



TV Bands Database Administrator Workshop 3

May 25, 2011

Office of Engineering and Technology
FCC



Licensed Wireless Microphones



Licensed Wireless Microphones

Section 15.712:

(f) Low power auxiliary services, including wireless microphones:

(1) Fixed TVBDs are not permitted to operate within 1 km, and personal/portable TVBDs will not be permitted to operate within 400 meters, of the coordinates of registered low power auxiliary station sites on the registered channels during the designated times they are used by low power auxiliary stations.

(2) TVBDs are not permitted to operate on the first channel on each side of TV channel 37 (608-614 MHz) that is not occupied by a licensed service.



Licensed Wireless Microphones

Section 15.713(h):

(8) Licensed low power auxiliary stations, including wireless microphones and wireless assist video devices. Use of licensed low power auxiliary stations at well defined times and locations may be registered in the database. Multiple registrations that specify more than one point in the facility may be entered for very large sites. Registrations will be valid for no more than one year, after which they may be renewed. Registrations must include the following information.

- (i) name of the individual or business responsible for the low power auxiliary device(s)
- (ii) an address for the contact person
- (iii) an email address for the contact person (optional)
- (iv) a phone number for the contact person
- (v) coordinates where the device(s) are used (latitude and longitude in NAD 83, accurate to +/- 50 m)
- (vi) channels used by the low power auxiliary devices operated at the site
- (vii) specific months, weeks, days of the week and times when the device(s) are used (on dates when microphones are not used the site will not be protected)
- (viii) the station's call sign.



Licensed Wireless Microphones

Issues for Discussion:

Registrations are with the database administrators

Eligible facilities/locations for registration

Scheduling

Channels/frequencies

Multiple registration points for a large facility

Outreach to inform licensees of registration procedures

Other issues as raised



Unlicensed Wireless Microphones



Unlicensed Wireless Microphones

Section 15.713(h):

(9) Unlicensed wireless microphones at venues of events and productions/shows that use large numbers of wireless microphones that cannot be accommodated in the two reserved channels and other channels that are not available for use by TVBDs at that location. Such sites of large events and productions/shows with significant wireless microphone use at well defined times and locations may be registered in the database. Entities responsible for eligible event venues registering their site with a TV bands data base are required to first make use of the two reserved channels and other channels that are not available for use by TVBDs at that location. As a benchmark, at least 6–8 wireless microphones should be operating in each channel used at such venues (both licensed and unlicensed wireless microphones used at the event may be counted to comply with this benchmark). Multiple registrations that specify more than one point in the facility may be entered for very large sites. Sites of eligible event venues using unlicensed wireless microphones must be registered with the Commission at least 30 days in advance and the Commission will provide this information to the data base managers. Parties responsible for eligible event venues filing registration requests must certify that they are making use of all TV channels not available to TV bands devices and on which wireless microphones can practicably be used, including channels 7–51 (except channel 37). The Commission will make requests for registration of sites that use unlicensed wireless microphones public and will provide an opportunity for public comment or objections. Registrations will be valid for one year, after which they may be renewed. The Commission will take actions against parties that file inaccurate or incomplete information, such as denial of registration in the database, removal of information from the database pursuant to paragraph (i) of this section, or other sanctions as appropriate to ensure compliance with the rules. Registrations must include the following information:

- (i) Name of the individual or business that owns the unlicensed wireless microphones;
 - (ii) An address for the contact person;
 - (iii) An e-mail address for the contact person (optional);
 - (iv) A phone number for the contact person;
 - (v) Coordinates where the device(s) are used (latitude and longitude in NAD 83, accurate to \pm 50 m);
 - (vi) Channels used by the wireless microphones operated at the site and the number of wireless microphones used in each channel. As a benchmark, least 6–8 wireless microphones must be used in each channel. Registration requests that do not meet this criteria will not be registered in the TV bands data bases;
 - (vii) Specific months, weeks, days of the week and times when the device(s) are used (on dates when microphones are not used the site will not be protected); and
 - (viii) The name of the venue.
- (i) Commission requests for data. (1) A TV bands database administrator must provide to the Commission, upon request, any information contained in the database.



