

Quadro

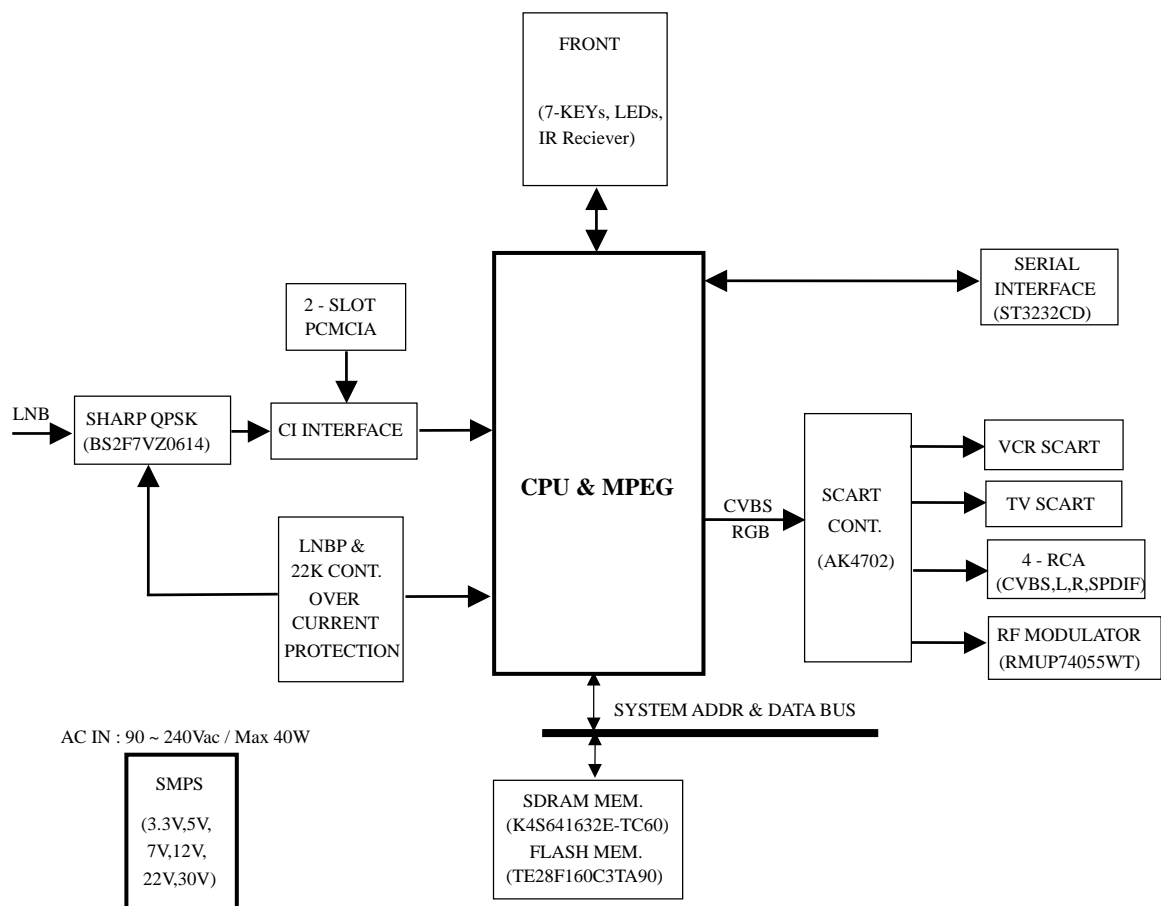
**Digital Satellite Receiver
Free to Air**

MODELS: DR-8050 FTA

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6-1. Main / Front	

1. BLOCK DIAGRAM



Features

- DVB Common Interface (Viaccess, , Irdeto, Nagra Vision, Conax, CryptoWorks, AlphaCrypt etc)
- Easy Graphic MENU Interface
- RS232C Port for Updating Control Software and Additional Service
- Supports DiSEqC1.0/DiSEqC 1.2, 13/18V, 0/22KHz Tone
- 2-SCART(TV,VCR) Connectors & 1-RCA(CVBS,L,R,SPDIF)
- Multi-language Function (Menu, Audio)
- Last Channel Memory
- OSD: Transparency & Blending, 256 Palette Colors
- 7 Front Panel Buttons & IR Remote Controller User Interface
- Editing Functions(TV or Radio Channel, Channel Name, PID, Transponder Name)
- EPG for On Screen Channel Information
- Channels Memory for Multi-satellite
- 3 Operation Modes(Digital TV, Digital Radio, Favorite)
- Receives QPSK Satellite Broadcasting RF Signal and Decodes the Digitally Encoded Signal
- Digital Tuner with Loop-through
- SCPC/MCPC Receivable from C/KU-band Satellite
- Wide Symbol Rate 2~45 Mbps & 950~2150 MHz input Frequency
- MPEG-2 Main Profile at Main Level
- Teletext Supported by VBI
- 4900 Channels Memory
- Max. 12 Characters of Channel Name Length
- PLL RF Modulator UHF 21~69 with PAL G/I/K (Optional)
- Digital Audio Output (S/PDIF)
- Dolby Digital Audio (Optional)
- Support Games (Tetris, Snake etc)

TECHNICAL SPECIFICATIONS

Transmission Standards : DVB, MPEG2

1. Conditional Access Interface

PCMCIA	2 Slot.type I or type II DVB Common Interface Standard (Viaccess, Irdeto, Nagra Vision, Conax, Cryptoworks, AlpahCrypt ...)
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2. Tuner & Demodulator

LNB IF input	1 * F Type, IEC169-24, Female
LNB IF loop through output	1 * F Type, IEC169-24, Female
Input Frequency Range	950MHz to 2150MHz
RF input Signal Level	-25 ~ -65 dBm
RF impedance	75 ohms
LNB Power	13.5 / 18.5Vdc +/- 5%,0.5Amax Overload Protected
LNB tone switch	22KHz +/- 2KHz, 0.6Vpp +/- 0.2V
DiSEqC	Version1.2,Tone burst A/B
Demodulation	QPSK
Symbol Rate	2 ~ 45 Msps, SCPC/MCPC

3. MPEG

Transport Stream	MPEG-2 TS Specification (ISO/IEC 13818)
Input Rate	Max. 60Mbit/s
VIDEO	MPEG-2 MP@ML
AUDIO	MPEG-1/2 Audio layer 1,2
Aspect Ratio	4:3, 16:9
Video Resolution	720 * 576(PAL), 720 * 480(NTSC)
Audio mode	Stereo, Dual channel, Joint stereo, Mono
Audio Sampling Frequency	32/44.1/48KHz

4. A/V & Data In/Out

TV SCART	RGB, CVBS, L, R out
VCR SCART	CVBS, L, R out RGB, CVBS, L, R in
RCA JACK	CVBS (Yellow) Audio L, R (White, Red) Digital SPDIF out (Black)
Serial Port	RS232C D-Sub Male Type

5. MEMORY

FLASH MEMORY	2 Mbytes
SDRAM	8 Mbytes
EEPROM	8 Kbytes

6. RF Modulator

TV Standard	PAL G/I/K Selectable by Menu Setting
Audio Output	Mono with Volume Control
Preset Channel	CH 40(or TBD). Software changeable by Menu Screen

7. Power Supply

Input Voltage Range	90Vac ~ 240Vac(SMPS)
Input Frequency Range	50Hz ~ 60Hz
Power Consumption	Max 30W
Standby Power Consumption	<= 6.5W
Protection	Separate Internal Fuse The input shall the lighting protection

