Document details

Advanced Science Letters
Volume 20, Issue 1, January 2014, Pages 8-14

Placement and configuration of antenna for indoor femtocell application (Article)

Triana, I., Astuti, R.P., Prasetya, B.

Telkom Institute of Technology, Bandung, Indonesia

Abstract

Reliable communication system such as fast internet access network is needed to support research activities in Computer System Laboratory and CNC Laboratory at IT Telkom. However, the signal from the nearest BTS microcell is not optimal forward the signal to the inside of the room. Therefore, it requires a special design to increase the average received power, minimize the blank spot areas, and increase SIR thus guaranteeing a good quality communication services. This paper will discuss the design of antenna configurations that will be compatible to femtocell applications on HSPA+technology in Computer System Laboratory and CNC Laboratory. An antenna configuration to 4×1 elements is studied in this paper. Additionally, the antenna placement of this configuration is changed three times. Performance with the antenna configurations will be simulated in RPS software and will be compared using 231 Cost Indoor and 3D Ray Tracing propagation models. Analysis results show that the most optimum configuration of Computer System Laboratory is the 4×1 elements at the second location for Cost 231 Indoor and the third location for 3D Ray Tracing model. While the most optimum configuration of CNC Laboratory is 4×1 element at the second location for Cost 231 indoor and 3D Ray Tracing model.

SciVal Topic Prominence

Topic: Ray tracing | Radio waves | indoor propagation

Prominence percentile: 80.508

Author keywords

3D ray tracing | Blank spot | Cost 231 indoor | Coverage area | Femtocell | SIR | The average of received power

ISSN: 19366612
Source Type: Journal
Original language: English

DOI: 10.1166/asl.2014.5280
Document Type: Article

Triana, I.; Telkom Institute of Technology, Indonesia