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Your reference
TR3/6956 - 1/147
Our reference
RD/LW/91/1
Date
21 January 1985

Dear M. Tastenoy.

BAND III (174-225 MHz) CHANGE OF USE IN THE UNITED KINGDOM

Firstly I would like to thank you, M. Pirlot and your colleagues in BRT and RTBF for the very useful and productive meeting we had on 8 January.

I have now redrafted the document and I hope it is now in accordance with the decisions reached during our meeting.

Since I assume there will be no formal record of the meeting, I should like to state that it is still the view of the United Kingdom that in using this band for the land mobile service, the realistic situation resulting from UK broadcasting assignments in the Stockholm Plan should be a major factor when determining the equitable use of this spectrum in both our countries. It was for this reason that we proposed protected field strengths for 99% of time on channels E8 and E10 of 66 and 72 dB(uV/m) respectively. We should wish to have this point noted in any future discussions on the provisonal protected field strength value of 60 dB(uV/m) for the Waver/ Wavre stations.

If you are now content with the contents of the document we would of course have no objections to you forwarding a copy to the Secretary General of the ITU as agreed at our meeting. This would, I believe be in keeping with the spirit of Article 7 of the Radio Regulations (RR 378).

If you still have any further questions or difficulties with the sharing criteria as drafted, I shall be attending the meeting in The Hague on 29-30 January, to discuss bands 97.6-102.1 MHz and 104-108 MHz.

I look forward to receiving your comments.

Yours sincerely

D I COURT

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DRAFT 2

SHARING CRITERIA FOR USE BY THE ADMINISTRATIONS OF THE UNITED KINGDOM AND BELGIUM FOR THE PROTECTION OF LAND MOBILE SERVICES AND TELEVISION BROADCASTING SERVICES IN THE BAND 174-225 MHz

Annex A	Technical Parameters of the Land Mobile services in the United Kingdom.
Annex B(i)	Technical Parameters of the broadcasting service in Belgium.
Annex B(ii)	The Broadcasting Service in Belgium.
Annex C	Protection of land mobile radio use in Great Britain.
Annex D	Protection of broadcasting use in Belgium.

NOTES:

1. Great Britain extends to England, Scotland and Wales.

2. Experience and further studies in the CCIR and CEPT may indicate a requirement for changes to the protection criteria of annexes C and D. Any such changes will be subject to the agreement of the administrations of Belgium and the United Kingdom.

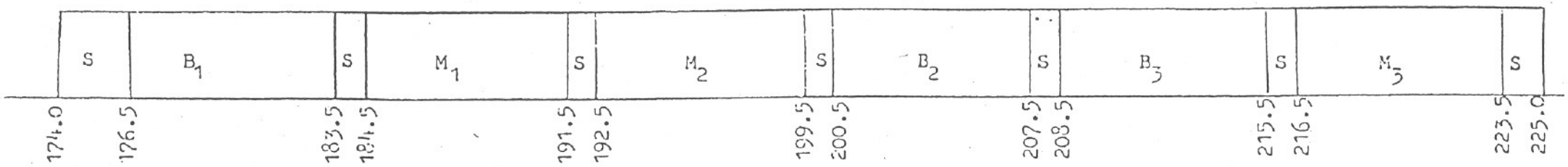
3. The United Kingdom administration will supply yearly to the administration of Belgium a list of all operational land mobile stations within 325 km of the appropriate test points given in annex B(ii) (400 km if the effective antenna height exceeds 200m). In addition the calculated value of protected field strength at these test points will be provided at 6 monthly intervals, commencing 31 January 1986.

