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**Energy  
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**ENA TS 43-93 Issue 5 2018  
Revision Summary**

## Line insulators

### PURPOSE

TS 43-93 stipulates requirements for the design and test of line insulators, referencing the key normative Standards (BS EN 60383 Parts 1-2, BS EN 61109, BS EN 61952, IEC/TS 60815 Parts 1-3).

### SCOPE

Requirements for line insulators for use on pole overhead systems from LV up to and including 132kV.

Insulators using porcelain/ceramic, glass, composite, and thermoplastic materials are covered.

### HISTORY

- Last published 2004 (history not known prior to 2004)
- 2018 – Major revision, as detailed overleaf

## Summary of Amendments

- Additional design requirements for composite insulators
- New design requirements added for thermoplastic insulators
- Majority of previous diagrams for insulator designs deleted and replaced with new diagrams which depict typical designs more accurately
- References updated throughout testing requirements
- Commentary added for design tests for composite insulators
- Requirement to demonstrate thermoplastic material is void free
- Major amendments to RIV tests and corona extinction tests

## Nature of Revision

**Major**

## Key Points

**Amendments to align document with normative Standards and amplify design and test requirements for composite insulators.**

## Summary of Amendments (continued)

- Major amendment to pollution performance clause to align with IEC/TS 60815
- New creepage distance criteria inserted reflecting UK experience (25 mm/kV and 31 mm/kV). Historic practice for creepage distance retained along with previous distances
- Major amendment to mechanical performance clause which now stipulates mechanical loading for insulators regardless of design material
- Commentary re-written to reflect the 'damage limit' concept described in BS EN 61109 Annex A. New commentary added describing mechanical loading terminology and also describing torsional capability of composite insulators

Details of all amendments can be found in the accompanying 'Document Amendment Summary'

### Who is affected and why?

- DNO overhead line design engineers & purchasing staff when specifying and procuring overhead line insulators

*(To ensure they familiarise themselves with amended requirements for insulator design and test)*

- Manufacturers/suppliers of line insulators

*(To ensure they familiarise themselves with amended requirements for insulator design and test)*

## Impact Assessment of Changes to TS 43-93

Rating Categories	Rating	Assessment
Nil	Nil	
Negligible	Nil	
Minor	Minor	Amended testing requirements which manufacturers must comply with.
Moderate	Moderate	Improved asset performance expected due to amended testing of composite and thermoplastic insulators.
Major	Nil	
	Minor	Improvements in overhead line reliability expected.

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