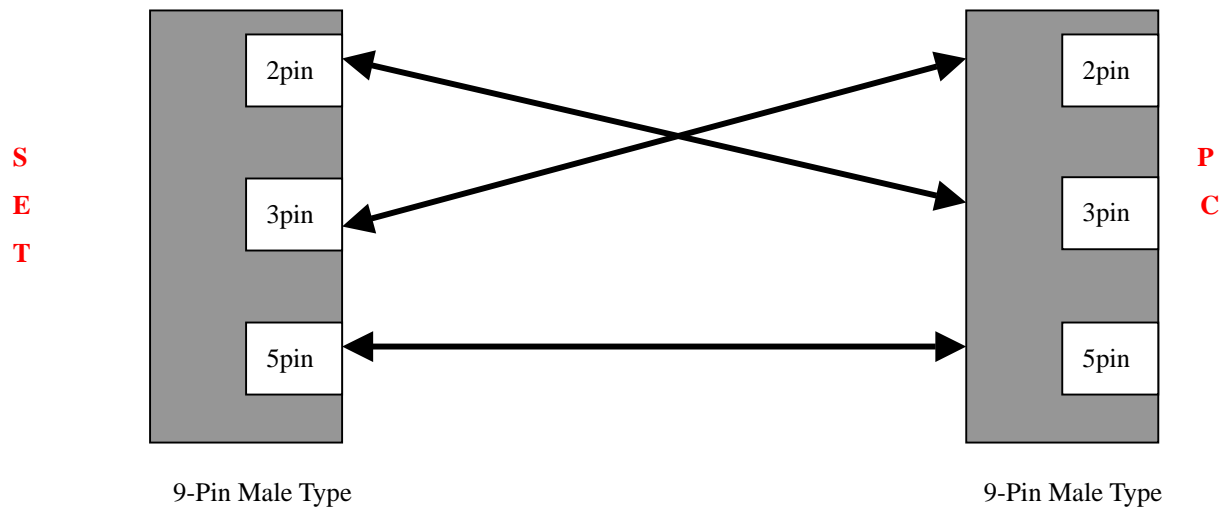
8. SCART Socket

PIN No.	TV	AUX
1	Audio out Right	Audio out Right
2	-	Audio in Right
3	Audio out Left	Audio out Left
4	Audio ground	Audio ground

5	Blue ground	Blue ground
6	-	Audio in Left
7	Blue out	Blue in
8	Function control out	Function control in
9	Green ground	Green ground
10	-	-
11	Green out	Green in
12	-	-
13	Red ground	Red ground
14	Fast blanking ground	Fast blanking ground
15	Red out	Red in
16	Fast blanking out	Fast blanking in
17	CVBS ground	CVBS ground
18	CVBS ground	CVBS ground
19	CVBS out	CVBS out
20	-	CVBS in
21	Ground	Ground

9. Serial (RS-232) Connector

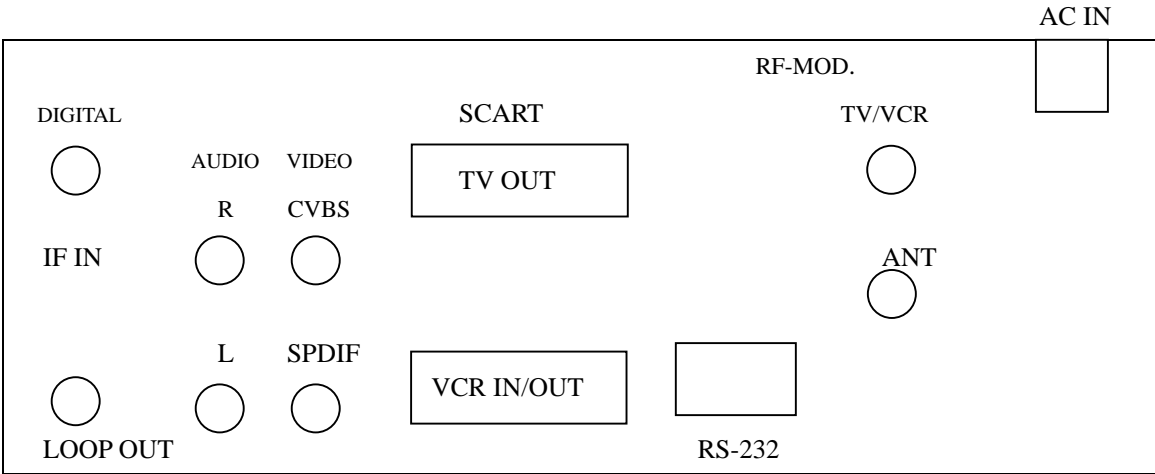
PIN No.	Signal Name
1	-
2	RxD (Receive Data)
3	TxD (Transmit Data)
4	-
5	Ground
6	-
7	-
8	-
9	-



10. Physical Specification & Environmental Condition

Weight	2.0 KG
Size(W * H * D)	280mm x 55mm x245mm
Operating Temperature	0 °C ~ 40 °C
Storage Temperature	-10 °C ~ 80 °C
Operating Humidity Range	10~85% RH, Non-condensing
Storage Humidity Range	5~90% RH, Non-condensing

11. REAR Panel (Back View)



4. Trouble Shooting

◆ 4-1. Appearance (Exterior) Test

Check the condition of install, joining of connectors, break or bend of PCB, cold-soldering or Short of components and problem of part ,etc.

◆ 4-2. Power Test

5V Check the power at L(902,903)

3.3V Check the power at L(905,906,907)

23V Check the power at L901

12V Check the power at L904

◆ 4-3. System Test

Check whether STI5518 CPU or Flash Memory TE28F160 works normally.

Check Message Display by Hyper Terminal in PC.

* Configuration of Hyper Terminal

Baud rate : 115,200 bps

Data bit : 8 bits

Parity bit : none

Stop bit : 1

Control : none

4-3-1. Check STI5518 Clock

4-3-2. Test for Flash Memory

◆ 4-4. MPEG and Audio Video Test

Check the whole process from MPEG Decoder (STI5518) and Audio DAC &Audio/Video SWITCH (AK4702)

Also Check the (SCART, Phone Jack, RF-Modulator)

4-4-1. STI5518 (MPEG-2 Audio/Video Decoder)

4-4-2. SCART Controller AK4702

4-4-3. Audio DAC AK4702

◆ 4-5. Channel Test

4-5-1. When “NO SIGNAL” Message display.

4-5-1-1. U103 (KA317 Regulator) => Check the Voltage 21V ~ 24V at Pin 3.

Check the Voltage 13V(Vert) or 18V(Horz) at D104 of Anode.

4-5-1-2. I2C Control Signal

◆ 4-5-2. 22KHz Tone , TS-Data and Data Error control signal

◆ 4-6. Common Interface Test

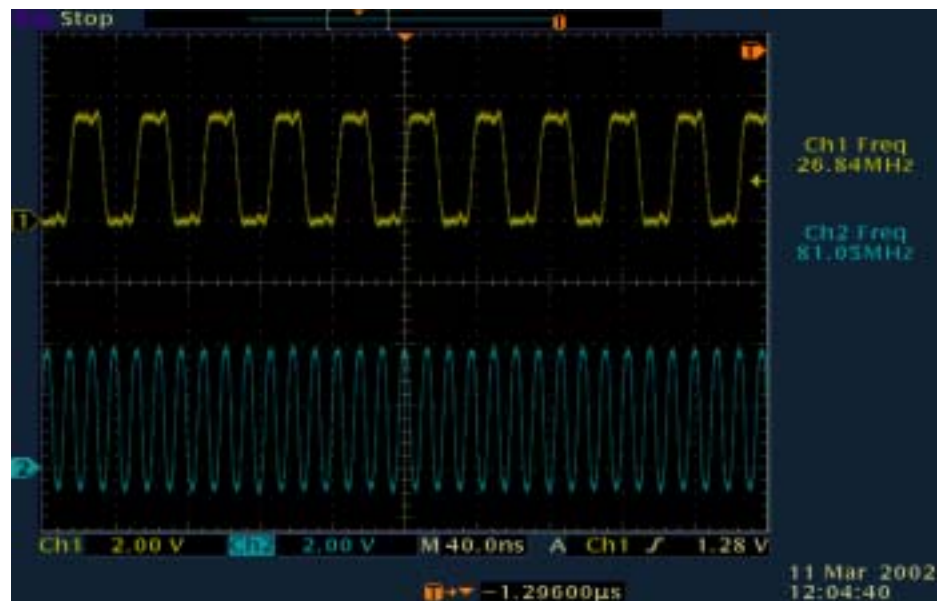
◆ 4-3-1. Check STI5518 Clock.

