

Requirements and standards for wind turbine rooms at communication base stations

What is the new communication standard for wind power plant monitoring & control?

The International Electrotechnical Commission (IEC) proposed a new communications standard for the wind power industry aiming at providing a common communication approach for wind power plant (WPP) monitoring and control.

Why do wind turbine standards matter?

Together, these standards help keep design and production reliable and conducive to the long-lasting use of wind turbines so that they may remain dependably in service for the length of their planned lifetime and realize both their environmental and economic benefits.

Which telecommunication services are more sensitive to wind turbines?

The telecommunication services included in this review are those that have demonstrated to be more sensitive to nearby wind turbines: weather, air traffic control and marine radars, radio navigation systems, terrestrial television and fixed radio links.

What is the exclusion zone of a wind turbine?

This exclusion zone delimits the area where a wind turbine should not be installed to prevent the radiolink degradation. To calculate this exclusion zone, the interference caused by a wind turbine should be assessed by means of the bistatic radar equation, where the wind turbine is characterized in terms of its maximum RCS.

Can a performance evaluation procedure be used to evaluate a wind turbine?

The procedure can be used for performance evaluation of specific wind turbines at specific locations, but equally the methodology can be used to make generic comparisons between different wind turbine models or different wind turbine settings when site-specific conditions and data filtering influences are taken into account.

Are radiolinks obstructed by wind turbines?

It is clearly observed that the radiolinks depicted in green are not obstructed by the wind turbines, while the turbines intercept the second Fresnel zone of the radiolink depicted in red. Fig. 13. Example of the exclusion volumes that should be respected to avoid diffraction effects on radiolinks.

EXECUTIVE SUMMARY This project has been undertaken based on a demand for further investigations into the field of offshore wind industry standards, their application, scope of use ...

Therefore, to ensure stable and reliable power supply operation during communication base stations, new energy sources need to be developed and applied. With the development of ...

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Considering that the wind energy industry is a young technology, and IEC 61850 and IEC 61400-25 are recently developed communication standards, the number of the wind ...

Data and communication cables are essential to wind-turbine operations. Fiber optic and Bus-Ethernet cables have advantages over others.

Despite global connectivity being one of the main requirements for future generations of wireless networks driven by the United Nation's Sustainable Development Goals, telecom providers are ...

We investigate the use of wind-turbine-mounted base stations (WTBSs) as a cost-effective solution for regions with high wind energy potential, since it could replace or even outperform ...

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Result After the completion of the 5G communication system based on PTN+ integrated small base station, IP transmission based on optical transmission, supporting ...

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Based on IEC 61400-25 standard, a wireless turbine area network is proposed for collecting sensing data from wind turbine parts, and connected to a wireless farm area network ...

Both the LTE/4G and 5G networks are ideal solutions for the wind industry. The network security of both networks is based on the 3GPP standards that govern the safety features, devices and ...

Instructions for Use This document is designed to inform the development of individual ordinances or state regulations to guide the development of utility-scale wind energy ...

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