Unlicensed Wireless Microphones

Issues/Points for Discussion:

Registrations requests are submitted to the FCC

Eligible facilities/locations for registration

Scheduling

Channels/Frequencies

Multiple registration points for a large facility

Outreach to inform licensees of registration procedures

Others issues as raised



General Issues

Wireless Microphones

Question 1: How often do database systems need to download unlicensed wireless microphone information from the ULS?

Answer: The ULS is updated daily and the database systems should download the data on that schedule. We're looking at whether we can make the wireless microphone data more current for more frequent downloads.

Question 2: Will unlicensed microphone registrations get call signs?

Answer: No, but the registration record will get a unique identifier.



General Issues

Wireless Microphones

Question 3: What format will be used for scheduled use, *i.e.*, days/times?

Answer: We have not yet made decisions on the format for schedules.

Question 4: Is there a limit on the number of or distance between the geographic coordinates that can be registered for a registered venue?

Answer: No and we expect the for large venues (golf courses, race tracks, etc. the number of registration points could be relatively high. We will also allow specification of protection zones with boundaries defined by a series of points connected by straight lines.



General Issues

Wireless Microphones

Question 5: Do the databases need to keep information on the number of wireless microphones being used per TV channel?

Answer: No. The FCC will address that issue for registered unlicensed microphones; licensed wireless microphones are not subject to a per channel requirement, although we do encourage them to minimize the number of available channels they occupy.



Questions





Available Channel Calculations

**Presentation by the Database
Administrators Working Group**



Data Issues



PLMRS Facilities

- Databases need to protect PLMRS facilities operating beyond the 11 designated urbanized areas
 - Records for both public safety and industrial/business stations
- Section 90.303 identifies the designated urbanized areas and authorized channels within those areas.
- Section 90.305 requires base station transmitters to be within 80 km (50 mi) of the geographic center of the urbanized areas.
- Some base station transmitters are licensed outside the 80 km (50 mi) distance of the urbanized areas
 - Most of those have been authorized by waiver or just licensed
 - Some have been authorized nominally outside as a result of different distance calculating routines being used by the Commission and the frequency coordinators over the years



PLMRS Facilities

- The 470-512 MHz TV shared band is also used for Part 90 PLMRS services and Part 22 public mobile services (Subpart E - Paging and Radiotelephone Service for point-to-multipoint operations and trunked mobile operation)

- The ULS radio service codes used for the Part 90 PLMRS licenses in these bands are:
 - PW and YW (public safety pool)
 - IG, YG, IK, and YK (industrial/business pool)

- The ULS radio service codes used for Part 22 public mobile services in these bands are:
 - CD, PW and YW



PLMRS Facilities

- Database systems need to protect also:
 - Part 90 PLMRS records (codes PW, YW, IG, YG, IK, and YK) that are outside of the designated urbanized areas
 - Part 22 public mobile service records (code CD) that are outside of the designated urbanized areas
- Standards for protection of these records are in Section 15.712(d)



LPTV/TV Translator Receive Site Update Facility

- After the DTV transition, many LPTV/translator stations' receive channels changed; many stations did not report new receive channels to the FCC
- New receive channels are not in the CDBS for such stations
- To protect receive sites, the database administrators need stations' receive channels
- Stations need to make sure the FCC has their current receive channels
- OET and MB have are setting up a facility to facilitate input of receive channel changes:
www.fcc.gov/oet/whitespace



LPTV/TV Translator Receive Site Update Facility

Class A/LPTV/TV/ Translator Input Signal Form

* Required Fields

Validate Station

FCC Registration Number (FRN) *	FRN Password *
<input type="text"/>	<input type="text"/>
Facility ID *	Facility Call Sign *
<input type="text"/>	<input type="text"/>

