

Introduction

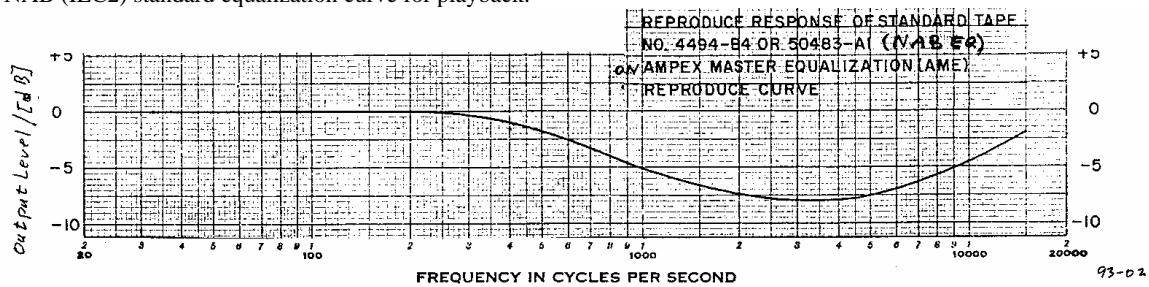
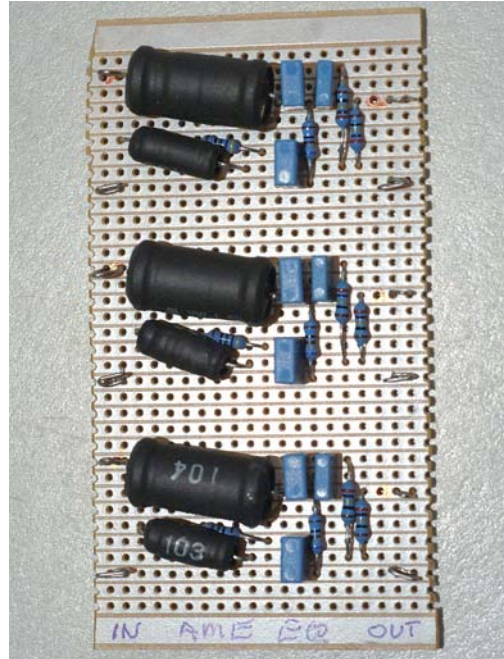
Ampex Master Equalization (AME) was introduced in 1958 as a way of improving perceived signal-to-noise ratio in magnetic tape recording. It was primarily used for 3-track 1/2-inch master recording. It is a supplemental curve that is on top of the standard NAB (IEC2) 15 in/s equalization curve. AME was provided on various models of the Ampex 300 and MR-70 and perhaps additional models.

Sources

The primary source for AME information is Jay McKnight who is currently President of Magnetic Reference Laboratory in Mountain View, California <http://www.flash.net/~mrltapes/> MRL will make available special AME test tapes. Additional information was found in the MR-70 manuals.

The AME Equalization Curve

From a document on Jay McKnight's Web site, the following graph shows the curve applied to the NAB (IEC2) standard equalization curve for playback.



The AME Equalizer Circuit/Installation

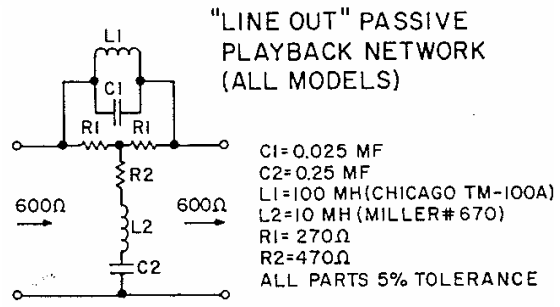
The paper on the MRL Web site shows the circuit diagram at right. We found that using the available modern components, C2 matched the above curve better as 0.33 MF (330nF). The graph of the response curve (next page) shows that it matches the original curve (above) within 1 dB. The blue curve is a theoretical analysis undertaken in SPICE. We opted to match the older published curve.

There is a fixed loss through the equalizer of approximately 6dB. The source impedance is a non-issue for all practical purposes. 200-600 ohms should provide acceptable results. **A 681 ohm terminating resistor is provided on the board, so this should be connected to a high-impedance (bridging) input.**

This circuit may be used between balanced or unbalanced circuits. The top terminal (marked red) is for the "hot" while the lower terminal in each set is the "low" or "return" (or ground in unbalanced circuits).

Mount the circuit board inside a metal box, and check that there is no hum pickup in the coils. Keep it away from magnetic fields such as transformers and motors.

