PTC-220 LLC

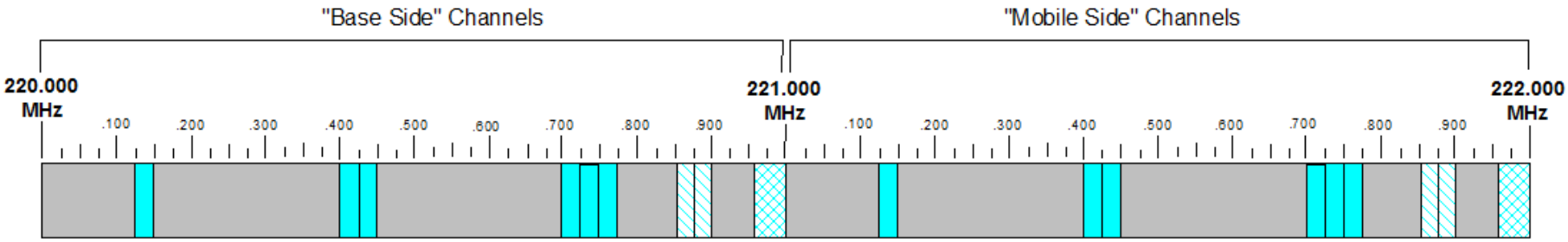
Potential Subpart T Waiver Requests
To Support Positive Train Control

February 3, 2012

PTC-220, LLC

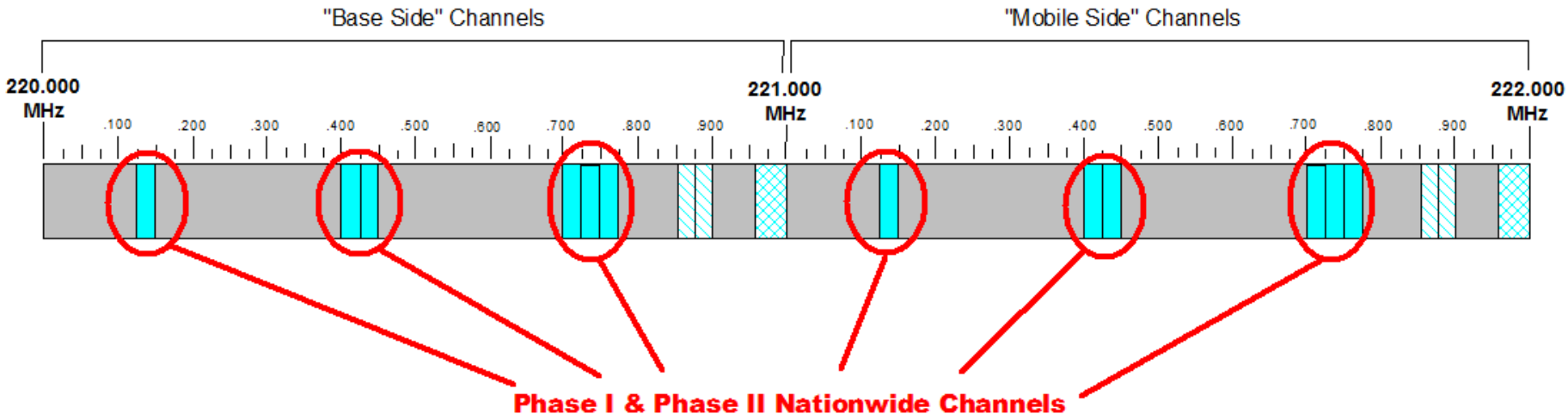
- Formed to support deployment of Positive Train Control (PTC)
- Jointly owned by all seven US Class I freight railroad operators
  - Includes both major Canadian railroads
- PTC-220 owners represent ~95% of mandated PTC operations
- PTC-220 holds 16 FCC licenses in the 220-222 MHz band for PTC
- Initial waivers granted on June 25, 2009 (DA 09-1425)
  - Buildout schedule
  - Commercial use
  - Station ID
  - Base/Mobile configuration

