

The Microsoft Airband Initiative believes in a multi-technology, multi-frequency approach



Wired/Wireless Ecosystem



Geosynchronous (GEO) satellites

A GEO satellite is a satellite in geosynchronous orbit, with an orbital period the same as the Earth's rotation period.



Low Earth Orbit (LEO) satellites

LEO satellites orbit the earth at altitudes ranging from about 700 to 3000 km, and typically orbits the earth in less than two hours.



TVWS (Television White Spaces, 470-602MHz)

TVWS is fixed wireless technology that provides connectivity over unused, unlicensed frequency bands. This service option is more powerful in low housing density areas.



Mid-band (2.4GHz, 3.xGHz, 5.xGHz)

Mid-band is a high frequency, unlicensed band. It has a mature ecosystem and variety of hardware available that helps to drive the cost and attract ISPs to deploy more.



CBRS (Citizens Broadband Radio Service, 3.65GHz)

CBRS is similar to other wireless technologies offering private mobile LTE systems and super high-speed Wi-Fi- like connections, but it's limited by line-of sight use.



Wi-Fi 6E (6GHz)

Similar to CBRS, but standing at a higher frequency elevation, broadcasting data above the other frequencies, free and clear from interference.



Millimeter waves (60GHz)

mmWave is one of the building blocks of 5G and a technology that can be leveraged for high-dense and high-speed requirements. It will play a significant role in urban-area Airband Initiative deployments.



Fiber and copper

Fiber internet uses thin bundles of optical fibers, or strands of very pure glass to transmit data using pulses of infrared laser light. Copper cables use copper wires and are a significantly bulkier technology.

Lower frequencies
Less spectrum available
Less capacity

Frequency
Bands

Higher frequencies
More spectrum available
More capacity

Note that not all bands are available in every country