

The Licensed Distribution Network Operators of Great Britain

Amendment to EREC G12/4 - PME

Clarification on the use of earth electrodes when installing and connecting street lighting mini pillars

Report to Authority

Electricity Distribution



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Contents

1	Summary of Proposals	3
2	Introduction	3
3	Description of the Proposed Amendments and their Effects	4
3.1	Background	4
3.2	Drivers for Change	5
3.3	Proposed Changes	5
3.3.1	- Section 6.2.14	5
3.3.2	- Figure 6.2.14a: Lighting Authority C.N.E. distributor fed via PME service 5	5
3.3.3	- Figure 6.2.14b: Lighting Authority S.N.E. distributor via PME service.6	6
3.4	Establishment of WG	6
3.5	Impact on DNOs' Systems and the Total System	6
3.6	Impact on DNOs' Systems' Users	6
3.7	Assessment against Distribution Code Objectives	6
3.8	Impact on other Industry Documents	6
3.9	Environmental impact Assessment	6
4	Consultation Responses	7
4.1	Electricity North West	7
4.2	Northern Powergrid	7
4.3	Health & Safety Executive (HSE)	7
5	Revised Documents	7
5.1.1	Retrospective Application	7
5.1.2	Implementation Period	7
6	Appendices	8
6.1	Appendix 1 - DCRP paper 15_02_10 including the proposed changes to 6.2.14 and associated diagrams	8
6.2	Appendix 2 - DCRP Consultation Paper	8
6.3	Appendix 3 - Consultation responses and comments	8
6.4	Appendix 4 - Proposed ER G12/4 Amendment 1 (track change)	8
6.7	Appendix 5 - Revised Distribution Code v27	8

1 SUMMARY OF PROPOSALS

The proposed minor modification to section 6.2.14 of Engineering Recommendation (ER) G12/4 outlined in this report was discussed at the Distribution Code Review Panel (DCRP) meeting on 4 June 2015 (please see appendix 1). The Panel agreed to the proposed modification subject to the modification undergoing a short public consultation.

The DCRP subsequently consulted widely, ensuring that all relevant stakeholders, and not just Authorized Electricity Operators, are fully aware of the proposed modification.

The licensed Distribution Network Operators (DNOs) of Great Britain recommend that the Authority approve this modification as it considerably adds to the clarity of the requirements on installers with regards to installing earth electrodes at street lighting mini pillars.

The proposals have generally been welcomed and supported. The proposals have not brought forward any comments from stakeholders that suggest any material detriment to any User or prospective User.

The DCRP, at its meeting on 3 September 2015 unanimously supported the modification proposed in this report and agreed to the submission of a Report to Authority by the Distribution Code Administrator.

2 INTRODUCTION

Paragraph 21.8 of the DNOs' licences requires that the DNOs periodically review the D Code, its qualifying standards and their implementation.

Paragraph 21.9 then requires that after completing any such review, the DNOs must send to the Authority:

- (a) a report on the outcome of the review;
- (b) a statement of any proposed revisions to the Distribution Code that the licensee (having regard to the outcome of the review) reasonably thinks are appropriate for the continuing achievement of the objectives referred to in paragraph 21.4; and
- (c) any written representations or objections from Authorised Electricity Operators (including any proposals by such operators for revisions to the Distribution Code that have not been accepted by the licensee in the course of the review) that were received during the consultation process and have not been withdrawn.

The DCRP consulted widely with all stakeholders likely to be affected by the proposed modification to ER G12/4. The DCRP consultation opened on 15 June 2015 and a consultation pack was circulated to Industry stakeholders and also published on

the Distribution Code website. The consultation paper explained the reasoning behind the proposed modification. The consultation paper is attached as Appendix 2 to this report.

Comments were invited from all industry participants and stakeholders by a deadline of 10 July 2015.

In total three responses were submitted by industry stakeholders. There were two responses from DNOs and one response from the Health & Safety Executive (HSE).

It is understood the HSE are generally comfortable with the approach adopted in the proposed modification.

All responses are summarized in Section 4.

3 DESCRIPTION OF THE PROPOSED AMENDMENTS AND THEIR EFFECTS

3.1 Background

On 17 January 2014 G12/4, “Requirements for the application of protective multiple earthing (PME) to low voltage Networks” was finally approved for publication by the Authority. The document was published and became applicable from 1 February 2014.

G12 is an Annex 1 document to the Distribution Code.

Following the publication of ER G12/4 an incident occurred whereby a member of the public experienced a shock from a metallic street pillar fed from a PME supply and as part of the incident investigation, an issue with ER G12 was identified. The issue was that whilst the intention of ER G12 was to require both an earth electrode at the pillar and a remote earth on the network under these conditions, the diagrams in the current version G12/4 do not show this source earth and the text was not sufficiently specific.

The ENA Earthing Co-ordination Group therefore proposed to the Distribution Code Review Panel that a small amendment consisting of two additional paragraphs should be made to the text of sub clause 6.2.14 of ER G12/4 to clarify the requirement and the two associated drawings, figures 6.2.14a and 6.2.14b, should be amended to show the source earth electrode at the pillar.

In addition the wording of the associated British Standard, BS 7430:2011, “Code of practice for protective earthing of electrical installations”, currently expresses a preference for a source earth but does not definitively require one to be present. The BSI Committee responsible, GEL/600, has now agreed that the word “preferably” is deleted in the forthcoming amendment to BS 7430.

If the changes to ER G12/4 and BS 7430 are made as proposed, these documents will come into alignment in this respect.