18 January 1985

TECHNICAL PARAMETERS OF THE LAND MOBILE SERVICES IN THE UNITED KINGDOM

POWER	25 WATTS ERP TYPICAL
BANDWIDTH	12.5 kHz
CHANNEL CENTRE FREQUENCY	174.0125 MHz + n 12.5 kHz (n = 0, 1, 2, 3 ..)
FREQUENCY TOLERANCE	± 1.0 kHz
MODULATION SYSTEM	FREQUENCY MODULATION
TRANSMIT/RECEIVE SPACING	8 MHz
BASE STATION TRANSMIT BANDS	176.5 - 183.5 MHz
	200.5 - 207.5 MHz
	208.5 - 215.5 MHz
CHANNELLING PLAN	As attached
POLARISATION	Vertical
RANGE OF EFFECTIVE ANTENNA HEIGHTS	- 100 to + 200 metres

CHANNELLING PLAN FOR THE LAND MOBILE SERVICES



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Abbreviations

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

TECHNICAL PARAMETERS OF THE BROADCASTING SERVICE IN BELGIUM

CHANNELS	E5, E6*, E7, E8, E9, E10 and E11		
CARRIER FREQUENCIES	E5 Vision	175.25 MHz Sound	180.75 MHz
	E6	182.25	187.75*
	E7	189.25	194.75
	E8	196.25	201.75
	E9	203.25	208.75
	E10	210.25	215.75
	E11	217.25	222.75
SYSTEM	B/PAL		
POLARISATION	Horizontal and Vertical		

*This channel is not currently in use in Belgium.

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 10m above ground shall be:

24dB (uV/m) for horizontally polarised broadcasting emissions

7dB (uV/m) 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		
174.0	-	195.75
196.75	-	201.55
201.95	-	209.75
210.75	-	215.55
215.95	-	225.0

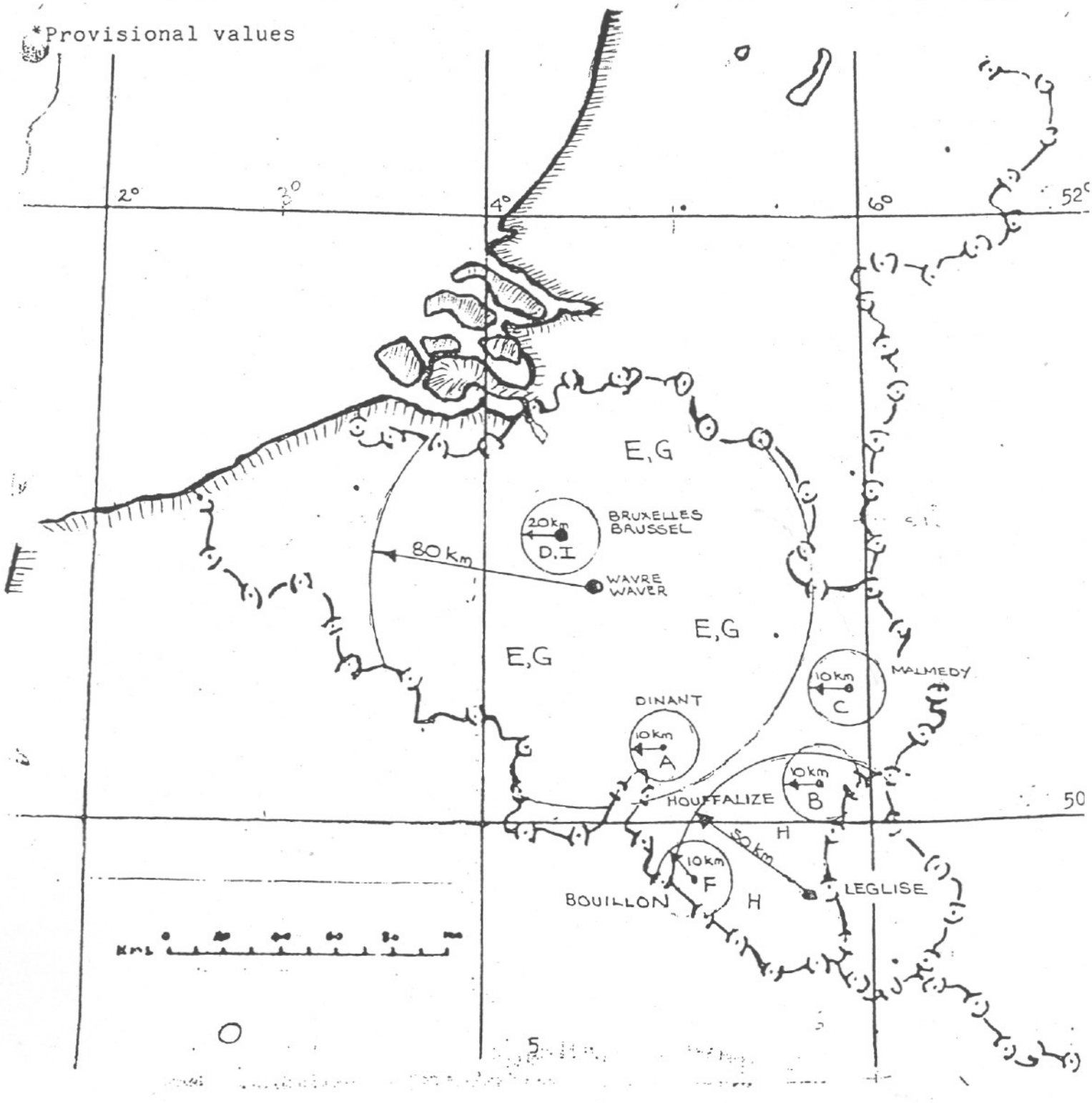
3. In the following frequency bands this field strength shall not be exceeded west of the line given on the map on page 9.

