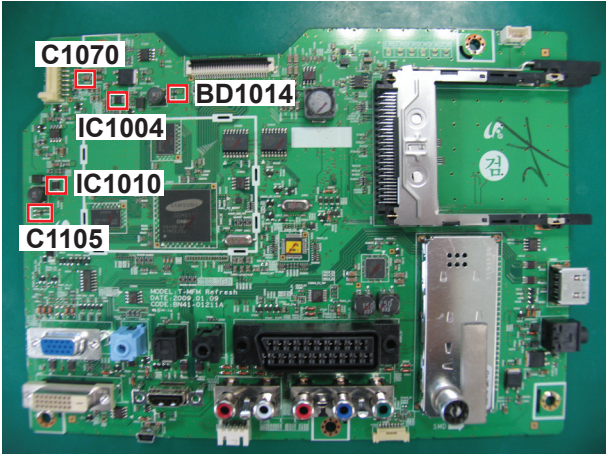

4. Troubleshooting

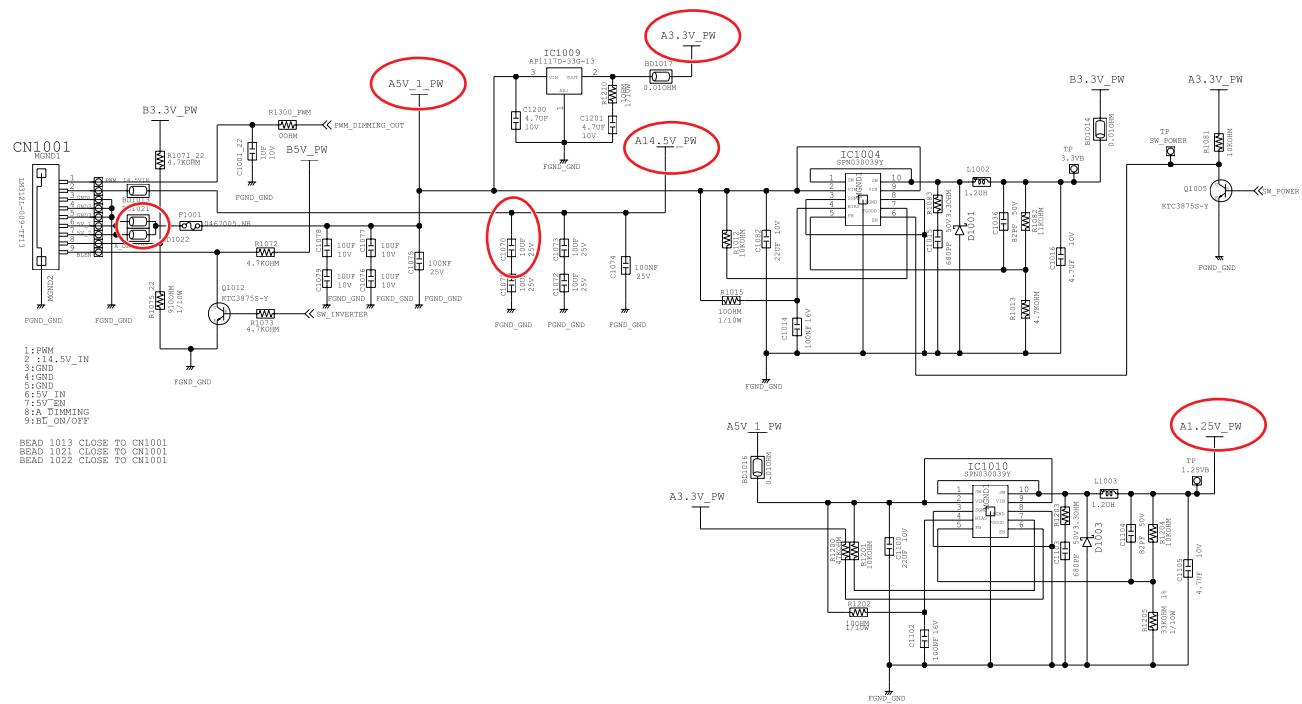
4-1. First Checklist for Troubleshooting

1. Check the various cable connections first.
 - Check to see if there is a burnt or damaged cable.
 - Check to see if there is a disconnected cable connection or a connection is too loose.
 - Check to see if the cables are connected according to the connection diagram.
2. Check the power input to the Main Board.
3. Check the following circuits.
 - No raster appears: Function PBA, Main PBA, I/P PBA
 - 55V develop but no screen: Main PBA
 - 5V does not develop: I/P PBA
4. Check the voltage in and out between the IP ↔ Main Board, between the IP ↔ Panel, and between the Main LVDS Boards.

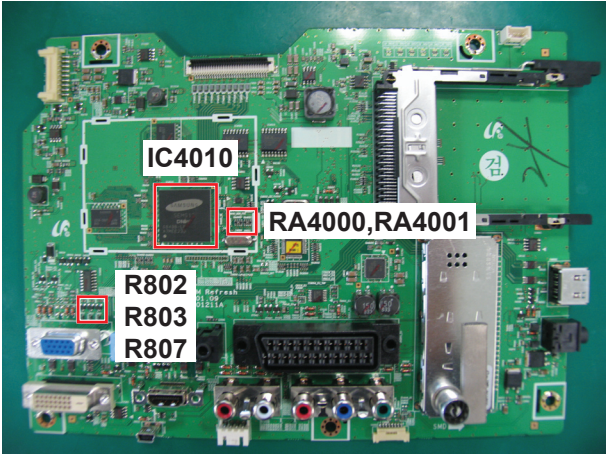
4-2. No Power

Symptom	<div>– Though the power switch on, the LED power off and the screen is blank.</div>
Major checkpoints	<div><div>– Check Power cable.</div><div>– Check whether the Lamp connector is connected correctly to the IP.</div><div>– Check whether the power cable is connected correctly to the MAIN.</div><div>– Check whether the Function cable is connected correctly to the MAIN.</div></div>
Diagnostics	<div><div></div><div>Main Board Front</div><div><div><div>LAMP off, power indicator LED red color?</div><div>No</div><div>Check a connection a power cable.</div></div><div><div>Does proper 5V appear at BD1021.</div><div>No</div><div>Change a Assy PCB Power.</div></div><div><div>Does proper DC14.5V appear at C1070?</div><div>No</div><div>Change a Assy PCB Power.</div></div><div><div>Does proper DC3.3V, 1.2v appear at BD1014, C1105?</div><div>No</div><div>Check IC1004, IC1010. Change a main PBA.</div></div><div><div>A power is supplied to set?</div><div>No</div><div>Check a other function.(No picture part) Replace a lcd panel.</div></div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

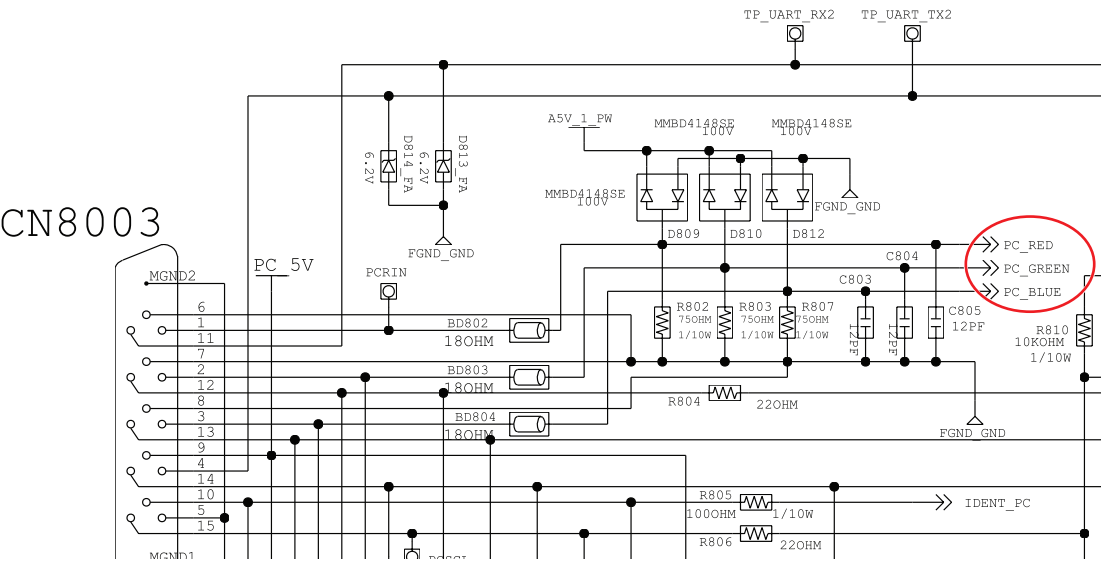
4-2-1. Circuit diagrams when the power does not turn on



