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What is 802.11n Draft?

802.11n is the emerging Wi-Fi standard intended to be ratified by the Institute of Electrical and Electronic Engineers (IEEE) in late-2007. The majority of the standard has been agreed upon and incorporated into the recent 1.0 Draft, which TRENDnet's products are based on. The products are designed to deliver significantly higher performance levels than is currently possible with the existing 802.11a/b/g standards, while still maintaining compatibility with existing 802.11b/g equipment.

Why is it needed?

Whether it is sharing files or attending Webinars for business purposes, or leisurely surfing the net to stream video and audio, our network needs have quickly outpaced existing wireless standards. 802.11n draft is designed to improve the streaming of high-bandwidth content over the air with added speed, coverage and quality of service support. Compatible with existing 802.11b and 802.11g 2.4 GHz frequency network equipment, Wireless N-Draft can act as the backbone of a new multimedia home network or can be easily added to corporate networks for increased coverage and throughput.

How does the N-Draft improve wireless coverage?

The faster speeds and better coverage of 802.11n draft is achieved by using multiple antennas or Multiple-Input, Multiple-Out (MIMO) technology. By employing multiple sending and receiving antennas in routers and client adapters, data is quickly routed and delivered through the most efficient paths. This allows the equipment to intelligently adapt to potential interference in the environment and reach farther distances than existing legacy equipment. Deadspots are effectively eliminated enabling users to connect anywhere throughout their home or office.

MIMO Antenna Technology

Whole Home Coverage

802.11n

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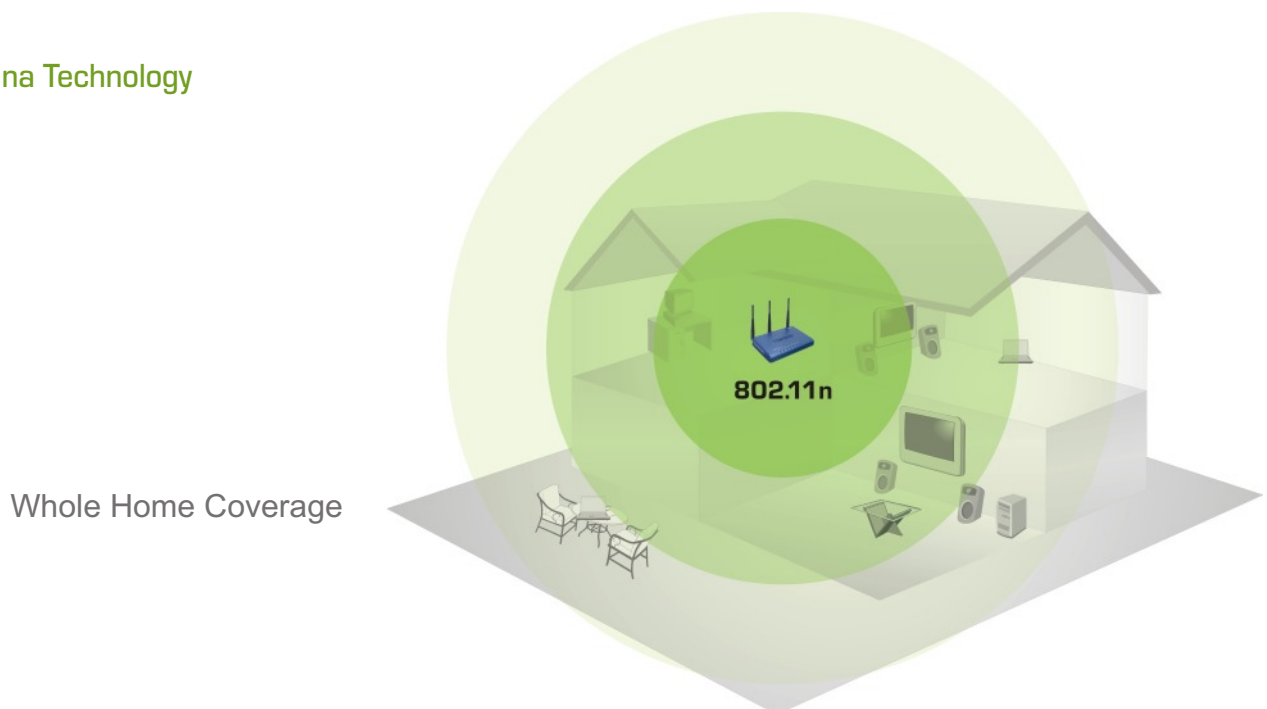
What kind of throughput performance can I expect?

