

**MEMORANDUM OF UNDERSTANDING ON
FREQUENCY CO-ORDINATION BETWEEN
FRANCE
AND
THE UNITED KINGDOM
IN THE FREQUENCY BANDS
2500 - 2690 MHz**



1. INTRODUCTION

- 1.1. This Memorandum of Understanding (MoU) describes the procedures for the coordination of radio services between France and the United Kingdom (UK) in the frequency band 2500 to 2690 MHz.
- 1.2. In order to facilitate the deployment of systems operating in neighbouring countries, it is necessary to establish, by agreement, regulatory and technical procedures for frequency co-ordination. Moreover, this agreement is designed to reduce the administrative procedures in the frequency bands in the countries concerned.
- 1.3. This MoU does not apply to the Channel Islands.
- 1.4. This MoU does not apply to the Channel tunnel.
- 1.5. In the UK the frequency band 2500-2690 MHz is expected to be awarded on a technology neutral basis, in accordance with decisions to be made by Ofcom following a consultation process.¹
- 1.6. In France the frequency band 2500 to 2690MHz is currently used for military radiolocation services, tactical and infrastructure relay links. It will be made progressively available for electronic communication mobile services. The military systems will be switched off at a date T0 which is not defined at the date of signature of this MoU. T0 is subject to negotiations between ARCEP and the French Ministry of Defence, and will also depend on the market demand in France. The radiolocation services are planned to be switched off by summer 2012 at the latest. If the date T0 is earlier than summer 2012, then the radiolocation service will also be switched off at T0.
- 1.7. The frequency band 2500-2690 MHz is currently under discussion within EC and CEPT in the context of WAPECS² which may change coordination requirements in this frequency band.
- 1.8. Accordingly, the Administrations of the UK and France have agreed the co-ordination procedures in this MoU.
- 1.9. The co-ordination procedure is based on the principle of equitable access to the spectrum resource.
- 1.10. Ofcom is the Administration of the United Kingdom responsible for all relations with France concerning this MoU.
- 1.11. The Agence Nationale des Fréquences (ANFR) is the Administration of France responsible for all relations with the UK concerning this MoU.

¹ Ofcom's consultation proposals are set out in a consultation document published on 11 December 2006 (<http://www.ofcom.org.uk/consult/condocs/2ghzawards/>), a discussion document published on 1 August 2007 (<http://www.ofcom.org.uk/consult/condocs/2ghzdiscuss/>) and a consultation document published on 19 December 2007 (<http://www.ofcom.org.uk/consult/condocs/2ghzrules/>).

² EC Mandate to CEPT to develop least restrictive technical conditions for frequency bands addressed in the context of WAPECS', 5 July 2006.

2. COMMITMENT OF THE ADMINISTRATIONS

- 2.1. The Administration of France and the UK are committed to ensuring that the radio-communication stations operating in the band 2500-2690 MHz, respect the limits for establishment of base stations without co-ordination given at paragraph 3.1, unless the stations are specifically exempt from the coordination procedure in accordance with paragraph 4.
- 2.2. The Administration of France and the UK are committed to take into account the future EC decision on the band 2500-2690 MHz as well as any EC derogation on a transitional period in France.

3. CRITERIA FOR COORDINATION

- 3.1. Within the frequency band 2500-2690 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 21 dB μ V/m in a bandwidth of 5 MHz at and beyond the coast line of the neighbouring country at a height of 3 m above ground level.
- 3.2. Radio-communication stations for which the predicted field strength exceeds the values given in 3.1 must be co-ordinated in accordance with paragraph 6, except where an arrangement exists between operators as described in paragraph 4.
- 3.3. To establish the predicted field strength produced by a station, the methodology set out at paragraph 5 shall be employed.
- 3.4. 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.

4. ARRANGEMENTS BETWEEN OPERATORS

- 4.1. A "Framework" MoU between the administrations of France and the United Kingdom, which enables planning arrangements between mobile operators, subject to agreement of the Administrations, was signed on 13 October 1999³. The administrations of France and the United Kingdom agree to extend the applicability of this MoU to all operators of systems in the frequency bands 2500-2690 MHz subject of the present MoU.
- 4.2. To facilitate reasonable and timely development of their systems, licensees are encouraged to develop Arrangements in accordance with the Framework MoU of 13 October 1999.
- 4.3. Operators may only negotiate Arrangements concerning the common part of those frequency bands for which they have been licensed by the National Administration. The provisions in the Arrangements shall not result in an

³ Agreement between the administrations of France and the United Kingdom concerning the approval of planning arrangements between mobile radio communications network operators. 13 October 1999

impairment of the authorised use of radio frequencies by third parties not involved in the Arrangements.

- 4.4. In order to facilitate Arrangements between operators, 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. 1546⁴

With parameters:

- 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)

⁴ 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-ORDINATION PROCEDURE

- 6.1. Exchanges of information for coordination/notification purposes shall be in the format set out in the HCM agreement Annex 2A (revised at Vilnius 2005)⁵.
- 6.2. A coordination request must be sent by the licensee through the Administration responsible for its authorisation.
- 6.3. The coordination procedure shall follow the one described in the HCM Agreement.
- 6.4. In the event of interference between authorised users of the band 2500-2690 MHz in France 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 France and the UK agree to facilitate the exchange of information between authorised users of the band.

