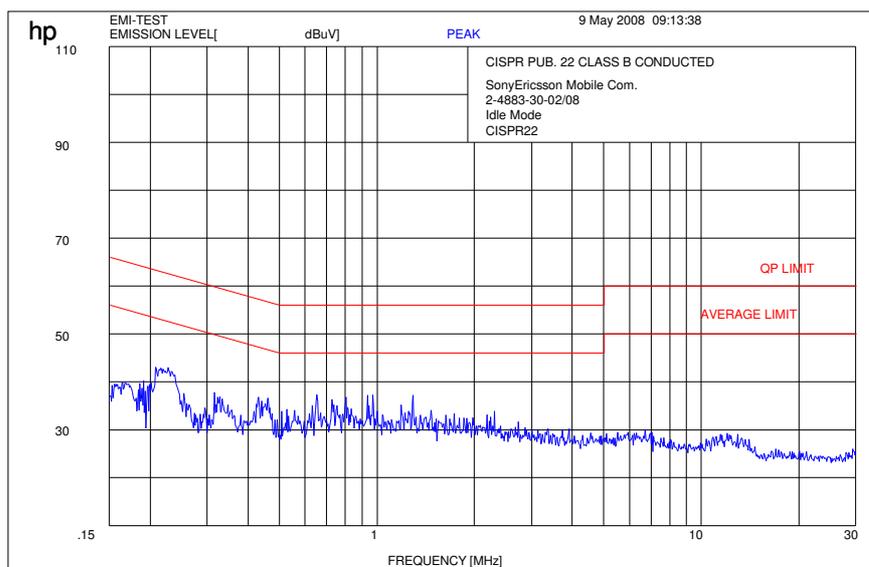
Plot 1: (Neutral Line)

Idle Mode: 150 kHz – 30 MHz



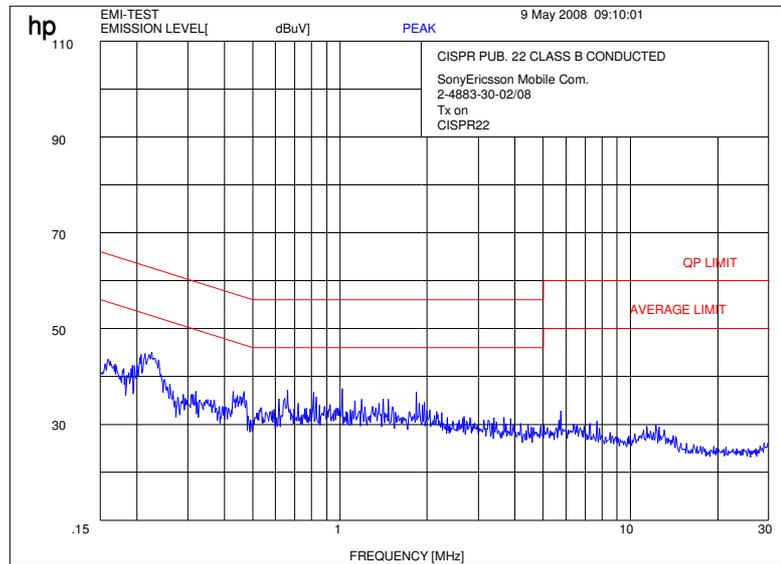
Plot 2: (Phase Line)

Idle Mode: 150 kHz – 30 MHz



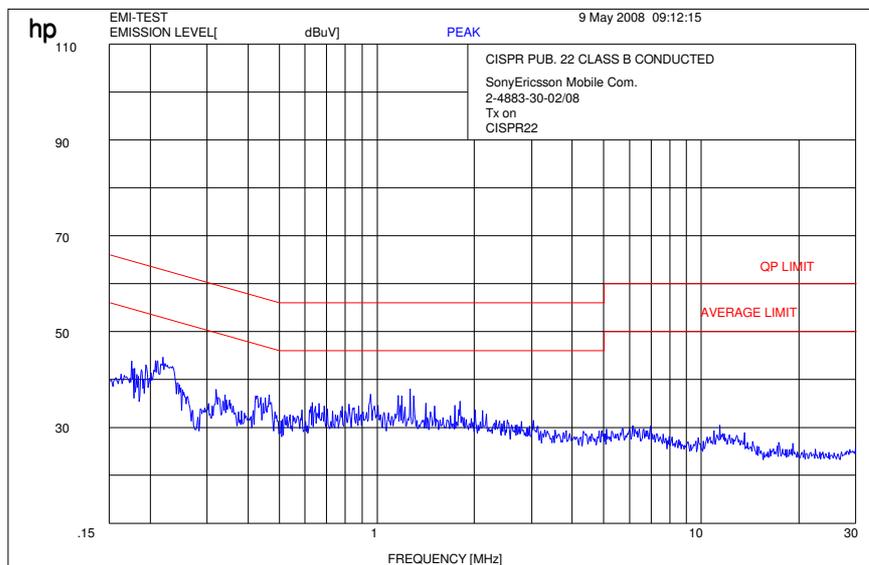
Plot 3: (Neutral Line)

