

WHITE PAPER

Considering Recycled Tape ... Think Again

by Wayne Desmond
Media & Application Solutions Division
Sony Electronics Inc.

MARCH 2007

There have been many papers written on the subject of recycled tape but none have actually evaluated the tape and documented the results. For the purpose of this paper, recycled tape refers to tape that, after first being purchased as new by the original owner and used for an unspecified amount of time, is then resold to another user. In this paper we will share our evaluation results based on a small random sample of Sony DLT-IV tapes that were purchased as recycled tape and acquired by Sony.

It is important to realize that recycled tape, in most cases, is tape that is removed from circulation because it has been deemed to have nearly reached the end of its useable life by the original owner/purchaser. If you consider why you are backing up your digital assets to begin with, i.e. to **save** your company from catastrophic loss, you will quickly realize that a thorough risk analysis is in order before moving forward with recycled tape. The question you want to ask yourself is, 'What impact would it have on my business if I was unable to retrieve the most valuable assets my business owns?'

The most important part of a reliable backup system is the media/tape on which you store your valuable digital assets. Areas that impact the reliability of the tape are brand integrity/quality, care & handling of the tape and probably most important, but often forgot about, the maintenance of the hardware/drives it was used with while it was in its prime. Below are our evaluation findings.

AGE OF TAPE

From date of manufacture, recording media is typically in the hands of the end-user within six months. That average taken into consideration, along with the batch numbers on the tapes, all tapes tested were in use for approximately six to seven years before they were, relabeled, put in new poly cases with reprinted U-cards and temper seals applied, shrink wrapped and sold as recycled tapes.

TEMPER SEAL

The temper seal normally tells the user in any industry, from food to pharmaceuticals, that they are the first user of the product. The temper seals were found to be reprinted to look exactly like the new product temper seals applied by Sony during manufacturing. This could be viewed as an attempt to pass off the recycled tape as new. Fig. 1 shows the original manufacturers seal on left and the copy on right. Note that the DLT logo is off-center and unclear.



Fig. 1

U-CARDS

U-cards (album box inserts) were reprinted and placed in new album boxes to give the appearance of new product. Fig. 2a shows the authorized product U-card on the top and the reprint on the bottom. Close up of reprinted card in Fig. 2b reveals unclear and faded printing.



Fig. 2a



Fig. 2b

CARTRIDGE AND LEADER TAPE WEAR PATTERNS

The cartridge appearance showed slight scratches on upper surface, see Fig. 3a. Also the leader tape showed that all cartridges had similar scratches in same part, see Fig. 3b. From the scratches of cartridges and leader tapes, the cartridges appear to be used a large number of times with the same drive.



Fig. 3a



Fig. 3b

TAPE SURFACE AND EDGE CONDITION

Evaluation of the tapes surface, specifically edge damage, directly relates to the level of preventative maintenance performed on the drive it is used in. More drive maintenance was evident based on the edge damage found with one tape. This tape also had elevated error rates compared to the others, although within specification. As a consequence of checking the tape surface in total length, damage was evident on the upper tape edge at approximately 80 meters, 200 meters, 207 meters, 250 meters and 272 meters from BOT (beginning of tape), see Fig. 4.

It is also important to note that most tape cartridges can be opened by removing four to five small screws and the spool(s) of tape removed and even possibly replaced with another brand of tape. The cartridge can then be closed up, cleaned off with **special** solutions, relabeled, given a **cosmetic evaluation** and labeled "certified". The good news is that this was indeed Sony tape, albeit six to seven year old Sony tape.



Around 80m Fig. 4a



Around 200m Fig. 4b



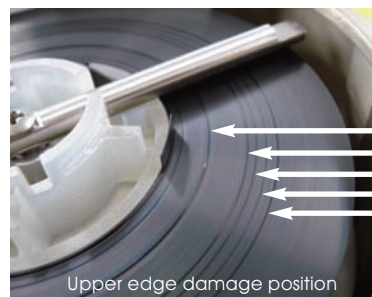
Around 207m Fig. 4c



Around 250m Fig. 4d



Around 272m Fig. 4e



Upper edge damage position

Aspect after drive winding Fig. 4f

IN CONCLUSION

The argument for recycled tape may be a good one, i.e. cost savings. But keep in mind that there are no industry standards for the processes used, or the resulting quality level, for recycled tape. If you stop and think for a moment why you are backing up to begin with, you will realize that it is because your digital assets are so valuable to your business that if they were lost you may be faced with irreparable financial damage, or in some cases, legal repercussions.

The bottom line is, the quality of your recycled tape is mainly dependent on the environment it was stored in, the condition of the equipment it was used on, and the original quality of the tape brand when new. Two out of three you have absolutely no idea about and the third can be altered by merely removing a few screws in the cartridge.

If you put the condition of the recycled tape aside for a moment, would you, your management or stock holders, feel comfortable knowing that the company's valuable digital assets were being backed up on media between six to seven years old? Unlike the measurement of the tread on a tire, where you can approximate its remaining life, it is impossible for the normal user to have any idea how close to end of life they are with tape. Some will last longer than others. So before you drive down the recycled road, put the future of your business first and may the safety and security of your digital assets remain your highest priority.

Wayne Desmond is the Senior Manager of Technical Training in the Media and Application Solutions Division of Sony Electronics.

DLT and DLTtape are registered trademarks of Quantum, registered in the U.S. and other countries.