

4. Troubleshooting

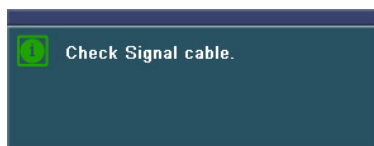
4-1. First Checklist for Troubleshooting

■ Self-Test Feature Check

Your monitor provides a self test feature that allows you to check whether your monitor is functioning properly.

1. Turn off both your computer and the monitor.
2. Unplug the video cable from the back of the computer
3. Turn on the monitor.

If the monitor is functioning properly, you will see a box in the illustration below. .

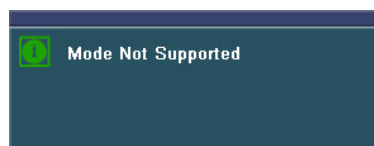


This box appears during normal operation if the video cable becomes disconnected or damaged.

4. Turn off your monitor and reconnect the video cable; then turn on both your computer and the monitor.
- If your monitor screen remains blank after using the previous procedure, check your video controller and computer system; your monitor is functioning properly.

■ Warning Messages

If there is something wrong with the input signal, a message appears on the screen or the screen goes blank although the power indicator LED is still on. The message may indicate that the monitor is out of scan range or that you need to check the signal cable.



■ Environment

The location and the position of the monitor may influence the quality and other features of the monitor.

If there are any sub woofer speakers near the monitor, unplug and relocate the woofer to another room.

Remove all electronic devices such as radios, fans, clocks and telephones that are within 3 feet (one meter) of the monitor.

■ Useful Tips

- ▶ A monitor recreates visual signals received from the computer.

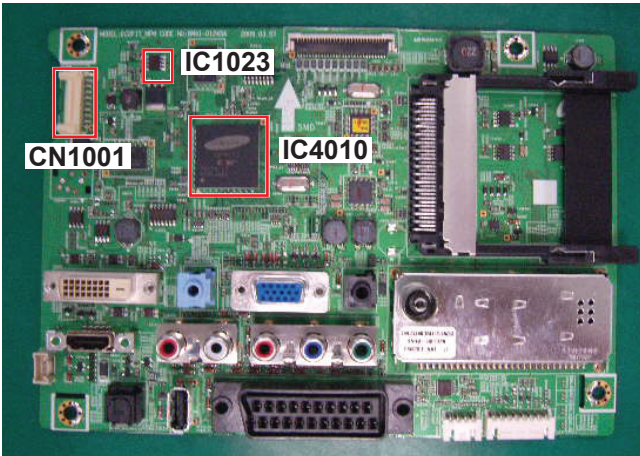
Therefore, if there is trouble with the computer or the video card, this can cause the monitor to become blank, have poor coloring, noise, Video mode not supported, etc. In this case, first check the source of the problem, and then contact the Service Center or your dealer.

- ▶ Judging the monitor's working condition

If there is no image on the screen or a "Not Optimum Mode", "Recommended Mode 1920 X 1080 60Hz" message comes up, disconnect the cable from the computer while the monitor is still powered on.

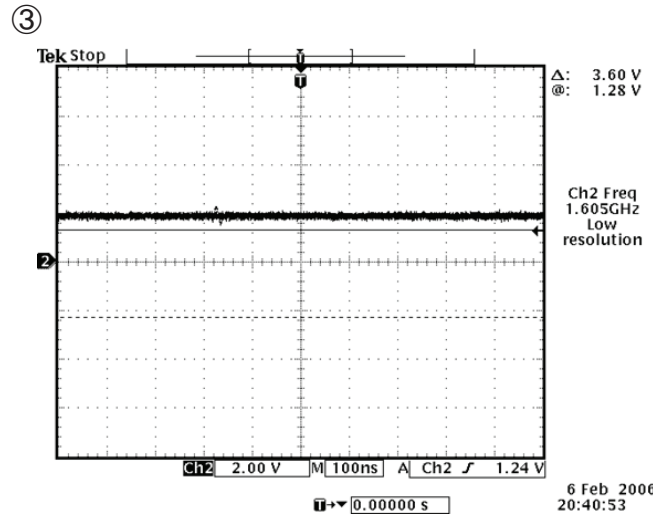
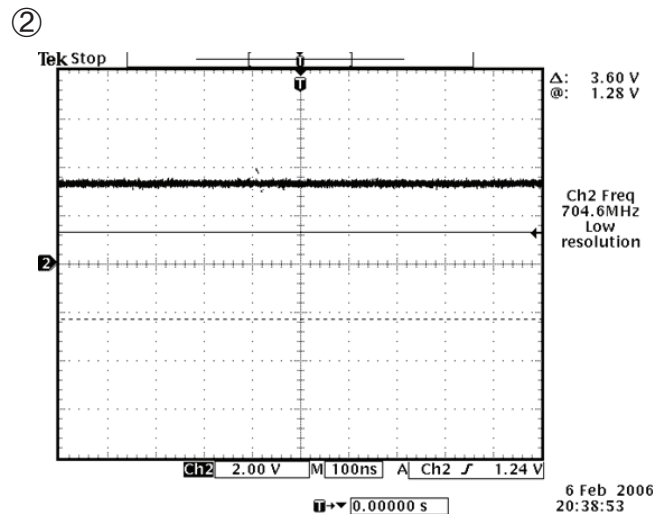
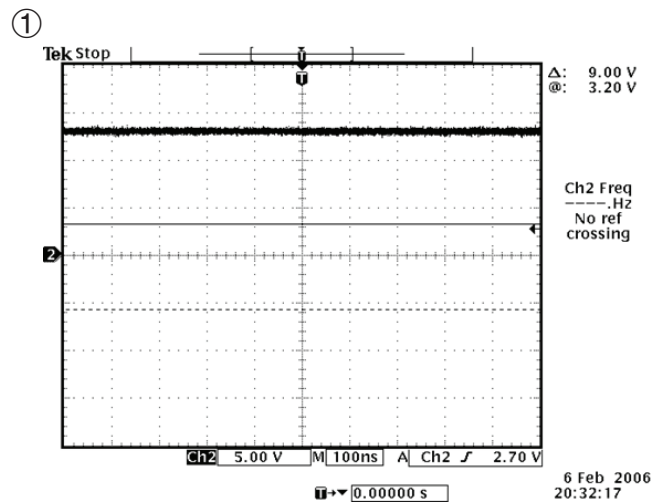
- If there is a message coming up on the screen or if the screen goes white, this means the monitor is in working condition.
- In this case, check the computer for trouble.