Traffic Mode : 150 kHz – 30 MHz



Plot 4: (Phase Line)

Traffic Mode : 150 kHz – 30 MHz



**5.2 Receiver spurious emission radiated (Idle mode)**

**Reference**

|      |  |
|------|--|
| FCC: | CFR Part SUBCLAUSE § 15.109  |
| IC:  | RSS 210, Issue 7, Section 7.3 Receiver Spurious Emissions (Radiated) |

| SPURIOUS EMISSIONS LEVEL ( $\mu\text{V/m}$ ) |          |                           |            |          |                           |         |          |                           |
|--|----------|---------------------------|------------|----------|---------------------------|---------|----------|---------------------------|
| GSM Idle Mode                                |          |                           |            |          |                           |         |          |                           |
| F [MHz]                                      | Detector | Level [ $\mu\text{V/m}$ ] | F [MHz]    | Detector | Level [ $\mu\text{V/m}$ ] | F [MHz] | Detector | Level [ $\mu\text{V/m}$ ] |
| No critical peaks found                      |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
|  |          |                           |            |          |                           |         |          |                           |
| Measurement uncertainty                      |          |                           | $\pm 3$ dB |          |                           |         |          |                           |

$f < 1$  GHz : RBW/VBW: 100 kHz

$f \geq 1$ GHz : RBW/VBW: 1 MHz

**Limits:** § 15.109

| Frequency (MHz) | Field strength (dB $\mu\text{V/m}$ ) | Measurement distance (m) |
|-----------------|--------------------------------------|--------------------------|
| 30 - 88         | 30.0                                 | 10                       |
| 88 - 216        | 33.5                                 | 10                       |
| 216 - 960       | 36.0                                 | 10                       |
| above 960       | 54.0                                 | 3                        |

**PCS 1900**

**Idle Mode (30 MHz - 1 GHz)**

**Information**

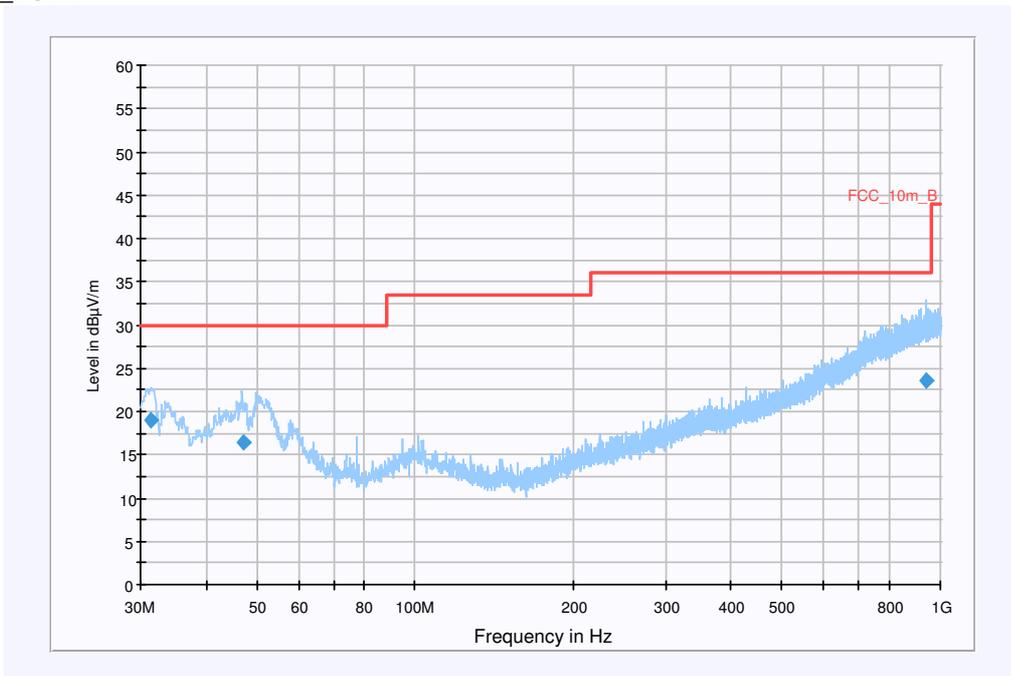
EUT: AAC-1052101-BV + CAA-0002001-BV  
 Serial Number: BD33000168 + 2207W 29 704725  
 Test Description: FCC @ 10 m  
 Operating Conditions: idle 1900  
 Operator Name: Folz  
 Comment: Powered with AC 115 V/ 60 Hz

