

Title: **ISSUING OF INSULATION TEST
CERTIFICATES UNTIL KIPTS IS
OPERATIONAL**

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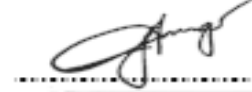
Functional Responsibility



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Content

	Page
Scope and applicability	3
Revision history	3
1. Normative and Informative references	3
1.1 Normative	3
1.2 Informative.....	3
1.3 Definitions.....	4
1.4 Abbreviations.....	4
2. Background	4
3. Changes in signatories on KIPTS certificates	4
4. Transfer process for insulator products in case of company ownership/name change	4
5. Principles to be adopted in consideration of technical qualification for extrapolation for insulators previously approved and certified at KIPTS	4
6. Approval of new insulator products as per EI 240-170000774	5
7. Engineering Instruction	5
8. Authorisation.....	5
9. Technical support	5
Annex A – KIPTS Test Certificate	6
Annex B – KIPTS Extrapolation Test Certificate	7

Scope and applicability

This Instruction outlines the interim measures taken in issuing of insulation test certificates until the Koeberg Insulator Pollution Test Station (KIPTS) test facility is reinstated and normal testing resumes. It applies to all outdoor air insulation products generally covered under the following test procedures: post, long rod and stand-off insulators, through wall bushings, surge arresters, switch-disconnectors and other non-specified insulator products [3],[4], [5], [6], [7].

This Instruction covers the following:

- 1) Issuing of test certificates in general due to changes in signatories as a result of changes in Eskom personnel.
- 2) Issuing of KIPTS test certificates during the transfer process for insulator products in case of company ownership/name change.
- 3) The principles to be adopted in consideration of technical acceptance for extrapolation for insulators previously tested and approved at KIPTS and the re-issuing of these certificates.
- 4) The issuing of test certificates for new products approved in accordance with Engineering Instruction 240-170000774 [8] whilst KIPTS is not operational.

Revision history

This is the first issue of this instruction, however, this instruction is based on the multi-part document covering the KIPTS natural aging test procedure for outdoor insulator products (240-100495413 Revision 2) [2] to [7] and the Instruction in place while KIPTS is not operational (240-170000774 Revision 1) [8].

Date	Rev	Compiler	Remarks
April 2023	1	F. Jooste	First issue

1. Normative and Informative references

Parties using this document shall apply the most recent edition of the documents listed in the normative references.

1.1 Normative

- [1] IEC TS 60815-1, 'Selection and dimensioning of high-voltage insulators intended for use in polluted conditions – Part 1: Definitions, information and general principles', Edition 1 (2008-10).
- [2] 240-100495413, KIPTS Natural aging test procedure for outdoor insulator products. Section 0 – General requirements
- [3] 240 - 75881756: Section 1, Particular requirements for post, long rod and stand-off insulators.
- [4] 240 - 75881784: Section 2, Particular requirements for through wall bushings.
- [5] 240 - 75882042: Section 3, Particular requirements for surge arresters.
- [6] 240 - 100495417: Section 4, Particular requirements for switch-disconnectors.
- [7] 240 - 75661213: Section 6, Particular requirements for other insulator products.
- [8] 240-170000774: Interim insulation pollution standards required in place of KIPTS.

1.2 Informative

None

1.3 Definitions

The definitions in the normative references shall apply.

1.4 Abbreviations

The abbreviations in the normative references shall apply.

2. Background

KIPTS certificates have previously been issued in accordance with 240-100495413 Revision 2 [2]. Environmental changes and the promulgation of new environmental legislation meant that the original KIPTS couldn't continue being operated safely or expanded cost effectively, thus testing has been suspended until the new KIPTS test facility is commissioned and normal testing can resume. In the interim there is a need for the issuing of insulation test certificates based on interim requirements.