4-2. No Power


Symptom	<div><div></div><div>The LED on the front panel of the monitor does not work when the power is connected and the Power button is pressed.</div></div>
Major checkpoints	<div><div></div><div><div>Check if the Power switch on the rear panel of the monitor has been turned on.</div><div>Check the SMPS fuse and the IP-Board output power.</div><div>Check the connection between the IP-Board and the Main Board inside the monitor.</div><div>Check the power part of the Main Board and check if a similar symptom appears at another output terminal.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div><div>Does proper 14.5V appear at pin No. 2 of CN1001? ① Does proper 5V appear at pin No. 6 and 7 of CN1001? ②</div><div>No</div><div>Check IP Board</div></div><div><div>Yes</div><div><div>Does proper 14.5V appear at BD1013? ① Does proper 5V appear at BD1021? ②</div><div>No</div><div>Check related circuit of CN1001.</div></div><div><div>Yes</div><div><div>Does proper 3.3V appear at pin No.1 of IC1024? ②</div><div>No</div><div>Check related circuit of IC1024.</div></div><div><div>Yes</div><div><div>Does proper 14.5V appear at IC1023? ③</div><div>No</div><div>Check related circuit of IC1022.</div></div><div><div>Yes</div><div>Change main board for Scaler(IC4010) problem</div></div></div></div></div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>



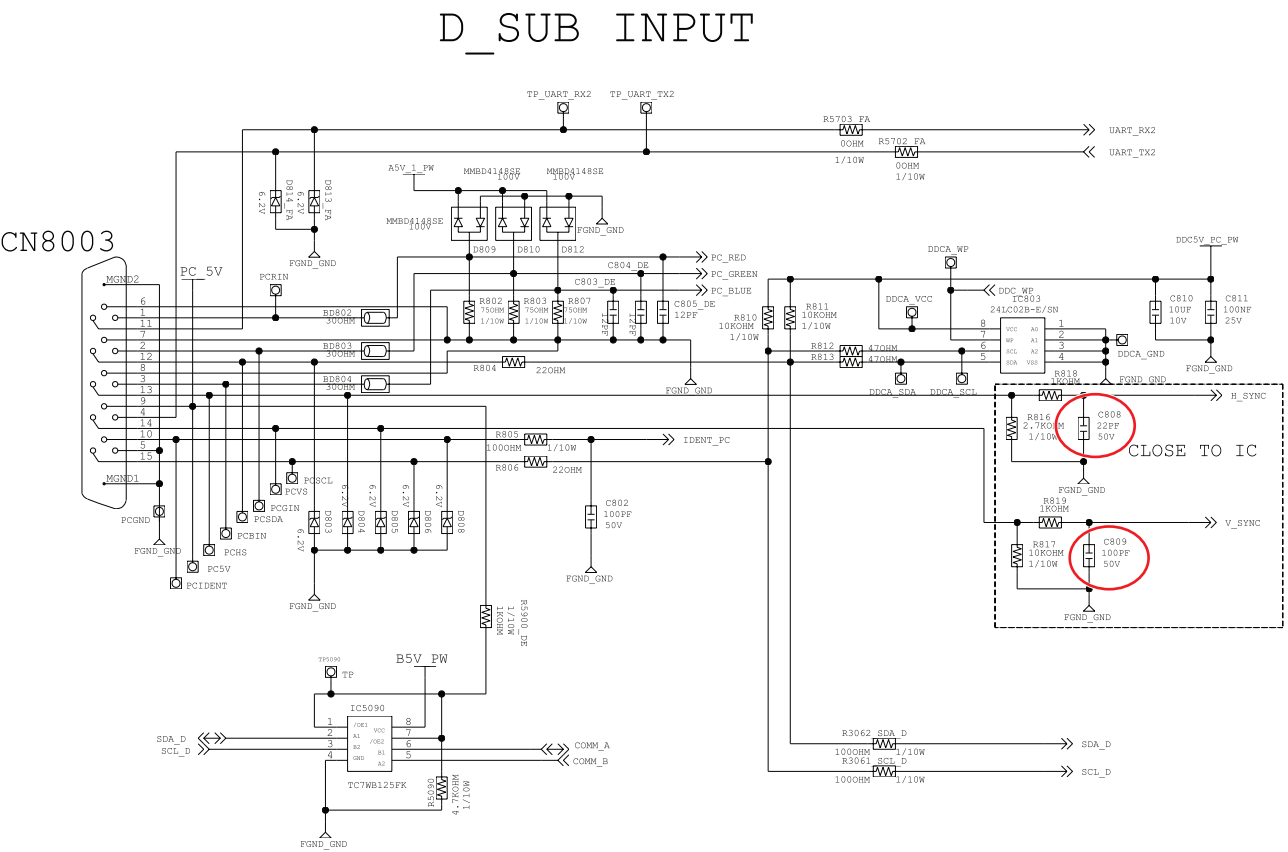
4-2-2. Waveforms



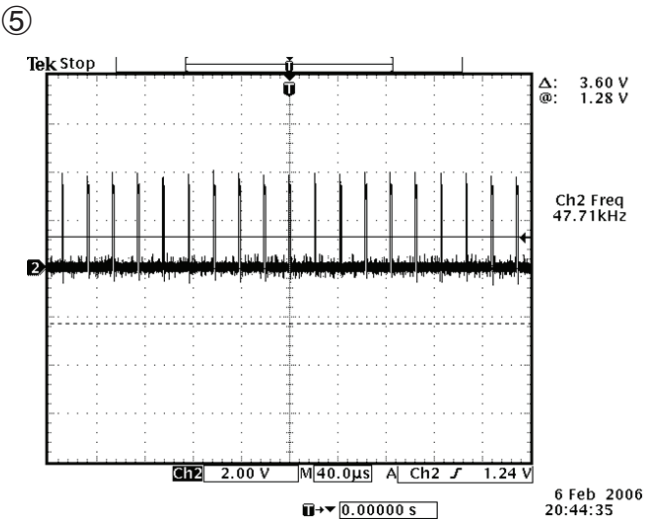
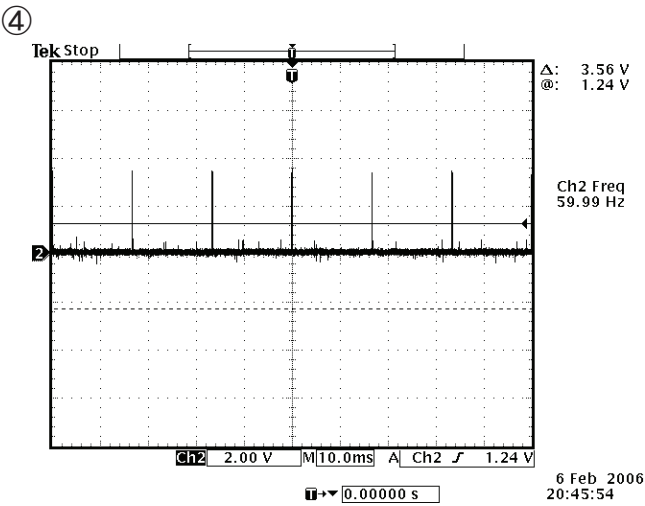
4-3. PC (ANALOG) No Screen

Symptom	<div><div></div><div>The LED power is on but no picture is displayed on the screen when the D-SUB 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 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></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div>Does led persists green light after power on?</div><div>No</div><div>Check IP board</div><div>Yes</div><div>Does proper 5V appear at pin No. 9 of CN8003?</div><div>No</div><div>Check D-sub cable connection</div><div>Yes</div><div>Does proper V-sync ④ and H-sync ⑤ appear at C809 and C808?</div><div>No</div><div>Check PC state</div><div>Yes</div><div>Does proper clock signals appear at pin NO.11,12,23,24 of CN1005?</div><div>No</div><div>Change main board because of scaler problem</div><div>Yes</div><div>Check connection between main board and panel. Change Panel.</div></div></div>
Caution	<div>Make sure to disconnect the power before working on the IP board.</div>

