VLBA ACQUISITION MEMO #147

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

HAYSTACK OBSERVATORY

WESTFORD, MASSACHUSETTS 01886

16 May 1989

Area Code 508 692-4764

To: VLBA Data Recording Group

From: Alan E.E. Rogers

Subject: Measured Head Profiles

Hans had the profiles of worn headstacks measured at Honeywell (see Figure 1) and the height of the profile at the gap is about 1.4 microns for one headstack and 1.8 microns for another, which is somewhat less than the predicted height (for heads worn with 25 μ m tape) of 2.3 microns given in Acquisition Memo #141. The difference is probably due to the elastic modulus of the tape being higher than that assumed in Acquisition Memo #141 and an average operating tension being lower. If we assume a modulus of 10⁶ lbs/sq" and a vacuum of 9" rather than 7x10⁵ and 10" assumed, the predicted height drops from 2.3 to 1.9 microns. Also, one of the headstacks measured had a narrower headstep and when the 1.4 microns measured for this headstack is scaled, it becomes 1.9 microns. Thus the theory is in reasonably good agreement with the measured profiles.

INCOM NOT 25-A Electrised Measuremur 4: Division JAVERAGE (RANGE - 10) DIFISION ... DODASD 41-401 Not Sev. No. End! ••• . . ••• - - . - --4. 1. m 1. **.** . . •••• Headstop widt = 220 pm INCH CUTOFF RECORD RANGE STYLUS RADIUS دەە.□ 010.∐ 0.030 17.300 TITOTAL L)ROUGHNESS [].100 00 I L'WAVINI:SS LJAVERAGE (RANGE + 10) DIVISION _ DO0050 ... τ.... **. . .** Serial-No-End Non 4 Troin WZY <u>t 6</u> · 🗕 • --- • • - -.... ۲ . • ... ----._ . . - · · · · · · · · · INC + CUTOFF . RECORD RANGE STYLUS RADIUS DATE 4-20-89 **...**003 11.0m 11.300 **I ITOTAL** 1 POUGHNESS DIVENON OOO45 PART NO. 25A Shellicht [_].010 L1.100 Ù. **WAVINESS** LAVERAGE (RANSE : 10) from Sev. No. Ere 20 . .. ٠.. . . **.**.... ,011 . . **. .** .. . NAME -SFYLUS RADIUS DATE 4-20-89 ATT 1 EL 203 ITOTAL 11.030 12.300 DROUGHNESS 11.1 10 IJWAVINESS. I LAVENAGE (RANGE : 10) DIV SION, DOODSO .. Shuffield N PART NO. 25 A. I. 7: 1 i 1 1 ļ 1 1 r. No. End Sé -- . --. - - - - -1.25 µm 280 Headste wid4. 75 "= 1.91 pm -. ---• • • • • • • -- -----Some headstack profiles measured by Honeywell Fig-