This Instruction outlines the interim measures taken in issuing or reissuing existing KIPTS test certificates (Annexure A and B) for the following purposes:

- 1) Changes in signatories on KIPTS certificates due to changes in Eskom personnel.
- 2) Changes on test certificates required due to transfer process for insulator products in case of company ownership or company name change.
- 3) Re-issuing of test certificates in consideration of technical qualification for extrapolation for insulators previously approved and certified at KIPTS (Annexure B).
- 4) Issuing of test certificates for new approved products in accordance with engineering instruction '240-170000774: Interim insulation pollution standards required in place of KIPTS' [8].

This Instruction applies to all outdoor air insulation products generally covered under the following test procedures: post, long rod and stand-off insulators, through wall bushings, surge arresters, switch-disconnectors and other non-specified insulator products [3], [4], [5], [6], and [7].

3. Changes in signatories on KIPTS certificates

A previous audit indicated that the person who performs the tests must be the issuer of the certificate. In addition to this, there have been changes to Eskom personnel thus necessitating a second change in signatories (see Annexure A and B).

4. Transfer process for insulator products in case of company ownership/name change

- a) When there is a company name change because of change of ownership, the new company will issue Eskom with a formal letter informing of the changes and hence the need for certificate re-issue (see Annexure A).
- b) In cases where Company A has sold only a section of the company which has ownership of previously tested products to Company B, Eskom previously requested that Company B provide a letter from Company A confirming the said change of ownership, and also verifying the change with Company A which necessitates the re-issue of test certificates for the effected products (see Annexure A).

5. Principles to be adopted in consideration of technical qualification for extrapolation for insulators previously approved and certified at KIPTS

The criteria used to address the qualification of products for the purpose of extrapolation and therefore the re-issuing of test certificates (see Annexure A and B) is covered in [3], [4], [5], [6] and [7].

Notes:

- 1) Extrapolation is only applicable to products that have been previously tested, approved and certified at KIPTS.
- 2) Even if the products conform to the extrapolation criteria set out above, samples must be submitted to DX Solutions for verification.

6. Approval of new insulator products as per EI 240-170000774

Test certificates shall be issued for newly approved MV and HV insulation products in respect of ageing and pollution performance in line with the criteria set out in '240-170000774: Interim insulation pollution standards required in place of KIPTS' [8].

7. Engineering Instruction

This Instruction serves as an interim measure to issue KIPTS certificates and extrapolation certificates for insulator products based on the preceding criteria covered in clauses 3), 4), 5 and 6.

This Instruction shall be valid until the KIPTS test procedures are revised and normal testing at KIPTS resumes.

8. Authorisation

This document has been reviewed and is supported by the following stakeholders:

Name	Designation
Mfundu Songo	Senior Manager, Distribution Division, Engineering
Dr Andreas Beutel	Chair, MV & LV Study Committee
Theunus Marais	Chief Engineer, Distribution Division, Substations
Queeneth Khumalo	Chief Engineer, Cable Systems
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Neville Booyens	Senior Engineer, Distribution Division, Central East Cluster
Thando Landela	Senior Engineer, Distribution Division, Gemma Cluster


9. Technical support

Users requiring technical support on the implementation of this instruction, and generally on insulator requirements and testing, should contact the following engineers:

Name	Contact details
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Annex A – KIPTS Test Certificate