27Mhz =>

Check point : U301 Pin 120 or R310
or R311.

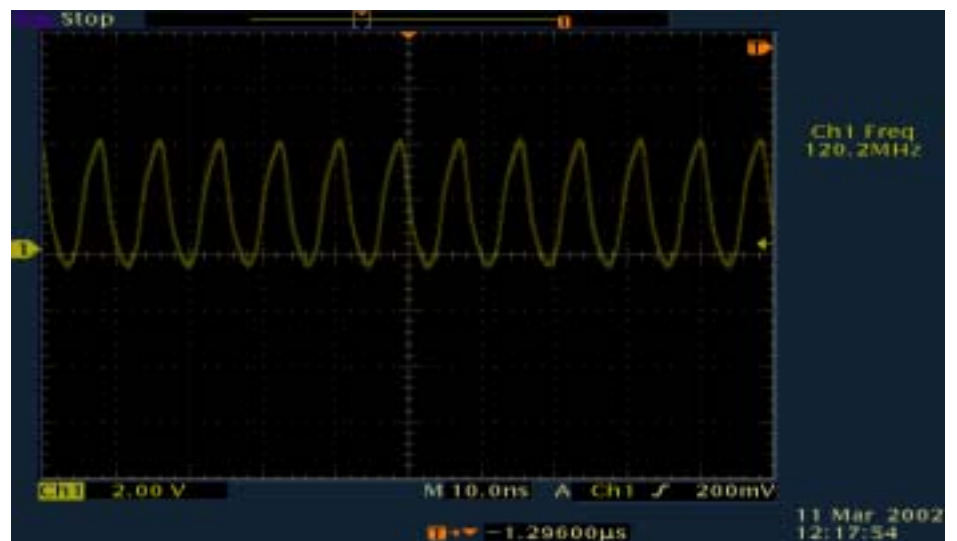
81Mhz =>

Check point : U301 Pin 118 or TP301



120 MHz =>

Check point : U402 Pin 38



◆ Failure Causes and Solution.

If the 27MHz is unstable, Check the U304 and U402(SDRAM) and U301(STI5518) is damaged or not.

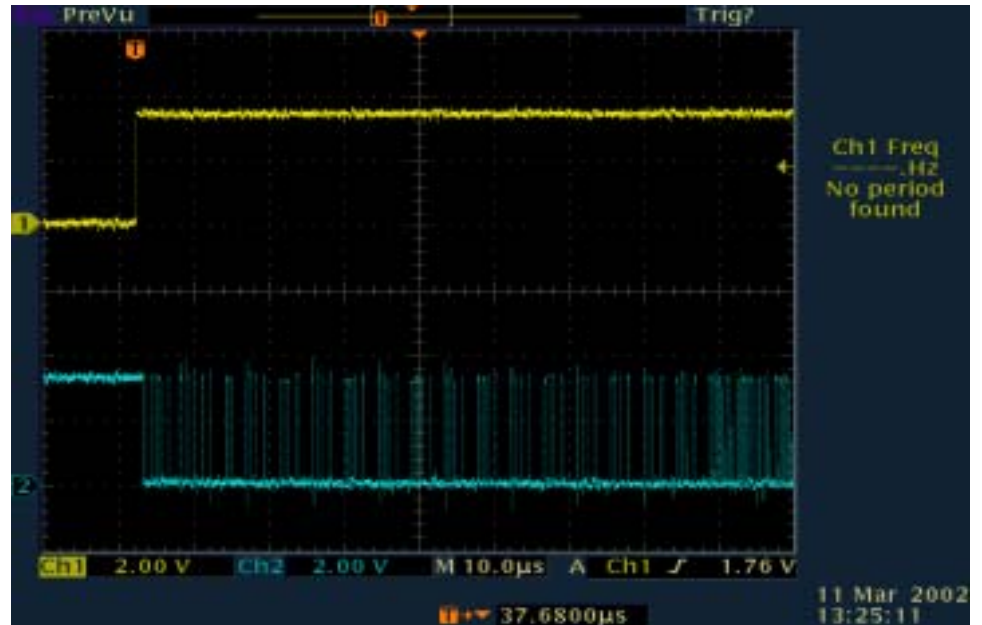
If you are firm belief of damage for the device, then replace the device.

If the clock 81MHz on TP301, 120MHz on Pin-38 of U402 is not generated , Please check the soldering state of U301.

◆ 4-3-2. Test for Flash Memory

RESET =>
Check Point : U301 Pin 124

CE =>
Check Point : U401 Pin 26



◆ Failure Causes and Solution

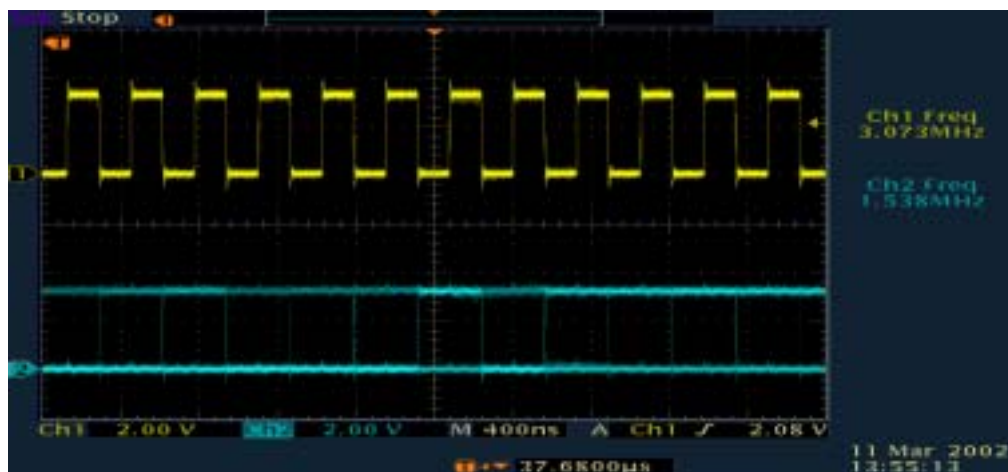
If the set do not operating correctly, the chip select pin and the reset pin of STI5518 must be checked. And if these signal are not acting like above figure, then check the soldering state of U301, U401

Before checking these signal you must check the power for U301, U401 etc. Check 3.3V on L302 and check 2.5V on L301, L303, L304 respectively.

