1.1

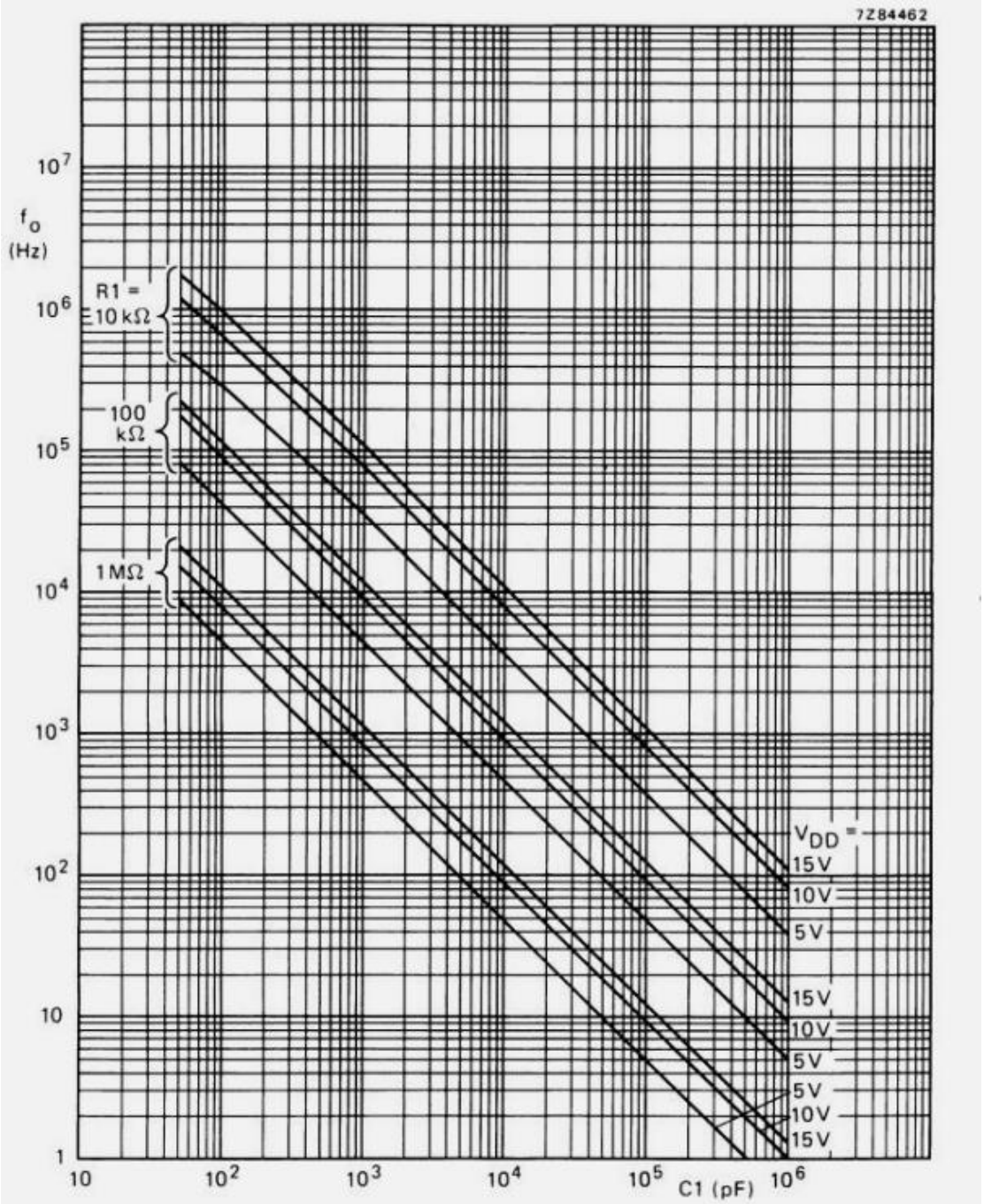

Figure 1

D' àprès ce tableau on sait que quand C_1 = 10nf, R_1 = 10kΩ, V_{dd} = 10V, on a la féquence centrale de VCO f_0 = 80kHz.

