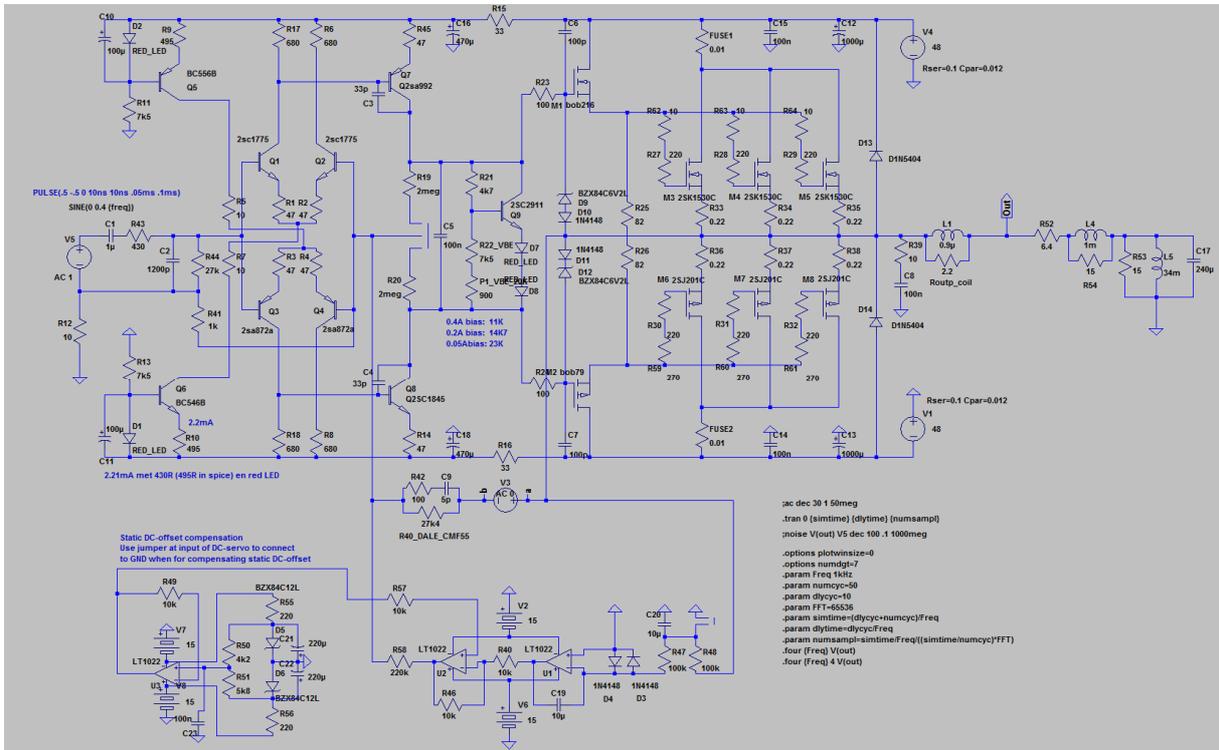


# Amplifier for subwoofer and wideband duty

This is a low feedback amp (OLG 57 or 30 dB selectable, CLG of 29dB)



## Bias currents and dissipation

	<b>Diff amp (2SC1775/2SA872)</b>	<b>VAS (2SC1845/2SA992)</b>	<b>Drivers (2SK216/2SJ79)</b>	<b>Output stage (2SK1530/2SJ201)</b>
<b>Ibias</b>	1.1mA	3.3mA	22mA	200-250mA
<b>Pd</b>	55mW	148mW	1W	12W

