

**TEST REPORT**  
No.: 19-1-0067201T07a

According to:  
**FCC Regulations**  
§1.1310  
§ 2.1091 & 2.1093

for  
**Continental Automotive GmbH**

**D-WMI2020B**

**FCC-ID: KR5DWMI2020B**

| Laboratory Accreditation                                                                                                                                                                                                                                                                                                                                                                                                                          |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div style="text-align: center;"><div style="display: inline-block; vertical-align: middle; margin-left: 10px;"><small>Deutsche<br/>Akkreditierungsstelle<br/>D-PL-12047-01-01<br/>D-PL-12047-01-03<br/>D-PL-12047-01-04</small></div></div>                                |
| accredited according to DIN EN ISO/IEC 17025                                                                                                                                                                                                                                                                                                                                                                                                      |
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The listed attachments are an integral part of this report.

## 1. Summary of test results

The test results apply exclusively to the test samples as presented in this Report. The CETECOM GmbH does not assume responsibility for any conclusions and generalizations taken in conjunction with other specimens or samples of the type of the item presented to tests.

The Equipment Under Test (in this report, hereinafter referred as EUT) is a wireless charger. The charger is operated at Carrier Frequency 127,7 kHz

### TEST OVERVIEW

| No. of Diagram group | Test Cases              | Port                                                 | References, Standards & Limits |            | EUT set-up | EUT op-mode | Result |
|----------------------|-------------------------|------------------------------------------------------|--------------------------------|------------|------------|-------------|--------|
|                      |                         |                                                      | FCC                            | Limits     |            |             |        |
| 1.1                  | Electric field strength | 6.2 cm distance to EUT (surround the edge of Device) | §1.1310<br>§2.1091<br>§2.1093  | 614 (V/m)  | 1          | 1 + 2 + 3   | passed |
| 1.1                  | Electric field strength | 7.3 cm distance to EUT (top side of Device)          | §1.1310<br>§2.1091<br>§2.1093  | 614 (V/m)  | 1          | 1 + 2 + 3   | passed |
| 1.2                  | Magnetic field strength | 6.2 cm distance to EUT (surround the edge of Device) | §1.1310<br>§2.1091<br>§2.1093  | 1.63 (A/m) | 1          | 1 + 2 + 3   | Passed |
| 1.2                  | Magnetic field strength | 7.3 cm distance to EUT (top side of Device)          | §1.1310<br>§2.1091<br>§2.1093  | 1.63 (A/m) | 1          | 1 + 2 + 3   | Passed |
| 1.1                  | Electric field strength | 6.2 cm distance to EUT (surround the edge of Device) | §1.1310<br>§2.1091<br>§2.1093  | 614 (V/m)  | 2          | 1 + 2 + 3   | passed |
| 1.1                  | Electric field strength | 7.3 cm distance to EUT (top side of Device)          | §1.1310<br>§2.1091<br>§2.1093  | 614 (V/m)  | 2          | 1 + 2 + 3   | passed |
| 1.2                  | Magnetic field strength | 6.2 cm distance to EUT (surround the edge of Device) | §1.1310<br>§2.1091<br>§2.1093  | 1.63 (A/m) | 2          | 1 + 2 + 3   | Passed |
| 1.2                  | Magnetic field strength | 7.3 cm distance to EUT (top side of Device)          | §1.1310<br>§2.1091<br>§2.1093  | 1.63 (A/m) | 2          | 1 + 2 + 3   | Passed |

Remark:

Following tests have been performed to show compliance with applicable Standards:

FCC §1.1310, §2.1091 §2.1093

OET Bulletin 65 Supplement C

KDB 680106 D01 V03.

deviating to KDB 680106 D01 V03 tests were performed due to customer declaration with 6.2cm distance between edge of EUT and probe and 7.3 cm between top of EUT and probe.

.....  
Dipl.-Ing. Markus Ridder  
Responsible for test section

.....  
W. Markus  
Responsible for test report

## 2. Administrative Data

### 2.1. Identification of the testing laboratory

|                                     |                                                      |
|-------------------------------------|------------------------------------------------------|
| Company name:                       | CETECOM GmbH                                         |
| Address:                            | Im Teelbruch 116<br>45219 Essen - Kettwig<br>Germany |
| Responsible for testing laboratory: | Volker Wittmann                                      |
| Deputy for testing laboratory:      | Dipl.-Ing. Niels Jeß                                 |

### 2.2. Test location

#### 2.2.1. Test laboratory "CTC"

|               |                                                           |
|---------------|-----------------------------------------------------------|
| Company name: | see chapter 2.1. Identification of the testing laboratory |
|---------------|-----------------------------------------------------------|

### 2.3. Organizational items

|                              |            |
|------------------------------|------------|
| Responsible for test report: | W. Markus  |
| Receipt of EUT:              | 2019-05-09 |
| Date(s) of test:             | 2019-07-31 |
| Date of report:              | 2019-09-18 |
| -----                        |            |
| Version of template:         | 12.11      |

### 2.4. Applicant's details

|                   |                                                   |
|-------------------|---------------------------------------------------|
| Applicant's name: | Continental Automotive GmbH                       |
| Address:          | Siemensstrasse 12<br>93055, Regensburg<br>Germany |
| Contact person:   | Ms. Qian Liu                                      |

