700 MHz
Planning Committee

**Region 39, Tennessee**

**Region 39, 700 MHz Regional Planning Committee**
**John Johnson, Chairman**
**3041 Sidco Drive**
**Nashville, TN 37204**

January 31, 2008

Federal Communications Commission
Public Safety & Homeland Security Bureau
445 12th Street, SW
Washington, DC 20554

Subject: PSHSB Docket No. 07-132, Region 39 - 700 MHz Regional Plan Revisions

Dear Sirs:

Attached is the Region 39 700 MHz Regional Plan for your review. This document is the result of FCC decision of July 31, 2007, Report & Order released August 10, 2007, 07-132. Region 39 has modified the Plan to adhere to the changes by deletion of the wide band data channels and realignment of the General Category narrowband channels.

On December 18, 2007, Region 39 met, reviewed the changes and approved all changes to the Region 39 Plan. The Plan was then sent to the adjacent Regions for their Concurrence. All Regions have given their concurrence.

There are three significant changes to the Plan. First, deletion of the wideband portion of the Plan. Secondly, General Usage Channel Allocations was revised to meet the new FCC band plan. No new channels were added to any county, only the frequencies changed to conform to the FCC Band Plan Public Notice, FCC 07-4163, released October 4, 2007. The third change is to the Region By-Laws Section 3.4, clarification of the duties of the Chair and adding sections 3.7.1 Committees and 3.7.2 Executive Board.

The original Dispute Resolutions are not included in this Plan, (to save space), since they are document and may be viewed at my office, or copies supplied by email.

Region 39 did note that after the spectrum reconfiguration, the reconfiguration did create some channel spacing issues for the packing. These issues are highlighted in yellow in Appendix G.

It is our hope that this Plan will meet your approval and allow public safety agencies in Tennessee access to this much needed spectrum. If you have any questions, please contact me at (615) 741 – 3826.

Respectfully,

John W. Johnson

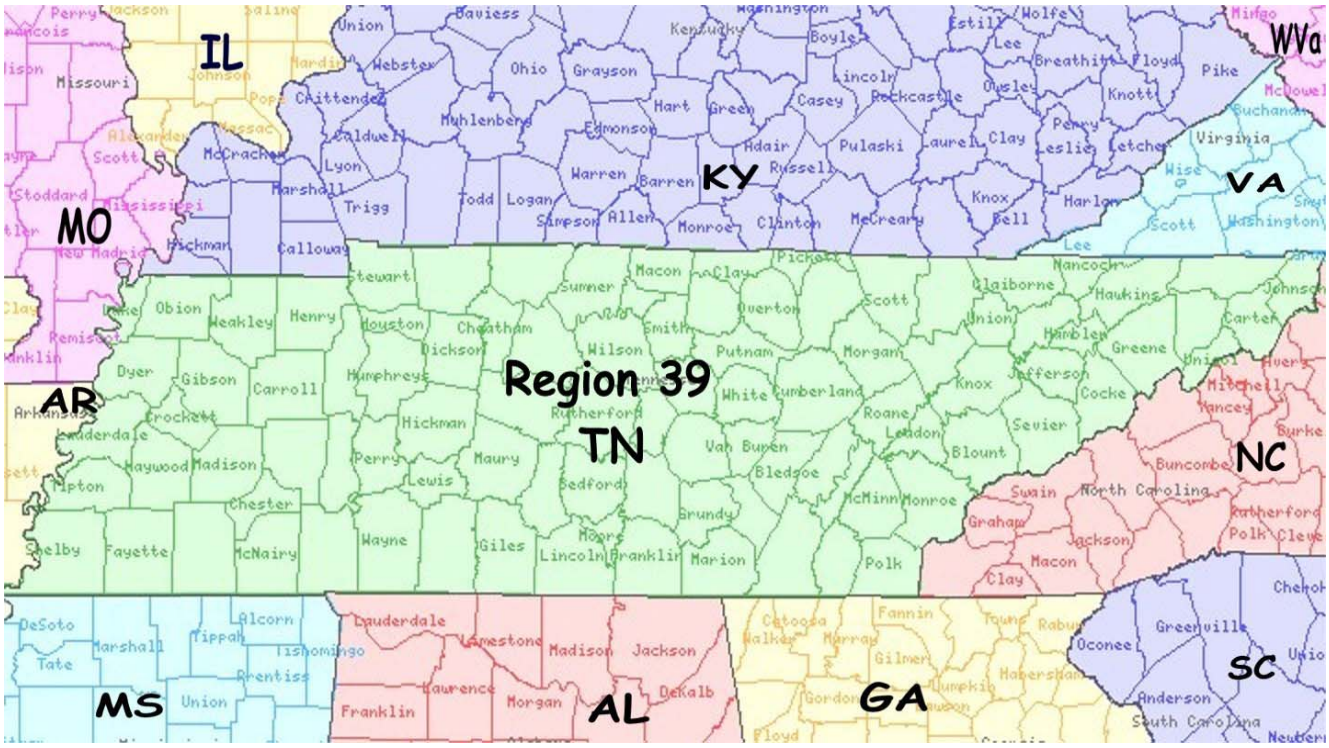
John Johnson
Chairman Region 39 RPC

# PUBLIC SAFETY 700 MHz RADIO

# COMMUNICATIONS PLAN

# FOR REGION 39

# THE STATE OF TENNESSEE




**769 – 775 / 799 – 805 MHz Regional Plan for Region 39 (Tennessee)**

FCC Approved June 27, 2006  DA 06-1318
Revised January 31, 2008

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This document is the Regional Plan for Region 39 (Tennessee) describing how the 769 - 775 MHz / 799 -805 MHz General Use frequencies will be allocated and implemented in the Region.

# 1.0 General Information

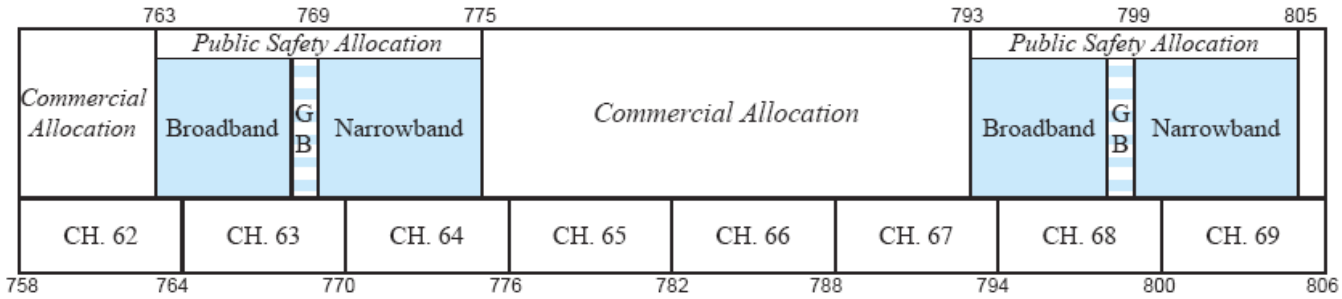
**INTRODUCTION**

The Regional Committee is established under section 90.527 of the FCC's rules and regulations. Region 39 is an independent Committee apart form the Federal Communications Commission with authority to evaluate application for public safety uses of the spectrum allocated under FCC Docket 96-86. Twenty-four (24) MHz of the spectrum was originally allocated to Public Safety in 1996 but was modified to twelve (12) MHz of spectrum as of the FCC decision on July 31, 2007, released August 10, 2007. The Public Safety spectrum consists of TV broadcast channel 63 & 64 paired with channels 68 & 69. This Plan deals with the 12 MHz of General Use spectrum for Public Safety.

On August 10, 2007, the FCC released Report and Order 07-132. This Plan modification is to align the Region 39 700 MHz RPC Plan with the FCC Report & Order.

The below chart is copied from FCC Second Report & Order 07-132

**FIGURE 2: REVISED 700 MHZ BAND PLAN FOR PUBLIC SAFETY SERVICES**



## 1.1 Current Regional Chair

The Regional Chairperson of Region 39 is John W. Johnson. His information is below:

John W. Johnson
TN Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204
(615) 741 – 3826 (V)
(615) 741 – 6027 (F)
email: jjohnson@tnema.org

## 1.2 Other Current RPC Officers and full RPC Membership

The Vice Chairman of Region 39 is Alan Bull. His contact information is below:
Alan Bull
Knox County 911
Technical Services Manager
605 Bernard Avenue
Knoxville, TN 37921
(865) 215 – 1101 (V)
(865) 215 – 1134 (F)
Email: abull@knox911.org

The Secretary for Region 39 is Charles Riggs. His contact information is below:
Jesse Griggs
State of Tennessee, Dept. of Correction
Rachel Jackson State Office Building
Nashville, TN 37243
(615) 253 - 8098
(615) 741 - 4605
Email: jesse.d.griggs@state.tn.us

Membership in the Region 39 Regional Planning Committee is open to any interested party as defined by FCC Part 90.20a and 90.523. Committee Officer requirements, voting procedures and membership attendance requirements are listed in the Region 39 Planning Committee by-laws. Appendix A contains the Region 39 By-laws. Appendix B is a list of Region 39's members, their agency/affiliation and voting status. Voting and operating procedures are described in Section 2.2 of this Plan.

## 1.3 Region 39 Description

Region 39 encompasses the entire state of Tennessee, consisting of 95 counties. An alphabetized list of counties can be found listed in Appendix C.

Tennessee has been called the “Three States of Tennessee” because of its three grand divisions and the unique geography of each. Geographically, Tennessee is divided into six major natural regions. These areas, from east to west, are:

1) The Appalachian Mountain region along the North Carolina boarder with Mountain peaks ranging from 3000 to 6000 feet,

2) The Great Valley, also called the Grand Canyon of the East, with several long, narrow, even crested ridges running southwest to northeast and elevations of 1200 to 2500 feet,

3) The Cumberland Plateau again running from the southwest to the northeast it varies in width from 50 to 70 miles. It covers a total of about 4,260 square miles on a surface that is flat to rolling tableland that rises 800 to 1000 feet above the land on either side.

4) The Highland Rim with about 12,650 square miles outlines most of what is known as "Middle Tennessee." In the center of the Highland Rim is the Central Basin. Although the Highland Rim has a peak of over 2000 feet it has an average altitude of slightly less than 1000 feet. The terrain is "rough plateau" with the roughest parts along the edges of the Central Basin.

5) Central Basin is an oval depression that has a gently rolling surface with many small rounded hills that rise 200 to 300 feet above the general level. Terrain varies from about 500 to 1100 feet above sea level.

6) The Gulf Coastal Plain of West Tennessee covers all of what is known as West Tennessee with the area from Kentucky Lake and the Tennessee River to the Mississippi River. Generally it is a broad plain whose surface slopes to the west until it ends abruptly at the bluffs over looking the flood plain of the Mississippi River. Along the eastern edge streams have cut valleys that form a rough topography.

There are ninety-five counties in the state with a total landmass of 41,219 square miles according to the 1996 Land Area Statistics, US Bureau of the Census. The largest county is Shelby, with a total of 755 square miles. Water features of significance, are the Mississippi, Tennessee and Cumberland Rivers, Reelfoot Lake (natural), Watauga, Norris, Watts Bar, Chickamauga, Dale Hollow, Center Hill, Percy Priest, Old Hickory, Tims Ford, Pickwick, Kentucky and Barkley Lakes (manmade). Tennessee has 477 square miles of water within its' boundaries.

As shown above, the population of over five million people is distributed across nearly forty two thousand square miles of widely varying terrain. This presents some unique problems in area coverage for radio systems since the entire land area of any given jurisdiction must be covered. The population per square miles in urban areas tends to be dense and in rural areas tends to be sparse. The population distribution and the very diverse geographical features of the state must be carefully considered in communications system planning. All these items were taken under consideration in the allocation Plan.

Tennessee’s population according to the 2002 Census of Population and Housing, U. S. Bureau of Census, as found in the *Tennessee Blue Book*, is 5,797,289. Tennessee has four metropolitan areas plus the Tri-Cities area spread across the State. These five areas make up 64% of the population. Three of these

metropolitan areas border other states. Memphis is the largest metropolitan area and borders Mississippi and Arkansas. Nashville, the capitol city, is the second largest and has a metropolitan area that extends to the Kentucky state line. This is the fastest growing area in Tennessee and one of the fastest in the nation, with the adjacent cities of Murfreesboro, Franklin, Lebanon and near by Clarksville. Clarksville is home to Ft. Campbell and the 101st Airborne (though it is actually in Kentucky) but greatly impacts Tennessee. Knoxville is the third largest and includes the city of Oak Ridge. The fourth area is Chattanooga, which borders Georgia and Alabama. The fifth largest metropolitan area is the Tri-Cities area made up of Bristol, Johnson City and Kingsport. Bristol is split into two towns by the Virginia / Tennessee border. Also a factor in the Tri-Cities metropolitan area is the proximity of Virginia, North Carolina and Kentucky.

Region 39 (State of Tennessee) has eight (8) adjacent bordering Regions and three (3) non-bordering Regions within 70 miles of the State border. They are as follows:

| | | |
|---|---|---|
| Region 1 | State of Alabama | Border |
| Region 4 | State of Arkansas | Border |
| Region 10 | State of Georgia | Border |
| Region 13 | Southern Illinois | Non Border |
| Region 17 | State of Kentucky | Border |
| Region 23 | State of Mississippi | Border |
| Region 24 | State of Missouri | Border |
| Region 31 | State of North Carolina | Border |
| Region 37 | State of South Carolina | Non Border |
| Region 42 | State of Virginia | Border |
| Region 44 | State of West Virginia | Non Border |

In previous NPSPAC 821 MHz frequency allotments, spectrum amounts disproportionate to population densities were allocated due to differing methodologies used in adjacent NPSPAC Regions and the timing of adjacent Regions Plan approval. This resulted in a minimum number of channels available for Region 39, particularly in the Memphis area that borders Mississippi and Arkansas. In the 700 MHz band, county allotments for both narrowband and wideband channels have been developed based on population densities relative to adjacent Regions. Due to the Region's diverse population densities and the scarce spectrum resources in Tennessee's populated areas, it is anticipated the majority of requests for voice spectrum will be from the five metropolitan and surrounding areas, which all currently operate existing 800 MHz trunked radio networks.

It is anticipated that other areas within Region 39, including areas in the Northwestern parts of Tennessee that borders Missouri, Arkansas and Kentucky, the Northeast area that borders Virginia & North Carolina and the Southeastern area that borders Georgia and Alabama may request 700 MHz channels from established county pool allotments to either expand existing 800 MHz systems or develop new 700 MHz systems

# 2.0 Notification and Operation

## 2.1 Notification Process

The 800 MHz NPSPAC Region 39 Chairperson, John W. Johnson, acted as the 700 MHz Convener. A 700 MHz Regional Planning Committee meeting date was set for May 8, 2001. Notification to interested parties began ninety (90) days prior to the first meeting as well as follow-up reminder announcements were issued. Announcements indicating the date, time and location of the first meeting were sent by mail to the FCC Wireless Telecommunications Bureau and, posted in the following industry periodicals: *Mobile Radio Technology* Magazine, and the Association of Public Safety Communications Officials, Inc. magazine, the *Nashville Record* newspaper and *Tennessee Town & City*, a newspaper published by the Tennessee Municipal League. Every city and county Mayor in Tennessee as well as all known Public Safety and Public Service Associations were mailed or emailed an announcement of the meeting. The Associations notified were as follows:

TN Association of Public-Safety Communications Officials
Emergency Management Association of TN
Native American Indian Association of TN
TN Ambulance Service Association
TN Association of Chiefs of Police
TN Association of County Executives
TN Association of Housing & Redevelopment Authorities
TN Association of Mental Health Organizations
TN Association of Rescue Squads
TN Association of Utility Districts
TN Board of Regents
TN County Highway Officials Association
TN County Service Association
TN District Attorneys Conference
TN Emergency Communications Board
TN Emergency Numbers Association
TN Fire Chief's Association
TN Hospitals Association
TN Municipal Electric Power Association
TN Municipal League
TN Organization of School Superintendents
TN Public Transportation Association
TN Recreation & Parks Association
TN School Boards Association
TN Sheriff's Association
TN Water & Wastewater Association
TN Wireless Communications Council
University of TN System
Rural Transportation Directors Association
State of Tennessee, Emergency Services Coordinators

American Red Cross, Nashville

Federal agencies contract are as follows:

TN Valley Authority
Dept. of Energy, Oak Ridge
Federal Emergency Management Agency, Region 4
TN National Guard
Corps of Engineers
Federal Bureau of Investigation field office in Nashville

The meeting information was also disseminated on the Tennessee Information Enforcement System (TIES) network and received by all law enforcement agencies in Tennessee.

This awareness allowed for the dissemination of meeting information to hundreds of law enforcement agencies, public safety and public service agencies and critical infrastructure operators throughout Tennessee. There is no Native American tribal reservation located within Region 39, however the Native American Indian Association of Tennessee was notified. Copies of the announcements sent to the FCC, any Public Notices released relating to Region 39's meeting, the ads placed in the industry periodicals, and emails sent to interested agencies are included in Appendix D.

The 700 MHz RPC first meeting convened on May 8, 2001, by John Johnson. Bill Pogue of the Tennessee Department of Safety was elected the Chairperson of the Region 39 700 MHz RPC. John W. Johnson of the Tennessee Emergency Management Agency was elected to the position of Vice Chairperson and Alan Bull of Knoxville / Knox County 911 was elected Secretary / Treasurer of the Region 39 700 MHz RPC. The FCC did issue a Public notice for this meeting. At this and at all meetings, any one attending, voting or non-voting member may voice their comments on the Plan.

The Region 39 RPC consists of sixteen State agencies, forty-three local government entities representing twenty-five different counties, and six different disciplines, three federal agencies, two associations, one disaster relief organization, state homeland security representatives and eleven vendors. The actual number of associations represented was actually much higher since most chose to represent their department instead of their association.

## 2.2 Operations of the Regional Plan Committee

This committee will use *Simplified Parliamentary Procedures* to conduct meetings. This method allows for all members to have their voice heard. All decisions will be by clear consensus vote with each Public Safety Agency in attendance having one (1) vote. Additional voting member considerations are listed in the Region 39 Bylaws, Appendix A. The meetings are open to all interested persons and public input time is provided for anyone to express a viewpoint or to have input to the Regional Planning process.

Subcommittees have been formed as needed to work on specific issues. For the initial planning of Region 39, three subcommittees were formed.

Technical & Implementation, Interoperability, and Administrative Subcommittees: These subcommittees are intended to work on the details of specific issues and make recommendations to the full committee for the development of the Region 39 Regional Plan. Any changes to the Regional Plan must be voted and approved by the full Regional Planning Committee. Participation in subcommittees is open to any member. The Chair of the Regional Planning Committee appoints each Subcommittee Chair.

The Region 39 subcommittees are listed below:

Education & Outreach: Charlie Phipps, Chairman
Interoperability: John W. Johnson, Chairman
Technical & Implementation: Arnold Hooper, Chairman

A minimum of one (1) full committee meeting will be held per year. The Region 39 Chairperson has the authority to call an additional meeting at a time when he/she deems necessary or when he/she deems it in the best interest of the Region to convene. In an attempt to offer as many people as possible the opportunity to contribute to the Regional 700 MHz Planning Committee, a central location was chosen to host the meeting.

The Region 39 700 MHz list-server and web site, was created in November 2004. This was used to disseminate information to those interested as well as dates and time of sub-committee and full committee meetings. The web site is www.region39.org and the list server address is reg39rpc@region39.org.

Beginning two years after Federal Communications Commission's approval of this Regional Plan, the Chairperson shall call a meeting of the Regional Planning Committee to elect a Chair, Vice Chair and Secretary to serve for a two-year term. There is no limit to the number of terms that may be served by officers of the 700 MHz Regional Planning Committee.

If the Chair is unable to serve a complete term, the Vice Chair will serve as Chair until the next 700 MHz Regional meeting. If both the Chair and Vice Chair are unable to serve their full terms, one or the other should make an effort to call a special meeting of the Committee to elect replacements. If for some reason, neither the Chair nor the Vice Chair can call the special meeting; the State or any County within the Region may call for a special meeting, giving at least 5 days notice, to elect replacements.

A chronological list of meetings, minutes, meeting announcements and table outlining Region 39's progress in 700 MHz developments is located in Appendix D of this document.

## 2.3 Major Elements of the Plan

The major elements of this Plan follow the National Coordination Committee (NCC) guidelines. Region 39 would like to express its "Thanks" to the NCC for their work on these guidelines. Without the guidelines, the Plan development would have been much more difficult. Region 39 would also like to thank the National Law Enforcement and Correctional Technology Center (NLECTC) for its development and support of the Computer Assisted Pre-coordination Resource And Database System (CAPRAD) and the staff that supports this system. The funding, training and support from NLECTC, Rocky Mountain Region and the CAPRAD personnel as well as the Regional Planning Colloquiums were invaluable to the development of this Plan.

The major elements of this Plan are (1) the declaration that this is the Region 39 Plan, (2) that Region 39 encompasses the entire State of Tennessee, (3) the administration an operation of the committee, (4) 700 MHz interoperability, (5) General Use spectrum management and (6) allocation requests, (7) dispute resolution, (8) adjacent Region coordination and (9) the appendices with the channel allocation being Appendix G. The channel allocation contains the general usage voice channels.

# 3. Regional Plan Administration

## 3.1 Procedure for Requesting Spectrum Allotments

### A. General Information

Upon FCC approval of this Plan, Region 39 will announce to the Region that 700 MHz public safety channels are available in the Region and that channels have been assigned in pool allotments to counties within the Region for usage by Public Safety entities. The general usage spectrum may be used by all Local government entities and State of Tennessee agencies only if the State License Channels have been depleted or not available in that county. The Wide Band Data Channels by the FCC Report & Order, August 23, 2007 reallocated the data channels to the National Broadband Public Safety Trust.

All available methods will be used to notify public safety entities of channel availability in the Region (see Section 2.1). All spectrum requests will be considered on a first come, first served basis. Region 39 supports the National Coordination Committee Pre-Assignment Rules and Recommendations listed in Appendix F, and will use these guidelines as a template to determine if an application submitted to the Regional Planning Committee meets Regional Planning standards. It is recommended that applicants familiarize themselves with these recommendations prior to submitting applications for Region 39 700 MHz public safety system implementation. Region 39 may develop a supplemental form for applicants to submit, along with their FCC form, to help guide them through the application process.

In general and unless otherwise noted, the Region 39 Regional Planning Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees.

### B. Spectrum Re-Usage

Region 39 utilized the CAPRAD pre-coordination database system to maximize channel re-usage in the 700 MHz band. Since the spectrum is reused, it is hoped that each system will use the minimum power necessary to meet their needs. If power and ERP seems excessive to the committee, a reduction in power or antenna gain may be requested to minimize interference and increase spectrum efficiency to other co-channel and adjacent channel users.

### C. Application Submission

To request channels from Region 39, a full application package must be submitted to the National Institute for Justice (NIJ) -Sponsored Computer Assisted Pre-Coordination Resource and Database (CAPRAD) system at http://caprad.nlectc.du.edu/login/home. The application must include: the current FCC Form (currently the 601), a short description of the proposed system, a justification for the additional spectrum, an coverage prediction map using the current version of TIA/EIA TSB 88 guidelines, maps showing all interference predicted in the proposed system, documents indicating agency-funding commitments sufficient to fund the development of the proposed system(s), a list of ‘give-back’ channels, if applicable and the Region 39 supplemental form. Exceptions in accepting applications from qualified applicants will be made by the Region if applicants have demonstrated a need for 700 MHz channels and cannot access the CAPRAD system.

**D. Application Distribution / Coordination**

The Chair will distribute the application request to all other necessary agencies with allotments in the Plan for review and approval. Absent a protest, the Regional Planning Committee will approve the application and (if applicable), submit it, through the CAPRAD database system, to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of FCC Rule 90.176 (c).

The CAPRAD database will reflect the approved application and place the channels for the proposed system in "pre-license" status.

**E. Give Up or Give Back Spectrum**

When applying for new 700 MHz channels, the Regional Planning Committee encourages applicants to relinquish some amount of currently licensed spectrum ("give back channels") and make that spectrum again available for use within the Region. Agencies with existing licensed 800 MHz systems that are requesting 700 MHz channels for system expansion will not fall under this requirement. An agency may retain channels that are used for paging, telemetry, microwave or other functions that the 700 MHz spectrum does not meet the agency's need.

When an applicant submits a request for 700 MHz spectrum, a "Give Back Plan" should accompany the application. This Plan should show what frequencies would be vacated, a time line for the transition and what channels are being retained. If an existing channel is being retained for interoperability purposes, please identify that channel in the "Give Back Plan".

Frequency "give back" requirements shall hold true for regional systems where system constituents maintain discrete licenses for their own internal operations. In this case, constituent political subdivisions or agencies are required to participate in the "give back" plan. Should a political subdivision or agency act as host of a regional system, both the host agency and the constituent agencies should participate in the "give back" Plan.

Frequencies used for non-voice critical infrastructure support functions [Supervisory Control and Data Acquisition (SCADA) systems] as well as frequencies that are used for interoperability with other regional, state or national agencies that rely on one certain frequency band for emergency operations, such as, but not limited to "Tennessee Mutual Aid" (154.755/156.015 MHz / 460/465.400 MHz), "Inter City" (155.3700) or the "National Law Enforcement Emergency Channel" (155.4750 MHz) or "Tennessee Fire Mutual Aid" (154.295) or "Tennessee EMS Mutual Aid" (155.205) as well as other mutual aid or interoperable channels may be exempted by the Committee as candidates for "give back". Frequencies used by an applicant for such purposes, as well as the specific use and a network/ system diagram, must be specified in supportive documentation supplied with the application to enable the Regional Planning Committee to consider any possible exemption.

In cases of hardship or failure to implement, the Regional Planning Committee will consider, on a case-by-case basis, extensions not to exceed five years from date of license issuance, of the "give back" timetable. The dispute arbitration process in Section 3.6 of this document shall apply should there be protest.

**F. Allocation Disputes:**

An agency may protest a proposed system within 30 calendar days of the original distribution. Protests will only be considered if the allocation does not conform to Plan criteria or objecting agency or the Chairperson can show harmful interference is likely based on the information submitted by the agency requesting the new allocation. If an agency with pre-licensed/Region approved co-channel or adjacent channel allocations objects to a proposed allocation due to concerns about potential interference, the objecting agency may request field tests be done to confirm or refute interference potential. The completion of these field tests and the results will be required for Regional application approval. Coverage area service/interference contours of the proposed system(s) should meet values designated in Section 6.1 of this document. Any costs associated with field tests or any other requirements to obtain Region 39 Plan approval are the responsibility of the agency submitting application to Region 39.

The parties involved must resolve the allocation dispute and notify the Region Chair within 30 calendar days. If the parties involved cannot resolve the allocation dispute within that timeframe, then a special full Committee meeting will be scheduled to consider and vote on the protest. *The burden of proof will be on the protesting party.* The protesting party may be liable for any costs associated with the protest if the complaint is unfounded. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing.

**G. Lower Power "Campus Eligible" Digital General Use Channels:**

With the implementation of 700 MHz public safety spectrum throughout Region 39, there may be opportunities for increased channel reuse when developing radio systems for "campus" type operations. Examples of those who may capitalize on this opportunity include hospitals, stadiums, parks or places of public gathering, public universities, transit systems, correctional facilities and mental health facilities. While these channels have been designated in county pool allotments with proper designation, they do not enjoy the benefits of countywide channels in that they are not cleared for usage over a wide area. In many instances, facilities require a smaller or more specific geographical coverage area than assumed in the initial channel packing plan and may be able to be reused more efficiently. These "campus" type systems also, in many cases, require in-building or confined space/ tunnel radio coverage or communications along a linear pathway, such as a maintenance or right of way. These channels may also be used for "vehicular repeater" (MO3) operation. Public safety channels can be allotted to this type operation in a Region and can lead to effective system development, along with increased spectral efficiency, if power levels and Area of Protection (AOP) of the area are taken into account in system planning. These parameters must be established appropriate to the area of coverage. These channels are NOT eligible to be utilized throughout the county they are licensed in but to a specific geographic area, unless otherwise licensed. The Low Power channel will be licensed on an as need or first come, first serve basis. The following criteria must be adhered to when requesting channels from Region 39 for operations of this type:

The 40dBu service contour of the proposed system must not exceed an area more than 5 miles or 8 Km from the proposed service area. When this 5-mile distance extends to an adjacent Region, the applicant must obtain concurrence from the adjacent Region. Reduced external antenna heights, along with reduced ERP, directional antenna, distributed antenna systems, down tilt, radiating "leaky coax," are all tools that should be utilized in the development of these type systems. Region 39 will ensure the development of these types of systems will in no way interfere with co-channel or adjacent channel users within Region 39 or Region 39's adjacent Regions. The Chairperson, or a majority of the members of the Region, has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any co-channel or adjacent channel existing user prior to application approval. For 25

kHz co-channel assignments, the 50dBu service contour of the proposed stations will be allowed to extend beyond the defined service area for a distance no greater than 2 miles. An adjacent/alternate 25 kHz channel shall be allowed to have its 60 dB (50,50) contour touch, but not overlap the 40dB service (50,50) contour of an adjacent/alternate system being protected. Evaluations should be made in both directions to ensure compliance. The approval of systems utilizing county allotment channels labeled "Campus", are subject to approval of the Regional planning committee. They are the final authority on parameters associated with "campus" type operations.

When Region 39 receives an application for low power fixed use and the proposed service contour encroaches onto an adjacent Region prior to the channel allotted to the Region being implemented in a specific system, the application must be modified so the service contour does not encroach into the adjacent Region or the applicant must supply the Region 39 700 MHz Regional Planning Committee with written concurrence from the adjacent Region permitting the original design.

