Protecting Your Data

Technology, inspired

FUJIFILM
RECORDING MEDIA

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1 Your Most Valuable Business Asset

Your most valuable asset is your DATA. Access to data is what you depend on to run your business. Without it, people are non-productive, your network is inoperable, and often your business is at risk. It could be said that the success of your company rests in your ability to keep data accessible and protected from loss. This notion implies that a business' success rests in the hands of its storage media. Many efforts have been made to scale the value of data. Here are some typical benchmarks that put the value of data into perspective.

To re-create 20 MB data

department	sales & marketing	accounting	production	engineering
cost	£17,000	£19,000	£27,000	£98,000
time	19 days	21 days	32 days	42 days

To protect your most valuable asset, you need a good backup, archive, recovery, and storage plan.

2 Protecting Your Data

BACKUP is the process of making a redundant copy of disk storage, allowing file and system recovery. A variety of file versions are necessary to ensure that you are able to restore the most recent usable copy of the data required. Creating this history can be achieved by using proper media rotation schemes, such as Grandfather-Father-Son or Tower of Hanoi.

ARCHIVE means to copy disk file systems and to place the copy (usually on tape) into long-term storage. Archives create a legally acceptable business history. Archives can also be used to free up hard disk space by allowing you to create an off-line version of static data or files and delete the on-line copy. If needed, this data can be restored from tape.

DISASTER RECOVERY is the process of recovering from a site level outage or disaster. In "remote vaulting", backup media is taken off-site (daily is best) and stored in a secure location as part of the tape rotation scheme. This off-site media is available for system recovery if the on-site data is lost or damaged in a disaster.

STORAGE is not restricted to hard disk. Reference data, customer records, drawing sets, pre-press images and publications, and similar batch-oriented data types are often more efficiently stored "nearline" on tape. The portable nature of removable media has many benefits to these types of applications. For application data storage, a high transfer rate is essential for maintaining user productivity.

3 Backup Program

A single layer of data redundancy has proven to be inadequate. If it were adequate, we would all just make another disk copy of our files and be done with it. Backup was created as a data protection and availability process to fill the gap. With any backup program, multiple copies of files are created on inexpensive media, allowing for short-term data protection, recovery versions, and long-term archive.

Successful operation of a backup program needs to consider these points:

Fundamentally you are operating a recovery system, not a "write-once, read-never" process. Everything in the backup process has to be centred on reliable recovery, from drive and media technology, quality and reliability of media, and care and handling of media, to read verification testing of the backed-up data. Do not take shortcuts with your important backup data.

A single copy or even copies on a single piece of media is inadequate. Remember that the purpose of backup is to protect against disaster, data loss, damage, or deletion of the primary on-line copy. Backup also provides version history of files so that prior work can be recovered. It takes many copies of files stored on separate pieces of media to fully ensure that each of these requirements can be met reliably. The costs of re-creating data are extremely high. Why expose your company to these risks, when they can be avoided by using an adequate media rotation schedule?

No backup strategy is complete without off-site storage of some of the media in the backup rotation cycle. These extra backup copies serve many purposes, including disaster recovery, archive, and version histories. Storing your backup tapes with your servers does not adequately protect your business. If your site experiences physical damage, such as a fire or water damage, you run the risk of losing both your on-line data and your backup copies. Simply by storing backup tapes off-site, you can protect yourself from this danger.

Use a robust backup application to streamline management of the backup process. This streamlining is especially important in a network environment where multiple servers and many workstations are under management. Because of the complexity and lack of automation in a manually run backup system, the responsibility for backup cannot be delegated to workgroups or an operator, but must remain with the network manager. Backup administrative labour costs can run anywhere from tens of thousands of pounds per year to hundreds of thousands depending on the size of the company.

Tape backup is the traditional data protection process. However, backup is conducted in many different ways utilising many different software applications and user-written scripts. The common thread is how media is handled and rotated to create multiple redundant copies in addition to versions of files as they change and evolve throughout their life cycle.

