



# Cellular communication base station inverter switching



## Overview

This subsystem provides the interface between the cellular system and the circuit-switched telephone network (PSTN). It performs switching and operation & maintenance-related functions. The NSS handles call processing functions such as call setup, switching, tear down, and handover. In the landscape of next-generation cellular networks, a projected surge of over 12 billion subscriptions foreshadows a considerable upswing in the network's overall energy consumption. The proliferation of User Equipment (UE) drives this energy demand, urging 5G deployments to seek more. Since access networks are designed to support peak time traffic, the utilization of base stations can be very inefficient during off-peak time because the traffic profile is time varying. We study the dynamic switching of base stations (BS) to reduce the energy consumption considering the time. Abstract—In this paper we study base station sleep modes, which are today considered a viable approach to improve the energy efficiency of cellular access networks, by reducing power consumption in periods of low traffic. LTE cellular systems are typically designed for providing full coverage and good performance for a given (nominal) user density.

## Article Content

### GSM Architecture: Understanding the 2G Network

Explore the GSM (2G) architecture, including Mobile Station, Base Station Subsystem, and Network Switching Subsystem, with detailed diagrams and ...

### Base Station ON-OFF Switching in 5G Wireless Networks: ...

In this article, we begin with a discussion of the inherent technical challenges of BS ON-OFF switching. We then provide a comprehensive review of recent advances on switching ...

### Communication Inverter Usage Guide: 4 Key Points for Safe

Communication inverters, as critical power supply equipment for communication base stations, data centers, and other scenarios, have their stable operation directly related to the ...

### UAV-assisted small base station ON-OFF switching in 6G cellular ...

This work presents an energy-efficient UAV-assisted On-Off switching methodology that considers energy usage of DBSs' backhaul links, in contrast to previous studies. By optimizing DBS ...

### Multiple Daily Base Station Switch-Offs in Cellular Networks

In this paper we consider sleep modes for BSs in cellular networks, and we investigate the benefits that can be achieved by switching off a portion of the BSs during periods of low traffic.

### SmartMME : Implementation of Base Station Switching Off Strategy in ...

In this paper, broadly, we aim to design the energy-aware networking method in a network emulation platform, ns-3, in which the sleep or wakeup switching choices at the BSs are ...

### An algorithmic perspective of basestation switching in ...

Switching off the central cell during low traffic yields approximately 14% energy savings in LTE networks. Base stations consume 70-80% power even with low ...

### Control Energy and Throughput Tradeoffs by Base Station ...

The objective of a base station switching (BSS) framework is to achieve the best possible energy versus throughput trade-off while maintaining full coverage when user equipment (UE) density decreases.

### Energy Savings through Dynamic Base Station Switching in ...

In this paper, we investigate the design of energy efficient wireless access networks based on switching BSs. First, we suggest a basic distributed BS switching strategy, and, by the first-order analysis, ...

An Advanced 3-Mode Base Station Switching Technique for Energy ...

This paper proposes an energy-efficient 3-level base station switching solution with advanced threshold-computation algorithms for a multiple data-rate cellular network.

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