The proposed changes to both text and drawings are given in the attachment to this paper (see appendix 1).

The proposed clarification to ER G12/4 was discussed at the Distribution Code Panel Review (DCRP) meeting on 4 June 2015 (please see Appendix 1). The Panel agreed to the clarification but recommended that a short public consultation should be undertaken to provide specific stakeholders eg Street Lighting authorities with an opportunity to comment on the clarification.

The DCRP subsequently consulted on the issue, to ensure that all relevant stakeholders, and not just Authorized Electricity Operators, were fully aware of the implications of the proposals.

The licensed Distribution Network Operators (DNOs) of Great Britain recommend that the Authority approve these proposals as they considerably add to the clarity of the requirements on customers, and in particular those installing and connecting street lighting mini pillars via a PME supply.

The proposals have generally been welcomed and supported. The proposals have not brought forward any comments from stakeholders that suggest any material detriment to any User or prospective User.

The DCRP, at its meeting on 3 September 2015 unanimously supported the changes proposed in this report.

3.2 Drivers for Change

Following the publication of ER G12/4 an incident occurred whereby a member of the public experienced a shock from a metallic street pillar fed from a PME supply and as part of the investigation, an issue with ER G12/4 came to light. The issue was that whilst the intention of ER G12/4 was to require both an earth electrode at the pillar and a remote earth on the network under these conditions, the drawings in ER G12/4 do not show this source earth and the text was not sufficiently specific.

3.3 Proposed Changes

3.3.1 - Section 6.2.14

This section sets out the requirements for street lighting and road signs with electrical load of 500W or less. Additional text has been included to clarify the requirements to install an earth electrode at the source pillar. Additional text as follows:

“An earth electrode shall be provided at the source pillar or supply point servicing more than one street lamp or road sign. Where the load on the pillar is greater than 500W the earth electrode shall be in accordance with section 6.2.15 of this Engineering Recommendation Where a street lamp or road sign is installed within an insulated foundation such as a plastic or non-conductive collar an earth electrode shall be installed connected to the earth terminal at each such installation”.

3.3.2 - Figure 6.2.14a: Lighting Authority C.N.E. distributor fed via PME service

Figure 6.2.14a now indicates the requirement to install an earth electrode at the point of supply.

3.3.3 - *Figure 6.2.14b: Lighting Authority S.N.E. distributor via PME service*

Figure 6.2.14b now indicates the requirement to install an earth electrode at the point of supply.

DEVELOPMENT OF REVISED APPROACH

3.4 *Establishment of WG*

No working group was established as the proposed modification was submitted to the DCRP by the ENA Earthing Coordination Group.

3.5 *Impact on DNOs' Systems and the Total System*

There is no impact on the DNOs Systems or the Total System as a result of the proposed changes. It is expected that these revisions will assist Installers on the requirement to install earth electrodes at street lighting mini pillars when using a PME service.

3.6 *Impact on DNOs' Systems' Users*

Reduce the risk of electric shock and overall safer installation in the event of open circuit on PME service conductor.

3.7 *Assessment against Distribution Code Objectives*

The principle Distribution Code objectives, within the specified structure and technical requirements of the Code, are to

- (a) permit the development, maintenance, and safe operation of an efficient, co-ordinated, and economical system for the distribution of electricity; and
- (b) facilitate competition in the generation and supply of electricity.

Given that one of the principle aims of these revisions is to ensure safe operation for Users these objectives are promoted by the current proposed clarification to ER G12/4.

3.8 *Impact on other Industry Documents*

There is no material impact on any other Industry document. With regards to the Distribution Code there is only minor editorial change required to substitute reference ER G12/4 to ER G12/4 Amendment 1

3.9 *Environmental impact Assessment*

As this proposals is designed to clarify the need to install an earth electrode at the source street lighting mini pillar it is not possible to ascribe a direct environmental effect.

4 CONSULTATION RESPONSES

This section provides a short summary of each response to the consultation, particularly noting any salient points that the respondent has made. The consultation respondents are aware of the final proposals as they were all indirectly represented on the working group.

4.1 Electricity North West

Electricity North West has reviewed the minor amendment to ER G12/4 associated with the public consultation, and agrees with all the proposed changes and supports this minor amendment.

4.2 Northern Powergrid

Northern Powergrid agrees with the proposed clarification / changes to ER G12/4

4.3 Health & Safety Executive (HSE)

The HSE submitted a response via email which indicated a nil response and they have no concerns with the proposed clarification to ER G12/4.

5 REVISED DOCUMENTS

Following the closure of the consultation on 10 July 2015 the DCRP at its meeting on 3 September 2015 were updated with progress and the responses received during the public consultation.

Following discussion the Panel unanimously agreed to the submission of a Report to Authority seeking approval to make the necessary changes to ER G12/4 and the Distribution Code clarifying the requirement to install an earth electrode when installing street lighting mini pillars.

5.1.1 Retrospective Application

When changes are made to the D Code or to any of its qualifying standards, there is always the question of whether the changes apply retrospectively to existing plant and equipment.

With regards to this specific modification there will be no requirement for retrospective application as the modification is merely clarifying within ER G12/4 the requirement to install earth electrodes at street lighting pillars sourced by a PME supply.

5.1.2 Implementation Period

The DCRP has agreed to an immediate implementation from the date of publication.

6 APPENDICES

- 6.1 Appendix 1 - DCRP paper 15_02_10 including the proposed changes to 6.2.14 and associated diagrams***
- 6.2 Appendix 2 - DCRP Consultation Paper***
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- 6.7 Appendix 5 - Revised Distribution Code v27***