3.1 Recommendations for Backup

- Verify that your backup data can be recovered
- Create a version history
- Store backup copies off-site
- Have a management system in place

3.2 Backup Rotation Schemes

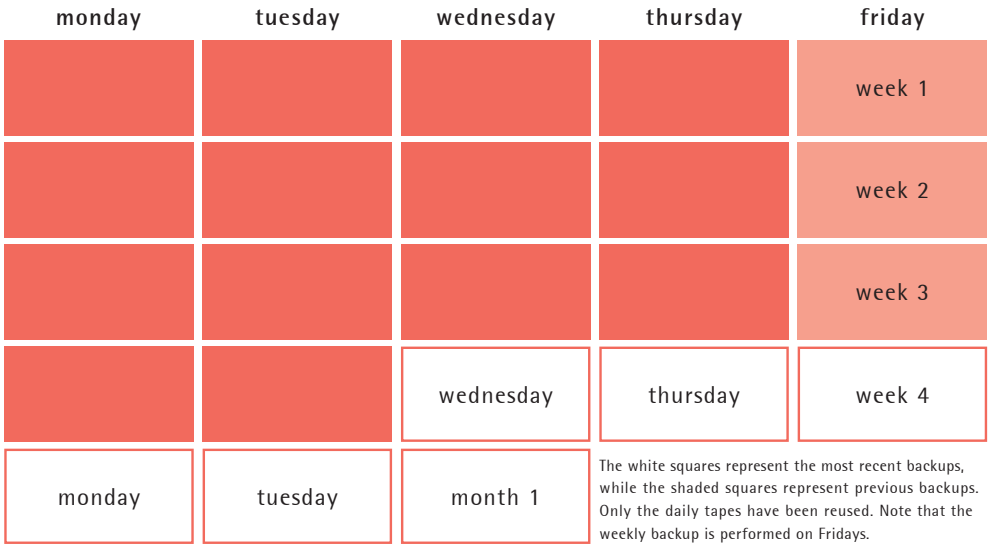
A good tape rotation schedule is vital to ensure data recovery. The best rotation schedule is one that provides you with a long and varied history of file versions. Media not in active use should be stored in a secure, off-site location. Following are descriptions of two popular rotation schedules. Both provide a great depth of file versions and are offered as configurable backup patterns by most backup application software.

Sites using a Tape-a-Day scheme, in which one tape, or a limited set of tapes are repeatedly reused for backup, are doing themselves a disservice. By writing over the last backup, the history of file versions is destroyed. If last week's version of a file is required, these sites simply cannot restore it. Instead, they must re-create the data. This type of media usage is common at sites using scripts for backup. Tape-a-Day is inadequate for a comprehensive backup and archive program. Instead, we recommend that you use the Grandfather-Father-Son or Tower of Hanoi rotation schedule.

3.2.1 Grandfather-Father-Son

The most commonly used media rotation schedule is "Grandfather-Father-Son". This scheme uses daily (Son), weekly (Father), and monthly (Grandfather) backup sets. Four backup media are labelled for the day of the week each backs up; for example, Monday through Thursday. Typically, incremental backups are performed on the "Son" group of media. This media is reused each week on the day matching its label. A set of up to five weekly backup media is labelled "Week 1", "Week 2", and so on. Full backups are recorded weekly, on the day that a "Son" media is not used. This "Father" media is reused monthly. The final set of three media is labelled "Month 1", " Month 2", and so on, according to which month of the quarter they will be used.

Grandfather-Father-Son media rotation schedule



The white squares represent the most recent backups, while the shaded squares represent previous backups. Only the daily tapes have been reused. Note that the weekly backup is performed on Fridays.

This 'Grandfather' media records full backups on the last business day of each month and is reused quarterly. Each of these 'media' may be a single tape or a set of tapes, depending on the amount of data to back up. A total of 12 media sets are required for this basic rotation scheme, allowing for a history of two to three months. Since a longer history is often required, archive tapes are periodically pulled from the rotation and replaced with new tapes.

