

بسمه تعالی

پروژه آزمایشگاه طراحی مدار مجتمع
نغمه ادبی 99101076

لکچر مقدیر پارامترها

$$f = \frac{1}{2\pi \sqrt{LC}} \quad (\text{فرموزنده ایجاد شده})$$

(L=56\mu H, C=0.02\mu F)

$$Q = \frac{X}{R} \quad \begin{matrix} C \rightarrow \text{cap} \\ L \rightarrow \text{ind} \end{matrix} \quad Q_C = 9.9 \quad , \quad Q_L = 0.1 \quad (\text{با سرعت نویز حدود ۲۰ دسی هرتز})$$

$$R_C = \frac{1}{C\omega Q_C} \quad R_L = \frac{\omega L}{Q_L} \quad \omega = 2\pi f$$

$$R_{LC} = R_C \parallel R_L = \frac{R_C R_L}{R_C + R_L} = \frac{\frac{1}{C\omega Q_C Q_L}}{\frac{Q_L + Q_C C L \omega^2}{C\omega Q_C Q_L}} = \frac{\omega L}{Q_L + Q_C C L \omega^2}$$

$$f = \frac{1}{2\pi \sqrt{LC}} \Rightarrow \omega = \frac{1}{\sqrt{LC}} \Rightarrow \omega^2 = \frac{1}{LC} \Rightarrow CL\omega^2 = 1 \quad \star$$

$$\star \Rightarrow R_{LC} = \frac{\omega L}{Q_L + Q_C} = \frac{\omega L}{10} \quad \rightarrow \quad \text{مقادیر مدل سلف خنجری}$$

$$R_O = r_{o4} (1 + g_{m4} r_{o2}) \approx g_{m4} r_{o4} r_{o2} \quad (\text{cascode}) \rightarrow \quad \text{مقادیر خروجی دستور}$$

$$R_C = (R_O \parallel R_{LC}) \xrightarrow{R_{LC} \ll R_O} R_{LC} \rightarrow M_4 \text{ از سورس}$$

$$A_{VD} = g_{m2} (R_{LC}) > 24 \text{ dB} > 15,85 \quad \text{کمینه درجه بیشتر از این مدار} \quad \text{باشد. این فرآیند تا حفظیت دین را برداشت از این مدار در نظر نماییم.}$$

$$g_{m2} = \sqrt{2 \mu_n C_{ox} \frac{W}{L} I_D}$$

براس محاسبه $M_n C_{ox}$ دیگر سلسه است، که $nmos2r$ بایس

V_{th} , V_{gs} , DC تعبیه نماییم

I_D و V_{gs} را خودم بذاتم را درم با توجه به رابطه

$$I_D = \frac{1}{2} \mu_n C_{ox} \frac{W}{L} (V_{GS} - V_{th})^2$$

نمایان باید قدرت متمایز دارد.

$$A_v = \sqrt{2 \times 500 \frac{mA}{r^2} \times \frac{w}{L} \times I_D} R_C$$

اول بـ ترانزیستورا بـ سری مقدار دفعه ای دم، ترجیحی تریستر باشد
و مقدار کدام بدهی می باید ترازیستورا و بقیه مقدار دیگرها صندل

$$I_D = 3mA \quad \frac{w}{L} = \frac{10\mu m}{180nm} \quad \text{number of figures} = 10 \quad : M_{1\&2} \text{ و } M_3$$

$$V_{th} \approx 0,6 V$$

$$I_D = \frac{1}{2} M_n C_{ox} \frac{w}{L} (V_{GS} - V_{th})^2 \Rightarrow 3mA = \frac{1}{2} \times 500 \frac{mA}{r^2} \times \frac{10\mu m}{180nm} \times (V_{GS} - 0,6)^2$$

$$\Rightarrow V_{GS(M1\&M2)} = 0,747 V$$

$$M_5: \quad I_D = 6mA \quad \frac{w}{L} = \frac{10\mu m}{180nm} \quad \text{number of fingers} = 20$$

$$M_6: \quad I_D = 0,6mA \quad \frac{w}{L} = \frac{2\mu m}{180nm} \quad \text{number of fingers} = 10$$

$$V_{GSM5} = V_{GSM6} = 6mA = \frac{1}{2} \times 500 \frac{mA}{r^2} \times \frac{10\mu m}{180nm} (V_{GS} - 0,6)^2 = 0,808 V$$

$$\text{لطفاً: } V_{DS} > V_{GS} - V_{th}$$

$$V_{DM5} > 0,208 \Rightarrow V_{in} > 0,208 + 0,747 = 0,955$$

\rightarrow فرضیه ای دفعه ۱۰ بـ V_{in} DC میگیریم \rightarrow

$$v_{DSM1} > v_{GSM1} - v_{th} \Rightarrow v_{DM1} > v_{GM1} - v_{th} \Rightarrow v_{DM1} > 1 - 0,6 = 0,4$$

$$v_{DM1} = v_{SM3}$$

$$M_{3\&4}: \quad I_D = 3mA \quad \frac{W}{L} = \frac{10\text{mm}}{180\text{nm}} \quad \text{number of figures} = 10$$

$$3mA = \frac{1}{2} \times 500 \frac{\text{mA}}{\text{V}^2} \times \frac{10\text{mm}}{180\text{nm}} \times (v_{GS} - 0,6)^2 \quad v_{GS} = 0,747 \text{ V}$$

$$v_{GM3\&4} = 0,747 + 0,4 = 1,147 \text{ V} \rightarrow \text{Circuit diagram}$$

$$1,147 = 1,8 \times \frac{R_2}{R_1 + R_2} \quad 0,637(R_1 + R_2) = R_2$$

$$0,363R_2 = 0,637R_1$$

$$\Rightarrow R_2 = 637 \times 1 \text{ k}\Omega = \underline{\underline{637 \text{ k}\Omega}}$$

$$R_1 = 363 \times 1 \text{ k}\Omega = \underline{\underline{363 \text{ k}\Omega}}$$

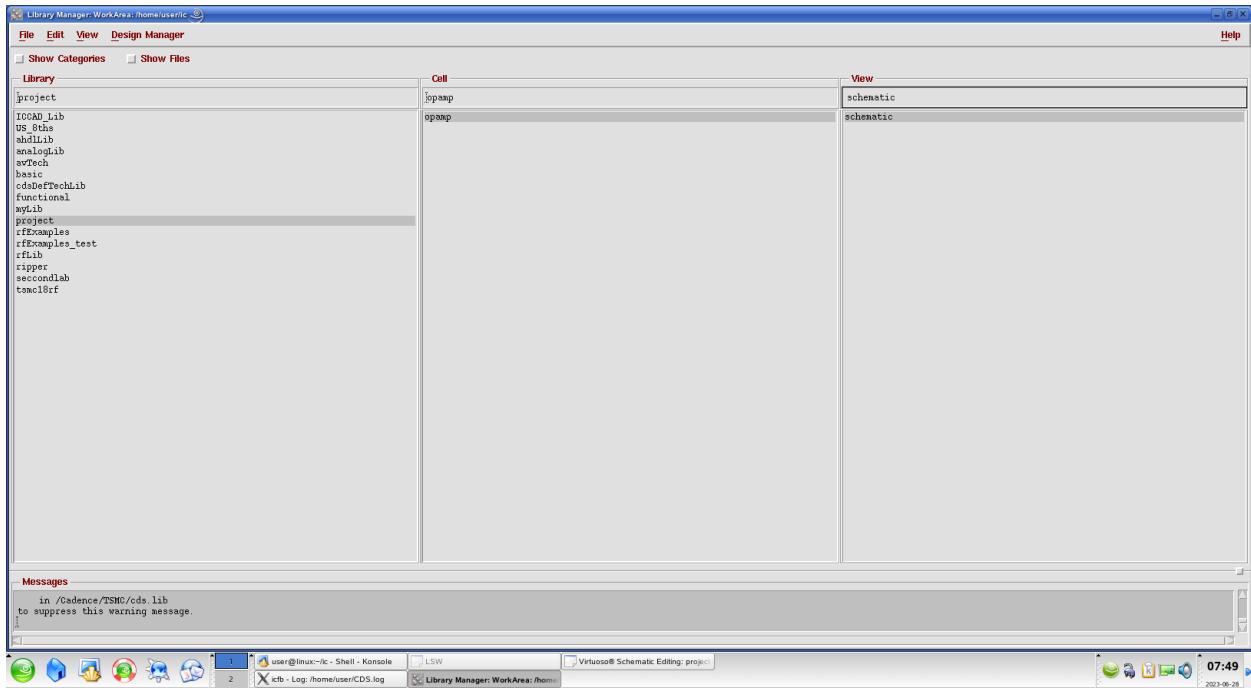
$$A_V = \sqrt{2 \times 500 \frac{\text{NA}}{\text{r}^2} \times 3mA \times \frac{10\text{mm}}{180\text{nm}}} \times \frac{2\pi \times 56 \times L}{70} > 30 \text{ dB}$$

$$\frac{9}{10} \times 12,825 \text{ L} > 32 \quad L = \underline{\underline{2,45 \text{ nF}}}$$

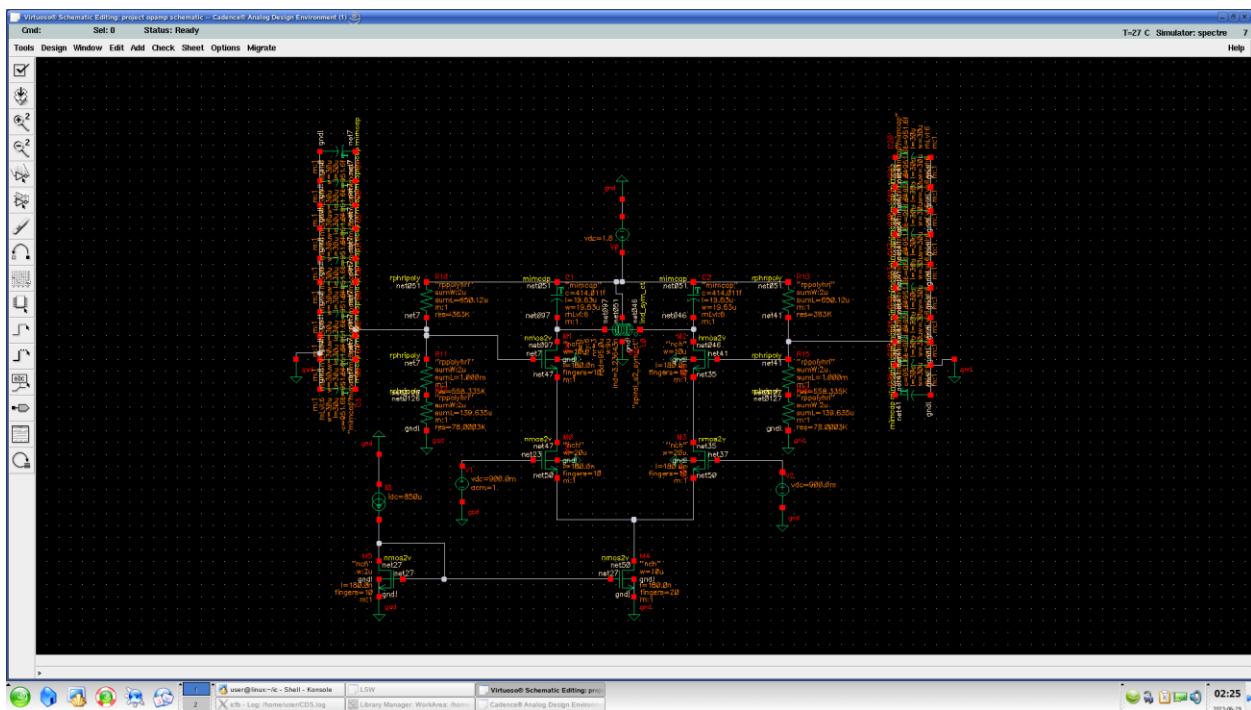
$$f = \frac{1}{2\pi \sqrt{2,45 \text{ nF} \times C}} = 5 \text{ GHz} \Rightarrow C_1 = \underline{\underline{0,414 \text{ fF}}}$$

C_2 = maximum capacitance to parallel \rightarrow AC circuit analysis
maximum capacitance = $951,6 \text{ fF}$

یک کتابخانه جدید اتچ شده به tsmc18rf میسازیم و شیماتیک مدار رو توی یک سل جدید میکشیم.

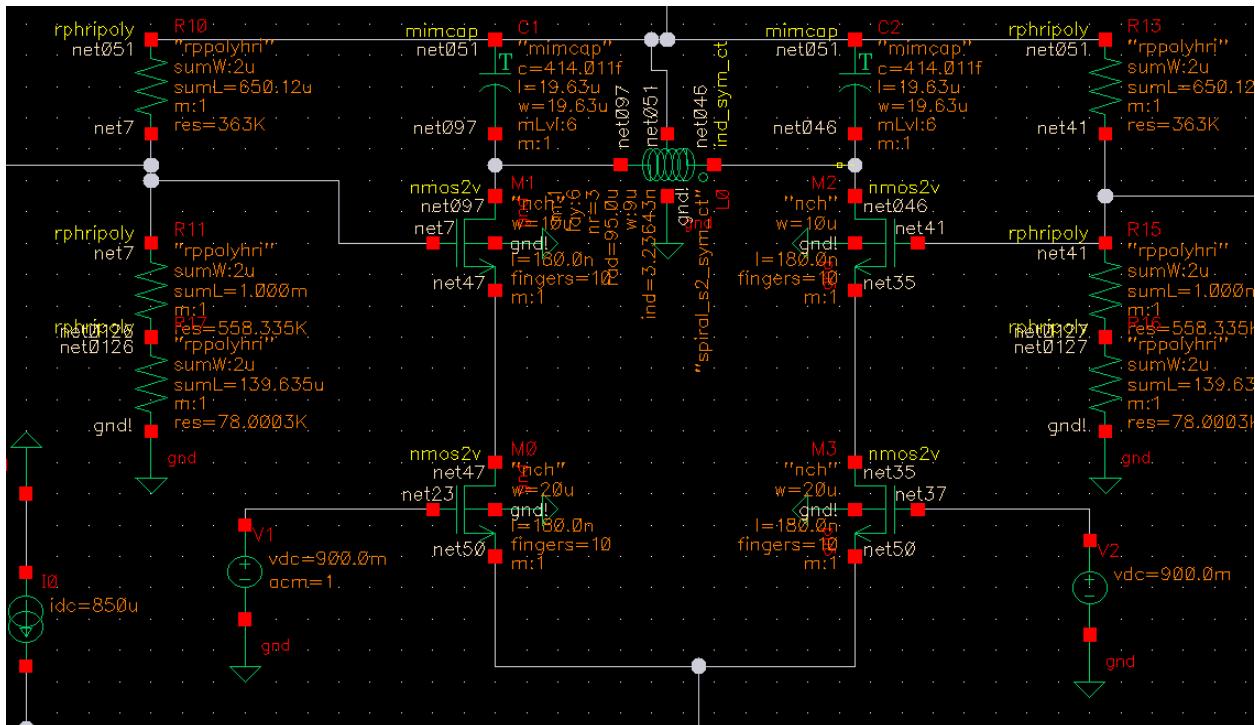


Shift+m -> select -> ctrl+r = rotate



مقادیر ست شده در شیماتیک، تا حد خیلی خوبی با مقادیر تئوری یکی هستند. گین کم داشتم که راهای زیاد کردنش افزایش جریان بود که باعث افزایش توان مصرفی میشد. افزایش اندازه سلف که اریا رو

زیاد میکرد و افزایش w که هیچ بدی نداشت  به شرطی که مراقب شرط اشباع میبودیم. من از هرسه این راهای یکم کمک گرفتم و یکم این پارامترها رو زیاد کردم تا گینم بره بالا. فرکانس حدود 0.3 گیگاهرتز بالاتر از چیزی که باید بود که اونم با افزایش مقدار سلف درست شد. افزایش اندازه خازن برای اریا بهتر بود. ولی بازم چون افزایش کم بود همه چی اوکیه الان. شاید مدار ازین بهینه تر میشد بشه ولی به دلیل کم بودن وقت نمیرسم بیشتر ازین مقادیر رو جا به جا کنم البته همین الان تا حد خوبی مدارو بهینه کردم. دیسی وروندیم چون جریانو بردم بالا اوردم پایین. خیلی از عدد ها توی محاسبات تقریبی تخمین زده شدند که خوش باعث عدم همخوانی جزئی شد.



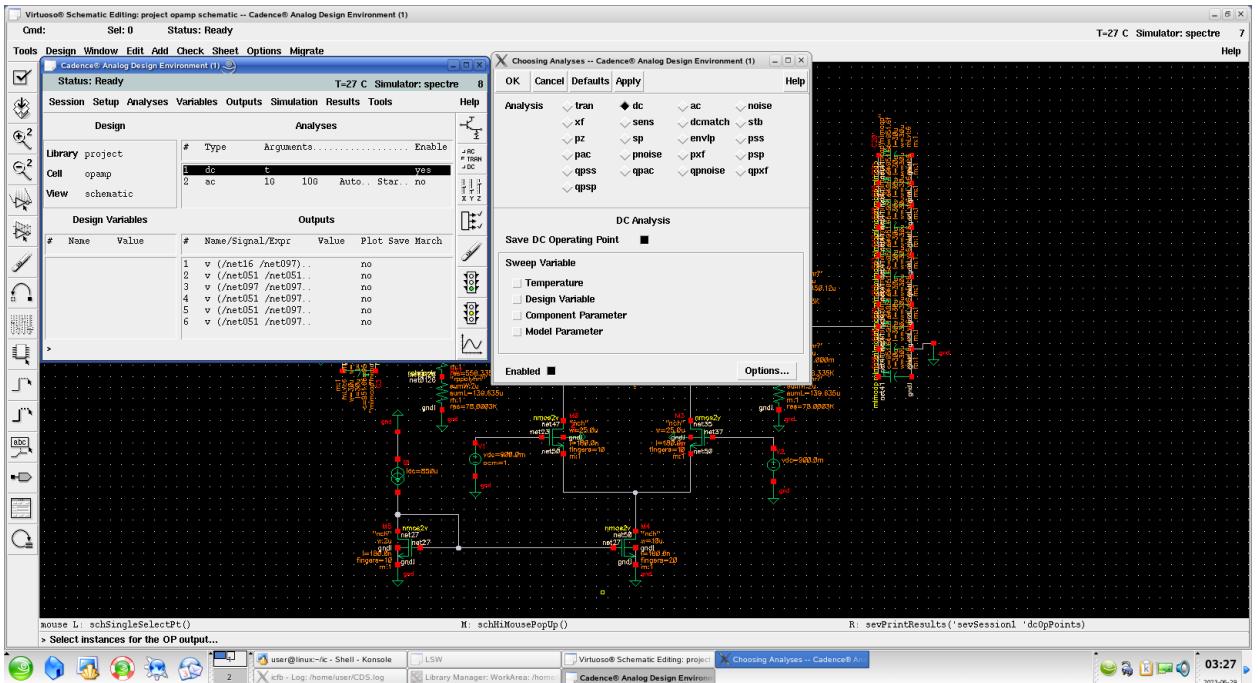
$$W(M1 \& 2) = 25\text{um}$$

برای دیده شدن بهتر مقادیر موقع کشیدن لیاوت از همش اسکرین میزارم.

دو تا شرط مهم برای کار کردن مدار اینان:

- 1- توی شبیه سازی دیسی همه ترانزیستورا توری ریجن 2 باشن (اشباع)
- 2- گین توی بازه (4.75, 5.25) بالای 24 دیسی باشه (شبیه سازی ایسی)

بریم شبیه سازی دیسی ران کنیم



Run -> results -> print -> print dc operating point

Choose transistors to see their operating point

نام ترانزیستور هارا با توجه به مدارداده شده در پی دی اف توضیح پروژه نوشتمن نه خود کینس

Results Display Window	Results Display Window
Window	Window
Expressions	Expressions
Info	Info
signal OP ("M5" "?")	signal OP ("M4" "?")
betaeff 61.6669m	betaeff 637.295m
cbb 7.90477f	cbb 77.1055f
cbd 4.73454a	cbd -1.51281f
cbg -4.32937f	cbg -41.9903f
cbs -3.58014f	cbs -33.6024f
cdb -8.11718a	cdb -1.28975f
cdd 7.31901f	cdd 77.8955f
cdg -7.33575f	cdg -77.8003f
cds 24.8581a	cds 1.19448f
cgb -3.13291f	cgb -28.8147f
cgd -7.27203f	cgd -74.3514f
cgg 35.0852f	cgg 353.823f
cgs -24.6803f	cgs -250.657f
cjd 10.106f	cjd 110.046f
cje 15.0291f	cje 131.677f
cjb -4.76375f	cjb -47.001f
cjd -51.7101a	cjd -2.03128f
csg -23.4201f	csg -234.032f
css 28.2356f	css 283.065f
gds 224.265u	gds 7.43993m
gm 6.81836m	gm 58.5512m
gmbs 1.98349m	gmbs 16.8934m
gmoverid 8.0216	gmoverid 7.57671
ibulk -182.426f	ibulk -1.19041f
id 850u	id 7.72779m
ids 850u	ids 7.72779m
is -850u	is -7.72779m
pwr 583.705u	pwr 1.73286m
region 2	region 2
reversed 0	reversed 0
ron 29.017	ron 29.017
type 0	type 0
vbs 0	vbs 0
vds 686.712m	vds 224.238m
vdsat 133.505m	vdsat 135.202m
vgs 686.712m	vgs 686.712m
vth 526.55m	vth 514.902m

Results Display Window

		Help	123
signal	OP("M0" "?")		
betaeff	637.168m		
cbb	70.1891f		
cbd	-1.09231f		
cbg	-40.9045f		
cbs	-28.1923f		
cdb	-1.09954f		
cdd	76.8997f		
cdg	-77.7143f		
cds	1.9142f		
cgb	-31.3471f		
cqd	-73.7888f		
cgg	342.341f		
cgs	-237.205f		
cjd	101.381f		
cjs	124.493f		
csb	-37.7425f		
csd	-2.01857f		
csg	-223.722f		
css	263.483f		
gds	4.74567m		
gm	42.0211m		
gmbs	10.4453m		
gmoverid	10.8748		
ibulk	-1.07093f		
id	3.86408m		
ids	3.86408m		
is	-3.86408m		
pwr	697.126u		
region	2		
reversed	0		
ron	46.6896		
type	0		
vbs	-224.238m		
vds	180.412m		
vdusat	106.416m		
vgs	675.762m		
vth	575.856m		

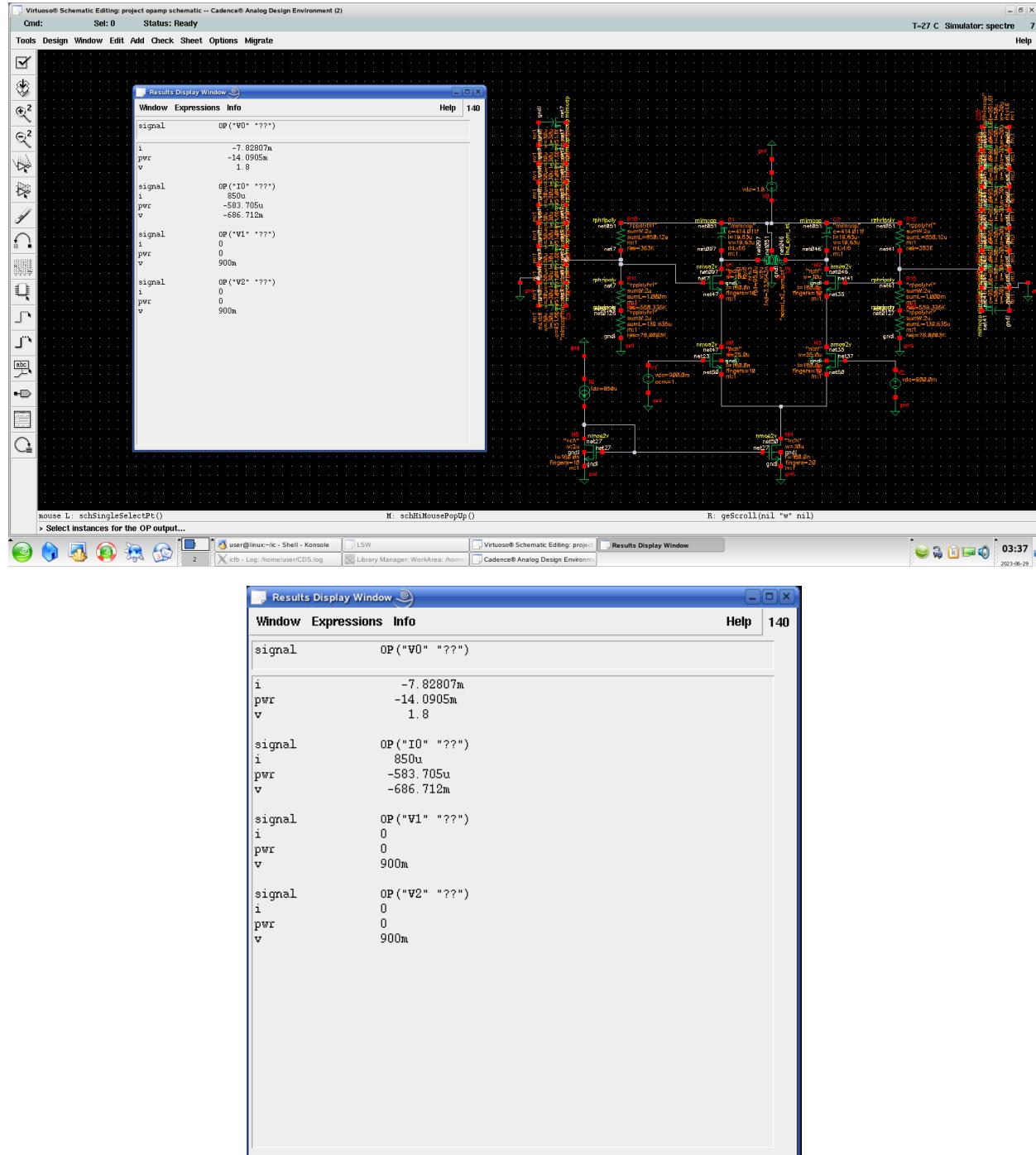
		Help	123
signal	OP("M3" "?")		
betaeff	637.168m		
cbb	70.1891f		
cbd	-1.09231f		
cbg	-40.9045f		
cbs	-28.1923f		
cdb	-1.09954f		
cdd	76.8997f		
cdg	-77.7143f		
cds	1.9142f		
cgb	-31.3471f		
cqd	-73.7888f		
cgg	342.341f		
cgs	-237.205f		
cjd	101.381f		
cjs	124.493f		
csb	-37.7425f		
csd	-2.01857f		
csg	-223.722f		
css	263.483f		
gds	4.74567m		
gm	42.0211m		
gmbs	10.4453m		
gmoverid	10.8748		
ibulk	-1.07093f		
id	3.86407m		
ids	3.86407m		
is	-3.86407m		
pwr	697.126u		
region	2		
reversed	0		
ron	46.6896		
type	0		
vbs	-224.238m		
vds	180.412m		
vdusat	106.416m		
vgs	675.762m		
vth	575.856m		

Results Display Window

		Help	123
signal	OP("M1" "?")		
betaeff	314.993m		
cbb	32.6222f		
cbd	71.6996a		
cbg	-20.6394f		
cbs	-12.0545f		
cdb	-5.98265a		
cdd	36.6329f		
cdg	-36.6564f		
cds	29.4738a		
cgb	-15.8054f		
cqd	-36.1295f		
cgg	173.265f		
cgs	-121.331f		
cjd	36.9892f		
cjs	58.6314f		
csb	-16.8109f		
csd	-575.042a		
csg	-115.97f		
css	133.356f		
gds	918.57u		
gm	33.842m		
gmbs	7.09182m		
gmoverid	8.75848		
ibulk	-213.81n		
id	3.86412m		
ids	3.86391m		
is	-3.86391m		
pwr	5.32348m		
region	2		
reversed	0		
ron	356.542		
type	0		
vbs	-404.65m		
vds	1.37765		
vdusat	122.175m		
vgs	741.516m		
vth	610.032m		

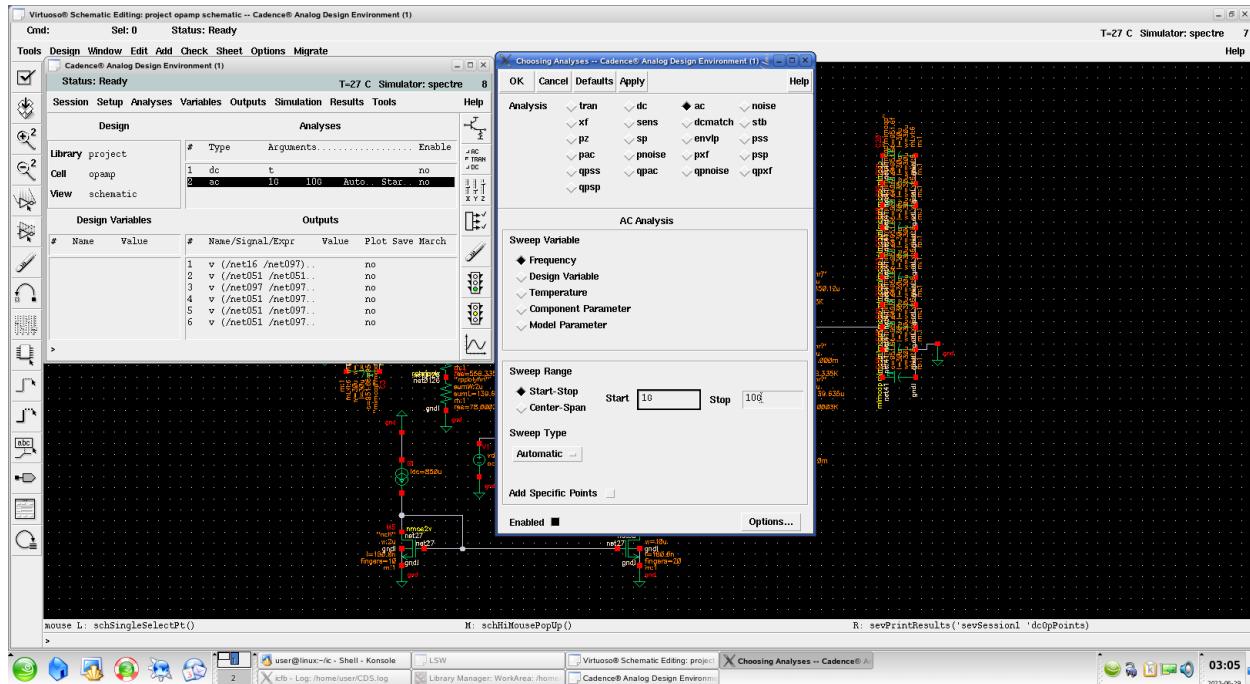
		Help	123
signal	OP("M2" "?")		
betaeff	314.993m		
cbb	32.6222f		
cbd	71.6996a		
cbg	-20.6394f		
cbs	-12.0545f		
cdb	-5.98266a		
cdd	36.6329f		
cdg	-36.6564f		
cds	29.4738a		
cgb	-15.8054f		
cqd	-36.1295f		
cgg	173.265f		
cgs	-121.331f		
cjd	36.9892f		
cjs	58.6314f		
csb	-16.8109f		
csd	-575.042a		
csg	-115.97f		
css	133.356f		
gds	918.571u		
gm	33.842m		
gmbs	7.09183m		
gmoverid	8.75847		
ibulk	-213.81n		
id	3.86413m		
ids	3.86391m		
is	-3.86391m		
pwr	5.32349m		
region	2		
reversed	0		
ron	356.542		
type	0		
vbs	-404.65m		
vds	1.37765		
vdusat	122.176m		
vgs	741.516m		
vth	610.032m		