## 3.2 Procedure for Frequency Coordination

The Region 39 Planning Committee will adhere to the NIJ Computer Assisted Pre-Coordination Resource And Database system (CAPRAD) 700 MHz General Use channel sort as found in the CAPRAD database for narrowband General Use channels. (See Appendix G). Region 39 will participate in the CAPRAD database and keep the Regional Plan and current frequency allotment/allocation information on the database. The Region 39 Regional Planning Committee has both the ability to accept recommendations from the committee and, if approved, the authority to change the original frequency allotment. In order to keep the most effective frequency allotments within Region 39, an annual review of the allotments will be made at one of the scheduled meetings by the committee and recommended changes to the Plan will be voted on. The majority of members in attendance at a meeting of the Regional Planning Committee must approve any changes to the Regional allotments. If at any time a system is allocated channels within Region 39 and the system cannot be developed within the agreed upon guidelines (slow growth), the channels will be returned to the county pool allotments they originated from and again be available to other agencies in the Region. If Plan modifications are approved, the Chairperson will, if necessary, obtain adjacent Region approval and file a Plan amendment indicating the approved changes with the Federal Communications Commission.

## 3.3 Allocation of Narrowband "General Use" Spectrum

The Region 39 Technical & Implementation Subcommittee recommends that allotments be made on the basis of one 25 KHz channel for every two (2) voice channel requests and one 25.0 KHz channel for each narrowband data channel request. This recommendation is approved by the full Committee and is part of this Plan. Allotments will be made in 25 KHz groups to allow for various digital technologies to be implemented. All agencies requesting spectrum during the initial filing window (see Section 3.1) will be allocated channels if Plan requirements are met. Agencies using Frequency Division Multiplexing (FDMA) will be expected to maintain 12.5 KHz equivalency when developing systems and will be required to utilize BOTH 12.5 KHz portions of the 25 KHz block. In most cases, this will require the geographic separation of each 12.5 KHz adjacent channel. In order to promote spectrum efficiency, Region 39 will encourage that systems allocated 25 KHz channel blocks will utilize the entire channel and not "orphan" any portions of a system designated channel. (See Section 6.3)

## 3.4 Low Power Analog Eligible Channels

The FCC in the 700 MHz band plan set aside channels 1 - 8 paired with 961 – 968 and 949 – 958 paired with 1909 – 1918 for low power use for on-scene incident response purposes using mobiles and portables subject to Commission-approved Regional Planning Committee Regional Plans. Transmitter power must not exceed 2 watts (ERP).

Channels 9 –12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP). These channels may operate using analog operation. To facilitate analog modulation, this Plan will allow aggregation of two 6.25 KHz channels for 12.5 kHz bandwidth.

On scene temporary base and mobile relay stations are allowed (to the extent FCC rules allow) antenna height limit of 6.1 meter (20 feet) AGL (Above Ground Level). Vehicular repeater operation (MO3) is also allowed. However, users are encouraged to operate in simplex mode with the least practical amount of power to reliably maintain communications whenever possible. This Plan does not limit use to analog only operations and channels are intended for use in a wide variety of applications that may require digital modulation types as well. The use of EIA/ TIA-102, Project 25 Common Air Interface (CAI) is required when using a digital mode of operation.

In its dialog leading up to CFR §90.531 allocating the twenty-four low power 6.25 kHz frequency pairs (of which eighteen fall under RPC jurisdiction)[1], the Federal Communications Commission (FCC) suggested that there is a potential for multiple low power applications, and absent a compelling showing, a sharing approach be employed rather than making exclusive assignments for each specific application as low power operations can co-exist [in relatively close proximity] on the same frequencies with minimal potential for interference due to the 2 watt power restriction.

Whereas advantages exist in not making assignments, the reverse is also true. If, for example, firefighters operate on a specific frequency or set of frequencies in one area, there is some logic in replicating that template throughout the Region for firefighter equipment. If there are no assignments, such a replication is unlikely.

In seeking the middle ground with positive attributes showing up both for assignments and no assignments, we recommend the following regarding assignments associated with the eighteen (18) low power channels for which the Regional Planning Committee has responsibility:

Region 39 has chosen not to pre-assign any of the low power channels but to leave them on a first come first serve basis.

Simplex operations may occur on either the base or mobile channels. Users are cautioned to coordinate on scene use among all agencies involved, particularly when the use of repeater modes is possible at or in proximity to a common incident. Users should license multiple channels and be prepared to operate on alternate channels at any given operational area. Again, Region 39 Regional Planning Committee will require all 700 MHz users to have the capability to access ALL of the NCC approved interoperability channels in both duplex and simplex modes.

[1] See paragraphs 35 through 39 in FCC's Third Memorandum Opinion and Order for WT Docket No. 96-86 adopted September 18, 2000.

Below is a table of the low power channels.

| Channel # | Frequency | Use | Channel # | Frequency |
|---|---|---|---|---|
| 1 | 769.003125 | **RPC Admin** | 961 | 799.003125 |
| 2 | 769.009375 | **RPC Admin** | 962 | 799.009375 |
| 3 | 769.015625 | **RPC Admin** | 963 | 799.015625 |
| 4 | 769.021875 | **RPC Admin** | 964 | 799.021875 |
| 5 | 769.028125 | **RPC Admin** | 965 | 799.028125 |
| 6 | 769.034375 | **RPC Admin** | 966 | 799.034375 |
| 7 | 769.040625 | **RPC Admin** | 967 | 799.040625 |
| 8 | 769.046875 | **RPC Admin** | 968 | 799.046875 |
| 9 | 769.053125 | **Itinerant** | 969 | 799.053125 |
| 10 | 769.059375 | **Itinerant** | 970 | 799.059375 |
| 11 | 769.065625 | **Itinerant** | 971 | 799.065625 |
| 12 | 769.071875 | **Itinerant** | 972 | 799.071875 |
| 949 | 774.928125 | **RPC Admin** | 1909 | 804.928125 |
| 950 | 774.934375 | **RPC Admin** | 1910 | 804.934375 |
| 951 | 774.940625 | **RPC Admin** | 1911 | 804.940625 |
| 952 | 774.946875 | **RPC Admin** | 1912 | 804.946875 |
| 953 | 774.953125 | **RPC Admin** | 1913 | 804.953125 |
| 954 | 774.959375 | **RPC Admin** | 1914 | 804.959375 |
| 955 | 774.955625 | **RPC Admin** | 1915 | 804.955625 |
| 956 | 774.971875 | **RPC Admin** | 1916 | 804.971875 |
| 957 | 774.978125 | **RPC Admin** | 1917 | 804.978125 |
| 958 | 774.984375 | **RPC Admin** | 1918 | 804.984375 |
| 959 | 774.990625 | **Itinerant** | 1919 | 804.990726 |
| 960 | 774.996875 | **Itinerant** | 1920 | 804.996875 |

## 3.5 Wideband Data

This section was deleted due to the FCC Second Report and Order, 07-132 released August 10, 2007.

However, if an entity desires to implement either a wideband (50 KHz – 150 KHz) or broadband data system, they may contact the Public Safety Broadband Trust as set forth in FCC 07-132 Second Report & Order and subsequent information released by the FCC & PSBT.

Four General Use 6.25 KHz channels may still be combined to form one 25 KHz data channel.

### 3.6 Dispute Resolution – Intra-Regional

In the event an agency disputes the implementation of this Plan or the Federal Communications Committee approval of this Plan or parts of this Plan, the agency must notify the Chair of the dispute in writing. This section does not apply to protests over new spectrum allocations (see Section 3.1). The Chair will attempt to resolve the dispute on an informal basis. If a party to the dispute employs the Chair, then the Vice Chair will attempt resolution. In such cases, the Chair shall be deemed to have a conflict of interest and will be precluded from voting on such matters. If after 30 days the dispute is not resolved, the Chair (or Vice Chair) will appoint a Dispute Resolution Committee consisting of two members from the State of Tennessee governmental agencies and at least five members from different counties in Region 39. That committee will select a Chair to head the committee and a secretary to document the proceedings.

The Regional Plan Chair (or Vice Chair) will represent the Region in presentations to the Dispute Resolution Committee. The Committee will hear input from the disputing agency, any effected agencies and the Region Chair. The Committee will then meet in executive session to prepare a recommendation to resolve the dispute. Should this recommendation not be acceptable to the disputing agency/agencies, the dispute and all written documentation from the dispute will be forwarded to the National Regional Planning Oversight Committee, a subcommittee of the National Public Safety Telecommunications Committee (NPSTC) for review. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

All eleven adjacent Regions have signed the Region 39 dispute resolution.

# 4.0 Priority Matrix

In the event that spectrum allocation requests conflict and all requests cannot be accommodated, the following matrix will be used to determine priority for allotment. This matrix will only be used if two requests are received in the same time frame for the same number of channels. Otherwise, the first come first served procedure of Section 3.1 will be used.

- Service (Maximum score 250 points)

  Priority is given to users fundamentally involved with the protection of Life and Property Police, fire, EMS, Rescue, EMA, combined systems, multi-jurisdictional systems, etc.

- Inter-system & Intra-system interoperability (Maximum score 100 points)

  How well the proposed system will be able to communicate with other levels of government and services during an emergency on "regular" channels, not the Interoperability channels.
  Interoperability must exist among many agencies to successfully accomplish the highest level of service delivery to the public during a major incident, accident, natural disaster or terrorist attack. Applicants requesting 700 MHz spectrum shall inform the Region of how and with whom they have been achieving interoperability in their present system. (See appendix F for list of possible interoperability agencies)

  The applicant shall stipulate how they will accomplish interoperability in their proposed system (gateway, switch, cross-band repeater, console cross patch, software defined radio or other means) for each of the priorities listed below:

  1. Disaster and extreme emergency operation for mutual aid and interagency communications.
  2. Emergency or urgent operation involving imminent danger to life or property.
  3. Special event control, generally of a preplanned nature (including task force operations).
  4. Single agency secondary communications.
  5. Routine day-to-day non-emergency operations.

- Loading (Maximum score 100 points)

  Is the system part of a cooperative, multi-organization system? Is the application an expansion of an existing 800 MHz system? Have all 821 channels been assigned (where technically feasible)? A showing of maximum efficiency or a demonstration of the system's mobile usage pattern could be required in additional to loading information. Based on population, number of units (if number of units, are they take home, how many per officer), what are the talk groups?

- Spectrum Efficient Technology (Maximum score 200 points)

  How spectrally efficient is the system's technology? Trunked systems are considered efficient "as well as any technological systems feature, which is designed to enhance the efficiency of the system and provide for the efficient use of the spectrum."

- Systems Implementation Factors (Maximum score 200 points)

  Applicants should submit some form of proof of financial commitment, accompanied by a RFP (Request for Proposal) outlining the design of the proposed system and detailing the development of the requested channels will be required to be submitted to the Regional Planning Committee prior to approval

- Geographic Efficient (Maximum Score 50 points)
  The ratio of subscriber units to area covered and the channel reuse potential are two subcategories. "The higher the ratio (mobiles divided by square miles of coverage) the more efficient the use of the frequencies. Those systems which cover large geographic areas will have a greater potential for channel reuse and will therefore receive a high score in this subcategory."

- Givebacks (Maximum score 100 points)
  Consider the number of channels given back
  Consider the extent of availability and usability of those channels to others.

If there are more applicants than frequencies available for a given area, the above criteria will be used to grade each application before the committee.

*This process, if required, will be treated as a dispute and the procedures outlined in Section 3.6 using the above criteria will be used to allocate the frequencies.*

# 5. PROCESS FOR HANDLING UNFORMED REGIONS

There are no unformed adjacent Regions to Region 39. Letters of Concurrence have been received from all eleven adjacent Regions for the initial Plan. Letters of Concurrence will be requested for all necessary Plan changes.

# 6. Coordination with Adjacent Regions

The Regions that are adjacent to or within seventy (70) miles of Region 39 are listed below:

| | | |
|---|---|---|
| Region 1 | State of Alabama | Border |
| Region 4 | State of Arkansas | Border |
| Region 10 | State of Georgia | Border |
| Region 13 | Southern Illinois | Non Border |
| Region 17 | State of Kentucky | Border |
| Region 23 | State of Mississippi | Border |
| Region 24 | State of Missouri | Border |
| Region 31 | State of North Carolina | Border |
| Region 37 | State of South Carolina | Non Border |
| Region 42 | State of Virginia | Border |
| Region 44 | State of West Virginia | Non Border |

Region 39 has coordinated channel allocations and received concurrence with all its bordering Regions by providing copies of the Region 39 Plan (including channel allotments) to each adjacent Region using the CAPRAD database and by mailing hard copies of the Plan to the adjacent Region's Chairperson or Convener.
In seeking Regional concurrence, the Chairperson has given copies of this Plan to the Chairperson of Region 1, 4, 10, 13, 17, 23, 24, 31, 37, 42 and 44. The Region 39 Plan will also be available for viewing by all Regions via the NLECTC CAPRAD 700 MHz database and the Region 39 web site, www.region39.org.

The CAPRAD pre-coordination database shows those channels available that will not interfere with Region 39 allotments or systems

The CAPRAD database and its associated packing Plan provides minimum channel allotments for all of Region 39's bordering Regions. This method was recommended by the NCC Implementation Subcommittee as a way to assure that adjacent Regions, which did not enter the Regional Planning process immediately, would not find all frequencies assigned in their borders.

Therefore, adjacent Regions 1, 4, 10, 13, 17, 23, 24, 31, 37, 42, and 44 should all be able to satisfy voice and narrowband data requests along their border areas with Region 39. However, if an adjacent Region has difficulties satisfying intra-regional requests due to channel allocation within Tennessee, this committee pledges to work with that adjacent Region to resolve any issues that might hinder interoperability or reduce any benefit to public safety communications.

# 7. System Design/Efficiency Requirements

## 7.1 Interference Protection

The frequency allotment list will be based on an assumption that systems will be engineered on an interference-limited basis, not a noise floor-limited basis. Agencies are expected to design their systems for maximum signal levels within their jurisdictional coverage area and minimum levels in the coverage area of other co-channel users. Coverage area is normally the geographical boundaries of the Agency(s) served plus five miles area beyond.

Systems should be designed for minimum signal strength of 40 dBμ in the system coverage area while minimizing signal power out of the jurisdictional coverage area. TIA/EIA TSB88-A (or latest version) will be used to determine harmful interference assuming 40 dBμ, or greater, signal in all systems coverage areas. This may require patterned antennas and extra sites compared to a design that assumes noise limited coverage. Region 39 complies with National Coordination Committee recommendations listed in Appendix K of the Regional Planning Committee Guidelines published by the National Coordination Committee (NCC).

## 7.2 Spectrum Efficiency Standards

Initial allotments will be made on the basis of 25 kHz channels. To maximize spectrum utilization, prudent engineering practices and receivers of the highest quality must be used in all systems. Given a choice of radios to choose from in a given technology family, agencies should use the units with the best specifications. This Plan will not protect agencies from interference if their systems are under-constructed (i.e.; areas with the established service area having minimum signal strength below 40 dBu), or the systems utilize low quality receivers. The applicant's implementation of best engineering practices will be encouraged by the Regional Planning Committee at all times.

It is the eventual goal of the FCC and the public safety community for radio equipment to meet the requirement of one voice channel per 6.25 KHz of spectrum. *When applying for channels within Region 39, the applicants should acknowledge the deadline for converting all equipment to 6.25 kHz or 6.25 kHz equivalent technology is January 31, 2017 as set forth in 90.535 (d) (3).* For narrowband mobile data requests, one mobile data channel will consist of two (2) 6.25 KHz channels/one (1) 12.5 KHz channel.

Narrowband 6.25 KHz channels can be aggregated for data use to a maximum bandwidth of 25 KHz. As 6.25 KHz migration evolves, an agency that creates any "orphaned" 6.25 KHz channels should realize that these channels could be allocated to nearby agencies requesting channels to maintain consistent grouping and utilization of 25 KHz blocks within the Region. (See Section 6.3)

Region 39 encourages small agencies to partner with other agencies in multi-agency or regional systems as they promote spectrum efficiency and both small and large agency capacity needs can be met. Loading criteria can also be achieved in multi-agency systems that will allow greater throughput for all agencies involved than that which could be achieved individually.

## 7.3 Orphaned Channels

The narrowband pool allotments with Region 39 will have a channel bandwidth of 25 kHz. These 25 kHz allotments have been characterized as "Technology Neutral" and flexible enough to accommodate multiple technologies utilizing multiple bandwidths. If agencies choose a technology that requires less than 25 kHz channel bandwidth for their system, there is the potential for residual, "orphaned channels" of 6.25 kHz or 12.5 kHz bandwidth immediately adjacent to the assigned channel within a given county area.

An orphan channel may (if possible) be used at another location within the county area where it was originally approved, if it meets co and adjacent channel interference criteria. Region 39 will utilize "county areas" as guidelines for channel implementation with the area of Region 39. The definition of "county area" in this Plan is the geographical/political boundaries of a given county, plus a distance of up to 5 miles outside of the county or jurisdictional boundary.

If the channel, or a portion of a channel, is being moved into a "county area" that is within 50 miles of an adjacent Region, Region 39 will receive concurrence from the affected Region. By extending the "county area" by a designated distance, it is anticipated this will increase the possibility that orphaned channel remainders will still be able to be utilized within the "county area", and reduce the potential for channel remainders to be forced to lay dormant and used with a county channel allotment. These movements will be documented on the National Law Enforcement & Corrections Technology Center CAPRAD database.

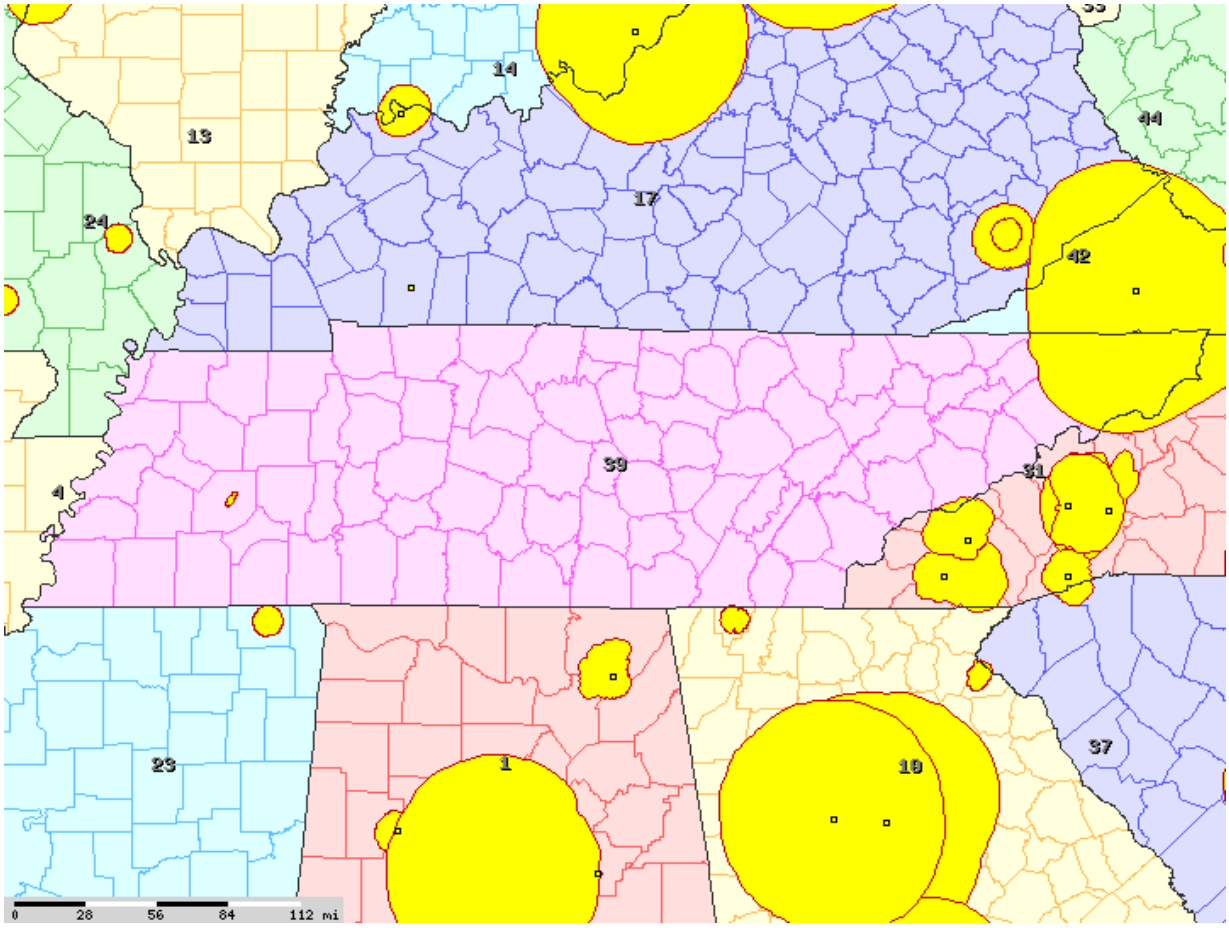
If the "orphaned channel" remainder does not meet co-channel and adjacent channel interference criteria by moving it within the "county area" as listed above, and it is determined by the Region that the "orphaned channel" cannot be utilized in the Region without exceeding the distance described in the "county area" listed above, Region 39 will submit a Plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency. This FCC Plan amendment will require affected Region concurrence.

When in the best interest of public safety communications and efficient spectrum use within the Region, the Region 39 Regional Planning Committee shall have the authority to move orphan channel allotments, and/or co-/adjacent-channel allotments affected by the movement of orphan channels, within its "county areas", which are defined above. This is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments within the Region utilizing disparate bandwidths and technologies.

## 7.4 System Implementation

There are no incumbent high power broadcast TV stations in Tennessee; however there are several low power or translator TV stations across Tennessee. See table below. NOTE – The Virginia station WLFG has ceased operation as noted in FCC DA-07-2236 Released May 30, 2007.

The Region 39 Regional Planning Committee will utilize NCC Implementation Subcommittee documentation titled Appendix L "DTV Transition" that will provide the criteria which will be used, per FCC rules, to protect existing TV stations from land mobile use on 700 MHz public safety channels. Except in Bradley & Polk Counties, all other areas in Region 39 (State of Tennessee) are capable of immediately implementing systems using any 700 MHz public safety channels. With no restrictions in implementation due to incumbent co-channel broadcasters in the Region, implementation of systems will adhere to guidelines in FCC rule 90.529 (b) and (c). An Agency may file a request with the Regional Chairperson for an extension of time to implement. The request should include all details describing why the agency has not implemented and a new implementation schedule. If necessary, the Regional Chairperson will call a special meeting to determine if the allotment should be extended or if the agency should reapply to the committee for another allotment.



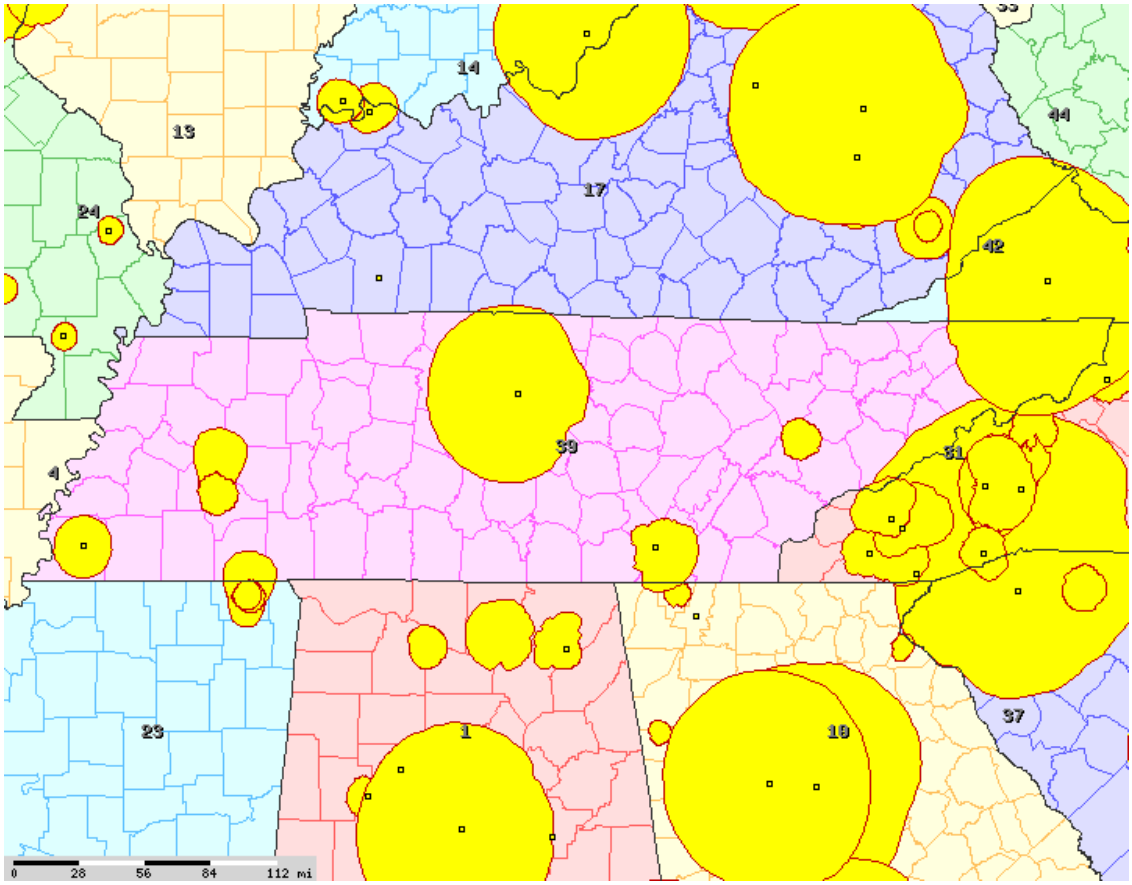

TV Stations 63, 64 – 68, 69 that affect TN as of November 2007 provided by CARPAD
WLFG in Grundy County Virginia is no longer operational, FCC DA-07-2236

# Region 39 - Tennessee TV Stations

TV Channel 60 – 69 in Tennessee

As of November 2007

| County | Channel | Call Sign | Location | Latitude NAD83 | Longitude NAD83 |
|---|---|---|---|---|---|
| Grundy County | 64 | 960723LD | Tullahoma | 35°22'48"N | 85°38'35"W |
| Madison County | 62 | W62CJ | Jackson | 35°39'47"N | 88°45'24"W |
| | 64 | W64BZ | Jackson | 35°39'47"N | 88°45'24"W |
| McNairy County | 62 | W62CK | Acton | 34°54'36"N | 88°31'17"W |
| | 66 | W66CG | Acton | 34°54'36"N | 88°31'17"W |
| | 69 | W69DB | Acton | 34°54'36"N | 88°31'17"W |
| Sequatchie County | 65 | WCNT-LP | Chattanooga | 35°12'26"N | 85°16'52"W |
| Shelby County | 67 | W67CV | Memphis | 35°12'41"N | 89°48'54"W |
| Stewart County | 63 | W63CQ | Clarksville, Etc. | 36°32'23"N | 87°39'45"W |
| | 65 | W65DQ | Clarksville, Etc. | 36°32'23"N | 87°39'45"W |
| Wilson County | 66 | WJFB | Lebanon | 36°9'13"N | 86°22'46"W |



## 7.5 Channel Loading

### 7.5.1 Loading Tables Voice Channels

| EMERGENCY | | NON-EMERGENCY | |
|---|---|---|---|
| **CHANNELS** | **UNITS/CHANNEL** | **CHANNELS** | **UNITS/CHANNEL** |
| 1 - 5 | 70 | 1 - 5 | 80 |
| 6 - 10 | 75 | 6 - 10 | 90 |
| 11 - 15 | 80 | 11 - 15 | 105 |
| 16 - 20 | 85 | 16 - 20 | 120 |

Agencies requesting additional frequencies must show loading of 100 percent or greater on their existing system. Should a demand for frequencies exist after assignable frequencies become exhausted, any system having frequencies assigned under this Plan four or more years previously and not loaded to at least seventy percent will lose operating authority on several frequencies to bring the system into compliance with the 70 percent loading standard. Frequencies lost in this manner will be reallocated to other agencies to help satisfy the demand for additional frequencies.

### 7.5.2 Traffic Loading Study for Narrowband Systems

Justification for adding frequencies, or retaining existing frequencies, may be provided by a traffic loading study instead of loading by number of transmitters per channel. It will be the responsibility of the requesting agency to provide a verifiable study showing sufficient airtime usage to merit additional frequencies. A showing of airtime usage, excluding telephone interconnect air time, during the peak busy hour greater than 70 percent per channel on three consecutive days will be required to satisfy loading criteria.

### 7.5.3

Deleted

### 7.5.4 Expansion of Existing 800 MHz Systems

Existing 800 MHz systems that are to be expanded to include the 700 MHz frequency spectrum will have to meet the requirements of the FCC and both 800 MHz NPSPAC Region 39 Plan and the Region 39 700 MHz Plan. If the two Region 39 Plans are in conflict, the Plan that gives the applicant the greater flexibility will govern.

# 8. Interoperability Channels

## 8.1 Introduction

Interoperability FCC Definition of Interoperability
Taken from 98-191 paragraph 76

Interoperability – An essential communications link within pubic safety and public service wireless communications systems which permits units from two or more different entities to interact with one another and to exchange information according to a prescribed method in order to achieve predictable results.

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Tennessee is subject to many natural disasters and contains regions and facilities, which may be susceptible to a man-made disaster or weapons of mass destruction attack. Mutual aid should be encouraged among agencies. This Plan seeks to facilitate the communications necessary for effective mutual aid.

