

Overview of Service Rules: **Technical Issues**

Phase II 220 MHz Service **(Auction No. 72)**

Gary Devlin (gary.devlin@fcc.gov)
Engineer, Mobility Division
Wireless Telecommunications Bureau
(717) 338-2618

Disclaimer

Nothing herein is intended to supersede any provision of the Commission's rules or public notices. These slides should not be used as a substitute for a prospective applicant's review of the Commission's relevant orders, rules, and public notices. Prospective applicants must familiarize themselves thoroughly and remain current with the Commission's rules relating to the Phase II 220 MHz Service, rules relating to application and auction procedures, and the procedures, terms and conditions contained in the Auction No. 72 public notices.



Auction #72 Information Websites

- Auctions:
 - <http://wireless.fcc.gov/auctions>
 - General Information.
 - Pre Auction, Auction, and Post Auction Links.
 - Maps and Band Plans.
- Wireless Telecommunications Bureau:
 - <http://wireless.fcc.gov>
 - FCC Rules and Regulations.
 - 220 MHz Service.

Auction #72 Information Websites

- Universal Licensing System:
<http://wireless.fcc.gov/uls>
 - Incumbent Licensee database (Site-based).
 - Auctioned Licensee database (Market-based).
- International Coordination Agreements:
<http://www.fcc.gov/ib/sand/agree>
 - Agreements with Mexico.
 - Agreements with Canada.

Auction #72 Information Websites

- Antenna Structure Registration:

<http://wireless.fcc.gov>

- ASR Home.

- Major Environmental Action:

<http://wireless.fcc.gov>

- Environmental and Historic Preservation.

Service Areas

- **Incumbent Service Areas**
 - Incumbent Licenses are Phase I site specific authorizations on channels from the QT, QO, and QD radio services.
 - An incumbent service area is defined by the 38dBu contour of its initially authorized station.
 - 38 dBu contours are calculated using the F50/50 field strength chart from rule section 73.699 with a 9 dB correction for antenna height differential.

Service Areas

- **Geographic Service Areas**
 - 175 Economic areas (EA) defined by the US Department of Commerce, Bureau of Economic Analysis.
 - These areas overlap incumbent service areas on co-channel frequencies: Auction winners must protect these incumbents.
 - Larger Economic Area Grouping (EAGs) developed by the FCC are composed of multiple EAs.

ULS Search

- **Incumbent Search**
 - Go to wireless.fcc.gov/uls and from the Search box select Licenses.
 - Click on advanced License Search.
 - Select the Radio Service codes to include in your search (i.e. QT, QO, or QD).

ULS Search

- **Geographic (Market-based) Search**
 - Go to wireless.fcc.gov/uls and from the Search box select Licenses.
 - Click on Market Based from the Specialized Search column.
 - Select the Radio Service Code QA.

Band Plan

Block	Type of Area	(C)hannels or (G)roups
A	EA	G 2 & 13
B	EA	G 3 & 16
C	EA	G 5 & 18
D	EA	G 8 & 19
E	EA	C 171 - 180
F	EAG	G 1, 6, & 11
G	EAG	G 4, 9, & 14
H	EAG	G 7, 12, & 17
I	EAG	G 10, 15, & 20
J	EAG	C 186 – 200

- Blocks F, G, H, and J are not available for auction #72
- See rule section 90.721(b), Table 2

Permissible Uses

- Land Mobile operations.
- One way or two way paging operations on a primary basis.
- Fixed operations on a primary basis.
- Contiguous channels may be combined.

Licensing and Operating Rules

- Rules for 220-222 MHz Radio Service: 90.701-90.771 and 90.1001-90.1025.
- License Term for Phase II licensees is 10 years from the license grant date.
- Partitioning and disaggregation are permitted.

