

## FCC Part 22/24 Compliance Test Report

|                                                         |                                                                                                                                                                                                                                                                                                                       |                                   |                                                                                                                       |
|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------|
| <b>Test Report no.:</b>                                 | FCC22&24_RM-510_10.docx                                                                                                                                                                                                                                                                                               | <b>Date of Report:</b>            | 24-Jul-2010                                                                                                           |
| <b>Number of pages:</b>                                 | 10                                                                                                                                                                                                                                                                                                                    | <b>Customer's Contact person:</b> | Bruno Ramelli                                                                                                         |
| <b>Testing laboratory:</b>                              | TCC Nokia Salo Laboratory<br>P.O. Box 86<br>Joensuunkatu 7H / Kiila 1B<br>FIN-24101 SALO, FINLAND<br>Tel. +358 (0) 7180 08000<br>Fax. +358 (0) 7180 45220                                                                                                                                                             | <b>Customer:</b>                  | Nokia Corporation<br>Lise Meitner Strasse 10<br>89081 ULM<br>GERMANY<br>Tel. +49 731 1754 0<br>Fax. +49 731 1754 6800 |
| <b>FCC listing no.:</b>                                 | 533467                                                                                                                                                                                                                                                                                                                |                                   |                                                                                                                       |
| <b>IC recognition no.:</b>                              | 661V-1                                                                                                                                                                                                                                                                                                                |                                   |                                                                                                                       |
| <b>Tested devices/ accessories:</b>                     | <b>Phone RM-510 / Battery BL-4S / Headset HS-105 / AC Charger AC-8E</b>                                                                                                                                                                                                                                               |                                   |                                                                                                                       |
| <b>FCC ID:</b>                                          | PPIRM-510                                                                                                                                                                                                                                                                                                             | <b>IC:</b>                        | 661U-RM510                                                                                                            |
| <b>Supplement reports:</b>                              |                                                                                                                                                                                                                                                                                                                       |                                   |                                                                                                                       |
| <b>Testing has been carried out in accordance with:</b> | CFR 47, FCC rules Parts 22 and 24, TIA-603-C-2004 and IC standards RSS-GEN (Issue 2, June 2007), RSS-132 (Issue 2, September 2005) and RSS-133 (Issue 5, February 2009). Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit". |                                   |                                                                                                                       |
| <b>Documentation:</b>                                   | The test report must always be reproduced in full; reproduction of an excerpt only is subject to written approval of the testing laboratory. The documentation of the testing performed on the tested devices is archived for 15 years at TCC Nokia.                                                                  |                                   |                                                                                                                       |
| <b>Test Results:</b>                                    | <b>The EUT complies with the requirements in respect of all parameters subject to the test.</b><br>The test results relate only to devices specified in this document.                                                                                                                                                |                                   |                                                                                                                       |
| <b>Date and signature for the contents:</b>             |                                                                                                                                                                                                                                                                                                                       |                                   |                                                                                                                       |

**Jufo Tuohino, Senior Engineer, Global Testing**

## 1. Summary for FCC Part 22/24 Compliance Test Report

|                               |                                                                 |
|-------------------------------|-----------------------------------------------------------------|
| Date of receipt               | 21-Jul-2010                                                     |
| Testing completed             | 23-Jul-2010                                                     |
| The customer's contact person | Bruno Ramelli                                                   |
| Test Plan referred to         | T:\Projects\RM-510\TestPlan_RS\RS_testplan_RM-510_CR_HW0810.xls |
| Notes                         | -                                                               |
| Document name                 | FCC22&24_RM-510_10.docx                                         |

### 1.1. EUT and Accessory Information

The EUT is a 7-band (GSM850/900/1800/1900 and WCDMA Band I/II(1900)/V(850)) mobile phone with GPRS, EGPRS and Bluetooth. The EUT is tested with maximum rated TX power, modulated with pseudo random bit sequence (PRBS9).

