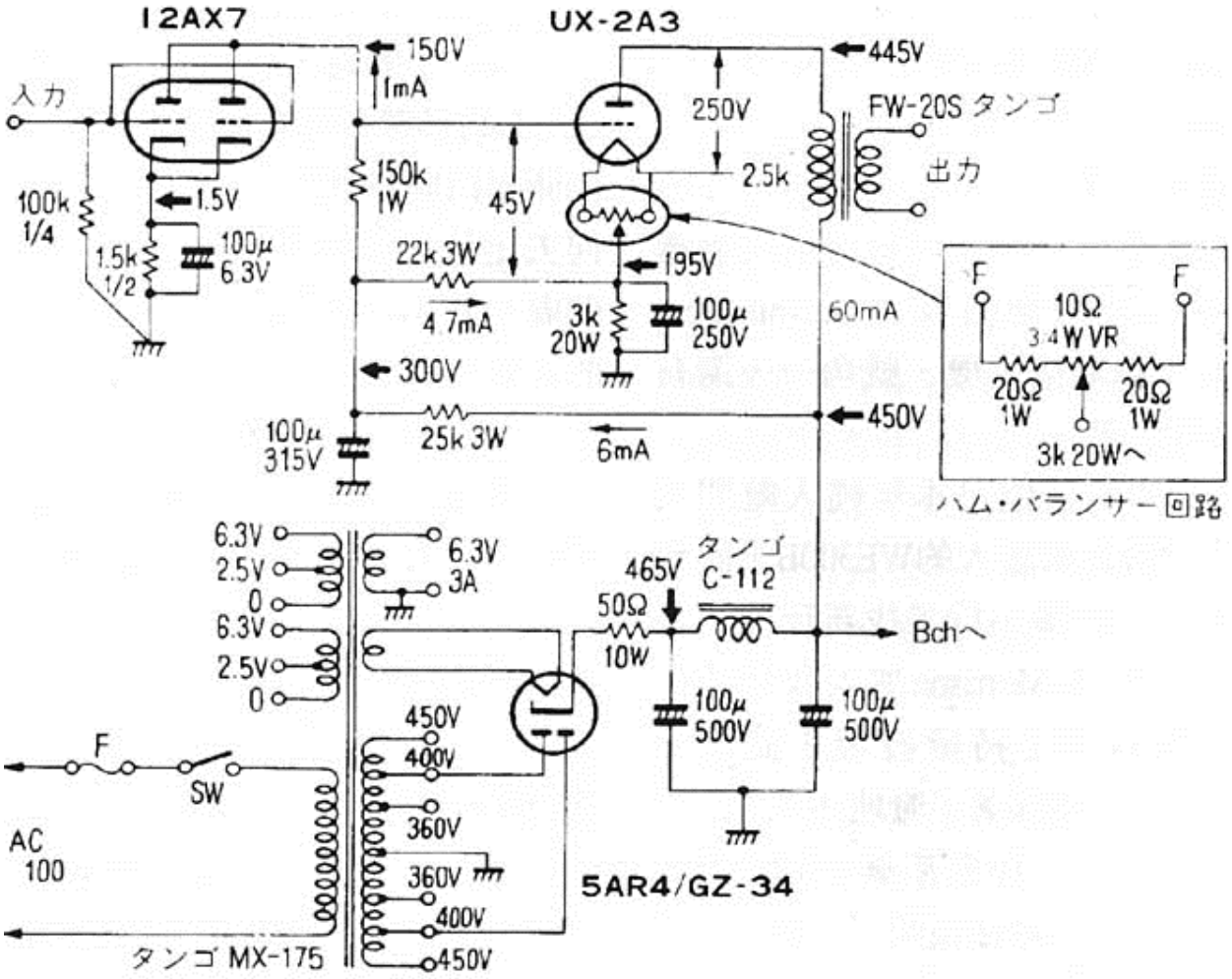
SHISHIDO 2A3 DIRECT COUPLED SE AMPLIFIER

