

APPENDIX

Resuming the work done so far, I decided to add further measurements of the output impedance in the various circuit configurations, comparing them with each other, but with a "look" attentive above all to the timbre characteristics of the sound reproduced, convinced that this parameter decisively influences the last 2 links of the sound chain: \leftrightarrow amplifier speakers and that this influence, on the other hand, it turns out to be particularly true in the typical case of single-ended tube amplifications.

The speakers I normally use (Sonus Faber Principia 3 4 Ω ; 89dB) are placed in my living room at a reciprocal distance of 240 cm and about 200 cm from the usual listening position, raised from the ground by 55 cm and spaced about 20 cm from the back wall.

Given the size of the environment, and also for personal habits, I do not need or frankly like exaggerated listening volumes: so the TU-8200 with its 8 W pc (declared) is more than enough.

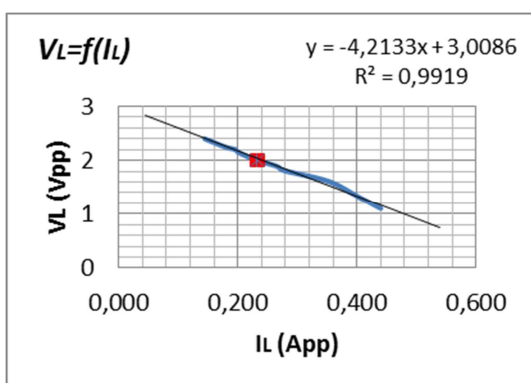
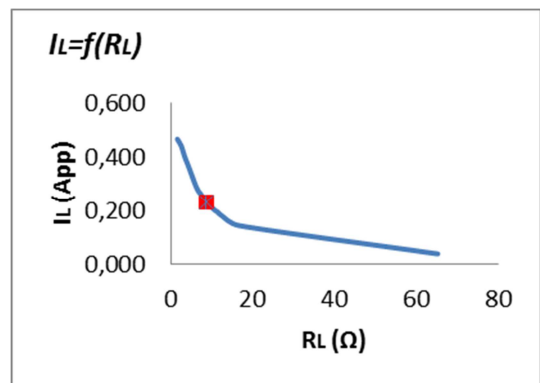
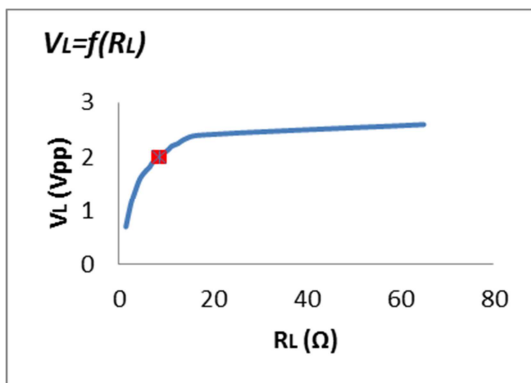
However, - having always been passionate about Jazz music and having listened to it for years in small clubs - , I am strongly conditioned by what I could define as a constant search for the so-called "typical sound" ... or the possibility of being able to reasonably and realistically reproduce it in the home, in particular for what concerns the frequency range between 50 \div 200 Hz

Chimera? Perhaps, but driven by this desire, over the years I have extensively experienced... "playing" with my Elekit (upgrading it in various ways), until I have reached a situation of good compromise today.

Right now my set-up is as follows:

- Turntable: Technics SL 1900 (cartridges: Grado prestige green plus1 + Audio technica AT 95E)
- CD player: NAD C516 BEE
- Phono tube stage: Tavish Design 6SL7 phono stage
- Tube amplifier: TU-8200 (OPT Lundahl 2777B) E80cc(Tungsram)+7581A(Tung-sol) TRIODE mode
- Loudspeakers: Sonus Faber Principia 3 (4 Ω ; 89dB)

