700 MHz Plan
Template Development Overview

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Televate, LLC

June 29, 2009
Presentation Overview

Sources Supporting the 700 MHz Plan Template

1. Referenced approved 700 MHz Plans by searching on the web
   a. www.npstc.org
   b. http://www.nrpc.us/
   c. http://www.apcointl.org/frequency/
   e. Others were found on a designated website created by the Region
documenting updates, announcements, and other events related to the 700 MHz Plans

2. Status updates of approved plans are listed on slide 39 – 41

3. Referenced FCC Rules Title 47, Pt 90.527 for Regional Plan Requirements

4. Summary table documenting status of 700 MHz Plans shown below:

<table>
<thead>
<tr>
<th>*Approved</th>
<th>*Pending</th>
<th>*Not Submitted</th>
</tr>
</thead>
<tbody>
<tr>
<td>21</td>
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<td>25</td>
</tr>
</tbody>
</table>

*Count according to FCC Website: http://publicsafety.fcc.gov/pshs/public-safety-spectrum/700-MHz/rpc-map.htm
Status Update on 700 MHz Regional Plans

Region Legend

- 25: Montana
- 26: Nebraska
- 27: Nevada
- 28: Pennsylvania - Eastern (east of Harrisburg, southern NJ & DE)
- 29: New Mexico
- 30: New York (Albany area - northern & western counties)
- 31: North Carolina
- 32: North Dakota
- 33: Ohio
- 34: Oklahoma
- 35: Oregon
- 36: Western Pennsylvania
- 37: South Carolina
- 38: South Dakota
- 39: Tennessee
- 40: Texas (Central & Northeast)
- 41: Utah
- 42: Virginia
- 43: Washington
- 44: West Virginia
- 45: Wisconsin (except Southern Lake Michigan counties)
- 46: Wyoming
- 47: Puerto Rico
- 48: Virgin Islands

FCC Required Elements in 700 MHz Plan (1)

Common Elements Checklist

1. Identify all chairpersons and all members of the planning committee
2. Summary of major elements of plan and explanation of how all eligible entities within the region were given an opportunity to participate in the planning process and their positions were heard and considered fairly
3. Description of how the spectrum would be allotted among various eligible users within the region and an explanation of how the requirements...were considered and to the degree possible
4. Explanation as to how needs were assigned priorities in areas where not all eligible entities could receive licenses
5. Explanation of how the plan had been coordinated with adjacent regions
6. Description of how the plan put the spectrum to the best possible use by illustrating the following:
   a. System design with minimum coverage areas
   b. Assigning frequencies for max. freq reuse and offset channel use may be made
   c. By using trunking
   d. By requiring small entities with minimal requirements to join a single system where possible

* Reference FCC Rules Title 47, Pt 90.527 for Regional Plan Requirements
7. Detailed description of future planning process, including but not limited to:
   a. Amendment process, meeting announcements, data base maintenance, and dispute resolution
8. Certification by the regional planning chairperson that all planning committee meetings, including subcommittee or executive committee meetings, were open to the public

Modification of Regional Plans

- Must submit written request signed by regional planning committee to the Chief Wireless Telecommunications Bureau
  a. Must include full text of modification
  b. Must certify that successful coordination of modification with all adjacent regions has occurred and that all such regions concur with the modification

* Reference FCC Rules Title 47, Pt 90.527 for Regional Plan Requirements
# 700 MHz Plan Components (1)

<table>
<thead>
<tr>
<th>Section</th>
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<tbody>
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<td>Cover Page</td>
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<tr>
<td>Table of Contents</td>
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<tr>
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<tr>
<td>• Introduction (optional)</td>
</tr>
<tr>
<td>• Purpose (optional)</td>
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<tr>
<td>• Regional Plan Summary (optional)</td>
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<tr>
<td>Regional Planning Committee Leadership</td>
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<tr>
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<td>• Vice-Chairperson</td>
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<tr>
<td>Notification Process</td>
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700 MHz Plan Components (2)

**Regional Plan Committee Administration**
- Operations of the Regional Plan Committee
- Procedure for Requesting Spectrum Allotments
- Procedure for Frequency Coordination
- Adjacent Region Spectrum Allocation and Coordination
- Mexico/Canadian Border Issues (if applicable)