3.2.2 Tower of Hanoi

The Tower of Hanoi scheme is also widely used. In this schedule, one media set "A" is used every other backup session (daily sessions in this example). Start Day 1 with "A" and repeat every other backup (every other day). The next media set "B" starts on the first non "A" backup day and repeats every fourth backup session. Media set "C" starts on the first non-"A" or non-"B" backup day and repeats every eighth session. Media set "D" starts on the first non-"A", non-"B" or non-"C" backup day and repeats every sixteenth session. Media set "E" alternates with media set "D".

With each additional media set added to the rotation scheme, the backup history doubles. The frequently used media sets have the most recent copies of a file, while less frequently used media retain older versions. This schedule can be used in either a daily or weekly rotation scheme. The decision regarding the frequency of rotation should be based on the volume of data traffic. To maintain the required history of file versions, a minimum of five media sets should be used in the weekly rotation schedule, or eight for a daily rotation scheme. As with the Grandfather-Father-Son rotation scheme, tapes should be periodically removed from the rotation for archive purposes.

Tower of Hanoi Media Rotation Schedule

media set

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A		A		A		A		A		A		A		A	
	B				B				B				B		
			C								C				
							D								
															E

return to day 1

4 Archive Program

While data may be kept for years, you shouldn't keep data on the same media for years without a media and data management infrastructure. Don't just pretend to have an archive program. Having one is critical to your business health, as well as essential for legal reasons. Think of archive as an additional data protection program in the same way as you save tax records, only even more important. Because of the importance of this program, don't be fooled into thinking that backup gives you all the secure archive you need. You need long-term archived media in addition to routine backup.

The distinction between data in archive and media in archive is important. Multiple copies of data on a single piece of media leaves that data at risk. Data security is achieved only through media redundancy on reliable media. The foremost principle is that the quality of media used should always be suitable for the data application.

Most backup applications can create media suitable for archive; either the backup tapes themselves can be retained long-term for archive, or special archive tapes can be created using an "export" function. The negative side of using a backup application for long-term archive is that the media is recorded in a proprietary logical format readable only by the originating application.

True long-term archive would also require archiving the entire backup system (computer, recording hardware, and software) as well as the media (and in multiple copies).
The alternative is to use a backup or archive application that is capable of writing in an industry-standard format such as "tar", "cpio", "UDF", "MTF", or "SIDF". Even then, the recording drives need to be archived as well. Don't forget this element.

It is also appropriate to see archive as a hierarchy of media that is generated by different processes working in concert. Backup creates short-term media. When coupled with data removed from active storage via hierarchical storage management (HSM) or explicit archive grooming, it is considered medium-term archive. Long-term archive forms a legal record.

SHORT-TERM ARCHIVE located on active media that backed up the live system. This archive includes data interchange and export data.

MEDIUM-TERM ARCHIVE located on media that is stored away from the system to free up storage space on the system.

LONG-TERM ARCHIVE located on media that is required to be kept as a master or for historical, legal, financial, and academic purposes.

4.1 Recommendations for Archive

Listed below are recommendations for the archive program that will result in safely protecting your data and giving you long-term success.

- Use the most reliable media available. Your data is an irreplaceable asset, and the cost of loss far outweighs the investment in protection. Mainframe data centres have years of investment in archive technologies.
- Store multiple copies of your valuable data on multiple pieces of media. Redundancy is the only true safeguard.
- For long-term archive, store the recording systems (and all components) as well as the media.
- Consider data to be archived as soon as it is stored on removable media and taken out of the tape system. Treat it with care, paying close attention to proper care and handling procedures.
- Record your archive data using the verification feature in your software, and even then ensure that your recorded data set is readable before assuming you have safely recorded what you need. Reading data is not the same as writing it. Too often, administrators are surprised that data is missing, although it was never recorded properly to begin with.
- Retain archive data for a period of time appropriate to the legal standards for the type of data you are protecting. You may need to retain data permanently.
- Long-term archives need to be stored in a secure, environmentally controlled facility as an extension of your in-house media library or shelf storage.
- Media management and library management procedures should be employed to track all the various media in backup, archive, and disaster recovery roles.
- Periodically inspect archive media for obvious damage or contamination.