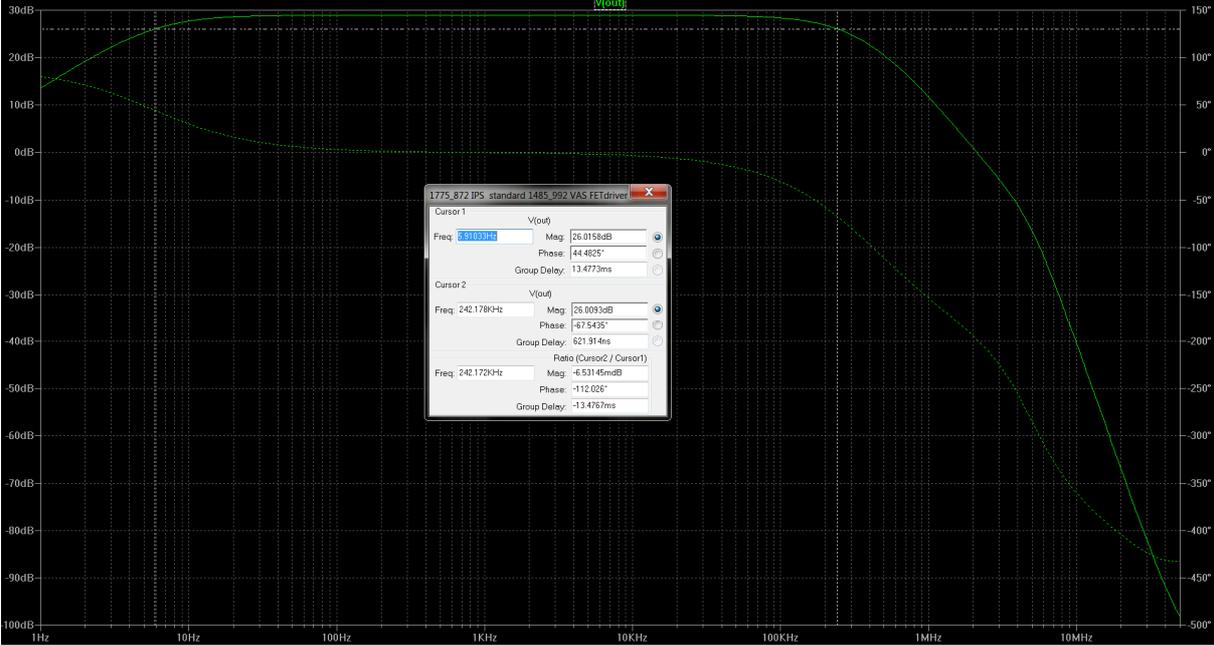
## Thermal stability

Bias through OPS from 15°C to 50°C changes 14mA (3mV over 0.22R emitter resistor). The 2SK1530/2SJ201 seems to have a very low tempco (almost as Lateral fet's), the two red Led's in series with the emitter of the VBE transistor drop the tempco of the VBE multiplier to the same level as the OPS Fet's.

		2SK792 + 100R in Emitter	2sk792 + 1N4148	IRF610	BS170	MJE340	MJE340 + LED Green	MJE340 + LED RED (Vf1,52V)	MJE340 + 2x LED RED (Vf1,52V)	2SC2911 + 2x LED RED (Vf1,52V)
<b>Cold (15°C)</b>	60mV	+60mV	75mV	60mV	68mV	60mV	73mV	65mV	60mV	
<b>Warm (40°C)</b>	46mV	+46mV	60mV				65mV	60mV	57mV	
<b>Hot (50°C)</b>				43mV	52mV	40mV	60,2mV	52mV	54mV	57mV

