

**CEPT/ERC/RECOMMENDATION 14-03 E (Turku 1996, Podebrady 1997)****HARMONISED RADIO FREQUENCY CHANNEL ARRANGEMENTS AND BLOCK ALLOCATIONS FOR LOW AND MEDIUM CAPACITY SYSTEMS IN THE BAND 3400 MHz TO 3600 MHz**

Recommendation adopted by the Working Group "Spectrum Engineering" (WGSE)

"The European Conference of Postal and Telecommunications Administrations,

*considering*

1. that CEPT has a long term objective to harmonise the use of frequencies throughout Europe,
2. that CEPT should develop radio frequency channel arrangements and block allocation rules in order to make the most effective use of the spectrum for point to point (P-P), point to multipoint (P-MP) and ENG/OB applications,
3. that CEPT/ERC Recommendation 25-10 designates this band as a tuning range for ENG/OB,
4. that the band 3400 MHz to 3410 MHz is used by land, airborne and naval military radars,
5. that the achievement of harmonisation requires the adoption of a limited number of channel arrangements and block allocation rules,

*noting*

- a) that the table of frequency allocations in the Radio Regulations allocates the band 3400 MHz to 3600 MHz on a primary basis to the Fixed and Fixed - Satellite services and on a secondary basis to the Radiolocation and Mobile services,
- b) that countries desire to deploy different combinations of P-P, P-MP and ENG/OB systems on a primary basis in this band,
- c) that there is an ITU-R Recommendation (F-635) for P-P wide band applications incorporating this band for some administrations,
- d) that frequency separation may be required for uncoordinated deployment of current and future systems,
- e) that cellular deployment of P-MP systems preferably requires the allocation of continuous spectrum to the operator,

*recommends*

- 1) that frequency assignments should in all cases be based on 0.25 MHz slots within the 3410 MHz to 3600 MHz band,

the frequency of the lower edge of any slot shall be defined by the general equation:

$$f_s = 3410 + 0.25 N \text{ MHz}$$

where

$$0 \leq N \leq 759$$

- 2) that administrations should assign all or part of the band to any system or combination of the three systems in accordance with Annex A and/or B.”

## ANNEX A

### 50 MHz ARRANGEMENTS

#### A1 Point to multipoint systems

P-MP systems may be operated in the ranges 3410-3500 MHz and 3500-3600 MHz.

Where a frequency duplex allocation is required, the spacing between the lower edges of the paired sub-bands shall be 50 MHz. The edges of each sub-band are defined as follows:

##### 3410 MHz - 3500 MHz

Lower sub-band:	0.25 $N$ + 3410 to 0.25 ( $N + k$ ) + 3410	MHz
Upper sub-band:	0.25 ( $N + 200$ ) + 3410 to 0.25 ( $N + k + 200$ ) + 3410	MHz MHz
$1 \leq k \leq 160, 0 \leq N \leq 159, k + N \leq 160$		

##### 3500 MHz - 3600 MHz

Lower sub-band	0.25 $N$ + 3410 to 0.25 ( $N + k$ ) + 3410	MHz
Upper sub-band	0.25 ( $N + 200$ ) + 3410 to 0.25 ( $N + k + 200$ ) + 3410	MHz
$1 \leq k \leq 200, 360 \leq N \leq 559, k + N - 360 \leq 200$		

In the tables above,  $k$  defines the width of each sub-band and  $N$  defines the lower edge of each sub-band.

P-MP equipment may be used having a duplex spacing other than exactly 50 MHz. However, such equipment must conform to the limits of the block allocation as defined above.

#### A2 Point to point systems with a duplex spacing of 50 MHz

Channel centre frequencies are defined at the edges of 0.25 MHz slots as follows:

##### A2.1 Systems with 1.75 MHz channel spacing

##### 3410 MHz - 3500 MHz

Lower sub-band	$f_{c,n} = 3410 + 1.75 n$ MHz	$n = 1, 2, \dots, 22$
Upper sub-band	$f_{c,n} = 3410 + 1.75 n$ MHz	

**3500 MHz - 3600 MHz**

Lower sub-band	$f_{c,n} = 3500 + 1.75 n$ MHz	$n = 1, 2, \dots, 28$
Upper sub-band	$f_{c,n} = 3550 + 1.75 n$ MHz	

**A2.2 Systems with 3.5 MHz channel spacing**

**3410 MHz - 3500 MHz**

Lower sub-band	$f_{c,n} = 3408.25 + 3.5 n$ MHz	$n = 1, 2, \dots, 10$
Upper sub-band	$f_{c,n} = 3458.25 + 3.5 n$ MHz	

