Key Bridge Global LLC

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Implementation Guideline for White Space Operations

Procedures for:
Cooperative Voluntary Coordination (CVC)

Document type: **Implementation Guideline**
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1.2. Amendments and Review

This document describes a generalized implementation strategy for white space administration and is not an official Standard. While Key Bridge is the primary author, this document includes and has been developed through a collaborative process and incorporates suggestions and editorial advice from many contributors.

The ultimate intent of the authors is to evolve this document, mature its implementation and provide it as a formal contribution such that it may become an Implementation Specification. Nevertheless, while the material in this document has been carefully reviewed, it remains subject to change without notice and should not be referred to as a formal Standard or Specification.

The authors welcome your feedback. Recipients of this document are invited to submit their comments, and if applicable, notification and supporting documentation, to Key Bridge Global by email to documents@keybridgeglobal.com or to the following mailing address:

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2. Introduction

Wireless services for large, complex events including games, conventions, tournaments and press conferences, as examples, are often voluntarily coordinated amongst individual licensed operators by a designated frequency coordinator ("Coordinator"). This activity may be called cooperative voluntary coordination ("CVC").

FCC White Space rules require that the channels reserved for low power auxiliary devices (e.g. wireless microphones) are registered prior to use with an authorized White Space administrator ("Administrator"). Registrations must identify a responsible party, the location, schedule and channel of operation, plus licensing (call sign) information.[1]

For practical purposes it would be cumbersome and error prone if each licensee were required to individually register their own assigned operating frequencies or channels directly with an Administrator for events where a Coordinator has been designated.

In such scenarios Coordinators should instead be able to continue their current business practices with only minor modification.

The goal of this document is to describe current Coordinator practice at a high level and to provide guidelines for how Administrators may seamlessly integrate their services into a Coordinator's work flow.

2.1. Commercial Policy Statement

TO ENABLE DESIGNATED FREQUENCY COORDINATORS TO FULFILL THEIR RESPONSIBILITIES WITH MINIMUM INCONVENIENCE AND DISRUPTION, WHITE SPACE ADMINISTRATORS SHALL ALLOW DESIGNATED FREQUENCY COORDINATORS TO CREATE AND MANAGE LICENSED LOW POWER AUXILIARY STATION REGISTRATIONS ON BEHALF OF ALL PARTICIPATING ORGANIZATIONS AT THE EVENT FOR WHICH THE COORDINATOR HAS BEEN DESIGNATED.

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[1] See 47 CFR 15.713(h)(8) *Licensed low power auxiliary stations, including wireless microphones and wireless assist video devices.*

3. Table of Contents

4.   Terms and Definitions

Term	Definition
CVC	Cooperative Voluntary Coordination, describing a scenario where one or more wireless service providers designate a single authority for frequency coordination for a given event.
Coordinator	A designated frequency coordinator
Designate	An individual designated by a Coordinator with certain roles and responsibilities over event coordination like frequency, location or event management.
Registration	A (possibly incomplete or invalid) assembly of event information. Registrations exist within a single administrator and are the precursor to a White Space reservation.
Reservation	A complete and valid assembly of information that describes wireless services for an event. A Reservation must include Location, Schedule, Contact and Channel occupancy details.
Activation	The process whereby a Registration is validated and promoted to a Reservation
Distribution	The process whereby a Reservation is forwarded and synchronized amongst the various White Space administrators.

5. Commercial Implementation

Implementation of the commercial policy for CVC entails standardized procedures for the following activities:

- Coordinator Registration and Certification
- Event Registration
- Resource Reservation
- Resource Reservation Modification

5.1. Coordinator Registration and Self-Certification

Coordinators must register themselves with an Administrator through an administrator-provided registration portal and must self-certify their contact status as a designated frequency coordinator prior to accessing a CVC resource reservation process.

Self-certification may occur during and/or after the Coordinator registration process.

There shall be no charge for Coordinator registration.

Administrators may implement and require additional security procedures for Coordinator-managed activities such as digital certificates or the issuance of two-factor authentication devices at their discretion. Coordinator registration may therefore require additional time to complete that a non-Coordinator registration process. Coordinators should therefore register and familiarize themselves with Administrator resources, registration workflow and security procedures well in advance of their anticipated event to ensure their successful operation.

5.2. Event Registration

A fully qualified Wireless Service registration ("Registration") is required prior to the activation and reservation of channels in the White Space database by an Administrator. The four mandatory components of an event registration are:

- Contact details
- Station location
- Event schedule
- Occupied channels

In the following definitions the term Coordinator shall be interpreted as the coordinator individually or their delegated associates if present.

5.2.1. Contact Information

For all CVC events the Coordinator shall serve as the primary point of contact.

5.2.2. Contact Delegates

Coordinators may optionally delegate other contacts with certain roles and may delegate all or a certain responsibilities to those delegated individuals ("Delegate"). Example delegations may include, but are not limited to, an individual responsible for event scheduling, location identification and mapping, frequency lists, administrative issues, after-hours support, technical questions, etc.

Examples of possible delegated responsibilities include schedule management, location management, frequency management, etc.