### 2.5. Manufacturer's details

|                      |                                                                        |
|----------------------|------------------------------------------------------------------------|
| Manufacturer's name: | Continental Automotive Lithuania UAB                                   |
| Address:             | Davalgonių g. 12<br>LT-54462 Sergeičikai I, Kaunas region<br>Lithuania |
| 2nd Plant:           |                                                                        |
| Manufacturer's name: | Continental Automotive Systems (Tianjin) Co. Ltd.                      |
| Address:             | No. 2 Bohai Road<br>300457 TEDA Tianjin<br>P.R. China                  |

### 2.6. Customer's details

|                  |                                                         |
|------------------|---------------------------------------------------------|
| Customer's name: | IB-Lenhardt AG                                          |
| Address:         | Heinrich-Hertz-Allee 7<br>66386, St. Ingbert<br>Germany |
| Contact person:  | Philipp Gräf                                            |

### 3. Equipment under test (EUT)

#### 3.1. Technical data of main EUT declared by applicant

|                        |                                                |                                         |                                      |
|------------------------|------------------------------------------------|-----------------------------------------|--------------------------------------|
| Main function          | Wireless power Charger                         |                                         |                                      |
| Type                   | D-WMI2020B (high and low Version)              |                                         |                                      |
| Carrier Frequency      | 127.7 kHz                                      |                                         |                                      |
| Max. nominal power     | 15 W                                           |                                         |                                      |
| Antenna Type           | Single coil according to Qi standard           |                                         |                                      |
| Power supply           | <input checked="" type="checkbox"/> 13.5 V DC  |                                         |                                      |
| Special EMI components | --                                             |                                         |                                      |
| EUT sample type        | <input checked="" type="checkbox"/> Production | <input type="checkbox"/> Pre-Production | <input type="checkbox"/> Engineering |
| FCC-ID:                | KR5DWMI2020B                                   |                                         |                                      |
| FCC label attached     | <input type="checkbox"/> yes                   | <input checked="" type="checkbox"/> no  |                                      |

#### 3.2. EUT: Type, S/N etc. and short descriptions used in this test report

| Short description*) | EUT        | Type                                  | S/N serial number            | HW hardware status | SW software status |
|---------------------|------------|---------------------------------------|------------------------------|--------------------|--------------------|
| EUT A (S12)         | D-WMI2020B | Wireless Power Charger (high Version) | A2C16629105 00 19 04 10 0028 | C2                 | 19.09.30           |
| EUT B (S08)         | D-WMI2020B | Wireless Power Charger (low version)  | A2C16629105 00 19 04 10 0026 | C2                 | 19.09.30           |

\*) EUT short description is used to simplify the identification of the EUT in this test report.

#### 3.3. Auxiliary Equipment (AE): Type, S/N etc. and short descriptions

| AE short description *) | Auxiliary Equipment   | Type              | S/N serial number | HW hardware status | SW software status |
|-------------------------|-----------------------|-------------------|-------------------|--------------------|--------------------|
| AE 1                    | Power Cable           | --                | --                | --                 | --                 |
| AE 2                    | Qi Receiver Simulator | AVID 15 W, 102-03 | --                | V1.2               | --                 |

\*) AE short description is used to simplify the identification of the auxiliary equipment in this test report.

#### 3.4. EUT set-ups

| EUT set-up no. *) | Combination of EUT and AE | Remarks |
|-------------------|---------------------------|---------|
| Set. 1            | EUT A + AE 1 + AE 2       | --      |
| Set. 2            | EUT B + AE 1 + AE 2       | --      |

\*) EUT set-up no. is used to simplify the identification of the EUT set-up in this test report.

### 3.5. EUT operating modes

| EUT operating mode no. *) | Description of operating modes | Additional information                                                                                            |
|---------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------------|
| op. 1                     | Wireless charging              | Wireless charging was activated.<br>The EUT is transferring power to AE2<br>With 900 mA LOAD (90% charging level) |
| op. 2                     | Wireless charging              | Wireless charging was activated.<br>The EUT is transferring power to AE2<br>with 500 mA LOAD (50% charging level) |
| op. 3                     | Wireless charging              | Wireless charging was activated.<br>The EUT is transferring power to AE2<br>with 100 mA LOAD (5% charging level)  |

\*) EUT operating mode no. is used to simplify the test report.

Less than 5% charging level is not possible due to technical reasons with the Qi Receiver Simulator