4-3. No Video (Analog PC)

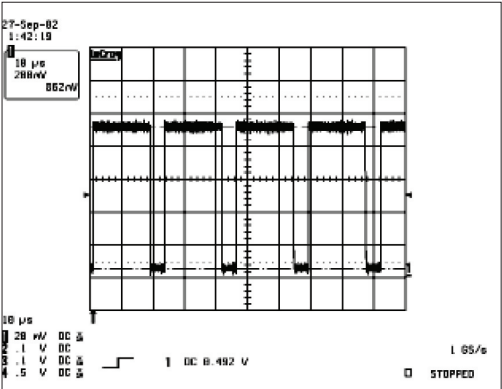
Symptom	<div>– Though the LED power turns on, the screen is blank when connecting the VGA cable.</div>
Major checkpoints	<div><div>– Even though the LED power turns on, the screen is blank when connecting the VGA cable.</div><div>– Check the D-sub cable connections.</div><div>– Check whether the LVDS cable is connected correctly to the panel.</div><div>– Check whether the lamp connector of the panel is connected correctly to the IP board.</div></div>
Diagnostics	<div><div></div><div>Main Board Front</div><div><div>Power Indicator is off. Lamp on, no video.</div><div>Yes</div><div>Check a PC source and check the connection of DSUB cable?</div><div>No</div><div>Input a analog PC signal and connected cable(DPMS).</div><div>Yes</div><div>① Does the signal appear at R802, R803, R807?</div><div>No</div><div>PC cable. Change a PC cable. Change a main PCB ass'y.</div><div>Yes</div><div>Does the digital data appear at the output of RA4000, RA4001?</div><div>No</div><div>Check IC4010. Change a main PBA.</div><div>Yes</div><div>Check a LVDS cable? Replace a lcd panel?</div><div>No</div><div>Please, Call to Samsung Co. LTD.</div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

4-3-1. Circuit diagrams and waveforms (Analog) when no screen is displayed on the monitor

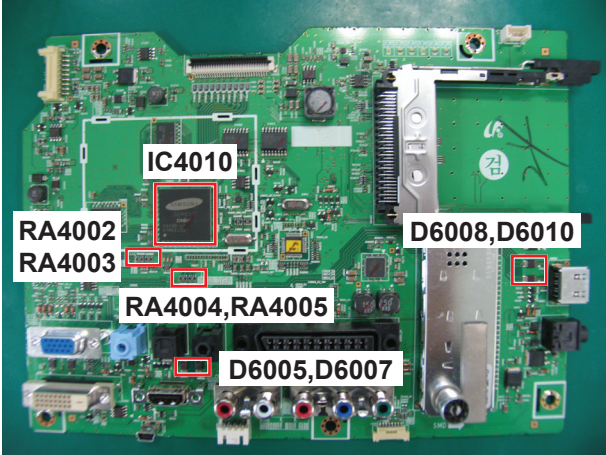


4-3-2. Waveforms when no screen is displayed (Analog PC)

① R,G,B Output Signal of IC4010

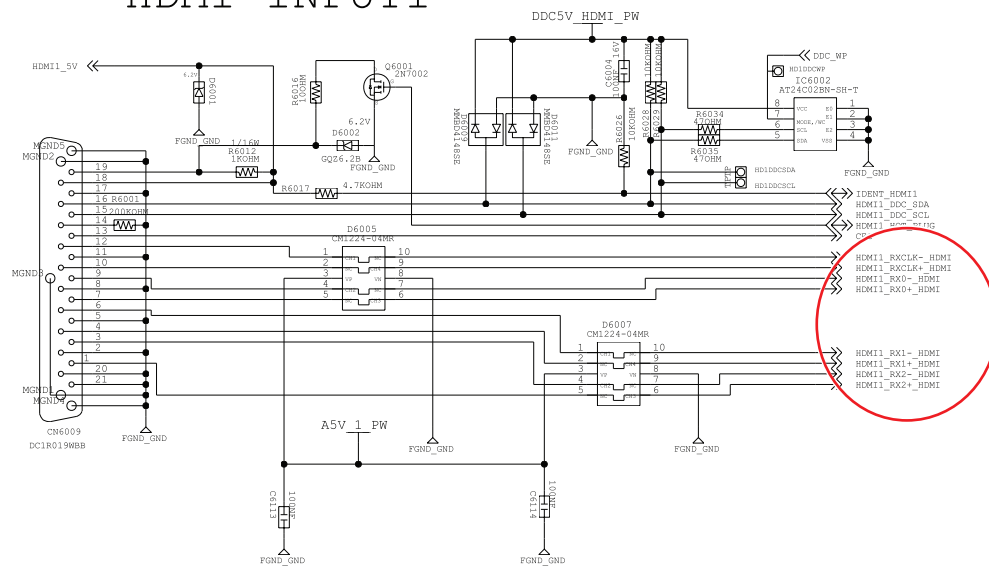


4-4. No Video (Digital-HDMI)