To know about Power consumption see dc operating point of sources

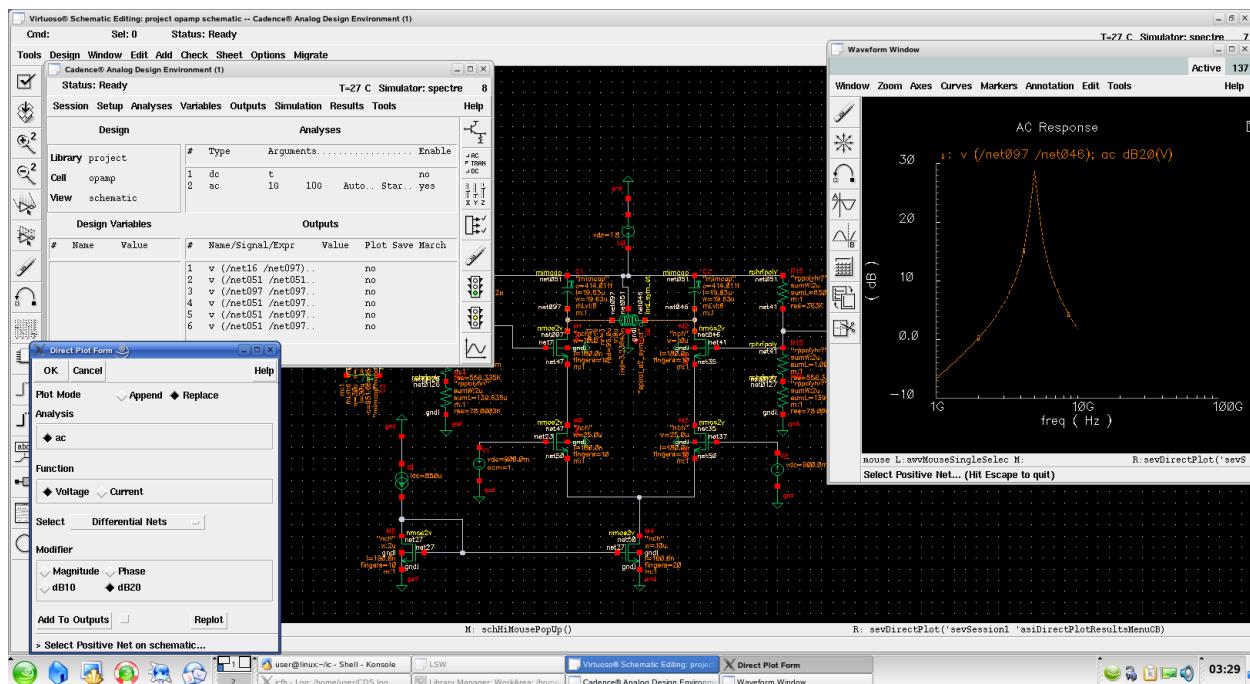


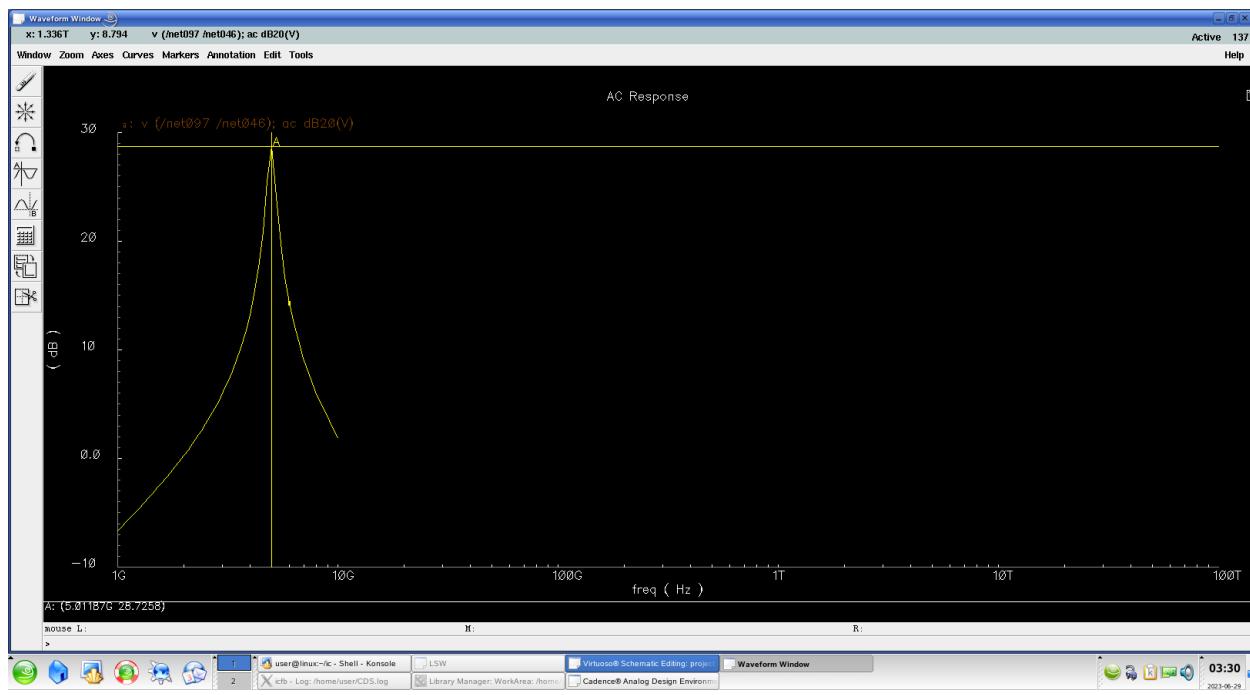
$$\text{Power} = 14.0905 \text{ mW}$$

AC analysis

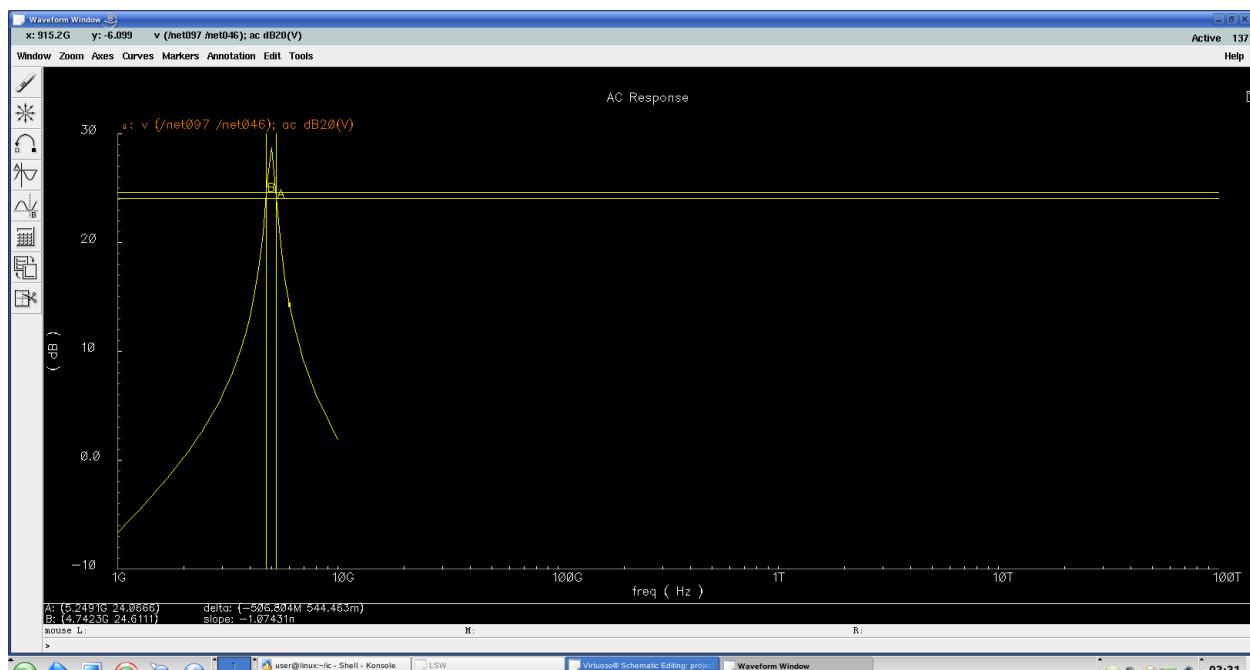


Run -> results -> direct plot -> main form





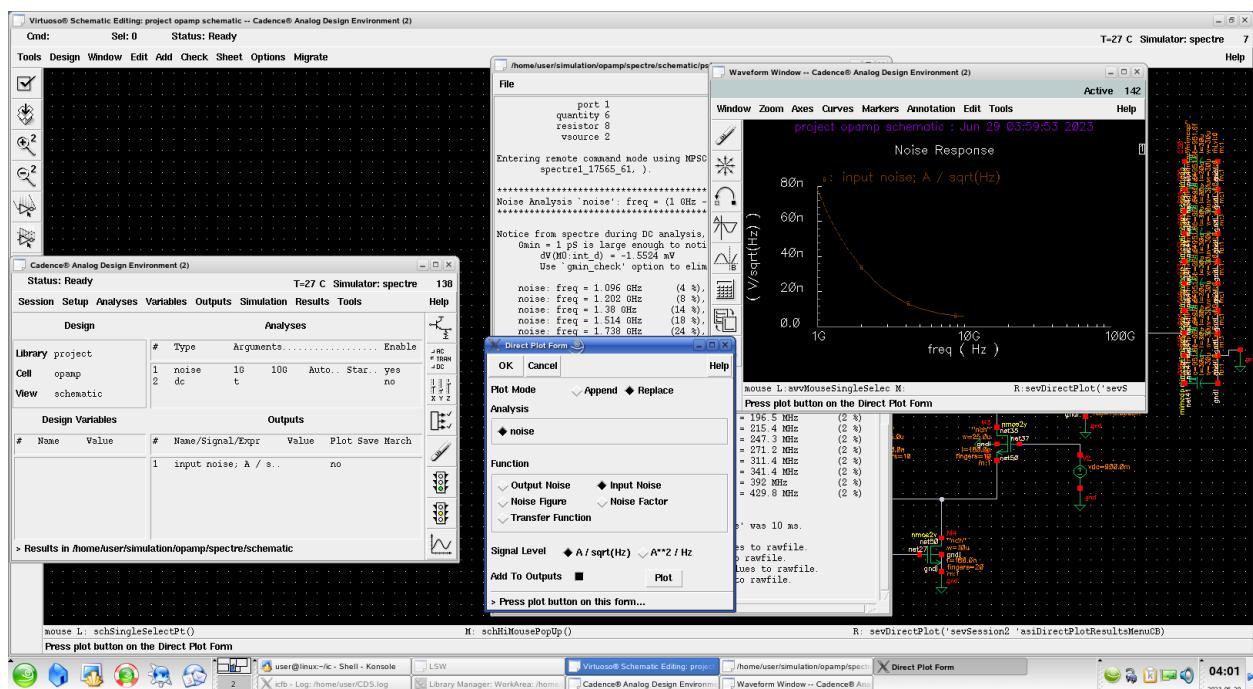
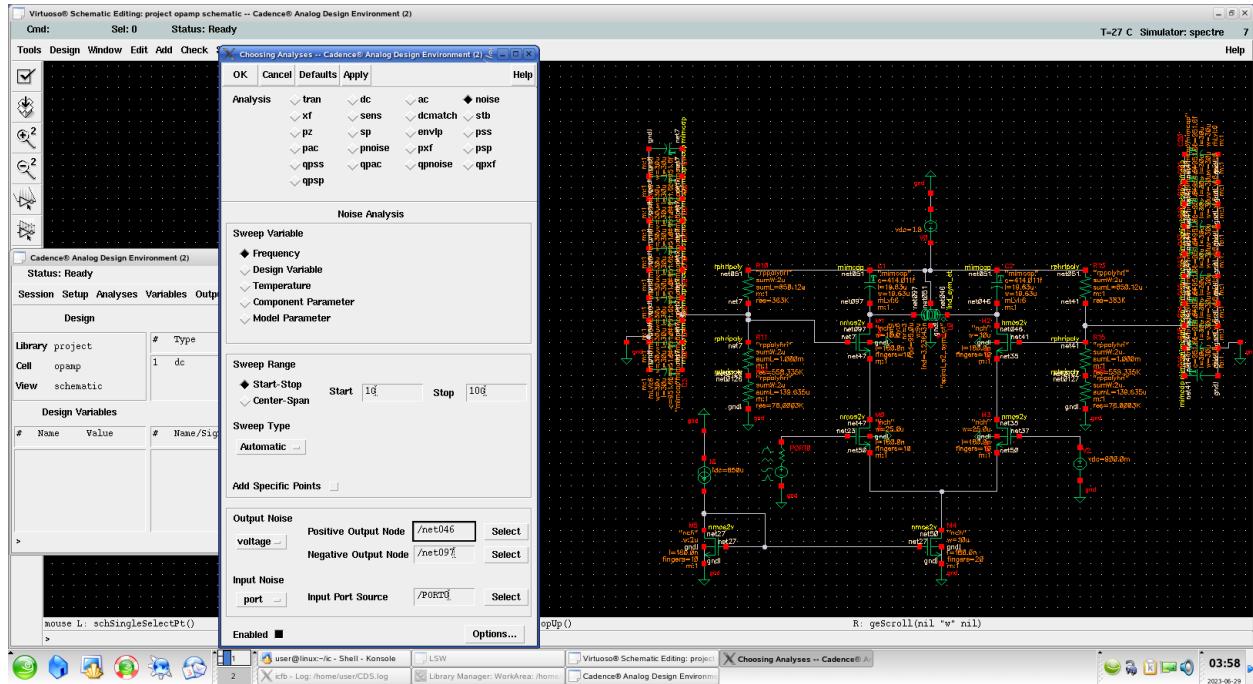
A: (5.01187G 28.7258)

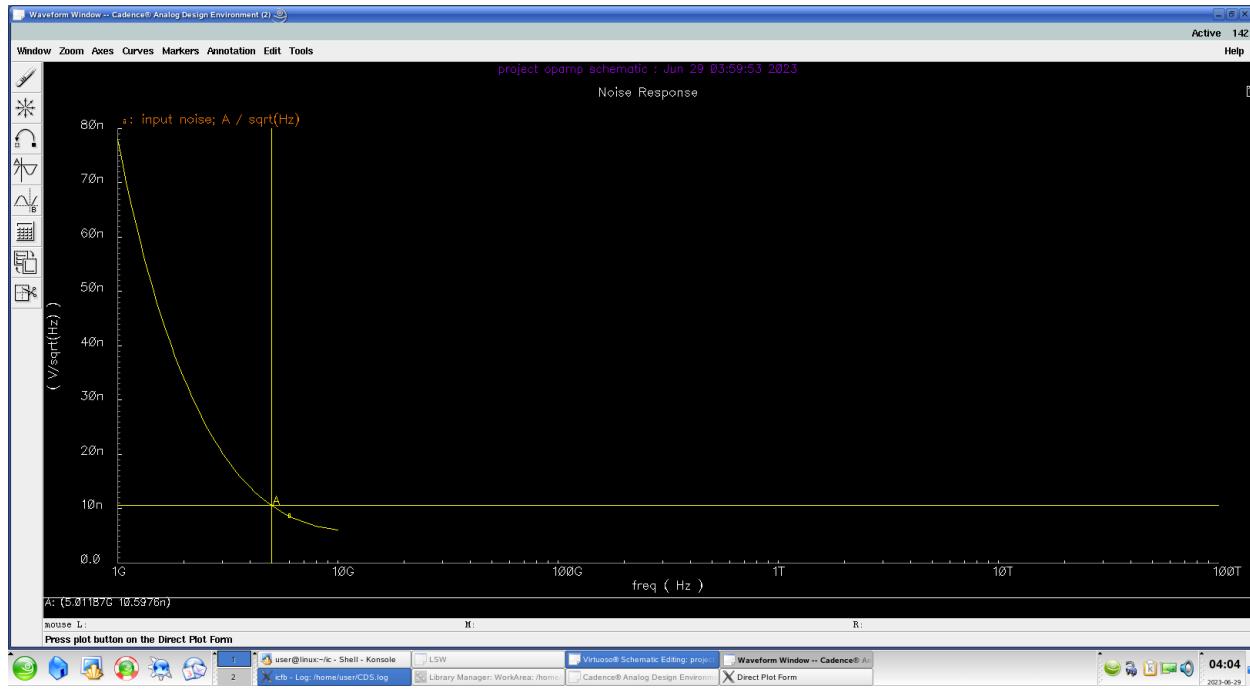


A: (5.2491G 24.0666) delta: (-506.804M 544.463m)
B: (4.7423G 24.6111) slope: -1.07431n
mouse L: `newMouseSingleSelectBorC()`

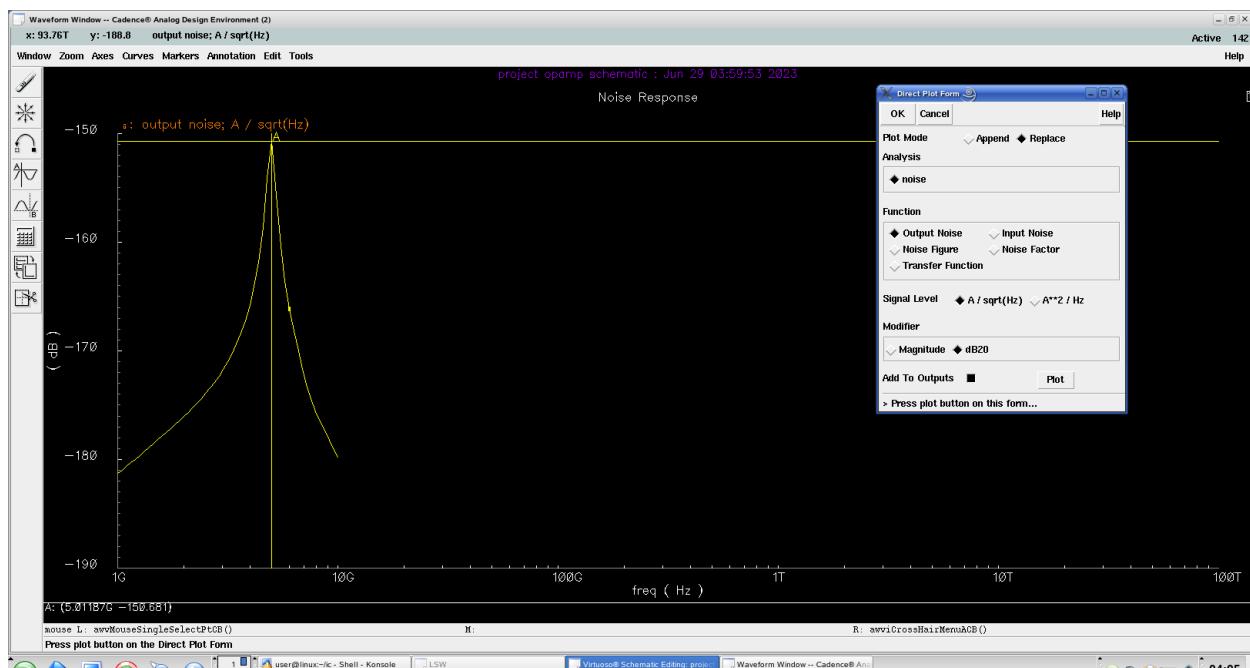
بند و یوچ خواسته شده را هم داریم.

Pnoise analysis

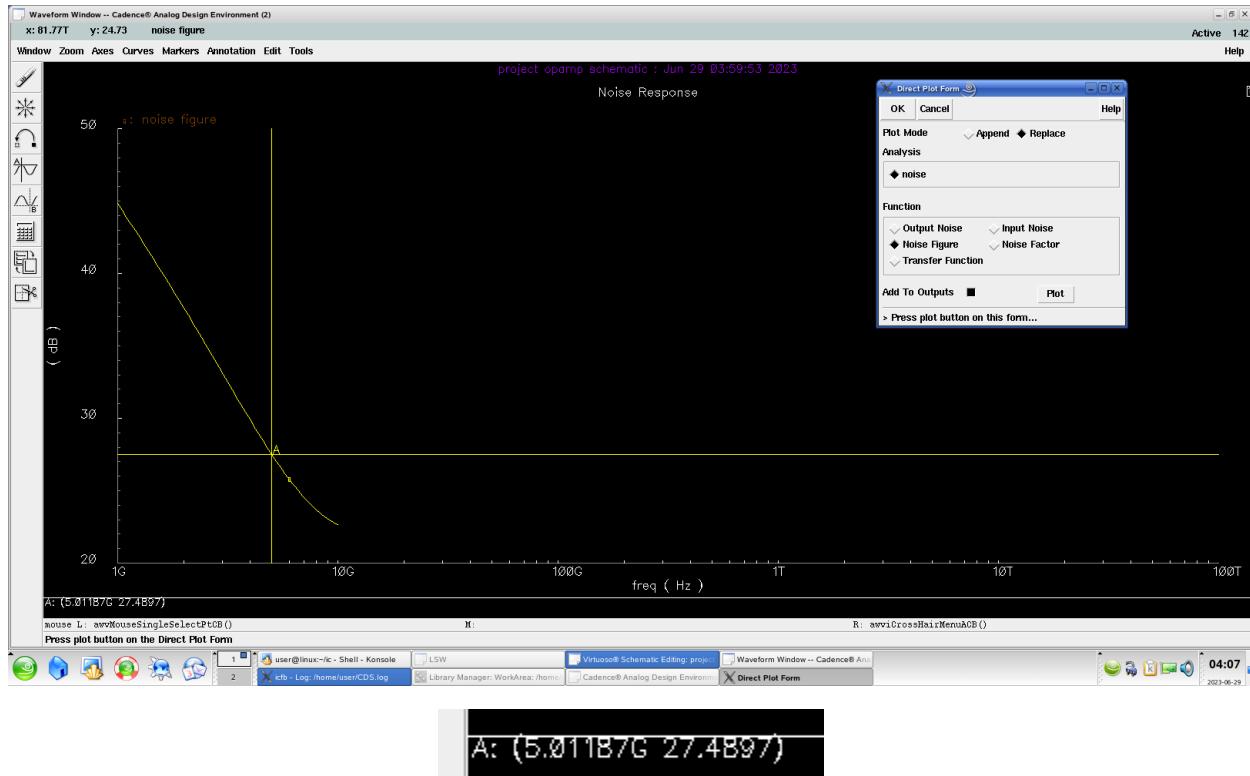




Input noise



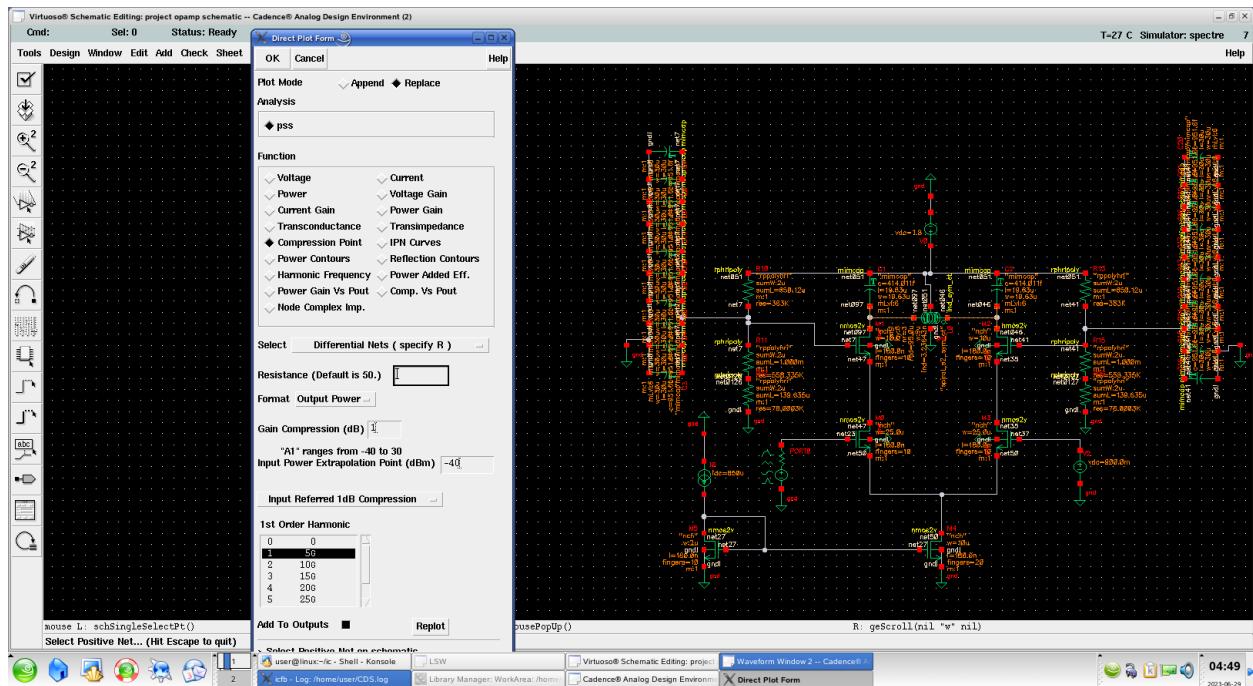
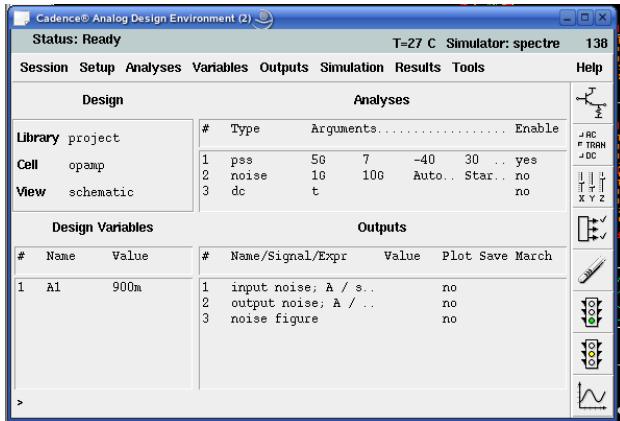
Output noise

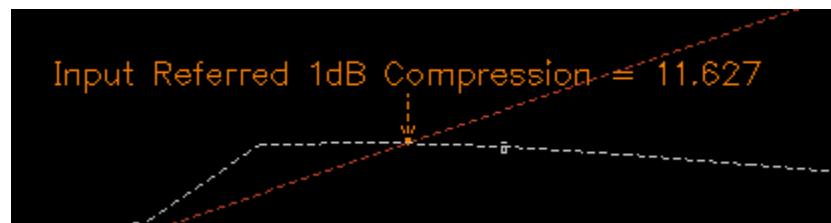
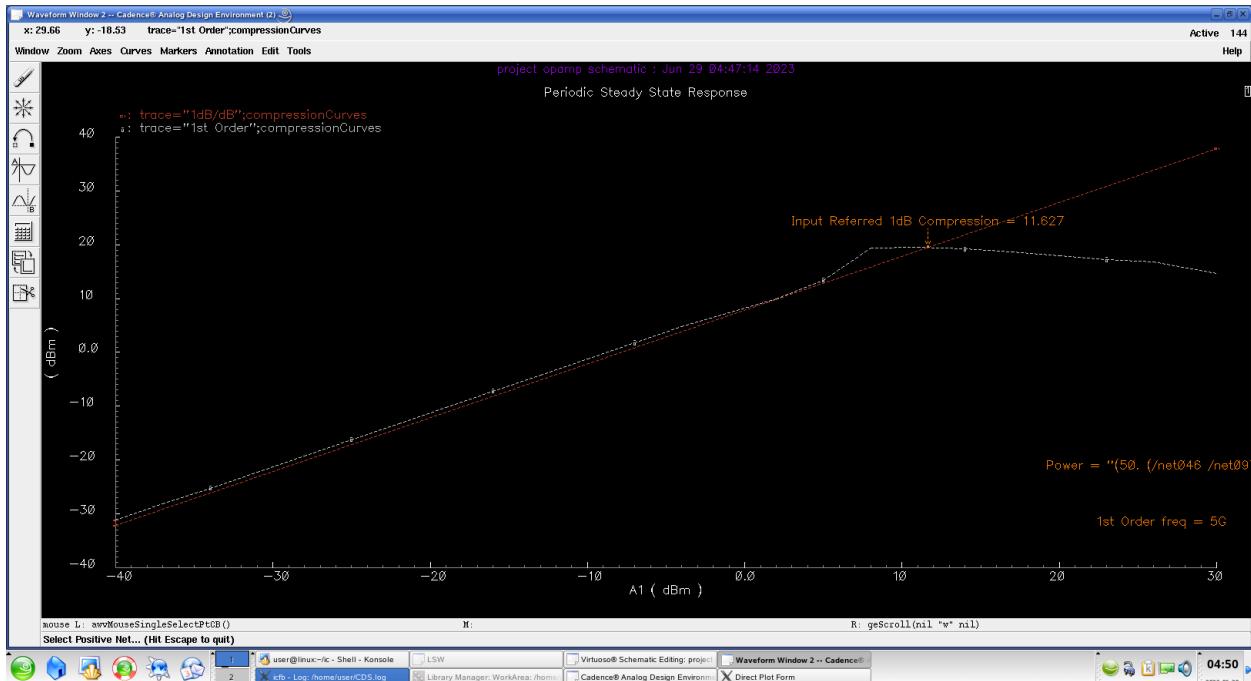


Noise figure

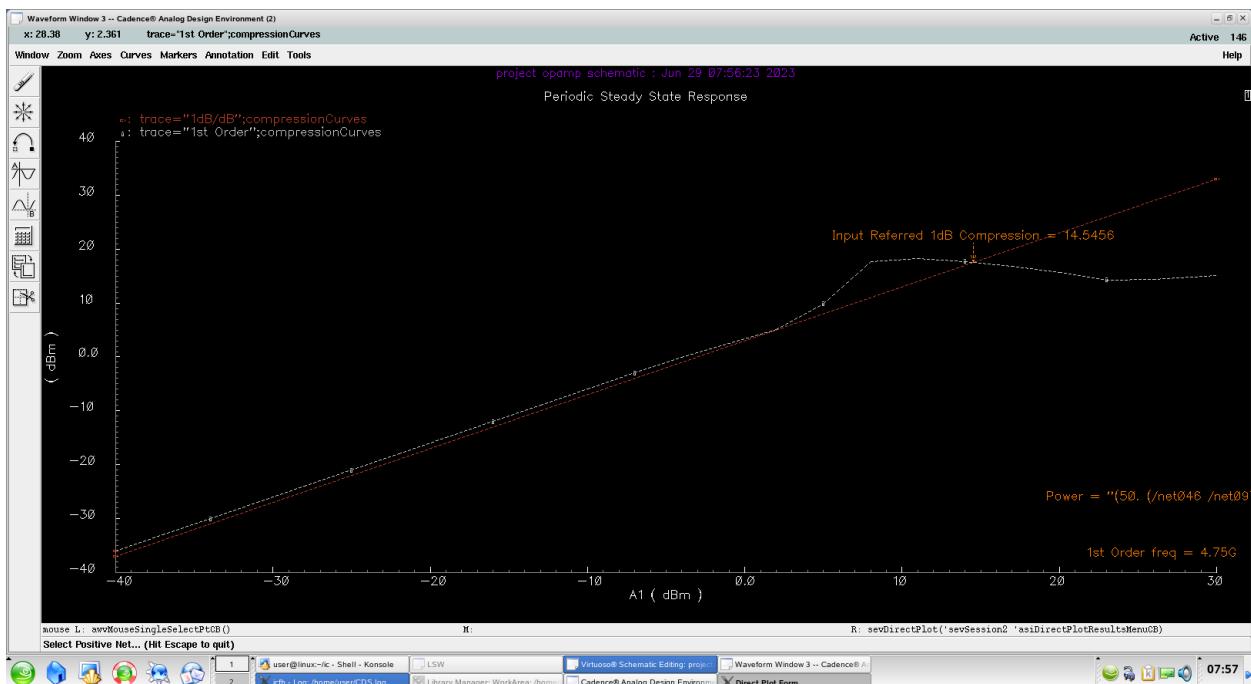
PSS analysis (-1dB)

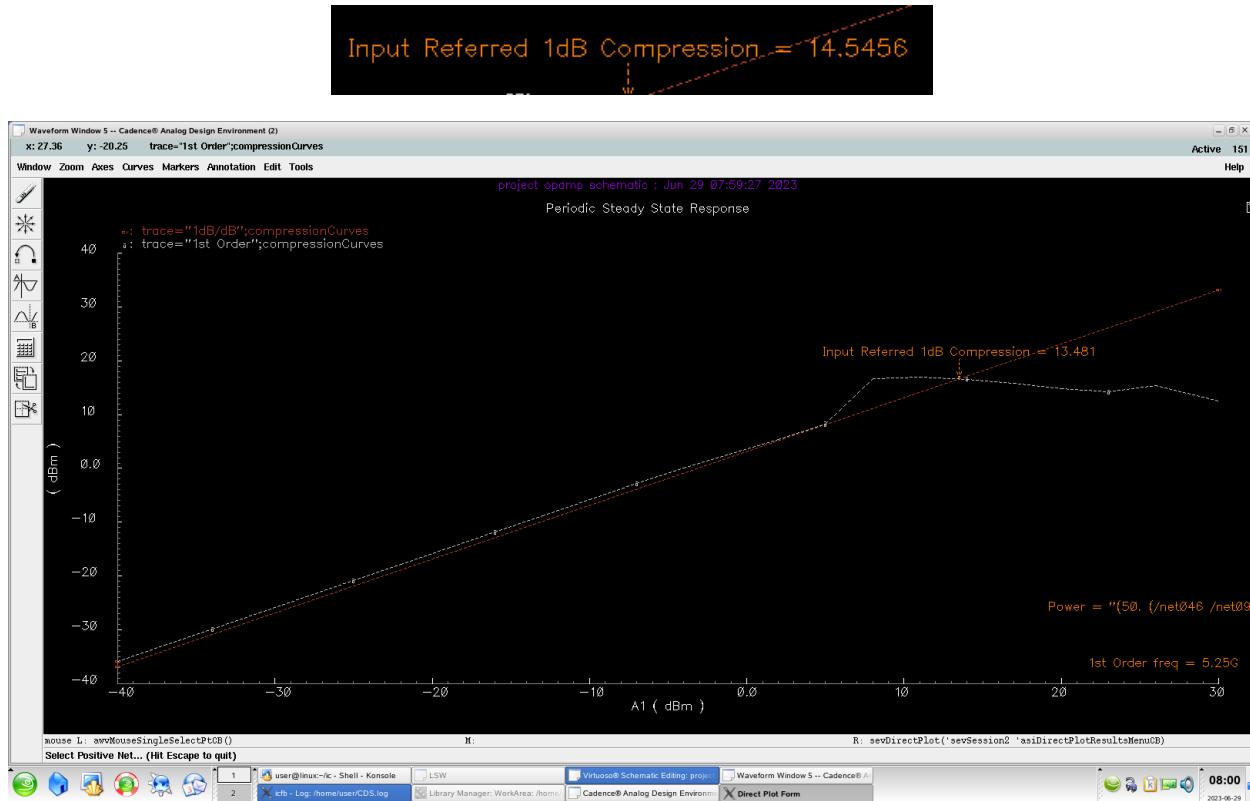
The screenshot shows two dialog boxes. On the left is the 'Edit Object Properties' dialog for a component named 'port'. It shows settings for 'analogLib' library, 'port' cell, and 'symbol' view name. Under 'CDF Parameter', it lists 'Resistance' (50 ohms), 'Port number' (1), 'DC voltage' (sine), and various frequency and amplitude parameters for a sinusoidal source. On the right is the 'Choosing Analyses' dialog, which lists various analysis types like tran, dc, ac, noise, xf, sens, dcmatch, etc. It also includes sections for 'Fundamental Tones' (f1 = 56 Hz), 'Output harmonics' (Number of harmonics = 2), and 'Accuracy Defaults' (errpreset = conservative).



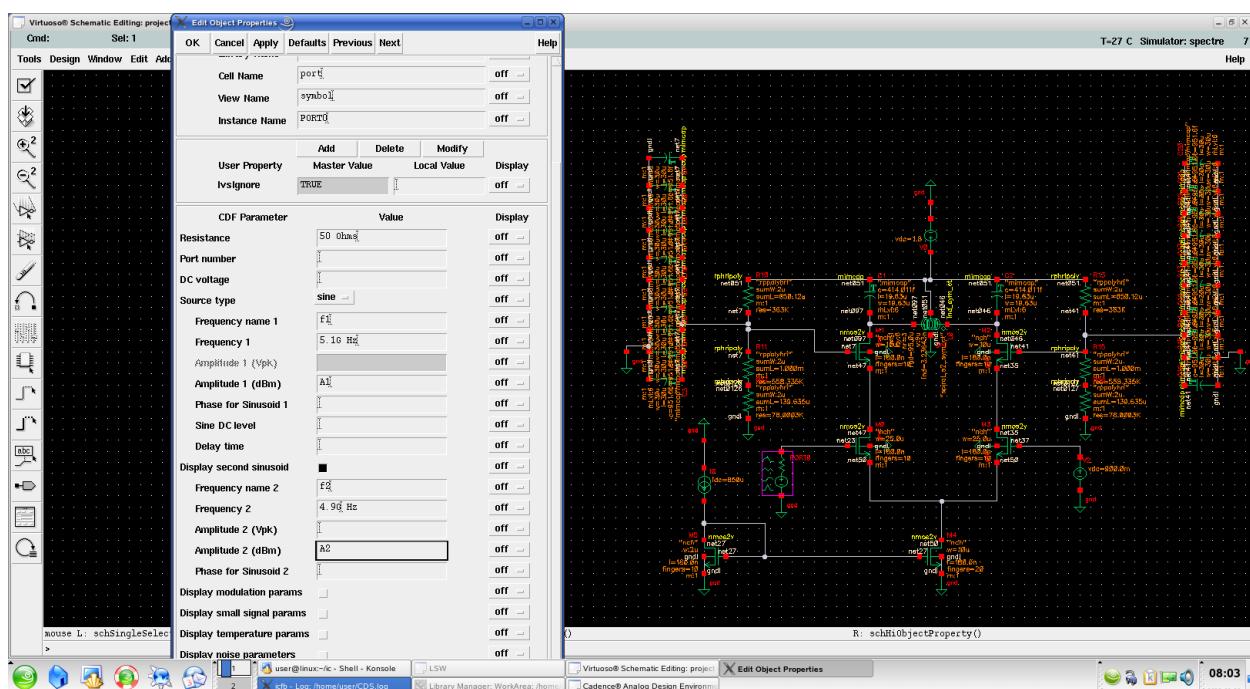


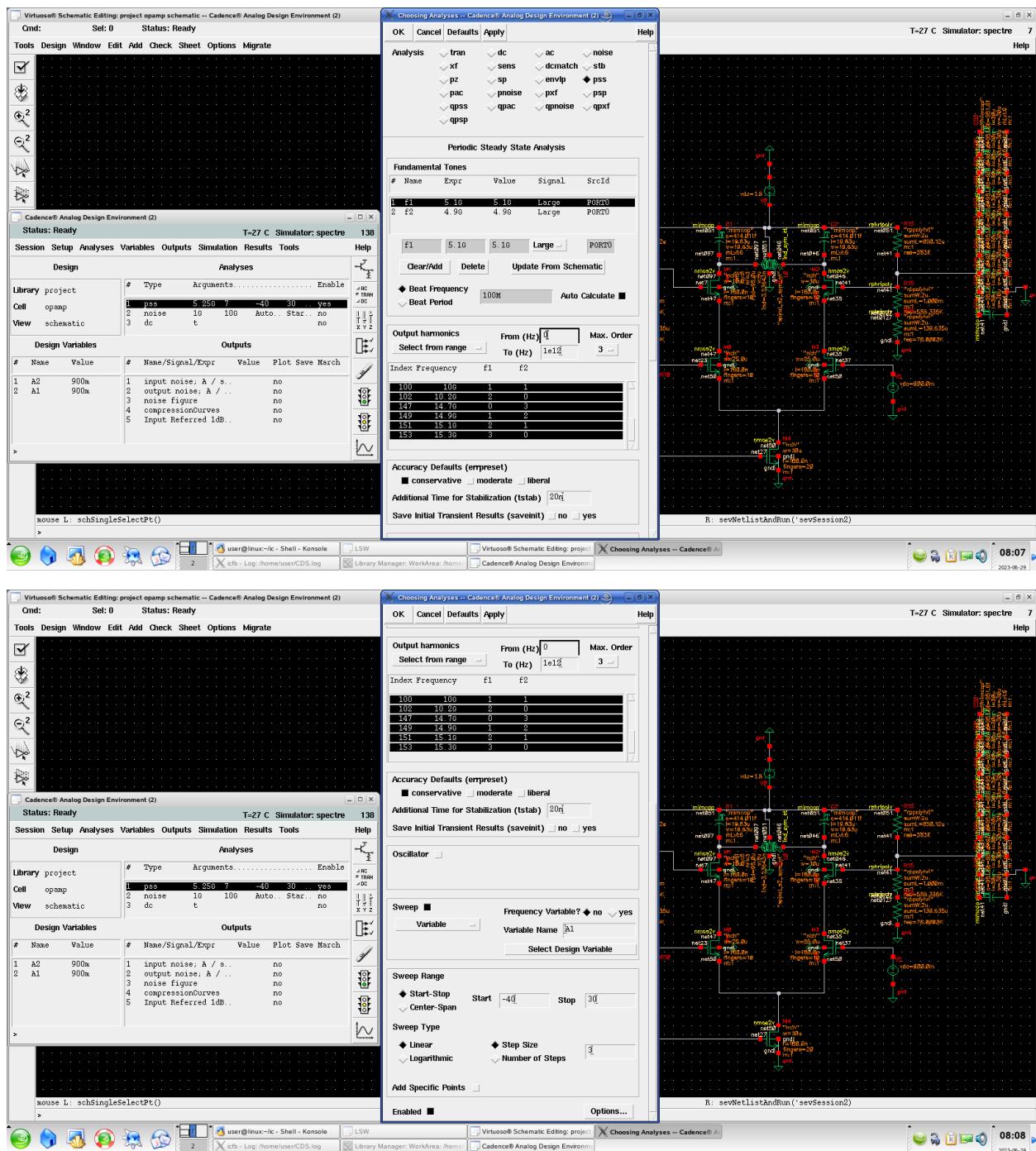
بررسی این پارامتر در ابتدا و انتهای بند ویدت

