MEMORANDUM OF UNDERSTANDING BETWEEN THE ADMINISTRATIONS OF THE UNITED KINGDOM AND FRANCE CONCERING THE USE OF THE BAND 174 - 225 MHz

1. The administrations of the United Kingdom and France note :

(1) that the band 174 - 223 MHz is allocated to broadcasting on a primary basis and that both the United Kingdom and France are listed in footnote RR621 of the Radio Regulations which additionally allocates the band to the land mobile service on a permitted basis in the Countries listed there in;

(2) that the administration of France utilises the band 174 - 223 MHz for both the Broadcasting and land mobile service with equal rights;

(3) that the administration of United Kingdom will cease broadcasting in the band 174 - 223 MHz on 6 January 1985 and will introduce the land mobile service in Great Britain * in that band from 7 January 1985;

(4) that the administration of the United Kingdom needs to plan its use of the land mobile service in Great Britain in advance of the date when , in accordance with RR 1228 of the Radio Regulations, it will become possible to notify the International Frequency Registration Board.

2. In order to facilitate the introduction of the land mobile service in Great Britain and planning of the band 174 - 225 MHz for use by the broadcasting and land mobile services in France, the administrations of United Kingdom and France agree the Following:

(1) The United Kingdom broadcasting stations in the band 174 - 223 MHz, still operating under the Stockholm Agreement 1961 , will continue to be protect by France
Until 6 January 1985;

(2) The United Kingdom will introduce the land mobile service in Great Britain in the band 174 – 225 MHz from 7 January 1985 with the typical technical Parameters as given in Annex A , and this use for the land mobile service will be protected by France;

(3) French broadcasting stations operating in the band 174 – 223 MHz with technical parameters as given in Annex B (i) will be protected by the United Kingdom as detailed in Annex B (ii). Any French broadcasting stations will Continued to be subject to coordination between the Administrations of France and the United Kingdom in accordance with the procedures of Stockholm Agreement 1961;

(4) The protection of the land mobile radio use in Great Britain from broadcasting use in France will be as Detailed in Annex C;

(5) The protection of broadcasting in France from land mobile use in Great Britain will be as detailed in Annex D;

(6) Land mobile use in France and Great Britain will be mutually protected using the provisions of Annex E. Such use will be mutually coordinated from the date when the Administration of France decides to introduce the land

* Great Britain extends to England, Wales and Scotland

Mobile service within the coordination distances calculated in accordance with Annex E. Until that date the Administration of the United Kingdom will, on regular basis, provide the Administration of France with details of the land mobile frequencies assigned.

(7) Experience may indicate a requirement for changes to the protection criteria of Annexes C, D and E. Any such changes will be subject to the agreement of the Administrations of France and the United Kingdom.

3. The delegates of the kingdom and France agree that the provision of this Memorandum of Understanding shall enter into force 30 days after the date of signature of this document, unless within this period the administration of the United Kingdom or
France signifies that it is unable to approve the agreement.

Done at: Paris, 10 April 1984

For: The United Kingdom

D I Court

France

J GRENIER M. SCHOELLER

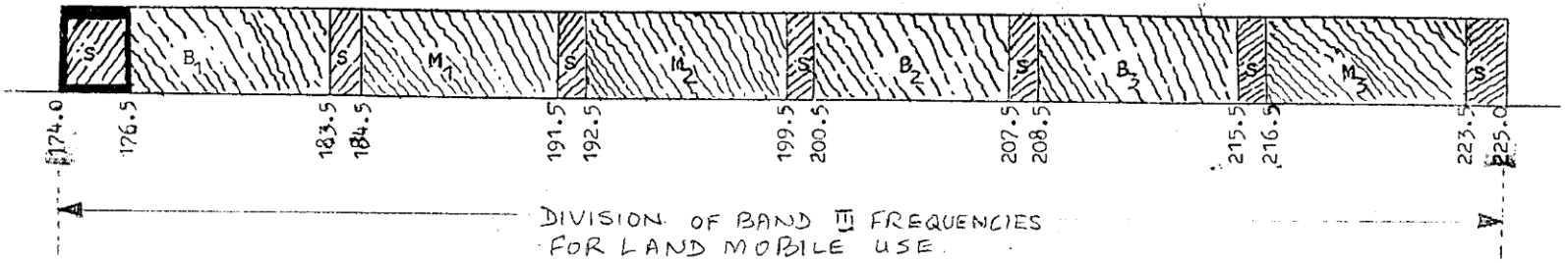
The English original of this Memorandum of Understanding will be laid down with the United Kingdom Radio Regulatory Division at London with the French original laid down with French Administration in Paris. In case of dispute the English text will prevail.