# Closed Loop Gain: 29dB

Bandwith: 6Hz - 240kHz

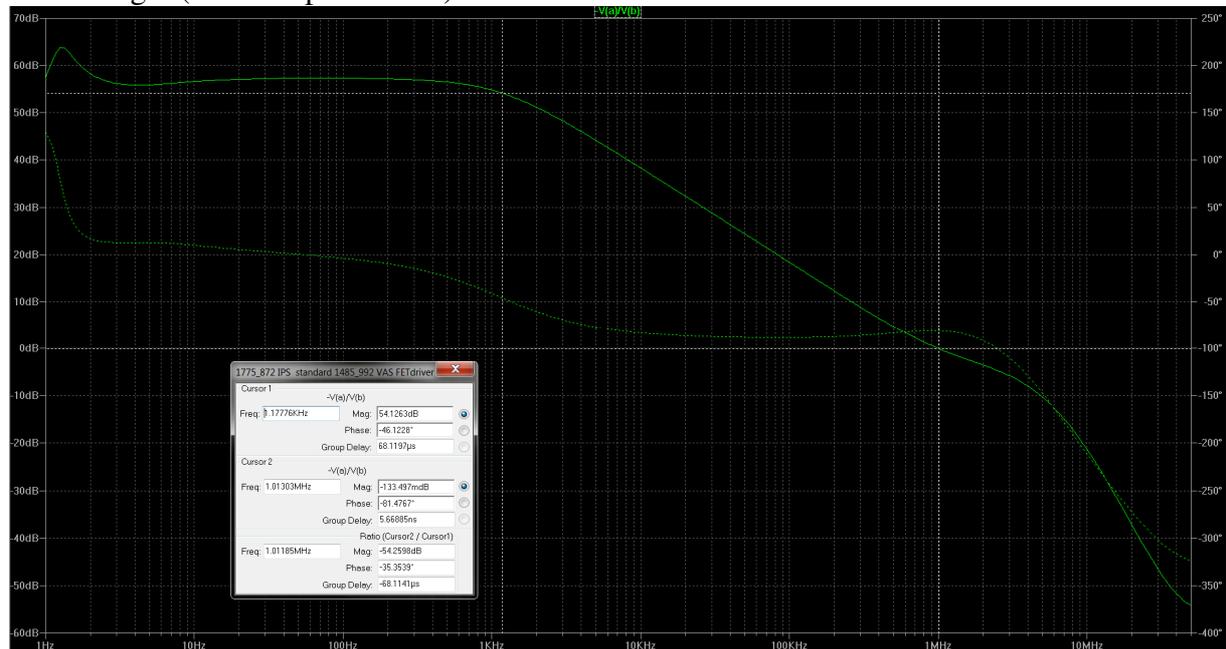


**Open Loop Gain with jumpers (output VAS) open : 57dB**

Open Loop Bandwidth: 1.1kHz

Phase margin:  $\pm 100^\circ$

