



**MEMORANDUM OF UNDERSTANDING ON
FREQUENCY CO-ORDINATION BETWEEN
THE REPUBLIC OF IRELAND
AND
THE UNITED KINGDOM
IN THE FREQUENCY BANDS
2300 - 2400 MHz
TO BE APPLIED IN THE AREA INCLUDING
THE REPUBLIC OF IRELAND
THE UNITED KINGDOM AND THE ISLE OF MAN**

1. INTRODUCTION

- 1.1. This Memorandum of Understanding (MoU) describes the procedures for the coordination of civil radio services between the Republic of Ireland (RoI) and the United Kingdom (UK) in the frequency band 2300 to 2400 MHz.
- 1.2. In the RoI the frequency band 2300-2400 MHz will be awarded on a technology neutral basis.¹
- 1.3. In the UK 2300-2310 MHz is a civil band and 2310-2400 MHz is a MOD band.
- 1.4. The band is assigned as follows under a band sharing arrangement:
- 1.5. Ofcom is the Administration of the UK responsible for all relations with the RoI concerning this MoU.
- 1.6. The Commission for Communications Regulation (ComReg) is the Administration of the RoI responsible for all relations with the UK concerning this MoU.
- 1.7. Accordingly, the Administrations of the UK and the RoI have agreed the co-ordination procedures in this MoU.
- 1.8. This MoU applies in the regions of the RoI, the UK and the Isle Of Man.
- 1.9. The co-ordination procedure is based on the principle of equitable access to the spectrum resource.

2. COMMITMENT OF THE ADMINISTRATIONS

- 2.1. The Administrations of the RoI and the UK are committed to ensuring that the radio-communication stations operating in the band 2300 - 2400 MHz, respect the limits for establishment of base stations without co-ordination given at paragraph 3.1 or 3.2, unless the stations are specifically exempt from the coordination procedure in accordance with paragraphs 3.1, 3.2 or 4.

3. CRITERIA FOR COORDINATION

- 3.1. The Administrations of the RoI and the UK acknowledge that within the frequency bands 2320 -2360 MHz, a radio communication station of the Emergency Services of Northern Ireland may be operated, established or modified, without co-ordination with the RoI, provided that the transmitter power is less than or equal to 1 Watt EIRP, at a height less than 3m above local ground and the station is located a distance of 16km or greater from the border.
- 3.2. The Administrations of the RoI and the UK acknowledge that radio signals in the band 2310 MHz to 2400 MHz for UK Defence and the emergency services may on a temporary basis (approximately 10 minutes in any month) exceed the

¹ ComReg. Release of Spectrum in the 2300 – 2400 MHz band, Proposed Options & License Conditions, Document No: 09/49, Date:15 June 2009

trigger level by 34 dB, in a bandwidth of 25KHz, without prior or subsequent coordination.

- 3.3. Within the frequency bands 2300 -2400 MHz, a radio communication station may be operated, established or modified in a country, without co-ordination with the neighbour country, provided that the predicted field strength of each carrier produced by that station does not exceed the threshold of -3 dB μ V/m in a bandwidth of 25 kHz at and beyond the border or coast line of the neighbouring country at a height of 3 m above ground level.
- 3.4. Radiocommunication stations for which the predicted field strength exceeds the values given in 3.1 must be co-ordinated in accordance with paragraph 7, except where stations are listed in paragraph 6 or an arrangement exists between operators as described in paragraph 4.
- 3.5. To establish the predicted field strength produced by a station, the methodology set out at paragraph 5 shall be employed.
- 3.6. In the case of time division duplex technology the interference power shall be the power, during the active part of the signal, in the stated bandwidth.
- 3.7. For systems with a working bandwidth other than 25 kHz the trigger level, expressed in dB μ V/m, may be revised to $-3 + 10 \cdot \log_{10}(\text{bandwidth}/25)$ where the channel bandwidth is defined in kHz.

