2Ei5

Lab#6

Instructor: Dr. Haddara

Name: Yichen Lu

Student id: 400247938

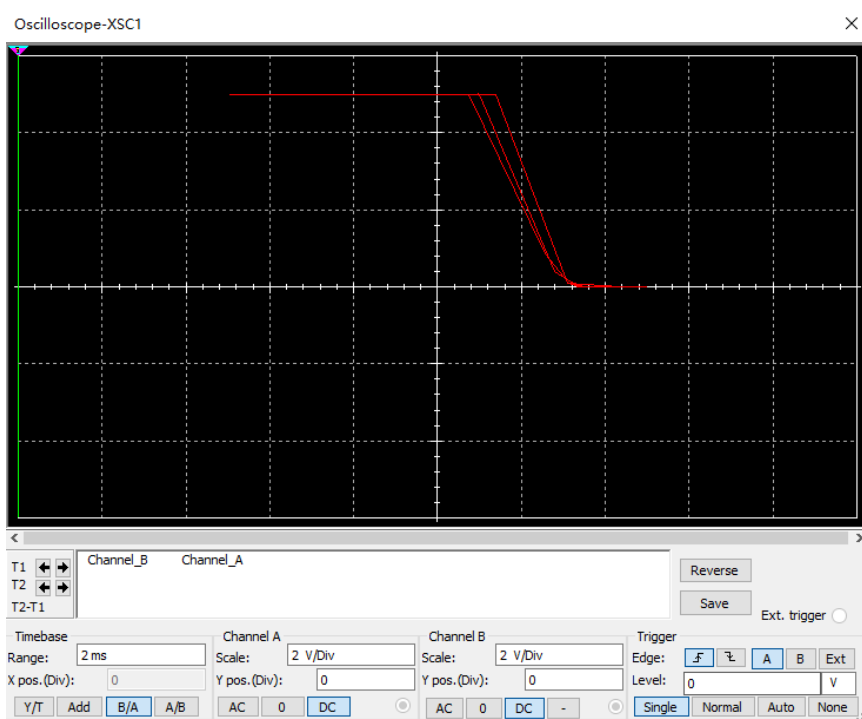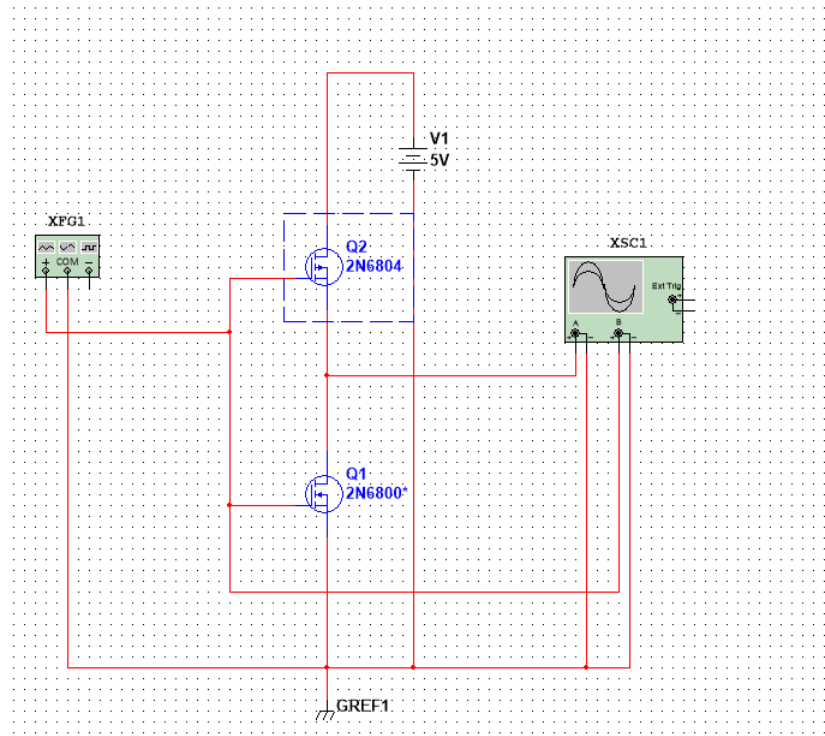Lab section: L01