Region 39 in coordination with the State of Tennessee, Emergency Management Agency (TEMA), will administer the 700 MHz interoperability channels via the Statewide Interoperability Executive Committee (SIEC) and State Interoperability Task Force (SITF), a subcommittee under the Tennessee Public Safety Wireless Communications Advisory Board, utilizing the National Coordination Committee's (NCC) guidelines and State Interoperable Communications Plan. The Region 39 700 MHz Regional Planning Committee will work with the Tennessee State Interoperability Executive Committee and three (3) members of the Region 39 700 MHz Regional Planning Committee will participate in the Tennessee State Interoperability Executive Committee (SIEC) and will represent Region 39. If at any time TEMA or the State SIEC is unable to function in the role of administering the interoperability channels in the 700 MHz band, then this committee will assume this role and notify the FCC in writing of the change in administrative duties. See the NCC Implementation Subcommittees **Table of Interoperability Channels in Appendix "E"**

## 8.2 Tactical Channels

Due to the immediate availability of 700 MHz public safety channels in Tennessee, Region 39 will not set-aside additional channels for interoperability use within the Region. It is anticipated the sixty-four FCC designated interoperability channels (6.25 KHz) will be sufficient to provide interoperability (voice and data) within Region 39.

All mobile and portable units operating under this Plan and utilizing 700 MHz channels must be programmed with the minimum number of channels called for in the Tennessee Interoperability Guide. The channel display in these radios will be in accordance with the NPSTC Common Channel Names and Tennessee Interoperability Guide guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 39.

## 8.3 Deployable Systems

In this Plan, Region 39 strongly supports use of deployable systems, both conventional and trunked. Deployable systems are prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on designated 700 MHz interoperability channels and/or agency specific General Use Channels. This will minimize the expense of installing extensive fixed infrastructure in areas while still providing mission critical functionalities as the Region recognizes the difficulty of providing complete coverage in all areas due to financial, demographic and geographical constraints.

Agencies should have conventional deployable systems capable of being tuned to any of the FCC designated / State recommended interoperability tactical channels. Those agencies that are part of a multi-agency trunked system and commonly provide mutual aid to each other are encouraged to have trunked deployable systems that operate on the tactical channels designated by the FCC for this use. The State Wireless Interoperability Advisory Board will develop the operational details for deploying these systems.

It is expected that the tactical channels set aside for trunked operation will be heavily used by deployable systems. Therefore, the tactical channels cannot be assigned to augment general use trunked systems.

## 8.4 Monitoring of Calling Channels

700 MHz licensees will be responsible for monitoring interoperable calling channels. The State Wireless Interoperability Advisory Board will develop operational guidelines for this function. **Appendix E** will include State Interoperability Guide documents that display required Interoperability guidelines.

## 8.5 Incident Command System Standard

Region 39 supports the National Incident Management System (NIMS) and ICS as designated by the Governors Executive Order # 23, June 28, 2005.

# 9. Future Planning

## 9.1 Database Maintenance

The CAPRAD pre-coordination database has developed channel allotments in each county area within Tennessee utilizing the U. S. Census Date, 2000, height above average terrain (HAAT) and public safety use curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments. Region 39 will continue to use the CAPRAD pre-coordination database for other 700 MHz spectrum as it becomes available.

## 9.2 Inter-Regional Dispute Resolution Process

In the event that a dispute arises between Region 39 and an adjacent Region or Regions, regarding spectrum allocations or implementation, which cannot be resolved within 60 days, the parties to the dispute will request a hearing by the National Regional Planning Oversight Committee.

**See Appendix H for details and Inter-Regional Dispute Resolution Agreements signed by adjacent Regions 1, 4, 10, 13, 17, 23, 24, 31, 37, 42 and 44.**

## 9.3 Amendment Process

Amendments to the Region 39 Plan will be made at Region 39 RPC meetings. All amendments will be voted on and passed or rejected by a simple majority vote. The Chairman or his designee will make the appropriate changes to the Plan and notify the adjacent Regions for their concurrence. Once the concurrences are received from the adjacent Regions, the Plan will be certified and filed, by the Chairperson, with the FCC for approval. Electronic filing will be the preferred method.

## 9. 4 Meeting announcements

Meeting announcements will be made per the Region 39 By Laws. Region 39 will utilize the list server, Public Notices issued by the FCC, fax notification, email to individual, associations, agencies and vendors, TN Information Enforcement System (TIES) network, verbal announcements at meetings and / or appropriate publications.

# 10.0 Certification

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public. A summary of the deliberations of the Committee pursuant to adopting this Plan can be found in Appendix D, Meeting attendance, agendas and other events.

John W. Johnson

Chairman, Region 39
January 31, 2008

# Appendices

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# Appendix A

## Bylaws of the 700 MHz Regional Planning Committee
## Region 39 (State of Tennessee)

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# Appendix A

## Bylaws of the 700 MHz Regional Planning Committee-
## Region 39 (State of Tennessee)

**Adopted**
**Revised September 16, 2002**
**Revised December 7, 2004**
**Revised June 2, 2005**
**Revised December 18, 2007**

### BYLAWS OF REGION 39

### NAME & PURPOSE

**1.1 Name and purpose**. The name of this Region shall be Region 39-Regional Planning Committee. Its primary purpose is to foster and promote cooperation, planning, development and evolution of Regional Plans and the implementation of these plans in the 700 MHz Public Safety Band within the State of Tennessee.

#### MEMBERS

For purposes of this document, the term "member," unless otherwise specified, refers to both voting and non-voting members.

**2.1 Numbers, Election and Qualification**. The Regional 39 700 MHz Regional Planning Committee shall have two classes of members, "voting members" and "non-voting members." New members may be added at annual, special, or regular meetings. Tools to promote participation and involvement in the Region 39 700 MHz Committee in the form of a list-serve and/or regional newsletters will be researched by the committee. A newsletter may be distributed in either electronic or in print form.

**Voting Members**. Voting members shall consist of <u>one</u> (1) representative from any single agency engaged in public safety eligible to hold a license under 47 CFR 90.20, 47 CFR 90.523 or 47 CFR 2.103 and are employed or volunteer in public safety in Region 39. Except that a single agency shall be allowed no more than one vote for each distinct eligibility category (e.g. police, fire, EMS, EMA, highway) within the agency's organization or political jurisdiction. In voting on any issue, the individual must identify himself/herself and the agency and eligibility category in which he or she represents. **Voting members may not vote on issues involving their entity.**

**Non-Voting Members**. Non-voting members are all other non-public safety personnel interested in furthering the goals of public safety communications.

**2.2 Dual Membership.** A voting member may not be a voting member of another Region. Since Region 39 has several large cities on or near state borders, some members may want to participate in another committee. It is permissible to be a non-voting member in another Region and be a voting member in Region 39 as long as the Voting Member requirements are met as set forth in section 2.1.

**2.3 Tenure**. In general, each member shall hold MEMBERSHIP from the date of acceptance until resignation or removal.

**2.4 Powers and Rights.** In addition to such powers and rights as are vested in them by law, or these bylaws, the members shall have such other powers and rights as the membership may determine.

**2.5 Suspensions and Removal.** A representative may be suspended or removed with cause by vote of a majority of members after reasonable notice and opportunity to be heard. Region 39 will hold at least one (1) meeting in a calendar year. To retain consistent voting rights, members should attend one (1) meeting in a 24-month period**.** After the date of approval of this Regional Plan by the Federal Communications Commission, all previous attendees are voting members, with the exception of non-voting commercial members. After the acceptance of this Regional Plan, voting members that do not attend one meeting in a 24-month period that starts on the date of Plan acceptance, will lose Region 39 voting rights for either a 6 month period or when the member attends the next Regional Planning Committee meeting, whichever comes first. Attending a meeting is all that is required to immediately reinstate voting members voting rights. The loss of voting rights does not remove a member from active status; it simply requires attendance at a meeting (Special or Regular) to reinstate voting privileges. The voting limitations of an individual have no effect on the voting ability of a public safety entity. The public safety entity reserves the right to send another representative to vote on issues regarding 700 MHz implementation, or send the original voting representative to the next special or regular meeting.

A vote of the committee is the final determining factor regarding removal of a member from Region 39. A period of 6 months from the first day of removal is required before a removed member is eligible for reinstatement for membership in the Regional Planning Committee.

**2.6 Resignation**. A member may resign by delivering written resignation to the chairman, vice-chairman, treasurer or secretary of the Regional Committee or to a meeting of the members. A resigning member is eligible for reinstatement to the Regional Planning Committee after a period of six months has lapsed, beginning on the first day of resignation.

**2.7 Meetings.** The Region 39 700 MHz Planning Committee will meet no less than one (1) time per calendar year. A minimum notification of thirty (30) days will be given. The annual meeting may be held in Nashville, Tennessee area. This is centrally located within Region 39 and will provide the maximum opportunity for Regional participation. Any additional meetings may be located in a different city or town within the Region to attract and promote involvement in the committee. The Annual meeting should be held in the last quarter of calendar year and will be set the Chairperson. Committee meetings will not be held on holidays or weekend days, unless called by the Region 39 Chairperson or as part of a public safety conference. At any time and when deemed necessary by the Chairperson, an additional meeting of the Region 39 Regional Planning Committee may be called. Video and/or Audio Teleconferencing may be conducted at meetings to include as many people as possible in the 700 MHz allocation process. The use of electronic E-mail and the Region 39 list-server (reg39rpc@region39.org) will be utilized by members and officers of Region 39 as needed to convey Regional issues at hand. It should be noted the use of E-mail does not remove the voting eligibility requirement of the member to participate in at least one (1) of the Region 39 annual meeting.

**2.8 Special Meetings**. The Chairperson has the authority to call a meeting of the Regional Planning Committee when he deems it in the best interest of the Region and will provide notice of the special meeting to existing members of the Region (and the public) at least 5 days prior to the meeting. Special meetings of the members may be held at any time and at any place within the Regional Committee area. Special meetings of the members may be called by the chairman or by the vice-chairman, or in case of death, absence, incapacity, by any other officer or, upon written application of two or more members.

**2.9 Call and Notice.**

**A. Annual meeting**

Reasonable notice of the time and place of scheduled meetings of the members, not being less than 30 days, shall be given to each member. Such notice may specify the purposes of a meeting, but will specify meeting content if required by law or these bylaws or unless there is to be considered at the meeting (i) amendments to these bylaws or (ii) removal or suspension of a member who is an officer. Announcements of meetings, stating the time and place where the meeting is to be held, may be published in newspapers, land mobile radio periodicals, and disseminated via E-mail and other electronic forms such as Tennessee Information Enforcement System. In addition, a press release may be issued, urging parties interested in public safety communications to attend. **Region 39 will notify the Federal Communications Commission, Chief of the Wireless Telecommunications Bureau, when a meeting time and place has been established for the Region 39 700 MHz Regional Planning Committee at least 30 days prior to the meeting**.

**B. Reasonable and sufficient notice**

Except as otherwise expressly provided, it shall be reasonable and sufficient notice to a member to send notice by mail at least five days or by e-mail/facsimile at least three days before any special meetings, addressed to such member at his or her usual or last known business address, or, to give notice to such member in person or by telephone at least three days before the meeting.

**2.10 Quorum**

**At any meeting of the members, a majority of the officers and a minimum of at least three (3) voting members shall constitute a quorum**. Any meeting may be adjourned to such date or dates not more than sixty days after the first session of the meeting by a majority of the votes cast upon the question, whether or not a quorum is present, and the meeting may be held as adjourned without further notice.

**2.11 Action by Vote**

Each voting member, representing a particular agency (one vote per agency) shall have one vote; non-voting members have no voting rights. When a quorum is present at any meeting, a majority of the votes properly cast by voting members present shall decide any question, including election to any office, unless otherwise provided by law or these bylaws.

**2.12 Action by Writing**. Any action required or permitted to be taken at any meeting of the members may be taken without a meeting if all members entitled to vote on the matter consent to the action in writing and the written consents are filed with the records of the meetings of the members. Such consents shall be treated for all purposes as a vote at a meeting.

**2.13 Proxies**

Voting members may vote either in person or by written proxy dated not more than one week before the meeting named therein, which proxies shall be filed before being noted with the secretary or other

person responsible for recording the proceedings of the meeting. A RPC member present via teleconference (audio or video) shall have voting status parallel to a member present at the meeting. If the facility is unable to accommodate teleconferencing (audio or video), or for any other reason teleconferencing cannot be accommodated in the meeting place, it is the responsibility of the member to attend the meeting in person or to vote by written proxy to have full voting rights. Unless otherwise specifically limited by their terms, such proxies shall entitle the holders thereof to vote at any adjournment of the meeting for which the proxy exists and the proxy shall terminate after the final adjournment of such meeting.

**2.14 Voting on One's Own Application**
**At no time can a voting member vote on his/her application**.

**2.15 Special Interest Voting**. A voting member **cannot** have a commercial interest in any of his/her Region and/or adjacent Region's application(s) on which he/she is reviewing, approving and/or voting.

## OFFICERS AND AGENTS

**3.1 Number and qualification**
**The officers of the Region 39 700 MHz Regional Planning Committee shall consist of a chairman, a vice-chairman and a secretary and / or treasurer. All officers must be voting members of the Regional Committee.**

**3.2 Election**
The officers shall be elected by the voting members at their first meeting and, thereafter, at a meeting determined by the membership. The terms of the officers in the Region 39 700 MHz RPC will be for two (2) years. In order to allow for consistency in the Plan creation and initialization process, the terms of elected officers will begin on the date of the FCC's approval of the Region 39 Plan.

**3.3 Tenure.** The officers shall each hold office until the biannual election meeting of the members held within two years from the adoption of these bylaws, or until their successor, if any, is chosen, or in each case until he or she sooner dies, resigns, is removed or becomes disqualified.

**3.4 Chairman and Vice Chairman**. The chairman shall be the chief executive officer of the Regional Committee and, subject to the control of the voting members, shall have general charge and supervision of the affairs of the Regional Committee. The chairman shall preside at all meetings of the Regional Committee, The Vice Chairman, if any, shall have such duties and powers, as the voting members shall determine. The review and approve adjacent Region Plans if no conflicts are determined, respond to the FCC on behalf of the RPC if a meeting in not needed or not enough time to call a meeting, represent the RPC at meetings of the National Regional Planning Council (NRPC) or other RPC meetings. Vice-Chairman shall have and may exercise all the powers and duties of the chairman during the absence of the chairman or in the event of his or her inability to act.

**3.5 Treasurer**
The treasurer shall be the chief financial officer and the chief accounting officer of the Regional Committee. The treasurer shall be in charge of its financial affairs, funds, and valuable papers and shall keep full and accurate records thereof. **In the absence of a treasurer within the Region 39 700 MHz Planning Committee, the Chairperson shall assign Region 39 treasurer duties as deemed necessary.**

**3.6 Secretary.** The secretary shall record and maintain records of all proceedings of the members in a file or series of files kept for that purpose, which file or files shall be kept within the Region and shall be open at all reasonable times to the inspection of any member. Such file or files shall also contain records of all meetings and the original, or attested copies, of bylaws and names of all members and the address (including e-mail address, if available) of each. If the secretary is absent from any meeting of members, a temporary secretary chosen at the meeting shall exercise the duties of the secretary at the meeting. In the absence of a secretary within the Region 39 700 MHz Planning Committee, the Chairperson shall assign Region 39 Secretary duties as deemed necessary and may appoint a non-voting member.

**3.7 Combining the office of Treasurer and Secretary**

If so decided by the Membership of Region 39, the duties of Treasurer and Secretary may be combined into one office.

**3.7.1 Committees – Standing or Appointed**

There shall be three standing committees. Technical / Implementation, Interoperability, and Education & Outreach. Other committees may be appointed as deemed necessary by the Chair or RPC.

**3.7.2 Executive Board**

The Executive Board will be made up of the Chair, Vice Chair, and the Chairs of the three Standing Committees. The purpose of the board will be to assist and give guidance to the Chair, review adjacent Region plans or review FCC filings if needed, help hold the Chair accountable to the Region 39 RPC.

**3.8 Suspensions or Removal**. An officer of the Region 39 Regional Planning Committee may be suspended with cause by vote of a majority of the voting members in attendance.

**3.9 Resignation.** An officer may resign by delivering his or her written resignation to the chairman, vice-chairman, treasurer, or secretary of the Regional Committee. Such resignation shall be effective upon receipt (unless specified to be effective at some other time), and acceptance thereof shall not be necessary to make it effective unless it so states.

**3.10 Vacancies**. If the office of any officer becomes vacant, the voting members may elect a successor. Each such successor shall hold office for the remainder of term, and in the case of the chairman, vice chairman, treasurer and / or secretary until his or her successor is elected and qualified, or in each case until he or she sooner dies, resigns, is removed or become disqualified.

## 4.0 AMENDMENTS

These bylaws may be altered, amended or repealed in whole or in part by vote. The voting members may by a two-thirds vote of a quorum, alter, amend, or repeal any bylaws adopted by the Regional Committee members or otherwise adopt, alter, amend or repeal any provision which FCC regulation or these bylaws requires action by the voting members.

## 5.0 DISSOLUTION

This Regional Committee may be dissolved by the consent of two-thirds plus one of an assembled quorum of the membership at a special meeting called for such purpose. The FCC shall be notified.

## 6.0 RULES OF PROCEDURES

The Conduct of Regional Meetings including debate and voting, shall be governed by *Simple Parliamentary Procedure*, Martha Nall, published by the University of Kentucky, College of Agriculture, Cooperative Extension Service, Publication # IP-15, Copyright 2000.

# APPENDIX B

## Membership and Meeting Attendees

| | | | 700 MHz Meeting December 18, 2007 | | | | |
|---|---|---|---|---|---|---|---|
| Last Name | First Name | Agency | Street Address | City | ST | ZIP | Telephone |
| Banner | Fred | City of Franklin | 109 3rd Ave S. | Franklin | TN | 37064 | 615-550-6613 |
| Barker | Donald | City of Memphis Communications Maintenance | 79 S. Flicker St. | Memphis | TN | 38104 | 901-320-5330 |
| Beatty | Barney | TN Dept of Health EMS Division | 227 French Landing | Nashville | TN | | 615-741-8498 |
| Blair | Joe | Transition Administrator | 10708 Rose Crook Ct | Dallas | TX | 75238 | 214-415-0100 |
| Brooks | Don | Transition Administrator | 4706 Evening Star | Bulverde | TX | 78163 | 210-422-3002 |
| Bull | Alan | Knox County 911 | 605 Bernard Ave. | Knoxville | TN | 37921 | 865-215-1101 |
| Chafin | Keith | EADS Secure Networks | 1110 Gleaves Glen Dr. | Mt. Juliet | TN | 37122 | 615-754-9801 |
| Ditmore | Ann Rita | Central Comm & Electronics | PO Box 3638 | Knoxville | TN | 37927 | 865-525-2308 |
| Evans | Aaron | Metro Nashville Airport Authority | One Terminal Drive | Nashville | TN | 37214 | 615-275-1605 |
| Farris | Johny | West TN Healthcare, Medical Center EMS | 708 W. Forest Ave. | Jackson | TN | 38301 | 731-660-9225 |
| Gowler | Randy | TN Dept of Health | 425 5th Ave. N.,Cordell Hull Bldg. 1st Floor | Nashville | TN | 37243 | 615-253-2310 |
| Griggs | Jesse | TN Dept of Correction | 320 6th Ave. North | Nashville | TN | 37243 | 615-253-8098 |
| Hopson | Mike | Fayetteville Lincoln Co Emerg. Comms. | 607 Moyers Ave | Fayetteville | TN | 37334 | 931-433-4522 |
| Johnson | John | TEMA | 3041 Sidco Dr | Nashville | TN | 37204 | 615-741-3826 |
| Johnson | Randy | Motorola | 341 Cool Springs Blvd., Suite 300 | Franklin | TN | 37064 | 615-771-2741 X101 |
| Knickerbocker | Charlie | City of Clarksville Fire Rescue | 801 Main St | Clarksville | TN | 37040 | 931-645-7456 |
| Kyker | Alan | Washington Co SO | 909 Old Bugaboo Spring Rd | Jonesborough | TN | 37659 | 423-753-3268 |
| Land | Richard | TN Dept of Health, Div of EMS | 227 French Landing, Suite 303 | Nashville | TN | 37247 | 615-532-5989 |
| Loper | Donald | Mississippi Highway Patrol / DPS | 3893 Hwy. 468 West | Pearl | MS | 39208 | 601-933-2603 |
| Lovette | Allen | Williamson County | 2021 Carothers Rd | Franklin | TN | 37067 | 615-435-5591 |
| McElroy | Steve | DataRadio Corp. | 6160 Peachtree Dunwoody Rd. | Atlanta | GA | 30328 | 770-331-0043 |
| McFadden | Jack R. | F&A OIR/Telecom | 312 8th Ave N, 15th Floor | Nashville | TN | 37243 | 615-741-5080 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Morrow | Tim | City of Memphis Communications Maintenance | 79 South Flicker St | Memphis | TN | 38104 | 901-320-5330 |
| Neathery | Rick | Nashville Metro Radio Communications | 1417 Murfreesboro Rd. | Nashville | TN | 37217 | 615-862-5114 |
| O'Reel | Brian | Tyco Electronics | | | | | 859-400-0402 |
| Proctor | Mike | City of Franklijn | 109 3rd Ave S. | Franklin | TN | 37064 | 615-550-6604 |
| Rinehart | Bette | Motorola | 28 Twin Lakes Dr | Gettysburg | PA | 17325 | 717-334-0654 |
| Sanschargrin | Bruce | Metro Nashville Emergency Comm. Center | 2060 15th Ave. South | Nashville | TN | 37212 | 615-401-6260 |

# COMMITTEE AND VOTING STATUS

| LAST | FIRST | AGENCY / REPRESENTING | Admin. | Data | Interop. | Technical | Member |
|---|---|---|---|---|---|---|---|
| Adams | Philip | TVA | | | | | N |
| Adgent | Tim | TEMA Middle Region | | | | | N |
| Agnew | William | Nashville Metro PD | | | | | V |
| Allen | Roger | Rutherford County EMA | | | | | V |
| Almon | John | TN Assoc Rescue Squads | | | | | V |
| Andrich | Curt | PSWN- Booz Allen Hamilton | | | | | H |
| Auerweck | Ken | Red Cross | | | | | N |
| Baisden | Don | TN Dept of Safety | | | | | V |
| Banner | Fred | City of Franklin | | | | | V |
| Beasley | Roland | Memphis Light Gas and Water | | | | | V |
| Beatty | Barney | TN Dept of Safety | | | x | | V |
| Boyd | Keith | 45th Civil Support Team | | | | | N |
| Braunsdorf | Susan | L R Kimball & Associates | | | | | N |
| Brooks | Lee | Spring Hill PD | | | | | V |
| Brooks | Robert | Nashville Fire Fept | | | | | V |
| Brown | Charles E. | Henderson County Sheriff's Dept | | | | | V |
| Brown | Kent | TVA | | | x | | N |
| Brown | RoxAnn L. | Metro Nashville Emergency Comm. Center | | | | | V |
| Bull | Alan | Knox County 911 | | | | | V |
| Cansler | Stephen | Davis Electronics | | | | | N |
| Carroll | Mike | TN Dept of Transportation | | | | | V |
| Cartwright | Louis | Cartwright Comm Tech | | | | | N |
| Caylor | Jeff | Blount Co. 911 | | | | | V |
| Chafin | Keith | CommTech | | | | | N |
| Claiborne | Don | CommTech | | | | | N |
| Clinard | Jody | Metro Radio Shop | | | | | V |
| Coffelt | Roger | TN Dept of Correction | | | | | V |
| Coman | Ben | MTSU Public Safety | | x | x | x | V |
| Cope | Richard | City of Woodbury, Mayor | | | | | V |
| Cross | Steve | Columbia Fire Dept | | | | | V |
| Cunningham | Joe | NNSA Y12 Plant | | | | | N |
| Currey | Gary | Rutherford County Sheriff's Dept | | | | | V |
| Dabbs | John | TN Dept of Health EMS | | | | | V |
| Davis | Cecil | TWRA | | | | | V |
| Davis | Chuck | Secom Systems | | | x | | N |
| Davis | Ivon | Davis Electronics | | | | | N |
| Davis | Joe | TN Dept of Transportation | | | | | V |
| Denoncour | Paul | City of Clarksville | | | | | V |
| DeSalvo | Brent | Marshall Co EMA | | | | | V |
| Ditmore | Ann Rita | Central Comm & Electronics | | x | x | | N |
| Douglas | R. L. | Robertson Co. Gov't/EMA | | | | | V |
| Duke | Stan | Wireless Solutions | | | | | N |
| Eldridge | Kent | TN Dept of Safety | | | x | | V |
| Evans | Mike | Motorola | | | | | N |
| Fanguy | Jim | MTSU Public Safety | | | x | | V |
| Farmer | Roger | TN Dept of Safety | | | | | V |
| Farro | Wayne | M/A-COM | | | x | | N |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Flynn | Joe | Red Cross | | | | | N |
| Freels | Capt. Thomas | U.T. Police Knoxville | | | | | V |
| Furlow | Albert | TN Dept of Safety | | | | | V |
| Good | Roger | CommTech | | | | | N |
| Gowler | Randy | TN Dept of Health | | | | | V |
| Grant | Mark | Dyersburg Public Safety Communications | | | x | | V |
| Griggs | Jesse | TN Dept of Corrections | | | x | | V |
| Harbsmeier | Paul | Hendersonville PD | | | | | V |
| Hatch | Kip | City of Jackson | | x | | x | V |
| Heikes | Julie | Orbacom Systems | | | x | | N |
| Hesson | Alton | TN Dept of Corrections | | | | | V |
| Hill | Hal W | Winchester Police Dept | | | | | V |
| Hix | Fred | TN Dept of Corrections | | | | | V |
| Hoffman | Capt. Ramona | Nashville Fire Fept - Communications | | | | | V |
| Holloway | Dewayne | Blount Co. 911 | | x | | | V |
| Hooper | Arnold | City of Chattanooga | | | x | x | V |
| Hopkins | Robert | Marshall Co EMA | | | | | V |
| Hopson | Mike | Fayetteville Lincoln Co Emerg. Comms. | | | x | | V |
| Hudgens | Mike | TN Dept of Safety | | | | | V |
| Hunt | Lt. Bob | Clarksville Police Dept | | | | | V |
| Hunter | Michael | NNSA Y12 Plant | | | | | N |
| Insalaco | Frank V. | 45th Civil Support Team | | | | | N |
| Johnson | Joe | Metro Airport DPS | | | | | V |
| Johnson | John | TEMA / Region 39 | | | | | V |
| Johnson | Philip | Martin PD | | | | | V |
| Johnson | Randy | Motorola | | | | | N |
| Jones | Johnny | TVA | | | x | | N |
| Jones | Steve | Macon County EMS / 911 | | | | | V |
| Jordan | Drew | F&A OIR/Telecom | | | | | V |
| Kirksey | John | TN Dept of Forestry | | | | | V |
| Kyker | Allen | Washington Co SO | | | | | V |
| Land | Richard | TN Dept of Health, Div of EMS | | | x | | V |
| Lawson | Sgt. Jim | Hendersonville PD | | | | | V |
| Lee | Robert E., Jr | PSWN / FBI | | | | | H |
| Lucas | Mark | Anderson Co. Sheriff's Office | | | | | V |
| Martin | Don | Columbia Fire Dept | | | | | V |
| Martin | Sonny | Knox County Sheriff | | | x | x | V |
| Mathis | Pat | Shelbyville Police Dept | | | | | V |
| McCluskey | Candi | Rutherford County Sheriff's Dept | | | | | V |
| McElroy | Steve | DataRadio | | | | | N |
| McFadden | Jack | F&A Office for Info. Resources | x | x | | | V |
| McMillen | Grady | Motorola | | | | | N |
| Miller | Jeff | Motorola | | | x | x | N |
| Mitchell | Ken | KY Governor's Office for Technology | | | | | H |
| Moore | David | Martin PD | | | | | V |
| Moore | Joel R. | TN Dept of Safety / CVE | | | | | V |
| Morrow | Tim | Memphis Police Dept | | | | | V |
| Mosca | John | Motorola | | | | x | N |
| Moyers | John | TEMA | | x | x | x | V |
| Murphy | Rick | PSWN / US Dept of Treasury | | | | | H |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Neathery | Rick | Metro Govt Radio Shop | x | x | x | x | V |
| Neely | Wesley | Mt Juliet PD | | | | | V |
| Overbay | Todd | TN Dept of Safety | | | | | V |
| Overholt | Roger | Morristown PD | | | | | V |
| Patterson | Edgar | Montgomery Co. S.O. & TN Sheriff's Assoc. | x | | | | V |
| Perigo | Jeff | Greer Communications | | | | x | N |
| Phipps | Charles | TN Wildlife Resources Agency | x | | | | V |
| Piercey | Jim | TN Dept of Safety /Communications | | | | | V |
| Pigna | David | Sumner Co. Communications Director | | | x | | V |
| Pogue | Bill | TN Dept of Safety | x | | | | V |
| Proctor | Mike | City of Franklin | | | | | V |
| Pointer | C. W. | Wireless Solutions | | | | | N |
| Pollock | Steve | TN Dept. of Environment & Conservations | | | | | V |
| Reavley | Tony | Hamilton Co Emergency Services | | | x | | V |
| Riggs | Charles | Rhea County 911 | | x | x | | V |
| Rittenburg | Gary | DataRadio | | | | | N |
| Rollins | Patrick | City of Chattanooga | | | | | V |
| Rosseau | Marv | TN Dept of Safety /Communications | | | | | V |
| Rudden | Jerry | TN Bomb & Arson, Dept of Commerce & Ins. | | | | | V |
| Russell | Bruce | TVA | | | | | N |
| Scott | Garrett S. | Oak Ridge Operations, US Dept of Energy | | | | | N |
| Shell | Richard | TVA | | | | x | N |
| Smith | John | Montgomery Co. S.O. | | | | | V |
| Smith | McRae | PSWN / FBI | | | | | H |
| Smith | Mike | Clarksville IS & Communications | | | | | V |
| Smith | Rick | THP/Homeland Security | | | | | V |
| Stephens | Bob | KY Division of Emergency Management | | | | | H |
| Strode | Adam | Trinity Marketing and Sales (ICOM) | | | | | N |
| Sutherland | Derik | Cannon Co EMS | | | | | V |
| Tarrance | Frank | Memphis Police Dept | | | | x | V |
| Taylor | Casey | AEDC Air Force Base | | | | | N |
| Terry | Bill | Murfreesboro PD | | | | | V |
| Thompson | Mike | Williamson County EMA | | | | | V |
| Thompson | Tommy | Memphis Shelby Co. EMA | | | x | | V |
| Tolley | Pamela | Henderson County 911 | | | | | V |
| Townsend | David | Collierville Police, Fire & EMA | | | | | V |
| Triplett | Greg | TN Dept of Safety | | | | | V |
| Underwood | Sgt. Jim | U.T. Police Knoxville | | | | | V |
| Updegraff | Bob | Wireless Solutions | | | | | N |
| Vaughn | Mary | KY Governor's Office for Technology | | | | | H |
| Wilkerson | Jackie | Robertson County E911 | | | | | V |
| Williams | Kevin | TN Bureau of Investigation | | x | x | | V |
| Wisecarver | Chris | Morristown PD | | | | | V |
| Witt | Bill | Knox County 911 | | | | | V |
| Wolfe | David | TEMA | | | | | V |

