High Time-Resolution Spectrum Occupancy Model for Testing of Cognitive Radio Devices

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Abstract:

A high time-resolution model of spectrum occupancy, stemming from the activity of primary users, for testing purposes is presented. The proposed model is based on a few statistical parameters and includes a novel parameter adaptation procedure that improves the accuracy of current models significantly. The intended use of the model is the testing of cognitive devices, for instance for prototyping purposes, e.g. evaluation of the achievable performance, or for conformance testing. The model parameters are extracted from measurement data in the GSM900 downlink band obtained at the Ilmenau University campus. However, the modeling approach is not restricted to GSM900 but lends itself to other bands and radio technologies, too.