OUTPUT IMPEDANCE MEASUREMENTS



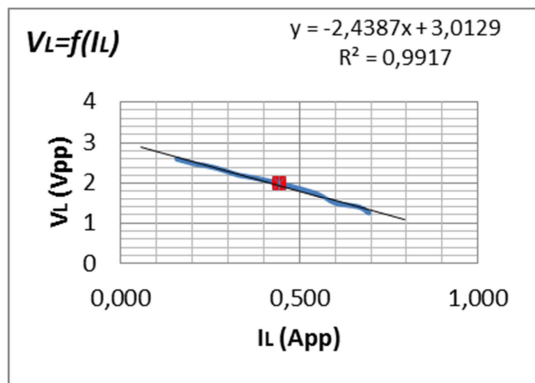
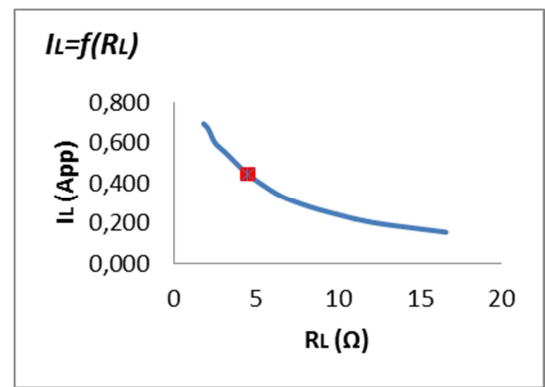
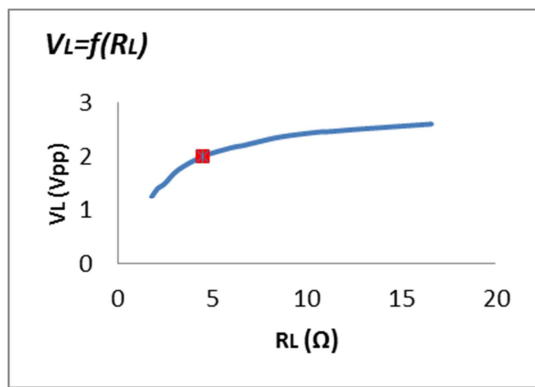
6L6GC+Ecc82 UL mode Opt Lundahl

Freq.= 1KHz

Imp.Sel.= 8-16

V_{in} = 360 mVpp

V_{out} (set on 8.6 Ω) = 2 Vpp



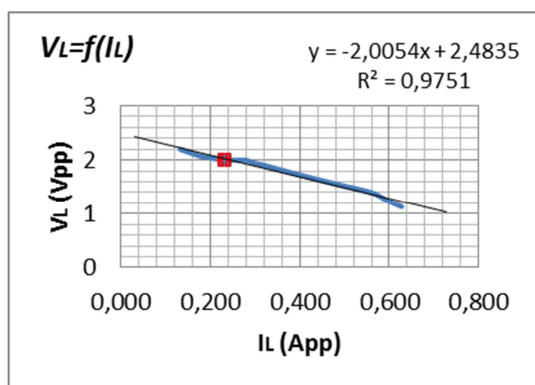
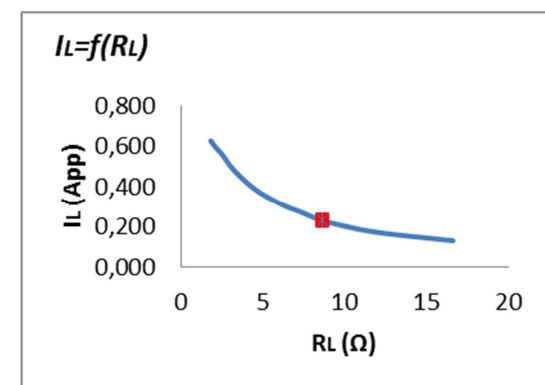
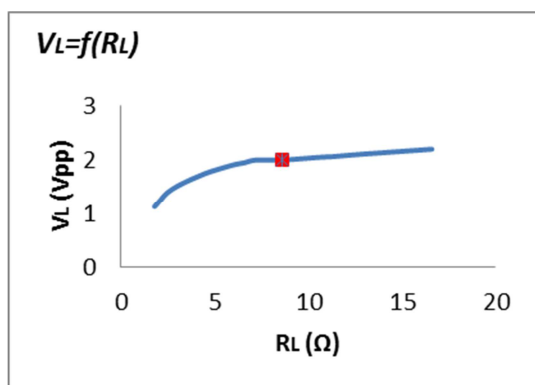
6L6GC+Ecc82 UL mode Opt Lundahl