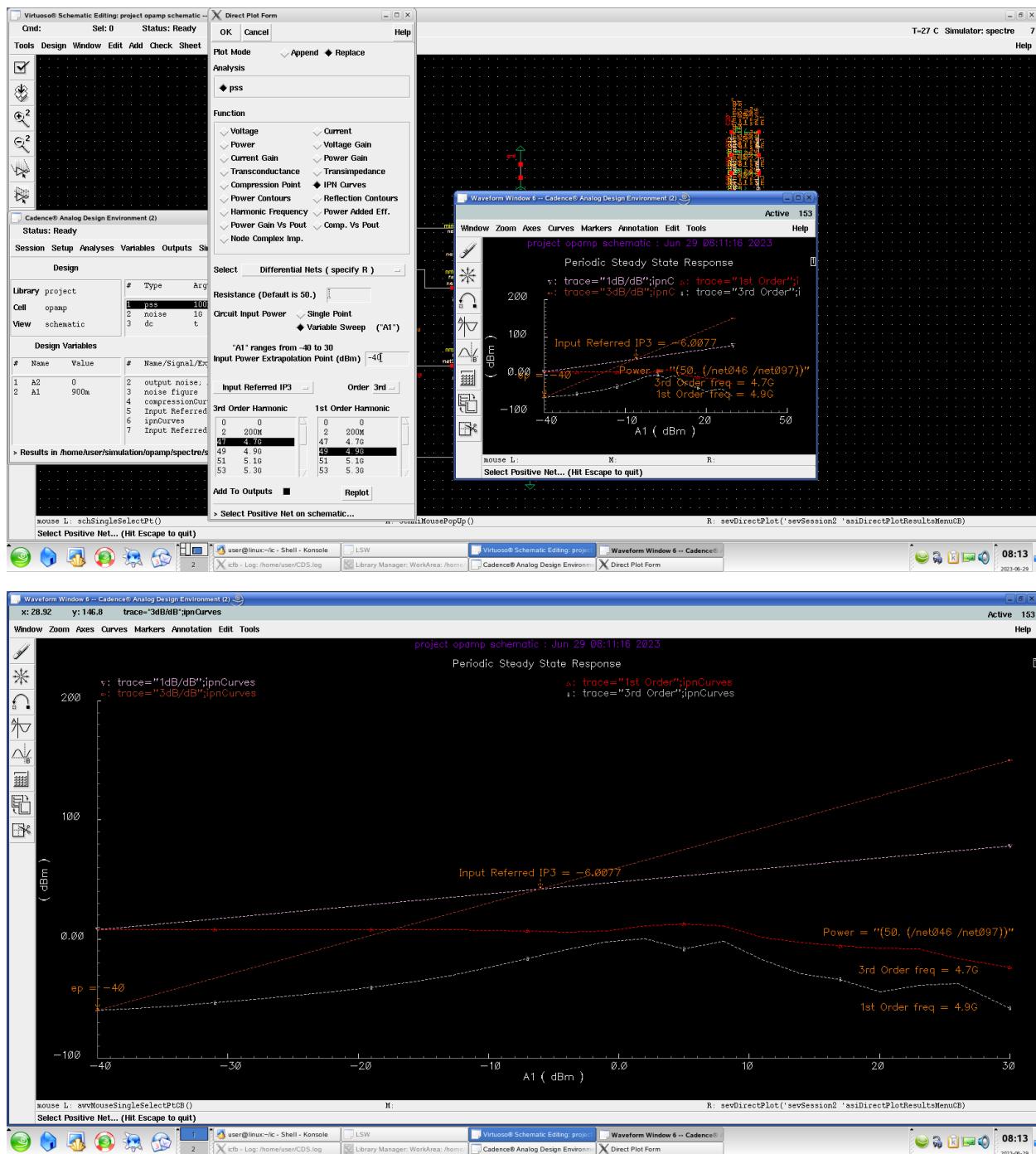




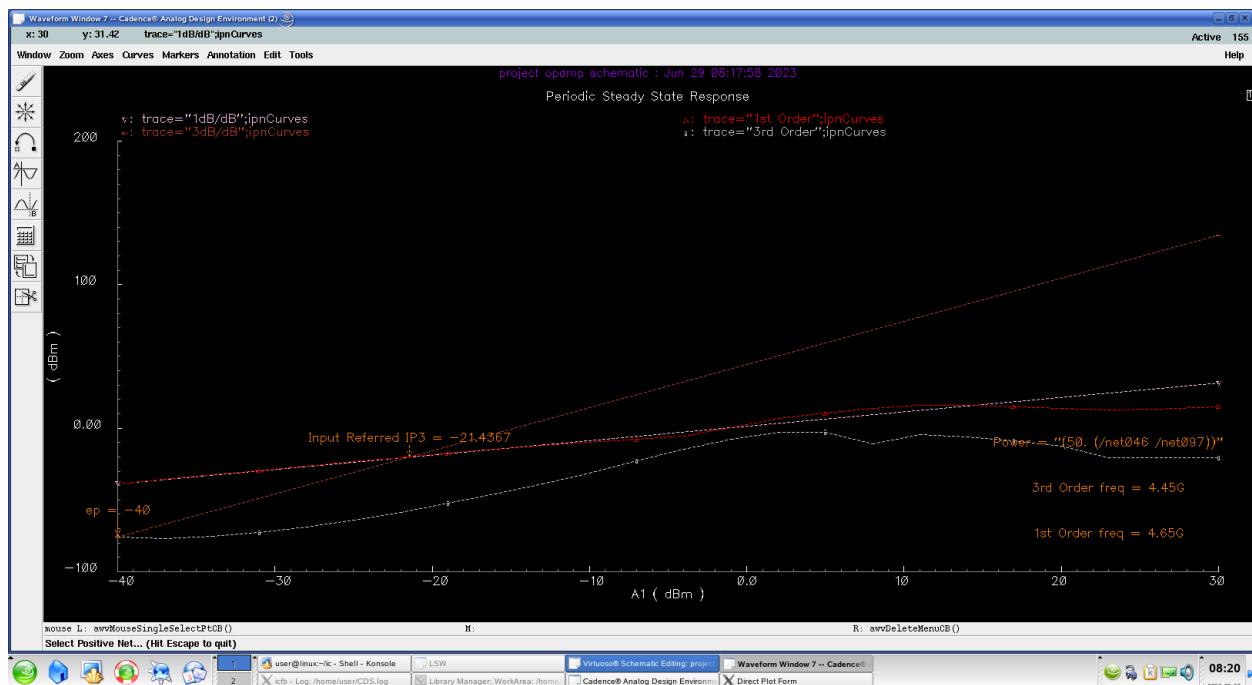
PSS (IIP3)



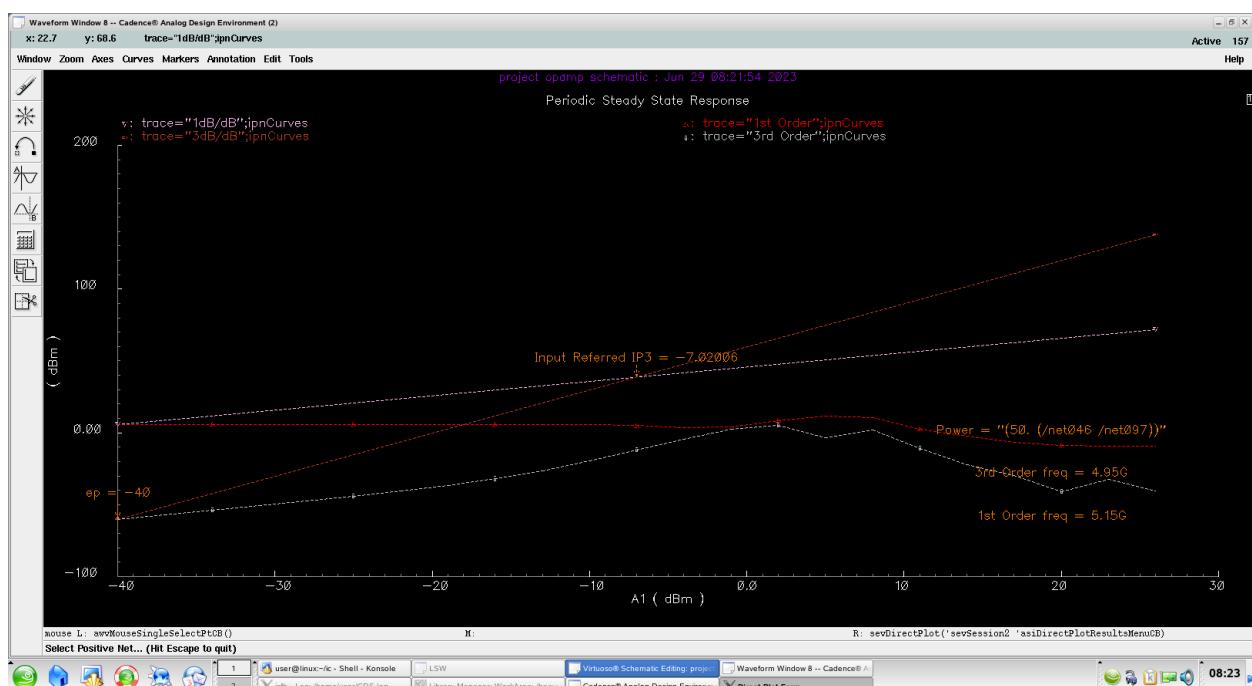




برای ابتدا و انتهای بازه فرکانسی:



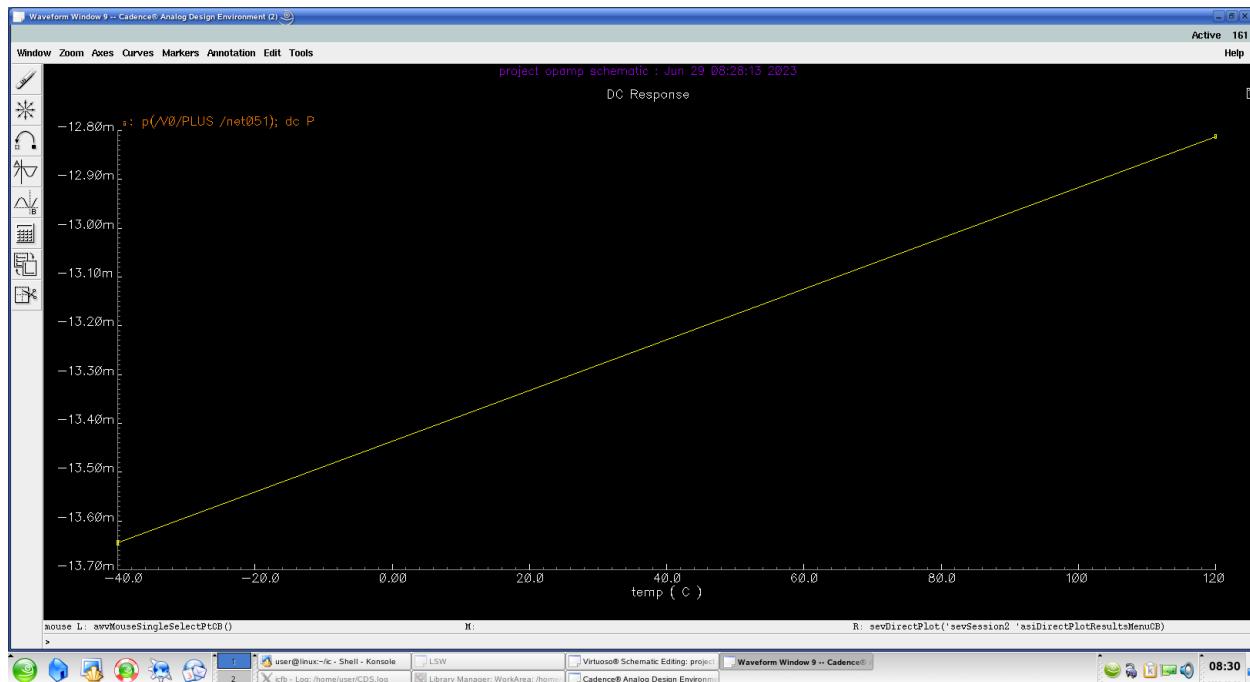
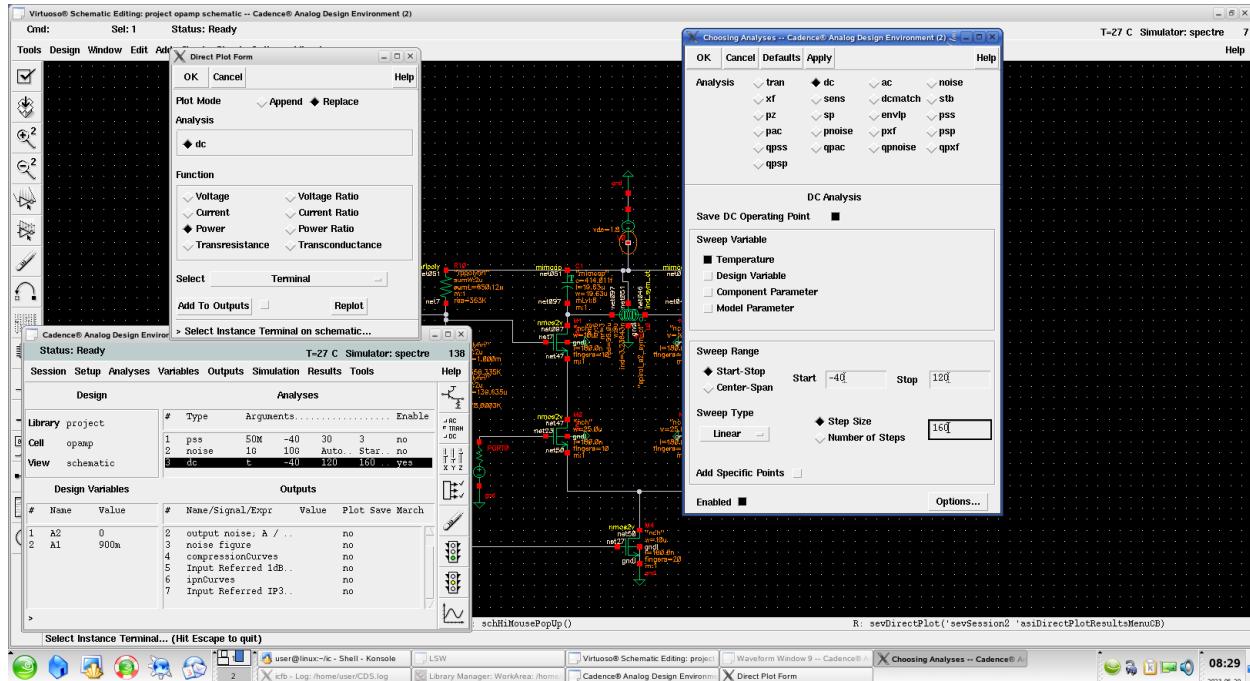
Input Referred IP3 = -21.4367



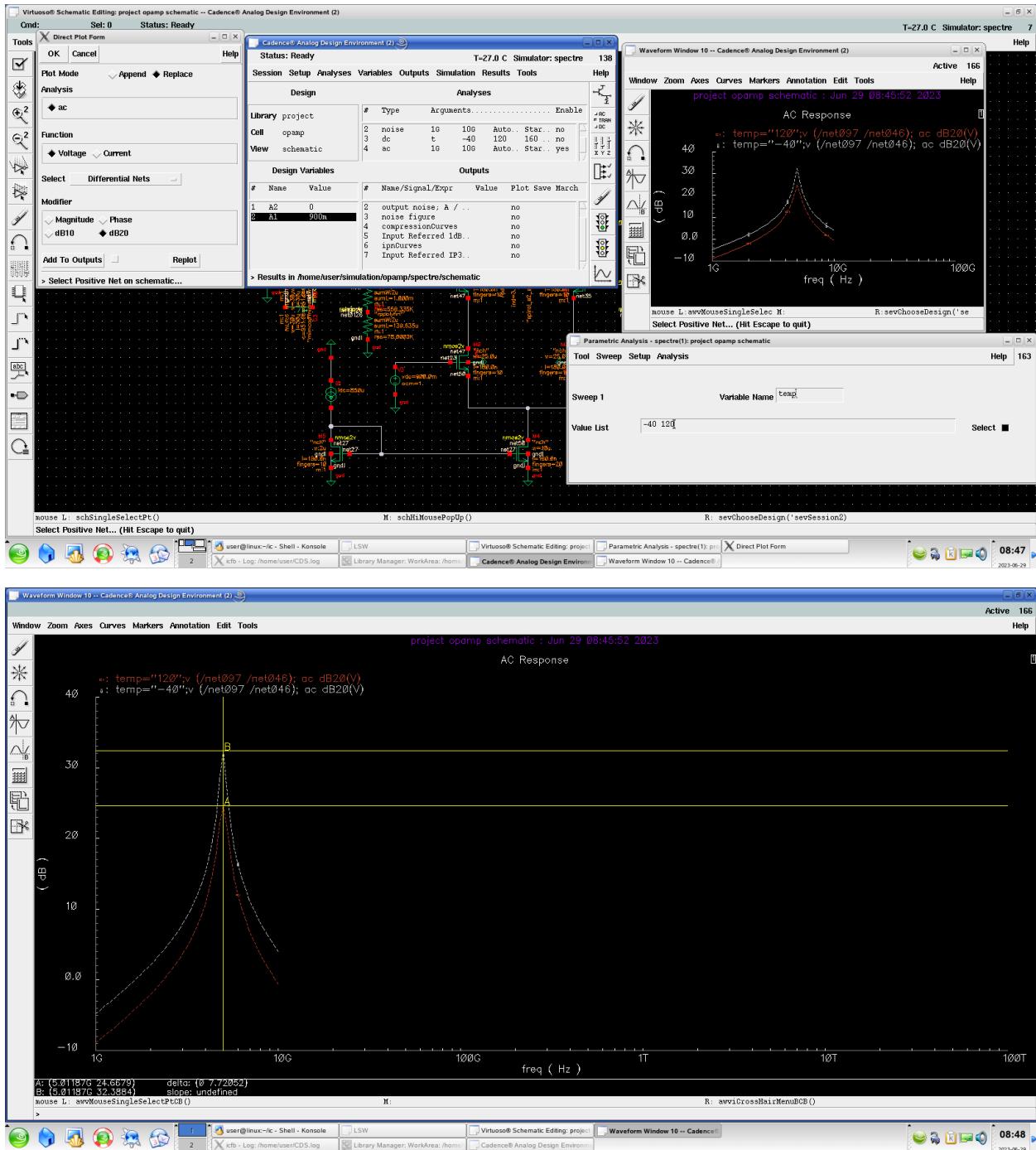
Input Referred IP3 = -7.02006

تا اینجا در دمای 27 درجه و المان های ff , ss , المان های 40 و 120 با دمای های 40 و 120 باید نتایج را ببینیم.

اول tt با دمای های 120 و 40

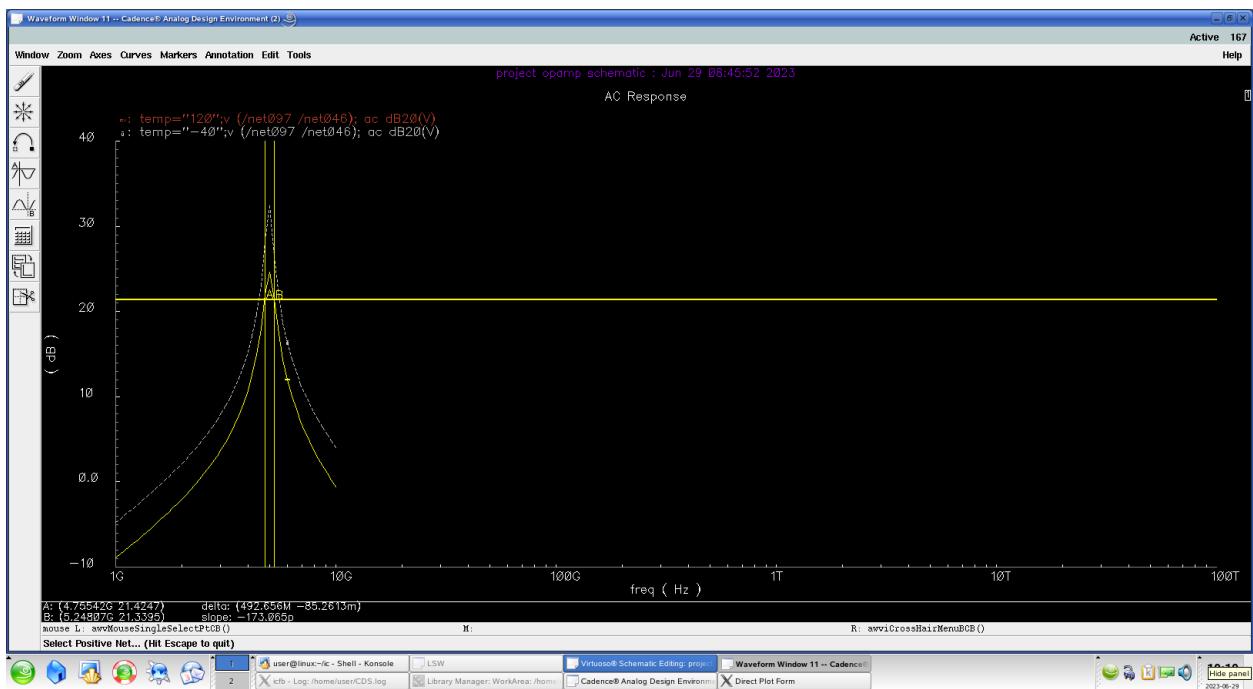


Ac

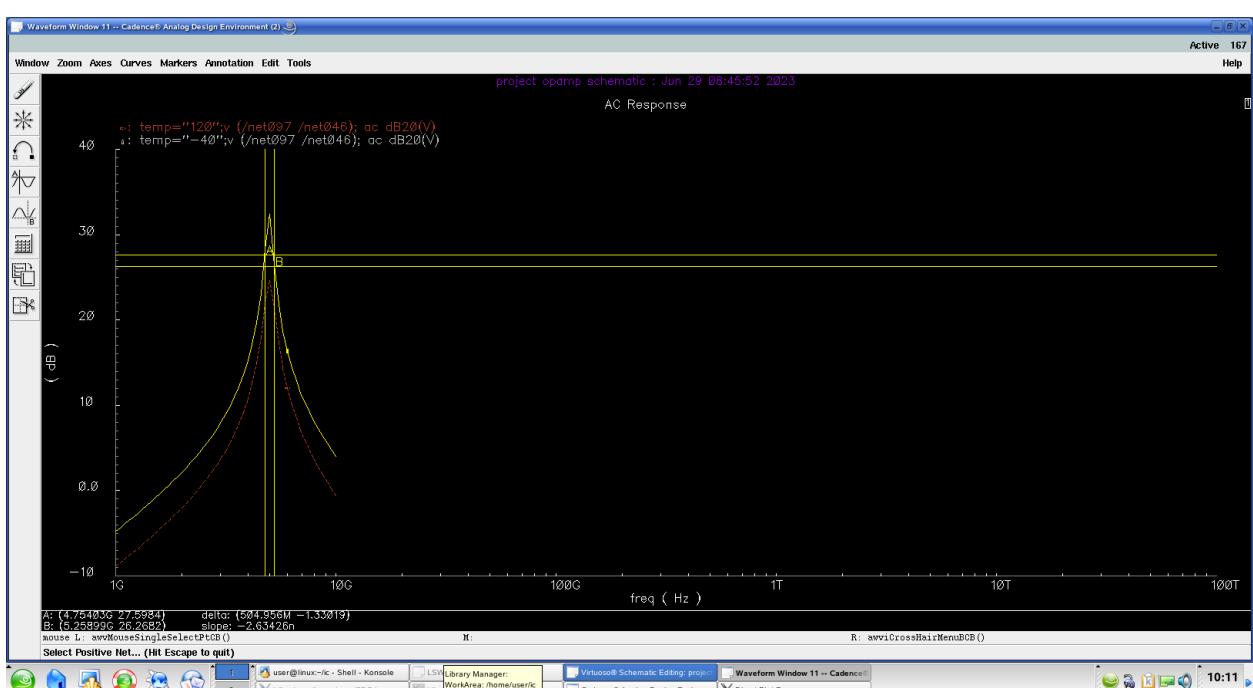


```
:= temp="120";v (/net097 /net046); ac dB20(V)
:= temp="-40";v (/net097 /net046); ac dB20(V)
```

```
A: (5.01187G 24.6679)      delta: (0 7.72052)
B: (5.01187G 32.3884)      slope: undefined
mouse L: awvMouseSingleSelectPtCB()
```

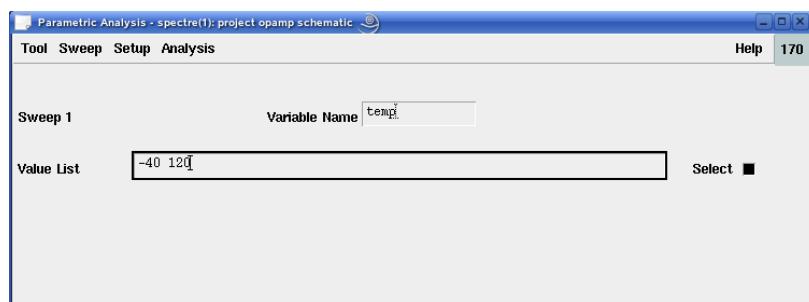
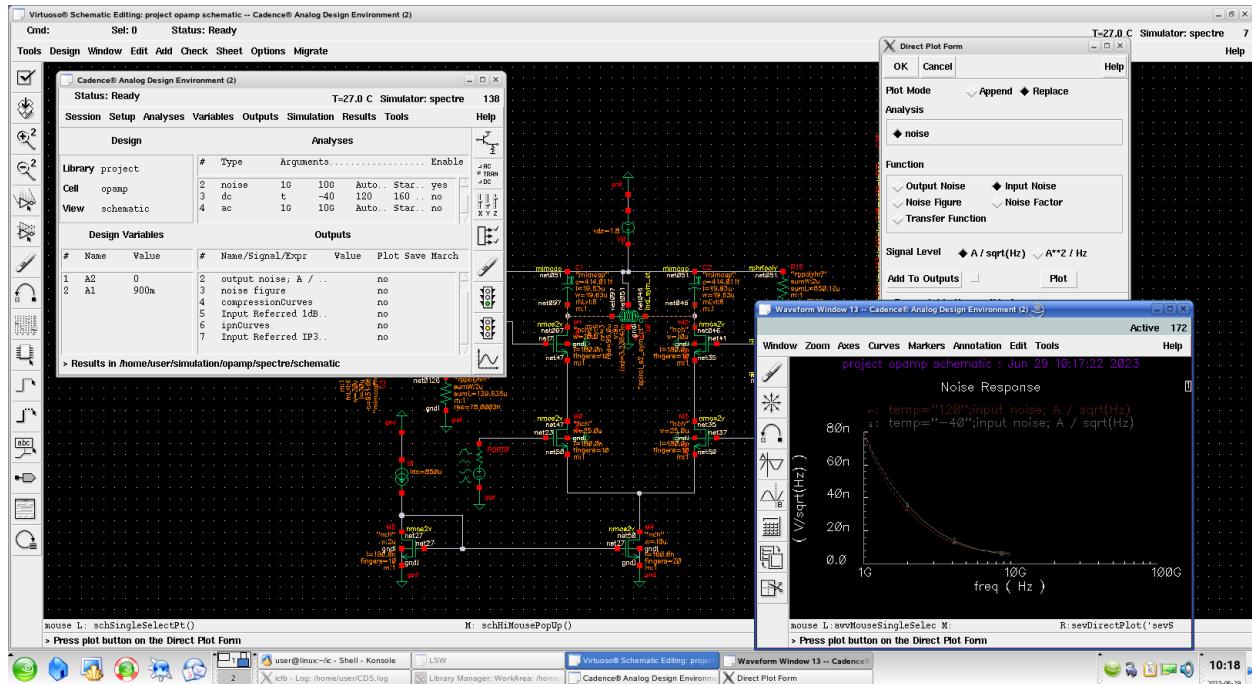


A: (4.75542G 21.4247) delta: (492.656M -85.2613m)
B: (5.24807G 21.3395) slope: -173.065p
mouse L: awvMouseSingleSelectPtCB()



```
A: (4.75403G 27.5984)      delta: (504.956M -1.33019)
B: (5.25899G 26.2682)      slope: -2.63426n
mouse L: awvMouseSingleSelectPtCB()
```

Noise analysis



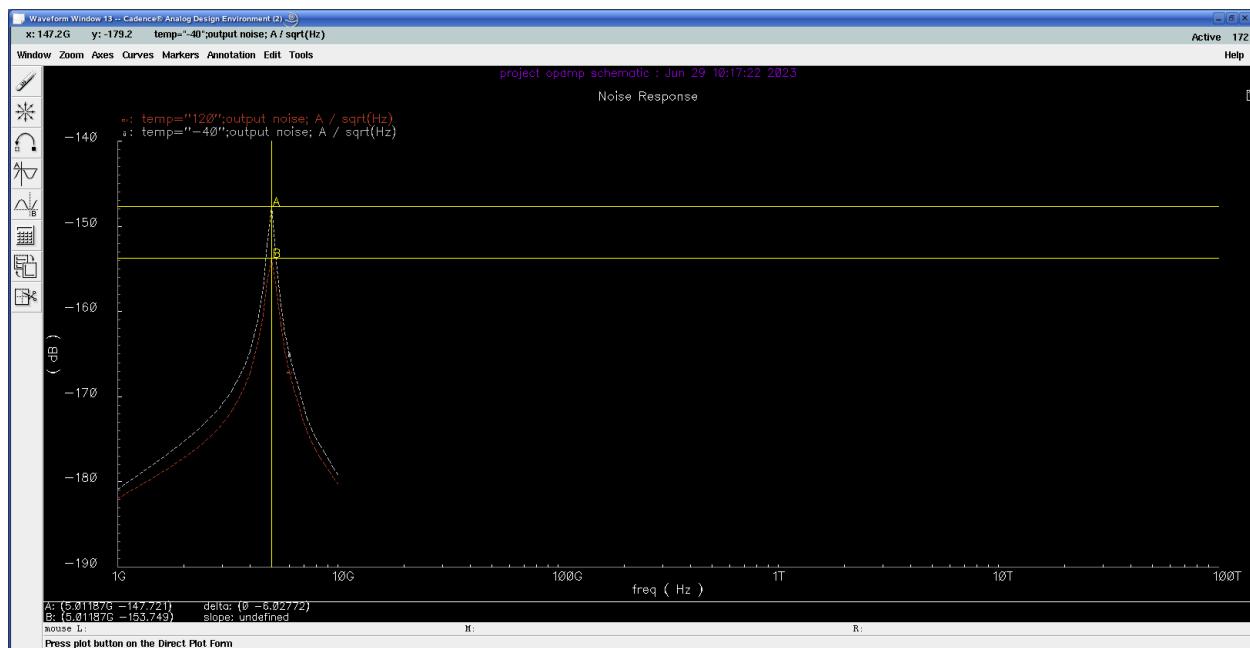
Analysis -> start



user@linux-rc - Shell - Konsole LSW Virtuoso Schematic Editing project opamp schematic : Jun 29 10:17:22 2023 Cadence® Analog Design Environment Direct Plot Form 10:19 2023-06-29

A: (4.96401G 11.2986n) delta: (47.8601M -842.234p)
B: (5.01187G 10.4563n) slope: -17.5978a
mouse L: awyMouseSingleSelectPtCB()

```
;;: temp="120";input noise; A / sqrt(Hz)
;;: temp="-40";input noise; A / sqrt(Hz)
```



user@linux-rc - Shell - Konsole LSW Virtuoso Schematic Editing project opamp schematic : Jun 29 10:17:22 2023 Cadence® Analog Design Environment Direct Plot Form 10:21 2023-06-29

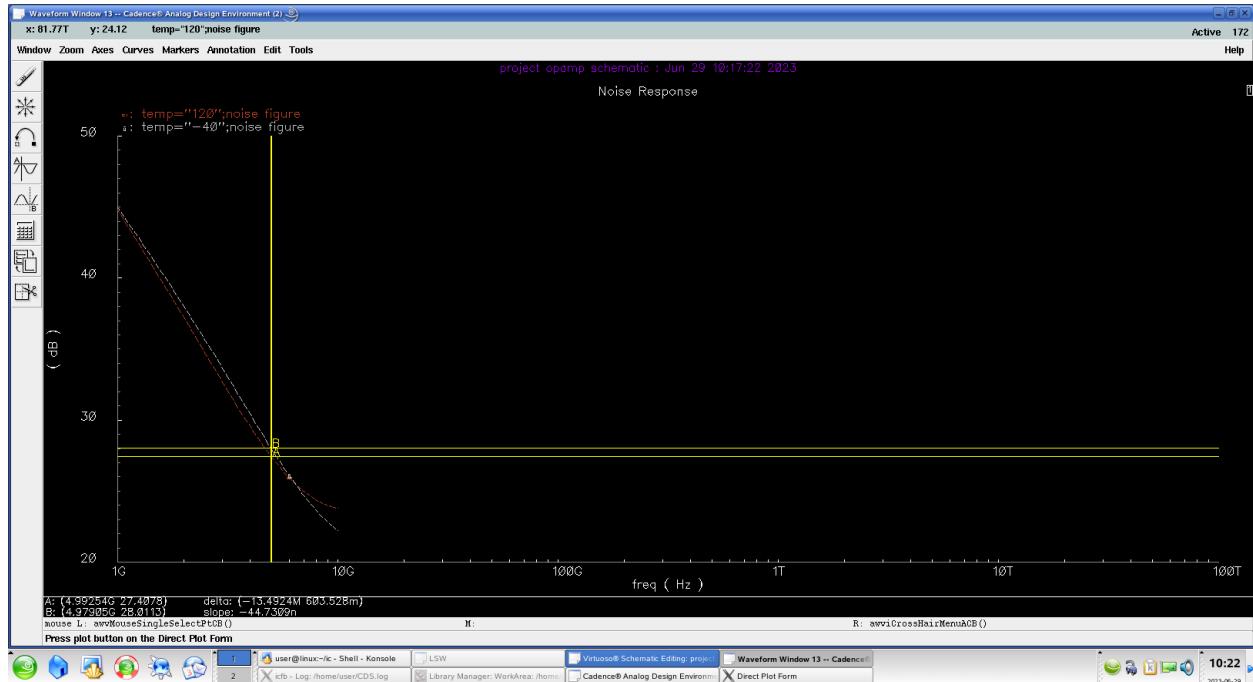
```

A: (5.01187G -147.721)      delta: (0 -6.02772)
B: (5.01187G -153.749)      slope: undefined
mouse L: awvMouseSingleSelectPtCB()

```

```

..: temp="120";output noise; A / sqrt(Hz)
..: temp="-40";output noise; A / sqrt(Hz)
[
```



```

..: temp="120";noise figure
..: temp="-40";noise figure
[
```

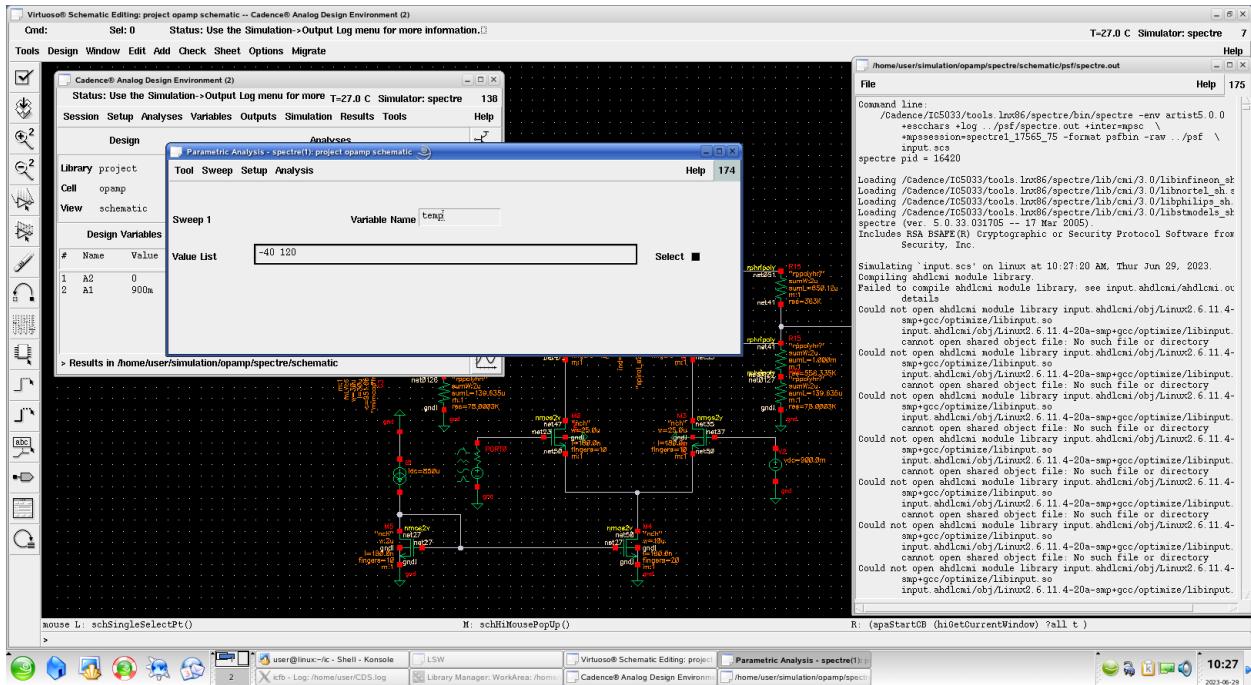
```

A: (4.99254G 27.4078)      delta: (-13.4924M 603.528m)
B: (4.97905G 28.0113)      slope: -44.7309n
mouse L: awvMouseSingleSelectPtCB()

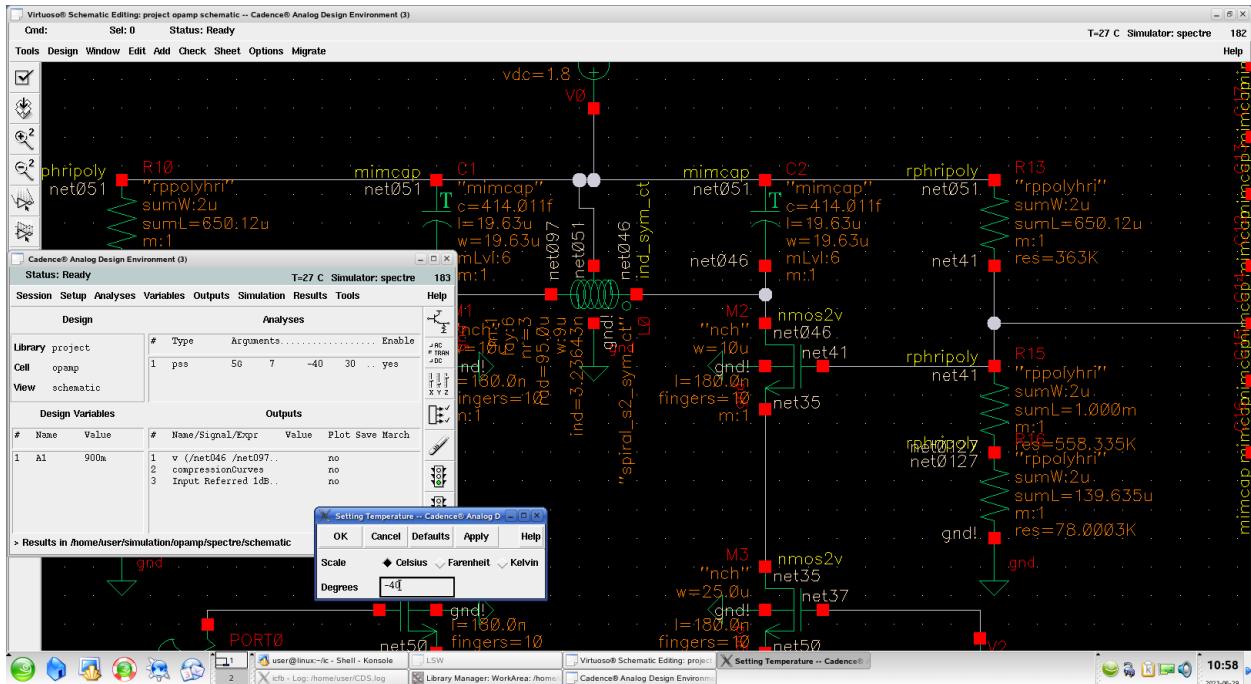
```

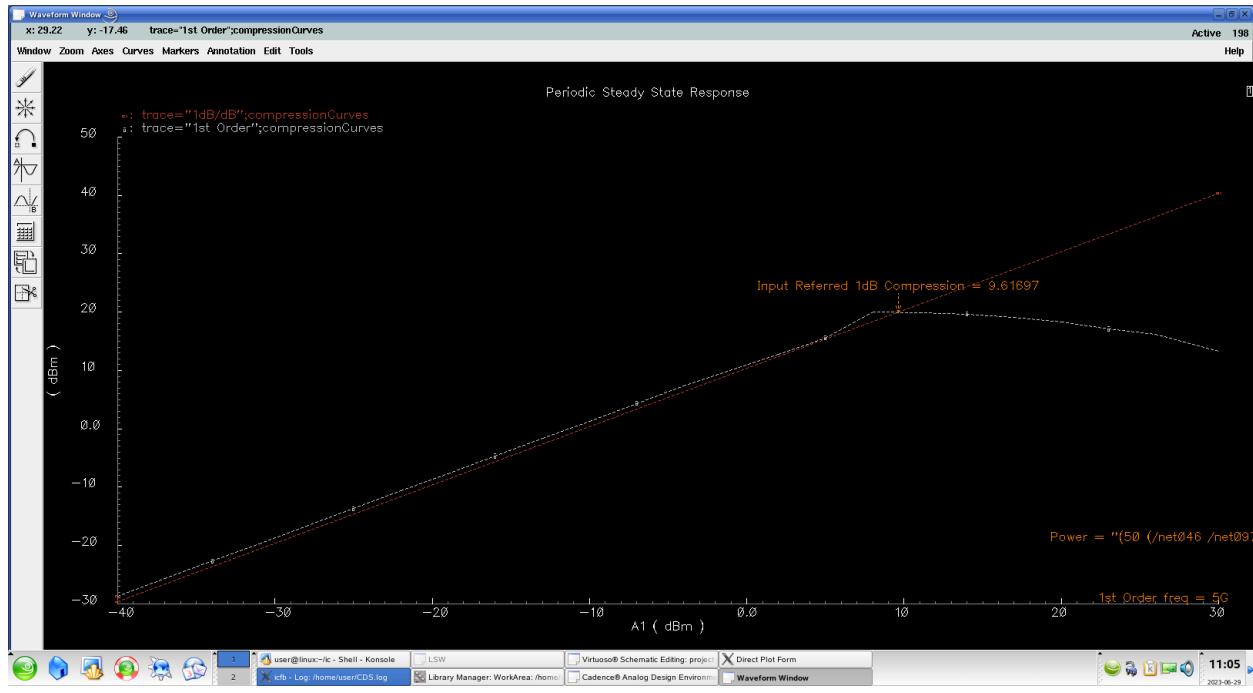
PSS (-1_{dB})

ستینگ شبیه سازی ماند قسمت قبل است.