**Scan Setup: STAN\_Fin [EMI radiated]**

Hardware Setup: EMI radiated\Electric Field (NOS)  
 Level Unit: dB $\mu$ V/m

**Subrange**                      **Detectors**                      **IF Bandwidth**                      **Meas. Time**                      **Receiver**  
 30MHz - 1GHz                      QuasiPeak                      120kHz                      15s                      Receiver

**FCC\_Short\_1GHz**



**Final Measurement Detector 1**

| Frequency (MHz) | QuasiPeak (dB $\mu$ V/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dB $\mu$ V/m) | Comment |
|-----------------|--------------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------------|---------|
| 31.333350       | 19.0                     | 1000.000        | 120.000         | 124.0               | V        | 156.0                    | 12.8       | 11.0        | 30.0                 |         |
| 47.238200       | 16.4                     | 1000.000        | 120.000         | 124.0               | V        | 280.0                    | 13.5       | 13.6        | 30.0                 |         |
| 943.424000      | 23.6                     | 1000.000        | 120.000         | 124.0               | V        | 55.0                     | 26.4       | 12.4        | 36.0                 |         |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range: 30MHz - 2GHz

Receiver: Receiver [ESCI 3]  
@ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009

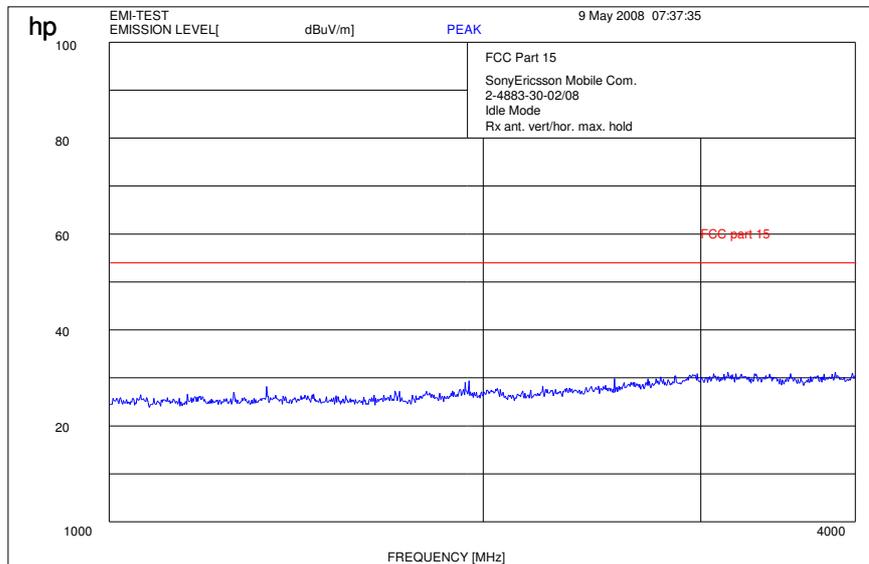
Signal Path: without Notch  
FW 1.0

Antenna: VULB 9163  
SN 9163-295, FW ---, CAL 08.04.2010  
Correction Table (vertical): VULP6113  
Correction Table (horizontal): VULP6113  
Correction Table: Cabel with switch (0408)

Antenna Tower: Tower [EMCO 2090 Antenna Tower]  
@ GPIB0 (ADR 8), FW REV 3.12

Turntable: Turntable [EMCO Turntable]  
@ GPIB0 (ADR 9)