ANNEX A

TECHNICAL PARAMETERS OF THE LAND MOBILE SERVICES

POWER	25 WATTS ERP
BANDWIDTH	12.5 KHz
CHANNEL CENTRE FREQUENCY	174.0125 MHz + n ×12.5 KHz (n = 0, 1, 2 , 3 …)
FREQUENCY TOLERANCE	± 2.0 KHz
MODULATION SYSTEM	FREQUENCY MODULATION
TRANSMIT / RECEIVE SPACINC	8 MHz
BASE STATION TRANSMIT BANDS	176.5 – 183.5 MHz 200.5 – 207.5 MHz 208.5 – 215.5 MHz
CHANNEL INC PLAN	As Attached

CHANNELLING PLAN FOR THE LAND MOBILE SERVICES



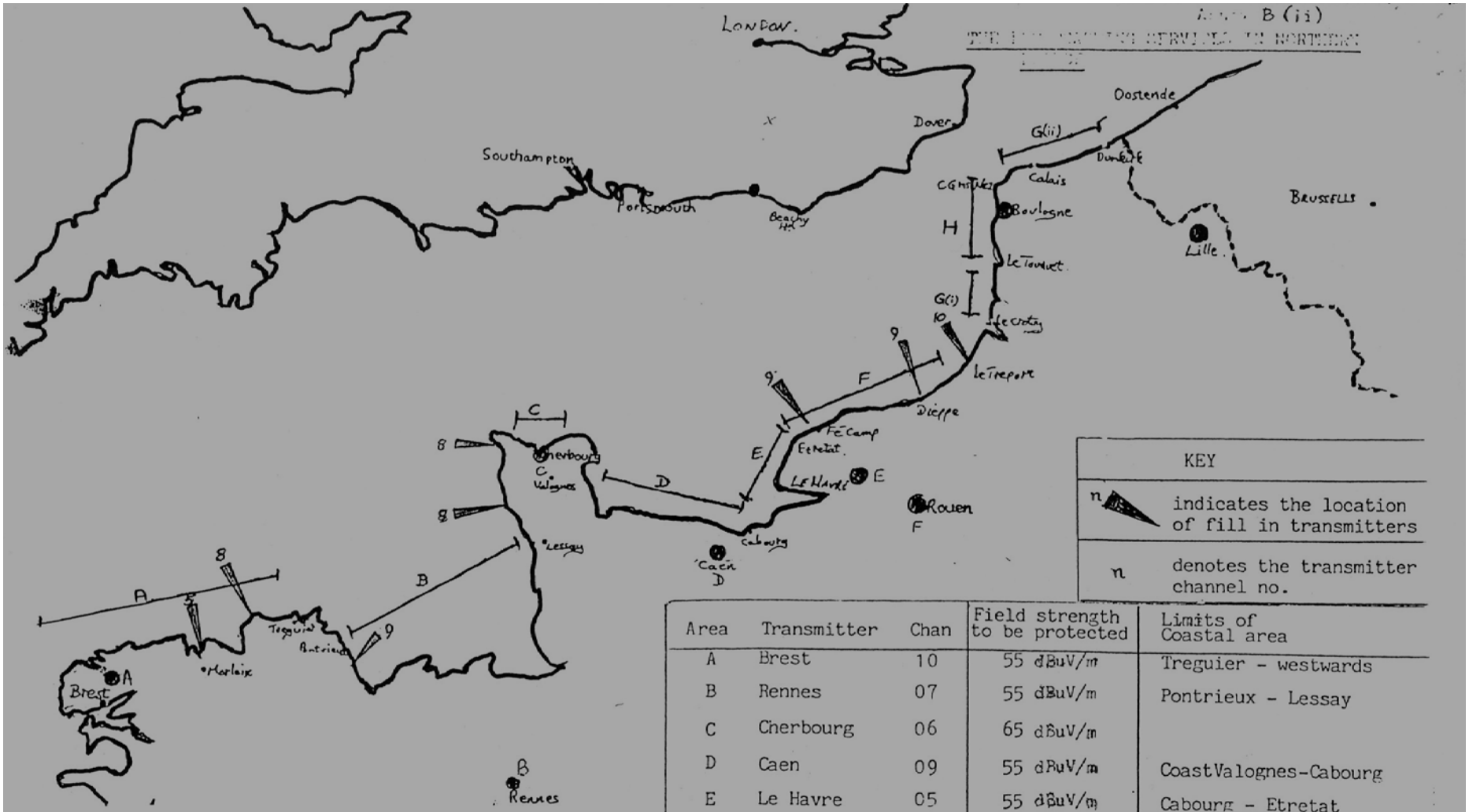
Abbreviations

S - single frequency simplex sub-bands
B - base station transmit sub-bands
M - mobile station transmit sub-bands

ANNEX B (i)

TECHNICAL PARAMENTERS OF THE BROADCASTING SERVICE IN FRANCE

CHANNELS	05 – 10	
CARRIER FREQUENCISES	Vision 176 MHz	Sound 182. 5 MHz
	184	190.5
	192	198.5
	200	206.5
	208	214.5
	216	222.5
SYSTEM	L / SECAM	
POLARISATION	Horizontal in the service areas on the French Coast.	



KEY	
n	indicates the location of fill in transmitters
n	denotes the transmitter channel no.

Area	Transmitter	Chan	Field strength to be protected	Limits of Coastal area
A	Brest	10	55 dBuV/m	Treguier - westwards
B	Rennes	07	55 dBuV/m	Pontrieux - Lessay
C	Cherbourg	06	65 dBuV/m	
D	Caen	09	55 dBuV/m	CoastValognes-Cabourg
E	Le Havre	05	55 dBuV/m	Cabourg - Etretat
F	Rouen	07	55 dBuV/m	Etretat - Le Treport