Login



LPTV/TV Translator Receive Site Update Facility

Class A/LPTV/TV/ Translator Input Signal Form

* Required Fields

Responsible Party Information

First Name *	<input type="text"/>	Last Name *	<input type="text"/>
Email Address *	<input type="text"/>		
Telephone Number *	<input type="text"/>	Ext.	<input type="text"/>

Translator Information

Facility ID *	<input type="text" value="12345"/>	Facility Call Sign *	<input type="text" value="TEST-DC"/>
Antenna Structure Registration Number *	<input type="text"/>		
Latitude of Transmitter (NAD 27) *	<input type="text" value="N"/> <input type="text"/>	Longitude of Transmitter *	<input type="text" value="W"/> <input type="text"/>



LPTV/TV Translator Receive Site Update Facility

Class A/LPTV/TV/ Translator Input Signal Form

* Required Fields

*Your are working on Translator Call Sign: **TEST-DC** (Facility ID: **12345**)
Originating TV Station: 1*

Signal Source (Originating TV Station)

Facility ID *

Call Sign *

City of Originating Station *

State of Originating Station *

Channel of Originating Station *

Delivery Method

Is receiver antenna collocated with Translator Transmit Antenna?

Add Another Translator Input +

Review



LPTV/TV Translator Receive Site Update Facility

Class A/LPTV/TV/ Translator Input Signal Form

* Required Fields

You are working on Translator Call Sign: **TEST-DC** (Facility ID: **12345**)
Originating TV Station: **1**

Signal Source (Originating TV Station)

Facility ID *

Call Sign *

City of Originating Station *

State of Originating Station *

Channel of Originating Station *

Delivery Method

Satellite

- Off-air from TV
- Off-air from Translator
- Microwave
- Satellite

Antenna collocated with Translator Transmit Antenna?

Add Another Translator Input +

Review



LPTV/TV Translator Receive Site Update Facility

Delivery Method

Off-air from Translator

Receive Transmitter Channel *

Receive Transmitter Call Sign *

Receive Transmitter Facility ID *

Delivery Method

Microwave

Call Sign of Microwave *



LPTV/TV Translator Receive Site Update Facility

Is receiver antenna collocated with Translator Transmit Antenna?

