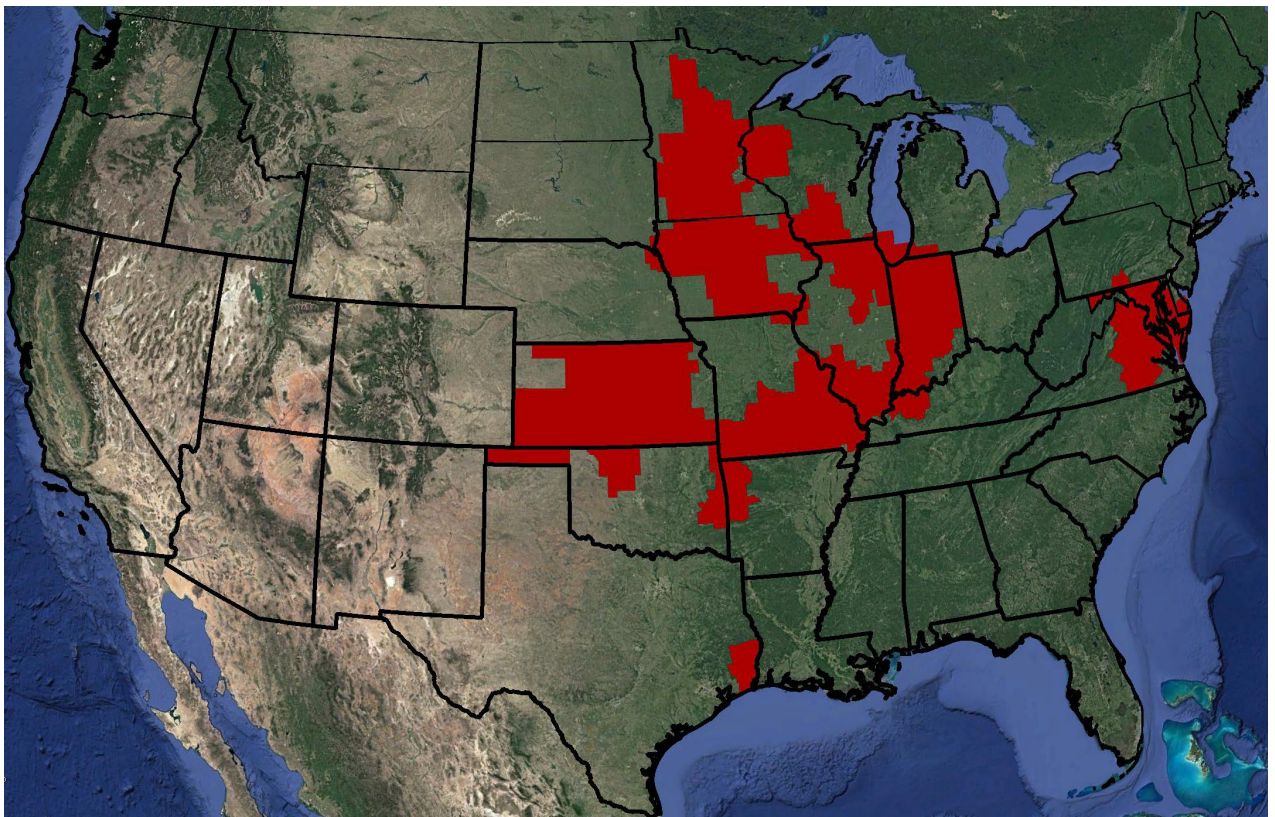


Wireless Spectrum Licenses in 450 MHz (Part 22 UHF) Ideal for Land Mobile Radio & Data Applications Available in Kansas, Illinois, Wisconsin, Indiana & Additional States

Select Spectrum is offering **450 MHz (Part 22 UHF) FCC licensed spectrum** across portions of 17 states, including Kansas, Minnesota, Illinois, Wisconsin, and Indiana. Additional license coverage is available across multiple dense urban metropolitan areas throughout Maryland and Virginia. Major cities covered include Des Moines, St. Louis, Chicago, Indianapolis and Baltimore. Together, these licenses cover a population of over 49 million in both urban and rural markets.

Available spectrum varies, with between 50 to 950 kHz bandwidth in each of the various market areas. In Indianapolis, 950 kHz of contiguous spectrum is available for purchase. With multiple adjacent licenses, it is possible to combine and deploy sophisticated, high-bandwidth networks.

