

## TEST REPORT

### Power Consumption of IT Equipment

Report reference No .....: 273496-1

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(printed name, title and signature) ....: Specialist



Date of issue .....: 2013-10-11

Testing Laboratory Name .....: **SGS Fimko Ltd**

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Testing location .....: Nokia Solutions and Networks Oy

Address .....: Kaapelitie 4. FI-90630 OULU

Applicant's Name .....: Nokia Solutions and Networks UK Limited

Address .....: The Forum, Lancaster Way, Ermine Business Park, Huntingdon, Cambridgeshire, PE29 6XU

Manufacturer's Name .....: Nokia Solutions and Networks Oy

Address .....: Karaportti 3, FI-02610 ESPOO, FINLAND

Applicable standard(s) and/or ..... IEC62301:2005, IEC62087: 2008, Elexon Co. requirements for requirements.....: UMS equipment regarding charge code.

Date(s) of performance of test .....: 2013-09-26

#### General remarks:

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This test report has been modified by SGS Fimko Ltd. 2013-09-20

This test report includes the following documents :

|                          |   |                     |   |                        |   |
|--------------------------|---|---------------------|---|------------------------|---|
| Test report, pages ..... | 4 | Photos, pages ..... | - | Other documents, pages | - |
|--------------------------|---|---------------------|---|------------------------|---|

## TEST DESCRIPTION

### Preparing for test:

- a. **Equipment type:** Continuous mode operated telecommunication equipment, Base Transceiver Station.
- b. **Functionality:** Normal operation
- c. **Additional testing requirements:** 5 test samples. Active (P/W) and apparent (S/VA) power consumption measurements in input voltage levels of 210Vac, 220Vac, 230Vac, 240Vac and 250Vac.
- d. The EUT was supplied by programmable AC power supply and connected to the metering equipment via schuko plug (CEE 7/4). The power (active and apparent) was measured from the plug.

### Test method:

According to applicable parts of standards IEC62301:2005, IEC62087: 2008 and Elexon Co. requirements for UMS equipment regarding charge code

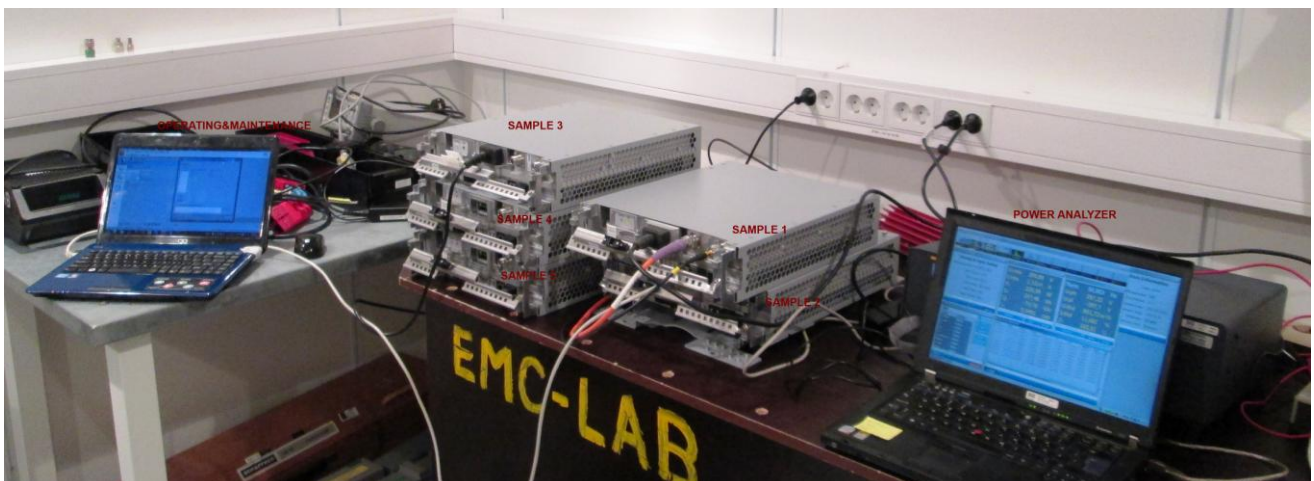
### Load condition:

A maximum RF-load (10+10)W was used to load the EUT to provide active mode load conditions of (100 ± 2)%

### Test Conditions for Measurement:

1. The EUT was operated at maximum RF output power at least 30 minutes warm-up period, at minimum input test voltage (210Vac/50Hz)
2. After the warm up period, the input power was monitor for a period of 5 minutes at each selected input voltage. Under the stable power level condition was established, the measurement was recorded at the end of the 5 minutes period.
3. If input power is not stable over a 5 minutes period, the average power over the time was measured.