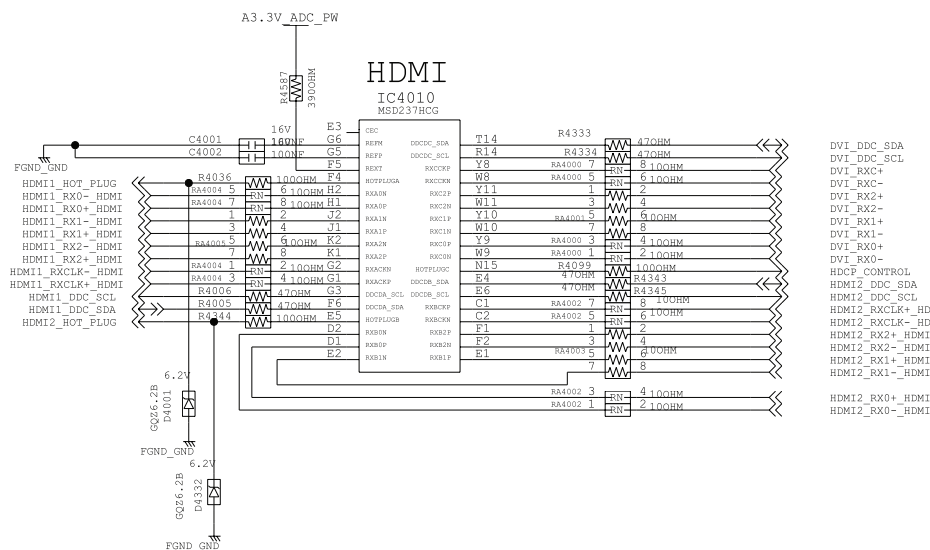
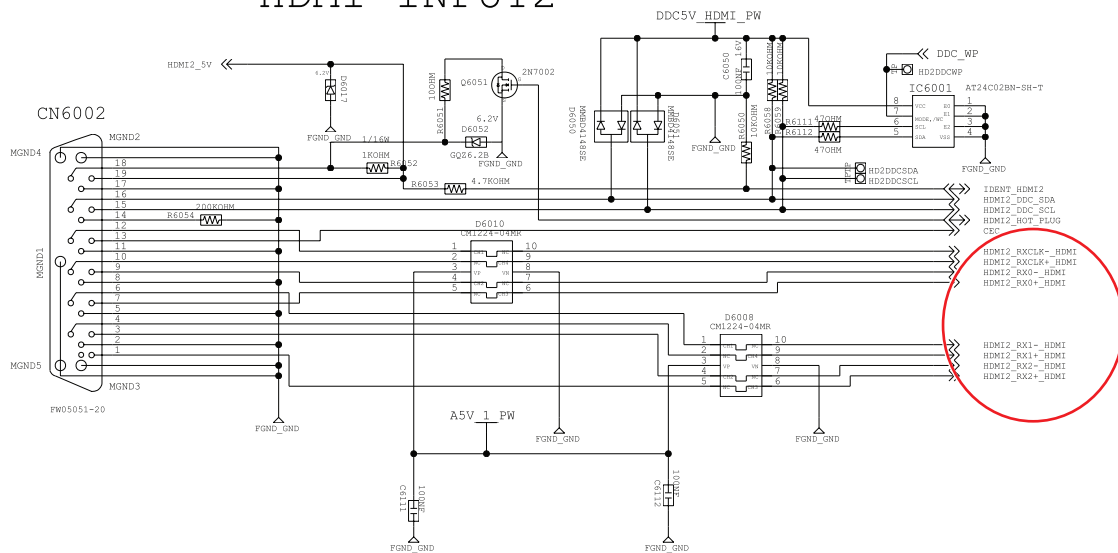
Symptom	<div><div></div><div>The LED power turns on but the screen is blank when the DVI cable or HDMI cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Even though the LED power turns on, the screen is blank when connecting the DVI cable or HDMI cable.</div><div>Check the DVI cable or HDMI cable connections.</div><div>Check whether the LVDS cable is connected correctly to the panel.</div><div>Check whether the lamp connector of the panel is connected correctly to the IP board.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div>Power Indicator is off. Lamp on, no video.</div><div>Yes</div><div>Check the connection of HDMI cable?</div><div>No</div><div>Input a HDMI cable.</div><div>Yes</div><div>③ Does the digital data appear at D6005, D6007 (HDMI1) or D6008, D6010(HDMI2)?</div><div>No</div><div>Check HDMI cable. Change the cable.</div><div>Yes</div><div>Does the digital data appear at INPUT of IC4010 at RA4004, RA4005 (HDMI1) or RA4002, RA4003(HDMI2)?</div><div>No</div><div>Check the IC4010. Change a main PBA.</div><div>Yes</div><div>Check a LVDS cable? Replace lcd panel?</div><div>No</div><div>Please, Call to Samsung Co. LTD.</div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

4-4-1. Circuit diagrams and waveforms (Digital-HDMI) when no screen is displayed on the monitor

HDMI INPUT1

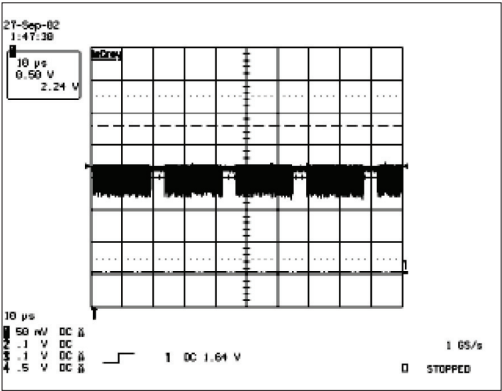


HDMI INPUT2

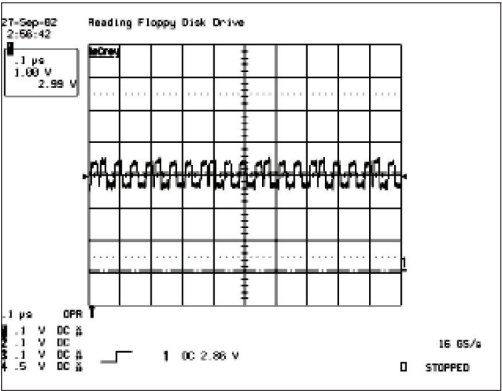


4-4-2. Waveforms when a blank screen is displayed (Digital-HDMI)

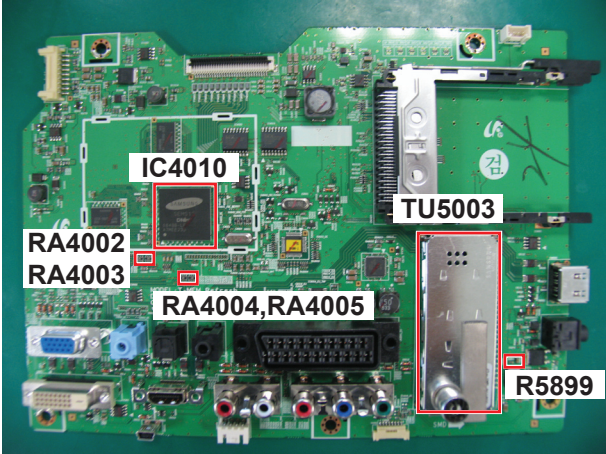
② Digital Output Data of IC4010



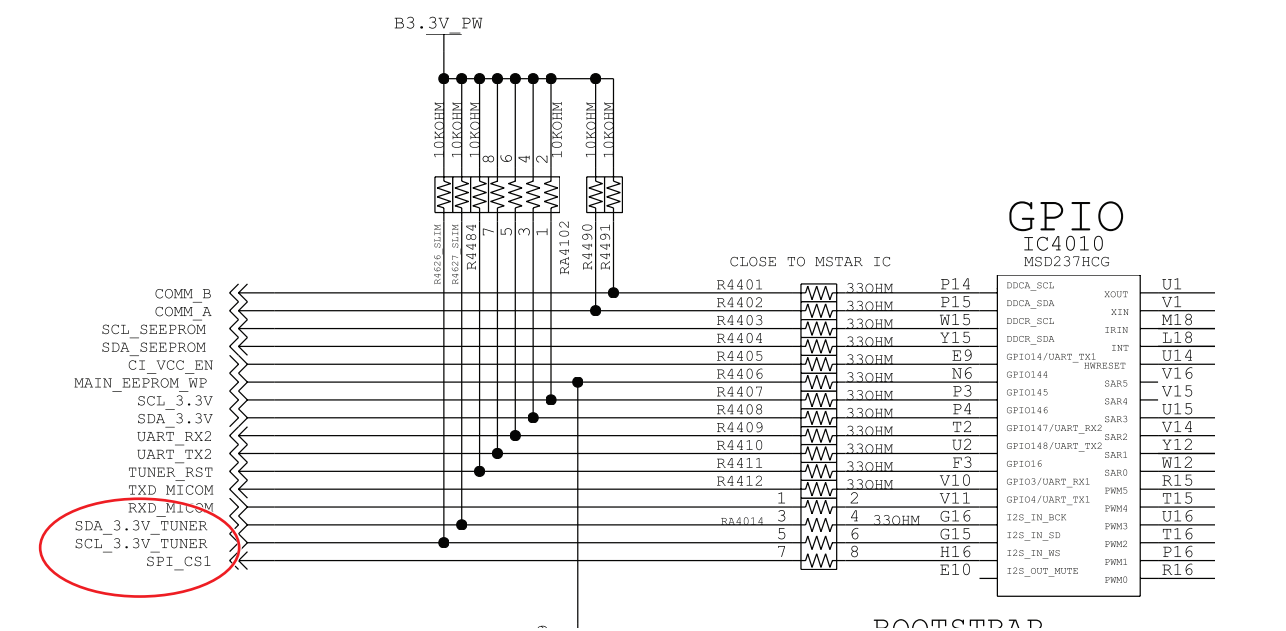
③ Signal of HDMI(Data)