◆ 4-4-1. STI5518(MPEG-2 Audio/Video Decoder)

SCLK=>

Check point : U501 Pin 40

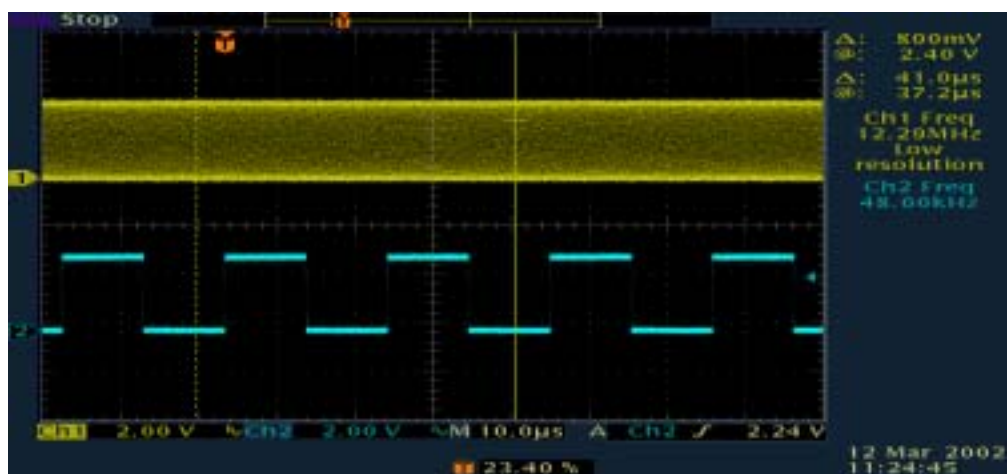


SDATA=>

Check Point : U501 Pin 41

MCLK=>

Check Point : U501 Pin 39

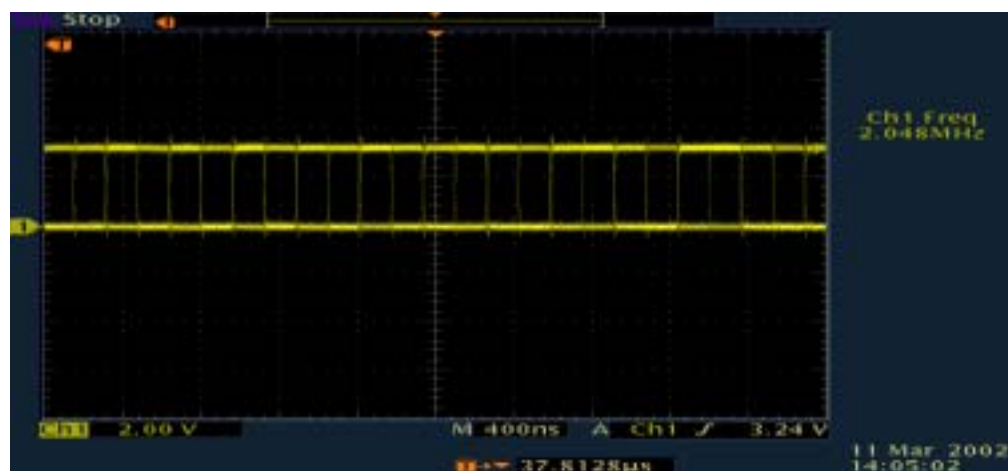


LRCLK=>

Check Point : U301 Pin 42

SPDIF=>

Check Point : R315



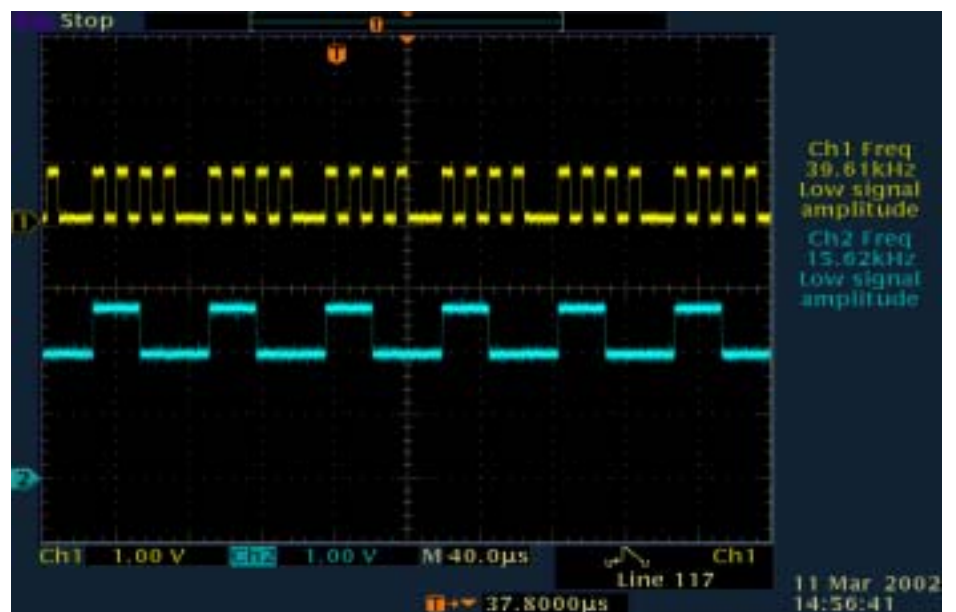
◆ Failure Causes and Solution

If the Audio Main clock MCLK(2.048MHz ~12.8MHz) is acting unstably, check the soldering state of STI5518. And check the oscillator U304 is generating 27 MHz clock. If STI5518 and oscillator are OK, then check the Audio DAC U501. And all these are OK, STI5518 maybe damaged. Then you can try to replace the STI5518.

