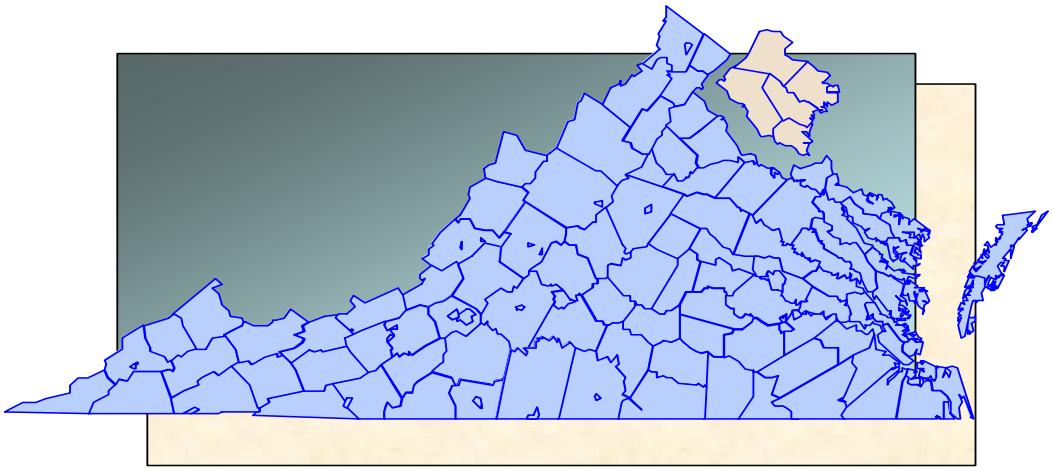
Public Safety Radio Communications Plan

Region 42 700 MHz

Commonwealth of Virginia
(Except Northern Virginia, Region 20)



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1. INTRODUCTION

This is the second major planning effort for Region 42. The first was to meet the Federal Communications Commission (FCC) requirements for the NPSPAC spectrum. This planning thrust was precipitated by the establishment of the 700 MHz public safety band.

The FCC announced the allocation of 24 MHz in the 700 MHz radio spectrum subsequent to the Public Safety Wireless Advisory Committee (PSWAC) report that established need requirements throughout the country. Interoperability within and among public safety and public service providers was identified in the PSWAC report as a basic minimum essential requirement.

Subsequent to the PSWAC the FCC established a Federal Advisory Committee called the National Coordination Committee (NCC). The NCC was created to address interoperability, technology, and implementation issues to be considered for the 700 MHz spectrum. The FCC required that a Regional Plan outlining the use of public safety radio frequencies be complete and approved of by the FCC before any agency within a region would receive channels from this new allocation. The Region 42 Plan conforms to the NCC planning guidelines. The Region 42 Plan committee's membership represents a cross-section of public safety and public service users

1.1 Vision

Every public safety provider within the Commonwealth of Virginia should have immediate access to an adequate number of properly organized communications pathways, through properly designed and implemented systems. Communication with other public safety and public safety support agencies should be clear and interference free, in order to provide a clear understanding of needs, availability, and status without distracting users from their primary goal of preserving life, property, and orderly peace.

1.2 Purpose

The purpose of the Regional Plan is to insure that maximum public benefit is derived from use of the 700 MHz spectrum by eligible agencies. Further, the plan was developed to guide eligible entities through the application process and provide an equitable means of settling disputes concerning frequency allocations should they arise.

The Region 42 Plan is intended to maximize public benefit of the spectrum derived from the former 700 MHz television broadcast spectrum by eligible public agencies' radio communication systems. The eligible agencies are defined in Chapter 47 of the Code of Federal Regulations (CFR), Section 90.523.

Applications from non-governmental organizations will be considered for review, only when accompanied by a current, written certification of support by the appropriate state or local governmental entity referenced in paragraph (b)(1) of that section.

This Plan gives priority to those eligible applicants who plan to use the spectrum in support of public safety and public service agencies primarily responsible for the protection of life and property. The Plan also reflects support and preference for applicants

who will use assigned frequencies in the most efficient manner possible through trunked and future advanced technologies.

Public safety **–** the public's right, exercised through federal, state and local government as prescribed by law, to protect and preserve life, property and natural resources and to serve the public welfare.

Public safety services **–** those services rendered by or through federal, state or local government in support of public safety duties.

Public safety services providers **–** government and/or non-government entities; such as, private organizations, which, when properly authorized by the appropriate governmental authority, have a primary mission to provide public safety duties.

Public services **–** those services provided by governmental, or non-governmental public safety entities that furnish, maintain, and protect the nation's basic infrastructures that are required to promote the public's safety and welfare.

This Plan has been developed in a manner such that all 700 MHz narrowband spectrum available will otherwise be impartially allocated according to criteria set forth in this document.

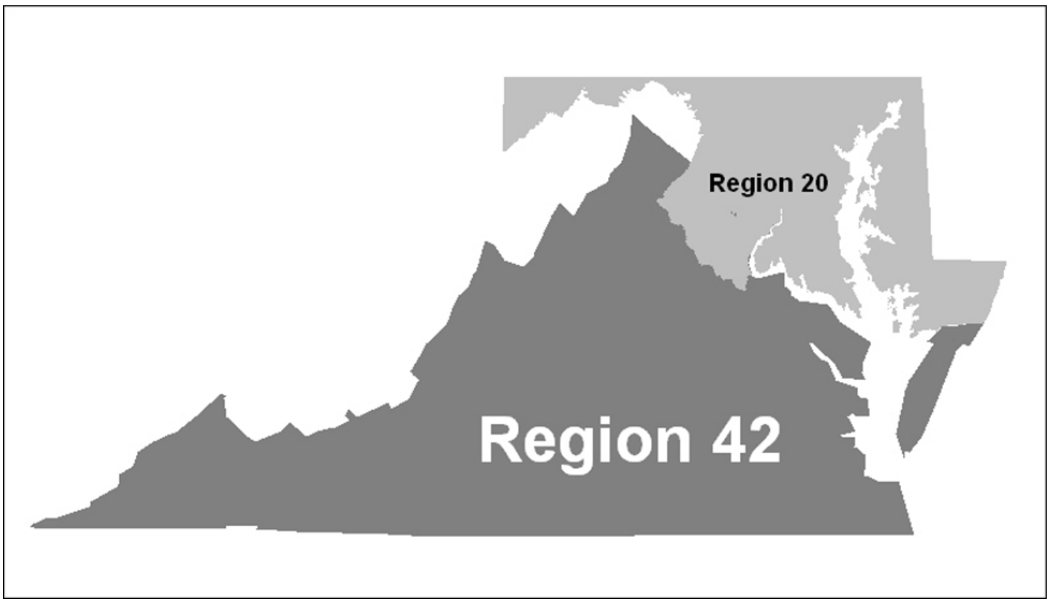
1.3 Region Description

Region 42 comprises the land mass and waterways of the Commonwealth of Virginia except for the area encompassed or surrounded by the Counties of Arlington, Fairfax, Fauquier, Loudoun, Stafford and Prince William. As part of the Computer Assisted Pre-coordination Resource and Database (CAPRAD) pre-sort, each of these Counties as well as Counties in other Regions bordering Region 42 has been pre-allotted a set number of 700 MHz frequencies for their respective use.

Region 42 is bordered by the following regions: Region 31 (North Carolina), Region 20 (Maryland, Northern Virginia and District of Columbia), Region 17 (Kentucky), Region 44 (West Virginia) and Region 39 (Tennessee). For the purposes of frequency planning, Regions 36 (Western Pennsylvania) and 28 (Eastern Pennsylvania, Delaware and Southern New Jersey) also must be considered because of proximity to their Regional boundaries.

Region 42 has eighty-nine (89) counties and thirty-five (35) cities and metropolitan areas with a combined land area of 37,737 square miles. The 2010 census with the defined region was approximately 5,590,521 million persons. (Appendix C contains a listing of the localities within the Region 42 Boundaries.) Also included are maps showing population density, trade areas, and anticipated future growth trends.

Region 42 has a very diverse geography. The terrain ranges from the rugged, rural Appalachian Mountains of the southwest, the Shenandoah Valley through the central portion of the Region, the Piedmont area, Tidewater and Peninsulas, to the Atlantic Ocean and the Eastern Shore.



Fastest Growing Localities, 2010-2014		
Jurisdiction	**Growth Rate, April 1, 2010 to July2014**	**Rank**
City of Fredericksburg	17%	1
Bedford	12%	2
New Kent	9%	3
James City County	8%	4
King George	8%	5
City of Radford	8%	6
City of Harrisonburg	7%	7
City of Richmond	7%	8
Albemarle	6%	9
Spotsylvania	6%	10
Culpeper	5%	11
Frederick	5%	12
Chesterfield	5%	13
City of Winchester	5%	14
City of Chesapeake	5%	15
Henrico	5%	16
City of Charlottesville	5%	17
Orange	5%	18
City of Lynchburg	5%	19
Prince George	5%	20

Since Region 42 encompasses the Commonwealth of Virginia, some cities are independent of the surrounding or adjacent counties. Cities and counties generally are referred to as localities. Each locality, to the level of its legislated responsibility, has public safety responsibility for police, fire prevention and control, natural resource preservation and control, prisoner detention, emergency medical services and highway maintenance. There is also a large Federal government presence throughout the Region.

There are no cross jurisdiction arrangements or agreements that reach outside of Region 42. This Regional Plan will consider, for planning purposes, the communication needs of all currently eligible entities as defined in 47 CFR 90.523.

Localities with the Most Growth, 2010-2014		
Jurisdiction	**Numeric Growth, April 1, 2010 to July 2014**	**Rank**
Chesterfield	16,263	1
Henrico	14,989	2
City of Richmond	13,639	3
City of Virginia Beach	12,986	4
City of Chesapeake	11,162	5
Bedford	7,907	6
Spotsylvania	6,791	7
James City County	5,574	8
Albemarle	5,519	9
Frederick	4,072	10
City of Fredericksburg	4,064	11
City of Harrisonburg	3,564	12
City of Lynchburg	3,479	13
Montgomery	2,852	14
City of Norfolk	2,625	15
Culpeper	2,477	16
City of Roanoke	2,396	17
City of Newport News	2,246	18
City of Suffolk	2,221	19
City of Charlottesville	2,118	20

There is currently one federally recognized tribal nation within Region 42. The RPC communicated, through written correspondence, in order to determine any tribal interest in assisting with the development of this plan.

1.4 Regional Committee Positions

The Region 42 700 MHz Committee convened its first public meeting on October 2, 2001, beginning at 2:00 p.m. The meeting location was:

Holiday Inn – Tanglewood
4468 Starkey Road
Roanoke, Virginia

Region 42 800 MHz chairman, Ron Wade designated David R. Warner as meeting convener. The purpose of the first meeting was to describe the 700 MHz planning process, vote whether to consolidate with Region 20, and to elect officers. The members present elected to continue Regional boundaries consistent with those of the 821 MHz NPSPAC band.

Region 42 Officers on July 1, 2015 are as follows:

Elected Officers	Name	Agency Represented	Title
Chairman	Mr. Curt Shaffer	Hanover County Emergency Communications Department	Director
Vice Chairman	Ms. Linda Boring	City of Newport News Fire Department	Information Technology Analyst
Secretary	Mr. David Warner	Virginia Information Technology Agency – Radio Engineering Division	Spectrum Manager

1.5 Authority

The authority for the Regional Planning Committee (RPC) to carry out its assigned tasks is derived from the FCC Report and Order, Docket 96-86. The RPC makes recommendations regarding the most appropriate and efficient utilization of the spectrum. Final authority to grant or deny authorizations remains with the FCC.

In Region 42, each committee member that represents an eligible licensee, under FCC Part 90 the Public Safety Radio Services is entitled to one vote in all committee matters. Except, as otherwise provided in this Plan, the majority of those present at a scheduled meeting will prevail. The by-laws for Region 42 are contained in Appendix A.

1.6 National Standard

The Region 42 Plan is believed to be in conformity with the National Coordination Committee (NCC) planning documents. In the event that a conflict arises between this Plan and the NCC documents or the FCC rules, the FCC rules will prevail. It is anticipated

that the Plans of adjacent Regions may differ significantly from this Plan because of demographics, geography, governmental organization and other local circumstances. Nothing in this Plan is intended to interfere with, or circumvent the proper functions and duties of organizations certified by the FCC for frequency coordination in the Private Land Mobile Radio Services (PLMRS). Rather, it provides procedures that represent the consensus of the group of individuals that developed the Region 42 Plan. If there is a perceived conflict, then the judgment of the FCC will prevail, and the Plan will be modified to resolve the problem.

1.7 Incident Command System Standard

Region 42 supports the concept of the National Incident Management System (NIMS) and the Unified Incident Command System (ICS). The Commonwealth of Virginia has formed a State Interoperability Executive Committee (SIEC) that will address these issues separately. The Region 42 700 MHz Committee will coordinate with the SIEC to ensure that a statewide Unified ICS is established.

1.8 RPC Membership

Only providers of public safety services as defined in 47 U.S.C. § 337(f)(1) are eligible and may be licensed pursuant to this plan. Implementation guidelines defined in 47CFR90.523 designate the following as eligible to hold Commission authorizations for systems operating in the 769-775 MHz and 799-805 MHz frequency bands:

(a) State or local government entities. Any territory, possession, state, city, county, town, or similar State or local governmental entity is eligible to hold authorizations in the 769-775 MHz and 799-805 MHz frequency bands.

(b) Nongovernmental organizations. A nongovernmental organization (NGO) that provides services, the sole or principal purpose of which is to protect the safety of life, health, or property, is eligible to hold an authorization for a system operating in the 769-775 MHz and 799-805 MHz frequency bands for transmission or reception of communications essential to providing such services if (and only for so long as) the NGO applicant/licensee:

(1) Has the ongoing support (to operate such system) of a state or local governmental entity whose mission is the oversight of or provision of services, the sole or principal purpose of which is to protect the safety of life, health, or property;

(2) Operates such authorized system solely for transmission of communication essential to providing services the sole or principal purpose of which is to protect the safety of life, health, or property; and

(3) All applications submitted by NGOs must be accompanied by a new, written certification of support (for the NGO applicant to operate the applied-for system) by the state or local governmental entity referenced in paragraph (b)(1) of this section.

(c) All NGO authorizations are conditional. NGOs assume all risks associated with operating under conditional authority. Authorizations issued to NGOs to operate systems in the 769-775 MHz and 799-805 MHz frequency bands include the following condition: If at any time the supporting governmental entity (see paragraph (b)(1)) notifies the Commission in writing of such governmental entity's termination of its authorization of a NGO's operation of a system in the 769-775 MHz and 799-805 MHz frequency bands, the NGO's application shall be dismissed

automatically or, if authorized by the Commission, the NGO's authorization shall terminate automatically.
(d) Paragraphs (a) and (b) notwithstanding, no entity is eligible to hold an authorization for a system operating in the 769-775 MHz and 799-805 MHz frequency bands on the basis of services, the sole or principal purpose of which is to protect the safety of life, health or property, that such entity makes commercially available to the public.

The members of the Region 42 Planning Committee can be found in Appendix B. This listing includes each member's agency affiliation, voting status, mailing address, phone number and email address. The officers of the RPC are noted as: Chair, Vice Chair, Recording Secretary, and Treasurer. The RPC membership represents all public safety and public service users in the region.

Authority to approve requests for spectrum and to execute the Plan, as outlined later, has been vested in the RPC's Executive Board, which consist of the elected officers, and the Chairs of the Technical and Implementation Subcommittees. The general membership of the Region is responsible for development and acceptance of the original Plan, and refinement or revision at the annual meeting of the RPC.

Eligibility for general membership and participation extends to any individual who is authorized to represent the interests of an entity eligible for licensure in the subject spectrum. Associate (non-voting) membership is available to any other interested individual or company authorized to advise, sell, maintain, or operate PLMRS in the subject spectrum within Region 42. Voting rights at a given meeting are limited to voting members who have attended the two most recent regularly scheduled meetings.

The RPC general meetings will be held on a semi-annual basis in the spring and fall, as well as any special meeting duly called by the Chairman of the Committee.

The spring meeting will also serve as the RPC's annual meeting for the purposes of electing officers, selecting membership, and seeking approval for any recommended updates to the Plan.

2. REGIONAL PLAN SUMMARY

First, Region 42 is defined as the entire State of Virginia except for the area encompassed or surrounded by the Counties of Arlington, Fairfax, Fauquier, Loudoun, Stafford and Prince William. The broad classifications of entities eligible to apply for spectrum are defined in accord with NCC definitions. To garner participation in and support of the planning process, an attempt was made to contact all eligible agencies. These attempts are documented. The authority by which the Regional Planning Committee undertook these planning efforts is reviewed. A discussion follows of the process by which the initial spectrum allocation was made. Finally, a detailed discussion of the application process is given. This includes guidelines for spectrum use, application requirements, the application review process and dispute resolution. Also included is a discussion of the future planning process.

The Region 42 Committee accepts the Computer Assisted Pre-Coordination Resource and

Database (CAPRAD) database initial allocation based on population density and call volume by county. It has been noted by the committee that this allocation closely matches the description of Designated Statistical Areas by the US Department of Management and Budget Bulletin. The Committee will use the CAPRAD database when allocating frequency resources in Region 42.

Interoperability guidelines and usage must be in accordance with the requirements of the State Interoperability Executive Committee (SIEC). Any conflict between the interoperability rules for National Calling and Tactical channels in this plan and SIEC guidelines, the SIEC guidelines will prevail.

2.1 Region 42 (700 MHz) Regional Planning Committee

The Regional Plan will require an organizational structure to manage the plan and to provide a basis for future modifications, changes in technology, changes in the needs of users, and conflicts among users. The Region 42 (700 MHz) Committee will be established to provide these functions.

Responsibilities - The Region 42 (700 MHz) Committee shall assume the following responsibilities and shall enact rules, policies, and procedures to implement and maintain the regional plan:

1. Elect a chairperson, vice-chairperson and secretary not from the Membership representatives.
2. Develop rules, procedures, and standards that may be necessary to implement and maintain the plan.
3. Present to the FCC formally adopted, proposed modification(s) of the Regional Plan.
4. Establish a Technical subcommittee and develop standards for processing applications.
5. Maintain coordination with adjacent regional committees.

Membership - The region 42(700 MHz) Committee shall be representative of all eligible's within the region. Current Membership listing shall be maintained by the secretary. The Region 42 (700 MHz) Committee shall have 11 members and alternates with representation as follows:

1. Commonwealth of Virginia State Police Frequency Coordinator.
2. Communications Officer (or his designated representative) from the Virginia State Police.
3. The State Interoperability Coordinator.
4. Representative from the Virginia Information Technologies Agency, Division of Public Safety Communications or a Representative from a State Government Agency.
5. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division I geographic area.
6. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division II geographic area.
7. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division III geographic area.

8. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division IV geographic area.
9. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division V geographic area.
10. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division VI geographic area.
11. An eligible representative, as defined in 47CFR90.523 of a Public Safety Communications System from State Police Division VII geographic area.

The Commonwealth of Virginia Frequency Coordinator and the State Police Representative shall be permanent members of the Committee. All other members on the Region 42 (700 MHz) Committee shall be appointed for a two (2) year term. All members of the committee shall continue to serve in office until their successors are appointed.

To fill a vacancy that occurs during a representative's term of office, the Agency/Service representative will notify the Committee Chairperson, in writing, of the resignation from the committee. The committee will appoint another person to complete the unexpired term.

Normally occurring vacancies shall be filled by election at the annual meeting by attendees who have attended the previous annual meeting or at least one other meeting between annual meetings. The Chairman may appoint a subcommittee to seek qualified nominees for the vacancies but nominations may also be made from the floor.

2.2 Interoperability

The NCC recommended that states implement a State Interoperability Executive Committee (SIEC) to oversee interoperability plans. The FCC did not require that such a committee be formed in each state; however, if a state intended to create an SIEC, the FCC mandated a notification deadline of December 31, 2001. Virginia has formed an independent SIEC. The Region 42 700 MHz Committee will coordinate with the SIEC on Interoperability issues.

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.

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

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

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 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.

16 Channel Sets	Description	Label	Use/Notes
Channel 23 & 24	*General Public Safety Services (secondary trunked)*	*7TAC51*	
Channel 103 & 104	*General Public Safety Services (secondary trunked)*	*7TAC52*	
Channel 183 & 184	*General Public Safety Services (secondary trunked)*	*7TAC53*	
Channel 263 & 264	*General Public Safety Services (secondary trunked)*	*7TAC54*	
Channel 39 & 40	Calling Channel	7CALL50	Mandatory
Channel 119 & 120	General Public Safety Service	7TAC55	Mandatory
Channel 199 & 200	General Public Safety Service	7TAC56	
Channel 279 & 280	Mobile Date	7DATA69	
Channel 63 & 64	Emergency Medical Service	7MED65	
Channel 143 & 144	Fire Service	7FIRE63	
Channel 223 & 224	Law Enforcement Service	7LAW61	
Channel 303 & 304	Mobile Repeater	7MOB59	Mandatory
Channel 79 & 80	Emergency Medical Service	7MED66	
Channel 159 & 160	Fire Service	7FIRE64	
Channel 239 & 240	Law Enforcement Service	7LAW62	
Channel 319 & 320	Other Public Service	7GTAC57	Mandatory
Channel 657 & 658	*General Public Safety Services (secondary trunked)*	*7TAC71*	
Channel 737 & 738	*General Public Safety Services (secondary trunked)*	*7TAC72*	
Channel 817 & 818	*General Public Safety Services (secondary trunked)*	*7TAC73*	
Channel 897 & 898	*General Public Safety Services (secondary trunked)*	*7TAC74*	
Channel 681 & 682	Calling Channel	7CALL70	Mandatory
Channel 761 & 762	General Public Safety Service	7TAC75	Mandatory
Channel 841 & 842	General Public Safety Service	7TAC76	
Channel 921 & 922	Mobile Data	7DATA89	
Channel 641 & 642	Emergency Medical Service	7MED86	
Channel 721 & 722	Fire Service	7FIRE83	
Channel 801 & 802	Law Enforcement Service	7LAW81	
Channel 881 & 882	Mobile Repeater	7MOB79	Mandatory
Channel 697 & 698	Emergency Medical Service	7MED87	
Channel 777 & 778	Fire Service	7FIRE84	
Channel 857 & 858	Law Enforcement Service	7LAW82	
Channel 937 & 938	Other Public Services	7GTAC77	Mandatory
Channels Labeled as mandatory include both the mobile transmit and mobile receive (a total of 16 channels) for subscriber units only			

3. ALLOCATION OF GENERAL USE SPECTRUM

3.1 General Provisions

Narrowband

This portion of the Plan provides a basis for proper spectrum utilization. Its purpose is to evaluate the implementation of 700 MHz radio communication systems within the Region. Region 42 places greater emphasis on agencies that provide services that result in preserving personal life and property protection and such agencies will receive the highest priority.

700 MHz Public Safety Systems operating in Region 42 must comply with the FCC rules and regulations. A system using six (6) or more 6.25 kHz operating bandwidth channel pairs, three (3) or more 12.5 kHz operating bandwidth channel pairs or two (2) or more 25 kHz operating bandwidth channel pairs must be trunked as mandated by 47 C.F.R. §90.537(a). Systems employing five (5) or fewer 6.25 kHz operating bandwidth channel pairs, two (2) or fewer 12.5 kHz operating bandwidth channel pairs, or only one (1) 25 kHz operating bandwidth channel pair may operate in a conventional mode. However, such systems are expected to demonstrate loading consistent with the FCC standards for 800 MHz public safety conventional systems as defined in 47 C.F.R. §90.633. Conventional 700 MHz Public Safety systems that do not demonstrate loading consistent with those required for 800 MHz Public Safety systems will be required to share any partially loaded channel on a non-exclusive basis as determined by the RPC.

All equipment utilized in the 700 MHz Public Safety band and all operations conducted in the 700 MHz Public safety band must comply with all requirements outlined in Part 90, Subpart R of the FCC Rules and Regulations. As a minimum all systems in the 700 MHz Public Safety band must use digital modulation as its primary modulation technique. Note: Analog primary operations are permitted on the low power incident command channels.

Orphaned Channels

The narrowband pool allotments will have a channel bandwidth of 25 kHz. These 25 kHz allotments are characterized as “Technology Neutral” i.e., able 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.

Regions could utilize “county areas” as guidelines for channel implementation within the Region. The definition of “county area” could be the geographical/political boundary of a county, plus a distance of up to 10 miles.

When in the best interest of public safety communications and efficient spectrum use within the Region, the RPC shall have the authority to move these orphan channel allotments, and/or co-/adjacent- channel allotments affected by the movement of orphan channels, within its 'county areas,' which are defined above. The goal of the Region is to retain spectrum efficiency and/or minimize co-channel or adjacent channel interference between existing allotments/allocations within the Region utilizing disparate bandwidths and technologies. If it is required to move a full 25 kHz channel (or a portion of a channel) allotment to a location outside of the county area in which it was originally approved, the RPC will review the application as to whether or not the full/partial channel allotment meets frequency coordination guidelines and should be moved to accommodate an application at hand. The movement of the full/partial channel allotments can be approved on a majority vote of RPC members in attendance at a special or regular meeting of the RPC.

If the movement of a full/partial channel allotment is deemed in the best interest of the public safety community, and the relocation falls within the 'county area', there will be no plan amendment required.

