



Access to Licensed Spectrum for Wireless Broadband

FCC/USDA

Rural Broadband Educational Workshop

November 20, 2008

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Access to Spectrum for Rural Broadband

- ★ **There are several mechanisms that the FCC uses to make spectrum available for wireless services, including licensed and licensed-exempt spectrum.**
- ★ **Licensed spectrum generally allows for exclusive use of particular frequencies or channels in particular locations.**

Licensed Spectrum

- ★ **The rules for licensed spectrum are flexible.**
 - ★ A licensee has flexibility in deciding what services to offer and what technologies to deploy on licensed spectrum.
- ★ **Equipment must meet basic technical requirements.**
- ★ **Equipment authorization is required.**

Licensed Spectrum

- ★ **Licensed spectrum licensed on a site-by-site basis or geographic service area, or both.**
- ★ **Primary attributes of licensed spectrum (as opposed to license exempt spectrum) – you generally must pay to access it.**

FCC Auctions

- ★ **Since the first spectrum auction was held in July 1994, the FCC has**
 - ★ **Completed 73 auctions (as of 11/12/08)**
 - ★ **Auctioned over 31,000 licenses**
 - ★ **Qualified over 4,000 bidders to participate**
 - ★ **Transferred over \$28 Billion to the US Treasury (as of 9/30/08)**

FCC Auctions

★ Pre-Auction

★ Service rules established in rulemaking

- ★ Service area

- ★ Block size

- ★ Technical rules

- ★ Build out requirements

★ Public Notices released

★ Auction seminar and mock auction

★ Post-Auction

★ Down payment and long form application

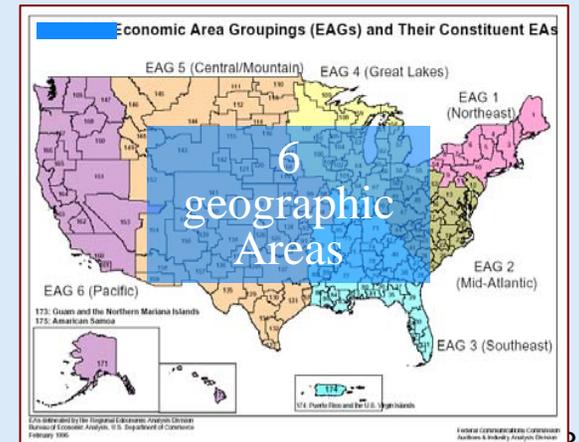
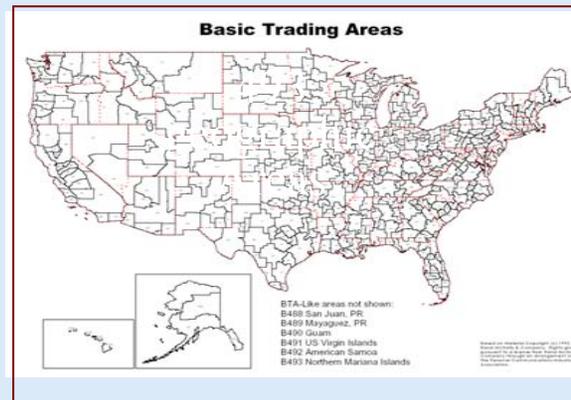
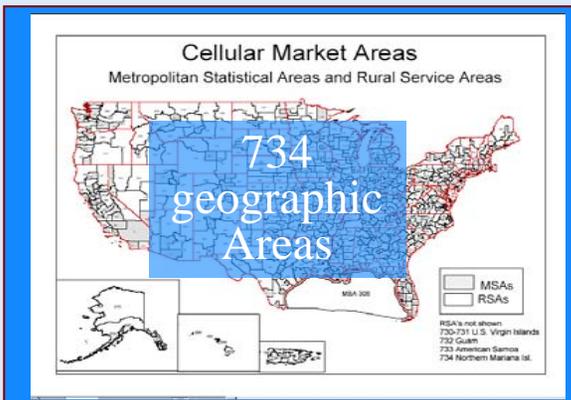
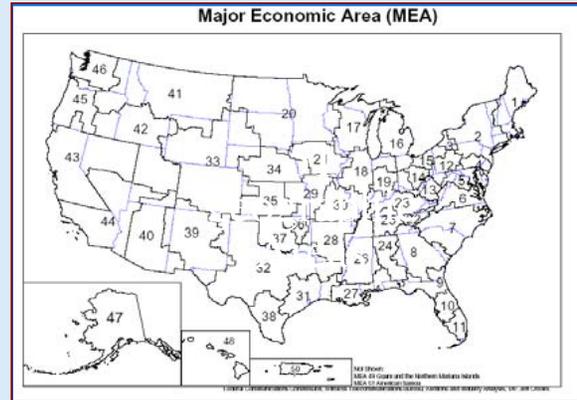
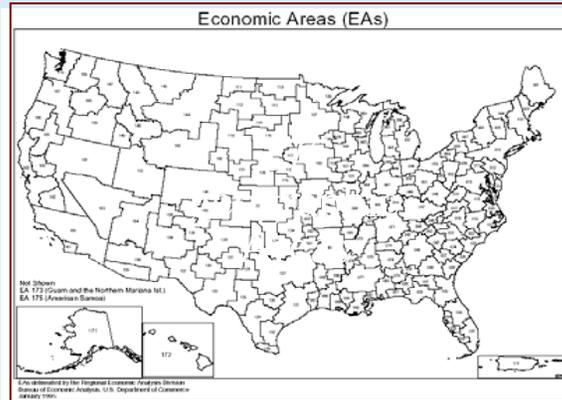
★ Final payment and license grant