MHz		
195.75	-	196.75
201.55	-	201.95
209.75	-	210.75
215.55	-	215.95

BROADCASTING SERVICE IN BELGIUM

AREA	TRANSMITTER	CHANNEL	POLARISATION	PROTECTED FIELD STRENGTH AT TEST POINT	TEST POINT
A	DINANT	E5	V	61 dBuV/m	04E55 50N14
B	HOUFFALIZE	E5	H	55 dBuV/m	05E07 50N12
C	MALMEDY	E5	V	55 dBuV/m	05E59 50N29
D	BRUXELLES	E7	V	65 dBuV/m	04E21 50N50
E	WAVRE	E8	H	60* dBuV/m	03E30 50N59
F	BOUILLON	E9	V	55 dBuV/m	05E04 49N48
G	WAVER	E10	H	60* dBuV/m	03E30 50N59
H	LEGLISE	E11	H	55 dBuV/m	05E00 50N04
I	BRUSSEL	E11	V	60 dBuV/m	04E21 50N50

*Provisional values



4. For the purpose of calculation of the field strength, CCIR Recommendation 370-4 (Geneva 1982) shall be used for the case of 10% time, 50% locations and h_2 = 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 of 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:

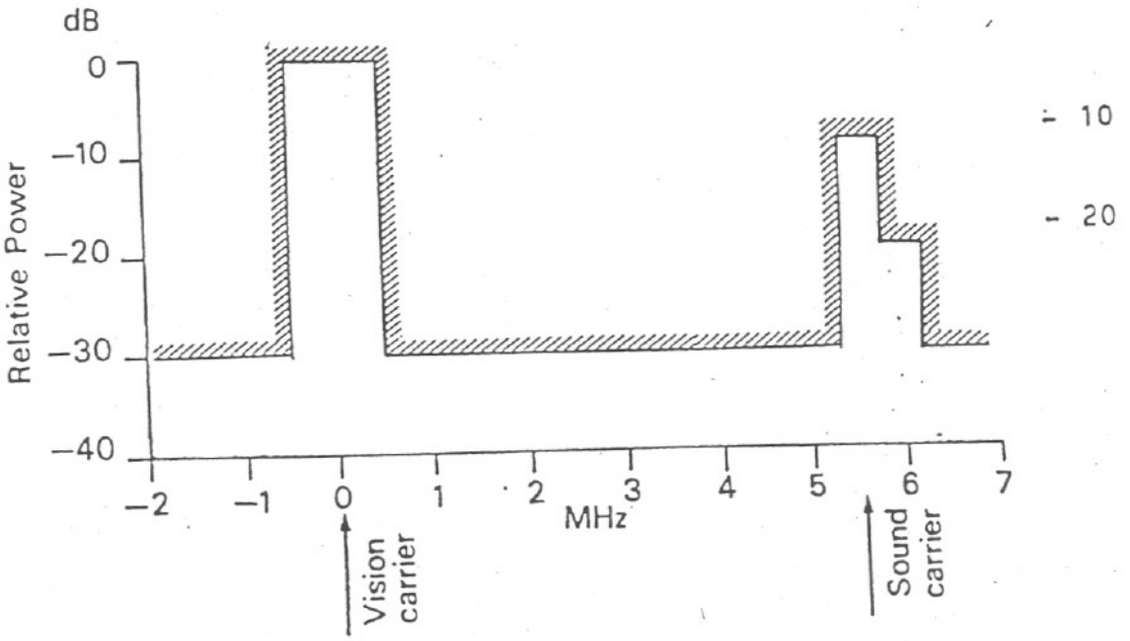
Protection Ratio (fm)	10dB
Polarisation discrimination for horizontally polarised broadcasting emissions	18dB base stations 8dB mobile stations
Reduction in field strength at mobile antenna (3m) compared with base antenna (10m)	4.5dB