No

Please provide the following information for the Translator's Remote Antenna

Latitude of receive site (NAD 27) *

N

Longitude of receive site (NAD 27) *

W

Receiver Antenna Structure Registration number *



Offshore Radiotelephone Service

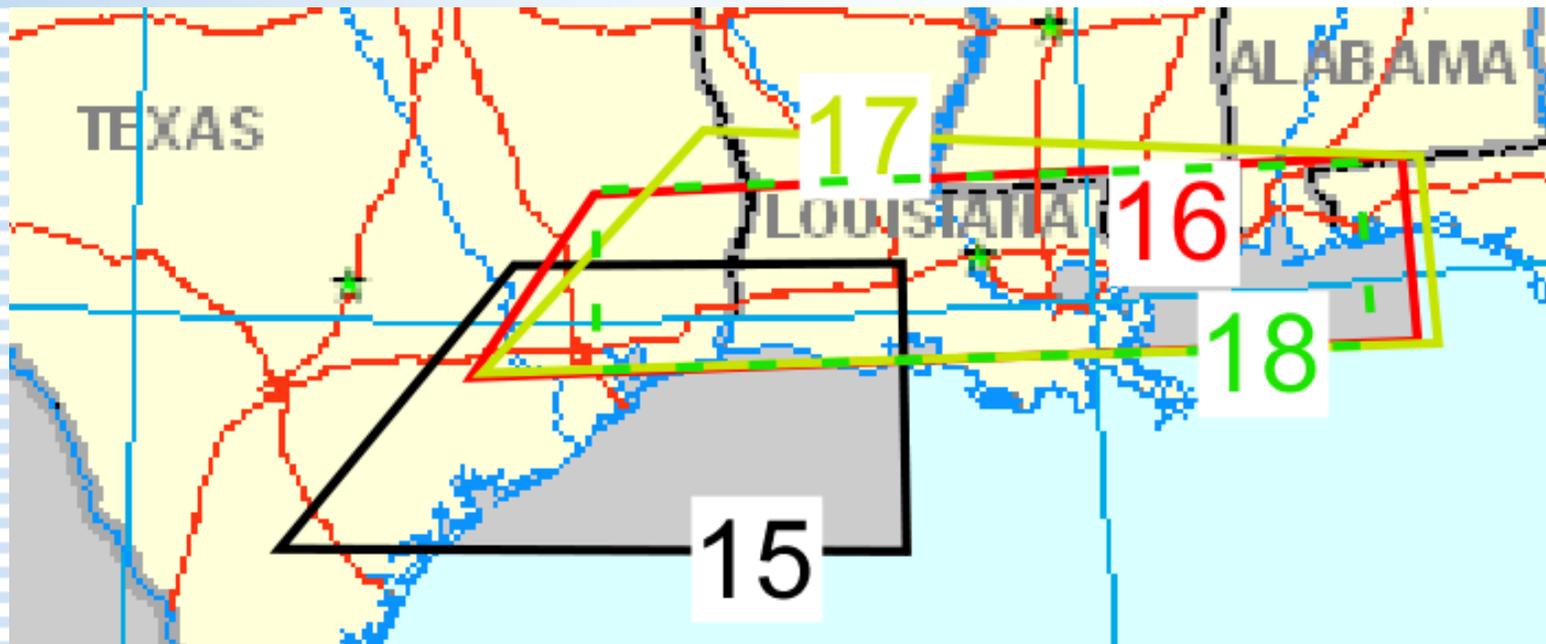
- Concern: The southern border of the Offshore Radiotelephone Service protection area for Channel 18 is not defined in rule Section 74.709(e). However, rule Section 22.1007 defines the ORTS service areas as extending to the continental shelf. In the March 10 workshop, the presentation materials included a plot of the areas which showed a southern boundary for channel 18.

- Need to clarify the southern border of this area
 - Note that the ORTS protection area for channel 18 is defined as the area: West of 87° W; east of 95° W; and south of 31° N. (no southern boundary)

- Resolution: Use north of 29°30' N.L. as the southern boundary of the channel 18 protected area (this corresponds to the southern boundary for the channel 17 protected area
 - Note that the channel 18 restriction is intended to provide adjacent channel protection to channel 17 ORTS operations; there are no channel 18 ORTS operations



Offshore Radiotelephone Service





Temporary BAS Receive Sites

- Concern: Section 15.712 (c) of the FCC rules addresses the need to register temporary BAS receive sites in the TV bands database. However, Section 15.713 (b)(2) does not list the temporary BAS receive sites as “facilities that are not recorded in the Commission databases.”
- Under Section 74.24 of the rules, TV stations can operate BAS facilities on a short term basis (not to exceed 720 hours); these operations are not recorded in the ULS database system
- Database systems thus need to provide for registration of receive sites of temporary BAS links



Temporary BAS Receive Sites

- For temporary BAS receive site records, each database system should include the following fields and propagate the records to other database administrators:
 - Transmitter coordinates (NAD83)
 - Receiver coordinates (NAD83)
 - Channel number
 - Call sign
 - Start date/time that link will be operating
 - End date/time that link will be operating
 - Contact information (Responsible party name, address, phone number and e-mail address)



NRAO and VLBA Coordinates

- Concern: The NRAO and VLBA station coordinates listed in Section 15.712 (h) differ from those listed in Footnote US388 from Chapter 4 of the NTIA Manual. Additionally, the NTIA manual Section 8.3.2 lists the coordinates of Table Mountain as $40^{\circ}07'50''\text{W}$, $105^{\circ}14'40''\text{N}$, where Section 15.712 (h) lists $40^{\circ}07'50''\text{W}$, $105^{\circ}15'40''\text{N}$.
- NTIA has looked at these concerns and provided updated coordinates as shown on the following slide
- We are finalizing all this with NTIA and will make editorial changes to the rules when everything is formalized with them.
- We will keep the database administrators informed on progress