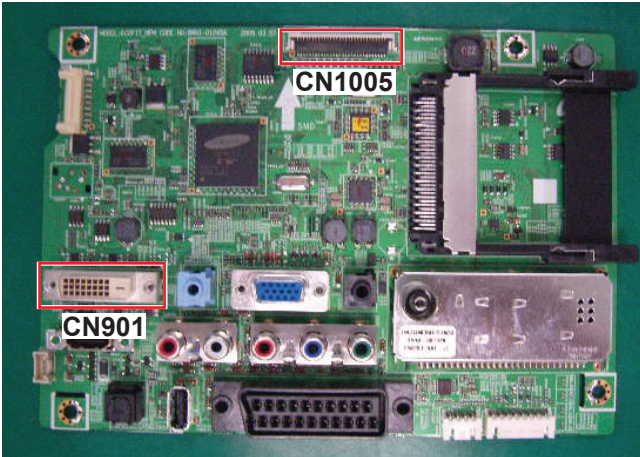
4-3-1. Circuit diagrams and waveforms (Analog) when no screen is displayed on the monitor



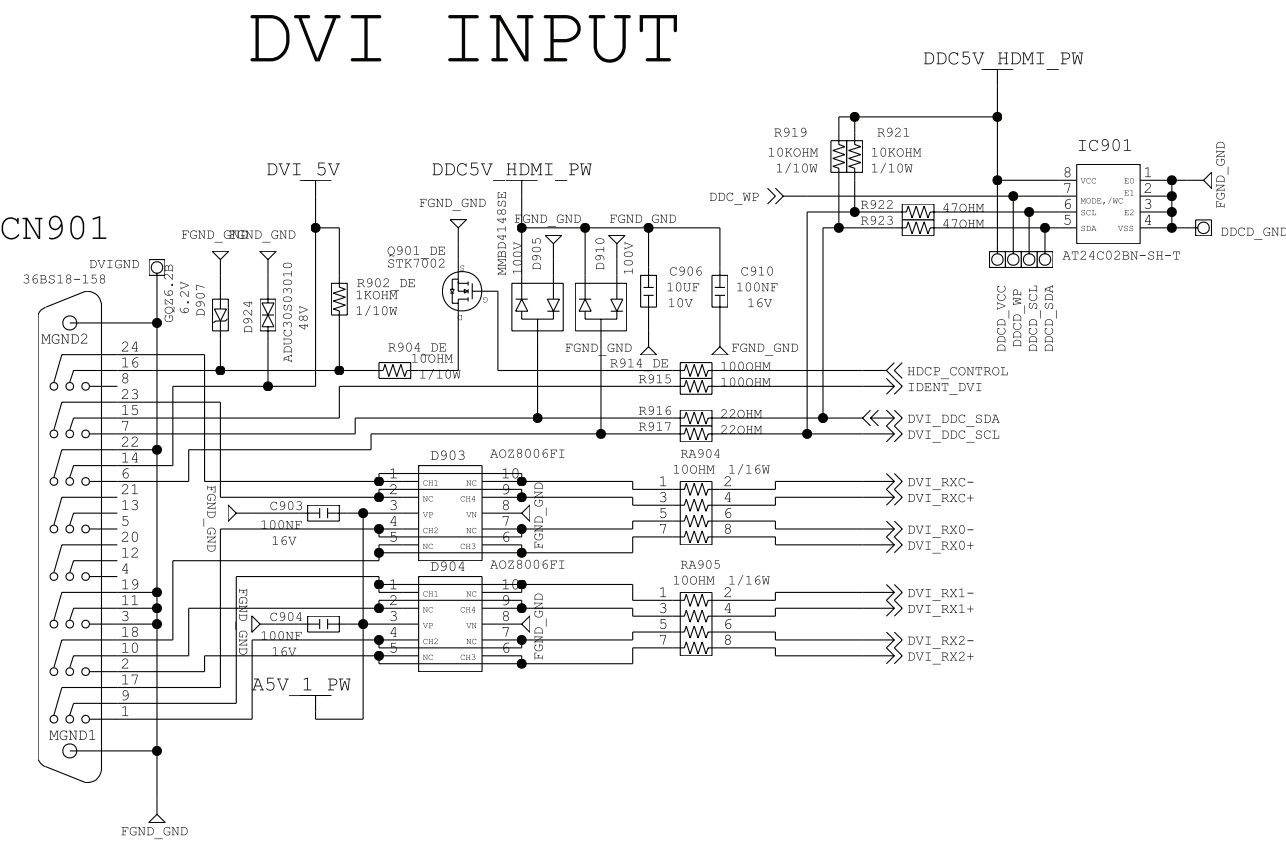
4-3-2. Waveforms



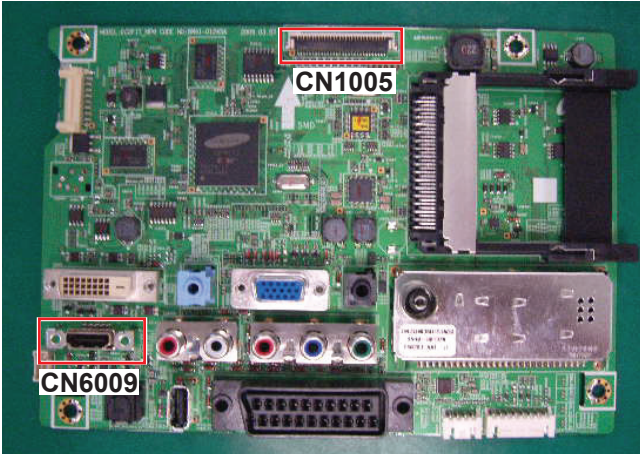
4-4. DVI No Screen

Symptom	<div><div></div><div>The LED power is on but no picture is displayed on the screen when the DVI cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Check if the DVI cable has been connected.</div><div>Check if the LVDS cable has been properly connected to the LCD panel.</div><div>Check if the Inverter board has been connected properly to the lamp connector of the LCD panel.</div></div></div>
Diagnostics	<div><div></div><div>Main Board Front</div><div><div>Does led persists green light after power on?</div><div>No</div><div>Check IP board</div><div>Yes</div><div>Dose proper 5V appear at pin No. 14 of CN901?</div><div>No</div><div>Check DVI cable connection</div><div>Yes</div><div>Does proper clock signals appear at pin No. 2 and NO.4 of RA904?</div><div>No</div><div>Change RA904</div><div>Yes</div><div>Does proper clock signals appear at pin NO.11,12,23,24 of CN1005?</div><div>No</div><div>Change main board because of scaler problem</div><div>Yes</div><div>Check connection between main board and panel. Change Panel.</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 (DVI No Screen) when no screen is displayed on the monitor