1.2 Après faire la simulation on a le résultat si-dessous.

V(v)	$f_{vco}(Hz)$
0	-
1	1.95
2	21.4
3	41.1

4	60.7
5	80.9
6	100.1
7	120.3
8	139.4
9	159.8
10	160.0

Tableau 1

En conclusion : on peut voir que la f_{vco} change linéairement avec le v quand v est de 1v à 9v.

2.3

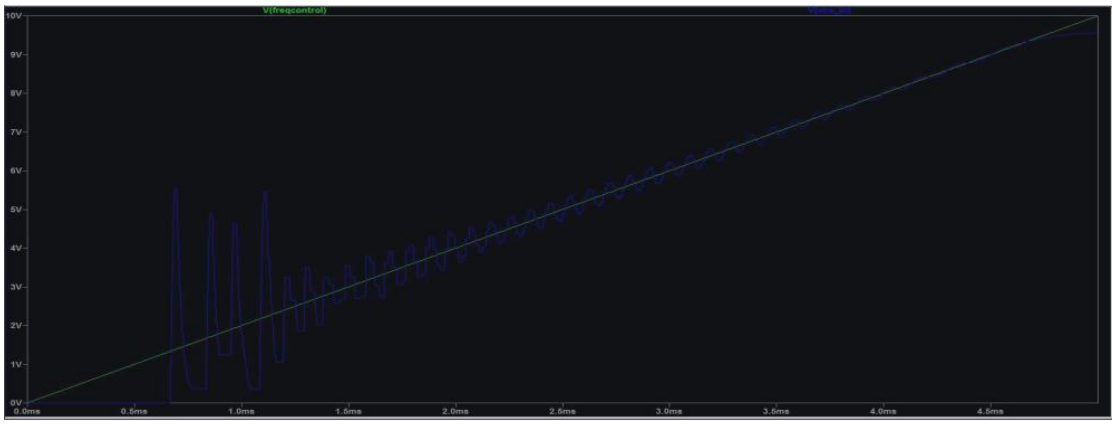

Figure 2, comparateur 1, C2 = 10nF

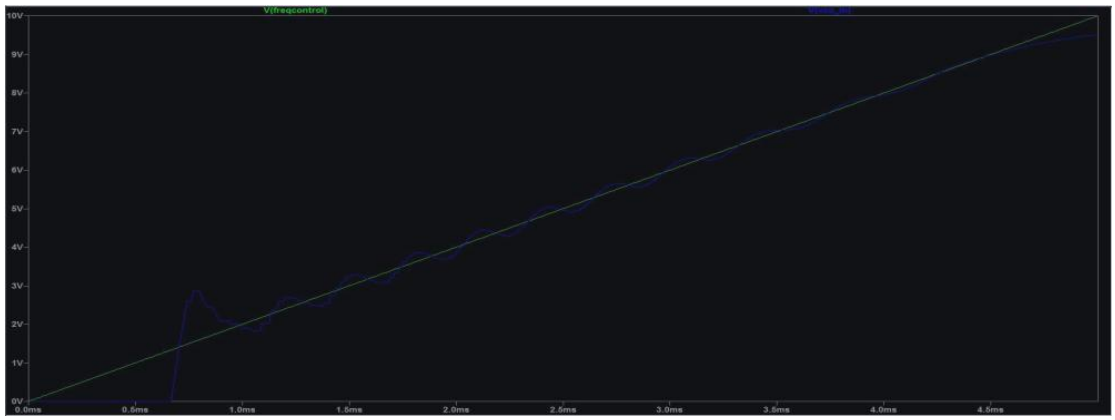

Figure 3, comparateur 1,C2 = 100nF

2.4

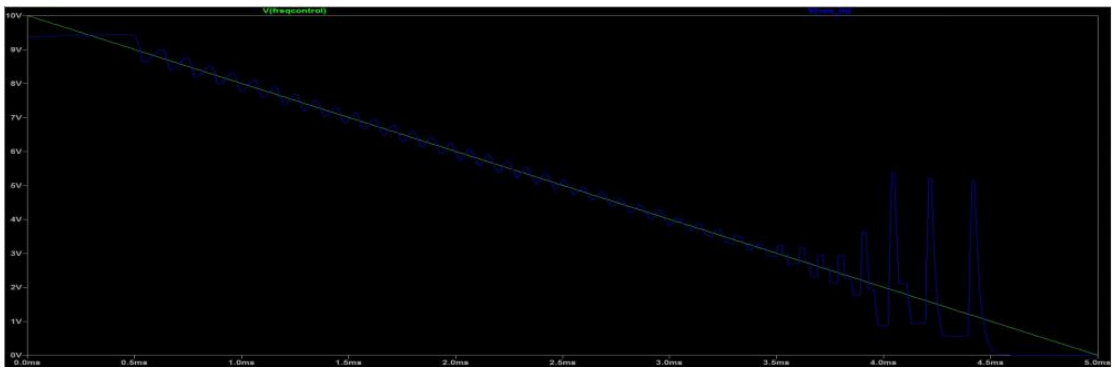

