

# Communication ground base station range

What VSWR should a ground station have?

The antenna standing wave ratio (VSWR or SWR) should not exceed 1.5 for the ground station or 2.0 for the airborne station. The airborne antenna should be one of the standard widely used vhf aircraft antennas. A gain antenna may be used at the ground station to increase communications range.

What frequency does a ground station receive?

Ground station receive frequencies are mostly S and X band from a LEO/GEO orbit, and X and Ka band from deep space. Ka band has been implemented for transmit and is NASA's desired band for future small satellite missions. This shift has been driven by higher data return demands and frequency control.

Is a ground BS antenna suitable for the cmwave frequency range?

The cmWave frequency range, defined from 7 GHz to 15 GHz, potentially strikes a balance capacity and propagation losses, being a promising frequency range for 6G. The ground BS antenna design is clearly central to addressing these technical challenges. To this end, this paper proposes novel ground BS antenna design for the cmWave range.

How high should a base station antenna be?

Per ITU-R P.1410 recommendations, base station antenna heights typically range between 15-60 meters. Urban deployments favor 25-35m, rural coverage requires 40-55m, while 5G mmWave systems operate efficiently at 15-25m. Critical factors include propagation models, terrain, and frequency bands.

The sixth generation (6G) of mobile communication networks aims to bring innovations in mobile broadband solutions and airborne communications. This paper proposes an antenna solution ...

The typical communication base station, also known as a The typical communication base station, also known as a specific geographic area with wireless The range of a base station can vary based on the ...

Our Base station antennas are deployed in a comprehensive range of networks such as Public Safety, Mission Critical Communication, LTE and IoT networks. Furthermore, Amphenol ...

The digital airspace offers new opportunities in the sky, such as mission-critical mobile broadband solutions and high altitude communication for aircraft [4]. In the latter use case, ground ...

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of satellite communication systems.

By Lxelec / March 17, 2025 / 5G base station antenna, 5G tower height regulations, base station antenna height requirements, RF coverage planning Table of Contents Share Great Content Per ITU ...

COMMUNICATIONS RANGE OF AVIATION BAND BASE STATIONS There are wide variations in the distances obtained for ground-air communications. Under some conditions, the ...

Base stations emit radiofrequency electromagnetic fields (RF EMF) in the range from several hundred MHz to several GHz. The exact frequency bands used differ between technologies (GSM, UMTS, ...

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