State of Nevada
700 MHz Committee
FCC Region 27

January 16, 2008

Federal Communications Commission
Wireless Telecommunications Bureau
Chief, Public Safety and Private Wireless Division
445 12th Street, SW
Washington, DC 20554

Subject: WTB Docket No. 02-378, Region 27 - 700 MHz Regional Plan

Dear Sir:

Attached is the REVISED Region 27 700 MHz Regional Plan for your review. It has been modified to accommodate the new FCC rules modifying the 700 spectrum to allow for broadband spectrum.

Due to the short turn around time required by the Commission waivers are being sought to supplement the plan with the adjacent region concurrences and the new CAPRAD frequency sort when they are available.

It is our hope the implementation of this plan meets your approval and allows for approval to allow this much needed spectrum to be utilized in Nevada. Please feel free to contact me if there are any questions at 702-657-4205

Regards,

Mark D. Pallans
Chairman
FCC Region 27

State of Nevada 700 MHz Region Committee, Mark D. Pallans, Chairman
C/O Nevada Power Company, 2215 East Lone Mountain Road, M/S 93, North Las Vegas, NV 89031
702-657-4205 FAX 702-657-4220 e-mail mpallans@nevp.com

STATE OF NEVADA
700 MHz COMMITTEE
FCC REGION 27

January 16, 2008

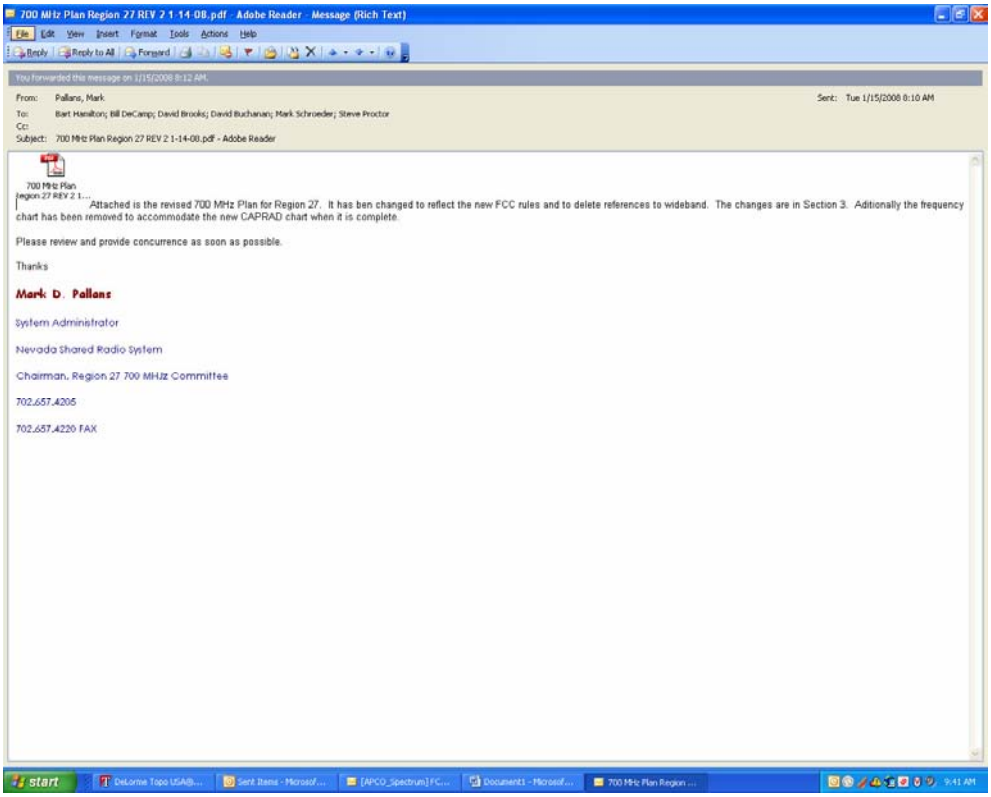
Federal Communications Commission
Washington, DC

REQUEST FOR TEMPORARY, LIMITED WAIVER

Region 27 requests a limited waiver of 90.527(b) in that the Region will supplement its filing of the revised 700 MHz Region Plan as soon as possible after receiving all required adjacent Region concurrences.

Additionally, Region 27 requests a waiver of Sections 90.527(a) (3) and (6) in that the Region will supplement its filing of the revised Region Plan as soon as possible after the CAPRAD updates are completed.

The Revised Region Plan has been sent by e-mail to each adjacent region and has been uploaded onto the CAPRAD web site for public viewing. Additionally, it is available on the download section of the pallansassociates.com website for public viewing.



Mark D. Pallans
Chairman
Region 27

STATE OF NEVADA 700 MHz REGION COMMITTEE, MARK D. PALLANS, CHAIRMAN
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State of Nevada

FCC Region 27

700 MHz Plan

Revision 2

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1 764-776/794-806 MHz Regional Plan for Region 27 (Nevada)

This document is the Regional Plan for Region 27 (Nevada) describing how the 764-776/796- 806 MHz General Use frequencies will be allocated and implemented in the Region.

1.1 Regional Chair

The Regional Chairperson of Region 27 is:
Mark D. Pallans
System Administrator, Nevada Shared Radio System
C/O Nevada Power Company
2215 East Lone Mountain Road
M/S 93
North Las Vegas, NV 89031
702.657.4205
FAX 702.657.4220
E-mail: mpallans@nevp.com

1.2 Other RPC Officers and full RPC Membership

The vice-chairman of the Region Committee is: Michael Garnish, City of North Las Vegas

The Secretary is Jack Conelly, City of Sparks Fire Department

The duties of Treasurer within Region 27 are assigned to:
James A. Wilson,
Clark County Fire Station 18
575 E. Flamingo Rd
Las Vegas, NV 89119
PH: 702-455-7311
FX: 702-734-6111
Email: jimwi@co.clark.nv.us

Membership in the Region 27 Regional Planning Committee is open to any interested party.

Committee Officer requirements, voting procedures and membership attendance requirements are listed in the Region 27 Planning Committee bylaws. Appendix A contains the Region 27 bylaws. Appendix B is a list of Region 27's initial members, their agency/affiliation and voting status. Voting and operating procedures are described in Section 2.2 of this plan.

2 Region 27 Description

A. Geography

The State of Nevada makes up the Region 27. It has an area of 110,540 square miles. Its geography consists of longitudinal mountain ranges with elevations from 3,000 to 12,000. These mountain ranges are nominally separated by valley floors between 20 to 50 miles wide with elevations 490 to 6,000 ft. These mountain ranges provide communications sites that average greater then 2500 ft. above average terrain (AAT). The topography varies from large desert areas with sparse foliation at lower elevations to medium forested areas at higher elevations. It is bordered on the north by Oregon and Idaho, on the east by Utah, on the south by Arizona, and on the west by California. The distance from the northern border to the southern tip is approximately 500 miles and from the eastern border to the west 408 miles. Appendix C contains a map showing the 17 counties and county seats.

The variations in topography and population greatly affect the public safety communications requirements and system design. The uniqueness of a given area dictates the type of system best suited for public safety and special emergency operation. This Plan and its administration and execution will reflect these considerations.

B. Population

The 2004 population of Nevada exceeds 2,400,000 with the highest population density in the two major urban areas of Las Vegas/North Las Vegas/Henderson in the south and Reno/Sparks/Carson City in the north. The fastest population growth is occurring in the greater Las Vegas urban area of Clark County. The 1985 Clark County population was 767,890; the current population is over 1,715,000. Washoe County, the second most populous area, had a 1990 population of 264,000 and is currently in excess of 383,400. The remainder of the state is rather sparsely populated and basically rural in nature.

C. Public Safety and Emergency Services

There are over 75 law enforcement agencies within the state consisting of the State agencies, County Sheriff Departments, City Police Departments, and University and School District security departments.

The Fire Service at the state and local level consists of both paid and volunteer agencies. Statewide, there are over 150 (including the Nevada Division of Forestry) fire departments. Generally, paid fire agencies operate within the urban areas while volunteer departments function primarily in the rural areas. There are also numerous private industrial and federal fire departments which are not included in the above count.

In the Special Emergency Service, there are over 72 operating ambulance agencies or companies using both land and air vehicles. A large number of these ambulance services operate under a volunteer organization, especially in the rural areas. There are 21 in Las Vegas.

There are a host of other public service organizations covering a wide variety of activities but they are too many to list. These include numerous other state and local government service agencies, such as wildlife, highway maintenance, public works, health, emergency management, too list a few.

Since much of the Nevada land area is controlled by the federal government, numerous federal agencies and the military operate extensively within the state requiring a variety of law enforcement, fire, medical, and other general services. The major federal agencies are the Bureau of Land Management, Forest Service, Department of Energy, Navy, Army, and Air Force.

Since much of the State is rural and inaccessible the public safety agencies have working agreements with the utility companies within the State to supply facilities, equipment and manpower to supplement the State's resources.

2.1 Notification Process

The Region 27 800 MHz Committee acted as the convener for the first Region 27 700 MHz Committee meeting. Notifications were mailed to all local governments and all Native American Tribal offices within the State of Nevada.

The first meeting was advertised on October 14, 2002 for a November 6, 2002 meeting in Ely, Nevada.

A second meeting was held on January 22, 2003. This meeting took place as a statewide video conference utilizing the private conference capabilities of the Nevada Department of Transportation. Again notices were sent to all eligible entities within the state.

The third meeting was held in Las Vegas on May 31, 2005 at the City of Las Vegas Fire Department. It was at this meeting that the first draft of the Region Plan was presented and concurrence was received from all participants as to the general format and contents. It was decided that the final plan could be developed by Mr. Pallans and Mr. Wilson. It would then be distributed to the members for their final review and acceptance.

Due to the difficulty in arranging a Region meeting the final version of the Plan was provided to all of the members, Native American Tribes and interested parties by making it readily available on the Internet and by hard copy if requested. On September 22, 2006 a mailing was made to everyone on the Region mailing list, including all Native American Tribes, announcing the availability of the final plan. A copy of that mailing is included in Appendix D. No negative responses were received from any party.

2.2 Operations of the Regional Plan Committee

This committee will use Robert's Rules of Order to conduct meetings. 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 27 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.

Any changes to the Regional plan must be voted and approved by the full Regional Planning Committee.

Subcommittees may be formed as needed to work on specific issues.

The Chair of the Regional Planning Committee appoints each Subcommittee Chair. Subcommittee participation is open to the entire membership, with the Chairpersons responsible for ensuring the content and atmosphere of the plan best represents the region as a whole.

A minimum of one full committee meeting will be held every twelve months. The Region 27 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, meetings will be held in northern Nevada (Reno or Carson City) and in Las Vegas, in southern Nevada.

Due to the vast distances between cities within the State Region meetings may take place via conference telephone calls with toll free dial in access.

The Region 27 700 MHz list-serve, http://groups.yahoo.com/group/reg27rpc/ was created in May of 2005.

This web site was created to exchange information as well as disseminate original meeting times, dates and agendas throughout the Regional Planning process for 700 MHz meetings and subsequent Region 27 (Nevada) SIEC meetings. The list serves is utilized to disseminate messages on regional planning progress and meeting agendas and serves as an excellent historical resource for regional planning development.

Beginning two years after Federal Communications Commission 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, summary of minutes, meeting announcements and agendas outlining Region 27 progress in 700 MHz development is located in **Appendix D** of this document.

3 Regional Plan Administration

3.1 Procedure for Requesting Spectrum Allotments

A. Upon FCC approval of this Plan, Region 27 will announce to the region that 700 MHz public safety channels are available in the Region and that channels have been assigned to pool allotments to counties within the Region. All available methods will be used to notify public safety entities of channel availability in the Region (see Section 2.1). All requests will be considered on a first come, first served basis. Region 27 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 27 700 MHz public safety system implementation.

In order to maintain accurate records in the CAPRAD database, applicants will provide Region 27 with physical copies of their application along with associated documentation for Regional Planning Committee review. The Regional Planning Committee will enter the FCC 601 form into the CAPRAD database before the application is forwarded to the FCC certified coordinators.

In general and unless otherwise noted, the Region 27 Regional Planning Committee will adhere to the published National Coordination Committee Implementation Guidelines for 700 MHz Public Safety Regional Planning Committees.

B. When applying for new 700 MHz channels, the Regional Planning Committee looks forward to 700 MHz applicants working with neighboring agencies to promote and continue the establishment of interoperability within their community and allow for the equitable distribution of existing spectrum allocations to promote efficient frequency use when applying for 700 MHz spectrum. Region 27 expects applicants to be cognizant of the fact that moving to the 700 MHz band may create a degree of isolation between themselves and neighboring agencies, and Region 27 looks forward to working with these applicants on a case-by-case basis on how to maintain spectrum availability in their area, while continuing to promote interoperable communications.

C. To request channels from Region 27, a full application package must be submitted to the Regional Planning Committee in physical written form for entry by Region 27 personnel in the CAPRAD database http://caprad.nlectc.du.edu/login/home.

The application must include:

- An FCC Form 601,
- A short description of the proposed system,
- A justification for the additional spectrum,
- An interference 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)
- An indication as to when they will migrate from their existing system to the new system.

D. The Chair will distribute the request to all other agencies with allotments in the plan for review and approval electronically. Absent a protest, the Regional Planning Committee will approve the application and submit it through the CAPRAD database to the applicant's preferred FCC-certified frequency coordinator for processing. This process meets the requirements of 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. 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 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 requirement to obtain Region 27 plan approval are the responsibility of the agency submitting application to Region 27.