FCC Auctions

- ★ **Opportunities for the public to be heard**
 - ★ **Commission seeks comment on policy issues that relate to auction designs in allocation & service rulemakings.**
 - ★ **Band plan decisions (e.g., frequency block size, geographic areas, spectrum pairing)**
 - ★ **Commission seeks comment on specific auction design proposals when each auction is announced.**
 - ★ **Auction design: package bidding, information disclosure procedures**
 - ★ **Minimum bids / reserve price**

FCC Auctions

Different Geographic Areas for Different Services and Blocks



Small Business Bidding Credits

- ★ **Small business size standards considered on service-specific basis**
- ★ **Size based on average gross revenues over past three years (\leq \$3 million, \leq \$15 million, \leq \$40 million)**
- ★ **Bidding credits generally of 35%, 25%, 15%**
- ★ **Subject to unjust enrichment**
- ★ **Special attribution rule for rural telephone cooperatives**

Tribal Land Bidding Credits

- ★ **Post-auction credits given to winning bidders that deploy facilities on and provide services to qualifying tribal lands.**
- ★ **A qualifying tribal land is any federally recognized tribal area that has a wireline telephone penetration rate equal to or less than 85 percent.**
- ★ **More information on auctions:
<http://wireless.fcc.gov/auctions>**

Licensed Spectrum for Rural Broadband

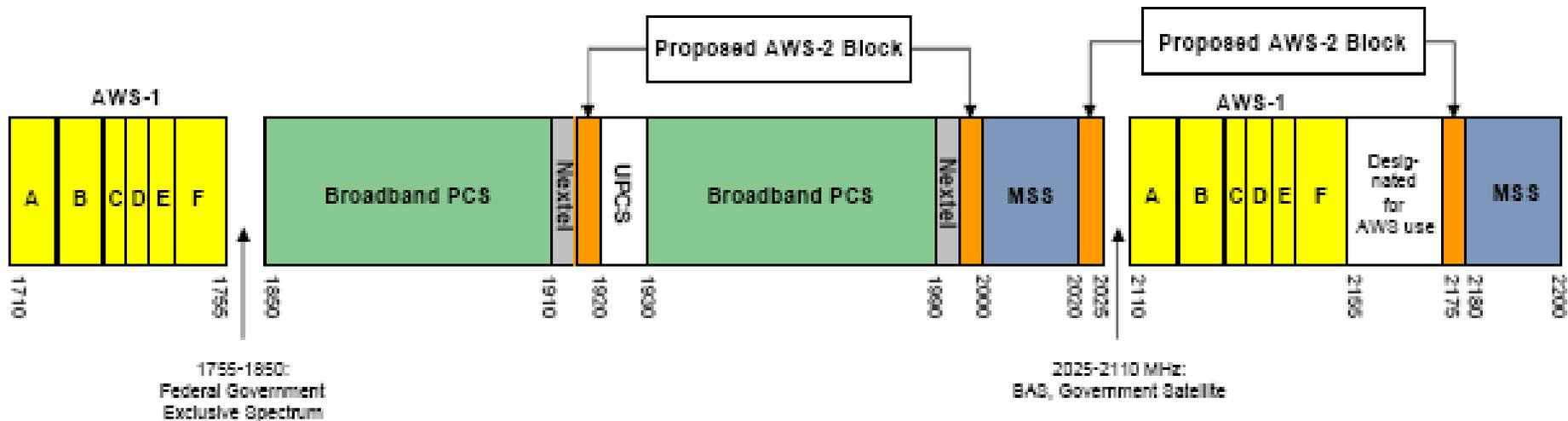
- ★ One of the key roles of the FCC in facilitating the deployment of broadband and cutting-edge wireless technologies is to make additional spectrum available for these services.
- ★ The FCC has been actively working in recent years to make more spectrum available and to promote the deployment of broadband services in spectrum that has already been licensed.