### 3.6. Additional declaration and description of EUT

|                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                       |                                                                                                                                                 |                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|
| Set up 1                                                                                                                                                                                                                                                                                                                                                                                                             | <input type="checkbox"/> table-top<br><input type="checkbox"/> floor-standing<br><input type="checkbox"/> wall-mounted<br><input checked="" type="checkbox"/> not defined                                                             | typical use<br><input type="checkbox"/> portable use<br><input type="checkbox"/> fixed use<br><input checked="" type="checkbox"/> vehicular use |                                                                        |
| Place of use                                                                                                                                                                                                                                                                                                                                                                                                         | <input type="checkbox"/> Residential, commercial and light industry<br><input type="checkbox"/> Industrial environment<br><input checked="" type="checkbox"/> vehicular use                                                           |                                                                                                                                                 |                                                                        |
| typical operating cycle of EUT                                                                                                                                                                                                                                                                                                                                                                                       | <input type="checkbox"/> < 0.5 sec. <input type="checkbox"/> :                                                                                                                                                                        |                                                                                                                                                 |                                                                        |
| <b>Power line:</b><br><input type="checkbox"/> AC <input type="checkbox"/> 120 V, <input type="checkbox"/> 230 V, <input type="checkbox"/> 400 V<br><input type="checkbox"/> PE, <input type="checkbox"/> N, <input type="checkbox"/> L1, <input type="checkbox"/> L2 <input type="checkbox"/> L3<br><input type="checkbox"/> Hz<br><input checked="" type="checkbox"/> DC <input checked="" type="checkbox"/> 13.5V | EUT-grounding:<br><input checked="" type="checkbox"/> none<br><input type="checkbox"/> with power supply<br><input type="checkbox"/> additional:<br>(in case of deviation during tests the single details are described on chapter 4) |                                                                                                                                                 |                                                                        |
| <b>Other Ports</b> (description of interconnecting cables)<br>Description                                                                                                                                                                                                                                                                                                                                            | possible total cable length                                                                                                                                                                                                           | shielding                                                                                                                                       | connected during test                                                  |
| 1 Power Line                                                                                                                                                                                                                                                                                                                                                                                                         | <input checked="" type="checkbox"/> < 3 m <input type="checkbox"/> > 3 m                                                                                                                                                              | <input type="checkbox"/> screened<br><input checked="" type="checkbox"/> unscreened                                                             | <input checked="" type="checkbox"/> yes<br><input type="checkbox"/> no |
| Does EUT contain devices susceptible to magnetic fields, e.g. Hall elements, electrostatics, microphones, etc.?                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                       |                                                                                                                                                 | <input type="checkbox"/> yes<br><input checked="" type="checkbox"/> no |
| Is mounting position / usual operating position defined?                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                       |                                                                                                                                                 | <input checked="" type="checkbox"/> yes<br><input type="checkbox"/> no |

## 4. DESCRIPTION OF TEST SET-UP's

### 4.1. Test Set-up for configuration

The RF exposure test is performed in shielded room.

The EUT was placed on a table.

The measurement probe was surrounding point 1 to point 4 at a distance of 6.2 cm from the EUT and 7.3 cm above the top surface (point 5) for H-field and E-field strength

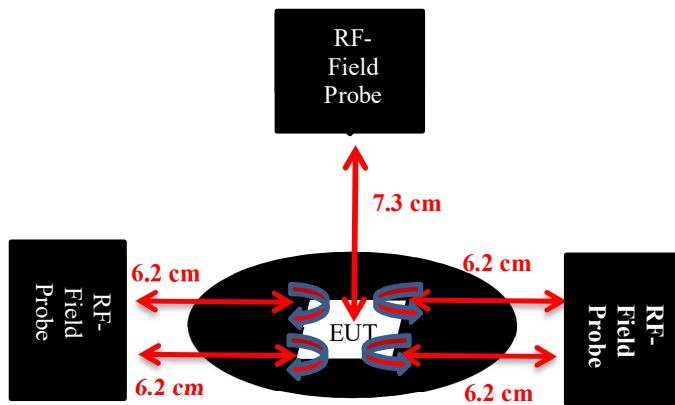
The distances were declared as the worst case by the customer

EUT A:



EUT B:





**Schematic: Test set-up for RF exposure measurements**

Measurement for E-Field with NBM550 + EF 0391 probe

Measurement for H-Field with ELT 400 + ELT probe 100cm<sup>2</sup>

## 5. Maximum Permissible RF Exposure

### 5.1.FCC References & Limits

*FCC Rules: §1.1310, § 2.1093*

The criteria used for the evaluation of human exposure to radio frequency radiation is listed in table 1 according FCC §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this.

Note 1 to table 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provide those persons are fully aware for a exposure and can control over their exposure. Limits for occupational/controlled exposures also apply in situations when an individual is transient through a location where occupational/controlled apply provided he or she is made aware of the potential for exposure.

Note 2 to table 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

| Frequency range<br>(MHz)                                       | Electric field<br>strength<br>(V/m) | Magnetic field<br>strength<br>(A/m) | Power density<br>(mW/cm <sup>2</sup> ) | Averaging time<br>(minutes) |
|----------------------------------------------------------------|-------------------------------------|-------------------------------------|----------------------------------------|-----------------------------|
| 30–300 .....                                                   | 61.4                                | 0.163                               | 1.0                                    | 6                           |
| 300–1500 .....                                                 | .....                               | .....                               | f/300                                  | 6                           |
| 1500–100,000 .....                                             | .....                               | .....                               | 5                                      | 6                           |
| <b>(B) Limits for General Population/Uncontrolled Exposure</b> |                                     |                                     |                                        |                             |
| 0.3–1.34 .....                                                 | 614                                 | 1.63                                | *(100)                                 | 30                          |
| 1.34–30 .....                                                  | 824/f                               | 2.19/f                              | *(180/f <sup>2</sup> )                 | 30                          |
| 30–300 .....                                                   | 27.5                                | 0.073                               | 0.2                                    | 30                          |
| 300–1500 .....                                                 | .....                               | .....                               | f/1500                                 | 30                          |
| 1500–100,000 .....                                             | .....                               | .....                               | 1.0                                    | 30                          |

f = frequency in MHz

So applicable limits in this case are as follows:

§1.1310 LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Table 1(B) Limits for General Population/Uncontrolled Exposure

