

NTU Troubleshooting Guide

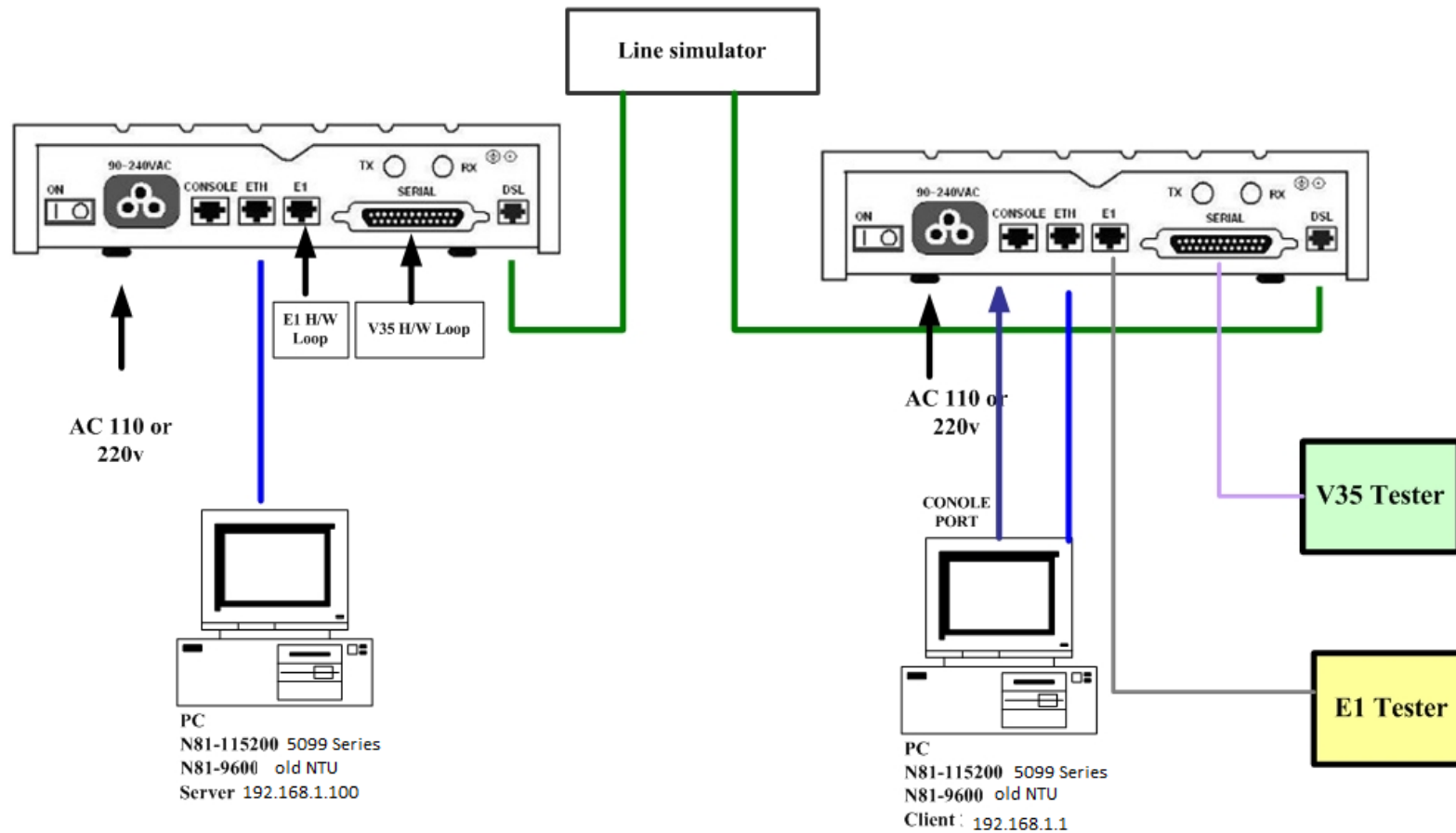
AT PAMSPAM 2000

Maintenance Equipments

- Temperature Controlled Soldering Station
- Heaters
- Multimeters
- Oscilloscopes
- Tweezers
- Solder Sucker
- Solder Paste Flux