The parties involved must resolve the allocation dispute and notify the Region Chair within 14 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. If approved, the application will be submitted through the CAPRAD database to the applicant's chosen FCC-certified frequency coordinator for processing

F. **Lower Power "Campus Eligible" General Use Channels**: In the implementation of 700 MHz public safety spectrum throughout Region 27, 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, malls or places of public gathering, public universities, transit systems and ports. While these channels have been designated in county pool allotments with proper designations, 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. 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. In order to facilitate this effective method of system implementation, channels have been identified in certain areas of Region 27 that may be utilized in a smaller service area. These channels are NOT eligible to be utilized throughout the county they are allotted to and the following criteria must be adhered to when requesting channels from Region 27 for operations of this type:

The 50dBu service contour of the proposed system must not exceed an area more than 2 miles from the proposed service area. When this 2-mile distance extends to an adjacent region, the applicant must obtain concurrence from the adjacent region. Reduced external antenna height, along with reduced ERP, directional antennae, distributed antenna systems, radiating "leaky coax," are all tools that should be utilized in the development of these type systems. Region 27 will ensure the development of these type of systems will in no way interfere with co-channel or adjacent channel users within Region 27 or Region 27'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 12.5/25 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 12.5/25 kHz channel shall be allowed to have

its 60 dBμ (50,50) contour touch, but not overlap the 40dBμ 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 Region 27 700 MHz regional planning committee. They are the final authority on parameters associated with "campus" type operations.

If Region 27 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 27 700 MHz Regional Planning Committee with written concurrence from the adjacent region permitting the original design.

3.2 Procedure for Frequency Coordination

The Region 27 Planning Committee will adhere to the National Public Safety Telecommunications Council's (NPSTC) 700 MHz General Use channel sort as shown on the CAPRAD database. Region 27 will participate in the CAPRAD database and keep the Regional Plan and current frequency allotment/allocation information on the database. The Region 27 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 current frequency allotments within Region 27, an annual review of the allotments will be made at one of the scheduled meetings by the full committee and recommended changes to the plan will be voted on. The majority of members in attendance at a meeting of the full Regional Planning Committee must approve any changes to the Regional allotments. If at any time a system is allocated channels within Region 27 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 27 Technology Subcommittee recommends that allotments be made on the basis of one 25 KHz channel for every two (2) voice channel requests and one 12.5 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, at various bandwidths, 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 27 will ensure that systems allocated 25 KHz channel

blocks will utilize all of the channel and not "orphan" any portions of a system designated channel. (See Section 6.3)

The Region 27 700 MHz Regional Planning Committee will be the final authority on the approval of applications for 700 MHz General Use channel allocations.

3.4 Low power 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). However, users are encouraged to operate in simplex mode with the least practicable 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 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) (See paragraphs 35 through 39 in FCC's Third Memorandum Opinion and Order for WT Docket No. 96-86 adopted September 18, 2000.), 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:

• Generic - Channel #'s 1-4 and 949-952 are set aside as generic 2 watt channels for use by public safety agencies operating within Region 27, and the complementary mobile channels # 961-964 and 1909-1912 are set aside as 2 watt generic mobile channels also for use by

public safety agencies likewise operating within Region 27.

• Fire/ EMS/ Consequence Management - Channel #'s 5-8 are designated as Fire Protection/ Emergency Medical and Consequence Management 2 watt channels for licensing and exclusive use by the Fire/Emergency Medical disciplines, and the complementary mobile channel #'s 965-968 are set aside as Fire/Emergency Medical and Consequence Management 2 watt mobile channels also for licensing and exclusive use by the Fire/Emergency Medical disciplines.

• Law/ Crisis Management - Channel #'s 953-956 are set aside as Law Enforcement/Crisis Management 2 watt channels for licensing and exclusive use by the Law Enforcement discipline, and the complementary 2 watt mobile channel #'s 1913-1916 are set aside as Law Enforcement/Crisis Management mobile channels also for licensing and exclusive use by the Law Enforcement discipline.

Multidisciplinary Joint Public Safety Operations - Channel #'s 957-958 are set aside as Multidisciplinary Joint Public Safety Operations 2 watt channels for licensing and the complementary 2 watt mobile channel #'s 1917-1918 are also set aside as Multidisciplinary Joint Public Safety Operations Channels for use by political subdivisions and public safety agencies operating under a unified command at a common incident for the express mission of safety of life, property or environment.

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 repeaterized 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 27 Regional Planning Committee will recommend to the Nevada SIEC that all 700 MHz users and applicants to have **the capability to access** ALL of the thirty-two (32) NCC approved interoperability channels in both duplex and simplex modes. Under no circumstances may a user claim a channel as exclusively theirs; all 700 MHz interoperability channels are under the administration of the Nevada Statewide Interoperability Executive Committee.

~~3.5 Wideband Data~~

~~Wideband data channels in Region 27 will be developed in accordance with FCC guidelines. Applicants will be required to provide the Regional Planning Committee with their identified wideband needs so the region can determine the number of wideband data channels needed.~~

~~As soon as final rules for frequency use in the wideband spectrum block are established and the Committee has analyzed how Region 27's fair share of the spectrum can be most equitably used, an amended plan addressing wideband spectrum use accompanied by adjacent region endorsements will be submitted to the FCC for approval.~~

3.~~6~~ 5 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 a member from the State of Nevada and at least five members from the Counties in Region 27. That committee will select a Chair to head the committee.

The Regional Plan Chair (or Vice Chair) will represent the Region in presentations to a Dispute Resolution Committee. The Committee will hear input from the disputing agency, any affected 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 Association of Regional Planning Committee for dispute resolution. As a last resort, the dispute will be forwarded to the Federal Communications Commission for final resolution.

3.~~7~~ 6 Priority Matrix

In the event that spectrum allocation requests conflict and cannot all 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.

• Priority is given to users fundamentally involved with the protection of Life and Property (15 points)

• Priority is given to multi-agency systems that promote multiple jurisdictional, multi-agency, inter-discipline interoperable communications within a sub-regional area.

These systems can be either a group of separate departments within a large agency or groups of agencies operating together under a large blanket agency, or a combination of both. (25 points)

• Documentation of proposed funding to construct the system using these 700 MHz frequencies must be available and accompany the original spectrum request. (25 points)

• The submission of 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. (35 points)

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.

4 PROCESS FOR HANDLING UNFORMED REGIONS

The Implementation Subcommittee recommends that all Regions use the following pre-planning methodology to facilitate coordination with adjacent Regions. This procedure will

provide a spectrum allotment for adjacent Regions that do not immediately form a Committee.

Counties or other geographic subdivisions within 70 miles of the Regional border need to share spectrum with the adjacent Region(s). The sharing indicated is inherent in the NPSTC Packing Program, as it views all counties nationwide as separate entities while ignoring state borders. With all criteria being equal, this ensures all counties are provided sufficient spectrum in accordance with their surrounding counties. The appropriate ratio of channels shall be allotted to counties in adjacent Regions based upon each county's population. A 25 kHz building block will be used to distribute spectrum between the Regions. A description of the demographics of the affected border areas shall be included.

The requirements for adjacent Region concurrence will require a waiver if the adjacent Region has not yet formed. The Region filing the Plan must use the pre-planning procedure outlined above.

The waiver request must be filed concurrently with the Plan and contained in the cover letter.

5 Coordination with Adjacent Regions

The Regions adjacent to Region 27 are listed below:
Region 5, **Southern California**
Region 6, **Northern California**
Region 41, **Utah**
Region 3, **Arizona**
Region 12, **Idaho**
Region 35, **Oregon**

Region 27 has coordinated its 700 MHz Regional Plan including its Appendix G, Channel Allocation Plan, with and received concurrence from, all its bordering Regions by providing copies of the Region 27 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.

6 System Design/Efficiency Requirements

6.1 Interference Protection

The frequency allotment list in Nevada's counties result from the fact that the original frequency sort did not anticipate high site system development that placed a priority on few sites all operating at high ground elevations providing weak signal strength at the edge of a jurisdiction's coverage area. Rather, the sort utilized contours to maximize frequency re-use across the country. This is 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 coverage area and minimum levels in the coverage area of other co-channel users. Quality system engineering, the use of directional antennae and the advocacy of multi-agency/multi-discipline systems that promote interoperability can accomplish this goal. A jurisdictions coverage area is normally the geographical boundaries of the Agency(s) served plus a three to five mile 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 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 27 complies with National Coordination Committee recommendations listed in Appendix K of the Regional Planning Committee Guidelines published by the National Coordination Committee (NCC).

6.2 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 prudent 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 27, the applicants should acknowledge the deadline for converting all equipment to 6.25 kHz or 6.25 kHz equivalent technology is 12/31/2016. 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 would 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 27 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.

6.3 Orphaned Channels

The narrowband pool allotments with Region 27 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 be used at another location within the county area where it was originally approved, if it meets co- and adjacent channel interference criteria. Region 27 will utilize **"county areas"** as guidelines for channel implementation with the area of Region 27. The definition of **"county area"** in this plan is the geographical/political boundaries of a given county, plus a distance of up to 10 miles outside of the county.

If the channel, or a portion of a channel, is being moved into a "county area" that is within 30 miles of an adjacent region, Region 27 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 Public Safety Telecommunications Council 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 27 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 27 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.

6.4 System Implementation

Several TV stations throughout Nevada utilize analog TV channels 62 through 69 as primary channels. In the areas of Region 27 that have active UHF channels the only 700 MHz public safety radio systems that can be constructed will include channels that can co-exist with these primary licensees until such time as the transition is made to DTV by these TV stations. The Region 27 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.

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.

7. Interoperability Channels

7.1 Introduction

The ability for agencies to effectively respond to mutual aid requests directly depends on their ability to communicate with each other. Nevada 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.

The State of Nevada will administer the Nevada Statewide Interoperability Executive Committee; and the Nevada Statewide Interoperability Executive Committee (SIEC) under National Coordination Committee's (NCC) guidelines will administer the 700 MHz interoperability channels. If at any time 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"**

7.2 Tactical Channels

Region 27 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 27.

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 either in NCC guidelines or as the Nevada State interoperability Executive Committee specifies. The channel display in these radios will be in accordance with the NCC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use within Region 27. The Nevada SIEC is the final authority, in Nevada, on the interpretation of the distribution of the 700 MHz interoperability channels.

7.3 Deployable Systems

In this Plan, Region 27 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/NCC 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 SIEC 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.

7.4 Monitoring of Calling Channels

700 MHz General Use channel licensees will be responsible for monitoring interoperable calling channels. The SIEC will develop operational guidelines for this function. **Appendix E** will include NCC documents that display required Interoperability guidelines.

8. Future Planning

The CAPRAD pre-coordination database has developed channel allotments in each county area within Nevada, using criteria such as current population, 2010 Census data, 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.

8.1 Inter-Regional Dispute Resolution Process

In the event that a dispute arises between Region 27 and an adjacent Region or Regions, regarding spectrum allocations or implementation, that 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 3, 5, 6, 12, 35 and 41.

9.0 Certification

I hereby certify that all planning committee meetings, including subcommittee or executive committee meetings were open to the public.

Mark D. Pallans
Chairman, Region 27

Appendices

Appendix A	**Bylaws**
Appendix B	**Region 27 Members, Agencies, Contact Information**
Appendix C	**Region 27 (Nevada) Counties**
Appendix D	**List of Meetings, summaries of minutes**
Appendix E	**700 MHz Interoperability channel nomenclature**
Appendix F	**NCC 700 MHz Pre-Assignment Rules and Recommendations**
Appendix G	**Region 27 Channel Allocation Plan**
Appendix H	**Inter-Regional Dispute Resolution Agreement & Regional Concurrences**
Appendix I	**Concurrence of Adjacent Regions**

Appendix A

Bylaws of the 700 MHz Regional Planning Committee- Region 27 (State of Nevada)

NAME & PURPOSE

1.1 Name and purpose. The name of this Region shall be Region 27-Nevada Regional Planning Committee (referred to hereafter as the Region 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 Nevada.
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 Region 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 Committee in the form of a list-serve and/or regional newsletters will be researched by the committee. The newsletter may be distributed both electronically and in print form.

Voting Members. Voting members shall consist of one (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. Except that a single agency shall be allowed no more than one vote for each distinct eligibility category (e.g. police, fire, EMS, 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. To become a member of Region Committee to represent their agency, a representative simply has to attend a meeting. See attendance and voting rights procedures below.**

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

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

2.3 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.

2.4 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. The Region Committee will hold at least one 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 27 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 a member from Region 27. 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 Region Committee.

2.5 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 Region Committee after a period of six months has lapsed, beginning on the first day of resignation.

2.6 Meetings. After Regional Plan approval, the Region 27 700 MHz Planning Committee will meet no less than one time each calendar year. The location of the meeting will alternate annually between Las Vegas and Reno/Carson City.

At any time and when deemed necessary by the Chairperson, an additional meeting of the Region 27 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 27 list-server (http://groups.yahoo.com/group/reg27rpc/) will be utilized by members and officers of Region 27 as needed to convey regional issues at hand. **It should be noted the use of E-mail and/or video-audio teleconferencing does not remove the voting eligibility requirement of the member to attend at least one (1) of the Region 27 annual meetings in 24 months.**

2.7 Special Meetings. **The Chairperson has the authority to call a meeting of the Region 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.

2.8 Call and Notice.

A. Annual meetings. Reasonable notice of the time and place of scheduled meetings of the members, not being less than 60 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 and land mobile radio periodicals. **In addition, a press release may be issued, urging parties interested in public safety communications to attend**. **Region 27 is will notify the Federal Communications Commission, Chief of the Wireless Telecommunications Bureau, when a meeting time and place has been established for the Region Committee**.

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.

2.9 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 ninety 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.

2.10 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.

2.11 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.**

2.12 Proxies. Voting members may vote either in person or by written proxy dated not more than one month 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** Region Committee **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.

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

2.14 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 Committee shall consist of a chairman, a vice-chairman, treasurer and a secretary. 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 Committee 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 27 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 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 Committee, the Chairperson shall assign Region 27 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 27 700 MHz Planning Committee, the Chairperson shall assign Region 27 Secretary duties as deemed necessary.

3.7 Suspensions or Removal. An officer of the Region Committee may be suspended with cause by vote of a majority of the voting members in attendance.

