

Beijing University of Posts and Telecommunications

Changping District of Beijing

May 26, 2015

Mr. Li Yonghua

207 Room

Administrative Office Building

## **LABORATORY REPORT**

### **TRANSISTOR AMPLIFYING CIRCUIT**

#### **INTRODUCTORY SUMMARY**

Last week you taught us how to understand the transistor amplifying circuit. Having analyzed the circuit in our lab, I grasped the basic characteristics of the circuit. As you requested, this report will give a summary of the transistor amplifying circuit, along with any problem I had.

As you know, the experiment purpose is to grasp the measuring method of amplifying circuit static state working point and voltage amplification gain.

#### **LAB MATERIALS**

The equipment is included digital multimeter, DC stabilized voltage power supply, function signal generating device, AC millivolt and double-trace oscilloscope.

#### **LAB PROCEDURE**

Once I receive the equipment, I first try to know the role and method of the equipment. My specific lab procedure consisted of these two steps:

##### **Step 1**

The measurement of the amplifying circuit static state working point

- a. Judge triode's polarity and the quality with multitester
- b. Connect direct-current power supply, measure  $V_B$ ,  $V_E$ ,  $V_C$ ,  $R_P$  with the multitester, and calculate  $U_{CE}$ ,  $I_B$ ,  $I_C$

## Step 2

### Dynamic research

- a. Adjusts  $R_P$  to cause  $V_C$  to be equal to 6 V
- b. Adjust signal generator's output for the sinusoidal signal of,  $f=1$  kHz,  $u_s=500$  mV, and connect A spot, through  $R_1$ ,  $R_2$  attenuation 100 times, the signal which the  $u_i$  obtain 5 mV
- c. Maintain the signal generating device output signal frequency invariable, increase the signal scope gradually, observe the most greatly not distorted voltage  $u_o$
- d. Maintain  $u_i=5$  mV to be invariable, when idling tune  $V_C=6$  V, and the load is connected to the amplifying circuit
- e.  $u_i=5$  mV, reduce  $R_P$ , cause  $V_C < 4$  V, may observe the saturated distortion, increase  $R_P$ , cause  $V_C > 9$  V,  $R_1$  is changed from  $5.1\text{ K}\Omega$  to  $510\text{ }\Omega$ , may observe to cut off distorts

## PROBLEMS ENCOUNTERED

There were some errors, therefore, the problem was the causes of the errors. At the same time, how to discuss the changes of the static working point to the influence of the amplifier output waveform.

## CONCLUSION

Through this experiment, I grasp the measuring method of amplifying circuit static state working point and analyze the influence of the static state working point to the amplifier performance. There were some difficulties in the lab, but I solved these with the help of the teacher. I am thankful the teacher's patience to solve.

I will call you this week to discuss our study and any possible follow-up you may wish us to do.

Sincerely,  
Dong Yaru