| Product    | Type   | SN                          | HW   | MV | SW   | DUT   |
|------------|--------|-----------------------------|------|----|------|-------|
| Phone      | RM-510 | 356935030422833             | 0810 | -  | 9.23 | 14924 |
| Battery    | BL-4S  | 382066813114010321500670577 | -    | -  | -    | 14925 |
| Headset    | HS-105 | 06942879305J2611240         | -    | -  | -    | 14926 |
| AC Charger | AC-8E  | 409049926204050039900675387 | -    | -  | -    | 14927 |

### 1.2. Summary of Test Results

#### GSM 850:

| Section in CFR 47     | Section in RSS-GEN or RSS-132 | Name of the test                           | Result |
|-----------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a), 22.913(a) | 4.4                           | Conducted RF output power                  | NP     |
| §22.913(a)            | 4.4                           | Radiated RF output power                   | NP     |
| §2.1049(h)            | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §22.917(a)            | 4.5                           | Band edge compliance                       | NP     |
| §22.917(a), §2.1051   | 4.5                           | Spurious emissions at antenna terminals    | NP     |
| §22.917(a), §2.1053   | 4.5                           | Spurious radiated emissions                | NP     |
| §2.1055(a)            | 4.3                           | Frequency stability, temperature variation | NP     |
| §2.1055(d)            | 4.3                           | Frequency stability, voltage variation     | NP     |

#### GSM 1900:

| Section in CFR 47   | Section in RSS-GEN or RSS-133 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | NP     |
| §24.232(b)          | 6.4                           | Radiated RF output power                   | NP     |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §24.238(a)          | 6.5                           | Band edge compliance                       | NP     |
| §24.238(a), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | NP     |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | NP     |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | NP     |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | NP     |

**WCDMA 850 (Band V):**

| Section in CFR 47     | Section in RSS-GEN or RSS-132 | Name of the test                           | Result |
|-----------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a), 22.913(a) | 4.4                           | Conducted RF output power                  | NP     |
| §22.913(a)            | 4.4                           | Radiated RF output power                   | NP     |
| §2.1049(h)            | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §22.917(a)            | 4.5                           | Band edge compliance                       | NP     |
| §22.917(a), §2.1051   | 4.5                           | Spurious emissions at antenna terminals    | NP     |
| §22.917(a), §2.1053   | 4.5                           | Spurious radiated emissions                | NP     |
| §2.1055(a)            | 4.3                           | Frequency stability, temperature variation | NP     |
| §2.1055(d)            | 4.3                           | Frequency stability, voltage variation     | NP     |

**WCDMA 1900 (Band II):**

| Section in CFR 47   | Section in RSS-GEN or RSS-133 | Name of the test                           | Result |
|---------------------|-------------------------------|--------------------------------------------|--------|
| §2.1046(a)          | 6.4                           | Conducted RF output power                  | NP     |
| §24.232(b)          | 6.4                           | Radiated RF output power                   | NP     |
| §2.1049(h)          | 4.6.1                         | 99 % occupied bandwidth                    | PASSED |
| §24.238(a)          | 6.5                           | Band edge compliance                       | NP     |
| §24.238(a), §2.1051 | 6.5                           | Spurious emissions at antenna terminals    | NP     |
| §24.238(a), §2.1053 | 6.5                           | Spurious radiated emissions                | NP     |
| §2.1055(a)          | 6.3                           | Frequency stability, temperature variation | NP     |
| §2.1055(d)          | 6.3                           | Frequency stability, voltage variation     | NP     |

PASSED

FAILED

NP

The EUT complies with the essential requirements in the standard.