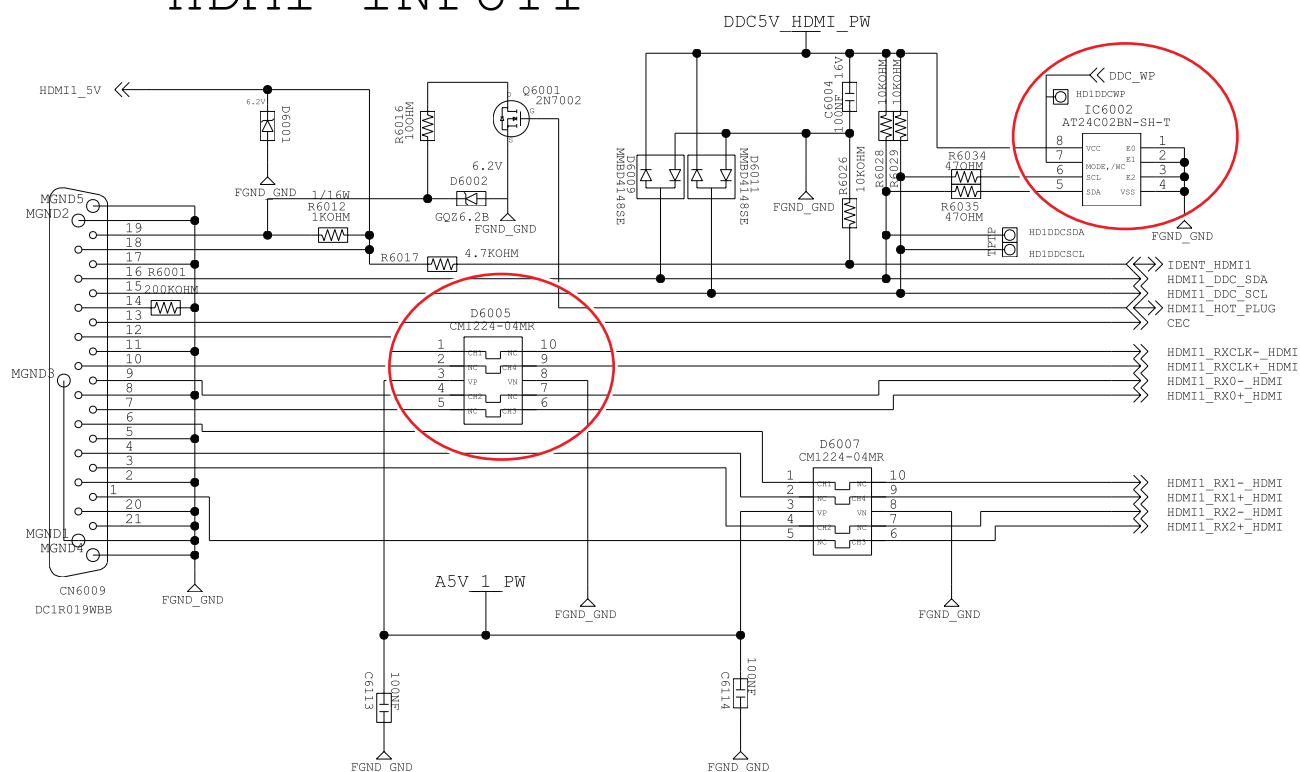


4-5. HDMI No Screen

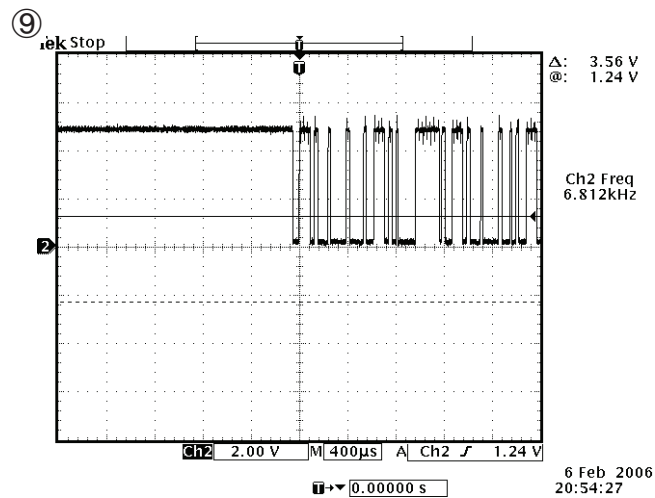
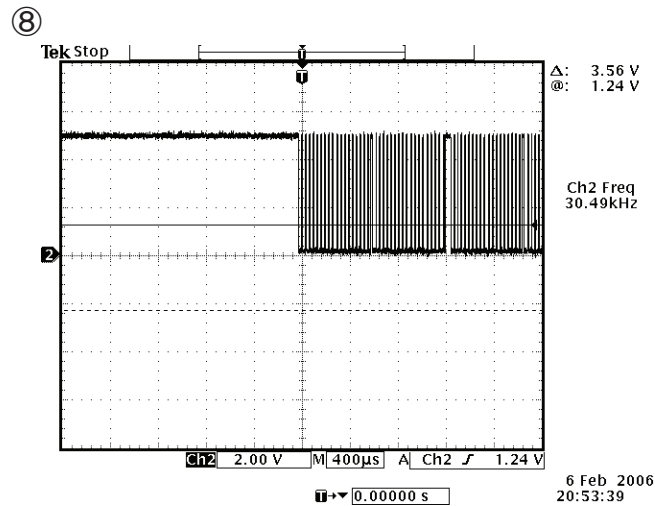
Symptom	<div><div></div><div>The LED power turns on but the screen is blank when the HDMI cable is connected.</div></div>
Major checkpoints	<div><div></div><div><div>Check the HDMI cable connections.</div><div>Check whether the LVDS cable is connected correctly to the panel.</div><div>Check whether the lamp connector of the panel is connected correctly to the IP board.</div><div>Check the circuit related HDMI input and scaler operation.</div></div></div>
Diagnostics	<div><div><div>Main Board Front</div></div><div><div>Does led persists green light after power on?</div><div>No</div><div>Check IP board</div><div>Yes</div><div>Dose proper 5V appear at pin No. 18 of CN6009?</div><div>No</div><div>Check HDMI cable connection</div><div>Yes</div><div>Does proper signals appear at pin No.15(SCL) ⑧ and No.16(SDA) ⑨ of CN6009?</div><div>No</div><div>Change IC6002</div><div>Yes</div><div>Does proper clock signals appear at pin NO.9 and NO.10 of D6005?</div><div>No</div><div>Change D6005</div><div>Yes</div><div>Does proper clock signals appear at pin NO.11,12,23,24 of CN1005?</div><div>No</div><div>Change main board because of scaler problem</div><div>Yes</div><div>Check connection between main board and panel. Change Panel.</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 (HDMI No Screen) when no screen is displayed on the monitor



HDMI INPUT1



4-5-2. Waveforms



4-6. 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>	

4-7. Adjustment

4-7-1. 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.