Date: Apr 5th 2021

Task 1

VCT Graph with Default settings
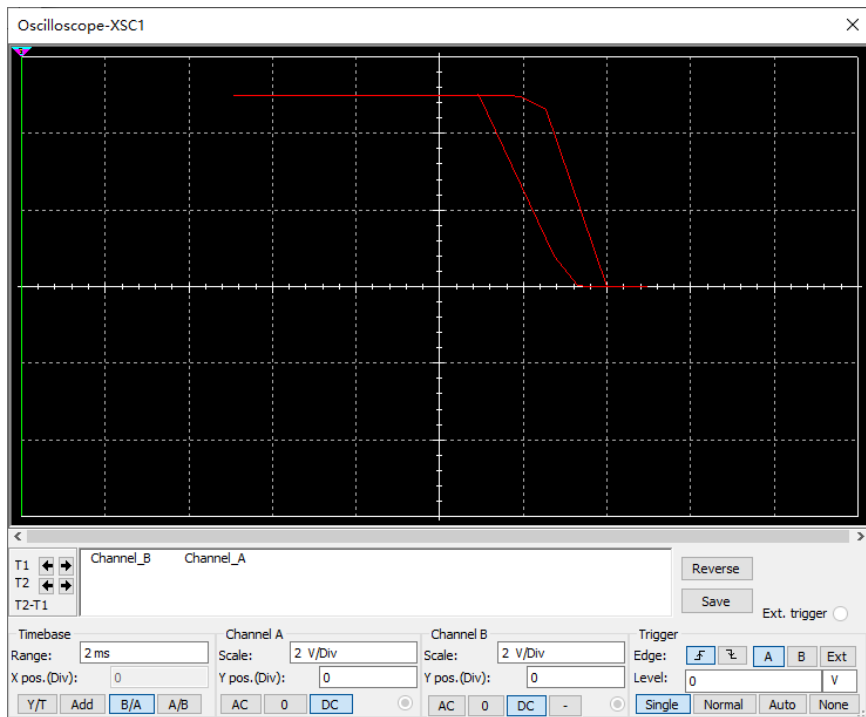
With Kn = 0.3, it is conclude that the saturation area of both MOSFETs (the linear area in the middle) has