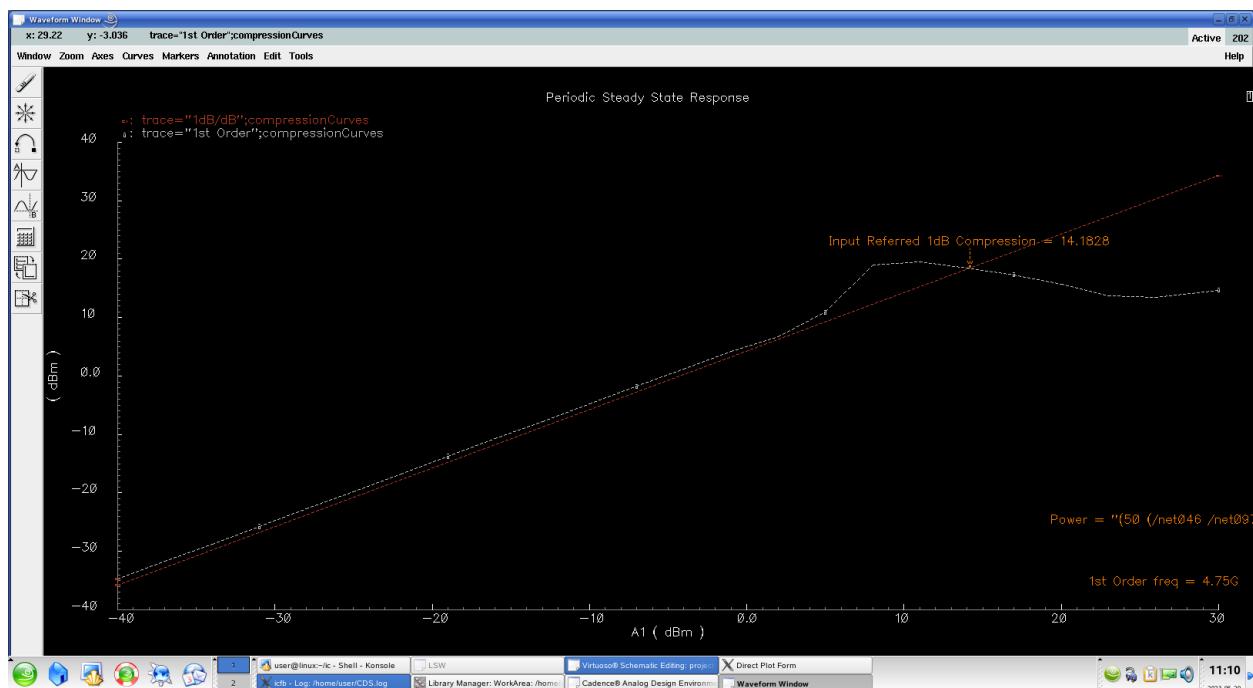
فکر میکنم پارامتر انالوگیسیں برای این شبیه سازی خوب عمل نکرد و کیدنس نود خروجی رو انتخاب نمیکنه. ازش استفاده نمیکنم.



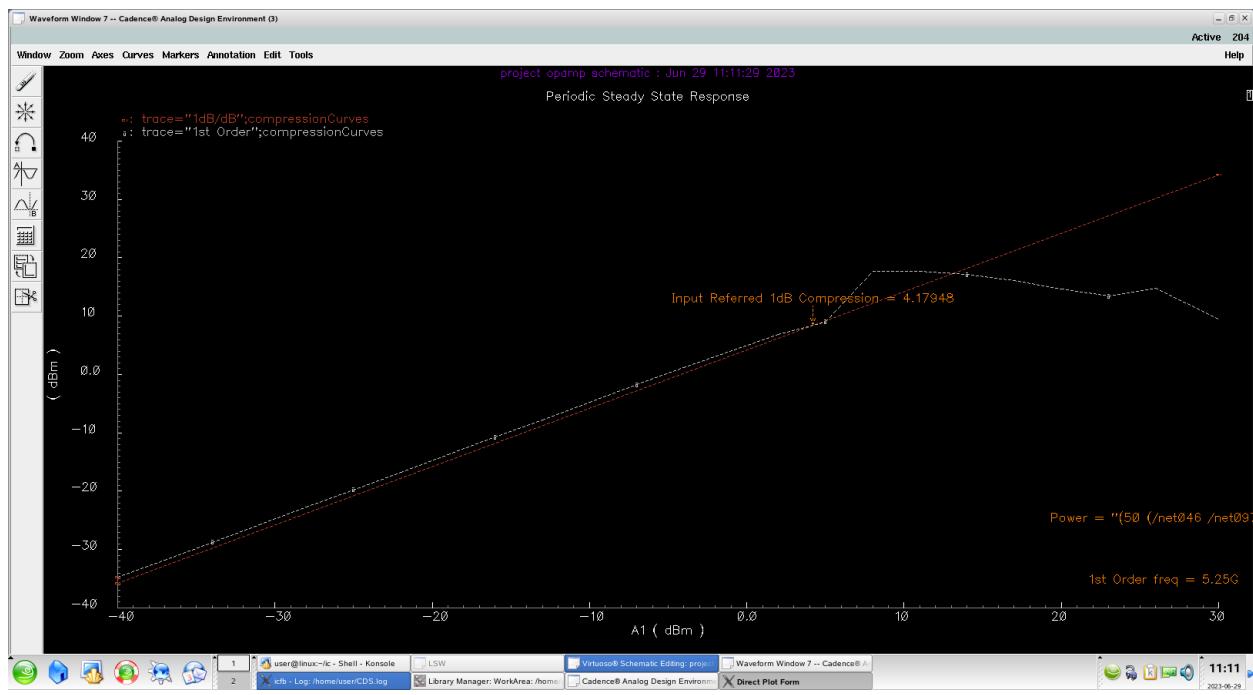


Input Referred 1dB Compression ≈ 9.61697

در ابتداء و انتهای پهنه‌ی باند:

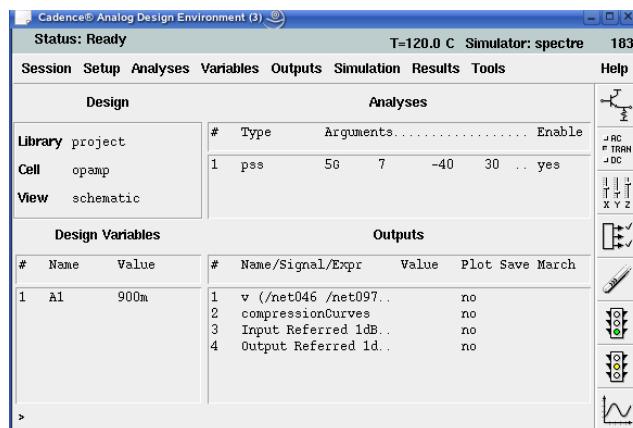


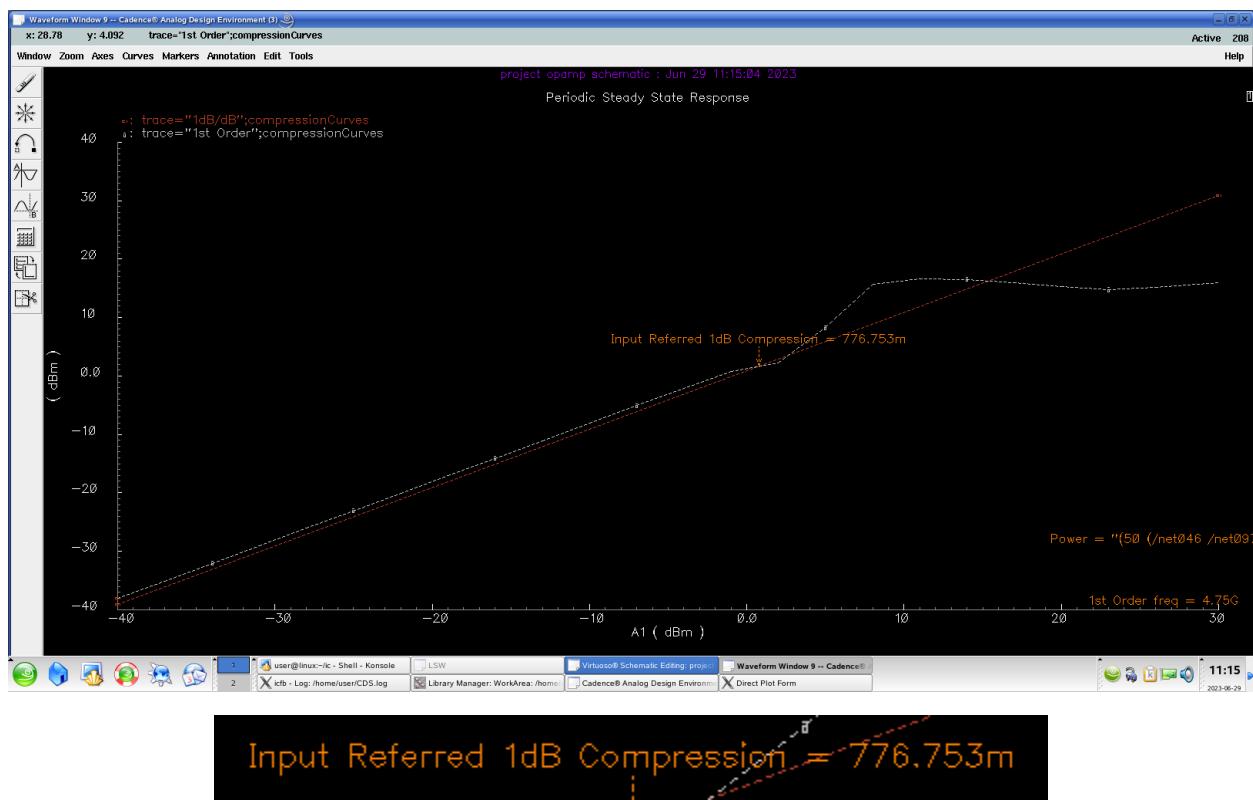
Input Referred 1dB Compression ≈ 14.1828

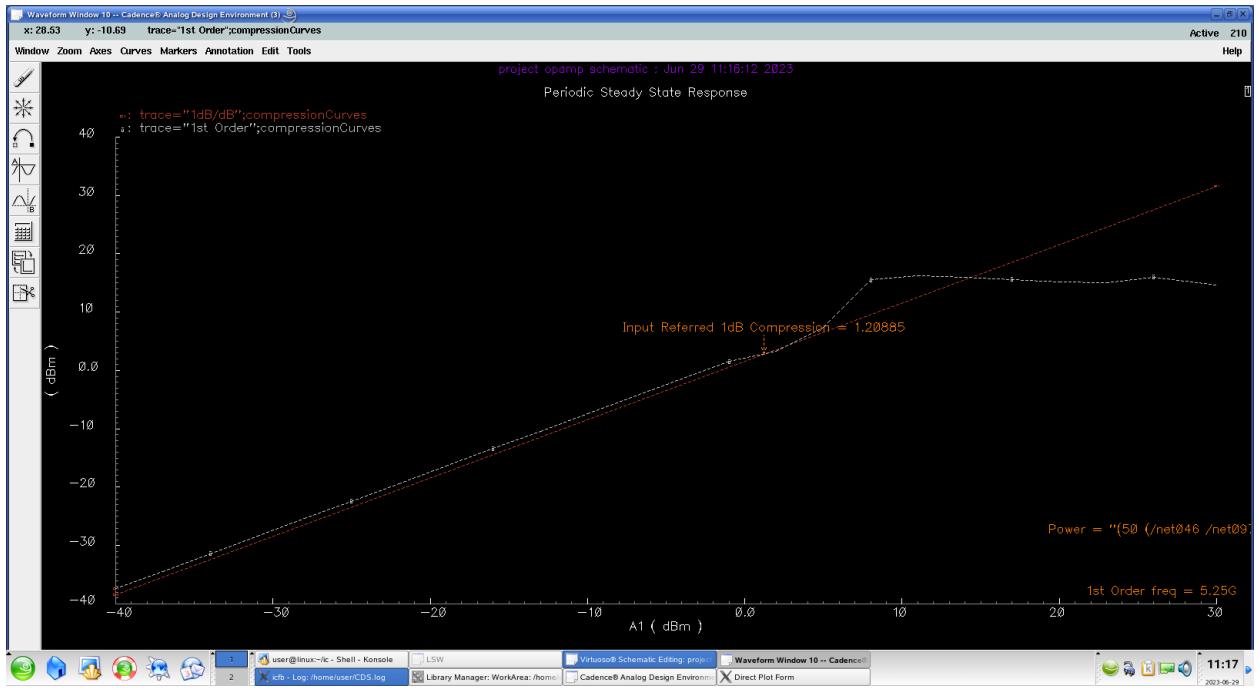


Input Referred 1dB Compression = 4.17948

حال همین کارهای برای 120 درجه تکرار میکنیم.





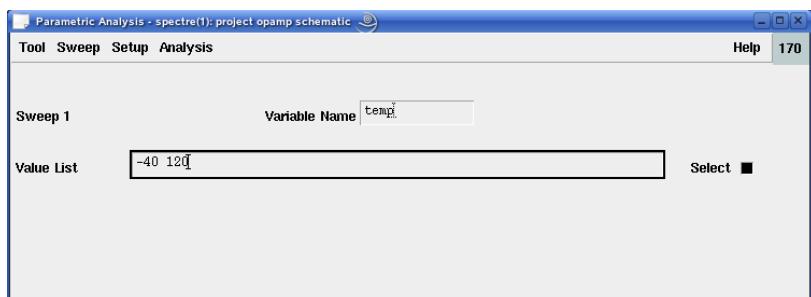


Input Referred 1dB Compression = 1.20885

PSS(IIP3)

تنظیمات مانند بخش قبل است.

Parameter analysis





$$IP3(-40) = -3.7892$$

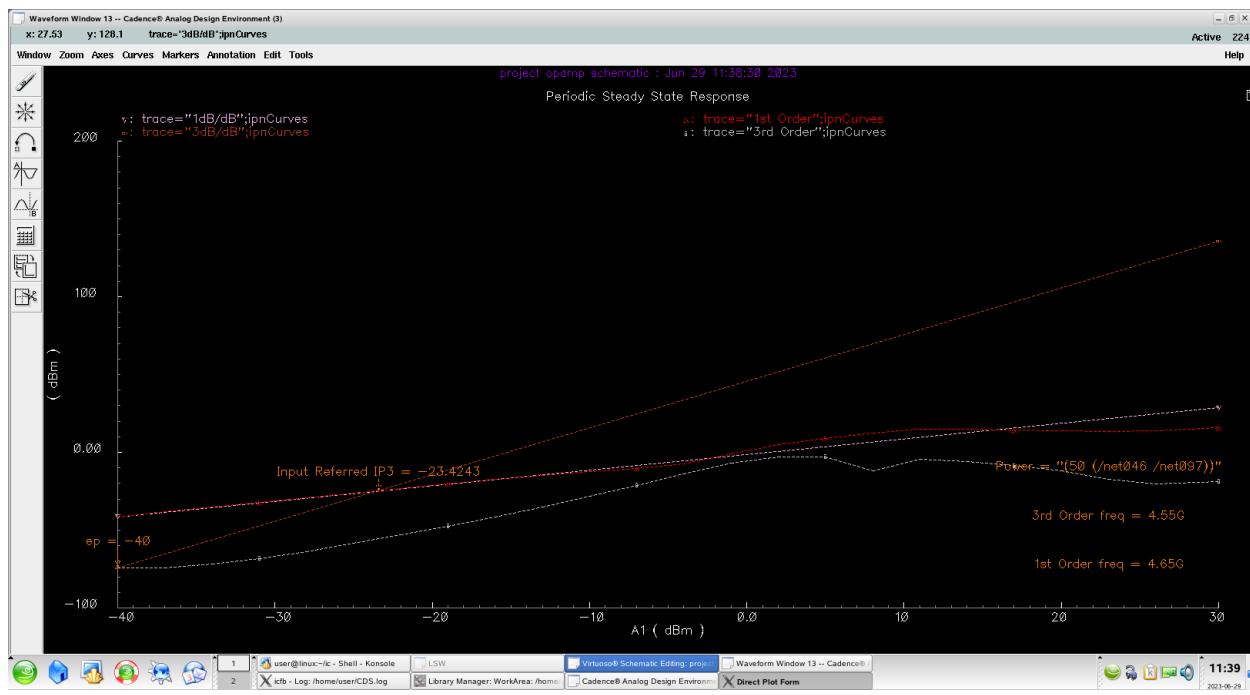
$$IP3(120) = -9.70956$$

باید توجه کنیم فقط در دو دما پارامتر را محاسبه کردیم پس منحنی در بقیه دما ها مقدار درست ندارد در فرکانس های ابتدا و انتهای بند ویدت هم این کار را انجام یدهیم.

در ابتدای بازه (4.75-

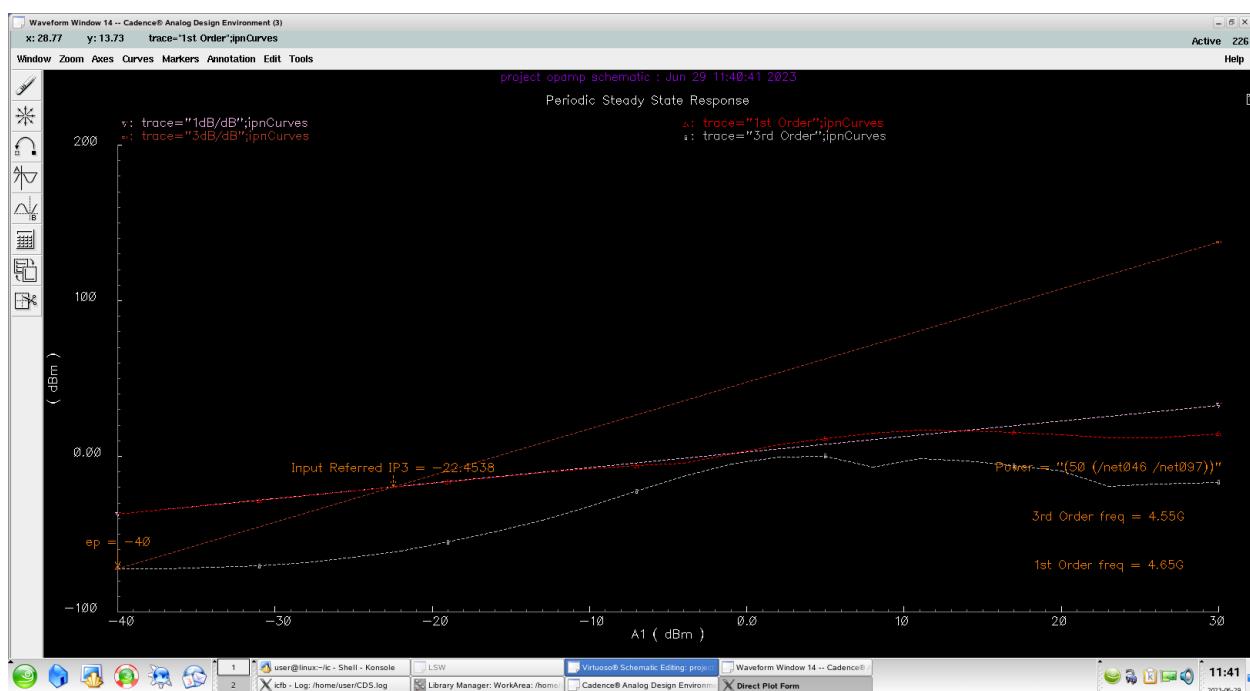
پارامتر اناالیسیس راه خوبی نبود نمودار بالا کامل نیست. تو پی اس اس ازش استفاده نمیکنم.

درجه: 120



Input Referred IP3 = -23.4243

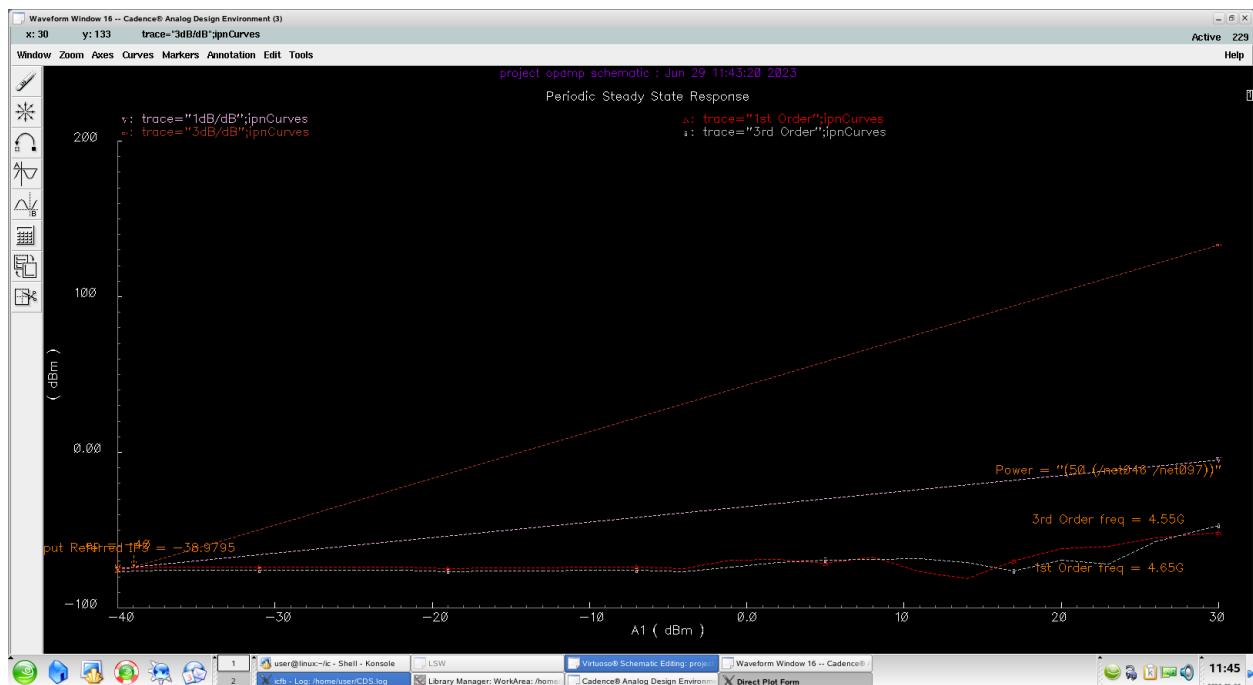
: درجه 40-



Input Referred IP3 = -22.4538

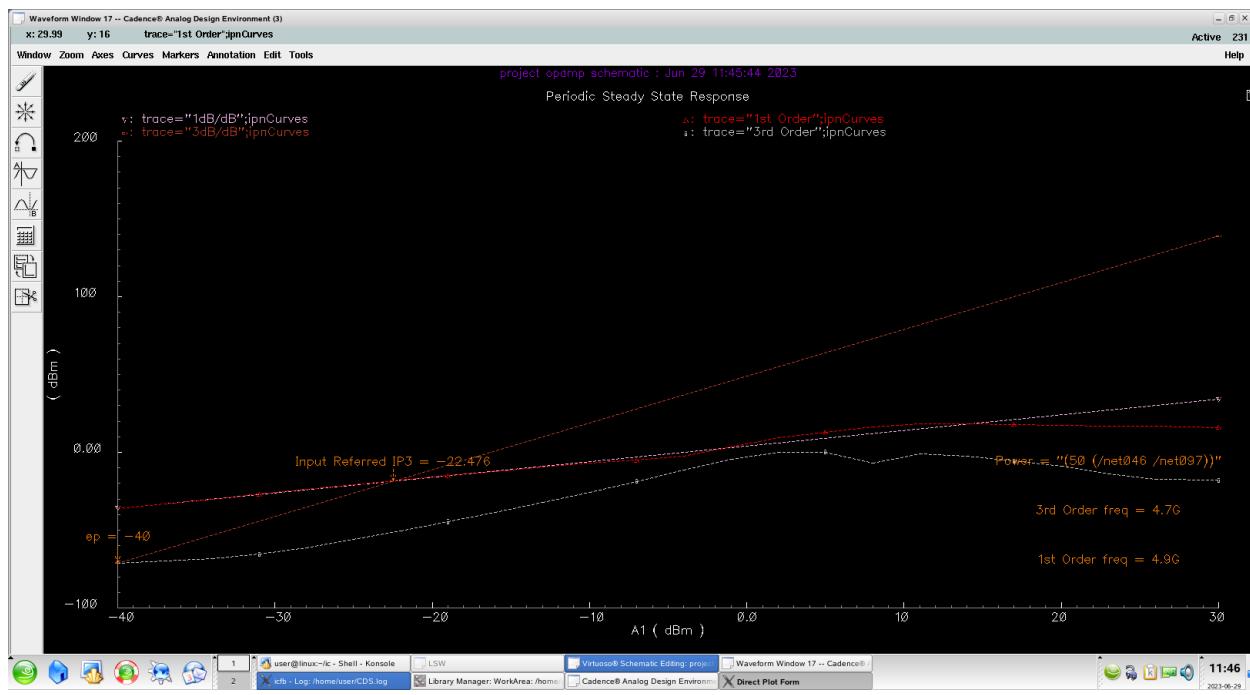
حالا میریم فرکانس اصلی پارانتر انالایس برای پی اس اس خوب نبود.

درجه: 40-



put Referred IP3 = -38.9795

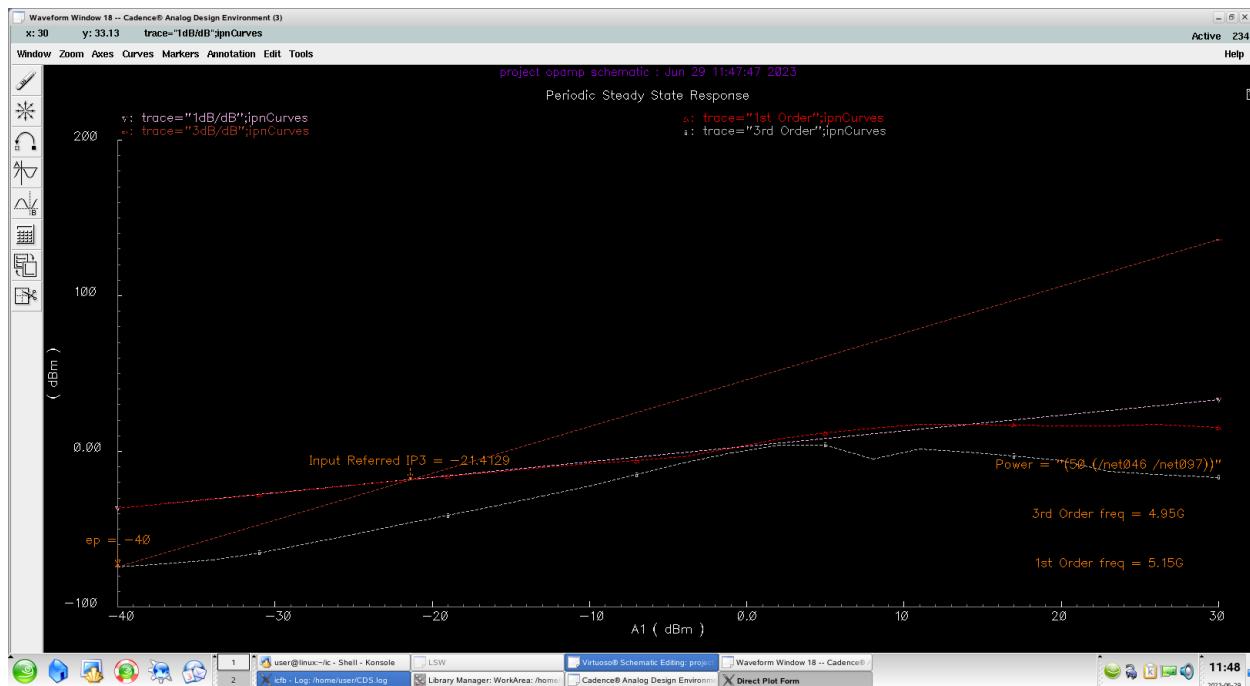
درجه: 120



Input Referred IP3 = -22.476

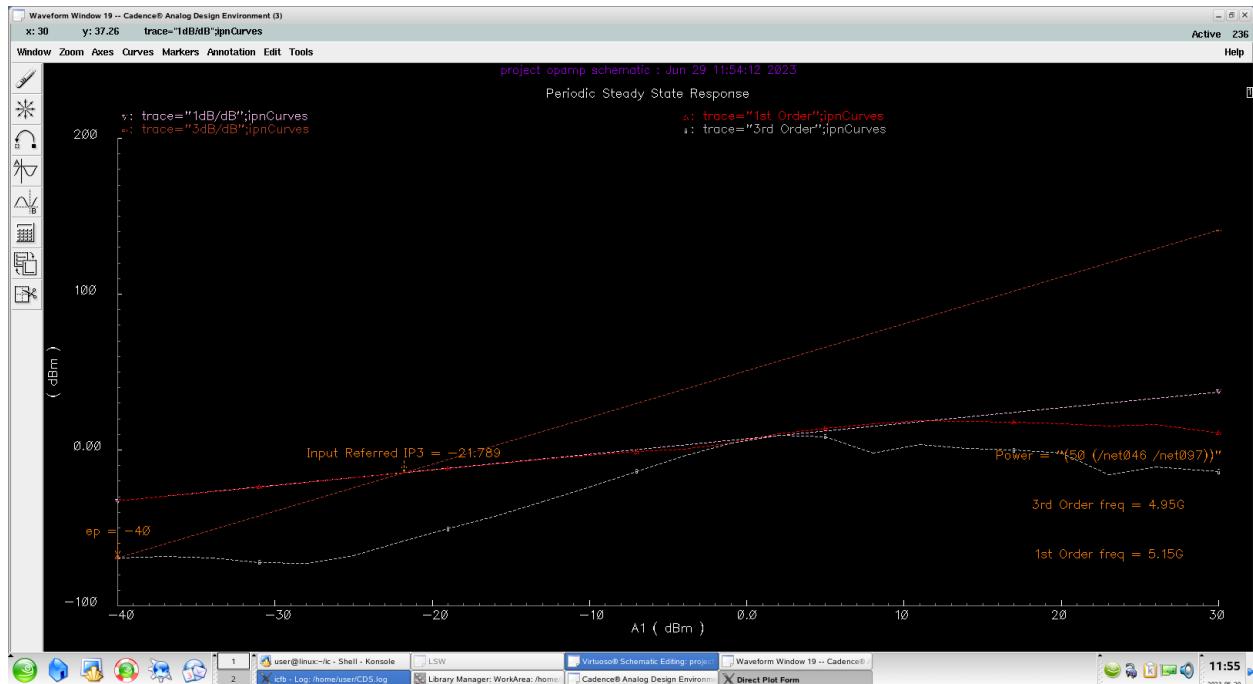
حالا انتهای بند ویدت:

120 درجه:



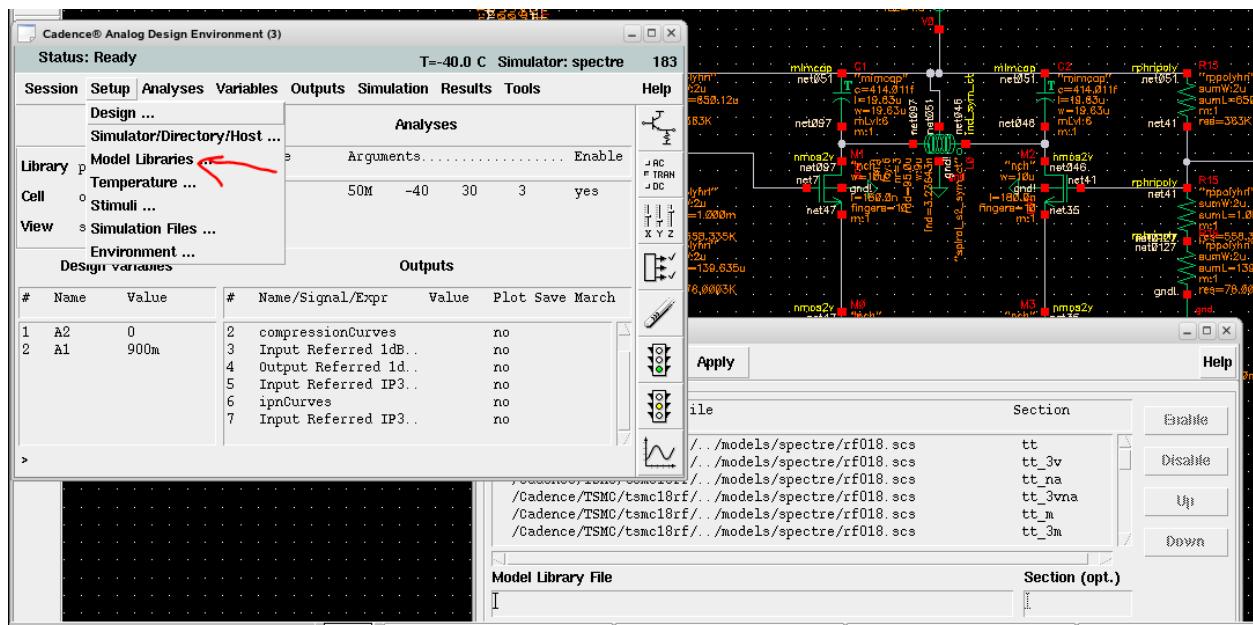
Input Referred IP3 = -21.4129

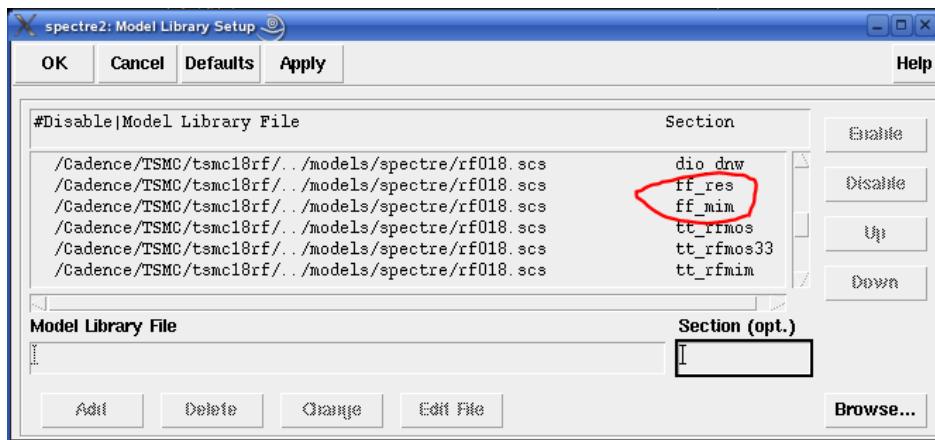
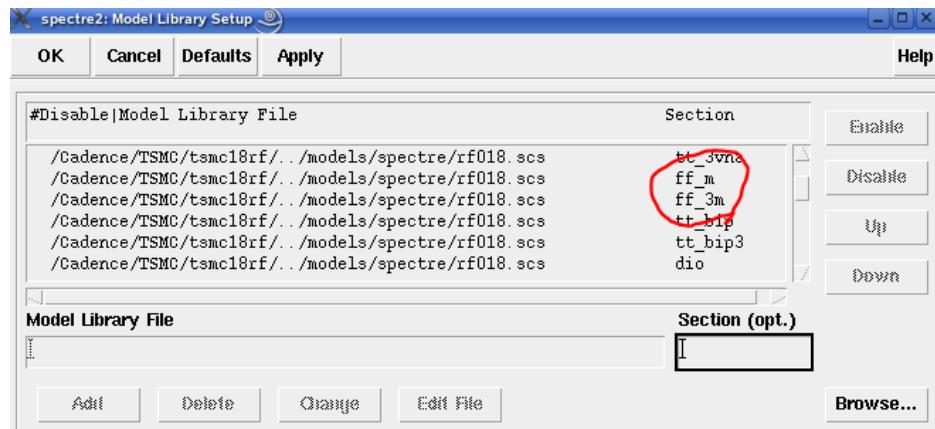
حالا- 40 درجه



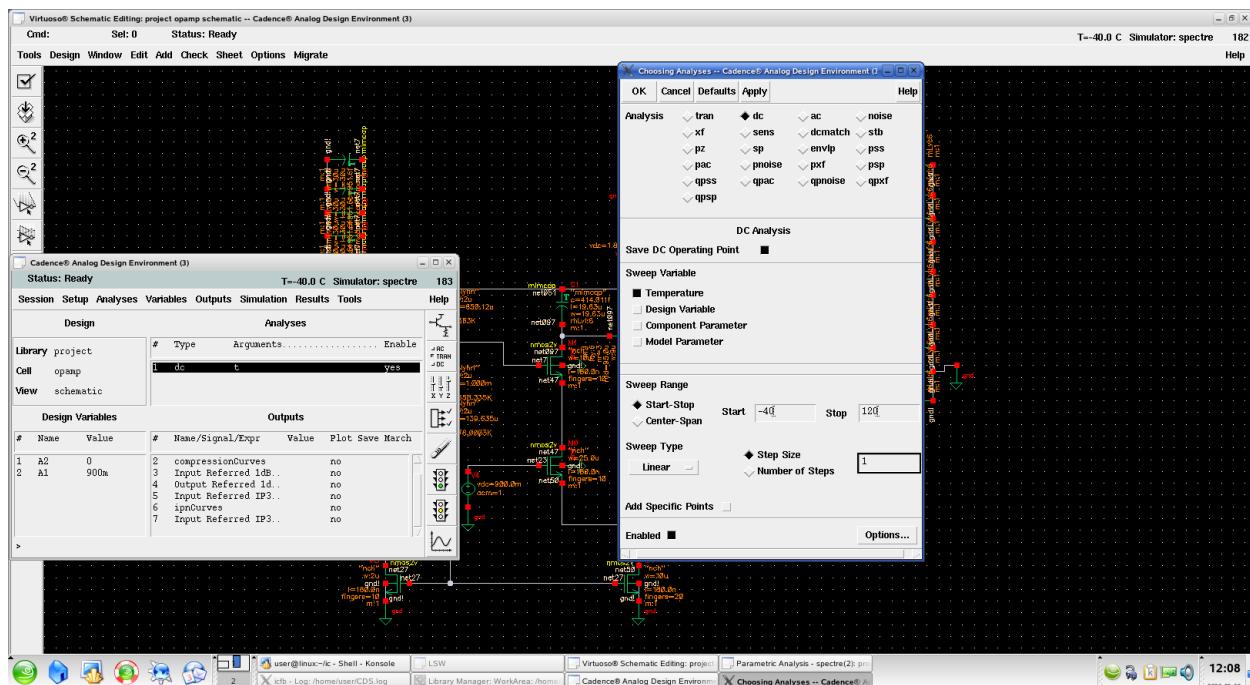
Input Referred IP3 = -21.789

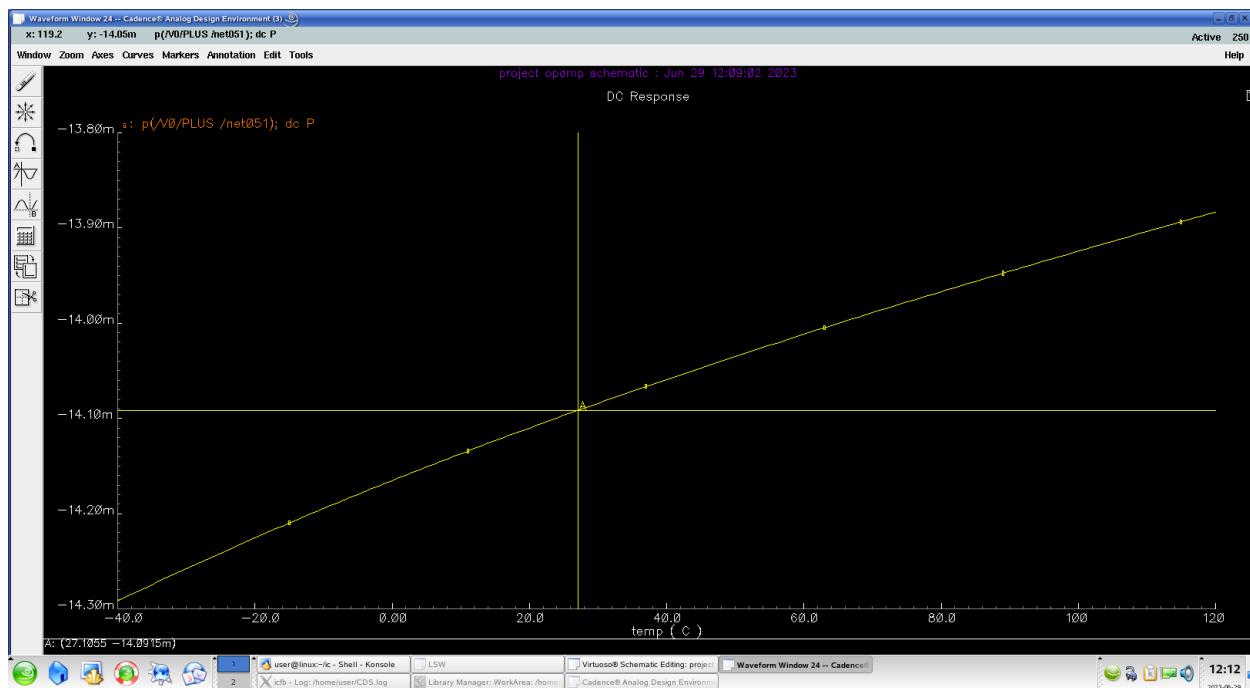
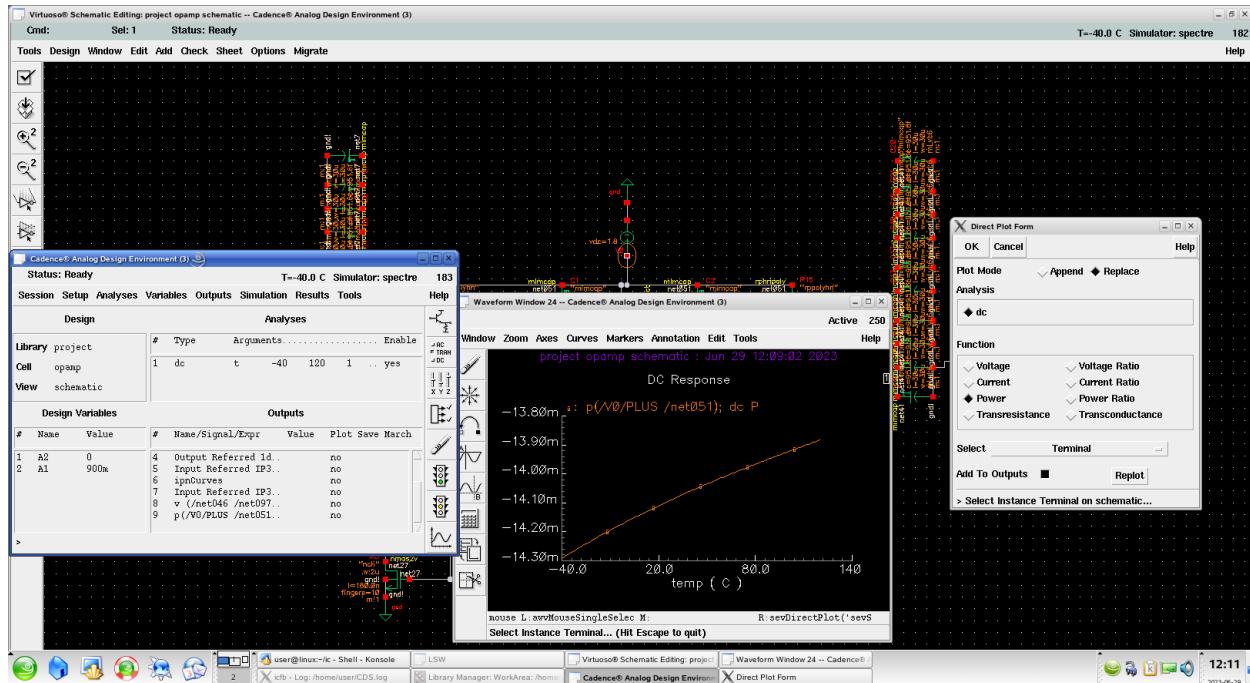
شبیه سازی کرنر TT توم شد. میریم FF :





Dc :



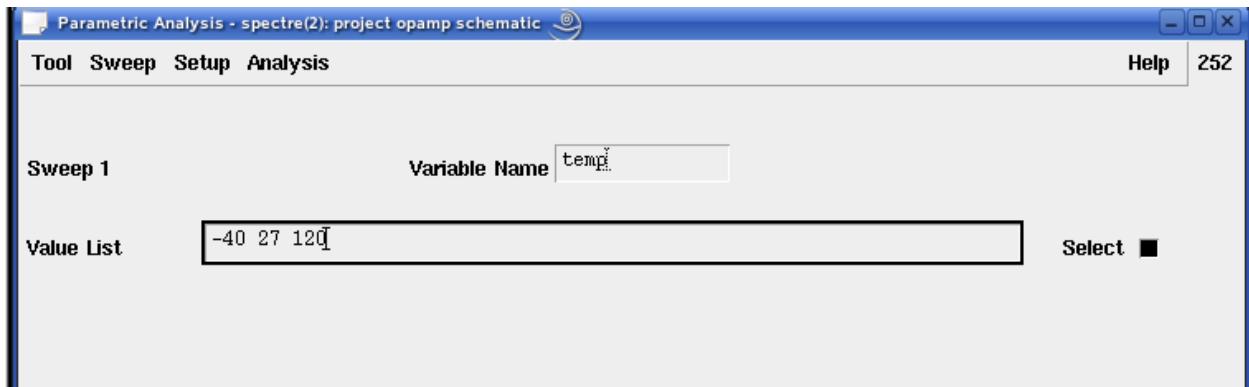


$$P(-40) = 14.2917 \text{ mW}$$

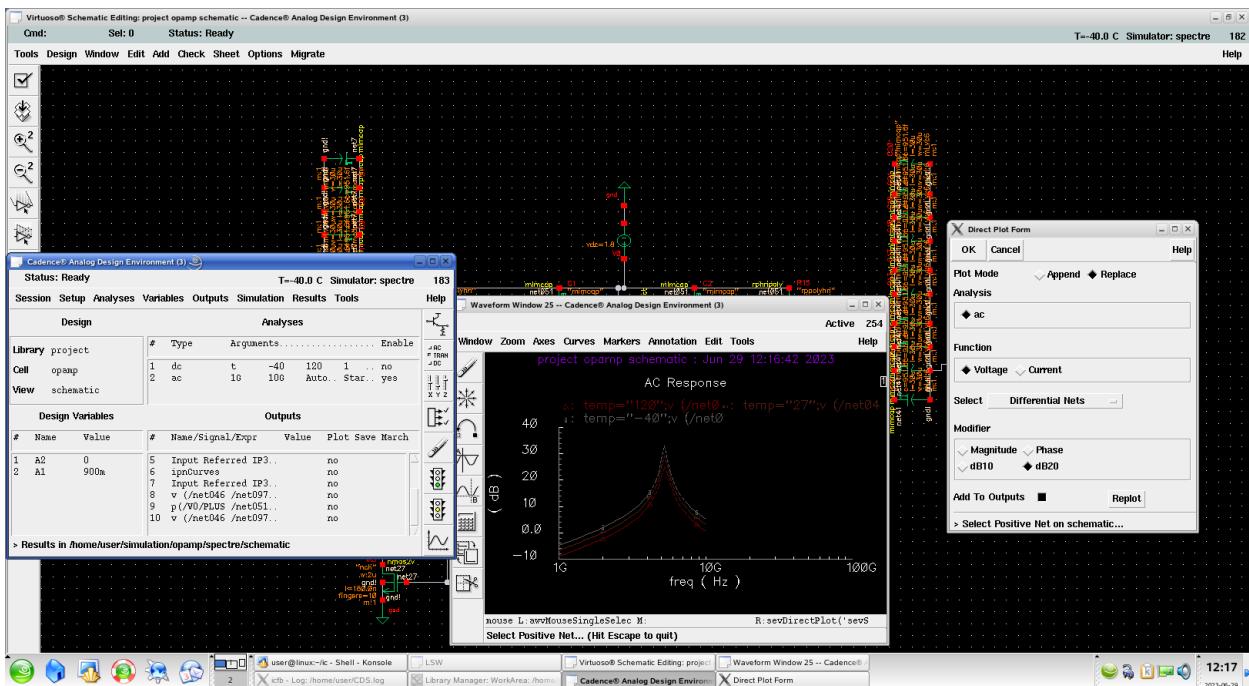
$$P(27) = 14.0915 \text{ mW}$$

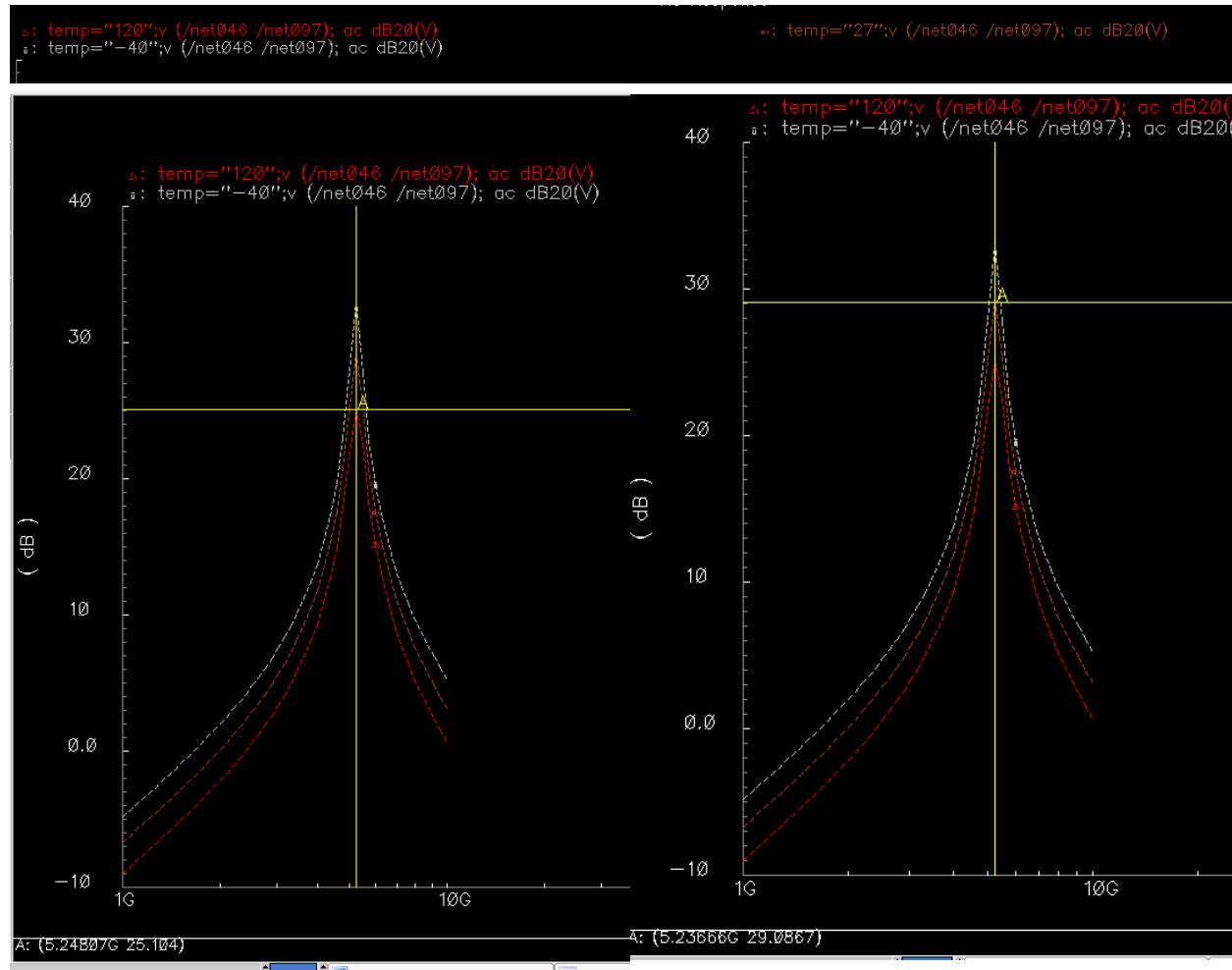
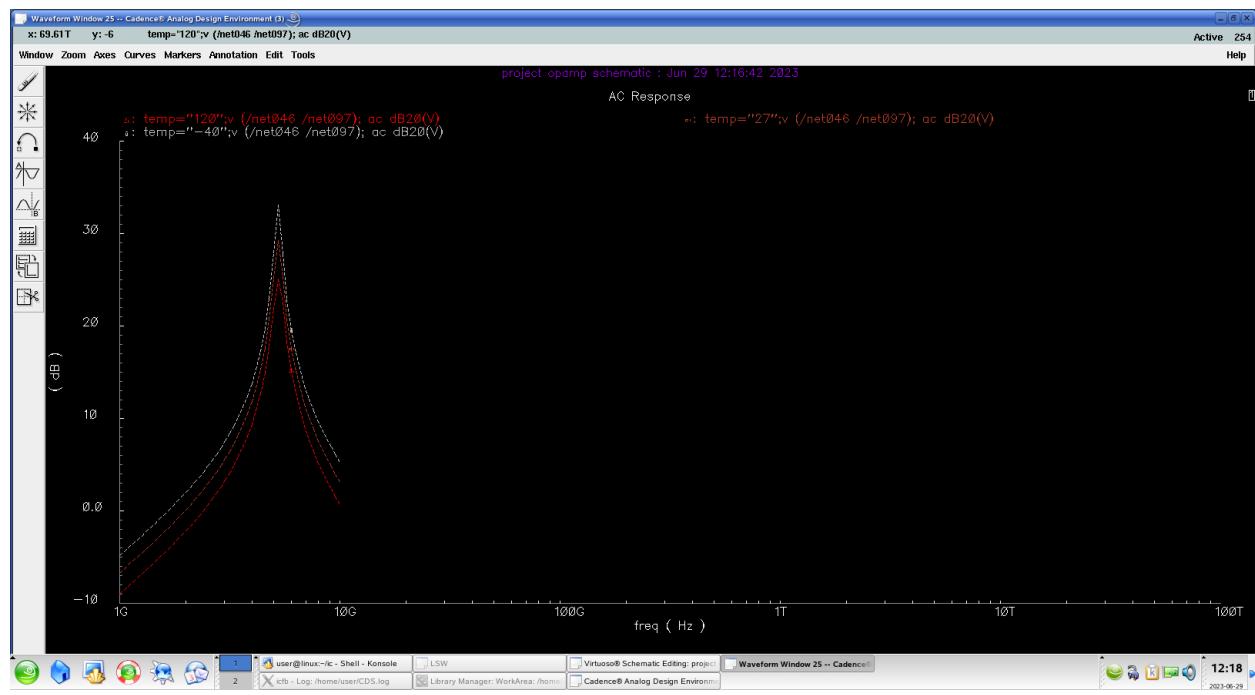
$$P(120) = 13.8833 \text{ mW}$$

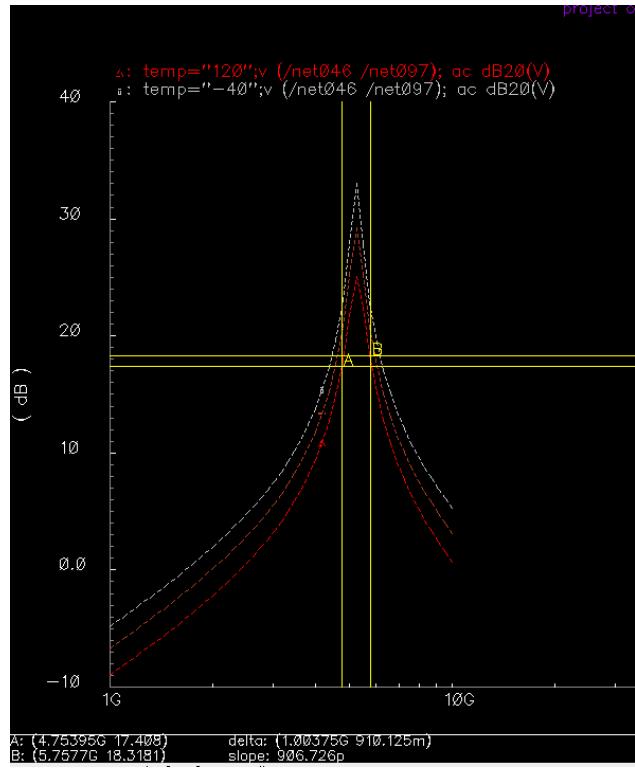
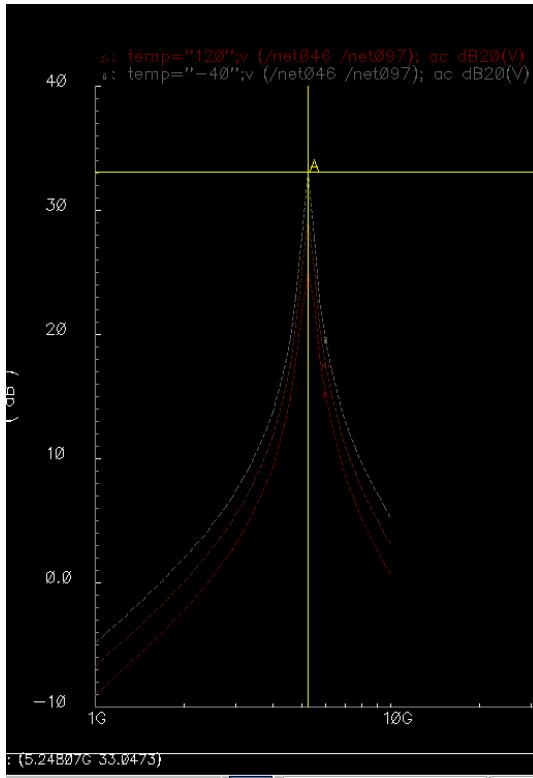
AC:



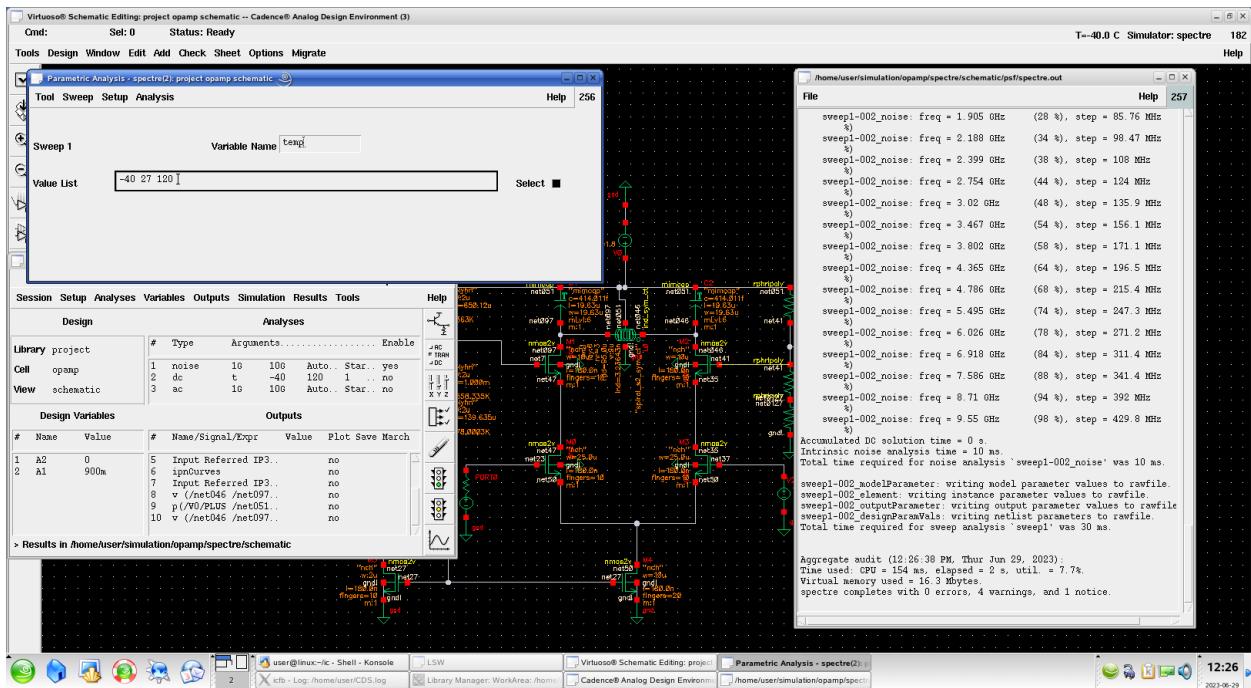
Analysis -> start

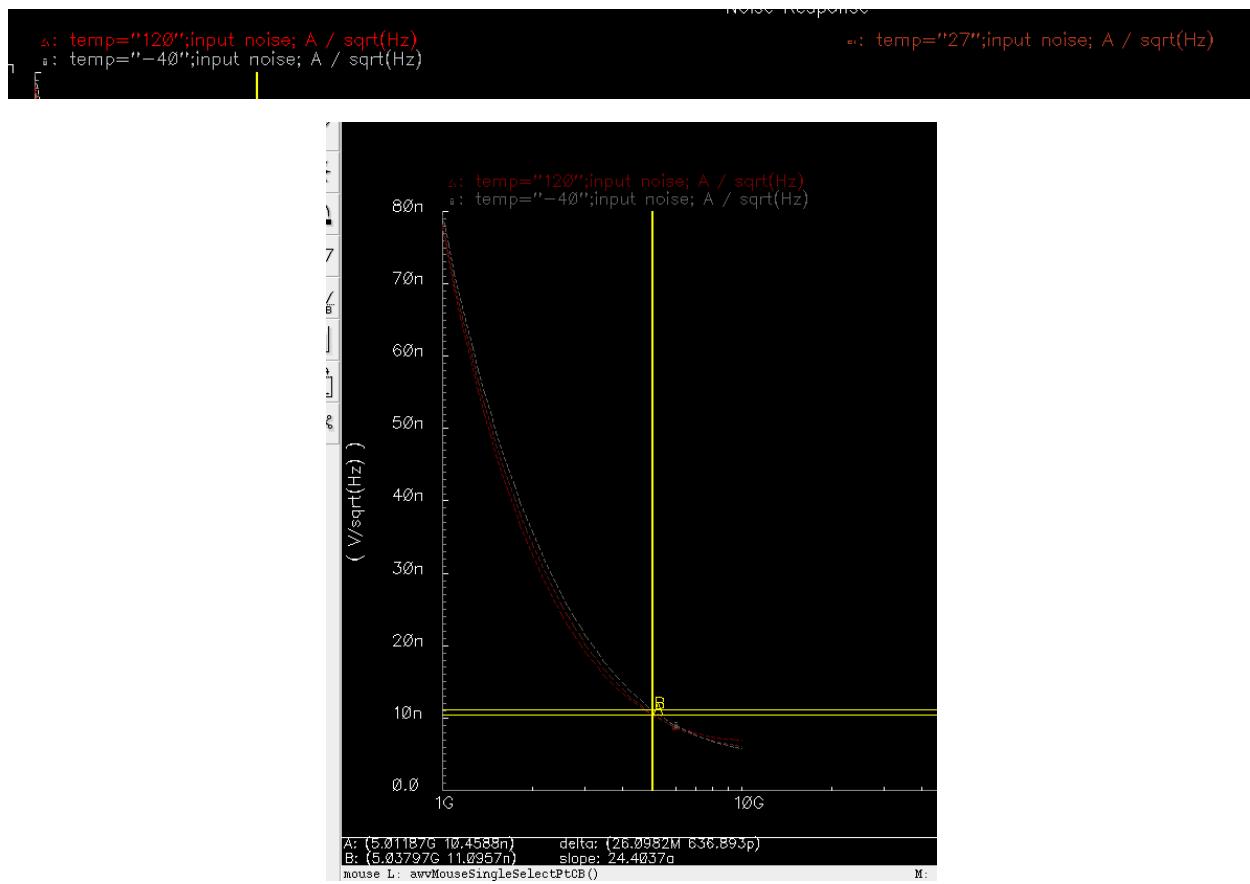
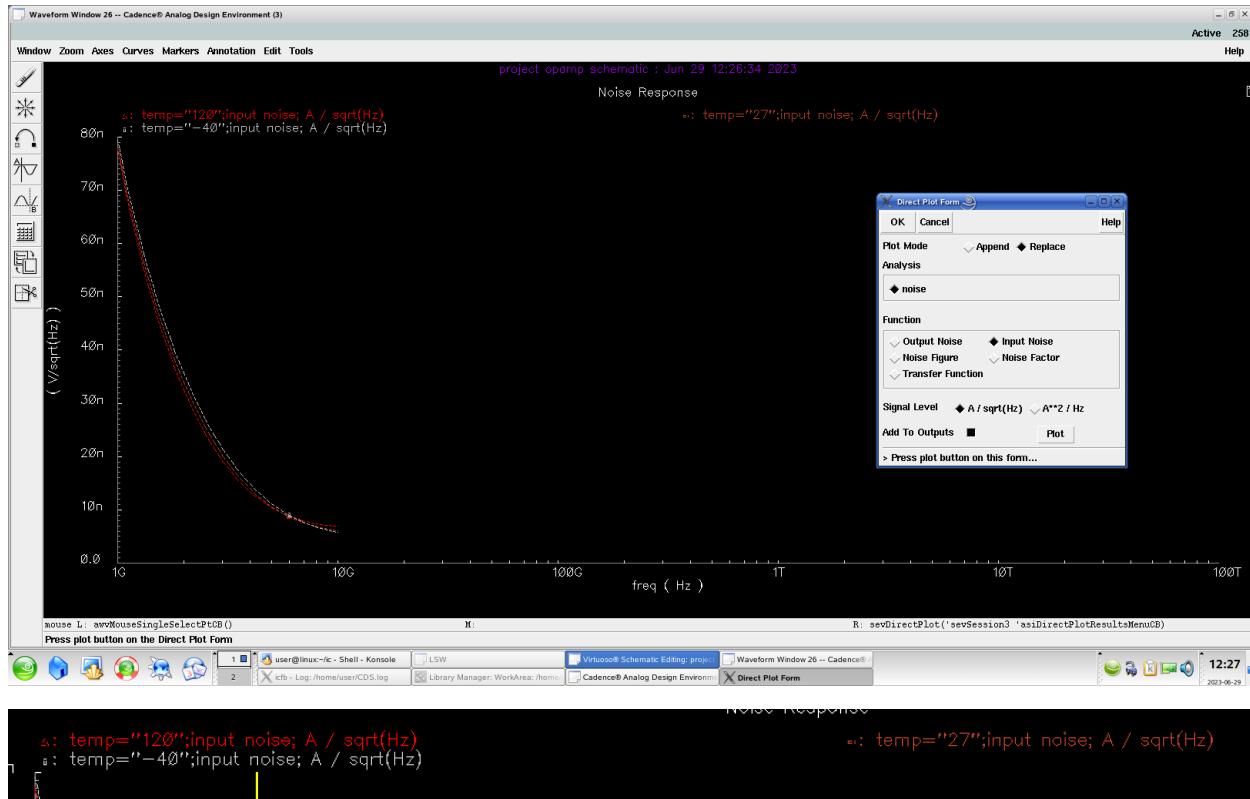






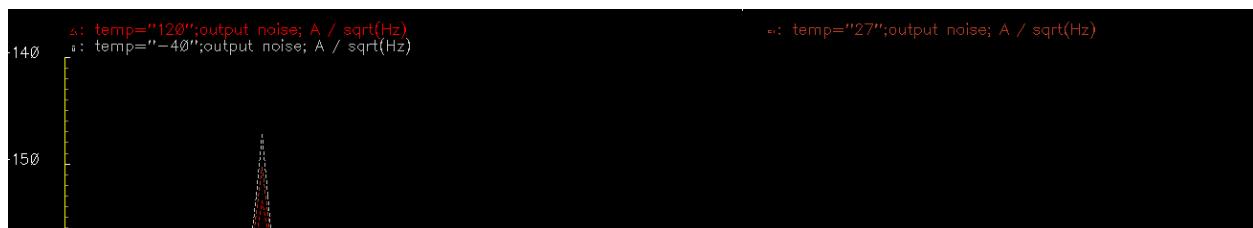
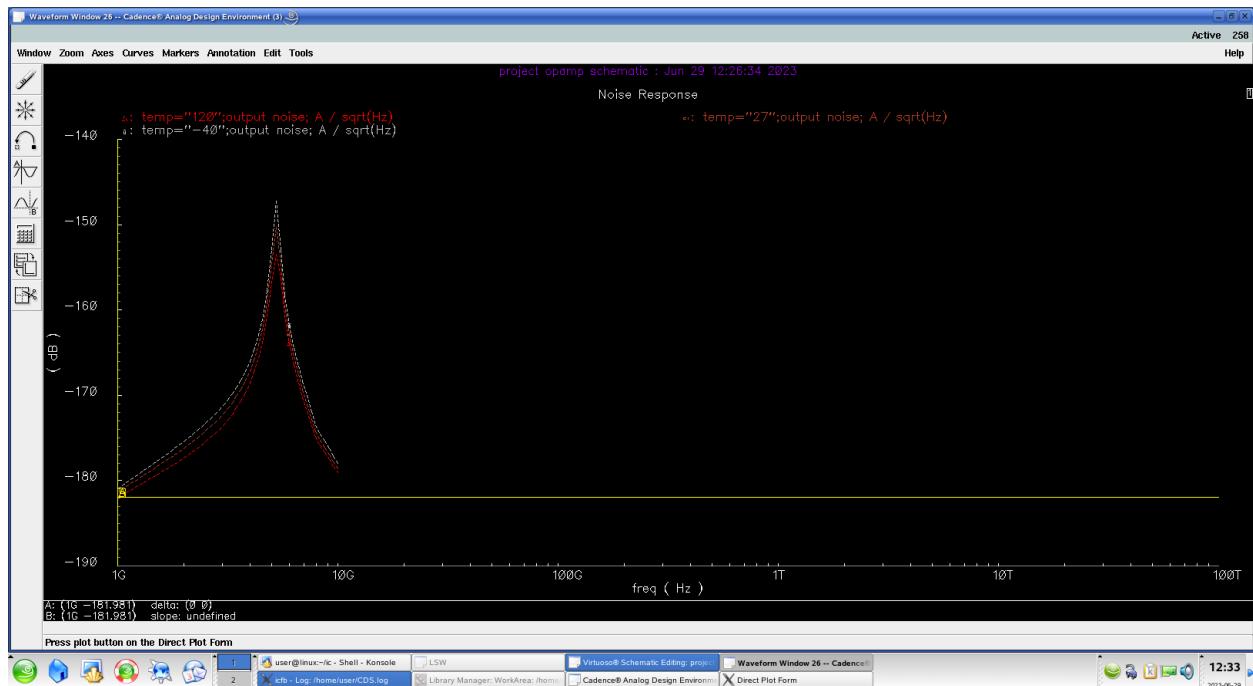
Noise analysis :

