ContainerPower Energy Solutions

Green Base Station Design Standards for Ground-to-Air Communications

Overview

What is direct air to ground communication?

Direct Air to Ground Communication envisages a set of Base Stations suitably placed at the ground and directly communicating with airborne object, which may be an aircraft or any other aerial vehicle. These base stations transmit the radio waves to the airborne object that crosses the range of the base stations.

Can base station antennas promote green development of wireless networks?

As an essential component that transmits and receives signals on wireless networks, antennas play an important role in saving energy and reducing emissions from networks. This white paper explores the targets and directions of technology innovation for base station antennas to promote green development of wireless networks.

What is the difference between aircraft station and ground station?

The aircraft station consists of the radio receiver and transmitter, as well as network appliances for handling in-flight entertainment systems which is available commonly on many aircrafts. Ground Stations are towers that communicate with aircrafts in its coverage area.

What is a ground BS antenna?

The paper introduces a ground BS antenna design for the 5.9-8.5 GHz band. The main contributions include wide-band, high-isolation antenna array concept for the ground BS antenna, along with an analysis of how the antenna array dimension affects the signal-to-noise-and-interference ratio and throughput in ATG systems.

Can antennas be used for direct air-to-ground communications?

This paper proposes an antenna solution for direct air-to-ground (ATG) communications, particularly focusing on the challenges and potential of the

digital airspace vision. The intra- and inter-cell interference caused by sidelobes of ground base station (BS) antennas and the bandwidth constraints at sub-6 GHz bands are important limitations.

What is direct air to ground communication (da2gc)?

An alternative method is DA2GC or Direct Air to Ground Communication, wherein an onboard antenna picks up the signal from the nearest tower on the ground, and provides the connectivity. The DA2GC is akin to backhaul and within the aircraft, various technologies like WiFi, 3G/4G etc. can be utilized to connect to the customers.

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