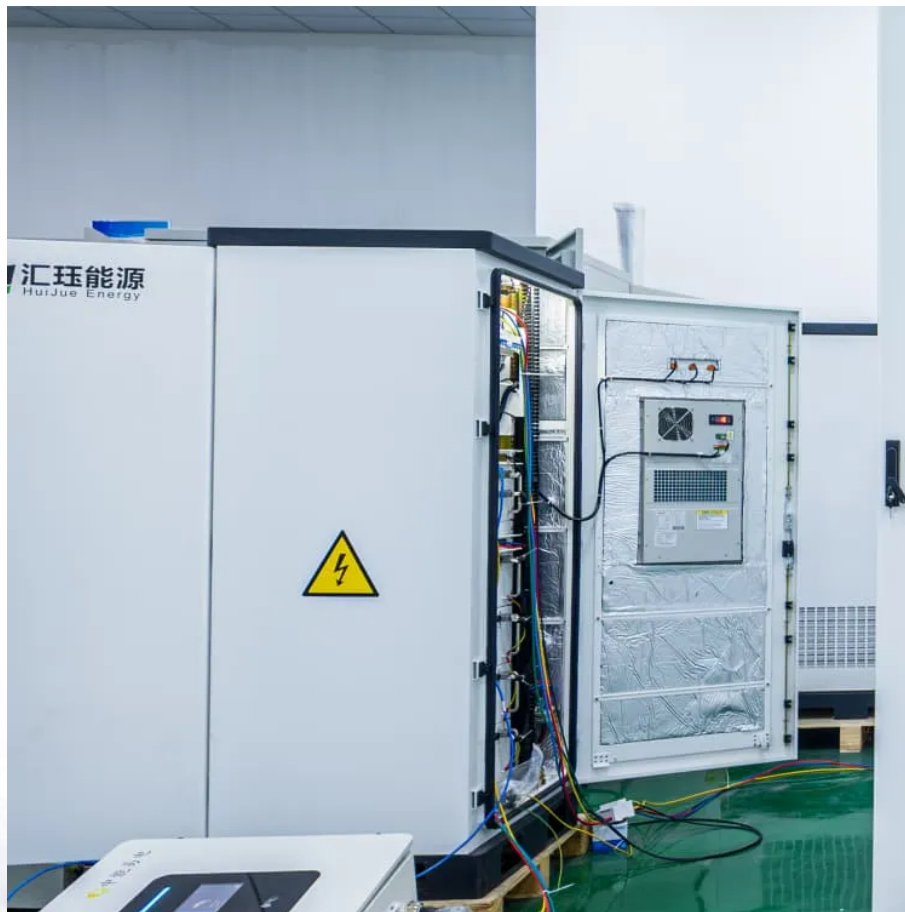


## A-Core Container

# How many watts of electricity does a communication base station use



## Overview

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How do base stations affect mobile cellular network power consumption?

Base stations represent the main contributor to the energy consumption of a mobile cellular network. Since traffic load in mobile networks significantly varies during a working or weekend day, it is important to quantify the influence of these variations on the base station power consumption.

How much power does an antenna use?

The antenna output power level is typically between 20 watts and a few hundred watts for an outdoor base station. Television transmitters, by comparison, have 10-1000 times higher output power than outdoor base stations. Antennas mounted indoors use very low power levels, typically around a few watts or less.

Is there a direct relationship between base station traffic load and power consumption?

The real data in terms of the power consumption and traffic load have been obtained from continuous measurements performed on a fully operated base station site. Measurements show the existence of a direct relationship between base station traffic load and power consumption.

How much power does a radio network use?

This consumption is vast, and on the level of the operator's radio access part of the network, equals approximately 7,700.54 MW. Translated into financial costs, this corresponds to the amazing amount of approximately 5.3 million euros that the operator pays to the electricity supply company. 6.3. Reactive Site Power Consumption.

Which base station elements consume the most energy?

Of the other base station elements, significant energy consumers are: air conditioning (17.5%), digital signal processing (10%) and AC/DC conversion

elements (7.5%) . New research aimed at reducing energy consumption in the cellular access networks can be viewed in terms of three levels: component, link and network.

What is the impact of base stations?

The impact of the Base Stations comes from the combination of the power consumption of the equipment itself (up to 1500 Watts for a nowadays macro base station) multiplied by the number of deployed sites in a commercial network (e.g. more than 12000 in UK for a single operator).

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