LICENSING OPPORTUNITY: INDEPENDENTLY MANAGING WIRELESS TRANSMISSION BY INDIVIDUAL SPECTRUM ACCESS SYSTEMS IN A SHARED RADIO FREQUENCY SPECTRUM

DESCRIPTION

Problem

The current practice is for each Spectrum Access Systems (SAS) to exchange detailed information (which may potentially be sensitive) on the emitters it manages with every other SAS on a regular (daily) basis. With a global picture of all emitters, each SAS then uses a common, standardized algorithm to determine which emissions would have to be suspended to protect a geographic area from excessive aggregate interference.

Invention

The invention is a new method for protecting an incumbent in shared radio frequency spectrum from aggregate interference exceeding a specified percentile from emitters managed by multiple SASs. The novelty of this method is that each SAS can independently determine which of its emitters to suspend without exchanging detailed information with the other SASs. The invention uses a bound on the cumulative distribution function of the stochastic aggregate interference and a partitioning of the overall interference budget among the SASs.

BENEFITS

Potential Commercial Applications

The U.S. Federal Communications Commission has certified five independent SAS providers to provide commercial Citizens Broadband Radio Service (CBRS).

The development of a secondary market for CBRS licenses. When Priority Access Licenses are not used by the licensees, they can potentially be leased to other parties for a profit.

Competitive Advantage

The invention allows each SAS to calculate its own list of emitters to suspend without detailed knowledge of the other SASs' emitters, with a guarantee that a specified percentile of the aggregate of all SASs' managed emissions will not exceed a threshold. It does so without requiring each SAS to share potentially sensitive information on its customers with other SASs, and without requiring that they use a common algorithm, and offers flexibility to each SAS to independently manage its emitters, provided it does not exceed its allotted interference budget.

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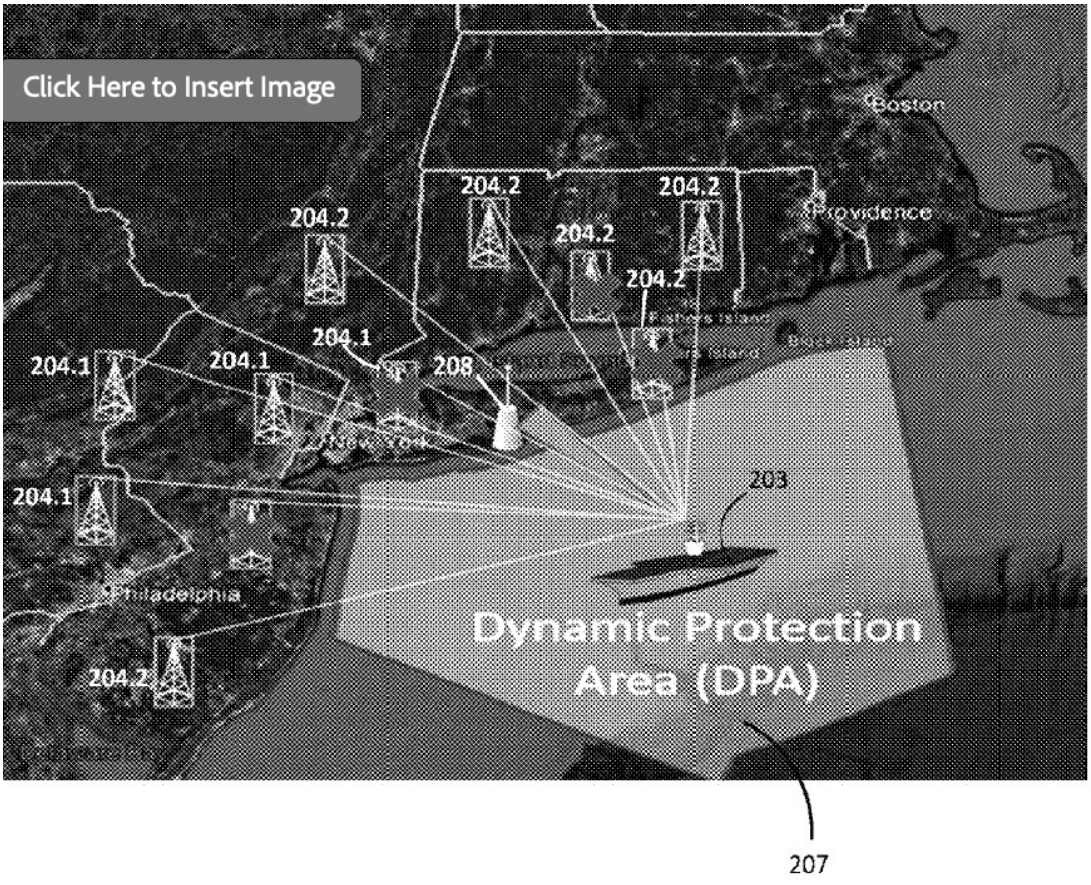

Systems deployed within the neighborhood of an offshore dynamic protection area (DPA) near New York.

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