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

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

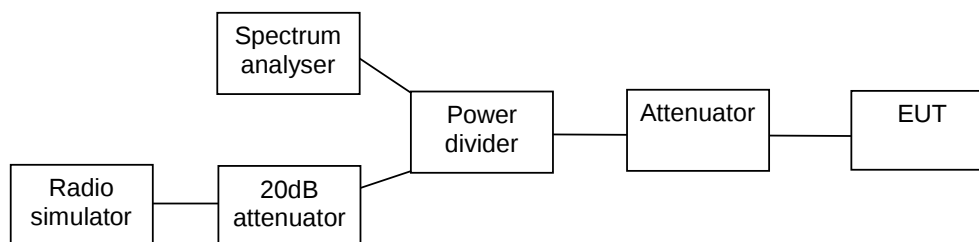
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### 3. 99 % occupied bandwidth (FCC §2.1049(h), RSS-GEN 4.6.1)

|                                                 |                                                         |
|-------------------------------------------------|---------------------------------------------------------|
| EUT with DUT number                             | RM-510, DUT 14924                                       |
| Accessories with DUT numbers                    | BL-4S, DUT 14925 ; HS-105, DUT 14926 ; AC-8E, DUT 14927 |
| Operation Voltage [V] / [Hz]                    | Nominal                                                 |
| Result                                          | PASSED                                                  |
| Remarks                                         | -                                                       |
| Temp [°C] / Humidity [%RH] / Air Pressure [kPa] | 21.0 / 43 / 101.7                                       |
| Date of measurements                            | 22-Jul-2010                                             |
| Measured by                                     | Jufo Tuohino                                            |

#### 3.1. Test setup



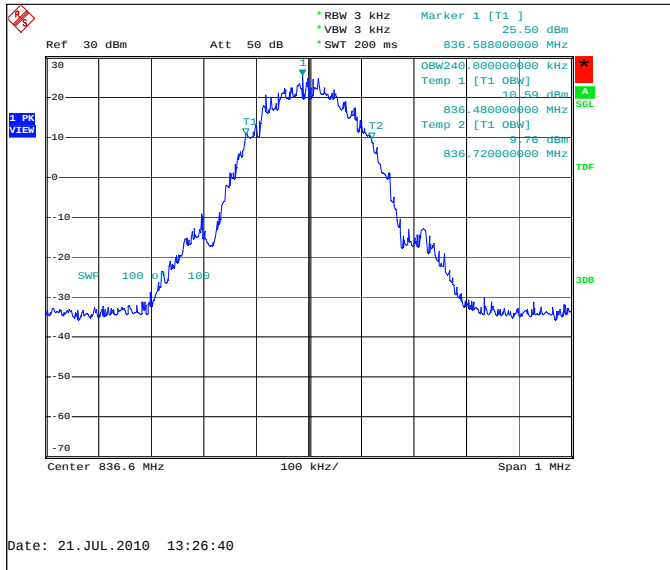
#### 3.2. Test method and limit

The measurement is made according to FCC rules parts 22 and 24 and IC standard RSS-GEN.

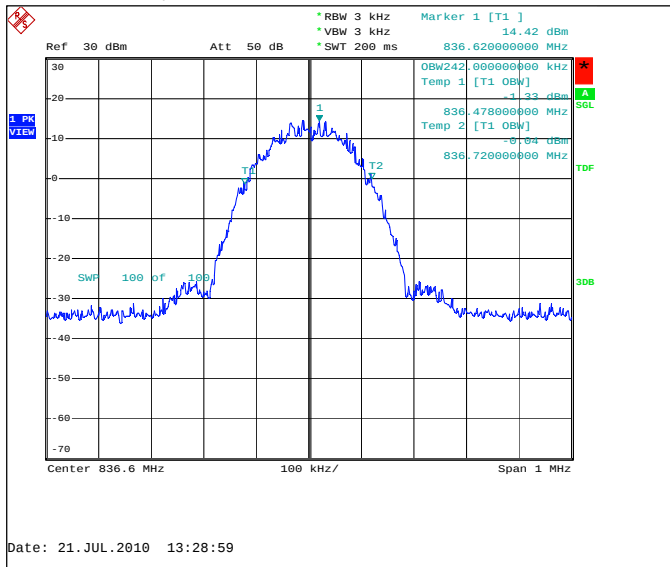
### 3.3. GSM 850 Test results

| Operation mode (TX on) | 99% occupied bandwidth [kHz] |
|------------------------|------------------------------|
| GSM                    | 240.000                      |
| EGPRS                  | 242.000                      |

