

UK Interface Requirement 2052

**Ground based VHF radio equipment for analogue
voice and ACARS data link in the aeronautical
mobile (R) service.**

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Section 1

References

- 1.1 Annex 10 to the Convention on International Civil Aviation (ICAO), Volume V, (Aeronautical Radio Frequency Spectrum Utilization).
- 1.2 ICAO EUR Frequency Management Manual EUR Doc 011 Appendix K
- 1.3 Annex 10 to the Convention on International Civil Aviation (ICAO), Aeronautical Telecommunications, Volume III, Communication Systems (Part I – Digital Data Communication Systems Part II Voice Communication Systems).
- 1.4 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 VHF Aeronautical Mobile (R) Service AM(R)S radio equipment in the specified frequency band.
- 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 VHF AM(R)S 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 mobile (R) service.
- 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 VHF AM(R)S radio equipment in the aeronautical mobile (R) 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 VHF AM(R)S 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 VHF AM(R)S radio equipment in the aeronautical mobile (R) 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 mobile (R) 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 mobile (R) spectrum by making clear the assumptions that are made in planning the use of the aeronautical mobile 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 ground based VHF aeronautical radio equipment for analogue voice and ACARS data link communications.

Mandatory Elements (1-9)		
1	Frequency band (or bands)	108.000 – 117.975 MHz ¹ 117.975 – 137 MHz
2	Radio service	Aeronautical Mobile(R) service
3	Application	Aeronautical communications: AGA ² communications (civil) and SAR ³ (communications)
4	Channelling modulation	Analogue Voice: 25 kHz 6K80A3EJN and 8.33 kHz 5K00A3EJN, ACARS ⁴ Data Link 25 kHz 13K0A2DAN. In accordance with ICAO Annex 10 (Ref 1.1), as relevant.
5	Transmit power limit ⁵	For each individual licence / frequency assignment, either the maximum and minimum field strength at the limit of DOC ⁶ may be specified or the maximum effective radiated power (e.r.p.).
6	Channel occupation rules	Analogue Voice: SELCAL ⁷ equipment may be used to provide selective calling; Data Link: ACARS uses CSMA ⁸ protocol. In accordance with ICAO Annex 10 (Ref 1.1), as relevant.
7	Duplex type/ separation	Single channel simplex and offset frequency simplex
8	Licensing Regime	Aeronautical ground station - Individual, operator's certificate required for some licences, call signs may also need to be issued ⁹ .
9	Additional essential requirements	Article 3.3e Emergency – May be applied in future to aeronautical radio equipment used at offshore aeronautical stations, for traffic and logistics communications with helicopters and other aircraft and for communications on the emergency frequency 121.500 MHz and auxiliary frequency Search and Rescue 123.100 MHz, in the same environment as similar maritime radio equipment.

¹ The use of this band by the Aeronautical Mobile (R) service is subject to agreement obtained under the procedures in Article 14 of the Radio Regulations. The band should not be used for this purpose until it is no longer required for Aeronautical Radionavigation.

² AGA – Air-Ground-Air communications.

³ SAR – Search and Rescue

⁴ Aircraft Communications Addressing and Reporting System

⁵ 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.)

⁶ DOC - Designated operational coverage (See ITU RR 45.1.1)

⁷ SELCAL – Selective Calling

⁸ CSMA – Carrier Sense Multiple Access

⁹ See Reference 1.4 Schedule 8 Aeronautical Parts 1, 2 & 3 for limitations on WT Act Licences

Informative Elements (10-13)		
10	Frequency planning assumptions	Antennas vertically polarised. ICAO Annex 10 Volume III (Reference 1.3). ICAO Annex 10 Volume V (Reference 1.1). Frequency assignments according to ICAO European agreements (Reference 1.2).
11	References	ETSI EN 300 676
12	Remarks	Fixed, stationary, vehicle, portable and hand held equipment categories comprising transmitter, receiver and transceiver types operating in the VHF Aeronautical Mobile (R) Service allocation 118 to 136.975 MHz using Double Sideband (DSB) Amplitude Modulation full carrier with 8.33 kHz and/or 25 kHz channel spacing, intended for analogue voice and data link communications.
13	Notification Number	2005/490/UK

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.

ETSI EN 300 676 V1.3.1 (2003-03) European Standard (Telecommunications series) 'Electromagnetic compatibility and Radio spectrum Matters (ERM); Ground-based VHF hand-held, mobile and fixed radio transmitters, receivers and transceivers for the VHF aeronautical mobile service using amplitude modulation; Technical characteristics and methods of measurement'.

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	15 Sep 2005	Notified as Draft
1.0	2 Feb 2006	Initial Publication as final text.