

Total AC power capacity of base stations

How much power does a cellular base station use?

This problem exists particularly among the mobile telephony towers in rural areas, that lack quality grid power supply. 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.

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.

What is the largest energy consumer in a base station?

The largest energy consumer in the BS is the power amplifier, which has a share of around 65% of the total energy consumption. 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%).

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.

What percentage of AC power consumption is caused by telecommunication equipment?

Figure 17 shows the percentage of the active power consumption in the site's total AC power consumption, for each of the analyzed equipments. According to Figure 17, a major fraction (52% cumulatively) of the total site consumption is caused by the analyzed telecommunication equipment, namely the GSM 900 sector 1 and 2, GSM 1800 and UMTS BSs.

What is the power consumption of AC equipment in BSC?

In BSC, Total power consumed for DC Equipment is 20 kW. 96kW output power of rectifier is chosen because of network expansion and installation of new DC rack or cabinets.

6. CALCULATION OF AC POWER EQUIPMENT IN BSC

Measurements show the existence of a direct relationship between base station traffic load and power consumption. According to this relationship, we develop a linear power consumption ...

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