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DELTA Test Report

TEST Reg. no. 100

Noise emission from Schneider Electric UPS type GALAXY VM

Performed for Schneider Electric IT Denmark ApS

DANAK 100/1717 Revision A
Project no.: T205907
Page 1 of 7
2 annexes

1 August 2013

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Title
Noise emission from Schneider Electric UPS type GALAXY VM

Journal no.	**Project no.**	**Our ref.**	**Date of test**
DANAK 100/1717 Rev. A	T205907	SMN-OWN/lko-ilk	May 22nd 2013

Client
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Client ref.
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Test conditions
- DS/EN ISO 7779:2010: "Acoustics – Measurement of airborne noise emitted by information technology and telecommunications equipment"
- DS/EN ISO 11201:2010: "Acoustics – Noise emitted by machinery and equipment – Determination of emission sound pressure levels at a work station and at other specified positions in an essentially free field over a reflecting plane with negligible environmental"

Results
The A-weighted sound pressure level is calculated as a mean level for the four bystander positions at a distance of 1 m from the unit for two operating conditions as stated below:

L_{pA} = 55 dB(A) re 20µPa at low fan speed corresponding to a unit running with 70 % load.

L_{pA} = 65 dB(A) re 20µPa at high fan speed corresponding to a unit running with 100 % load.

Uncertainty, u_{Lp} = 2.5 dB (according to ISO 11201).

The results have been rounded to nearest whole dB and corrected for background noise.

Remark

The test results apply only to the objects tested.

This report replaces previously issued Test Report dated 4 July 2013. The changes in this report: Text added operating conditions on pages 2 and 5.

DELTA, 1 August 2013

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1. Measurement method

The noise emission from a 200 kVA UPS unit has been measured according to the guidelines of ISO 7779[1] regarding bystander positions to determine the sound pressure level, calculated as an average value for the four bystander positions at 1 m distance from the unit.

Measurements were carried out in one position at each side of the unit. For each position the microphone was placed at a distance of 1 m from the measurement object and at a height of 1.5 m.

The measurements were averaged over a 1 min. period, and the results are stated as A-weighted sound pressure levels corrected for background noise.

2. Measurement object

The UPS consists of three connected sections (see Annex 1). These sections are (from the left) Battery cabinet (type: GVMModBCW), Power cabinet (type: 0G-GVMPB200K225D) and I/O cabinet (type: 0G-GVMI200KH). The noise emission from the UPS is primarily coming from the Power cabinet. This section is the only one that contains mechanical moving parts in the form of cooling fans. The Power cabinet has the following specifications:

Make:	Schneider Electric
Description:	Galaxy VM 200kVA
Type no.:	0G-GVMPB200K225D
Serial number:	Alpha 3.2 - 003
Supply:	400 V, 50 Hz
Rating:	200 kVA
Size:	175 cm x 85 cm x 200 cm (total all three cabinets)

[1] As specified in section 6.5.5 “Acoustic noise” in DS/EN 62040-3:2011: “Uninterruptible power systems (UPS) Part 3: Method of specifying the performance and test requirements”.

3. Measurement settings

The load of the equipment was simulated by programming the fan units to run at two operating levels; low and high. This simulated loading situation is considered to give the actual noise emission for the unit as the noise from the fan units are by far the dominating noise sources of the unit.

Low fan speed corresponds to an operating condition with 70 % load on the UPS.

High fan speed corresponds to an operating condition with 100 % load on the UPS.

4. Acoustic environment

The product was placed indoor in a hemi-anechoic room at DELTA in Aarhus (see Annex 1). The ceiling, floor and walls are all acoustic soft. The main dimensions of the room are 12 m x 8 m x 4.5 m (length x width x height). The room and measurement setup fulfils the requirements in ISO 11201 section 5.2.2.

5. Measurement equipment

See Annex 2.

6. Measurement results

Sound pressure levels (L_{Aeq}) stated as dB(A) re 20 µPa.

	Front	Right	Left	Rear	Average	Corrected for background noise
Low fan speed	59.9	46.1	45.2	52.3	54.8	54.8
High fan speed	70.6	53.0	51.1	61.8	65.2	65.2

Background noise L_{pAmb} = 27 dB(A) re 20 µPa

6.1 Environmental conditions

Air temperature: 20 °C

Barometric pressure: 1000 mbar

Relative humidity: 50 %

Annex 1 - Measurement setup

Annex 2 - Measurement equipment

No.	Equipment	Make	Type	Calibration	
				Last	Next
02L020	Calibrator	Brüel & Kjær	4231	Nov 2012	May 2013
14L004	Data acquisition card	NI	9233	Dec 2012	Dec 2014
06L060	½" Microphone	G.R.A.S.	40AE	Nov 2013	Nov 2013
06L061	½" Microphone	G.R.A.S.	40AE	Aug 2012	Aug 2013
09L054	Preamplifier	G.R.A.S.	26CF	Nov 2012	Nov 2014
09L032	Preamplifier	G.R.A.S.	26CF	May 2011	May 2013