



Engineering Recommendation G44

Issue 3 2017

Code of practice for the coordination of power line carrier system frequencies in the range 30•0 kHz to 526•5 kHz

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First published, October 2005

Revised, December 2017

Amendments since publication

Issue	Date	Amendment
Issue 2	February, 2012	<p>Minor revision of Issue 1.</p> <p>This issue includes the following principal technical changes.</p> <p>Clause 10.7: LORAN C transmissions have now been terminated and replaced by DGPS (Differential Global Positioning System) around the 300 kHz band.</p> <p>Clause 12.1: Reference to Siemens DataTrak vehicle location system widened to vehicle location systems in the 130 – 148.5 kHz range.</p> <p>Details of all other technical, general and editorial amendments are included in the associated Document Amendment Summary for this Issue (available on request from the Operations Directorate of ENA).</p>
Issue 3	December, 2017	<p>Minor revision of Issue 2.</p> <p>This issue includes the following principal technical changes.</p> <p>Recommendations revised in light of the revision to the United Kingdom Frequency Allocation Table in 2013 (Issue No.17).</p> <p>Amendments to Clause 13 including new requirements to minimise interference to operational PLC systems.</p> <p>Details of all other technical, general and editorial amendments are included in the associated Document Amendment Summary for this Issue (available on request from the Operations Directorate of ENA).</p>

Contents

Foreword.....	5
1 Scope	7
2 Normative references.....	7
3 Terms and definitions.....	7
4 Procedures	8
5 Limitations on Signalling Duration of Normally Quiescent Systems.....	9
5.1 Operational Signalling Conditions	9
5.2 Commissioning and Routine Testing.....	9
6 Procedure for the Coordination of Power Line Carrier System Frequencies.....	9
7 Procedures for New Carrier Systems and for Replacement Frequencies.....	9
7.1 Normally Quiescent Systems	9
7.2 Continuous Carrier Systems in the Bands Available Without Restriction.....	9
7.3 Continuous Carrier Systems in Restricted Bands.....	9
7.4 Procedure for the Withdrawal of Frequencies for Carrier Systems	10
8 Frequency Conservation	10
9 Availability of Frequency Bands	10
10 Specific Restrictions on Use of Continuous Carrier Systems.....	10
10.1 Aeronautical Radionavigation Bands (255.0 to 489.0 kHz).....	10
10.2 Out-of-Band Aeronautical Radiobeacons (249.0 kHz)	10
10.3 Maritime Radiobeacons Including DGNSS (283.5 to 315.0 kHz)	11
10.4 Maritime Safety (490.0 kHz and 518.5 kHz)	11
10.5 Distress and Calling Frequency (500.0 kHz)	11
10.6 Broadcasting (160.0 kHz to 255.0 kHz)	11
10.7 Radionavigation (90.0 to 110.0 kHz)	11
10.8 Time Signals and Standard Frequency Transmissions (59.0 to 61.0 kHz)	11
11 Differential Global Navigation Satellite System (DGNSS) Data Transmissions	11
12 Other Radio Services	12
12.1 Vehicle Location Systems	12
12.2 Amateur Service	12
13 Interference and Related Reporting	12
13.1 Interference Caused by Power Line Carrier Systems.....	12
13.2 Interference Caused to Power Line Carrier Systems.....	12
Annex A (informative) Availability of Frequency Bands for Power Line Carrier Systems	14
A.1 Normally Quiescent Carrier Systems	14
A.2 Continuous Carrier Systems.....	14
Annex B (informative) List of Out-Of-Band Aeronautical Radiobeacons Operating in the Band 210.0 to 255.0 kHz	15
Annex C (informative) List of Maritime Radiobeacons Operating in the Band 283.5 To 315.0 kHz	16

Annex D (informative) Location of Power Line Carrier Systems.....18
Annex E (informative) Application for Power Line Carrier Frequency Assignment Form
PLC 1.....19
Bibliography21

Tables

Table A.1 – Availability and Restriction of Frequency Bands for Power Line Carrier
Systems14

Foreword

This Engineering Recommendation (EREC) is published by the Energy Networks Association (ENA) and comes into effect from the date of publication. It has been prepared under the authority of the ENA Engineering Policy and Standards Manager and has been approved for publication by the ENA Electricity Networks and Futures Group (ENFG). The approved abbreviated title of this engineering document is "EREC G44".

Power Line Carrier equipment is used extensively by the Electricity Industry in the UK, the signals being transmitted via the primary overhead conductors of the associated High Voltage circuit. The major part of the Power Line Carrier equipment is used for protection purposes and is of the normally quiescent type. A significant part employs continuous transmission of the frequency-shift type and this is primarily used for communication services. Also, a considerable amount of single sideband equipment is used for general communication purposes.

The use of continuous carrier equipment gives a higher potential for interference to essential radio services which include radiobeacons and other systems which are used by ships and aircraft for navigation purposes. These systems are used for land based navigation and routing but are not afforded the same protection as ship and aircraft navigation systems. The authorities responsible for authorised ship and aircraft navigation services will not tolerate interference to these services.

In order to ensure that interference to authorised navigation and safety information systems is avoided, the implications of the use of continuous carrier equipments are kept under review by the government departments and agencies responsible for national frequency allocation. Ofcom, who are responsible for the management and regulation of the spectrum in the UK have, in consultation with the ENA, laid down procedures and restrictions governing the use of Power Line Carrier frequencies. These procedures must be adhered to in order to ensure compliance with the interference requirements laid down in the Wireless Telegraphy Act 2006 [N1].

This Issue of EREC G44 has been revised in light of changes to the United Kingdom Frequency Allocation Table [4].

1 Scope

This document covers communications used by the Electricity Supply Industry for signalling and line protection on High Voltage power lines operating at voltages >22 kV. It does not cover power line communications systems used on High Voltage lines at voltages ≤22 kV or those used for signalling between electricity distribution substations and Low Voltage equipment at customers' premises.

Use of frequencies above 526.5 kHz should not be used for Power Line Carrier systems, but those existing systems in this spectrum may continue to be used until they reach the end of their lifespan provided they are not found to be causing interference. Any new or replacement systems must operate below 526.5 kHz.

This document applies to Power Line Carrier systems, the majority of which are limited to 4 W (+36 dBm) for continuous operation or 40 W (+46 dBm) for intermittent operation. If an assignment request for a new installation exceeds these levels, then this will be treated on a case-by-case basis.

2 Normative references

The following referenced documents, in whole or part, are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Other publications

[N1] Wireless Telegraphy Act 2006

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

Ofcom

Office of Communications - the independent regulator and competition authority for the UK communications industries

3.2

MoD

Ministry of Defence

3.3

CAA

Civil Aviation Authority

3.4

MCA

Maritime and Coastguard Agency