5 Disaster Recovery Program

Whereas backup provides redundancy for recovery of files and disks, a disaster recovery program is the real insurance policy in the data protection world. Disaster recovery uses the media that you hope you will never need, but if you do you will be happy to have.
The value of off-site vaulting of disaster recovery media is a "bet your business" event.
For example, after the World Trade Center bombing in New York, more than 50% of the businesses that did not have off-site recovery media went out of business.

If you operate a backup and archive program that utilises enough media for off-site rotation, you have the basis for a disaster recovery system. All that is required is to ensure that your full system backup media is moved off-site at least weekly. Just as redundant pieces of media are required for local backup and recovery, multiple redundant sets of full system backup are required off-site for disaster recovery. Backup, archive, and disaster recovery activities are tightly related. Backup media can be used for disaster recovery if it is taken off-site regularly. In a mission-critical environment, off-site movement may occur daily. Archive data sets are often generated by the backup program, but the media is retained separately from the backup pool. Archive media, if it is a full system copy, can be used for disaster recovery.

5.1 Recommendations for Disaster Recovery

Listed here are recommendations for a disaster recovery program.

- Make sure your off-site storage facility meets the environmental storage requirements for archive defined in the media handling section.
- If you have operations and data vulnerable to loss, move the media off-site daily. Use a service bureau or do it yourself if you have corporate facilities.
- Remote means off-campus, far enough away to not be impacted by the nature of any local disaster.
- Ensure that you have adequate redundancy in your off-site backup pool for disaster recovery. A single recent backup may not be enough. It is better to have several. Plan this redundancy into your media requirements.
- Periodically retire media holding full backups from the backup pool and retain it for historical version recovery and archive. Place this retirement requirement into your media plan.

6 Data Storage Program

All three processes discussed (backup, archive, and disaster recovery), as well as storage, consume media independent of each other. It is important to have adequate media to ensure redundancy, reliability, legal compliance, and business continuity insurance.

Applications for tape span traditional backup and archive to near-line application storage. In recent years tape has been relegated to data copy applications, such as backup and archive. Tape meets the requirements for these applications, but its uses do not end there. Consider tape for storage of application data, such as video, CAD/CAM, and imaging files. The low cost per megabyte of tape storage makes tape an economical alternative to on-line storage.

The media calculator below is a planning tool to assist you in determining your annual media requirements. By completing the form and adding up the right-hand column, you can create a media plan. This planner encourages you to consider all aspects of tape use: backup, archive, disaster recovery, and storage. Compare your current practices and usage against the numbers you calculate here. Remember that you need media both on-site and off-site. Are you adequately protecting your business data?

Calculating Media Requirements

Backup Tape Requirements

Number of Backup Drives	x	Number of tapes in Media Set	x	Number of sets in a Media Rotation Schedule	x	Number of Rotation Schedules per year	=	Number of tapes required per year

Add for retirements	=	

Archive Tape Requirements

Number of tapes required to copy each server	x	Number of servers	x	Number of Archive Sets per year	=	Number of tapes required per year

Disaster Recovery Requirements

(in addition to off-site backup unless backup rotation tapes are always rotated to a secure off-site location)

Number of tapes per server	x	Number of servers	x	Number of Disaster Recovery Sets per year	=	Number of tapes required per year

Application Storage Requirements

Number of tapes per month	x	Months per year	=	Number of tapes required per year

Total Annual tape requirements	=	

7 The Right Media for Protecting Your Data

Today, with the volume of information increasing exponentially, dependable recording and preservation of data is crucial to the successful operation of a corporation. One of the most critical links in the process is the quality of the backup tape itself.