**System Design/Efficiency Requirements**
- Interference Protection
- Spectrum Efficiency Standards (optional)
- Orphaned Channels

**Narrowband “General Use” Spectrum Allocation**
- Introduction
- Low Power Secondary Operations
- Low Power Channels
- System Implementation
- Priority for Receiving Spectrum Allocations
- Channel Loading (optional)
- Wideband Data (optional)
- Dispute Resolution – Intra-Regional
700 MHz Plan Components (3)

Interoperability Channels
- Introduction
- Tactical Channels
- Deployable Systems
- Monitoring of Calling Channels

Applicant Requirements and Evaluation
- Introduction
- Application Requirements
- Evaluation Matrix Point System
- Application Processing

Process for Handling Unformed Regions

Future Planning
- Database Maintenance
- Inter-Regional Dispute Resolution Process

Certification

Appendices
700 MHz Sample Cover Page

- **Title**
  - Sample: Region (#) 700 MHz Public Safety Radio Communications Plan
- **State Map (optional)**
- **Amendments Dates of Plan (as applicable)**
- **RPC Officers and Contact Info (optional)**
- **Website Link (optional)**
Scope

- **Introduction (optional)**
  - Background of the Public Safety 700 MHz Radio Communications Plan

- **Purpose (optional)**
  - Develop a plan to insure that maximum public benefit is derived from use of the 700 MHz spectrum by eligible agencies. In addition, the plan was developed to guide candidates through the application process and provide an equitable means of settling disputes concerning frequency allocations should they arise

- **Regional Plan Summary (optional)**
RPC Leadership

• **List of individuals serving leadership roles in your region:**
  • Regional Chairperson
  • Regional Vice-Chairperson
  • Regional Secretary
  • Regional Treasurer

• **Information from each leadership role should include:**
  • Full Name
  • Agency Department
  • Business Address
  • Phone Numbers
  • Email

• **Regional Planning Committee (RPC) By-Laws (can attach as an appendix)**

• **Website link can also be included in the plan (if available)**
RPC Membership

• Must state membership in RPC is open to any interested party
• Must include Committee Officer requirements, voting procedures, and membership attendance requirements in RPC By-Laws
• May include list of members as an appendix. An example of the membership list can be documented as follows:

APPENDIX B
Region (#) Members/Attendee List

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<thead>
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<th>Last Name</th>
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</table>
Regional Profile

- **Geographical description required**
- **Creativity Shines! (optional)**
  - Example: Have a state map, list of counties/cities, population density map, etc.
- **Details on population density and providing %’s and locations on population concentrated areas (optional)**
- **List of adjacent regions**
  - Can provide a map of your region with its adjacent regions. An example provided below:
Notification Process

- Details on the notification process for the RPC meetings to the public
  - Notification methods can include, but not limited to:
    - Email distribution
    - Online website
    - Printed Newsletters
- Details on the RPC meetings:
  - How often are the meetings?
  - When was the first meeting held?
  - The location(s) of the meetings?
    - Webinar?
    - “Live”/in-person meeting
    - Conference call
- Details on the RPC meetings attendees
  - Stating the attendees agency affiliations and their contributions to the RPC meetings and to the planning process
- Meeting notes taken from each meeting (can attach as an appendix)
RPC Administration (1)

• **Operations of the Regional Plan Committee**
  - Details on the procedures of conducting meetings, how to form subcommittees (if necessary), # of meetings/year, the term duration for leadership roles, and how to elect leadership replacements (if necessary)

• **Procedure for Requesting Spectrum Allotments**
  A. First come - first serve but there are other considerations determining priority of applications. Below lists a few considerations. (Refer to Section 6.5 of the 700 MHz Plan Template for all the considerations)
    - Users involved in the protection of life and property
    - Multiple agencies agree to construct a common infrastructure for a multi-agency shared system
    - Approved funding to construct the system using 700 MHz freq
  B. *RPC looks forward to 700 MHz applicants maintaining spectrum availability in their area, while continuing to promote interoperable communications*
C. Application package must include:
   1. An FCC Form 601
   2. A short description of the proposed system
   3. Justification for the additional spectrum
   4. Maps showing all interference predicted in proposed system
   5. Documents indicating agency-funding commitments sufficient to fund the development of proposed system(s)
   6. Indication of when you will migrate from existing system to the new system