H - Honorary Member or Guest
N - Non Voting Commercial Member
V - Voting Member

# Appendix C

## List of counties areas within Region 39:

**Pool channel allotments are allotted by "County Areas" in Region 39. County areas and their definitions are listed in Section 6.3**

REGION 39 COUNTY DATA

| County Name | County Seat | Square Miles [1] | Population 1990 [2] | Population 2000 [2] | Population 2002 [2] |
|---|---|---|---|---|---|
| Anderson | Clinton | 338 | 68,250 | 71,330 | 71,627 |
| Bedford | Shelbyville | 474 | 30,411 | 37,586 | 39,408 |
| Benton | Camden | 394 | 14,524 | 16,537 | 16,483 |
| Bledsoe | Pikeville | 406 | 9,669 | 12,367 | 12,478 |
| Blount | Maryville | 559 | 85,969 | 105,823 | 109,849 |
| Bradley | Cleveland | 329 | 73,712 | 87,965 | 89,677 |
| Campbell | Jacksboro | 480 | 35,079 | 39,854 | 40,013 |
| Cannon | Woodbury | 266 | 10,467 | 12,826 | 13,060 |
| Carroll | Huntingdon | 599 | 27,514 | 29,475 | 29,320 |
| Carter | Elizabethton | 341 | 51,505 | 56,742 | 56,746 |
| Cheatham | Ashland City | 303 | 27,140 | 35,912 | 36,986 |
| Chester | Henderson | 289 | 12,819 | 15,540 | 15,923 |
| Claiborne | Tazewell | 434 | 26,137 | 29,862 | 30,163 |
| Clay | Celina | 236 | 7,238 | 7,976 | 8,021 |
| Cocke | Newport | 434 | 29,141 | 33,565 | 34,115 |
| Coffee | Manchester | 429 | 40,339 | 48,014 | 49,408 |
| Crockett | Alamo | 265 | 13,378 | 14,532 | 14,522 |
| Cumberland | Crossville | 682 | 34,736 | 46,802 | 48,604 |
| Davidson | Nashville | 502 | 510,784 | 569,891 | 570,785 |
| Decatur | Decaturville | 333 | 10,472 | 11,731 | 11,629 |
| DeKalb | Smithville | 304 | 14,360 | 17,423 | 17,700 |
| Dickson | Charlotte | 490 | 35,061 | 43,156 | 44,231 |
| Dyer | Dyersburg | 510 | 34,854 | 37,279 | 36,984 |
| Fayette | Somerville | 705 | 25,559 | 28,806 | 31,202 |
| Fentress | Jamestown | 499 | 14,669 | 16,625 | 16,868 |
| Franklin | Winchester | 553 | 34,725 | 39,270 | 39,998 |
| Gibson | Trenton | 603 | 46,315 | 48,152 | 48,274 |
| Giles | Pulaski | 611 | 25,741 | 29,447 | 29,355 |
| Grainger | Rutledge | 280 | 17,095 | 20,659 | 21,109 |
| Greene | Greeneville | 622 | 55,853 | 62,909 | 63,763 |
| Grundy | Altamont | 361 | 13,362 | 14,332 | 14,335 |
| Hamblen | Morristown | 161 | 50,480 | 58,128 | 58,623 |
| Hamilton | Chattanooga | 543 | 285,536 | 307,896 | 309,321 |
| Hancock | Sneedville | 222 | 6,739 | 6,786 | 6,793 |
| Hardeman | Bolivar | 668 | 23,377 | 28,105 | 29,812 |

| | | | | | |
|---|---|---|---|---|---|
| Hardin | Savannah | 578 | 22,633 | 25,578 | 25,825 |
| Hawkins | Rogersville | 487 | 44,565 | 53,563 | 54,793 |
| Haywood | Brownsville | 533 | 19,437 | 19,797 | 19,655 |
| Henderson | Lexington | 520 | 21,844 | 25,522 | 25,733 |
| Henry | Paris | 562 | 27,888 | 31,115 | 31,192 |
| Hickman | Centerville | 613 | 16,754 | 22,295 | 23,125 |
| Houston | Erin | 200 | 7,018 | 8,088 | 7,948 |
| Humphreys | Waverly | 532 | 15,795 | 17,929 | 18,081 |
| Jackson | Gainesboro | 309 | 9,297 | 10,984 | 11,138 |
| Jefferson | Dandridge | 274 | 33,016 | 44,294 | 45,801 |
| Johnson | Mountain City | 299 | 13,766 | 17,499 | 17,925 |
| Knox | Knoxville | 509 | 335,749 | 382,032 | 389,327 |
| Lake | Tiptonville | 163 | 7,129 | 7,954 | 7,793 |
| Lauderdale | Ripley | 471 | 23,491 | 27,101 | 28,007 |
| Lawrence | Lawrenceburg | 617 | 35,303 | 39,926 | 40,463 |
| Lewis | Hohenwald | 282 | 9,247 | 11,367 | 11,463 |
| Lincoln | Fayetteville | 570 | 28,157 | 31,340 | 31,777 |
| Loudon | Loudon | 229 | 31,255 | 39,086 | 40,631 |
| Macon | Lafayette | 307 | 15,906 | 20,386 | 20,860 |
| Madison | Jackson | 557 | 77,982 | 91,837 | 93,367 |
| Marion | Jasper | 500 | 24,860 | 27,776 | 27,654 |
| Marshall | Lewisburg | 375 | 21,539 | 26,767 | 27,370 |
| Maury | Columbia | 613 | 54,812 | 69,498 | 71,600 |
| McMinn | Athens | 430 | 42,383 | 49,015 | 50,051 |
| McNairy | Selmer | 560 | 22,422 | 24,653 | 24,716 |
| Meigs | Decatur | 195 | 8,033 | 11,086 | 11,310 |
| Monroe | Madisonville | 635 | 30,541 | 38,961 | 40,159 |
| Montgomery | Clarksville | 539 | 100,498 | 134,768 | 138,241 |
| Moore | Lynchburg | 129 | 4,721 | 5,740 | 5,928 |
| Morgan | Wartburg | 522 | 17,300 | 19,757 | 19,847 |
| Obion | Union City | 545 | 31,717 | 32,450 | 32,394 |
| Overton | Livingston | 433 | 17,636 | 20,118 | 20,276 |
| Perry | Linden | 415 | 6,612 | 7,631 | 7,548 |
| Pickett | Byrdstown | 163 | 4,548 | 4,945 | 4,999 |
| Polk | Benton | 435 | 13,643 | 16,050 | 16,142 |
| Putnam | Cookeville | 401 | 51,373 | 62,315 | 64,300 |
| Rhea | Dayton | 316 | 24,344 | 28,400 | 28,939 |
| Roane | Kingston | 361 | 47,227 | 51,910 | 52,316 |
| Robertson | Springfield | 477 | 41,494 | 54,433 | 57,446 |
| Rutherford | Murfreesboro | 619 | 118,570 | 182,023 | 194,934 |
| Scott | Huntsville | 532 | 18,358 | 21,127 | 21,558 |
| Sequatchie | Dunlap | 266 | 8,863 | 11,370 | 11,787 |
| Sevier | Sevierville | 592 | 51,043 | 71,170 | 74,456 |
| Shelby | Memphis | 755 | 826,330 | 897,472 | 905,678 |
| Smith | Carthage | 314 | 14,143 | 17,712 | 18,177 |
| Stewart | Dover | 458 | 9,479 | 12,370 | 12,704 |
| Sullivan | Blountville | 413 | 143,596 | 153,048 | 153,051 |

| | | | | | |
|---|---|---|---|---|---|
| Sumner | Gallatin | 529 | 103,281 | 130,449 | 136,170 |
| Tipton | Covington | 459 | 37,568 | 51,271 | 53,436 |
| Trousdale | Hartsville | 114 | 5,920 | 7,259 | 7,354 |
| Unicoi | Erwin | 186 | 16,549 | 17,667 | 17,740 |
| Union | Maynardville | 224 | 13,694 | 17,808 | 18,541 |
| Van Buren | Spencer | 274 | 4,846 | 5,508 | 5,541 |
| Warren | McMinnville | 433 | 32,992 | 38,276 | 38,896 |
| Washington | Jonesborough | 326 | 92,315 | 107,198 | 109,019 |
| Wayne | Waynesboro | 734 | 13,935 | 16,842 | 17,312 |
| Weakley | Dresden | 580 | 31,972 | 34,895 | 34,208 |
| White | Sparta | 377 | 20,090 | 23,102 | 23,434 |
| Williamson | Franklin | 582 | 81,021 | 126,638 | 136,889 |
| Wilson | Lebanon | 571 | 67,675 | 88,809 | 93,079 |
| TOTAL | | 41,219 | 4,877,185 | 5,689,283 | 5,797,289 |

Footnotes:
1 - 1996 Land Area Statistics, U.S. Bureau of the Census.
2 - 1990, 2000, and 2002 Census of Population and Housing, U.S. Bureau of the Census

Taken from www.state.tn.us/
Tennessee Blue Book, State of TN, Web Site

# Appendix D

**Meeting minutes, agendas and other events where 700MHz information was disseminated.**

## Chronology of Plan Development

| Date | Description of Significant Action |
|---|---|
| May 8, 2001 | Initial Meeting called by Convener, John Johnson, NPSPAC 800 MHz Chairman, is held at the TN Wildlife Resources Agency in Nashville. Bill Pogue, TN Dept of Safety is elected Chairman. |
| April 8, 2002 | Second meeting help in conjunction with PSWN Interoperability Conference at the Gaylord Opryland Hotel and Convention Center. Committees hold first meeting. |
| April 3, 2003 | John Johnson, Vice-Chairman, notifies FCC that Chairman Bill Pogue has left State government and is no longer involved in Public Safety. John Johnson becomes the Chairman until next meeting at which time an election will be held. |
| October 2003 | Chairman Johnson attends CAPRAD training |
| December 11, 2003 | Third meeting conducted at TN Wildlife Resources Agency in Nashville. John Johnson is elected Chairman. First 4.9 GHz committee meeting held. |
| October 2004 | Seven Region 39 members attend Regional Planning Colloquium in Denver. |
| December 7, 2004 | Fourth meeting is conducted at TN Bureau of Investigation HQ in Nashville. John Johnson re-elected Chairman. First State Interoperability Executive Committee meeting conducted in conjunction with the 4.9 GHz committee and the 800 MHz NPSPAC committee. These meetings were conducted over two days. |
| March 2005 | Seven Region 39 members attend Regional Planning Colloquium in St. Louis |
| May 3 – 4, 2005 | CAPRAD training is held in Nashville |
| June 2, 2005 | Fifth meeting is conducted at TN Bureau of Investigation HQ in Nashville. The committee approves the Plan. The Plan will be distributed to the Adjacent Regions for concurrence and agreement to the dispute resolution. |
| June 11, 2005 | Region 39 Plan mailed / UPS to adjacent Regions for concurrence |

| | |
|---|---|
| **Nov. 15, 2005** | **Received final LOC & Dispute Resolution. All eleven adjacent Regions have approved.** |
| **Dec. 13, 2005** | **Plan submitted to the FCC.** |
| **June 27, 2006** | **FCC Approves Region 39 Plan DA 06-1318** |
| **February 6, 2007** | **Region 39 holds special called meeting to discuss 9th NPRM** |
| **February 26, 2007** | **Region 39 files 9th NPRM comments** |
| **May 23, 2007** | **Region 39 files comments on Notice of Proposed Rule Making** |
| **December 18, 2007** | **Region 39 holds annual meeting to revise 700 MHz Plan to conform with FCC Report & Order 07-132.** |
| **December 19, 2007** | **Revised plan sent to adjacent regions.** |
| **January 31, 2008** | **Plan revision filed with FCC** |

# Appendix E
# Table of 700 MHz Interoperability Channels

**For Specific Uses/Services**
*** - TN Mandatory**

| 16 CHANNEL SETS | DESCRIPTION | LABEL |
|---|---|---|
| *Channel 23 & 24* | *General Public Safety Services (secondary trunked)* | *7TAC51* |
| *Channel 103 & 104* | *General Public Safety Services (secondary trunked)* | *7TAC52* |
| *Channel 183 & 184* | *General Public Safety Services (secondary trunked)* | *7TAC53* |
| *Channel 263 & 264* | *General Public Safety Services (secondary trunked)* | *7TAC54* |
| | | |
| Channel 39 &40 | Calling Channel * | 7CALL50 |
| Channel 119 & 120 | General Public Safety Service * | 7TAC55 |
| Channel 199 & 200 | General Public Safety Service | 7TAC56 |
| Channel 279 & 280 | Mobile Data | 7DATA69 |
| | | |
| Channel 63 & 64 | Emergency Medical Service | 7MED65 |
| Channel 143 & 144 | Fire Service | 7FIRE63 |
| Channel 223 & 224 | Law Enforcement Service | 7LAW61 |
| Channel 303 & 304 | Mobile Repeater * | 7MOB59 |
| | | |
| Channel 79 & 80 | Emergency Medical Service | 7MED66 |
| Channel 159 & 160 | Fire Service | 7FIRE64 |
| Channel 239 & 240 | Law Enforcement Service | 7LAW62 |
| Channel 319 & 320 | Other Public Service * | 7GTAC57 |
| | | |
| *Channel 657 & 658* | *General Public Safety Services (secondary trunked)* | *7TAC71* |
| *Channel 737 & 738* | *General Public Safety Services (secondary trunked)* | *7TAC72* |
| *Channel 817 & 818* | *General Public Safety Services (secondary trunked)* | *7TAC73* |
| *Channel 897 & 898* | *General Public Safety Services (secondary trunked)* | *7TAC74* |
| | | |
| Channel 681 & 682 | Calling Channel * | 7CALL70 |
| Channel 761 & 762 | General Public Safety Service * | 7TAC75 |
| Channel 841 & 842 | General Public Safety Service | 7TAC76 |
| Channel 921 & 922 | Mobile Data | 7DATA89 |
| | | |
| Channel 641 & 642 | Emergency Medical Service | 7MED86 |
| Channel 721 & 742 | Fire Service | 7FIRE83 |
| Channel 801 & 802 | Law Enforcement Service | 7LAW81 |
| Channel 881 & 882 | Mobile Repeater * | 7MOB79 |
| | | |
| Channel 697 & 698 | Emergency Medical Service | 7MED87 |
| Channel 777 & 778 | Fire Services | 7FIRE84 |
| Channel 857 & 858 | Law Enforcement Service | 7LAW82 |
| Channel 937 & 938 | Other Public Services* | 7GTAC77 |

## Project 25 Common Air Interface
## Interoperability Channel Technical Parameters

Certain common P25 parameters need to be defined to ensure digital radios operating on the 700 MHz Interoperability Channels can communicate. This is analogous to defining the common CTCSS tone used on NPSPAC analog Interoperability channels.

**Network Access Code**

In the Project 25 Common Air Interface definition, the Network Access Code (NAC) is analogous to the use of CTCSS and CDCSS signals in analog radio systems. It is a code transmitted in the pre-amble of the P25 signal and repeated periodically throughout the transmission. Its purpose is to provide selective access to and maintain access to a receiver. It is also used to block nuisance and other co-channel signals. There are up to 4096 of these NAC codes. For ease of migration in other frequency bands, a NAC code table was developed which shows a mapping of CTCSS and CDCSS signals into corresponding NAC codes. Document TIA/EIA TSB102.BAAC contains NAC code table and other Project 25 Common Air Interface Reserve Values.

The use of NAC code $293 is required for the 700 MHz Interoperability Channel NAC code.

**Talk group ID**

In the Project 25 Common Air Interface definition, the Talk group ID on conventional channels is analogous to the use of talk groups in trunking. In order to ensure that all users can communicate, all units should use a common Talk group ID.

Recommendation: Use P25 default value for Talk group ID = $0001

**Manufacturer's ID**

The Project 25 Common Air Interface allows the ability to define manufacturer specific functions. In order to ensure that all users can communicate, all units should not use a specific Manufacturer's ID, but should use the default value of $00.

**Message ID**

The Project 25 Common Air Interface allows the ability to define specific message functions. In order to ensure that all users can communicate, all units should use the default Message ID for unencrypted messages of $00000000000000000000.

**Encryption Algorithm ID and Key ID**

The Project 25 Common Air Interface allows the ability to define specific encryption algorithms and encryption keys. In order to ensure that all users can communicate, encryption should not be used on the Interoperability Calling Channels, all units should use the default Algorithm ID for unencrypted messages of $80 and default Key ID for unencrypted messages of $0000. These same defaults may be used for the other Interoperability channels when encryption is not used.

Use of encryption is allowed on the other Interoperability channels. Regional Planning Committees need to define appropriate Message ID, Encryption Algorithm ID, and Encryption Key ID to be used in the encrypted mode on Interoperability channels.

# Appendix F
# NCC 700 MHz Pre-Assignment Rules/Recommendations

## Introduction

A process for doing the initial block assignments of 700 MHz channels before details of actual system deployments is required. In this initial phase, there is little actual knowledge of what specific equipment is to be deployed and where the sites will be. As a result, a high level simplified method is proposed to establish guidelines for frequency coordination. When actual systems are deployed, additional details will be known and the system designers will be required to select specific sites and supporting hardware to control interference.

Overview

Assignments will be based on a defined service area of each applicant. For Public Safety entities this will normally be a geographically defined area such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area.

For co-channel assignments, the 40dBμ contour will be allowed to extend beyond the defined service area by 5 miles, depending on the type of environment, urban, suburban or low density. The interfering co-channel 5 dBμ will be allowed to touch but not overlap the 40dBμ contour of the system being evaluated. All contours are (50,50).

For adjacent and alternate channels, the interfering channels 60 dBμ will be allowed to touch but not overlap the 40 dBμ contour of the system being evaluated. All contours are (50,50).

## 7.1.1.1 Discussion

The FCC limits the maximum field strength to 40 dB relative to 1μV/m (customarily denoted as 40 dBμ). It is assumed that this limitation will be applied similarly to the way it is applied in the 821-824/866/869 MHz band. That is, a 40 dBμ field strength can be deployed up to a defined distance from the edge of the service area, based on the size of the service area or type of applicant, i.e. city, county or statewide system. This is important as the potential for interference from CMRS infrastructure demands that public safety systems have adequate margins for reliability in the presence of interference. The value of 40 dBμ corresponds to a signal of -92.7 dBm, received by a half-wavelength dipole (λ/2) antenna. The thermal noise floor for a 6.25 kHz receiver would be in the range of -126 dBm, so there is a margin of approximately 33 dB available for "noise limited" reliability. Figure 1 shows show the various interfering sources and how they accumulate to form a composite noise floor that can be used to determine the "reliability" or probability of achieving the desired performance in the presence of various interfering sources with differing characteristics.

Allowing for a 3 dB reduction in the available margin due to CMRS OOBE noise lowers the reliability and/or the channel performance of Public Safety systems. TIA TR8 made this allowance during the meetings in Mesa, AZ, January 2001. In addition, there are various channel bandwidths with different performance criteria and unknown adjacent and alternate channel assignments need to be accounted for. The co-channel and adjacent/alternate sources are shown in the right hand side of Figure 1.

There would be a single co-channel source, but potentially several adjacent or alternate channel sources involved.

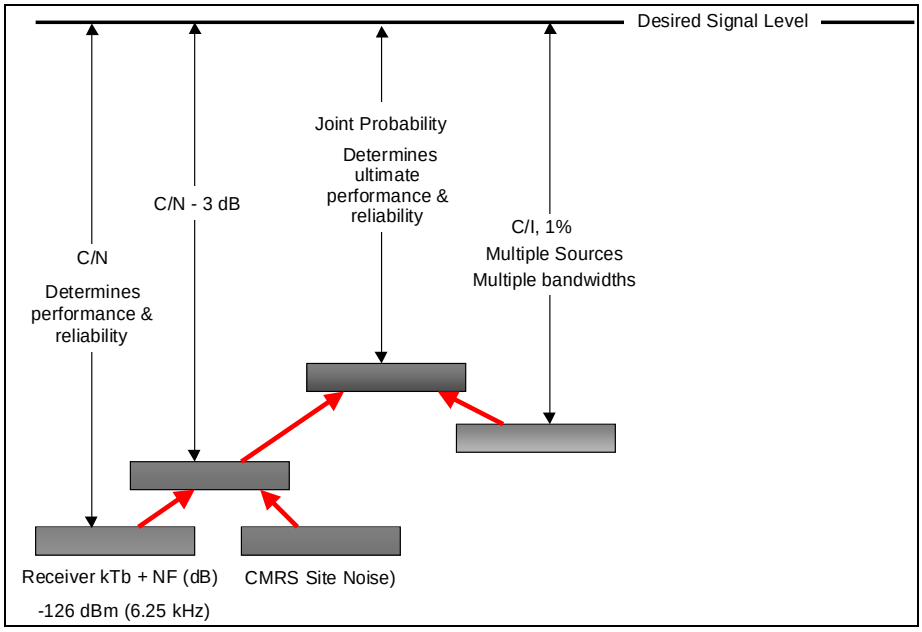


Figure 1 - Interfering Sources Create A "Noise" Level Influencing Reliability

It is recommended that co-channel assignments limit the C/I at the edge (worst case mile) be sufficient to limit that interference to <1%. A C/I ratio of 26.4 dB plus the required capture value required to achieve this goal.. A 17 - 20 dB C/N is required to achieve channel performance. Table 1 shows estimated performance considering the 3 dB noise floor rise at the 40 dBμ signal level. Performance varies due to the different Cf/N requirements of the different modulations and channel bandwidths. These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

| Comparison of Joint Reliability for various configurations | | | | |
|---|---|---|---|---|
| Channel Bandwidth | 6.25 kHz | 12.5 kHz | 12.5 kHz | 25.0 kHz |
| Receiver ENBW (kHz) | 6 | 6 | 9 | 18 |
| Noise Figure(10 dB) | 10 | 10 | 10 | 10 |
| Receiver Noise Floor (dBm) | -126.22 | -126.22 | -124.46 | -121.45 |
| Rise in Noise Floor (dB) | 3.00 | 3.00 | 3.00 | 3.00 |
| New Receiver Noise Floor (dB) | -123.22 | -123.22 | -121.46 | -118.45 |
| 40 dBu = -92.7 dBm | -92.7 | -92.7 | -92.7 | -92.7 |
| Receiver Capture (dB) | 10.0 | 10.0 | 10.0 | 10.0 |
| Noise Margin (dB) | 30.52 | 30.52 | 28.76 | 25.75 |
| C/N Required for DAQ = 3 | 17.0 | 17.0 | 18.0 | 20.0 |
| C/N Margin (dB) | **13.52** | **13.52** | **10.76** | **5.75** |
| Standard deviation (8 dB) | 8.0 | 8.0 | 8.0 | 8.0 |
| Z | 1.690 | 1.690 | 1.345 | 0.718 |
| Noise Reliability (%) | **95.45%** | **95.45%** | **91.06%** | **76.37%** |
| C/I for <1% prob of capture | 36.4 | 36.4 | 36.4 | 36.4 |
| I (dBu) | 3.7 | 3.7 | 3.7 | 3.7 |
| I (dBm) | -129.0 | -129.0 | -129.0 | -129.0 |
| Joint Probability (C & I) | **94.2%** | **94.2%** | **90.4%** | **75.8%** |
| 40 dBu = -92.7 dBm @ 770 MHz | | | | |

Table 1 Joint Probability For Project 25, 700 MHz Equipment Configurations.

To analyze the impact of requiring portable in building coverage, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Then the impact of simulcast is included to show that the 40 dBμ must be able to fall outside the edge of the service area. From the analysis, recommendations of how far the 40 dBμ extensions should be allowed to occur are made.

Table 2 Estimates urban coverage where simulcast is required to achieve the desired portable in building coverage. Several assumptions are required to use this estimate.

- Distance from the location to each site. Equal distance is assumed.
- CMRS noise is reduced when entering buildings. This is not a guarantee as the type of deployments is unknown. It is possible that CMRS units may have transmitters inside buildings. This could be potentially a large contributor unless the CMRS OOBE is suppressed to TIA's most recent recommendation and the "site isolation" is maintained at 65 dB minimum.
- The 40 dBμ is allowed to extend beyond the edge of the service area boundary.
- Other configurations may be deployed utilizing additional sites, lower tower heights, lower ERP and shorter site separations.

| Estimated Performance at 2.5 miles from each site | | | | |
|---|---|---|---|---|
| Channel Bandwidth | 6.25 kHz | 12.5 kHz | 12.5 kHz | 25.0 kHz |
| Receiver Noise Floor (dBm) | -126.20 | -126.20 | -124.50 | -118.50 |
| Signal at 2.5 miles (dBm) | -72.7 | -72.7 | -72.7 | -72.7 |
| Margin (dB) | 53.50 | 53.50 | 51.80 | 45.80 |
| C/N Required for DAQ = 3 | 17.0 | 17.0 | 18.0 | 20.0 |
| Building Loss (dB) | 20 | 20 | 20 | 20 |
| Antenna Loss (dBd) | 8 | 8 | 8 | 8 |
| Reliability Margin | 8.50 | 8.50 | 5.80 | -2.20 |
| Z | 1.0625 | 1.0625 | 0.725 | -0.275 |
| Single Site Noise Reliability (%) | **85.60%** | **85.60%** | **76.58%** | **39.17%** |
| Simulcast with 2 sites | 97.93% | 97.93% | 94.51% | 62.99% |
| Simulcast with 3 sites | 99.70% | 99.70% | 98.71% | 77.49% |
| Simulcast with 4 sites | 99.96% | 99.96% | 99.70% | 86.30% |

Table 2, Estimated Performance From Site(s) 2.5 Miles From Typical Urban Buildings.

Table 2 shows for the example case of 2.5 miles that simulcast is required to achieve public safety levels of reliability. The difference in performance margin requirements would require more sites and closer site-to-site separation for wider bandwidth channels.

Figures 2 and 3 show how the configurations would potentially be deployed for a typical site with 240 Watts ERP. This is based on:

- 75 Watt transmitter, 18.75 dBW
- 200 foot tower
- 10 dBd 180 degree sector antenna +10.0 dBd
- 5 dB of cable/filter loss. - 5.0 dB

23.75 dBW ≈ 240 Watts (ERPd)

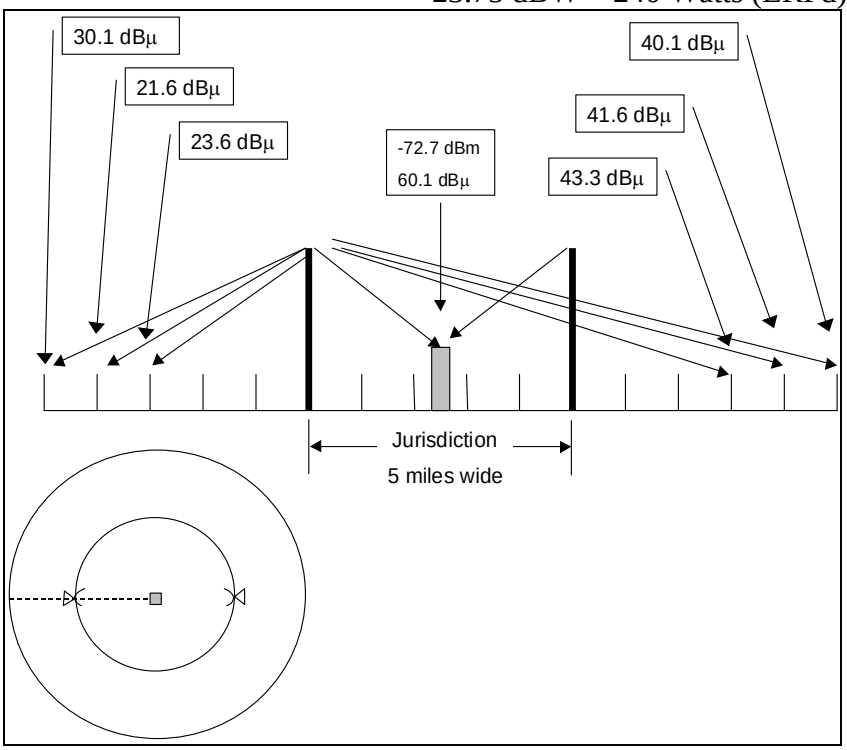


Figure 2 - Field Strength From Left Most Site.