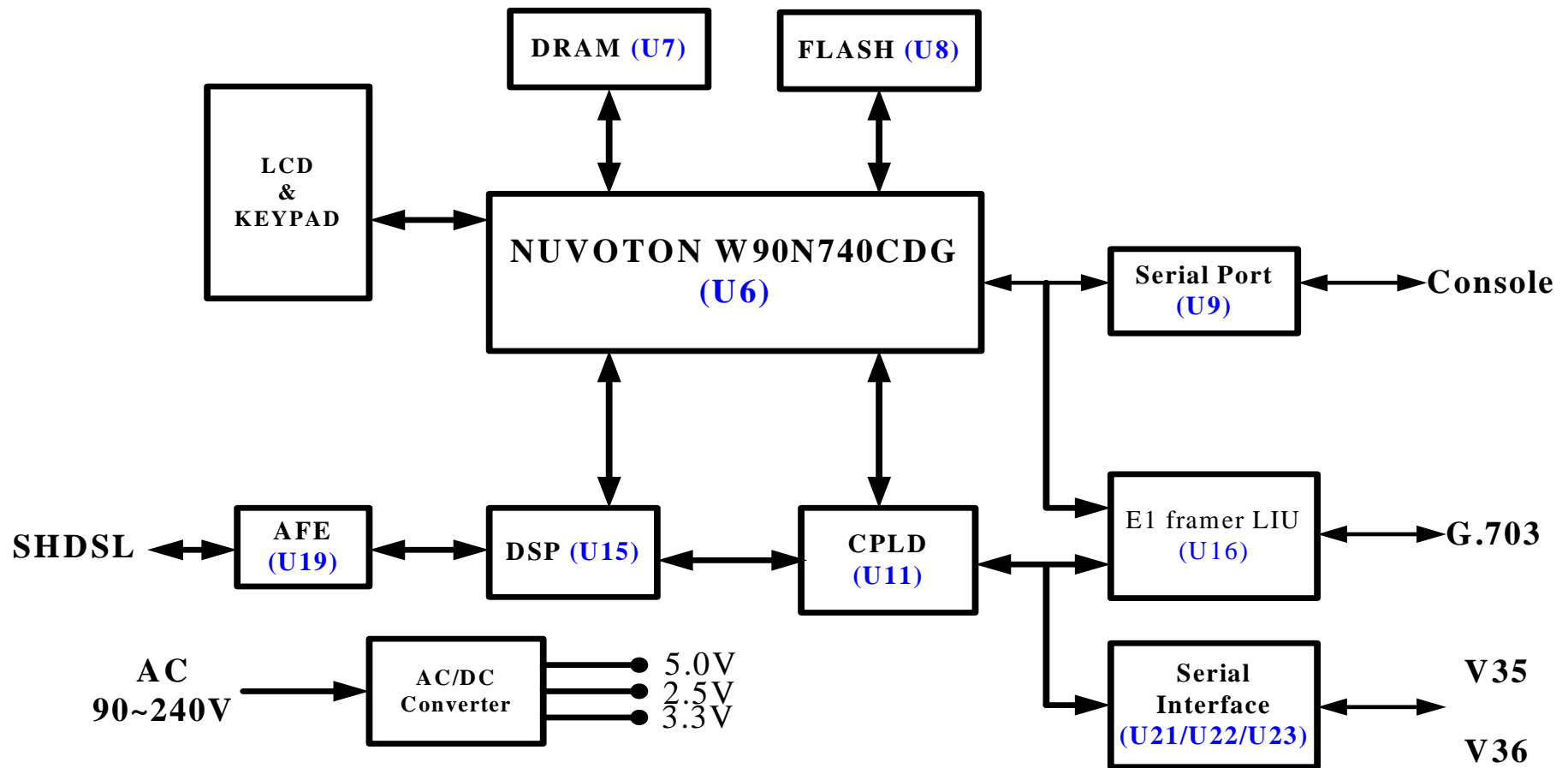
Device Installation

TEST BLOCK DIAGRAM



Block Diagram of NTU

BLOCK DIAGRAM of SHDSL 5099G



DSL Line Check

- It is necessary to arc the opposite side of the DSL line in order to measure the resistance of the DSL line when you try to verify the DSL line. Then, please check whether the resistance value is in normal range or not.
- Please use your Multimeter as showed in Fig. 1.

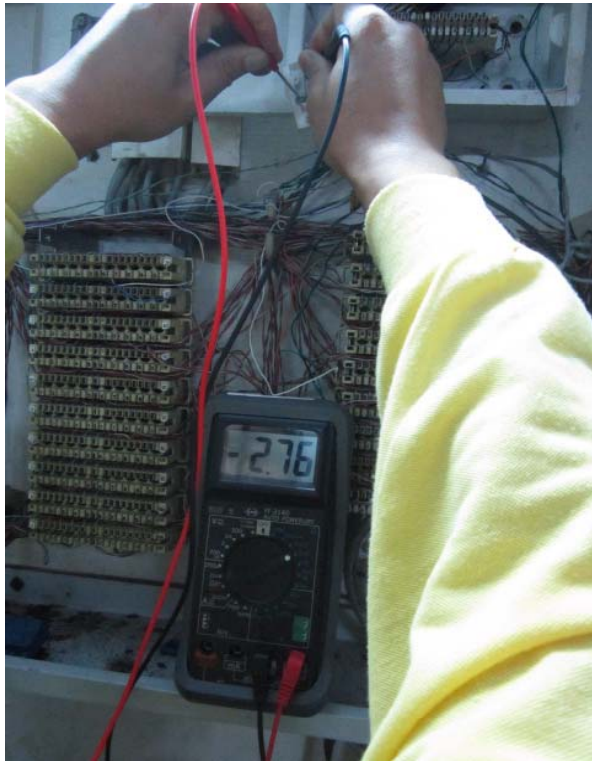


Fig. 1

The resistance value in Fig. 1 indicated that the value was floating. As the result, there was a very huge difference of SNR Margin values between CO side and CPE side (showed as the following image).

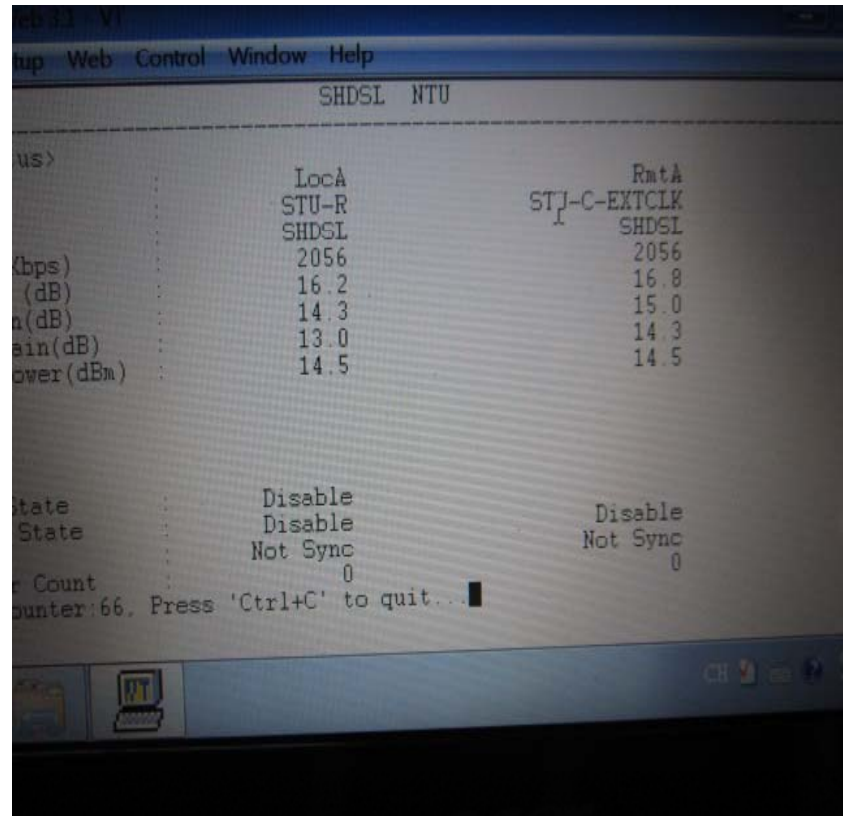
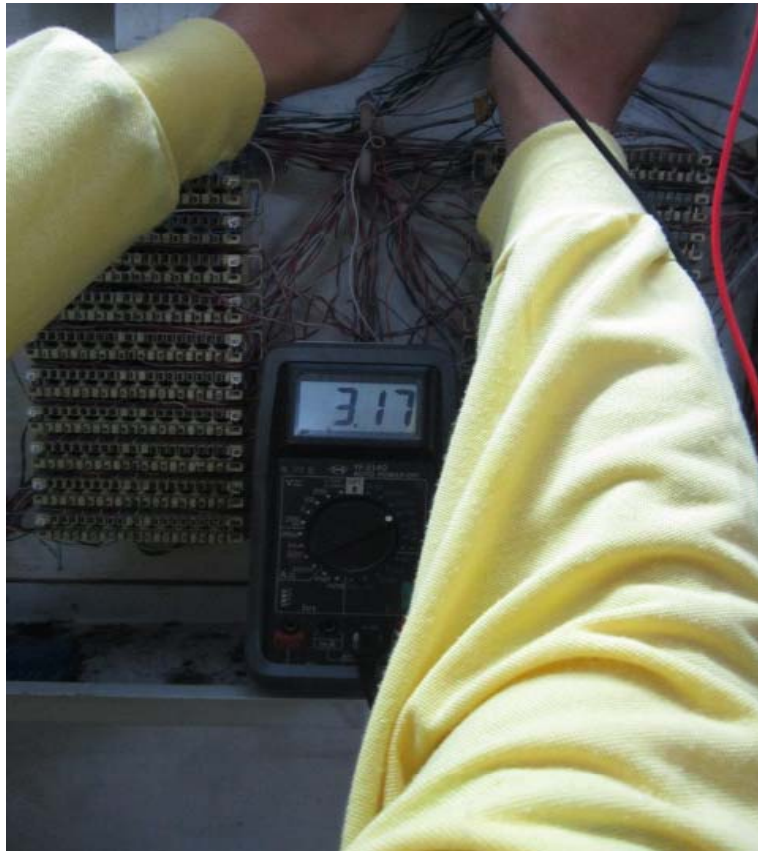
```
Tera Term Web 3.1 - VT
File Edit Setup Web Control Window Help
-----
SHDSL NTU
-----
<Shdsl Status>
Channel          :          LocA          RmtA
STU Type        :          STU-R          STU-C-EXTCLK
DSL Type        :          SHDSL          SHDSL
Line Rate(Kbps) :          2056          2056
SNR Margin (dB) :          5.2          14.3
Attenuation(dB) :          18.3          18.3
Receiver Gain(dB) :          15.2          16.1
Transmit Power(dBm) :          14.5          14.5

Loopback State   :          Disable
Bert Test State  :          Disable          Disable
Bert Sync        :          Not Sync          Not Sync
Bert Error Count :          0          0
Refresh counter:175, Press 'Ctrl+C' to quit...

-----
<I/K> Move up/down, <J/L> Exit/Enter, <U/O> Move top/bottom
```