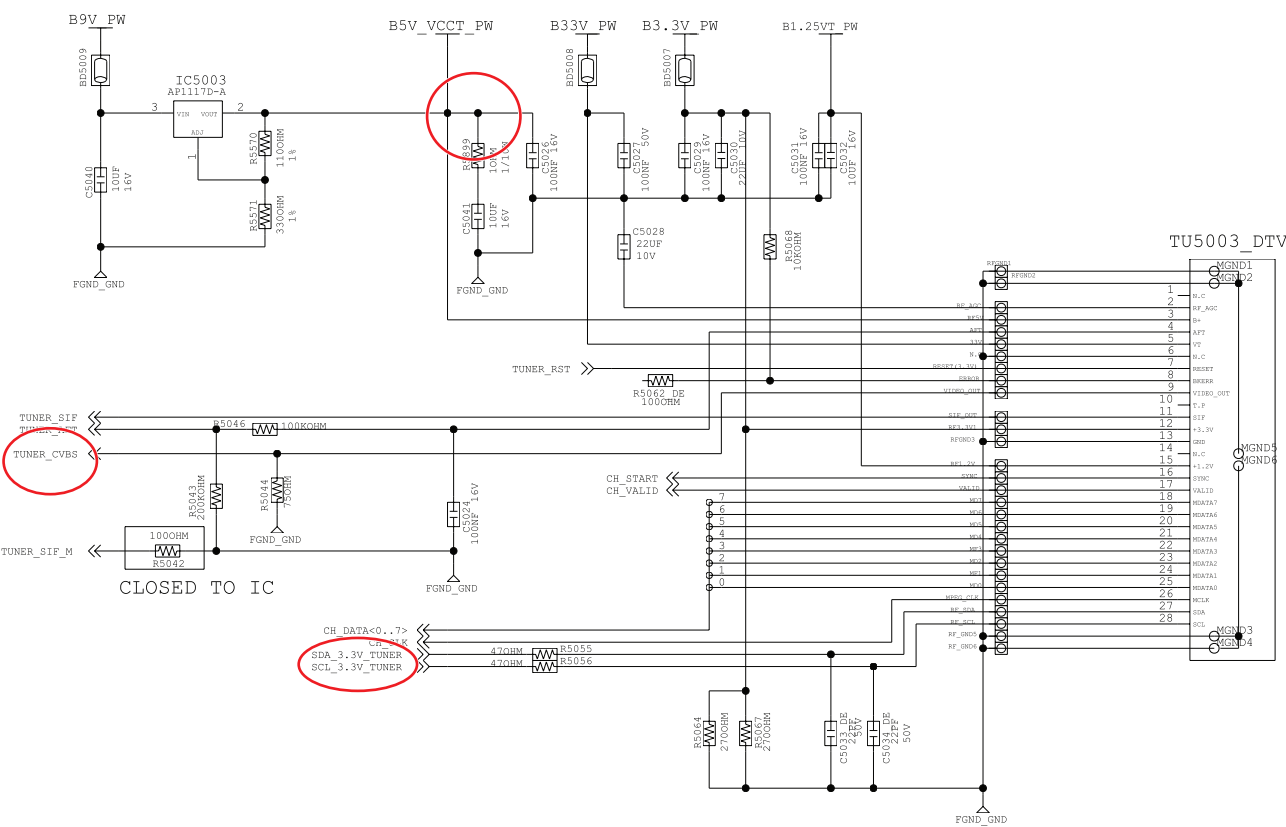
4-5. No Picture (Tuner_CVBS)

Symptom	<div><div></div><div>The LED power turns on but the screen is blank when the RF cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Even though the LED power turns on, the screen is blank when connecting the RF cable.</div><div>Check the RF cable connections.</div><div>Check whether the LVDS cable is connected correctly to the panel.</div><div>Check whether the lamp connector of the panel is connected correctly to the IP board.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div><div>Power Indicator is off. Lamp on, no picture.</div><div>No</div><div>Connect the RF cable and check RF signal.</div></div><div><div>Yes</div><div><div>④ Does the signal appear at R5899?</div><div>No</div><div>Check the Tuner Vcc 5V. Change a main PBA.</div></div><div><div>Yes</div><div><div>④ Does the signal appear at #9 of TU5003?</div><div>No</div><div>Change a main PCB ass'y.</div></div><div><div>Yes</div><div><div>⑤ Does the digital data appear at R5055,R5056?</div><div>No</div><div>Check a IC4010. Change a main PCB ass'y.</div></div><div><div>Yes</div><div><div>Check a LVDS cable? Replacea lcd panel?</div><div>No</div><div>Please, Call to Samsung Co. LTD.</div></div></div></div></div></div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

4-5-1. Circuit diagrams and waveforms (Tuner_CVBS) when no screen is displayed on the monitor

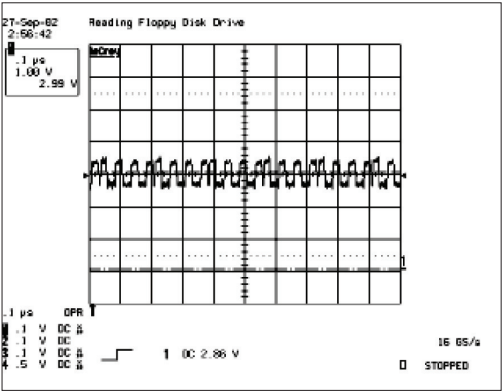


TUNER

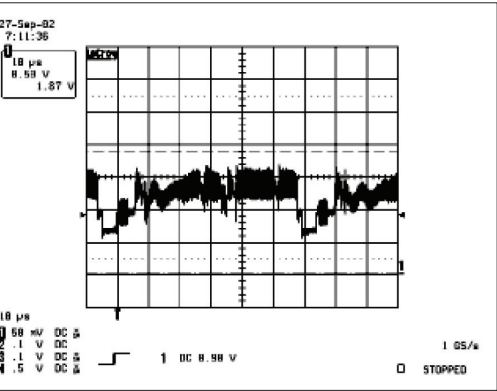


4-5-2. Waveforms when a blank screen is displayed (Tuner_CVBS)

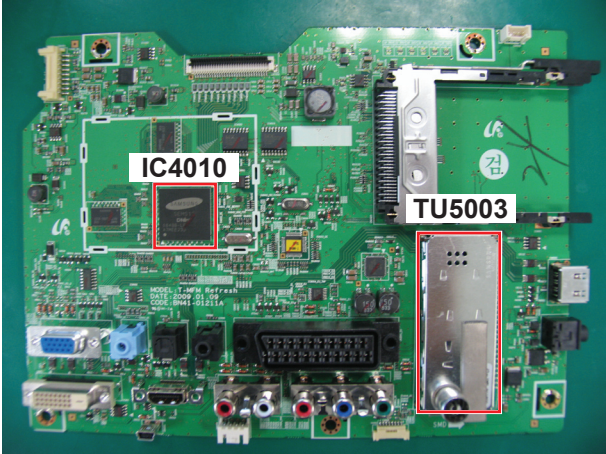
④ Tuner I2C Data signal.