If the movement of a full/partial channel allotment is deemed in the best interest of the public safety community, and the relocation requires the movement of a channel to a location outside of its original 'county area' boundaries, the Region will amend the regional plan and submit the amendment to the FCC, as needed, along with obtaining adjacent Region concurrences for the plan update.

If the movement of a full/partial channel allotment is deemed in the best interest of the public safety community, and the relocation requires moving a channel from one Region to another in the interest of interregional sharing and cooperation, each Region shall amend its plan and submit the amended plan to the FCC accompanied with adjacent Region(s) concurrences from the participating Region(s).

When reviewing spectrum allocations which result in orphaned channels, mutually exclusive applicants and applicants within the 'county area' affected should be given first consideration and/or the RPC will attempt to move another orphaned channel into the 'county area' to maintain the original spectrum allotment.

By defining spectrum allotments over a 'county area', it is anticipated that 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 unused within a county channel allotment. The movement of orphan channels within the Region will be documented in the CAPRAD database.

3.2 Frequency Allotments

The Region 42 Plan adopts the NCC's recommended method of pre-coordination by using the Computer Assisted Pre-coordination Resource and Database (CAPRAD) as the base allotment methodology. The purpose of CAPRAD is to create a nationwide centralized database to manage the distribution of 700 MHz public-safety spectrum.

CAPRAD will serve as a central repository of 700 MHz frequency information including Regional Plans, application submittals, approvals, coordination and licensure.

Applicants will be able to make application, receive Regional approval, acquire coordination from their selected coordinating body and submit application to the FCC for licensure via the Internet. By using CAPRAD, pre-coordination is accomplished by the system as it designs the allotment based on a distribution of frequencies to every county in the continental United States. CAPRAD utilizes population density in determining overall channel assignment to specific counties and border considerations are designed in the algorithm of the system.

The RPC has also adopted the CAPRAD allotment of interoperability spectrum for Region 42. CAPRAD maximizes the spectrum utilization. See Appendix F for a detailed explanation of CAPRAD and a table of channel allotments for Region 42. The committee has determined that sufficient spectrum has been allocated for interoperability in the National Plan to meet the current and future needs of this Region.

The narrowband pre-allotment tables (Appendix F) are provided based on the CAPRAD presort. Although pre-allotments are listed as "County" and/or "City", the allotment is available to any public safety entity within that County/City; they are not to be considered County and/or City allotted. The County-/City-like area is defined as the geographical/political boundary of a County and/or City plus a distance of up to ten miles.

Spectrum may also be allotted to the Commonwealth of Virginia for use by state government agencies. As actual frequency allotments are made, Region 42 reserves the right to amend or reevaluate the narrowband pre-allotment table as necessary for effective spectrum management.

3.3 Spectrum Utilization Agreements

By using CAPRAD the need for regional agreements on the use of spectrum is virtually eliminated. Region 42 has not entered into any special agreements over the use of spectrum in border Regions. If special situations occur in the future the RPC will act on behalf of Region entities in any border matter that may arise. (Appendix H demonstrates Evidence of Coordination with Adjacent Regions.)

3.4 Region 42 Application Requirements

One (1) original and five (5) hardcopies and one (1) electronic copy (Adobe PDF format on CD) of each application are to be submitted to the Region 42, 700 MHz Technical Subcommittee. CAPRAD may eliminate this need if filed on-line. (See also Process Flow Chart for Obtaining a 700MHz License in Appendix I)

Each application must contain the following:

1. FCC ULS 601 Form(s) and accepted coordination application form for the coordinator selected.

2. Details of engineering surveys showing radio coverage will not exceed the applicant's requirements; applicant should expect to submit for review: system tests, frequency analysis reports, technical parameters, propagation studies, and/or engineering studies with their 700 MHz application.

3. Explanation of the system's future growth for all agencies involved in the system.

4. Identification of agencies with whom Interoperability is considered essential, and an explanation of how the proposed system will communicate with those agencies.

5. Explanation of the funding commitment for the proposed system, including agency funding and/or agency resolutions.

6. Explanation of how the system will interface with long distance radio communications, such as amateur radio, satellite communications, and/or long range emergency preparedness communications systems.

7. Statement of need for installing a new 700 MHz system.

8. Explanation of whether the applicant's agency will comply with the interoperability requirements of the SIEC, and how that will be accomplished.

9. Any applicant presently operating a system in the NPSPAC 800 MHz bands, who is expanding to also utilize 700 MHz channels shall explain how they plan to meet the requirements of both Plans. (Note also that expanding 800 MHz systems into 700 MHz spectrum will invoke the FCC 700 MHz technical requirements, most notably the 6.25 kHz mandate).

10. List mobile and portable units by agency inventory.

11. List all existing public safety agency radio frequencies. Describe how they are presently utilized and the date they could be returned to the public safety pool.

12. Designate the certified public safety radio pool frequency coordinator that the applicant intends to coordinate the license application.

13. Control stations shall employ directional antennas and shall limit effective radiated power such that the path reliability is no greater than 99.9%, proposed control stations shall be located within the service area, unless documented proof is given showing that more power and/or additional station(s) out of the primary service are required for system access.

14. A list of proposed control station locations, including latitude, longitude, effective radiated power, and height of antenna above ground level shall be provided with the request for frequencies.

15. Proposed Service Area Exhibit - An applicant shall provide, along with its request of frequencies, an exhibit showing the defined service area, methodology and assumptions used in determining the service area and the jurisdictional boundaries of the applicant. An additional exhibit showing the average elevation of the terrain of each of the eight main radials will be required. If an outside source is

used for the calculation of height above average terrain (HAAT), a copy of this report can be substituted for the average elevation exhibit.

16. System Capacity - Applicants must submit a statement showing the number of units (mobiles, portables and control stations) used in the system. The unit must be classified according to the types of service the unit provides shown in Table 1 below (partial units may be classified in different services but the total of all units listed must equal the total units in the system):

Table 1- System Capacity Service Units Classification

Service Group	Public Safety Service
Local Government Administration	Executive Management
	Office of Emergency Services
	Transit Systems
	Facilities / Building Maintenance
	Utilities Operations
	Security Patrols
	Street & Road Maintenance
	Telecommunications Support
	Other Functions
Law Enforcement	City Police
	County Police
	Sheriff
	Courts
	Park Police
	Game Warden
	Beach Patrols
Fire	City Fire
	County Fire
	Rescue (Basic & Advanced Life Support
	Park Forest Fire Suppression / Prevention
	Fire Marshal / Inspector
	Emergency Medical Services
Medical Services	Hospitals
	Trauma Centers
	Invalid Transport
	Physicians & Oral surgeons
	Veterinarians
Schools	School Buses
	School Administrators
	School Security
	School Board
Public Service	Social Services
	Parks & Recreation

Service Group	Public Safety Service
	Permits & Inspections
	Public Health
	911 Call Center / Public Safety Dispatch Center

Systems that do not meet minimum loading standards shall be required to share channels on a non-exclusive basis. Exceptions will be considered on a case-by-case basis by the Region 42 Committee. Users requesting additional frequencies on their existing systems must demonstrate loading of 100% or more within three years.

Should a demand for additional frequencies exist after assignable frequencies are exhausted, any system having frequencies assigned under this plan for four (4) or more years and not loaded to at least 70% may lose operating authority on some of those frequencies in order to attain the 70% loading on the remaining frequencies. Any frequencies lost in this manner will be reallocated to other agencies to help satisfy demands in other areas.

If any channel is not loaded to more than 70% of its loading requirements within four (4) years after the license is granted, the channel may be made available for assignment to other agencies in the area on a shared basis in the event that other frequencies meeting the criteria for assignment are exhausted. Shared use of a frequency shall not be guaranteed protection from co-channel reuse requirements presented elsewhere in this plan.

Applicants requesting a single channel may be required to give the Region 42 Committee confirmation of loading for mobiles and portables as a method of validating loading.

A user requesting a single channel to replace a lower band channel currently in use, that will be turned back for reassignment, will not be required to meet loading requirements in order to obtain the new frequency.

The preceding exception shall apply to users which have only one system and a single channel. Agencies requesting additional channels or having multiple systems shall comply with the loading standards as outlined below or provide a traffic loading study that meets the criteria set forth below.

SYSTEM LOADING STANDARDS	
Channels	Minimum Units per Channel
1-5	70
6-10	75
11-15	80

SYSTEM LOADING STANDARDS	
Channels	Minimum Units per Channel
16-20	85

As in the case of S-160 agreements or similar agreements, it is permissible for a non-Federal government license to increase projected channel loading requirements to account for up to a 25% increase in mobile units, provided that evidence exists to support such use by Federal agencies.

Applicants proposing systems of five (5) channels or more shall be required to use trunking technology in their systems.

17. Implementation Plan/Schedule - The applicant must furnish an implementation schedule that shows the planned time cycle for construction and operation of the proposed communications system. Due to the nature of governmental planning and budgeting, all applicants will invoke 47 CFR Section 90.629 of the FCC Rules and regulations (slow growth). Any reports required by the FCC shall also be sent to the Region 42 Committee. If the licensee fails to meet the schedule, the Region 42 Committee may recommend to the Federal Communication Commission that authorization for channels not meeting the loading criteria contained in the Plan be canceled.

3.4.1 Slow Growth Plans

For agencies submitting applications where funding is questionable and the progress for the system may be limited, slow growth plans must also be submitted if the agency anticipates system implementation taking more than five (5) years. Note: Slow growth allows up to 5 years implementing a system. If an agency needs more than that, it would have to request a waiver or an extension at the end of the 5 year period (47 CFR 90.629). An agency must provide convincing affirmative evidence every year after the application is approved showing that they are actually in the process of implementing its proposed system. If the slow growth plan is not submitted and acted upon by an agency, its licensed frequencies may be forfeited for reallocation to other potential users.

3.5 Expansion of Existing 800 MHz Systems

Existing 800 MHz systems that are to be expanded to include the frequency bands of 700 MHz will have to meet requirements of both the 700 MHz and 800 MHz Region 42 Plans.

3.6 Federal Shared Use in Region 42

Through the use of a Form S-160 and Memorandum of Understanding (MOU) or equivalent agreement(s), a licensee may permit federal use of non-federal communication system spectrum if deemed appropriate. Such use is to be in full compliance with FCC requirements governing the use of the 700 MHz public safety spectrum.

3.7 Secondary Trunked Use of Interoperability Channels

If an agency proposes to implement a trunked system, and they intend to use interoperability channels on a secondary basis with the system, then a clear plan must be included in the agency's application detailing how the channels will be released for interoperability use when an emergency situation arise. The RPC does not encourage the use of interoperability channels in a trunked system, however, will approve such action if the applicant follows the FCC rules on this matter and the agency provides convincing evidence that interoperability channels are necessary for the system to provide the intended service.

3.8 Interoperability Capabilities

To determine an entity's system interoperability capabilities for purposes of scoring competing applications as discussed in the Evaluation Matrix Point System outlined in Section 4.1, Region 42 will use a model based on geographic areas by political subdivisions of governmental entities within the Region. Responsible entities will be hierarchical in nature, such as: state level # 1, service regional # 2, locality # 3 and township # 4. As an example, if the Commonwealth of Virginia implemented a statewide 700 MHz system, the Commonwealth might be responsible for the inclusion of interoperability frequencies in their base stations as required by the SIEC plan. If no state or service regional level system exists, but a locality does, then the locality might assume responsibility for including adequate channels and managing interoperability within the county according to the SIEC interoperability plan. The degree to which any system complies with the requirements of the SIEC plan will be a factor in the Evaluation Matrix Point System (EMPS).

It is the interest of the RPC to promote interoperability with the Commonwealth of Virginia's SIEC's Plan. Applicants will be scored appropriately under the interoperability criteria in the EMPS.

3.9 Virginia statewide P25 ID Plan

It is recommended by the committee that any new or existing users adopt a Project 25 radio system use the pre-assigned ID's from Appendix K.

3.10 Minimum Channel Quantity

The minimum channel quantity for calling and tactical channels is eight I/O channel slots in each subscriber unit. Including direct (simplex) mode on these channel sets, up to 16 slots in each radio will be programmed for I/O purposes. Backbone issues are deferred to the SIEC. Subscriber units, which routinely roam through more than one jurisdiction up to nationwide travel will require more than the minimum channel quantity.

The "CALL"ing channels shall be implemented in all voice subscriber units in repeat-mode and direct (simplex) mode. "Direct" mode is permitted in the absence of repeat operation or upon prior dispatch center coordination. If the local 700 MHz CALLing channel is not known, then the National CALLing channels should be utilized. Attempts shall be made on the repeater mode first then on the direct (simplex) mode.

A minimum set of six TACtical channels shall be implemented in every voice subscriber unit in the direct (simplex) analog mode. Specific channel sets are shown below (SIEC

will have the option to exceed this minimum requirement).

Table 2 below provides a listing of interoperability channels that the RPC supports. Information listed under the Channel Sets column are 6.25 kHz channels, which are doubled-up to establish a single 12.5 kHz channel for simplex use. These channels are also specified to be used in digital mode with the NAC code listed in the appropriate columns below.

Table 2 – RPC Supported Interoperability Channels

16 Channel Sets	Description	Label	NAC Code
Channel 39 & 40	Calling Channel	7CALL50	$293
Channel 119 & 120	General Public Safety Service	7TAC55	$293
Channel 303 & 304	Mobile Repeater	7MOB59	$293
Channel 319 & 320	Other Public Service	7GTAC57	$293
Channel 681 & 682	Calling Channel	7CALL70	$293
Channel 761 & 762	General Public Safety Service	7TAC75	$293
Channel 881 & 882	Mobile Repeater	7MOB79	$293
Channel 937 & 938	Other Public Services	7GTAC77	$293
Channels Labeled as mandatory include both the mobile transmit and mobile receive (a total of 16 channels) for subscriber units only			

3.11 Technical Responsibilities

The provisions of the Region 42 Plan must be used as a guide for establishing any new system. Additional information may be required by the RPC to provide clarification for technical issues. Applicants should consider the following guidance while submitting license requests to the RPC:

Spectrum Efficiency – This is of primary importance in the development of systems. As high-level systems reach capacity, the smaller systems in the public safety service must consider uniting their communications efforts, using advanced technology, to formulate one large system. Applicants for radio communications in the 700 MHz public safety services in Region 42 will be required to provide loading criteria information for the proposed system.

Interference - When frequencies are requested for smaller conventional 700 MHz subsystems, those frequencies utilized must not interfere with the trunked systems. Disruptive interference with communications involved in these services will not be permitted. Applications including the potential for adjacent-channel and/or co-channel interference may undergo engineering analysis on a case-by-case basis by the public safety certified frequency coordinators.

Coverage - Strict adherence for limiting area coverage to the boundaries of the applicant's service area must be observed. Overlap or extended coverage must be minimized even where systems utilizing 700 MHz trunked radio systems are proposing to inter-mix systems for cooperative and/or mutual aid purposes. Antenna heights are to be limited to provide only the necessary coverage for the applicant. When antenna locations are restricted to only the "high ground" transmitter outputs and special antenna patterns must be employed to produce the necessary coverage with the proper ERP. All necessary

precautions must be taken to gain maximum reuse of the 700 MHz spectrum.

Transmitter Distance - The distance between transmitters for co-channel use and reuse will be determined by and through, the RPC EMPS, the current "Best Practices" applicable to 700 MHz, and/or as deemed appropriate by the RPC. For the purposes of initial planning, it is recommended that applicants allow a 70 mile co-channel separation and 35 mile adjacent channel separation. Approved applications will be forwarded to the appropriate coordination group and the Federal Communications Commission. The applicant should note that the Federal Communications Commission has the final decision on the applicant's submitted application and its content.

4. PROCESSING AND EVALUATING APPLICATIONS

The RPC shall adhere to the applicant evaluation criteria established in the NCC process as further defined in this Plan. Refer to Appendix I for the application processing flow chart. Deviations from FCC rules are not to be approved unless a fully justified waiver request has been presented to the RPC. The RPC Technical Subcommittee will meet to review, evaluate, and process applications in a timely manner, typically within ninety (90) days after receipt.

In cases when there is contention for a specific channel, the EMPS will be utilized. In all cases, service area, technical requirements, and channel loading criteria will be evaluated. Exceptions may apply upon unique circumstances, after review and approval by the RPC.

After RPC review, the application will be sent to the public safety frequency coordinator selected by the applicant. The public safety frequency coordinator may desire to contact the Region or an applicant to help clarify issues relative to the application(s). Subsequent to coordination review, the FCC will review the application and notify the applicant of the application status. Applicants can track progress of their application using the FCC ULS (Universal Licensing System). It is strongly recommended that the RPC keep CAPRAD updated.

4.1 Evaluation Matrix Point System (EMPS)

The RPC uses a matrix point system to evaluate applications and in the event of multiple applications will be used to determine an outcome. The EMPS table provided in Appendix M has a listing of the EMPS categories and points, which are defined in this section. The maximum number of points that can be achieved consists of 1040 points that originate from eight categories as follows:

	Category	Points
1.	Service Points	40
2.	Use Points	300
3.	Interoperability Communications	100
4.	Loading	150
5.	Spectrum Efficiency	100
6.	System Implementation Factors	100
7.	System Density	100
8.	Frequency Givebacks	150
	Total	**1040**

4.1.1 Service Points (Maximum Accumulation 40 points)

A maximum of 40 service points for an application may be accumulated for service offered for the following governmental groups:

	Service	Points
1.	Local	10
2.	County	10
3.	State	10
4.	Federal	10
	Total	**40**

4.1.2 Use Points (Maximum Accumulation 300 points)

A maximum of 300 use points for an application may be accumulated for service provided to the following public safety user groups:

	Use	Points
1.	Law Enforcement	60
2.	Fire/Rescue/EMS	60
3.	Special Emergency	40
4.	Emergency Management	40
5.	Forestry Conservation	40
6	Highway Maintenance	40
7.	General Government	20
	Total	**300**

Environmental protection shall fall in the "Special Emergency" category and shall be considered for tasks that directly reduce contamination to the air, water or ground by chemicals or waste materials.

4.1.3 Interoperability Communications (Maximum score 100 points)

The application is scored on the degree of interoperability that is demonstrated, with a range of points from 0 to 100. This category will not rate the application on the inclusion of interoperability channels, but on its proposed actual ability to communicate with different levels of government and services during a time of emergency. Each applicant is encouraged to have direct mobile-to-mobile communications among these radio type functions; local, state and federal in the police, fire/EMS, special emergency, emergency management, forestry, highway maintenance and general government. All applicants will start with 100 points and points will be deducted based upon their lack of intersystem communications.

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

1. Disaster and extreme emergency operation for mutual aid and interagency communications.
2. Emergency or urgent operation involving imminent danger to life or property.
3. Special event control, generally of a preplanned nature (including task force operations).
4. Single agency secondary communications. Priority 4 is the default priority when no other priority is declared and includes routine day to day (non-emergency) operations.

Five (5) points will be deducted for each radio service type function in which the applicant lacks communication via console patch when direct mobile-to-mobile communication does not exist. Ten (10) points will be deducted for each radio service in which the applicant lacks direct mobile-to-mobile communications.

4.1.4 Loading (Maximum score 150 points)

For purposes of loading calculations, subscriber units are defined as mobiles, portables, and control stations. Each applicant, for a trunked system, shall certify that a minimum of 100 distinct subscriber units will be placed in service for each channel within five (5) years of the initial Plan approval date. If that is not the case, then less than fully loaded channels shall be returned to the allotment pool and the licensee shall be modify its license accordingly. Voice channels shall be loaded to 100 subscriber units per channel. When an applicant does not load a channel with a minimum of 70 subscriber units, the channel may be available for reassignment to other licensees.

Expansion of existing systems will be evaluated with respect to the aforementioned categories. Any system less than fully loaded will be calculated as follows:

SU = Total number of subscriber units
CC = Total number of communications channels (6.25 or 12.5 kHz narrow band)
LS = Loading score

(SU/CC)*1.5=LS

A fully loaded channel is one serving 100 distinct subscriber units. Control channels shall not be considered communications channels. Plans submitted to the RPC shall stipulate the number of voice channels and control channel(s).

4.1.5 Spectrum Efficiency (Maximum score 100 points)

The applicant will be scored on the degree of spectrum efficient technology that the system demonstrates. A trunked system will be considered a spectrum efficient technology as well as any technological systems feature that is designed to enhance the efficiency of the system and improve the efficient use of spectrum.

	Spectrum Efficiency Points	Points
1.	Trunked or equally high efficient technology	60

2.	Technologies that increase system throughput (6.25 kHz)	60
3.	Conventional System	30
	Total	**150**

4.1.6 System Implementation Factors (Maximum score 100 points)

This category scores the applicant on two factors: 1) budgetary commitment and 2) plan completeness. The degree of budgetary commitment is scored on a range from 0 to 50 points based on the RPC's evaluation of commitment demonstrated through documentation by the applicant and its funding source entity. A high degree of funding commitment will receive a higher score. Applicants will also be scored on the degree of plan completeness on a range from 0 to 50 points. Applicants must submit a timetable for the implementation of the system. Applicants should be aware of the requirements outlined in "Slow Growth Plan" portion of this plan and the FCC rules.

Applicants with less than complete funding commitment and/or incomplete plans will have their point score reduced accordingly. Resolutions, legislation, or other such documentation from governing entities shall be submitted by applicants to support financial commitment.

4.1.7 System Density (Maximum score 100 points)

Each applicant will be scored on the level of geographic efficiency. Scoring will be based upon the ratio of mobiles and portables to the square mile area of coverage. Scores are based on the ratio multiplied by 100 points with the maximum not to exceed 100 points. The system density score will be calculated as follows:

SU = Total number of subscriber units
SM = Total area of system coverage in square miles
DS = System density score
(SU/SM)*100 = DS

A maximum area of 500 square miles is established.

4.1.8 Frequency Relinquishment (Maximum score 150 points)

The applicant is scored on the number of channels returned in other bands subject to licensure and implementation of the subject system. The greater the number of channels returned, the higher the score. Point consideration also will be given to applicants that represent recently established public safety service(s) system coverage a wide area and multiple agencies.

4.1.9 Giveback Scoring

The number of channels (unpaired or paired frequencies) relinquished____x 10 = score Applicants for new systems where no existing frequencies are in use to be replaced will be awarded 50 points.

4.2 Appeals Process/Intra-Regional Dispute Resolution

Throughout the application review and frequency allotment process, an applicant shall be given opportunities to appeal decisions that have caused the rejection of its application.

The appeal process has two levels: the RPC and FCC. An applicant who decides to appeal a rejection should initiate that appeal immediately upon notification of rejection using the Dispute Resolution Process contained in Appendix G. In the event that an appeal reaches the second level, the FCC, the FCC decision will be final and binding on all parties.

5. PROCEDURES FOR THE RPC TECHNICAL COMMITTEE

5.1 Process

The frequency allotment methodology is a two-stage process. The first stage assigns channels, to the highest degree possible, to all eligible agencies based on population and agency size. The second stage creates an allotment pool to be used by future applicants for channels that satisfy the requirements of the Plan.

5.2 Coverage

It is the responsibility of the Regional Committee to restrict or limit the coverage to the area of the applicant jurisdiction. It is anticipated that the most recent version of the TIA 8.8 standards will be used to predict coverage. This Plan uses the standard developed for NPSPAC as follows: the desired coverage of a system is considered to be, as a maximum, three (3) miles outside of the boundary of the applicant's service area. The maximum "designed mean signal strength" at this contour shall not exceed +40dBu (40dB above one microvolt per meter), with the test antenna centered at an elevation of five feet above ground level. In order to allow for practical system design, the three mile pad may be altered on a case-by-case basis, and the maximum/minimum coverage radius in all cases shall not exceed five (5) miles. See Appendix F for the Field Strength Measurement.

5.3 Interference – Co-channel

Co-channel assignments will be made when it is determined that the two or more systems will create a signal of +5 dBu or less anywhere within their co-channel partner's boundary.

5.4 Interference – Adjacent Channel

Adjacent channel assignments will be made when it is determined that two or more systems create a signal-strength of +25 dBu or less anywhere within their adjacent channel partner's boundary.

5.5 System Implementation Overview

Should system implementation not begin within two (2) years or if projected planned channel loading is not attained within four (4) years after granting of license, the channels will be returned for re-allotment to others. A one (1) year extension may be supported by the RPC, if it can be shown that circumstances are beyond the control of the applicant. The applicant will be responsible for contacting the FCC to request an extension.

Applicants must be acting to the extent of their power to implement the project within their authority. System implementation will be monitored by the RPC Implementation Subcommittee, which shall be responsible for determining the progress being made on the implementation of a system. Review of system implementation by the Subcommittee will take place at one (1) year intervals. If progress is made and the system is

implemented, the system shall be deemed "complete."

If progress is not made, the licensee will be advised in writing that they are in default of their plan and the Region 42 Plan and the consequences of their lack of progress. The Implementation Subcommittee will inform the RPC and other appropriate parties. The Implementation Subcommittee will continue to monitor the progress of any system determined to be in default and if no progress is being made, the Subcommittee will inform the RPC and will recommend that the RPC inform the FCC of the lack of progress. The licensee in default can appeal this action or can allow the license to be withdrawn. If the authorized frequencies are withdrawn they will be returned to the frequency allotment pool for future use.

5.6 CAPRAD

The Computer Assisted Pre-Coordination Resource and Database (CAPRAD) features web site access with a graphical user interface (GUI), an informational front page, and secure access for registered users. The system comprises several interactive, relational databases and provides a frequency availability "notebook", search, report generating tools, and an interface to the FCC's automated systems. This access includes the Universal Licensing System (ULS) with nightly data comparison and updates, and on- line help features for queries, entries and updates.

