



# Fiber Optic Inventory Control Practices

*'The time has come,' the Walrus said,  
'To talk of many things;  
'Of shoes - and ships - and sealing wax -  
'Of cabbages and kings.*  
— Lewis Carol

Like the Walrus in *Through The Looking Glass*, the time has come to talk about the subject of fiber optic inventory and inventory control. “Yes, yes...”, you say. “We have been taking care of our spare parts inventory for years. There’s nothing new about it.” I wonder though. Are you running your inventory or is it running you? Or do you try not to think about inventory?

Why is this important to you? Two reasons, really. All your expertise in using test equipment, common sense and logical procedures in determining a problem module is wasted if there is no replacement for that defective module. The second reason is the cost of lost or misplaced modules can bankrupt a company today. Even very large companies can be hurt this way! (For ‘hurt’ read laid-off personnel!)

In the world of fiber optics a company cannot afford to ignore inventory controls or not to update them as needed. The modules and electronic cards are just too expensive. For example, a Nortel transmitter card can cost over \$135,000 *each!* After losing track of a few of these, it soon amounts to serious dollars. A company today cannot afford to be free and loose with assets like that. So, how does an organization handle and keep track of them?

## Old Practices

A few years ago everything was on paper. There were clipboards hanging in storage rooms all over the country with scribbled notes about who sent what part to whom on what date. These papers were filed away when filled or on a monthly basis. Everyone felt satisfied with their efforts. After all, they were keeping track of their inventory.

Everyone felt satisfied until, six months later, someone said, “Hey! I never got that part you said you sent me. Where is it?” The knee-jerk response was always “Of course I sent it to you. Check your inventory.” Meanwhile, all other high priority work stopped while a frantic search started through the files. When the information could not be quickly located, the groans and wails of misery could be heard for miles anticipating a manual search of six months worth of paper records. And when this was done and the specific record remained lost, you asked yourself, “Was it not there or did I miss it?”

If this were an inter-company shipment, the loss would be bad enough. But if it were a module being returned to a vendor, this was serious and not about to be forgiven. To compensate for the loss, the company had to buy a new card at new card prices. In a fairly large company this could be happening fifty or a hundred times a year. Multiply 100 times \$100,000 and you have an amount that directly and adversely affects the bottom line. An amount that *did not need to be spent!* There are a few ways this can happen.

a. The card may not have been shipped. “Yes Virginia, mistakes do happen in a storage room.” The card may have been packaged, the paperwork done, and then the unit was put aside to be sent off, but fell behind the shelf. (Also known as “slipping through the cracks.”) This does happen. Especially when there is no one person who handles shipping. I have seen a shipment of 14 electronic cards, all packaged and ready, sit in the corner of a storage/shipping room for 3 months. These cards cost \$65,334

*each.* Because the vendor charged a 15 percent restocking fee after 30 days, the company incurred \$13,720 in costs that could have been saved by shipping the units on time.

b. The card may have been packed up and shipped, and then lost during shipment. While this is reminiscent of “The check is in the mail,” it does happen occasionally—rarely today, but it does still happen.

c. The card may have been packed, shipped, and received, but the required information was not written plainly on the outside of the shipping box. The use of an RMA (Return Merchandise Authorization) number is common today. So common, that a missing RMA number places the package outside the system. A number of large and otherwise responsible vendors simply toss a package without an RMA number into a pile (storage room), and forget it. Then they demand that your company pay for a new card as the returned card was never received by them.

d. And of course, the final way is that the card was forgotten about and is still bouncing around in the back of the technician’s truck. This is something for the manager to deal with; no inventory system can address this.

## Use of Computers for Inventory Control

With the advent of computers a cheer was raised throughout the country. This technology provided a way to keep inventory information available and retrievable! The problems of lost or misplaced modules seemed a thing of the past! A simple inventory system could solve all the ills of the inventory process! Hip! Hip! Hooray! (SIGH) Wrong answer! When the cheers subsided, it was found that the computer solution was not the end all of the problem! In fact, computers added some problems of their own.

There are a number of reasons for this. The module was still not shipped. (Computers do not hand the package to the shipper!) The information was not entered into the computer file. The information was entered but not entered correctly or not saved. The computer file was lost. Or the computer containing the inventory information crashed and all the data was lost. Lastly, in today’s massive laid-off situation, the person who knew how to work the inventory program was laid off last month. What it comes down to is the computers are only as good as the humans operating them.