Re-Wire DSL Line

After rewiring the DSL line, the resistance was showed in the image on the left-hand side. Also, the SNR values were showed on the right-hand side.



Please verify the resistance of DSL line if the connection is not stable. The floating resistance may be caused by damped DSL lines or the oxidation of wires.

Abnormal Power Analysis

Situation 1. No Startup

- Check the LEDs of POWER and SHDSL

LED Status	Possible Cause
ON but no blinking	Abnormal Output Voltage
	<ul style="list-style-type: none">• Abnormal Voltage• CPU• RAM (U7)• Flash (U8)• Lack of Program Codes
OFF	Abnormal Output Voltage

Situation 2. Continuously Rebooting

- Check all LEDs

LED Status	Possible Cause
All LEDs are normally showed but keep rebooting	Abnormal 5V Voltage
	The short-circuit of AFE (U19)

Abnormal Power Analysis

Situation 3. No Power

- Check POWER LED.

LED Status	Possible Cause
OFF	This may be caused by the impact of abnormal power supply. Please make sure whether the fuse is broken or not.

Situation 4. Power Loss After Running for a While

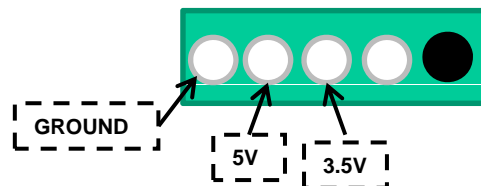
- It is unable to determinate the cause from the LEDs or the appearance of the device; however, it is able to find out the cause from the output voltage.
- Usually the main cause of this issue is the instability of some components.

INSPECTION of AC/DC POWER

AC/DC Power:

- Please connect to GROUND pin with the black probe of the Multimeter and connect the other probe, which should be red, to the pin of 5V or 3V. Then, check whether the output is normal or not.

- The pin locations are showed in the circled area in the image on the right-hand side.