D. The Chairperson will distribute request to all other agencies with allotments in the plan for review and approval. If there are no objections, the RPC will approve the application and submit it through CAPRAD (Computer Assisted Pre-Coordination and Database System) to the applicant’s preferred FCC freq. coordinator for processing. The channels will be in “pre-license” status.
RPC Administration (3)

- **Procedure for Requesting Spectrum Allotments (cont.)**
  
  E. Allocation disputes
  
  - An agency may protest a proposed system w/in 30 calendar days if any of the following conditions are met:
    - The allocation does not conform to the plan criteria
    - Harmful interference is likely to occur based on info submitted by applicant
  
  - Field tests may be requested by objecting agency and all costs associated with conducting the field tests are the applicant’s responsibilities
  
  - All allocation disputes must be resolved and notify the Region Chairperson w/in 14 calendar days.
• Procedure for Requesting Spectrum Allotments (cont.)

F. Lower Power “Campus Eligible” General use Channels

• “Campus Eligible” type systems include places of public gathering such as hospitals, stadiums, malls, and transit ports
• Typically these facilities require a smaller or more specific geographical area than assumed in the channel packing plan and therefore may be able to be reused more efficiently
• Proposed system design:
  • 50 dBu service contour of proposed system must not exceed an area more than two (2) miles from the proposed service area.
  • If this 2 mile distance extends to an adjacent region, applicant must obtain concurrence from the adjacent region.
  • The Chairperson, or a majority of the members of the region has the authority to request and require engineering studies from the applicant that indicate no harmful interference will be introduced to any co-channel or adjacent channel existing prior to application approval
*Reference: Form 601 - Instructions to complete the 601 form: http://wtbwww05.fcc.gov/HelpDoc/instr601s.html*
RPC Administration (5)

- **Procedure for Frequency Coordination**
  - Applicants must submit a copy of FCC application and supporting documents to Regional Plan Chairperson
  - RPC will review the application to ensure it complies with all elements of the Regional Plan, NOT to ensure the application form meets FCC requirements for filing

- **Adjacent Region Spectrum Allocation and Coordination**
  - State your adjacent regions
  - Adjacent regions should be able to satisfy voice and narrowband data requests
  - If any region has problems satisfying requests in an adjacent area, your RPC pledged to work with affected regions to resolve any issues on a case by case basis
Frequency Coordination Procedure

1. FCC 601 Form
2. Document Site Specific Technical Info
3. Prediction Interference Maps
4. Agencies w/ co-channel/adjacent channels allotments can request field tests for interference verification
5. Application Copies and Distribute
6. FCC Freq. Coordinator
7. Approved
8. Approval from RPC Meeting
9. Reject
Adjacent Region Spectrum Allocation and Coordination Procedure
• **Mexico/Canadian Border Issues (required if applicable to your region)**
  • Public Safety transmitters operating w/in 120 km or 75 miles of the Mexican/Canadian border must accept interference that may be caused by operations of the UHF television broadcast transmitters in Mexico/Canada and that conditions may be added during the term of the license if required by the terms of the international agreements between the US, and Mexico Government regarding the non-broadcast use of the 764 - 776 MHz and 794 - 806 MHz bands
  • Reference 47 C.F.R. § 90.533
System Design/Efficiency Requirements

- **Interference Protection**
  - Design system with minimum signal strength of 40 dBu in the system coverage area

- **Spectrum Efficiency Standards (optional)**
  - Stating the standards and goal of the FCC and the public safety community

- **Orphaned Channels**
  - 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 bandwidth immediately adjacent to the assigned channel within a given area
  - If the “orphaned channel” remainder does not meet co-channel and adjacent channel interference criteria by moving it within the “designated area” (designated area meaning geographical boundaries of a specific area plus the distance of up to 10 miles outside of that specific area), then the region must submit a plan amendment to the FCC to repack the channel to a location where its potential use will maintain maximum spectral efficiency
“General Use” Spectrum Allocation (1)

- **Low Power Secondary Operations**
  - To facilitate portable operation by any licensee w/out impacting use of primary channels, certain low power secondary use will be permitted. Any public safety entity may receive authorization to license any additional channel for secondary use, subject to the criteria listed in Section 8.1 of the 700 MHz Plan Template.