4-8. How to Access Service Mode

4-8-1. Entering Factory Mode

To enter "Service Mode" Press the remote -control keys in this sequence :

- If you do not have Factory remote - control



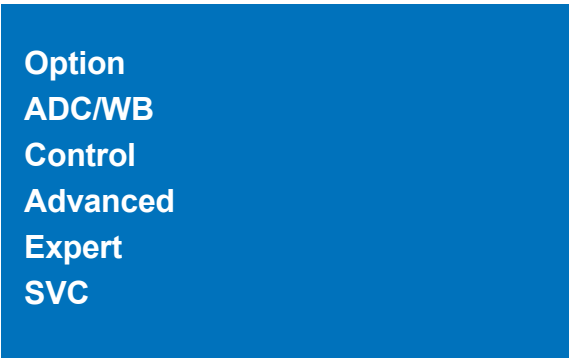
- If you have Factory remote - control



- 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 : Source(ENTER), Menu, VOL-, VOL+, CH-, CH+, POWER

4-8-2. Service Mode Menu



Menu	Full Menu Display/Move to Parent Menu
Direction Keys ▲/▼	Item selection by Moving the Cursor
Direction Keys ◀/▶	Data Increase / Decrease for Selected Item
Source	Cycles through the active input source that are connected to the unit

4-8-3. Sub-Page of Service

- Option

Factory Reset	
Type	
Model	
Tuner	ALPS
Region	US
DDR	SAMSUNG
Light Effect	Off
Audio Amp	
Local Set	Other
Exhibition Mode	Off

- Advanced

FBE	
WB Movie	
EPA Standard	
ADJUST	
YC_Delay	
SHARPNESS	
PE	
PQ Others	
Color Space	
EEPROM RESET	

- ADC/WB

ADC	
ADC Target	
ADC RESULT	
WB	

- Expert

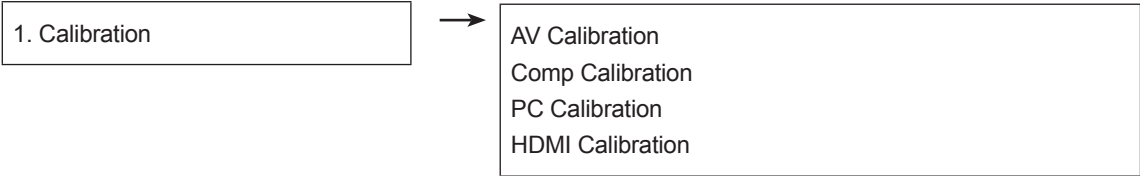
N/D ADJ	OFF
SOURCE	Current

- Control

EDID	
Sub Option	
PDP Option	
Hotel Option	
Shop Option	
Sound	
Config Option	
Test Pattern	

4-9. White Balance - Calibration

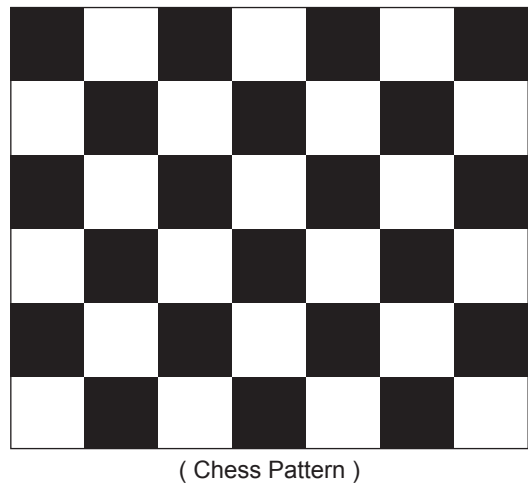
4-9-1 White Balance -Calibration



4-9-2 Service Adjustment - You must perform Calibration in the Lattice Pattern before adjusting the White Balance.

■ Color Calibration

- Adjust spec.
- 1. Source : HDMI
 - 2. Setting Mode : 1280*720@60Hz
 - 3. Pattern : Pattern #24 (Chess Pattern)



4. Use Equipment : CA210 & Master MSPG925 Generator
- Use other equipment only after comparing the result with that of the Master equipment.

Input mode	Calibration	Pattern
AV IN (Model_#1)	Perform in NTSC B&W Pattern #24	Lattice
Component IN (Model_#6)	Perform in 720p B&W Pattern #24	Lattice
PC IN (Model_#21)	Perform in VESA XGA (1024x768) B&W Pattern #24	Lattice
HDMI IN	Perform in 720p B&W Pattern #24	Lattice

<Table 1>

■ Method of Color Calibration (AV)

- 1) Apply the NTSC Lattice (N0. 3) pattern signal to the AV IN port
- 2) Press the Source key to switch to "AV" mode
- 3) Enter Service mode
- 4) Select the "Calibration" menu
- 5) Select the "AV Calibration" menu.
- 6) In "AV Calibration Off" status, press the "▶" key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the "AV Calibration" status from Failure to Success.

■ Method of Color Calibration (Component)

- 1) Apply the 720p Lattice (N0. 6) pattern signal to the Component IN port
- 2) Press the Source key to switch to "Component" mode
- 3) Enter Service mode
- 4) Select the "Calibration" menu
- 5) Select the "Comp Calibration" menu.
- 6) In "Comp Calibration Off" status, press the "▶" key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the "Comp Calibration" status from Failure to Success.

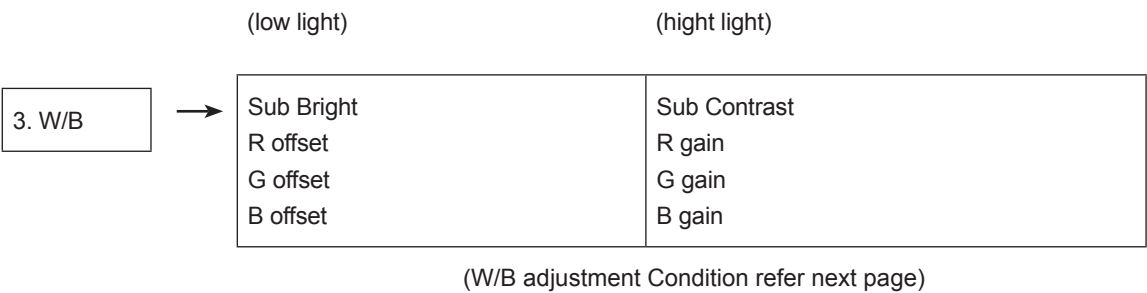
■ Method of Color Calibration (PC)

- 1) Apply the VESA XGA Lattice (N0. 21) pattern signal to the PC IN port
- 2) Press the Source key to switch to "PC" mode
- 3) Enter Service mode
- 4) Select the "Calibration" menu
- 5) Select the "PC Calibration" menu.
- 6) In "PC Calibration Off" status, press the "▶" key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the "PC Calibration" status from Failure to Success.

■ Method of Color Calibration (HDMI)

- 1) Apply the 720p Lattice (N0. 6) pattern signal to the HDMI IN port
- 2) Press the Source key to switch to "HDMI" mode
- 3) Enter Service mode
- 4) Select the "Calibration" menu
- 5) Select the "HDMI Calibration" menu.
- 6) In "HDMI Calibration Off" status, press the "▶" key to perform Calibration.
- 7) When Calibration is complete, it returns to the high-level menu.
- 8) You can see the change of the "HDMI Calibration" status from Failure to Success.