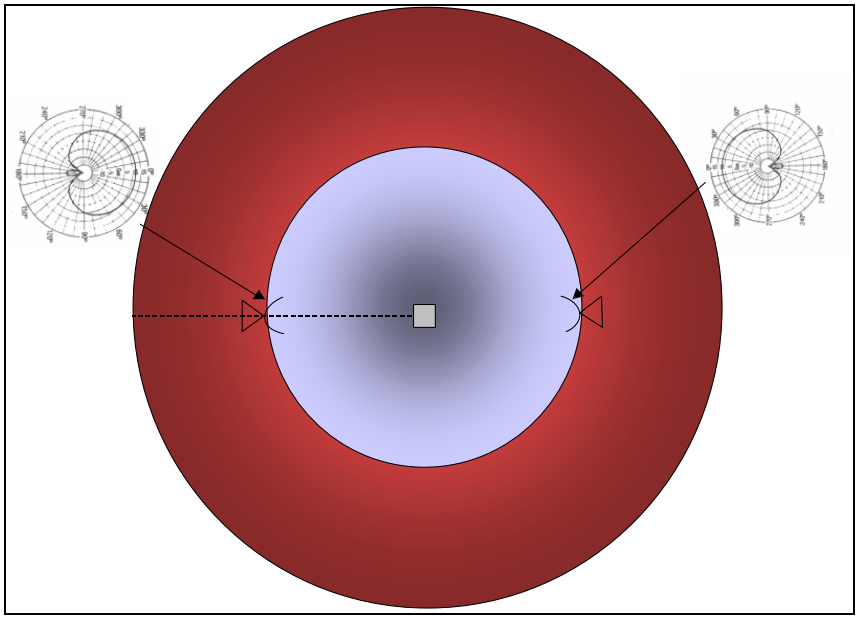

Figure 3 - Antenna Configuration Required To Limit Field Strength Off “Backside”

Figure 2 is for an urbanized area with a jurisdiction of a 5-mile circle. To provide the necessary coverage to portables in buildings at the center of the jurisdiction requires that the sites be placed along the edge of the service area utilizing direction antennas oriented toward the center of the service area (Figure 3). In this case, at 5 miles beyond the edge of the service area, the sites would produce composite field strength of approximately 40 dBμ. Since one site is over 10 dB dominant, the contribution from the other site is not considered. The control of the field strength behind the site relies on a 20 dB antenna with a Front to Back Ratio (F/B) specification as shown in Figure 3. This performance may be optimistic due to backscatter off local obstructions in urbanized areas. However, use of antennas on the sides of buildings can assist in achieving better F/B ratios and the initial planning is not precise enough to prohibit using the full 20 dB.

The use of a single site at the center of the service area is not normally practical. To provide the necessary signal strength at the edge of the service area would produce field strength 5 miles beyond in excess of 44 dBμ. However, if the high loss buildings were concentrated at the service area’s center, then potentially a single site could be deployed, assuming that the building loss sufficiently decreases near the edge of the service area allowing a reduction in ERP to achieve the desired reliability.

The down tilting of antennas to control the 40 dBμ is not practical as the difference in angular discrimination from a 200-foot tall tower at 2.5 miles and 10 miles is approximately 0.6 degrees.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBm can be determined from Table Z. Recommendations are made in Table 6.

| Estimated Performance at 3.5 miles from each site | | | | |
|---|---|---|---|---|
| Channel Bandwidth | 6.25 kHz | 12.5 kHz | 12.5 kHz | 25.0 kHz |
| Receiver Noise Floor (dBm) | -126.20 | -126.20 | -124.50 | -118.50 |
| Signal at 2.5 miles (dBm) | -77.7 | -77.7 | -77.7 | -77.7 |
| Margin (dB) | 48.50 | 48.50 | 46.80 | 40.80 |
| C/N Required for DAQ = 3 | 17.0 | 17.0 | 18.0 | 20.0 |
| Building Loss (dB) | 15 | 15 | 15 | 15 |
| Antenna Loss (dBd) | 8 | 8 | 8 | 8 |
| Reliability Margin | 8.50 | 8.50 | 5.80 | -2.20 |
| Z | 1.0625 | 1.0625 | 0.725 | -0.275 |
| Single Site Noise Reliability (%) | **85.60%** | **85.60%** | **76.58%** | **39.17%** |
| Simulcast with 2 sites | 97.93% | 97.93% | 94.51% | 62.99% |
| Simulcast with 3 sites | 99.70% | 99.70% | 98.71% | 77.49% |
| Simulcast with 4 sites | 99.96% | 99.96% | 99.70% | 86.30% |

Table 3 - Lower Loss Buildings, 3.5 Mile From Site(s)

| Estimated Performance at 5.0 miles from each site | | | | |
|---|---|---|---|---|
| Channel Bandwidth | 6.25 kHz | 12.5 kHz | 12.5 kHz | 25.0 kHz |
| Receiver Noise Floor (dBm) | -126.20 | -126.20 | -124.50 | -118.50 |
| Signal at 2.5 miles (dBm) | -82.7 | -82.7 | -82.7 | -82.7 |
| Margin (dB) | 43.50 | 43.50 | 41.80 | 35.80 |
| C/N Required for DAQ = 3 | 17.0 | 17.0 | 18.0 | 20.0 |
| Building Loss (dB) | 10 | 10 | 10 | 10 |
| Antenna Loss (dBd) | 8 | 8 | 8 | 8 |
| Reliability Margin | 8.50 | 8.50 | 5.80 | -2.20 |
| Z | 1.0625 | 1.0625 | 0.725 | -0.275 |
| Single Site Noise Reliability (%) | **85.60%** | **85.60%** | **76.58%** | **39.17%** |
| Simulcast with 2 sites | 97.93% | 97.93% | 94.51% | 62.99% |
| Simulcast with 3 sites | 99.70% | 99.70% | 98.71% | 77.49% |
| Simulcast with 4 sites | 99.96% | 99.96% | 99.70% | 86.30% |

Table 4 - Low Loss Buildings, 5.0 Miles From Site(s)

Note that the receive signals were adjusted to offset the lowered building penetration loss. This produces the same numerical reliability results, but allows increasing the site to building separation and this in turn lowers the magnitude of the "overshoot" across the service area.

Table 5 shows the field strength for a direct path and for a path reduced by a 20 dB F/B antenna. This allows the analysis to be simplified for the specific example being discussed.

| Overshoot Distance (mi) | Field Strength (dBμ) | 20 dB F/B (dBμ) |
|---|---|---|
| 1 | 73.3 | 53.3 |
| 2 | 63.3 | 43.3 |
| 2.5 | 60.1 | 40.1 |
| 3 | 57.5 | 37.5 |
| 4 | 53.3 | 33.5 |
| 5 | 50.1 | 30.1 |
| … | … | |
| 10 | 40.1 | |
| 11 | 38.4 | |
| 12 | 37.5 | |
| 13 | 36.0 | |
| 14 | 34.5 | |
| 15 | 33.0 | |

Table 5 - Field Strength Vs. Distance From Site

This allows the overshoot to be 11 miles so the extension of the 40 dbm can be 4 miles for suburbanized territory. For the more rural territory, the limit is the signal strength off the back of the antenna. So the result is that for various types of urbanized areas the offset of the 40 dbm should be:

| Type of Area | Extension (mi.) |
|---|---|
| Urban (20 dB Buildings) | 5 |
| Suburban (15 dB Buildings) | 4 |
| Rural (10 dB Buildings) | 3 |

Table 6 - Recommended Extension Distance Of 40 Dbμ Field Strength

The 40 dBμ can then be constructed based on the defined service area without having to perform an actual prediction. Since the 40 dBμ is beyond the edge of the service area, some relaxation in the level

of I is reasonable. Therefore a 35 dB ratio is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Recommendation

- Allow the constructed 40 dBμ (50,50) to extend beyond the edge of the defined service area by the distance indicated in Table 6.
- Allow the Interfering 5 dBμ (50,50) to intercept but not overlap the 40 dBμ contour.

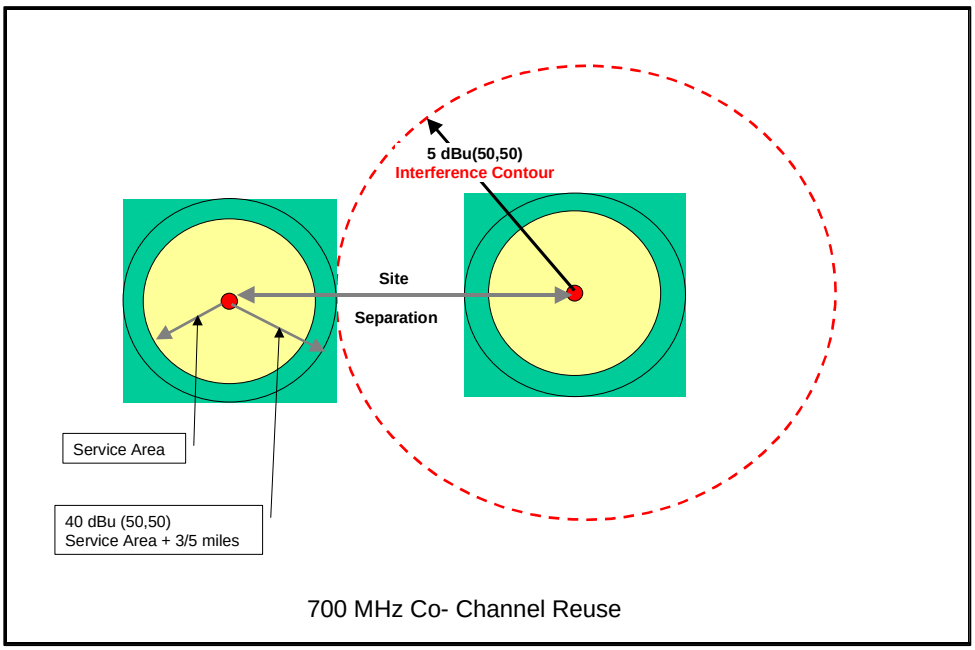


Figure 4 - Co-Channel Reuse Criterion

### Adjacent and alternate Channel Considerations

Adjacent and alternate channels are treated as being noise sources that alter the composite noise floor of a victim receiver. Using the 47 CFR § 90.543 values of ACCP can facilitate the coordination of adjacent and alternate channels. The C/I requirements for <1% interference can be reduced by the value of ACCPR. For example to achieve an X dB C/I for the adjacent channel that is -40 dBc a C/I of [X-40] dB is required. Where the alternate channel ACP value is -60 dBc, then the C/I = [X-60] dB is the goal for assignment(s). There is a compounding of interference energy, as there are numerous sources, i.e. co channel, adjacent channels and alternate channels plus the noise from CMRS OOBE.

There is insufficient information in 47 CFR § 90.543 to include the actual receiver performance. Receivers typically have “skirts” that allow energy outside the bandwidth of interest to be received. In addition, the FCC defines ACCP differently than does the TIA. The term used by the FCC is the same as the TIA definition of ACP. The subtle difference is that ACCP defines the energy intercepted by a defined receiver filter. ACP defines the energy in a measured bandwidth that is typically wider than the receiver. As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacing, as the typical receiver filter is less than the channel bandwidth.

In addition, as a channel bandwidth is increased, the total noise is allowed to rise, as it is initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacing as the noise is rapidly falling off. At greater spacing, the noise is essentially flat and the receiver's filter limits the noise to the specified 3 dB rise in the thermal noise floor.

Digital receivers tend to be less tolerant to interference than analog. Therefore a 3 dB reduction in the C/(I+N) can reduce a DAQ = 3 to a DAQ = 2 which is threshold to complete receiver muting. Therefore at least 17 dB plus the margin for keeping the interference below 1% probability requires a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ is allowed to extend past the edge of the service area.

Frequency drift is controlled by the FCC requirement for 0.4-ppm stability when locked. This equates to approximately a 1 dB standard deviation, which is negligible when associated with the recommended initial lognormal standard deviation of 8 dB and can be ignored.

Project 25 requires that a transceiver receiver have an ACIPR of 60 dB. This implies that an ACCPR ≥ 65 dB will exist for a "companion receiver". A companion receiver is one that is designed for the specific modulation. At this time the highest likelihood is that receivers will be deploying the following receiver bandwidths at the following channel bandwidths.

| Estimated Receiver Parameters | |
|---|---|
| Channel Bandwidth | Receiver Bandwidth |
| 6.25 kHz | 5.5 kHz |
| 12.5 kHz | 5.5 or 9 kHz |
| 25 kHz | 18.0 kHz |

Table 7 - Estimated Receiver Parameters

Based on 47 CFR ¶ 90.543 and the P25 requirement for an ACCPR ≥ 65 dB into a 6.0 kHz channel bandwidth and leaving room for a migration from Phase 1 to Phase 2, allows for making the simplifying assumption that 65 dB ACCPR is available for both adjacent 25 kHz block.

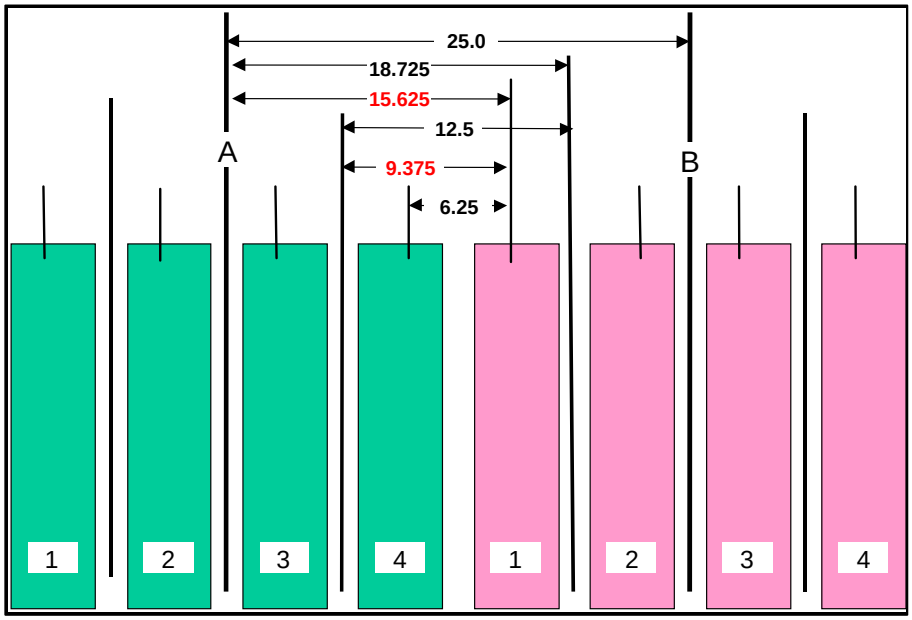


Figure 5, Potential Frequency Separations

Base initial (presorts) on 25 kHz channels. This provides the maximum flexibility by using 65 dB ACCPR for all but one possible combination of 6.25 kHz channels within the 25 kHz allotment.

| Case | ACCPR |
|---|---|
| 25 kHz | 65 dB |
| 18.725 kHz | 65 dB |
| 15.625 kHz | >40 dB |
| 12.5 kHz | 65 dB |
| 9.375 kHz | >40 dB |
| 6.25 kHz | 65 dB |

Table 8 - ACCPR Values For Potential Frequency Separations

All cases meet or exceed the FCC requirement. The most troublesome cases occur where the wider bandwidths are working against a Phase 2 narrowband 6.25 kHz channel. If system designers keep this consideration in mind and move the edge 6.25 kHz channels inward on their own systems, then a constant value of 65 dB ACCPR can be applied across all 25 kHz channels regardless of what is eventually deployed.

For other blocks, it must be assumed that transmitter filtering in addition to transmitter performance improvements with greater frequency separation will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for coordinating adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the “I” contour to be approximately 20 dB above the 40 dBμ contour, 60 dBμ.

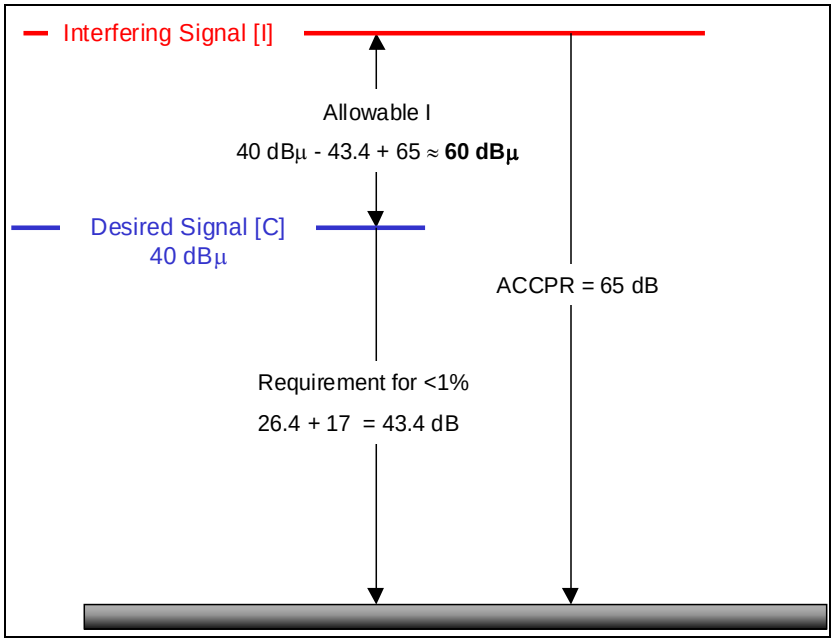


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

An adjacent Interfering (25 kHz) channel shall be allowed to have its 60 dBμ (50,50) contour touch but not overlap the 40 dBμ (50,50) contour of a system being evaluated. Evaluations should be made in both directions.

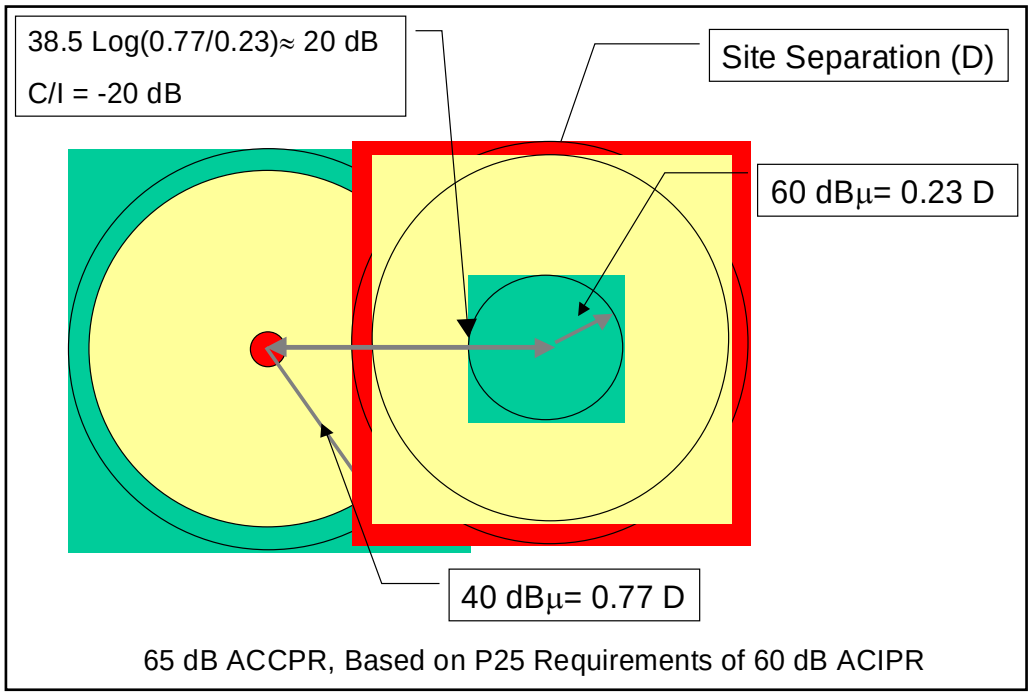


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

This simple method is only adequate for presorting large blocks to potential entities. A more detailed analysis should be executed in the actual design phase to take all the issues into consideration. Additional factors that should be considered include:

- Degree of Service Area Overlap
- Different size of Service Areas
- Different ERP's and HAAT's
- Actual Terrain and Land Usage
- Differing User Reliability Requirements
- Migration from Project 25 Phase 1 to Phase 2
- Actual ACCP
- Balanced Systems
- Mobiles vs. Portables
- Use of voting
- Use of simulcast
- Radio specifications
- Simplex Operation
- Future unidentified requirements.

Special attention needs to be paid to the use of simplex operation. In this case, an interferer can be on an offset adjacent channel and in extremely close proximity to the victim receiver. This is especially critical in public safety where simplex operations are frequently used at a fire scene or during police operation. This type operation is also quite common in the lower frequency bands. In those cases, evaluation of base-to-base as well as mobile-to-mobile interference should be considered and evaluated.

Carrier to Interference Requirements

There are two different ways that interference is considered.

- Co Channel
- Adjacent and Alternate Channels

Both involve using a C/I ratio. The C/I ratio requires a probability be assigned. For example, a 10% Interference is specified; the C/I implies 90% probability of successfully achieving the desired ratio. At 1% interference, means that there is a 99% probability of achieving the desired C/I.

$$\frac{C}{I}\% = \frac{1}{2} \bullet erfc\left(\frac{\frac{\mathrm{C}}{\mathrm{I}}\,\mathrm{margin}}{2\sigma}\right) \tag{1}$$

This can also be written in a form using the standard deviate unit ($Z$). In this case the $Z$ for the desired probability of achieving the C/I is entered. For example, for a 90% probability of achieving the necessary C/I, $Z = 1.28$.

$$\frac{C}{I}\% = Z \cdot \sqrt{2} \cdot \sigma \tag{2}$$

The most common requirements for several typical lognormal standard deviations (σ) are included in the following table based on Equation (2).

| Location Standard Deviation (σ) dB | 5.6 | 6.5 | 8 | 10 |
|---|---|---|---|---|
| Probability % | | | | |
| 10% | 10.14 dB | 11.77 dB | 14.48 dB | 18.10 dB |
| 5% | 13.07 dB | 15.17 dB | 18.67 dB | 23.33 dB |
| 4% | 13.86 dB | 16.09 dB | 19.81 dB | 24.76 dB |
| 3% | 14.90 dB | 17.29 dB | 21.28 dB | 26.20 dB |
| 2% | 16.27 dB | 18.88 dB | 23.24 dB | 29.04 dB |
| 1% | 18.45 dB | 21.42 dB | 26.36 dB | 32.95 dB |

Table A1 - Probability Of Not Achieving C/I For Various Location Lognormal Standard Deviations

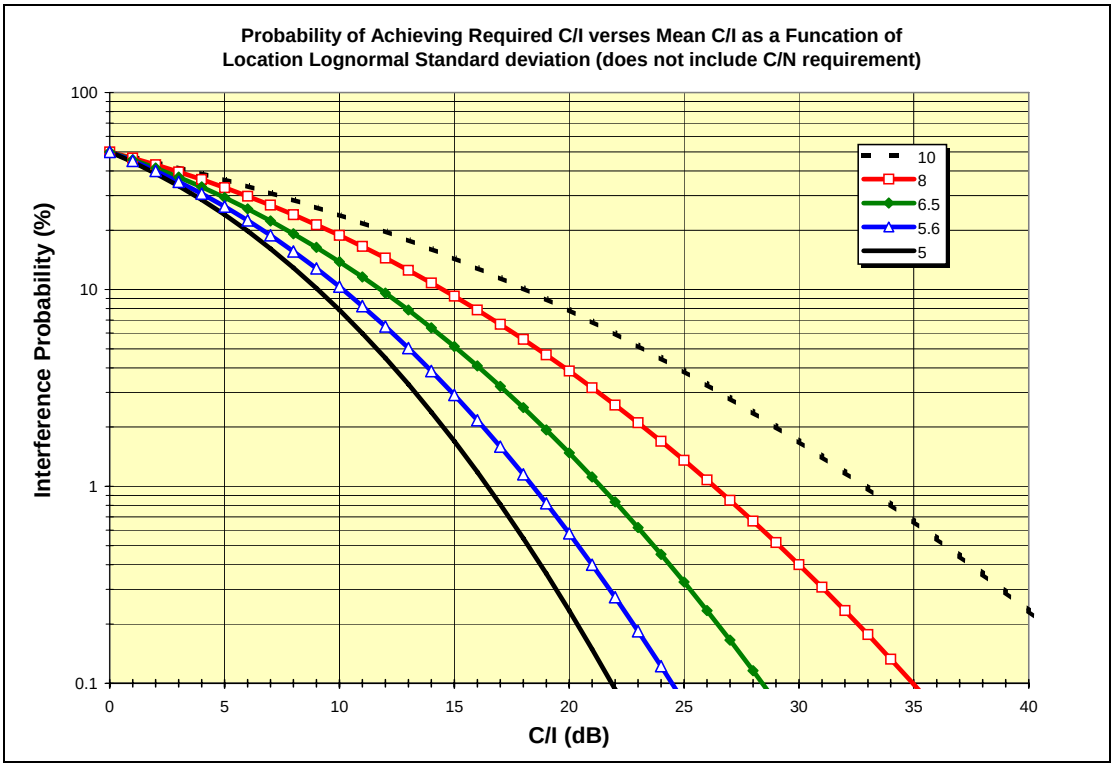


Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

For co-channel the margin needs to include the "capture" requirement. When this is done, then a 1% probability of co channel interference can be rephrased to mean, there is a 99% probability that the "capture ratio" will be achieved. The capture ratio varies with the type of modulation. Older analog equipment has a capture ratio of approximately 7 dB. Project 25 FDMA is specified at 9 dB. Figure A1 shows the C/I requirement without including the capture requirement.

The 8 dB values for lognormal location standard deviation is reasonable when little information is available. Later when a detailed design is required, additional details and high-resolution terrain and land usage databases will allow a lower value to be used. The TIA recommended value is 5.6 dB. This provides the additional flexibility necessary to complete the design

To determine the desired probability that both the C/N and C/I will be achieved requires that a joint probability be determined. Figure A2 shows the effects of a family of various levels of C/N reliability and the joint probability (Y-axis) in the presence of various probabilities of Interference. Note that at 99% reliability with 1% interference (X-axis) that the reduction is nearly the difference. This is because the very high noise reliability is degraded by the interference, as there is little probability that the noise criterion will not be satisfied. At 90%, the 1% interference has a greater likelihood that it will occur simultaneously when the noise criterion not being met, resulting is a less degradation of the 90%

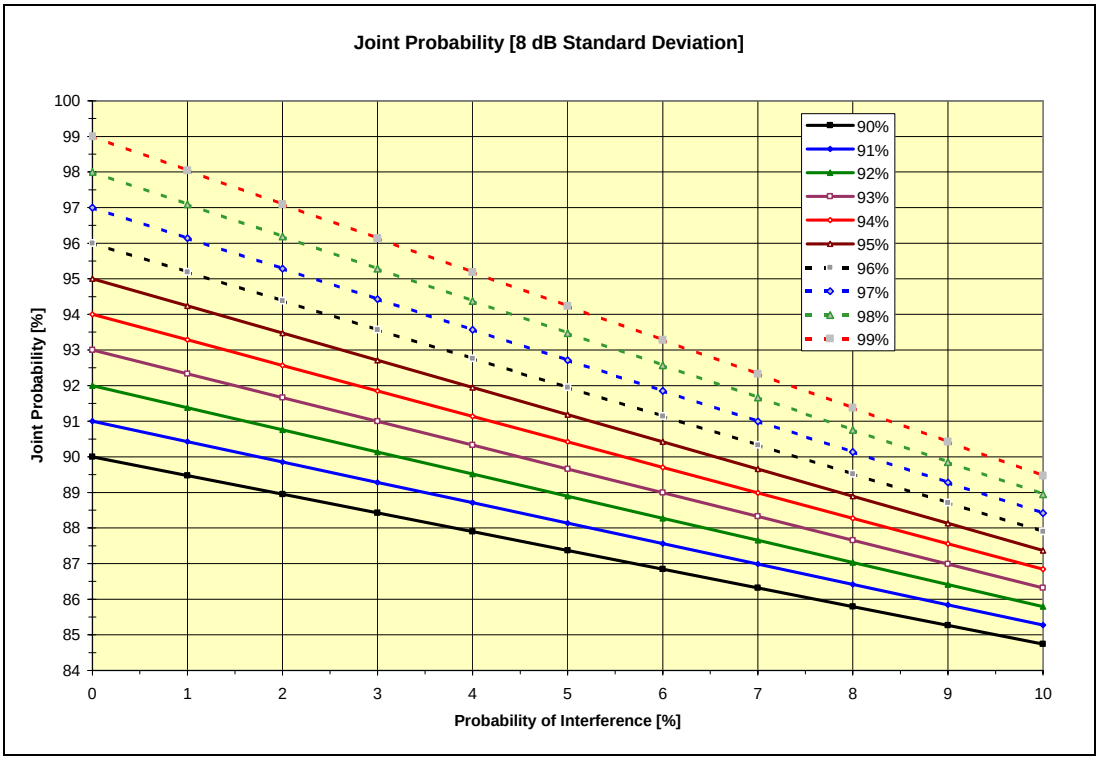


Figure A2 - Effect Of Joint Probability On The Composite Probability

For adjacent and alternate channels, the channel performance requirement must be added to the C/I ratio. When this is applied, then a 1% probability of adjacent/alternate channel interference can be rephrased to mean, there is a 99% probability that the "channel performance ratio" will be achieved.