Since the launch of its first computer tape in 1965, Fujifilm has continued to lead the way in developing evermore innovative solutions for media storage. In 40 years it has carved out a niche for its expertise in manufacturing mid-range and enterprise class back-up tape for the computer industry, delivering media with proven performance and durability with high capacity and fast data transfer speeds.

7.1 Fujifilm's Technology

A significant milestone was the development of ATOMM technology, introduced in 1992. All magnetic media use magnetic particles to store digital information. When the particles are made smaller, more of them can be packed onto a disk or tape. In other words, particle density gets higher and this makes the disk or tape more powerful.

However, its not only the particle size that is important. When writing data, information is recorded only onto the upper surface of the magnetic layer. The lower portion of the layer is not only unnecessary, it can actually degrade performance. Therefore, a thinner magnetic layer is better.

Double coating technology, developed by Fujifilm and the secret behind ATOMM, allows controlled dispersion of a magnetic layer just 0.1-0.5 microns thick. In comparison, a human hair is about 200 microns in diameter.

More recently, Fujifilm announced its latest breakthrough - NANOCUBIC™ technology - allowing the production of ultra-thin coatings equivalent to one tenth of those previously achievable with ATOMM. Using NANOCUBIC™ technology, it is possible to create data cartridges that offer low noise, excellent storage characteristics, and capacities in excess of one terabyte.

The first Fujifilm product to launch featuring NANOCUBIC™ technology was the Fujifilm 3592 Enterprise Tape cartridge, for use with the IBM® TotalStorage™ Enterprise Tape Drive 3592.

IBM selected Fujifilm's NANOCUBIC™ technology for its ability to deliver the highest recording density in a linear recording format system.

"The challenges facing customers around back up, archive and recovery are increasing, making enterprise tape more critical," said Barry Rudolph, Vice President, Tape Storage Strategy at IBM. "Our customers demand flexibility, innovation and reliability across the enterprise with open, value driven support".

Following the IBM launch was the announcement of a joint media development agreement between Fujifilm and StorageTek to enable the latter to develop their next generation of enterprise tape storage solutions, similarly using Fujifilm's NANOCUBIC™ technology. StorageTek's rationale was the need to provide its customers with a wide breadth of advanced tape automation solutions in line with its Information Lifecycle Management strategy.

NANOCUBIC™ technology results in tape with an ultra-thin layer coating that produces higher resolution for recording digital data, ultra-low noise and high signal-to-noise ratios that are ideal for magneto-resistive (MR) heads. This is achieved through three specific technologies: coating, particle and dispersion.

Coating: NANOCUBIC™ technology employs an advanced precision coating process that is able to control the thickness of the magnetic layer on a nanometer scale.

Particles: In terms of new particles, two types of magnetic particles have now been developed, both tens of nanometers in size: magnetic needle-shaped metal particles and plate-shaped barium ferrite magnetic particles.

Dispersion: And from a dispersion technology perspective, NANOCUBIC™ technology uses a special organic binder material that has the ability to thoroughly disperse the particles in the coating solution so that a uniformly packed structure of the layer is realised.

The end result is media that features higher capacity, with faster performance and better long-term reliability. Superior archival and reliability performance, a critical requirement for enterprise system users, is also achieved through a combination of the development of a new binder which provides stable chemical performance and super-fine magnetic particle which provides stable physical performance.

7.1.1 Why is a thin magnetic layer better?

The demagnetisation effect

Magnetic recording media stores data in the form of a magnetic charge – in effect, a tiny magnet. However, a magnet has a property known as "self-demagnetisation loss". This is an internal field that weakens the external magnetic field, and the stronger the self-demagnetisation, the weaker the magnetic charge. Self-demagnetisation is greatest with a sphere, and becomes less as the shape becomes thinner. This is why a sewing needle is easily magnetised whereas a metal ball is not. The same is true of the magnetic layer in a recording medium – therefore a thin magnetic layer is easier to magnetise and holds its charge better than a thick one.

