

What is an indoor base station?

An indoor base station comprises a communication room accommodating various communication equipment and a communication tower responsible for transmitting and receiving information. The communication room is equipped with wireless communication devices, transmission equipment, power supply equipment, air conditioning, and cable routing racks.

Do communication base stations perform post-earthquake functionality using Bayesian network?

A method to evaluate the post-earthquake functionality of communication base stations using Bayesian network is developed. The dependence between the equipment and its hosting building structure, and the impact of power outages are considered. The method is validated using seismic damage data from the Ludian Earthquake.

Can a Bayesian network be used to assess communication base stations?

This study applies a Bayesian network method to the functionality assessment of communication base stations. The method integrates Fault tree analysis and Bayesian network, and its performance is validated through the observed seismic damage data of the Ludian earthquake.

Can Bayesian network be used in post-earthquake functionality assessment?

Validation To validate the rationality and accuracy of the Bayesian network in post-earthquake functionality assessment for the base station, the observed seismic damage to the communication system from Ludian earthquake is used for method verification. The earthquake occurred on August 3, 2014, with a magnitude of 6.5.

What causes a communication base station to fail?

Power interruption is a significant contributor to communication base station functional failure. Communication systems closely rely on power systems, and power outages can result in widespread station interruptions. In the case of the earthquake in Changning County, 90% of disrupted base stations experienced power interruptions as the cause.

What causes base station functional failure?

In Fig. 6, the causes of base station functional failure (T) are identified: power interruption (I 1), damage to communication room (I 2) (equipment included), and damage to communication towers (I 3).

A base station (BS) is defined as a fixed communication facility that manages radio resources for one or more base transceiver stations (BTSs), facilitating radio channel setup, frequency ...

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