Gain margin (for  $180^\circ$  phase shift) : -15dB

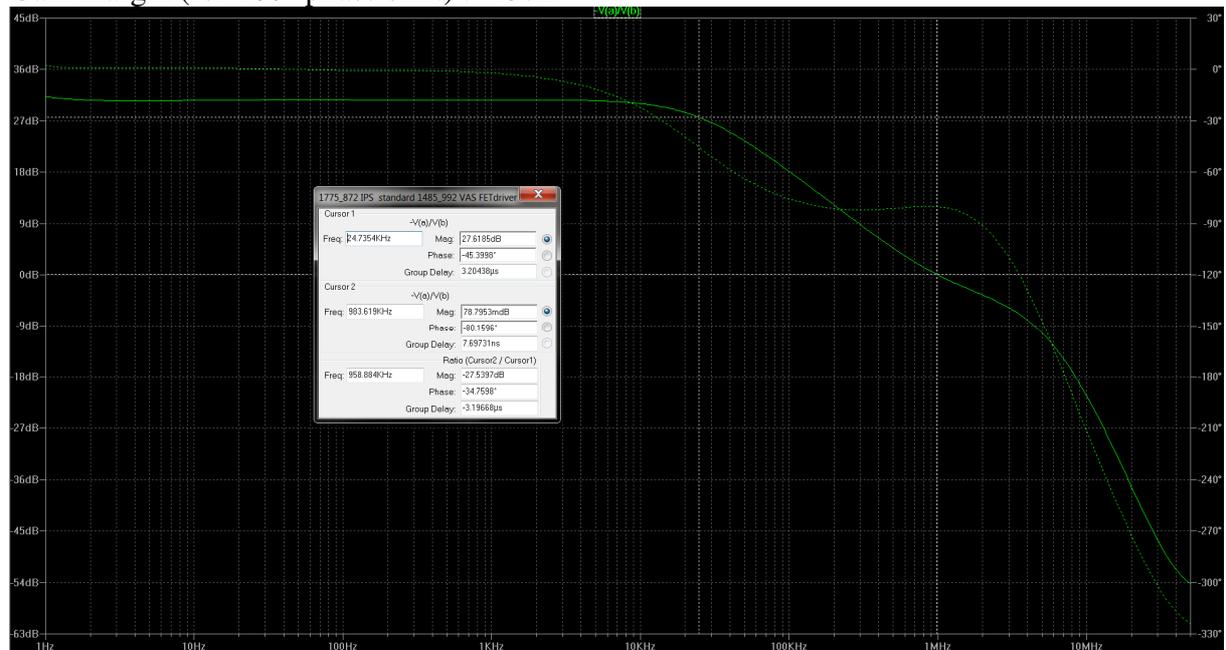


**Open Loop Gain with jumpers (output VAS) closed : 30.5dB**

Open Loop Bandwidth: 24kHz

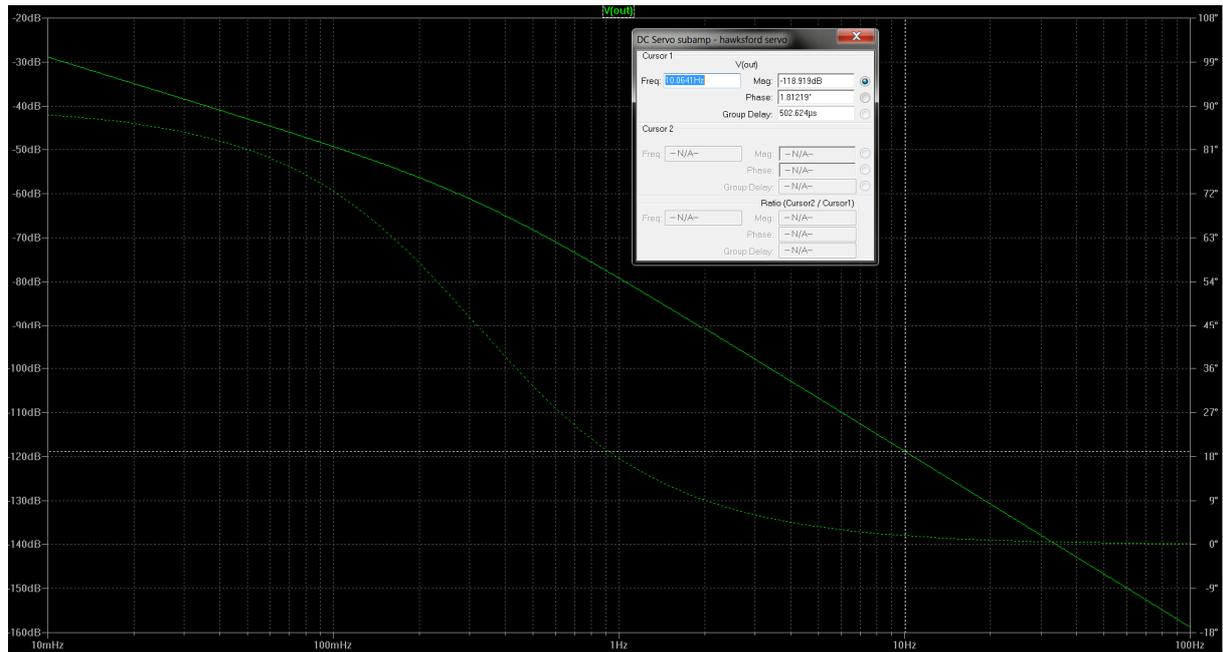
Phase margin:  $\pm 100^\circ$