Demagnetisation in magnetic storage media

Only the surface of the magnetic layer is magnetised. Thick magnetic layers exhibit pronounced demagnetisation, leading to loss of output and possible data errors. ATOMM and NANOCUBIC™ feature a non-magnetic lower layer and an ultra-thin magnetic upper layer, which is magnetised virtually throughout its entire thickness, minimising demagnetisation and safeguarding data.

Recording wavelength and magnetic layer thickness vs. demagnetisation

As database and Internet-related applications require greater data storage and critical operations demand minimised downtime due to backup operations, the need for high-density recording has increased dramatically. And for higher density recording, shorter wavelengths are essential. As the chart shows, longer wavelengths can be safely recorded on media with a thick magnetic layer. However, when the wavelength becomes shorter as in high-density recording, the thickness of the magnetic layer becomes critical, which is why ATOMM and NANOCUBIC™ are vital to higher recording densities.

	recording wavelength	thickness of magnetic layer	demagnetising field	self-demagnetisation loss
conventional media	long	thick	small	small
conventional media	short	thick	large	large
ATOMM & NANOCUBIC™	short	thin	small	small

7.2 Fujifilm's LTO Ultrium™ and DLTtape™ range

Linear Tape-Open (LTO) Technology is an open standard designed to address the needs of mid-range tape backup applications. The standard was developed by a consortium of Hewlett-Packard, IBM and Certance and represents a scalable and durable tape storage format whose future growth has been mapped out for an extended period into the future. Currently the highest capacity offered by LTO technology is Ultrium Generation 3 media, offering up to 800 GB* of data storage and transfer speeds of up to 160 MB/s*.

LTO Ultrium 3 WORM is a non-rewritable version of LTO Ultrium 3, making it ideal for the secure backup and storage of critical data. LTO Ultrium 3 WORM is essential for companies who need to adhere to strict legal and regulatory procedures or require an unalterable copy of data such as company accounts.

Fujifilm's DLTtape family of cartridge tapes are designed and formulated specifically for DLTtape systems and libraries. DLTtape™ IV offers up to 80 GB* of data storage and transfer speeds of up to 12 MB/s*, while Super DLTtape™ 1 offers up to 320 GB* of storage and up to 32 MB/s* transfer speeds.

*2:1 Compression

7.3 Fujifilm's Enterprise range

Fujifilm's 3592 Enterprise range of media for the IBM 3592 TotalStorage® Enterprise Tape Drive Systems offer high storage capacity, durability and fast access. Featuring Fujifilm's NANOCUBIC™ technology, Fujifilm 3592 Cartridges have a storage capacity of 300GB native or 900GB compressed assuming 3:1 compression. To enable faster access the 3592 "Economy" has a shorter tape length with a 60GB native storage capacity or 180GB compressed.

Fujifilm's 3592 Enterprise cartridges are available in WORM format to ensure the security of critical data. Fujifilm's innovation is not limited to the tape technology alone. The physical design of the 3592 Tape Cartridge itself has been developed to provide more robust sealing, and prevent penetration from dust or other foreign bodies. Furthermore, the shell halves are fastened by strategically placed screws to provide increased impact protection.

Designed for 3590B, 3590E and 3590H drives, Fujifilm's 3590 tape cartridge has a capacity of up to 30GB (uncompressed) with transfer rates up to 14 MB/sec. The 3590E (Extended High Performance) tape cartridge doubles the capacity by doubling the length of the tape to reduce the number of cartridges required for backup and archiving.