- **Low Power Channels**
  - Channels 9 – 12 paired with 969 – 972 and 959 – 960 paired with 1919 – 1920 are licensed nationwide for itinerant operation. Transmitter power must not exceed 2 watts (ERP).
  - Provide a recommendation for the use of the eighteen (18) narrowband channels assignments
    - An example is provided in Section 8.2 of the 700 MHz Plan Template.
“General Use” Spectrum Allocation (2)

- **System Implementation**
  - If your region is **NOT** affected by interference potential from existing television stations operating in the 700 MHz spectrum, the region must proceed with the following:
    - Issue a notification, in writing, to secondary television station operators/licensees of the intended use of 700 MHz spectrum in your region to allow the applicant meet the intended system construction timeframes identified w/in the application submittal
    - After allocations of the channels, the agency must release a System RFP and sign a contract with a vendor w/in 1 year of the channel allocation
    - If the system implementation does not begin w/in 2 years or if projected planned channel loading is not attained w/in 4 years after granting license, the channels will be returned for re-allotment to others
  - If your region **IS** affected by interference potential from existing television stations operating in the 700 MHz spectrum, implementation of systems will adhere to guidelines in FCC rule 90.529 (b) and (c)
“General Use” Spectrum Allocation (3)

- **Priority for Receiving Spectrum Allocations**
  - First come- first serve basis
  - Cooperative multi-agency system implementations will be given priority over non-shared single agency systems
  - RPC expects applicants to relinquish any amount of any currently used spectrum and make that spectrum available for use by other agencies in your region upon beneficial use of an implemented 700 MHz radio system

- **Channel Loading (optional)**
  - RPC encourages the following:
    - Each applicant for a trunked system should design their system for a minimum of 70 mobile and portable radios for each 12.5 kHz voice channel placed w/in 5 years of the initial plan approval date
    - Single conventional channels should be designed for a min. load of 70 radios (mobile, portable, data, and control stations) per 12.5 kHz channel.
“General Use” Spectrum Allocation (4)

- **Wideband Data (optional)**
  - Wideband operations will be permitted only under a FCC waiver
  - Discuss with your RPC regarding requesting use of wideband data

- **Dispute Resolution – Intra-Regional**
  - If an agency disputes the implementation of the Regional Plan or any part of the Plan, not related to new spectrum allocation, after FCC approval, the following escalation procedure will occur:
    - Notify the Chairperson in writing and the Chairperson will attempt to resolve the dispute.
    - If unsuccessful, the Vice Chairperson will attempt resolution w/in 30 days.
    - If unsuccessful, a Dispute Resolution Committee will form and make recommendation to resolve the dispute
    - If unsuccessful, the dispute and all written documentation will be forwarded to the National Public Safety Telecommunications Committee (NPSTC) for review
    - Last resort, the dispute will be forwarded to the FCC for final resolution
Interoperability Channels

• **Tactical Channels**
  - Channel displays in the radios will be in accordance with the NCC guidelines that have common alphanumeric nomenclature to avoid any misinterpretation of use w/in the Region
  - Your state SIEC is the final authority on the interpretation of the distribution of the 700 MHz interoperability channels

• **Deployable Systems**
  - Prepackaged systems that can deploy by ground or air to an incident to provide additional coverage and capacity on interoperability channels
  - It is expected that tactical channels set aside for trunked operation will be heavily used by deployable systems, therefore tactical channels cannot be assigned to augment general use of trunked systems

• **Monitoring of Calling Channels**
  - Licensees are responsible for monitoring interoperable calling channels
Applicant Requirements and Evaluation

- **Application Requirements**
  - FCC ULS 601 Form(s)
  - Explanation of systems future growth for all agencies involved in system, including the system loading, what equipment type and quantity planned to be purchased to load the system
  - Explanation of the budget commitment for the proposed system
  - State of compliance that the applicant’s agency will conform with interoperability requirements of the SIEC plan
  - For informational purposes, any documentation that identifies intended radio channels the agency will be abandoning through the FCC licensing processes, after full beneficial system use of allocated 700 MHz channels
  - Documentation that will assist the evaluation of the application

- **Evaluation Matrix Point System**
  - Point system to determine approval priority of applications
    - More details can be found in Section 10.3 of the 700 MHz Plan Template

- **Application Processing**
Applicant Requirements and Evaluation

Flowchart:
- FCC 601 Form(s)
- Explanation of budget commitment
- Compliance with Interoperability Requirements of SIEC Plan
- Explanation of System Growth
- Documentation of agency radio channels released
- Add’l Documentation, as applicable
- Review via Evaluation Matrix Point System
- Approved
- Application Ranked
- Application Processed
- Reject
- Application Incomplete
Process for Handling Unformed Regions

**Definition of “Unformed Regions”:**
- Regions that have not formed or have a complete Regional Planning Committee

**Procedure:**
- Counties/Cities or other geographic subdivisions w/in 70 miles of the Regional border need to share spectrum with the adjacent region(s)
- The appropriate ratio of channels shall be allotted to counties in adjacent regions based upon each county’s/city’s population
- A 25 kHz building block will be used to distribute spectrum between the regions
- The requirements for adjacent region concurrence will require a waiver if the adjacent region has not yet formed
- The waiver request must be filed concurrently with the Regional Plan and contained in the cover letter
Future Planning

• **Database Maintenance**
  - Have a database in place to document and keep track of channel allotments in each county/city area w/in your region using a criteria
    - Criteria can include but are not limited to:
      - Current population
      - 2010 Census data
      - Height Above Average Terrain (HAAT)
      - Curves generated by the Public Safety Wireless Advisory Committee (PSWAC) to provide spectrally efficient frequency allotments
    - Most common pre-coordination database tool used by Public Safety Agencies is CAPRAD

• **Inter-Regional Dispute Resolution Process**
  - If a dispute arises between your region and an adjacent region or regions, regarding spectrum allocations or implementation, which cannot be resolved w/in 60 days, the parties will request a hearing by the National Regional Planning Oversight Committee
Certification

• **Last required section in the Regional Plan before the appendices**
  
  • An example of the certification is provided below:

    I hereby certify that all planning committee meetings, including subcommittees *(if applicable to your Region)* or executive committee meetings *(if applicable to your Region)*, were open to the public. Also, a summary of the deliberations of the Committee pursuant to adopting the Regional Plan can be found in the appendix, meeting attendance, agendas, and other events.

    (Chairperson Name)

    (Date)

    Chairperson, Region (#)
Appendices

• **The Appendices to the Regional Plan can include but not limited to the following:**
  • Region By-Laws
  • Committee Membership List
  • List of Counties/Cities in the Region
  • Letters to Adjacent Regional Chair(s)
  • Adjacent Region Concurrence Notice(s)
  • Regional Planning Committee Meeting Minutes
  • Interoperability Channel MOU
  • Channel Allotments
  • SIEC Plan
  • 700 MHz Interoperability/Channel Nomenclature
  • Inter-Regional Coordination Procedures and Resolution of Disputes

• **The information for some of the appendices may be taken from your Region’s existing 800 MHz Plan and inserted into your Region’s 700 MHz Plan, as appropriate**
Required Sections

• Section 2.0 – RPC Leadership
• Section 3.0 – RPC Membership
• Section 4.0 – Regional Profile
• Section 5.0 – Notification Process
• Section 6.0 – Regional Plan Administration
  • Section 6.1 – Operations of the Regional Plan Committee
  • Section 6.5 – Procedure for Requesting Spectrum Allotments
  • Section 6.6 – Procedure for Frequency Coordination
  • Section 6.7 – Adjacent Region Spectrum Allocation and Coordination
  • Section 6.8 – Mexico Border Issues
  • Section 6.9 – Canadian Border Issues
• Section 7.0 – System Design/Efficiency Requirements
  • Section 7.1 – Interference Protection
700 MHz Plan Required/Optional Sections

**Required Sections**

- Section 8.0 – Allocation of Narrowband “General Use” Spectrum
  - Section 8.1 – Introduction
  - Section 8.2 – Low Power Secondary Operations
  - Section 8.3 – Low Power Channels
  - Section 8.4 – System Implementation
  - Section 8.5 – Priority for Receiving Spectrum Allocations
  - Section 8.8 – Dispute Resolution – Intra-Regional
- Section 9.0 – Interoperability Channels
  - Section 9.2 – Tactical Channels
  - Section 9.3 – Deployable Systems
  - Section 9.4 – Monitoring of Calling Channels
- Section 10.0 – Applicant Requirements and Evaluation
  - Section 10.1 – Introduction
  - Section 10.2 – Application Requirements
  - Section 10.3 – Evaluation Matrix Point System
  - Section 10.4 – Application Processing
IZ1: Confirm that these sections are "Optional"
IZ, 6/16/2009
700 MHz Plan Required/Optional Sections

Required Sections

• Section 11.0 – Process for Handling Unformed Regions
• Section 12.0 – Future Planning
  • Section 12.1 – Database Maintenance
  • Section 12.2 – Inter-Regional Dispute Resolution Process
• Section 13.0 – Certification
• Appendices referenced in the 700 MHz Plan and others as applicable
700 MHz Plan Required/Optional Sections

Optional Sections included as “Best Practices”

- Cover Page
- Table of Contents
- Section 1.1 – Plan Introduction
- Section 1.2 – Plan Purpose
- Section 1.3 – Plan Summary (including amendments)
- Section 6.0 – Regional Plan Administration
  - Section 6.2, 6.3, 6.4 - Subcommittees
- Section 7.0 – System Design/Efficiency Requirements
  - Section 7.2 – Spectrum Efficiency Standards
  - Section 7.3 – Orphaned Channels
- Section 8.0 – Allocation of Narrowband “General Use” Spectrum
  - Section 8.6 – Channel Loading
  - Section 8.7 – Wideband Data
- Section 9.0 – Interoperability Channels
  - Section 9.1 – Introduction
Status Update on 700 MHz Regional Plans

Region Legend

01: Alabama
02: Alaska
03: Arizona
04: Arkansas
05: California
06: California - Northern
07: Colorado
08: Metropolitan, NYC Area (NY, NJ, & CT)
09: Florida
10: Georgia
11: Hawaii
12: Idaho
13: Illinois (except Southern Lake Michigan counties)
14: Indiana (except Southern Lake Michigan counties)
15: Iowa
16: Kansas
17: Kentucky
18: Louisiana
19: New England
20: District of Columbia Maryland & Northern VA
21: Michigan (except Southern Lake Michigan counties)
22: Minnesota
23: Missouri
24: Mississippi
25: Montana
26: Nebraska
27: Nevada
28: Pennsylvania - Eastern (east of Harrisburg, southern NJ & DE)
29: New Mexico
30: New York (Albany area - northern & western counties)
31: North Carolina
32: North Dakota
33: Ohio
34: Oklahoma
35: Oregon
36: Western Pennsylvania
37: South Carolina
38: South Dakota
39: Tennessee
40: Texas (Central & Northeast)
41: Utah
42: Virginia
43: Washington
44: West Virginia
45: Wisconsin (except Southern Lake Michigan counties)
46: Wyoming
47: Puerto Rico
48: Virgin Islands
49: Texas - Central (Austin Area)
50: Texas - West & Central (Midland Area)
51: Texas - East (Houston Area)
52: Texas - Panhandle, High Plains & Northwest (Lubbock Area)
53: Texas - Southern (San Antonio Area)
54: Southern Lake Michigan (Great Lakes inc. WI,IL,IN,& MI)
55: New York - Buffalo area (Western counties of upstate New York)

**Status Update on 700 MHz Regional Plans**

**Outreach Committee**

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<th>Area</th>
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# Status Update on 700 MHz Regional Plans

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Beneficial Resources

Resources Supporting the 700 MHz Band Plan

1. District Directors – Personnel that provide guidance and help with 700 MHz Plan development, where to apply for spectrum, and others services: www.nrpc.us/contact.jsp#3
2. CAPRAD Database:  http://caprad.nlectc.du.edu/caprad/PublicSite.RegEntry
Thank You!

Any Questions/Comments/Remarks?

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703-587-0702(m)
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