

CEPT/ERC/RECOMMENDATION 12-07 E (Rome 1996)**HARMONISED RADIO FREQUENCY CHANNEL ARRANGEMENTS
FOR DIGITAL TERRESTRIAL FIXED SYSTEMS OPERATING IN THE BANDS
14.5 - 14.62 GHz PAIRED WITH 15.23 - 15.35 GHz**

Text of the Recommendation adopted by Working Group "Spectrum Engineering" (WG SE):

"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 in consultation with organisations developing standards for radio systems, in order to make the most effective use of the spectrum available,
3. that any radio frequency channel arrangement should incorporate a provision for the future introduction of improved equipment standards,

noting

- a) that Article 8 of the Radio Regulations allocates the band 14.5 - 14.8 GHz on an equal primary basis to the Fixed, Fixed-Satellite (Earth-to-space) and Mobile except Aeronautical Mobile services, and on a secondary basis to the Space Research service,
- b) that Article 8 of the Radio Regulations allocates the band 14.8 - 15.35 GHz on an equal primary basis to the Fixed and Mobile services, and on a secondary basis to the Space Research service,
- c) that the band 14.62 - 15.23 GHz is a harmonised NATO band for fixed and mobile services,
- d) that the channel arrangements given in ITU-R Recommendation F.636-3 result in a 1 MHz incursion into the NATO band,

recommends

1. that CEPT Administrations which have the band 14.5 - 15.35 GHz available for the Fixed service should follow the recommended radio frequency channel arrangements for the sub-bands 14.5 - 14.62 GHz paired with 15.23 - 15.35 GHz given in Annex A,
2. that due to a 1 MHz incursion¹ into the NATO band 14.62 - 15.23 GHz by the lower edge of the sub-band 15.23 - 15.35 GHz, for the lowest specified channel, with channel spacings of 56, 28, 7, 3.5 and 1.75 MHz, CEPT Administrations should not use these channels unless coordinated with their national military authorities."

¹ In practice the equipment occupied bandwidth may not use the specified channel spacing and therefore eases the coordination between the two adjacent services

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Annex A

DERIVATION OF RADIO FREQUENCY CHANNELS

For the band 14.5 - 14.62 GHz paired with 15.23 - 15.35 GHz the radio frequency channel arrangements for carrier spacings of 56 MHz, 28 MHz, 14 MHz, 7 MHz, 3.5 MHz and 1.75 MHz shall be derived as follows:

Let f_0 be the reference frequency of 14924 MHz (4264×3.5 MHz)
 f_n be the centre frequency (MHz) of a radio frequency channel in the lower half of the band
 f'_n be the centre frequency (MHz) of a radio frequency channel in the upper half of the band

The frequencies of individual channels are expressed by the following relationships:

(a) For systems with a carrier spacing of 56 MHz

Lower half of band: $f_n = (f_0 - 451 + 56n)$ MHz
Upper half of band: $f'_n = (f_0 + 277 + 56n)$ MHz
where $n = 1, 2$

(b) For systems with a carrier spacing of 28 MHz

Lower half of band: $f_n = (f_0 - 437 + 28n)$ MHz
Upper half of band: $f'_n = (f_0 + 291 + 28n)$ MHz
where $n = 1, 2 \dots 4$

(c) For systems with a carrier spacing of 14 MHz

Lower half of band: $f_n = (f_0 - 423 + 14n)$ MHz
Upper half of band: $f'_n = (f_0 + 305 + 14n)$ MHz
where $n = 1, 2 \dots 8$

(d) For systems with a carrier spacing of 7 MHz

Lower half of band: $f_n = (f_0 - 426.5 + 7n)$ MHz
Upper half of band: $f'_n = (f_0 + 301.5 + 7n)$ MHz
where $n = 1, 2 \dots 16$

(e) For systems with a carrier spacing of 3.5 MHz

Lower half of band: $f_n = (f_0 - 424.75 + 3.5n)$ MHz
Upper half of band: $f'_n = (f_0 + 303.25 + 3.5n)$ MHz
where $n = 1, 2 \dots 32$

(f) For systems with a carrier spacing of 1.75 MHz

Lower half of band: $f_n = (f_0 - 423.875 + 1.75n)$ MHz
Upper half of band: $f'_n = (f_0 + 304.125 + 1.75n)$ MHz
where $n = 1, 2 \dots 64$

Table 1. Calculated parameters according to ITU-R Recommendation F 746

| XS MHz | n | f₁ MHz | f_n MHz | f'₁ MHz | f'_n MHz | Z₁S MHz | Z₂S MHz | YS MHz | DS MHz |
|-------------------|----------|------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------|-------------------|
| 56 | 2 | 14529 | 14585 | 15257 | 15313 | 29 | 37 | 672 | 728 |
| 28 | 4 | 14515 | 14599 | 15243 | 15327 | 15 | 23 | 644 | 728 |
| 14 | 8 | 14515 | 14613 | 15243 | 15341 | 15 | 9 | 630 | 728 |
| 7 | 16 | 14504.5 | 14609.5 | 15232.5 | 15337.5 | 4.5 | 12.5 | 623 | 728 |
| 3.5 | 32 | 14502.75 | 14611.25 | 15230.75 | 15339.25 | 2.75 | 10.75 | 619.5 | 728 |
| 1.75 | 64 | 14501.875 | 14612.125 | 15229.875 | 15340.125 | 1.875 | 9.875 | 617.75 | 728 |

XS Separation between centre frequencies of adjacent channels

YS Separation between centre frequencies of the closest go and return channels

Z₁S Separation between the lower band edge and the centre frequency of the first channel

Z₂S Separation between the centre frequency of the final channel and the upper band edge

DS Duplex Spacing ($f'_n - f_n$)

Table 2. Occupied spectrum: 14.5 - 15.35 GHz band