3.8 Resignation. An officer may resign by delivering his or her written resignation to the chairman, vice-chairman, treasurer, or secretary of the Region 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.

3.9 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 terms, and in the case of the chairman, vice chairman, treasurer and clerk 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.

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 Region Committee members or otherwise adopt, alter, amend or repeal any provision which FCC regulation or these bylaws requires action by the voting members.

DISSOLUTION

This Region 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.

RULES OF PROCEDURES

The Conduct of Regional Meetings including without limitation, debate and voting, shall be governed by Robert's Rules of Order, newly revised 1990 edition, ninth edition.

Appendix B
Region 27 Contact List and Contact information

<u>Nevada Native American Tribes</u>
Inter-Tribal Council of Nevada
680 Greenbrae Dr., Suite 280
Sparks, Nevada 89431
Phone: (775) 355-0600
Fax: (775) 355-0648

Confederated Tribes of the Goshute Reservation, Utah
P.O. Box 6104
Ibapah, Utah 84034
Telephone: (801) 234-1136

Duckwater Shoshone Tribe of the Duckwater Reservation
P.O. Box 140068
Duckwater, Nevada 89314
Telephone: (702) 863-0227
Fax: (702) 863-0301

Shoshone-Paiute Tribes of the Duck Valley Reservation - Nevada & Idaho
P.O. Box 21
Owyhee, Nevada
Telephone: (702) 757-3161
Fax:(702) 757-2219

Yerington Paiute Tribe Colony and Campbell Ranch
171 Campbell Lane
Yerington, Nevada 89447
Telephone: (702) 463-3301 or (702) 883-3895
Fax:(702) 463-2416

Ely Shoshone Tribe
16 Shoshone Circle
Ely, Nevada 89301
Telephone: (702) 289-3013
Fax:(702) 289-3156

Fallon Paiute-Shoshone Tribe
8955 Mission Road
Fallon, Nevada 89406
Telephone: (702) 423-6075
Local call from the Reno area: 323-3780
Fax:(702) 423-5202

Fort McDermitt Paiute and Shoshone Tribe
P.O. Box 457
McDermitt, Nevada 89421
Telephone: (702) 532-8259
Fax:(702) 532-8263

Las Vegas Paiute Tribe
1 Paiute Drive
Las Vegas, Nevada 89106
Telephone: (702)386-3926
Fax:(702) 383-4019

Lovelock Paiute Tribe
P.O. Box 878
Lovelock, Nevada 89419
Telephone: (702) 273-7861
Fax:(702) 273-7030

Moapa Paiute Band of the Moapa Indian Reservation
P.O. Box 340
Moapa, Nevada 89025
Telephone: (702) 865-2787
Fax:(702) 865-2875

Reno Sparks Indian Colony
98 Colony Road
Reno, Nevada 89502
Telephone: (702) 329-2936
Fax:(702) 329-8710

Summit Lake Paiute Tribe
655 Anderson Street
Winnemucca, Nevada 89445
Telephone: (702) 623-5151
Fax:(702) 623-0558
summit@desertinc.com

Winnemucca Colony
C/O 420 Pardde
Susanville, California 96130

Walker River Paiute Tribe
P.O. Box 220
Schurz, Nevada 89427
Telephone: (702) 773-2306
Fax:(702) 773-2585

Yomba Shoshone Tribe
HC 61 Box 6275
Austin, Nevada 89310
Telephone: (702) 964-2463
Fax:(702) 964-2443

Te-Moak Tribe of Western Shoshone Indians
525 Sunset Street
Elko, Nevada 89801
Telephone: (702) 738-9251
Fax:(702) 738-2345

Battle Mountain Band
35 Mountain View Dr., #138-13
Battle Mountain, Nevada 89820
Telephone: (702) 635-2994
Fax:(702) 635-8016

Elko Band Te-Moak Tribe of Western Shoshone Indians
P.O. Box 748
Elko, Nevada 89803
Telephone: (702) 738-8889
Fax:(702) 753-5439

South Fork Band Te-Moak Tribe of Western Shoshone Indians
HC 30 Box B-13
Elko, Nevada 89801
Telephone: (702) 744-4273
Fax:(702) 744-4523

Wells Band Te-Moak Tribe of Western Shoshone Indians
P.O. Box 809
Wells, Nevada 89835
Telephone: (702) 752-3045
Fax:(702) ?

Washoe Tribal , HQ
919 Highway 395 South
Gardnerville, NV 89410
Phone: 775-265-4191
Fax: 775-265-6240

Pyramid Lake Paiute Tribe
P.O. Box 256
208 Capital Hill
Nixon, NV 89424-0256

Phone 775.574.1000
Ext. 226 - Administrator
Ext. 231 - Technician
Fax 775.574.1000

Represented Organizations

Nevada Power Company
PO Box 98910
MS 93
Las Vegas, NV 89151-0001

Sierra Pacific Power Company
MS/93
PO Box 98910
Las Vegas, NV 89151-0001

Nevada Shared Radio System
Mark D. Pallans
Radio System Administrator
C/o Nevada Power
MS 93
2215 E. Lone Mountain Road
North Las Vegas, NV 89031

Nevada Department of Transportation

Nevada Department of Public Safety

Washoe County

Douglas County

Las Vegas Metropolitan Police Department

Southern Nevada Area Communications Committee

City of North Las Vegas

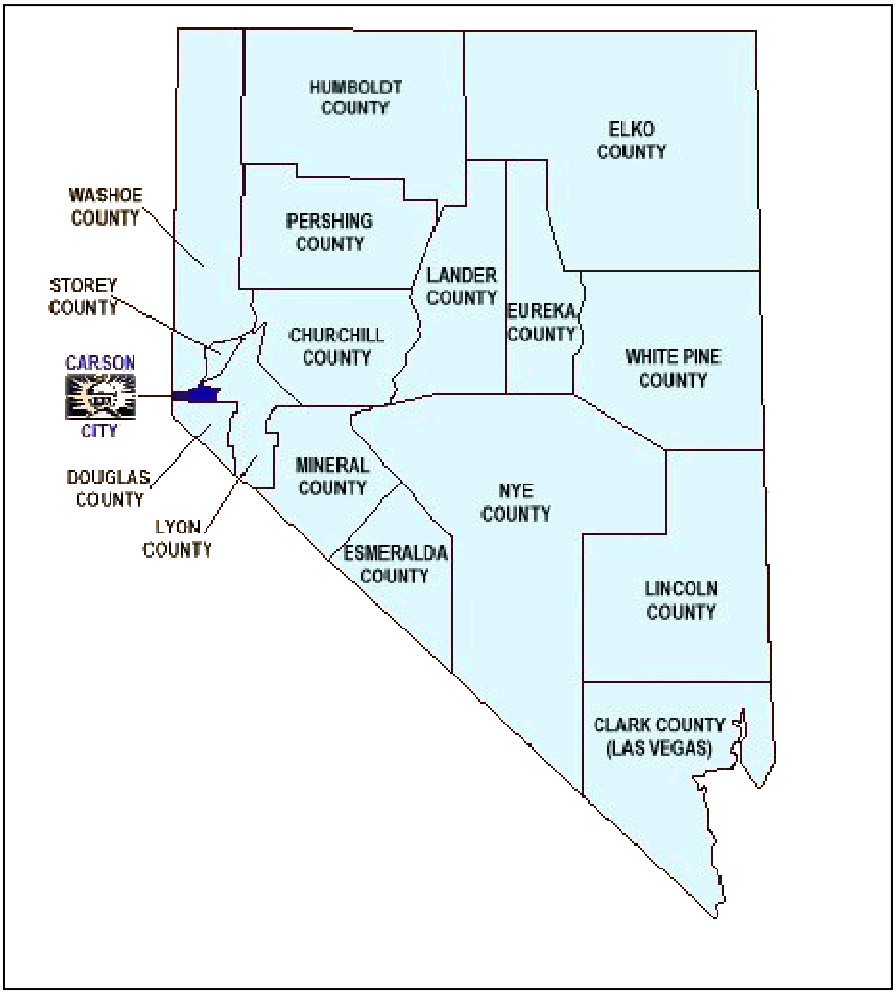
City of Sparks

City of Henderson

University of Nevada System

Appendix C

Counties within Region 27



- **CARSON CITY - STATE CAPITOL**
  - **Carson City/County**

- **CLARK COUNTY**
  - **Las Vegas - County Seat**
  - Boulder City
  - Henderson
  - Laughlin
  - Mesquite

- **CHURCHILL COUNTY**
  - **Fallon - County Seat**
  - Cold Springs

- **DOUGLAS COUNTY**
  - **Minden - County Seat**
  - Gardnerville
  - Genoa
  - Topaz Lake
  - Glenbrook - Lake Tahoe
  - Zephyr Cove - Lake Tahoe

- **ESMERALDA COUNTY**
  - **Goldfield - County Seat**
  - Dyer
  - Lida

- **HUMBOLDT COUNTY**
  - **Winnemucca - County Seat**
  - Denio
  - Golconda
  - McDermitt
  - Orovada
  - Paradise Valley

- **LYON COUNTY**
  - **Yerington - County Seat**
  - Dayton
  - Fernley
  - Mason
  - Silver Springs
  - Stage Coach
  - Smith
  - Wabuska
  - Wellington

- **NYE COUNTY**
  - **Tonopah - County Seat**
  - Amargosa Valley
  - Beatty
  - Belmont
  - Gabbs
  - Manhattan
  - Mercury
  - Pahrump

- **WHITE PINE COUNTY**
  - **Ely - County Seat**
  - Baker
  - Cherry Creek
  - Lund
  - McGill

- **ELKO COUNTY**
  - **Elko - County Seat**
  - Carlin
  - Jackpot
  - Jarbridge
  - Spring Creek
  - Wells
  - West Wendover

- **EUREKA COUNTY**
  - **Eureka - County Seat**
  - Beawawe
  - Crescent Valley
  - Palisade

- **LANDER COUNTY**
  - **Battle Mountain - County Seat**
  - Austin
  - Kingston

LINCOLN COUNTY

  - **Pioche - County Seat**
  - Alamo
  - Ash Springs
  - Caliente
  - Panaca
  - Rachel

- **MINERAL COUNTY**
  - **Hawthorne - County Seat**
  - Luning
  - Mina
  - Schurz

- **PERSHING COUNTY**
  - **Lovelock - County Seat**
  - Imlay
  - Mill City
  - Unionville

- **STOREY COUNTY**
  - **Virginia City - County Seat**
  - Gold Hill

- **WASHOE COUNTY**
  - **Reno - County Seat**
  - Gerlach
  - Incline Village - Lake Tahoe
  - Nixon
  - Verdi
  - Wadsworth

Appendix D
Meeting Attendance and Minutes

STATE of NEVADA
REGION 27
NATIONAL PUBLIC-SAFETY
PLANNING ADVISORY COMMITTEE

October 14, 2002

Dear Public-Safety Official:

The Federal Communications Commission (FCC) in Docket 98-191 issued it's final report and order for the development and implementation of a national Public-Safety Telecommunications plan for recently allocated spectrum between 746 MHz to 806 MHz. This plan is in accordance with a congressional mandate to develop interoperability between local, State and Federal agencies. The FCC in Docket 98-191 has assigned the task of convening regional planning committees to the present Region 27 chair.

Having been duly certified to the FCC by APCO as the Convener of an initial meeting of representatives of parties eligible for radio licensing in the FCC's Public-Safety and Special Emergency Radio Services to establish a Regional Planning Committee in the state of Nevada, designated as Region 27, as described hereinafter, I hereby give Public Notice that such an initial meeting will be held on November 6, 2002 starting at 1:00 pm and continuing through November 7, 2002 at Ely Nevada. This meeting will be held at The Nevada Department of Transportation, Ely District Office and Maintenance Facility, located at 1401 East Aultman Street, Ely, Nevada 89301. This region is one of 48 established by the FCC throughout the United States.

The responsibility of the Region Planning Committee will be to develop a plan for use of the 700 MHz frequencies allocated to the Public-Safety Services.

This Public Notice is in accordance with the FCC's Report and Order in General Docket 98-191, adopted by the FCC on August 6, 1998 and released on September 29, 1998.

Copies of both the Report and Order and the Final Report are available from the FCC's web site at www.fcc.gov.

The inadequacies of communications between agencies, has been demonstrated in every emergency and/or disaster exercise that has taken place in Nevada. This planning process is designed to overcome the deficiencies of communications system in Nevada. The participation of your organization is essential in this planning process.

If you have any question, please contact me at (702) 455-7390, Richard Sheldrew at (775) 888-7888 or Robb Johnson at (702) 229-3216.

Sincerely,

James A. Wilson
Convener
Region 27 Chairman
575 East Flamingo Road
Las Vegas, NV 89119

700 MHz Planning Meeting

Region 27 State of Nevada
Ely, Nevada

November 6 & 7, 2002

Meeting Minutes

A convener was elected to convene the planning committee meeting for the 700 MHz plan. The convener selected was Jim Wilson, current Region 27 Chairman.

The planning committee will create a comprehensive list of eligible public-safety agencies to accommodate the requirement of broad participation by the Federal Communications Commission (FCC). The list will include utilities as eligible participants. The FCC will be questioned, as the utility's participation appears to be an unclear issue. This list will be updated at each meeting.

Meetings will be held via Nevada Department of Transportation (NDOT) video teleconference system throughout the state. This should encourage broad participation and keep complaints to a minimum about the locations of the meetings. Richard Sheldrew, Communications Manager, NDOT, will provide future scheduling dates to accommodate future meetings via NDOT video teleconference system.

The FCC and public-safety members of the State of Nevada will be notified of the first meeting 60 days prior to the meeting. The first meeting is scheduled for January 22, 2003, and it will be held via video teleconference in the State of Nevada at Las Vegas, Reno, Winnemucca, Elko, Tonopah and Ely.

The planning committee will draft the 700 MHz Plan based on the guidelines of the FCC and have it available for review in draft form after December 3, 2002. The draft plan will be made available in electronic format to all participants that RSVP to the first meeting.