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

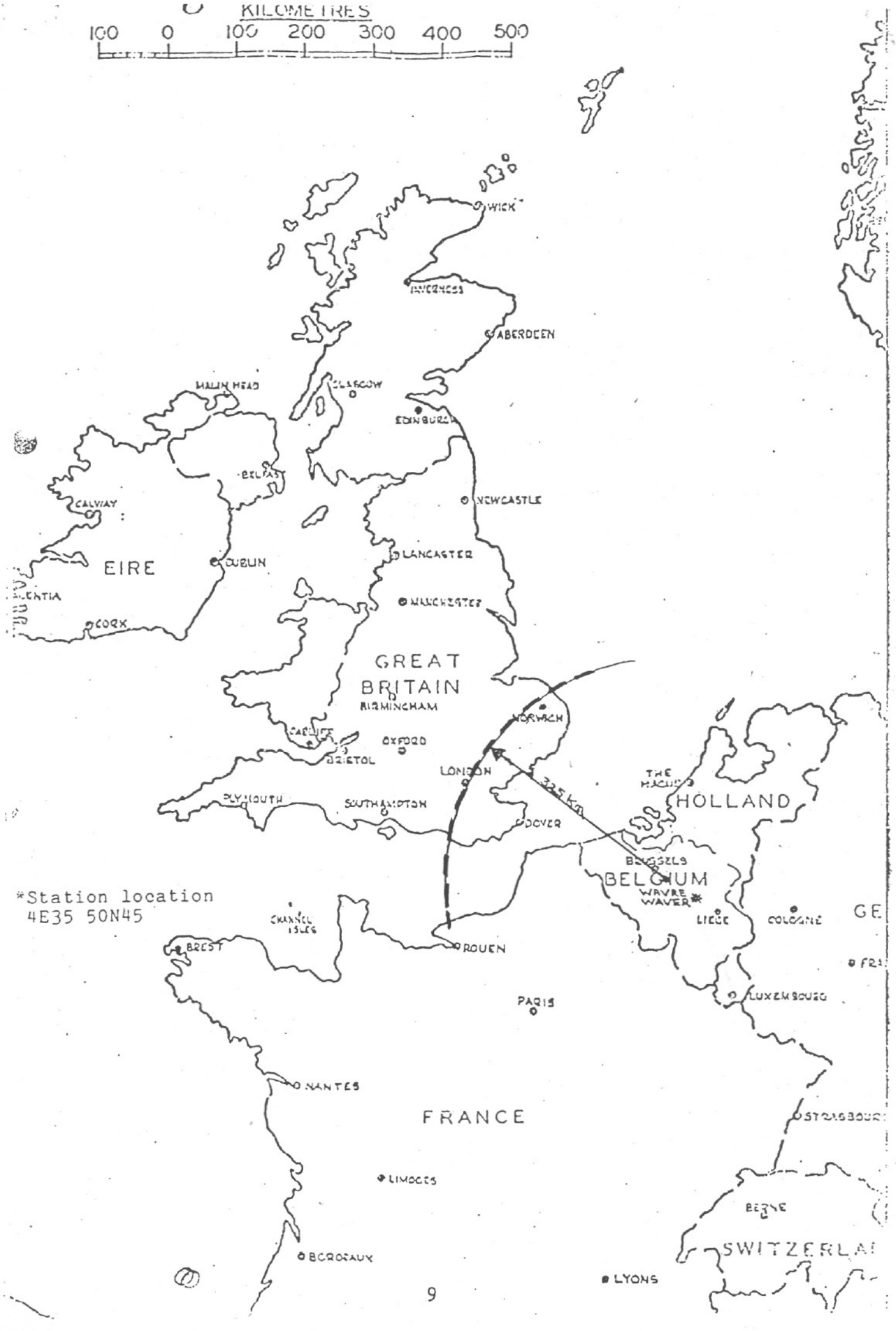
f(MHz)	Mobile Stations		Base Stations	
	VP	HP	VP	HP
174	14.8	22.8	11.3	29.3
200	16.0	24.0	13.0	31.0
223	16.5	24.5	14.5	32.5

