

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 requirements: IEC62301:2005, IEC62087: 2008, Elexon Co. requirements for
 requirements: UMS equipment regarding charge code.

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

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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	-
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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

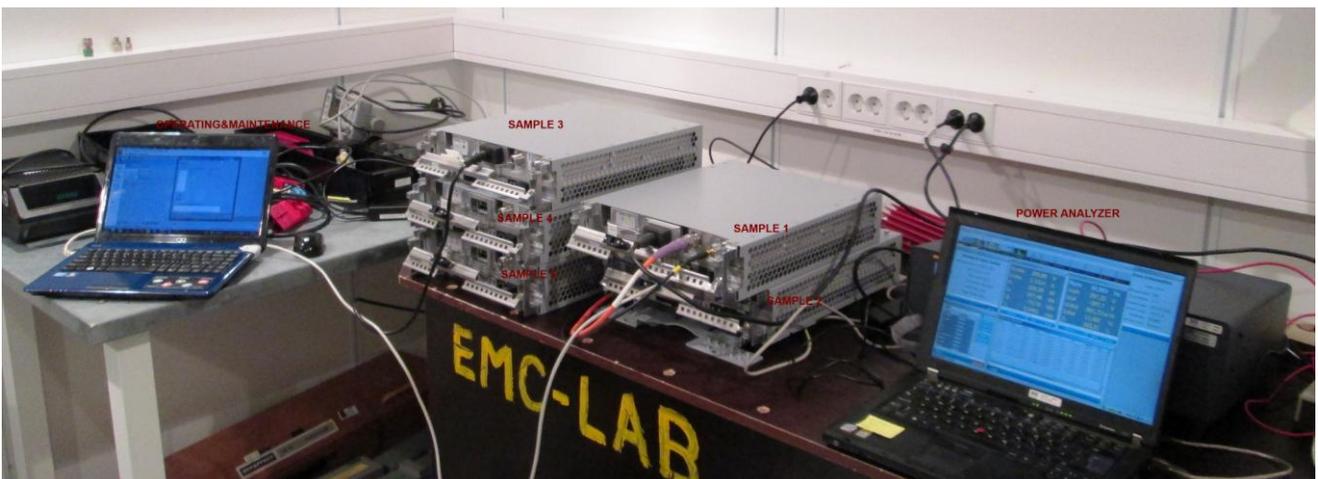
Load condition:

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:

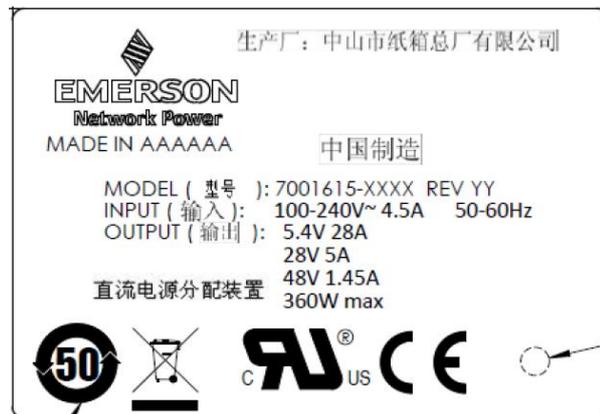


EUT					
Test item description	Base Transceiver Station.				
Trademark	Nokia Solutions and Networks (NSN)				
Model and/or type reference	Flexi Lite BTS FQGA				
Rating(s)	Input: 100-240Vac, 50-60Hz, max. 5A				
AC/DC power supply alternative 1.....	Efore				
Serial numbers	Sample 1	Sample 2	Sample 3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