⑤ Tuner_CVBS Output Signal

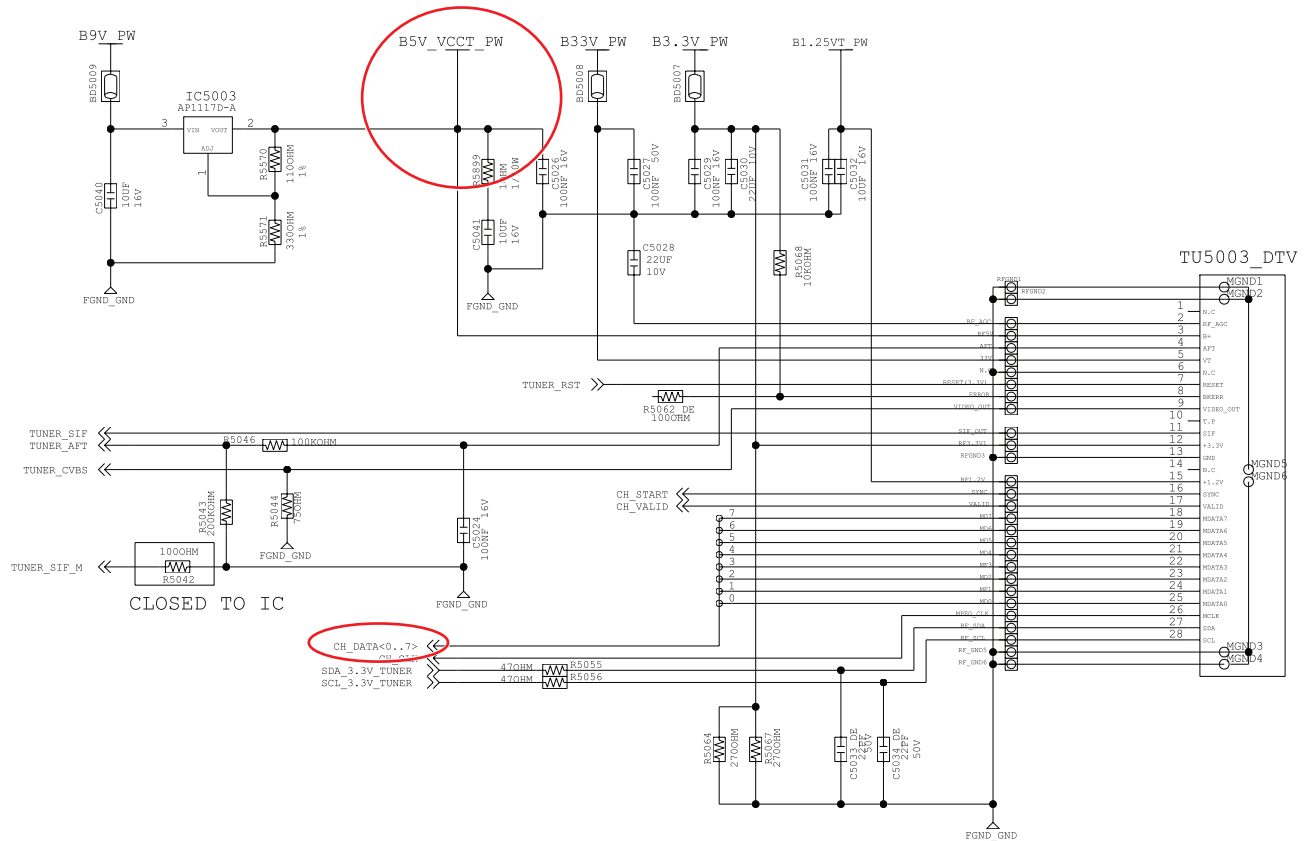


4-6. No Picture (Tuner_DTV)

Symptom	<div><div></div><div>The LED power turns on but the screen is blank when the Antenna Cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Even though the LED power turns on, the screen is blank when connecting the Antenna Cable.</div><div>Check the Antenna Cable connections.</div><div>Check whether the LVDS cable is connected correctly to the panel.</div><div>Check whether the lamp connector of the panel is connected correctly to the IP board.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div><div>Power Indicator is off. Lamp on, No signal image.</div><div>No</div><div>check antenna cable</div></div><div><div>Yes</div><div>④ Does the signal appear at R5899?</div><div>No</div><div>Check the Tuner Vcc 5V. Change a main PBA.</div></div><div><div>Yes</div><div>④ Does the signal appear at #16~25of TU5003?</div><div>No</div><div>check antenna cable Change a main PBA</div></div><div><div>Yes</div><div>Check a LVDS cable? Replace lcd panel?</div><div>No</div><div>Please, Call to Samsung Co. LTD.</div></div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

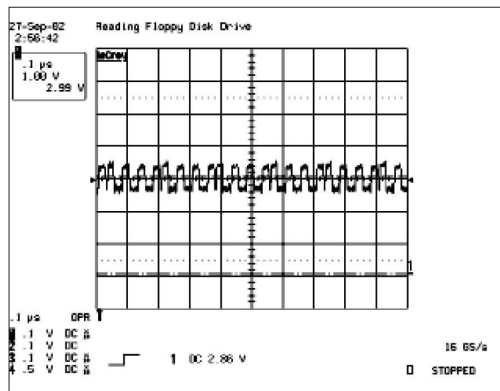
4-6-1. Circuit diagrams and waveforms (Tuner_DTV) when no screen is displayed on the monitor

TUNER

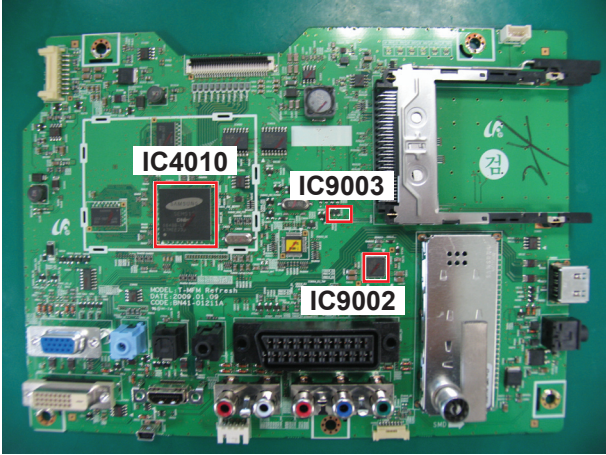


4-6-2. Waveforms when a blank screen is displayed (Tuner_DTV)

④ Digital Channel DATA signal

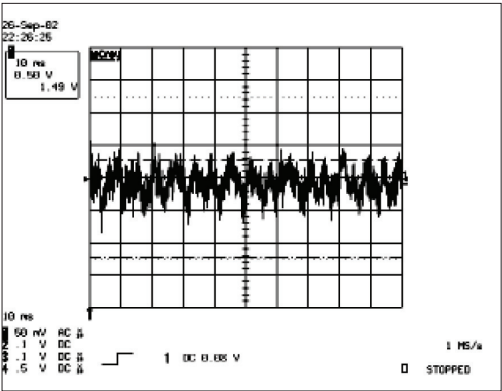


4-7. No Sound

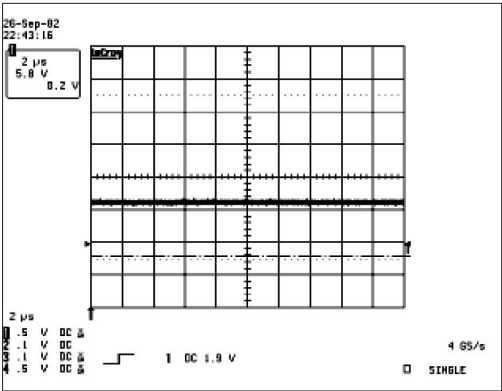
Symptom	<div><div></div><div>The LED power turns on but the screen is blank when the DVI cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Even though the LED power turns on, the screen is blank when connecting the DVI cable.</div><div>Check the DVI cable connections.</div><div>Check whether the LVDS cable is connected correctly to the panel.</div><div>Check whether the lamp connector of the panel is connected correctly to the IP board.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div>Picture is display, no sound.</div><div>No<div>Connect a sound cable. control a volume.</div></div><div>Yes<div><div>⑥ Does the signal appear at Pin #P5,P6,R3,R4,Y3,Y4,R5,R6 of IC4010?</div><div>No<div>Check a Sound signal connection.</div></div><div>Yes<div><div>Check the 3.3V of #1 IC9002.</div><div>No<div>check IC9003. Change a main PBA.</div></div><div>Yes<div><div>⑦ check output signal of #22,23,28,29,42,43,48,49 of IC9002</div><div>No<div>check IC9002.</div></div><div>Yes<div>Replace the speaker ass'y?</div></div></div></div></div></div></div></div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

4-7-1. Waveforms when a blank screen is displayed (No Sound)



