

U.S. ROBOTICS 28.8k Modem

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Chapter 1

U.S. ROBOTICS 28.8k Modem

1.1 U.S. ROBOTICS 28.8k Modem

U.S. ROBOTICS ANNOUNCES THE LAST MODEM YOU'LL EVER BUY
Provides Migration Path to Forthcoming CCITT 28.8 Kbps Standard

SKOKIE, Ill. -- June 8, 1992 -- U.S. Robotics today announced an upgrade program for the CCITT-proposed standard of 28.8 Kbps, previously referred to as V.FAST. The Courier V.32bis, Courier HST Dual Standard and Shared Access Modem Sharing Kits are the products currently included in the program. Field upgrades will be available for \$299 as soon as the CCITT 28.8 Kbps draft recommendation is completed. Official approval of the standard is not expected until January, 1994.

"The CCITT-proposed 28.8 Kbps standard won't be a reality for most manufacturers until 1994," said Jonathan Zakin, U.S. Robotics executive vice president, sales and marketing. "By offering modems ready for 28.8 Kbps now, we're providing insurance against technical obsolescence. Customers can purchase a Courier high-speed modem or Shared Access Modem Sharing Kit now and take advantage of the most updated technology available. When the 28.8 Kbps standard becomes available later, they'll already have a cost-effective upgrade option and won't have to re-invest in new equipment."

"Key to the 28.8 Kbps program is the fact that the upgrade to the Courier high-speed modems and Shared Access Modem Sharing Kits can be completed by the end user at their worksite, which reduces their 'down' time and eliminates excess costs like shipping and handling," continued Zakin. "You may hear about other 28.8 Kbps modems that are available now, but until the standard is defined, no one knows what hardware will be needed to comply. Our unique modem architecture makes future 'field' upgrades a realistic and simple procedure."

Because of U. S. Robotics' advanced modular modem architecture, the company's Courier V.32bis, Courier HST Dual Standard, and Shared Access modems are readily upgradable to 28.8Kbps. The modems are made up of a motherboard and a smaller daughterboard, which holds the modems' microprocessors and firmware. The current, high-speed daughterboard can easily be replaced with a new board containing the 28.8 Kbps CCITT standard. U.S. Robotics is the only modem manufacturer to implement this kind of flexible design.

"In the CCITT, the previously called 'V.FAST' standard has gained universal support at the 28.8Kbps speed," said Dale Walsh, U.S. Robotics vice president, advanced development and participant in the CCITT committee on the 28.8 Kbps standard, "This is how our modular architecture works. The data

pump (which executes the modulation and demodulation of the data), and the key controller functions (which perform the data compression, error control and the AT command set) are on one board, making upgrades simple. We can easily make the data pump faster and upgrade the controller functions to keep up with the new speed. It's all in just one small plug-in card."

Because compatibility with CCITT standards is crucial, U.S. Robotics' availability and implementation of the 28.8Kbps standard will depend on the CCITT's progress. At this time, the standard is expected to define a connect speed of 28.8 Kbps, two times faster than V.32bis, the fastest CCITT standard now available.

U.S. Robotics is one of the first vendors to announce a program for 28.8Kbps compatibility. The company has a history of industry "firsts," including the first CCITT V.32bis modem from a major manufacturer, the first self-managing modem management system and the first portable CCITT V.32 modem.

U.S. Robotics will upgrade any Modem Sharing Kit to 28.8Kbps. Current Courier models, which have the smaller footprint and a higher, 57.6 Kbps DCE to DTE (modem-to-computer) interface speed, are also upgradable. The company's upgrade program does not include WorldPort and Sportster modems.

U. S. Robotics Courier modems offer a wide range of features, including fax, remote configuration, and synchronous capabilities. The Shared Access Modem Sharing Kits, which began shipping in March, 1992, allow for the pooling of modems on a LAN so that a LAN user can access them for dial-in or dial-out communications.