CAPRAD serves as a repository for supplemental information such as: completed Regional and State Plans, a list of television channels with potential impact, the final FCC Report & Order frequency table, contact information for RPC chairpersons or others as required, and RPC frequency limitations by Regions and adjacent Regions.

CAPRAD is administered by the National Law Enforcement and Corrections Technology Center – Rocky Mountain Region's (NLECT-RM), NPSTC Support Office. NLECT-RM is a program of the National Institute of Justice (NIJ).

6. UTILIZATION OF INTEROPERABILITY CHANNELS

Utilization of the Interoperability Channels designated by the FCC will be in accordance with the Virginia SIEC Plan. For information regarding the Virginia SIEC contact information is listed below:

Title: Commonwealth Interoperability Coordinator
Address:
Secretary of Public Safety and Homeland Security
Office of Interoperable Communications
Patrick Henry Building
1111 East Broad Street
Richmond, VA 23219

Phone: 804-786-5351

Web Address: https://pshs.virginia.gov/initiatives/commonwealth-interoperability/

7. ADJACENT REGION REVIEW

The RPC uses the NPSTC/CAPRAD packing program allotments, which inherently coordinate the allotments along Regional boundaries. Copies of the draft were sent to the Regional Planning Committees of the following Regions:

- Region 17 (Kentucky)
- Region 20 (Maryland, Northern Virginia, and District of Columbia)
- Region 28 (Eastern Pennsylvania, Delaware, and Southern New Jersey)
- Region 31 (North Carolina)
- Region 36 (Western Pennsylvania)
- Region 39 (Tennessee)
- Region 44 (West Virginia)

The Draft Plan transmittal to the aforementioned regions stated that sixty (60) days would be allowed for review and comment, unless additional time were required to address specific issues. (See Appendix H for Evidence of Coordination with Adjacent Regions) As actual frequency allotments are made, Region 42 reserves the right to amend or reevaluate the narrowband pre-allotment table as necessary for effective spectrum management. The RPC will seek concurrence from all adjacent regions before making changes to the pre-allotment table.

Region 42 borders (interference border, not geographical border) with Regions 17, 20, 28, 31, 36, 39, and 44 are sparsely populated and, generally, the 700 MHz band channels are not built out on either side of these regional border areas. The northern border with Region 20 comprises some of the most urban and densely populated areas of Virginia. The CAPRAD database and its associated packing plan will provide minimum channel allotments for all of the Region 42 bordering regions. This method was recommended by the NCC Implementation Subcommittee as a means to ensure that adjacent Regions, which did not enter the Regional Planning process immediately, would not find all channels on their borders previously to have been assigned.

If an adjacent Region has difficulties satisfying intra-regional requests due to channel allocation within Region 42, this committee will work with that adjacent Region to resolve any issues that might hinder interoperability or reduce any benefit to public safety communications.

8. CERTIFICATION

I hereby certify that all Planning Committee meetings, including Subcommittee or executive committee meetings were open to the public.

Signed _____

Glossary of Terms

700 MHz Band – 24 MHz of spectrum allocated to Public Safety. http://www.fcc.gov/pshs/spectrum/700mhz/techsum.html

Aggregation of Channels **–** Contiguous bandwidth allocated so as to create a single "channel" for wideband or broadband uses.

Adjacent Channel – Any of two frequencies not within the same identified bandwidth, but typically the next block of lower or higher bandwidth than that channel identified.

Allocation (or Allotted) – Channels designated and approved for use by Region 42 communities of interest.

Allotment – Pre-planned channels as specified by CAPRAD for use by Region 42 communities of interest.

AOP – Area of Operation.

APCO – Association of Public Safety Communications Officials International, Inc. Virginia chapter's URL is http://www.virginia-apco.org/

Broadband – Data channels operating with bandwidths greater than 150 kHz.

CAPRAD – Computer Assisted Pre-coordination Resource and Database; used in Regional and national planning, management and licensing of the 700 MHz public safety spectrum. http://caprad.nlectc.du.edu/login/home

CFR **–** Code of Federal Regulations.

Channel – Two related frequencies (as specified by the FCC) that are used in a paired manner by a radio repeater.

Co-Channel – Any two frequencies within the same identified bandwidth.

County *Area* – The geographical/political boundary of a county, plus a distance of up to 10 miles.

CTCSS – Continuous Tone-Coded Squelch System (sometimes referred to as PL – Private Line).

Data Channel or Frequency – A channel or frequency utilized to transmit and receive information between computers and other electronic circuitry.

dBμ **-** A rating of radio frequency power with reference to microvolts.

EMPS – Evaluation Matrix Point System.

ERP – Effective Radiated Power (transmitter power output, minus feed line losses, plus antenna gain).

FCC – Federal Communications Commission. http://www.fcc.gov/

Frequency – A contiguous bandwidth (typically 6.25, 12.5, or 25 kHz) of radio spectrum.

Height Above Average Terrain (HAAT) – an average of the terrain elevations within 16 km (10 miles) of the transmitter site. HAAT can be determined using the FCC HAAT Calculation tool http://www.fcc.gov/mb/audio/bickel/haat_calculator.html.

High Ground – Generally referred to as a transmitter location that has a high HAAT number.

I/O – Interoperability.

ICS – Unified Incident Command System.

Mixed Voice/Data Channel or Frequency – A channel or frequency utilized to transmit and receive information both aurally and also between computers and other electronic circuitry.

Mobile Radio – A two-way radio permanently mounted or affixed in or on a vehicle.

MOU – Memorandum of Understanding.

Narrowband – Voice or data channels operating with 6.25 or 12.5 kHz bandwidth.

NCC – National Coordination Committee. That body established by the FCC to solicit input from public safety community in the further development of rules governing the new 700 MHz public safety band, particularly in regard to interoperability.

NIMS – National Incident Management System.

NPSPAC – National Public Safety Planning and Advisory Committee. That body formed by the FCC in 1986 to coordinate and ensure the involvement of public safety entities in the development of the national plan for radio spectrum usage.

NPSTC – National Public Safety TeleCommunications Council. A federation of organizations representing public safety telecommunications. http://www.npstc.org

NTIA – National Telecommunications and Information Administration (Federal government user's equivalent to the FCC). http://www.ntia.doc.gov/

Orphaned Channels – Those 6.25 KHz or 12.5 KHz channels remaining when an applicant requests allocation of channel bandwidth less than a 25 kHz channel.

Plan (or The Plan) **–** The Region 42 700 MHz Plan.

PLMRS – Private Land Mobile Radio Services.

Portable Radio – A two-way radio carried on a person and powered via battery; shall include radios that can be quickly disconnected without tools from vehicular-mounted chargers/adapters.

PSWAC – *Public Safety Wireless Advisory Committee.* That body composed of public safety officials charged with studying the lack of radio frequency spectrum for public safety and making recommendations for remedies.

PSWN – Public Safety Wireless Network. A federally funded joint initiative that focused on improving public safety wireless communications interoperability by conducting outreach forums, researching communications systems and assisting with executing interoperable systems implementation strategies. http://www.pswn.gov

Region 42 – All of the Commonwealth of Virginia, except parts of northern Virginia included in Region 20 area (Arlington, Fairfax, Faquier, Loudoun, Stafford and Prince Williams Counties).

RPC **–** Region 42 700 MHz Planning Committee.

SIEC – State Interoperability Executive Committee. That body appointed by a state to determine and oversee interoperability procedures for a licensee. http://www.interoperability.publicsafety.virginia.gov/

Slow Growth **–** A period requested beyond one calendar year to plan, build and implement a radio system. Refer to CFR 47 part 90.629.

Subscriber – An individual radio licensed for a radio system. Includes mobile, portable and fixed-location radios.

ULS **–** Universal Licensing System. http://wireless.fcc.gov/uls/index.htm?job=home

Voice Channel or Frequency – Utilized to transmit and receive end-to-end aurally comprehended communications.

Appendix A Bylaws of Region 42

April 27, 2006

Article I

A.1 Name and Purpose

The name of this Committee shall be Region 42 700 MHz Committee. Its primary purpose is to foster cooperation, planning, development of Regional Plans and the implementation of systems in the 700 MHz Public Safety Band.

Article II

A.2 MEMBERS

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

A.2.1 Number, Election and Qualification

The Regional Committee shall have two classes of members, "voting members" and "non-voting members" as defined below. New members may be added at annual, special, or regular meetings.

A.2.1.1 Voting Members

Voting members shall consist of one representative from any single agency engaged in public safety and 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. When voting on any issue, individuals must identify themselves along with the agency and eligibility category that they represent.

Voting members may not vote on issues involving her/his entity.

A.2.1.2 Non-Voting Members

Non-voting members are all others interested in furthering the goals of public safety communications.

A.2.2 Tenure

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

A.2.3 Powers and Rights

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

A.2.4 Suspension 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. Failure to attend 50% of meetings held in a calendar year shall be a specific cause for removal from the membership.

A.2.5 Resignation

A member may resign by delivering written resignation to the chairman, vice-chairman, treasurer or secretary of the RPC or to a meeting of the members.

A.2.6 Annual Meetings

The annual meeting of the members shall be held at (location) on the (date) each year or if that date is a legal holiday in the place where the meeting is to be held, then at the same hour on the next succeeding day that is not a legal holiday.

If an annual meeting is not held as herein provided, a special meeting of the members may be held in place thereof with the same force and effect as the annual meeting, and in such case all references in these bylaws, except in this Section 2.6, to the annual meeting of the members shall be deemed to refer to such special meeting. Any such special meeting shall be called and notice shall be given as provided in Section 2.7 and 2.8.

A.2.7 Special Meetings

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.

A.2.8 Call and Notice

A. Annual meetings. Reasonable notice of the time and place of special meetings of the members shall be given to each member. Such notice need not specify the purposes of a meeting, unless otherwise required by law or these bylaws or unless there is to be considered at the meeting (i) amendments to these bylaws, (ii) an increase or decrease in the number of members, or (iii) removal or suspension of a member who is an officer.

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 the meeting, 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.

A.2.9 Quorum

At any meeting of the members, a majority of the officers and {either a minimum number of members or a minimum percentage of members} of the 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.

A.2.10 Action by Vote

Each voting member, representing a particular agency (one vote per agency) shall have one vote; non-voting members shall have no right to vote. 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.

A.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.

A.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. Unless otherwise specifically limited by their terms, such proxies shall entitle the qualified, or in each case until he or she sooner dies, resigns, is removed or become disqualified.

Article III

A.3 Officers and Agents

A.3.1 Number and qualification

The officers of the Regional Committee shall be a chairman, vice-chairman, treasurer, secretary and such other officers, if any, as the voting members may determine. All officers must be voting members of the Regional Committee.

A.3.2 Election

The officers shall be elected by the voting members at their first meeting and, thereafter, at the annual meeting of the members.

A.3.3 Tenure

The officers shall each hold office until the annual meeting of the members held within one year 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.

A.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 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.

A.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.

A.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.

A.3.7 Suspension or Removal

An officer may be suspended with cause by vote of a majority of the voting members.

A.3.8 Resignation

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

A.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 becomes disqualified.

Article IV

A.4 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, alter, amend, or repeal any bylaws adopted by the RPC members or may otherwise adopt, alter, amend, or repeal any provision for which FCC regulation or these bylaws requires action by the voting members.

Article V

A.5 Dissolution

This Regional Committee may be dissolved by the consent of two-thirds plus one of the

members in good standing at a special meeting called for such purpose. The FCC shall be notified.

Article VI

A.6 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, Sarah Corbin Robert, Henry M. Robert III, and William J. Evans.

Appendix B Committee Membership

Table B-1. Region 42 member list and contact information

NAME	ORGANZATION
Curt Shaffer – Chair	Hanover County
Rodney Thompson – Vice Chair	Roanoke County
David Warner – Secy/Treas	Va Information Technology Agency
Adam Thiel - CICO	Governor's Office
Steve Parrot - Region 1	Chesterfield County
Chuck Kuhler - Region 2	Fauquier County
Gabe Elias - Region 3	Charlottesville/Albemarle/UVa
Derrick Ruble - Region 4	Tazwell County
Ty Williams - Region 5	City of Suffolk
Rodney Thompson - Region 6	Roanoke County
Captain Miller - State Police	Va State Police
Noel Armstrong - APCO	Va State Police
John Agee	Va State Police
Tom Struzzierri	Va State Police
Larry Hall	Va State Police
Eric Albert	City of Colonial Heights
Todd Pugh	Henrico County
Bill Agee	City of Hampton
Steve Willoughby	City of Richmond
David Krzemien	City of Richmond
Mike Christie	Spotsylvania County
Tom Hanson	Charlottesville/Albemarle/UVa
Bernie Reaser	City of Chesapeake
Carl Mueller	Henrico County
Linda Boring	City of Newport News

Table B-2. Region 42 membership at time of completion of the plan

NAME	ORGANZATION
Curt Shaffer – Chair	Hanover County
Linda Boring – Vice Chair	City of Newport News
David Warner – Secy/Treas	Va Information Technology Agency
Adam Thiel - CICO	Governor's Office
Steve Parrot - Region 1	Chesterfield County
Chuck Kuhler - Region 2	Fauquier County
Gabe Elias - Region 3	Charlottesville/Albemarle/UVa
Derrick Ruble - Region 4	Tazwell County
Ty Williams - Region 5	City of Suffolk
Rodney Thompson - Region 6	Roanoke County
Captain Miller - State Police	Va State Police
Noel Armstrong - APCO	Va State Police

Table B-3. Membership of the Technical Committee (to be appointed upon approval of the Plan)

NAME	ORGANZATION
Todd Pugh	Henrico County
Linda Boring	City of Newport News
Noel Armstrong	APCO/VSP
Larry Hall	Va State Police
Rodney Thompson	Roanoke County

Appendix C Region 42 Localities

Counties	Counties	Counties	Cities
Accomack	Grayson	Rappahannock	Bedford
Albemarle	Greene	Richmond	Bristol
Alleghany	Greensville	Roanoke	Buena Vista
Amelia	Halifax	Rockbridge	Charlottesville
Amherst	Hanover	Rockingham	Chesapeake
Appomattox	Henrico	Russell	Colonial Heights
Augusta	Henry	Scott	Covington
Bath	Highland	Shenandoah	Danville
Bedford	Isle Of Wight	Smyth	Emporia
Bland	James City	Southampton	Franklin
Botetourt	King And Queen	Spotsylvania	Fredericksburg
Brunswick	King George	Surry	Galax
Buchanan	King William	Sussex	Hampton
Buckingham	Lancaster	Tazewell	Harrisonburg
Campbell	Lee	Warren	Hopewell
Caroline	Louisa	Washington	Lexington
Carroll	Lunenburg	Westmoreland	Lynchburg
Charles City	Madison	Wise	Martinsville
Charlotte	Mathews	Wythe	Newport News
Chesterfield	Mecklenburg	York	Norfolk
Clarke	Middlesex		Norton
Clifton Forge	Montgomery		Petersburg
Craig	Nelson		Poquoson
Culpeper	New Kent		Portsmouth
Cumberland	Northampton		Radford
Dickenson	Northumberland		Richmond
Dinwiddie	Nottoway		Roanoke
Essex	Orange		Salem
Floyd	Page		Staunton
Fluvanna	Patrick		Suffolk
Franklin	Pittsylvania		Virginia Beach
Frederick	Powhatan		Waynesboro
Giles	Prince Edward		Williamsburg
Gloucester	Prince George		Winchester
Goochland	Pulaski		

Appendix D Region 42 Application Checklist

Requirement	Included in Application?
Table of Contents	
Completed FCC Form 601(s)	
Description of the proposed system and Justification for the additional spectrum	
System Coverage Design objectives	
Proposed system loading schedule (subscriber units/channel)	
Proposed implementation schedule and proof of funding commitment	
Interference prediction studies	
List of frequencies that will be retained by the applicant and their specific uses	
List of frequencies with associated FCC call signs which will be relinquished upon implementation of 800 MHz utilizing channels authorized by the RPC	
List of co-channel and adjacent-channel licenses	
Statement acknowledging responsibility to adhere to the Region 42 800 MHz Plan	
List of user groups that operate on the system inclusive of their respective public safety or public service disciplines and control stations	
All related MOU's	
Interoperability exhibit	
Responsible radiation propagation map	
Co-channel interference propagation map(s)	
Adjacent-channel interference propagation map(s)	
Certification that subscriber units will be programed with the minimum number 800 MHz tactical interoperability channels	
Certification that 800 MHz applicants will monitor the interoperability calling cannel in the manner prescribed by the SIEC	
Completed application checklist	

Appendix E Sample Memorandum of Understanding

Minimum Criteria Required in the MOU

TO: (signer of application and title)
(agency name)

FROM: (name), Chairman
DATE: (mm/dd/yyyy)

SUBJECT: Memorandum of Understanding for Operating the 700 MHz Interoperability Channels.

This memorandum of understanding (hereafter referred to as MOU) shall be attached to the application when submitting it. By virtue of signing and submitting the application and this MOU, (agency name) (hereafter referred to as APPLICANT) affirms its willingness to comply with the proper operation of the interoperability channels as dictated by the Region Planning Committee (hereafter referred to as RPC) as approved by the Federal Communications Commission (hereafter referred to as FCC) and by the conditions of this MOU.

The APPLICANT shall abide by the conditions of this MOU which are as follows:

- To operate by all applicable State, County, and City laws/ordinances.
- To utilize "plain language" for all transmissions.
- To monitor the Calling Channel(s) and coordinate the use of the Tactical Channels.
- To identify inappropriate use and mitigate the same from occurring in the future.
- To limit secondary Trunked operation to the interoperability channels specifically approved on the application and limited to channels listed below.
- To relinquish secondary Trunked operation of approved interoperability channels to requests for primary conventional access with same or higher priority.
- To mitigate contention for channels by exercising the Priority Levels identified in this MOU.

The preceding conditions are the primary, though not complete, requirements for operating in the interoperability channels. Refer to the Region Plan for the complete requirements list.

Priority Levels:

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

To resolve contention within the same priority, the channel should go to the organization with the wider span of control/authority. This shall be determined by the RPC for the operation or by the levels of authority/government identified in the contention.

For clarification purposes and as an aid to operate as authorized, any fixed base or mobile relay stations identified on the license for temporary locations (FCC station class FBT or FB2T respectively) shall remain within the licensed area of operation. Similarly, vehicular/mobile repeater stations (FCC station class MO3) shall remain within the licensed area of operation. Federal agencies are permitted access to interoperability channels only as authorized by 47 CFR 2.102 (c) & 2.103 and Part 7.12 of the NTIA Manual.

Any violation of this MOU, the Region Plan, or FCC Rule shall be addressed immediately. The first level of resolution shall be between the parties involved, next the RPC, and finally the FCC.

_____ (typed or printed name of authorized signer)
_____ (authorized signer identified above and consistent with application)
_____ (date)
_____ (agency name)
_____ (agency address)
_____ (agency address)
_____ (agency address)
_____ (signer's phone)
_____ (signer's email address, if available)

Appendix F CAPRAD Explanation and Region 42 Table of Channel Allocations

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 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.

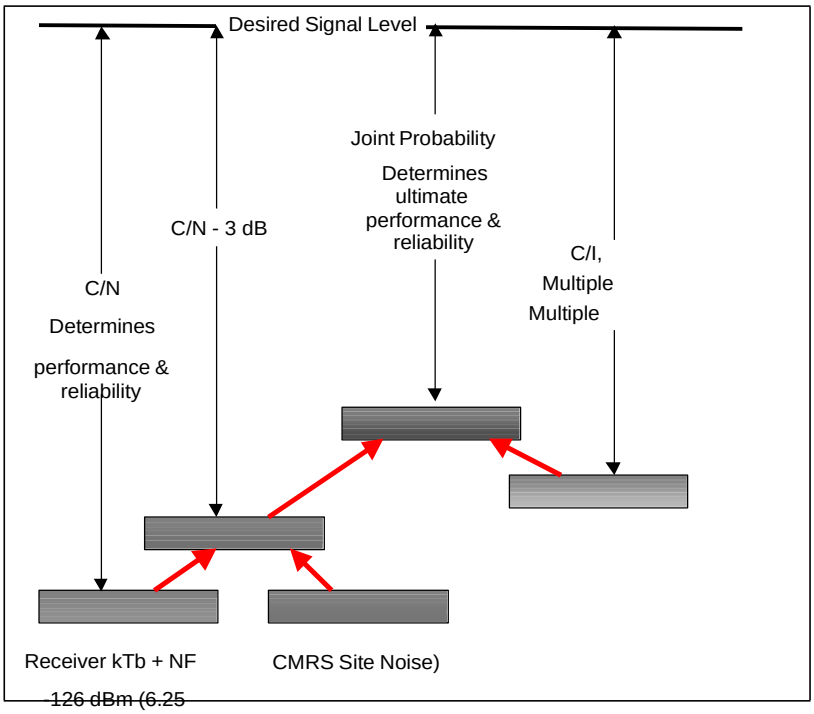


Figure 1 - Interfering Sources Create a "Noise" Level Influencing Reliability

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 service area (worst case

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

mile). A C/I ratio of 26.4 dB plus the required capture value (~10 dB) is required to achieve this goal.

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 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

Most Public Safety communications systems, today, are designed for portable in-building 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

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)

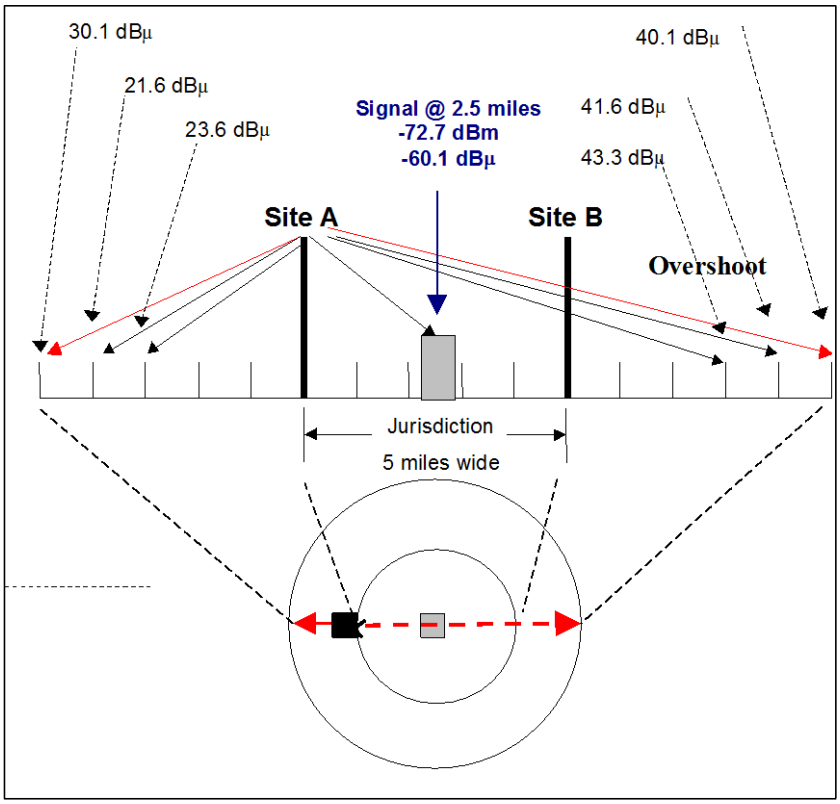


Figure 2 - Field Strength From Left Most Site

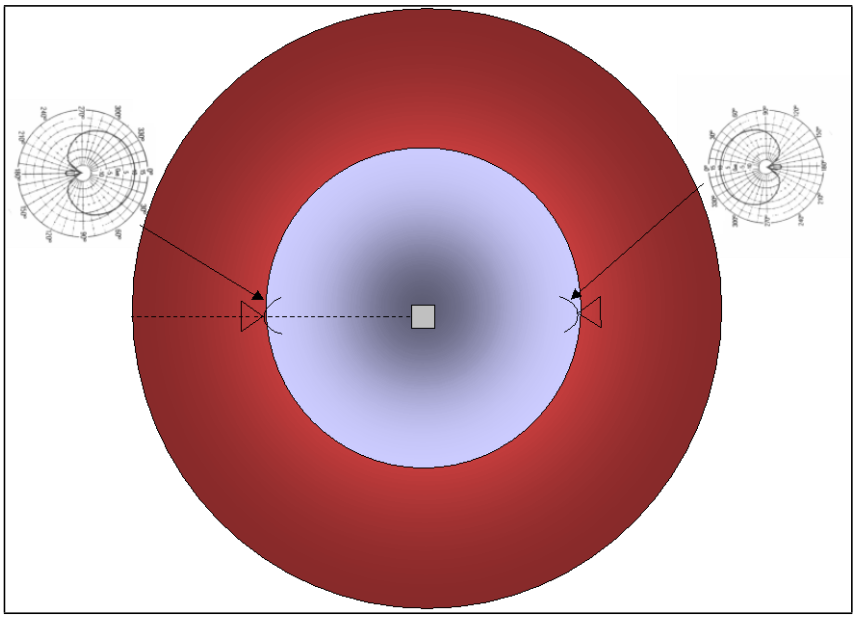


Figure 3 - Antenna Configuration Required To Limit Field Strength Off "Backside"

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 would not be possible to achieve

[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.

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.