been shifted to Right which is affected by a drop in value of K of the N-MOSFET.
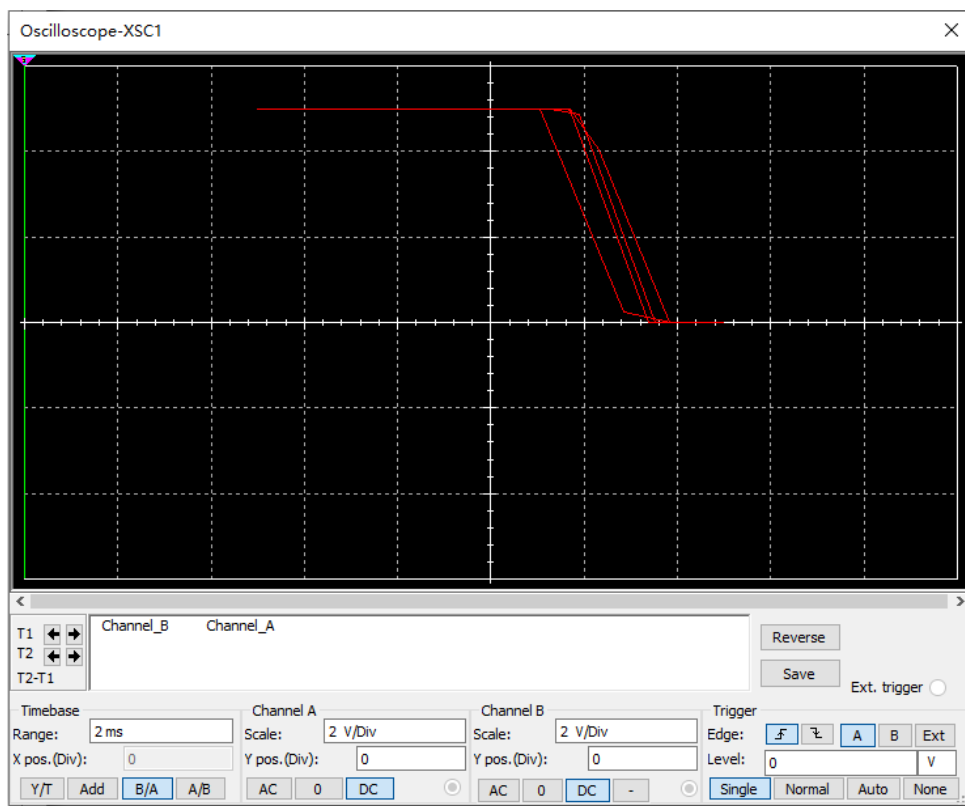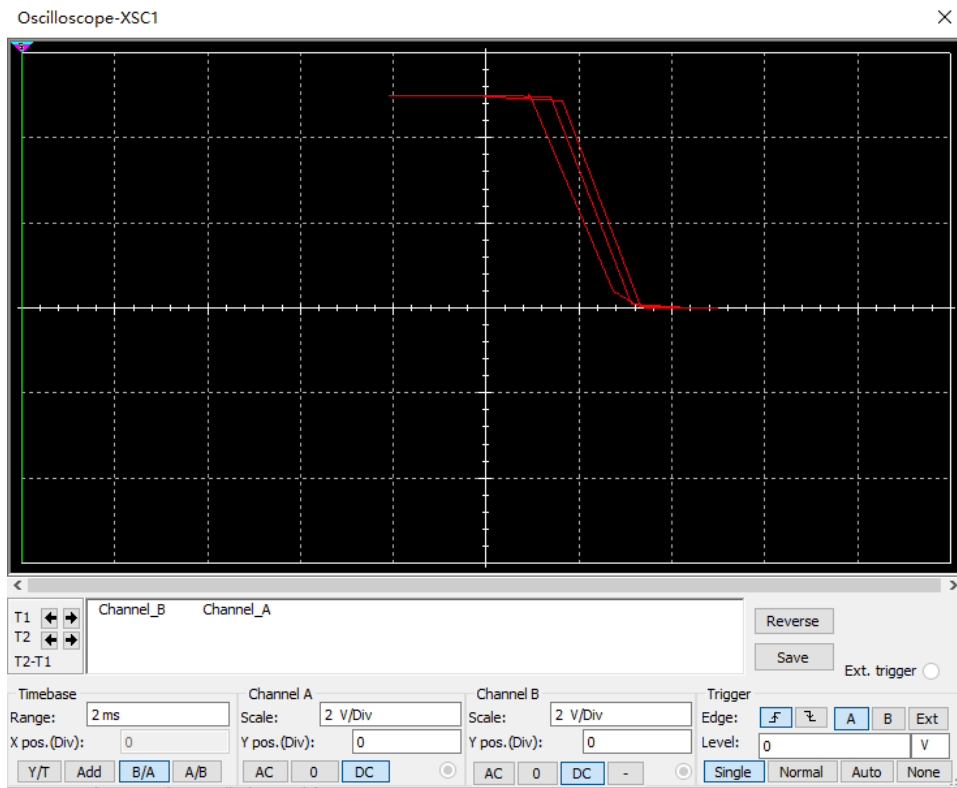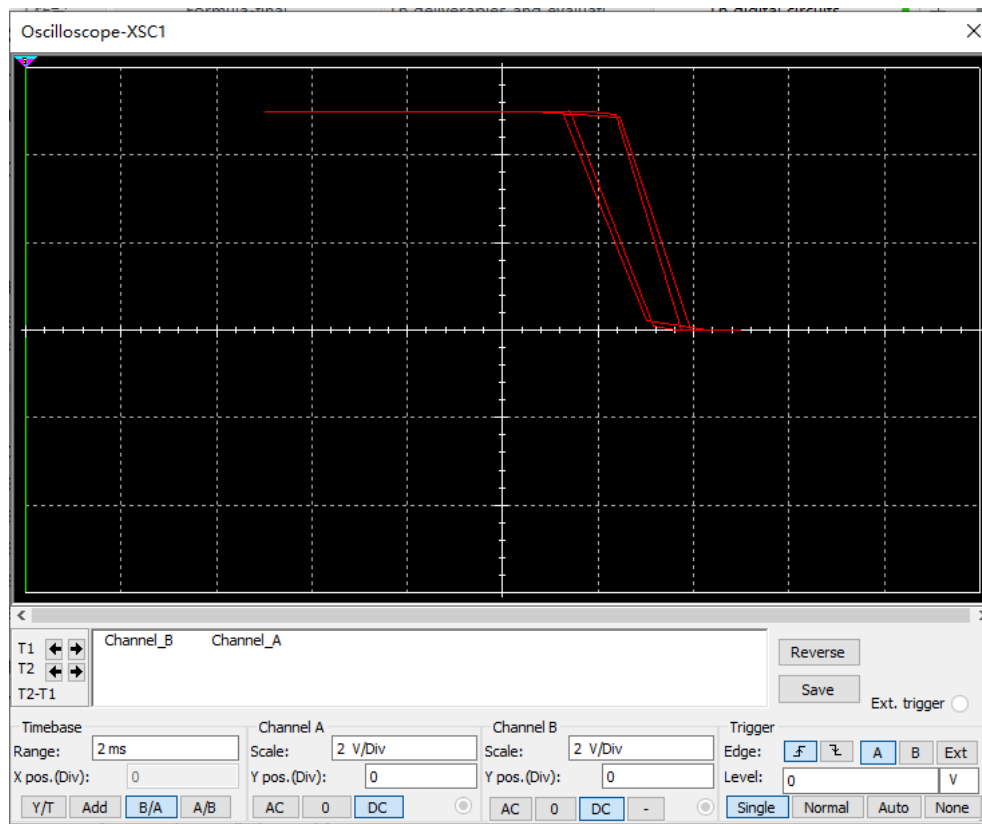