⑥ The Signal are Inputed to IC9002



⑦ DC 3.3V



4-8. Faults and Corrective Actions

Fault Photo	Symptoms and Corrective Actions	Remarks
	<p>Symptoms: DVI signals are not recognized.</p> <p>Causes: This fault occurs when the PC does not recognize the mode information because the DVI DDC has not been input to the monitor.</p> <p>Corrective Actions: Input the DVI DDC to the monitor.</p>	<p>* Refer to the Training Manual for information on inputting the DVI DDC.</p>
	<p>Symptoms: When the monitor is turned on, only a full white pattern is displayed continually regardless of the signals.</p> <p>Causes: This fault occurs when only the lamp power is supplied and no video signals are input to the panel due to a fault or incorrect connections of the LVDS cable.</p> <p>Corrective Actions: Replace or reconnect the LVDS cable correctly so that video signals can be supplied to the panel.</p>	<p>* A full white pattern is a feature of the TN panel and is displayed when no video signals are supplied.</p>
	<p>Symptoms: When connecting the DVD, noise occurs on the screen.</p> <p>Causes: The HDCP key is not inserted.</p> <p>Corrective Actions: Enter the HDCP key. (See page 4-17.)</p>	

4-9. Adjustment

4-9-1. Service Instruction

1. Usually, a color TV-VCR needs only slight touch-up adjustment upon installation.
Check the basic characteristics such as height, horizontal and vertical sync.
2. Use the specified test equipment or its equivalent.
3. Correct impedance matching is essential.
4. Avoid overload. Excessive signal from a sweep generator might overload the front-end of the TV. When inserting signal markers, do not allow the marker generator to distort test result.
5. Connect the TV only to an AC power source with voltage and frequency as specified on the backcover nameplate.
6. Do not attempt to connect or disconnect any wire while the TV is turned on. Make sure that the power cord is disconnected before replacing any parts.
7. To protect against shock hazard, use an isolation transform.

4-10. How to Access Service Mode

4-10-1. Entering Factory Mode

2. To enter "Service Mode" Press the remote -control keys in this sequence :
 - If you do not have Factory remote - control



- If you have Factory remote - control



- The buttons are active in the service mode.
1. Remote - Control Key : Power, Arrow Up, Arrow Down, Arrow Left
Arrow Right, Menu, Enter, Number Key(0~9)
 2. Function - Control Key : Power, CH +, CH -, VOL +, VOL -, Menu, TV/VIDEO(Enter)

4-11. Service Adjustment

4-11-1. White Balance - Calibration

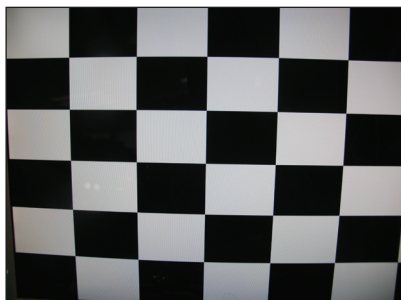
If picture color is wrong, do calibration first.

Equipment : CA210, Patten : chess pattern

Execute calibration in Factory Mode

Source AV : PAL composite, Component : 1280*720/60Hz

PC : 1024*768/60Hz



(Gray patten)

4-11-2. White Balance - Adjustment

If picture color is wrong, check White Balance condition.

Equipment : CA210, Patten : Toshiba

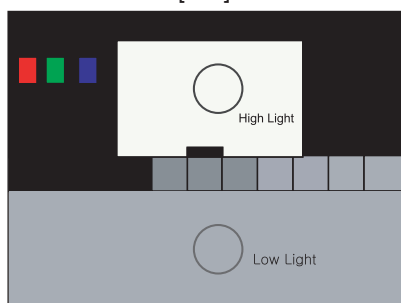
Adjust W/B in Factory Mode

Sub brightness and R/G/B Offset controls low light region

Sub contrast and R/G/B Gain controls high light region

Source AV : PAL composite, Component : 1280*720/60Hz

HDMI[DVI] : 1280*720/60Hz



Toshiba Patten

[Test Pattern : MSPG-945 Series Pattern #16]

*Color temperature
1500K +/-500, -6 ~-20 MPCD

*Color coordinate
H/L : 267/263 +/- 2 35.0 Ft +/- 2.0Ft
L/L : 270/260 +/- 3 1.5 Ft +/- 0.2Ft

4-11-3. Conditions for Measurement

1. On the basis of toshiba ABL pattern : High Light level (57 IRE)
- INPUT SIGNAL GENERATOR : MSPG-925LTH

* Mode NO 2 : 744X484@60 Hz
NO 6 : 1280X720@60 Hz
NO 21 : 1024X768@60 Hz

* Pattern NO 36 : 16 Color Pattern
NO 16 : Toshiba ABL Pattern

2. Optical measuring device : CA210 (FL)

Please use the MSPG-925 LTH generator for model LS20TDV/LS22TDV/LS24TDV/LS26TDV.

4-11-4. Method of Adjustment

1. Adjust the white balance of AV, Component Modes.

(AV→Component)

a) Set the input to the mode in which the adjustment will be made.

(RF→DTV→PC→DVI).

* Input signal - VIDEO Mode : Model #2 (744*484 Mode), Pattern #16

- DTV,DVI Mode : Model #6 (1280*720 Mode), Pattern #16

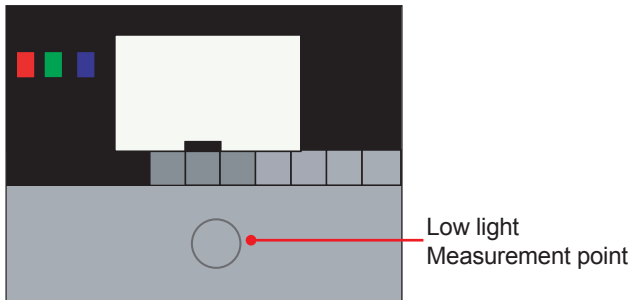
- HDMI Mode: Model #6(1280*720 Mode), Pattern #16

b) Enter factory color control, confirm the data.

c) Adjust the low light. (Refer to table 1, 2 in adjustment position by mode)

- Adjust sub - Brightness to set the 'Y' value.

- Adjust red offset ('x') and blue offset ('y') to the color coordinates.



Picture 4-2 Toshiba ABL Pattern

* Do not adjust green offset data.

d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)

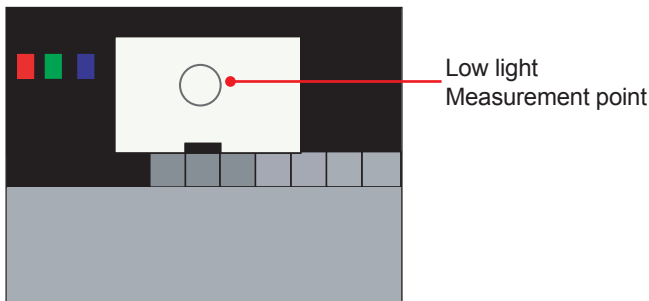
- Adjust red gain ('x') and blue gain ('y') to the color coordinates.

* Do not adjust the green gain and sub-contrast (Y) data.

d) Adjust the high light. (Refer to table 1, 2 in adjustment position by mode)

- Adjust red gain ('x') and blue gain ('y') to the color coordinates.

* Do not adjust the green gain and sub-contrast (Y) data.