Comments to the draft plan shall be sent to the convener in writing. Ken Adams, Deputy Chief of Communications, Nevada Department of Information Technology (DOIT), requested that all state agencies pass all comments through his office.

The planning committee discussed how to create a frequency plan for the 700 MHz frequencies in the State of Nevada.

There was discussion on the possibility of creating a website for the 700 MHz planning information.

The attendees of the first meeting have been documented, and a list is attached to these minutes.

The National Public-Safety Telecommunications Council (NPSTC) will be contacted to see if funding assistance is available.

Issues relating to interoperability will be addressed by the current Region 27 Plan.

This 700 MHz Planning Committee is committed to work with the State of Nevada on interoperability issues.

Region 27
700 MHz Planning Meeting
Attendees
November 6 & 7, 2002

Attendee	Telephone	Agency	E-mail address
Robb Johnson	(702) 229-3216	LVMPD	R7239J@LVMPD.com
Paul Burkholder	(775) 623-6349	Humboldt County	hccdpaul@desertlinc.com
Mike Harmon	(775) 423-7654	CC Communications	mike.harmon@corp.cccomm.net
Penny Rogers	(702) 565-2001	City of Henderson	plr@gty.ci.henderson.nv.us
Brian Reardon	(702) 565-0015	City of Henderson	bkr@ci.henderson.nv.us
Ken Adams	(775) 684-5802	State of NV DOIT	link@doit.state.nv.us
Rich Sheldrew	(775) 888-7888	State of NV DOT	rsheldrew@dot.state.nv
Jim Wilson	(702) 455-7390	SNACC	jimwi@co.clark.nv.us

PUBLIC NOTICE

News media information 202 / 418-0500
Fax-On-Demand 202 / 418-2830
TTY 202 / 418-2555
Internet: http://www.fcc.gov
ftp.fcc.gov

Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

DA 02-3408
December 10, 2002

WIRELESS TELECOMUNICATIONS BUREAU ACTION

REGION 27 (NEVADA) 700 MHz
REGIONAL PLANNING COMMITTEE
ANNOUNCES FIRST MEETING

The Region 27 (Nevada) 700 MHz Public Safety Regional Planning Committee Convener announces that the initial meeting of Region 27 700 MHz Public Safety Regional Planning Committee will be held via Video Teleconference throughout the State of Nevada on January 22, 2003.

The meeting of the Region 27 (Nevada) 700 MHz National Public Safety Planning Advisory Committee will convene at 1:00 p.m. The agenda for this meeting includes:

- Update the list of eligible participants for Region 27,
- Elect a Chairperson, Vice Chairperson and a Secretary for the 700 MHz Committee,
- Identify users that have an immediate need for bandwidth in the 700 MHz Plan,
- Discuss how the Plan was drafted in accordance with the Federal Communications Commission (FCC) Guidelines in FCC No. 98-191 (comments to the first draft should be sent to the Chairperson in writing),
- Discussion of comments submitted,
- Set the next meeting date and time.

The Region 27 meeting Video Teleconference sites are:

Las Vegas: (702) 385-6500
District 1 Training Room
123 East Washington Street, Las Vegas

Reno: (775) 834-8300

REGION 27 NPSPAC
STATE OF NEVADA
700 MHz PLAN

January 22, 2003

NOTICE IS HEREBY GIVEN that the first meeting of the Region 27 National Public-Safety Planning Advisory Committee will be held for the 700 Megahertz (MHz) Spectrum Planning in the State of Nevada. This meeting will be held via Video Teleconference throughout the State of Nevada, at 1 p.m., at the locations listed below:

Las Vegas: District 1 Training Room (702) 385-6500
123 East Washington Street
Las Vegas, NV

Reno: District 2 First Floor Conference Room (775) 834-8300
310 Galetti Way
Reno, NV

Winnemucca: District 3 Headquarters Building (775) 623-8000
725 West 4th Street
Winnemucca, NV

Elko: District 3 Headquarters Building (775) 777-2700
1951 Idaho Street
Elko, NV

Tonopah: Tonopah Headquarters Building (775) 482-2303
805 Erie Main
Tonopah, NV

Ely: Ely Headquarters Building (775) 289-1700
1401 Avenue F
Ely, NV

REGION 27 NPSPAC
STATE OF NEVADA
700 MHz PLAN

January 22, 2003

AGENDA

NOTICE IS HEREBY GIVEN that the first meeting of the Region 27 National Public-Safety Planning Advisory Committee will be held for the 700 Megahertz (MHz) Spectrum Planning in the State of Nevada. This meeting will be held via Video Teleconference throughout the State of Nevada, at 1 p.m., at the locations listed below:

Las Vegas: District 1 Training Room (702) 385-6500
123 East Washington Street
Las Vegas, NV

Reno: District 2 First Floor Conference Room (775) 834-8300
310 Galetti Way
Reno, NV

Winnemucca: District 3 Headquarters Building (775) 623-8000
725 West 4th Street
Winnemucca, NV

Elko: District 3 Headquarters Building (775) 777-2700
1951 Idaho Street
Elko, NV

Tonopah: Tonopah Headquarters Building (775) 482-2303
805 Erie Main
Tonopah, NV

Ely: Ely Headquarters Building (775) 289-1700
1401 Avenue F
Ely, NV

Item # 1

Update the list of eligible participants for Region 27.

Item # 2

Elect a Chairperson, Vice Chairperson and a Secretary for the 700 MHz.

Item # 3

Identify users that have an immediate need for bandwidth in the 700 MHz Plan.

700 MHz Planning Agenda

Item # 4

Discuss how the Plan was drafted by the Federal Communications Commission (FCC) Guidelines in Docket 98-191. Comments to the first draft should be sent to the Chairperson in writing.

Item # 5

Set the next meeting date and time.

Item # 6

Discuss and comments submitted.

Respectfully Submitted

_____
JAMES A. WILSON
Convener Region 27, 700 Plan

REGION 27 NPSPAC
STATE OF NEVADA
700 MHz PLAN

January 22, 2003

Minutes

NOTICE IS HEREBY GIVEN that the first meeting of the Region 27 National Public-Safety Planning Advisory Committee will be held for the 700 Megahertz (MHz) Spectrum Planning in the State of Nevada. This meeting will be held via Video Teleconference throughout the State of Nevada, at 1 p.m., at the locations listed below:

Las Vegas: District 1 Training Room (702) 385-6500
123 East Washington Street
Las Vegas, NV

Reno: District 2 First Floor Conference Room (775) 834-8300
310 Galetti Way
Reno, NV

Winnemucca: District 3 Headquarters Building (775) 623-8000
725 West 4th Street
Winnemucca, NV

Elko: District 3 Headquarters Building (775) 777-2700
1951 Idaho Street
Elko, NV

Tonopah: Tonopah Headquarters Building (775) 482-2303
805 Erie Main
Tonopah, NV

Ely: Ely Headquarters Building (775) 289-1700
1401 Avenue F
Ely, NV

Item # 1

Update the list of eligible participants for Region 27.

Mel Pennington requested that Bob Marins and Sgt. Vainter of the Carson City NHP office be on the mailing list for NHP.

Item # 2

Elect a Chairperson, Vice-Chairperson and a Secretary for the 700 MHz.

Jim Wilson was elected as Chairperson for the 700 MHz Plan for the State of Nevada.

Richard Sheldrew was elected as a Vice-Chairperson to represent the northern half of the State. Mike Garnich was elected as a Vice-Chairperson to represent the southern half of the State. The Vice Chair-person will preside over the technical committees and report to the Chairperson. Jack Conely was elected as the Secretary.

Item # 3

Identify users that have an immediate need for bandwidth in the 700 MHz Plan.

The users who were identified that require immediate need for bandwidth are: Las Vegas Metropolitan Police Department, Washoe County Regional Communications System, Nevada Department of Transportation, City of Henderson and North Las Vegas Police Department.

Item # 4

Discuss how the Plan was drafted by the Federal Communications Commission (FCC) Guidelines in Docket 98-191. Comments to the first draft should be sent to the Chairperson in writing.

The plan is being finished in the first draft form and will be in MS Word format. When completed, it will be sent to all meeting attendees via electronic mail and comments will be accepted in writing addressed to the chairperson. The comments will be assembled for the next meeting. The goal of Region 27 is to produce a plan that is consistent with the requirement of FCC Docket 98-191.

Item # 5

Set the next meeting date and time.

Two dates have been identified for the next meeting: Tuesday, March 18, 2003, and Thursday, March 20, 2003. Richard Sheldrew will advise the Chairperson which date will be acceptable for the NDOT video teleconference in the State.

Item # 6

Discuss and comments submitted.

Jim Wilson thanked the Nevada Department of Transportation for providing the rooms and the video teleconference system. Jim also thanked NDOT for accepting the burden of the mailings to all Region 27 participants. Jim gave an update on receiving grant funds in the amount of $2,500 from the National Planning Committee Telecommunications Council, Support Funding Program (NPSTC) to assist in the planning efforts for Region 27. Jim gave an update on the assistance being received from the National Coordination Committee (NCC) on the television stations occupying the 700 MHz band.

Respectfully Submitted

_____

JAMES A. WILSON
Chairman, Region 27, 700 MHz Plan

ATTENDENCE ROSTER

NAME	DEPT	PHONE	E-MAIL
Jim Wilson	SNACC	455-7390	jimwi@co.clark.nv.us
Robb Johnson	LVMPD	229-3216	R7239@lvmpd.cpm
Rich Sheldrew	NDOT	*888-7888	rsheldrew@dot.state.nv.us
Andy Gagliardo	CC CEIT	455-4746	aga@co.clark.nv.us
Mike Garnich	NLVPD	633-1713	garnichm@ci.north-las-vegas.nv.us
Curtis Steadman	Motorola	558-4437	curtis.steadman@motorola.com
Henry Johnson	Motorola	617-1734	henry.johnosn@motorola.com
Sandy Waide	HPD	565-2480	sew@ci.henderson.nv.us
Ken Adams	NDOIT	*684-5802	link@doit.state.nv.us
Mike Hougan	CLV	229-1025	mhougan@ci.las-vegas.nv.us
Lou Amell	CLV	229-0237	lamell@ci.las-vegas.nv.us
Hector Quiroga	NDOT	*888-7334	hquiroga@dot.state.nv.us
Mel Pennington	DPS	*689-4670	mpennington@dps.state.nv.us
Robert Martins	DPS	*689-4664	rmartins@dps.state.nv.us
John Rosa	DPS	*684-4654	jrosa@dps.state.nv.us
Jim Lopey	WCSO	*328-3328	jlopey@mail.co.washoe.nv.us
Jack Conely	Sparks FD	*846-1468	Jconely@ci.sparks.nv.us

PUBLIC NOTICE

Federal Communications Commission
445 12th St., S.W.
Washington, D.C. 20554

News media information 202 / 418-0500
Fax-On-Demand 202 / 418-2830
TTY 202 / 418-2555
Internet: http://www.fcc.gov
ftp.fcc.gov

DA 05-770
March 25, 2005

WIRELESS TELECOMUNICATIONS BUREAU ACTION

REGION 27 (NEVADA) REGIONAL PLANNING COMMITTEES ANNOUNCE
700 MHz PUBLIC SAFETY REGIONAL PLANNING MEETING
AND
800 MHz PUBLIC SAFETY REGIONAL PLANNING MEETING
(Gen. Docket 89-97)

The Region 27 (Nevada) Public Safety Regional Planning Committees announce two consecutive meetings.

On Tuesday May 31, 2005 at 9:00 a.m., the 700 MHz Public Safety Regional Planning Committee (700 MHz RPC) will convene a meeting at the Clark County Fire Department's Training Center, at 4425 West Tropicana Avenue, Las Vegas, Nevada. The meeting agenda will include:

- Update the list of eligible participants for Region 27,
- Elect a new Chairperson, for the 700 MHz Planning Committee,
- Review and discussion of the draft 700 MHz Plan for submission to the Federal Communications Commission (FCC),
- Discuss how the Plan was drafted using the National Coordination Committee (NCC) Guidelines for 700 MHz Regional Plans. Comments to the first draft should be submitted to the 700 MHz RPC in writing,
- Discuss use of the Computer Assisted Pre-Coordination Resource and Database (CAPRAD) http://caprad.nlectc.du.edu and
- Establish next meeting date and time.

The Region 27 800 MHz Public Safety Regional Planning Committee meeting will convene at the same location following the 700 MHz Regional Planning Committee meeting, and is expected to begin at 1:00 p.m. The meeting agenda will include:

- Update the list of eligible participants for Region 27,
- Status update on the 800 MHz Band Reconfiguration,
- Approval of the repacking of the 800 MHz Regional Plan, and
- Establish next meeting date and time.

REGION 27 NPSPAC
STATE OF NEVADA
700 MHz PLAN
May 31, 2005
AGENDA

NOTICE IS HEREBY GIVEN that a meeting of the Region 27 National Public-Safety Planning Advisory Committee will be held for the 700 Megahertz (MHz) Spectrum Planning in the State of Nevada. This meeting will be held at **The Clark County Fire Training Center 4425 West Tropicana Avenue, Las Vegas, Nevada, 89103 at 9:00 am.**

Item # 1

Update the list of eligible participants for Region 27.

Item # 2

Elect a new Chairperson for the 700 MHz Planning Committee.

Item # 3

Review and discussion of the 700 MHz Plan for submission to the FCC.

Item # 4

Discuss how the Plan was drafted by the Federal Communications Commission (FCC) Guidelines in Docket 98-191. Comments to the first draft should be sent to the committee in writing.

Item # 5

Discussion of the CAPRAD Web site.

Item # 6

Set the next meeting date, time and location.

Respectfully Submitted,

_____
JAMES A. WILSON
Chairman Region 27, 700 Plan

Region 27 700 MHz Committee
Meeting Minutes
May 31, 2005

Meeting called to Order by Jim Wilson, Chairman at approximately 9:15 AM.