Gain margin (for  $180^\circ$  phase shift) : -15dB



# DC-servo - ac analysis

At 10Hz: 120dB

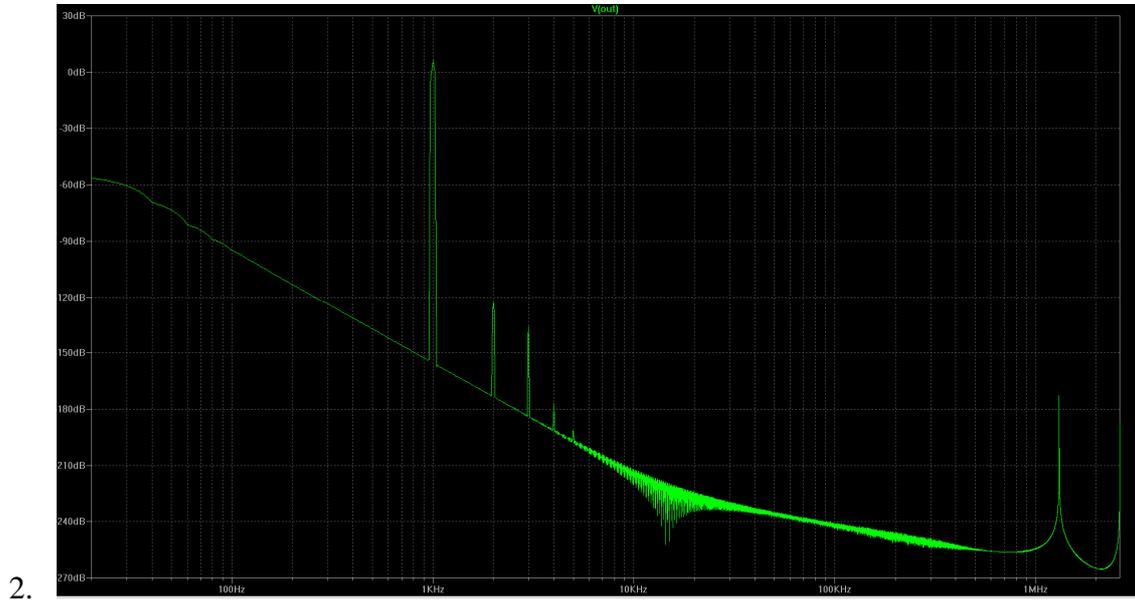


### THD simulations (High OLG = Jumpers open)

All simulations are done with the load specified on the schematic on the page 1