4. ARRANGEMENTS BETWEEN OPERATORS

- 4.1. To facilitate reasonable and timely development of their systems, licensees are encouraged to develop bilateral arrangements.
- 4.2. Licensees holding rights, in each of the neighbouring countries, to use the frequencies of operation of a radiocommunication station may mutually agree conditions in which that station can exceed the predicted field strengths set out at paragraph 3.2.
- 4.3. Where licensees have reached such a mutual agreement, co-ordination of the corresponding station in accordance with paragraph 7 is not required, subject to the terms of the agreement between the licensees and subject to the agreement being lawful. It is the responsibility of the licensees to ensure that the agreement is lawful. It is also the responsibility of the licensees to ensure that an appropriate agreement is reached with all licensees in the neighbour country authorised to use frequencies at which the predicted field strength may exceed the thresholds set out at paragraph 3.1.
- 4.4. In order to facilitate operator co-ordination, each administration will provide names and point of contact information for the relevant licensees, subject to the agreement of the licensees.

5. PREDICTION OF PROPAGATION

The field prediction method shall be according to the latest version of Recommendation ITU-R P. 1546²:

- 10% of the time
- 50% of locations
- Height of the receiver antenna 3m

Taking account of:

- Terrain profile for the base station in all main directions
- Type of terrain (e.g. land, sea, mixed path)
- Effective radiated field strength
- Antenna tilt and azimuth

Including model components:

- Mixed land/sea paths
- Receiving/mobile antenna height
- Terrain clearance angle

And standard values:

- $\Delta N = 40$ (N0m-N1000m)

² Recommendation ITU-R P.1546, Method for point-to-area predictions for terrestrial services in the Frequency range 30 MHz to 3 000 MHz

6. CO-ORDINATED STATIONS

6.1. The stations listed below have been agreed by both administrations to be coordinated. Any subsequent change in the parameters given in the table shall void any acceptance of co-ordination for the corresponding station or stations.

Station Name	Centre Freq (MHz)	Modulation	Individual Channel bandwidth	Lat	Long	East	North	Ground H AMSL (m)	H AGL (m)	EIRP (dBm)	Ant. Style	Pol	3dB BW (Degs)	Az (Degs E of N)	Ant. Pattern Or manufactures code

7. CO-ORDINATION PROCEDURE

- 7.1. Exchange of information for co-ordination/notification purposes shall be in the format set out in the Harmonised Co-ordination Method (HCM) agreement Annex 2A (revised at Vilnius 2005)³
- 7.2. In the event of interference between authorised users of the band 2300 - 2400 MHz in the RoI and the UK, the affected users shall exchange information between themselves with a view to resolving the interference by mutual agreement. A report of the interference and the details of the information exchanged shall be sent to both administrations. The Administrations of the RoI and the UK agree to facilitate the exchange of information between authorised users of the band.
- 7.3. Co-ordination requests should be sent by licensees through the administration responsible for its authorisation.

8. REVIEW OF MoU

The co-ordination threshold and prediction methods defined in this MoU may be reviewed in the light of experience of operation of networks in both countries and future prediction developments.

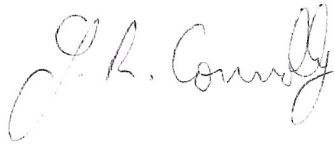
9. TERMINATION OF THE MoU

Either administration may withdraw from this MoU subject to 6 months written notice.

³ Agreement between the Administrations of ... on the Coordination of frequencies between 29.7 MHz and 39.5 GHz for fixed service and land mobile service (HCM Agreement) Vilnius, 2005
http://hcm.bundesnetzagentur.de/http/englisch/verwaltung/index_europakarte.htm

10. DATE OF ENTRY INTO FORCE

This MoU shall enter into force on 1st January 2010.



JIM CONNOLLY

For the administration of The Republic of Ireland

Date 23 October 2009



RAY MCCONNELL

For the UNITED KINGDOM administration

Date 29-9-09