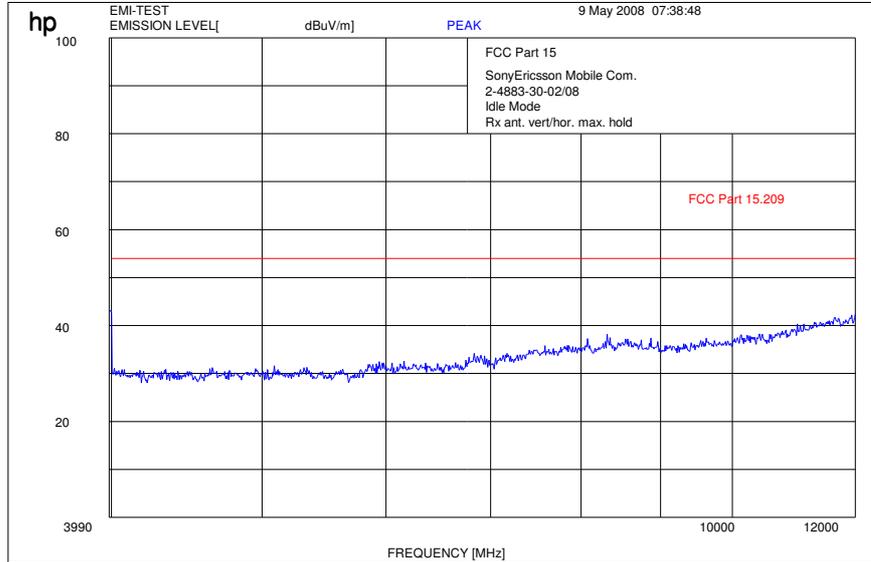
**Idle Mode (1 MHz - 4 GHz)**



$f < 1 \text{ GHz}$  : RBW/VBW: 100 kHz

$f \geq 1 \text{ GHz}$  : RBW / VBW 1 MHz

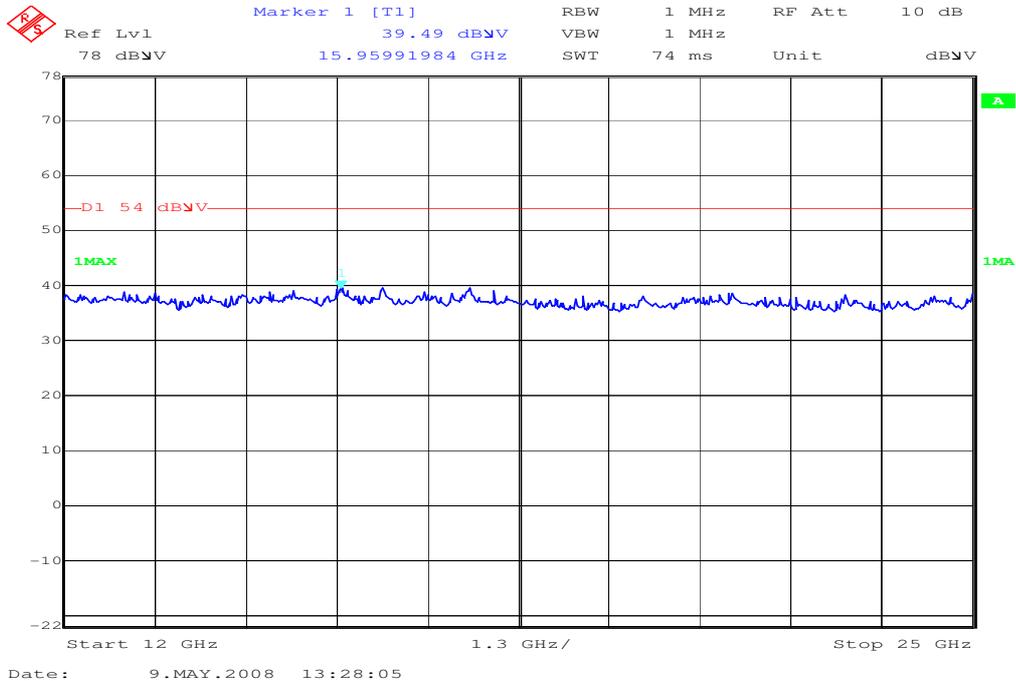
**Idle Mode (4 GHz – 12.0 GHz)**



f < 1 GHz : RBW/VBW: 100 kHz

f ≥ 1GHz : RBW / VBW 1 MHz

**Idle Mode (12 GHz - 25 GHz)**



**PCS 850**

**Idle-Mode (30 MHz - 1 GHz)**

**Information**

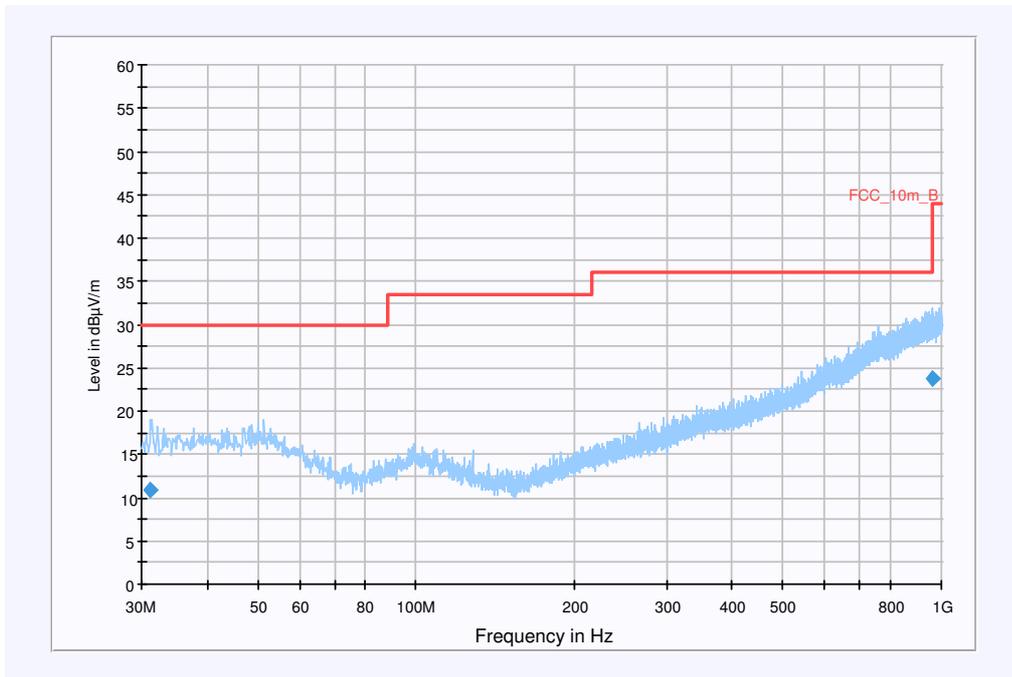
EUT: AAC-1052101-BV + CAA-0002001-BV  
 Serial Number: BD33000168 + 2207W 29 704725  
 Test Description: FCC @ 10 m  
 Operating Conditions: idle 850  
 Operator Name: Folz  
 Comment: Powered with AC 115 V/ 60 Hz

**Scan Setup: STAN\_Fin [EMI radiated]**

Hardware Setup: EMI radiated\Electric Field (NOS)  
 Level Unit: dBμV/m

| Subrange     | Detectors | IF Bandwidth | Meas. Time | Receiver |
|--------------|-----------|--------------|------------|----------|
| 30MHz - 1GHz | QuasiPeak | 120kHz       | 15s        | Receiver |

**FCC\_Short\_1GHz**



**Final Measurement Detector 1**

| Frequency (MHz) | QuasiPeak (dBμV/m) | Meas. Time (ms) | Bandwidth (kHz) | Antenna height (cm) | Polarity | Turntable position (deg) | Corr. (dB) | Margin (dB) | Limit (dBμV/m) | Comment |
|-----------------|--------------------|-----------------|-----------------|---------------------|----------|--------------------------|------------|-------------|----------------|---------|
| 31.237550       | 10.8               | 1000.000        | 120.000         | 124.0               | V        | 187.0                    | 12.7       | 19.2        | 30.0           |         |
| 959.237900      | 23.7               | 1000.000        | 120.000         | 124.0               | V        | -1.0                     | 26.5       | 12.3        | 36.0           |         |

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range: 30MHz - 2GHz

Receiver: Receiver [ESCI 3]  
 @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009

