

ANALYSIS OF INTERFERENCE ISSUES AND DESIGN OF COEXISTENCE MECHANISM FOR BLUETOOTH IN CONTEXT OF WLAN

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Abstract

Bluetooth and WLAN are well established and popular standards often used together simultaneously, since 2.4GHz frequency band is becoming increasingly crowded and growing potential of ISM band create interference among them, which ultimately cost the degradation in the performance of both the devices, when they are collocated. The various research work & publications emphasis on examine the issue theoretically or proprietary. There are two typical scenarios where wireless interference can occur, Bluetooth & WLAN are collocated in the same device, or Bluetooth and WLAN are in proximity but not collocated. The advantages of collocated device obtained in a form of sharing many of the components, which cuts overall cost of the system. To devise non-proprietary based coexistence solution various theories were understood, the data and reports of similar work done were also studied to understand the issue in broader way and it was found that there exists definite correlation between these two devices. The RF analysis of Bluetooth in ISM band with Bluetooth device doing data transfer and WLAN device is also active shows that WLAN strongly effect performance of Bluetooth when it is in close proximity further the performance degradation is very severe when they are collocated. In this paper we discuss and developed mechanism based on collocated coexistence, for verification of proposed coexistence mechanism various test were conducted which demonstrate that both Bluetooth and WLAN can co-exist in the same device without effecting each other's performance & work simultaneously the proposed suggested solution is non proprietary i.e. easy to implement on any silicon chip and gives stable coexistence mechanism.

Keywords: Bluetooth , Coexistence, , WLAN