The following products will be upgradable to 28.8 Kbps:

Courier V.32 bis, internal and external (57,600 bps versions only)
 Courier HST Dual Standard, internal and external (57,600 bps versions only)
 Courier V.32 bis FAX, internal and external
 Courier HST Dual Standard FAX, internal and external
 Shared Access Modem Sharing Kit Single Port and Dual Port

THE CCITT 28.8 KBPS STANDARD: SOME BACKGROUND

The standard for 28.8 Kbps dial-up communications being developed by the CCITT will stretch the limits of dial-up telephone lines. But don't expect to be sending files at top speeds immediately.

Dale Walsh, vice president for advanced development at U.S. Robotics, Inc., cautions that most users won't be able to achieve the maximum speeds permitted under the standard right away. When the standard is adopted, modems that conform should be able to transmit at 19.2 Kbps on lines where a modem conforming to V.32bis (the current high-speed standard) can now transmit at 14.4 Kbs. But Walsh, a member of the CCITT committee developing the standard, says it is being formulated with the increasing digitization of dial-up phone networks in mind.

The improved quality of phone lines, as much as any modem technology improvements, has made high speed dial-up communications possible" says Walsh. "We are designing the standard keeping in mind that phone networks will use more and more digital circuits and digital central office switches."

Consequently, speeds in the neighborhood of 28.8 Kbps will be the exception, rather than the rule--at least until the public switched telephone network becomes completely digital.

"I'd say when it's finished in a year or so, the standard will allow 19.2 Kbps transmissions on 80 percent of all lines, 24 Kbps on 50 percent of all lines, and 28.8 Kbps communications on 20 percent of all lines," says Walsh, who also helped develop the CCITT V.32bis standard for 14.4 Kbps

dial-up communications. "As the phone networks improve, top speeds will be more easily achieved, so I think it's more realistic to think of it as a 19.2 Kbps standard that is sometimes capable of higher speeds.

A common misconception is that the coming 28.8 Kbps standard will allow speeds of 115.2 Kbps, when combined with V.42bis data compression. Walsh noted that such calculations are based on an assumption that V.42bis allows 4 to 1 data compression. Outside the lab, V.42bis allows compression ratios between 2 to 1 and 3 to 1, meaning that under REAL LIFE conditions, the forthcoming standard will allow maximum throughput of about 86.4 Kbps.

"It's a mistake to use the 28.8 number and max everything out from that," said Walsh.

Not that the 28.8 Kbps standard doesn't have its advantages. After all, 19.2 Kbps is an improvement over 14.4 Kbps. And the forthcoming standard will adjust for line conditions, a critical factor in high-speed data communications--like no previous standard. The standard under development will include a "probing" function that the modem can use to "sound out" the quality of the phone line. That will allow the modem to optimize transmissions to take advantage of available bandwidth.

"We are still working on the training sequences," says Walsh. "But before transmission starts, the standard will enable the modem to determine what bandwidth is available and how to best position the signal to match available bandwidth."

The standard achieves higher speeds through its ability to use more of a line's bandwidth, not just the center portion of the channel used under current standards.

"It will more closely match the modulation scheme to what's available," says Walsh. "That way, the modem can shape the transmissions to adapt precisely to the channel, which is very important if you want to transmit at high speeds.

The most recent committee meeting was held last month. Still to be agreed upon are such critical issues as training sequences, coding schemes, and signaling rates. Walsh said he expects the committee to reach final agreement in 1993, with official CCITT adoption likely in 1994.

While some have taken to calling the standard under development V.Last, Walsh isn't convinced this will be the final modem standard. After all, he notes, no one thought dial-up phone lines would ever be this noise-free, and further advances in that area could make even higher speed dial-up communication possible.

"I'm certain we'll have at least a fax version of this standard as the quality of phone lines keep improving," he said. "We're trying to be sure that this standard will serve users into the year 2000. But modem standards are like wars: you always think it's going to be the last one."