4-9-3 White Balance - Adjustment



4-10. White Ratio (Balance) Adjustment

- 1. You can adjust the white ratio in factory mode (1:Calibration, 3:White-Balance).
- 2. Since the adjustment value and the data value vary depending on the input source, you have to adjust these in AV, Component and HDMI modes.
- 3. The optimal values for each mode are configured by default. (Refer to Table 1, 2)
It varies with Panel's size and Specification.

- Equipment : CA210
- Pattern: MIK K-7256 #92 "Flat W/B Pattern" as standard
- Use other equipment only after comparing the result with that of the Master equipment.
- Set Aging time : 60min ↑



- Calibration and Manual setting for WB adjustment.

- HDMI : Calibration at #24 Chessboard Pattern → Manual adjustment #92 pattern (720p)
- COMP: Calibration at #24 Chessboard Pattern → Manual adjustment at #92 pattern (720p)
- AV: Calibration at #24 Chessboard Pattern → Manual adjustment at #92 pattern (NTSC)
- If finishing in HDMI mode, adjustment coordinate is almost same in AV/COMP mode.
- White Balance Manual Adjustment

P-Mode	Adjustment Coordinate				
		x	y	Y(Luminance)	T(K) + MPCD
AV (NTSC)	H/L	272	278	26" - Sub_CT:165 Fix 32" - Sub_CT:150 Fix	12,000 (+10)
	L/L	272	278	Sub_Br:128 Fix	12,000 (+10)
COMP (720P)	H/L	272	278	26" - Sub_CT:165 Fix 32" - Sub_CT:150 Fix	12,000 (+10)
	L/L	272	278	Sub_Br:128 Fix	12,000 (+10)
HDMI (720P)	H/L	272	278	26" - Sub_CT:165 Fix 32" - Sub_CT:150 Fix	12,000 (+10)
	L/L	272	278	Sub_Br:128 Fix	12,000 (+10)

- Adjustment Specification

White Balance : High light (± 2), Low light (± 3)

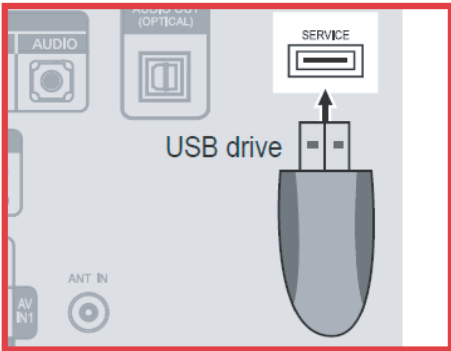
Luminance : High light (Don't care), Low light (± 0.2 Ft/L)

4-11. Servicing Information

4-11-1 USB Download Method

Samsung may offer upgrades for TV's firmware in the future. Upgrades will be possible by connecting a USB drive to the USB port located on your TV.

1. Insert a USB drive containing the firmware upgrade into the USB port on the rear of the TV.
2. Press the **MENU** button to display the menu.
Press the **▲** or **▼** button to select "Support", then press the **ENTER** button.
3. Press the **▲** or **▼** button to select "SW Upgrade", then press the **ENTER** button.
The message "Scanning for USB. It may take up to 30 seconds." is displayed.
4. The message "Upgrade version XXXX to version XXXX?"
The system will be reset after upgrade." is displayed.
Press the **◀** or **▶** to select the "OK", then press the **ENTER** button.

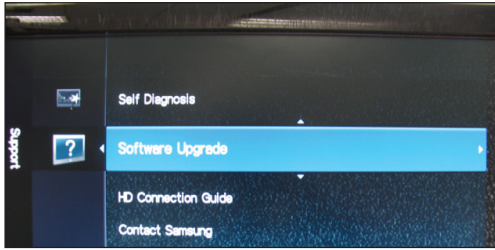


Please be careful to not disconnect the power or remove the USB drive while upgrades are being applied. The TV will turn off and turn on automatically after completing the firmware upgrade. Please check the firmware version after the upgrades are complete. When software is upgraded, video and audio settings you have made will return to their default (factory) settings. We recommend you write down your settings so that you can easily reset them after the upgrade.

4-12. Software Upgrade

4-12-1. Program Upgrading - MAIN

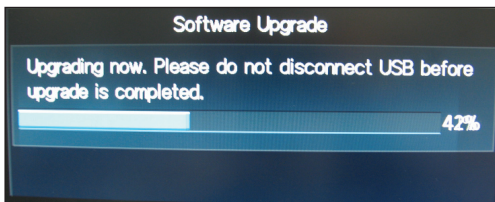
1. If you select MENU → Support → Software Upgrade on remote control, you'll see below picture



2. Press ENTER, then you'll see below picture. Select Yes



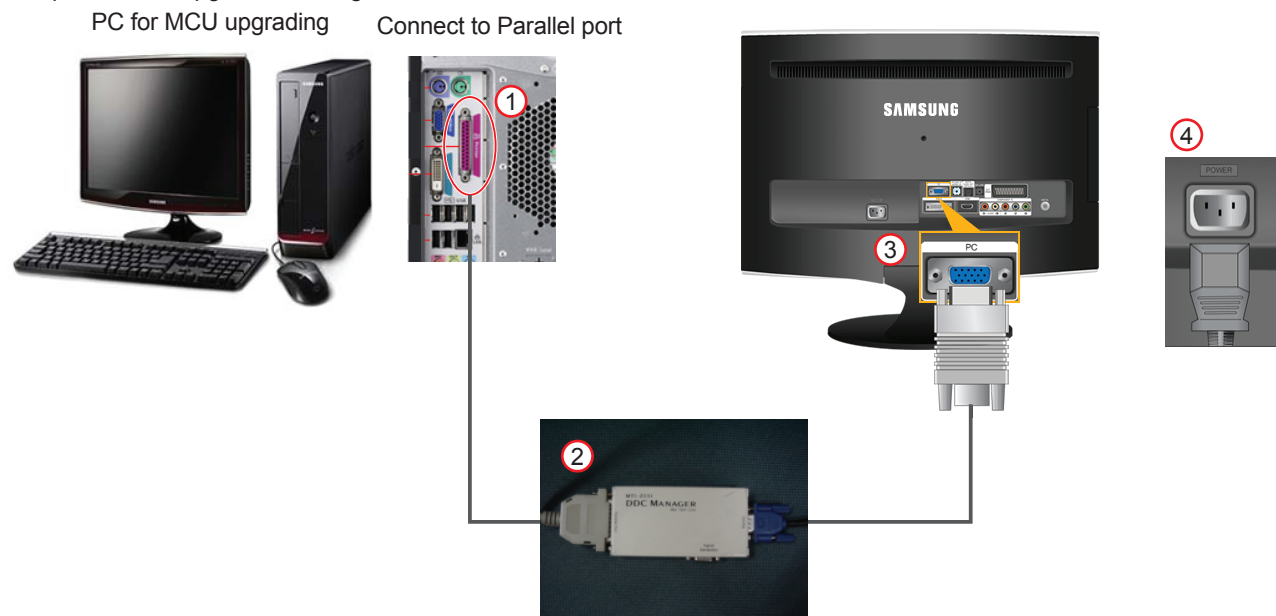
3. Micom program is now upgrading as below picture.
After Software Upgrade is process by 100%, the monitor is automatically turn off and on.



