Basic principles of green base station communication

Are green cellular base stations sustainable?
This study presents an overview of sustainable and green cellular base stations (BSs), which account for most of the energy consumed in cellular networks. We review the architecture of the BS and the power consumption model, and then summarize the trends in green cellular network research over the past decade.

What is a green base station solution?
The green base station solution involves base station system architecture, base station form, power saving technologies, and application of green technologies. Using SDR-based architecture and distributed base stations is a different approach to traditional multiband multimode network construction.

What should a base station do in a wireless communications network?
In a wireless communications network,the base station should maintain high-quality coverage. It should also have the potential for upgrade or evolution. As network traffic increases,power consumption increases proportionally to the number of base stations. However,reducing the number of base stations may degrade network quality.

Why is a base station important?
Environmental protection is a global concern,and for telecom operators and equipment vendors worldwide,developing green,energy-saving technologies for wireless communications is a priority. A base station is an important element of a wireless communications network and often the main focus of power savingin the whole network.

Does Ericsson have a 'green' base station design?
But the large equipment vendors too have got in on the act. Ericsson made a point of its green credentials at the recent Mobile World Congress, and launched a "green" base station design back in 2007. Its commitment extends from materials used in base station build, to the design and efficiency of the base stations themselves.

How do cellular network operators shift to green practices?
Cellular network operators attempt to shift toward green practices using two main approaches. The first approach uses energy-efficient hardwareto reduce the energy consumption of BSs at the equipment level and adopts economic power sources to feed these stations.

5.1.1.1 Omni Base Station
 The typical GSM Omni Base Station is made up of 3 antennas (Fig. 18):
 - one transmitting antenna (Tx)
 - two receiving antennas ...

With the explosion of mobile Internet applications and the subsequent exponential increase of wireless data

traffic, the energy consumption of cellular networks has rapidly caught the ...

Energy efficiency and renewable energy are the main pillars of sustainability and environmental compatibility. This study presents an overview of sustainable and green cellular base stations ...

This chapter aims a providing a survey on the Base Stations functions and architectures, their energy consumption at component level, their possible improvements and the major problems ...

This updated and expanded second edition reflects the state of earth station design and ground segment architecture. From international telephone network gateways to direct broadcast ...

ed in green communication is mMIMO. This technology works on the principles of having fewer terminals compared to base stations (Marzetta, Thomas L., 2010). This system"s economies of ...

In order to effectively improve the energy efficiency of the future mobile networks, it is thus important to focus the attention on the base station. This chapter aims a providing a survey on ...

Several techniques have been deployed to reduce the energy consumption of the base station in what is called a green base station. This paper presents an insight into these approaches and ...