

power is allocated unequally among subcarriers by a simple power distribution function, which has a “Super Gaussian hole” in the centre. This technique is attractive because of its simplicity in comparison to existing power loading techniques developed for wireless communication. The technique can be simply implemented as part of the transmitter DSP and represents very low additional cost. Numerical simulations of a 15.6 Gbs CO-OFDM system with 100 subcarriers and 7-channel WDM have shown that up to 1dB improvement in the system Q-factor can be obtained when this power allocation method is applied. We believe that the proposed power pre-emphasis technique can be also successfully combined with the constrained channel coding [25, 26] to suppress other detrimental nonlinear and linear impairments such as patterning effects due to inter carrier interference.

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