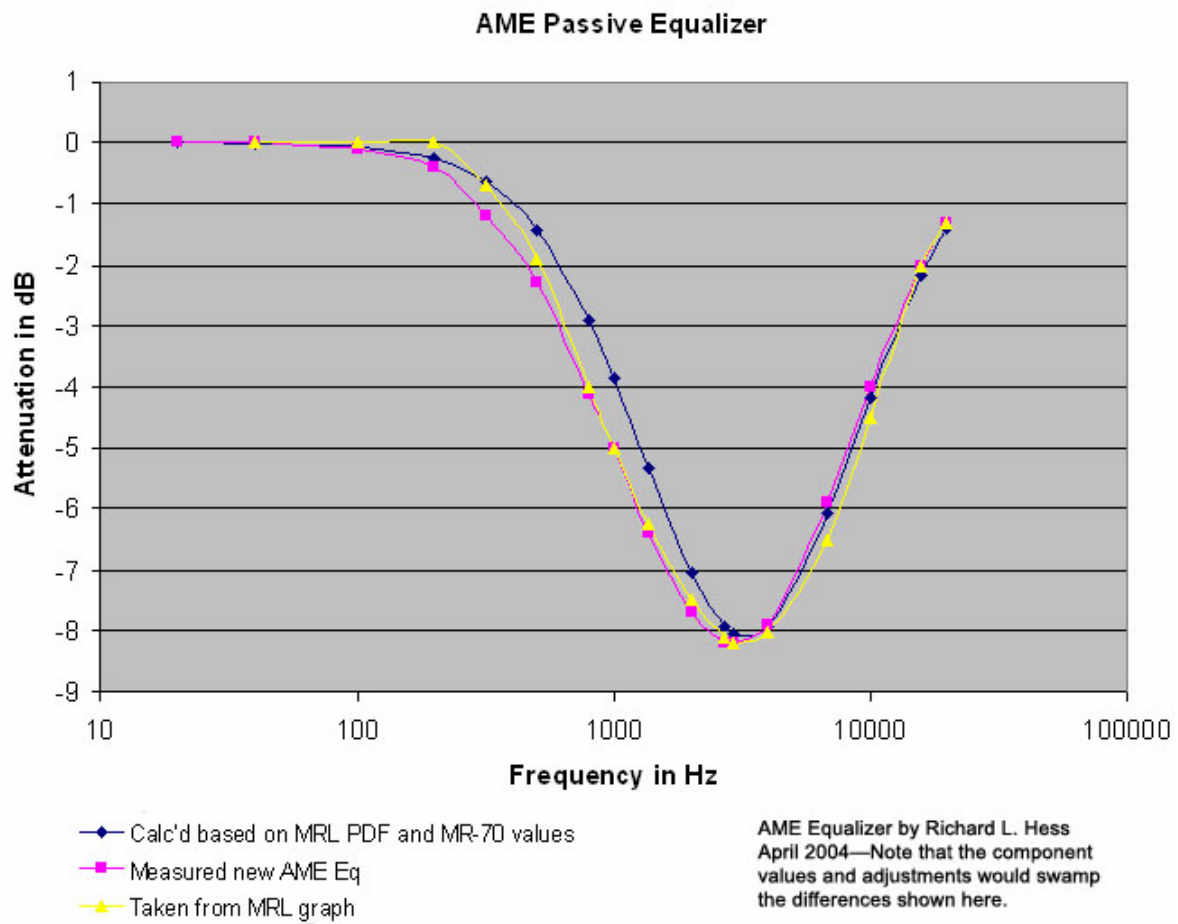
This unit should be installed between the tape recorder line outputs and the A-D converter inputs (or other recording device).



Parts List

DK = DigiKey part Number

- C1 22nF + 3.3nF in parallel
- BC Components 2222 370 52332 DK 3004PH-ND
- BC Components 2222 370 42223 DK 3009PH-ND
- C2 330nF
- BC Components 2222 370 12334 DK 3016PH-ND
- L1 100mH J W Miller 5900-104 DK M5954-ND
- L2 10mH J W Miller 5800-103 DK M5842-ND
- R1 274 ohms (2 req'd) Yageo MFR-25FBB-274R DK 274XBK-ND
- R2 475 ohms Yageo MFR-25FBB-475R DK 475XBK-ND
- Terminating Resistor (not shown) across output
- 681 ohms Yageo MFR-25FBB-681R DK 681XBK-ND



revised 18 May 2005 – corrected inductor callouts
revised 28 April 2005 – added parts list, enlarged coloured curves.

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