GSM mode, channel 190 / 836.6 MHz



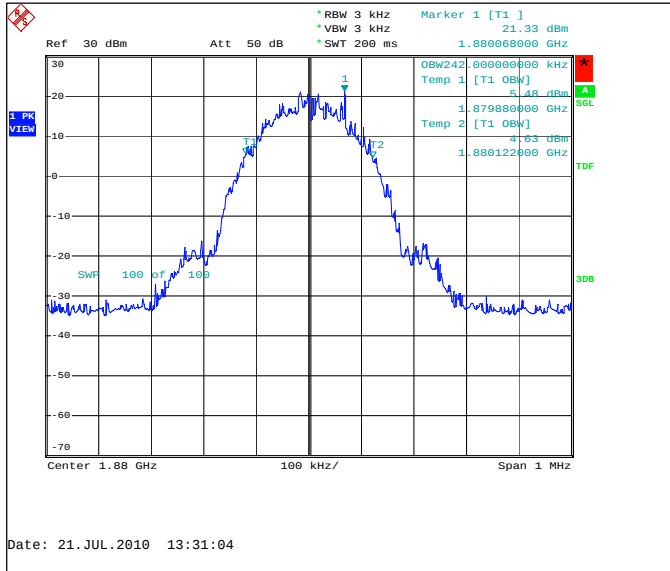
EGPRS mode, channel 190 / 836.6 MHz



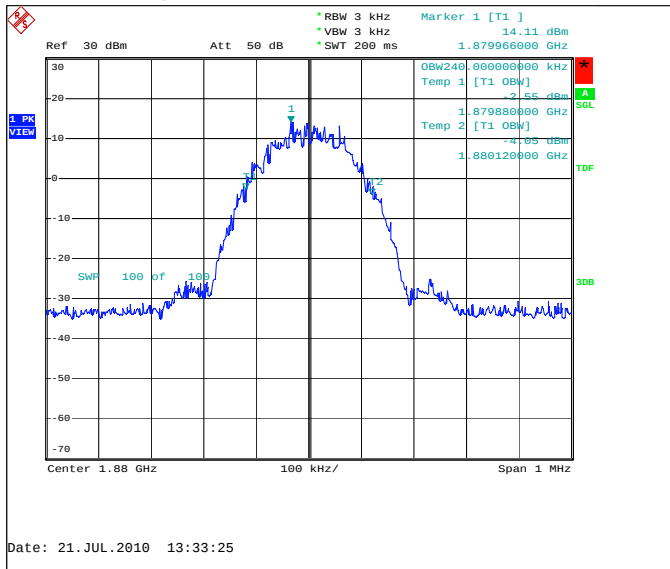
### 3.4. GSM 1900 Test results

| Operation mode (TX on) | 99% occupied bandwidth [kHz] |
|------------------------|------------------------------|
| GSM                    | 242.000                      |
| EGPRS                  | 240.000                      |