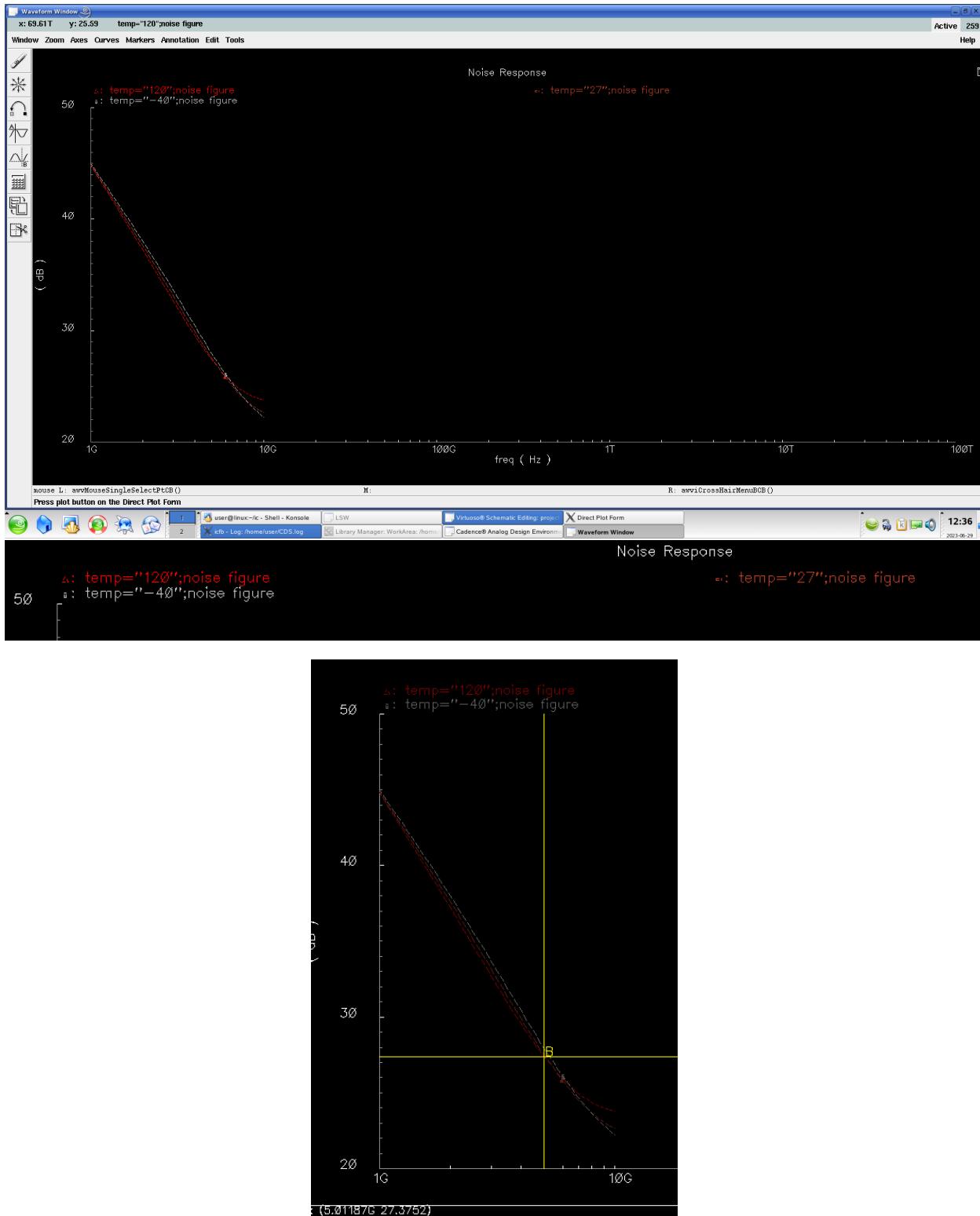




A: (5.01187G 10.4588n)	delta: (26.0982M 636.893p)
B: (5.03797G 11.0957n)	slope: 24.4037a

A -> -40 B -> 120 27 -> 10.46 n



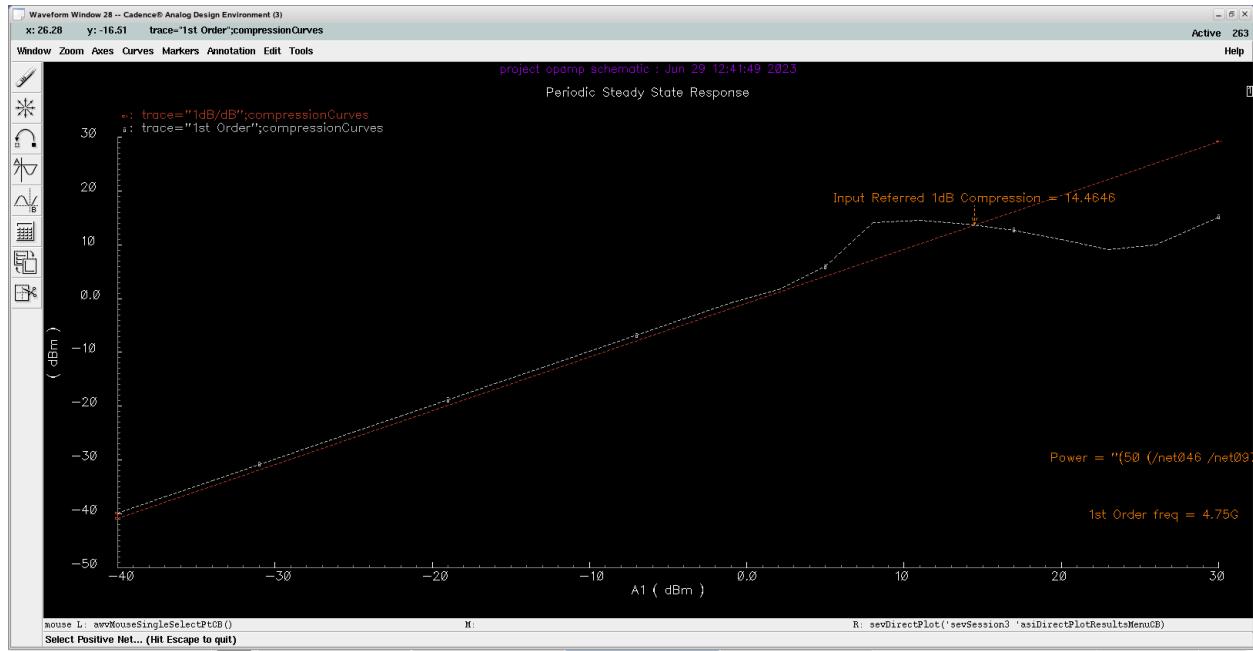


27 approximately in all temperature

PSS (IP_{-1dB})

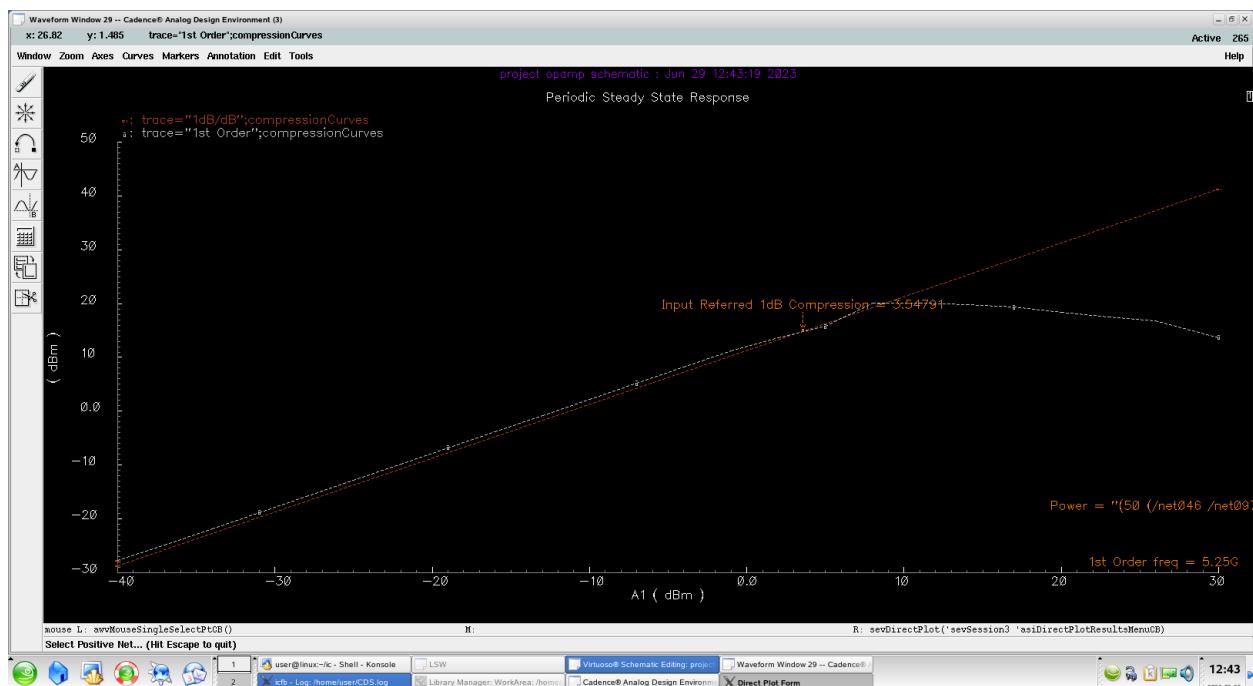
-40 degree centigrade





Input Referred 1dB Compression = 14.4646

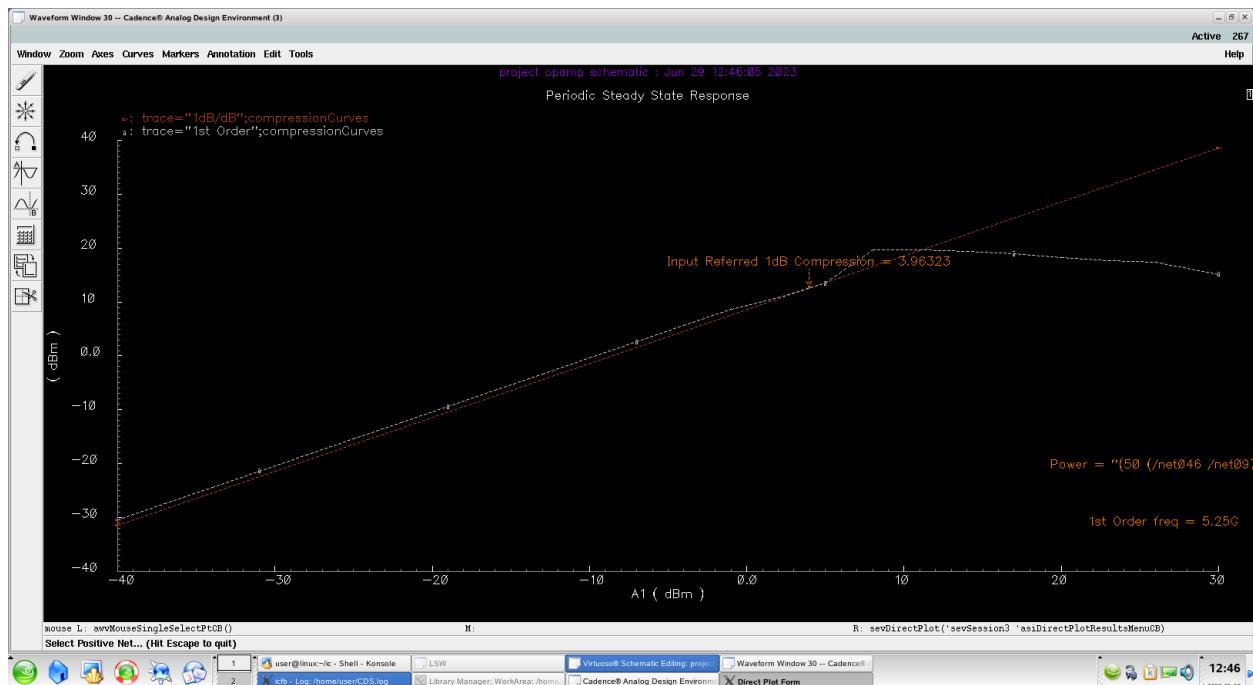
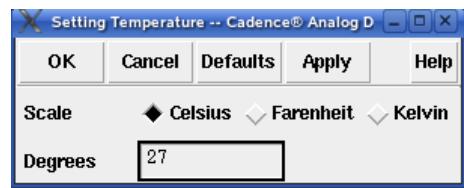
1st Order freq = 4.75G



Input Referred 1dB Compression = -3.54791

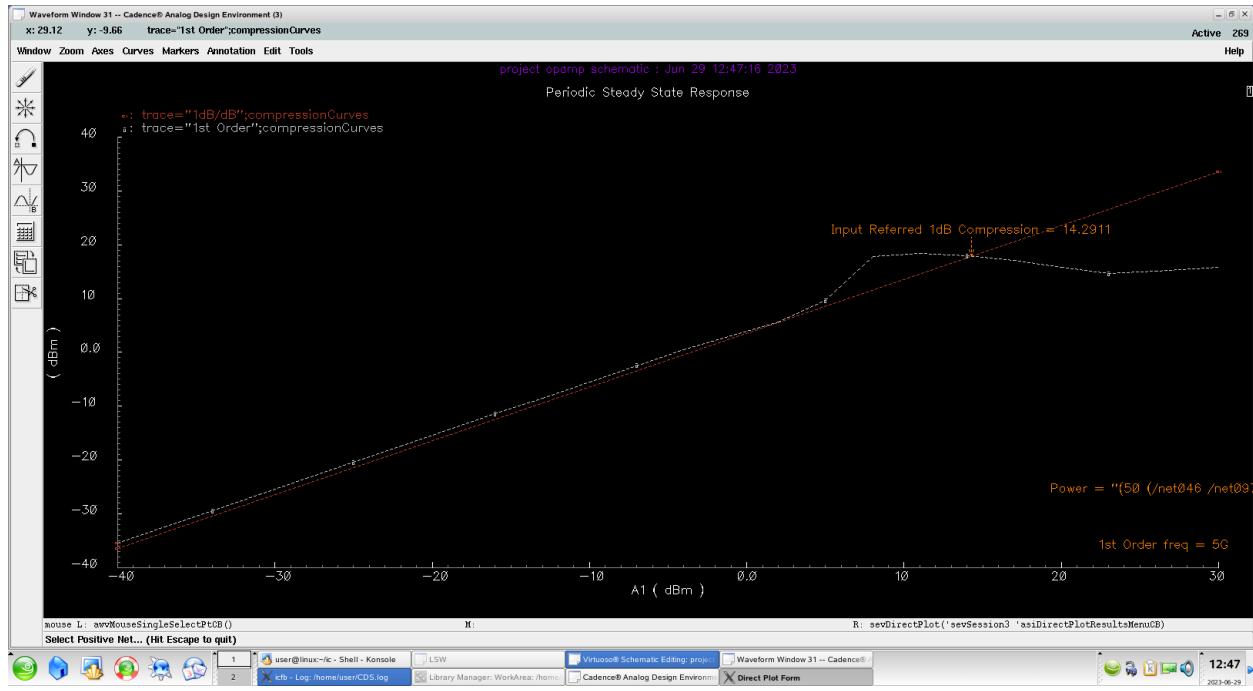
1st Order freq = 5.25G

27 degree centigrade



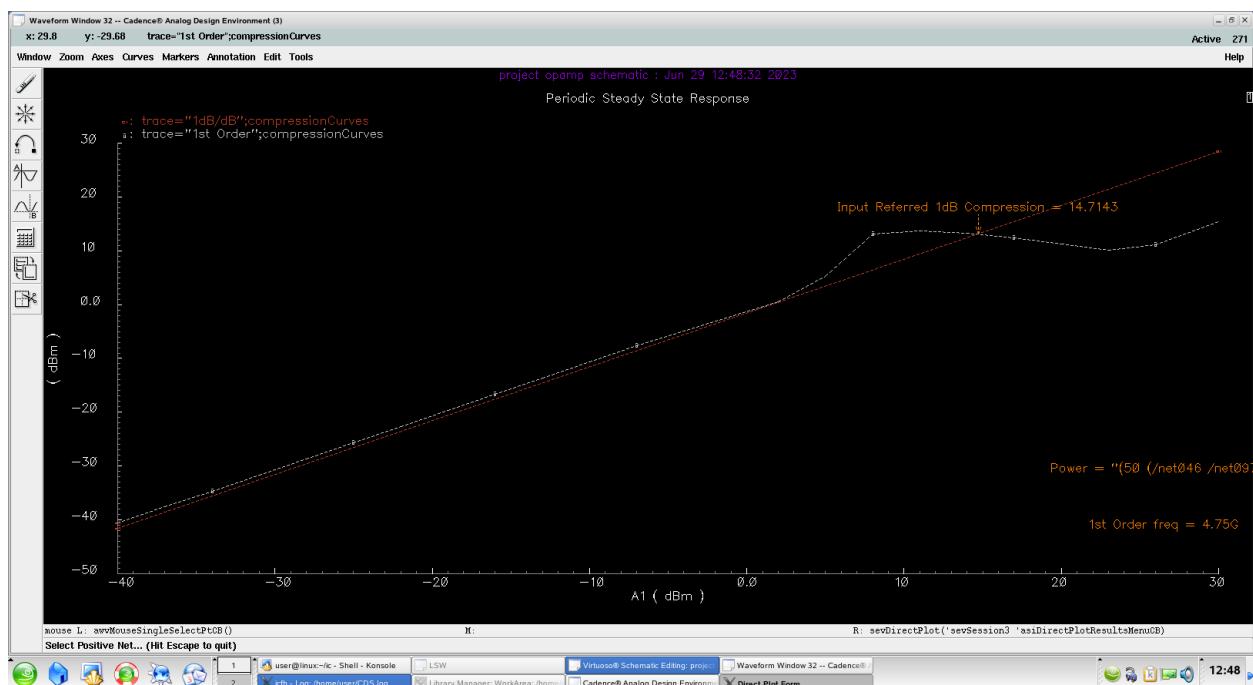
Input Referred 1dB Compression = -3.96323

1st Order freq = 5.25G



Input Referred 1dB Compression = 14.2911

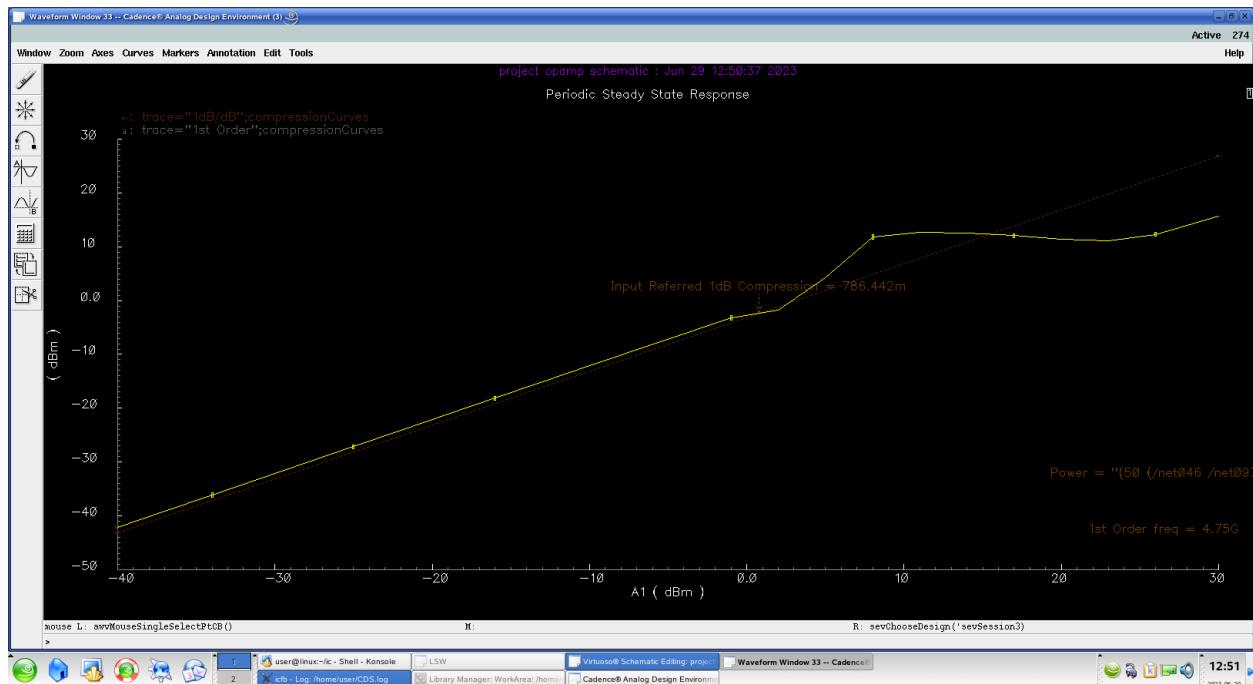
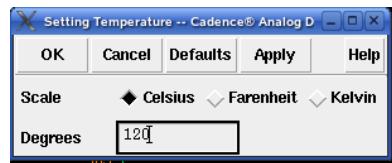
1st Order freq = 5G



Input Referred 1dB Compression = 14.7143

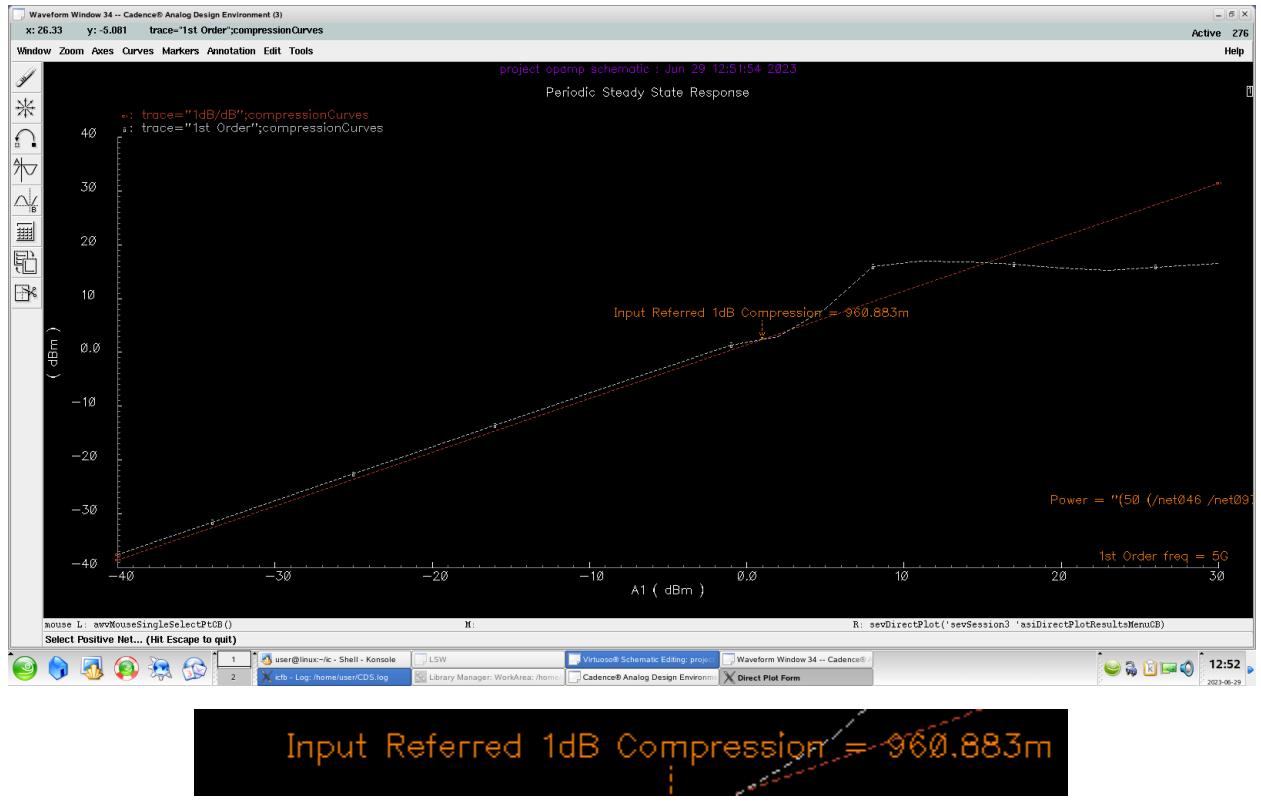
1st Order freq = 4.75G

120 degree centigrade



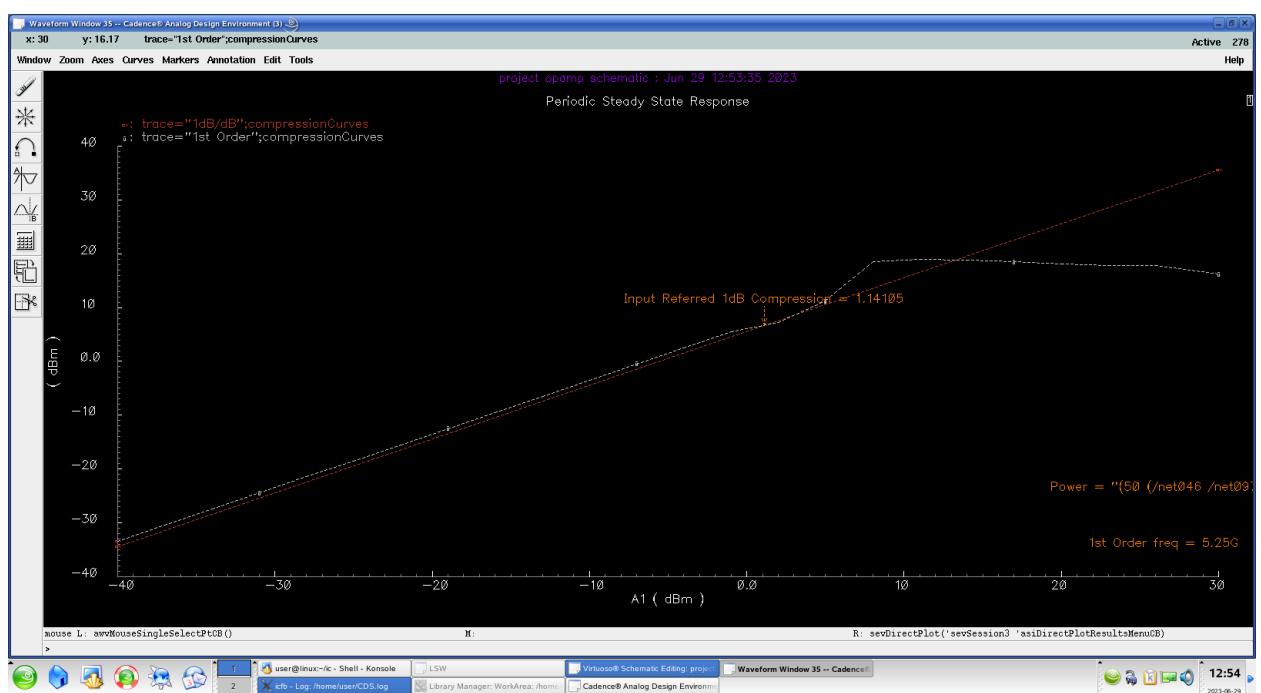
Input Referred 1dB Compression = -786.442m

1st Order freq = 4.75G



Input Referred 1dB Compression = 960.883m

1st Order freq = 5G



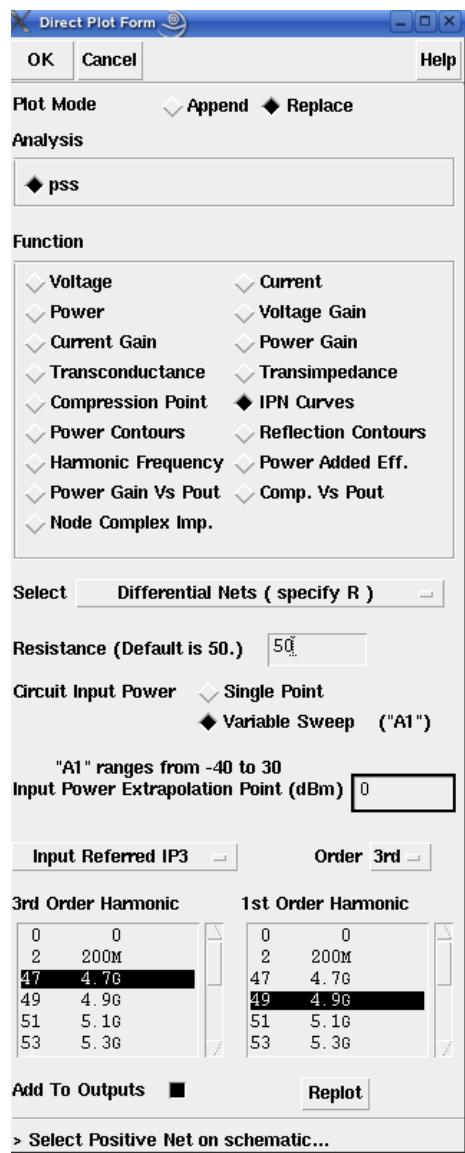
Input Referred 1dB Compression = 1.14105

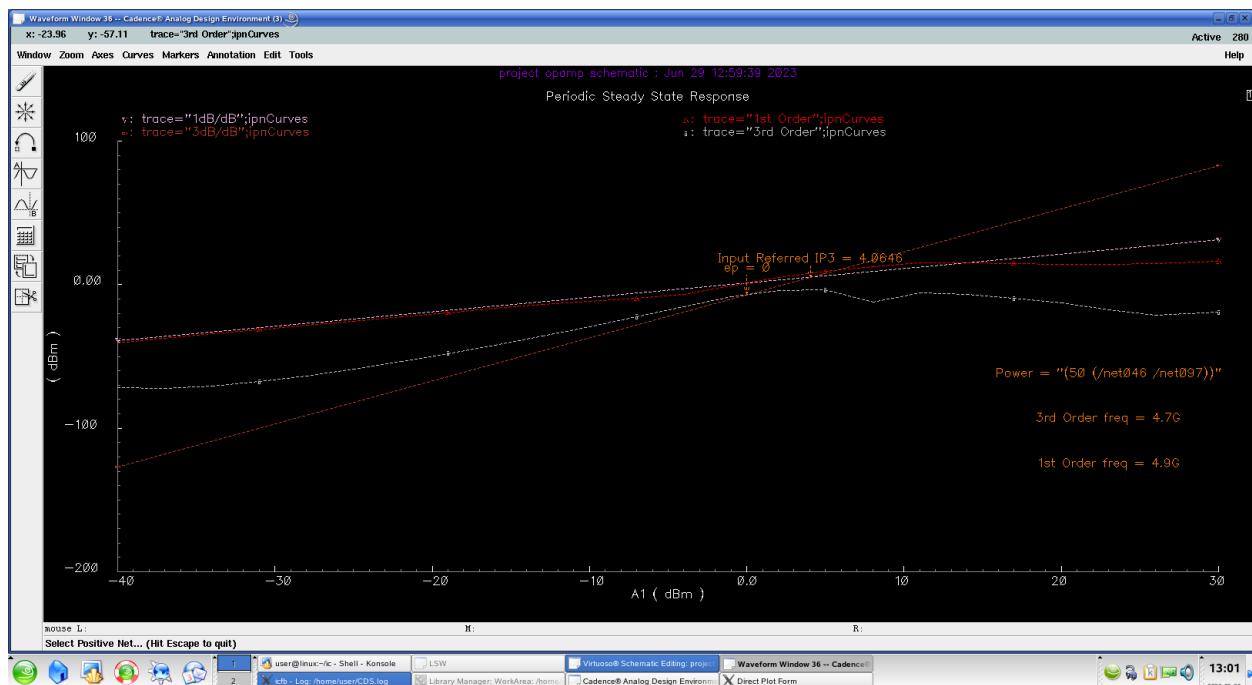
1st Order freq = 5.25G

PSS(IIP3)

برای محاسبه این پارامتر در قسمت قبل مقدار مناسب نیست زیرا یک تنظیم را اشتباه انجام دادم. اینجا تصحیح میکنم. البته مقدار فقط در نقطه متغیر اندازه گرفته شده است. 😞

120 degree centigrade





Select Positive Net... (Hit Escape to quit)

Input Referred IP3 = 4.0646

$eP = \emptyset$

Power = "(50 (/net046 /net097))"

3rd Order freq = 4.7G

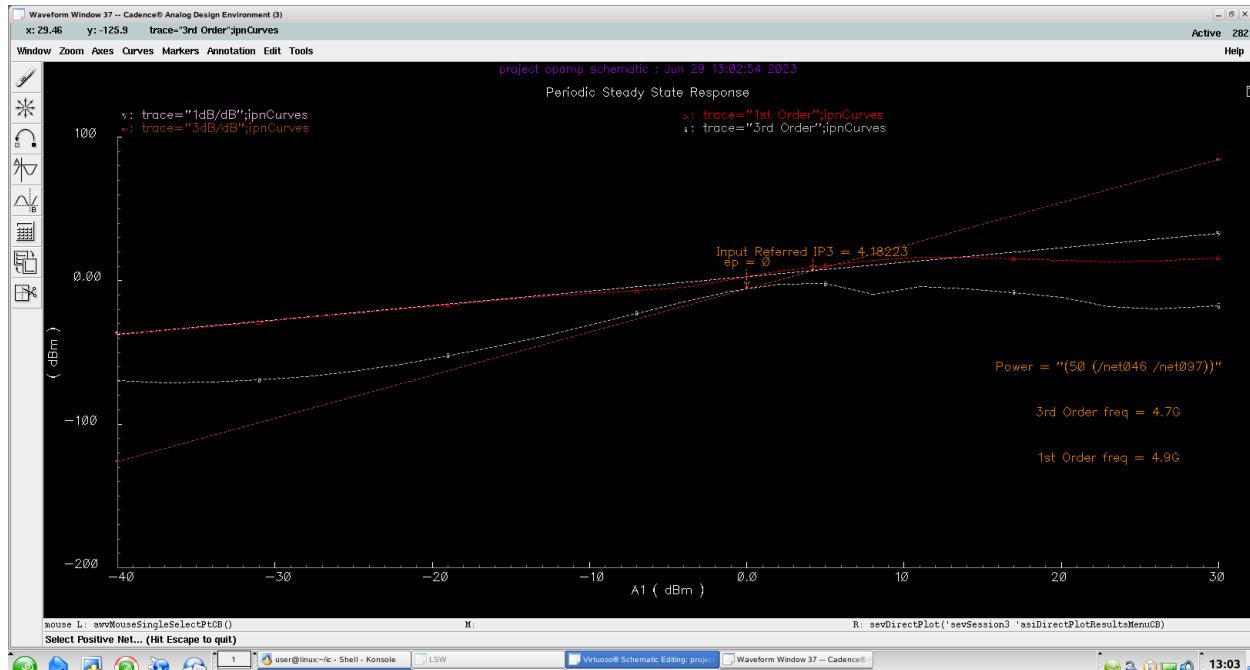
1st Order freq = 4.9G

Setting Temperature -- Cadence® Analog D

OK Cancel Defaults Apply Help

Scale ◆ Celsius ◇ Farenheit ◇ Kelvin

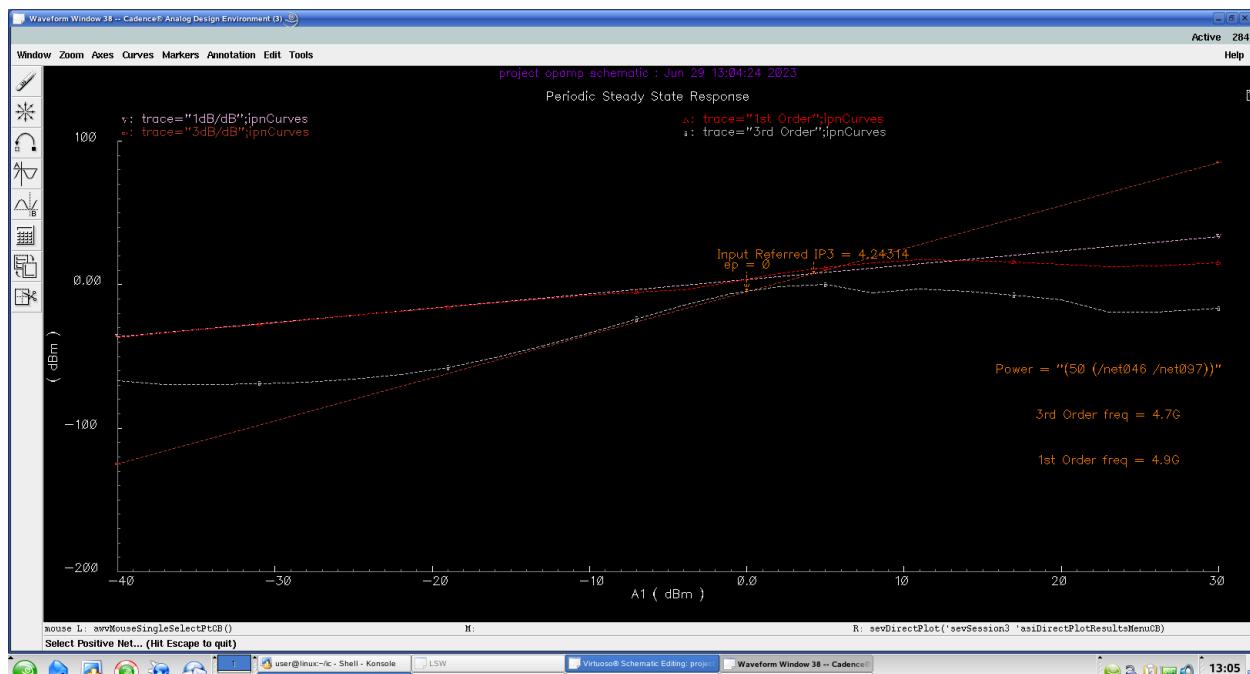
Degrees 27



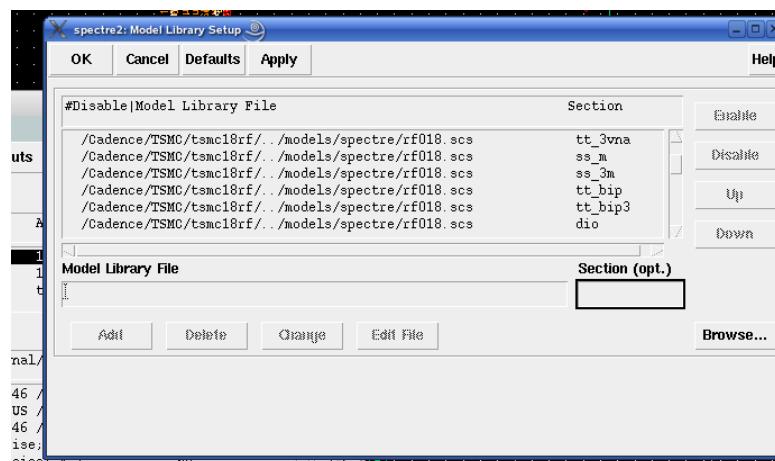
Input Referred IP3 = 4.18223

X Setting Temperature -- Cadence® Analog D

OK	Cancel	Defaults	Apply	Help
Scale	<input checked="" type="radio"/> Celsius	<input type="radio"/> Farenheit	<input type="radio"/> Kelvin	
Degrees	-40			