With Kn = 1.2

It is conclude that the saturation section of both MOSFETs (the linear part at the middle) has been moved to left, which is affected by an grow in value of K of the N-MOSFET.
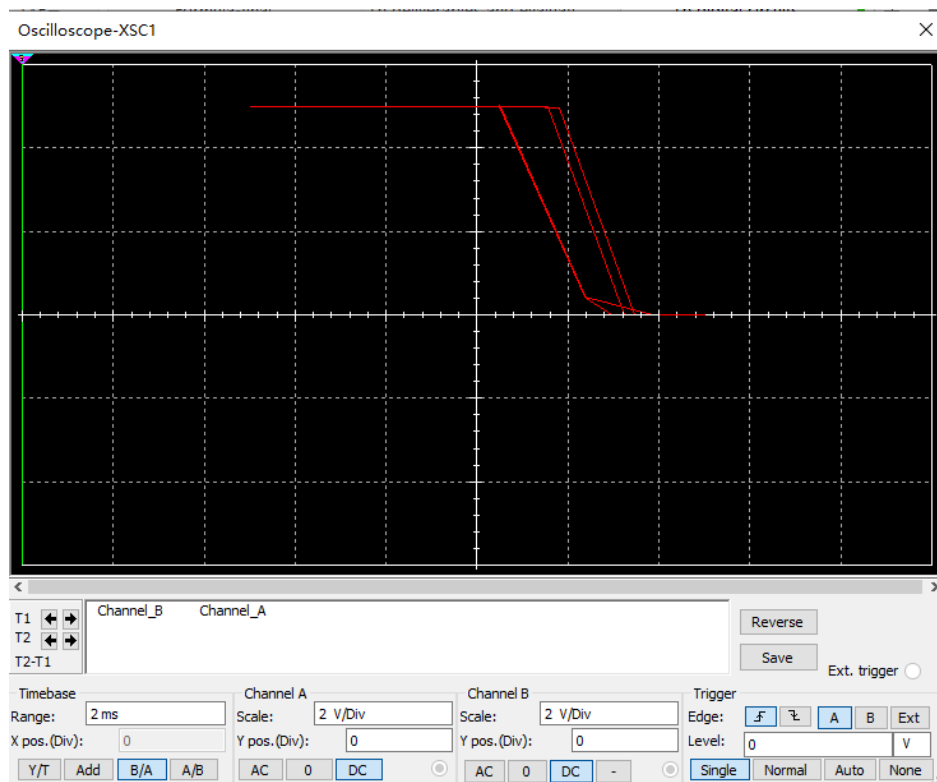

