

“Indoor coverage optimization for Hybrid Fiber Radio”, pp. 210 - 217

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Abstract – There is a growing interest recently in providing and improving radio coverage for mobile phones and WLANs inside buildings. The need of such coverage appears mainly in office buildings, shopping malls, train stations where the subscriber density is very high. The cost of cellular systems and also the one of indoor wireless systems depend highly on the number of base stations required to achieve the desired coverage for a given level of field strength. By using Hybrid Fiber Radio (HFR), an architecture in combining wireless and optical network elements, large part of the radio complexity can be reduced and therefore an effective solution will be provided for indoor WLAN or mobile cellular radio coverage. This paper presents an approach in optimizing the HFR radio coverage for indoor environments. The Genetic Algorithm (GA) is used to determine the proper access point positions to achieve optimum coverage. Sample calculations and measurements are performed to prove the proposed method and to investigate the improvement available.