TS2016: Dennis Klompmaker

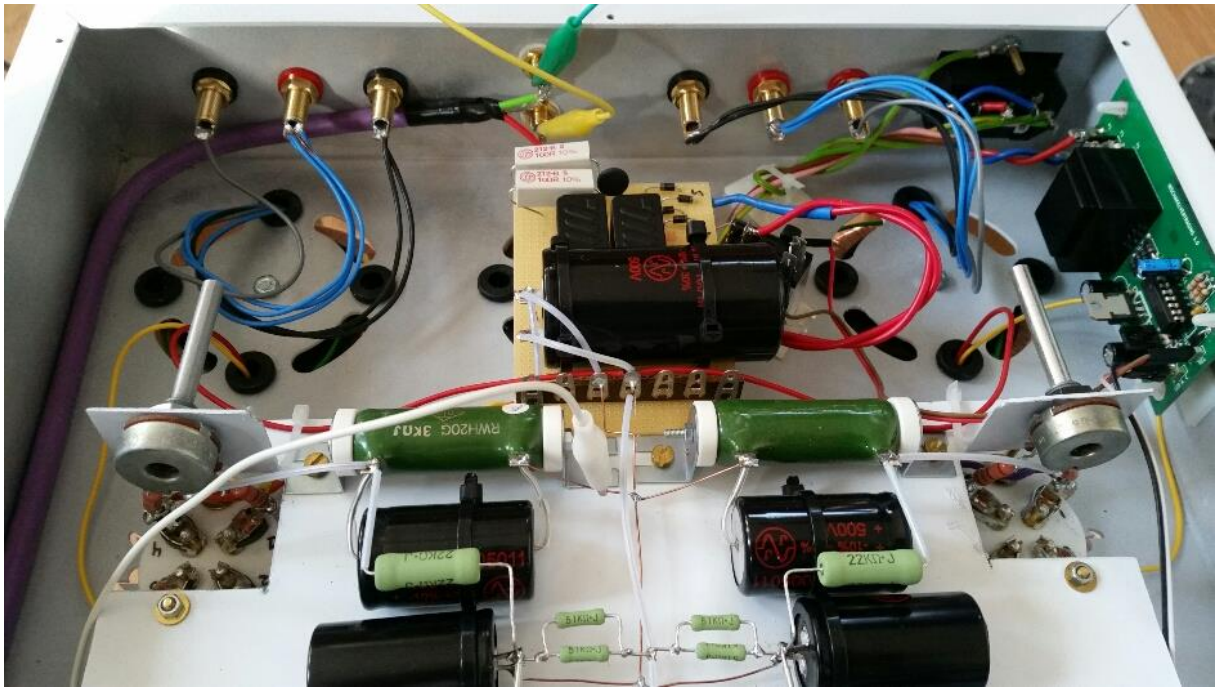
Introduction:
I have heard the large impact of coupling capacitors on sound quality. Therefore I decided to use a direct coupled circuit. A very nice design is by Shishido (based on earlier work of Loftin-White). Please see the schematic below.