GSM mode, channel 661 / 1880.0 MHz



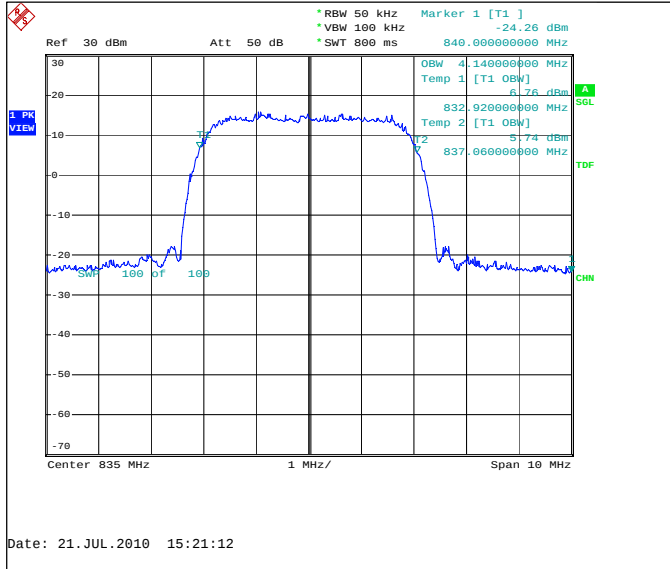
EGPRS mode, channel 661 / 1880.0 MHz



### 3.5. WCDMA 850 Test results

| Operation mode (TX on) | 99% occupied bandwidth [kHz] |
|------------------------|------------------------------|
| FDD                    | 4140.000                     |

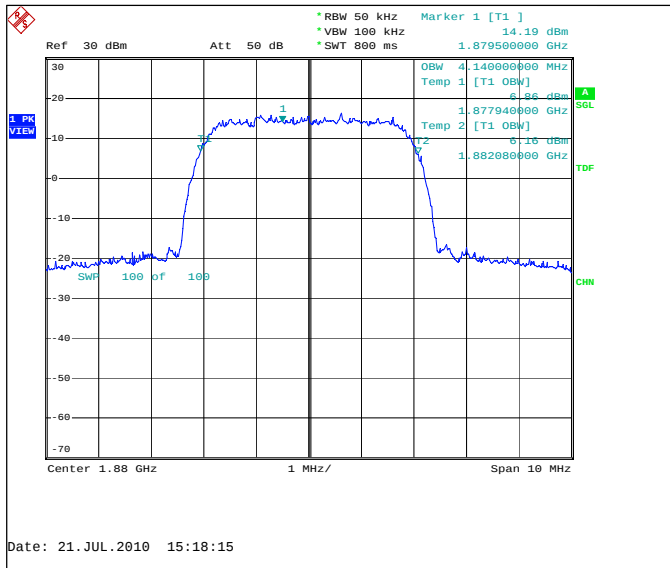
Channel 4175 / 835.0 MHz



### 3.6. WCDMA 1900 Test results

| Operation mode (TX on) | 99% occupied bandwidth [kHz] |
|------------------------|------------------------------|
| FDD                    | 4140.000                     |