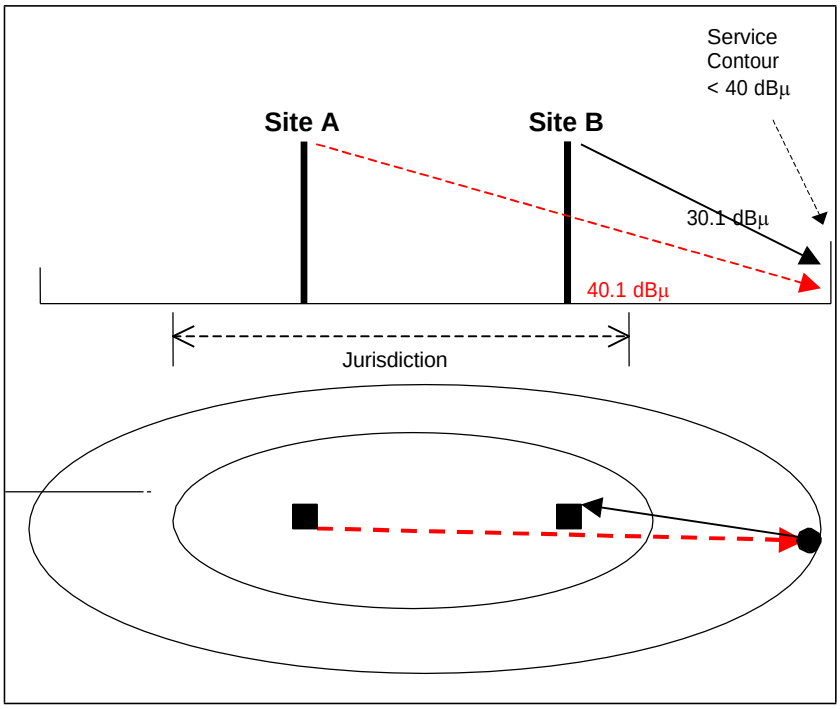


Figure 3a. Scenario 1 on of Use of Table 5

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. 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. 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.

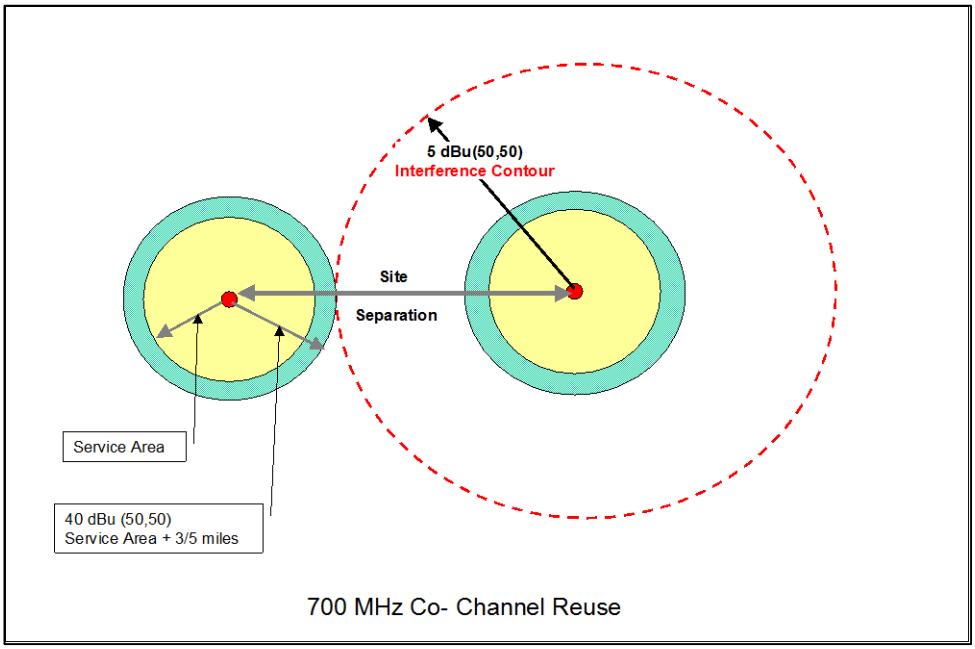


Figure 4 - Co-Channel Reuse Criterion

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 spacing, 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 spacing as the slope of the noise curve falls off rapidly. At greater spacing, 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.

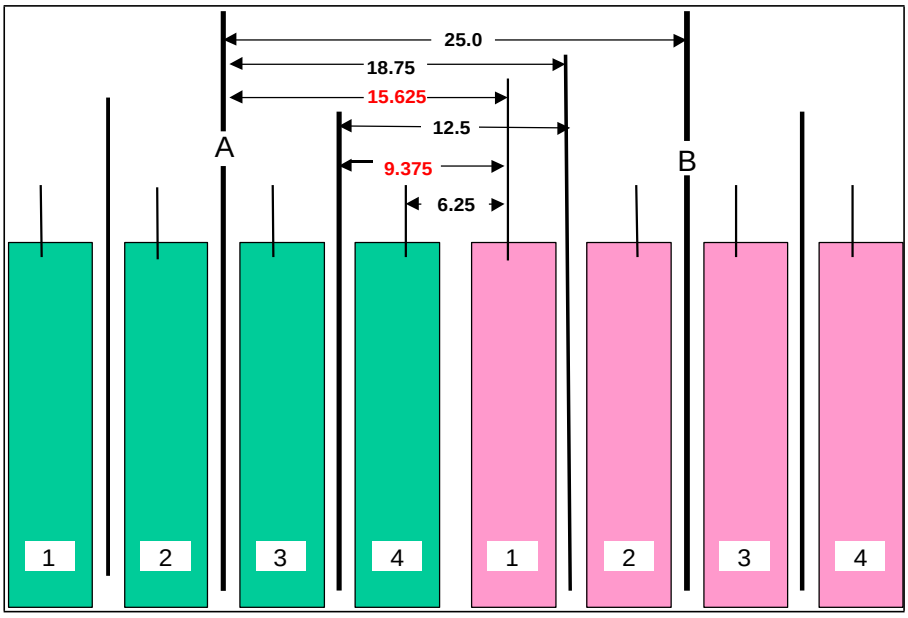


Figure 5, Potential Frequency Separations

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・.

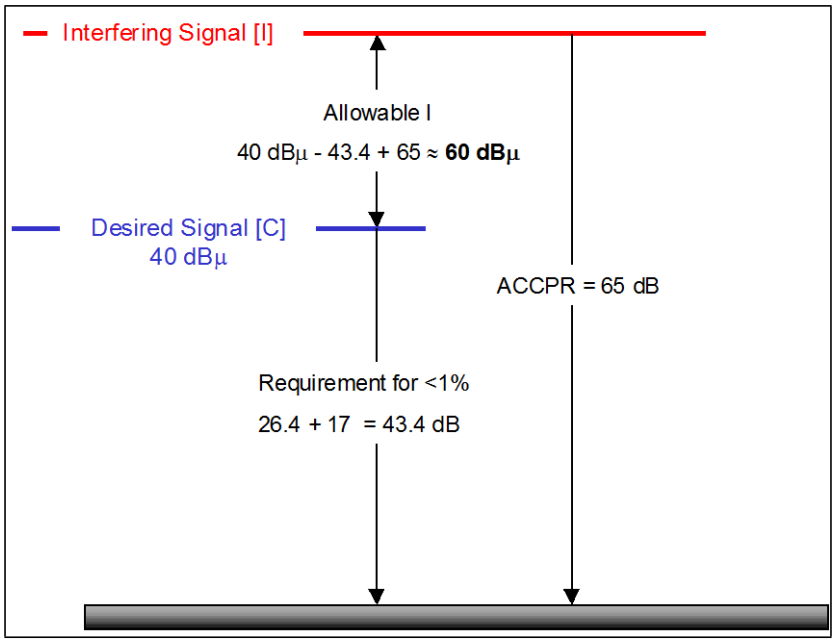


Figure 6 - Adjusted Adjacent 25 kHz Channel Interfering Contour Value

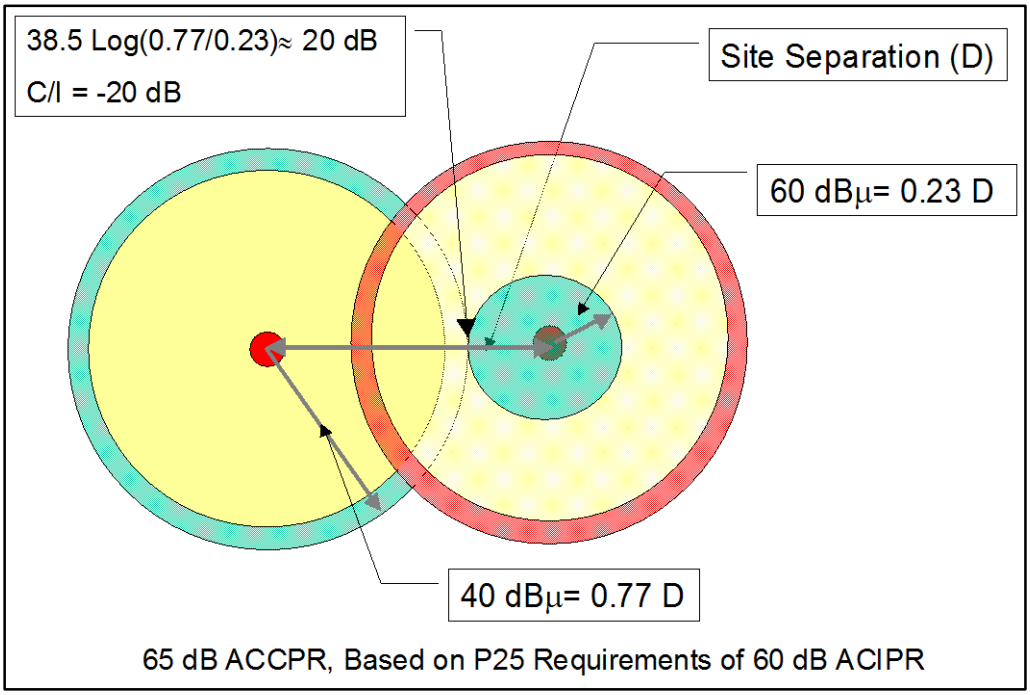


Figure 7 - Example Of Adjacent/Alternate Overlap Criterion

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.

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.

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

This can also be written in a form using the standard deviation 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.

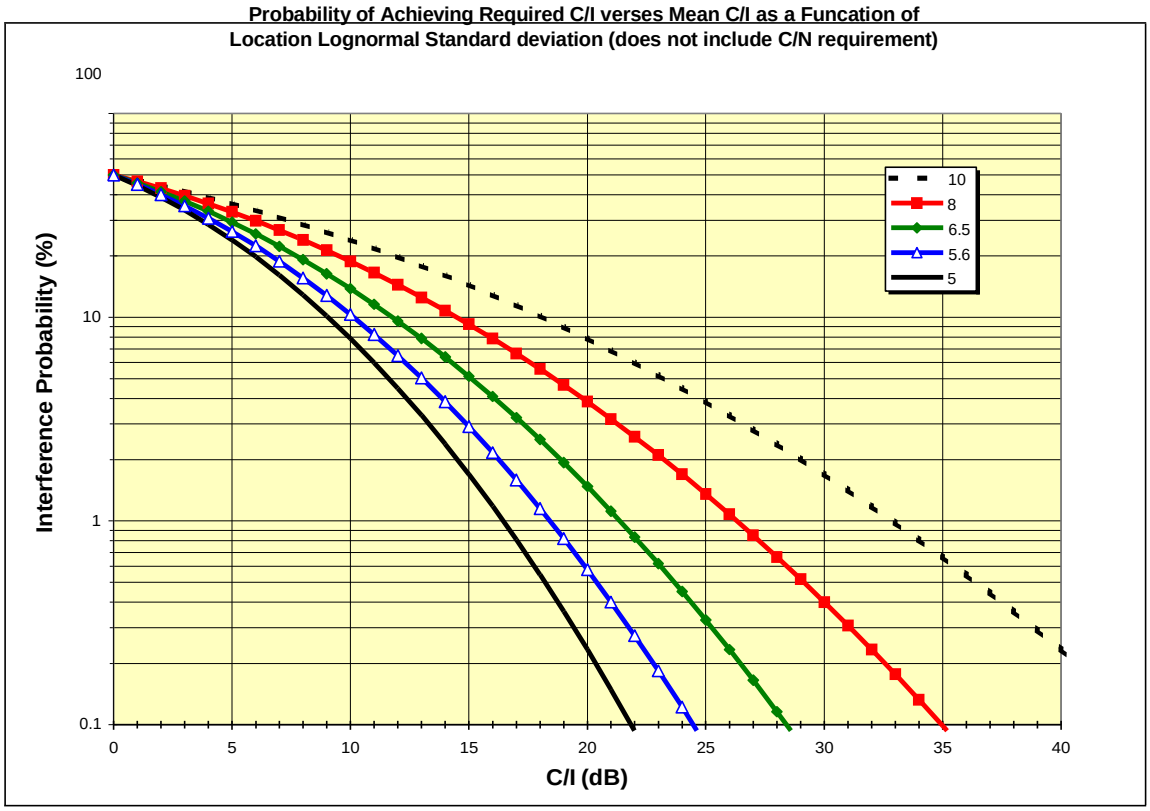


Figure A1, Probability of Achieving Required C/I as A Function of Location Standard Deviation

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%.

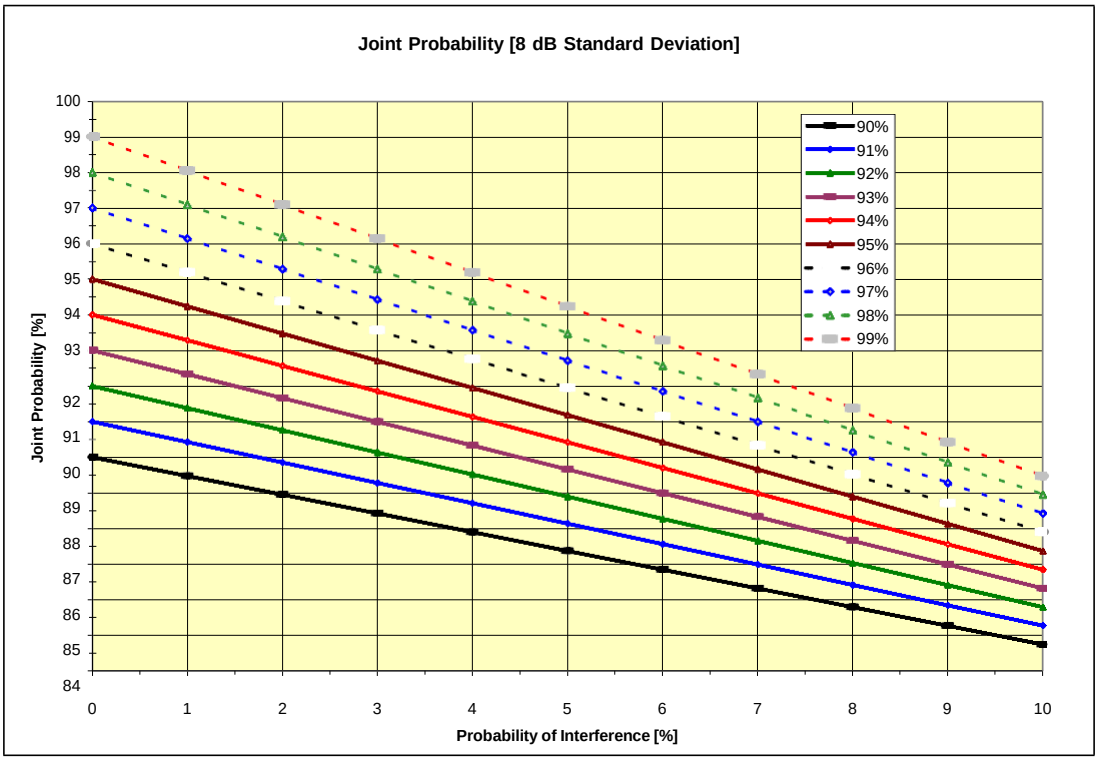
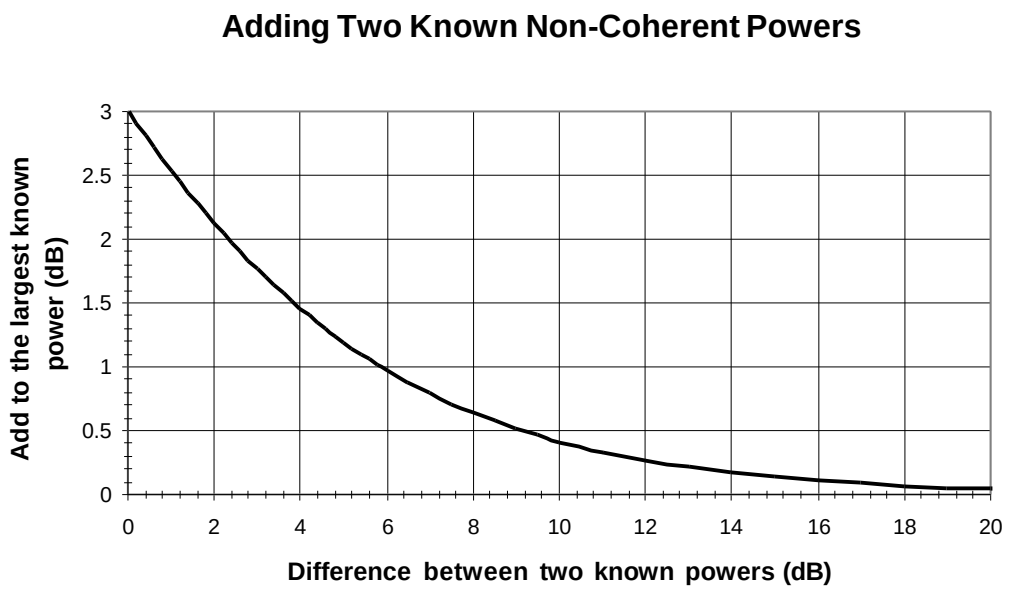


Figure A2 - Effect of Joint Probability on the Composite Probability

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.



In order to sum the power of two or more signals expressed in dBm or dBμ, the 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.

Channel Numbers and Channel Center Frequencies
Narrowband Segments of the 769-775 MHz and 799-805 MHz Bands

Revised: October 27, 2015

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1	769.0031250	769.006250	769.01250	low power
2	769.0093750			low power
3	769.0156250	769.018750		low power
4	769.0218750			low power
5	769.0281250	769.031250	769.03750	low power
6	769.0343750			low power
7	769.0406250	769.043750		low power
8	769.0468750			low power
9	769.0531250	769.056250	769.06250	low power
10	769.0593750			low power
11	769.0656250	769.068750		low power
12	769.0718750			low power
13	769.0781250	769.081250	769.08750	General Use
14	769.0843750			General Use
15	769.0906250	769.093750		General Use
16	769.0968750			General Use
17	769.1031250	769.106250	769.11250	General Use
18	769.1093750			General Use
19	769.1156250	769.118750		General Use
20	769.1218750			General Use
21	769.1281250	769.131250	769.13750	Air-Ground
22	769.1343750			Air-Ground
23	769.1406250	769.143750		Interoperability
24	769.1468750			Interoperability
25	769.1531250	769.156250	769.16250	State license
26	769.1593750			State license
27	769.1656250	769.168750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
961	799.0031250	799.006250	799.01250	low power
962	799.0093750			low power
963	799.0156250	799.018750		low power
964	799.0218750			low power
965	799.0281250	799.031250	799.03750	low power
966	799.0343750			low power
967	799.0406250	799.043750		low power
968	799.0468750			low power
969	799.0531250	799.056250	799.06250	low power
970	799.0593750			low power
971	799.0656250	799.068750		low power
972	799.0718750			low power
973	799.0781250	799.081250	799.08750	General Use
974	799.0843750			General Use
975	799.0906250	799.093750		General Use
976	799.0968750			General Use
977	799.1031250	799.106250	799.11250	General Use
978	799.1093750			General Use
979	799.1156250	799.118750		General Use
980	799.1218750			General Use
981	799.1281250	799.131250	799.13750	Air-Ground
982	799.1343750			Air-Ground
983	799.1406250	799.143750		Interoperability
984	799.1468750			Interoperability
985	799.1531250	799.156250	799.16250	State license
986	799.1593750			State license
987	799.1656250	799.168750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
28	769.1718750			State license
29	769.1781250	769.181250	769.18750	State license
30	769.1843750			State license
31	769.1906250	769.193750		State license
32	769.1968750			State license
33	769.2031250	769.206250	769.21250	State license
34	769.2093750			State license
35	769.2156250	769.218750		State license
36	769.2218750			State license
37	769.2281250	769.231250	769.23750	GenUse-DeplTrunked
38	769.2343750			GenUse-DeplTrunked
39	769.2406250	769.243750		I/O Nationwide Call
40	769.2468750			I/O Nationwide Call
41	769.2531250	769.256250	769.26250	General Use
42	769.2593750			General Use
43	769.2656250	769.268750		General Use
44	769.2718750			General Use
45	769.2781250	769.281250	769.28750	General Use
46	769.2843750			General Use
47	769.2906250	769.293750		General Use
48	769.2968750			General Use
49	769.3031250	769.306250	769.31250	General Use
50	769.3093750			General Use
51	769.3156250	769.318750		General Use
52	769.3218750			General Use
53	769.3281250	769.331250	769.33750	General Use
54	769.3343750			General Use
55	769.3406250	769.343750		General Use
56	769.3468750			General Use
57	769.3531250	769.356250	769.36250	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
988	799.1718750			State license
989	799.1781250	799.181250	799.18750	State license
990	799.1843750			State license
991	799.1906250	799.193750		State license
992	799.1968750			State license
993	799.2031250	799.206250	799.21250	State license
994	799.2093750			State license
995	799.2156250	799.218750		State license
996	799.2218750			State license
997	799.2281250	799.231250	799.23750	General Use
998	799.2343750			General Use
999	799.2406250	799.243750		I/O Nationwide Call
1000	799.2468750			I/O Nationwide Call
1001	799.2531250	799.256250	799.26250	General Use
1002	799.2593750			General Use
1003	799.2656250	799.268750		General Use
1004	799.2718750			General Use
1005	799.2781250	799.281250	799.28750	General Use
1006	799.2843750			General Use
1007	799.2906250	799.293750		General Use
1008	799.2968750			General Use
1009	799.3031250	799.306250	799.31250	General Use
1010	799.3093750			General Use
1011	799.3156250	799.318750		General Use
1012	799.3218750			General Use
1013	799.3281250	799.331250	799.33750	General Use
1014	799.3343750			General Use
1015	799.3406250	799.343750		General Use
1016	799.3468750			General Use
1017	799.3531250	799.356250	799.36250	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
58	769.3593750			General Use
59	769.3656250	769.368750		General Use
60	769.3718750			General Use
61	769.3781250	769.381250	769.38750	GenUse-DeplTrunked
62	769.3843750			GenUse-DeplTrunked
63	769.3906250	769.393750		Interoperability
64	769.3968750			Interoperability
65	769.4031250	769.406250	769.41250	State license
66	769.4093750			State license
67	769.4156250	769.418750		State license
68	769.4218750			State license
69	769.4281250	769.431250	769.43750	State license
70	769.4343750			State license
71	769.4406250	769.443750		State license
72	769.4468750			State license
73	769.4531250	769.456250	769.46250	State license
74	769.4593750			State license
75	769.4656250	769.468750		State license
76	769.4718750			State license
77	769.4781250	769.481250	769.48750	Gen Use - State VRS
78	769.4843750			Gen Use - State VRS
79	769.4906250	769.493750		Interoperability
80	769.4968750			Interoperability
81	769.5031250	769.506250	769.51250	General Use
82	769.5093750			General Use
83	769.5156250	769.518750		General Use
84	769.5218750			General Use
85	769.5281250	769.531250	769.53750	General Use
86	769.5343750			General Use
87	769.5406250	769.543750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1018	799.3593750			General Use
1019	799.3656250	799.368750		General Use
1020	799.3718750			General Use
1021	799.3781250	799.381250	799.38750	General Use
1022	799.3843750			General Use
1023	799.3906250	799.393750		Interoperability
1024	799.3968750			Interoperability
1025	799.4031250	799.406250	799.41250	State license
1026	799.4093750			State license
1027	799.4156250	799.418750		State license
1028	799.4218750			State license
1029	799.4281250	799.431250	799.43750	State license
1030	799.4343750			State license
1031	799.4406250	799.443750		State license
1032	799.4468750			State license
1033	799.4531250	799.456250	799.46250	State license
1034	799.4593750			State license
1035	799.4656250	799.468750		State license
1036	799.4718750			State license
1037	799.4781250	799.481250	799.48750	Gen Use - State VRS
1038	799.4843750			Gen Use - State VRS
1039	799.4906250	799.493750		Interoperability
1040	799.4968750			Interoperability
1041	799.5031250	799.506250	799.51250	General Use
1042	799.5093750			General Use
1043	799.5156250	799.518750		General Use
1044	799.5218750			General Use
1045	799.5281250	799.531250	799.53750	General Use
1046	799.5343750			General Use
1047	799.5406250	799.543750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
88	769.5468750			General Use
89	769.5531250	769.556250	769.56250	General Use
90	769.5593750			General Use
91	769.5656250	769.568750		General Use
92	769.5718750			General Use
93	769.5781250	769.581250	769.58750	General Use
94	769.5843750			General Use
95	769.5906250	769.593750		General Use
96	769.5968750			General Use
97	769.6031250	769.606250	769.61250	General Use
98	769.6093750			General Use
99	769.6156250	769.618750		General Use
100	769.6218750			General Use
101	769.6281250	769.631250	769.63750	Air-Ground
102	769.6343750			Air-Ground
103	769.6406250	769.643750		Interoperability
104	769.6468750			Interoperability
105	769.6531250	769.656250	769.66250	State license
106	769.6593750			State license
107	769.6656250	769.668750		State license
108	769.6718750			State license
109	769.6781250	769.681250	769.68750	State license
110	769.6843750			State license
111	769.6906250	769.693750		State license
112	769.6968750			State license
113	769.7031250	769.706250	769.71250	State license
114	769.7093750			State license
115	769.7156250	769.718750		State license
116	769.7218750			State license
117	769.7281250	769.731250	769.73750	GenUse-DeplTrunked