Available markets in this offering are shown in the map below:



These licenses can support a wide variety of uses and are ideal for remote monitoring for critical infrastructure, smart grid, utility communications, public safety and paging. Common uses include land mobile radio, SCADA systems, Oil & Gas production/pipelines and transportation.

The 450 MHz band is shown with neighboring service groups below:

IG /BP Part 90	450 MHz Paging Part 22	VHF Low-Power Part 90	Unlicensed	Industrial/ Business Pool Part 90	450 MHz Paging Part 22	IG /BP Part 90
453 MHz	454	455	456	457	458	459 460

Paired 450 MHz spectrum can be used for voice or data in 2-way or broadcast modes including fixed and mobile services. The interleaved channel plan allows full duplexing and simultaneous multipoint digital broadcasts from multiple transmitters on either the upper or lower channel blocks. Half-duplex (time-division duplex “TDD”) is also allowed. Maximum base station power is 3,500 Watts ERP, while mobile units may transmit at up to 60 watts ERP. The generous rules allow for long range and high reliability in both high-density urban areas and rural areas. Networks may employ point-to-point, and/or point-multipoint (tall site) architectures.

Subject to FCC Part 22 Paging rules, the 2 x 25 kHz channel spacing allows for use for land mobile radio “LMR” and data transmission systems. Each license is permitted 2 x 20 kHz of effective bandwidth with an assigned center frequency, allowing for interference protection and compatibility with narrowband technologies. The FCC is considering a proposal (DA 14-1508) to update Part 22 rules, particularly Subpart E, providing more varied use of the paging bands. The new rules would allow for greater flexibility by permitting full use of the channel spacing & frequency offsets by licensees that hold adjacent blocks and allow innovative technologies such as TETRA and 12.5 kHz/6.25 kHz narrowband LMR equipment. Commenters have been unanimously supportive of the measure, but waivers would be required in the interim to satisfy FCC regulatory compliance. Select Spectrum believes waivers are likely to be granted (see FCC Order DA 15-1064), provided that they correspond to the proposal found in DA 14-1508 and sufficiently meet the stated FCC goals of fostering technological innovation and serving public interest.

Equipment for the band is made by Ondas Networks www.ondas.com, 4RF www.4rf.com, XetaWave www.xetawave.com, Alligator Communications www.alligatorcom.com, Motorola Solutions www.motorolasolutions.com, ESTeem www.esteem.com, Hytera www.hytera-mobilfunk.com, Kenwood www.kenwood.com, and Tait Communications www.taitradio.com. For spectrum blocks of 100 kHz or greater, the band is also compatible with a new IEEE wireless standard – 802.16s “GRIDMAN”. This high reliability standard is intended for use by utilities and other critical infrastructure operators.

Basic information about markets in the overall offering is shown below:

Market	kHz	2020 POPs	MHz POPs	Market	kHz	2020 POPs	MHz POPs
Washington, DC	50	9,888,701	494,435	Joplin, MO	750	281,665	211,249
Salisbury, MD	50	463,741	23,187	Springfield, MO	350	1,015,137	355,298
Richmond, VA	100	1,777,239	177,724	St. Louis, MO	200	3,682,892	736,578
Chicago, IL	700	10,885,072	7,619,550	Des Moines, IA	350	1,844,278	645,497
Elkhart, IN	400	969,949	387,980	Madison, WI	50	1,100,867	55,043
Fort Wayne, IN	200	775,649	155,130	Minneapolis, MN	450	8,364,820	931,274
Indianapolis, IN	950	3,558,934	3,380,987	Sioux City, IA	400	259,879	103,952
Evansville, IN	50	876,193	43,810	Wichita, KS	500	1,213,976	606,988
Beaumont, TX	100	462,560	46,256	Topeka, KS	300	477,563	143,269
Fort Smith, AR	400	344,411	137,764	Tulsa, OK	500	95,636	47,818
Fayetteville, AR	450	629,920	283,464	Oklahoma City, OK	300	112,835	33,851
				Total	50-950	49,081,917	16,621,104

Individual call sign information is available upon request. Please contact us for additional information.

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Visit our website at <http://selectspectrum.com> to learn more