NRAO and VLBA Coordinates

Telescope	Name	City	State	NSF Lat	NSF Lon
Allen Telescope Array	Allen Telescope Array	Hat Creek	CA	40 49 04 N	121 28 24 W
National Astronomy and Ionosphere Center (NAIC), Arecibo Observatory	Arecibo Observatory	Arecibo	PR	18 20 37 N	66 45 11 W
National Radio Astronomy Observatory (NRAO), Robert C. Byrd Green Bank Telescope	Green Bank Telescope	Green Bank	WV	38 25 59 N	79 50 23 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Brewster, WA	Brewster	WA	48 07 52 N	119 41 00 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Fort Davis, TX	Fort Davis	TX	30 38 06 N	103 56 41 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Hancock, NH	Hancock	NH	42 56 01 N	71 59 12 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Kitt Peak, AZ	Kitt Peak	AZ	31 57 23 N	111 36 45 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Los Alamos, NM	Los Alamos	NM	35 46 30 N	106 14 44 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Mauna Kea, HI	Mauna Kea	HI	19 48 05 N	155 27 20 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - North Liberty, IA	North Liberty	IA	41 46 17 N	91 34 27 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Owens Valley, CA	Owens Valley	CA	37 13 54 N	118 16 37 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Pie Town, NM	Pie Town	NM	34 18 04 N	108 07 09 W
National Radio Astronomy Observatory (NRAO), Very Long Baseline Array Station	VLBA - Saint Croix, VI	Saint Croix	VI	17 45 24 N	64 35 01 W



General Issues and Questions



General Issues

Receive Sites

Question 6: What is the status of the requests for waiver of the 80 km limit on registration of cable headend and low power TV receive sites?

24 parties filed requests for a waiver

17 requested registration of translator receive sites, specifying a total of 120 sites.

7 requested registration of cable headends, specifying 48 sites and 163 received stations.

FCC will issue a public notice requesting comment on these requests and subsequently issue decisions. No timetable has been established for processing these waiver requests.

Answer: No action yet on these requests.



General Issues

Receive Sites

Question 7: When the FCC does make decisions on the 80 km waivers, will it post the specific site/channel information on the web site so the database administrators can enter the information in their databases?

Answer: Yes.