Introduction of attendees:

Jim Wilson – Clark County SNACC	Robb Johnson – Metro Police
Mark Pallans – Nevada Shared Radio System	Shawn Tayler – Washoe County
Craig Harrison – Washoe County	Richard Mirgon – Douglas County
Rob Levine – Nevada Highway Patrol	Richard Sheldrew – NDOT
Richard Brooks – NDOT	Jake Connelly – Sparks FD
Air Peak Communications	Nextel Communications

Found that 10 meeting notices had bad addresses. This will be researched.

Election of new Chairman. Mark Pallans nominated by Jim Wilson, second by Richard Sheldrew. No other nominations. Mark Pallans elected.

Mark Pallans took over chair.

Motion made for chair to establish auditing and accounting procedures. Carried.

Discussion of 700 MHz wireless microphones being used by broadcast industry and hotels. Decision made to send information letters to local broadcasters when timing is appropriate.

A writing committee has been established to finalize a draft plan. Thirty days has been allotted to complete the plan and have it review both by northern and southern interests.

A general discussion of the draft plan took place. It is based upon the State of Missouri Plans since that is the one that the FCC is currently looking favorably upon. It was decided that no specific frequency assignments will be made within the plan. The CAPRAD distribution will be used.

A Yahoo group has been established for the Region. It will allow open access to all those interested in the committee actions.

Meeting adjourned at approximately 11:30.

State of Nevada
700 MHz Committee
FCC Region 27

DATE: September 22, 2008

TO: All public safety communications officials

SUBJECT: 700 MHz Radio Spectrum Plan for Nevada, FCC Region 27

PLEASE PASS THIS ON TO THE APPROPRIATE PERSONNEL

On August 6, 1998, the FCC adopted a First Report and Order and Third Notice of Proposed Rule Making that established a band plan and service rules for the 700 MHZ spectrum. Each FCC Region is required to develop a plan for the implementation and use of this spectrum.

At a meeting of the Region 27 Committee on May 31, 2006 it was determined that the region plan would be drafted and submitted to eligibles for review. A copy of this plan is available on line at either of the following locations;

http://www.nevadadot.com/pub_involvement/RadioSpectrum/

or

http://groups.yahoo.com/group/reg27rpc/ **(you must register on this site to access the "FILES" section to view or download the plan)**

If you do not have internet access a copy may be obtained by contacting the Region Committee at 702-657-4205.

Please review this draft plan and provide me with any changes ASAP. If no comments are received by October 16, 2006 it will be assumed that the draft plan is acceptable and it will be forwarded to the FCC for their implementation process.

Should you have any questions feel free to contact me.

Mark D. Pallans
Chairman
FCC Region 27

State of Nevada 700 MHz Region Committee, Mark D. Pallans, Chairman
C/O Nevada Power Company, 2215 East Lone Mountain Road, M/S 93, North Las Vegas, NV 89031
702-657-4205 FAX 702-657-4220 e-mail mpallans@nevp.com

Appendix E

Table of Interoperability Channels

Table of Interoperability Channels

NOTE: The interoperability nomenclature identified below is for reference only pending finalization of channel labeling recommendations currently before the FCC.
These recommendations originated from the National Coordination Committee (NCC) Interoperability Subcommittee asking for standardized channel nomenclature and labeling. The Federal Communications Commission's decisions on channel labeling can alter these values accordingly. The FCC designated 700 MHz interoperability channels will be administered by the Nevada Statewide Interoperability Executive Committee with Federal Communications Commission rules. The FCC's final ruling on interoperability channel labeling and interoperability channel designations and the Nevada Statewide Interoperability Executive Committee interpretation of those rules take precedence over any Region 27 recommendation in this plan.

For Specific Uses/Services

16 CHANNEL SETS	DESCRIPTION	LABEL
Channel 23 & 24	*General Public Safety Services (secondary trunked)*	*7TAC58*
Channel 103 & 104	*General Public Safety Services (secondary trunked)*	*7TAC62*
Channel 183 & 184	*General Public Safety Services (secondary trunked)*	*7TAC66*
Channel 263 & 264	*General Public Safety Services (secondary trunked)*	*7TAC70*
Channel 39 &40	Calling Channel	7CAL59
Channel 119 & 120	General Public Safety Service	7TAC63
Channel 199 & 200	General Public Safety Service	7TAC67
Channel 279 & 280	Mobile Data	7DAT71
Channel 63 & 64	Emergency Medical Service	7EMS60
Channel 143 & 144	Fire Service	7FIR64
Channel 223 & 224	Law Enforcement Service	7LAW68
Channel 303 & 304	Mobile Repeater	7MOB68
Channel 79 & 80	Emergency Medical Service	7EMS61
Channel 159 & 160	Fire Service	7FIR65
Channel 239 & 240	Law Enforcement Service	7LAW69
Channel 319 & 320	Other Public Service	7TAC73
Channel 657 & 658	*General Public Safety Services (secondary trunked)*	*7TAC74*
Channel 737 & 738	*General Public Safety Services (secondary trunked)*	*7TAC78*
Channel 817 & 818	*General Public Safety Services (secondary trunked)*	*7TAC82*
Channel 897 & 898	*General Public Safety Services (secondary trunked)*	*7TAC86*
Channel 681 & 682	Calling Channel	7CAL75
Channel 761 & 762	General Public Safety Service	7TAC79
Channel 841 & 842	General Public Safety Service	7TAC83

Channel 921 & 922	Mobile Data	7DAT87
Channel 641 & 642	Emergency Medical Service	7EMS76
Channel 721 & 742	Fire Service	7FIR80
Channel 801 & 802	Law Enforcement Service	7LAW84
Channel 881 & 882	Mobile Data	7MOB88
Channel 697 & 698	Emergency Medical Service	7EMS77
Channel 777 & 778	Fire Services	7FIR81
Channel 857 & 858	Law Enforcement Service	7LAW85
Channel 937 & 938	Other Public Services	7TAC89

Project 25 Common Air Interface Interoperability channel 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 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.

Use of corresponding 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 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

Simplified 700 MHz Pre-assignment Rules

Simplified 700 MHz Pre-assignment Rules

Introduction

This paper describes a process for coordinating the initial block assignments of 700 MHz channels before details of actual system deployments is available. In this initial phase, there is little actual knowledge of the specific equipment to be deployed and the exact antenna sites locations. As a result, a simple, high-level 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 for each applicant. This will normally be an area defined by geographical or political boundaries such as city, county or by a data file consisting of line segments creating a polygon that encloses the defined area. The service contour is normally allowed to extend slightly beyond the geo/political boundaries such that systems can be designed for maximum signal levels within the boundaries, or coverage area. Systems must also be designed to minimize signal levels outside their geo/political boundaries to avoid interference into the coverage area of other co-channel users.

For co-channel assignments, the 40 dBμ service contour will be allowed to extend beyond the defined service area by 3 to 5 miles, depending on the type of environment: urban, suburban or rural. The co-channel 5 dBμ interfering contour will be allowed to touch but not overlap the 40 dBμ service contour of the system being evaluated. All contours are (50,50).

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

Discussion

Based upon the ERP/HAAT limitations referenced in 47CFR ¶ 90.541(a), the maximum field strength will be limited to 40 dB relative to 1μV/m (customarily denoted as 40 dBμ). It is assumed that this limitation will be applied similar 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 beyond 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 that public safety systems have adequate margins for reliability within their service area in the presence of interference, including the potential for interference from CMRS infrastructure in adjacent bands.
The value of 40 dBμ in the 700 MHz band 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 bandwidth 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.

If CMRS out-of-band emissions (OOBE) noise is allowed to be equal to the original thermal noise floor, there is a 3 dB reduction[1] in the available margin. This lowers the reliability and/or the channel performance of Public Safety systems. The left side of Figure 1 shows that the original 33 dB margin is reduced by 3 dB to only 30 dB available to determine "noise + CMRS OOBE limited" performance and reliability.

There are also different technologies with various channel bandwidths and different performance criteria. C/N in the range of 17 – 20 dB is required to achieve channel performance.

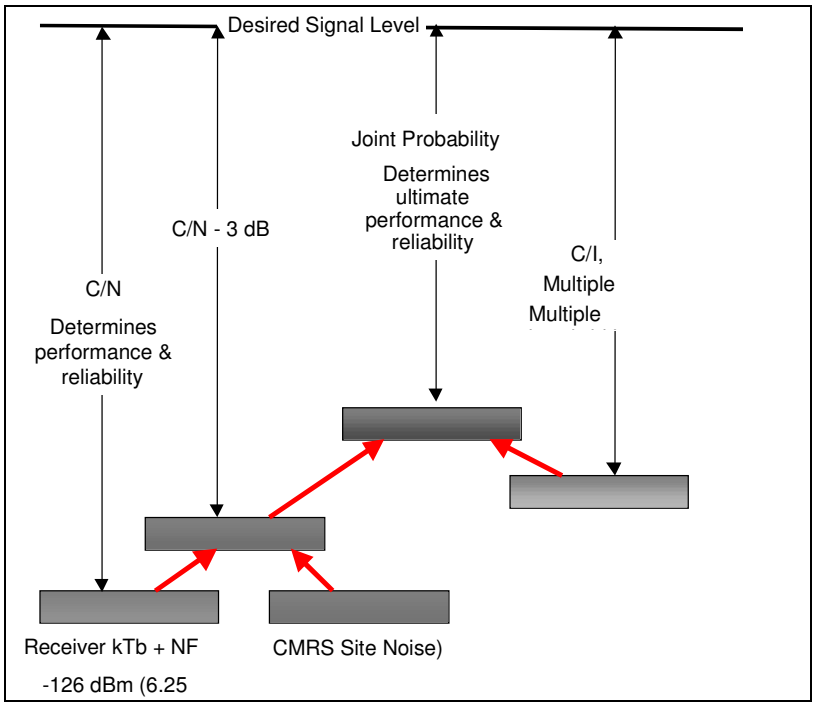


Figure 1 - Interfering Sources Create A "Noise" Level Influencing Reliability

In addition, 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. At the edge of the service area, there would normally be only a single co-channel source, but there could potentially be several adjacent or alternate channel sources involved. It is recommended that co-channel assignments limit interference to <1% at the edge of the

[1] TIA TR8 made this 3 dB allowance for CMRS OOBE noise during the meetings in Mesa, AZ, January 2001.

service area (worst case mile). A C/I ratio of 26.4 dB plus the required capture value (~10 dB) is required to achieve this goal.[2].

The ultimate performance and reliability has to take into consideration both the noise sources (thermal & CMRS OOBE) and all the interference sources. The center of Figure 1 shows that the joint probability that the both performance criteria and interference criteria are met must be determined.

Table 1 shows estimated performance considering the 3 dB rise in the noise floor at the 40 dBμ signal level. Performance varies due to the different Cf/N requirements and noise floors of the different modulations and channel bandwidths.

Note that since little is known about the affects of terrain, an initial lognormal standard deviation of 8 dB is used.

Comparison of Joint Reliability for various				
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)	**94.7%**	**94.7%**	**90.4%**	**76.1%**
40 dBu = -92.7 dBm @ 770 MHz				

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

These values are appropriate for a mobile on the street, but are considerably short to provide reliable communications to portables inside buildings.

Portable In-Building Coverage

[2] See Appendix A for an explanation of how the 1% interference value is defined and derived.

Most Public Safety communications systems, today, are designed for portable in-building[3] coverage and the requirement for >95 % reliable coverage. To analyze the impact of requiring portable in building coverage and designing to a 40 dBμ service contour, several scenarios are presented. The different scenarios involve a given separation from the desired sites. Whether simulcast or multi-cast is used in wide-area systems, the antenna sites must be placed near the service area boundary and directional antennas, directed into the service area, must be used. The impact of simulcast is included to show that the 40 dBμ service contour must be able to fall outside the edge of the service area in order to meet coverage requirements at the edge of the service area. From the analysis, recommendations are made on how far the 40 dBμ service contour should extend beyond the service area.

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 service contour 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 a single site cannot provide >95% reliability. Either more sites must be used to reduce the distance or other system design techniques must be used to improve the reliability. For example, the table shows that simulcast can be used to

[3] Building penetration losses typically required for urban = 20 dB, suburban = 15 dB, rural = 10 dB.

achieve public safety levels of reliability at this distance. Table 2 also shows that the difference in performance margin requirements for wider bandwidth channels requires more sites and closer site-to-site separation.

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)

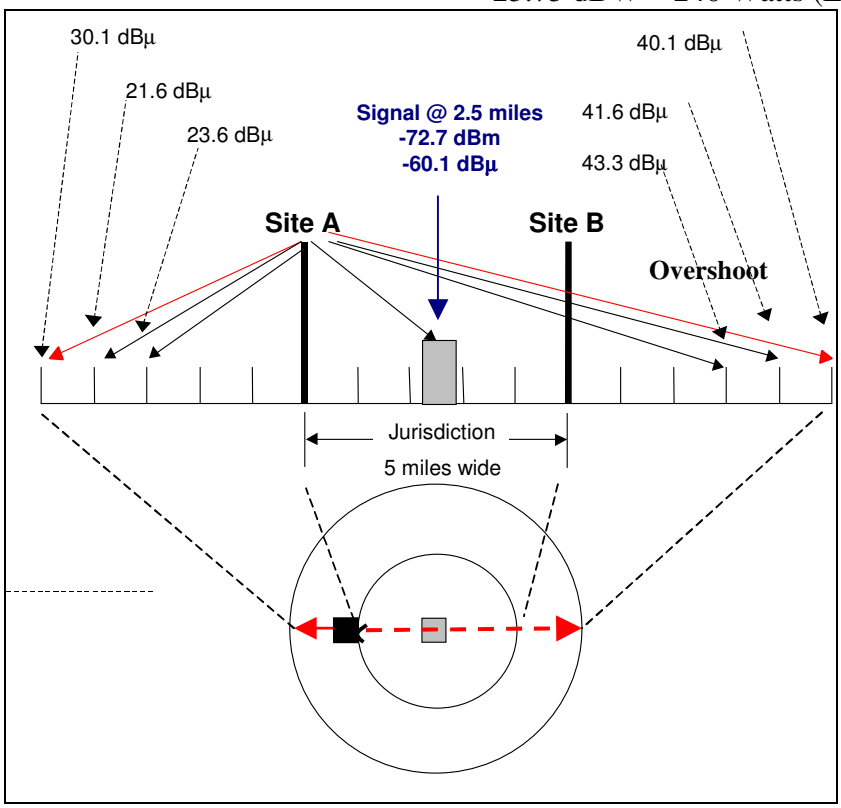


Figure 2 - Field Strength From Left Most Site.

