

D5 Generic Gets Kudos from Pacific Northwest

By Holly Bigelow

The D5 Digital Terminal System has a new software generic that makes it even easier to provide special services. The first customer for this new software release, Pacific Northwest Bell, is "extremely pleased with and enthusiastic about the product," says John Mulcahy, head of the D5 Application Engineering department in Merrimack Valley.

The purpose of developing the D5 generic 2.1 was to make the transponder easier to use and to extend the range of its application. Transponders are portable test sets used to transmit a signal from the customer premises to the D5 system. "When the telephone company installer is at the customer premises, typically a business office, he or she connects the transponder to the customer's loop and waits a few minutes while the transponder and the D5

do the work," says Sara Phillips Vaz, application engineer for the transponder.

"The D5 system automatically detects the presence of the transponder, measures the characteristics of the customer loop and adjusts the D5 channel units to provide optimal service on that loop," says Vaz.

"When the procedure is completed and the circuit is properly aligned, the transponder provides visual notification to the installer," explains Mike Kutsy, a software developer for the project. "In addition, the D5 system provides a report detailing any adjustments made. The entire procedure takes a fraction of the time required to manually align a circuit."

"Without transponder provisioning, two people at different locations, typically the customer premises and a special services center, are required to perform a coordinated

manual measurement of the customer's loop. This is a very time-consuming and expensive activity for the operating companies," says Vaz.

Though the generic 1.0 transponder capability saved time by eliminating the need to coordinate two craftspeople, it couldn't work with all types of customer premises equipment. "Before generic 2.1, the D5 system relied on a DC signal coming over the customer's loop to determine which circuit was to be provisioned," Vaz explains. "But many types of customer applications have a piece of equipment in the loop that blocks DC signals. With this type of equipment in place, the D5 couldn't automatically detect the presence of a transponder."

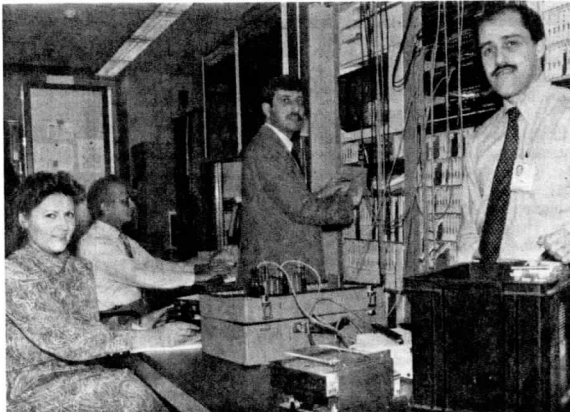
A major feature of the new 2.1 generic, In-Band Transponder Detection (ITD), allows transponder provisioning with more types of customer equipment, including those which block DC

signals. The software generic works in concert with a new 4" x 8" printed circuit board that plugs into D5 channel banks. "By using digital signal processing technology, this piece of hardware allows the D5 system to detect in-band tones sent by the transponder from the customer location," says Farid Bou-diab, ITD hardware designer.

"With generic 2.1 and the ITD circuit pack, the D5 system can look for either a DC signal or an in-band tone," says Vaz. "This greatly expands the base of applications over which the transponder is automatically detected."

Pacific Northwest Bell was asked to be the site for the first office application (FOA) of the 2.1 generic because the company was already using the transponder routinely and effectively. "This generic makes the transponder work that much better,"

... Performs Well in First Office Application



Sara Phillips Vaz, Mike Kutsy, Farid Bou-Diab and Mike DiTroia demonstrate use of the transponder to provision special services on a D5 switch.

says Vaz. "Once they saw it in action, PNB felt that generic 2.1 had been tailor-made to meet their needs."

The FOA took place in October at the Capital 1 office in Portland, Ore. "They provisioned their first live circuit after two days and by the end of a week had successfully provisioned five circuits," says Mike DiTroia, Network Systems planning engineer for the FOA coordination. "Twenty more were provisioned by the transponder the next week, and all were successfully completed on the first try."

"The tests went really well, and the software enhancements alone made the generic worthwhile," says Bill Mason, a manager at PNB. "For example, it used to be that when we put a channel unit in and set it to the 'awaiting transponder' state, the people in the local office couldn't use normal test procedures on the circuit. With generic 2.1, these circuits can now be

efficiently tested in 2 to 3 minutes rather than the half hour it could have taken in the past."

The occasional need for two to three restarts in order for the automatic provisioning to work was another inconvenience. "With the new software generic, that problem has gone away," says Mason. "And now it does the alignment in 2½ minutes instead of four."

"The software package is the result of an outstanding team effort," says Mike Kaplan, D5 software department head. "Many dedicated Network Systems and Bell Labs engineers pulled together to make this generic a real success story."

"Generic 2.1 began on-time shipment on Nov. 13," reports Susan Ober, D5 project engineer. "All generic 2.0 customers are expected to be upgraded to the new generic before the end of the year." □