

Abstract

The invention relates to a cellular radio network and a method for increasing traffic carrying capacity in a cellular network. The operating frequency spectrum of the cellular network has been divided in such a way that typically both
5 regular frequencies (A, C, F, I) and super-reuse frequencies (S1, S2, S3, S4) are employed in each cell (BTS1-4). The regular frequencies use a conventional frequency reuse pattern to provide seamless overall coverage (overlay). A very tight frequency reuse pattern is used for the super-reuse frequencies to
10 provide additional capacity (underlay). The cellular network controls the division of traffic into regular and super-reuse frequencies by means of radio resource allocation at the call set-up phase and later on during the call by means of handover procedures. The cellular network monitors continuously the downlink co-channel interference of each super-reuse frequency in the cell
15 separately for each ongoing call. The call is handed over from a regular frequency to a super-reuse frequency (HO2) when the co-channel interference level on the super-reuse frequency is sufficiently good. When the co-channel interference level on the super-reuse frequency deteriorates, the call is handed over from the super-reuse frequency back to the regular frequency
20 (HO3).

(Figure 4)