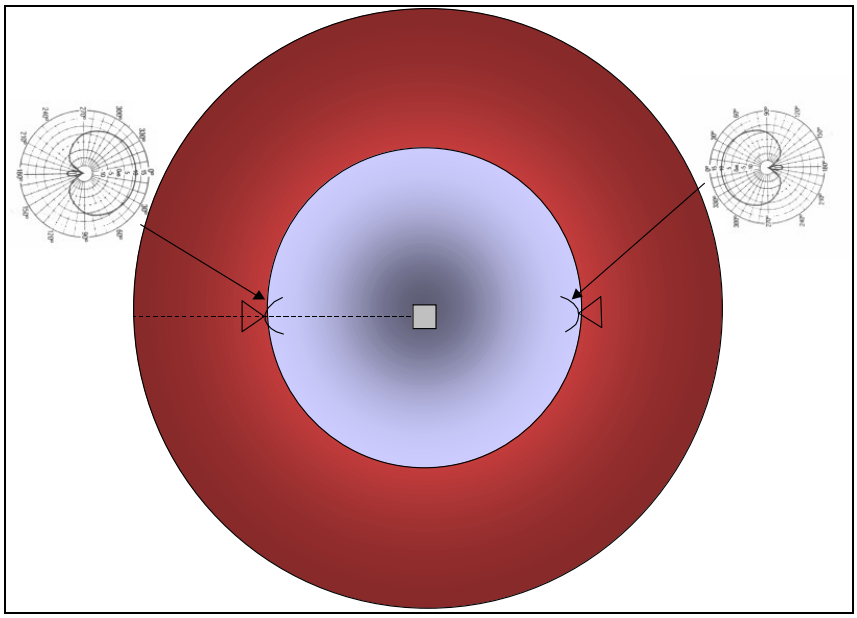


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

Figure 2 is for an urbanized area with a jurisdiction defined as 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 and utilize directional 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 a 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 optomistic due to back scatter 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 a 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.

Downtilting of antennas, instead of directional antennas, to control the 40 dBμ is not practical, in this scenario. For a 200 foot tall tower, the center of radiation from a 3 dB down-tilt antenna hits the ground at ~ 0.75 miles[4]. The difference in angular discrimination from a 200 foot tall tower at service area boundary at 5 miles and service contour at 10 miles is approximately 0.6 degrees, so ERP is basically the same as ERP toward the horizon. It

[4] Use of high gain antennas with down-tilt on low-level sites is one of the causes of far-near interference experienced in the 800 MHz band.

would not be possible to achieve necessary signal strength at service area boundary and have 40 dBμ service contour be less than 5 miles away.

Tables 3 and 4 represent the same configuration, but for less dense buildings. In these cases, the distance to extend the 40 dBμ service contour can be determined from Table 5.

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 3.5 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 5.0 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.

	Site A Direct Path	Site B Back Side of 20 dB F/B Antenna

Overshoot Distance (mi)	Field Strength (dBμ)	Field Strength (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

For the scenarios above, the composite level at the Service Contour is the sum of the signals from the two sites. The sum can not exceed 40 dBμ. Table 5 allows you to calculate the distance to Service Contour given the distance from one of the sites.

Scenario 1: Refer to Figure 3a. Site B is just inside the Service Area boundary and Service Contour must be <5 Miles outside Service Area boundary. Signal level at Service Contour from Site B is 30.1 dBμ. Signal level for Site A can be up to 40 dBμ, since when summing two signals with >10 dB delta, the lower signal level has little effect (less than 0.4 dB in this case). Therefore, Site A can be 10 miles from the Service Contour, or 5 miles inside the Service Area boundary. The coverage perfomance for this scenario is shown in Table 2, above, for 20 dB building loss typical of urban areas.

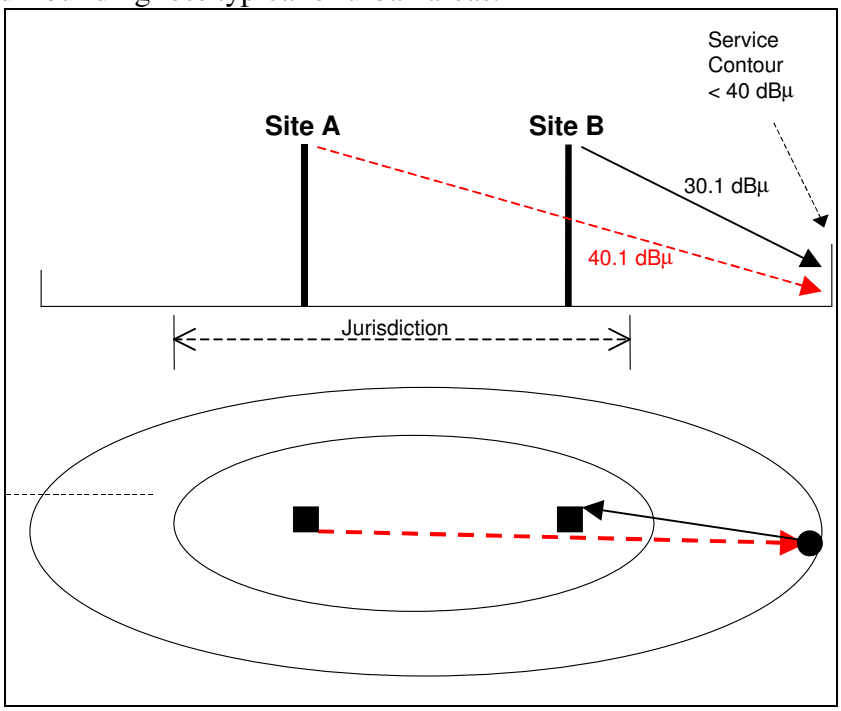


Figure 3a. Scenario 1 on of Use of Table 5

Scenario 2: Refer to bold data in Table 5. Site B is just inside the Service Area boundary and Service Contour must be <4 Miles outside Service Area boundary. Signal level at Service Contour from Site B is 33.5 dBμ. Signal level for Site A can be up to 38.4 dBμ. (See Appendix B for simple method to sum the powers of signals expressed in decibels.) The composite power level is 39.7 dBμ. Therefore, Site A can be slightly less than 11 miles from the Service Contour, or ~7 miles inside the Service Area boundary. The coverage perfomance for this example is shown in Table 3, above, for 15 dB building loss typical of suburban areas.

Scenario 3: Site B is just inside the Service Area boundary and Service Contour must be <3 Miles outside Service Area boundary. Signal level at Service Contour from Site B is 37.5 dBμ. Signal level for Site A can be up to 36.4 dBμ. (See Appendix B simple method to sum signals expressed in decibels.) The composite power level is 40.0 dBμ. Therefore, Site A can be ~13 miles from the Service Contour, or ~10 miles inside the Service Area boundary. The coverage perfomance for this example is shown in Table 4, above, for 10 dB building loss typical of rural areas.

Service Contour Extension Recommendation

The resulting recommendation for extending the 40 dBμ service contour beyond the service area boundary is:

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

Using this recommendation the 40 dBμ service contour can then be constructed based on the defined service area without having to perform an actual prediction.

Interfering Contour

Table 1 above shows that 36.4 dB of margin is required to provide 10 dB of co-channel capture and <1% probability of interference. Since the 40 dBμ service contour is beyond the edge of the service area, some relaxation in the level of interference is reasonable. Therefore, a 35 dB co-channel C/I ratio is recommended and is consistent with what is currently being licensed in the 821-824/866-869 MHz Public Safety band.

Co-Channel Interfering Contour Recommendation

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

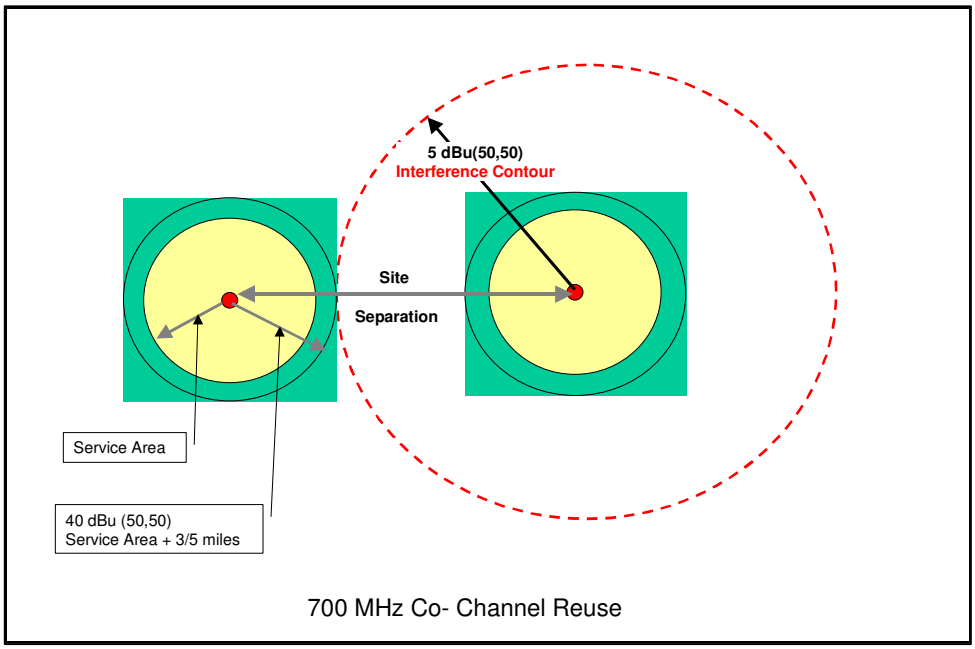


Figure 4 - Co-Channel Reuse Criterion

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 (e.g., 6 kHz ENBW). ACP defines the energy in a measured bandwidth that is typically wider than the receiver (e.g., 6.25 kHz channel bandwidth). As a result, the FCC values are optimistic at very close spacing and somewhat pessimistic at wider spacings, as the typical receiver filter is less than the channel bandwidth.

In addition, as channel bandwidth is increased, the total amount of noise intercepted rises compared to the level initially defined in a 6.25 kHz channel bandwidth. However, the effect is diminished at very close spacings as the slope of the noise curve falls off rapidly. At

greater spacings, the slope of the noise curve is essentially flat and the receiver's filter limits the noise to a 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 muting in digital receivers. Therefore to maintain a DAQ = 3, at least 17 dB of fading margin plus the 26.4 dB margin for keeping the interference below 1% probability is required, for a total margin of 43.4 dB. However, this margin would be at the edge of the service area and the 40 dBμ service contour 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 spectrum blocks.

The assumption is that initial spectrum coordination sorts are based on 25 kHz bandwidth 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.

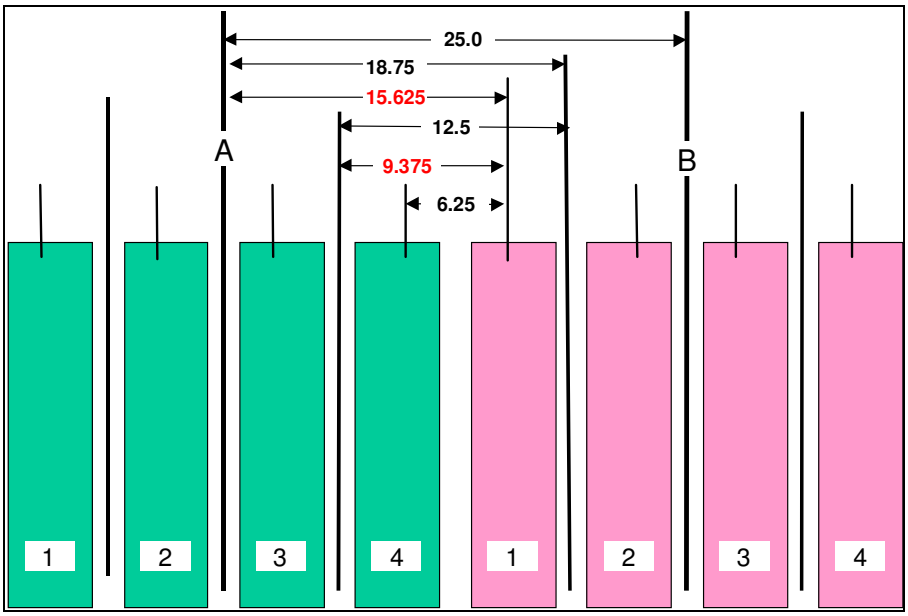


Figure 5, Potential Frequency Separations

Case	Spacing	ACCPR
25 kHz to 25 kHz	25 kHz	65 dB
25 kHz to 12.5 kHz	18.750 kHz	65 dB
25 kHz to 6.25 kHz	15.625 kHz	>40 dB
12.5 kHz to 12.5 kHz	12.5 kHz	65 dB
12.5 kHz to 6.25 kHz	9.375 kHz	>40 dB
6.25 kHz to 6.25 kHz	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 Project 25 Phase 2 narrowband 6.25 kHz channel. This pre-coordination based upon 25 kHz spectrum blocks still works if system designers and frequency coordinators keep this consideration in mind and move the edge 6.25 kHz channels inward away from the edge of the system. This approach allows a constant value of 65 dB ACCPR to be applied across all 25 kHz spectrum blocks regardless of what channel bandwidth is eventually deployed. There will also be additional coordination adjustments when exact system design details and antenna sites are known.