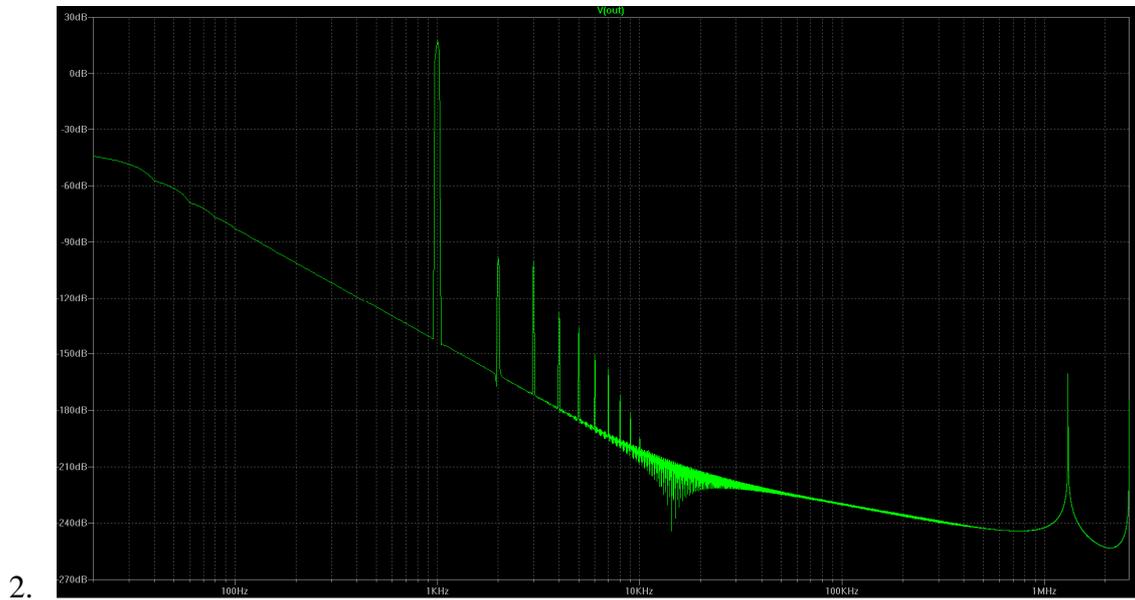
Input: 1KHz/0.1V => Voutp=2.8V

1. THD 0.0005



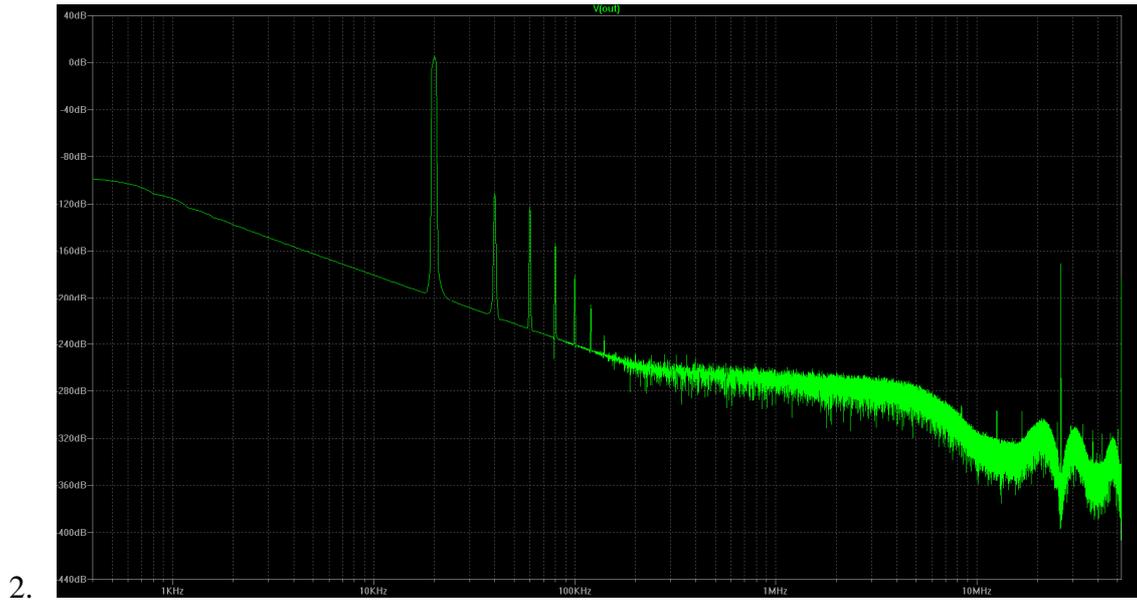
Input: 1KHz/0.4V => Voutp=11.2V

1. THD 0.0005



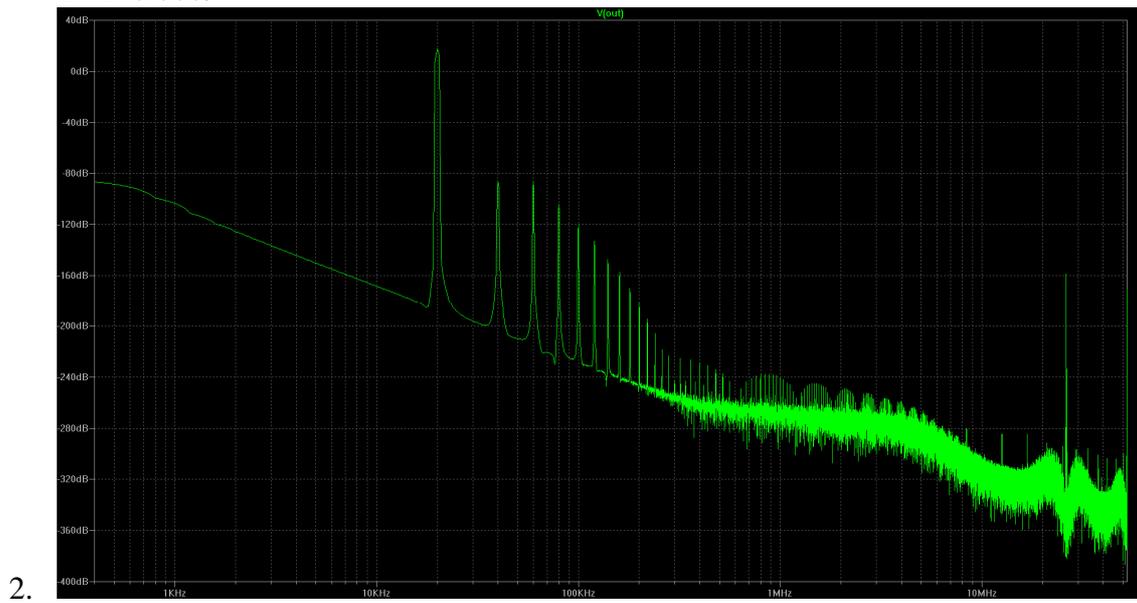
