

VLBA ACQUISITION MEMO #315

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Subject: Low melting point of oxide binder in AMPEX 741 Tape

The accelerated tape tests show that the AMPEX tape is susceptible to edge damage when run at high speeds on the Metrum 96 transports. The high-speed (270 IPS and higher) running produces significant heating of the tape in regions of contact with the precision back plate and the front door. Recent modifications made to the transport to reduce friction and remove more heat with higher conductivity materials (alumina for the back plate and aluminum for the front door) have helped but may not be sufficient for the AMPEX 741 type. Perhaps the reason for the greater susceptibility of 741 tape is the relatively low ($\sim 90^{\circ}\text{C}$ [194°F]) melting point of the oxide binder demonstrated by heating the tape on a hot plate to the point at which the oxide becomes tacky and can be removed with a dry Q-tip. Tests on other tapes (3M and Sony) show better stability with little tendency for the oxide or backcoat to come off until temperatures are around 140°C (284°F). The temperatures given in this memo are somewhat subject to how hard the oxide is rubbed with a Q-tip. However, on a comparative basis, it is easier to remove the oxide at a lower temperature than that required for the other tapes.