Basic Stations Work Optimization in Cellular Communication Network

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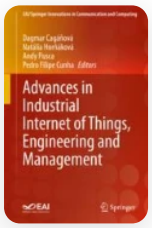

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Abstract

The paper proposes an algorithm that automatically determines the test data amount, depending on the bandwidth of the network channel, so the measurement procedure

eliminates operator error. This is especially true during daily measurements, which are carried out on different days of the week. Daily measurements allow to estimate the base station single sector workload, a small area or the entire network as a whole. It is necessary to analyse the network operation and to optimize its problem areas. According to the results of the research, the authors of the paper revealed the hours of maximum and minimum load and load extrema, which is characterized by the fact that the number of subscribers using the cellular network for voice calls or data transmission is the maximum. The regularity of cases when the subscriber terminal is registered in the network but it is impossible to make a voice call or transmit data is revealed. If such a case is isolated, there is no need to change the network or perform optimization. However, if the network overload occurs at certain intervals, it is recommended to optimize the problem area of the network by dynamic power control or installation of an additional transmitter. This method of adjusting base station receivers is suitable for use in 4G and 5G networks.