

UK Interface Requirement 2058

**Ground based non directional radio beacons (NDB) at
aeronautical stations of the aeronautical
radionavigation service.**

Publication date: Feb 2006
Version: 1.0
98/34/EC Notification number: 2005/503/UK

Contents

Section		Page
1	References	3
2	Foreword	4
3	Minimum requirements for operation in the UK	5
4	Additional performance parameters	7
5	Contact details	8
6	Document history	9

Section 1

References

- 1.1 Annex 10 to the Convention on International Civil Aviation (ICAO) as amended.
- 1.2 Statutory Instrument 2003 No. 1902, The Wireless Telegraphy (Limitation of Number of Licences) Order 2003

Section 2

Foreword

- 2.1 The Radio Equipment and Telecommunications Terminal Equipment Directive 99/5/EC (R&TTE Directive) was implemented in the United Kingdom (UK) on the 8 April 2000 by The Radio Equipment and Telecommunications Terminal Equipment Regulations 2000, Statutory Instrument 2000 No. 730. In accordance with Articles 4.1 and 7.2 of Directive 1999/5/EC, this UK Interface Requirement contains the requirements for the licensing and use of ground based non directional radio beacons (NDB) aeronautical radionavigation service radio equipment in the specified frequency bands.
- 2.2 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Directive 1999/5/EC.
- 2.3 Nothing in this UK Radio Interface Requirement shall preclude the need for equipment to comply with Annex 10 to the convention on International Civil Aviation, where appropriate.
- 2.4 It is required by the Wireless Telegraphy Act 2006 that no radio equipment is installed or used in the UK except under the authority of a licence granted by or otherwise exempted by regulations made by Ofcom. It is a condition of such a licence or exemption regulations as appropriate that, in order to be installed or used in the UK, the equipment must meet the minimum requirements specified in this UK Interface Requirement for the stated equipment types and for the stated frequency bands. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 1999/5/EC.
- 2.5 The requirements given in the main body of this UK Radio Interface Requirement will apply to ground based NDB radio equipment in the UK.
- 2.6 This UK Radio Interface Requirement will be revised as necessary, for example to follow:
 - i) current technology developments for reasons related to the effective and appropriate use of the spectrum in particular maximising spectrum utilisation; and
 - ii) changes to the available spectrum allocated for aeronautical radionavigation.
- 2.7 All UK Radio Interface Requirements notified under Directive 1998/34/EC will be published and will be made available free of charge from the Ofcom web-site at <http://www.ofcom.org.uk>
- 2.8 Further information on this UK Radio Interface Requirement can be obtained from the technical enquiry contact given at the back of this document.

Section 3

Minimum requirements for operation within the UK

- 3.1 The minimum requirements in this document are made for reasons related to the effective and appropriate use of the radio spectrum, in particular maximising spectrum utilisation.
- 3.2 This UK Radio Interface Requirement gives a high level description of how the spectrum in the UK is used for ground based NDB radio equipment in the aeronautical radionavigation service. It does not prescribe technical interpretation of the 'essential requirements' of Directive 1999/5/EC.
- 3.3 This UK Radio Interface Requirement therefore stipulates the necessary equipment parameters for the licensing of ground based NDB aeronautical radionavigation service radio equipment in the UK. Table 3.1 contains the relevant equipment parameters. These taken together with the 'essential requirements' detailed in Article 3.2 of Directive 1999/5/EC constitute the minimum requirements for the installation and use of ground based NDB aeronautical radionavigation service radio equipment in the aeronautical radionavigation service within the UK. Nothing in this UK Interface Requirement shall preclude equipment from being placed on the market in the UK that complies with the 'essential requirements' specified in Directive 1999/5/EC.
- 3.4 The technical parameters specified in the UK Radio Interface Requirement are applied to achieve the desired level of compatibility within the aeronautical radionavigation service and with other radiocommunications services, whilst promoting enterprise, innovation and competition.
- 3.5 This UK Radio Interface requirement provides the necessary technical information which facilitates access to the aeronautical radionavigation spectrum by making clear the assumptions that are made in planning the use of the aeronautical radionavigation spectrum in the UK. It is not the intention of this UK Radio Interface Requirement to duplicate or impose any additional 'essential requirements' of the Directive 1999/5/EC on products. Any specified parameters within this document are for the purpose of identifying product options and not as a national de facto product requirement.

Table 3.1: Minimum requirements for the use of non-directional radio beacons (NDB).

Mandatory Elements (1-9)		
1	Frequency band (or bands)	255–283.5, 283.5–315, 315–325, 325–405, 415–435, 435–495, 505–526.5, 553.5, 579.5, 588.5, 597.5, 850, 897, 949 kHz.
2	Radio service	Aeronautical radionavigation
3	Application	Non directional radio beacons
4	Channelling modulation	Long transmission using Morse code (850HA2AAN). In accordance with ICAO Annex 10 (Ref 1.1), as relevant.
5	Transmit power limit ¹	For each individual licence, the radiated power shall be such as to give a field strength of 70 microvolts at the limit of DOC ² and be maintained within a tolerance of +2 and -3 dB.
6	Channel occupation rules	Offshore NDB operations require procedures to prevent co-channel interference where the frequencies are assigned on a shared basis. In accordance with ICAO Annex 10 (Ref 1.1), as relevant.
7	Duplex type/ separation	N/A
8	Licensing Regime	Aeronautical navigation aids (NDB) – Station Identifiers will need to be issued. ³ Individual Aeronautical Licence required.
9	Additional essential requirements	N/A
Informative Elements (10-13)		
10	Frequency planning assumptions	Vertical polarisation.
11	References	ICAO Annex 10, Vol 1, Chapter 3 - 3.4 see Ref 1.1
12	Remarks	Non-directional radio beacons are fixed radiocommunications transmitters used for navigation. An aircraft navigates using the bearing (radio compass) of the non-directional radio beacon emission. A more detailed description is contained in Annex 10 to the Convention on International Civil Aviation
13	Notification Number	2005/503/UK

¹ Radio site clearance considerations may impose restrictions on maximum power use on certain frequency assignments. (Radio site clearance is required for any aeronautical station with an e.r.p. greater than 18dBW (50W) and/or antenna height greater than 30 metres above ground level, or where an existing structure is increased in height by greater than 5 metres.)

² DOC - Designated operational coverage (See ITU RR 45.1.1)

³ See Reference 1.2 Schedule 8 Aeronautical Parts 1, 2 & 3 for limitations on WT Act Licences

Section 4

Additional performance parameters

(informative)

It is suggested that manufacturers refer to the appropriate volumes of Annex 10 to the Convention on International Civil Aviation, aeronautical telecommunications, as amended, for relevant manufacturing standards and guidelines. www.icao.int.

Equipment which complies with this radio interface specification is additionally subject to the putting into service provisions of Article 10.1 of Regulation (EC) No. 552/2004 of 10 March 2004 on the interoperability of the European Air Traffic Management Network (the Interoperability Regulation)

Section 5

Contact details

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Section 6

Document history

Version	Date	Changes
Draft	8 Aug 2005	Notified as Draft
1.0	2 Feb 2006	Initial Publication as final text.