General Issues

Distributed Transmission Systems

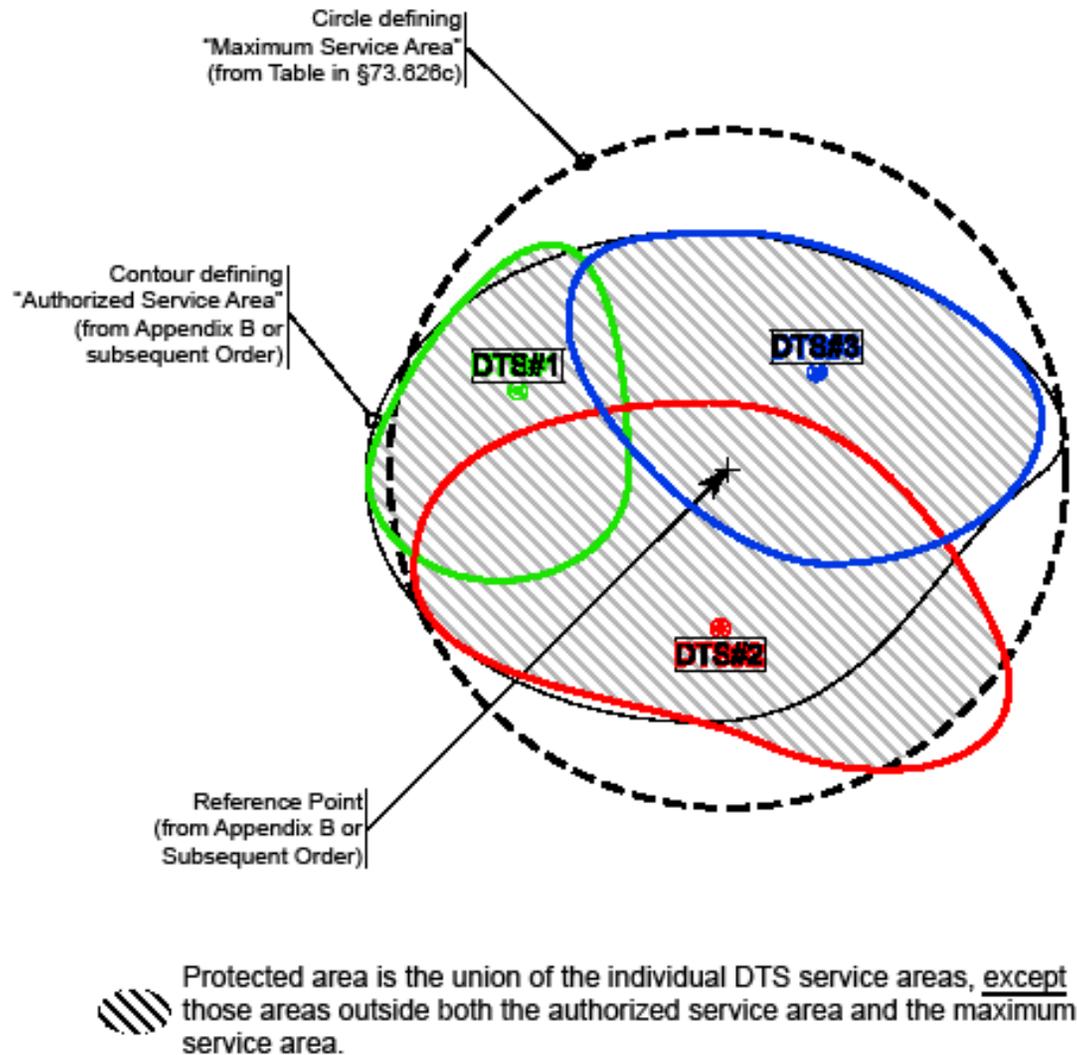
Question 8: Are Distributed Transmission System (DTS) stations protected? What is the protected contour for such stations and how is it calculated?

Answer: See Section 73.626(e) of the rules. The protected area (population) is that within the station's combined coverage area contour, excluding that which is outside of the station's authorized service area and the Table of Distances in Section 73.626(c) of the rules.



General Issues

Distributed Transmission Systems





General Issues

Canada and Mexico

Question 9: How should the databases handle protection of Canada and Mexico stations?

Answer: Protection of the service areas of Canadian and Mexican stations ends at US border. The databases should calculate the contours of those stations and “draw a line” to terminate protection at the border. (Service must be protected on the other side of the borders.)

Question 10: How are contours for Canadian and Mexican stations to be calculated, *i.e.*, what elevation data should be used for those stations?

Answer: We will use 30 second data that is available at GTOPO 30 (30-second terrain data) for areas not covered by the USGS 1-second terrain data set. GTOPO 30 is available at:

http://eros.usgs.gov/#/Find_Data/Products_and_Data_Available/gtopo30_info. For Canada, we are also considering using a 1-

second terrain data set (Canadian Digital Elevation Data, CDED) that available free from Natural Resources Canada. The CDED dataset is available at www.geobase.ca. We are evaluating this data and will provide guidance as appropriate



General Issues

Fixed Device Registrations

Question 11: Why do the databases have to share information on fixed TVBDs?

