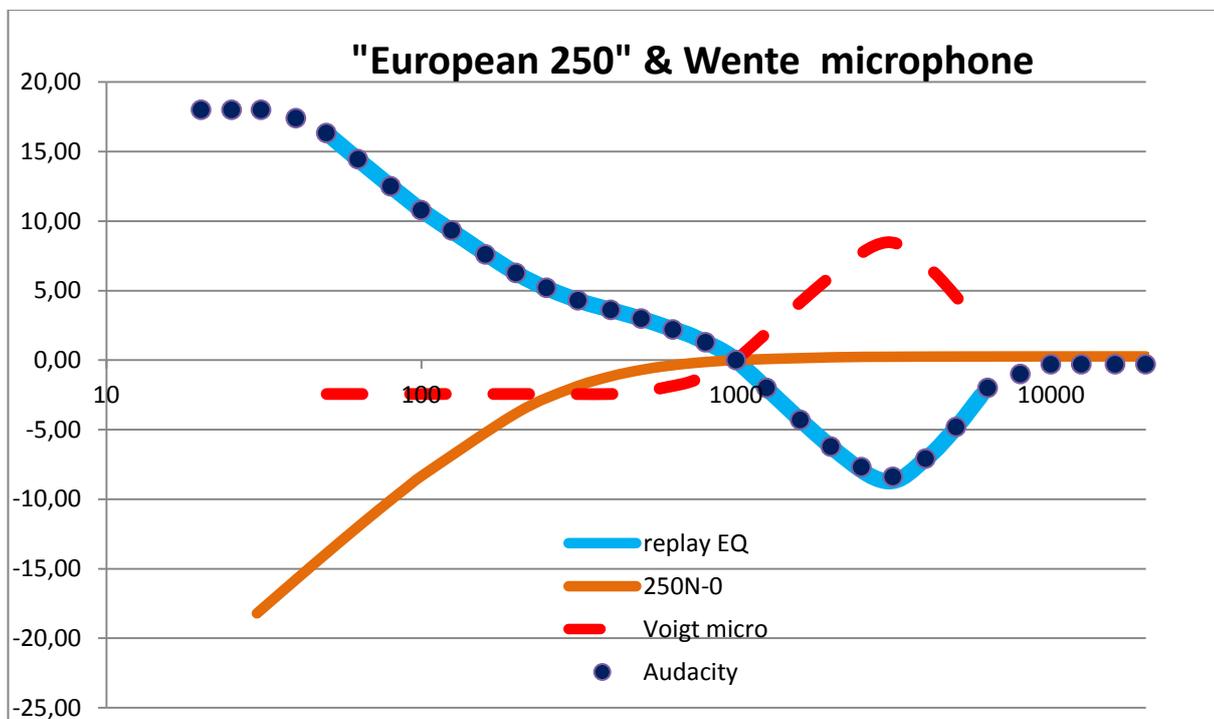


# Early Western Electric Characteristic

Very early Columbia and Victor recordings (1926 and up) used a bass turnover frequency of 250 or 300 Hz but their treble is described as “flat” by Voigt [1] and by Galo [2] who quotes correspondence with RCA dated 1935. The perceived treble amplification was possibly only the result of resonant peaks of the early W.E. condenser microphones used in recording.

These are reported by Stokowski.org [3] and Copeland [4] to have had a resonant peak of + 7 dB at 2.9 kHz. The microphone is described in more detail by Voigt, who draws a graph with a + 6.6 dB peak at 3 kHz, but also a – 4.3 dB rolloff at low frequencies, so that the difference in gain comes close to 11 dB! Resonance could be reduced in the early 1930s but never completely.

This would explain the wide spread in treble rolloff recommendations in the Audacity Wiki list – since this treble curve was not the result of a high frequency filter in pre-equalization it can not be evened out by an ordinary EQ curve in playback



*This chart shows the most likely recording curve “250N-0” in combination with a W.E. mod. 361 microphone as described by Voigt and the corresponding playback EQ.*

An experimental replay EQ curve for this specific microphone / pre-emphasis combination of the early Columbia and Victor shellacs can be downloaded from the Audacity Wiki.

[1] Paul G. A. H. Voigt, “Getting the Best from Records, Part 1. – The Recording Characteristic”, in: Wireless World, Feb. 1940, Fig. 4. on p 143

[2] Gary A. Galo, “Disc Recording Equalization Demystified”, in ARSC Journal, Fall 1996, p 48

[3] [http://www.stokowski.org/Development\\_of\\_Electrical\\_Recording.htm](http://www.stokowski.org/Development_of_Electrical_Recording.htm) describes the Western Electric mod. 361 condenser microphone invented by Edward C. Wente

[4] Peter Copeland, “Manual of Analogue Sound Restoration Techniques”, The British Library, 2014