# Select Spectrum

Wireless Spectrum Licenses in the Upper 700 MHz A Block
Ideal for Passenger & Freight Rail Safety Applications
Available Semi-Nationwide Covering 207+ Million People

Select Spectrum represents Beach Point Capital (BPC), which holds 2 x 1 MHz of **Upper 700 MHz A Block FCC licensed spectrum**. The frequencies have been identified as being ideal for Positive Train Control (PTC) and other rail applications. PTC has been Congressionally mandated requiring a majority of passenger and freight rail track lines to have PTC implemented. Coverage is presently available for purchase via Select Spectrum in key markets across the Great Lakes and East Coast, including Chicago, Indianapolis, Philadelphia, Miami, the D.C. Metropolitan Area, New York, and the greater New England area.

The map below shows spectrum available for purchase in green, with spectrum previously sold being reflected in blue. **License holders will partition the licenses to match rail operating areas to the county level.**

Upper 700 MHz A Block License Portfolio

Legend
- FCC Held
- Sold
- Available for Purchase or Lease
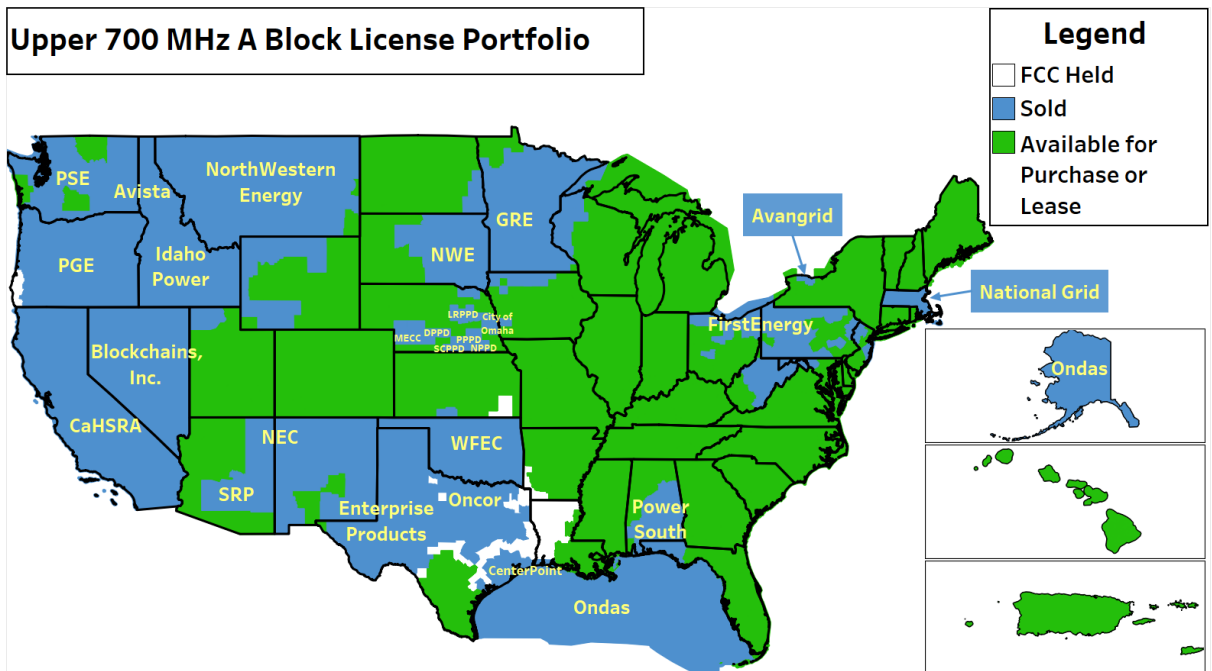
Upper 700 MHz A Block spectrum has excellent propagation and can be used for a broad range of applications including fixed & mobile data, voice, and video. Licenses are in use by, and recommended for, utility and other critical infrastructure communications, including Private LTE NB-IoT (Band 103), Distribution Automation (DA), Surveillance Control and Data Acquisition (SCADA), and Land Mobile Radio (LMR).
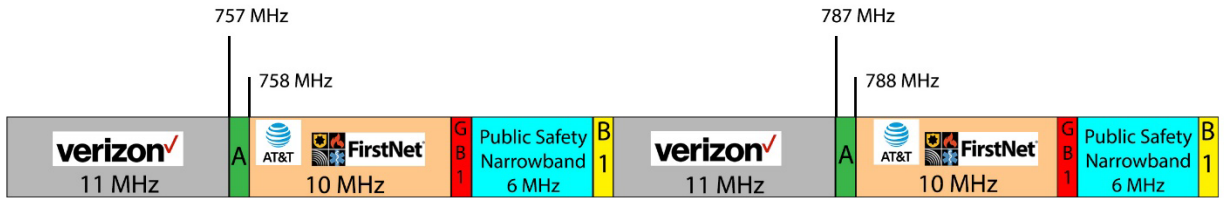
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The Upper 700 MHz A Block is shown with neighboring service groups below:

FCC Upper 700 MHz Band Plan

Available A Block Licensed Frequencies Shown in **Green**

Maximum downlink power is 1000 Watts ERP at 1000 feet, and maximum uplink power is 30 Watts ERP. Maximum out of band emissions limits of 43 + 10log (P) dB apply to the A Block and the adjacent 11 x 11 MHz Upper 700 MHz C Block where Verizon operates a nearly nationwide 10 MHz paired LTE network. The A Block, located between 757-758 MHz / 787-788 MHz, is similarly protected from interference from the adjacent FirstNet/AT&T channels at 758-768 MHz and 788-798 MHz.

The **California High-Speed Rail Authority (CaHSRA)** has acquired Upper 700 MHz A Block spectrum in the State of California to support multiple rail-line safety and management applications. CaHSRA identified the Upper 700 MHz A Block spectrum as clean, newly available spectrum with widespread end-to-end geographic availability with no historical licenses. Furthermore, the 2 MHz of total capacity of the spectrum provides enough bandwidth for it be uniquely suitable to support a number of planned applications, including communication based signaling, real-time reporting of anomalies arising from continuous condition monitoring, secure train-to-shore voice communication, and a variety of public safety agency communications.

The 3GPP standards organization, per Release 17.5, has officially designated the Upper 700 MHz A Block as **Band 103** for 4G or 5G networks. The designation, the first in the world of its kind, adds the frequencies to the list of E-UTRA operating bands, for NB-IoT operations only. The Electric Power Research Institute, WiMAX Forum, UTC and various manufacturers all support the implementation of the IEEE approved **802.16s GRIDMAN standard** with compatible equipment in the band.

Pt-Multipoint and Pt-Pt Wireless Equipment is offered by 14 manufacturers, including Ondas Networks www.ondas.com, 4RF www.4rf.com, GE Vernova www.gedigitalenergy.com, XetaWave www.xetawave.com, ABB www.abb.com/, MiMOMax www.mimomax.com, Cambium www.cambiumnetworks.com, PowerTrunk www.powertrunk.com/, SAF Tehnika www.saftehnika.com, CableFree www.cablefree.net, Puloli www.puloli.com and Tait Communications www.taitradio.com. Other manufacturers are considering upgrading their existing lines of equipment to make use of this band.

Band 103 LTE Narrowband Internet of Things (IoT) deployments provide long range, deep indoor penetration for intermittent low data rate use cases. Long-range IoT connections support a variety of low bandwidth remote applications at very low-cost per remote device. Chipsets and modules for LTE NB-IoT devices in Band 103 are available from Qualcomm (9205 LTE Modem), Sequans (Monarch), Quectel, Pycom, Telit and Ubiik/Realtek. Additionally, a number of endpoint solutions are available, such as Mobilogix (MT4X00), Shoreline IoT, Puloli (RU700A), Option CloudGate and Apollo Metro's Smart Streetlight.

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