Channel 9400 / 1880.0 MHz



## 4. Test Equipment

### 4.1. Conducted measurements

| Eq. No | Equipment                | Type              | Manufacturer        | Used in            |
|--------|--------------------------|-------------------|---------------------|--------------------|
| 1759   | LISN 50 µH               | ESH3-Z5           | R&S                 | 15C, 15B           |
| 1916   | Communication Tester     | CMTA84            | R&S                 | 15B                |
| 1986   | GPS Antenna              | AMHP10-15R/390    | European Antenna    | 15C, 15B           |
| 1992   | Signal Generator         | 83630B            | Agilent             | 15C, 15B           |
| 2039   | Power Supply             | PL330QMD          | Thurlby             | 15C, 15B           |
| 2060   | LISN 50 µH               | ESH3-Z5           | R&S                 | 15C, 15B           |
| 2068   | CDN                      | S1                | NMP                 | 15C, 15B           |
| 2097   | Pulse Limiter            | ESH3-Z2           | R&S                 | 15C, 15B           |
| 2156   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2180   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2206   | Signal Generator         | SMX               | R&S                 | 15C, 15B           |
| 2347   | Communication Tester     | CMU200            | R&S                 | 22/24/27, 15C, 15B |
| 2352   | Spectrum Analyzer        | FSP-30            | R&S                 | 22/24/27, 15C      |
| 2359   | Temperature Test Chamber | VT4002            | Vötsch              | 22/24/27           |
| 2360   | Serial Bus Converter     | Serial 488A       | IO Tech             | 22/24/27           |
| 2362   | Power Supply             | NGPX 70/5         | R&S                 | 22/24/27           |
| 2388   | Bluetooth Tester         | CBT               | R&S                 | 15B                |
| 2389   | Signal Generator         | SMJ 100A          | R&S                 | 15B                |
| 2390   | Directional Coupler      | DC2600            | AR                  | -                  |
| 6009   | GPS Antenna              | SA-700            | Chronos             | 15C                |
| 6010   | GPS Network amplifier    | NLA20FPDC         | GPS Networking, Inc | 15C                |
| 6011   | GPS signal Splitter      | LDCBS1x4          | GPS Networking, Inc | 15C                |
| 6012   | CDN                      | CDN USB/c         | Teseq               | -                  |
| 6015   | Receiver                 | ESI               | R&S                 | 22/24, 15C, 15B    |
| 6016   | ESD gun                  | PESD 1610         | HAEFELY             | -                  |
| -      | BT / WLAN Antenna        | SPA 2400/75/9/0/V | Huber-Suhner        | 15C, 15B           |
| -      | BT / WLAN Antenna        | SPA 2400/75/9/0/V | Huber-Suhner        | 15C, 15B           |
| -      | RF Emission Software     | ES-K1 v.1.71      | R&S                 | 22/24/27, 15C, 15B |
| 6036   | Data Logger              | 175-H2            | Testo               | 22/24/27, 15C, 15B |
| 6038   | Data Logger              | Testo 580         | Testo               | 23/24/27, 15C, 15B |
| 6039   | USB Interface            | 5541765           | Testo               | 23/24/27, 15C, 15B |
| 2059   | V-network                | ESH3-Z6           | R&S                 | -                  |
| 6044   | V-network                | ESH3-Z6           | R&S                 | -                  |
| 6045   | Power splitter           | 11667B            | Agilent             | 23/24/27, 15C      |
| 6046   | Attenuator 10dB          | 8493C             | Agilent             | 23/24/27, 15C      |
| 6047   | Attenuator 20dB          | 8493C             | Agilent             | 23/24/27, 15C      |

### 4.2. Radiated measurements

| Eq. No | Equipment            | Type                | Manufacturer     | Used in            |
|--------|----------------------|---------------------|------------------|--------------------|
| 1917   | Communication Tester | CMTA84              | R&S              | 15B                |
| 1984   | Antenna              | BBHA 9120 D         | Schwarzbeck      | 22/24/27, 15C, 15B |
| 1986   | GPS Antenna          | AMHP10-15R/390      | European Antenna | 15C, 15B           |
| 1988   | Antenna              | HL562               | R&S              | 22/24/27, 15C, 15B |
| 1989   | Relay Switch Unit    | TS-RSP              | R&S              | 22/24/27, 15C, 15B |
| 2009   | Signal Generator     | SMP 22              | R&S              | 22/24/27, 15C, 15B |
| 2027   | CDN                  | M2 (modified) DC1   | MEB              | 22/24/27, 15C, 15B |
| 2028   | CDN                  | M3 (modified) DC2   | MEB              | 22/24/27, 15C, 15B |
| 2029   | Power Supply         | PL330               | Thurlby          | 22/24/27, 15C      |
| 2043   | Band Reject Filter   | WRCA824/849-0,2-6SS | Wainwright       | 22                 |

