

## Accepted Manuscript

A new scheme of dynamic power allocation in wireless powered communication

Chengcheng Han, Li Chen, Huarui Yin, Guo Wei

PII: S1874-4907(17)30613-4

DOI: <https://doi.org/10.1016/j.phycom.2018.01.002>

Reference: PHYCOM 483

To appear in: *Physical Communication*

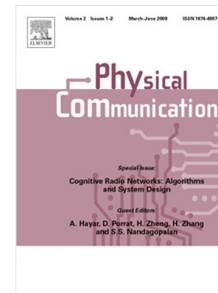
Received date: 19 December 2017

Revised date: 4 January 2018

Accepted date: 7 January 2018

Please cite this article as: C. Han, L. Chen, H. Yin, G. Wei, A new scheme of dynamic power allocation in wireless powered communication, *Physical Communication* (2018), <https://doi.org/10.1016/j.phycom.2018.01.002>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



## A New Scheme of Dynamic Power Allocation in Wireless Powered Communication

Chengcheng Han, Li Chen\*, Huarui Yin, Guo Wei<sup>1</sup>

---

### Abstract

In this article, we propose a new generalized selection transmit scheme (GSTS) for wireless powered communication (WPC), where data access point (DAP) is powered by energy access point (EAP) to communicate with wireless device (WD). Theoretically speaking, allocating all harvesting energy to the antenna with the best channel gain will achieve the optimal performance. While the harvesting energy is dynamic and may exceed the power limitation of single antenna, we should allocate the harvesting energy to the best antennas subset with the minimum number of antennas. That is GSTS. For GSTS, we derive the new closed-form probability density function (PDF) of signal to noise ratio (SNR). According to the derived PDF, the approximate outage probability is derived. In order to depict the trend of outage probability at high SNR area, the diversity order is derived. It's determined by the minimum one of the transmit antenna number of EAP and that of DAP. Besides, the influence of line-of-sight (LOS) component in wireless power transfer (WPT) is also discussed.

*Keywords:* Wireless powered communication, power allocation scheme, generalized selection transmit scheme, outage analysis, line-of-sight component.

---

Recently the advance of microwave wireless power transfer (WPT) technol-

---

<sup>1</sup>This work was supported by National Science and Technology Major Project of China MIIT (Grant No. 2017ZX03001003-003), National Natural Science Foundation of China (Grant No. 61601432), the Fundamental Research Funds for the Central Universities. Chengcheng Han, Li Chen, Huarui Yin and Guo Wei are with Department of Electronic Engineering and Information Science, University of Science and Technology of China, Hefei, Anhui 230027, People's Republic of China, e-mail: hancheng@mail.ustc.edu.cn; {chenli87, yhr, wei}@ustc.edu.cn (see <http://staff.ustc.edu.cn/~chenli87>). \*Corresponding author.

Download English Version:

<https://daneshyari.com/en/article/6889069>

Download Persian Version:

<https://daneshyari.com/article/6889069>

[Daneshyari.com](https://daneshyari.com)