



Engineering Recommendation G92

Issue 1 2013

Guidelines for Best Practice in relation to
Electric and Magnetic Fields (EMFs) in the
Design and Management of Low Voltage
Distribution Networks

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Guidelines for Best Practice in relation to Electric and Magnetic Fields (EMFs) in the Design and Management of Low Voltage Distribution Networks

1. INTRODUCTION

The generation, distribution and use of electricity produces power-frequency electric and magnetic fields (EMFs). Distribution Network Operators (DNOs) already operate their networks in compliance with the relevant public exposure limits for EMFs, reflecting Government policy. Since 2004, those exposure limits have been the 1998 Guidelines of the International Commission on Non-Ionizing Radiation Protection (ICNIRP) as adopted in the terms of the 1999 Recommendation of the European Union. How industry assesses and demonstrates its compliance with these guidelines is detailed in a Code of Practice published by the Department of Energy and Climate Change (originally in February 2011, revised version in March 2012). This is the only formal requirement on DNOs in relation to EMFs applicable in England, Wales, Scotland and Northern Ireland.

However, it is legitimate to question whether there are any further reasonable measures DNOs may take to help reduce EMF exposures for the public as a precautionary measure in addition to the exposure limits. This was considered in the UK through an independent stakeholder process known as the Stakeholder Advisory Group on Extremely Low Frequency Electric and Magnetic Fields (SAGE) which ran in the late 2000s. EMFs and high-voltage transmission lines were addressed in SAGE's First Interim Assessment published in 2007, and low-voltage distribution networks in its Second Interim Assessment from 2010. Government responded to both Assessments, and it is Government's response that constitutes EMF policy in the UK. That policy, as it relates to high-voltage transmission lines, has been implemented through the Codes of Practice on demonstrating EMF compliance and on optimal phasing of dual-circuit overhead lines. For low-voltage distribution networks, most of SAGE's recommendations consisted of endorsing and continuing existing industry best practice where there is a recognition that EMFs are an extra reason for these practices. Government agreed that most of these recommendations were sensible and should be adopted, and stated:

“The Government will discuss with the electricity industry the possibility of reinforcing such existing best practice through the development and adoption of one or more Engineering Recommendations across industry.”

This Engineering Recommendation (ER) therefore constitutes the implementation of the Government response to SAGE's Second Interim Assessment for low-voltage distribution networks, and therefore captures EMF policy relating to these networks, beyond the key requirement of compliance with existing exposure guidelines.

In preparing this ER, regard has been taken of the following –

- the analysis and discussion of the various options and issues in SAGE's Second Interim Assessment
- the Government response, which sets out which of SAGE's recommendations Government expects to see implemented and which it does not.