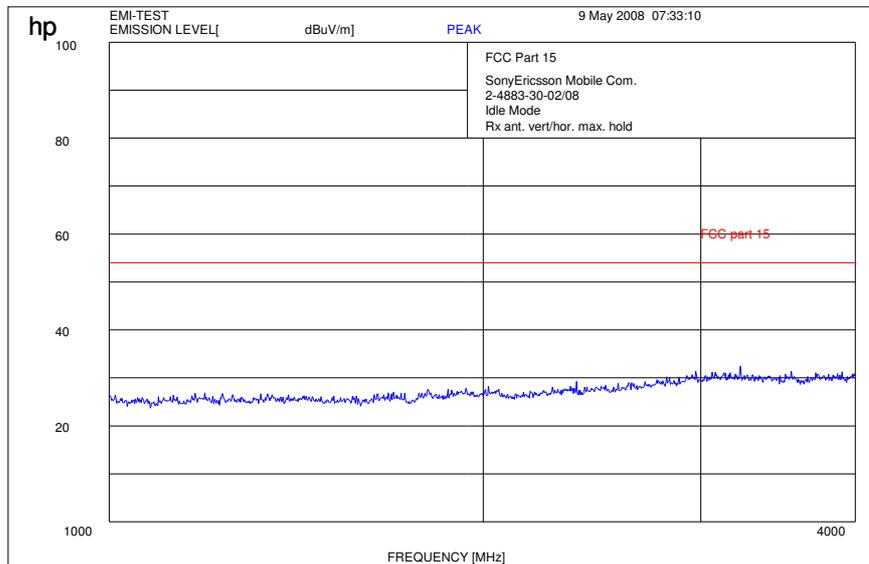
Signal Path: without Notch  
 FW 1.0

Antenna: VULB 9163  
 SN 9163-295, FW ---, CAL 08.04.2010  
 Correction Table (vertical): VULP6113  
 Correction Table (horizontal): VULP6113  
 Correction Table: Cabel with switch (0408)

Antenna Tower: Tower [EMCO 2090 Antenna Tower]  
 @ GPIB0 (ADR 8), FW REV 3.12

Turntable: Turntable [EMCO Turntable]  
 @ GPIB0 (ADR 9)