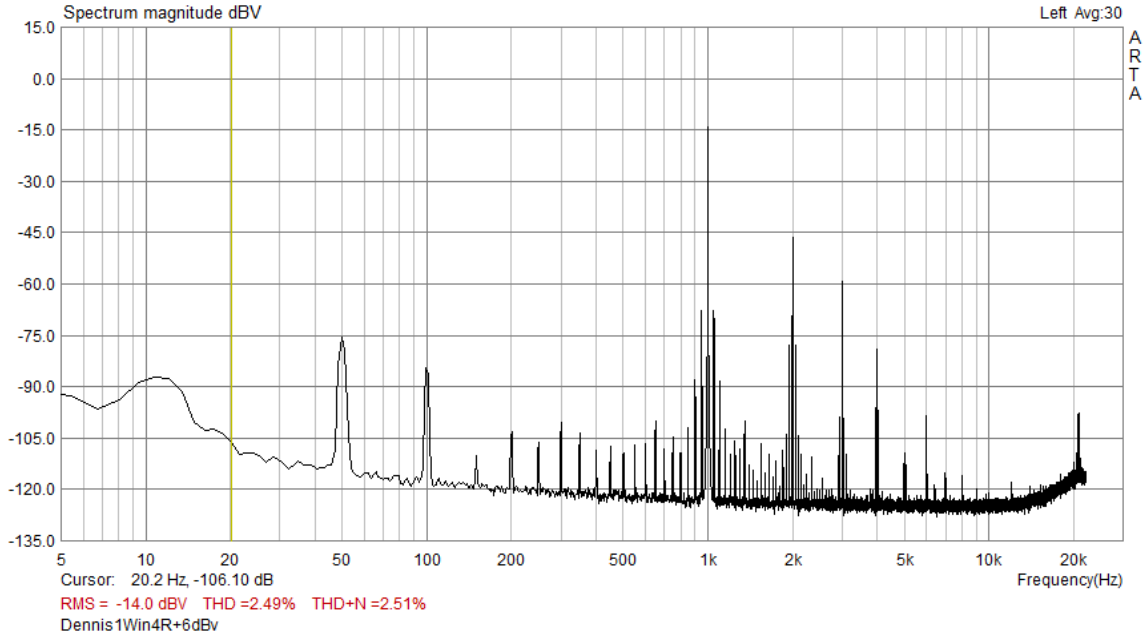
↑ Shishido這個Lotin White 2A3直接交連放大器設計相當著名。

Description of my "Shishido"-design:
I asked Amplimo to manufacture a special power transformer for me with the following secondary windings: 330V/300mA, 2x2,5V/2,5A, 6,3V/3A, static screen. In series with the primary winding I applied a NTC120 resistor to prevent high switch-on currents. I did not apply the GZ34 rectifier tube, but used 1N4007 diodes instead with a 10 Ohm series resistor (in the schematic indicated as 50 Ohm / 10 W). My output transformer is the toroidal VDV-2512-SEE. Instead of the choke C-112 I used two paralleled MEC100 active chokes. Else I completely follow the Shishido schematic.

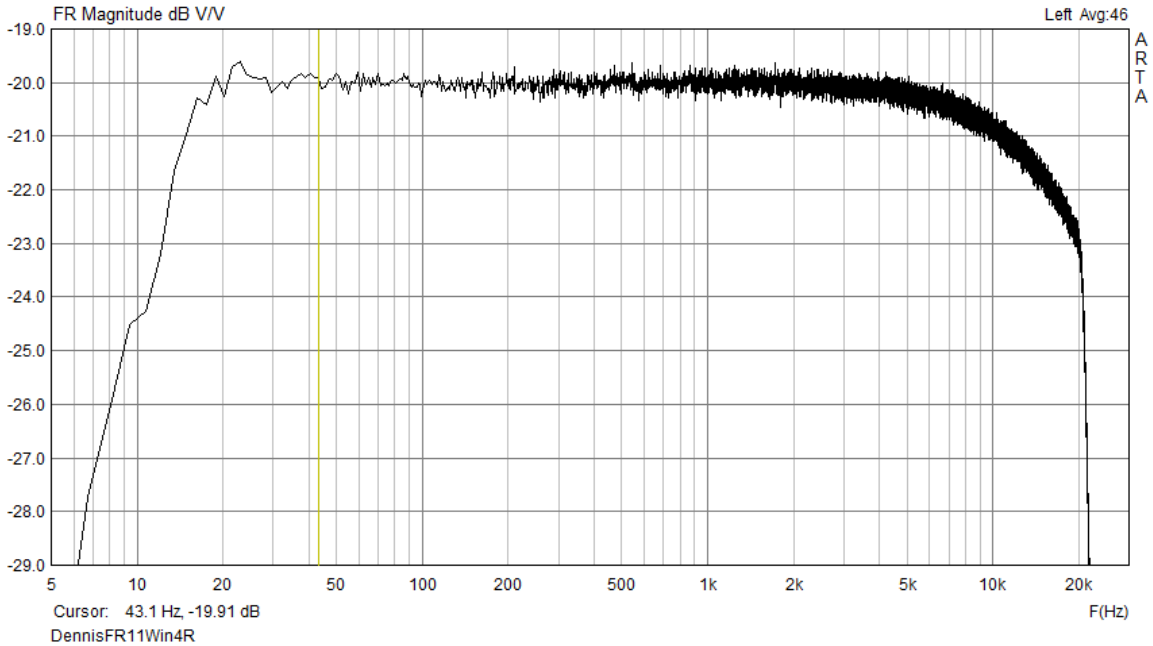
The pictures below give an impression of my final construction.