◆ 4-4-2. SCART Controller AK4702

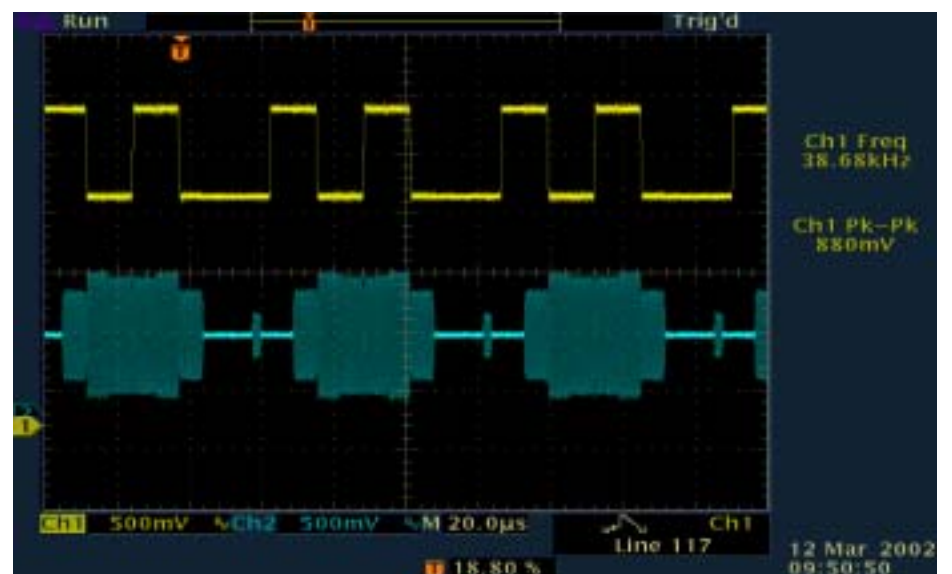
BLUE =>
Check Point : U501 Pin 7

GREEN =>
Check Point : U501 Pin 6

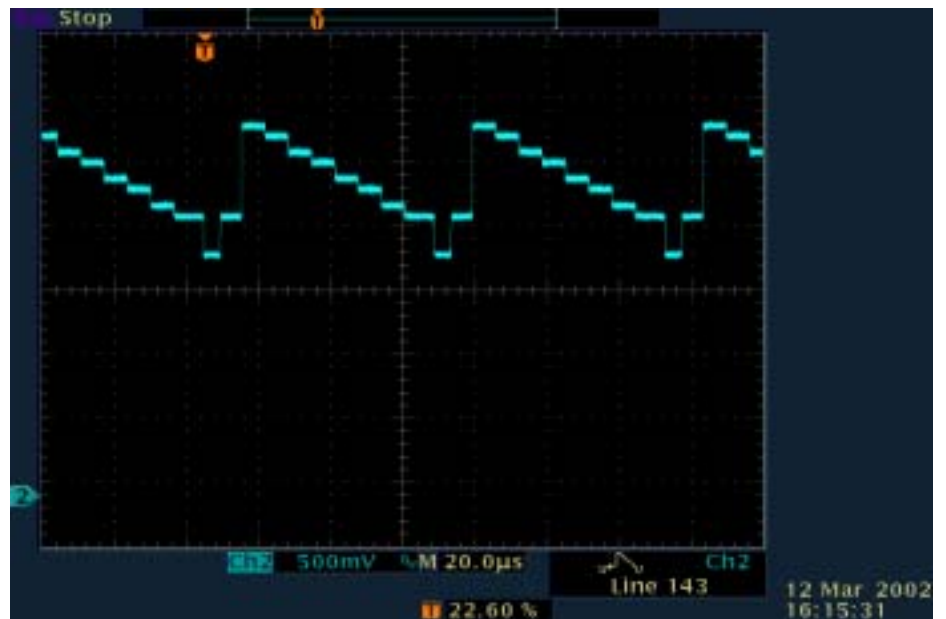


RED =>
Check Point : U501 Pin 5

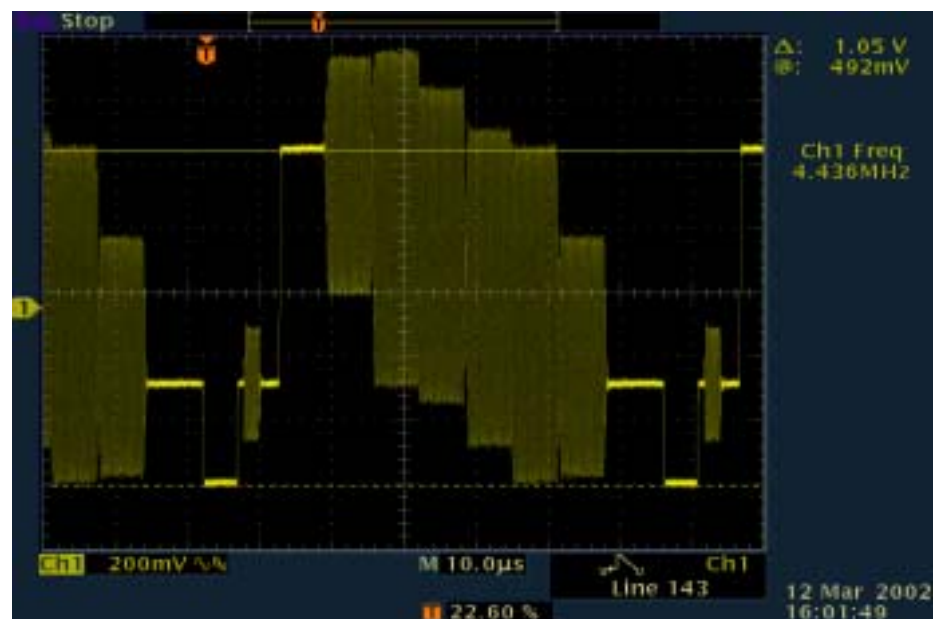
C =>
Check Point : U501 Pin 5



Y =>
Check Point : U501 Pin 3



CVBS =>
Check Point : U501 Pin 3



◆ Failure Causes and Solution

If the video signal is not operating correctly, you should check R318, R317(18 Kohm).

And you may try to check the net concerning to B, G, R, Y, C, CVBS on BC501, BC502, BC503, BC504, BC505 and BC506.

When you had finished checking the above net or device and all these are OK, STI5518 maybe damaged.

Then you can try to replace the STI5518.

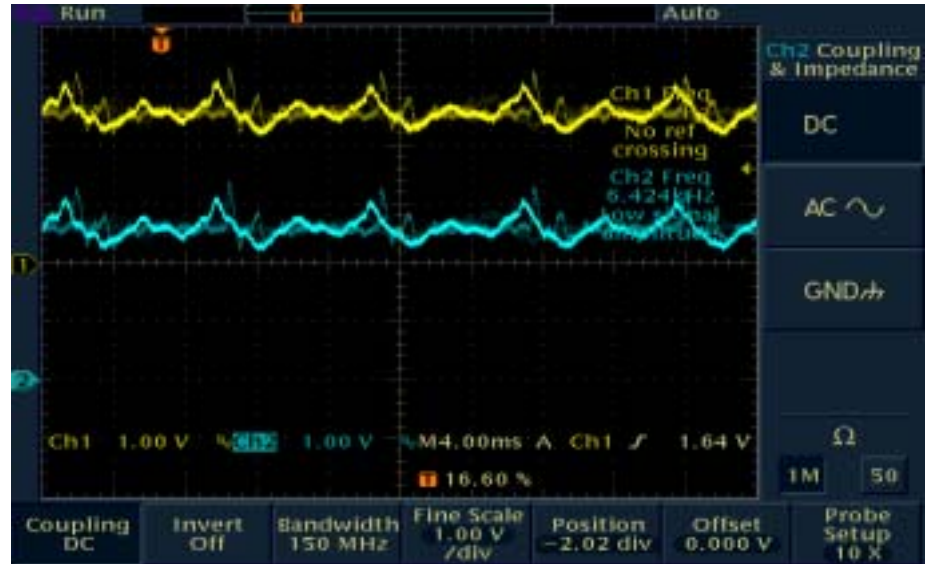
◆ 4-4-3. Audio DAC AK4702

AOUTL =>

Check Point : U501 Pin 32

AOUTR =>

Check Pont : U501 Pin 31



◆ Failure Causes and Solution

If there are no audio output, you should check the input signal LRCLK, SCLK, SDTA and MCLK of Audio DAC U501.

When you had finished checking the above net or device and all these are OK, Audio DAC maybe damaged.

Then you can try to replace the Audio DAC.

4-5. Channel Test

◆ 4-5-1. When “NO SIGNAL” is displayed.

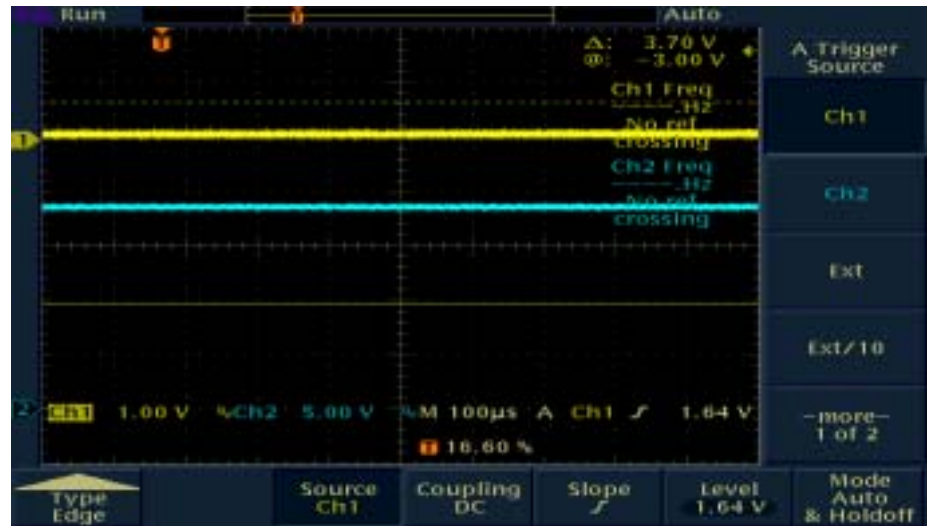
1. Check the RF cable is connected to LNB IN connector of rear panel. Then check U105(KA317 Regulator) pin 3 is powered between 21V to 24V. And check the voltage on L101 ~ L104 is proper level. When you had finished checking the above net or device and all these are OK, Tuner maybe have problem. Replace the Tuner.