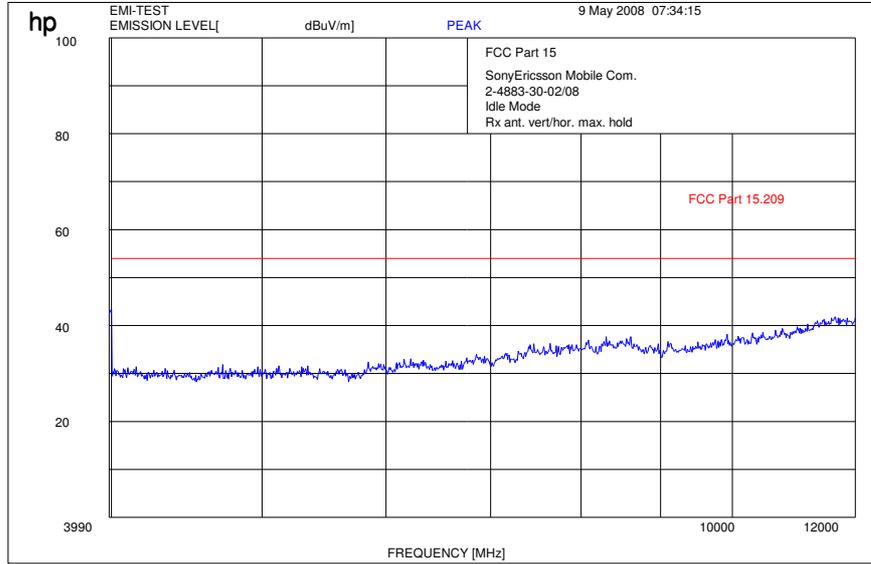
**Idle-Mode (1 GHz - 4 GHz)**



$f < 1 \text{ GHz} : \text{RBW/VBW: } 100 \text{ kHz}$

$f \geq 1 \text{ GHz} : \text{RBW / VBW } 1 \text{ MHz}$

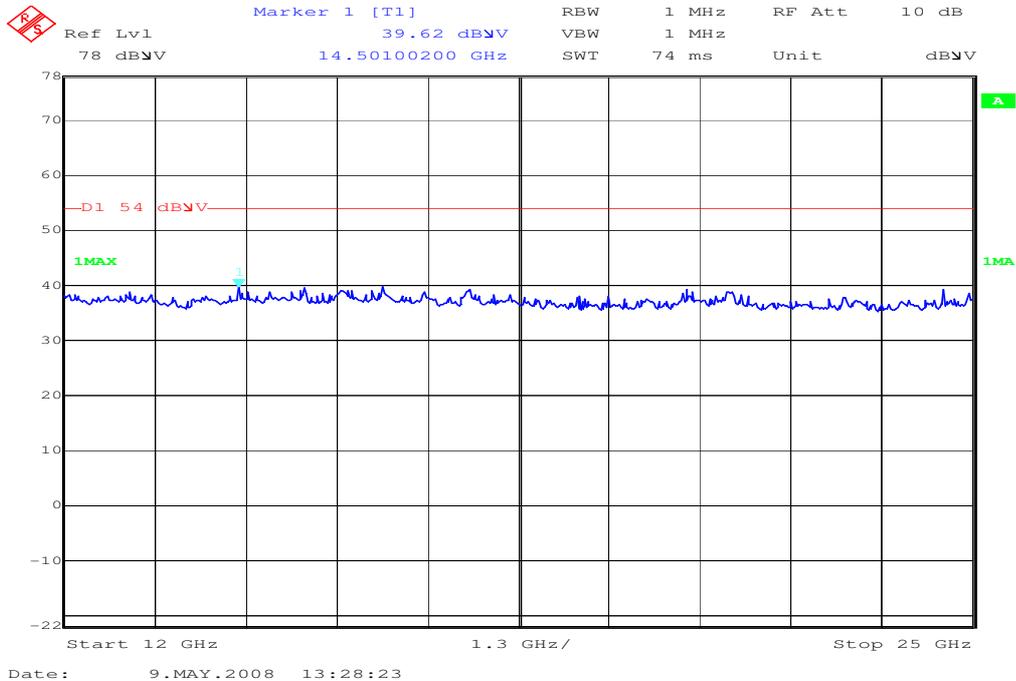
**Idle-Mode (4 GHz – 12.0 GHz)**



$f < 1 \text{ GHz}$  : RBW/VBW: 100 kHz

$f \geq 1 \text{ GHz}$  : RBW / VBW 1 MHz

**Idle-Mode (12 GHz - 25 GHz)**



## 6 Test equipment and ancillaries used for tests

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

### *Anechoic chamber C:*

| No | Equipment/Type                   | Manuf.     | Serial Nr.       | Inv. No. Cetecom | Last Calibration                   | Frequency (months) | Next Calibration |
|----|----------------------------------|------------|------------------|------------------|------------------------------------|--------------------|------------------|
| 1  | Anechoic chamber                 | MWB        | 87400/02         | 300000996        | Monthly verification               |                    |                  |
| 2  | System-Rack 85900                | HP I.V.    | *                | 300000222        | n.a.                               |                    |                  |
| 3  | Measurement System 1             |            |                  |                  |                                    |                    |                  |
| 4  | Spektrum Analyzer 8566B          | HP         | 2747A05306       | 300001000        | 05.10.2006                         | 24                 | 05.10.2008       |
| 5  | Spektrum Analyzer Display 85662A | HP         | 2816A16541       | 300002297        | 05.10.2006                         | 24                 | 05.10.2008       |
| 6  | Quasi-Peak-Adapter 85650A        | HP         | 2811A01131       | 300000999        | 05.10.2006                         | 24                 | 05.10.2008       |
| 7  | RF-Preselector 85685A            | HP         | 2837A00779       | 300000218        | 08.11.2006                         | 24                 | 08.11.2008       |
| 8  | PC Vectra VL                     | HP         |                  | 300001688        | n.a.                               |                    |                  |
| 9  | Software EMI                     | HP         |                  | 300000983        | n.a.                               |                    |                  |
| 10 | Measurement System 2             |            |                  |                  |                                    |                    |                  |
| 11 | FSP 30                           | R&S        | 100623           | ICT 300003464    | 05.10.2007                         | 24                 | 15.10.2009       |
| 12 | PC                               | F+W        |                  |                  | n.a.                               |                    |                  |
| 13 | TILE                             | TILE       |                  |                  | n.a.                               |                    |                  |
| 14 | Biconical antenna                | EMCO       | S/N: 860 942/003 |                  | Monthly verification (System cal.) |                    |                  |
| 15 | Log. Period. Antenna 3146        | EMCO       | 2130             | 300001603        | Monthly verification (System cal.) |                    |                  |
| 16 | Double Ridged Antenna HP 3115P   | EMCO       | 3088             | 300001032        | Monthly verification (System cal.) |                    |                  |
| 17 | Active Loop Antenna 6502         | EMCO       | 2210             | 300001015        | Monthly verification (System cal.) |                    |                  |
| 18 | Power Supply 6032A               | HP         | 2818A03450       | 300001040        | 12.05.2007                         | 36                 | 12.05.2010       |
| 19 | Busisolator                      | Kontron    |                  | 300001056        | n.a.                               |                    |                  |
| 20 | Leitungsteiler 11850C            | HP         |                  | 300000997        | Monthly verification (System cal.) |                    |                  |
| 21 | Power attenuator 8325            | Byrd       | 1530             | 300001595        | Monthly verification (System cal.) |                    |                  |
| 22 | Band reject filter WRCG1855/1910 | Wainwright | 7                | 300003350        | Monthly verification (System cal.) |                    |                  |
| 23 | Band reject filter WRCG2400/2483 | Wainwright | 11               | 300003351        | Monthly verification (System cal.) |                    |                  |
|    |                                  |            |                  |                  |                                    |                    |                  |