0.3–1,34 MHz: Electric field: 614 V/m

0.3–1,34 MHz: Magnetic field: 1.63 A/m

## 5.2. E-Field Results

### 5.2.1. Test location and equipment (for reference numbers please see chapter 'List of test equipment')

|               |                                                                   |                                                   |                                                   |
|---------------|-------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| test location | <input checked="" type="checkbox"/> CETECOM Essen (Chapter 2.2.1) | <input type="checkbox"/> Please see Chapter 2.2.2 | <input type="checkbox"/> Please see Chapter 2.2.3 |
| equipment     | <input checked="" type="checkbox"/> NBM 550                       | <input checked="" type="checkbox"/> EF 0391       | <input type="checkbox"/>                          |
| signaling     | <input type="checkbox"/> 017 CMD 65                               | <input type="checkbox"/> 323 CMD 55               | <input type="checkbox"/> 340 CMD 55               |
| signaling     | <input type="checkbox"/> 298 CMU                                  | <input type="checkbox"/> 460 CMU                  | <input type="checkbox"/> 295 RACAL                |
| line voltage  | <input checked="" type="checkbox"/> 13.5 V DC                     | <input type="checkbox"/> 392 MT8820A              |                                                   |

### 5.2.2. Test condition and test set-up

|                                             |                                   |                                            |                                                |
|---------------------------------------------|-----------------------------------|--------------------------------------------|------------------------------------------------|
| link to test system (if used):              | <input type="checkbox"/> air link | <input type="checkbox"/> cable connection  |                                                |
| EUT-grounding (if different to chapter 3.5) | <input type="checkbox"/> none     | <input type="checkbox"/> with power supply | <input type="checkbox"/> additional connection |
| Equipment set up                            | -                                 | -                                          | -                                              |
| Climatic conditions                         | Temperature: 24 °C                | Rel. humidity: 31 % rH                     |                                                |

### 5.2.3. Results

**Table 1:**

**The aggregate E-Field strengths at 6.2 cm surrounding the device:**

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                |                     |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                            | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 7.13                                     | 614                 |
| 127.5                                    | 2        | 0.062                                    | 7.31                                     | 614                 |
| 127.5                                    | 3        | 0.062                                    | 7.52                                     | 614                 |
| 127.5                                    | 4        | 0.062                                    | 7.81                                     | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 2.02                                      | 614                 |
| 127.5                                    | 2        | 0.062                                    | 2.14                                      | 614                 |
| 127.5                                    | 3        | 0.062                                    | 2.41                                      | 614                 |
| 127.5                                    | 4        | 0.062                                    | 2.38                                      | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 1.91                                      | 614                 |
| 127.5                                    | 2        | 0.062                                    | 1.95                                      | 614                 |
| 127.5                                    | 3        | 0.062                                    | 1.99                                      | 614                 |
| 127.5                                    | 4        | 0.062                                    | 2.07                                      | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                |                     |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                            | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 6.71                                     | 614                 |
| 127.5                                    | 2        | 0.062                                    | 6.82                                     | 614                 |
| 127.5                                    | 3        | 0.062                                    | 6.94                                     | 614                 |
| 127.5                                    | 4        | 0.062                                    | 7.31                                     | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 2.00                                      | 614                 |
| 127.5                                    | 2        | 0.062                                    | 2.10                                      | 614                 |
| 127.5                                    | 3        | 0.062                                    | 2.29                                      | 614                 |
| 127.5                                    | 4        | 0.062                                    | 2.35                                      | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 1        | 0.062                                    | 1.90                                      | 614                 |
| 127.5                                    | 2        | 0.062                                    | 1.92                                      | 614                 |
| 127.5                                    | 3        | 0.062                                    | 1.95                                      | 614                 |
| 127.5                                    | 4        | 0.062                                    | 2.00                                      | 614                 |

Remarks:

**Table 2:**

**The aggregate E-Field strengths at 7.3 cm above the top of the device:**

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                |                     |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                            | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | <b>15.65</b>                             | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (50% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | 11.87                                     | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 1                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (90% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | 3.02                                      | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                |                     |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                            | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | <b>14.50</b>                             | 614                 |

Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (50% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | 11.39                                     | 614                 |

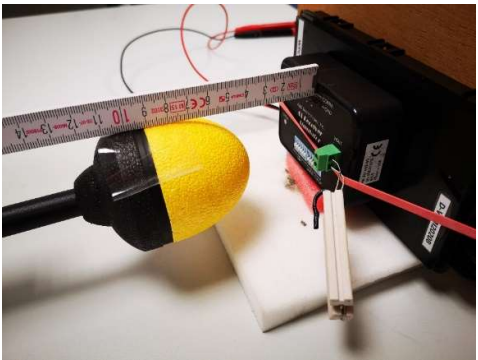
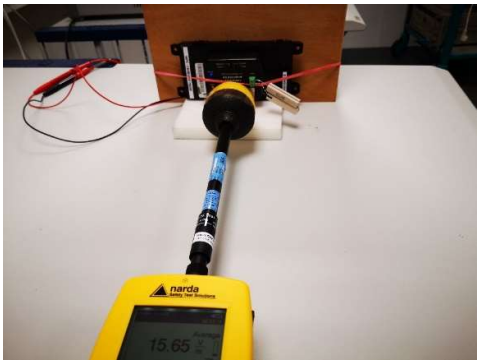
Remarks:

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set- up 2                                 |                     |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (90% charging level) |                     |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | E-field (V/m)                             | E-field Limit (V/m) |
| 127.5                                    | 5        | 0.073                                    | 2.91                                      | 614                 |