# Appendix G

The Region 39 Channel allocations have been established by the National Institute for Justice CAPRAD channel packing program. Region 39 anticipates an open filing window where applicants can apply for available channels in their county area. A "County Area" is defined as an area consisting of the area within the county as well as a distance of up to 5 miles outside of the county. It is anticipated this extended county area will enable Region 39 to maximize channel re-use of any "orphan" remainders. The below information is current as of December 18, 2007.

Overall Channel Allocation of the 700 MHz Spectrum

Voice Bands

| | Class | BandWidth | Channel Pairs | Blocked Pairs | Allotted Pairs | Allotted Count |
|---|---|---|---|---|---|---|
| | General Use | 6.25 KHz | 616 | 0 | 0 | 0 |
| | General Use | 12.5 KHz | 308 | 0 | 0 | 0 |
| | General Use | 25.0 KHz | 154 | 0 | 154 | 801 |
| | Interoperability | 6.25 KHz | 56 | 0 | 0 | 0 |
| | Interoperability | 12.5 KHz | 28 | 0 | 0 | 0 |
| | Secondary Trunking | 6.25 KHz | 16 | 0 | 0 | 0 |
| | Secondary Trunking | 12.5 KHz | 8 | 0 | 0 | 0 |
| | I/O Nationwide Call | 6.25 KHz | 4 | 0 | 0 | 0 |
| | I/O Nationwide Call | 12.5 KHz | 2 | 0 | 0 | 0 |
| | I/O Low Speed Data | 6.25 KHz | 4 | 0 | 0 | 0 |
| | I/O Low Speed Data | 12.5 KHz | 2 | 0 | 0 | 0 |
| | State License | 6.25 KHz | 192 | 0 | 0 | 0 |
| | State License | 12.5 KHz | 96 | 0 | 0 | 0 |
| | State License | 25.0 KHz | 48 | 0 | 48 | 829 |
| | Low Power | 6.25 KHz | 24 | 0 | 0 | 0 |
| | Low Power | 12.5 KHz | 12 | 0 | 0 | 0 |
| | Low Power | 25.0 KHz | 6 | 0 | 0 | 0 |
| | Reserve | 6.25 KHz | 48 | 48 | 0 | 0 |
| | Reserve | 12.5 KHz | 24 | 24 | 0 | 0 |

**Region 39 - Tennessee**
**Channel Allotments by Class**

**General Use**

| County | Band | FCC Channel Number | Base Frequency | Mobile Frequency | Notation |
|---|---|---|---|---|---|
| Anderson | Voice 25KHz | 57-60 | 769.362500 | 799.362500 | |
| 10 | Voice 25KHz | 125-128 | 769.787500 | 799.787500 | |
| | Voice 25KHz | 169-172 | 770.062500 | 800.062500 | |
| | Voice 25KHz | 357-360 | 771.237500 | 801.237500 | |
| | Voice 25KHz | 397-400 | 771.487500 | 801.487500 | |
| | Voice 25KHz | 481-484 | 772.012500 | 802.012500 | |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 | |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 | |
| | Voice 25KHz | 705-708 | 773.412500 | 803.412500 | |
| | Voice 25KHz | 873-876 | 774.462500 | 804.462500 | |
| Bedford | Voice 25KHz | 321-324 | 771.012500 | 801.012500 | |
| 7 | Voice 25KHz | 381-384 | 771.387500 | 801.387500 | |
| | Voice 25KHz | 493-496 | 772.087500 | 802.087500 | |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 | |
| | Voice 25KHz | 593-596 | 772.712500 | 802.712500 | |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 | |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 | |
| Benton | Voice 25KHz | 49-52 | 769.312500 | 799.312500 | |
| 8 | Voice 25KHz | 133-136 | 769.837500 | 799.837500 | |
| | Voice 25KHz | 177-180 | 770.112500 | 800.112500 | |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 | |
| | Voice 25KHz | 493-496 | 772.087500 | 802.087500 | |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 | |
| | Voice 25KHz | 577-580 | 772.612500 | 802.612500 | |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 | |
| Bledsoe | Voice 25KHz | 49-52 | 769.312500 | 799.312500 | |
| 5 | Voice 25KHz | 253-256 | 770.587500 | 800.587500 | |
| | Voice 25KHz | 537-540 | 772.362500 | 802.362500 | |
| | Voice 25KHz | 629-632 | 772.937500 | 802.937500 | |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 | |
| Blount | Voice 25KHz | 137-140 | 769.862500 | 799.862500 | |
| 10 | Voice 25KHz | 293-296 | 770.837500 | 800.837500 | |
| | Voice 25KHz | 413-416 | 771.587500 | 801.587500 | |
| | Voice 25KHz | 453-456 | 771.837500 | 801.837500 | |
| | Voice 25KHz | 505-508 | 772.162500 | 802.162500 | |
| | Voice 25KHz | 573-576 | 772.587500 | 802.587500 | |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 | |
| | Voice 25KHz | 741-744 | 773.637500 | 803.637500 | |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 | |
| | Voice 25KHz | 877-880 | 774.487500 | 804.487500 | |

| | | | | |
|---|---|---|---|---|
| Bradley | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 10 | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 389-392 | 771.437500 | 801.437500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| | Voice 25KHz | 677-680 | 773.237500 | 803.237500 |
| | Voice 25KHz | 717-720 | 773.487500 | 803.487500 |
| | Voice 25KHz | 825-828 | 774.162500 | 804.162500 |
| Campbell | Voice 25KHz | 41-44 | 769.262500 | 799.262500 |
| 8 | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| | Voice 25KHz | 381-384 | 771.387500 | 801.387500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| Cannon | Voice 25KHz | 137-140 | 769.862500 | 799.862500 |
| 5 | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 405-408 | 771.537500 | 801.537500 |
| | Voice 25KHz | 457-460 | 771.862500 | 801.862500 |
| | Voice 25KHz | 517-520 | 772.237500 | 802.237500 |
| Carroll | Voice 25KHz | 41-44 | 769.262500 | 799.262500 |
| 9 | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 413-416 | 771.587500 | 801.587500 |
| | Voice 25KHz | 453-456 | 771.837500 | 801.837500 |
| | Voice 25KHz | 517-520 | 772.237500 | 802.237500 |
| | Voice 25KHz | 561-564 | 772.512500 | 802.512500 |
| | Voice 25KHz | 601-604 | 772.762500 | 802.762500 |
| | Voice 25KHz | 741-744 | 773.637500 | 803.637500 |
| Carter | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 5 | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 437-440 | 771.737500 | 801.737500 |
| Cheatham | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| 6 | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 437-440 | 771.737500 | 801.737500 |
| | Voice 25KHz | 529-532 | 772.312500 | 802.312500 |
| | Voice 25KHz | 569-572 | 772.562500 | 802.562500 |
| | Voice 25KHz | 621-624 | 772.887500 | 802.887500 |
| Chester | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 5 | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| | Voice 25KHz | 605-608 | 772.787500 | 802.787500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |

| | | | | |
|---|---|---|---|---|
| Claiborne | Voice 25KHz | 53-56 | 769.337500 | 799.337500 |
| 6 | Voice 25KHz | 249-252 | 770.562500 | 800.562500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |
| Clay | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| 6 | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 421-424 | 771.637500 | 801.637500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| Cocke | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| 5 | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 353-356 | 771.212500 | 801.212500 |
| | Voice 25KHz | 537-540 | 772.362500 | 802.362500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| Coffee | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| 10 | Voice 25KHz | 341-344 | 771.137500 | 801.137500 |
| | Voice 25KHz | 353-356 | 771.212500 | 801.212500 |
| | Voice 25KHz | 421-424 | 771.637500 | 801.637500 |
| | Voice 25KHz | 437-440 | 771.737500 | 801.737500 |
| | Voice 25KHz | 569-572 | 772.562500 | 802.562500 |
| | Voice 25KHz | 609-612 | 772.812500 | 802.812500 |
| | Voice 25KHz | 705-708 | 773.412500 | 803.412500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |
| Crockett | Voice 25KHz | 349-352 | 771.187500 | 801.187500 |
| 5 | Voice 25KHz | 437-440 | 771.737500 | 801.737500 |
| | Voice 25KHz | 513-516 | 772.212500 | 802.212500 |
| | Voice 25KHz | 665-668 | 773.162500 | 803.162500 |
| | Voice 25KHz | 877-880 | 774.487500 | 804.487500 |
| Cumberland | Voice 25KHz | 13-16 | 769.087500 | 799.087500 |
| 7 | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| | Voice 25KHz | 353-356 | 771.212500 | 801.212500 |
| | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 465-468 | 771.912500 | 801.912500 |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 |

| | | | | |
|---|---|---|---|---|
| Davidson | Voice 25KHz | 49-52 | 769.312500 | 799.312500 |
| 20 | Voice 25KHz | 93-96 | 769.587500 | 799.587500 |
| | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| | Voice 25KHz | 281-284 | 770.762500 | 800.762500 |
| | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 489-492 | 772.062500 | 802.062500 |
| | Voice 25KHz | 553-556 | 772.462500 | 802.462500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |
| | Voice 25KHz | 789-792 | 773.937500 | 803.937500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| | Voice 25KHz | 869-872 | 774.437500 | 804.437500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| DeKalb | Voice 25KHz | 53-56 | 769.337500 | 799.337500 |
| 6 | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 433-436 | 771.712500 | 801.712500 |
| | Voice 25KHz | 485-488 | 772.037500 | 802.037500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| | Voice 25KHz | 785-788 | 773.912500 | 803.912500 |
| Decatur | Voice 25KHz | 125-128 | 769.787500 | 799.787500 |
| 7 | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 353-356 | 771.212500 | 801.212500 |
| | Voice 25KHz | 441-444 | 771.762500 | 801.762500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| | Voice 25KHz | 781-784 | 773.887500 | 803.887500 |
| | Voice 25KHz | 877-880 | 774.487500 | 804.487500 |
| Dickson | Voice 25KHz | 129-132 | 769.812500 | 799.812500 |
| 10 | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| | Voice 25KHz | 361-364 | 771.262500 | 801.262500 |
| | Voice 25KHz | 409-412 | 771.562500 | 801.562500 |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 |
| | Voice 25KHz | 593-596 | 772.712500 | 802.712500 |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 |
| | Voice 25KHz | 713-716 | 773.462500 | 803.462500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 |
| Dyer | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 11 | Voice 25KHz | 125-128 | 769.787500 | 799.787500 |
| | Voice 25KHz | 177-180 | 770.112500 | 800.112500 |
| | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| | Voice 25KHz | 409-412 | 771.562500 | 801.562500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 493-496 | 772.087500 | 802.087500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |

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| Fayette | Voice 25KHz | 53-56 | 769.337500 | 799.337500 |
| 10 | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 441-444 | 771.762500 | 801.762500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 |
| | Voice 25KHz | 601-604 | 772.762500 | 802.762500 |
| | Voice 25KHz | 741-744 | 773.637500 | 803.637500 |
| | Voice 25KHz | 913-916 | 774.712500 | 804.712500 |
| Fentress | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| 7 | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 561-564 | 772.512500 | 802.512500 |
| | Voice 25KHz | 617-620 | 772.862500 | 802.862500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| Franklin | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| 8 | Voice 25KHz | 333-336 | 771.087500 | 801.087500 |
| | Voice 25KHz | 401-404 | 771.512500 | 801.512500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 505-508 | 772.162500 | 802.162500 |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 |
| | Voice 25KHz | 677-680 | 773.237500 | 803.237500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |
| Gibson | Voice 25KHz | 93-96 | 769.587500 | 799.587500 |
| 13 | Voice 25KHz | 137-140 | 769.862500 | 799.862500 |
| | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| | Voice 25KHz | 253-256 | 770.587500 | 800.587500 |
| | Voice 25KHz | 385-388 | 771.412500 | 801.412500 |
| | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 481-484 | 772.012500 | 802.012500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 705-708 | 773.412500 | 803.412500 |
| | Voice 25KHz | 785-788 | 773.912500 | 803.912500 |
| | Voice 25KHz | 825-828 | 774.162500 | 804.162500 |
| | Voice 25KHz | 909-912 | 774.687500 | 804.687500 |
| Giles | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| 6 | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 613-616 | 772.837500 | 802.837500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| Grainger | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| 5 | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 529-532 | 772.312500 | 802.312500 |
| | Voice 25KHz | 629-632 | 772.937500 | 802.937500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |

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| Greene | Voice 25KHz | 57-60 | 769.362500 | 799.362500 |
| 9 | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| | Voice 25KHz | 297-300 | 770.862500 | 800.862500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 457-460 | 771.862500 | 801.862500 |
| | Voice 25KHz | 573-576 | 772.587500 | 802.587500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 705-708 | 773.412500 | 803.412500 |
| Grundy | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| 5 | Voice 25KHz | 361-364 | 771.262500 | 801.262500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 601-604 | 772.762500 | 802.762500 |
| | Voice 25KHz | 869-872 | 774.437500 | 804.437500 |
| Hamblen | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| 8 | Voice 25KHz | 253-256 | 770.587500 | 800.587500 |
| | Voice 25KHz | 341-344 | 771.137500 | 801.137500 |
| | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| | Voice 25KHz | 433-436 | 771.712500 | 801.712500 |
| | Voice 25KHz | 485-488 | 772.037500 | 802.037500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 913-916 | 774.712500 | 804.712500 |
| Hamilton | Voice 25KHz | 41-44 | 769.262500 | 799.262500 |
| 19 | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| | Voice 25KHz | 381-384 | 771.387500 | 801.387500 |
| | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 469-472 | 771.937500 | 801.937500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 553-556 | 772.462500 | 802.462500 |
| | Voice 25KHz | 605-608 | 772.787500 | 802.787500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 |
| | Voice 25KHz | 789-792 | 773.937500 | 803.937500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| Hancock | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| 5 | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| Hardeman | Voice 25KHz | 85-88 | 769.537500 | 799.537500 |
| 9 | Voice 25KHz | 341-344 | 771.137500 | 801.137500 |
| | Voice 25KHz | 405-408 | 771.537500 | 801.537500 |
| | Voice 25KHz | 521-524 | 772.262500 | 802.262500 |
| | Voice 25KHz | 577-580 | 772.612500 | 802.612500 |
| | Voice 25KHz | 629-632 | 772.937500 | 802.937500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 |
| | Voice 25KHz | 873-876 | 774.462500 | 804.462500 |

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| Hardin | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| 9 | Voice 25KHz | 257-260 | 770.612500 | 800.612500 |
| | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| | Voice 25KHz | 381-384 | 771.387500 | 801.387500 |
| | Voice 25KHz | 465-468 | 771.912500 | 801.912500 |
| | Voice 25KHz | 501-504 | 772.137500 | 802.137500 |
| | Voice 25KHz | 573-576 | 772.587500 | 802.587500 |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| Hawkins | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| 6 | Voice 25KHz | 389-392 | 771.437500 | 801.437500 |
| | Voice 25KHz | 469-472 | 771.937500 | 801.937500 |
| | Voice 25KHz | 621-624 | 772.887500 | 802.887500 |
| | Voice 25KHz | 797-800 | 773.987500 | 803.987500 |
| | Voice 25KHz | 837-840 | 774.237500 | 804.237500 |
| Haywood | Voice 25KHz | 381-384 | 771.387500 | 801.387500 |
| 6 | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 465-468 | 771.912500 | 801.912500 |
| | Voice 25KHz | 537-540 | 772.362500 | 802.362500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| | Voice 25KHz | 789-792 | 773.937500 | 803.937500 |
| Henderson | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| 8 | Voice 25KHz | 209-212 | 770.312500 | 800.312500 |
| | Voice 25KHz | 345-348 | 771.162500 | 801.162500 |
| | Voice 25KHz | 401-404 | 771.512500 | 801.512500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 553-556 | 772.462500 | 802.462500 |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| Henry | Voice 25KHz | 241-244 | 770.512500 | 800.512500 |
| 11 | Voice 25KHz | 281-284 | 770.762500 | 800.762500 |
| | Voice 25KHz | 357-360 | 771.237500 | 801.237500 |
| | Voice 25KHz | 397-400 | 771.487500 | 801.487500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| Hickman | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| 8 | Voice 25KHz | 421-424 | 771.637500 | 801.637500 |
| | Voice 25KHz | 473-476 | 771.962500 | 801.962500 |
| | Voice 25KHz | 485-488 | 772.037500 | 802.037500 |
| | Voice 25KHz | 677-680 | 773.237500 | 803.237500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| | Voice 25KHz | 873-876 | 774.462500 | 804.462500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |
| Houston | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| 5 | Voice 25KHz | 373-376 | 771.337500 | 801.337500 |
| | Voice 25KHz | 465-468 | 771.912500 | 801.912500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 797-800 | 773.987500 | 803.987500 |

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| Humphreys | Voice 25KHz | 389-392 | 771.437500 | 801.437500 |
| 6 | Voice 25KHz | 433-436 | 771.712500 | 801.712500 |
| | Voice 25KHz | 521-524 | 772.262500 | 802.262500 |
| | Voice 25KHz | 609-612 | 772.812500 | 802.812500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 909-912 | 774.687500 | 804.687500 |
| Jackson | Voice 25KHz | 169-172 | 770.062500 | 800.062500 |
| 5 | Voice 25KHz | 357-360 | 771.237500 | 801.237500 |
| | Voice 25KHz | 413-416 | 771.587500 | 801.587500 |
| | Voice 25KHz | 573-576 | 772.587500 | 802.587500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |
| Jefferson | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| 5 | Voice 25KHz | 393-396 | 771.462500 | 801.462500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 569-572 | 772.562500 | 802.562500 |
| | Voice 25KHz | 869-872 | 774.437500 | 804.437500 |
| Johnson | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| 5 | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |
| Knox | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 19 | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 201-204 | 770.262500 | 800.262500 |
| | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 285-288 | 770.787500 | 800.787500 |
| | Voice 25KHz | 349-352 | 771.187500 | 801.187500 |
| | Voice 25KHz | 405-408 | 771.537500 | 801.537500 |
| | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 461-464 | 771.887500 | 801.887500 |
| | Voice 25KHz | 493-496 | 772.087500 | 802.087500 |
| | Voice 25KHz | 553-556 | 772.462500 | 802.462500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| | Voice 25KHz | 665-668 | 773.162500 | 803.162500 |
| | Voice 25KHz | 717-720 | 773.487500 | 803.487500 |
| | Voice 25KHz | 757-760 | 773.737500 | 803.737500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| | Voice 25KHz | 901-904 | 774.637500 | 804.637500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| Lake | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| 7 | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| | Voice 25KHz | 401-404 | 771.512500 | 801.512500 |
| | Voice 25KHz | 457-460 | 771.862500 | 801.862500 |
| | Voice 25KHz | 517-520 | 772.237500 | 802.237500 |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 |

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| Lauderdale | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| 8 | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| | Voice 25KHz | 373-376 | 771.337500 | 801.337500 |
| | Voice 25KHz | 505-508 | 772.162500 | 802.162500 |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| Lawrence | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| 10 | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| | Voice 25KHz | 405-408 | 771.537500 | 801.537500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| | Voice 25KHz | 869-872 | 774.437500 | 804.437500 |
| Lewis | Voice 25KHz | 137-140 | 769.862500 | 799.862500 |
| 8 | Voice 25KHz | 341-344 | 771.137500 | 801.137500 |
| | Voice 25KHz | 385-388 | 771.412500 | 801.412500 |
| | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 |
| | Voice 25KHz | 665-668 | 773.162500 | 803.162500 |
| | Voice 25KHz | 785-788 | 773.912500 | 803.912500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| Lincoln | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| 7 | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| | Voice 25KHz | 409-412 | 771.562500 | 801.562500 |
| | Voice 25KHz | 537-540 | 772.362500 | 802.362500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| | Voice 25KHz | 873-876 | 774.462500 | 804.462500 |
| Loudon | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| 7 | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 433-436 | 771.712500 | 801.712500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| | Voice 25KHz | 837-840 | 774.237500 | 804.237500 |
| Macon | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| 7 | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 473-476 | 771.962500 | 801.962500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 609-612 | 772.812500 | 802.812500 |
| | Voice 25KHz | 665-668 | 773.162500 | 803.162500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |

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| Madison | Voice 25KHz | 13-16 | 769.087500 | 799.087500 |
| 20 | Voice 25KHz | 57-60 | 769.362500 | 799.362500 |
| | Voice 25KHz | 121-124 | 769.762500 | 799.762500 |
| | Voice 25KHz | 165-168 | 770.037500 | 800.037500 |
| | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 285-288 | 770.787500 | 800.787500 |
| | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| | Voice 25KHz | 361-364 | 771.262500 | 801.262500 |
| | Voice 25KHz | 393-396 | 771.462500 | 801.462500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 489-492 | 772.062500 | 802.062500 |
| | Voice 25KHz | 529-532 | 772.312500 | 802.312500 |
| | Voice 25KHz | 613-616 | 772.837500 | 802.837500 |
| | Voice 25KHz | 677-680 | 773.237500 | 803.237500 |
| | Voice 25KHz | 717-720 | 773.487500 | 803.487500 |
| | Voice 25KHz | 757-760 | 773.737500 | 803.737500 |
| | Voice 25KHz | 797-800 | 773.987500 | 803.987500 |
| | Voice 25KHz | 837-840 | 774.237500 | 804.237500 |
| | Voice 25KHz | 901-904 | 774.637500 | 804.637500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |
| Marion | Voice 25KHz | 461-464 | 771.887500 | 801.887500 |
| 5 | Voice 25KHz | 489-492 | 772.062500 | 802.062500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 |
| | Voice 25KHz | 913-916 | 774.712500 | 804.712500 |
| Marshall | Voice 25KHz | 357-360 | 771.237500 | 801.237500 |
| 5 | Voice 25KHz | 441-444 | 771.762500 | 801.762500 |
| | Voice 25KHz | 521-524 | 772.262500 | 802.262500 |
| | Voice 25KHz | 561-564 | 772.512500 | 802.512500 |
| | Voice 25KHz | 909-912 | 774.687500 | 804.687500 |
| Maury | Voice 25KHz | 53-56 | 769.337500 | 799.337500 |
| 11 | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 285-288 | 770.787500 | 800.787500 |
| | Voice 25KHz | 349-352 | 771.187500 | 801.187500 |
| | Voice 25KHz | 413-416 | 771.587500 | 801.587500 |
| | Voice 25KHz | 461-464 | 771.887500 | 801.887500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| | Voice 25KHz | 629-632 | 772.937500 | 802.937500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 |
| McMinn | Voice 25KHz | 249-252 | 770.562500 | 800.562500 |
| 6 | Voice 25KHz | 421-424 | 771.637500 | 801.637500 |
| | Voice 25KHz | 525-528 | 772.287500 | 802.287500 |
| | Voice 25KHz | 621-624 | 772.887500 | 802.887500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| | Voice 25KHz | 941-944 | 774.887500 | 804.887500 |
| McNairy | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| 8 | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 433-436 | 771.712500 | 801.712500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 485-488 | 772.037500 | 802.037500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 |

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| Meigs | Voice 25KHz | 53-56 | 769.337500 | 799.337500 |
| 5 | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| | Voice 25KHz | 373-376 | 771.337500 | 801.337500 |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 |
| | Voice 25KHz | 589-592 | 772.687500 | 802.687500 |
| Monroe | Voice 25KHz | 165-168 | 770.037500 | 800.037500 |
| 6 | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 489-492 | 772.062500 | 802.062500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| Montgomery | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 20 | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| | Voice 25KHz | 137-140 | 769.862500 | 799.862500 |
| | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| | Voice 25KHz | 245-248 | 770.537500 | 800.537500 |
| | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 393-396 | 771.462500 | 801.462500 |
| | Voice 25KHz | 457-460 | 771.862500 | 801.862500 |
| | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 517-520 | 772.237500 | 802.237500 |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 |
| | Voice 25KHz | 601-604 | 772.762500 | 802.762500 |
| | Voice 25KHz | 665-668 | 773.162500 | 803.162500 |
| | Voice 25KHz | 705-708 | 773.412500 | 803.412500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |
| | Voice 25KHz | 785-788 | 773.912500 | 803.912500 |
| | Voice 25KHz | 825-828 | 774.162500 | 804.162500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |
| Moore | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| 5 | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 473-476 | 771.962500 | 801.962500 |
| Morgan | Voice 25KHz | 297-300 | 770.862500 | 800.862500 |
| 5 | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 713-716 | 773.462500 | 803.462500 |
| | Voice 25KHz | 797-800 | 773.987500 | 803.987500 |
| Obion | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 10 | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 609-612 | 772.812500 | 802.812500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 745-748 | 773.662500 | 803.662500 |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 |

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| Overton | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| 9 | Voice 25KHz | 257-260 | 770.612500 | 800.612500 |
| | Voice 25KHz | 321-324 | 771.012500 | 801.012500 |
| | Voice 25KHz | 365-368 | 771.287500 | 801.287500 |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 |
| | Voice 25KHz | 593-596 | 772.712500 | 802.712500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 757-760 | 773.737500 | 803.737500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |
| Perry | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 5 | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 513-516 | 772.212500 | 802.212500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| Pickett | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| 5 | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 553-556 | 772.462500 | 802.462500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |
| | Voice 25KHz | 869-872 | 774.437500 | 804.437500 |
| Polk | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| 5 | Voice 25KHz | 257-260 | 770.612500 | 800.612500 |
| | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| | Voice 25KHz | 569-572 | 772.562500 | 802.562500 |
| | Voice 25KHz | 909-912 | 774.687500 | 804.687500 |
| Putnam | Voice 25KHz | 45-48 | 769.287500 | 799.287500 |
| 15 | Voice 25KHz | 129-132 | 769.812500 | 799.812500 |
| | Voice 25KHz | 177-180 | 770.112500 | 800.112500 |
| | Voice 25KHz | 281-284 | 770.762500 | 800.762500 |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| | Voice 25KHz | 401-404 | 771.512500 | 801.512500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 493-496 | 772.087500 | 802.087500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 661-664 | 773.137500 | 803.137500 |
| | Voice 25KHz | 709-712 | 773.437500 | 803.437500 |
| | Voice 25KHz | 741-744 | 773.637500 | 803.637500 |
| | Voice 25KHz | 873-876 | 774.462500 | 804.462500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| Rhea | Voice 25KHz | 209-212 | 770.312500 | 800.312500 |
| 5 | Voice 25KHz | 345-348 | 771.162500 | 801.162500 |
| | Voice 25KHz | 409-412 | 771.562500 | 801.562500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 485-488 | 772.037500 | 802.037500 |
| Roane | Voice 25KHz | 85-88 | 769.537500 | 799.537500 |
| 8 | Voice 25KHz | 205-208 | 770.287500 | 800.287500 |
| | Voice 25KHz | 281-284 | 770.762500 | 800.762500 |
| | Voice 25KHz | 441-444 | 771.762500 | 801.762500 |
| | Voice 25KHz | 501-504 | 772.137500 | 802.137500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 613-616 | 772.837500 | 802.837500 |
| | Voice 25KHz | 749-752 | 773.687500 | 803.687500 |

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| Robertson | Voice 25KHz | 81-84 | 769.512500 | 799.512500 |
| 10 | Voice 25KHz | 169-172 | 770.062500 | 800.062500 |
| | Voice 25KHz | 253-256 | 770.587500 | 800.587500 |
| | Voice 25KHz | 357-360 | 771.237500 | 801.237500 |
| | Voice 25KHz | 401-404 | 771.512500 | 801.512500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 505-508 | 772.162500 | 802.162500 |
| | Voice 25KHz | 545-548 | 772.412500 | 802.412500 |
| | Voice 25KHz | 613-616 | 772.837500 | 802.837500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| Rutherford | Voice 25KHz | 41-44 | 769.262500 | 799.262500 |
| 19 | Voice 25KHz | 85-88 | 769.537500 | 799.537500 |
| | Voice 25KHz | 165-168 | 770.037500 | 800.037500 |
| | Voice 25KHz | 209-212 | 770.312500 | 800.312500 |
| | Voice 25KHz | 249-252 | 770.562500 | 800.562500 |
| | Voice 25KHz | 297-300 | 770.862500 | 800.862500 |
| | Voice 25KHz | 373-376 | 771.337500 | 801.337500 |
| | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 469-472 | 771.937500 | 801.937500 |
| | Voice 25KHz | 481-484 | 772.012500 | 802.012500 |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 |
| | Voice 25KHz | 577-580 | 772.612500 | 802.612500 |
| | Voice 25KHz | 617-620 | 772.862500 | 802.862500 |
| | Voice 25KHz | 669-672 | 773.187500 | 803.187500 |
| | Voice 25KHz | 717-720 | 773.487500 | 803.487500 |
| | Voice 25KHz | 757-760 | 773.737500 | 803.737500 |
| | Voice 25KHz | 797-800 | 773.987500 | 803.987500 |
| | Voice 25KHz | 877-880 | 774.487500 | 804.487500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |
| Scott | Voice 25KHz | 93-96 | 769.587500 | 799.587500 |
| 5 | Voice 25KHz | 341-344 | 771.137500 | 801.137500 |
| | Voice 25KHz | 457-460 | 771.862500 | 801.862500 |
| | Voice 25KHz | 577-580 | 772.612500 | 802.612500 |
| | Voice 25KHz | 913-916 | 774.712500 | 804.712500 |
| Sequatchie | Voice 25KHz | 125-128 | 769.787500 | 799.787500 |
| 5 | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 521-524 | 772.262500 | 802.262500 |
| | Voice 25KHz | 637-640 | 772.987500 | 802.987500 |
| | Voice 25KHz | 829-832 | 774.187500 | 804.187500 |
| Sevier | Voice 25KHz | 93-96 | 769.587500 | 799.587500 |
| 10 | Voice 25KHz | 129-132 | 769.812500 | 799.812500 |
| | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| | Voice 25KHz | 333-336 | 771.087500 | 801.087500 |
| | Voice 25KHz | 385-388 | 771.412500 | 801.412500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 617-620 | 772.862500 | 802.862500 |
| | Voice 25KHz | 789-792 | 773.937500 | 803.937500 |
| | Voice 25KHz | 917-920 | 774.737500 | 804.737500 |