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1048	799.5468750			General Use
1049	799.5531250	799.556250	799.56250	General Use
1050	799.5593750			General Use
1051	799.5656250	799.568750		General Use
1052	799.5718750			General Use
1053	799.5781250	799.581250	799.58750	General Use
1054	799.5843750			General Use
1055	799.5906250	799.593750		General Use
1056	799.5968750			General Use
1057	799.6031250	799.606250	799.61250	General Use
1058	799.6093750			General Use
1059	799.6156250	799.618750		General Use
1060	799.6218750			General Use
1061	799.6281250	799.631250	799.63750	Air-Ground
1062	799.6343750			Air-Ground
1063	799.6406250	799.643750		Interoperability
1064	799.6468750			Interoperability
1065	799.6531250	799.656250	799.66250	State license
1066	799.6593750			State license
1067	799.6656250	799.668750		State license
1068	799.6718750			State license
1069	799.6781250	799.681250	799.68750	State license
1070	799.6843750			State license
1071	799.6906250	799.693750		State license
1072	799.6968750			State license
1073	799.7031250	799.706250	799.71250	State license
1074	799.7093750			State license
1075	799.7156250	799.718750		State license
1076	799.7218750			State license
1077	799.7281250	799.731250	799.73750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
118	769.7343750			GenUse-DeplTrunked
119	769.7406250	769.743750		Interoperability
120	769.7468750			Interoperability
121	769.7531250	769.756250	769.76250	General Use
122	769.7593750			General Use
123	769.7656250	769.768750		General Use
124	769.7718750			General Use
125	769.7781250	769.781250	769.78750	General Use
126	769.7843750			General Use
127	769.7906250	769.793750		General Use
128	769.7968750			General Use
129	769.8031250	769.806250	769.81250	General Use
130	769.8093750			General Use
131	769.8156250	769.818750		General Use
132	769.8218750			General Use
133	769.8281250	769.831250	769.83750	General Use
134	769.8343750			General Use
135	769.8406250	769.843750		General Use
136	769.8468750			General Use
137	769.8531250	769.856250	769.86250	General Use
138	769.8593750			General Use
139	769.8656250	769.868750		General Use
140	769.8718750			General Use
141	769.8781250	769.881250	769.88750	GenUse-DeplTrunked
142	769.8843750			GenUse-DeplTrunked
143	769.8906250	769.893750		Interoperability
144	769.8968750			Interoperability
145	769.9031250	769.906250	769.91250	State license
146	769.9093750			State license
147	769.9156250	769.918750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1078	799.7343750			General Use
1079	799.7406250	799.743750		Interoperability
1080	799.7468750			Interoperability
1081	799.7531250	799.756250	799.76250	General Use
1082	799.7593750			General Use
1083	799.7656250	799.768750		General Use
1084	799.7718750			General Use
1085	799.7781250	799.781250	799.78750	General Use
1086	799.7843750			General Use
1087	799.7906250	799.793750		General Use
1088	799.7968750			General Use
1089	799.8031250	799.806250	799.81250	General Use
1090	799.8093750			General Use
1091	799.8156250	799.818750		General Use
1092	799.8218750			General Use
1093	799.8281250	799.831250	799.83750	General Use
1094	799.8343750			General Use
1095	799.8406250	799.843750		General Use
1096	799.8468750			General Use
1097	799.8531250	799.856250	799.86250	General Use
1098	799.8593750			General Use
1099	799.8656250	799.868750		General Use
1100	799.8718750			General Use
1101	799.8781250	799.881250	799.88750	General Use
1102	799.8843750			General Use
1103	799.8906250	799.893750		Interoperability
1104	799.8968750			Interoperability
1105	799.9031250	799.906250	799.91250	State license
1106	799.9093750			State license
1107	799.9156250	799.918750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
148	769.9218750			State license
149	769.9281250	769.931250	769.93750	State license
150	769.9343750			State license
151	769.9406250	769.943750		State license
152	769.9468750			State license
153	769.9531250	769.956250	769.96250	State license
154	769.9593750			State license
155	769.9656250	769.968750		State license
156	769.9718750			State license
157	769.9781250	769.981250	769.98750	General Use
158	769.9843750			General Use
159	769.9906250	769.993750		Interoperability
160	769.9968750			Interoperability
161	770.0031250	770.006250	770.01250	General Use
162	770.0093750			General Use
163	770.0156250	770.018750		General Use
164	770.0218750			General Use
165	770.0281250	770.031250	770.03750	General Use
166	770.0343750			General Use
167	770.0406250	770.043750		General Use
168	770.0468750			General Use
169	770.0531250	770.056250	770.06250	General Use
170	770.0593750			General Use
171	770.0656250	770.068750		General Use
172	770.0718750			General Use
173	770.0781250	770.081250	770.08750	General Use
174	770.0843750			General Use
175	770.0906250	770.093750		General Use
176	770.0968750			General Use
177	770.1031250	770.106250	770.11250	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1108	799.9218750			State license
1109	799.9281250	799.931250	799.93750	State license
1110	799.9343750			State license
1111	799.9406250	799.943750		State license
1112	799.9468750			State license
1113	799.9531250	799.956250	799.96250	State license
1114	799.9593750			State license
1115	799.9656250	799.968750		State license
1116	799.9718750			State license
1117	799.9781250	799.981250	799.98750	General Use
1118	799.9843750			General Use
1119	799.9906250	799.993750		Interoperability
1120	799.9968750			Interoperability
1121	800.0031250	800.006250	800.01250	General Use
1122	800.0093750			General Use
1123	800.0156250	800.018750		General Use
1124	800.0218750			General Use
1125	800.0281250	800.031250	800.03750	General Use
1126	800.0343750			General Use
1127	800.0406250	800.043750		General Use
1128	800.0468750			General Use
1129	800.0531250	800.056250	800.06250	General Use
1130	800.0593750			General Use
1131	800.0656250	800.068750		General Use
1132	800.0718750			General Use
1133	800.0781250	800.081250	800.08750	General Use
1134	800.0843750			General Use
1135	800.0906250	800.093750		General Use
1136	800.0968750			General Use
1137	800.1031250	800.106250	800.11250	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
178	770.1093750			General Use
179	770.1156250	770.118750		General Use
180	770.1218750			General Use
181	770.1281250	770.131250	770.13750	Air-Ground
182	770.1343750			Air-Ground
183	770.1406250	770.143750		Interoperability
184	770.1468750			Interoperability
185	770.1531250	770.156250	770.16250	State license
186	770.1593750			State license
187	770.1656250	770.168750		State license
188	770.1718750			State license
189	770.1781250	770.181250	770.18750	State license
190	770.1843750			State license
191	770.1906250	770.193750		State license
192	770.1968750			State license
193	770.2031250	770.206250	770.21250	State license
194	770.2093750			State license
195	770.2156250	770.218750		State license
196	770.2218750			State license
197	770.2281250	770.231250	770.23750	Gen Use - State VRS
198	770.2343750			Gen Use - State VRS
199	770.2406250	770.243750		Interoperability
200	770.2468750			Interoperability
201	770.2531250	770.256250	770.26250	General Use
202	770.2593750			General Use
203	770.2656250	770.268750		General Use
204	770.2718750			General Use
205	770.2781250	770.281250	770.28750	General Use
206	770.2843750			General Use
207	770.2906250	770.293750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1138	800.1093750			General Use
1139	800.1156250	800.118750		General Use
1140	800.1218750			General Use
1141	800.1281250	800.131250	800.13750	Air-Ground
1142	800.1343750			Air-Ground
1143	800.1406250	800.143750		Interoperability
1144	800.1468750			Interoperability
1145	800.1531250	800.156250	800.16250	State license
1146	800.1593750			State license
1147	800.1656250	800.168750		State license
1148	800.1718750			State license
1149	800.1781250	800.181250	800.18750	State license
1150	800.1843750			State license
1151	800.1906250	800.193750		State license
1152	800.1968750			State license
1153	800.2031250	800.206250	800.21250	State license
1154	800.2093750			State license
1155	800.2156250	800.218750		State license
1156	800.2218750			State license
1157	800.2281250	800.231250	800.23750	Gen Use - State VRS
1158	800.2343750			Gen Use - State VRS
1159	800.2406250	800.243750		Interoperability
1160	800.2468750			Interoperability
1161	800.2531250	800.256250	800.26250	General Use
1162	800.2593750			General Use
1163	800.2656250	800.268750		General Use
1164	800.2718750			General Use
1165	800.2781250	800.281250	800.28750	General Use
1166	800.2843750			General Use
1167	800.2906250	800.293750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
208	770.2968750			General Use
209	770.3031250	770.306250	770.31250	General Use
210	770.3093750			General Use
211	770.3156250	770.318750		General Use
212	770.3218750			General Use
213	770.3281250	770.331250	770.33750	General Use
214	770.3343750			General Use
215	770.3406250	770.343750		General Use
216	770.3468750			General Use
217	770.3531250	770.356250	770.36250	General Use
218	770.3593750			General Use
219	770.3656250	770.368750		General Use
220	770.3718750			General Use
221	770.3781250	770.381250	770.38750	General Use
222	770.3843750			General Use
223	770.3906250	770.393750		Interoperability
224	770.3968750			Interoperability
225	770.4031250	770.406250	770.41250	State license
226	770.4093750			State license
227	770.4156250	770.418750		State license
228	770.4218750			State license
229	770.4281250	770.431250	770.43750	State license
230	770.4343750			State license
231	770.4406250	770.443750		State license
232	770.4468750			State license
233	770.4531250	770.456250	770.46250	State license
234	770.4593750			State license
235	770.4656250	770.468750		State license
236	770.4718750			State license
237	770.4781250	770.481250	770.48750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1168	800.2968750			General Use
1169	800.3031250	800.306250	800.31250	General Use
1170	800.3093750			General Use
1171	800.3156250	800.318750		General Use
1172	800.3218750			General Use
1173	800.3281250	800.331250	800.33750	General Use
1174	800.3343750			General Use
1175	800.3406250	800.343750		General Use
1176	800.3468750			General Use
1177	800.3531250	800.356250	800.36250	General Use
1178	800.3593750			General Use
1179	800.3656250	800.368750		General Use
1180	800.3718750			General Use
1181	800.3781250	800.381250	800.38750	General Use
1182	800.3843750			General Use
1183	800.3906250	800.393750		Interoperability
1184	800.3968750			Interoperability
1185	800.4031250	800.406250	800.41250	State license
1186	800.4093750			State license
1187	800.4156250	800.418750		State license
1188	800.4218750			State license
1189	800.4281250	800.431250	800.43750	State license
1190	800.4343750			State license
1191	800.4406250	800.443750		State license
1192	800.4468750			State license
1193	800.4531250	800.456250	800.46250	State license
1194	800.4593750			State license
1195	800.4656250	800.468750		State license
1196	800.4718750			State license
1197	800.4781250	800.481250	800.48750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
238	770.4843750			General Use
239	770.4906250	770.493750		Interoperability
240	770.4968750			Interoperability
241	770.5031250	770.506250	770.51250	General Use
242	770.5093750			General Use
243	770.5156250	770.518750		General Use
244	770.5218750			General Use
245	770.5281250	770.531250	770.53750	General Use
246	770.5343750			General Use
247	770.5406250	770.543750		General Use
248	770.5468750			General Use
249	770.5531250	770.556250	770.56250	General Use
250	770.5593750			General Use
251	770.5656250	770.568750		General Use
252	770.5718750			General Use
253	770.5781250	770.581250	770.58750	General Use
254	770.5843750			General Use
255	770.5906250	770.593750		General Use
256	770.5968750			General Use
257	770.6031250	770.606250	770.61250	General Use
258	770.6093750			General Use
259	770.6156250	770.618750		General Use
260	770.6218750			General Use
261	770.6281250	770.631250	770.63750	Air-Ground
262	770.6343750			Air-Ground
263	770.6406250	770.643750		Interoperability
264	770.6468750			Interoperability
265	770.6531250	770.656250	770.66250	State license
266	770.6593750			State license
267	770.6656250	770.668750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1198	800.4843750			General Use
1199	800.4906250	800.493750		Interoperability
1200	800.4968750			Interoperability
1201	800.5031250	800.506250	800.51250	General Use
1202	800.5093750			General Use
1203	800.5156250	800.518750		General Use
1204	800.5218750			General Use
1205	800.5281250	800.531250	800.53750	General Use
1206	800.5343750			General Use
1207	800.5406250	800.543750		General Use
1208	800.5468750			General Use
1209	800.5531250	800.556250	800.56250	General Use
1210	800.5593750			General Use
1211	800.5656250	800.568750		General Use
1212	800.5718750			General Use
1213	800.5781250	800.581250	800.58750	General Use
1214	800.5843750			General Use
1215	800.5906250	800.593750		General Use
1216	800.5968750			General Use
1217	800.6031250	800.606250	800.61250	General Use
1218	800.6093750			General Use
1219	800.6156250	800.618750		General Use
1220	800.6218750			General Use
1221	800.6281250	800.631250	800.63750	Air-Ground
1222	800.6343750			Air-Ground
1223	800.6406250	800.643750		Interoperability
1224	800.6468750			Interoperability
1225	800.6531250	800.656250	800.66250	State license
1226	800.6593750			State license
1227	800.6656250	800.668750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
268	770.6718750			State license
269	770.6781250	770.681250	770.68750	State license
270	770.6843750			State license
271	770.6906250	770.693750		State license
272	770.6968750			State license
273	770.7031250	770.706250	770.71250	State license
274	770.7093750			State license
275	770.7156250	770.718750		State license
276	770.7218750			State license
277	770.7281250	770.731250	770.73750	General Use
278	770.7343750			General Use
279	770.7406250	770.743750		I/O low speed data
280	770.7468750			I/O low speed data
281	770.7531250	770.756250	770.76250	General Use
282	770.7593750			General Use
283	770.7656250	770.768750		General Use
284	770.7718750			General Use
285	770.7781250	770.781250	770.78750	General Use
286	770.7843750			General Use
287	770.7906250	770.793750		General Use
288	770.7968750			General Use
289	770.8031250	770.806250	770.81250	General Use
290	770.8093750			General Use
291	770.8156250	770.818750		General Use
292	770.8218750			General Use
293	770.8281250	770.831250	770.83750	General Use
294	770.8343750			General Use
295	770.8406250	770.843750		General Use
296	770.8468750			General Use
297	770.8531250	770.856250	770.86250	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1228	800.6718750			State license
1229	800.6781250	800.681250	800.68750	State license
1230	800.6843750			State license
1231	800.6906250	800.693750		State license
1232	800.6968750			State license
1233	800.7031250	800.706250	800.71250	State license
1234	800.7093750			State license
1235	800.7156250	800.718750		State license
1236	800.7218750			State license
1237	800.7281250	800.731250	800.73750	General Use
1238	800.7343750			General Use
1239	800.7406250	800.743750		I/O low speed data
1240	800.7468750			I/O low speed data
1241	800.7531250	800.756250	800.76250	General Use
1242	800.7593750			General Use
1243	800.7656250	800.768750		General Use
1244	800.7718750			General Use
1245	800.7781250	800.781250	800.78750	General Use
1246	800.7843750			General Use
1247	800.7906250	800.793750		General Use
1248	800.7968750			General Use
1249	800.8031250	800.806250	800.81250	General Use
1250	800.8093750			General Use
1251	800.8156250	800.818750		General Use
1252	800.8218750			General Use
1253	800.8281250	800.831250	800.83750	General Use
1254	800.8343750			General Use
1255	800.8406250	800.843750		General Use
1256	800.8468750			General Use
1257	800.8531250	800.856250	800.86250	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
298	770.8593750			General Use
299	770.8656250	770.868750		General Use
300	770.8718750			General Use
301	770.8781250	770.881250	770.88750	General Use
302	770.8843750			General Use
303	770.8906250	770.893750		Interoperability
304	770.8968750			Interoperability
305	770.9031250	770.906250	770.91250	State license
306	770.9093750			State license
307	770.9156250	770.918750		State license
308	770.9218750			State license
309	770.9281250	770.931250	770.93750	State license
310	770.9343750			State license
311	770.9406250	770.943750		State license
312	770.9468750			State license
313	770.9531250	770.956250	770.96250	State license
314	770.9593750			State license
315	770.9656250	770.968750		State license
316	770.9718750			State license
317	770.9781250	770.981250	770.98750	Gen Use - State VRS
318	770.9843750			Gen Use - State VRS
319	770.9906250	770.993750		Interoperability
320	770.9968750			Interoperability
321	771.0031250	771.006250	771.01250	General Use
322	771.0093750			General Use
323	771.0156250	771.018750		General Use
324	771.0218750			General Use
325	771.0281250	771.031250	771.03750	General Use
326	771.0343750			General Use
327	771.0406250	771.043750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1258	800.8593750			General Use
1259	800.8656250	800.868750		General Use
1260	800.8718750			General Use
1261	800.8781250	800.881250	800.88750	General Use
1262	800.8843750			General Use
1263	800.8906250	800.893750		Interoperability
1264	800.8968750			Interoperability
1265	800.9031250	800.906250	800.91250	State license
1266	800.9093750			State license
1267	800.9156250	800.918750		State license
1268	800.9218750			State license
1269	800.9281250	800.931250	800.93750	State license
1270	800.9343750			State license
1271	800.9406250	800.943750		State license
1272	800.9468750			State license
1273	800.9531250	800.956250	800.96250	State license
1274	800.9593750			State license
1275	800.9656250	800.968750		State license
1276	800.9718750			State license
1277	800.9781250	800.981250	800.98750	Gen Use - State VRS
1278	800.9843750			Gen Use - State VRS
1279	800.9906250	800.993750		Interoperability
1280	800.9968750			Interoperability
1281	801.0031250	801.006250	801.01250	General Use
1282	801.0093750			General Use
1283	801.0156250	801.018750		General Use
1284	801.0218750			General Use
1285	801.0281250	801.031250	801.03750	General Use
1286	801.0343750			General Use
1287	801.0406250	801.043750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
328	771.0468750			General Use
329	771.0531250	771.056250	771.06250	General Use
330	771.0593750			General Use
331	771.0656250	771.068750		General Use
332	771.0718750			General Use
333	771.0781250	771.081250	771.08750	General Use
334	771.0843750			General Use
335	771.0906250	771.093750		General Use
336	771.0968750			General Use
337	771.1031250	771.106250	771.11250	General Use
338	771.1093750			General Use
339	771.1156250	771.118750		General Use
340	771.1218750			General Use
341	771.1281250	771.131250	771.13750	General Use
342	771.1343750			General Use
343	771.1406250	771.143750		General Use
344	771.1468750			General Use
345	771.1531250	771.156250	771.16250	General Use
346	771.1593750			General Use
347	771.1656250	771.168750		General Use
348	771.1718750			General Use
349	771.1781250	771.181250	771.18750	General Use
350	771.1843750			General Use
351	771.1906250	771.193750		General Use
352	771.1968750			General Use
353	771.2031250	771.206250	771.21250	General Use
354	771.2093750			General Use
355	771.2156250	771.218750		General Use
356	771.2218750			General Use
357	771.2281250	771.231250	771.23750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1288	801.0468750			General Use
1289	801.0531250	801.056250	801.06250	General Use
1290	801.0593750			General Use
1291	801.0656250	801.068750		General Use
1292	801.0718750			General Use
1293	801.0781250	801.081250	801.08750	General Use
1294	801.0843750			General Use
1295	801.0906250	801.093750		General Use
1296	801.0968750			General Use
1297	801.1031250	801.106250	801.11250	General Use
1298	801.1093750			General Use
1299	801.1156250	801.118750		General Use
1300	801.1218750			General Use
1301	801.1281250	801.131250	801.13750	General Use
1302	801.1343750			General Use
1303	801.1406250	801.143750		General Use
1304	801.1468750			General Use
1305	801.1531250	801.156250	801.16250	General Use
1306	801.1593750			General Use
1307	801.1656250	801.168750		General Use
1308	801.1718750			General Use
1309	801.1781250	801.181250	801.18750	General Use
1310	801.1843750			General Use
1311	801.1906250	801.193750		General Use
1312	801.1968750			General Use
1313	801.2031250	801.206250	801.21250	General Use
1314	801.2093750			General Use
1315	801.2156250	801.218750		General Use
1316	801.2218750			General Use
1317	801.2281250	801.231250	801.23750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
358	771.2343750			General Use
359	771.2406250	771.243750		General Use
360	771.2468750			General Use
361	771.2531250	771.256250	771.26250	General Use
362	771.2593750			General Use
363	771.2656250	771.268750		General Use
364	771.2718750			General Use
365	771.2781250	771.281250	771.28750	General Use
366	771.2843750			General Use
367	771.2906250	771.293750		General Use
368	771.2968750			General Use
369	771.3031250	771.306250	771.31250	General Use
370	771.3093750			General Use
371	771.3156250	771.318750		General Use
372	771.3218750			General Use
373	771.3281250	771.331250	771.33750	General Use
374	771.3343750			General Use
375	771.3406250	771.343750		General Use
376	771.3468750			General Use
377	771.3531250	771.356250	771.36250	General Use
378	771.3593750			General Use
379	771.3656250	771.368750		General Use
380	771.3718750			General Use
381	771.3781250	771.381250	771.38750	General Use
382	771.3843750			General Use
383	771.3906250	771.393750		General Use
384	771.3968750			General Use
385	771.4031250	771.406250	771.41250	General Use
386	771.4093750			General Use
387	771.4156250	771.418750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1318	801.2343750			General Use
1319	801.2406250	801.243750		General Use
1320	801.2468750			General Use
1321	801.2531250	801.256250	801.26250	General Use
1322	801.2593750			General Use
1323	801.2656250	801.268750		General Use
1324	801.2718750			General Use
1325	801.2781250	801.281250	801.28750	General Use
1326	801.2843750			General Use
1327	801.2906250	801.293750		General Use
1328	801.2968750			General Use
1329	801.3031250	801.306250	801.31250	General Use
1330	801.3093750			General Use
1331	801.3156250	801.318750		General Use
1332	801.3218750			General Use
1333	801.3281250	801.331250	801.33750	General Use
1334	801.3343750			General Use
1335	801.3406250	801.343750		General Use
1336	801.3468750			General Use
1337	801.3531250	801.356250	801.36250	General Use
1338	801.3593750			General Use
1339	801.3656250	801.368750		General Use
1340	801.3718750			General Use
1341	801.3781250	801.381250	801.38750	General Use
1342	801.3843750			General Use
1343	801.3906250	801.393750		General Use
1344	801.3968750			General Use
1345	801.4031250	801.406250	801.41250	General Use
1346	801.4093750			General Use
1347	801.4156250	801.418750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
388	771.4218750			General Use
389	771.4281250	771.431250	771.43750	General Use
390	771.4343750			General Use
391	771.4406250	771.443750		General Use
392	771.4468750			General Use
393	771.4531250	771.456250	771.46250	General Use
394	771.4593750			General Use
395	771.4656250	771.468750		General Use
396	771.4718750			General Use
397	771.4781250	771.481250	771.48750	General Use
398	771.4843750			General Use
399	771.4906250	771.493750		General Use
400	771.4968750			General Use
401	771.5031250	771.506250	771.51250	General Use
402	771.5093750			General Use
403	771.5156250	771.518750		General Use
404	771.5218750			General Use
405	771.5281250	771.531250	771.53750	General Use
406	771.5343750			General Use
407	771.5406250	771.543750		General Use
408	771.5468750			General Use
409	771.5531250	771.556250	771.56250	General Use
410	771.5593750			General Use
411	771.5656250	771.568750		General Use
412	771.5718750			General Use
413	771.5781250	771.581250	771.58750	General Use
414	771.5843750			General Use
415	771.5906250	771.593750		General Use
416	771.5968750			General Use
417	771.6031250	771.606250	771.61250	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1348	801.4218750			General Use
1349	801.4281250	801.431250	801.43750	General Use
1350	801.4343750			General Use
1351	801.4406250	801.443750		General Use
1352	801.4468750			General Use
1353	801.4531250	801.456250	801.46250	General Use
1354	801.4593750			General Use
1355	801.4656250	801.468750		General Use
1356	801.4718750			General Use
1357	801.4781250	801.481250	801.48750	General Use
1358	801.4843750			General Use
1359	801.4906250	801.493750		General Use
1360	801.4968750			General Use
1361	801.5031250	801.506250	801.51250	General Use
1362	801.5093750			General Use
1363	801.5156250	801.518750		General Use
1364	801.5218750			General Use
1365	801.5281250	801.531250	801.53750	General Use
1366	801.5343750			General Use
1367	801.5406250	801.543750		General Use
1368	801.5468750			General Use
1369	801.5531250	801.556250	801.56250	General Use
1370	801.5593750			General Use
1371	801.5656250	801.568750		General Use
1372	801.5718750			General Use
1373	801.5781250	801.581250	801.58750	General Use
1374	801.5843750			General Use
1375	801.5906250	801.593750		General Use
1376	801.5968750			General Use
1377	801.6031250	801.606250	801.61250	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
418	771.6093750			General Use
419	771.6156250	771.618750		General Use
420	771.6218750			General Use
421	771.6281250	771.631250	771.63750	General Use
422	771.6343750			General Use
423	771.6406250	771.643750		General Use
424	771.6468750			General Use
425	771.6531250	771.656250	771.66250	General Use
426	771.6593750			General Use
427	771.6656250	771.668750		General Use
428	771.6718750			General Use
429	771.6781250	771.681250	771.68750	General Use
430	771.6843750			General Use
431	771.6906250	771.693750		General Use
432	771.6968750			General Use
433	771.7031250	771.706250	771.71250	General Use
434	771.7093750			General Use
435	771.7156250	771.718750		General Use
436	771.7218750			General Use
437	771.7281250	771.731250	771.73750	General Use
438	771.7343750			General Use
439	771.7406250	771.743750		General Use
440	771.7468750			General Use
441	771.7531250	771.756250	771.76250	General Use
442	771.7593750			General Use
443	771.7656250	771.768750		General Use
444	771.7718750			General Use
445	771.7781250	771.781250	771.78750	General Use
446	771.7843750			General Use
447	771.7906250	771.793750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1378	801.6093750			General Use
1379	801.6156250	801.618750		General Use
1380	801.6218750			General Use
1381	801.6281250	801.631250	801.63750	General Use
1382	801.6343750			General Use
1383	801.6406250	801.643750		General Use
1384	801.6468750			General Use
1385	801.6531250	801.656250	801.66250	General Use
1386	801.6593750			General Use
1387	801.6656250	801.668750		General Use
1388	801.6718750			General Use
1389	801.6781250	801.681250	801.68750	General Use
1390	801.6843750			General Use
1391	801.6906250	801.693750		General Use
1392	801.6968750			General Use
1393	801.7031250	801.706250	801.71250	General Use
1394	801.7093750			General Use
1395	801.7156250	801.718750		General Use
1396	801.7218750			General Use
1397	801.7281250	801.731250	801.73750	General Use
1398	801.7343750			General Use
1399	801.7406250	801.743750		General Use
1400	801.7468750			General Use
1401	801.7531250	801.756250	801.76250	General Use
1402	801.7593750			General Use
1403	801.7656250	801.768750		General Use
1404	801.7718750			General Use
1405	801.7781250	801.781250	801.78750	General Use
1406	801.7843750			General Use
1407	801.7906250	801.793750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
448	771.7968750			General Use
449	771.8031250	771.806250	771.81250	General Use
450	771.8093750			General Use
451	771.8156250	771.818750		General Use
452	771.8218750			General Use
453	771.8281250	771.831250	771.83750	General Use
454	771.8343750			General Use
455	771.8406250	771.843750		General Use
456	771.8468750			General Use
457	771.8531250	771.856250	771.86250	General Use
458	771.8593750			General Use
459	771.8656250	771.868750		General Use
460	771.8718750			General Use
461	771.8781250	771.881250	771.88750	General Use
462	771.8843750			General Use
463	771.8906250	771.893750		General Use
464	771.8968750			General Use
465	771.9031250	771.906250	771.91250	General Use
466	771.9093750			General Use
467	771.9156250	771.918750		General Use
468	771.9218750			General Use
469	771.9281250	771.931250	771.93750	General Use
470	771.9343750			General Use
471	771.9406250	771.943750		General Use
472	771.9468750			General Use
473	771.9531250	771.956250	771.96250	General Use
474	771.9593750			General Use
475	771.9656250	771.968750		General Use
476	771.9718750			General Use
477	771.9781250	771.981250	771.98750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1408	801.7968750			General Use
1409	801.8031250	801.806250	801.81250	General Use
1410	801.8093750			General Use
1411	801.8156250	801.818750		General Use
1412	801.8218750			General Use
1413	801.8281250	801.831250	801.83750	General Use
1414	801.8343750			General Use
1415	801.8406250	801.843750		General Use
1416	801.8468750			General Use
1417	801.8531250	801.856250	801.86250	General Use
1418	801.8593750			General Use
1419	801.8656250	801.868750		General Use
1420	801.8718750			General Use
1421	801.8781250	801.881250	801.88750	General Use
1422	801.8843750			General Use
1423	801.8906250	801.893750		General Use
1424	801.8968750			General Use
1425	801.9031250	801.906250	801.91250	General Use
1426	801.9093750			General Use
1427	801.9156250	801.918750		General Use
1428	801.9218750			General Use
1429	801.9281250	801.931250	801.93750	General Use
1430	801.9343750			General Use
1431	801.9406250	801.943750		General Use
1432	801.9468750			General Use
1433	801.9531250	801.956250	801.96250	General Use
1434	801.9593750			General Use
1435	801.9656250	801.968750		General Use
1436	801.9718750			General Use
1437	801.9781250	801.981250	801.98750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
478	771.9843750			General Use
479	771.9906250	771.993750		General Use
480	771.9968750			General Use
481	772.0031250	772.006250	772.01250	General Use
482	772.0093750			General Use
483	772.0156250	772.018750		General Use
484	772.0218750			General Use
485	772.0281250	772.031250	772.03750	General Use
486	772.0343750			General Use
487	772.0406250	772.043750		General Use
488	772.0468750			General Use
489	772.0531250	772.056250	772.06250	General Use
490	772.0593750			General Use
491	772.0656250	772.068750		General Use
492	772.0718750			General Use
493	772.0781250	772.081250	772.08750	General Use
494	772.0843750			General Use
495	772.0906250	772.093750		General Use
496	772.0968750			General Use
497	772.1031250	772.106250	772.11250	General Use
498	772.1093750			General Use
499	772.1156250	772.118750		General Use
500	772.1218750			General Use
501	772.1281250	772.131250	772.13750	General Use
502	772.1343750			General Use
503	772.1406250	772.143750		General Use
504	772.1468750			General Use
505	772.1531250	772.156250	772.16250	General Use
506	772.1593750			General Use
507	772.1656250	772.168750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1438	801.9843750			General Use
1439	801.9906250	801.993750		General Use
1440	801.9968750			General Use
1441	802.0031250	802.006250	802.01250	General Use
1442	802.0093750			General Use
1443	802.0156250	802.018750		General Use
1444	802.0218750			General Use
1445	802.0281250	802.031250	802.03750	General Use
1446	802.0343750			General Use
1447	802.0406250	802.043750		General Use
1448	802.0468750			General Use
1449	802.0531250	802.056250	802.06250	General Use
1450	802.0593750			General Use
1451	802.0656250	802.068750		General Use
1452	802.0718750			General Use
1453	802.0781250	802.081250	802.08750	General Use
1454	802.0843750			General Use
1455	802.0906250	802.093750		General Use
1456	802.0968750			General Use
1457	802.1031250	802.106250	802.11250	General Use
1458	802.1093750			General Use
1459	802.1156250	802.118750		General Use
1460	802.1218750			General Use
1461	802.1281250	802.131250	802.13750	General Use
1462	802.1343750			General Use
1463	802.1406250	802.143750		General Use
1464	802.1468750			General Use
1465	802.1531250	802.156250	802.16250	General Use
1466	802.1593750			General Use
1467	802.1656250	802.168750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
508	772.1718750			General Use
509	772.1781250	772.181250	772.18750	General Use
510	772.1843750			General Use
511	772.1906250	772.193750		General Use
512	772.1968750			General Use
513	772.2031250	772.206250	772.21250	General Use
514	772.2093750			General Use
515	772.2156250	772.218750		General Use
516	772.2218750			General Use
517	772.2281250	772.231250	772.23750	General Use
518	772.2343750			General Use
519	772.2406250	772.243750		General Use
520	772.2468750			General Use
521	772.2531250	772.256250	772.26250	General Use
522	772.2593750			General Use
523	772.2656250	772.268750		General Use
524	772.2718750			General Use
525	772.2781250	772.281250	772.28750	General Use
526	772.2843750			General Use
527	772.2906250	772.293750		General Use
528	772.2968750			General Use
529	772.3031250	772.306250	772.31250	General Use
530	772.3093750			General Use
531	772.3156250	772.318750		General Use
532	772.3218750			General Use
533	772.3281250	772.331250	772.33750	General Use
534	772.3343750			General Use
535	772.3406250	772.343750		General Use
536	772.3468750			General Use
537	772.3531250	772.356250	772.36250	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1468	802.1718750			General Use
1469	802.1781250	802.181250	802.18750	General Use
1470	802.1843750			General Use
1471	802.1906250	802.193750		General Use
1472	802.1968750			General Use
1473	802.2031250	802.206250	802.21250	General Use
1474	802.2093750			General Use
1475	802.2156250	802.218750		General Use
1476	802.2218750			General Use
1477	802.2281250	802.231250	802.23750	General Use
1478	802.2343750			General Use
1479	802.2406250	802.243750		General Use
1480	802.2468750			General Use
1481	802.2531250	802.256250	802.26250	General Use
1482	802.2593750			General Use
1483	802.2656250	802.268750		General Use
1484	802.2718750			General Use
1485	802.2781250	802.281250	802.28750	General Use
1486	802.2843750			General Use
1487	802.2906250	802.293750		General Use
1488	802.2968750			General Use
1489	802.3031250	802.306250	802.31250	General Use
1490	802.3093750			General Use
1491	802.3156250	802.318750		General Use
1492	802.3218750			General Use
1493	802.3281250	802.331250	802.33750	General Use
1494	802.3343750			General Use
1495	802.3406250	802.343750		General Use
1496	802.3468750			General Use
1497	802.3531250	802.356250	802.36250	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
538	772.3593750			General Use
539	772.3656250	772.368750		General Use
540	772.3718750			General Use
541	772.3781250	772.381250	772.38750	General Use
542	772.3843750			General Use
543	772.3906250	772.393750		General Use
544	772.3968750			General Use
545	772.4031250	772.406250	772.41250	General Use
546	772.4093750			General Use
547	772.4156250	772.418750		General Use
548	772.4218750			General Use
549	772.4281250	772.431250	772.43750	General Use
550	772.4343750			General Use
551	772.4406250	772.443750		General Use
552	772.4468750			General Use
553	772.4531250	772.456250	772.46250	General Use
554	772.4593750			General Use
555	772.4656250	772.468750		General Use
556	772.4718750			General Use
557	772.4781250	772.481250	772.48750	General Use
558	772.4843750			General Use
559	772.4906250	772.493750		General Use
560	772.4968750			General Use
561	772.5031250	772.506250	772.51250	General Use
562	772.5093750			General Use
563	772.5156250	772.518750		General Use
564	772.5218750			General Use
565	772.5281250	772.531250	772.53750	General Use
566	772.5343750			General Use
567	772.5406250	772.543750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1498	802.3593750			General Use
1499	802.3656250	802.368750		General Use
1500	802.3718750			General Use
1501	802.3781250	802.381250	802.38750	General Use
1502	802.3843750			General Use
1503	802.3906250	802.393750		General Use
1504	802.3968750			General Use
1505	802.4031250	802.406250	802.41250	General Use
1506	802.4093750			General Use
1507	802.4156250	802.418750		General Use
1508	802.4218750			General Use
1509	802.4281250	802.431250	802.43750	General Use
1510	802.4343750			General Use
1511	802.4406250	802.443750		General Use
1512	802.4468750			General Use
1513	802.4531250	802.456250	802.46250	General Use
1514	802.4593750			General Use
1515	802.4656250	802.468750		General Use
1516	802.4718750			General Use
1517	802.4781250	802.481250	802.48750	General Use
1518	802.4843750			General Use
1519	802.4906250	802.493750		General Use
1520	802.4968750			General Use
1521	802.5031250	802.506250	802.51250	General Use
1522	802.5093750			General Use
1523	802.5156250	802.518750		General Use
1524	802.5218750			General Use
1525	802.5281250	802.531250	802.53750	General Use
1526	802.5343750			General Use
1527	802.5406250	802.543750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
568	772.5468750			General Use
569	772.5531250	772.556250	772.56250	General Use
570	772.5593750			General Use
571	772.5656250	772.568750		General Use
572	772.5718750			General Use
573	772.5781250	772.581250	772.58750	General Use
574	772.5843750			General Use
575	772.5906250	772.593750		General Use
576	772.5968750			General Use
577	772.6031250	772.606250	772.61250	General Use
578	772.6093750			General Use
579	772.6156250	772.618750		General Use
580	772.6218750			General Use
581	772.6281250	772.631250	772.63750	General Use
582	772.6343750			General Use
583	772.6406250	772.643750		General Use
584	772.6468750			General Use
585	772.6531250	772.656250	772.66250	General Use
586	772.6593750			General Use
587	772.6656250	772.668750		General Use
588	772.6718750			General Use
589	772.6781250	772.681250	772.68750	General Use
590	772.6843750			General Use
591	772.6906250	772.693750		General Use
592	772.6968750			General Use
593	772.7031250	772.706250	772.71250	General Use
594	772.7093750			General Use
595	772.7156250	772.718750		General Use
596	772.7218750			General Use
597	772.7281250	772.731250	772.73750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1528	802.5468750			General Use
1529	802.5531250	802.556250	802.56250	General Use
1530	802.5593750			General Use
1531	802.5656250	802.568750		General Use
1532	802.5718750			General Use
1533	802.5781250	802.581250	802.58750	General Use
1534	802.5843750			General Use
1535	802.5906250	802.593750		General Use
1536	802.5968750			General Use
1537	802.6031250	802.606250	802.61250	General Use
1538	802.6093750			General Use
1539	802.6156250	802.618750		General Use
1540	802.6218750			General Use
1541	802.6281250	802.631250	802.63750	General Use
1542	802.6343750			General Use
1543	802.6406250	802.643750		General Use
1544	802.6468750			General Use
1545	802.6531250	802.656250	802.66250	General Use
1546	802.6593750			General Use
1547	802.6656250	802.668750		General Use
1548	802.6718750			General Use
1549	802.6781250	802.681250	802.68750	General Use
1550	802.6843750			General Use
1551	802.6906250	802.693750		General Use
1552	802.6968750			General Use
1553	802.7031250	802.706250	802.71250	General Use
1554	802.7093750			General Use
1555	802.7156250	802.718750		General Use
1556	802.7218750			General Use
1557	802.7281250	802.731250	802.73750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
598	772.7343750			General Use
599	772.7406250	772.743750		General Use
600	772.7468750			General Use
601	772.7531250	772.756250	772.76250	General Use
602	772.7593750			General Use
603	772.7656250	772.768750		General Use
604	772.7718750			General Use
605	772.7781250	772.781250	772.78750	General Use
606	772.7843750			General Use
607	772.7906250	772.793750		General Use
608	772.7968750			General Use
609	772.8031250	772.806250	772.81250	General Use
610	772.8093750			General Use
611	772.8156250	772.818750		General Use
612	772.8218750			General Use
613	772.8281250	772.831250	772.83750	General Use
614	772.8343750			General Use
615	772.8406250	772.843750		General Use
616	772.8468750			General Use
617	772.8531250	772.856250	772.86250	General Use
618	772.8593750			General Use
619	772.8656250	772.868750		General Use
620	772.8718750			General Use
621	772.8781250	772.881250	772.88750	General Use
622	772.8843750			General Use
623	772.8906250	772.893750		General Use
624	772.8968750			General Use
625	772.9031250	772.906250	772.91250	General Use
626	772.9093750			General Use
627	772.9156250	772.918750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1558	802.7343750			General Use
1559	802.7406250	802.743750		General Use
1560	802.7468750			General Use
1561	802.7531250	802.756250	802.76250	General Use
1562	802.7593750			General Use
1563	802.7656250	802.768750		General Use
1564	802.7718750			General Use
1565	802.7781250	802.781250	802.78750	General Use
1566	802.7843750			General Use
1567	802.7906250	802.793750		General Use
1568	802.7968750			General Use
1569	802.8031250	802.806250	802.81250	General Use
1570	802.8093750			General Use
1571	802.8156250	802.818750		General Use
1572	802.8218750			General Use
1573	802.8281250	802.831250	802.83750	General Use
1574	802.8343750			General Use
1575	802.8406250	802.843750		General Use
1576	802.8468750			General Use
1577	802.8531250	802.856250	802.86250	General Use
1578	802.8593750			General Use
1579	802.8656250	802.868750		General Use
1580	802.8718750			General Use
1581	802.8781250	802.881250	802.88750	General Use
1582	802.8843750			General Use
1583	802.8906250	802.893750		General Use
1584	802.8968750			General Use
1585	802.9031250	802.906250	802.91250	General Use
1586	802.9093750			General Use
1587	802.9156250	802.918750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
628	772.9218750			General Use
629	772.9281250	772.931250	772.93750	General Use
630	772.9343750			General Use
631	772.9406250	772.943750		General Use
632	772.9468750			General Use
633	772.9531250	772.956250	772.96250	General Use
634	772.9593750			General Use
635	772.9656250	772.968750		General Use
636	772.9718750			General Use
637	772.9781250	772.981250	772.98750	General Use
638	772.9843750			General Use
639	772.9906250	772.993750		General Use
640	772.9968750			General Use
641	773.0031250	773.006250	773.01250	Interoperability
642	773.0093750			Interoperability
643	773.0156250	773.018750		Gen Use - State VRS
644	773.0218750			Gen Use - State VRS
645	773.0281250	773.031250	773.03750	State license
646	773.0343750			State license
647	773.0406250	773.043750		State license
648	773.0468750			State license
649	773.0531250	773.056250	773.06250	State license
650	773.0593750			State license
651	773.0656250	773.068750		State license
652	773.0718750			State license
653	773.0781250	773.081250	773.08750	State license
654	773.0843750			State license
655	773.0906250	773.093750		State license
656	773.0968750			State license
657	773.1031250	773.106250	773.11250	Interoperability

