ANNEXURE-I

Learn about Multiple-Input Multiple-Output

Documentation

Content Type	Product Information & Documentation
Article ID	000005714
Last Reviewed	10/28/2021

Print

What is Multiple-Input Multiple-Output?

Multiple-Input Multiple-Output (MIMO) is a wireless technology that uses multiple transmitters and receivers to transfer more data at the same time. All wireless products with 802.11n support MIMO. The technology helps allow 802.11n to reach higher speeds than products without 802.11n.

To implement MIMO, the station (mobile device) or the access point (AP) must support MIMO. For optimal performance and range, both the station and the AP must support MIMO.

MIMO technology uses a natural radio-wave phenomenon called multipath. With multipath, transmitted information bounces off walls, ceilings, and other objects, reaching the receiving antenna multiple times at different angles and slightly different times. In the past, multipath caused interference and slowed down wireless signals. With multipath, MIMO technology uses multiple, smart transmitters and receivers with an added spatial dimension, increasing performance and range.

MIMO increases receiver signal-capturing power by enabling antennas to combine data streams arriving from different paths and at different times. Smart antennas use spatial diversity technology, which puts surplus antennas to good use. When antennas outnumber spatial streams, the antennas can add receiver diversity and increase range.

More antennas usually equate to higher speeds. A wireless adapter with three antennas can have a speed of 600 Mbps. An adapter with two antennas has a speed of 300 Mbps. The router needs multiple antennas and must fully support all features of 802.11n to attain the highest speed possible.

Legacy wireless devices use Single-Input Single-Output (SISO) technology. They can only send or receive one spatial stream at a time.

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