PTC220 Spectrum Holdings



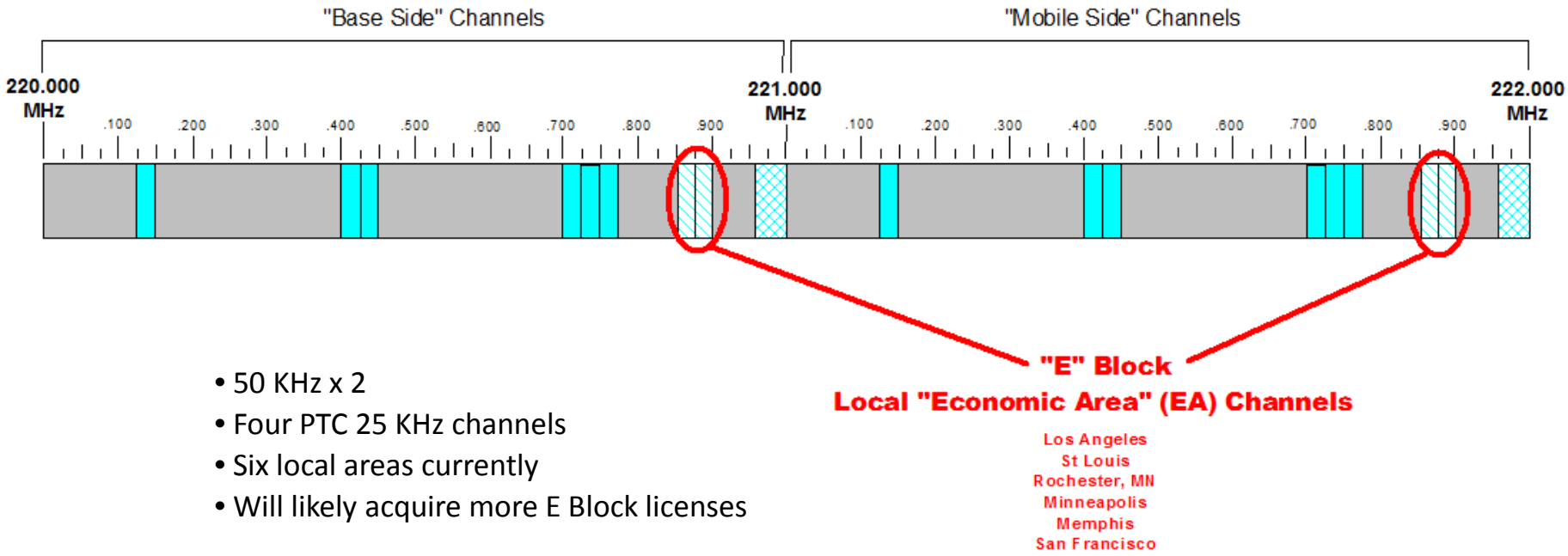
- PTC channels are 25 KHz wide, non-paired
- PTC channels are Time-Division Duplexed (TDD)