Licensing and Operating Rules

- ERP and Antenna height limitations

HAAT (meters)	ERP (watts)
Up to 150	500
150 to 225	250
225 to 300	125
300 to 450	60
450 to 600	30
600 to 750	20
750 to 900	15
900 to 1050	10
Above 1050	5

Licensing and Operating Rules

- ERP and Antenna height limitations
 - Mobiles operate with a maximum ERP of 50 watts.
 - Base side frequencies on channels 196-200 are limited to an ERP of 2 watts and an HAAT of 6.1 meters.
 - Fixed, base, or paging stations operating on mobile side frequencies are limited to an ERP of 50 watts and an HAAT of 7 meters.

Licensing and Operating Rules

- **Protection for incumbent licensees**
 - Incumbent stations are stations for which applications were filed on or prior to May 24, 1991. (i.e. Phase I licenses)
 - Geographic area licensees must protect Phase I licensees with a fixed separation of 120 kilometers.
 - Separations less than 120 kilometers will be considered if the Geographic area licensee demonstrates 10 dB of protection to the Phase I licensees' 38 dBu contour. (see Rule 90.763)
 - Geographic area licensees may have separations less than 120 kilometers if they submit written consent from the Phase I licensee.
 - A Phase I licensee's spectrum will revert to the geographic area licensee if the Phase I license is cancelled or terminated.

Licensing and Operating Rules

- **Protection for co-channel Phase II licensees in adjacent geographic areas**
 - A licensee may not extend its predicted 38 dBu field strength contour beyond its geographic border unless it has an agreement with all affected co-channel geographic area licensees.
 - Licensees must coordinate to minimize interference at or near their geographic borders.

Licensing and Operating Rules

- **Build out requirements for 220 MHz Phase II licensees (90.767)**
 - EA or EAG licensees must provide coverage to 1/3 of the population of its geographic area within 5 years of its initial license grant.
 - EA or EAG licensees must provide coverage to 2/3 of the population of its geographic area within 10 years of its initial license grant.
 - EA or EAG Licensees, as an alternative, may provide substantial service to their licensed area at the appropriate 5 and 10 year benchmarks.

Border Requirements

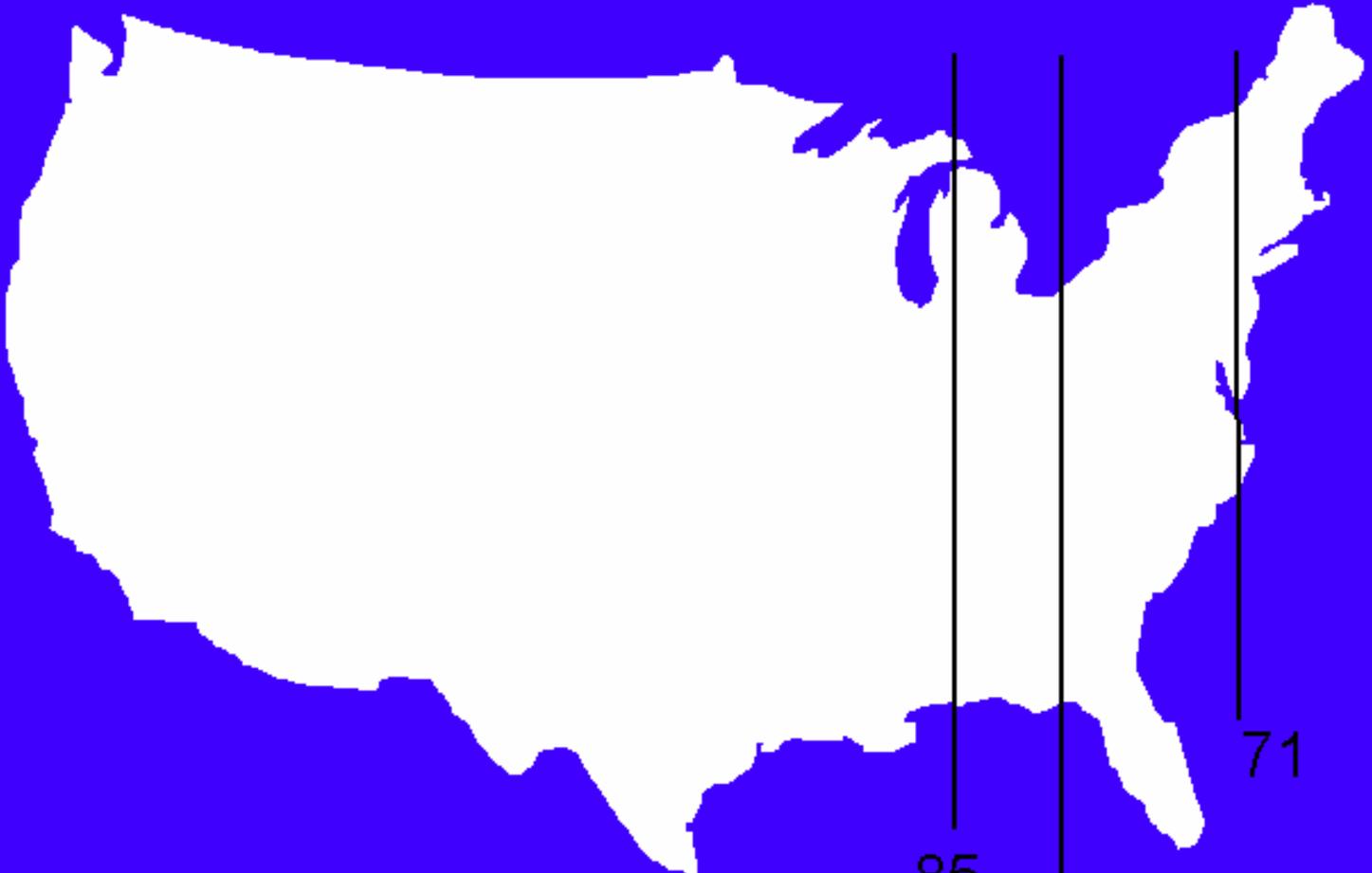
- **Operating within 120 kilometers of the US/Mexican border**
 - Channels are designated as primary US, primary Mexican, or shared.
 - The shared channels:
 - Channels 195-200.
 - Limited to an ERP of 2 watts.
 - Limited to an HAAT of 6.1 meters above ground.
 - Primary US channels:
 - Licensees use the same values in the ERP table that is used for non-border areas.