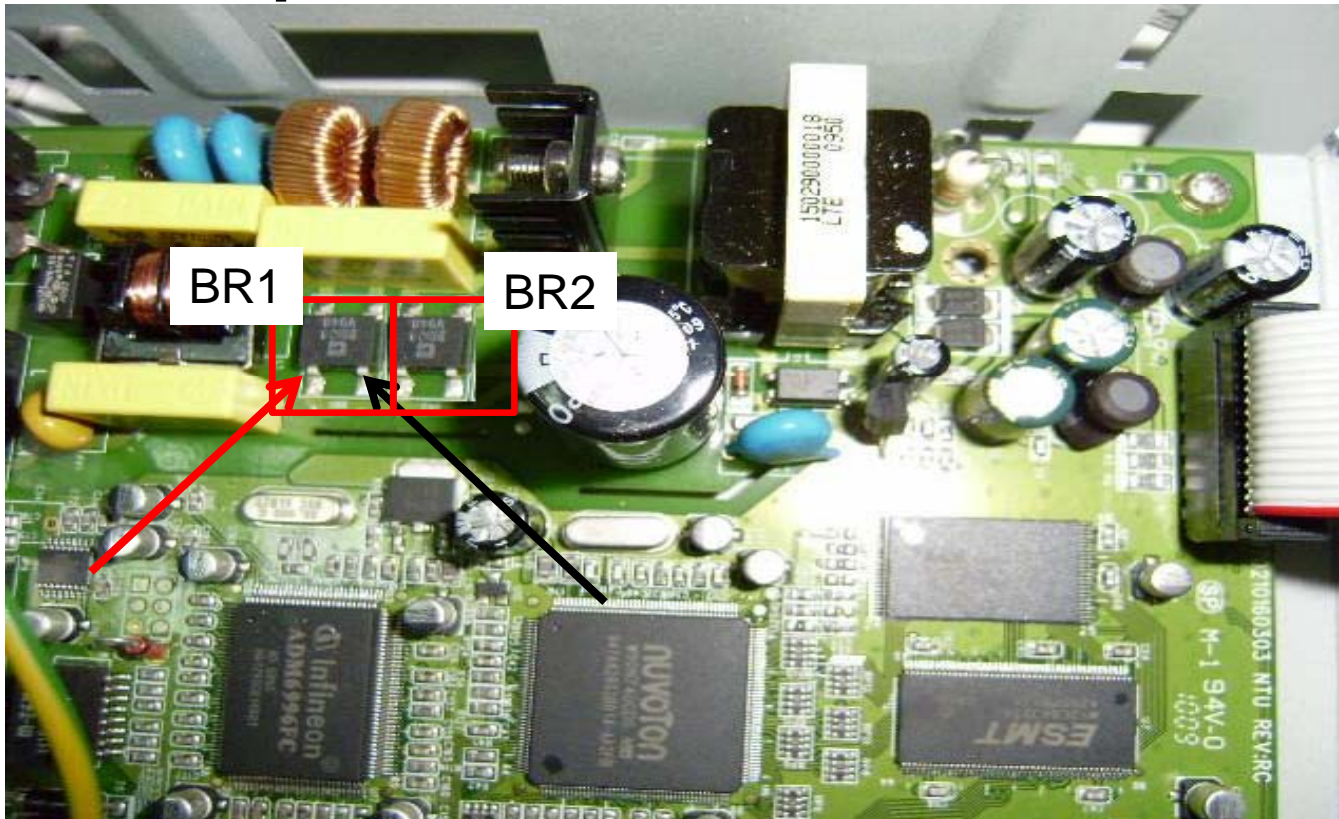


Inspection of DC POWER

- To confirm whether there is 75V DC output voltage?
- Location shown as right



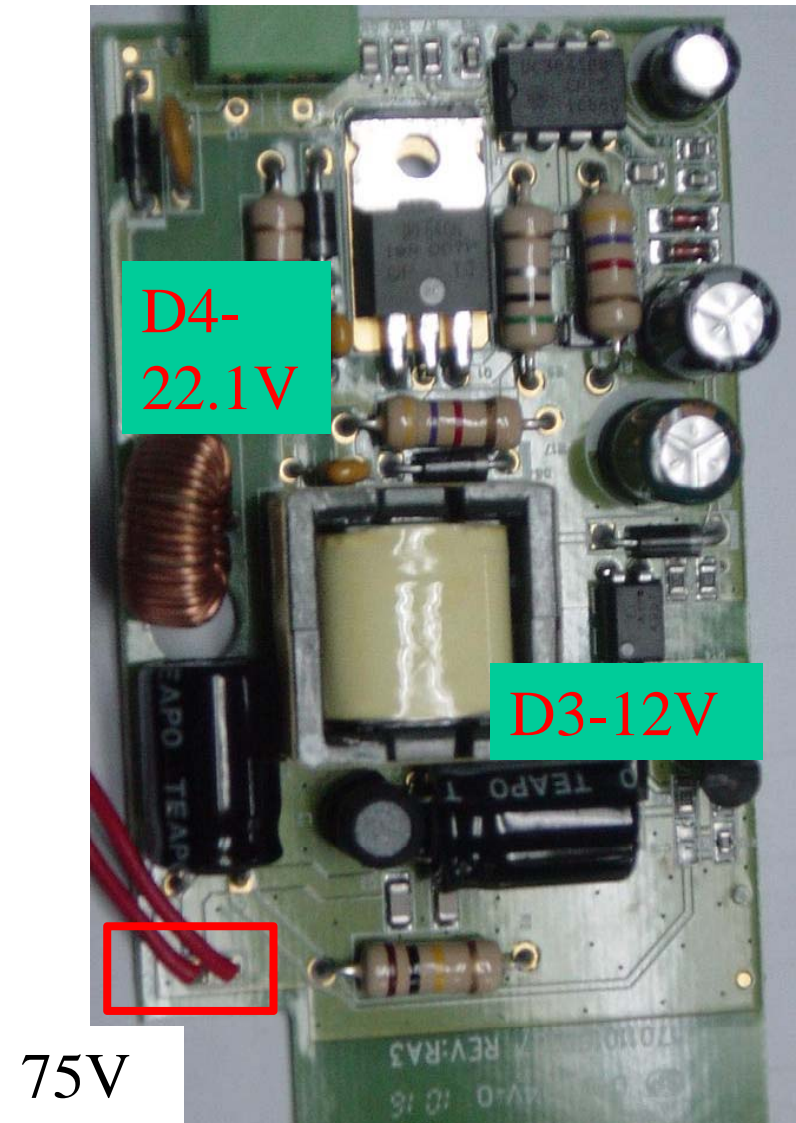
Inspection of AC Power



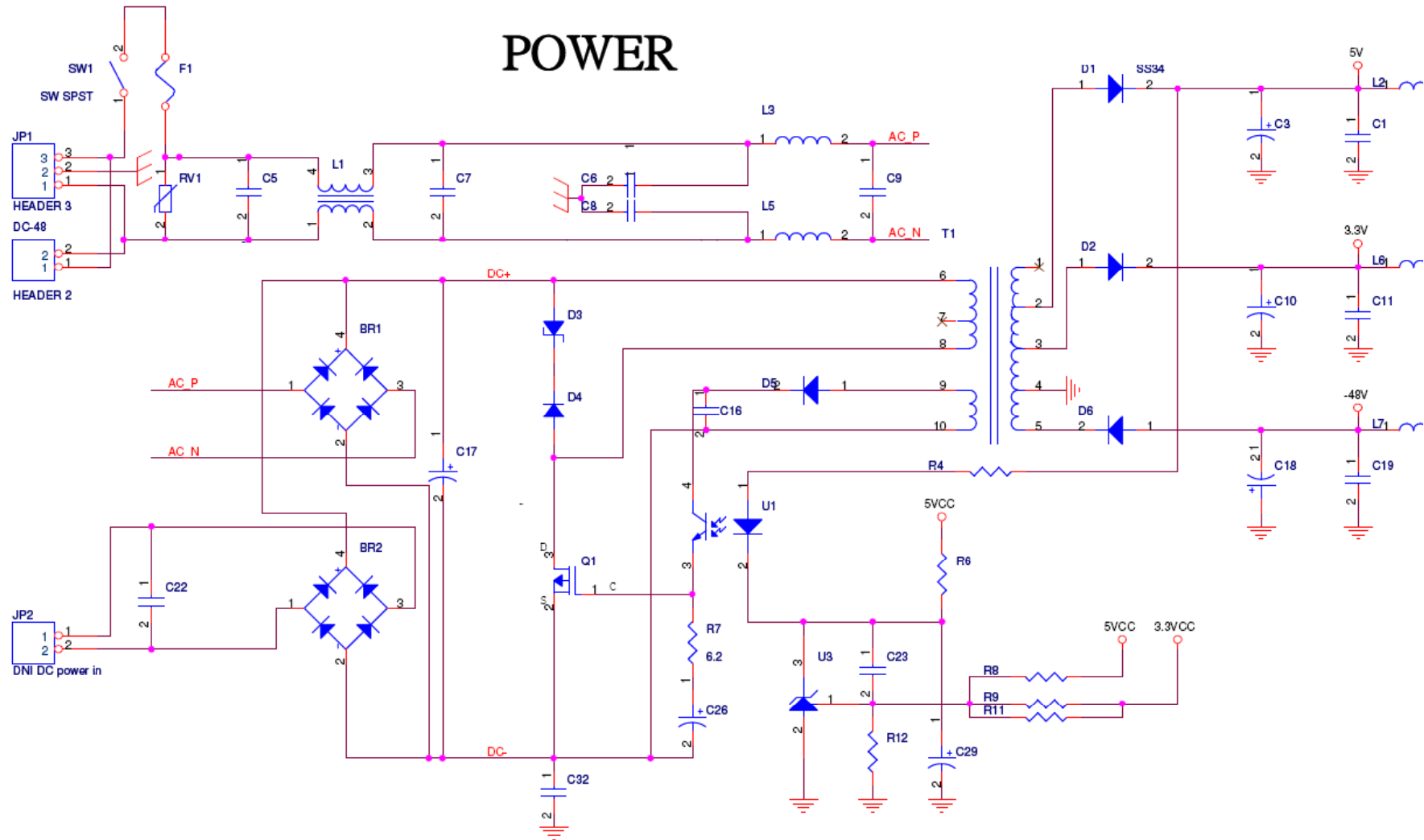
1. Measure the value of BR1 with a Multimeter. Contact the left pin of BR1 with the red probe of the Multimeter and the right pin with the black probe. Verify and check whether the DC output voltage is in the range of 296V ~ 340V.
2. Measure the value of BR2 with the same procedure as measuring BR1. Then, verify and check whether the output voltage is DC 75V or higher.