	RESEARCH, TESTING AND DEVELOPMENT		REFERENCE																																
	TEST CERTIFICATE		DATE																																
TEST CERTIFICATE AS SUPPLIED BY THE KOEBERG INSULATOR POLLUTION TEST STATION (KIPTS) FOR THE EVALUATION OF AN INSULATOR PRODUCT																																			
ISSUED BY TD MVAYO (SENIOR TECHNICIAN RT&D)		CHECKED BY FJ JOOSTE (SENIOR ENGINEER RT&D)																																	
To whom it may concern Product Code: ****, Drawing: ****, Rev: **** - Date: **** Product Type: **** This is to certify that the above insulation product, as manufactured by **** and tested by ****, has passed the light-to-medium pollution test (winter cycle) and has passed the heavy-to-very-heavy pollution test (summer cycle). The unit has been energised for the period May **** to April *** at the Koeberg Insulator Pollution Test Station (KIPTS), South Africa. Tests have been performed in accordance to the Eskom specification DISSCABI8 rev 2 and Eskom test procedure 34-*** Rev 1 & 34-*** Rev 1. This test certificate renders the ** kV (U_n) insulation product fit for use in an inland non-coastal environment and fit for use in a coastal environment.																																			
<table border="1"> <thead> <tr> <th>Acceptance criteria</th> <th colspan="2">Result</th> <th>Comment</th> </tr> <tr> <th></th> <th>L-M</th> <th>H-VH</th> <th></th> </tr> </thead> <tbody> <tr> <td>No more than three over-current trip-outs (750 mA Mace fuse blown)</td> <td>Pass</td> <td>Pass</td> <td>None</td> </tr> <tr> <td>No signs of material erosion deeper than 2 mm</td> <td>Pass</td> <td>Pass</td> <td>None</td> </tr> <tr> <td>No signs of tracking in the material</td> <td>Pass</td> <td>Pass</td> <td>None</td> </tr> <tr> <td>No signs of punctures or cracks in the material</td> <td>Pass</td> <td>Pass</td> <td>None</td> </tr> <tr> <td>No signs of corrosion that has exposed the base metal or can lead to failure of hardware</td> <td>Pass</td> <td>Pass</td> <td>None</td> </tr> <tr> <td colspan="3">Material analysis completed</td> <td>****</td> </tr> </tbody> </table>		Acceptance criteria	Result		Comment		L-M	H-VH		No more than three over-current trip-outs (750 mA Mace fuse blown)	Pass	Pass	None	No signs of material erosion deeper than 2 mm	Pass	Pass	None	No signs of tracking in the material	Pass	Pass	None	No signs of punctures or cracks in the material	Pass	Pass	None	No signs of corrosion that has exposed the base metal or can lead to failure of hardware	Pass	Pass	None	Material analysis completed			****		
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No signs of corrosion that has exposed the base metal or can lead to failure of hardware	Pass	Pass	None																																
Material analysis completed			****																																
Note: The test data and results are available on CD: ****																																			

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Annex B – KIPTS Extrapolation Test Certificate

 PDU DEPARTMENT	RESEARCH, TESTING AND DEVELOPMENT		REFERENCE
	EXTRAPOLATION CERTIFICATE		DATE

TEST CERTIFICATE AS SUPPLIED BY THE KOEBERG INSULATOR POLLUTION TEST STATION (KIPTS) FOR THE EVALUATION OF AN INSULATOR PRODUCT

<p>ISSUED BY</p> <p>.....</p> <p>TD MVAYO (SENIOR TECHNICIAN RT&D)</p>	<p>CHECKED BY</p> <p>.....</p> <p>FJ JOOSTE (SENIOR ENGINEER RT&D)</p>
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To whom it may concern

Product Code: ****, Drawing: ****«Drw_No»**** - Date: *****

Product Type: *****

This is to certify that the above insulation product, as manufactured by **** and provided by ****, has been certified based on results of ****LM/HVH using the rules of extrapolation as defined in 34-****(KIPTS Natural Ageing and Pollution Performance Test Procedure for Outdoor Insulator Products, Section *** – Particular Requirements for *****)

This test certificate renders the «Test_Voltage» (U_n) insulation product fit for use in an inland non-coastal environment nor fit for use in a marine and industrial environment and fit for use in a coastal environment.

Acceptance criteria	Result		Comment
	L-M	H-VH	
No more than three over-current trip-outs (750 mA Mace fuse blown)	Pass	Pass	
No signs of material erosion deeper than 2 mm	Pass	Pass	
No signs of tracking in the material	Pass	Pass	
No signs of punctures or cracks in the material	Pass	Pass	
No signs of corrosion that has exposed the base metal or can lead to failure of hardware	Pass	Pass	
Material analysis completed			

Note: The test data and results are available on CD: ***

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