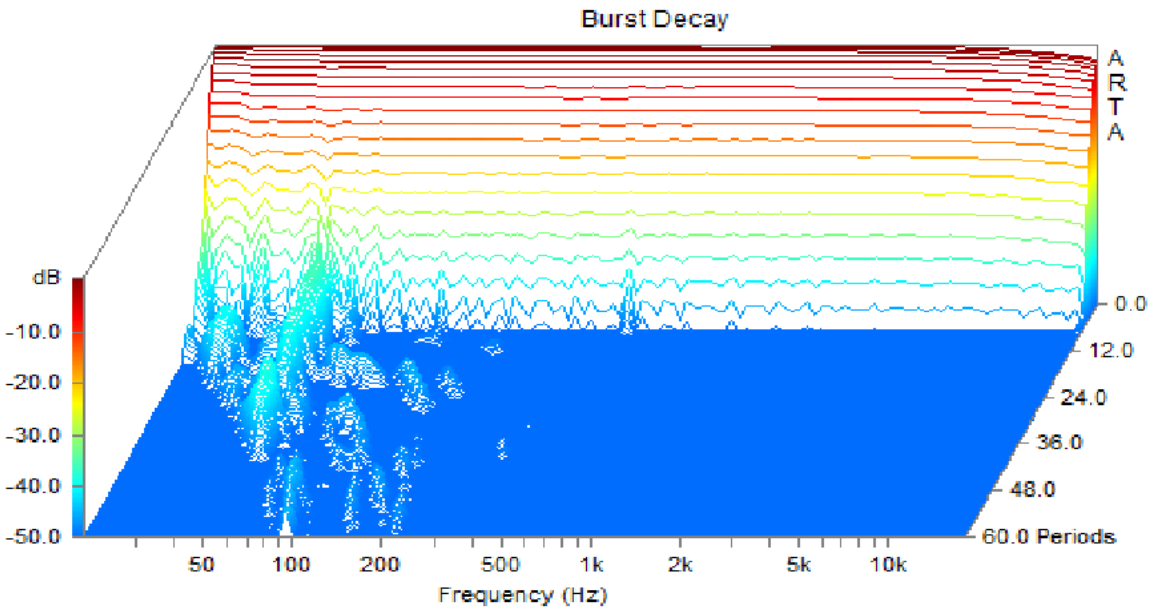
Measurements:



The vertical scale is uncalibrated. The measurement is performed at +6dBV in 4 Ohm, equal to 1 Watt in 4 Ohm.
The IMD of 50Hz components is striking, however was unnoticed in the sound.