Inspection of DC Module

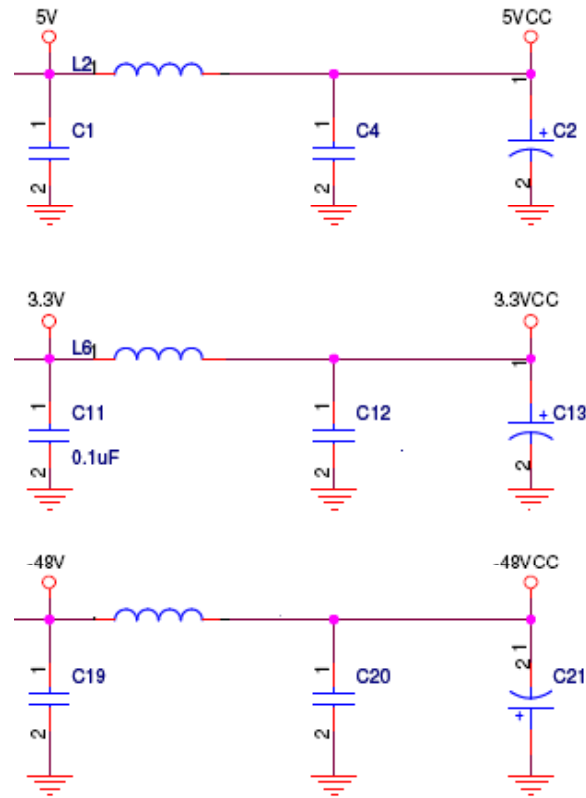
- The voltage of D4 should be DC 22.1V.
- The voltage of D3 should be DC 12V.
- The output voltage should be DC 75V \pm 5V.