Access to Licensed Spectrum for Wireless Broadband

- ★ **Multiple spectrum bands for wireless broadband technologies**
 - ★ AWS Spectrum
 - ★ 2.5 GHz BRS/EBS Band
 - ★ 3650-3700 MHz Band
 - ★ 700 MHz Band

Advanced Wireless Services (AWS) Spectrum

Advanced Wireless Services (AWS) Band Plan

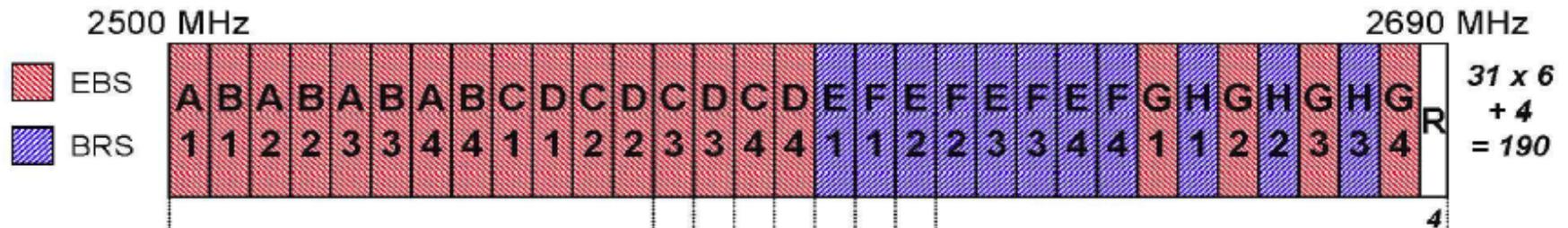


Advanced Wireless Services (AWS) Spectrum

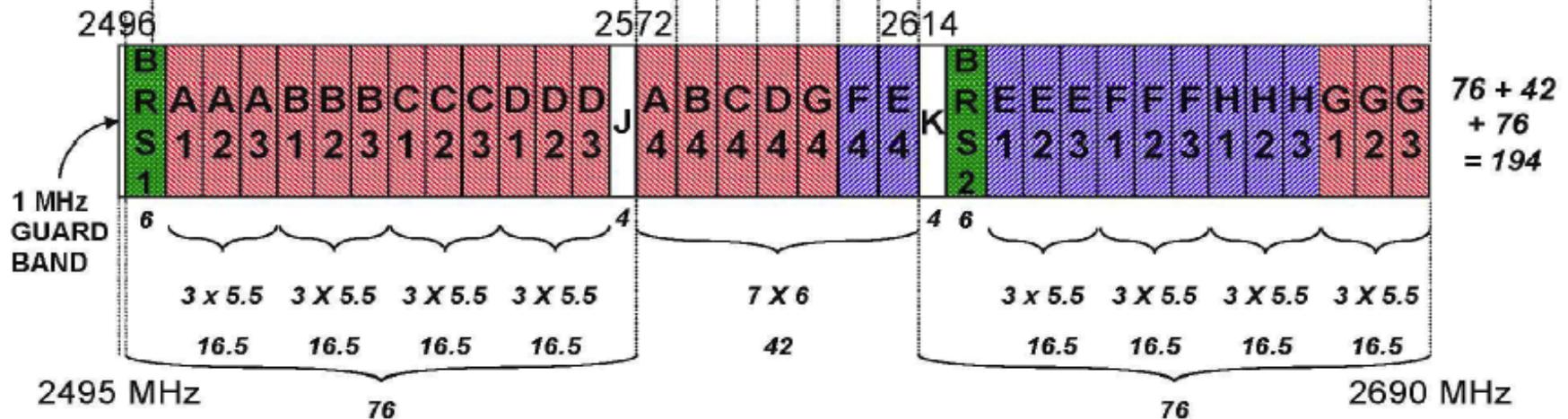
- * Auction completed September 18, 2006**
- * Largest amount of spectrum suitable for wireless broadband ever made available in a single auction**
- * 104 bidders won 1,087 licenses**
- * Licensees can use to provide a wide range of new, wireless broadband services**