Nationwide PTC Channels



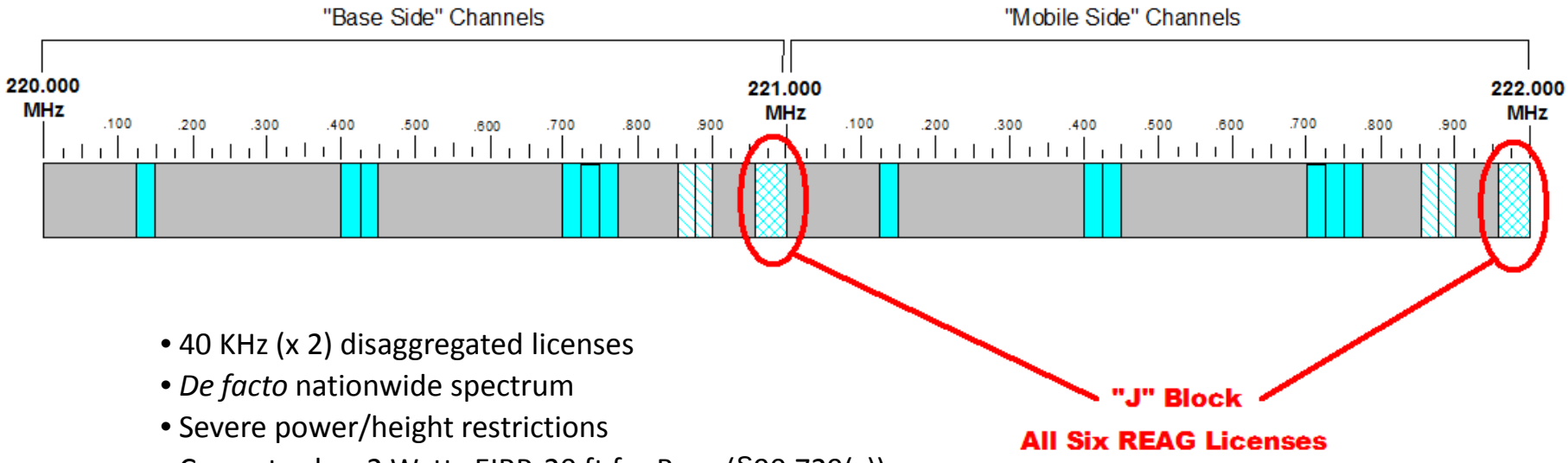
- Four licenses
- 12 PTC 25 KHz channels
- We make no distinction between Phase I & Phase II

“E” Block PTC Channels



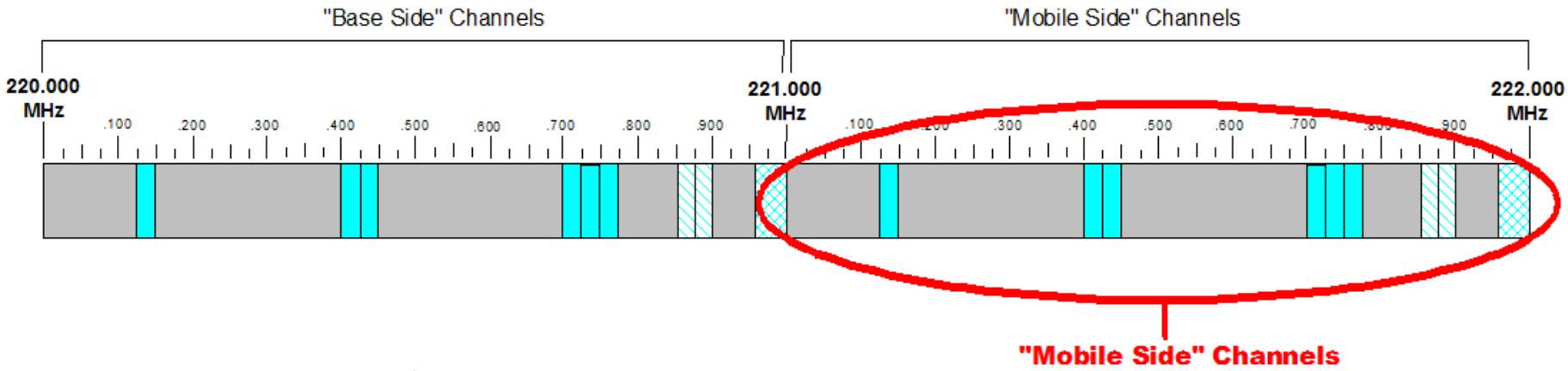
- 50 KHz x 2
- Four PTC 25 KHz channels
- Six local areas currently
- Will likely acquire more E Block licenses