Figure 4, comparateur 2, C2 = 10nF

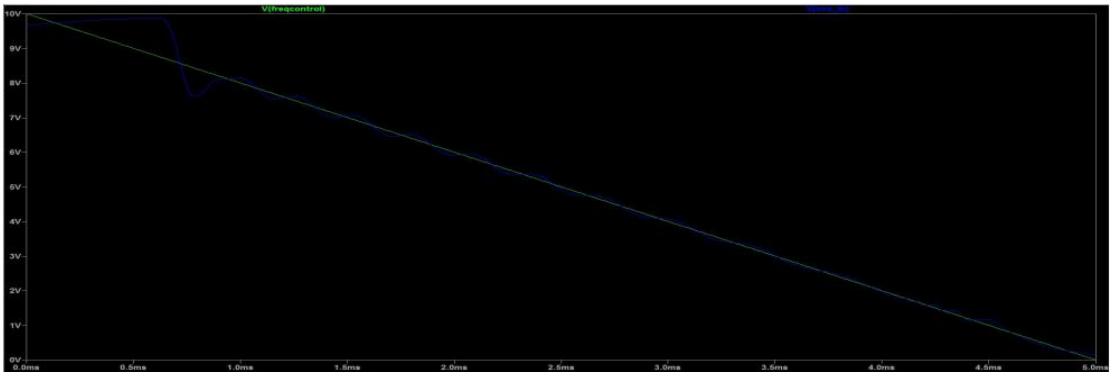

Figure 5, comparateur 2, C_2 = 100nF

2.5

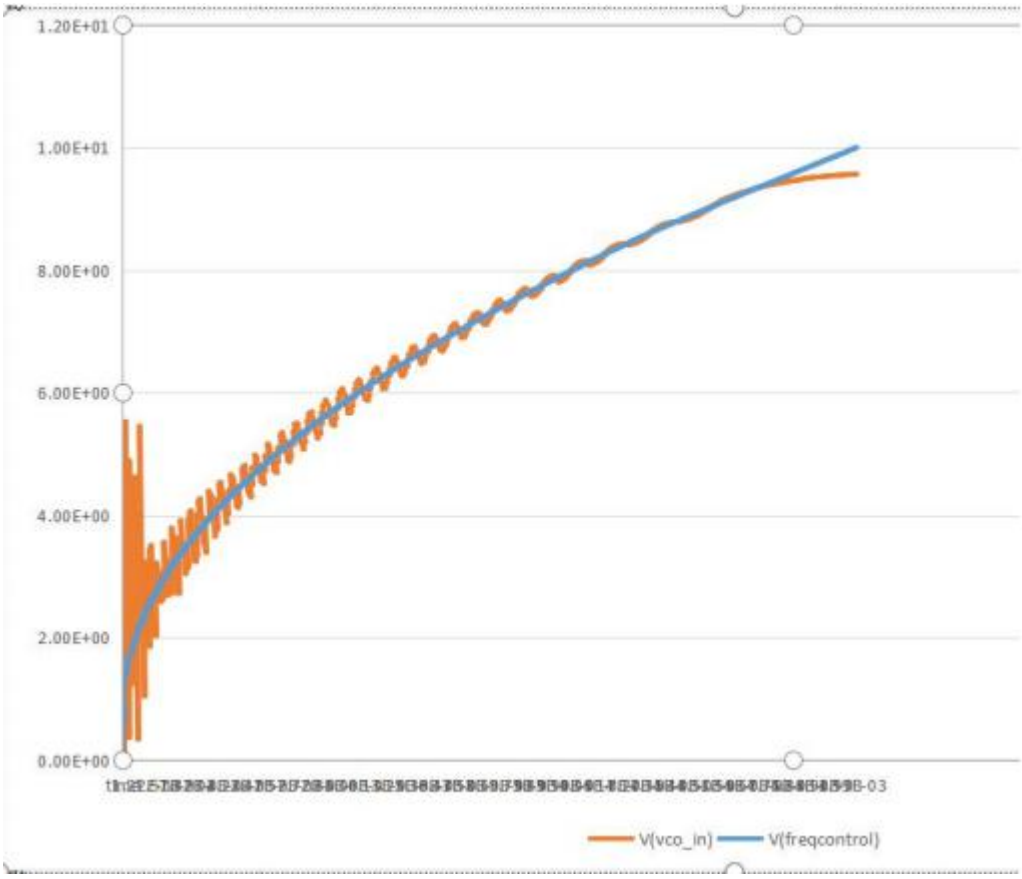

Figure 6, comparateur 1, C_2 = 10nF

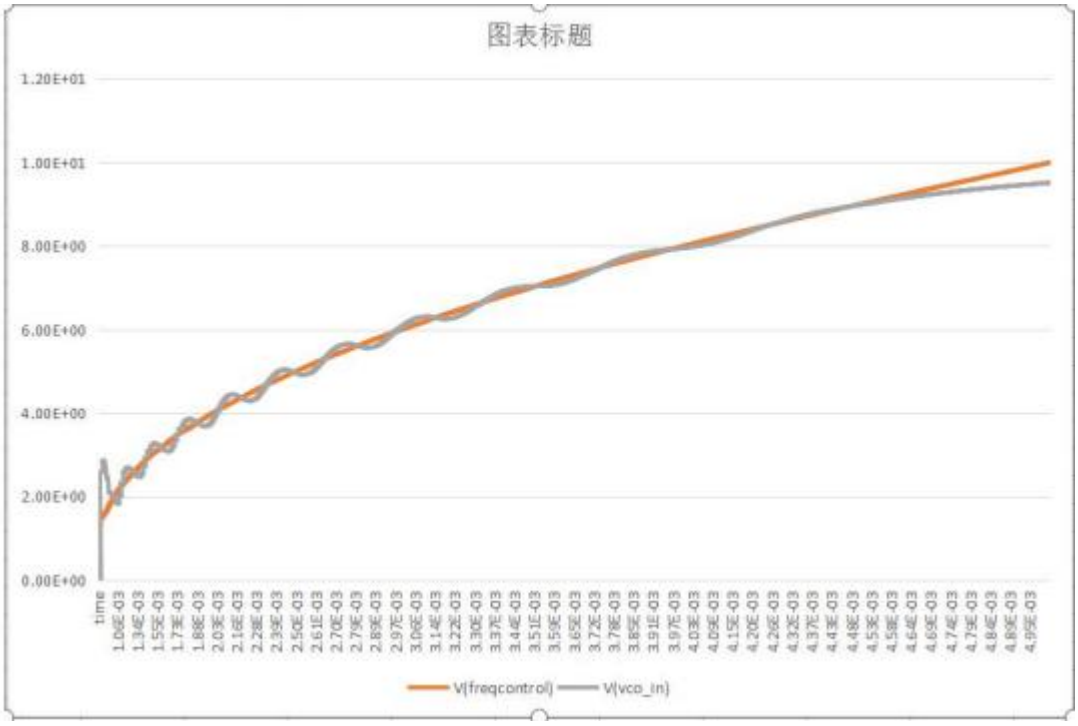