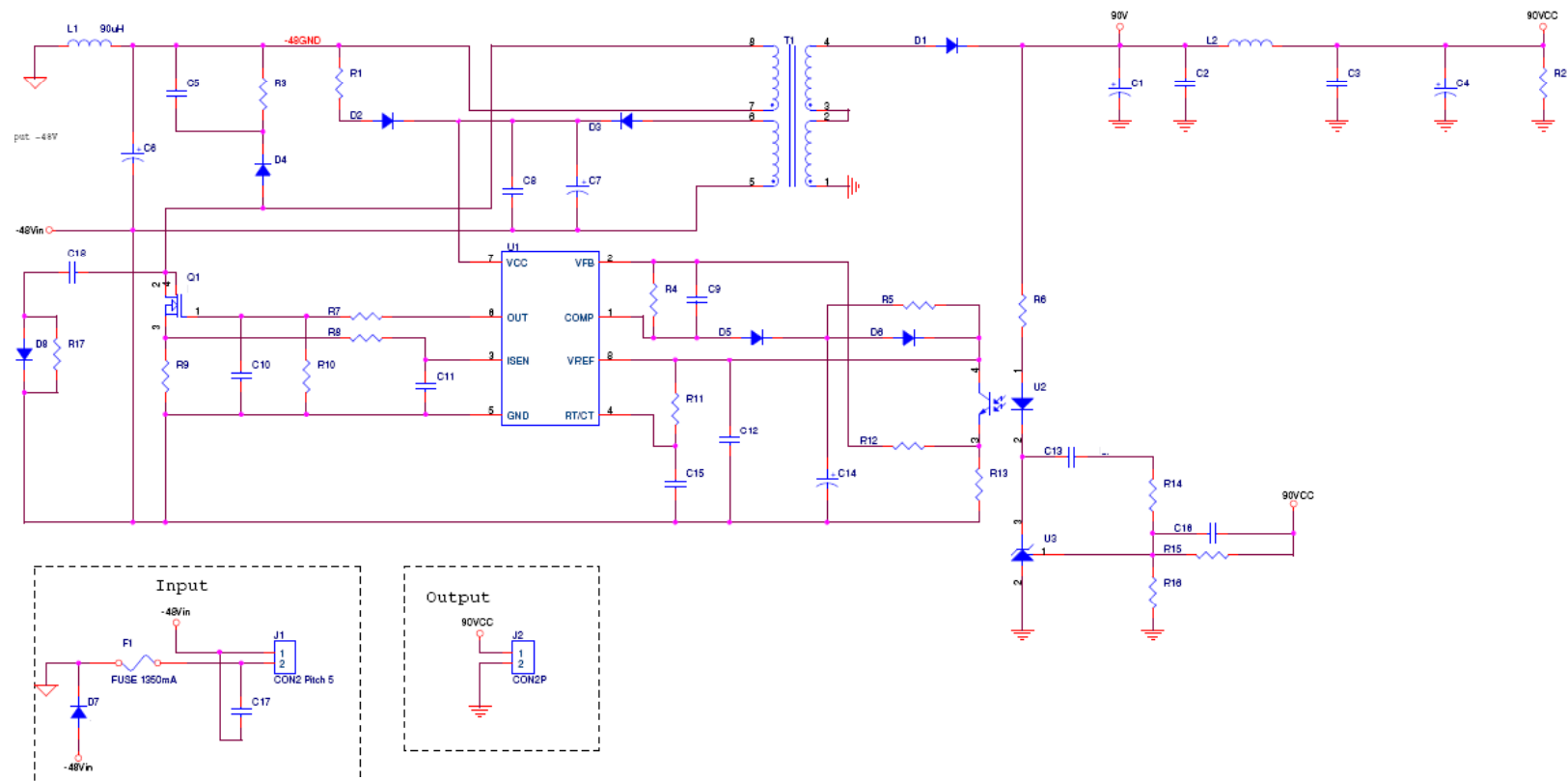
Schematics of Input Power Source



Schematics of Output Power Source

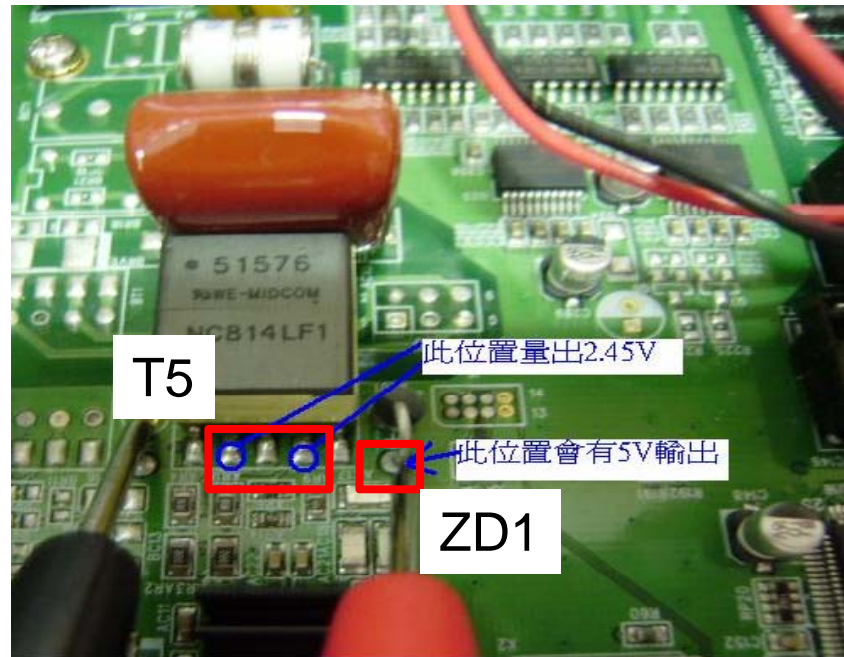


DC Power Supply



Inspection of SHDSL Interface (A)

- Please make sure the voltage is normal and the voltage of ZD1 is 5V.
- Check the output voltage of T5, as shown in the following image, is 2.45V.
- If there is no such output voltage, we can determinate that there is some problem with AFE, which is located on U21.



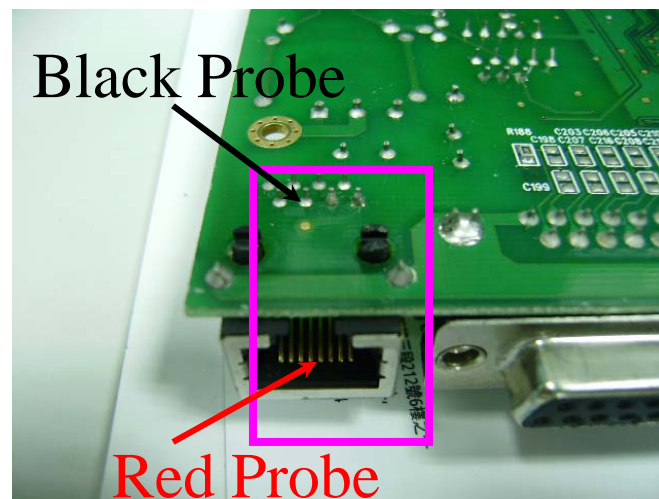
Inspection of SHDSL Interface (B)

If all the voltage values are correct but there is no connection, please check whether the output of U19-PIN5 measurement result is in a waveform, which is shown as the following image.



Inspection of SHDSL Interface (D)

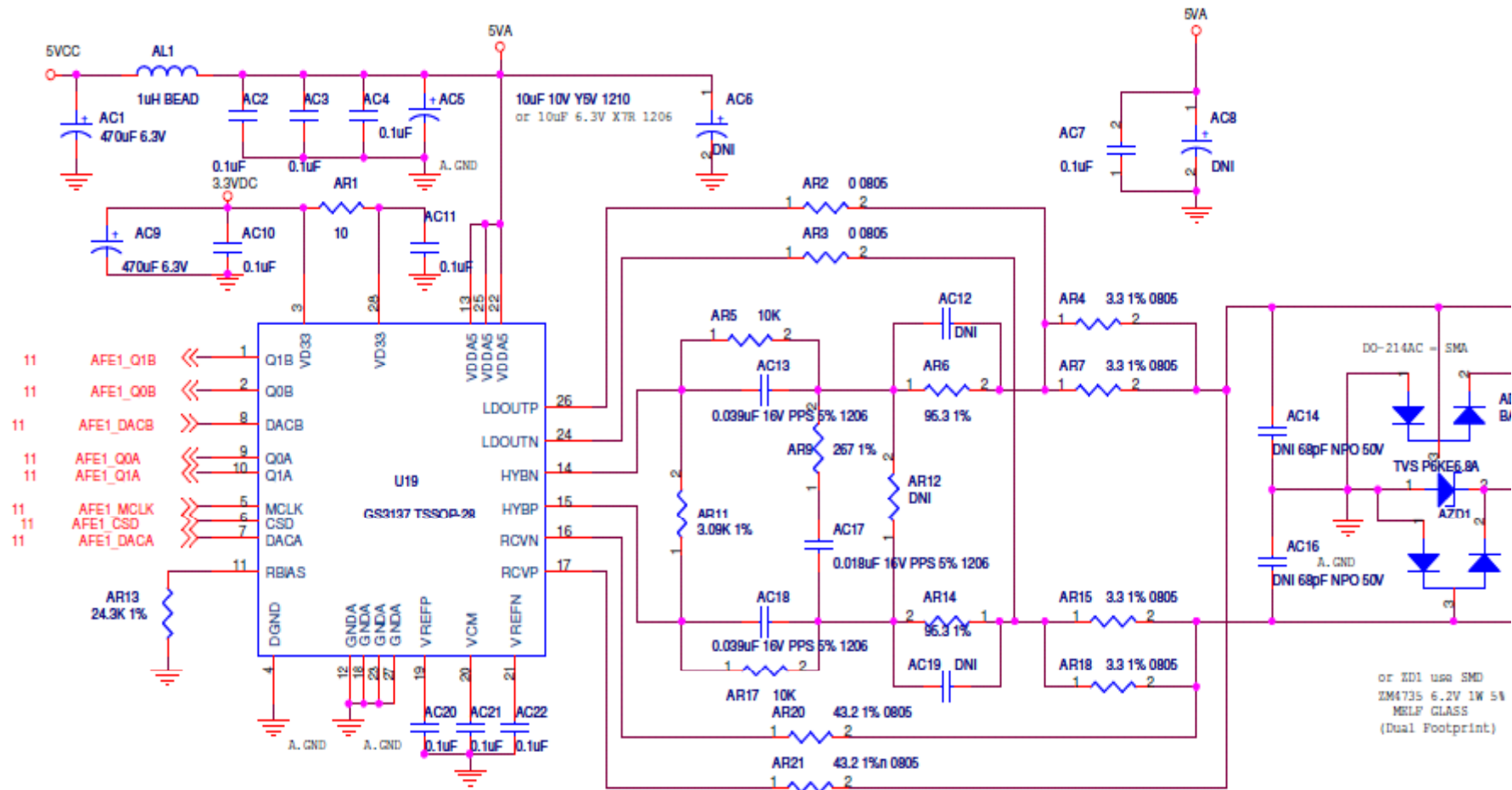
If the normal waveform detection in R163 and U19, check P4 parts, the red box to the right location, such as location, this part may be PIN feet cut off, need to dial with three multimeter buzzer in a position, feet measured each PIN normal?