Freq. = 1KHz

Imp.Sel. = 4-6.3

$V_{in} = 360 \text{ mVpp}$

V_{out} (set on 4.5Ω) = 2 Vpp



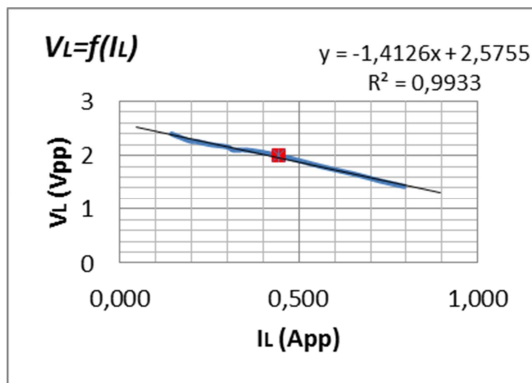
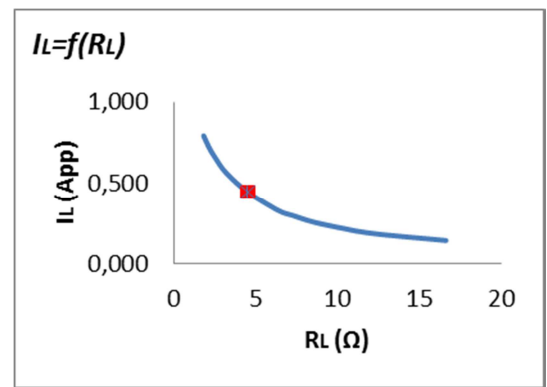
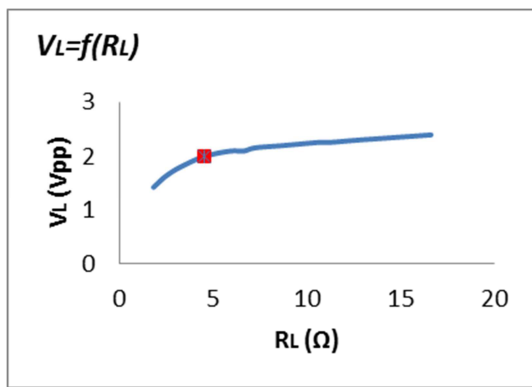
7581A+E80cc TRIODE mode Opt Lundahl

Freq. = 1KHz

Imp.Sel. = 8-16

$V_{in} = 205 \text{ mVpp}$

V_{out} (set on 8.6Ω) = 2 Vpp



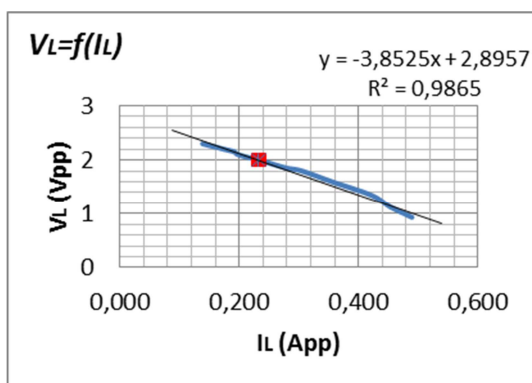
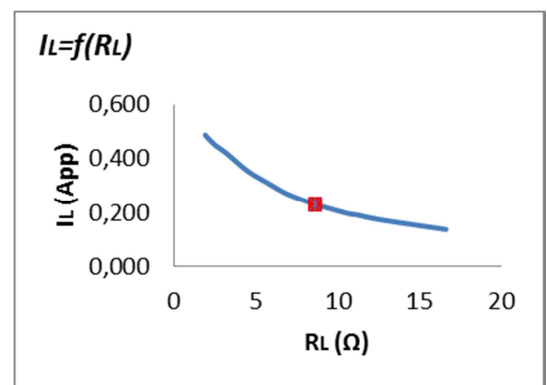
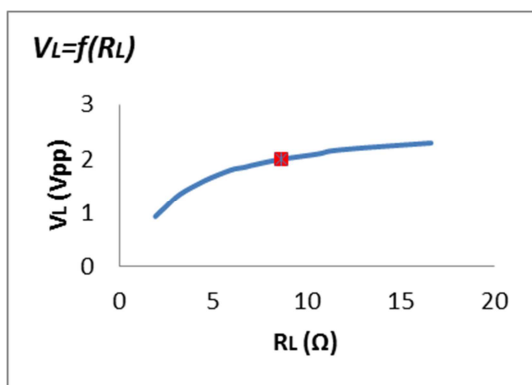
7581A+E80cc TRIODE mode Opt Lundahl