For spectrum blocks spaced farther away, it must be assumed that transmitter filtering, in addition to transmitter performance improvements due to greater frequency separation, will further reduce the ACCPR.

Therefore it is recommended that a consistent value of 65 dB ACCPR be used for the initial coordination of adjacent 25 kHz channel blocks. Rounding to be conservative due to the possibility of multiple sources allows the Adjacent Channel Interfering Contour to be approximately 20 dB above the 40 dB□ service contour, at 60 dB□.

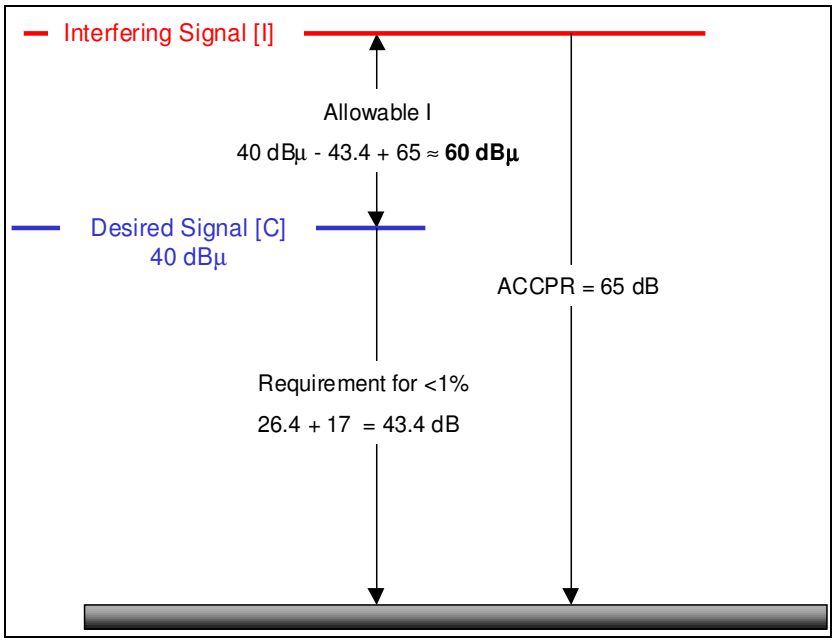


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

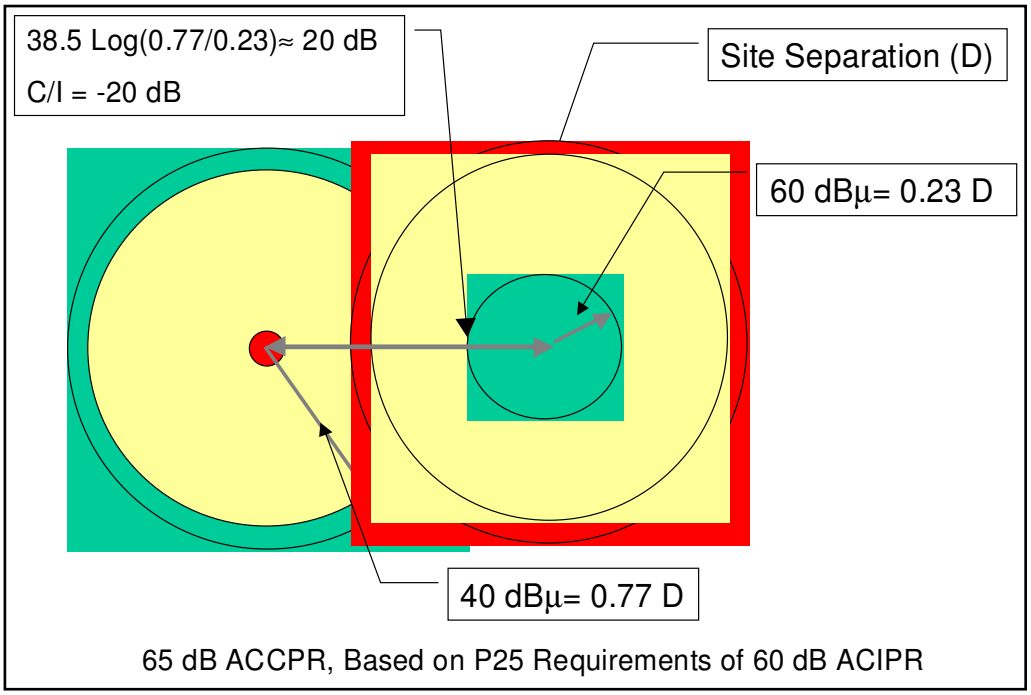


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

Adjacent Channel Interfering Contour

Recommendation

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

Final Detailed Coordination

This simple method is only adequate for presorting large blocks of spectrum 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 ERPs and HAATs
- 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.

Appendix A

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, if 10% Interference is specified, the C/I implies 90% probability of successfully achieving the desired ratio. 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

These various relationships are shown in Figure A1, a continuous plot of equation(s) 1 and 2.

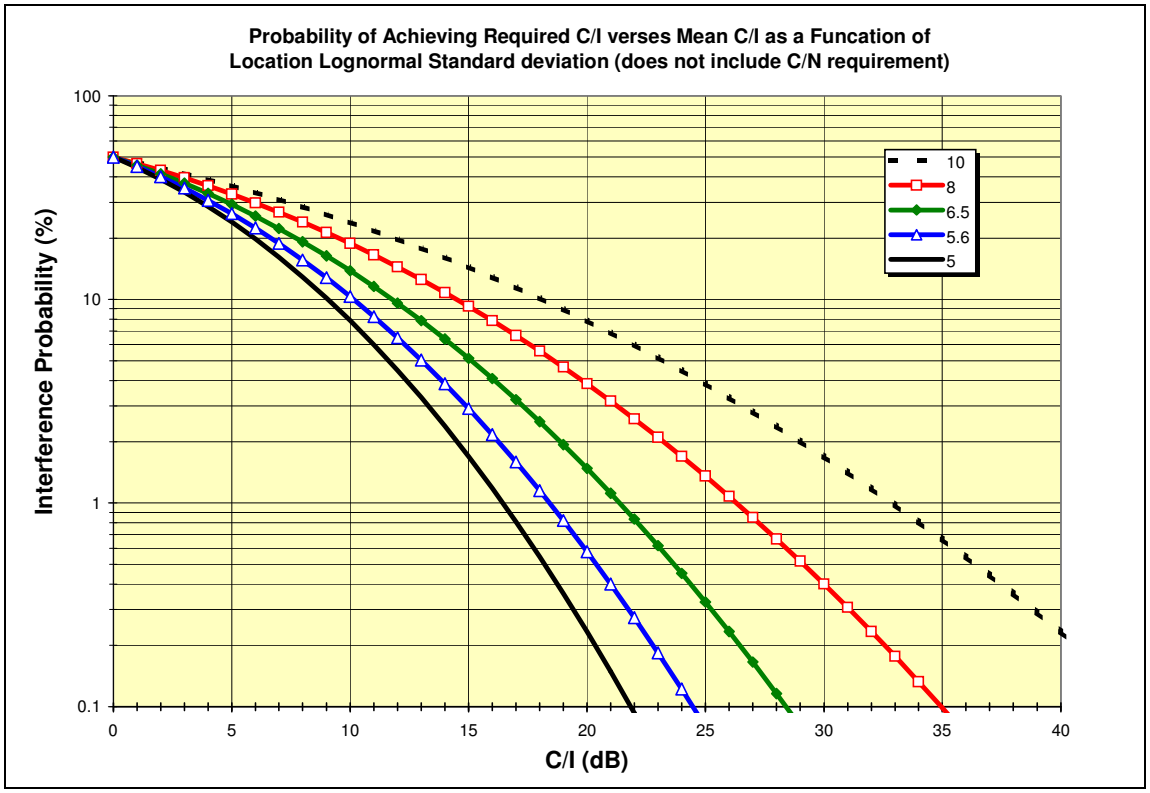


Figure A1, Probability Of Achieving Required C/I As A Function Of Location Standard Deviation

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 value 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. Using 8 dB initially and changing to 5.6 dB provides additional flexibility necessary to complete the final system 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 in less degradation of the 90%.

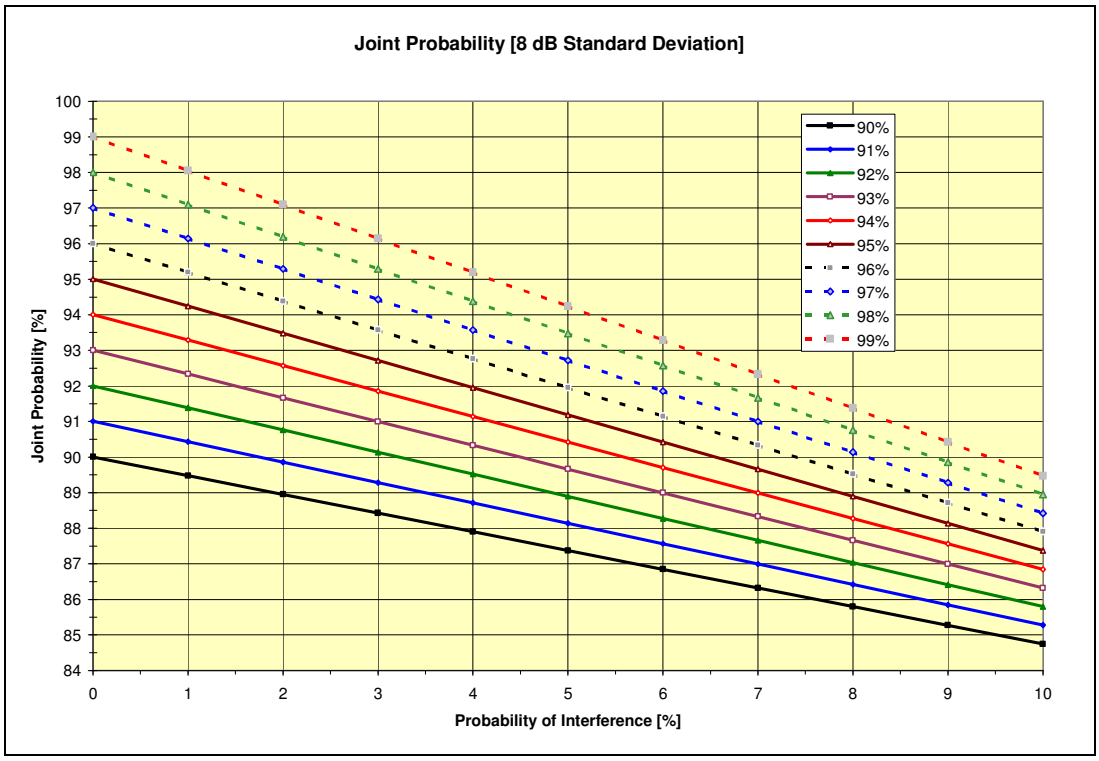
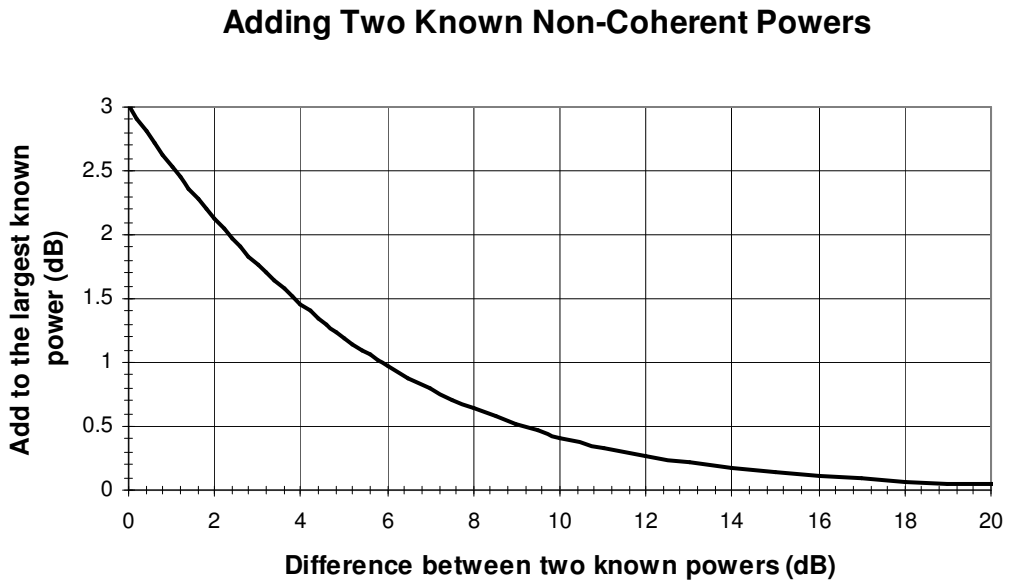


Figure A2 - Effect Of Joint Probability On The Composite Probability

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 B



In order to sum the power of two or more signals expressed in dBm or dBμ, they level should be converted to a voltage level or a power level, summed (root of the sum of the squares), and then converted back to dBm or dBμ.

The chart above provides simple method to sum two power levels expressed in dBm or dBμ. First find the difference between the two signals on the horizontal axis. Go up to the curve and across to the vertical axis to find the power delta. Add the power delta to the larger of the two original signal levels.

Example 1: Signal A is 36.4 dBμ. Signal B is 37.5 dBμ. Difference is 1.1 dB. Power delta is about 2.5 dB. Composite signal level is 37.5 dBμ + 2.5 dB = 40 dBμ.

Example 2: Signal is –96.3 dBm. Signal B is –95.2 dBm. Difference is 1.1 dB. Power delta is about 2.5 dB. Composite signal level is –95.2 dBm + 2.5 dB = -92.7 dBm.