7. OTHER RADIO-COMMUNICATION IN FRANCE ALREADY IN SERVICE

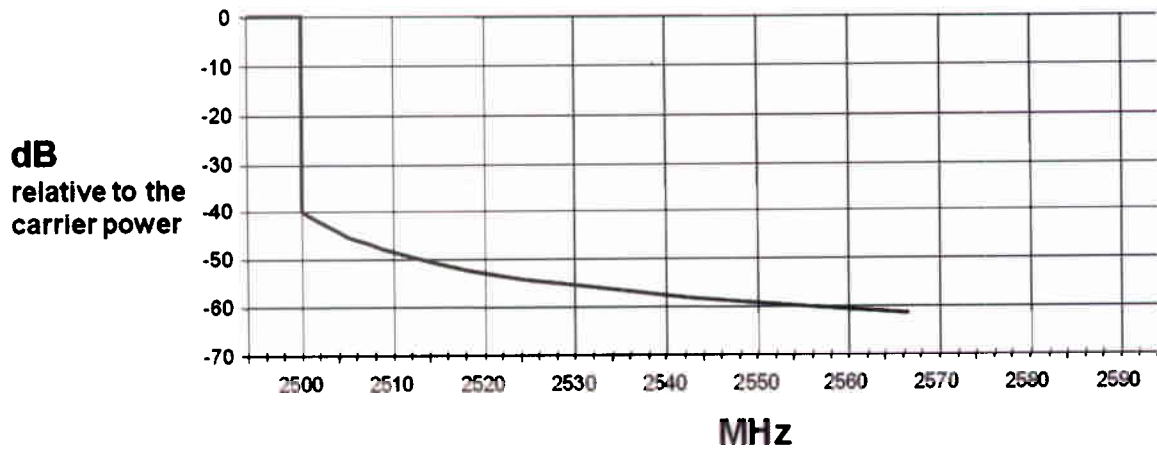
- 7.1. Military infrastructure (point to point) relay links may be used over France. These relay links will gradually cease operating in the frequency range 2500-2690MHz until complete closure at T0, as indicated in § 1.6.
- 7.2. Using the prediction parameters as set out in § 5 above, the 21 dB μ V/m threshold is not reached or exceeded at the UK coastline or beyond, for the point to point services as they exist at the time of agreement of this MoU.
- 7.3. Radars are currently operating on northern France with field strengths which may exceed 21dB μ v/m in the UK. These radars operate in frequencies below 2500 MHz. However the band 2500-2520 MHz may also be used in case of national emergency. These radars operate continuously with a 360 ° sweep. As indicated in § 1.6, all radars operating in this frequency band are planned to be switched off by summer 2012 at the latest.
- 7.4. Other radars which operate in the frequency band 2500 to 2520MHz will not be used at any location in France such that their field strength at the UK coast line or beyond is greater than or equal to 21 dB μ V/m, except in cases of national emergency
- 7.5. The nominal emission mask of the radar is given in Figure 1, in line with Annex 8 of ITU R Recommendation SM 1541⁶.

⁵ 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

⁶ Rec. ITU-R SM.1541-2 1 Recommendation ITU-R SM.1541-2, Unwanted emissions in the out-of-band domain



Figure 1 Nominal radar emission mask



- 7.6. Coverage plots for radars in France referred to par 7.3 are given in figures 2, 3, and 4, which would apply in the frequency range 2500-2520MHz in cases of national emergency as described in § 7.3, with modelling parameters according to par 5 .

Figure 2 Estimated on axis field strength of French radio location services on UK
Field strength = 21db μ V/M in a bandwidth of 5MHz
At a height of 3m



Figure 3 Estimated off axis field strength of French radio location services on UK
Field strength = 21db μ V/M in a bandwidth of 5MHz
At a height of 3m



Figure 4 Estimated on axis field strength of French radio location services on UK

Field strength = 21dB μ V/M in a bandwidth of 5MHz
At a height of 3m



- 7.7. Using the prediction parameters as set out in § 5 above, the 21 dB μ V/m threshold is not reached or exceeded at any point at the UK coastline or beyond, for the off axis beam of French radio location services identified in Fig 4.

8. REVIEW OF MoU

- 8.1. The coordination 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.
- 8.2. This MoU may be updated following the adoption of an EC decision relevant to the band 2500-2690MHz and any related derogation requested by France, the results of the French consultation anticipated in 2008 on electronic communications in the frequency band 2500-2690MHz or the award of licences to use the frequency band 2500-2690MHz in the UK.

9. TERMINATION OF THE MEMORANDUM OF UNDERSTANDING

Either Administration may withdraw from this Memorandum of Understanding subject to 6 months notice.

10. DATE OF ENTRY INTO FORCE

This Memorandum of Understanding shall enter into force on 1 March 2008.



For the administration of FRANCE

A RIGOLE

Signed at Paris on 12 March 2008.



For the UNITED KINGDOM administration

P BURY

Signed at London on 29 Feb 2008.