4-12-2. 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

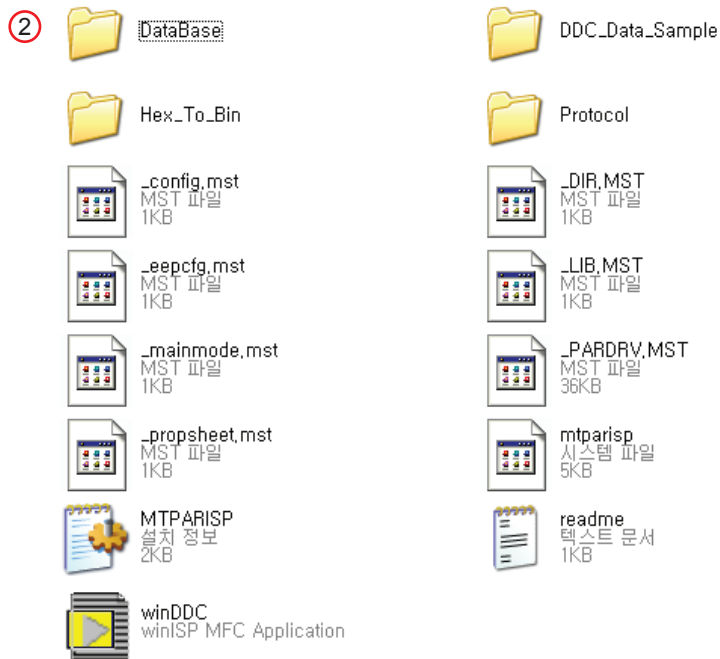
4. Troubleshooting

■ Main Mlcom Upgrade

1. Goto installed Program folder (winDDC_V2-39)



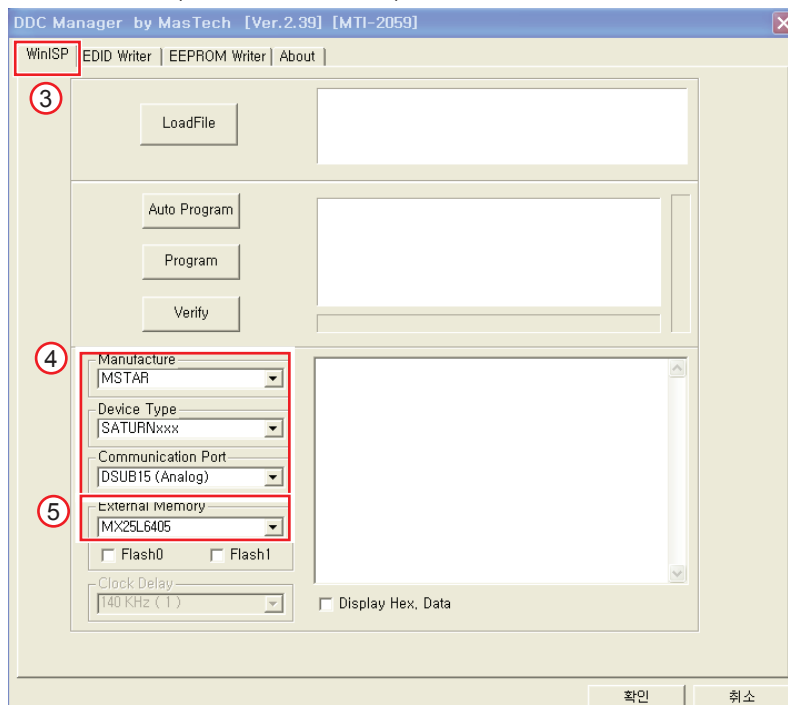
2. Run winDDC



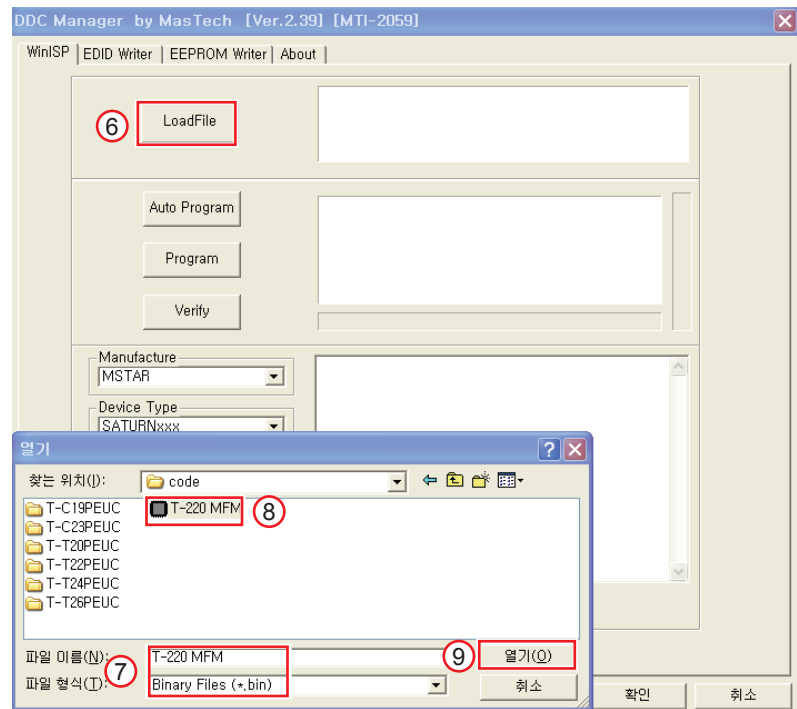
3. Select WinISP Menu

4. Make same setting like picture.

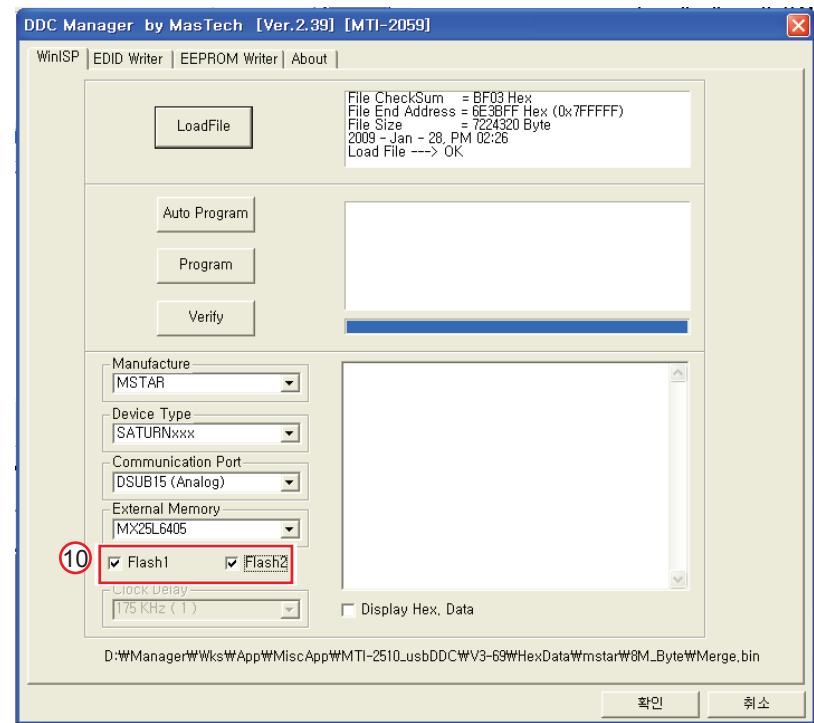
5. Choose Flash memory type
- ECOFIT-MFM(P2270HD/P2370HD):WT61P8