In case of Horz Polarity =>

Check Pont : R118

(In case at Low) : LNBA=>

Check Point : D104, (18V)

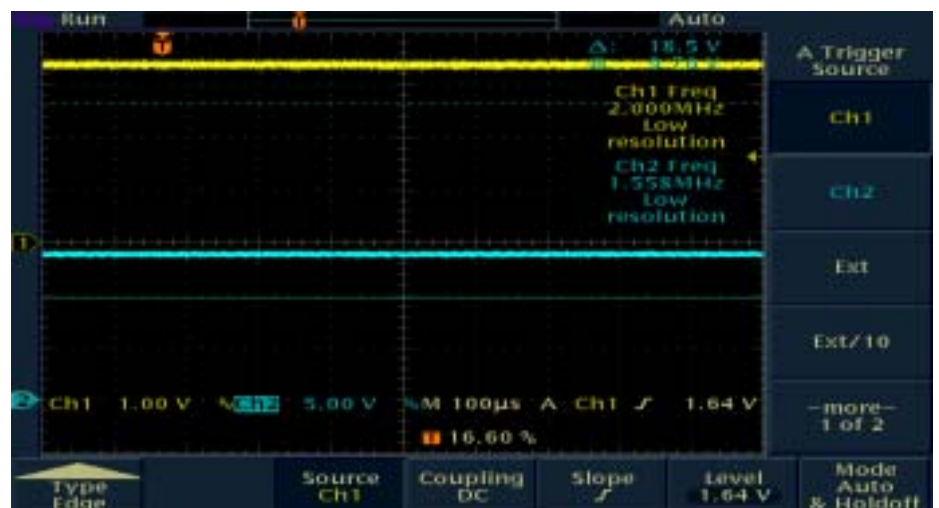


In case of Vert Polarity =>

Check Point : R118

(In case at High) LNBA=>

Check Point : D104, (13V)



◆ Failure Causes and Solution

If there's no 13V or 18V on the output connector of Tuner U101, you should check High(3.3V)/low(0V) state of R118. And this is Power check to the L102 of 3.3V and L103 of 1.8V.

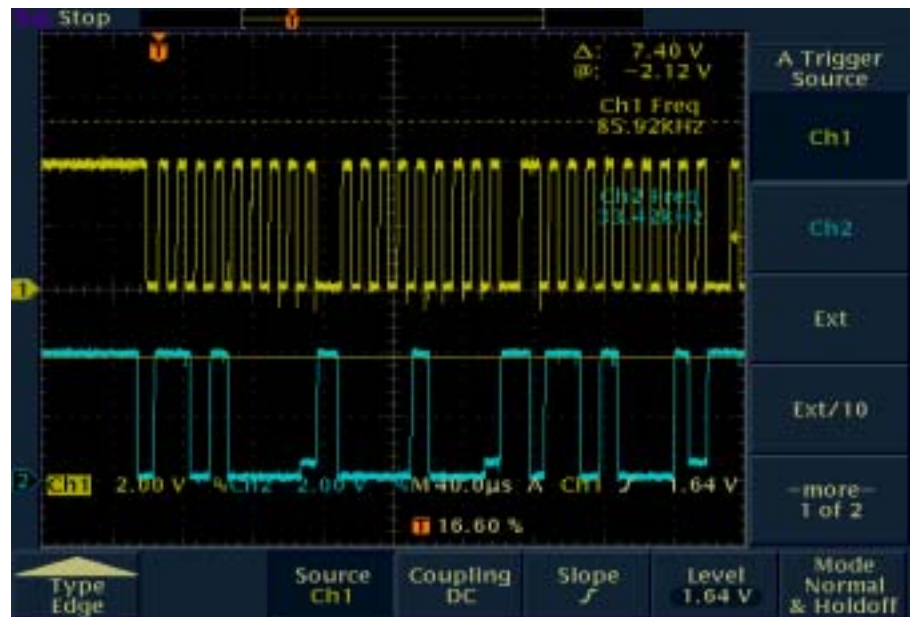
2. I2C Control Signal

SCL_NIM =>

Check Point : R111

SDA_NIM =>

Check Point : R112



◆ Failure Causes and Solution

If there's no or different signal compare to above picture on I2C line, check the associated net. Try to remove serial resistor

Of R111, R112, R113, R114, if you could find what device has problem.

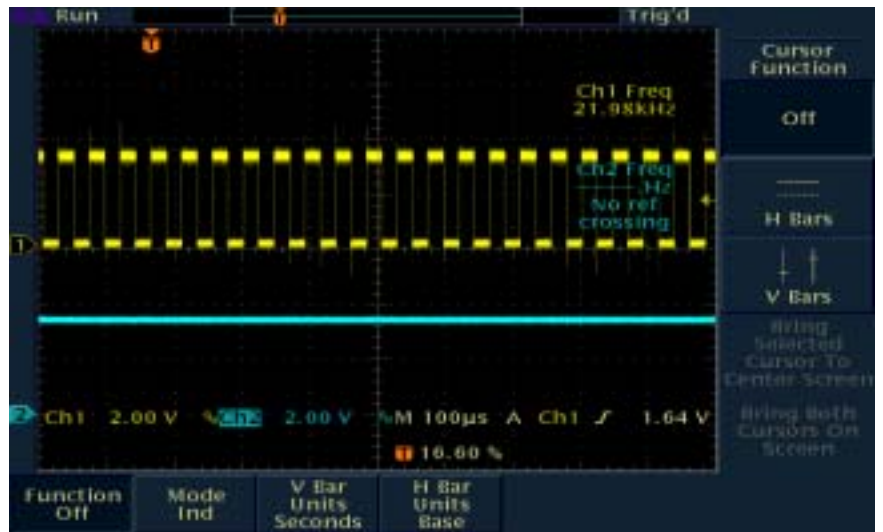
◆ 4-5-2. 22KHz Tone , BCLK and ERROROUT control signal