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1588	802.9218750			General Use
1589	802.9281250	802.931250	802.93750	General Use
1590	802.9343750			General Use
1591	802.9406250	802.943750		General Use
1592	802.9468750			General Use
1593	802.9531250	802.956250	802.96250	General Use
1594	802.9593750			General Use
1595	802.9656250	802.968750		General Use
1596	802.9718750			General Use
1597	802.9781250	802.981250	802.98750	General Use
1598	802.9843750			General Use
1599	802.9906250	802.993750		General Use
1600	802.9968750			General Use
1601	803.0031250	803.006250	803.01250	Interoperability
1602	803.0093750			Interoperability
1603	803.0156250	803.018750		Gen Use - State VRS
1604	803.0218750			Gen Use - State VRS
1605	803.0281250	803.031250	803.03750	State license
1606	803.0343750			State license
1607	803.0406250	803.043750		State license
1608	803.0468750			State license
1609	803.0531250	803.056250	803.06250	State license
1610	803.0593750			State license
1611	803.0656250	803.068750		State license
1612	803.0718750			State license
1613	803.0781250	803.081250	803.08750	State license
1614	803.0843750			State license
1615	803.0906250	803.093750		State license
1616	803.0968750			State license
1617	803.1031250	803.106250	803.11250	Interoperability

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
658	773.1093750			Interoperability
659	773.1156250	773.118750		Air-Ground
660	773.1218750			Air-Ground
661	773.1281250	773.131250	773.13750	General Use
662	773.1343750			General Use
663	773.1406250	773.143750		General Use
664	773.1468750			General Use
665	773.1531250	773.156250	773.16250	General Use
666	773.1593750			General Use
667	773.1656250	773.168750		General Use
668	773.1718750			General Use
669	773.1781250	773.181250	773.18750	General Use
670	773.1843750			General Use
671	773.1906250	773.193750		General Use
672	773.1968750			General Use
673	773.2031250	773.206250	773.21250	General Use
674	773.2093750			General Use
675	773.2156250	773.218750		General Use
676	773.2218750			General Use
677	773.2281250	773.231250	773.23750	General Use
678	773.2343750			General Use
679	773.2406250	773.243750		General Use
680	773.2468750			General Use
681	773.2531250	773.256250	773.26250	I/O Nationwide Call
682	773.2593750			I/O Nationwide Call
683	773.2656250	773.268750		General Use
684	773.2718750			General Use
685	773.2781250	773.281250	773.28750	State license
686	773.2843750			State license
687	773.2906250	773.293750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1618	803.1093750			Interoperability
1619	803.1156250	803.118750		Air-Ground
1620	803.1218750			Air-Ground
1621	803.1281250	803.131250	803.13750	General Use
1622	803.1343750			General Use
1623	803.1406250	803.143750		General Use
1624	803.1468750			General Use
1625	803.1531250	803.156250	803.16250	General Use
1626	803.1593750			General Use
1627	803.1656250	803.168750		General Use
1628	803.1718750			General Use
1629	803.1781250	803.181250	803.18750	General Use
1630	803.1843750			General Use
1631	803.1906250	803.193750		General Use
1632	803.1968750			General Use
1633	803.2031250	803.206250	803.21250	General Use
1634	803.2093750			General Use
1635	803.2156250	803.218750		General Use
1636	803.2218750			General Use
1637	803.2281250	803.231250	803.23750	General Use
1638	803.2343750			General Use
1639	803.2406250	803.243750		General Use
1640	803.2468750			General Use
1641	803.2531250	803.256250	803.26250	I/O Nationwide Call
1642	803.2593750			I/O Nationwide Call
1643	803.2656250	803.268750		General Use
1644	803.2718750			General Use
1645	803.2781250	803.281250	803.28750	State license
1646	803.2843750			State license
1647	803.2906250	803.293750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
688	773.2968750			State license
689	773.3031250	773.306250	773.31250	State license
690	773.3093750			State license
691	773.3156250	773.318750		State license
692	773.3218750			State license
693	773.3281250	773.331250	773.33750	State license
694	773.3343750			State license
695	773.3406250	773.343750		State license
696	773.3468750			State license
697	773.3531250	773.356250	773.36250	Interoperability
698	773.3593750			Interoperability
699	773.3656250	773.368750		General Use
700	773.3718750			General Use
701	773.3781250	773.381250	773.38750	General Use
702	773.3843750			General Use
703	773.3906250	773.393750		General Use
704	773.3968750			General Use
705	773.4031250	773.406250	773.41250	General Use
706	773.4093750			General Use
707	773.4156250	773.418750		General Use
708	773.4218750			General Use
709	773.4281250	773.431250	773.43750	General Use
710	773.4343750			General Use
711	773.4406250	773.443750		General Use
712	773.4468750			General Use
713	773.4531250	773.456250	773.46250	General Use
714	773.4593750			General Use
715	773.4656250	773.468750		General Use
716	773.4718750			General Use
717	773.4781250	773.481250	773.48750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1648	803.2968750			State license
1649	803.3031250	803.306250	803.31250	State license
1650	803.3093750			State license
1651	803.3156250	803.318750		State license
1652	803.3218750			State license
1653	803.3281250	803.331250	803.33750	State license
1654	803.3343750			State license
1655	803.3406250	803.343750		State license
1656	803.3468750			State license
1657	803.3531250	803.356250	803.36250	Interoperability
1658	803.3593750			Interoperability
1659	803.3656250	803.368750		General Use
1660	803.3718750			General Use
1661	803.3781250	803.381250	803.38750	General Use
1662	803.3843750			General Use
1663	803.3906250	803.393750		General Use
1664	803.3968750			General Use
1665	803.4031250	803.406250	803.41250	General Use
1666	803.4093750			General Use
1667	803.4156250	803.418750		General Use
1668	803.4218750			General Use
1669	803.4281250	803.431250	803.43750	General Use
1670	803.4343750			General Use
1671	803.4406250	803.443750		General Use
1672	803.4468750			General Use
1673	803.4531250	803.456250	803.46250	General Use
1674	803.4593750			General Use
1675	803.4656250	803.468750		General Use
1676	803.4718750			General Use
1677	803.4781250	803.481250	803.48750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
718	773.4843750			General Use
719	773.4906250	773.493750		General Use
720	773.4968750			General Use
721	773.5031250	773.506250	773.51250	Interoperability
722	773.5093750			Interoperability
723	773.5156250	773.518750		General Use
724	773.5218750			General Use
725	773.5281250	773.531250	773.53750	State license
726	773.5343750			State license
727	773.5406250	773.543750		State license
728	773.5468750			State license
729	773.5531250	773.556250	773.56250	State license
730	773.5593750			State license
731	773.5656250	773.568750		State license
732	773.5718750			State license
733	773.5781250	773.581250	773.58750	State license
734	773.5843750			State license
735	773.5906250	773.593750		State license
736	773.5968750			State license
737	773.6031250	773.606250	773.61250	Interoperability
738	773.6093750			Interoperability
739	773.6156250	773.618750		Air-Ground
740	773.6218750			Air-Ground
741	773.6281250	773.631250	773.63750	General Use
742	773.6343750			General Use
743	773.6406250	773.643750		General Use
744	773.6468750			General Use
745	773.6531250	773.656250	773.66250	General Use
746	773.6593750			General Use
747	773.6656250	773.668750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1678	803.4843750			General Use
1679	803.4906250	803.493750		General Use
1680	803.4968750			General Use
1681	803.5031250	803.506250	803.51250	Interoperability
1682	803.5093750			Interoperability
1683	803.5156250	803.518750		General Use
1684	803.5218750			General Use
1685	803.5281250	803.531250	803.53750	State license
1686	803.5343750			State license
1687	803.5406250	803.543750		State license
1688	803.5468750			State license
1689	803.5531250	803.556250	803.56250	State license
1690	803.5593750			State license
1691	803.5656250	803.568750		State license
1692	803.5718750			State license
1693	803.5781250	803.581250	803.58750	State license
1694	803.5843750			State license
1695	803.5906250	803.593750		State license
1696	803.5968750			State license
1697	803.6031250	803.606250	803.61250	Interoperability
1698	803.6093750			Interoperability
1699	803.6156250	803.618750		Air-Ground
1700	803.6218750			Air-Ground
1701	803.6281250	803.631250	803.63750	General Use
1702	803.6343750			General Use
1703	803.6406250	803.643750		General Use
1704	803.6468750			General Use
1705	803.6531250	803.656250	803.66250	General Use
1706	803.6593750			General Use
1707	803.6656250	803.668750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
748	773.6718750			General Use
749	773.6781250	773.681250	773.68750	General Use
750	773.6843750			General Use
751	773.6906250	773.693750		General Use
752	773.6968750			General Use
753	773.7031250	773.706250	773.71250	General Use
754	773.7093750			General Use
755	773.7156250	773.718750		General Use
756	773.7218750			General Use
757	773.7281250	773.731250	773.73750	General Use
758	773.7343750			General Use
759	773.7406250	773.743750		General Use
760	773.7468750			General Use
761	773.7531250	773.756250	773.76250	Interoperability
762	773.7593750			Interoperability
763	773.7656250	773.768750		General Use
764	773.7718750			General Use
765	773.7781250	773.781250	773.78750	State license
766	773.7843750			State license
767	773.7906250	773.793750		State license
768	773.7968750			State license
769	773.8031250	773.806250	773.81250	State license
770	773.8093750			State license
771	773.8156250	773.818750		State license
772	773.8218750			State license
773	773.8281250	773.831250	773.83750	State license
774	773.8343750			State license
775	773.8406250	773.843750		State license
776	773.8468750			State license
777	773.8531250	773.856250	773.86250	Interoperability

