

SolarTech Power Solutions

Communications industry standards for 4G base station power generation



Overview

What is a 4G base station?

The base station sits at the heart of the network platform. Traditional 4G LTE base stations contain one, two or possibly even four transmitters and usually operate on core band frequencies of up to 2.5 GHz, sometimes even 3.5 GHz and 5 GHz.

How much energy does a 3G base station use?

It also depends on the number of calls at that time which is lower during the night time than at daytime. For instance, a typical 3G base station consumes about 500 W of input power to produce about 40 W of RF power making it the average annual energy consumption of 3G base station around 4.5 MWh.

How to plan a 4G LTE network?

Therefore, the planning and optimization algorithms should be highly efficient, advanced, and robust. An important component of 4G LTE network planning is the proper placement of evolved node base stations (eNodeBs) and the configuration of their antenna elements.

How will cellular base stations affect global power consumption?

A recent study showed that global power consumption for cellular base stations will decline due to more efficient equipment and networks by nearly 3% annually while the cost of electricity powering these base stations will rise by 9% annually.

What is the maximum base station Power?

Maximum base station power is limited to 24 dBm output power for Local Area base stations and to 20 dBm for Home base stations, counting the power over all antennas (up to four). There is no maximum base station power defined for Wide Area base stations.

How much power does a cellular base station use?

A cellular base station can use anywhere from 1 to 5 kW power per hour depending upon the number of transceivers attached to the base station, the age of cell towers, and energy needed for air conditioning. Cellular base stations use power without any interruption and also needs maintenance.

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