

# PHY Abstraction for System Level Performance Evaluation in Inter-Carrier Interference Environment

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**Abstract**—There are two computer simulation methods to evaluate the performance of communication systems, i.e. the link level simulation and system level simulation. The PHY abstraction is the link-to-system mapping methodology for the system level simulation. Generally, for the system level simulation, synchronization errors such as carrier frequency offset or symbol timing offset are not taken into consideration because the accuracy of the error estimation by using the preamble or ranging is very high. However, there may be the large synchronization errors in the distributed synchronization environment such as the direct communication in IEEE 802.16n. Therefore, the synchronization errors need to be taken into consideration even in the system level simulation.

**Keyword**—PHY Abstraction, SLS, LLS, ICI

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