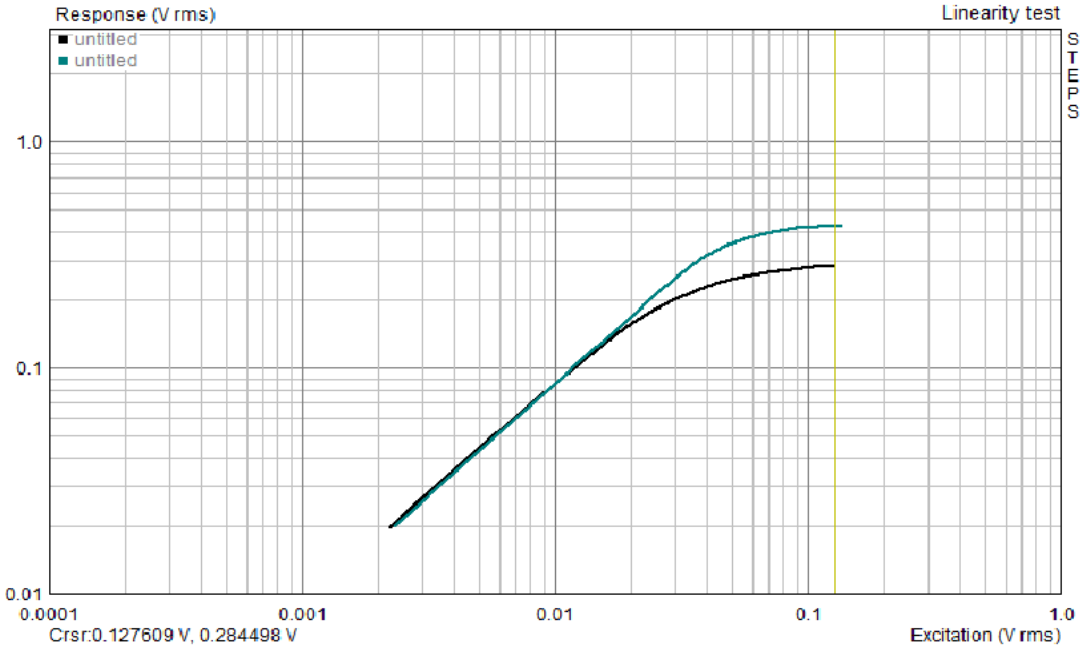


The vertical scale is uncalibrated: measurement at 1 W in 4 Ohm load. Within -3dB straight from 12 Hz to 20 kHz.