22KHz =>

Check Point : R119

22KHz ON(L) / OFF(H) =>

Check Point : R120

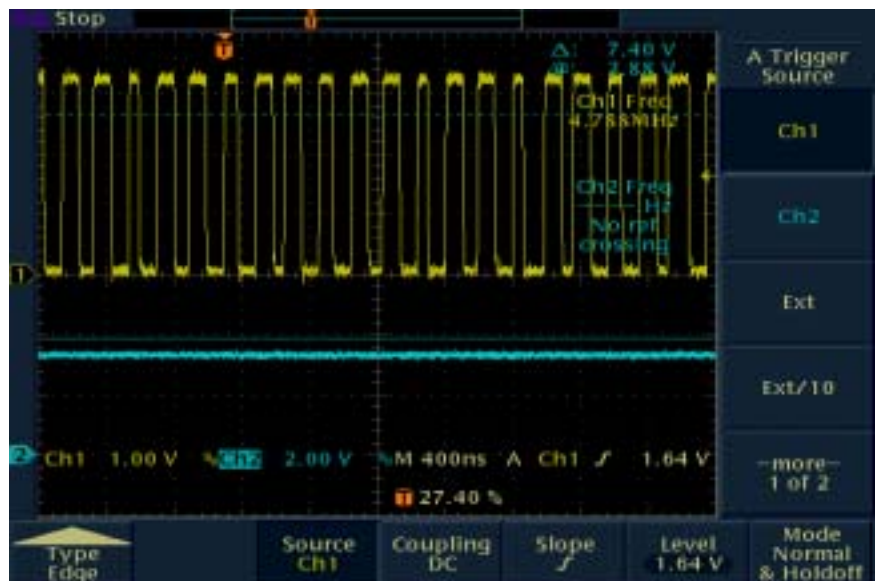


CH_CLK =>

Check Pont : RA101 Pin 4

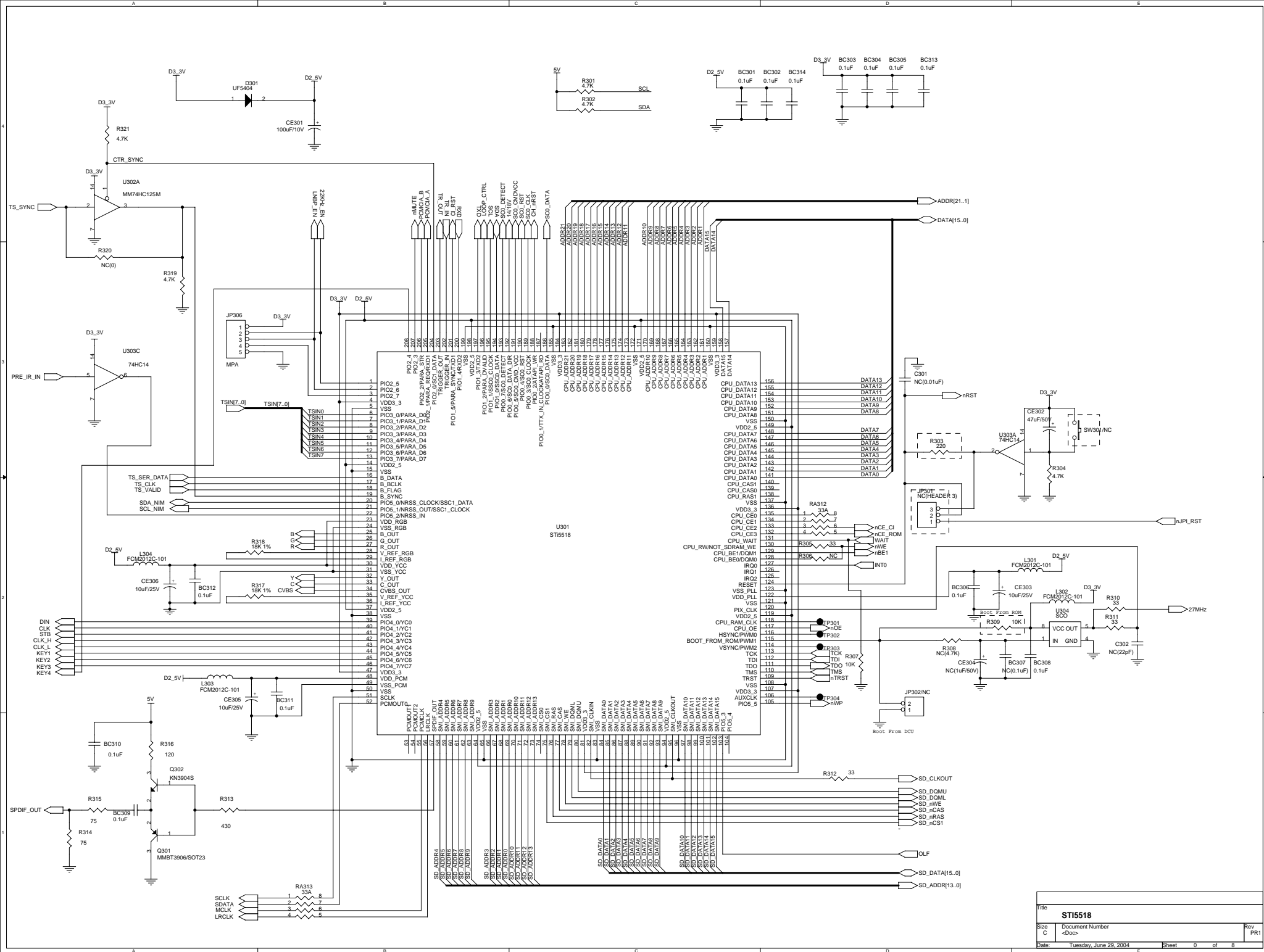
ERROROUT =>

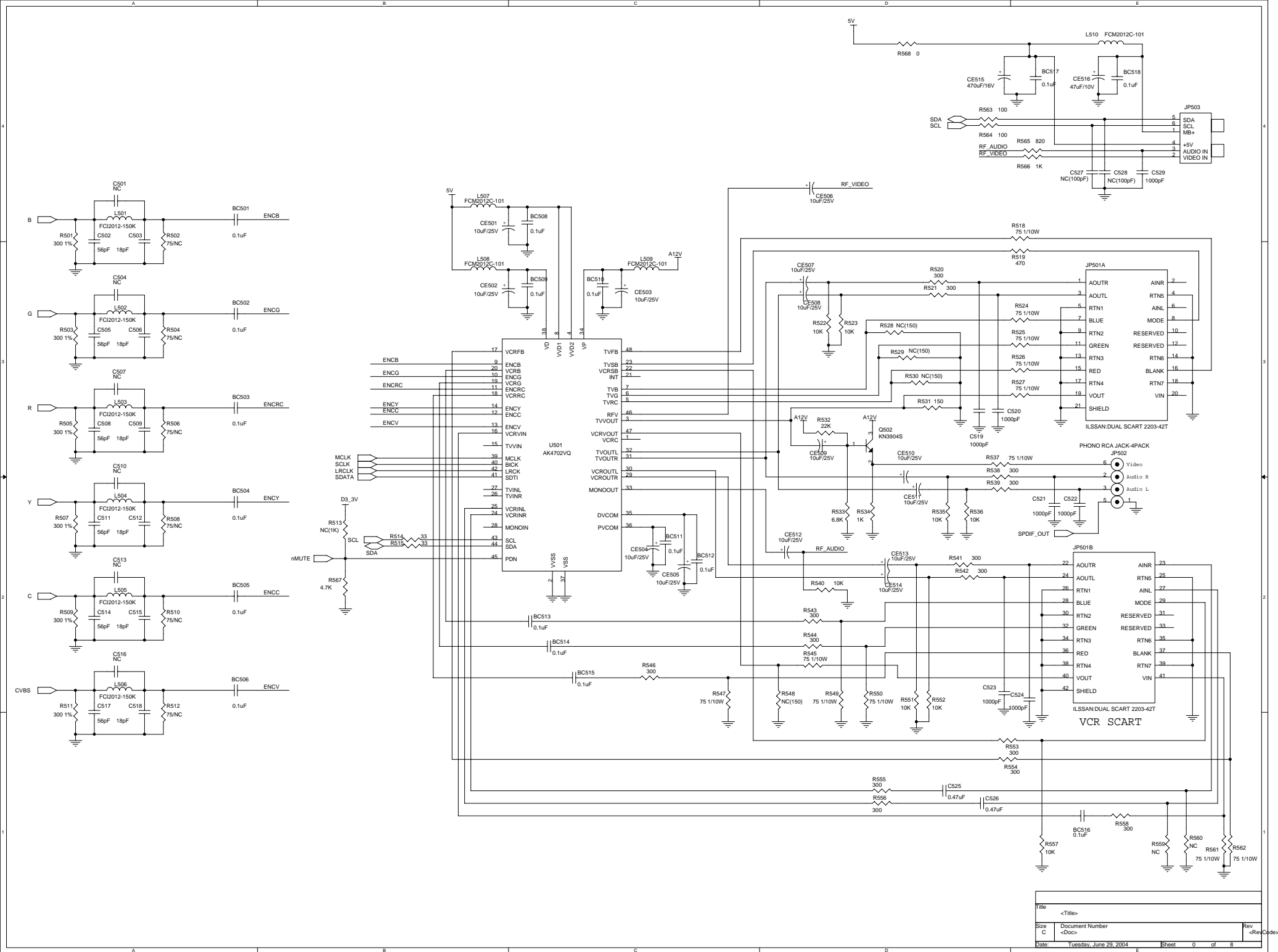
Check Point : RA101 Pin 1

