IEEE 802.19.1a
Wireless Coexistence

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| Text proposal on System Architecture |
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Abstract

This document provides text proposal on system architecture in Section 4.1 and the related terminology definition, acronyms, and abbreviations in Section 3.

==== (Proposed text as follows)

**4. System description**

**4.1 System architecture**

A coexistence system defined in this standard has four logical entities and six logical interfaces. Two independent coexistence systems use one logical interface for information exchange, as shown in Figure 1. Each logical entity is defined by its functional roles and interfaces with other logical entities. System architecture is used to describe functional components of the coexistence system. The architectural descriptions are not intended to represent any specific physical implementation of the coexistence system.

**Figure 1 – System architecture**

The *coexistence discovery and information server* (CDIS) provides coexistence discovery service to the coexistence managers (CMs) it serves. Within this service the CDIS informs the CMs about potential neighbors of the geo-location capable objects (GCOs) served by these CMs. Also, the CDIS supports the discovery of CMs by other CMs in order to open interfaces between them. In order to provide the coexistence discovery service, the CDIS obtains all necessary information and performs coexistence discovery.

The CM provides either information or management service to the GCOs it serves. Communication between the CM and the GCOs is performed via their coexistence enablers (CEs). Within the information service the CM provides the GCO information about its potential neighbors including their operating frequencies, potential interference levels, etc. Within the management service the CM provides the GCO reconfiguration requests that create such configuration of this GCO that its operation is improved according to some criteria. In order to provide these information and management coexistence services, the CM obtains all necessary information and makes coexistence decisions.

The CE is an interface element that represents one or several GCOs of the same type in the coexistence system.

The coordination enabler (COE) is an interface element that represents one or more CMs to communicate with the other COE that is included in the other independent coexistence system.

Interface A between a CE and its GCO is defined in a generic format.

Interface B1 between a CE and a CM, interface B2 between a CM and a CDIS, interface B3 between two CMs and Interface B4 between a CM and a COE are specified within the same coexistence system. Interface B5 between two COEs in the independent coexistence systems is also specified in this standard.

Interface C between a CM and a spectrum management database (SMDB) is not defined in this standard and is implementation dependent. Thus the interface C is optional, and is not needed in the frequency band that SMDB does not exist. One of the implementation examples of the interface C is Protocol to Access White Space database (PAWS) specification for TVWS operation.

**3. Definitions, acronyms, and abbreviations**

**3.1 Definitions**

**coexistence system**: A set of one or more coexistence enablers (CEs), coexistence managers (CMs), coordination enablers (COEs) and a coexistence discovery and information server (CDIS).

**coordination enabler (COE):** An entity that can communicate with coexistence manager (CM) within the same coexistence system and with the coordination enabler (COE) within the other coexistence system.

**spectrum management database (SMDB)**: A database system approved by the relevant national regulatory authority which can communicate with GCOs and provide information on spectrum availability taking into account any operational changes from the protected incumbents. SMDB includes TVWS database, geo-location database, SAS database, and such kind of database system.

**geo-location capable object (GCO)**: An entity that represents a device or network of devices operating under general authorization with geo-location capability. The entity is connected to a coexistence enabler (CE) to consume coexistence services.

**3.2 Acronyms and abbreviations**

COE coordination enabler

SMDB spectrum management database

GCO geo-location capable object