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| Shelby | Voice 25KHz | 49-52 | 769.312500 | 799.312500 |
| 22 | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| | Voice 25KHz | 129-132 | 769.812500 | 799.812500 |
| | Voice 25KHz | 169-172 | 770.062500 | 800.062500 |
| | Voice 25KHz | 209-212 | 770.312500 | 800.312500 |
| | Voice 25KHz | 249-252 | 770.562500 | 800.562500 |
| | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| | Voice 25KHz | 429-432 | 771.687500 | 801.687500 |
| | Voice 25KHz | 477-480 | 771.987500 | 801.987500 |
| | Voice 25KHz | 481-484 | 772.012500 | 802.012500 |
| | Voice 25KHz | 533-536 | 772.337500 | 802.337500 |
| | Voice 25KHz | 581-584 | 772.637500 | 802.637500 |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| | Voice 25KHz | 713-716 | 773.462500 | 803.462500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| | Voice 25KHz | 833-836 | 774.212500 | 804.212500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |
| | Voice 25KHz | 945-948 | 774.912500 | 804.912500 |
| Smith | Voice 25KHz | 369-372 | 771.312500 | 801.312500 |
| 6 | Voice 25KHz | 441-444 | 771.762500 | 801.762500 |
| | Voice 25KHz | 525-528 | 772.287500 | 802.287500 |
| | Voice 25KHz | 601-604 | 772.762500 | 802.762500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| Stewart | Voice 25KHz | 345-348 | 771.162500 | 801.162500 |
| 5 | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 |
| Sullivan | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 12 | Voice 25KHz | 169-172 | 770.062500 | 800.062500 |
| | Voice 25KHz | 281-284 | 770.762500 | 800.762500 |
| | Voice 25KHz | 381-384 | 771.387500 | 801.387500 |
| | Voice 25KHz | 425-428 | 771.662500 | 801.662500 |
| | Voice 25KHz | 481-484 | 772.012500 | 802.012500 |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 |
| | Voice 25KHz | 613-616 | 772.837500 | 802.837500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| | Voice 25KHz | 713-716 | 773.462500 | 803.462500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 |

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| Sumner | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 14 | Voice 25KHz | 57-60 | 769.362500 | 799.362500 |
| | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 289-292 | 770.812500 | 800.812500 |
| | Voice 25KHz | 333-336 | 771.087500 | 801.087500 |
| | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| | Voice 25KHz | 465-468 | 771.912500 | 801.912500 |
| | Voice 25KHz | 521-524 | 772.262500 | 802.262500 |
| | Voice 25KHz | 585-588 | 772.662500 | 802.662500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| | Voice 25KHz | 913-916 | 774.712500 | 804.712500 |
| Tipton | Voice 25KHz | 17-20 | 769.112500 | 799.112500 |
| 10 | Voice 25KHz | 97-100 | 769.612500 | 799.612500 |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| | Voice 25KHz | 389-392 | 771.437500 | 801.437500 |
| | Voice 25KHz | 453-456 | 771.837500 | 801.837500 |
| | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 569-572 | 772.562500 | 802.562500 |
| | Voice 25KHz | 617-620 | 772.862500 | 802.862500 |
| | Voice 25KHz | 821-824 | 774.137500 | 804.137500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| Trousdale | Voice 25KHz | 89-92 | 769.562500 | 799.562500 |
| 5 | Voice 25KHz | 361-364 | 771.262500 | 801.262500 |
| | Voice 25KHz | 409-412 | 771.562500 | 801.562500 |
| | Voice 25KHz | 549-552 | 772.437500 | 802.437500 |
| | Voice 25KHz | 633-636 | 772.962500 | 802.962500 |
| Unicoi | Voice 25KHz | 85-88 | 769.537500 | 799.537500 |
| 5 | Voice 25KHz | 329-332 | 771.062500 | 801.062500 |
| | Voice 25KHz | 509-512 | 772.187500 | 802.187500 |
| | Voice 25KHz | 577-580 | 772.612500 | 802.612500 |
| | Voice 25KHz | 793-796 | 773.962500 | 803.962500 |
| Union | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| 5 | Voice 25KHz | 437-440 | 771.737500 | 801.737500 |
| | Voice 25KHz | 517-520 | 772.237500 | 802.237500 |
| | Voice 25KHz | 609-612 | 772.812500 | 802.812500 |
| | Voice 25KHz | 785-788 | 773.912500 | 803.912500 |
| Van Buren | Voice 25KHz | 285-288 | 770.787500 | 800.787500 |
| 6 | Voice 25KHz | 377-380 | 771.362500 | 801.362500 |
| | Voice 25KHz | 513-516 | 772.212500 | 802.212500 |
| | Voice 25KHz | 557-560 | 772.487500 | 802.487500 |
| | Voice 25KHz | 701-704 | 773.387500 | 803.387500 |
| | Voice 25KHz | 909-912 | 774.687500 | 804.687500 |

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| Warren | Voice 25KHz | 161-164 | 770.012500 | 800.012500 |
| 10 | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 293-296 | 770.837500 | 800.837500 |
| | Voice 25KHz | 349-352 | 771.187500 | 801.187500 |
| | Voice 25KHz | 393-396 | 771.462500 | 801.462500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 529-532 | 772.312500 | 802.312500 |
| | Voice 25KHz | 621-624 | 772.887500 | 802.887500 |
| | Voice 25KHz | 673-676 | 773.212500 | 803.212500 |
| | Voice 25KHz | 753-756 | 773.712500 | 803.712500 |
| Washington | Voice 25KHz | 133-136 | 769.837500 | 799.837500 |
| 10 | Voice 25KHz | 217-220 | 770.362500 | 800.362500 |
| | Voice 25KHz | 373-376 | 771.337500 | 801.337500 |
| | Voice 25KHz | 445-448 | 771.787500 | 801.787500 |
| | Voice 25KHz | 489-492 | 772.062500 | 802.062500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 661-664 | 773.137500 | 803.137500 |
| | Voice 25KHz | 717-720 | 773.487500 | 803.487500 |
| | Voice 25KHz | 781-784 | 773.887500 | 803.887500 |
| | Voice 25KHz | 865-868 | 774.412500 | 804.412500 |
| Wayne | Voice 25KHz | 169-172 | 770.062500 | 800.062500 |
| 7 | Voice 25KHz | 249-252 | 770.562500 | 800.562500 |
| | Voice 25KHz | 333-336 | 771.087500 | 801.087500 |
| | Voice 25KHz | 417-420 | 771.612500 | 801.612500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 617-620 | 772.862500 | 802.862500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| Weakley | Voice 25KHz | 85-88 | 769.537500 | 799.537500 |
| 11 | Voice 25KHz | 129-132 | 769.812500 | 799.812500 |
| | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 213-216 | 770.337500 | 800.337500 |
| | Voice 25KHz | 333-336 | 771.087500 | 801.087500 |
| | Voice 25KHz | 405-408 | 771.537500 | 801.537500 |
| | Voice 25KHz | 461-464 | 771.887500 | 801.887500 |
| | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 593-596 | 772.712500 | 802.712500 |
| | Voice 25KHz | 661-664 | 773.137500 | 803.137500 |
| | Voice 25KHz | 861-864 | 774.387500 | 804.387500 |
| White | Voice 25KHz | 121-124 | 769.762500 | 799.762500 |
| 8 | Voice 25KHz | 325-328 | 771.037500 | 801.037500 |
| | Voice 25KHz | 385-388 | 771.412500 | 801.412500 |
| | Voice 25KHz | 453-456 | 771.837500 | 801.837500 |
| | Voice 25KHz | 505-508 | 772.162500 | 802.162500 |
| | Voice 25KHz | 597-600 | 772.737500 | 802.737500 |
| | Voice 25KHz | 825-828 | 774.162500 | 804.162500 |
| | Voice 25KHz | 901-904 | 774.637500 | 804.637500 |

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| Williamson | Voice 25KHz | 13-16 | 769.087500 | 799.087500 |
| 15 | Voice 25KHz | 121-124 | 769.762500 | 799.762500 |
| | Voice 25KHz | 177-180 | 770.112500 | 800.112500 |
| | Voice 25KHz | 257-260 | 770.612500 | 800.612500 |
| | Voice 25KHz | 337-340 | 771.112500 | 801.112500 |
| | Voice 25KHz | 397-400 | 771.487500 | 801.487500 |
| | Voice 25KHz | 453-456 | 771.837500 | 801.837500 |
| | Voice 25KHz | 501-504 | 772.137500 | 802.137500 |
| | Voice 25KHz | 541-544 | 772.387500 | 802.387500 |
| | Voice 25KHz | 573-576 | 772.587500 | 802.587500 |
| | Voice 25KHz | 605-608 | 772.787500 | 802.787500 |
| | Voice 25KHz | 661-664 | 773.137500 | 803.137500 |
| | Voice 25KHz | 741-744 | 773.637500 | 803.637500 |
| | Voice 25KHz | 781-784 | 773.887500 | 803.887500 |
| | Voice 25KHz | 901-904 | 774.637500 | 804.637500 |
| Wilson | Voice 25KHz | 125-128 | 769.787500 | 799.787500 |
| 11 | Voice 25KHz | 173-176 | 770.087500 | 800.087500 |
| | Voice 25KHz | 345-348 | 771.162500 | 801.162500 |
| | Voice 25KHz | 389-392 | 771.437500 | 801.437500 |
| | Voice 25KHz | 449-452 | 771.812500 | 801.812500 |
| | Voice 25KHz | 497-500 | 772.112500 | 802.112500 |
| | Voice 25KHz | 565-568 | 772.537500 | 802.537500 |
| | Voice 25KHz | 625-628 | 772.912500 | 802.912500 |
| | Voice 25KHz | 677-680 | 773.237500 | 803.237500 |
| | Voice 25KHz | 837-840 | 774.237500 | 804.237500 |
| | Voice 25KHz | 905-908 | 774.662500 | 804.662500 |

Yellow indicated less than 250 KHz channel spacing due to 700 MHz band reconfiguration.

**The below form is a copy of the signed versions accompanying this document.**

# Appendix H

## Sample Form

# Inter-Regional Coordination Procedures and Procedures for Resolution of Disputes That May Arise Under FCC Approved Plans

**INTRODUCTION**

This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement and Dispute Resolution Agreement between Region 39 700 MHz Regional Planning Committee and Region NN.

The following is the specific procedure for inter-Regional coordination and dispute resolution; which has been agreed upon by Regions 39 Tennessee, Region 1 Alabama, Region 4 Arkansas, Region 10 Georgia, Region 13 Southern Illinois, Region 17 Kentucky, Region 23 Mississippi, Region 24 Missouri, Region 31 North Carolina, Region 37 South Carolina, Region 42 Virginia, and Region 44 West Virginia, which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

**INTER-REGIONAL COORDINATION PROCEDURE**

The coordination procedure will consist of the following steps:

1. An application-filing window is opened or the Region announces that it is prepared to begin accepting applications on a first-come/first-served basis.
2. Applications by eligible entities are accepted.
3. An application-filing window (if this procedure is being used) is closed after appropriate time interval.
4. Intra-Regional review and coordination takes place, including a technical review resulting in assignment of channels.
5. After intra-Regional review, a copy of those frequency-specific applications requiring adjacent Region approval, including a definition statement of proposed service area, shall then be forwarded to

the adjacent Region(s) for review.[1] This information will be sent to the adjacent Regional chairperson(s) using the CAPRAD database.

6. The adjacent Region reviews the application. If the application is approved, a letter of concurrence shall be sent, via the CAPRAD database, to the initiating Regional chairperson within thirty (30) calendar days.

7. Where adjacent Region concurrence has been secured, and the channel assignments would result in no change to the Region's currently Commission approved channel assignment matrix. The initiating Region may then advise the applicant(s) that their application may be forwarded to a frequency coordinator for processing and filing with the Commission.

8. Where adjacent Region concurrence has been secured, and the channel assignments would result in a change to the Region's currently Commission approved channel assignment matrix, then the initiating Region shall file with the Commission a *Petition to Amend* their current Regional Plan's frequency matrix, reflecting the new channel assignments, with a copy of the *Petition* sent to the adjacent Regional chairperson(s).

9. Upon Commission issuance of an *Order* adopting the amended channel assignment matrix, the initiating Regional chairperson will send a courtesy copy of the *Order* to the adjacent Regional chairperson(s) and may then advise the applicant(s) that they may forward their applications to the frequency coordinator for processing and filing with the Commission.

**Dispute Resolution**

The procedure will consist of the following steps should a dispute occur:

If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within ten (10) calendar days via mail, email or fax. If the applying Region cannot modify the application to satisfy the objections of the adjacent Region then, a working group comprised of representatives of the two Regions shall be convened within thirty (30) calendar days to attempt to resolve the dispute. The working group shall then report its findings within thirty (30) calendar days to the Regional chairpersons via email, mail or fax. Findings may include,

[1] If an applicant's proposed service area extends into an adjacent Public Safety Region (s), the affected Region(s) must approve the application. Service area shall normally be defined as the area included within the geographical boundary of the applicant, plus three (3) miles. Other definitions of service area shall be justified with an accompanying M*emorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

but not be limited to unconditional concurrence; conditional concurrence contingent upon modification of applicant's technical parameters; or partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 1, 4, 10, 13, 17, 23, 24, 31, 37, 42 and 44 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

_____

_____

_____

_____

Date: _____

# Appendix I

## DTV Transition

### Frequency Availability through the DTV Transition

On August 14, 1996, the FCC released a *Sixth Further Notice of Proposed Rule Making* in the digital television (DTV) proceeding. A portion of the spectrum recovered from TV channels 60-69 when DTV is fully deployed "could be used to meet public safety needs."[1] By Congressional direction in the Balanced Budget Act of 1997, the FCC reallocated 24 MHz of spectrum to Public Safety services in the 764-776 MHz and 794-806 MHz bands. The statute required the FCC to establish service rules, by September 30, 1998, in order to start the process of assigning licenses. The rules that the FCC established by September 30, 1998, "provided the minimum technical framework necessary to standardize operations in this spectrum band, including, but not limited to: (a) establishing interference limits at the boundaries of the spectrum block and service areas; (b) establishing technical restrictions necessary to protect full-service analog and digital television service during the transition to digital television services; (c) permitting public safety licensees the flexibility to aggregate multiple licenses to create larger spectrum blocks and service areas, and to disaggregate or partition licenses to create smaller spectrum blocks or service areas; and (d) ensuring that the new spectrum will not be subject to harmful interference from television broadcast licensees" [2].

In April 1997, the FCC assigned a second 6 MHz block of spectrum to each license (or permit to construct) holders of full power, analog, television broadcast station (NTSC) in order to construct a digital television station (DTV). Secondary low power television stations (LPTV), secondary translators and boosters (TX), mutually exclusive applications for new stations, and application filed after a cut-off date did not receive a second 6 MHz allotment for DTV. The FCC established about a 10 year timeline for those stations with a DTV assignment to construct a DTV station, cease NTSC transmissions, and return one of the two 6 MHz blocks of spectrum to the FCC. Target date for the end of analog television (NTSC) transmission was set for December 31, 2006.

Congress provided several market penetration loopholes (>85% households served, all 4 major networks converted, etc) allowing NTSC operations to continue past the December 31, 2006 date. While there are over 100 NTSC full power stations in this band, there are also about 12 DTV assignments. The DTV assignments might continue operations past the December 31, 2006 date for two reasons. 1) They must find a suitable channel below channel 60 to move to, which may be their own NTSC assignment. They may not be able to find another allocation until other NTSC stations have ceased operations and returned a channel below 60 to the FCC. Or, 2) their license does not expire until after 2006 (most are licensed into 2007 or 2008).

**Protection of Public Safety from future TV/DTV Stations**

Public safety base and mobile operations must have a safe distance between the co-channel or adjacent TV and DTV systems. This typically means that a co-channel and adjacent channel base and mobile system cannot operate in areas where TV stations already exist. The public safety systems that will operate in the 700 MHz band for some locations in the U.S. and its possessions must wait until the

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[1] Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Sixth Further Notice of Proposed Rule Making*, 11 FCC Rcd 10,968, 10,980 (1996) (*DTV Sixth Notice*).

[2] FCC 98-191, 1st R&O and 3rd NPRM on WT Docket No. 96-86 Operational & Technical Requirements or the 700 MHz Public Safety Band, para.4.

transition period is over and the TV/DTV stations have moved to other channels before beginning operations. In other areas, channels will be available for public safety operations. During the transition period, public safety stations must be acutely aware of the TV allocations for both TV and DTV stations. The FCC wants the number of situations where the public safety licensee has to coordinate its station with the existing TV stations kept to a minimum. The Commission's decisions in the reallocation of spectrum to DTV implemented two requirements that will help public safety systems to protect TV/DTV stations and reduce the number of coordinations. The first requirement is that full power UHF-TV stations can no longer apply for channels 60-69 or modifications in channels 60-69 that would increase the stations' service areas, which creates a known environment for public safety licensees.[1] The second requirement is that since only existing TV station licensees can apply for DTV channels, the applicants and their proposed locations are already known.[2]

Also, the low power TV stations and translators already on channels 60-69 are secondary and must cease operations if they cause harmful interference when a primary service, like land mobile, comes into operation. The secondary Low Power TV stations already on channels 60-69 cannot apply for the new Class A protection status.

**Spectrum Overview**

**700 MHz Public Safety Band - 24 megahertz of spectrum**

| TV 61 | TV 62 | TV 63 | TV 64 | TV 65 | TV 66 | TV 67 | TV 68 | TV 69 | 806-824 LMR Band |
|---|---|---|---|---|---|---|---|---|---|
| | | Public Safety 6 MHz | Public Safety 6 MHz | | | | Public Safety 6 MHz | Public Safety 6 MHz | |

TV Channel 63 TV Channel 64 TV Channel 68 TV Channel 69

764 MHz 770 776 794 MHz 800 806

| **NB** | **WB** | **NB** | **NB** | **WB** | **NB** |
|---|---|---|---|---|---|
| **3 MHz** | **6 MHz** | **3 MHz** | **3 MHz** | **6 MHz** | **3 MHz** |

**NB** = narrowband channels **WB** = wideband channels

[1] *See Reallocation Report and Order*, 12 FCC Rcd 22,969-22,970. Stations with existing channel 60-69 TV construction permits must complete their stations and file for a license by January 2, 2001.

[2] *See DTV Sixth Report and Order*, 12 FCC Rcd 14,739-14,754; *See also* In the Matter of Advanced Television Systems and Their Impact upon the Existing Television Broadcast Service, *Memorandum Opinion and Order on Reconsideration of the Sixth Report and Order* in MM Docket No. 87-268, 13 FCC Rcd 7418 (1998). The 11 DTV allotments are:

The FCC designated 764-776 MHz (TV Channels 63 and 64) for base-to-mobile transmissions and 794-806 MHz (TV Channels 68 and 69) for mobile-to-base communications. In addition, base transmit channels in TV Channel 63 are paired with mobile channels in TV Channel 68 and likewise that base channels in TV Channel 64 are paired with mobile channels in TV Channel 69. This provides 30 MHz separation between base and mobile transmit channel center frequencies. This band plan was suggested because of the close proximity of TV Channels 68 and 69 to the 806-824 MHz band, which already contains the transmit channels for mobile and portable radios (base receive).

Mobile transmissions are allowed on any part of the 700 MHz band, not just the upper 12 MHz. This will facilitate direct mobile-to-mobile communications (i.e., not through a repeater) that are often employed at the site of an incident, where wide area communications facilities are not available or desired. Allowing mobile transmissions on both halves of a paired channel is generally consistent with FCC rules governing use of other public safety bands.

**Non-uniform TV Channel Pairing**

There are currently geographical areas where, either licensed or otherwise protected full-service analog or new digital, television stations are currently authorized to operate on TV Channels 62, 63, 64, 65, 67, 68, and 69.[1] During the DTV transition period, an incumbent TV station occupying one or more of the four Public Safety channels (63, 64, 68, 69) or the three adjacent channels (62, 65, 67) may preclude pairing of the channels in accordance with the band Plan defined above. Therefore, to provide for cases where standard pairing is not practicable during the DTV transition period, the FCC will allow the RPCs to consider pairing base-to-mobile channels in TV Channel 63 with mobile-to-base channels in TV Channel 69 and/or base-to-mobile channels in TV Channel 64 with mobile-to-base channels in TV Channel 68. Because such non-standard channel pairing may cause problems when the band becomes more fully occupied, the FCC expects the RPCs to permit such non-standard channel pairing only when absolutely necessary, and the FCC may require stations to return to standard channel pairing after the DTV transition period is over. <u>However, the FCC will not permit non-standard channel pairing on the nationwide interoperability channels in the 700 MHz band because of the need for nationwide uniformity of these channels</u>.

At least three issues must be considered before deciding upon non-uniform channel pairing:

1) Preliminary analysis, looking at current incumbent TV stations, shows few geographic areas where non-uniform pairing allows early implementation of 700 MHz systems. As DTV Transition progresses, and TV stations vacate the band, this situation might change.

2) If interoperability channels must be uniform, operation on I/O channels will be blocked until all incumbent TV stations are cleared, even though General Use channels may be implemented earlier.

[1] *See Reallocation, Notice of Proposed Rule Making,* 12 FCC Rcd at 14,141, 14,177-78 and 14,182-83.

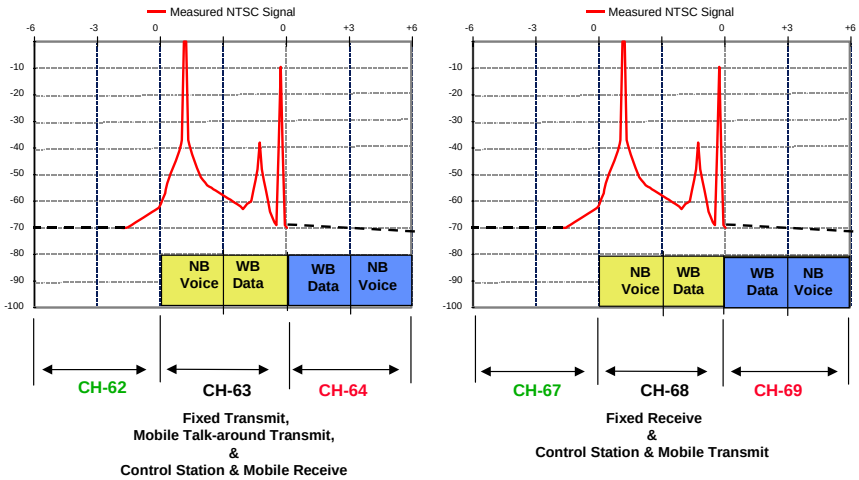
3) If I/O channels must follow uniform pairing, and general use & reserve channels can be implemented using non-uniform pairing, narrowband voice subscriber equipment must operate on 3 different channel pairings - 39 MHz (764-767 paired with 803-806 MHz), 30 MHz, and 21 MHz (773-776 paired with 794-797 MHz). Likewise, there will be 3 different channel pairings for wideband channels. No vendors have volunteered to build equipment & systems for non-uniform pairing, yet.

## TV/DTV Protection

During the DTV Transition period, public safety must consider all co-channel and adjacent channel TV and DTV stations within about a 160 mile radius.

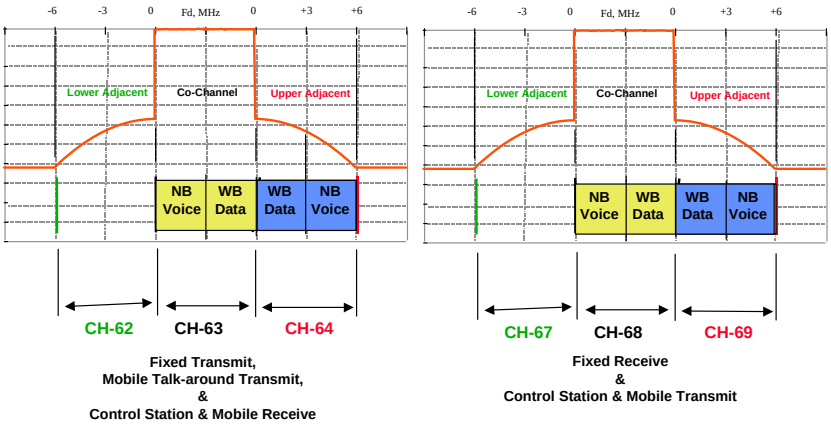
For public safety channel pair 63/68, public safety must consider six TV/DTV channels - co-channels 63 and 68, as well as, adjacent channels 62, 64, 67, and 69.

**Measured (off-the-air) Analog TV Signal**
**vs**
**700 MHz Public Safety Assignments**




**HAVE 2 CO-CHANNEL AND 4 ADJACENT CHANNELS**
**TO CONSIDER FOR EACH 700 MHz PAIRED BLOCKS OF SPECTRUM**

**DTV Emission Mask**
**vs**
**700 MHz Public Safety Assignments**




**HAVE 2 CO-CHANNEL AND 4 ADJACENT CHANNELS**
**TO CONSIDER FOR EACH 700 MHz PAIRED BLOCKS OF SPECTRUM**

For public safety channel pair 64/69, public safety must consider five TV/DTV channels; co-channels 64 and 69, as well as, adjacent channels 63, 65, and 68.

It may only take one TV/DTV station to block operations on one, the other, or both public safety channel pairs. For a public safety system at 500 watts ERP and 500 ft HAAT, co-channel TV stations can block a 120 mile radius and adjacent channel TV/DTV stations can block a 90 mile radius.

Since base stations transmitters are located only on channels 63 and 64, LMR mobile only TV/DTV protection spacing on channels 68 and 69 may be shorter than LMR base TV/DTV protection on channels 63 & 64.

**TV/DTV Protection Criteria**

Public safety applicants can select one of three ways to meet the TV/DTV protection requirements: (1) utilize the geographic separation specified in the 40 dB Tables of 90.309;

(2) submit an engineering study to justify other separations which the Commission approves; or

(3) obtain concurrence from the applicable TV/DTV station(s).

**90.309 40 dB D/U Tables**

The FCC adopted a 40 dB desired (TV/DTV) to undesired (LMR) signal ratio for co-channel operations and a 0 dB desired/undesired (D/U) signal ratio for adjacent channel operations. The D/U ratio is used to determine the geographic separation needed between public safety base stations and the Grade B service contours of co-channel and adjacent channel TV/DTV stations.[1] The D/U signal ratio is used to determine the level of land mobile signals that can be permitted at protected fringe area TV receiver locations without degrading the TV picture to less than a defined picture quality. In other words, the D/U signal ratio indicates what relative levels of TV and land mobile signals can be tolerated without causing excessive interference to TV reception at the fringe of the TV service area.

Desired and undesired contours are not quite the same thing. Desired analog TV contours are defined as F(50,50), meaning coverage is 50% of the places and 50% of the time. Undesired land mobile or interference contours are defined as F(50,10). For Digital TV, the desired contours are defined as F(50,90), while the undesired land mobile contour are still F(50,10).

Land mobile and analog TV services have successfully shared the 470-512 MHz band (TV Channels 14-20) within a 50 mile radius of eleven major cities since the early 1970's based upon providing a signal ratio of at least 50 dB[2] between the desired TV signal and undesired co-channel land mobile signal (D/U signal ratio) at a hypothetical 88.5 km (55 mi) Grade B service contour and an adjacent

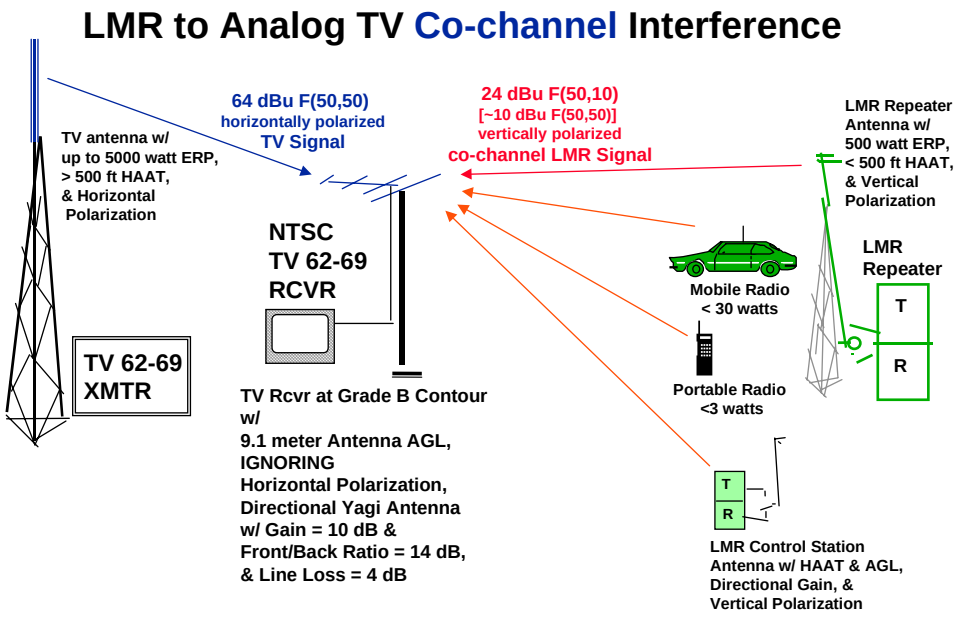
[1] *See Second Notice*, 12 FCC Rcd 17,803.