Figure 7, comparateur 1, C_2 = 100nF

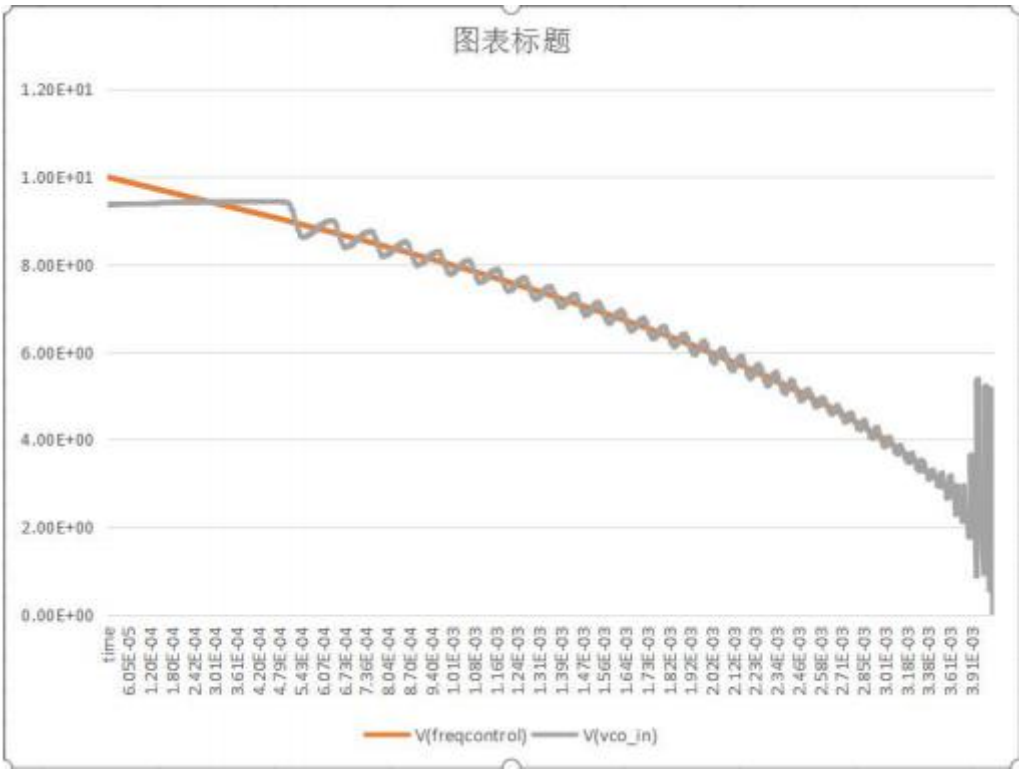

Figure 8, comparateur 2, C_2 = 10nF

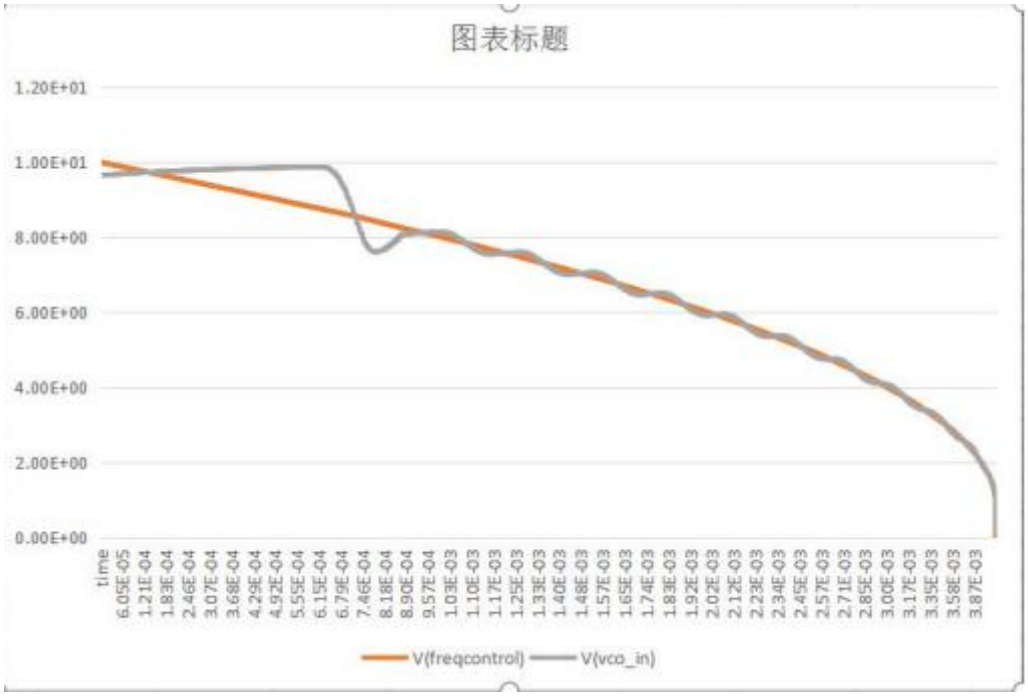

Figure 9, comparateur 2, C_2 = 100nF

3.1 on a 4 figure de simulation "CD4046B echelon.asc"