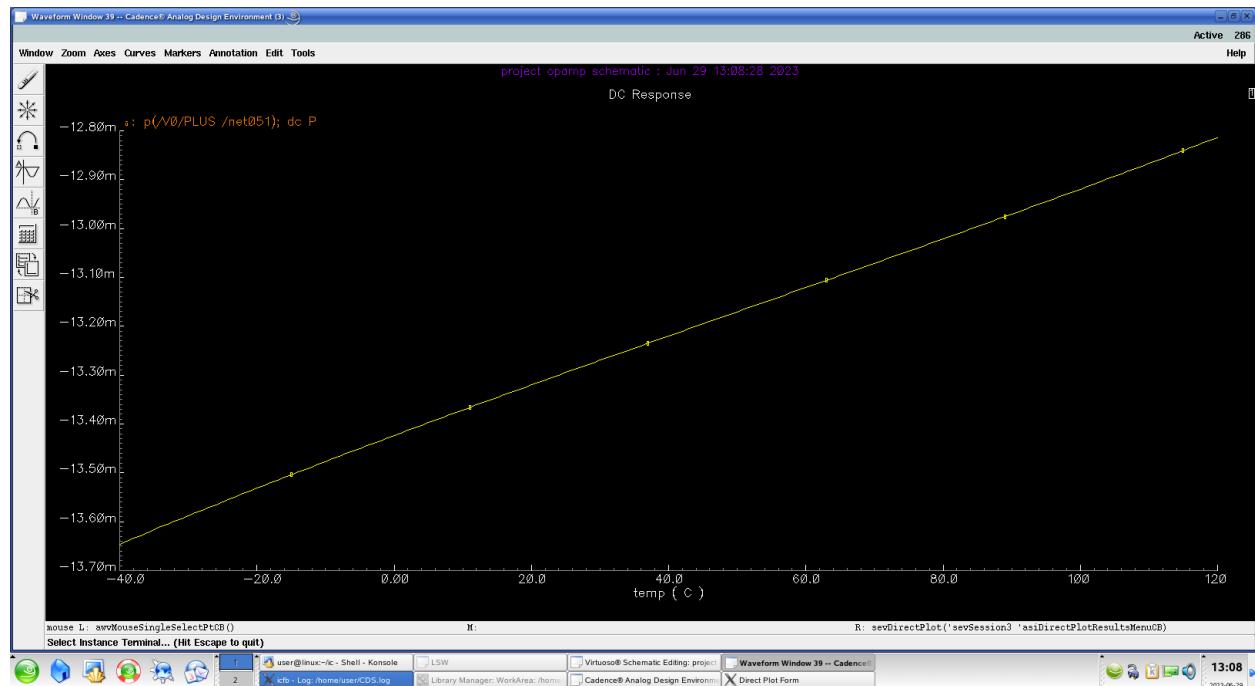


Input Referred IP3 = 4,24314
ep = Ø



/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	dio
/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	dio3
/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	dio_dnw
/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	ss_res
/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	ss_mim
/Cadence/TSMC/tsmc18rf/./models/spectre/rf018.scs	tt_rfmos

Dc:

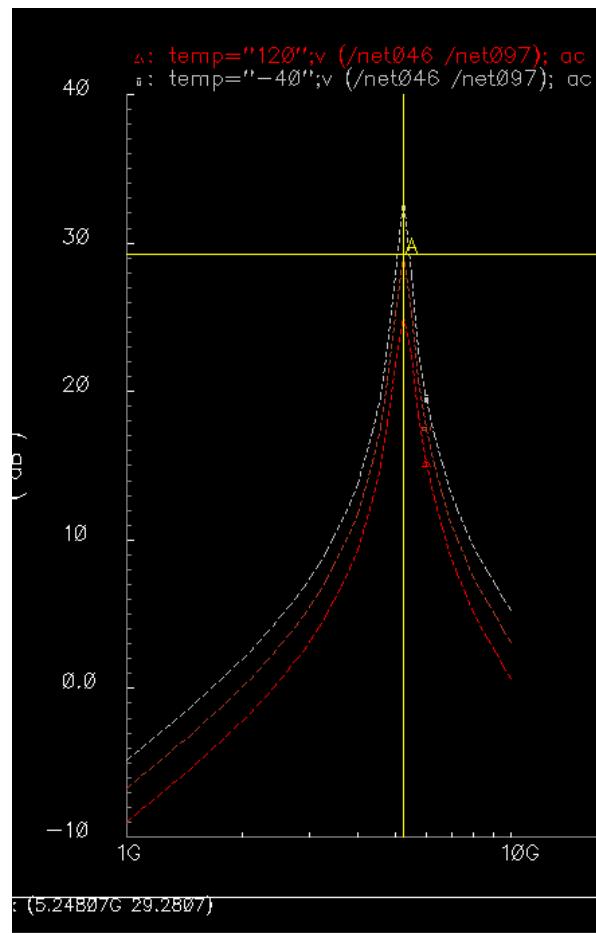
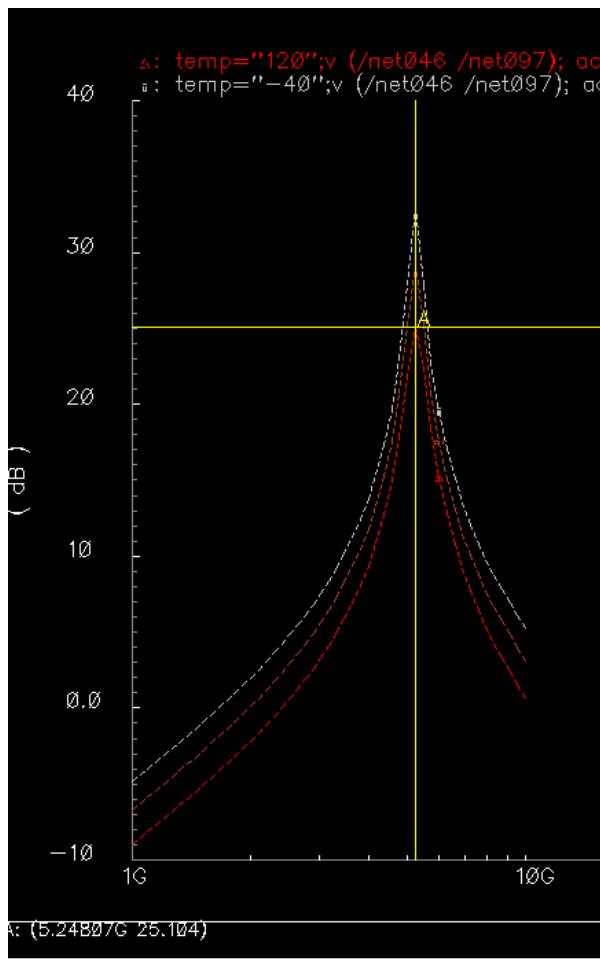
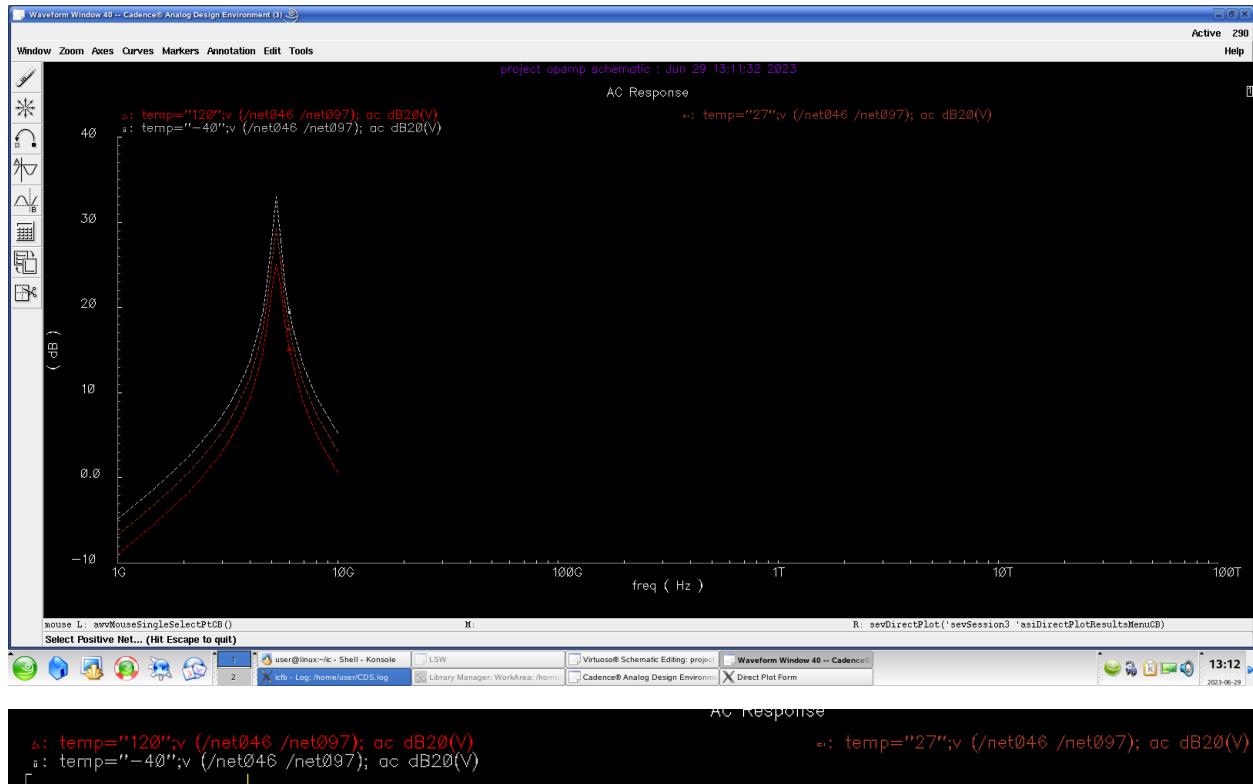


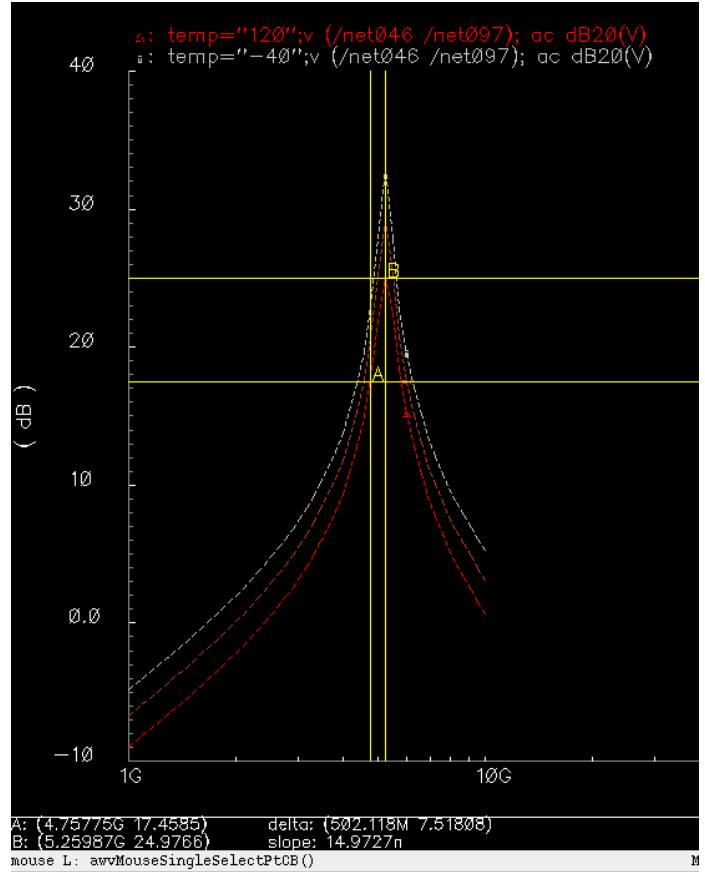
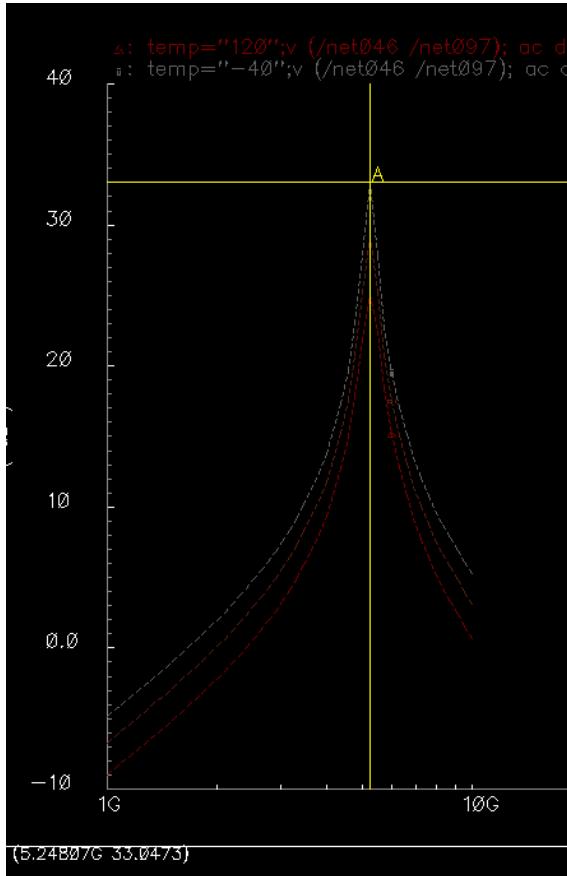
A: (27.0801 -13.2844m)

A: (-40 -13.6458m)

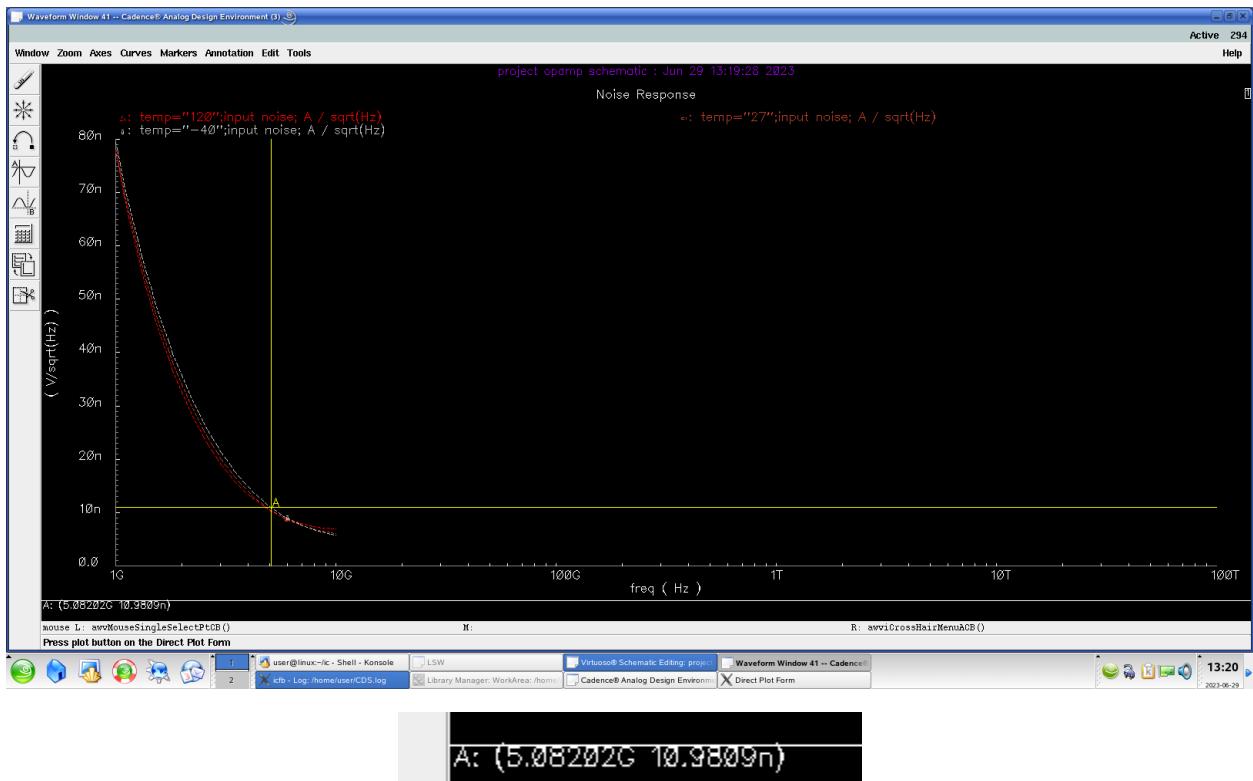
A: (120 -12.8135m)

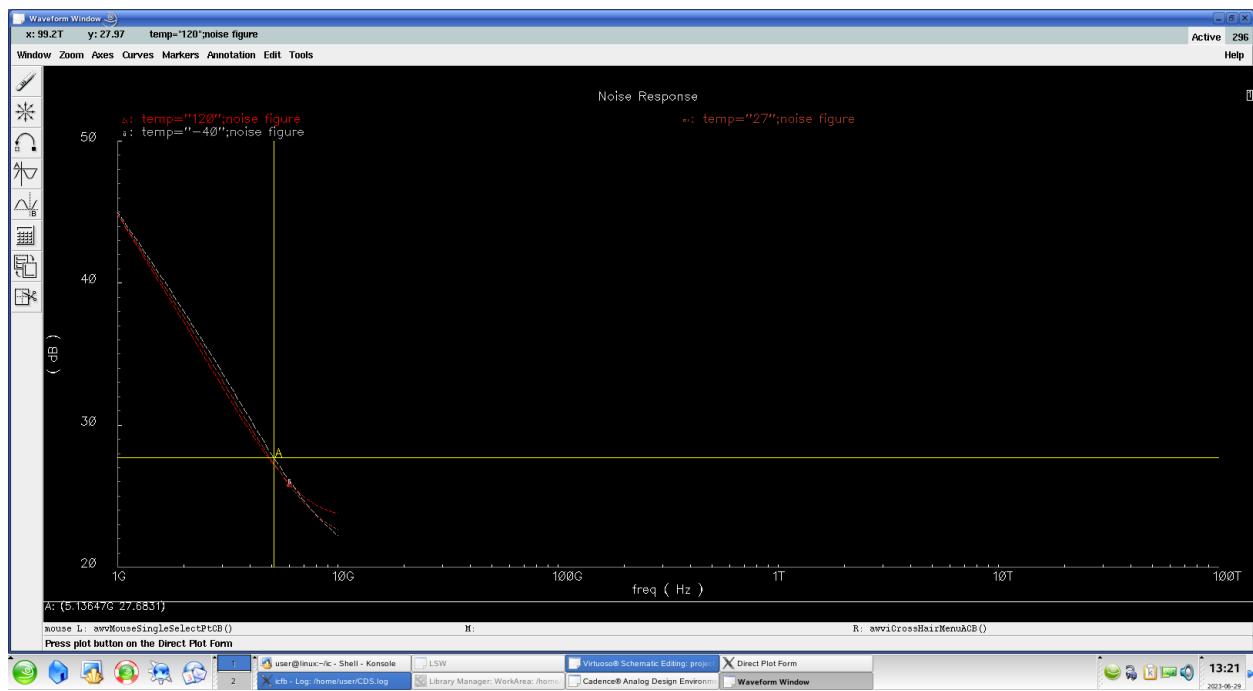
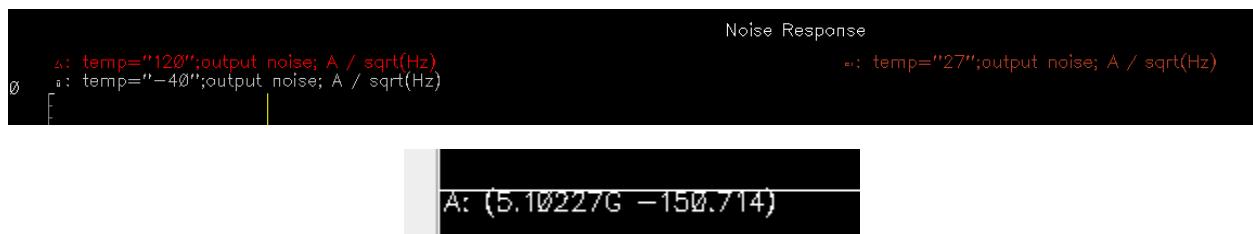
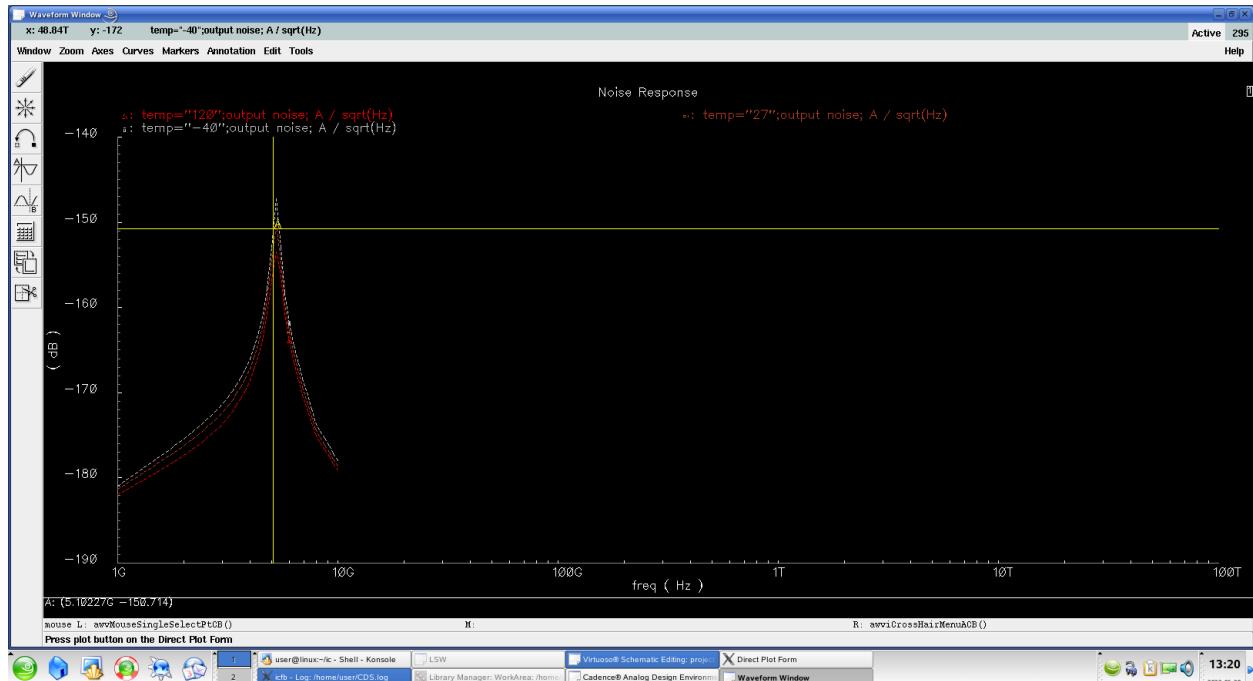
AC:

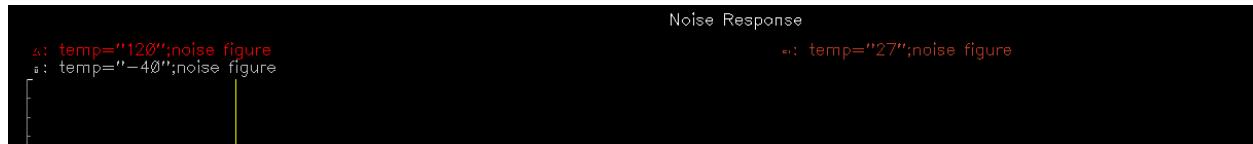




Noise:

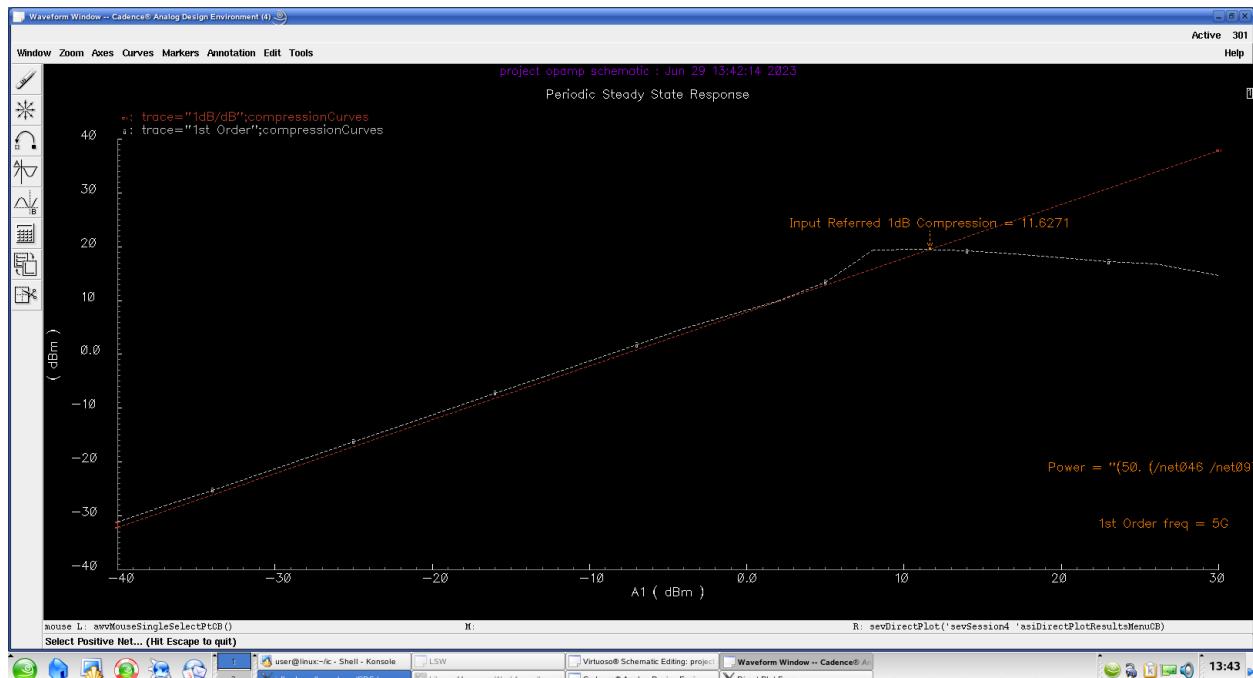






PSS(IP_{-1dB})

27 degree centigrade



Input Referred 1dB Compression = 11.6271

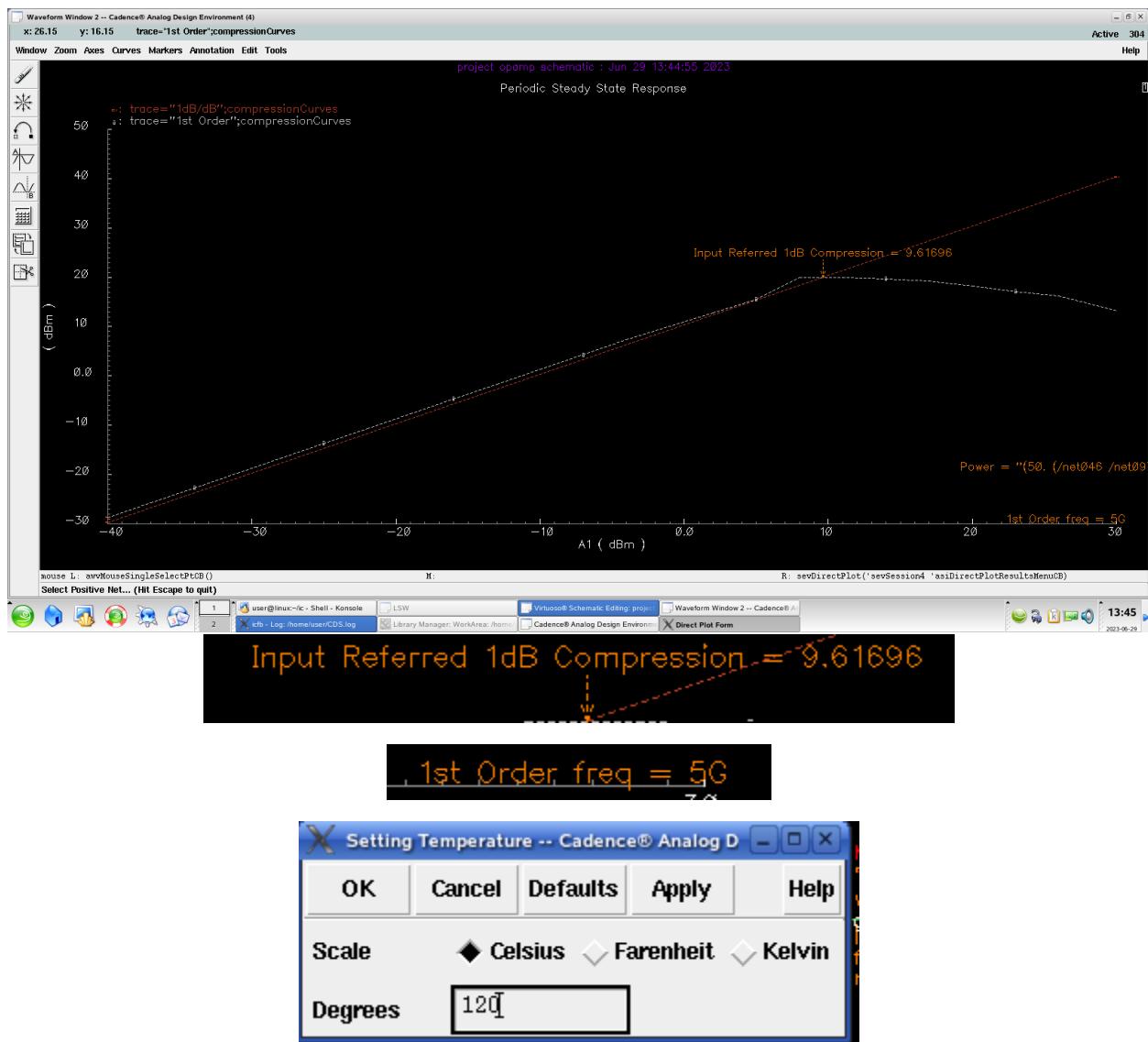
1st Order freq = 5G

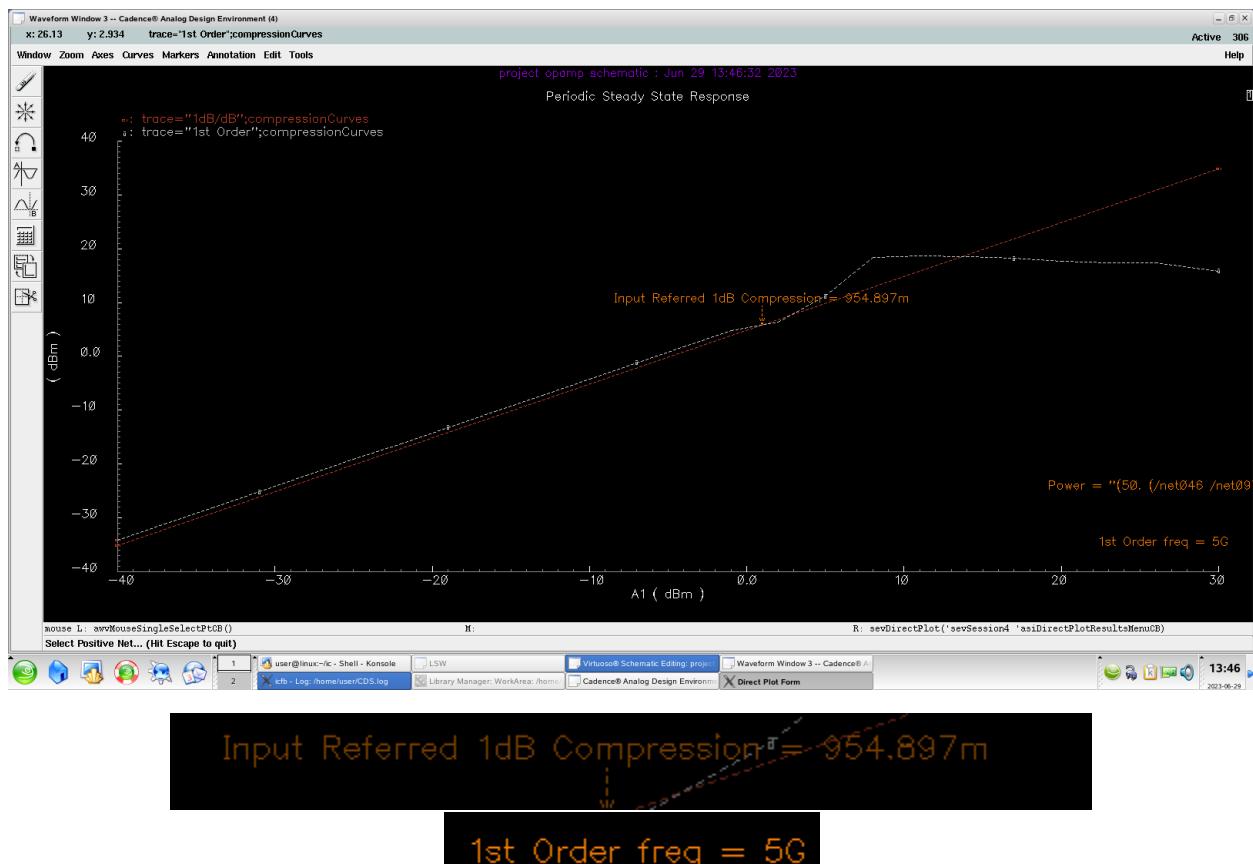
X Setting Temperature -- Cadence® Analog D