Appendix G

Region 27 Channel Allocation Plan

Pre-Allocation and Current Assignment of Spectrum Statement

As of January, 2008, the system that has been approved for assisting the majority of the 700 MHz Regional Planning Committees, including Region 27, known as CAPRAD, had not yet been updated to reallocate spectrum to comply with the FCC's 2nd R&O (FCC 07-132). When this system has been updated, Region 27 will utilize this pre-sorted allocation as the guideline for assigning spectrum. In the interim, assignments that are made within Region27 will seek adjacent region approval when any site or operational area of the applicant is within 120 km of any adjacent region. Region 27 will also provide updates to CAPRAD with all assignments that have been made during this transition period, when the system is operational.

~~**The Region 27 Channel allocations have been established by the National Public Safety Telecommunications Council's channel packing program. Region 27 anticipates an open filing window where applicants can apply for available channels in their county area, until all channels are depleted. A "County Area" is defined as an area consisting of the area within the county as well as a distance of up to 10 miles outside of the county. It is anticipated this extended county area will enable Region 27 to maximize channel re-use of any "orphan" remainders.**~~

~~County~~	~~Class~~	~~Band Width~~	~~FCC Channel Number~~	~~Base Frequency~~	~~Mobile Frequency~~
~~Carson City~~	~~General Use~~	~~Voice 25KHz~~	~~121-124~~	~~764.762500~~	~~794.762500~~
	~~General Use~~	~~Voice 25KHz~~	~~373-376~~	~~766.337500~~	~~796.337500~~
	~~General Use~~	~~Voice 25KHz~~	~~441-444~~	~~766.762500~~	~~796.762500~~
	~~General Use~~	~~Voice 25KHz~~	~~517-520~~	~~773.237500~~	~~803.237500~~
	~~General Use~~	~~Voice 25KHz~~	~~569-572~~	~~773.562500~~	~~803.562500~~
	~~General Use~~	~~Voice 25KHz~~	~~625-628~~	~~773.912500~~	~~803.912500~~
	~~General Use~~	~~Voice 25KHz~~	~~713-716~~	~~774.462500~~	~~804.462500~~
	~~General Use~~	~~Voice 25KHz~~	~~877-880~~	~~775.487500~~	~~805.487500~~
~~Churchill~~	~~General Use~~	~~Voice 25KHz~~	~~125-128~~	~~764.787500~~	~~794.787500~~
	~~General Use~~	~~Voice 25KHz~~	~~201-204~~	~~765.262500~~	~~795.262500~~
	~~General Use~~	~~Voice 25KHz~~	~~329-332~~	~~766.062500~~	~~796.062500~~
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	~~General Use~~	~~Voice 25KHz~~	~~525-528~~	~~773.287500~~	~~803.287500~~
	~~General Use~~	~~Voice 25KHz~~	~~581-584~~	~~773.637500~~	~~803.637500~~
	~~General Use~~	~~Voice 25KHz~~	~~621-624~~	~~773.887500~~	~~803.887500~~
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	~~General Use~~	~~Voice 25KHz~~	~~709-712~~	~~774.437500~~	~~804.437500~~
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	~~General Use~~	~~Voice 25KHz~~	~~121-124~~	~~764.762500~~	~~794.762500~~
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	~~General Use~~	~~Voice 25KHz~~	~~757-760~~	~~774.737500~~	~~804.737500~~
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Appendix H

Inter-Regional Coordination Procedures And Procedures for Resolution of Disputes That May Arise Under FCC Approved Plans I.

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

I. Coordination Procedures

I. INTRODUCTION

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees, Arizona, Region 3, Southern California, Region 5, Northern California, Region 6, and Nevada, Region 27.

II. INTER-REGIONAL COORDINATION AGREEMENT

2. The following is the specific procedure for inter-regional coordination which has been agreed upon by Regions 3,5,6, and 27 and will be used by the Regions to coordinate between these adjacent Regional Planning Committees when:

a. 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.

b. Applications by eligible entities are accepted.

c. An application filing window (if this procedure is being used) is closed after appropriate time interval.

d. Intra-regional review and coordination takes place, including a technical review resulting in assignment of channels.

e. 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.

[1] If an applicant's proposed service area extends into an adjacent Public Safety Region(s)or a base station is within 70 miles of the adjacent regions border, the application must be approved by the affected Region(s).

f. 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.

II. Dispute Resolution

(1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten) calendar days via email. 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 email (CAPRAD database). Findings may include, but not be limited to:

(i) Unconditional concurrence;

(ii) conditional concurrence contingent upon modification of applicant's technical parameters; or

(iii) 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.

(2) 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. 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

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 *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

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.

g. 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.

h. 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).

i. 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.

III. CONCLUSION

3. IN AGREEMENT HERETO, Regions 3, 5, 6, and 27 do hereunto set their signatures.

Respectfully,

Curt Knight, Chairperson Region 3

Date: 3/19/03

David Buchanan, Chairperson Region 5

David Buchanan Date: 5-12-2003

William DeCamp, Chairperson Region 6

Wm DeCamp Date: 5/9/03

James A. Wilson, Chairperson Region 27

J A Wilson Date: 7-08-03

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

I. Coordination Procedures

I. INTRODUCTION

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees; Nevada, Region 27 and Oregon, Region 35.

II. INTER-REGIONAL COORDINATION AGREEMENT

1. The following is the specific procedure for inter-regional coordination which has been agreed upon by Regions 35 and 27 and will be used by the Regions to coordinate between these adjacent Regional Planning Committees when:

a. 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.

b. Applications by eligible entities are accepted.

c. An application filing window (if this procedure is being used) is closed after appropriate time interval.

d. Intra-regional review and coordination takes place, including a technical review resulting in assignment of channels.

e. 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.

f. 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.

[1] If an applicant's proposed service area extends into an adjacent Public Safety Region(s)or a base station is within 70 miles of the adjacent regions border, the application must be approved by the affected Region(s). 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 Memorandum of Understanding (MOU) or other application documentation between agencies, i.e. mutual aid agreements.

g. 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.

h. 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).

i. 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.

II. Dispute Resolution

1) If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten) calendar days via email. 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 email (CAPRAD database). Findings may include, but not be limited to:

(i) Unconditional concurrence;

(ii) conditional concurrence contingent upon modification of applicant's technical parameters; or

(iii) 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.

2) 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. 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.

III. CONCLUSION

3. IN AGREEMENT HERETO, Regions 35 and 27 do hereunto set their signatures.

Respectfully,

Mark D. Pallans, Region 27 — Date 12/20/06

David Brooks, Region 35 — Date 1/8/07

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

I. INTRODUCTION

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees: Region 12 Idaho and Region 27 Nevada.

II. INTER-REGIONAL COORDINATION AGREEMENT

The following is the specific procedure for inter-Regional coordination which has been agreed upon by the Regions as listed above, and which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

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.

[1] If an applicant's proposed service area extends into an adjacent Public Safety Region(s), the application must be approved by the affected Region(s). 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 *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

III Dispute Resolution

1. If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. 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 email (CAPRAD database). Findings may include, but not be limited to:

(a) Unconditional concurrence;

(b) Conditional concurrence contingent upon modification of Applicant's technical parameters; or

(c) 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.

2. 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. 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.

(a) 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.

(b) 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).

(c) 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.

IV. CONCLUSION

IN AGREEMENT HERETO, Regions as above do hereunto set their signatures the day and year first above written.

Respectfully,

Lt. Bart Hamilton
Region 12 700 MHz Chairperson Date: 7/6/05

Mark D. Pallans
Region 27 700 MHz Chairperson Date: 6/29/05

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

I. INTRODUCTION

1. This is a mutually agreed upon Inter-Regional Coordination Procedures Agreement (Agreement) by and between the following 700 MHz Regional Planning Committees: Region 41 Utah and Region 27 Nevada.

II. INTER-REGIONAL COORDINATION AGREEMENT

The following is the specific procedure for inter-Regional coordination which has been agreed upon by the Regions as listed above, and which will be used by the Regions to coordinate with adjacent Regional Planning Committees.

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.

[1] If an applicant's proposed service area extends into an adjacent Public Safety Region(s), the application must be approved by the affected Region(s). 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 *Memorandum of Understanding (MOU)* or other application documentation between agencies, i.e. mutual aid agreements.

III Dispute Resolution

1. If the adjacent Region(s) cannot approve the request, the adjacent Region shall document the reasons for partial or non-concurrence, and respond within 10 (Ten)-calendar days via email. 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 email (CAPRAD database). Findings may include, but not be limited to:

(a) Unconditional concurrence;

(b) Conditional concurrence contingent upon modification of Applicant's technical parameters; or

(c) 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.

2. 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. 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.

(a) 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.

(b) 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).

(c) 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.

IV. CONCLUSION

IN AGREEMENT HERETO, Regions as above do hereunto set their signatures the day and year first above written.

Respectfully,

Steven H. Proctor
Region 41 700 Chairperson Date: 7/5/05

Mark D. Pallans
Region 27 700 Chairperson Date: 6/29/05

Appendix I
Concurrence of Adjacent Regions

The following is an electronic copy of the signed PDF versions from Region 27's adjacent regions concurring with this Region Plan.

Nevada 700 MHz Region Plan Concurrence

Mark D. Pallans
Chairman
Nevada Region 700 MHz Committee
C/O Nevada Power Company
Mailstop 93
2215 East Lone Mountain Road
North Las Vegas, NV 89031

Dear Mark:

This letter serves as official notification and written concurrence that Region 12, Idaho, is in receipt of the proposed Nevada 700 MHz Region Plan. Region 12 concurs with the plan.

Please contact me if you require any further assistance.

Thank you,

Region Chairman
Region 12

Dated: December 18, 2006

Regional Chairman
Idaho
Lt. Bart Hamilton
Ada County Sheriff's Office
7200 Barrister Drive
Boise, Idaho 83704
PH: 208-577-3611
FX: 208-377-6535
Email: bhamilton@adaweb.net

REGION 6 – 700 MHz REGIONAL PLANNING COMMITTEE

Date: 12/15/06

Mark D. Pallans
Chairman
Nevada Region 700 MHz Committee
C/O Nevada Power Company
Mailstop 93
2215 East Lone Mountain Road
North Las Vegas, NV 89031

Subject: Nevada 700 MHz Region 27 Plan Concurrence

Dear Mark:

This letter serves as official notification and written concurrence that Region 6, Northern California, is in receipt of the proposed Nevada 700 MHz Region Plan dated 11/27/06. Being adjacent to Region 27, Northern California's Region 6 has studied the Region 27 - 700 MHz Regional Plan (including its Channel Allocation Plan in Appendix G), and determined it incorporates the requisite safeguards and procedural remedies against adversely affecting Region 6's use of its fair share of 700 MHz spectrum. As such, Region 6 concurs with the plan.

Please contact me if you require any further assistance.

Thank you,

Wm De Camp

William De Camp, P.E., Chair
Region 6 – 700 MHz Regional Planning Committee

State of California, DGS Telecom Division
601 Sequoia Pacific Blvd., MS WH7
Sacramento, CA 95814
PH: 916-657-9205
FX: 916-657-9231
Email: william.decamp@dgs.ca.gov

Region 35
David Brooks
Region 35 Chairman 700MHz/800MHz

Communication and Networking
3732 SE 99th Avenue
Portland, Oregon 97266-2605
(503) 823-4767
FAX (503) 823 4185

Dear Mark:

This letter serves as official notification and written concurrence that Region 35, Oregon, is in receipt of the proposed Nevada 700 MHz Region Plan. Region 35 concurs with the plan.

Please contact me if you require any further assistance.

Thank you,

Region Chairman
Region 35

Dated: 12/1/06

Regional Chairperson
Oregon
David Brooks
Radio System Manager, City of Portland
BTS/ ComNet Engineering
3732 SE 99th Avenue
Portland, OR 97266-2605
PH: 503-823-4767
FX: 503-823-4185
Email: dbrooks@ci.portland.or.us

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Nevada 700 MHz Region Plan Concurrence

Mark D. Pallans
Chairman
Nevada Region 700 MHz Committee
C/O Nevada Power Company
Mailstop 93
2215 East Lone Mountain Road
North Las Vegas, NV 89031

Dear Mark:

This letter serves as official notification and written concurrence that Region 5, Southern California, is in receipt of the proposed Nevada 700 MHz Region Plan. Region 5 concurs with the plan.

Please contact me if you require any further assistance.

Thank you,

Region Chairman
Region 5

Dated: 12-21-2006

Regional Chairman
Southern California
David Buchanan
7445 Palm Ave.
Highland CA 92346
PH: 909-862-1522
Cell PH: 909-633-9336
Email: dave.scaadvisor@pacbell.net

Nevada 700 MHz Region Plan Concurrence

Mark D. Pallans
Chairman
Nevada Region 700 MHz Committee
C/O Nevada Power Company
Mailstop 93
2215 East Lone Mountain Road
North Las Vegas, NV 89031

Dear Mark:

This letter serves as official notification and written concurrence that Region 41 Utah, is in receipt of the proposed Nevada 700 MHz Region Plan. Region 41 concurs with the plan.

Please contact me if you require any further assistance.

Thank you,

Region Chairman
Region 41

Dated: 12-1-06

Regional Chairman
Utah
Steve Proctor
Utah Communications Agency Network
5360 South Ridge Village Drive
Salt Lake City, Utah 84118
PH: 801-840-4200
FX: 801-840-4242
Email: steve@ucan800.org

Nevada 700 MHz Region Plan Concurrence

Mark D. Pullens
Chairman
Nevada Region 700 MHz Committee
C/O Nevada Power Company
Mailstop 93
2215 East Lone Mountain Road
North Las Vegas, NV 89031

Dear Mark:

This letter serves as official notification and written concurrence that Region 3, Arizona, is in receip. of the proposed Nevada 700 MHz Region Plan. Region 3 concurs with the plan

Please contact me if you require any further assistance

Thank you,

Region Chairman
Region 3

Dated: 12/15/06

Mark S. Schroeder
Communications and Infrastructure Manager
Phoenix Fire Department
150 S. 12th Street
Phoenix, AZ 85034
PH: (602) 262-7814
FX: (602) 534-5960
Email: mark.schroeder@phoenix.gov