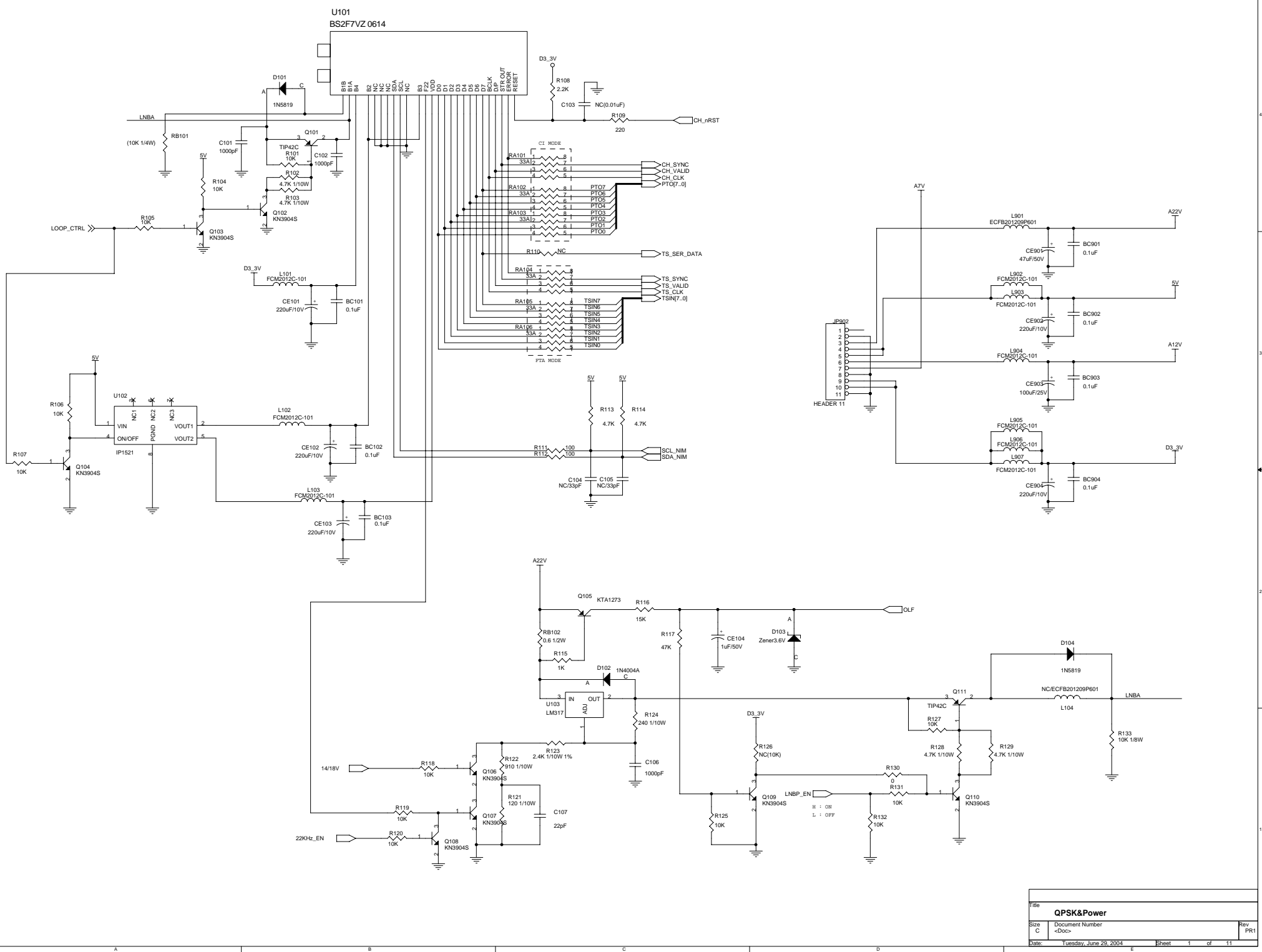


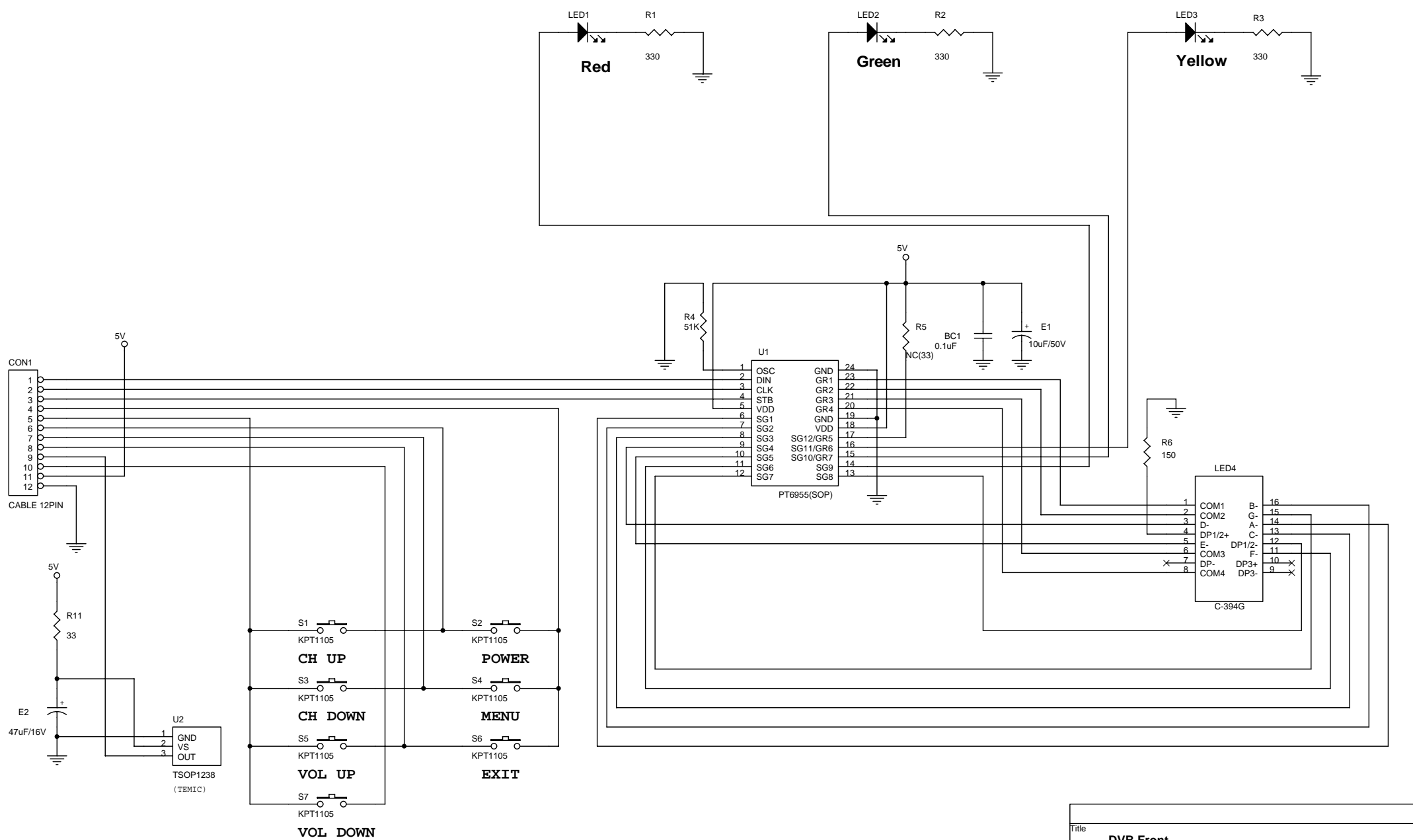
◆ Failure Causes and Solution

If there's no 22 KHz, check the Pin 12 of Tuner and associated net.









Title		
DVB Front		
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