*Gi) *Gii)	Lille	05	70 dBuV/m	Le Crotoy - Le Touquet Calais - Dunkirk
H	Boulogne	10	70 dBuV/m	Le Touquet-C.Gris Nez
All fill-in transmitters			60 dBuV/m	

Note

Although it is agreed that the field strength to be protected in areas Gi and Gii on channel 05 as +70dBuV/m, the United Kingdom Administration will take all practical measures to protect a field strength of + 65dBuV/m within 5km of Calais. In addition, a field strength of +60dBuV/m shall not be

FRENCH TEST POINTS

AREA	TRANSMITTER NAME	TEST POINT	LAT / LONG	CHAN	POL	FIELD STRENGTH TO BE PROTECTED (d Bu V / m)
A	BREAT	1. LANVION	48N49 03W28	5 8 10	v h h	60 60 55
B	RENNES	2. BARNVILLE	49N20 01W43	7 8 9	h v h	55 60 60
C	CHERBOURG	3. CHERBOURG	49N39 01W38	6 8	h h	65 60
D	CAEN	4. CABOURG	49N18 00W06	9 5	h h	55 55
E	LE HARVRE	5. ETRETAT	49N43 00E12	5 7 9	h h h	55 55 60
F	ROUEN	6. EU	50N05 01E24	7 9 10	h h v	55 60 60
G i	LILLE	7. LE TOUQUET	50N32 01E32	5 10	h h	70 70
H	BOULOGNE	8. CAP-GRIS-NEZ	50N42 01E32	5 10	h h	70 70
G ii	LILLE	9. CALAIS 10 . DUNKIRK	50N59 Q1E51 51N03 02E22	5 5	h h	65 70

ANNEX C

PROTECTION OF LAND MOBILE RADIO USE IN GREAT BRITAIN

1. The maximum interfering field strength measured in a 7 KHz bandwidth for 50% locations and 10% of the time at a height of 15m above ground shall be:

24db (uVm) for horizontally polarised broadcasting emissions.