Border Requirements

- **Operating within 120 kilometers of the US/Mexican border**
 - **Primary Mexican channels:**
 - Licensees use the same HAAT/ERP table that is used for non-border areas.
 - US licensees may operate on these channels.
 - Stations on these channels are secondary to Mexican users.
 - Licensees must limit the power flux density at the US/Mexican border to -86 dB watts/square meter.

Border Requirements

- **Operating within 120 kilometers of the US/Canadian border**
 - There are 3 regions: General Area, Sector 1, and Sector 2.
 - Channels are designated as either primary US channels, primary Canadian channels, or shared/unprotected channels. The channel designation depends on the region.
 - **Primary Canadian Channels**
 - US licensees may operate on these channels.
 - Operations on these channels are secondary to Canadian operations.
 - The maximum power flux density at any point at or beyond the border shall not exceed -108 dB watts/square meter.



Sector 1

Sector 2

85

80-30'

71

Border Requirements

- **Operating within 120 kilometers of the US/Canadian border**
 - **Primary US Channels**
 - Licensees may use the same table for ERP/HAAT that is used for non-border areas except within 6 kilometers of the US/Canadian border on the base side frequencies for channels 161-195.
 - Mobile units are limited to an ERP of 50 watts.
 - Fixed stations that operate on the mobile side frequencies are limited to an ERP of 50 watts and an HAAT of 7 meters.
 - **The Shared Channels**
 - Channels 196-200.
 - Limited to an ERP of 2 watts.
 - Limited to an antenna height of 6.1 meters.

Border Requirements

- Operating within 120 kilometers of the US/Canadian border
 - Maximum ERP for base side frequencies on channels 161-195.

Distance from border (KM)	ERP (Watts)
Less than 0.3	Operations not permitted
0.3 – 0.5	5
0.5 – 0.6	10
0.6 – 0.8	20
0.8 – 2.0	25
2.0 – 4.0	50
4.0 – 5.0	100
5.0 – 6.0	200
Beyond 6.0	500