

# MAGNETIC REFERENCE LABORATORY, INC.

229 Polaris Ave, Suite 4 ♦ Mountain View, CA 94043 ♦ Phone +1 650 965 8187 ♦ FAX +1 650 965 8548  
 email mrltapes@flash.net ♦ http://www.mrltapes.com

Publication AME  
 Rev 2005-07-01

## Ampex Master Equalization (AME)

AME is an equalization introduced by Ampex in 1958, in an attempt to increase the dynamic range on tape recordings in a day before there were low-noise tapes and noise reduction systems. The research report was published in the AES Journal in 1959 [1] and is now on the MRL website [2]. The Ampex Service Bulletin 15 [3] describes AME, and gives the response curves and a passive 600 Ω equalizer.

We do *not* recommend AME for use with new recordings – rather, use low-noise tape, a noise reduction system, or both. We give the AME information here only for its history, and for reproducing old recordings made with AME Equalization. An MRL Calibration Tape for AME is available, as shown below

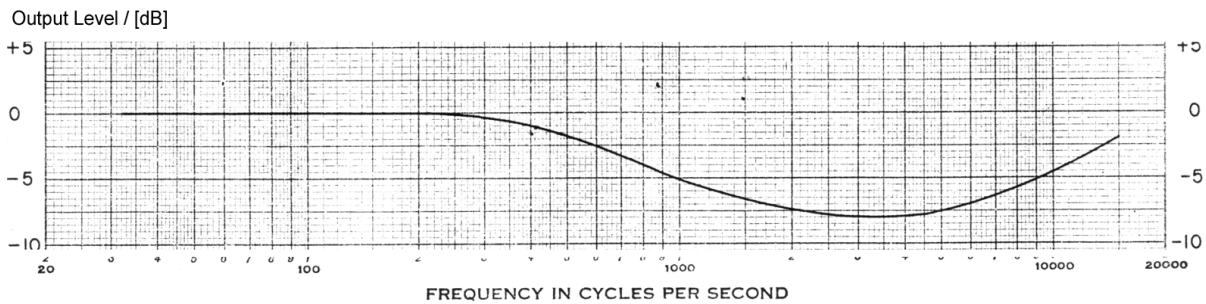
AME equalization was *added to* the Standard NAB (IEC2) 15 in/s equalization—it was *not* used as a "stand-alone" equalization curve. The curve below shows the equalization *added to* the NAB equalization for *playing* an AME recording, as shown in the Ampex Service Bulletin [3].

Ampex incorporated a medium-impedance passive AME equalizer in the Model 351 multi-track electronics [4], and the Ampex Model MR-70 [5]. Yet another possibility is a 600Ω

passive equalizer, as given in the Ampex Service Bulletin Nr 15 [3]. Richard Hess has researched the modern sources for the parts to make this passive AME Filter. If you are interested in making such a filter, see Richard's parts list at [http://www.richardhess.com/tape/ame\\_equalizer\\_20040412.pdf](http://www.richardhess.com/tape/ame_equalizer_20040412.pdf).

References (Note: All web links are active.)

- [1] J. G. McKnight, "Signal-to-noise problems and a new equalization for magnetic recording of music", Jour. Audio Eng. Soc Vol 7, Nr 1, pp 5...12 (1959 Jan.)
- [2] For the McKnight paper, [1], see [http://www.flash.net/~mrltapes/mcknight\\_sn-problems-and-a-new-eq.pdf](http://www.flash.net/~mrltapes/mcknight_sn-problems-and-a-new-eq.pdf)
- [3] For the Ampex Service Bulletin, see [http://home.flash.net/~mrltapes/ampex\\_sb15-ame.pdf](http://home.flash.net/~mrltapes/ampex_sb15-ame.pdf)
- [4] Ampex Model 351 electronics with AME, Cat Nr 30750-09 thru -10.
- [5] For the Ampex Model MR-70 electronics with AME, see <http://ftp.ampex.com/ampex/manuals/audio/mr70man/70-7-6.jpg>  
 The AME Equalizer is in the lower left corner of that schematic.



When you play an NAB (IEC2) 15 in/s Calibration Tape on a properly calibrated AME-equalized system, you should get the response shown in this graph (from Ampex Service Bulletin 15 [3]).

### MRL Multifrequency Calibration Tapes with AME Equalization

Tape Width <i>Playing Time</i>	Tape Speed	Equalization Standard	Level of Frequency Response Section	Catalog Number for Reference Fluxivity	Price
				185 nWb/m	
6.3 mm <b>¼ inch</b> 8 minutes	380 mm/s <b>(15 in/s)</b>	AME	0 dB	243-114-452-121	125 \$
12.5 mm <b>½ inch</b> 8 minutes				343-114-452-120	210 \$

Prices are in US \$, and do not include shipping or applicable taxes.

Prices may be changed without notice.