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1708	803.6718750			General Use
1709	803.6781250	803.681250	803.68750	General Use
1710	803.6843750			General Use
1711	803.6906250	803.693750		General Use
1712	803.6968750			General Use
1713	803.7031250	803.706250	803.71250	General Use
1714	803.7093750			General Use
1715	803.7156250	803.718750		General Use
1716	803.7218750			General Use
1717	803.7281250	803.731250	803.73750	General Use
1718	803.7343750			General Use
1719	803.7406250	803.743750		General Use
1720	803.7468750			General Use
1721	803.7531250	803.756250	803.76250	Interoperability
1722	803.7593750			Interoperability
1723	803.7656250	803.768750		General Use
1724	803.7718750			General Use
1725	803.7781250	803.781250	803.78750	State license
1726	803.7843750			State license
1727	803.7906250	803.793750		State license
1728	803.7968750			State license
1729	803.8031250	803.806250	803.81250	State license
1730	803.8093750			State license
1731	803.8156250	803.818750		State license
1732	803.8218750			State license
1733	803.8281250	803.831250	803.83750	State license
1734	803.8343750			State license
1735	803.8406250	803.843750		State license
1736	803.8468750			State license
1737	803.8531250	803.856250	803.86250	Interoperability

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
778	773.8593750			Interoperability
779	773.8656250	773.868750		Gen Use - State VRS
780	773.8718750			Gen Use - State VRS
781	773.8781250	773.881250	773.88750	General Use
782	773.8843750			General Use
783	773.8906250	773.893750		General Use
784	773.8968750			General Use
785	773.9031250	773.906250	773.91250	General Use
786	773.9093750			General Use
787	773.9156250	773.918750		General Use
788	773.9218750			General Use
789	773.9281250	773.931250	773.93750	General Use
790	773.9343750			General Use
791	773.9406250	773.943750		General Use
792	773.9468750			General Use
793	773.9531250	773.956250	773.96250	General Use
794	773.9593750			General Use
795	773.9656250	773.968750		General Use
796	773.9718750			General Use
797	773.9781250	773.981250	773.98750	General Use
798	773.9843750			General Use
799	773.9906250	773.993750		General Use
800	773.9968750			General Use
801	774.0031250	774.006250	774.01250	Interoperability
802	774.0093750			Interoperability
803	774.0156250	774.018750		Gen Use - State VRS
804	774.0218750			Gen Use - State VRS
805	774.0281250	774.031250	774.03750	State license
806	774.0343750			State license
807	774.0406250	774.043750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1738	803.8593750			Interoperability
1739	803.8656250	803.868750		Gen Use - State VRS
1740	803.8718750			Gen Use - State VRS
1741	803.8781250	803.881250	803.88750	General Use
1742	803.8843750			General Use
1743	803.8906250	803.893750		General Use
1744	803.8968750			General Use
1745	803.9031250	803.906250	803.91250	General Use
1746	803.9093750			General Use
1747	803.9156250	803.918750		General Use
1748	803.9218750			General Use
1749	803.9281250	803.931250	803.93750	General Use
1750	803.9343750			General Use
1751	803.9406250	803.943750		General Use
1752	803.9468750			General Use
1753	803.9531250	803.956250	803.96250	General Use
1754	803.9593750			General Use
1755	803.9656250	803.968750		General Use
1756	803.9718750			General Use
1757	803.9781250	803.981250	803.98750	General Use
1758	803.9843750			General Use
1759	803.9906250	803.993750		General Use
1760	803.9968750			General Use
1761	804.0031250	804.006250	804.01250	Interoperability
1762	804.0093750			Interoperability
1763	804.0156250	804.018750		Gen Use - State VRS
1764	804.0218750			Gen Use - State VRS
1765	804.0281250	804.031250	804.03750	State license
1766	804.0343750			State license
1767	804.0406250	804.043750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
808	774.0468750			State license
809	774.0531250	774.056250	774.06250	State license
810	774.0593750			State license
811	774.0656250	774.068750		State license
812	774.0718750			State license
813	774.0781250	774.081250	774.08750	State license
814	774.0843750			State license
815	774.0906250	774.093750		State license
816	774.0968750			State license
817	774.1031250	774.106250	774.11250	Interoperability
818	774.1093750			Interoperability
819	774.1156250	774.118750		Air-Ground
820	774.1218750			Air-Ground
821	774.1281250	774.131250	774.13750	General Use
822	774.1343750			General Use
823	774.1406250	774.143750		General Use
824	774.1468750			General Use
825	774.1531250	774.156250	774.16250	General Use
826	774.1593750			General Use
827	774.1656250	774.168750		General Use
828	774.1718750			General Use
829	774.1781250	774.181250	774.18750	General Use
830	774.1843750			General Use
831	774.1906250	774.193750		General Use
832	774.1968750			General Use
833	774.2031250	774.206250	774.21250	General Use
834	774.2093750			General Use
835	774.2156250	774.218750		General Use
836	774.2218750			General Use
837	774.2281250	774.231250	774.23750	General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1768	804.0468750			State license
1769	804.0531250	804.056250	804.06250	State license
1770	804.0593750			State license
1771	804.0656250	804.068750		State license
1772	804.0718750			State license
1773	804.0781250	804.081250	804.08750	State license
1774	804.0843750			State license
1775	804.0906250	804.093750		State license
1776	804.0968750			State license
1777	804.1031250	804.106250	804.11250	Interoperability
1778	804.1093750			Interoperability
1779	804.1156250	804.118750		Air-Ground
1780	804.1218750			Air-Ground
1781	804.1281250	804.131250	804.13750	General Use
1782	804.1343750			General Use
1783	804.1406250	804.143750		General Use
1784	804.1468750			General Use
1785	804.1531250	804.156250	804.16250	General Use
1786	804.1593750			General Use
1787	804.1656250	804.168750		General Use
1788	804.1718750			General Use
1789	804.1781250	804.181250	804.18750	General Use
1790	804.1843750			General Use
1791	804.1906250	804.193750		General Use
1792	804.1968750			General Use
1793	804.2031250	804.206250	804.21250	General Use
1794	804.2093750			General Use
1795	804.2156250	804.218750		General Use
1796	804.2218750			General Use
1797	804.2281250	804.231250	804.23750	General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
838	774.2343750			General Use
839	774.2406250	774.243750		General Use
840	774.2468750			General Use
841	774.2531250	774.256250	774.26250	Interoperability
842	774.2593750			Interoperability
843	774.2656250	774.268750		Gen Use - State VRS
844	774.2718750			Gen Use - State VRS
845	774.2781250	774.281250	774.28750	State license
846	774.2843750			State license
847	774.2906250	774.293750		State license
848	774.2968750			State license
849	774.3031250	774.306250	774.31250	State license
850	774.3093750			State license
851	774.3156250	774.318750		State license
852	774.3218750			State license
853	774.3281250	774.331250	774.33750	State license
854	774.3343750			State license
855	774.3406250	774.343750		State license
856	774.3468750			State license
857	774.3531250	774.356250	774.36250	Interoperability
858	774.3593750			Interoperability
859	774.3656250	774.368750		General Use
860	774.3718750			General Use
861	774.3781250	774.381250	774.38750	General Use
862	774.3843750			General Use
863	774.3906250	774.393750		General Use
864	774.3968750			General Use
865	774.4031250	774.406250	774.41250	General Use
866	774.4093750			General Use
867	774.4156250	774.418750		General Use

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1798	804.2343750			General Use
1799	804.2406250	804.243750		General Use
1800	804.2468750			General Use
1801	804.2531250	804.256250	804.26250	Interoperability
1802	804.2593750			Interoperability
1803	804.2656250	804.268750		Gen Use - State VRS
1804	804.2718750			Gen Use - State VRS
1805	804.2781250	804.281250	804.28750	State license
1806	804.2843750			State license
1807	804.2906250	804.293750		State license
1808	804.2968750			State license
1809	804.3031250	804.306250	804.31250	State license
1810	804.3093750			State license
1811	804.3156250	804.318750		State license
1812	804.3218750			State license
1813	804.3281250	804.331250	804.33750	State license
1814	804.3343750			State license
1815	804.3406250	804.343750		State license
1816	804.3468750			State license
1817	804.3531250	804.356250	804.36250	Interoperability
1818	804.3593750			Interoperability
1819	804.3656250	804.368750		General Use
1820	804.3718750			General Use
1821	804.3781250	804.381250	804.38750	General Use
1822	804.3843750			General Use
1823	804.3906250	804.393750		General Use
1824	804.3968750			General Use
1825	804.4031250	804.406250	804.41250	General Use
1826	804.4093750			General Use
1827	804.4156250	804.418750		General Use

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
868	774.4218750			General Use
869	774.4281250	774.431250	774.43750	General Use
870	774.4343750			General Use
871	774.4406250	774.443750		General Use
872	774.4468750			General Use
873	774.4531250	774.456250	774.46250	General Use
874	774.4593750			General Use
875	774.4656250	774.468750		General Use
876	774.4718750			General Use
877	774.4781250	774.481250	774.48750	General Use
878	774.4843750			General Use
879	774.4906250	774.493750		General Use
880	774.4968750			General Use
881	774.5031250	774.506250	774.51250	Interoperability
882	774.5093750			Interoperability
883	774.5156250	774.518750		GenUse-DeplTrunked
884	774.5218750			GenUse-DeplTrunked
885	774.5281250	774.531250	774.53750	State license
886	774.5343750			State license
887	774.5406250	774.543750		State license
888	774.5468750			State license
889	774.5531250	774.556250	774.56250	State license
890	774.5593750			State license
891	774.5656250	774.568750		State license
892	774.5718750			State license
893	774.5781250	774.581250	774.58750	State license
894	774.5843750			State license
895	774.5906250	774.593750		State license
896	774.5968750			State license
897	774.6031250	774.606250	774.61250	Interoperability

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1828	804.4218750			General Use
1829	804.4281250	804.431250	804.43750	General Use
1830	804.4343750			General Use
1831	804.4406250	804.443750		General Use
1832	804.4468750			General Use
1833	804.4531250	804.456250	804.46250	General Use
1834	804.4593750			General Use
1835	804.4656250	804.468750		General Use
1836	804.4718750			General Use
1837	804.4781250	804.481250	804.48750	General Use
1838	804.4843750			General Use
1839	804.4906250	804.493750		General Use
1840	804.4968750			General Use
1841	804.5031250	804.506250	804.51250	Interoperability
1842	804.5093750			Interoperability
1843	804.5156250	804.518750		General Use
1844	804.5218750			General Use
1845	804.5281250	804.531250	804.53750	State license
1846	804.5343750			State license
1847	804.5406250	804.543750		State license
1848	804.5468750			State license
1849	804.5531250	804.556250	804.56250	State license
1850	804.5593750			State license
1851	804.5656250	804.568750		State license
1852	804.5718750			State license
1853	804.5781250	804.581250	804.58750	State license
1854	804.5843750			State license
1855	804.5906250	804.593750		State license
1856	804.5968750			State license
1857	804.6031250	804.606250	804.61250	Interoperability

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
898	774.6093750			Interoperability
899	774.6156250	774.618750		Air-Ground
900	774.6218750			Air-Ground
901	774.6281250	774.631250	774.63750	General Use
902	774.6343750			General Use
903	774.6406250	774.643750		General Use
904	774.6468750			General Use
905	774.6531250	774.656250	774.66250	General Use
906	774.6593750			General Use
907	774.6656250	774.668750		General Use
908	774.6718750			General Use
909	774.6781250	774.681250	774.68750	General Use
910	774.6843750			General Use
911	774.6906250	774.693750		General Use
912	774.6968750			General Use
913	774.7031250	774.706250	774.71250	General Use
914	774.7093750			General Use
915	774.7156250	774.718750		General Use
916	774.7218750			General Use
917	774.7281250	774.731250	774.73750	General Use
918	774.7343750			General Use
919	774.7406250	774.743750		General Use
920	774.7468750			General Use
921	774.7531250	774.756250	774.76250	I/O low speed data
922	774.7593750			I/O low speed data
923	774.7656250	774.768750		Gen Use - State VRS
924	774.7718750			Gen Use - State VRS
925	774.7781250	774.781250	774.78750	State license
926	774.7843750			State license
927	774.7906250	774.793750		State license

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1858	804.6093750			Interoperability
1859	804.6156250	804.618750		Air-Ground
1860	804.6218750			Air-Ground
1861	804.6281250	804.631250	804.63750	General Use
1862	804.6343750			General Use
1863	804.6406250	804.643750		General Use
1864	804.6468750			General Use
1865	804.6531250	804.656250	804.66250	General Use
1866	804.6593750			General Use
1867	804.6656250	804.668750		General Use
1868	804.6718750			General Use
1869	804.6781250	804.681250	804.68750	General Use
1870	804.6843750			General Use
1871	804.6906250	804.693750		General Use
1872	804.6968750			General Use
1873	804.7031250	804.706250	804.71250	General Use
1874	804.7093750			General Use
1875	804.7156250	804.718750		General Use
1876	804.7218750			General Use
1877	804.7281250	804.731250	804.73750	General Use
1878	804.7343750			General Use
1879	804.7406250	804.743750		General Use
1880	804.7468750			General Use
1881	804.7531250	804.756250	804.76250	I/O low speed data
1882	804.7593750			I/O low speed data
1883	804.7656250	804.768750		Gen Use - State VRS
1884	804.7718750			Gen Use - State VRS
1885	804.7781250	804.781250	804.78750	State license
1886	804.7843750			State license
1887	804.7906250	804.793750		State license

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
928	774.7968750			State license
929	774.8031250	774.806250	774.81250	State license
930	774.8093750			State license
931	774.8156250	774.818750		State license
932	774.8218750			State license
933	774.8281250	774.831250	774.83750	State license
934	774.8343750			State license
935	774.8406250	774.843750		State license
936	774.8468750			State license
937	774.8531250	774.856250	774.86250	Interoperability
938	774.8593750			Interoperability
939	774.8656250	774.868750		GenUse-DeplTrunked
940	774.8718750			GenUse-DeplTrunked
941	774.8781250	774.881250	774.88750	General Use
942	774.8843750			General Use
943	774.8906250	774.893750		General Use
944	774.8968750			General Use
945	774.9031250	774.906250	774.91250	General Use
946	774.9093750			General Use
947	774.9156250	774.918750		General Use
948	774.9218750			General Use
949	774.9281250	774.931250	774.93750	low power
950	774.9343750			low power
951	774.9406250	774.943750		low power
952	774.9468750			low power
953	774.9531250	774.956250	774.96250	low power
954	774.9593750			low power
955	774.9656250	774.968750		low power
956	774.9718750			low power
957	774.9781250	774.981250	774.98750	low power

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1888	804.7968750			State license
1889	804.8031250	804.806250	804.81250	State license
1890	804.8093750			State license
1891	804.8156250	804.818750		State license
1892	804.8218750			State license
1893	804.8281250	804.831250	804.83750	State license
1894	804.8343750			State license
1895	804.8406250	804.843750		State license
1896	804.8468750			State license
1897	804.8531250	804.856250	804.86250	Interoperability
1898	804.8593750			Interoperability
1899	804.8656250	804.868750		General Use
1900	804.8718750			General Use
1901	804.8781250	804.881250	804.88750	General Use
1902	804.8843750			General Use
1903	804.8906250	804.893750		General Use
1904	804.8968750			General Use
1905	804.9031250	804.906250	804.91250	General Use
1906	804.9093750			General Use
1907	804.9156250	804.918750		General Use
1908	804.9218750			General Use
1909	804.9281250	804.931250	804.93750	low power
1910	804.9343750			low power
1911	804.9406250	804.943750		low power
1912	804.9468750			low power
1913	804.9531250	804.956250	804.96250	low power
1914	804.9593750			low power
1915	804.9656250	804.968750		low power
1916	804.9718750			low power
1917	804.9781250	804.981250	804.98750	low power

Narrowband Base Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
958	774.9843750			low power
959	774.9906250	774.993750		low power
960	774.9968750			low power

Narrowband Mobile Channels				
Channel Number	Center Frequency 6.25 kHz	12.5 kHz	25 kHz	Allocation
1918	804.9843750			low power
1919	804.9906250	804.993750		low power
1920	804.9968750			low power

Proposed Region 42 700 MHz Voice Channel Allotment Plan

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Accomack	13-16	125-128	285-288	341-344	389-392	441-444	481-484	525-528	585-588	625-628	709-712	749-752	793-796	833-836	877-880	917-920				
Albemarle	129-132	289-292	353-356	397-400	473-476	517-520	581-584	625-628	677-680	825-828	901-904									
Alleghany	41-44	425-428	617-620	829-832	909-912															
Amelia	41-44	201-204	509-512	613-616	873-876															
Amherst	125-128	217-220	285-288	393-396	485-488	549-552	905-908													
Appomattox	205-208	357-360	617-620	753-756	869-872															
Augusta	45-48	169-172	377-380	465-468	561-564	609-612	665-668	797-800	837-840	945-948										
Bath	337-340	437-440	497-500	713-716	869-872															
Bedford	137-140	241-244	297-300	349-352	429-432	505-508	557-560	661-664	757-760	861-864										
Bland	41-44	121-124	297-300	445-448	601-604															
Botetourt	57-60	401-404	529-532	573-576	673-676	785-788														
Brunswick	121-124	161-164	377-380	513-516	561-564	717-720	945-948													
Buchanan	129-132	365-368	585-588	669-672	717-720															
Buckingham	385-388	433-436	497-500	565-568	745-748															
Campbell	165-168	373-376	525-528	589-592	637-640	705-708	781-784	877-880	917-920											
Caroline	137-140	205-208	341-344	565-568	673-676															
Carroll	13-16	413-416	465-468	549-552	625-628	741-744	861-864													

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Charles City	17-20	253-256	453-456	545-548	609-612															
Charlotte	133-136	333-336	425-428	501-504	569-572															
Chesterfield	57-60	97-100	165-168	209-212	285-288	365-368	421-424	477-480	537-540	601-604	665-668	705-708	753-756	797-800	837-840	917-920				
Clarke	97-100	205-208	341-344	501-504	821-824															
Clifton Forge	133-136	209-212	289-292	565-568	605-608															
Craig	129-132	357-360	433-436	501-504	745-748															
Culpeper	293-296	345-348	385-388	485-488	585-588	865-868														
Cumberland	81-84	173-176	417-420	533-536	865-868															
Dickenson	53-56	289-292	353-356	409-412	485-488	537-540														
Dinwiddie	13-16	137-140	241-244	409-412	549-552	625-628	825-828	901-904												
Essex	121-124	169-172	481-484	525-528	593-596	825-828														
Floyd	213-216	437-440	517-520	605-608	713-716															
Fluvanna	329-332	369-372	409-412	461-464	545-548	793-796	941-944													
Franklin	169-172	341-344	409-412	461-464	537-540	593-596	633-636	749-752												
Frederick	241-244	417-420	465-468	561-564	617-620	705-708	861-864	909-912												
Giles	369-372	553-556	717-720	833-836	913-916															
Gloucester	173-176	409-412	549-552	605-608	873-876															
Goochland	133-136	321-324	401-404	469-472	717-720															
Grayson	357-360	541-544	709-712	785-788	909-912															

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Greene	85-88	161-164	489-492	537-540	601-604															
Greensville	289-292	369-372	465-468	521-524	569-572	669-672														
Halifax	209-212	289-292	345-348	457-460	553-556	601-604	829-832	909-912												
Hanover	349-352	441-444	501-504	553-556	597-600	701-704	749-752	821-824	861-864	913-916										
Henrico	89-92	177-180	217-220	293-296	333-336	373-376	413-416	513-516	585-588	629-632	677-680	741-744	789-792	877-880	945-948					
Henry	49-52	121-124	201-204	245-248	469-472	565-568	701-704	833-836	913-916											
Highland	81-84	385-388	457-460	541-544	597-600															
Isle Of Wight	121-124	405-408	553-556	597-600	821-824															
James City	81-84	377-380	505-508	589-592	633-636															
King And Queen	329-332	393-396	457-460	533-536	625-628															
King George	97-100	289-292	353-356	401-404	473-476															
King William	93-96	357-360	465-468	709-712	785-788															
Lancaster	45-48	201-204	297-300	345-348	429-432	541-544														
Lee	121-124	209-212	513-516	561-564	677-680															
Louisa	297-300	381-384	425-428	493-496	589-592	661-664	833-836													
Lunenburg	169-172	213-216	281-284	321-324	401-404	469-472	701-704	741-744	913-916											
Madison	245-248	509-512	569-572	613-616	789-792															
Mathews	165-168	289-292	421-424	569-572	665-668															
Mecklenburg	49-52	97-100	177-180	249-252	437-440	537-540	593-596	665-668	797-800	861-864										

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Middlesex	85-88	241-244	321-324	381-384	517-520	577-580														
Montgomery	53-56	249-252	293-296	333-336	449-452	509-512	569-572	613-616	669-672	821-824	901-904									
Nelson	177-180	325-328	405-408	445-448	709-712															
New Kent	53-56	281-284	385-388	489-492	573-576															
Northampton	89-92	293-296	333-336	373-376	449-452	509-512	557-560	865-868												
Northumberland	57-60	413-416	461-464	629-632	669-672	713-716	789-792	945-948												
Nottoway	389-392	489-492	573-576	633-636	673-676	785-788														
Orange	257-260	337-340	557-560	781-784	909-912															
Page	93-96	201-204	389-392	621-624	669-672															
Patrick	285-288	393-396	453-456	493-496	793-796															
Pittsylvania	13-16	89-92	253-256	381-384	421-424	477-480	577-580	625-628	789-792	941-944										
Powhatan	49-52	249-252	449-452	521-524	577-580															
Prince Edward	17-20	93-96	245-248	341-344	481-484	605-608	713-716													
Prince George	353-356	397-400	557-560	617-620	869-872	909-912														
Pulaski	81-84	133-136	173-176	353-356	473-476	637-640	789-792	941-944												
Rappahannock	253-256	549-552	593-596	709-712	905-908															
Richmond	161-164	209-212	249-252	337-340	405-408	449-452	497-500	561-564	613-616	661-664	705-708	797-800	837-840	901-904						
Roanoke	45-48	93-96	321-324	377-380	417-420	581-584	621-624	873-876												
Rockbridge	97-100	361-364	413-416	513-516	629-632															

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
Rockingham	53-56	121-124	213-216	365-368	421-424	525-528	637-640	741-744	877-880	917-920										
Russell	333-336	529-532	569-572	829-832	869-872	917-920														
Scott	137-140	245-248	441-444	521-524	605-608															
Shenandoah	41-44	137-140	349-352	505-508	577-580	661-664	829-832													
Smyth	205-208	433-436	477-480	617-620	665-668	757-760														
Southampton	381-384	509-512	577-580	709-712	749-752															
Spotsylvania	13-16	241-244	281-284	361-364	453-456	541-544	605-608	757-760												
Surry	169-172	341-344	389-392	437-440	485-488															
Sussex	297-300	361-364	473-476	541-544	661-664															
Tazewell	57-60	177-180	385-388	457-460	497-500	577-580	629-632	905-908												
Warren	373-376	449-452	533-536	745-748	869-872															
Washington	125-128	321-324	393-396	449-452	505-508	557-560	637-640	945-948												
Westmoreland	365-368	433-436	745-748	869-872	917-920															
Wise	93-96	173-176	397-400	465-468	553-556	633-636	789-792													
Wythe	241-244	289-292	329-332	397-400	485-488	589-592	797-800													
York	41-44	129-132	205-208	417-420	469-472	673-676														
(Bedford)	389-392	473-476	585-588	741-744	945-948															
(Bristol)	49-52	97-100	257-260	361-364	593-596	873-876														
(Buena Vista)	49-52	173-176	257-260	369-372	461-464	533-536	701-704	749-752	865-868	913-916										