7 db (uVm) for vertically polarised broadcasting emissions.

2. In the following frequency bands this field strength shall not be exceeded at the coastline of Great Britain:

MHz
174 – 175.5
176.5 – 182.3
182.7 – 183.5
184.5 – 190.3
190.7 – 191.5
192.5 – 198.3
198.7 – 199.5
200.5 – 206.3
206.7 – 207.5
208.5 – 214.3
214.7 – 215.5
216.5 – 222.3
222.7 – 223.5

3. In the following frequency bands this field strength shall not be exceeded North of the line given on the attached map:

MHz
175.5 – 176.5
182.3 – 182.7
183.5 – 184.5
190.3 – 190.7
191.5 – 192.5
198.3 – 198.7
199.5 – 200.5
206.3 – 206.7
207.5 – 208.5
214.3 – 214.7
215.5 – 216.5
222.3 – 222.7

4. For the purpose of calculation CCIR Recommendation 370-4 (Geneva 1982) shall be used for the case of 10% time, 50% locations and h = 10m.

Explanatory Note

The minimum median value of the field strength to be protected in the land mobile service is given by CCIR Report 358-4 (Geneva 1982) as: 41+ d + 20 log f + 10dB (uV/ m)

f is in MHz

d is taken from curve C of Figures 4 and 6 Report 358 - 4

Calculated values then are (in dBuV/m):

f(MHz)	Mobile Stations	Base Stations
174	20.3	21.3
200	21.5	23.0
223	22.0	24.5

Assuming the following parameters:

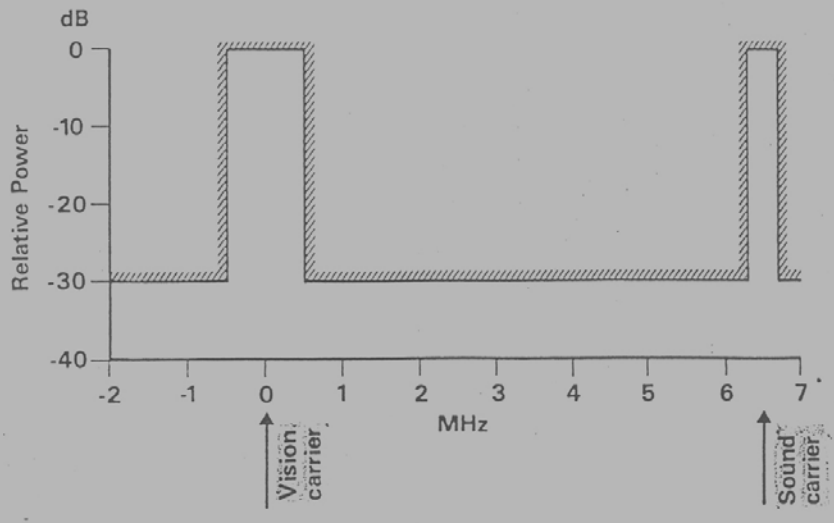
Protection Ratio (fm)	10dB
Polarisation discrimination for horizontally polarised broadcasting emissions	18dB base stations 8dB mobile stations
Reduction in field strength at mobile antenna (3m) compared with base antenna (10m)	4.5dB

the maximum interfering field strength at a height of 10m may be calculated as (in dBuV/m):

f(MHz)	Mobile Stations		Base Stations	
	VP	HP	VP	HP
174	14.8	22.8	11.3	29.3
200	16.0	24.0	13.0	31.0
223	16.5	24.5	14.5	32.5

A compromise value for use over the band is then 24dB(uV/m) for horizontally polarised broadcasting emissions and this gives an extra 5-7 dB protection to base stations which may have heights greater than 10m. The corresponding figure for vertically polarised broadcasting emissions is 7dB(uV/m).