### *Signalling Units:*

| No | Equipment/Type | Manuf. | Serial Nr. | Inv. No. Cetecom | Last Calibration | Frequency (months) | Next Calibration |
|----|----------------|--------|------------|------------------|------------------|--------------------|------------------|
| 1  | CBT            | R&S    | 100313     | 300003516        | 24.10.2006       | 24                 | 24.10.2008       |
| 2  | CBT            | R&S    | 100185     | 300003416        | 21.02.2006       | 24                 | 21.02.2008       |
| 3  | CMU-200        | R&S    | 103992     | 300003231        | 27.04.2007       | 12                 | 27.04.2008       |
| 4  | CMU-200        | R&S    | 106240     | 300003321        | 02.05.2006       | 24                 | 02.05.2008       |
|    |                |        |            |                  |                  |                    |                  |

*Anechoic chamber F:*

| No.  | Instrument/Ancillary                    | Manufacturer            | Type                        | Serial-No.         | Internal identification |
|--|---|-------------------------|-----------------------------|--------------------|-------------------------|
| <b>Radiated emission in chamber F</b>              |   |                         |                             |                    |                         |
| F-1  | Control Computer                        | F+W                     |                             | FW0502032          | 300003303               |
| F-2  | Bilog antenna                           | Chase                   | CBL 6112A                   | 2110               | 300000573               |
| F-3a   | Amplifier                               | Veritech Microwave Inc. | 0518C-138                   | - / -              | - / -                   |
| F-4b   | Switch                                  | HP                      | 3488A                       | - / -              | 300000368               |
| F-5  | EMI Test receiver                       | R&S                     | ESCI                        | 100083             | 300003312               |
| F-6  | Turntable Controller                    | EMCO                    | 1061 3M                     | 1218               | 300000661               |
| F-7  | Tower Controller                        | EMCO                    | 1051 Controller             | 1262               | 300000625               |
| F-8  | Tower                                   | EMCO                    | 1051 Tower                  | 1262               | 300000625               |
| F-9  | Ultra Notch-Filter Rejected band Ch. 62 | WRCD                    |                             | 9                  |                         |
| <b>Radiated immunity in chamber F</b>              |   |                         |                             |                    |                         |
| F-10   | Control Computer                        | F+W                     |                             | FW0502032          | 300003303               |
| F-11   | Signal Generator                        | R&S                     | SML 03                      | 102519             | 300003407               |
| F-12   | RF-Amplifier                            | ar                      | 50W1000                     | 12932              | 300001438               |
| F-13   | Directional Coupler                     | ar                      | DC 3010                     | 12708              | 300001428               |
| F-14   | Logper Antenna                          | R&S                     | HL023A1                     | 323704/016         | 300001476               |
| F-15   | RF-Amplifier                            | ar                      | 60S1G3                      | 313649             | 300003410               |
| F-16   | Directional Coupler                     | ar                      | DC7144A                     | 312786             | 300003411               |
| F-17   | Horn Antenna                            | ar                      | AT 4002                     | 19739              | 300000633               |
| F-18   | Power Meter                             | R&S                     | NRV                         | 860327/024         | F033                    |
| F-19   | Power sensor                            | R&S                     | URV5-Z2                     | 839080/005         | 300002844.02            |
| F-20   | Power sensor                            | R&S                     | URV5-Z2                     | 830755/057         | F032                    |
| <b>Harmonics and flicker in front of chamber F</b> |   |                         |                             |                    |                         |
| F-21   | Flicker and Harmonics Test System       | Spitzenberger & Spies   | PHE4500/B I<br>PHE4500/B II | B5983<br>B5984     | 300000210               |
| F-22   | Control Unit                            | Spitzenberger & Spies   | STE                         | B5980              | 300000210               |
| F-23   | Power Amplifier                         | Spitzenberger & Spies   | EP 4500/B                   | B5976              | 300000210               |
| F-24   | Conect Panel                            | Spitzenberger & Spies   | Conect panel                | B5982              | 300000210               |
| F-25   | Power Supply                            | Spitzenberger & Spies   | NT-EP 4500                  | B3977              | 300000210               |
| F-26   | Additional transformer                  | Spitzenberger & Spies   | UT-EP 4500                  | B5978              | 300000210               |
| F-27   | Analyzer Reference System               | Spitzenberger & Spies   | ARS 16/1                    | A3509 07/0<br>0205 | 300003314               |
| F-26   | Power Supply                            | Hewlett Packard         | 6032 A                      | 2920 A 04466       | 300000580               |

## 7 Photographs of the Test Set-up

Photo documentation

Photo 1:



Photo 2:



Photo 3:

