

900 MHz Broadband Is Coming



MARK E. CROSBY
ENTERPRISE WIRELESS ALLIANCE

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Agenda

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Part I - History

Part II - Anticipated Rules & Regulations

Part III - Process Rules of Engagement

Part IV - Facilitating the Transition ...
Incentive Program

Part I – History

900 MHz History

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- The 900 MHz band was allocated in 1985 (post 800 MHz allocations), and consists of a contiguous 5/5 MHz block of spectrum separated into two (2) interleaved segments
 - 200 paired 12.5 kHz channels allocated and auctioned for SMR use on MTA basis (2.5 MHz) in 1995 (closed in April 1996)
 - 199 paired 12.5 kHz channels allocated for B/ILT licensees on a site-specific basis subject to frequency coordination (2.5 MHz)
- Eligibility is initially limited to B/ILT activities, but once licensed, conversion to SMR status permitted – major network operators remain
- Allocation was the result of vendor and LMCC collaborative efforts

900 MHz History

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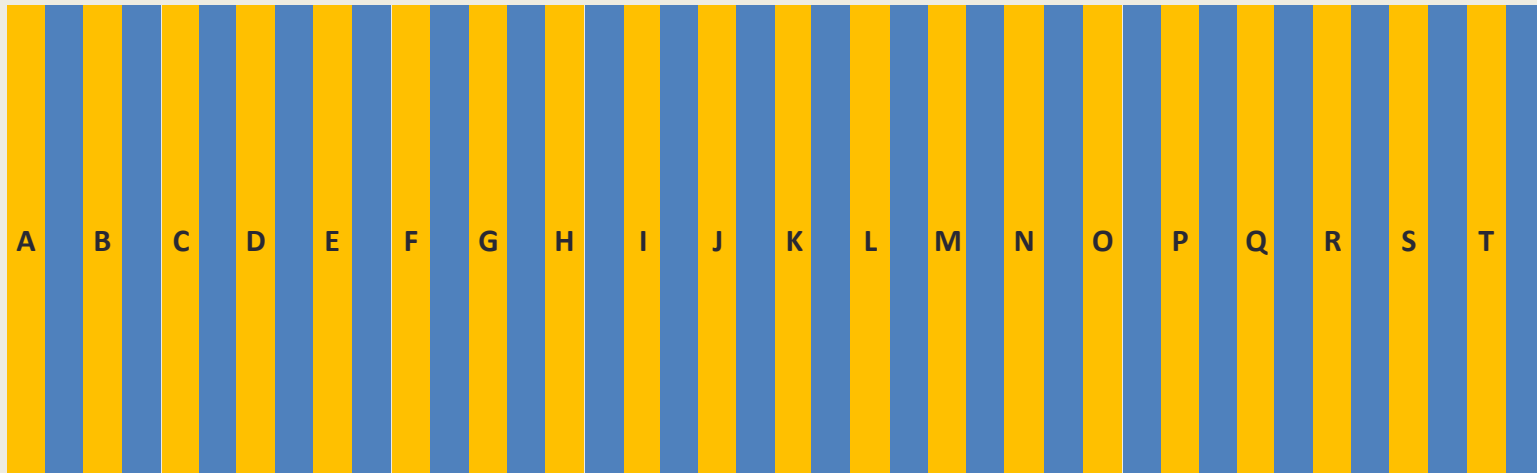
- Spectrum availability became limited in top metro areas
- Band favored by major business enterprise industries
 - CII which is limited to Petroleum, Utilities and Railroads
 - Mass transit systems
 - Airlines including overnight carriers
 - Major manufacturers
 - Casinos and sports venues
- All major vendors produce system infrastructure and mobile devices

900 MHz History

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935 MHz

940 MHz



896 MHz

901 MHz

Each block 10 channels

Geographic
SMR

Site Based
SMR/Bus./ Ind.

History of the 900 MHz Rules

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2014

- PDV acquires Sprint's geographic SMR and converted B/ILT licenses
- EWA and other industry associations file joint letter asking the FCC to reorganize the 900 MHz allocation to create a broadband system option
- EWA/pdvWireless (now Anterix) file Joint Petition for Rulemaking (PFR) proposing realignment of the band into 3x3 MHz broadband and 2x2 MHz narrowband segments
- FCC issues *Public Notice* seeking industry views on the Petition

2015

- Industry files comments in response to *Public Notice*

History of the 900 MHz Rules

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2017

- FCC issues *Notice of Inquiry (NOI)*
- Industry files comments in response to NOI

2018

- FCC initiates application freeze for site-based, B/ILT applications
- EWA and UTC seek clarification of the applicability of the freeze ... permit incumbents to modify systems in place

History of the 900 MHz Rules

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2019

- FCC issues *Notice of Proposed Rulemaking* (NPRM) on March 14
- June 3 and July 2, Comments and Reply Comments submitted
- FCC grants Flint Hill Refinery's waiver request to transition completely to narrowband allocation on a 1:1 basis during licensing freeze (!)
- FCC dismisses other waivers that are inconsistent with the 1:1 premise
- pdvWireless becomes Anterix
- FCC Issues Order (October 9) modifying the freeze to accept applications on a 1:1 (or smaller) basis without a waiver
 - Less than 180 days former channels will be deleted to aid transitions
 - Partial or complete assignments permitted
- Expectation - FCC issues Report & Order before year end

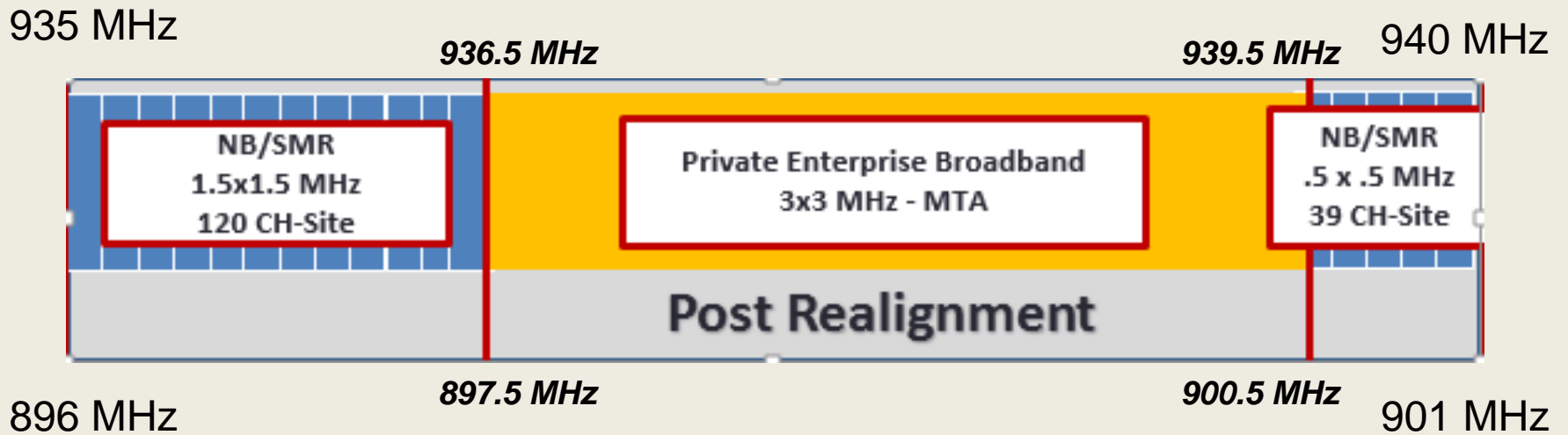
Part II – Anticipated Rules & Regulations

Anticipated Rules & Regulations

- Band realignment
 - Broadband Segment 897.5-900.5/936.5-939.5 MHz (6 MHz)
 - Narrowband Segments
 - ... 896-897.5/935-936.5 MHz (3 MHz)
 - ... 900.5-901/939.5-940 MHz (1 MHz)
- Geographic broadband licenses – Counties
- The 900 MHz broadband service will be a Miscellaneous Wireless Communications service governed by Part 27 rules
- Eligible applicant must have all 20 SMR blocks in the county

Anticipated Rules & Regulations

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Anticipated Rules & Regulations

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- A time-period is adopted for voluntary spectrum exchanges for incumbent relocations ... parties may negotiate any desired terms, BUT only on a 1:1 exchange for 900 MHz channels
- Success thresholds will trigger mandatory relocations for any remaining incumbents after a defined percentage have negotiated agreements in Counties where entire 3/3 MHz broadband segment has not been cleared
 - A 3/3 MHz overlay auction with mandatory relocation rights
 - Would include obligation to provide comparable facilities and pay relocation costs subject to 1:1 exchange
- Under a mandatory relocation regimen, incumbents cannot receive more 900 MHz channels than they hold in the broadband segment (1:1 exchange) unless additional spectrum is required to provide comparable coverage and/or capacity

Anticipated Rules & Regulations

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- Single 3x3 MHz overlay auction conducted county by county
- Winning bidder entitled to require incumbents to relocate to narrowband frequencies, provided it pays relocation costs
- Winning bidder would have right to access all unassigned spectrum throughout the entire 900 MHz band in its area, including spectrum outside the 3x3 segment and could use unassigned channels for relocation from broadband
- FCC lifts freeze on B/ILT narrowband applications post 3/3 MHz relocation clearing
- If incumbents cannot be provided with comparable facilities, the winning bidder must protect the operation indefinitely

Anticipated Rules & Regulations

Recommended Incumbent Considerations

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- How does the reconfiguration affect your system
 - Identify licensed channel location ... broadband versus narrowband segments
 - Evaluate technical impact on systems with replacement channels
- Identify the opportunity for technology advances and spectrum efficiencies in your transition plan
- If necessary, seek technical/financial/ legal advice from professionals familiar with spectrum matters and radio system operational technologies
- Consult those vendors that have supported your system
- Develop cost estimates for system transition plans
- Anterix and EWA are available for consultation

Anticipated Rules & Regulations

Recommended Incumbent Considerations

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- Determine optimum time to transition systems to comply with reconfiguration
 - FCC Report & Order opens opportunity to convert systems now
 - Potentially multiple comparable spectrum solutions
- Sell (assign) all/part of channel capacity to broadband licensee
- Cancel all/part of licensed channel capacity in exchange for payment from broadband licensee
- Migrate to alternative bands ... all or part of channel capacity
- Provide consent to broadband operations that are non-impactful to LMR operations, but under the FCC co-channel site distance separation criteria

Part III – Process Rules of Engagement

EWA + Anterix Agreement

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- “900 MHz Incumbent System Transition Services Agreement” executed between EWA and Anterix
- EWA will introduce the opportunities and terms under which certain incumbent 900 MHz licensees may either:
 - Transition channels presently residing within the broadband segment of the band to the narrowband segment(s)
 - Relocate incumbent systems to alternative bands depending on availability
 - Assign or terminate 900 MHz licenses in return for compensation
- All transactions shall be in accordance with applicable FCC rules and regulations
 - Comparable spectrum ... comparable operating characteristics
 - At Anterix’ expense or, eventually at auction winner’s expense

Rules of Engagement

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- EWA will contact “Affected Incumbent” to present the effects of the 900 MHz band realignment on the incumbent’s system
- EWA will prepare and provide a report illustrating the Affected Incumbent’s channels that fall within the narrowband and broadband segments of the band
- EWA will, among other information, determine Affected Incumbent’s
 - Preference to modify their system(s) to adapt to the narrowband reconfiguration and gather any unique associated requirements or,
 - Terminate/assign license(s) in return for financial compensation

Rules of Engagement

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- Discuss incumbent requirements with Anterix officials
- EWA provides the Affected Incumbent with Anterix's "Affected Incumbent Agreement" which, for Affected Incumbents who wish to maintain narrowband systems, contains
 - Transition terms and conditions
 - Replacement channels
 - Proposed comparable system reconfigurations ... capacity/geographic solutions
 - Cost reimbursement proposals for system retuning activities

Rules of Engagement

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- EWA gathers incumbent responses and provides Anterix with responses to the Affected Incumbent Agreement from the Affected Incumbent or its representatives
- Anterix reviews proposed changes and suggests amendments to the Affected Incumbent Agreement
- Incumbents provide EWA the name of the wireless service organization that they will utilize to perform system reconfiguration activities or, EWA recommends the name of entities that may provide reconfiguration services
- EWA facilitates agreement among the parties
- Incumbent agreement is executed
- Post agreement execution, frequency coordination is performed and applications are submitted to the FCC to effect reconfiguration

Part IV –
Facilitating the Transition:
EWA Incentive Program

Incentive Program – Premise

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EWA shall develop and manage a financial incentive program that rewards wireless sales and service providers (WSSP), preferably EWA members, who are instrumental in facilitating Affected Incumbent system modifications to alternative spectrum solutions in an expedited manner ...

Incentive Program – Eligibility

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- Available to WSSPs that, as a part of their business pursuits, are actively engaged in wireless system sales, installation and maintenance activities on behalf of private land mobile equipment vendors and B/ILT licensees
- WSSPs who wish to participate in the Incentive Program are encouraged to identify and provide EWA those affected 900 MHz incumbents for whom they wish to exclusively provide system reconfiguration services as soon as possible, with the understanding that EWA will confirm incumbent WSSP appointment preferences
- WSSPs identified by incumbents during agreement discussions will be available for the program
- EWA shall advise participating WSSPs of the names of those incumbent licensees for whom they will be responsible to expedite the reconfiguration process

Incentive Program – Process

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- An agreement between the selected/confirmed WSSPs containing the terms and conditions of participation in the Incentive Program will be executed between EWA and the participating WSSPs ... the terms and conditions including incumbent assignment rosters shall be on a confidential basis
- Participating WSSPs will be informed of all EWA incumbent communications including replacement channels and associated system reconfiguration proposals
- The WSSPs may provide technical advice to their assigned incumbents, but expenses for those services are subject to acceptance by Anterix, shall be identified within the agreement between the incumbent and Anterix, and will be reimbursed by the affected incumbents

Incentive Program – Process

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- It is anticipated that the participating WSSPs will perform the technical services associated with actual system reconfigurations, and those expenses are subject to prior approval by Anterix, shall be identified within the agreement between the incumbent and Anterix, and will be reimbursed by the affected incumbents
- The participating WSSP shall be available for EWA consultation during the agreement determination process
- The timing of system reconfigurations will be provided within incumbent agreements with Anterix

Incentive Program – Process

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- WSSPs will be entitled to receive an incentive payment from EWA should the system reconfiguration be completed in advance of the specified time frame post agreement execution
- Optimum system reconfiguration times frames and incentive payment amounts will be agreed upon among the participating WSSP, EWA and Anterix during agreement determination discussions
- Incentive payment levels may vary depending on the scope of the system reconfiguration

Summary

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- Identify the 900 MHz incumbents with whom you wish to facilitate 900 MHz reconfiguration requirement – EWA will confirm list
- Execute agreement with EWA to provide reconfiguration services on an approved expedited basis
- Provide technical assistance during affected incumbent reconfiguration discussions
- Conduct reconfiguration in compliance with optimum time schedules post agreement execution and following required frequency coordination initiatives

Questions?

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- Principal EWA contacts are presently:
 - Mark Crosby ... mark.crosby@enterprisewireless.org
 - Robin Cohen ... robin.cohen@enterprisewireless.org

- Principal Anterix contact is Bill Jenkins ... bjenkins@anterix.com