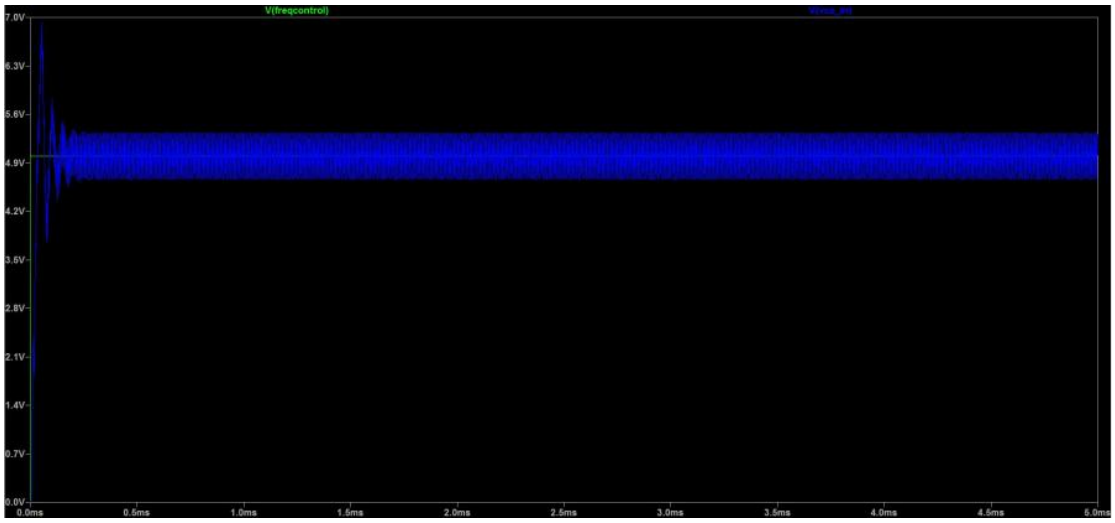

Figure10, comparateur 1, C_2 = 10nF

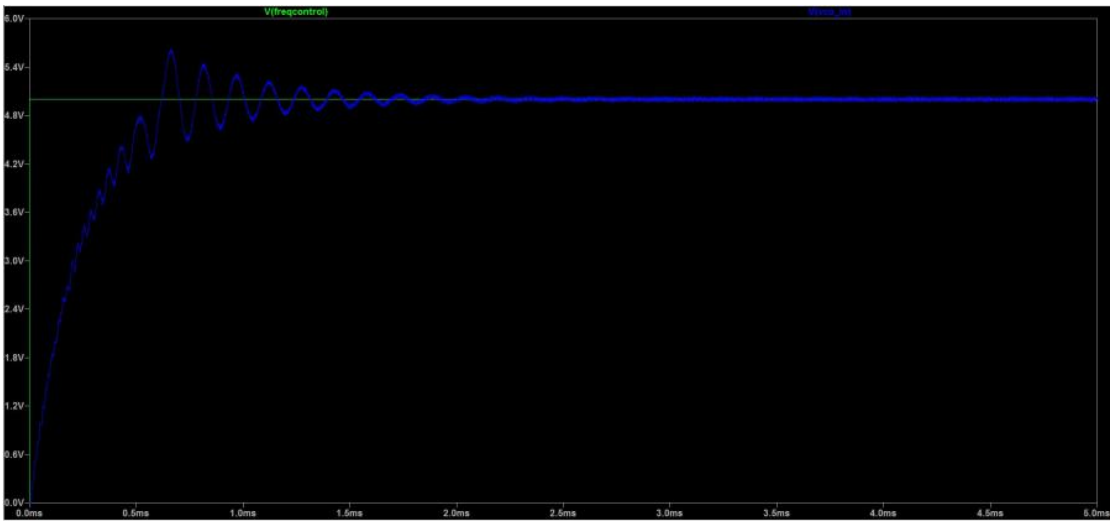

Figure 11, comparateur 1, C_2 = 100nF

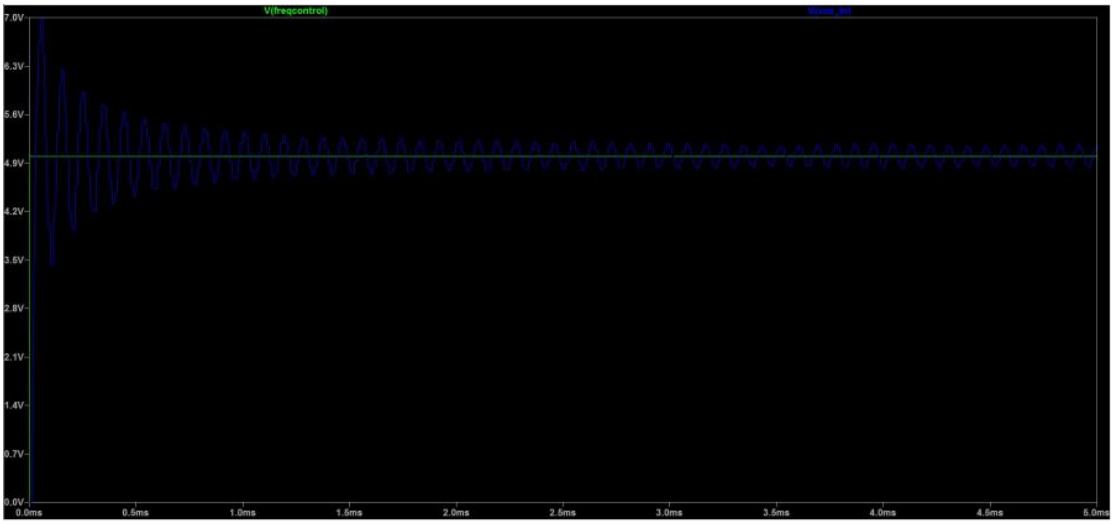

Figure12, comparateur 2, C_2 = 10nF

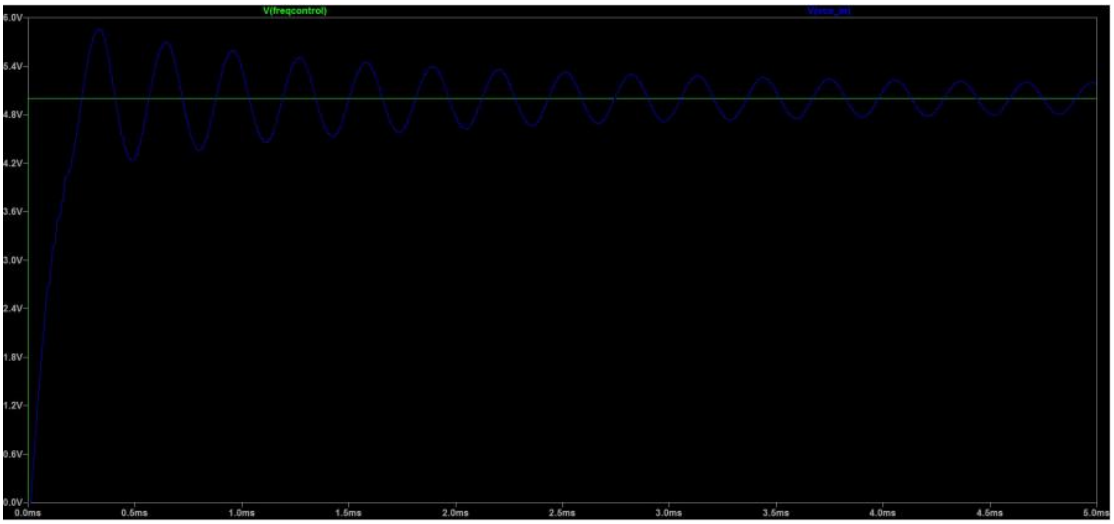

Figure13, comparateur 2, C_2 = 100nF

3.2

	C_2 (nF)	**Temps de réponse(µs)**
Comparateur1	10	30.0
	100	485.6
Comparateur2	10	27.8
	100	222.8

Tableau 2

3.3

En conclusion :

Quand C_2 = 10nF, le temps de réponse est beaucoup plus moins que C_2 = 100nF. Mais, il est moins préci quand C_2 = 10nF.

Quand on utilise le comparateur 2, temps de réponse est plus moins que la comparateur 1. Au contraire il est plus stable.