

CONDUCTIVITY MEASUREMENTS

Results of conductivity measurements

Dexion Storage Solutions SRL

Report No.: 16-0687

Date: 2016-05-09



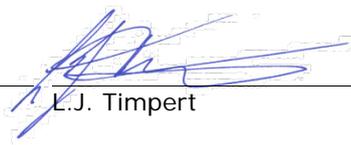
Project name:	Conductivity measurements	DNV GL - Energy
Report title:	Results of conductivity measurements	KEMA Nederland B.V.
Customer:	Dexion Storage Solutions SRL	Utrechtseweg 310
Contact person:	Florin Neacsu	6812 AR ARNHEM
Date of issue:	2016-05-09	
Project No.:	10017228	
Organisation unit:	R&S/NET	Tel: +31 26 356 9111
Report No.:	16-0687	Registered Arnhem 09080262

Task and objective: Conductivity measurements

Prepared by:


E.F. Rijpstra

Verified by:


L.J. Timpert

Approved by:


P.D.M. de Boer-Meulman

IMPORTANT NOTICE AND DISCLAIMER

This document is protected by copyright and may not be made available to third parties without the express and prior written consent of the DNV GL entity issuing this document ("DNV GL").

This document is intended for the sole use of the Customer as detailed on the front page of this document to whom the document is addressed and who has entered into a written agreement with the DNV GL. To the extent permitted by law, neither DNV GL nor any group company (the "Group") assumes any responsibility whether in contract, tort including without limitation negligence, or otherwise howsoever, to third parties (being persons other than the Customer), and no company in the Group other than DNV GL shall be liable for any loss or damage whatsoever suffered by virtue of any act, omission or default (whether arising by negligence or otherwise) by DNV GL, the Group or any of its or their servants, subcontractors or agents. This document must be read in its entirety and is subject to any assumptions and qualifications expressed therein as well as in any other relevant communications in connection with it. This document may contain detailed technical data which is intended for use only by persons possessing requisite expertise in its subject matter.

This document has been produced from information relating to dates and periods referred to in this document. This document does not imply that any information is not subject to change. Except and to the extent that checking or verification of information or data is expressly agreed within the written scope of its services, DNV GL shall not be responsible in any way in connection with erroneous information or data provided to it by the Customer or any third party, or for the effects of any such erroneous information or data whether or not contained or referred to in this document.

Reference to part of this report which may lead to misinterpretation is not permissible.



Table of contents

1	INTRODUCTION.....	1
2	EQUIPMENT TESTED	1
3	METHOD OF MEASUREMENT.....	1
4	RESULTS	1
5	CONCLUSION	1
6	PHOTO OF THE TEST SUBJECT	2



1 INTRODUCTION

DNV GL was asked by Dexion Storage Solutions SRL to perform conductivity measurements on their shelving rack. The reason for these measurements is to be sure that the shelving rack has a low resistance at any point on the shelf surface towards the ground connection on one of the legs. A low resistance to the ground guarantees that no static charge can accumulate on the rack, and that any statically charged object placed in it will be rapidly discharged to the ground.

2 EQUIPMENT TESTED

Static shelving rack HI 280 made out entirely of galvanized steel.

3 METHOD OF MEASUREMENT

A four point measurement method was used to determine the electrical resistance of the shelving rack. The shelving rack has been assembled and grounded according to the instructions provided by Dexion for the measurement. Measurement points were taken between the ground connection point on one leg and the top shelf of the rack, so that the current has the longest path to travel. This will give a conclusive measurement that can be applied for the whole of the shelving rack.

4 RESULTS

The resistance between the grounding point and the top of the shelving rack was measured at a value of 3,1 m Ω . Surface resistivity and bulk resistivity could not be accurately measured, because the resulting resistance was too low in the range of the instrument. The expected value is below 1 m Ω .

5 CONCLUSION

The shelving rack is found to have metallic conductivity, and thus a very low resistance to ground when grounded. As a result of the conductivity, static charges cannot accumulate on the rack when it is grounded, and statically charged objects placed on it will become rapidly discharged. The rack can thus be used to store ESD sensitive components, if they are placed in appropriate antistatic materials

6 PHOTO OF THE TEST SUBJECT





About DNV GL

Driven by our purpose of safeguarding life, property and the environment, DNV GL enables organizations to advance the safety and sustainability of their business. We provide classification and technical assurance along with software and independent expert advisory services to the maritime, oil and gas, and energy industries. We also provide certification services to customers across a wide range of industries. Operating in more than 100 countries, our 16,000 professionals are dedicated to helping our customers make the world safer, smarter and greener.