## So what are the answers?

There are no hard and fast answers. But, there are a number of ways to minimize the problems.

a. In today’s economy, many companies try to make those workers remaining from the last round of lay-offs become jack-of-all-trades and do all of the new jobs as well. This does not work! With the potential of millions and millions of dollars in contention, having a half-trained, incontinent employee keeping track of parts is not a good policy. There needs to be the folks who know what they are doing. They do it every day and are the SME (Subject Matter Expert) of the inventory. They regard their job in inventory control as “their job” and not something that they do when they have time from their “Real” job. Ask yourself this: “Do you really want millions of dollars of inventory and the potential to destroy your bottom line and bankrupt your company in the hands of a minimum wage person? Or in the hands of someone trained for something else and doing inventory as an after thought?”

b. Bar coding. Yes, those little vertical lines that are imprinted on adhesive labels and stuck on the modules. With the use of handheld scanners one major area of problems is removed:

*continued...*

## INVENTORY, continued

incorrect information is now eliminated. The problem of an employee transposing a digit or three in a serial number, or part number, is gone. One major headache cleared. Of course, the company *must* install and work the bugs out of a bar code reader system, but that is small potatoes for what's at risk. Just think, each \$100,000 module that is not lost will amply pay for a bar code reader system.

c. Servers. On a daily basis all computer files must be updated and transferred to a company server. This is really a no brainer! Put your information in multiple locations and if one location is corrupted or destroyed, the other locations back it up! It is also a fairly easy thing for your company's IT department to do.

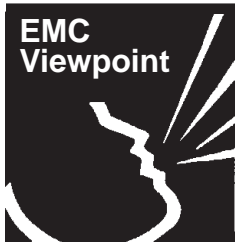
d. Training. Yes, an ugly subject in today's "Squeeze the penny until Lincoln screams in pain" philosophy. The person who is the SME in inventory and shipping needs to be trained. Luckily, this is relatively inexpensive. There are lots of free materials, tapes, and information modules out there.

e. Shipping materials. This is an often overlooked area or one that is ignored and cut from funding. It is also an area that has a direct bottom line impact. Let's say you have done everything correctly. All the records are complete and accessible. Your

inventory SME can answer instantly as to where the package is, when it was shipped, serial numbers, part numbers, etc. But, a \$100,000 part was put into a fertilizer box picked up from Walmart, packed with crumpled paper from the wastebasket, and held together with Scotch tape from someone's desk. (I have seen the remains of this exact example.) You must have the strong boxes, ESD envelopes, fiber tape, correct packing and cushioning material, and other shipping material to protect your module during shipment. Do you really want to replace another module because the good one you shipped arrived broken?

IF YOU DO ALL THIS, will you never lose a module or have one broken? Of course not! But the bottom line is that you will save huge amounts of dollars that are in short supply. And you will have a lot more dollars to spend in other areas of your company. You may even avoid laying off some of those valuable employees this year. Ω

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## For NARTE Members Only

*by Louis T. Gnecco,  
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### Hearing Aids and Cell Phones: A Tough EMC Problem

About ten years ago the FCC decreed that, by January 1, 2000, all hearing aids were to be made completely resistant to the electromagnetic interference produced by cell phones.

The problems were substantial, partly because hearing aids are much more than just audio amplifiers.

Hearing losses are frequency dependent. The dispenser must be able to tailor the amplification to each patient's unique function of hearing loss vs. frequency. The design problem is like stuffing a stereo's graphic equalizer into a hearing aid.

Many patients also have an unusual sensitivity to sounds. They can't hear soft sounds, but normal sounds are painful. They need automatic gain control or a compression amplifier to keep things from getting too loud. So each patient needs a fancy, specially tailored amplifier. In addition, the aid must work in a small, hot, humid environment (the ear) in all kinds of weather, with little maintenance and lots of abuse. It has to be small, economical, and repairable.

Enter cell phones, which play havoc with hearing aids. They transmit at UHF, with their antennas often within an inch of the hearing aid. The hearing aid's circuits get subjected to most of the radiated power. This causes a variety of problems, and some are very subtle. It takes a trained hearing aid dispenser with normal hearing to detect them.

The problem is not limited to the "buzzing" noise sometimes heard when a cell phone is put near to a hearing aid. Circuits get saturated, and the device temporarily stops working properly. The patient misses sounds and doesn't even know it. With little or no in-house EMC capability, some hearing aid manufacturers optimistically announced that they would solve this problem with "a

chip," that is, by signal processing. This never happened either. The problem was too pervasive, and the signal levels too strong.

I had the opportunity to work on this problem early on. It was tough but it was fun. I learned a lot. Working with BETTER HEARING INC., several years ago we developed the world's first (and to this day, the world's only) fully cell phone compatible hearing aids. They were demonstrated widely, patented, and FDA-approved. They worked well.

The technology for building cell phone compatible hearing aids is covered by US patents # 5,640,457 and 6,031,923 and 6,456,109. I think this will someday be a lucrative field for NARTE Certified EMC engineers. For more information, send an email. I will be happy to reply to NARTE MEMBERS ONLY.

Regards,

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Reference (a): Mark J. Sanford. "A Solution To Cell Phone Use For Non-Telecoil Equipped Hearing Aids." *THE HEARING REVIEW* May 2003. Page 54.

See: <http://www.hearingreview.com/Articles.ASP?articleid=H0305F08>

*This column presents the author's personal views, and not NARTE policy. Comments and dissenting opinions are encouraged. This is how we learn from each other.*