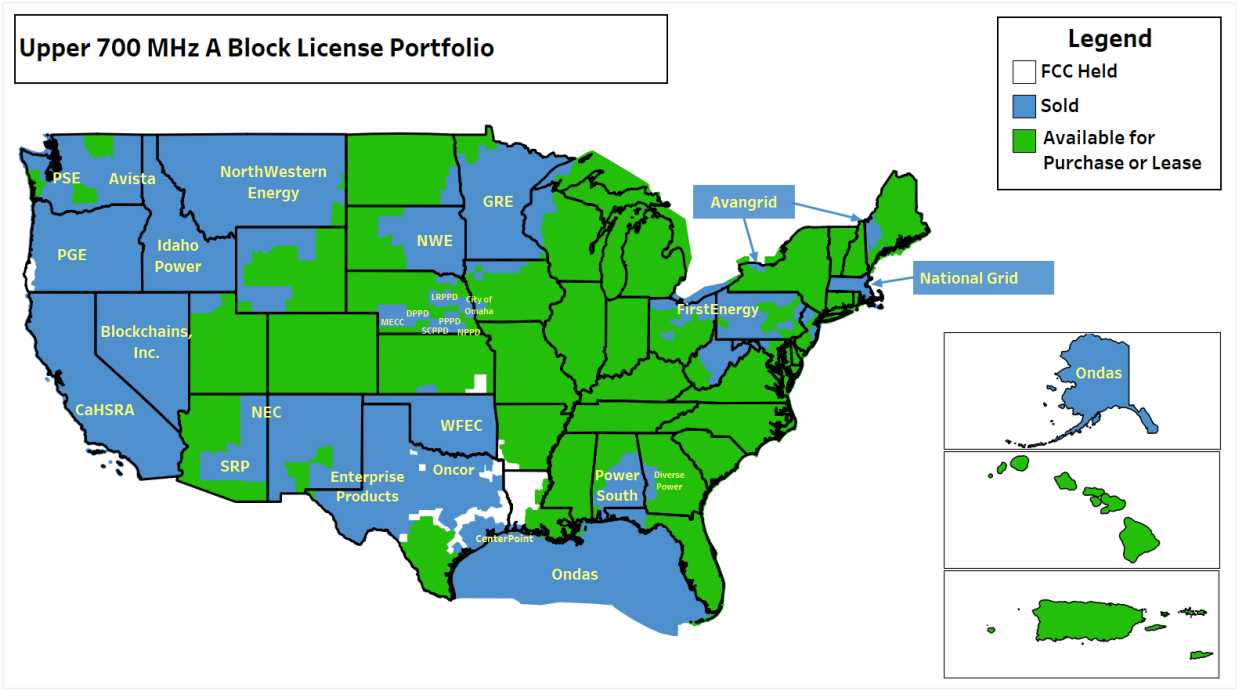
Wireless Spectrum Licenses in the Upper 700 MHz A Block (Band 103) Ideal for LTE NB-IoT, SCADA, LMR, and Rail Safety Applications Available Semi-Nationwide Covering 207+ Million People

Select Spectrum represents Beach Point Capital (BPC) and Access 700 (A7L), which collectively hold 2 x 1 MHz of **Upper 700 MHz A Block (Band 103) FCC licensed spectrum.** Availability of the spectrum is primarily situated in key markets across the Midwest, Northeast, and Southeast Regions and portions of the Rocky Mountains. Coverage additionally includes Hawaii and Puerto Rico.

To date, BPC and A7L have sold to organizations such as Avangrid, FirstEnergy, CenterPoint Energy, Salt River Project, Diverse Power, City of Omaha, Great River Energy, Enterprise Products, and the California High Speed Rail Authority.

Both license holders are offering held licenses for sale or lease, and to date have made combined transactions to utility, critical infrastructure, and rail organizations covering over 123.5 million people, (approximately 37% of the U.S. population), with remaining coverage, spanning over 207 million, people available for purchase. **Both license holders will partition the licenses to match buyer/lessee requirements to the county level.**



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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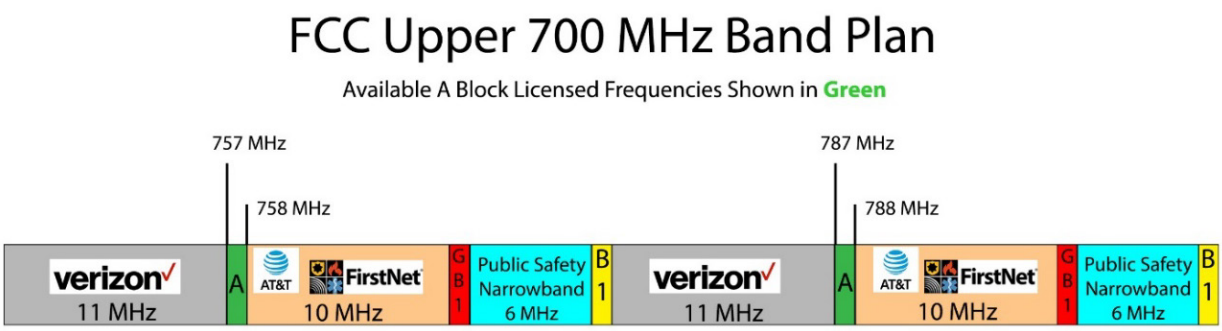
The Upper 700 MHz A Block is shown with neighboring service groups below:



Maximum downlink power is 1000 Watts ERP at 1000 feet, and maximum uplink power is 30 Watts ERP. Networks may employ point-to-point, point-to-multipoint (tall site) and/or cellular architectures. Engineers recommend small-cell deployments for superior building penetration.

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.

In total, one passenger rail-line, one energy company, one Smart City-oriented firm, one wireless networking company, two commercial UAV operators and twenty-three utilities have acquired or leased A Block spectrum rights. The **California High Speed Rail Authority** found 700 MHz ideal to support rail safety applications, and **Enterprise Products** has acquired the spectrum for its Oil/Gas operations. **Blockchains, Inc.** has selected the spectrum to support Smart City and wireless-enabled blockchain-based technologies. **Praxis Aerospace** and **Northern Plains Unmanned Aircraft Systems** have leased this spectrum for UAV applications. **FirstEnergy** is replacing its cancelled copper SCADA Links; **Great River Energy** of Minnesota is currently using the band for point-multipoint data collection; **National Grid** is using the spectrum for recloser communications; and **NorthWestern Energy** has deployed point-to-point links across Montana, North and South Dakota. Other utility buyers that have acquired spectrum and will deploy networks include **Avangrid, Portland General Electric**, **Puget Sound Energy**, **PowerSouth Energy Cooperative, City of Omaha NE,** and **Avista Corporation.**

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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