Answer: This required under Section 15.713(b)(2) to ensure that a database administrator is able to make necessary information available to FCC if there is an interference problem. We need to be able to get that information from any one of the databases, rather than have to check with all of them.



Database Synchronization and Interoperability

Presentation by the Database Administrators Working Group



Ad Hoc Discussion of Other Subjects

- Compliance and Enforcement
- Security
- Database application and submission process
- Final approval and testing of database systems



General Issues

EAS TVBD Certification Data

Question 12: Question: Are the APIs for web services limited to retrieval of EAS information on approvals of TV bands devices (TVBDs)?

Answer: Yes. Note that the API “getFCCIDLists” is for extract of all of the TVWS device certifications in a date range and is intended to be accessed by the database systems. (We aren’t providing a download file.) The database systems will then use their downloaded copies to validate FCC IDs. The FCC APIs for access to the EAS are not intended for real-time access to validate FCC IDs.



General Issues

Approvals

Question 13: Will FCC be testing a device for certification with access to a database and check the database and device security features as part of that process?

Answer: Yes.

Question 14: Does a database system's security system have to be implemented before the database system is certified?

Answer: Not necessarily - it can be phased in. We'll look to see that the database is providing the required data and communications security and the level of reliability that it promises to provide to a customer.



General Issues

Approvals

Question 15: For testing a TVBD with a database, the database administrators could enter a test record into each database for the FCC to use, *e.g.*, a dummy record with a test flag. Would this be useful?

Answer: Yes, it would be helpful for equipment certification purposes to have a record under test, not licensed. The FCC will provide test records in the EAS.



General Issues

Approvals

Question 16: Does a database administrator have to “bring” its database to FCC to demonstrate all of the capabilities noted on the slides?

Answer: No. Some of the capabilities can be provided in descriptive form “on paper” and some will be demonstrated during the trials.

Question 17: Has FCC considered “conditional approvals” of database systems so that the final approval process is not delayed until everyone is ready?

Answer: We will do testing in phases - each database will be evaluated separately, with another database, with a TVBD, and then end-to-end field tests.



General Issues

Approvals

Question 18: Do the whole variety of TVWS devices (e.g., fixed, Mode 1, Mode 2) have to be available for testing before a DBA get final approval?

A: We will approve the databases for operation with devices in phases. We expect that fixed devices will be available first for testing purposes and the personal/portable devices. We will approve a database for operation with the types of device that are available at a given point in time when approval is requested and will conduct further approval later with other types of devices as needed.



General Issues

Enforcement

Question 19: What information (e.g., coordinates with radius) will the FCC provide the database administrators so that denial of service can be implemented, particularly if the case involves a single user, one model of a TVBD, or a defined geographic area? The information should match the coding schemes that the database systems will be using so that the denial of service can be easily implemented.

Answer: The information to be provided will depend on the nature of the denial of service request. We'll need to work more closely with the database administrators on these capabilities and see what coding they intend to implement.

Question 20: In enforcement cases, will FCC contact only one database administrator or all of them simultaneously? Will the contact be made electronically or by letter? Concerns about spoofing were expressed.

Answer: A request may initially be made by voice and e-mail contact to each database administrator and then followed up by a letter.



General Issues

Enforcement

Question 21: Will the FCC be the only party to investigate and respond to interference complaints?

Answer: Yes. Database administrators should report to the FCC any interference problems that come to their attention, but are not expected to actively look for them. Database administrators should not make a decision to deny service to TVBDs on their own.

Question 22: How will the databases be audited? What software or application would be used to navigate the database? The API only gives the FCC access to the database, it is not a navigation tool through it.

Answer: We will need access to the database system both to test a device as well as to determine how the database calculated a protection zone. We will need an API plus a navigation tool.



General Issues

Petitions for Reconsideration

Question 23: What is the status of actions on the five outstanding petitions for reconsideration?

Answer: We still do not have an estimated completion date for a decision (MO&O) on these, but the drafting process is progressing



Wrap-Up/Next Meeting