BRS/EBS Spectrum

PRE-TRANSITION



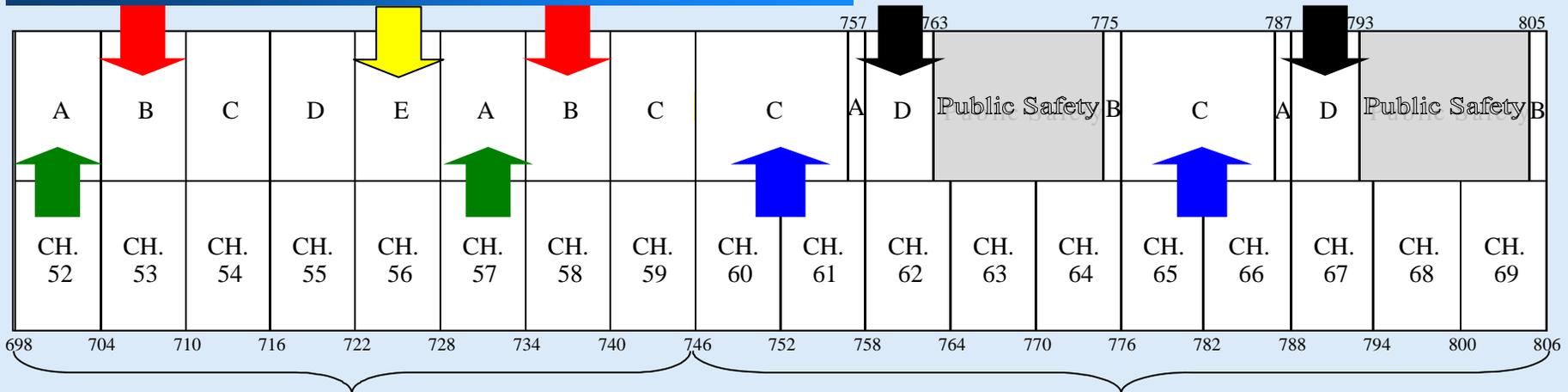
POST-TRANSITION



3650 MHz Band Spectrum

- ★ **50 MHz of spectrum transferred from federal to non-federal use.**
- ★ **FCC adopted non-exclusive, “hybrid” licensing approach in 2005.**
 - ★ Combined benefits of both licensed and unlicensed regimes.
- ★ **Equipment must use contention-based protocol to minimize interference.**
- ★ **FCC affirmed rules with minor modifications in June 2007.**

Revised 700 MHz Band Plan



LOWER 700 MHz BAND (CH. 52-59)

UPPER 700 MHz BAND (CH. 60-69)

Block	Frequencies	Bandwidth	Pairing	Area Type	Licenses
A	698-704, 728-734	12 MHz	2 x 6 MHz	EA	176
B	704-710, 734-740	12 MHz	2 x 6 MHz	CMA	734
C	710-716, 740-746	12 MHz	2 x 6 MHz	CMA	734
D	716-722	6 MHz	unpaired	EAG	6
E	722-728	6 MHz	unpaired	EA	176
C	746-757, 776-787	22 MHz	2 x 11 MHz	REAG	12
D	758-763, 788-793	10 MHz	2 x 5 MHz	Nationwide	1
A	757-758, 787-788	2 MHz	2 x 1 MHz	MEA	52**
B	775-776, 805-806	2 MHz	2 x 1 MHz	MEA	52**

** These Guard Band Blocks have been auctioned, but are being relocated.



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Access to Licensed Spectrum for Rural Broadband

- ★ **Gaining access to licensed spectrum once licenses are issued**
- ★ **Finding current license holders**

