Electromagnetic Situational Awareness of Cognitive radios supported by Radio environment Maps

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Abstract: In this paper we present the concept of the Radio Environment Map (REM) designed to ensure electromagnetic situational awareness of

cognitive radio networks. The map construction techniques based on spatial statistics are presented. The results of field tests done for UHF range with different number of sensors are shown. Exemplary maps with selected interpolation techniques are presented and control points where the signal from licensed users is correctly estimated are identified. Finally, the map quality is analyzed and the most promising interpolation techniques are selected.
Keywords: Cognitive radio, radio environment map, spectrum monitoring, frequency allocation.

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