

ABSTRACT

A frequency to be used in a cognitive wireless system is determined appropriately. A DB apparatus manages white spaces (WS) for each frequency, and calculates and reports, to a mobile terminal, WS vectors (distances from a mobile terminal location to an interference area in the four directions, north, south, east and west) for each frequency. The mobile terminal refers to the WS vectors and uses a frequency providing the longest available distance in a direction of movement. The available distance is calculated by interpolation (triangular interpolation, elliptical interpolation, rectangular interpolation) of WS boundaries using various methods. Desirably, the mobile terminal reports a direction of movement to the DB apparatus, and the DB apparatus reports the distance to an interference area only in the two directions near to the direction of movement. Furthermore, desirably, information indicating whether the interference areas in the two directions are the same area or different areas is added to the WS vectors, and the interpolation method employed by the mobile terminal is changed in accordance with this information.

Fig. 9A