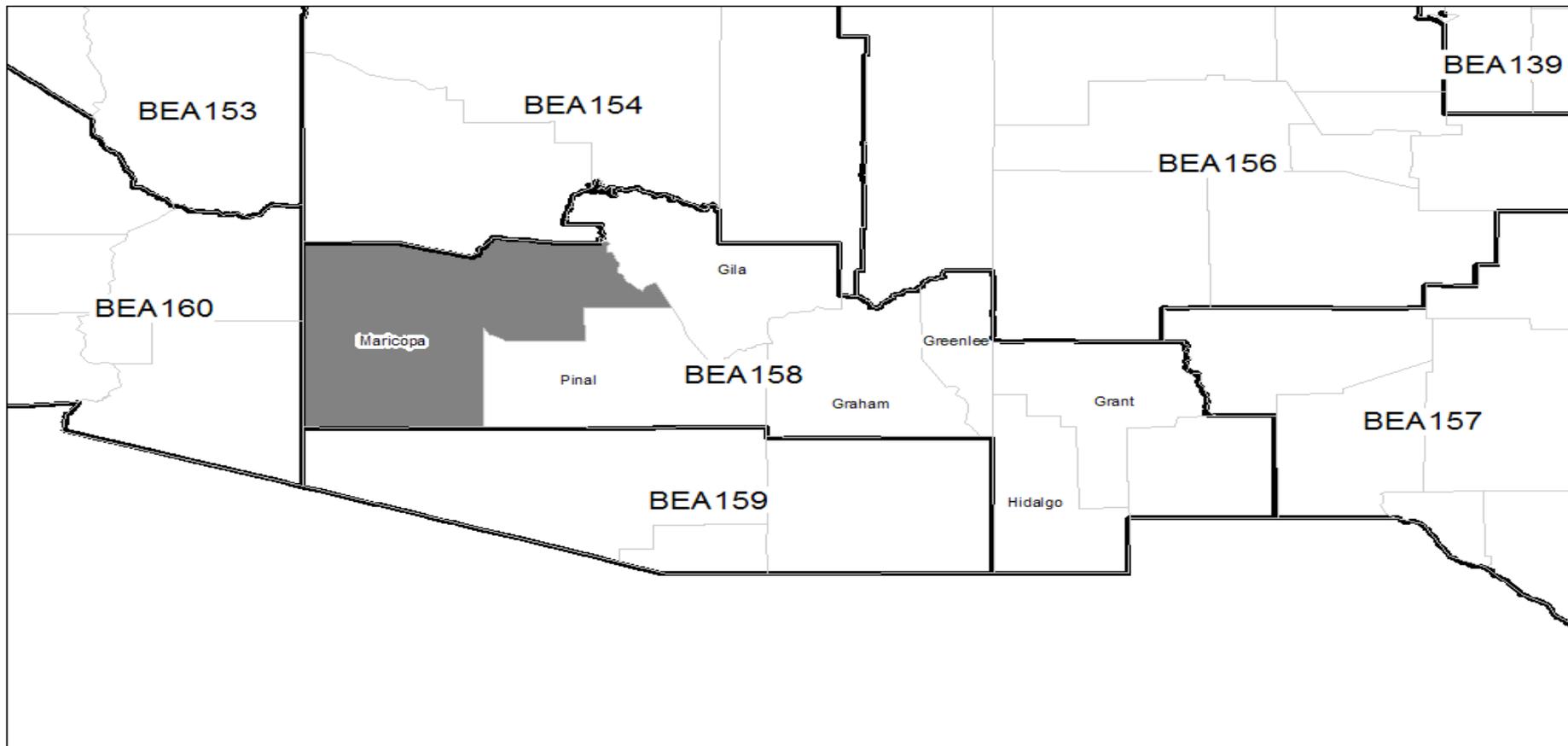
Access to Licensed Spectrum for Rural Broadband

* **Gaining access to licensed spectrum after licenses are issued**

1. License assignment (Section 1.948)
2. Spectrum lease (Sections 1.9020, 1.9030)
3. Spectrum sublease (Sections 1.9020, 1.9030)