- 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

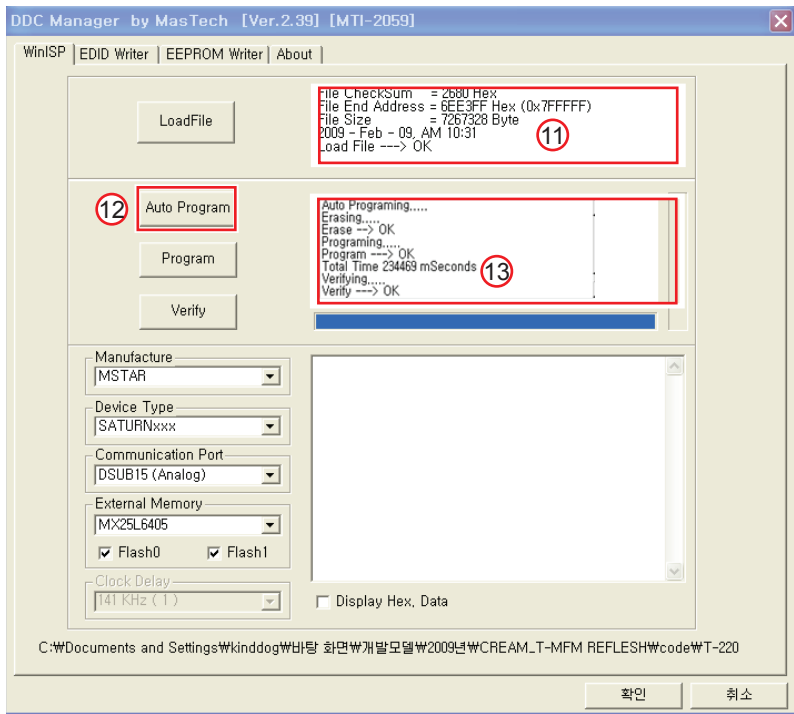


- 10. Select “Flash1” and “Flash2”



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

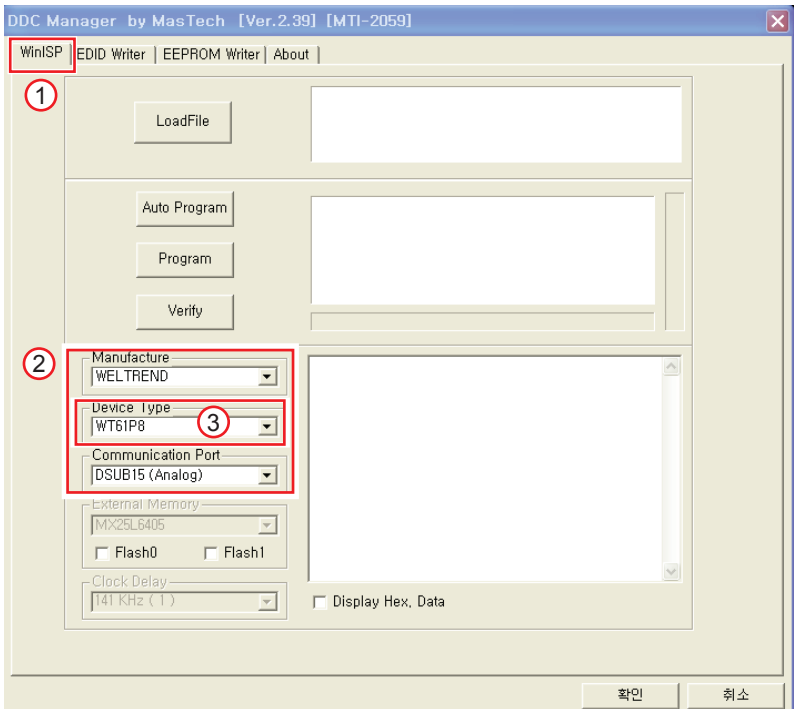


- 1. Factory remote control (SET POWER ON)
INFO -> Factory
- 2) Normal Remote control (SET POWER OFF)
INFO -> MENU
-> MUTE -> POWER

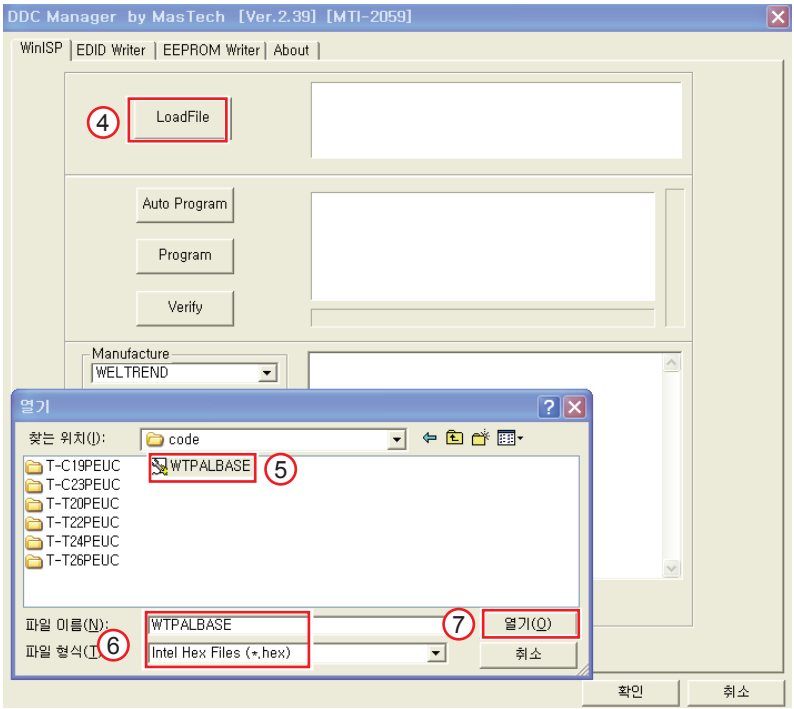
After Reset , Set Power off

■ Sub Micom Upgrade

- 1. Select WinISP Menu
- 2. Make same setting like picture.
- 3. Choose Device Type.
- ECOFIT-MFM(P2270HD/P2370HD):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

