

# **Designing green wireless access networks: optimizing towards power consumption versus exposure of human beings**

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## **Abstract:**

As people are mobile and require more capacity, wireless access networks are growing. Currently, these networks have already a high power consumption so it is important to make them more energy-efficient in the future. In addition to this, people are becoming more and more concerned about the health effects that can be caused by these networks. In this study, a capacity based deployment tool for future green wireless access networks is proposed. 'Capacity based' means that the designed network will respond to the actual bit rate requirements from the users in the network. This tool will also optimize the network towards power consumption or towards exposure for human beings. We have applied the tool on a realistic case for a suburban area in Ghent, Belgium. This allows us to compare the effects on the network of minimizing the power consumption and the exposure of human beings.