### Test set-up:

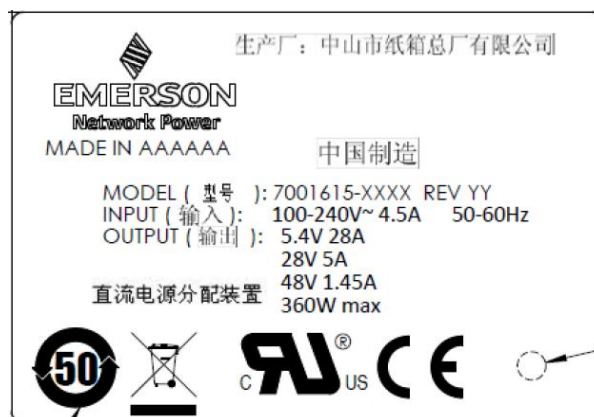


| EUT                                   |                                     |             |             |             |             |
|---------------------------------------|-------------------------------------|-------------|-------------|-------------|-------------|
| Test item description .....           | Base Transceiver Station.           |             |             |             |             |
| Trademark .....                       | Nokia Solutions and Networks (NSN)  |             |             |             |             |
| Model and/or type reference .....     | Flexi Lite BTS FQGA                 |             |             |             |             |
| Rating(s) .....                       | Input: 100-240Vac, 50-60Hz, max. 5A |             |             |             |             |
| AC/DC power supply alternative 1..... | Efore                               |             |             |             |             |
| Serial numbers .....                  | Sample 1                            | Sample 2    | Sample 3    | Sample 4    | Sample 5    |
|                                       | -                                   | L1133215939 | L1133214412 | -           | -           |
| AC/DC power supply alternative 2..... | Emerson                             |             |             |             |             |
| Serial numbers .....                  | Sample 1                            | Sample 2    | Sample 3    | Sample 4    | Sample 5    |
|                                       | L9132200046                         | -           | -           | L9132700206 | L9132700205 |

## Copy of marking plate and other markings



## AC/DC power supply alternatives



| Test conditions  |   |         |                  |
|--|---|---------|------------------|
| Ambient temperature (°C)   | 24,8 – 25,1                                     |         |                  |
| Information describing the test set-up used at each load condition | Resistive loads on RF output (TX) used.         |         |                  |
| Test equipment   | Model/type                                      | Inv. no | Calibration date |
| Voltage source   | Programmable AC power supply California 5000 ix | 0M03335 | -                |
| Instrument used for measuring input power                          | Power meter Norma 5000                          | 8939    | 2013-09-11       |

| Measurements/Calculations |             |                     |                   |                   |                     |                     |         |
|---------------------------|-------------|---------------------|-------------------|-------------------|---------------------|---------------------|---------|
| Voltage                   | Input Power | Sample 1<br>Emerson | Sample 2<br>Efore | Sample 3<br>Efore | Sample 4<br>Emerson | Sample 5<br>Emerson | Average |
| 210Vac                    | P / W       | 225,280             | 226,033           | 227,249           | 227,829             | 225,286             | 226,3   |
|                           | S / VA      | 237,367             | 230,680           | 231,626           | 239,904             | 237,369             | 235,4   |
| 220Vac                    | P / W       | 225,011             | 226,467           | 227,459           | 228,661             | 225,466             | 226,6   |
|                           | S / VA      | 239,130             | 231,894           | 232,610           | 242,762             | 239,512             | 237,2   |
| 230Vac                    | P / W       | 224,726             | 226,434           | 227,380           | 228,985             | 225,249             | 226,6   |
|                           | S / VA      | 241,521             | 232,787           | 233,488           | 245,247             | 241,543             | 238,9   |
| 240Vac                    | P / W       | 224,659             | 226,455           | 227,152           | 228,900             | 224,981             | 226,4   |
|                           | S / VA      | 244,362             | 233,822           | 234,177           | 247,771             | 244,129             | 240,9   |
| 250Vac                    | P / W       | 224,519             | 226,338           | 226,927           | 229,009             | 224,905             | 226,3   |
|                           | S / VA      | 247,303             | 234,841           | 235,045           | 251,036             | 247,232             | 243,1   |

**Summary of testing:**

Testing was performed according to applicable parts of standards IEC62301:2005, IEC62087: 2008 and Elexon Co. requirements (see also p. 2 for "Test Description")

When determining the test conclusion, the uncertainty of measurement has been considered to be less than 2%. Detailed calculations will be delivered if required.

Measurements were done from EUT input with maximum (100%) RF load according to manufacturer specified values, where 100% load corresponds to 10W+10W RF output power. The output active power (P/W) and apparent power (S/VA) are calculated as average of 5min period results for each voltage level. In every case the power consumption sustained stable over the recording period.

The maximum average active power consumption in input voltage range 210-250Vac was 227W and the maximum average apparent power consumption was 239VA.

The small difference in apparent power consumption (S/VA) between Efore's and Emerson's power supplies has no significance in real life, because Flexi Lite BTS systems will be equipped evenly (50/50) between them.

The tests carried out fulfil the requirements of the standard ISO/IEC/EN 17025