Summary of Fujifilm's LTO Ultrium™ and DLTtape™ Media

		LTO Ultrium™ G1	LTO Ultrium™ G2	LTO Ultrium™ G3	DLTtape™ IV	Super DLTtape™ I
Capacity (GB)	Native	100 GB	200 GB	400 GB	40 GB	160 GB
	Compressed*	200 GB	400 GB	800 GB	80 GB	320 GB
Transfer Speed (MB/s)	Native	20 MB/s	40 MB/s	80 MB/s	6 MB/s	16 MB/s
	Compressed*	40 MB/s	80 MB/s	160 MB/s	12 MB/s	32 MB/s

* 2:1 Compression

LTO Ultrium™ Future Technology Roadmap

		LTO Ultrium™ Generation 4	LTO Ultrium™ Generation 5	LTO Ultrium™ Generation 6
Capacity (GB)	Native	800	1600	3200
	Compressed*	1600	3200	6400
Transfer Speed (MB/s)	Native	120	180	270
	Compressed*	240	360	540

* 2:1 Compression

3592 Future Technology Roadmap

		3592	G5	G6
Capacity (GB)	Native	300	500-700	900-1100
	Compressed*	900	1500-2100	2700-3300
Transfer Speed (MB/s)	Native	40	60-80	100-160
	Compressed*	120	180-240	300-480

* 3:1 Compression

8 Recommendations for Media Handling

To ensure the archival life of your media, we recommend that you follow these guidelines and treat your media with the care your data deserves.

Data tape media and drives are extremely robust. Given proper usage and care, they should reward the user with a long, productive life. However, problems do arise from lack of proper drive care and poor media management. This section provides recommendations on media care as well as on optimum media usage, all aimed at protecting your data.

8.1 Media Acclimation

If the tapes come from a different environment, allow them to stabilise for a period of at least 24 hours before use.

8.2 Operating Environment

Control the environment in which you use the tapes. Hostile environments can cause physical and/or chemical damage to the tape. Stay within the following ranges:

	DLTtape™	LTO Ultrium™	3590	3592
Ambient Temperature (°C)	10-40	10-45	16-32	16-32
Non-Condensing Relative Humidity (%)	20-80	10-80	20-80	20-80
Maximum Wet Bulb Temperature (°C)	26	26	26	26

8.3 Archival Storage Environment

Archive your cartridges within the following specifications:

	DLTtape™	LTO Ultrium™	3590	3592
Ambient Temperature (°C)	16-32	16-32	4-32	16-25
Non-Condensing Relative Humidity (%)	20-80	20-80	5-80	20-80
Maximum Wet Bulb Temperature (°C)	26	26	27	26

8.4 Handle With Care

Do not drop or try to open data cartridges. Take care not to label outside of the label area. And always keep cartridges away from magnetic sources. To protect media from being overwritten, use the "Write-Protect" switch.

8.5 Error Correction

Many causes of recording or reading errors are temporary and can be corrected by cleaning the drive or retensioning the tape. Periodic drive cleaning with a Fujifilm cleaning tape may be required when prompted by the drive cleaning light.

8.6 Recommendations for Media Storage

DO

- Have a media and data management policy and structure.
- Seek advice if the media is suspect.
- Inspect media for damage before use.
- Acclimate storage media before use.
- Observe environmental controls (storage, operation, and transportation).
- Store media in specially designed racks or storage boxes.
- Write-inhibit the media before long-term storage or data interchange.
- Conduct periodic clinical cleaning of the storage areas.
- Observe media labelling recommendations.
- Observe data disaster and recovery procedures.
- Monitor system and performance statistics and records.
- Secure and control access to data and media.
- Take care in handling.
- Ensure that media and drives are kept clean.

DO NOT

- Retain just one copy of critical data.
- Use suspect or physically defective media.
- Wait for the system to reject your media.
- Accept new media at face value.
- Use media on dirty subsystems and equipment.
- Expose media to extreme heat, cold or humidity.
- Store media near fire extinguishing points.
- Carry or transport media loosely in a box.
- Export media without environmental protection.
- Smoke, eat, or drink within the media area.
- Store media near debris-producing devices.
- Touch the media surface with your fingers.
- Store media in hostile areas.
- Store media horizontally.
- Stack media one on top of another.
- Drop media.
- Store data without periodically reading and copying it.
- Retain media that has been exposed to environmental disasters.
- Dispose of the storage media without destroying the data first.