802.11n draft is capable of delivering up to 300mbps at the physical layer, nearly 10x times the rate of 802.11a and 802.11g at long distances. This data rate translates into actual sustained end-user throughput of more than 100 Mbps, with peak throughput speeds between 120Mbps to 150Mbps. The increased speed is particularly important for bandwidth-intensive multimedia applications that require enough throughput to maintain seamless data streaming, like VoIP, HD Video and MP3's.

|	802.11b	802.11a	802.11g	802.11n draft
Year Standardized	1999	1999	2003	Draft approved in 2006 Final standard to be ratified 2007
Frequency	2.4 GHz	5 GHz	2.4GHz	2.4 GHz
Wireless Speeds	11Mbps	54Mbps	54Mbps	300Mbps
Real World Speeds	4~6 Mbps	15~22Mbps	15~22Mbps	At Least 100Mbps
Indoor Range	30~50 Meters	30~50 Meters	30~50 Meters	150 Meters+
Interoperable Standards	802.11g	N/A	802.11b	802.11 n draft, 802.11b/g
Advantages	Interoperable With 802.11g Inexpensive	Reduced Wi-Fi Interference More Non-Overlapping Channels	Interoperable With 802.11b High Speed Wireless Data Communication	Interoperable with 802.11b/g Major Increase in Speed and Coverage from 802.11g
Ideal Solution For	Home Users Connecting To The Internet Wirelessly	Home/Office Users Experiencing Interference With Existing 802.11b/g Wireless Networks	Home/Office Users Needing Faster Local Network Access For Multimedia Applications	Home/Office users who want better area coverage and simultaneous access to bandwidth intensive files
HotSpots Available	Yes	No	Yes	N/A

Reasons to go N

- **Speed** - Up to 10X the speed of 802.11g at longer distances
- **Range** - Enhanced Coverage with multiple antenna MIMO technology
- **Reliability** - Multi-cast streaming adapts to potential interference on the 2.4Ghz frequency
- **Multimedia** - Includes Stream Engine™ QoS Technology by Ubicom® to reduce lag and jitter for seamless streaming of VoIP, Gaming and Music
- **Compatibility** - Connects easily with existing 802.11b/g Access Points and client adapters
- **Security** - Provides advanced WPA wireless encryption and a dual SPI/NAT Hardware Firewall to protect against Internet attacks

