INSURING SPECTRAL COMPATIBILITY OF ITERATIVE WATER–FILLING (ThuAmSS1)

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Abstract :
DSM (Dynamic Spectrum Management) consists of a set of techniques that basically allow a DSL modem to adapt its transmit spectra according to the noise on the line, instead of using a fixed mask. There are several algorithms that perform DSM, and this contribution will refer to the well-known “Iterative Water–Filling” (IWF) [1]. The T1E1.4 group (ANSI) specifies several methods to ensure spectral compatibility [2]: Method A (fixed mask) and Method B (a set of tests that the new service’s transmit power spectral density (PSD) must pass. Since simulations have shown that Method A is too restrictive for Iterative Water–Filling, a new set of masks is proposed in the present contribution (satisfying Method B). Simulation results are presented as well, showing the gains of Iterative Water–filling under these conditions.