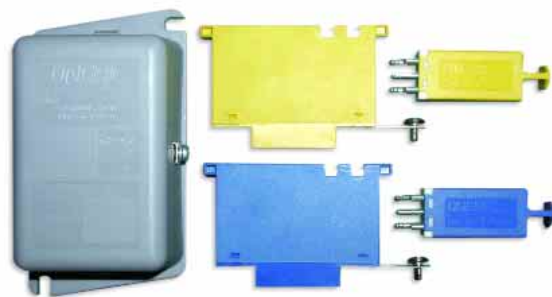


# real life

A STORY FROM THE FRONT LINES OF POWER PROTECTION

*Cell phone users know it as the infamous "dropped call" or "no service." Both of which reduce customer satisfaction — sometimes to the point of losing a subscriber. There's no doubt, T1 line failures cost a company money.*



## ONEAC Prevents the First Mile From Being the Lost Mile

Today we are experiencing a breakneck growth in the interconnection of personal computers, terminals, telephones and cellular phones in the business environment. T1 technology is proving to be a cost-effective means of linking voice and data, both inter-office and intra-office, and serves as a high speed transport between locations. In the case of cellular transport, a typical T1 circuit today can transport up to 192 voice and data channels concurrently. There is significant discussion these days about "T1 Gateways" and "T1 trunks" as the cost from the various phone companies of these services goes down. Users are discovering that it costs less to have a T1 trunk than a series of leased telephone lines in a point-to-point topology.

### The Problem

A major phone carrier in the southeast was experiencing frequent cell site T1 failures at multiple sites in a multi-state region. These failures were in spite of the fact that standard gas tube and solid-state protectors were installed on all T1 lines.

The average cost of a trouble dispatch to a T1 cell site was approximately \$1,000 per case. This includes dispatch, vehicle costs, overtime and testing. In addition to traditional operational costs associated with the dispatch, there are also the costs associated with Quality of Service agreements between the carrier and the cellular provider.

And to a cell phone user, a T1 line failure could cause the infamous "dropped call" or "no service." Both of which can

reduce customer satisfaction — sometimes to the point of losing a subscriber. There's no doubt, T1 line failures were costing this company money.

### The Search

The genesis of the search for a solution occurred in North Florida when a local operations group from the phone company decided to use ONEAC T1 line protectors at several of their most troublesome cell sites. The impact was almost immediate and the trouble rates at those sites dropped considerably.

Based on the immediate results the Florida team experienced, the operations team in Tennessee decided to incorporate the ONEAC T1 line protectors. The T1 protectors were installed before and after the Network Interface Unit (NIU). Again the impact was immediate. Lightning-based troubles on the lines protected by the ONEAC protectors declined significantly when compared to failure rates among those lines protected by traditional and solid-state protectors.

### About T1

T1 is a high speed digital network (1.544 mbps) developed by AT&T in 1957 and implemented in the early 1960's to support long-haul pulse-code modulation (PCM) voice transmission. The primary innovation of T1 was to introduce "digitized" voice and to create a network fully capable of digitally representing what was up until then, a fully analog telephone system.

Perhaps the way to really begin to define T1 is to discuss the AT&T Digital Carrier System referred to as "ACCUNET T1.5." It is described as a "two-point, dedicated, high capacity, digital service provided on terrestrial digital facilities capable of transmitting 1.544 Mb/s. The interface to the customer can be either a T1 carrier or a higher order multiplexed facility such as those used to provide access from (fiber optic) and radio systems."

So in the basic definition there is the discussion that there is a "higher order" or hierarchy of T1. There is T1 which is, as we have discussed, a network that has a speed of 1.544 Mbps and was designed for voice circuits or "channels" (24 per each T1 line or "trunk"). In addition, there is T1-C which operates at 3.152 Mbps. There is also T-2, operating at 6.312 Mbps, which was implemented in the early 1970's to carry one Picturephone channel or 96 voice channels.

**ONEAC**®

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## The Solution

The wide range of ONEAC T1 line protection solutions is one of the most important elements in this T1 protection strategy. 5-pin solutions are typically used on the network side of the NIU and registered jack-based protectors are used for the station side of the service line. In fact, at some locations, where registered jacks are unavailable, T1 line protectors with screw terminations are being used to complete the solution.

**The bottom line:** ONEAC protection is now saving this carrier precious service dollars while increasing customer satisfaction. Both of which are key in today's competitive cellular marketplace.

**Of Note:** While these T1 field trial results were dramatic, they are not unusual for ONEAC. Earlier experience with ADSL equipment field trials conducted with major carriers also showed that ONEAC protectors had the ability to reduce ADSL equipment failures by upwards of 90% in the final link between the service providers and the customer.

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## About ONEAC's T1 Protectors

ONEAC's patented T1 protector technology differentiates signals and transients on telecommunications lines by both amplitude and frequency or rise time. High-speed noise on the line, which passes through classic solid-state protectors, is virtually eliminated by ONEAC's T1 protectors. Further, the peak differential transient voltage let-through is dramatically reduced. Two reasons ONEAC's patented T1 protectors greatly increase the reliability of T1 equipment and service.