Atheros xSPAN Technology

N-Draft : 120-150Mbps

Super G : 60Mbps

802.11g : 30Mbps

XSPAN 300TM ATHEROS

120 - 150Mbps

802.11n

TEW-631BRP

30Mbps
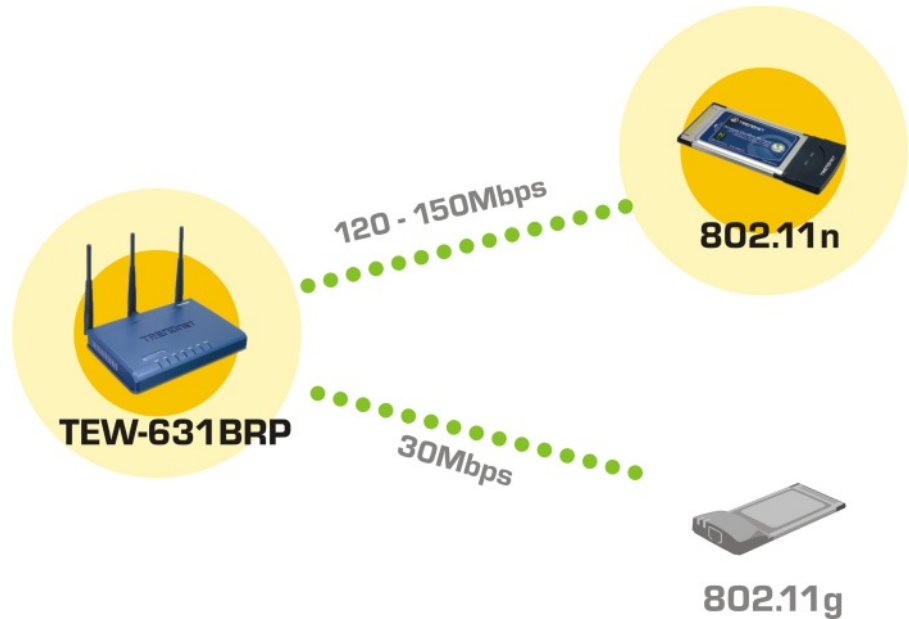
802.11g

What about compatibility with other Wi-Fi equipment?

TRENDnet's Atheros based products have been tested and have established interoperability with other 802.11n 1.0 equipment. Broadcom and Atheros hold the majority of the chipset market share in this new wireless category and have verified through independent compatibility testing, they can achieve 100Mbps+ sustained performance. As is common in new standards, certified interoperability testing by the Wi-Fi alliance begins as the technology hits the market. In turn, the Wi-Fi alliance is scheduled to begin full-scale interoperability testing starting in early 2007.

802.11n draft equipment works seamlessly with existing 802.11b/g equipment thanks to Clear Channel Assessment (CCA) technology. Although N-Draft devices use a 40 MHz channel to achieve the increased throughput performance, the router can immediately identify when legacy equipment is connecting to the network and dynamically adjust to its peak speed. For example, a wireless N-Draft router will support an N-Draft client at 300Mbps, while supporting connection with an 802.11g client at 54Mbps. If a Wireless N-Draft client is connecting to an 802.11b/g it will operate at the peak data speeds of 11Mbps and 54Mbps respectively.

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StreamEngine™ Technology by Ubicom®

Prioritize traffic for better perfomance
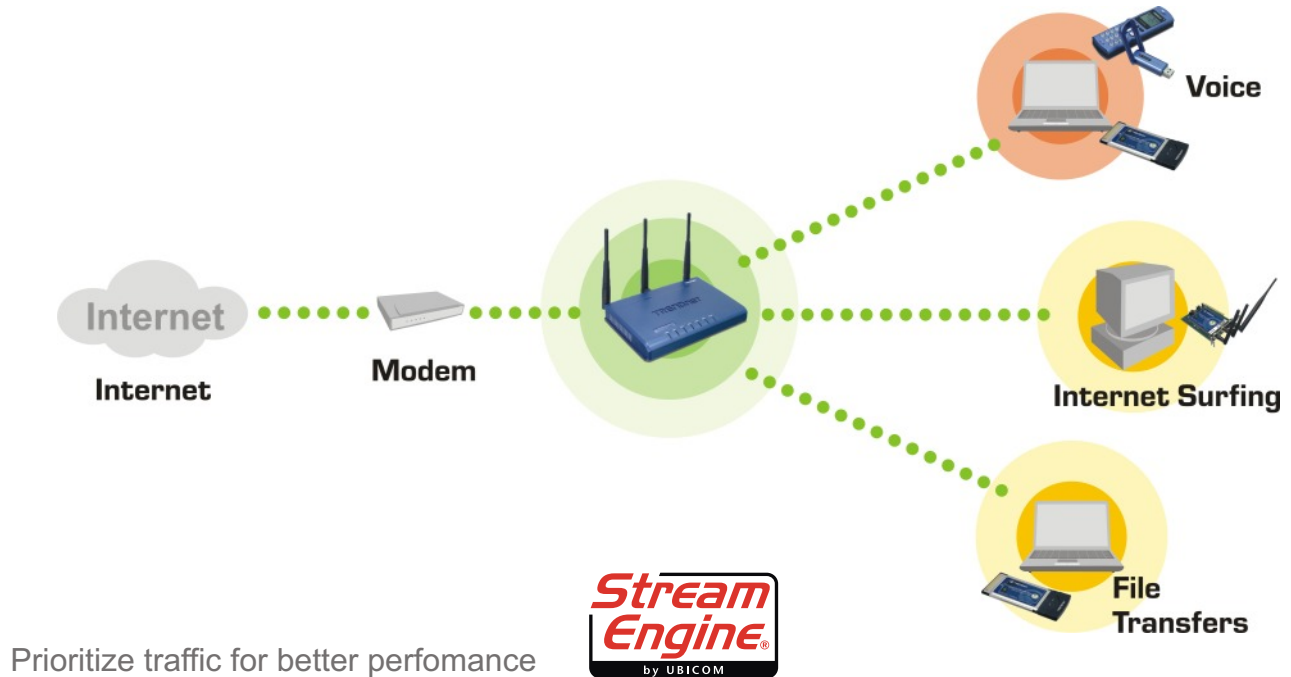
What type of multimedia Quality of Service (QoS) technology is included?