OK Cancel Defaults Apply Help

Scale ♦ Celsius ♦ Farenheit ♦ Kelvin

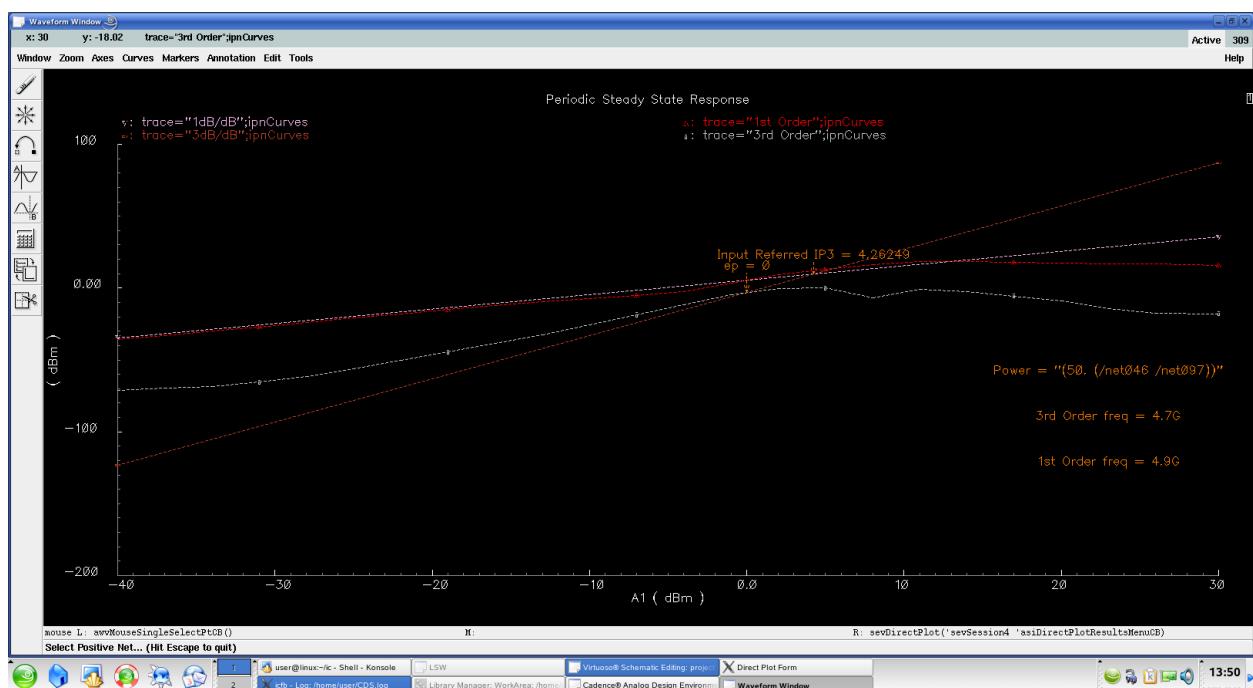
Degrees -40

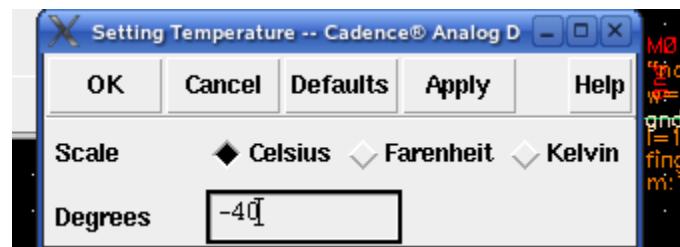
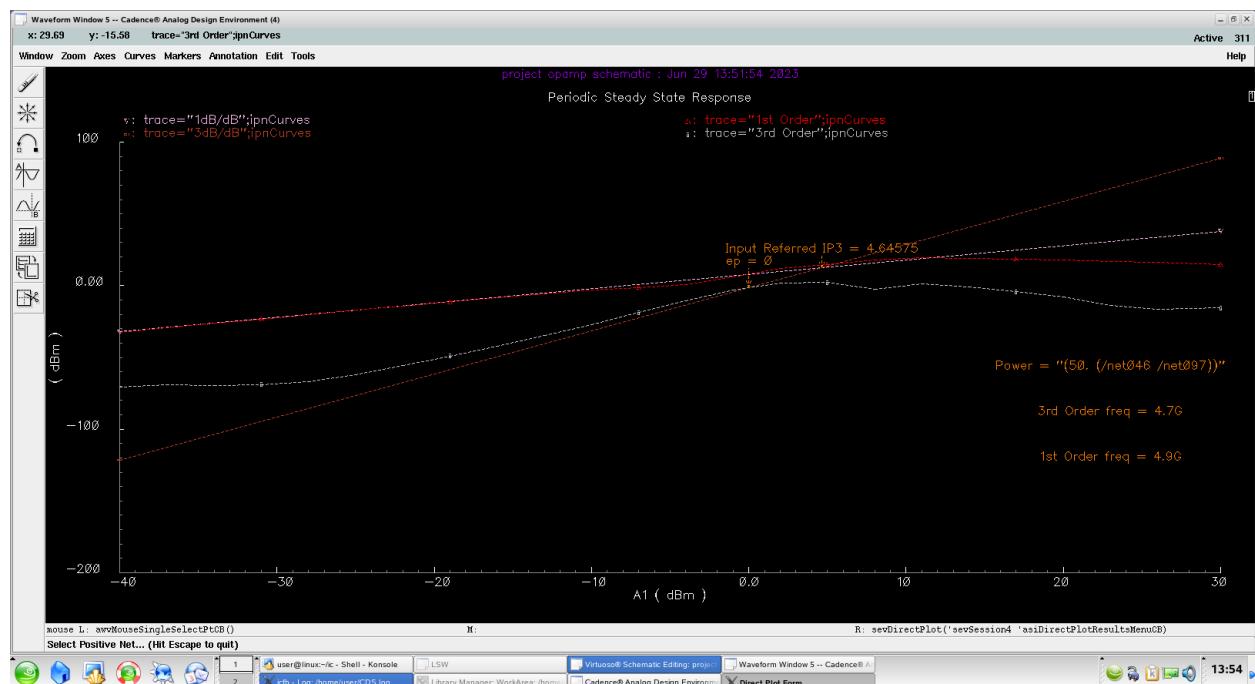
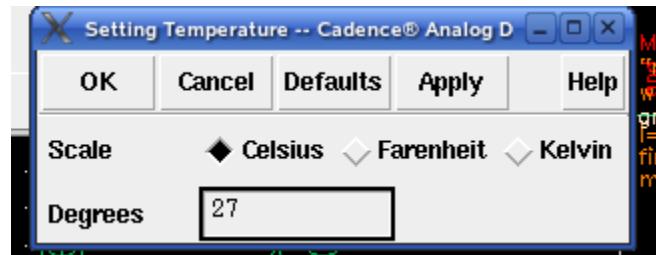
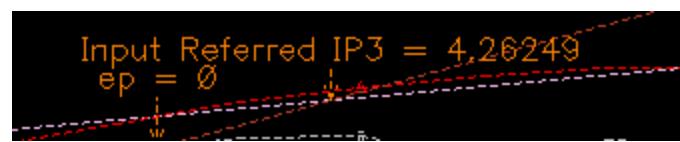


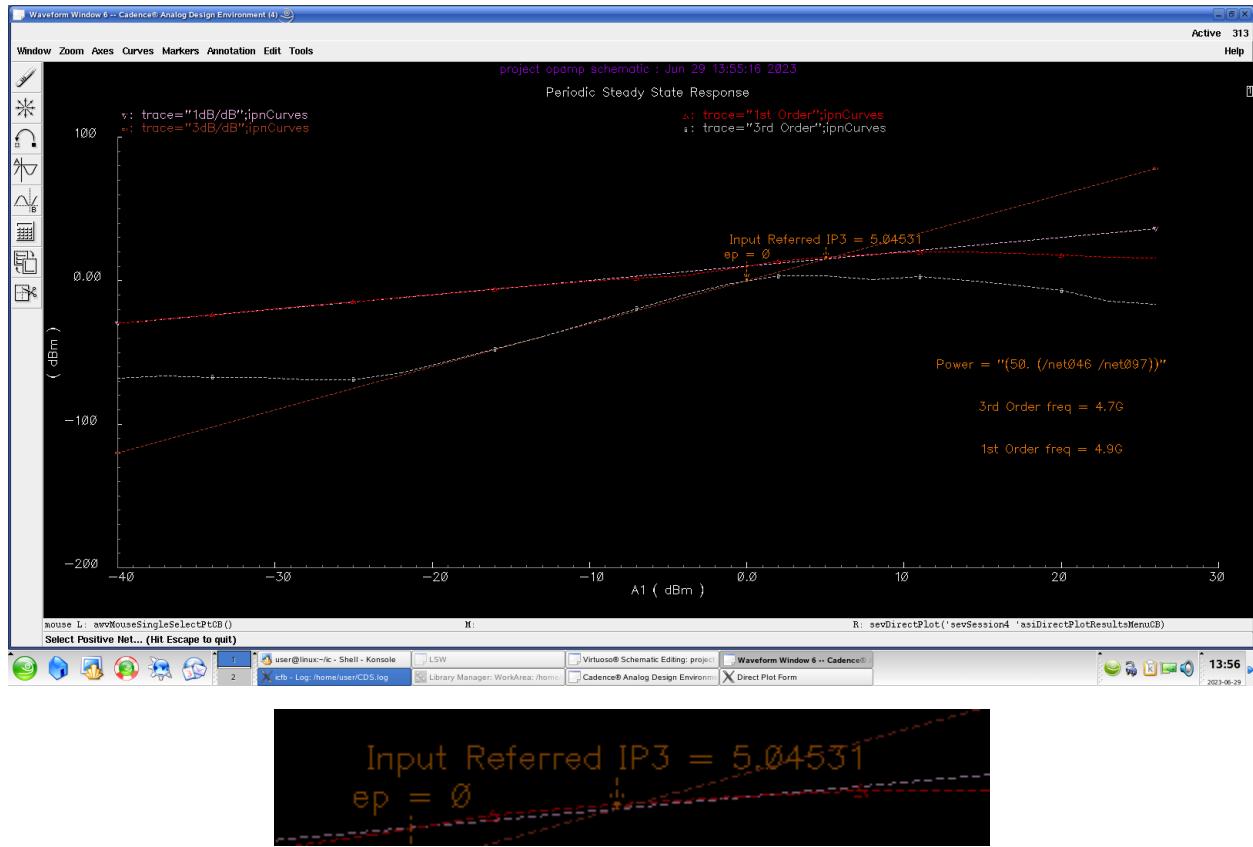


PSS(IIP3)

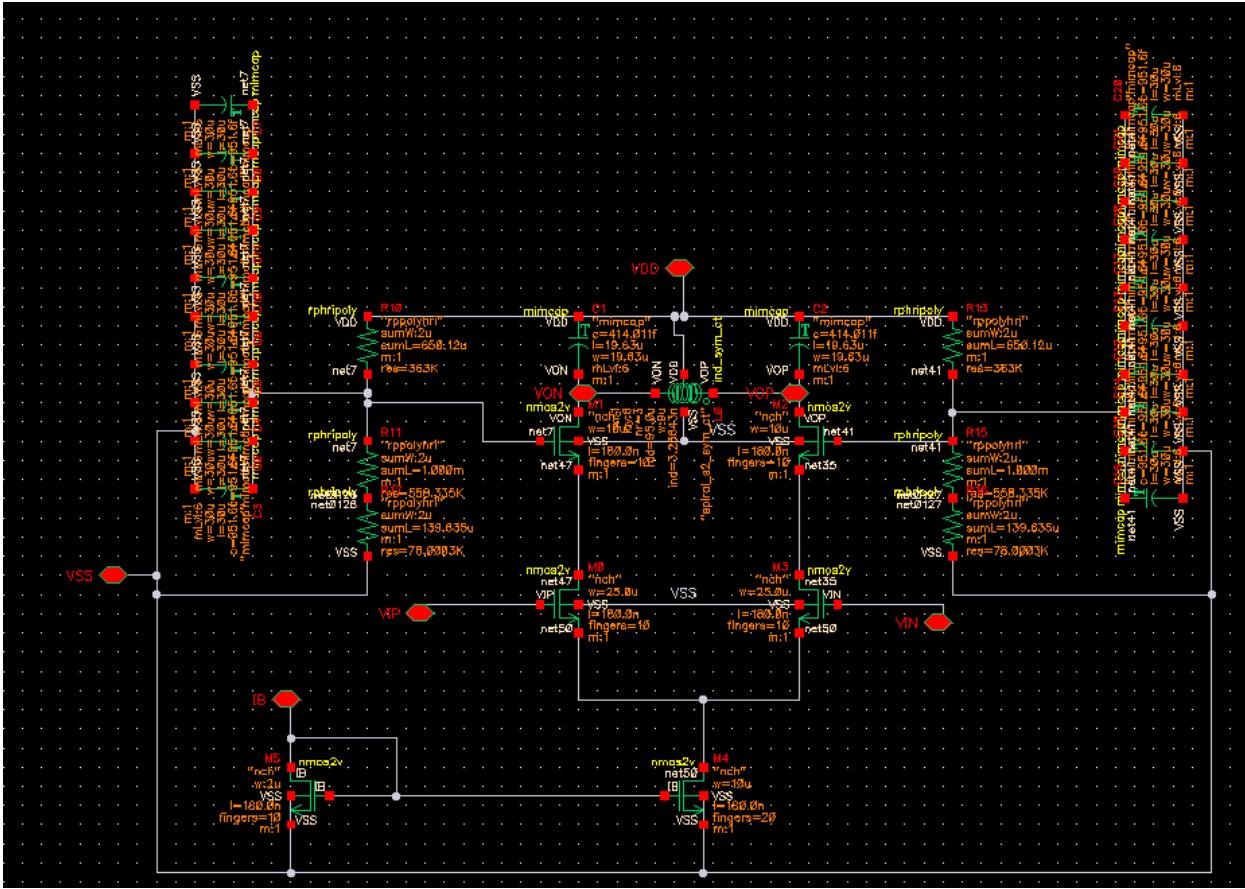
120 degree centigrade



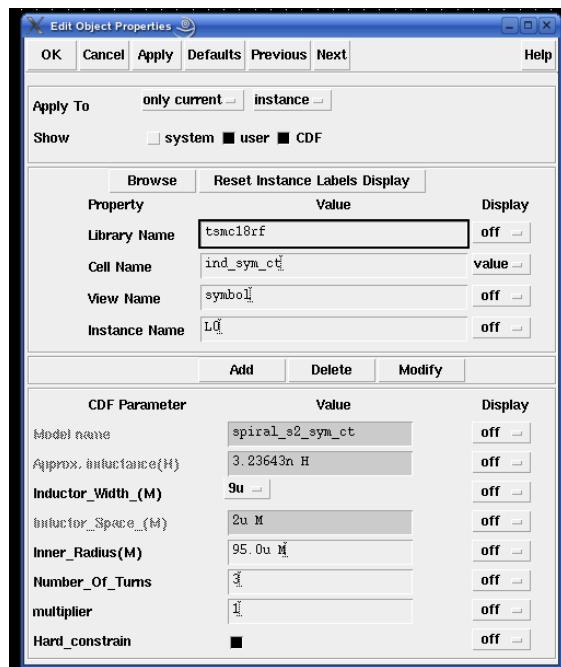
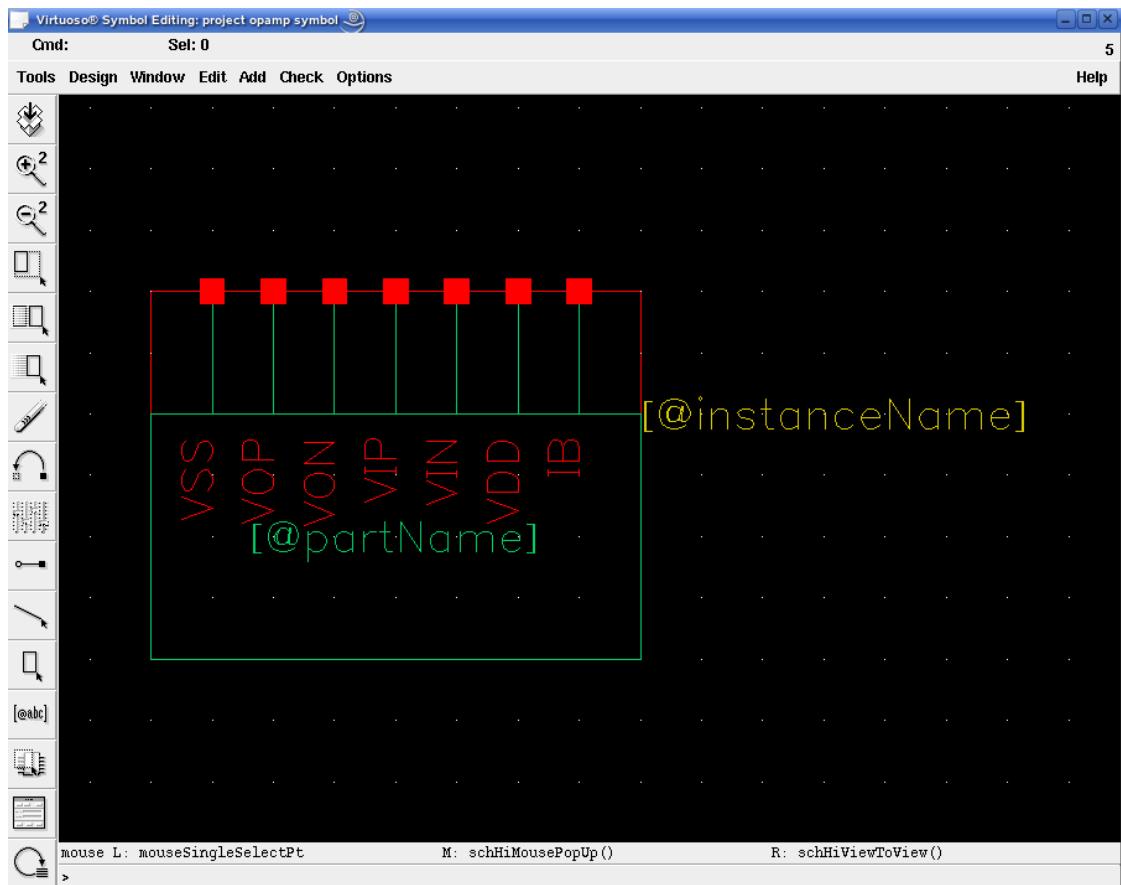




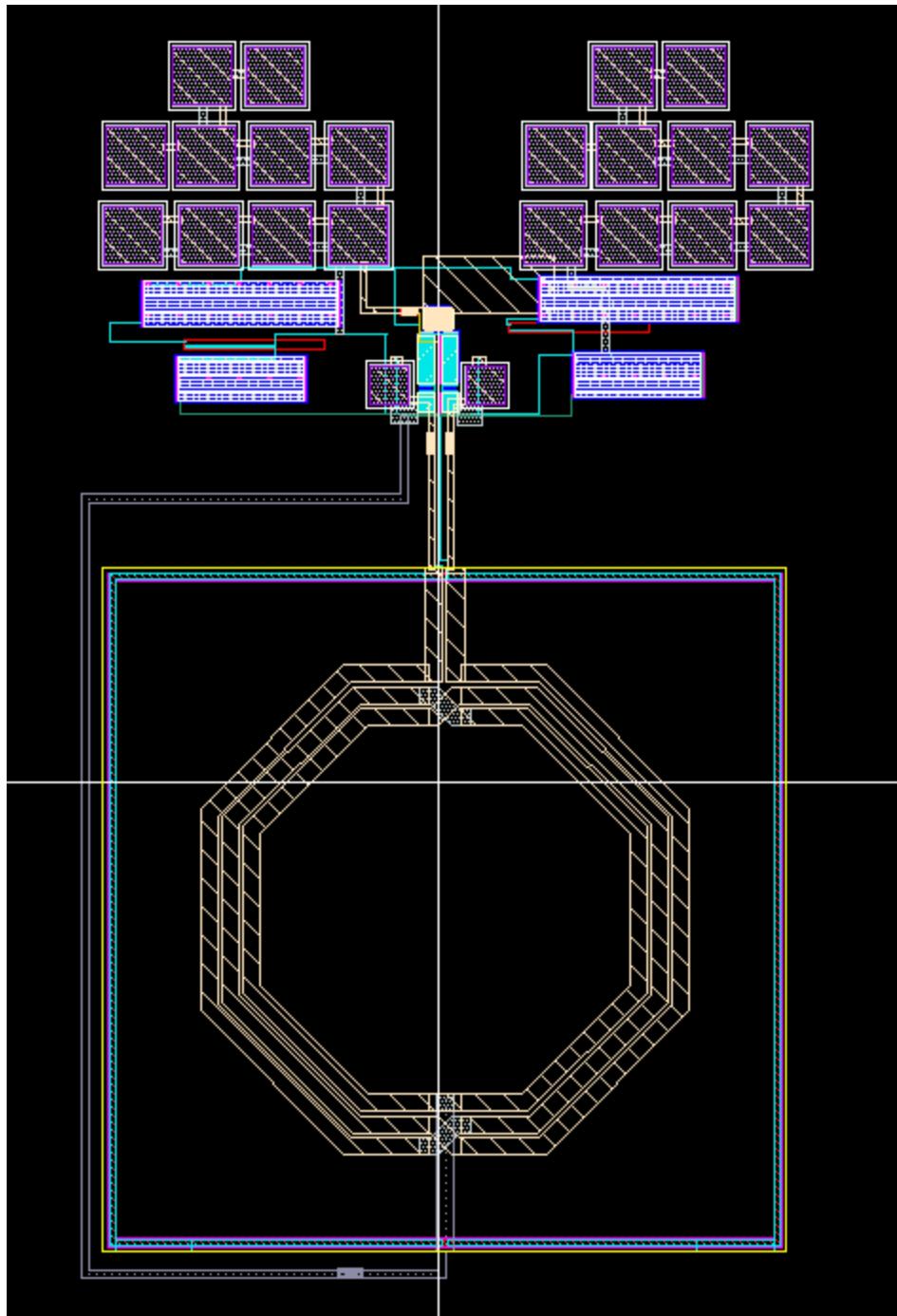
سراج طراحی لیاوت میریم 😊

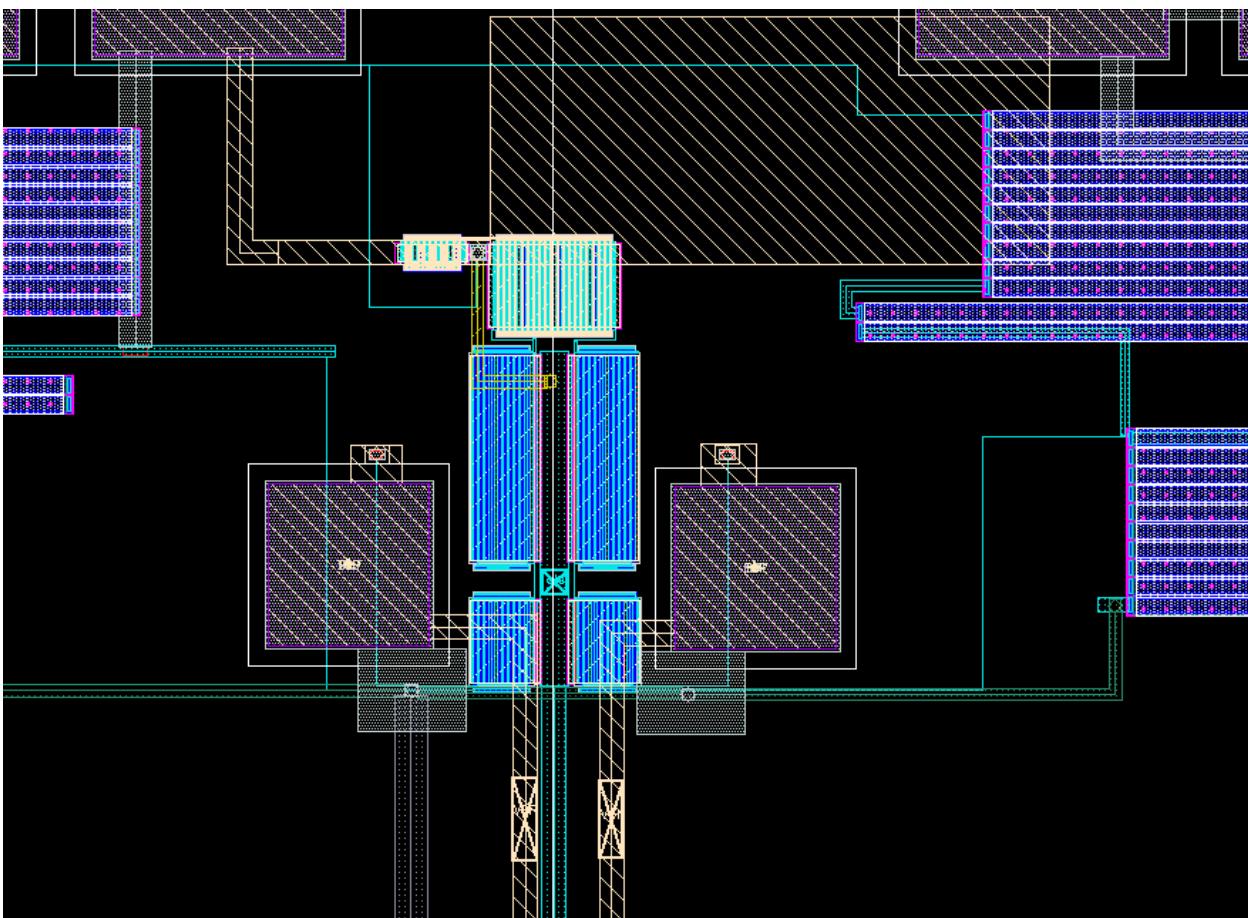
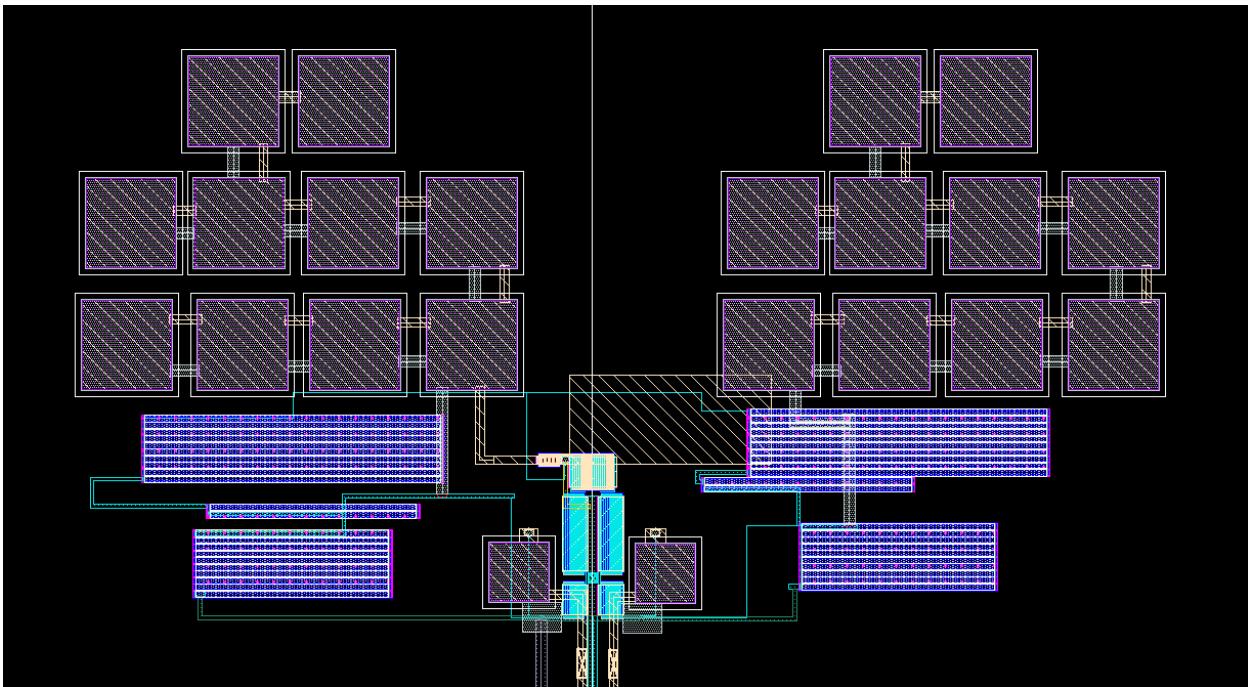


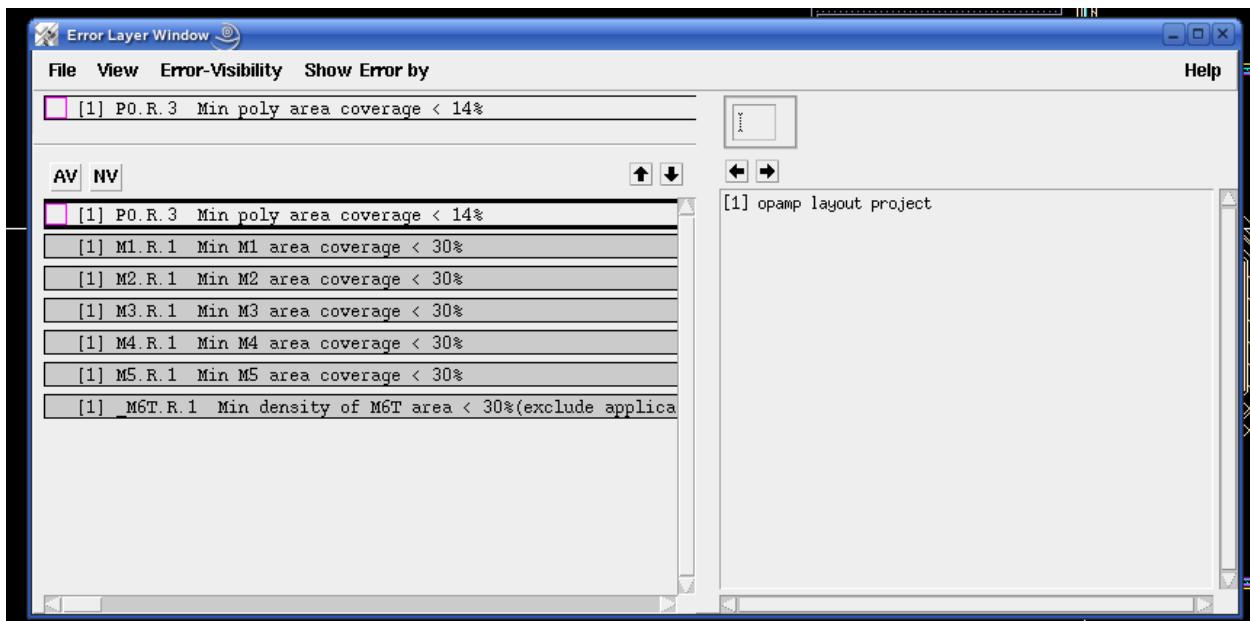
Design -> create cell view -> from cell view



مشخصات سلف



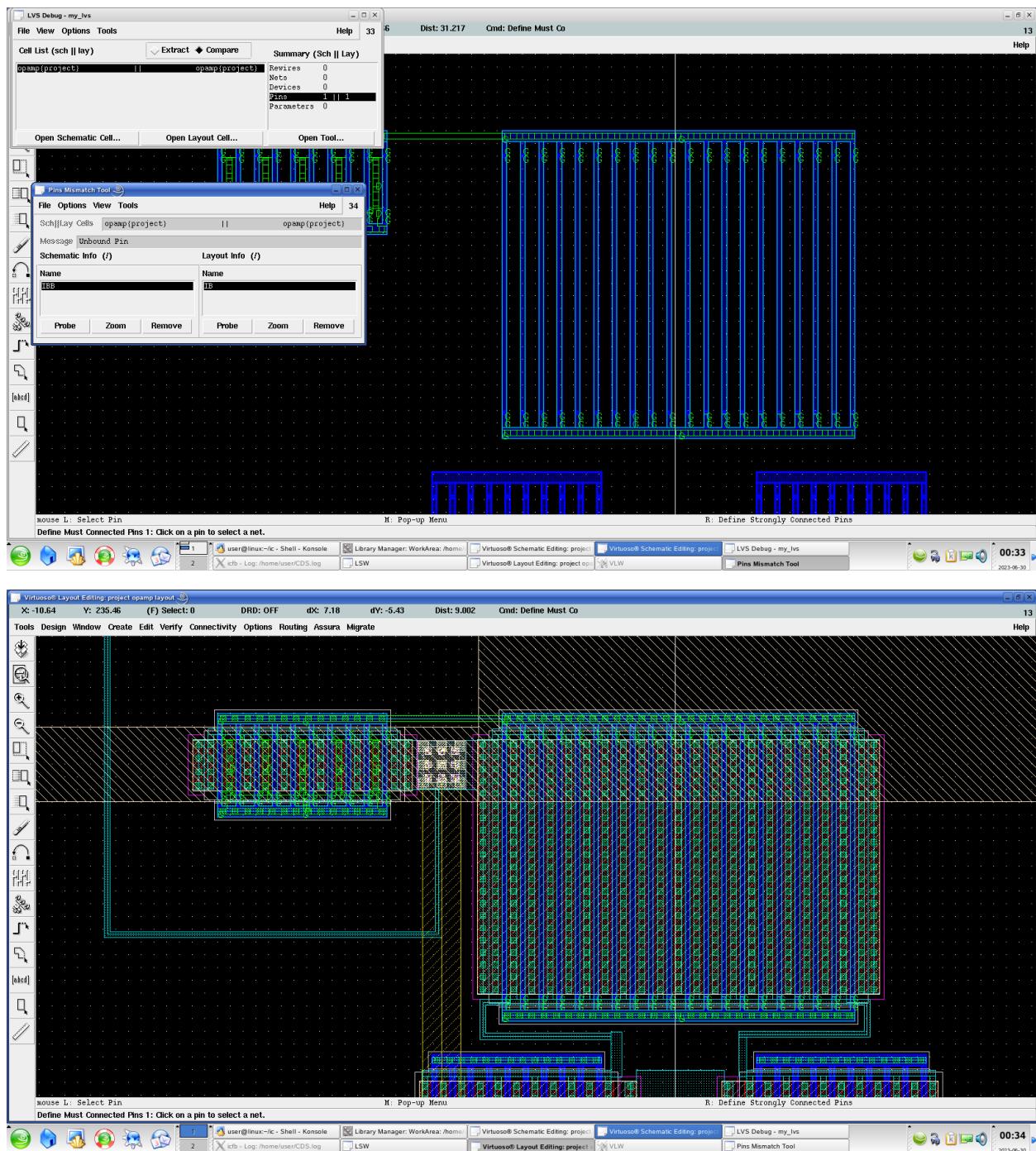


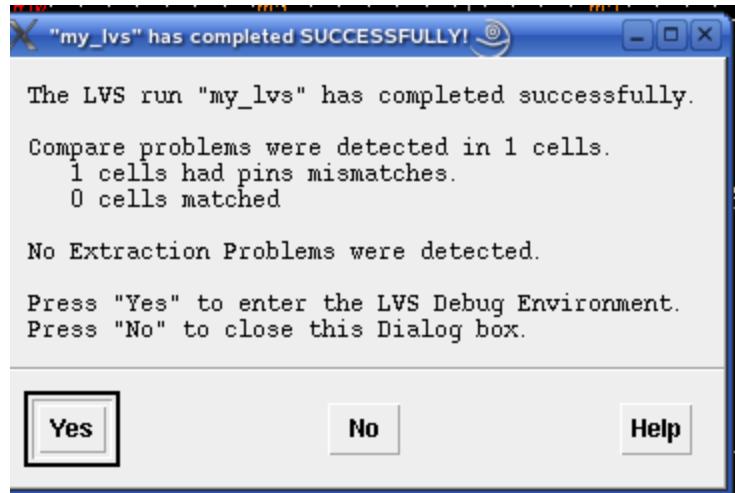


The screenshot shows the 'LVS Debug - my_lvs' interface with the title bar 'LVS Debug - my_lvs'. The menu bar includes 'File', 'View', 'Options', 'Tools', 'Help', and a status indicator '33 : -524'. The main area has two tabs: 'Cell List (sch || lay)' and 'Summary (Sch || Lay)'. The 'Cell List' tab shows 'opamp(project) || opamp(project)'. The 'Summary' tab shows the following statistics:

Rewires	0
Nets	0
Devices	0
Pins	1 1
Parameters	0

Below the summary are three buttons: 'Open Schematic Cell...', 'Open Layout Cell...', and 'Open Tool...'. A 'Pins Mismatch Tool' window is open in the foreground, with the title bar 'Pins Mismatch Tool'. It has a 'File' menu and tabs for 'Schematic Info (/)' and 'Layout Info (/)'. Both tabs show a 'Name' column with 'IBB' and 'IB' respectively. Each tab has 'Probe', 'Zoom', and 'Remove' buttons.





من میخواستم سریع توم کنم و فقط پین زدن مونده بود. تنظیمات پین رو اشتباه زدم بار اول. خودم یادم نمیاد چی باعث شد کلا پین غیب شه چون با همه حالا که پین زدم شاید پیدا شه پین قابل پیدا کردن بود.

اما بعد اینکه یک پین رو اشتباه زدم اولش نمیدوونstem دلیل چیه و unknown lvs eroors found گرفتم. چند تا راهو امتحان کردم. حدس میزدم مشکل از پیناس است. داخل شیماتیک اسم پینارو عوض کردم و ال وی اس ران کردم. وقتی اسم IB رو عوض کردم ارور معلوم شد. هرچند روی پین سعی کردم زوم کنم پیدا نشد. یه پین با تنظیمات درست به همون گره زدم و اینبار ارور دو تا پین به یک گره بهم داد.

با توجه به اینکه لیاوتم با شیماتیک مج نشد نتونstem شبیه سازیای مربوط به لیاوتم رو انجام بدم.

بابت تاخیر واقعا معذرت میخوام.