

Channel Static Antennas

Movements of devices deteriorate their wireless communication channels. Channels are kept static under platform movement by performing a counter-movement of the antenna or a with-movement of the base antenna.

BACKGROUND

The quality of the communication channel defines the achievable data-rate in wireless communications. Movements of devices (phones, cars, trains) cause channels to change. Traditional transmission schemes have to accept quickly degrading channels even within short time frames like a LTE time slot of 0,5 ms during which a constant throughput has to be kept. Margins have to be applied and so potential bandwidth and throughput during undisturbed periods are wasted.

TECHNOLOGY

When devices are moved, this causes the antenna to move to a different position, which in turn causes the wireless communication channel to change. With this invention the channel is kept static by performing a counter-movement with the antenna, to keep the antenna at the same position relative to the outside.

A laboratory prototype was built for phones in cellular networks (5G and beyond).



Measurement results confirm that channels can be kept static with this invention.

The invention contains the method to keep channels static under platform movement, as well as several devices to perform the counter-movement.

By adding means to the base antenna for detecting the trajectory of the moving antenna, the counter-movement previously performed by the antenna on the moving object can instead be performed at the base station. Devices such as cell phones, where the antenna might not be able to perform the counter-movement due to size limitations, can offload the movement to the larger second antenna.

ADVANTAGES

- Static wireless communication channels
- Higher data-rate
- Higher throughput

REFERENCE:
M009/2018

APPLICATIONS:
Vehicular antennas
High speed trains
Smart phones

DEVELOPMENT STATUS:
Prototype

KEYWORDS:
Antenna
Channel
Communications
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OPTIONS:
R&D co-operation
Expertise

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