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 B/PAL television signal measured in a 7 kHz band may 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.



*Station location
4E35 50N45

PROTECTION OF BROADCASTING USE IN BELGIUM

1. Protection of the television broadcasting service in Belgium - shall be limited to the television channels and areas given in Annex B(ii), and to those coordinated according to the Stockholm Agreement with values of protected field strength to be agreed between the administrations of Belgium and the United Kingdom.

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.

3. The usable field strength shall be calculated in the following way:

a) The interference potential of a land mobile base station shall be determined by the concept of a "nuisance field". The nuisance field is calculated from:

$$F = E_{(50,1)} + A + B$$

Where

$E_{(50,)}$ is the field strength (dBuV/m) of the interfering transmitter exceeded at 50% of the locations for 1% of the time with a receiving antenna height of 10m, determined from CCIR Rec 370-4 (Geneva 1982).

Effective transmitting antenna heights of less than 0 (zero) metres are to be disregarded. For effective antenna heights of less than 37.5 metres any corrections given in the Final Acts of the VHF/FM Conference 1984 shall be used.

A is the protection ratio (in dB) determined from the figure detailed on page 12 of this document. For the transmitters under consideration B is the antenna discrimination factor. This shall be 15dB in the case where the broadcasting emission is horizontally polarised, and 0dB for the case where the broadcasting emission is vertically polarised.

b) The effect of multiple interference arising from base stations operating at the same site shall be calculated by means of the power sum method:

$$E_0 = \sqrt{\sum_i (F)^2}$$

where F is the nuisance field arising from the i-th interfering transmitter expressed in uV/m.

c) The nuisance field arising from base stations operating at different sites together with the multiple interference from base stations operating at the same site shall be multiplied by means of the simplified multiplication method (see CCIR Rep 945, Geneva 1982).

Calculations shall include all land mobile base stations within 325 km of the appropriate test point defined in annex B(ii).

d) The nuisance fields from mobile stations shall be assumed to be 20dB less than the nuisance field arising from the corresponding base station.

4. In the absence of statistical information regarding the intermittent operation of land mobile base stations, provisionally the relevant protected field strength values in annex B (ii) may be increased by 6dB to take account of this factor in the planning of the land mobile service.

Explanatory Note

Within the bandwidth of a 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 ratio for the television channel is not constant over the television channel and thus an individual value is used for each mobile channel. Advantage is taken of horizontal polarisation when appropriate 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.

FREQ. DIFF (MHz)	-1,24	-1,0	-0,5	0,0	0,5	1,0	2,0	3,0	3,8	4,8	5,44	5,48	5,52	5,56	5,68	5,72	5,76	6,28	6,89
PROTECTION RATIO (dB)	32	36	44	47	50	50	44	38	45	48	31	38	38	31	42	48	48	42	25

SYSTEM B/PAL - TROPOSPHERIC INTERFERENCE
-NON CONTROLLED CONDITION
-UNWANTED SIGNAL: FM SOUND