

## Interference coordination for LTE-advanced and FM broadcasting interoperability

### Abstract :

The surest way to guarantee that multiple wireless systems can concurrently exist harmlessly, when operating in the same or adjacent channel, is by analyzing spectrum overlapping. This paper proposes a more accurate model to evaluate the interference power from co-channel and adjacent channel of orthogonal frequency division multiplexing-based long term evolution-advanced (LTE-Advanced) towards broadcasting frequency modulation systems at 800 MHz. Power spectral density overlapping factor is employed, and closed form of the interference power loss is derived. Numerical results demonstrate that the proposed method evaluates more exact interference power than the advanced minimum coupling loss (A-MCL) method, where the co-channel and adjacent channel interference powers are reduced by 1.3 and 3 dB, correspondingly, compared to that obtained using the AMCL method. This decreases the minimum separation distance between the two systems, which can eventually lead to efficient radio spectrum resources utilization.