Access to Licensed Spectrum for Rural Broadband

Phoenix-Mesa, AZ-NM Economic Area

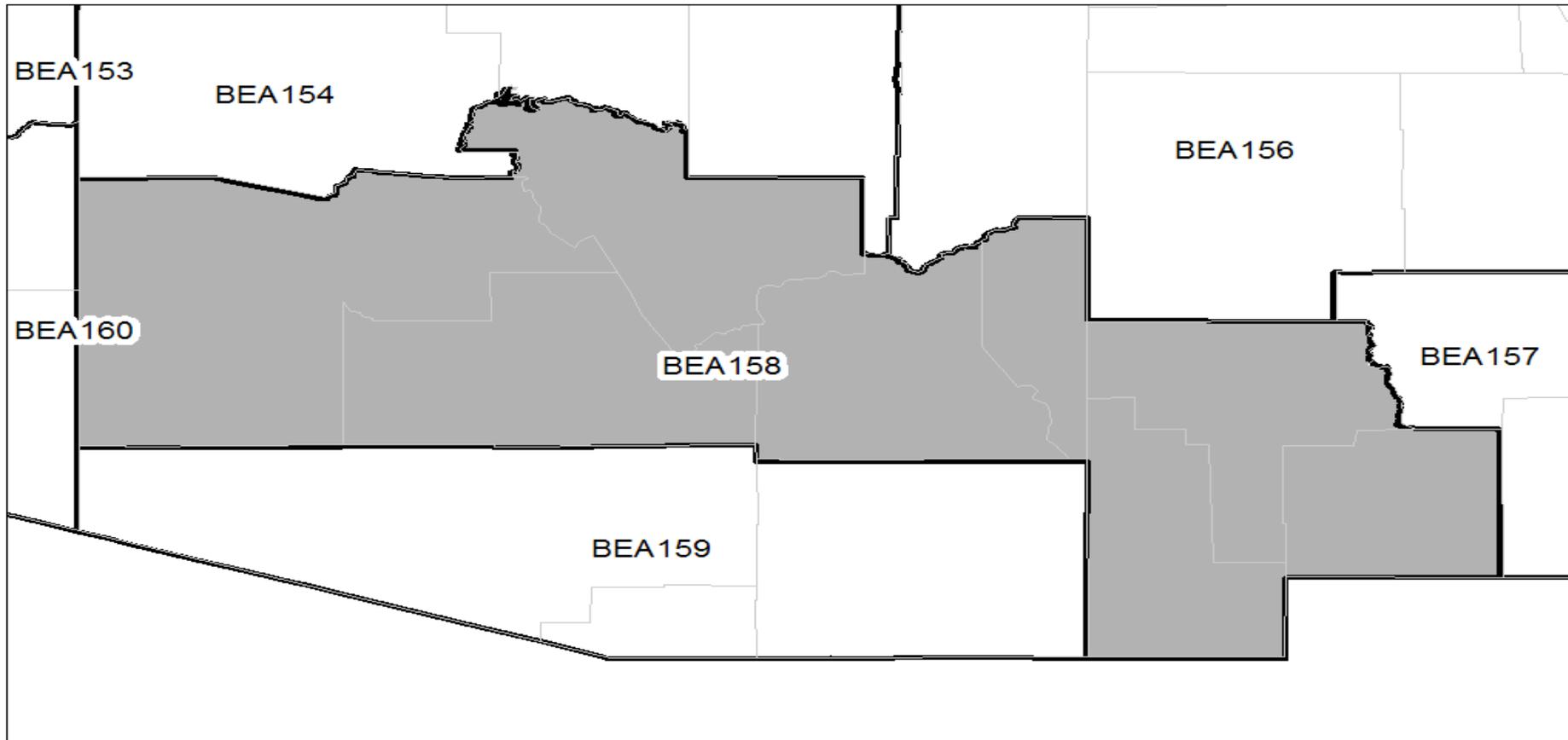


Legend

-  BEA Boundary
-  County Boundary

Access to Licensed Spectrum for Rural Broadband

Phoenix-Mesa, AZ-NM Economic Area and Adjacent Economic Areas



Legend

-  BEA Boundary
-  County Boundary

Access to Licensed Spectrum for Rural Broadband

- ★ **Submitting applications to the FCC to obtain spectrum in the secondary market**
 - ★ <http://wireless.fcc.gov/uls>
 - 1. License Assignment
 - ★ File FCC Form 603
 - 2. Spectrum Lease/Sublease
 - ★ File FCC Form 608

Access to Licensed Spectrum for Rural Broadband

- ★ **Submitting applications to obtain spectrum in the secondary market**
- ★ **FCC hotline can walk parties through the filing process**
 - ★ (877) 480-3201 (M – F 8:00 am – 6:00 pm ET)

Access to Licensed Spectrum for Rural Broadband

- ★ **Finding current license holders in ULS**
- ★ **Web-based searches include:**
 - ★ Geographic area (county and state or coordinates)
 - ★ Market area (MTA, EA, REA)
 - ★ Spectrum band
 - ★ Licensee name
- ★ **Entire database can be downloaded**

Access to Licensed Spectrum for Rural Broadband

Finding current license holders in ULS



Universal Licensing System

[FCC](#) > [WTB](#) > [ULS](#) > [Online Systems](#) > License Search

[FCC Site Map](#)

License Search

[? HELP](#)

The ULS License Search enables you to search for a wide range of licenses in the Universal Licensing System. The License Search here provides access to the most basic attributes of a license. You can also specify more attributes combinations with the [Advanced Search](#) and search within services like [Amateur](#) using service-specific criteria. Please be aware that some combinations of search criteria may result in a longer wait.

License Search

By Call Sign =

exact matches only

[Advanced License Search](#)

Advanced Search

Want to search for licenses of any radio service code based on combinations of general license attributes?