“J” Block PTC Channels



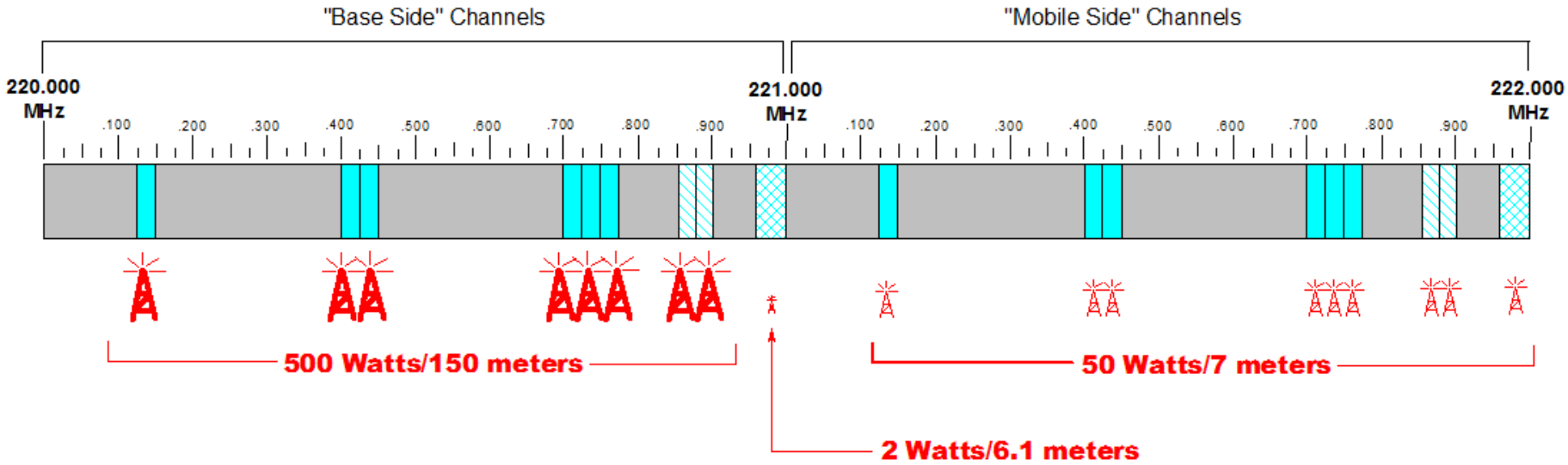
- 40 KHz (x 2) disaggregated licenses
- *De facto* nationwide spectrum
- Severe power/height restrictions
- Current rules: 2 Watts EIRP, 20 ft for Base (§90.729(c))

“Mobile Side” PTC Channels



- 2009 waiver permits base stations
- Remaining power/height limits handicap these PTC channels
- Current rules: 50 Watts EIRP, 7 meters (§90.729(b))
- PTC makes no distinction between Base and Mobile Side channels

PTC Channels—Current State



- Power/Height limits on PTC channels

PTC's Relationship to Existing RF Networks

- US railroads operate extensive VHF networks at 160 MHz for dispatching
- Dispatch Base sites are spaced based on 160 MHz coverage
- To contain costs, PTC must make maximum use of existing VHF base sites…
  …and minimize the number of new sites required.
- PTC radios need to have coverage roughly on par with existing 160 MHz radios

Potential Waiver Requests

- For full effectiveness, all PTC channels need authority for at least:

  240 Watts EIRP (peak envelope power)…

  75 peak watts at transmitter, net 5 dB antenna system gain

  …at 61 meters (200 ft) HAAT

  The large majority of our towers are 200 feet HAAT or less

- Current Power/Height limitations are contained in §90.729

  There are some other power limitations in border areas

- §90.723 contains rules on station spacing that may affect E Block licenses

  We are still studying these rules to determine if they present an issue

- PTC-220 meets FCC standards for waiver relief (§1.925, 1.3)

Impact to other 220 MHz Licensees

Cochannel Users

- Should be no issues for nationwide channels
- 2009 waiver grant included special procedures for E block

  PTC-220 must "…notify all cochannel licensees in adjacent markets…", and "…cure any instances of actual interference…"

- This should suffice to protect cochannel users in adjacent markets

Adjacent Channel Users

- Very steep emission mask offers some protection

  Must be < -25 dBm just 2.5 KHz from channel edge

- Procedures similar to those for cochannel should be adequate