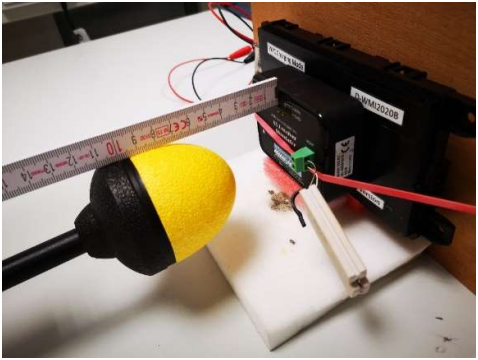
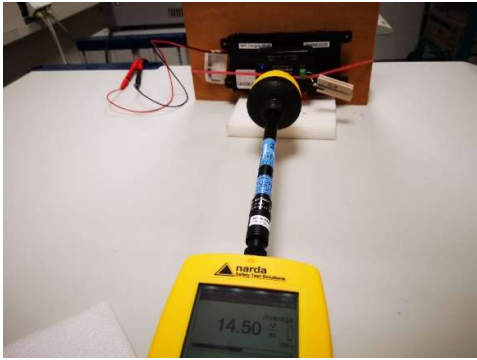
Remarks:

Max E-Field, 7.3 cm distance between EUT and probe (top side)

EUT A:



EUT B:



### 5.3. H-Field Results

#### 5.3.1. Test location and equipment (for reference numbers please see chapter 'List of test equipment')

|               |                                                                   |                                                                    |                                                   |
|---------------|-------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------------------|
| test location | <input checked="" type="checkbox"/> CETECOM Essen (Chapter 2.2.1) | <input type="checkbox"/> Please see Chapter 2.2.2                  | <input type="checkbox"/> Please see Chapter 2.2.3 |
| equipment     | <input checked="" type="checkbox"/> 802 ELT400                    | <input checked="" type="checkbox"/> 803 ELT probe 3cm <sup>2</sup> | <input type="checkbox"/>                          |
| signaling     | <input type="checkbox"/> 017 CMD 65                               | <input type="checkbox"/> 323 CMD 55                                | <input type="checkbox"/> 340 CMD 55               |
| signaling     | <input type="checkbox"/> 298 CMU                                  | <input type="checkbox"/> 460 CMU                                   | <input type="checkbox"/> 295 RACAL                |
| line voltage  | <input checked="" type="checkbox"/> 13.5 V DC                     | <input type="checkbox"/> 392 MT8820A                               |                                                   |

#### 5.3.2. Test condition and test set-up

|                                             |                                   |                                            |                                                |
|---------------------------------------------|-----------------------------------|--------------------------------------------|------------------------------------------------|
| link to test system (if used):              | <input type="checkbox"/> air link | <input type="checkbox"/> cable connection  |                                                |
| EUT-grounding (if different to chapter 3.5) | <input type="checkbox"/> none     | <input type="checkbox"/> with power supply | <input type="checkbox"/> additional connection |
| Equipment set up                            | -                                 | -                                          | -                                              |
| Climatic conditions                         | Temperature: 24 °C                | Rel. humidity: 31 % rH                     |                                                |

**Table 4:**

**The aggregate H-Field strengths at 6,2cm surrounding the device:**

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                 |                     |        |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                            | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.72                                     | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.75                                     | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.78                                     | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.83                                     | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.69                                      | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.71                                      | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.76                                      | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.80                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.58                                      | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.61                                      | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.64                                      | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.70                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 2                                 |                     |        |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                            | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.57                                     | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.60                                     | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.65                                     | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.71                                     | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 2                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.61                                      | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.65                                      | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.66                                      | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.73                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 2                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 1        | 0.062                                    | 0.45                                      | 1.63                | passed |
| 127.5                                    | 2        | 0.062                                    | 0.51                                      | 1.63                | passed |
| 127.5                                    | 3        | 0.062                                    | 0.52                                      | 1.63                | passed |
| 127.5                                    | 4        | 0.062                                    | 0.58                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

**Table 5:**
**The aggregate H-Field strengths at 7.3 cm above the top of the device:**

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                 |                     |        |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                            | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | <b>1.61</b>                              | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$ 

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | 1.56                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$ 

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | 1.43                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$ 

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 2                                 |                     |        |
|------------------------------------------|----------|------------------------------------------|------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 1 (5% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                            | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | <b>1.56</b>                              | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$ 

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 2 (50% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | 1.44                                      | 1.63                | passed |

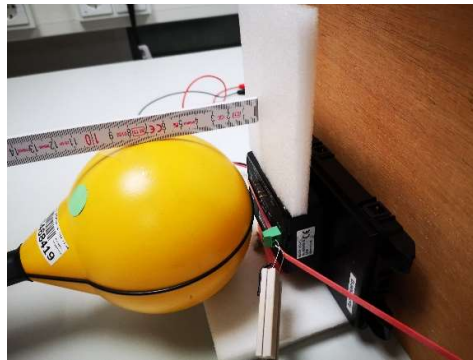
Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

| EUT Type and S/N or EUT set-up no.       |          |                                          | Set-up 1                                  |                     |        |
|------------------------------------------|----------|------------------------------------------|-------------------------------------------|---------------------|--------|
| EUT operating mode or operating mode no. |          |                                          | EUT operating mode 3 (90% charging level) |                     |        |
| Frequency Range (kHz)                    | Position | Distance between EUT and Field probe (m) | H-field (A/m)                             | H-field Limit (A/m) | Result |
| 127.5                                    | 5        | 0.073                                    | 1,30                                      | 1.63                | passed |

Remarks: Measurement values were transformed from  $\mu\text{T}$  to A/m, where  $1 \text{ A/m} = 1.256 \mu\text{T}$

Max H-Field, 9.7 cm Distance between EUT and probe (top side)

EUT A:

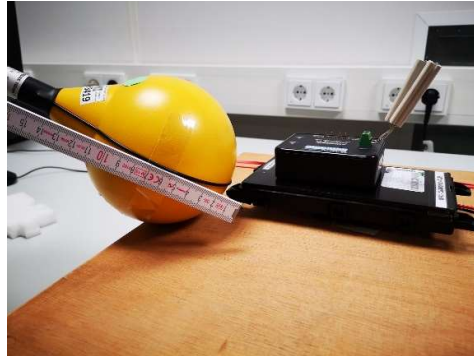


EUT B:

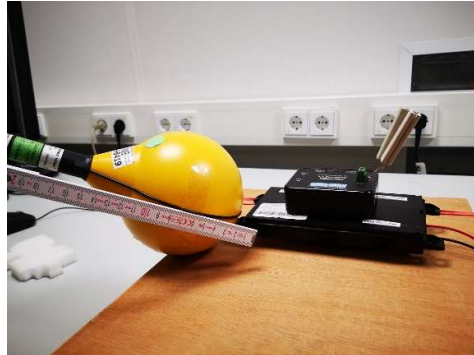
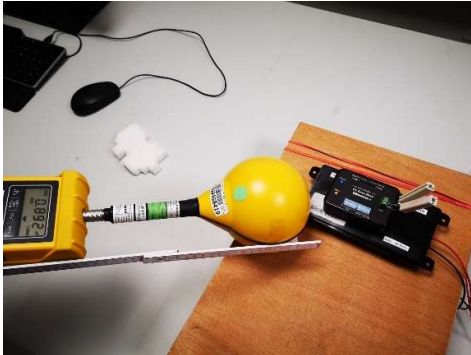


Max H-Field, 6.2 cm Distance between EUT and probe (edge of the device, Point 4)

EUT A:



EUT B:



## 6. Measurement uncertainties

The reported uncertainties are calculated based on the standard uncertainty multiplied with the appropriate coverage factor **k**, such that a confidence level of approximately 95% is achieved.

For uncertainty determination, each component used in the concrete measurement set-up was taken in account and it's contribution to the overall uncertainty according it's statistical distribution calculated.

Following table shows expectable uncertainties for each measurement type performed.

| RF-Measurement                                | Frequency range   | Calculated uncertainty based on a confidence level of 95% | Remarks:            |
|-----------------------------------------------|-------------------|-----------------------------------------------------------|---------------------|
| Power Output conducted                        | 9 kHz .. 20 GHz   | 1.0 dB                                                    | --                  |
| Power Output radiated                         | 30 MHz .. 4 GHz   | 3.17 dB                                                   | Substitution method |
| Conducted emissions on antenna ports          | 9 kHz .. 20 GHz   | 1.0 dB                                                    | --                  |
| Radiated emissions enclosure                  | 9 kHz .. 30 MHz   | 5.0 dB                                                    | Magnetic field      |
|                                               | 9 MHz .. 1 GHz    | 5.0 dB                                                    | E-Field             |
|                                               | 30 MHz .. 1 GHz   | 4.2 dB                                                    | E-Field             |
|                                               | 1 GHz .. 20 GHz   | 3.17 dB                                                   | Substitution method |
| Occupied bandwidth                            | 9 kHz .. 4 GHz    | 0.1272 ppm (Delta Marker )                                | Frequency error     |
|                                               |                   | 1.0 dB                                                    | Power               |
| Emission bandwidth                            | 9 kHz .. 4 GHz    | 0.1272 ppm (Delta Marker)                                 | Frequency error     |
|                                               |                   | 1.0 dB                                                    | Power               |
| Frequency stability                           | 9 kHz .. 20 GHz   | 0.0636 ppm                                                | --                  |
| Conducted emissions on AC-mains port (UCISPR) | 9 kHz .. 150 kHz  | 4.0 dB                                                    | --                  |
|                                               | 150 kHz .. 30 MHz | 3.6 dB                                                    | --                  |

**Table: measurement uncertainties, valid for conducted/radiated measurements**

## 7. Accreditation details of CETECOM's laboratories and test sites

| Ref.-No.                                                                        | Accreditation Certificate                | Valid for laboratory area or test site                                                                                                                                                                                                                                    | Accreditation Body                                                                          |
|---------------------------------------------------------------------------------|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| -                                                                               | D-PL-12047-01-01                         | All laboratories and test sites of CETECOM GmbH, Essen                                                                                                                                                                                                                    | DAkkS, Deutsche Akkreditierungsstelle GmbH                                                  |
| 337<br>487<br>558<br>348<br>348                                                 | MRA US-EU 0003                           | Radiated Measurements 30 MHz to 1 GHz, 3 m / 10 m (OATS)<br>Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR)<br>Radiated Measurements above 1 GHz, 3 m (FAR)<br>Mains Ports Conducted Interference Measurements<br>Telecommunication Ports Conducted Interference Measur. | FCC, Federal Communications Commission<br>Laboratory Division, USA<br>(MRA US-EU 0003)      |
| 337<br>487<br>550<br>558                                                        | 3462D-1<br>3462D-2<br>3462D-2<br>3462D-3 | Radiated Measurements 30 MHz to 1 GHz, 3 m / 10 m (OATS)<br>Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR)<br>Radiated Measurements 1 GHz to 6 GHz, 3 m (SAR)<br>Radiated Measurements above 1 GHz, 3 m (FAR)                                                           | IC, Industry Canada<br>Certification and Engineering Bureau                                 |
| 337<br>487<br>550<br>348                                                        | R-20013<br>G-20013<br>C-20009<br>T-20006 | Radiated Measurements 30 MHz to 1 GHz, 3 m (SAR)<br>Radiated Measurements 1 GHz to 6 GHz, 3 m (SAR)<br>Mains Ports Conducted Interference Measurements<br>Telecommunication Ports Conducted Interference Measur.                                                          | VCCI, Voluntary Control Council for Interference by Information Technology Equipment, Japan |
| OATS = Open Area Test Site, SAR = Semi Anechoic Room, FAR = Fully Anechoic Room |                                          |                                                                                                                                                                                                                                                                           |                                                                                             |

## 8. Instruments and Ancillary

### 8.1. Used equipment “CTC”

The “Ref.-No” in the left column of the following tables allows the clear identification of the laboratory equipment.