[Advanced License Search](#)

Advanced License Search includes:

- ▶ Licensee State, ZIP, and Name
- ▶ Dates (Grant, Last Action, etc)
- ▶ License Status
- ▶ Radio Service Code
- ▶ And more.

Service Specific Search

Want to search for licenses within a service using criteria relevant to that specific service?

- [Aircraft](#)
- [Amateur](#)
Vanity Call Signs, Operator Class, and more.
- [Commercial/Restricted Permits](#)
Operator Class, COLEM, and more.
- [GMRS](#)
- [Ship](#)
MMSI#, Ship Name, and more.

Specialized Search

Want to use customized criteria to search for a license within all relevant services?

- [Market Based](#)
Search by auction number, markets, channel block and more.
- [Site Based](#)
Search by station class, frequency, Antenna Structure Registration (ASR) number, and more.
- [Facility ID](#)
Search by Facility Identification Number for Broadcast Auxiliary Licenses.
- [Geographic](#)
Search by coordinates, county/state, address and frequency information.
- [Buildout Deadline](#)
Search by Buildout Deadline information, auction, radio services, and more.
- [Lease Specific](#)
Search by Lease information.
- [800 MHz Reconfiguration Search](#)
Search by call sign, NPSPAC region, frequency range, and more.

ULS Help

[ULS Glossary](#) - [FAQ](#) - [Online Help](#) - [Technical Support](#) - [Licensing Support](#)

ULS Online Systems

[CORES](#) - [ULS Online Filing](#) - [License Search](#) - [Application Search](#) - [Archive License Search](#)

About ULS

[Privacy Statement](#) - [About ULS](#) - [ULS Home](#)

Access to Licensed Spectrum for Rural Broadband

Finding current license holders in ULS

The screenshot shows a Microsoft Internet Explorer browser window displaying the FCC's Universal Licensing System (ULS) Geographic Search page. The browser's address bar shows the URL: http://wireless2.fcc.gov/UlsApp/UlsSearch/searchGeographic.jsp;JSESSIONID_ULSSEARCH=pv5dJhGZ8Q6yJVTJnvdK3C2pWxfc8t5GqvMgQjB0n0ZHp8zJ1Gpm!-912446809!NONE. The page header includes the FCC logo and navigation links such as "FCC Home", "Search", "Updates", "E-Filing", "Initiatives", "For Consumers", and "Find People". The main content area is titled "Universal Licensing System" and "Geographic Search". It features a search form with a "RESET" button and a "SEARCH" button. The "Geographic Search Criteria" section includes four checkboxes: "Include Nationwide Area of Operations", "Include Continental Area of Operations", "Include Licenses with a Mobile Area of Operations", and "Exclude Leases". The "State/County" section has a dropdown menu for "State(s)" with options: American Samoa, Arizona, Arkansas, and Armed Forces - Pacific. The "County(s)" dropdown menu shows options: AZ-MARICOPA, AZ-MOHAVE, AZ-NAVAJO, and AZ-PIMA. The Windows taskbar at the bottom shows the Start button, several open applications (Microsoft Office Word, Internet Explorer, Microsoft PowerPoint), and the system clock displaying 2:32 PM on 2/24/2009.

License Search - Geographic Search - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Mail Print Edit Discuss Research

Address http://wireless2.fcc.gov/UlsApp/UlsSearch/searchGeographic.jsp;JSESSIONID_ULSSEARCH=pv5dJhGZ8Q6yJVTJnvdK3C2pWxfc8t5GqvMgQjB0n0ZHp8zJ1Gpm!-912446809!NONE Go

Links Best of the Web Channel Guide Customize Links Google Go Settings

FCC Federal Communications Commission

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Universal Licensing System

FCC > WTB > ULS > Online Systems > License Search [FCC Site Map](#)

License Search [HELP](#)

Geographic Search

[License Search Home](#)

RESET **SEARCH**

Geographic Search Criteria

- Include Nationwide Area of Operations
- Include Continental Area of Operations
- Include Licenses with a Mobile Area of Operations
- Exclude Leases

State/County
You may search on state, county, or both. Use the state list to filter the list of counties. Please be aware that searching on multiple states or counties may result in slower search results.