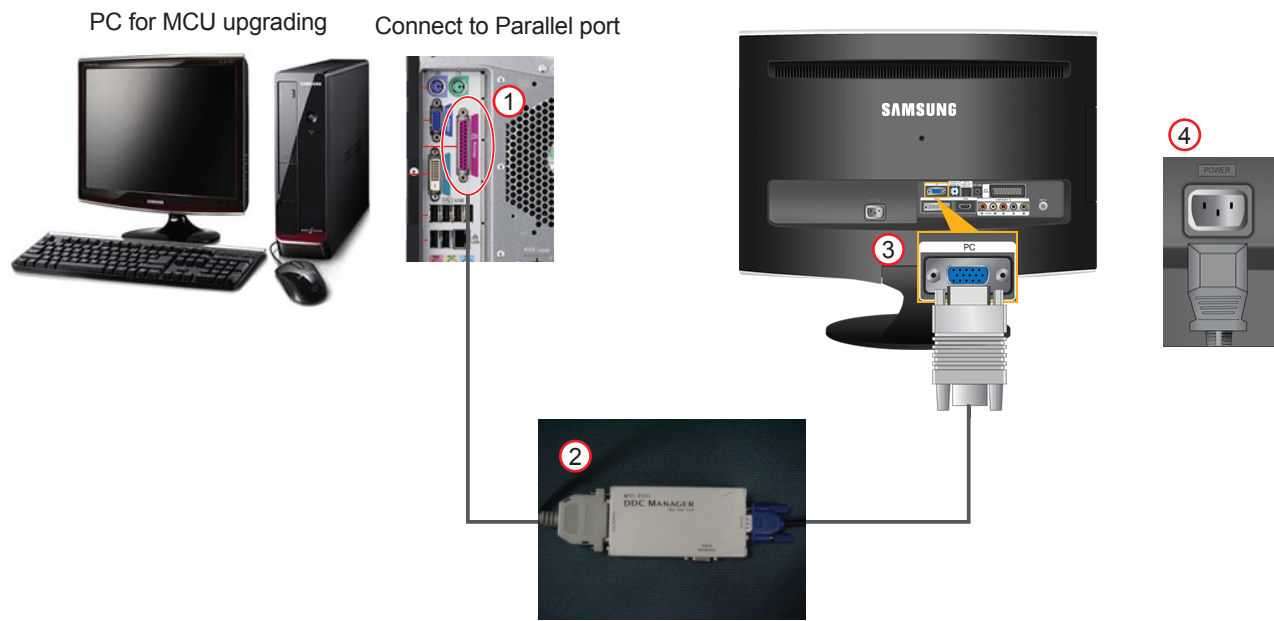


Picture 4-3 Toshiba ABL Pattern

4-12. Software Upgrade

4-12-1. Micom Program Upgrade

■ DDC Manager Connection



1. Prepare PC to Upgrade the Program.
2. Prepare the DDC Manager
3. Connect D-sub cable to Target Monitor TV
4. Power on the Target Monitor TV