With Vtn = 1V

It is conclude that the graph is the turn on value is moved down when both MOSFETs are in Saturation.

Oscilloscope-XSC1

| Channel_B | Channel_A |

Timebase — Range: 2 ms — X pos.(Div): 0 — Y/T Add B/A A/B

Channel A — Scale: 2 V/Div — Y pos.(Div): 0 — AC 0 DC

Channel B — Scale: 2 V/Div — Y pos.(Div): 0 — AC 0 DC -

Trigger — Edge: F ⅂ A B Ext — Level: 0 V — Single Normal Auto None

Reverse | Save | Ext. trigger

It is conclude that the graph is the turn on value is moved up when both MOSFETs are in saturation.

Oscilloscope-XSC1

| Channel_B | Channel_A |

Timebase — Range: 2 ms — X pos.(Div): 0 — Y/T Add B/A A/B

Channel A — Scale: 2 V/Div — Y pos.(Div): 0 — AC 0 DC

Channel B — Scale: 2 V/Div — Y pos.(Div): 0 — AC 0 DC -

Trigger — Edge: F ⅂ A B Ext — Level: 0 V — Single Normal Auto None

Reverse | Save | Ext. trigger

With Vtn = 1.5V, and Vpn = -2V.

It is conclude that the graph is the turn on value is moved down when both MOSFETs are in saturation.

