

French telecommunications network base station energy method





Overview

What is a base station power consumption model?

In recent years, many models for base station power consumption have been proposed in the literature. The work in [1] proposed a widely used power consumption model, which explicitly shows the linear relationship between the power transmitted by the BS and its consumed power.

How can energy efficient communication protocols be obtained?

At the core network part, power efficiency can be obtained by advanced communication protocols. A review of energy efficient communication protocols is presented in [2]. In future communication networks, protocols should be designed in order to establish a reliable connection but at the same time be power efficient.

How does a base station work?

The available power from the electricity grid, the battery back up unit or the renewable energy (RES) enters the base station and is divided into an in-series path and an in-parallel path. Non-critical equipments support the operation of the IT equipments that are divided into radio units and baseband units.

How can a power amplifier reduce a base station?

A study proved that by increasing the tolerance of a power amplifier from 21°C to 25°C a reduction of the overall base station of 10% can be achieved [3]. At the core network part, power efficiency can be obtained by advanced communication protocols. A review of energy efficient communication protocols is presented in [2].

Are cellular base stations a future-proof power model?

Debaillie, C. Desset, and F. Louagie, "A flexible and future-proof power model for cellular base stations," in IEEE 81st Vehicular Technology Conference (VTC



Spring), 2015, pp. 1-7. S.

Why do base stations need power amplifiers?

As far as the base station operation is concerned, most of the energy is wasted for cooling purposes due to electronic equipment inefficiencies. It is shown that the incorporation of advanced power amplifiers can minimize power demands.



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In the radio access network, the energy consumption of the Base Station is dominating (depending on technology often also referred to as BTS, NodeB, eNodeB, gNodeB etc. and in ...

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It is quite likely that the huge energy efficiency gains achieved by technology evolution have at least been compensated by the surge in data traffic. Therefore, in this paper, we estimate the ...



[A Review of Energy Efficiency in Telecommunication Networks](#)

It outlines the significance of energy efficiency in modern and future telecommunication networks and suggests directions for optimizing network performance in terms of energy demands. ...

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the complexity of multi-carrier base stations ...



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