5. TAPE

5.1 Choice of Tape and Tape Speed

The following types of tape are approved for use in the S2. Other types of tape should be avoided.

Type

1. Scotch® ST-120/SE-180 (20 micron) SVHS tape manufactured by 3M, now no longer in production. This was available in North America as ST-120 and in Europe/Australia as SE-180 (about 5% longer than ST-120).
2. Maxell ST-182/SE-260 (13 micron) SVHS tape. Also available as the very slightly shorter Maxell ST-180. May be designated ''XR-S Black'' or ''Professional Broadcast Quality''. Note: These thin tapes will not work in systems with AG2510 transports.
3. Ampex 289 ST-126/SE-180 (20 micron) SVHS tape. Some cassettes may be labeled ST-120 but are actually the same length as the ST-126.
4. Fuji H471S ST-120/SE-180 (20 micron) SVHS tape. Available in North America as ST-120 and in Europe/Australia as SE-180 (about 5% longer than ST-120).

The type of tape being used in the S2 must be specified using the `tapetype` console command or TAPETYPE_SET RCL command. A default setting to use at bootup can be defined using the **tapetype** parameter in the system defaults file (the defaults file is described in Section 4.2.7). The tape type is a one-digit code indicating one of several approved varieties of tape as listed above and in Table 5-1. The tape type code is used by the S2 to determine transport write-current levels, so technically it does not need to be set for playback but setting the correct tape type is still recommended. For unlisted tape types it is possible to enter digits NNNMMM where NNN is the write current for LP and MMM is the write current for SLP. These numbers must be determined empirically and will typically be supplied by ISTS/SGL when a new tape type is approved for use in the interim until the next offical software release (which will recognize the new type).

The "fast" S2 tape speed is LP (29 micron track pitch), and gives 4 hours 1 minute total recording time per ST-126/SE-180 tape at a specified bit-error rate of less than 1×10^{-4}. Typical bit-error rates of around 1×10^{-5} can be expected. Operating the system at the SLP speed (20 micron track pitch) gives 50% longer recording times, or 6 hours 2 minutes on ST-126/SE-180 tapes. There is no formal specification for SLP performance, however typical bit-error rates of around 2×10^{-4} can be expected.

With Maxell ST-182/SE-260 "thin" tapes the SLP recording time is extended to 8 hours 41 minutes, and although the thin tapes have not been formally specified, BER performance should be similar to thick tape. Note that thin tapes (thickness less than 20 microns) do not work in AG2510 transports, but are fine in later transport models such as the AG2520 and AG2530.

Tape Type	Description	Length (meters)	Thick/ Thin	LP Time	SLP Time	Notes
1	3M Scotch ST-120	246	thick	3h 50m	5h 45m	discontinued
1	3M Scotch SE-180	258	thick	4h 01m	6h 02m	discontinued
2	Maxell ST-182/SE-260	371	thin	5h 47m	8h 41m	not for AG2510s
2	Maxell ST-180	367	thin	5h 43m	8h 35m	not for AG2510s
3	Ampex 289 ST-120/ST-126/SE-180	258	thick	4h 01m	6h 02m	
4	Fuji H471S ST-120	246	thick	3h 50m	5h 45m	
4	Fuji H471S SE-180	258	thick	4h 01m	6h 02m	

Table 5-1: S2 Approved Tape Types

5.2 Tape Shipping and Storage

Tapes must be shipped and stored in closed containers. Canadian CSA tapes use a low-cost cardboard sleeve designed to hold a set of 8 tapes, and a padded cardboard shipping container that holds 4 tape sets or 32 tapes total. Whenever tapes are not in the transports they should always be placed in their containers. If no CSA or equivalent tape containers are available standard VHS dust jackets may be used.

For maximum data integrity, tapes should be stored vertically in the fully rewound position. Tapes should be fully rewound when shipped.

Tape Shipping Environment

The ideal shipping environment for tape is 19–22 degrees Celsius, at a relative humidity of 45% to 55%. Environmental limits are to be determined.