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
(Charlottesville)	17-20	89-92	333-336	457-460	529-532	573-576	633-636	713-716	785-788											
(Chesapeake)	45-48	177-180	217-220	329-332	385-388	429-432	489-492	585-588	625-628	669-672	713-716	753-756	793-796	833-836	901-904	945-948				
(Colonial Heights)	45-48	125-128	461-464	525-528	593-596															
(Covington)	121-124	165-168	329-332	373-376	469-472	517-520	589-592	637-640	741-744	877-880	917-920									
(Danville)	129-132	217-220	337-340	497-500	545-548	609-612	709-712													
(Emporia)	89-92	133-136	253-256	329-332	413-416	533-536	585-588	789-792	833-836	905-908										
(Franklin)	173-176	333-336	457-460	605-608	665-668	865-868														
(Fredericksburg)	81-84	461-464	577-580	713-716	941-944															
(Galax)	129-132	169-172	217-220	257-260	325-328	373-376	501-504	593-596	661-664	701-704	837-840	917-920								
(Hampton)	97-100	137-140	285-288	357-360	433-436	477-480	629-632	789-792	837-840	905-908										
(Harrisonburg)	13-16	133-136	205-208	341-344	401-404	477-480	553-556	717-720	821-824											
(Hopewell)	345-348	433-436	497-500	637-640	713-716															
(Lexington)	17-20	85-88	161-164	201-204	345-348	477-480	521-524	601-604	789-792	833-836	941-944									
(Lynchburg)	329-332	453-456	493-496	541-544	597-600	717-720	793-796													
(Martinsville)	97-100	357-360	401-404	485-488	673-676															
(Newport News)	49-52	213-216	257-260	369-372	425-428	529-532	581-584	621-624	717-720	781-784	829-832	941-944								
(Norfolk)	85-88	125-128	201-204	241-244	337-340	413-416	453-456	501-504	545-548	601-604	677-680	877-880	917-920							
(Norton)	165-168	349-352	413-416	493-496	861-864															
(Petersburg)	85-88	257-260	325-328	517-520	581-584	745-748	941-944													

Allotment – Number of Channels																				
Localities	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
(Poquoson)	325-328	497-500	537-540	593-596	797-800	913-916														
(Portsmouth)	161-164	321-324	465-468	521-524	565-568	637-640	861-864													
(Radford)	89-92	165-168	405-408	533-536	597-600	677-680	753-756	869-872												
(Richmond)	429-432	529-532	569-572	621-624	829-832	905-908														
(Roanoke)	17-20	85-88	161-164	205-208	281-284	365-368	441-444	481-484	521-524	609-612	825-828									
(Salem)	257-260	385-388	561-564	797-800	837-840															
(Staunton)	281-284	321-324	441-444	481-484	585-588	705-708	753-756													
(Suffolk)	57-60	249-252	345-348	393-396	441-444	481-484	613-616	701-704	741-744											
(Virginia Beach)	13-16	53-56	93-96	133-136	209-212	253-256	297-300	349-352	397-400	473-476	533-536	573-576	617-620	661-664	705-708	745-748	785-788	825-828	869-872	909-912
(Waynesboro)	57-60	209-212	253-256	453-456	593-596	873-876														
(Williamsburg)	245-248	401-404	445-448	493-496	757-760															
(Winchester)	129-132	297-300	357-360	405-408	473-476	541-544	797-800													

Notes:
1. Name = Counties, (Name) = Cities
2. Clifton Forge is no longer a city and has been combined with Alleghany County

Appendix G Dispute Resolution Process

Introduction

The Region 42 700 MHz Committee is established under section FCC §90.527. It is an independent Committee apart from the Federal Communications Commission with authority to evaluate application for public safety uses of the spectrum allocated under FCC Docket 96-86. In addition, appeals from decisions made with respect to a variety of matters regulated by the Regional Committee will be heard. The formal requirements of the appeal process are set out below. In order to ensure that the appeal process is open and understandable to the public, the Regional Committee has developed this procedure. Those involved in the appeal process can expect the Committee and its members to follow the procedures (as may be amended from time to time).

Where any matter arises during the course of an appeal that is not dealt with in this document, the Regional Committee will do whatever is necessary to enable it to adjudicate fairly, effectively and completely on the appeal. In addition, the Regional Committee may dispense with compliance with any part or all of a particular procedure where it is appropriate in the circumstances. Changes or corrections to the policy, procedure, or Plan will be recommended based on experience and findings from an appeal, where appropriate. Any changes made to the procedure will require a modification to the Regional Plan and will be made available to the public. The Regional Committee will make every effort to process appeals in a timely fashion and to issue decisions expeditiously.

Appeals Subcommittee

Members

The Regional Chair may establish one or more ad hoc Appeals Subcommittee(s) as needed, comprised of membership from standing Subcommittees and other members as appropriate, with a designated chair. In this appendix, "subcommittee" shall refer to the ad hoc Appeals Subcommittee(s) as designated.

Withdrawal or Disqualification of a Subcommittee Member on the Grounds of Bias

Where the chair or a committee member becomes aware of any facts that would lead an informed person, viewing the matter reasonably and practically, to conclude that a sub-committee member, whether consciously or unconsciously, could not decide a matter impartially, the member will be prohibited from participating in the appeal unless consent is obtained from all parties to continue. In addition, any party to an appeal may challenge a member on the basis of real or a reasonable apprehension of bias.

Correspondence (Communicating) with the Subcommittee

To ensure the appeal process is kept open and fair to the participants, any correspondence to the Subcommittee must be sent to the Chair and be copied to all other Subcommittee members and other parties to the appeal, if applicable. Subcommittee members will not contact a party on any matter relevant to the merits of the appeal, unless that member puts all other parties on notice and gives them an opportunity to participate. The appeal process is public in nature and all meetings regarding the appeal will be open to the public.

THE APPEAL PROCESS
Filing an Appeal

What can be appealed

The Sub-Committee hears appeals from a determination or allocation and shall include the following: number of channels assigned; ranking in the assignment matrix; interference; limitation or restriction of operating parameters or procedures; or any other substantive decision the Regional Committee has made relative to an application.

Who can appeal

An official of the entity who filed the original application to the Regional Committee must be the person who files or authorizes the appeal on behalf of the entity.

How to appeal

A notice of appeal must be served upon the Regional Committee. The notice of appeal may be "delivered" by mail, courier, or hand delivered to the office of the Chair and Members of the Executive Committee as listed in the Official Membership List. The Regional Committee will also accept a notice of appeal by facsimile to the Chair and Secretary with the original copy of the notice of appeal served as indicated above. In order to be accepted and acted upon, a notice of appeal must include:

1. the name and address of the appellant;
2. the name of the person, if any, making the request for an appeal on behalf of the appellant;
3. the address for service of the appellant;
4. the grounds for appeal (a detailed explanation of the appellant's objections to the determination – describe errors in the decision);
5. a description of the relief requested (what do you want the Committee to order at the end of the appeal);
6. the signature of the appellant or the appellant's representative.

Time limit for filing the appeal

To appeal a determination or allocation the entity that is subject to the determination must deliver a notice of appeal within three weeks after receiving the decision. If a notice of appeal is not delivered within the time required, the right to an appeal is lost. However, the Executive Committee is allowed to extend the deadline, either before or after its expiration based upon a majority plus one vote of the Committee.

Extension of time to appeal

The Executive Committee has the discretion to extend the time to appeal either before or after the three-week deadline. A written request for an extension should be made to the Executive Committee, and include the reasons for the delay in filing the notice of appeal and any other reasons which the requester believes support the granting of an extension of time to file the appeal. A request for an extension should accompany the notice of appeal. In deciding whether to grant an extension, the Executive Committee will consider whether fairness requires an extension. The Executive Committee will take into account the length of the delay, the adequacy of the reasons for the delay, the prejudice to those affected by the delay and any impacts that may result from an extension. Other factors not identified could be relevant depending on the circumstances of the particular case.

Rejection of a notice of appeal

The Regional Committee may reject a notice of appeal if:

(a) it is determined that the appellant does not have standing to appeal; or
(b) the Regional Committee determines that it does not have jurisdiction over the subject matter or the remedy sought.

Before a notice of appeal is rejected, the Regional Committee will inform the appellant of this in writing, with reasons, and give the appellant a three-week opportunity to make submissions and any potential parties with an opportunity to respond.

Adding parties to the appeal

In addition to the parties mentioned above, the Sub-Committee has the discretion to add any other person who may be "affected" by the appeal as a party to the appeal. Representatives desiring to be considered a party to the appeal should make a written request to the Sub-Committee as early as possible. The written request should contain the following information:

(a) the name, address, telephone and fax numbers, and email address, if any, of the person submitting the request;
(b) a detailed description of how the person is "affected" by the notice of appeal and
(c) the reasons why the person should be included in the appeal; and
(d) the signature of the person submitting the request.

Intervener status

The Subcommittee may also invite or permit someone to participate in a hearing as an intervener. Interveners are generally individuals or groups that do not meet the criteria to become a party (*i.e.*, "may be affected by the appeal") but have sufficient interest in, or some relevant expertise

or view in relation to the subject matter of the appeal. Individuals desiring to act as an intervener in an appeal should send a written request to the Subcommittee.

Prior to inviting or permitting a person to participate in a proceeding as an intervener, or deciding on the extent of that participation, the Subcommittee will provide all parties with an opportunity to make representations if they wish to do so.

Type of appeal (written or oral) hearing

An appeal may be conducted by way of written submissions, oral hearing or a combination of both. The Subcommittee will determine the appropriate type of appeal after a complete notice of appeal has been received.

The Subcommittee will normally conduct an oral hearing, although it may order that a hearing proceed by way of written submissions in certain cases. Where a hearing by written submissions is being considered, additional input may be requested from the parties.

Burden of proof

The general rule is that the burden or responsibility for proving a fact is on the person who asserts it.

Notification of expert evidence

The Subcommittee requires any party that intends to present expert evidence at a hearing to provide all participants with reasonable advance notice that an expert will be called to give an opinion. The notice should include a brief statement of the expert's qualifications and areas of expertise. If a party intends to produce, at a hearing, a written statement or report prepared by an expert, a copy of the statement or report should be provided to the Subcommittee and all parties to the appeal within a reasonable time before the statement or report is given in evidence. Unless there are compelling reasons for later admission, expert reports should be distributed 30 days prior to the hearing date.

Documents

If a party will be referring to a document that was not provided to the Committee and all parties prior to the hearing, sufficient copies of the document must be brought to the hearing for the Committee and all other parties.

APPEALING THE APPEALS SUB-COMMITTEE'S DECISION

If a party is not satisfied with the decision of the Region's Appeals Subcommittee, he or she can appeal that decision to the 700 MHz National Planning Oversight Committee.

Appendix H Sample Cover Letter to Adjacent RPC's

Chair Region_____
Address

Dear_____

Attached is the final 700 MHz Regional Plan for Region (your region #). Please review and respond within 60 days of receipt. For your convenience, I have attached a sample Adjacent Region Concurrence letter that you can use to formally acknowledge your Regions approval of Region (your region #)'s Plan. If you have any questions, do not hesitate to contact me.

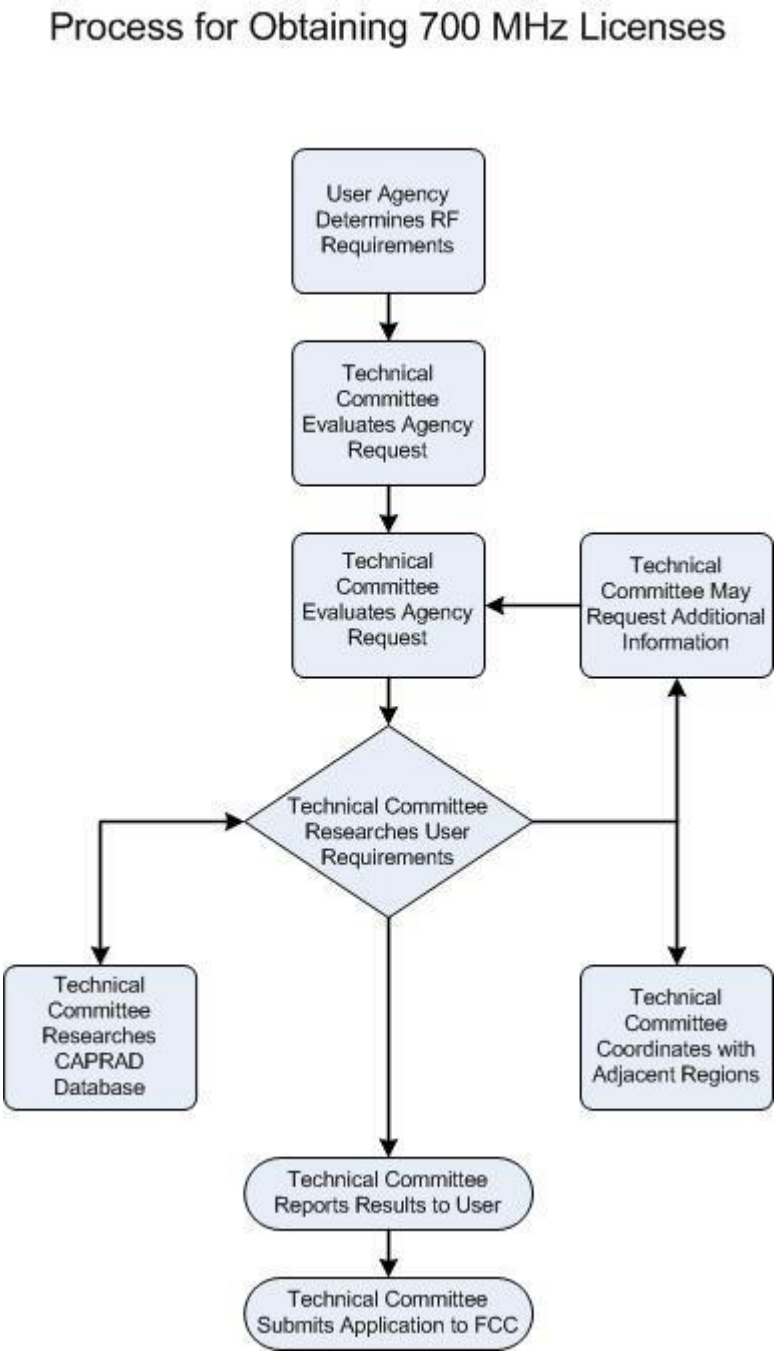
I have also attached an Inter-Regional Dispute Resolution Agreement that must be signed by you and must accompany my Regional Plan when filed with the FCC. As we have discussed, this agreement simply formalizes the process we will use to ensure concurrence to any frequency allocations in our region borders and the steps we will take to resolve any disagreements.

Thank you for your time and attention to this matter.

Sincerely;

(Chairperson Name)
Chair, Region (your region #)

Appendix I Process Flow Charts



Appendix J Listing of the EMPS Categories and Points

	Category	Points
1.	Service Points	40
2.	Use Points	300
3.	Interoperability Communications	100
4.	Loading	150
5.	Spectrum Efficiency	100
6.	System Implementation Factors	100
7.	System Density	100
8.	Frequency Givebacks	150
	Total	**1040**

Appendix K Statewide Radio ID Plan

	Regional P25 Radio ID Plan		
	1,000000 Series- District of Columbia and Federal		
Beginning	**End**	**Total**	**Juristiction**
1,000,000	1,099,999	100,000	Reserved
1,100,000	1,119,999	20,000	District of Columbia
1,120,000	1,139,999	20,000	WMATA
1,140,000	1,159,999	20,000	COG/Radio Cache
1,160,000	1,199,999	40,000	Reserved
1,200,000	1,299,999	100,000	Federal Users
1,300,000	1,999,999	700,000	Future Use
	2,000,000 Series- Maryland		
Beginning	**End**	**Total**	**Juristiction**
2,000,000	2,099,999	100,000	Reserved
2,100,000	2,199,999	100,000	State of Maryland
2,200,000	2,219,999	20,000	Allegany County
2,220,000	2,239,999	20,000	Anne Arundel County
2,240,000	2,259,999	20,000	Baltimore County
2,260,000	2,279,999	20,000	Baltimore City
2,280,000	2,299,999	20,000	Calvert County
2,300,000	2,319,999	20,000	Caroline County
2,320,000	2,339,999	20,000	Carroll County
2,340,000	2,359,999	20,000	Cecil County
2,360,000	2,379,999	20,000	Charles County
2,380,000	2,399,999	20,000	Dorchester County
2,400,000	2,419,999	20,000	Fredrick County
2,420,000	2,439,999	20,000	Garrett County
2,440,000	2,459,999	20,000	Harford County
2,460,000	2,479,999	20,000	Howard County
2,480,000	2,499,999	20,000	Kent County
2,500,000	2,519,999	20,000	Montgomery County
2,520,000	2,539,999	20,000	Prince Georges County
2,540,000	2,559,999	20,000	Queen Anne's County
2,560,000	2,579,999	20,000	Somerset County
2,580,000	2,599,999	20,000	St. Mary's County
2,600,000	2,619,999	20,000	Talbot County
2,620,000	2,639,999	20,000	Washington County
2,640,000	2,659,999	20,000	Wicomico County
2,660,000	2,679,999	20,000	Worchester County
2,680,000	2,699,999	20,000	Ocean City
2,700,000	2,999,999	300,000	Future Use
	3,000,000 Series- Northern Virginia		
Beginning	**End**	**Total**	**Juristiction**
3,000,000	3,099,999	100,000	Reserved

3,100,000	3,129,999	30,000	City of Alexandria
3,130,000	3,159,999	30,000	Arlington County
3,160,000	3,209,999	50,000	Fairfax County
3,210,000	3,239,999	30,000	Fauqier/Culpepper Counties
3,240,000	3,289,999	50,000	Loudoun County
3,290,000	3,339,999	50,000	Prince William County
3,340,000	3,369,999	30,000	Stafford County
3,370,000	3,389,999	20,000	MWAA
3,390,000	3,394,999	5,000	Manassas
3,395,000	3,999,999	604,999	Future Use
	4,000,000 Series- Virginia State Region 42		
4,000,000	4,109,999	110,000	VSP
4,110,000	4,119,999	10,000	Spotsylvania
4,120,000	4,129,999	10,000	Caroline County
4,130,000	4,229,999	100,000	VDOT
4,230,000	4,329,999	100,000	FUTURE
4,330,000	4,339,999	10,000	Clarke County
4,340,000	4,349,999	10,000	Fredrick County
4,350,000	4,359,999	10,000	Madison County
4,360,000	4,369,999	10,000	Orange County
4,370,000	4,379,999	10,000	Page
4,380,000	4,389,999	10,000	Rappahannock
4,390,000	4,399,999	10,000	Rockingham
4,400,000	4,409,999	10,000	Shenandoah
4,410,000	4,419,999	10,000	Warren County
4,420,000	4,429,999	10,000	Fredericksburg
4,430,000	4,439,999	10,000	Harrisonburg
4,440,000	4,449,999	10,000	Winchester
4,450,000	4,459,999	10,000	Greene
4,460,000	4,469,999	10,000	Amelia
4,470,000	4,484,999	15,000	Charles City
4,485,000	4,494,999	10,000	Chesterfield
4,495,000	4,504,999	10,000	Dinwiddie
4,505,000	4,514,999	10,000	Reserved
4,515,000	4,524,999	10,000	Essex
4,525,000	4,534,999	10,000	Goochland
4,535,000	4,544,999	10,000	Hanover
4,545,000	4,559,999	15,000	Henrico
4,560,000	4,569,999	10,000	King George
4,570,000	4,579,999	10,000	King & Queen
4,580,000	4,589,999	10,000	King William
4,590,000	4,599,999	10,000	Lancaster
4,600,000	4,609,999	10,000	Louisa
4,610,000	4,619,999	10,000	New Kent
4,620,000	4,629,999	10,000	Northumberland
4,630,000	4,639,999	10,000	Nottoway
4,640,000	4,649,999	10,000	Powhatan
4,650,000	4,659,999	10,000	Prince George
4,660,000	4,669,999	10,000	Richmond

4,670,000	4,679,999	10,000	Westmoreland
4,680,000	4,689,999	10,000	Colonial Heights, City of
4,690,000	4,699,999	10,000	Hopewell, City of
4,700,000	4,714,999	15,000	Petersburg, City of
4,715,000	4,729,999	15,000	Richmond, City of
4,730,000	4,739,999	10,000	Richmond Airport
4,740,000	4,749,999	10,000	Albemarle
4,750,000	4,759,999	10,000	Charlottesville, City of
4,760,000	4,769,999	10,000	Amherst
4,770,000	4,779,999	10,000	Appomattox
4,780,000	4,789,999	10,000	Augusta
4,790,000	4,799,999	10,000	Buckingham
4,800,000	4,809,999	10,000	Campbell
4,810,000	4,819,999	10,000	Charlotte
4,820,000	4,829,999	10,000	Cumberland
4,830,000	4,839,999	10,000	Fluvanna
4,840,000	4,849,999	10,000	Halifax
4,850,000	4,859,999	10,000	Lunenburg
4,860,000	4,869,999	10,000	Mecklenburg
4,870,000	4,879,999	10,000	Nelson
4,880,000	4,889,999	10,000	Prince Edward
4,890,000	4,899,999	10,000	Lynchburg, City of
4,900,000	4,909,999	10,000	South Boston, City of
4,910,000	4,999,999	90,000	UNASSIGNED
	5,000,000 Series- Virginia State Region 42		
5,000,000	5,099,999	100,000	FEDERAL
5,100,000	5,199,999	100,000	UNASSIGNED
5,200,000	5,209,999	10,000	Stauton, City of
5,210,000	5,219,999	10,000	Waynesboro, City of
5,220,000	5,229,999	10,000	Bland
5,230,000	5,239,999	10,000	Buchanan
5,240,000	5,249,999	10,000	Carroll
5,250,000	5,259,999	10,000	Dickenson
5,260,000	5,269,999	10,000	Giles
5,270,000	5,279,999	10,000	Grayson
5,280,000	5,289,999	10,000	Lee
5,290,000	5,299,999	10,000	Pulaski
5,300,000	5,309,999	10,000	Russell
5,310,000	5,319,999	10,000	Scott
5,320,000	5,329,999	10,000	Smyth
5,330,000	5,339,999	10,000	Tazewell
5,340,000	5,349,999	10,000	Washington
5,350,000	5,359,999	10,000	Wise
5,360,000	5,369,999	10,000	Wythe
5,370,000	5,379,999	10,000	Bristol, City of
5,380,000	5,389,999	10,000	Galax, City of
5,390,000	5,399,999	10,000	Norton, City of
5,400,000	5,409,999	10,000	Accomack
5,410,000	5,419,999	10,000	Brunswick
5,420,000	5,429,999	10,000	Gloucester

5,430,000	5,439,999	10,000	Greensville
5,440,000	5,449,999	10,000	Isle of Wright
5,450,000	5,459,999	10,000	James City
5,460,000	5,469,999	10,000	Matthews
5,470,000	5,479,999	10,000	Middlesex
5,480,000	5,489,999	10,000	Northhamton
5,490,000	5,499,999	10,000	Southampton
5,500,000	5,509,999	10,000	Surry
5,510,000	5,519,999	10,000	Sussex
5,520,000	5,529,999	10,000	York
5,530,000	5,539,999	10,000	Hampton, City of
5,540,000	5,549,999	10,000	Newport News, City of
5,550,000	5,559,999	10,000	Norfolk, City of
5,560,000	5,569,999	10,000	Portsmouth, City of
5,570,000	5,579,999	10,000	Suffolk, City of
5,580,000	5,599,999	20,000	Virginia Beach, City of
5,600,000	5,614,999	15,000	Chesapeake, City of
5,615,000	5,624,999	10,000	Williamsburg, City of
5,625,000	5,634,999	10,000	Franklin, City of
5,635,000	5,644,999	10,000	Emporia, City of
5,645,000	5,654,999	10,000	Poquoson, City of
5,655,000	5,664,999	10,000	Alleghany
5,665,000	5,674,999	10,000	Bath
5,675,000	5,684,999	10,000	Bedford
5,685,000	5,694,999	10,000	Botetourt
5,695,000	5,704,999	10,000	Craig
5,705,000	5,714,999	10,000	Floyd
5,715,000	5,724,999	10,000	Franklin
5,725,000	5,734,999	10,000	Henry
5,735,000	5,744,999	10,000	Highland
5,745,000	5,754,999	10,000	Montgomery
5,755,000	5,764,999	10,000	Patrick
5,765,000	5,774,999	10,000	Pittsylvania
5,775,000	5,784,999	10,000	Roanoke
5,785,000	5,794,999	10,000	Rockbridge
5,795,000	5,804,999	10,000	Buena Vista, City of
5,805,000	5,814,999	10,000	Covington, City of
5,815,000	5,824,999	10,000	Danville, City of
5,825,000	5,834,999	10,000	Martinsville, City of
5,835,000	5,844,999	10,000	Roanoke, City of
5,845,000	5,854,999	10,000	Radford, City of
5,855,000	5,864,999	10,000	Bedford, City of
5,865,000	5,874,999	10,000	Lexington, City of
5,875,000	5,884,999	10,000	Salem, City of
5,885,000	5,979,999	95,000	FUTURE
5,980,000	5,999,999	20,000	STATE CACHE