

## Distribution Code Consultation Response Proforma

### DCRP/21/04/PC: Engineering Recommendation (EREC) G12 Issue 4 Amendment 2

#### *Requirements for the Application of Protective Multiple Earthing to Low Voltage Networks*

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Stakeholders are invited to respond to this consultation, expressing their views or providing any further evidence on any of the matters contained within the consultation document. Stakeholders are invited to supply the rationale for their responses to the set questions.

Please send your responses and comments by **17:00 on 7 May 2021** to [dcode@energynetworks.org](mailto:dcode@energynetworks.org) and please title your email:

**'Consultation Response DCRP/21/04/PC EREC G12 Issue 4 Amendment 2'.**

Please note that any responses received after the deadline may not receive due consideration by the Working Group.

Any queries on the content of the consultation pro-forma should be addressed to DCode Administrator on 020 7706 5100, or to [dcode@energynetworks.org](mailto:dcode@energynetworks.org)

<b>Respondent</b>	<i>Name</i> Ian Barley Josh Granshaw
<b>Company Name</b>	Siemens Rail Electrification/Mobility
<b>No. of DCode Stakeholders Represented</b>	
<b>Stakeholders represented</b>	<i>Please list all Stakeholder names responding on behalf of (including the respondent company if relevant).</i>
<b>Role of Respondent</b>	<i>Siemens Mobility (Rail Electrification)</i> <i>Multi-Discipline Consultancy and Contractor</i>
<b>We intend to publish the consultation responses on the DCode website. Do you agree to</b>	Yes

# Distribution Code Consultation Response Proforma

this response being published on the DCode website? [Y/N]	
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	Question	Response
Q1	Do you agree that the proposed amendments to EREC G12 Issue 4 achieve the Distribution Code Objectives?	
Q2	Do you agree with the proposed text contained in EREC G12 Issue 4, or do you have any alternatives to propose?	

Please provide comments relating to the specific technical content of the EREC<sup>1</sup>

Page / line No	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
7	Section 2			General/ References/Publications	Suggested additional reference documents for inclusion:  EN 50633, IEC 60050, EN 50522 & EA ER S36, IEC60479-1 & HS(G) 85	

<sup>1</sup> Add more rows if required.

# Distribution Code Consultation Response Proforma

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8	Sec 3			General/ Terms and definitions	<p>Document would benefit from including the below as part of the Terms and definitions: -</p> <p>Earth Potential Rise (EPR, Ure)</p> <ul style="list-style-type: none"> <li>• Accessible Voltage/Effective Touch Voltage (Ute)</li> <li>• Fault Clearance Time</li> </ul> <p>The time interval between the fault inception and the fault clearance.</p> <p>NOTE 1 This time is the longest fault current interruption duration of the associated circuit breaker(s) for elimination of fault current on the faulty item of plant.</p> <p>NOTE 2 The longest fault current interruption duration in the determination of the fault clearance time is dependent upon the EN 50633 protection reliability concept that is in operation. The fault clearance times and EN 50633 protection reliability methods are described further in Appendix B.</p> <p>NOTE 3 According to EN 50122-1 the assessment of the permissible touch voltage assumes of the correct operation of the protection devices and circuit breakers/IED's. This includes the correct operation of the EN 50633 protection reliability methods but does not include the backup protection at the traction supply substation.</p> <p>[Source: IEC 60050-448:1995 (Clause 448-13-15)]</p>	

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19	6.2.1.2			<p>For low voltage auxiliary installations external to a traction substation location, but with the railway environment (Not including station internals, BS 7671 to apply).</p> <p>Accessible voltages for normal services: -</p> <ul style="list-style-type: none"> <li>(Ute) 3s Accessible voltage (Long-time condition) &lt;60V EN 50122-1</li> </ul> <p>Touch voltages under traction short circuit fault condition: -</p> <ul style="list-style-type: none"> <li>(Ute) &lt;200ms Touch voltage (Short-time condition) &lt;645V EN 50122-1 (typical)</li> </ul> <p>When applying modern traction power standards, it is necessary to consider fault clearance times of just above 200ms. The existing limits in Section 6.2.1.2 only provides for two different disconnection times.</p> <p>Modern standards provide for many disconnection times to provide safe touch potentials under different design conditions. This may enhance safety as well as provide benefits to schemes interfacing with the railway.</p> <p>The present text under Section 6.2.1.2 suggests that irrespective of fault clearance time (eg 201ms or 2.5ms) that a system would be designed to: -</p> <p>Earth Potential Rise: -</p> <ul style="list-style-type: none"> <li>(Ure) 430V 200ms-3 s</li> <li>(Ure) 650V &lt;200ms</li> </ul>	<p>Further expansion on the limits of Ute (EN 50122-1) and Ure (EN 50443 &amp; ENG/12/4) would assist the designer ensuring efficiencies and cost reduction when designing LV systems within the railway environment.</p> <p>It is proposed that the updated TS41-24 (2018) values are used instead of the values given, with reference made to Table 1 and section 9.5 of TS41-24. These give permissible touch potentials under clearance times between 0.1s to 10 seconds.</p>	
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19	6.2.1.2			GL/RT1255 superseded	Reference to be RIS-1855-ENE to be made.	