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ULTRA WIDEBAND FOR CONSUMER ELECTRONICS APPLICATIONS

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Abstract. With its capability of providing high data rate wireless communications, the ultra-wideband (UWB) technology is expected to be widely deployed in Consumer Electronics (CE) market in the near future. This paper presents some important characteristics of UWB that make it better suited for the home networking and explains some of its limitations as well. Furthermore, potential CE applications of UWB and the requirements of different CE devices for UWB connections are discussed. Standardization efforts aimed at achieving seamless inter-operability of various devices for a wider and easier acceptance of the UWB by consumers is highlighted. In addition, the current and future trends in the use of UWB are described.

Keywords. ultra-wideband, consumer electronics, home network, 802.15.3a.

1 Introduction

Until recently, home networking has been limited to the interconnection of computers in a home that allowed household members to access the Internet simultaneously, share drives, files, and printers, and play multi-player games. With the advancements in communication technology and the progress in the development of smart consumer electronic (CE) devices, home networking has been extended to include the connection of computers and other CE devices within a home to the cable, phone and satellite based Internet Service Providers via residential gateways. In order to provide reliable high bandwidth services, one can use cable and/or plastic optical fiber to network all devices. However, from the consumers' perspective, this is highly undesirable as it lacks of flexibility, mobility, and simplicity. Fortunately, with the advancement in wireless technologies, high data rate wireless connections are feasible. An all-wireless service-oriented home network has been proposed as described in [9].