Administrators shall support at minimum eight (8) Coordinator Delegates with variable system access privileges according to their Coordinator assigned role.
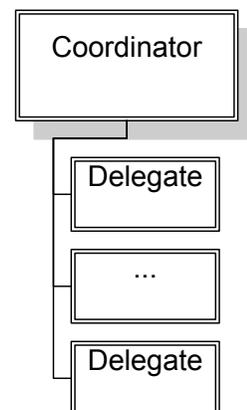

5.2.3. License Use Association

For CVC events the Coordinator is solely authorized to associate and disassociate the wireless microphone licenses of participating organizations with assigned frequencies, channels and location and schedule of operation.

Administrators shall accept all valid licenses provided by a Coordinator and should assume the Coordinator has permission to use the wireless operating license of participating organization.

Administrators may optionally notify participating organizations that their wireless operating license has been associated with a Registration.

The Coordinator is solely responsible for the resolution of any and all discrepancies or errors regarding license association.
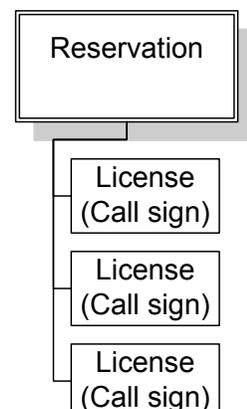
5.2.4. Station location

For CVC events the Coordinator shall register with an Administrator, and is responsible to manage, all event station information which provides the technical description of the event facility or facilities, including:

at least one of the facility

- geographic coordinates (longitude / latitude) or
- geographic bounding geometry (polygon coordinates) and

optionally the facility

- street address

Administrators shall provide an online portal resource to support the convenient registration and management of station location information.

5.2.5. Schedule Information

For CVC events the Coordinator shall register and is responsible to manage all event schedule information, including:

- start date and time and
- end date and time and
- any recurrence and
- indicating the possibility of overage (e.g. whether the event may require overtime)

In the event of that an event may require extension the Coordinator is responsible for updating their registered schedule information to reflect the change. In such scenarios, the Coordinator shall also be responsible to notify the Administrator of any actual overages and to positively confirm when a CVC event has ended so the Registration may be safely expired.

Administrators shall provide an online portal resource to support the registration and management of schedule information, including a convenient method to update schedule information in support of overages and extensions.

5.2.6. Frequency Information

For CVC events the Coordinator shall register and is responsible to manage all event frequency information, which at minimum represents a list of occupied channels.

Administrators shall provide an online portal resource to support the convenient registration and management of frequency information.

5.3. Resource Reservation

Following successful Registration the Coordinator may instruct the Administrator to implement the Administrator's internal processed for activating ("Activation"). Once activated the Registration shall be considered a White Space resource reservation ("Reservation").

Administrators shall provide an online portal resource to support the review and activation of event Registration(s) plus the review and modification or correction of event Reservations.

The Administrator portal should provide clear visual feedback to the Coordinator to indicate successful Activation. In the event of Activation failure the Administrator portal should provide clear and comprehensive error explanations and suggest possible remedies to the Coordinator.

5.3.1. Confirmation and Receipt

Following successful Activation through the Administrator's web portal the Coordinator will be presented, and will be able to download, a confirmation receipt with a unique serial number and summary reservation information. A summary receipt shall also be automatically sent to the Coordinator's email address.

5.3.2. Publication and Distribution

Following successful Activation the Administrator shall promptly publish and cause the Reservation to be distributed to all other administrators according to inter-administrator data distribution protocols.

Administrators shall provide an online portal resource to review and monitor Registration distribution status to the various other Administrators.

The Administrator may optionally monitor other administrator's data synchronization status and may provide supplemental updates to the Coordinator describing the Reservation's distribution and incorporation status into other administrator's systems.

5.4. Resource Reservation Modifications

CVC operations are understood to be inherently dynamic and reservations may change from time to time as conditions require. Administrators shall allow and enable Coordinators to continually update a Registration on an ad-hoc basis to accommodate this required flexibility.

Whenever a Registration's component information (e.g. location, schedule, frequencies, etc.) is updated to the Coordinator's satisfaction the Coordinator may re-activate the Registration.

Following successful re-Activation of a Registration the Administrator shall promptly update the published Reservation and shall immediately redistribute the updated Reservation to all other Administrators according to established inter-administrator data distribution protocols.

Confirmation and receipt procedures are identical to those described for new event Reservation procedures.

5.5. Resource Reservation Expiration

If the Coordinator has indicated in the event Registration (and consequently the Reservation) that an event may include overages (e.g. game overtime) the Administrator shall persist the Reservation as active beyond the indicated end date-time for not less than 24 hours from the end date time unless and until the Coordinator positively notifies the Administrator that the event has ended and the Reservation may be expired.

Administrators shall provide an online portal resource to support the notification of event expiration.

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6. Appendix: Document History

Description	Date	Version
First draft based upon earlier notes plus conversations at FCC 3rd Workshop	05/27/11	0.1
Rewrite based upon interviews and on-site visits	06/17/11	0.2
Update and improvements based upon customer feedback	07/24/11	0.3
Rewrite into Guideline format	09/01/11	1.0
Add descriptive diagrams Light editorial for improved readability	09/30/11	1.0r02
Update Important Notices section	10/14/11	1.0r03
Reformat into new document template	11/07/12	1.0r04