Task2
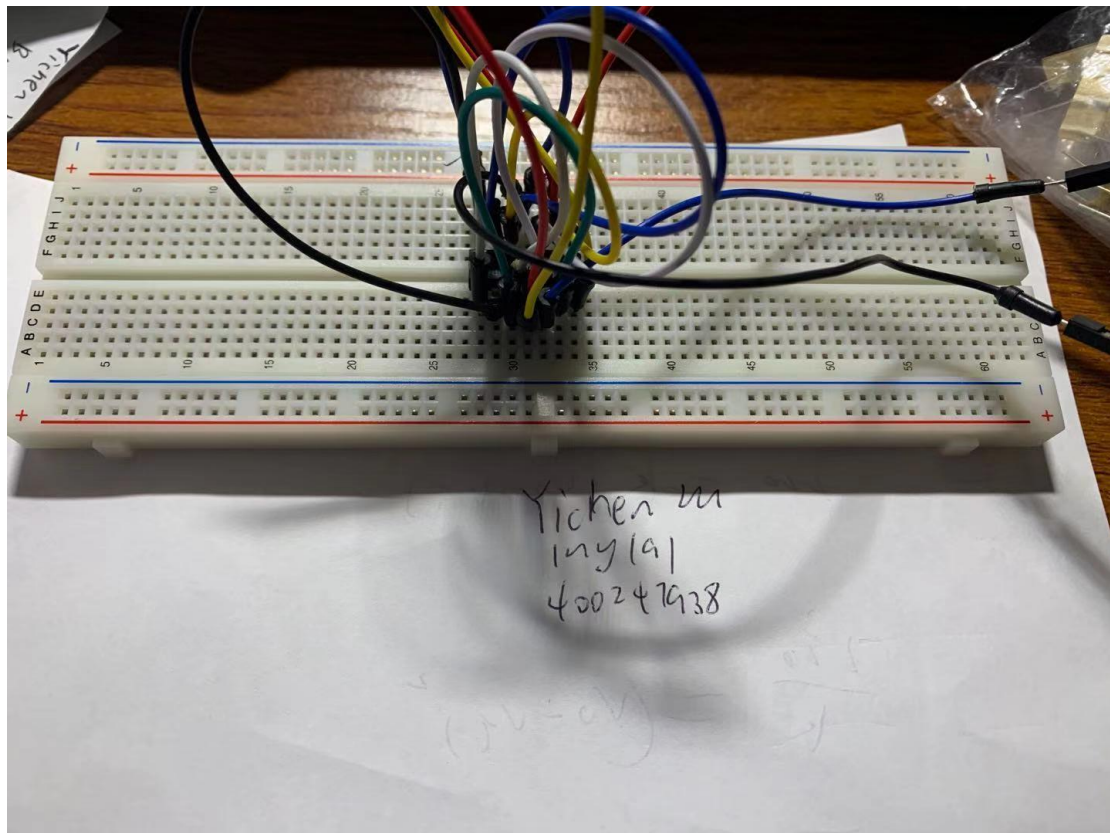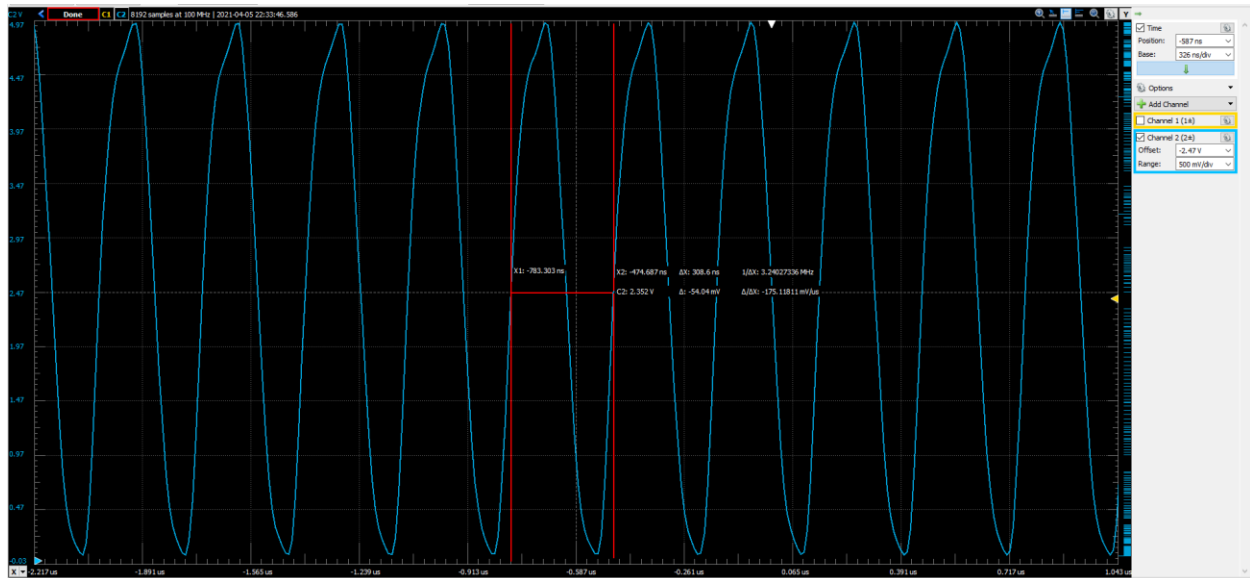
The period measured is about 308.6ns.

Period = 2*t*# of inverter

T = 220/2/3 =36.67nS