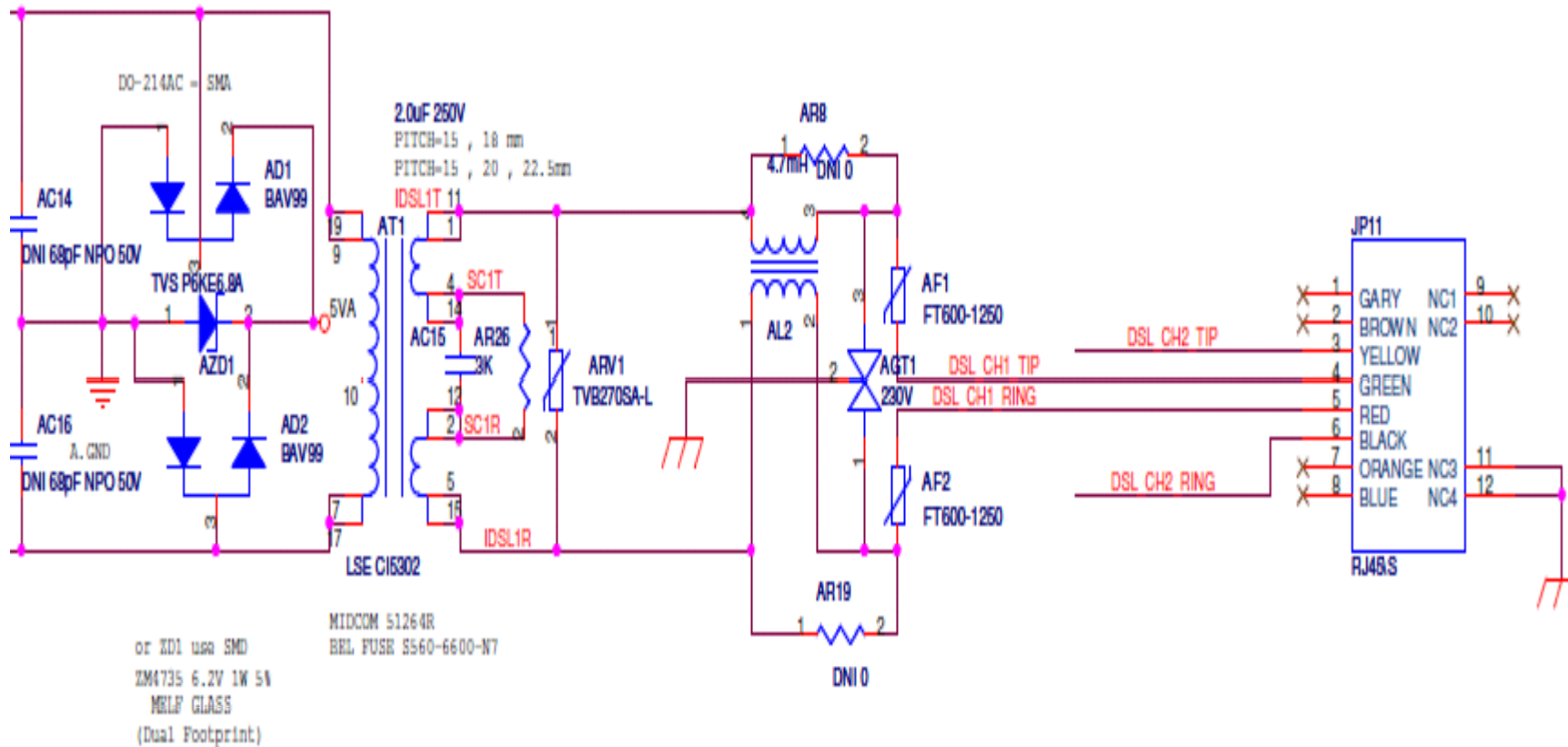
SHDSL DSP Clock Source



Schematics of SHDSL AFE



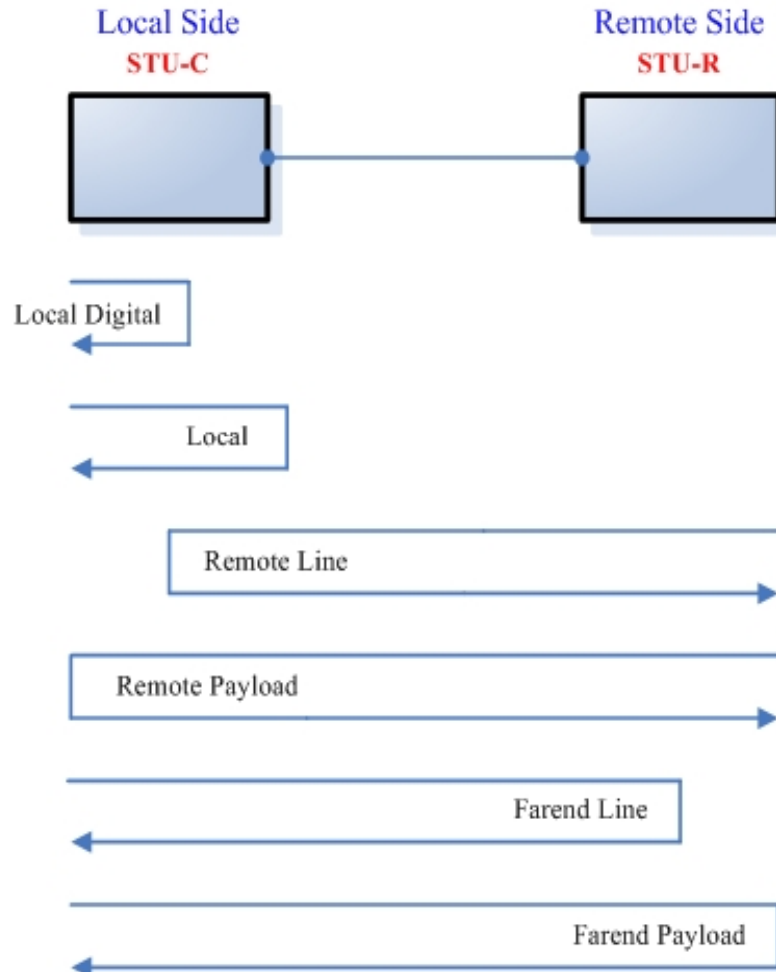
Schematics of SHDSL Line I/F



Inspection of E1 Interface

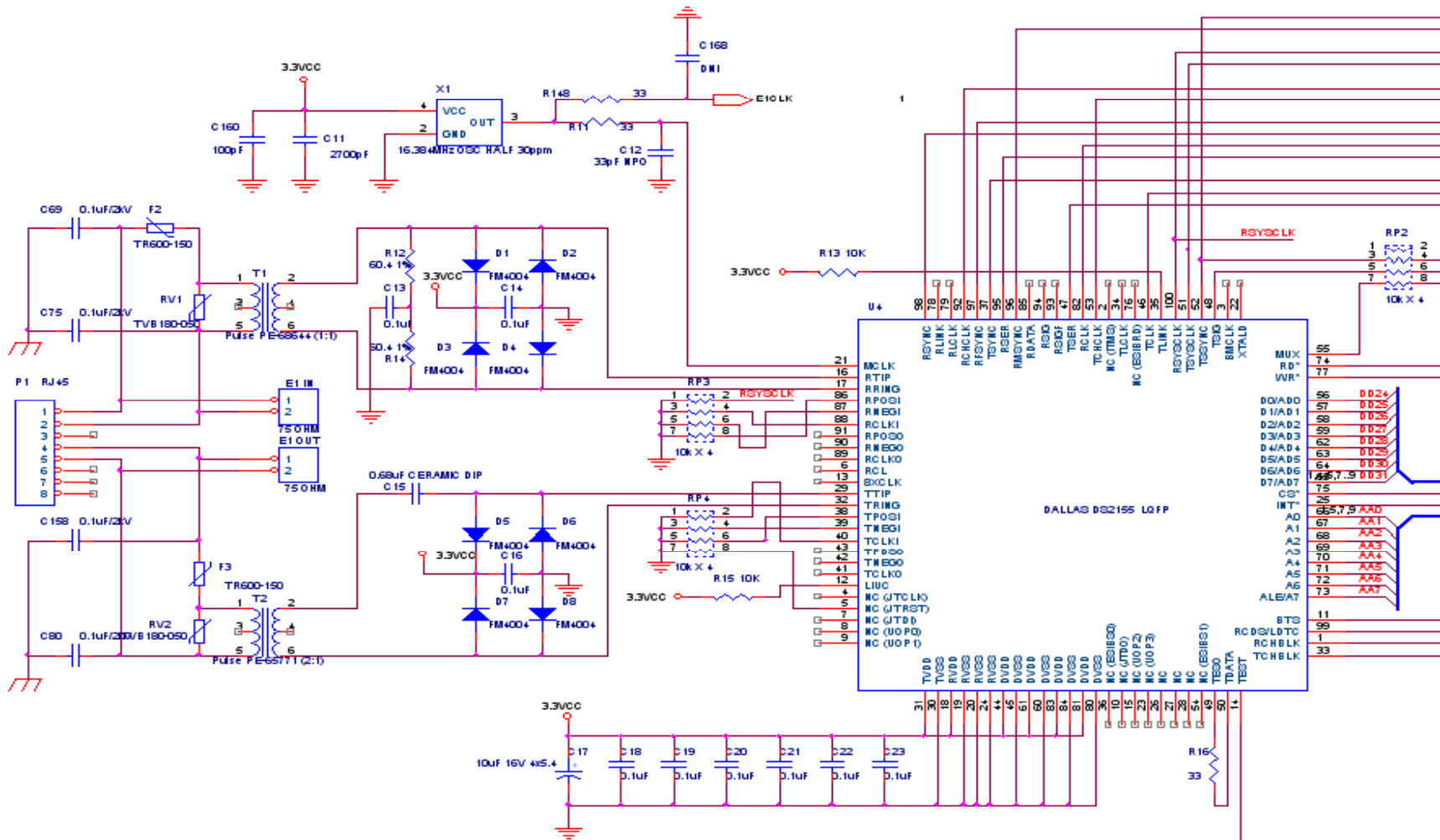
- **E1 Line Loopback** , verify E1 streams with the test equipment can be delivered normally?
- **Local Loopback** , verify E1 streams with the test equipment can be delivered normally?

Loop Back Testing



E1 interface CO side		Serial interface CO side
Local digital		Local digital
Local		Local
Remote line		Remote line
Remote payload		Remote payload
Farend line		Farend line
Farend payload		Farend payload
		V.54
E1 interface CO side		Serial interface CO side
Local digital		Local digital
Local		Local
Remote line		Remote line
Remote payload		Remote payload