- winDDC_V2-39 Program installed



- Run winDDC

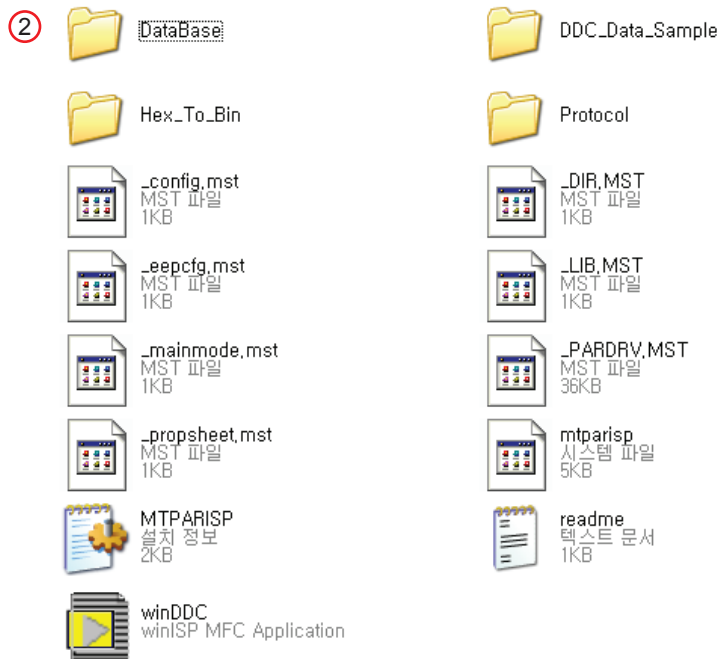
4. Troubleshooting

■ Main Mlcom Upgrade

1. Goto installed Program folder (winDDC_V2-39)



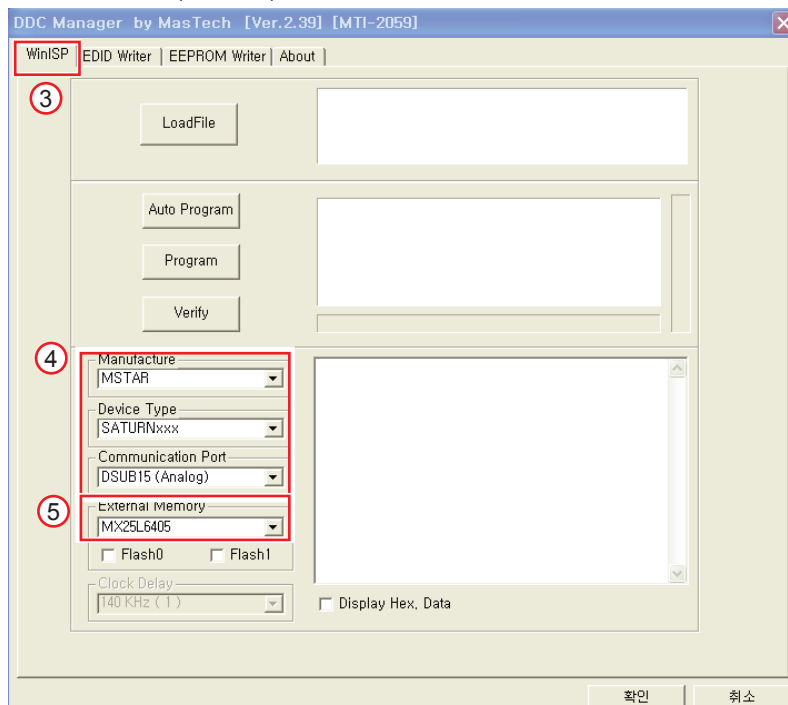
2. Run winDDC



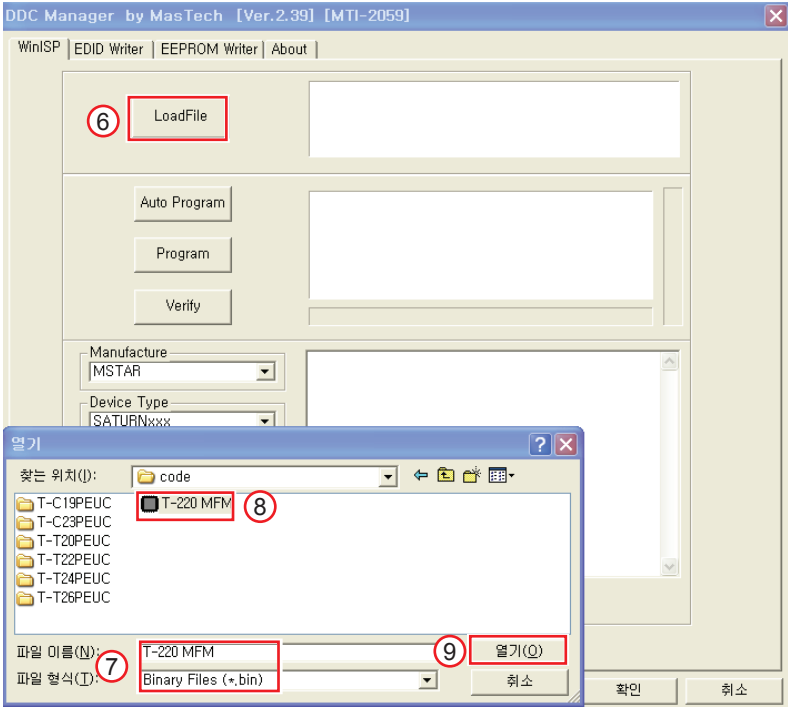
3. Select WinISP Menu

4. Make same setting like picture.

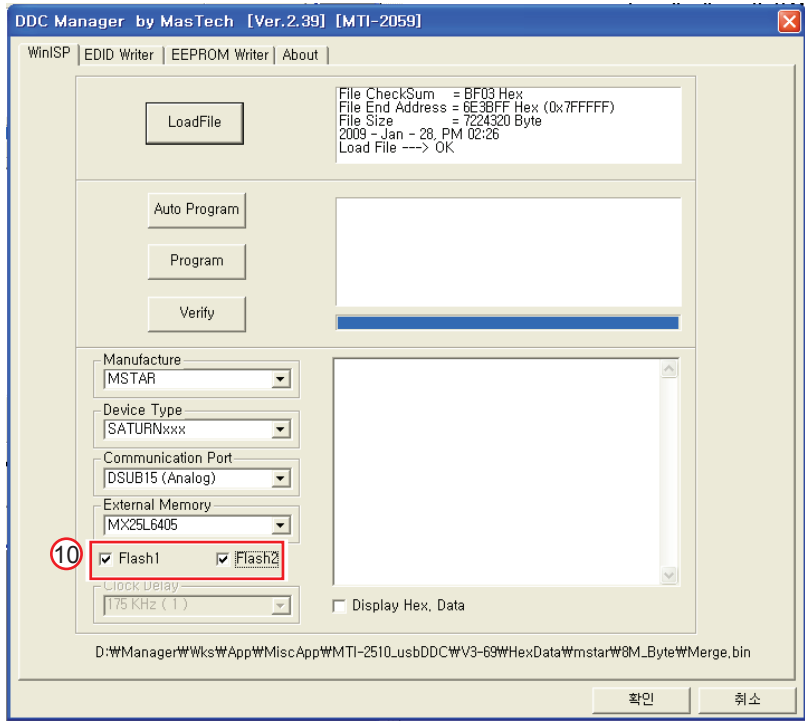
5. Choose Flash memory type
- CREAM-MFM(2333HD):WT61P8



- 6. Load File (Select file to download)
- 7. Set Option to load Binary Files
- 8. Select files (bin file)
- 9. Click button to load files

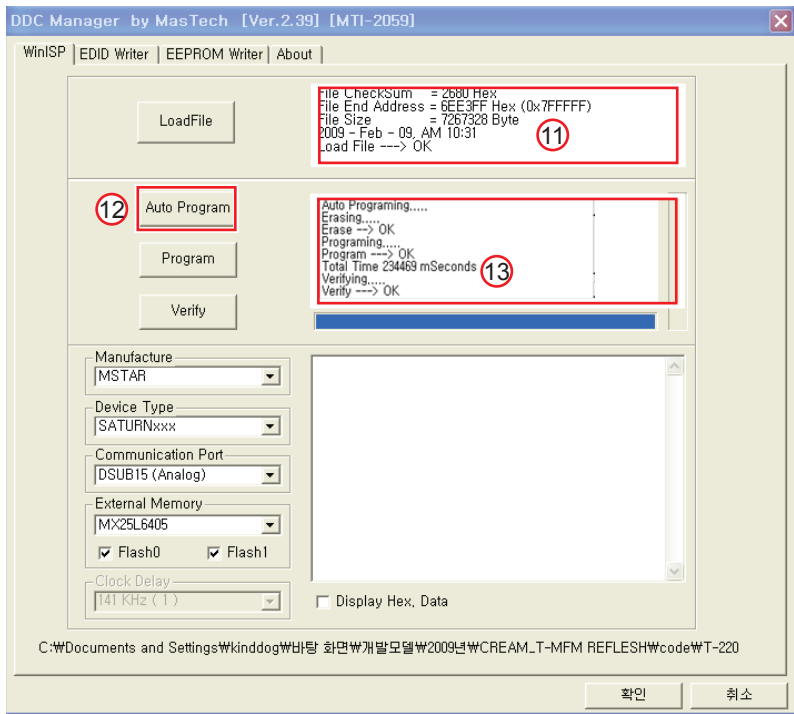


- 10. Select "Flash1" and "Flash2"



4. Troubleshooting

- 11. Check the OK message (Load)
- 12. Click Auto Program button
- 13. If you see OK message (Verify), program download is completed



■ After Upgrading Firmware

Factory mode

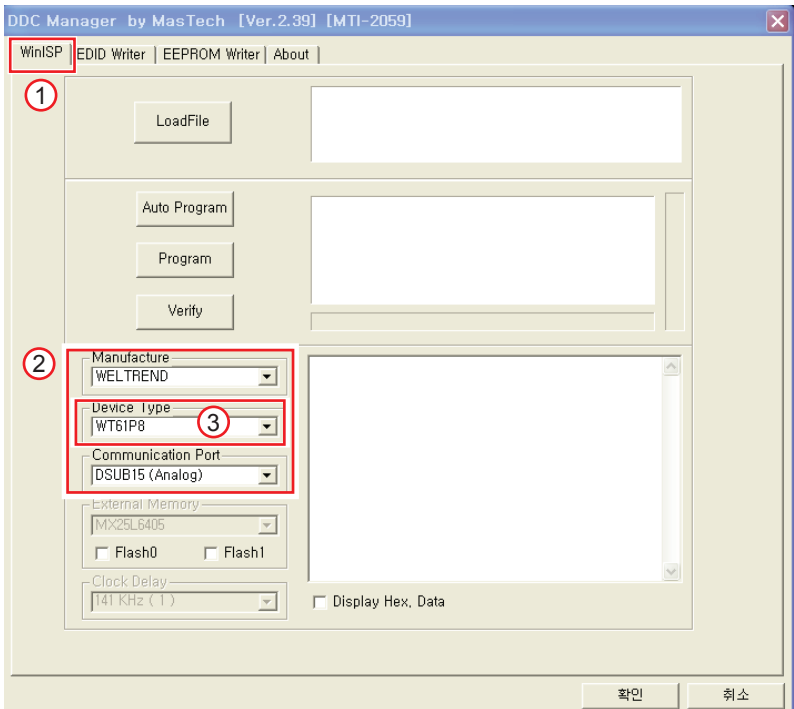


- 1. Factory remote control (SET POWER ON)
INFO -> Factory
- 2) Normal Remote control (SET POWER OFF)
INFO -> MENU
-> MUTE -> POWER

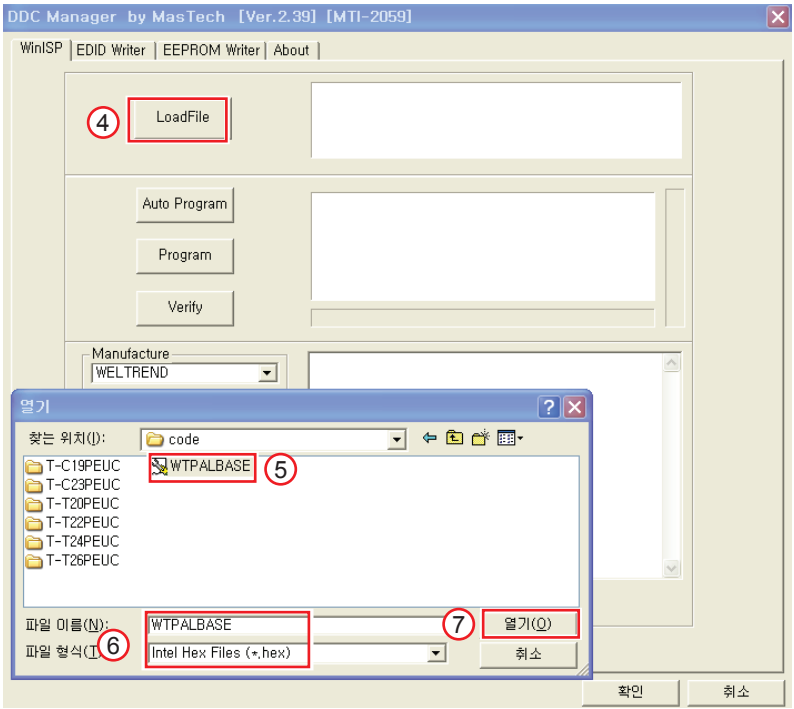
After Reset , Set Power off

■ Sub Micom Upgrade

- 1. Select WinISP Menu
- 2. Make same setting like picture.
- 3. Choose Device Type.
- CREAM-MFM(2333HD):WT61P8



- 4. Load File (Select file to download)
- 5. Set Option to load Binary Files
- 6. Select files (hex file)
- 7. Click button to load files



4. Troubleshooting

8. Check the OK message (Load)
9. Click Auto Program button
10. If you see OK message (Verify),
program download is completed