State(s)
American Samoa
Arizona
Arkansas
Armed Forces - Pacific

County(s)
AZ-MARICOPA
AZ-MOHAVE
AZ-NAVAJO
AZ-PIMA

start 3 Microsoft ... 4 Internet ... Microsoft Po... Internet 2:32 PM

Access to Licensed Spectrum for Rural Broadband

Finding current license holders in ULS

License Search - Search Results - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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Address <http://wireless2.fcc.gov/UlsApp/UlsSearch/results.jsp> Go

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FCC Federal Communications Commission

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Universal Licensing System

FCC > WTB > ULS > Online Systems > License Search [FCC Site Map](#)

License Search [HELP](#)

Search Results

[New Search](#) [Refine Search](#) [Printable Page](#) [Query Download](#) [Map License](#)

Specified Search

State = **Arizona**
County = **MARICOPA**
Frequency Upper Band >= **710**
Frequency Assigned <= **716**

Matches 1- 2 (of 2)

Page 1

	Call Sign/Lease ID	Name	FRN	Radio Service	Status	Expiration Date
1	WMW741	LOTUS TV OF PHOENIX LLC		TS	Active	10/01/2014
2	PA WPWV204	AT&T Mobility II LLC	0016982233	WZ	Active	02/17/2019

Page 1

Legend: [PA](#) = Pending Application(s), [TP](#) = Termination Pending, [L](#) = Lease

start Microsoft ... Internet ... SESSION II - ... Internet 2:39 PM

Access to Licensed Spectrum for Rural Broadband

Finding current license holders in ULS

ULS License - 700 MHz Lower Band (Blocks C, D) License - WPWV204 - AT&T Mobility II LLC - Microsoft Internet Explorer

File Edit View Favorites Tools Help

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Address <http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=2479943> Go

Links Best of the Web Channel Guide Customize Links Google Go Settings

FCC Federal Communications Commission

FCC Home | Search | Updates | E-Filing | Initiatives | For Consumers | Find People

Universal Licensing System

FCC > WTB > ULS > Online Systems > License Search [FCC Site Map](#)

ULS License [HELP](#)

700 MHz Lower Band (Blocks C, D) License - WPWV204 - AT&T Mobility II LLC

[New Search](#) [Refine Search](#) [Return to Results](#) [Printable Page](#) [Reference Copy](#) [Map License](#)

MAIN ADMIN MARKET			
PA This license has pending applications: 0003300568			
Call Sign	WPWV204	Radio Service	WZ - 700 MHz Lower Band (Blocks C, D)
Status	Active	Auth Type	Regular
Market			
Market	CMA026 - Phoenix, AZ	Channel Block	C
Submarket	0	Associated Frequencies (MHz)	000710.00000000-000716.00000000 000740.00000000-000746.00000000
Dates			
Grant	01/24/2003	Expiration	02/17/2019
Effective	03/08/2008	Cancellation	
Buildout Deadlines			
1st	02/17/2019	2nd	
Notification Dates			
1st		2nd	

start 3 Microsoft ... 4 Internet ... SESSION II - ... Internet 2:50 PM

Access to Licensed Spectrum for Rural Broadband

Finding current license holders in ULS

The screenshot shows a Microsoft Internet Explorer browser window with the following details:

- Address Bar:** <http://wireless2.fcc.gov/UlsApp/UlsSearch/license.jsp?licKey=2479943>
- Page Title:** ULS License - 700 MHz Lower Band (Blocks C, D) License - WPWV204 - AT&T Mobility II LLC - Microsoft Internet Explorer
- Licensee:**
 - FRN: 0016982233 ([View Ownership Filing](#))
 - Type: Limited Liability Company
- Contact:**
 - AT&T Mobility II LLC
 - 5601 Legacy Drive, MS: A-3
 - Plano, TX 75024
 - ATTN Kellye E. Abernathy
 - P: (469)229-7422
 - F: (469)229-7297
 - E: kellye.e.abernathy@att.com
- Contact:**
 - AT&T Mobility LLC
 - Michael P Goggin Mr
 - 1120 Twentieth Street, NW, Suite 1000
 - Washington, DC 20036
 - P: (202)457-2055
 - F: (202)457-3073
 - E: mg7268@att.com
- Ownership and Qualifications:**
 - Radio Service Type: Fixed, Mobile, Radio Location
 - Regulatory Status: Common Carrier, Interconnected, Yes
- Alien Ownership:** The Applicant answered "No" to each of the [Alien Ownership](#) questions.
- Basic Qualifications:** The Applicant answered "No" to each of the [Basic Qualification](#) questions.
- Tribal Land Bidding Credits:** This license did not have tribal land bidding credits.
- Demographics:**
 - Race: [Empty]
 - Ethnicity: [Empty]
 - Gender: [Empty]