#### 8.1.1. Test software and firmware of equipment

| Ref.-No. | Equipment                               | Type                   | Serial-No.     | Version of Firmware or Software during the test                                                 |
|----------|-----------------------------------------|------------------------|----------------|-------------------------------------------------------------------------------------------------|
| 001      | EMI Test Receiver                       | ESS                    | 825132/017     | Firm.= 1.21 , OTP=2.0, GRA=2.0                                                                  |
| 012      | Signal Generator (EMS-cond.)            | SMY 01                 | 839069/027     | Firm.= V 2.02                                                                                   |
| 013      | Power Meter (EMS cond.)                 | NRVD                   | 839111/003     | Firm.= V 1.51                                                                                   |
| 017      | Digital Radiocommunication Tester       | CMD 60 M               | 844365/014     | Firmware = V 3.52 .22.01.99, DECT = D2.87 13.01.99                                              |
| 053      | Audio Analyzer                          | UPA3                   | 860612/022     | Firm. V 4.3                                                                                     |
| 119      | RT Harmonics Analyzer dig. Flickermeter | B10                    | G60547         | Firm.= V 3.1DHG                                                                                 |
| 140      | Signal Generator                        | SMHU                   | 831314/006     | Firm.= 3.21                                                                                     |
| 261      | Thermal Power Sensor                    | NRV-Z55                | 825083/0008    | EPROM-Datum 02.12.04, SE EE 1 B                                                                 |
| 262      | Power Meter                             | NRV-S                  | 825770/0010    | Firm.= 2.6                                                                                      |
| 263      | Signal Generator                        | SMP 04                 | 826190/0007    | Firm.=3.21                                                                                      |
| 264      | Spectrum Analyzer                       | FSEK 30                | 826939/005     | Bios=2.1, Analyzer= 3.20                                                                        |
| 295      | Racal Digital Radio Test Set            | 6103                   | 1572           | UNIT Firmware= 4.04, SW-Main=4.04, SW-BBP=1.04, SW-DSP=1.02, Hardboot=1.02, Softboot=2.02       |
| 298      | Univ. Radio Communication Tester        | CMU 200                | 832221/091     | R&S Test Firmware =3.53 /3.54 (current Testsoftw. f. all band used                              |
| 323      | Digital Radiocommunication Tester       | CMD 55                 | 825878/0034    | Firm.= 3.52 .22.01.99                                                                           |
| 331      | Climatic Test Chamber -40/+80 Grad      | HC 4055                | 43146          | TSI 1.53                                                                                        |
| 335      | CTC-EMS-Conducted                       | System EMS Conducted   | -              | EMC 32 V 8.52                                                                                   |
| 340      | Digital Radiocommunication Tester       | CMD 55                 | 849709/037     | Firm.= 3.52 .22.01.99                                                                           |
| 355      | Power Meter                             | URV 5                  | 891310/027     | Firm.= 1.31                                                                                     |
| 365      | 10V Insertion Unit 50 Ohm               | URV5-Z2                | 100880         | Eprom Data = 31.03.08                                                                           |
| 366      | Ultra Compact Simulator                 | UCS 500 M4             | V0531100594    | Firm. UCS 500=001925/3.06a02, rc=ISMIEC 4.10                                                    |
| 371      | Bluetooth Tester                        | CBT32                  | 100153         | CBT V5.30+ SW-Option K55, K57                                                                   |
| 377      | EMI Test Receiver                       | ESCS 30                | 100160         | Firm.= 2.30, OTP= 02.01, GRA= 02.36                                                             |
| 378      | Broadband RF Field Monitor              | RadiSense III          | 03D00013SNO-08 | Firm.= V.03D13                                                                                  |
| 389      | Digital Multimeter                      | Keithley 2000          | 0583926        | Firm. = A13 (Mainboard) A02 (Display)                                                           |
| 392      | Radio Communication Tester              | MT8820A                | 6K00000788     | Firm.= 4.50 #005, IPL=4.01#001, OS=4.02#001, GSM=4.41#013, W-CDMA= 4.54#004, scenario= 4.52#002 |
| 436      | Univ. Radio Communication Tester        | CMU 200                | 103083         | R&S Test Firmware Base=5.14, Mess-Software= GSM:5.14 WCDMA:5.14 (current Testsoftw. F. all band |
| 441      | CTC-SAR-EMI Cable Loss                  | System EMI field (SAR) | -              | EMC 32 Version 8.52                                                                             |
| 442      | CTC-SAR-EMS                             | System EMS field (SAR) | -              | EMC 32 Version 8.40                                                                             |
| 443      | CTC-FAR-EMI-RSE                         | System CTC-FAR-EMI-RSE | -              | Spuri 7.2.5 or EMC 32 Ver. 9.15.00                                                              |
| 444      | CTC-FAR-EMS field                       | System-EMS-Field (FAR) | -              | EMC 32 Version 9.15.00                                                                          |
| 460      | Univ. Radio Communication Tester        | CMU 200                | 108901         | R&S Test Firmware Base=5.14, GSM=5.14 WCDMA=5.14 (current Testsoftw.,f. all band to be used,    |
| 489      | EMI Test Receiver                       | ESU40                  | 1000-30        | Firmware=4.43 SP3, Bios=V5.1-16-3, Spec. =01.00                                                 |
| 491      | ESD Simulator dito                      | ESD dito               | dito307022     | V 2.30                                                                                          |
| 524      | Voltage Drop Simulator                  | VDS 200                | 0196-16        | Software Nr. 000037 Version V4.20a01                                                            |
| 526      | Burst Generator                         | EFT 200 A              | 0496-06        | Software Nr. 000034 Version V2.32                                                               |
| 527      | Micro Pulse Generator                   | MPG 200 B              | 0496-05        | Software-Nr. 000030 Version V2.43                                                               |
| 528      | Load Dump Simulator                     | LD 200B                | 0496-06        | Software-Nr. 000031 Version V2.35a01                                                            |
| 546      | Univ. Radio Communication Tester        | CMU 200                | 106436         | R&S Test Firmware Base=5.14, GSM=5.14 WCDMA=5.14 (current Testsoftw.,f. all band to be used     |
| 547      | Univ. Radio Communication Tester        | CMU 200                | 835390/014     | R&S Test Firmware Base=V5.1403 (current Testsoftw., f. all band used, GSM = 5.14 WCDMA: = 5.14  |
| 584      | Spectrum Analyzer                       | FSU 8                  | 100248         | 2.82 SP3                                                                                        |
| 597      | Univ. Radio Communication Tester        | CMU 200                | 100347         | R&S Test Firmware Base=5.01, GSM=5.02 WCDMA= not installed, Mainboard= µP1=V.850                |
| 598      | Spectrum Analyzer                       | FSEM 30 (Reserve)      | 831259/013     | Firmware Bios 3.40 , Analyzer 3.40 Sp 2                                                         |
| 620      | EMI Test Receiver                       | ESU 26                 | 100362         | 4.43 SP3                                                                                        |
| 642      | Wideband Radio Communication Tester     | CMW 500                | 126089         | Setup V03.26, Test programm component V03.02.20                                                 |
| 692      | Bluetooth Tester                        | CBT 32                 | 100236         | CBT V 5.40, FW: V.2.41 (FPGA Digital, V. 3.09 FPGA RF)                                          |