[2] For TV Channel 15 in New York City, a 40 dB D/U signal ratio is used. *See* 47 C.F.R. §§ 90.307(b) and 90.309 (Table B). A 50 dB protection ratio means that the amplitude of the desired TV signal is more than 300 times greater than the amplitude of the undesired signal at the Grade B service contour. A 40 dB protection ratio means the desired TV signal is 100 times greater.

channel D/U signal ratio of 0 dB at the same hypothetical Grade B service contour. These separation distances also protected the land mobile systems from interference from the TV stations. In 1985, recognizing that 50 dB D/U was too conservative, the FCC proposed to expand land mobile/TV sharing to other TV channels and proposed that the geographic separation requirements for co-channel operations be based on a D/U signal ratio of 40 dB rather than 50 dB.[1] That proceeding was put on hold pending completion of the DTV proceeding, which has now been completed. In the 470-512 MHz band, the FCC also relied on minimum separation distances based on the various heights and powers of the land mobile stations (HAAT/ERP separation tables) to prevent harmful interference.

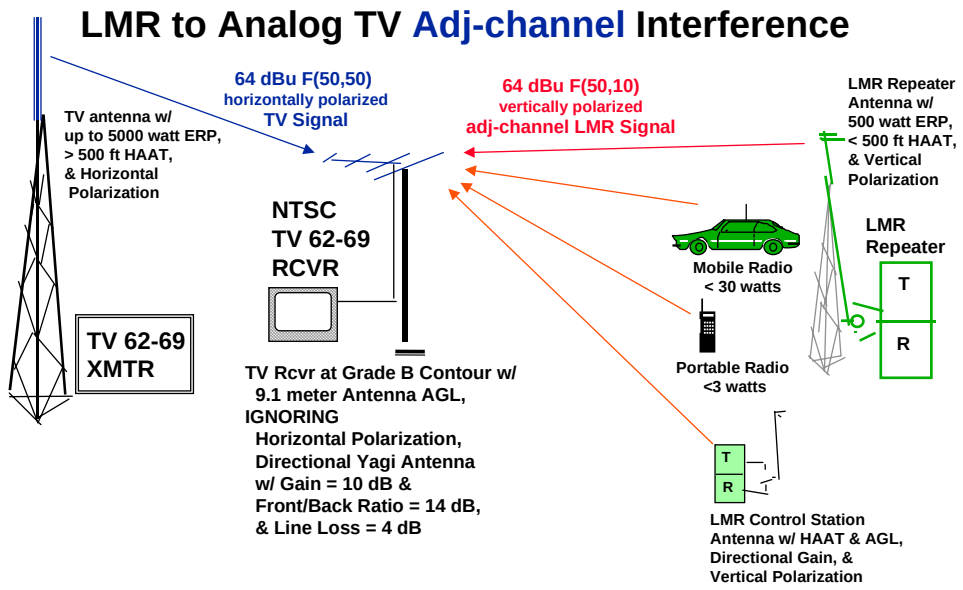
Since this simple, yet conservative, method was successful, the FCC decided to use this same method, the 90.309 HAAT/ERP Separation Tables, to administer LMR to TV/DTV receiver protection criteria for the services in the 700 MHz band.

Co-channel land mobile base station transmitters are limited to a maximum signal strength at the hypothetical TV Grade B contour 40 dB D/U below desired 64 dBu F(50,50) analog TV signal level, or 24 dBu F(50,10).[2] The FCC adopted a 0 dB D/U signal ratio for adjacent channel operations. Adjacent channel land mobile transmitters will be limited to a maximum signal of 64 dBu F(50,10) which is 0 dB D/U below the TV Grade B signal of 64 dBu F(50,50) at the TV station Grade B contour of 88.5 km (55 miles). A typical TV receiver's adjacent channel rejection is at least 10-20 dB greater than this level which will further safeguards TV receivers from land mobile interference.




[1] *See* Amendment of the Rules Concerning Further Sharing of the UHF Television Band by Private Land Mobile Radio Services, GEN Docket No. 85-172, *Notice of Proposed Rulemaking*, 101 FCC 2d 852, 861 (1985) (*UHF-TV Sharing NPRM*).

[2] In terms of miles, if everything else is the same, a 40 dB D/U ratio rather than a 50 dB D/U ratio allows base stations to be located approximately 48.3 km (30 mi) closer to a co-channel TV station. *See* 47 C.F.R. § 90.309, Tables A & B.




The equivalent ratios for a DTV station's 41 dB F(50,90) desired field strength contour are land mobile 17 dB F(50,10) contour for co-channel and land mobile - 23 dB F(50,10) contour for adjacent channel.

The Tables to protect TV/DTV stations are found in Section 90.309 of the Commission's rules. These existing Tables cover co-channel protection based on a 40 dB D/U ratio using the separation methods described in Section 73.611 of the Commission's rules for base, control, and mobile stations, and for adjacent channel stations for base stations based on a 0 dB D/U ratio.

However, the original considerations in 470-512 MHz band under Section 90.309 were different in that mobiles were limited in their roaming distance from the base station (less than 30 miles), mobiles were on the same TV channel as the base station, and direct mobile-to-mobile communication (???) was not allowed.

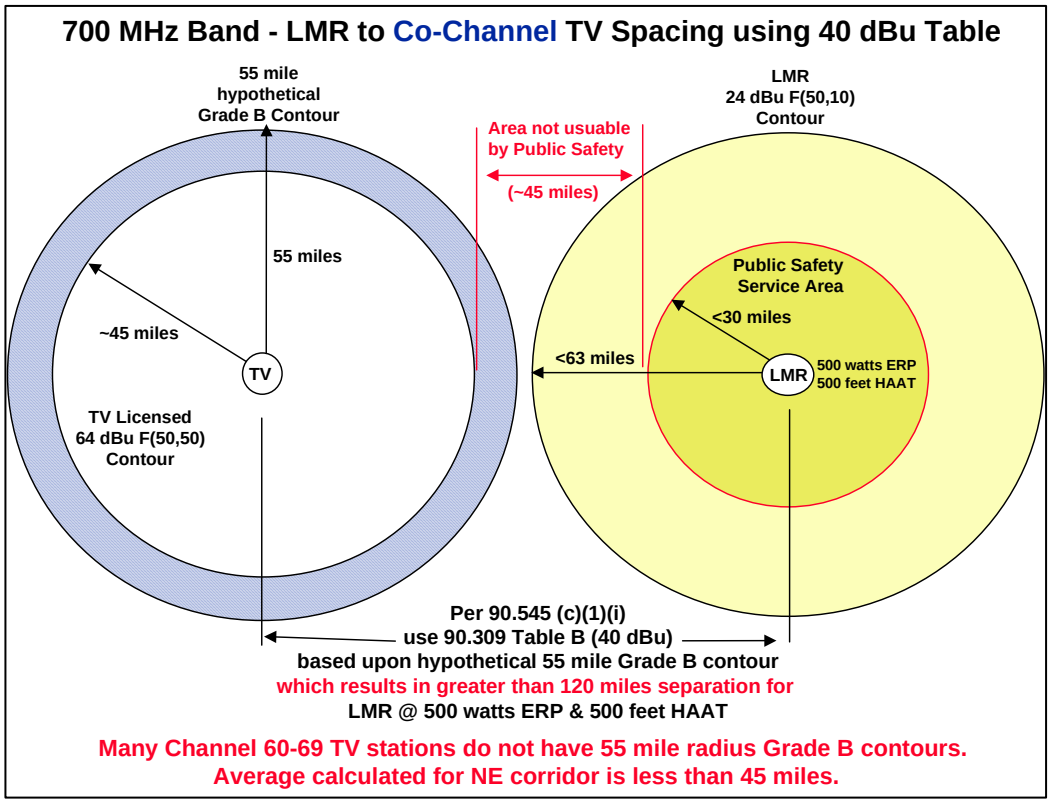
Control and mobile stations (including portables) are limited in height (200 ft for control stations, 20 ft for mobiles/portables) and power (200 watts ERP for control stations, 30 watts for mobiles, 3 watts for portables). Mobiles and control stations shall afford protection to co-channel and adjacent channel TV/DTV stations in accordance with the values specified in Table D (co-channel frequencies based on 40 dB protection for TV and 17 dB for DTV) in § 90.309.

Control stations and mobiles/portables shall keep a minimum distance of 8 kilometers (5 miles) from all adjacent channel TV/DTV station hypothetical or equivalent Grade B contours (adjacent channel frequencies based on 0 dB protection for TV and -23 dB for DTV). This means that control and mobile stations shall keep a minimum distance of 96.5 kilometers (60 miles) from all adjacent channel TV/DTV stations.

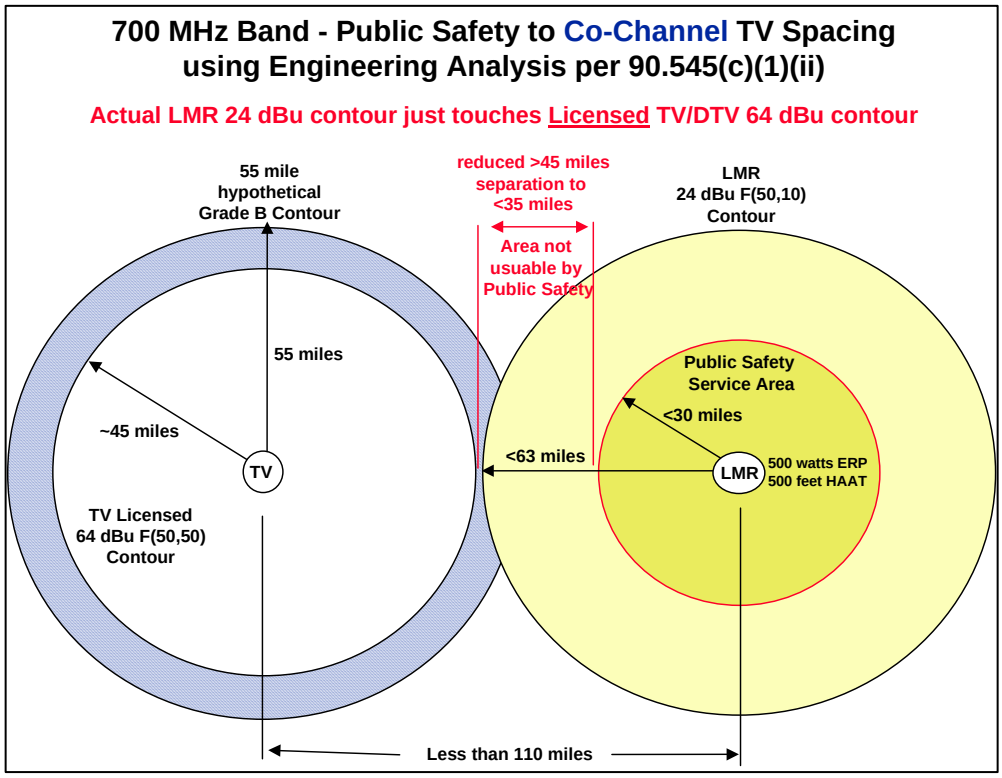
Since operators of mobiles and portables are able to move and communicate with each other, licensees or coordinators must determine the areas where the mobiles can and cannot roam in order to protect the TV/DTV stations, and advise the mobile operators of these areas and their restrictions.

## Engineering Analysis

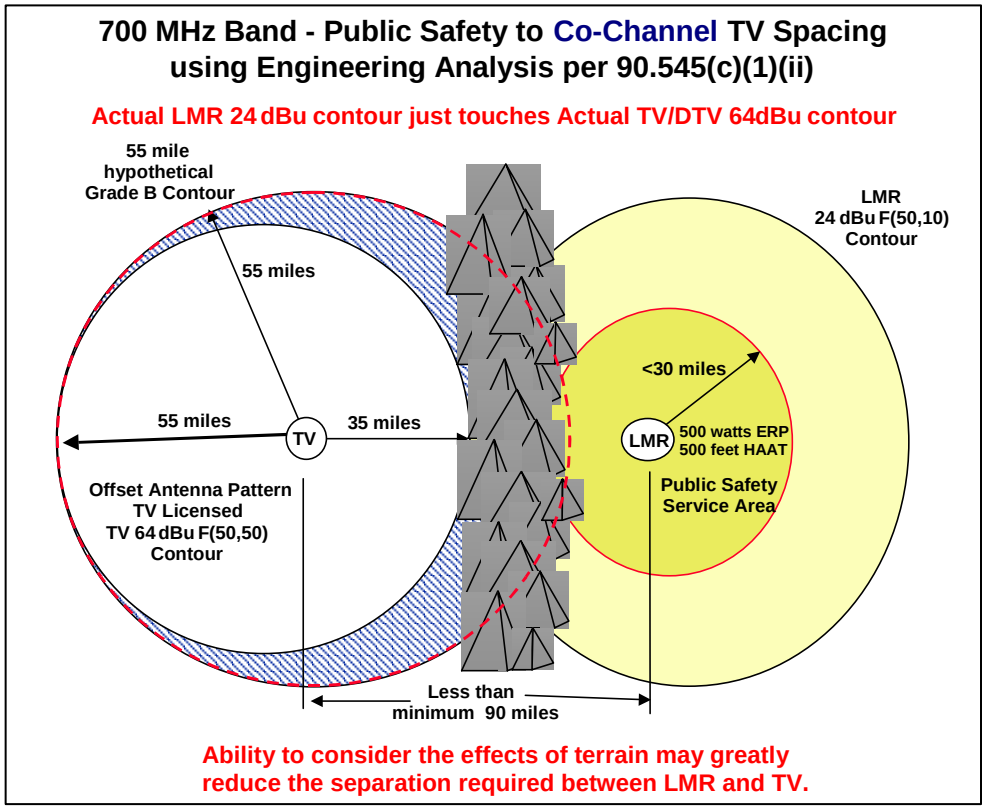
Limiting TV/land mobile separation to distances specified in the 40 dB HAAT/ERP Separation Tables found in 90.309 may prevent public safety entities from fully utilizing this spectrum in a number of major metropolitan areas until after the DTV transition period ends. Public safety applicants will be allowed to submit engineering studies showing how they propose to meet the appropriate D/U signal ratio at the existing TV station's authorized or applied for Grade B service contour or equivalent contour for DTV stations instead of the hypothetical contour at 88.5 km.




This would permit public safety applicants to take into account intervening terrain and engineering techniques such as directional and down-tilt antennas in determining the necessary separation to provide the required protection. Public safety applicants who use the engineering techniques must consider the actual TV/DTV parameters and not base their study on the 88.5 km hypothetical or equivalent Grade B contour. If land mobile interference contour does not overlap the TV Grade B contour (or DTV equivalent), then engineering analysis may be submitted to the FCC with the application.




This method is most useful with lower power TV stations whose Grade B contours are much smaller than the hypothetical 55 mile (88.5 km) Grade B contour or have directional patterns.



Note that 200 ft AGL limitations on 700 MHz control stations is much higher than the 100 ft AGL limitation used at UHF. Limiting control station antenna height and/or ERP may greatly reduce land mobile to TV contour spacing.

Also, note that analysis for TV/DTV receivers uses 30 ft (10 m) antenna height whereas, analysis for land mobile subscribers uses about a 6 ft (2m) antenna height.

**TV/DTV Short-spacing**

Public safety applicants will also be allowed to "short-space" even closer if they get the (written) approval of the TV stations they are required to protect. Public safety applicants need to determine the station's intended market area vs. its hypothetical Grade B contour area. Alternately, the TV/DTV station may be short-spaced against another TV/DTV station, limiting their area of operation, but does not affect LMR operations.

Instead of each agency negotiating with a TV/DTV station individually, they may want to combine into a single group or committee and negotiate together.

**TV/DTV Height Adjustment Factor**

In order to protect certain TV/DTV stations which have extremely large contours due to unusual height situations, such as a television station mounted on top of Mount Wilson near Los Angeles, California, the FCC incorporated an additional height adjustment factor which must be used by all public safety base, control and mobile stations to protect these few TV/DTV stations and afford the land mobile stations the necessary protection from the TV/DTV stations. The equation necessary to calculate the additional distance from the hypothetical or equivalent Grade B contour is found in the rules section 90.545(c)(2)(iii).

**CANADIAN AND MEXICAN BORDER REGIONS**

The FCC typically takes one of two approaches. They either postpone licensing of land mobile stations within a certain geographic distance (*e.g.,* 120 km (75 miles)) of Canada and Mexico, or permit interim authorizations conditioned on the outcome of future agreements. Because international negotiations can take many months or even years to finalize, the FCC took the later approach and adopted certain interim requirements for public safety licenses along the Canada and Mexico borders, providing that the licenses are subject to whatever future agreements the United States develops with the two countries.

Nevertheless, existing mutual agreements with Canada and Mexico for the use of these bands for UHF television must be recognized until further negotiations are completed. The US negotiated an agreement with Mexico of DTV operations near the US/Mexican border in 1998. The US just negotiated an agreement with Mexico of DTV operations, and limited non-broadcast operations on 746-806 MHz, near the US/Canadian border in September 2000. Existing agreements recognize existing TV and/or DTV allotments and planning factors within a specified distance of the border. The Canadian Letter of Understanding also acknowledges that US plans to use 746-806 MHz for non-broadcast purposes and provides planning criteria (40 dB D/U) to protect Canadian TV/DTV receivers.

Additionally, public safety facilities within the United States must accept interference from authorized channel 60-69 TV transmitters in Canada and Mexico in accordance with the existing agreements. Since the locations of the Canadian and Mexican analog TV assignments and DTV allotments are known, the public safety applicants can consider the levels of harmful interference to expect from Canadian and Mexican TV/DTV stations when applying for a license. Both Canada and Mexico have been informally notified that the Commission has changed its allocated use of TV channels 60-69, and the Commission will discuss the possibility of mutually compatible spectrum use with Canada and Mexico.

## CONCLUSION

The Region 39 700 MHz Regional Planning Committee revised Plan report is documentation of the Region 39 700 MHz process and is submitted to comply with the FCC Report & Order 07-132. Every item in this document has been reviewed, to be best of our ability, and is pertinent to public safety 700 MHz implementation in Tennessee and in accordance with plans for allowing 700 MHz channels to be used in Tennessee's adjacent states of Alabama, Arkansas, Georgia, Kentucky, Mississippi, Missouri, North Carolina, Virginia, and non border states of Illinois, South Carolina and West Virginia. We look forward to working with the Regional planning committees in these states to better the potential for public safety to have the tools available to complete their mission of protecting life and property in their respective states.

Respectfully,

John W. Johnson
Chairperson, Region 39 Regional Planning Committee
Tennessee Emergency Management Agency

January 31, 2008

# ATTACHMENTS

SIGNED LETTERS OF CONCURRENCE FROM ADJACENT REGIONS FOLLOWED BY SIGNED DISPUTE RESOLUTIONS FROM THE ADJACENT REGIONS.

ONLY THE SIGNATURE PAGE IS INCLUDED IN THE DISPUTE RESOLUTION SINCE APPENDIX "H" CONTAINS THE DISPUTE RESOLUTION.

# Signed Dispute Resolutions

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 1 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

Alabama

John Johnson Region 39

Date: 7-27-05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region ~~03~~ 39 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

_____

John W Johnson

_____

Carl W. Jackson

_____

Date: 10-10-05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 10 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

Wazzi. Hall

John Johnson Reg. 39

Date: 8/30/2005

Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 13 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

Region 13

John Johnson Region 39

Date: 07/27/05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region ~~17~~ 39 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

John W Johnson Region 39

Robert J Stephen

_____

_____

Date: 6/16/2005

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 23 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

Date: 11/10/05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 24 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

John W Johnson

Date: 6-21-05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 31 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

Region 31 100 RAC chair.

John Johnson Reg. 39

Date: 10/3/2005

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 37 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

William [illegible] Region 37

John Johnson Region 39

_____

_____

Date: 08/03/05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region 42 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

John Johnson Region 39

_____

Thomas A. Hanson

Region 42, 700 MHz Chairman

Date: 7-22-05

partial or total denial of proposed frequencies due to inability to meet co-channel/adjacent channel interference free protection to existing licensees within the adjacent Region.

If the Inter-Regional Working Group cannot resolve the dispute, then the matter shall be forwarded for evaluation to the National Plan Oversight Committee (NPOC), of the National Public Safety Telecommunications Council (NPSTC). Each Region involved in the dispute shall include a detailed explanation of its position, including engineering studies and any other technical information deemed relevant. The NPOC will, within thirty (30) calendar days, report its recommendation(s) to the Regional chairpersons via the CAPRAD database. The NPOC's decision may support either of the disputing Regions or it may develop a proposal that it deems mutually advantageous to each disputing Region.

**CONCLUSION**

In agreement hereto, Regions 39 and Region ~~44~~ 39 do by the signing of the document pledge to abide by this Agreement.

Respectfully,

[all signatories to agreement]

_____

_____

John Johnson Region 39

_____

Date: 7/11/05

Superintendent of Public Works
**Theodore H. Lawson**

Assistant Superintendent of Public Works
**Richard H. Crist, P.L.S.**

Equipment Services Manager
**Robert J. Gordon**

Superintendent of Building Maintenance
**George E. Oaks**

Director of Inspection Services
**Ted Montgomery**

Director, Public Safety Communications
**Eric M. Linsley**

# MOBILE COUNTY PUBLIC WORKS

Director of Public Works / County Engineer
**Joe W. Ruffer, P.E.**

December 20, 2007

John Johnson, Chairman
Region 39, 700 MHz Regional Planning Committee
3041 Sidco Drive
Nashville, TN 37204
sent via email jjohnson@tnema.org

Re: Region 39, Tennessee 700 MHz Revised Plan

I have received your email dated December 19, 2007. As Chairman and on behalf of the Region 1, Alabama Regional Planning Committee, Region 1 sends this Letter of Concurrence regarding the modifications to the Region 39, Tennessee, 700 MHz Plan

Yours Truly

Eric M. Linsley
Director of Public Safety Communications
Chairman Region 1, 700 MHz Regional Planning Committee

cc Joe Ruffer, P.E.
County Engineer

File: C:\Documents\FCC\700 committee\concurrences\region 39 revised plan concurrence.wpd

January 23, 2008

Mr. John Johnson
3041 Sidco Drive
Nashville, TN 37204
jjohnson@tnema.org

RE: Letter of Concurrence

After review of Tennessee's revised 700 MHz plan on December 17, 2007, Arkansas Region 4 concurs. If the Arkansas Regional Planning Committee can be of further service please do not hesitate to contact us.

Sincerely,

Carl Jacobs
Region 4 Chair

47 Trinity Ave
Suite 610-16
Atlanta, Georgia 30334-9007

Phone: 404.463.2300
Fax: 404.463.2380

Georgia Technology Authority
www.gta.georgia.gov

SONNY PERDUE
*Governor*

PATRICK MOORE
*Executive Director and*
*State Chief Information Officer*

January 27, 2008

John Johnson, Chairman
Region 39, Regional Planning Committee
TN Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204

Dear John,

As Chairman and on behalf of Region 10, 700MHz Regional Planning Committee, I am sending this Letter of Concurrence regarding the modifications to the Region 39, Tennessee, 700MHz Plan.

Region 10 looks forward to the continuing support and cooperation that your region has shown in improving public safety communications.

Sincerely,

Jim Mollohan

Jim Mollohan
700/800MHz RPC, Region 10 Chairman
Georgia Technology Authority
254 Washington St SW
Ground Floor
Atlanta, GA 30334-9007

*Email: Jim.Mollohan@gta.ga.gov - Phone: 404-656-5619 - Fax: 770-344-5937*

**GTA's Mission:**
*To deliver secure, reliable technology services and solutions, and provide guidance and oversight that lead to sound decisions for Georgia government.*

**REGION 17**
**800 MHz PUBLIC SAFETY WORKING GROUP (800 RPC)**
**Kentucky Wireless Interoperability Executive Committee**

Steven L. Beshear
Governor

Department of Military Affairs
J-6 Communications Division
Boone National Guard Center
Frankfort, KY 40601-6168

Robert L. Stephens
Convener & Co-Chair
502-607-1617
bob.stephens2@us.army.mil

January 22, 2008

Mr. John W. Johnson
Regional 39 Regional Chairperson
State of Tennessee
Tennessee Emergency Management Agency
3041 Sidco Drive
Nashville, Tennessee 37204

Dear Mr. Johnson

Your updated 700MHz Plan has been reviewed and approved by the Region 17 Public Safety Working Group of the Kentucky Wireless Interoperability Executive Committee.

Robert L. Stephens

Bob Stephens

Region 17 700MHz Co-Chair

# Mississippi Department of Public Safety

**Region 23, 700 MHz Regional Planning Committee**
**Donald Loper, Vice-Chairman / Acting Chairman**
**3893 Hwy. 468 W.**
**Pearl, MS 39208**

**John Johnson, Chairman**
**Region 39, 700 MHz Regional Planning Committee**
**3041 Sidco Drive**
**Nashville, TN 37204**

**Jan 29, 2008**

Dear John:

As acting chairman and on behalf of the Region 23 700 MHz Regional Planning Committee, Region 23 sends this Letter of Concurrence regarding the modifications to the Region 39, Tennessee, 700 MHz Plan.

Region 23 looks forwards to working with Region 39 to advance public safety communications.

Sincerely,

Donald W. Loper

Donald W. Loper
Region 23 Acting Chairman

**Region 24 700 MHz**
**Regional Planning Committee**

**Steven J. Makky, Sr.**
**Chairperson**

St Charles County Sheriff's Department
Division of Emergency Management
301 N Second St., Rm. 280
St Charles, Missouri 63301-5424
636-949-3031 Office
314-267-3319 Wireless
636-828-9019 Home Office

Mr. John Johnson
4130 Azalea Ct.
Murfreesboro, TN 37128

January 10, 2008

Please be advised that Region 24 is in receipt of Region 39's amended 700 MHz plan.

Region 24 has reviewed the plan and offers its concurrence.

Regards,

Steven Makky, Sr.
Chairperson
Region 24 700 MHz Regional Planning Committee

**Michael F. Easley**
Governor
**Bryan E. Beatty**
Secretary
**W. Fletcher Clay**
Colonel

**Location:**
512 N. Salisbury Street
Raleigh, NC
(919) 733-7952

**Mailing Address:**
4702 Mail Service Center
Raleigh, NC
27699-4702

*The mission of the North Carolina State Highway Patrol is to ensure safe, efficient transportation on our streets and highways, reduce crime, protect against terrorism, and respond to natural and manmade disasters. This mission will be accomplished in partnership with all levels of government and the public, through quality law enforcement services and education based upon high ethical, professional, and legal standards.*

An internationally accredited agency

**North Carolina Department of Crime Control & Public Safety**

# Division of State Highway Patrol

**Technical Services Unit**

31 January 2008

John Johnson, Chairman
Region 39, Regional Planning Committee
TN Emergency Management Agency
3041 Sidco Drive
Nashville, TN 37204

Reference: Region 31, 700 MHz Regional Planning Committee

Dear Mr. Johnson:

As Chairman and on behalf of Region 31, 700 MHz Regional Planning Committee, I am sending this Letter of Concurrence regarding the modifications to the Region 39, Tennessee, 700 MHz Plan.

Region 31 looks forward to the continuing support and cooperation that your region has shown in improving public safety communications.

Sincerely,

Michael Hodgson
System Manager/Network Specialist
North Carolina State Highway Patrol
VIPER Project
700 MHz RPC Chairman

Region 37 Committee
William Winn, Jr. – Chairman
P.O. Drawer 1228
Beaufort, SC 29901
843-470-3100
843-470-3054 (Fax)

January 31, 2008

John Johnson
Radio System Analsyt, TEMA

Dear Mr. Johnson:

This letter is to advise you that Beaufort County is in concurrence with Tennessee's Region 39 communications plan.

Should you have any questions or concerns, I can be contacted at 843-470-3050.

Sincerely,

William Winn, Jr. – Chairman
Region 37 Committee

j drive/region 37 folder/2008 folder:TN Reg 39 concurrence

# City of Virginia Beach

VBgov.com

COMMUNICATIONS AND INFORMATION TECHNOLOGY
EMERGENCY COMMUNICATIONS DIVISION
(757) 385-4232
FAX (757) 385-1810

MUNICIPAL CENTER
BUILDING THIRTY
2508 PRINCESS ANNE ROAD
VIRGINIA BEACH, VA 23456-9115

**DATE:** January 24, 2008

**TO:** John W. Johnson

**CC:** Linda Boring and Dave Warner

**FROM:** Robert A. DeLauney, 700 MHz Region 42 Chairman

**SUBJECT:** Region 42 Concurrence with the Region 39 700 MHz Plan

Dear Mr. Johnson,

This letter is in reference to the letter of concurrence in support of the 700 MHz Region 39 Plan. I am writing in my current role as the chairman for 700 MHz Regional Planning Committee 42.

Region 42 (Virginia) concurs with the Region 39 (Tennessee) 700 MHz plan. Region 42 has reviewed the 700 MHz Plan submitted by Region 39, and is satisfied that the plan addresses the necessary steps to coordinate with adjacent regions.

Region 42 looks forward to working with Region 39 in coordination of 700 MHz and other spectrum issues in the future.

Please contact me should you have any questions pertaining to this letter. You may reach me at 757-385-4066 or at rdelaune@vbgov.com.

Respectfully,

Robert A. DeLauney
Chairman, 700 MHz Regional Planning Committee 42

cc: Linda Boring, Vice-Chairman
Dave Warner, Secretary

# Region 44 – West Virginia
# 700 MHz Regional Planning Committee

1300 Harrison Avenue
Elkins, West Virginia 26241
304.637.0200 – V 304.637.0203. – F

January 22, 2008

John W. Johnson, Chairman
Region 39, 700 MHz Regional Planning Committee
3041 Sidco Drive
Nashville, TN 37204

Dear Mr. Johnson:

Region 44 concurs with your amended 700 MHz regional plan, and your Dispute Resolution Plan as submitted.

Sincerely,

David W. Saffel

David W. Saffel
Chairman Region 44
700 MHz Regional Planning Committee