Freq. = 1KHz

Imp.Sel. = 4-6.3

$V_{in} = 205$ mVpp

V_{out} (set on 4.5Ω) = 2 Vpp



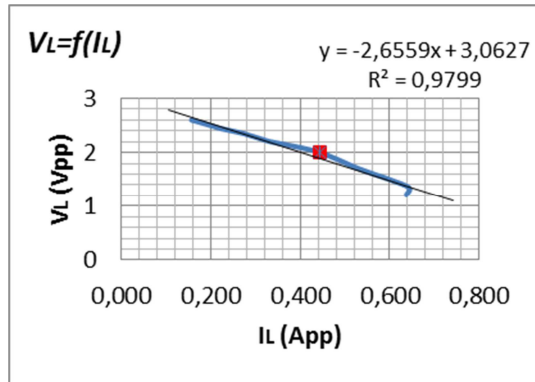
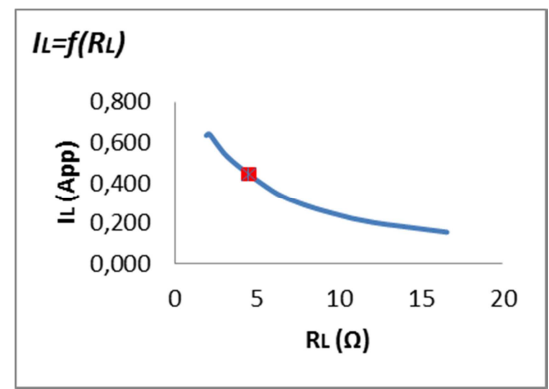
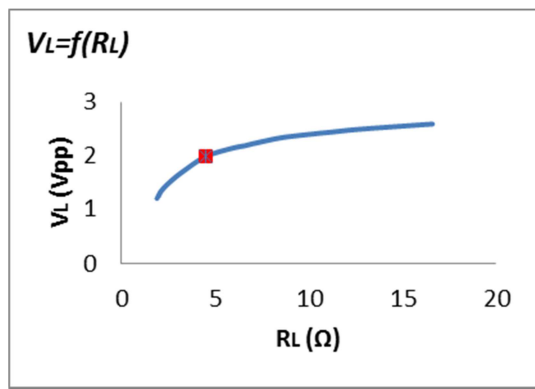
6L6GC+Ecc82 UL mode Opt Atene

Freq. = 1KHz

Imp.Sel. = 8-16

$V_{in} = 380$ mVpp

V_{out} (set on 8.6Ω) = 2 Vpp



6L6GC+Ecc82 UL mode Opt Atene

Freq.= 1KHz

Imp.Sel.= 4-6.3

$V_{in} = 375 \text{ mV}_{pp}$

$V_{out} \text{ (set on } 4.5 \Omega) = 2 \text{ V}_{pp}$

The conclusions I have reached on an "experimental" basis, although partly conditioned by the use of non-professional measuring instruments, are in accordance with what my "ear" has been suggesting to me for some time: that is, the ability of some circuit configurations of the TU-8200 to exercise the best possible control over the speakers of the Principia 3 precisely in the frequency range $50 \div 200 \text{ Hz}$

In particular, those same circuit configurations that sounded so "correctly pleasing" to my ears, were precisely those characterized by the lowest output impedance.

Currently my favorite combination (from an exclusively sonic point of view) is the following:

E80cc + 7581A (Triode Mode)

Opt : Lundahl LL 2777 B

Imp.Sel.: 4-6.3 Ω

Characterized in fact by a $R_e \approx 1.4 \Omega$

It will be a coincidence ????. Who knows !!!!!