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Electromagnetic compatibility technology of 5g base stations

Overview

Do 5G base stations need a field meter?

Fast variation of the user load and beamforming techniques may cause large fluctuations of 5G base stations field level. They may be underestimated, resulting in compliance of base stations not fitting the requirements. Apparently, broadband field meters would not be adequate for measuring such environments.

Why is a 5G network a challenge?

5G networks deployment poses new challenges when evaluating human exposure to electromagnetic fields. Fast variation of the user load and beamforming techniques may cause large fluctuations of 5G base stations field level. They may be underestimated, resulting in compliance of base stations not fitting the requirements.

Does a 5G base station increase field levels?

Adding the 5G systems does not significantly increase the overall field levels in the surroundings of the base station, in normal working conditions, compared to those of the previous generation. This has been checked during a measurement campaign in the surroundings of a 5G base station under operation.

Does 5G signal exposure affect base station compliance?

This agrees with measurements done in other countries whose authors conclude that the exposure to 5G signals is limited , , , but this does not assure the base station compliance as full load situation should be considered for such assessment. It also shows that the increase in the EMF field is due to the induced data traffic.

Can broadband field probes be used for 5G exposure assessment?

The use of broadband field probes for 5G exposure assessment is still possible

under certain considerations and correcting the results considering the base station load and beamforming effects. 5G networks deployment poses new challenges when evaluating human exposure to electromagnetic fields.

What is a 5G network & how does it work?

The roll-out of 5G networks necessarily implies the deployment of new base station equipment, including new radiating systems. These systems may be provided with massive multiple-input multiple-output (M−MIMO) capabilities, where up to a hundred antenna elements are used for beamforming.

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Impact of Electromagnetic Radiation of 4G/5G Base Stations ...

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Human exposure to EMF from 5G base stations: analysis, ...

Apr 1, 2024 · Performance of three different methodologies and equipment (broadband probes, spectrum analyzers, and drive test scanners), in the context of human exposure to ...

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Jun 21, 2025 · EEE, Yun Xue Xu, Heming Yao, Member, IEEE, Lijun Jiang, Fellow, IEEE, and Xiang Hua Li Abstract--In order to improve the heat dissipation capability of the 5G base ...

Interference and Electromagnetic

Compatibility ...

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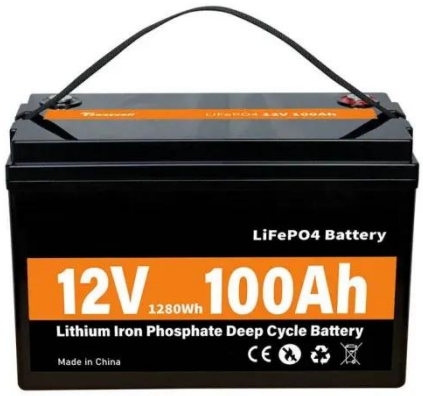

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5G Mobile Communication Base Station Electromagnetic ...

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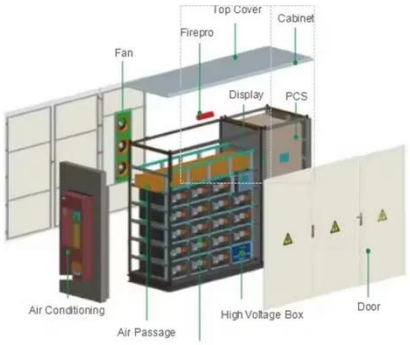

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Electromagnetic

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ELECTROMAGNETIC

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Electromagnetic radiation

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Problem of Electromagnetic Compatibility between 4G/5G ...

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Compatibility Analysis Between 5G NR and Ultra-Wideband ...

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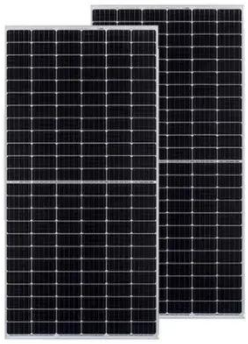
Status and Analysis of

3GPP 5G NR Base Station EMC Specification

Nov 4, 2019 · The 3GPP RAN4 group has published the EMC specification TS 38.113[1] for 5G NR base station, which is the first public published 5G base station EMC specification all over ...



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