9 Look After Your Media With Fujifilm's First for Service

Fujifilm First for Service delivers a complete range of data preparation services offering cost effective solutions for your data requirements. Fujifilm First for Service enables organisations to take advantage of comprehensive data handling services as part of a seamless security strategy. First for Service capabilities include labelling and initialising, laser-etching, degaussing, data migration, data conversion, data recovery, and health checks, all carried out by specialists under clean-room conditions.

Our core focus is to increase the efficiency of your data centre operations and at Fujifilm, we are dedicated to ensuring fast, reliable and accurate bureau services. Fujifilm First for Service has been designed to compliment our extensive range of data storage media, including our midrange and enterprise media.

9.1 Labelling & Initialisation

Data Tape media is often used in automated environments and the industry forecast for these systems shows continued rapid growth for the next several years. To help manage this demand and minimise the cost and time spent by highly trained IT specialists labelling media, Fujifilm is able to supply data tapes pre-labelled in a range of different formats. The labels are sharply printed and can be customised to specific number sequences and colours. They're on straight, not angled or creased, and secure, so providing reliable recognition.

9.2 Laser Etching

It is becoming increasingly important to account for back-up tapes. Giving each tape an individual, non-removable sequential number is the safest way of achieving this and also ensures that your tape library is fully accounted for. Laser etched cartridges, for example, facilitate unique assignment and registration. Using the latest advances in laser technology Fujifilm First for Service can inscribe cartridges with sequential numbering or even your company name and logo. The maximum label size is 100 x 100mm. This information is thus burned permanently onto the media and cannot be removed.

9.3 Data Recovery

Mechanical damage, humidity, smoke and other catastrophes both big and small can lead to a total loss of data. If the worst happens, our highly-qualified Fujifilm First for Service Team can help with data recovery.

We have used our unique skill and experience to offer a service that allows us to recover up to 95% of data, saving important customer information that would have cost thousands of pounds to reconstruct. The recovered data is copied to new media, so that it can be accessed again with no further problems.

9.4 Data Migration

There is an increasing demand for the transfer of extensive volumes of data from older 'legacy' systems to new ones. These moves are often necessary to safeguard compatibility or to harness the considerable advantages that a new system offers. But the transfer process can cost companies untold amounts of time, in many cases it can interrupt internal workflows and last but not least, the job ties up staff who could be deployed more efficiently elsewhere.

9.5 Data Conversion

Secure archiving is often a major problem, especially when the data has to be merged from various types of storage media, data structures and formats, and then transferred onto a new backup system. Through Fujifilm First for Service we are able to read data 'bit for bit', transfer it from one platform to another, convert it, structure it and process it so that it can ultimately be archived on a single platform.

9.6 Data Disposal

To ensure that all of the data that is relevant to your company has been irrevocably destroyed when data media are being disposed of, Fujifilm will take care of the controlled and certified destruction of your data media. The data media is disassembled and definitively destroyed, in accordance with the prevailing legal guidelines. for particularly critical data, this destruction process can also be carried out with close supervision from the customer.

9.7 Degaussing

Degaussing is used to completely erase all data and other signals on magnetic media. This process ensures that data is permanently removed preventing unauthorised retrieval. Fujifilm can degauss just a few tapes or run bulk degaussing on your magnetic media. Once degaussed, all media is double-checked for complete erasure.

NB: Degaussing renders media with magnetically recorded servo tracks unusable. e.g. LTO Ultrium, 3590, 3590E & 3592

9.8 Cartridge Health Check

Ensuring that your cartridges are working reliably, is vital to your data storage strategy and possible errors or damage to data media should be detected before they can cause serious problems.

We check and analyse your data media thoroughly. The status of each cartridge is documented in detail, and the results are thoroughly evaluated. If our health check discovers that your data is at risk, we will offer you suitable solutions to safeguard your information.

The First for Service program indicates Fujifilm's ongoing commitment to the computer media industry. This service, coupled with our ATOMM and NANOCUBIC™ Technologies, all adds up to Fujifilm being a name that you can trust when it comes to data storage media.

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