NETWORK PERFORMANCE MEASUREMENTS

Your Internet Service Speeds

Liberty Communications provides residential and commercial customers with a variety of high speed Internet plans from which to choose, ranging from our Megaband Lite (with download speeds up to 256 kilobits per second ("kbps"), and upload speeds up to 128 kilobits per second ("kbps")) to our Fusion 25M service (with download speeds up to 25 Megabits per second ("Mbps"), and upload speeds to 2 Mbps). Liberty Communications provisions its customers' modems or switches and engineers its network to ensure that its customers can enjoy the speeds to which they subscribe. However, Liberty Communications does not guarantee that a customer will actually achieve those speeds at all times. Without purchasing an expensive, dedicated Internet connection, no Internet Service Provider ("ISP") can guarantee a particular speed at all times to a customer. Liberty Communications advertises its speeds as "up to" a specific level based on the tier of service to which a customer subscribes.

The "actual" speed that a customer will experience while using the Internet depends upon a variety of conditions, many of which are beyond the control of an ISP such as Liberty Communications. These conditions include:

1. Performance of a customer's computer, including its age, processing capability, its operating system, the number of applications running simultaneously, and the presence of any adware and viruses.
2. Type of connection between a customer's computer and modem. For example, wireless connections may be slower than direct connections into a router or modem. Wireless connections also may be subject to greater fluctuations, interference and congestion. Liberty Communications does not recommend wireless modem connections for use with its higher speed tiers as many wireless connections do not perform at the speeds delivered by these tiers.
3. The distance packets travel (round trip time of packets) between a customer's computer and its final destination on the Internet, including the number and quality of the networks of various operators in the transmission path. The Internet is a "network of networks." A customer's connection may traverse the networks of multiple providers before reaching its destination, and the limitations of those networks will most likely affect the overall speed of that Internet connection.
4. Congestion or high usage levels at the website or destination. If a large number of visitors are accessing a site or particular destination at the same time, your connection will be affected if the site or destination does not have sufficient capacity to serve all of the visitors efficiently.
5. Gating of speeds or access by the website or destination. In order to control traffic or performance, many websites limit the speeds at which a visitor can download from their site. Those limitations will carry through to a customer's connection.
6. The performance of the DSL modem you have installed. Modem performance may degrade over time, and certain modems are not capable of handling higher speeds.

This is the reason that Liberty Communications, like all other ISPs, advertises speeds as "up to" a particular level, and does not guarantee them.

Speed Tests

Liberty Communications has the ability to test the speeds that they are receiving on Liberty Communications' network - from the customer's computer to a test site on Liberty Communications' network. These tests are heavily dependent on a customer's home network configuration, modem, and computers, and therefore do not reflect the performance of the Liberty Communications network only. The results of such tests are listed below.

ADSL without DTV service
Download speed during low network usage: 107%
Upload speed during low network usage: 103%
Download speed during peak network usage: 105%
Upload speed during peak network usage: 104%
Latency during low network usage: 17ms
Latency during peak network usage: 16ms

ADSL with DTV service
Download speed during low network usage: 102%
Upload speed during low network usage: 102%
Download speed during peak network usage: 102%
Upload speed during peak network usage: 102%
Latency during low network usage: 38ms
Latency during peak network usage: 38ms

All Fusion Products
Download speed during low network usage: 105%
Upload speed during low network usage: 104%
Download speed during peak network usage: 106%
Upload speed during peak network usage: 104%
Latency during low network usage: 4ms
Latency during peak network usage: 7ms

There are other speed tests that measure Internet performance. We have provided links to a few of these sites below for your reference. Please note, however, that all speed tests have biases and flaws. Each of these tests measures limited aspects of an ISP's speed and therefore must be seen as a guide rather than definitive measurements of performance.

- http://www.speedtest.net
- http://speakeasy.net/speedtest/

Provisioned Speeds

Generally, Liberty Communications "over provisions" its customers' DSL modems and fiber-optic based Fusion services. This is intended to provide an extra buffer for speed performance. As a result, in many circumstances Liberty Communications customers experience speeds in excess of that provisioned as part of their chosen speed tier.

Latency

Latency is another measurement of Internet performance. Latency is the time delay in transmitting or receiving packets on a network. Latency is primarily a function of the distance between two points of transmission, but also can be affected by the quality of the network or networks used in transmission. Latency is typically measured in milliseconds, and generally has no significant impact on typical everyday Internet usage. As latency varies based on any number of factors, most importantly the distance between a customer's computer and the ultimate Internet destination (as well as the number and variety of networks your packets cross), it is not possible to provide customers with a single figure that will define latency as part of a user experience.