Input: 20KHz/0.1V => Voutp=2.8V

1. THD 0.00016

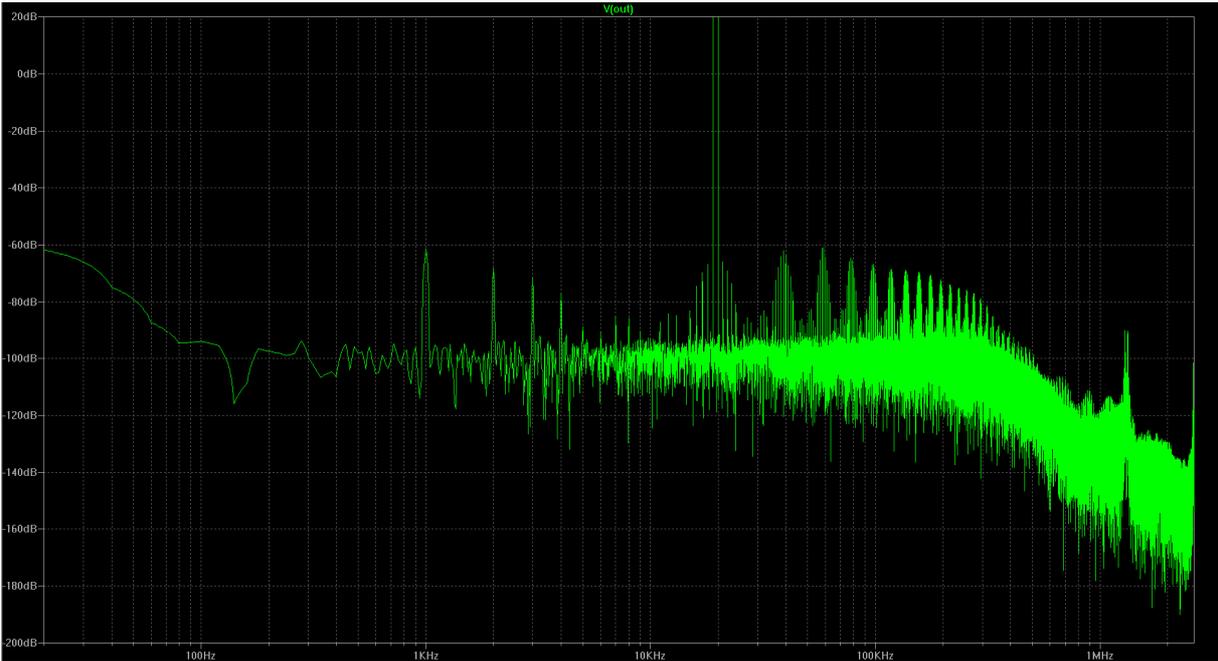


Input: 20KHz/0.4V => Voutp=11.2V

1. THD 0.0009



**CCIF test (20KHz/0.5V + 19KHz/0.5V)**



**CCIF test (20KHz/0.25V + 19KHz/0.25V)**