### 8.1.2. Single instruments and test systems

| Ref.-No. | Equipment                           | Type                       | Serial-No. | Manufacturer               | Interval of calibration | Remark | Cal due    |
|----------|-------------------------------------|----------------------------|------------|----------------------------|-------------------------|--------|------------|
| 487      | System CTC NSA-Verification SAR-EMI | System EMI field (SAR) NSA | -          | ETS Lindgren / CETECOM     | 24 M                    | -      | 16.03.2021 |
| 468      | Digital Multimeter                  | Fluke 112                  | 90090455   | Fluke USA                  | 36 M                    | -      | 30.04.2021 |
| 802      | Exposure Level Tester               | ELT-400                    | O-0026     | NARDA Safety Solutions     | 24 M                    | -      | 30.01.2021 |
| 803      | Probe                               | ELT probe 3cm <sup>2</sup> | O-0026     | Narda Safety Test Solution | 24 M                    | -      | 30.01.2021 |
| --       | Broadband Field Meter               | NBM 550                    | A-0150     | Narda Safety Test Solution | 24 M                    | -      | 30.11.2019 |
| --       | E-Field Probe                       | EF 0391                    | A-0124     | Narda Safety Test Solution | 24 M                    | -      | 30.11.2019 |

### 8.1.3. Legend

| Note / remarks |     | Calibrated during system calibration:                                                     |
|----------------|-----|-------------------------------------------------------------------------------------------|
|                | 1a  | System CTC-SAR-EMS (Ref.-No. 442)                                                         |
|                | 1b  | System-CTC-EMS-Conducted (Ref.-No. 335)                                                   |
|                | 1c  | System CTC-FAR-EMI-RSE (Ref.-No. 443)                                                     |
|                | 1d  | System CTC-SAR-EMI (Ref.-No. 441)                                                         |
|                | 1e  | System CTC-OATS (EMI radiated) (Ref.-No. 337)                                             |
|                | 1 f | System CTC-CTIA-OTA (Ref.-No. 420)                                                        |
|                | 1 g | System CTC-FAR-EMS (Ref.-No. 444)                                                         |
|                | 2   | Calibration or equipment check immediately before measurement                             |
|                | 3   | Regulatory maintained equipment for functional check or support purpose                   |
|                | 4   | Ancillary equipment without calibration e.g. mechanical equipment or monitoring equipment |
|                | 5   | Test System                                                                               |

| Interval of calibration | 12 M    | 12 month                                                                      |
|-------------------------|---------|-------------------------------------------------------------------------------|
|                         | 24 M    | 24 month                                                                      |
|                         | 36 M    | 36 month                                                                      |
|                         | 24/12 M | Calibration every 24 months, between this every 12 months internal validation |
|                         | 36/12 M | Calibration every 36 months, between this every 12 months internal validation |
|                         | Pre-m   | Check before starting the measurement                                         |
|                         | -       | Without calibration                                                           |

## 9. Versions of test reports (change history)

| Version | Applied changes | Date of release |
|---------|-----------------|-----------------|
| --      | Initial release | 2019-09-18      |
|         |                 |                 |

**End of Test Report**