The power of a L/SECAM television signal measured in a 7kHz band may be expected to be contained within the mask below:



The distance from the broadcasting transmitter at which the field strength reduces to the maximum permitted by the land mobile use is thus less at frequencies between the carriers than at frequencies close to the carriers.


KILOMETRES
100 0 100 200 300 400 500
WICK
INVERNESS
ABERDEEN
MALIN HEAD
GLASGOW
EDINBURGH
BELFAST
NEWCASTLE
GALWAY
LANCASTER
EIRE
DUBLIN
MANCHESTER
CORK
GREAT
BRITAIN
BIRMINGHAM
NORWICH
OXFORD
BRISTOL
LONDON
THE HAGUE
HOLLAND
PLYMOUTH
SOUTHAMPTON
DOVER
BRUSSELS
BELGIUM
LIEGE
COLOGNE
CHANNEL ISLES
BREST
ROUEN
PARIS
LUXEMBOURG
NANTES
FRANCE
STRASBOURG
LIMOGES
BERNE
SWITZERLAND
BORDEAUX
LYONS

ANNEX D

PROTECTION OF BROADCASTING USE IN FRANCE

1. Protection of the television service in France shall be limited to the television channels and coastal areas given in Annex B (ii).

2. The usable field strengths given in Annex B (ii) shall not be exceeded due to interference from the land mobile service in the United Kingdom when calculated by the law of simplified multiplication as detailed in CCIR Report 945 (Geneva 1982). Calculations shall include all land mobile base stations within 300 km of the French coast (400 km if the effective antenna height exceeds 200m).

3. The nuisance fields from each base stations site shall be determined from:

$$E = \sqrt{(\sum_i (a_i\, b_i\, E_{ni})^2)}$$

Where i is the number of transmitter on site;

a_i is the radio frequency protection ratio associated with the i – th transmitter. This shall be determined from CCIR Report 306 – 4 (Geneva 1982) for the non offset (curve a) noting that for some paths the interference may be continuous;

b_i is the receive antenna discrimination factor . This shall be 15 dB;

E_{ni} is the field strength at the French coast of the i – th transmitter. This shall be determined from CCIR Report 370- 4 (Geneva 1982) for the case of 5% time, 50% locations and h 2 = 10m.

4. The nuisance fields from mobile stations shall be assumed to be 20 dB less than the nuisance field arising from the corresponding base as calculated above.

Explanatory Note

Within the bandwidth of television channel there is the potential to use Up to 500 mobile channels. These may produce an additive interfering effect to the television signal. The addition from a single site will be a power addition as detailed above. From different sites however an attempt should be made to use the statistical (in locations) nature of propagation and the simplified multiplication method is appropriate.

The protection radio for the television signal is not constant over the television channel and thus an individual value is used for each mobile channel. Advantage is taken of the horizontal polarisation used in France by including an antenna discrimination factor. Mobile stations will produce a lesser interfering effect than base stations because their height above ground is less, leading to greater shielding by terrain and buildings, and their radiated power is typically less. A global reduction of 20db is assumed to allow for these factors.

ANNEX E

PARAMETERS FOR COORDINATING LAND MOBILE RADIO USE IN THE UNITED KINGDOM AND FRANCE

1. The minimum median value of field strength to be protected shall be 22 dB (uv/m).

2. Protection Ratio shall be 10 dB.

3. Reduction in field strength when changing receiving antenna height from 10m to 3m above ground shall be 4.5 dB.

4. Increase in field strength when changing receiving antenna height from 10m to 75m above ground shall be 12dB.

5. Coordination distances shall be calculated from CCIR Recommendation 370 – 4 (Geneva 1982) for the case of 50% locations and 10 % of time.

Example

The maximum interfering field strength at a height 10m is for mobile stations (3m antenna height) = 22 – 10 + 4.5 = 16.5 dB (uV/m). The maximum interfering field strength at a height of 10m for base stations (75m antenna height) = 22 – 10 – 12 = 0 dB (uV/m).

Taking the case of a transmitter power of 25w erp the coordination distances are:

Transmitter Antenna Effective Height	Mobile Stations	Base Stations
37.5m 75 150	55km 70 90	150km 165 180