Farend line		Farend line
Farend payload		Farend payload
		V.54

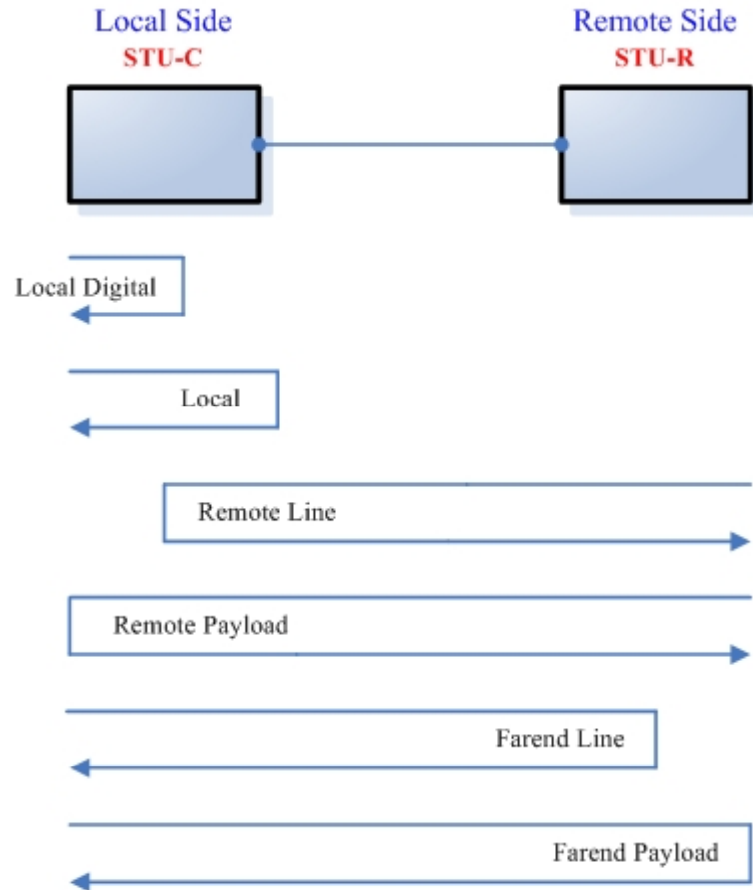
Schematics of E1 Interface



Inspection of V.35 Interface

- By V.35 Digital Loopback , verify data bit streams with the test equipment can be delivered normally?
- By Local Loopback , verify data bit streams with the test equipment can be delivered normally?

Loop Back Test



E1 interface CO side		Serial interface CO side
Local digital		Local digital
Local		Local
Remote line		Remote line
Remote payload		Remote payload
Farend line		Farend line
Farend payload		Farend payload
		V.54
E1 interface CPE side		Serial interface CPE side
Local digital		Local digital
Remote line		Remote line
Remote payload		Remote payload
Farend line		Farend line
Farend payload		Farend payload
		V.54