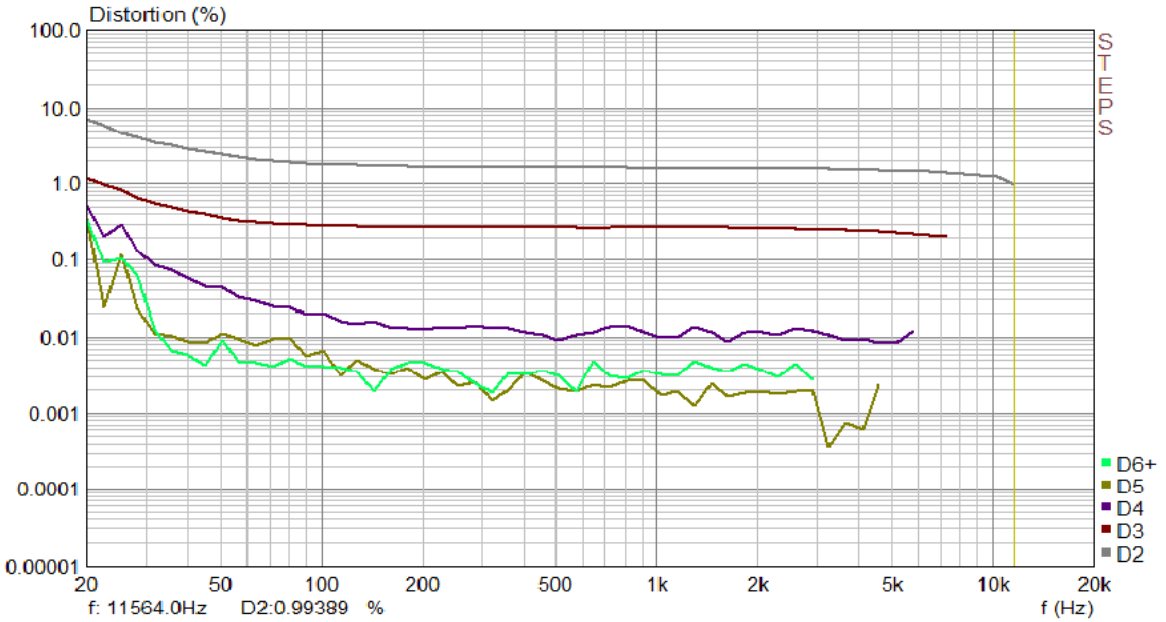
DennisIMP1W50dBv

Power residuals are noticeable plus 2 2A3 resonance around 1 kHz.

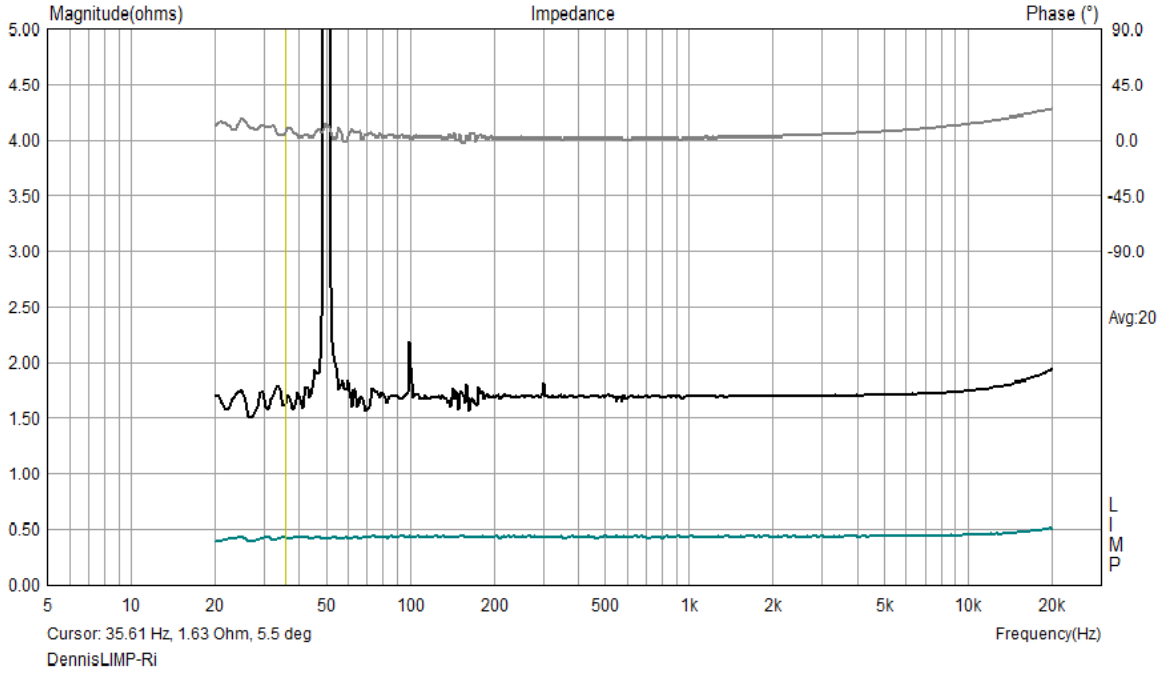


DennisLIN-1000-20Hz

Vertical scale is uncalibrated. Soft overload behavior.



Harmonic distortion levels (calibrated) at 1 W in 4 Ohm, showing a nice decline of higher harmonics.



Output impedance at 4 Ohm tap. Please subtract the colored measuring cables impedance, resulting in Zout = 1,3 Ohm.

Summary:

Pout = 2 x 3 W in 4 Ohm
Zout = 1,3 Ohm
f-3 = from 12 Hz to 20 kHz
THD = 2,6 % at 1 W in 4 Ohm at 1 kHz
Remark= stability is excellent, no DC-drift is observed.
Subjective: warm embracing, friendly, deep soundstage.