| Eq. No | Equipment                       | Type                                   | Manufacturer        | Used in            |
|--------|---------------------------------|----------------------------------------|---------------------|--------------------|
| 2047   | Band Reject Filter              | WRCC1800/2000-0.2-10SS                 | Wainwright          | 24                 |
| 2051   | High Pass Filter                | 4HC1700-1-KK                           | R&S                 | 22                 |
| 2109   | Power Supply                    | PL330QMD                               | Thurlby             | 22/24/27, 15C, 15B |
| 2116   | Controller                      | EMCO 2090                              | ETS                 | 22/24/27, 15C, 15B |
| 2135   | CDN                             | CDN 801-M3                             | Lüthi               | 22/24/27, 15C, 15B |
| 2140   | Antenna                         | EMCO93110B                             | EMCO                | 22/24/27, 15C      |
| 2142   | Antenna                         | 3146                                   | EMCO                | 22/24/27, 15C      |
| 2150   | High Pass Filter                | F-15041                                | RLC                 | 22/24/27, 15C      |
| 2156   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2176   | CDN                             | CDN 801-M3                             | Lüthi               | 22/24/27, 15C, 15B |
| 2180   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2188   | Preamplifier                    | AFS4-00100300-20-23P-6                 | Miteq               | 22/24/27, 15C, 15B |
| 2347   | Communication Tester            | CMU200                                 | R&S                 | 22/24/27, 15C, 15B |
| 2348   | Controller                      | G-1000DXC                              | Yaesu               | 22/24/27, 15C, 15B |
| 2349   | Computer Controller             | GS-232B                                | Yaesu               | 22/24/27, 15C, 15B |
| 2350   | Preamplifier                    | AMF-6D-020180-29-20P                   | Miteq               | 22/24/27, 15C, 15B |
| 2353   | Receiver                        | ESIB26                                 | R&S                 | 22/24/27, 15C, 15B |
| 2357   | Band Reject Filter              | WRCG2400/2483-2390/2493-35/10SS        | Wainwright          | 15C                |
| 2361   | Anechoic Chamber                | 3 m Semi / Full Anechoic Chamber       | Euroshield          | 22/24/27, 15C, 15B |
| 2364   | Band Reject Filter              | WRCG1877/1883 - 1870/1890-40/6SS       | Wainwright          | 24                 |
| 2366   | Relay Switch Unit               | TS-RSP                                 | R&S                 | 22/24/27, 15C, 15B |
| 2384   | Band Reject Filter              | WRCG832/838-825/845-40/5SS             | Wainwright          | 22                 |
| 2388   | Bluetooth Tester                | CBT                                    | R&S                 | 15B                |
| 2389   | Signal Generator                | SMJ 100A                               | R&S                 | 15B                |
| 2391   | Band Reject Filter              | WRCG1729.4/1735.4-1722.4/1742.4-40/6SS | Wainwright          | 27                 |
| 6009   | GPS Antenna                     | SA-700                                 | Chronos             | 15C                |
| 6010   | GPS Network amplifier           | NLA20FPDC                              | GPS Networking, Inc | 15C                |
| 6011   | GPS signal Splitter             | LDCBS1x4                               | GPS Networking, Inc | 15C                |
| 6014   | Substitute Calibration Cable    | Sucoflex 104PB                         | Suhner              | -                  |
| 6017   | Antenna                         | SBA 9113                               | Schwarzbeck         | 22 / 24 / 27       |
| -      | BT / WLAN Antenna               | SPA 2400/75/9/0/V                      | Huber-Suhner        | 15C, 15B           |
| -      | BT / WLAN Antenna               | SPA 2400/75/9/0/V                      | Huber-Suhner        | 15C, 15B           |
| -      | RF Emission Software            | ES-K1 v.1.71                           | R&S                 | 22/24/27, 15C, 15B |
| -      | RF immunity / Emission Software | EMC32                                  | R&S                 | 22/24/27, 15C, 15B |
| 6037   | Data Logger                     | 175-H2                                 | Testo               | 23/24/27, 15C, 15B |
| 6038   | Data Logger                     | Testo 580                              | Testo               | 23/24/27, 15C, 15B |
| 6039   | USB Interface                   | 5541765                                | Testo               | 23/24/27, 15C, 15B |