Many of the multimedia applications growing in popularity require steady, reliable bandwidth. For example, VoIP does not require extremely high throughput levels, but it needs a constant supply of uninterrupted bandwidth to avoid jitters and frozen or dropped calls. This is also true of video or gaming applications as well. In addition to having more available bandwidth for these applications, TRENDnet's TEW-631BRP N-Draft router includes a communications and media processor (CMP) chip from Ubicom® that incorporates its StreamEngine™ quality-of-service technology. This allows for reliable delivery and distribution of multimedia content across the network. Users can now prioritize traffic down to the port level and eliminate potential jitter and lag for VoIP and gaming applications.

What type of wireless security is supported?

Wireless N-Draft products include support for both WEP and WPA wireless security.
WPA encryption has become a secure encryption standard across Wi-Fi equipment manufacturers and supports use of a pre-shared key and 802.1x advanced authentication features for use on corporate networks.

TRENDnet N-Draft Products

TEW-631BRP Wireless N-Draft Router

The new multimedia router provides superior wireless speed, whole-home coverage and traffic prioritization (Quality of Service – QoS) to provide fast and reliable transfer of high-bandwidth traffic throughout the home or office.

- Three 4dBi external dipole antennas
- Dual Firewall Protection with NAT & SPI
- QoS Traffic Acceleration and Classification

TEW-630APB Wireless N-Draft Access Point

The access point helps add increased throughput and coverage to a broad wireless network. By adding an access point to the network you can help eliminate any potential dead spots and provide reliable coverage wherever you roam.

- Access Point and WDS Bridge (up to 6 units)
- Wireless Signal and SSID On/Off Control
- Flash Memory Firmware Upgrade

TEW-621PC Wireless N-Draft PC Card

The Wireless N-Draft PC Card integrates 3 multi-path MIMO antennas to help extend the range of the WiFi signal and adapt to potential interference. With a more reliable Internet connection you can work or play wherever you feel comfortable.

- Supports three internal PCB antennas
- Automatic Data Rate Switching
- Infrastructure Mode

TEW-623PI Wireless N-Draft PCI Adapter

The Wireless N-Draft PCI Adapter provides a faster, more reliable connection to help bring all of your digital content into your living room. Now you can reliably stream High Definition (HD) videos, photos, music and games to your home entertainment center.

- 1 x 5dBi and 2 x 2 dBi detachable antennas
- Automatic Data Rate Switching
- Infrastructure Mode