**3500 MHz - 3600 MHz**

Lower sub-band	$f_{c,n} = 3498.25 + 3.5 n$ MHz	$n = 1, 2, \dots, 14$
Upper sub-band	$f_{c,n} = 3548.25 + 3.5 n$ MHz	

**A2.3 Systems with 7 MHz channel spacing**

**3410 MHz - 3500 MHz**

Lower sub-band	$f_{c,n} = 3406.5 + 7 n$ MHz	$n = 1, 2, \dots, 5$
Upper sub-band	$f_{c,n} = 3456.5 + 7 n$ MHz	

**3500 MHz - 3600 MHz**

Lower sub-band	$f_{c,n} = 3496.5 + 7 n$ MHz	$n = 1, 2, \dots, 7$
Upper sub-band	$f_{c,n} = 3546.5 + 7 n$ MHz	

**A2.4 Systems with 14 MHz channel spacing**

**3410 MHz - 3500 MHz**

Lower sub-band	$f_{c,n} = 3403 + 14 n$ MHz	$n = 1, 2$
Upper sub-band	$f_{c,n} = 3453 + 14 n$ MHz	

**3500 MHz - 3600 MHz**

Lower sub-band	$f_{c,n} = 3493 + 14 n$ MHz	$n = 1, 2$
Upper sub-band	$f_{c,n} = 3543 + 14 n$ MHz	

**A3 ENG/OB systems**

ENG/OB systems shall be assigned contiguous 0.25 MHz slots, as appropriate for the channel spacings and amount of spectrum required. Exact channel centre frequencies will be allocated within the slots depending on the equipment used.

Where the band 3410-3600 MHz is shared between ENG/OB and P-P or P-MP services by an administration, ENG/OB services will operate within either the range 3410-3500 or 3500-3600 MHz, with P-P and P-MP services in the other part of the band, to minimise co-ordination problems between the services.

## ANNEX B

### 100 MHz ARRANGEMENTS

#### B1 Point to multipoint systems

P-MP systems may be operated in the range 3410-3500 MHz paired with 3500-3600 MHz.

Where a frequency duplex allocation is required, the spacing between the lower edges of each paired sub-band shall be 100 MHz. The edges of each sub-band are defined as follows:

Lower sub-band	0.25 $N$ + 3410 to 0.25 ( $N + k$ ) + 3410	MHz
Upper sub-band	0.25 ( $N + 400$ ) + 3410 to 0.25 ( $N + k + 400$ ) + 3410	MHz MHz
$1 \leq k \leq 360, 0 \leq N \leq 359, k + N \leq 360$		

In the table above,  $k$  defines the width of each sub-band and  $N$  defines the lower edge of each sub-band.

P-MP equipment may be used having a duplex spacing other than exactly 100 MHz. However, such equipment must conform to the limits of the block allocation as defined above.

#### B2 Point to point systems with a duplex spacing of 100 MHz

Channel centre frequencies are defined at the edges of 0.25 MHz slots as follows:

##### B2.1 Systems with 1.75 MHz channel spacing

Lower sub-band	$f_{c,n} = 3410 + 1.75 n$ MHz	$n = 1, 2, \dots, 50$
Upper sub-band	$f_{c,n} = 3510 + 1.75 n$ MHz	

##### B2.2 Systems with 3.5 MHz channel spacing

Lower sub-band	$f_{c,n} = 3408.25 + 3.5 n$ MHz	$n = 1, 2, \dots, 25$
Upper sub-band	$f_{c,n} = 3508.25 + 3.5 n$ MHz	

##### B2.3 Systems with 7 MHz channel spacing

Lower sub-band	$f_{c,n} = 3406.5 + 7 n$ MHz	$n = 1, 2, \dots, 12$
Upper sub-band	$f_{c,n} = 3506.5 + 7 n$ MHz	

##### B2.4 Systems with 14 MHz channel spacing

Lower sub-band	$f_{c,n} = 3403 + 14 n$ MHz	$n = 1, 2, \dots, 6$
Upper sub-band	$f_{c,n} = 3503 + 14 n$ MHz	

**B3 ENG/OB systems**

ENG/OB systems shall be assigned contiguous blocks of 0.25 MHz slots, as appropriate for the channel spacings and amount of spectrum required. Exact channel centre frequencies will be assigned within the slots depending on the equipment used.